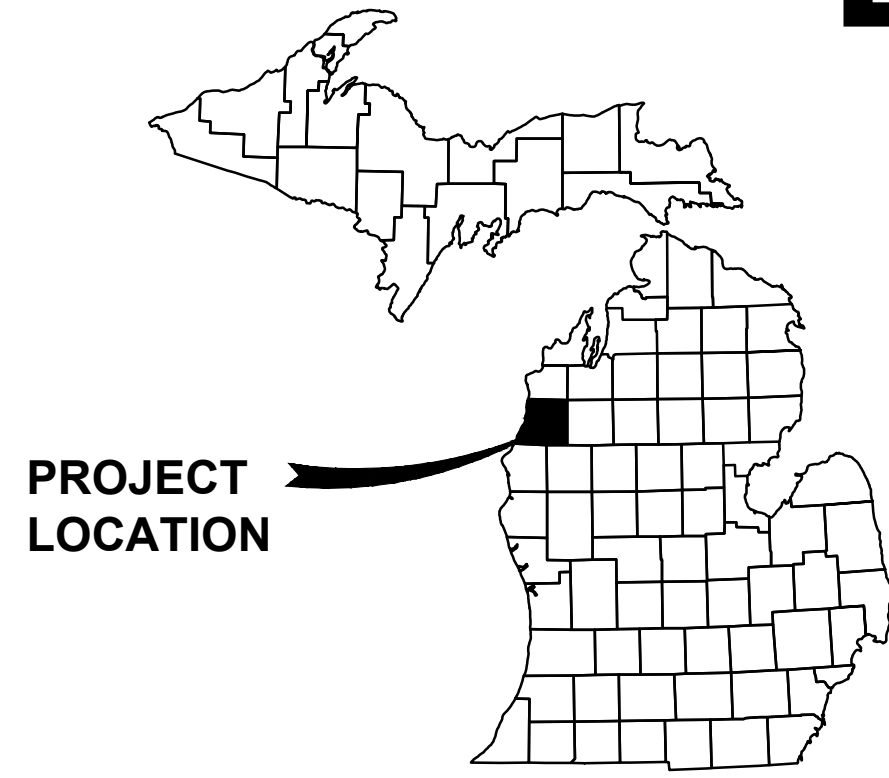


WWTP HEADWORKS ADDITION

FOR

LITTLE RIVER BAND OF OTTAWA INDIANS

MANISTEE, MANISTEE COUNTY, MICHIGAN



PROJECT LOCATION

VICINITY MAP
SCALE

OWNER

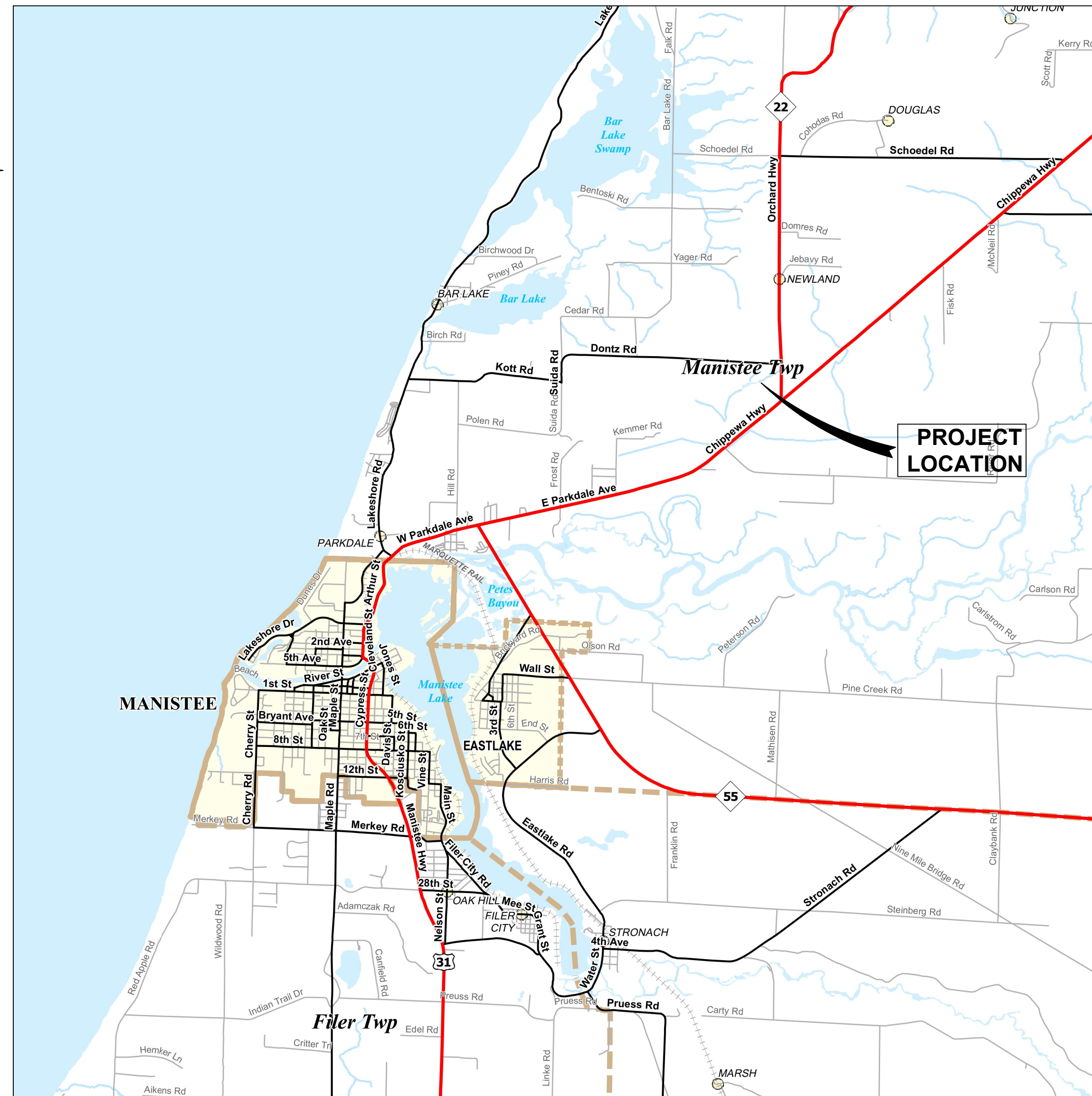
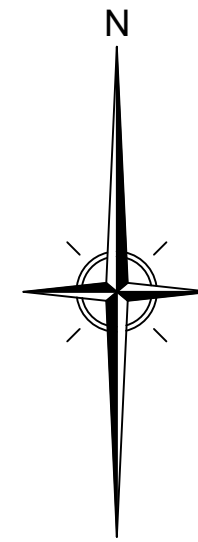
LITTLE RIVER BAND OF OTTAWA INDIANS
2608 GOVERNMENT CENTER DRIVE
MANISTEE, MI 49660
231.398.2299
glewis@lrboi.com

ENGINEER

GOSLING CZUBAK ENGINEERING SCIENCES, INC.
1280 BUSINESS PARK DRIVE
TRAVERSE CITY, MICHIGAN, 49686-8607
231.946.9191 - 800.968.1062
www.goslingczubak.com info@goslingczubak.com

UTILITY CONTACTS

NAME OF OWNER	TYPE OF UTILITY
MERRITT ENERGY 4000 FISK ROAD MANISTEE, MI 49660 (231)723-6587	GAS
AT&T	TELEPHONE
LRBOI MANISTEE, MI 49660 (231)398-2299 CONTACT: GARY LEWIS	WATER



LOCATION MAP
NOT TO SCALE

Drawing Index

- COVER – COVER
- C-0 – EXISTING CONDITIONS & DEMOLITION PLAN
- C-1 – SITE PLAN
- C-1.1 – GRADING PLAN
- C-1.2 – RETAINING WALL DETAILS
- C-2 – P&ID LEGEND
- C-3 – P&ID LEGEND
- C-4 – HEADWORKS P&ID
- C-5 – OVERALL YARD PIPING
- C-5.1 – DETAILED YARD PIPING PLAN
- C-6 – FLOW STRUCTURE DETAILS
- C-8 – HEADWORKS EQUIPMENT PLAN
- C-9 – HEADWORKS EQUIPMENT SECTIONS
- C-10 – SITE DETAILS
- C-11 – STRUCTURAL DETAILS 1
- C-12 – STRUCTURAL DETAILS 2
- C-7 – SEPTAGE UNLOADING DETAIL
- A-1.1 – FLOOR PLAN
- A-2.1 – EXTERIOR ELEVATIONS
- A-3.1 – BUILDING SECTIONS
- S-1.1 – FOUNDATION FRAMING PLANS
- M-1 – PROCESS MECHANICAL
- M-2 – PROCESS ELECTRICAL
- SE-1 – PROCESS ELECTRICAL
- E-0 – ELECTRICAL LEGEND, SCHEDULES & NOTES
- E-1 – PROCESS ELECTRICAL FLOOR PLAN
- E-2 – ELECTRICAL RISER DIAGRAM & PNL SCHEDULES

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY "MISS DIG" (1-800-482-7171) THREE WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.



THE LOCATION OF THE EXISTING UTILITIES, AS SHOWN ON THIS PLAN, ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THE OWNER AND THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATION SHOWN. THE CONTRACTOR SHALL NOTIFY "MISS DIG" AT 1 (800) 482-7171 OR 811 THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

LITTLE RIVER HEADWORKS ADDITION

CIVIL ENGINEERING
SURVEYING
ENVIRONMENTAL SERVICES
GEO-TECHNICAL
CONSTRUCTION SERVICES
LANDSCAPE ARCHITECTURE

Gosling Czubak
engineering sciences, inc.
1280 Business Park Drive, Traverse City, Michigan
231.946.9191
www.goslingczubak.com info@goslingczubak.com

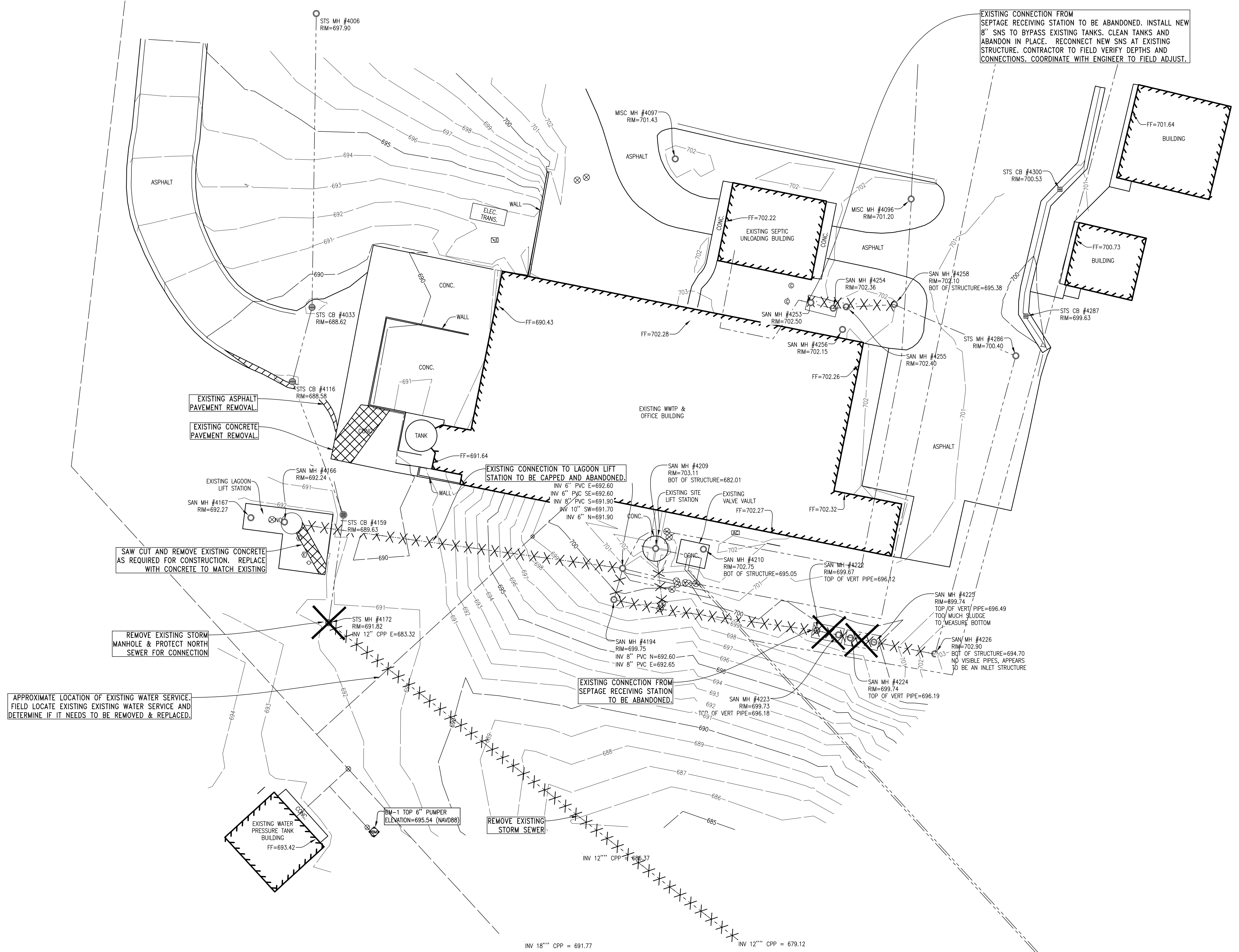
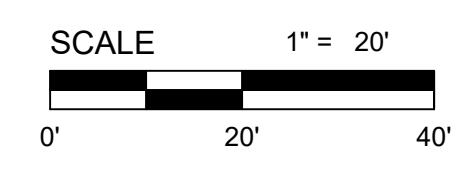
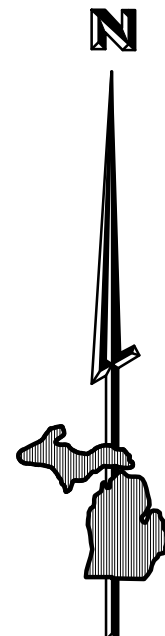


Issue Date
02/01/2023

Project No.
2022388001.01

Sheet

COVER



DEMOLITION LEGEND

- EXISTING CONCRETE SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL
- EXISTING UTILITY REMOVAL
- PROPOSED DISTURBANCE LIMITS
- EXISTING ITEM REMOVAL

NOTES:

1. EXISTING SANITARY STRUCTURES TO BE DEMOLISHED TO BE CUT A MINIMUM OF 2' BELOW GRADE. FILL PIPES WITH FLOWABLE FILL 2' FROM STRUCTURE.
2. SEPTIC TANKS TO BE EMPTIED, CRUSHED IN PLACE, AND THEN BACKFILLED TO GRADE.

No.	Date	Revision	By

**EXISTING CONDITIONS & DEMOLITION PLAN
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**

Date Issued: 10/29/2024
 Date Surveyed: 8/10/2021
 Designed By: ---
 Drawn By: ALT
 Checked By: GLW
 Scale: AS NOTED

Original sheet size is 22x34
 Location:
 PARTS OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP,
 MANISTEE COUNTY,
 MICHIGAN

Project Number:
 2021096001.00

Sheet:
C-0

P:\2021096001\010\CADD\CHAS\CD\2021096001_E_TPOD_DEMO.dwg Plot: C:\EXISTING CONDITIONS & DEMOLITION PLAN Shared by: altchubak 10/29/2024 2:28 PM Plotted By: Andrew Tychak 10/29/2024 3:37 PM



Gosling Czubak
 engineering sciences, inc.
 1280 Business Park Dr.
 Traverse City, Michigan
 231-946-9191 phone
 info@goslingczubak.com
 www.goslingczubak.com

CIVIL ENGINEERING
 SURVEYING
 ENVIRONMENTAL SERVICES
 GEOTECHNICAL
 CONSTRUCTION SERVICES
 DRILLING
 LANDSCAPE ARCHITECTURE

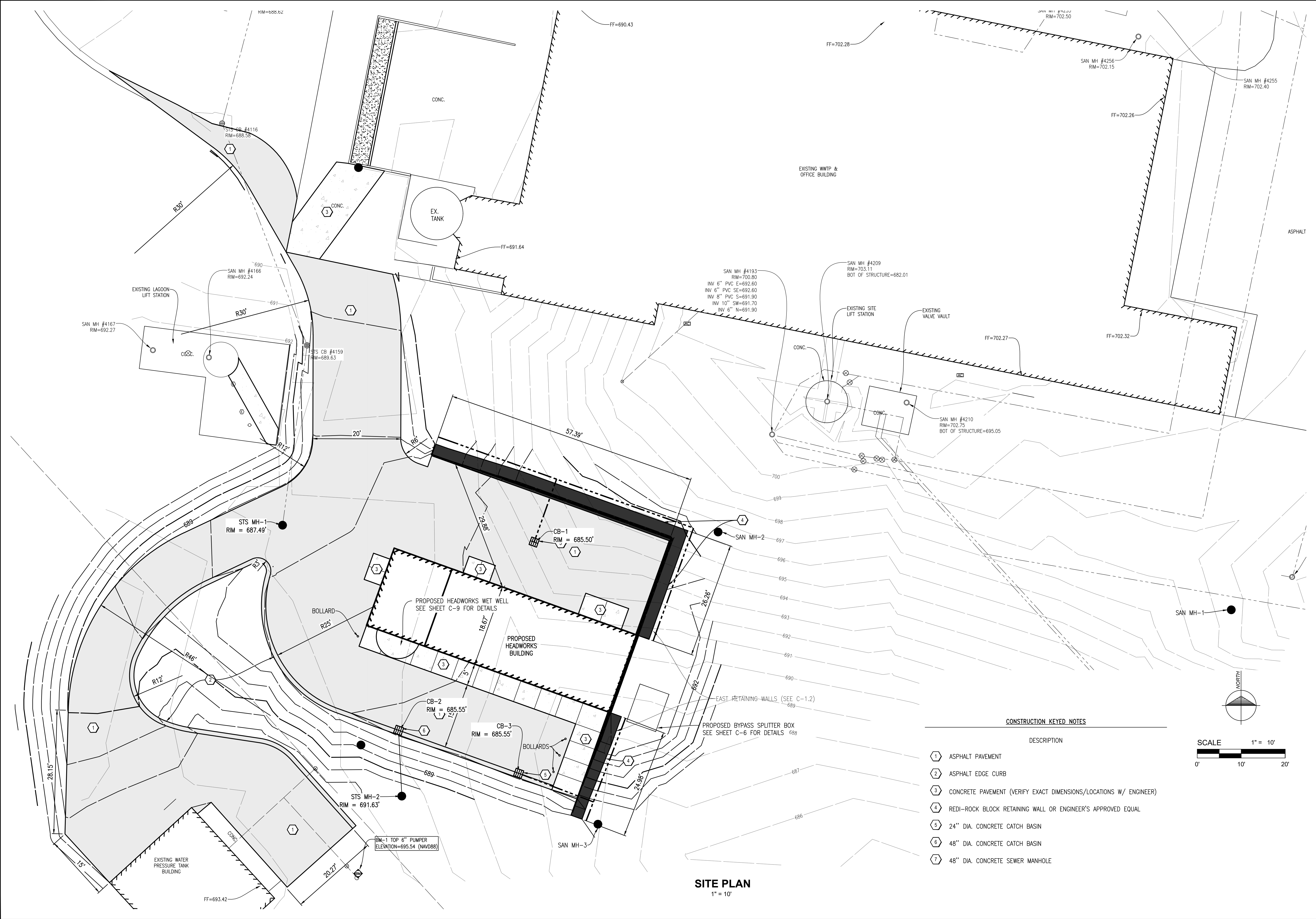
No.	Date	Revision	By

**SITE PLAN
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**

Date Issued: 10/29/2024
 Date Surveyed: 8/10/2021
 Designed By: ---
 Drawn By: ALT
 Checked By: GLW
 Scale: AS NOTED
 Original sheet size is 22x34

Location:
 PARTS OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP,
 MANISTEE COUNTY,
 MICHIGAN

Project Number:
 2021096001.00
 Sheet:



CONSTRUCTION KEYED NOTES

- | DESCRIPTION |
|---|
| 1 ASPHALT PAVEMENT |
| 2 ASPHALT EDGE CURB |
| 3 CONCRETE PAVEMENT (VERIFY EXACT DIMENSIONS/LOCATIONS W/ ENGINEER) |
| 4 REDI-ROCK BLOCK RETAINING WALL OR ENGINEER'S APPROVED EQUAL |
| 5 24" DIA. CONCRETE CATCH BASIN |
| 6 48" DIA. CONCRETE CATCH BASIN |
| 7 48" DIA. CONCRETE SEWER MANHOLE |

SITE PLAN
 1" = 10'

No.	Date	Revision	By

**GRADING PLAN
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**

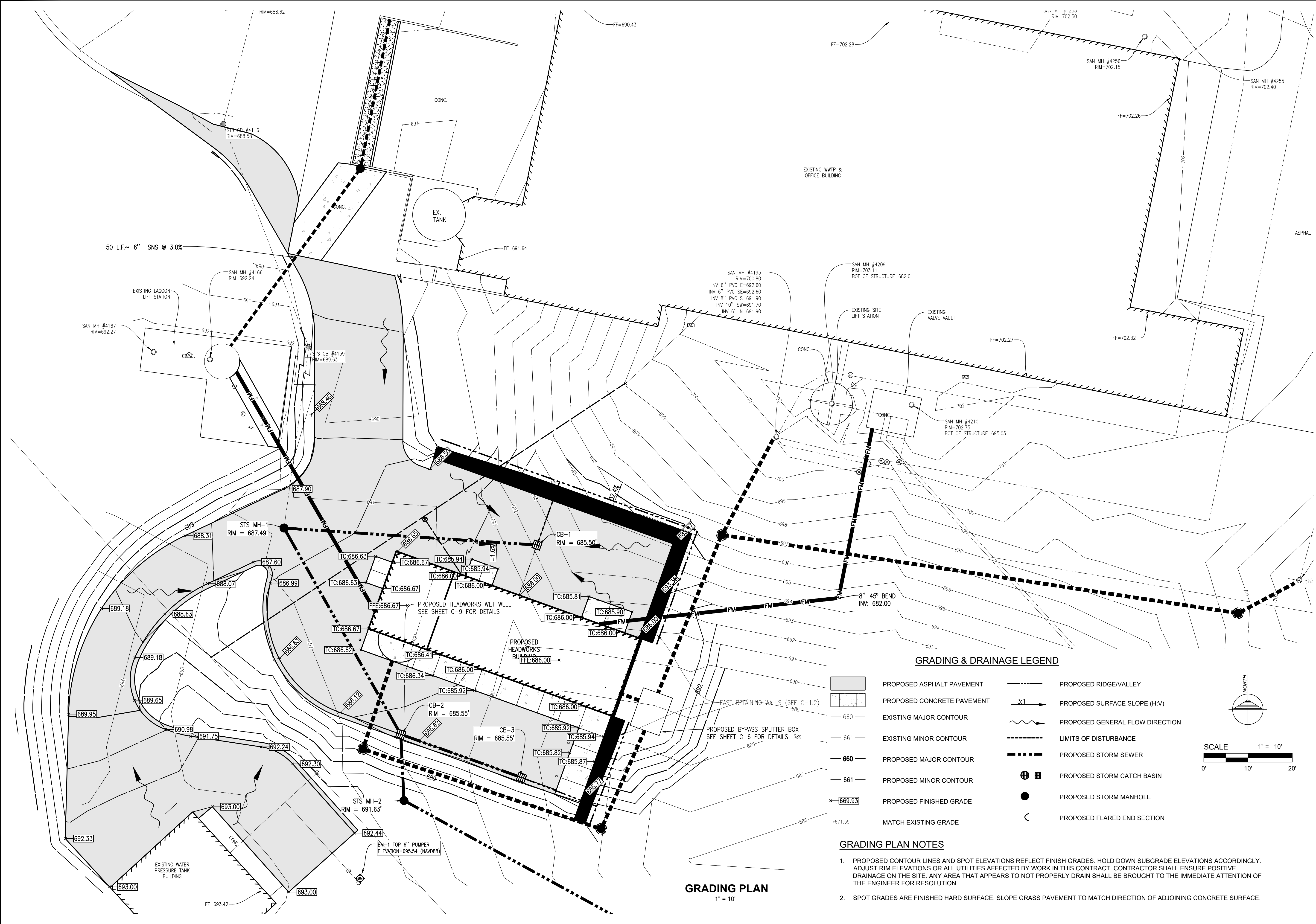
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 Date Surveyed: 8/10/2021
 Designed By: [Redacted]
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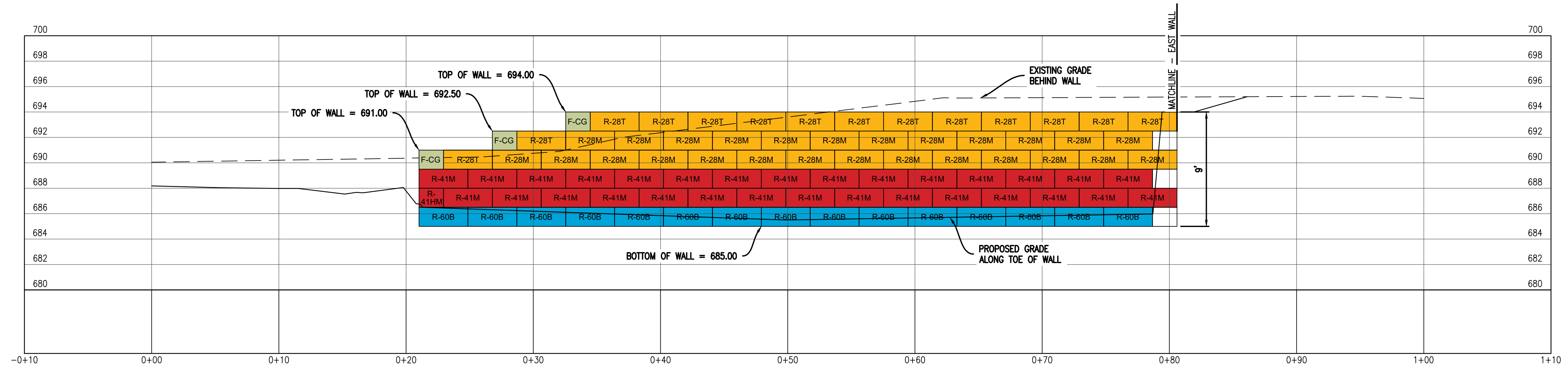
Original sheet size is 22x34

Location:
 PARTS OF SECTIONS 21 & 28,
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 MANISTEE TOWNSHIP,
 MANISTEE COUNTY,
 MICHIGAN

Project Number:
 2021096001.00

Sheet:
C-1.1

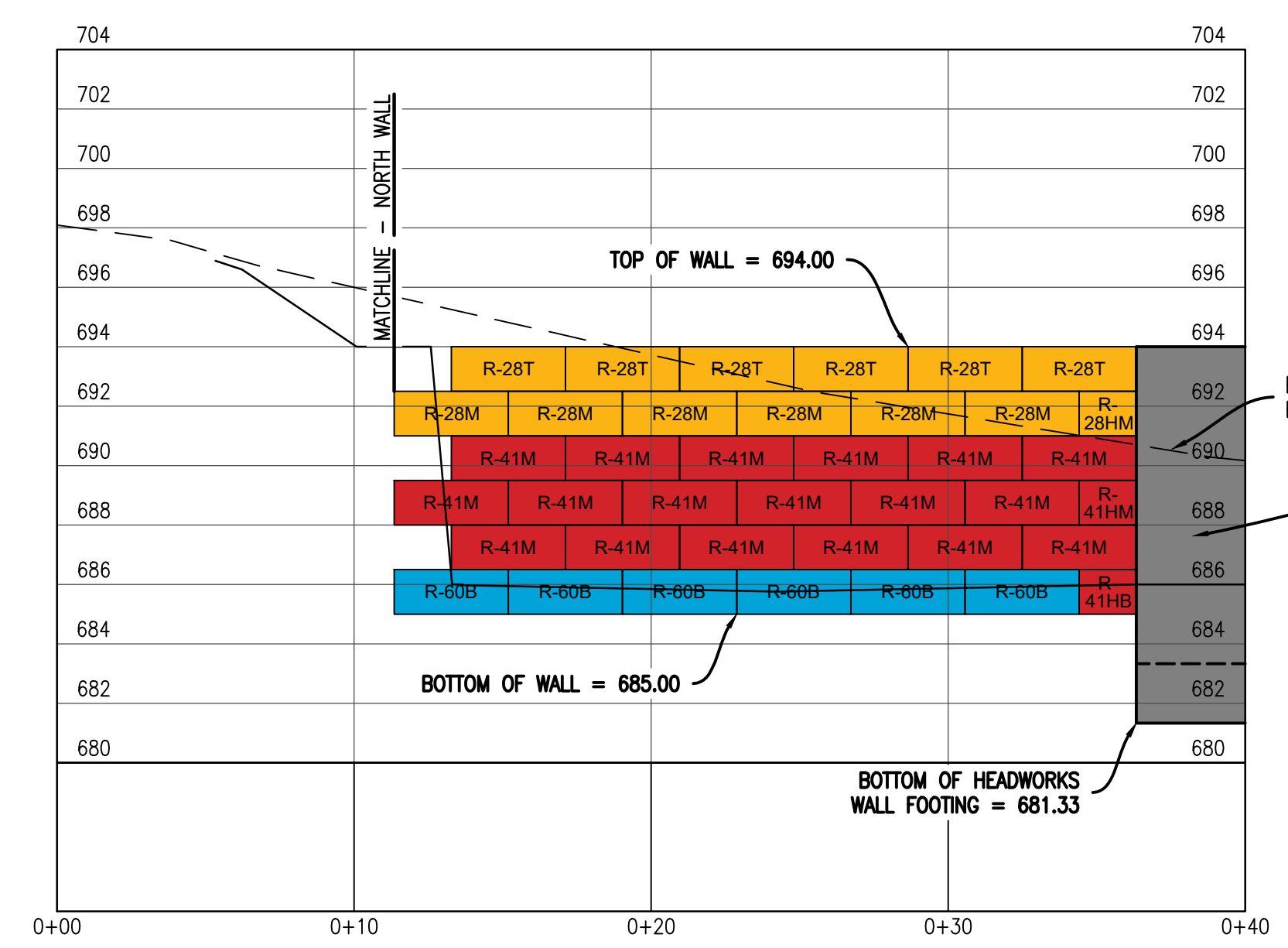




NORTH WALL

SCALE HORIZ. 1" = 5'
 VERT. 1" = 5'

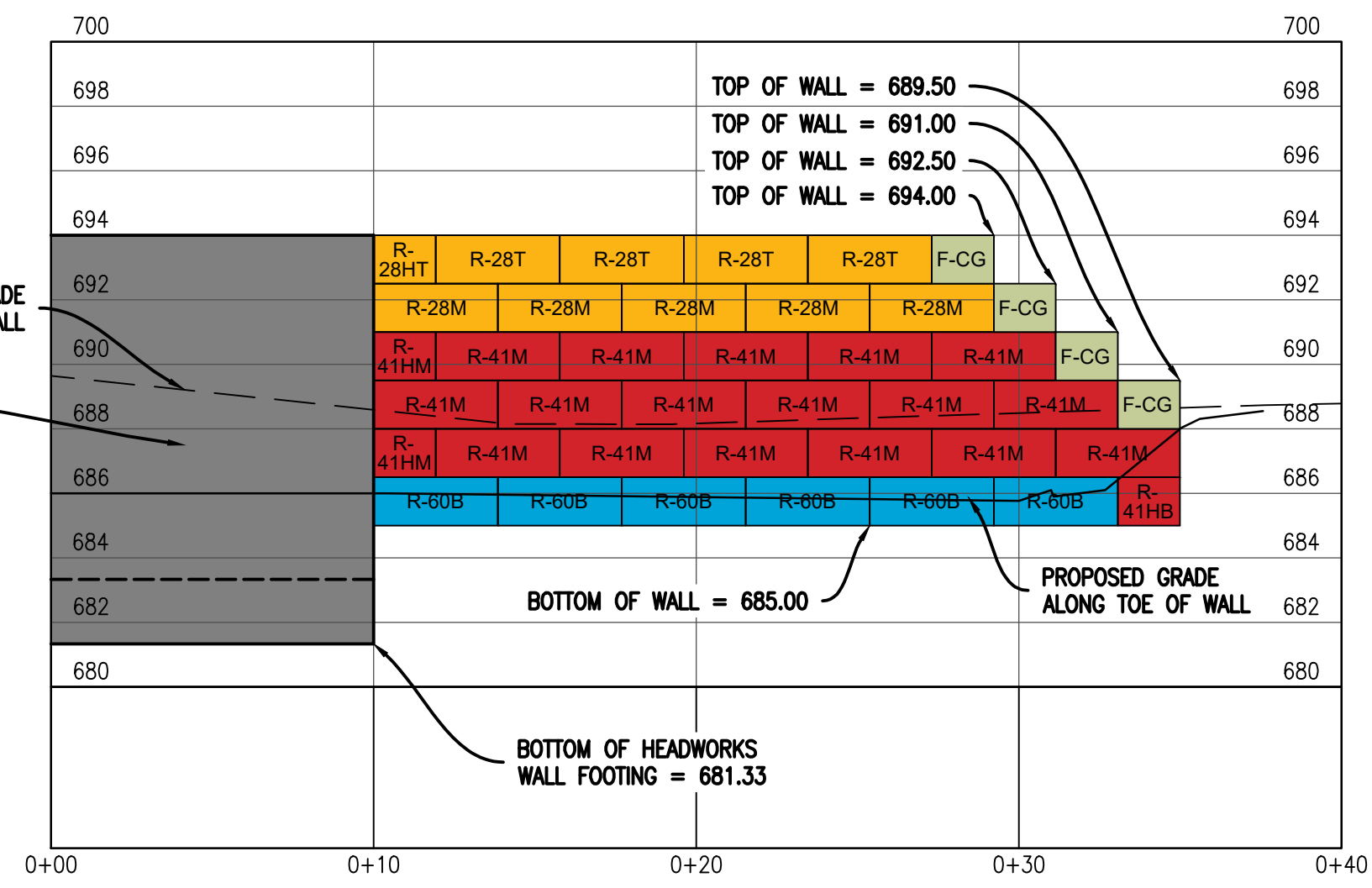
- RETAINING WALL NOTES:**
1. CONTRACTOR TO VERIFY PROPOSED WALL WITH MANUFACTURER.
 2. MANUFACTURER AND ENGINEER TO REVIEW WALL ADJUSTMENTS DURING SHOP DRAWING SUBMITTAL PROCESS AS REQUIRED.



