

ABBREVIATIONS

ATS	AUTOMATIC TRANSFER SWITCH	LR	LONG RADIUS
ALUM	ALUMINUM	MAX	MAXIMUM
CFM	CUBIC FEET PER MINUTE	MCC	MOTOR CONTROL CENTER
CI	CAST IRON	MIN	MINIMUM
CIP	CAST IRON PIPE	MJ	MECHANICAL JOINT
CISP	CAST IRON SOIL PIPE	MOD	MOTOR OPERATED DAMPER
CLR	CLEAR	MTS	MANUAL TRANSFER SWITCH
CMU	CONCRETE MASONRY UNIT	NO.	NUMBER
CONC	CONCRETE	OC	ON CENTER
CV	CHECK VALVE		
D	DOOR, DEPTH	P	PUMP
DA	DAMPER	PCP	PUMP CONTROL PANEL
DIP	DUCTILE IRON PIPE	PE	PLAIN END
DP	DEEP	PV	PLUG VALVE
		PVC	POLYVINYL CHLORIDE
ECC	ECCENTRIC	Q	FLOW
EF	EXHAUST FAN		
EL	ELEVATION	RED	REDUCER
ELL	ELBOW	RET	RETAINER
EXT	EXTENSION	RPM	REVOLUTIONS PER MINUTE
		RTU	REMOTE TELEMETRY UNIT
FF	FINISHED FLOOR	S	SEAT SIDE (PLUG VALVE)
FLG	FLANGE	SCH	SCHEDULE
FM	FORCE MAIN	SF	SUPPLY FAN
FRP	FIBERGLASS REINFORCED PLASTIC	S.P.	STATIC PRESSURE
		SQ.	SQUARE
GALV	GALVANIZED	SS	STAINLESS STEEL
GPM	GALLONS PER MINUTE		
GV	GATE VALVE		
H	HEIGHT	TDH	TOTAL DYNAMIC HEAD
HM	HOLLOW METAL	TYP	TYPICAL
HP	HORSE POWER		
		UH	UNIT HEATER
KW	KILOWATT	W	WIDTH
		W/	WITH
		W.G.	WATER GAUGE

GENERAL LEGEND

EXISTING

ITEMS TO BE DEMOLISHED AND REMOVED

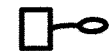


PROPOSED

NEW CONCRETE PATCH



BACK-UP FLOAT



PUMP E-STOP



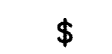
MOTOR



FREEZESTAT



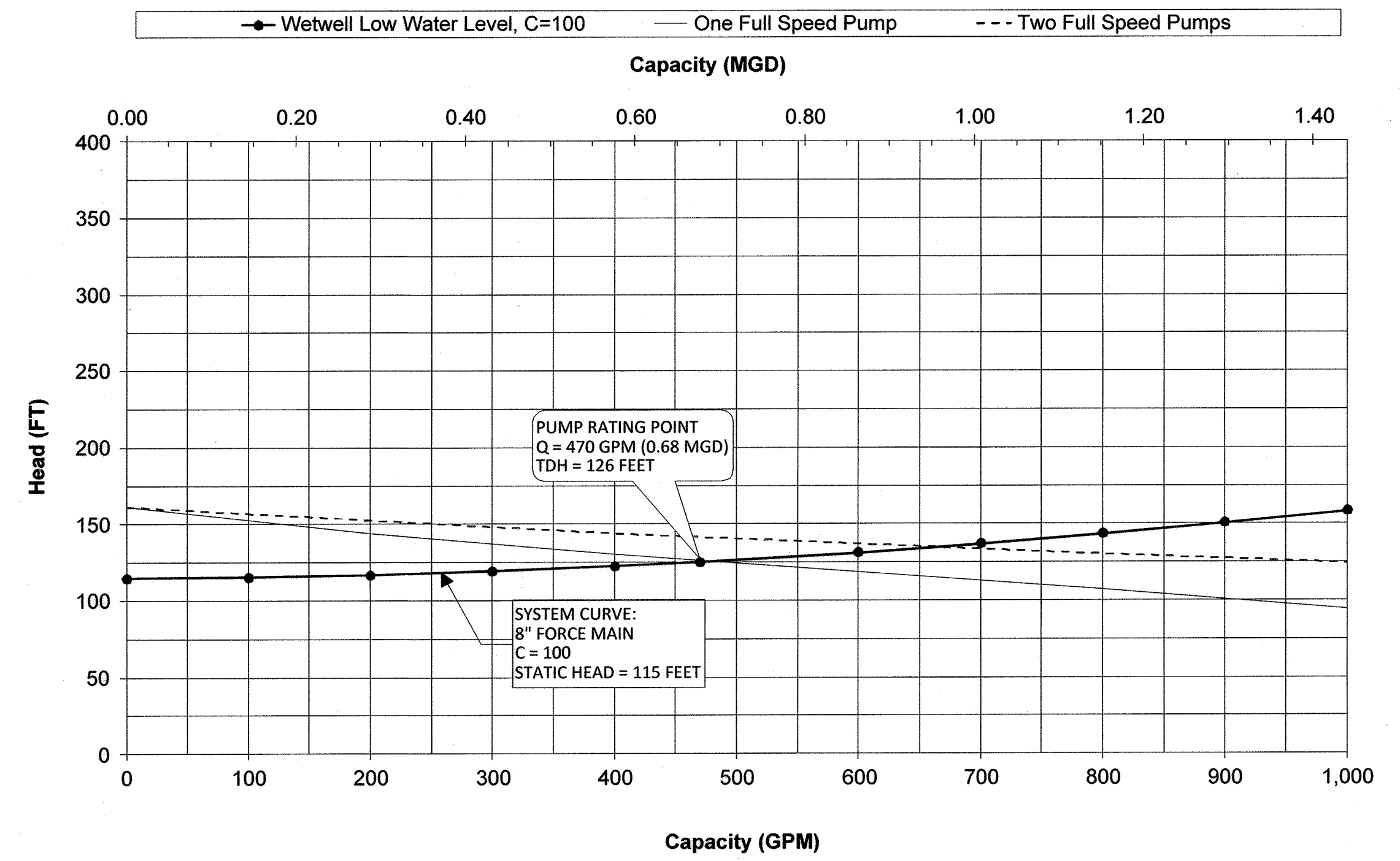
WALL SWITCH



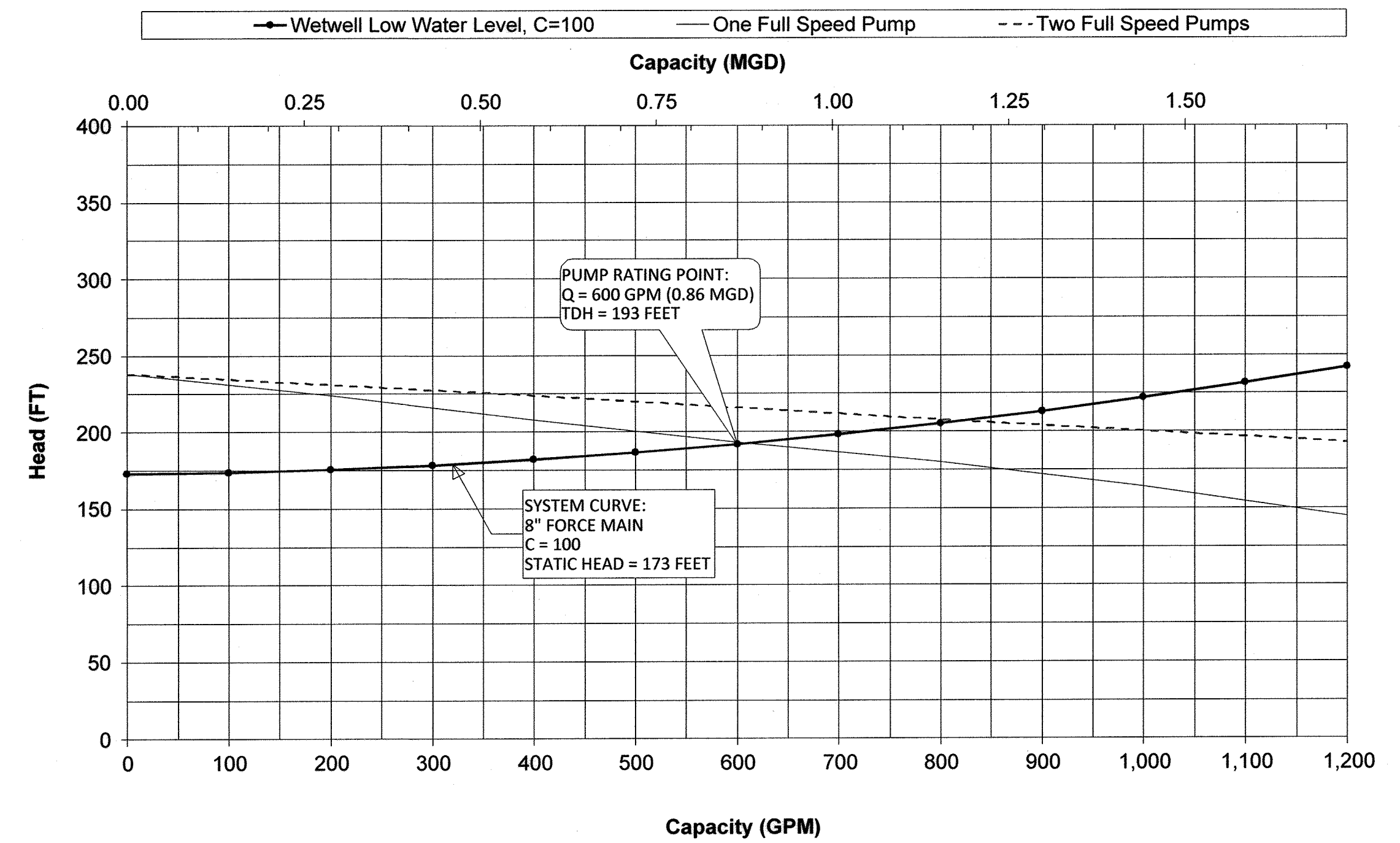
HATCH SWITCH



DUCTWORK TURNING VANES



MOUNT HEBRON PUMPING STATION SYSTEM CURVE



PATAPSCO PARK PUMPING STATION SYSTEM CURVE

R:\Projects\2019\12154_H6600A\Task 9 - Miscellaneous Pumping Stations\Mount Hebron_PSD\Cad\Plans\Proposed\12154MPPS-001B-02-19.dwg Apr 02, 2019 - 1:10pm Plot Scale 1:1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. [Signature] 4/6/19
DIRECTOR OF PUBLIC WORKS DATE

Thomas F. [Signature] 4/5/19
CHIEF, BUREAU OF ENGINEERING DATE

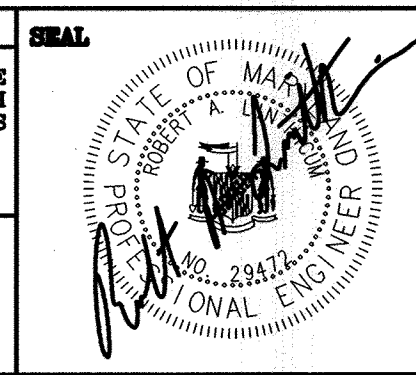
[Signature] 4-5-19
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 4/5/19
CHIEF, UTILITY DIVISION DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT REVISIONS INCLUDED IN 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. 28472 EXPIRATION DATE 9/15/2019

RK&K 700 EAST PRATT STREET
SUITE 500
BALTIMORE, MARYLAND 21202



DES: DAO				
DRN: NAF				
CHK: RAL				
DATE: 4/02/19	RK&K	1	2019 UPGRADES - ADD SHEET 1B	4/19
BY	NO.		REVISIONS	DATE

ABBREVIATIONS, LEGEND AND
SYSTEM CURVES -
2019 UPGRADES

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

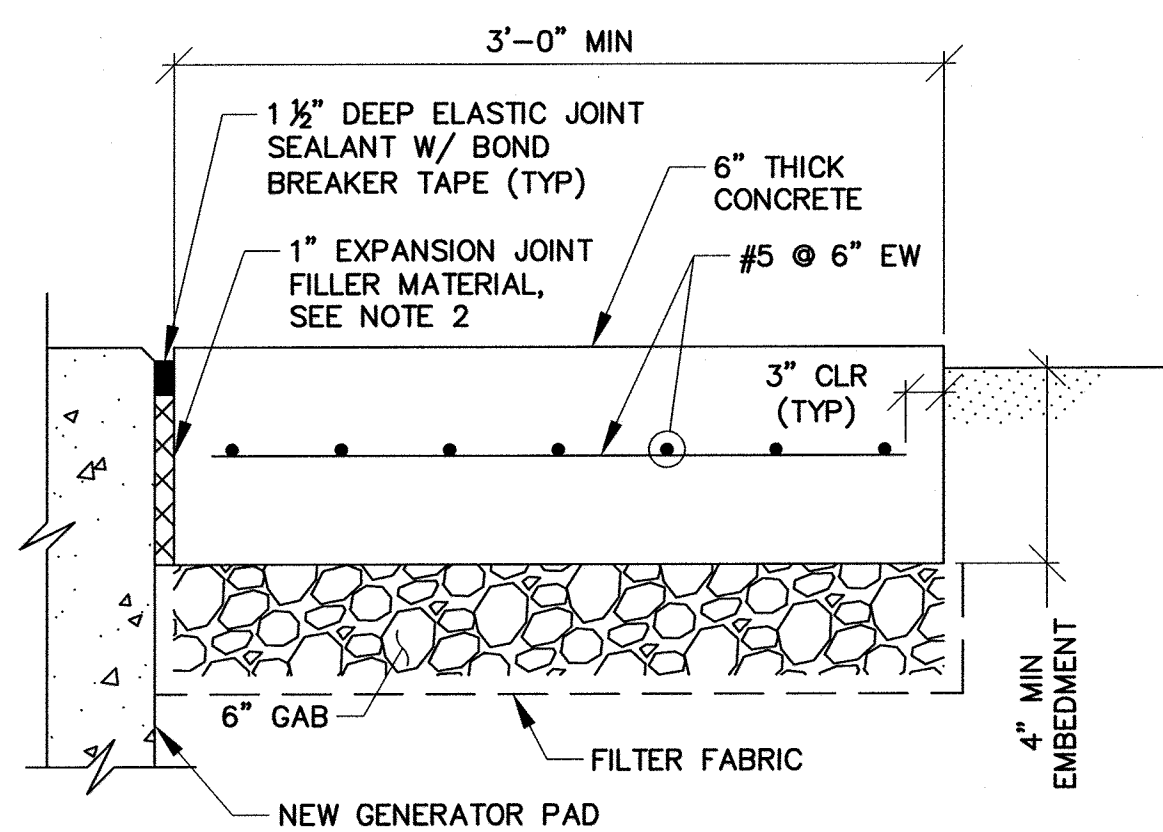
ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE
NTS

SHEET
1B OF 25

NOTES:

1. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
2. THE LOCATIONS OF ALL UNDERGROUND UTILITIES AS SHOWN HEREON ARE BASED ON ABOVE GROUND FIELD OBSERVATIONS AND RECORD DRAWINGS. ADDITIONAL BURIED UTILITIES OR STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS WERE MADE TO LOCATE BURIED UTILITIES/STRUCTURES. ALL SUBSURFACE UTILITIES/STRUCTURES SHOWN ARE TO BE CONSIDERED APPROXIMATE LOCATION ONLY. UNDERGROUND UTILITIES MUST BE VERIFIED BY TEST PITS.
3. ALL DISTURBED AREAS SHALL BE GRADED, SEEDED AND LANDSCAPED TO RESTORE ALL PROPERTY TO ITS ORIGINAL UNDISTURBED CONDITION.
4. GENERATOR ENCLOSURE SHALL BE SUFFICIENTLY WEATHER-PROTECTIVE TO ENSURE THE GENERATOR WILL OPERATE AS INTENDED DURING INCLEMENT WEATHER, AND SHALL PROVIDE THE STRICTEST POSSIBLE SOUND-ATTENUATION LEVEL POSSIBLE FOR THE PARTICULAR GENERATOR MODEL FURNISHED IN ACCORDANCE WITH SPECIFICATION SECTION 16700.

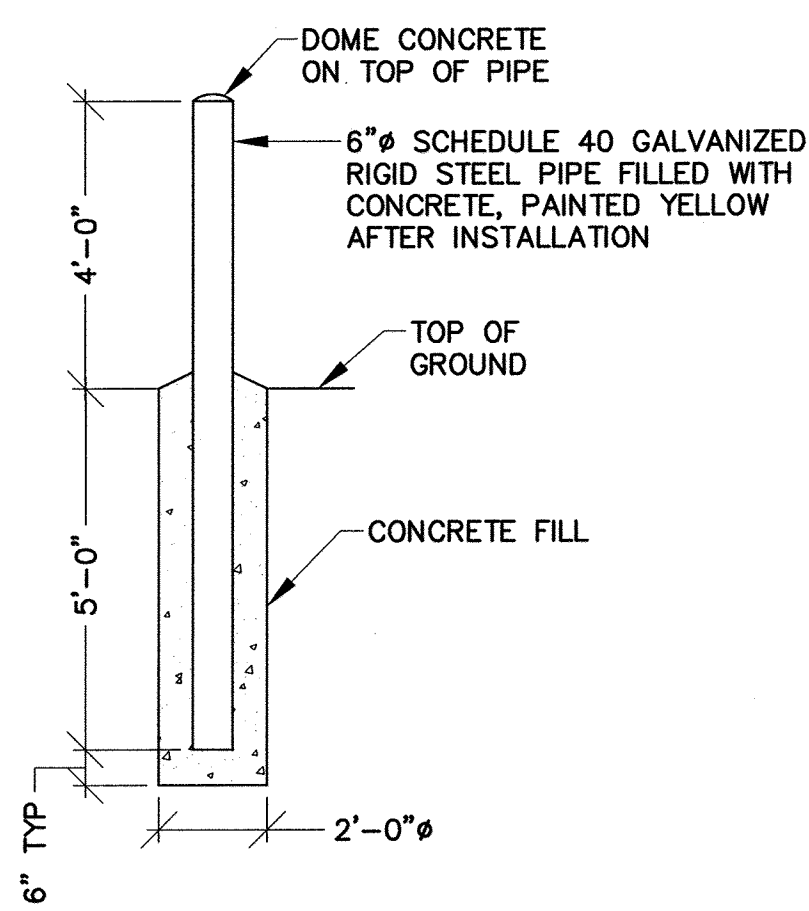


NOTES:

1. CONCRETE PAD TO CONTAIN #5 @ 6" EACH WAY, CENTERED VERTICALLY.
2. EXPANSION JOINTS TO BE A MINIMUM DEPTH OF 1/4" THE WALKWAY THICKNESS.

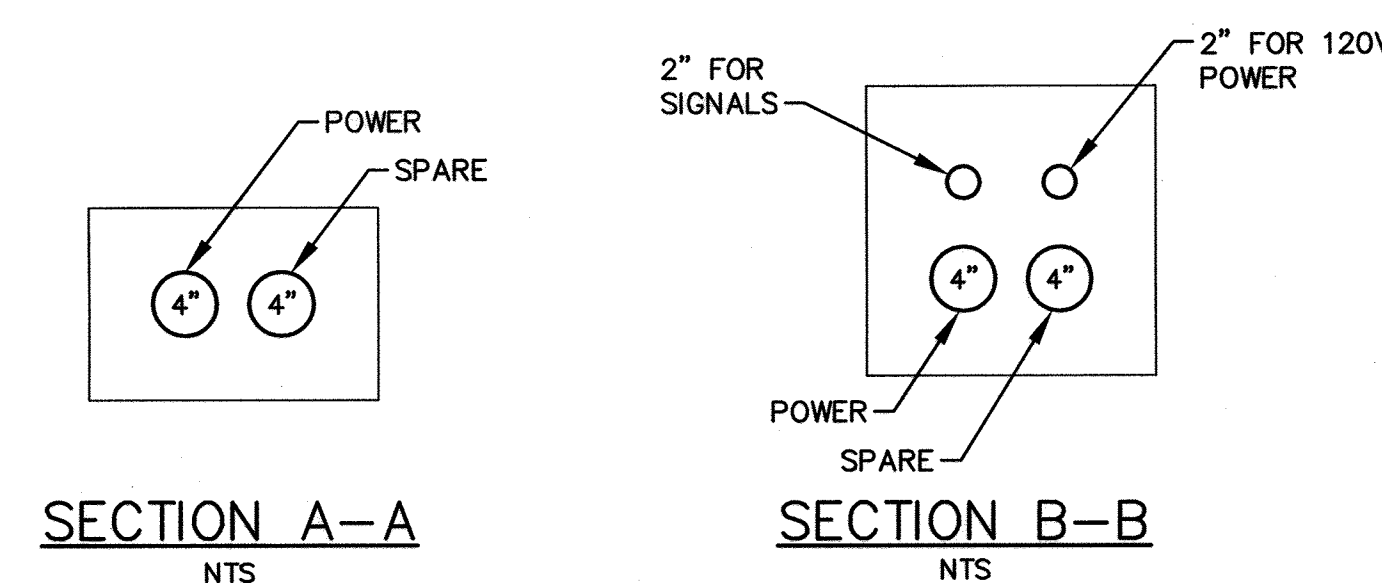
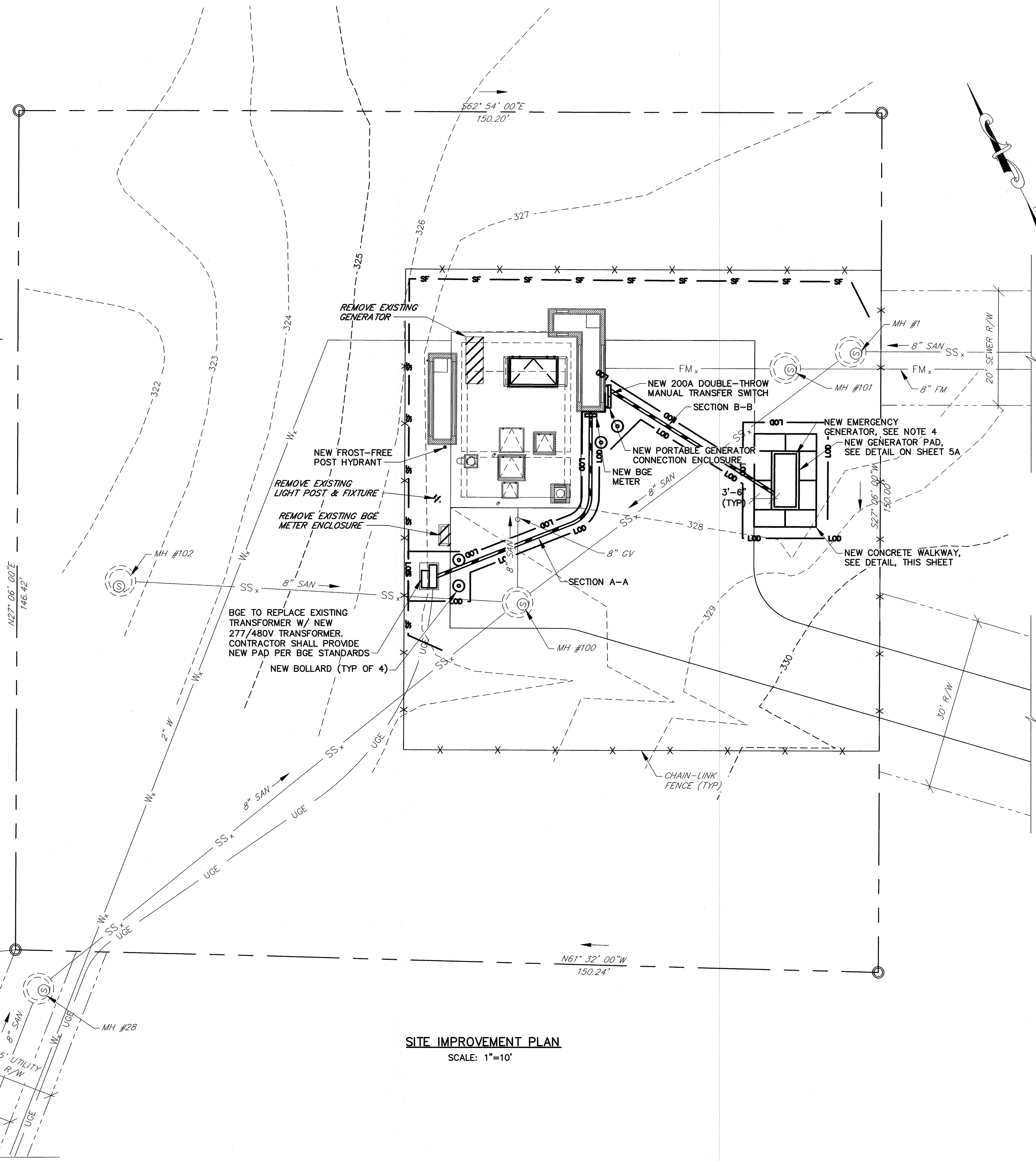
CONCRETE WALKWAY DETAIL

NTS



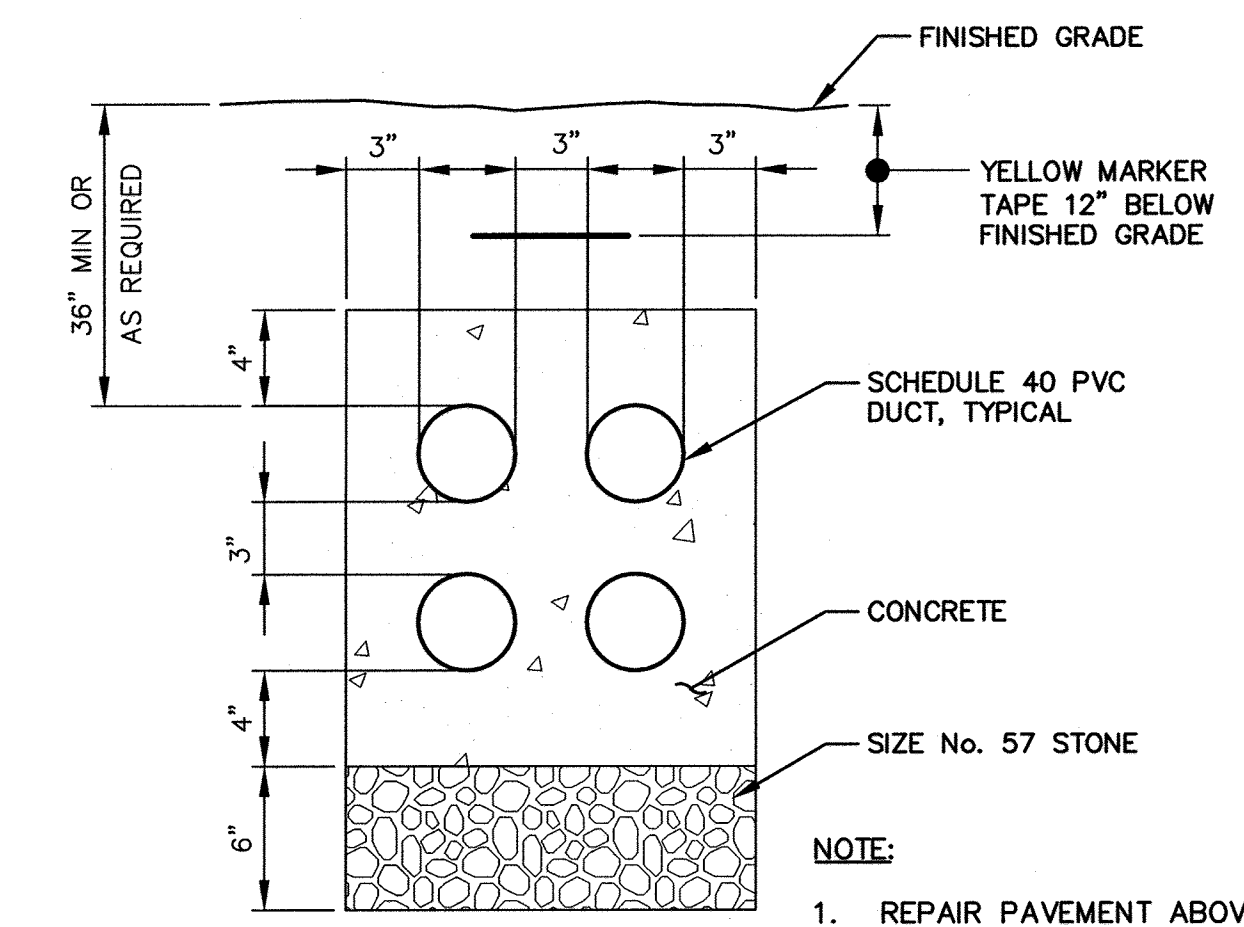
BOLLARD DETAIL

NTS



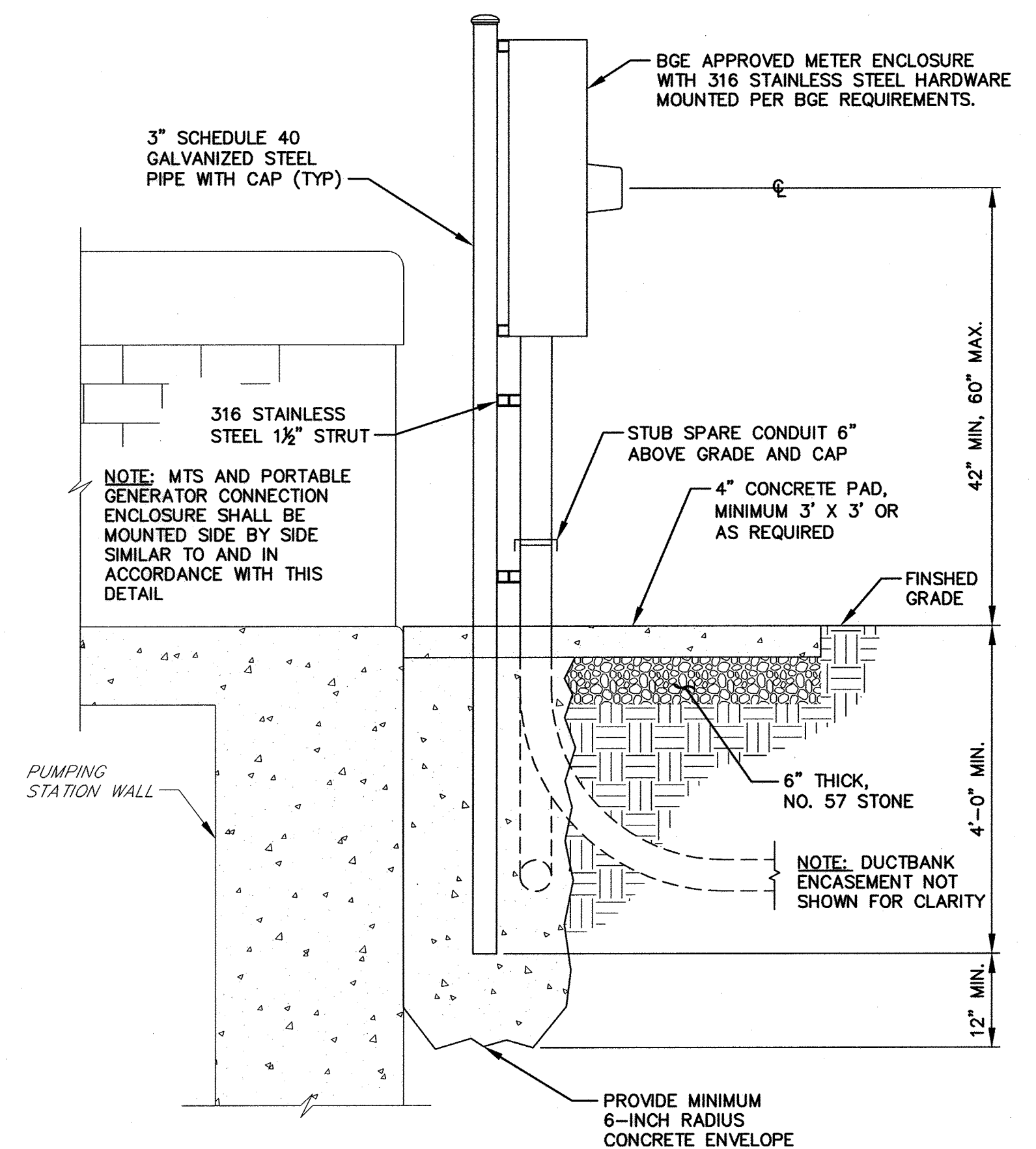
SECTION A-A NTS

SECTION B-B NTS



TYPICAL CONCRETE ENCASED DUCTBANK DETAIL

NTS



METER BOX/ENCLOSURE/SWITCH MOUNTING DETAIL

NTS



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HOWARD COUNTY, MARYLAND

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DIRECTOR OF PUBLIC WORKS DATE

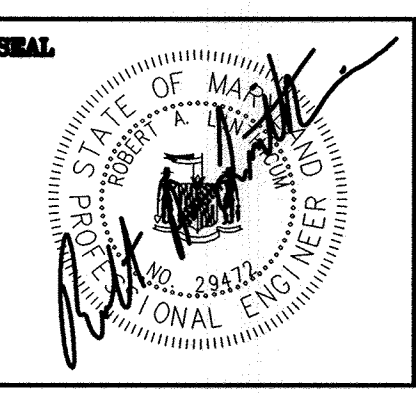
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CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 4/19/19
CHIEF, UTILITY DIVISION DATE

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DATE:	4/02/19	RK&K	1	2019 UPGRADES - ADD SHEET 2A	4/19
BY:	NO.			REVISIONS	DATE

MOUNT HEBRON SPS
SITE DEVELOPMENT PLAN -
2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE
AS SHOWN

SHEET
2A OF 25

DESIGN CRITERIA

- A. STRUCTURAL DESIGN SHALL BE IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE FOLLOWING CODE, STANDARDS AND SPECIFICATIONS:
 1. INTERNATIONAL BUILDING CODE (IBC) 2015
 2. ASCE 7-10 MIN. DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
 3. ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
 4. ACI 350-06 CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES.
 5. ACI 530-13 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
 6. AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, A.S.D., 14TH EDITION
 7. AWS D1.1 "STRUCTURAL WELDING CODE - STEEL"
 8. AWS D1.6 "STRUCTURAL WELDING CODE - STAINLESS STEEL"

EXISTING CONSTRUCTION

- A. ALL MEMBER SIZES AND DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES SHOWN ON THE DRAWINGS ARE OBTAINED FROM AVAILABLE SOURCES, AND ARE NOT GUARANTEED TO BE TRUE AND EXACT. THE CONTRACTOR SHALL VERIFY THESE DIMENSIONS AND ELEVATIONS BY ACTUAL FIELD MEASUREMENTS PRIOR TO FABRICATION OF ANY MATERIALS AND START OF WORK, AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- B. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING, SUPPORT, NEEDLING AND BRACING AS REQUIRED TO SUPPORT THE EXISTING STRUCTURE. THE CONTRACTOR SHALL EXAMINE THE EXISTING STRUCTURE TO DETERMINE THE EXTENT OF THE NECESSARY SHORING/NEEDLING. THE CAPACITY AND METHOD FOR SHORING AND NEEDLING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

DEMOLITION

- A. REMOVE EXISTING CONSTRUCTION AS SHOWN ON 2018 UPGRADE PLANS. SEE PLANS, SECTIONS, AND DETAILS FOR EXTENT OF STRUCTURE TO BE REMOVED.
- B. EXISTING STRUCTURAL FRAMING SHALL REMAIN UNLESS SPECIFICALLY NOTED ON PLAN TO BE REMOVED.
- C. IF FIELD CONDITIONS DIFFER FROM THOSE SHOWN ON DRAWINGS, NOTIFY ENGINEER BEFORE PROCEEDING.
- D. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE EXISTING BUILDING DURING THE COURSE OF CONSTRUCTION AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY AREAS WHERE THE STRUCTURE EXHIBITS DISTRESS OR FAILURE.
- E. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SATISFY HIMSELF AS TO THE LOCATION OF ANY UTILITIES IN THE IMMEDIATE VICINITY OF CONSTRUCTION SO AS TO PREVENT DAMAGE TO THEM. SHOULD ANY DAMAGE TO SUCH UTILITIES OCCUR, THE CONTRACTOR SHALL BE REQUIRED TO REPAIR SUCH DAMAGE AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER.

MASONRY

- A. DESIGN CRITERIA: ACI 530-13/ASCE 5-13
- B. CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON THE NET AREA AND SHALL CONFORM TO THE LATEST EDITION OF ASTM C90.
- C. TYPE "M" MORTAR SHALL BE USED FOR ALL BELOW GRADE MASONRY CONSTRUCTION. TYPE "S" ABOVE GRADE.
- D. GROUT: ASTM C476, MIN. 3,000 PSI @ 28 DAYS, 3/8" AGGREGATE MAX., 8"-10" SLUMP.
- E. REINFORCEMENT:
 1. HORIZONTAL JOINTS: STD. DUR-O-WALL @ 16" OC, USE PREFABRICATED CORNERS AND TEES @ WALL INTERSECTIONS, OVERLAP DISCONTINUED ENDS AND EXTEND INTO COLUMNS 6" MIN.
 2. VERTICAL AND HORIZONTAL REINFORCEMENT: ASTM 615, GRADE 60, EPOXY COATED, PROVIDE MIN. #4 BARS TYP @ WALL INTERSECTIONS, EACH SIDE OF OPENINGS, AND @ WALL ENDS, HOOK TOP OF ALL DISCONTINUED BARS, LAP CONT. REINF 48 BAR DIA. UNO.
 3. USE BAR SPACERS IN EVERY 4TH COURSE WHERE CELLS ARE TO BE GROUTED.
- F. PROVIDE CLEANOUT OPENINGS FOR EACH GROUTED CELL.
- G. ALL BRICK SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI ON THE NET AREA AND CONFORM TO ASTM C62.

CAST-IN-PLACE REINFORCED CONCRETE

- A. ALL CONCRETE WORK SHALL CONFORM TO ACI-350-06 CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES.
- B. MINIMUM 28 DAY COMPRESSIVE STRENGTH, MAX WATER TO CEMENTITIOUS MATERIAL RATIOS & AGGREGATE SIZE: PADS & SLABS: 4,500 PSI, NORMAL WEIGHT, W/C=0.42, #57 AGGREGATE, UNLESS OTHERWISE NOTED.
- C. SLUMP 3" MAX FOR CONCRETE PADS, UNLESS OTHERWISE NOTED.
- D. REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60, EPOXY COATED, EXCEPT TIES MAY BE GRADE 40. ALL HOOKS SHALL BE STANDARD HOOKS, UNLESS OTHERWISE NOTED.
- E. CHAMFER ALL EDGES OF BEAMS, COLUMNS, HAUNCHES, WALLS EQUIPMENT PADS AND SLABS EXPOSED TO VIEW 3/4" UNLESS OTHERWISE NOTED.
- F. ALL GROUT SHALL BE NON-SHRINK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.

REINFORCEMENT

- A. ALL DEVELOPMENT AND SPLICES OF REINFORCEMENT SHALL CONFORM TO THE PROVISIONS OF ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-LATEST EDITION).
- B. REINFORCING STEEL SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO CURRENT REQUIREMENTS OF ASTM A615 GRADE 60, EPOXY COATED EXCEPT TIES MAY BE GRADE 40. ALL HOOKS SHALL BE STANDARD HOOKS, UNLESS OTHERWISE NOTED.
- C. REINFORCING BAR SUPPORTS AND SPACERS SHALL CONFORM TO ACI 315-(LATEST EDITION) DETAILING MANUAL.
- D. SHOP DRAWINGS SHOWING ALL NECESSARY SECTIONS AND DETAILS FOR THE PROPER POSITIONING OF ALL REINFORCING STEEL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE FABRICATION OR PLACEMENT OF THE STEEL.
- E. ALL REINFORCEMENT SHALL HAVE 3" COVER UNLESS OTHERWISE NOTED.

BRICK/CMU WALL REPAIR

- A. REMOVE AND REPLACE BRICK/CMU WHICH IS CHIPPED, BROKEN, OR OTHERWISE DAMAGED TO MATCH EXISTING SIZE AND COLOR. RE-POINT LOOSE BRICK/CMU.
- B. WET THE BRICK UNITS AS NECESSARY TO PROVIDE A BETTER BONDING BETWEEN BRICK AND MORTAR PRIOR TO INSTALLATION. DO NOT WET CONCRETE MASONRY UNITS.
- C. FOR BRICK/CMU INSTALLATION, ALL JOINTS BETWEEN BRICK/CMU SHALL BE COMPLETELY FILLED WITH MORTAR. BED JOINT SHALL BE FORMED OF A THICK LAYER OF SMOOTH OR SLIGHTLY FURROWED MORTAR, APPLIED TO THE UNITS PREVIOUSLY LAID WITH BRICK/CMU, THEN SHOVE IN PLACE. CROSS JOINTS SHALL BE FORMED BY APPLYING TO THE BRICK/CMU TO BE LAID. A FULL COAT OF MORTAR ON THE ENTIRE END OR THE ENTIRE SIDE AND THEN SHOVING COVERED END AND/OR SIDE OF THE BRICK/CMU TIGHTLY AGAINST THE BRICK/CMU PREVIOUSLY LAID.
- D. AT THE AREAS WITH DEFECTIVE JOINTS AND/OR LOOSE MORTAR FROM THE JOINTS BETWEEN BRICK/CMU, COURSES MAY BE REPAIRED BY RE-POINTING OR TUCK POINTING WITH FILLING IN WITH FRESH MORTAR.
- E. CLEANING OF BRICK/CMU UNITS SHALL BE PER MANUFACTURER AND/OR ENGINEER'S RECOMMENDATIONS AND SHALL COMPLY WITH NCMMA REQUIREMENTS.
- F. USE MORTAR AS PER ASTM C270 REQUIREMENTS.

STRUCTURAL STEEL

- A. ALL STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS FOR THE DESIGN FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
- B. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
 - STRUCTURAL STEEL W-SHAPES: A992 HAVING A MINIMUM YIELD STRENGTH OF 50 KSI.
 - STRUCTURAL STEEL ANGLES: A36 HAVING A MINIMUM YIELD STRENGTH OF 36 KSI.
 - SQUARE AND RECTANGULAR TUBING: A500, GRADE B HAVING MINIMUM YIELD STRENGTH OF 46 KSI.
 - ROUND PIPE: A53, GRADE B HAVING A MINIMUM YIELD STRENGTH OF 35 KSI.
- C. APPROVAL OF THE ENGINEER SHALL BE MANDATORY FOR THE USE OF CUTTING TORCH IN THE FIELD.
- D. ALL GROUT UNDER STEEL PLATES (LINTELS) SHALL BE NON-SHRINK "PRE-MIX" TYPE AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI, UNLESS OTHERWISE NOTED.
- E. STRUCTURAL STEEL SHALL BE INSPECTED IN THE FIELD BY AN INDEPENDENT TESTING AGENCY APPROVED BY THE ENGINEER AND PAID FOR BY THE CONTRACTOR.

ALUMINUM STRUCTURAL SHAPES

- A. ALUMINUM STRUCTURAL SHAPES SHALL BE ASTM B-308, 6061.T6.
- B. ALLOWABLE TOLERANCES FOR MILLED ALUMINUM STANDARD STRUCTURAL SHAPES SHALL BE IN ACCORDANCE WITH ANSI H35.2. COMPLY WITH THE ALUMINUM DESIGN MANUAL (ADM-1) LATEST EDITION.
- C. ALUMINUM SURFACES IN CONTACT WITH CONCRETE AND ANY OTHER MATERIAL SHALL BE GIVEN A HEAVY COAT OF ALKALI RESISTANT BITUMINOUS PAINT OR OTHER COATING PROVIDING EQUIVALENT PROTECTION BEFORE INSTALLATION.

MISCELLANEOUS

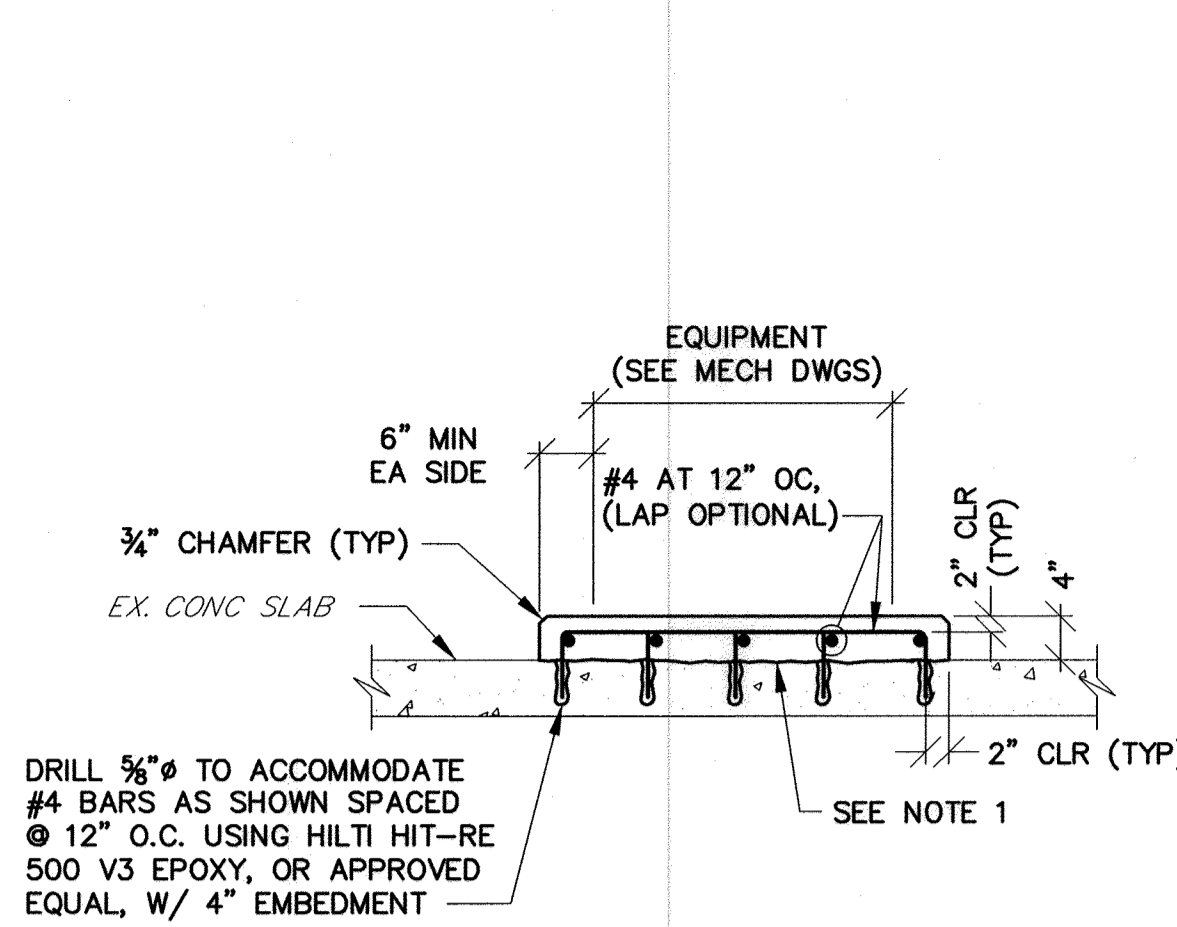
- A. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- B. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- C. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TRANSPORTATION INTACT OF ALL DEMOLISHED EQUIPMENT.
- D. ALL OPENINGS THRU CONCRETE SHALL BE WATERTIGHT.
- E. CONTRACTOR SHALL COORDINATE ALL REQUIRED OPENINGS WITH IMPROVEMENT DRAWINGS.
- F. CONTRACTOR SHALL COORDINATE FINAL SIZES AND LOCATIONS OF ALL OPENINGS WITH THE ACTUAL FIELD.

SPECIAL INSPECTION

- A. SPECIAL INSPECTIONS IBC 1704.2
- B. STEEL CONSTRUCTION IBC 1705.2
- C. CONCRETE CONSTRUCTION IBC 1705.3
- D. MASONRY CONSTRUCTION IBC 1705.4

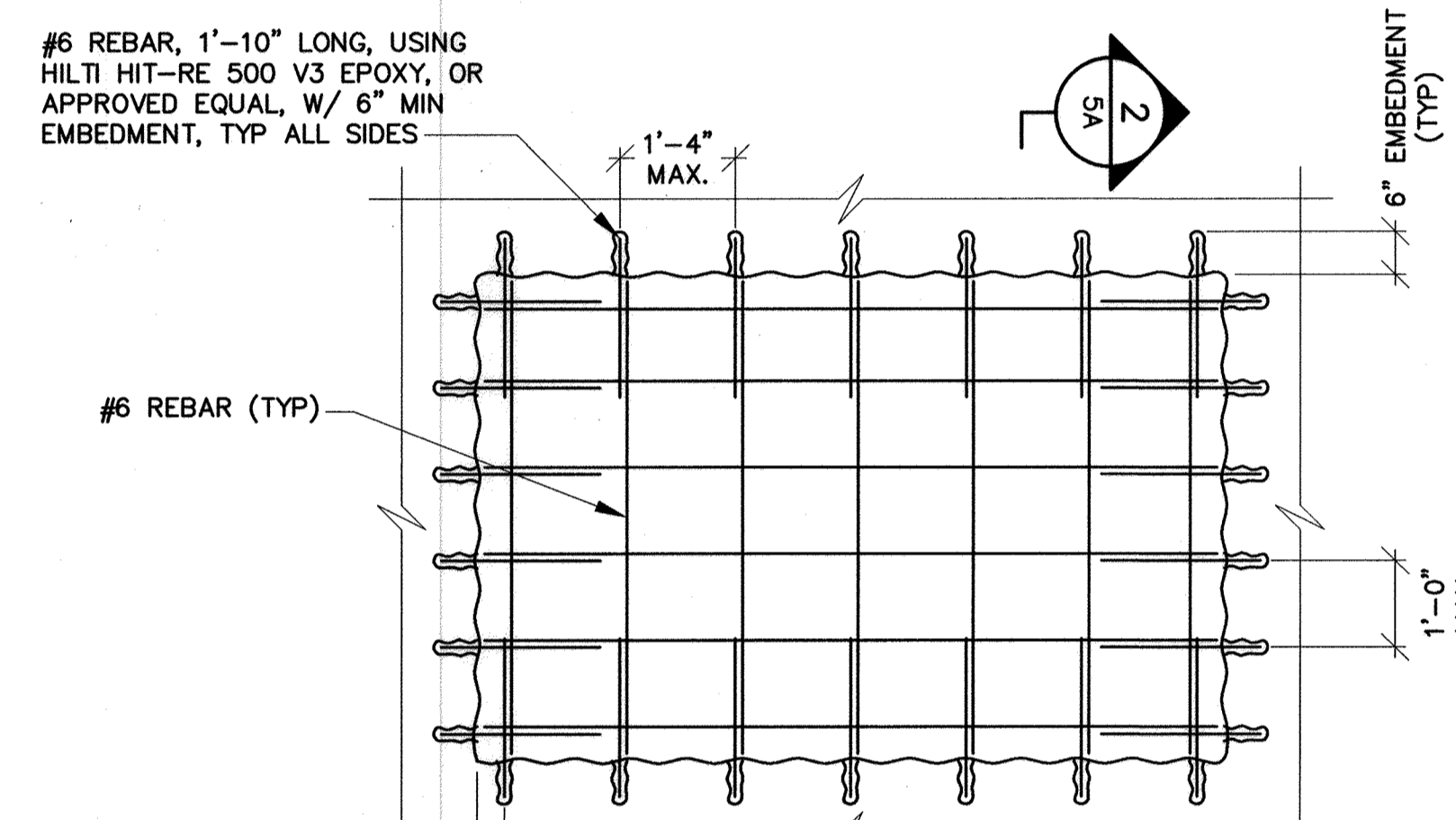
STAINLESS STEEL SPECIFICATIONS

- A. ALL STRUCTURAL STEEL SHALL BE AS FOLLOWS:
 1. STRUCTURAL STEEL SHAPES SHALL BE ASTM 276, TYPE 316L WITH A MINIMUM YIELD OF 42 KSI.
 2. STAINLESS STEEL PLATES SHALL BE ASTM A666, TYPE 316L.
 3. ALL BOLTS SHALL BE ASTM F593 STAINLESS STEEL TYPE 316, GRADE B8, ALL NUTS SHALL BE ASTM F594 STAINLESS STEEL GRADE B8, AND ALL WASHERS SHALL BE ASTM F352 STAINLESS STEEL.
- B. ALL STAINLESS STEEL SHALL BE #4 INDUSTRIAL FINISH.
- C. CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:
 1. "AMERICAN WELDING SOCIETY" (AWS) D1.1 "STRUCTURAL" WELDING CODE - STEEL, LATEST EDITION.
 2. AWS D1.6 "STRUCTURAL WELDING CODE - STAINLESS STEEL", LATEST EDITION



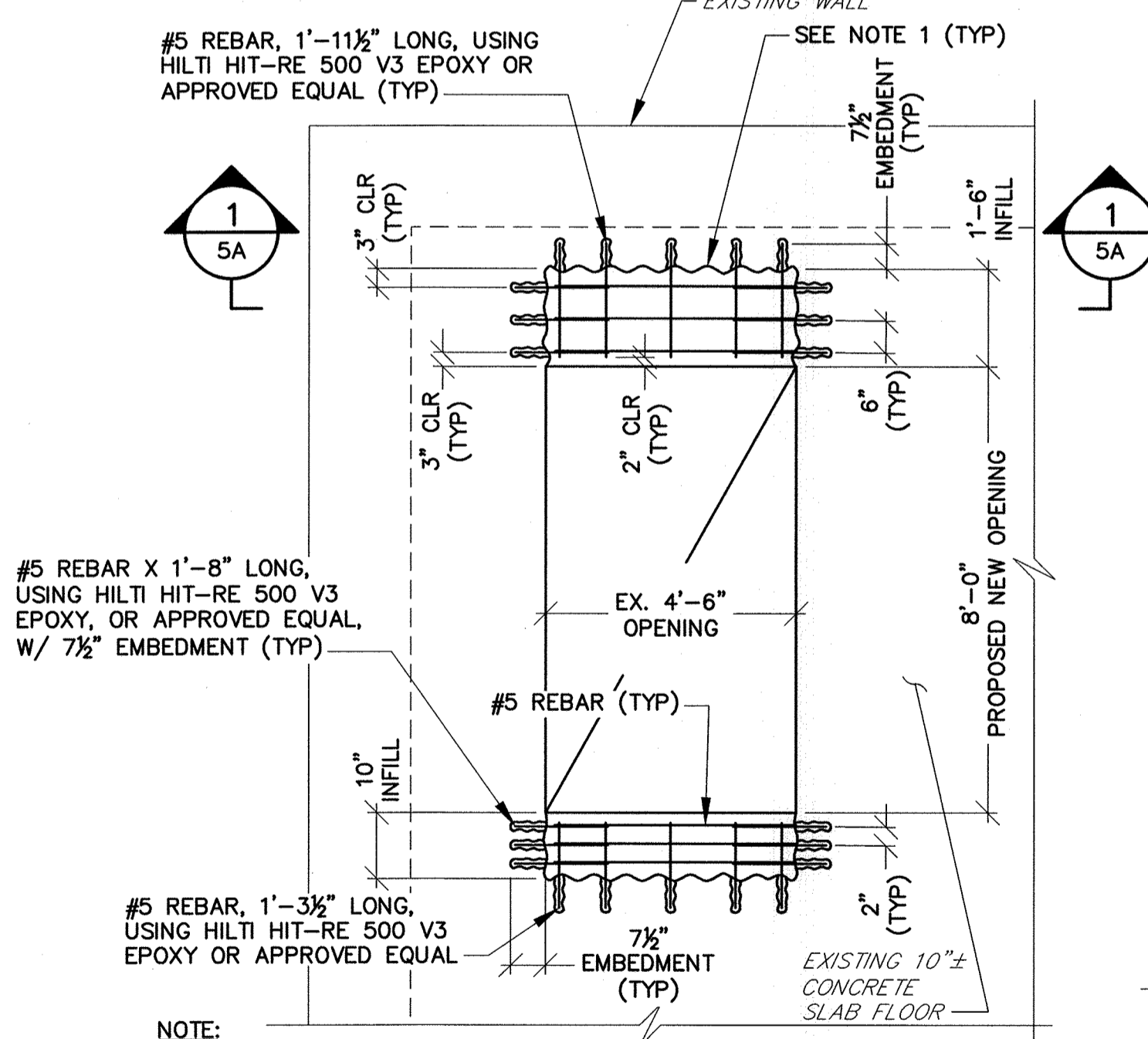
- NOTES:**
1. SURFACE OF EXISTING CONCRETE AT THE PAD LOCATION SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE. APPLY SIMPSON STRONG-TIE FX-752 EPOXY BONDING AGENT, OR APPROVED EQUAL, BETWEEN EXISTING AND NEW CONCRETE, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 2. COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4,500 PSI AT 28 DAYS.

