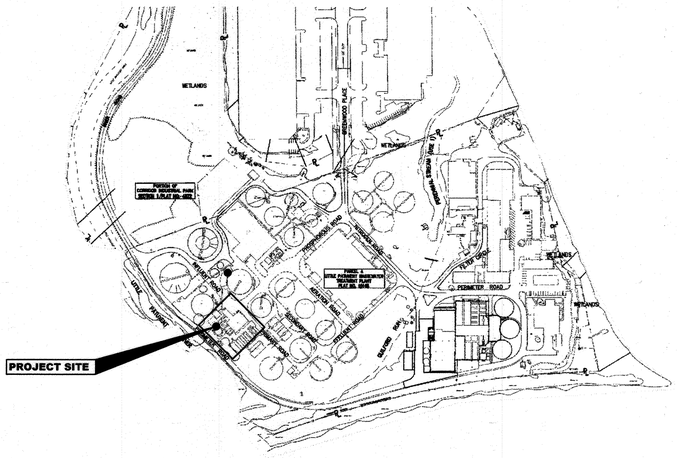
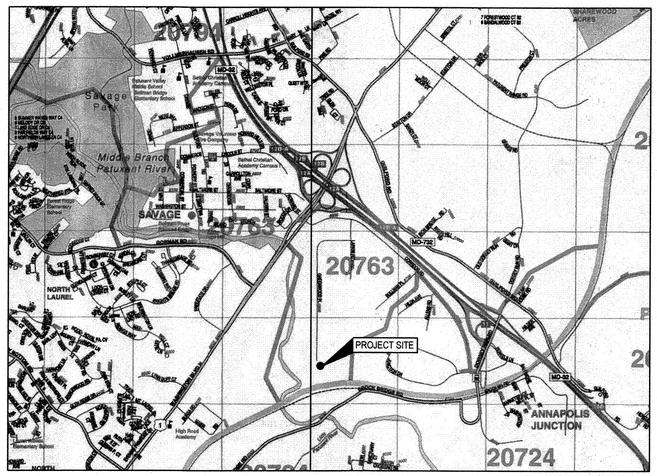
LITTLE PATUXENT WRP
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
HAULED WASTE RECEIVING IMPROVEMENTS
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141
JULY 2020

LIST OF DRAWINGS

SHEET NO.	DRAWING NO.	DRAWING TITLE
GENERAL		
1	G 001	COVER SHEET AND LIST OF DRAWINGS
2	G 002	FLOW SCHEMATIC, ABBREVIATIONS, LEGENDS, GENERAL NOTES AND MISCELLANEOUS DETAILS
CIVIL		
3	C 001	PROPOSED YARD PIPING SITE PLAN
MECHANICAL		
4	M 001	SEPTAGE BUILDING - DEMOLITION PLAN
5	M 002	SEPTAGE BUILDING - MODIFICATION PLAN AND SECTION
6	M 003	SEPTAGE BUILDING - MODIFICATION PARTIAL SECTION
7	M 004	SEPTAGE TANKS - DEMOLITION PLAN AND SECTION
8	M 005	SEPTAGE TANKS - MODIFICATION PLAN AND SECTIONS
9	M 006	MISCELLANOUS DETAILS
ELECTRICAL		
10	E 001	ELECTRICAL LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES
11	E 002	SEPTAGE BUILDING POWER AND CONTROL PLAN - DEMOLITION
12	E 003	SEPTAGE BUILDING POWER AND CONTROL PLAN - MODIFICATIONS
13	E 004	SEPTAGE BUILDING CONDUIT RISER DIAGRAM
14	E 005	PANELBOARD SCHEDULES
15	E 006	ELECTRICAL DETAILS 1
16	E 007	ELECTRICAL DETAILS 2
INSTRUMENTATION		
17	I 001	INSTRUMENTATION LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES
18	I 002	SEPTAGE ACCEPTANCE PLANT P&ID
19	I 003	ELEMENTARY CONTROL DIAGRAMS AND ELEVATIONS



AREA MAP
NTS



VICINITY MAP
1"=600'-0"

SITE INFORMATION:

1. ADDRESS: 8900 GREENWOOD PLACE, SAVAGE, MD
2. OWNER: HOWARD COUNTY, MARYLAND
3. ZONING: M-2
4. LOT SIZE: 79,475 SF (18,245 ACRES) (PLANT)
5. ADC MAP: 47
6. RECORD PLAT: 31/17

HOWARD COUNTY CONTACT INFORMATION
HOWARD COUNTY PM: RUPA PANDEY AT 410-313-1205
HOWARD COUNTY LITTLE PATUXENT WRP: 410-313-1200

0 240' 480' 720' 960' 1200'
SCALE 1"=600' AT ORIGINAL SIZE

PURPOSE STATEMENT:

THE UPGRADE OF THE EXISTING SAP WILL IMPROVE PERFORMANCE, INCREASE RELIABILITY, AND REDUCE MAINTENANCE DEMANDS OF THE HAULED WASTE RECEIVING FACILITIES AT LITTLE PATUXENT WATER RECLAMATION PLANT. UNDER THIS CONTRACT A NEW ROCKTRAP WILL BE INSTALLED AND SEPTAGE PIPES WILL BE RECONFIGURED.

G001

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/16/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12/3/2020
CHIEF, BUREAU OF UTILITIES — DATE 12-11-2020
CHIEF, UTILITY DESIGN DIVISION — DATE

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — JOHN A. YOUNG — 22479 — PROFESSIONAL ENGINEER — 7/7/20

DES:	BY	NO.	REVISION	DATE
J. VERNOOY				
DRN: K. LARSON				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

COVER SHEET AND LIST OF DRAWINGS

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: 1" = 600'

SHEET NO. 1 OF 19

Filename: G:\111\111155812\Little Patuxent WRP Septage\Digital_Design\CAD 2018\Septage\Sheets\General\111155812-G001.dwg
Plotted By: Kristopher Larson
Plot Date: 17-July-2020 - 10:25 AM

PIPE SUPPORT SYMBOLS

PLAN | SECTION

- DUAL BRACKET VERTICAL PIPE SUPPORT
- ANGLE BRACKET PIPE SUPPORT
- TYPE 1 PIPE SUPPORT
- TYPE 38 PIPE SUPPORT

SINGLE LINE PIPING SYMBOLS

- ELBOW UP
- ELBOW DOWN
- 90° ELBOW IN PLANE
- 45° ELBOW IN PLANE
- TEE UP
- TEE DOWN
- TEE IN PLANE
- LATERAL WYE
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER

GENERAL LEGEND

NEW GRAPHICS; EQUIPMENT, STRUCTURES, ETC., ARE SHOWN AS BOLD LINEWORK AND IN THIS TEXT FORMAT.

EXISTING GRAPHICS; EQUIPMENT, CONDITIONS STRUCTURES, ETC, ARE SHOWN AS LIGHT LINEWORK AND IN THIS TEXT FORMAT.

EXISTING PIPE CALLOUT (FOR PLANS)

12", SD

PIPE SIZE AND PIPING DESIGNATION
(VARIES, SEE 'LIST OF PIPING DESIGNATIONS')

NEW PIPE CALLOUT (FOR PLANS)

PIPE SIZE AND MATERIAL — 12" DIP, PEF — PIPING DESIGNATION (VARIES, SEE 'LIST OF PIPING DESIGNATIONS')

TYPICAL SECTION MARKS (FOR PLANS)

SECTION LETTER — A — X-301

DRAWING NUMBER (REPRESENTS DRAWING WHERE SECTION IS DRAWN)

A — X-301

TYPICAL SECTION SUB-TITLE (FOR SECTIONS)

SECTION LETTER — A — G00X — **SECTION** — **SCALE:**

DRAWING NUMBER (REPRESENTS DRAWING WHERE SECTION MARKS ARE SHOWN)

TYPICAL DETAIL MARKS

DETAIL NUMBER — 1 — G00X — **DETAIL** — **SCALE:**

DRAWING NUMBER (REPRESENTS DRAWING WHERE DETAIL IS DRAWN)

TYPICAL DETAILING

DETAIL NUMBER — 1 — DETAIL NAME — X-501

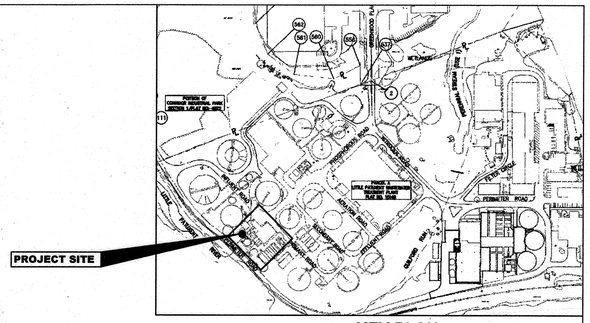
DRAWING NUMBER (REPRESENTS DRAWING WHERE DETAIL IS DRAWN)

NORTH ARROW

N

LIST OF PIPING DESIGNATIONS

PIPE DESIGNATIONS	PIPE NAME
CW	COLD POTABLE WATER
DRN	DRAIN
HW	HOT WATER
NPW	NON-POTABLE WATER
PW	PROCESS WATER
SAP	SEPTAGE ACCEPTAGE PLANT
SPT	SEPTAGE



2 **KEY PLAN**
SCALE : NTS

GENERAL NOTES (APPLY TO ALL DRAWINGS):

A. EXISTING FACILITIES AND PIPING SHOWN LIGHT. NEW FACILITIES AND PIPING SHOWN DARK.

B. REFER TO RECORD DRAWINGS FOR CAPITAL PROJECT S-9245 CONTRACT No. 20-4700 AND LITTLE PATUXENT WASTEWATER TREATMENT PLANT EXPANSION ADDITION No. 5 YARD PIPING DRAWINGS (THE POOLE & KENT Co./ JAMES W. MILLER, INC. JOINT VENTURE PROJECT No. 92125) FOR INFORMATION RELATED TO CONSTRUCTION OF EXISTING HAULED WASTE RECIEVING FACILITIES. EXISTING CONDITIONS AND ELEVATIONS SHOWN ON THESE DRAWINGS ARE OBTAINED FROM AVAILABLE CONTRACT AND RECORD DRAWINGS. LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION AND DIMENSIONS.

C. CONTRACTOR SHALL REPLACE ALL CONCRETE THAT IS IMPACTED BY NEW CONSTRUCTION, AND/OR BY CONTRACTOR'S OPERATIONS.

D. UNLESS SHOWN TO BE DEMOLISHED, ALL EXISTING STRUCTURES AND EQUIPMENT SHALL BE PROTECTED.

E. DEMOLITION TO BE PERFORMED IN ACCORDANCE WITH CONSTRUCTION CONSTRAINTS OUTLINED IN THE CONTRACT DOCUMENTS.

F. CONTRACTOR SHALL CLEAN AND DISPOSE OF ALL RESIDUAL MATERIAL IN EACH PROCESS TANK WHERE NEW WORK IS SHOWN OR SPECIFIED.

G. CONTRACTOR SHALL FILL IN VOIDS CREATED BY REMOVING PIPE, BOLTS, REBAR, CONDUIT AND OTHER SIMILAR ITEMS WITH NON-SHRINK GROUT AND MAKE FLUSH WITH SURROUNDING SURFACE. ALL ITEMS REMAINING ARE TO BE CUT AND GROUND FLUSH WITH SURROUNDING SURFACE. REMAINING EMBEDDED METALS EXPOSED TO CORROSIVE ENVIRONMENTS SHALL BE COATED PER SECTION 09900 AFTER GRINDING FLUSH WITH SURROUNDING SURFACE.

H. EXISTING PIPING ELEVATIONS SHOWN ARE APPROXIMATE AND FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM IN THE FIELD.

I. THE OWNER RESERVES THE RIGHT TO REMOVE ANY EQUIPMENT OR MATERIALS SCHEDULED FOR DEMOLITION OR REMOVAL UP TO THE DATE OF DEMOLITION. THE REMOVAL, OR FAILURE TO REMOVE, BY THE OWNER, ANY EQUIPMENT OR MATERIAL SCHEDULED FOR DEMOLITION OR REMOVAL SHALL NOT BE CAUSE FOR ANY ADDITIONAL CHARGES BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING AT LEAST 30 DAYS PRIOR TO BEGINNING ANY DEMOLITION.

PIPE FITTINGS AND VALVE SYMBOLS

- FLANGED JOINT
- WELDED JOINT
- MECHANICAL JOINT
- RESTRAINED JOINT/PUSH ON JOINT
- MECHANICAL COUPLING
- RESTRAINED DISMANTLING JOINT/ RESTRAINED FLANGE COUPLING ADAPTER
- DISMANTLING JOINT/ FLANGED COUPLING ADAPTER
- EXPANSION JOINT
- FLOWMETER
- WALL SLEEVE W/ MECHANICAL SEAL
- ELBOW UP
- ELBOW DOWN
- 90° ELBOW
- 45° ELBOW
- TEE UP
- TEE DOWN
- TEE IN PLANE
- LATERAL WYE
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- BLIND FLANGE
- PIPE CAP
- PLUG VALVE
- PINCH VALVE
- ISOLATION OR GATE VALVE
- BUTTERFLY VALVE
- BALL VALVE
- CHECK VALVE
- PRESSURE REGULATING VALVE
- SOLENOID VALVE
- FLUSHING CONNECTION W/ CAP OR PLUG
- AIR RELEASE VALVE
- PRESSURE RELIFE VALVE
- FLOW METER
- MOTORIZED VALVE OR GATE
- PRESSURE INDICATING TRANSMITTER
- PRESSURE SWITCH
- PRESSURE GAUGE
- QUICK CONNECT COUPLING
- DIAPHRAGM
- UNION
- REDUCER
- Y STRAINER
- PUMP
- FLEXIBLE TUBING

GREASE DIGESTER TANK

ROCK TRAP

NUMBER OF UNITS INSTALLED:	1 NEW
PEAK DESIGN FLOW CAPACITY:	600 GPM
SOLIDS STORAGE CAPACITY:	5.5 CU. FT.

GRINDER

NUMBER OF UNITS INSTALLED:	1 EXISTING
NOMINAL THROAT SIZE:	12 INCH
DRIVE MOTOR HORSEPOWER:	5 HP

SEPTAGE ACCEPTANCE PLANT (SAP) UNIT

NUMBER OF UNITS INSTALLED:	1 EXISTING
DESIGN SEPTAGE FLOW CAPACITY:	1,000 GPM
BAR SPACING:	1/4 INCH
NOMINAL SCREENING BASKET DIAMETER:	47 INCH
SCREENINGS SCREW CONVEYOR DIAMETER:	10 INCH
WASH WATER REQUIREMENTS:	40 GPM @ 60 PSIG
DRIVE MOTOR HORSEPOWER:	2 HP

G002

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE — CHIEF, BUREAU OF ENGINEERING — DATE 12/2/2020

CHIEF, BUREAU OF UTILITIES — DATE — CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — JOSEPH A. TOTH — 22479 — PROFESSIONAL ENGINEER — 12/2/2020

DES:	J. VER NOOY
DRN:	K. LARSON
CHK:	T. YOUNG
DATE:	

BY	NO.	REVISION	DATE

BID SUBMISSION — JULY 2020

FLOW SCHEMATIC, ABBREVIATIONS, LEGENDS, GENERAL NOTES AND MISCELLANEOUS DETAILS

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

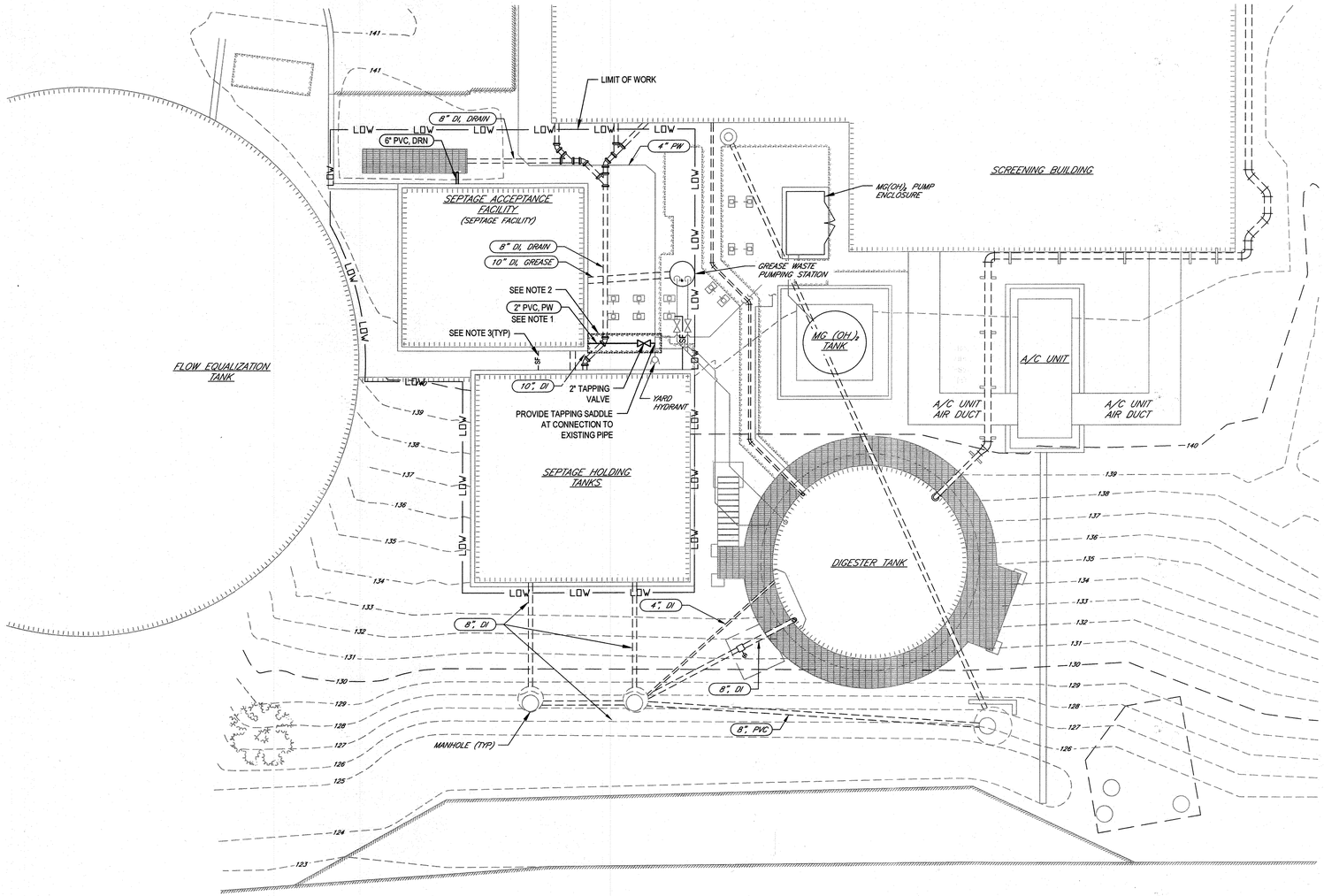
LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: NTS

SHEET NO. 2 OF 19

Filename: G:\1111\111539\12 Little Patuxent WRP Septage\Digital_Design\AutoCAD 2018\Septage\Sheets\General\111539\12-G002.dwg
Plotted By: Kristopher Larson
Plot Date: 17 July 2020 - 10:25 AM

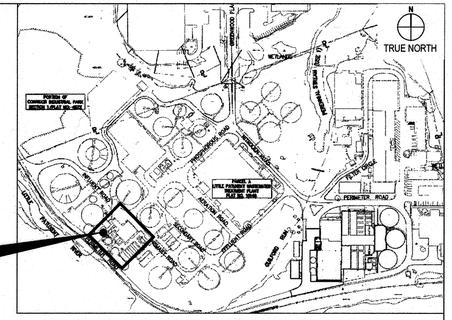


1 PROPOSED SITE AND YARD PIPING PLAN

SCALE : 1"=120'-0"

0 48' 96' 144' 192' 240'

SCALE 1"=120' AT ORIGINAL SIZE



2 KEY PLAN

SCALE : NTS

CIVIL LEGEND

- PROPOSED FACILITIES
- EXISTING FACILITIES
- 20 EXISTING MAJOR ELEVATION CONTOUR
- 21 EXISTING MINOR ELEVATION CONTOUR
- LOW LIMIT OF WORK
- SF SF SILT FENCE
- PROPOSED SIDEWALK/ CONCRETE
- EXISTING STRUCTURE
- EXISTING PAVEMENT
- EXISTING SIDEWALK/ CONCRETE

GENERAL SHEET NOTES:

1. ALL NEW EXTERIOR PIPING WITHOUT HEAT TRACING SHALL BE INSTALLED WITH A MININMUM OF 3' OF GROUND COVER OVER THE CROWN OF THE PIPE UNLESS OTHERWISE NOTED.
2. REMOVE CONCRETE SIDEWALK AS REQUIRED TO INSTALL NEW PW PIPING AS SHOWN AND REPLACE IN KIND PER HOWARD COUNTY DESIGN MANUALVOLUME IV, SPECIFICATION SECTION 605 AND DETAIL R-3.05. PROVIDE PREFORMED EXPANSION JOINT BETWEEN NEW SIDEWALK AND ALL ADJACENT CONCRETE SURFACES. SUBGRADE SHALL BE MINIMUM 6" DEPTH OF COMPACTED CRUSHER RUN, AND CONCRETE REINFORCEMENT FOR SIDEWALK SHALL BE 6"x6" W2.9 WELDED WIRE FABRIC ACROSS FULL AREA. MATCH ELEVATION OF ADJACENT CONCRETE TO PROVIDE A SMOOTH SURFACE PROFILE.
3. SILT FENCING SHALL BE INSTALLED PER THE APPLICABLE REQUIREMENTS OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. INSTALL SILT FENCE PRIOR TO ANY SOIL DISTURBING ACTIVITIES AND LEAVE IN PLACE UNTIL DISTURBED AREA IS FULLY RESTORED.

