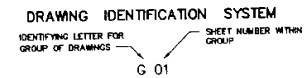
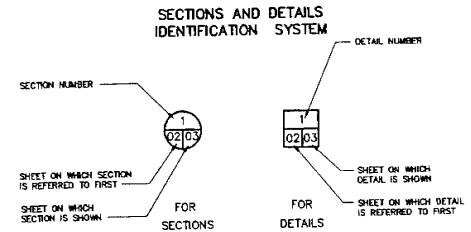


INDEX OF DRAWINGS

GENERAL	
G - 01	TITLE SHEET
G - 02	GENERAL - INDEX OF DRAWINGS
G - 03	GENERAL - LEGEND, SYMBOLS AND ABBREVIATIONS
CIVIL	
C - 01	CIVIL - EXISTING DEWATERING FACILITY SITE PLAN
C - 02	CIVIL - DEWATERING FACILITY SITE PLAN
C - 03	CIVIL - DEWATERING FACILITY PROFILE AND DETAILS
C - 04	CIVIL - ROADWORK SITE PLAN
C - 05	CIVIL - DETAILS
MECHANICAL	
M - 01	MECHANICAL - SLUDGE THICKENER BUILDING LOWER PLAN AND SECTION
M - 02	DEWATERING FACILITY - PLAN VIEW
M - 03	DEWATERING FACILITY - SECTION VIEW I
M - 04	DEWATERING FACILITY - SECTION VIEW II
M - 05	MECHANICAL - TYPICAL DETAILS SHEET I
M - 06	MECHANICAL - TYPICAL DETAILS SHEET II
M - 07	MECHANICAL - TYPICAL DETAILS SHEET III
ARCHITECTURAL	
A - 01	ARCHITECTURAL - SYMBOLS, ABBREVIATIONS, GENERAL NOTES AND CODE SUMMARY
A - 02	DEWATERING FACILITY - FLOOR PLAN
A - 03	DEWATERING FACILITY - ROOF PLAN
A - 04	DEWATERING FACILITY - ELEVATIONS
A - 05	DEWATERING FACILITY - SECTIONS I
A - 06	DEWATERING FACILITY - SECTIONS II
A - 07	ARCHITECTURAL - DOOR SCHEDULE, LOUVER SCHEDULE, SECTIONS AND DETAILS
A - 08	ARCHITECTURAL - TYPICAL DETAILS
STRUCTURAL	
S - 01	STRUCTURAL - NOTES, SYMBOLS, ABBREVIATIONS AND TABLES
S - 02	DEWATERING FACILITY - FOUNDATION PLAN
S - 03	DEWATERING FACILITY - FLOOR PLAN
S - 04	DEWATERING FACILITY - INTERMEDIATE PLAN
S - 05	DEWATERING FACILITY - ROOF PLAN
S - 06	DEWATERING FACILITY - ELEVATIONS
S - 07	DEWATERING FACILITY - PIER AND FOOTING DETAILS, SECTIONS AND FOOTING SCHEDULE
S - 08	DEWATERING FACILITY - SECTIONS
S - 09	STRUCTURAL - STAIR SECTIONS, POLYMER TOTE RACK PLANS AND SECTIONS
S - 10	STRUCTURAL - TYPICAL DETAILS I
S - 11	STRUCTURAL - TYPICAL DETAILS II
HVAC	
H - 01	HVAC - SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
H - 02	DEWATERING FACILITY - FLOOR PLAN
H - 03	DEWATERING FACILITY - INTERMEDIATE PLAN
H - 04	DEWATERING FACILITY - SECTIONS AND SCHEMATICS
H - 05	HVAC - DETAILS
H - 06	HVAC - SCHEDULES
PLUMBING	
P - 01	PLUMBING - SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
P - 02	DEWATERING FACILITY - PLAN VIEW
P - 03	PLUMBING - DETAILS
P - 04	PLUMBING - RISER DIAGRAMS
P - 05	PLUMBING - OVERALL SITE PLAN GAS PIPING SCHEMATIC

ELECTRICAL	
E - 01	ELECTRICAL - LEGEND, SYMBOLS AND ABBREVIATIONS
E - 02	ELECTRICAL - SITE PLAN
E - 03	DEWATERING FACILITY - ONE-LINE DIAGRAM AND MCC ELEVATION
E - 04	DEWATERING FACILITY - POWER PLAN
E - 05	DEWATERING FACILITY - LIGHTING PLAN
E - 06	SLUDGE THICKENER BUILDING - ONE-LINE DIAGRAM AND MCC ELEVATION
E - 07	SLUDGE THICKENER BUILDING - LOWER LEVEL POWER PLAN
E - 08	ELECTRICAL - CONTROL SCHEMATICS
E - 09	ELECTRICAL - RISER DIAGRAM AND LIGHTING PANEL SCHEDULES
E - 10	ELECTRICAL - DETAILS
INSTRUMENTATION AND CONTROLS	
I - 01	INSTRUMENTATION - LEGENDS, SYMBOLS, ABBREVIATIONS AND INSTALLATION DETAILS
I - 02	INSTRUMENTATION - CONTROL SYSTEM CONFIGURATION DIAGRAM
I - 03	INSTRUMENTATION - SLUDGE HANDLING PROCESS AND INSTRUMENTATION DIAGRAM
I - 04	INSTRUMENTATION - CENTRIFUGE PROCESS AND INSTRUMENTATION DIAGRAM
I - 05	INSTRUMENTATION - CONTROL PANEL LAYOUTS AND PARTIAL WIRING DIAGRAMS



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

REVISIONS			
NO.	BY	DATE	REVISION
03	PAK		
04	PJW		
05	TJB		

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

GENERAL
INDEX
OF DRAWINGS

MALCOLM
PIRNIE



CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
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
	CLOSE VALVE
	PLUG VALVE
	PRESSURE RELIEF VALVE VACUUM RELIEF VALVE
	PRESSURE REGULATING VALVE
	PRESSURE REDUCING VALVE
	SOLDERED 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:
 1. 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 15.04.0. TYPICAL PIPE SUPPORT DETAILS ARE SHOWN ON SHEET M-8.
 2. IN GENERAL, PIPE SUPPORTS ARE SHOWN IN PLAN ONLY.

SEDIMENT AND EROSION CONTROL LEGEND AND SYMBOLS

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

EXISTING	PROPOSED	CONTOURS
		702
		PROPERTY LINE
		RIGHT-OF-WAY
		EASEMENT
		CENTERLINE
		STRUCTURE
		LIMITS OF CONSTRUCTION
		DITCH
		EDGE OF WATER
		FENCE
		GRADING SLOPE LINE
		DUMPED ROCK FILL/RIP RAP
		SPOT ELEVATIONS
		TREE
		BUSHES/TREE LINE
		EDGE OF ASPHALT PAVEMENT
		GUARD RAIL
		OVERHEAD ELECTRICAL LINE
		UNDERGROUND ELECTRICAL LINE
		TELEPHONE LINE
		WATER LINE
		GAS LINE
		SANITARY SEWER (PLAN AND PROFILE)
		SITE PIPING 12" DIA.
		SITE PIPING 14" DIA. AND LARGER
		POWER POLE
		TELEPHONE POLE
		STREET LIGHT
		CUY WIRE
		SIGN
		MAIL BOX
		UTILITY BOX
		TELEPHONE PEDESTAL
		ELECTRIC PEDESTAL
		WATER METER
		WETLANDS
		MANHOLE
		BURIED VALVE
		CATCH BASIN
		YARD HYDRANT
		BENCHMARK
		TEST BORING

GENERAL DESIGNATIONS

A.B.	ANCHOR BOLT
ALUM.	ALUMINUM
ADD'L.	ADDITIONAL
ADJ.	ADJUSTABLE
BL.	BASILINE
BRG.	BEARING
BTUM.	BITUMINOUS
BOT.	BOTTOM
BF.	BUNG FLANGE
BUDG.	BUILDING
BLM.	BEAM
CMP.	CORRUGATED METAL PIPE
CL.	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
E.A.	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
FSH.	FOUNDATION
FF.	FAR FACE
FL.	FLOW LINE
FLEX.	FLEXIBLE
FLG.	FLANGE
FLR.	FLOOR
FL.	FLOWMETER
FT.	FEET
FIG.	FIGURING
G.	GAS
GA.	GAGE
GALV.	GALVANIZED
GE.	GROOVED END JOINT
GRD.	GROUND
GRAT.	GRATING
HP.	HIGH POINT
HORIZ.	HORIZONTAL
ID.	INSIDE DIAMETER

ABBREVIATIONS

IF.	INSIDE FACE
INV.	INVERT ELEVATION
INL.	INCHES
INFL.	INFLUENT
JST.	JOIST
JE.	JOINT
K.	KIP (1000 POUNDS)
KSF.	KIPS PER SQUARE FOOT
LAT.	LATERAL
LC.	LONG
LLH.	LONG LEG HORIZONTAL
LLV.	LONG LEG VERTICAL
MAS.	MASONRY
MAX.	MAXIMUM
MFR.	MANUFACTURER
MH.	MANHOLE
MNM.	MINIMUM
MJ.	MECHANICAL JOINT
NF.	NEAR FACE
NC.	NORMALLY CLOSED
NO.	NORMALLY OPEN
NO.	NUMBER
NTS.	NOT TO SCALE
O.	OUTFLOW
OD.	OUTER DIAMETER
OF.	OUTSIDE FACE
OPNG.	OPENING
OPP.	OPPOSITE
PC.	POINT OF CURVATURE
PE.	PLAIN END
PI.	POINT OF INTERSECTION
PL.	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.	RIBBET 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
UNL.	UNLESS OTHERWISE NOTED
VERT.	VERTICAL
W/.	WITH
WFF.	WELDED WIRE FABRIC

VALVE DESIGNATIONS

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

PROCESS PIPING DESIGNATIONS

AIR.	COMPRESSED AIR
ODM.	ODOR CONTROL CHEMICAL
D.	DRAIN
FA.	FRESH AIR (ODOR CONTROL)
NPW.	NON-POTABLE WATER
PLT.	POLYMER PIPING
PW.	POTABLE WATER
SAN.	SANITARY
STM.	STORM WATER
WAS.	WASTE ACTIVATED SLUDGE
V.	VENT

PROCESS EQUIPMENT DESIGNATIONS

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

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

GENERAL LEGEND, SYMBOLS AND ABBREVIATIONS

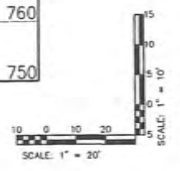
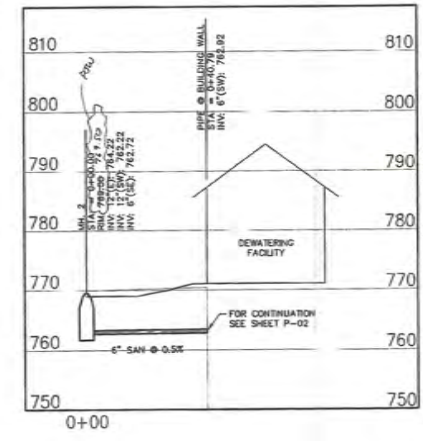
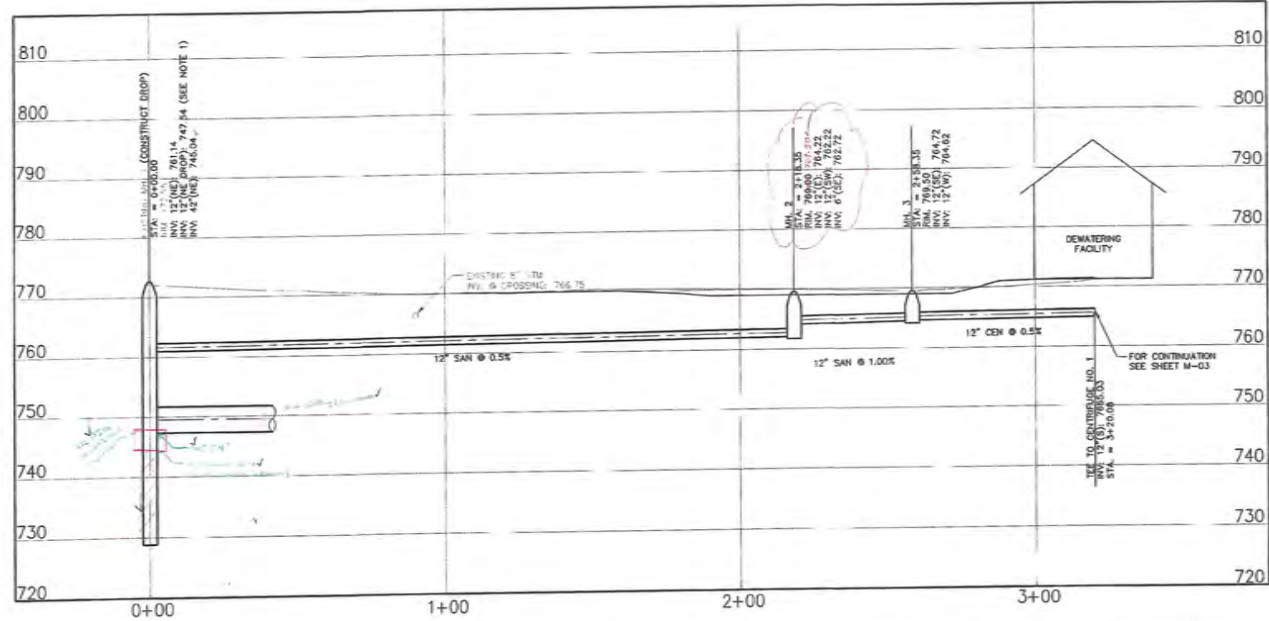
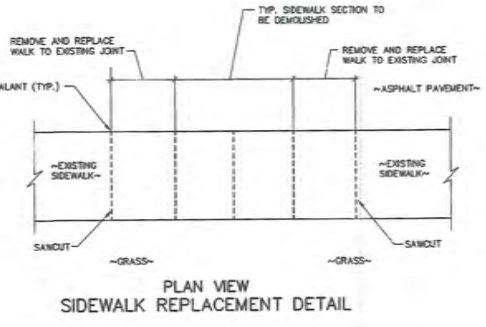
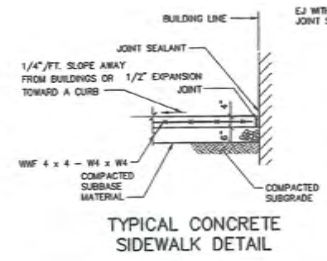
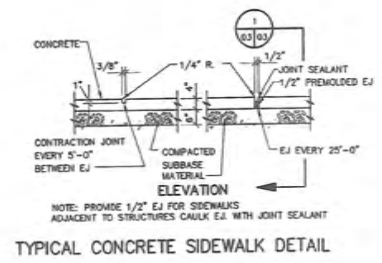
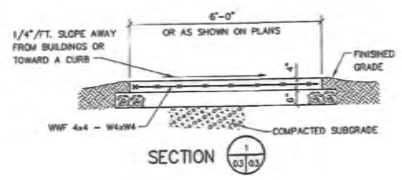


NO.	BY	DATE	REVISION
1	PAK	08/14/08	REVISED PER ADDENDUM NO. 1

DES.	PAK
DWN.	PJW
OPD.	TJB

CTC
 VERTICAL DATUM 1925
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 SHEET 03 OF 03
 CAD REF. NO. 3338005_003

MALCOLM PIRNIE



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

MALCOLM PIRNIE



NO.	BY	DATE	REVISIONS

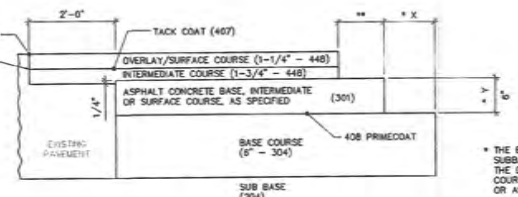
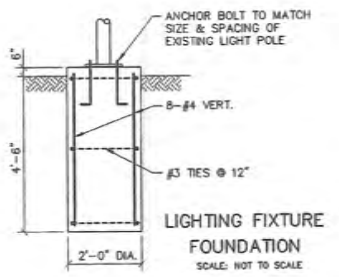
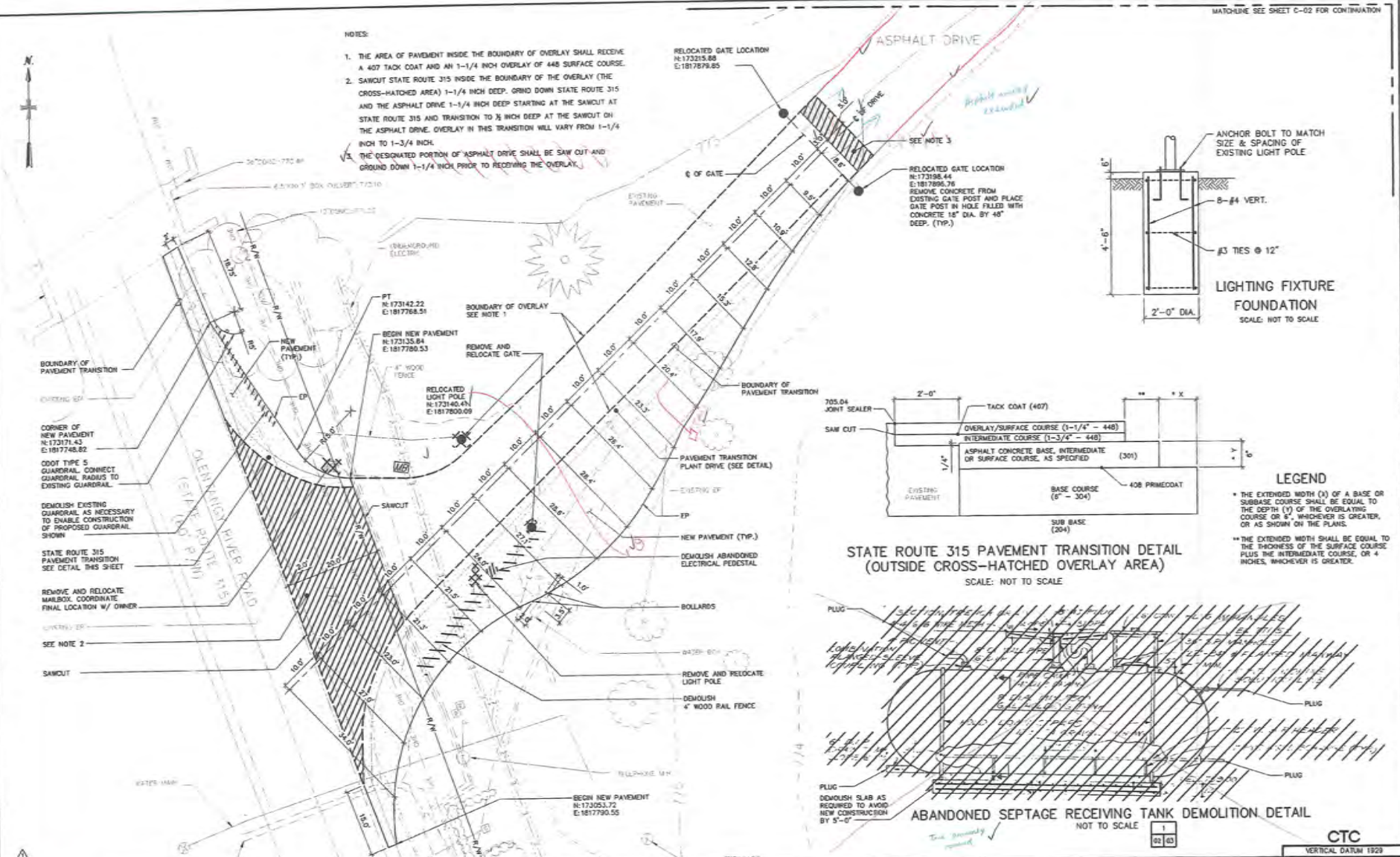
DES. PAK
DWG. P.W.
CIV. T.J.B.

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

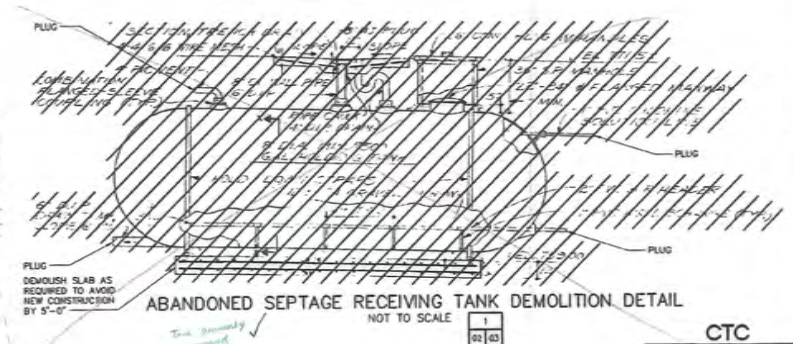
CIVIL
DEWATERING FACILITY PROFILE AND DETAILS
SCALE: AS NOTED

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
C SHEET 03 OF 05
CAD REF. NO. 3338005_305

- 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 3/8 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.
 3. THE DESIGNATED PORTION OF ASPHALT DRIVE SHALL BE SAW CUT AND GROUND DOWN 1-1/4 INCH PRIOR TO RECEIVING THE OVERLAY.



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



ABANDONED SEPTAGE RECEIVING TANK DEMOLITION DETAIL
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 8", 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.

MALCOLM PIRNIE

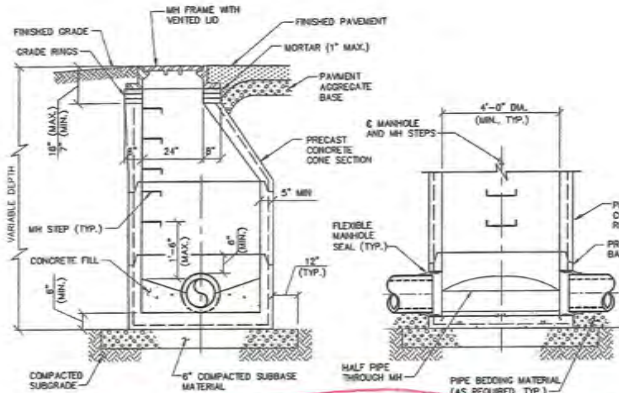


NO.	BY	DATE	REVISIONS
1	PAK	04/08/00	SHEET REVISED PER ADDENDUM NO. 2

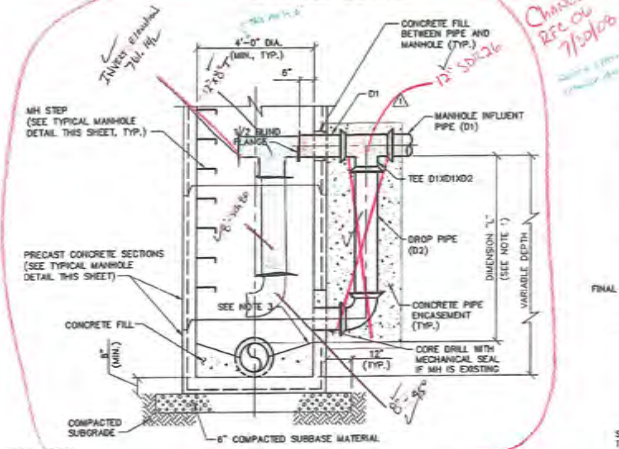
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

CIVIL
ROADWORK SITE PLAN
SCALE: 1:10

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
C SHEET 04 OF 05
CAD REF. NO. 3338005_302



MANHOLE DETAIL

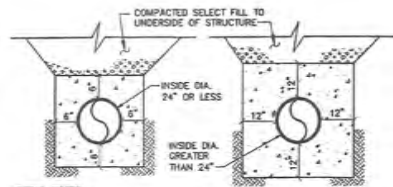


DROP MANHOLE DETAIL

- 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.

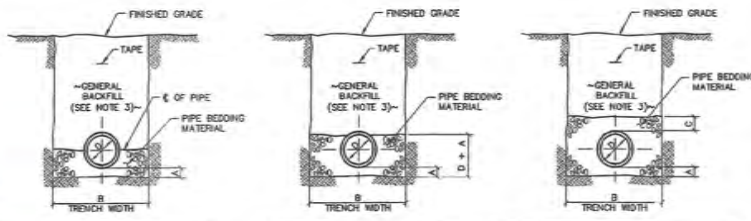
DROP PIPE DIMENSION SCHEDULE (SEE NOTE 3)

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



PIPE CONCRETE ENCASEMENT DETAILS

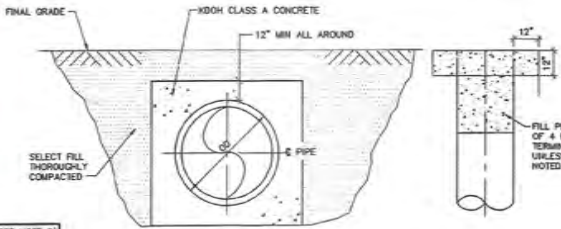
- DETAIL NOTES:
1. PROVIDE CONCRETE ENCASEMENT AROUND PIPES UNDER STRUCTURES TO 5'-0" BEYOND FOUNDATION LIMITS.
 2. CONCRETE SHALL BE 3000 PSI MINIMUM.
 3. CONCRETE PIPE ENCASEMENT SHALL BE CAST SEPARATELY FROM THE CONCRETE FLOOR SLAB. UNDER NO CIRCUMSTANCES SHALL CONCRETE PIPE ENCASEMENT BE CAST MONOLITHICALLY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



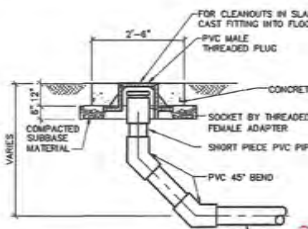
TYPE 1				TYPE 2				TYPE 3			
D	A	B	TRENCH WIDTH	D	A	B	TRENCH WIDTH	D	A	B	C
4" - 24"	6"	00 + 24"		1" - 4"	6"	00 + 12"		LESS THAN 18"	6"	00 + 24"	6"
27" - 84"	6"	00 + 30"		6" - 36"	6"	00 + 24"		18" - 84"	6"	00 + 36"	12"

- 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.

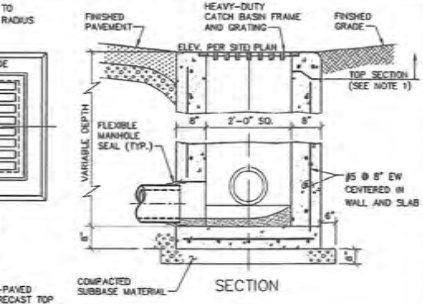
TYPE 1 BEDDING DETAIL TYPE 2 BEDDING DETAIL TYPE 3 BEDDING DETAIL



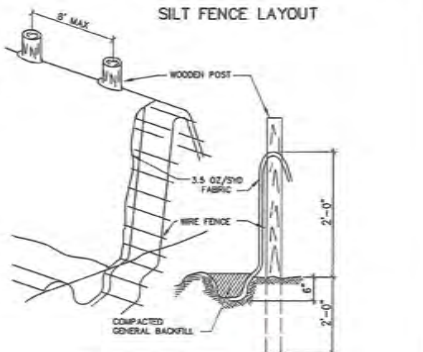
PIPE ABANDONMENT DETAIL
SCALE: NOT TO SCALE



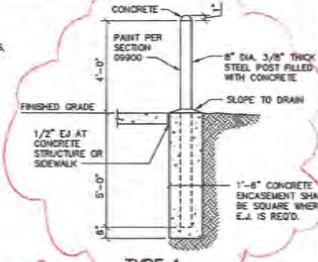
TYPICAL CLEANOUT DETAIL
AT SUSPENDED SLABS SUPPORT PIPING WITH HANGER TYPE SUPPORTS PER SPECIFICATIONS.



CATCH BASIN DETAIL



SILT FENCE DETAIL



BOLLARD DETAILS
DETAIL NOTES:
1. NOT DIP GALVANIZE AFTER FABRICATION.
2. ADD (4) 1/4" DIA. WEEP HOLES IN BASE EVENLY SPACED.