TYPICAL EQUIPMENT PAD DETAIL
NTS



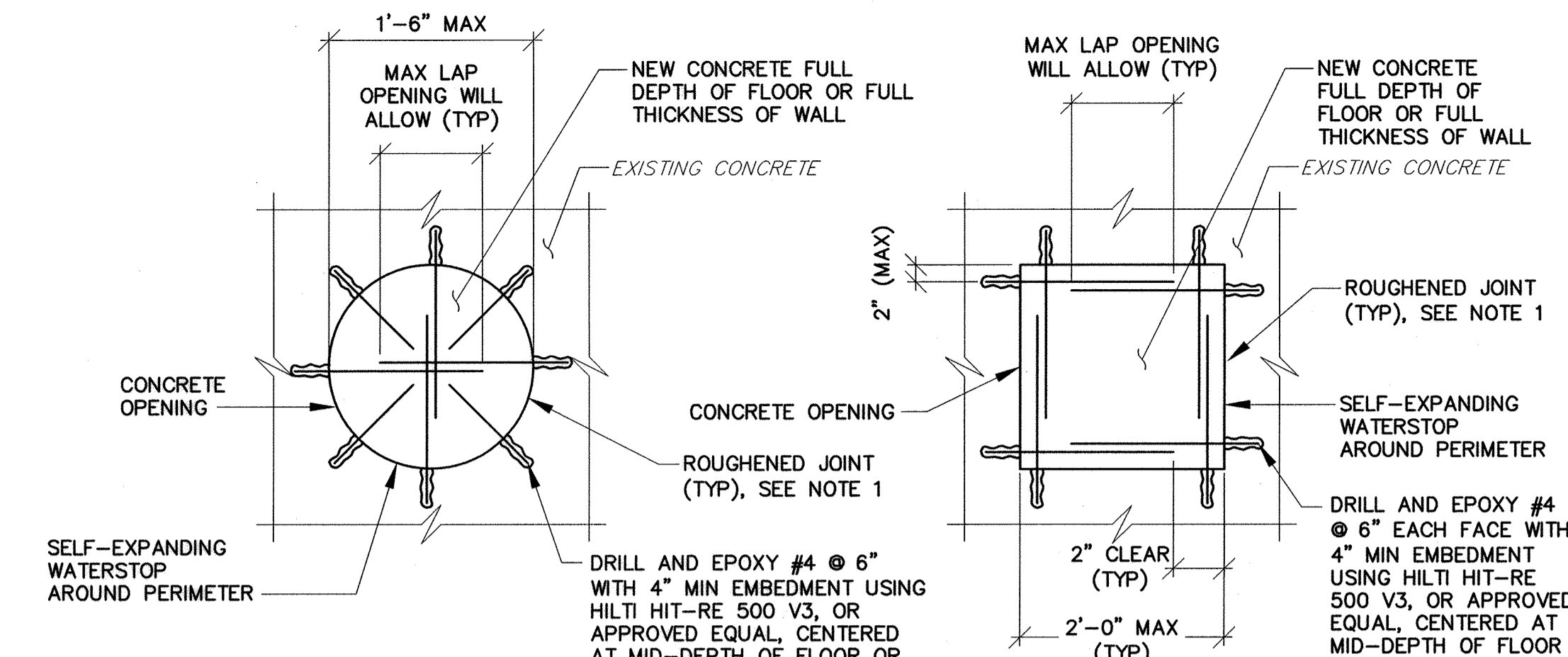
- NOTE:**
1. USE $f_c = 4,500$ psi

CONCRETE WALL INFILL DETAIL
NTS



- NOTE:**
1. SURFACE OF EXISTING CONCRETE TO RECEIVE NEW CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO EXISTING CONCRETE. APPLY SIMPSON STRONG-TIE FX-752 EPOXY BONDING AGENT, OR APPROVED EQUAL, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

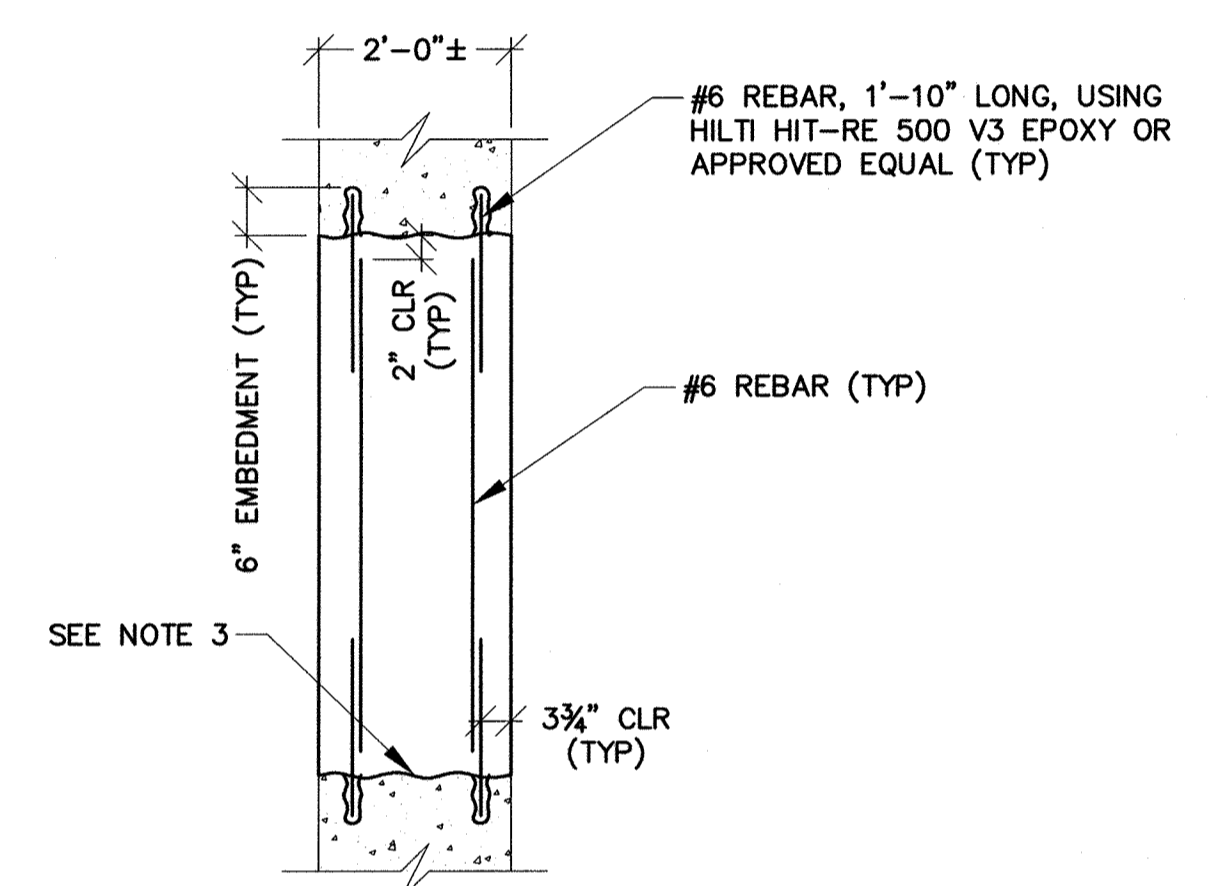
TOP SLAB OPENING MODIFICATION DETAIL
NTS



- NOTES:**
1. SURFACE OF EXISTING CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO EXISTING CONCRETE. APPLY BONDING COMPOUND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EPOXY BONDING AGENT SHALL BE "SIKADUR 32, HI MOD" OR APPROVED EQUAL.
 2. COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 4,500 PSI AT 28 DAYS.

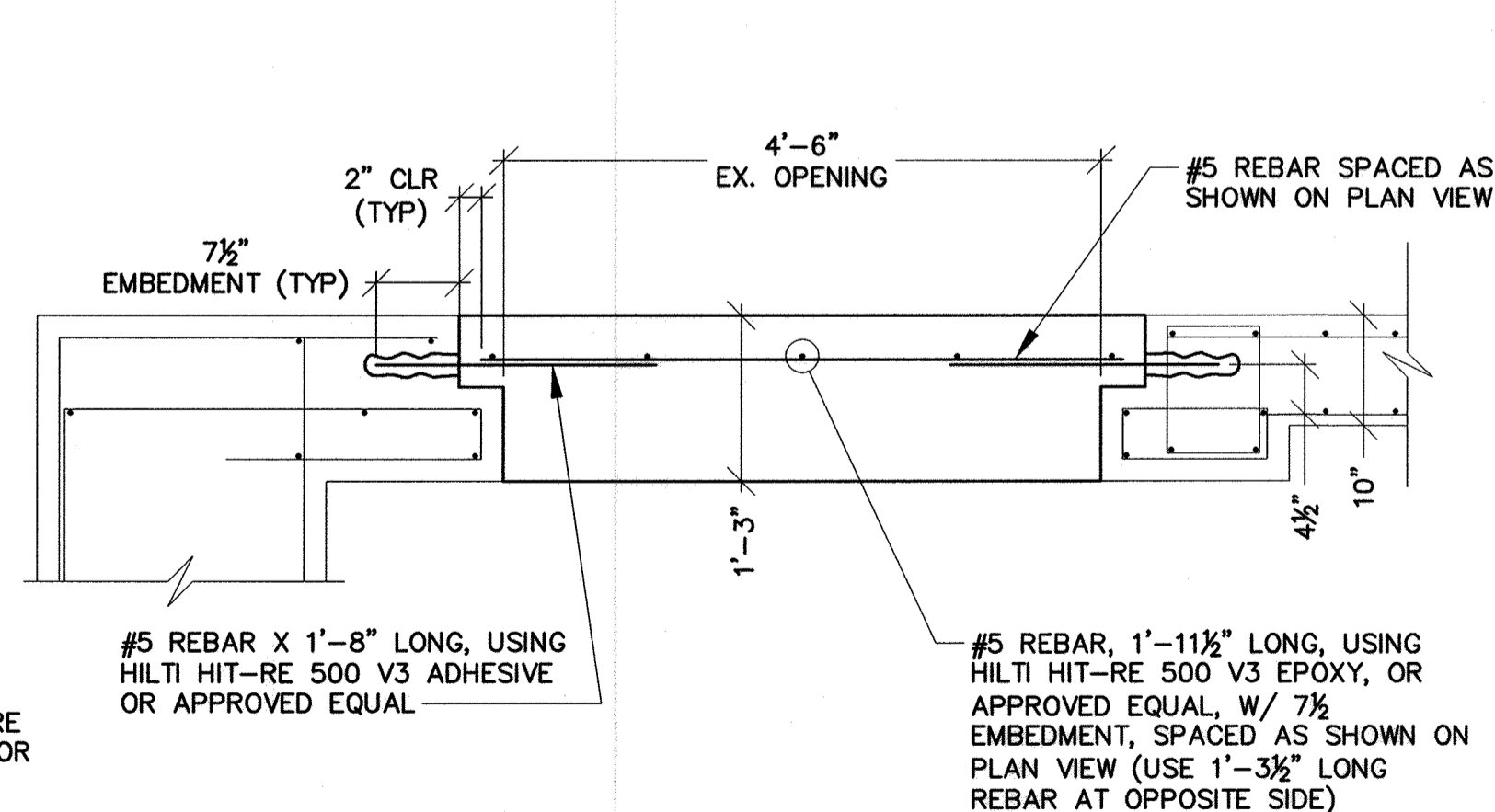
CIRCULAR PATCH and **SQUARE/RECTANGULAR PATCH**

TYPICAL CONCRETE PATCH DETAIL
NTS

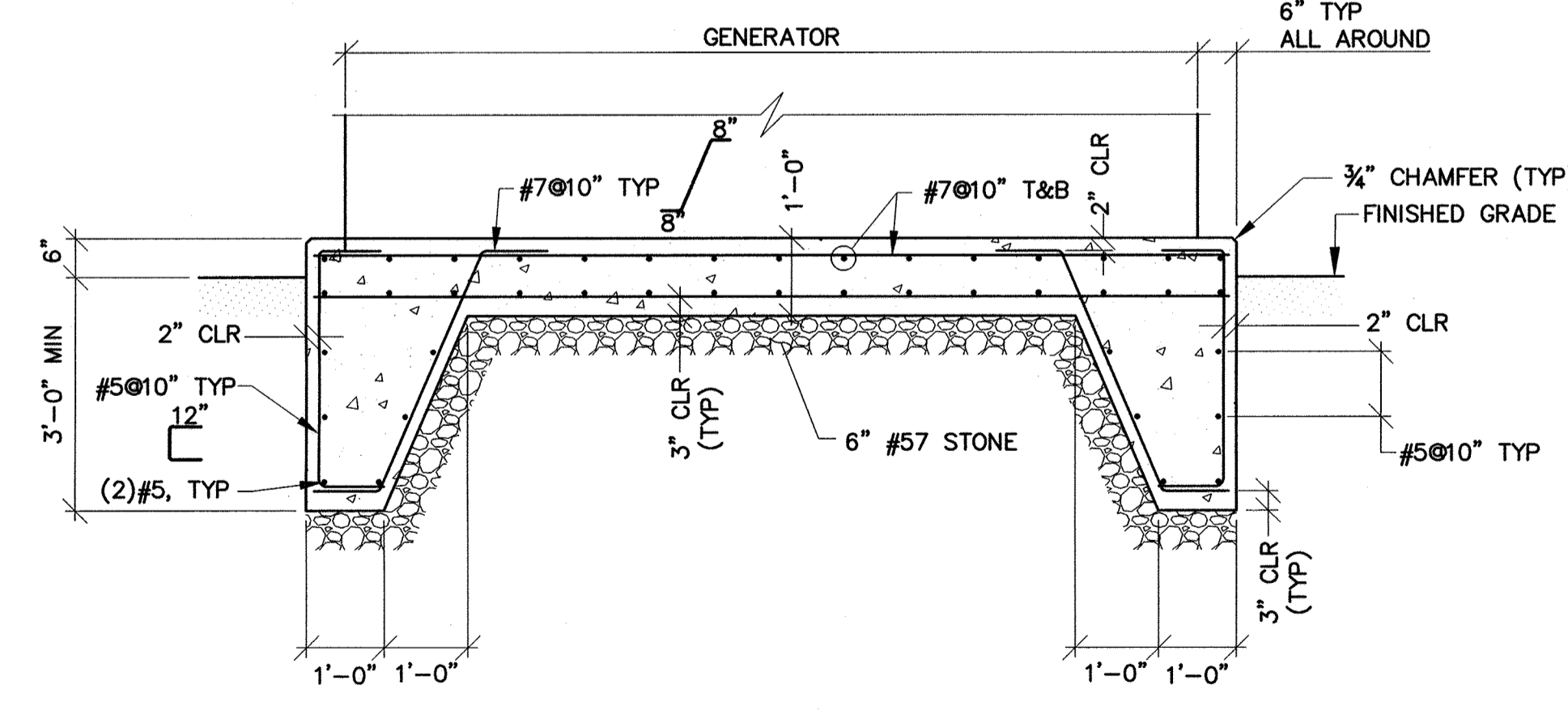


- NOTES:**
1. SEE IMPROVEMENT DRAWINGS FOR MORE INFORMATION.
 2. THIS SECTION WILL APPLY TO ENTIRE PERIMETER OF THE WALL OPENING TO BE INFILLED.
 3. SURFACE OF EXISTING CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO EXISTING CONCRETE. APPLY SIMPSON STRONG-TIE FX-752 EPOXY BONDING AGENT, OR APPROVED EQUAL, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

SECTION 2
NTS



SECTION 1
NTS

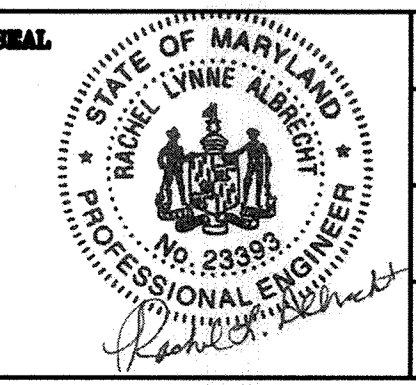


GENERATOR PAD DETAIL
NTS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signatures]
DIRECTOR, PUBLIC WORKS DATE 4/5/19
CHIEF, BUREAU OF ENGINEERING DATE 4/5/19
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LICENSE NO. 29399. EXPIRATION DATE 8/26/20
ALBRECHT ENGINEERING INC



DES: RCC			
DRN: NAF			
CHK: RLA			
DATE: 4/02/19			
RK&K 1	2019 UPGRADES - ADD SHEET 5A	4/19	
BY NO.	REVISIONS	DATE	

STRUCTURAL DETAILS &
GENERAL NOTES
MOUNT HEBRON SPS -
2019 UPGRADES

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

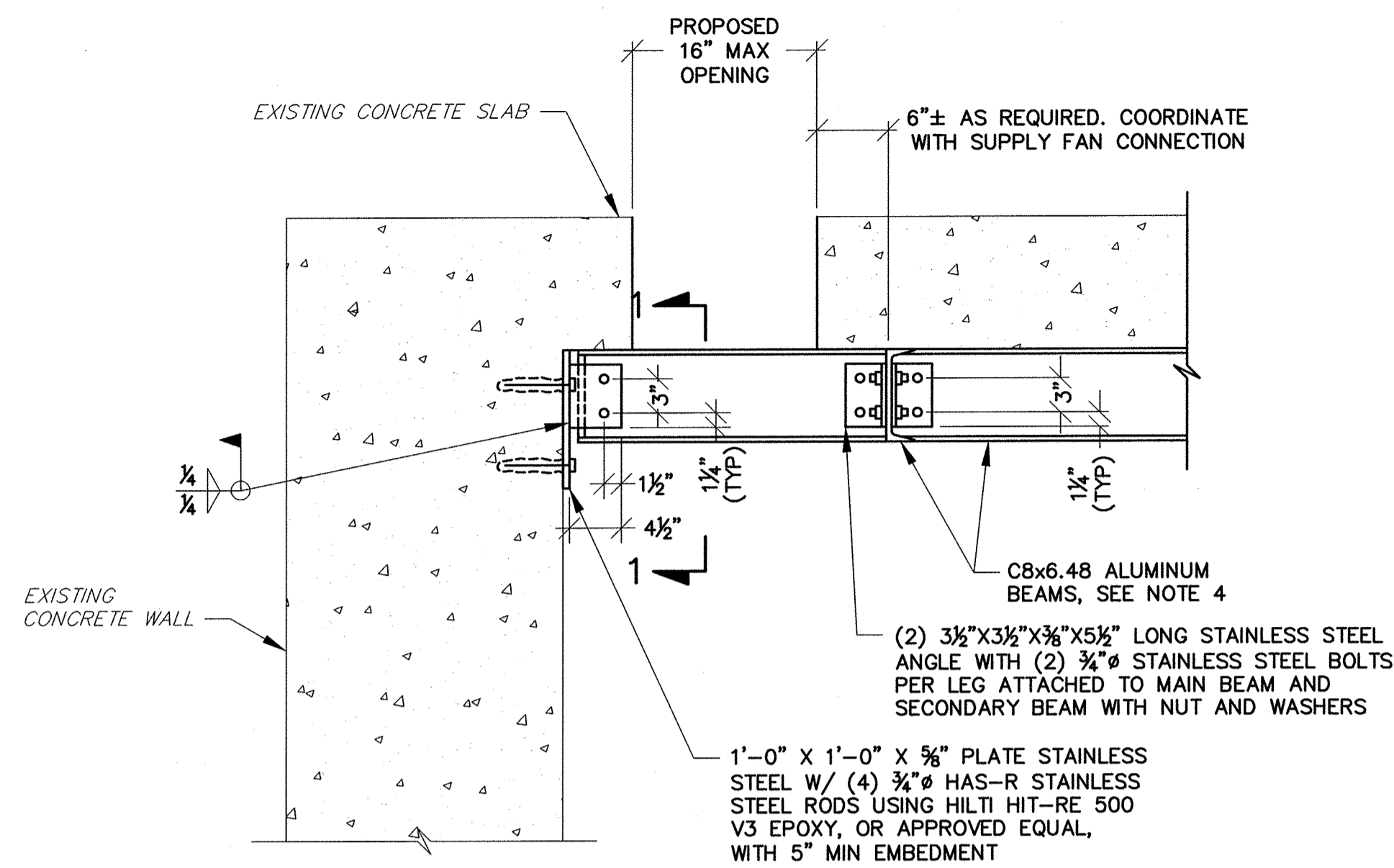
ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE
NTS
SHEET
5A OF 25

R:\K21\315 - K:\Projects\2019\2154_JHG\B04\Task 9 - Miscellaneous Pumping Stations\Mount Hebron_P5\Cad\Drawn\Proposed\2154MPP5-005A-SP-5A.dwg Apr 02, 2019 - 1:10pm Plot Scale 1:1

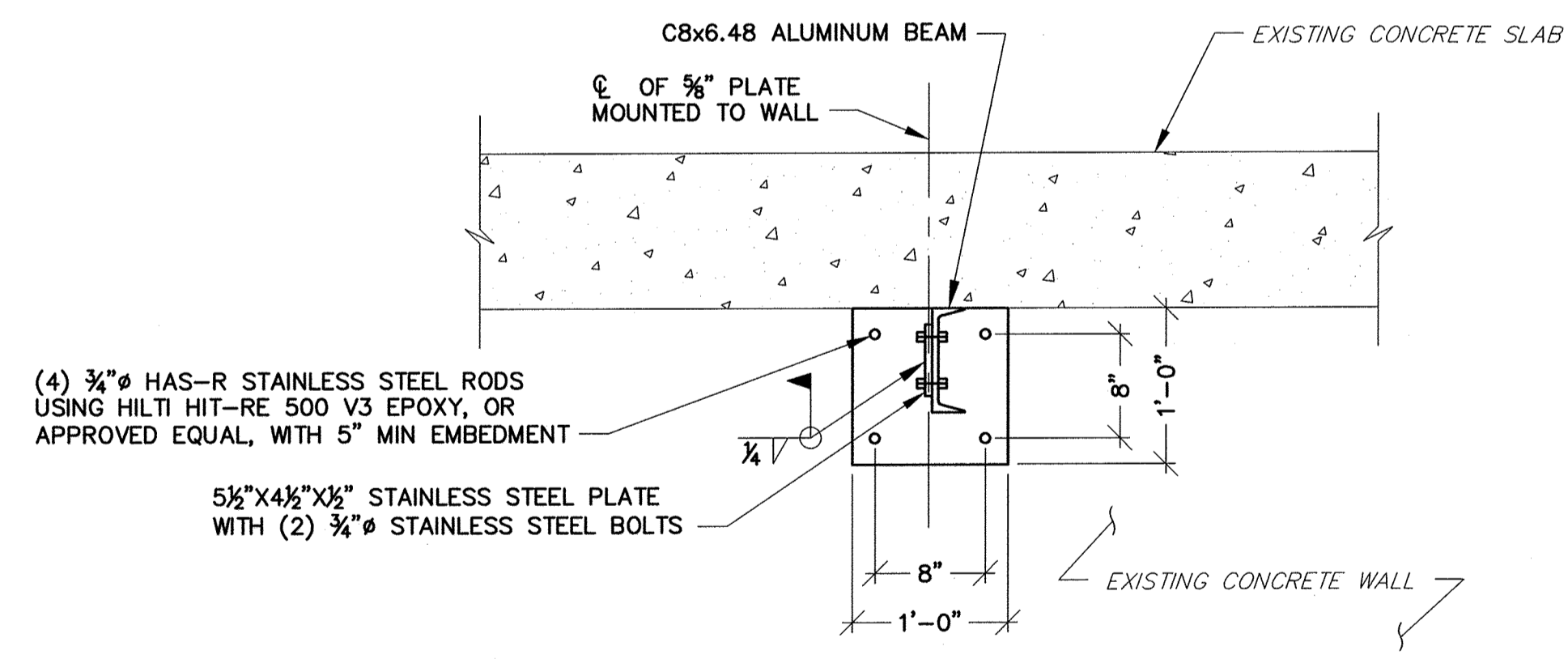
NOTE:

1. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.

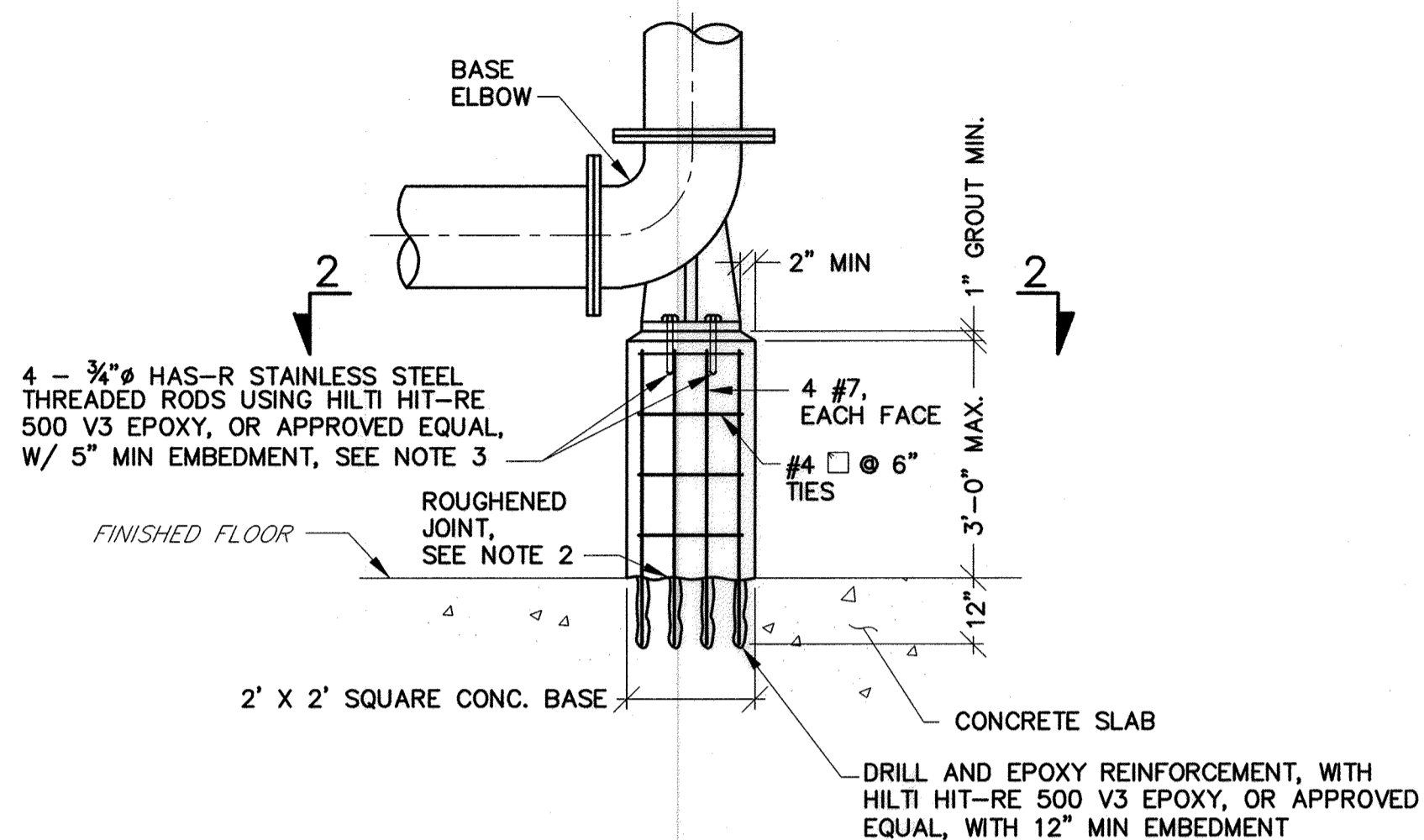


- NOTES:**
1. SEE TOP SLAB PLAN, SHEET 7D, FOR INSTALLATION LOCATION.
 2. USE PLASTIC OR RUBBER WASHERS, SLEEVES, NEOPRENE PADS AND/OR BITUMINOUS PAINT, AS NECESSARY, TO CREATE A BARRIER BETWEEN DISSIMILAR METALS.
 3. CONTRACTOR SHALL SHIM C8X6.48 ALUMINUM BEAMS TIGHT TO BOTTOM OF CONCRETE SLAB WITH ALUMINUM SHIMS (AS REQUIRED). WELD SHIMS TO TOP FLANGE OF BEAM.
 4. COPE FLANGES OF C8X6.48 ALUMINUM BEAM THAT RUNS IN THE NORTHWEST/SOUTHEAST DIRECTION AS REQUIRED TO MAKE CONNECTION TO C8X6.48 BEAM IN NORTHEAST/SOUTHWEST DIRECTION.

WETWELL TOP SLAB OPENING SUPPORT BEAM DETAIL
SCALE: 1" = 1'-0"

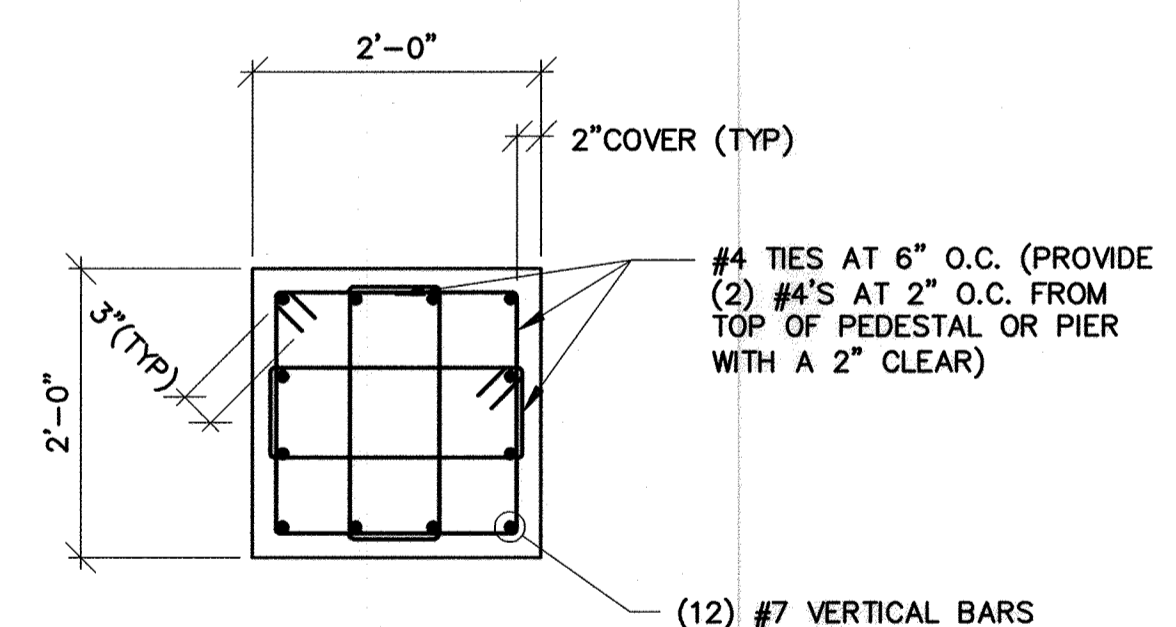


SECTION 1
SCALE: 1" = 1'-0"



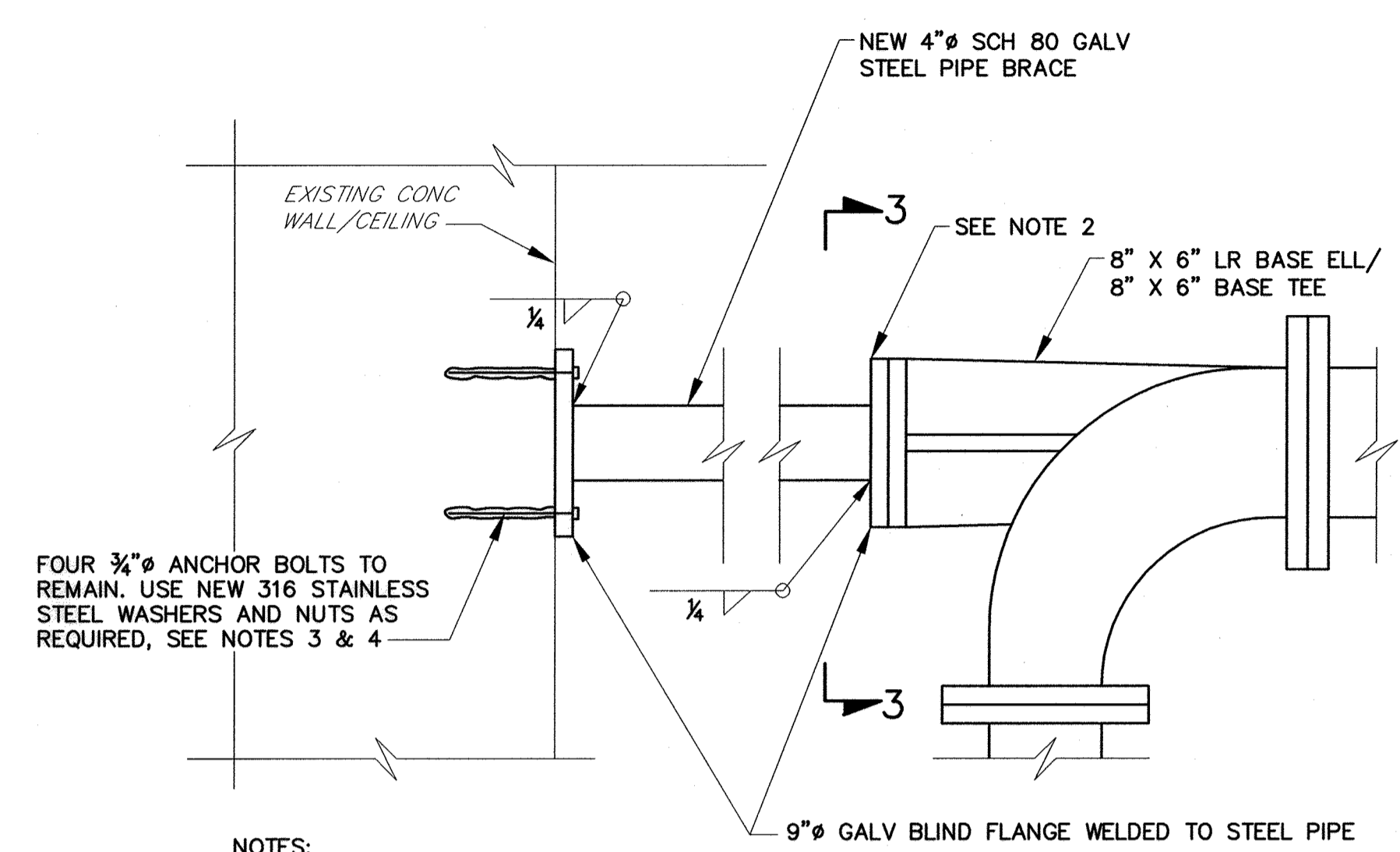
- NOTES:**
1. SEE SHEETS 7B & 8B FOR INSTALLATION LOCATIONS.
 2. SURFACE OF EXISTING CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO EXISTING CONCRETE. APPLY BONDING COMPOUND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EPOXY BONDING AGENT SHALL BE "SIKADUR 32, HI-MOD", OR APPROVED EQUAL.
 3. USE A NON-CONDUCTIVE PLASTIC WASHER AND SLEEVE TO FIT ON THE SHAFT OF THE ANCHOR, OR BITUMINOUS PAINT TO CREATE A BARRIER BETWEEN DISSIMILAR METALS.

BASE ELBOW SUPPORT DETAIL
NTS



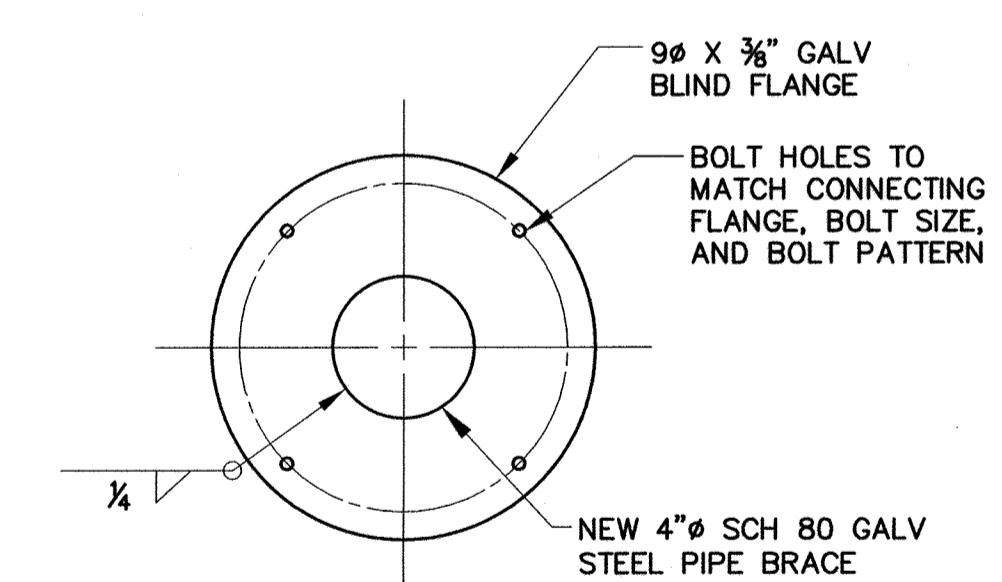
- NOTE:**
1. COMPRESSIVE STRENGTH OF CONCRETE SHALL BE f'c=4,500 psi.

SECTION 2
NTS

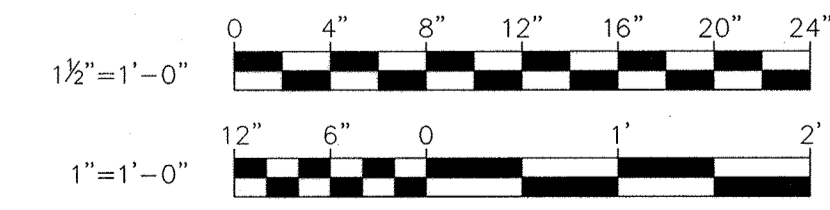


- NOTES:**
1. SEE SHEETS 7B & 8B FOR INSTALLATION LOCATIONS.
 2. COORDINATE BOLT HOLE LOCATIONS WITH THE BASE FITTING PROVIDED.
 3. USE PLASTIC OR RUBBER WASHERS, SLEEVES, NEOPRENE PADS AND/OR BITUMINOUS PAINT AS REQUIRED TO CREATE A BARRIER BETWEEN DISSIMILAR METALS.
 4. REUSE EXISTING ANCHORS TO EXTENT POSSIBLE. IF EXISTING ANCHORS ARE IN POOR CONDITION OR DO NOT LINEUP WITH THE NEW PIPING, REFER TO SHEET 18B, SECTION 3 FOR NEW WALL/CEILING CONNECTION.

4" PIPE BRACE DETAIL
SCALE: 1/2" = 1'-0"



SECTION 3
NTS

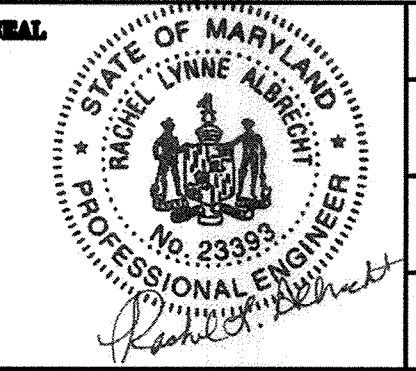


R:\Projects\2019\12154_HC\80A\Task 6 - Miscellaneous Pumping Stations\Mount Hebron PS\Cadd\Drawn\Proposed\12154MUP5-005B-SB.dwg Apr 02, 2019 - 1:11pm Plot Scale: 1:1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Butler 4/5/19
DIRECTOR, PUBLIC WORKS DATE
James P. Butler 4/5/19
CHIEF, BUREAU OF ENGINEERING DATE
James P. Butler 4/5/19
CHIEF, UTILITY DIVISION DATE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT REVISIONS INCLUDED IN 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. 23393 EXPIRATION DATE 8/25/20
ALBRECHT ENGINEERING INC



DES: RCC				
DRN: NAF				
CHK: RLA				
DATE: 4/02/19	RK&K	1	2019 UPGRADES - ADD SHEET 5B	4/19
	BY	NO.	REVISIONS	DATE

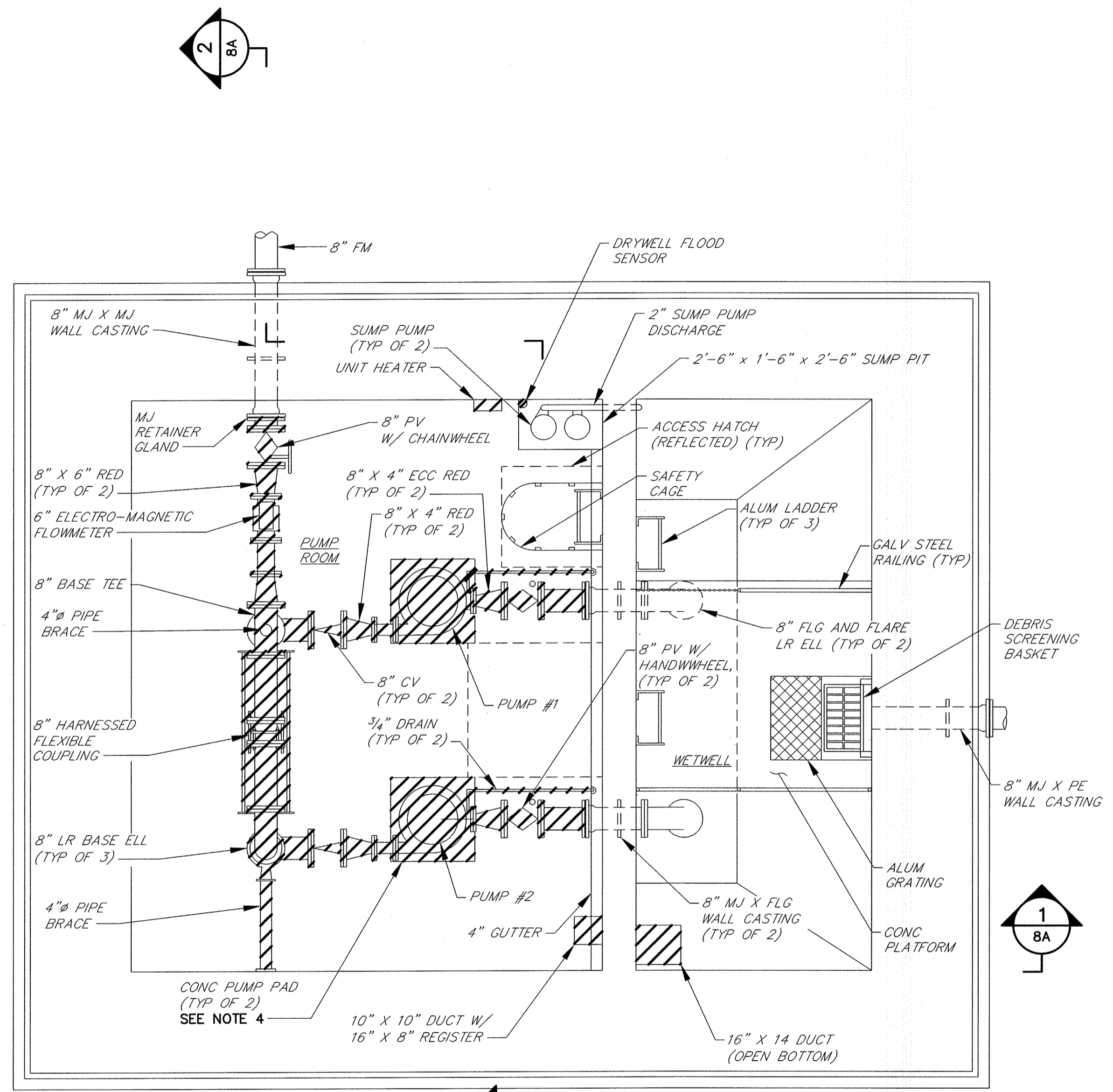
STRUCTURAL DETAILS
MOUNT HEBRON SPS -
2019 UPGRADES
MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
2019 UPGRADES
CAPITAL PROJECT NO. S660
CONTRACT NO. 745-S
ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

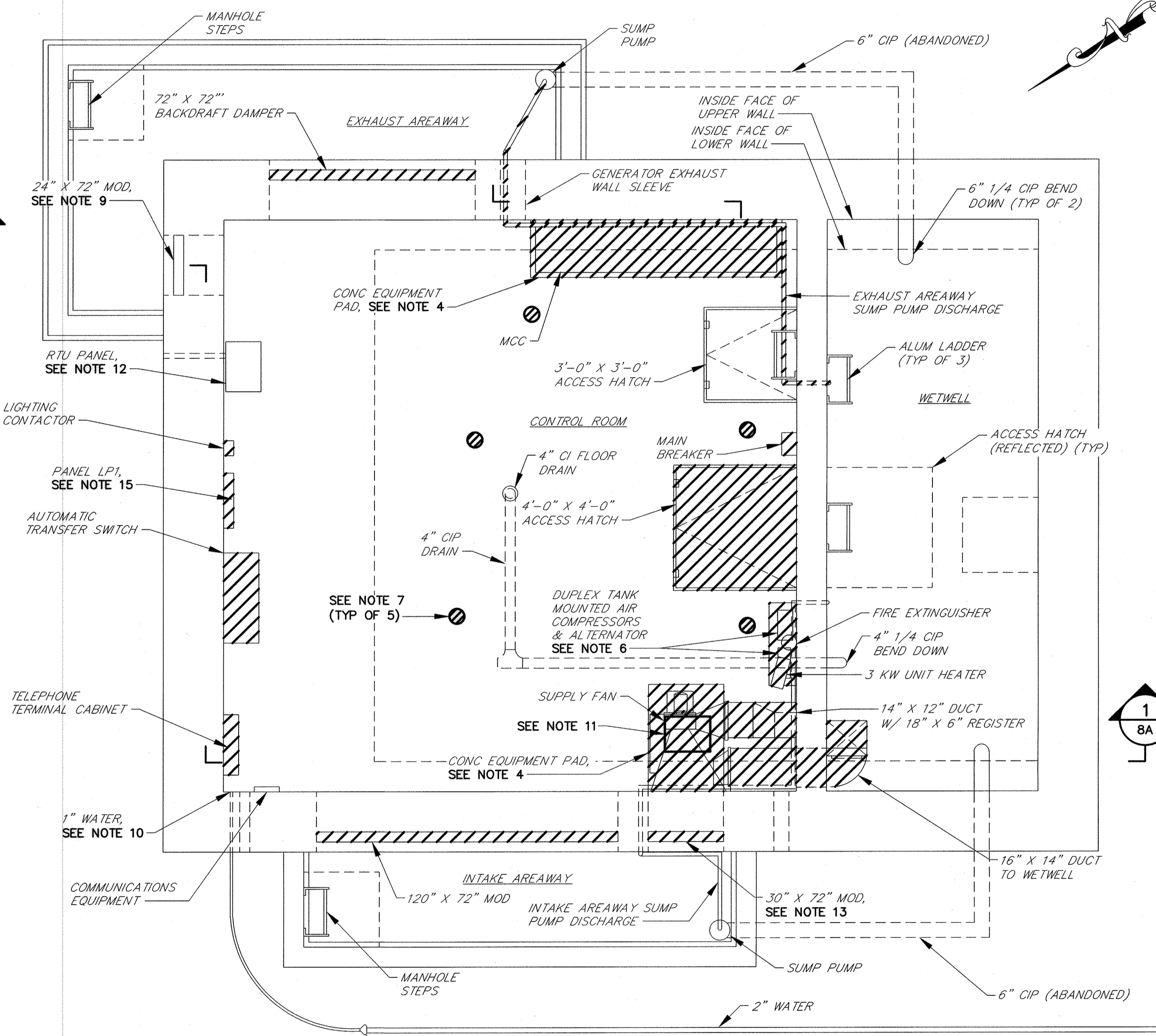
SCALE AS SHOWN
SHEET 5B OF 25

NOTES:

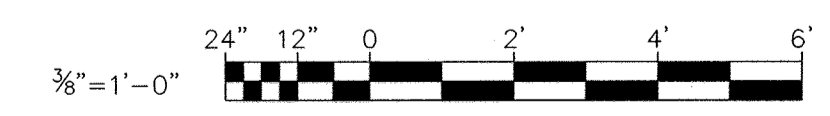
- ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- PATCH ALL EXISTING HOLES IN CONCRETE FLOOR SLABS AND WALLS THAT ARE NOT USED IN THE NEW WORK WITH MIN. 9000 PSI COMPRESSIVE STRENGTH NON-SHRINKING GROUT. THE GROUT SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR THIS APPLICATION. GROUT SHALL BE KAUFMAN PRODUCTS SURE GROUT, OR APPROVED EQUAL. HOLES THAT CONTAIN EXISTING WALL SLEEVES SHALL BE PATCHED BY FIRST INSTALLING A CAST IRON OR DUCTILE IRON PLUG AND FILLING THE REMAINING OPENING WITH NON-SHRINK GROUT.
- REMOVE CONCRETE EQUIPMENT PADS, PUMP PADS AND VALVE SUPPORTS FOR ALL REMOVED EQUIPMENT AND PIPING, AND RESTORE CONCRETE FLOOR TO MATCH EXISTING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TRANSPORTATION, INTACT OF ALL DEMOLISHED EQUIPMENT DESIGNATED BY THE COUNTY TO BE SALVAGED, TO THE COUNTY'S LITTLE PATUXENT WATER RECLAMATION PLANT (LPWRP) MAINTENANCE SHOP, LOCATED AT 8900 GREENWOOD PLACE, 410-313-1200. CONTRACTOR SHALL PROVIDE THE COUNTY WITH FIVE (5) DAYS ADVANCE NOTICE PRIOR TO DELIVERY OF EQUIPMENT. CONTRACTOR SHALL DISPOSE OF ALL NON-SALVAGED EQUIPMENT AND MATERIAL DEMOLISHED.
- REMOVE AIR COMPRESSORS, RECEIVING TANK, AIR DRYER, EQUIPMENT PAD AND ALL ASSOCIATED CONTROLS, PIPING AND OTHER APPURTENANCES.
- CORE DRILL HOLES IN CONCRETE SLAB TO ACCOMMODATE NEW VALVE BOXES.
- REMOVAL OF EQUIPMENT SHALL INCLUDE ALL CONDUIT AND WIRING ASSOCIATED WITH EQUIPMENT TO BE REMOVED. EMBEDDED CONDUIT MAY BE REUSED. SURFACE CONDUIT SHALL BE REPLACED.
- REMOVE DAMPER ACTUATOR AND PREPARE DAMPER FOR INSTALLATION OF NEW ACTUATOR.
- SEE POTABLE WATER SUPPLY DIAGRAM, SHEET 11.
- SAW CUT OPENING IN FLOOR SLAB TO ACCOMMODATE NEW DUCTWORK.
- EXISTING RTU PANEL TO REMAIN IN SERVICE. PANEL CONTAINS THE EXISTING LC150 PRIMARY PUMP CONTROLLER, WHICH IS ALSO TO REMAIN IN SERVICE, TO GENERATE THE PRIMARY PUMP CONTROLS BY THE SYSTEM INTEGRATOR IN THE PROPOSED PCP. REFER TO WIRING SCHEMATICS ON DWG. 23B.
- REMOVE DAMPER AND PREPARE OPENING FOR INSTALLATION OF NEW DAMPER AND CONCRETE FILL.
- REMOVE ALL LIGHTING, RECEPTACLES AND ASSOCIATED DEVICES. INDIVIDUAL UNITS NOT SHOWN FOR CLARITY.
- EXTEND ALL EXISTING LOADS TO REMAIN TO NEW PANEL AND PROVIDE NEW BRANCH CIRCUIT CONDUIT AND WIRE.