C001

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/16/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12-2-20
CHIEF, BUREAU OF UTILITIES — DATE 12-17-2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — STEVEN A. YOUNG — No. 22479 — REGISTERED PROFESSIONAL ENGINEER — 7/7/2021

DES:	BY	NO.	REVISION	DATE
J. VER NOOY				
DRN: K. LARSON				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

PROPOSED YARD PIPING SITE PLAN

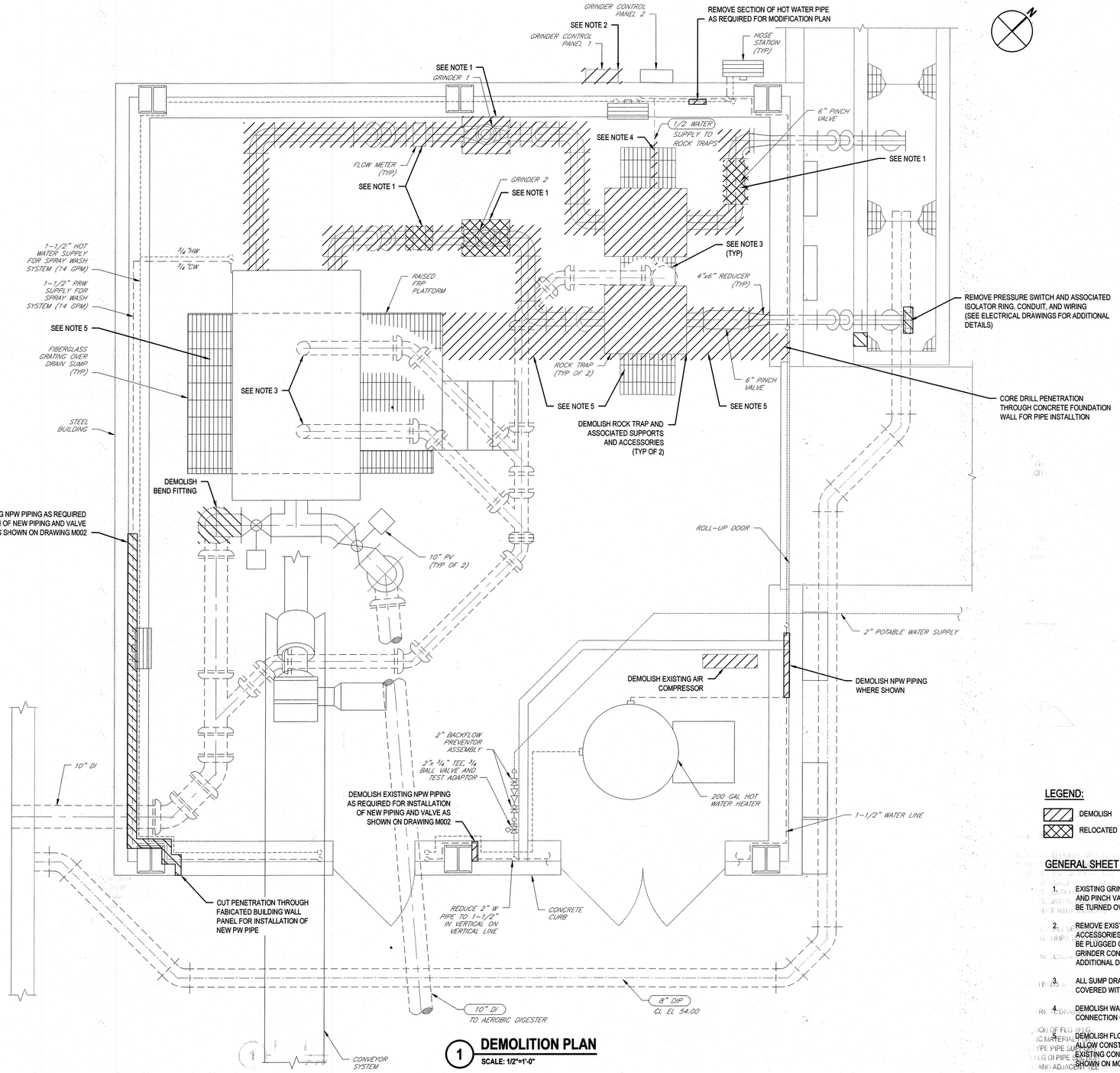
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: 1" =120'-0"

SHEET NO. 3 OF 19



1 DEMOLITION PLAN

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

0 1'-0" 2'-0" 3'-0" 4'-0"

SCALE 1/2"=1'-0" AT ORIGINAL SIZE

LEGEND:

- DEMOLISH
- RELOCATED

GENERAL SHEET NOTES:

1. EXISTING GRINDERS, FLOW METERS AND PINCH VALVES TO BE REMOVED. ONE GRINDER, FLOW METER AND PINCH VALVE SHALL BE RELOCATED AS SHOWN ON DRAWING M002. THE REMAINING GRINDER SHALL BE TURNED OVER TO THE OWNER AS A SPARE.
2. REMOVE EXISTING GRINDER CONTROL PANEL 1 AND ASSOCIATED SUPPORTS, CONDUIT, AND ACCESSORIES. TURN OVER REMOVED ITEMS TO OWNER AS SPARE PARTS. ABANDONED CONDUITS MAY BE PLUGGED ON BOTH ENDS IN LIEU OF BEING REMOVED IF APPROVED BY OWNER. RELABEL REMAINING GRINDER CONTROL PANEL AS "GRINDER CONTROL PANEL". REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS.
3. ALL SUMP DRAIN PIPES INSIDE THE BUILDING SHALL BE CAPPED WITH REMOVABLE PLUG FITTING AND COVERED WITH TAR PAPER PRIOR TO PLACEMENT OF NEW CONCRETE FILL WITHIN SUMPS.
4. DEMOLISH WATER SUPPLY TO EXISTING ROCK TRAPS AND REROUTE 1/2 INCH WATER LINE TO FLUSHING CONNECTION OF NEW ROCK TRAP.
5. DEMOLISH FLOOR SLAB AND VERTICAL WALL OF SUMP WHERE SHOWN AND REMOVE SUBGRADE TO ALLOW CONSTRUCTON OF THE TRENCH DRAIN AS SHOWN ON THE MODIFICATION PLAN. REMOVE EXISTING CONCRETE FILL WITHIN SUMPS AS NECESSARY TO FACILITATE NEW DRAINAGE PATTERN SHOWN ON MODIFICATIONS PLAN.

M001

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 12/16/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12.2.20
CHIEF, BUREAU OF UTILITIES — DATE 12-17-2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/17/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

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16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — STEVEN A. POTTER — 22479 — PROFESSIONAL ENGINEER — 7/19/20

DES:	BY	NO.	REVISION	DATE
J. VER NOOY				
DRN: K. LARSON				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

SEPTAGE BUILDING DEMOLITION PLAN

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

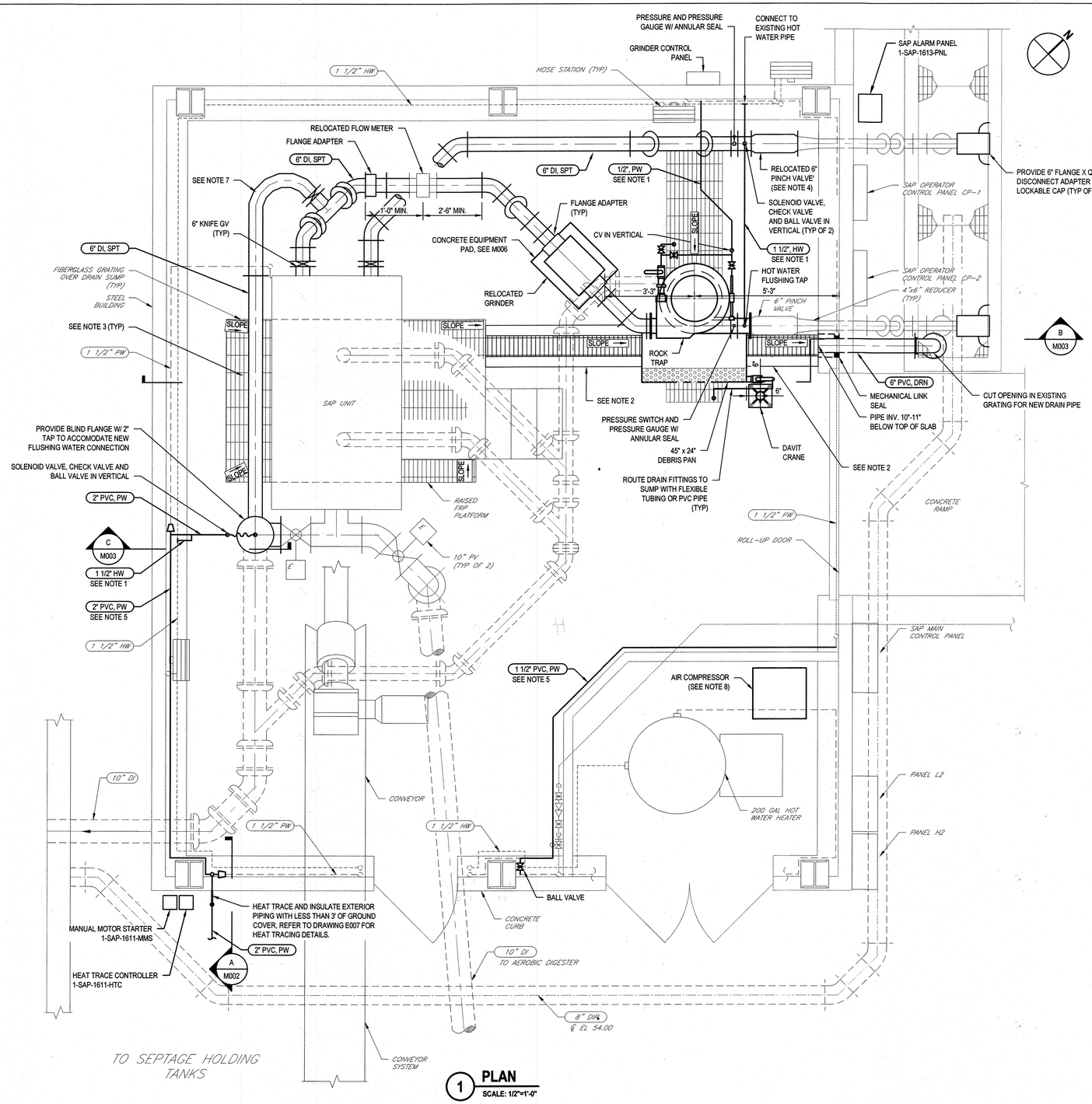
LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

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

SHEET NO. 4 OF 19

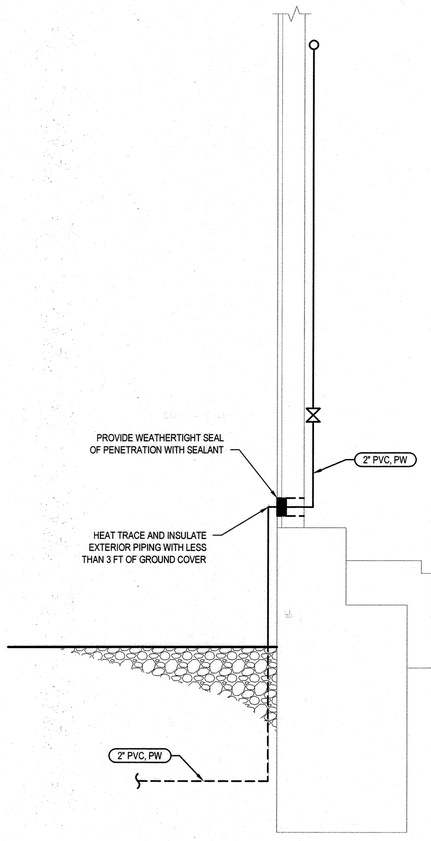
Plot Date: 17-JUL-2020 10:26 AM
Filename: G:\11\11115538\12 Little Patuxent WRP Septage\Digital_Design\CAD 2018\Septage\Sheets\Mechanical\11115538121A001.dwg
Plotted By: Kristopher Larson



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

0 1'-0" 2'-0" 3'-0" 4'-0"
SCALE 1/2"=1'-0" AT ORIGINAL SIZE

0 1'-0" 2'-0" 3'-0"
SCALE 3/4"=1'-0" AT ORIGINAL SIZE



A M002 **SECTION**
SCALE: 3/4"=1'-0"

GENERAL SHEET NOTES:

1. MATCH EXISTING WATER PIPE MATERIAL.
2. INSTALL A PRE-FABRICATED TRENCH DRAIN WHERE SHOWN AND BACKFILL GAP BETWEEN TRENCH DRAIN AND SURROUNDING CONCRETE SLAB WITH NON-SHRINK GROUT. FIELD CUT STANDARD TRENCH DRAIN SECTIONS TO ACHIEVE FLUSH MOUNT WITH TOP OF CONCRETE FLOOR SLAB AND MAINTAIN SMOOTH BOTTOM SLOPE AT TRANSITION BETWEEN TRENCH DRAINS AND CONCRETE FILL IN EXISTING SUMPS. PROVIDE END OUTLET TO CONNECT TO ADJACENT PVC DRAIN PIPE, AND FLUSH OPENING AT PERIMETER OF EXISTING SUMPS. FOLLOW TRENCH DRAIN MANUFACTURER'S INSTALLATION INSTRUCTIONS INCLUDING MINIMUM ENCASEMENT THICKNESS. TRENCH DRAIN SHALL BE MODEL ZF812-HDS W/ STAINLESS STEEL GRATING AS MANUFACTURED BY ZURN, OR EQUAL. APPLY TYPE E CONCRETE FLOOR SEALANT TO TOP SURFACE OF GROUT IN ACCORDANCE WITH SECTION 03350.
3. INVERT OF TRENCH DRAIN AND SUMPS SHALL BE CONTINUOUSLY SLOPED A MINIMUM OF 1% TOWARDS OUTLET DRAIN PIPE CONNECTION. PLACE ALL CONCRETE FILL IN EXISTING SUMPS TO ACHIEVE INTENDED SLOPE. CONCRETE FILL THICKNESS SHALL BE 2" MINIMUM.
4. EXTEND COMPRESSED AIR PIPING AS NECESSARY TO RECONNECT TO RELOCATED PINCH VALVE. MATCH EXISTING COMPRESSED AIR PIPING.
5. CONNECT TO EXISTING PIPE ON BOTH ENDS WHERE SHOWN, MATCH ELEVATION OF EXISTING WATER PIPE, AND SUPPORT NEW PIPE FROM ADJACENT WALL.
6. REFER TO DRAWING G002 AND ELECTRICAL DRAWINGS FOR EQUIPMENT AND INSTRUMENTATION TAG NUMBERS NOT SHOWN.
7. PROVIDE A MINIMUM 5'-0" LONG SECTION OF FLG XFLG REINFORCED HOSE SUITABLE FOR 50 PSIG OPERATING PRESSURE, CONSTRUCTED OF ELASTOMERIC OR THERMOPLASTIC MATERIAL FOR WASTEWATER SERVICE. HOSE SHALL BE HOSECRAFT USA MODEL RN1, OR EQUAL. INSTALL MINIMUM OF 2 STANCHION TYPE PIPE SUPPORTS TO MOUNT HOSE AS SHOWN. PROVIDE ONE 6" DIAMETER DI BLIND FLANGE AND ONE 16" LONG X 6" DIAMETER FLG X FLG DI PIPE SECTION WITH INTERIOR GLASS LINING AS LOOSE SPARE PARTS TO FACILITATE TEMPORARY REMOVAL OF THE HOSE AND ADJACENT TEE FITTING WHEN NECESSARY.
8. INSTALL NEW AIR COMPRESSOR IN SAME LOCATION AS EXISTING AIR COMPRESSOR TO BE DEMOLISHED UNDER THIS PROJECT AND FIELD COORDINATE FINAL PLACEMENT TO FACILITATE ACCESS FOR OPERATION AND MAINTENANCE OF COMPRESSOR AND ADJACENT FACILITIES. NEW AIR COMPRESSOR SHALL BE MODEL P1.5IU-A9 AS MANUFACTURED BY INGERSOLL RAND, OR EQUAL. CONNECT DISCHARGE PORT TO EXISTING COMPRESSED AIR PIPING AND POWER CORD TO NEAREST AVAILABLE WALL RECEPTACLE.

M002

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/16/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12.9.20
CHIEF, BUREAU OF UTILITIES — DATE 12-11-2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

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STATE OF MARYLAND — JOSEPH VER NOOY — 22479 — PROFESSIONAL ENGINEER — 11.7.20

DES:	BY	NO.	REVISION	DATE
J. VER NOOY				
DRN: K. LARSON				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

SEPTAGE BUILDING - MODIFICATION
PLAN AND SECTION

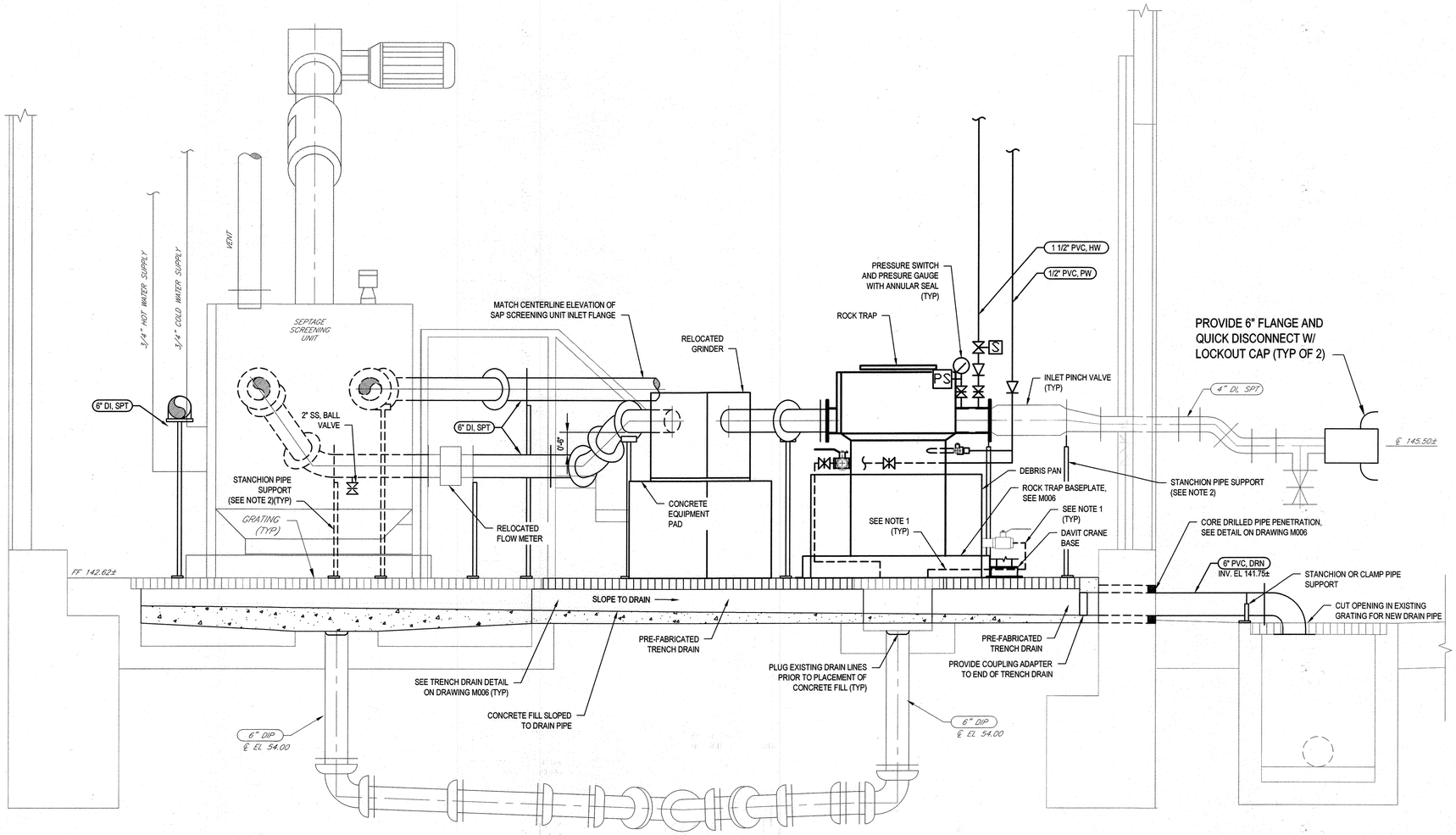
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

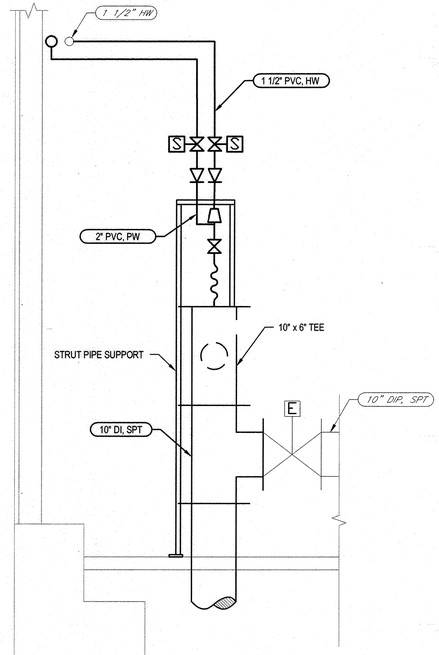
ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: 1/2"=1'-0"
SHEET NO. 5 OF 19

Plot Date: 17 July 2020 - 10:42 AM
Filename: G:\1111\1111538\12 Little Patuxent WRP Septage\Digital_Design\ACAD 2018\Septage\Sheets\Mechanical\1115381204M002.dwg
Plotted By: Kristopher Larson



B M003 **SECTION**
SCALE: 3/4"=1'-0"



C M003 **SECTION**
SCALE: 3/4"=1'-0"

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

LEGEND:
DEMOLISH
DEMOLISH

GENERAL SHEET NOTES:

1. EXTEND FLEXIBLE DRAIN TUBING TO EXISTING SUMP .
2. PIPE SUPPORT LOCATIONS SHOWN FOR REFERENCE ONLY. REFER TO SECTION 15140 FOR DETAILED SPACING REQUIREMENTS.