MALCOLM PIRNIE



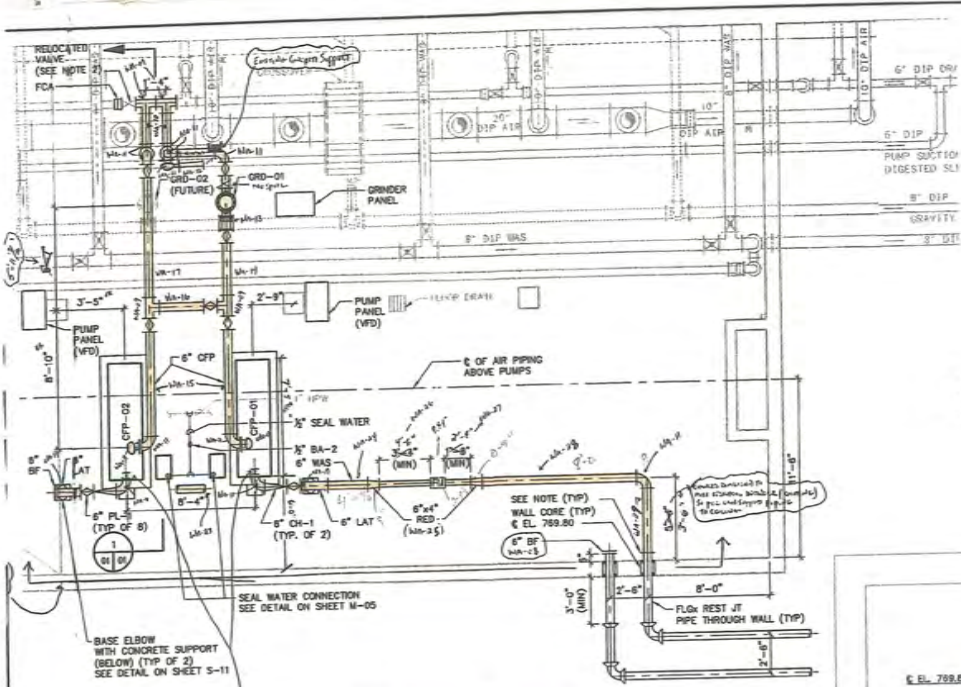
REVISIONS

NO.	BY	DATE	REVISION
1	PAK	06/14/08	REVISED PER ADDENDUM NO. 7
2	PAK	06/14/08	REVISED PER ADDENDUM NO. 7

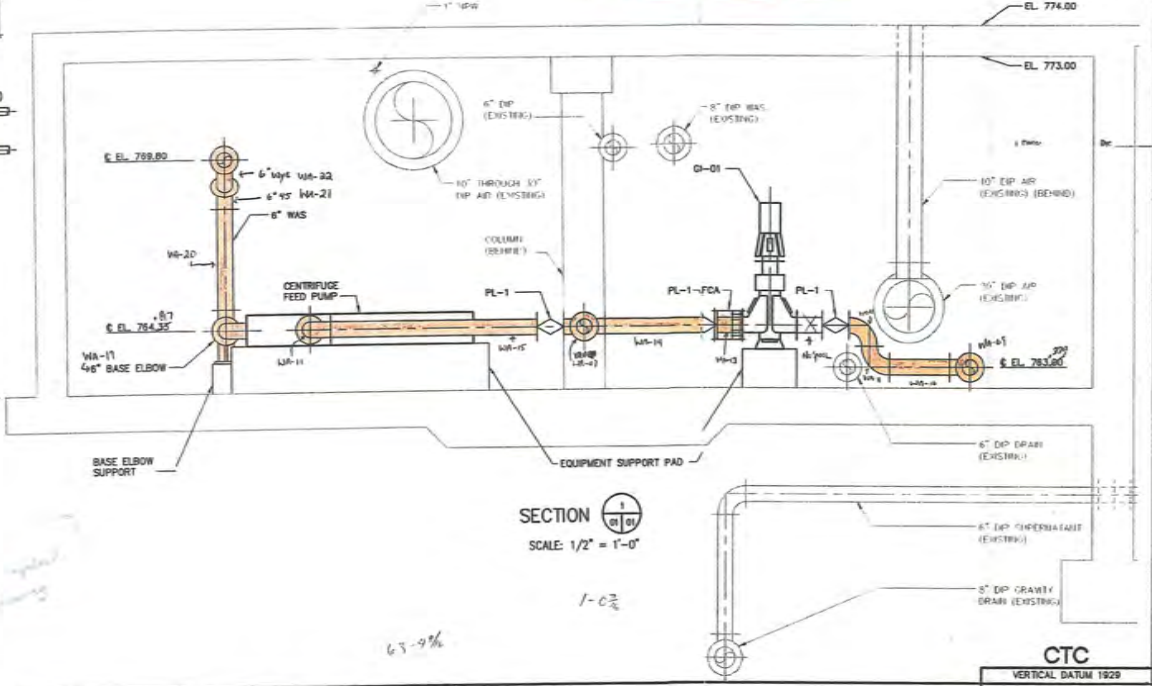
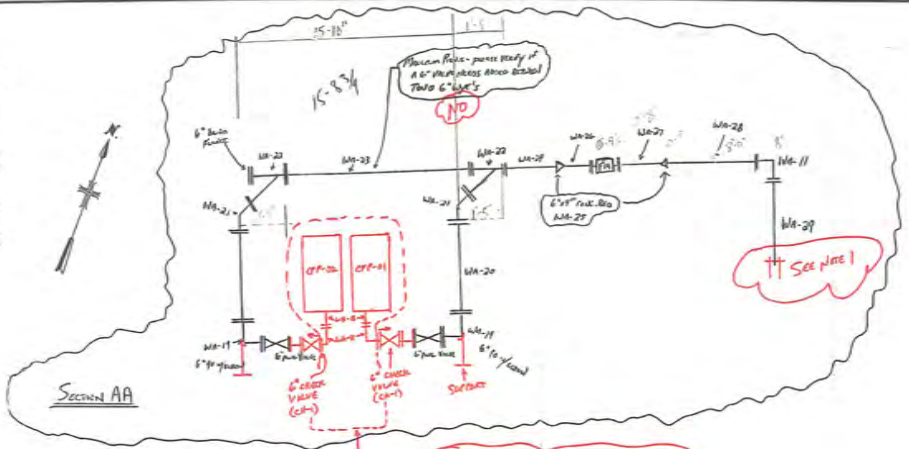
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS

CIVIL
DETAILS
SCALE AS SHOWN

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
C SHEET 05 of 05
CAD REF. NO. 3338005_304



SLUDGE THICKENER BUILDING
LOWER PLAN
SCALE: 1/2" = 1'-0"



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

- NOTE:
1. RESTRAIN PIPE WITH 4 EVENLY SPACED OUSSET PLATES WITH STAINLESS STEEL ALL THREAD RODS EACH EPOXY ANCHORED INTO WALL WITH 7" EMBEDMENT MINIMUM.
 2. REMOVE EXISTING 8 INCH PLUG VALVE AND CUT AND REMOVE EXISTING 8 INCH DIP FOR INSTALLATION OF NEW TEES, FCA, AND REINSTALLATION OF EXISTING PLUG VALVE.

MALCOLM
PIRNIE

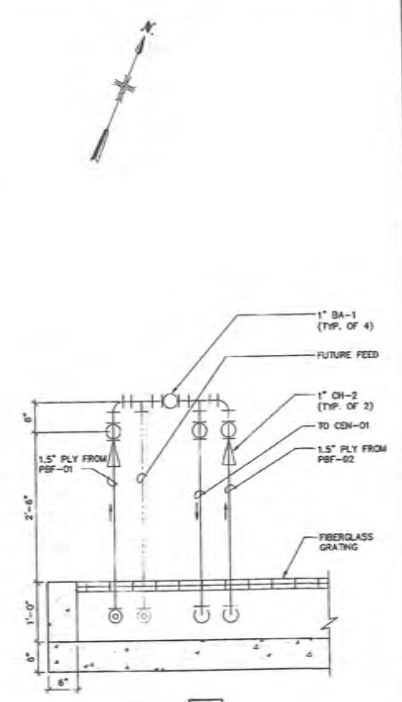
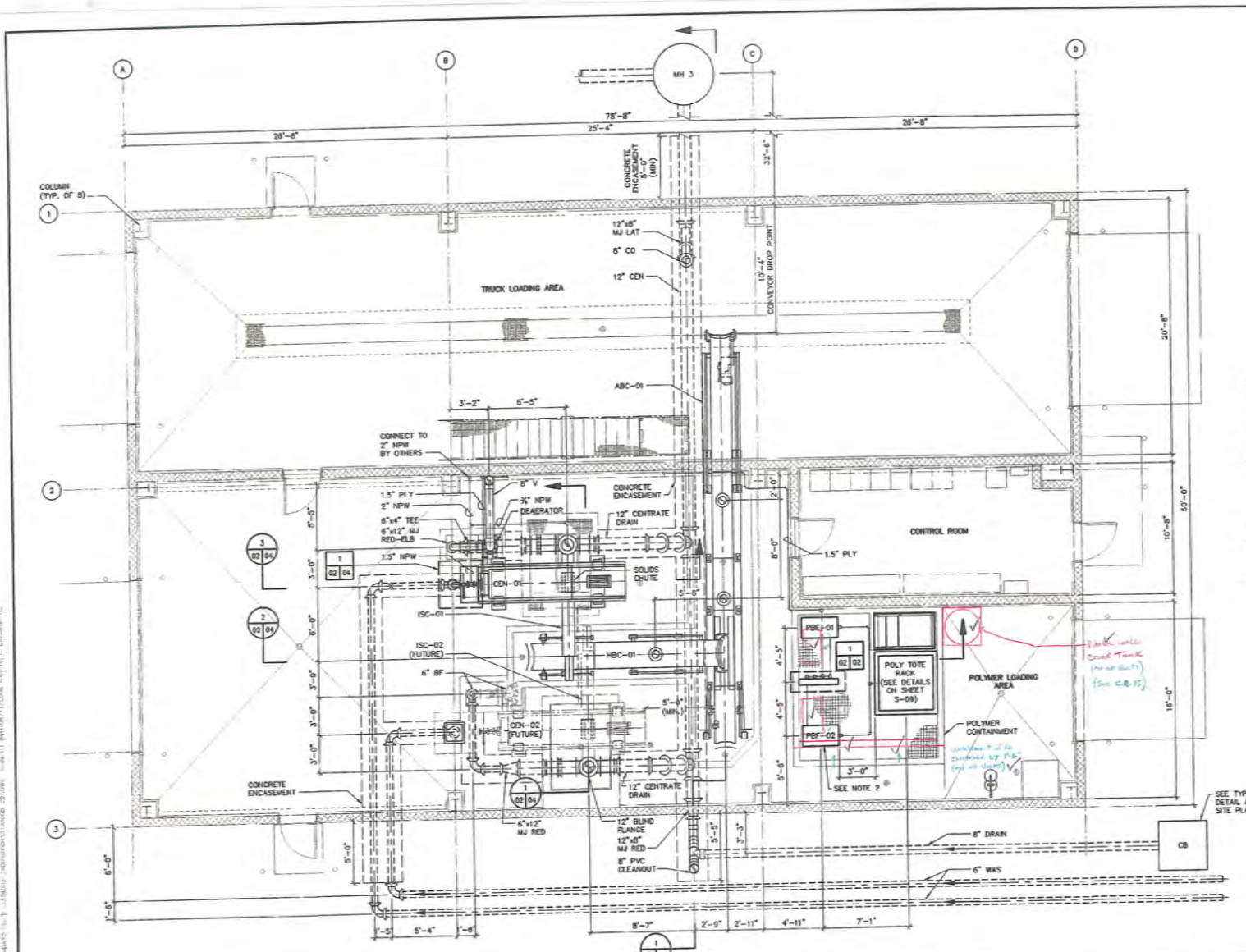


NO.	BY	DATE	REVISION
001	PAK		
002	PJW		
003	TJB		

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

MECHANICAL
SLUDGE THICKENER BUILDING
LOWER PLAN AND SECTION
SCALEAS NOTED

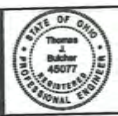
CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008 MALCOLM PIRNIE, INC.
DATE: JUNE 2008
M SHEET 01 OF 07
CAD REF. NO. 3338005_200



DETAIL 1
SCALE: 1" = 1'-0"

- NOTE:
1. CONCRETE ENCASE ALL PIPES BELOW SLABS PER DETAILS.
 2. CONNECT 1-1/4" PW TO EACH PBF, FOR CONTINUATION OF PW SEE SHEETS P-02 AND P-04.

MALCOLM PIRNIE

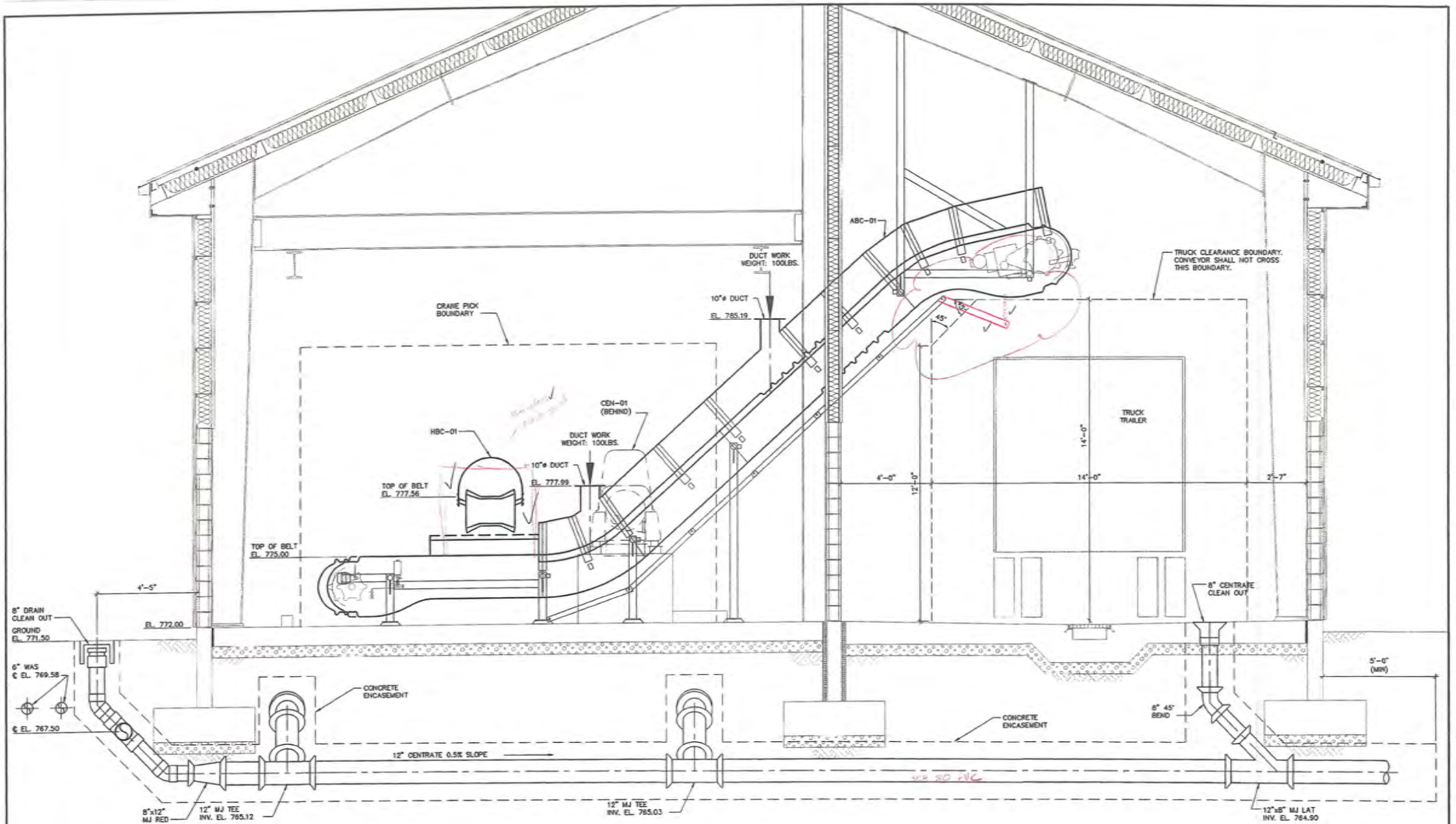


REV	BY	DATE	REVISIONS

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

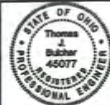
**MECHANICAL
DEWATERING FACILITY
PLAN VIEW**
SCALE: 1/4" = 1'-0"

CTC
VERTICAL DATUM 1929
DESIGN BY
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
M SHEET 02 OF 07
CAD REF. NO. 3338005_201



SECTION 1
02 93
SCALE: 1/2" = 1'-0"

**MALCOLM
PIRNIE**



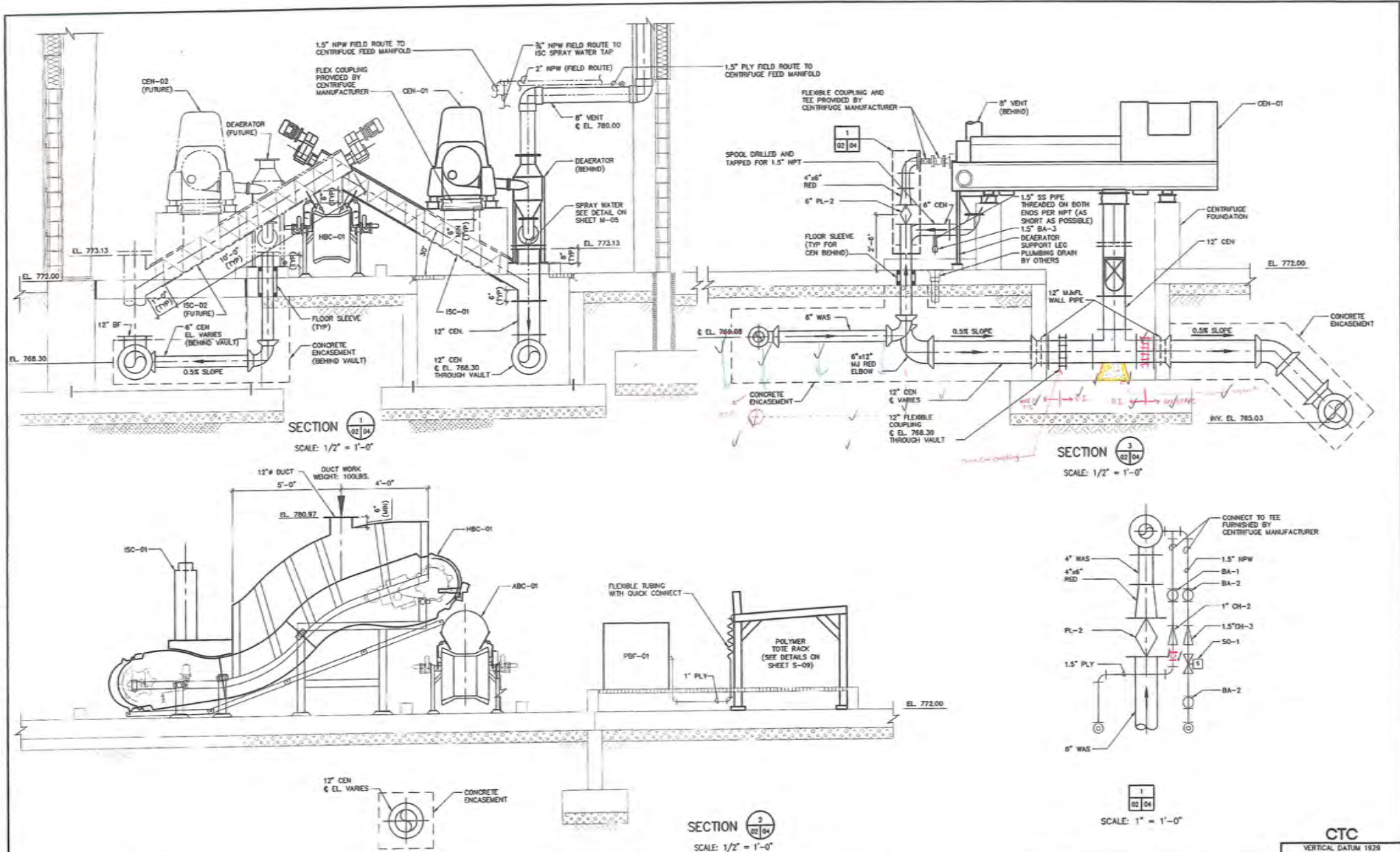
NO.	BY	DATE	REVISIONS	REASON

DES PAK
DW P/W
DD TJB

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

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

CTC
VERTICAL DATUM 1929
Copyright © 2008
MALCOLM PIRNIE, INC.
DATE JUNE 2008
M SHEET 03 OF 07
CAD REF. NO. 3338005_202



MALCOLM PIRNIE



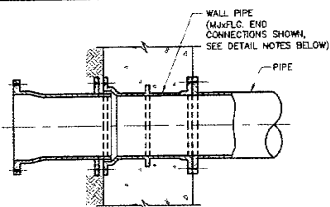
NO.	BY	DATE	REVISIONS	REMARKS

DESIGNED BY: PAK
 DRAWN BY: P.J.W.
 CHECKED BY: T.B.

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

MECHANICAL DEWATERING FACILITY SECTION VIEW II
 SCALE: AS NOTED

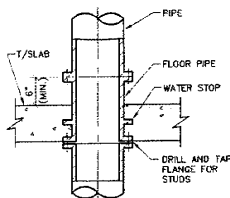
CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2009
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 M SHEET 04 of 07
 CAD REF. NO. 3338005_209



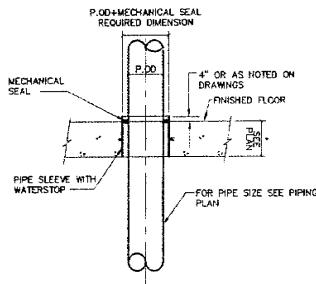
DETAIL NOTES:

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.

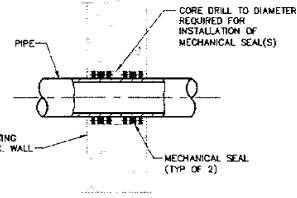
TYPICAL WALL PIPE DETAIL



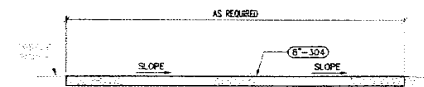
TYPICAL FLOOR PIPE DETAIL



TYPICAL FLOOR SLEEVE THROUGH NEW FLOOR



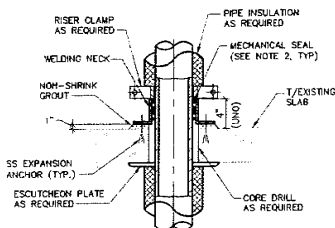
TYPICAL WALL CORE DETAIL



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.

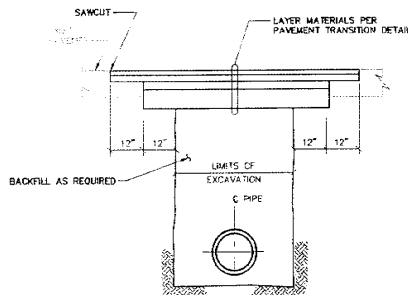
TEMPORARY GRAVEL LAYDOWN AND ENGINEER'S PARKING DETAIL



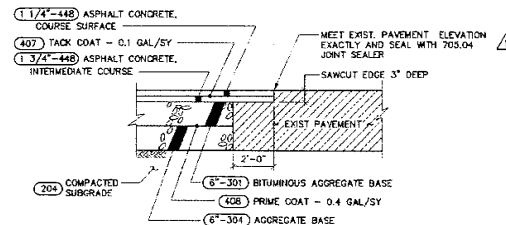
DETAIL NOTES:

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.)



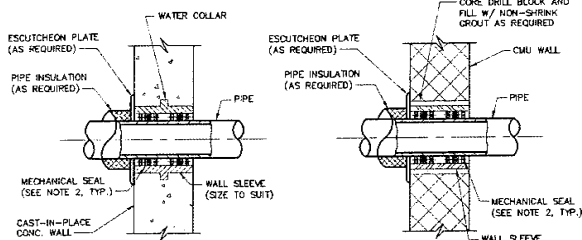
△ BITUMINOUS PAVEMENT REPLACEMENT DETAIL - PLANT DRIVES



DETAIL NOTES:

1. PROVIDE PAVEMENT TRANSITION AT ALL LOCATIONS WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT.

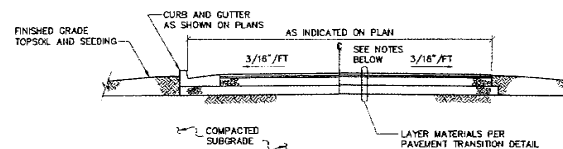
△ PAVEMENT TRANSITION DETAIL - PLANT DRIVES



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

MALCOLM PIRNIE



NO.	BY	DATE	REVISIONS
1	PAK	05/14/08	REVISED PER ADDENDUM NO.1

DES	PAK
DWG	PJW
CHK	TJB

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

MECHANICAL
TYPICAL DETAILS
SHEET II
SCALE: AS NOTED

CTC	
VERTICAL DATUM 1929	
COPYRIGHT © 2008 MALCOLM PIRNIE, INC.	
DATE	JUNE 2008
M SHEET	06 of 07
CAD REF. NO.	3338005_206

ABBREVIATIONS

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

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

GENERAL NOTES:

- THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS PART OF A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. 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.

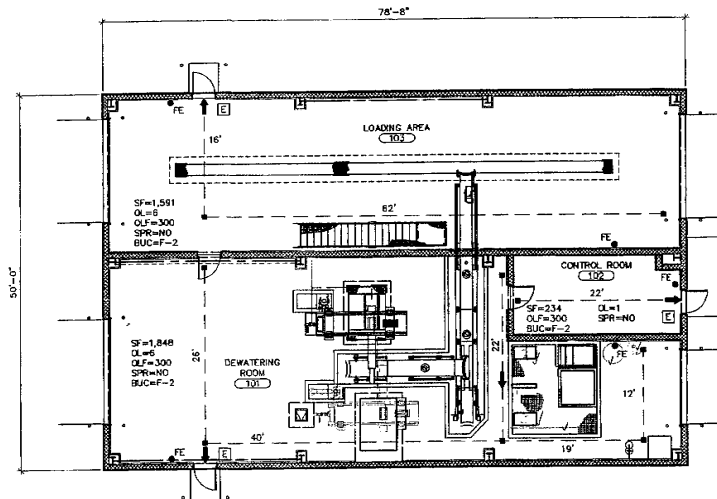
BUILDING CODE SUMMARY DEWATERING FACILITY

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: B-B: NON-COMBUSTIBLE 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. - SPRINKLER
- BUC - BUILDING USE CLASSIFICATION
- INDICATES EXIT LOCATION
- FE = 10 lb. ABC TYPE FIRE EXTINGUISHER, TO BE MOUNTED WITHIN 75'-0" OF TRAVEL IN ALL DIRECTIONS TO ALL POINTS OF THE BUILDING.