EAST WALL 1

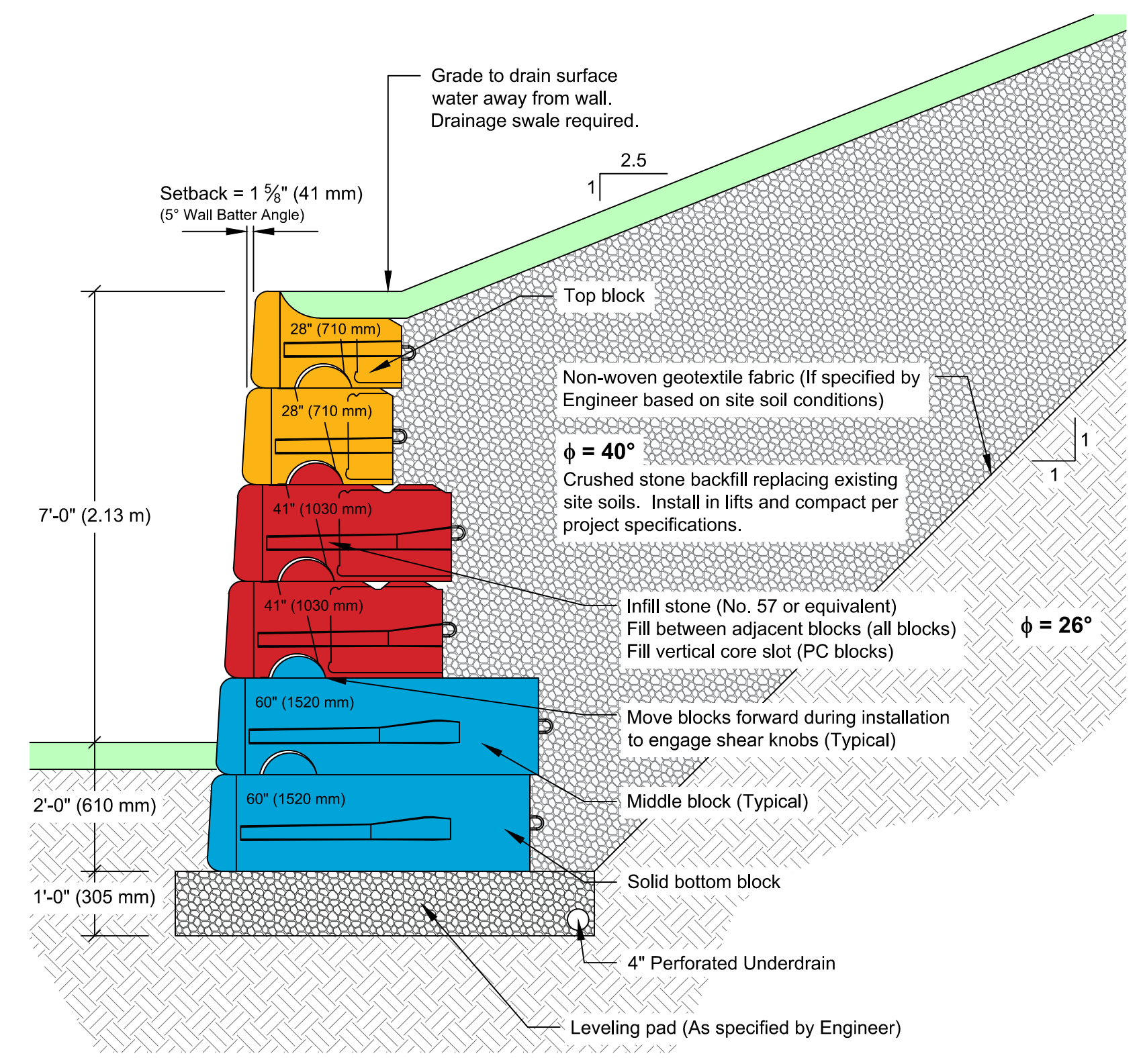
SCALE HORIZ. 1" = 5'
 VERT. 1" = 5'

- LEGEND:**
- BLOCK SERIES (RETAINING, FREESTANDING, ACCESSORY)
 - BLOCK SIZE (28.41, & 60)
 - BLOCK TYPE (BOTTOM, MIDDLE, TOP or CORNER GARDEN)



EAST WALL 2

SCALE HORIZ. 1" = 5'
 VERT. 1" = 5'



TYPICAL RETAINING WALL DETAIL
 NOT TO SCALE

RETAINING WALL DETAILS
HEADWORKS ADDITION
LITTLE RIVER BAND OF OTTAWA INDIANS

Date Issued:	10/29/2024
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 MICHIGAN

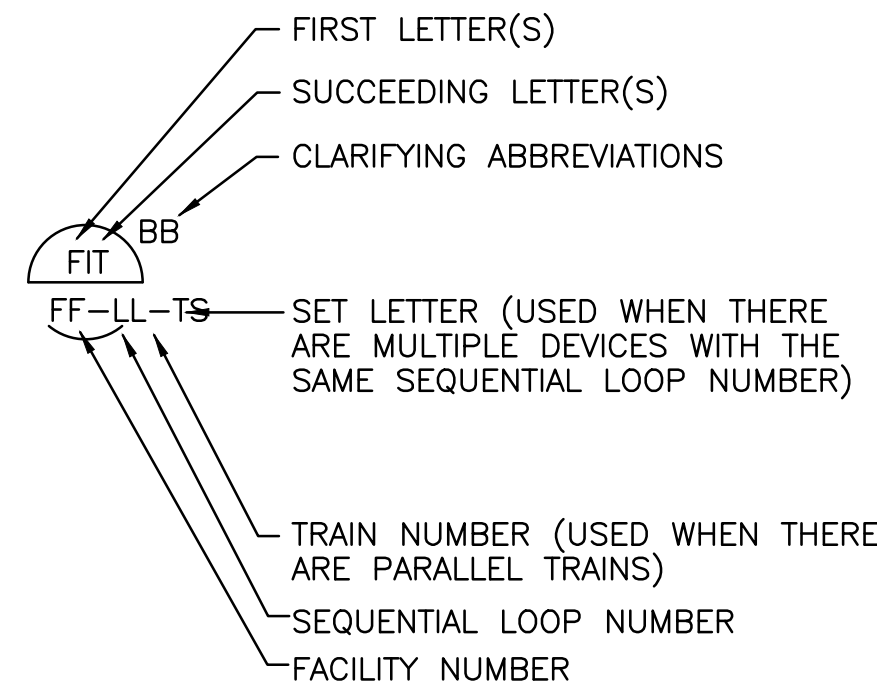
Project Number:
 2021096001.00

Sheet:
C-1.2

No.	Date	Revision	By

INSTRUMENT IDENTIFICATION

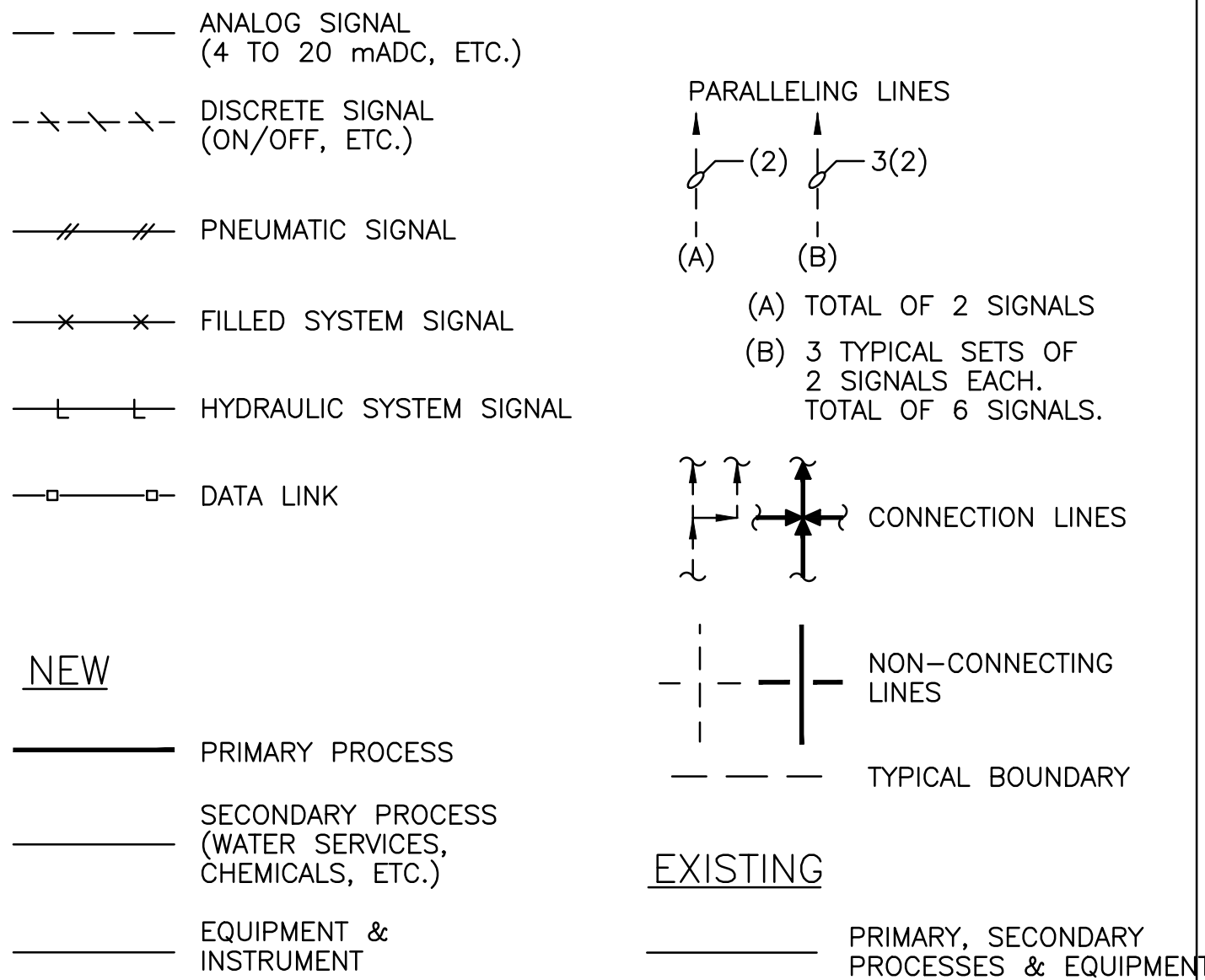
EXAMPLE SYMBOLS



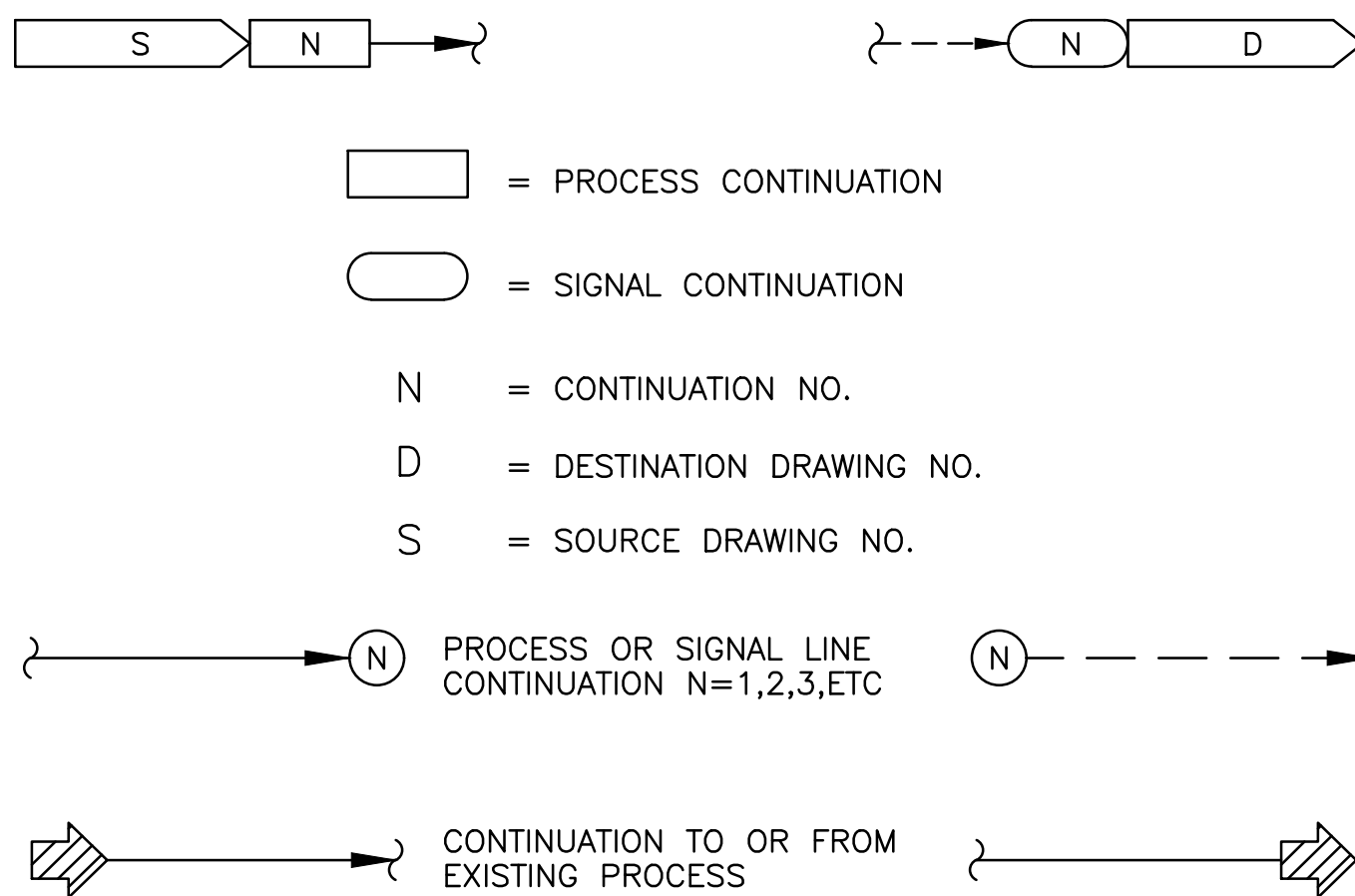
LETTER	FIRST-LETTER		SUCCEEDING-LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (+)		ALARM		
B	BURNER COMBUSTION		USER'S CHOICE (+)	USER'S CHOICE (+)	USER'S CHOICE (+)
C	USER'S CHOICE (+)			CONTROL	
D	DENSITY (S.G.)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT (SENSOR)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE (+)		CLASS. GAUGE VIEWING DEVICE	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE
N	TORQUE		USER'S CHOICE (+)	USER'S CHOICE (+)	USER'S CHOICE (+)
O	USER'S CHOICE (+)		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED (+)	X AXIS	UNCLASSIFIED (+)	UNCLASSIFIED (+)	UNCLASSIFIED (+)
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.
 (*) WHEN USED, DEFINE THE MEANING HERE FOR THE PROJECT

LINE LEGEND



CONTINUATION SYMBOLS



EQUIPMENT TAG NUMBERS

D:	AC = AIR COOLER	AD = AIR DRYER	AR = AIR RECEIVER	ARV = AIR RELEASE VALVE	AHU = AIR HANDLING UNIT	AVRV = AIR AND VACUUM RELEASE VALVE	B = BLOWER	C = COMPRESSOR	CBBB = COUNTER BALANCED BACK DRAFT DAMPER	CBD = COARSE BUBBLE DIFFUSER	E = EJECTOR	ED = EDUCTOR	EF = EXHAUST FAN	F = FAN	FBD = FINE BUBBLE DIFFUSER	G = GATE	GBC = GRAVITY BELT CONCENTRATOR	HPU = HYDRAULIC POWER UNIT	HTR = HEATER	M = MECHANICAL EQUIPMENT
												MD = MOTORIZED DAMPER	P = PUMP	S = STRAINER	SA = SAMPLER	SF = SUPPLY FAN	SL = STATIONARY LOUVER	T = TANK	LLLL = SEQUENTIAL LOOP NUMBER	

ABBREVIATIONS & LETTER SYMBOLS

AC	ALTERNATING CURRENT	OC	OPEN-CLOSE (D)
AM	AUTO-MANUAL	OCR	OPEN-CLOSE-REMOTE
CAM	COMPUTER-AUTO-MANUAL	OCA	OPEN-CLOSE-AUTO
ASD	ADJUSTABLE SPEED DRIVE	OO	ON-OFF
CCS	CENTRAL CONTROL SYSTEM	OOA	ON-OFF-AUTO
CL ₂ etc.	CHLORINE (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATION)	OOR	ON-OFF-REMOTE
CM	COMPUTER-MANUAL	ORP	OXIDATION REDUCTION POTENTIAL
COD	CHEMICAL OXYGEN DEMAND	OSC	OPEN-STOP-CLOSE
CP	CONTROL PANEL NO. X	OSCR	OPEN-STOP-CLOSE-REMOTE
DC	DIRECT CURRENT	PC	PURGE CONNECTION
DCS	DISTRIBUTED CONTROL SYSTEM	pH	HYDROGEN ION CONCENTRATION
DCU	DISTRIBUTED CONTROL UNIT	PLC	PROGRAMMABLE LOGIC CONTROLLER
DDC	DIRECT DIGITAL CONTROLLER	RIO	REMOTE I/O UNIT
DO	DISSOLVED OXYGEN	RM	REMOTE MULTIPLEXING MODULE
E-STOP	EMERGENCY STOP	RTU	REMOTE TELEMETRY UNIT
FCL ₂	FREE CHLORINE RESIDUAL	SF	SLOWER-FASTER
FNI	FIELD NETWORK INTERFACE	SS	START-STOP
FOS	FAST-PFF-SLOW	SSC	SUPERVISORY SET POINT CONTROL
FOSA	FAST-OFF-SLOW-AUTO	TCL ₂	TOTAL CHLORINE RESIDUAL
FOSR	FAST-OFF-SLOW-REMOTE	TOC	TOTAL ORGANIC CARBON
FP	FIELD PANEL	TOD	TOTAL OXYGEN DEMAND
FR	FORWARD-REVERSE	TURB	TURBIDITY
HOA	HAND-OFF-AUTO	VFD	VARIABLE FREQUENCY DRIVE
HOR	HAND-OFF-REMOTE	VHC	VOLATILE HYDROCARBONS
ISR	INTRINSICALLY SAFE RELAY	VIB	VIBRATION
LCS	LOCAL CONTROL STATION	Δ	DIFFERENCE
LCP	LOCAL CONTROL PANEL	Σ	SUM
LEL	LOWER EXPLOSIVE LIMIT	X	MULTIPLY
LOS	LOCKOUT STOP	+	DIVIDE
LR	LOCAL-REMOTE	f(x)	CHARACTERIZED
MA	MANUAL-AUTO	X ⁿ	RAISE TO THE Nth POWER
MC	MODULATE-CLOSE	√	SQUARE ROOT
MCC	MOTOR CONTROL CENTER	AVG	AVERAGE
MSC	MANUFACTURER SUPPLIED CABLE	1:1	REPEAT OR BOOST
		>	SELECT HIGHEST SIGNAL
		<	SELECT LOWEST SIGNAL
		∫	BIAS
		%	GAIN OR ATTENUATE

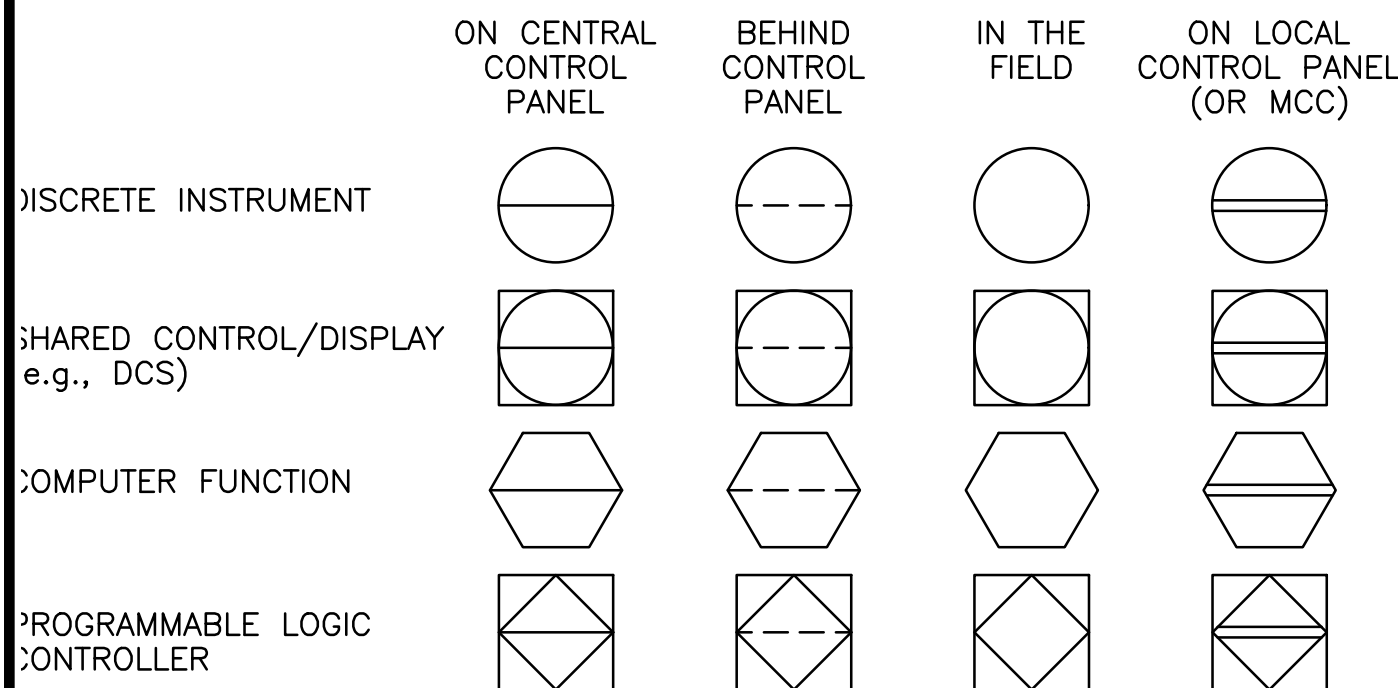
AREA BASED NUMBERING

IAACNNNNN WHERE:
 I = INSTRUMENTATION ITEM
 AA = PLANT AREA/FACILITY NUMBER
 CC = COMPONENT ABBREVIATION:
 DDC = DIRECT DIGITAL CONTROLLER
 PLC = PROGRAMMABLE LOGIC CONTROLLER
 PRT = PRINTER
 SVR = SERVER
 VP = VIDEO PROJECTOR
 WS = WORKSTATION
 NNNN = SEQUENTIAL EQUIPMENT NUMBER
 S = OPTIONAL SUFFIX LETTER

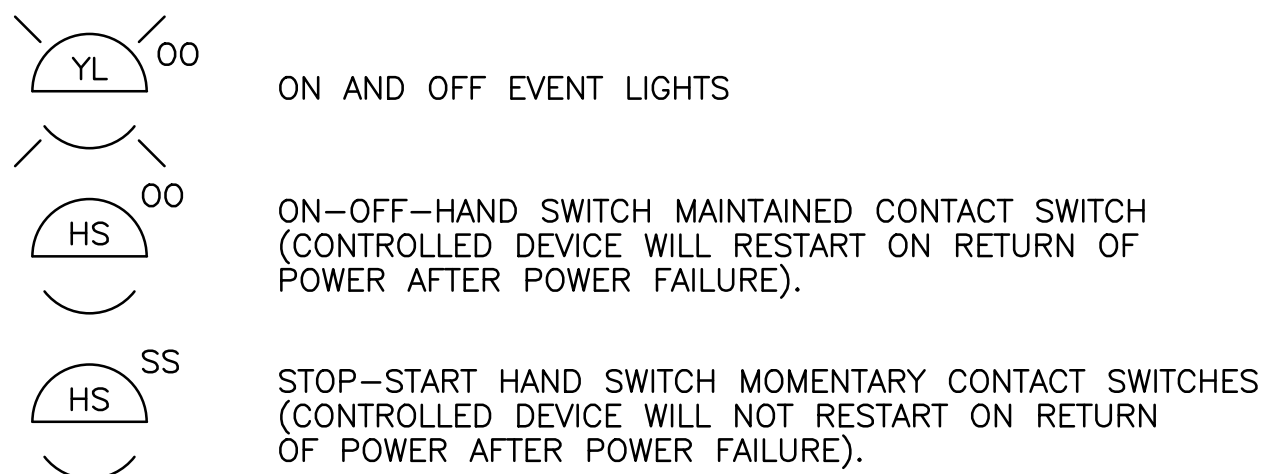
GENERAL NOTES

- COMPONENTS AND PANELS SHOWN WITH A SINGLE ASTERISK (*) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.
- COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (**) ARE TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
- COMPONENTS SHOWN WITH A TRIPLE ASTERISK (***) ARE TO BE PROVIDED BY MECHANICAL SUBCONTRACTOR(S) AND CONFORM TO SPEC. SECTION 15100 - PLUMBING PIPING.
- THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THIS CONTRACT.
- THE DIAMOND SYMBOL <C28> DENOTES MAJOR COMPONENTS OR SUBSYSTEMS TO BE SUPPLIED AND INSTALLED UNDER THE CONTRACT NUMBER SHOWN WITHIN THE DIAMOND. REFER TO THE CONTRACT DOCUMENTS FOR THE DETAILED SCOPE OF WORK RELATED TO SUPPLY, INSTALLATION, AND INTERFACING WITH OTHER CONTRACTORS.

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

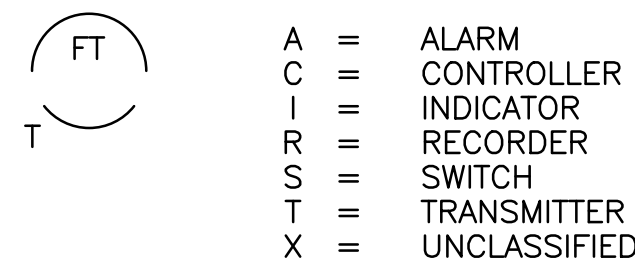


SPECIAL CASES



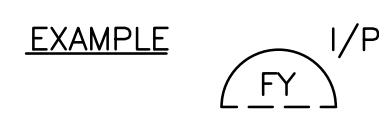
ACCESSORY DEVICES

(DATABASE SYMBOLS)
 EXAMPLE: TRANSMITTER AS AN ACCESSORY TO A FLOW ELEMENT



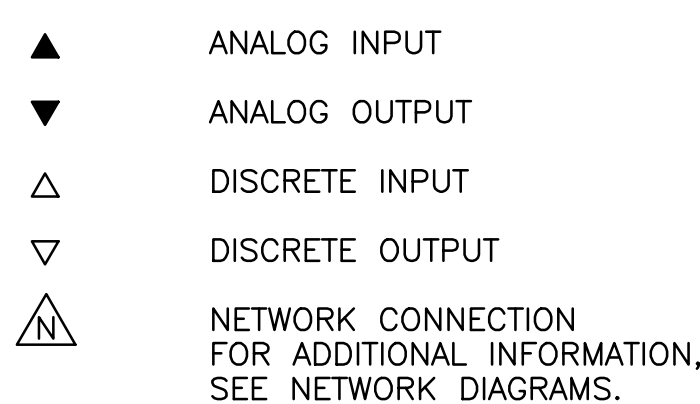
TRANSDUCERS

A	ANALOG	I	CURRENT
D	DIGITAL	P	PNEUMATIC
E	VOLTAGE	PF	PULSE FREQUENCY
F	FREQUENCY	PD	PULSE DURATION
H	HYDRAULIC	R	RESISTANCE



EXAMPLE: CURRENT TO PNEUMATIC TRANSDUCER (BACK OF PANEL, IN A FLOW LOOP)

DIGITAL SYSTEM INTERFACES



By	
Revision	
Date	
No.	

