Outagamie County
RECYCLING & SOLID WASTE

CONSTRUCTION DRAWINGS
FOR THE
LEACHATE LOADOUT SYSTEM

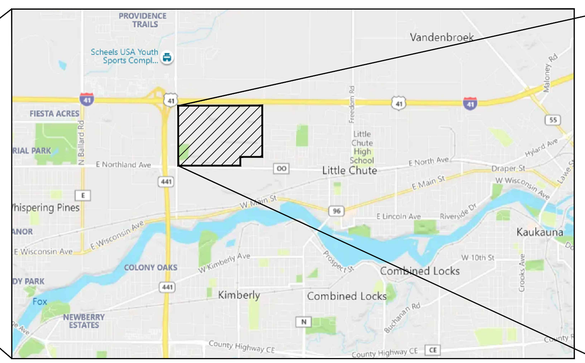
OUTAGAMIE COUNTY NORTHEAST LANDFILL
WDNR LICENSE NO. 3235
OUTAGAMIE COUNTY EAST LANDFILL
1919 HOLLAND ROAD
WDNR LICENSE NO. 2484
APPLETON, WISCONSIN

PREPARED FOR: OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT
OUTAGAMIE COUNTY, WISCONSIN

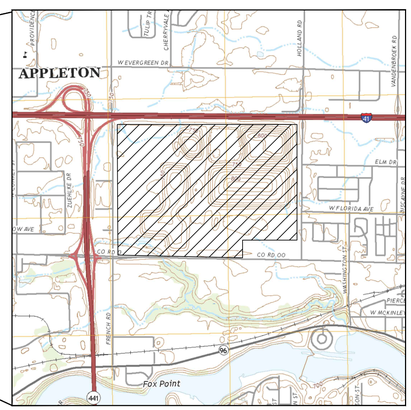
PREPARED BY: SCS ENGINEERS
MADISON, WISCONSIN

DATE: MAY 2023

WISCONSIN



OUTAGAMIE COUNTY



SITE LOCATOR MAP
APPROXIMATE SCALE: 1"=2,000'

INDEX

ISSUED FOR BID

PROJECT NO. 25222132.03
DRAWN: 2/9/23
REVISED: 3/31/23
DRAWN BY: MRS
CHECKED BY: MH
APPROVED BY: MRS

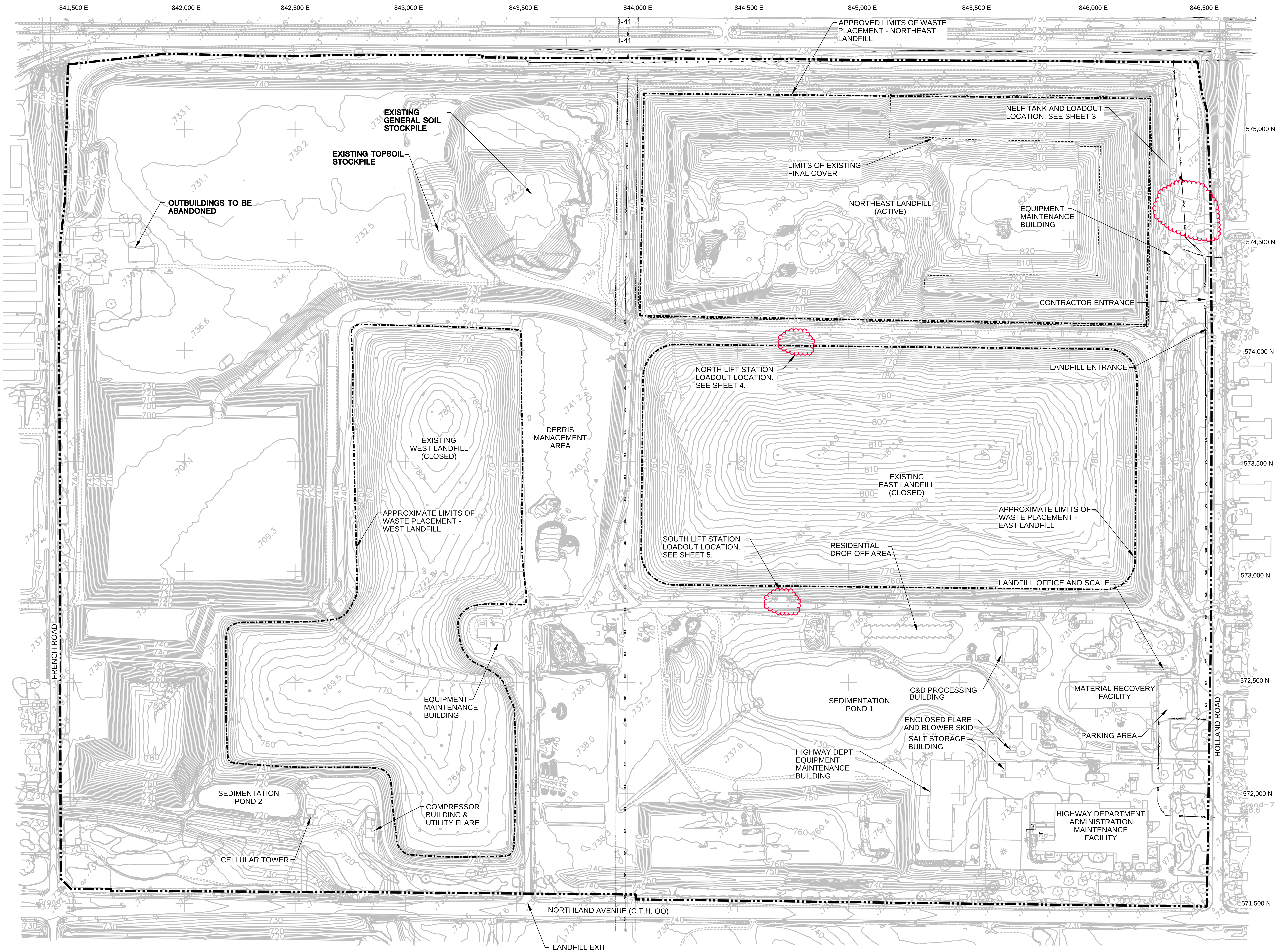
OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT
CLIENT

SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830
ENGINEER

CONSTRUCTION DRAWINGS
LEACHATE LOADOUT SYSTEM
OUTAGAMIE COUNTY NORTH & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN
SITE

TITLE SHEET

SHEET
1 of 13



LEGEND

- EXISTING UNPAVED ROAD
- EXISTING PAVED ROAD
- EXISTING BUILDING
- EXISTING WATER/DRAINAGE
- 770 EXISTING GROUND CONTOUR
- EXISTING TREES AND / OR SHRUBS
- EXISTING TREE LINE
- EXISTING FENCE
- GAS EXISTING GAS LINE
- OHE EXISTING ATC 138KV OVERHEAD ELECTRICAL UTILITY LINE AND EASEMENT
- EXISTING PROPERTY BOUNDARY
- APPROXIMATE LICENSED LIMITS OF WASTE PLACEMENT
- APPROXIMATE LIMITS OF EXISTING FINAL COVER PLACEMENT - NELF

NOTES:

1. THE OUTAGAMIE PROPERTY IS LOCATED IN S 2/3 SECTION 17, T21N, R18E, VILLAGE OF LITTLE CHUTE, OUTAGAMIE COUNTY, WISCONSIN.
2. TOPOGRAPHIC BASE MAP PREPARED FROM AERIAL SURVEY BY DRONEVIEW TECHNOLOGIES. DATE OF PHOTOGRAPHY - NOVEMBER 18, 2021.
3. SITE GRID SYSTEM IS THE OUTAGAMIE COUNTY COORDINATE SYSTEM.
4. VERTICAL DATUM IS NAVD 88.

N

200' 0 200'

SCALE: 1" = 200'

ISSUED FOR BID

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DRAWN:	2/9/23	CHECKED BY:	MH
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Outagamie County

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CONSTRUCTION DRAWINGS
LEACHATE LOADOUT SYSTEM
OUTAGAMIE COUNTY NORTHEAST & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN

SITE

EXISTING CONDITIONS

SHEET
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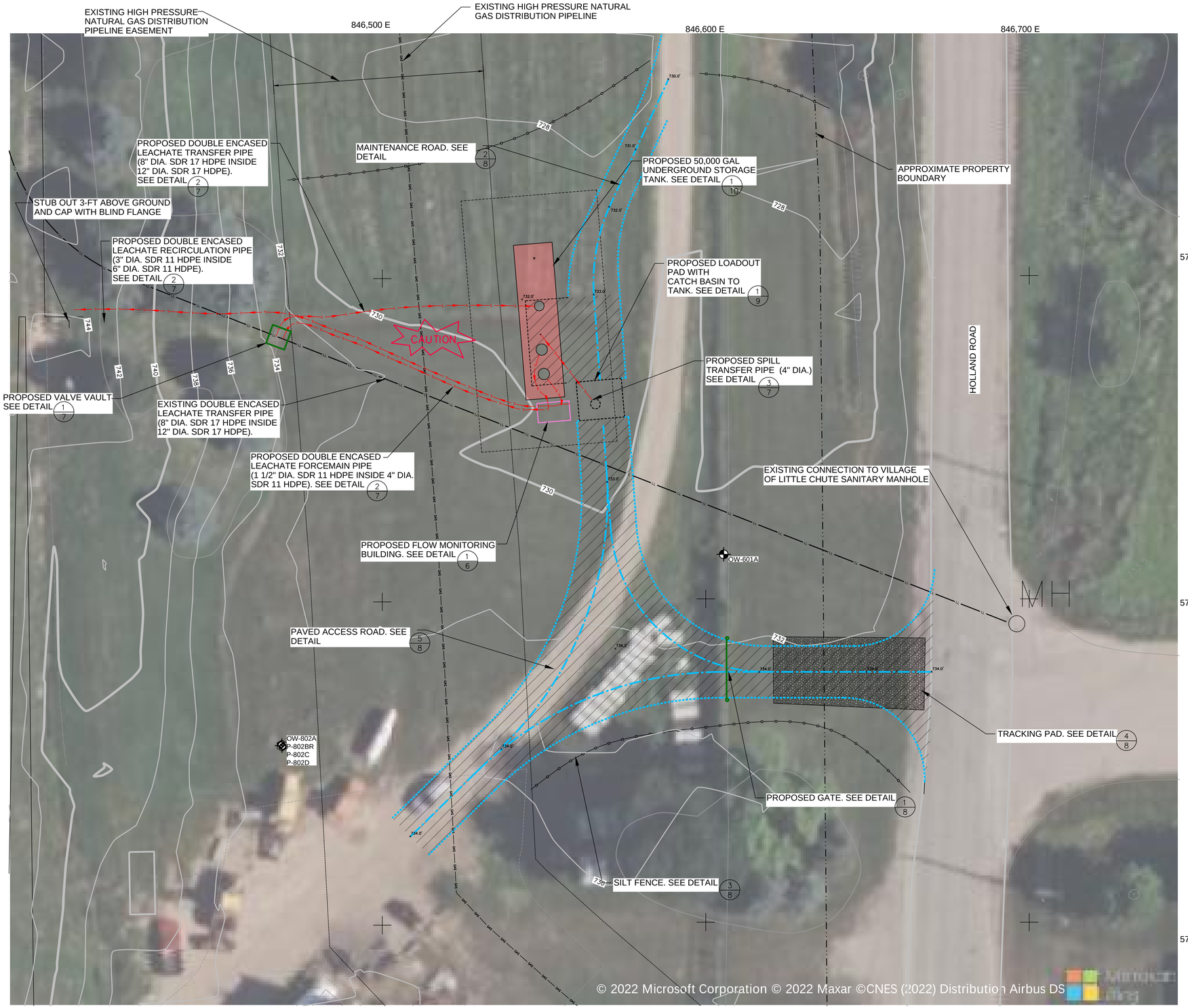

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LEGEND

- EXISTING UNPAVED ROAD
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- EXISTING TREE LINE
- EXISTING FENCE
- GAS EXISTING GAS LINE
- EXISTING GAS EASEMENT
- EXISTING PROPERTY BOUNDARY
- EXISTING LEACHATE GRAVITY PIPELINE
- OW-601A EXISTING MONITORING WELL
- PROPOSED LEACHATE TRANSFER PIPE
- PROPOSED VALVE VAULT
- PROPOSED FLOW MONITORING BUILDING
- PROPOSED ACCESS ROAD
- PROPOSED STORAGE TANK
- PROPOSED SILT FENCE
- PROPOSED TRACKING PAD
- 734.2' PROPOSED TOP OF FINISHED SURFACE
- LIMITS OF PROPOSED ASPHALT PAVEMENT

NOTES:

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4. VERTICAL DATUM IS NAVD 88.
5. ALL WORK WITHIN THE GAS DISTRIBUTION PIPE EASEMENT MUST BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS OF PIPELINE OWNER. CONTRACTOR TO COORDINATE ALL WORK WITH PIPELINE OWNER.

15' 0 15'
SCALE: 1" = 15'

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LEACHATE LOADOUT SYSTEM
OUTAGAMIE COUNTY NORTHEAST & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN
SITE

LEACHATE STORAGE TANK / LOADOUT LAYOUT AND EROSION CONTROL

SHEET 3 of 13

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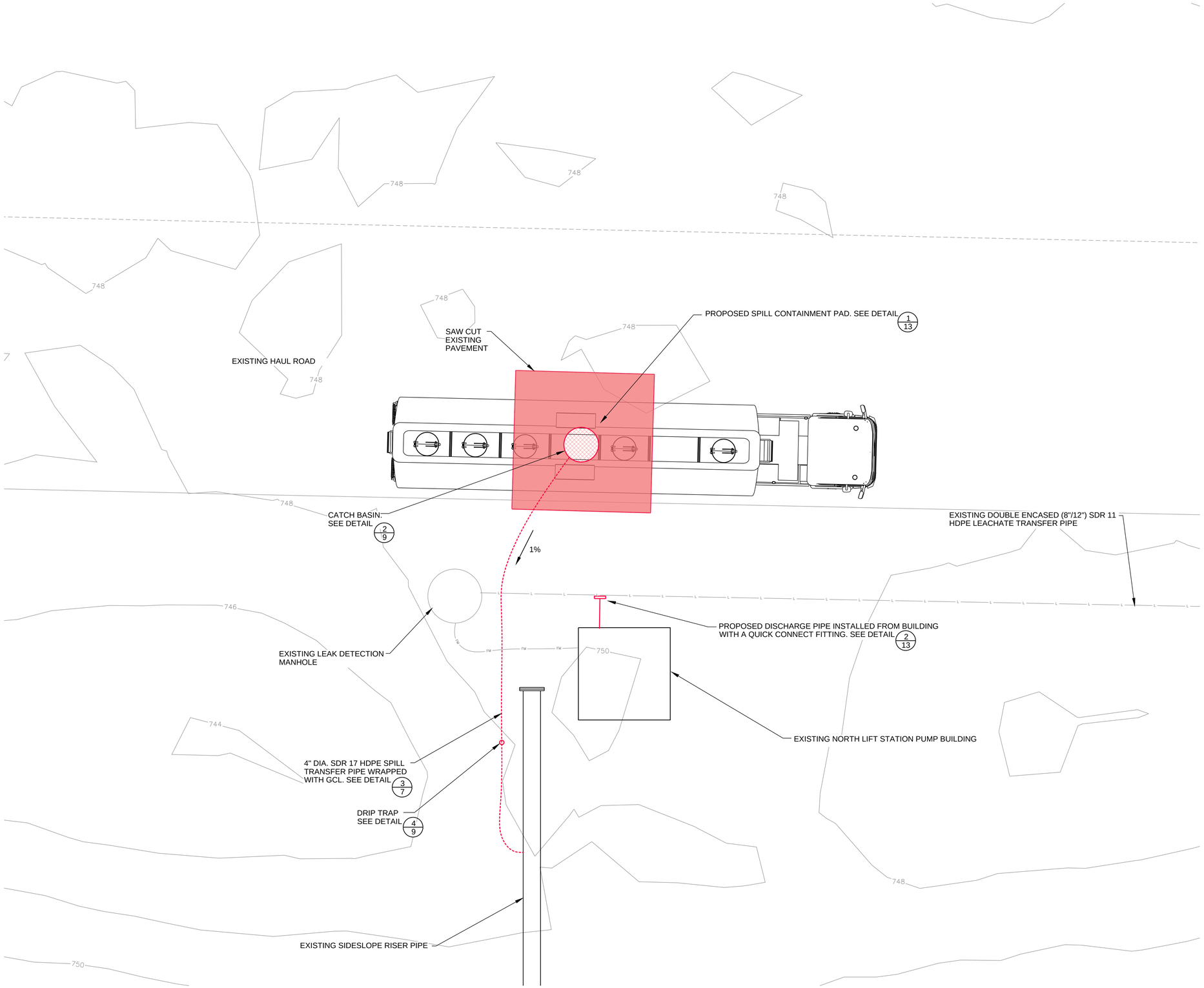

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- APPROXIMATE LIMITS OF EXISTING FINAL COVER PLACEMENT - NELF
- L EXISTING LEACHATE GRAVITY PIPELINE
- FM EXISTING LEACHATE FORCEMAIN PIPELINE
- EXISTING PUMP BUILDING
- PROPOSED SPILL CONTAINMENT PAD
- PROPOSED LEAKAGE TRANSFER PIPE

N

NOTES:

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4. VERTICAL DATUM IS NAVD 88.

