

ASHLEIGH KNOLLS SHARED SEWAGE DISPOSAL FACILITY

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

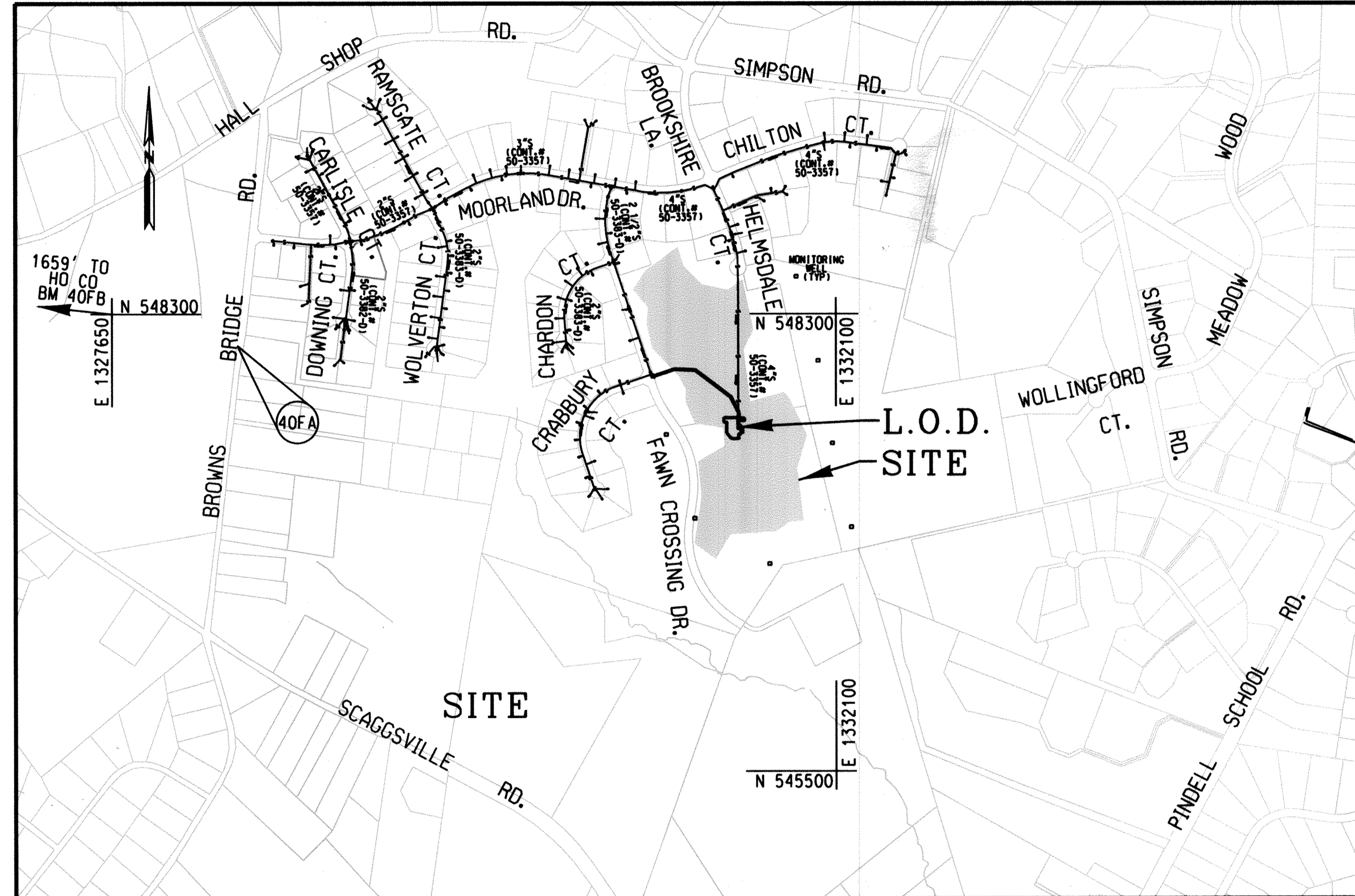
CAPITAL PROJECT No. S-6269

CONTRACT No. 50-4972

GENERAL NOTES

1. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
2. EXISTING FEATURES ON THESE PLANS HAVE BEEN DEVELOPED BY KCI TECHNOLOGIES USING PLANS FOR THE ASHLEIGH KNOLLS WASTEWATER COLLECTION, TREATMENT AND DISPOSAL SYSTEM (CONTRACT NO. 50-3357) DATED AUGUST 1994. NO TOPOGRAPHIC SURVEY WAS CONDUCTED FOR THIS CONTRACT. THE DATUM ON THE AS BUILT (CONTRACT NO. 50-3357): THE HORIZONTAL DATUM IS BASED ON MARYLAND STATE COORDINATES NAD 83/91. THE VERTICAL DATUM IS BASED ON U.S.G.S NGVD 29.
3. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
4. CLEAR ALL UTILITIES BY A MINIMUM OF 12".
5. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
6. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T.....	1-800-252-1133
BGA&E (CONSTRUCTION SERVICES).....	410-637-8713 / 800-233-1854
BGA&E (EMERGENCY).....	800-685-0123
BUREAU OF UTILITIES (BPU).....	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390 / 800-926-2728
MISS UTILITY.....	1-800-257-7777
STATE HIGHWAY ADMINISTRATION.....	410-313-7450 / 410-582-5650
VERIZON.....	1-800-743-0033 / 410-224-9210
7. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
8. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SITEWORK.
9. EXCEPT AS INDICATED ON THE PLANS AND NOTED ABOVE, ALL PUBLIC WATER MAINS SHALL BE POLYVINYLCHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA C900 DR18, PRESSURE CLASS 150 AND THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
10. THE CONTRACTOR SHALL NOT OPERATE ANT STATION EQUIPMENT ON THE EXISTING TREATMENT SYSTEM. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF UTILITIES HOWARD COUNTY, 15 DAYS PRIOR TO WATER MAIN SHUT DOWNS.
11. THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES, GRADES AND ELEVATION OF THE PROPOSED FACILITIES.
12. THE CONTRACTOR SHALL PROVIDE STAGING/STORAGE AREA.
13. ALL EXCAVATION SHALL BE KEPT FREE OF WATER UNTIL BACKFILL IS PROPERLY TAMPED IN PLACE TO FINISHED GRADE.
14. THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING SYSTEM. ALL CONNECTIONS TO THE EXISTING SYSTEM SHALL BE PERFORMED DURING LOW WASTEWATER FLOW CONDITION, AS APPROVED BY THE COUNTY, TO MINIMIZE THE DISRUPTION TO THE OPERATION OF THE EXISTING SYSTEM.



VICINITY MAP

SCALE: 1" = 600'

DIRECTIONS: FROM I-95 SOUTH TO ROUTE 216 WEST, MAKE A RIGHT ONTO BROWN BRIDGE ROAD, RIGHT ON MOORLAND DRIVE AND A RIGHT ON FAWN CROSSING DRIVE, SITE ENTRANCE ROAD ON LEFT.