PUMP ROOM PLAN
SCALE: 3/8"=1'-0"



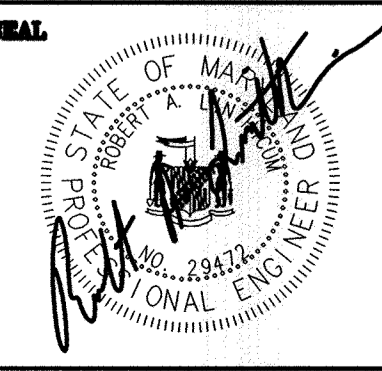
CONTROL ROOM PLAN
SCALE: 3/8"=1'-0"



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signatures]
DIRECTOR OF PUBLIC WORKS DATE 4/5/19
CHIEF, BUREAU OF UTILITIES DATE 4/5/19
CHIEF, BUREAU OF ENGINEERING DATE 4/5/19
CHIEF, UTILITY DIVISION DATE 4/5/19

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT REDLINE REVISIONS INCLUDED IN 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. 28472 EXPIRATION DATE 9/16/2019
RK&K 700 EAST PRATT STREET SUITE 600 BALTIMORE, MARYLAND 21202



DES: DAO					
DRN: NAF					
CHK: RAL					
DATE: 4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 7A	4/19		
BY NO.		REVISIONS	DATE	MAP NO. 17	BLOCK NO. 8

DEMOLITION PLANS
MOUNT HEBRON SPS -
2019 UPGRADES

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S660
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE
3/8"=1'-0"
SHEET
7A OF 25

RK21315 - K:\projects\2019\15154_H6C680A\Task 9 - Miscellaneous Pumping Stations\Mount Hebron PS\Coord\Drawings\15154_H6C680A-07A-DP-7A.dwg Apr 02, 2019 1:11pm Plot Scale: 1:1

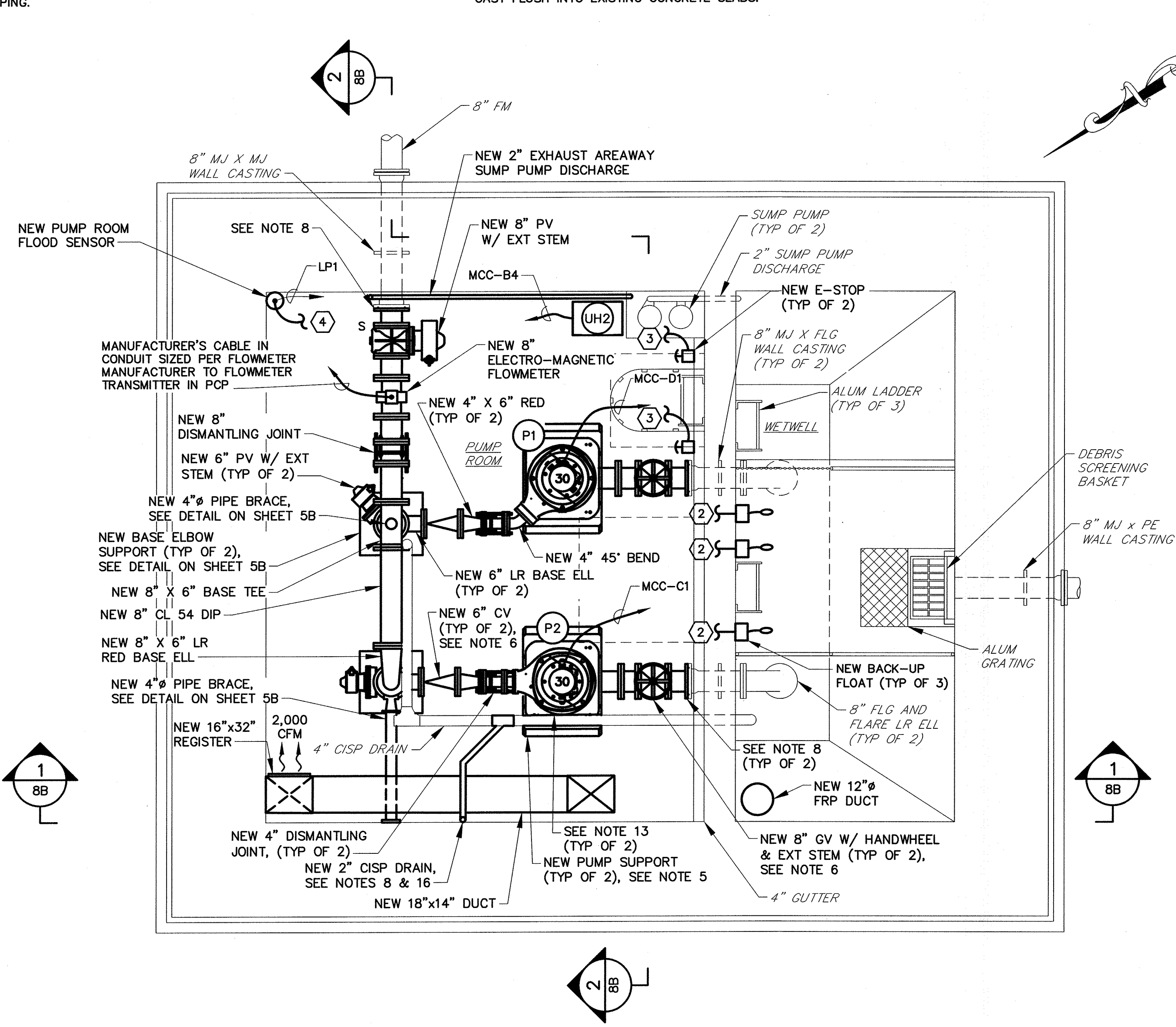
NOTES:

- ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- INSTALL CONCRETE EQUIPMENT PADS FOR ALL FLOOR MOUNTED EQUIPMENT.
- CLEAN AND PAINT ALL EXPOSED FERROUS METALS (EXCEPT PIPE FLANGES AND FASTENERS), ALL CMU AND NEW CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 0900.
- PUMP SUPPORTS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL HAVE PUMP SUPPORTS DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND FOR PUMPS FURNISHED.
- SUPPORT CHECK VALVES AND PUMP SUCTION GATE VALVES WITH ADJUSTABLE FLOOR MOUNTED PIPE SUPPORTS, INSTALLED SO AS NOT TO INTERFERE WITH THE OPERATION OF THE VALVES.
- NO ATTEMPT HAS BEEN MADE TO SHOW ALL REQUIRED PIPE SUPPORTS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE PIPING SUPPORT SYSTEM COMPLYING WITH MSS SP-58, ANSI/MSS SP-69, FEDERAL SPECIFICATION WW-H171, AND SPECIFICATION SECTION 15060.
- FURNISH AND INSTALL ALL GLANDS, RETAINERS, GASKETS, BOLTS AND OTHER MISCELLANEOUS MATERIALS AS NECESSARY TO CONNECT NEW PIPING TO EXISTING PIPING.
- NEW PUMP SUCTION AND DISCHARGE PIPING, VALVE AND FITTING ARRANGEMENT IS DEPENDENT ON ACTUAL PUMP EQUIPMENT FURNISHED. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER OF PUMP EQUIPMENT FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS, AND PREPARE AND SUBMIT LAYOUT DRAWINGS FOR APPROVAL PRIOR TO PURCHASING ANY EQUIPMENT OR FABRICATING ANY PIPING.
- PUMP CABLES SHALL BE SUPPORTED BY THE DRYWELL WALLS OR CEILING USING STAINLESS STEEL KELLUM GRIPS AT INTERVALS AS NECESSARY TO SUPPORT THE ENTIRE WEIGHT OF THE CABLES, IN ACCESSIBLE LOCATIONS WHICH SHALL BE APPROVED BY THE COUNTY. SLACK IN CABLES SHALL NOT BE COILED. CONTRACTOR SHALL SUBMIT PUMP CABLE ROUTING PLANS TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING PUMPS.
- SEE POTABLE WATER RISER DIAGRAM ON SHEET 11A.
- CONTRACTOR SHALL COORDINATE W/ MANUFACTURER OF VENTILATION FANS FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS AND SUBMIT DRAWINGS SHOWING DUCT LAYOUTS AND METHOD OF FAN SUPPORT TO THE ENGINEER FOR REVIEW. FANS SHALL NOT BE SUPPORTED BY DUCTWORK.
- PUMPS SHALL BE LOCATED DIRECTLY BELOW THE EXISTING LIFTING EYES.
- COORDINATE LOCATION OF VALVE BOXES WITH EXT STEMS FOR VALVES FURNISHED. ENSURE THAT VALVE BOXES PERMIT FULL ACCESS AND OPERATION OF THE VALVE. USE UNIVERSAL JOINTS, RIGHT ANGLE BEARS AND ADAPTERS ON EXT STEMS, AS NECESSARY. NEW VALVE BOXES SHALL BE CAST FLUSH INTO EXISTING CONCRETE SLABS.

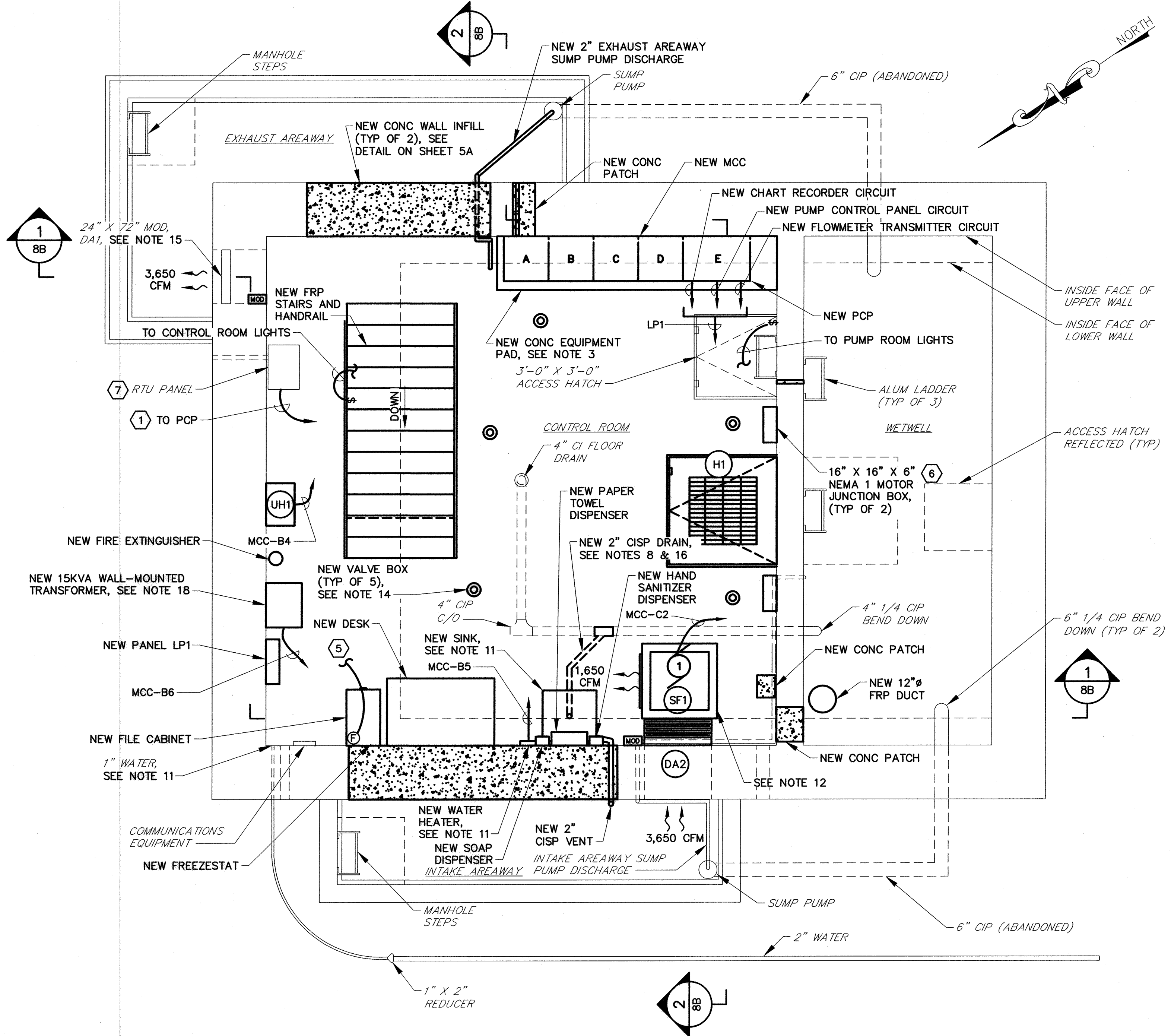
- PROVIDE NEW ACTUATOR AND ACCESSORIES SIZED TO OPERATE EXISTING DAMPER.
- CONNECT NEW 2" CISP TO EXISTING 4" CIP.
- REPLACE ALL EXISTING RECEPTACLES WITH NEW GFI RECEPTACLES AT EXISTING LOCATIONS. PROVIDE NEW BOX, WHILE-IN-USE COVER, CONDUIT AND WIRE. ONE BRANCH CIRCUIT PER LEVEL.
- TRANSFORMER SHALL BE 480V PRIMARY AND 208/120V 3-PHASE SECONDARY. SUBMIT MOUNTING HEIGHT FOR APPROVAL (MINIMUM 6'-0" TO BOTTOM OF WALL BRACKET).
- REPLACE LIGHTING ON BOTH LEVELS. SEE LIGHTING FIXTURE SCHEDULE, SHEET 23B. SUBMIT PROPOSED LAYOUT FOR APPROVAL AND PROVIDE NEW CONDUIT AND WIRE TO LPI AND SWITCHING. PROVIDE ONE BRANCH CIRCUIT PER LEVEL.
- SEE DWG. 11A FOR ALL MECHANICAL SCHEDULES.

ELECTRICAL NOTES:

- PROVIDE 1" CONDUIT TO PCP FOR CONTROL AND MONITORING I/O SIGNALS. SEE ELECTRICAL DETAILS SHEET FOR WIRING REQUIREMENTS.
- FLOAT SWITCH CABLE TO PUMP CONTROL PANEL IN 3/4" CONDUIT OR AS REQUIRED BY FLOAT MANUFACTURER.
- 2-#14 FROM THE E-STOP TO THE RVSS IN 3/4" CONDUIT.
- 2-#14 TO PUMP CONTROL PANEL IN 3/4" CONDUIT.
- 2-#14 IN 3/4" CONDUIT TO VENTILATION CONTROLS IN MCC.
- PROVIDE APPROPRIATELY SIZED LUGS FOR TERMINATION OF ALL MANUFACTURER SUPPLIED POWER AND ALARM CONDUCTORS FROM PUMP MOTOR. CONTINUATION OF CONDUCTORS SHALL BE WITH STANDARD BUILDING WIRE FROM JUNCTION BOXES TO MCC.
- EXISTING RTU PANEL TO REMAIN IN SERVICE. PANEL CONTAINS THE EXISTING LC150 PRIMARY PUMP CONTROLLER, WHICH IS ALSO TO REMAIN IN SERVICE. TO GENERATE THE PRIMARY PUMP CONTROLS BY THE SYSTEM INTEGRATOR IN THE PROPOSED PCP. REFER TO WIRING SCHEMATICS PROVIDED.



PUMP ROOM PLAN
SCALE: 3/8"=1'-0"



CONTROL ROOM PLAN
SCALE: 3/8"=1'-0"



R:\Projects\2019\12154-MC600A\Task 9 - Miscellaneous Pumping Stations\Mount Hebron PS\Cadd\Plan\Proposed\12154MPPS-007B-WP-7B.dwg Apr 02, 2019 - 1:11pm Plot Scale 1:1

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
Director of Public Works <i>[Signature]</i> 4/5/19 DATE	Chief, Bureau of Engineering <i>[Signature]</i> 4/5/19 DATE
Chief, Bureau of Utilities <i>[Signature]</i> 4/5/19 DATE	Chief, Utility Division <i>[Signature]</i> 4/5/19 DATE

PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT REDLINE REVISIONS INCLUDED IN THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 28472. EXPIRATION DATE 9/18/2019	
	700 EAST PRATT STREET SUITE 500 BALTIMORE, MARYLAND 21202

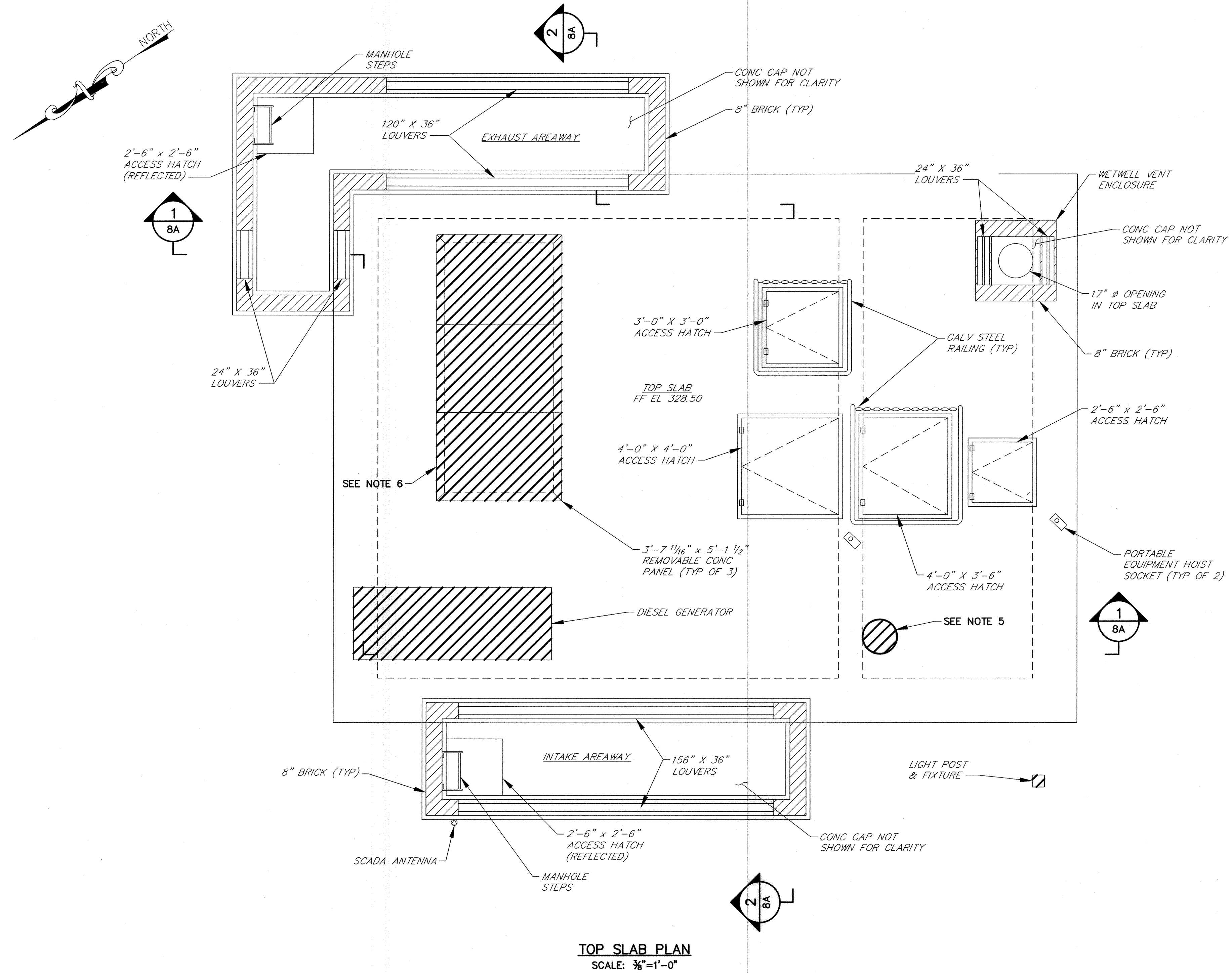
DES:	DAO			
DRN:	NAP			
CHK:	RAL			
DATE:	4/02/19			
BY:	NO.	REVISIONS	DATE	
RK&K	1	2019 UPGRADES - ADD SHEET 7B	4/19	

IMPROVEMENT PLANS MOUNT HEBRON SPS - 2019 UPGRADES	
MAP NO.	17
BLOCK NO.	8

MOUNT HEBRON SEWER MAINS 2019 UPGRADES CAPITAL PROJECT NO. S6600 CONTRACT NO. 745-S	
ELECTION DISTRICT NO.	2
HOWARD COUNTY, MARYLAND	
SCALE	3/8"=1'-0"
SHEET	7B OF 25

NOTES:

1. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
3. PATCH ALL EXISTING HOLES IN CONCRETE FLOOR SLABS THAT ARE NOT USED IN THE NEW WORK WITH MIN. 9000 PSI COMPRESSIVE STRENGTH NON-SHRINKING GROUT. THE GROUT SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR THIS APPLICATION. GROUT SHALL BE KAUFMAN PRODUCTS SURE GROUT, OR APPROVED EQUAL. HOLES THAT CONTAIN EXISTING WALL SLEEVES SHALL BE PATCHED BY FIRST INSTALLING A CAST IRON OR DUCTILE IRON PLUG AND FILLING THE REMAINING OPENING WITH NON-SHRINK GROUT.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TRANSPORTATION, INTACT OF ALL DEMOLISHED EQUIPMENT DESIGNATED BY THE COUNTY TO BE SALVAGED, TO THE COUNTY'S LITTLE PATUXENT WATER RECLAMATION PLANT (LPWRP) MAINTENANCE SHOP, LOCATED AT 8900 GREENWOOD PLACE, 410-313-1200. CONTRACTOR SHALL PROVIDE THE COUNTY WITH FIVE (5) DAYS ADVANCE NOTICE PRIOR TO DELIVERY OF EQUIPMENT. CONTRACTOR SHALL DISPOSE OF ALL NON-SALVAGED EQUIPMENT AND MATERIAL DEMOLISHED.
5. CORE DRILL HOLE IN CONCRETE SLAB TO ACCOMMODATE NEW WETWELL SUPPLY FAN. INSTALL FRAMING AROUND HOLE IN WETWELL TOP SLAB AS SHOWN ON SHEET 7D.
6. REMOVE STEEL ANGLES AND PREPARE OPENING FOR NEW CONCRETE FILL AND ACCESS HATCH.



TOP SLAB PLAN
SCALE: 3/8"=1'-0"



R:\Projects\2019\154-JHG\G00A\Task 9 - Miscellaneous Pumping Stations\Mount Hebron PS\County Plans\Proposed\2154MPPS-007C-0P-7C.dwg Apr 02, 2019 - 1:11pm Plot Scale 1:1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

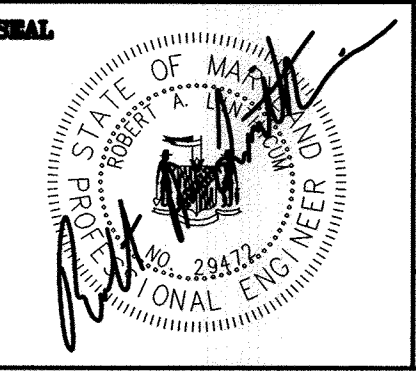
<i>[Signature]</i> DIRECTOR 4/5/19	<i>[Signature]</i> CHIEF, BUREAU OF ENGINEERING 4/5/19
<i>[Signature]</i> CHIEF, BUREAU OF UTILITIES 4/5/19	<i>[Signature]</i> CHIEF, UTILITY DIVISION 4/5/19

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LICENSE NO. 28472 EXPIRATION DATE 9/15/2019

RK&K 700 EAST PRATT STREET
SUITE 500
BALTIMORE, MARYLAND 21202



DES: DAO			
DRN: NAF			
CHK: RAL			
DATE: 4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 7C	4/19
BY NO.		REVISIONS	DATE

DEMOLITION PLAN
MOUNT HEBRON SPS -
2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

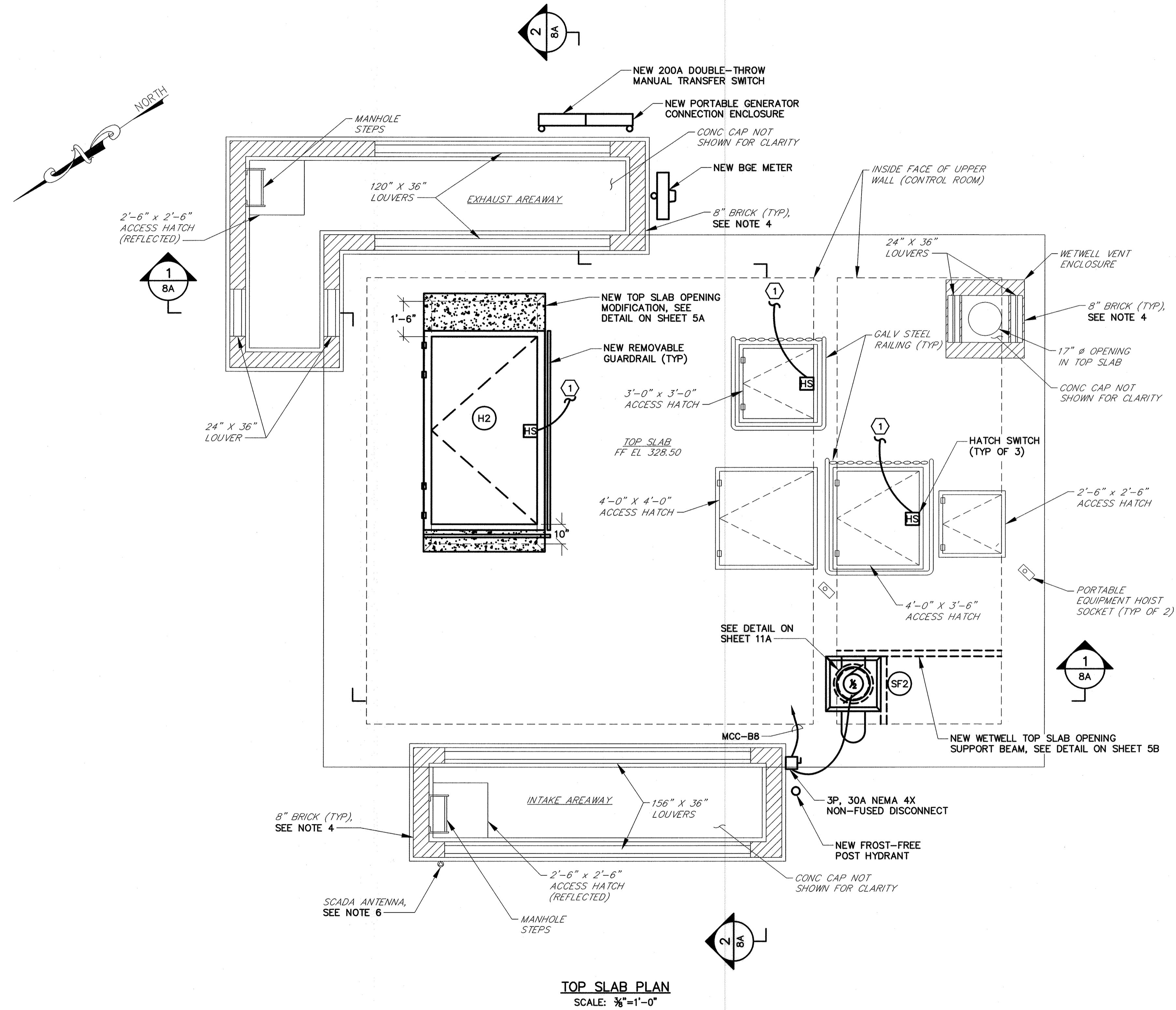
SCALE 3/8"=1'-0"
SHEET 7C OF 25

NOTES:

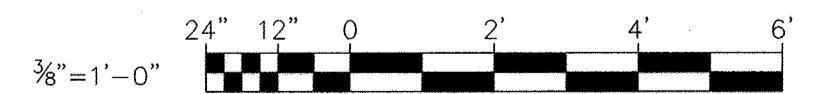
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3. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER OF VENTILATION FAN FURNISHED. TAKE ACCURATE FIELD MEASUREMENTS AND SUBMIT DRAWINGS SHOWING DUCT LAYOUT AND METHOD OF FAN SUPPORT TO ENGINEER FOR REVIEW. FAN SHALL NOT BE SUPPORTED BY DUCTWORK.
4. REPAIR ALL DAMAGED MASONRY AND REPOINT ALL DETERIORATED OR CRACKED MASONRY JOINTS IN ACCORDANCE WITH SPECIFICATION SECTION 04900. ALL MASONRY SHALL RECEIVE A FINAL CLEANING IN ACCORDANCE WITH SPECIFICATION 04900.
5. CLEAN AND PAINT ALL EXPOSED FERROUS METALS AND NEW CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 09900.
6. PROVIDE PVC WATERPROOF SLEEVE THROUGH INTAKE AREAWAY WHERE WALLS WILL BE CLOSED AND REROUTE/RECONNECT ANTENNA CABLE TO REMAIN.

ELECTRICAL NOTES:

① 2-#14 IN 3/4" CONDUIT TO VENTILATION CONTROLS IN MCC.



TOP SLAB PLAN
SCALE: 3/8"=1'-0"



R:\Projects\2019\2154_MountHebron\PS\Drawings\Plan\Proposed\2154MSPS-007D-up-7D.dwg, Apr 02, 2019 - 11:00am, Plot Scale 1:1

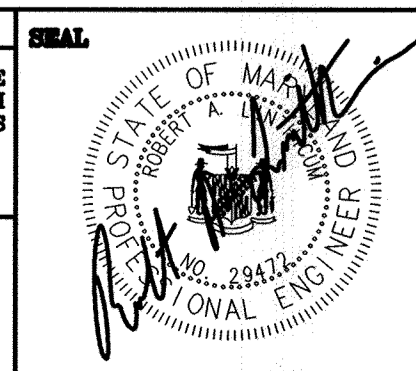
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
Director of Public Works <i>[Signature]</i> DATE: 4/5/19	Chief, Bureau of Engineering <i>[Signature]</i> DATE: 4/5/19
Chief, Bureau of Utilities <i>[Signature]</i> DATE: 4/5/19	Chief, Utility Division <i>[Signature]</i> DATE: 4/5/19

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LICENSE NO. 28472 EXPIRATION DATE 9/15/2019

RK&K 700 EAST PRATT STREET
SUITE 500
BALTIMORE, MARYLAND 21202



DES: DAO			
DRN: NAF			
CHK: RAL			
DATE: 4/02/19	RK&K	1	2019 UPGRADES - ADD SHEET 7D
BY NO.			DATE

IMPROVEMENT PLAN
MOUNT HEBRON SPS -
2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

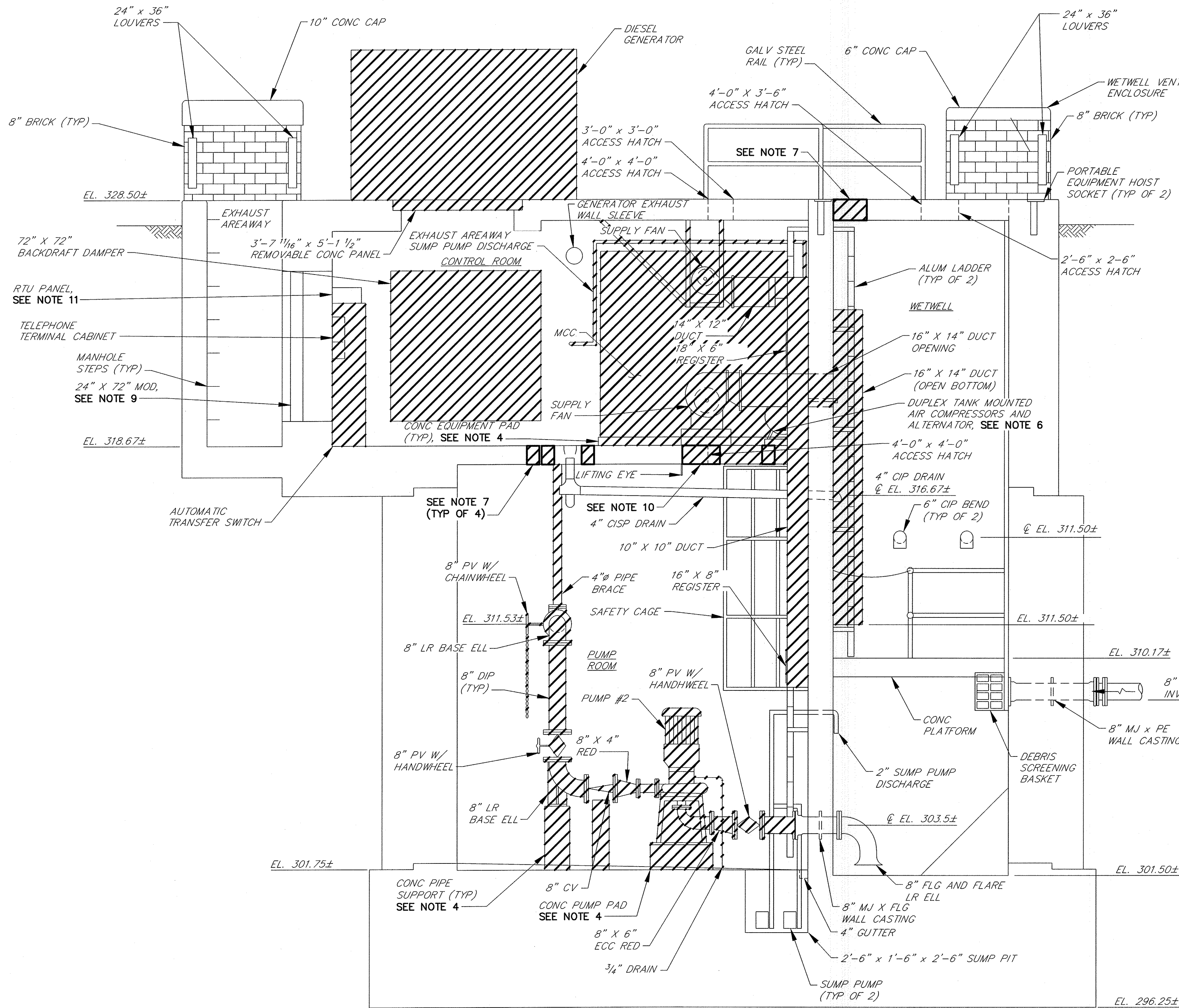
ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE
3/8"=1'-0"

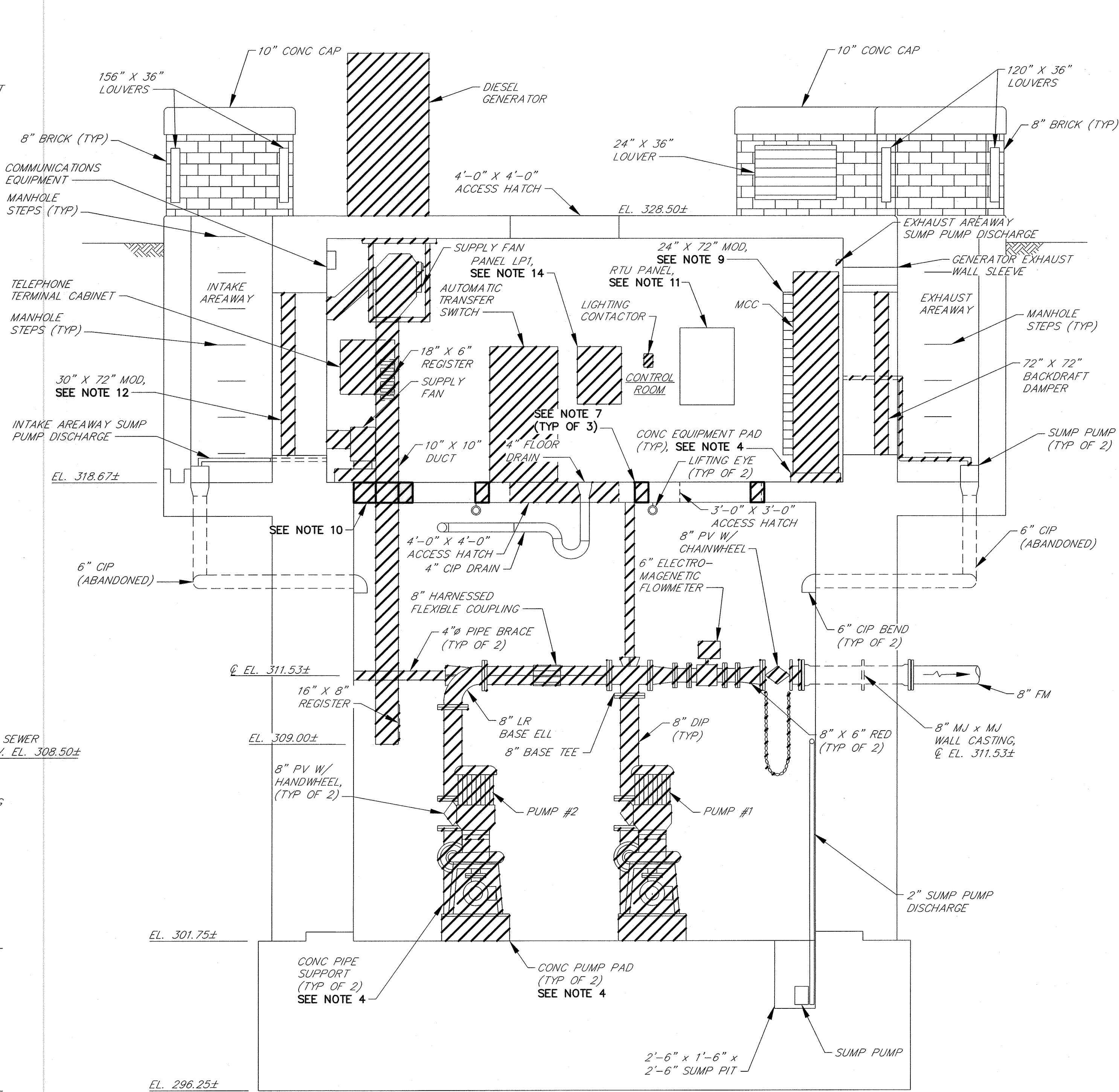
SHEET
7D OF 25

NOTES:

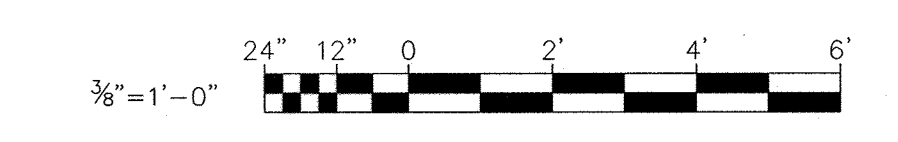
- ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- PATCH ALL EXISTING HOLES IN CONCRETE FLOOR SLABS AND WALLS THAT ARE NOT USED IN THE NEW WORK WITH MIN. 9000 PSI COMPRESSIVE STRENGTH NON-SHRINKING GROUT. THE GROUT SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR THIS APPLICATION. GROUT SHALL BE KAUFMAN PRODUCTS SURE GROUT, OR APPROVED EQUAL. HOLES THAT CONTAIN EXISTING WALL SLEEVES SHALL BE PATCHED BY FIRST INSTALLING A CAST IRON OR DUCTILE IRON PLUG AND FILLING THE REMAINING OPENING WITH NON-SHRINK GROUT.
- REMOVE CONCRETE EQUIPMENT PADS, PUMP PADS AND VALVE SUPPORTS FOR ALL REMOVED EQUIPMENT AND PIPING, AND RESTORE CONCRETE FLOOR TO MATCH EXISTING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TRANSPORTATION, INTACT OF ALL DEMOLISHED EQUIPMENT TO BE SALVAGED, TO THE COUNTY'S LITTLE PATUXENT WATER RECLAMATION PLANT (LPWRP) MAINTENANCE SHOP, LOCATED AT 8900 GREENWOOD PLACE, 410-313-1200. CONTRACTOR SHALL PROVIDE THE COUNTY WITH FIVE (5) DAYS ADVANCE NOTICE PRIOR TO DELIVERY OF EQUIPMENT.
- REMOVE AIR COMPRESSORS, RECEIVING TANK, EQUIPMENT PAD AND ALL ASSOCIATED CONTROLS, PIPING AND OTHER APPURTENANCES.
- CORE DRILL HOLES IN CONCRETE SLAB TO ACCOMMODATE NEW VALVE BOXES AND WETWELL SUPPLY FAN.
- REMOVAL OF EQUIPMENT SHALL INCLUDE ALL CONDUIT AND WIRING ASSOCIATED WITH EQUIPMENT TO BE REMOVED. EMBEDDED CONDUIT MAY BE REUSED. SURFACE CONDUIT SHALL BE REPLACED.
- REMOVE DAMPER ACTUATOR AND PREPARE DAMPER FOR INSTALLATION OF NEW ACTUATOR.
- SAWCUT OPENING IN FLOOR SLAB TO ACCOMMODATE NEW DUCTWORK.
- EXISTING RTU PANEL TO REMAIN IN SERVICE. PANEL CONTAINS THE EXISTING LC150 PRIMARY PUMP CONTROLLER, WHICH IS ALSO TO REMAIN IN SERVICE, TO GENERATE THE PRIMARY PUMP CONTROLS BY THE SYSTEM INTEGRATOR IN THE PROPOSED PCP. REFER TO WIRING SCHEMATICS ON DWG. 23B.
- REMOVE DAMPER AND PREPARE OPENING FOR INSTALLATION OF NEW DAMPER AND CONCRETE FILL.
- REMOVE ALL LIGHTING, RECEPTACLES AND ASSOCIATED DEVICES. INDIVIDUAL UNITS NOT SHOWN FOR CLARITY.
- EXTEND ALL EXISTING LOADS TO REMAIN TO NEW PANEL AND PROVIDE NEW BRANCH CIRCUIT CONDUIT AND WIRE.



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



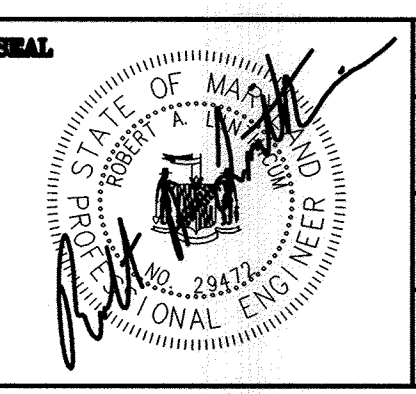
SECTION 2
SCALE: 3/8"=1'-0"



RK&K\SYS - K:\Projects\2019\2154_JHG\DWG - Miscellaneous Pumping Stations\Mount Hebron PS\Cad\Plan\Proposed\2154MPPS-0084-0P-84.dwg, Apr 02, 2019 - 1:11pm, Plot Scale 1:1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
 Director of Public Works: *[Signature]* 4/5/19
 Chief, Bureau of Engineering: *[Signature]* 4/5/19
 Chief, Bureau of Utilities: *[Signature]* 4/5/19
 Chief, Utility Division: *[Signature]* 4/5/19

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT REVISIONS INCLUDED IN 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. 28472, EXPIRATION DATE 9/15/2019
RK&K 700 EAST PRATT STREET SUITE 500 BALTIMORE, MARYLAND 21202



DES:	DAO			
DRN:	NAP			
CHK:	RAL			
DATE:	4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 8A	4/19
BY:	NO.		REVISIONS	DATE

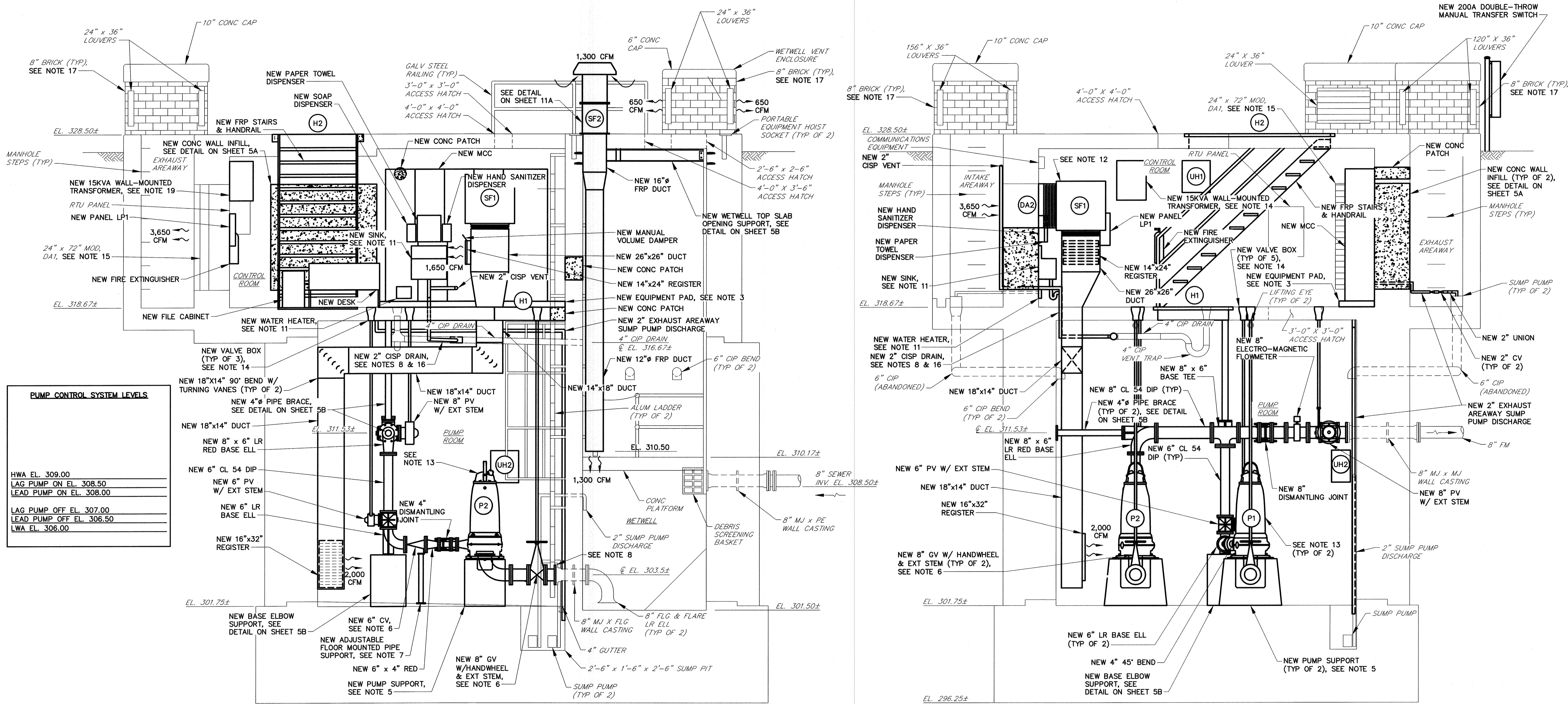
DEMOLITION SECTIONS
MOUNT HEBRON SPS -
2019 UPGRADES
 MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
2019 UPGRADES
 CAPITAL PROJECT NO. S6600
 CONTRACT NO. 745-S
 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE 3/8"=1'-0"
 SHEET 8A OF 25

NOTES:

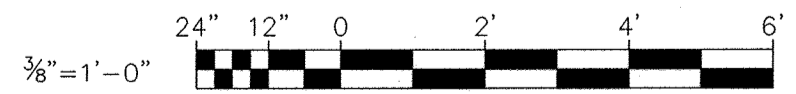
- ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- INSTALL CONCRETE EQUIPMENT PADS FOR ALL FLOOR MOUNTED EQUIPMENT.
- CLEAN AND PAINT ALL EXPOSED FERROUS METALS (EXCEPT PIPE FLANGES AND FASTENERS), AND NEW CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 0900.
- PUMP SUPPORTS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL HAVE PUMP SUPPORTS DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND FOR PUMPS FURNISHED.
- SUPPORT CHECK VALVES AND PUMP SUCTION GATE VALVES WITH ADJUSTABLE FLOOR MOUNTED PIPE SUPPORTS, INSTALLED SO AS NOT TO INTERFERE WITH THE OPERATION OF THE VALVES.
- NO ATTEMPT HAS BEEN MADE TO SHOW ALL REQUIRED PIPE SUPPORTS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE PIPING SUPPORT SYSTEM COMPLYING WITH MSS SP-58, ANSI/MSS SP-69, FEDERAL SPECIFICATION WW-H171, AND SPECIFICATION SECTION 15060.
- FURNISH AND INSTALL ALL GLANDS, RETAINERS, GASKETS, BOLTS AND OTHER MISCELLANEOUS MATERIALS AS NECESSARY TO CONNECT NEW PIPING TO EXISTING PIPING.
- NEW PUMP SUCTION AND DISCHARGE PIPING, VALVE AND FITTING ARRANGEMENT IS DEPENDENT ON ACTUAL PUMP EQUIPMENT FURNISHED. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER OF PUMP EQUIPMENT FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS, AND PREPARE AND SUBMIT LAYOUT DRAWINGS FOR APPROVAL PRIOR TO PURCHASING ANY EQUIPMENT OR FABRICATING ANY PIPING.
- PUMP CABLES SHALL BE SUPPORTED BY THE DRYWELL WALLS OR CEILING USING STAINLESS STEEL KELLUM GRIPS, AT INTERVALS AS NECESSARY TO SUPPORT THE ENTIRE WEIGHT OF THE CABLES, IN ACCESSIBLE LOCATIONS WHICH SHALL BE APPROVED BY THE COUNTY. SLACK IN CABLES SHALL NOT BE COILED. CONTRACTOR SHALL SUBMIT PUMP CABLE ROUTING PLANS TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING PUMPS.
- SEE POTABLE WATER RISER DIAGRAM ON SHEET 11A.
- CONTRACTOR SHALL COORDINATE W/ MANUFACTURER OF VENTILATION FANS FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS AND SUBMIT DRAWINGS SHOWING DUCT LAYOUTS AND METHOD OF FAN SUPPORT TO THE ENGINEER FOR REVIEW. FANS SHALL NOT BE SUPPORTED BY DUCTWORK.
- PUMPS SHALL BE LOCATED DIRECTLY BELOW THE EXISTING LIFTING EYES.
- COORDINATE LOCATION OF VALVE BOXES WITH EXT STEMS FOR VALVES FURNISHED. ENSURE THAT VALVE BOXES PERMIT FULL ACCESS AND OPERATION OF THE VALVE. USE UNIVERSAL JOINTS, RIGHT ANGLE GEARS AND ADAPTERS ON EXT STEMS, AS NECESSARY. NEW VALVE BOXES SHALL BE CAST FLUSH INTO EXISTING CONCRETE SLABS.
- PROVIDE NEW ACTUATOR AND ACCESSORIES SIZED TO OPERATE EXISTING DAMPER.
- CONNECT NEW 2" CISP TO EXISTING 4" CIP.
- REPAIR ALL DAMAGED MASONRY AND REPOINT ALL DETERIORATED OR CRACKED MASONRY JOINTS IN ACCORDANCE WITH SPECIFICATION SECTION 04900. ALL MASONRY SHALL RECEIVE A FINAL CLEANING IN ACCORDANCE WITH SPECIFICATION 04900.
- REPLACE ALL EXISTING RECEPTACLES WITH NEW GFI RECEPTACLES AT EXISTING LOCATIONS. PROVIDE NEW BOX, WHILE-IN-USE COVER, CONDUIT AND WIRE. ONE BRANCH CIRCUIT PER LEVEL.
- TRANSFORMER SHALL BE 480V PRIMARY AND 208/120V 3-PHASE SECONDARY. SUBMIT MOUNTING HEIGHT FOR APPROVAL (MINIMUM 6'-0" TO BOTTOM OF WALL BRACKET).
- REPLACE LIGHTING ON BOTH LEVELS. SEE LIGHTING FIXTURE SCHEDULE, SHEET 23B. SUBMIT PROPOSED LAYOUT FOR APPROVAL AND PROVIDE NEW CONDUIT AND WIRE TO LP1 AND SWITCHING. PROVIDE ONE BRANCH CIRCUIT PER LEVEL.
- SEE DWG. 11A FOR ALL MECHANICAL SCHEDULES.