4' 0 4'

SCALE: 1" = 4'

ISSUED FOR BID

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DRAWN BY: MRS
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APPROVED BY: MRS

PROJECT NO. 25222132.03
DRAWN: 2/9/23
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OUTAGAMIE COUNTY, WISCONSIN

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NORTH LIFT STATION LOADOUT

SHEET
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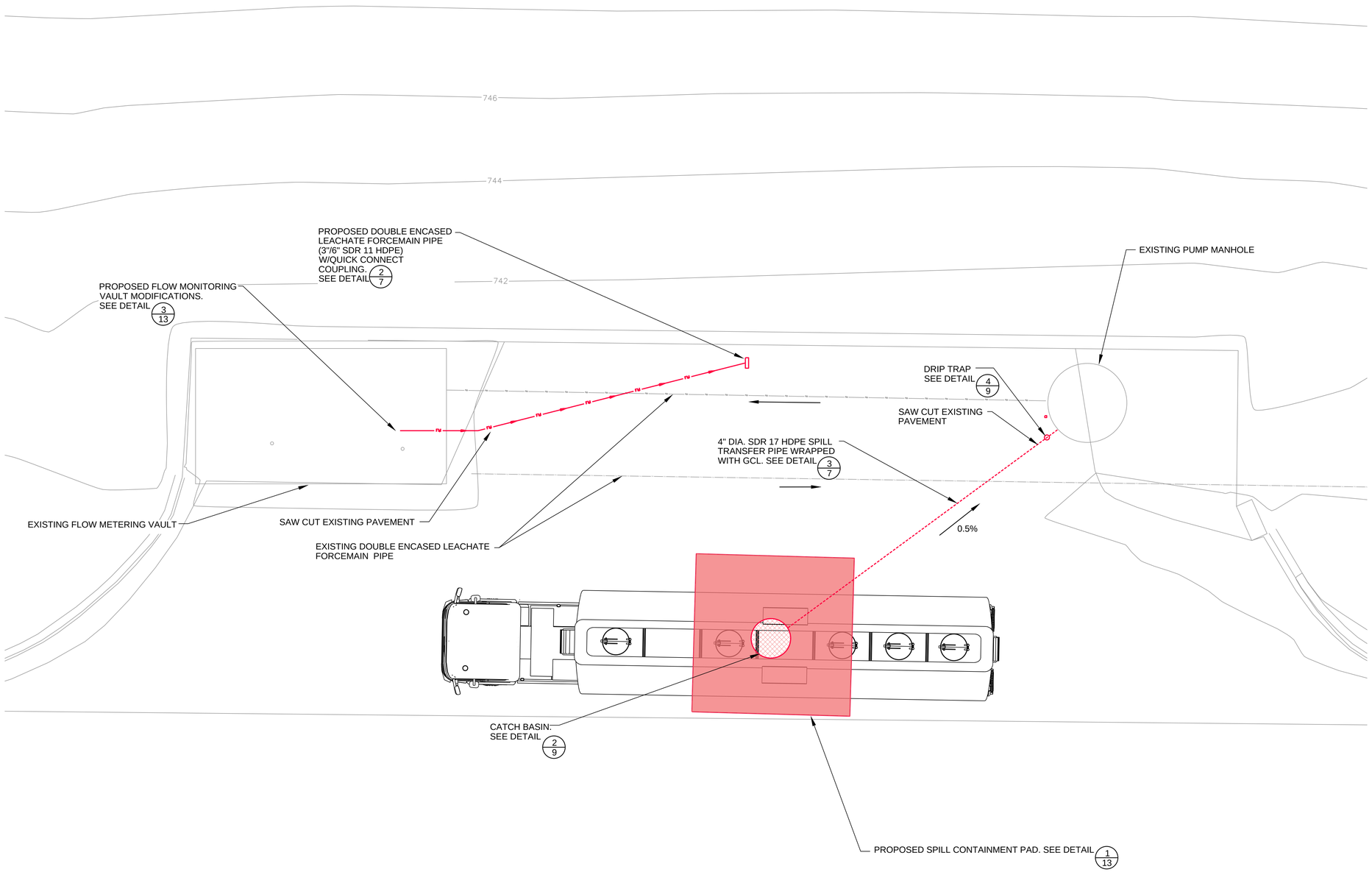

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- PROPOSED SPILL TRANSFER PIPE

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4' 0 4'

SCALE: 1" = 4'

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OUTAGAMIE COUNTY, WISCONSIN

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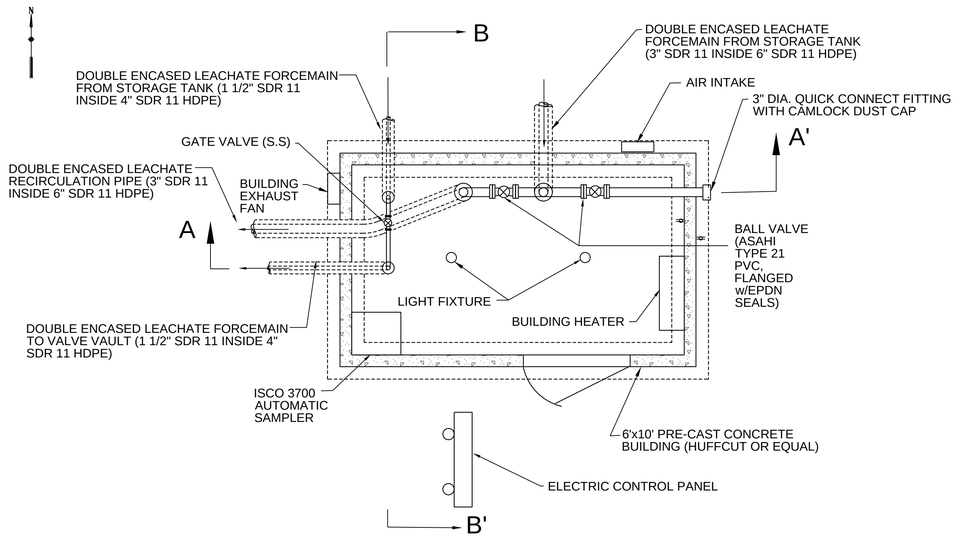
NORTH LIFT STATION LOADOUT

SHEET 5 of 13



1/6 FLOW MONITORING BUILDING - PLAN VIEW

NOT TO SCALE

BUILDING NOTES:

6'x10' PRE-FABRICATED CONCRETE BUILDING EQUIPPED AS FOLLOWS:

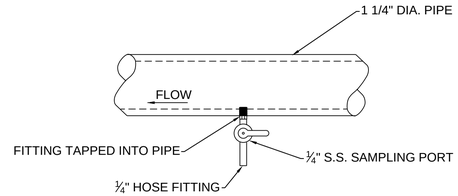
1. 30" WIDE x 75" HIGH FLUSH FITTING INSULATED DOOR WITH STAINLESS STEEL HARDWARE.
2. EXHAUST FAN.
3. TWO INTERIOR EXPLOSION-PROOF LIGHT (120V LED, MIN. 3,380 LUMENS).
4. EXTERIOR SWITCH FOR LIGHTING AND EXHAUST FAN.
5. GRAVITY OPERATED AIR INTAKE VENT.
6. THREE PHASE, THERMOSTATICALLY CONTROLLED EXPLOSION PROOF HEATER TO MAINTAIN INTERIOR TEMPERATURE ABOVE 40'F.
7. ALL EQUIPMENT IS EXPLOSION-PROOF (CLASS I, DIV 1)
8. 1 - INTERIOR AND 1-EXTERIOR OUTLET
9. GAS ALARM
10. ALL WIRING IS INTRINSICALLY SAFE.
11. COLOR BY OWNER
12. WALLS & CEILING INSULATED TO A MINIMUM R21.
13. ACCEPTABLE MANUFACTURERS:
    HUFFCUTT
    OR AN APPROVED EQUAL

CONTROL PANEL NOTES:

1. ALL HARDWARE TO BE STAINLESS STEEL (304)
2. ALL CONTROLS AND METERS TO BE INSTALLED IN STAINLESS STEAL (304) NEMA 4X ENCLOSURES
3. PROVIDE SEAL-OFF FOR ALL CONDUITS PENETRATING THE GROUND. PROVIDE 10' OF PVC COATED RIGID GALVANIZED STEEL CONDUIT FROM THE SEAL-OFF TO THE PVC CONDUIT UNDER GRADE. ALL ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL.
4. PROVIDE DUX-SEAL IN ALL CONDUIT ENDS IN PANELS AND JUNCTION BOXES.

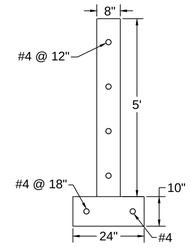
PUMP CONTROL NOTES:

1. PUMP 1 (EPG PUMP) OPERATION TO BE CONTROLLED BY A PASSWORD PROTECTED TOUCHSCREEN. PUMP DISCHARGE TO BE CONTROLLED BY A VARIABLE FREQUENCY DRIVE. OPERATOR TO SELECT GALLONS PER MINUTE.
2. PUMP 2 (LOADOUT PUMP) OPERATION TO BE CONTROLLED BY A PASSWORD PROTECTED TOUCHSCREEN. OPERATOR TO SELECT NUMBER OF GALLONS TO BE PUMPED.



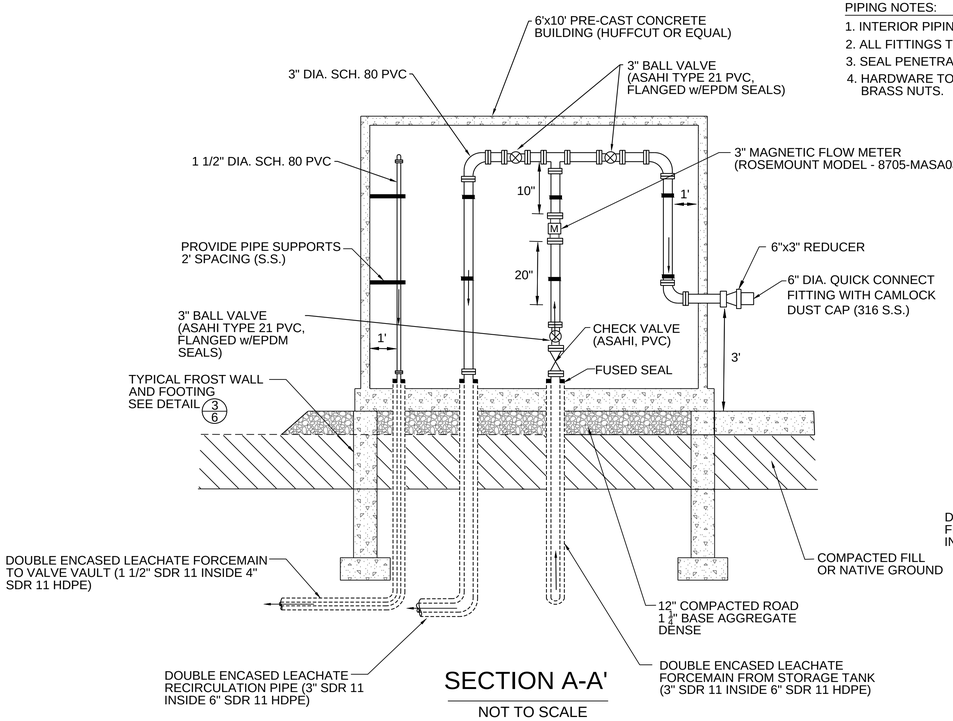
2/6 TYPICAL SAMPLING PORT

NOT TO SCALE



3/6 TYPICAL FROST WALL/FOOTING

NOT TO SCALE

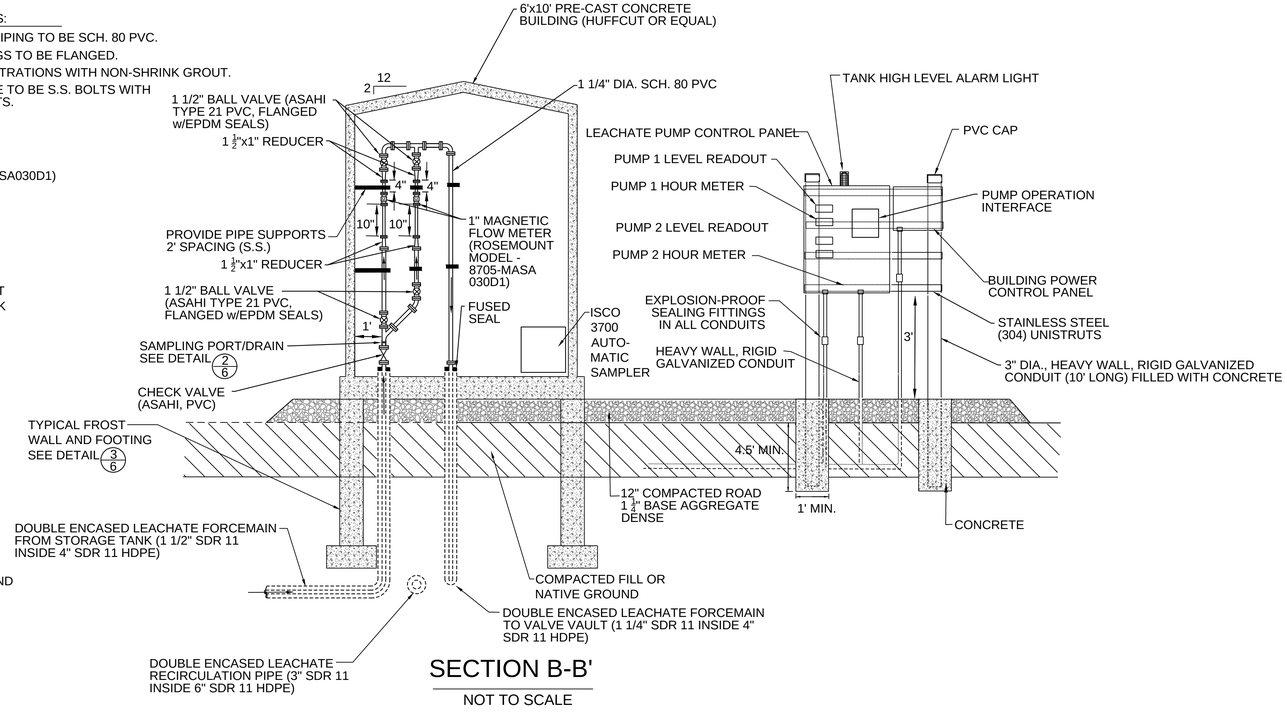


SECTION A-A'

NOT TO SCALE

PIPING NOTES:

1. INTERIOR PIPING TO BE SCH. 80 PVC.
2. ALL FITTINGS TO BE FLANGED.
3. SEAL PENETRATIONS WITH NON-SHRINK GROUT.
4. HARDWARE TO BE S.S. BOLTS WITH BRASS NUTS.



SECTION B-B'

NOT TO SCALE

ISSUED FOR BID

SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

ENGINEER

CONSTRUCTION DRAWINGS
LEACHATE LOADOUT SYSTEM
OUTAGAMIE COUNTY NORTHEAST & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN

SITE

OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT
1919 Holland Road
Appleton, Wisconsin
Outagamie County

CLIENT

DETAILS

SHEET 6 of 13

DRAWN BY:	MRS
CHECKED BY:	MH
APPROVED BY:	MRS
PROJECT NO.	25222132.03
DRAWN:	2/9/23
REVISED:	3/31/23

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PIPING NOTES:

1. INTERIOR PIPING TO BE SCH. 80 PVC.
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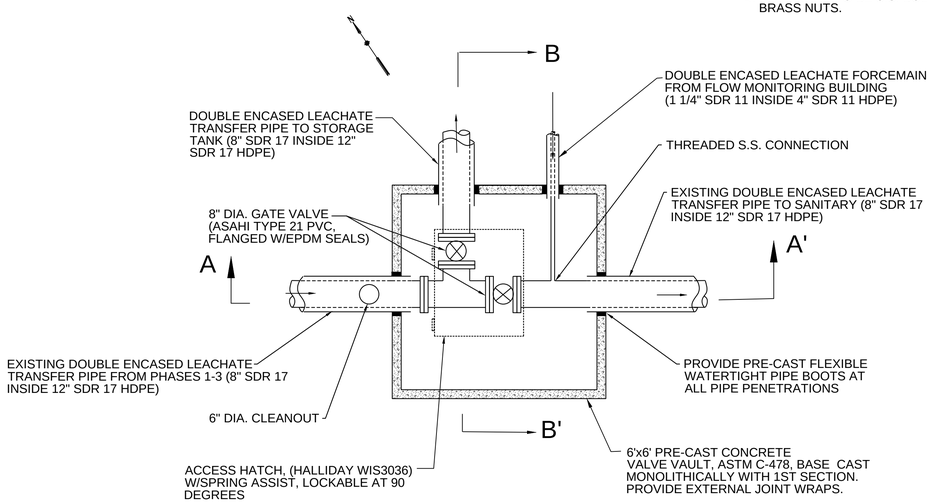
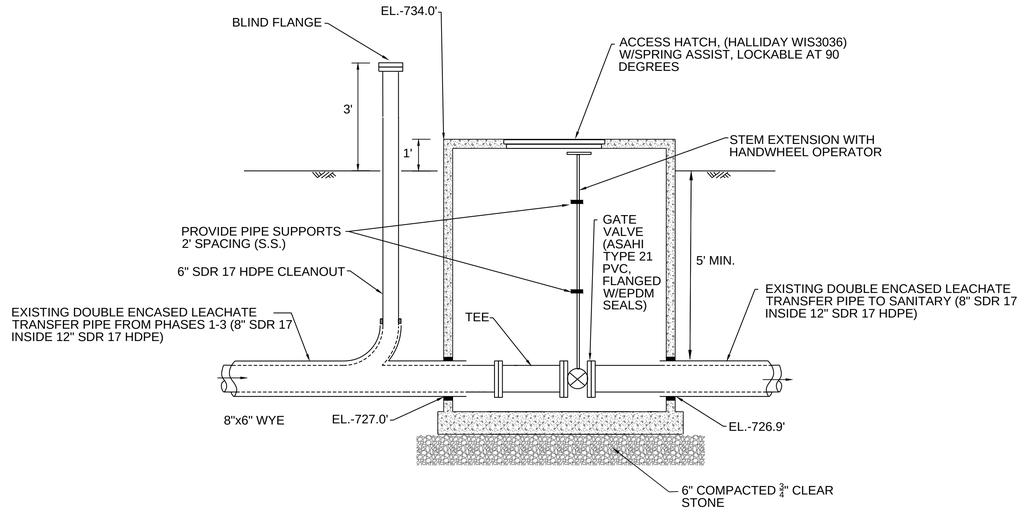
3. SEAL PENETRATIONS WITH NON-SHRINK GROUT.
4. HARDWARE TO BE S.S. BOLTS WITH BRASS NUTS.