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OWNER'S ADDRESS

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
BUREAU OF UTILITIES
8250 OLD MONTGOMERY ROAD
COLUMBIA MARYLAND, 21045

OWNERS / DEVELOPER CERTIFICATION

"I/WE CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO THE BEGINNING OF THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

Ami Hart 3-23-17
OWNER'S / DEVELOPER'S SIGNATURE DATE

Project Manager
PRINTED NAME & TITLE

DESIGN CERTIFICATION

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Guihua Wang
DESIGNER'S SIGNATURE DATE
GUIHUA WANG
PRINTED NAME

NO. REGISTRATION NO. 31363
(P.E., R.L.S. OR R.L.A. (CIRCLE ONE))

TYPE OF BUILDING:	UTILITY
NUMBER OF PARCELS:	109
NUMBER OF WATER HOUSE CONNECTIONS:	0
NUMBER OF SEWER HOUSE CONNECTIONS:	0
DRAINAGE AREA:	NOT APPLICABLE
TREATMENT PLANT:	ASHLEIGH KNOLLS

HORIZONTAL AND VERTICAL CONTROL USED IN CONTRACT NO. 50-3357
BASED ON MARYLAND NAD 83/91 (HORIZONTAL) AND NGVD 29 (VERTICAL) DATUM.
HOWARD COUNTY GEODETIC SURVEY CONTROL NUMBERS:

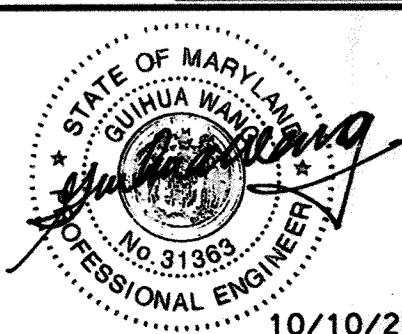
NO. 40FA	NO. 40FB
N 548106.87	N 548478.32
E 1328421.4	E 132600.81
ELEV. 497.648	ELEV. 505.297

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Shahid Ali 3/28/17
HOWARD SOIL CONSERVATION DISTRICT DATE
EP-16-04

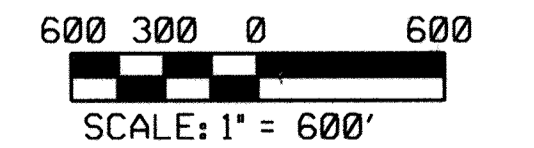
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31363 EXPIRATION DATE: 01/16/2018



DES: K F J					
DRN: K F J					
CHK: G W					
DATE: AUG. 2016	BY: [Signature]	NO. [Signature]	REVISION	NOVEMBER 21, 2018	DATE

TITLE SHEET

GRAPHIC SCALE



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>Jack</i> 2/1/17 DIRECTOR OF PUBLIC WORKS DATE <i>Shahid Ali</i> 11/17 CHIEF, BUREAU OF UTILITIES DATE	ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS KCI TECHNOLOGIES 936 RIDGEBROOK ROAD SARASOTA, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818 WWW.KCI.COM
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10/10/2016

**ASHLEIGH KNOLLS
SHARED SEWAGE DISPOSAL FACILITY**
CAPITAL PROJECT No. S-6269
CONTRACT No. 50-4972

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

G-1
SCALE AS SHOWN
SHEET 1 OF 43

LEGEND

- EXISTING FEATURES
- PROPOSED FEATURES

ABBREVIATIONS

- ADF AVERAGE DAILY FLOW
- BWL BOTTOM WATER LEVEL
- D.I.P. DUCTILE IRON PIPE
- EX. EXISTING
- FM FORCE MAIN
- HRT HYDRAULIC RETENTION TIME
- HWL HIGH WATER LEVEL
- INV INVERT
- SAMTM SURGE/ANOXIC/MIX
- SBR SEQUENCING BATCH REACTOR
- SRT SLUDGE RETENTION TIME
- WL WATER LEVEL
- TWL TOP WATER LEVEL

DESIGN CRITERIA

WASTEWATER FLOW:
 AVERAGE DAILY FLOW: 24,525 GPD
 MAXIMUM DAILY FLOW (PERMIT): 32,700 GPD

EQUALIZATION TANK:
 USE EXISTING SEDIMENTATION TANKS #1 & #2
 EFFECTIVE EQUALIZATION VOLUME: 6,400 GALLON

SBR INFLUENT TRANSFER PUMPS:
 NO. OF PUMPS: 2 (ONE DUTY, ONE STANDBY)
 DESIGN POINT: 17.03 GPM @ 10.6 FT
 34.06 GPM @ 15.1 FT

SBR DESIGN CRITERIA:
 DESIGN FLOW: 24,545 GPD
 MAX DAY FLOW: 49,050 GPD
 TEMPERATURE: 25 C (SUMMER)
 12 C (WINTER)
 AMBIENT TEMPERATURE: 38 C (SUMMER)
 -18 C (WINTER)

SBR INFLUENT CHARACTERISTICS:
 BOD₅: 200 MG/L
 TSS: 50 MG/L
 TKN: 51 MG/L
 NH₄-N: 43 MG/L
 NO₃-N: 0.1 MG/L
 TP: 7.4 MG/L

* BASED ON THE SAMPLE AFTER THE FIRST SEDIMENTATION TANK.

SBR EFFLUENT DESIGN CRITERIA:
 BOD₅: 20 MG/L
 TSS: 20 MG/L
 TN: 8 MG/L

SBR SYSTEM DESIGN:
 NO. OF BASIN: 1
 MLSS: 2,500 MG/L
 SRT (SBR): 19 DAYS
 SRT (SBR + SAM): 23 DAYS
 HRT (SBR): 14.5 HRS

CYCLE TIME @ ADF
 FILL: 0.37 HRS
 AERATION: 1.93 HRS
 ANOXIC: 2.27 HRS
 SETTLE: 0.75 HRS
 DECANT: 0.68 HRS

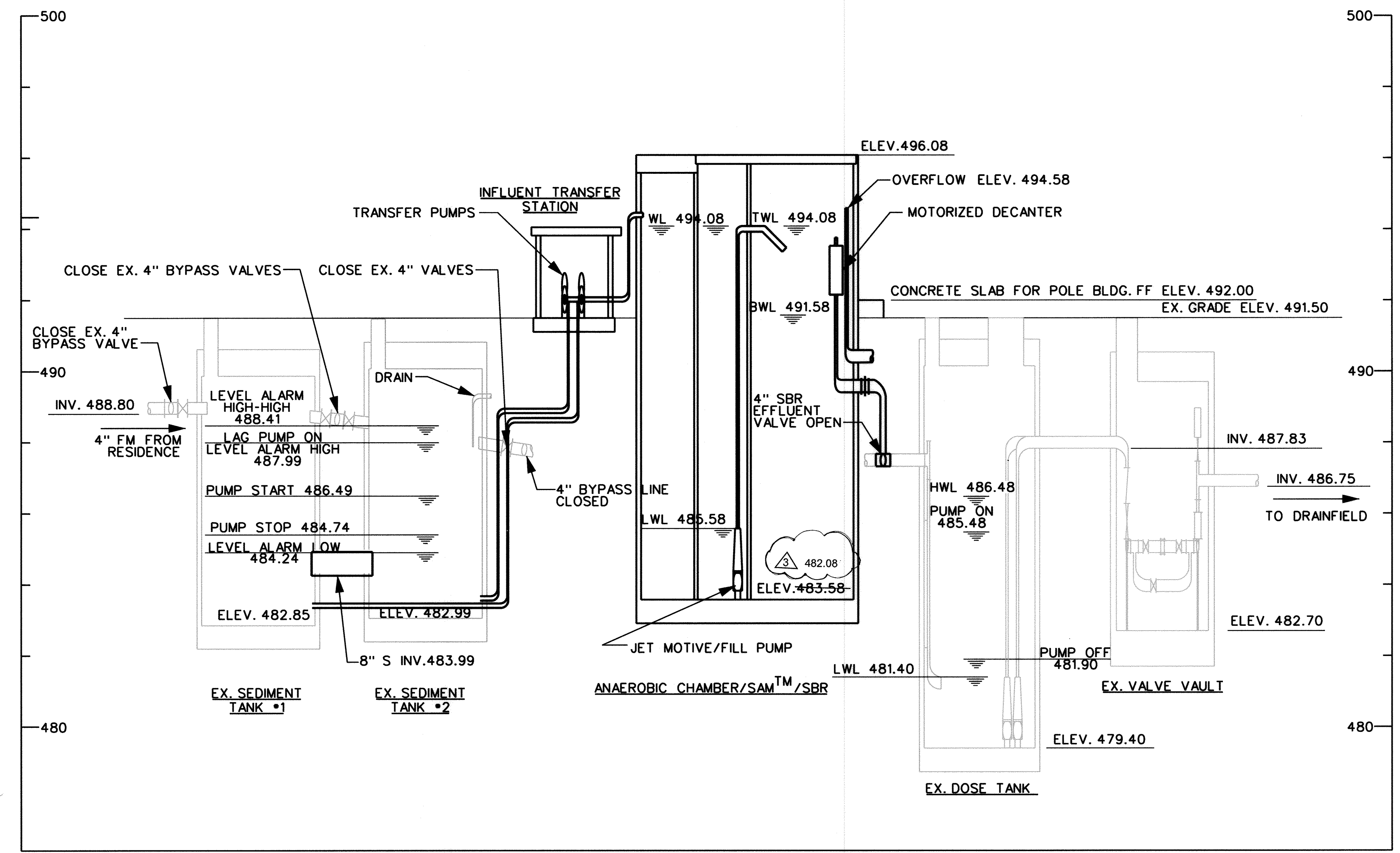
CYCLE TIME @ MAX DAY FLOW
 FILL + AERATION: 3.45 HRS
 ANOXIC: 1.12 HRS
 SETTLE: 0.75 HRS
 DECANT: 0.68 HRS