No.	Date	Revision	By

No.	Date	Revision	By

OVERALL YARD PIPING HEADWORKS ADDITION
LITTLE RIVER BAND OF OTTAWA INDIANS

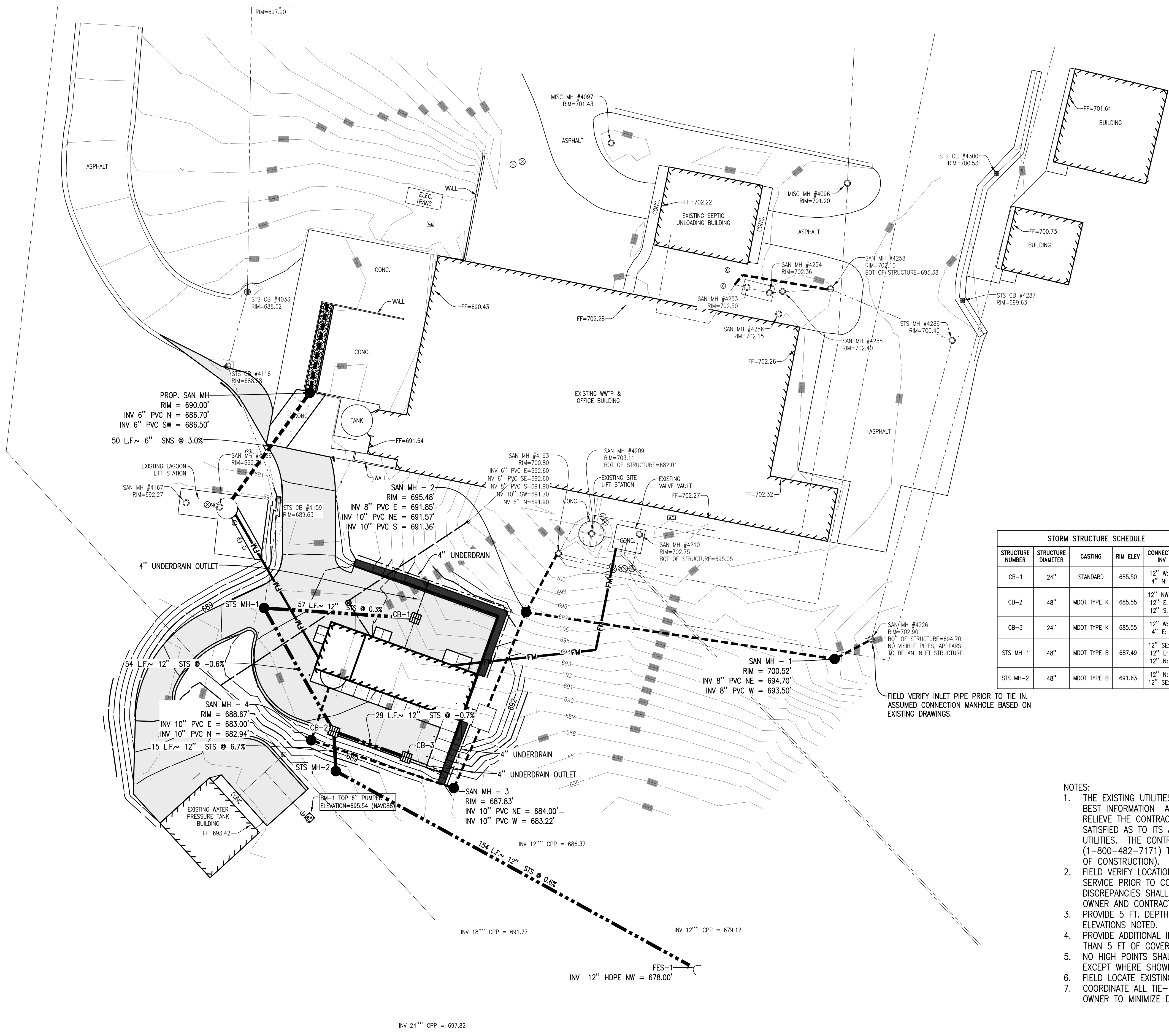
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 Date Surveyed: 8/10/2021
 Designed By: ---
 Drawn By: ALT
 Checked By: GLW
 Scale: AS NOTED

Original sheet size is 22x34

Location:
 PARTS OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP,
 MANISTEE COUNTY,
 MICHIGAN

Project Number:
 2021096001.00

Sheet:
C-5

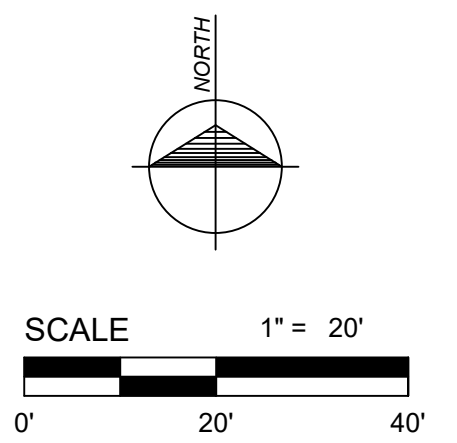


STORM STRUCTURE SCHEDULE

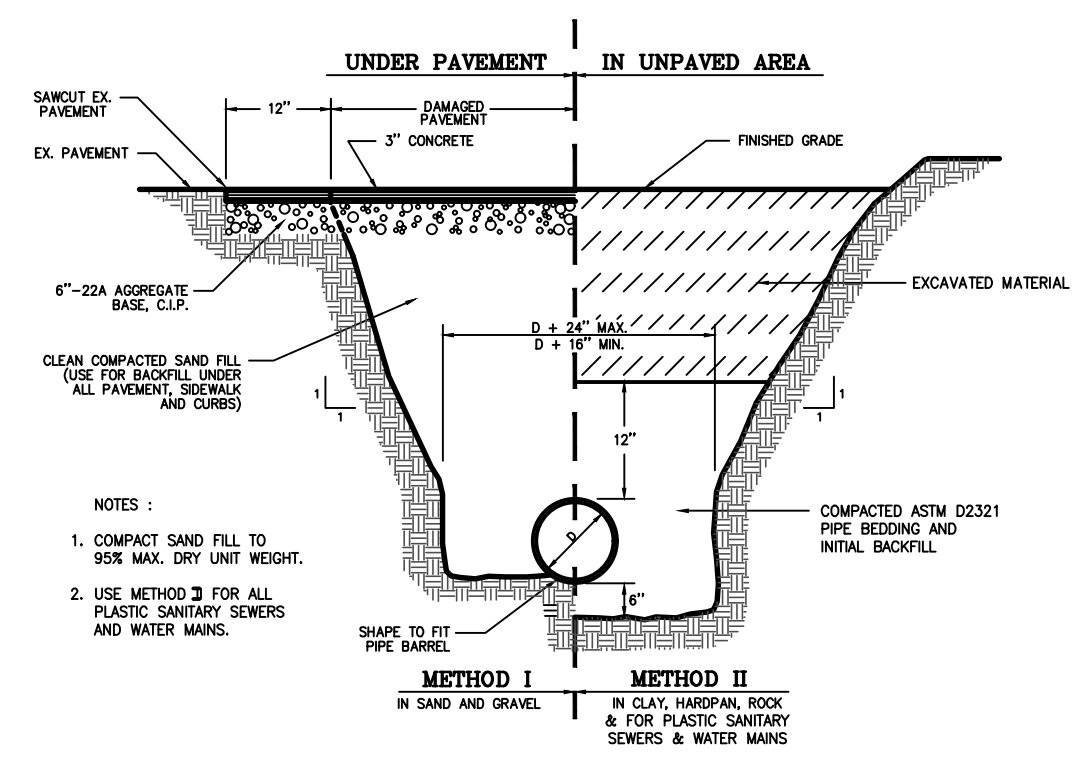
STRUCTURE NUMBER	STRUCTURE DIAMETER	CASTING	RIM ELEV	CONNECTED PIPE INV ELEV
CB-1	24"	STANDARD	685.50	12" NW: 683.50 4" N: 683.50
CB-2	48"	MDOT TYPE K	685.55	12" NW: 683.00 12" E: 683.00 12" S: 680.00
CB-3	24"	MDOT TYPE K	685.55	12" W: 683.20 4" E: 683.20
STS MH-1	48"	MDOT TYPE B	687.49	12" SE: 683.32 12" E: 683.35 12" N: 683.32
STS MH-2	48"	MDOT TYPE B	691.63	12" N: 679.00 12" SE: 679.00

- YARD PIPING LEGEND**
- PROPOSED FORCE MAIN SANITARY SEWER
 - FM — PROPOSED FORCE MAIN SANITARY SEWER
 - - - - - PROPOSED GRAVITY SANITARY SEWER
 - - - - - PROPOSED STORM SEWER
 - ⊕ PROPOSED STORM CATCH BASIN
 - PROPOSED STORM MANHOLE
 - < PROPOSED FLARED END SECTION

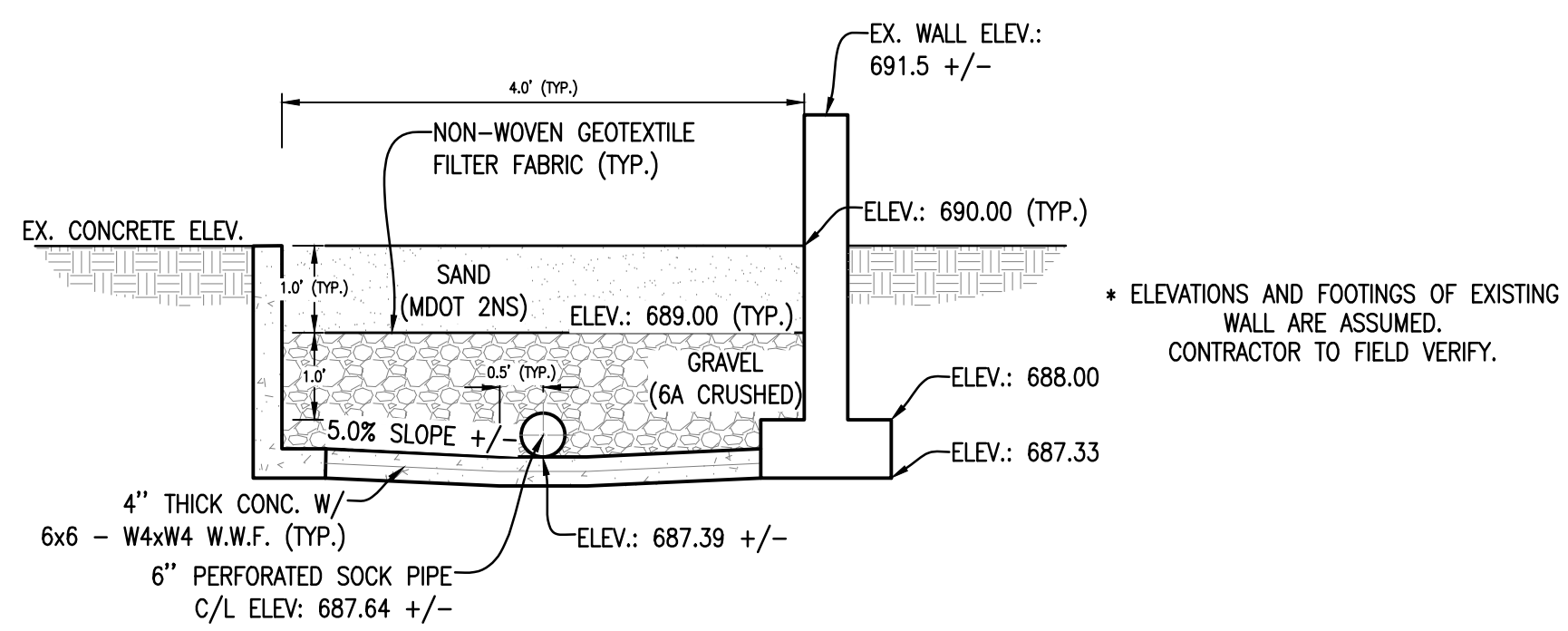
- NOTES:**
- THE EXISTING UTILITIES SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY "MISS DIG" (1-800-482-7171) THREE WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.
 - FIELD VERIFY LOCATION, DEPTH AND SIZE OF EXISTING WATER SERVICE PRIOR TO CONSTRUCTION OF NEW SERVICE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND CONTRACTOR.
 - PROVIDE 5 FT. DEPTH OF COVER ON ALL PIPES WITHOUT ELEVATIONS NOTED.
 - PROVIDE ADDITIONAL INSULATION BOARD FOR ALL PIPES WITH LESS THAN 5 FT OF COVER.
 - NO HIGH POINTS SHALL BE PLACED ON PRESSURIZED LINES EXCEPT WHERE SHOWN.
 - FIELD LOCATE EXISTING PIPE CROSSINGS PRIOR TO CONSTRUCTION.
 - COORDINATE ALL TIE-IN AND SHUT DOWNS WITH ENGINEER AND OWNER TO MINIMIZE DISRUPTION TO THE SYSTEM.



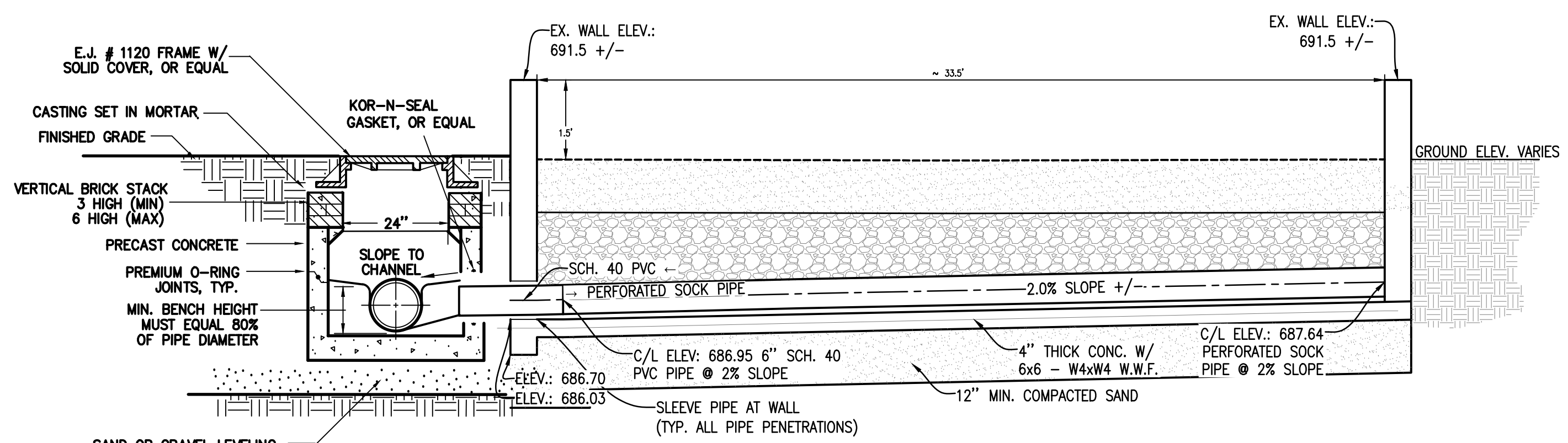
OVERALL YARD PIPING
 1" = 20'



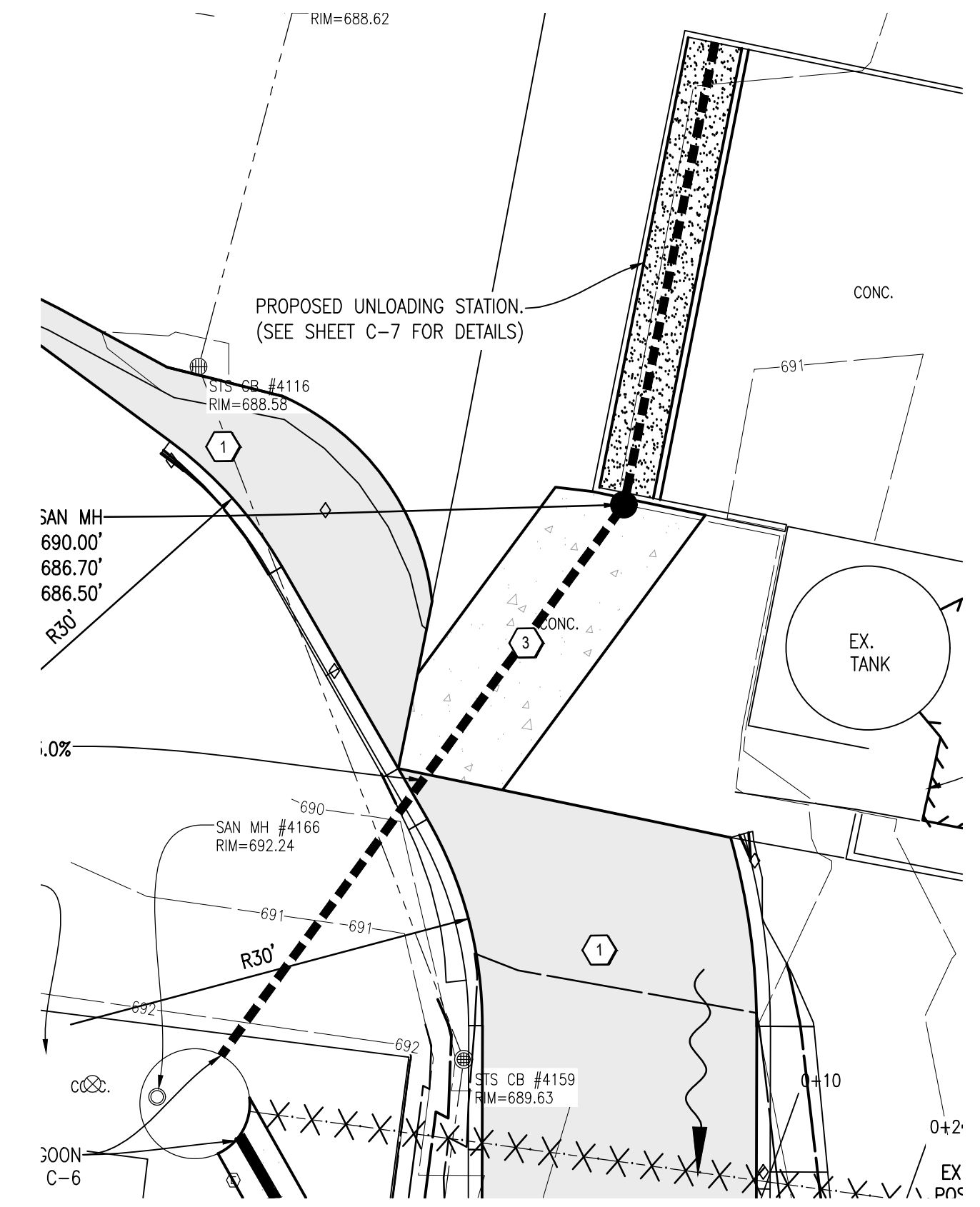
TRENCH DETAIL
NO SCALE



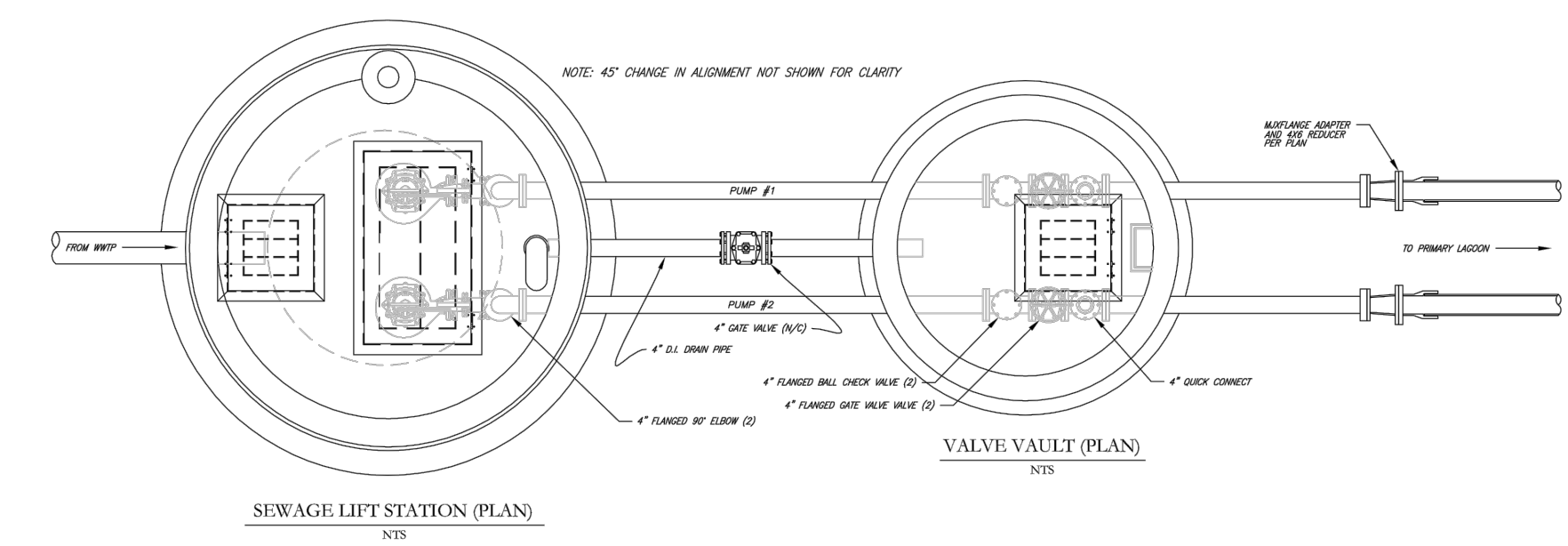
SECTION A
NOT TO SCALE



SECTION B
NOT TO SCALE

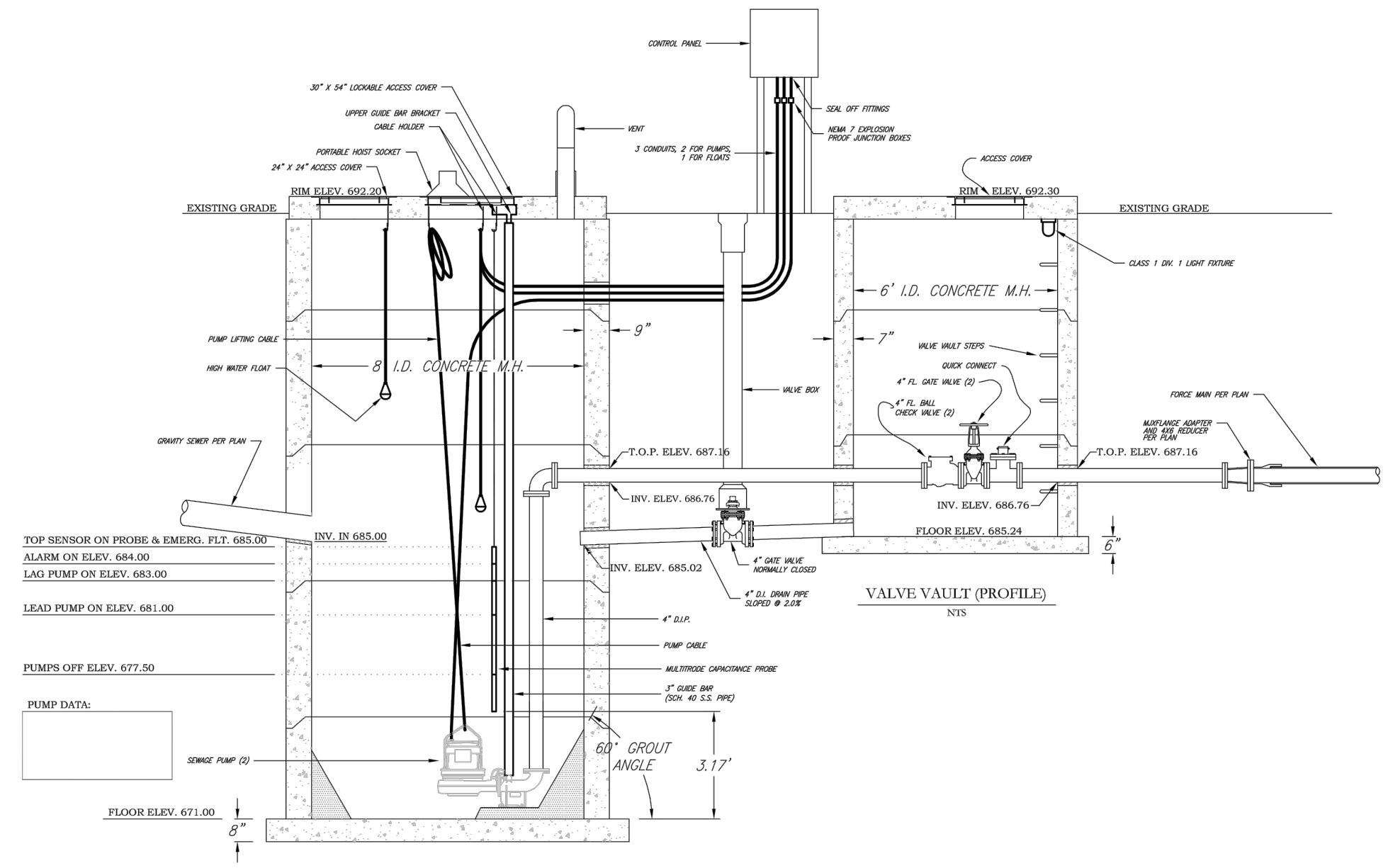


PROPOSED SEPTAGE UNLOADING SITE PLAN
SCALE: 1" = 10'



SEWAGE LIFT STATION (PLAN)
NTS

VALVE VAULT (PLAN)
NTS



VALVE VAULT (PROFILE)
NTS

FOR REFERENCE ONLY
EXISTING LAGOON LIFT STATION PLANS
 SCALE: NOT TO SCALE

No.	Date	Revision	By

SEPTAGE UNLOADING DETAIL
HEADWORKS ADDITION
LITTLE RIVER BAND OF OTTAWA INDIANS

Date Issued: 10/29/2024
 Date Surveyed: 08/10/2021
 Designed By: ALT
 Drawn By: ALT
 Checked By: GLW
 Scale: AS NOTED

Original sheet size is 22x34

Location:
 PARTS OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP,
 MANISTEE COUNTY,
 MICHIGAN

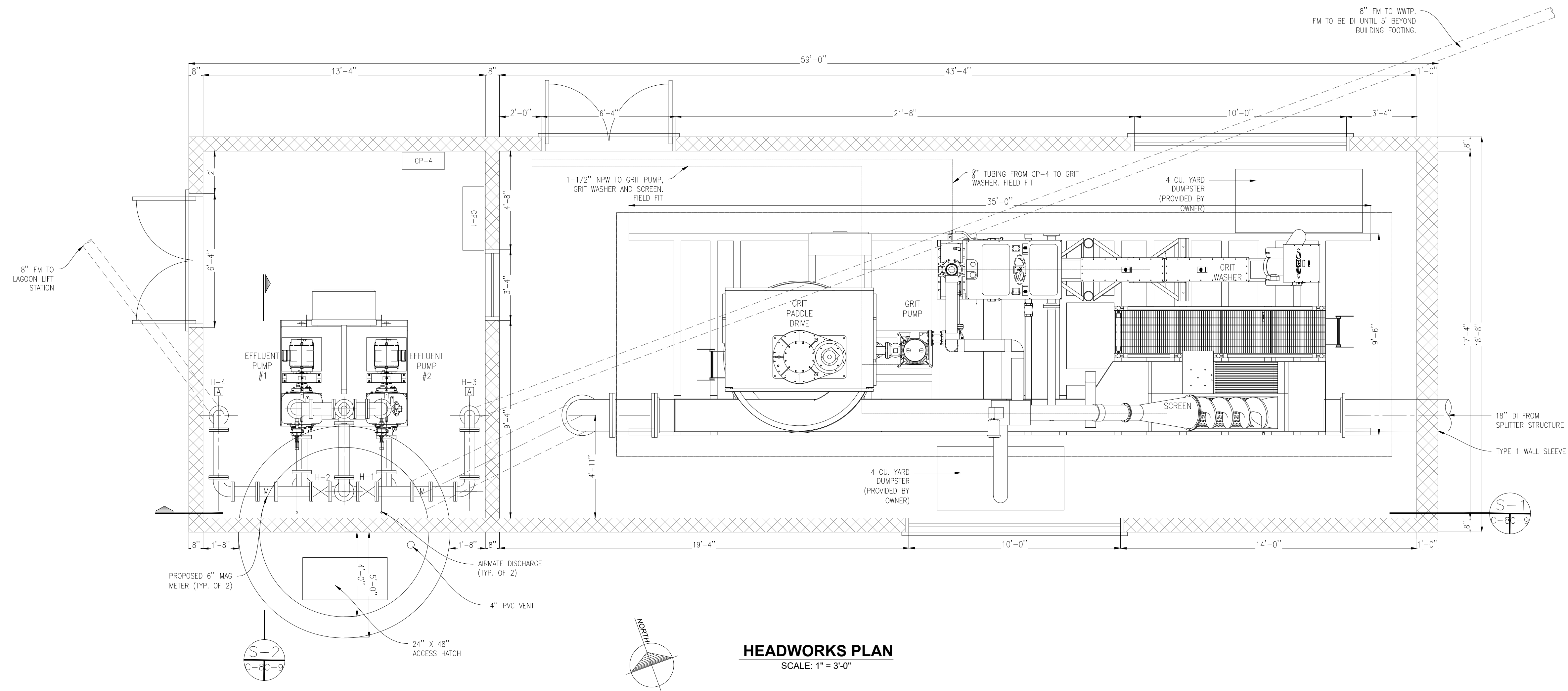
Project Number:
 2021096001.00

Sheet:
C-7



Gosling Czubak
 engineering sciences, inc.
 1280 Business Park Dr.
 Traverse City, Michigan
 231-946-9191 phone
 info@goslingczubak.com
 www.goslingczubak.com

CIVIL ENGINEERING
 SURVEYING
 ENVIRONMENTAL SERVICES
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 LANDSCAPE ARCHITECTURE



HEADWORKS PLAN
 SCALE: 1" = 3'-0"

- NOTES:
- SCREEN/GRIT IS A PREPACKAGED UNIT ARRIVING ON A SKID. CONTRACTOR SHALL MAKE ALL REQUIRED MECHANICAL AND ELECTRICAL CONNECTIONS AS REQUIRED BY MANUFACTURER AND AS SHOWN ON THE PLANS AND SPECIFICATIONS.
 - FINAL EQUIPMENT LAYOUT AND DIMENSIONS MAY VARY FROM WHAT IS SHOWN. ANY DISCREPANCIES BETWEEN THE PLANS AND SHOP DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER.
 - ALL EQUIPMENT LOCATED IN THE SCREENING ROOM MUST MEET CLASS 1 DIVISION 1 REQUIREMENTS.
 - PUMPING EQUIPMENT SHALL COME PREPACKAGED ON A SKID. CONTRACTOR SHALL MAKE ALL REQUIRED MECHANICAL AND ELECTRICAL CONNECTIONS REQUIRED BY MANUFACTURER AND AS SHOWN ON THE PLANS AND SPECIFICATIONS.

