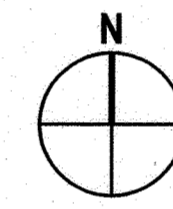
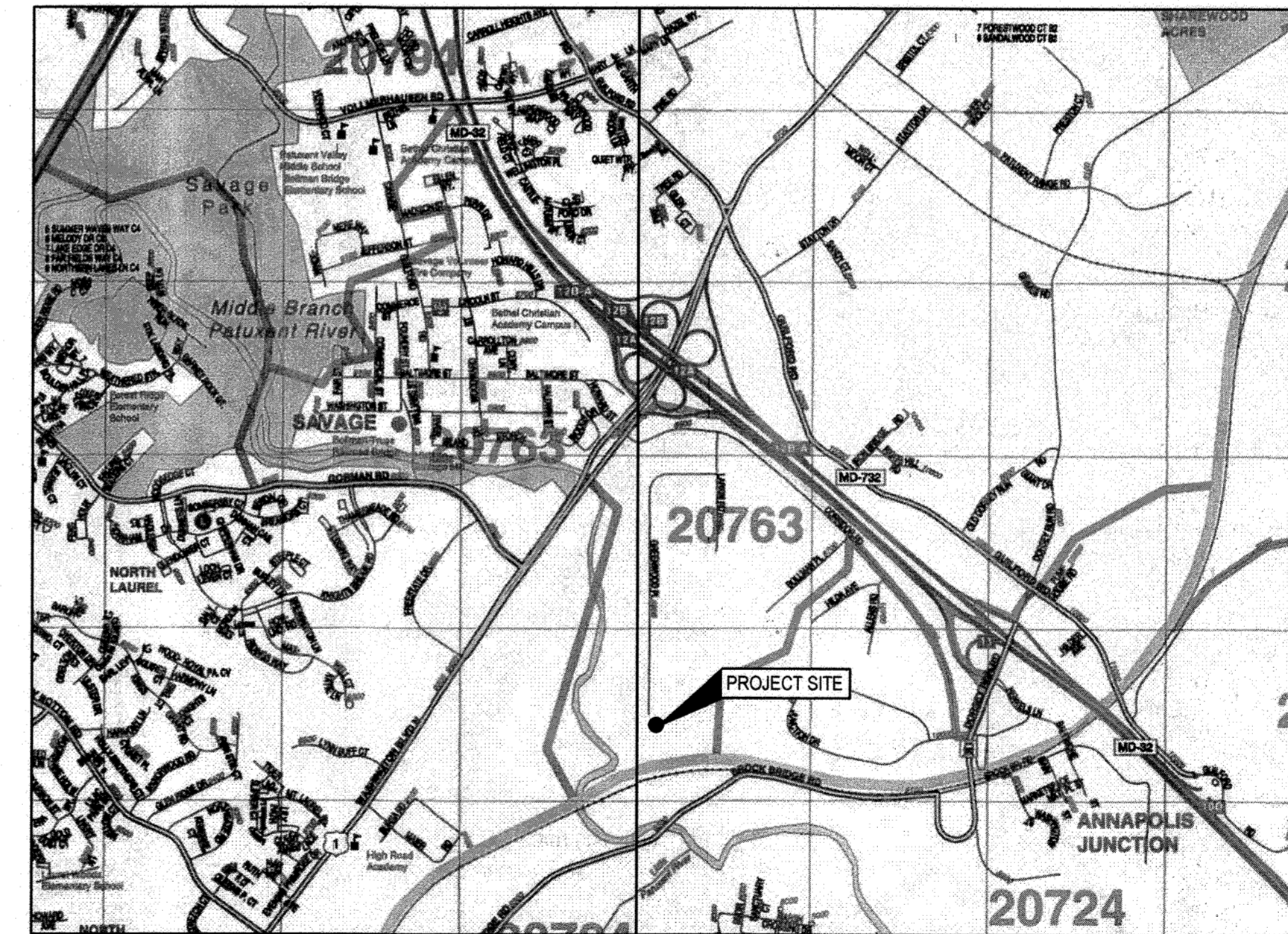
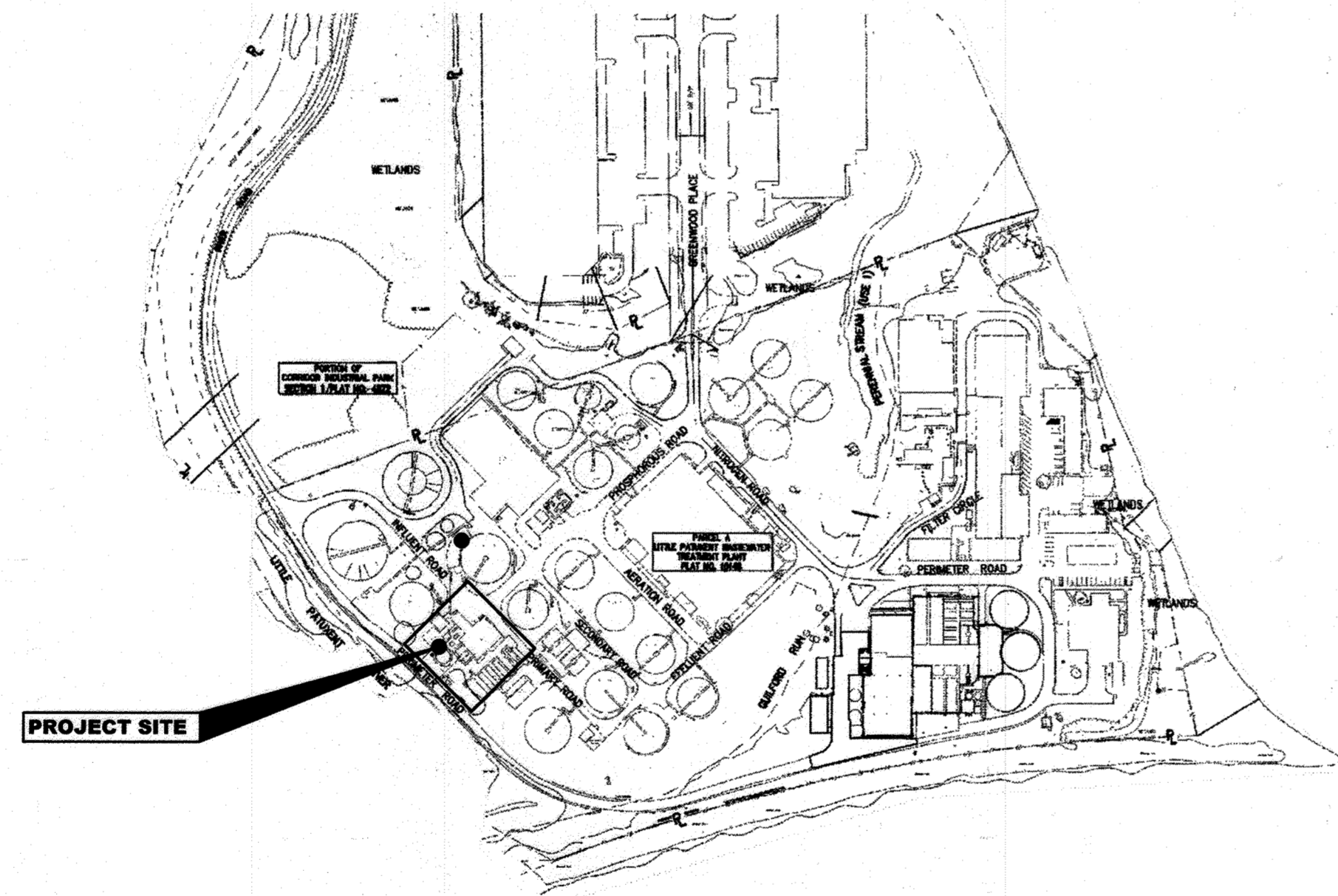


# LITTLE PATUXENT WRP HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS HAULED WASTE RECEIVING IMPROVEMENTS CAPITAL PROJECT NO.: S6264 CONTRACT NO.: 20-5141 JULY 2020

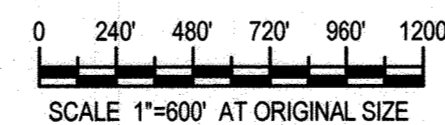
**LIST OF DRAWINGS**

SHEET NO.	DRAWING NO.	DRAWING TITLE
<b>GENERAL</b>		
1	G 001	COVER SHEET AND LIST OF DRAWINGS
2	G 002	FLOW SCHEMATIC, ABBREVIATIONS, LEGENDS, GENERAL NOTES AND MISCELLANEOUS DETAILS
<b>CIVIL</b>		
3	C 001	PROPOSED YARD PIPING SITE PLAN
<b>MECHANICAL</b>		
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	MISCELLANEOUS DETAILS
<b>ELECTRICAL</b>		
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
<b>INSTRUMENTATION</b>		
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



- SITE INFORMATION:**
- ADDRESS: 8900 GREENWOOD PLACE, SAVAGE, MD
  - OWNER: HOWARD COUNTY, MARYLAND
  - ZONING: M-2
  - LOT SIZE: 79,475 SF (18.245 ACRES) (PLANT)
  - ADC MAP: 47
  - 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



**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.

File name: G:\1111113812\Little Patuxent WRP - Septage\Digital\_Design\CAD\2018\Septage\Sheet\General\1113812-001.dwg  
 Plotted By: Nicholas Larson  
 Plt Date: 17 July 2020 10:23 AM

**DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND**

RUPA PANDEY  
 CHIEF, BUREAU OF ENGINEERING  
 DATE: 12/16/2019

NICHOLAS LARSON  
 CHIEF, BUREAU OF UTILITIES  
 DATE: 12/11/2020

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

NICHOLAS LARSON  
 PROFESSIONAL ENGINEER  
 STATE OF MARYLAND  
 LICENCE NO. 22479

**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	BID SUBMISSION
J. VER NOOY					
DRN:					
K. LARSON					
CHK:					
T. YOUNG					
DATE:					

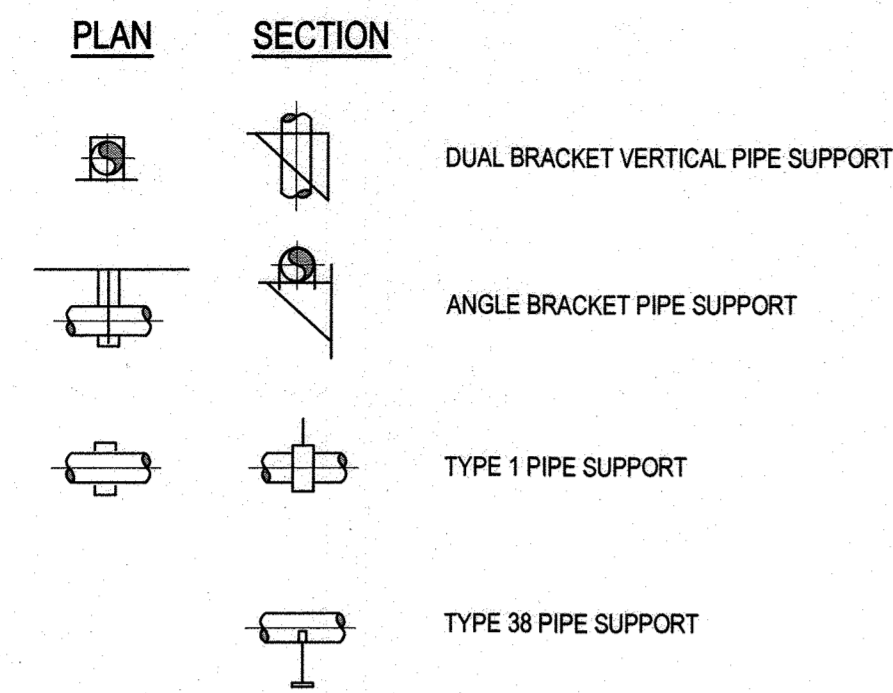
COVER SHEET AND  
LIST OF DRAWINGS

JULY 2020

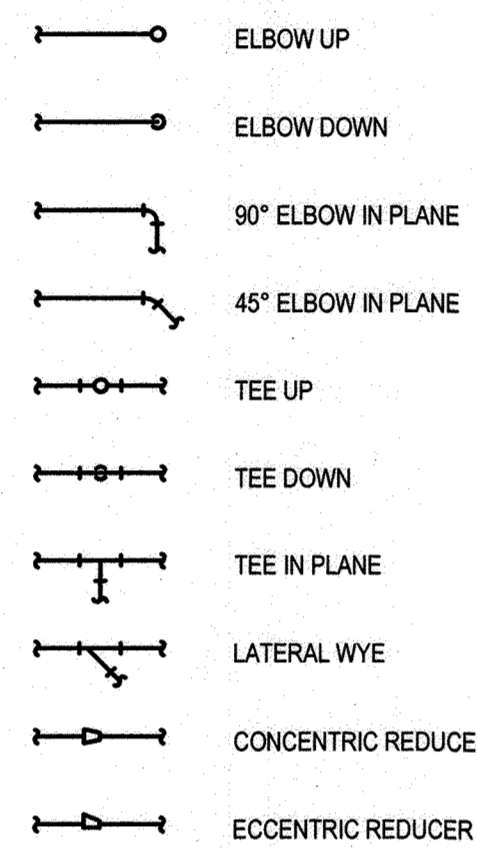
CAPITAL PROJECT NO.: S6264  
CONTRACT NO.: 20-5141  
**LITTLE PATUXENT WRP HAULED  
WASTE RECEIVING IMPROVEMENTS**

ELECTION DISTRICT NO. 6      HOWARD COUNTY, MARYLAND

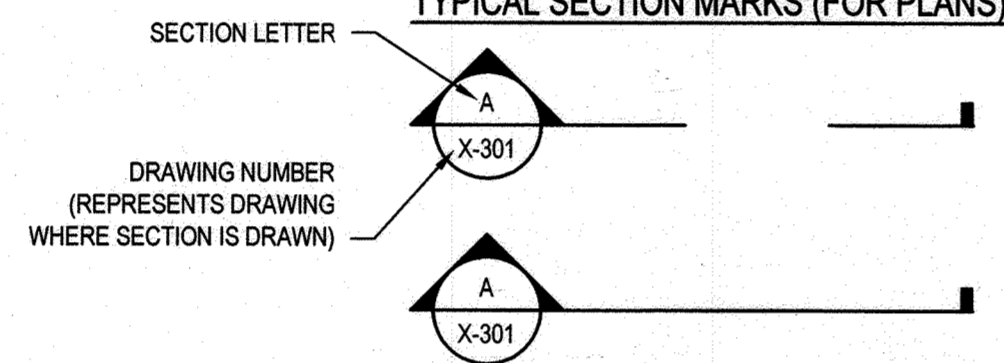
**PIPE SUPPORT SYMBOLS**



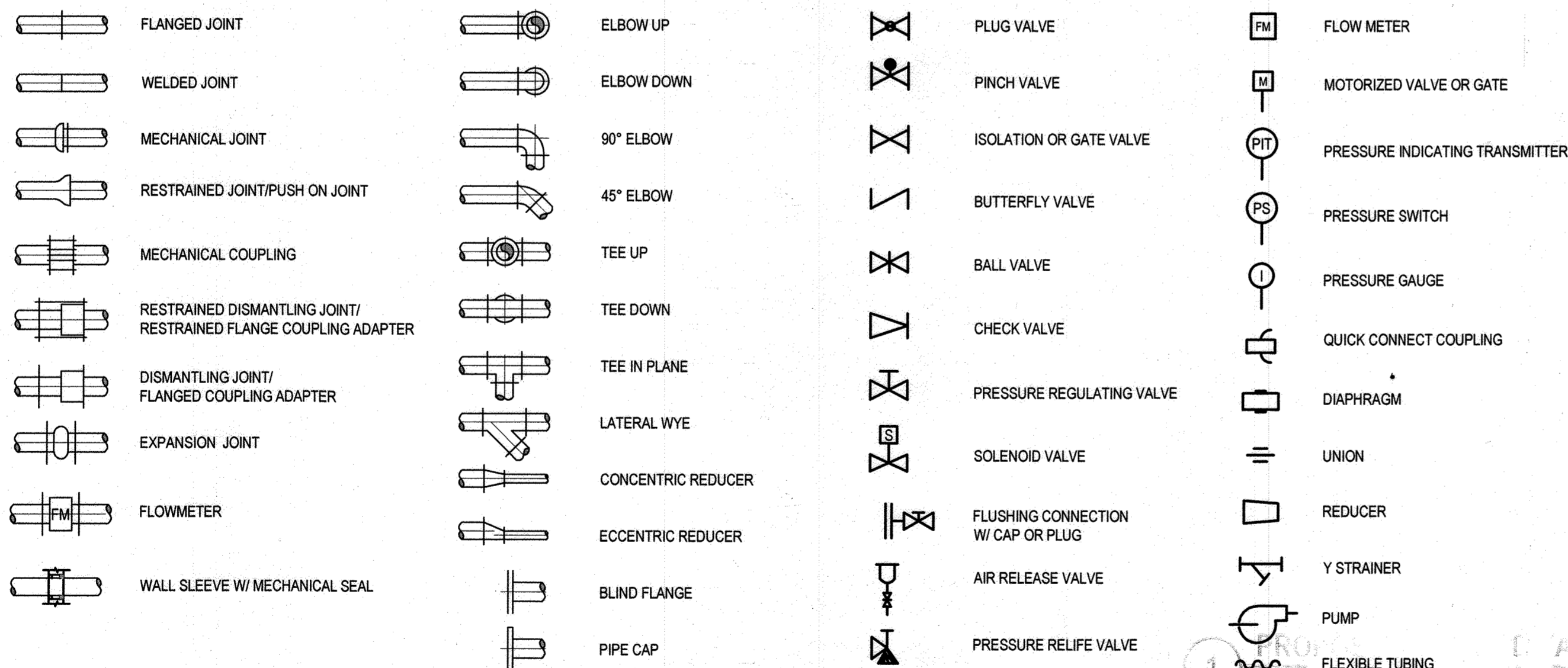
**SINGLE LINE PIPING SYMBOLS**



**TYPICAL SECTION MARKS (FOR PLANS)**



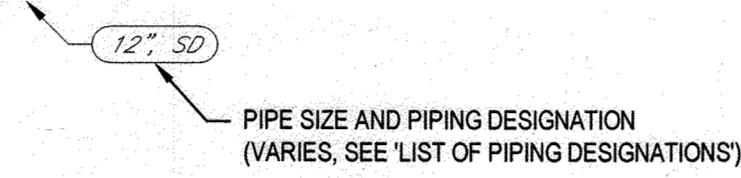
**PIPE FITTINGS AND VALVE SYMBOLS**



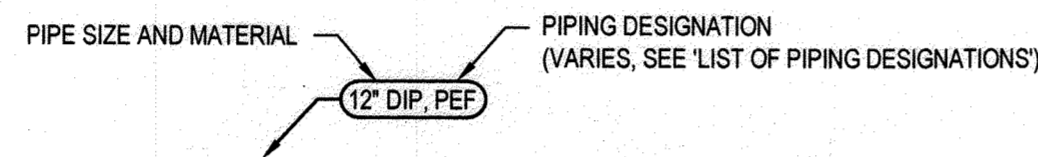
**GENERAL LEGEND**

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.

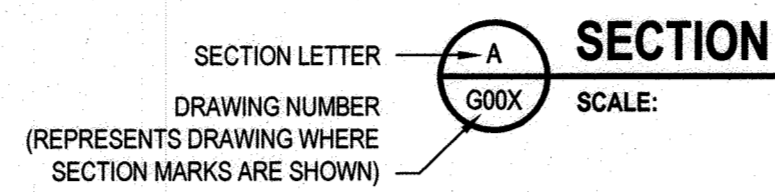
**EXISTING PIPE CALLOUT (FOR PLANS)**



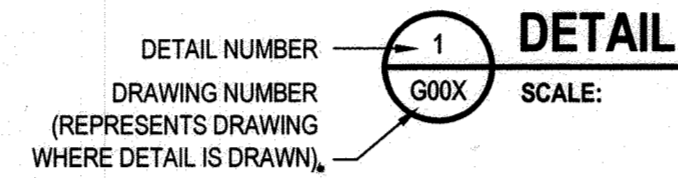
**NEW PIPE CALLOUT (FOR PLANS)**



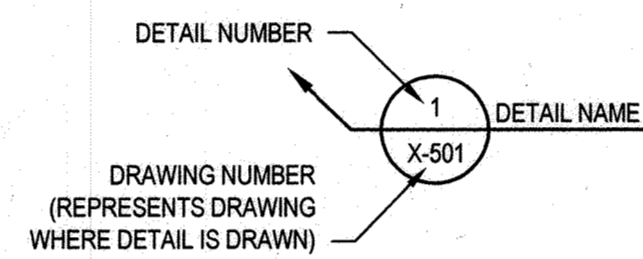
**TYPICAL SECTION SUB-TITLE (FOR SECTIONS)**



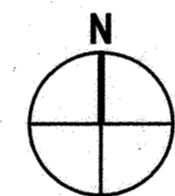
**TYPICAL DETAIL MARKS**



**TYPICAL DETAILING**



**NORTH ARROW**

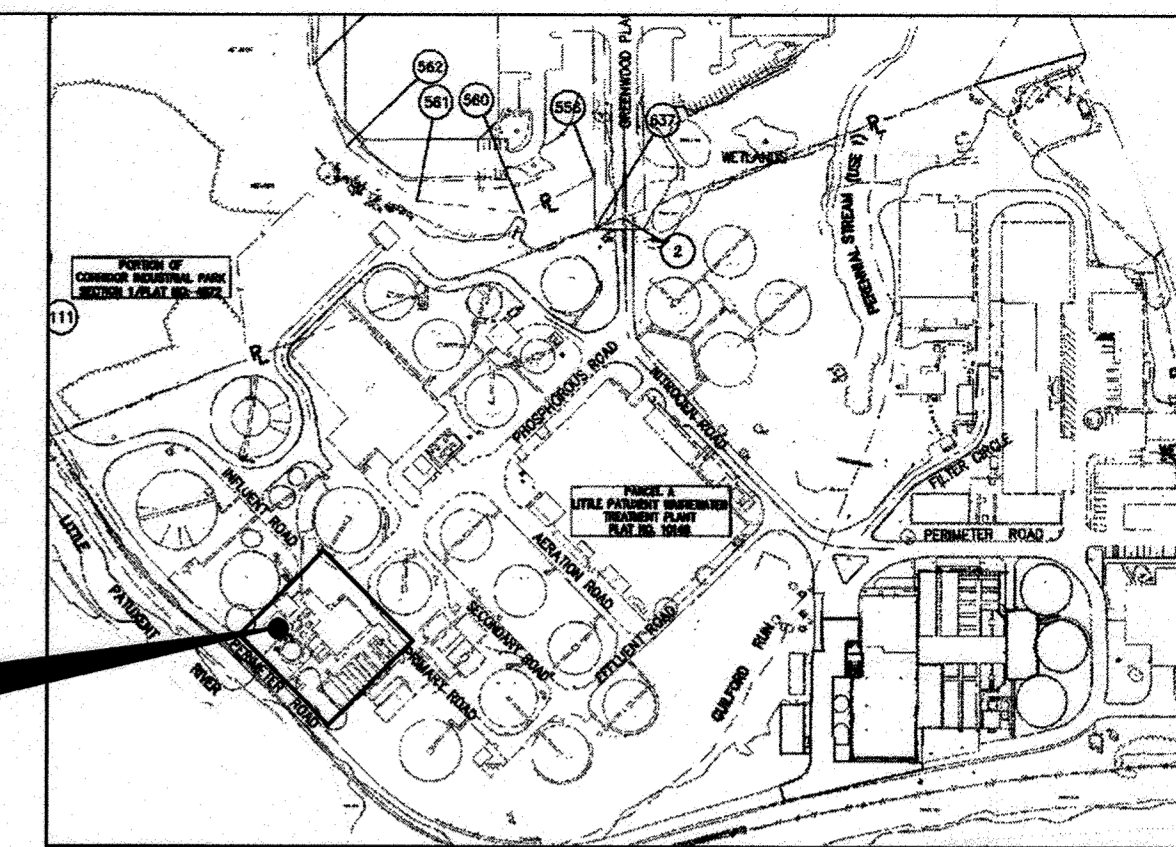


**LIST OF PIPING DESIGNATIONS**

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

**GENERAL NOTES (APPLY TO ALL DRAWINGS):**

- EXISTING FACILITIES AND PIPING SHOWN LIGHT. NEW FACILITIES AND PIPING SHOWN DARK.
- REFER TO RECORD DRAWINGS FOR CAPITAL PROJECT S-6245 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 RECEIVING 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.
- CONTRACTOR SHALL REPLACE ALL CONCRETE THAT IS IMPACTED BY NEW CONSTRUCTION, AND/OR BY CONTRACTOR'S OPERATIONS.
- UNLESS SHOWN TO BE DEMOLISHED, ALL EXISTING STRUCTURES AND EQUIPMENT SHALL BE PROTECTED.
- DEMOLITION TO BE PERFORMED IN ACCORDANCE WITH CONSTRUCTION CONSTRAINTS OUTLINED IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL CLEAN AND DISPOSE OF ALL RESIDUAL MATERIAL IN EACH PROCESS TANK WHERE NEW WORK IS SHOWN OR SPECIFIED.
- 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.
- EXISTING PIPING ELEVATIONS SHOWN ARE APPROXIMATE AND FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM IN THE FIELD.
- 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.