STANDARD OXYGEN REQUIRED @ ADF: 69 LBS/DAY
STANDARD OXYGEN REQUIRED @ MAX DAY FLOW: 104 LBS/DAY
 DECANT FLOW: 150 GPM
 EX. DOSING PUMP FLOW RATE: 330 GPM

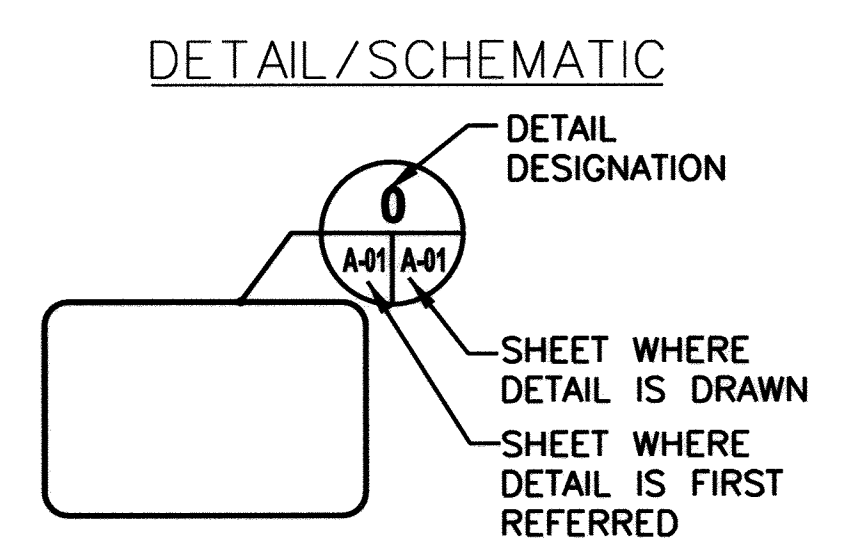
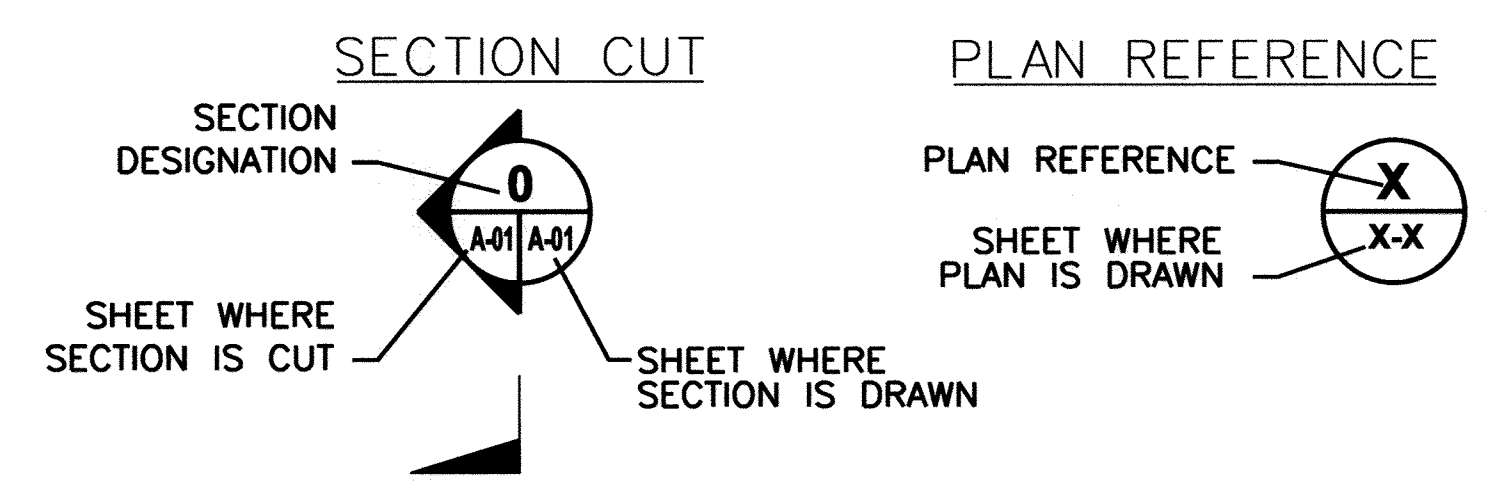
CHEMICAL DOSING PUMPS
 MICRO-C PUMP: DESIGN FLOW 0.25 L/HR @ 5 PSIG
 CAUSTIC (25% NaOH) PUMP: DESIGN FLOW 0.14 L/HR @ 5 PSIG
 SODIUM HYPOCHLORITE PUMP: DESIGN FLOW 0.14 L/HR @ 50 PSI

UNITS OF EACH TYPE CHEMICAL PUMP: ONE DUTY, ONE SHELF SPARE

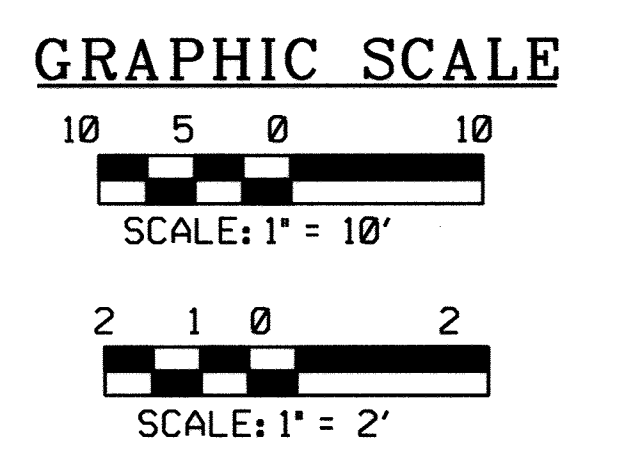
pH CONTROLLER SET POINT: pH = 6.5 (FOR CAUSTIC ADDITION)



1 PROFILE
 G-2 SCALE: HORZ. - 1" = 10'
 VERT. - 1" = 2'



A DRAWING SYMBOLS
 G-2 SCALE: NONE



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 BY: BUSENAMES
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DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 2/17/17
 DIRECTOR OF PUBLIC WORKS DATE

[Signature] 2/17/17
 CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 2/17/17
 CHIEF, UTILITY DESIGN DIVISION DATE

KCI TECHNOLOGIES
 936 RIDGEBROOK ROAD
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 FAX: (410) 316-7818
 www.kci.com