No.	Date	Revision	By

**HEADWORKS EQUIPMENT PLAN
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**

Date Issued: 3/10/2022
 Date Surveyed: 8/10/2021
 Designed By: ALT
 Drawn By: ALT
 Checked By: ALT
 Scale: AS NOTED
 Original sheet size is 22x34

Location:
 PARTS OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP,
 MANISTEE COUNTY,
 MICHIGAN

Project Number:
 2021096001.00

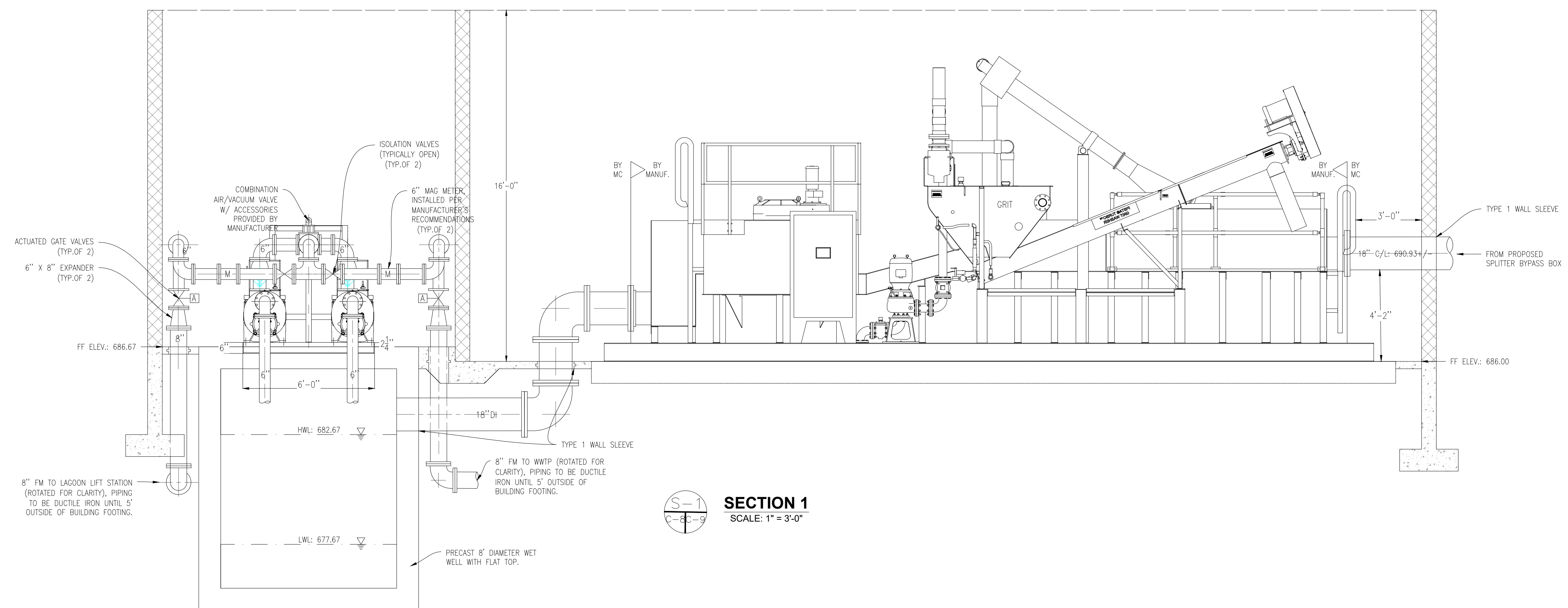
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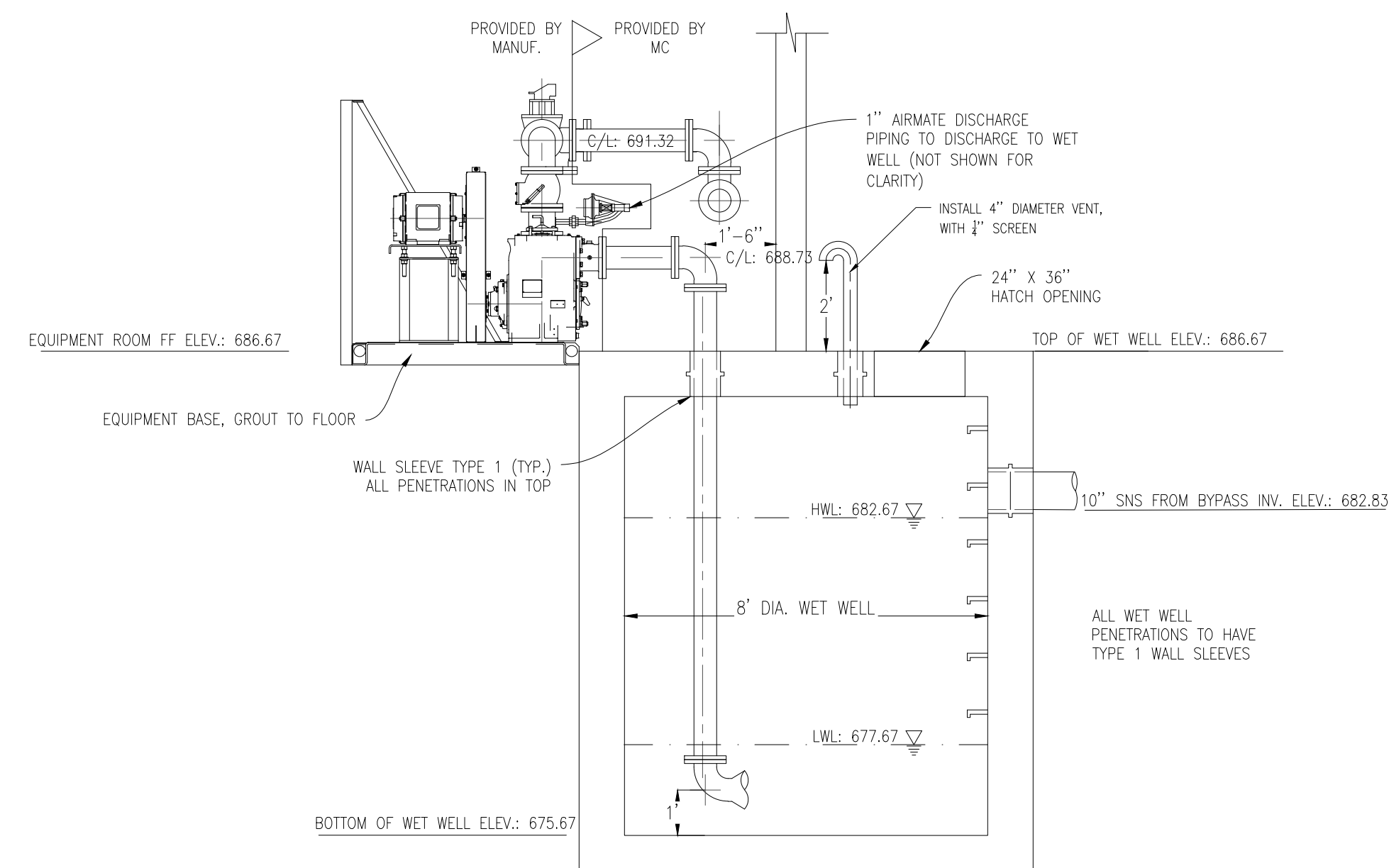


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SECTION 1
 SCALE: 1" = 3'-0"



SECTION 2
 SCALE: 1" = 3'-0"

- NOTES:
- SEE ARCHITECTURAL PLANS FOR BUILDING AND FOOTING DETAILS.
 - ALL EQUIPMENT IS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
 - FINAL DIMENSIONS AND ELEVATIONS TO BE DETERMINED BASED ON SHOP DRAWING SUBMITTALS.
 - ALL PROCESS PIPING TO BE DUCTILE IRON UNLESS OTHERWISE NOTED ON PLANS.

No.	Date	Revision	By

**HEADWORKS EQUIPMENT SECTIONS
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**

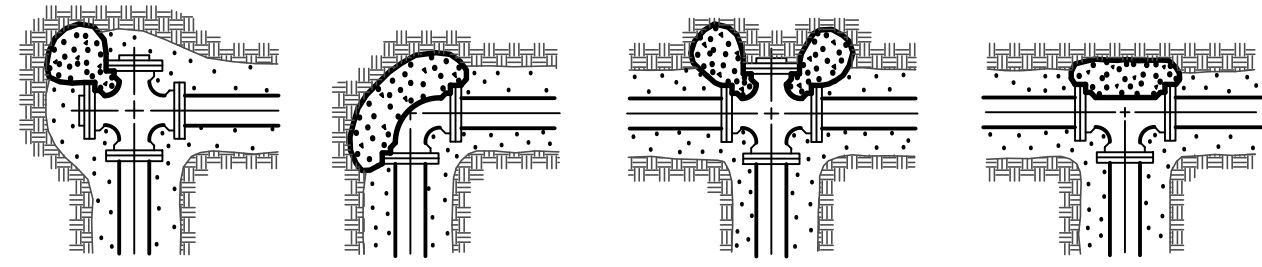
Date Issued: 3/10/2022
 Date Surveyed: 8/10/2021
 Designed By: ALT
 Drawn By: ALT
 Checked By: -
 Scale: AS NOTED
 Original sheet size is 22x34

Location:
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 MICHIGAN

Project Number:
 2021096001.00

Sheet:
C-9

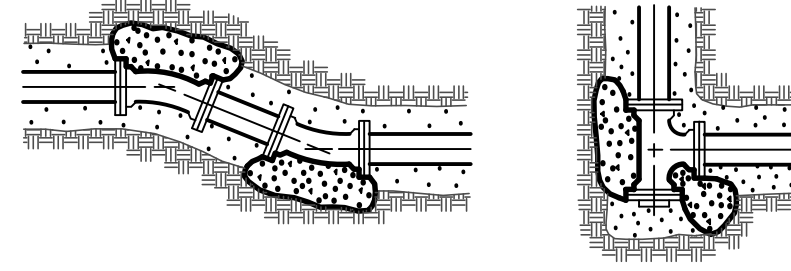
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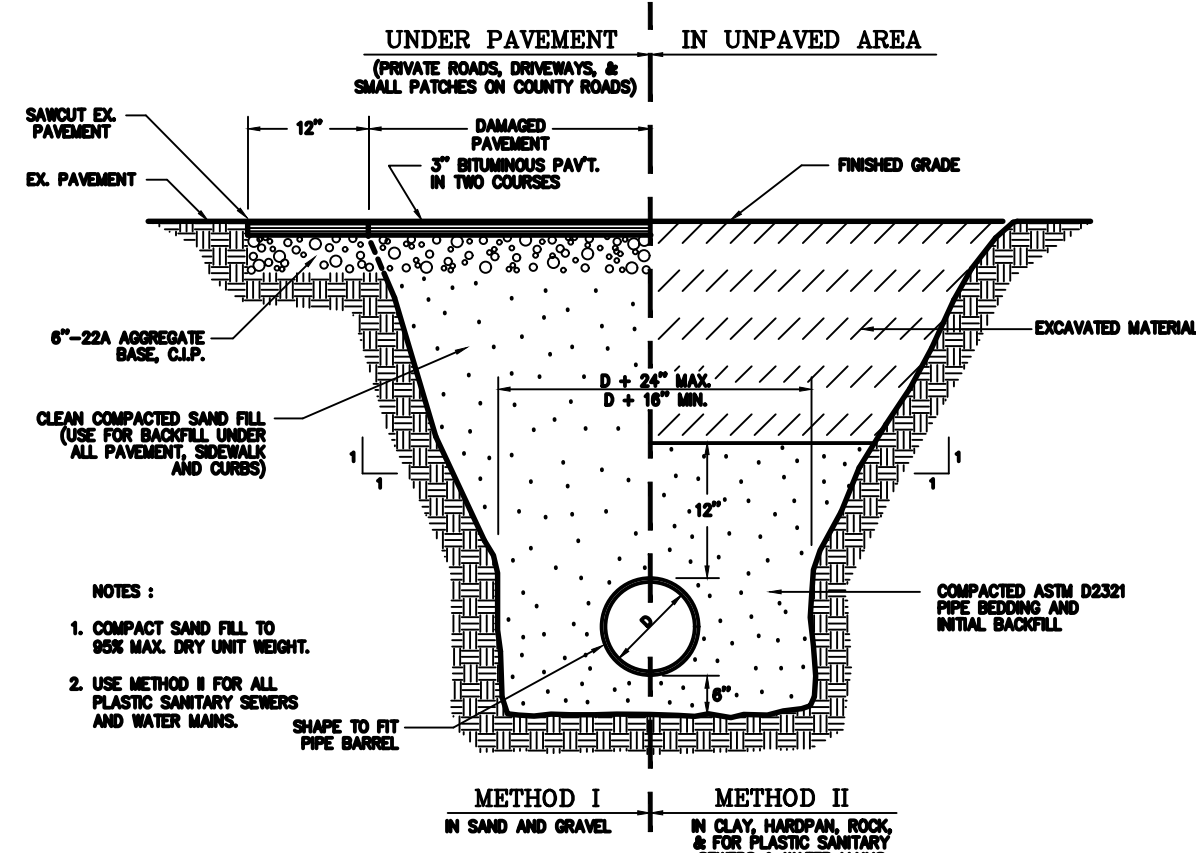
THE MINIMUM BEARING AREA AGAINST UNDISTURBED EARTH, OF THE VARIOUS THRUST BLOCKS, SHALL BE AS FOLLOWS:

- 8" MAIN 3.0 S.F.
- 10" MAIN 5.0 S.F.
- 12" MAIN 7.0 S.F.
- 16" MAIN 12.0 S.F.

(BASED ON AN ALLOWED BEARING PRESSURE OF 2500 P.S.F.)
 ALL THRUST BLOCKS ARE TO BE 3000 P.S.I. HIGH EARLY STRENGTH CONCRETE POURED AGAINST UNDISTURBED EARTH

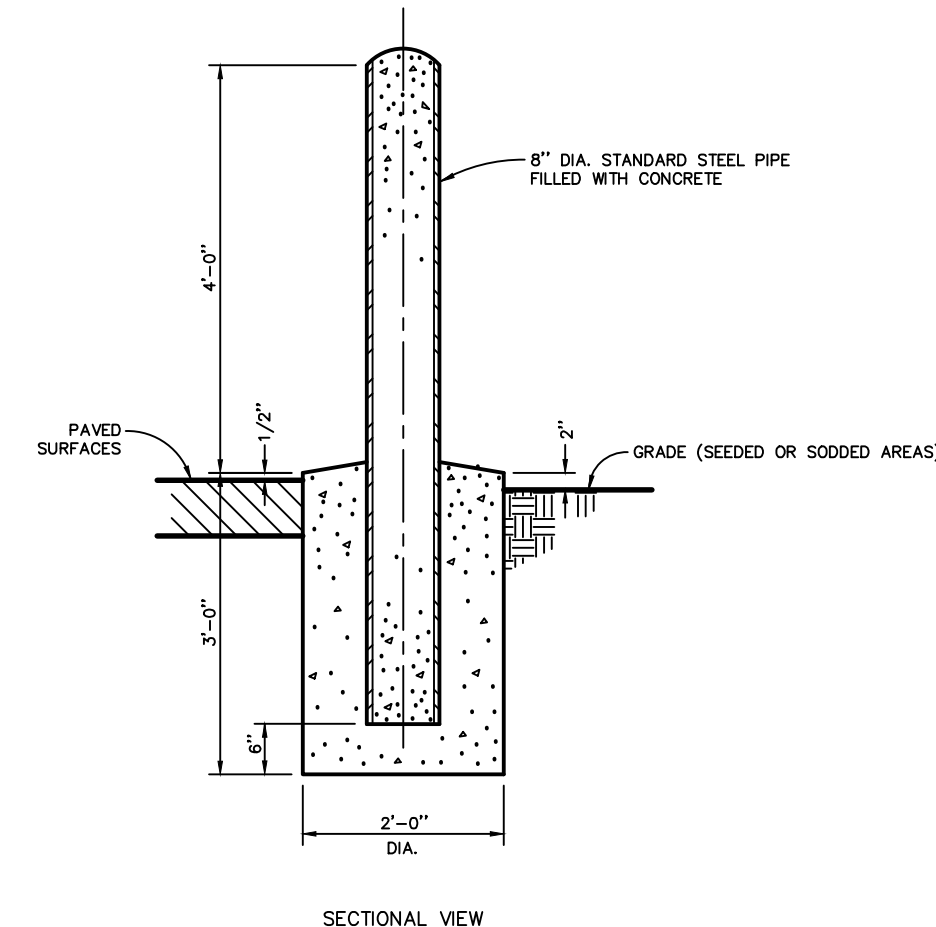


TYPICAL THRUST BLOCK DETAILS
NOT TO SCALE

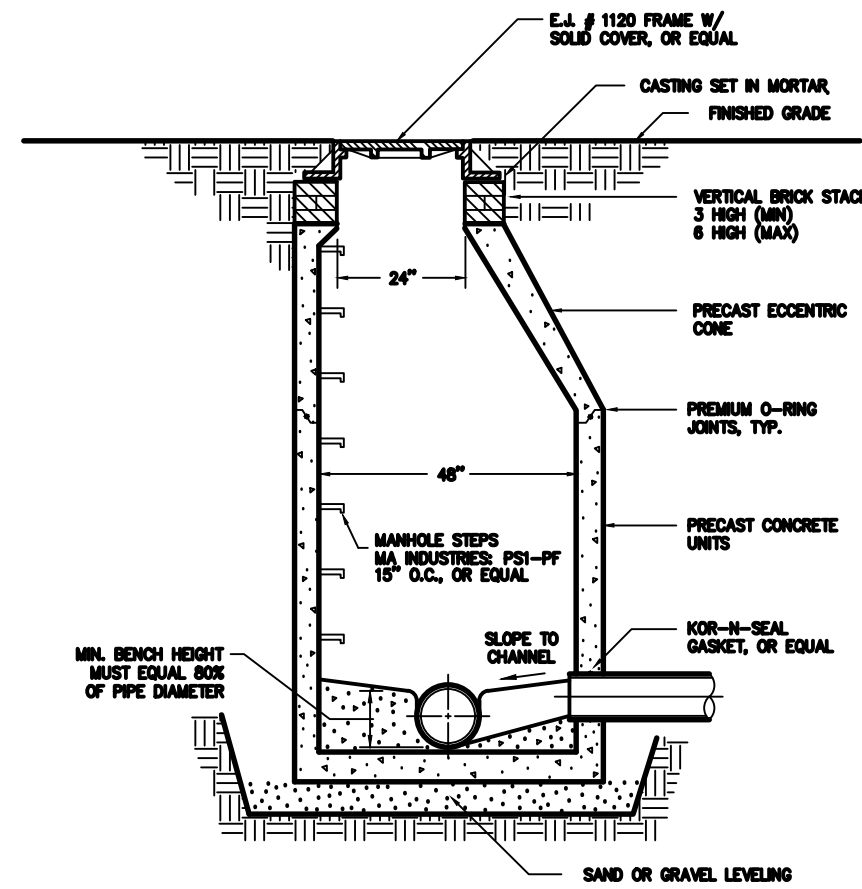


- NOTES:
1. COMPACT SAND FILL TO 95% M.A.C. DRY UNIT WEIGHT.
 2. USE METHOD II FOR ALL PLASTIC SANITARY SEWERS AND WATER MAINS.

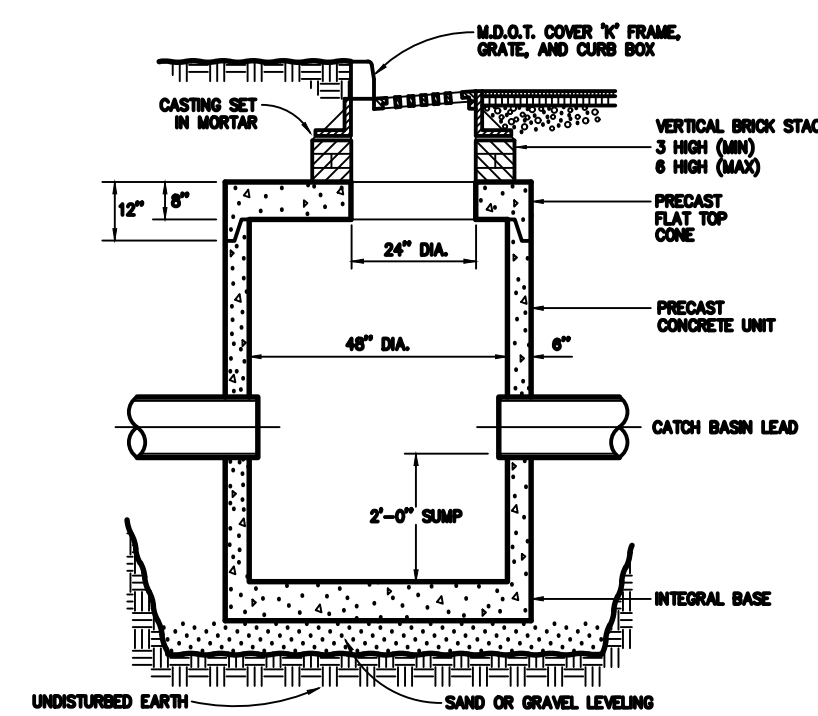
TRENCH DETAIL
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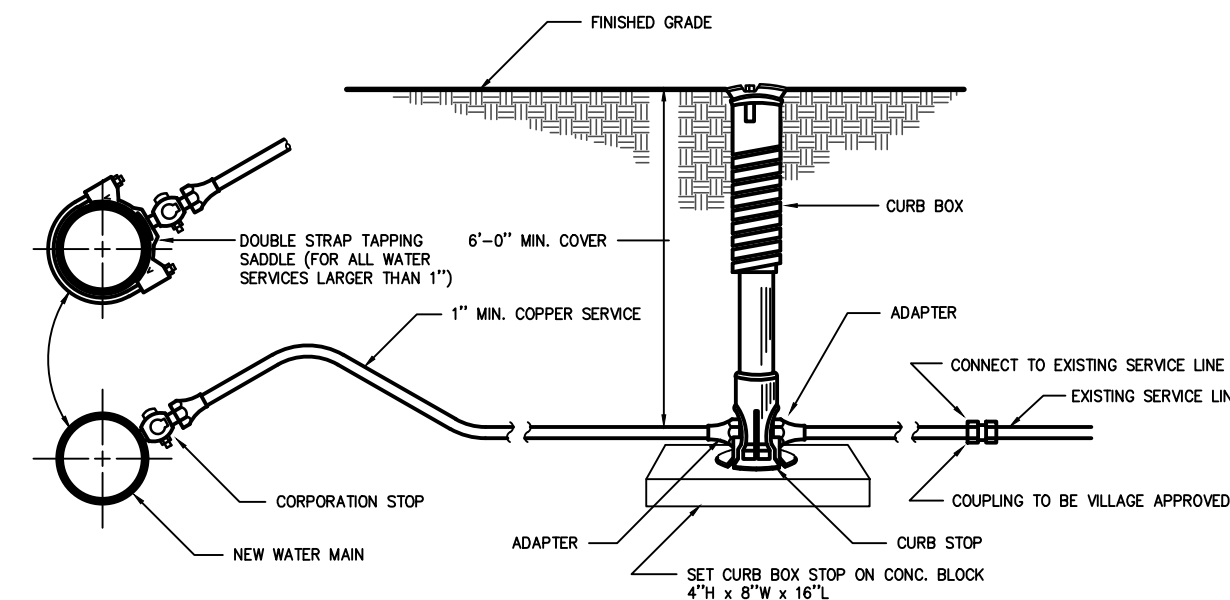
GUARD POST DETAIL
NOT TO SCALE



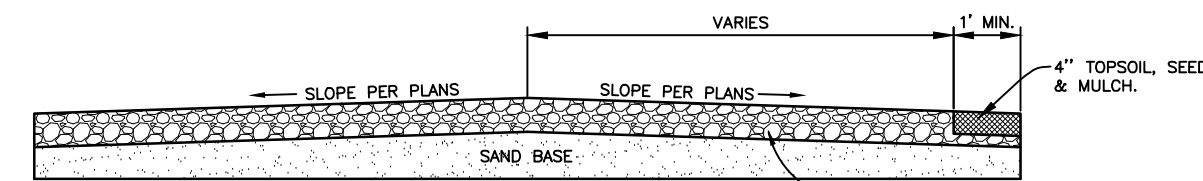
SANITARY MANHOLE DETAIL
NO SCALE



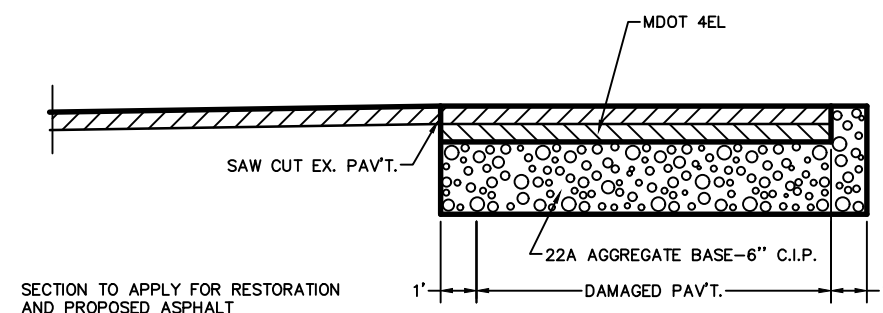
CATCH BASIN DETAIL
NO SCALE



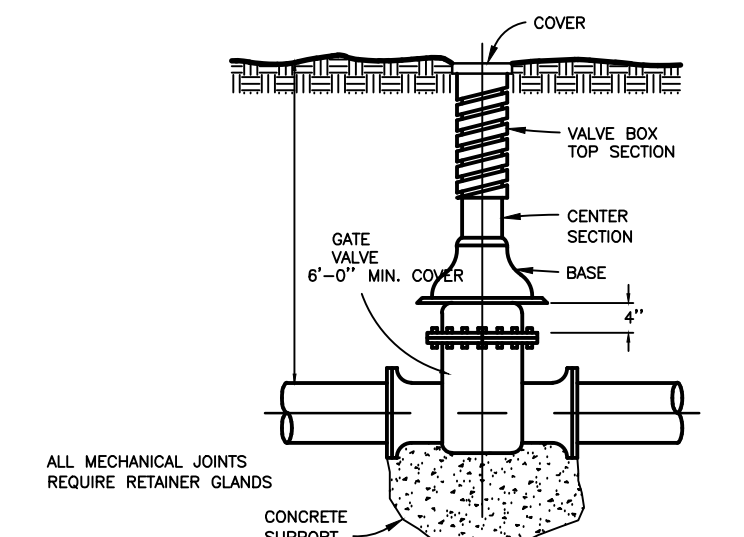
WATER MAIN SERVICE CONNECTIONS
NO SCALE



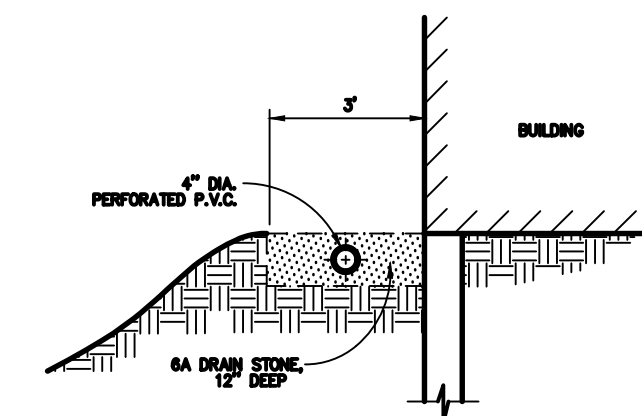
TYPICAL GRAVEL SECTION
NOT TO SCALE



TYPICAL SECTION PAVEMENT
NO SCALE



VALVE BOX INSTALLATION DETAIL
NO SCALE

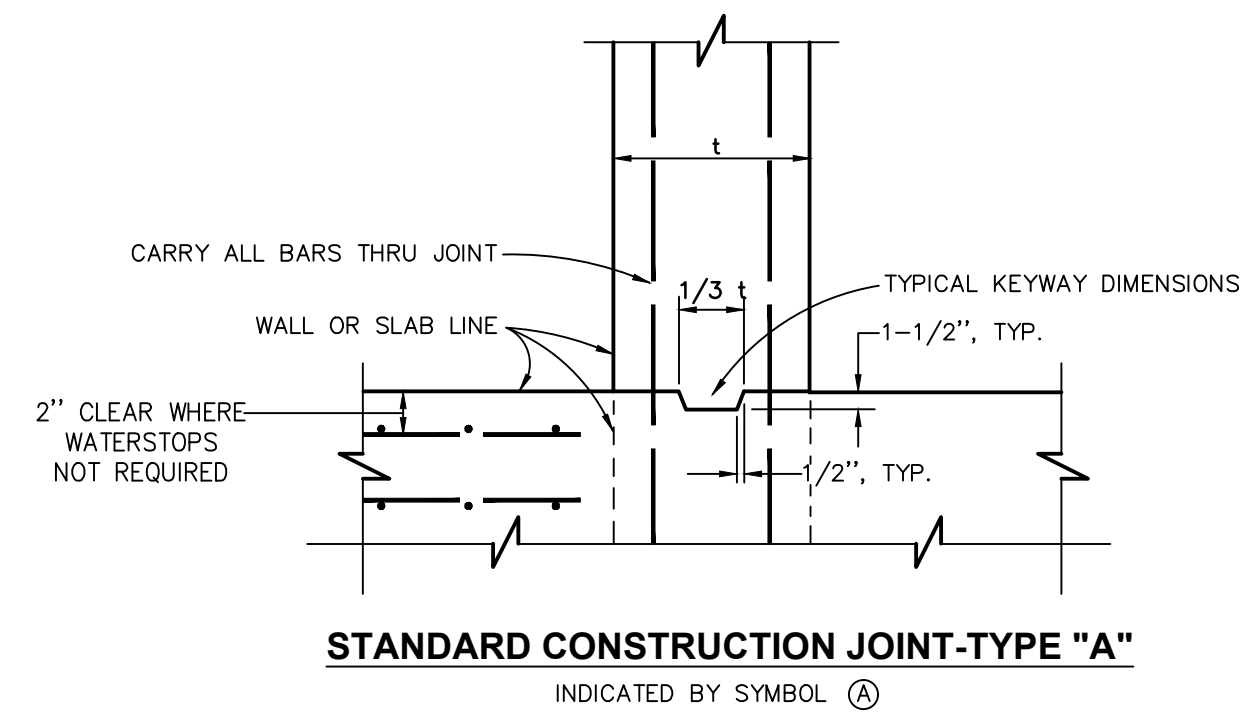


GRAVEL DRAIN DETAIL
NO SCALE

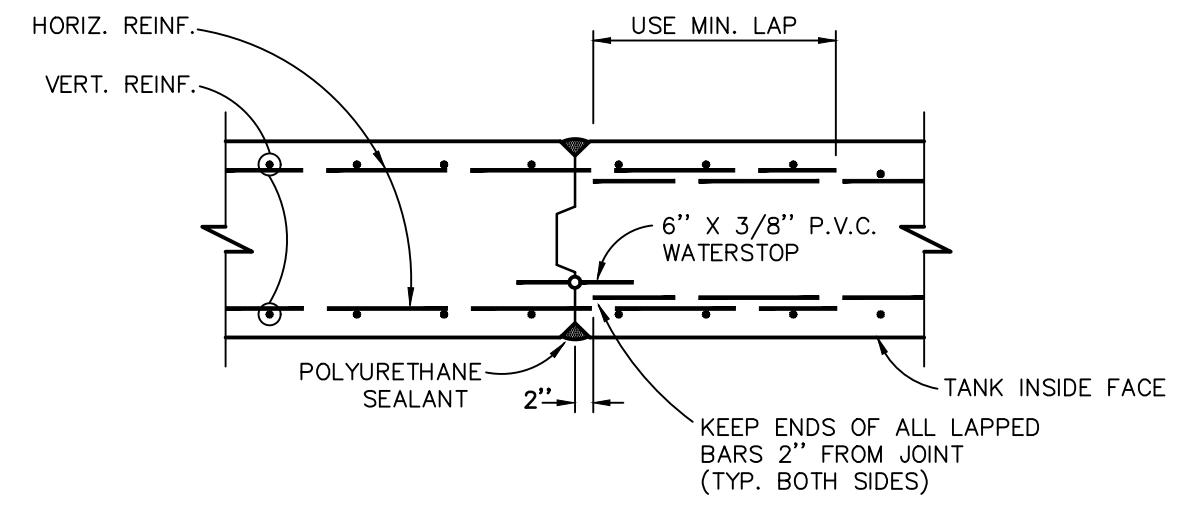
No.	Date	Revision	By

SITE DETAILS
HEADWORKS ADDITION
LITTLE RIVER BAND OF OTTAWA INDIANS

Date Issued: 10/29/2024
 Date Surveyed: 8/10/2021
 Designed By: ---
 Drawn By: ALT
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 Scale: AS NOTED
 Original sheet size is 22x34
 Location:
 PARTS OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP,
 MANISTEE COUNTY,
 MICHIGAN
 Project Number:
 2021096001.00
 Sheet:

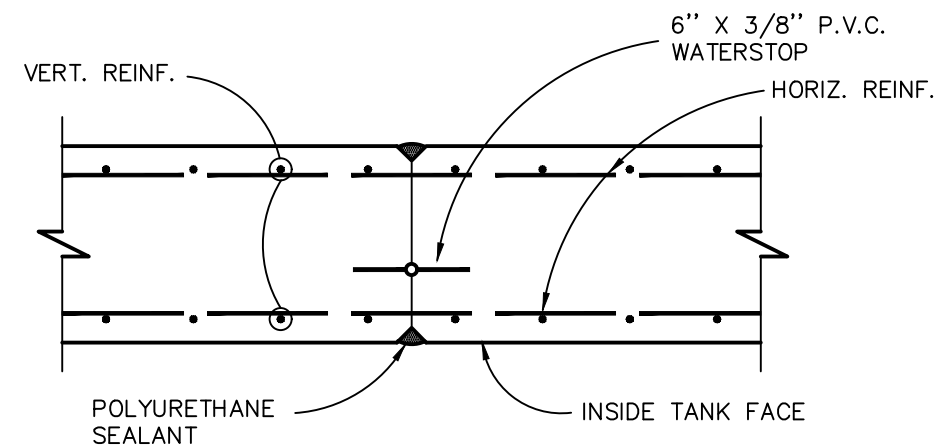


STANDARD CONSTRUCTION JOINT-TYPE "A"
 INDICATED BY SYMBOL (A)

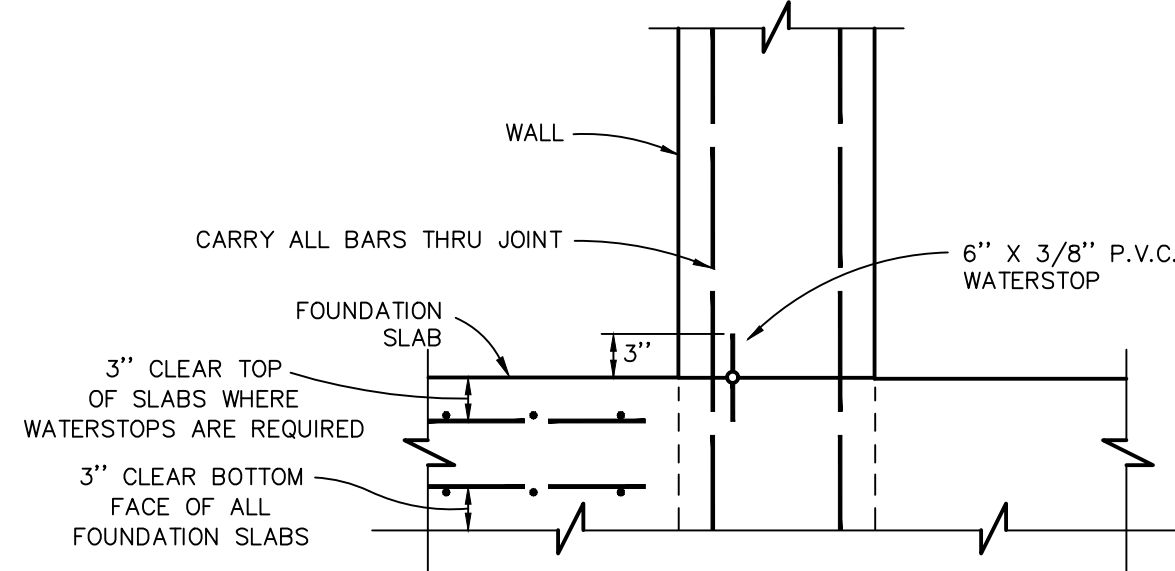


TYPICAL WALL CONTROL JOINT-TYPE "D"
 INDICATED BY SYMBOL (D)

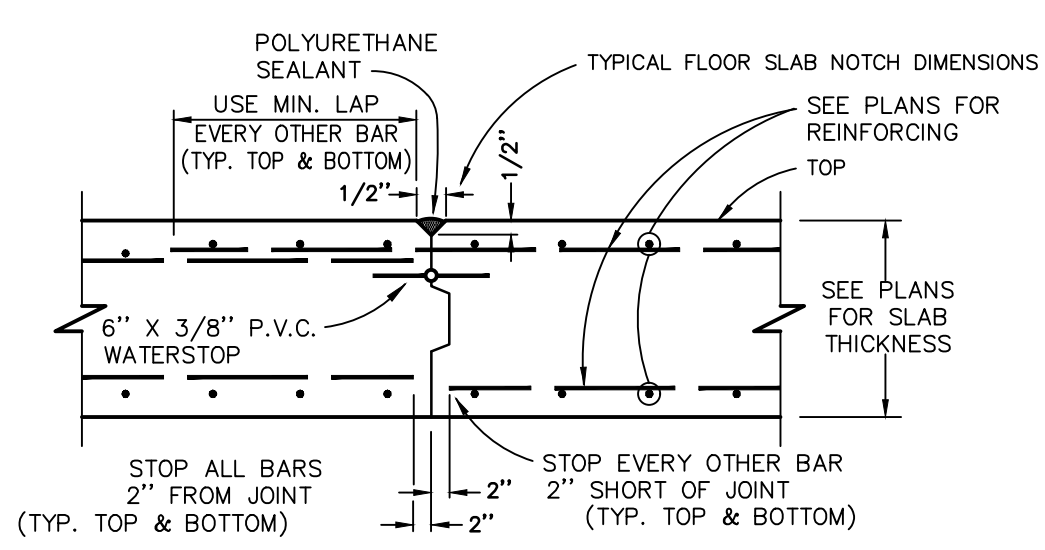
JOINT MATERIALS
 ALL WATERSTOP TO CONFORM TO CURRENT U.S. ARMY CORPS OF ENGINEERS SPECIFICATIONS CRD-C 572-74.
 JOINT SEALANT TO BE POLYURETHANE MEETING FEDERAL SPEC. TT-S-230 A.
 EXPANSION JOINT FILLER TO BE P.V.C. SEMI-RIGID CLOSED CELL FOAM UNLESS NOTED OTHERWISE.
 SEE TYPE "C" JOINT FOR TYPICAL WALL NOTCH DIMENSIONS. NOTCH TOP AS WELL AS FACE OF ALL EXPOSED WALLS.



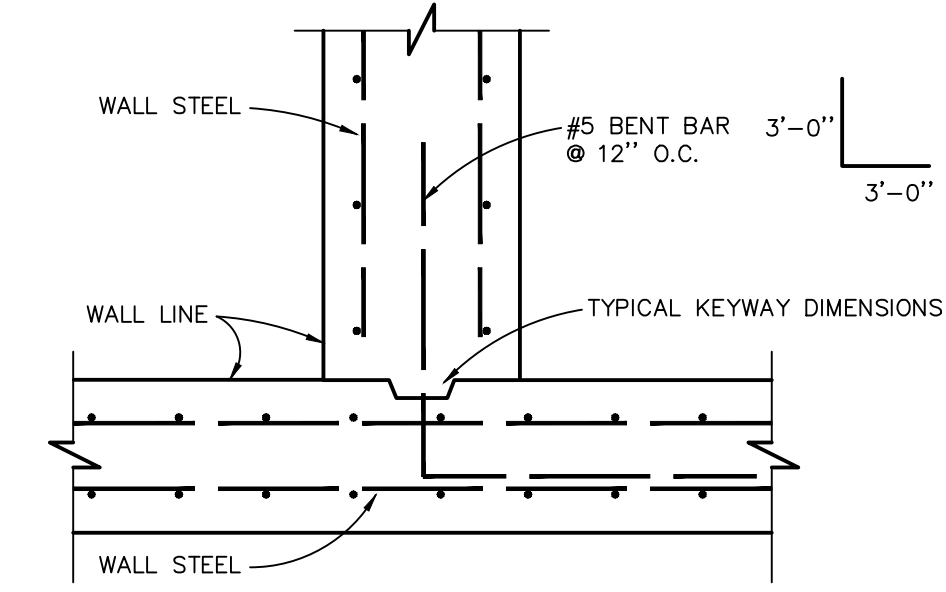
TYPICAL WALL CONTROL JOINT-TYPE "E"
 INDICATED BY SYMBOL (E)



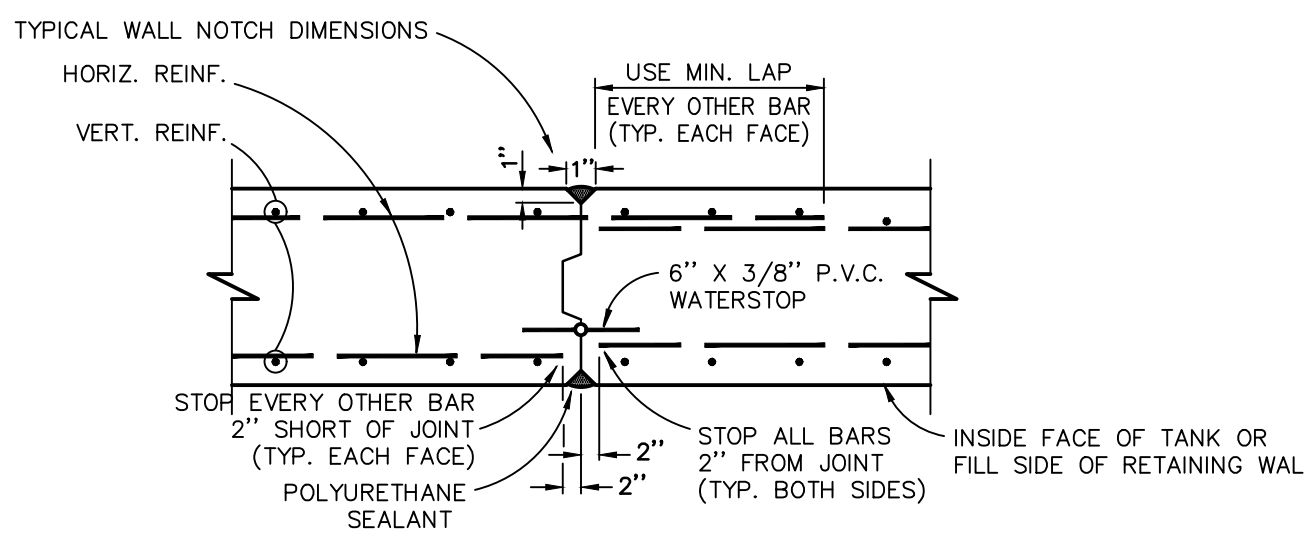
WATERTIGHT CONSTRUCTION JOINT-TYPE "B"
 INDICATED BY SYMBOL (B)



TYPICAL CONTROL JOINT IN TANK BOT.-TYPE "F"
 INDICATED BY SYMBOL (F)

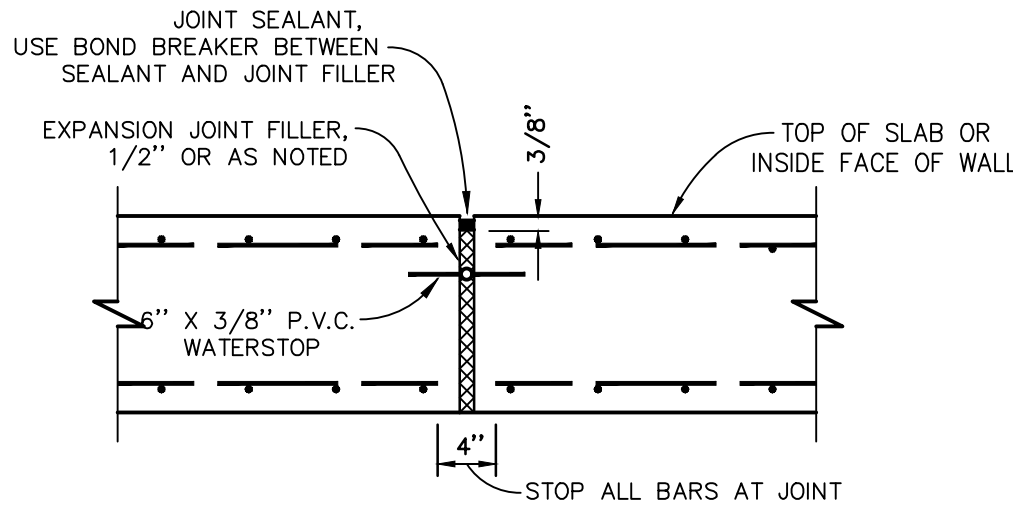


CONSTRUCTION JOINT-TYPE "H"
 INDICATED BY SYMBOL (H)

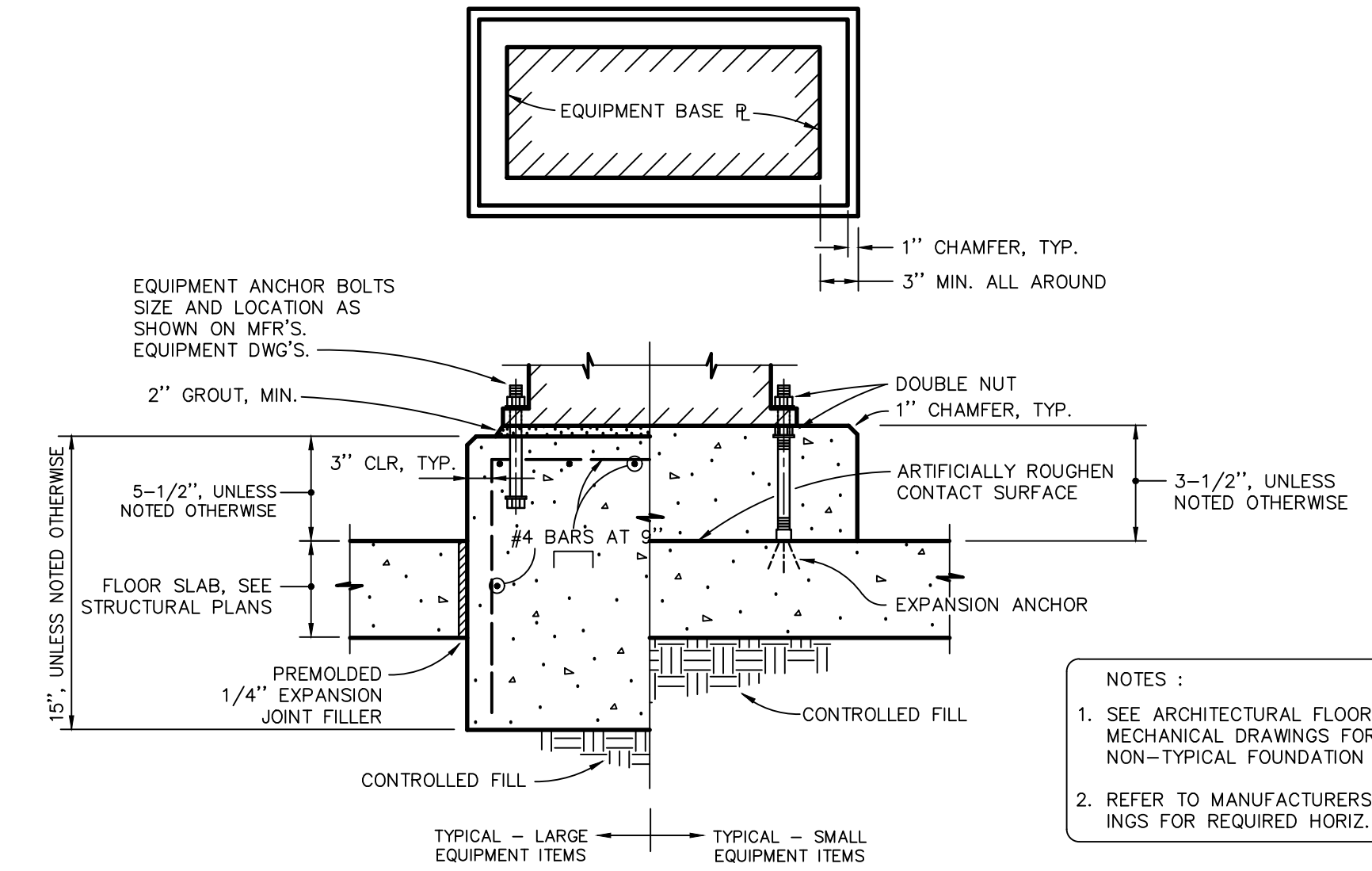


TYPICAL WALL CONTROL JOINT-TYPE "C"
 INDICATED BY SYMBOL (C)

NOTE:
 SYMBOL (C) INDICATES JOINT IDENTICAL TO ABOVE, EXCEPT THAT NO WATERSTOP IS REQUIRED.

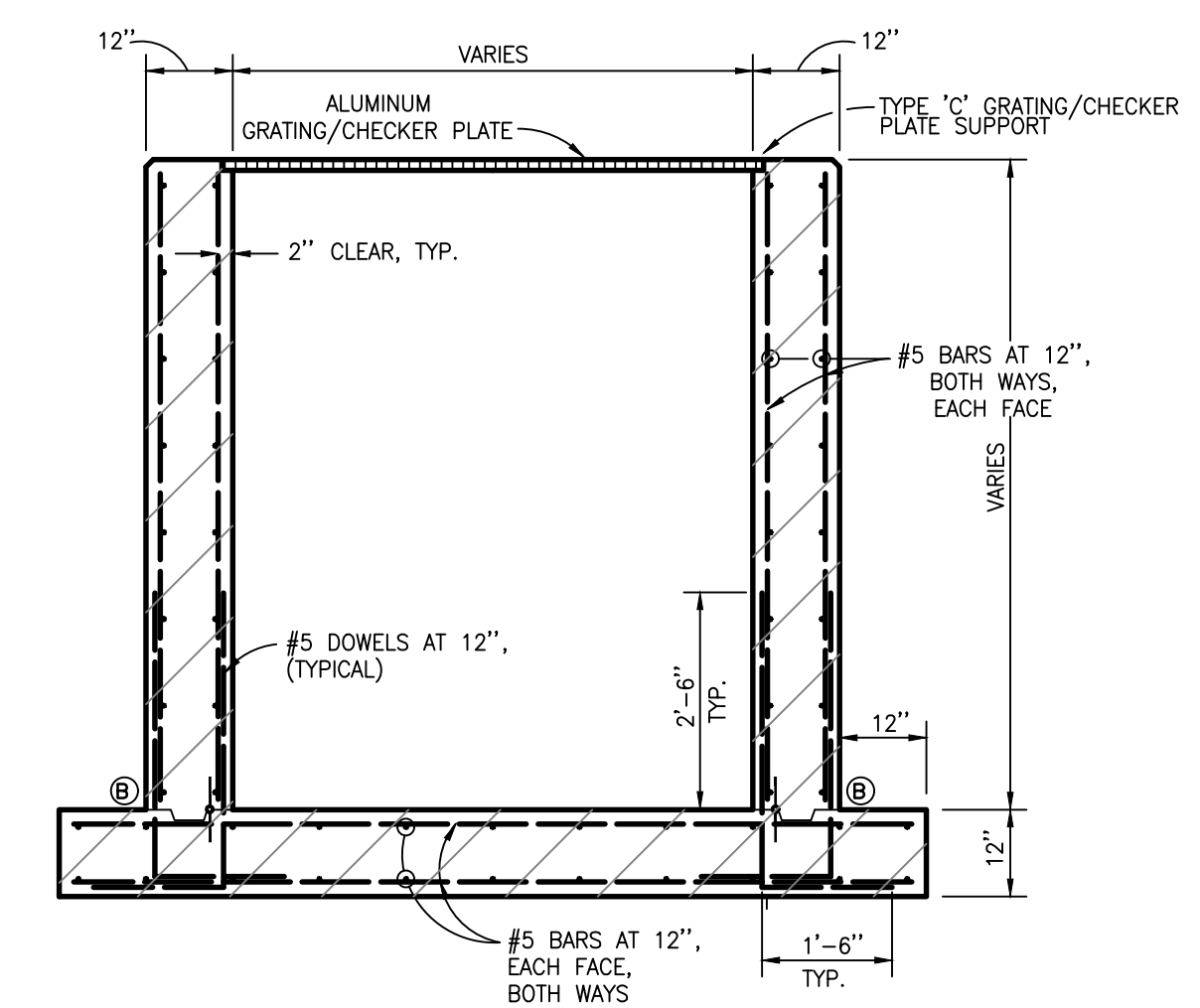


TYPICAL WALL & TANK BOTTOM CONTROL JOINT-TYPE "G"
 INDICATED BY SYMBOL (G)



CONCRETE EQUIPMENT FOUNDATION
 NOT TO SCALE

NOTES:
 1. SEE ARCHITECTURAL FLOOR PLANS AND MECHANICAL DRAWINGS FOR REQUIRED NON-TYPICAL FOUNDATION THICKNESSES.
 2. REFER TO MANUFACTURERS SHOP DRAWINGS FOR REQUIRED HORIZ. DIMENSIONS.



TYPICAL FLOW STRUCTURE SECTION
 NOT TO SCALE

NOTES:
 1. THE LOCATION AND TYPE OF VERTICAL WALL CONSTRUCTION JOINTS TO BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. IN GENERAL, ALL CONSTRUCTION JOINTS SHALL UTILIZE A WATERSTOP.
 2. SEE STANDARD DETAILS FOR CORNER STEEL REQUIREMENTS.