MALCOLM PIRNIE

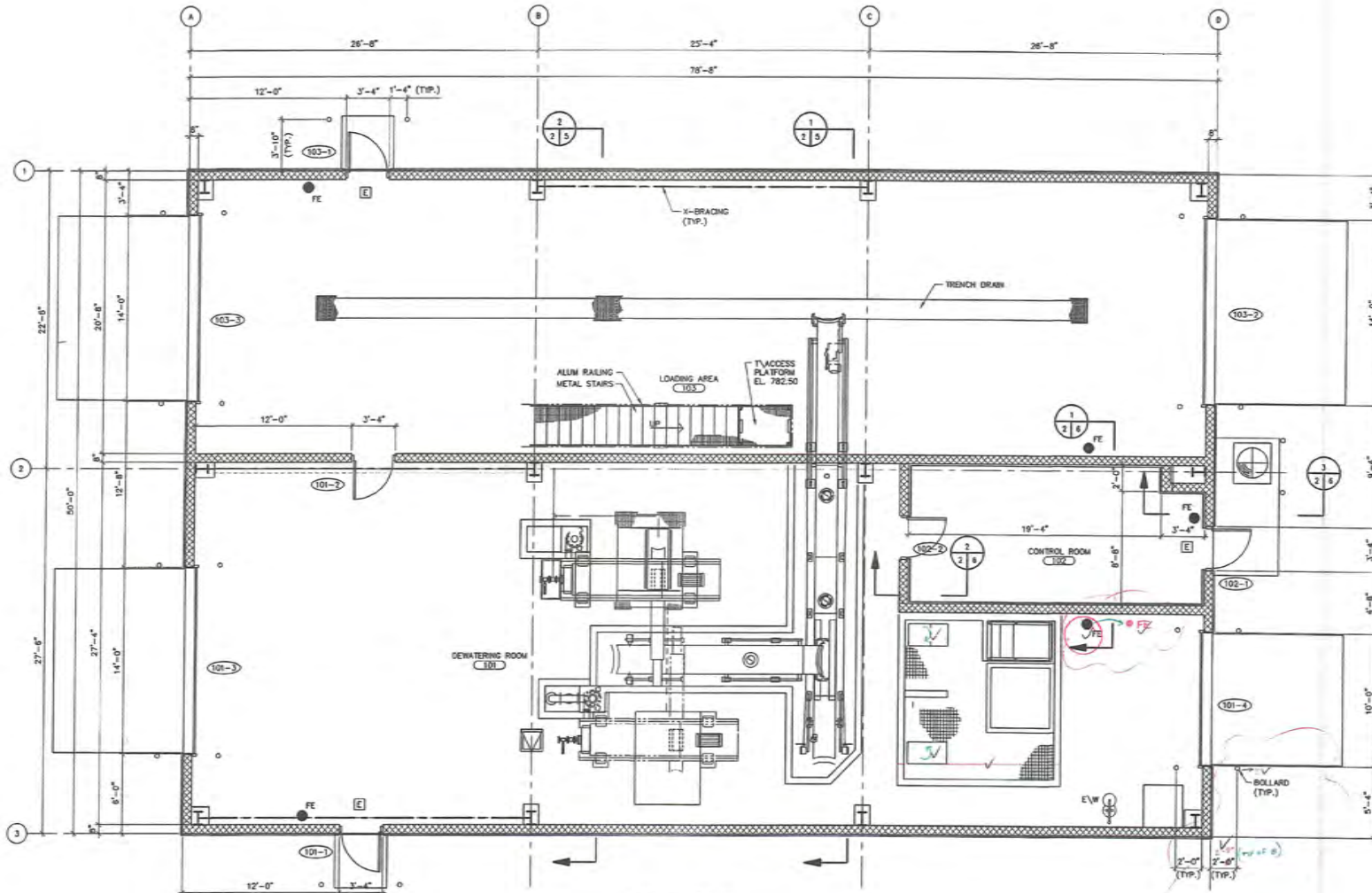


REV.	BY	DATE	REVISIONS
001	SRZ		
002	JLA		
003	FJB		

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

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

CTC
VERTICAL DATUM 1929
copyright © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
A SHEET 01 OF 08
CAD REF. NO. 3338005_226



FLOOR PLAN

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

MALCOLM PIRNIE



NO.	BY	DATE	REVISIONS

DES SRZ
 DWG JLA
 CDD FJB

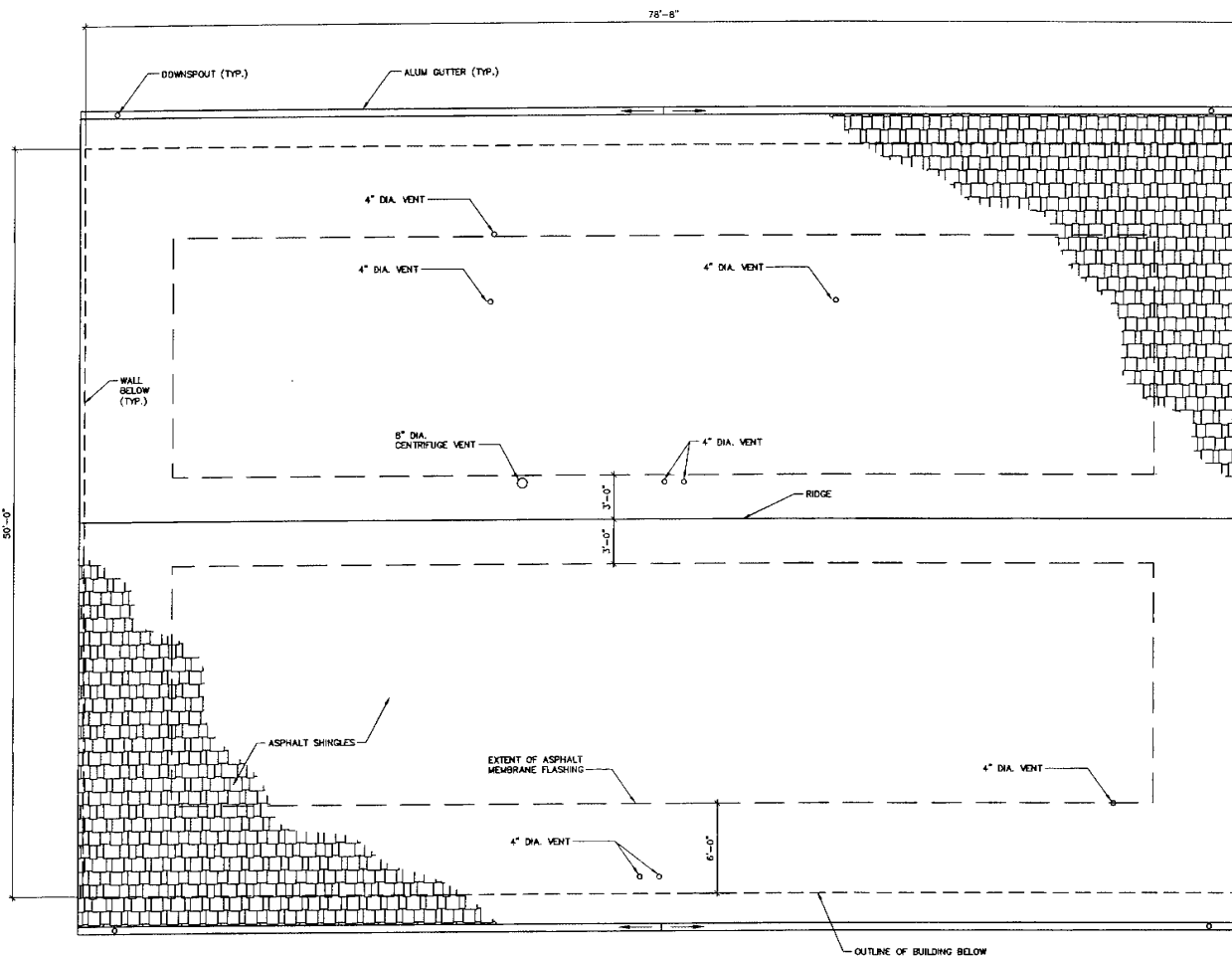
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
 FACILITY IMPROVEMENTS**

DEWATERING FACILITY
FLOOR PLAN

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

CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 A SHEET 02 OF 08
 CAD REF. NO. 3338005_227

C:\Users\jla\Documents\Projects\3338005\DWG\3338005_227.dwg 11/11/2008 11:11:11 AM 11/11/2008 11:11:11 AM 11/11/2008 11:11:11 AM 11/11/2008 11:11:11 AM



ROOF PLAN

**MALCOLM
PIRNIE**



REVISIONS		
NO.	BY	DATE

DES SRZ
 DWG JLA
 CDD FJR

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

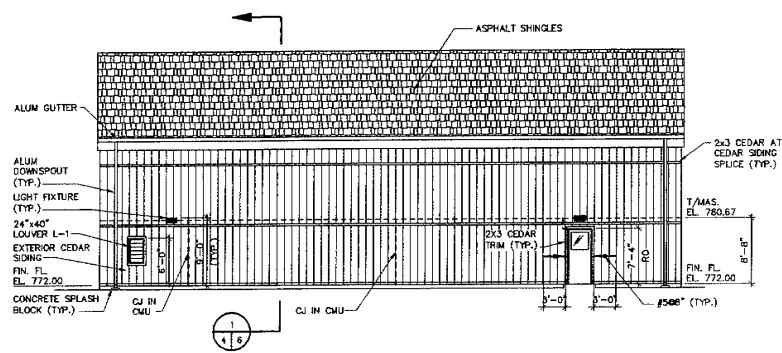
DEWATERING FACILITY
ROOF PLAN

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

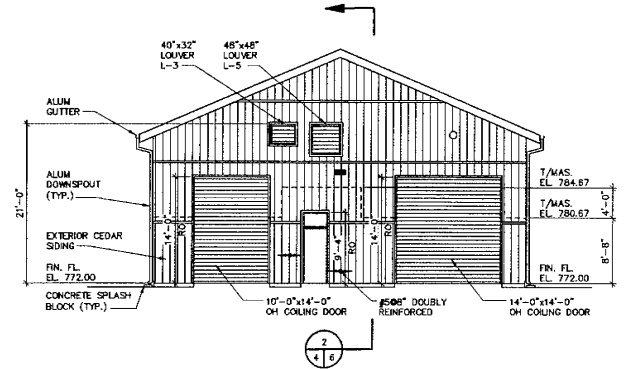
CTC

VERTICAL DATUM 1929
DESIGNED BY MALCOLM PIRNIE, INC.
DATE JUNE 2008
A SHEET 03 OF 08
CAD REF. NO. 333B005_228

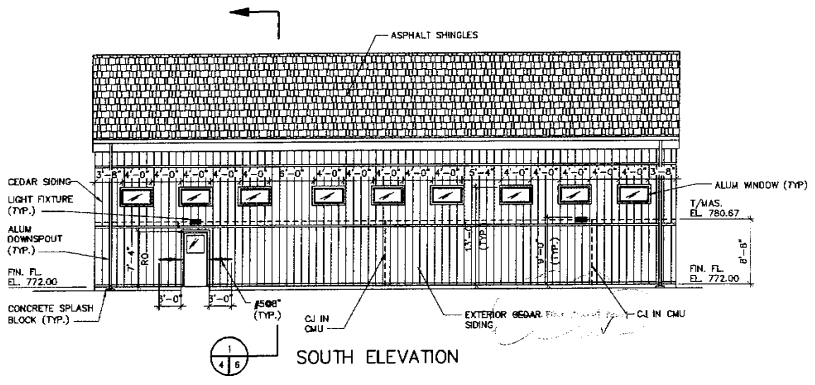
PROJECT: 333B005 - Dewatering Facility Improvements, 1400 South State Street, Delaware County, Ohio 43015
 DRAWING NO.: 333B005-08 - Roof Plan
 DATE: 06/11/08
 DESIGNED BY: JLA
 CHECKED BY: SRZ
 DRAWN BY: FJR
 DATE: 06/11/08



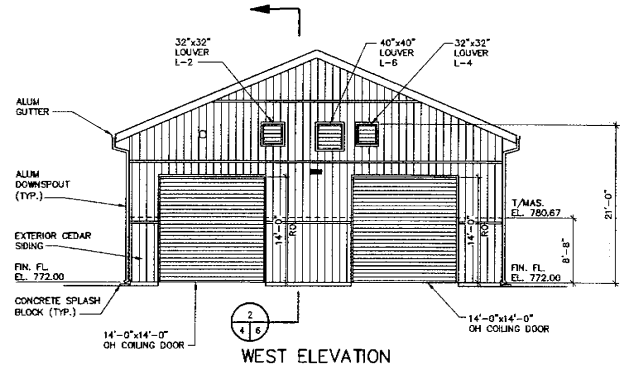
NORTH ELEVATION



EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION

MALCOLM PIRNIE ARCHITECTS, INC. 1100 WEST 14TH AVENUE, SUITE 100, DENVER, CO 80202-3100

MALCOLM PIRNIE



NO.	BY	DATE	REVISIONS	REVISIONS

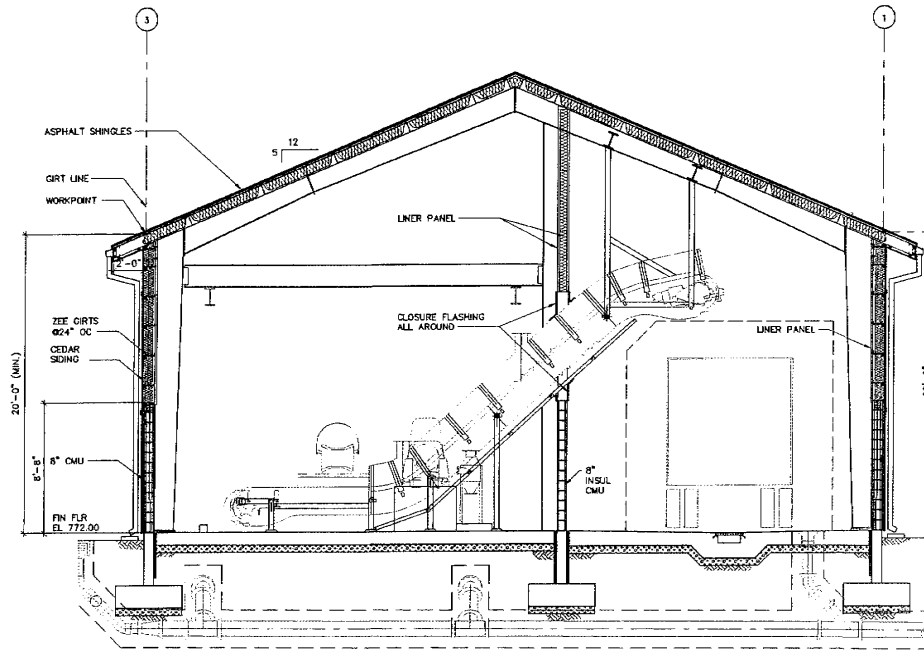
DES. SRZ
 DWG. JLA
 CDD. FJB

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

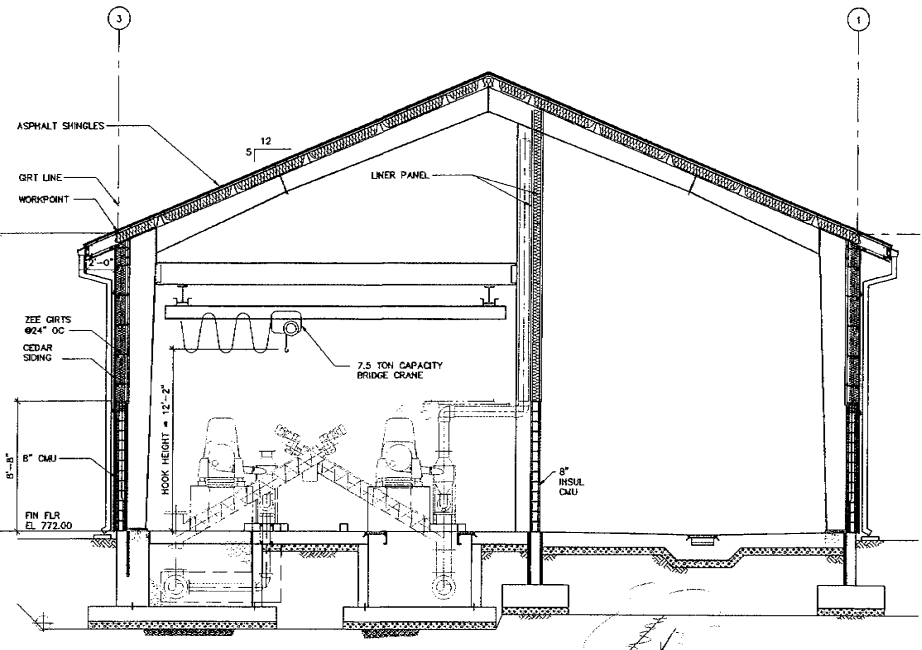
DEWATERING FACILITY
ELEVATIONS

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

CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 A SHEET 04 OF 08
 CAD REF. NO. 3338005_230



SECTION $\frac{1}{215}$
SCALE: 1/4"=1'-0"



SECTION $\frac{2}{215}$
SCALE: 1/4"=1'-0"

**MALCOLM
PIRNE**



NO.	BY	DATE	REVISIONS	REMARKS
001	SRZ			
002	SRZ			
003	FJB			

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

DEWATERING FACILITY
SECTIONS I

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

CTC

VERTICAL DATUM 1929

COPYRIGHT © 2008

MALCOLM PIRNE, INC.

DATE: JUNE 2008

A SHEET 05 of 08

CAD REF. NO. 3338005_231

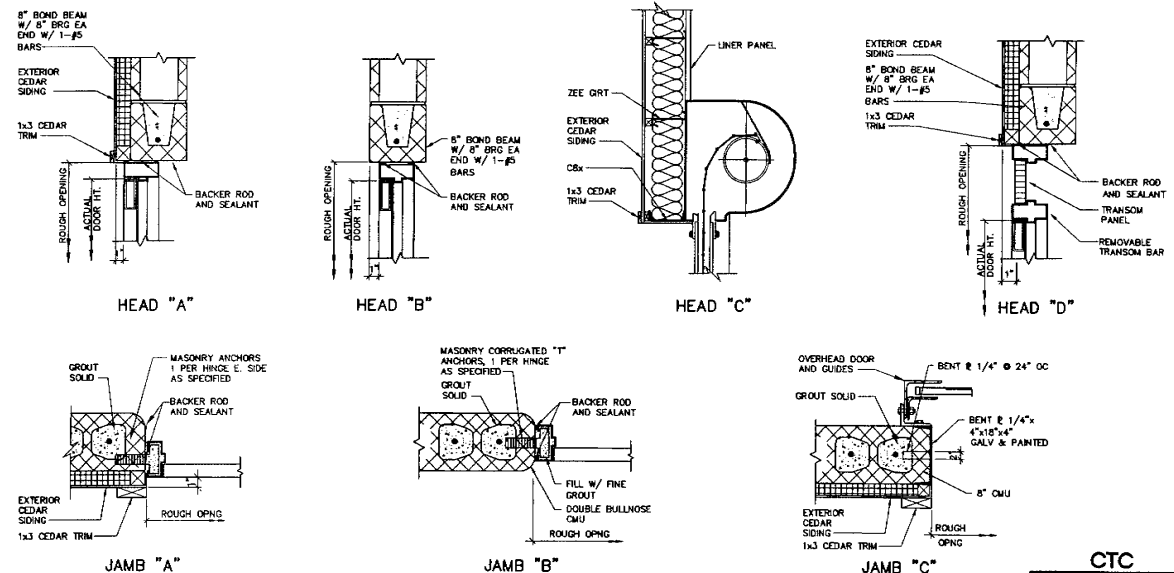
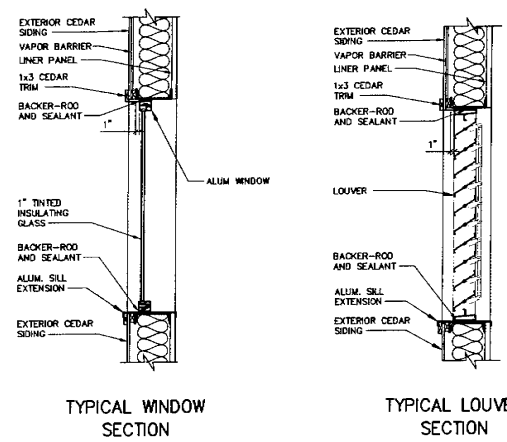
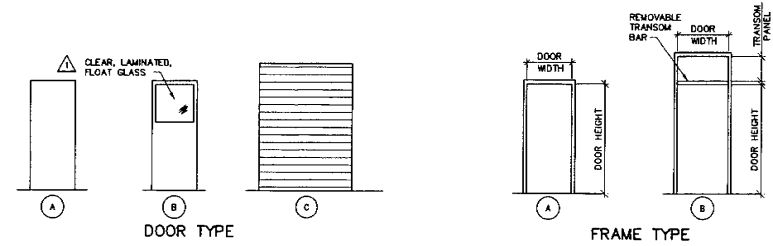
LOUVER SCHEDULE

MARK NO.	LOCATION	SERVICE	LOUVER						NOTES
			TYPE	SIZE (IN) (WxH)	AIRFLOW (CFM)	MIN. FREE AREA (SF)	MFR	MODEL	
L-1	DEWATERING FACILITY	LOADING AREA	COMBINATION	24x48	1100	3.13	C-S	6967	1,2,3
L-2	DEWATERING FACILITY	LOADING AREA	COMBINATION	32x32	1100	2.18	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 12B10

DOOR SCHEDULE

DOOR NO.	ROUGH OPNG WIDTH	ROUGH OPNG HEIGHT	DOOR NOMINAL SIZE		DETAILS		FRAME		HARD-WARE SET	U.L. LABEL	REMARKS
			WIDTH	HEIGHT	TYPE	MATL TYPE	HEAD	JAMB			
DEWATERING FACILITY											
101-1	3'-4"	7'-4"	3'-0"	7'-2"	B	ALUM	A	A	ALUM	1	-
101-2	3'-4"	7'-4"	3'-0"	7'-2"	A	HW	B	B	A	HW	2
101-3	14'-0"	14'-0"	14'-0"	14'-0"	C	GALV	C	C	-	-	D.H. COILING DOOR
101-4	10'-0"	14'-0"	10'-0"	14'-0"	C	GALV	C	C	-	-	D.H. COILING DOOR
102-1	3'-4"	8'-4"	3'-0"	7'-2"	A	ALUM	D	A	B	ALUM	1
102-2	3'-4"	7'-4"	3'-0"	7'-2"	A	HW	B	B	A	HW	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	-	-	D.H. COILING DOOR
103-3	14'-0"	14'-0"	14'-0"	14'-0"	C	GALV	C	C	-	-	D.H. COILING DOOR



MALCOLM PIRNIE

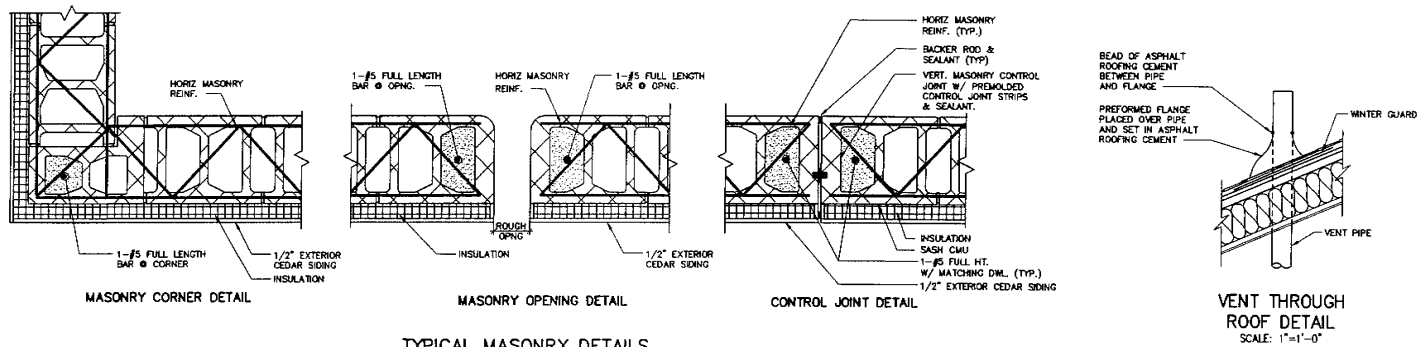


REV.	BY	DATE	REVISIONS
1	SRZ	06/11/08	REVISED FOR ADDENDUM NO.1
2	JEA		
3	FJB		

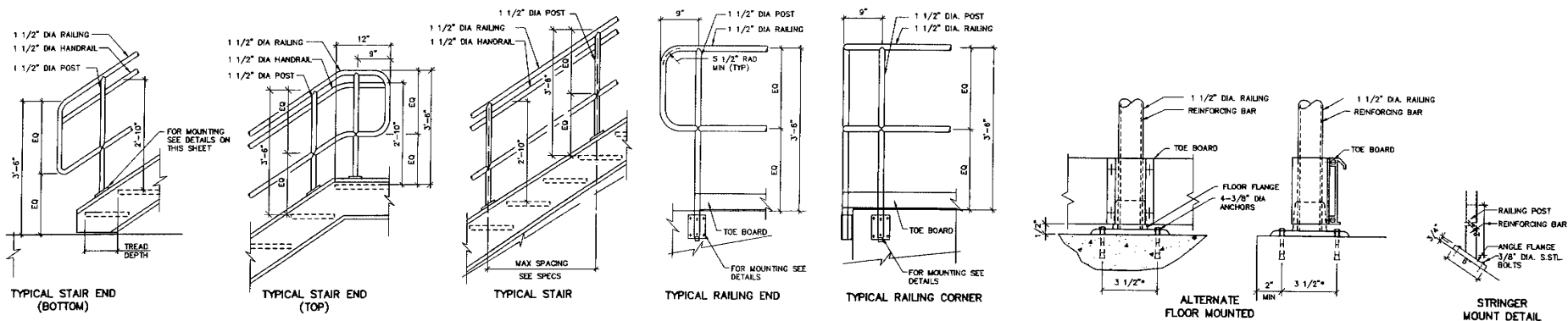
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

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

CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 A SHEET 07 of 08
 CAD REF. NO. 33380005_233



TYPICAL MASONRY DETAILS



TYPICAL ALUMINUM RAILING AND HANDRAIL DETAILS

MALCOLM PIRNIE



NO.	REV.	DATE	REVISIONS

DES	SRZ
DWN	JLA
OD	FJB

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

ARCHITECTURAL
TYPICAL DETAILS

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

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

GENERAL

- THE SYMBOLS, ABBREVIATIONS, AND LAP SPICE AND EMBEDMENT FOR CONSTRUCTION OF THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE FOR CONSTRUCTION. 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. SUBMITTALS 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 WATER-TIGHT TEMPORARY BRACINGS, CUTS 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 FLOATA-TION 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 16.65 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 10.18
 - 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_a 0.154
 - SPECTRAL RESPONSE ACCELERATIONS, S_i 0.059
 - SITE CLASS: D
 - SPECTRAL RESPONSE COEFFICIENT, S_w 0.164
 - SPECTRAL RESPONSE COEFFICIENT, S_w 0.094
 - SEISMIC DESIGN CATEGORY: B
 - BASIC SEISMIC FORCE RESISTING SYSTEM: C-4
 - DESIGN BASE SHEAR: 0.0587W
 - 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 BCMAM 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 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 GRACED 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 308 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 BEHAVIOR.
- 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, SPANDELS AND SLABS SHALL BE CAST MONOLITHICALLY, EXCEPT FOR REQUIRED CONSTRUCTION JOINTS. CONTRACTOR SHALL SUBMIT ANY AND ALL ALTERNATE AND ADDITIONAL CON-STRUCTION 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 CON-STRUCTION 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 CHLORIDE MP 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 CON-TINUOUS THROUGH ABRUPT CHANGES IN DIRECTION. NO INTERMIT-TENT WELDS SHALL BE PERMITTED, UNLESS OTHERWISE NOTED.

MASONRY

- COMBINED COMPRESSIVE STRENGTH OF THE MASONRY PRISM SHALL BE 1500 PSI AT 28 DAYS AFTER CURING. 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 6"X4" VERTICAL ANCHORAGE AT THE BASE OF ALL MASONRY WALLS UNLESS OTHER ANCHORAGE IS SHOWN OR SPECIFIED.

BAR SIZE	EMBEDMENT LENGTH	MIN LAP LENGTHS	
		8" AND 12" 12" DOUBLY CURVED SINGLY REINFORCED	DOUBLY CURVED SINGLY REINFORCED
#3	18	19	19
#4	21	25	28
#5	28	31	43
#6	48	52	67

LAP SPICE AND EMBEDMENT LENGTHS ARE BASED ON A MINIMUM MASONRY COMPRESSIVE STRENGTH OF 1500 PSI AND 6000 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 FINDING 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.

REINFORCEMENT LAP SPICE, EMBEDMENT LENGTH AND STANDARD HOOKS

BAR SIZE	MIN LAP LENGTHS FOR				MIN EMBEDMENT LENGTHS				W/ STD. HOOKS	W/ STD. HOOKS
	BEAMS AND COLUMNS		SLABS AND WALLS		FOR BEAMS AND COLUMNS		FOR WALLS			
	TOP**	OTHERS	TOP**	OTHERS	TOP**	OTHERS	TOP**	OTHERS		
#3	25	19	15	15	18	15	15	15	15	15
#4	33	25	20	16	25	19	15	12	7	8
#5	41	31	25	19	31	24	19	15	9	10
#6	49	37	29	23	37	29	23	18	10	12
#7	54	43	33	24	43	33	25	12	14	9
#8	61	52	40	31	52	40	31	20	14	16
#9	70	60	46	37	60	46	36	15	19	-
#10	82	70	54	43	70	54	43	17	22	-
#11	94	82	63	50	82	63	50	19	24	-

REINFORCEMENT LAP SPICE, EMBEDMENT LENGTH AND STANDARD HOOKS TABLE IS BASED ON A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 4000 PSI AND 6000 PSI REINFORCEMENT (WITH NO EPOXY COATING).