0 1'-0" 2'-0" 3'-0"
SCALE 3/4"=1'-0" AT ORIGINAL SIZE

M003

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/8/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12.9.20
CHIEF, BUREAU OF UTILITIES — DATE 12/4/2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — JOSEPH A. PIZZO — 22479 — PROFESSIONAL ENGINEER — 7/7/2020

DES:	BY	NO.	REVISION	DATE
J. VER NOOY				
DRN: K. LARSON				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

SEPTAGE BUILDING - MODIFICATION
PARTIAL SECTION

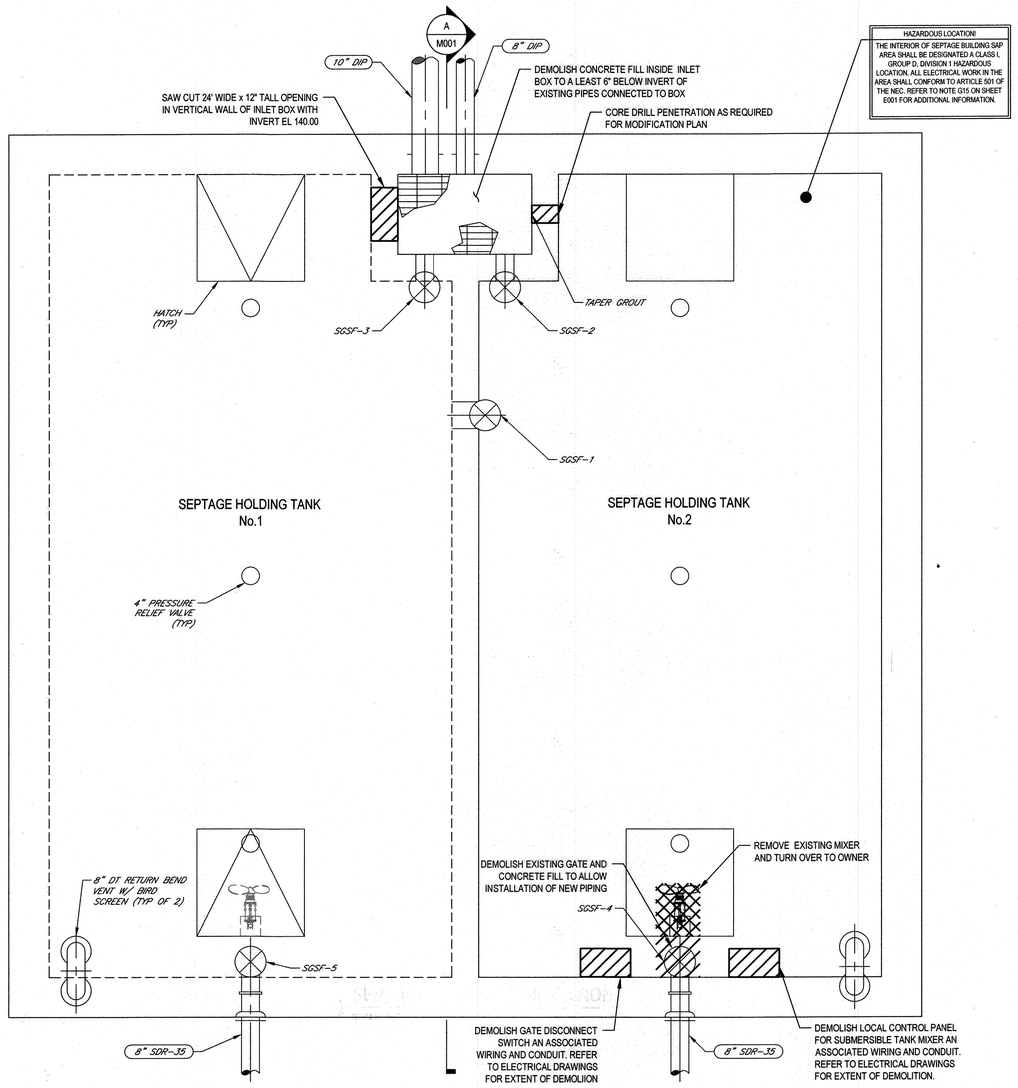
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

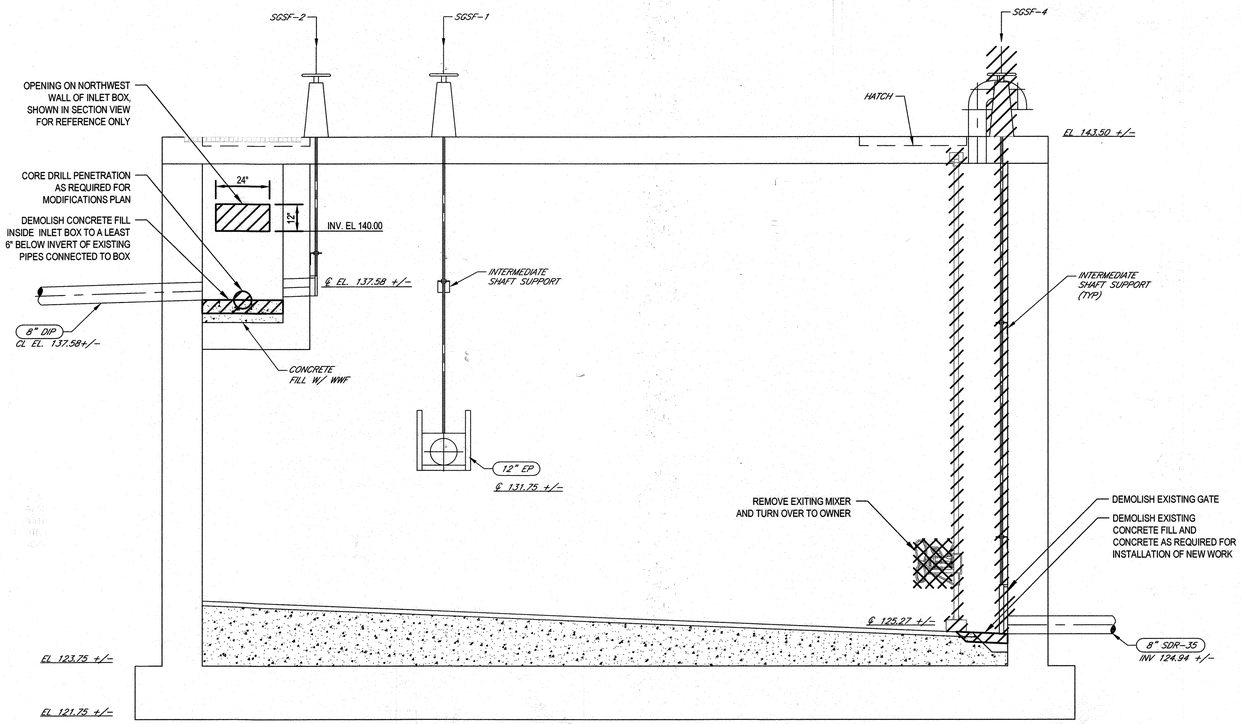
SCALE: 3/4"=1'-0"
SHEET NO. 6 OF 19

Filename: G:\11111111553\12 Little Patuxent WRP Septage\Digital_Design\CAD 2018\Septage\Sheets\Mechanical\11155312-M003.dwg
Plotted By: Kristopher Larson
Plot Date: 17 July 2020 - 10:26 AM



1 SEPTAGE TANKS DEMOLITION PLAN

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



A SECTION

M004

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

LEGEND:

DEMOLISH

DEMOLISH

4.

5. PIP
DE

6. REFE
INSTR

0 2'-0" 4'-0" 6'-0"

SCALE 3/8"=1'-0" AT ORIGINAL SIZE

M004

Filename: G:\111\115\5912 Little Patuxent WRF Septage\Digital_Design\ACAD 2018\Septage\Sheets\Mechanical\115391214M004.dwg
Plotted By: Kristopher Larson
Plot Date: 17 July 2020 - 10:26 AM

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/16/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12-2-20
CHIEF, BUREAU OF UTILITIES — DATE 12-11-2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/17/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — JESSICA A. PRATT — 22479 — REGISTERED PROFESSIONAL ENGINEER

DES: J. VER NOOY
DRN: K.I LARSON
CHK: T.YOUNG
DATE:

BY	NO.	REVISION	DATE

BID SUBMISSION — JULY 2020

SEPTAGE BUILDING - DEMOLITION PLAN AND SECTION

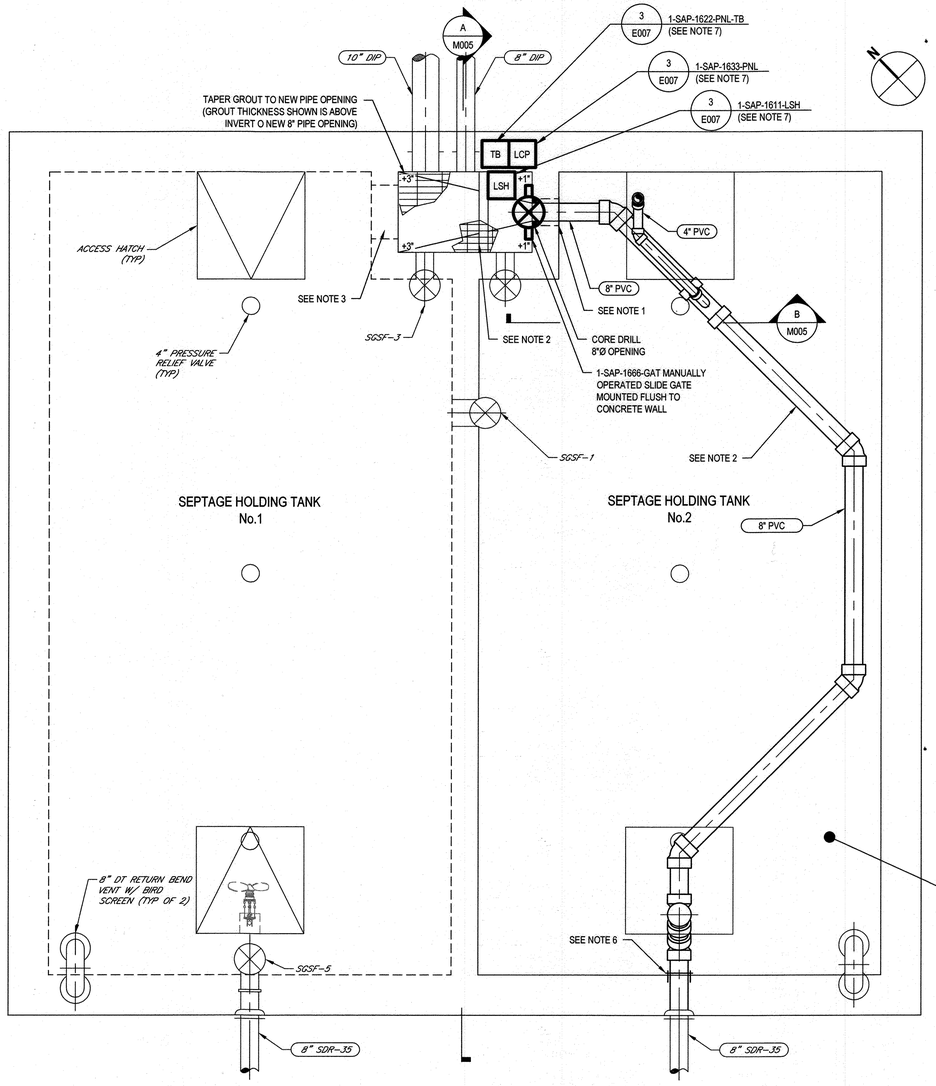
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

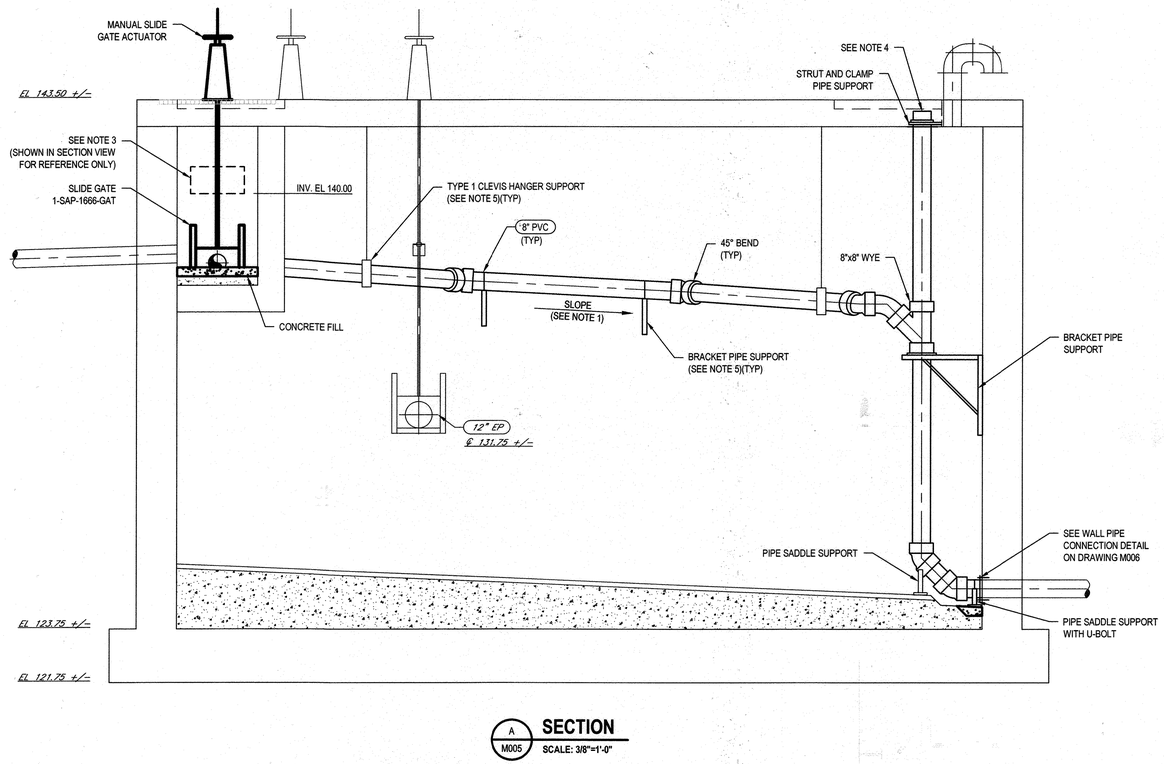
ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

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

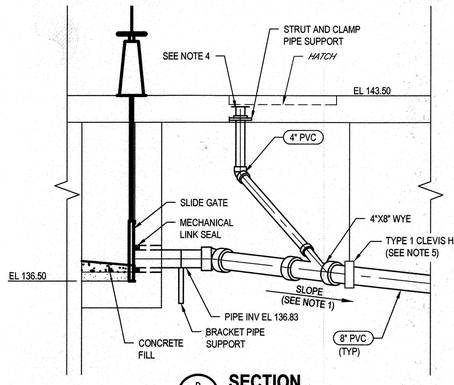
SHEET NO. 7 OF 19



1 SEPTAGE TANKS MODIFICATION PLAN
SCALE: 3/8"=1'-0"



A SECTION
A M005
SCALE: 3/8"=1'-0"



B SECTION
B M005
SCALE: 3/8"=1'-0"

NOTES:

1. SLOPE PIPE DOWNWARDS AT 5-10% WITHIN TANK, FROM THE RESTRAINED MECHANICAL COUPLING UPSTREAM TO THE EXIT THROUGH THE TANK WALL DOWNSTREAM.
2. PROVIDE TEMPORARY BULKHEAD TO MAINTAIN USE OF AT LEAST ONE SEPTAGE TANK DURING CONSTRUCTION, WITHIN THE CONTINUITY OF OPERATIONS CONSTRAINTS DETAILED IN THE CONTRACT SPECIFICATIONS.
3. SAW CUT 2' WIDE AND 1' HIGH NOTCH OPENING AT SEPTAGE HOLDING TANK INLET BOX, WITH INVERT AT ELEVATION 140.00.
4. TERMINATE PIPE WITH OPEN FLANGE JOINT 6" BELOW BOTTOM OF ELEVATED SLAB.
5. PIPE SUPPORTS LOCATIONS SHOWN FOR REFERENCE ONLY. REFER TO SECTION 15140 FOR DETAILED SPACING REQUIREMENTS.
6. REFER TO DRAWING G002 AND ELECTRICAL DRAWINGS FOR EQUIPMENT AND INSTRUMENTATION TAG NUMBERS NOT SHOWN.

5 TRENCH DRA
SCALE: NTS

0 2'-0" 4'-0" 6'-0"
SCALE 3/8"=1'-0" AT ORIGINAL SIZE

M005

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/16/2020 — CHIEF, BUREAU OF ENGINEERING — DATE 12-3-20
CHIEF, BUREAU OF UTILITIES — DATE 12-17-2020 — CHIEF, UTILITY DESIGN DIVISION — DATE 12/16/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — JOSHUA A. YOUNG — 22479 — PROFESSIONAL ENGINEER — 12/16/20

DES:	BY	NO.	REVISION	DATE
J. VERHOOY				
DRN: K.LARSON				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

SEPTAGE TANKS - MODIFICATION
PLAN AND SECTIONS

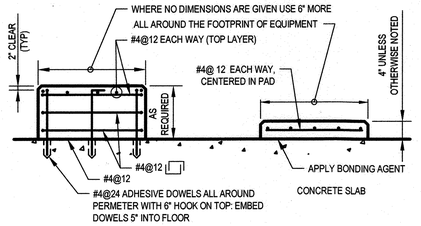
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED
WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

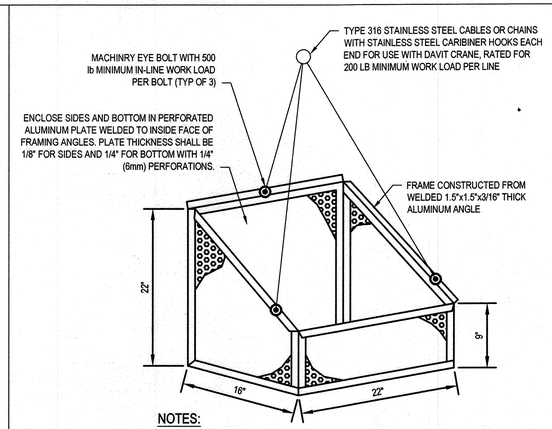
SCALE: 3/8"=1'-0"
SHEET NO. 8 OF 19

Plot Date: 17 July 2020 - 10:26 AM
Plotted By: Kristopher Larson
Filename: G:\11\5111153912 Little Patuxent WRP Septage\Digital_Design\4 CAD 2018\Septage\Sheets\Mechanical\5111153912-M005.dwg



1 REINFORCEMENT DETAILS FOR CONCRETE PADS

SCALE : NTS

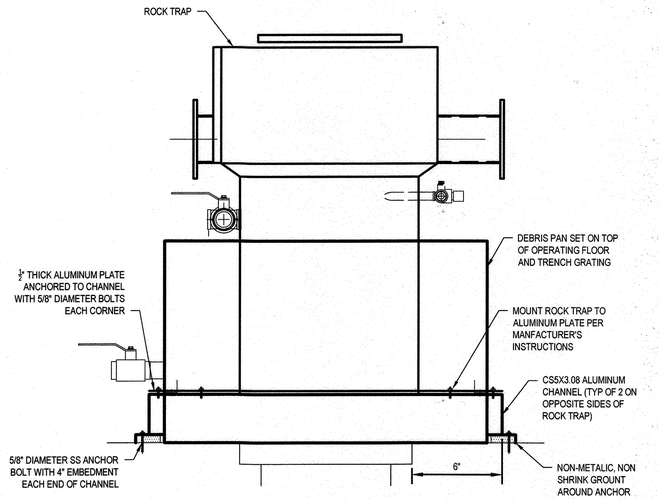


NOTES:

1. ALL WELDS SHALL BE COMPLETED IN THE SHOP AND GRINDED SMOOTH
2. ALL CORNERS TO BE MITERED.
3. PROVIDE ONE (1) REMOVABLE DEBRIS CONTAINER FOR THE SEPTAGE BUILDING ROCK TRAP IN ACCORDANCE WITH SECTION 05500.