No.	Date	Revision	By

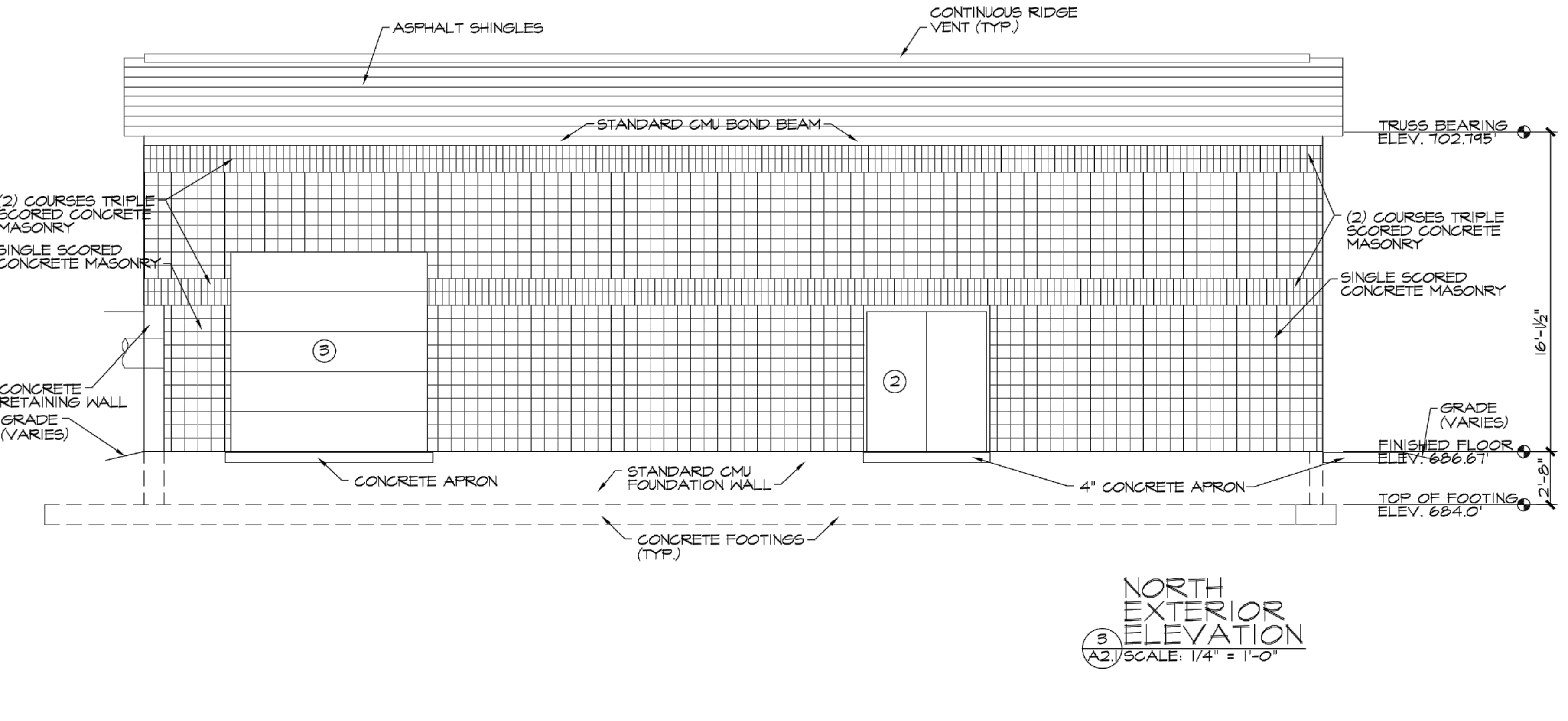
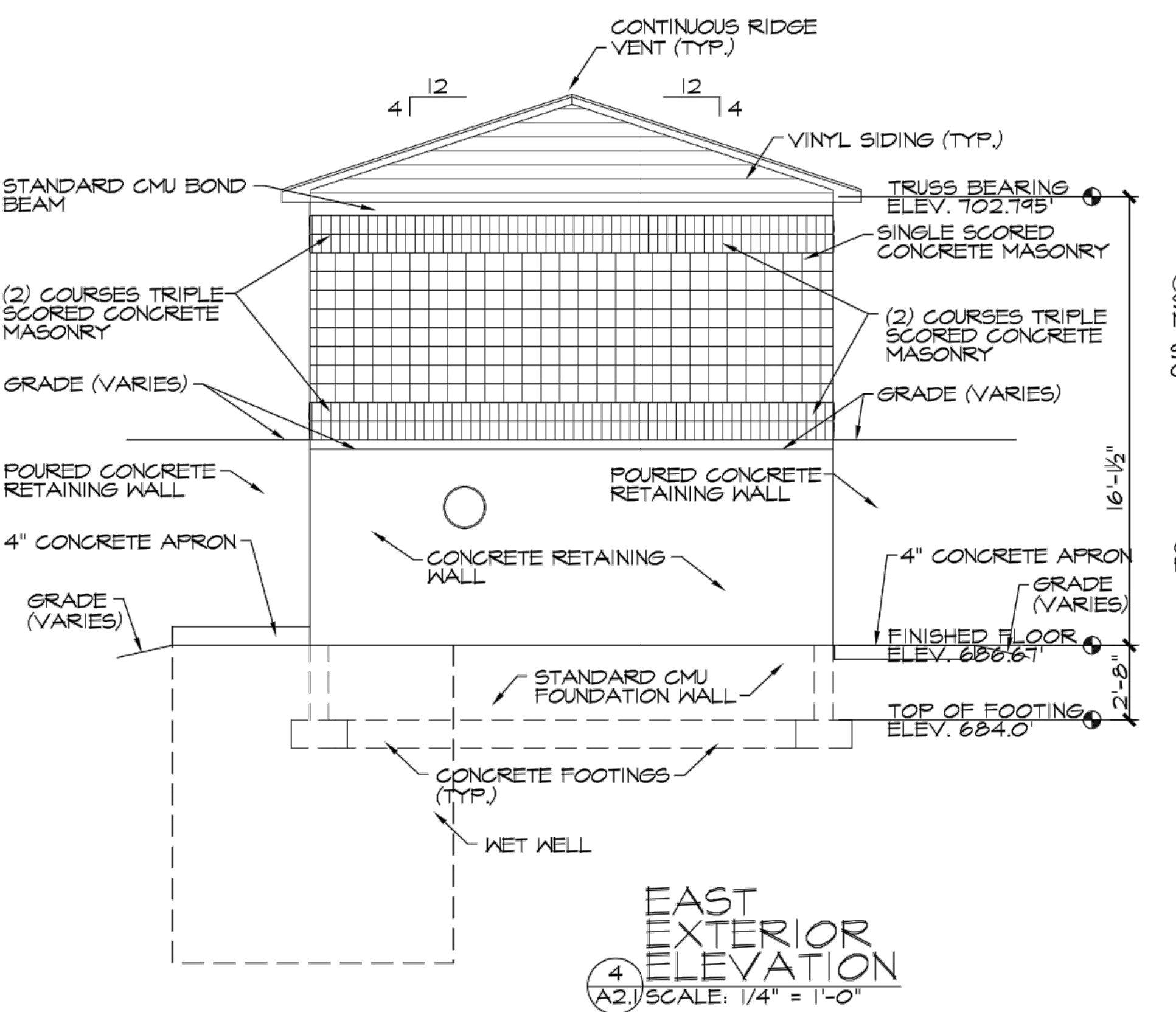
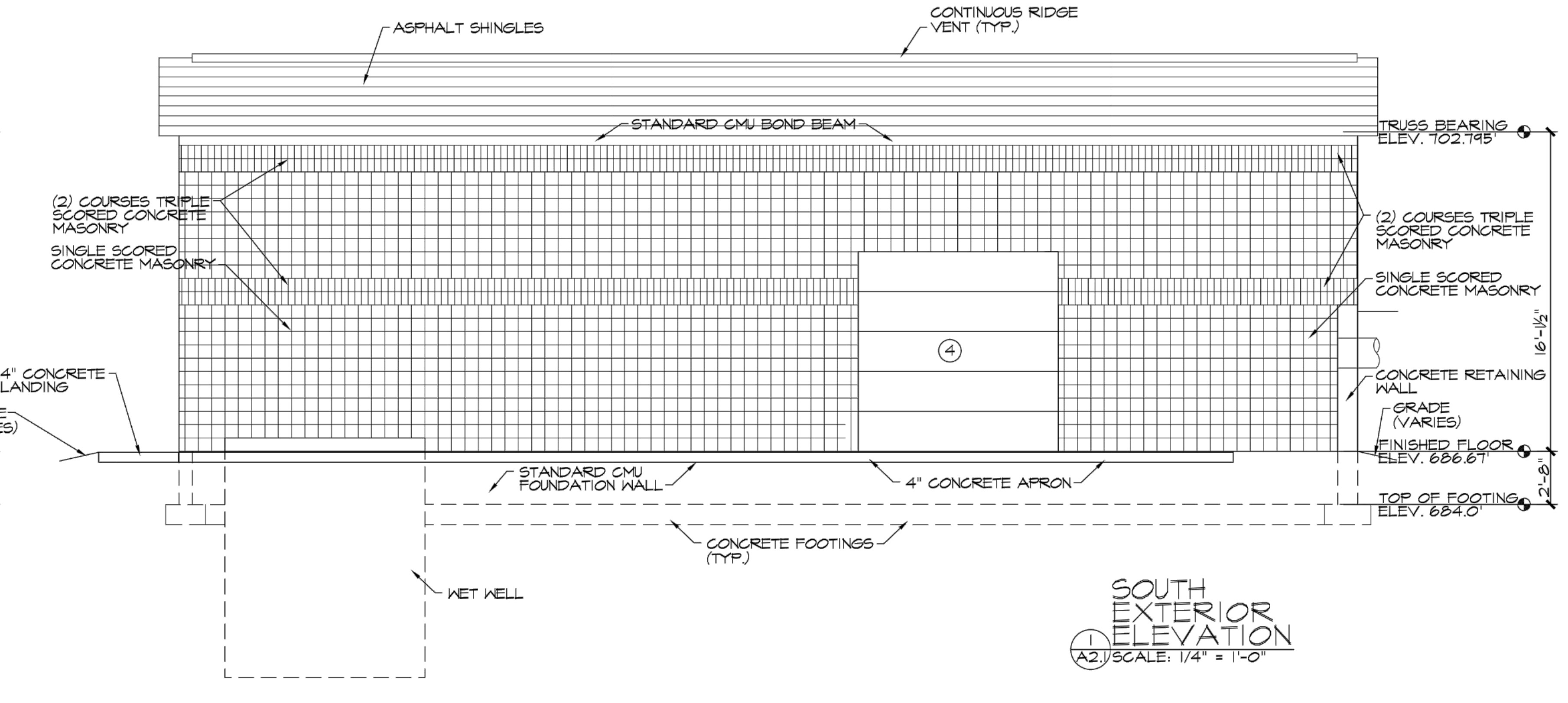
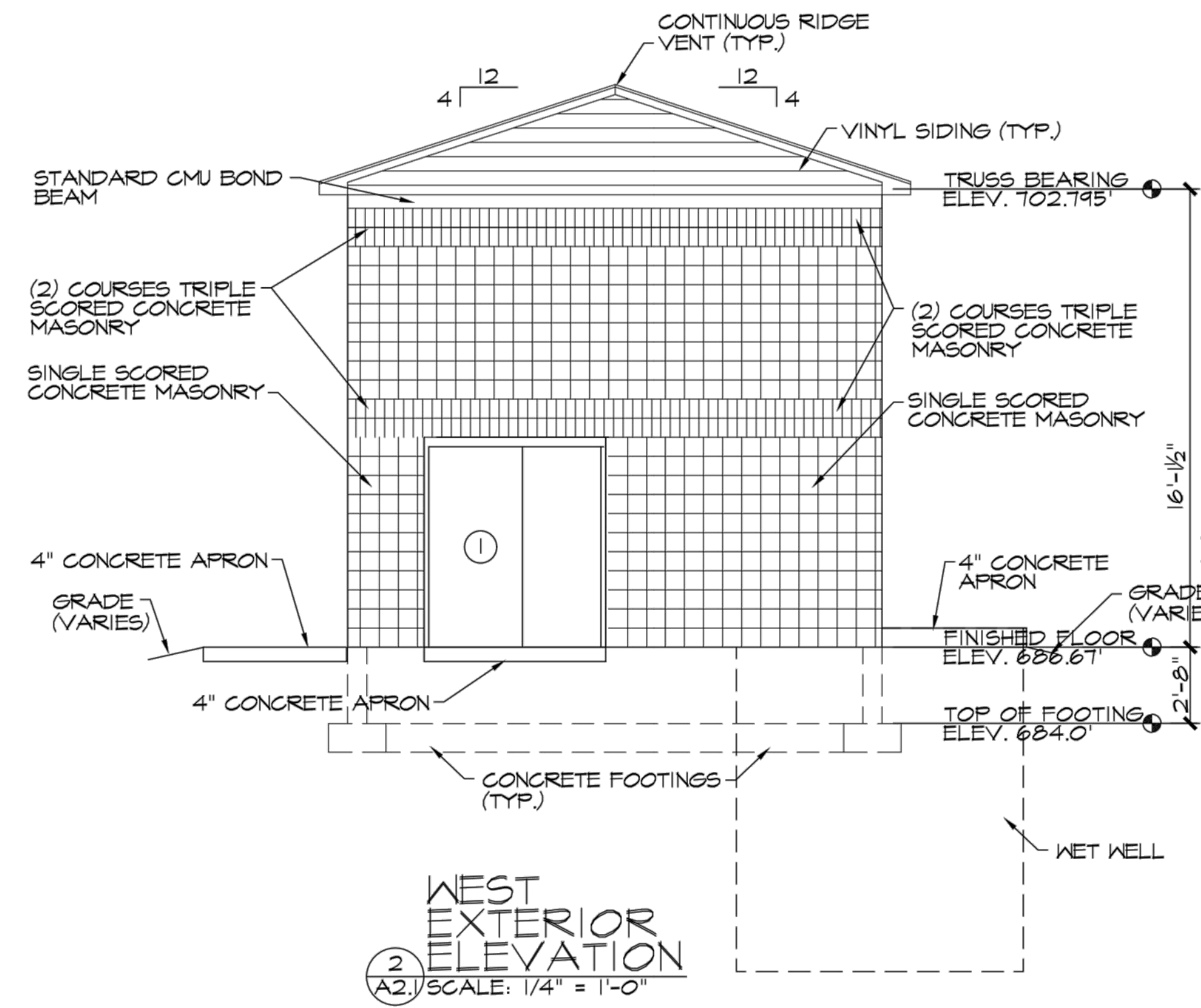
STRUCTURAL DETAILS 1
HEADWORKS ADDITION
LITTLE RIVER BAND OF OTTAWA INDIANS

Date Issued: 10/29/2024
 Date Surveyed: 8/10/2021
 Designed By: ---
 Drawn By: ALT
 Checked By: GLW
 Scale: AS NOTED
 Original sheet size is 22x34

Location:
 PARTS OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP,
 MANISTEE COUNTY,
 MICHIGAN

Project Number:
 2021096001.00

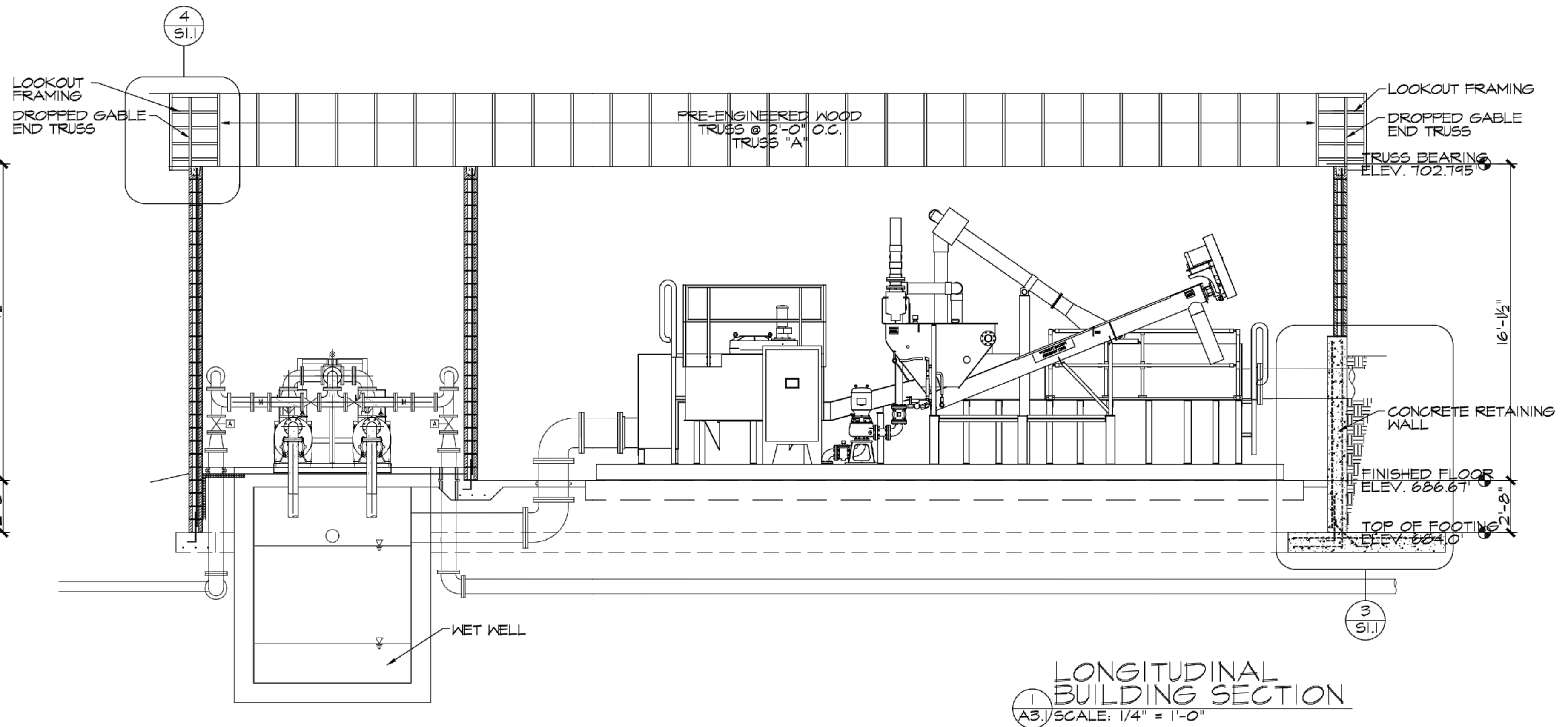
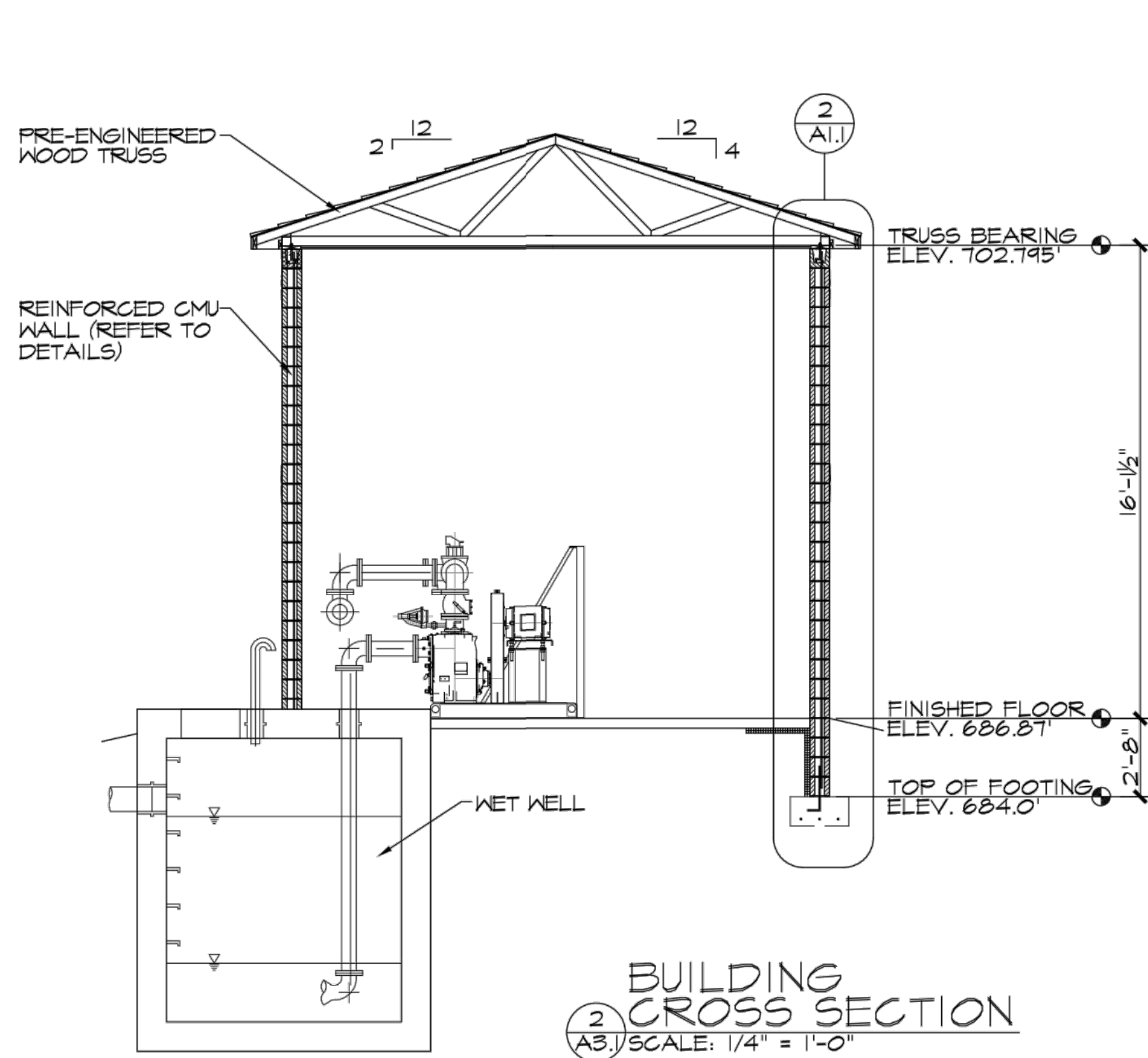
Sheet:
C-11



No.	Date	Revision	By

**EXTERIOR ELEVATIONS
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**

Date Issued: 10/29/2024
 Date Surveyed: 8/10/2021
 Designed By: JML DESIGN
 Drawn By: JML DESIGN
 Checked By: GLW
 Scale: AS NOTED
 Original sheet size is 22x34
 Location: PARTS OF SECTIONS 21 & 28, T 22 N, R 16 W, MANISTEE TOWNSHIP, MANISTEE COUNTY, MICHIGAN
 Project Number: 2021096001.00
 Sheet: A-2.1



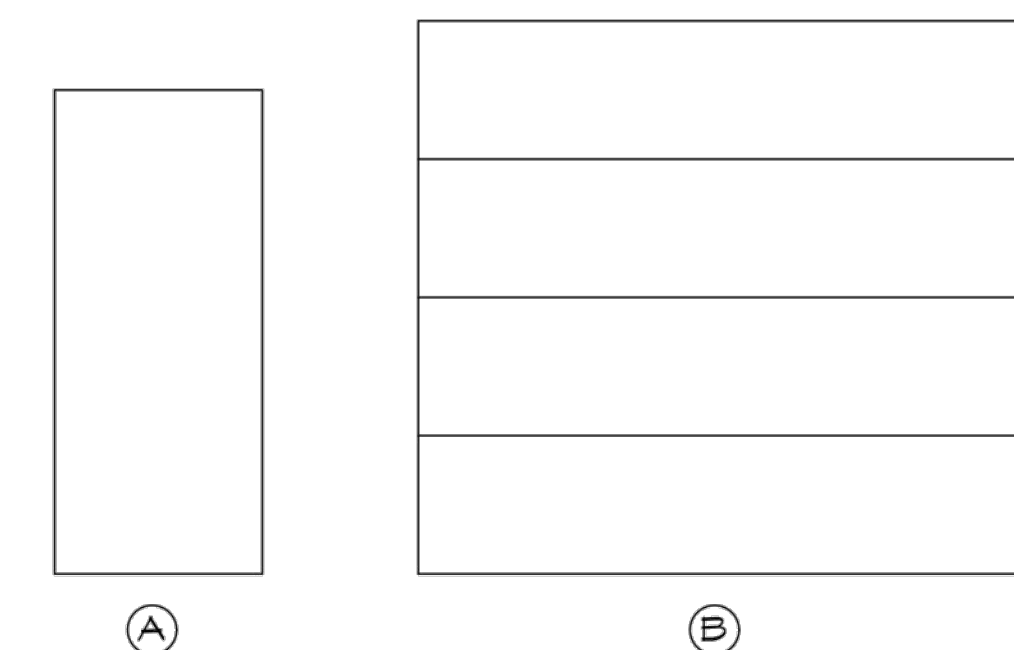
FINISH SCHEDULE									
RM. #	ROOM NAME	CEILING	CLG. HT.	WALLS				FLOORS	BASE
				NORTH	SOUTH	EAST	WEST		
100	SCREENING ROOM	PTD-1	16'-0"	CMU-1	CMU-1	CMU-1	CMU-1	CONC.	
101	EQUIPMENT	PTD-1	16'-0"	CMU-1	CMU-1	CMU-1	CMU-1	CONC.	

DOOR SCHEDULE										
NO.	DOOR LOCATION	SIZE	DOOR		FRAME			HDWR	NOTES	
			TYPE	MATERIAL	MATERIAL	HEAD	JAMB			SILL
1	EQUIPMENT (RM. 101)	(2) 3'-0" X 7'-0" X 1 3/4"	A	FIBERGLASS	FIBERGLASS	4/A3.1	3/A3.1	2/A3.1	1	ADJ. FRAME HEAD TO MATCH CMU COURSING
2	EQUIPMENT (RM. 101)	(2) 3'-0" X 7'-0" X 1 3/4"	A	FIBERGLASS	FIBERGLASS	4/A3.1	3/A3.1	2/A3.1	1	ADJ. FRAME HEAD TO MATCH CMU COURSING
3	SCREENING (RM. 100)	10'-0" X 10'-0"	B	INSUL. ALUM.	-	-	-	-	2	
4	SCREENING (RM. 100)	10'-0" X 10'-0"	B	INSUL. ALUM.	-	-	-	-	2	

MATERIAL SPECIFICATIONS:

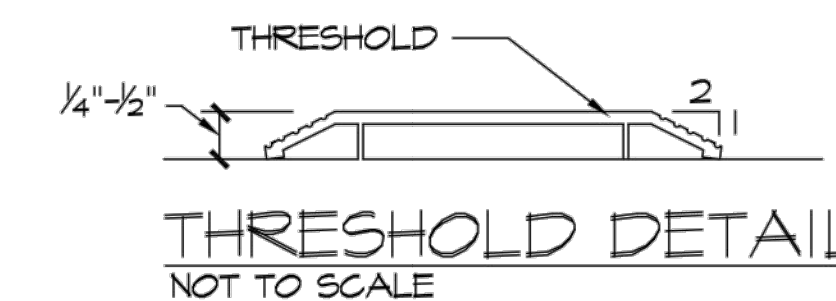
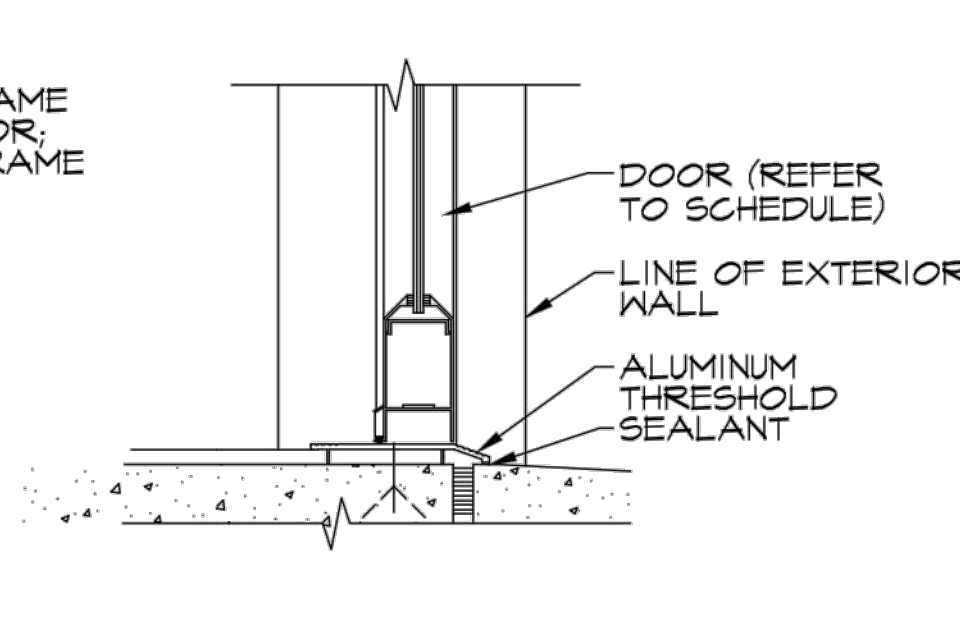
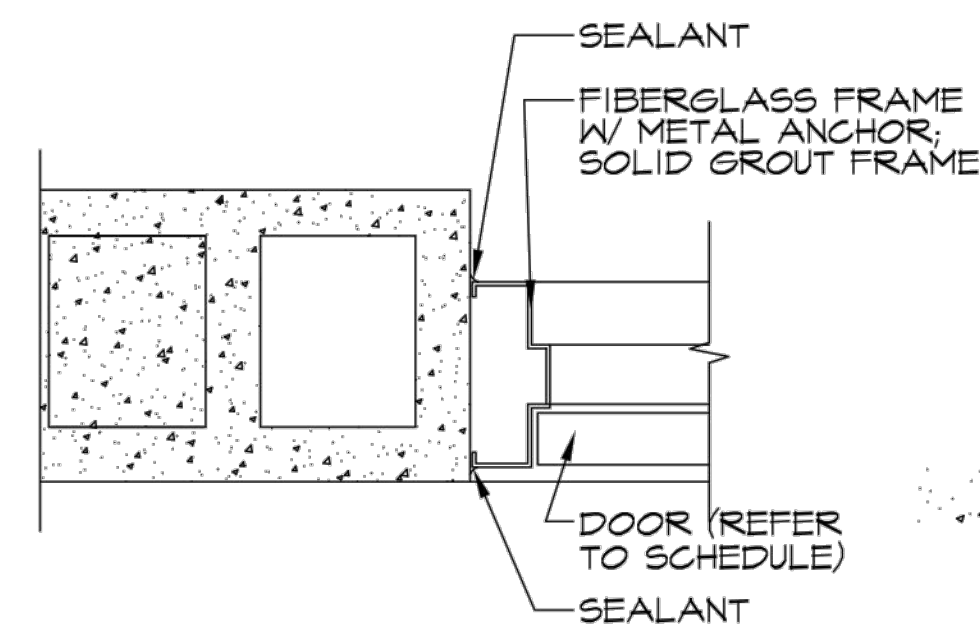
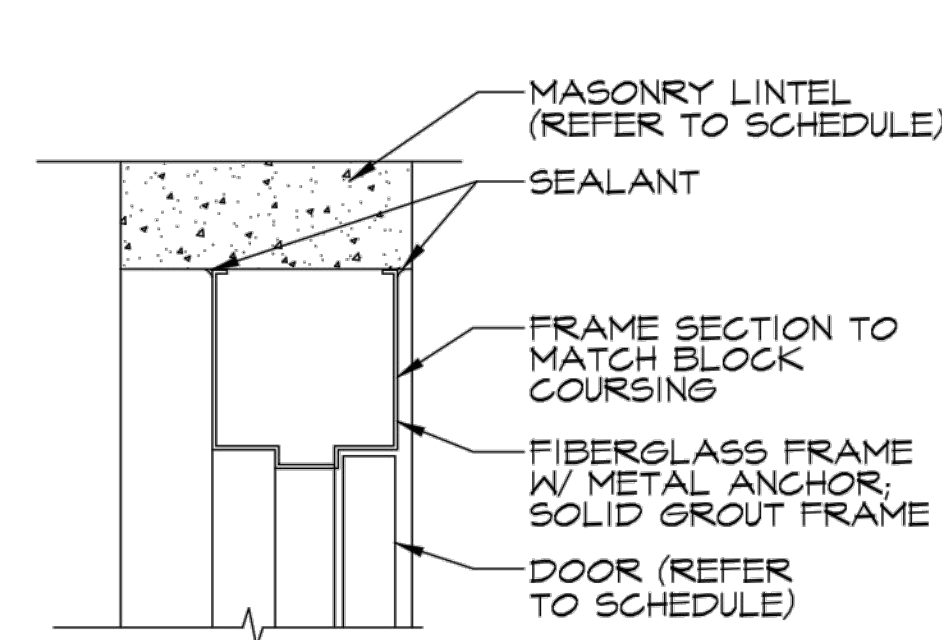
- ASPHALT SHINGLES TO BE CERTIFIED LANDMARK 40 YR. ARCHITECTURAL GRADE "WEATHERED WOOD" OR APPROVED EQUAL.
- CMU-1: CONCRETE MASONRY TO BE DECORATIVE BLOCK MANUFACTURED TO MATCH THE CONCRETE SERVICE INC. LT. EARTH BLEND OR APPROVED EQUAL.
- PTD-1: PAINT TO BE (1) COAT PRIMER, (2) COATS FINISH, SEMI-GLOSS OR EPOXY - CEILING WHITE

DOOR TYPES:



DOOR HARDWARE:

- SET 1:**
- 1/2 PAIR HINGES (PER DOOR)
 - 3 SILENCERS
 - (1) MORTISE LOCKSET (ACTIVE DOOR)
 - (1) CLOSER (ACTIVE DOOR)
 - (1) SLIDE BOLTS (TOP & BOTTOM) (INACTIVE DOOR)
 - THRESHOLD/WEATHER STRIPPING
 - ASTRIGAL
 - SWEEP
- SET 2:**
- INT. SLIDE BOLT
 - OVERHEAD DOOR TRACKS & TORSION BAR PROVIDED BY OVERHEAD DOOR MANUFACTURER
- NOTE:**
- ALL LOCKS TO BE ON MASTER KEY SYSTEM WITH SUB KEYS.
 - WEATHERSTRIP ALL EXTERIOR DOORS.