1/7 VALVE VAULT - PLAN VIEW

NOT TO SCALE



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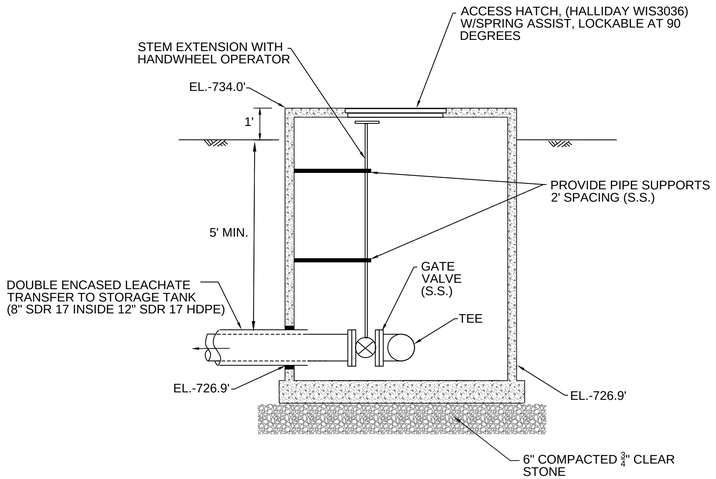

SECTION B-B'

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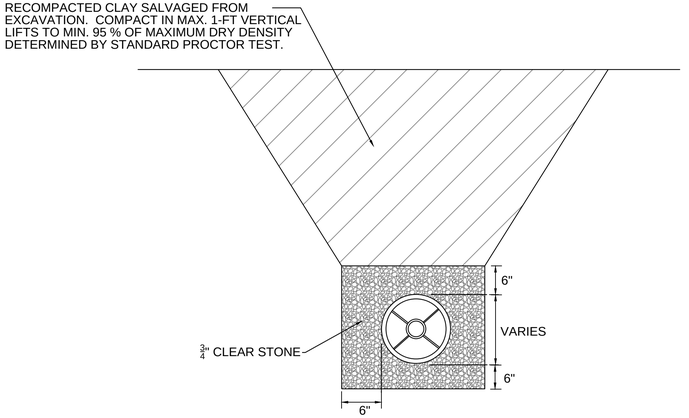
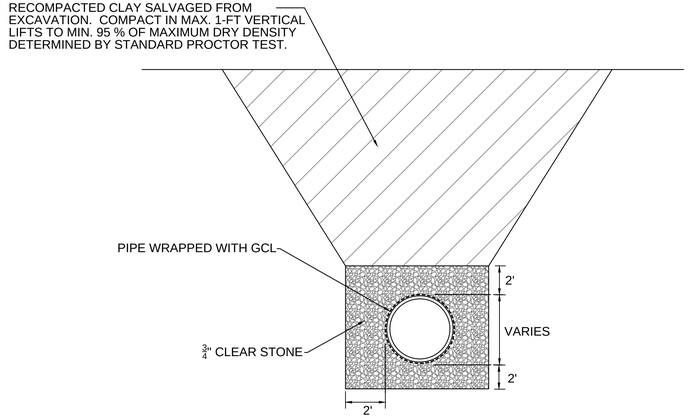


2/7 TYPICAL DOUBLE-ENCASED PIPE TRENCH DETAIL

NOT TO SCALE



3/7 TYPICAL GCL ENCASED PIPE TRENCH DETAIL

NOT TO SCALE

ISSUED FOR BID

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OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT
160 S. Walnut Street
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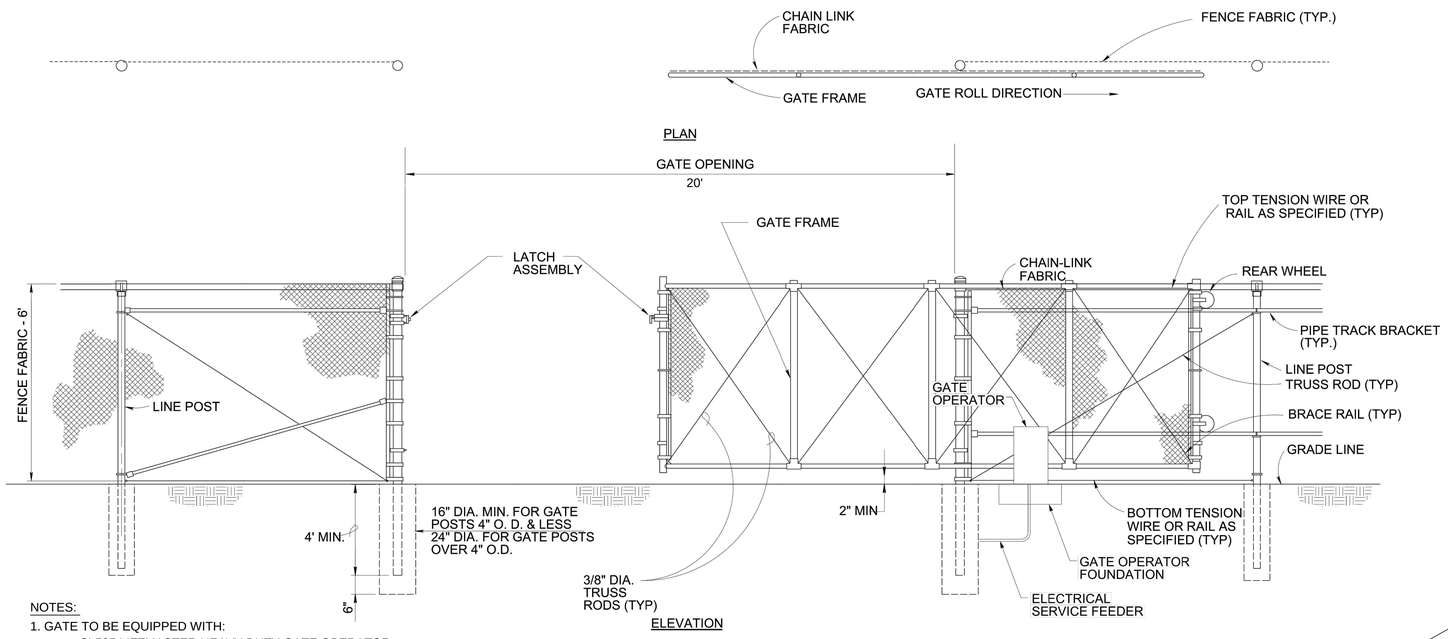
7 of 13

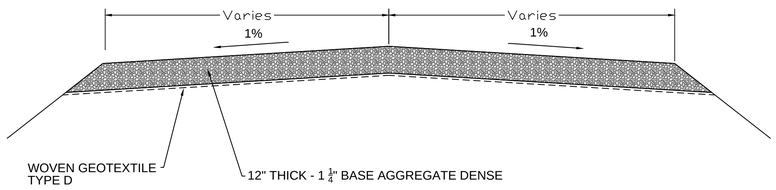


NOTES:

1. GATE TO BE EQUIPPED WITH:
   - SL595 LIFTMASTER HEAVY DUTY GATE OPERATOR
   - RETROREFLECTIVE PHOTO EYE
   - REVERSING EDGE
   - WIRED KEYPAD ON PEDESTAL MOUNT
   - NEMA 4x3 BUTTON STATION ATTACHED TO OPERATOR
   - REMOTE CONTROLS (4)

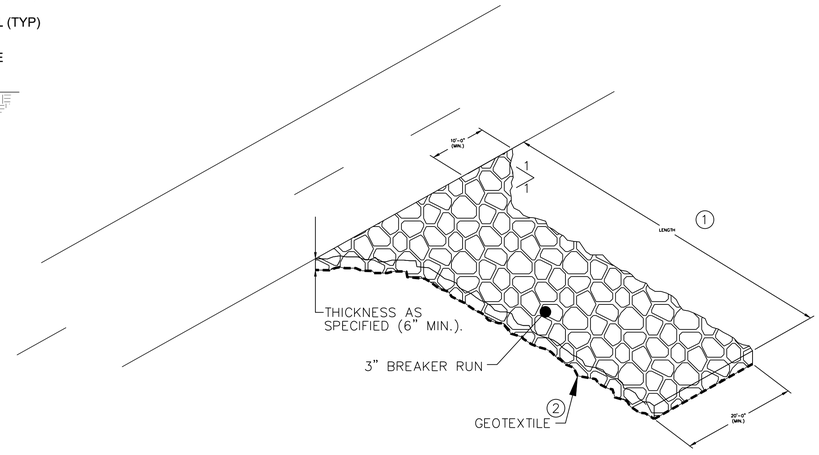
1/8 POWERED SLIDE GATE DETAIL

NOT TO SCALE



2/8 TYPICAL GRAVEL ACCESS ROAD DETAIL

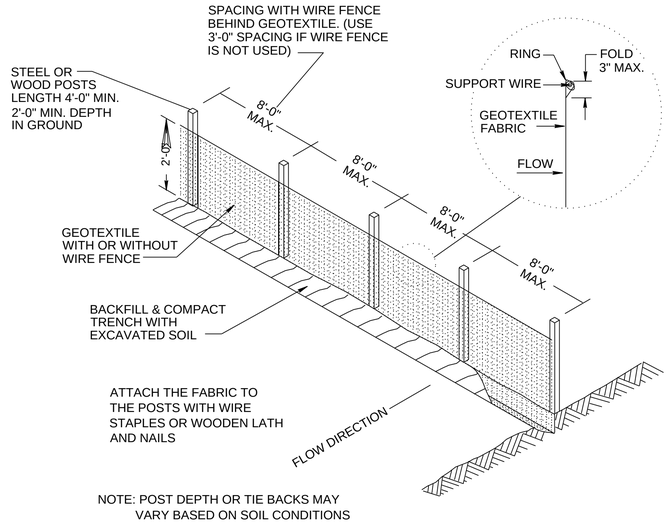
NOT TO SCALE



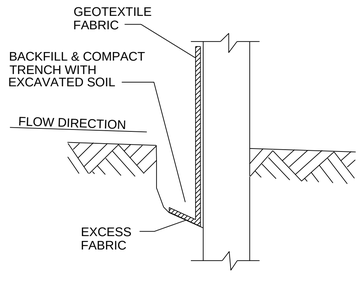
1. ENTRANCE LENGTH: 30 FOOT MINIMUM. LENGTH OF ENTRANCE MAY BE INCREASED IF SEDIMENT TRACK-OUT OCCURS.
2. INSTALL SUBGRADE AGGREGATE SEPARATION GEOTEXTILE BELOW STONE.

4/8 TYPICAL TRACKING PAD DETAIL

NOT TO SCALE



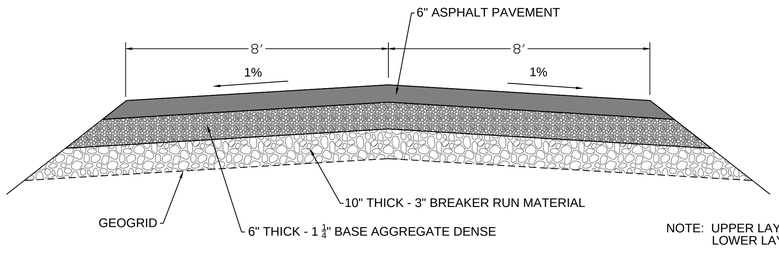
NOTE: POST DEPTH OR TIE BACKS MAY VARY BASED ON SOIL CONDITIONS



TRENCH DETAIL

3/8 TYPICAL SILT FENCE DETAIL

NOT TO SCALE



NOTE: UPPER LAYER 2.5" 4 MT 58-28 H
LOWER LAYER 3.5" 3 MT 58-28 S

5/8 TYPICAL PAVED ACCESS ROAD DETAIL

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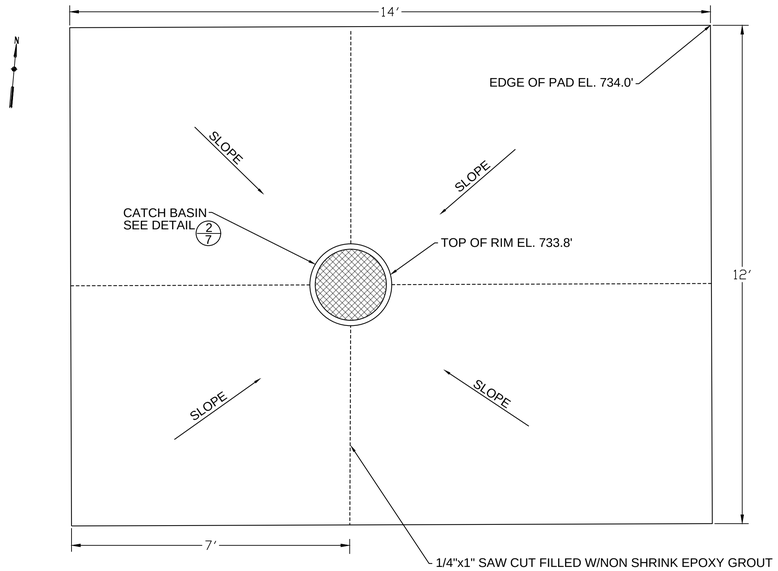
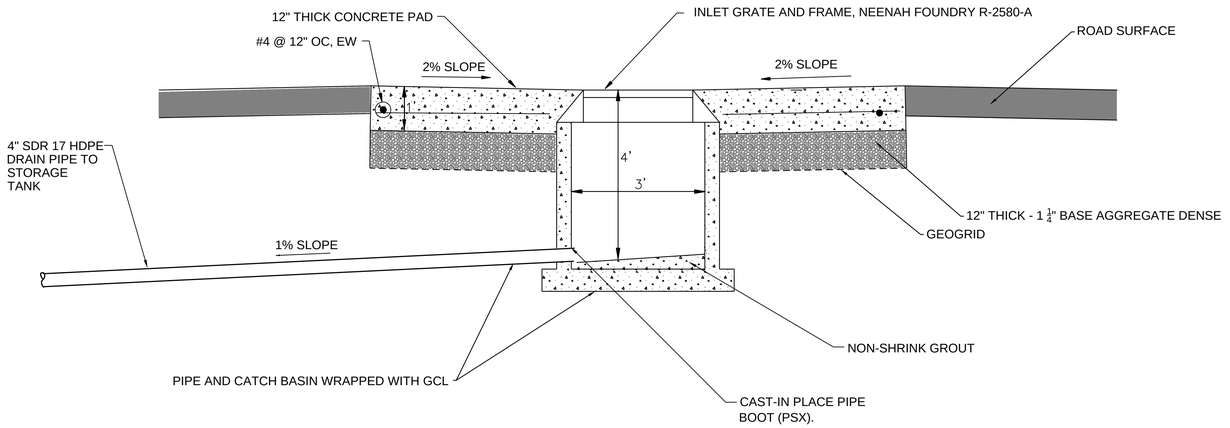


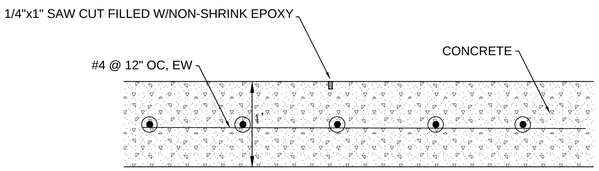
1/9 NELF LOADOUT PAD - PLAN VIEW

NOT TO SCALE



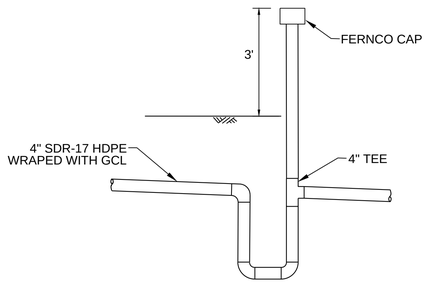
2/9 CATCH BASIN DETAIL

NOT TO SCALE



3/9 LOADOUT PAD - SECTION

NOT TO SCALE



4/9 TYPICAL DRIP-TRAP DETAIL

NOT TO SCALE

ISSUED FOR BID

DRAWN BY: MRS
CHECKED BY: MH
APPROVED BY: MRS
PROJECT NO. 25222132.03
DRAWN: 2/9/23
REVISED: 3/31/23

OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT
320 Walnut Street
Appleton, Wisconsin
Outagamie County