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 10/10/2016

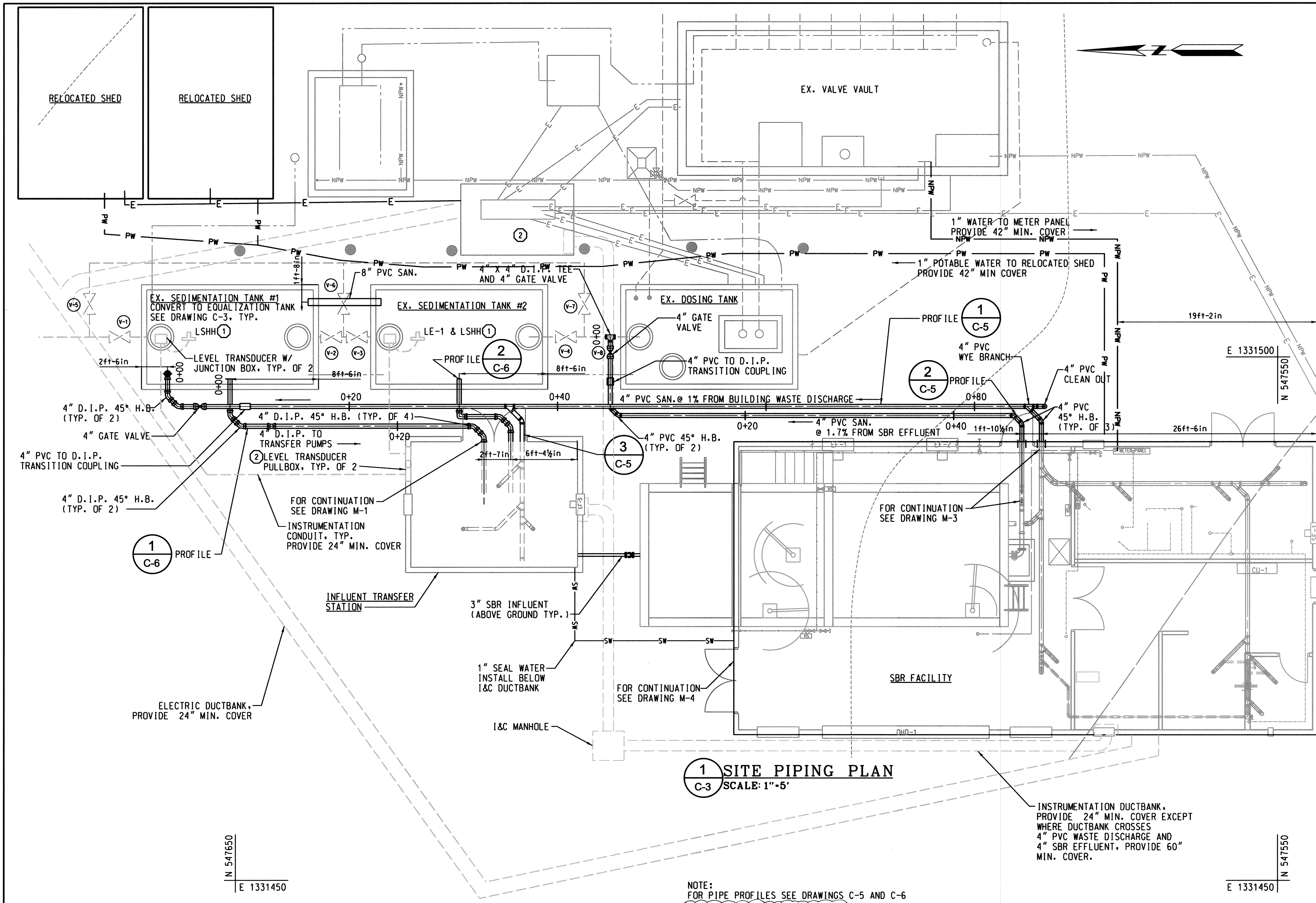
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DRN:	KFJ				
CHK:	GW				
DATE:					
	BY	NO.	REVISION	DATE	
				NOVEMBER 21, 2018	

HYDRAULIC PROFILE

600' SCALE MAP NO. 40-41 BLOCK NO. 12

ASHLEIGH KNOLLS
 SHARED SEWAGE DISPOSAL FACILITY
 CAPITAL PROJECT No. S-8269
 CONTRACT No. 50-4972
 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

G-2
 SCALE AS SHOWN
 SHEET 2 OF 43



- ### LEGEND
- FIRE HYDRANT
 - VALVE
 - TEST STATION
 - BORING LOCATION
 - LOD - LIMIT OF DISTURBANCE
 - SF - SILT FENCE
 - - - - - PROPERTY LINE
 - - - - - EASEMENT
 - - - - - TEMPORARY CONSTRUCTION STRIP
 - ASPHALT
 - CONCRETE SIDEWALK
 - VALVE ID
 - DECIDUOUS TREE
 - CONIFEROUS TREE
 - EXISTING FIRE HYDRANT
 - EXISTING VALVE
 - EXISTING WATER MAIN
 - EXISTING GAS MAIN
 - EXISTING UNDERGROUND ELECTRIC
 - EXISTING SEWER MAIN
 - EXISTING MANHOLE
 - EXISTING NON-POTABLE WATER
 - EXISTING AIR LINE
 - PROPOSED SEWER PIPE
 - PROPOSED NON-POTABLE WATER
 - PROPOSED SEAL WATER
 - PROPOSED POTABLE WATER
 - PROPOSED UNDERGROUND ELECTRIC

SUGGESTED SEQUENCE OF CONSTRUCTION FOR BUILDING AND UTILITY WORK

1. PREPARE THE SITE AND PERFORM CONSTRUCTION STAKEOUT.
2. INSTALL EROSION AND SEDIMENT CONTROL DEVICES. SEE SEQUENCE OF CONSTRUCTION ON DRAWING NO. C-7.
3. CONVERT EXISTING SEDIMENTATION TANKS INTO AN EQUALIZATION TANK IN ACCORDANCE WITH THE SEQUENCE SHOWN ON DRAWING NO. C-4.
4. INSTALL PROGRESSIVE CAVITY TRANSFER PUMPS AND ITS HOUSING SHED.
5. INSTALL SBR AND THE ASSOCIATED PIPING/EQUIPMENT.
6. INSTALL THE FACILITY BUILDING, HVAC, ELECTRICAL EQUIPMENT, AND PLUMBING.
7. COMPLETE THE SITE WORKS INCLUDING PAVEMENT AND SEEDING.
8. DURING NIGHT WHEN WATER CONSUMPTION IS LOW, CONNECT THE SBR EFFLUENT PIPE TO THE EXISTING 4-INCH DIP AS SHOWN ON DRAWING NO. C-3.
9. PROGRAM SBR SYSTEM IN ACCORDANCE WITH THE SPECIFICATION AND MANUFACTURER'S RECOMMENDATION. SEE THE SBR REACTOR WITH NITRIFYING/DENITRIFYING SLUDGE, AERATE, 10. TO START UP THE SBR SYSTEM, CLOSE V-2, V-3, AND V-4 (SHEET C-4) TO ALLOW INFLUENT INTO SBR.
11. REMOVE EROSION AND SEDIMENT CONTROL DEVICES. SEE SEQUENCE OF CONSTRUCTION ON DRAWING NO. C-7.

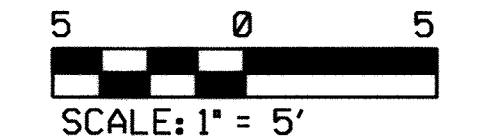
CONSTRUCTION NOTES

- ① LOCATE ULTRASONIC LEVEL TRANSDUCER LEVEL FLOATS BELOW TANK ACCESS MANHOLE WITH RELATED JUNCTION BOX AND STAINLESS STEEL MOUNTING HARDWARE.
- ② SEE INSTRUMENTATION SITE PLAN FOR DETAILED I&C DUCTBANKS AND FIELD INSTRUMENT TERMINATION.
- ③ SEE ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SERVICE DUCTBANKS AND SERVICE ENTRANCE DETAILS.

BYPASS OPTIONS

1. NORMAL OPERATION:
CLOSE V-2, V-3, V-4, V-5, V-6, V-7
OPEN V-1, V-8
1. TREATMENT FACILITY BYPASS:
CLOSE V-1, V-4, V-6, V-8
OPEN V-5, V-7
2. SBR FACILITY BYPASS:
OPEN V-1, V-2, V-3, V-4
CLOSE V-5, V-6, V-7, V-8
3. EQUALIZATION TANK #1 BYPASS:
OPEN V-3, V-5, V-6, V-8
CLOSE V-1, V-2, V-4, V-7
4. EQUALIZATION TANK #2 BYPASS:
OPEN V-1, V-8
CLOSE: V-5, V-2, V-3, V-4, V-6, V-7

GRAPHIC SCALE



1 SITE PIPING PLAN
C-3 SCALE: 1"=5'

NOTE:
FOR PIPE PROFILES SEE DRAWINGS C-5 AND C-6
THE CONTRACTOR SHALL COORDINATE WITH THE LOCATION OF THE EXISTING WATER PIPING IN THE RELOCATED SHEDS AND MAKE A CONNECTION WITH THE NEW LINE.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31363 EXPIRATION DATE: 01/16/2018

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DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
 DIRECTOR OF PUBLIC WORKS DATE: 2/7/17	 CHIEF, BUREAU OF ENGINEERING DATE: 2/3/17
 CHIEF, BUREAU OF UTILITIES DATE: 1/5/17	 CHIEF, UTILITY DESIGN DIVISION DATE: 2/13/17

ENGINEERS
 PLANNERS
 SCIENTISTS
 CONSTRUCTION MANAGERS
 936 RIDGEBROOK ROAD
 SHARPS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
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 www.kci.com

THOMAS L. SCULLER
 PROFESSIONAL ENGINEER
 LICENSE NO. 31363
 EXPIRATION DATE: 01/16/2018

DES:	KFJ				
DRN:	KFJ				
CHK:	GW				
DATE:	NOVEMBER 21, 2018				
BY:	GW				
NO.:	NO.				