ALL LAP SPICES 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 SPICE 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 LENGTH 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 SPICES 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 SPICES SHOULD BE STAGGERED. ADJACENT HOOP REINFORCING SPICES 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 SPICE AND EMBEDMENT LENGTH TABLE

SYMBOLS	ABBREVIATIONS	VERTICAL DATUM 1929	
UNDISTURBED SOIL	AD - ANCHOR BOLT ADD'L - ADDITIONAL ADH. - ADHESIVE ADJ. - ADJUSTABLE ALT. - ALTERNATE ALUM. - ALUMINUM ANCH. - ANCHOR ARCH. - ARCHITECT OR ARCHITECTURAL ASTM - AMERICAN SOCIETY FOR TESTING MATERIALS AT - AT BENT. - BENT BITUM. - BITUMINOUS B/T - BOTTOM OF BOT. - BOTTOM BLDG. - BUILDING 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 CONTR. - CONTROL DEPR. - DEPRESSION DET. - DETAIL DI - DUCTILE IRON DIA. - DIAMETER DIA. - DIAMETER DL - DEAD LOAD DST. - DISTANCE DWS. - DRAWING DW. - DOWEL EA. - EACH EE - EACH END EF - EACH FACE EJ - EXPANSION JOINT EL. - ELEVATION ELEC. - ELECTRICAL E - EAST EMBO. - EMBEDDED	EW - EACH WAY EQ. - EQUAL EXIST. - EXISTING EXP. - EXPANSION EXT. - EXTERIOR FIN. - FINISH FND. - FOUNDATION FT. - FURTHER FL. - FINISH LINE FLR. - FLOOR FRP - FIBERGLASS REINFORCED PLASTIC FF - FAR FACE FTG. - FOOTING FT. - FOOT GAL. - GAGE GAR. - GARAGE GLV. - GALVANIZED GR. - GRADE GRD. - GRATING GRO. - GROUND GYP BD. - GYPSUM BOARD HORIZ. - HORIZONTAL HP - HIGH POINT HHP - HIGH HIGH POINT HR. - HORIZONTAL HT. - HEIGHT ID. - INSIDE DIAMETER IF - INSIDE FACE INT. - INTERIOR INV. - INVERT INSUL. - INSULATION J. - JOINT K. - KIP (1000 POUNDS) KB - KNEE BRACE LB. - LBS LL - LIVE LOAD LLEG - LONG LEG LLEG TO-BACK - LONG LEG TO-BACK LLEG - LONG LEG VERTICAL LONG. - LONGITUDINAL LP - TOP POINT LW - LIGHT WEIGHT MOM. - MOMENT CONNECTION MFG. - MANUFACTURER MAS. - MASONRY MAX. - MAXIMUM MF - MIDDLE FACE MIN. - MINIMUM MK. - MARK MO - MASONRY OPENING NA - NOT APPLICABLE N. - NORTH	NEAR FACE NOT TO SCALE ON CENTER OUTSIDE DIAMETER OVERHEAD OPENING OPPOSITE PLATE PRECAST POUNDS PER SQUARE FOOT RADIUS RISER REINFORCING REQUIRED REQUIREMENTS ROOM ROUGH OPENING SOUTH SCHED. - SCHEDULE SECT. - SECTION SF - SQUARE FEET SHT. - SHEET SIM. - SIMILAR SJ - STEEL JOIST SLB - SHORT LEG BACK-TO-BACK SLV - SHORT LEG VERTICAL SPA. - SPACES OR SPACING SPRD. - SPREAD ST STL. - STAINLESS STEEL STN. - STATION STD. - STANDARD STL. - STEEL STR. - STRUCTURAL SUP. - SUPPORT SYM. - SYMMETRICAL T. - TRADE TOP - TOP OF TOP AND BOTTOM TEMP. - TEMPORARY THK. - THICK TOP OF MASONRY TOP OF STEEL TYP. - TYPICAL UNLESS OTHERWISE NOTED VERT. - VERTICAL W. - WITH W/O - WITHOUT WP - WORK POINT WS. - WATER STOP WT - WEIGHT WELDED WIRE FABRIC

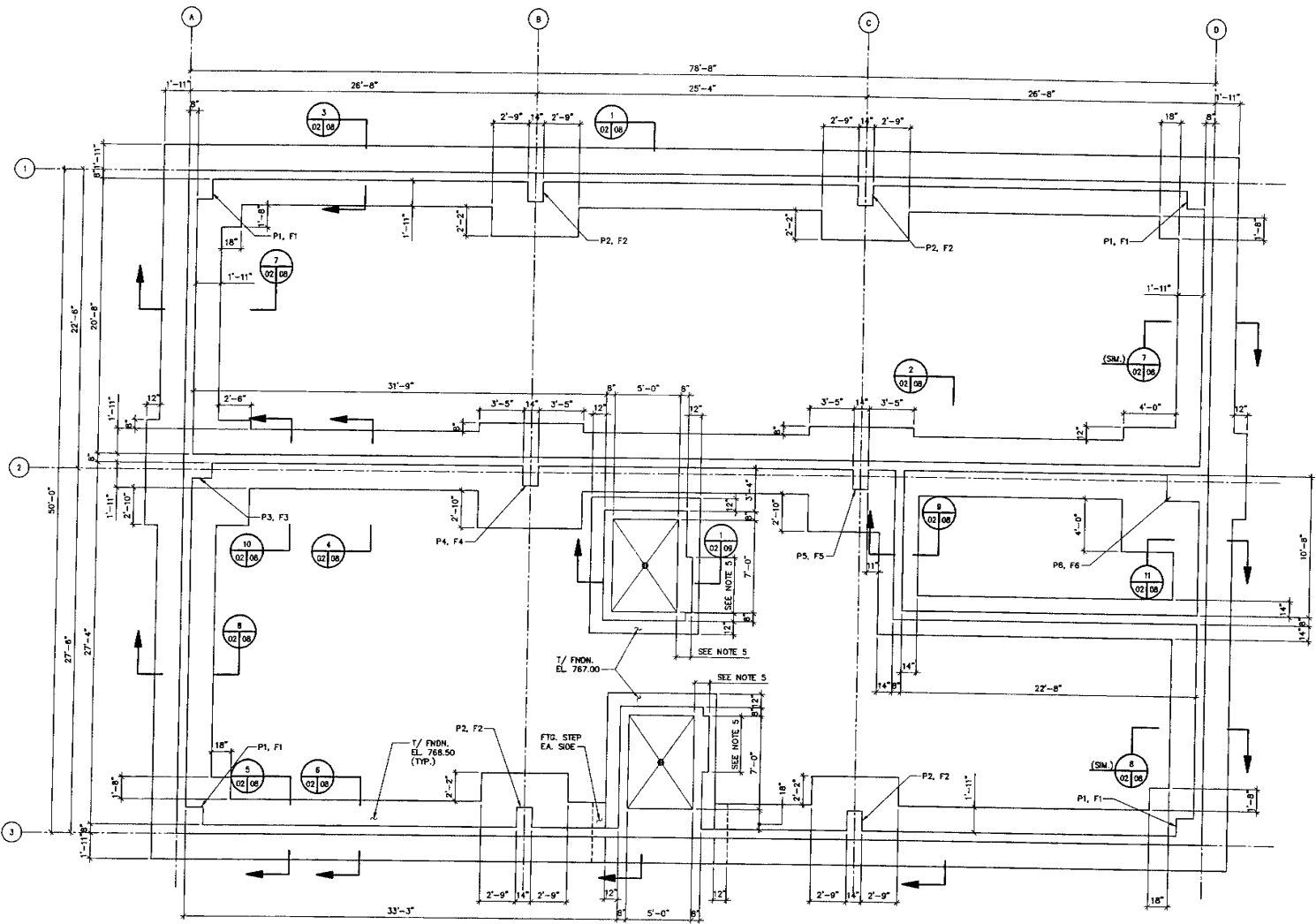


REV.	BY	DATE	REVISIONS
DES	SBP		
DWG	JJH		
CHK	JPS		

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

STRUCTURAL NOTES, SYMBOLS, ABBREVIATIONS AND TABLES
SCALE: NO SCALE

CTC
VERTICAL DATUM 1929
Copyright © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
SHEET 01 OF 11
CAD REF. NO. 3338005_351



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 PIERS.

MALCOLM PIRNIE



REV.	BY	DATE	REVISIONS

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

**DEWATERING FACILITY
 FOUNDATION PLAN**

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

CTC

VERTICAL DATUM 1929

COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.

DATE: JUNE 2008

SHEET 02 OF 11

CAD REF. NO. 3338005_352

DATE: 06/01/2008 10:57 AM PROJECT: DEL. COUNTY REGIONAL SEWER DISTRICT CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS SHEET NO. 353
 DRAWN BY: JPH CHECKED BY: JPH DATE: 06/01/2008 10:57 AM PROJECT: DEL. COUNTY REGIONAL SEWER DISTRICT CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS SHEET NO. 353

**MALCOLM
PIRNIC**

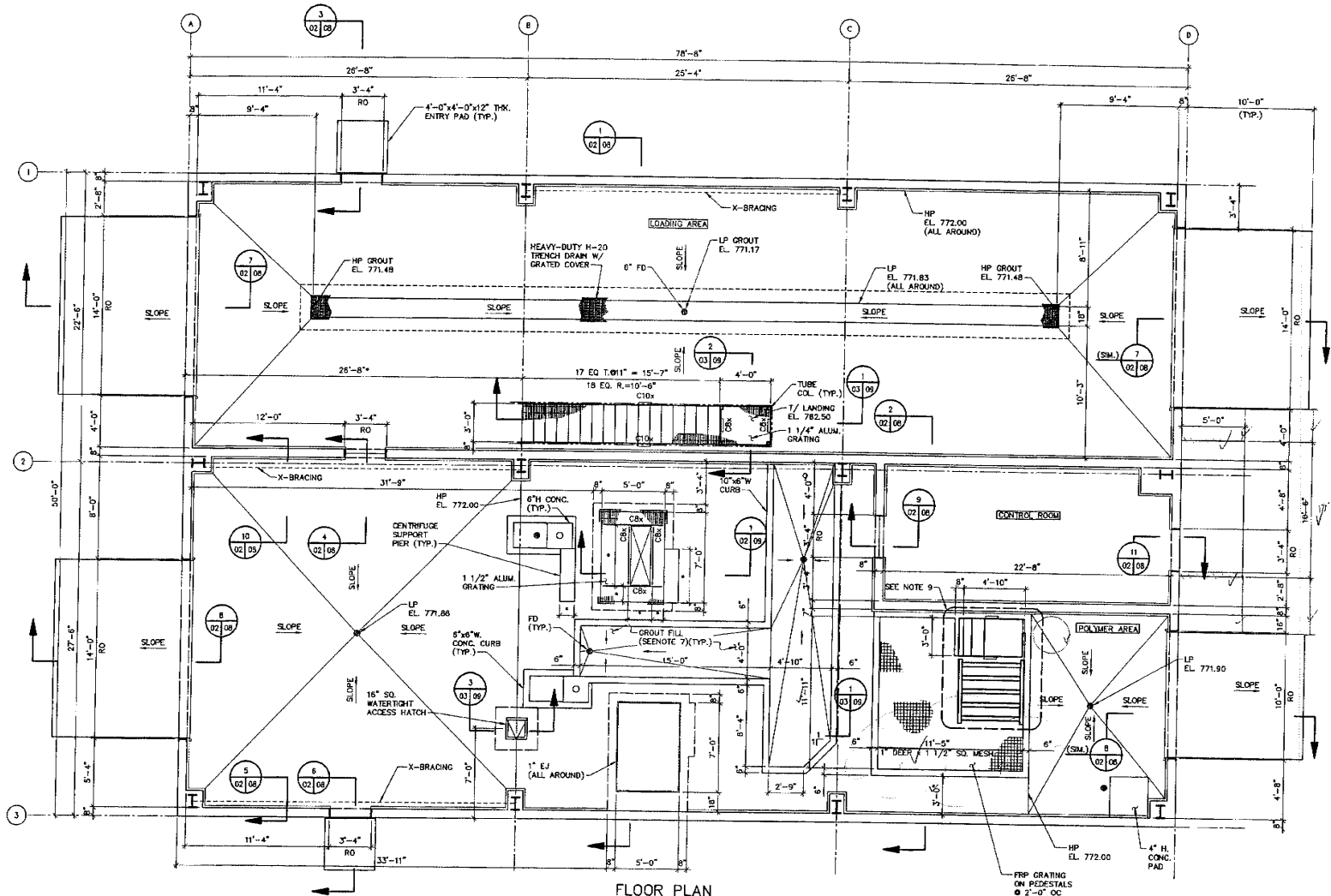


REVISIONS		DES	CHK
NO.	DATE	BY	BY

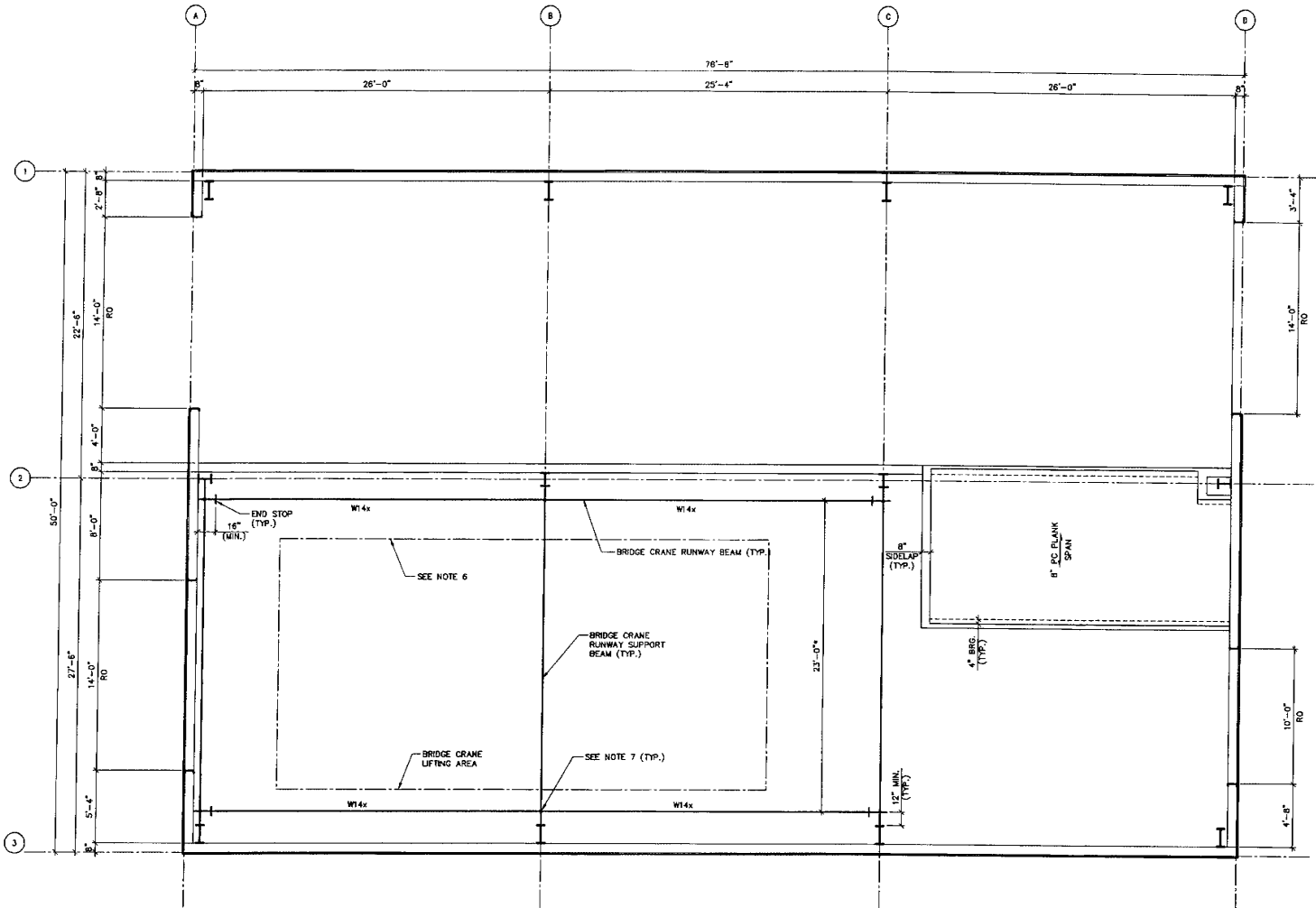
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
 FACILITY IMPROVEMENTS**

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

CTC	
VERTICAL DATUM 1929	
COPYRIGHT © 2008 MALCOLM PIRNIC, INC.	
DATE	JUNE 2008
SHEET	03 OF 11
CAD REF. NO.	3338005_353



- 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 CBx = CBx15 (STEEL) TUBE COLUMN = 4"x4"x1/4" TUBE (ALUM.)
 - GRATING BEAMS CBx = CBx6.48 (ALUM.)
 - PROVIDE GROUT FILL, SLOPE FROM 4" HP TO 2" LP AT FLOOR DRAIN.
 - 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.



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. 785.62
 - 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

SHEET: 04 OF 11. DATE: 06/01/2008. PROJECT: DELAWARE COUNTY REGIONAL SEWER DISTRICT CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS. SHEET NO. 04 OF 11.

MALCOLM PIRNIE



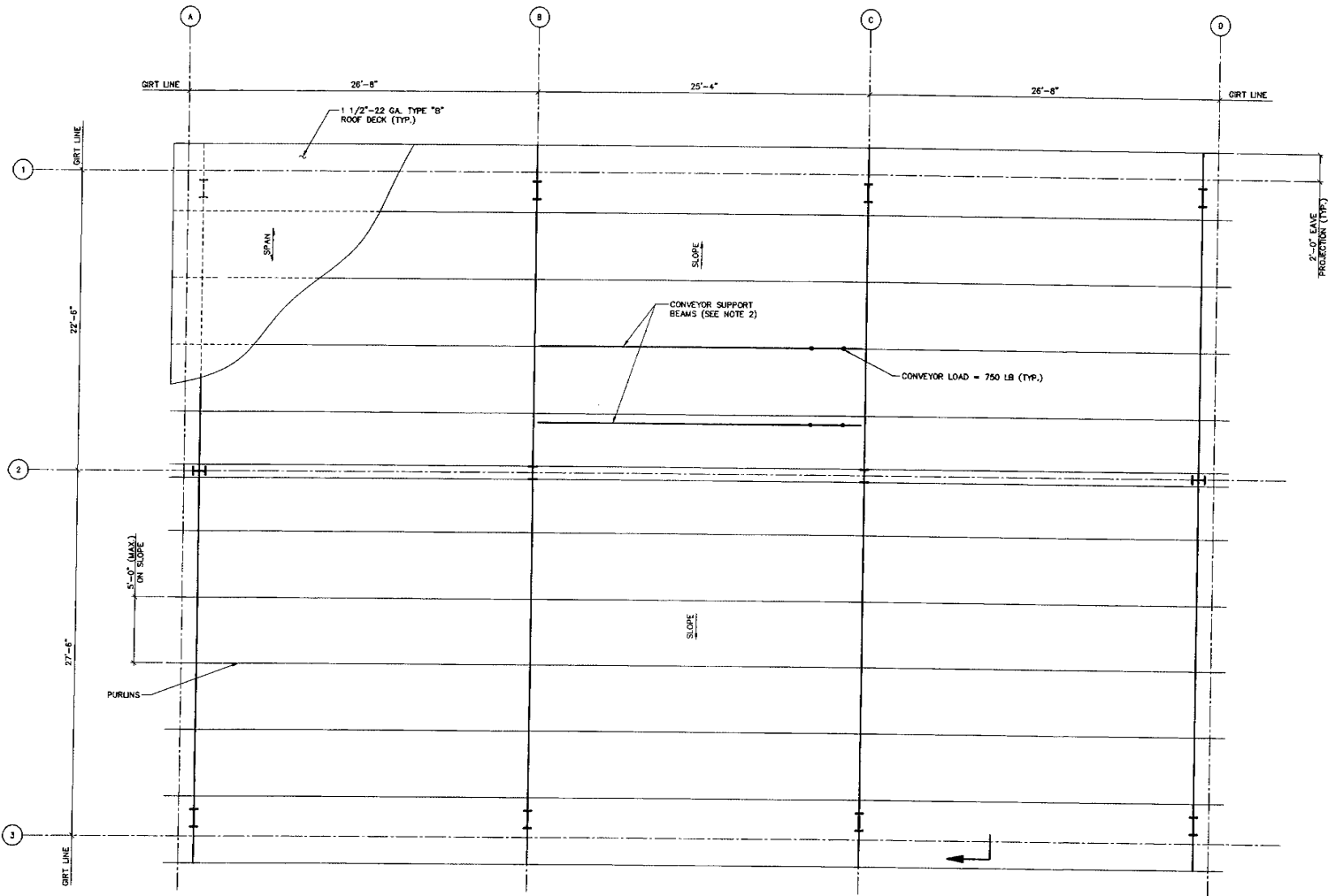
REVISIONS		
NO.	BY	DATE

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

DEWATERING FACILITY INTERMEDIATE PLAN

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
SHEET 04 OF 11
CAD REF. NO. 3338005_354

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



ROOF PLAN

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

MALCOLM PIRNIE ENGINEERS INC. 13335 SPYGLASS RD., SUITE 100, WILMINGTON, OHIO 45397-1000, TEL: 513-263-1000, FAX: 513-263-1001

MALCOLM PIRNIE



REVISIONS	
NO.	DATE

DES: SBP
 DWN: JPH
 CDD: JPS

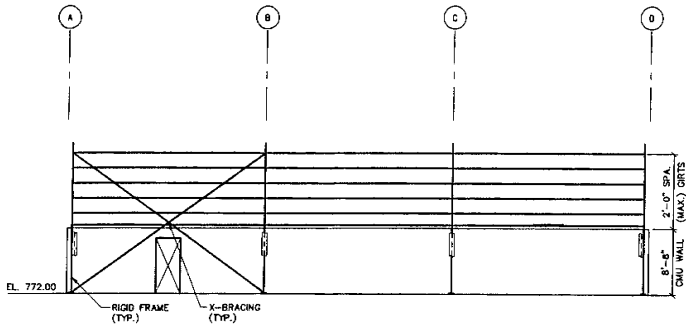
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
 FACILITY IMPROVEMENTS**

DEWATERING FACILITY
ROOF PLAN

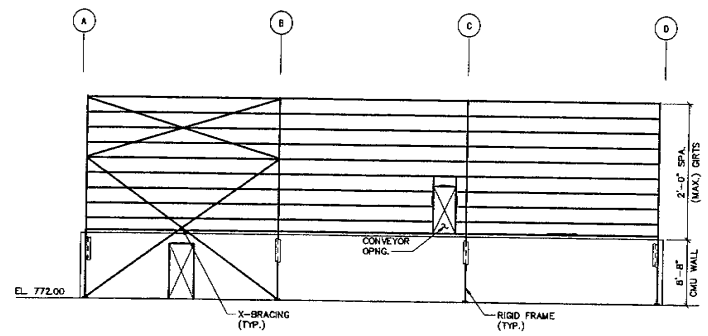
SCALE: 1/4" = 1'-0"

CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 S SHEET 05 OF 11
 CAD REF. NO. 3338005_355

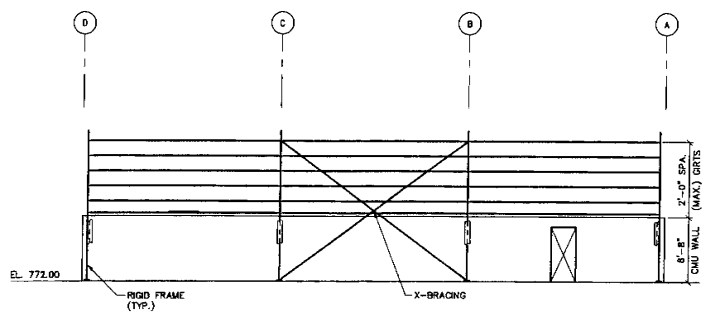
User Account: jps@malcolmpirnie.com Date: 11/13/2008 10:48:10 AM File: 11-06.dwg Plot: 11-06.dwg



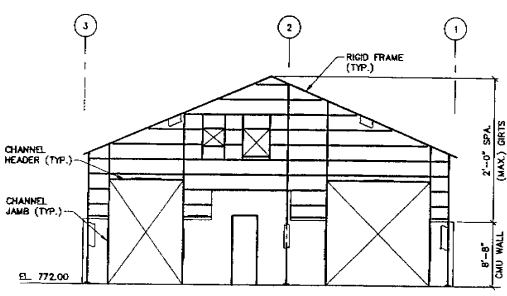
SOUTH ELEVATION



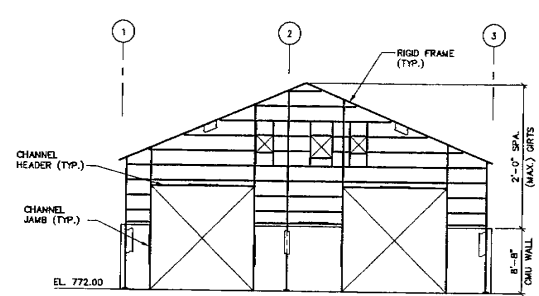
SOUTH ELEVATION AT COLUMN LINE



NORTH ELEVATION



EAST ELEVATION



WEST ELEVATION

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



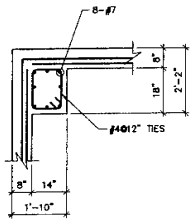
REV.	BY	DATE	REVISIONS

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

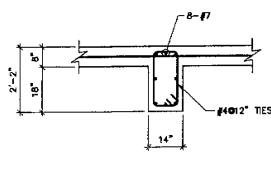
**DEWATERING FACILITY
 ELEVATIONS**

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

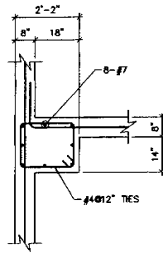
CTC
 VERTICAL DATUM 1029
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 S SHEET 06 OF 11
 CAD REF. NO. 3338005_356



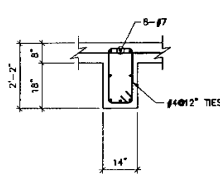
TYPE P1



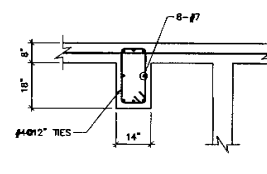
TYPE P2



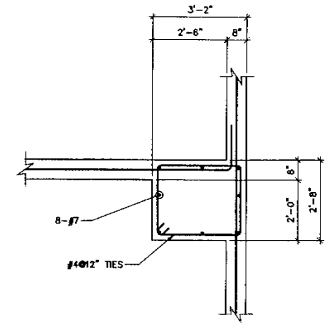
TYPE P3



TYPE P4



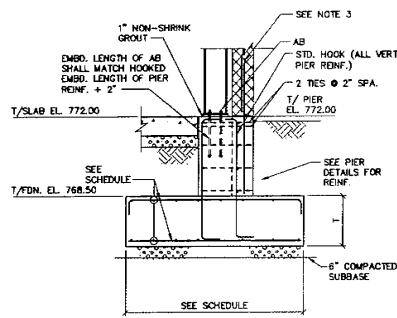
TYPE P5



TYPE P6

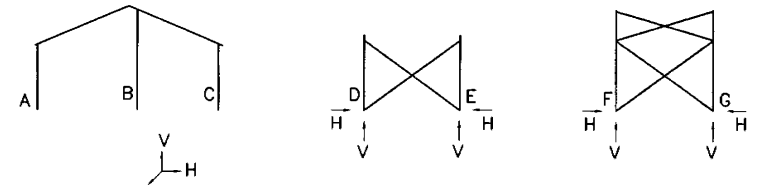
FOOTING SCHEDULE					
MARK	W	L	T	REINFORCING	REMARKS
F1	6'-0"	6'-2"	18"	#7@12"EW,BOT #7@12"EW,TOP	EXTEND WALL FOOTING REINFORCING THROUGH FOOTING
F2	6'-0"	6'-8"	18"	#7@12"EW,BOT #7@12"EW,TOP	EXTEND WALL FOOTING REINFORCING THROUGH FOOTING
F3	8'-0"	8'-0"	18"	#7@12"EW,BOT #7@12"EW,TOP	EXTEND WALL FOOTING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



TYPICAL COLUMN PIER AND FOOTING DETAILS

NOTE: WALL VERTICAL REINFORCING NOT SHOWN FOR CLARITY.



COLUMN REACTIONS									
	H	A	V	H	B	V	H	C	V
DL	1.266	11.135	4.11	18.247	-0.865	10.285			
COLLATERAL LOAD	0.967	4.625	-0.026	5.654	-0.811	0.583			
DL OF FRAME WHEN PIER IS NEAR SOUTH COLUMN	0	3.955	0	2.671	0	0.001			
DL OF FRAME WHEN PIER IS NEAR CENTER COLUMN	-0.801	2.477	0.802	3.85	-0.801	0.802			
LL	1.088	12.661	-0.117	18.941	-1.532	10.723			
LL OF FRAME WHEN PIER IS NEAR SOUTH COLUMN	0.901	14.907	-0.904	9.11	0.003	-0.908			
LL OF FRAME WHEN PIER IS NEAR CENTER COLUMN	-0.002	0.913	0.009	14.974	-0.906	0.913			
WL (WINDS - PARALLEL TO RIDGE - W/EWT. PRESSURE)	-0.002	-0.174	0.228	-0.261	-0.273	-0.485			
WL (WINDS - PARALLEL TO RIDGE - W/EWT. PRESSURE)	-0.152	4.58	0.162	1.96	-0.659	0.255			
WL (WINDS - PERPENDICULAR TO RIDGE - W/EWT. PRESSURE)	-0.422	-0.711	-0.448	-0.634	-1.287	-0.334			
WL (WINDS - PERPENDICULAR TO RIDGE - W/EWT. PRESSURE)	-0.484	3.868	-0.608	1.48	-1.285	-0.268			
WL (WINDS - PERPENDICULAR TO RIDGE - W/EWT. PRESSURE)	0.265	-11.677	-2.148	4.568	-0.941	0.055			
SEISMIC LOAD	-0.178	-1.045	-1.481	0.857	-1.181	0.686			
MAX POSITIVE REACTION	3.32	25.241	0.288	32.799	0	24.421			
MAX NEGATIVE REACTION	0	-0.986	-0.178	0	-3.078	-0.273			

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 14" SHEETS.