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ENGINEER

CONSTRUCTION DRAWINGS
LEACHATE LOADOUT SYSTEM
COUNTY NORTHEAST & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN

SITE

DETAILS

SHEET
9 of 13

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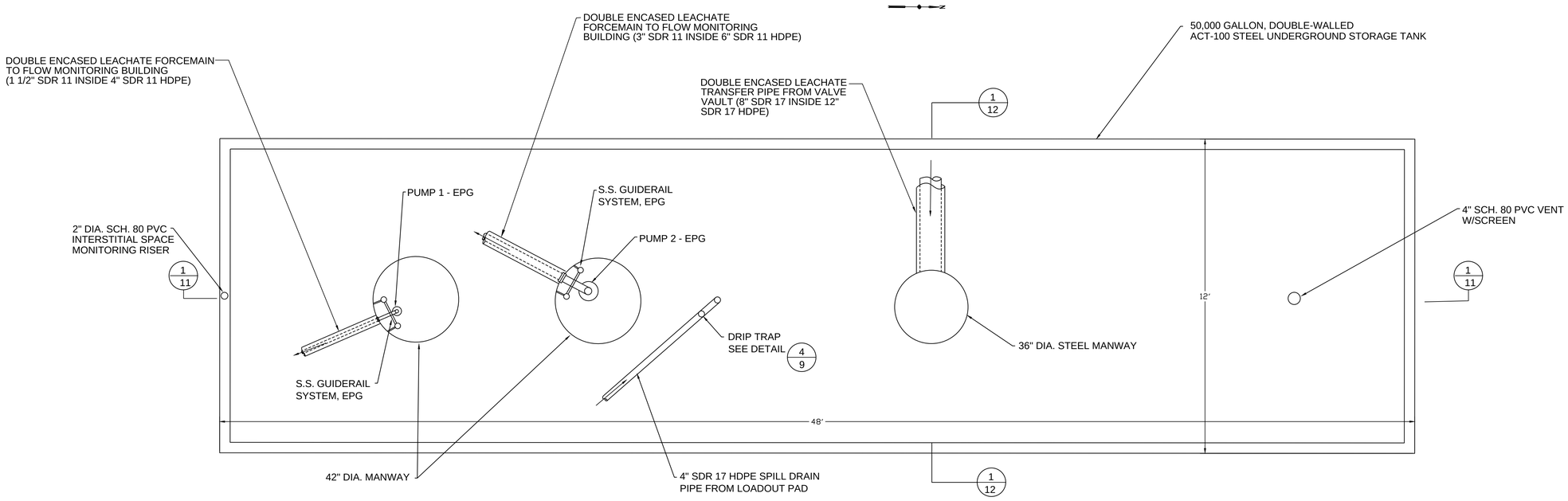

NOTES:

1. MANUFACTURER - LANNON TANK COMPANY OR APPROVED EQUAL
2. CAPACITY - 50,000 GALLON
3. STEEL TANK INSTITUTE ACT-100
4. 100 MIL FRP LAMINATE EXTERIOR
5. INTERIOR COATED WITH 2 COATS TNEMEC #6 EPOXY, MIN. 10 MIL
6. DEADMAN ANCHORING PACKAGE PER TANK MANUFACTURER

PUMP 1 OPERATION:

1. VARIABLE FREQUENCY DRIVE CONTROLLED
2. OPERATOR SET DISCHARGE RATE - PASSWORD PROTECTED TOUCHSCREEN
3. HIGH LEVEL ALARM - 722.5'
4. LOW LEVEL ELEVATION SHUTOFF PER EPG

PUMP 2 OPERATION:

1. OPERATE SET DISCHARGE VOLUME - PASSWORD PROTECTED TOUCHSCREEN
2. HIGH LEVEL ALARM - 722.5'
3. LOW LEVEL ELEVATION SHUTOFF PER EPG

1/10 LEACHATE STORAGE TANK - PLAN VIEW

NOT TO SCALE

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OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT
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LEACHATE LOADOUT SYSTEM
OUTAGAMIE COUNTY NORTHEAST & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN

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DETAILS

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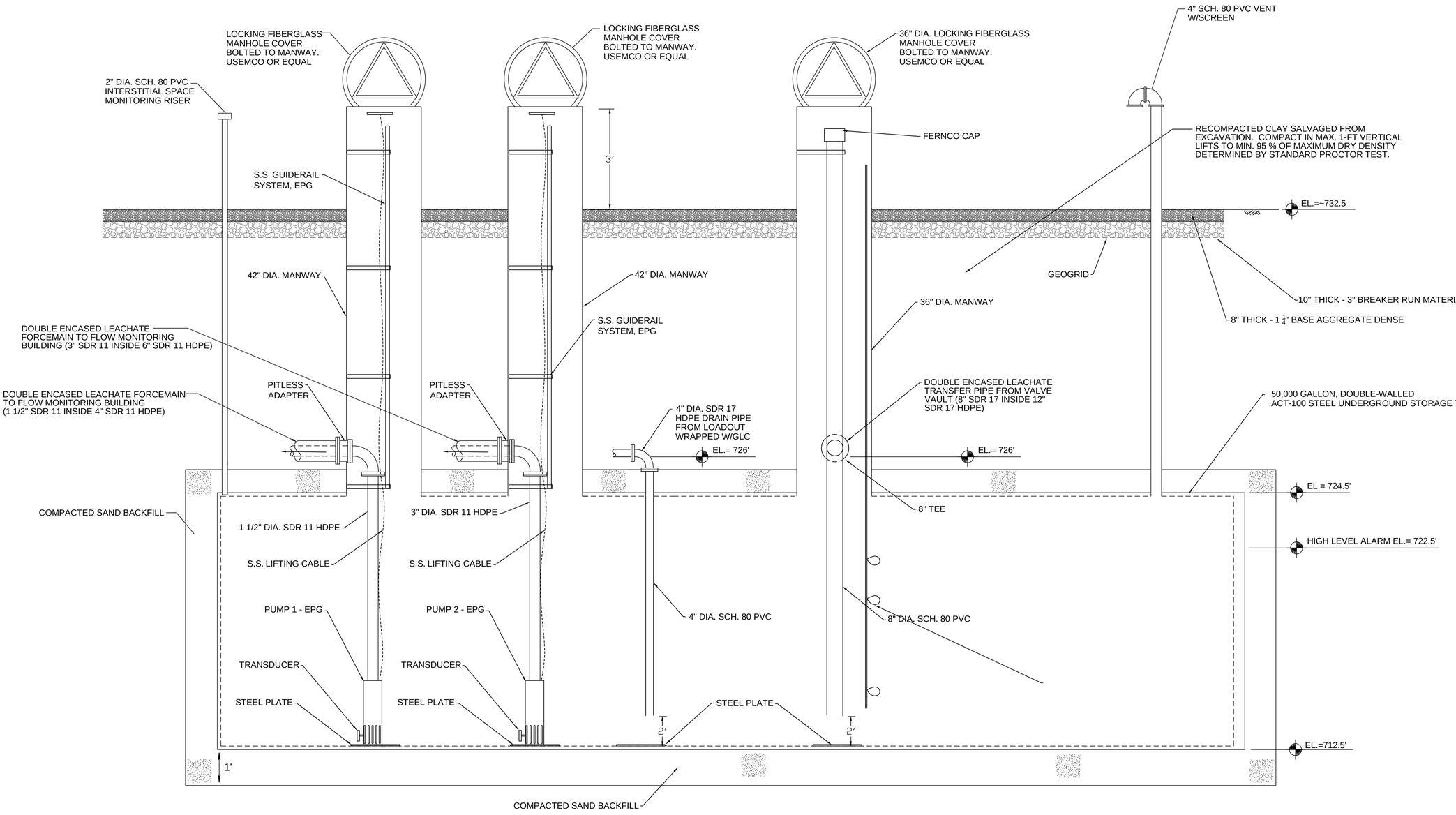
10 of 13



1/11 LEACHATE STORAGE TANK - SECTION VIEW

NOT TO SCALE

ISSUED FOR BID

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APPROVED BY: MRS

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OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT
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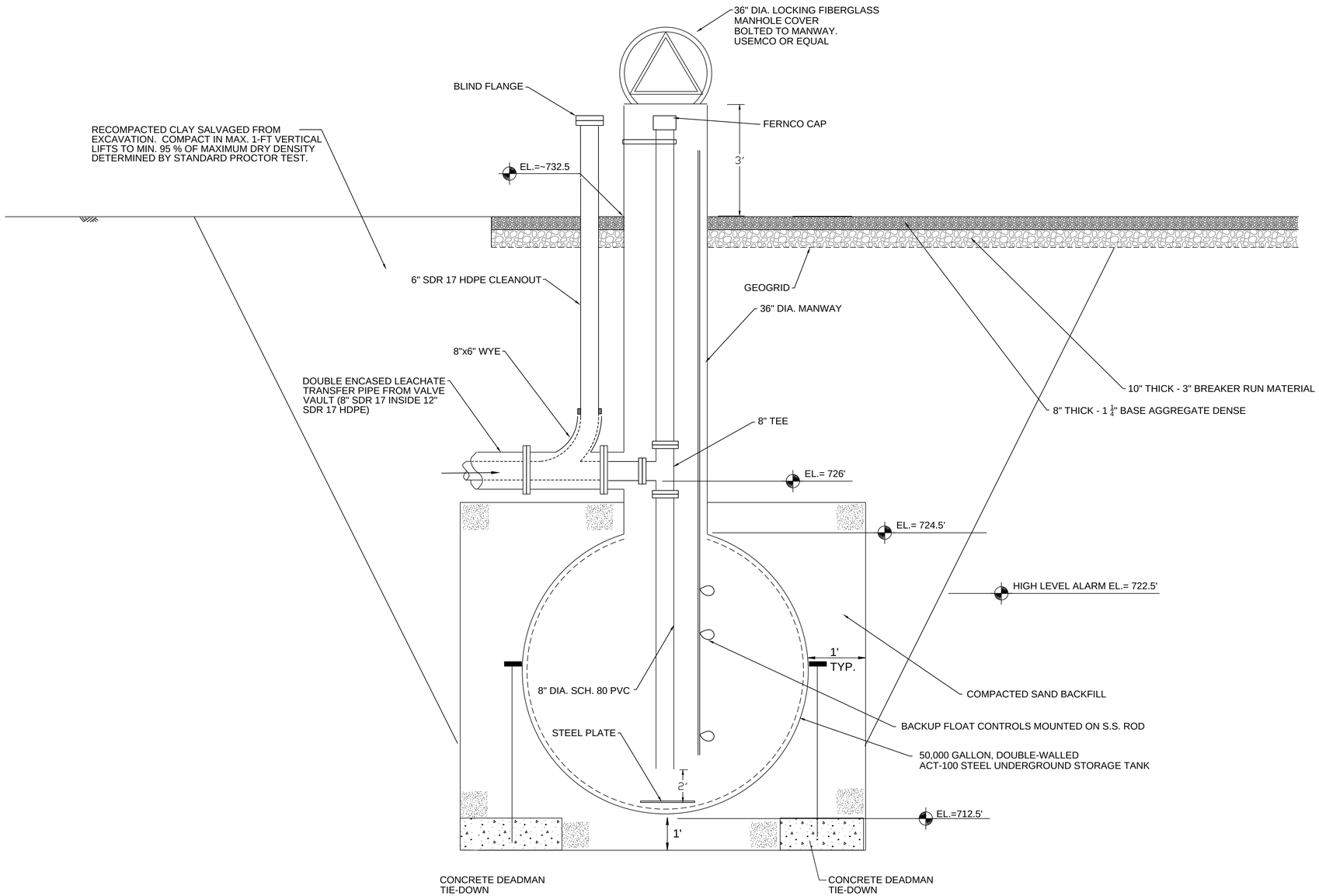
LEACHATE LOADOUT SYSTEM
OUTAGAMIE COUNTY NORTHEAST & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN

SITE

DETAILS

SHEET
11 or 13



NOTE:
SIZE AND DIMENSION OF DEADMEN TO BE BASED ON TANK MANUFACTURER'S RECOMMENDATIONS. ASSUME GROUNDWATER ELEVATION OF 728.0'.

1/12 LEACHATE STORAGE TANK - SECTION VIEW

NOT TO SCALE

ISSUED FOR BID

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APPROVED BY: MRS
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OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT
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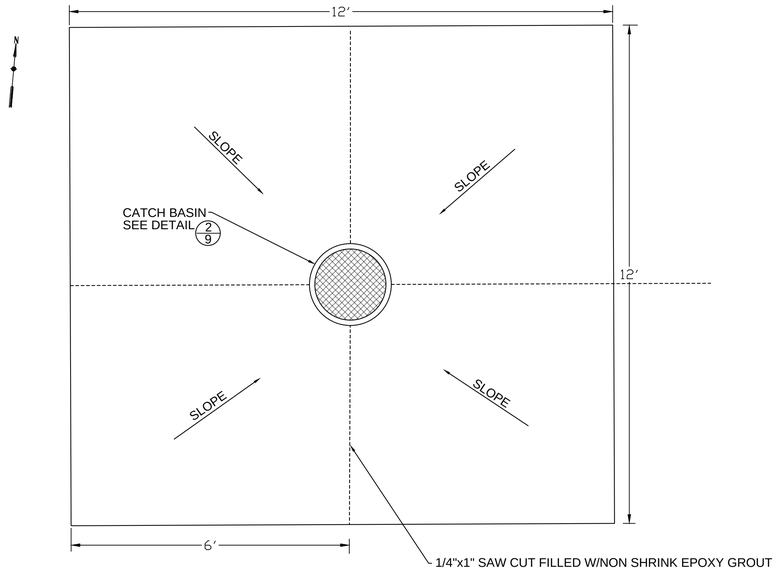
CONSTRUCTION DRAWINGS
LEACHATE LOADOUT SYSTEM
OUTAGAMIE COUNTY NORTHEAST & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN
SITE

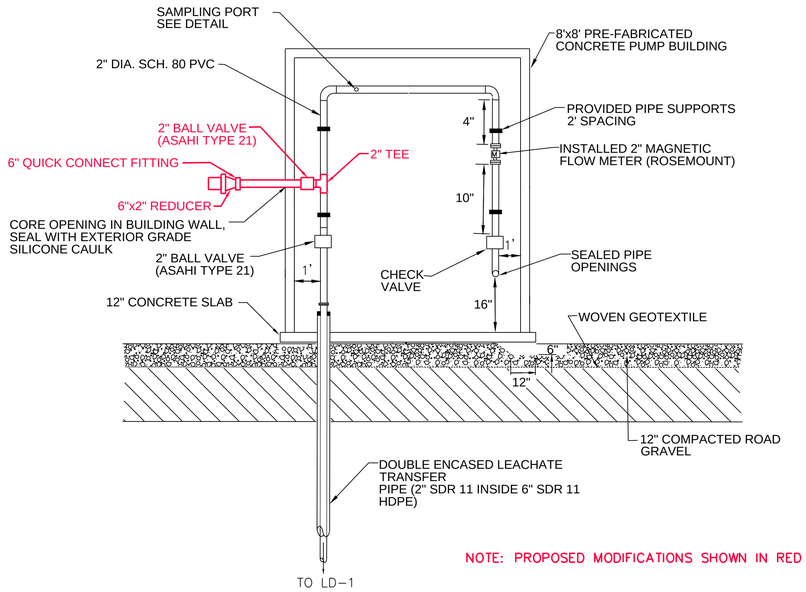
DETAILS

SHEET
12 of 13



1/13 TYPICAL EAST LANDFILL SPILL CONTAINMENT PAD DETAIL

NOT TO SCALE

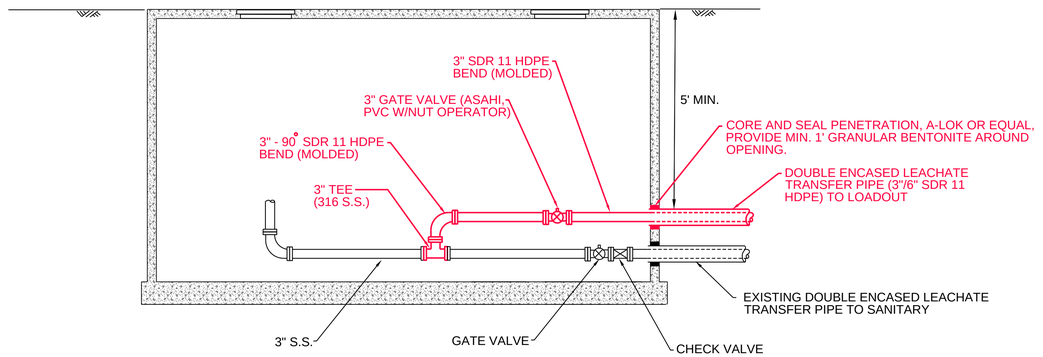


2/13 PROPOSED NORTH LIFT STATION MODIFICATIONS

NOT TO SCALE

3/13 EXISTING SOUTH LIFT STATION - FLOW METER VAULT

NOT TO SCALE



NOTES:
1. CONTRACTOR TO VERIFY ALL DIMENSIONS.
2. CONFINED SPACE REQUIREMENTS WILL APPLY TO ALL WORK WITHIN VAULT.