60' SCALE MAP NO. 40-41 BLOCK NO. 12
SITE PIPING PLAN

ASHLEIGH KNOLLS
 SHARED SEWAGE DISPOSAL FACILITY
 CAPITAL PROJECT No. S-6269
 CONTRACT No. 50-4972
 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

LOUVER ID	MECHANICAL ID	WIDTH	HEIGHT	AFF
LV1	EF-1	36"	36"	8'-0"
LV1	EF-2	36"	36"	8'-0"
LV2	EF-3 (BDD)	24"	24"	9'-0"
LV3	EF-4 (SHUTTER VENT)	6"	6"	9'-0"
LV2	EF-5	24"	24"	7'-0"
---	HVAC-1	---	---	---
LV5	MOD-1	48"	60"	3'-6"
LV5	MOD-2	48"	60"	3'-6"
LV2	MOD-3 (SF-1)	24"	24"	8'-0"
LV2	MOD-4	24"	24"	9'-0"
LV2	MOD-5	24"	24"	7'-0"
LV2	EXHAUST LOUVER (MECH. RM.1)	24"	24"	8'-0"

DOOR ID	FRAME MATERIAL	DOOR MATERIAL	WIDTH	HEIGHT	FIRE RATING	REMARKS
01	HOLLOW METAL	HOLLOW METAL	3'-0"	7'-0"	N/A	WEATHER PROOF THRESHOLD, PANIC EXIT BAR, DOOR WINDOW
02	HOLLOW METAL	HOLLOW METAL	6'-0"	7'-0"	N/A	WEATHER PROOF THRESHOLD, PANIC EXIT BAR, DOOR WINDOW
03	HOLLOW METAL	HOLLOW METAL	6'-0"	7'-0"	N/A	BASIC DOOR, PANIC EXIT BAR, DOOR WINDOW
04	HOLLOW METAL	HOLLOW METAL	3'-0"	7'-0"	N/A	BASIC DOOR, PANIC EXIT BAR, DOOR WINDOW
05	HOLLOW METAL	HOLLOW METAL	2'-8"	7'-0"	N/A	BASIC DOOR WITH INLET GRILL, LOCK

NOTES
 1. WEATHER SEALS ARE NOT REQUIRED ON INTERIOR DOORS.
 2. NO WINDOWS ON TOILET ROOM DOOR.
 3. PANIC EXIT BAR IS NOT REQUIRED ON INTERIOR DOORS.

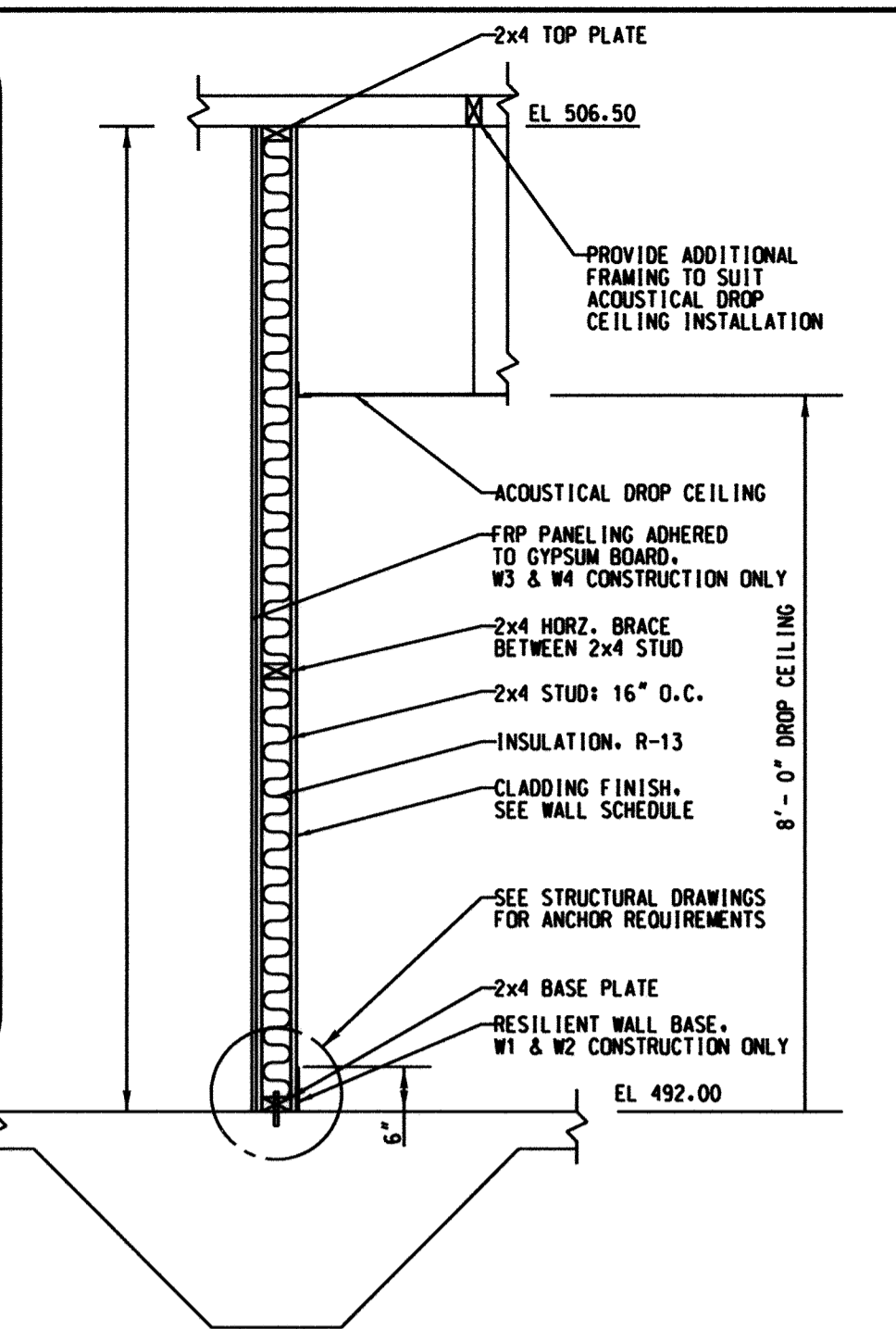
WALL ID	INSULATION RATING	INTERIOR CLADDING	INTERIOR FINISH
01	R-20	GYPSUM BOARD	SYSTEM NO. 10
02	R-13	GYPSUM BOARD	SYSTEM NO. 10
03	R-20	GYPSUM BOARD	FRP PANELING ADHERED TO GYPSUM
04	R-13	GYPSUM BOARD	FRP PANELING ADHERED TO GYPSUM