MALCOLM PIRNIE

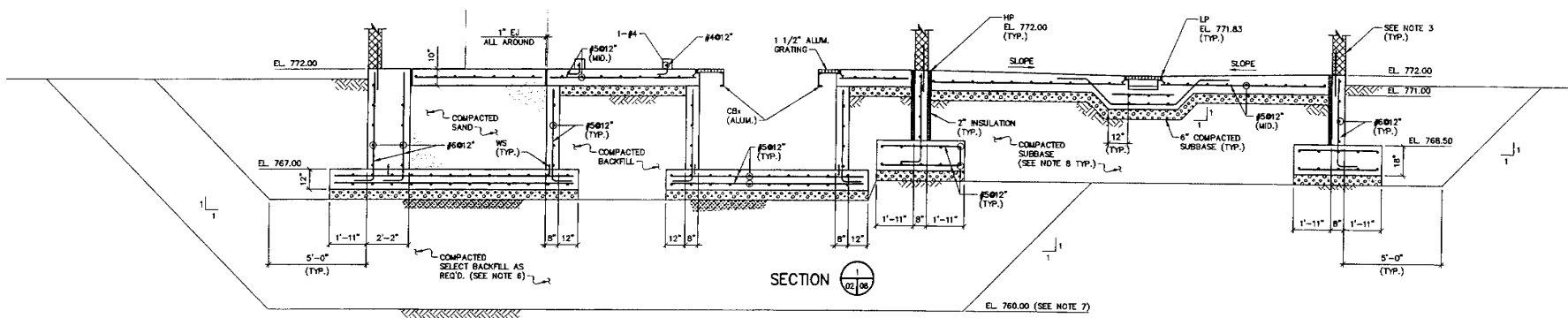


REVISIONS			
NO.	BY	DATE	REVISION

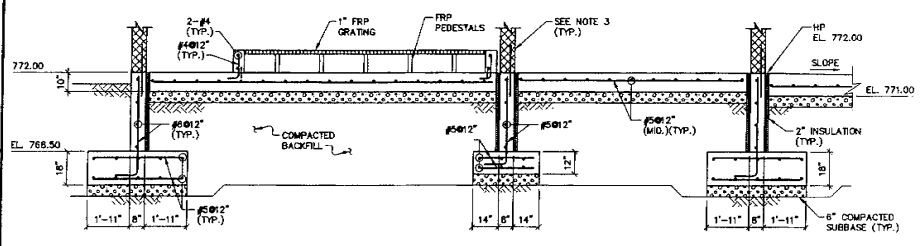
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

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

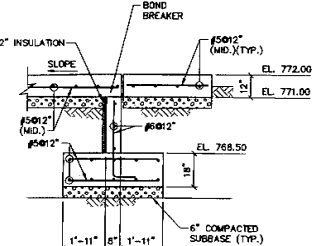
CTC
 VERTICAL DATUM 1029
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 SHEET 07 of 11
 CAD REF. NO. 333B005_357



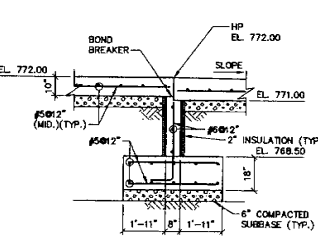
SECTION 1
02/08



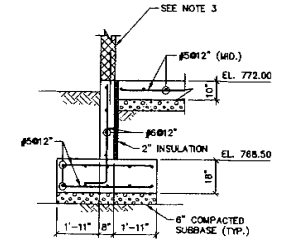
SECTION 2
02/08



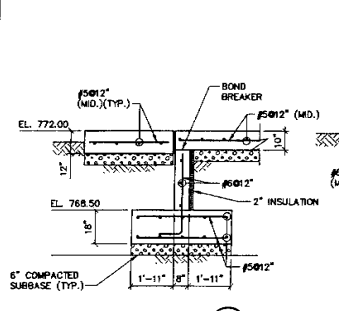
SECTION 3
02/08



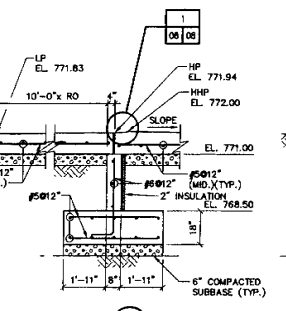
SECTION 4
02/08



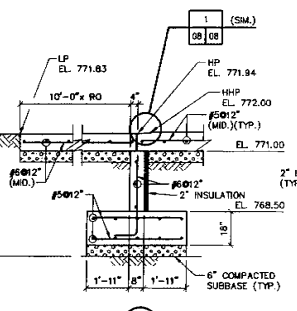
SECTION 5
02/08



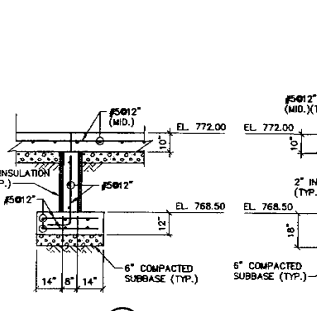
SECTION 6
02/08



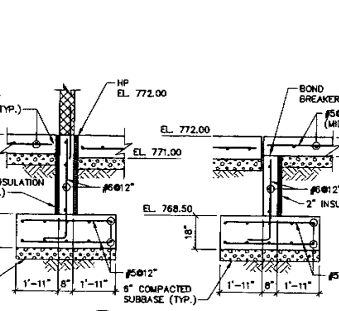
SECTION 7
02/08



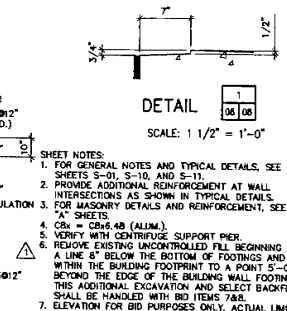
SECTION 8
02/08



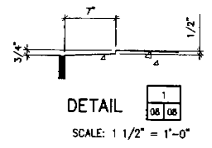
SECTION 9
02/08



SECTION 10
02/08



SECTION 11
02/08



DETAIL 1
08/08

- 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.
 - CRS = CR-6-48 (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.

CTC

VERTICAL DATUM 1929

COPYRIGHT © 2008 MALCOLM PIRNIE, INC.

DATE: JUNE 2008

SHEET 08 OF 11

CAD REF. NO. 3338005_358

MALCOLM PIRNIE



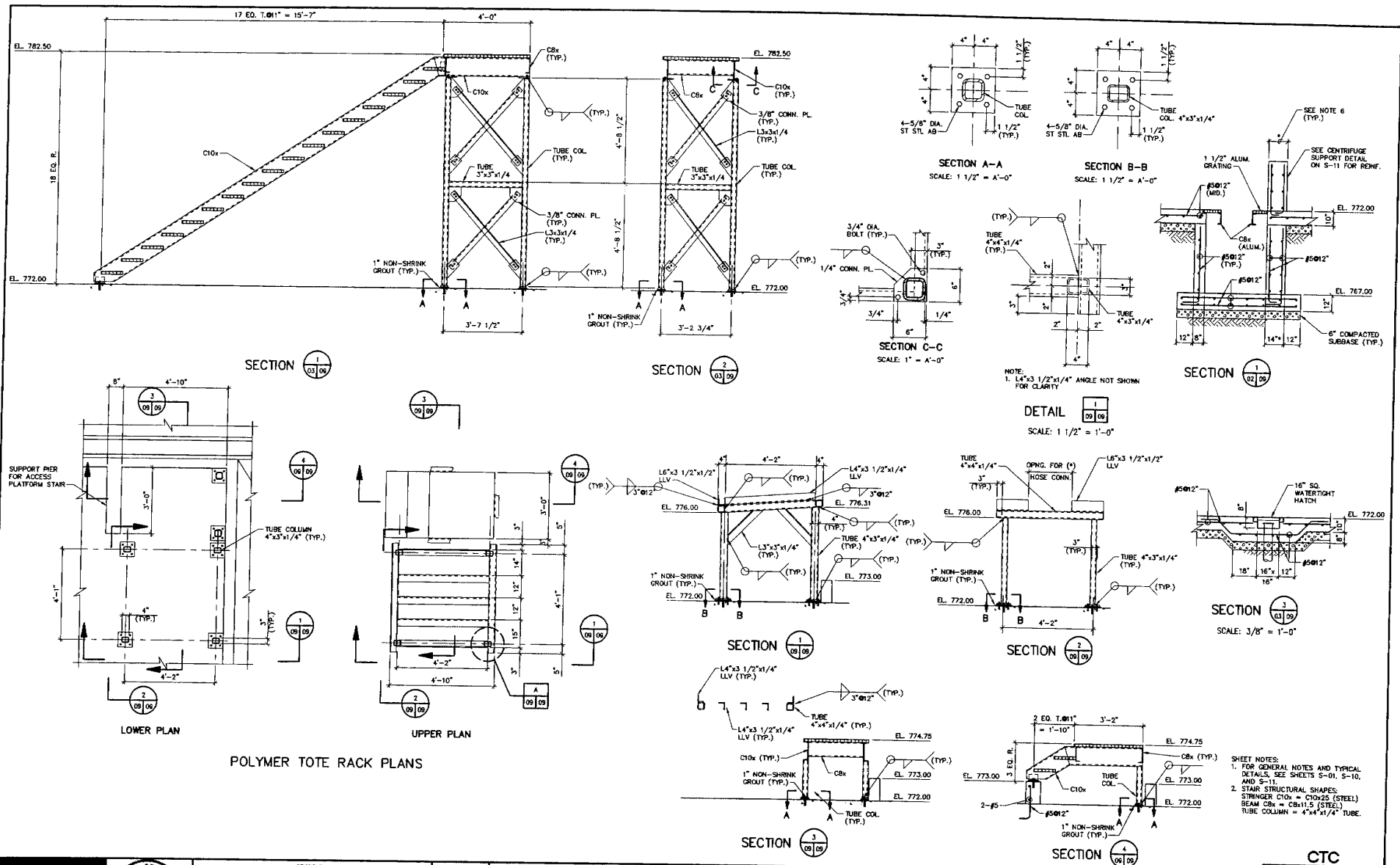
NO.	BY	DATE	REVISIONS
1	SBP	08/14/08	REVISED PER ADDENDUM NO. 2

DES: SBP
CHK: JPH
APP: JPS

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

DEWATERING FACILITY
SECTIONS

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



NOTE:
1. L4"x3 1/2"x1/4" ANGLE NOT SHOWN FOR CLARITY

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

SHEET NOTES:
1. FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S-01, S-10, AND S-11.
2. STAIR STRUCTURAL SHAPES: STRINGER C10x = C10x25 (STEEL) SEAM C8x = C8x11.5 (STEEL) TUBE COLUMN = 4"x4"x1/4"

MALCOLM PIRNIE

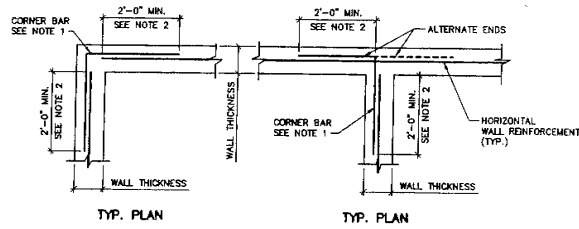
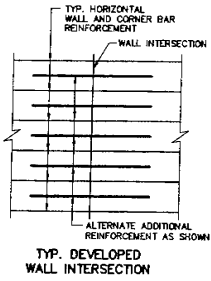


NO.	REV.	DATE	REVISIONS
003	SBP		
004	JJH		
005	JPS		

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

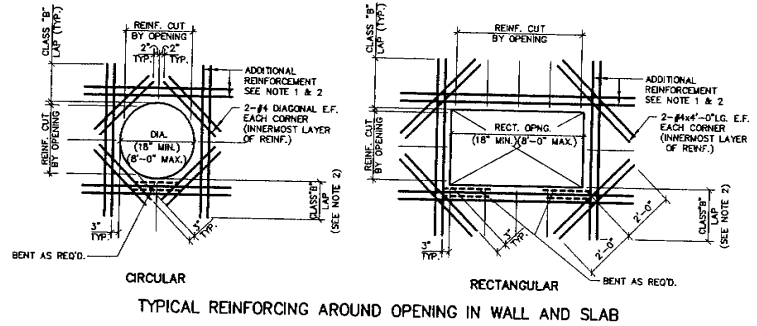
STRUCTURAL STAIR SECTIONS, POLYMER TOTE RACK PLANS AND SECTIONS
SCALE: 1/2" = 1'-0" OR AS NOTED

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
SHEET 09 OF 11
CAD REF. NO. 3338005_361

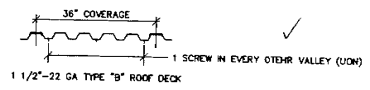


TYPICAL REINFORCEMENT DETAIL AT SINGLY REINFORCED WALL INTERSECTIONS

- NOTES:
- CORNER BARS TO MATCH SIZE AND SPACING OF WALL HORIZONTAL REINFORCEMENT (UNLESS OTHERWISE NOTED).
 - 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".

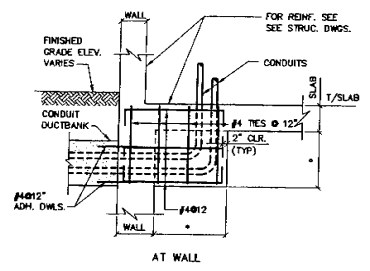


- NOTES:
- PROVIDE ADDITIONAL REINFORCEMENT AT ALL OPENINGS, ACCESS HATCHES, PIPE PENETRATIONS, ETC. EQUAL IN AREA TO TYPICAL REINFORCEMENT CUT BY OPENING IN EACH DIRECTION. ADDITIONAL REINFORCEMENT TO MATCH SIZE OF TYPICAL REINFORCEMENT (MIN. 2 BARS ES AND EF) AND PLACED BETWEEN TYPICAL REINFORCEMENT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



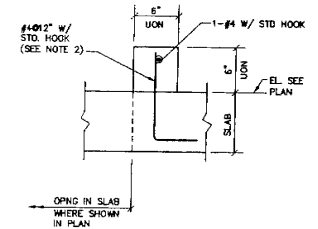
TYPICAL ROOF DECK FASTENER LAYOUT

- NOTES:
- REFER TO SPEC. SECTION 05311 FOR METAL ROOF DECK SECTION PROPERTIES. (MIN.)
 - ROOF DECK SECTION PROPERTIES. (MIN.)
 - 1 = 0.169 IN³/FT
 - 3 = 0.186 IN³/FT
 - 5 = 0.192 IN³/FT



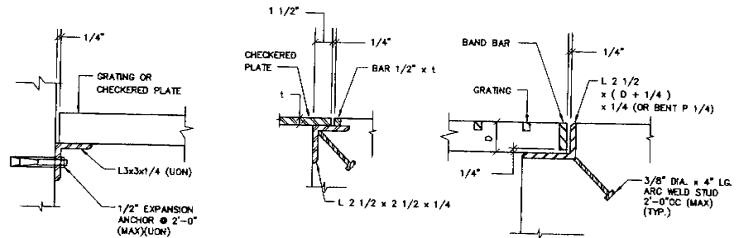
TYPICAL CONDUIT ENCASEMENT DETAIL

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



TYPICAL CONCRETE CURB DETAIL

- NOTE:
- PROVIDE MIN REINFORCING AS SHOWN ABOVE IN ALL CURBS (UNLESS OTHERWISE NOTED).
 - 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:
- PROVIDE TYPICAL SUPPORT AS SHOWN FOR ALL GRATING AND PLATE SUPPORT.
 - PROVIDE SUPPORT ANGLE AND ANCHOR STUD OF THE SAME MATERIAL AS THE GRATING AND PLATE.

MALCOLM PIRNIE



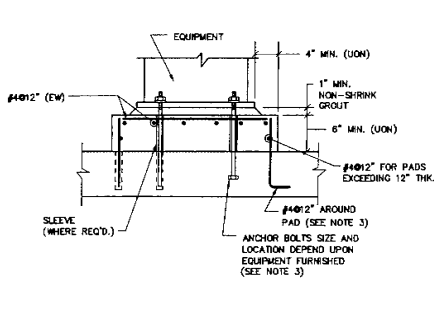
NO.	BY	DATE	REVISIONS
DES	SRP		
DWN	JJH		
CHK	JPS		

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

STRUCTURAL
TYPICAL DETAILS I

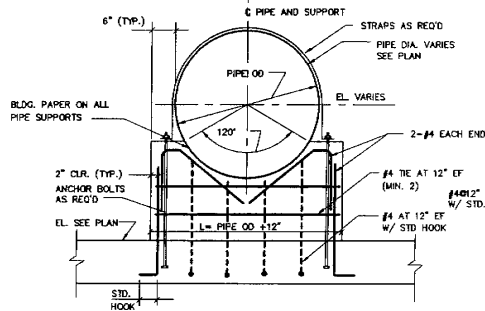
SCALE: NTS

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
SHEET 10 OF 11
CAD REF. NO. 3338005_359



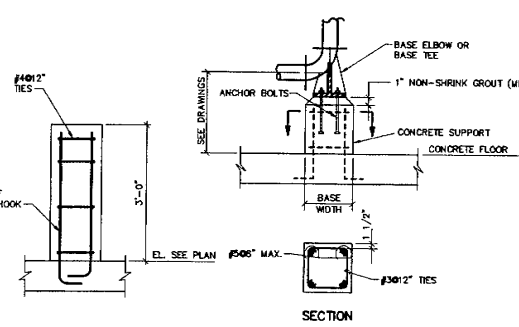
TYPICAL EQUIPMENT SUPPORT PAD DETAIL

- NOTES:
1. PROVIDE TYP. 8" 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

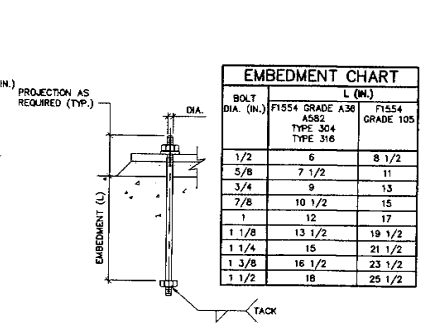
- NOTES:
1. SUPPORT TO BE 12" THICK. (UNLESS OTHERWISE NOTED)
 2. COORDINATE LOCATION OF PIPE SUPPORTS WITH OTHER SHEETS AND SPECIFICATIONS.



CENTRIFUGE SUPPORT DETAIL

CONCRETE BASE ELBOW SUPPORT DETAIL

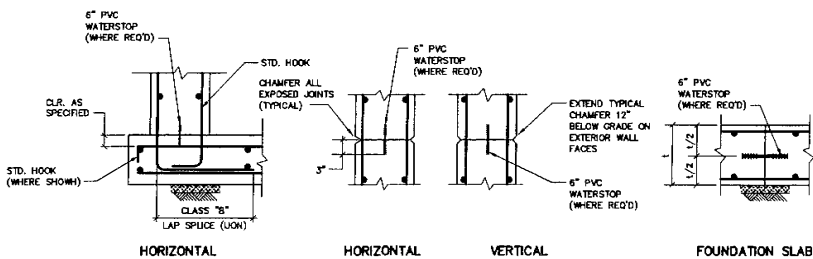
- NOTE:
1. SEE NOTE 3 FOR TYPICAL EQUIPMENT SUPPORT PAD DETAIL.



TYPICAL ANCHOR BOLT DETAIL

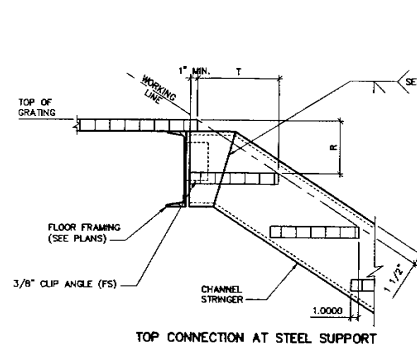
- NOTE:
1. REFER TO SPECIFICATIONS FOR AB MATERIAL REQUIREMENTS.

EMBEDMENT CHART			
BOLT DIA. (IN.)	L (IN.)		F1554 GRADE 105
	A502 TYPE 304	A502 TYPE 316	
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	

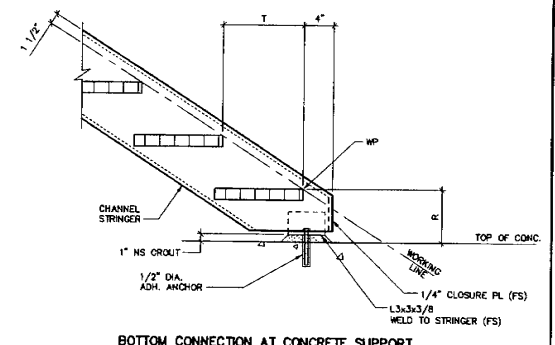


TYPICAL CONSTRUCTION JOINT DETAILS

- 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



REV.	BY	DATE	REVISIONS

DES SBP
DWN JWH
CVD JPS

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

STRUCTURAL
TYPICAL DETAILS II

SCALE: NTS

CTC

VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
SHEET 11 OF 11
CAD REF. NO. 3338005_360

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 GAUGE WITH SHUTOFF COCK
- THERMOMETER
- SUPPLY AIR DUCT SECTION-UP
- SUPPLY AIR DUCT SECTION-DOWN
- RETURN AIR DUCT SECTION-UP
- RETURN AIR DUCT SECTION-DOWN
- HWS HOT WATER SUPPLY LINE
- HWR HOT WATER RETURN LINE
- V VENT
- RL REFRIGERANT LIQUID LINE
- RS REFRIGERANT SUCTION LINE
- GP PROPANE GAS LINE
- CWS CHILLED WATER SUPPLY
- CWR CHILLED WATER RETURN

- FLEXIBLE CONNECTOR
- RISE OR DROP IN DIRECTION OF AIR FLOW
- WATER 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-WALL TYPE
- 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 SECTION. THE SYMBOL CONTAINS THE ASSIGNMENT UNTIL THE DUCT TERMINATES OR ANOTHER SYMBOL APPEARS. A "W" 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 155.18 FOR HANGERS AND SUPPORTS
 2. THIS TABLE IS USED TO LINK MATERIALS OF CONSTRUCTION DESIGNATED WITHIN THE SPECIFICATIONS AND/OR ON THE DRAWINGS WITH AREAS THAT TEND TO CONTAIN 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
- A/AR AIR INTAKE / AIR RELIEF
- ATC AUTOMATIC TEMPERATURE CONTROL
- BAV-1 BYPASS AIR VOLUME BOX NO.1
- BHP BRAKE HORSEPOWER
- BOO BOTTOM REGISTER
- BR BOTTOM REGISTER
- CC COOLING COIL
- CD CEILING DIFFUSER
- CFM CUBIC FEET OF STANDARD AIR PER MINUTE
- CLG CEILING
- CO CLEAN DUT
- 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
- EMW-1 ELECTRIC WALL HEATER NO. 1
- F.A. FREE AREA
- FD & AD FIRE DAMPER AND ACCESS DOOR
- F.C. FLEXIBLE CONNECTOR
- FFM 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 HORSEPOWER
- HP 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 MOTORIZED DAMPER
- MFR MANUFACTURER
- MFC 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 POUNDS 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
- RFM 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
- SUD SUPPLY LINEAR DIFFUSER
- SP IN WG STATIC PRESSURE INCHES OF WATER GAUGE
- SPEC SPECIFICATION
- S/R SUPPLY/RETURN
- SR SIZE REGISTER
- SV-1 SOLENOID VALVE NO. 1
- T THERMOSTAT
- TG TRANSFER AIR GRILLE
- TOO TOP OF DUCT
- TR TOP REGISTER
- TSP TOTAL STATIC PRESSURE
- TP 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
- WH-1 HEATING CONTROL VALVE NO. 1
- VS VELOCITY SENSOR
- W WITH
- WB WET BULB
- VFD VARIABLE FREQUENCY DRIVE
- RD-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 FISTS FROM FLOOR OR WALL SHALL BE TO THE INSIDE 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 FURNISHER.
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 FURNISHER.
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.

NOTES: VERIFY ALL DIMENSIONS AND LOCATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

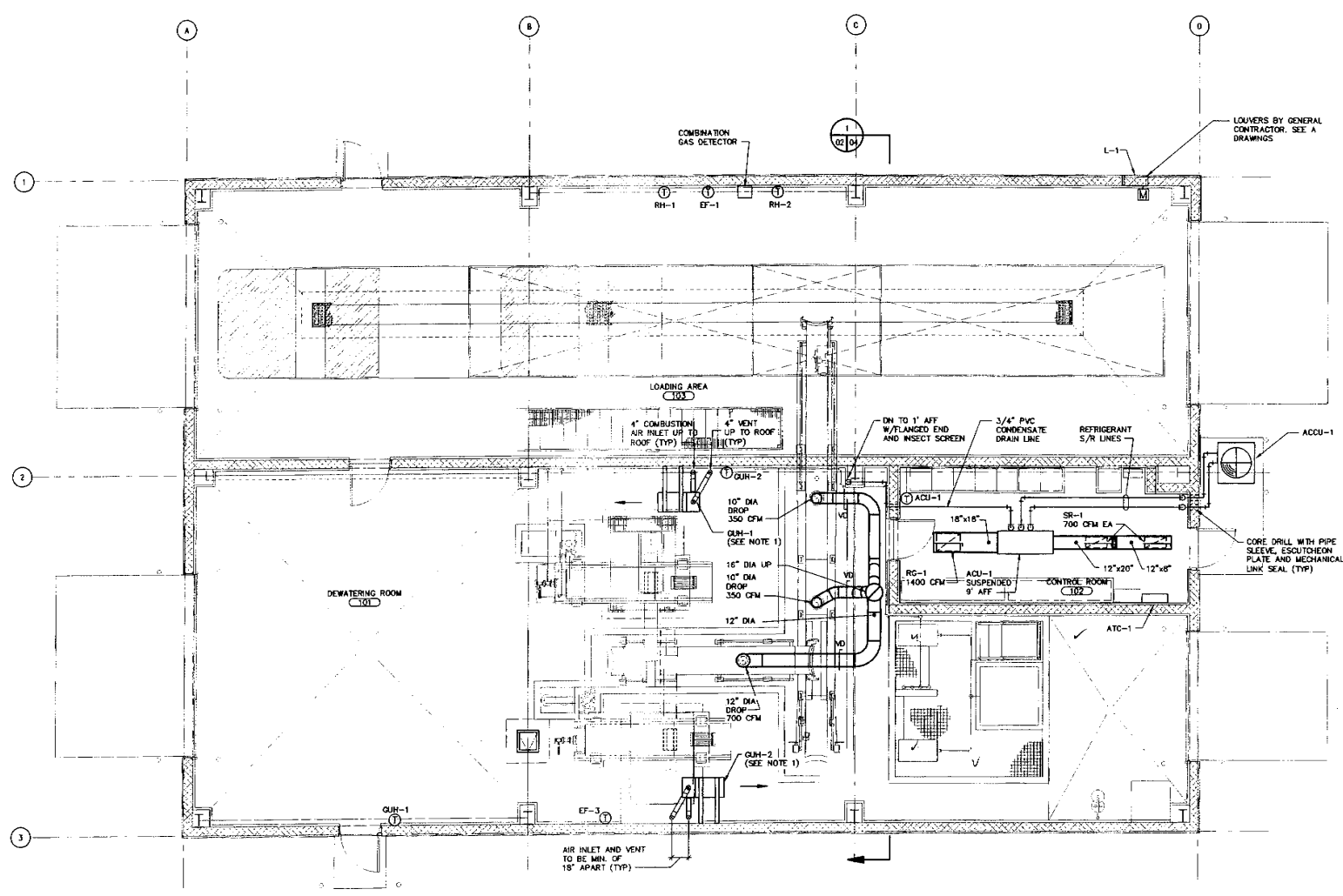


REVISIONS			
NO.	BY	DATE	REVISION
001	QQT		
002	RPM		
003	DJO		

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

HVAC
SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
 SCALE: NO SCALE

CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 H SHEET 01 OF 06
 CAD REF. NO. 3338005_501