PUMP CONTROL SYSTEM LEVELS	
HWA	EL. 309.00
LAG PUMP ON	EL. 308.50
LEAD PUMP ON	EL. 308.00
LAG PUMP OFF	EL. 307.00
LEAD PUMP OFF	EL. 306.50
LWA	EL. 306.00

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

SECTION 2
SCALE: 3/8"=1'-0"



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 4/5/19
DIRECTOR, PUBLIC WORKS DATE

[Signature] 4/5/19
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 4/5/19
CHIEF, BUREAU OF ENGINEERING DATE

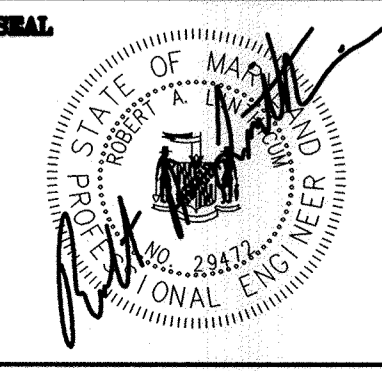
[Signature] 4/5/19
CHIEF, UTILITY DIVISION DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THE REVISIONS INCLUDED IN 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. 28472 EXPIRATION DATE 9/15/2019

RK&K
700 EAST PRATT STREET
SUITE 500
BALTIMORE, MARYLAND 21202



DES:	DAO		
DRN:	NAP		
CHK:	RAL		
DATE:	4/02/19		
RK&K	1	2019 UPGRADES - ADD SHEET 8B	4/19
BY	NO.	REVISIONS	DATE

IMPROVEMENT SECTIONS
MOUNT HEBRON SPS -
2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

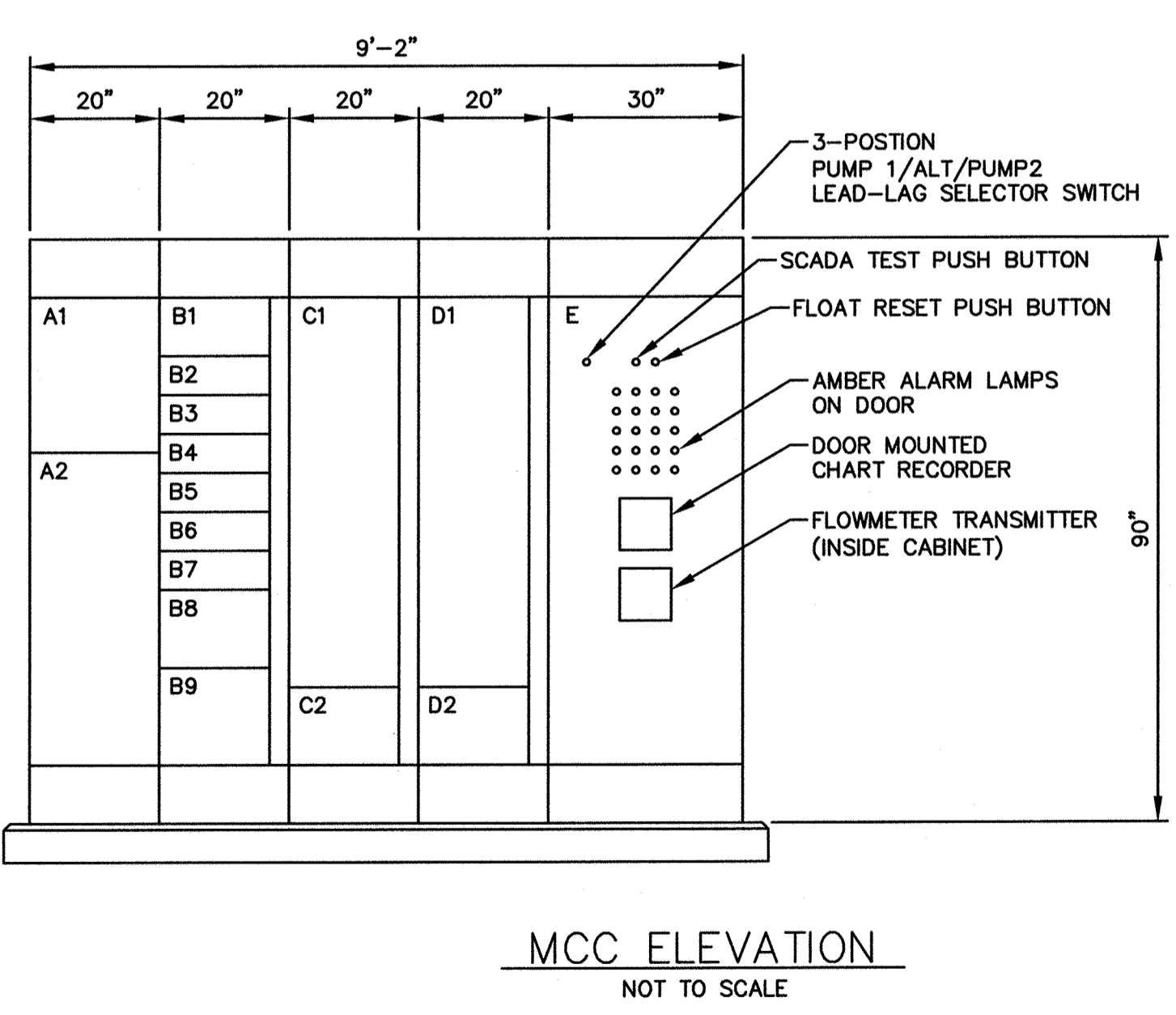
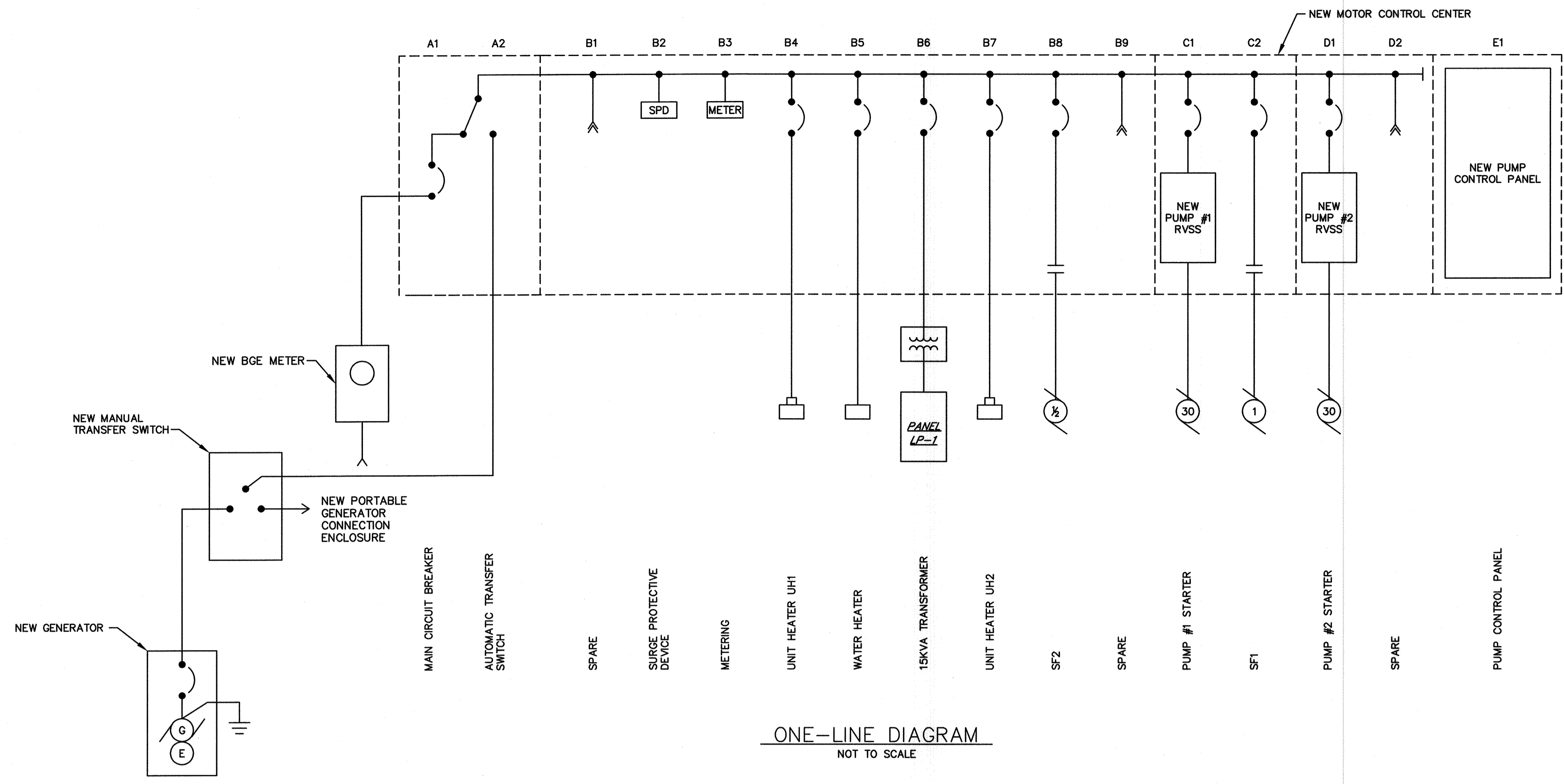
MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S660
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE 3/8"=1'-0"
SHEET 8B OF 25

RK21315 - K:\projects\2019\1514_HcGBDA\Task 9 - Miscellaneous Pumping Stations\Mount Hebron PS\Cad\Drawings\Proposed\1514MPPS-09A-EP-9A.dwg Apr 02, 2019 - 1:12pm Plot Scale 1:1



- ALARM LAMP LEGEND**
- HIGH LEVEL WETWELL
 - LOW LEVEL WETWELL
 - PUMP ROOM FLOODED
 - STATION LOSS OF POWER
 - ATS IN EMERGENCY
 - GENERATOR RUNNING
 - GENERATOR FAILURE
 - UPS ON BATTERY
 - UPS BATTERY LOW
 - PUMP 1 NOT IN AUTO
 - PUMP 2 NOT IN AUTO
 - PUMP 1 FAIL
 - PUMP 2 FAIL
 - PUMP 1 RVSS FAULT
 - PUMP 2 RVSS FAULT
 - PUMP 1 OVERTEMP
 - PUMP 2 OVERTEMP
 - COMMON ALARM
 - SPARE
 - SPARE

MCC SCHEDULE													
480/277 VOLTS, 3 PHASE, 4 WIRE, 600 AMP BUS													
ITEM	DESCRIPTION	BRKR SIZE		FEEDER			STARTER				AUX. DES.	REMARKS	
		AMP	POLE	WIRE	QUAN	GRD	COND	TYPE	SIZE	HP			COIL
A1	MAIN BREAKER	200	3	3/0	4	4	4"	-	-	-	-	ONE 4" SPARE	
A2	AUTOMATIC TRANSFER SWITCH	-	-	-	-	-	-	-	-	-	-	200 AMPERE	
B1	SPARE	-	-	-	-	-	-	-	-	-	-	---	
B2	SPD	-	-	-	-	-	-	-	-	-	-	---	
B3	METERING	-	-	-	-	-	-	-	-	-	-	---	
B4	UNIT HEATER UH1	30	3	10	3	10	3/4"	-	-	-	-	---	
B5	WATER HEATER	30	3	10	3	10	3/4"	-	-	-	-	---	
B6	15KVA TRANSFORMER	25	3	10	3	10	3/4"	-	-	-	-	---	
B7	UNIT HEATER UH2	30	3	10	3	10	3/4"	-	-	-	-	---	
B8	SF2	30	3	10	3	10	3/4"	FVNR	1/2	1/2	120	1,2,3,5	---
B9	SPARE	-	-	-	-	-	-	-	-	-	-	SEE SCHEMATIC	
C1	PUMP MOTOR #1	75	3	6	3	8	1 1/4"	RVSS	-	30	-	1,2,3,4,5	SEE NOTES 2 & 3
C2	SF1	20	3	12	3	12	3/4"	FVNR	1	1	120	1,2,3,5	SEE SCHEMATIC

- AUXILIARIES FOR MOTOR CONTROL CENTER**
- HAND-OFF-AUTOMATIC SWITCH
 - INDICATING LIGHTS
 - 120 VOLTS CONTROL POWER TRANSFORMER
 - RUNNING TIME METERS AND START COUNTERS
 - AUXILIARY RELAYS/CONTACTS

MCC SCHEDULE (CONTINUED)													
480/277 VOLTS, 3 PHASE, 4 WIRE, 600 AMP BUS													
ITEM	DESCRIPTION	BRKR SIZE		FEEDER			STARTER				AUX. DES.	REMARKS	
		AMP	POLE	WIRE	QUAN	GRD	COND	TYPE	SIZE	HP			COIL
D1	PUMP MOTOR #2	75	3	6	3	8	1 1/4"	RVSS	-	30	-	1,2,3,4,5	SEE NOTES 2 & 3
D2	SPARE	-	-	-	-	-	-	-	-	-	-	-	---
E	PUMP CONTROL PANEL	-	-	-	-	-	-	-	-	-	-	-	SEE NOTE 1

- NOTES:**
- PROVIDE EMPTY MOTOR CONTROL CENTER SECTION FOR FABRICATION BY SYSTEM INTEGRATOR.
 - CONDUIT SHOWN IS MINIMUM SIZE. MOTORS ARE CONNECTED WITH CABLES PROVIDED BY THE PUMP MANUFACTURER. PROVIDE QUANTITY AND SIZE OF CONDUITS PER MANUFACTURER'S RECOMMENDATIONS. TERMINATE CONDUITS WITH BUSHING, IN LOCATION AS DIRECTED IN THE FIELD AND SUSPEND CABLES USING 3/16" STAINLESS STEEL HOOKS AND CABLE GRIPS.
 - EQUIPMENT SHALL BE RATED FOR A MINIMUM OF 38 FULL LOAD AMPERES, BUT NOT LESS THAN STANDARD HORSEPOWER SHOWN.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR: [Signature] DATE: 4/5/19
 CHIEF, BUREAU OF PUBLIC WORKS

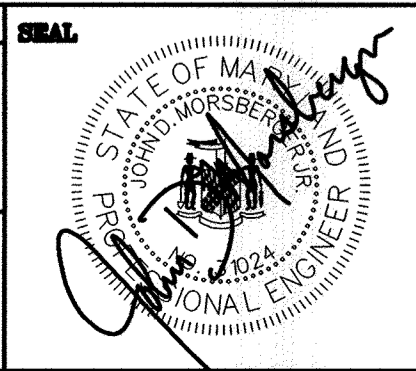
[Signature] DATE: 4-5-19
 CHIEF, BUREAU OF UTILITIES

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT REDLINE REVISIONS INCLUDED IN THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. 31024 EXPIRATION DATE 10/17/2020

RK&K 700 EAST PRATT STREET SUITE 600 BALTIMORE, MARYLAND 21202



DES: JDM			
DRN: NAF			
CHK: JDM			
DATE: 4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 9A	4/19
BY NO.		REVISIONS	DATE

MCC SCHEDULE, ELEVATION & ONE-LINE DIAGRAM
MOUNT HEBRON SPS - 2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

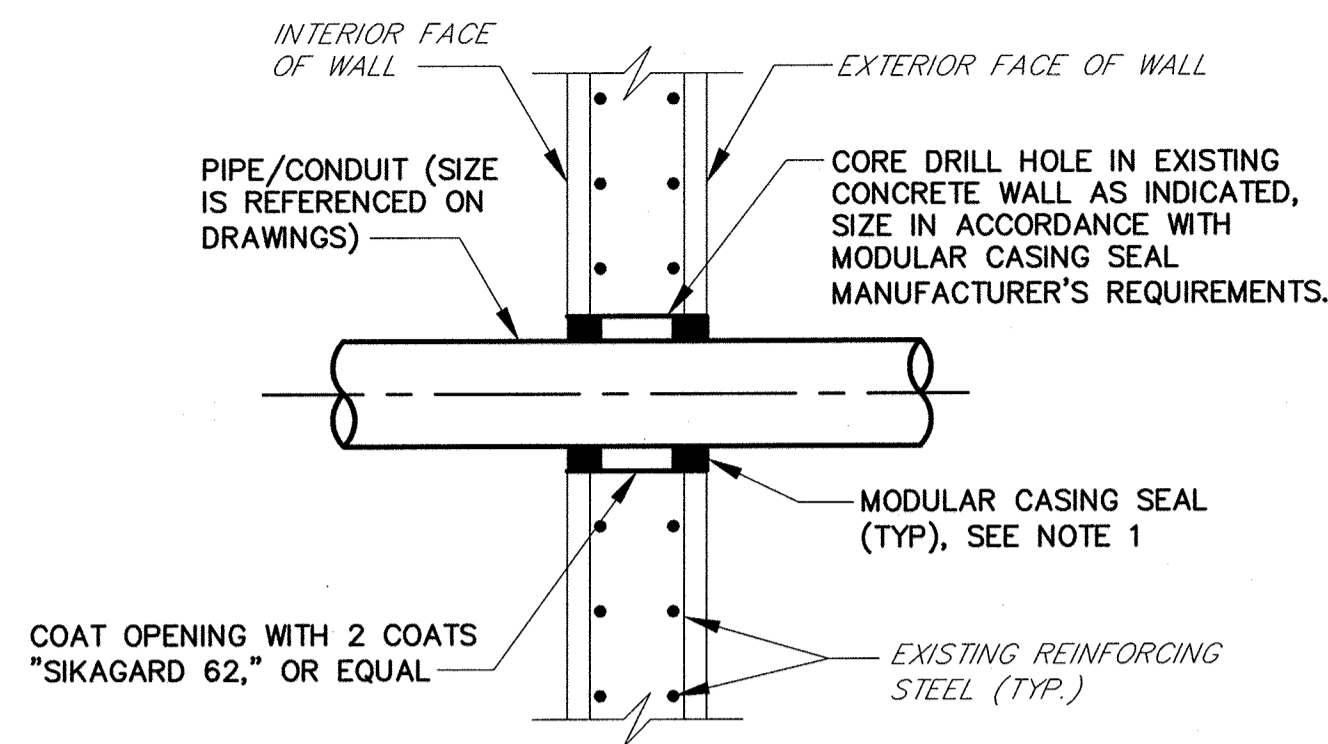
MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

NOTES:

1. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.



NOTES:

1. MODULAR CASING SEAL SHALL BE LINKSEAL, OR APPROVED EQUAL.
2. PIPE AT MODULAR CASING SEAL LOCATION SHALL BE LEVEL.
3. ON EXTERIOR WALLS WHERE PIPING IS BURIED, ONLY ONE MODULAR CASING SEAL IS REQUIRED, ON INTERIOR SIDE.

TYPICAL CONCRETE WALL PENETRATION DETAIL

NTS

UNIT HEATER SCHEDULE					
ID	SIZE (H X W X D)	KW	MOUNTING HEIGHT	NOTES	MANUFACTURER & MODEL NO.
UH1	21 3/4" X 19" X 12 3/4"	15	6'-6" AFF	1,2,3,4	QMARK MODEL MUH-15
UH2	21 3/4" X 19" X 12 3/4"	15	7'-0" AFF	1,2,3,4	QMARK MODEL MUH-15

NOTES:

1. PROVIDE INTEGRAL THERMOSTAT
2. MOUNTING HEIGHT IS TO BOTTOM OF UNIT
3. PROVIDE INTEGRAL DISCONNECT
4. SEE ELECTRICAL DRAWINGS FOR CONNECTION REQUIREMENTS

PUMP SCHEDULE						
ID	DESCRIPTION	LOCATION	Q (GPM)	TDH (FT)	RPM (MAX)	REMARKS
P1	PUMP #1	PUMP ROOM	470	126	1800	NEW DRY-PIT SUBMERSIBLE
P2	PUMP #2	PUMP ROOM	470	126	1800	NEW DRY-PIT SUBMERSIBLE

DAMPER SCHEDULE						
ID	SIZE (INCHES)	DEPTH (INCHES)	MATERIAL	NOTES	TYPE	REMARKS
DA1	24" x 72"	NA	NA	3,4	EXISTING	OPEN WHEN SUPPLY FAN SF1 IS OPERATING, OTHERWISE CLOSED (NEW ACTUATOR ONLY)
DA2	30" x 30"	4	ALUMINUM	1,3,4,6,7,9	THIN LINE CONTROL DAMPER	OPEN WHEN SUPPLY FAN SF1 IS OPERATING, OTHERWISE CLOSED

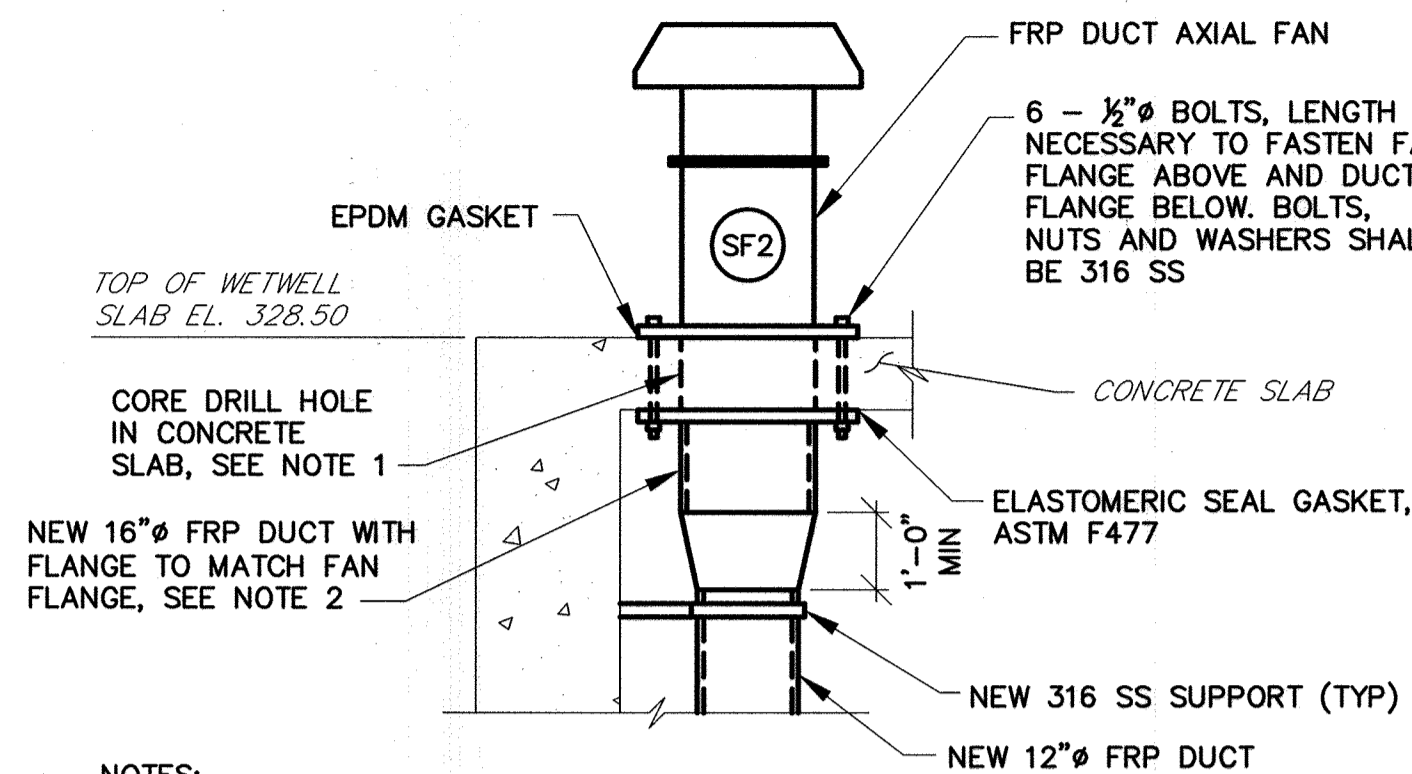
NOTES:

1. CLEAR ANODIZED FINISH
2. PNEUMATIC ACTUATOR
3. ELECTRIC ACTUATOR
4. ACTUATOR MOUNTING BRACKET
5. SWITCH PACKAGE
6. FRONT FLANGE FRAME
7. REAR FLANGE FRAME
8. SPRING LOADED OPEN
9. SPRING LOADED CLOSED

CENTRIFUGAL SQUARE INLINE FAN SCHEDULE											
ID	SERVICE	LOCATION	DRIVE	CFM	S.P. (IN W.G.)	FAN RPM	MOTOR HP	VOLTAGE/PHASE	SOUND (MAX AT 5')	NOTES	MANUFACTURER & MODEL NO.
SF1	SUPPLY	CONTROL ROOM	BELT	3,650	0.67	746	1.0	480/3	60 dBA	4,7,11,12,13,14,17,19,21,25,26,27,28	LOREN COOK MODEL NO. 225SQN-B, OR APPROVED EQUAL

NOTES:

1. NEMA 4 DISCONNECT
2. GRAVITY BACKDRAFT DAMPER
3. MOTORIZED BACKDRAFT DAMPER
4. SIDE DISCHARGE PACKAGE
5. DUEL SIDE DISCHARGE PACKAGE
6. BELT GUARD
7. OSHA GUARD/MOTOR COVER
8. INSULATED HOUSING
9. INLET GUARD
10. OUTLET GUARD
11. INLET FLEXIBLE CONNECTOR
12. OUTLET FLEXIBLE CONNECTOR
13. FLANGED INLET CONNECTION WITH COMPANION FLANGE
14. FLANGED OUTLET CONNECTION WITH COMPANION FLANGE
15. CEILING MOUNTED RUBBER-IN-SHEAR INSULATORS
16. FLOOR MOUNTED RUBBER-IN-SHEAR INSULATORS
17. CEILING MOUNTED SPRING ISOLATORS
18. FLOOR MOUNTED SPRING ISOLATORS
19. LORENIZED COATING
20. EPOXY POWDER COATING
21. REINFORCED WHEEL
22. EXTERNAL INLET VANE DAMPER - ALUMINUM
23. FILTER BOX WITH ALUMINUM FILTER
24. FILTER BOX WITH 30% ALUMINUM FILTER
25. EXTENDED LUBE LINES
26. SPARE BELT KIT
27. BELT TENSIONER-ROTARY
28. THERMOSTATICALLY CONTROLLED

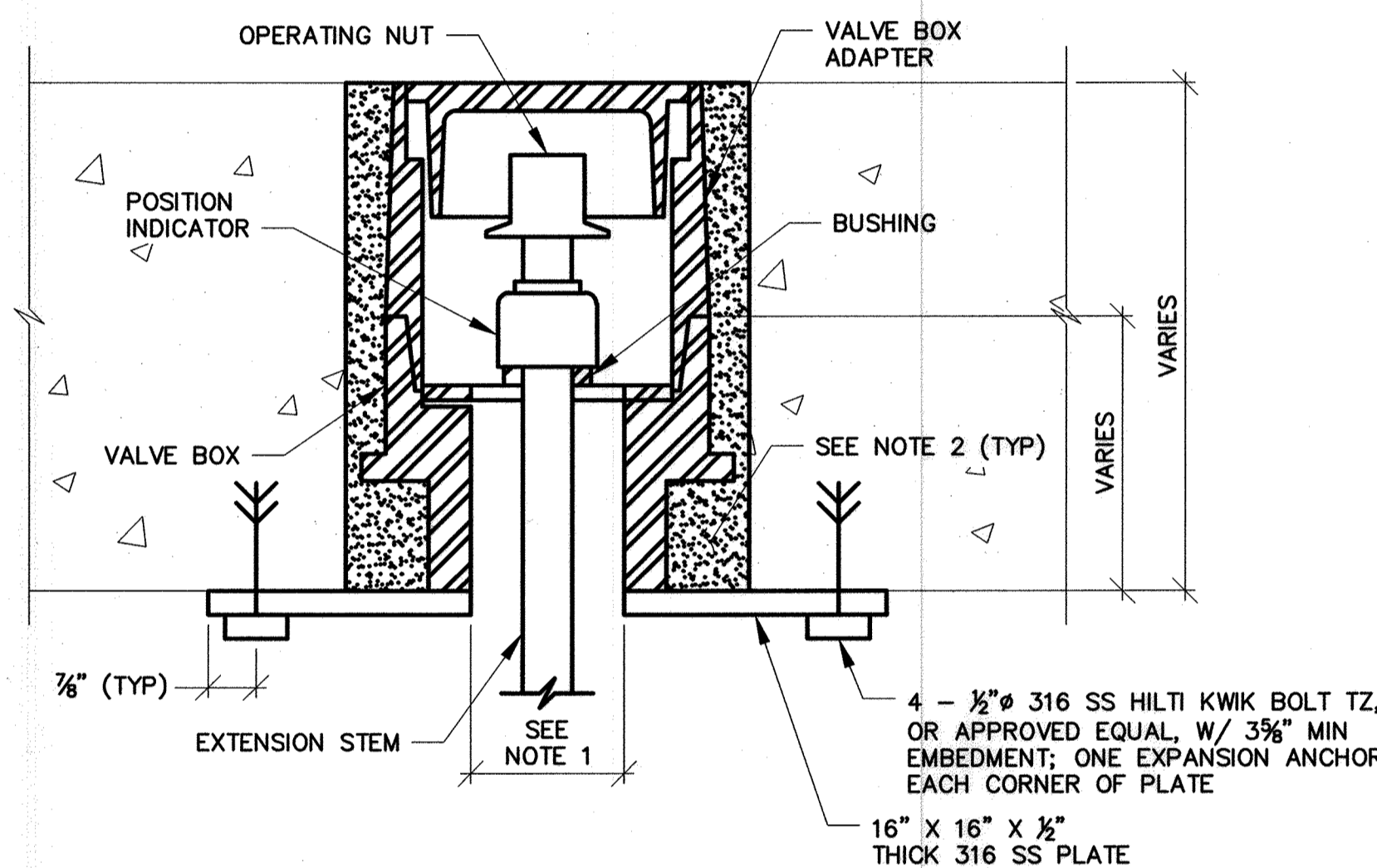


NOTES:

1. COORDINATE SIZE OF HOLE IN CONCRETE SLAB WITH MANUFACTURER OF FAN FURNISHED.
2. PROVIDE OVERSIZED FLANGES SO THAT THE BOLT HOLES ARE A MINIMUM OF 3" FROM THE DUCT OPENING IN THE CONCRETE SLAB

16\"/>

NTS

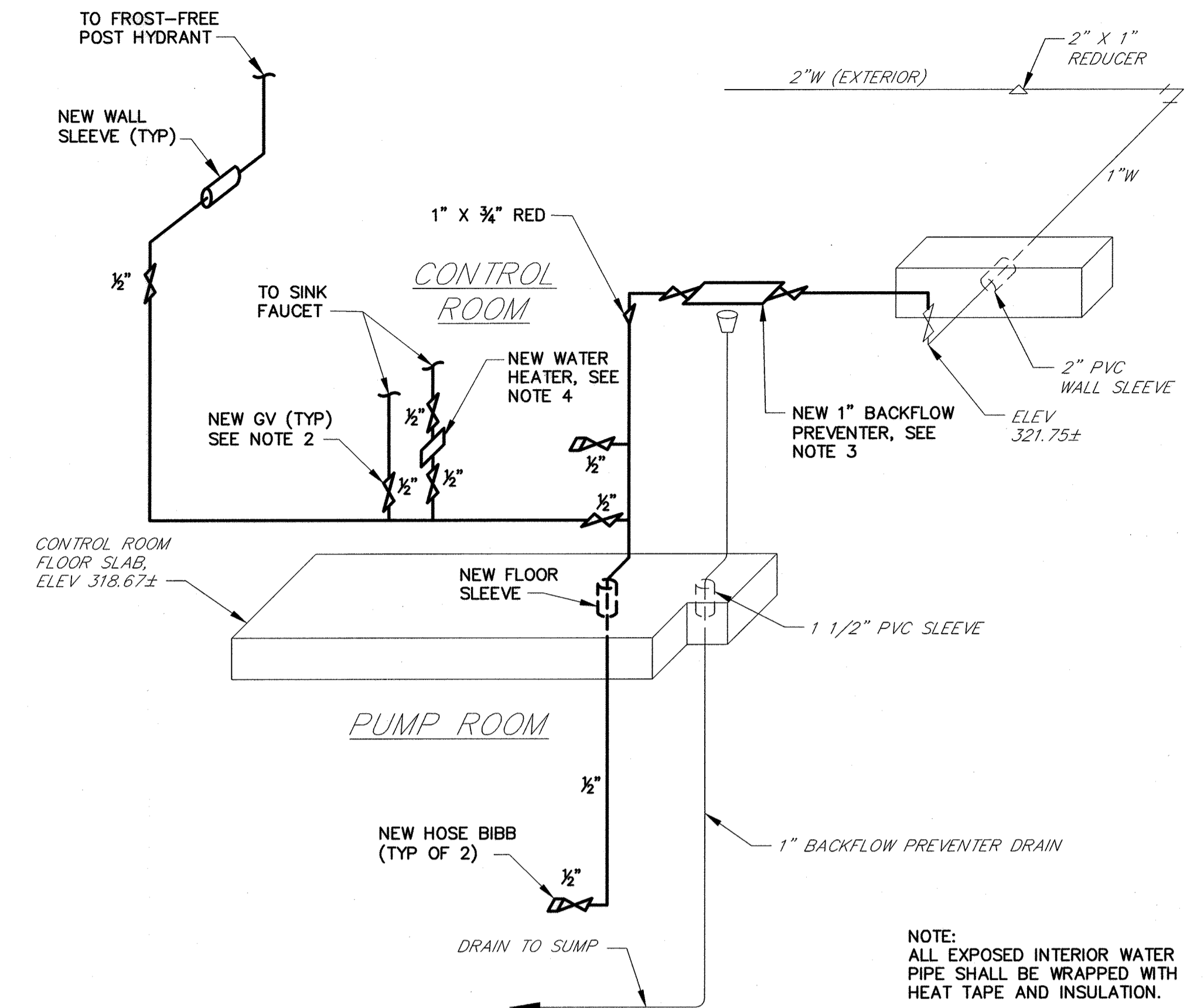


NOTES:

1. HOLE IN SS PLATE SHALL MATCH THE INSIDE DIAMETER OF VALVE BOX.
2. FILL ANNULAR SPACE AROUND VALVE BOX WITH NON-SHRINK, NON-METALLIC CEMENTITIOUS GROUT.

TYPICAL VALVE BOX INSTALLATION DETAIL

NTS



POTABLE WATER NOTES:

1. CONTRACTOR SHALL PROVIDE ALL FITTINGS NECESSARY TO CONNECT NEW PIPING TO EXISTING PIPING.
2. GATE VALVES SHALL BE INSTALLED IN CLOSE PROXIMITY TO ALL NEW PLUMBING FIXTURES.
3. INSTALL BACKFLOW PREVENTER SO THAT THE EXISTING DRAIN PIPING CAN BE REUSED. MANUFACTURER SUPPLIED AIR GAP FITTING SHALL BE INSTALLED BETWEEN THE BACKFLOW PREVENTER AND THE DRAIN PIPING.
4. MOUNT WATER HEATER SUCH THAT THE ELEVATION OF THE TOP OF THE WATER HEATER IS BELOW THE SINK ELEVATION AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

MOUNT HEBRON PUMPING STATION WATER SUPPLY DIAGRAM

NTS

ACCESS HATCH SCHEDULE				
ID	SLAB OPENING	CLEAR OPENING	DESCRIPTION	REMARKS
H1	48" x 48"	45 1/2" x 42 1/8"	CONTROL ROOM	NEW GENERAL PURPOSE RETROFIT ACCESS HATCH W/GRATING
H2	54" x 96"	51" x 96"	TOP SLAB	NEW GENERAL PURPOSE RETROFIT ACCESS HATCH

FIBERGLASS DUCT AXIAL FAN SCHEDULE											
ID	SERVICE	LOCATION	DRIVE	CFM	S.P. (IN W.G.)	FAN RPM	MOTOR HP	VOLTAGE/PHASE	SOUND (MAX AT 5 FEET)	NOTES	MANUFACTURER & MODEL NO.
SF2	SUPPLY	WETWELL TOP SLAB	BELT	1,300	0.50	1555	1/2	480/3	67 dBA	3,4,5,6,7,11,18,19,20	HARTZELL FAN INC. FRP DUCT AXIAL MODEL NO. A35-166E, OR APPROVED EQUAL

NOTES:

1. DISCONNECT SWITCH
2. VANE SECTION
3. 316 SS HARDWARE AND SHAFT
4. ACCESS DOOR
5. STATIC GROUNDING - CARBON/GRAPHITE IMPREGNATION
6. ALL VINYL ESTER CONSTRUCTION
7. SURFACE VEIL
8. FRP ROOF CURB
9. ROOF MOUNT
10. DUCT MOUNT
11. FIBERGLASS MOTOR COVER
12. HORIZONTAL MOUNTING ANGLES FOR SUSPENDED MOUNTING
13. VERTICAL MOUNTING FEET/ANGLES (FLOOR/CEILING MOUNTING)
14. HORIZONTAL BASE FOR FLOOR MOUNTING
15. VIBRATION ISOLATOR
16. INLET BELL
17. 316 SS INLET GUARD
18. FRP EXPLOSION PROOF
19. INVERTER DUTY MOTOR
20. WEATHER HOOD

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 4/5/19
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 4/5/19
CHIEF, BUREAU OF ENGINEERING DATE

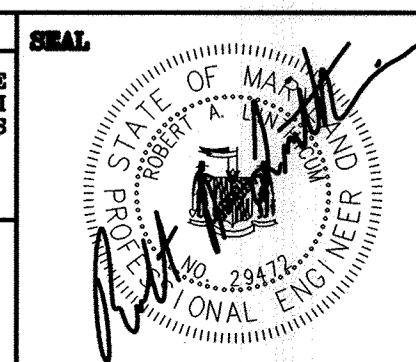
[Signature] 4/5/19
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 4/5/19
CHIEF, UTILITY DIVISION DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT REVISIONS INCLUDED IN 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. 22472. EXPIRATION DATE 9/15/2019

RK&K
700 EAST PRATT STREET
SUITE 500
BALTIMORE, MARYLAND 21202



DES: DAO					
DRN: NAF					
CHK: RAL					
DATE: 4/02/19	RK&K	1	2019 UPGRADES - ADD SHEET 11A	4/19	
BY NO.			REVISIONS	DATE	

MISCELLANEOUS DETAILS AND SCHEDULES
MOUNT HEBRON SPS - 2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2

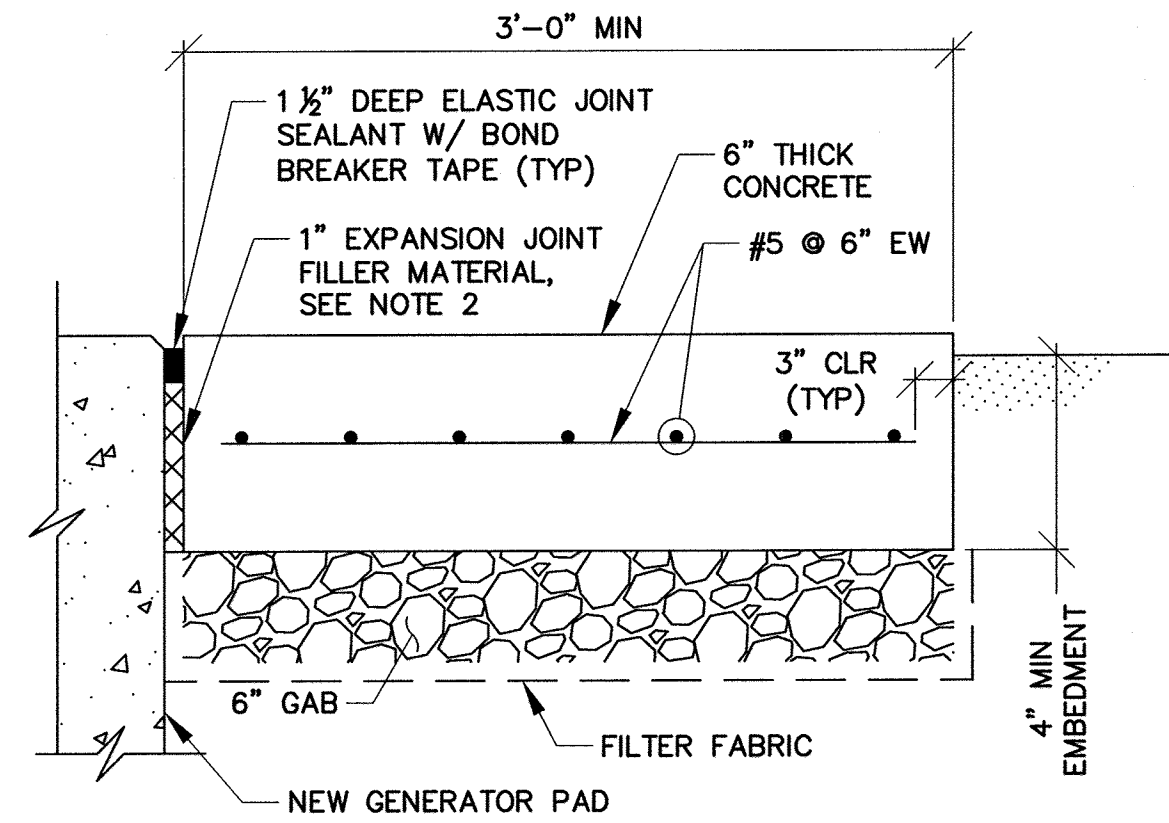
HOWARD COUNTY, MARYLAND

SCALE
NTS

SHEET
11A OF 25

NOTES:

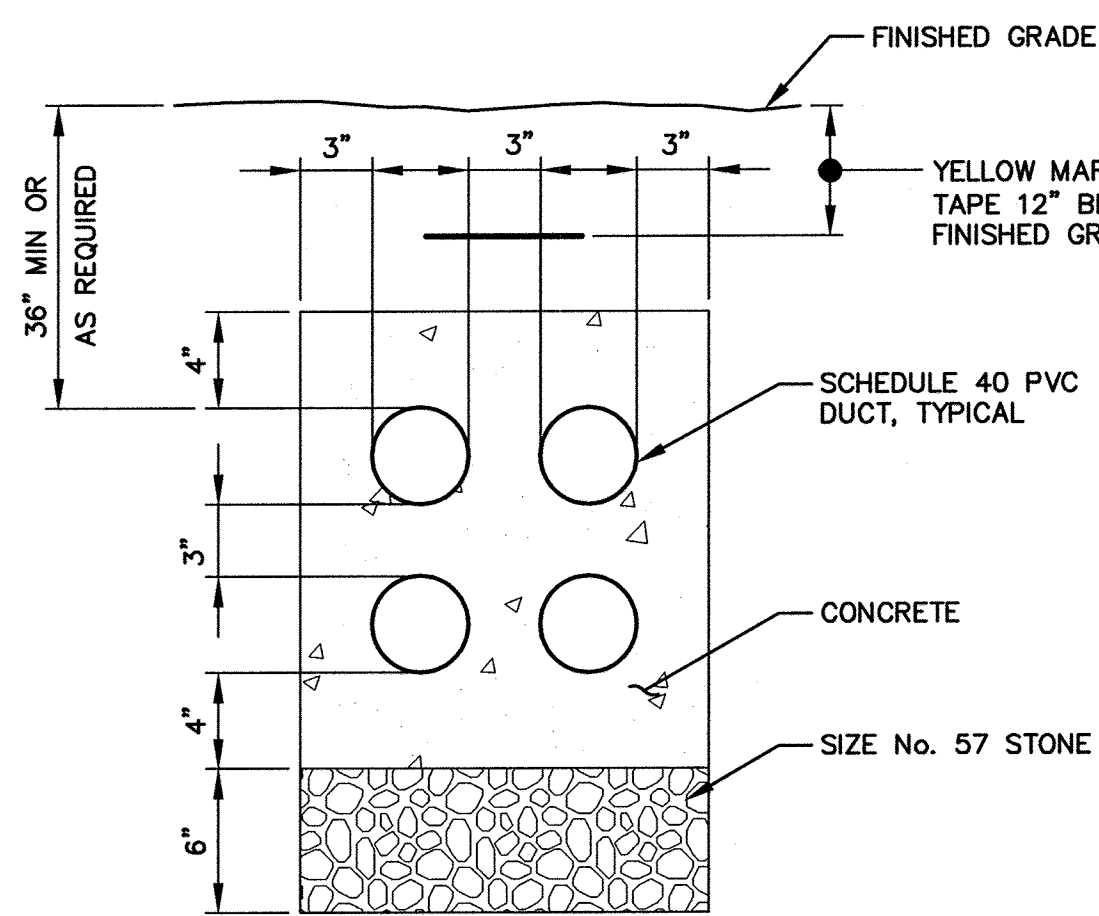
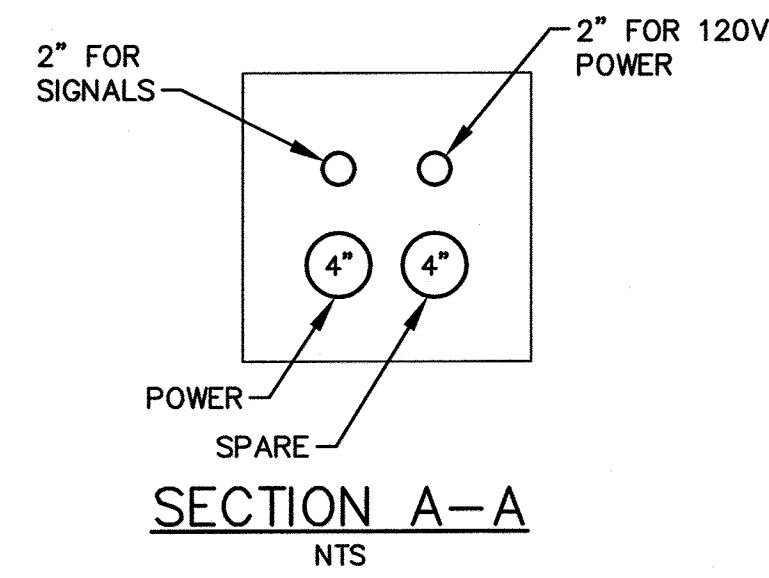
1. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
2. THE LOCATIONS OF ALL UNDERGROUND UTILITIES AS SHOWN HEREON ARE BASED ON ABOVE GROUND FIELD OBSERVATIONS AND RECORD DRAWINGS. ADDITIONAL BURIED UTILITIES OR STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS WERE MADE TO LOCATE BURIED UTILITIES/STRUCTURES. ALL SUBSURFACE UTILITIES/STRUCTURES SHOWN ARE TO BE CONSIDERED APPROXIMATE LOCATION ONLY. UNDERGROUND UTILITIES MUST BE VERIFIED BY TEST PITS.
3. ALL DISTURBED AREAS SHALL BE GRADED, SEEDED AND LANDSCAPED TO RESTORE ALL PROPERTY TO ITS ORIGINAL, UNDISTURBED CONDITION.
4. GENERATOR ENCLOSURE SHALL BE SUFFICIENTLY WEATHER-PROTECTIVE TO ENSURE THE GENERATOR WILL OPERATE AS INTENDED DURING INCLEMENT WEATHER, AND SHALL PROVIDE THE STRICTEST POSSIBLE SOUND-ATTENUATION LEVEL POSSIBLE FOR THE PARTICULAR GENERATOR MODEL FURNISHED IN ACCORDANCE WITH SPECIFICATION SECTION 16700.



- NOTES:
1. CONCRETE PAD TO CONTAIN #5 @ 6" EACH WAY, CENTERED VERTICALLY.
 2. EXPANSION JOINTS TO BE A MINIMUM DEPTH OF 1/4" THE WALKWAY THICKNESS.

CONCRETE WALKWAY DETAIL

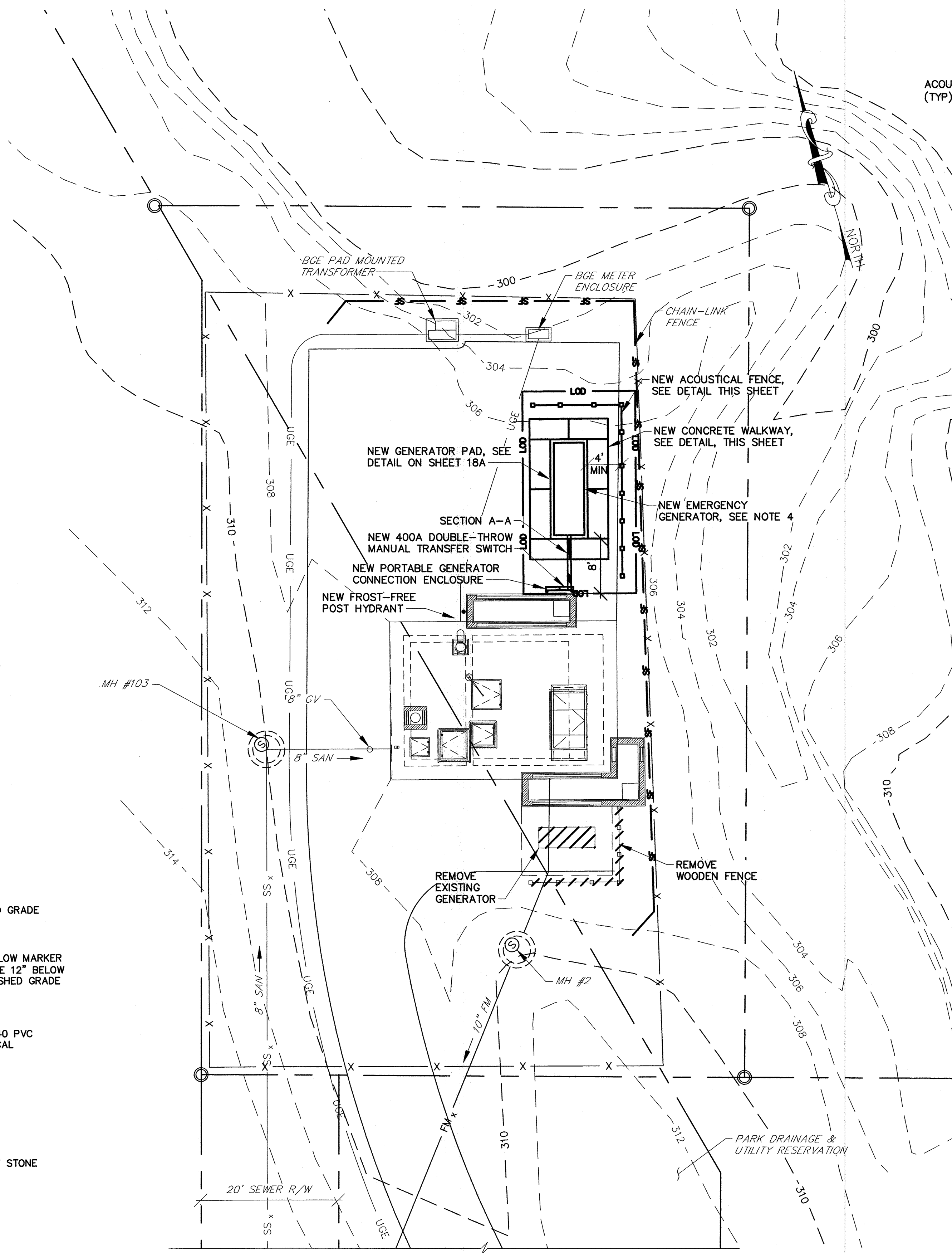
NTS



- NOTE:
1. REPAIR PAVEMENT ABOVE DUCTBANK IN ACCORDANCE WITH DETAIL G-4.01-UTILITY TRENCH ROADWAY REPAVING, HOWARD COUNTY DESIGN MANUAL, VOLUME IV.