ABBREVIATIONS
 AFF ABOVE FINISH FLOOR
 OHD OVERHEAD DOOR
 SD SMOKE DETECTOR
 FE FIRE EXTINGUISHER

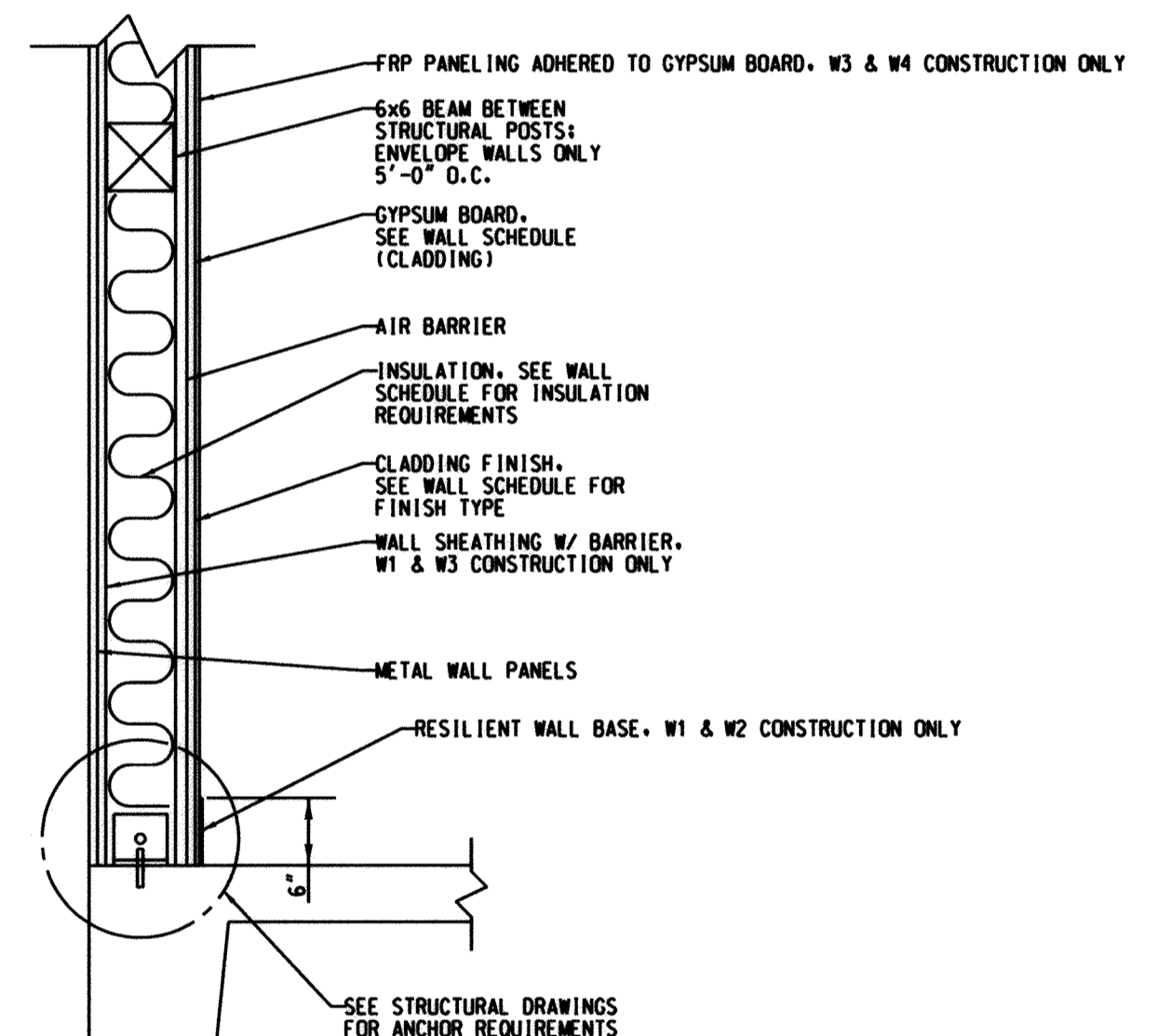
PROJECT INFORMATION
 PROJECT NAME/ADDRESS:
 ASHLEIGH KNOLLS SHARED SEWAGE DISPOSAL FACILITY
 HOWARD COUNTY, MARYLAND

APPLICABLE CODES:
 INTERNATIONAL BUILDING CODE 2015
 NFPA 101 LIFE SAFETY CODE 2015
 INTERNATIONAL MECHANICAL CODE 2015
 NEC - NATIONAL ELECTRIC CODE WITH LOCAL AMENDMENTS (NFPA 70) 2015

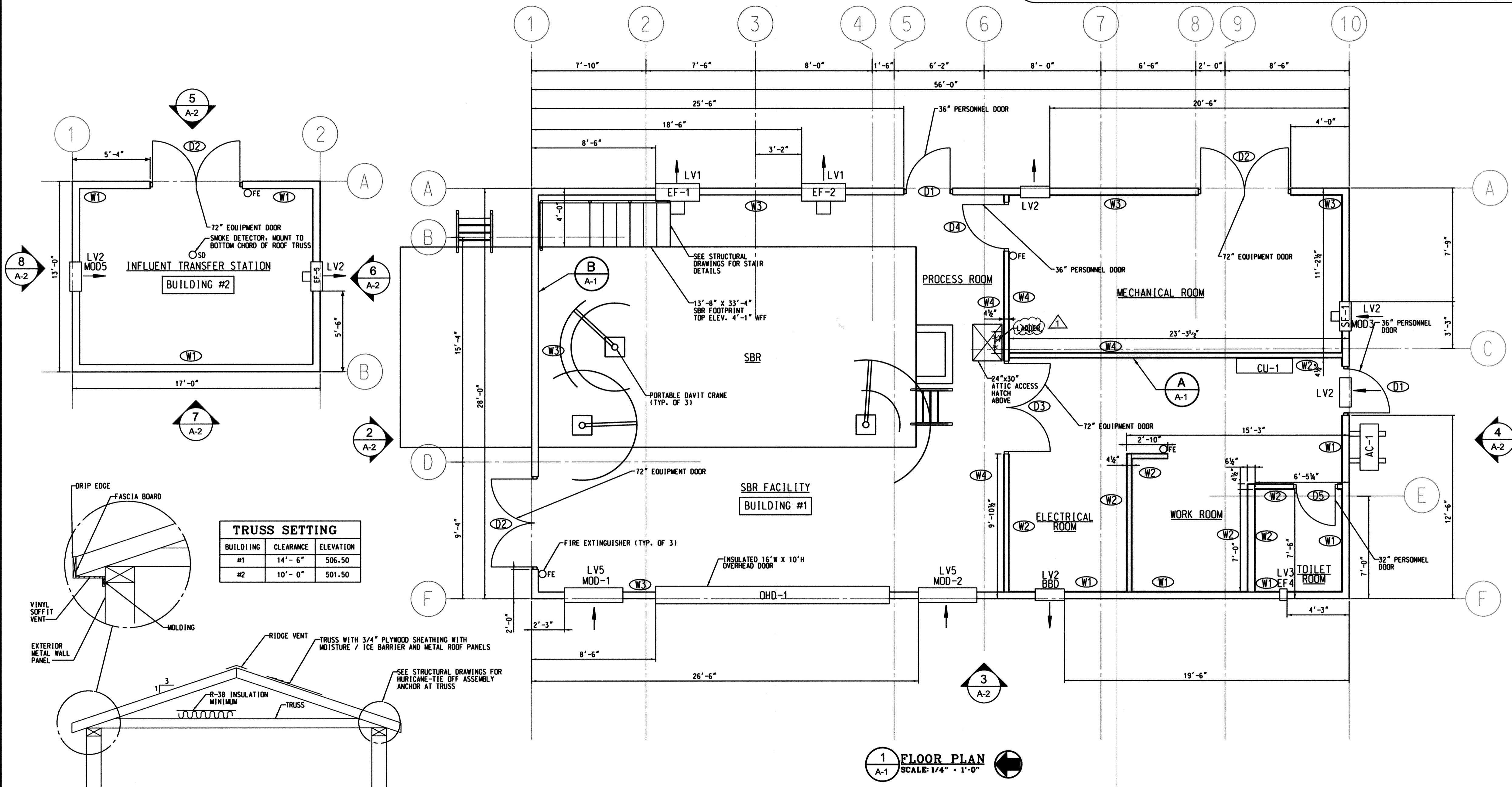
- USE AND OCCUPANCY: FACTORY, GROUP F-2
- TYPE OF CONSTRUCTION: IV
- ALLOWABLE BUILDING HEIGHTS AND AREA (TABLE 504.4 & 506.2)
 AREA = 21,000 SF
 HEIGHT = 5 STORY
 ACTUAL HEIGHT: BUILDING 1: 20'-8"
 BUILDING 2: 13'-2"
 ACTUAL FLOOR AREA:
 TOTAL BUILDING FOOTPRINT = BUILDING 1: 1,568 S.F.
 BUILDING 2: 221 S.F.
- FIRE RESISTANCE RATING FOR BUILDING ELEMENTS
 STRUCTURAL FRAME: 0 HOUR
 BEARING WALLS: 0 HOUR
 NON-BEARING WALL (NT): 0 HOUR
 FLOOR CONSTRUCTION: 0 HOUR
 ROOF CONSTRUCTION: 0 HOUR
 FIRE SEPARATION DISTANCE: 0 HOUR (TABLE 602) (EXEMPT BECAUSE BUILDINGS ARE ON SAME PROPERTY)
 FIRE PROTECTION SYSTEM: NOT-SPRINKLERED
- ACTUAL OCCUPANT LOAD (NFPA 101, SECTION 7.3.1.2)
 N/A
- EGRESS WIDTH PER OCCUPANT SERVED
 DOORS (SECTION 1008.1.1) = 32 INCHES
- MINIMUM NUMBER OF EXITS REQUIRED (NFPA 101, SECTION 7.4.1.2): 2 EXITS, MINIMUM TWO (2) ON FIRST FLOOR
- MAXIMUM ACCESS TRAVEL DISTANCE: (NFPA 101, SECTION 39.2.6.2)
 ALLOWABLE: 200'-0" (NO SPRINKLER SYSTEM)
 ACTUAL: 30'-0" MAXIMUM
- CHEMICAL STORAGE TYPE & MAXIMUM VOLUME (IBC 2015, TABLE 307.1)
 OXIDIZER CLASS II; MAXIMUM LIQUID GALLONS (POUNDS): (250) (USE CLOSED SYSTEM)
 ACTUAL: 25 GALLONS (243 lbs.)
 CORROSIVES; MAXIMUM LIQUID GALLONS (POUNDS): (500) (USE CLOSED SYSTEM)
 ACTUAL: 50 GALLONS (400 lbs.)