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

**MALCOLM
PIRNIE**



NO.	BY	DATE	REVISIONS	REVISIONS

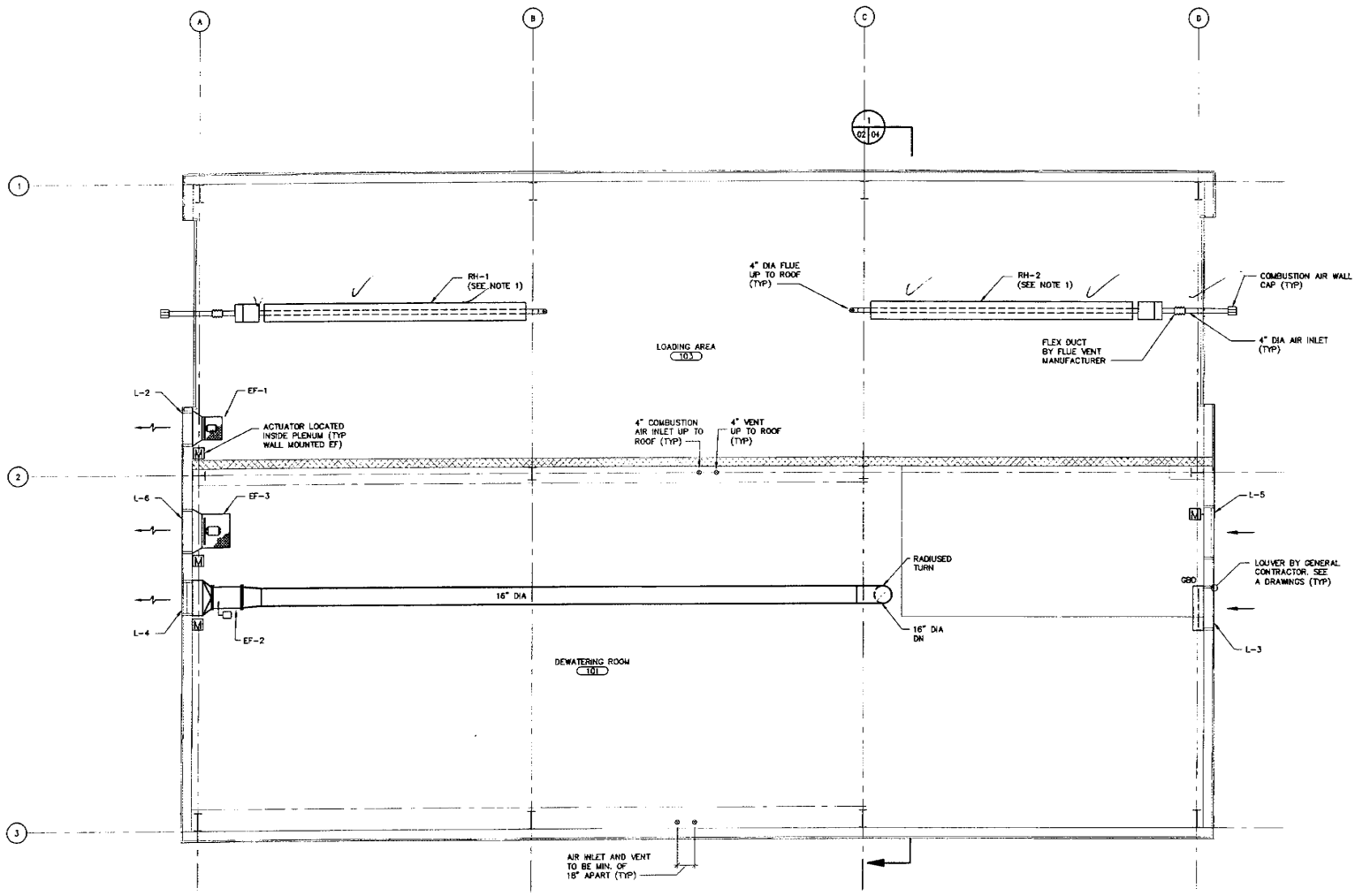
DES. QOT
DWN. RPM
O&D. DJO

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

**DEWATERING FACILITY
FLOOR PLAN**

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

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
H SHEET 02 of 06
CAD REF. NO. 3338005_502



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

**MALCOLM
PIRNIE**



REVISIONS	
NO.	DATE

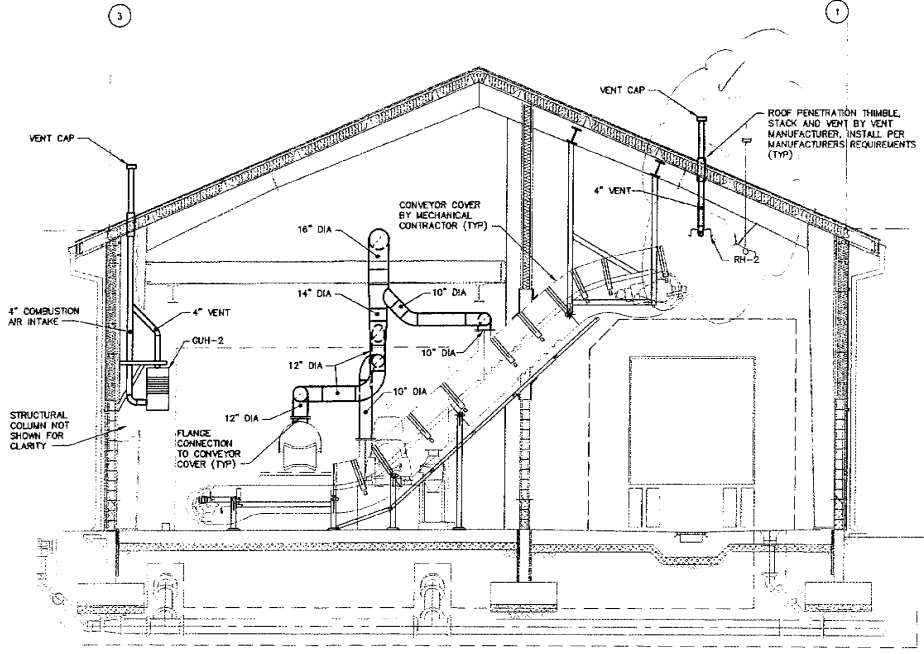
DES. QOT
DWN. RPM
CWD. DJG

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

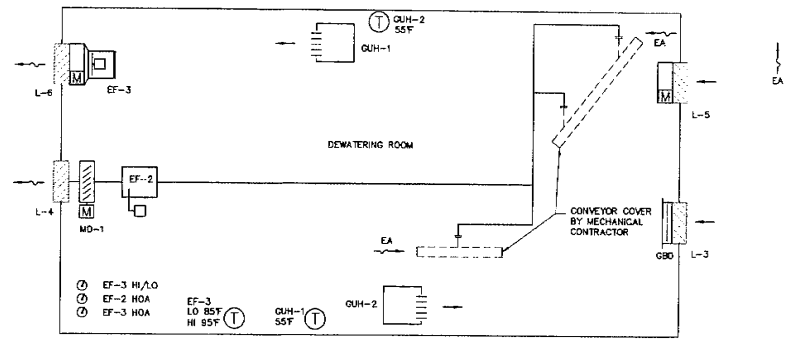
**DEWATERING FACILITY
INTERMEDIATE PLAN**

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

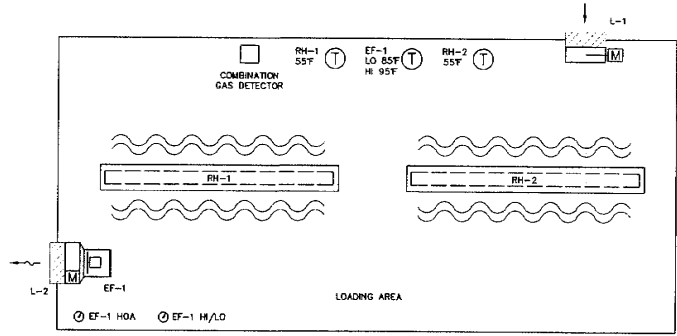
VERTICAL DATUM 1829
CONTRACT NO. 3008 MALCOLM PIRNIE, INC.
DATE: JUNE 2008
H SHEET 03 OF 06
CAD REF. NO. 3338005_503



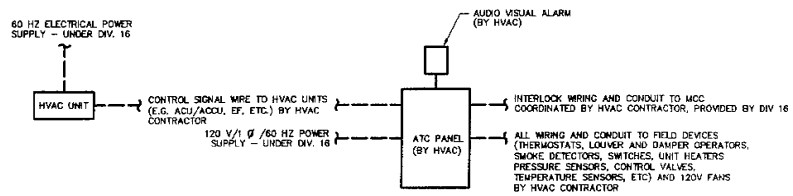
SECTION 1-07/04
SCALE: 1/4"=1'-0"



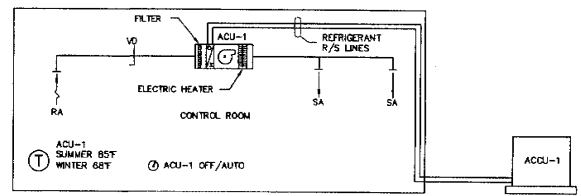
DEWATERING ROOM SCHEMATIC
SCALE: NONE



LOADING AREA SCHEMATIC
SCALE: NONE



ATC PANEL WIRING SCHEMATIC
SCALE: NONE



CONTROL ROOM SCHEMATIC
SCALE: NONE

NOTES:
1. SEE PLANS FOR CM'S
2. HAND-OFF-AUTO (HOA), H/L/O, AND OFF/AUTO SWITCHES ARE LOCATED AT ATC PANEL.

MALCOLM
PIRNIE



REVISIONS		DES.	QQT
NO.	BY	DATE	REVISION

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

DEWATERING FACILITY
SECTIONS AND SCHEMATICS

SCALE: AS NOTED

CTC
VERTICAL DATUM 1029
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
H SHEET 04 OF 05
CAD REF. NO. 3338005_504

GRILLE AND REGISTER SCHEDULE

MARK NO	LOCATION	SERVICE	TYPE	SECTION (UOM)	AIR FLOW (CFM)	DEFLECTION IN TURN	DAMPER TYPE	MFR	MODEL	NOTES
GR-1	DEWATERING FACILITY	CONTROL ROOM	DOUBLE DEFLECTION	24X10	SEE PLAN	45°	OPPOSED BLADE	ANEMOSTAT	X30	1,2
GR-1	DEWATERING FACILITY	CONTROL ROOM	SINGLE DEFLECTION	22X16	SEE PLAN	3°	NONE	ANEMOSTAT	X30	1,2

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 1590

FAN SCHEDULE

MARK NO	LOCATION	SERVICE	TYPE	DRIVE	AIRFLOW (CFM)	ESP (IN WG)	FAN SPEED (RPM)	MOTOR DATA				WEIGHT (LB)	MFR	MODEL	NOTES
								HP	BHP	HPM	V/PHZ				
EF-1	DEWATERING FACILITY	LOADING AREA	WALL MOUNTED PROPPELLER	DIRECT	1150/550	0.18	1140	1.6	0.14	1140/560	115/180	109	COOK	AW	1,2,3,4
EF-2	DEWATERING FACILITY	DEWATERING ROOM	WALL MOUNTED PROPPELLER	BELT	1400	0.60	1500	1.2	0.30	1750	400/540	80	HARTFELL	40	1,2,3,4
EF-3	DEWATERING FACILITY	DEWATERING ROOM	WALL MOUNTED PROPPELLER	BELT	4000/2000	0.18	900	1.2	0.43	1750/1140	400/540	204	COOK	AW	1,2,3,4

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 1580
 3. SPECIFICATION SECTION 1588
 4. 2 SPEED 2 WINDING MOTOR
 5. FIP CONSTRUCTION

GAS FIRED RADIANT HEATER SCHEDULE

MARK NO	LOCATION	SERVICE	HEATING DATA		BLOWER MOTOR DATA		MIN MAX INLET PRESSURE (IN W.C.)	MANIFOLD OPERATING PRESSURE (W.C.)	LENGTH (FT)	REFLECTOR ORIENTATION	MOUNTING HEIGHT (AFT)	WEIGHT (LB)	MFR	MODEL	NOTES		
			TYPE	FUEL CAPACITY (GAL)	CFM	HP										V/PHZ	
RH-1	DEWATERING FACILITY	LOADING AREA	NATURAL GAS	40	36	138	1/24	120/180	6.0/14.0	3.5	20	0°	20 FT	108	SOLA/RONCO	SE75	1,2,3,4,5
RH-2	DEWATERING FACILITY	LOADING AREA	NATURAL GAS	40	36	138	1/24	120/180	6.0/14.0	3.5	20	0°	20 FT	108	SOLA/RONCO	SE75	1,2,3,4,5

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 1550
 3. WALL THERMOSTAT
 4. 3/16" STAINLESS STEEL CONSTRUCTION
 5. STAINLESS STEEL INLET AND EXHAUST KITS

OPERABLE LOUVER ACTUATOR SCHEDULE

MARK NO	LOCATION	SERVICE	TYPE	ACTUATOR		MFR	MODEL	NOTES
				ENCLOSURE	VOLTS/PHZ			
L-1	DEWATERING FACILITY	LOADING AREA	2-POLE SR-NC	NEAR-XX	120/180	BELOD	AF	1,2
L-2	DEWATERING FACILITY	LOADING AREA	2-POLE SR-NC	NEAR-XX	120/180	BELOD	AF	1,2
L-5	DEWATERING FACILITY	DEWATERING ROOM	2-POLE SR-NC	NEAR-XX	120/180	BELOD	AF	1,2
L-6	DEWATERING FACILITY	DEWATERING ROOM	2-POLE SR-NC	NEAR-XX	120/180	BELOD	AF	1,2

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 1560

GAS FIRED UNIT HEATER SCHEDULE

MARK NO	LOCATION	SERVICE	HEATING DATA		LOUVER DATA		FAN CFM	MIN MAX INLET PRESSURE (IN W.C.)	MANIFOLD OPERATING PRESSURE (W.C.)	TEMP RISE (°F)	THROW (FT)	DISCHARGE ORIENTATION	MOUNTING HEIGHT (AFT)	WEIGHT (LB)	MFR	MODEL	NOTES	
			TYPE	FUEL CAPACITY (GAL)	CFM	HP												V/PHZ
QH-1	DEWATERING FACILITY	DEWATERING ROOM	NATURAL GAS	100	80	1000	120	115/180	1400	6.0/14.0	3.5	80	HORIZONTAL	8 FT	200	TRANE	GAND	1,2,3,4
QH-2	DEWATERING FACILITY	DEWATERING ROOM	NATURAL GAS	100	80	1000	120	115/180	1400	6.0/14.0	3.5	80	HORIZONTAL	8 FT	200	TRANE	GAND	1,2,3,4

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 1508
 3. WALL THERMOSTAT
 4. GEPARTED CONSTRUCTION

SPLIT SYSTEM AIR CONDITIONING UNIT SCHEDULE

MARK NO	LOCATION	SERVICE	GROSS SYSTEM COOLING CAPACITY				AIR CONDITIONING UNIT DATA (A/C)										AIR COOLED CONDENSING UNIT DATA (A/C)				MFR	MODEL (A/C)	NOTES					
			TOTAL TON	SENSIBLE TON	AIRFLOW (CFM)	ENTERING AIR DRY-BULB (°F)	AMBIENT (°F)	ICE (AMPS)	TOTAL POWER (KW)	V/PHZ	QTY	ESP (IN W.G.)	HP	BHP	MFR	KW	STAGES	TYPE	EFFICIENCY (%)	WEIGHT (LB)				ICE (AMPS)	TOTAL POWER (KW)	V/PHZ	QTY	TYPE
A/C-1	DEWATERING FACILITY	CONTROL ROOM	40.2	42.3	1400	58/74	80	27	30	205/160	1	0.3	1/2	12.3	3.6	1	1" PLEATED	30	165	9	15	400/540	1	SCROLL	220	TRANE	410DQHTA3042	1,2,3

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 1560
 3. FACTORY INSTALLED FUSED DISCONNECTS

PROJECT: REF: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

MALCOLM PIRNIE



REVISIONS			
NO.	BY	DATE	REVISION

DES QOT
 DIM RPM
 CND DJO

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

HVAC SCHEDULES
 SCALE: NO SCALE

CTC
 VERTICAL DATUM 1029
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 H SHEET 06 of 06
 CAD REF. NO. 3336005_006

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
	FLOOR SWITCH

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
CA	COMPRESSED AIR
CD	CHEMICAL DRAIN
CFM	CUBIC FEET PER HOUR
CL	CENTERLINE
CLG	CEILING
CO	CLEANOUT
CON.	CONNECT
CONN.	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
EWG	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
GLH	GAS 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
SPO	SUMP PUMP DISCHARGE LINE
SQ FT	SQUARE FOOT
SS	SERVICE SINK
ST	STORM DRAIN
ST STL	STAINLESS STEEL
TW	TEPID WATER
TWES	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 ELBS, 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

CTC

VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE _____ JUNE 2008
 P SHEET 01 of 05
 CAD REF. NO. 3338095_601

MALCOLM PIRNIE



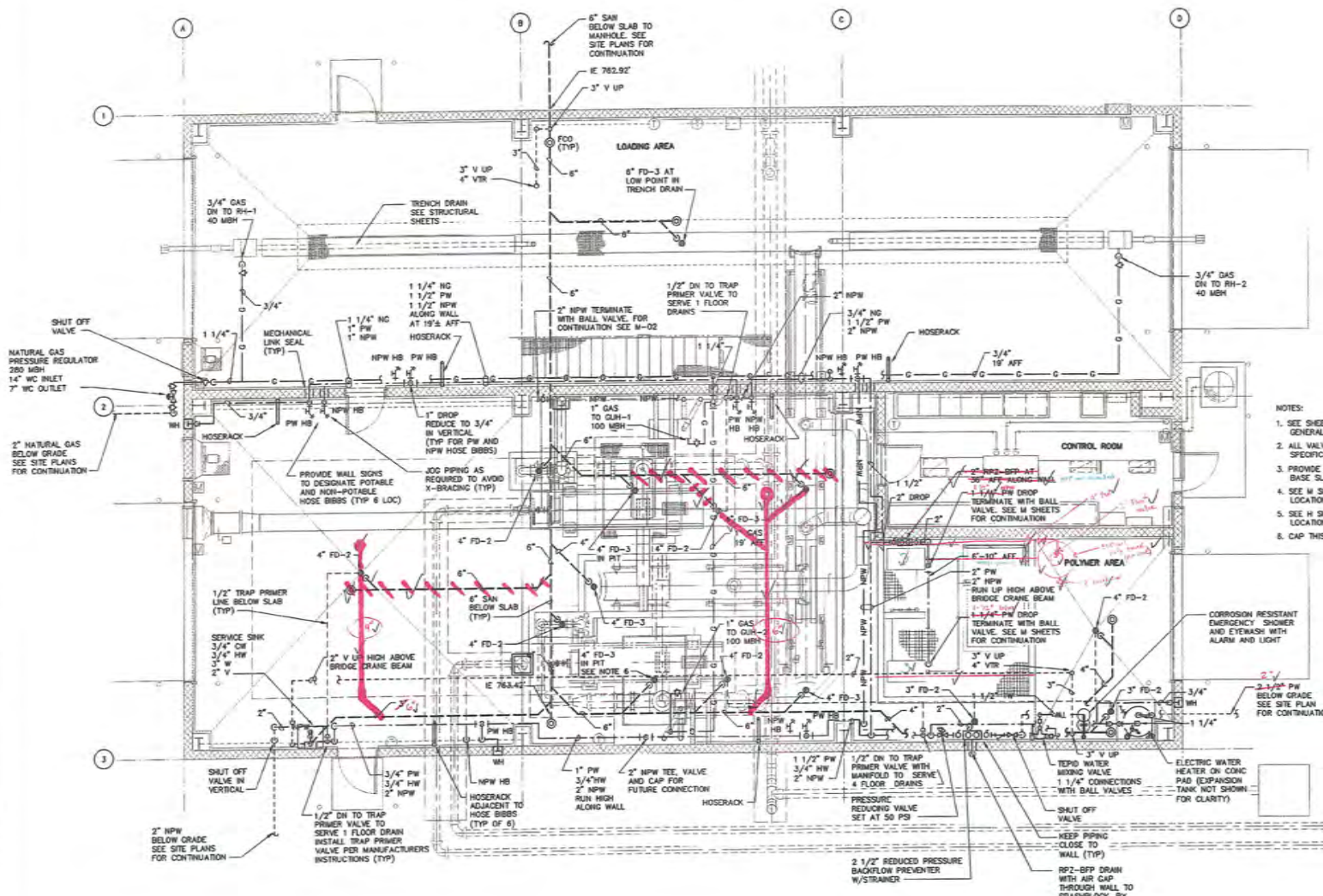
REVISIONS			
NO.	BY	DATE	REVISION

DCS RPM
 DWH RPM
 DDD RB

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

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

**CHANGE PER
MPI 9/25/08**



- NOTES:
1. SEE SHEETS P1, P3, AND P4 FOR SYMBOLS, ABBREVIATIONS, GENERAL NOTES, DETAILS AND RISER DIAGRAMS.
 2. ALL VALVES AND APPURTENANCES ARE NOT SHOWN, SEE DETAILS, SPECIFICATIONS AND RISER DIAGRAMS.
 3. PROVIDE CONCRETE ENCASUREMENT AROUND ALL PIPES UNDER STRUCTURE BASE SLABS TO 3'-0" BEYOND FOUNDATION LIMITS.
 4. SEE M SHEETS FOR PROCESS WATER USAGE POINTS. COORDINATE LOCATIONS WITH EQUIPMENT FURNISHED.
 5. SEE H SHEETS FOR HVAC NATURAL GAS USAGE POINTS. COORDINATE LOCATIONS WITH EQUIPMENT FURNISHED.
 6. CAP THIS DRAIN WITH CLEANOUT PLATE FOR FUTURE USE.

**MALCOLM
PIRNE**



REV.	BY	DATE	DESCRIPTION

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

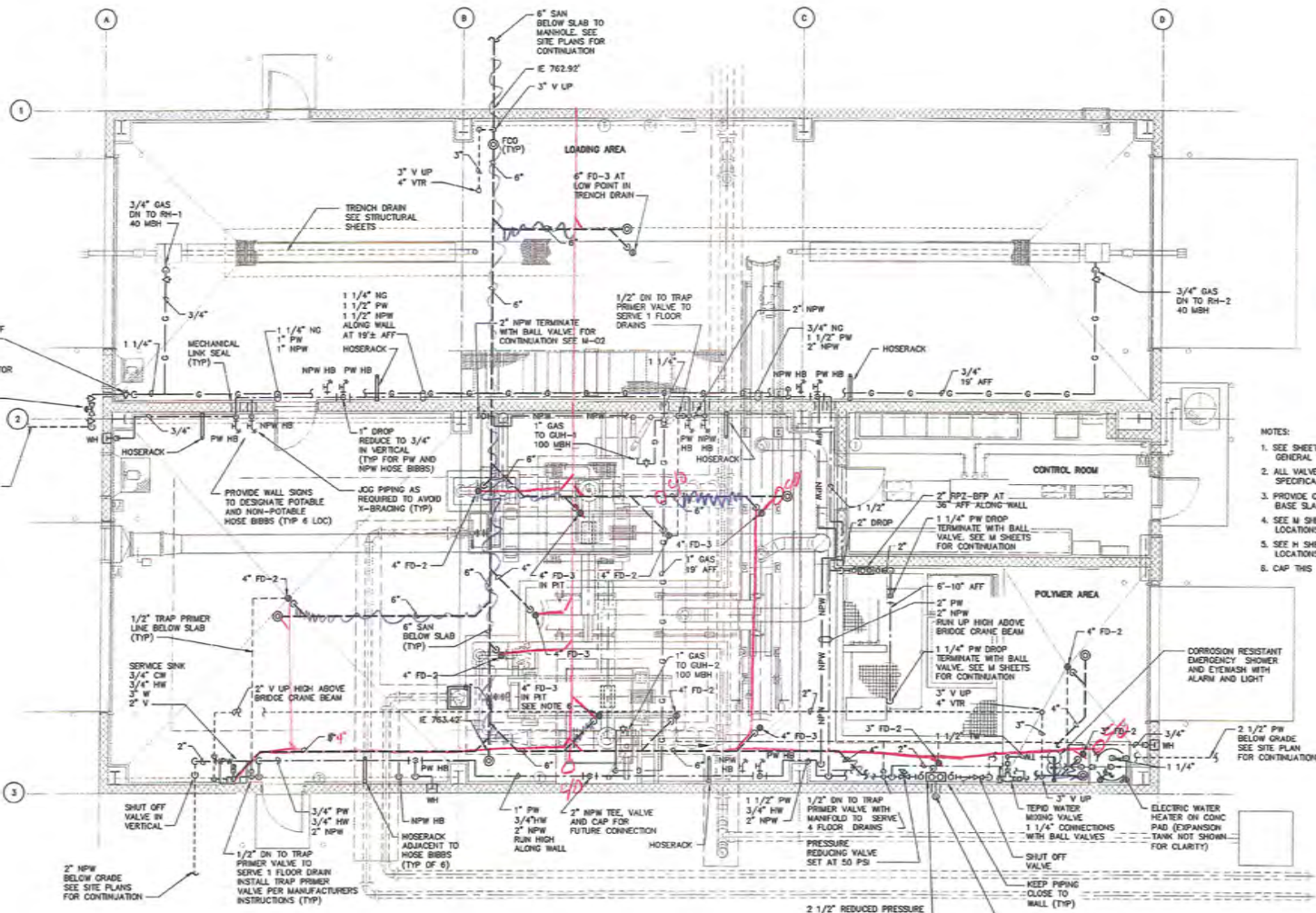
**DEWATERING FACILITY
 PLAN VIEW**

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

CTC
 VERTICAL DATUM 1929
 Copyright © 2008
 MALCOLM PIRNE, INC.
 DATE: JUNE 2008
 P SHEET 02 of 05
 CAD REF. NO. 3336005_602

Do not As-Built this sheet use previous sheet

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



**MALCOLM
PIRNIE**



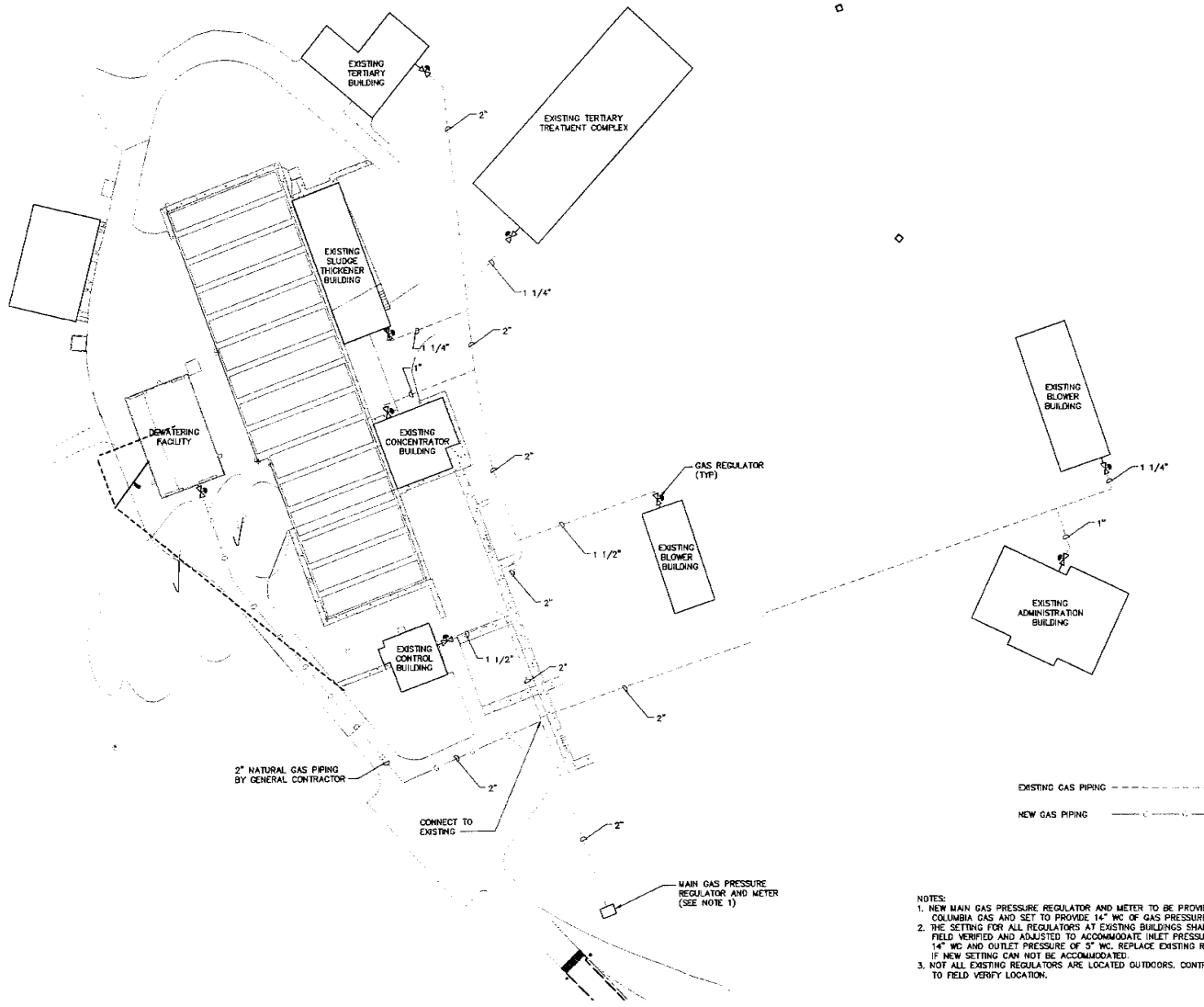
REVISIONS	
NO.	DATE

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

**DEWATERING FACILITY
PLAN VIEW**

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

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
P SHEET 02 OF 05
CAD REF. NO. 3338005_602



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

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

PLUMBING
**OVERALL SITE PLAN
 GAS PIPING SCHEMATIC**
 SCALE: 1:40

CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE JUNE 2008
 P SHEET 05 of 05
 CAD REF. NO. 3338005_605