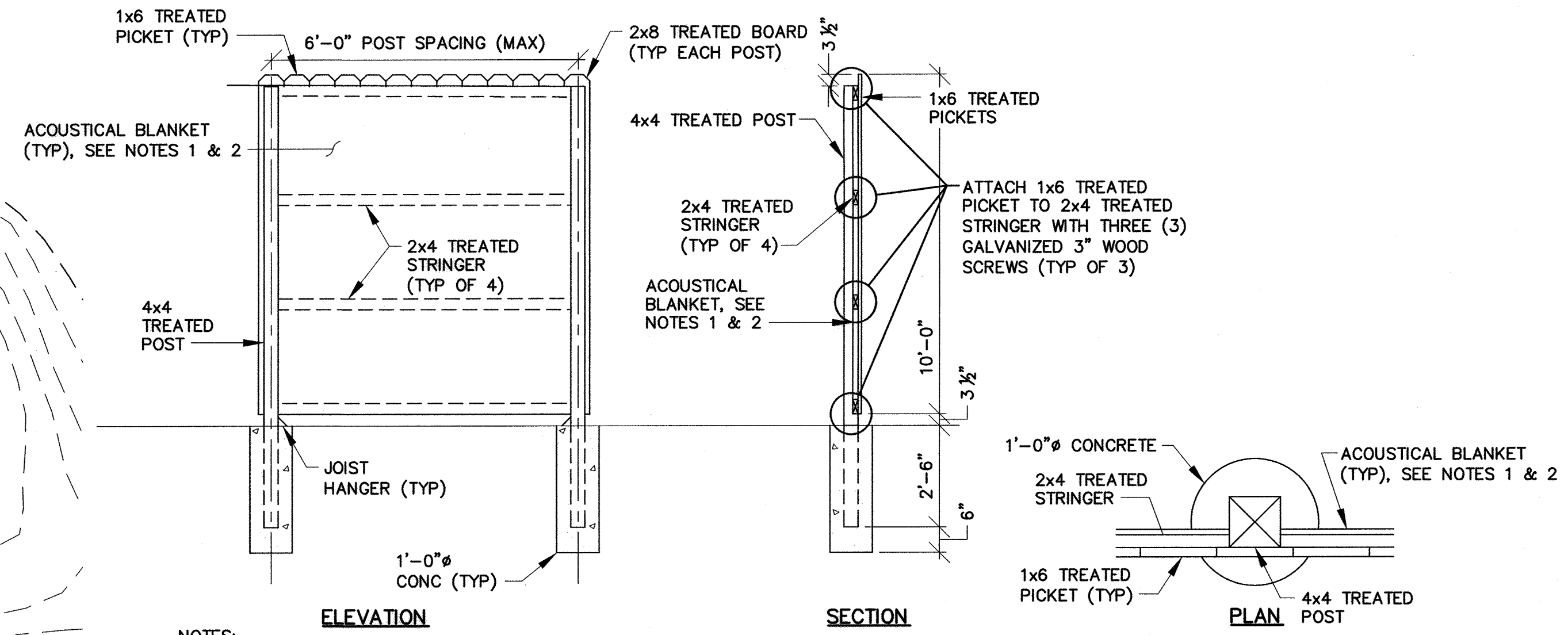
TYPICAL CONCRETE ENCASED DUCTBANK DETAIL

NTS



SITE IMPROVEMENT PLAN

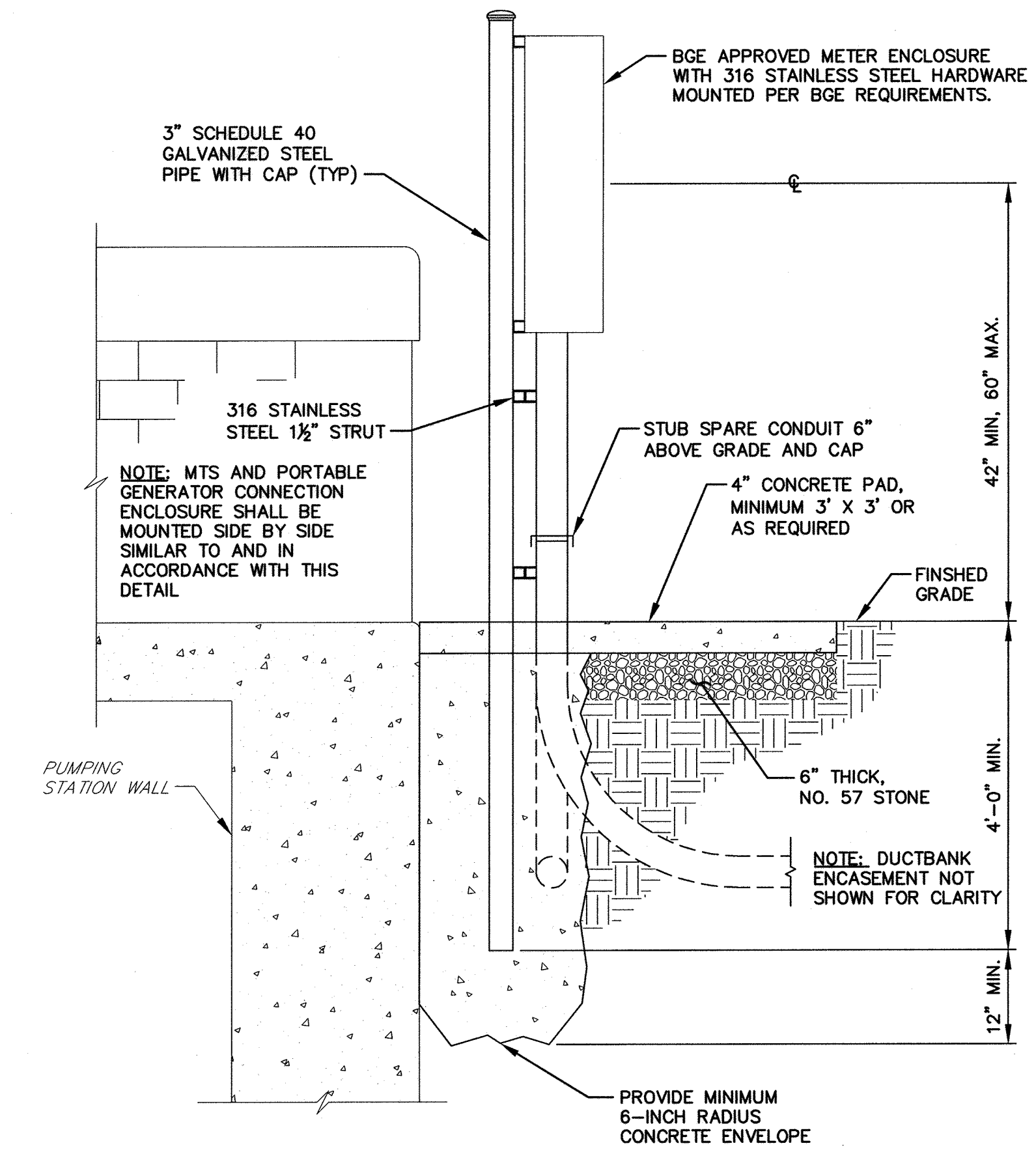
SCALE: 1"=10'



- NOTES:
1. ACOUSTICAL BLANKETS SHALL BE ABC-13EXT AUDIOSEAL EXTERIOR SOUND BLANKET, AS MANUFACTURED BY ACOUSTICAL SOLUTIONS, INC., OR APPROVED EQUAL.
 2. ACOUSTICAL BLANKETS SHALL BE ATTACHED TO THE FENCE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ACOUSTICAL WOODEN FENCE DETAIL

NTS



ENCLOSURE/SWITCH MOUNTING DETAIL

NTS



RK21315 - K:\Projects\2012\12154_H66080A\Task 9 - Miscellaneous Pumping Stations\Patapsco Park PS\Cadd\Plans\Proposed\12154MPS-012A-GP-12A.dwg Apr 02, 2019 - 1:09pm Plot Scale: 1:1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

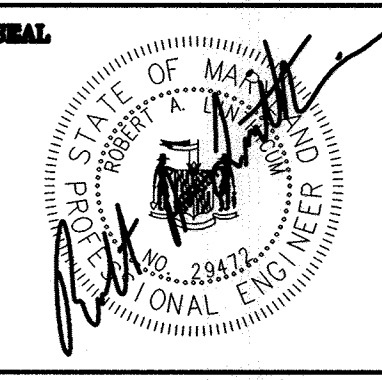
Randy De... 4/19
 DIRECTOR OF PUBLIC WORKS DATE
... 4-5-19
 CHIEF, BUREAU OF UTILITIES DATE
Thomas B. Butler 4/19
 CHIEF, BUREAU OF ENGINEERING DATE
... 4/19
 CHIEF, UTILITY DIVISION DATE

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LICENSE NO. 29472 EXPIRATION DATE 9/15/2019

RK&K 700 EAST PRATT STREET SUITE 500 BALTIMORE, MARYLAND 21202



DES:	DAO				
DRN:	NAP				
CHK:	RAL				
DATE:	4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 12A	4/19	
BY:	NO.		REVISIONS	DATE	

PATAPSCO PARK SPS
SITE DEVELOPMENT PLAN -
2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 12A OF 25

DESIGN CRITERIA

- STRUCTURAL DESIGN SHALL BE IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE FOLLOWING CODE, STANDARDS AND SPECIFICATIONS:
 - INTERNATIONAL BUILDING CODE (IBC) 2015
 - ASCE 7-10 MIN. DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
 - ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
 - ACI 350-06 CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES.
 - ACI 530-13 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
 - ASCE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, A.S.D., 14TH EDITION
 - AWS D1.1 "STRUCTURAL WELDING CODE - STEEL"
 - AWS D1.6 "STRUCTURAL WELDING CODE - STAINLESS STEEL"

EXISTING CONSTRUCTION

- ALL MEMBER SIZES AND DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES SHOWN ON THE DRAWINGS ARE OBTAINED FROM AVAILABLE SOURCES, AND ARE NOT GUARANTEED TO BE TRUE AND EXACT. THE CONTRACTOR SHALL VERIFY THESE DIMENSIONS AND ELEVATIONS BY ACTUAL FIELD MEASUREMENTS PRIOR TO FABRICATION OF ANY MATERIALS AND START OF WORK, AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING, SUPPORT, NEEDLING AND BRACING AS REQUIRED TO SUPPORT THE EXISTING STRUCTURE. THE CONTRACTOR SHALL EXAMINE THE EXISTING STRUCTURE TO DETERMINE THE EXTENT OF THE NECESSARY SHORING/NEEDLING. THE CAPACITY AND METHOD FOR SHORING AND NEEDLING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

DEMOLITION

- REMOVE EXISTING CONSTRUCTION AS SHOWN ON 2018 UPGRADE PLANS. SEE PLANS, SECTIONS, AND DETAILS FOR EXTENT OF STRUCTURE TO BE REMOVED.
- EXISTING STRUCTURAL FRAMING SHALL REMAIN UNLESS SPECIFICALLY NOTED ON PLAN TO BE REMOVED.
- IF FIELD CONDITIONS DIFFER FROM THOSE SHOWN ON DRAWINGS, NOTIFY ENGINEER BEFORE PROCEEDING.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE EXISTING BUILDING DURING THE COURSE OF CONSTRUCTION AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY AREAS WHERE THE STRUCTURE EXHIBITS DISTRESS OR FAILURE.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO SATISFY HIMSELF AS TO THE LOCATION OF ANY UTILITIES IN THE IMMEDIATE VICINITY OF CONSTRUCTION SO AS TO PREVENT DAMAGE TO THEM. SHOULD ANY DAMAGE TO SUCH UTILITIES OCCUR, THE CONTRACTOR SHALL BE REQUIRED TO REPAIR SUCH DAMAGE AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER.

MASONRY

- DESIGN CRITERIA: ACI 530-13/ASCE 5-13
- CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON THE NET AREA AND SHALL CONFORM TO THE LATEST EDITION OF ASTM C90.
- TYPE "M" MORTAR SHALL BE USED FOR ALL BELOW GRADE MASONRY CONSTRUCTION. TYPE "S" ABOVE GRADE.
- GROUT: ASTM C476, MIN. 3,000 PSI @ 28 DAYS, 3/8" AGGREGATE MAX., 8"-10" SLUMP.
- REINFORCEMENT:
 - HORIZONTAL JOINTS: STD. DUR-O-WALL @ 16" OC, USE PREFABRICATED CORNERS AND TEES @ WALL INTERSECTIONS, OVERLAP DISCONTINUED ENDS AND EXTEND INTO COLUMNS 6" MIN.
 - VERTICAL AND HORIZONTAL REINFORCEMENT: ASTM 615, GRADE 60, EPOXY COATED, PROVIDE MIN. #4 BARS TYP @ WALL INTERSECTIONS, EACH SIDE OF OPENINGS, AND @ WALL ENDS, HOOK TOP OF ALL DISCONTINUED BARS, LAP CONT. REINF 48 BAR DIA. UNO.
 - USE BAR SPACERS IN EVERY 4TH COURSE WHERE CELLS ARE TO BE GROUDED.
- PROVIDE CLEANOUT OPENINGS FOR EACH GROUDED CELL.
- ALL BRICK SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI ON THE NET AREA AND CONFORM TO ASTM C62.

CAST-IN-PLACE REINFORCED CONCRETE

- ALL CONCRETE WORK SHALL CONFORM TO ACI-350-06 CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES.
- MINIMUM 28 DAY COMPRESSIVE STRENGTH, MAX WATER TO CEMENTITIOUS MATERIAL RATIOS & AGGREGATE SIZE:
 - PADS & SLABS: 4,500 PSI, NORMAL WEIGHT, W/C=0.42, #57 AGGREGATE, UNLESS OTHERWISE NOTED.
 - SLUMP 3" MAX FOR CONCRETE PADS, UNLESS OTHERWISE NOTED.
- REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60, EPOXY COATED.
- CHAMFER ALL EDGES OF BEAMS, COLUMNS, HAUNCHES, WALLS EQUIPMENT PADS AND SLABS EXPOSED TO VIEW 3/4" UNLESS OTHERWISE NOTED.
- ALL GROUT SHALL BE NON-SHRINK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.

REINFORCEMENT

- ALL DEVELOPMENT AND SPLICES OF REINFORCEMENT SHALL CONFORM TO THE PROVISIONS OF ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-LATEST EDITION).
- REINFORCING STEEL SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO CURRENT REQUIREMENTS OF ASTM A615 GRADE 60, EPOXY COATED EXCEPT TIES MAY BE GRADE 40. ALL HOOKS SHALL BE STANDARD HOOKS, UNLESS OTHERWISE NOTED.
- REINFORCING BAR SUPPORTS AND SPACERS SHALL CONFORM TO ACI 315-(LATEST EDITION) DETAILING MANUAL.
- SHOP DRAWINGS SHOWING ALL NECESSARY SECTIONS AND DETAILS FOR THE PROPER POSITIONING OF ALL REINFORCING STEEL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE FABRICATION OR PLACEMENT OF THE STEEL.
- ALL REINFORCEMENT SHALL HAVE 3" COVER UNLESS OTHERWISE NOTED.

BRICK/CMU WALL REPAIR

- REMOVE AND REPLACE BRICK/CMU WHICH IS CHIPPED, BROKEN, OR OTHERWISE DAMAGED TO MATCH EXISTING SIZE AND COLOR. RE-POINT LOOSE BRICK/CMU.
- WET THE BRICK UNITS AS NECESSARY TO PROVIDE A BETTER BONDING BETWEEN BRICK AND MORTAR PRIOR TO INSTALLATION. DO NOT WET CONCRETE MASONRY UNITS.
- FOR BRICK/CMU INSTALLATION, ALL JOINTS BETWEEN BRICK/CMU SHALL BE COMPLETELY FILLED WITH MORTAR. BED JOINT SHALL BE FORMED OF A THICK LAYER OF SMOOTH OR SLIGHTLY FURROWED MORTAR, APPLIED TO THE UNITS PREVIOUSLY LAID WITH BRICK/CMU, THEN SHOVE IN PLACE. CROSS JOINTS SHALL BE FORMED BY APPLYING TO THE BRICK/CMU TO BE LAID. A FULL COAT OF MORTAR ON THE ENTIRE END OR THE ENTIRE SIDE AND THEN SHOVING COVERED END AND/OR SIDE OF THE BRICK/CMU TIGHTLY AGAINST THE BRICK/CMU PREVIOUSLY LAID.
- AT THE AREAS WITH DEFECTIVE JOINTS AND/OR LOOSE MORTAR FROM THE JOINTS BETWEEN BRICK/CMU, COURSES MAY BE REPAIRED BY RE-POINTING OR TUCK POINTING WITH FILLING IN WITH FRESH MORTAR.
- CLEANING OF BRICK/CMU UNITS SHALL BE PER MANUFACTURER AND/OR ENGINEER'S RECOMMENDATIONS AND SHALL COMPLY WITH NOMA REQUIREMENTS.
- USE MORTAR AS PER ASTM C270 REQUIREMENTS.

STRUCTURAL STEEL

- ALL STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS FOR THE DESIGN FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
 - STRUCTURAL STEEL W-SHAPES: A992 HAVING A MINIMUM YIELD STRENGTH OF 50 KSI.
 - STRUCTURAL STEEL ANGLES: A36 HAVING A MINIMUM YIELD STRENGTH OF 36 KSI.
 - SQUARE AND RECTANGULAR TUBING: A500, GRADE B HAVING MINIMUM YIELD STRENGTH OF 46 KSI.
 - ROUND PIPE: A53, GRADE B HAVING A MINIMUM YIELD STRENGTH OF 35 KSI.
- APPROVAL OF THE ENGINEER SHALL BE MANDATORY FOR THE USE OF CUTTING TORCH IN THE FIELD.
- ALL GROUT UNDER STEEL PLATES (INTELS) SHALL BE NON-SHRINK "PRE-MIX" TYPE AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI, UNLESS OTHERWISE NOTED.
- STRUCTURAL STEEL SHALL BE INSPECTED IN THE FIELD BY AN INDEPENDENT TESTING AGENCY APPROVED BY THE ENGINEER AND PAID FOR BY THE CONTRACTOR.

ALUMINUM STRUCTURAL SHAPES

- ALUMINUM STRUCTURAL SHAPES SHALL BE ASTM B-308, 6061T6.
- ALLOWABLE TOLERANCES FOR MILLED ALUMINUM STANDARD STRUCTURAL SHAPES SHALL BE IN ACCORDANCE WITH ANSI H35.2. COMPLY WITH THE ALUMINUM DESIGN MANUAL (ADM-1) LATEST EDITION.
- ALUMINUM SURFACES IN CONTACT WITH CONCRETE AND ANY OTHER MATERIAL SHALL BE GIVEN A HEAVY COAT OF ALKALI RESISTANT BITUMINOUS PAINT OR OTHER COATING PROVIDING EQUIVALENT PROTECTION BEFORE INSTALLATION.

MISCELLANEOUS

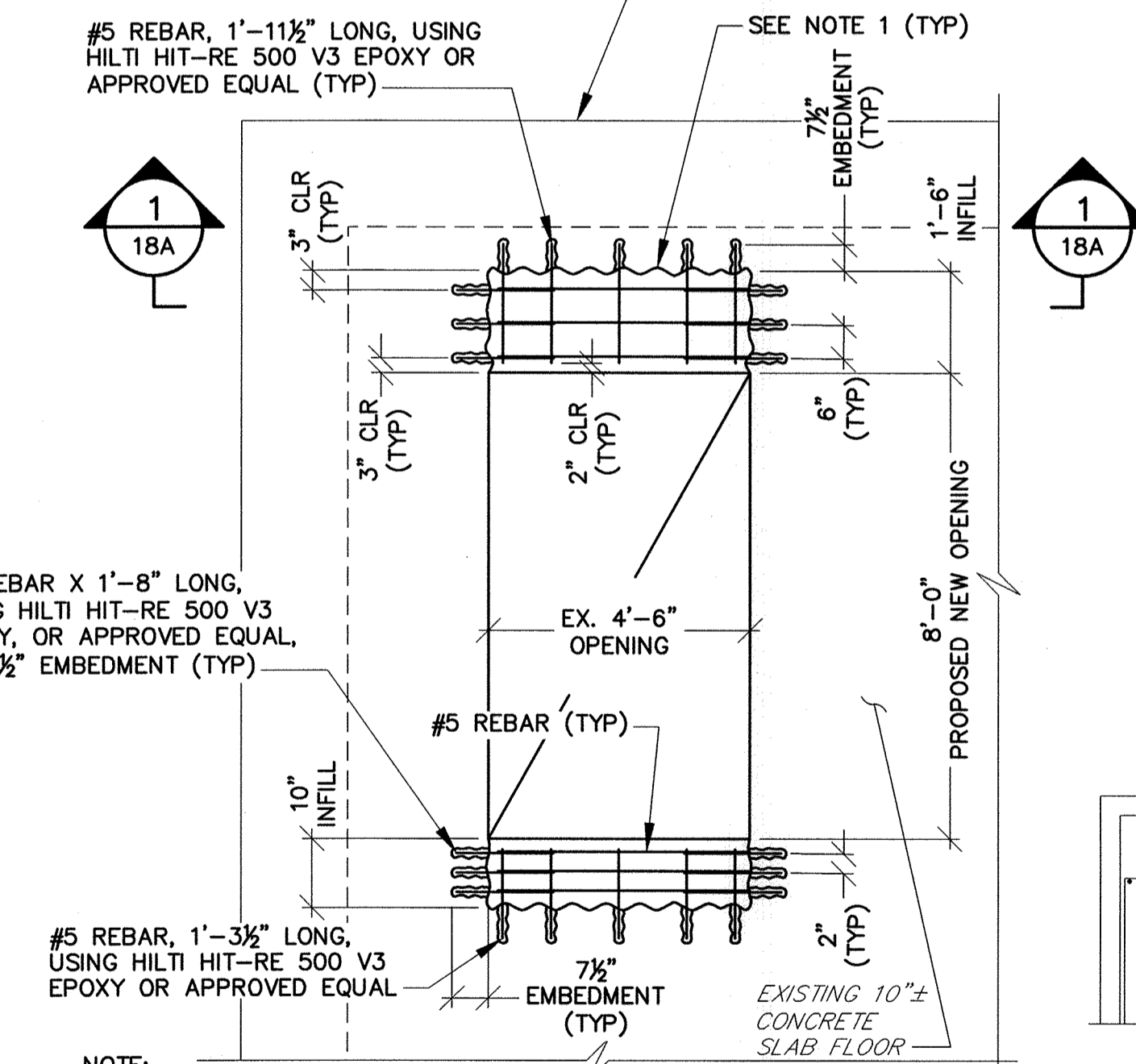
- ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TRANSPORTATION INTACT OF ALL DEMOLISHED EQUIPMENT.
- ALL OPENINGS THRU CONCRETE SHALL BE WATERTIGHT.
- CONTRACTOR SHALL COORDINATE ALL REQUIRED OPENINGS WITH IMPROVEMENT DRAWINGS.
- CONTRACTOR SHALL COORDINATE FINAL SIZES AND LOCATIONS OF ALL OPENINGS WITH THE ACTUAL FIELD.

SPECIAL INSPECTION

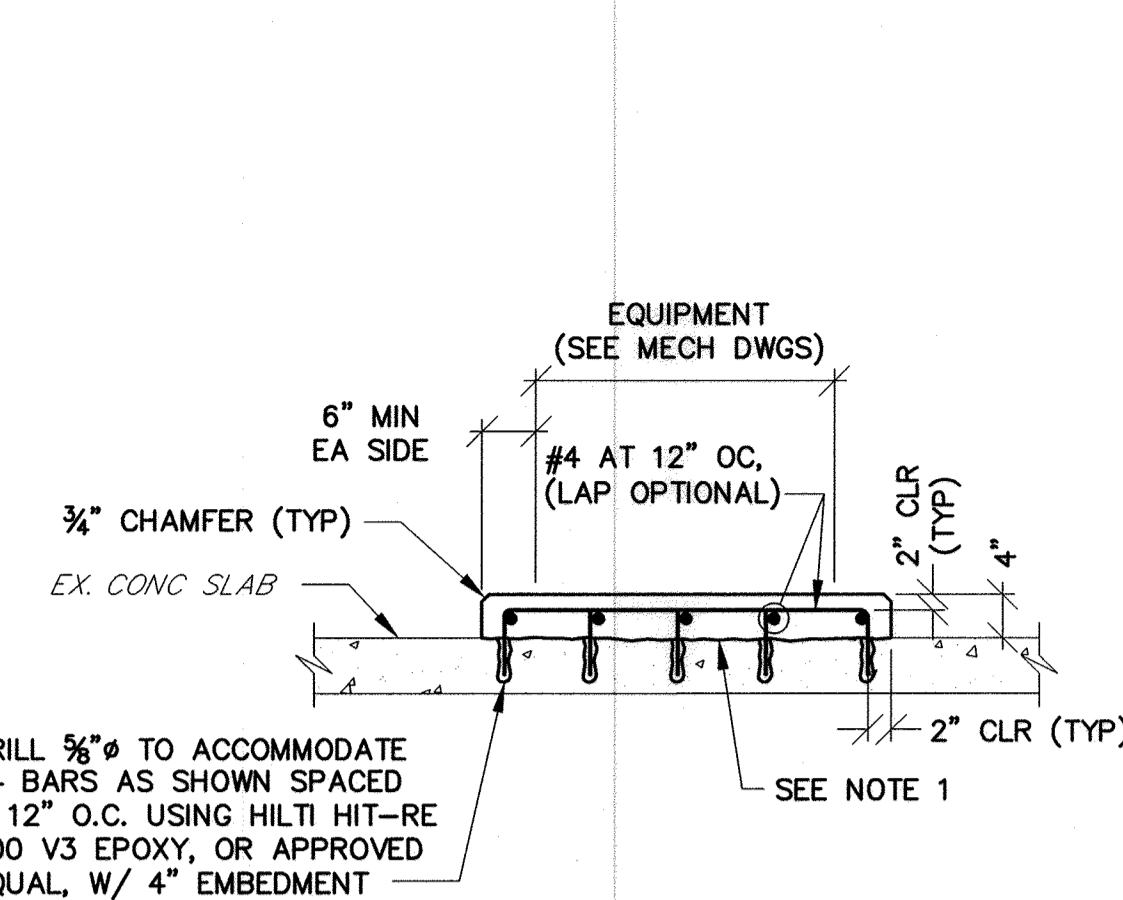
- SPECIAL INSPECTIONS IBC 1704.2
- STEEL CONSTRUCTION IBC 1705.2
- CONCRETE CONSTRUCTION IBC 1705.3
- MASONRY CONSTRUCTION IBC 1705.4

STAINLESS STEEL SPECIFICATIONS

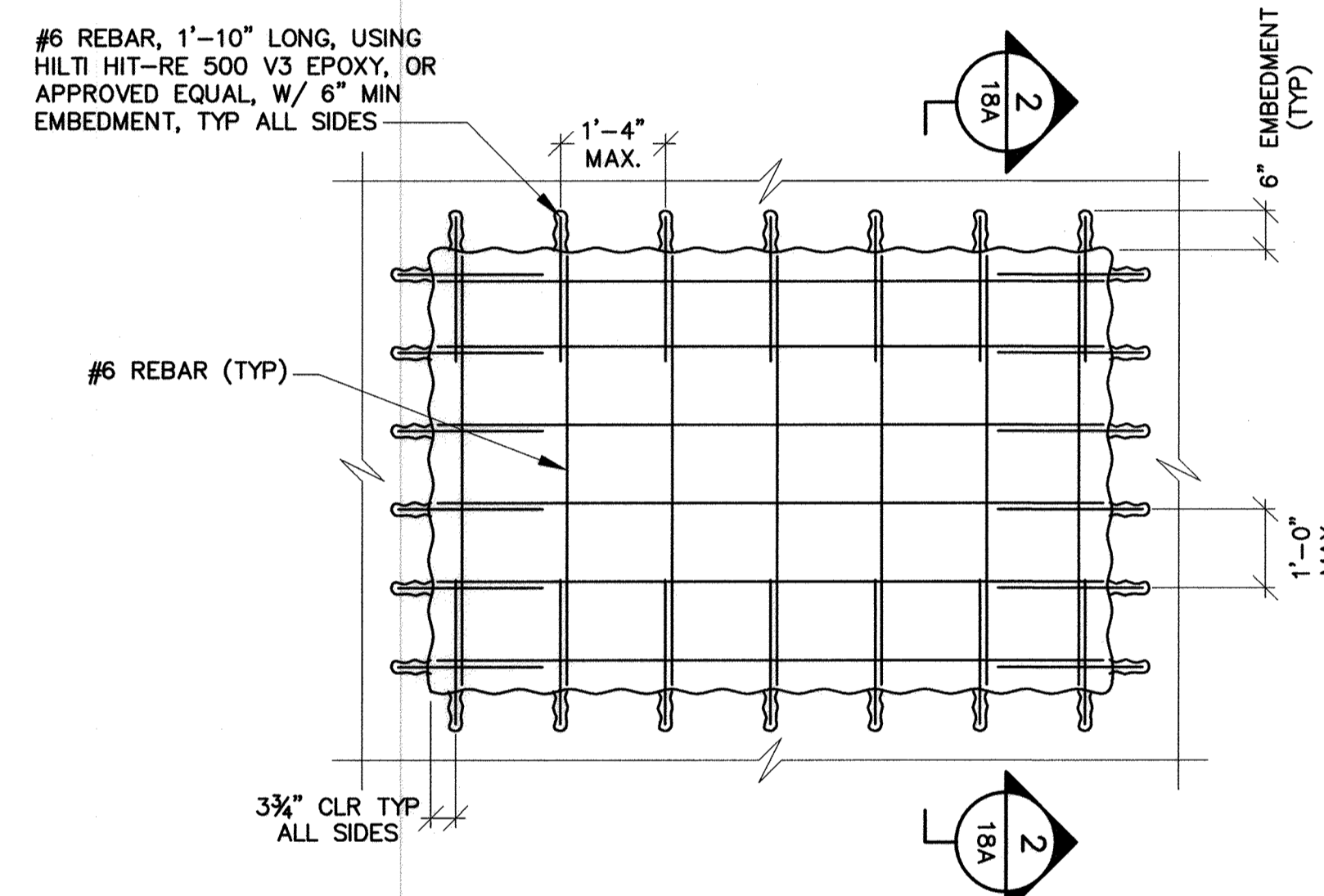
- ALL STRUCTURAL STEEL SHALL BE AS FOLLOWS:
 - STRUCTURAL STEEL SHAPES SHALL BE ASTM 276, TYPE 316L WITH A MINIMUM YIELD OF 42 KSI.
 - STAINLESS STEEL PLATES SHALL BE ASTM A666, TYPE 316L.
 - ALL BOLTS SHALL BE ASTM F593 STAINLESS STEEL TYPE 316, GRADE B8, ALL NUTS SHALL BE ASTM F594 STAINLESS STEEL GRADE B8, AND ALL WASHERS SHALL BE ASTM F352 STAINLESS STEEL.
- ALL STAINLESS STEEL SHALL BE #4 INDUSTRIAL FINISH.
- CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:
 - "AMERICAN WELDING SOCIETY" (AWS) D1.1 "STRUCTURAL" WELDING CODE - STEEL, LATEST EDITION.
 - AWS D1.6 "STRUCTURAL WELDING CODE - STAINLESS STEEL", LATEST EDITION



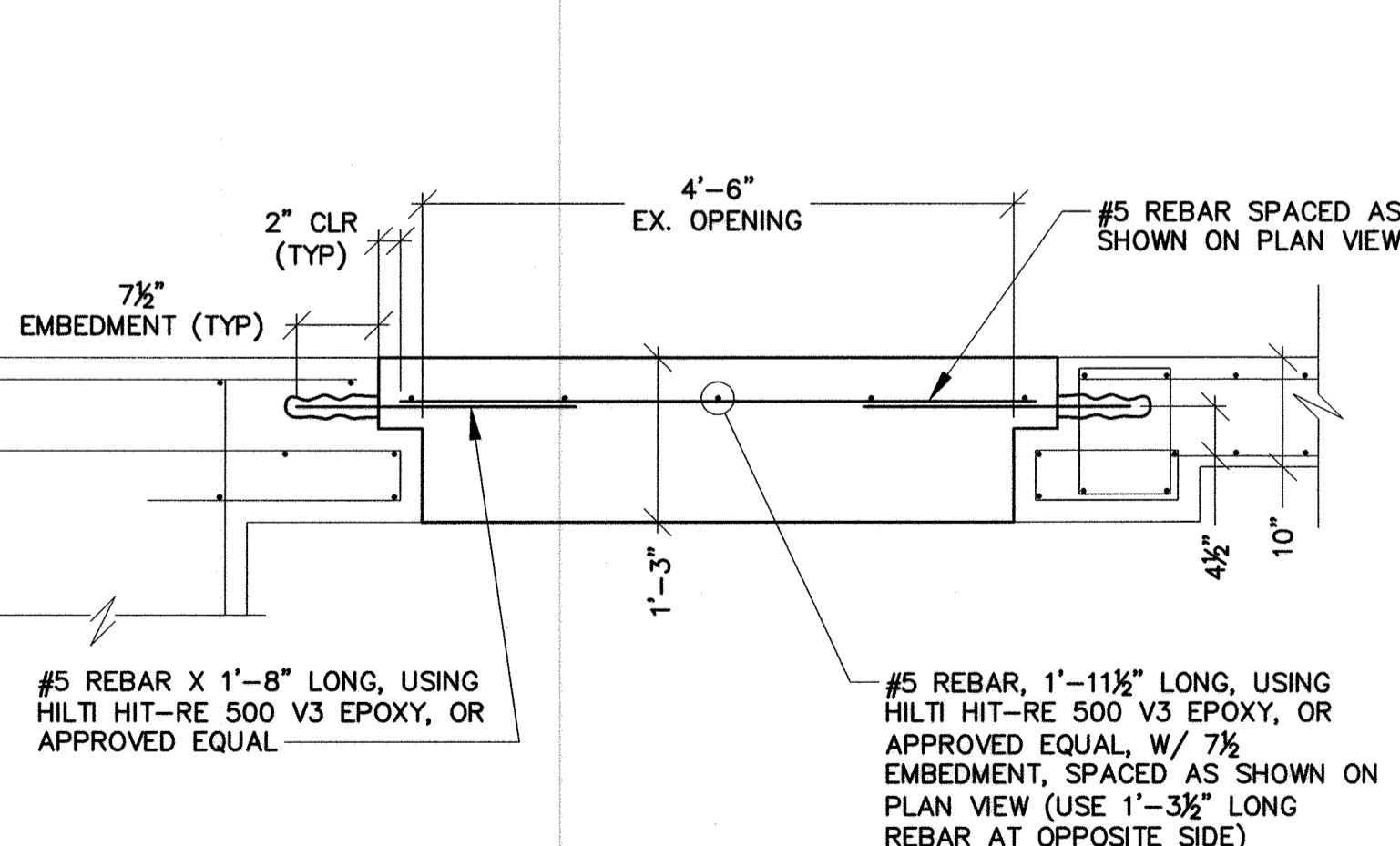
TOP SLAB OPENING MODIFICATION DETAIL



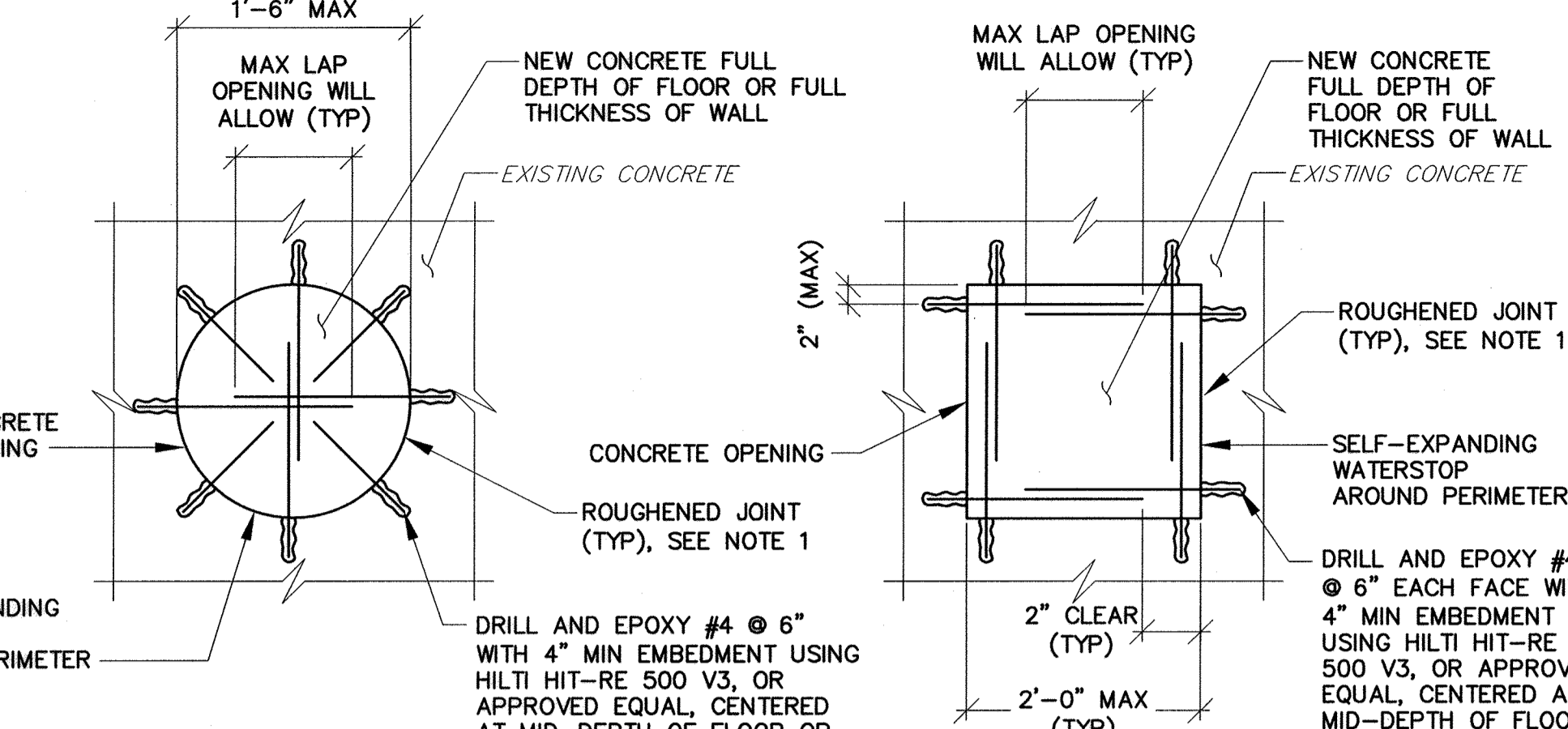
TYPICAL EQUIPMENT PAD DETAIL



CONCRETE WALL INFILL DETAIL



SECTION 1

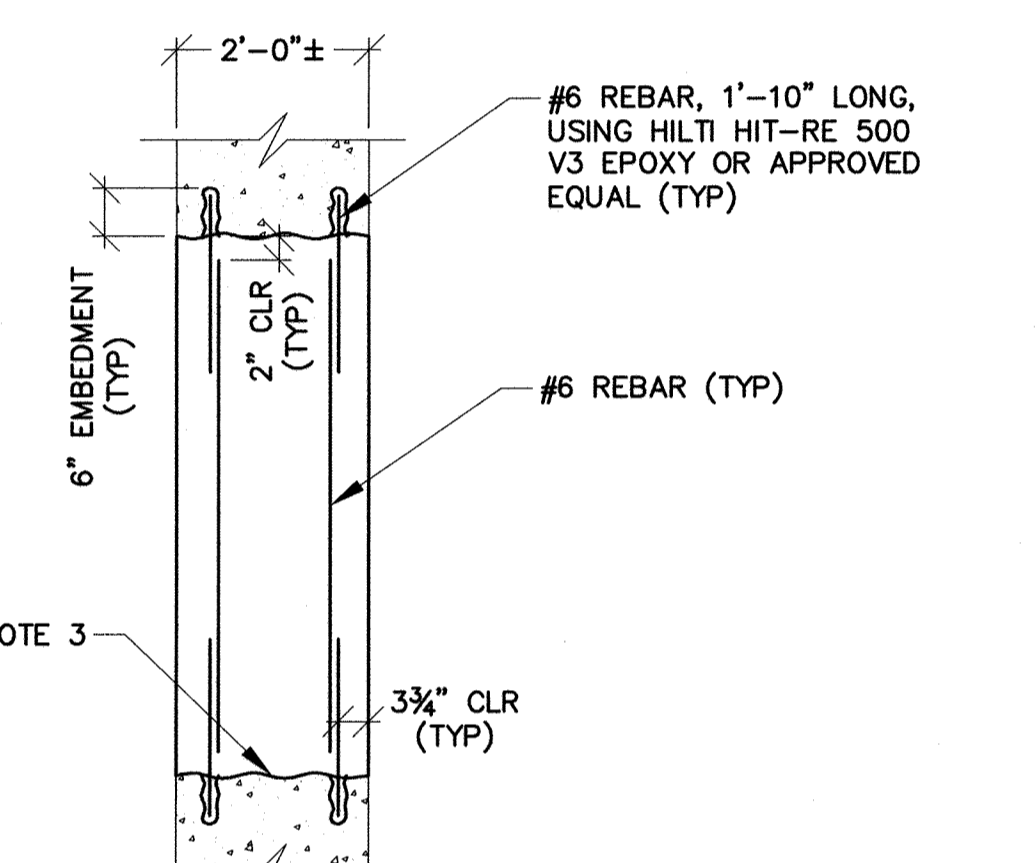


CIRCULAR PATCH

SQUARE/RECTANGULAR PATCH

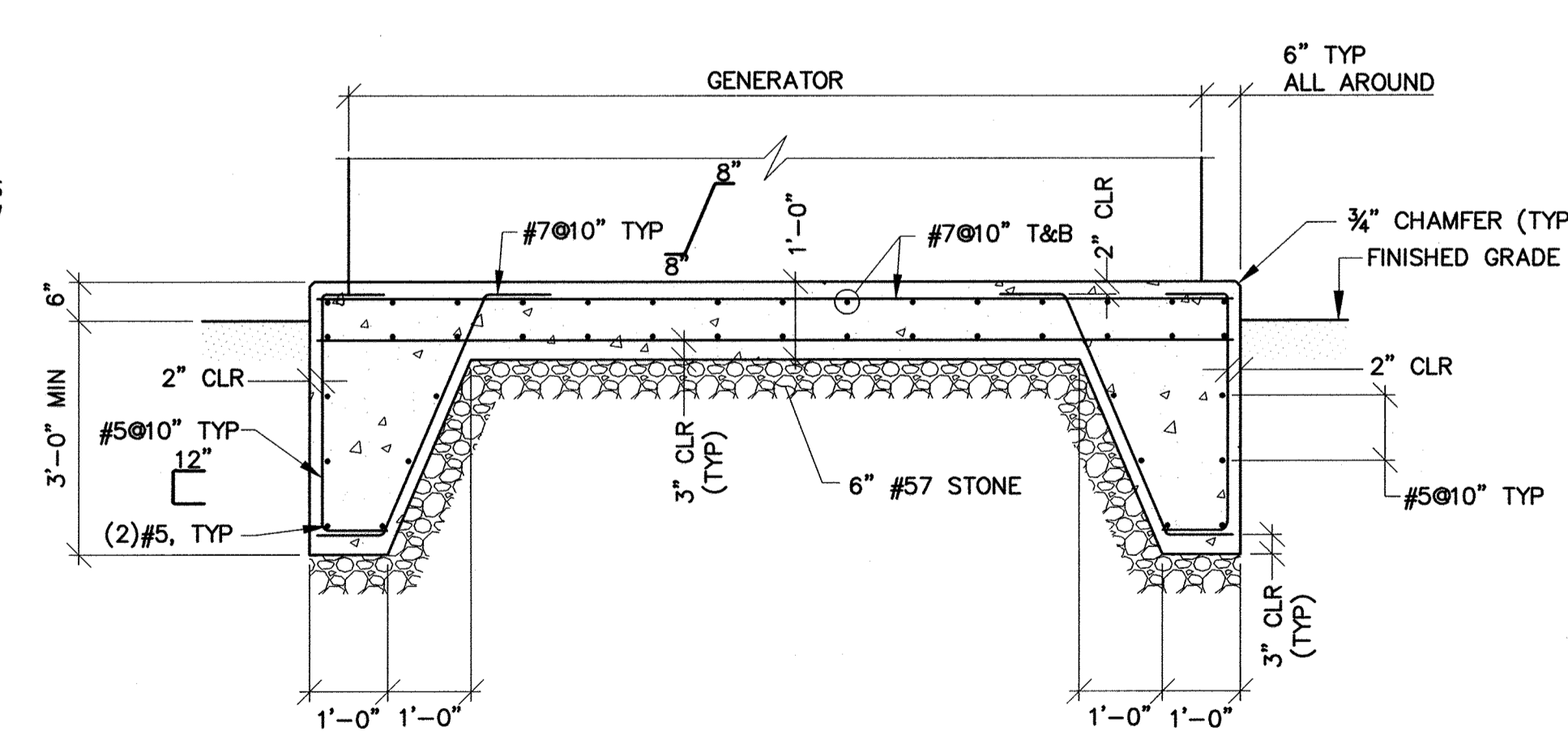
- SURFACE OF EXISTING CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO EXISTING CONCRETE. APPLY SIMPSON STRONG-TIE FX-752 EPOXY BONDING AGENT, OR APPROVED EQUAL, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EPOXY BONDING AGENT SHALL BE "SIKADUR 32, HI MOD" OR APPROVED EQUAL.
- COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 4,500 PSI AT 28 DAYS.

TYPICAL CONCRETE PATCH DETAIL



SECTION 2

- SEE MECH DWGS. FOR MORE INFORMATION.
- THIS SECTION WILL APPLY TO ENTIRE PERIMETER OF THE WALL OPENING TO BE INFILLED.
- SURFACE OF EXISTING CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO EXISTING CONCRETE. APPLY SIMPSON STRONG-TIE FX-752 EPOXY BONDING AGENT, OR APPROVED EQUAL, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



GENERATOR PAD DETAIL

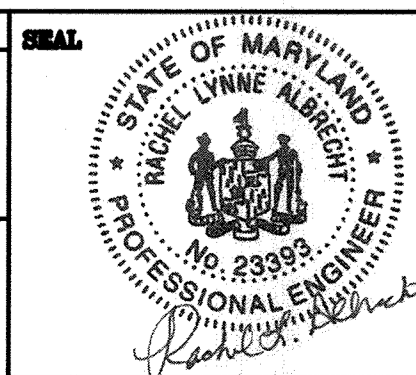
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signatures]
DIRECTOR OF PUBLIC WORKS DATE 4/5/19
CHIEF, BUREAU OF UTILITIES DATE 4/5/19
CHIEF, BUREAU OF ENGINEERING DATE 4/5/19
CHIEF, UTILITY DIVISION DATE 4/5/19

PROFESSIONAL CERTIFICATION

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LICENSE NO. 23393 EXPIRATION DATE 8/26/20

ALBRECHT ENGINEERING INC



DES: RCC					
DRN: NAF					
CHK: RLA					
DATE: 4/02/19					
RK&K	1	2019 UPGRADES - ADD SHEET 18A		4/19	
BY	NO.	REVISIONS		DATE	

STRUCTURAL DETAILS &
GENERAL NOTES
PATAPSCO PARK SPS -
2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S660
CONTRACT NO. 745-S

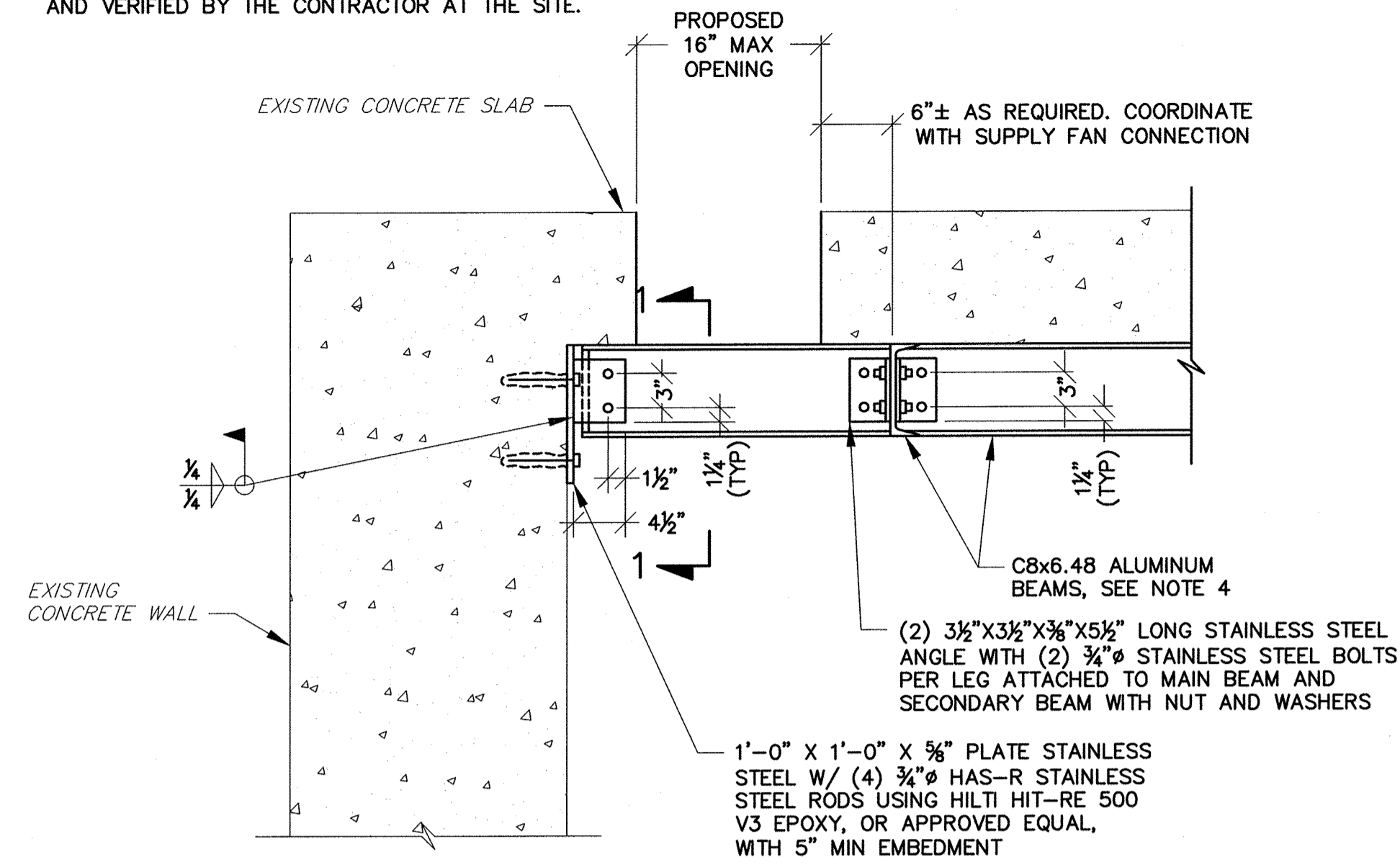
ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND

SCALE
NTS
SHEET
18A OF 25

NOTES:

1. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.