No.	Revision	By	Date

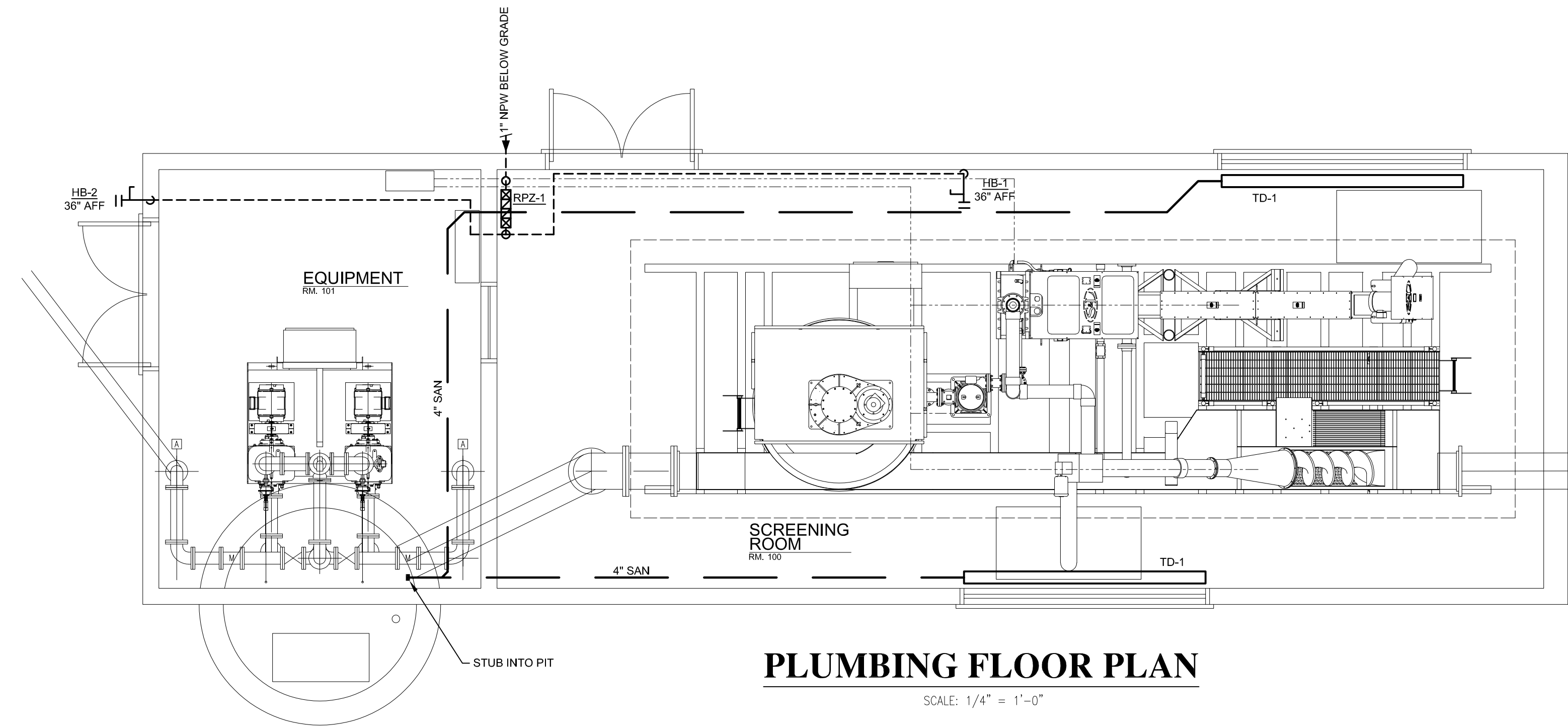
**BUILDING SECTIONS
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**



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 engineering sciences, inc.
 1280 Business Park Dr.
 Traverse City, Michigan
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 info@goslingczubak.com
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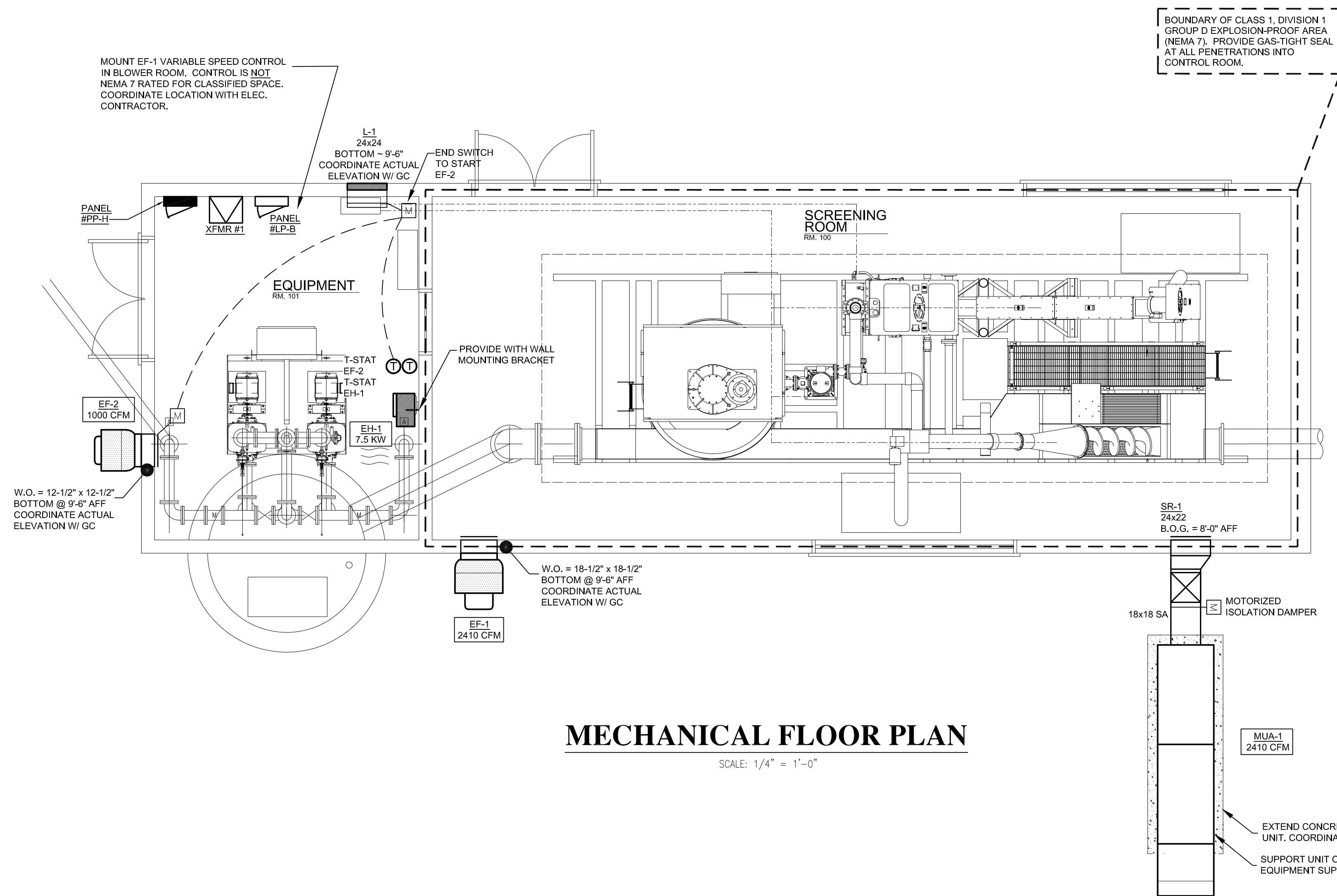
CIVIL ENGINEERING
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 DRILLING
 LANDSCAPE ARCHITECTURE

nealis
 ENGINEERING
 1419 Industry Drive
 Traverse City, MI 49805
 P 231.933.0510
 www.nealisengineering.com



PLUMBING FLOOR PLAN

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



MECHANICAL FLOOR PLAN

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

No.	Date	Revision	By
1	10-29-2024	ISSUED FOR BIDS	WDH

**PROCESS MECHANICAL
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**

Date Issued: 10-29-2024
 Date Surveyed: 8-10-2021
 Designed By: JAV
 Drawn By: JAV
 Checked By: JAV
 Scale: 1/8" = 1'-0"
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Location:
 PART OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP
 MANISTEE COUNTY
 MICHIGAN

Project Number:
 2021096001.00

Sheet:
M1

I:\BUSINESS\Projects\Gosling_Czubak\2021096001\WVTP_Headworks\BIM\Mech\Headworks-25\WVTP.dwg Plot: M1 Saved By: jennifer.doherty 10/29/2024 8:51 AM

No.	Date	Revision	By
1	10-29-2024	ISSUED FOR BIDS	

PROCESS ELECTRICAL
 HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS

Date Issued: 2-1-2023
 Date Surveyed: 8-10-2021
 Designed By: JAV
 Drawn By: JAV
 Checked By: JAV
 Scale: 1/8" = 1'-0"
 Original sheet size is 22x34
 Location:
 PART OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP
 MANISTEE COUNTY
 MICHIGAN
 Project Number:
 2021096001.00
 Sheet:
M2

MAKE-UP AIR UNIT SCHEDULE

TAG	DESCRIPTION	MANUFACTURER AND MODEL	FAN DATA			HEATING					WEIGHT	ELECTRICAL DATA			CONTROLS	OPTIONS / ACCESSORIES				
			AIRFLOW (CFM)	E.S.P. (IN. W.G.)	HP	INPUT (KW)	OUTPUT (KW)	TYPE	CONN.	EAT (°F)		LAT (°F)	GAS PRESS.	VOLTAGE		HP	MCA	1	2	3
MAU-1	100% OUTDOOR AIR, HORIZONTAL ELECTRIC MAKE-UP AIR UNIT	GREENHECK MSX-F114-H12	2410	0.25"	1	60	---	ELEC.	---	0°F	79°F	---	984 LB	460/60/3	1	78.1	INTERLOCK WITH EF-1 OPERATION TO RUN CONTINUOUS. UNIT SHALL BE ABLE TO MAINTAIN DISCHARGE AIR TEMPERATURE SET POINT	1. WEATHERHOOD W/ BIRDSCREEN & FILTER SECTION W/ 2" ALUMINUM FILTERS 2. HORIZONTAL DISCHARGE 3. EPOXY COAT - EXTERIOR	4. FREEZESTAT 5. SINGLE POINT ELECTRICAL CONNECTION	

EXHAUST FAN SCHEDULE

TAG	MANUFACTURER & MODEL NO.	DRIVE TYPE	LOCATION / SERVICE	AIRFLOW (CFM)	E.S.P. (IN W.G.)	SOUND LEVEL (SONES)	ELECTRICAL					CONTROL DATA	NOTES/REMARKS
							VOLTAGE	HP	ENCL	RPM	FLA		
EF-1	GREENHECK CUE-160-VG	DIRECT	SCREENING ROOM 100 RELIEF / EXHAUST FAN	2410	0.24	11.2	115V 1ϕ 60Hz	1/2	EXP	943	6.6	CONTINUOUS - OPERATES ALONG W/ MAU-1 ①	② ③
EF-2	GREENHECK CUE-095-VG	DIRECT	EQUIPMENT ROOM 101 EXHAUST FAN	1000	0.2	10.2	115V 1ϕ 60Hz	1/6	ODP	1677	2.8	REVERSE ACTING LINE VOLTAGE THERMOSTAT, SPEED CONTROL ③	

OPTIONS / ACCESSORIES:
 ① VARIABLE SPEED CONTROL (SEE DRAWING NOTES)
 ② "EXPLOSION PROOF" FAN, SPARK C CONSTRUCTION, 16 GA. GALVANIZED STEEL WALL BRACKET, LOW LEAKAGE MOTORIZED DAMPER (VCD-23, COATED), HI-PRO POLY COAT, ALUMINUM RUB RING, DIV. 1 WRING, ALUMINUM BLADES (EPOXY COATING)
 ③ WALL BRACKET FOR WALL MOUNT CONFIGURATION, LOW LEAKAGE BACKDRAFT DAMPER (VCD-23, COATED), FAN & ACCESSORIES BASIC GRAY CORROSION RESISTANT COATING

ELECTRIC HEATER SCHEDULE

TAG	LOCATION	MANUFACTURER & MODEL NO.	AIRFLOW [CFM]	UNIT SIZE [IN]			ELECTRICAL			CONTROL DATA	ACCESSORIES/NOTES:
				W	L	H	VOLTAGE/PHASE	WATTS	F.L.A		
EH-1	HEADWORKS: RM 103	MARKEL P3PUH07	575	20	18.75	13	480V 3ϕ 60Hz	7500	9.1	②	③ ④ ⑤

BASED ON MARKEL: REDD-1, RAYWALL, BERKO, Q-MARK, MARLEY ARE APPROVED EQUALS.
 ① - CONTROLS & ACCESSORIES RATED FOR HAZARDOUS LOCATION ② - WALL MOUNT T-STAT ③ - UNIT MOUNTED DISCONNECT ④ - SUMMER FAN SWITCH ⑤ - HEAT PURGE FAN DELAY

WALL LOUVER SCHEDULE

TAG	SERVICE	MODEL ①	CFM	LOUVER SIZE (IN)			P.D. (IN H ₂ O)	THROAT FREE AREA (SQ. FT.)	MATERIAL	REMARKS
				H	W	D				
L-1	INTERLOCKED W/ EF-2 & EH-1 SUMMER SWITCH	ESD-603	1000	24	24	6	0.06	1.64	EXTRUDED ALUMINUM	OPTIONS: 3/4" BIRD SCREEN, LOW LEAKAGE (VCD-23) MOTORIZED BACKDRAFT DAMPER, HI-PRO POLY COATING, COLOR BY ARCHITECT

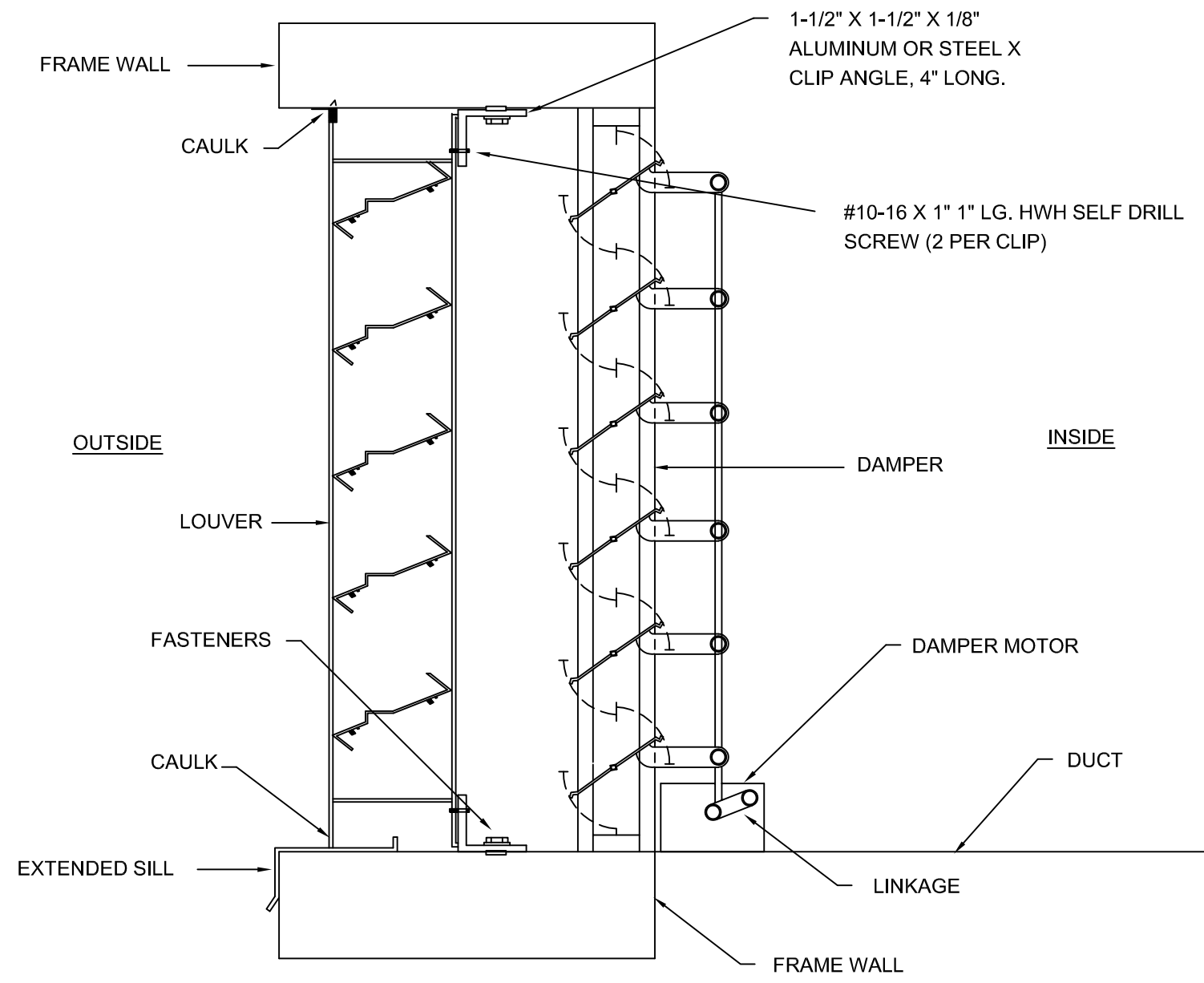
① BASED ON GREENHECK STATIONARY LOUVER, DRAINABLE BLADE

DIFFUSER AND GRILLE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER AND MODEL	SIZE (INCHES)	VOLUME DAMPER (TYPE, LOCATION)	MATERIAL	COLOR AND FINISH
SR-1	SUPPLY AIR REGISTER, HEAVY DUTY AEROBLADE STYLE, 1-1/4" SPACING DOUBLE DEFLECTION, CORROSION RESISTANT; SURFACE MOUNT FRAME	TITUS 112RL	24x12	EXTERNAL	ALUMINUM	#26 WHITE

PLUMBING FIXTURE SCHEDULE

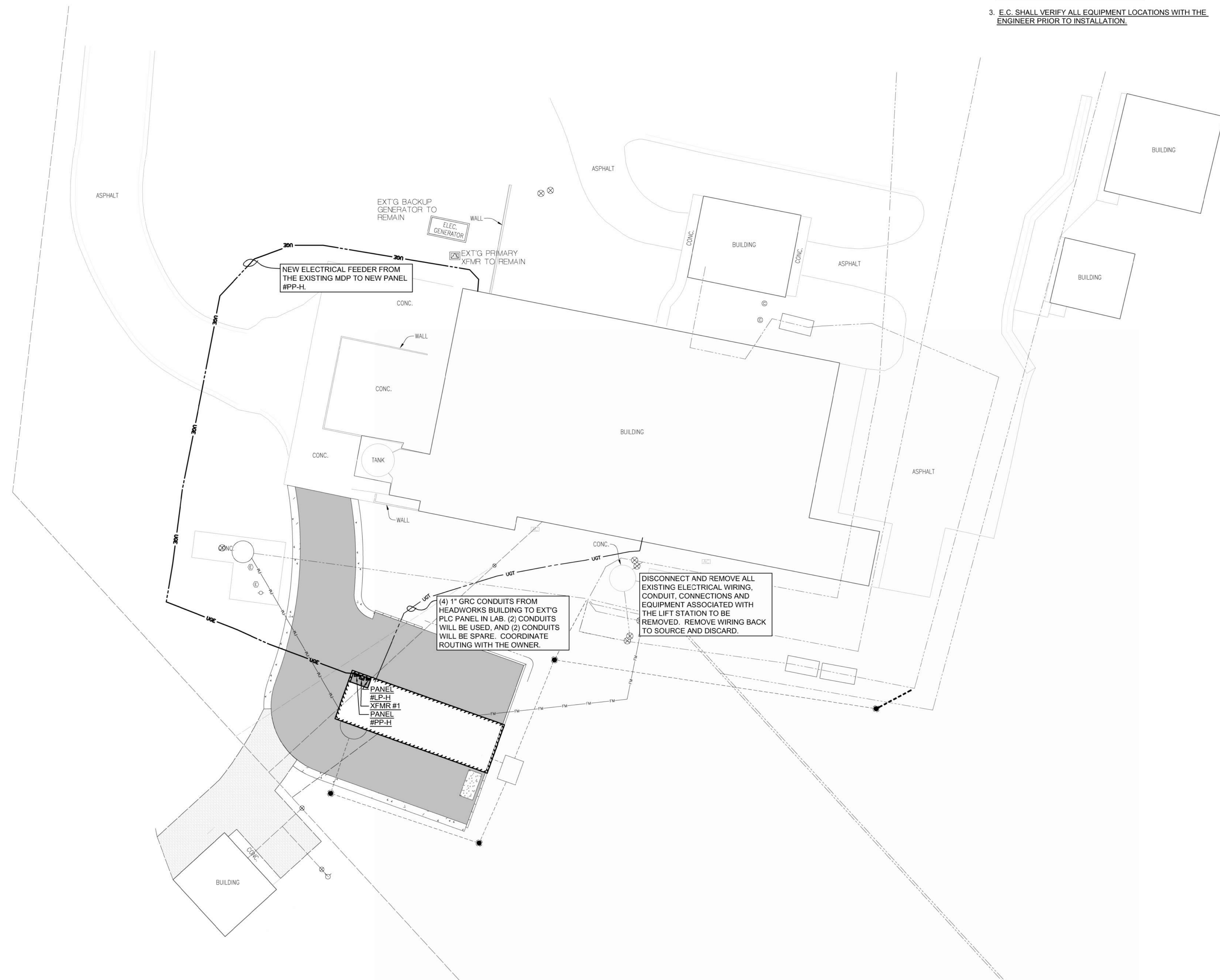
TAG	DESCRIPTION	MANUFACTURER / MODEL	MODEL	ROUGH-IN SIZE (INCHES)				TRIM	REMARKS
				CW	HW	WASTE	VENT		
TD-1	10' TRENCH DRAIN WITH END DISCHARGE	ZURN	Z886-GFG-HDG	-	-	4"	-	6" GALVANIZED CLASS F GRATE AND FRAME	
HB-1	HOSE BIBB	WOODFORD	Y24	3/4"	-	-	-	VACUUM BREAKER, POLY HANDLE	MAINTAIN CLEARANCE TO NEARBY WALL FOR OPERABILITY
HB-2	HOSE BIBB REMOVABLE HANDLE	WOODFORD	65	3/4"	-	-	-	VACUUM BREAKER REMOVABLE TEE HANDLE	FURNISH TEE TO OWNER
RPZ-1	REDUCED PRESSURE ZONE PRINCIPLE ASSEMBLY	ZURN / WILKINS	375XL	1"	-	-	-	FACTORY LEAD FREE BRONZE "Y" STRAINER & AIR GAP	



FRESH AIR LOUVER & DAMPER DETAIL
 NO SCALE

NOTES

1. E.C. SHALL ADD ANY NECESSARY FLUSH-GRADE BOXES SO AS NOT TO EXCEED MORE THAN 360° OF BENDS FROM BOX TO BOX.
2. E.C. SHALL VERIFY ALL INSTRUMENTATION LOCATIONS WITH THE ENGINEER PRIOR TO INSTALLATION.
3. E.C. SHALL VERIFY ALL EQUIPMENT LOCATIONS WITH THE ENGINEER PRIOR TO INSTALLATION.



ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

Gosling Czubak
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No.	Date	Revision	By
1	10-29-2024	ISSUED FOR BIDS	JAV

**PROCESS ELECTRICAL HEADWORKS ADDITION
 LITTLE RIVER BAND OF OTTAWA INDIANS**

Date Issued: 10-29-2024
 Date Surveyed: 8-10-2021
 Designed By: JAV
 Drawn By: JAV
 Checked By: JAV
 Scale: 1/8" = 1'-0"
 Original sheet size is 22x34

Location:
 PART OF SECTIONS 21 & 28,
 T 22 N, R 16 W,
 MANISTEE TOWNSHIP
 MANISTEE COUNTY
 MICHIGAN

Project Number:
 2021096001.00

Sheet:
SE1

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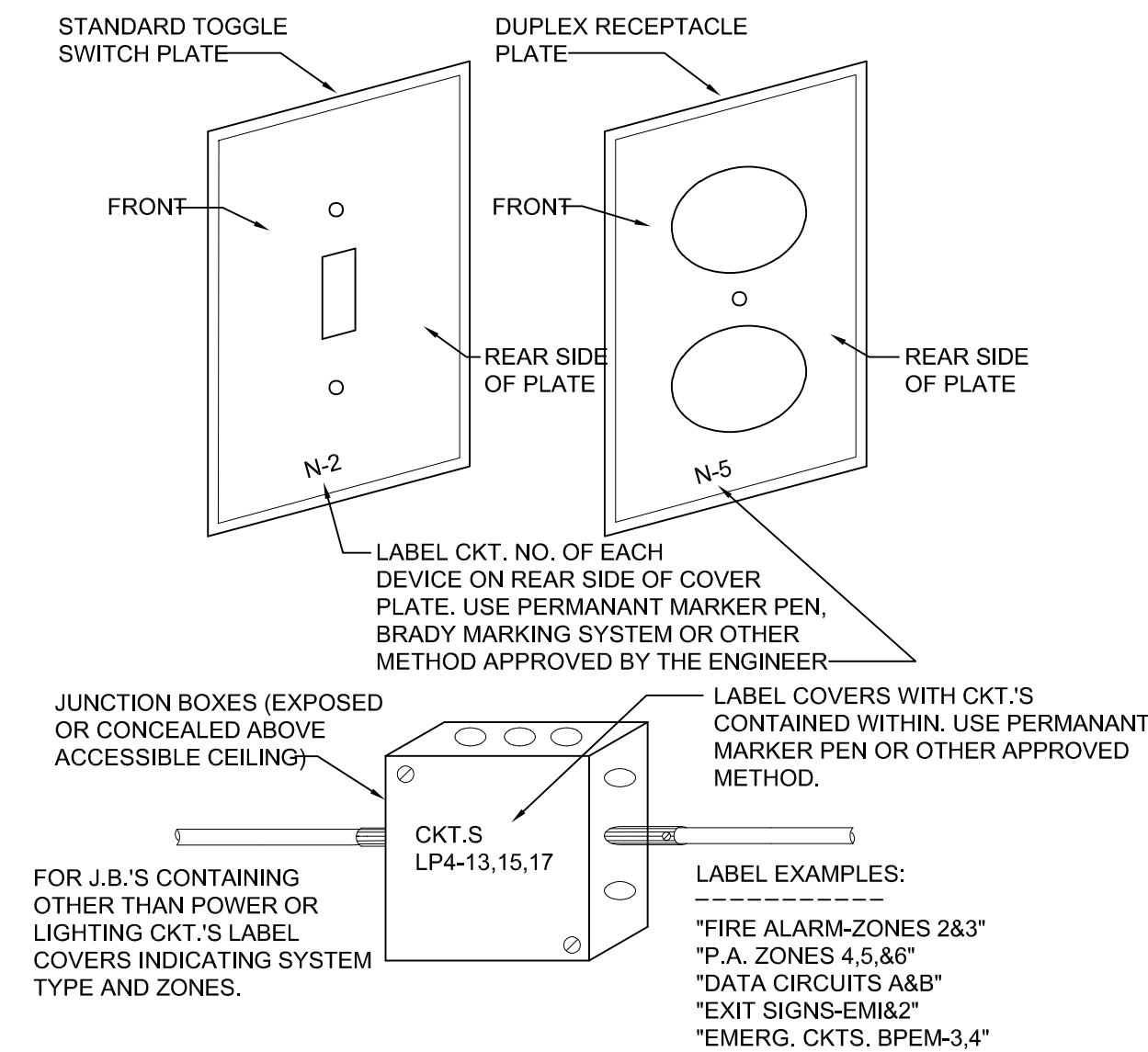
ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	NOTES
	SINGLE POLE SWITCH, (LEVITON #CSB1-20-W)	MOUNT @ 44" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	THREE-WAY SWITCH, (LEVITON #CSB3-20-W)	MOUNT @ 44" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	FOUR-WAY SWITCH (LEVITON #CSB4-20-W)	MOUNT @ 44" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	WALL MOUNTED FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	ROUND FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	2'x4' FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	1'x4' FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	WALL MOUNTED FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	EXIT SIGN, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	PHOTOCELL	INTERMATIC #K4321
	DUPLEX OUTLET - 20 AMP (LEVITON #BR20-W)	MOUNT @ 16" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	DUPLEX OUTLET - WEATHER PROOF "IN-USE" COVER	MOUNT @ 24" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	DUPLEX OUTLET - GROUND FAULT (LEVITON #8899-W)	MOUNT @ 16" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	DUPLEX OUTLET - DEDICATED CIRCUIT	MOUNT @ 16" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	208V, 4 WIRE OUTLET, AS SPECIFIED	MOUNT @ 16" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	SINGLE-PHASE SPECIAL PURPOSE OUTLET, AS NOTED	REFER TO SHOP DRAWINGS FOR CONNECTION REQUIREMENTS
	THREE-PHASE SPECIAL PURPOSE OUTLET, AS NOTED	REFER TO SHOP DRAWINGS FOR CONNECTION REQUIREMENTS
	WIREMOLD OR PLUG-IN STRIP, AS SPECIFIED	REFER TO SPECIFICATIONS AND DRAWINGS
	JUNCTION BOX WITH BLANK COVER, AS SPECIFIED	
	SINGLE-PHASE MOTOR, AS SPECIFIED	
	THREE-PHASE MOTOR, AS SPECIFIED	
	SINGLE-PHASE FUSED OR NON-FUSED DISCONNECT	
	SINGLE-PHASE MANUAL STARTER OR COMB. DISC./STARTER	
	THREE-PHASE FUSED OR NON-FUSED DISCONNECT	
	THREE-PHASE MANUAL STARTER OR COMB. DISC./STARTER	
	MOTOR TOGGLE SWITCH WITH THERMAL OVERLOAD AND LOCKOUT	SQUARE D #CLASS 2510 FGJ5P (SINGLE POLE)
	DISTRIBUTION POWER PANELS	REFER TO SPECIFICATIONS AND ONE-LINE DIAGRAM.
	LIGHTING BRANCH CIRCUIT PANELS	REFER TO SPECIFICATIONS AND ONE-LINE DIAGRAM.
	THERMOSTAT	

LIGHTING FIXTURE SCHEDULE

TAG	DESCRIPTION	VOLTS	LAMPS	CATALOG NO.	REMARKS
A	EXPLOSION PROOF CLASS I DIV. 1&2 / CLASS II DIV. 1&2 / CLASS III, LINEAR LED	120	2 LED LAMPS 64W, 7160 LUMENS, 5000K	LDP1 #LE551-L4-V1-5-D-E-PB-P-WG OR PRE-APPROVED EQUAL	-
B	4' LED SURFACE MT. WET LOCATION	120	LED, 30W, 4000 LUMENS, 4000K 85+ CRI	FAIL-SAFE #4VRVT2-LD5-4-DR100-UNV-L840-CD1-WL-SSL OR PRE-APPROVED EQUAL	-
C	LED WALL PACK WET LOCATION	120	LED, 26W, 2710 LUMENS, 4000K 70+ CRI	LUMARK #XTOR3B-W OR PRE-APPROVED EQUAL	-

ELECTRICAL IDENTIFICATION



WIRE SIZE REQUIREMENTS

NOTE:
BASED ON A MAXIMUM OF 3.6-VOLT DROP (3%) ON 120V CIRCUITS.
WIRES FOR RUNS OVER 100'-0" SHALL BE DETERMINED ON THIS
A MAXIMUM OF A 3% DROP ALLOWED.