4/13 PROPOSED FLOW METER VAULT MODIFICATIONS

NOT TO SCALE

ISSUED FOR BID

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APPROVED BY: MRS
PROJECT NO. 25222132.03
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REVISED: 3/31/23

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OUTAGAMIE COUNTY- NORTHEAST & EAST LANDFILLS
OUTAGAMIE COUNTY, WISCONSIN

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13 of 13

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ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)
A	AMPERE
AC	ABOVE COUNTER OR AIR CONDITIONER
ACLG	ABOVE CEILING
ADO	AUTOMATIC DOOR OPENER
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI	ARC FAULT CIRCUIT INTERRUPTER
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
AMPL	AMPLIFIER
ANNUN	ANNUNCIATOR
APPROX	APPROXIMATELY
AQ-STAT	AQUASTAT
ARCH	ARCHITECT, ARCHITECTURAL
AS	AMP SWITCH
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BD	BOARD
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAB	CABINET
CAT	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
COMB	COMBINATION
CMPR	COMPRESSOR
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUATION OR CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
CP	CIRCULATING PUMP
CRT	CATHODE-RAY TUBE
CT	CURRENT TRANSFORMER
CTR	CENTER
CU	COPPER
DCP	DOMESTIC WATER CIRCULATING PUMP
DEPT	DEPARTMENT
DET	DETAIL
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
DIV	DIVISION
DN	DOWN
DPR	DAMPER
DS	SAFETY DISCONNECT SWITCH
DT	DOUBLE THROW
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRIC, ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
EP	ELECTRIC PNEUMATIC
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EXH	EXHAUST
EXP	EXPLOSION PROOF
EXT	EXTERIOR
FA	FIRE ALARM
FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
FIXT	FIXTURE
FLR	FLOOR
FLUOR	FLUORESCENT
FU	FUSE
FUDS	FUSED SAFETY DISCONNECT SWITCH
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTOR
GND	GROUND
GRS	GALVANIZED RIGID STEEL (CONDUIT)
GYP BD	GYPSUM BOARD
HOA	HANDS-OFF-AUTOMATIC SWITCH
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWP	HYDRONIC WATER PUMP
IC	INTERRUPTING CAPACITY
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IR	INFRARED
I/W	INTERLOCK WITH
J-BOX	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVOLT-AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
LCP	LIGHTING CONTROL PANEL
LOC	LOCATE OR LOCATION
LT	LIGHT
LTG	LIGHTING
LTNG	LIGHTNING
LV	LOW VOLTAGE
MAX	MAXIMUM
MAG.S	MAGNETIC STARTER
M/C	MOMENTARY CONTACT
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDC	MAIN DISTRIBUTION CENTER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MFS	MAIN FUSED DISCONNECT SWITCH
MH	MANHOLE
MIC	MICROPHONE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MMS	MANUAL MOTOR STARTER
MOA	MULTIOUTLET ASSEMBLY
MSP	MOTOR STARTER PANELBOARD
MSBD	MAIN SWITCHBOARD
MT	MOUNT
MT.C	EMPTY CONDUIT
MTS	MANUAL TRANSFER SWITCH
MTR	MOTOR, MOTORIZED
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NFDS	NON-FUSED SAFETY DISCONNECT SWITCH
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NPF	NORMAL POWER FACTOR
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOADS
PA	PUBLIC ADDRESS
PB	PULL BOX OR PUSHBUTTON
PE	PNEUMATIC ELECTRIC
PED	PEDESTAL
PF	POWER FACTOR
PH	PHASE
PIV	POST INDICATING VALVE
PNL	PANEL
PP	POWER POLE
PR	PAIR
PRI	PRIMARY
PROJ	PROJECTION
PRV	POWER ROOF VENTILATOR
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE (CONDUIT)
PWR	POWER
QUAN	QUANTITY
RCPT	RECEPTACLE
REQD	REQUIRED
RM	ROOM
RSC	RIGID STEEL CONDUIT
RTU	ROOF TOP UNIT
SC	SURFACE CONDUIT
SEC	SECONDARY
SHT	SHEET
SIM	SIMILAR
S/N	SOLID NEUTRAL
SPEC	SPECIFICATION
SPKR	SPEAKER
SP	SPARE
SR	SURFACE RACEWAY
SS	STAINLESS STEEL
SSW	SELECTOR SWITCH
S/S	STOP/START PUSHBUTTONS
STA	STATION
STD	STANDARD
SURF	SURFACE MOUNTED
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
SYS	SYSTEM
TEL	TELEPHONE
TEL/DATA	TELEPHONE/DATA
TERM	TERMINAL
TL	TWIST LOCK
TR	TAMPER RESISTANT
T-STAT	THERMOSTAT
TTC	TELEPHONE TERMINAL CABINET
TV	TELEVISION
TVTC	TELEVISION TERMINAL CABINET
TYP	TYPICAL
UC	UNDER COUNTER
UE	UNDERGROUND ELECTRICAL
UG	UNDERGROUND
UH	UNIT HEATER
UT	UNDERGROUND TELEPHONE
UTIL	UTILITY
UV	UNIT VENTILATOR OR ULTRAVIOLET
V	VOLT
VA	VOLT-AMPERES
VDT	VIDEO DISPLAY TERMINAL
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
W	WATT
W/	WITH
WG	WIRE GUARD
WH	WATER HEATER
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER
XFR	TRANSFER
∠	ANGLE
@	AT
Δ	DELTA
'	FEET
"	INCHES
#	NUMBER
Ø	PHASE
℄	CENTER LINE
℘	PLATE

SYMBOLS

- NORTH ARROW
- DETAIL OR SECTION NUMBER
- SHEET ON WHICH DETAIL OR SECTION IS DRAWN
- ENLARGED PLAN OR DETAIL REFERENCES
- EXISTING COLUMN GRID CENTERLINE
- SECTION CUT REFERENCE
- NEW COLUMN GRID CENTERLINE
- INTERIOR ELEVATION OR DETAIL REFERENCE
- EXTERIOR ELEVATION OR DETAIL REFERENCE
- DIRECTION YOU ARE VIEWING
- Room name / 101 — ROOM NUMBER
- ELECTRICAL DEVICE / CIRCUIT / PANEL
- PHONE / PUNCH DOWN NUMBER / BLOCK LOCATION
- LOW VOLTAGE DEVICE / ITEM DESIGNATION / EQUIPMENT TO BE CONNECTED TO
- NUMBER OF VOICE CONNECTIONS (NO NUMBER REPRESENTS 1 CONNECTION REQUIRED)
- PHONE/DATA
- NUMBER OF DATA CONNECTIONS (NO NUMBER REPRESENTS 1 CONNECTION REQUIRED)

GENERAL ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	UNDERGROUND / UNDERFLOOR RACEWAY
	SWITCHED CIRCUIT
	UNSWITCHED CIRCUIT
	HOMERUN TO CIRCUITING INDICATED
X###	KEYED NOTE

FIRE ALARM SYMBOLS

HT AFF	SYMBOL	DESCRIPTION	HT AFF	SYMBOL	DESCRIPTION
48"		ABORT SWITCH			POST INDICATOR VALVE
80"		BELL - WALL	48"		PULL STATION
80"		BELL STROBE - WALL		FARP	RELAY PANEL
80"		BUZZER - WALL		FAAP	REMOTE ANNUNCIATOR PANEL
80"		BUZZER STROBE - WALL			REMOTE TEST STATION - CEILING
80"		CHIME - WALL	48"		REMOTE TEST STATION - WALL
80"		CHIME STROBE - WALL	80"		SCRAMBLE STROBE STACK LIGHT
80"		CHIME STROBE - CEILING			SMOKE DAMPER
		FLAME DETECTOR		FA	FIRE ALARM SPEAKER - CEILING
		GAS DETECTOR	80"	FA	FIRE ALARM SPEAKER - WALL
		HEAT DETECTOR			SPEAKER STROBE - CEILING
		LINEAR HEAT DETECTOR	80"		SPEAKER STROBE - WALL
		DUCT SMOKE IONIZATION			TAMPER SWITCH
	P	DUCT SMOKE PHOTOELECTRIC		TCVR	TRANSCEIVER
	P R	DUCT SMOKE RELAY		FTR	TRANSPONDER
80"	P SC	SELF CONTAINED SMOKE, AV		EVAC	VOICE EVACUATION PANEL
80"		SMOKE DETECTOR - WALL			WATER LEVEL SWITCH
		SMOKE DETECTOR - CEILING			TEMPERATURE SWITCH
80"		DOOR CLOSER		1	ZONE ADDRESSABLE MODULE
80"		DOOR HOLDER		FF	FIRE FIGHTER PHONE
	FR	FAN SHUNT DOWN RELAY		FSCP	FIRE SUPPRESSION CONTROL PANEL
		FLOW SWITCH	80"	M	MASS NOTIFICATION HORN STROBE
90"	F	HORN - WALL	80"	S M	MASS NOTIFICATION SPEAKER STROBE
	F	HORN STROBE - CEILING		NACPS	NAC POWER SUPPLY
80"	F	HORN STROBE - WALL		FACP	FIRE ALARM CONTROL PANEL
	F	STROBE - CEILING	48"	F	FIRE ALARM KEY PAD
80"	F	STROBE - WALL		F-I/O	FLEX INPUT/OUTPUT PANEL
	I	INDIVIDUAL ADDRESSABLE MODULE		FDB	FIRE DOCUMENT BOX
	R	ADDRESSABLE RELAY MODULE			SMOKE DETECTOR w/ SOUNDER BASES
48"	K	KEY REPOSITORY	90"	F LF	LOW FREQUENCY HORN WALL)
	CO	CARBON MONOXIDE DETECTOR	90"	F LF	LOW FREQUENCY HORN STROBE (WALL)
	L	LINE ISOLATION MODULE		FR	FUTURE ROUGH-IN (WALL)
48"	F M	MASTER BOX		MC	MULTI CRITERIA DETECTOR
80"	F	MINI HORN STROBE	43"	CS	2-WAY CALL STATION
			43"	MS	2-WAY MASTER STATION

NOTE:

ALL WALL MOUNTED DIMENSIONS ARE TO BOTTOM OF BOX.
WP = WEATHER PROOF

SECURITY & CCTV

HT AFF	SYMBOL	DESCRIPTION	HT AFF	SYMBOL	DESCRIPTION
		CCTV CAMERA IN RECESSED DOME		REX	REQUEST TO EXIT
		CCTV CAMERA		G	GLASS BREAK
		CCTV CAMERA WITH PAN AND TILT DRIVE		MS MD	MOTION SENSOR - CEILING
	360°	CCTV CAMERA PANORAMIC GRAND EYE	80"	MS MD	MOTION SENSOR - WALL
	180° or 270°	CCTV CAMERA PANORAMIC	48"	IC	INTERCOM
48"	CR	CARD READER	48"		SECURITY KEY PAD
80"	DC	DOOR CONTACT	80"	S	NOTIFICATION APPLIANCE - WALL
	D	DOOR SIGNAL	80"	S	DURESS ALERT STROBE - WALL
	ES	ELECTRIC STRIKE		DR	DURESS PUSH BUTTON - UNDER COUNTER
	ML	MAGNETIC LOCK		"TYPE"	INTRUSION DETECTION PANEL
	EVAC	VOICE EVACUATION PANEL		DR	DURESS BUTTON - STANDARD
48"	DR	DOOR RELEASE BUTTON - WALL		P	PANIC BUTTON - STANDARD
48"		PANIC BUTTON - WALL		DVR	DIGITAL VIDEO RECORDER
	NVR	NETWORK VIDEO RECORDER			

NOTE:
ALL WALL MOUNTED DIMENSIONS ARE TO TOP OF BOX.
WP = WEATHER PROOF

SHEET INDEX - OUTAGAMIE CTY-LOADOUT

SHEET NUMBER	SHEET TITLE
E0.0	ELECTRICAL - ARREVIATIONS , SYMBOLS & SHEET INDEX
E0.1	ELECTRICAL - SITE PLAN
E2.0	ELECTRICAL - POWER PLAN
E3.0	ELECTRICAL- SCOPE/SPECIFICATIONS
E3.1	ELECTRICAL- SCOPE/SPECIFICATIONS
E3.2	ELECTRICAL- SITE PHOTOMETRICS

ELECTRICAL SYMBOLS

HT AFF	SYMBOL	DESCRIPTION	HT AFF	SYMBOL	DESCRIPTION
		BUSS CONNECTION		CLNG	DUPLEX RECEPTACLE - CEILING
		BUSS DUCT WITH DISCONNECT			DUPLEX RECEPTACLE - FLOOR
		COMBINATION MOTOR STARTER	20"		DUPLEX RECEPTACLE - WALL
		SAFETY DISCONNECT SWITCH	20"	WP	DUPLEX RECEPTACLE - WATER PROOF
		WIRE WAY OR MULITIOUTLET	20"	GFI	DUPLEX RECEPTACLE - WALL GROUND FAULT CIRCUIT INTERRUPTER
	J CLNG	JUNCTION BOX - CEILING	20"		DUPLEX EMERGENCY RECEPTACLE
	J	JUNCTION BOX - FLOOR	20"	IG	DUPLEX ISOLATED GROUND RECEPTACLE
	J	JUNCTION BOX - WALL	20"		DUPLEX SPLIT RECEPTACLE
		MAGNETIC MOTOR STARTER		CLNG	DOUBLE DUPLEX RECEPTACLE - CEILING
		MANUAL MOTOR STARTER			DOUBLE DUPLEX RECEPTACLE - FLOOR
		MECHANICAL EQUIPMENT CONNECTION	20"		DOUBLE DUPLEX RECEPTACLE - WALL
	1	MOTOR	20"		DOUBLE DUPLEX EMERGENCY RECEPTACLE
	PC	PHOTO CELL	20"	IG	DOUBLE DUPLEX ISOLATED GROUND RECEPTACLE
	PP	POWER POLE	20"		DOUBLE DUPLEX SPLIT RECEPTACLE
	R	RELAY		CLNG	SINGLE RECEPTACLE - CEILING
		PUSH BOTTOM - SINGLE			SINGLE RECEPTACLE - FLOOR
		PUSH BUTTON - UP/DOWN/STOP	20"		SINGLE RECEPTACLE - WALL
		PUSH BUTTON - START/STOP		CLNG	SPECIAL PURPOSE RECEPTACLE - CEILING
	LCP	LIGHTING CONTROL PANEL			SPECIAL PURPOSE RECEPTACLE - FLOOR
		POWER OR DISTRIBUTION PANEL	20"		SPECIAL PURPOSE RECEPTACLE - WALL
		CIRCUIT BREAKER PANEL BOARD		CLNG	SPECIALTY VOLTAGE RECEPTACLE - CEILING
	T	TRANSFORMER			SPECIALTY VOLTAGE RECEPTACLE - FLOOR
		EPO SWITCH	20"		SPECIALTY VOLTAGE RECEPTACLE - WALL
48"	$	SINGLE POLE SWITCH			
48"	$3	THREE WAY SWITCH			CORD REEL DUPLEX RECEPTACLE
48"	$4	FOUR WAY SWITCH			
48"	$D	DIMMER SWITCH		J	CORD DROP DUPLEX RECEPTACLE
48"	$OC	WALL OCCUPANCY SENSOR			
48"	$SP	FAN SPEED CONTROL SWITCH			CORD REEL SPECIAL PURPOSE RECEPTACLE
		ELECTRIC WALL HEATER			
	TC	TIME CLOCK		J	CORD DROP SPECIAL PURPOSE RECEPTACLE
	T	THERMOSTAT	20"	TR	DUPLEX RECEPTACLE - WALL TAMPER PROOF RESISTANT
			20"	TR	DOUBLE DUPLEX RECEPTACLE - WALL TAMPER PROOF RESISTANT

NOTE:

ALL WALL MOUNTED DIMENSIONS ARE TO TOP OF BOX.
WP = WEATHER PROOF

LIGHTING SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	RECESSED LIGHT		EXIT SIGN CEILING MOUNTED
	SURFACE MOUNTED LIGHT		EXIT SIGN WALL MOUNTED
	RECESSED DOWNLIGHT		EXIT SIGN CEILING MOUNTED WITH EM
	SURFACE DOWNLIGHT		
	PENDANT LIGHT		EXIT SIGN WALL MOUNTED WITH EM
	SUSPENDED / PENDANT LIGHT		EMERGENCY BATTERY BACKUP LIGHT
	STRIP LIGHT		EMERGENCY REMOTE HEAD LIGHT
AND / OR	WALL SCONCE / WALL PACK		LIFE SAFETY HATCH PATTERN TYPICAL
	FLOOD / TRACK LIGHT		CRITICAL LIGHT HATCH PATTERN TYPICAL
	POLE MOUNTED LIGHT		
	SITE BOLLARD LIGHT		

LIGHTING CONTROLS SYMBOLS

LINE VOLTAGE SWITCH			LOW VOLTAGE SWITCH		
HT AFF	SYMBOL	DESCRIPTION	HT AFF	SYMBOL	DESCRIPTION
48"	$	SINGLE POLE SWITCH	48"		STANDARD SWITCH
48"	$3	THREE WAY SWITCH	48"	3	THREE WAY SWITCH
48"	$4	FOUR WAY SWITCH	48"	4	FOUR WAY SWITCH
48"	$D	DIMMER SWITCH	48"	D	DIMMER SWITCH
48"	$OC	WALL OCCUPANCY SENSOR	48"		WALL OCCUPANCY SENSOR
48"	$K	KEYED SWITCH	48"	K	KEYED SWITCH
48"	$T	TIMER SWITCH	48"	T	TIMER SWITCH
48"	$P	SINGLE POLE SWITCH W/ PILOT LIGHT	48"	P	STANDARD SWITCH W/ PILOT LIGHT
48"	$OC/D	COMBINED WALL OCCUPANCY SENSOR w/ DIMMING CONTROL	48"	M LV	MASTER SCENE STATION
CLG	PP	POWER PACK	CLG	OS LV	OCCUPANCY SENSOR (LOW VOLTAGE)
CLG	LS	LIGHT LEVEL SENSOR	CLG	RC LV	ROOM CONTOLLER
CLG	OS	OCCUPANCY SENSOR			

NOTE:

ALL WALL MOUNTED DIMENSIONS ARE TO TOP OF BOX.