**2 KEY PLAN**  
SCALE: NTS

**GREASE DIGESTER TANK**

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 @ 80 PSIG
DRIVE MOTOR HORSEPOWER:	2 HP

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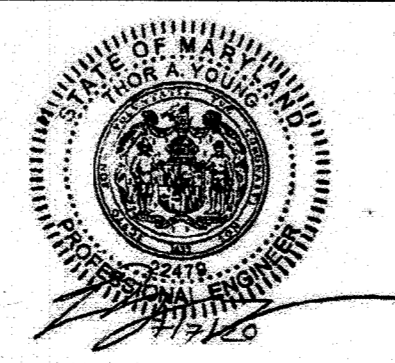
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Christopher Larson*  
DIRECTOR OF PUBLIC WORKS  
DATE: 12/10/2020  
CHIEF, BUREAU OF ENGINEERING

*Christopher Larson*  
DATE: 12/10/2020  
CHIEF, UTILITY DESIGN DIVISION

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:	BID SUBMISSION:
J. VER NOOY					JULY 2020
DRN:	K. LARSON				
CHK:	T. YOUNG				
DATE:					

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

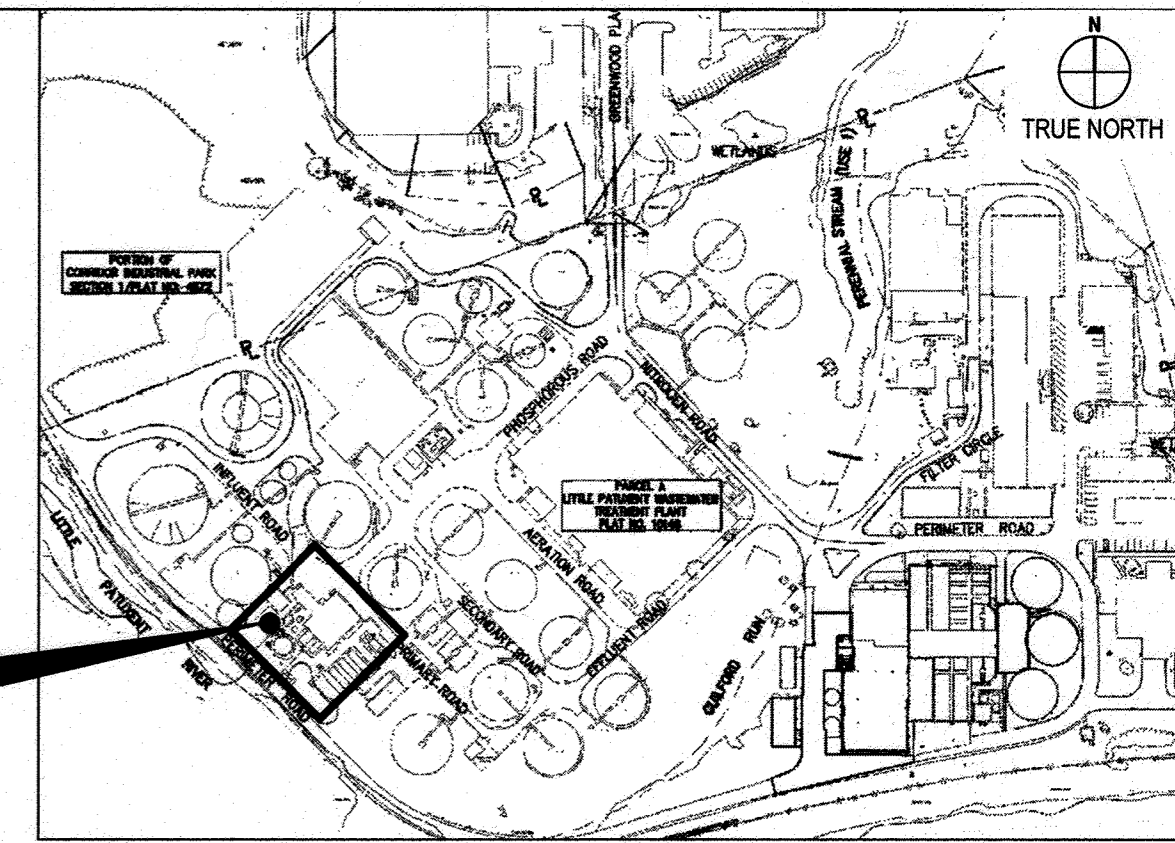
HOWARD COUNTY, MARYLAND

G002

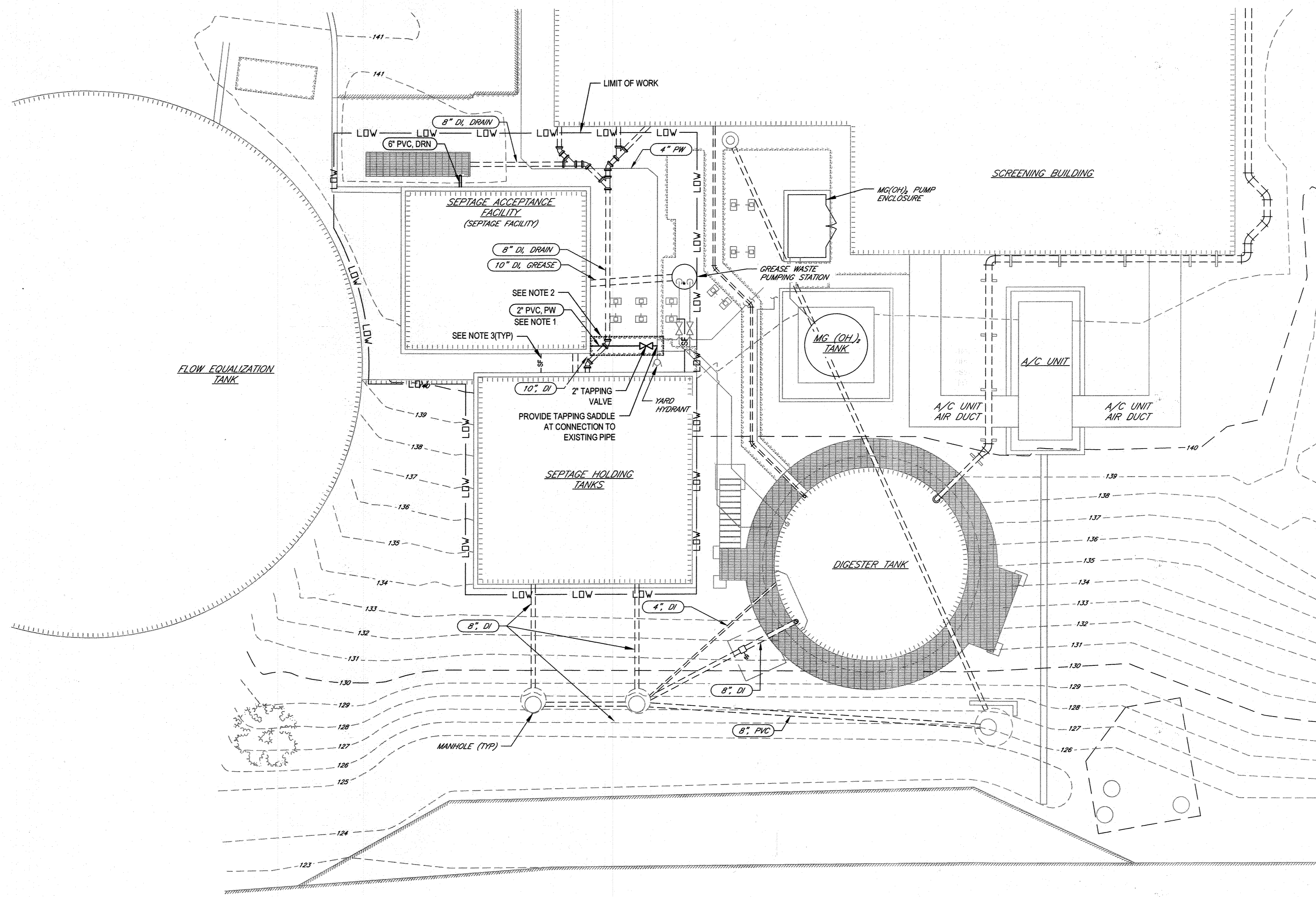
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SHEET NO.

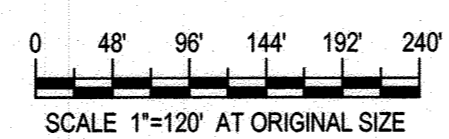
2 OF 19



**2 KEY PLAN**  
SCALE: NTS



**1 PROPOSED SITE AND YARD PIPING PLAN**  
SCALE: 1"=120'-0"



**CIVIL LEGEND**

- PROPOSED FACILITIES
- - - EXISTING FACILITIES
- - -20- - - EXISTING MAJOR ELEVATION CONTOUR
- - -21- - - EXISTING MINOR ELEVATION CONTOUR
- - - L.O.W. - - - LIMIT OF WORK
- - - SF - - - SF - - - SILT FENCE
- [Hatched Box] PROPOSED SIDEWALK/ CONCRETE
- [Dotted Box] EXISTING STRUCTURE
- [Cross-hatched Box] EXISTING PAVEMENT
- [Stippled Box] EXISTING SIDEWALK/ CONCRETE

**GENERAL SHEET NOTES:**

1. ALL NEW EXTERIOR PIPING WITHOUT HEAT TRACING SHALL BE INSTALLED WITH A MINIMUM 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 MANUAL VOLUME 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"x8" 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.

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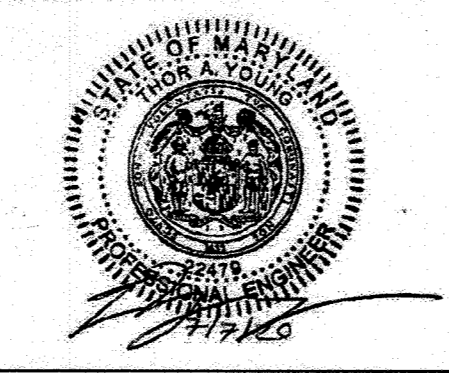
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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

12-2-20  
12-2-20  
12-2-20

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DES.	BY	NO.	REVISION	DATE	BID SUBMISSION
J. VER NOOY					JULY 2020
K. LARSON					
T. YOUNG					

**PROPOSED YARD PIPING SITE PLAN**

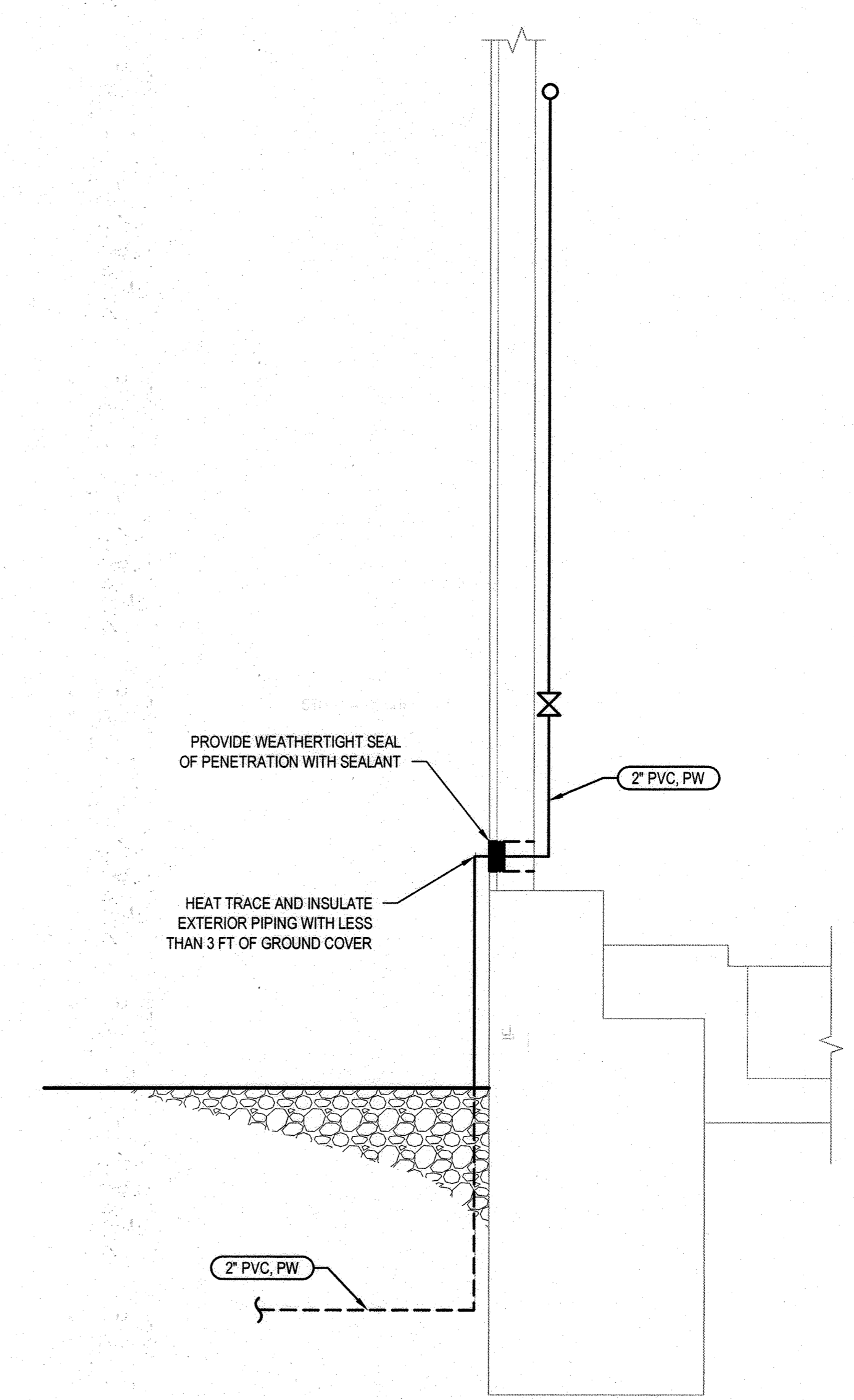
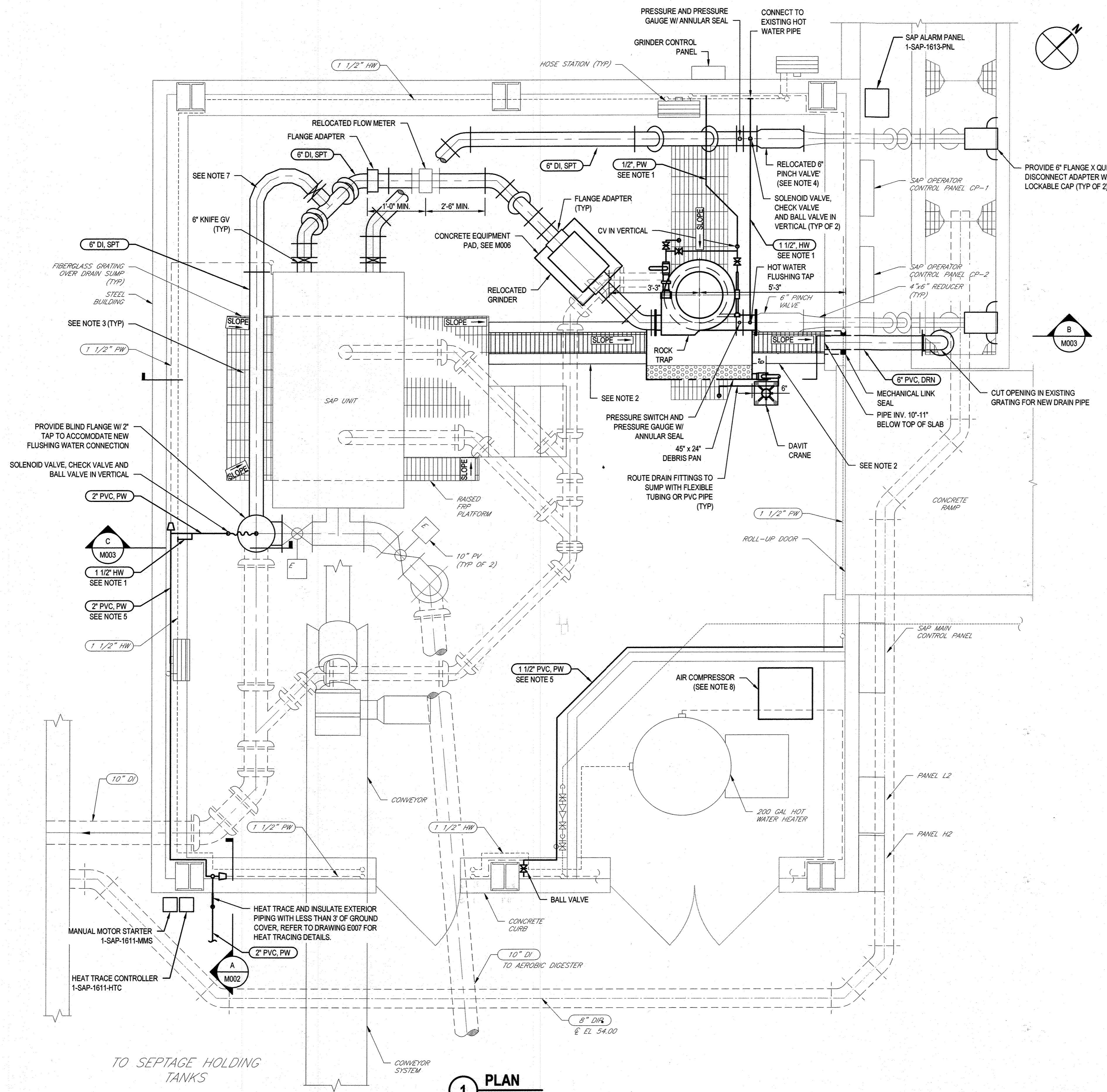
CAPITAL PROJECT NO.: S6264  
CONTRACT NO.: 20-5141  
**LITTLE PATUXENT WRP HAULED  
WASTE RECEIVING IMPROVEMENTS**

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

C001  
SCALE: 1"=120'-0"  
SHEET NO. 3 OF 19



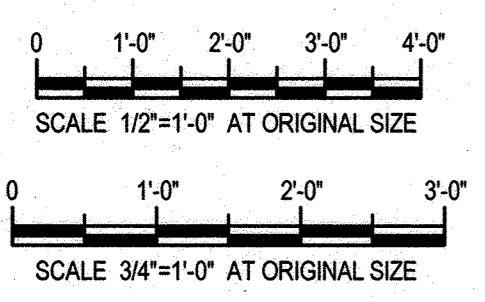


**GENERAL SHEET NOTES:**

- MATCH EXISTING WATER PIPE MATERIAL.
- 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 ENCASMENT 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 03300.
- 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.
- EXTEND COMPRESSED AIR PIPING AS NECESSARY TO RECONNECT TO RELOCATED PINCH VALVE. MATCH EXISTING COMPRESSED AIR PIPING.
- CONNECT TO EXISTING PIPE ON BOTH ENDS WHERE SHOWN, MATCH ELEVATION OF EXISTING WATER PIPE, AND SUPPORT NEW PIPE FROM ADJACENT WALL.
- REFER TO DRAWING G002 AND ELECTRICAL DRAWINGS FOR EQUIPMENT AND INSTRUMENTATION TAG NUMBERS NOT SHOWN.
- 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.
- 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 P1.5U-A9 AS MANUFACTURED BY INGERSOLL RAND, OR EQUAL. CONNECT DISCHARGE PORT TO EXISTING COMPRESSED AIR PIPING AND POWER CORD TO NEAREST AVAILABLE WALL RECEPTACLE.