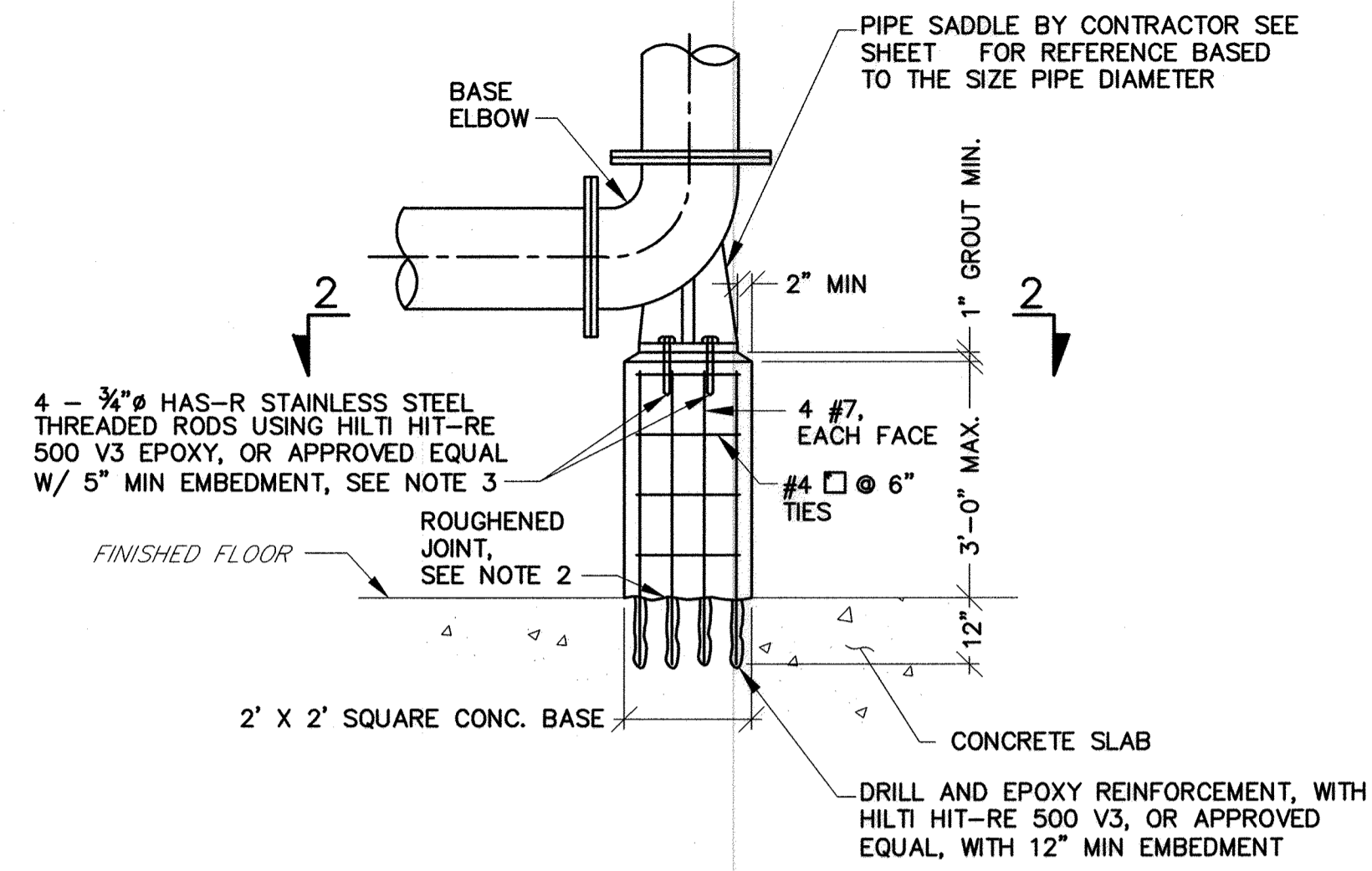


NOTES:

1. SEE TOP SLAB PLAN, SHEET 20D, FOR INSTALLATION LOCATION.
2. USE PLASTIC OR RUBBER WASHERS, SLEEVES, NEOPRENE PADS AND/OR BITUMINOUS PAINT, AS NECESSARY, TO CREATE A BARRIER BETWEEN DISSIMILAR METALS.
3. CONTRACTOR SHALL SHIM CBX6.48 ALUMINUM BEAM TIGHT TO BOTTOM OF CONCRETE SLAB WITH ALUMINUM SHIMS (AS REQUIRED). WELD SHIMS TO TOP FLANGE OF BEAM.
4. COPE FLANGES OF CBX6.48 ALUMINUM BEAM THAT RUNS IN THE NORTH/SOUTH DIRECTION AS REQUIRED TO MAKE CONNECTION TO CBX6.48 BEAM IN EAST/WEST DIRECTION.

WETWELL TOP SLAB OPENING SUPPORT BEAM DETAIL

SCALE: 1" = 1'-0"

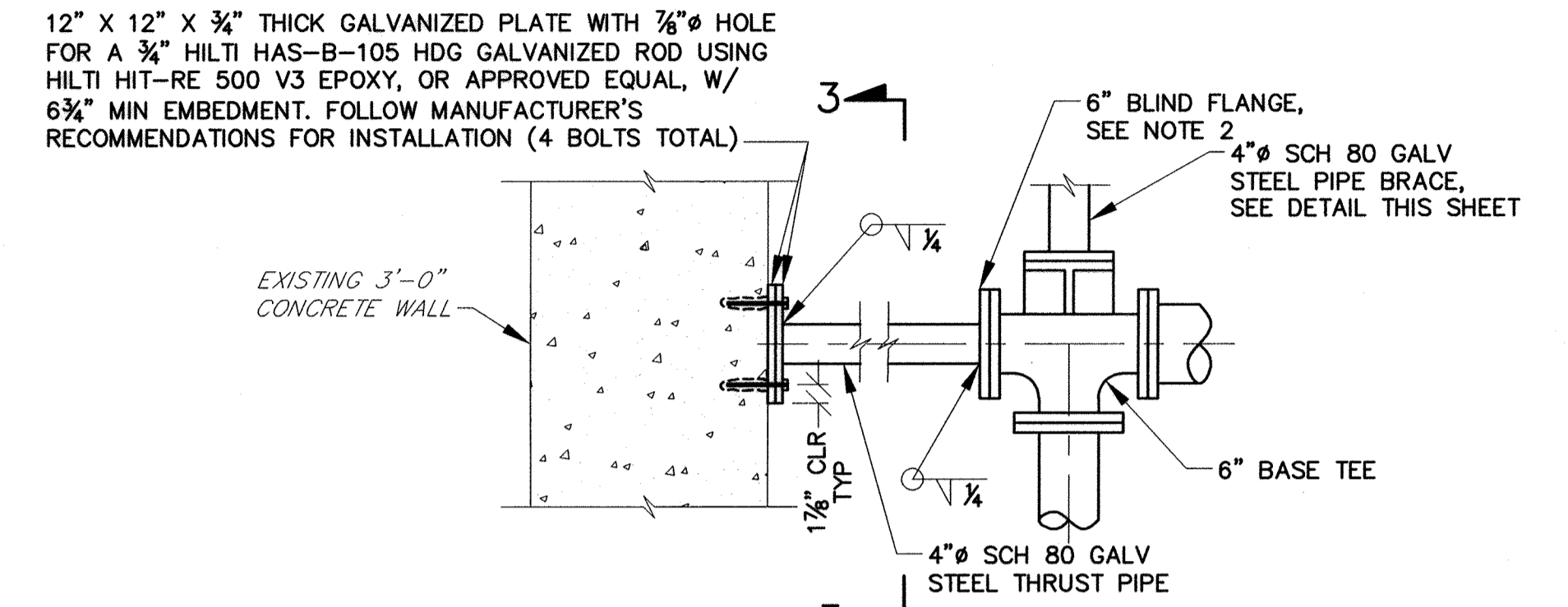


NOTES:

1. SEE SECTIONS ON SHEET 21B, FOR INSTALLATION LOCATIONS.
2. SURFACE OF EXISTING CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO EXISTING CONCRETE. APPLY BONDING COMPOUND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EPOXY BONDING AGENT SHALL BE "SIKADUR 32, HI-MOD", OR APPROVED EQUAL.
3. USE A NON-CONDUCTIVE PLASTIC WASHER AND SLEEVE TO FIT ON THE SHAFT OF THE ANCHOR, OR BITUMINOUS PAINT TO CREATE A BARRIER BETWEEN DISSIMILAR METALS.

BASE ELBOW SUPPORT DETAIL

NTS

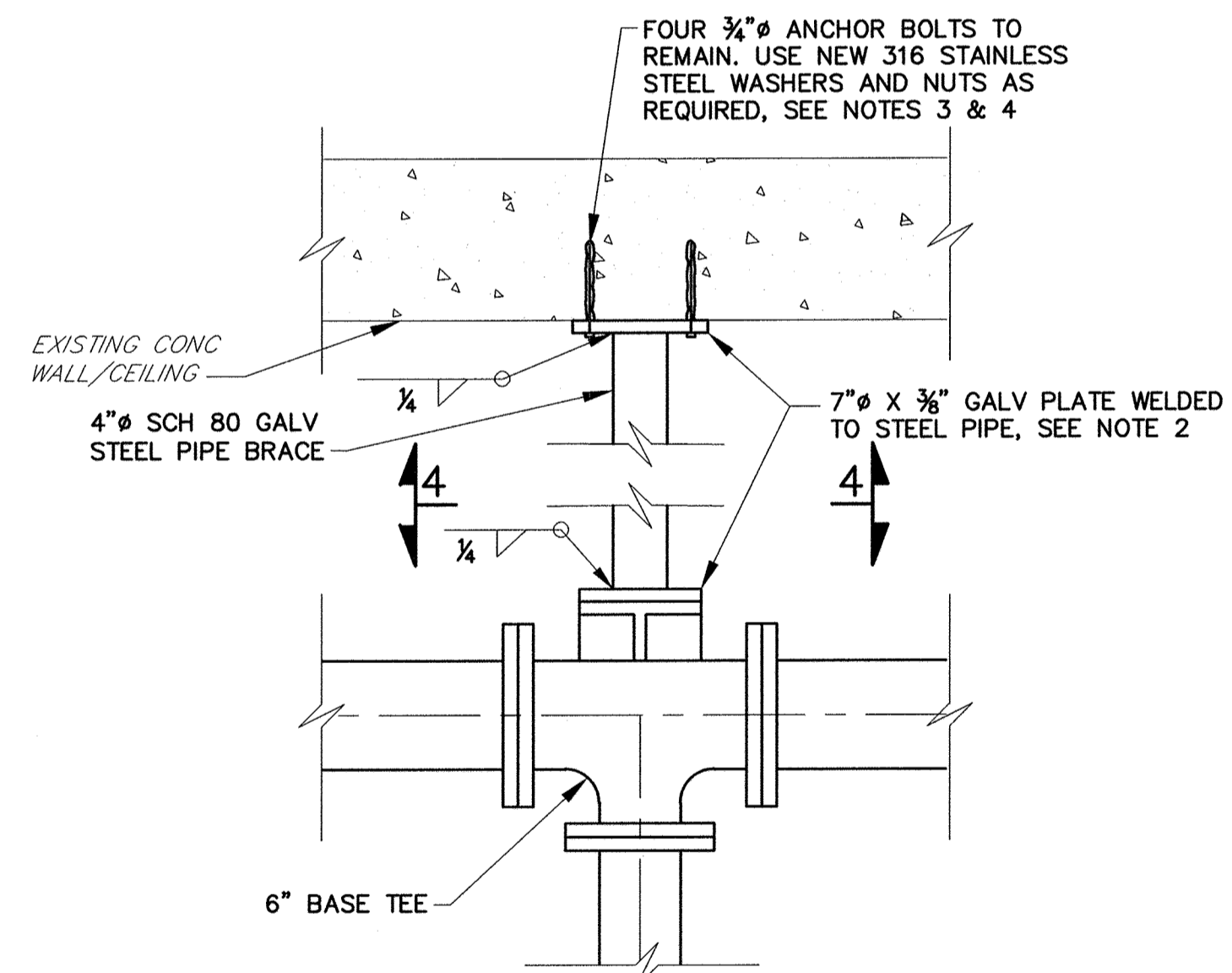


NOTES:

1. SEE SHEETS 20B & 21B FOR INSTALLATION LOCATIONS.
2. COORDINATE BOLT HOLE LOCATIONS WITH THE BASE FITTING PROVIDED.

4\"/>

NTS

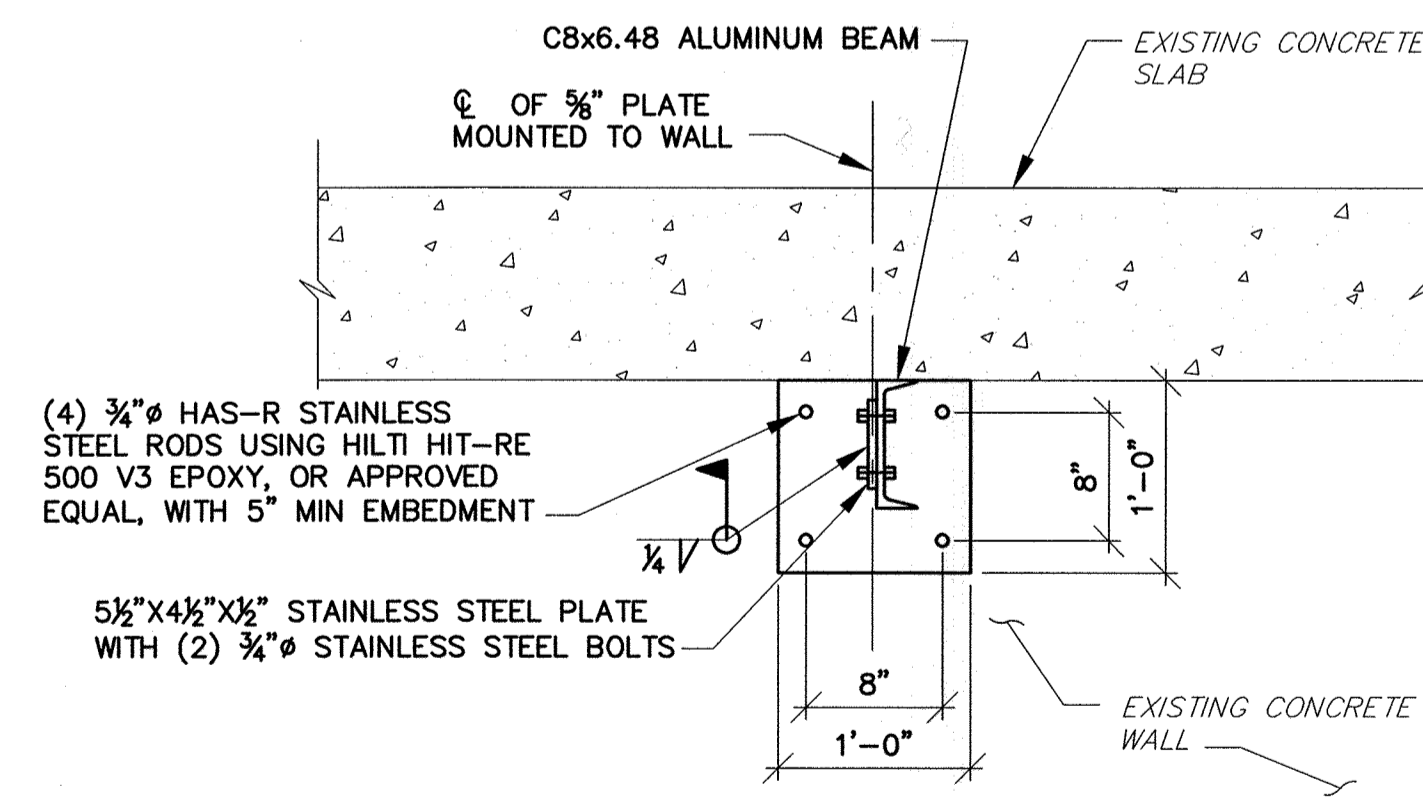


NOTES:

1. SEE SHEETS 20B & 21B FOR INSTALLATION LOCATIONS.
2. COORDINATE BOLT HOLE LOCATIONS WITH THE BASE FITTING PROVIDED.
3. USE PLASTIC OR RUBBER WASHERS, SLEEVES, NEOPRENE PADS AND/OR BITUMINOUS PAINT AS REQUIRED TO CREATE A BARRIER BETWEEN DISSIMILAR METALS.
4. REUSE EXISTING ANCHORS TO EXTENT POSSIBLE. IF EXISTING ANCHORS ARE IN POOR CONDITION OR DO NOT LINEUP WITH THE NEW PIPING, REFER TO SHEET 18B, SECTION 3 FOR NEW WALL/CEILING CONNECTION.

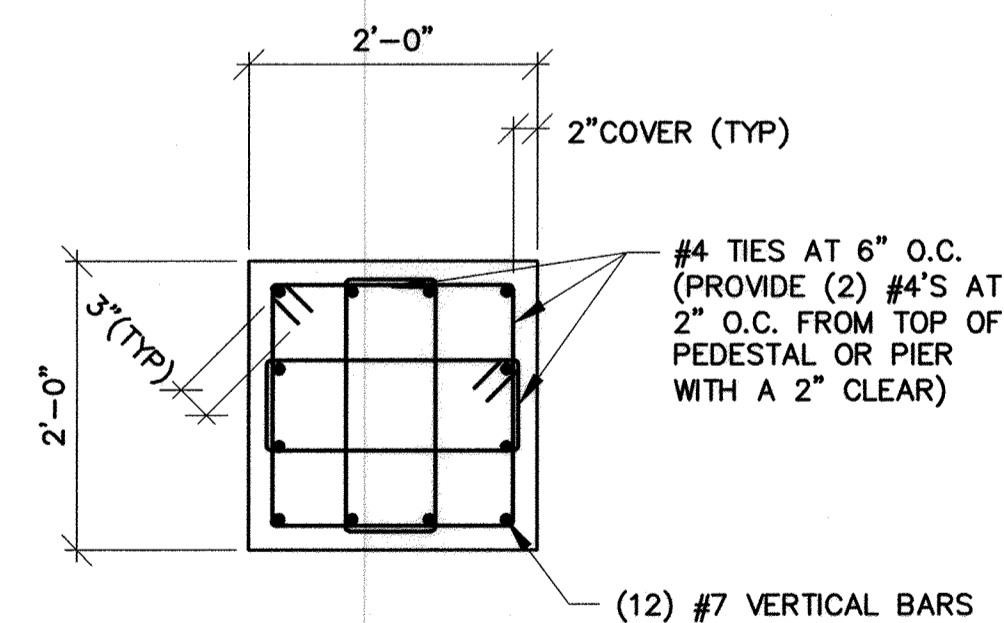
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SCALE: 1" = 1'-0"



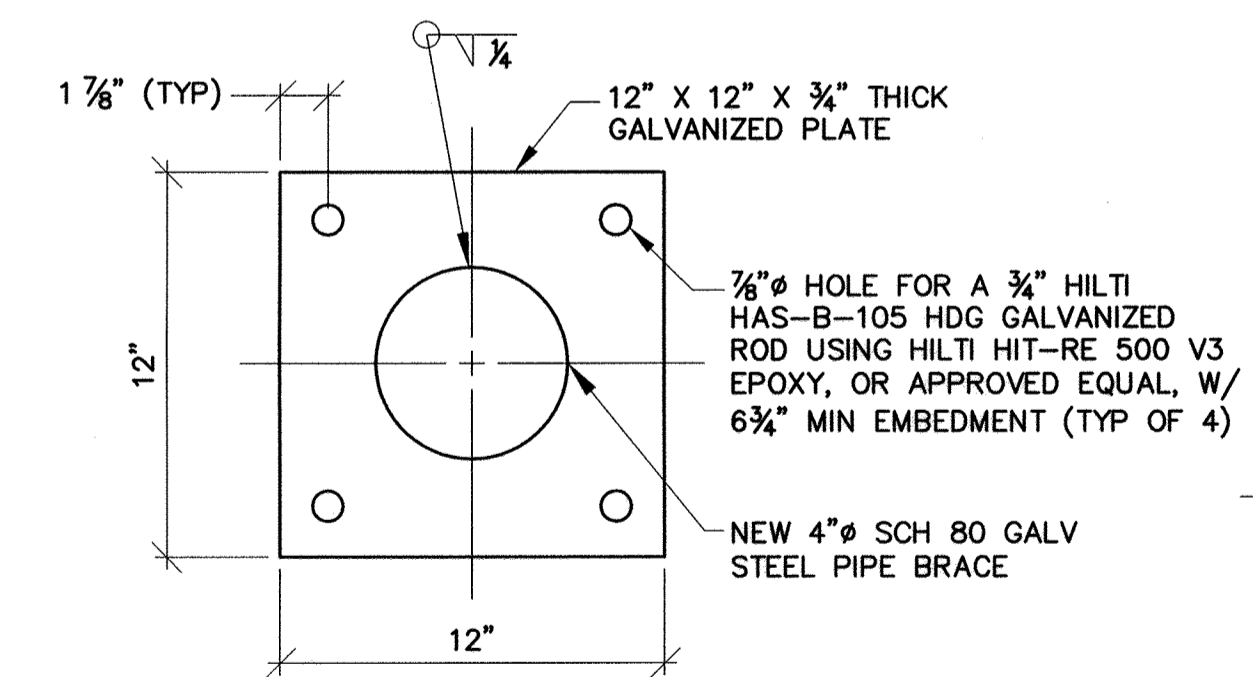
SECTION 1

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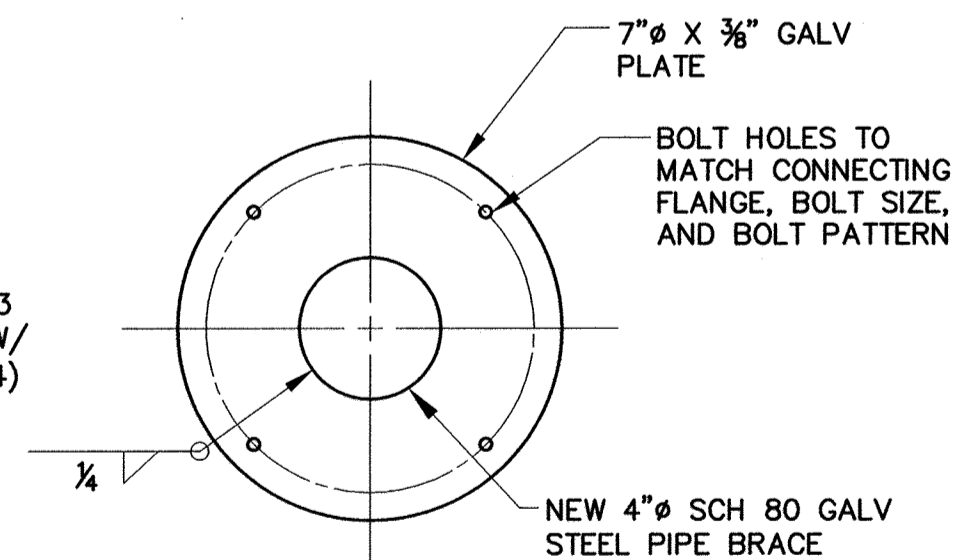
SECTION 2

NTS



SECTION 3

NTS



SECTION 4

NTS



R0421\S15 - K:\projects\2019\154_H6680A\Task 9 - Miscellaneous Pumping Stations\Patapsco Park_P5\Cadd\Plan\Proposed\154H6680S-18B.dwg Apr 12, 2019 - 11:09pm Plot Scale: 1:1

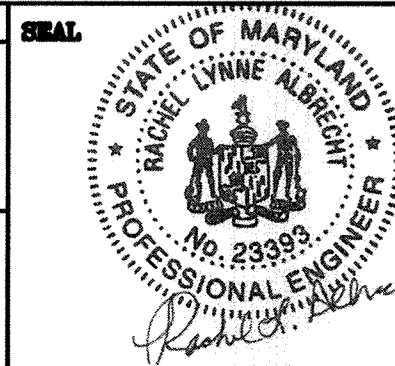
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 4/5/19
DIRECTOR PUBLIC WORKS DATE
[Signature] 4/5/19
CHIEF, BUREAU OF UTILITIES DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THE DESIGN REVISIONS INCLUDED IN 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. 23395 EXPIRATION DATE 9/25/20

ALBRECHT
ENGINEERING INC



DES: RCC			
DRN: NAP			
CHK: RLA			
DATE: 4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 18B	4/19
BY NO.		REVISIONS	DATE

STRUCTURAL DETAILS
PATAPSCO PARK SPS -
2019 UPGRADES

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

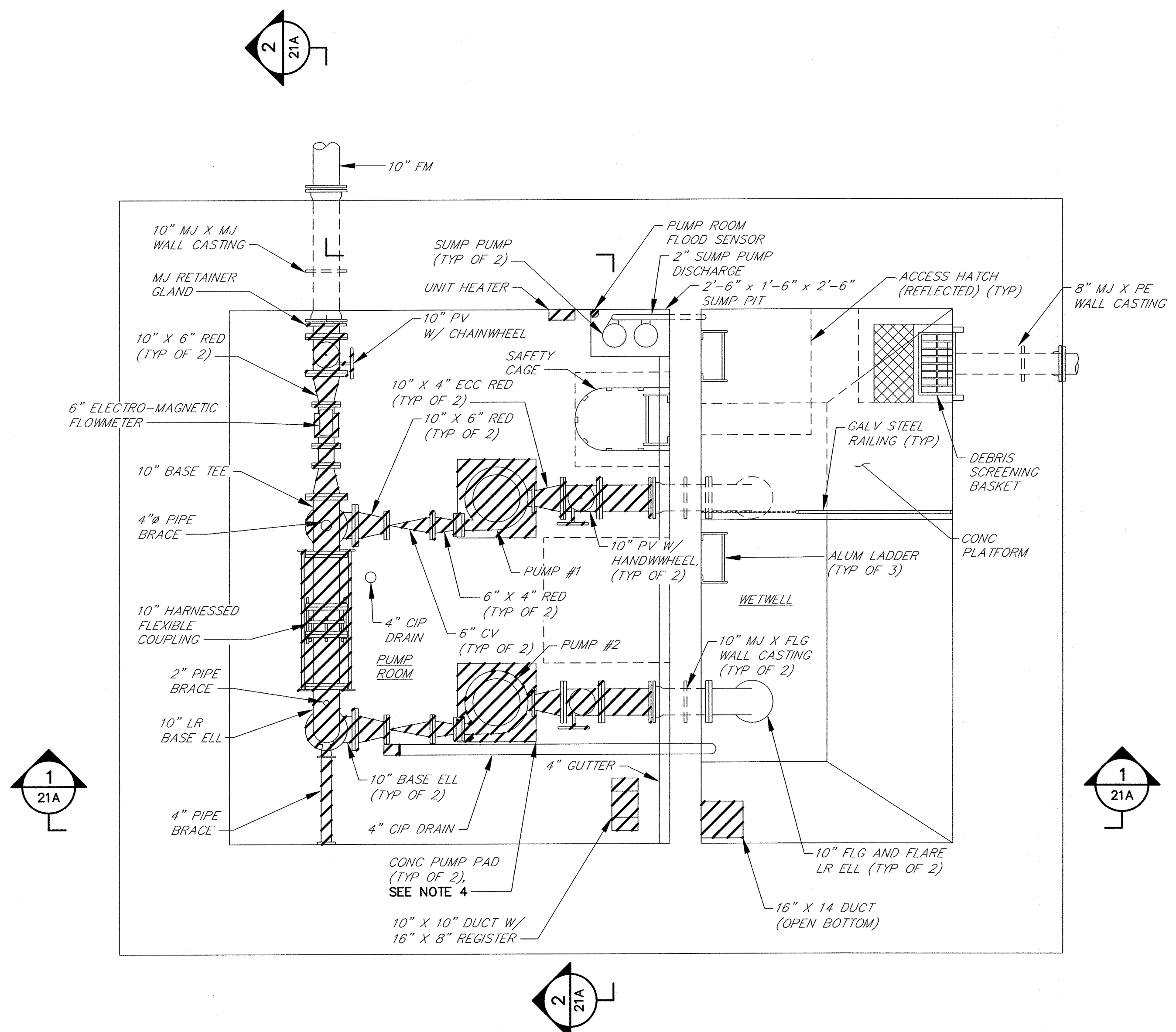
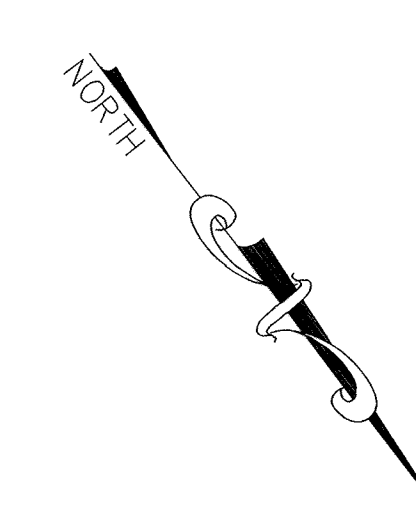
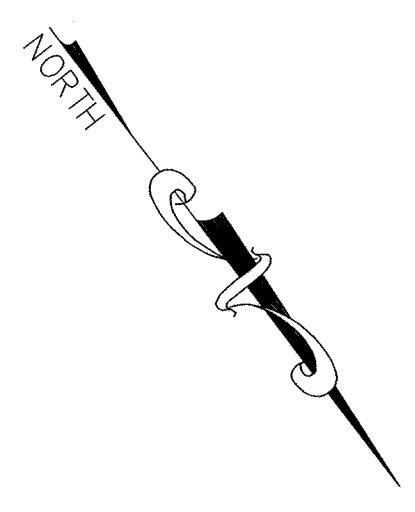
CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

MAP NO. 17 BLOCK NO. 8 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

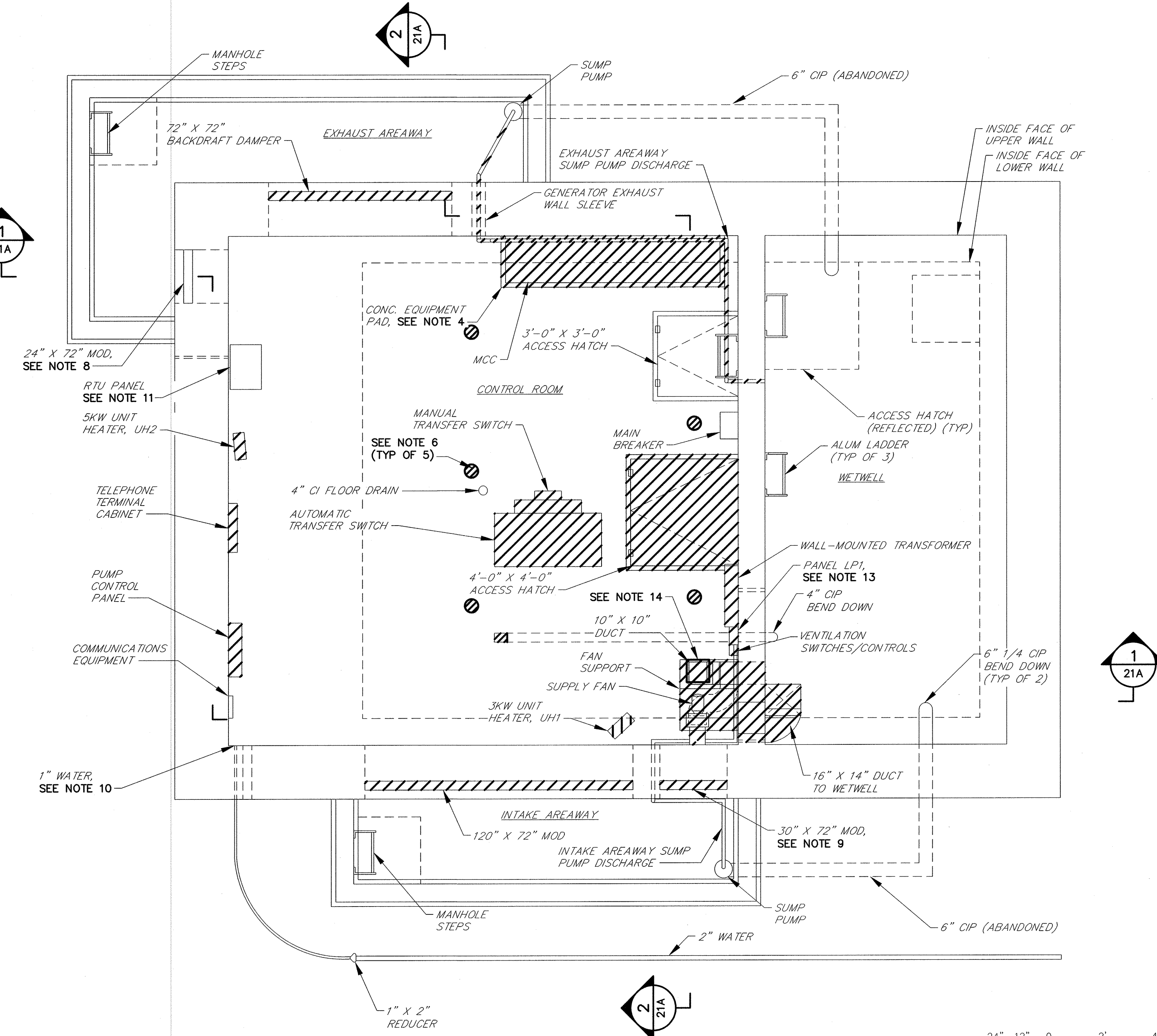
SCALE AS SHOWN
SHEET 18B OF 25

NOTES:

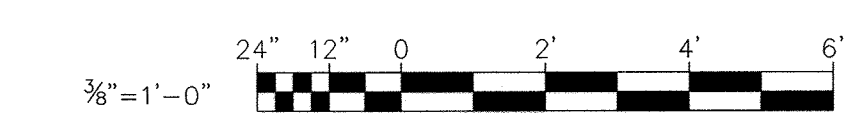
- ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- PATCH ALL EXISTING HOLES IN CONCRETE FLOOR SLABS AND WALLS THAT ARE NOT USED IN THE NEW WORK WITH MIN. 9000 PSI COMPRESSIVE STRENGTH NON-SHRINKING GROUT. THE GROUT SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR THIS APPLICATION. GROUT SHALL BE KAUFMAN PRODUCTS SURE GROUT, OR APPROVED EQUAL. HOLES THAT CONTAIN EXISTING WALL SLEEVES SHALL BE PATCHED BY FIRST INSTALLING A CAST IRON OR DUCTILE IRON PLUG AND FILLING THE REMAINING OPENING WITH NON-SHRINK GROUT.
- REMOVE EQUIPMENT PADS, PUMP PADS AND VALVE SUPPORTS FOR ALL REMOVED EQUIPMENT AND PIPING, AND RESTORE CONCRETE FLOOR TO MATCH EXISTING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TRANSPORTATION, INTACT OF ALL DEMOLISHED EQUIPMENT DESIGNATED BY THE COUNTY TO BE SALVAGED, TO THE COUNTY'S LITTLE PATUXENT WATER RECLAMATION PLANT (LPWRP) MAINTENANCE SHOP, LOCATED AT 8900 GREENWOOD PLACE, 410-313-1200. CONTRACTOR SHALL PROVIDE THE COUNTY WITH FIVE (5) DAYS ADVANCE NOTICE PRIOR TO DELIVERY OF EQUIPMENT. CONTRACTOR SHALL DISPOSE OF ALL NON-SALVAGED EQUIPMENT AND MATERIAL DEMOLISHED.
- CORE DRILL HOLES IN CONCRETE SLAB TO ACCOMMODATE NEW VALVE BOXES.
- REMOVAL OF EQUIPMENT SHALL INCLUDE ALL CONDUIT AND WIRING ASSOCIATED WITH EQUIPMENT TO BE REMOVED. EMBEDDED CONDUIT MAY BE REUSED. SURFACE CONDUIT SHALL BE REPLACED.
- REMOVE DAMPER ACTUATOR AND PREPARE DAMPER FOR INSTALLATION OF NEW ACTUATOR.
- REMOVE DAMPER AND PREPARE OPENING FOR INSTALLATION OF NEW DAMPER AND CONCRETE FILL.
- SEE POTABLE WATER SUPPLY DIAGRAM, SHEET 24.
- EXISTING RTU PANEL TO REMAIN IN SERVICE. PANEL CONTAINS THE EXISTING LC150 PRIMARY PUMP CONTROLLER, WHICH IS ALSO TO REMAIN IN SERVICE, TO GENERATE THE PRIMARY PUMP CONTROLS BY THE SYSTEM INTEGRATOR IN THE PROPOSED PCP. REFER TO WIRING SCHEMATICS ON DWG. 23B.
- REMOVE ALL LIGHTING, RECEPTACLES AND ASSOCIATED DEVICES. INDIVIDUAL UNITS NOT SHOWN FOR CLARITY.
- EXTEND ALL EXISTING LOADS TO REMAIN TO NEW PANEL AND PROVIDE NEW BRANCH CIRCUIT CONDUIT AND WIRE.
- SAWCUT OPENING IN FLOOR SLAB TO ACCOMMODATE NEW DUCTWORK.



PUMP ROOM PLAN
SCALE: 3/8"=1'-0"



CONTROL ROOM PLAN
SCALE: 3/8"=1'-0"



RK&K\SYS - K:\projects\2019\12154_H4680A\Task 9 - Miscellaneous Pumping Stations\Patapsco Park_PCP\Draw\Proposed\12154MHPS-020A-PP-20A.dwg Apr 02, 2019 - 1:09pm Plot Scale: 1:1
 RK&K\SYS - K:\projects\2019\12154_H4680A\Task 9 - Miscellaneous Pumping Stations\Patapsco Park_PCP\Draw\Proposed\12154MHPS-020A-PP-20A.dwg Apr 02, 2019 - 1:09pm Plot Scale: 1:1

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
Director of Public Works <i>[Signature]</i> DATE: 4-5-19	Chief, Bureau of Engineering <i>[Signature]</i> DATE: 4-5-19
Chief, Bureau of Utilities <i>[Signature]</i> DATE: 4-5-19	Chief, Utility Division <i>[Signature]</i> DATE: 4-5-19

PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT REDLINE REVISIONS INCLUDED IN 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. 29472, EXPIRATION DATE 9/15/2019	
	700 EAST PRATT STREET SUITE 500 BALTIMORE, MARYLAND 21202

DES: DAO			
DRN: NAF			
CHE: RAL			
DATE: 4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 20A	4/19
	BY NO.	REVISIONS	DATE

DEMOLITION PLANS PATAPSCO PARK SPS - 2019 UPGRADES	
MAP NO. 17	BLOCK NO. 8

MOUNT HEBRON SEWER MAINS 2019 UPGRADES CAPITAL PROJECT NO. S6600 CONTRACT NO. 745-S	
ELECTION DISTRICT NO. 2	HOWARD COUNTY, MARYLAND

SCALE
 3/8"=1'-0"
 SHEET
 20A OF 26

NOTES:

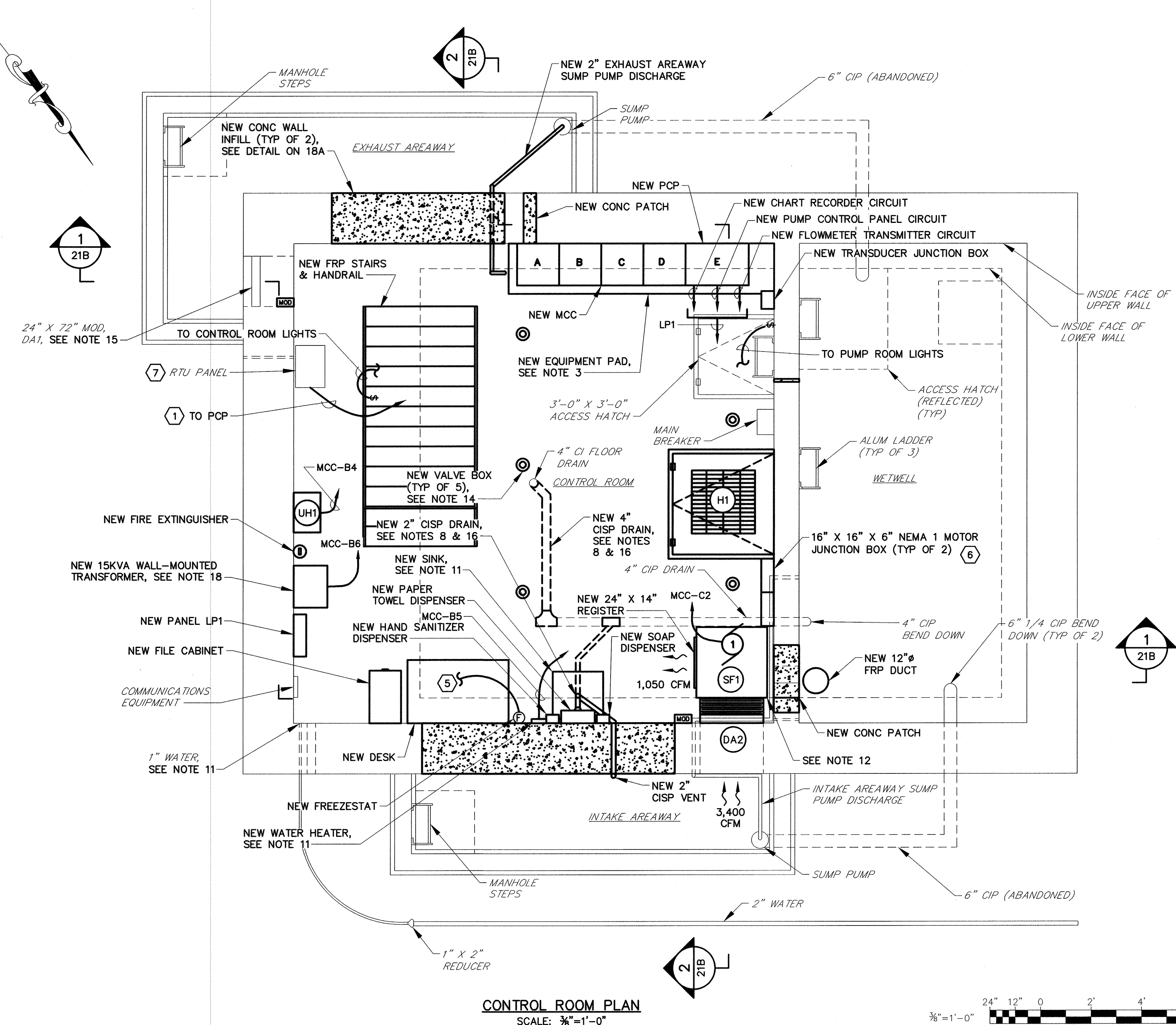
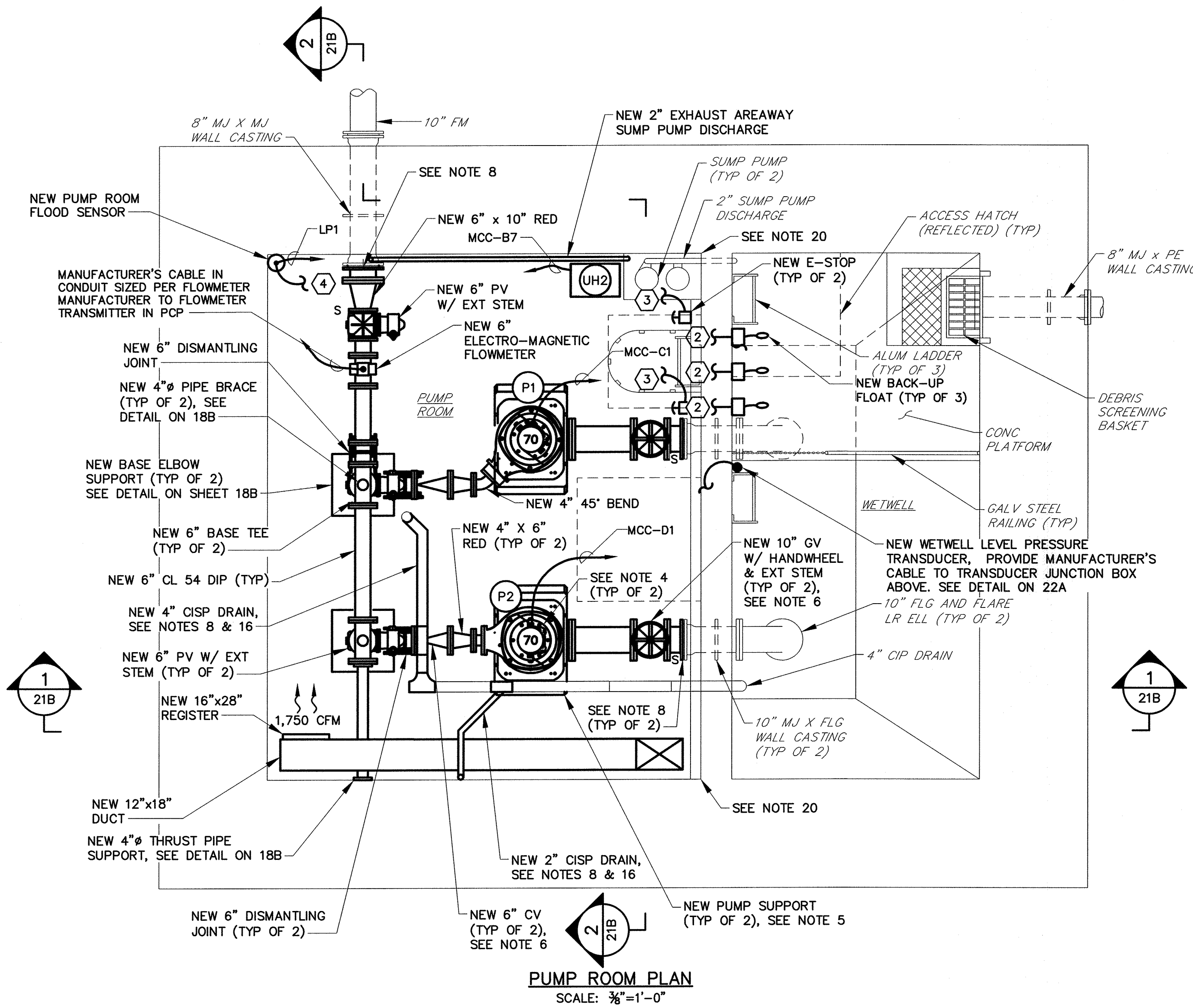
- ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- INSTALL CONCRETE EQUIPMENT PADS FOR ALL FLOOR MOUNTED EQUIPMENT.
- PUMPS SHALL BE LOCATED DIRECTLY BELOW THE EXISTING LIFTING EYES.
- PUMP SUPPORTS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL HAVE PUMP SUPPORTS DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND FOR PUMPS FURNISHED.
- SUPPORT CHECK VALVES AND PUMP SUCTION GATE VALVES WITH ADJUSTABLE FLOOR MOUNTED PIPE SUPPORTS, INSTALLED SO AS NOT TO INTERFERE WITH THE OPERATION OF THE VALVES.
- NO ATTEMPT HAS BEEN MADE TO SHOW ALL REQUIRED PIPE SUPPORTS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE PIPING SUPPORT SYSTEM COMPLYING WITH MSS SP-58, ANSI/MSS SP-69, FEDERAL SPECIFICATION WW-171, AND SPECIFICATION SECTION 15060.
- FURNISH AND INSTALL ALL GLANDS, RETAINERS, GASKETS, BOLTS AND OTHER MISCELLANEOUS MATERIALS AS NECESSARY TO CONNECT NEW PIPING TO EXISTING PIPING.
- NEW PUMP SUCTION AND DISCHARGE PIPING, VALVE AND FITTING ARRANGEMENT IS DEPENDENT ON ACTUAL PUMP EQUIPMENT FURNISHED. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER OF PUMP EQUIPMENT FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS, AND PREPARE AND SUBMIT LAYOUT DRAWINGS FOR APPROVAL PRIOR TO PURCHASING ANY EQUIPMENT OR FABRICATING ANY PIPING.

- PUMP CABLES SHALL BE SUPPORTED BY THE PUMP ROOM WALLS OR CEILING USING STAINLESS STEEL KELLUM GRIPS, AT INTERVALS AS NECESSARY TO SUPPORT THE ENTIRE WEIGHT OF THE CABLES, IN ACCESSIBLE LOCATIONS WHICH SHALL BE APPROVED BY THE COUNTY. SLACK IN CABLES SHALL NOT BE COILED. CONTRACTOR SHALL SUBMIT PUMP CABLE ROUTING PLANS TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING PUMPS.
- SEE POTABLE WATER RISER DIAGRAM ON SHEET 24A.
- CONTRACTOR SHALL COORDINATE W/ MANUFACTURER OF VENTILATION FANS FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS AND SUBMIT DRAWINGS SHOWING DUCT LAYOUTS AND METHOD OF FAN SUPPORT TO THE ENGINEER FOR REVIEW. FANS SHALL NOT BE SUPPORTED BY DUCTWORK.
- CLEAN AND PAINT ALL EXPOSED FERROUS METALS (EXCEPT PIPE FLANGES AND FASTENERS), NEW CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 09900.
- COORDINATE LOCATION OF VALVE BOXES WITH EXT STEMS FOR VALVES FURNISHED. ENSURE THAT VALVE BOXES PERMIT FULL ACCESS AND OPERATION OF THE VALVE. USE UNIVERSAL JOINTS, RIGHT ANGLE GEARS AND ADAPTERS ON EXT STEMS, AS NECESSARY. NEW VALVE BOXES SHALL BE CAST FLUSH INTO EXISTING CONCRETE SLABS.
- PROVIDE NEW ACTUATOR AND ACCESSORIES SIZED TO OPERATE EXISTING DAMPER.
- CONNECT NEW 2" AND 4" CISP TO EXISTING 4" CIP.
- REPLACE ALL EXISTING RECEPTACLES WITH NEW GFI RECEPTACLES AT EXISTING LOCATIONS. PROVIDE NEW BOX, WHILE-IN-USE COVER, CONDUIT AND WIRE. ONE BRANCH CIRCUIT PER LEVEL.

- TRANSFORMER SHALL BE 480V PRIMARY AND 208/120V 3-PHASE SECONDARY. SUBMIT MOUNTING HEIGHT FOR APPROVAL (MINIMUM 6'-0" TO BOTTOM OF WALL BRACKET).
- REPLACE LIGHTING ON BOTH LEVELS. SEE LIGHTING FIXTURE SCHEDULE, SHEET 23B. SUBMIT PROPOSED LAYOUT FOR APPROVAL AND PROVIDE NEW CONDUIT AND WIRE TO LP1 AND SWITCHING. PROVIDE ONE BRANCH CIRCUIT PER LEVEL.
- AT LOCATIONS OF LEAKING JOINTS OR CRACKS, CLEAN AND PREPARE CONCRETE SURFACE FOR INSTALLATION OF SIKAFIX HH LV, OR APPROVED EQUAL, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PERFORM REPAIR FULL HEIGHT OF WALL.
- SEE DWG. 24A FOR ALL MECHANICAL SCHEDULES.

ELECTRICAL NOTES:

- PROVIDE 1" CONDUIT TO PCP FOR CONTROL AND MONITORING I/O SIGNALS. SEE ELECTRICAL DETAILS SHEET FOR WIRING REQUIREMENTS.
- FLOAT SWITCH CABLE TO PUMP CONTROL PANEL IN 3/4" CONDUIT OR AS REQUIRED BY FLOAT MANUFACTURER.
- 2-#14 FROM THE E-STOP TO THE RVSS IN 3/4" CONDUIT.
- 2-#14 TO PUMP CONTROL PANEL IN 3/4" CONDUIT.
- 2-#14 IN 3/4" CONDUIT TO VENTILATION CONTROLS IN MCC.
- PROVIDE APPROPRIATELY SIZED LUGS FOR TERMINATION OF ALL MANUFACTURER SUPPLIED POWER AND ALARM CONDUCTORS FROM PUMP MOTOR. CONTINUATION OF CONDUCTORS SHALL BE WITH STANDARD BUILDING WIRE FROM JUNCTION BOXES TO MCC.
- EXISTING RTU PANEL TO REMAIN IN SERVICE. PANEL CONTAINS THE EXISTING LC150 PRIMARY PUMP CONTROLLER, WHICH IS ALSO TO REMAIN IN SERVICE, TO GENERATE THE PRIMARY PUMP CONTROLS BY THE SYSTEM INTEGRATOR IN THE PROPOSED PCP. REFER TO WIRING SCHEMATICS PROVIDED.