TELECOMMUNICATIONS SYMBOLS

HT AFF	SYMBOL	DESCRIPTION	HT AFF	SYMBOL	DESCRIPTION
20"	1D	SINGLE DATA JACK		HDMI AV	AUDIO / VISUAL HDMI CONNECTION
20"	2D	DOUBLE DATA JACK		AC	ADMINISTRATIVE CONTROL
20"	3D	TRIPLE DATA JACK		P	CALL STATION
20"	4D	QUAD DATA JACK		TV-??"	TV OUTLET - WALL
20"	1D/1V	SINGLE DATA / SINGLE VOICE JACK	20"	D	DICTATION OUTLET - WALL
20"	2D/2V	DOUBLE DATA / DOUBLE VOICE JACK		M	MICROPHONE OUTLET - FLOOR
20"	1V	SINGLE VOICE JACK	20"	M	MICROPHONE OUTLET - WALL
20"	2V	DOUBLE VOICE JACK		S	SPEAKER - WALL
48"	W	WALL PHONE		S	SPEAKER - CEILING
		DATA JACK - FLOOR		S	SPEAKER SURFACE MOUNT - WALL
		VOICE / DATA JACK - FLOOR		S	SPEAKER SURFACE MOUNT - CEILING
	WAP	WIRELESS ACCESS POINT		S	HORN SPEAKER - WALL
		ANTENNA	48"	V	SPEAKER VOLUME CONTROL - WALL
		ANTENNA INPUT - WALL		S	SPEAKER CLOCK ASSEMBLY - WALL
	PAAC	PUBLIC ADDRESS AMPLIFIER AND CONTROL (HEAD-END)		D	DOOR BELL - HORN STROBE - WALL
	"LABEL"	TECHNOLOGY RACK		D	DOOR BELL - STROBE - WALL
				DB	DOOR BELL - PUSH BUTTON

NOTE:

ALL WALL MOUNTED DIMENSIONS ARE TO TOP OF BOX.
WP = WEATHER PROOF

WISCONSIN
TIMM M. GREEN
D-1658
APPLETON, WI.
DESIGNER

T. Green 06/13/23

DATE	REVISIONS DESCRIPTION	BY

DATE: 03/16/2023
SCALE: NTS
DRAWN BY: RGK
CHECKED BY: DRA
JOB NO: 10252312

BID SET - 06.15.2023

APPLETON, WI

OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT

ABBREVIATIONS, SYMBOLS, & SHEET INDEX

E0.0

841,500 E
842,000 E
842,500 E
843,000 E
843,500 E
844,000 E
844,500 E
845,000 E
845,500 E
846,000 E
846,500 E

I-41
I-41

APPROVED LIMITS OF WASTE PLACEMENT - NORTHEAST LANDFILL

PUMP 3
PUMP 2
PUMP 1

NELF TANK AND LOADOUT VERIFY LOCATION.

BREAKOUT BOX LOCATIONS TO BE DETERMINED AT THE TIME OF INSTALL.

(2)- 1" PVC
(1)-1-1/2" PVC CONDUIT FOR POWER FROM EXISTING ELECTRICAL ROOM
(SEE #2 SHEET E2.0)

1-1/2" PVC CONDUIT FROM EXISTING DATA RACK FOR FIBER TO CONTROL PANEL

2 HEAD POLE LIGHT
30' POLE PER SPECIFICATION IN THE SCOPE OF WORK

1" PVC CONDUIT
(2)- #10CU CONDUCTORS
(1)- #10CU GND

EXISTING TOPSOIL STOCKPILE

LIMITS OF EXISTING FINAL COVER

2 HEAD POLE LIGHT
30' POLE PER SPECIFICATION IN THE SCOPE OF WORK

ELECTRIC GATE OPERATOR "SL595 LIFTMASTER HEAVY DUTY GATE OPERATOR" FED FROM EXISTING PANEL - PRL-4B IN EXISTING MAINTENANCE BUILDING. SEE SCOPE OF WORK IN SPECIFICATION

OUTBUILDINGS TO BE ABANDONED

NORTHEAST LANDFILL (ACTIVE)

SCOPE OF WORK

PROVIDE NEW 20A/1P BREAKER FROM EXISTING PANEL IN MAINT. BLDG.

1" PVC CONDUIT
(2)- #10CU CONDUCTORS
(1)- #10CU GND

1" PVC CONDUIT
(3)- #12CU CONDUCTORS
(1)- #12CU GND

EXISTING EQUIPMENT MAINTENANCE BUILDING

CONTRACTOR ENTRANCE

574,000 N

NORTH LIFT STATION LOADOUT LOCATION

LANDFILL ENTRANCE

EXISTING WEST LANDFILL (CLOSED)

DEBRIS MANAGEMENT AREA

573,500 N

EXISTING EAST LANDFILL (CLOSED)

APPROXIMATE LIMITS OF WASTE PLACEMENT - WEST LANDFILL

SOUTH LIFT STATION LOADOUT LOCATION.

RESIDENTIAL DROP-OFF AREA

APPROXIMATE LIMITS OF WASTE PLACEMENT - EAST LANDFILL

LANDFILL OFFICE AND SCALE

573,000 N

FRENCH ROAD

EQUIPMENT MAINTENANCE BUILDING

SEDIMENTATION POND 1

C&D PROCESSING BUILDING

MATERIAL RECOVERY FACILITY

572,500 N

ENCLOSED FLARE AND BLOWER SKID

SALT STORAGE BUILDING

PARKING AREA

HOLLAND ROAD

HIGHWAY DEPT. EQUIPMENT MAINTENANCE BUILDING

SEDIMENTATION POND 2

COMPRESSOR BUILDING & UTILITY FLARE

572,000 N

HIGHWAY DEPARTMENT ADMINISTRATION MAINTENANCE FACILITY

CELLULAR TOWER

NORTHLAND AVENUE (C.T.H. OO)

571,500 N

LANDFILL EXIT

200' 0 200'

SCALE: 1" = 200'

1 ELECTRICAL SITE PLAN
SCALE: NTS

BID SET - 06.15.2023

DATE	REVISIONS DESCRIPTION	BY

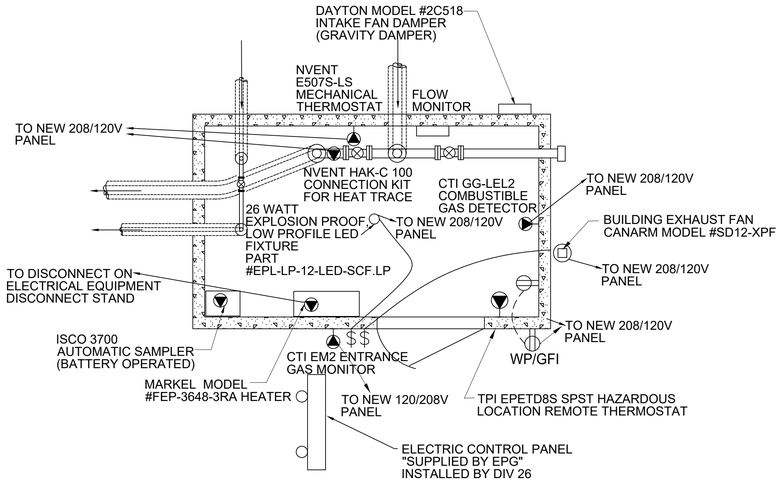
DATE: 03/16/2023
SCALE: NTS
DRAWN BY: RGK
CHECKED BY: DRA
JOB NO: 10252312

APPLETON, WI

OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT

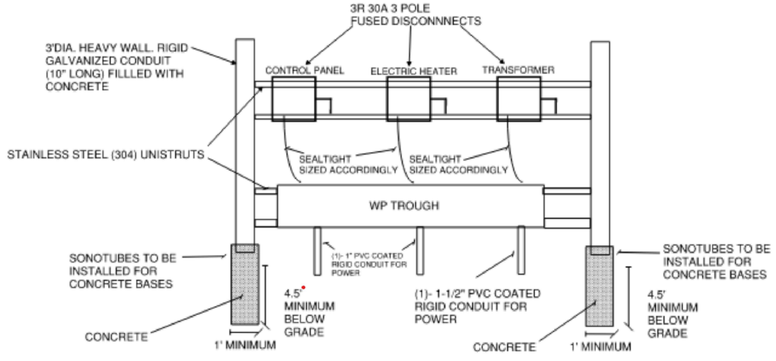
ELECTRICAL - SITE PLAN

E0.1

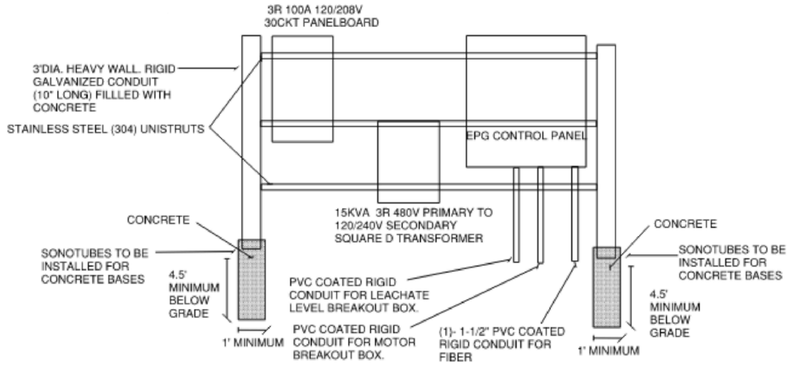


3 FLOW MONITORING BUILDING - PLAN VIEW
SCALE: NTS

REAR VIEW



FRONT VIEW



2 EQUIPMENT DISCONNECT RACK
SCALE: NTS

GENERAL NOTES

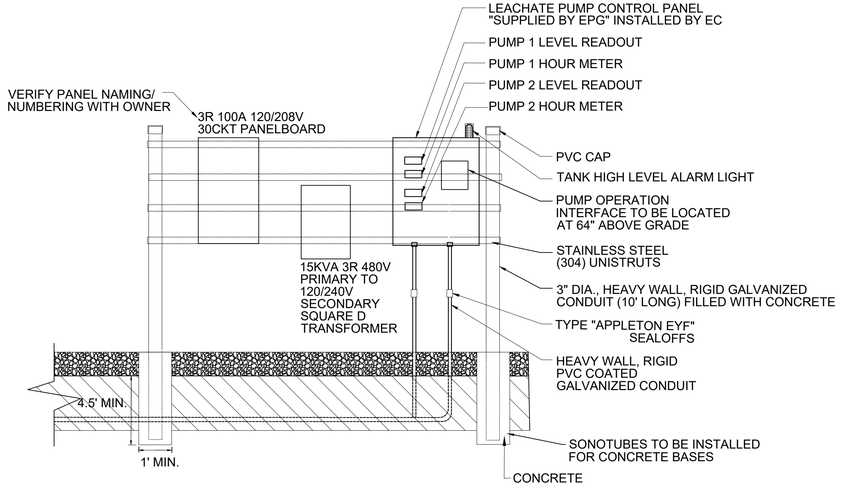
1. ALL ELECTRICAL CONNECTIONS TO BE MADE BY DIV 26.
2. ALL WIRING TO BE INTRISICALLY SAFE.
3. EXTERIOR SWITCHES ARE FOR LIGHTING AND EXHAUST FAN
4. INTERIOR TEMPERATURE OF CONCRETE BUILDING TO BE ABOVE 40°F.
5. ALL EQUIPMENT INSIDE AND ON THE EXTERIOR OF CONCRETE BUILDING IS TO BE EXPLOSION PROOF (CLASS 1, DIV 1)
6. ALL EQUIPMENT SHALL BE SECURELY MOUNTED.
7. ALL SEAL-OFFS ARE TO BE FILLED WITH CROUSE-HINDS BRAND CHICO.
8. VERIFY ALL LOCATIONS OF EQUIPMENT WITH THE OWNER PRIOR TO INSTALLATION.
9. ALL ELECTRICAL INSTALLATIONS SHALL COMPLY WITH NEC.
10. ALL EQUIPMENT AND MATERIAL SHALL BE UL LISTED.
11. EPG EQUIPMENT STARTUP AND TESTING DONE BY EPG REPRESENATIVE.
12. DIVISION 26 CONTRACTOR SHALL REVIEW SPECIFICATIONS AND SCOPE OF WORK FOR WORK REQUIRED BY DIVISION 26.
13. RIGID CONDUIT SHALL BE USED FOR ABOVE GROUND INSTALLATIONS
14. RESTORE GREENSPACE EXCAVATIONS UPON COMPLETION
15. RACEWAYS SHALL BE DIRECTIONALLY BORED UNDER EXISTING ROADWAYS AND DRIVEWAYS.

CONTROL PANEL NOTES:

1. ALL HARDWARE TO BE STAINLESS STEEL (304)
2. ALL CONTROLS AND METERS TO BE INSTALLED IN STAINLESS STEAL (304) NEMA 4X ENCLOSURES FURNISHED BY EPG
3. PROVIDE SEAL-OFF FOR ALL CONDUITS PENETRATING THE GROUND. PROVIDE 10' OF PVC COATED RIGID GALVANIZED STEEL CONDUIT FROM THE SEAL-OFF TO THE PVC CONDUIT UNDER GRADE. ALL ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL.
4. PROVIDE DUX-SEAL IN ALL CONDUIT ENDS IN PANELS AND JUNCTION BOXES.

PUMP CONTROL NOTES:

1. PUMP 1 (EPG PUMP) OPERATION TO BE CONTROLLED BY A PASSWORD PROTECTED TOUCHSCREEN. PUMP DISCHARGE TO BE CONTROLLED BY A VARIABLE FREQUENCY DRIVE. OPERATOR TO SELECT NUMBER OF GALLONS TO BE PUMPED.
2. PUMP 2 (LOADOUT PUMP) OPERATION TO BE CONTROLLED BY A PASSWORD PROTECTED TOUCHSCREEN. OPERATOR TO SELECT GALLONS PER MINUTE..



1 EPG CONTROL PANEL
SCALE: NTS

BID SET - 06.15.2023

APPLETON, WI

OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT

ELECTRICAL - DETAILS

DATE	REVISIONS DESCRIPTION	BY

DATE: 05/16/2023
SCALE: NTS
DRAWN BY: RGK
CHECKED BY: DRA

JOB NO. 10252312

E2.0

ELECTRICAL SPECIFICATIONS

SECTION 26-00-00 - GENERAL

A. This Contractor is responsible for all his own cutting and patching.

B. This Contractor will be responsible to secure and pay all costs for all permits and inspection fees.

C. All work and materials shall conform in every respect to the current rules and requirements of the National Fire Protection Association, National and State Electrical Codes, Local Codes and Ordinances, Local Utility Regulations and OSHA.

D. Project is to include a full one-year warranty from date of acceptance. Equipment shall be warranted for a period of not less than 1 year from the date of commissioning against defects in material and workmanship.

E. Failure to become acquainted with existing conditions at the site shall in no way relieve the responsibility for making installation in conformance with plans and specifications without additional cost to the owner.

F. Material and labor shall be first class and workmanlike and to the satisfaction of the Electrical Engineer and shall be always subject to inspection test and approval from commencement until acceptance of completed work.

G. Manufacturers shall be responsible for providing material listed by U.L. or other approved agencies, and all governing codes and ordinances.

H. Installation: Cooperation/Coordination

1. Coordinate and cooperate with other Divisions of work and Owner by scheduling and installing work to facilitate the construction progresses and the Owners use of the building.

2. Study the plans of other trade divisions of work and to fit work into the work of others in a coordinated manner. Cooperate with other contractors to avoid complications between the installation of electrical equipment and equipment installed by others.

I. Installation: Damage to Other Work

1. Assume responsibility for all damage resulting from the execution of work under this Section.

2. All damages resulting from their operations shall be repaired, or the damaged portions replaced by the party originally performing the work (to the entire satisfaction of the engineer), and all cost thereof shall be borne by those responsible for the damage.

J. Installation: Clean-Up - Always, keep the premises free from excessive accumulation of waste materials or rubbish resulting from work, including tools, scaffolding, and surplus materials and leave the work room or its equivalent, clean.

SECTION 26-05-01 - SYSTEM DOCUMENTATION

A. Provide submittal drawings for all equipment.

B. Include all costs associated with providing submittal drawings for review on all provided equipment.

C. Job Drawings

1. Maintain, at the job site, one (1) complete set of up-to-date plans and written specifications, complete with all addenda items.

2. This complete plan and specification set shall be reserved for all field markings to show minor revisions and detailed construction notes.

SECTION 26-05-02 - MAINTENANCE AND TESTING

A. Inspect for physical damage and abnormal mechanical and electrical conditions.

B. Any item found to be out of tolerance, or in any way defective, shall be reported to the A/E. Procedure for repair and/or replacement will be outlined. After appropriate corrective action is completed, the item shall be re-tested.

C. Check tightness of accessible bolted electrical joints. Use torque wrench method.

D. Make a close examination for dirt or other forms of debris that may have collected in existing equipment or in new equipment during installation.

E. GROUNDING SYSTEMS

1. Inspect the ground system for adequate termination at all devices.

F. CABLES

1. Visual and Mechanical Inspections:

2. Inspect exposed sections for physical damage.

3. Verify cable is supplied and connected in accordance with manufacturer.

4. Inspect for shield grounding, cable support, and termination.

5. Inspect for visual jacket and insulation condition.

6. Visible cable bends shall be checked against ICEA or the manufacturer's minimum allowable bending radius. The bending radius of tape shielded cables shall be 12 times the diameter.

7. Inspect for proper fireproofing in common cable areas.

G. Electrical Tests – Below 600 Volts:

1. Visually inspect cables, lugs, connectors and all other components for physical damage and proper connections

2. Check all cable connectors for tightness (with a torque wrench) and clearances. Torque test conductor and bus terminations to manufacturer's recommendations.

3. Check for proper grounding resistance at all services and at transformers. Resistance shall be 2 ohms maximum.

H. PANELBOARDS - Torque all connections per manufacturer's specifications. Verify phase wires, color-coding, separate neutral, and mechanical bonding. Verify circuit breaker operation. Verify the directory matches installed branch circuits. Update existing panelboard circuit directories with revised loads.