A INTERIOR WALL CONSTRUCTION DETAIL
 SCALE: 1/2" = 1'-0"



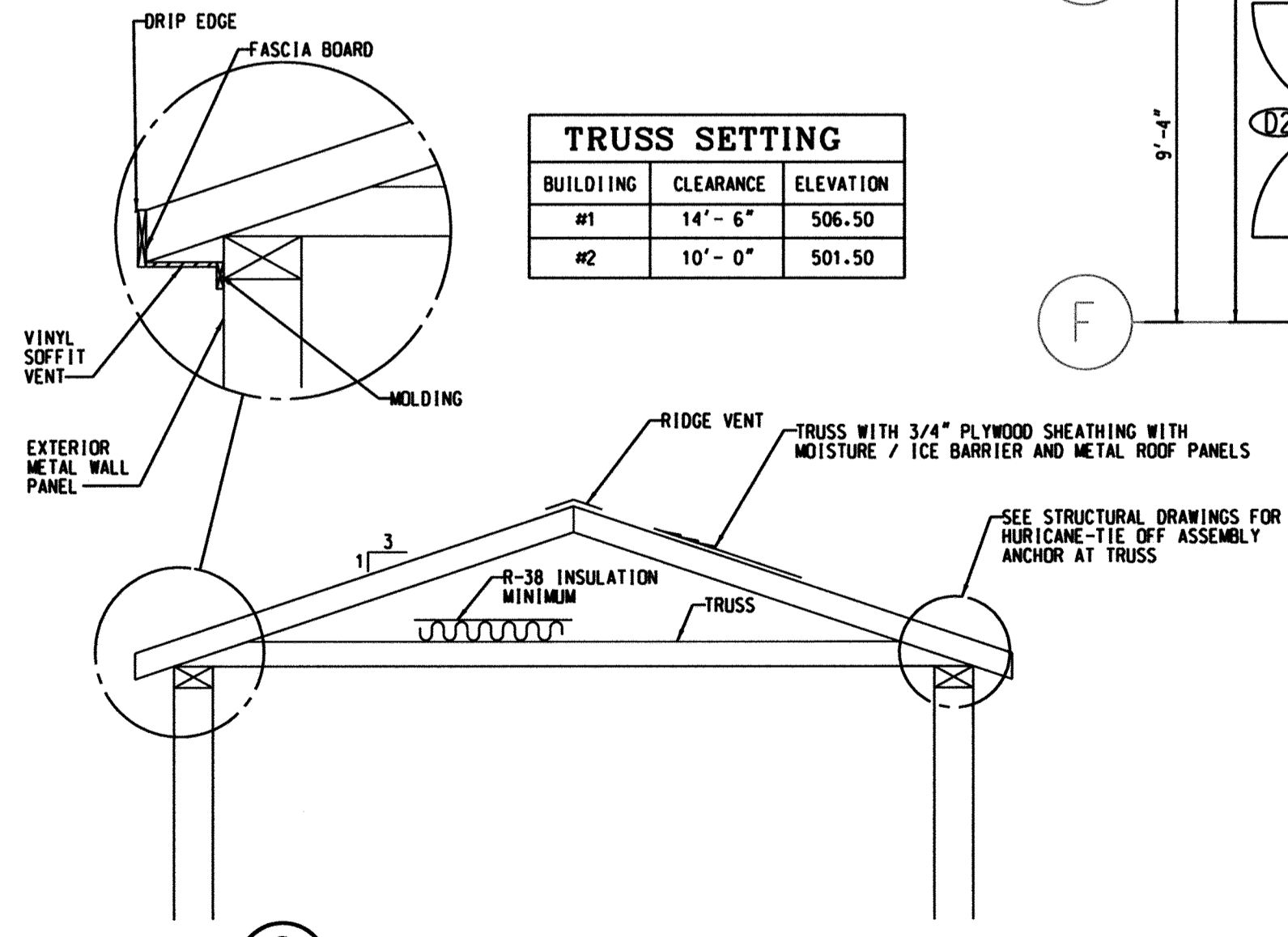
B PERIMETER WALL CONSTRUCTION DETAIL
 SCALE: 3/4" = 1'-0"



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

TRUSS SETTING

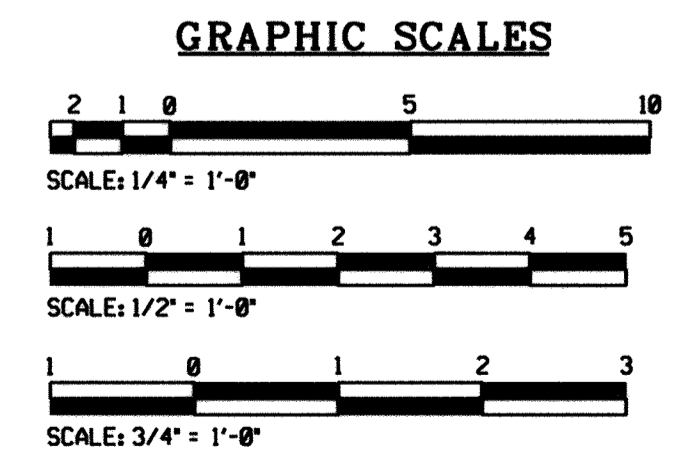
BUILDING	CLEARANCE	ELEVATION
#1	14'-6"	506.50
#2	10'-0"	501.50



C TYPICAL ROOF TRUSS ASSEMBLY
 SCALE: NONE

NOTE: CONTRACTOR SHALL PROVIDE GYPSUM BOARD WITH FRP PANELING, SIMILAR TO W4 WALL SCHEDULE, ON THE CEILING SURFACE EXPOSED TO THE SBR AND MECHANICAL ROOMS.