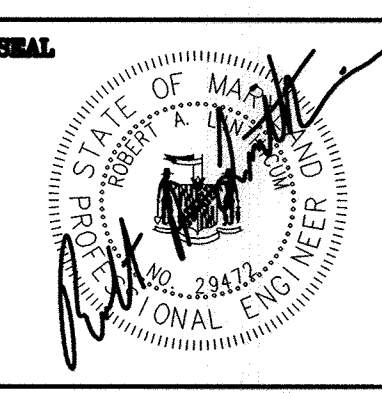


RK&K\SIS - K:\projects\2019\12154_JHG\080A\Task 9 - Miscellaneous Pumping Station\Proposed Park PS\Cadd\Plan\Proposed\12154MPS-2019-UP-208.dwg Apr 02, 2019 - 1:09pm Plt, Scale 1:1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 4/5/19 DATE
 [Signature] 4/5/19 DATE
 [Signature] 4/5/19 DATE

PROFESSIONAL CERTIFICATION
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 LICENSE NO. 29472 EXPIRATION DATE 9/15/2019
RK&K 700 EAST PRATT STREET SUITE 500 BALTIMORE, MARYLAND 21202



DES: DAO				
DRN: NAF				
CHK: RAL				
DATE: 4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 20B	4/19	
BY NO.		REVISIONS	DATE	

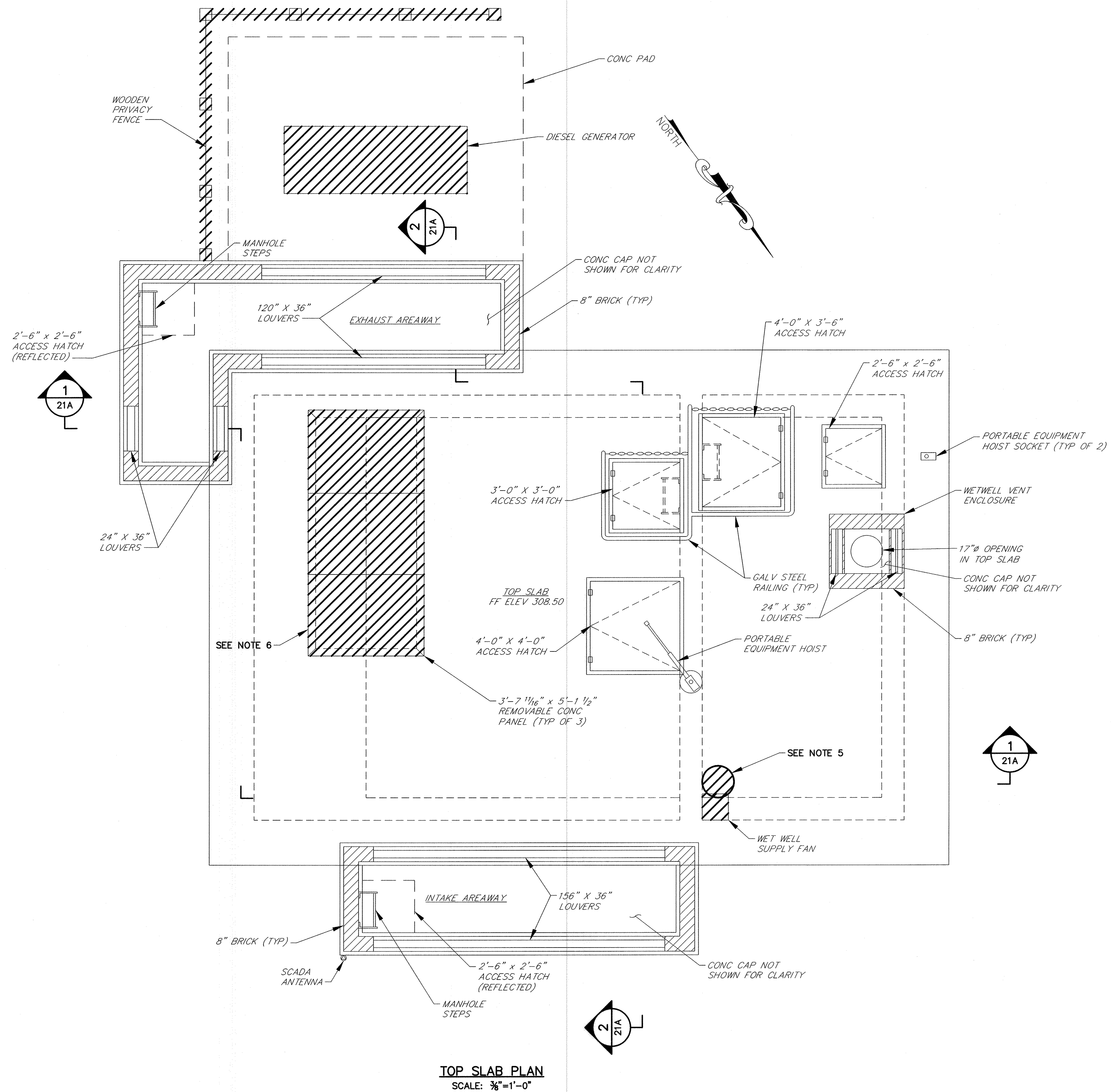
IMPROVEMENT PLANS
 PATAPSCO PARK SPS -
 2019 UPGRADES
 MAP NO. 17 BLOCK NO. 8

MOUNT HEBRON SEWER MAINS
 2019 UPGRADES
 CAPITAL PROJECT NO. S660
 CONTRACT NO. 745-S
 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

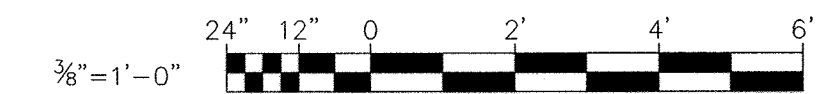
SCALE
 3/8"=1'-0"
 SHEET
 20B OF 25

NOTES:

1. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
3. PATCH ALL EXISTING HOLES IN CONCRETE FLOOR SLABS AND WALLS THAT ARE NOT USED IN THE NEW WORK WITH MIN. 9000 PSI COMPRESSIVE STRENGTH NON-SHRINKING GROUT. THE GROUT SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR THIS APPLICATION. GROUT SHALL BE KAUFMAN PRODUCTS SURE GROUT, OR APPROVED EQUAL. HOLES THAT CONTAIN EXISTING WALL SLEEVES SHALL BE PATCHED BY FIRST INSTALLING A CAST IRON OR DUCTILE IRON PLUG AND FILLING THE REMAINING OPENING WITH NON-SHRINK GROUT.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TRANSPORTATION, INTACT OF ALL DEMOLISHED EQUIPMENT DESIGNATED BY THE COUNTY TO BE SALVAGED, TO THE COUNTY'S LITTLE PATUXENT WATER RECLAMATION PLANT (LPWRP) MAINTENANCE SHOP, LOCATED AT 8900 GREENWOOD PLACE, 410-313-1200. CONTRACTOR SHALL PROVIDE THE COUNTY WITH FIVE (5) DAYS ADVANCE NOTICE PRIOR TO DELIVERY OF EQUIPMENT. CONTRACTOR SHALL DISPOSE OF ALL NON-SALVAGED EQUIPMENT AND MATERIAL DEMOLISHED.
5. CORE DRILL HOLE IN CONCRETE SLAB TO ACCOMMODATE NEW SUPPLY FAN. INSTALL FRAMING AROUND HOLE IN WETWELL TOP SLAB AS SHOWN ON SHEET 20D.
6. REMOVE STEEL ANGLES AND PREPARE OPENING FOR NEW CONCRETE FILL AND ACCESS HATCH.



TOP SLAB PLAN
SCALE: 3/8"=1'-0"



R:\21515 - K:\projects\2019\21515_H66080A\Task 9 - Miscellaneous Pumping Stations\Proposed\Task 9 - Miscellaneous Pumping Stations\Proposed\21515_H66080A.dwg Apr 02, 2019 - 1:09pm Plot Scale 1:1

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

[Signature] 4/5/19 *[Signature]* 4/5/19
DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING DATE

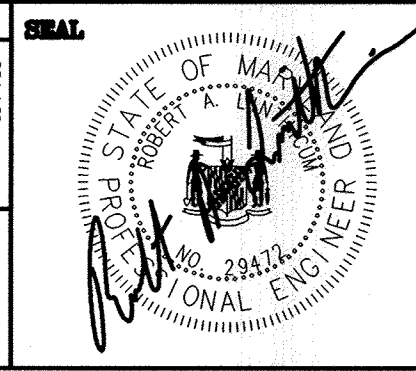
[Signature] 4-5-19 *[Signature]* 4/5/19
CHIEF, BUREAU OF UTILITIES DATE CHIEF, UTILITY DIVISION DATE

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LICENSE NO. 29472 EXPIRATION DATE 9/15/2019

RK&K 700 EAST PRATT STREET
SUITE 500
BALTIMORE, MARYLAND 21202



DES:	DAO				
DRN:	NAF				
CHK:	RAL				
DATE:	4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 20C	4/19	
BY:	NO.		REVISIONS	DATE	

**DEMOLITION PLAN
PATAPSCO PARK SPS -
2019 UPGRADES**

MAP NO. 17 BLOCK NO. 8

**MOUNT HEBRON SEWER MAINS
2019 UPGRADES**

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

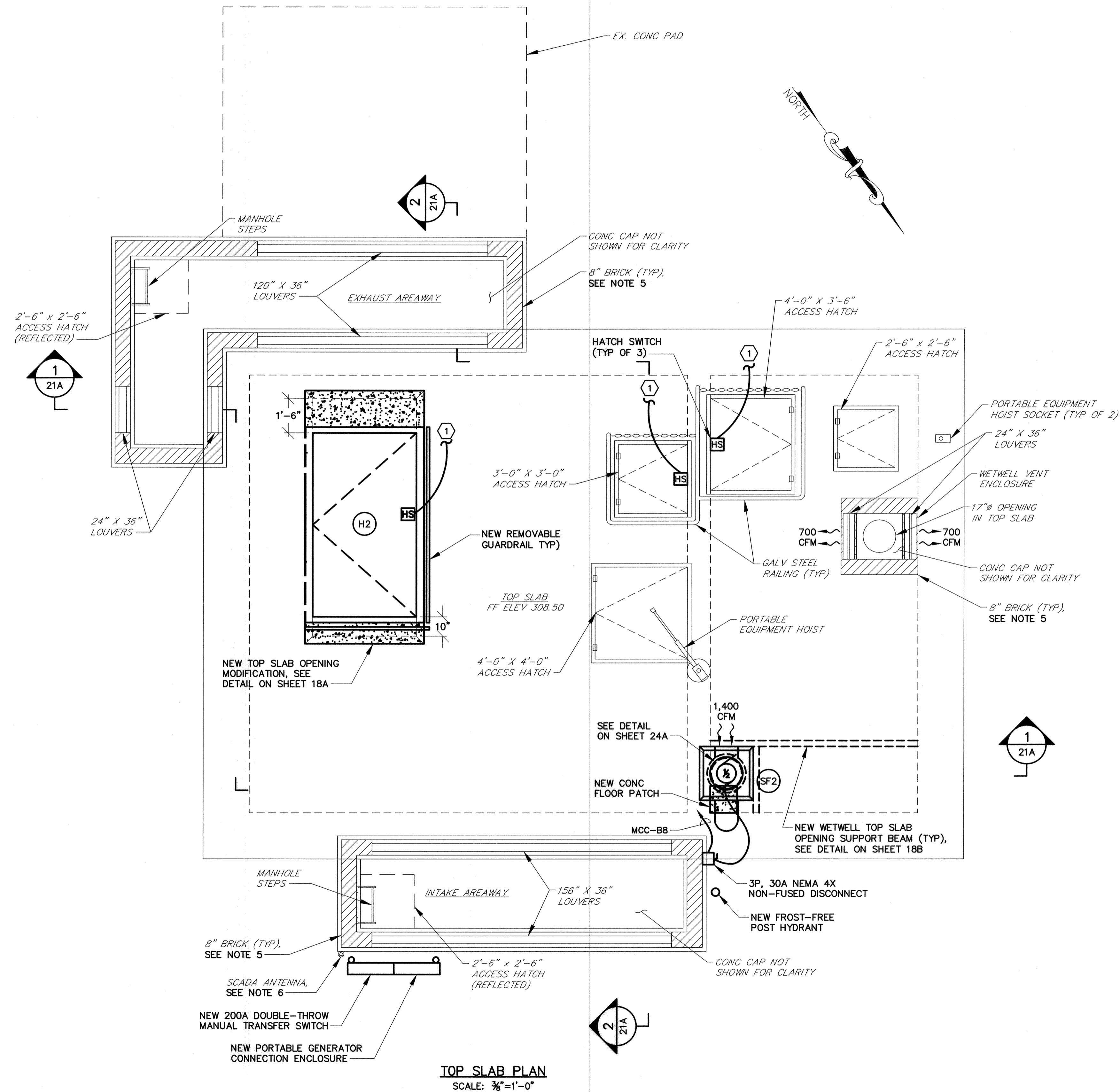
SCALE
3/8"=1'-0"
SHEET
20C OF 25

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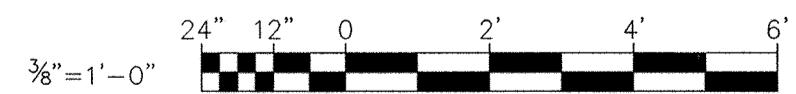
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3. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER OF VENTILATION FAN FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS AND SUBMIT DRAWINGS SHOWING DUCT LAYOUT AND METHOD OF FAN SUPPORT TO ENGINEER FOR REVIEW. FAN SHALL NOT BE SUPPORTED BY DUCTWORK.
4. CLEAN AND PAINT ALL EXPOSED FERROUS METALS AND NEW CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 09900.
5. REPAIR ALL DAMAGED MASONRY AND REPOINT ALL DETERIORATED OR CRACKED MASONRY JOINTS IN ACCORDANCE WITH SPECIFICATION SECTION 04900. ALL MASONRY SHALL RECEIVE A FINAL CLEANING IN ACCORDANCE WITH SPECIFICATION 04900.
6. PROVIDE PVC WATERPROOF SLEEVE THROUGH INTAKE AREAWAY WHERE WALLS WILL BE CLOSED AND REROUTE/RECONNECT ANTENNA CABLE TO REMAIN.

ELECTRICAL NOTES:

- ① 2-#14 IN 3/4" CONDUIT TO VENTILATION CONTROLS IN MCC.



TOP SLAB PLAN
SCALE: 3/8"=1'-0"



R:\21\1515 - K:\projects\2019\1515_466080A\Task 9 - Miscellaneous Pumping Stations\Proposed\1515\1515-UP-200.dwg Apr 02, 2019 - 1:09pm Plt Scale 1:1

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
Director of Public Works <i>[Signature]</i> 4/5/19 DATE	Chief, Bureau of Engineering <i>[Signature]</i> 4/5/19 DATE
Chief, Bureau of Utilities <i>[Signature]</i> 4/5/19 DATE	Chief, Utility Division <i>[Signature]</i> 4/5/19 DATE

PROFESSIONAL CERTIFICATION	
I HEREBY CERTIFY THAT REVISIONS INCLUDED IN 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. 28472 EXPIRATION DATE 9/15/2019	
	700 EAST PRATT STREET SUITE 500 BALTIMORE, MARYLAND 21202

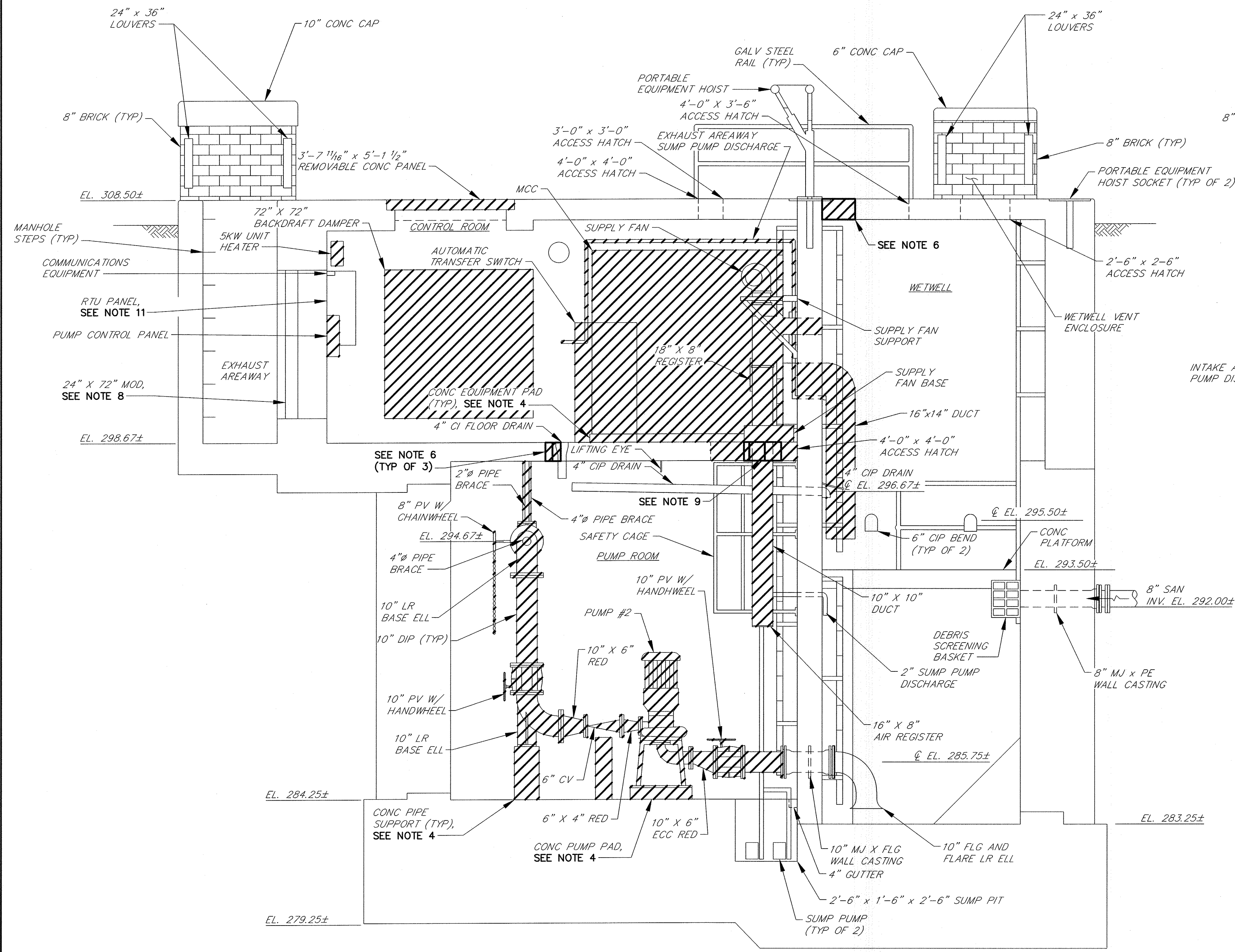
DES: DAO			
DRN: NAF			
CHK: RAL			
DATE: 4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 20D	4/19
BY NO.		REVISIONS	DATE

IMPROVEMENT PLAN PATAPSCO PARK SPS - 2019 UPGRADES	
MAP NO. 17	BLOCK NO. 8

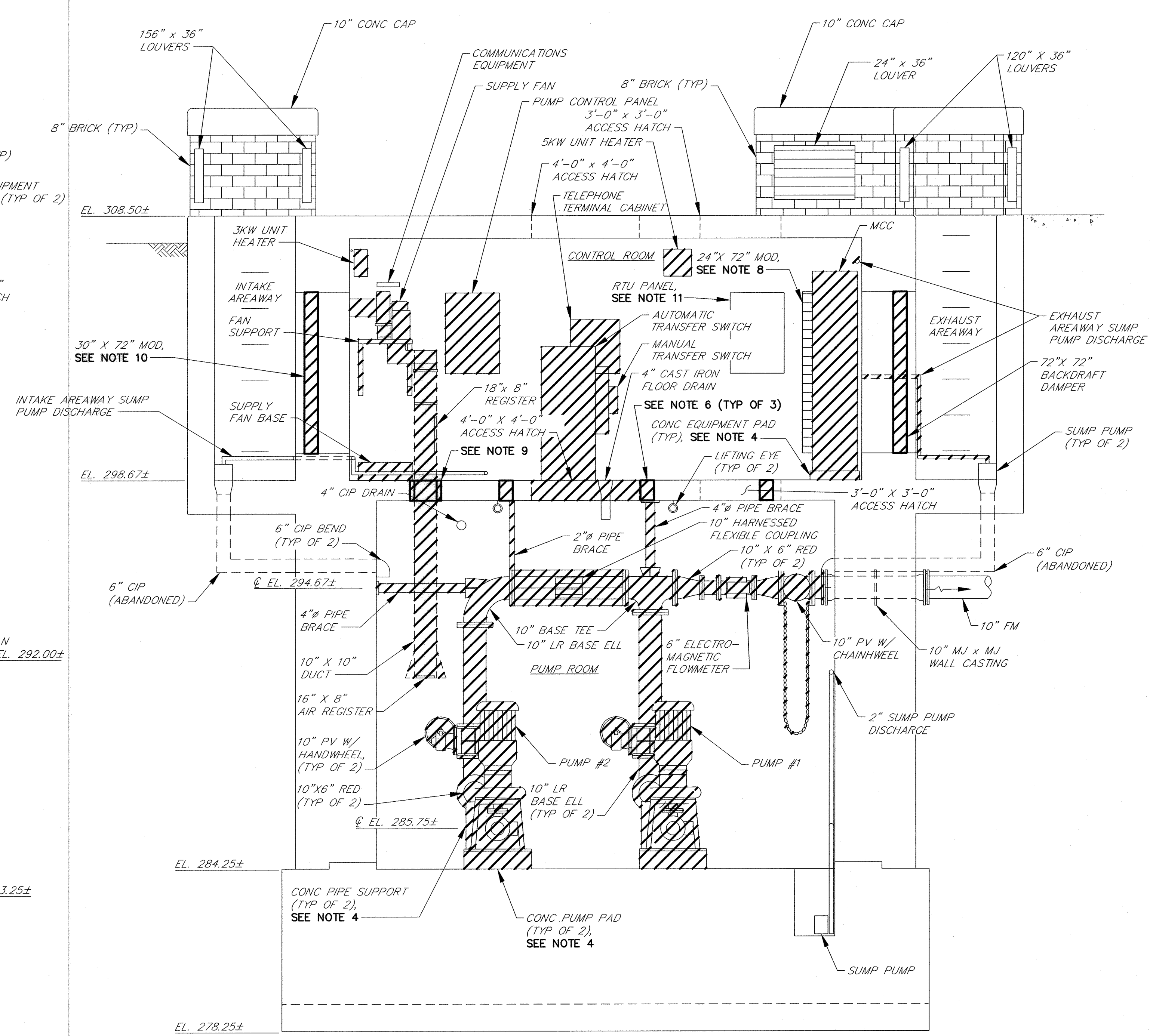
MOUNT HEBRON SEWER MAINS 2019 UPGRADES CAPITAL PROJECT NO. S6600 CONTRACT NO. 745-S	
ELECTION DISTRICT NO. 2	HOWARD COUNTY, MARYLAND
SCALE 3/8"=1'-0"	SHEET 20D OF 25

NOTES:

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- REMOVE EQUIPMENT PADS, PUMP PADS AND VALVE SUPPORTS FOR ALL REMOVED EQUIPMENT AND PIPING, AND RESTORE CONCRETE FLOOR TO MATCH EXISTING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TRANSPORTATION, INTACT OF ALL DEMOLISHED EQUIPMENT TO BE SALVAGED, TO THE COUNTY'S LITTLE PATUXENT WATER RECLAMATION PLANT (LPWRP) MAINTENANCE SHOP, LOCATED AT 8900 GREENWOOD PLACE, 410-313-1200. CONTRACTOR SHALL PROVIDE THE COUNTY WITH FIVE (5) DAYS ADVANCE NOTICE PRIOR TO DELIVERY OF EQUIPMENT.
- CORE DRILL HOLES IN CONCRETE SLAB TO ACCOMMODATE NEW VALVE BOXES AND WETWELL SUPPLY FAN.
- REMOVAL OF EQUIPMENT SHALL INCLUDE ALL CONDUIT AND WIRING ASSOCIATED WITH EQUIPMENT TO BE REMOVED. EMBEDDED CONDUIT MAY BE REUSED. SURFACE CONDUIT SHALL BE REPLACED.
- REMOVE DAMPER ACTUATOR AND PREPARE DAMPER FOR INSTALLATION OF NEW ACTUATOR.
- SAWCUT OPENING IN FLOOR SLAB TO ACCOMMODATE NEW DUCTWORK.
- REMOVE DAMPER AND PREPARE OPENING FOR INSTALLATION OF NEW DAMPER AND CONCRETE FILL.
- EXISTING RTU PANEL TO REMAIN IN SERVICE. PANEL CONTAINS THE EXISTING LC150 PRIMARY PUMP CONTROLLER, WHICH IS ALSO TO REMAIN IN SERVICE, TO GENERATE THE PRIMARY PUMP CONTROLS BY THE SYSTEM INTEGRATOR IN THE PROPOSED PCP. REFER TO WIRING SCHEMATICS ON DWG. 23B.
- REMOVE ALL LIGHTING, RECEPTACLES AND ASSOCIATED DEVICES. INDIVIDUAL UNITS NOT SHOWN FOR CLARITY.



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



SECTION 2
SCALE: 3/8"=1'-0"



RK&K\SYS - K:\projects\2019\2154_H66060A\Task 9 - Miscellaneous Pumping Stations\Patapsco Park_SPS\Cadd\Plan\Proposed\2154H66060A.dwg, Apr 02, 2019 - 11:09am, Plot Scale: 1:1

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

[Signature] 4/5/19
 DIRECTOR OF PUBLIC WORKS DATE

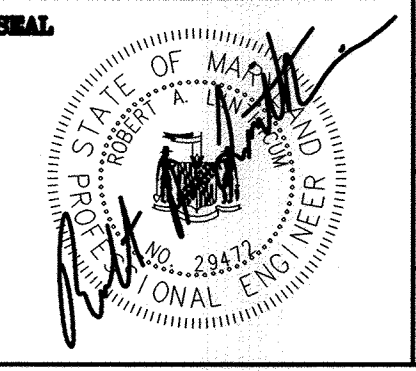
[Signature] 4/5/19
 CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 4/5/19
 CHIEF, BUREAU OF UTILITIES DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT REVISIONS INCLUDED IN 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. 28472, EXPIRATION DATE 9/16/2019

RK&K
 700 EAST PRATT STREET
 SUITE 500
 BALTIMORE, MARYLAND 21202



DES:	DAO		
DRN:	NAP		
CHK:	RAL		
DATE:	4/02/19		
RK&K	1	2019 UPGRADES - ADD SHEET 21A	4/19
BY	NO.	REVISIONS	DATE

**DEMOLITION SECTIONS
PATAPSCO PARK SPS -
2019 UPGRADES**

MAP NO. 17 BLOCK NO. 8

**MOUNT HEBRON SEWER MAINS
2019 UPGRADES**

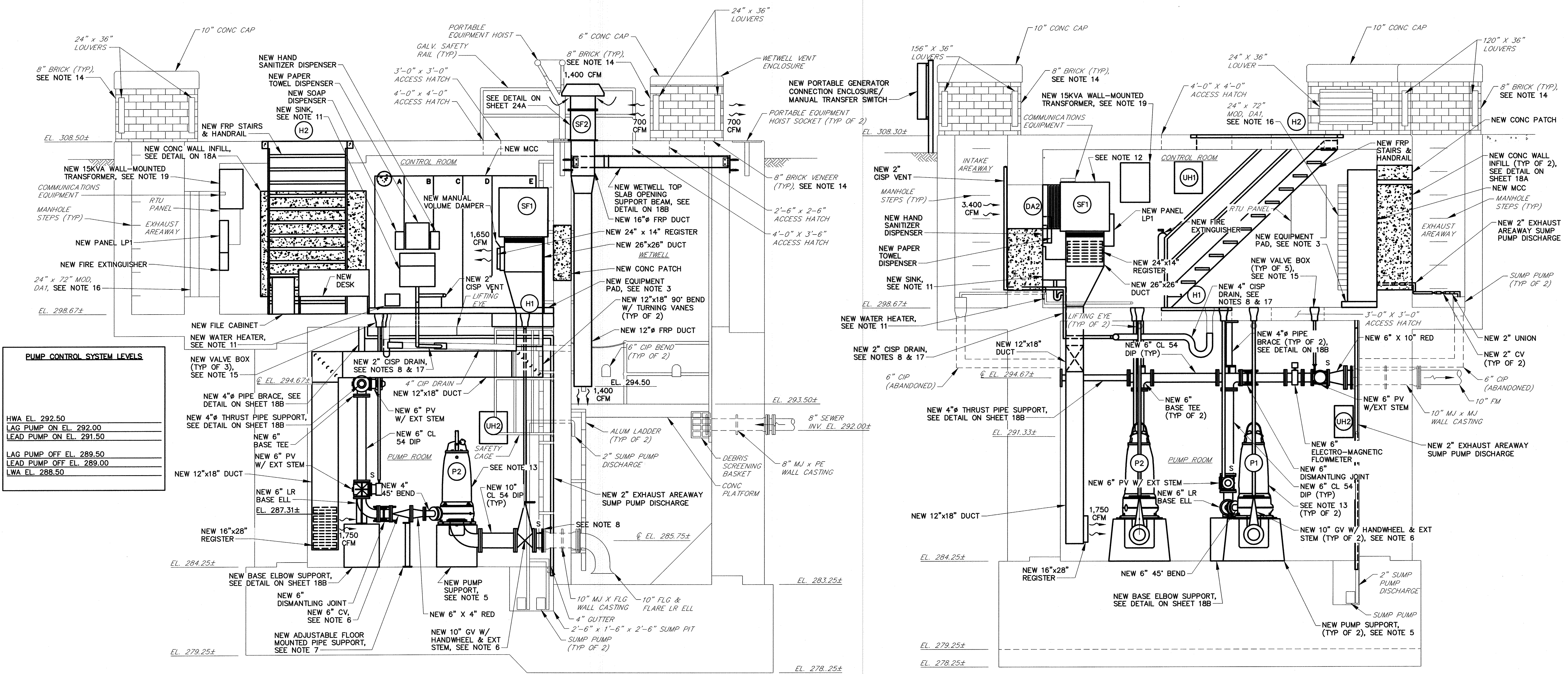
CAPITAL PROJECT NO. S6600
 CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

SCALE
 3/8"=1'-0"
 SHEET
 21A OF 25

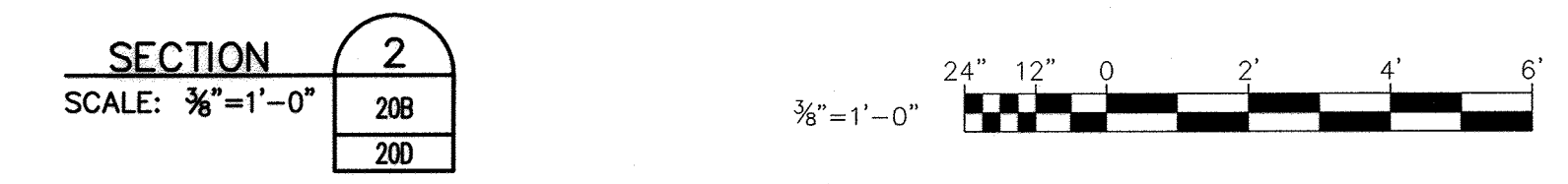
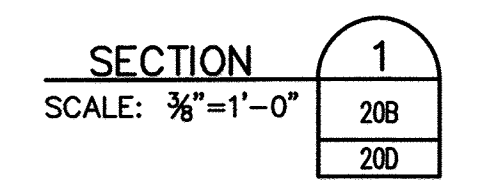
NOTES:

- ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- INSTALL CONCRETE EQUIPMENT PADS FOR ALL FLOOR MOUNTED EQUIPMENT.
- CLEAN AND PAINT ALL EXPOSED FERROUS METALS (EXCEPT PIPE FLANGES AND FASTENERS) AND NEW CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 09900.
- PUMP SUPPORTS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL HAVE PUMP SUPPORTS DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND FOR PUMPS FURNISHED.
- SUPPORT CHECK VALVES AND PUMP SUCTION GATE VALVES WITH ADJUSTABLE FLOOR MOUNTED PIPE SUPPORTS, INSTALLED SO AS NOT TO INTERFERE WITH THE OPERATION OF THE VALVES.
- NO ATTEMPT HAS BEEN MADE TO SHOW ALL REQUIRED PIPE SUPPORTS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE PIPING SUPPORT SYSTEM COMPLYING WITH MSS SP-58, ANSI/MSS SP-69, FEDERAL SPECIFICATION WW-H171, AND SPECIFICATION SECTION 15060.
- FURNISH AND INSTALL ALL GLANDS, RETAINERS, GASKETS, BOLTS AND OTHER MISCELLANEOUS MATERIALS AS NECESSARY TO CONNECT NEW PIPING TO EXISTING PIPING.
- NEW PUMP SUCTION AND DISCHARGE PIPING, VALVE AND FITTING ARRANGEMENT IS DEPENDENT ON ACTUAL PUMP EQUIPMENT FURNISHED. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER OF PUMP EQUIPMENT FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS, AND PREPARE AND SUBMIT LAYOUT DRAWINGS FOR APPROVAL PRIOR TO PURCHASING ANY EQUIPMENT OR FABRICATING ANY PIPING.
- PUMP CABLES SHALL BE SUPPORTED BY THE PUMP ROOM WALLS OR CEILING USING STAINLESS STEEL KELLUM GRIPS, AT INTERVALS AS NECESSARY TO SUPPORT THE ENTIRE WEIGHT OF THE CABLES, IN ACCESSIBLE LOCATIONS WHICH SHALL BE APPROVED BY THE COUNTY. SLACK IN CABLES SHALL NOT BE COILED. CONTRACTOR SHALL SUBMIT PUMP CABLE ROUTING PLANS TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING PUMPS.
- SEE POTABLE WATER RISER DIAGRAM ON SHEET 24A.
- CONTRACTOR SHALL COORDINATE W/ MANUFACTURER OF VENTILATION FANS FURNISHED, TAKE ACCURATE FIELD MEASUREMENTS AND SUBMIT DRAWINGS SHOWING DUCT LAYOUTS AND METHOD OF FAN SUPPORT TO THE ENGINEER FOR REVIEW. FANS SHALL NOT BE SUPPORTED BY DUCTWORK.
- PUMPS SHALL BE LOCATED DIRECTLY BELOW THE EXISTING LIFTING EYES.
- REPAIR ALL DAMAGED MASONRY AND REPOINT ALL DETERIORATED OR CRACKED MASONRY JOINTS IN ACCORDANCE WITH SPECIFICATION SECTION 04900. ALL MASONRY SHALL RECEIVE A FINAL CLEANING IN ACCORDANCE WITH SPECIFICATION 04900.
- COORDINATE LOCATION OF VALVE BOXES WITH EXT STEMS FOR VALVES FURNISHED. ENSURE THAT VALVE BOXES PERMIT FULL ACCESS AND OPERATION OF THE VALVE. USE UNIVERSAL JOINTS, RIGHT ANGLE GEARS AND ADAPTERS ON EXT STEMS, AS NECESSARY. NEW VALVE BOXES SHALL BE CAST FLUSH INTO EXISTING CONCRETE SLABS.
- PROVIDE NEW ACTUATOR AND ACCESSORIES SIZED TO OPERATE EXISTING DAMPER.
- CONNECT NEW 2" & 4" CISP TO EXISTING 4" CIP DRAIN.
- REPLACE ALL EXISTING RECEPTACLES WITH NEW GFI RECEPTACLES AT EXISTING LOCATIONS. PROVIDE NEW BOX, WHILE-IN-USE COVER, CONDUIT AND WIRE. ONE BRANCH CIRCUIT PER LEVEL.
- TRANSFORMER SHALL BE 480V PRIMARY AND 208/120V 3-PHASE SECONDARY. SUBMIT MOUNTING HEIGHT FOR APPROVAL (MINIMUM 6'-0" TO BOTTOM OF WALL BRACKET).
- REPLACE LIGHTING ON BOTH LEVELS. SEE LIGHTING FIXTURE SCHEDULE, SHEET 23B. SUBMIT PROPOSED LAYOUT FOR APPROVAL AND PROVIDE NEW CONDUIT AND WIRE TO LP1 AND SWITCHING. PROVIDE ONE BRANCH CIRCUIT PER LEVEL.
- SEE DWG. 24A FOR ALL MECHANICAL SCHEDULES.



PUMP CONTROL SYSTEM LEVELS

HWA EL. 292.50
LAG PUMP ON EL. 292.00
LEAD PUMP ON EL. 291.50
LAG PUMP OFF EL. 289.50
LEAD PUMP OFF EL. 289.00
LWA EL. 288.50



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John J. De... 4/5/19
DIRECTOR OF PUBLIC WORKS DATE

Morgan B. Butler 4/5/19
CHIEF, BUREAU OF ENGINEERING DATE

... 4/5/19
CHIEF, BUREAU OF UTILITIES DATE

PROFESSIONAL CERTIFICATION

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LICENSE NO. 22412, EXPIRATION DATE 9/15/2019

RK&K 700 EAST PRATT STREET
SUITE 600
BALTIMORE, MARYLAND 21202

DES: DAO			
DRN: NAF			
CHK: RAL			
DATE: 4/02/19	RK&K 1	2019 UPGRADES - ADD SHEET 21B	4/19
BY NO.		REVISIONS	DATE

IMPROVEMENT SECTIONS
PATAPSCO PARK SPS -
2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

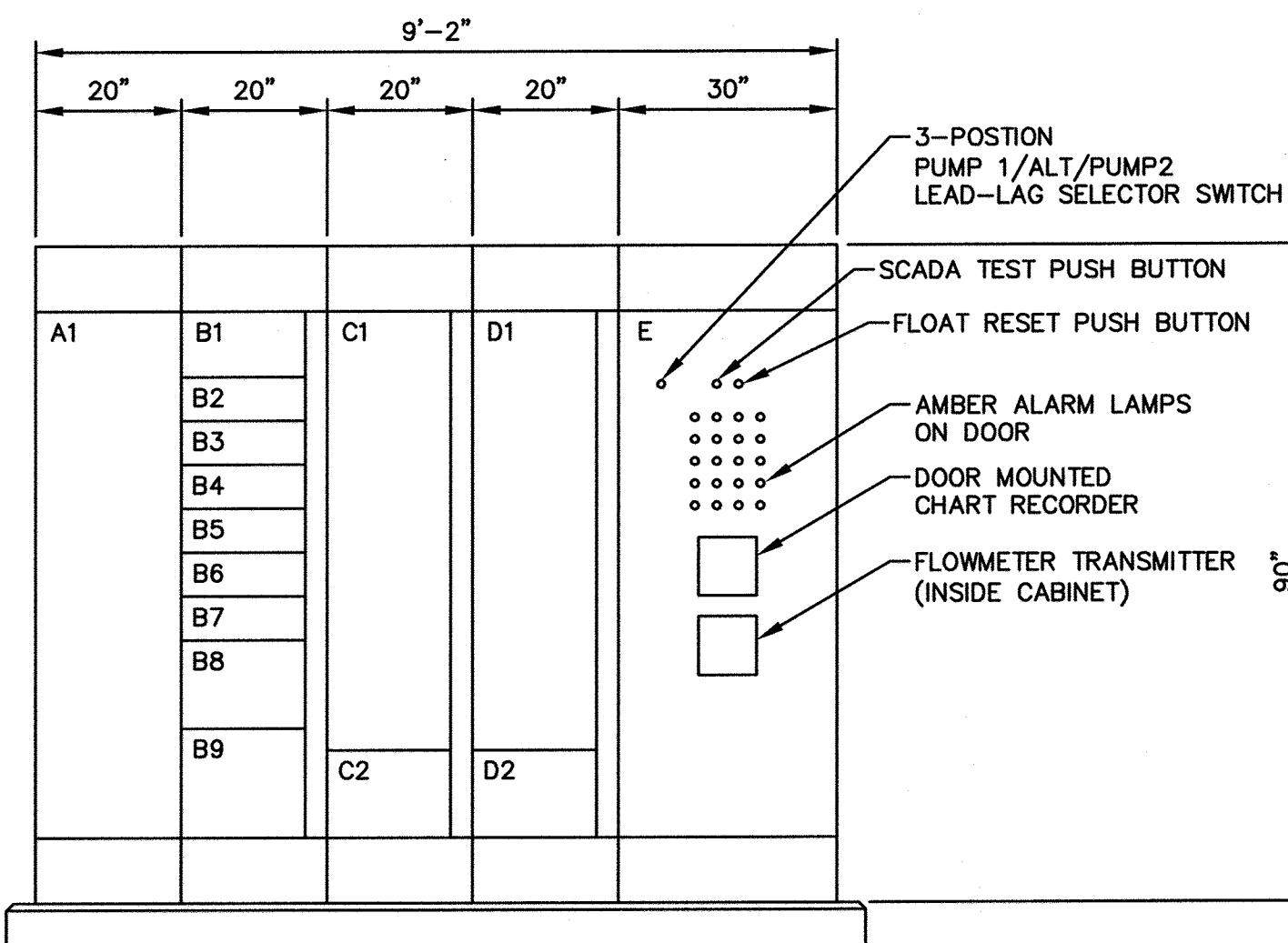
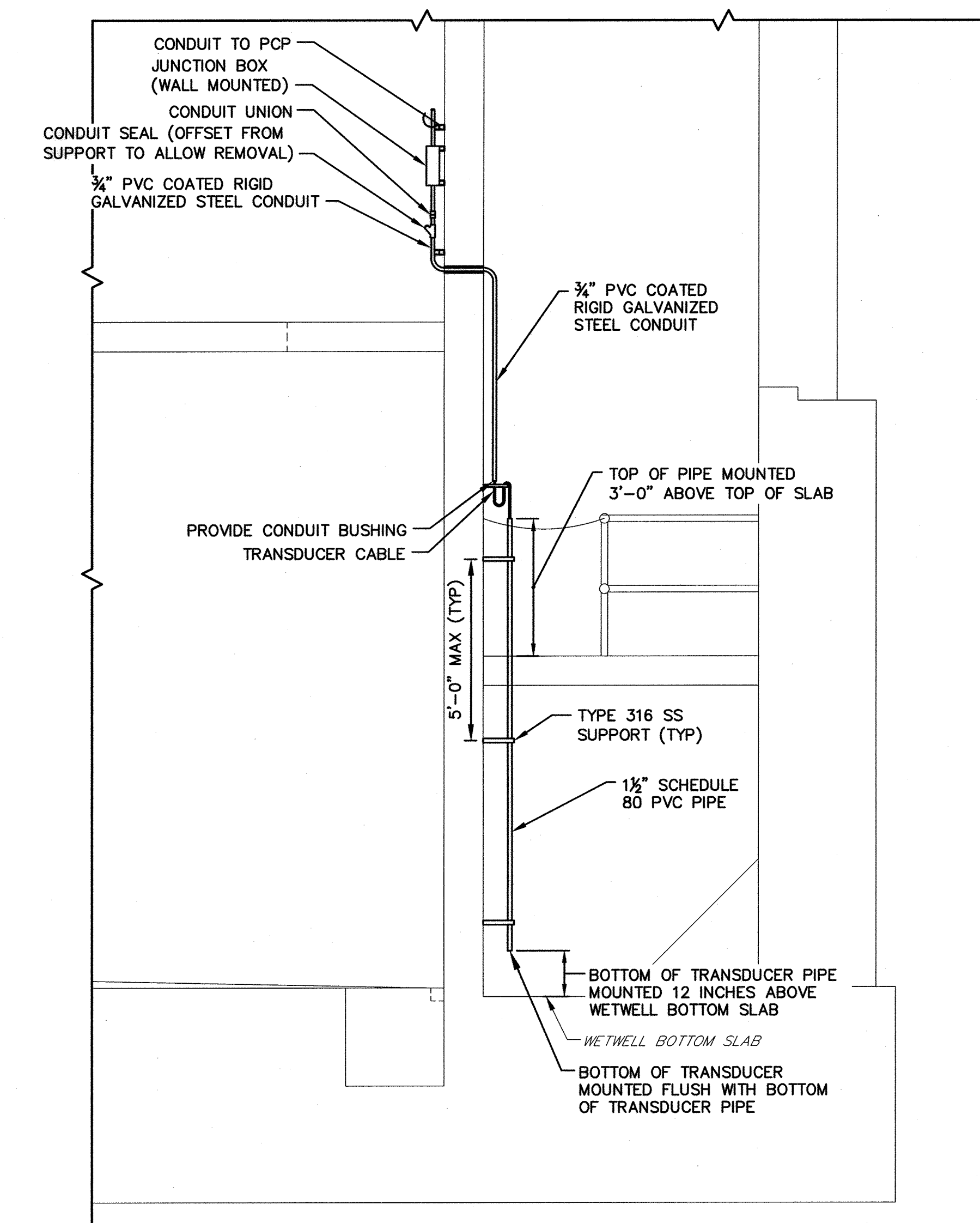
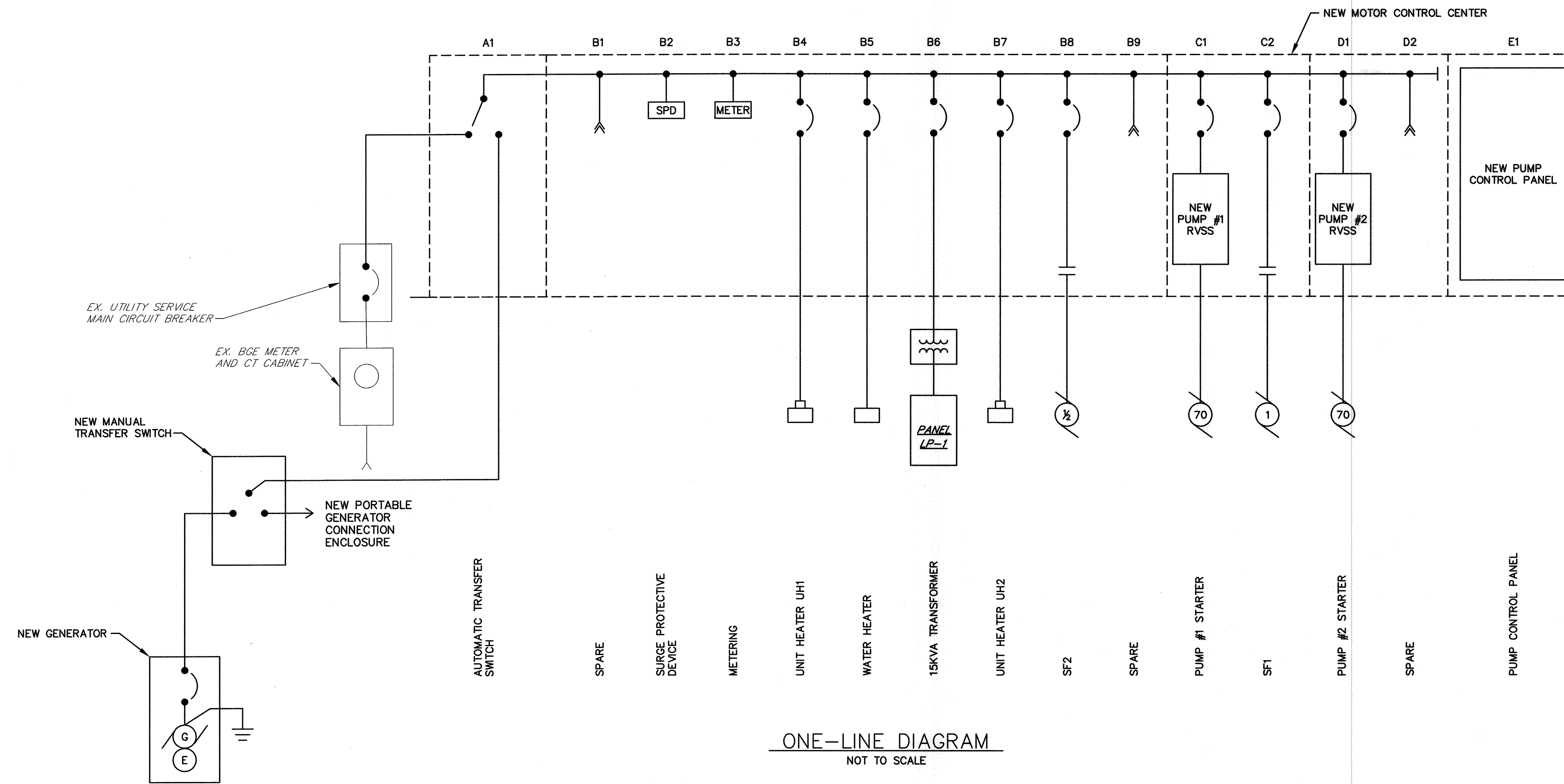
MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: 3/8"=1'-0"
SHEET: 21B OF 25

RK21315 - K:\Projects\2019\2154_HC\Plans\Proposed\13154MHMS-021B-WP-21B.dwg Apr 02, 2019 - 1:56pm Plot Scale: 1:1
 Miscellaneous Pumping Stations\Poloproc Park_PSA\Cad\Plans\Proposed\13154MHMS-021B-WP-21B.dwg



ALARM LAMP LEGEND

1. HIGH LEVEL WETWELL
2. LOW LEVEL WETWELL
3. PUMP ROOM FLOODED
4. STATION LOSS OF POWER
5. ATS IN EMERGENCY
6. GENERATOR RUNNING
7. GENERATOR FAILURE
8. UPS ON BATTERY
9. UPS BATTERY LOW
10. PUMP 1 NOT IN AUTO
11. PUMP 2 NOT IN AUTO
12. PUMP 1 FAIL
13. PUMP 2 FAIL
14. PUMP 1 RVSS FAULT
15. PUMP 2 RVSS FAULT
16. PUMP 1 OVERTEMP
17. PUMP 2 OVERTEMP
18. COMMON ALARM
19. SPARE
20. SPARE

MCC SCHEDULE												
480/277 VOLTS, 3 PHASE, 4 WIRE, 600 AMP BUS												
ITEM	DESCRIPTION	BRKR SIZE		FEEDER			STARTER			AUX. DES.	REMARKS	
		AMP	POLE	WIRE	QUAN	GRD	COND	TYPE	SIZE			HP
A1	AUTOMATIC TRANSFER SWITCH	-	-	350	4	3	4"	-	-	-	-	400 AMPERE
B1	SPARE	-	-	-	-	-	-	-	-	-	-	----
B2	SPD	-	-	-	-	-	-	-	-	-	-	----
B3	METERING	-	-	-	-	-	-	-	-	-	-	----
B4	UNIT HEATER UH1	30	3	10	3	10	3/4"	-	-	-	-	----
B5	WATER HEATER	30	3	10	3	10	3/4"	-	-	-	-	----
B6	15KVA TRANSFORMER	25	3	10	3	10	3/4"	-	-	-	-	----
B7	UNIT HEATER UH2	30	3	10	3	10	3/4"	-	-	-	-	----
B8	SF2	20	3	12	3	12	3/4"	FVNR	1	1/2	120	1,2,3,5 SEE SCHEMATIC
B9	SPARE	-	-	-	-	-	-	-	-	-	-	----
C1	PUMP MOTOR #1	150	3	1	3	6	2"	RVSS	-	70	-	1,2,3,4,5 SEE NOTES 2 & 3
C2	SF1	20	3	12	3	12	3/4"	FVNR	1	1	120	1,2,3,5 SEE SCHEMATIC

NOTE:
1. COORDINATE EXACT LOCATION OF TRANSUCER AND ASSOCIATED COMPONENTS IN THE FIELD AND OBTAIN COUNTY APPROVAL PRIOR TO INSTALLATION.

TRANSUCER MOUNTING DETAIL
NTS

MCC SCHEDULE (CONTINUED)												
480/277 VOLTS, 3 PHASE, 4 WIRE, 600 AMP BUS												
ITEM	DESCRIPTION	BRKR SIZE		FEEDER			STARTER			AUX. DES.	REMARKS	
		AMP	POLE	WIRE	QUAN	GRD	COND	TYPE	SIZE			HP
D1	PUMP MOTOR #2	150	3	1	3	6	2"	RVSS	-	70	-	1,2,3,4,5 SEE NOTES 2 & 3
D2	SPARE	-	-	-	-	-	-	-	-	-	-	----
E	PUMP CONTROL PANEL	-	-	-	-	-	-	-	-	-	-	SEE NOTE 1

- NOTES:
1. PROVIDE EMPTY MOTOR CONTROL CENTER SECTION FOR FABRICATION BY SYSTEM INTEGRATOR.
 2. CONDUIT SHOWN IS MINIMUM SIZE. MOTORS ARE CONNECTED WITH CABLES PROVIDED BY THE PUMP MANUFACTURER. PROVIDE QUANTITY AND SIZE OF CONDUITS PER MANUFACTURER'S RECOMMENDATIONS. TERMINATE CONDUITS WITH BUSHING, IN LOCATION AS DIRECTED IN THE FIELD AND SUSPEND CABLES USING 316 STAINLESS STEEL HOOKS AND CABLE GRIPS.
 3. EQUIPMENT SHALL BE RATED FOR A MINIMUM OF 79 FULL LOAD AMPERES, BUT NOT LESS THAN STANDARD HORSEPOWER SHOWN.

AUXILIARIES FOR MOTOR CONTROL CENTER

1. HAND-OFF-AUTOMATIC SWITCH
2. INDICATING LIGHTS
3. 120 VOLTS CONTROL POWER TRANSFORMER
4. RUNNING TIME METERS AND START COUNTERS
5. AUXILIARY RELAYS/CONTACTS

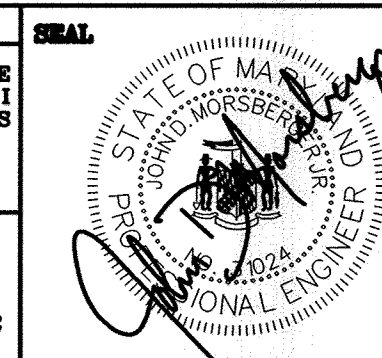
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director 4/5/19
 DIRECTOR, PUBLIC WORKS DATE
Chief 4/5/19
 CHIEF, BUREAU OF ENGINEERING DATE
Chief 4/5/19
 CHIEF, BUREAU OF UTILITIES DATE

PROFESSIONAL CERTIFICATION

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 LICENSE NO. 51024 EXPIRATION DATE 10/17/2020

RK&K
 700 EAST PRATT STREET
 SUITE 500
 BALTIMORE, MARYLAND 21202



DES: JDM

DRN: NAF

CHK: JDM

DATE: 4/02/19

BY NO.