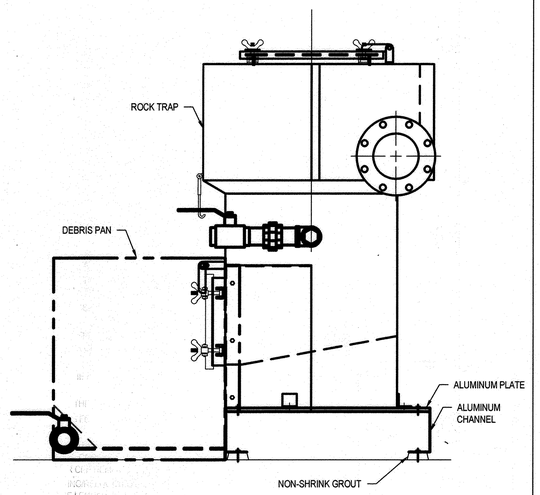
2 REMOVABLE DEBRIS CONTAINER DETAIL

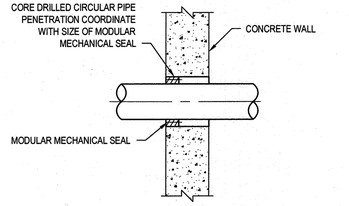
NTS



3 ROCK TRAP BASE PLATE DETAIL

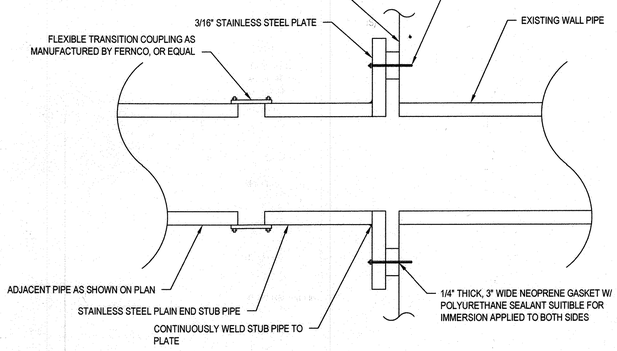
NTS



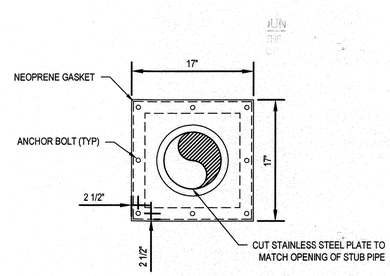


3 CORE DRILLED PIPE PENETRATION

SCALE: NTS



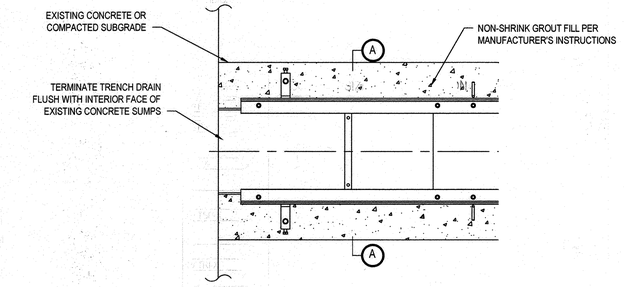
SECTION VIEW



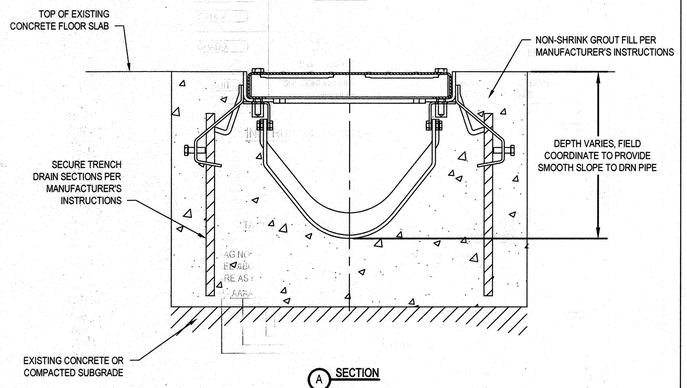
ELEVATION VIEW

4 WALL PIPE CONNECTION DETAIL

SCALE: NTS



PLAN VIEW



A SECTION

5 TRENCH DRAIN DETAIL

SCALE: NTS

M006

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 12/6/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12.9.20
CHIEF, BUREAU OF UTILITIES — DATE 12-11-2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

DES: J. VER NOOY
DRN: K. LARSON
CHK: T. YOUNG
DATE:

BY	NO.	REVISION	DATE
	*	BID SUBMISSION	JULY 2020

MISCELLANEOUS DETAILS

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: NTS
SHEET NO. 9 OF 19

Plot Date: 17 July 2020 - 10:28 AM
Plotted By: Kristopher Lamon
Filename: G:\11\11115581\2 Little Patuxent WRP Septage\Digital_Design\ACAD 2018\Septage\Sheets\Mechanical\11115581214M006.dwg

ELECTRICAL LEGEND

ABBREVIATIONS

A or AMP	AMPERE, AMPS
AC	ALTERNATING CURRENT
AE	ANALYZER ELEMENT
AF	AMPERE FRAME SIZE
AFCP	AIR FLOW CONTROL PANEL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHF	ACTIVE HARMONIC FILTER
AI	ANALOG INPUT
AIC	AMPS INTERRUPTING CURRENT
AIT	ANALYSIS INDICATING TRANSMITTER
ANN	ANNUNCIATOR
AO	ANALOG OUTPUT
AP	ALARM PANEL
APPROX	APPROXIMATLEY
AT	AMPERE TRIP RATING
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BC	BYPASS CONTACTOR
BKR	BREAKER
BLDG	BUILDING
BLCP	BYPASS LEVEL CONTROL PANEL
C or COND	CONDUIT or CONDUCTOR
CB	CIRCUIT BREAKER
CC	CONTROL CIRCUIT
CEP	CONCRETE EQUIPMENT PAD
CKT	CIRCUIT
COMP	COMPARTMENT
CP	CONTROL PANEL
CS	CONTROL STATION
CPT	CONTROL POWER TRANSFORMER
CPU	CENTRAL PROCESSING UNIT
CR-##	CONTROL RELAY (w/# DESIGNATION)
CT	CURRENT TRANSFORMER
DB	DUCT BANK
DC	DIRECT CURRENT
DI	DIGITAL INPUT
DIA	DIAMETER
DIV	DIVISION
DO	DISCRETE OUTPUT/ DISSOLVED OXYGEN
DP	DIFFERENTIAL PRESSURE
DPM	DIGITAL POWER MONITOR
DS	DISCONNECT SWITCH
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
EMR	EQUIPMENT MOUNTING RACK
ENET	ETHERNET MODULE
ES	EMERGENCY SWITCH
ESTOP	EMERGENCY STOP
EQ	EQUALIZATION
EX	EXISTING
FACP-XXX	FIRE ALARM CONTROL PANEL (w/ AREA DESIGNATION)
FE	FLOW ELEMENT
FF	FINISHED FLOOR
FIT	FLOW INDICATING TRANSMITTER
FLEX	FLEXIBLE
FO	FIBER OPTIC
FOPP-XXX	FIBR OPTIC PATCH PANEL (w/AREA DESIGNATION)
FVNR	FULL VOLTAGE NON REVERSING
FVR	FULL VOLTAGE REVERSING
G or GRD	GROUND
GC	GENERAL CONTRACTOR
GEC	GROUND ELECTRODE CONDUCTOR
GEN	GENERATOR
GF	GROUND FAULT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GGCC	GROUND GRID CONNECTING CONDUCTOR
GT-XXX	GENERAL TRANSFORMER (w/AREA DESIGNATION)
GPXXX-##	GENERAL PANEL BOARD (w/AREA and #DESIGNATION
HB	HAND BOX
HH	HAND HOLE
HOA	HAND-OFF-AUTO SELECTOR-SWITCH
HP	HORSEPOWER
HTC-XXX-##	HEAT TRACE CONTROLLER (w/AREA and DESIGNATION
HZ	HERTZ
IC	ISOLATION CONTACTOR
IL	INDICATING LIGHT
I/O	INPUT/OUTPUT
ISC	INTRINSICALLY SAFE CIRCUIT
ISR	INTRINSICALLY SAFE RELAY
IPC	INTEGRATED POWER CENTER
J or JB	JUNCTION BOX
KCMIL	THOUSANDS CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWHR	KILOWATT HOUR
LA	LIGHTING ARRESTOR
LA-XXX	LOAD AREA w/ DESIGNATION
LAN	LOCAL AREA NETWORK
LC	LIGHTING CIRCUIT
LCP	LOCAL CONTROL PANEL
LE	LEVEL ELEMENT
LIT	LEVEL INDICATING TRANSMITTER
LOC	LOCATION
LOR	LOSS OF ROTATION
LO	LOCKOUT
LPXX	LIGHTING PANELBOARD (w/AREA DESIGNATION)
LR	LINE REACTOR
LS	LIMIT SWITCH/LEVEL SWITCH

LSH	HIGH-LEVEL LEVEL SWITCH
LSL	LOW-LEVEL LEVEL SWITCH
LTG	LIGHTING
LV-XXX-##	LOUVER (w/AREA and #DESIGNATION)
mA	MILLIAMPS
MAG	MAGNETIC
MAX	MAXIMUM
MCC-XX	MOTOR CONTROL CENTER (w/AREA DESIGNATION)
MCP	MAIN CONTROL PANEL
MDS	MAIN DISTRIBUTION SWITCHBOARD
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MAN HOLE
MIN	MINIMUM
MMS	MANUAL MOTOR STARTER
MOD-XXX-##	MOTOR OPERATED DAMPER (w/AREA and #DESIGNATION)
MS	MOTOR STARTER
MSCP	MOTOR STARTER CONTROL PANEL
MSH	MOTOR SPACE HEATER
MSS	MOTOR STARTING SWITCH
MTG	MOUNTING
MTR	MOTOR TIMING RELAY
MV	MEDIUM VOLTAGE
MWTS	MOTOR WINDING TEMPERATURE SWITCH
Mx	MOTOR CONTACTOR AUXILIARY CONTACT
N	NEUTRAL
N/A	NOT AVAILABLE or NOT APPLICABLE
NC	NORMALLY CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
NFPA	NATIONAL FIRE PROTECTION ASSOC.
NO	NORMALLY OPEN
NOTC	NORMALLY OPEN TIMED CLOSED
NP	NAME PLATE
OC	ON-CENTER
OCA	OPEN-CLOSE-AUTO SELECTOR SWITCH
OD	OUTER DIAMETER
OEM	ORIGINAL EQUIPMENT MANUFACTURER
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD RELAY
Φ	PHASE
P	POLE
PB	PUSHBUTTON or PULL BOX
PB-XXX-##	PULL BOX (w/AREA and #DESIGNATION)
PC	POWER & CONTROL or POWER CIRCUIT
PCS	PROCESS CONTROL SYSTEM
PF	PULLING FITTING OR POWER FEED
PHTS	PUMP HOUSING TEMPERATURE SWITCH
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMT	PAD MOUNTED TRANSFORMER
PNL	PANEL
PP-XXX-##	POWER PANELBOARD (w/AREA and #DESIGNATION)
PRIM	PRIMARY
PS	PRESSURE SWITCH or POWER SUPPLY
PT	POTENTIAL TRANSFORMER
PTC	POSITIVE TEMPERATURE COEFFICIENT THERMISTOR
QTY	QUANTITY
RECEPT	RECEPTACLE
RLY	RELAY
RTD	RESISTIVE TEMPERATURE DEVICE
RTU	REMOTE TERMINAL UNIT
SA	SURGE ARRESTOR
SCT	STATE COMMUNICATIONS TOWER
SEAL	SEAL FAILURE
SEC	SECOND or SECONDARY
S/L	STOP/LOCKOUT SWITCH
SEL or SEL SW	SELECTOR SWITCH
SP	SPEED
SS	STAINLESS STEEL
SS-XXX	SWITCHING STATION (w/ DESIGNATION)
SSRV	SOLID STATE REDUCED VOLTAGE
S/S	STOP/START PUSH BUTTON
SPD	SURGE PROTECTION DEVICE
SV-##	SOLENOID VALVE (w/ #DESIGNATION)
SW	SWITCH
TB	TERMINAL BOX
TC	TERMINAL CABINET OR TIMED CLOSED
TDR	TIME DELAY RELAY
TERM	TERMINAL
TPP	TEMPORARY POWER PANELBOARD
TR-##	TIMED RELAY (w/ #DESIGNATION)
TSP	TIME SHIELDED PAIR
T-STAT	THERMOSTAT
TTC	TELEPHONE TERMINATION CABINET
TTP	TELEPHONE TERMINATION PANEL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
ULS	ULTRASONIC LEVEL SENSOR
UPS	UNINTERRUPTIBLE POWER SUPPLY
UT-##	UTILITY FEEDER (w/ #DESIGNATION)
V	VOLTS
VA	VOLT-AMPERES
VD	VOICE/DATA
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VS	VOLTMETER SWITCH or VACUUM SWITCH
W/	WITH
WP	WEATHER PROOF, WATERPROOF
WS	WORKSTATION
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

SYMBOLS

PLANS AND SCHEMATICS

- OHE — OHE — OVERHEAD ELECTRICAL DUCT (NEW)
- OHE — OHE — OVERHEAD ELECTRICAL DUCT (EXISTING)
- E — E — UNDERGROUND ELECTRICAL DUCT (NEW)
- E — E — UNDERGROUND ELECTRICAL DUCT (EXISTING)
- T — T — TELEPHONE SERVICE (NEW)
- T — T — TELEPHONE SERVICE (EXISTING)
- L — L — LIGHTING CIRCUIT (NEW)
- L — L — LIGHTING CIRCUIT (EXISTING)
- GENERAL CONDUIT ROUTING
- ELECTRICAL DUCT BANK
- GROUND GRID
- HAZARDOUS LOCATION ENVELOPE
- ELECTROLYTIC GROUND ROD w/TEST WELL
- TELECOMMUNICATIONS WALL JACK
- DUPLEX RECEPTACLE
- SINGLE RECEPTACLE
- QUAD RECEPTACLE

MODIFIERS: (WP) WEATHERPROOF (NEMA 15R W/COVER)

- GROUND
- C — CAMERA
- DS — DISCONNECT SWITCH
- Sm — MOTOR RATED SNAP SWITCH
- CB — ENCLOSED CIRCUIT BREAKER
- CS — CONTROL STATION
- HTC — HEAT TRACE CONTROLLER
- ISR — INTRINSICALLY SAFE RELAY PANEL
- JB — JUNCTION BOX
- TB — TERMINAL BOX
- LS — LEVEL SWITCH
- M — MOTORIZED ACTUATOR
- SS — SPEED SWITCH (LOSS OF ROTATION)
- PC — PULL CORD SWITCH / PHOTOCELL
- PS — PRESSURE SWITCH
- TP — TERMINATION PANEL (REFER TO SPECIFICATIONS)
- TE — TEMPERATURE ELEMENT
- VFD — VARIABLE FREQUENCY DRIVE w/MODIFIERS: CT: CONSTANT TORQUE VT: VARIABLE TORQUE
- MMS — MANUAL MOTOR STARTER
- ZS — POSITION SWITCH
- GF — GROUND FAULT
- PM — PHASE MONITOR RELAY
- DELTA
- WYE
- FLEXIBLE CONDUIT w/ADAPTER
- G10 — EQUIPMENT MOUNTING RACK (EMR)
- XXX HP — MOTOR w/HP DESIGNATION
- XXX HP — VFD CONTROLLED MOTOR w/HP DESIGNATION
- CONDUIT TEE FITTING (3-WAY) OR CROSS FITTING (4-WAY)
- T — T-STAT
- D — DRAIN FITTING
- DUCT BANK MARKER (REFER TO SPECIFICATIONS)
- ELECTRICAL MANHOLE
- ELECTRICAL HANDHOLE

*REFER TO DETAILS FOR GROUNDING SYMBOLS

ELEMENTARY

- START — MOMENTARY OPEN PUSH-BUTTON (NORMALLY OPEN)
- STOP — MOMENTARY CLOSED PUSH-BUTTON (NORMALLY CLOSED)
- H O A / XOX / OOX — THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH
- NORMALLY OPEN / NORMALLY CLOSED — TIME DELAY AFTER COIL ENERGIZED
- NORMALLY OPEN / NORMALLY CLOSED — TIME DELAY AFTER COIL DE-ENERGIZED
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- TEMPERATURE SWITCH
- LIMIT SWITCH
- FLOAT SWITCH
- PRESSURE SWITCH
- SOLENOID VALVE CONTROL
- INDICATING LIGHT *=COLOR — R - RED, W - WHITE, G - GREEN, A - AMBER
- PUSH-TO-TEST INDICATING LIGHT
- NP — NAME PLATE
- RED MUSHROOM HEAD PUSHBUTTON (MAINTAINED)
- CIRCUIT BREAKER
- SPD — SURGE PROTECTION DEVICE
- CIRCUIT CONNECTIONS
- GROUND
- TS — CONTACTOR TRANSIENT SUPPRESSOR
- TRANSFORMER
- HEATING ELEMENT
- FUSED SWITCH
- OVERLOAD
- HARMONIC FILTER
- X / X — MOTOR STARTING COIL -or- RELAY: M - MOTOR STARTER; CR - CONTROL RELAY; MDR - MOISTURE DETECTION RELAY; TR - TIMING RELAY
- RELAY MODIFIERS: A - ALARM; TSH - TEMPERATURE SWITCH HIGH; GRD - GROUND; MST - MOISTURE; WSx - TORQUE SWITCH; IC - ISOLATION CONTACTOR
- C — LIGHTING CONDUIT BODY
- X / X — VALVE/GATE: S: SOLENOID; M: MOTORIZED; P: PNEUMATIC
- S — 3-WAY SOLENOID VALVE

MODIFIERS

- S — SINGLE POLE LIGHT SWITCH
- S_3 — THREE-WAY LIGHT SWITCH
- S_4 — FOUR-WAY LIGHT SWITCH

a/b/c/d - CIRCUIT DESIGNATION; XP - EXPLOSION PROOF; WP - WEATHERPROOF; K - KEY OPERATED SWITCH; OS - OCCUPANCY SENSOR

1 / E007 — TYPICAL DETAIL DESIGNATION WITH DRAWING NUMBER

GENERAL NOTES:

G1. CONTRACTOR SHALL COORDINATE FINAL CONCRETE EQUIPMENT PAD (CEP) DIMENSIONS WITH FINAL DIMENSIONS OF EQUIPMENT AND OTHER STRUCTURES TO BE MOUNTED ON PADS. CEPS SHALL BE SIZED TO ACCOMMODATE FUTURE EQUIPMENT/SECTIONS WHERE SPACE IS RESERVED AS SHOWN ON THE DRAWINGS. COORDINATE ALL DRILLING AND/OR CORING WITH REINFORCING STEEL TO AVOID UNNECESSARY CUTTING OF LONGITUDINAL OR TRANSVERSE BARS.

G2. ENCLOSURE DIMENSIONS SHOWN ON THE DRAWINGS ARE MINIMUM REQUIRED DIMENSIONS. ENCLOSURES SHALL BE SIZED TO ACCOMMODATE EQUIPMENT, CONTROLS AND COMPONENTS AS SHOWN, SPECIFIED AND REQUIRED FOR AN OPERABLE SYSTEM.

G3. EQUIPMENT, FEEDERS, AND BRANCH CIRCUITS ON THE DOWNSTREAM SIDE OF THE PANELBOARDS ARE NOT SHOWN ON THE ONE-LINE AND SCHEMATIC DIAGRAMS. REFER TO THE PANELBOARD SCHEDULES AND THE PLANS FOR RELATED INFORMATION.

G4. EVERY EFFORT HAS BEEN MADE TO IDENTIFY REMOTE ITEMS TO BE CONNECTED BY THE CONTRACTOR, EITHER IN THE ELEMENTARIES OR IN THE SCHEDULES. HOWEVER, NOT ALL OF THE REMOTE DEVICES MAY HAVE BEEN SHOWN ON THE ELECTRICAL PLAN DRAWINGS. REFER TO THE DRAWINGS OF RESPECTIVE TRADES TO LOCATE OR CONFIRM EQUIPMENT LOCATIONS.

G5. GROUNDING: ELECTRICAL SYSTEMS SHALL BE GROUNDED AS SPECIFIED AND SHOWN ON THE CONTRACT DRAWINGS. WORK SHALL ALSO BE PERFORMED IN ACCORDANCE WITH ARTICLE 250 OF THE MOST RECENT REVISION OF THE NATIONAL ELECTRIC CODE. REFER TO DETAILS FOR GROUNDING SCHEMATICS AND FOR GENERAL GROUNDING REQUIREMENTS OF ELECTRICAL EQUIPMENT. GROUND GRID CONNECTIONS SHOWN ON THE INDIVIDUAL PLANS ARE MINIMUM REQUIREMENTS. ALL REQUIRED CONNECTIONS ARE NOT SHOWN ON PLANS FOR BREVITY. CONTRACTOR SHALL COORDINATE NEW CONNECTIONS TO THE EXISTING GROUND GRIDS AS NECESSARY. REFER TO GROUNDING NOTES BELOW AND ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION.

G6. CONTRACTOR SHALL PROVIDE POWER SUPPLY AND CONTROL WIRING TO HEATING AND VENTILATION COMPONENTS AS SHOWN ON THE CONTRACT DRAWINGS. HEATING/VENTILATION CONTROL EQUIPMENT WILL BE FURNISHED BY GENERAL CONTRACTOR AND INSTALLED BY CONTRACTOR WHERE INDICATED.