**MALCOLM
 PIRNIE**



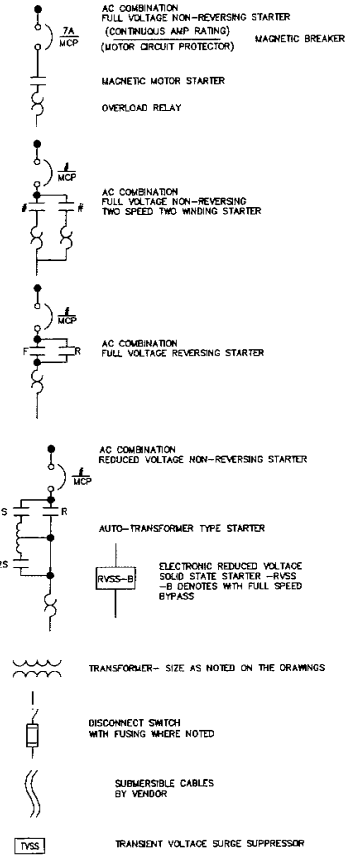
REVISIONS		REVISED
NO.	BY	DATE

DES. QOT
 OWN. RPM
 CTD. DJO

DATE PLOTTED: 2008-06-10 10:00:00 AM
 PLOTTER: HP DesignJet 2400
 PLOTTER MODEL: HP DesignJet 2400

DIAGRAMS:

- MOTOR STARTER/CONTROLLER (NON-COMBINATION - COMBINATION - MANUAL) RV DENOTES REVERSED VOLTAGE
- LOCAL CONTROL PANEL WITH CONTROLLERS FURNISHED BY EQUIPMENT VENDOR.
- POWER RECEPT. WITH DISCONNECT-600V, 3 PHASE, 4 WIRE NUMBER DENOTES AMPERE RATING
- POWER RECEPT. 600V, 3 PHASE, 4 WIRE
- POWER ON-OFF SNAP SWITCH, 1PH, 120V AC, 20A SS- DENOTES 2 POLE, 240 VOLTS, 20A
- 20A TWO OR THREE POLE MANUAL STARTER.
- PUSH-BUTTON STATION
- PUSH-BUTTON STATION WITH LOCK-OUT FEATURE
- SELECTOR SWITCH
- INDICATING LIGHT
- CONTROL STATION
- HAND-OFF-AUTO SELECTOR SWITCH CONTROL STATION
- CONTROL STATION FURNISHED BY EQUIPMENT VENDOR
- AMMETER - AMMETER SWITCH
- VOLTMETER - VOLTMETER SWITCH
- DISCONNECT SWITCH - 480V 3POLE UNFUSED OR FUSED F DENOTES FUSING, ONLY WHERE INDICATED. FIRST NUMBER DENOTES SWITCH AMP RATING. SECOND NUMBER DENOTES FUSE SIZE WHEN PROVIDED.
- VARIABLE FREQUENCY DRIVE - VFD -B WHEN INDICATED DENOTES WITH STARTING AND FULL SPEED BYPASS
- JUNCTION BOX; SIZE AS REQUIRED BY N.E.C.
- TERMINAL BOX; SIZE AS REQUIRED BY N.E.C. AND TO ACCOMMODATE ALL TERMINATIONS ON TERMINAL BLOCKS. TERMINATIONS TO INCLUDE SPARE WIRING.
- PULL BOX; SIZE AS REQUIRED BY N.E.C.
- LOCK FOR RESPECTIVE KEY INTERLOCK WITH KEY CAPTIVE IN LOCK
- LOCK FOR RESPECTIVE KEY INTERLOCK
- OVER-TEMPERATURE DEVICE
- ELECTRIC MOTOR (NUMBER INDICATES HORSEPOWER).
- MOTORIZED VALVE WITH CONTROLLER BY VENDOR
- PFD DENOTES PULL FUSE DISCONNECT TYPE
- 600/5 CURRENT TRANSFORMER, RATIO AND QUANTITY DENOTED
- POTENTIAL TRANSFORMER
- FIXED MOUNTED POWER OR MOLDED CASE CIRCUIT BREAKER WITH RUS TYPE SOLID STATE TRIP PROGRAMMER.
- DENOTES PLUG RATING WHEN LESS THAN SENSOR RATING IS REQUIRED
- (FRAME SIZE) 100 (TRIP SIZE) 30
- THERMAL-MAGNETIC CIRCUIT BREAKER 2P WHEN NOTED DENOTES 2 POLE



- PLANS:**
- 1-2 DUPLEX CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C. 20 AMP RECEPTACLE DESIGNATIONS. FIRST NUMBER DENOTES PANEL, SECOND NUMBER DENOTES CIRCUIT NUMBER. OF-DENOTES GROUND FAULT TYPE, SS-DENOTES SURGE SUPPRESSION TYPE WF-DENOTES WEATHERPROOF ENCLOSURE
 - 3 SINGLE CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C. 20 AMP UNLESS NOTED OTHERWISE ON DRAWINGS.
 - 4 POWER RECEPTACLE, 2 POLE, 3 WIRE 250 VOLTS A.C. 20 AMP UNLESS NOTED OTHERWISE ON DRAWINGS.
 - 5 SINGLE POLE SWITCH - LOWER CASE LETTER DENOTES SWITCHING.
 - 6 TWO POLE SWITCH
 - 7 THREE-WAY SWITCH
 - 8 FOUR-WAY SWITCH

- LETTERS AND NUMBERS INDICATE PANEL AND CIRCUIT NUMBER (LP1-2). CROSS LINES INDICATE NUMBER OF CONDUCTORS. HALF HASH MARKS INDICATES NEUTRAL.
- NUMBER (10) DENOTES WIRE SIZE WHEN NOT #12 AWG. CONTINUE CONDUIT AND WIRE RUN FROM BOX TO DEVICE ROOM OR AREA AS NOTED BY BRANCH CIRCUIT NUMBER. #10 AND WIRING SHALL BE USED FOR RUNS BETWEEN PANEL AND FIRST LIGHTING FIXTURE OR RECEPTACLE EXCEEDING 50 FEET, UNLESS OTHERWISE NOTED ON DRAWING.
- INDICATES GROUND CONDUCTOR
- INDICATES HOMERUN AND CONDUIT TAG
- ELECTRICAL MANHOLE
- ELECTRICAL HANDHOLE
- TELEPHONE MANHOLE
- TELEPHONE HANDHOLE
- PHOTOCELL
- FLUORESCENT LIGHTING FIXTURE - SURFACE OR PENDANT MOUNTED. FIRST NUMERAL DENOTES LIGHTING PANEL (LP1), SECOND NUMBER DENOTES BRANCH CIRCUIT NUMBER. LOWER CASE LETTER DENOTES SWITCHED CIRCUIT.
- FLUORESCENT LIGHTING FIXTURE WITH BATTERY PACK - SURFACE OR PENDANT MOUNTED.
- CEILING OR PENDANT MOUNTED LIGHTING FIXTURE.
- CEILING OR PENDANT MOUNTED LIGHTING FIXTURE WITH AUXILIARY EMERGENCY LAMP
- WALL MOUNTED LIGHTING FIXTURE.
- POLE OR STANCHION MOUNTED LIGHTING FIXTURE.
- TWO (2) POLE OR STANCHION MOUNTED LIGHTING FIXTURES
- POLE MOUNTED FIXTURE WITH OF RECEPTACLE
- 2 LAMP SELF CONTAINED DC EMERGENCY LIGHTING UNIT. LETTER DENOTES FIXTURE TYPE
- FIXTURE DESIGNATION SYMBOL. SEE LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION AND TYPE. ALL FIXTURES SHOWN IN A ROOM WITH THIS SYMBOL SHALL BE OF TYPE INDICATED BY LETTER. NUMBER IN SYMBOL INDICATES LAMP WATTAGE AND NUMBER OF LAMPS WHERE MORE THAN ONE (UNLESS OTHERWISE NOTED). NUMBER BELOW SYMBOL INDICATES MOUNTING HEIGHT ABOVE FINISHED FLOOR OR AS NOTED.
- MOTOR, UNIT HEATER-NUMERAL DENOTES LIGHTING PANEL AND BRANCH CIRCUIT NUMBER. MOTOR SYMBOL SHOWN DASHED DENOTES EQUIPMENT LOCATED ON ROOF.
- THERMOSTAT
- INDICATES NEW EQUIPMENT/EXPOSED CONDUIT
- INDICATES EXISTING EQUIPMENT/CONDUIT
- INDICATES CONCEALED OR UNDERGROUND EQUIPMENT/CONDUIT
- GROUND ROD
- GROUND TEST POINT
- GROUND GRID CABLE CONNECTION
- GROUND
- #4/0 GROUND CABLE BURIED 2'-0" BELOW GRADE, UNLESS NOTED OTHERWISE

- INSTRUMENTS:**
- INSTRUMENT DEVICE: LETTERS IDENTIFY DEVICE FUNCTION, NUMBERS WHERE INDICATED DENOTE LOOP NUMBER
 - PRESSURE CONTROLLER
 - PRESSURE SWITCH (PSH DENOTES PRESSURE SWITCH HIGH AND PSL DENOTES PRESSURE LOW)

- DIFFERENTIAL PRESSURE SWITCH (DPSH DENOTES PRESSURE SWITCH HIGH AND DPSL DENOTES PRESSURE SWITCH LOW)
- DIAPHRAGM LEAK DETECTOR
- FLOW SWITCH (FSH DENOTES FLOW SWITCH HIGH AND FSL DENOTES FLOW SWITCH LOW)
- LIMIT SWITCH
- PRESSURE TRANSMITTER (I DENOTES INDICATING TYPE AND PE DENOTES PRESSURE ELEMENT)
- LEVEL TRANSMITTER (LE DENOTES LEVEL ELEMENT)
- FLOW TRANSMITTER (FE DENOTES FLOW ELEMENT)
- ANALYSIS TRANSMITTER (AE DENOTES ANALYSIS ELEMENT)
- TEMPERATURE TRANSMITTER (TE DENOTES TEMPERATURE ELEMENT)
- TEMPERATURE SWITCH (TSH DENOTES TEMPERATURE SWITCH HIGH AND TSL DENOTES TEMPERATURE SWITCH LOW)
- LEVEL SWITCH (LSH DENOTES LEVEL SWITCH HIGH AND LSL DENOTES LEVEL SWITCH LOW. LE DENOTES LEVEL ELEMENT)
- VIBRATION SWITCH (VE INDICATES VIBRATION ELEMENT)
- MOTORIZED VALVE
- SOLENOID VALVE
- STROKE POSITIONER
- STROBE LIGHT

FIRE ALARM SYSTEM:

- FIRE ALARM CONTROL PANEL
- HORN
- MANUAL PULL STATION
- DUCT MOUNTED SMOKE DETECTOR
- SMOKE DETECTOR MULTISENSOR
- END OF LINE RESISTOR
- THERMAL DETECTOR (TSD AND RATE OF RISE) H-HIGH TEMPERATURE
- AUDIO/VISUAL ALARM INDICATOR (HORN/STROBE) NUMBER INDICATES STROBE CANDELLA RATING WHEN OTHER THAN 15
- ALARM BEACON LETTER INDICATES COLOR
- FLAME DETECTOR

AUXILIARY SYSTEM:

- ALARM CONTROL PANEL
- EXISTING EXTENSION NUMBER
- COMMUNICATION/TELEPHONE
- DESK HANDSET AND SYSTEM OUTLET JACK
- WALL HANDSET AND SYSTEM OUTLET JACK
- EXPLOSION PROOF
- WEATHERPROOF
- KEYS
- INTERCOM
- SPEAKER/HORN
- HORN
- PAGING SPEAKER
- GAS MONITORING HORN
- CEILING MOUNTED SPEAKER

ABBREVIATIONS:

- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- ATS AUTOMATIC TRANSFER SWITCH
- AWG AMERICAN WIRE GAUGE
- BKR BREAKER
- CBV CABLE BY VENDOR, INSTALLED BY CONTRACTOR

- CKT CIRCUIT
- CNTRL CONTROL
- CP-1 CONTROL PANEL, NUMBER AS NOTED
- CPT CONTROL POWER TRANSFORMER
- CT CURRENT TRANSFORMER
- DN DOWN
- DPOT DOUBLE POLE DOUBLE THROW
- EC EMPTY CONDUIT
- EL ELEV ELEVATION
- EP EXPLOSION PROOF
- EXIST EXISTING
- FEEDER FEEDER
- FIXT FIXTURE
- FVNR FULL VOLTAGE NON-REVERSING
- G GALVANIZED
- GRD GROUND
- HOA HAND-OFF/AUTO
- JB OR J JUNCTION BOX, CONDULET, FITTING AS REQUIRED BY NEC, UNLESS NOTED OTHERWISE
- KCAL OR MCN THOUSAND CIRCULAR MILS
- LA LIGHTING ARRESTOR
- LCP LOCAL CONTROL PANEL
- LTC LIGHTING
- MCC MOTOR CONTROL CENTER
- MTS MANUAL TRANSFER SWITCH
- NA NON-AUTOMATIC
- NCA NORMALLY CLOSED, TIME CLOSED
- NCTO NORMALLY CLOSED, TIME OPEN
- NOTIC NORMALLY OPEN, TIME CLOSED
- NOTD 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
- RWR REDUCED VOLTAGE NON-REVERSING
- (S) (S1) SHIELDED CABLE
- SP SPARE
- SEL SELECTOR
- SWBD SWITCHBOARD
- SWGR SWITCHGEAR
- TEW THERMOCOUPLE EXTENSION WIRE UNLESS OTHERWISE NOTED
- USE UNDERGROUND SERVICE ENTRANCE CABLE
- WP WEATHERPROOF
- WT WINDING TEMPERATURE RELAY TRANSFORMER
- WFR 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.

CTC

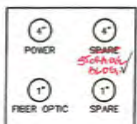
VERTICAL DATUM 1928
COPYRIGHT © 2008 MALCOLM PIRNIE, INC.
DATE JUNE 2008
E SHEET 01 OF 10
CAD REF. NO. 3338005_676



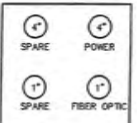
REV.	BY	DATE	REVISIONS

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

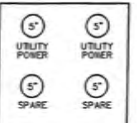
ELECTRICAL LEGEND, SYMBOLS AND ABBREVIATIONS
SCALE: NO SCALE



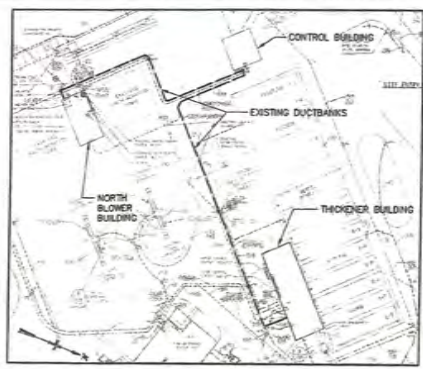
SECTION 1
NOT TO SCALE



SECTION 2
NOT TO SCALE



SECTION 3
NOT TO SCALE

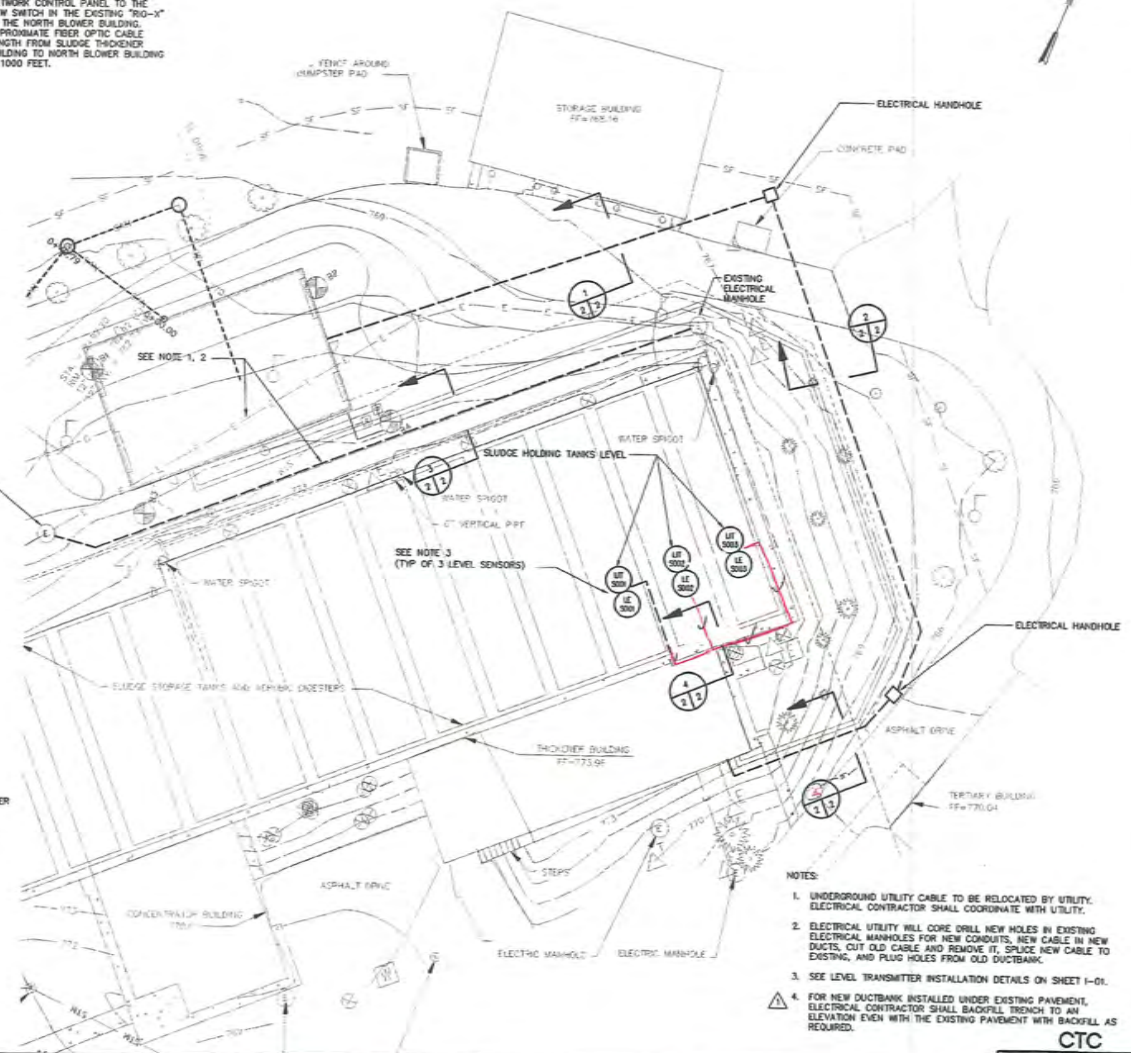


SCALE: NOT TO SCALE

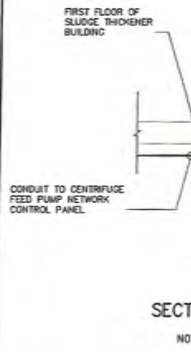
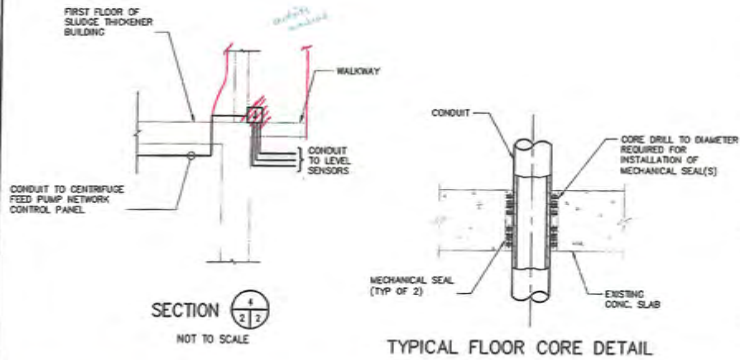
NOTE:
USE 2" SPARE CONDUIT IN THE BASEMENT OF THE SLUDGE THICKENER BUILDING TO ROUTE FIBER OPTIC CABLE FROM CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL TO THE NEW SWITCH IN THE EXISTING "RO-X" IN THE NORTH BLOWER BUILDING. APPROXIMATE FIBER OPTIC CABLE LENGTH FROM SLUDGE THICKENER BUILDING TO NORTH BLOWER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

Handwritten note:
This detail shows how the basement of the thickener building is located with the manhole.

SECTION 4



- 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 E-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.



REVISIONS			
NO.	BY	DATE	REVISION
1	AK	06/24/08	REVISED PER ADDENDUM NO.1

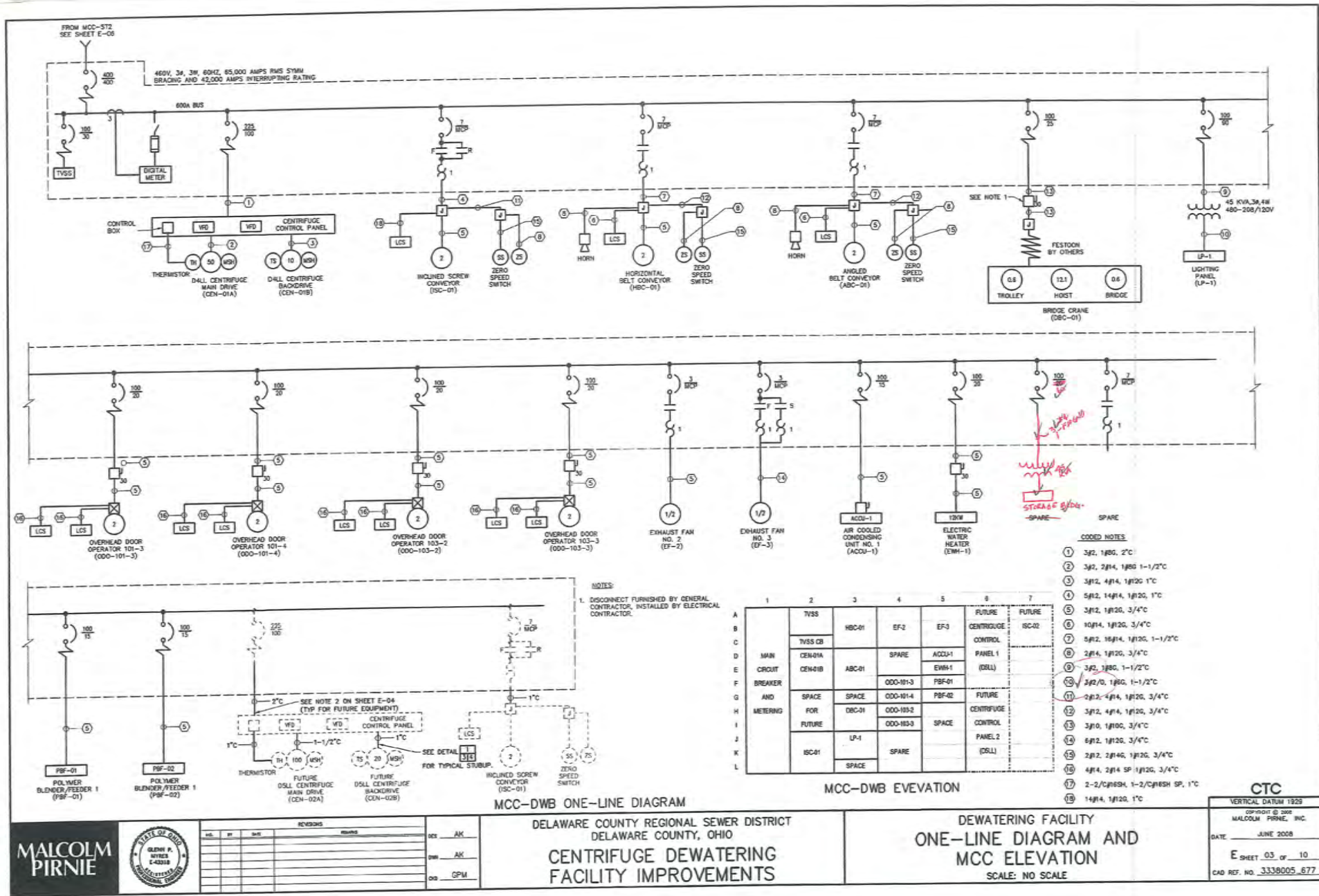
MALCOLM PIRNIE

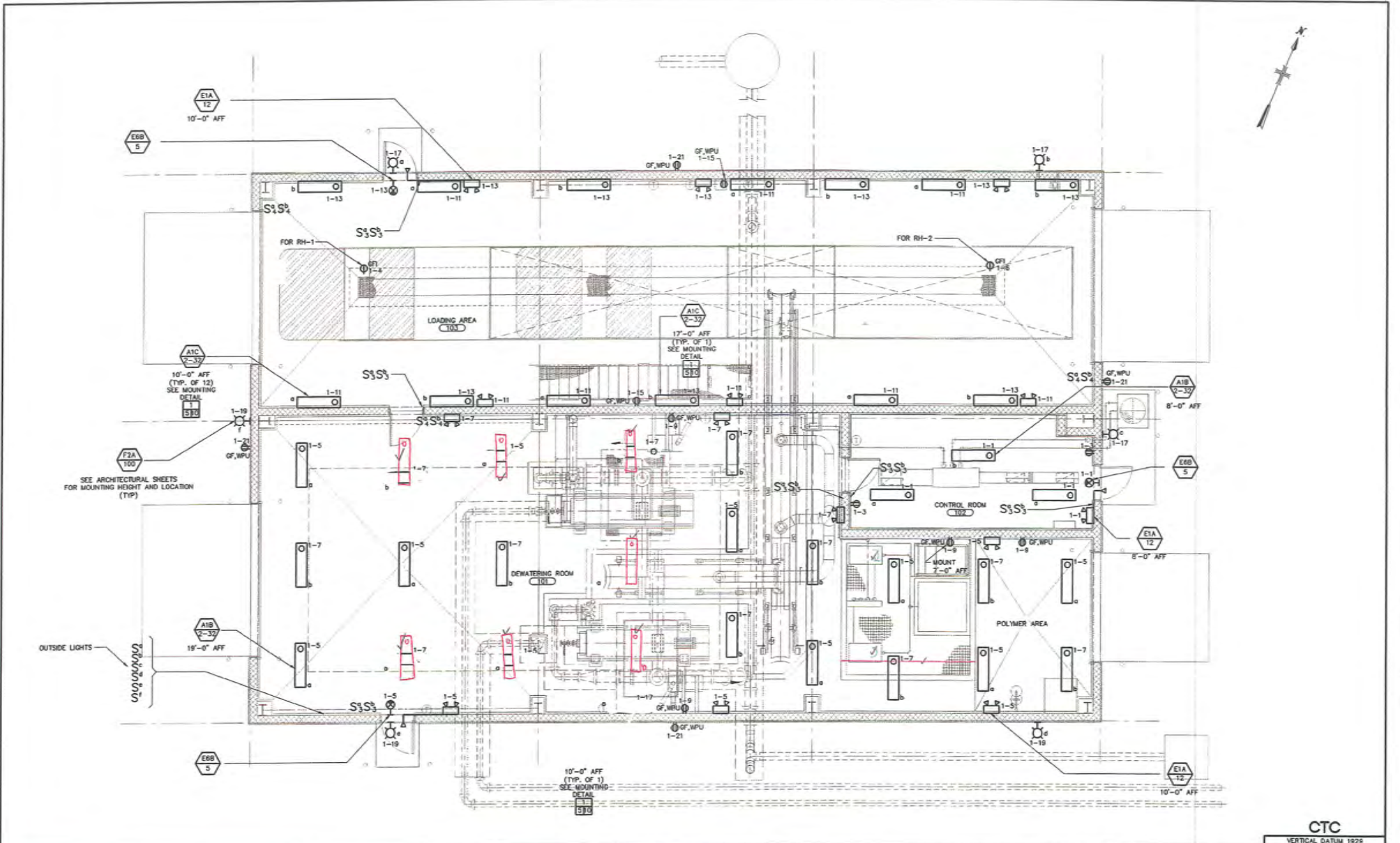


DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

ELECTRICAL SITE PLAN
SCALE: 1:20

CTC
VERTICAL DATUM 1929
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE: JUNE 2008
E SHEET 02 OF 10
CAD REF. NO. 3338005_685





**MALCOLM
PIRNIE**



REV.	BY	DATE	REVISIONS

DES AK
DWG AK
DND GPM

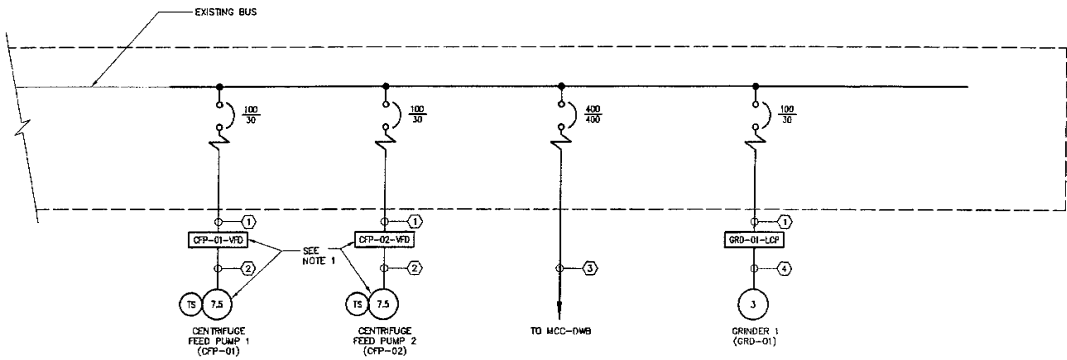
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