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

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



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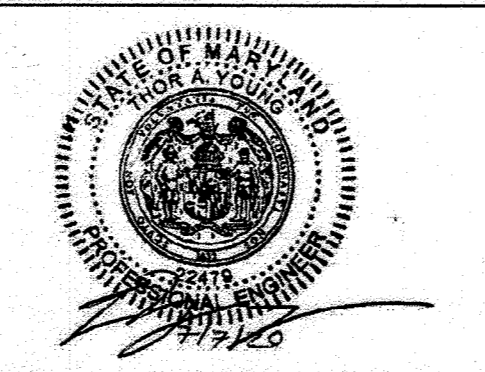
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**DEPARTMENT OF PUBLIC WORKS**  
**HOWARD COUNTY, MARYLAND**

Director of Public Works: *[Signature]* 12-16-2020  
 Date: 12-16-2020  
 Chief, Bureau of Utilities: *[Signature]* 12-16-2020  
 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, LICENSE NO. 22479, EXPIRATION DATE: 09/27/2021

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

**SEPTAGE BUILDING - MODIFICATION**  
**PLAN AND SECTION**

JULY 2020

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

**LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS**

ELECTION DISTRICT NO. 6

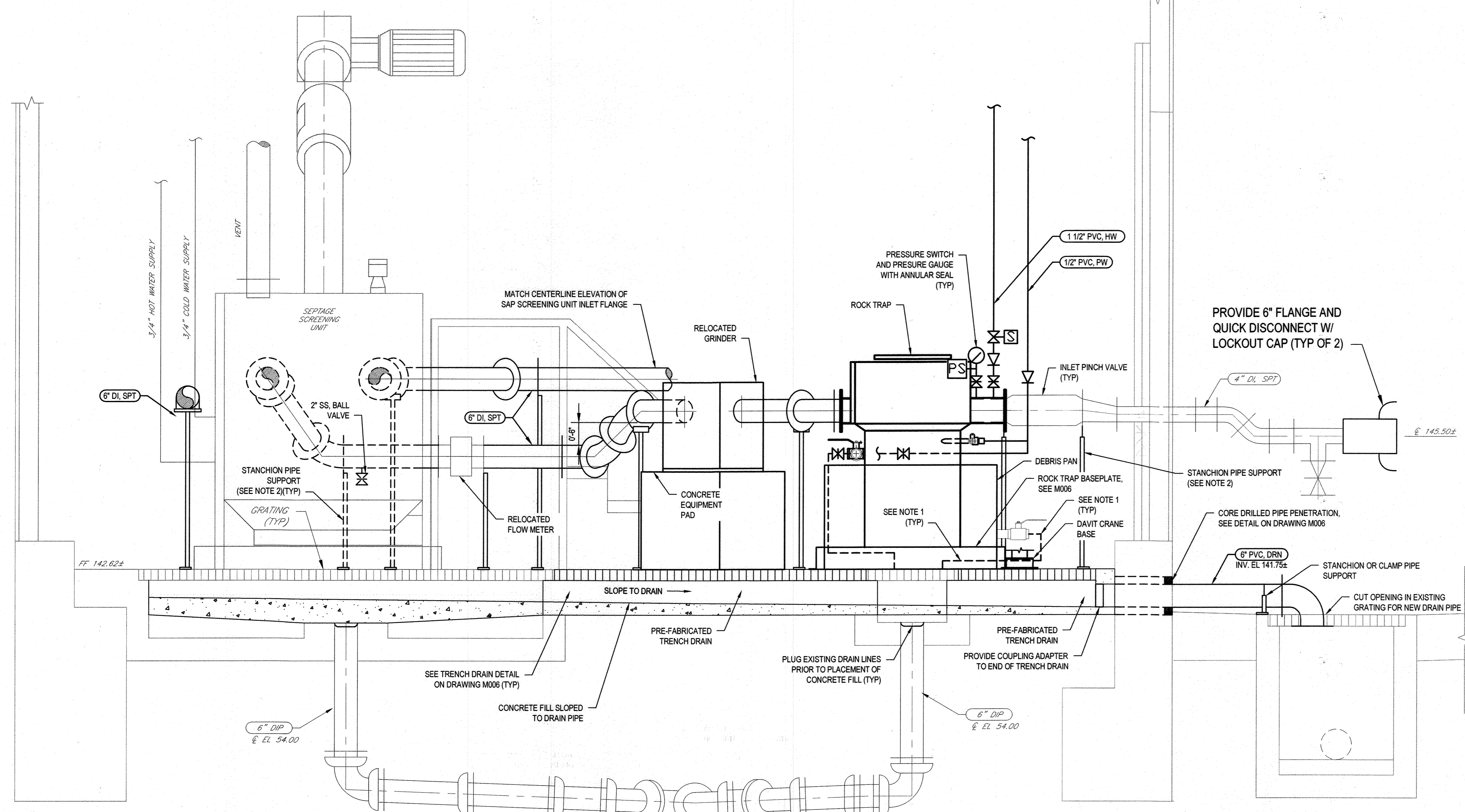
HOWARD COUNTY, MARYLAND

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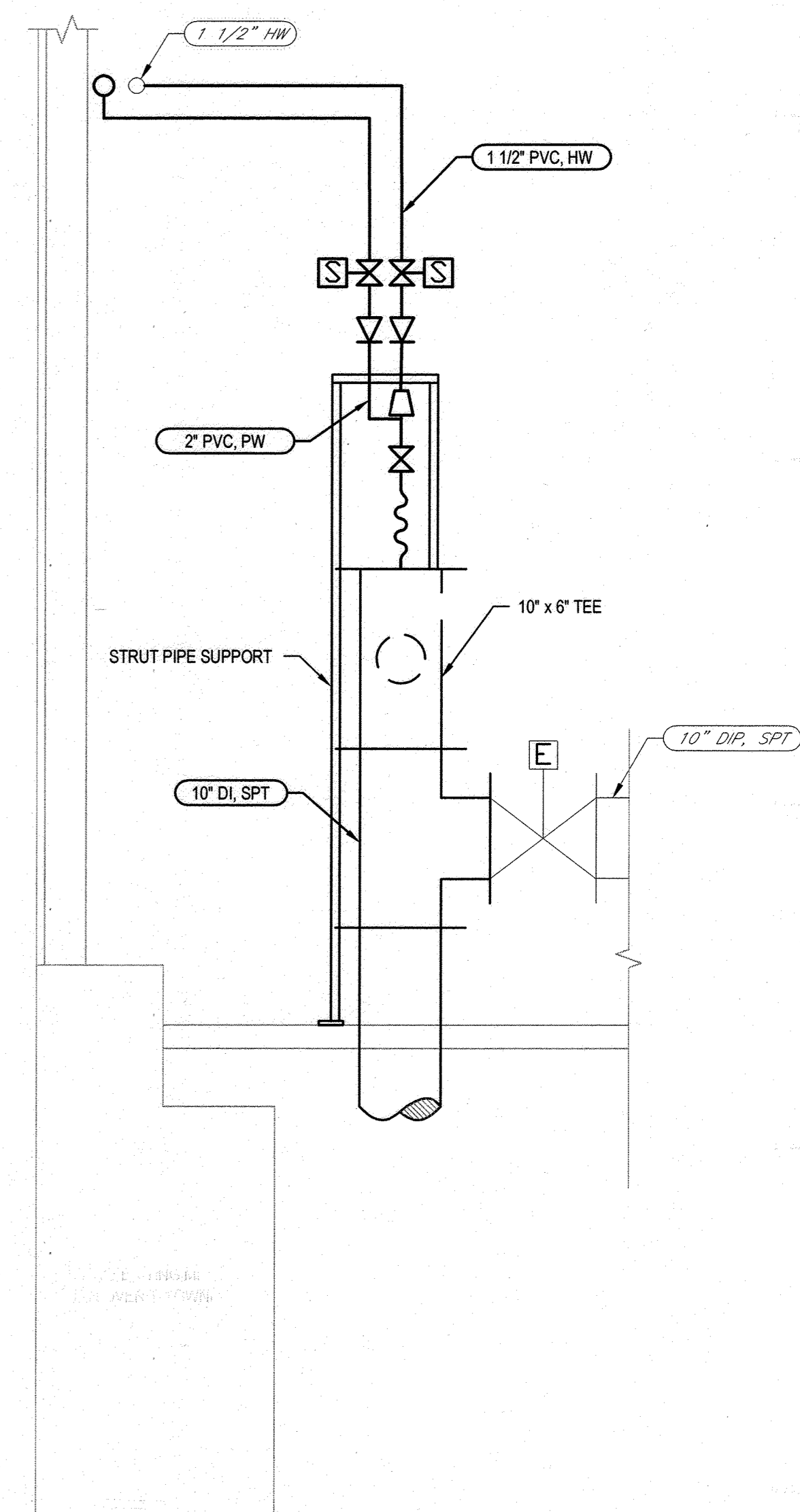
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**B SECTION**  
 M003 SCALE: 3/4"=1'-0"



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

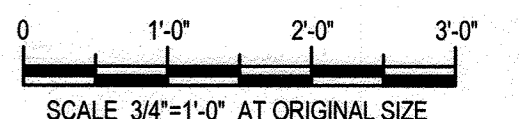
SEPTAGE  
 SCALE: 3/8"=1'-4"

ION PLAN  
 SCALE: 3/8"=1'-4"

LEGEND:

**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.



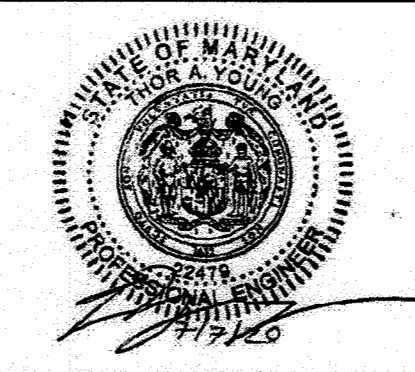
M003

**DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND**

Director of Public Works: *[Signature]* 12/6/20  
 Chief, Bureau of Engineering: *[Signature]* 12/9/20  
 Chief, Bureau of Utilities: *[Signature]* 12/10/20  
 Chief, Utility Design Division: *[Signature]* 12/10/20

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

**SEPTAGE BUILDING - MODIFICATION  
 PARTIAL SECTION**

JULY 2020

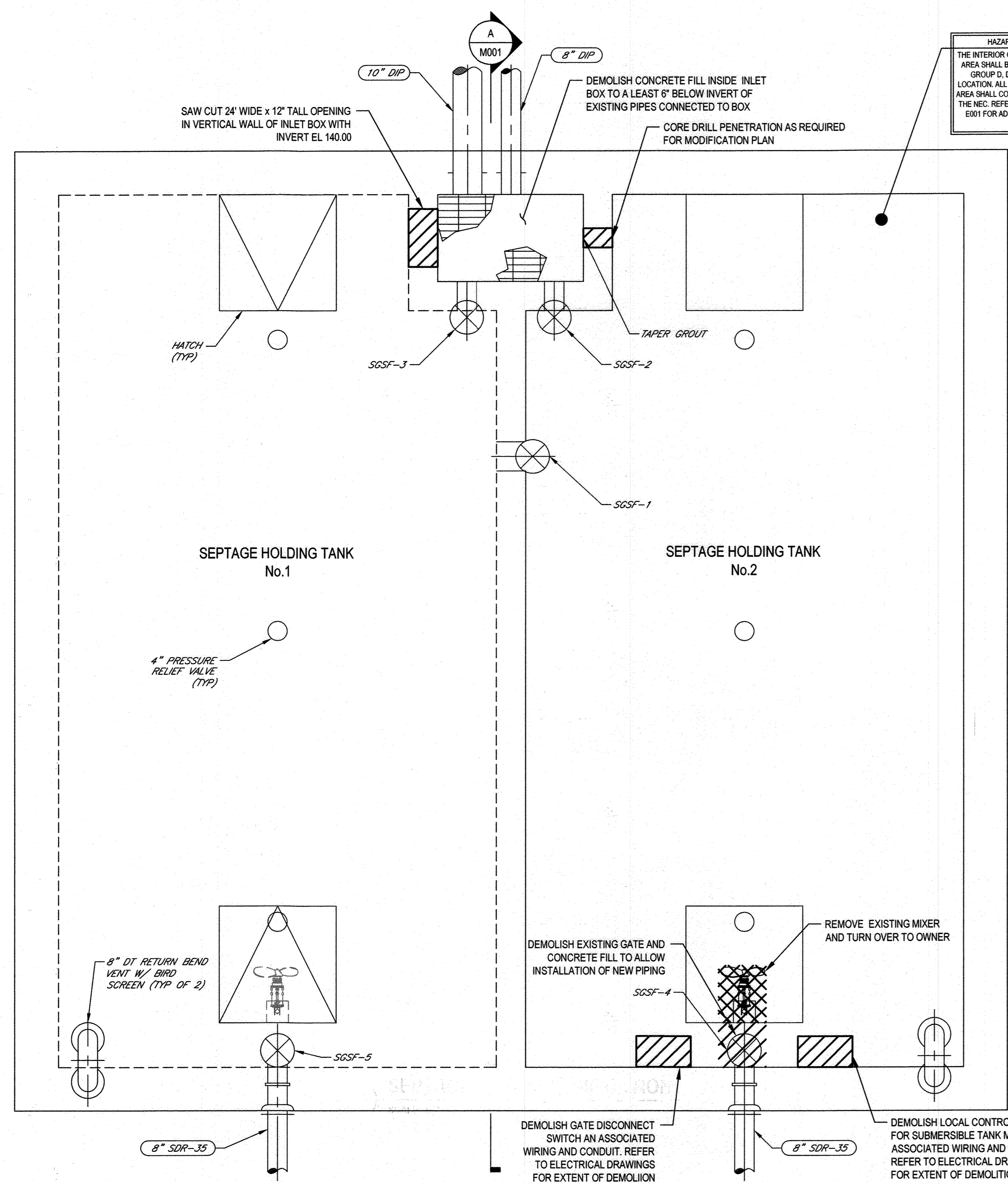
CAPITAL PROJECT NO.: S6264  
 CONTRACT NO.: 20-5141

**LITTLE PATUXENT WRP HAULED  
 WASTE RECEIVING IMPROVEMENTS**

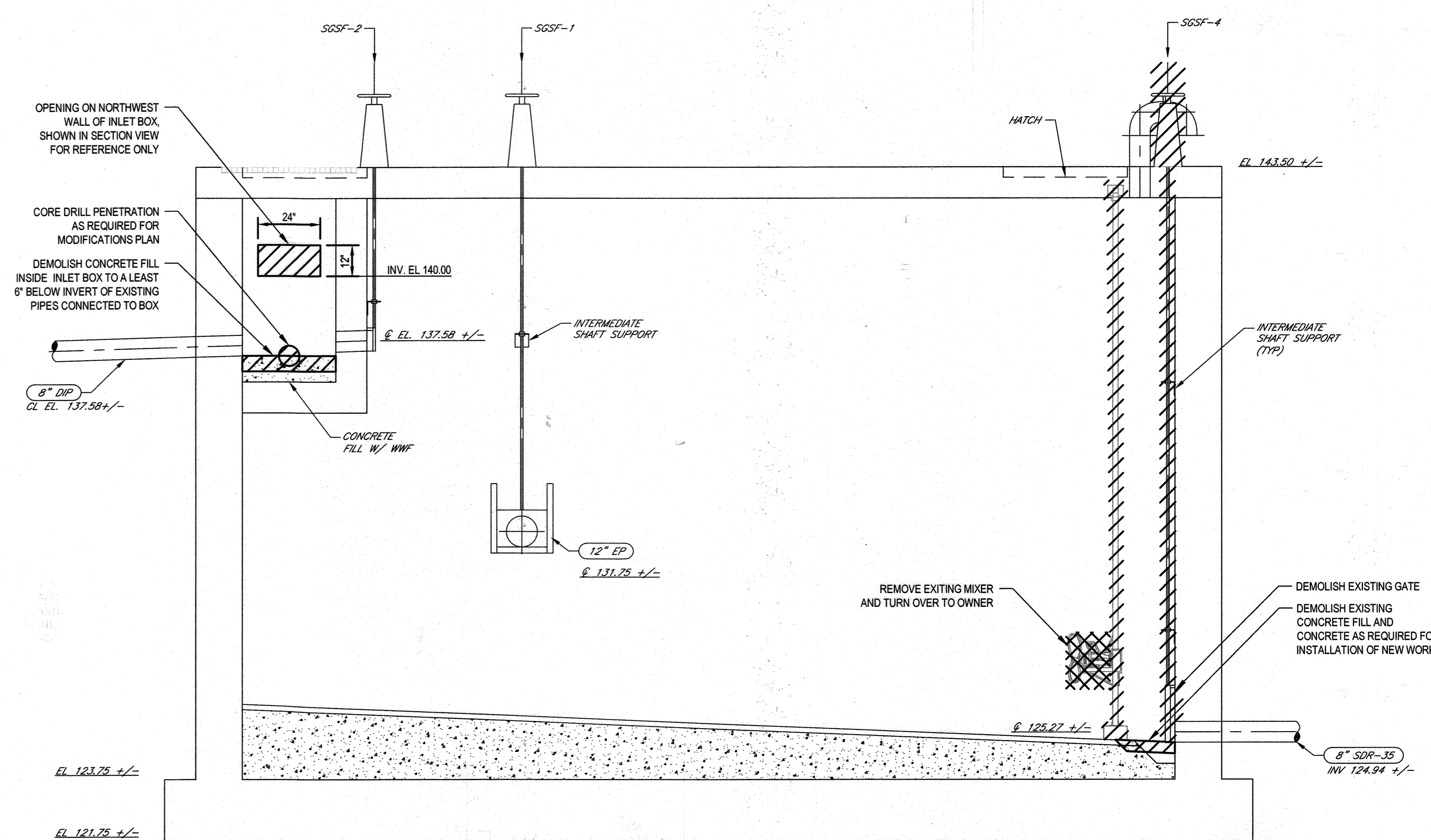
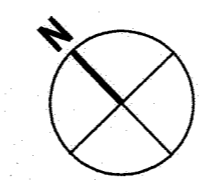
ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

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



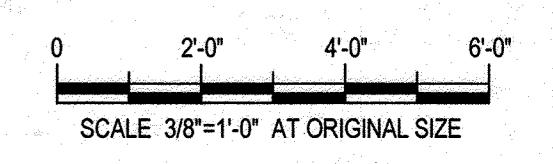
**HAZARDOUS LOCATION!**  
 THE INTERIOR OF SEPTAGE BUILDING SLP AREA SHALL BE DESIGNATED A CLASS I, GROUP D, DIVISION 1 HAZARDOUS LOCATION. ALL ELECTRICAL WORK IN THE AREA SHALL CONFORM TO ARTICLE 501 OF THE NEC. REFER TO NOTE 615 ON SHEET E001 FOR ADDITIONAL INFORMATION.



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

**A SECTION**  
 M004 SCALE: 3/8"=1'-0"

- LEGEND:**
- DEMOLISH
  - DEMOLISH
  - 5. FIN. DE.
  - 6. REFL. INST.



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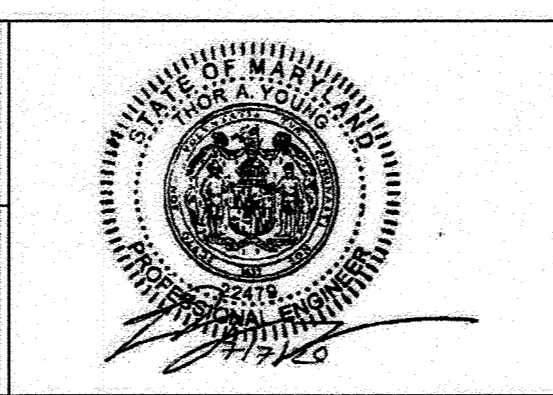
**DEPARTMENT OF PUBLIC WORKS**  
 HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS  
 DATE: 12-2-20  
 CHEF, BUREAU OF ENGINEERING

DATE: 12-11-20  
 CHEF, UTILITY DESIGN DIVISION

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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J. VERNOOY					
K. LARSON					
T. YOUNG					

**SEPTAGE BUILDING - DEMOLITION**  
 PLAN AND SECTION

JULY 2020

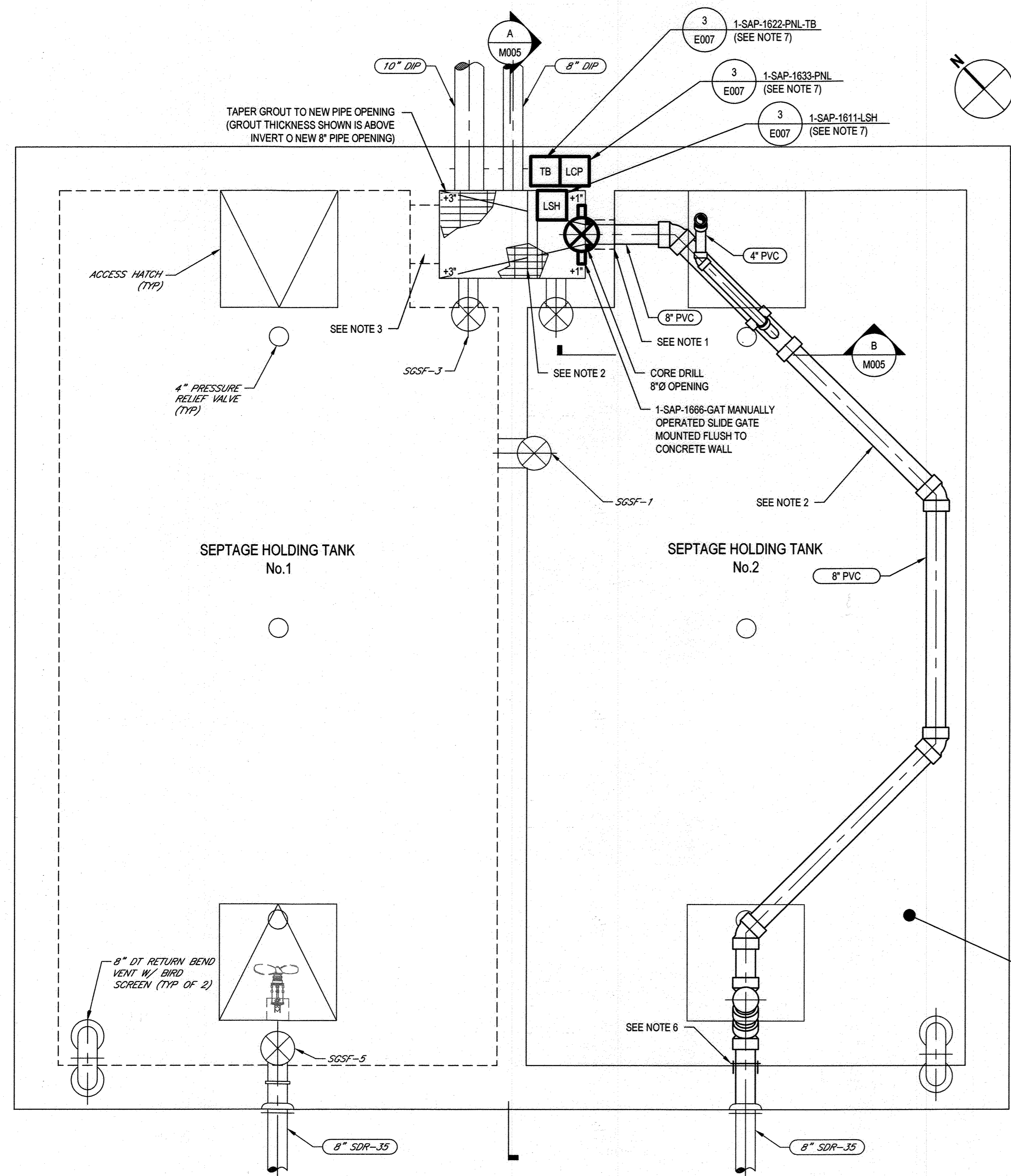
**CAPITAL PROJECT NO.: S6264**  
**CONTRACT NO.: 20-5141**

**LITTLE PATUXENT WRP HAULED**  
**WASTE RECEIVING IMPROVEMENTS**

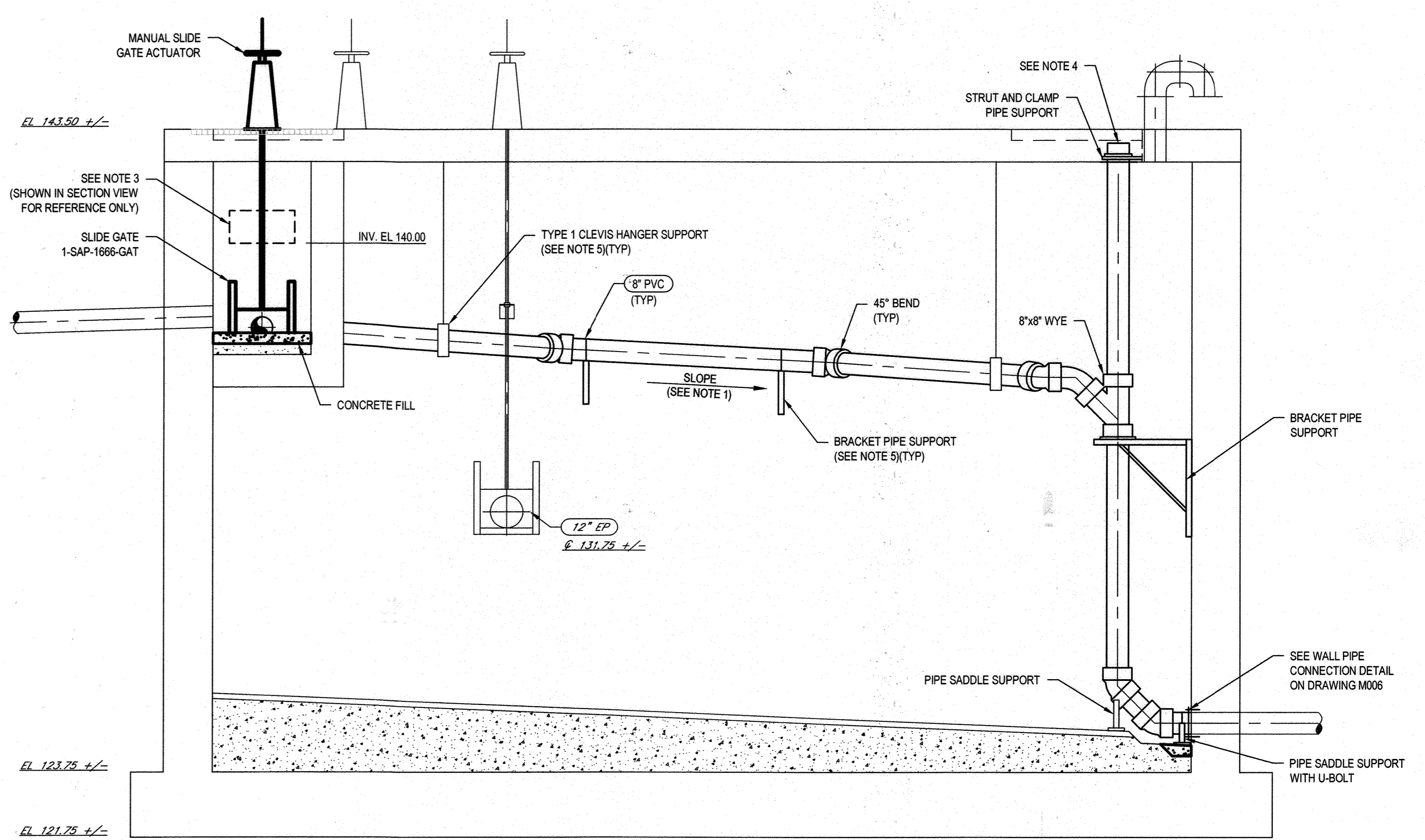
ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