G7. LIGHTING CIRCUITS ARE SHOWN DIAGRAMMATICALLY: EXACT LOCATION OF CONDUIT RUNS SHALL BE DETERMINED BY THE ELECTRICAL INSTALLER IN THE FIELD, UNLESS SPECIFICALLY DIMENSIONED ON THE PLANS. CONDUIT AND WIRE INFORMATION CAN BE FOUND ON THE PLANS, EQUIPMENT SCHEDULES AND SCHEMATICS.

G8. EXACT EQUIPMENT CONDUIT CONNECTIONS ARE TO BE DETERMINED BY THE ELECTRICAL INSTALLER BASED UPON THE ACTUAL FIELD LOCATION OF EQUIPMENT. INSTALL CONDUIT IN ACCORDANCE WITH SPECIFICATIONS.

G9. ALL PENETRATIONS THROUGH EXISTING SOLID CONCRETE STRUCTURES WHERE SLEEVES HAVE NOT BEEN PROVIDED SHALL BE CORE DRILLED AND SIZED TO ACCEPT MECHANICAL LINK SEALS. THROUGH NON-FIRE RATED WALLS, CORE HOLE AND SEAL AROUND CONDUIT WITH NON-SHRINK GROUT. THROUGH EXTERIOR WALL SEAL WATER TIGHT WITH SILICONE MASONRY SEALANT.

G10. EQUIPMENT MOUNTING RACK (EMR): THE FINAL LOCATION OF THE EMR'S SHALL BE COORDINATED IN THE FIELD TO AVOID INTERFERENCE WITH ACCESS TO THE PROCESS EQUIPMENT. REFER TO DETAILS FOR INDIVIDUAL APPLICATIONS AND LOCATIONS.

G11. EQUIPMENT REMOVALS: DISCONNECT AND REMOVE POWER/CONTROL CIRCUITS AND CONDUITS FROM THE RESPECTIVE EQUIPMENT.

G12. EQUIPMENT RELOCATIONS: DISCONNECT AND REMOVE POWER/CONTROL CIRCUITS AND CONDUCTORS FROM THE EQUIPMENT. EQUIPMENT SHALL BE REMOVED AND RELOCATED TO THE NEW LOCATION SHOWN ON THE CONTRACT DRAWINGS.

G13. CONDUIT REMOVALS: DISCONNECT AND REMOVE EXPOSED PORTIONS OF CONDUIT FOR EQUIPMENT TO BE REMOVED AND/OR RELOCATED. CUT, THREAD, COUPLE AND CAP EXISTING CONDUITS ADJACENT TO THE PENETRATION POINT WHERE THE CONDUITS ARE CONCEALED (IN WALLS, CONCRETE SLABS, BELOW GRADE). REPAIR WALL PENETRATIONS TO A WEATHER-TIGHT CONDITION MATCHING EXISTING WALL MATERIALS. FOR FLOOR RESURFACING AFTER CEP REMOVALS, REFER TO STRUCTURAL DRAWINGS.

G14. EQUIPMENT TO REMAIN: PROVIDE NEW FEEDER OR BRANCH CIRCUIT CONDUIT AND WIRING TO EXISTING/RELOCATED EQUIPMENT REQUIRED TO REMAIN IN SERVICE. CUT AND REUSE EXISTING CONDUIT RUNS WHERE PRACTICAL. CIRCUIT CONDUCTORS SHALL BE REPLACED THE ENTIRE LENGTH OF THE CIRCUIT RUN.

G15. HAZARDOUS LOCATIONS: AREAS DESIGNATED AS HAZARDOUS LOCATIONS ARE SPECIFIED AND/OR SHOWN ON THE CONTRACT DRAWINGS. WORK INSTALLED IN AREAS DESIGNATED AS CLASS I, GROUP D, DIVISION 1 OR CLASS I, GROUP D, DIVISION 2 HAZARDOUS LOCATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 500 OF THE NATIONAL ELECTRIC CODE. THE LIMITS FOR CLASS I, GROUP D, DIVISION 1 HAZARDOUS LOCATIONS SHALL EXTEND BEYOND THE ENCLOSED AREA FOR A 3' ENVELOPE OUTSIDE EXTERIOR DOORS ACCESS HATCHES AND OTHER OPENINGS. THE LIMITS FOR DIVISION 2 HAZARDOUS LOCATIONS FOR OUTDOOR TANKS AND BASINS SHALL EXTEND 18" ABOVE THE MAXIMUM WATER SURFACE ELEVATION AND ABOVE TANK WALLS AND SHALL INCLUDE AN 18" HIGH ENVELOPE AROUND A 10' PERIMETER OF THE TANK OR BASIN. ODOR CONTROL SYSTEMS RATED AS A HAZARDOUS LOCATION SHALL INCLUDE A 3' ENVELOPE AROUND ANY DUCTWORK OR VESSELS CONTAINING ODOROUS AIR.

G16. ELECTRICAL PLANS: CONTRACTOR SHALL REFER TO ONE-LINES, SCHEMATICS, CONDUIT RISER DIAGRAMS AND DUCT BANK SECTIONS TO COORDINATE CONDUIT AND CIRCUIT REQUIREMENTS FOR EACH SYSTEM.

G17. FIBER OPTIC PATCH PANEL (FOPP) ENCLOSURE: ALL FIBER OPTIC PATCH PANELS SHALL BE MOUNTED IN NEMA 12 ENCLOSURES IN ORDER TO ACCOMMODATE CONDUIT ENTRIES AND EXITS AND TO FACILITATE CONDUIT ROUTING IN THE BUILDING. REFER TO DETAILS.

G18. CONDUIT PENETRATIONS: WHERE CONDUITS ARE TOO LARGE FOR TERMINATION INTO CABINETS, CONTROL PANELS, INSTRUMENT ENCLOSURES OR OTHER ENCLOSURES DUE TO STANDARD KNOCK OUT SIZE, THE CONTRACTOR SHALL PROVIDE AN INTERMEDIATE PULL BOX IN ORDER TO COORDINATE A TRANSITION IN CONDUIT SIZE. THIS SHALL BE COORDINATED WITH THE ENGINEER IN THE FIELD ON A CASE BY CASE BASIS.

G19. SPARE WIRING: WHERE SPARE POWER AND CONTROL WIRING IS REQUIRED PER THE DRAWINGS AND/OR SPECIFICATIONS, SPARE WIRE SHALL BE PROVIDED WITH SUFFICIENT LENGTH TO EXTEND TO THE FURTHEST TERMINAL BLOCK/BUCKET/AREA OF THE ENCLOSURE BEING SERVED.

GROUNDING NOTES:

1. THE GROUNDING SYSTEM IS SHOWN DIAGRAMMATICALLY. EXACT LOCATION OF CABLE, GROUND RODS AND CONNECTIONS SHALL BE DETERMINED IN THE FIELD.
2. BOND WELL CASINGS TO GROUNDING SYSTEM VIA #6 TIN PLATED COPPER GRD. CONNECTION TO CASING SHALL BE 6" ABOVE GRADE NEXT TO POWER CONDUIT.
3. ALL BURIED GROUNDING CABLE CONNECTIONS SHALL BE CADWELD OR THERMOWELD. THE WELDED CONNECTIONS SHALL BE LEFT EXPOSED FOR INSPECTION BY ENGINEER PRIOR TO BACKFILLING.
4. WHERE EXPOSED TO MECHANICAL INJURY, THE GROUNDING CONDUCTOR SHALL BE SUITABLY PROTECTED BY PIPE OR OTHER MECHANICAL PROTECTION. EACH END OF PROTECTING CONDUIT (IF METALLIC) SHOULD BE GROUNDED TO THE BARE CABLE.
5. ALL EXPOSED CABLE LUGS AND CONNECTORS SHALL BE OF THE COMPRESSION TYPE UNLESS OTHERWISE NOTED.
6. STEEL MUST BE CLEANED THOROUGHLY AND CABLE MUST BE COMPLETELY DRY BEFORE MAKING WELD CONNECTIONS.
7. THE GROUNDING SYSTEM SHALL BE CONNECTED TO A METALLIC WATERLINE WITH A MINIMUM OF 10 FEET LENGTH UNDERGROUND AND TO THE GROUNDING ELECTRODES.

● EQUIPMENT TAGS:

P-AAAA-YYYY-XXXX
- EQUIPMENT TYPE
- TOTAL # OF UNITS
- UNIT #
- SUBPROCESS #
- PROCESS DESIGNATION
- PLANT AREA #

● PANELBOARD CIRCUIT IDENTIFICATION:

LP SPS1-##
- PANELBOARD CIRCUIT DESIGNATION
- BUILDING DESIGNATION
- PANELBOARD TYPE: LP=GENERAL PANELBOARD; PP=POWER PANELBOARD

NEW/EXISTING TEXT IDENTIFIER:

EXISTING GRAPHICS; EQUIPMENT, CONDITIONS STRUCTURES, ETC. ARE SHOWN AS LIGHT LINEWORK AND IN THIS TEXT FORMAT.

NEW GRAPHICS; EQUIPMENT, STRUCTURES, ETC., ARE SHOWN AS BOLD LINEWORK AND IN THIS TEXT FORMAT.

GENERAL CIRCUIT/CONDUIT TAG ID

TAG	CONDUIT SIZE	CONDUCTORS
P2	3/4"	2-#12, 1-#12G
P3	3/4"	3-#12, 1-#12G
CX	3/4" (x=2 THRU 18) 1" (x=19 THRU 30) 2" (x=31 THRU 100) 3" (x=101 THRU 200)	x-#14, 1-#12G
TSP-X	3/4" (x=1.2) 1" (x=3.4) 2" (x=5 THRU 16) 2-1/2" (x=17 THRU 23)	x-#16 TWISTED SHIELDED PAIR
TRI-X	3/4" (x=1.2) 1" (x=3.4) 2" (x=5 THRU 16)	x-#16 3 CONDUCTOR SHIELDED
DB-XX [XX] w/CIRCUIT		REFER TO DUCT BANK SECTION SCHEDULE FOR REQUIREMENTS
CAT6-X	3/4" (x=1.2) 1" (x=3.4)	x-CATEGORY 6e NETWORK CABLE
QUAD-X	3/4" (x=1.2) 1" (x=3.4) 2" (x=5 THRU 16)	x-#16 4 CONDUCTOR SHIELDED
CIRCUIT	3/4" CONDUIT UNLESS LABLED OTHERWISE. REFER TO PANELBOARD SCHEDULES FOR PANELBOARD CIRCUIT CONDUIT SIZES.	

INSTRUMENT AND FUNCTION TAGGING:

FUNCTIONAL INSTRUMENT IDENTIFICATION — XXX YYYY ZZZ NOTE — INSTRUMENT TYPE

LOOP NUMBER

TAG FOR CONTRACTOR-PROVIDED INSTRUMENTATION

DRAWING NOT

TAG NOS. FOR INSTRUMENT TAGGING HAVE BEEN SHORTENED FOR BREVITY; SEE ABOVE FOR TAGGING OF INSTRUMENTS. FULL TAG NOS. FOR INSTRUMENTS ARE AS FOLLOWS:

P - AAAA - YYYY - XXX
- FUNCTIONAL INSTRUMENT IDENTIFICATION
- TOTAL # OF UNITS
- UNIT #
- SUBPROCESS #
- PROCESS DESIGNATION
- PLANT AREA #

4 DEMOLISH AND REMOVE EXISTING CONTROL PANELS

5 DEMOLISH AND REMOVE EXISTING CP-1

6 REFER TO

1 SEE ELECTRICAL POWER PLAN - DEMOLITION

E001

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE — CHIEF, BUREAU OF ENGINEERING — DATE 12-7-20

CHIEF, BUREAU OF UTILITIES — DATE 12-9-2020 — CHIEF, UTILITY DESIGN DIVISION — DATE

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — CHRISTOPHER LANSON — 22479 — PROFESSIONAL ENGINEER

DES: B. CARDINAL	BY	NO.	REVISION	DATE
DRN: T. SMITH				
CHK: T. YOUNG		*		
DATE:				

BID SUBMISSION — JULY 2020

ELECTRICAL LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES

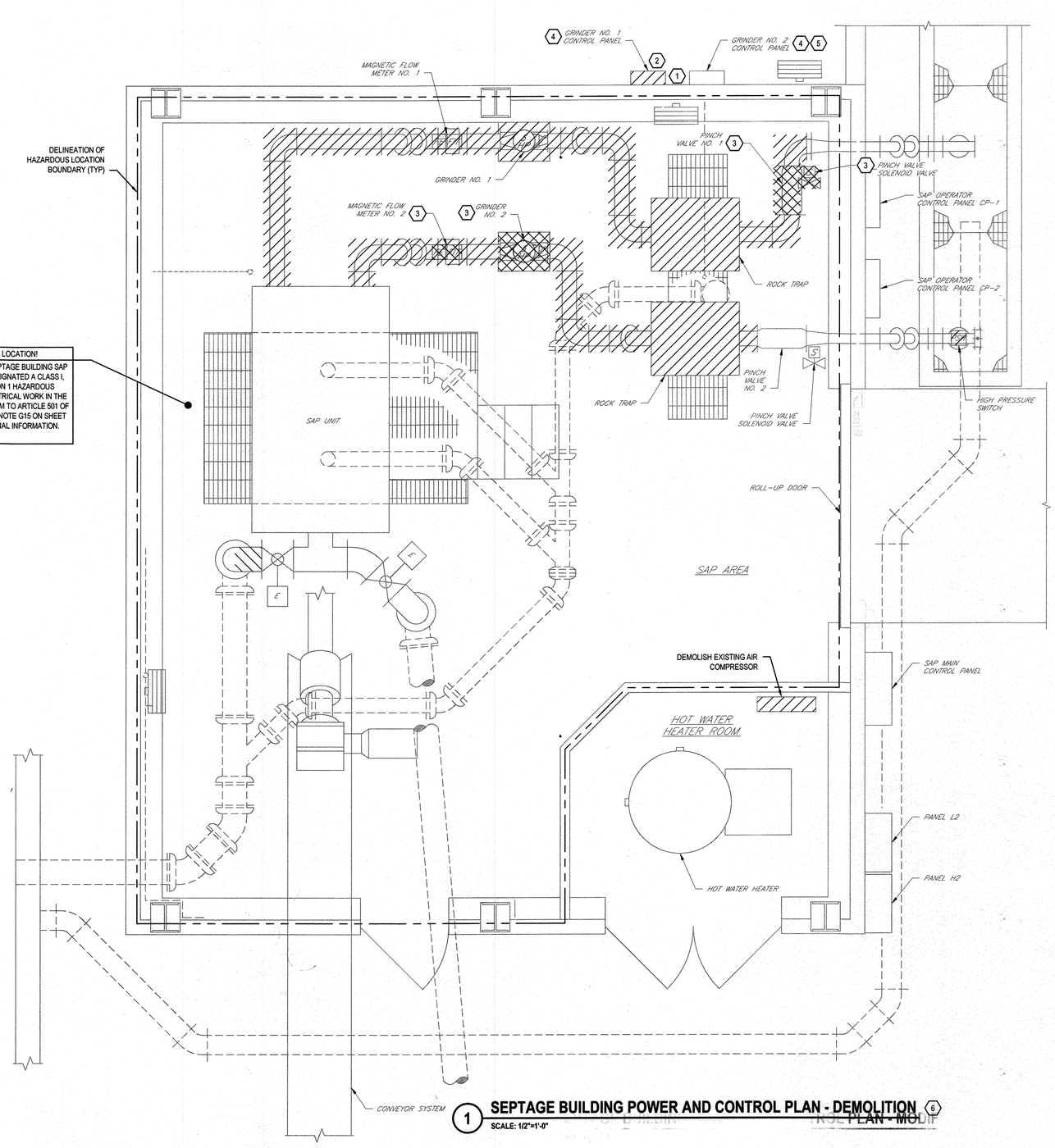
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: NTS

SHEET NO. 10 OF 19



1 SEPTAGE BUILDING POWER AND CONTROL PLAN - DEMOLITION 6

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

0 1'-0" 2'-0" 3'-0" 4'-0"

SCALE 1/2"=1'-0" AT ORIGINAL SIZE

LEGEND:

TO BE DEMOLISHED

TO BE RELOCATED

DRAWING NOTES:

1. DEMOLISH INTERCONNECTING CONDUITS AND CIRCUITS BETWEEN THE TWO GRINDER CONTROL PANELS.
2. DEMOLISH EXISTING EXPOSED CONDUIT AND WIRING FROM GRINDER NO. 1 CONTROL PANEL TO GRINDER NOS. 1 & 2. CAP CONCEALED CONDUITS.
3. PINCH VALVE NO. 1, GRINDER NO. 2, AND FLOW METER NO. 2 ARE TO BE RELOCATED. DEMOLISH WIRING AND EXPOSED CONDUITS AND CAP CONCEALED CONDUITS ASSOCIATED WITH EQUIPMENT TO BE RELOCATED.
4. DEMOLISH POWER WIRING AND EXPOSED CONDUIT BETWEEN LP3 AND GRINDER NOS. 1 & 2 CONTROL PANELS. CAP CONCEALED CONDUITS.
5. DEMOLISH CONTROL WIRING AND CONDUIT BETWEEN GRINDER NO. 2 CONTROL PANEL AND CP-1.
6. REFER TO DRAWING NOS. E005 AND E006 FOR MORE DETAIL ON ELECTRICAL DEMOLITION.

E002

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 12.2.20 — CHIEF, BUREAU OF ENGINEERING — DATE

CHIEF, BUREAU OF UTILITIES — DATE 12-4-2020 — CHIEF, UTILITY DESIGN DIVISION — DATE

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — BRIAN FOR A YOUNG — 22479 — PROFESSIONAL ENGINEER — 7/7/2020

DES:	BY	NO.	REVISION	DATE
B. CARDINAL				
DRN: T. SMITH				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

SEPTAGE BUILDING POWER AND CONTROL PLAN - DEMOLITION

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

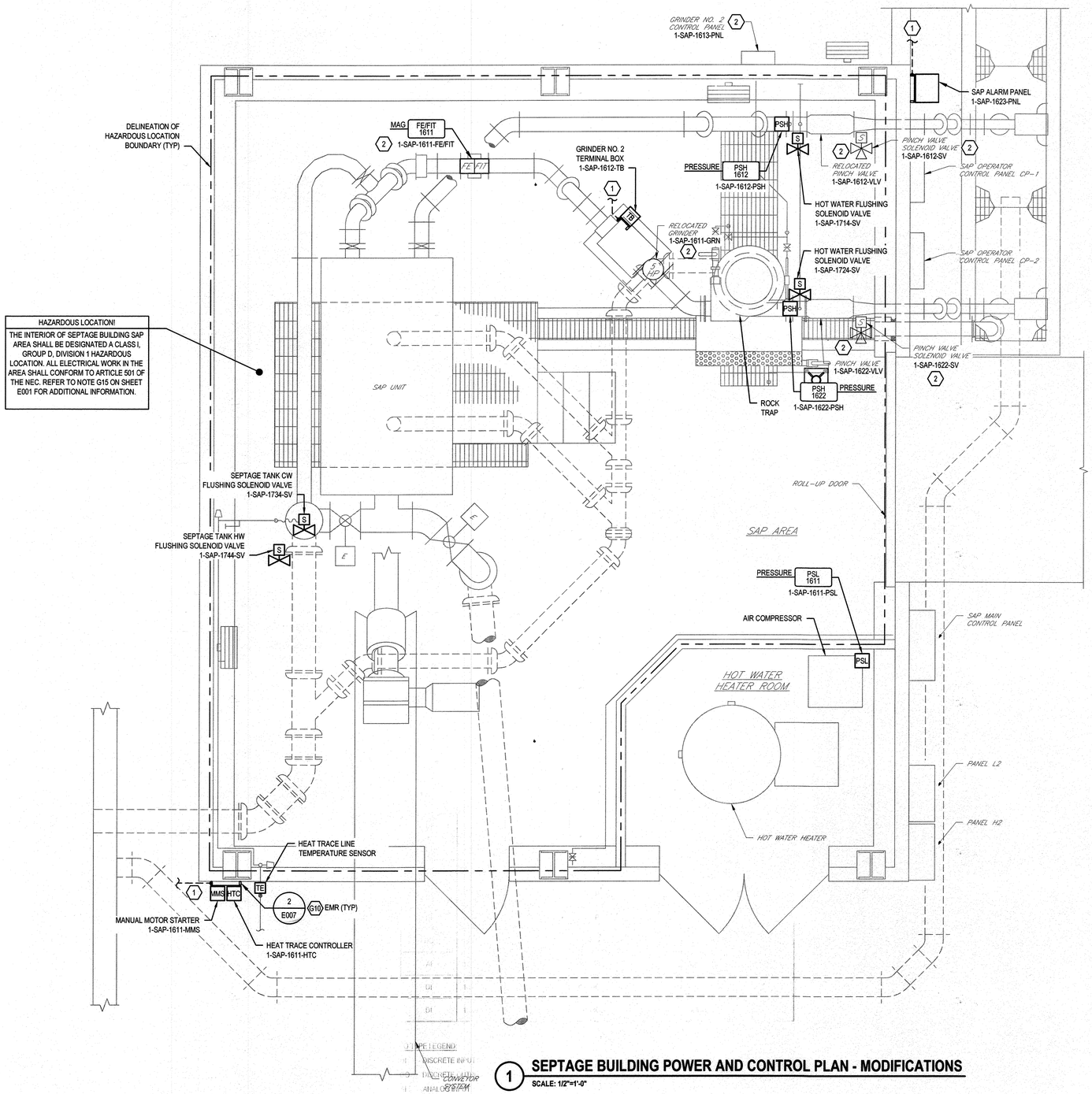
LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