I. LIGHT FIXTURES - Check that the equipment ground is bonded to the fixture enclosure. Confirm correct operation of the fixture with the switch or sensor.

J. RECEPTACLES AND WALL SWITCHES

1. Operate each wall switch with circuit energized and verify proper operation.

2. Verify that each receptacle device is energized.

3. Test each receptacle device for proper polarity.

4. Test each GFCI receptacle for proper operation.

5. Test that each receptacle is properly grounded.

K. OCCUPANCY SENSORS – Not applicable.

L. MOTOR STARTERS - Verify the control circuits. Confirm the fusing and the grounding of the control transformers. Torque all the connections. Confirm the calibration of thermal overload device and the circuit breakers (or fuses) for proper sizing. Verify all grounding. Operate and test each motor starter for proper operation.

SECTION 26-05-04 – GROUNDING AND BONDING

A. GENERAL

1. Ground and bond all equipment required per all applicable codes whether they are not specifically shown on drawings.

2. Bond together system neutral, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceway and cables, receptacle ground connectors, and plumbing systems.

B. COMPRESSION CONNECTORS

1. The compression connectors shall be manufactured from pure wrought copper. The conductivity of this material shall be no less than 99% by IACS standards.

2. The connectors shall meet or exceed the performance requirements of IEEE 837, latest revision.

3. The installation of the connectors shall be done with a compression tool and die system recommended by the manufacturer of the connectors. The die number shall be imprinted on the installed connector.

4. The connectors shall be clearly marked with the manufacturer, catalog number, conductor size and the required compression tool settings.

5. Each connector shall be factory filled with an oxide-inhibiting compound.

C. EXOTHERMIC CONNECTIONS

1. Select the appropriate kit for the specific type, size, and combination of conductors and other items to be connected. Field personnel shall be trained in the execution of welds.

D. WIRE

1. Material: Stranded copper (Aluminum conductors will be taken into consideration if a substantial cost savings or reason why Aluminum would be better). This will be considered on a case-by-case basis.

2. Grounding Electrode Conductor: Size as shown on drawings, specifications or as required by NFPA 70, whichever is larger.

3. Feeder and Branch Circuit Equipment Ground: Size as shown on drawings, specifications or as required by NFPA 70, whichever is larger. .

E. INSTALLATION - GENERAL

1. Provide ground wire in all surface metal raceways and wireways.

2. Install products in accordance with the manufacturer's instructions.

3. Mechanical connections shall be accessible for inspection and checking. No insulation shall be installed over mechanical ground connections.

4. Ground connection surfaces shall be cleaned, and all connections shall be made so that it is impossible to move them.

F. INSTALLATION – RECEPTACLE GROUNDING:

1. For all receptacle circuits, provide separate green ground wire in the raceway system.

2. Standard receptacles may be used, and green wire shall be directly connected to receptacle or to pigtail.

3. Provide #12 pigtail to ground all metal boxes.

SECTION 26-05-05 – SUPPORTING DEVICES

A. LIGHTING FIXTURE SUPPORT

1. Provide items such as stems, and material required to securely attach fixtures to ceilings or walls.

2. Drilled expansion insert type anchors suitable for load and application requirements such as sleeve anchors, lag shields, and plastic anchors.

3. Provide auxiliary support so fixtures can be drawn up tightly, tilted or rotated, and not affected by vibrations.

B. MOUNTING PANELS

1. Use appropriate anchors for the size and weight of the panel. Use stainless steel strut if mounting panel to strut.

C. CONDUIT SUPPORTS

1. 2-hole galvanized steel straps. Do not use perforated hanger iron. Install continuous or T-slot galvanized steel concrete insert channel as required, with spacing as recommended by manufacturer. Install with anchor and caps, insert joiner clips, and closer seals as required.

D. INSTALLATION

1. Install all materials, assemblies, and equipment in strict accordance with manufacturer's recommendations and instructions. Consult manufacturer for all wiring diagrams, schematics, sizes, outlets, etc. before installing.

2. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit. Do not use powder-actuated or plastic anchors.

3. Install surface-mounted cabinets and panelboards with a minimum of four anchors. Provide steel channel supports to stand cabinet one inch (25 mm) off wall.

4. Minimum sized stainless steel threaded rod for supports shall be 3/8".

5. Conduit clamps, straps, supports, etc., shall be steel or malleable iron. One-hole straps shall be heavy duty type. All straps shall have steel or malleable backing plates when conduit is installed on the interior or exterior surface of any exterior building wall.

6. Anchors: Install anchors at proper locations to prevent stresses from exceeding those permitted by ANSI B31 and transfer of loading and stresses to connected equipment. Installation methods shall be in conformity with manufacturer's recommendations for maximum holding power.

7. Conduit Supports Vertical Surfaces: Galvanized, heavy-duty, sheet steel straps; back straps provided for exposed conduit and conduit on exterior walls. Horizontal Surfaces: Single or double rack channel trapeze, complete with conduit straps as required; supported with threaded hanger rods.

SECTION 26-05-29 - CONDUIT

A. General

1. The complete installation shall be done in a neat workmanlike manner in accordance with all applicable codes and manufacturer's commendations.

2. Install all material, assemblies, and equipment in strict accordance with manufacturer's recommendations and instruction. Consult manufacturer for all wiring diagrams, schematics, sizes, outlets, etc. before installing.

3. In general, all conduits shall be concealed except where noted on the drawings or approved by the Architect/Engineer. Contractor shall verify with Architect/Engineer all surface conduit installations except in mechanical rooms.

4. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using pipe straps, conduit racks (lay in adjustable hangers), clevis hangers, or bolted split stamped galvanized hangers.

5. Arrange conduit to maintain headroom and present a neat appearance.

6. Maintain minimum 6-inch (150 mm) clearance between conduit and piping. Maintain 12-inch (300 mm) clearance between conduit and heat sources such as flues, steam pipes, and heating appliances with surfaces with temperature exceeding 104 degrees F.

7. All conduit terminations (except for terminations into conduit bodies) shall use connectors or conduit hubs with one locknut or shall use double locknuts (one each side of box wall) and insulating bushing. Provide bushings for the ends of all conduits not terminated in box walls.

8. Conduit shall be bent according to manufacturer's recommendations.

9. Provide 1/8-inch (3 mm) nylon pull string in empty conduit, except sleeves and nipples.

B. CONDUIT GENERAL REQUIREMENTS

1. Manufacturer: CONTRACTOR OPTION

2. Rob Roy conduit – may be used outdoors with necessary seal-offs per National Electric Code.

3. RMC conduit- shall be used indoors with necessary seal-offs per National Electric Code.

a. Conduit: - Mild steel tube with an accurate circular cross section, uniform wall thickness, a defect free interior surface, and a continuous welded seam. Interior and exterior surfaces thoroughly and evenly coated with zinc using the hot-dip galvanizing process.

b. Fittings – weatherproof compression type, steel construction electro-galvanized inside and out. Insulated throat connectors. Locknuts are constructed of hardened steel or adequately designed to insure positive bonds.

4. Flexible Conduit - Lengths limited to minimum necessary – 6-foot maximum. Use UL listed material.

a. Usage: - Use in conjunction with electrical metallic tubing. Use for connection to equipment subject to vibration. Length shall not exceed 36-inches for equipment connections and 72-inches for light fixture connections. Minimum size ½-inch, except 3/8-inch may be used for fixture drops.

b. Conduit: Single strap, helically wound, galvanized steel with smooth interior surface conforming to applicable UL Standards.

c. Fittings – Connectors shall be weatherproof, malleable iron or steel with insulated throat, squeeze-type, with annular gripping rib. Particular attention shall be given to maintaining a grounding bond and firm support through flexible connections. Connections shall have insulated throats. Explosion proof fittings where applicable to National Electric Code.

SECTION 26-05-06 - OUTLET BOXES

A. Pull boxes and junction boxes: Metal construction, conforming to National Electrical Code, explosion proof where applicable to NEC code.

B. Junction and Splice Boxes:

1. All junction and splice boxes are to be UL listed explosion proof boxes.

C. INSTALLATION

1. Install electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

SECTION 26-05-06 - ELECTRICAL IDENTIFICATION

A. ENGRAVED LABELS -

1. Label shall be an engraved 3-layer phenolic label with black letters on white material, unless other colors are specified by the owner.

2. The label size shall be a minimum of 3/4" high and be 3" long. Labels may be attached with double backed adhesive tape unless indicated otherwise.

B. ENGRAVED PLATES

1. Where references are made to engraved plates, this shall mean that the normal device plate shall have an engraving on it with black letters so as to indicate what this switch or device is used for.

C. BRANCH CIRCUIT OUTLETS: LABELING

1. Each branch circuit outlet, receptacles, lighting, and any other device requiring 120/208-volt power, the contractor shall:

a. Provide circuits, written in pencil or non-washable ink, inside of outlet box in an area that can be easily viewed when removing outlet faceplate.

b. Write circuit number in ink on device mounting strap under plate.

c. Provide typed label (not dyno label) for each circuit attached to device plate.

d. Label each junction box outlet cover in non-washable marker as to circuit number routed through junction box.

D. PANELBOARDS: LABELING

1. Panelboard Directory:

a. Each panelboard shall be equipped with a typewritten directory accurately indicating rooms and/or equipment being served.

2. Panelboard Identification:

a. Identify each panel with a suitably engraved nameplate mounted at the top of the front cover.

b. The nameplates shall be made of laminated black and white plastic with white on the outside.

c. The lettering shall be 1 inch (25 mm); identify equipment designation. 1/2 inch (13 mm); identify voltage rating and source, engraved by cutting through the white outside layer so that the letters appear black.

d. Fasten nameplates with stainless steel panhead screws.

e. Nameplate engraving shall match the numbers or letters shown on the drawings or assigned by the Owner's Representative.

f. Labels shall also be engraved to indicate the load served by the circuit breaker.

3. Identify the feeder circuit serving the panelboard.

E. STARTERS AND DISCONNECTS

1. Each starter and disconnect furnished by this section or furnished by other sections but installed by this section shall have an engraved laminated label indicating which piece of equipment it controls.

1/4 inch (6 mm); identify load served.

F. JUNCTION AND PULLBOX IDENTIFICATION

1. Junction and pull boxes will be identified on As-built drawings.

G. INSTALLATION

1. Labels: All labels shall be permanent, and be machine generated. NO HANDWRITTEN OR NON-PERMANENT LABELS SHALL BE ALLOWED.

2. Wire and Cable Marker: Label size shall be appropriate for the conductor or cable size(s). All labels to be used shall be self-laminating, white/transparent vinyl and be wrapped around the cable. Flag type labels are not allowed. The labels shall be of adequate size to accommodate the circumference of the cable being labeled and properly self-laminate over the full extent of the printed area of the label.

3. Tape (phase identification only): Scotch #35 tape in appropriate colors for system voltage and phase.

4. Clean all surfaces before attaching labels with the label manufacturer's recommended cleaning agent.

5. Secure nameplates to equipment fronts using screws, or rivets. Secure nameplate to inside of recessed panelboards in finished locations.

6. Embossed tape will not be permitted for any application.

SECTION 26-05-07 – WIRE AND CABLE

A. General.

1. THWN or THHN general purpose building wire insulated with polyvinyl chloride (PVC) and covered with protective sheath of nylon intended for lighting and power circuits 600 volts or less, in residential, commercial, and industrial buildings.

2. The wire shall be suitable for 90 degree C maximum continuous conductor temperature in dry locations and 75 degree C in wet locations and listed by Underwriters Laboratories for use in accordance with Article 310 of the National Electric Code.

B. Identification:

1. The wire shall be identified by surface marking indicating manufacturer's identification, conductor size and metal, voltage rating, UL Symbol, type designations, and optional ratings. The wire shall also be identified as C (UL) Type T90 Nylon or TWN 75, FT1.

C. Usage:

1. General use power wiring, minimum size No. 12 AWG.

2. General use control wiring, minimum size No. 14 AWG.

D. PORTABLE CORD GENERAL USE - All portable general use cords shall be SO type.

E. WIRING CONNECTORS

1. Split Bolt Connectors - 8 AWG and larger wire for all motor connections.

2. Spring Wire Connectors: 10 AWG and smaller wire.

3. Compression (crimp) Connectors (T & B Sta-Kon or equal): control wiring.

F. EXAMINATION

1. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

2. Make conductor lengths for parallel conductors equal.

G. WIRING INSTALLATION IN RACEWAYS

1. Pull all conductors into a raceway at the same time. Use Listed wire pulling lubricant for pulling 4 AWG and larger wires and for other conditions when necessary.

H. WIRING CONNECTIONS AND TERMINATIONS

1. Wire splices and taps shall be made firm, and adequate to carry the full current rating of the respective wire without soldering and without perceptible temperature rise.

2. All splices shall be so made that they have an electrical resistance not more than 2 feet (600 mm) of the conductor.

3. Use solderless spring type pressure connectors with insulating covers for wire splices and taps, 10 AWG and smaller.

4. Use mechanical or compression connectors for wire splices and taps, 8 AWG and larger. Tape un-insulated conductors and connectors with electrical tape to 150 percent of the insulation value of conductor.

5. Thoroughly clean wires before installing lugs and connectors.

6. At all splices and terminations, leave tails long enough to cut splice out and completely re-splice.

I. INSTALLATION

1. Route wire and cable to satisfy project conditions. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

J. Conductor Sizing:

1. Conductor sizes are based on copper unless otherwise noted

2. Use a conductor not smaller than No.12 AWG for power and lighting circuits.

3. Maintain a maximum voltage drop of three percent.

4. Provide #10 AWG conductors for all 20 ampere network receptacle neutrals.

K. Wire Pulling:

1. Per manufacturer's standards

2. No.4 AWG and larger wire and power cables shall be lubricated with pulling lubricant to reduce pulling tension and abrasion damage. The lubricant shall be water or wax based containing no oils or grease that may adversely affect cable jackets.

L. Splices and Terminations:

1. Clean conductor surfaces before splicing or terminating and clean conductor surfaces before installing lugs and connectors.

2. Make splices, taps, and terminations to carry full amp capacity of conductors with no perceptible temperature rise.

3. Wire nuts, "ScotchLocks", and similar devices may be used to splice 120V power circuits.

4. Control, communication, and data transmission wire and cable shall not be spliced.

5. Neatly train and lace wiring inside boxes, equipment, and panelboards.

6. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger. Tape un-insulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.

7. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

8. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

M. Motors:

1. Motor wiring to motors less than 10 horsepower shall be spliced and terminated with a fully insulated crimp-on end cap with a layer of self-vulcanizing rubber tape, followed by five layers of vinyl electrical tape. "SkotchLocks" and similar devices shall not be used.

N. Wire Marking:

1. The ends of each conductor shall be marked with circuit number, motor number, wire, or terminal number.

2. Labels shall be typed in black lettering with indelible ribbons on a white, heat shrink sleeve. Markers shall be shrunk around the wire to provide a tight, non-slip bond with a compatible heat gun.

3. Heat shrink wire markers shall be Bradysleeve Type B-321 or B-322 or equal.

O. BRANCH CIRCUIT NEUTRAL CONDUCTORS

1. The use of multi-wire branch circuits with a common neutral is not permitted. Each branch circuit shall be furnished and installed with an accompanying neutral conductor sized the same as the phase conductor.

SECTION 26-27-01 - WIRING DEVICES

A. WALL SWITCHES

1. UL listed for current, and voltages indicated.

2. Switches shall be 20 ampere heavy duty, match existing color, toggle handle specification grade, single-pole, double pole, 3-way, and 4-way as indicated on plan.

3. Switches shall have provisions for back and side wiring, screw clamp type suitable for solid or stranded wire with separate green ground screw.

4. Switches shall be made of nylon or high impact resistant material.

5. Approved venders are: Arrow Hart, Hubbell Wiring, Leviton, and Pass & Seymour.

B. RECEPTACLES

1. UL listed for current, uses and voltages indicated.

2. Receptacles shall be specification grade unless noted. shall match existing color unless noted. Shall be made of nylon or high impact resistant material. shall be supplied with a face plate.

3. Receptacle shall have one piece brass strap. shall be corrosion resistant, shall have provisions for back and side wiring, screw clamp type suitable for solid or stranded wire with separate green ground screw.

4. Duplex NEMA 5-20R/5-15Rr15 heavy duty straight blade receptacles with:20/15 ampere, 120-volt rating. Standard face shape.2-pole, 3-wire grounding. Approved venders are Arrow Hart, Hubbell Wiring, Leviton, and Pass & Seymour.

5. GFCI Duplex NEMA 5-20R receptacles with: 20 amperes, 125-volt rating.

Standard GFCI face. GFCI compatible face plate. 2-pole, 3-wire Grounding. Approved venders are Arrow Hart, Hubbell Wiring, Leviton, and Pass & Seymour.

6. Heavy duty flush single straight blade receptacle with: Standard face shape. NEMA 5-15R, 15 amperes, 125-volt rating and 2-pole, 3-wire grounding. Approved manufacturers are Arrow Hart, Hubbell Wiring, Leviton, and Pass & Seymour.

C. DEVICE PLATES AND BOX COVERS

1. All covers, and device plates shall be UL listed for the area that applies to the National Electrical Code.

2. Cast metal plates: Die cast profile, ribbed for strength, flash removed, primed with gray enamel, furnished complete with four mounting screws.