BRANCH CIRCUIT AMPS	LENGTH OF RUN - FROM PANEL TO FIRST CONNECTION - FEET									
	50'	60'	70'	80'	90'	100'	110'	120'	130'	
15	#12	#12	#12	#10	#10	#10	#10	#10	#8	#8
20	#12	#10	#10	#10	#10	#8	#8	#8	#8	#8
30	#10	#10	#8	#8	#8	#6	#6	#6	#6	#6

ABBREVIATIONS

1-21	PANEL 1, CIRCUIT 21	EMT	ELECTRICAL METALLIC TUBING	MC	MECHANICAL CONTRACTOR	RGS	RIGID GALVANIZED STEEL
A	AMPERES	ERV	ENERGY RECOVERY VENTILATOR	MCB	MAIN CIRCUIT BREAKER	TR	TAMPER RESISTANT
AC	ABOVE COUNTER	E-R	EXISTING TO BE RELOCATED	MDP	MAIN DISTRIBUTION PANEL	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
AFF	ABOVE FINISH FLOOR	ETR	EXISTING TO REMAIN	MLO	MAIN LUG ONLY	UGRD	UNDERGROUND
AFG	ABOVE FINISH GRADE	EWC	ELECTRIC WATER COOLER	NL	NIGHT LIGHT	UON	UNLESS OTHERWISE NOTED
BC	BELOW COUNTER	EWL	ELECTRIC WATER HEATER	NTS	NOT TO SCALE	V	VOLT
C	CONDUIT	EXP	EXPLOSION PROOF	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED	VFD	VARIABLE FREQUENCY DRIVE
C/B, CB	CIRCUIT BREAKER	G	GROUND	P	PUMP	VIF	VERIFY IN FIELD
DWG	DRAWING	GEC	GROUNDING ELECTRODE CONDUCTOR	PNL	PANEL	W	WIRE
E	EXISTING TO REMAIN	GFI	GROUND FAULT CIRCUIT INTERRUPTER	PS	PRIMARY SWITCH	WG	WIREGUARD
EC	ELECTRICAL CONTRACTOR	KCMIL	THOUSAND CIRCULAR MILS	PT	PRIMARY TRANSFORMER	WP	WEATHERPROOF
EF	EXHAUST FAN	KVA	KILOVOLT-AMPERES	PVC	POLYVINYL CHLORIDE	XFMR	TRANSFORMER
EGC	EQUIPMENT GROUNDING CONDUCTOR	KW	KILOWATTS	Q	QUADRIplex (DOUBLE DUPLEX) RECEPTACLE		

GENERAL NOTES

1. WORK SHALL COMPLY WITH THE LATEST EDITION OF N.E.C., LOCAL AND STATE CODES, ORDINANCES, AND REGULATIONS, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
2. THE ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL FEES, AND ARRANGE FOR ALL INSPECTIONS FOR HIS WORK AT THE COMPLETION OF ELECTRICAL WORK. THE ELECTRICAL CONTRACTOR SHALL FURNISH THE OWNER WITH ALL CERTIFICATES OF FINAL INSPECTION AND APPROVALS. UTILITY COSTS ASSOCIATED WITH BRINGING POWER TO THE SITE SHALL BE PAID FOR BY THE OWNER.
3. COORDINATE ALL NEW ELECTRICAL UNDERGROUND WORK WITH EXISTING AND NEW UTILITIES BEFORE INSTALLATION. SEVENTY-TWO HOURS BEFORE ANY EXCAVATING WORK IS DONE, RELATIVE TO ELECTRICAL WORK, CONTACT "MISS DIG" (TOLL FREE), AT (800)482-7171.
4. ALL ELECTRICAL MATERIALS SHALL BE NEW AND BEAR THE "UL" LABEL OR LISTING.
5. ALL BRANCH CIRCUIT WIRE SHALL BE COPPER, MINIMUM SIZE #12. A.W.G., INSTALL IN CONDUIT, MINIMUM SIZE 1/2", AND SHALL BE TYPE "THN", "THWN" OR "THWN-2" UNLESS OTHERWISE NOTED ON PLANS.
6. ALL CONDUIT BELOW GRADE SHALL BE GALVANIZED RIGID CONDUIT. ALL OTHER CONDUIT SHALL BE EMT OR SCH. 40 PVC AS NOTED ON THE PLANS, MINIMUM 1/2" SIZE. GALVANIZED RIGID CONDUIT SHALL BE USED IN ALL CLASS 1, DIV. 1 & 2 LOCATIONS PER N.E.C. ART. 500, 501, & 502.
7. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE BEFORE HE SUBMITS HIS BID TO FAMILIARIZE HIMSELF WITH ACTUAL JOB CONDITIONS AND TO CHECK FOR ANY INTERFERENCE BETWEEN HIS WORK AND THAT OF OTHER TRADES, AND/OR ANY APPARENT VIOLATIONS OF LOCAL OR STATE CODES, LAWS, ORDINANCES, AND REGULATIONS.
8. ALL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE N.E.C. AND ALL LOCAL CODES.
9. ALL DISCONNECT SWITCHES SHALL BE 250V, OR 600V HEAVY DUTY TYPE; NEMA 1, FOR INDOOR USE, AND NEMA 3R FOR OUTDOOR USE. G.E., CUTLER-HAMMER, OR SQUARE D.
10. THE ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER HIS CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE ACCEPTANCE OF THE BUILDING BY THE OWNER, AND SHOULD DEFECTS OCCUR WITHIN THIS PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS, AT NO EXPENSE TO THE OWNER.
11. ANY CUTTING AND/OR PATCHING, THAT MAY BE REQUIRED FOR THE INSTALLATION OF THE ELECTRICAL SYSTEM, SHALL BE DONE AND/OR REPAIRED BY THE ELECTRICAL CONTRACTOR. NO CUTTING OF THE BUILDING STRUCTURAL SYSTEM SHALL BE DONE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER BEING PREVIOUSLY OBTAINED.
12. ALL WORK WITHIN CLASS I, DIV. 1 & 2 SHALL COMPLY WITH ARTICLES 500, 501, 502, 511, 511, 514 & 515 OF THE N.E.C.
13. ELECTRICAL CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH LOCAL UTILITY COMPANY. FAULT CURRENT WAS NOT AVAILABLE AT TIME OF DESIGN. FOR PURPOSES OF BIDDING ASSUME ALL SWITCH GEAR TO BE 42,000 A.I.C. RATED. ALL SWITCH GEAR SHALL BE U.L.S.E. LABELED FOR INTENDED USE.
14. THE ELECTRICAL CONTRACTOR SHALL VERIFY IN THE FIELD THAT BRANCH CIRCUITS AND/OR FEEDERS DO NOT EXCEED THE FOLLOWING LENGTHS FOR THE GIVEN VOLTAGES, IF THEY DO, THE RESPECTIVE CIRCUITS AND/OR FEEDER CONDUCTORS AND CONDUIT SHALL BE INCREASED AS FOLLOWS:
 - A. 120V BRANCH CIRCUITS AND/OR FEEDERS OVER 100' IN LENGTH SHALL BE INCREASED ONE WIRE GAUGE SIZE. CONDUIT SHALL BE INCREASED IF REQ'D.
 - B. 208/240V BRANCH CIRCUITS AND/OR FEEDERS OVER 200' IN LENGTH SHALL BE INCREASED ONE WIRE GAUGE SIZE. CONDUIT SHALL BE INCREASED IF REQ'D.
15. THE ELECTRICAL CONTRACTOR SHALL SIZE ALL OUTLET, AND JUNCTION BOXES PER THE 2023 N.E.C.
16. NOT USED
17. NO SPLICES SHALL BE PERFORMED ON LOW VOLTAGE WIRING OR MANUFACTURER SUPPLIED CABLING.
18. CONTRACTOR SHALL LEAVE A MINIMUM OF 10 FEET OF WIRING BEYOND TERMINATION POINT WHERE TERMINATION IS PROVIDED BY OTHERS.
19. NOT USED



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No.	Date	Revision	By
1	10-29-2024	ISSUED FOR BIDS	JAV

ELECTRICAL LEGEND, SCHEDULES & NOTES HEADWORKS ADDITION LITTLE RIVER BAND OF OTTAWA INDIANS

Date Issued: 10-29-2024
Date Surveyed: 8-10-2021
Designed By: JAV
Drawn By: JAV
Checked By: JAV
Scale: 1/8" = 1'-0"
Original sheet size is 22x34

Location:
PART OF SECTIONS 21 & 28,
T 22 N, R 16 W,
MANISTEE TOWNSHIP
MANISTEE COUNTY
MICHIGAN

Project Number:
2021096001.00

Sheet:
E0

PANEL #PP-H

200 AMPS M.C.B. 480/277V-3Ø-4W SQUARE D TYPE NF SURFACE PANEL WITH TRIM KIT, GROUND BAR KIT, COPPER MAINS, AND SOLID NEUTRAL.

CIR NO.	AMP/ POLES	DESCRIPTION	LOAD	LOAD	DESCRIPTION	AMP/ POLES	CIR NO.
1							2
3	15/3	EH-1 - 7.5 KW	7500	12589	CP-1 - M-1, M-2, M-3, & M-4 SCREEN-1 HP; CHAMBER DRIVE-1 HP; PUMP-5 HP; CLASSIFIER-1 HP;	30/3*	4
5							6
7							8
9	80/3*	MUA-1 - 78.1 MCA	64931	19281	CP-2 - M-5 & M-6 EFFLUENT PUMP 1 - 15 HP; EFFLUENT PUMP 2 - 15 HP;	60/3	10
11							12
13					SPACE		14
15	25/3	TR3 - HEADWORKS - 15KVA	5601		SPACE		16
17					SPACE		18
19					SPACE		20
21					SPACE		22
23					SPACE		24
25					SPACE		26
27					SPACE		28
29					SPACE		30

TOTAL PANEL LOAD = 109,902 W - 132.2 A

- ① DENOTES CIRCUIT REQUIRED TO PASS THRU LIGHTING CONTROL PANEL.
- Ⓐ DENOTES ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER REQUIRED.
- Ⓒ DENOTES GROUND FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER REQUIRED.
- Ⓓ DENOTES CIRCUIT BREAKER WILL REQUIRE SHUNT-TRIP OR TO BE RUN THROUGH SHUNT-TRIP CONTACTOR.
- Ⓔ DENOTES BREAKER LOCK REQUIRED ON CIRCUIT BREAKER.
- Ⓕ DENOTES 30mA GROUND FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKER REQUIRED.
- * DENOTES CONTRACTOR TO CONFIRM EXACT CIRCUIT BREAKER SIZE WITH EQUIPMENT SUBMITTALS.

PANEL #LP-H

50 AMPS M.C.B. 120/208V-3Ø-4W SQUARE D TYPE NO SURFACE PANEL WITH TRIM KIT, GROUND BAR KIT, COPPER MAINS, AND SOLID NEUTRAL.

CIR NO.	AMP/ POLES	DESCRIPTION	LOAD	LOAD	DESCRIPTION	AMP/ POLES	CIR NO.
1	20/1	LIGHTS - INTERIOR & EXTERIOR	540	759	EF-1	20/1	2
3	20/1	SPARE		422	EF-2, L-1	20/1	4
5	20/1	RECEPTACLES - INTERIOR	540	1100	M-7 - ACTUATED VALVE 1 & FM-2	20/1	6
7	20/1	RECEPTACLES - EXTERIOR	540	1100	M-8 - ACTUATED VALVE 2 & FM-1	20/1	8
9	20/1	CP-3 - GAS MONITORING CONTROL PANEL	600		SPARE	20/1	10
11	20/1	SPARE			SPARE	20/1	12
13	20/1	SPARE			SPARE	20/1	14
15					SPACE		16
17					SPACE		18

TOTAL PANEL LOAD = 5,601 W - 15.5 A

- ① DENOTES CIRCUIT REQUIRED TO PASS THRU LIGHTING CONTROL PANEL.
- Ⓐ DENOTES ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER REQUIRED.
- Ⓒ DENOTES GROUND FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER REQUIRED.
- Ⓓ DENOTES CIRCUIT BREAKER WILL REQUIRE SHUNT-TRIP OR TO BE RUN THROUGH SHUNT-TRIP CONTACTOR.
- Ⓔ DENOTES BREAKER LOCK REQUIRED ON CIRCUIT BREAKER.
- Ⓕ DENOTES 30mA GROUND FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKER REQUIRED.

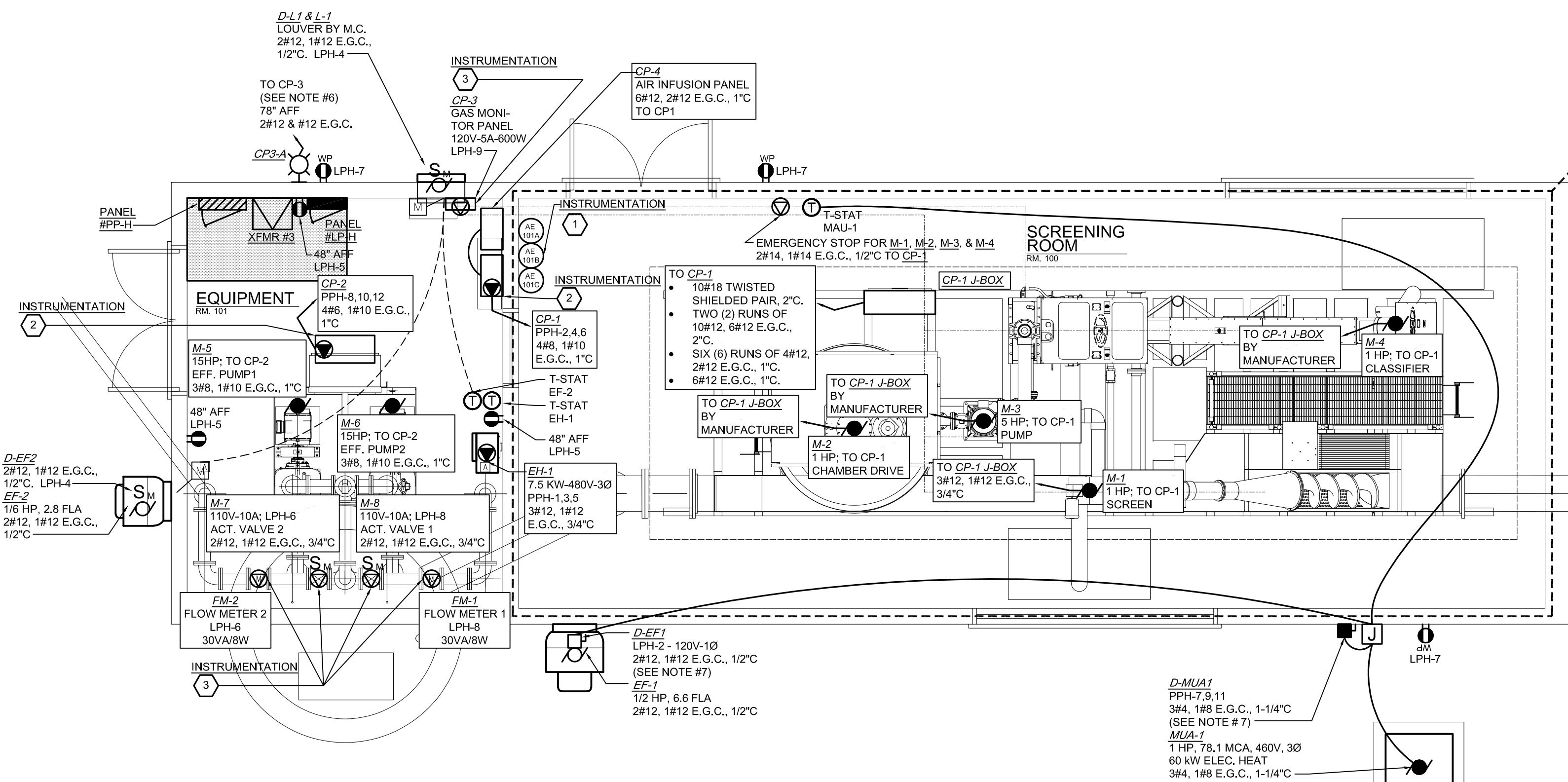
NOTES

- ALL ELECTRICAL EQUIPMENT AND WIRING METHODS SHALL MEET LATEST ENFORCEABLE EDITION OF THE N.E.C. CLASS I, DIVISION 1, GROUP C & D, HAZARDOUS LOCATIONS IN SCREENING ROOM #100.
- ALL ELECTRICAL PIPING IN CLASS I, DIVISION 1, GROUP C & D SHALL BE PVC COATED RIGID CONDUIT, SURFACE MOUNTED. ALL OTHER CONDUIT SHALL BE (GRS) UNLESS NOTED OTHERWISE ON DRAWINGS. USE PVC CONDUIT STRAPS.
- NOT USED
- NOT USED
- NOT USED.
- STROBE WARNING LIGHT (1) SUPPLIED BY CONTROL PANEL MANUFACTURER (CP-3), INSTALLED & WIRED BY E.C.
- T.C.C. SHALL INTERLOCK MAU-1 AND EF-1 TOGETHER THROUGH RELAY/CONTACTOR. JUNCTION BOX SHALL BE NEMA #3R ENCLOSURE. BOTH MAU-1 AND EF-1 SHALL RUN TOGETHER. A ROOM THERMOSTAT SHALL CONTROL THE HEAT CYCLE ON MAU-1.
- E.C. SHALL VERIFY ALL INSTRUMENTATION LOCATIONS WITH THE ENGINEER PRIOR TO INSTALLATION.
- E.C. SHALL VERIFY ALL EQUIPMENT LOCATIONS WITH THE ENGINEER PRIOR TO INSTALLATION.
- GROUNDING ELECTRODE CONDUCTOR (G.E.C.) AND/OR EQUIPMENT GROUNDING CONDUCTORS (E.G.C.) SHALL BE REQUIRED IN ALL CONDUIT, SIZED PER TABLES 250-66 & 250-122 RESPECTIVELY.

INSTRUMENTATION PLAN NOTES

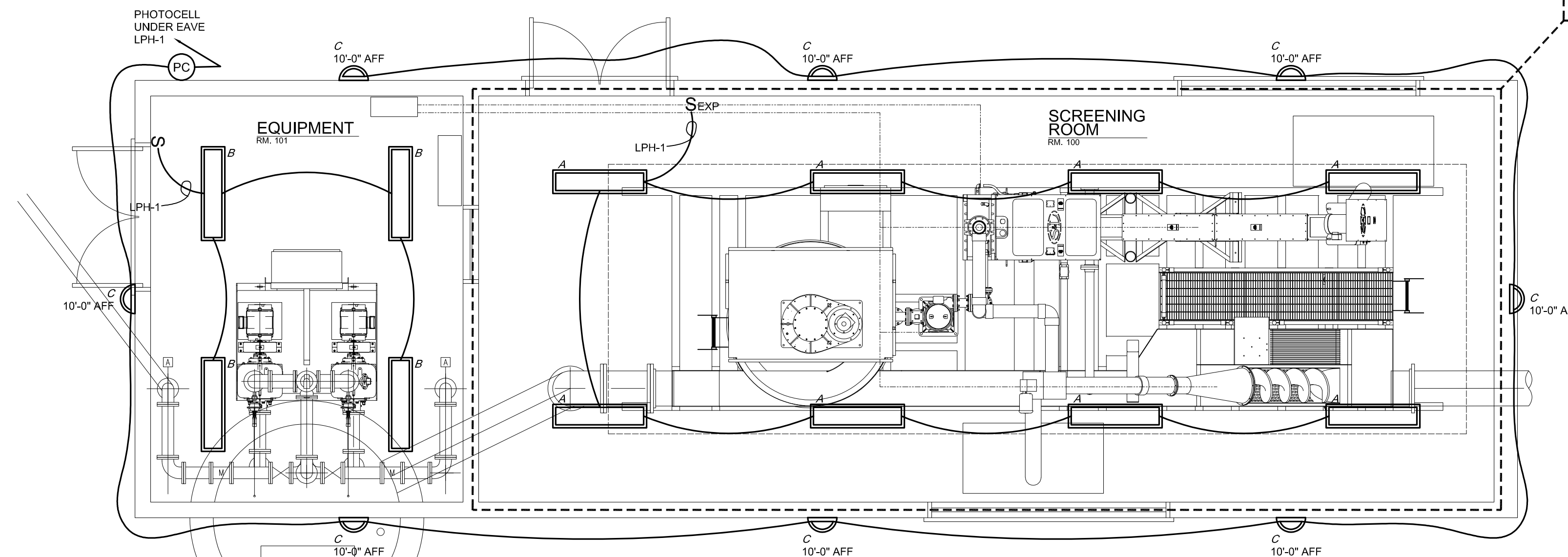
(APPLIES TO THIS SHEET ONLY).

- ① 1" GRC WITH 6 #12, 1 #12 E.G.C., & 4 #12 SPARES TO CP-3.
- ② 1" GRC WITH (2) CAT7 CABLE (1-4 PAIR UTP) TO EXT'G PLC.
- ③ 1" GRC WITH 4#18 TWISTED SHIELDED PAIR, BELDON #9368 OR EQUAL TO EXT'G PLC.



ELECTRICAL FLOOR PLAN - POWER

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



ELECTRICAL FLOOR PLAN - LIGHTING

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

No.	Date	Revision	By
1	10-29-2024	ISSUED FOR BIDS	JAV

PROCESS ELECTRICAL FLOOR PLAN HEADWORKS ADDITION LITTLE RIVER BAND OF OTTAWA INDIANS

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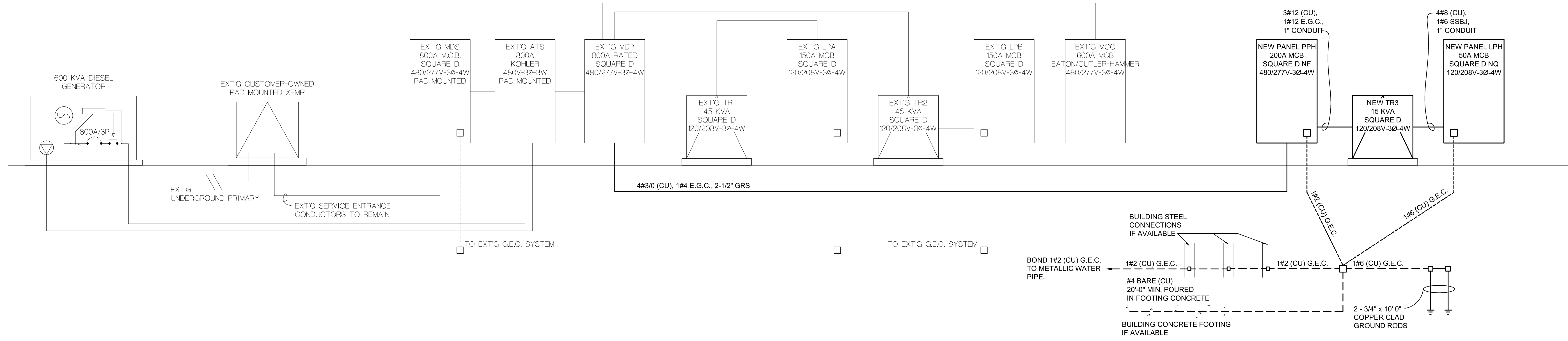
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PART OF SECTIONS 21 & 28,
T 22 N, R 16 W,
MANISTEE TOWNSHIP
MANISTEE COUNTY
MICHIGAN

Project Number:
2021096001.00

Sheet:

ELECTRICAL RISER DIAGRAM

NO SCALE



EXT'G PANEL #MDP-1

800 AMPS M.L.O. 480/277V-3Ø-4W SQUARE D TYPE I-LINE NEMA 1 SURFACE PANEL

CIR NO.	AMP/ POLES	DESCRIPTION	LOAD	LOAD	DESCRIPTION	AMP/ POLES	CIR NO.
1							2
3	70/3	T-2 - 45 KVA	---	---	T-1 - 45 KVA	70/3	4
5							6
7							8
9	20/3	MAU-2	---	---	MUFFIN MONSTER	20/3	10
11							12
13							14
15	30/3	SEPTAGE PUMP	---	---	MUFFIN MONSTER	30/3	16
17							18
19							20
21	30/3	C-1	---	---	SLUDGE PUMP	30/3	22
23							24
25							26
27	100/3	HYDRO TANK BUILDING	---	---	EXHAUST FANS 1, 2 & 3	20/3	28
29							30
31							32
33	60/3	LIFT STATION	---	---	DISK FILTER	100/3	34
35							36
37							38
39	60/3	LIME SILO FEED	---	109,902	NEW PANEL #PP-H (HEADWORKS BLDG)	200/3*	40
41							42
43	--	SPACE	---	---	SPACE	--	44
45							46
47	40/3	UNKNOWN LOAD	---	---	SPACE	--	48
49							50
51	--	SPACE	---	---	SPACE	--	52
53	--	SPACE	---	---	SPACE	--	54
55	--	SPACE	---	---	SPACE	--	56
57	--	SPACE	---	---	SPACE	--	58
59	--	SPACE	---	---	SPACE	--	60
61	--	SPACE	---	---	SPACE	--	62
63							64
65	300/3	MCC	---	---	SPACE	--	66
67							68
69	--	SPACE	---	---	SPACE	--	70
71	--	SPACE	---	---	SPACE	--	72
73	--	SPACE	---	---	SPACE	--	74
75	--	SPACE	---	---	SPACE	--	76
77	--	SPACE	---	---	SPACE	--	78
79	--	SPACE	---	---	SPACE	--	80

* DENOTES TO PROVIDE A NEW CIRCUIT BREAKER, SIZED AS NOTED, IN AN EXISTING SPACE
 EXT'G PEAK DEMAND PANEL LOAD: 105.2 KW 126.5 A
 +25% PER NEC 220.87 263.3 KW 316 A
 ADDED LOAD: 109.9 KW 132.2 A
 REMOVED LOAD: (22.4 KW) (27.0 A)
 TOTAL NEW LOAD: 192.7 KW 221.5 A

ELECTRICAL EQUIPMENT SCHEDULE

NO.	LOAD	VOLTS	PHASE	BREAKER/ FUSE SIZE	STARTER SIZE	FED FROM	CONDUIT & WIRE SIZE	SUPPLIED BY	INSTALLED BY	WIRED BY	CATALOG NUMBER	REMARKS
PANEL #PP-H	200A MCB	480V	3Ø	200A/3P MCB	--	xMDP	2-1/2" C, 4#3/0, 1#4 E.G.C.	E.C.	E.C.	E.C.	SQUARE D #NF SERIES	PANEL #PP-H NEMA 1
TR3	15 KVA	480V TO 120/208V	3Ø	25A/3P	--	PANEL #PP-H	1" C, 3#12, 1#12 E.G.C.	E.C.	E.C.	E.C.	SQUARE D #EXN15T3H	TRANSFORMER #3 NEMA 1
PANEL #LP-H	50A MCB	120/208V	3Ø	50A/3P MCB	--	TR3	1" C, 4#8, 1#6 SSBJ & G.E.C.	E.C.	E.C.	E.C.	SQUARE D #NQ SERIES	PANEL #LP-H NEMA 1
EH-1	7.5 KW	480V	3Ø	15A/3P C.B. IN PANEL PPH	--	PANEL #PP-H	3/4" C, 3#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	ELECTRIC HEATER #1
D-MUA1	78.1MCA	480V	3Ø	100A/3P NON-FUSED	--	PANEL #PP-H	1-1/4" C, 3#4, 1#8 E.G.C.	E.C.	E.C.	E.C.	SQ. D #VHU363DSGL	MUA-1 DISCONNECT SWITCH NEMA #4 & 4X RATED
MUA-1	3/4 HP	480V	3Ø	80A/3P* C.B.	--	D-MUA1	1-1/4" C, 3#4, 1#8 E.G.C.	M.C.	M.C.	E.C.	--	MAKE-UP AIR UNIT #1
CP-1	--	480V	3Ø	--	--	PANEL #PP-H	1" C, 4#8, 1#10 E.G.C.	M.C.	M.C.	E.C.	--	SCREEN, CHAMBER DRIVE, PUMP & CLASSIFIER CONTROL PANEL
M-1	1 HP	480V	3Ø	--	--	CP-1 J-BOX	MANUFACTURERS CABLE TO CP-1 J-BOX	M.C.	M.C.	M.C.	--	CHAMBER DRIVE
M-2	1 HP	480V	3Ø	--	--	CP-1 J-BOX	MANUFACTURERS CABLE TO CP-1 J-BOX	M.C.	M.C.	M.C.	--	PUMP
M-3	5 HP	480V	3Ø	--	--	CP-1 J-BOX	MANUFACTURERS CABLE TO CP-1 J-BOX	M.C.	M.C.	M.C.	--	CLASSIFIER
M-4	1 HP	480V	3Ø	--	--	CP-1 J-BOX	MANUFACTURERS CABLE TO CP-1 J-BOX	M.C.	M.C.	M.C.	--	AIR INFUSION PANEL
CP-4	--	120V	1Ø	--	--	CP-1	1" C, 6#12, 2#12 E.G.C.	M.C.	M.C.	E.C.	--	EFFLUENT PUMPS CONTROL PANEL
CP-2	--	480V	3Ø	--	--	PANEL #PP-H	1" C, 4#6, 1#10 E.G.C.	M.C.	M.C.	E.C.	--	EFFLUENT PUMP 1
M-5	15 HP	480V	3Ø	--	--	CP-2	1" C, 3#8, 1#10 E.G.C.	M.C.	M.C.	E.C.	--	EFFLUENT PUMP 2
M-6	15 HP	480V	3Ø	--	--	CP-2	1" C, 3#8, 1#10 E.G.C.	M.C.	M.C.	E.C.	--	EXHAUST FAN #1 DISCONNECT SWITCH CLASS 1, DIV. 1, GROUP C & D
D-EF1	--	120V	1Ø	20A/1P FUSED	--	PANEL #LP-H	1/2" C, 2#12, 1#12 E.G.C.	E.C.	E.C.	E.C.	SQ. D #H60XBDAA	EXHAUST FAN #1
EF-1	1/2 HP	120V	1Ø	--	--	D-EF1	1/2" C, 2#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	GAS MONITORING CONTROL PANEL #1
CP-3	5.0 A	120V	1Ø	--	--	PANEL #LP-H	1/2" C, 2#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	LOUVER #2 DISCONNECT SWITCH NEMA 4
D-L1	--	120V	1Ø	20A/1P FUSED	--	PANEL #LP-H	1/2" C, 2#12, 1#12 E.G.C.	E.C.	E.C.	E.C.	SQ. D CLASS 2510 #FW1P	LOUVER #1
L-1	--	120V	1Ø	--	--	D-L1	1/2" C, 2#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	EXHAUST FAN #2 DISCONNECT SWITCH NEMA 4
D-EF2	--	120V	1Ø	20A/1P FUSED	--	PANEL #LP-H	1/2" C, 2#12, 1#12 E.G.C.	E.C.	E.C.	E.C.	SQ. D CLASS 2510 #FW1P	EXHAUST FAN #2
EF-2	1/6 HP	120V	1Ø	--	--	D-EF2	1/2" C, 2#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	ACTUATED VALVE #2 DISCONNECT SWITCH NEMA 4
D-M7	--	120V	1Ø	20A/1P FUSED	--	PANEL #LP-H	1/2" C, 2#12, 1#12 E.G.C.	E.C.	E.C.	E.C.	SQ. D CLASS 2510 #FW1P	ACTUATED VALVE 2
M-7	1/6 HP	120V	1Ø	--	--	D-M7	1/2" C, 2#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	FLOW METER #2 DISCONNECT SWITCH NEMA 4
D-FM2	--	120V	1Ø	20A/1P FUSED	--	PANEL #LP-H	1/2" C, 2#12, 1#12 E.G.C.	E.C.	E.C.	E.C.	SQ. D CLASS 2510 #FW1P	FLOW METER #2
FM-2	30VA/8W	120V	1Ø	--	--	D-FM2	1/2" C, 2#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	ACTUATED VALVE #1 DISCONNECT SWITCH NEMA 4
D-M8	--	120V	1Ø	20A/1P FUSED	--	PANEL #LP-H	1/2" C, 2#12, 1#12 E.G.C.	E.C.	E.C.	E.C.	SQ. D CLASS 2510 #FW1P	ACTUATED VALVE 1
M-8	1/6 HP	120V	1Ø	--	--	D-M8	1/2" C, 2#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	FLOW METER #1 DISCONNECT SWITCH NEMA 4
D-FM1	--	120V	1Ø	20A/1P FUSED	--	PANEL #LP-H	1/2" C, 2#12, 1#12 E.G.C.	E.C.	E.C.	E.C.	SQ. D CLASS 2510 #FW1P	FLOW METER #1
FM-1	30VA/8W	120V	1Ø	--	--	D-FM1	1/2" C, 2#12, 1#12 E.G.C.	M.C.	M.C.	E.C.	--	

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 M.C. - MECHANICAL CONTRACTOR
 E.C. - ELECTRICAL CONTRACTOR
 I.C. - INSTRUMENTATION CONTRACTOR

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Rev	Date	By
1	10-29-2024	JAV

ELECTRICAL RISER DIAGRAM & PNL SCHEDULES HEADWORKS ADDITION LITTLE RIVER BAND OF OTTAWA INDIANS

Date Issued: 10-29-2024
 Date Surveyed: 8-10-2021
 Designed By: JAV
 Drawn By: JAV
 Checked By: JAV
 Scale: 1/8" = 1'-0"
 Original sheet size is 22x34
 Location: PART OF SECTIONS 21 & 28, T 22 N, R 16 W, MANISTEE TOWNSHIP, MANISTEE COUNTY, MICHIGAN
 Project Number: 2021096001.00
 Sheet: **E2**