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

SHEET NO. 11 OF 19

Plot Date: 17 July 2020 - 10:27 AM
Plotted By: Kristopher Lanson
Filename: G:\111\111155\812 Little Patuxent WRP Septage\Digital_Design\CAD 2018\Septage\Sheets\Electrical\111153812-E002.dwg



1 SEPTAGE BUILDING POWER AND CONTROL PLAN - MODIFICATIONS

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

0 1'-0" 2'-0" 3'-0" 4'-0"

SCALE 1/2"=1'-0" AT ORIGINAL SIZE

DRAWING NOTES:

1. PROVIDE #2 TINNED COPPER GROUNDING CONDUCTOR. CONNECT TO BUILDING STEEL.
2. THE FOLLOWING EXISTING EQUIPMENT SHALL BE PROVIDED WITH NEW EQUIPMENT TAGS:
   - PINCH VALVE NO. 1 : 1-SAP-1612-VLV
   - PINCH VALVE NO. 2 : 1-SAP-1622-VLV
   - PINCH VALVE NO. 1 SOLENOID VALVE: 1-SAP-1612-SV
   - PINCH VALVE NO. 2 SOLENOID VALVE: 1-SAP-1622-SV
   - GRINDER NO. 2 : 1-SAP-1611-GRN
   - GRINDER NO. 2 CP: 1-SAP-1611-GRN CP
   - FLOW METER NO. 2 : 1-SAP-1611-FE/FIT

E003

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/18/2020 — CHIEF, BUREAU OF ENGINEERING — DATE 12.9.20

CHIEF, BUREAU OF UTILITIES — DATE 12-17-2020 — CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

DES:	BY	NO.	REVISION	DATE
B. CARDINAL				
DRN: T. SMITH				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

SEPTAGE BUILDING POWER AND CONTROL PLAN - MODIFICATIONS

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

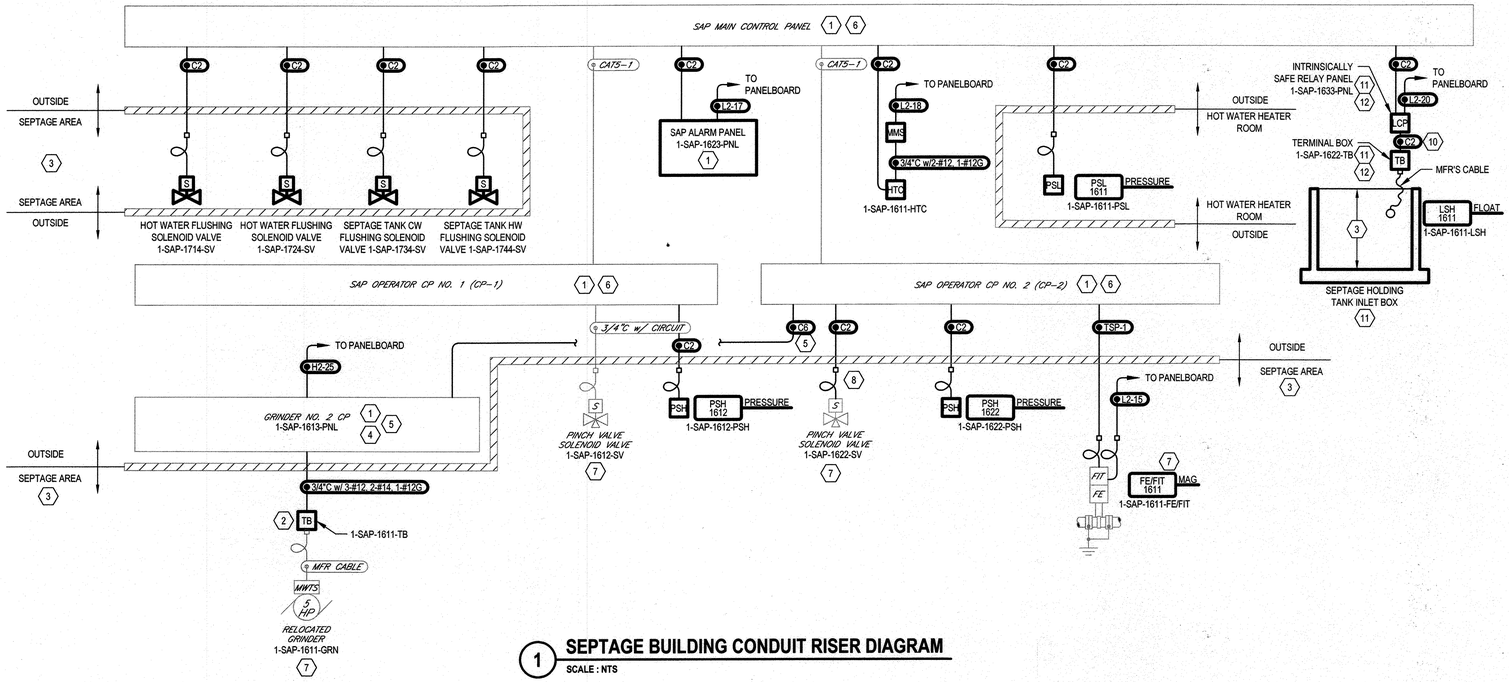
LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

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

SHEET NO. 12 OF 19

Plot Date: 17 JAN 2020 - 10:27 AM
Filename: G:\111\111\1558\12 Little Patuxent WRP Septage\Digital_Design\CAD 2018\Septage\Sheets\Electrical\111558312-E003.dwg
Plotted By: Kristopher Larson



1 SEPTAGE BUILDING CONDUIT RISER DIAGRAM

SCALE : NTS

SAP I/O POINT SCHEDULE - ADDITIONS

I/O TYPE	FROM	TO	SAP MCP/CP CONNECTION
DO	SAP MCP	1-SAP-1714-SV	CONNECT TO SPARE
DO	SAP MCP	1-SAP-1724-SV	CONNECT TO SPARE
DO	SAP MCP	1-SAP-1734-SV	CONNECT TO SPARE
DO	SAP MCP	1-SAP-1744-SV	CONNECT TO SPARE
DI	1-SAP-1611-PSL	SAP MCP	CONNECT TO SPARE
DO	SAP MCP	1-SAP-1623-PNL	CONNECT TO SPARE
DI	1-SAP-1613-PNL	SAP CP-2	CONNECT TO SPARE
DI	1-SAP-1613-PNL	SAP CP-2	CONNECT TO SPARE
DO	SAP CP-2	1-SAP-1613-PNL	CONNECT TO EXISTING
DI	1-SAP-1612-PSH	SAP CP-1	CONNECT TO EXISTING
DI	1-SAP-1622-PSH	SAP CP-2	CONNECT TO EXISTING
DO	SAP CP-2	1-SAP-1622-SV	CONNECT TO EXISTING
AI	1-SAP-1611-FE/FIT	SAP CP-2	CONNECT TO EXISTING
DI	1-SAP-1611-HTC	SAP MCP	CONNECT TO SPARE
DI	1-SAP-1611-LSH (9)	SAP MCP	CONNECT TO SPARE

(5)

I/O TYPE LEGEND:

DI DISCRETE INPUT
DO DISCRETE OUTPUT
AI ANALOG INPUT

DRAWING NOTES:

1. CONDUITS ENTERING PANELS SHALL PENETRATE AT BOTTOM OR SIDES OF PANEL.
2. TERMINAL BOX: PROVIDE NEMA 4X / 7 TERMINAL BOX WITH LABELED TERMINAL BLOCKS FOR CONNECTION OF GRINDER CABLES TO HARDWIRED CIRCUITS. KEEP CONTROL AND POWER CIRCUITS SEPARATED.
3. AREA IS A CLASS I, GROUP D, DIVISION 1 HAZARDOUS LOCATION.
4. PROVIDE NEW ENGRAVED NAMEPLATE FOR EXISTING CP.
5. PROVIDE NEW CONTROL CONDUCTORS AND CONDUIT FOR GRINDER INTERFACE W/ SAP CP-2. CONNECT TO EXISTING TERMINALS IN GRINDER CP FOR THE FOLLOWING SIGNALS:
   - REMOTE START
   - RUNNING STATUS
   - COMMON ALARM
6. SEE SAP I/O POINT SCHEDULE THIS DRAWING.
7. PROVIDE NEW EQUIPMENT TAG FOR EXISTING EQUIPMENT.
8. NEW CONDUIT AND CONTROL WIRING FROM EXISTING CP-2 I/O.
9. VIA INTRINSICALLY SAFE RELAY PANEL.
10. INTRINSICALLY SAFE CIRCUIT.
11. REFER TO DRAWING M004 FOR LOCATION OF INLET BOX.
12. MOUNT TERMINAL BOX AND INTRINSICALLY SAFE RELAY PANEL ADJACENT TO INLET BOX. PROVIDE EMR PER (10) AND DETAIL 2 ON DRAWING E007. PROVIDE No.2 TINNED COPPER GROUND CONDUCTOR - BOND TO EMR AND NEAREST BUILDING STEEL (05)

E004

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE — CHIEF, BUREAU OF ENGINEERING — DATE 12-2-20
CHIEF, BUREAU OF UTILITIES — DATE 12-1-2020 — CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — STEPHEN A. YOUNG — 22479 — PROFESSIONAL ENGINEER

DES: B. CARDINAL
DRN: T. SMITH
CHK: T. YOUNG
DATE:

BY	NO.	REVISION	DATE

BID SUBMISSION — JULY 2020

SEPTAGE BUILDING CONDUIT RISER DIAGRAM

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: NTS

SHEET NO. 13 OF 19

Filename: G:\11\11111553812 Little Patuxent WRP Septage\Digital_Design\CAD 2018\Septage\Sheets\Electrical\11153812-E004.dwg
Plotted By: Kristopher Larson
Plot Date: 17 July 2020 - 10:27 AM

PANELBOARD LP3

LOCATION: HEADWORKS ELECTRICAL ROOM
MAIN BUS RATING: 100A, 277/480VAC, 3P, 4W
MINIMUM SHORT-CIRCUIT INTERRUPTION RATING: EXISTING
MAIN BREAKER TRIP: 60A
FED FROM: MCC-01
ESTIMATED CONNECTED LOAD: EXISTING
INCOMING FEED: EXISTING
ENCLOSURE: NEMA 12/3R
TVSS/SURGE PROTECTION: EXISTING

NOTES: SEE PANELBOARD SCHEDULE NOTES

DESCRIPTION	NOTES	LOAD	CONDUIT SIZE	Φ/N SIZE	G SIZE	CB	CKT	A	B	C	CKT	CB	CONDUIT SIZE	Φ/N SIZE	G SIZE	LOAD	NOTES	DESCRIPTION
							1	♦			2							
XFMR SF-DP3						70A/3P	3		♦		4	20A/3P						TEMP TO EXISTING LP
							5			♦	6							
BAR SCREEN CONTROL POWER						20A/1P	7	♦			8							
SPACE							9		♦		10							
							11			♦	12							
SPACE							13	♦			14							
							15		♦		16							
							17			♦	18							
SPACE							19	♦			20							
							21		♦		22							
							23			♦	24							
SPACE							25	♦			26							
							27		♦		28							
							29			♦	30							
SPACE							31	♦			32							
							33		♦		34							
							35			♦	36							
SPACE							37	♦			38							
							39		♦		40							
							41			♦	42							
GRINDER/INJ. 1		5HP	3/4"	12	12	20A/3P	43	♦			44	20A/3P				3HP		GRINDER/INJ. 2
							45		♦		46							
							47			♦	48							

PANELBOARD LP3

LOCATION: HEADWORKS ELECTRICAL ROOM
MAIN BUS RATING: 100A, 277/480VAC, 3P, 4W
MINIMUM SHORT-CIRCUIT INTERRUPTION RATING: EXISTING
MAIN BREAKER TRIP: 60A
FED FROM: MCC-01
ESTIMATED CONNECTED LOAD: 50kW
INCOMING FEED: EXISTING
ENCLOSURE: NEMA 12/3R
TVSS/SURGE PROTECTION: EXISTING

NOTES: SEE PANELBOARD SCHEDULE NOTES

DESCRIPTION	NOTES	LOAD	CONDUIT SIZE	Φ/N SIZE	G SIZE	CB	CKT	A	B	C	CKT	CB	CONDUIT SIZE	Φ/N SIZE	G SIZE	LOAD	NOTES	DESCRIPTION
							1	♦			2							
XFMR SF-DP3						70A/3P	3		♦		4	20A/3P						TEMP TO EXISTING LP
							5			♦	6							
BAR SCREEN CONTROL POWER						20A/1P	7	♦			8							
SPACE							9		♦		10							
							11			♦	12							
SPACE							13	♦			14							
							15		♦		16							
							17			♦	18							
SPACE							19	♦			20							
							21		♦		22							
							23			♦	24							
SPACE							25	♦			26							
							27		♦		28							
							29			♦	30							
SPACE							31	♦			32							
							33		♦		34							
							35			♦	36							
SPARE						20A/3P	37	♦			38	20A/3P						SPARE
							39		♦		40							
							41			♦	42							

PANELBOARD H2

LOCATION: OUTSIDE SEPTAGE BUILDING
MAIN BUS RATING: 100A, 277/480VAC, 3P, 4W
MINIMUM SHORT-CIRCUIT INTERRUPTION RATING: EXISTING
MAIN BREAKER TRIP: 60A
FED FROM: H1
ESTIMATED CONNECTED LOAD: EXISTING
INCOMING FEED: EXISTING
ENCLOSURE: NEMA 12/3R
TVSS/SURGE PROTECTION: EXISTING

NOTES: SEE PANELBOARD SCHEDULE NOTES

DESCRIPTION	NOTES	LOAD	CONDUIT SIZE	Φ/N SIZE	G SIZE	CB	CKT	A	B	C	CKT	CB	CONDUIT SIZE	Φ/N SIZE	G SIZE	LOAD	NOTES	DESCRIPTION
							1	♦			2							
SPARE						20A/3P	3		♦		4	20A/3P						SAP UNIT
							5			♦	6							
							7	♦			8							
UNIT HEATER 1						20A/3P	9		♦		10	20A/3P						UNIT HEATER 2
							11			♦	12							
							13	♦			14							
EXHAUST FAN 1						20A/3P	15		♦		16	15A/3P						PLUG VALVE GREASE OUTLET
							17			♦	18							
							19	♦			20							
GREASE DUMP STATION						20A/3P	21		♦		22	15A/3P						PLUG VALVE SEPTAGE OUTLET
							23			♦	24							
SPACE							25	♦			26							
							27		♦		28							
							29			♦	30							

PANELBOARD H2

LOCATION: OUTSIDE SEPTAGE BUILDING
MAIN BUS RATING: 100A, 277/480VAC, 3P, 4W
MINIMUM SHORT-CIRCUIT INTERRUPTION RATING: EXISTING
MAIN BREAKER TRIP: 60A
FED FROM: H1
ESTIMATED CONNECTED LOAD: 25kVA
INCOMING FEED: EXISTING
ENCLOSURE: NEMA 12/3R
TVSS/SURGE PROTECTION: EXISTING

NOTES: SEE PANELBOARD SCHEDULE NOTES

DESCRIPTION	NOTES	LOAD	CONDUIT SIZE	Φ/N SIZE	G SIZE	CB	CKT	A	B	C	CKT	CB	CONDUIT SIZE	Φ/N SIZE	G SIZE	LOAD	NOTES	DESCRIPTION
							1	♦			2							
SPARE						20A/3P	3		♦		4	20A/3P						SAP UNIT
							5			♦	6							
							7	♦			8							
UNIT HEATER 1						20A/3P	9		♦		10	20A/3P						UNIT HEATER 2
							11			♦	12							
							13	♦			14							
EXHAUST FAN 1						20A/3P	15		♦		16	15A/3P						PLUG VALVE GREASE OUTLET
							17			♦	18							
							19	♦			20							
GREASE DUMP STATION						20A/3P	21		♦		22	15A/3P						PLUG VALVE SEPTAGE OUTLET
							23			♦	24							
GRINDER - 1-SAP-1613-PNL		5HP	3/4"	12	12	15A/3P	25	♦			26							SPACE
							27		♦		28							
							29			♦	30							

PANELBOARD L2

LOCATION: OUTSIDE SEPTAGE BUILDING
MAIN BUS RATING: 100A, 120/208VAC, 3P, 4W
MINIMUM SHORT-CIRCUIT INTERRUPTION RATING: EXISTING
MAIN BREAKER TRIP: 60A
FED FROM: L1
ESTIMATED CONNECTED LOAD: EXISTING
INCOMING FEED: EXISTING
ENCLOSURE: NEMA 12/3R
TVSS/SURGE PROTECTION: EXISTING

NOTES: SEE PANELBOARD SCHEDULE NOTES

DESCRIPTION	NOTES	LOAD	CONDUIT SIZE	Φ/N SIZE	G SIZE	CB	CKT	A	B	C	CKT	CB	CONDUIT SIZE	Φ/N SIZE	G SIZE	LOAD	NOTES	DESCRIPTION
SPARE						20A/2P	1	♦			2	20A/1P						LIGHTING-EXTERIOR
							3		♦		4	20A/1P						LIGHTING-INTERIOR
RECEPTACLE-NORTH						20A/1P	5			♦	6	20A/1P						GAS DETECTION
FIRE ALARM						20A/1P	7	♦			8	20A/1P						RECEPTACLES-WATER HEATER
AIR COMPRESSOR						20A/1P	9		♦		10	20A/2P						UNIT HEATER 3
GAS-WATER HEATER						20A/1P	11			♦	12							
FACP HEATER						20A/1P	13	♦			14	20A/1P						RECEPTACLES-EAST WEST
SPACE							15		♦		16	20A/1P						SPARE
SPACE							17			♦	18							SPACE
MAIN						60A/3P	19	♦			20							SPACE
							21		♦		22							SPACE
							23			♦	24							SPACE
SPACE							25	♦			26							SPACE
SPACE							27		♦		28							SPACE
SPACE							29			♦	30							SPACE

PANELBOARD L2

LOCATION: OUTSIDE SEPTAGE BUILDING
MAIN BUS RATING: 100A, 120/208VAC, 3P, 4W
MINIMUM SHORT-CIRCUIT INTERRUPTION RATING: EXISTING
MAIN BREAKER TRIP: 60A
FED FROM: L1
ESTIMATED CONNECTED LOAD: 6kVA
INCOMING FEED: EXISTING
ENCLOSURE: NEMA 12/3R
TVSS/SURGE PROTECTION: EXISTING

NOTES: SEE PANELBOARD SCHEDULE NOTES

DESCRIPTION	NOTES	LOAD	CONDUIT SIZE	Φ/N SIZE	G SIZE	CB	CKT	A	B	C	CKT	CB	CONDUIT SIZE	Φ/N SIZE	G SIZE	LOAD	NOTES	DESCRIPTION
SPARE						20A/2P	1	♦			2	20A/1P						LIGHTING-EXTERIOR
							3		♦		4	20A/1P						LIGHTING-INTERIOR
RECEPTACLE-NORTH						20A/1P	5			♦	6	20A/1P						GAS DETECTION
FIRE ALARM						20A/1P	7	♦			8	20A/1P						RECEPTACLES-WATER HEATER
AIR COMPRESSOR						20A/1P	9		♦		10	20A/2P						UNIT HEATER 3
GAS-WATER HEATER						20A/1P	11			♦	12							
FACP HEATER						20A/1P	13	♦			14	20A/1P						RECEPTACLES-EAST WEST
SAP FLOW METER		300W	3/4"	12	12	15A/1P	15		♦		16	20A/1P						SPARE
SAP ALARM PANEL 1-SAP-1623-PNL		300W	3/4"	12	12	15A/1P	17			♦	18	15A/1P	3/4"	12	12	150W	7	HEAT TRACE PW
							19	♦			20	15A/1P	3/4"	12	12	150W		ISR PANEL 1-SAP-1633-PNL
MAIN						60A/3P	21		♦		22							SPACE
							23			♦	24							SPACE
SPACE							25	♦			26							SPACE
SPACE							27		♦		28							SPACE
SPACE							29			♦	30							SPACE

LEGEND:

TO BE DEMOLISHED

DRAWING NOTES:

1. REPRESENTS EXISTING PANELBOARD.
2. REPRESENTS MODIFIED PANELBOARD.

PANELBOARD SCHEDULE NOTES:

1. THREE PHASE CIRCUITS: PROVIDE 3/4"C w/3-#12, 1-#12G FOR 20A CIRCUITS SERVING EQUIPMENT WITHIN 60' OF PANELBOARD, UNLESS OTHERWISE NOTED. INCREASE CONDUIT AND WIRE SIZES IN ACCORDANCE WITH SPECIFICATION SECTION 16120 AND THE NEC FOR LONGER CIRCUITS OR CIRCUITS LARGER THAN 20A.
2. SINGLE PHASE CIRCUITS: PROVIDE 3/4"C W/3-#12, 1-#12G FOR 20A CIRCUITS SERVING EQUIPMENT WITHIN 60' OF PANELBOARD, UNLESS OTHERWISE NOTED. INCREASE CONDUIT AND WIRE SIZES IN ACCORDANCE WITH SPECIFICATION SECTION 16120 AND THE NEC FOR LONGER CIRCUITS OR CIRCUITS LARGER THAN 20A.
3. RECEPTACLE CIRCUITS SHALL BE POWERED THROUGH A GFCI CIRCUIT BREAKER, EXCEPT AS FOLLOWS:
   - WHEN THE DISTANCE TO THE FIRST RECEPTACLE IS OVER 50' IN LENGTH, USE A STANDARD CIRCUIT AND PROVIDE A FEED THROUGH GFCI TYPE RECEPTACLE.
   - ALL RECEPTACLES MOUNTED IN LIGHT POLES OR ON HANDRAILS SHALL BE GFCI TYPE.
   - PROVIDE GFCI RECEPTACLES AT ALL LOCATIONS WHERE RECEPTACLES ARE MORE THAN 50' APART.
   - PROVIDE GFCI RECEPTACLES FOR ALL SINGLE PHASE CORD CONNECTED SUBMERSIBLE PUMP, MIXERS, ETC.
   - REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. CONDUIT SIZES SHOWN ARE MINIMUM ONLY AND NOT FOR USE IN DUCTBANKS. REFER TO DUCTBANK AND CIRCUIT SCHEDULE FOR CONDUIT SIZE AND FOR CONDUITS WHICH STUB-UP INTO PANELBOARDS.
5. LIGHTING CIRCUITS: PROVIDE ADDITIONAL CONDUCTORS AS REQUIRED TO CONNECT SWITCHED LEGS FOR FIXTURES OR UNSWITCHED LEGS FOR EMERGENCY LIGHTING UNITS AND EXIT SIGNS. EMERGENCY LIGHTING UNITS AND EXIT SIGNS SHALL BE CONNECTED UPSTREAM OF SWITCHED DEVICES. FOR ANY CIRCUITS WITH EMERGENCY LIGHTING, PROVIDE CIRCUIT BREAKER WITH LOCKOUT FEATURE (IN THE ON POSITION) AT GP/PP TO PREVENT ACCIDENTALLY TURNING OFF THE BREAKER.
6. LOCKOUT PROVISIONS: PROVIDE HANDLE LOCK-OFF/PADLOCK ATTACHMENT FEATURE.
7. PROVIDE GROUND-FAULT EQUIPMENT PROTECTOR RATED BREAKER. (GFEP)
8. PROVIDE HEATING, AIR-CONDITIONING, REFRIGERATION RATED BREAKER (HACR)
9. UNIT HEATER CONNECTIONS: CONTRACTOR SHALL COORDINATE CONNECTIONS WITH FINAL EQUIPMENT SELECTION. PROVIDE NECESSARY 3 ϕ, OR 1 ϕ BRANCH CIRCUITS AS REQUIRED PER EACH UNIT. UNUSED BRANCH CIRCUITS SHALL BE LABELED AS SPARE.
10. CIRCUITS MAY ALSO BE ROUTED THROUGH DUCT BANKS.
11. PROVIDE GFCI RATED BREAKER.
12. DEMOLISH AND REMOVE EXISTING CIRCUIT (CONDUIT/CONDUCTORS) FROM FIELD DEVICE BACK TO SOURCE AND PROVIDE BRANCH CIRCUIT AS SHOWN.
13. FIRE ALARM CONTROL PANEL CIRCUITS: PROVIDE LOCKABLE BREAKERS IN THE CLOSED POSITION AND PAINTED/INDICATED RED BREAKER HANDLE.
14. EXISTING BRANCH CIRCUIT TO BE RE-POWERED BY NEW PANELBOARD/MCC.
15. REPLACE CONDUIT AND CONDUCTORS FROM PANELBOARD TO FIRST LIGHTING FIXTURE, SWITCH, PANEL, BOX, OR OTHER EQUIPMENT IN THE BRANCH CIRCUIT.

E005

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/16/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12.9.20
CHIEF, BUREAU OF UTILITIES — DATE 12-11-2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — STEVEN A. YOUNG — 22479 — PROFESSIONAL ENGINEER — 9/19/20

DES:	BY	NO.	REVISION	DATE
B. CARDINAL				
DRN: T. SMITH				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

PANELBOARD SCHEDULES

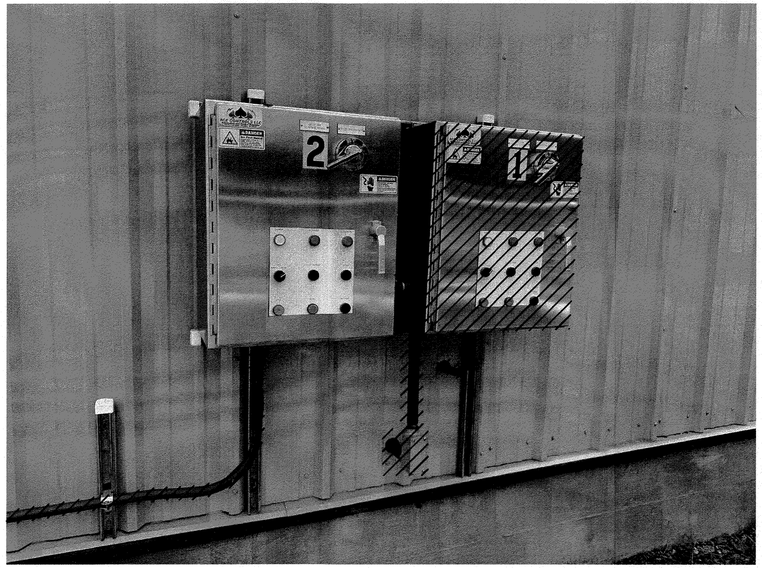
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

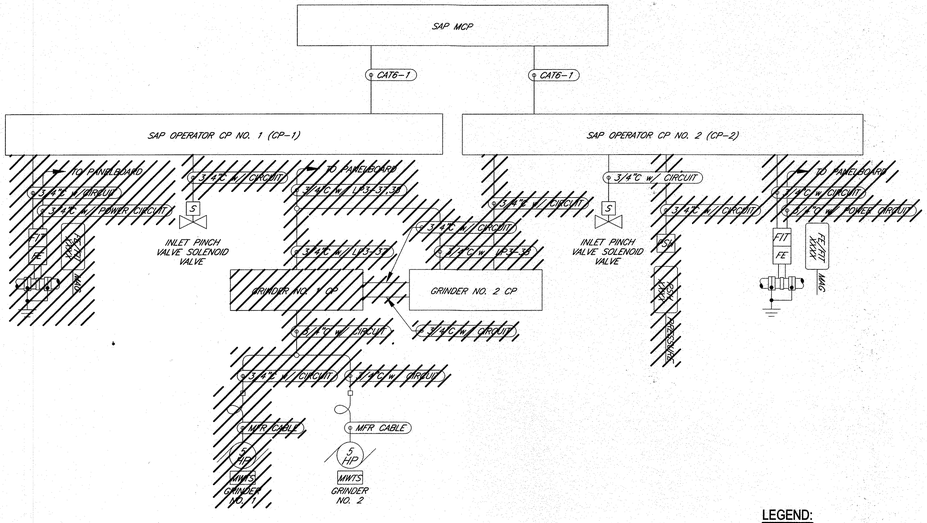
SCALE: NTS
SHEET NO. 14 OF 19

Plot Date: 17 July 2020 - 10:27 AM
Filename: G:\1111\1115812 Little Patuxent WRP Septage\Digital_Design\ACAD 2018\Septage\Sheets\Electrical\1115812-E005.dwg
Plotted By: Kristopher Lamon



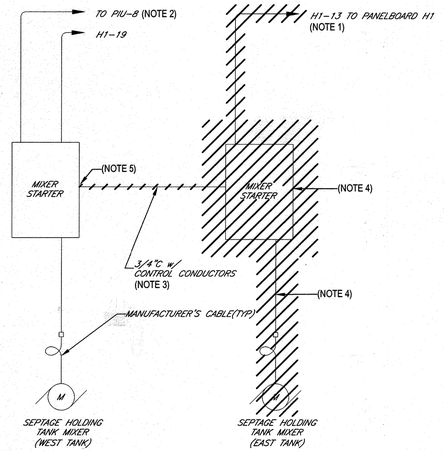
1 E006 GRINDER CONTROL PANELS
NTS

NOTES:
1. DEMOLISH POWER AND CONTROL CIRCUITS AND EXPOSED CONDUIT ASSOCIATED WITH GRINDER NO. 1 THE ASSOCIATED CONTROL PANEL. DEMOLISH TWO (2) CIRCUITS BETWEEN CONTROL PANEL NO. 1 AND NO. 2. DEMOLISH CONTROL CIRCUITS BACK TO SAP CP- 1. DEMOLISH CIRCUITS/CONDUIT BACK TO SOURCE AS SHOWN. CAP AND SEAL ALL REMAINING CONDUITS AT BOTH ENDS.
2. REFER TO DETAIL 2 ON E006 FOR SIZES AND CONNECTIONS FOR CONDUITS TO BE DEMOLISHED.



LEGEND:
TO BE DEMOLISHED

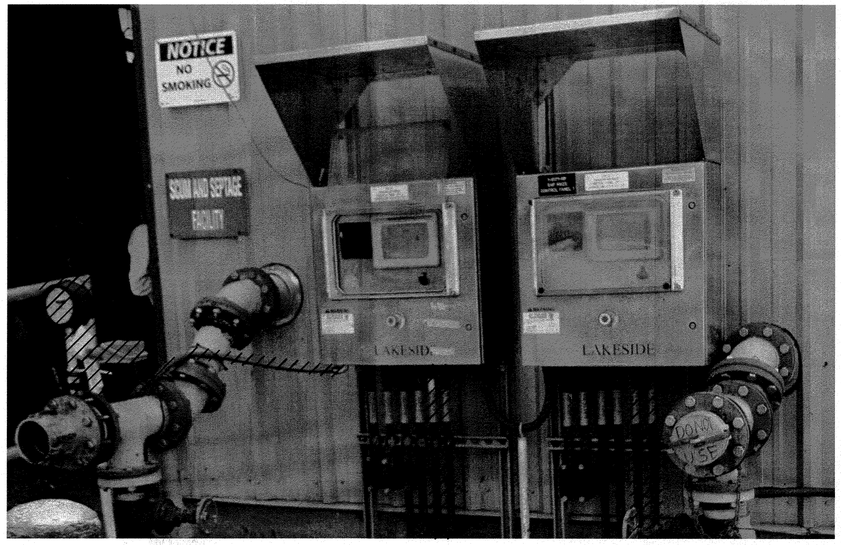
2 E006 SEPTAGE BUILDING DEMOLITION CONDUIT RISER DIAGRAM
NTS



6 E006 SEPTAGE HOLDING TANK MIXER DEMOLITION CONDUIT RISER DIAGRAM
NTS

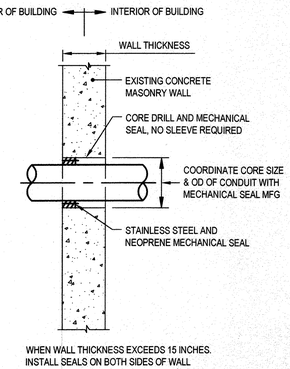
LEGEND:
TO BE DEMOLISHED

NOTES:
1. 480VAC, 3 PHASE CONDUCTORS IN ¾" CONDUIT. DEMOLISH CONDUCTORS AND EXPOSED CONDUIT BACK TO PANEBOARD H1. CAP CONCEALED CONDUITS. CIRCUIT BREAKER IN H1 SHALL REMAIN AS SPARE. UPDATE PANELBOARD DIRECTORY. PANELBOARD H1 IS LOCATED IN SCREEN BUILDING MECHANICAL ROOM.
2. DISCONNECT I/O CONDUCTORS FOR EAST TANK MIXER AT PIU-8 AND LABEL AS SPARE AT BOTH ENDS OF CONDUCTORS. PIU-8 IS LOCATED IN SCREEN BUILDING MECHANICAL ROOM.
3. DEMOLISH CONTROL CONDUCTORS AND ¾" CONDUIT BETWEEN EXISTING MOTOR STARTERS. CUT CONDUCTORS AND LABEL AS SPARE.
4. DEMOLISH EAST TANK MIXER STARTER AND ASSOCIATED BRANCH CIRCUIT CONDUCTORS AND EXPOSED CONDUIT. CAP CONCEALED CONDUITS. REFER TO MECHANICAL DRAWINGS FOR LOCATION OF MIXER STARTER PANELS.
5. SEAL ENCLOSURE WATERTIGHT.



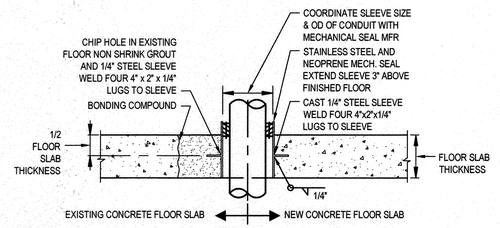
3 E006 OPERATOR CONTROL PANELS CP-1 AND CP-2
NTS

NOTES:
1. DEMOLISH CONTROL CIRCUITS ASSOCIATED WITH THE FLOW METERS, PRESSURE SWITCH AND THE INLET PINCH VALVE SOLENOID VALVE. DEMOLISH CIRCUITS BACK TO SOURCE AS SHOWN. CAP AND SEAL ALL REMAINING CONDUITS AT BOTH ENDS.
2. REFER TO DETAIL 2 ON E006 FOR SIZES AND CONNECTIONS FOR CONDUITS TO BE DEMOLISHED.



WHEN WALL THICKNESS EXCEEDS 15 INCHES. INSTALL SEALS ON BOTH SIDES OF WALL

4 E006 CONDUIT PENETRATION THRU EXISTING CONCRETE WALL
SCALE: NTS



NOTES:
1. INSTALL SEALS ON BOTH SIDES OF FLOOR WHEN FLOOR THICKNESS EXCEEDS 15".
2. GROUT/CAST STEEL FRAME WITH COMPRESSIBLE, ELASTOTHERMIC SECTIONS INTO FLOOR WHERE MORE THAN THREE CONDUITS PENETRATE THE FLOOR. CROUSE-HINDS "THRU-WALL BARRIER" OR EQUAL.

5 E006 CONDUIT PENETRATION THRU CONCRETE FLOOR SLAB
SCALE: NTS

E006

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12-9-20
CHIEF, BUREAU OF ENGINEERING — DATE
CHIEF, BUREAU OF UTILITIES — DATE 12-11-2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
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T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

DES: B. CARDINAL
DRN: T. SMITH
CHK: T. YOUNG
DATE:

BY	NO.	REVISION	DATE

BID SUBMISSION — JULY 2020

ELECTRICAL DETAILS 1

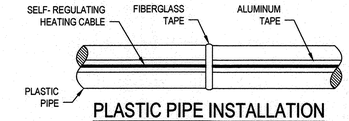
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

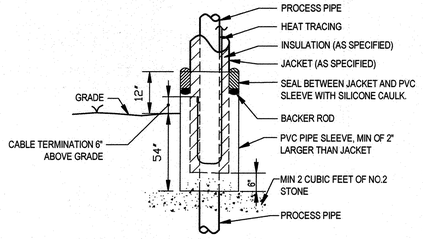
ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: NTS
SHEET NO. 15 OF 19

Filename: G:\11111\115312 Little Patuxent WRP Septage\Digital_Design\ACAD 2018\Septage\Sheets\Electrical\111531X-E006.dwg
Plotted By: Kristopher Larson
Plot Date: 17-July 2020 - 10:27 AM



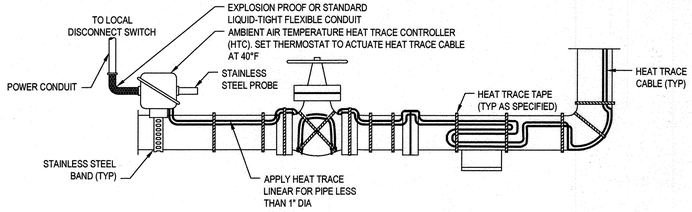
PLASTIC PIPE INSTALLATION



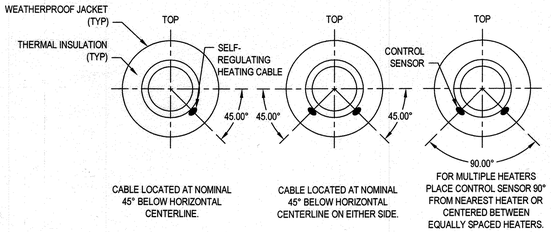
PROTECTION OF PIPE INSULATION

NOTES:

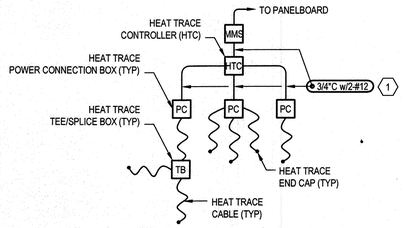
1. FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY FINAL PIPE LENGTHS.
2. INSULATION AND JACKET TYPES ARE REFERENCED IN SPECIFICATIONS.
3. PROVIDE LOCAL 30A/1P DISCONNECT SWITCH FOR ALL HEAT TRACE CONTROLLERS (HTC).



TYPICAL HEAT TRACING CONFIGURATION



HEAT CABLE/SENSOR LOCATION



HEAT TRACE DETAIL NOTES:

1. CONTRACTOR SHALL PROVIDE 3/4"C w/2-#12 BETWEEN HEAT TRACE CONTROLLERS OR HEAT TRACE POWER CONNECTION BOXES AND THEIR RESPECTIVE PIPING WHERE THE CONTROLLERS ARE NOT MOUNTED TO THE PIPE.
2. REFER TO MECHANICAL DRAWINGS FOR EXTENT OF PW PIPING TO BE HEAT TRACED (LESS THAN 10' OF PIPE)

TYPICAL HEAT TRACE SCHEMATIC

INSTALLATION INFORMATION:

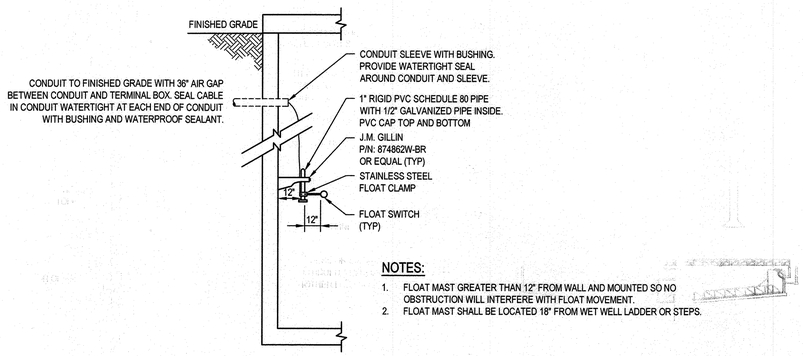
-TEMPORARILY POSITION CABLE ON PIPE AND EQUIPMENT TO ENSURE PROPER DISTRIBUTION.

-LEAVE A LOOP OF CABLE AT HEAT SINKS SUCH AS VALVES, PIPE SUPPORTS AND FLANGE SETS. USE FIBERGLASS TO SECURE CABLE TO PIPE AT 18" (NOM) INTERVALS USING RECOMMENDED METHOD.

-ALWAYS OBSERVE MINIMUM BEND RADIUS.

1 E007 HEAT TRACING DETAILS 2

SCALE: NTS

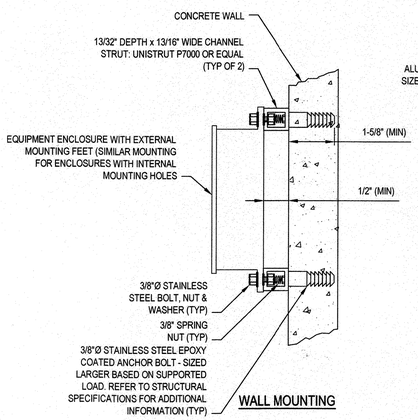


NOTES:

1. FLOAT MAST GREATER THAN 12" FROM WALL AND MOUNTED SO NO OBSTRUCTION WILL INTERFERE WITH FLOAT MOVEMENT.
2. FLOAT MAST SHALL BE LOCATED 18" FROM WET WELL LADDER OR STEPS.

3 E007 FLOAT MASTER ASSEMBLY DETAIL

SCALE: NTS



2 E007 EQUIPMENT MOUNTING RACK DETAILS

SCALE: NTS

NOTES:

1. PROVIDE TWO SUPPORTS FOR ENCLOSURES/EQUIPMENT WIDER THAN 8".
2. ALUMINUM MOUNTING PLATES SHALL BE 2" GREATER ON EACH SIDE THAN DIMENSION OF THE ENCLOSURE(S)/EQUIPMENT. ROUND ALL CORNERS AND EDGES.
3. ANCHOR ALUMINUM PLATE TO ANGLE POST WITH 3/8"Ø STAINLESS STEEL FASTENERS.

E007

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE — CHIEF, BUREAU OF ENGINEERING — DATE 12.2.20
CHIEF, BUREAU OF UTILITIES — DATE 12-11-2020 — CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

GHD Inc.
16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — SENIOR A. POURSAID — PROFESSIONAL ENGINEER — 22479

DES:	BY	NO.	REVISION	DATE
B. CARDINAL				
DRN: T. SMITH				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

ELECTRICAL DETAILS 2

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

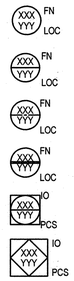
SCALE: NTS

SHEET NO. 16 OF 19

Filename: G:\111\111153812.Little Patuxent WRP Septage\Digital_Design\ACAD 2018\Septage\Sheets\Electrical\111153812-E007.dwg
Plotted By: Kristopher Larson
Plot Date: 17 July 2020 - 10:27 AM

INSTRUMENT SYMBOLS:

NOTE: REFER TO ISA STANDARD S5.1-1984 (OR LATER) FOR INSTRUMENT SYMBOLS NOT SHOWN ON THIS SHEET .