SCALE: 3/8"=1'-0"  
 SHEET NO. 7 OF 19

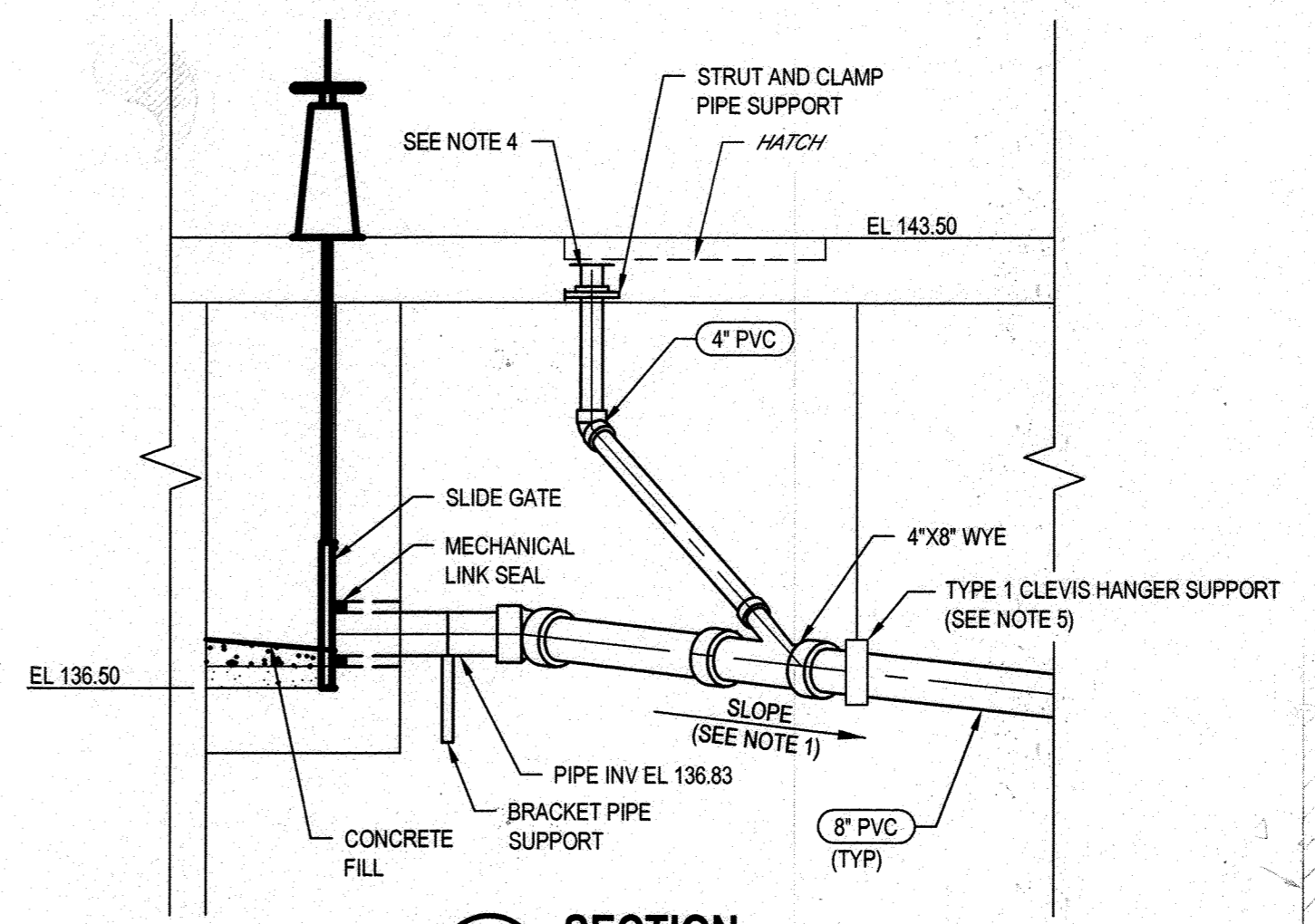


**1 SEPTAGE TANKS MODIFICATION PLAN**  
SCALE: 3/8"=1'-0"



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

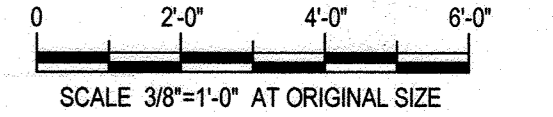
**HAZARDOUS LOCATION!**  
THE SEPTAGE HOLDING TANKS ARE DESIGNATED AS A CLASS I, GROUP D, DIVISION I HAZARDOUS LOCATION PER NFPA 820. CONTRACTOR SHALL PLAN AND EXECUTE THE RELATED WORK ACCORDINGLY.



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

- NOTES:**
- SLOPE PIPE DOWNWARDS AT 5-10% WITHIN TANK, FROM THE RESTRAINED MECHANICAL COUPLING UPSTREAM TO THE EXIT THROUGH THE TANK WALL DOWNSTREAM.
  - 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.
  - SAW CUT 2" WIDE AND 1" HIGH NOTCH OPENING AT SEPTAGE HOLDING TANK INLET BOX, WITH INVERT AT ELEVATION 140.00.
  - TERMINATE PIPE WITH OPEN FLANGE JOINT 6" BELOW BOTTOM OF ELEVATED SLAB.
  - PIPE SUPPORTS LOCATIONS SHOWN FOR REFERENCE ONLY. REFER TO SECTION 15140 FOR DETAILED SPACING REQUIREMENTS.
  - REFER TO DRAWING G002 AND ELECTRICAL DRAWINGS FOR EQUIPMENT AND INSTRUMENTATION TAG NUMBERS NOT SHOWN.

**5 TRENCH DRAWING**  
SCALE: NTS

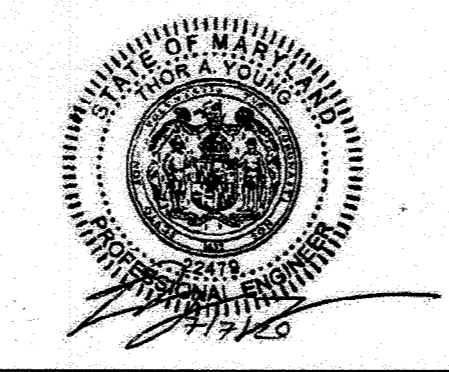


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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS  
 DATE: 12-20-20  
  
 CHIEF, BUREAU OF ENGINEERING  
 DATE: 12-14-2020  
  
 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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DES:	BY:	NO.:	REVISION:	DATE:	BID SUBMISSION:
J. VERNOOY					
DRN:	K. LARSON				
CHK:	T. YOUNG				
DATE:					

SEPTAGE TANKS - MODIFICATION  
PLAN AND SECTIONS

JULY 2020

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

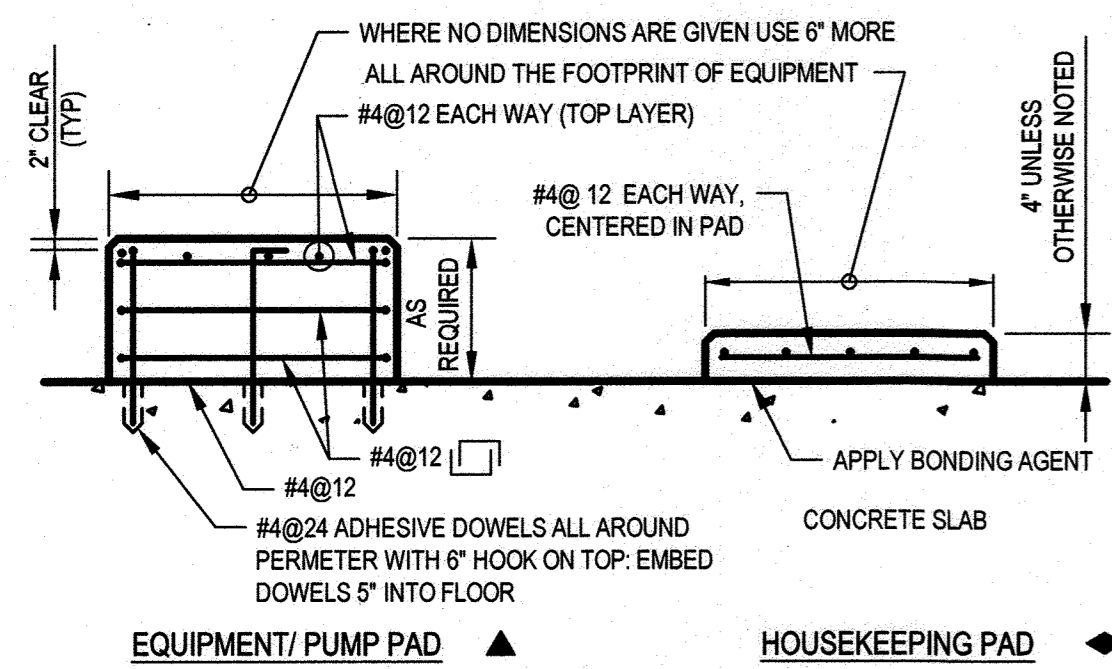
**LITTLE PATUXENT WRP HAULED  
WASTE RECEIVING IMPROVEMENTS**

ELECTION DISTRICT NO. 6

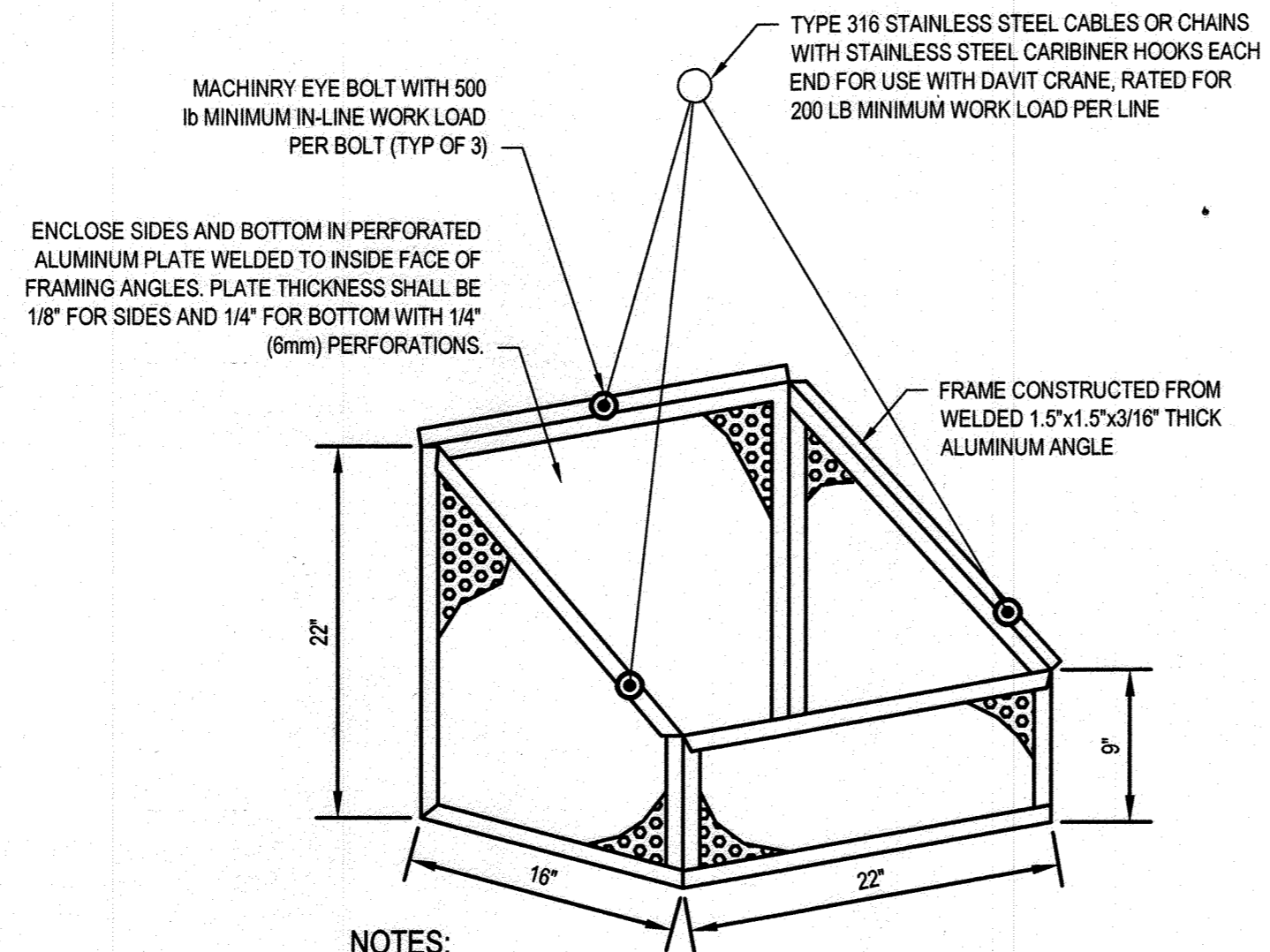
HOWARD COUNTY, MARYLAND

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



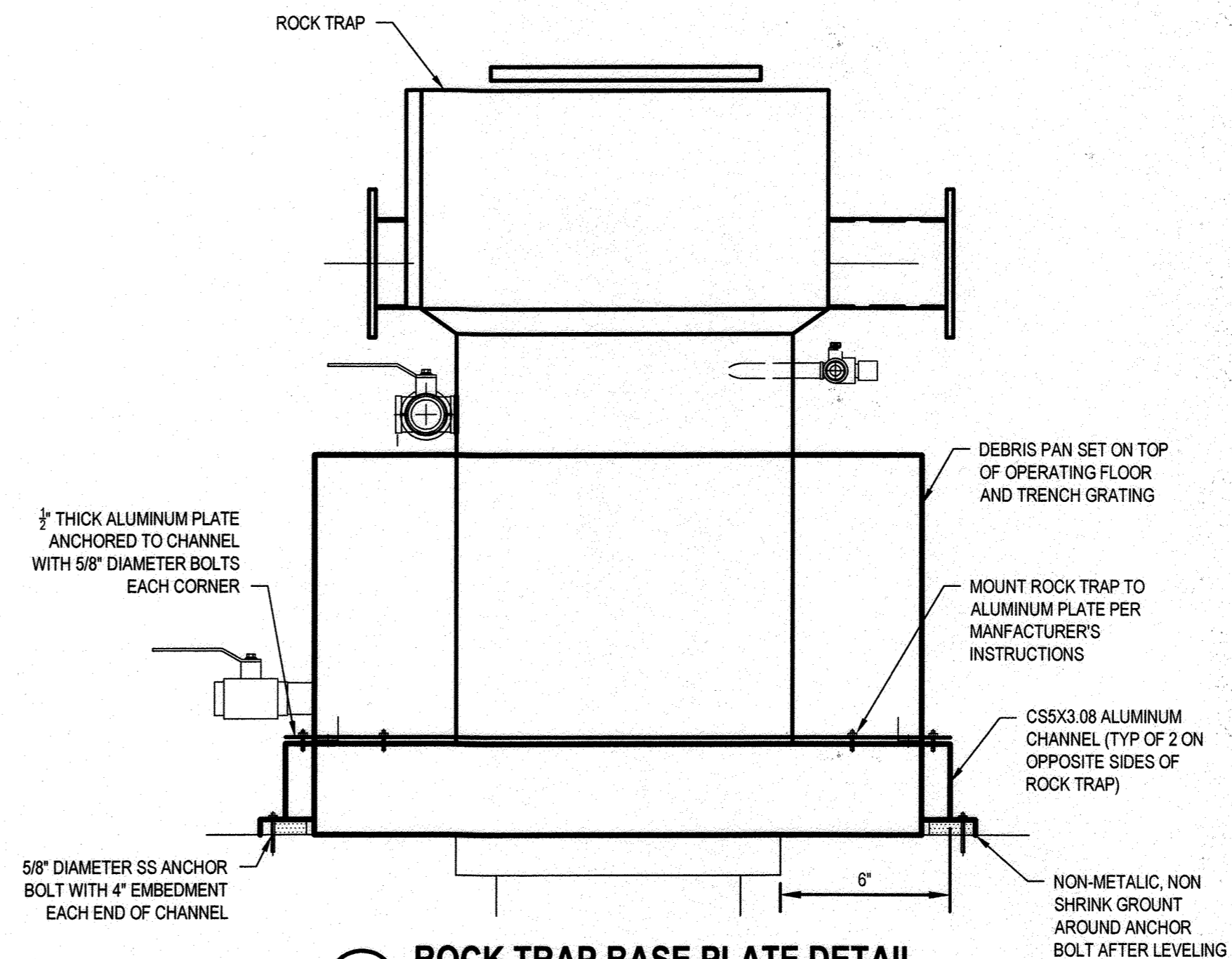


**1 REINFORCEMENT DETAILS FOR CONCRETE PADS**  
SCALE: NTS

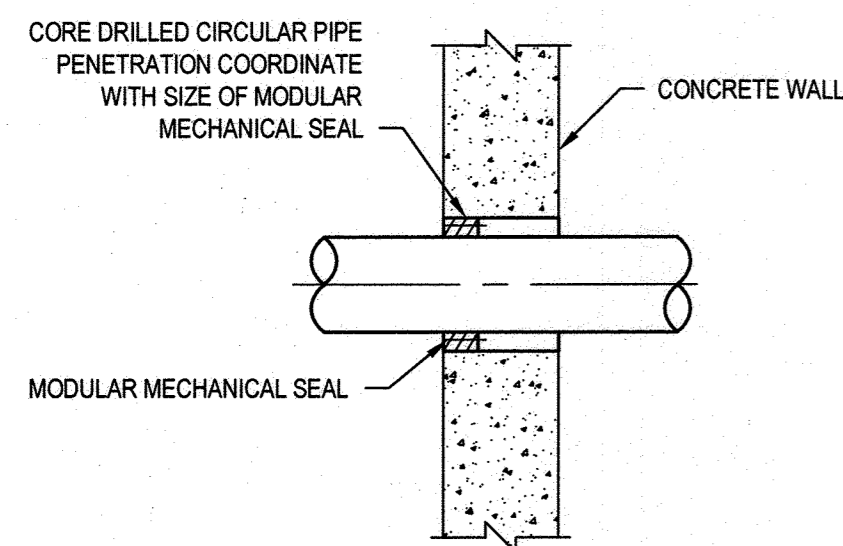
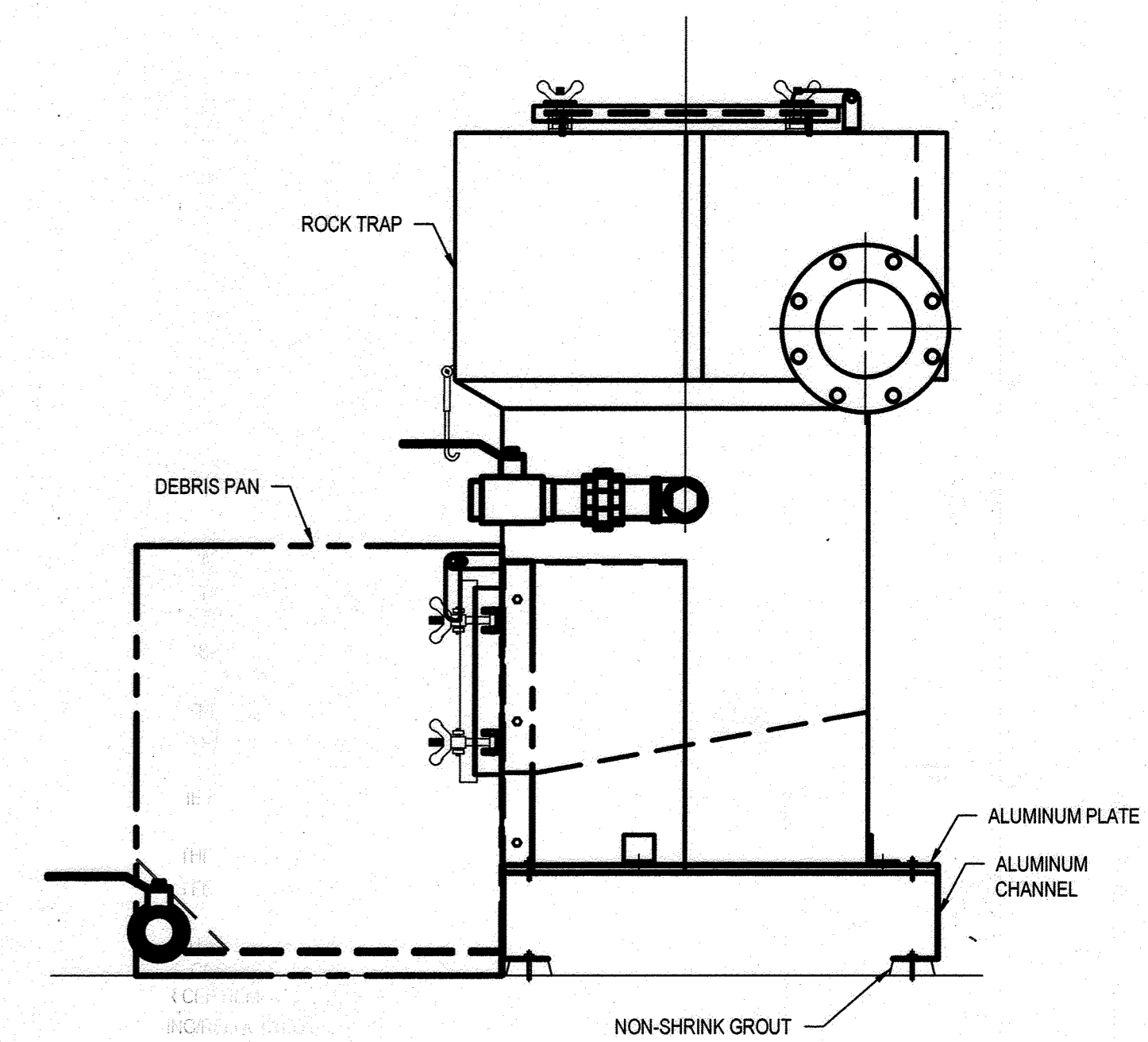


- NOTES:**
1. ALL WELDS SHALL BE COMPLETED IN THE SHOP AND GRINDED SMOOTH
  2. ALL CORNERS TO BE MITERED.
  3. PROVIDE ONE (1) REMOVABLE DEBRIS CONTAINER FOR THE SEPTAGE BUILDING ROCK TRAP IN ACCORDANCE WITH SECTION 05500.