3. Steel plates: Hot dip galvanized 1.25 oz /sq. ft. minimum.

4. Surface box plates: Beveled, steel, pressure formed for smooth edge to fit box.

5. Approved venders are: Arrow Hart, Hubbell Wiring, Leviton, and Pass & Seymour.

D. EXAMINATION AND INSTALLATION

1. Verify outlet boxes are installed at proper height.

2. Verify wall openings are neatly cut and will be completely covered by wall plates.

3. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

4. Inspect each wiring device for defects.

5. Operate each wall switch with circuit energized and verify proper operation.

6. Verify that each receptacle device is energized.

7. Test each receptacle device for proper polarity.

8. Adjust devices and wall plates to be flush and level.

9. Install products in accordance with the manufacturer's instructions.

10. Install devices plumb and level.

11. Install switches with OFF position down.

12. Connect wiring device grounding terminal to outlet box with bonding jumper.

14. Connect wiring devices by wrapping conductor around screw terminal.

SECTION 26-27-02 – EQUIPMENT WIRING SYSTEMS

A. GENERAL

1. Coordinate all equipment requirements with the various contractors and the Owner. Review the complete set of drawings and specifications to determine the extent of wiring, starters, devices, etc., required.

2. Furnish and install other disconnect switches as necessary and required with proper number of poles, voltage and enclosure type ratings as required for the application and as required by the National Electrical Code.

3. The drawings may or may not indicate disconnects. Disconnects shown on drawings shall be installed for that piece of equipment, even if the disconnect is not required by code.

4. Provide proper environmental enclosure for disconnect depending on the mounting location.

5. Provide fused or non-fused disconnect as required for proper protection of the equipment.

6. Provide all code required disconnects. Assume responsibility for reviewing equipment connections and starting equipment provided with the equipment and determining if disconnects are required.

7. For fused disconnects, provide appropriately sized fuses for the equipment.

B. CORDS AND CAPS

1. Not applicable

C. DISCONNECTS

1. Disconnect switches shall be heavy duty switch operated type with cover interlock and enclosed arc chamber, quick make and quick break and provision for padlocking in either the open or closed position. All heavy duty, safety switches 30 to 600A, shall be provided with Class R rejection style fuse clips. The combination rating of the heavy-duty switch and R fuse shall be 200,000 symmetrical amps and labeled as such. NEMA 3R in required locations.

2. Approved manufacturers: Cutler Hammer, General Electric, Square-D.

D. ENCLOSURE

1. Enclosure: NEMA AB 1; Type 1 and 3R, appropriate for environment.

2. Fabricate enclosure from steel.

3. Finish: manufacturer's standard gray enamel finish.

E. INSTALLATION

1. Install all materials, assemblies, and equipment in strict accordance with manufacturer's recommendations and instructions. Consult manufacturer for all wiring diagrams, schematics, sizes, outlets, etc. before installing.

2. Use wire and cable with insulation suitable for temperatures encountered in heat-producing equipment.

3. Make conduit connections to equipment using flexible conduit where applicable. Use liquid tight flexible conduit in damp or wet locations.

4. Install pre-finished cord set where connection with attachment plug is indicated or specified, or use attachment plug with suitable strain relief clamps.

5. Provide suitable strain relief clamps for cord connections to outlet boxes and equipment connection boxes.

6. Make wiring connections in control panel or in wiring compartment of pre-wired equipment in accordance with manufacturer's instructions. Provide interconnecting wiring where indicated.

7. Install disconnect switches, controllers, control stations, and control devices such as limit switches and temperature switches as indicated. Connect with conduit and wiring as indicated.

8. Check the drawings and specifications of the other divisions to determine the requirements for motor disconnect switches and disconnects furnished by other divisions.

a. Install all required disconnects.

b. Provide all code required disconnect switches not specifically supplied by others.

9. Unless otherwise indicated in the drawings or elsewhere in these specifications, all motors shall be furnished by others.

10. Motors shall be set in place by others and the associated motor starters, controllers, and disconnects shall be turned over to be installed by Division 26 contractor.

11. Control wiring, regardless of voltage, shall be the responsibility of the division providing the motor unless specifically indicated otherwise on the electrical drawings.

12. Furnish the size of the overload protection as required for the motor load. Electrical contractors shall investigate the equipment connections schedules and other portions of the contract drawings to determine the extent of work required for connections to equipment furnished by others.

F. HVAC AND PLUMBING CONNECTIONS

1. The location of the motor and motor equipment shown on plans including disconnect switches and starters are approximate unless otherwise specified. Obtain the exact locations from the Engineer or from Division furnishing equipment.

2. Other contractors will furnish combination starters for installation. Refer to the HVAC drawings to determine starter locations. If the starter location is not indicated determine the best starter location on site.

3. HVAC temperature control connections will be done by the HVAC temperature control contractor.

4. Provide all power wiring including all circuitry carrying electrical energy from panelboard or other source through starters and disconnects to motors or to packaged control panels. Packaged control panels may include disconnects and starters and overcurrent protection. Provide all wiring between packaged control panels and motors.

5. Check for proper rotation of each motor.

6. Install fuses in fusible switches.

7. Select overload relays in motor starters to match installed motor's characteristics.

8. Motor Data: Provide neatly typed label inside each motor starter enclosure door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating.

SECTION 26-24-01 - PANELBOARDS

A. PANELBOARD ENCLOSURES

1. All panelboard enclosures are to be NEMA 3R rated.

2. Branch Circuit Breakers:

a. Molded case branch circuit breakers shall have bolt-on type bus connectors.

DATE	REVISIONS DESCRIPTION	BY

DATE: 06/16/2023
SCALE: NTS
DRAWN BY: RGK
CHECKED BY: DRA

JOB NO: 102523112

BID SET - 06.15.2023

APPLETON, WI

OUTAGAMIE COUNTY RECYCLING & SOLIOD WASTE DEPARTMENT

ELECTRICAL - SPECIFICATIONS

E3.0

b. Circuit breakers shall have an over center toggle mechanism which will provide quick-make, quick-break contact action. Circuit breakers shall have thermal and magnetic trip elements in each pole. Two- and three-pole circuit breakers shall have common tripping of all poles.

c. There shall be two forms of visible trip indication. The breaker handle shall reside in a position between ON and OFF. In addition, there shall be a red indicator appearing in the clear window of the circuit breaker housing.

d. Lugs shall be UL Listed to accept solid or stranded copper and aluminum conductors. Lugs shall be suitable for 75 degree C rated wire, or 90 degree C rated wire as required by the application.

e. Breakers shall be UL Listed for use with the following accessories where indicated on the drawings: Shunt Trip, Auxiliary Switch, and Alarm Switch.

B. INSTALLATION.

1. Selectively connect branch circuits to equally balance currents in the panelboard busses.

SECTION 26-51-01 - INTERIOR LIGHTING FIXTURES

A. All Fixtures are to be explosion proof with seal-offs in appropriate locations.

B. INSTALLATION - GENERAL

1. Install all materials, assemblies, and equipment in strict accordance with manufacturer's recommendations and instructions. Consult manufacturer for all wiring diagrams, schematics, sizes, outlets, etc. before installing.

2. It shall be the Contractor's responsibility to support all lighting luminaires adequately, providing extra steel work and framing for the support of luminaires as required. Any components necessary for mounting luminaires shall be provided by the Contractor. No plastic, composition, or wood type anchors shall be used.

3. Install accessories furnished with each luminaire.

SECTION 26-51-02 – LIGHTING CONTROLS

A. Switching

1. All switches are to be explosion proof with seal-offs in appropriate locations.

SCOPE OF WORK

- PROVIDE (2) 3" GRC CONDUITS AND PVC CAPS TO CONTROL PANEL/EQUIPMENT DISCONNECT STAND.
  - GENERAL CONTRACTOR TO AUGER HOLES AND PROVIDE CONCRETE FOR BASE AND FILLING OF CONDUIT
- FURNISH AND INSTALL THE FOLLOWING FOR A CONCRETE BUILDING
  - KILLARK, 120V/277V, 20 AMP, EXPLOSION PROOF, SINGLE POLE SWITCHES WITH COVERS
  - KILLARK, 120V, 20 AMP, EXPLOSION PROOF RECEPTACLES WITH COVERS
  - KILLARK TYPE EXPLOSION PROOF BOXES AND APPLETON TYPE SEALOFFS
  - ALL ASSOCIATED CONDUIT
  - LED, EXPLOSION PROOF LIGHT FIXTURE
  - MARKEL MODEL #FEP-3648-3RA HEATER
  - CANARM MODEL #SD12-XPF EXHAUST FAN
  - DAYTON MODEL #2C518 INTAKE FAN DAMPER
  - RAYCHEM HEAT TRACE WITH CONNECTION KIT
  - POWER CONNECTION FOR FLOW METER
  - POWER CONNECTION FOR ISCO 3700 AUTOMATIC SAMPLER
  - CTI EM2 ENTRANCE GAS MONITOR
  - CTI GG-LEL2 COMBUSTIBLE GAS DETECTOR
  - HAZARDOUS LOCATION REMOTE THERMOSTAT
  - NVENT E507S-LS MECHANICAL THERMOSTAT
  - ALL 120/208V AND 277/480V ELECTRICAL CONNECTIONS NECESSARY FOR EQUIPMENT IN CONCRETE BUILDING
- FURNISH AND INSTALL ALL EQUIPMENT ASSOCIATED WITH LOADOUT PROJECT
  - SQUARE D 100A, 120/208V, 3R, 30 CIRCUIT PANELBOARD
  - WEATHER-PROOF TROUGH
  - SQUARE-D 15 KVA 3R, 480V PRIMARY TO 120/240V SECONDARY TRANSFORMER
  - SQUARE-D 30 AMP, 3-POLE, 3R, 480V FUSED DISCONNECTS
  - STAINLESS STEEL STRUT
  - APPLETON TYPE SEALOFFS
  - KILLARK TYPE EXPLOSION PROOF BOXES
  - STAINLESS-STEEL HARDWARE
  - RMC AND PVC COATED RMC
  - PVC CONDUIT
  - ALL NECESSARY WIRE FOR POWER CONNECTIONS
  - 480V POWER CONNECTIONS FOR EPG CONTROL PANEL, TRANSFORMER, AND ELECTRIC HEATER IN CONCRETE BUILDING
  - FITTINGS AND CONNECTORS REQUIRED FOR ELECTRICAL INSTALLATION
  - CUTLER HAMMER BREAKERS IN EXISTING PANELBOARDS FOR POWER CONNECTIONS
  - FURNISH AND INSTALL ½ HP 480V 3 PHASE 60HZ VFD FOR LEACHATE PUMP #1.
    - Brand- Rockwell Automation, Model-Powerflex 525 or equal.
    - HP: ½ HP
    - Voltage Class: 480VAC, 3 phase
    - Duty: Normal duty
  - PROVIDE PROGRAMMING CONTROLS FOR THE ½ HP VFD.
  - INSTALL MOTOR BREAKOUT BOX'S AND ASSOCIATED WIRING
  - INSTALL LEACHATE LEVEL BREAKOUT BOX AND ASSOCIATED WIRING
  - PROVIDE ALL 120/208V AND 277/480V ELECTRICAL CONNECTIONS NECESSARY FOR LOADOUT PROJECT
  - PROVIDE WIRING FOR BACK-UP FLOATS
- FURNISH AND INSTALL THE FOLLOWING FOR ELECTRONIC GATE OPERATOR
  - SL595 LIFTMASTER HEAVY DUTY GATE OPERATOR CONTROL PANEL
  - LIFTMASTER MINIkey ACCESS CONTROL KEY PAD- VERIFY EXACT LOCATION WITH OWNER.
  - (6)- LIFTMASTER 891LM REMOTE CONTROLLERS
  - PVC CONDUIT
  - WIRE
  - CONNECTION FROM EXISTING PANEL PRL-4B IN MAINTENANCE BUILDING TO GATE CONTROL PANEL
  - CONNECTION FROM GATE CONTROL PANEL TO ACCESS CONTROL KEYPAD.
- FURNISH AND INSTALL THE FOLLOWING FOR SITE LIGHTING
  - (2)- BULLHORNS- LITHONIA-BS28T20TD20DDBXD
  - (2)- SQUARE STRAIGHT STEEL POLES- LITHONIA-SSS306GT20VDDDBXD
  - (4)- LITHONIA-RSXF4LEDP350KWFLMVOLTISDDBXD
  - CONDUIT AND WIRING FROM EXISTING PANELBOARD PRL-4B
  - DUSK/DAWN PHOTO EYE AND GENERAL PURPOSE 2 POLE CONTACTOR WITH 277V COIL
  - (2)- CONCRETE POLE BASES AT 36" IN DIAMETER, HAVING A FINISHED HEIGHT OF 36" ABOVE GRADE, A FINISH DEPTH OF 60" BELOW GRADE, FURNISHED WITH STEEL REINFORCING CAGE AND HAVE A HAND RUB FINSIH
  - ANCHOR BOLTS- AB36
  - TEMPLATE- PJ50011

BID SET - 06.15.2023

E3.1

APPLETON, WI

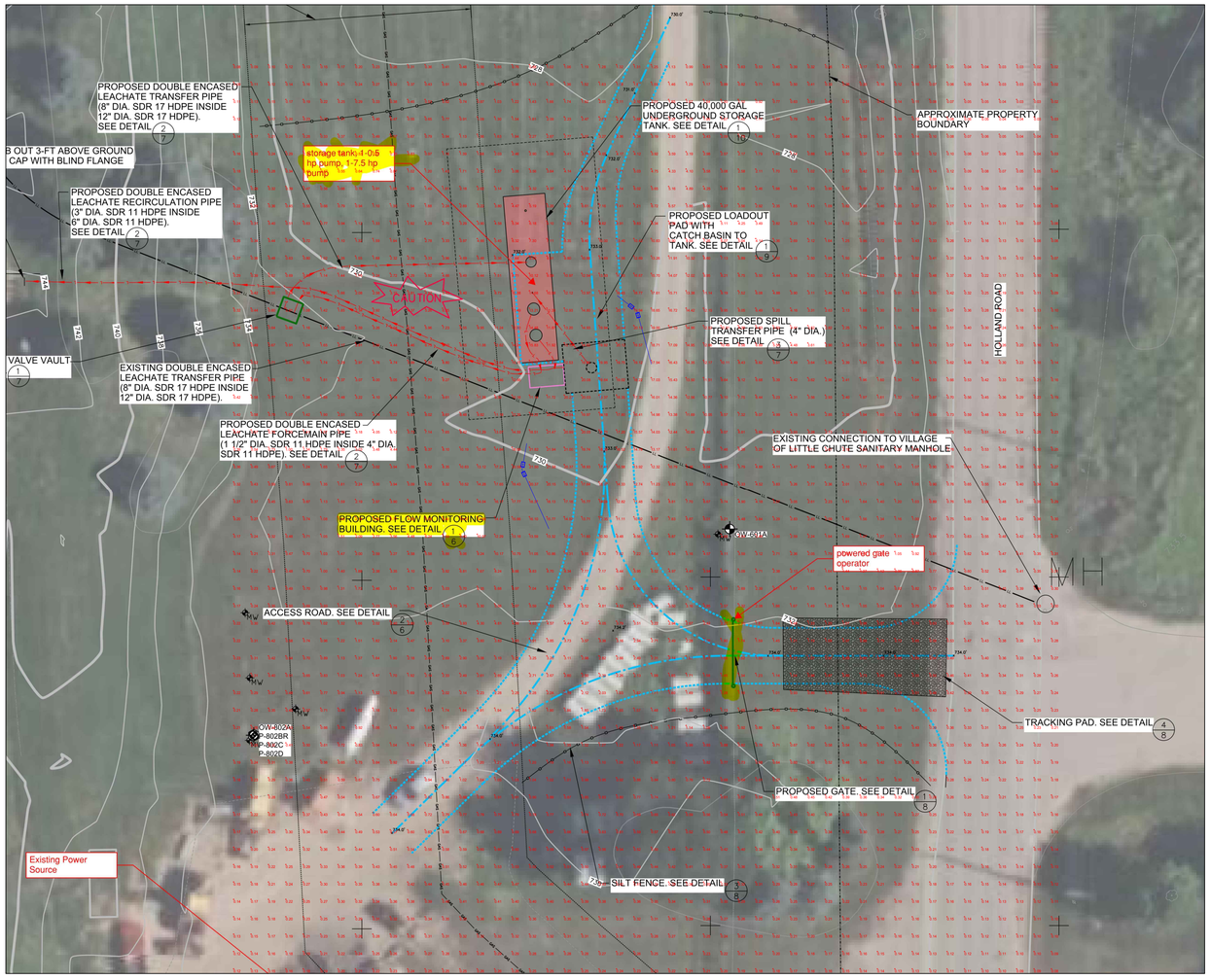
OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT

ELECTRICAL - SPECIFICATIONS

DATE: 06/16/2023
SCALE: AS NOTED
DRAWN BY: RCK
CHECKED BY: DRA

JOB NO: 10252312

DATE	REVISIONS DESCRIPTION	BY



Luminaire Schedule								
Qty	**Label**	**Arrangement**	**LLF**	**MFR**	**Description**	**Lum. Watts**	**Total Watts**	**Lum. Lumens**
4	OF1	SINGLE	0.950	LITHONIA	RSXF4 LED P3 50K WFL MVOLT - ON 30FT POLE 3FT BASE	369.4381	1477.752	51117

NOTE: 2 FIXTURES PER POLE

Calculation Summary							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
SITE	Illuminance	Fc	2.75	21.94	0.02	137.50	1097
PATH	Illuminance	Fc	7.28	20.5	0.5	14.56	41.00

DATE	REVISIONS DESCRIPTION	BY

DATE: 03/16/2023
SCALE: SEE PLAN
DRAWN BY: RGK
CHECKED BY: DRA
JOB NO. 10252312

BID SET - 06.15.2023

APPLETON, WI

OUTAGAMIE COUNTY RECYCLING & SOLID WASTE DEPARTMENT

ELECTRICAL - PHOTOMETRIC PLAN

E3.2