LOCAL INSTRUMENT - FIELD MOUNTED INSTRUMENT

PANEL INSTRUMENT - OPERATOR ACCESSIBLE PRIMARY FUNCTION

PANEL INSTRUMENT - OPERATOR INACCESSIBLE PRIMARY FUNCTION

AUXILIARY FUNCTION

PART OF PCS OR PLC - NORMALLY ACCESSIBLE TO OPERATOR

PART OF PCS OR PLC - NORMALLY AN AUTOMATED FUNCTION OR NOT ACCESSIBLE TO OPERATOR

IO - ORIGIN OF SIGNAL
- DI - DIGITAL INPUT
- DO - DIGITAL OUTPUT
- AI - ANALOG INPUT
- AO - ANALOG OUTPUT
- VIO - VIRTUAL I/O
- DV - DERIVED VARIABLE

PCS - PROCESS CONTROL UNIT (PLC) DESIGNATION OF SIGNAL

XXX - DEVICE OR SIGNAL FUNCTIONAL DESIGNATION. (SEE ISA IDENTIFICATION TABLE)

YYY - LOOP NUMBER

LOC - LOCATIONS USED TO IDENTIFY

FN - SUPPLEMENTAL FUNCTION INFORMATION. (SEE TABLE OF ABBREVIATIONS)

TAG NOS. FOR I/O POINTS ON P&IDs HAVE BEEN SHORTENED FOR BREVITY; ONLY THE LOOP NUMBER AND FUNCTIONAL DESIGNATION HAS BEEN SHOWN FOR EACH POINT. FULL TAG NOS. FOR I/O POINTS ARE AS FOLLOWS:

P - AAAA - YYYY - XXX

- XXX — FUNCTIONAL DESIGNATION
- YYYY — LOOP NUMBER
- AAAA — PROCESS DESIGNATION
- P — PLANT AREA

ORIFICE PLATE W/ FLANGE OR CORNER TAPS

ORIFICE PLATE W/ VENA CONTRACT A, RADIUS OR PIPE TAPS

FLUME TYPE FLOW ELEMENT

VENTURI TUBE OR FLOW NOZZLE

WEIR TYPE FLOW ELEMENT

MAGNETIC FLOW METER

MASS FLOW METER

TURBINE METER

POSITIVE DISPLACEMENT METER

ROTAMETER

BATCH FLOW METER w/ AUTOMATIC CUTOFF

RESTRICTION ORIFICE DRILLED IN VALVE

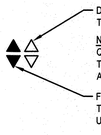
TEMPERATURE TEST CONNECTION WITH WELL

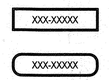
TEMPERATURE ELEMENT WITH WELL

TEMPERATURE ELEMENT

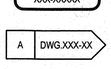
PRESSURE INDICATOR

LEVEL ELEMENT





EQUIPMENT TAG



PROCESS LINE TAG

PROCESS OR SIGNAL LINE CONTINUED AT/FROM ANOTHER LOCATION

VALVE SYMBOLS:

MANUAL VALVE

SOLENOID VALVE

FLOW CONTROL VALVE

MOTOR OPERATED VALVE

GATE VALVE

PLUG VALVE

BALL VALVE

PINCH VALVE

BUTTERFLY VALVE

3 WAY SOLENOID VALVE

4 WAY VALVE

ANGLE VALVE

CHECK VALVE

SLIDE GATE

BACK FLOW PREVENTER VALVE

PRESSURE REDUCING VALVE

COMBINATION AIR VALVE

AIR RELEASE VALVE

BACKPRESSURE REGULATOR (SELF-CONTAINED)

PULSATION DAMPENER

ROTAMETER

INLINE ANNULAR SEAL

CALIBRATION COLUMN

QUICK DISCONNECT FITTING

STRAINER

CAMLOCK FITTING

EQUIPMENT SYMBOLS:

HORIZONTAL CENTRIFUGAL PUMP

MULTISTAGE CENTRIFUGAL PUMP

AIR COMPRESSOR

CIRCULATING EDUCATOR

PISTON PUMP

AXIAL BLOWER

CENTRIFUGAL BLOWER

VENT

FUNNEL - OPEN TOP

STATIC MIXER

DIAPHRAGM PUMP

BAR SCREEN

DRUM SCREEN

GRIT WASHER

GRIT CLASSIFIER

VERTICAL TURBINE PUMP

CIRCULAR CLARIFIER OR GRAVITY THICKENER

MOTOR

ELECTRIC HEATER

PROGRESSING CAVITY PUMP

AGITATORS

VERTICAL CENTRIFUGAL SUMP PUMP

LUBRICATOR

EXHAUST HEAD

ROTARY VALVE OR AIR LOCK

VACUUM PUMP

ROTARY LOBE TYPE BLOWER

55 GALLON STORAGE TANK

CONE VALVE

DAY STORAGE TANK

SCREW CONVEYOR OR SCREW PUMP

BELT CONVEYOR

COMMUNITOR/GRINDER

STORAGE TANK

COARSE BUBBLE DIFFUSER

VERTICAL EXTENDED SHAFT PUMP

SUBMERSIBLE PUMP

DEFINITION OF INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTER			SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER		PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS			ALARM		AUTOMATIC
B	BURNER OR COMBUSTION			USER'S CHOICE	CLOSE OR STOP	BYPASS
C	START	CLOSE			CONTROL	
D	USER'S CHOICE	DIFFERENTIAL			OPEN OR START	
E	VOLTAGE			PRIMARY ELEMENT	SENSOR	
F	FLOW RATE	RATIO		FAIL		FAIL
G	GAGING			GLASS		MODE
H	HAND					HIGH OR OPEN
I	CURRENT			INDICATE		INTERMEDIATE
J	POWER	SCAN				
K	TIME OR TIME SCHEDULE	TIME RATE			CONTROL STATION	
L	LEVEL			LIGHT		LOW OR CLOSED
M	USER'S CHOICE					
N	USER'S CHOICE			USER'S CHOICE	USER'S CHOICE	ON OR OPERATE
O	STOP	OPEN		ORIFICE OR RESTRICTION	OFF	OVERLOAD
P	PRESSURE	PNEUMATIC		POINT (TEST)	POSITION	
Q	QUANTITY	TOTALIZE				
R	RADIOACTIVITY			RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SEQUENCE	SWITCH	OFF OR STOP
T	TEMPERATURE				TRANSMIT	
U	MULTIVARIABLE			MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION				VALVE OR DAMPER	VDF
W	WEIGHT OR FORCE			WELL		
X	UNCLASSIFIED	X - AXIS		UNCLASSIFIED	UNCLASSIFIED	RESET
Y	EVENT, STATE, OR PRESENCE	Y - AXIS			RELAY OR COMPUTE	
Z	POSITION	Z - AXIS			DRIVE OR ACTUATOR	

INSTRUMENT LINE SYMBOLS:

JACKETED PIPE

NEW PROCESS OR EQUIPMENT LINE

EXISTING PROCESS OR EQUIPMENT LINE

INSULATED PROCESS LINE

COVERED TRENCH

HYDRAULIC LINE

MECHANICAL LINKAGE

NEW ELECTRICAL SIGNAL

EXISTING ELECTRICAL SIGNAL

PNEUMATIC SIGNAL

FILLED CAPILLARY

ELECTROMAGNETIC SIGNAL

SOFTWARE DATA LINK

INTERCONNECTION ELECTRICAL SIGNAL

PNEUMATIC BINARY SIGNAL

ELECTRIC BINARY SIGNAL

NEW/EXISTING TEXT IDENTIFIER:

EXISTING EQUIPMENT, CONDITIONS, AND STRUCTURES ARE SHOWN IN THIS TEXT FORMAT

NEW WORK, EQUIPMENT, AND STRUCTURES ARE SHOWN IN THIS TEXT FORMAT.

BUBBLER CONTROL PANEL

DRY PIT SUBMERSIBLE PUMP

DRAWING NOTE
REFERENCE

1 SEP
SCALE:

I001

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/16/2020
CHIEF, BUREAU OF ENGINEERING — DATE 12-2-20
CHIEF, BUREAU OF UTILITIES — DATE 12-11-2020
CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

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16701 Melford Boulevard, Suite 330
Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — SENIOR ASSOCIATE — PROFESSIONAL ENGINEER — 22479 — DATE

DES:	BY	NO.	REVISION	DATE
B. CARDINAL				
DRN: T. SMITH				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

INSTRUMENTATION LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: NTS

SHEET NO. 17 OF 19

Filename: G:\1111\11153912 Little Patuxent WRP Septage\Digital_Design\ACAD 2018\Septage\Sheets\Instrumentation\11153912-I001.dwg
Plotted By: Kristopher Lamon
Plot Date: 17 July 2020 - 10:28 AM

SAP MCP PLC

LOCAL

FIELD

ALARM - LOW AIR PRESSURE
PSL 1611

CONTROL - VALVE OPEN/CLOSE
ZC 1614

ALARM-HIGH INLET PRESSURE
PSH 1612

CONTROL - VALVE OPEN/ CLOSE
ZC 1612

INDICATION - FLOW
FI 1611

ALARM-HIGH INLET PRESSURE
PSH 1622

CONTROL - VALVE OPEN/ CLOSE
ZC 1622

CONTROL - START GRINDER
CC 1611

INDICATION - GRINDER RUN
YI 1611

INDICATION - GRINDER FAIL
YA 1611A

CONTROL - VALVE OPEN/CLOSE
ZC 1624

CONTROL - VALVE OPEN/CLOSE
ZC 1634

CONTROL - VALVE OPEN/CLOSE
ZC 1644

CONTROL - ENERGIZE ALARM
YC 1611

ALARM - INLET BOX HIGH LEVEL
LSH 1611

ALARM - LOW PW PIPE TEMPERATURE
TSL 1611

SAP OPERATOR CP NO. 1 (CP-1)
OIT

SAP OPERATOR CP NO. 2 (CP-2)
OIT

(3)

GRINDER NO. 2 CP
(1-SAP-1611-GRN CP) 1

120 V

SAP ALARM PANEL
1-SAP-1611-AP

YA 1611A ALARM LIGHT

YI 1611 CONTROL POWER

YA 1611B ALARM HORN

120 V

YI 1611 POWER TO HEAT TRACE

HEAT TRACE POWER CONNECTION BOX

120 V

HEAT TRACE CONTROLLER
1- SAP- 1611-HTC

MANUFACTURER'S RTD CABLE

TE 1611 LINE TEMPERATURE SENSOR

PW

PW

INTRINSICALLY SAFE RELAY PANEL
1-SAP-1611-LCP

YI 1611 CONTROL POWER

YA 1611 HIGH LEVEL

SEPTAGE BUILDING

PI 1611

PSL 1611

COMPRESSED AIR

HW

1-SAP-1614-SV

1-SAP-1612-SV

SEPTAGE

INLET CONNECTION COUPLING

PSH 1612

PI 1612

PINCH VALVE 1-SAP-1612-VLV 1

KNIFE GATE VALVE

1-SAP-1622-SV

SEPTAGE

INLET CONNECTION COUPLING

PSH 1622

PI 1622

PINCH VALVE 1-SAP-1622-VLV 1

ISOLATION RING (TYP)

ROCK TRAP

1-SAP-1624-SV

HW

480 V

5 HP

FSH 1611

GRINDER 1-SAP-1611-GRN

FIT 1611

FE 1611

1-SAP-1611-FE/FIT 1

KNIFE GATE VALVE

HW

1-SAP-1644-SV

CW

1-SAP-1634-SV

SAP UNIT

DRAIN

TO AEROBIC DIGESTER (GREASE)

TB TERMINAL BOX
1-SAP-1622-TB

SEPTAGE HOLDING TANK NO.1

TO EXISTING MANHOLE

SGSF-2

SGSF-1

LSH 1611

SEPTAGE HOLDING TANK INLET BOX

SGSF-3

M

SGSF-5

SEPTAGE HOLDING TANK NO.2

SEPTAGE HOLDING TANKS

UNIT	EQUIPMENT TAG NUMBER
INLET PRESSURE SWITCH	1-SAP-1612-PSH
BYPASS INLET PRESSURE SWITCH	1-SAP-1622-PSH
COMPRESSED AIR PRESSURE SWITCH	1-SAP-1611-PSL
RELOCATED FLOW METER	1-SAP-1611-FE/FIT (1)
GRINDER	1-SAP-1611-GRN (1)
PINCH VALVE SOLENOID VALVE	1-SAP-1612-SV (1)
PINCH VALVE SOLENOID VALVE	1-SAP-1622-SV (1)
HOT WATER FLUSHING SOLENOID VALVE NO.1	1-SAP-1614-SV
HOT WATER FLUSHING SOLENOID VALVE NO.2	1-SAP-1624-SV
SEPTAGE TANK CW FLUSHING SOLENOID VALVE	1-SAP-1634-SV
SEPTAGE TANK HW FLUSHING SOLENOID VALVE	1-SAP-1644-SV
LINE TEMPERATURE SENSOR	1-SAP-1611-TE

DRAWING NOTES:

1. (1) NEW EQUIPMENT TAG NUMBER FOR EXISTING EQUIPMENT.

1 SEPTAGE ACCEPTANCE PLANT P&ID

SCALE : NTS

I002

Filename: G:\11111\115312_Little Patuxent WRP Septage\Digital_Design\ACAD 2018\Septage\Sheets\Instrumentation\115312-A002.dwg

Plotted By: Kristopher Lanson

Plot Date: 17 July 2020 - 10:28 AM

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/16/2020 — CHIEF, BUREAU OF ENGINEERING — DATE 12-9-20

CHIEF, BUREAU OF UTILITIES — DATE 12-17-2020 — CHIEF, UTILITY DESIGN DIVISION — DATE

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

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Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — STEVEN A. YOUNG — 22479 — PROFESSIONAL ENGINEER

DES:	B. CARDINAL
DRN:	T. SMITH
CHK:	T. YOUNG
DATE:	

BY	NO.	REVISION	DATE

BID SUBMISSION — JULY 2020

SEPTAGE ACCEPTANCE PLANT P&ID

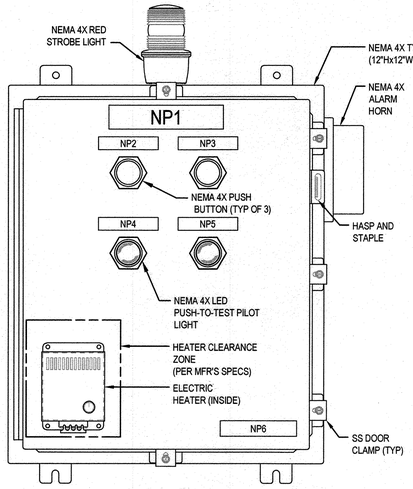
CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: NTS

SHEET NO. 18 OF 19



1 SAP ALARM PANEL ELEVATION (1-SAP-1623-PNL)

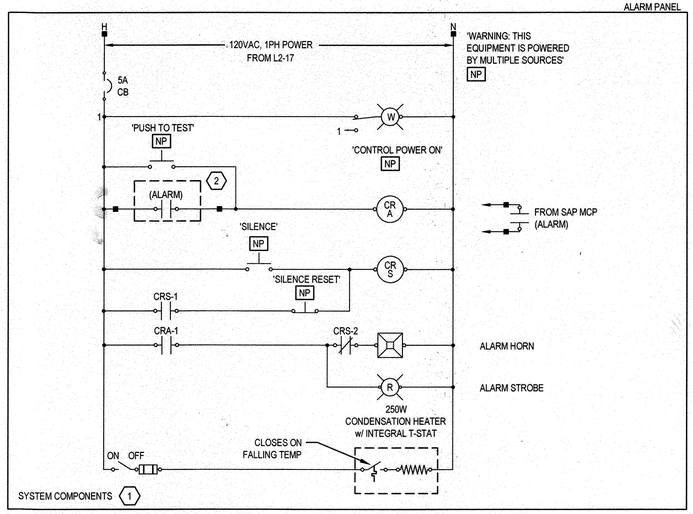
SCALE: NTS

NAMEPLATE LEGEND

NP1: SAP ALARM PANEL (1-SAP-1611-AP)
NP2: PUSH TO TEST
NP3: SILENCE
NP4: CONTROL POWER ON
NP5: SILENCE RESET
NP6: WARNING: THIS EQUIPMENT IS POWERED BY MULTIPLE SOURCES

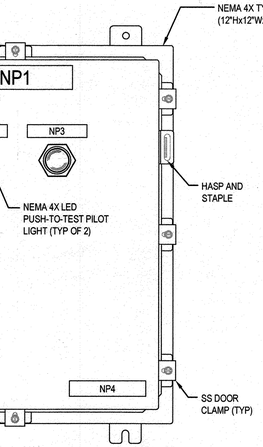
NOTES:

1. EQUIPMENT SHOWN IN THE ENCLOSURE IS FOR GENERAL INFORMATION ONLY. ALL COMPONENTS/DEVICES MAY NOT BE SHOWN FOR BREVITY. CONTRACTOR SHALL COORDINATE FINAL SIZE AND ARRANGEMENT OF THE ENCLOSURE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. ALL ACCESSORIES AND MODIFICATIONS TO THE ENCLOSURE SHALL MAINTAIN THE NEMA RATING OF THE ENCLOSURE AFTER FABRICATION AND INSTALLATION.



2 SAP ALARM PANEL ELEMENTARY DIAGRAM (1-SAP-1623-PNL)

SCALE: NTS



3 INTRINSICALLY SAFE RELAY PANEL ELEVATION (1-SAP-1633-PNL)

SCALE: NTS

NAMEPLATE LEGEND

NP1: INTRINSICALLY SAFE RELAY PANEL (1-SAP-1611-LCP)
NP2: CONTROL POWER ON
NP3: HIGH LEVEL
NP4: WARNING: THIS EQUIPMENT IS POWERED BY MULTIPLE SOURCES

NOTES:

1. EQUIPMENT SHOWN IN THE ENCLOSURE IS FOR GENERAL INFORMATION ONLY. ALL COMPONENTS/DEVICES MAY NOT BE SHOWN FOR BREVITY. CONTRACTOR SHALL COORDINATE FINAL SIZE AND ARRANGEMENT OF THE ENCLOSURE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
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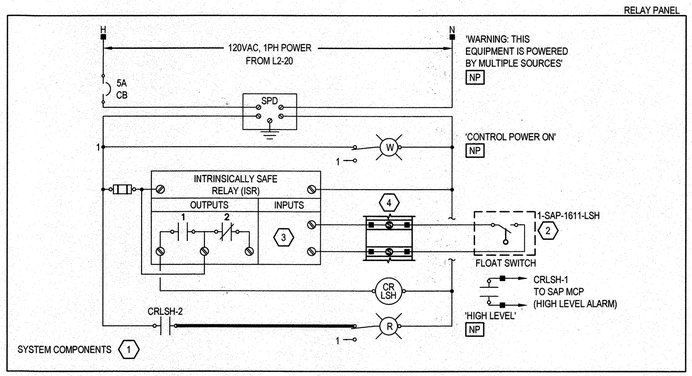

4 INTRINSICALLY SAFE RELAY PANEL ELEMENTARY DIAGRAM (1-SAP-1633-PNL)

SCALE: NTS

DRAWING NOTES:

1. SYSTEM COMPONENTS: REFER TO SPECIFICATIONS FOR ADDITIONAL CONTROL COMPONENTS AND ACCESSORIES REQUIRED FOR EACH STARTER/VFD UNIT OR CONTROL PANEL.
2. FIELD DEVICE: EQUIPMENT OR COMPONENT LOCATED REMOTE FROM PANEL.
3. INTRINSICALLY SAFE CIRCUITS: PROVIDE INTRINSICALLY SAFE BARRIERS (I.S.B.) OR INTRINSICALLY SAFE RELAY (I.S.R.) AS REQUIRED. INTRINSICALLY SAFE CIRCUITS SHALL BE KEPT PHYSICALLY SEPARATED FROM ALL NON-INTRINSICALLY SAFE CIRCUITS.
4. CONTRACTOR SHALL PROVIDE SURGE SUPPRESSION FOR ALL DISCRETE AND ANALOG SIGNALS TERMINATING OR ORIGINATING OUT OF DOORS OR IN OTHER BUILDINGS. SURGE PROTECTION DEVICES WITHIN INTRINSICALLY SAFE CIRCUITS SHALL BE SUITABLE FOR SUCH. SURGE PROTECTION TERMINAL BLOCKS ARE NOT SHOWN FOR ALL REQUIRED APPLICATIONS ON THIS SHEET FOR CLARITY.

I003

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/6/2020 — CHIEF, BUREAU OF ENGINEERING — DATE 12-3-20
CHIEF, BUREAU OF UTILITIES — DATE 12-17-2020 — CHIEF, UTILITY DESIGN DIVISION — DATE 12/7/2020

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENCE NO. 22479, EXPIRATION DATE: 09/27/2021

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Bowie MD 20715 USA
T 1 240 206 6810 F 1 240 206 6811 W www.ghd.com

STATE OF MARYLAND — TIMOTHY JOSEPH YOUNG — 22479 — REGISTERED PROFESSIONAL ENGINEER — 9/17/20

DES:	BY	NO.	REVISION	DATE
B. CARDINAL				
DRN: T. SMITH				
CHK: T. YOUNG				
DATE:				

BID SUBMISSION — JULY 2020

ELEMENTARY CONTROL DIAGRAMS AND ELEVATIONS

CAPITAL PROJECT NO.: S6264
CONTRACT NO.: 20-5141

LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6 — HOWARD COUNTY, MARYLAND

SCALE: NTS

SHEET NO. 19 OF 19