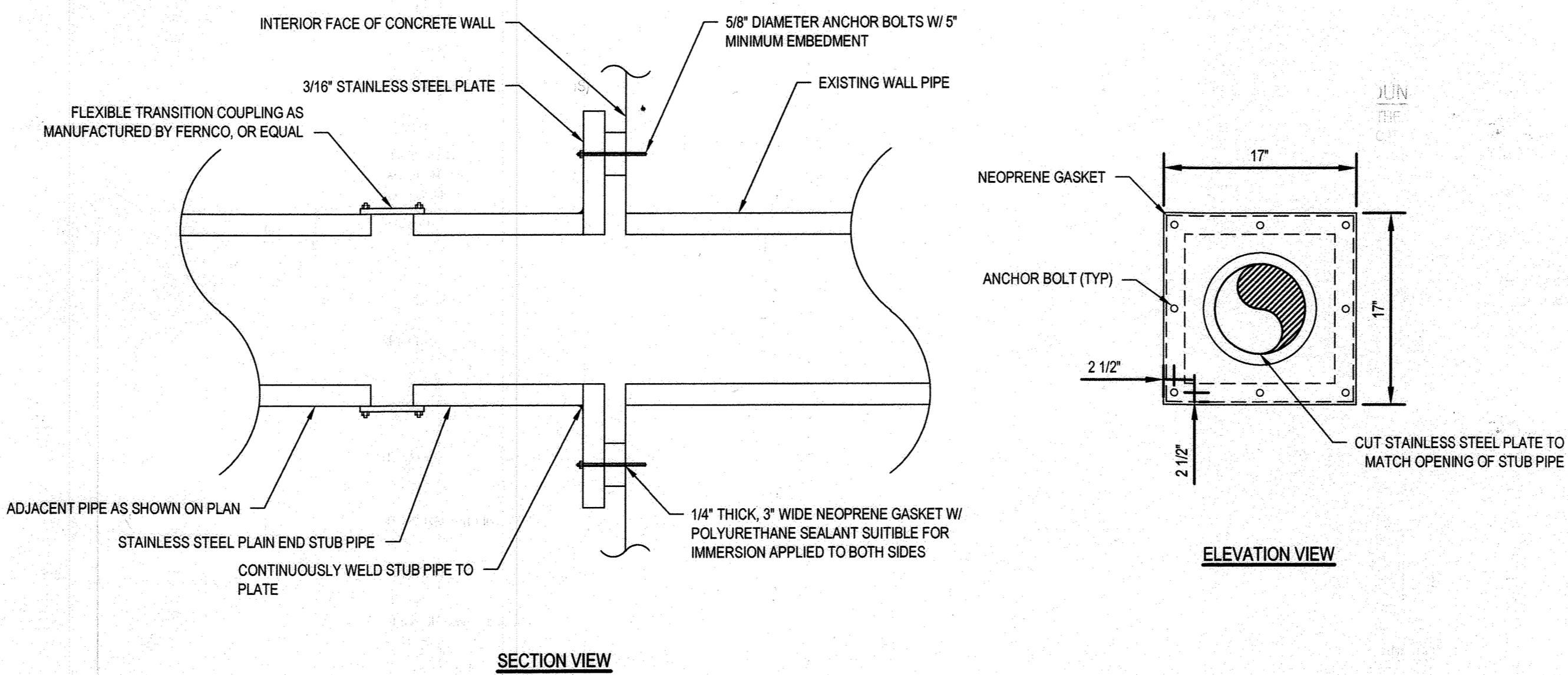
**2 REMOVABLE DEBRIS CONTAINER DETAIL**  
SCALE: NTS



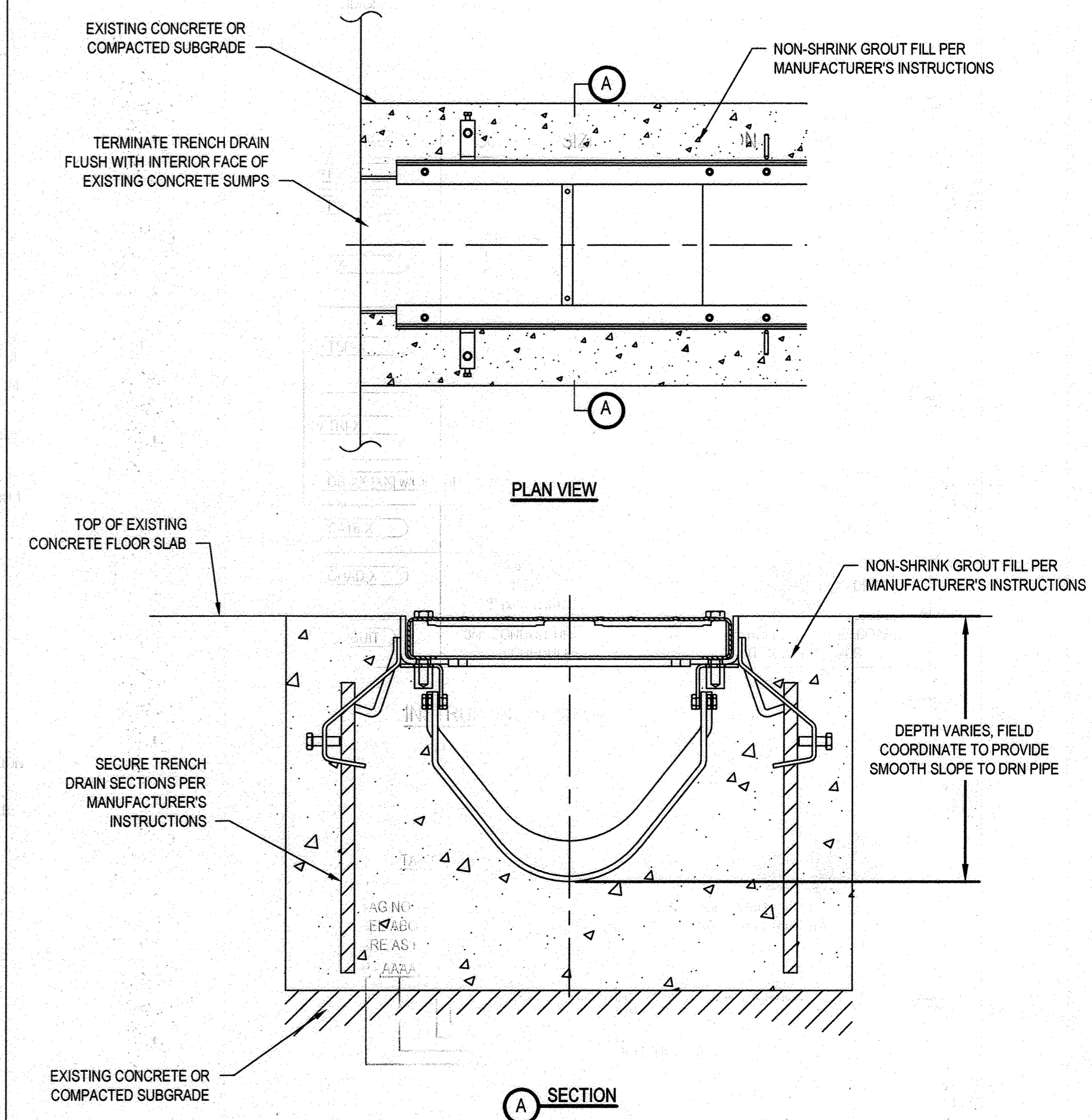
**3 ROCK TRAP BASE PLATE DETAIL**  
SCALE: NTS



**3 CORE DRILLED PIPE PENETRATION**  
SCALE: NTS



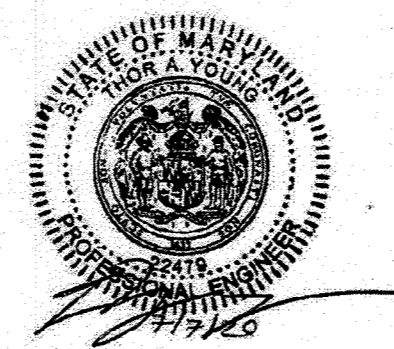
**4 WALL PIPE CONNECTION DETAIL**  
SCALE: NTS



**5 TRENCH DRAIN DETAIL**  
SCALE: NTS

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

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DES.	BY	NO.	REVISION	DATE	BID SUBMISSION
J. VER NOOY					
K. LARSON					
T. YOUNG					

MISCELLANEOUS DETAILS

JULY 2020

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

LITTLE PATUXENT WRP HAULED  
WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

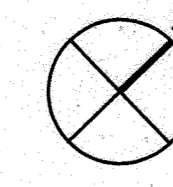
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SCALE:  
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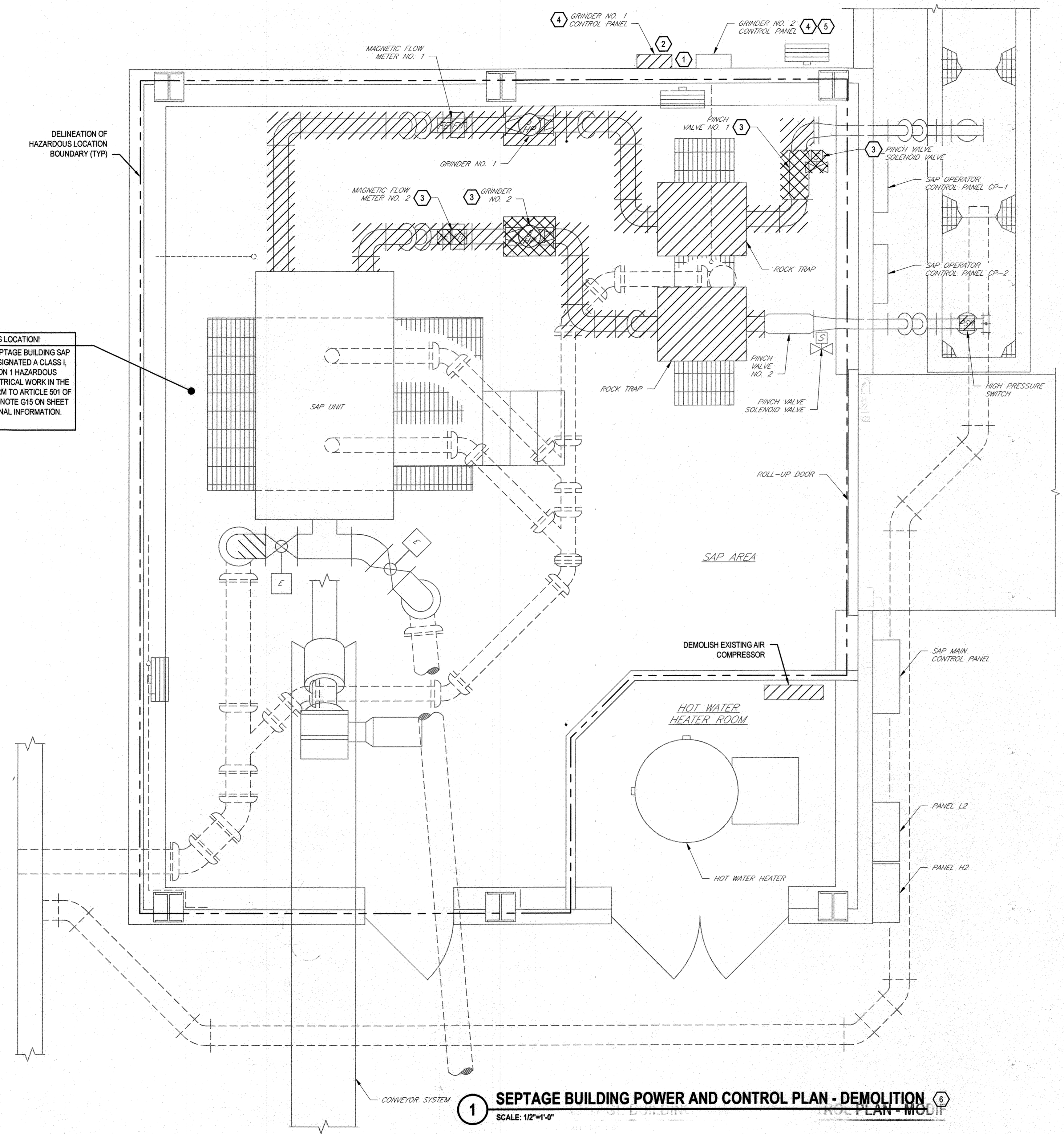
SHEET NO.

9 OF 19

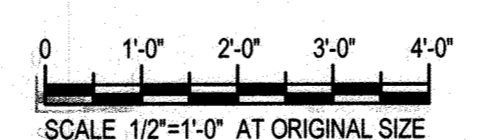




**HAZARDOUS LOCATION!**  
THE INTERIOR OF SEPTAGE BUILDING SAP AREA SHALL BE DESIGNATED A CLASS I, GROUP D, DIVISION 1 HAZARDOUS LOCATION. ALL ELECTRICAL WORK IN THE AREA SHALL CONFORM TO ARTICLE 501 OF THE NEC. REFER TO NOTE G15 ON SHEET E001 FOR ADDITIONAL INFORMATION.



**1 SEPTAGE BUILDING POWER AND CONTROL PLAN - DEMOLITION**  
SCALE: 1/2"=1'-0"



**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.

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Plot Date: 17 Jul 2020 10:27 AM; Plot By: Michael Larson

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

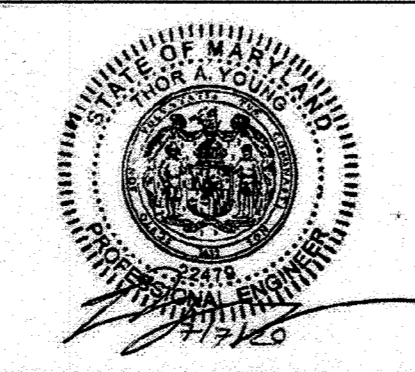
*[Signature]* 12-7-20  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 12-7-20  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* 12-7-20  
CHIEF, UTILITY DESIGN DIVISION DATE

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

**SEPTAGE BUILDING POWER AND CONTROL PLAN - DEMOLITION**

JULY 2020

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

**LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS**

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

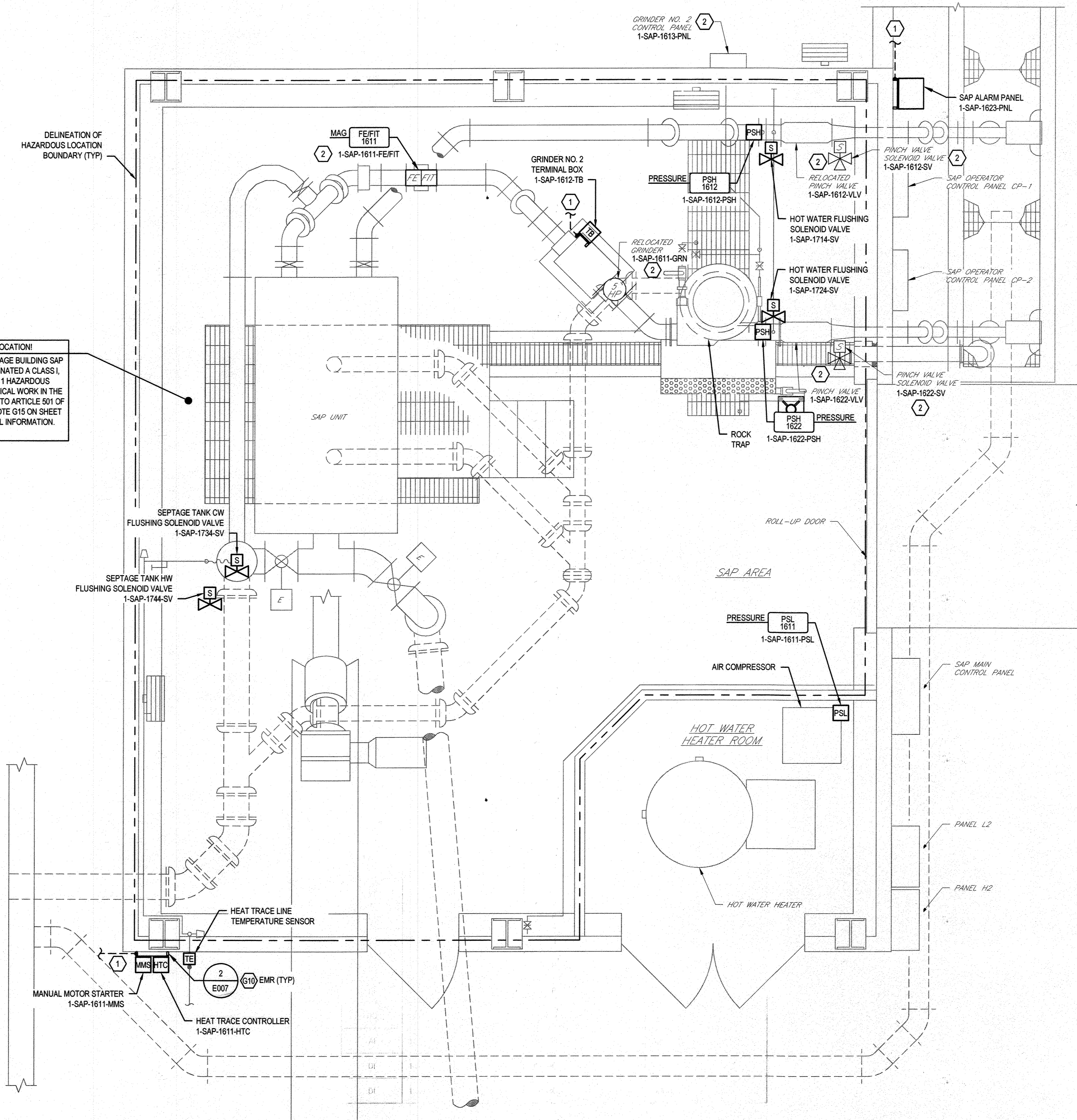
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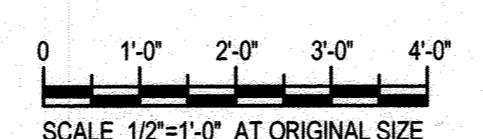
SHEET NO.

11 OF 19

**HAZARDOUS LOCATION!**  
 THE INTERIOR OF SEPTAGE BUILDING SAP AREA SHALL BE DESIGNATED A CLASS I, GROUP D, DIVISION 1 HAZARDOUS LOCATION. ALL ELECTRICAL WORK IN THE AREA SHALL CONFORM TO ARTICLE 501 OF THE NEC. REFER TO NOTE G15 ON SHEET E001 FOR ADDITIONAL INFORMATION.



**1 SEPTAGE BUILDING POWER AND CONTROL PLAN - MODIFICATIONS**  
 SCALE: 1/2"=1'-0"



- 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 CP: 1-SAP-1611-GRN CP  
 FLOW METER NO. 2: 1-SAP-1611-FE/FIT

File Name: G:\111115812\111115812.dwg Plot Date: 12/16/2020 10:27 AM  
 PLOTTED BY: HONGHAI LAMON

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

12/16/2020  
 DATE  
 12-9-20  
 DATE  
 12-11-2020  
 DATE

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

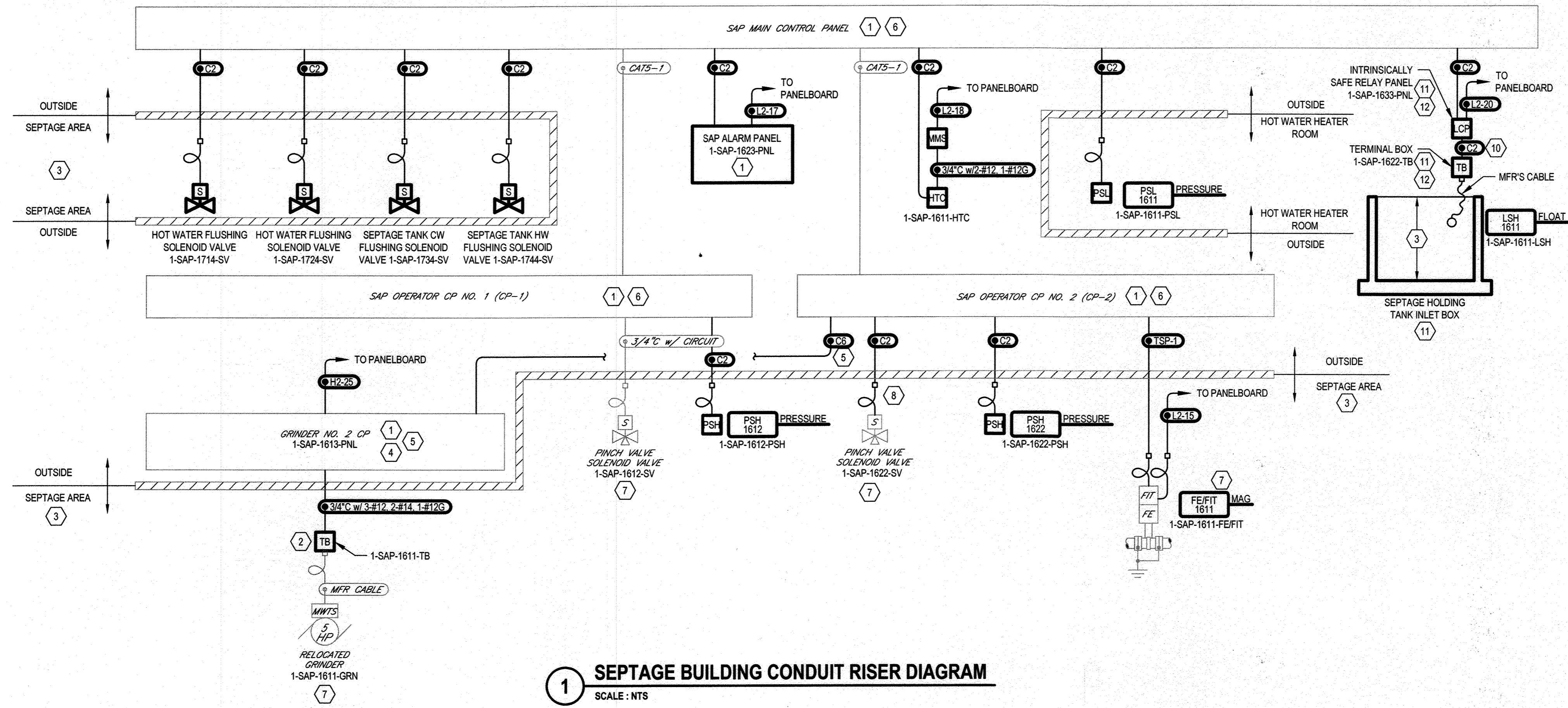
SEPTAGE BUILDING POWER AND CONTROL PLAN - MODIFICATIONS

JULY 2020

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

**LITTE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS**

ELECTION DISTRICT NO. 6



**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
DO	SAP CP-2	1-SAP-1613-PNL	CONNECT TO EXISTING
DI	1-SAP-1612-PHS	SAP CP-1	CONNECT TO EXISTING
DI	1-SAP-1622-PHS	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	SAP MCP	CONNECT TO SPARE