**DEWATERING FACILITY
LIGHTING PLAN**

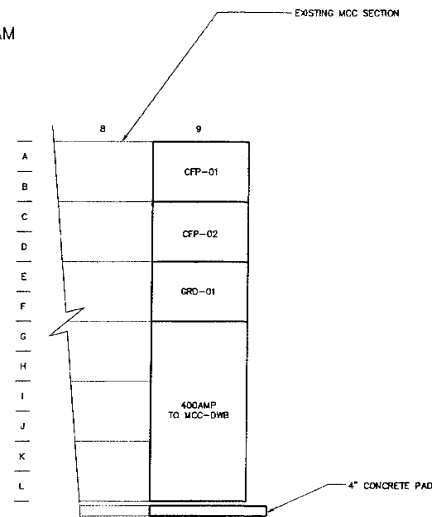
SCALE: 1/4" = 1'-0"

CTC
VERTICAL DATUM 1928
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE JUNE 2008
E SHEET 05 of 10
CAD REF. NO. 3338005_581

DELAWARE COUNTY REGIONAL SEWER DISTRICT, 10000 DELAWARE AVENUE, WILMINGTON, OHIO 43081



MCC-ST2 PARTIAL ONE LINE DIAGRAM



MCC-ST2 PARTIAL ELEVATION

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

- CODED NOTES
- ① 3/10, 1/100, 3/4"
 - ② 3/10, 2/14, 1/100, 3/4"
 - ③ 3/5000CM, 1/20, 4"
 - ④ 3/12, 1/120, 3/4"

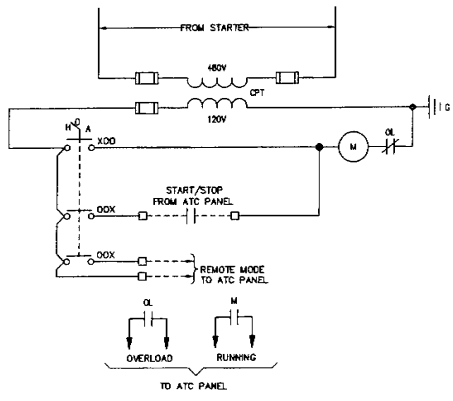


REVISIONS		
NO.	BY	DATE

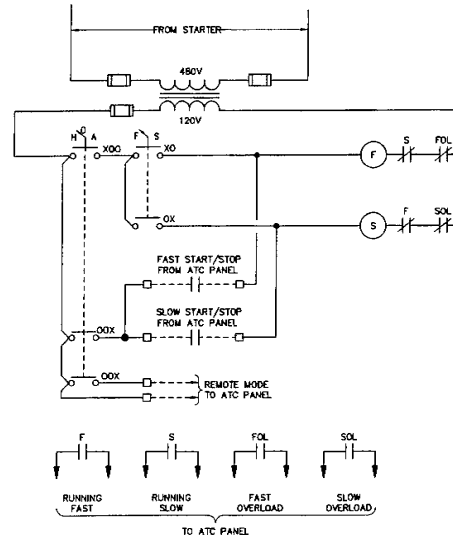
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

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

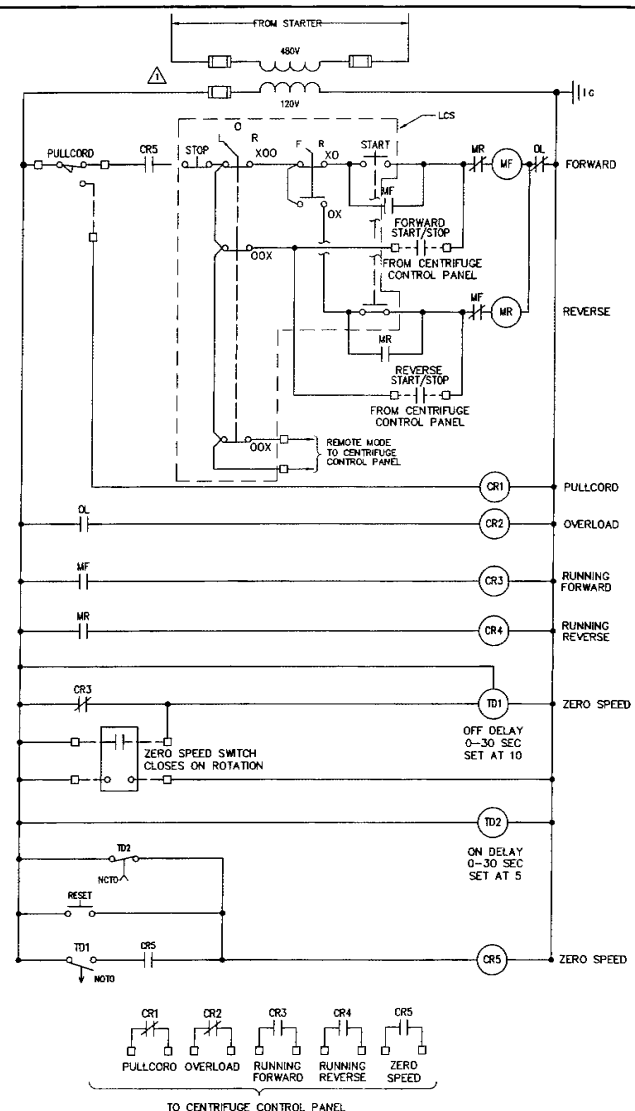
CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 E SHEET 06 OF 10
 CAD REF. NO. 3338009_678



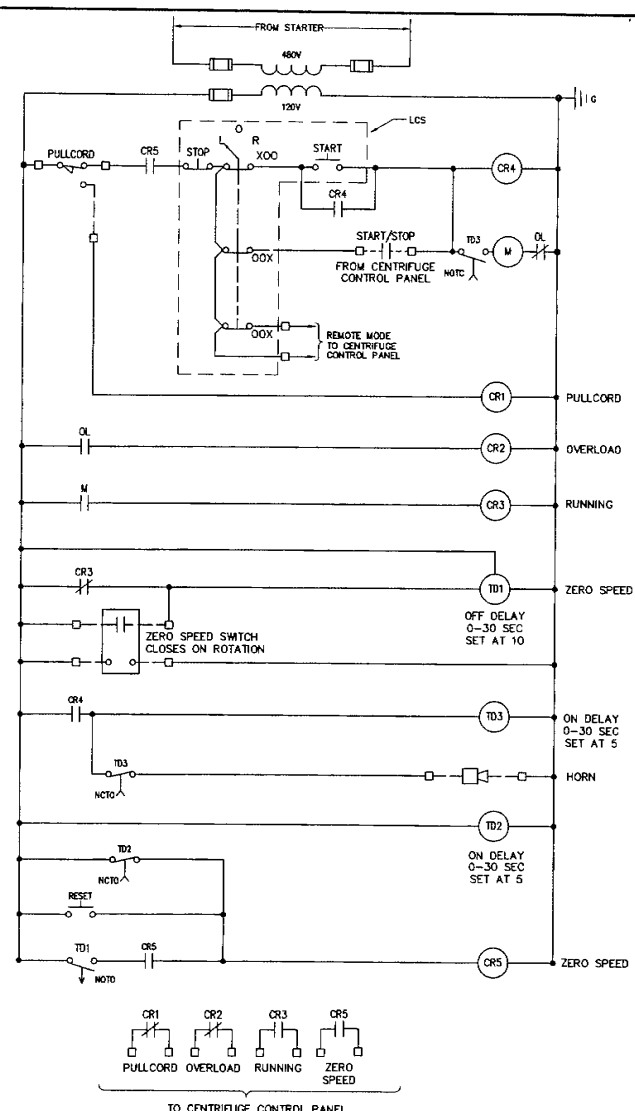
SINGLE SPEED FANS
EF-2



TWO SPEED FANS
EF-3



INCLINED SCREW CONVEYOR (ISC-01)



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

**MALCOLM
PIRNIC**



REVISIONS			
NO.	BY	DATE	DESCRIPTION
1	AK	06/15/08	REVISED PER ADDENDUM NO. 1

DES: GPM/AK
OWN: AK
CND: GPM

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO

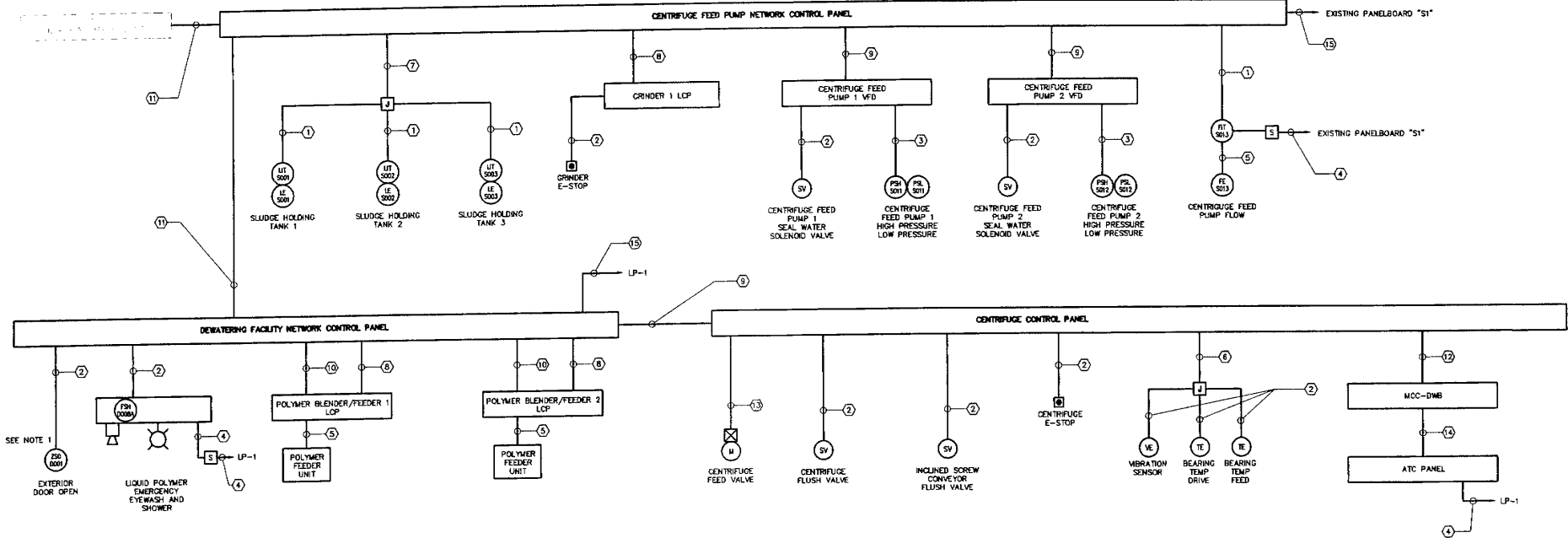
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

**ELECTRICAL
CONTROL SCHEMATICS**

SCALE: NO SCALE

CTC

VERTICAL DATUM 1829
COPYRIGHT © 2008
MALCOLM PIRNIC, INC.
DATE: JUNE 2008
E SHEET 08 of 10
CAD REF. NO. 3338005_687



RISER DIAGRAM

NOTES:
 1. DOOR CONTACT ZSD-0001 WIRING IS TYPICAL FOR DOOR CONTACTS ZSD-0002, THROUGH ZSD-0007 (3 PERSONNEL DOORS, 4 ROLLUP DOORS).

LP-1 SCHEDULE

NO	TRIP	DESCRIPTION	AMPS	KVA	A	B	C	KVA	AMPS	DESCRIPTION	TRIP NO
1	20	CONTROL ROOMS	2.5	0.3	0.5	---	0.2	1.7	1.7	EMERGENCY STOP/SPEAKER	20 2
3	20	CONTROL ROOM RECEPTACLES	3.3	0.4	---	0.8	---	2.5	1.7	PH1 RECEPTACLE	20 4
5	20	DEWATERING ROOMS	7.5	0.9	---	1.1	0.2	1.7	---	PH2 RECEPTACLE	20 6
7	20	DEWATERING ROOMS	0.7	0.08	0.08	---	0.1	0.8	---	SPARE	20 8
8	20	DEWATERING ROOM RECEPTACLES	6.7	0.8	---	0.9	---	0.1	0.8	---	20 10
11	20	LOADING AREAS	4.7	0.5	---	1.5	1.9	0.7	---	ALC PANEL	20 12
13	20	LOADING AREAS	4.1	0.5	2.2	---	1.4	1.9	1.9	PH1	20 14
15	20	LOADING AREA RECEPTACLES	3.5	0.4	---	2.1	---	1.7	1.7	---	20 16
17	20	OUTSIDE LITS	0.3	0.0	---	1.8	1.8	0.3	---	NETWORK CONTROL PANEL	20 18
18	20	OUTSIDE LITS	1.3	0.1	1.6	---	1.8	0.3	---	---	20 20
21	20	OUTSIDE RECEPTACLES	6.7	0.8	---	0.8	---	0.0	---	---	20 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	20 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			52	4.4	4.2						
TOTAL KVA CONNECTED			47.7	3.83	3.83						
TOTAL AMPS PER PHASE			47.7	3.83	3.83						

120/240V 3 PHASE 4 WIRE
 225A BUS 150A MAIN CB
 GROUND BUS, NEUTRAL BUS
 PANEL AND BREAKERS RATED 22 KVA
 PROVIDE MISCELLANEOUS LIT

BUILDING: DEWATERING BUILDING
 ROOM: CONTROL ROOM
 FED FROM: MCC-04D
 ENCLOSURE: NEMA 12

PANELBOARD "S1" SCHEDULE

NO	TRIP	DESCRIPTION	AMPS	KVA	A	B	C	KVA	AMPS	DESCRIPTION	TRIP NO	
1	20	LOWER LEVEL RECEPTACLES	3.0	0.4	2.6	---	1.5	1.7	1.7	LOWER LEVEL LIGHTS	20 2	
3	20	UPPER LEVEL RECEPTACLES	6.0	0.7	---	2.1	---	1.4	1.7	UPPER LEVEL BLOWER RELAYS	20 4	
5	20	UPPER LEVEL RECEPTACLES	7.5	0.9	---	---	2.3	1.4	1.1	UPPER LEVEL BLOWER RELAYS	20 6	
7	20	UPPER LEVEL RECEPTACLES	8.0	1.1	2.8	---	---	0.9	7.8	UPPER LEVEL CONVEYOR LIGHTS	20 8	
9	20	SPRINKLER COP	0.0	0.0	---	0.8	---	0.0	2.0	SPRINKLER LIGHTS	20 10	
11	20	TRUCK EXHAUST STOP, SP	0.0	0.0	---	0.0	0.0	0.0	0.0	SPARE	20 12	
13	20	SPARE	0.0	0.0	0.0	---	0.0	0.0	0.0	---	15	
15	20	SPARE	0.0	0.0	0.0	---	0.0	0.0	0.0	EXTERIOR OVER-HEAD DOOR	18	
17	20	SPARE	0.0	0.0	0.0	---	0.5	0.5	4.1	OPERATOR	38	
19	20	SPARE	0.0	0.0	0.0	---	0.0	0.0	0.0	---	16	
21	20	SPARE	0.0	0.0	0.0	---	0.0	0.0	0.0	INTERIOR OVER-HEAD DOOR	10	
23	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
25	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
27	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
29	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
31	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
33	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
35	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
37	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
39	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
41	20	RECESSED-TANK "B" SV	0.8	0.1	0.1	---	1.7	---	0.5	4.1	OPERATOR	38
TOTAL KVA PER PHASE			22.0	2.2	2.3	2.8						
TOTAL KVA CONNECTED			22.4	2.3	2.8							
TOTAL AMPS PER PHASE			22.4	2.3	2.8							

120/240V 3 PHASE 4 WIRE
 225A BUS 150A MAIN CB
 GROUND BUS, NEUTRAL BUS
 PANEL AND BREAKERS RATED 22 KVA

BUILDING: SLUDGE THICKENER BUILDING
 ROOM: BLOWER ROOM
 FED FROM: MCC-21C
 ENCLOSURE: NEMA 1

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

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

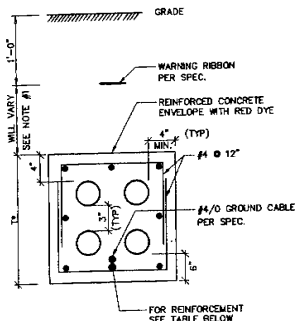


NO.	BY	DATE	REVISIONS	ISSUED

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

ELECTRICAL
 RISER DIAGRAM AND
 LIGHTING PANEL SCHEDULES
 SCALE: NO SCALE

CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 E SHEET 09 OF 10
 CAD REF. NO. 3338005_682



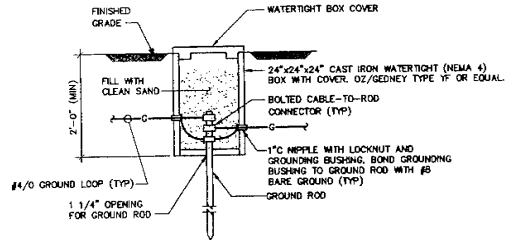
REINFORCEMENT TABLE		
DUCT BANK THICKNESS SEE NOTE #2	UNDER ROADWAY*	AT NON-TRAFFIC AREA
T < 18"	#6 @ 12" (MIN) ALL AROUND	#6 @ 12" ALL AROUND
T ≥ 18"	#7 @ 12" (MIN) ALL AROUND	#6 @ 12" ALL AROUND

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

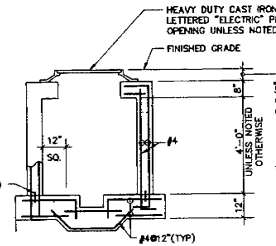
TYPICAL DUCT BANK SECTION

TYPE OF CONNECTION	BOLTED OR COMPRESSION		WELDED
	BURNDY CAT#	T&B CAT#	
CABLE TO LUG	YA	54000 SERIES	LA
CABLE TO ROD	-	53000 SERIES	GT
ROD TO ROD	GAR	-	GR
CABLE TO CABLE	GX	53000 SERIES	TV OR TA
CABLE TO PIPE	-	-	HA OR VS
CABLE TO PIPE OR CONDUIT	GAR OR GO	3900 SERIES	-
CABLE TO FLAT SURFACE	GB	-	HA OR HS
BRAD TO PIPE	GC	-	-

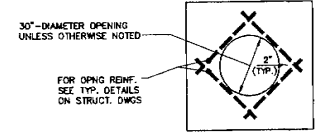
GROUNDING CONNECTIONS



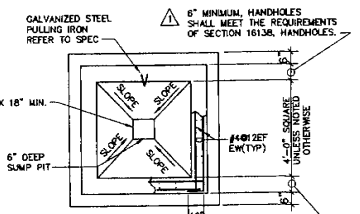
EXTERIOR GROUND TEST POINT



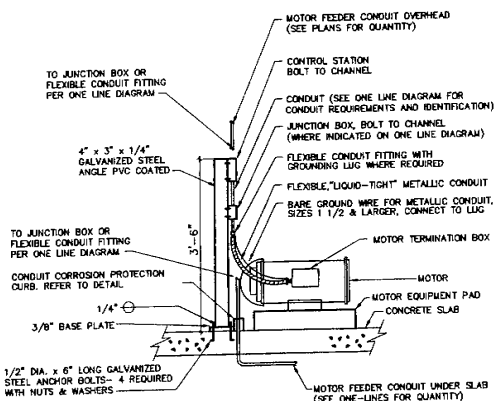
SECTION



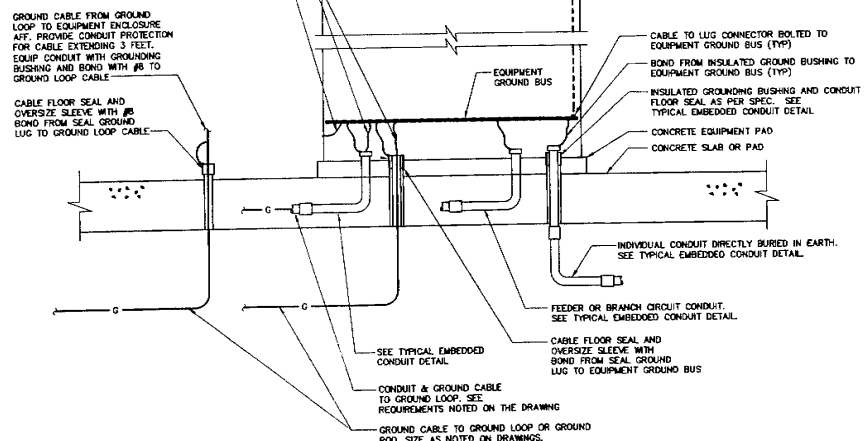
ROOF PLAN



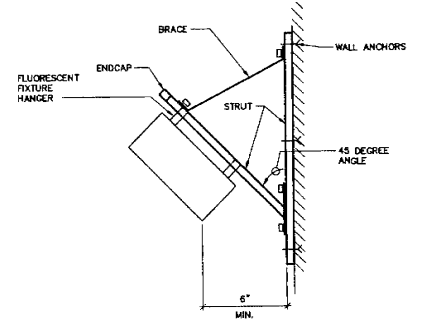
ELECTRICAL HANDHOLE DETAIL



ELECTRIC MOTOR TERMINATION AND DEVICE MOUNTING DETAIL



TYPICAL EQUIPMENT GROUNDING DETAIL



FLUORESCENT WALL MOUNT BRACKET DETAIL

SCALE: NOT TO SCALE
 DETAIL 1 OF 10

CTC

MALCOLM PIRNIE



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

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

ELECTRICAL
 DETAILS

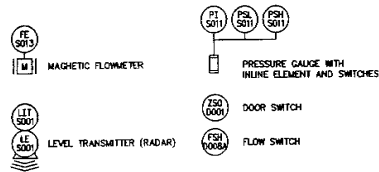
SCALE: NO SCALE

VERTICAL DATUM 1929
COPYRIGHT © 2008 MALCOLM PIRNIE, INC.
DATE: JUNE 2008
E SHEET 10 OF 10
CAD REF. NO. 3338005_684

INSTRUMENT IDENTIFICATION TABLE

FIRST LETTER	SUCCEEDING LETTERS				
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM	USER'S CHOICE	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 TRUE 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			RUNNING/STOPPED
R	RADIOACTIVITY		RECORD OR PRINT		
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			ORING ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

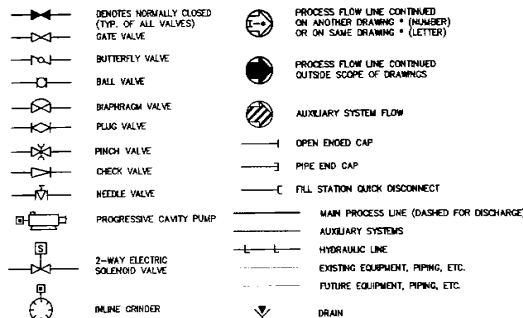
PRIMARY ELEMENTS SYMBOLS



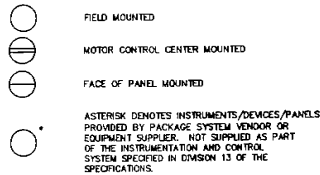
INSTRUMENT TAGGING



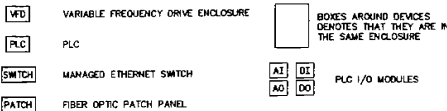
PROCESS SYMBOLS



INSTRUMENT AND FUNCTION SYMBOLS



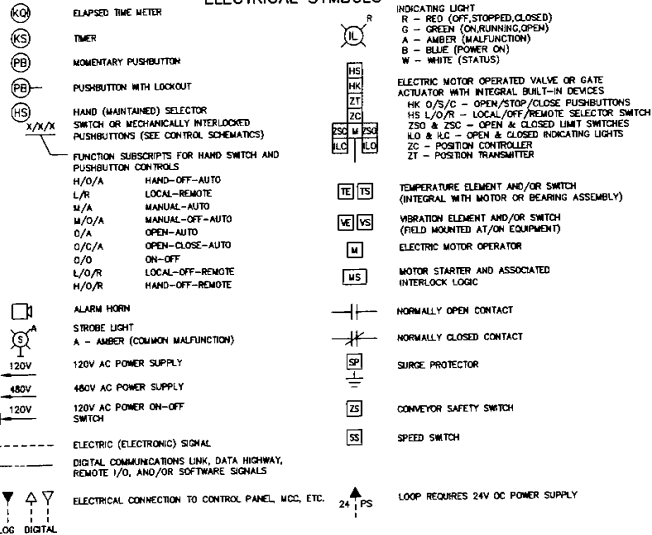
CONFIGURATION DRAWING SYMBOLS



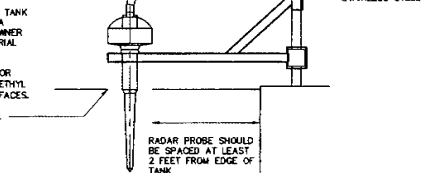
ABBREVIATIONS

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

ELECTRICAL SYMBOLS



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



LEVEL TRANSMITTER INSTALLATION DETAILS

MALCOLM PIRNIE

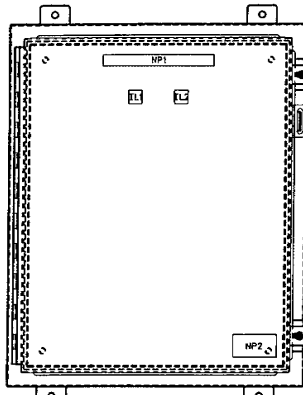


REV.	BY	DATE	REVISIONS
1	RJB	06/14/08	REVISED PER ADDENDUM 180.2
2	RJB		
3	WAV		

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

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

CTC
 VERTICAL DATUM 1929
 COPYRIGHT © 2008
 MALCOLM PIRNIE, INC.
 DATE: JUNE 2008
 I SHEET 01 of 05
 CAD REF. NO. 3338005_851



SEE NOTES 1, 2

CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL FRONT FACE LAYOUT

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

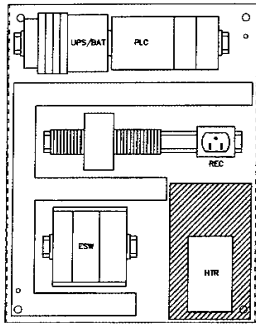
NO.	LETTERING (IN)	NAMEPLATE TEXT
NP1	1/2	CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL
NP2	3/8	WARNING - YELLOW WIRING ENERGIZED FROM ANOTHER SOURCE

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

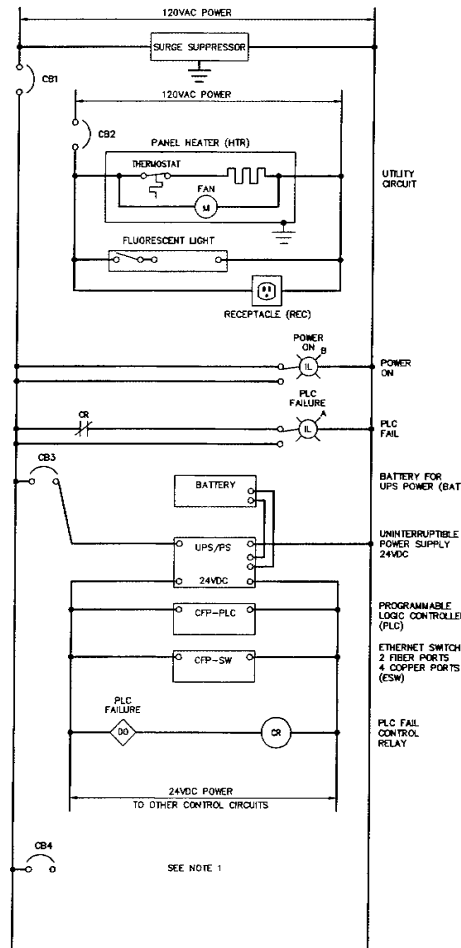
NOTES:

- 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.



SEE NOTES 1, 3

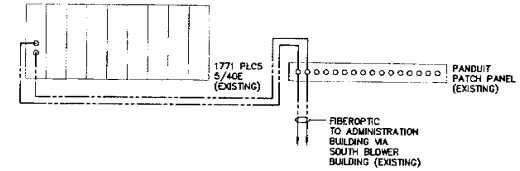
CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL INTERNAL COMPONENT LAYOUT



CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL PARTIAL WIRING DIAGRAM

SEE NOTE 1

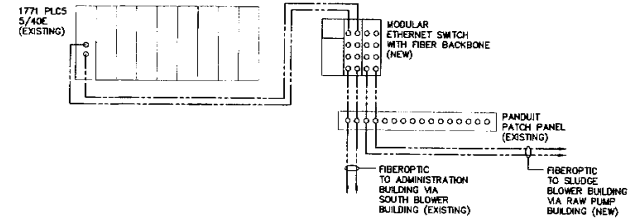
EXISTING CONFIGURATION



NOTES:

- THE PLC 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 PLC 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 PLC 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

MALCOLM PIRNIE



REVISIONS			
NO.	BY	DATE	REVISION

DES RJB
DWN RJB
DD WAY

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

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

CTC
VERTICAL DATUM 1926
COPYRIGHT © 2008
MALCOLM PIRNIE, INC.
DATE JUNE 2008
I SHEET 05 OF 05
CAD REF. NO. 3338005_855