RK&K 1

2019 UPGRADES - ADD SHEET 22A

DATE 4/19

MCC SCHEDULE, ELEVATION &
 ONE-LINE DIAGRAM
 PATAPSCO PARK SPS -
 2019 UPGRADES

MOUNT HEBRON SEWER MAINS
 2019 UPGRADES

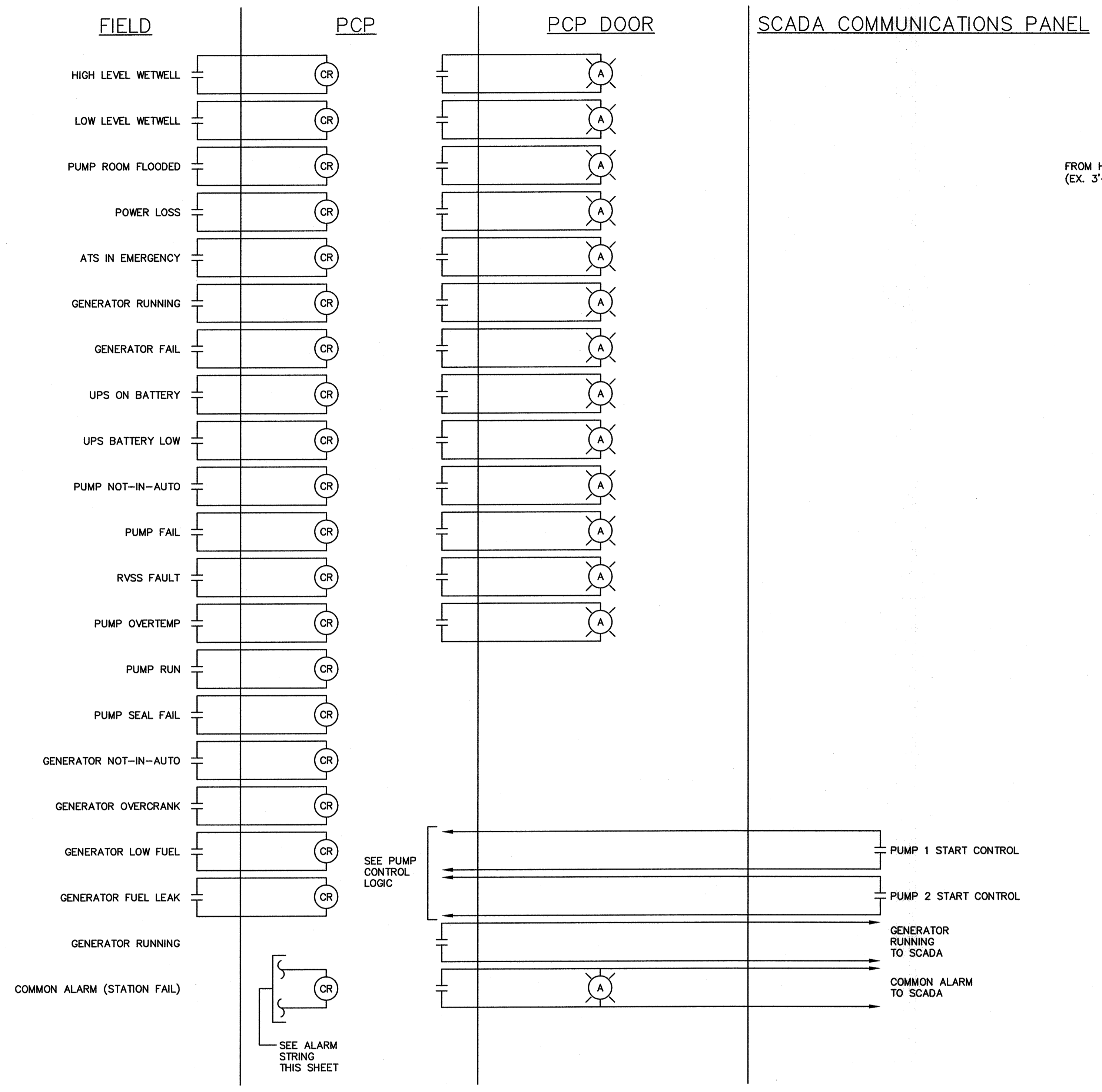
CAPITAL PROJECT NO. S6600
 CONTRACT NO. 745-S

SCALE
 NTS

SHEET
 22A OF 25

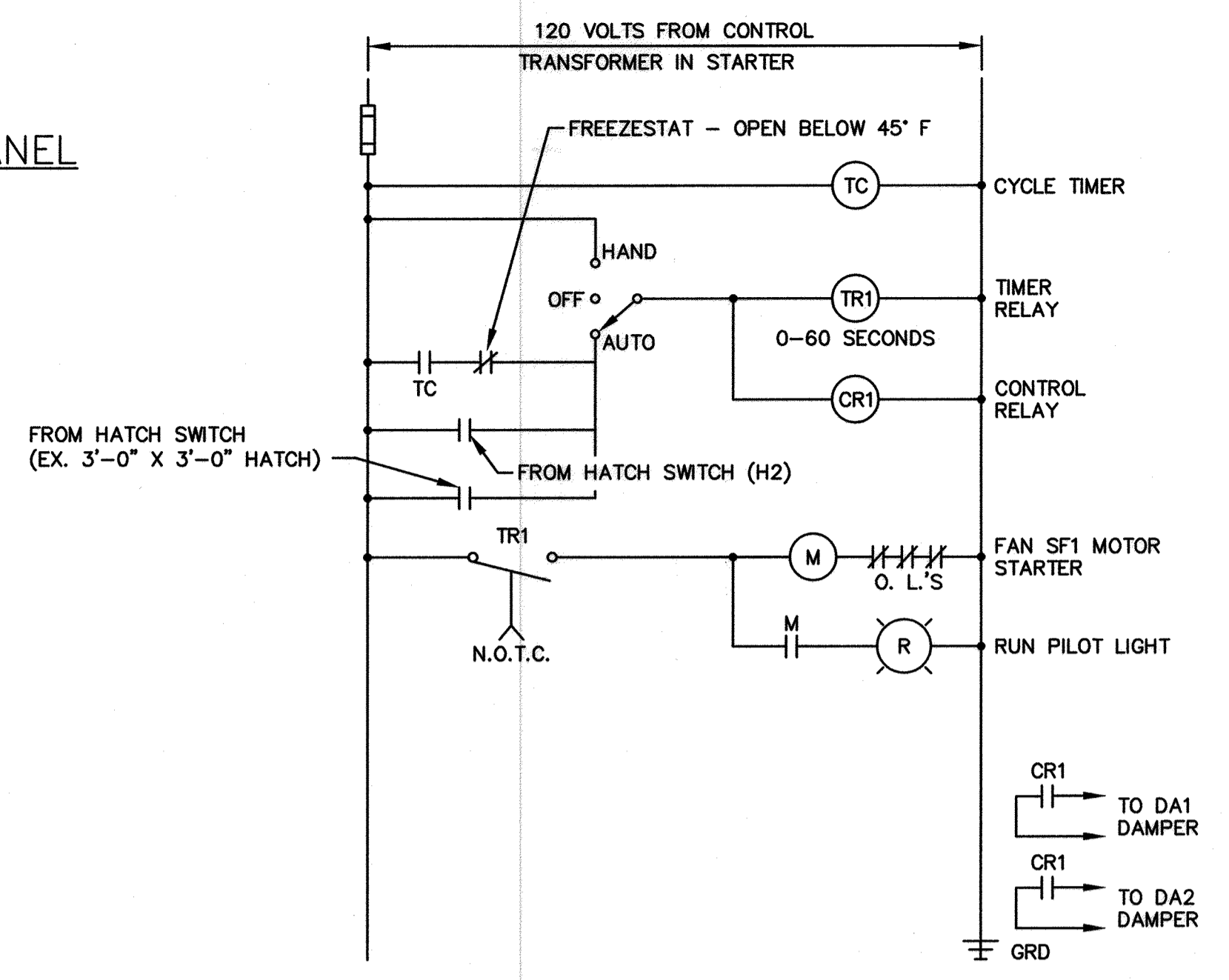
MAP NO. 17 BLOCK NO. 8 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

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 Miscellaneous Pumping Stations\Mount Hebron PS\Cad\Draws\Proposed\21315MSPS-023A-EP-23A.dwg

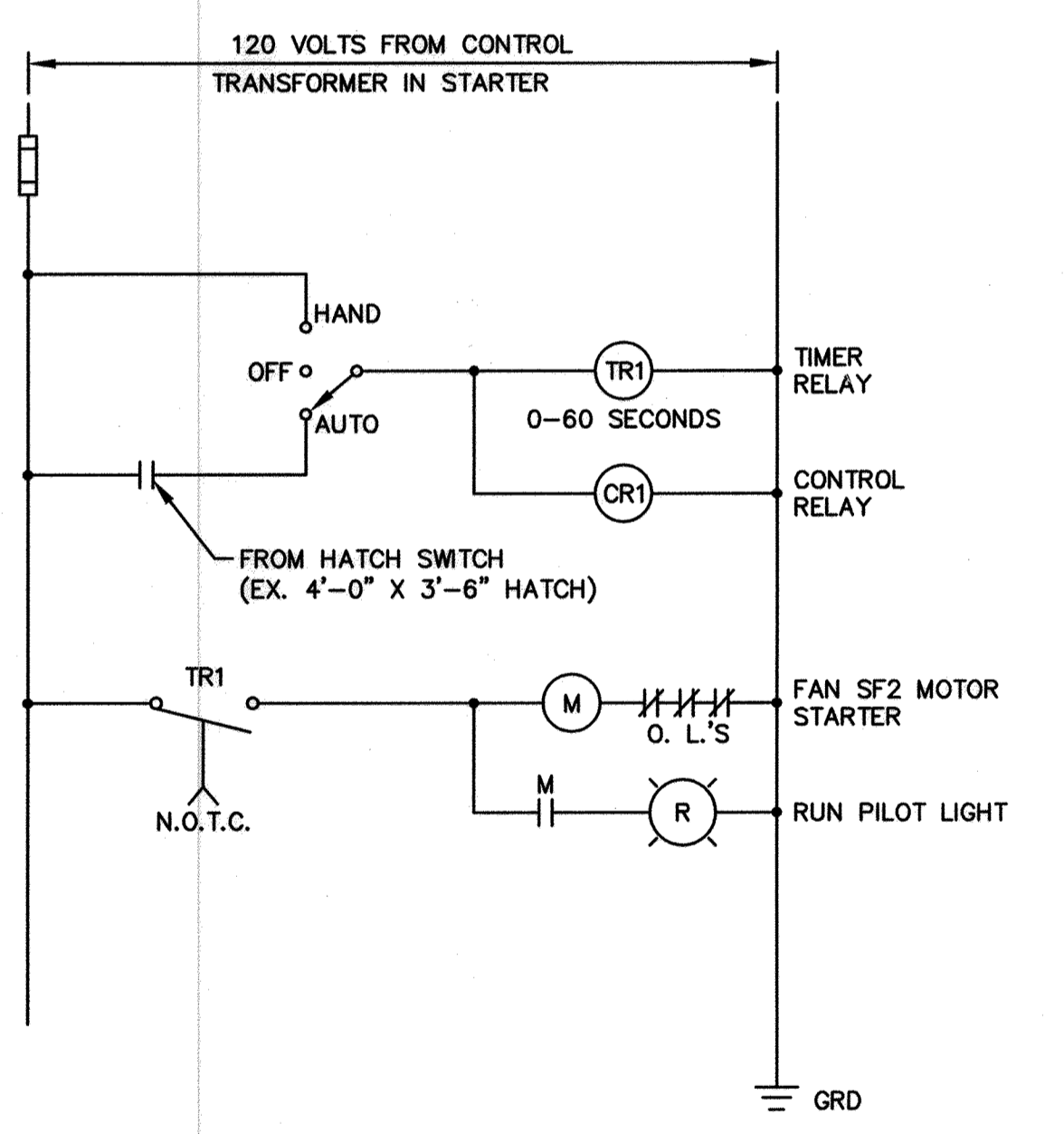


TYPICAL STATUS AND ALARM DIAGRAMS
NTS

- NOTES:**
- PUMP RELATED SIGNALS ARE TYPICAL FOR BOTH PUMPS.
 - CONTRACTOR SHALL PROVIDE 2-#14 IN CONDUIT TO PCP FOR EACH SIGNAL (OR INTERNAL TO MCC) AND TERMINATE ON TERMINAL STRIP PRIOR TO EXTENDING TO RELAY.
 - ALL RELAYS SHALL BE 4-POLE.
 - DRY CONTACTS (NORMALLY OPEN) SHALL FEED ALARM SIGNALS TO SCADA COMMUNICATIONS PANEL.
 - PROVIDE A MINIMUM OF SIX 4-POLE RELAYS MOUNTED IN PCP AS SPARES.

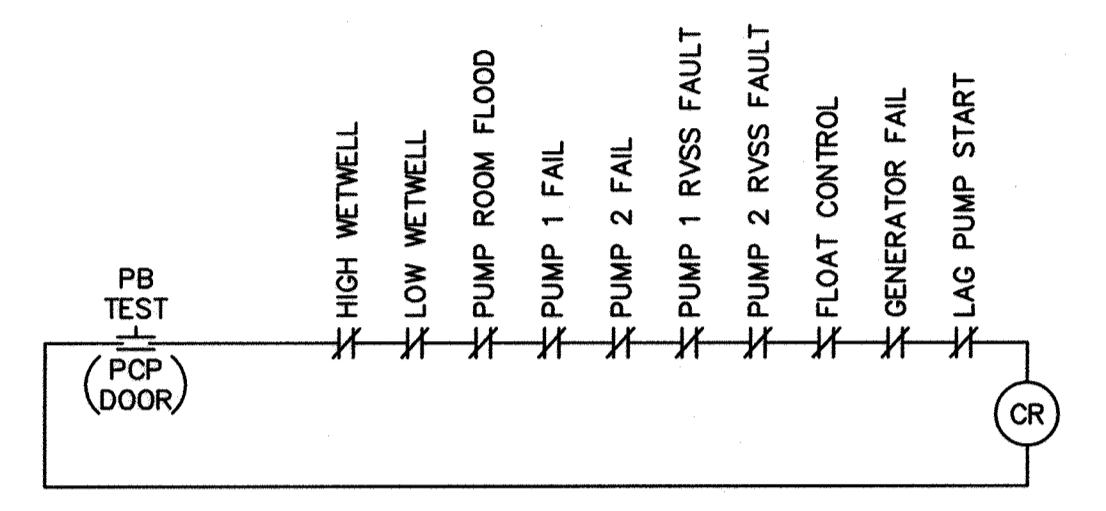


CONTROL SCHEMATIC - SUPPLY FAN SF1
NTS



CONTROL SCHEMATIC - SUPPLY FAN SF2
NTS

- NOTES:**
- CONTRACTOR TO PROVIDE ALL NECESSARY RELAYS TO ACCOMPLISH CONTROLS AS SHOWN, AND PROVIDE A MINIMUM OF TWO SPARE OUTPUTS PER FAN.
 - ALL MOTOR STARTERS SHALL HAVE PHASE MONITORS (NOT SHOWN) FOR SINGLE PHASE PROTECTION (SEE SPECIFICATION).
 - MOTOR OPERATED DAMPERS SHALL BE ENERGIZED PRIOR TO FAN MOTORS BASED ON PRESET TIME DELAY WHERE SHOWN.
 - REFER TO MECHANICAL SPECIFICATIONS FOR VENTILATION OPERATION DESCRIPTIONS.



COMMON ALARM STRING (STATION FAILURE)
NTS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

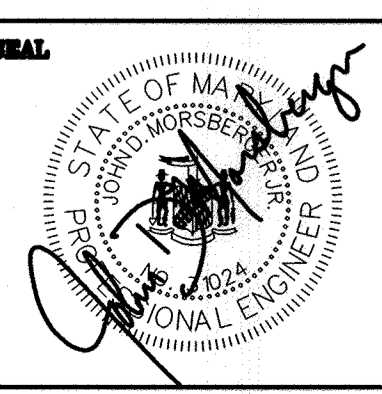
Director of Public Works: *[Signature]* DATE: 4/5/19
 Chief, Bureau of Engineering: *[Signature]* DATE: 4/19
 Chief, Bureau of Utilities: *[Signature]* DATE: 4/19

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT REDLINE REVISIONS INCLUDED IN 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. 21024 EXPIRATION DATE 10/17/2020

RK&K 700 EAST PRATT STREET
SUITE 500
BALTIMORE, MARYLAND 21202



DES:	JDM			
DRN:	NAF			
CHK:	JDM			
DATE:	4/02/19	RK&K	1	2019 UPGRADES - ADD SHEET 23A
BY:	NO.			
				REVISIONS
				DATE

ELECTRICAL DETAILS MOUNT
HEBRON & PATAPSCO PARK SPS -
2019 UPGRADES

MAP NO. 17 BLOCK NO. 8

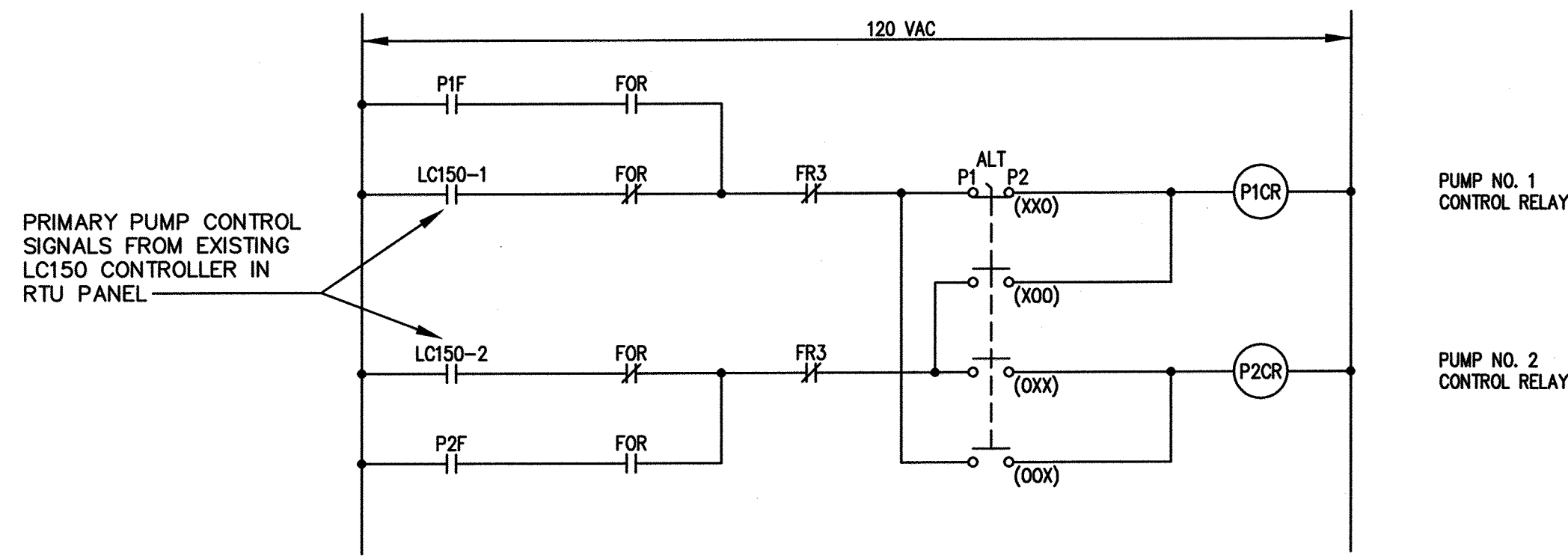
MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

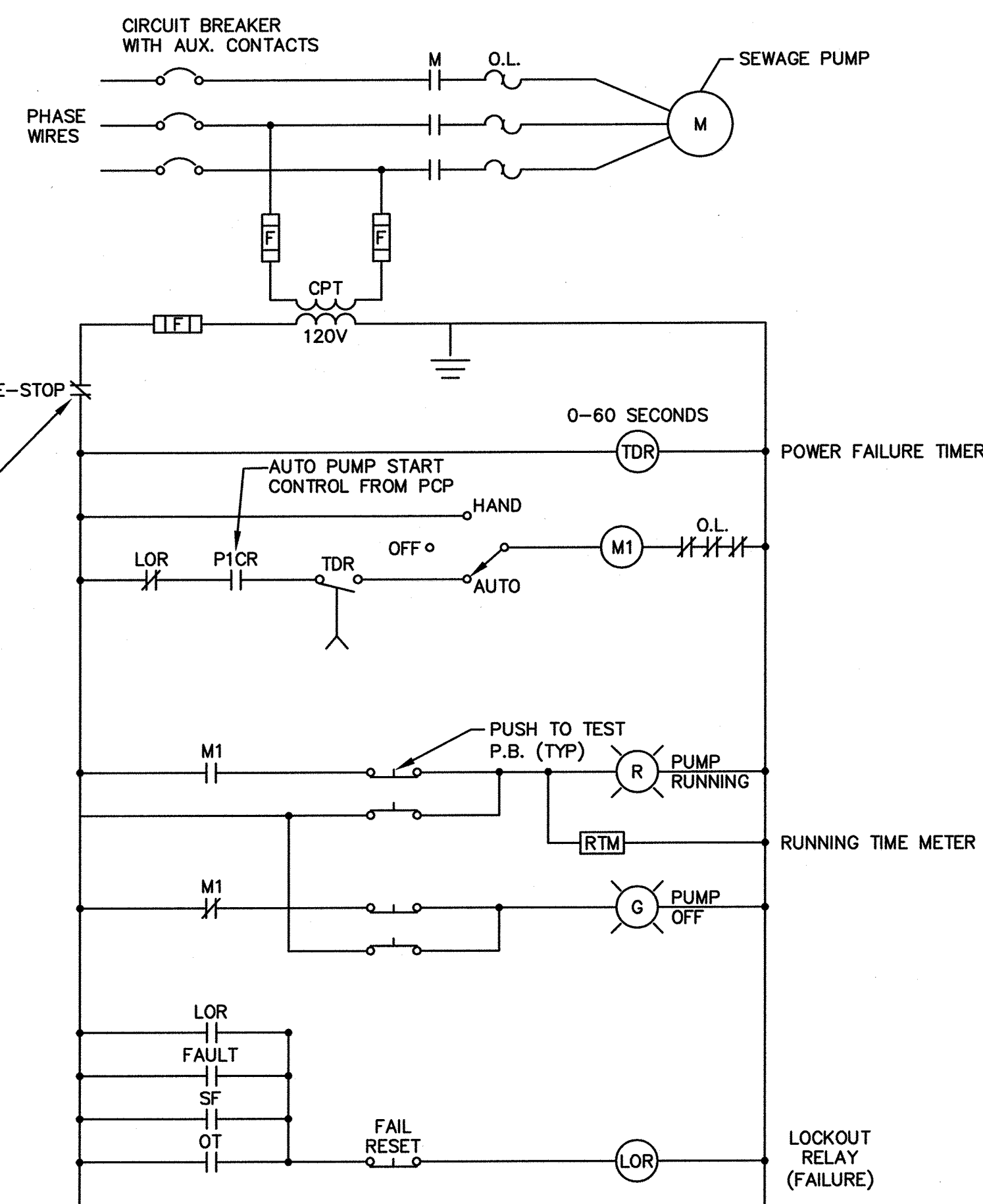
SCALE
NTS

SHEET
23A OF 25



PRIMARY AND SECONDARY PUMP CONTROL AND ALTERNATION SELECTION

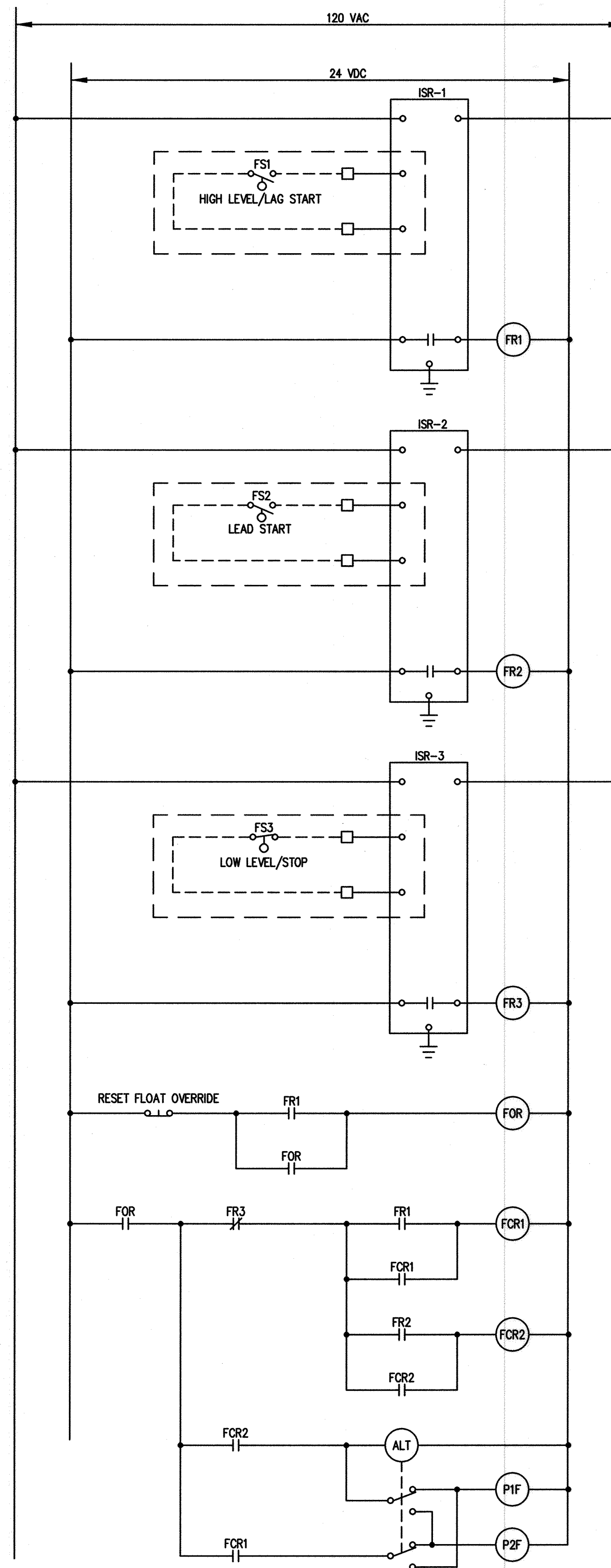
NTS



SEWAGE PUMP #1

NTS
(SEWAGE PUMP #2 SIMILAR EXCEPT P1CR WILL BE P2CR, AND M1 WILL BE M2)

NOTE:
1. PROVIDE ADDITIONAL ALARM PILOT LIGHTS ON RVSS DOOR FOR FAILURE, NOT-IN-AUTO, OVERTEMP AND SEAL FAIL. TRANSMIT THOSE SIGNALS TO PCP AS WELL, EXCEPT SEAL FAIL SHALL ONLY BE ANNUNCIATED ON RVSS DOOR.



BACKUP FLOAT CONTROLS

NTS

WETWELL HIGH LEVEL/LAG START FLOAT SWITCH I.S. RELAY

HIGH LEVEL/LAG PUMP START FLOAT RELAY

WETWELL LEAD START FLOAT SWITCH I.S. RELAY

LEAD PUMP START FLOAT RELAY

WET WELL LOW LEVEL/STOP SWITCH I.S. RELAY

LOW LEVEL/PUMP(S) STOP FLOAT RELAY

FLOAT OVERRIDE RELAY

BACKUP FLOAT LAG PUMP CONTROL RELAY

BACKUP FLOAT LEAD PUMP CONTROL RELAY

BACKUP FLOAT ALTERNATOR

BACKUP FLOAT PUMP 1 REQUIRED CONTROL RELAY

BACKUP FLOAT PUMP 2 REQUIRED CONTROL RELAY

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	VOLTAGE	LAMPS	MOUNTING HEIGHT	MANUFACTURER OR EQUAL	QTY
A	4 FOOT, ENCLOSED AND GASKETED LED FIXTURE, U.L. LISTED FOR WET LOCATION.	120/277	8000 LUMEN LED	STEM SUSPENDED OR SURFACE	LITHONIA FEM L48 8000LM (MAFL WD MVOLT GZ10 40K 80CRI)	10
B	WET LOCATION EXIT SIGN WITH BLACK HOUSING AND BRUSHED ALUMINUM STENCIL AND GREEN FIBERGLASS PANEL. CONNECT AHEAD OF SWITCH	120/277	LED	WALL MOUNTED 8'-0" ABOVE FINISHED FLOOR OR AS NOTED	McPHILBEN ER60MLD1GBA	2
C	9.6 VOLT LIGHTING UNIT WITH EMERGENCY BATTERY PACK, U.L. LISTED FOR WET LOCATION. OPERATION SHALL BE FULLY AUTOMATIC AND THE EMERGENCY POWER UNIT SHALL BE CAPABLE OF PROVIDING POWER FOR TWO LED LAMPS FOR A MINIMUM OF 90 MINUTES. FEATURES SHALL INCLUDE A SEALED NICKEL CADMIUM LONG LIFE BATTERY, SOLID STATE CHARGER, AN AUTOMATIC TURN ON CIRCUIT AND TEST SWITCH TO SIMULATE EMERGENCY OPERATION. CONNECT AHEAD OF SWITCH.	120/277	LED	WALL MOUNTED 8'-0" ABOVE FINISHED FLOOR	LITHONIA WLTV LED ELA T QWP L0309	4

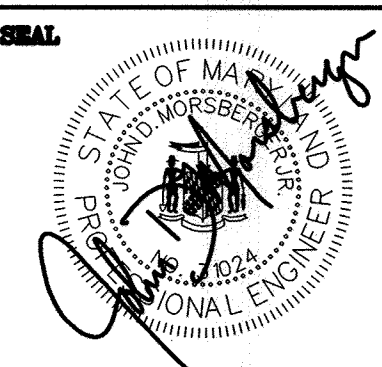
NOTE: CONTRACTOR TO VERIFY AND SUBMIT LAYOUT AND MOUNTING HEIGHTS TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. QUANTITY TO BE SPLIT BETWEEN PUMP ROOM AND CONTROL ROOM

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *John K. ...* DATE: 4/15/19
 Chief, Bureau of Engineering: *Thomas P. ...* DATE: 4/15/19
 Chief, Bureau of Utilities: *...* DATE: 4/15/19
 Chief, Utility Division: *...* DATE: 4/15/19

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT REVISIONS INCLUDED IN 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. 21024 EXPIRATION DATE 10/17/2020
RK&K 700 EAST PRATT STREET SUITE 500 BALTIMORE, MARYLAND 21202



DES: JDM
 DRN: NAF
 CHK: JDM
 DATE: 4/02/19
 BY: NO. REVISIONS DATE
 1 2019 UPGRADES - ADD SHEET 23B 4/19

ELECTRICAL DETAILS MOUNT
HEBRON & PATAPSCO PARK SPS -
2019 UPGRADES

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

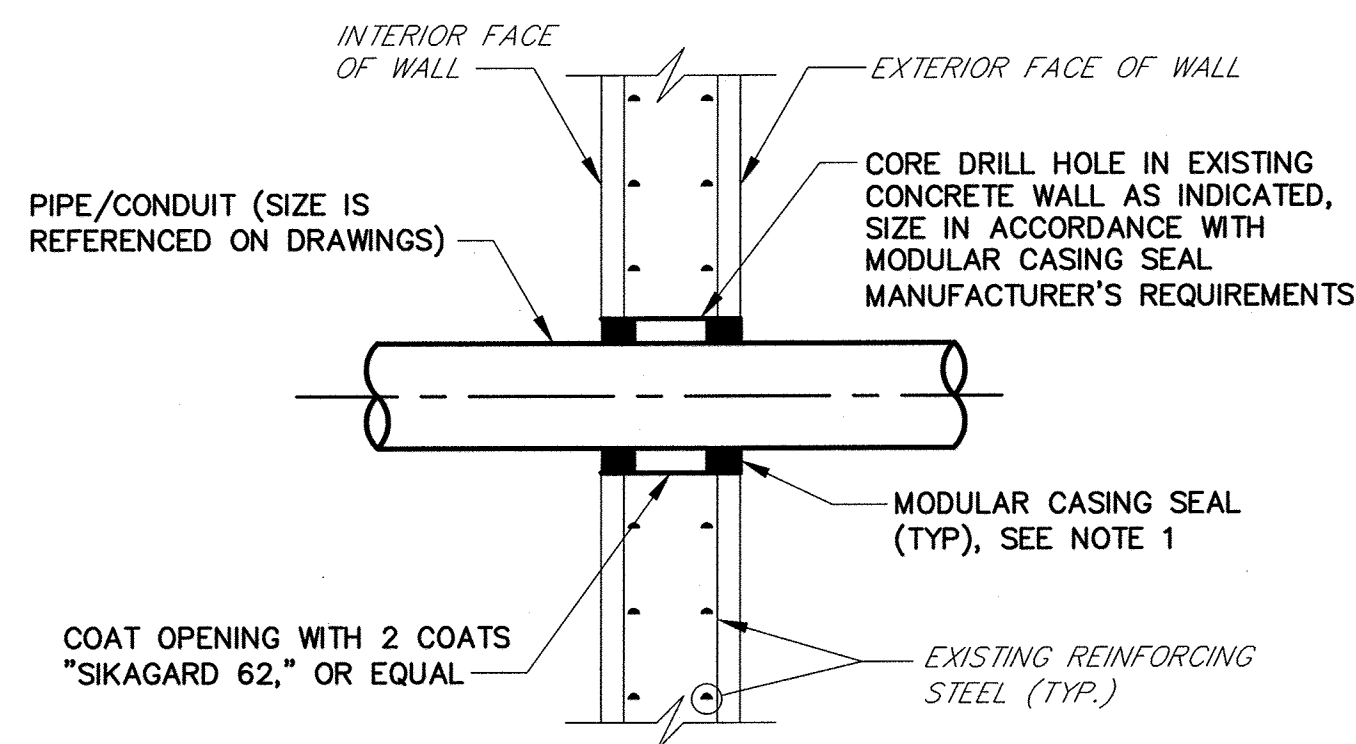
CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

MAP NO. 17 BLOCK NO. 8 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE
NTS
SHEET
23B OF 25

NOTES:

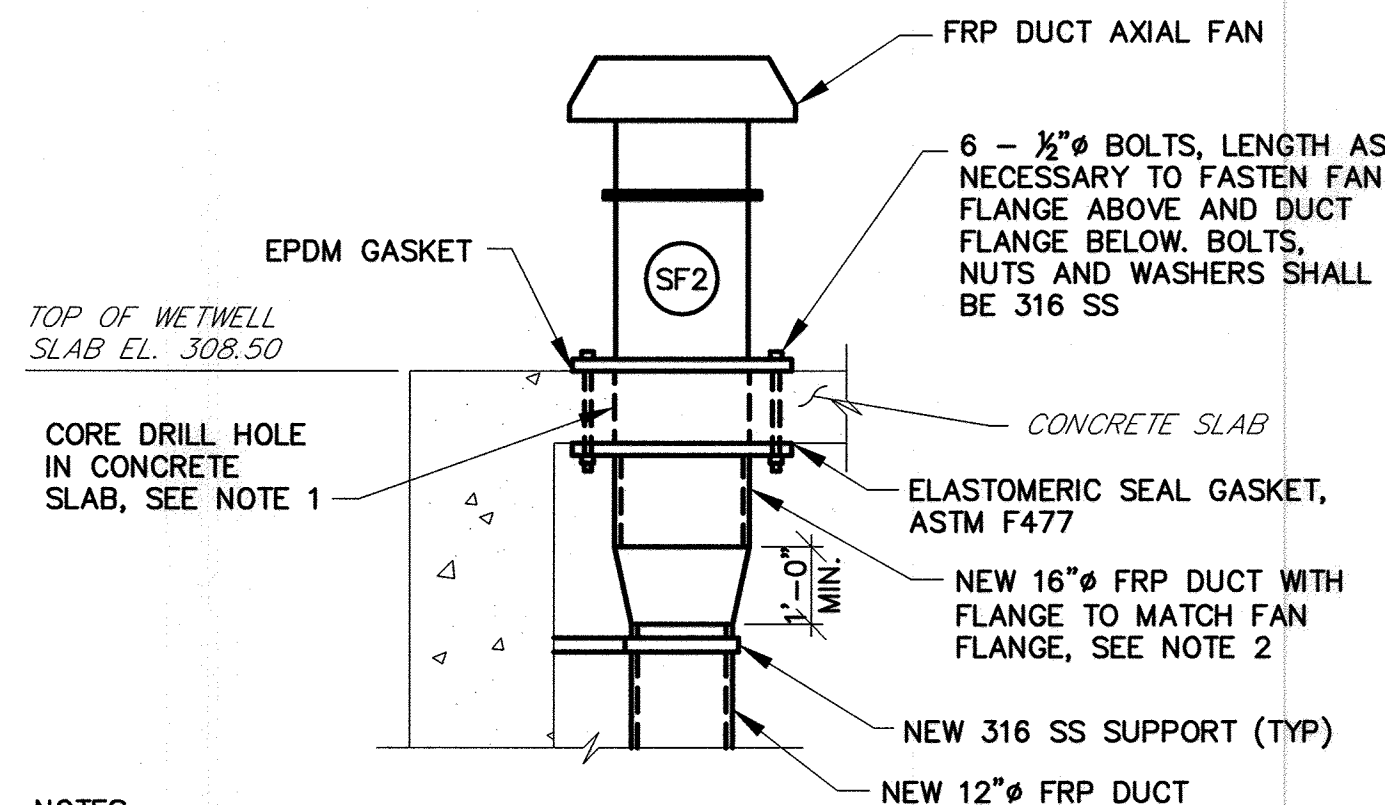
1. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
2. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.



NOTES:

1. MODULAR CASING SEAL SHALL BE LINKSEAL, OR APPROVED EQUAL.
2. PIPE AT MODULAR CASING SEAL LOCATION SHALL BE LEVEL.
3. ON EXTERIOR WALLS WHERE PIPING IS BURIED, ONLY ONE MODULAR CASING SEAL IS REQUIRED, ON INTERIOR SIDE.

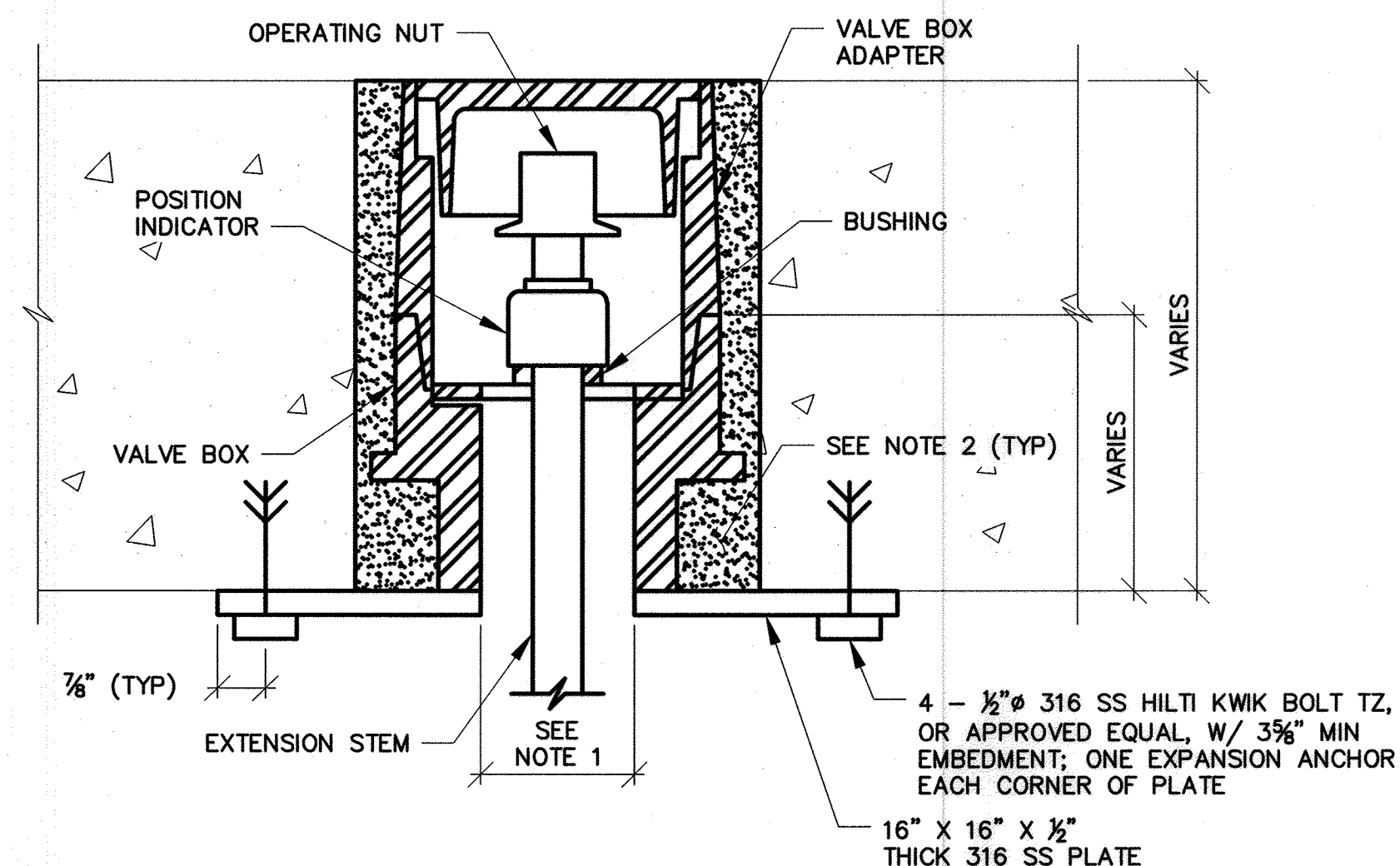
TYPICAL CONCRETE WALL PENETRATION DETAIL
NTS



NOTES:

1. COORDINATE SIZE OF HOLE IN CONCRETE SLAB WITH MANUFACTURER OF FAN FURNISHED.
2. PROVIDE OVERSIZED FLANGES SO THAT THE BOLT HOLES ARE A MINIMUM OF 3" FROM THE DUCT OPENING IN THE CONCRETE SLAB

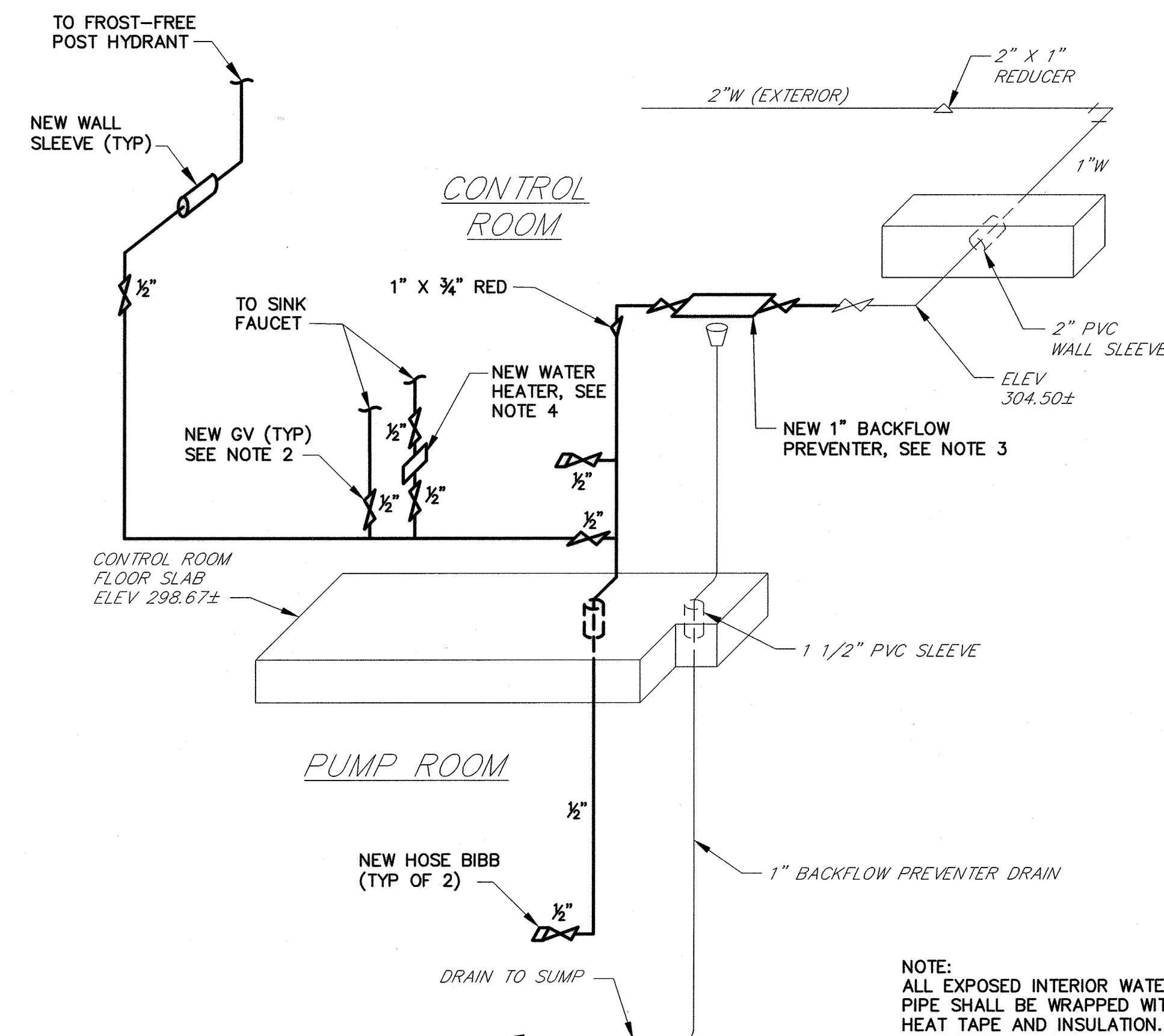
16" FRP SUPPLY FAN DETAIL
NTS



NOTES:

1. HOLE IN SS PLATE SHALL MATCH THE INSIDE DIAMETER OF VALVE BOX.
2. FILL ANNULAR SPACE AROUND VALVE BOX WITH NON-SHRINK, NON-METALLIC CEMENTITIOUS GROUT.

TYPICAL VALVE BOX INSTALLATION DETAIL
NTS



POTABLE WATER NOTES:

1. CONTRACTOR SHALL PROVIDE ALL FITTINGS NECESSARY TO CONNECT NEW PIPING TO EXISTING PIPING.
2. GATE VALVES SHALL BE INSTALLED IN CLOSE PROXIMITY TO ALL NEW PLUMBING FIXTURES.
3. INSTALL BACKFLOW PREVENTER SO THAT THE EXISTING DRAIN PIPING CAN BE REUSED. MANUFACTURER SUPPLIED AIR GAP FITTING SHALL BE INSTALLED BETWEEN THE BACKFLOW PREVENTER AND THE DRAIN PIPING.
4. MOUNT WATER HEATER SUCH THAT THE ELEVATION OF THE TOP OF THE WATER HEATER IS BELOW THE SINK ELEVATION AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PATAPSCO PARK PUMPING STATION
WATER SUPPLY DIAGRAM
NTS

UNIT HEATER SCHEDULE					
ID	SIZE (H X W X D)	KW	MOUNTING HEIGHT	NOTES	MANUFACTURER & MODEL NO.
UH1	21 3/4" X 19" X 12 3/4"	15	6'-6" AFF	1,2,3,4	QMARK MODEL MUH-15
UH2	21 3/4" X 19" X 12 3/4"	15	7'-0" AFF	1,2,3,4	QMARK MODEL MUH-15

NOTES:

1. PROVIDE INTEGRAL THERMOSTAT
2. MOUNTING HEIGHT IS TO BOTTOM OF UNIT
3. PROVIDE INTEGRAL DISCONNECT
4. SEE ELECTRICAL DRAWINGS FOR CONNECTION REQUIREMENTS

PUMP SCHEDULE						
ID	DESCRIPTION	LOCATION	Q (GPM)	TDH (FT)	RPM (MAX)	REMARKS
P1	PUMP #1	PUMP ROOM	600	192	1800	NEW DRY-PIT SUBMERSIBLE
P2	PUMP #2	PUMP ROOM	600	192	1800	NEW DRY-PIT SUBMERSIBLE

DAMPER SCHEDULE						
ID	SIZE (INCHES)	DEPTH (INCHES)	MATERIAL	NOTES	TYPE	REMARKS
DA1	24" x 72"	NA	NA	3,4	EXISTING	OPEN WHEN SUPPLY FAN SF1 IS OPERATING, OTHERWISE CLOSED (NEW ACTUATOR ONLY)
DA2	30" x 30"	4	ALUMINUM	1,3,4,6,7,9	THIN LINE CONTROL DAMPER	OPEN WHEN SUPPLY FAN SF1 IS OPERATING, OTHERWISE CLOSED

NOTES:

1. CLEAR ANODIZED FINISH	4. ACTUATOR MOUNTING BRACKET	7. REAR FLANGE FRAME
2. PNEUMATIC ACTUATOR	5. SWITCH PACKAGE	8. SPRING LOADED OPEN
3. ELECTRIC ACTUATOR	6. FRONT FLANGE FRAME	9. SPRING LOADED CLOSED

CENTRIFUGAL SQUARE INLINE FAN SCHEDULE											
ID	SERVICE	LOCATION	DRIVE	CFM	S.P. (IN W.G.)	FAN RPM	MOTOR HP	VOLTAGE/PHASE	SOUND (MAX AT 5')	NOTES	MANUFACTURER & MODEL NO.
SF1	SUPPLY	CONTROL ROOM	BELT	3,400	0.67	727	1.0	460/3	59 dBA	4,7,11,12,13,14,17,19,21,25,26,27,28	LOREN COOK MODEL NO. 225SQN-B, OR APPROVED EQUAL

NOTES:

1. NEMA 4 DISCONNECT	11. INLET FLEXIBLE CONNECTOR	21. REINFORCED WHEEL
2. GRAVITY BACKDRAFT DAMPER	12. OUTLET FLEXIBLE CONNECTOR	22. EXTERNAL INLET VANE DAMPER - ALUMINUM
3. MOTORIZED BACKDRAFT DAMPER	13. FLANGED INLET CONNECTION WITH COMPANION FLANGE	23. FILTER BOX WITH ALUMINUM FILTER
4. SIDE DISCHARGE PACKAGE	14. FLANGED OUTLET CONNECTION WITH COMPANION FLANGE	24. FILTER BOX WITH 30% ALUMINUM FILTER
5. DUEL SIDE DISCHARGE PACKAGE	15. CEILING MOUNTED RUBBER-IN-SHEAR INSULATORS	25. EXTENDED LUBE LINES
6. BELT GUARD	16. FLOOR MOUNTED RUBBER-IN-SHEAR INSULATORS	26. SPARE BELT KIT
7. OSHA GUARD/MOTOR COVER	17. CEILING MOUNTED SPRING ISOLATORS	27. BELT TENSIONER-ROTARY
8. INSULATED HOUSING	18. FLOOR MOUNTED SPRING ISOLATORS	28. THERMOSTATICALLY CONTROLLED
9. INLET GUARD	19. LORENZIZED COATING	
10. OUTLET GUARD	20. EPOXY POWDER COATING	

ACCESS HATCH SCHEDULE			
ID	SLAB OPENING	CLEAR OPENING	REMARKS
H1	48" X 48"	45 1/2" X 42 1/8"	CONTROL ROOM NEW GENERAL PURPOSE RETROFIT ACCESS HATCH W/ GRATING
H2	54" X 96"	51" X 96"	TOP SLAB NEW GENERAL PURPOSE RETROFIT ACCESS HATCH

FIBERGLASS DUCT AXIAL FAN SCHEDULE											
ID	SERVICE	LOCATION	DRIVE	CFM	S.P. (IN W.G.)	FAN RPM	MOTOR HP	VOLTAGE/PHASE	SOUND (MAX AT 5 FEET)	NOTES	MANUFACTURER & MODEL NO.
SF2	SUPPLY	WETWELL TOP SLAB	BELT	1,400	0.50	1591	1/2"	460/3	68 dBA	3,4,5,6,7,11,18,19,20	HARTZELL FAN INC. FRP DUCT AXIAL MODEL NO. A35-166E, OR APPROVED EQUAL

NOTES:

1. DISCONNECT SWITCH	8. FRP ROOF CURB	15. VIBRATION ISOLATOR
2. VANE SECTION	9. ROOF MOUNT	16. INLET BELL
3. 316 SS HARDWARE AND SHAFT	10. DUCT MOUNT	17. 316 SS INLET GUARD
4. ACCESS DOOR	11. FIBERGLASS MOTOR COVER	18. EXPLOSION PROOF
5. STATIC GROUNDING - CARBON/GRAPHITE IMPREGNATION	12. HORIZONTAL MOUNTING ANGLES FOR SUSPENDED MOUNTING	19. INVERTER DUTY MOTOR
6. ALL VINYL ESTER CONSTRUCTION	13. VERTICAL MOUNTING FEET/ANGLES (FLOOR/CEILING MOUNTING)	20. WEATHER COVER
7. SURFACE VEIL	14. HORIZONTAL BASE FOR FLOOR MOUNTING	

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James E. Butler 4/18
DIRECTOR OF PUBLIC WORKS DATE
James E. Butler 4/18
CHIEF, BUREAU OF ENGINEERING DATE

James E. Butler 4/19
CHIEF, BUREAU OF UTILITIES DATE
James E. Butler 4/19
CHIEF, UTILITY DIVISION DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT REDLINE REVISIONS INCLUDED IN 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. 28478. EXPIRATION DATE 9/15/2019

RK&K 700 EAST PRATT STREET SUITE 600 BALTIMORE, MARYLAND 21202

DES: DAO

DRN: NAP

CHK: RAL

DATE: 4/02/19

MECHANICAL DETAILS AND SCHEDULES
PATAPSCO PARK SPS -
2019 UPGRADES

MOUNT HEBRON SEWER MAINS
2019 UPGRADES

CAPITAL PROJECT NO. S6600
CONTRACT NO. 745-S

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE
NTS

SHEET
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