**I/O TYPE LEGEND:**  
DI DISCRETE INPUT  
DO DISCRETE OUTPUT  
AI ANALOG INPUT

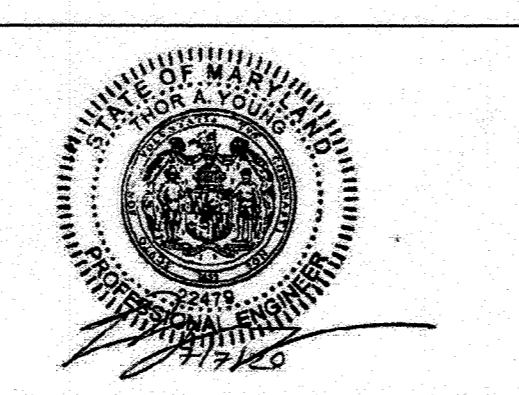
- DRAWING NOTES:**
- CONDUITS ENTERING PANELS SHALL PENETRATE AT BOTTOM OR SIDES OF PANEL.
  - TERMINAL BOX: PROVIDE NEMA 4X / 7 TERMINAL BOX WITH LABELED TERMINAL BLOCKS FOR CONNECTION OF GRINDER CABLES TO HARDWIRED CIRCUITS. KEEP CONTROL AND POWER CIRCUITS SEPARATED.
  - AREA IS A CLASS I, GROUP D, DIVISION 1 HAZARDOUS LOCATION.
  - PROVIDE NEW ENGRAVED NAMEPLATE FOR EXISTING CP.
  - 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
  - SEE SAP I/O POINT SCHEDULE THIS DRAWING.
  - PROVIDE NEW EQUIPMENT TAG FOR EXISTING EQUIPMENT.
  - CIRCUITS MAY ALSO BE PROVIDED GRINDER TO SOLICIT VIA INTRINSICALLY SAFE RELAY PANEL.
  - INSTRINSICALLY SAFE CIRCUIT.
  - REFER TO DRAWING M004 FOR LOCATION OF INLET BOX.
  - REPLACE EXISTING SWITCH, PAIR
  - MOUNT TERMINAL BOX AND INTRINSICALLY SAFE RELAY PANEL ADJACENT TO INLET BOX. PROVIDE EMR PER (E00) AND DETAIL 2 ON DRAWING E007. PROVIDE No.2 TINNED COPPER GROUND CONDUCTOR - BOND TO EMR AND NEAREST BUILDING STEEL (E0)

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

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DESIGNED BY: B. CARDINAL  
CHECKED BY: T. SMITH  
DATE: 12-2-20



DES.	BY	NO.	REVISION	DATE	BID SUBMISSION
B. CARDINAL					JULY 2020
T. SMITH					
T. YOUNG					

**SEPTAGE BUILDING CONDUIT RISER DIAGRAM**

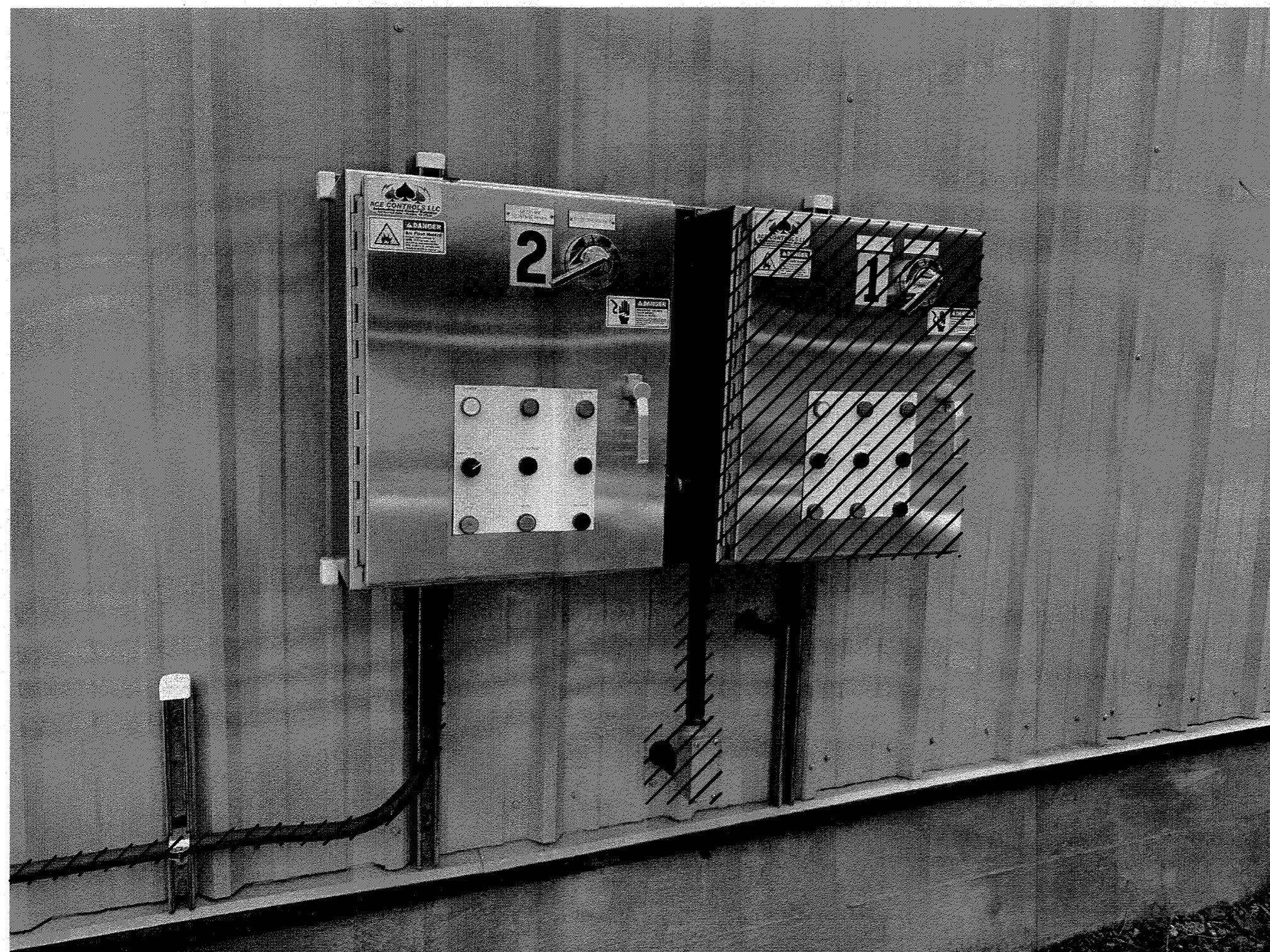
CAPITAL PROJECT NO.: S6264  
CONTRACT NO.: 20-5141

**LITTLEPATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS**

ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

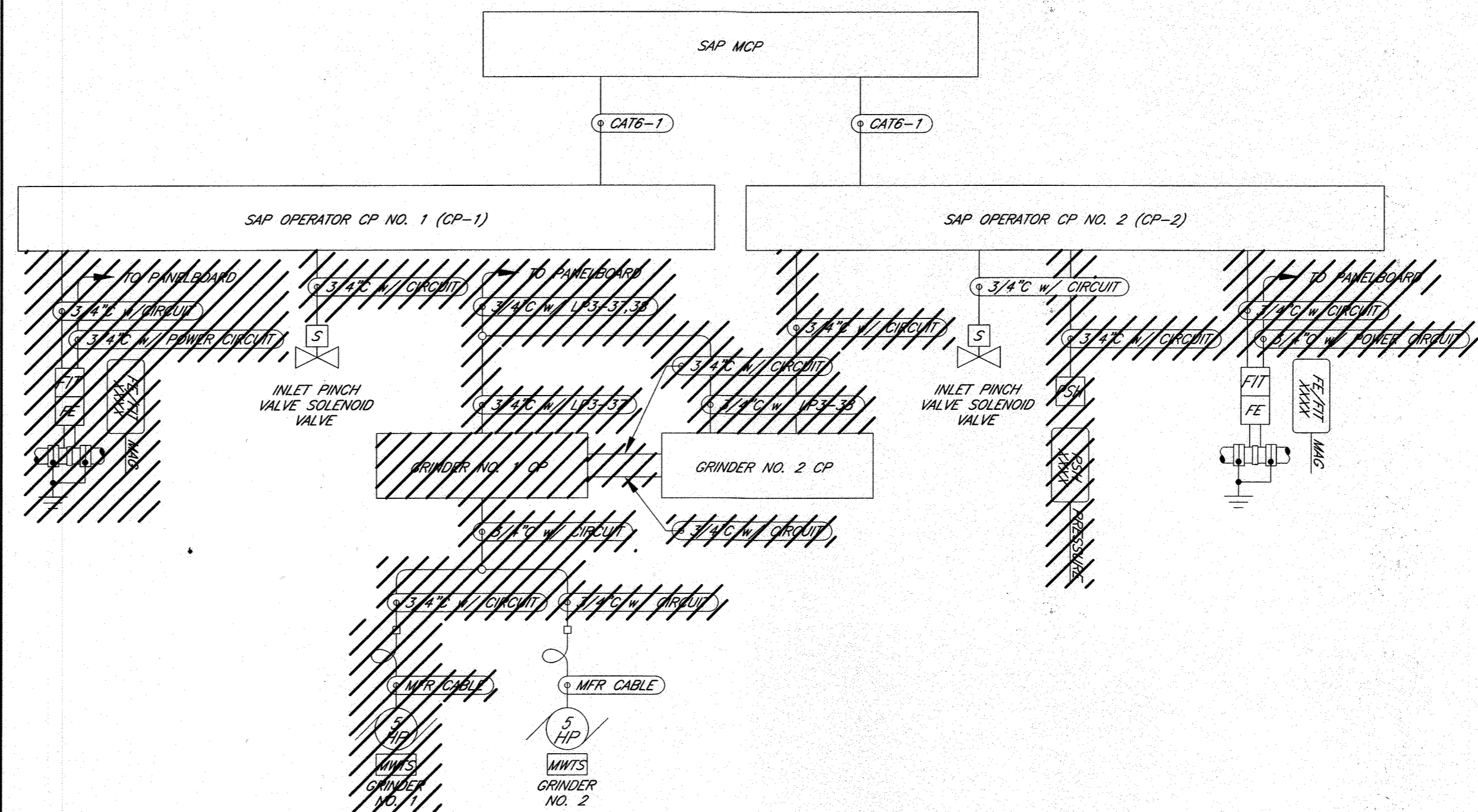
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SHEET NO.  
13 OF 19





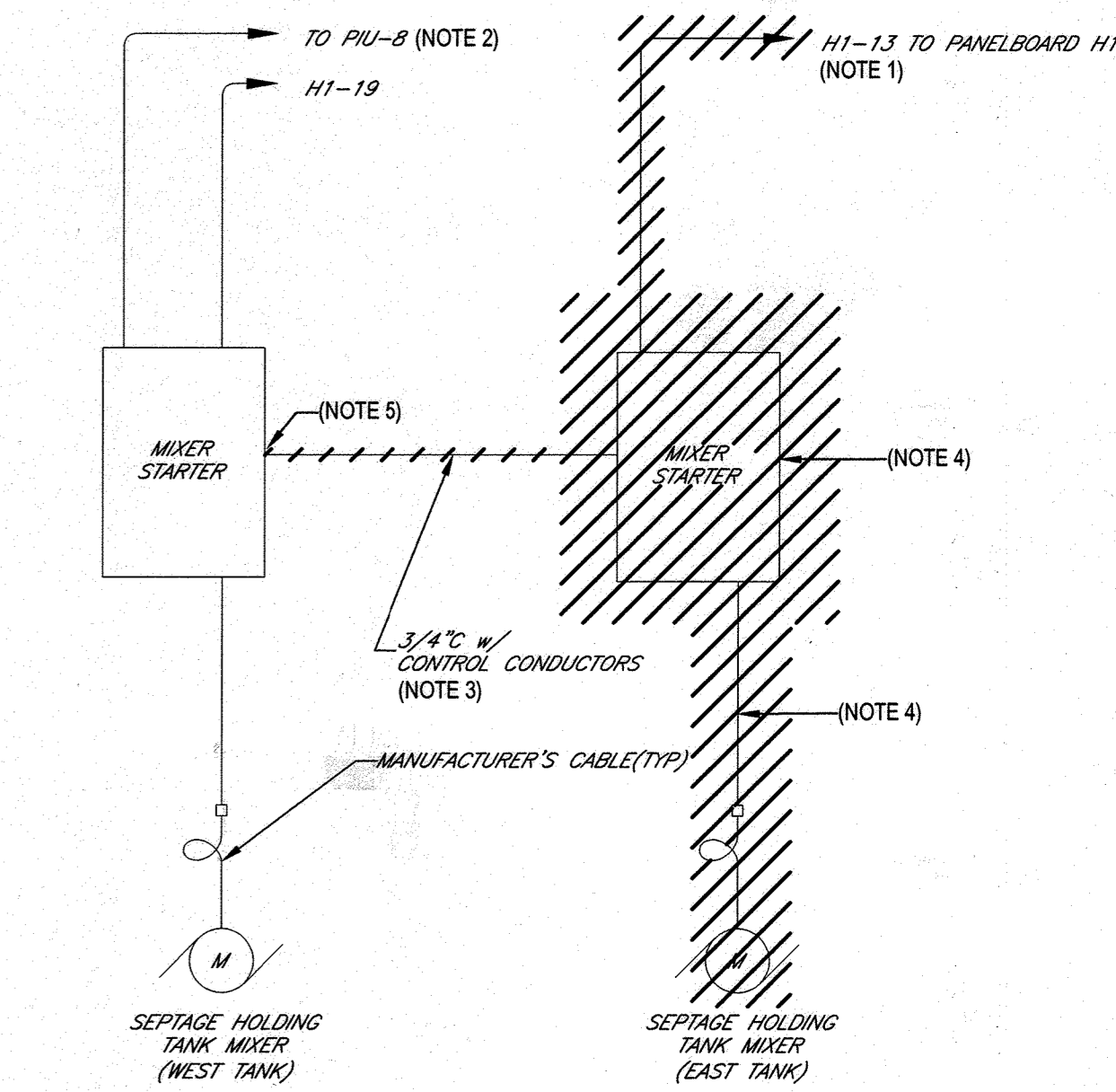
**1 GRINDER CONTROL PANELS**  
E006 NTS

- NOTES:**
- 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. REFER TO DETAIL 2 ON E006 FOR SIZES AND CONNECTIONS FOR CONDUITS TO BE DEMOLISHED.
  - REFER TO DETAIL 2 ON E006 FOR SIZES AND CONNECTIONS FOR CONDUITS TO BE DEMOLISHED.



**2 SEPTAGE BUILDING DEMOLITION CONDUIT RISER DIAGRAM**  
E006 NTS

**LEGEND:**  
[Hatched Box] TO BE DEMOLISHED



**3 SEPTAGE HOLDING TANK MIXER DEMOLITION CONDUIT RISER DIAGRAM**  
E006 NTS

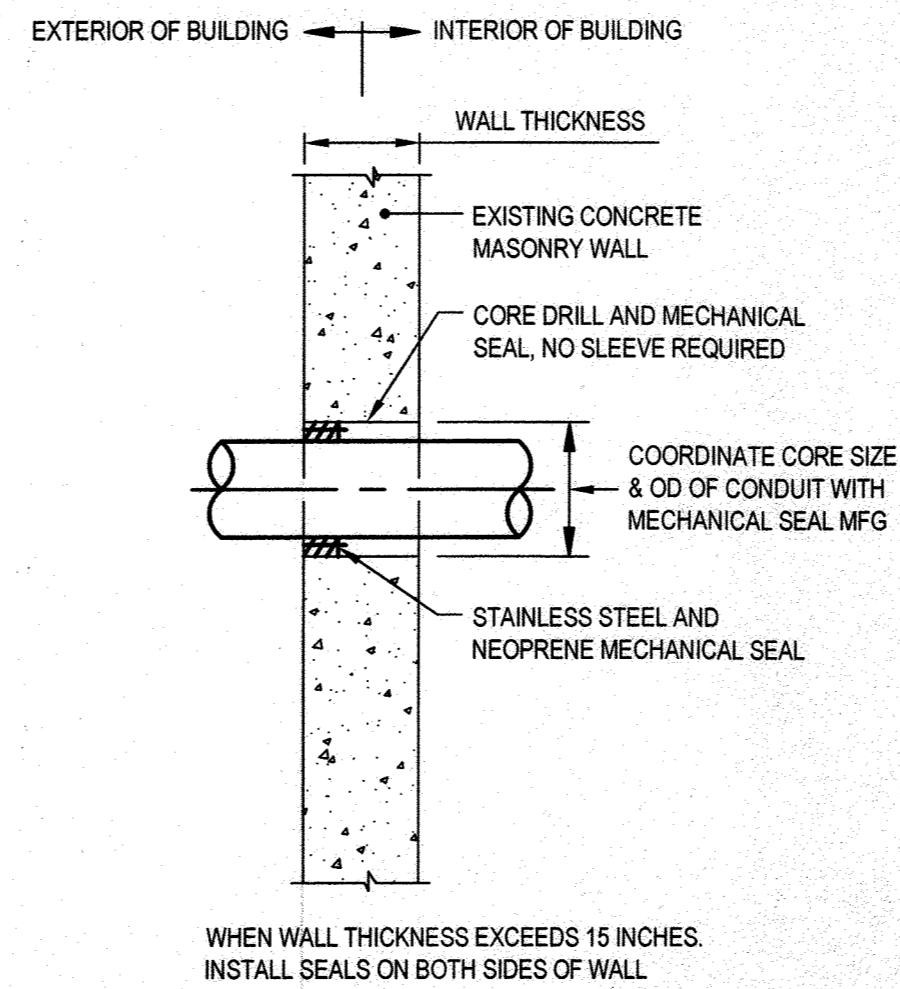
**LEGEND:**  
[Hatched Box] TO BE DEMOLISHED

- NOTES:**
- 480VAC, 3 PHASE CONDUCTORS IN 3/2\"/>
  - 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.
  - DEMOLISH CONTROL CONDUCTORS AND 3/2\"/>
  - 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.
  - SEAL ENCLOSURE WATERTIGHT.

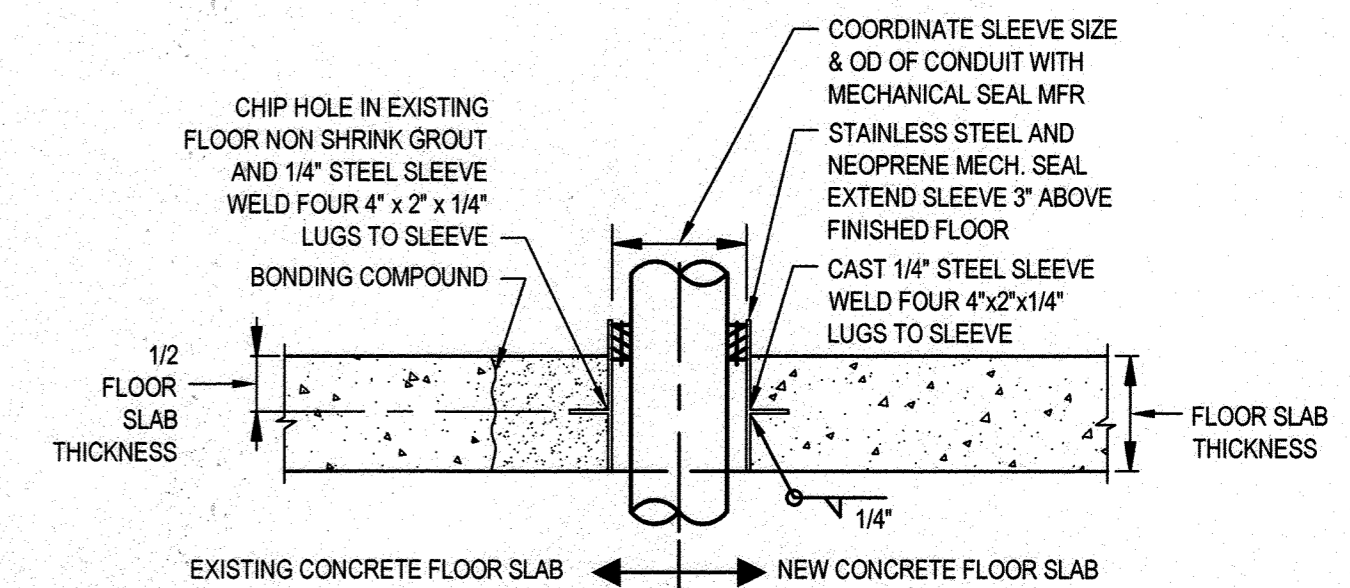


**3 OPERATOR CONTROL PANELS CP-1 AND CP-2**  
E006 NTS

- NOTES:**
- 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.
  - REFER TO DETAIL 2 ON E006 FOR SIZES AND CONNECTIONS FOR CONDUITS TO BE DEMOLISHED.



**4 CONDUIT PENETRATION THRU EXISTING CONCRETE WALL**  
E006 SCALE: NTS



**5 CONDUIT PENETRATION THRU CONCRETE FLOOR SLAB**  
E006 SCALE: NTS

- NOTES:**
- INSTALL SEALS ON BOTH SIDES OF FLOOR WHEN FLOOR THICKNESS EXCEEDS 15\"/>
  - 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.

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 Plotted By: Katherine Lamon  
 Plot Date: 11 Jul 2020 10:27 AM

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director: *Maurice R. Hester* 12-9-20  
 Date: \_\_\_\_\_  
 Chief, Bureau of Engineering  
 Date: \_\_\_\_\_  
 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, LICENSE NO. 22478, EXPIRATION DATE: 09/27/2021

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DES:	BY:	NO.:	REVISION:	DATE:	BID SUBMISSION:
B. CARDINAL	T. SMITH				
	T. YOUNG				

ELECTRICAL DETAILS 1

JULY 2020

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

**LITTLE PATUXENT WRP HAULED  
 WASTE RECEIVING IMPROVEMENTS**

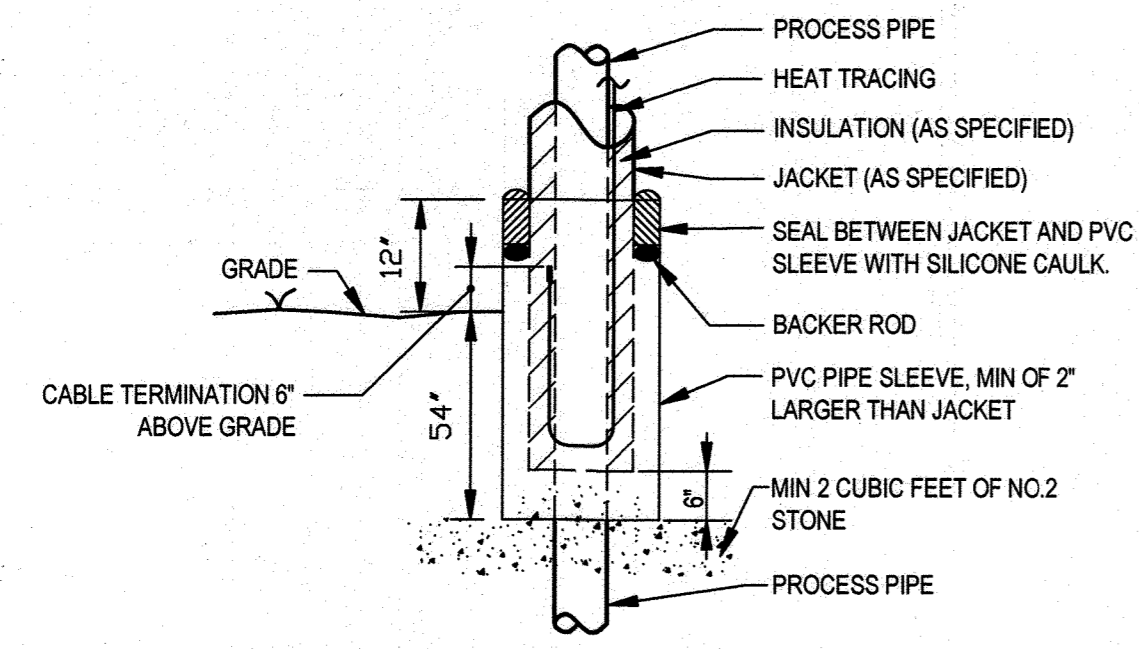
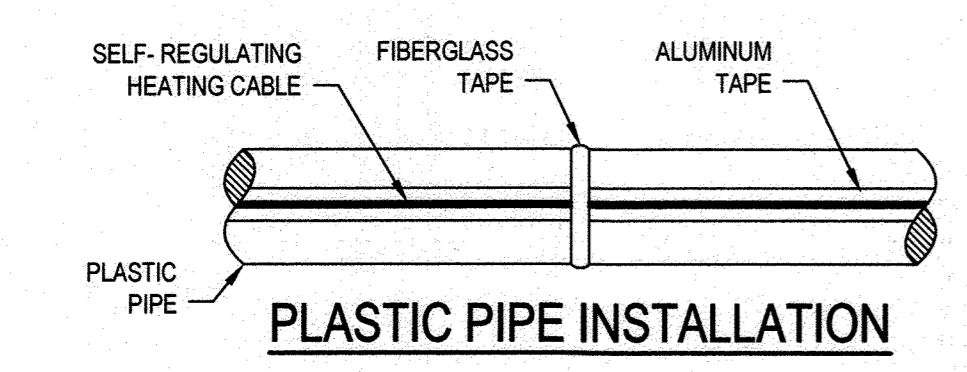
ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND 15 OF 19

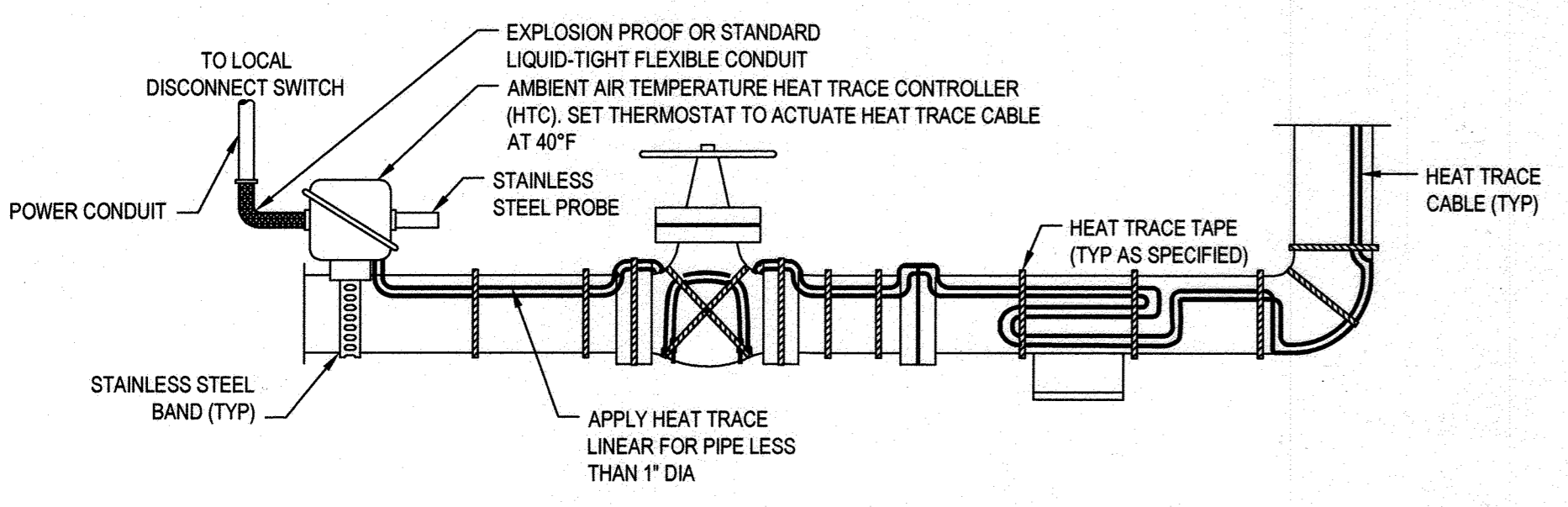
E006

SCALE: NTS

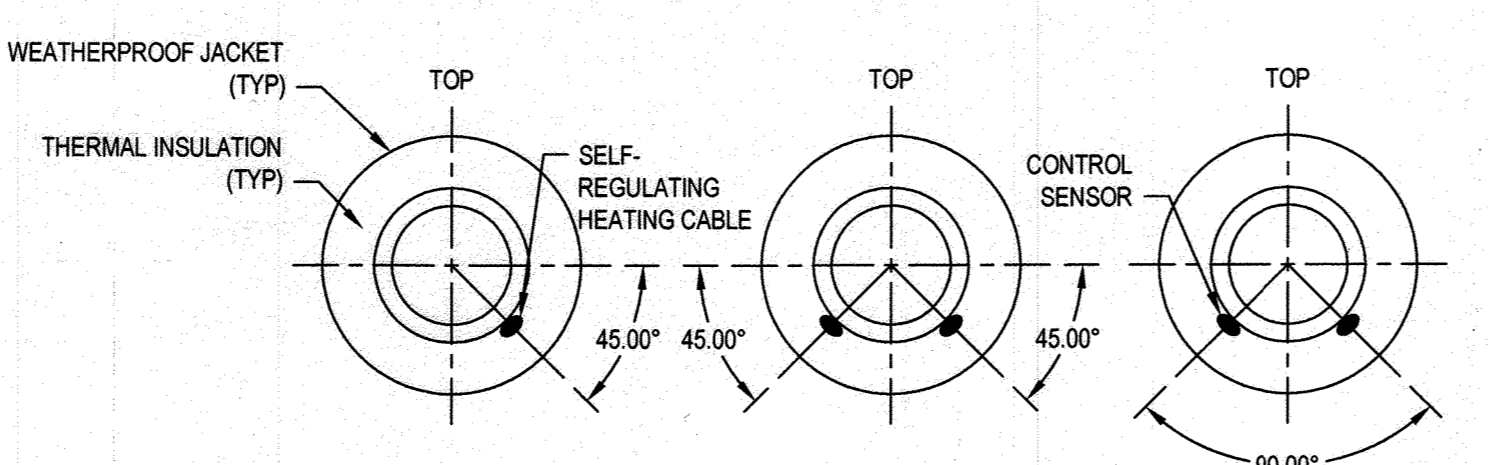
SHEET NO.



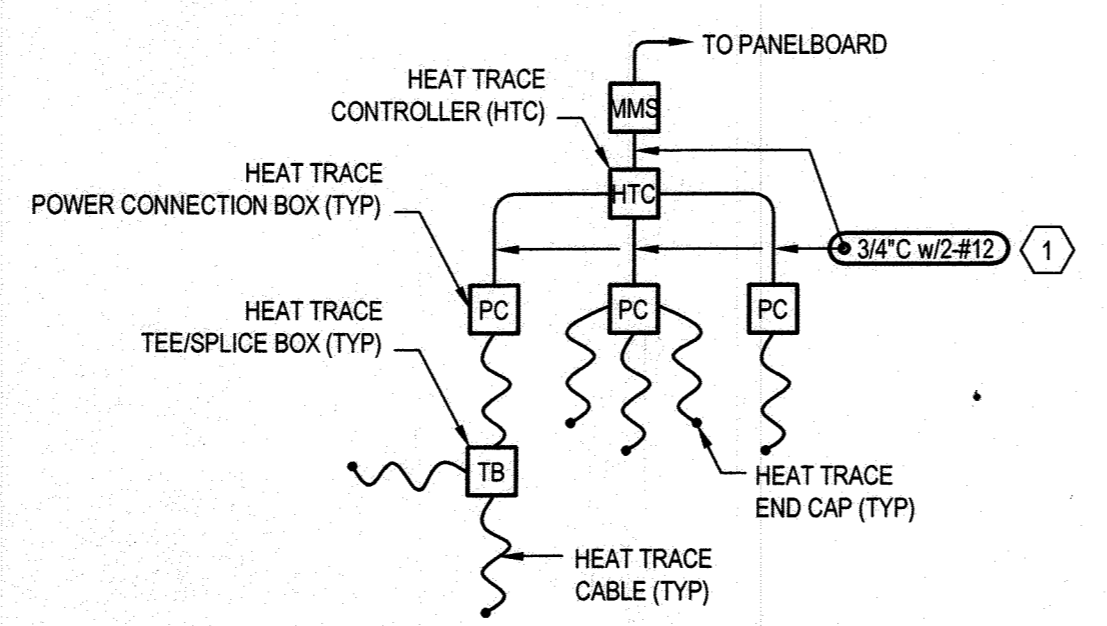
NOTES:  
 1. FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY FINAL PIPE LENGTHS.  
 2. INSULATION AND JACKET TYPES ARE REFERENCED IN SPECIFICATIONS.  
 3. PROVIDE LOCAL 30A/1P DISCONNECT SWITCH FOR ALL HEAT TRACE CONTROLLERS (HTC).



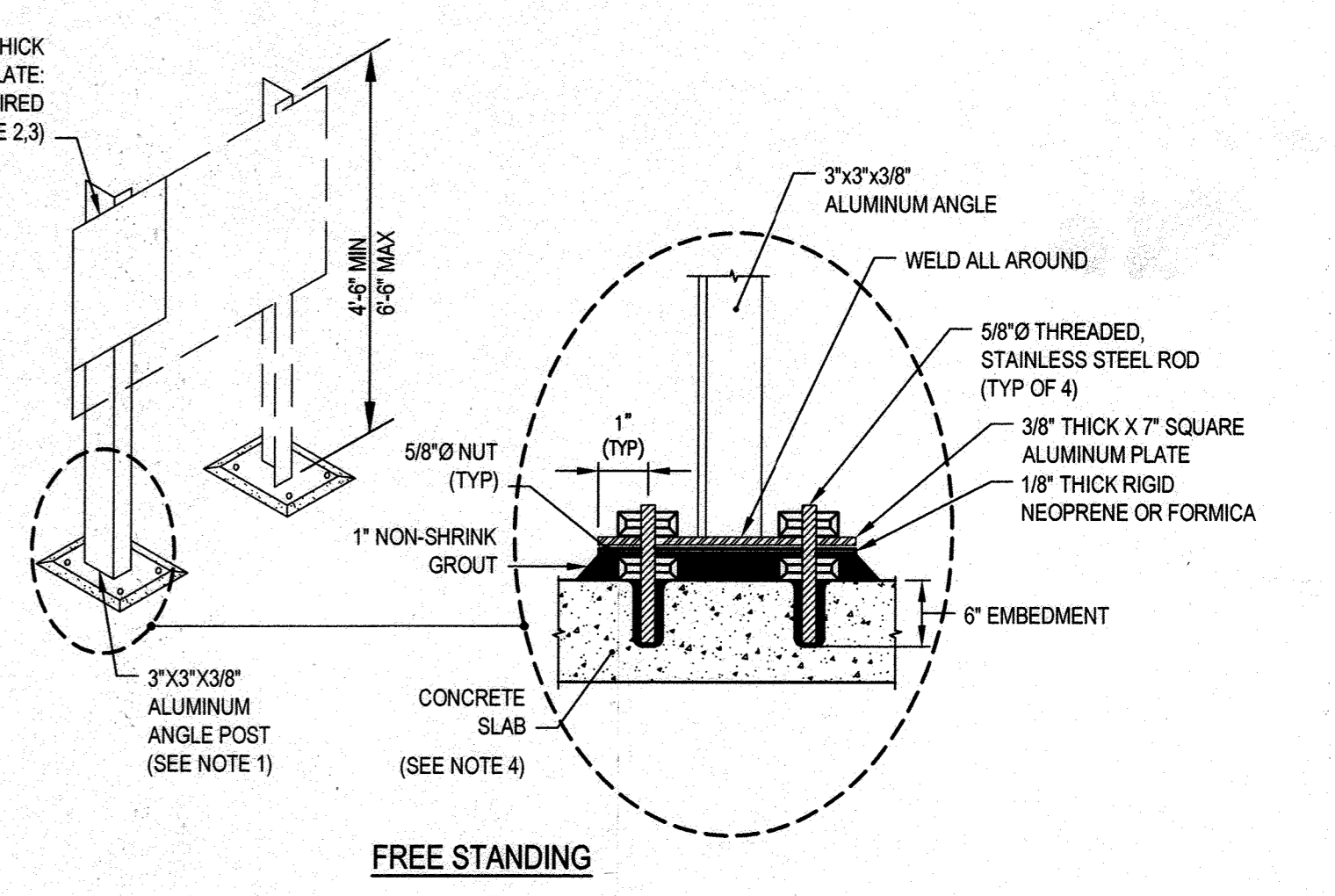
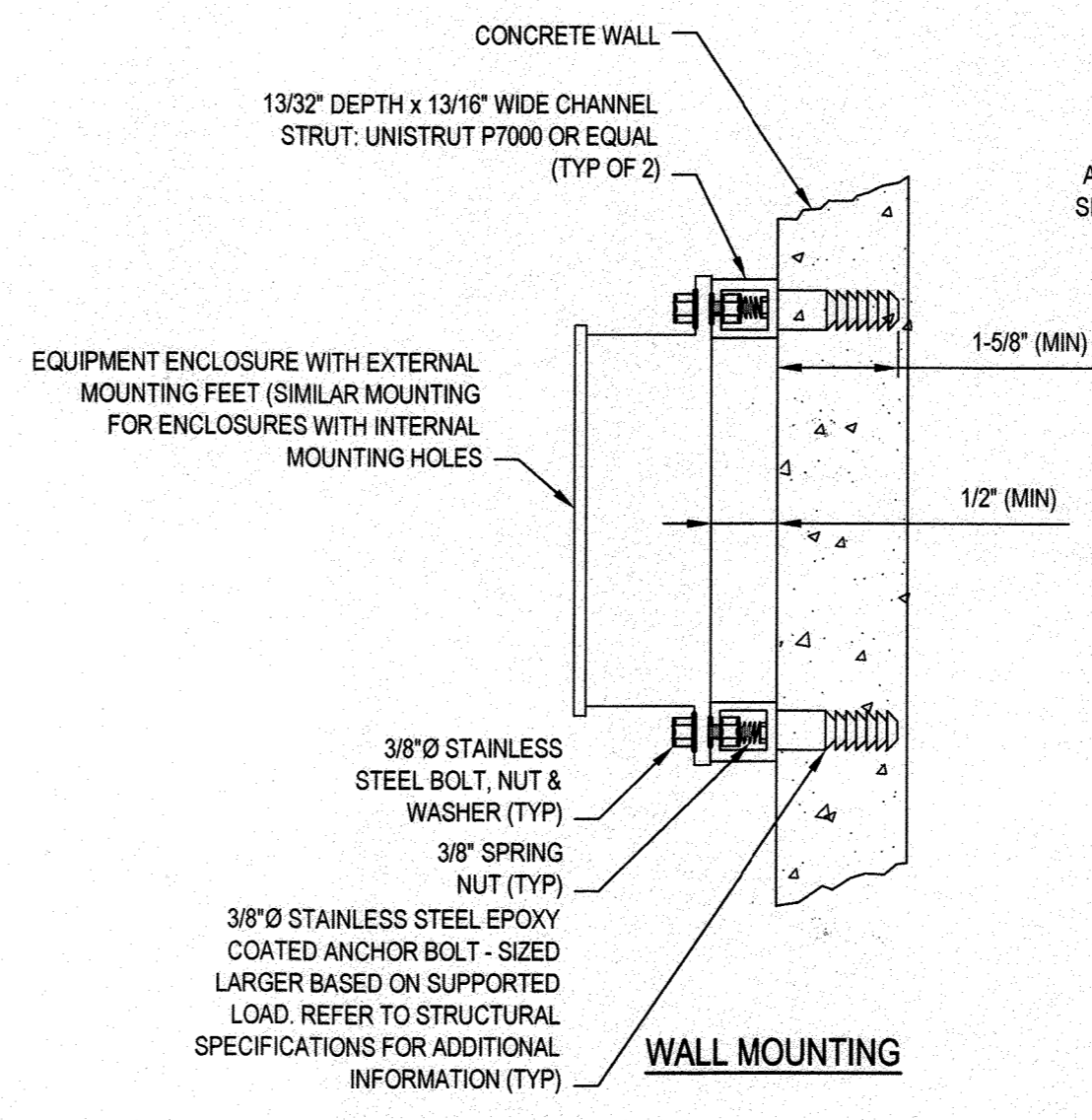
**1 HEAT TRACING DETAILS**  
 SCALE: NTS



CABLE LOCATED AT NOMINAL 45° BELOW HORIZONTAL CENTERLINE.  
 CABLE LOCATED AT NOMINAL 45° BELOW HORIZONTAL CENTERLINE ON EITHER SIDE.  
 FOR MULTIPLE HEATERS PLACE CONTROL SENSOR 90° FROM NEAREST HEATER OR CENTERED BETWEEN EQUALLY SPACED HEATERS.

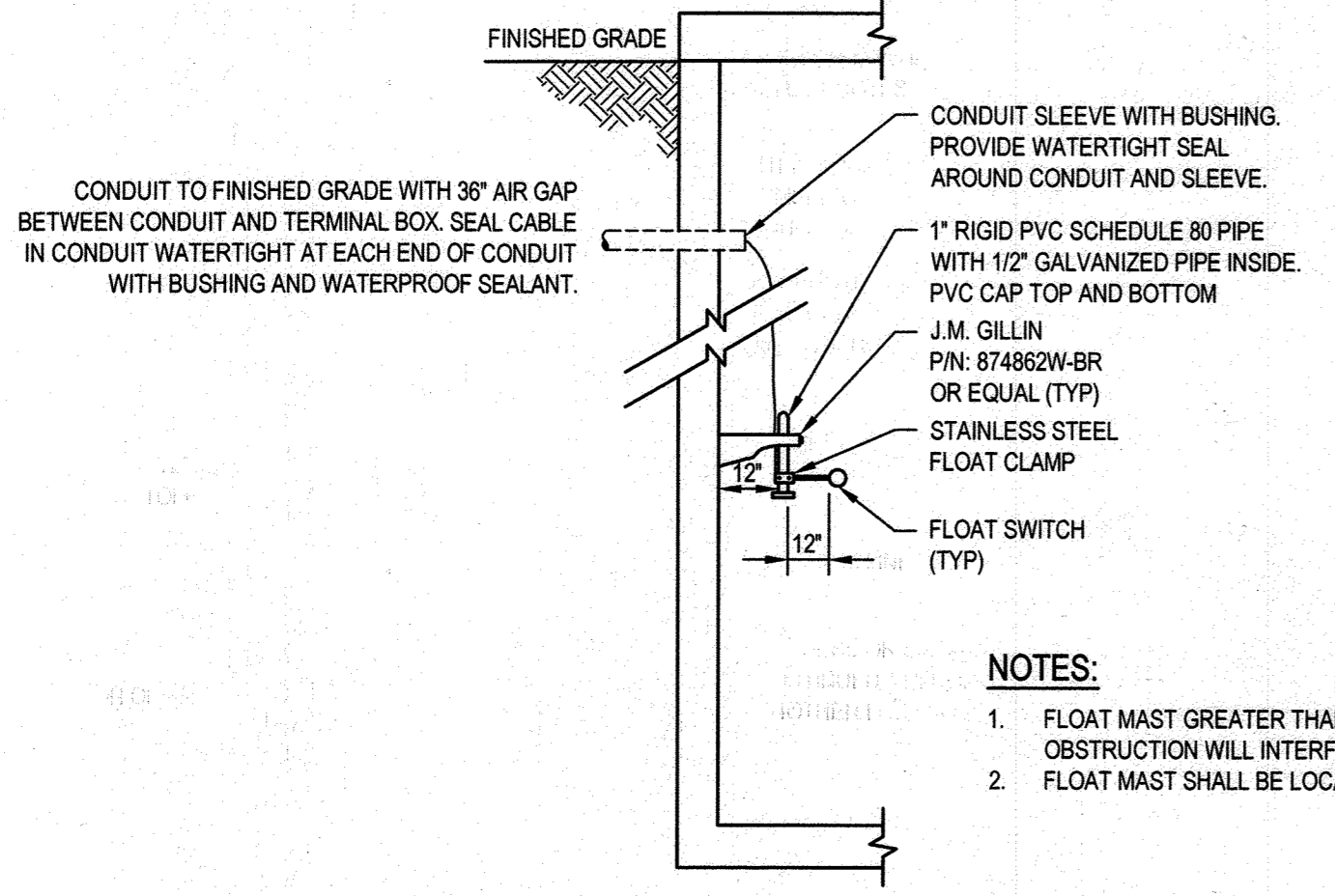


**TYPICAL HEAT TRACE SCHEMATIC**  
**INSTALLATION INFORMATION:**  
 -TEMPORARILY POSITION CABLE ON PIPE AND EQUIPMENT TO ENSURE PROPER DISTRIBUTION.  
 -LEAVE A LOOP OF CABLE AT HEAT SINKS SUCH AS VALVES, PIPE SUPPORTS AND FLANGE SETS. USE FIBERGLASS TO SECURE CABLE TO PIPE AT 18" (NOM) INTERVALS USING RECOMMENDED METHOD.  
 -ALWAYS OBSERVE MINIMUM BEND RADIUS.



**2 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.



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.

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 DATE: 17 JUL 2020 11:02:27 AM

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

12-9-20  
 12-11-2020

CHEF, BUREAU OF ENGINEERING  
 CHEF, UTILITY DESIGN DIVISION

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

J.M. GILLIN  
 P/N: 874862W-BR  
 OR EQUAL (TYP)  
 STAINLESS STEEL  
 FLOAT CLAMP  
 FLOAT SWITCH (TYP)

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DES:	BY:	NO.	REVISION	DATE	BID SUBMISSION
B. CARDINAL					JULY 2020
T. SMITH					
T. YOUNG					

ABE 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



**INSTRUMENT SYMBOLS:**

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

- XXX FN  
YYY LOC LOCAL INSTRUMENT - FIELD MOUNTED INSTRUMENT
- XXX FN  
YYY LOC PANEL INSTRUMENT - OPERATOR ACCESSIBLE PRIMARY FUNCTION
- XXX FN  
YYY LOC PANEL INSTRUMENT - OPERATOR INACCESSIBLE PRIMARY FUNCTION
- XXX FN  
YYY LOC AUXILIARY FUNCTION
- XXX IO  
YYY PCS PART OF PCS OR PLC - NORMALLY ACCESSIBLE TO OPERATOR
- XXX IO  
YYY PCS 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  
 FUNCTIONAL DESIGNATION  
 LOOP NUMBER  
 PROCESS DESIGNATION  
 PLANT AREA

- FE FN  
YYY LOC ORIFICE PLATE W/ FLANGE OR CORNER TAPS
- FE FN  
YYY LOC ORIFICE PLATE W/ VENA CONTRACT A, RADIUS OR PIPE TAPS
- FE FN  
YYY LOC FLUME TYPE FLOW ELEMENT
- FE FN  
YYY LOC VENTURI TUBE OR FLOW NOZZLE
- FE FN  
YYY LOC WEIR TYPE FLOW ELEMENT
- FE FN  
YYY LOC MAGNETIC FLOW METER
- FE FN  
YYY LOC MASS FLOW METER
- FE FN  
YYY LOC TURBINE METER
- FE FN  
YYY LOC POSITIVE DISPLACEMENT METER
- FE FN  
YYY LOC ROTAMETER
- FE FN  
YYY LOC BATCH FLOW METER W/ AUTOMATIC CUTOFF
- FE FN  
YYY LOC RESTRICTION ORIFICE DRILLED IN VALVE

- TE FN  
YYY LOC TEMPERATURE TEST CONNECTION WITH WELL
- TE FN  
YYY LOC TEMPERATURE ELEMENT WITH WELL
- TE FN  
YYY LOC TEMPERATURE ELEMENT
- PI FN  
YYY LOC PRESSURE INDICATOR
- LE FN  
YYY LOC LEVEL ELEMENT

DIGITAL SYSTEM I/O INTERFACE. DIRECTION OF TRIANGLE DENOTES WHETHER INPUT OR OUTPUT.  
 NOTES:  
 QUANTITY OF INPUTS AND OUTPUTS IS DEPENDENT UPON THE NUMBER OF DEVICES OR PIECES OF EQUIPMENT THAT ARE BEING CONTROLLED AND/OR MONITORED.  
 FILLING DENOTES SIGNAL TYPE. THE FILLED TRIANGLE DENOTES AN ANALOG SIGNAL. THE UNFILLED TRIANGLE DENOTES A DISCRETE SIGNAL.

- XXX-XXXXX EQUIPMENT TAG
- XXX-XXXXX PROCESS LINE TAG
- A DWG.XXX-XX 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 DAMPENERS
- 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.

1 SEP SCALE

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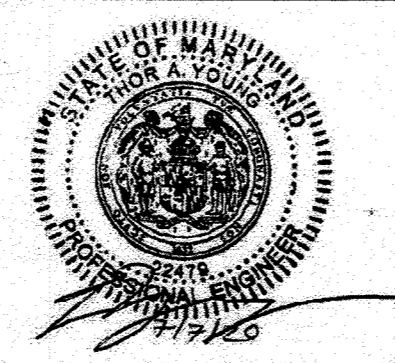
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 Printed By: Madhuphar Lamon

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

12-7-20  
 12-11-2000  
 12-7-2020

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T. SMITH					
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INSTRUMENTATION LEGEND,  
 ABBREVIATIONS, SYMBOLS AND  
 GENERAL NOTES

JULY 2020

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

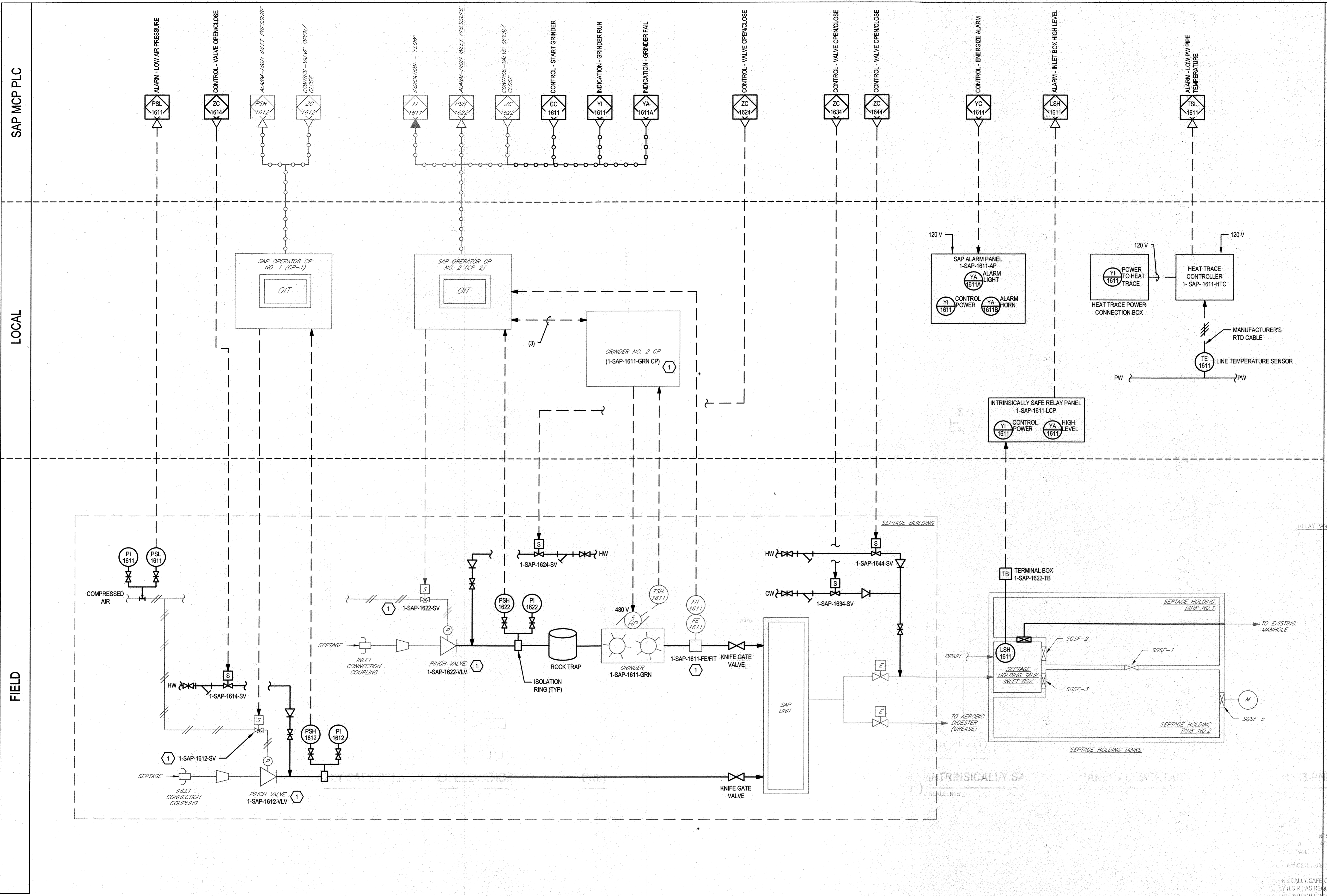
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ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND 17 OF 19

1001

SCALE:  
 NTS  
 SHEET NO.



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

**1 SEPTAGE ACCEPTANCE PLANT P&ID**  
SCALE: NTS

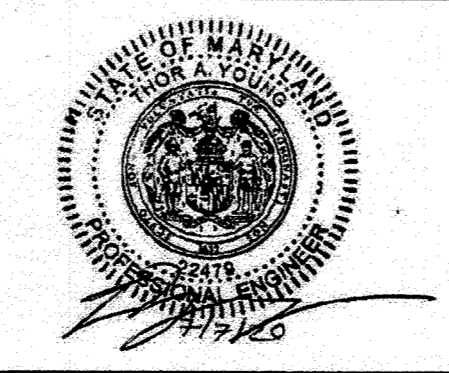
**DRAWING NOTES:**  
 1. REFER TO SPECIFICATION FOR ACCESSORIES REQUIRED FOR EACH ITEM.  
 2. NEW EQUIPMENT TAG NUMBER FOR EXISTING EQUIPMENT.  
 3. INTRINSICALLY SAFE CIRCUITS ARE REQUIRED AS NOTED.  
 4. INTRINSICALLY SAFE CIRCUITS ARE NOT REQUIRED AS NOTED.  
 5. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR FOR THE INSTALLATION OF ALL INSTRUMENTATION AND WIRING.  
 6. INSTRUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

12-11-2020  
12-9-20  
12-11-2020

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T. SMITH					
T. YOUNG					

SEPTAGE ACCEPTANCE PLANT P&ID

JULY 2020

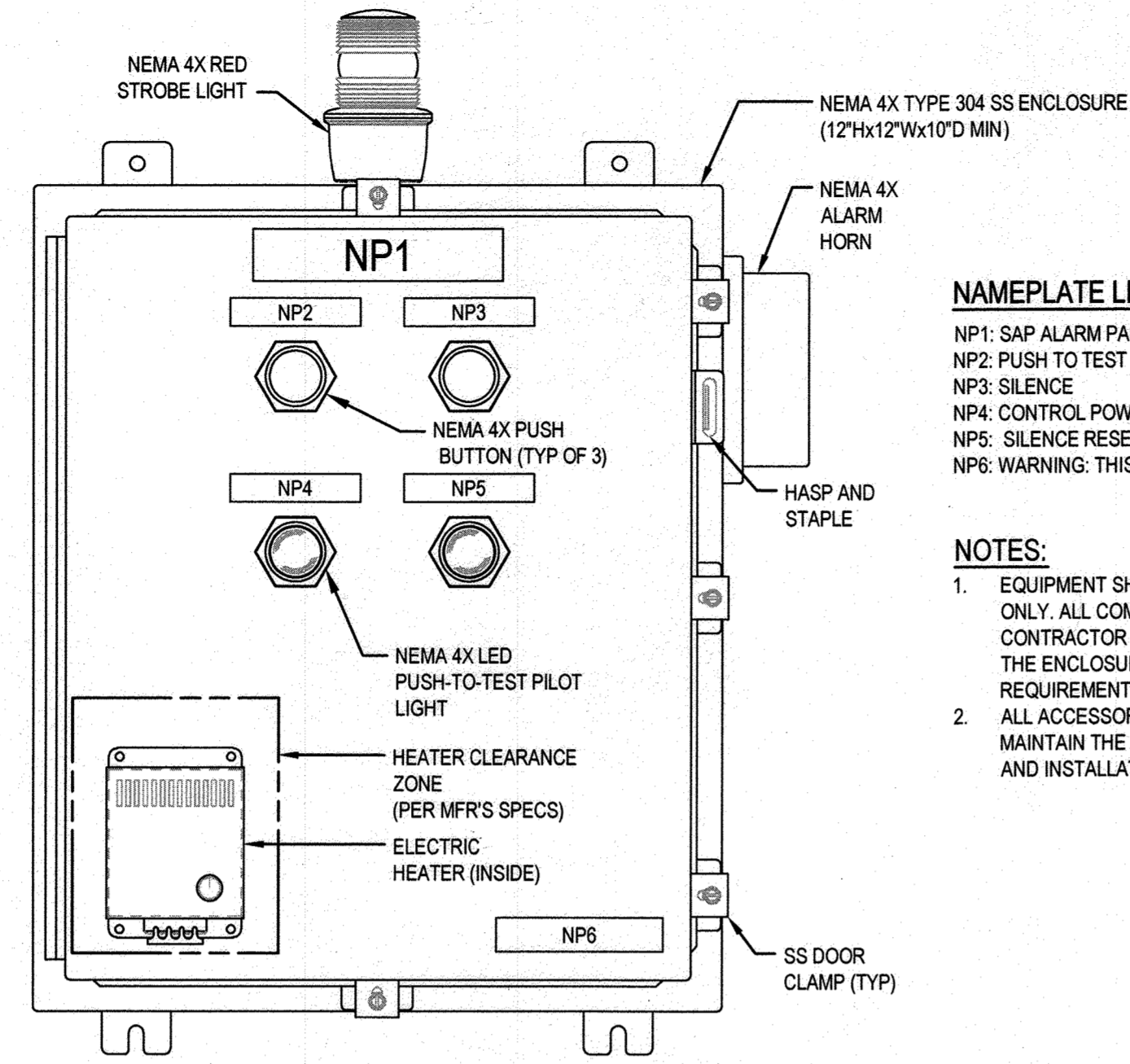
CAPITAL PROJECT NO.: S6264  
CONTRACT NO.: 20-5141

**LITTLE PATUXENT WRP HAULED WASTE RECEIVING IMPROVEMENTS**

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

18 OF 19



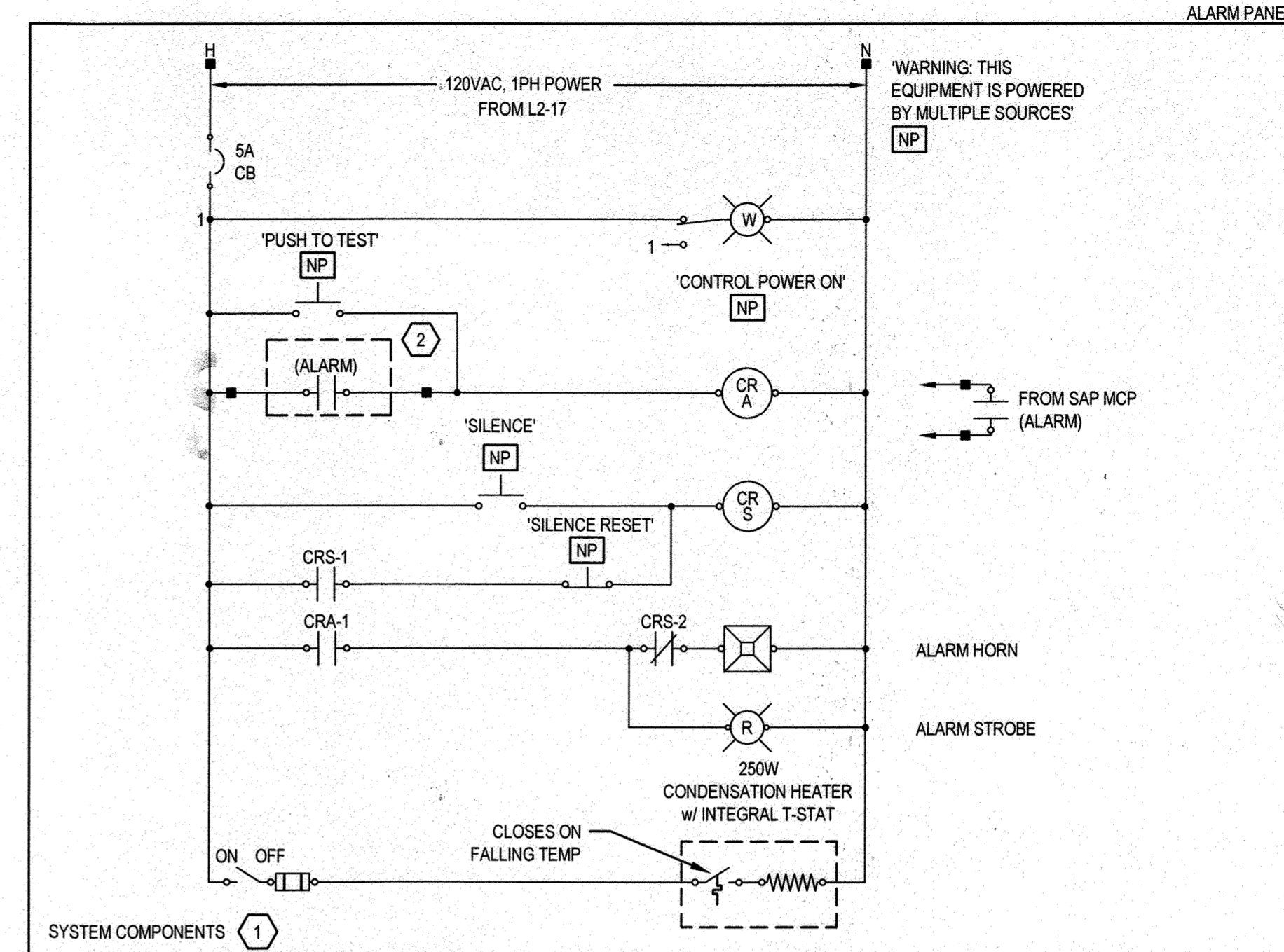
**NAMEPLATE LEGEND**

- 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

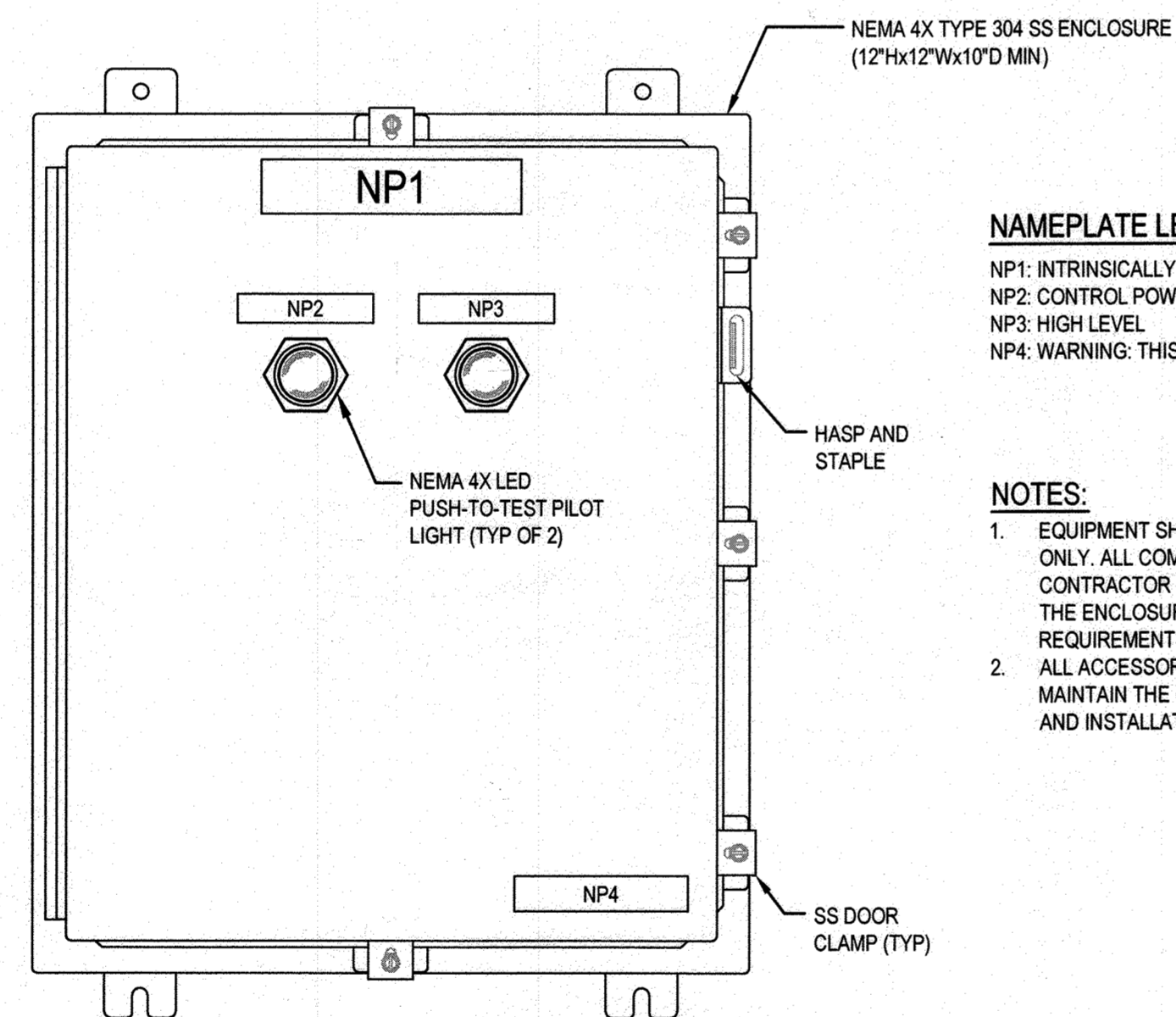
**NOTES:**

- 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.
- ALL ACCESSORIES AND MODIFICATIONS TO THE ENCLOSURE SHALL MAINTAIN THE NEMA RATING OF THE ENCLOSURE AFTER FABRICATION AND INSTALLATION.

**1 SAP ALARM PANEL ELEVATION (1-SAP-1623-PNL)**  
SCALE: NTS



**2 SAP ALARM PANEL ELEMENTARY DIAGRAM (1-SAP-1623-PNL)**  
SCALE: NTS



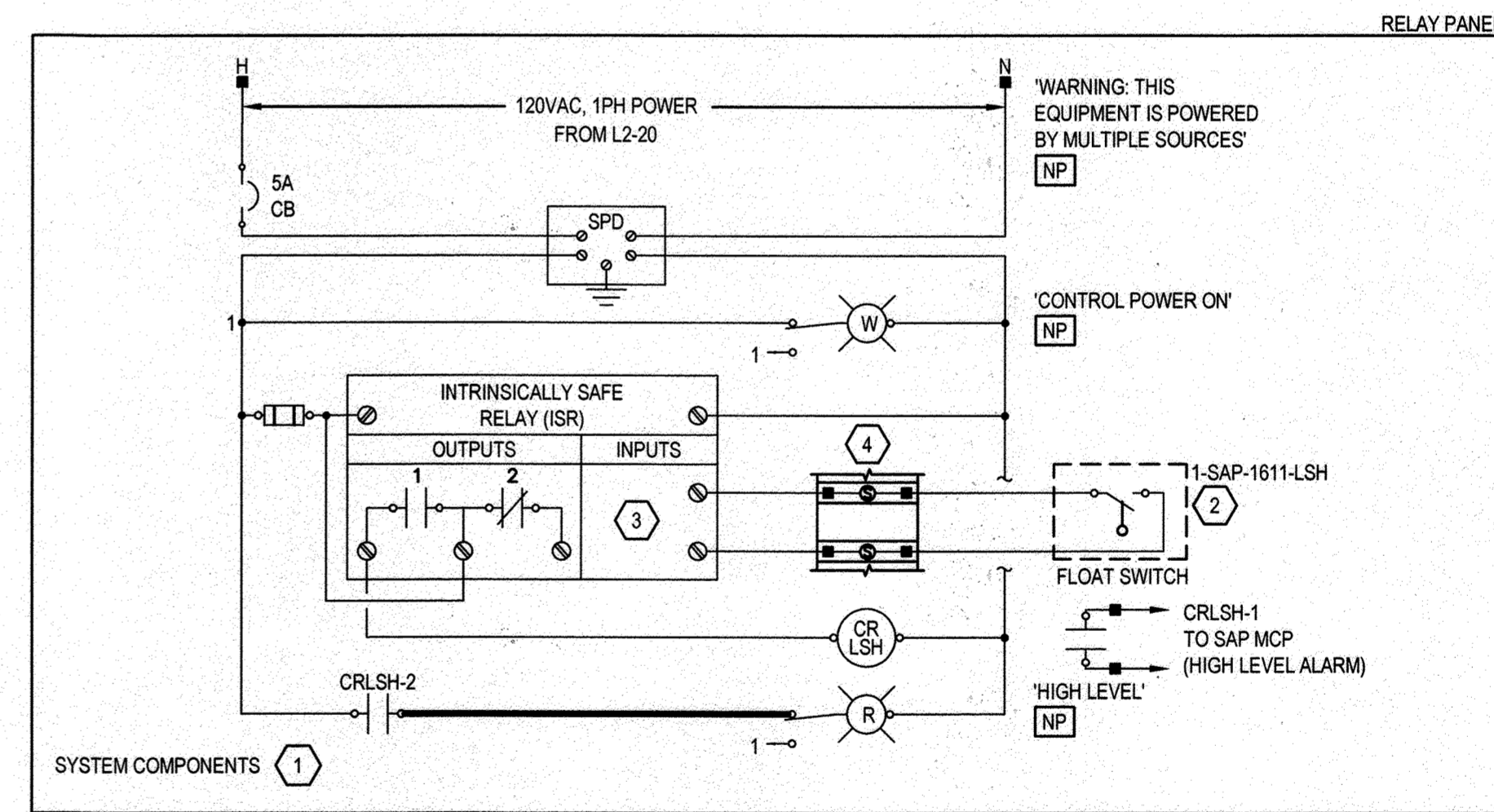
**NAMEPLATE LEGEND**

- 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:**

- 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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**3 INTRINSICALLY SAFE RELAY PANEL ELEVATION (1-SAP-1633-PNL)**  
SCALE: NTS



**4 INTRINSICALLY SAFE RELAY PANEL ELEMENTARY DIAGRAM (1-SAP-1633-PNL)**  
SCALE: NTS

**DRAWING NOTES:**

- SYSTEM COMPONENTS: REFER TO SPECIFICATIONS FOR ADDITIONAL CONTROL COMPONENTS AND ACCESSORIES REQUIRED FOR EACH STARTER/VFD UNIT OR CONTROL PANEL.
- FIELD DEVICE: EQUIPMENT OR COMPONENT LOCATED REMOTE FROM PANEL.
- 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.
- 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.

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Plot Date: 17 Jul 2020 - 10:28 AM  
Plotted by: Madhukar Lamon

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 12-2-20  
Chief, Bureau of Engineering: *[Signature]*  
Chief, Bureau of Utilities: *[Signature]* 12-11-20  
Chief, Utility Design Division: *[Signature]*

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

ELEMENTARY CONTROL DIAGRAMS  
AND ELEVATIONS

JULY 2020

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

LITTLE PATUXENT WRP HAULED  
WASTE RECEIVING IMPROVEMENTS

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND 19 OF 19

1003

SCALE:  
NTS

SHEET NO.