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PLOTTED: 10/13 AM on Thursday, October 06, 2016 BY: BUSENAMES LEL. IN: 2007-0107137806-A-001 Bldg Layout.dgn

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 HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] 10/13/16
 Chief, Bureau of Engineering: [Signature] 10/13/16
 Chief, Bureau of Utilities: [Signature] 10/13/16
 Chief, Utility Design Division: [Signature] 10/13/16

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STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 10/10/2016

DES: KFJ
 DRN: KFJ
 CHK: SEA
 DATE: NOVEMBER 21, 2018
 BY: NO. REVISION

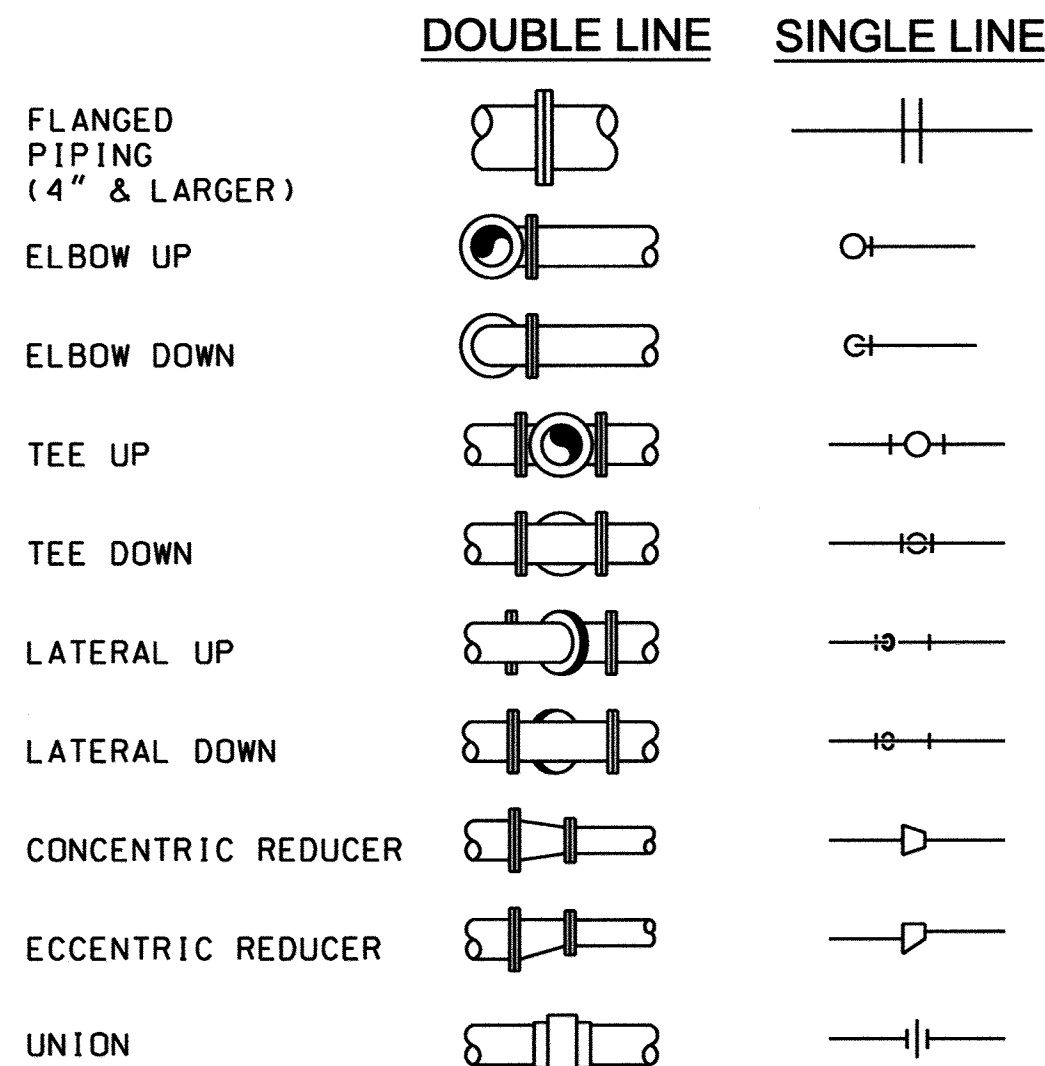
BUILDING PLAN

600' SCALE MAP NO. 4Q-41 BLOCK NO. 12

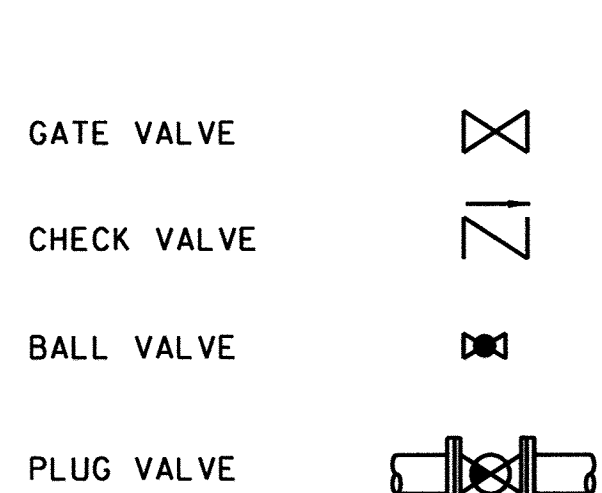
ASHLEIGH KNOLLS
SHARED SEWAGE DISPOSAL FACILITY
 CAPITAL PROJECT No. S-6269
 CONTRACT No. 50-4972
 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 10 OF 43

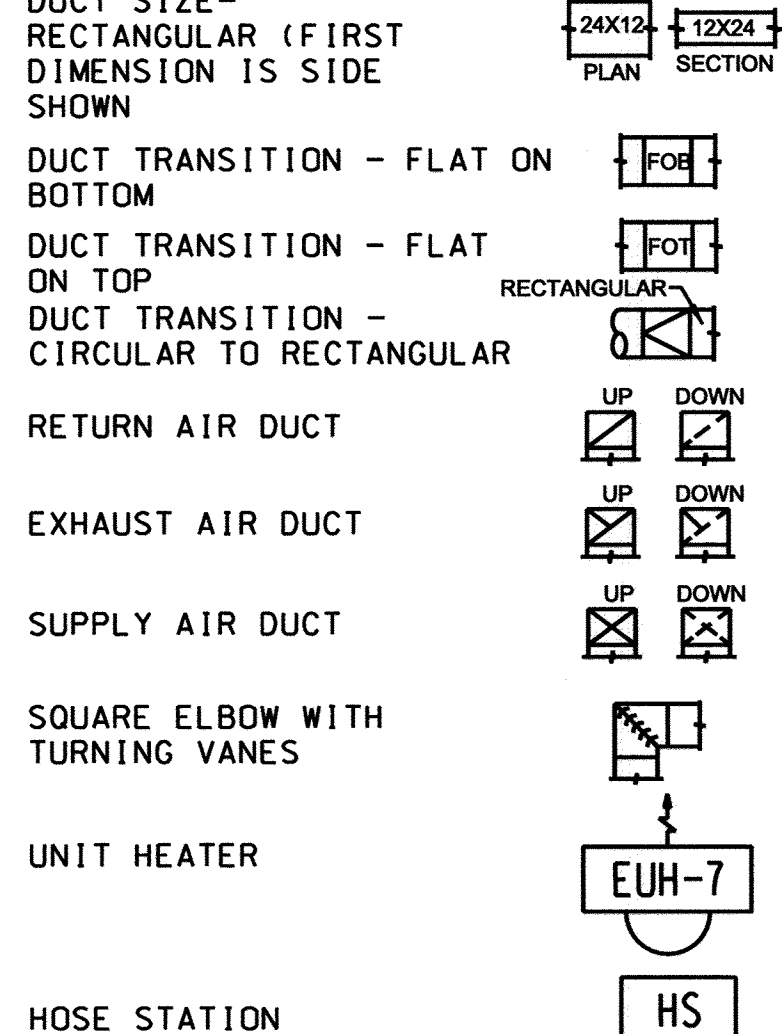
PROCESS PIPING SYMBOLS



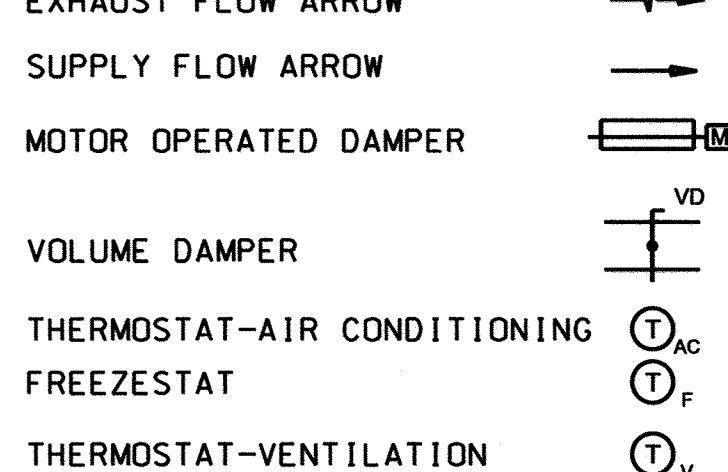
VALVE SYMBOLS



HVAC SYMBOLS

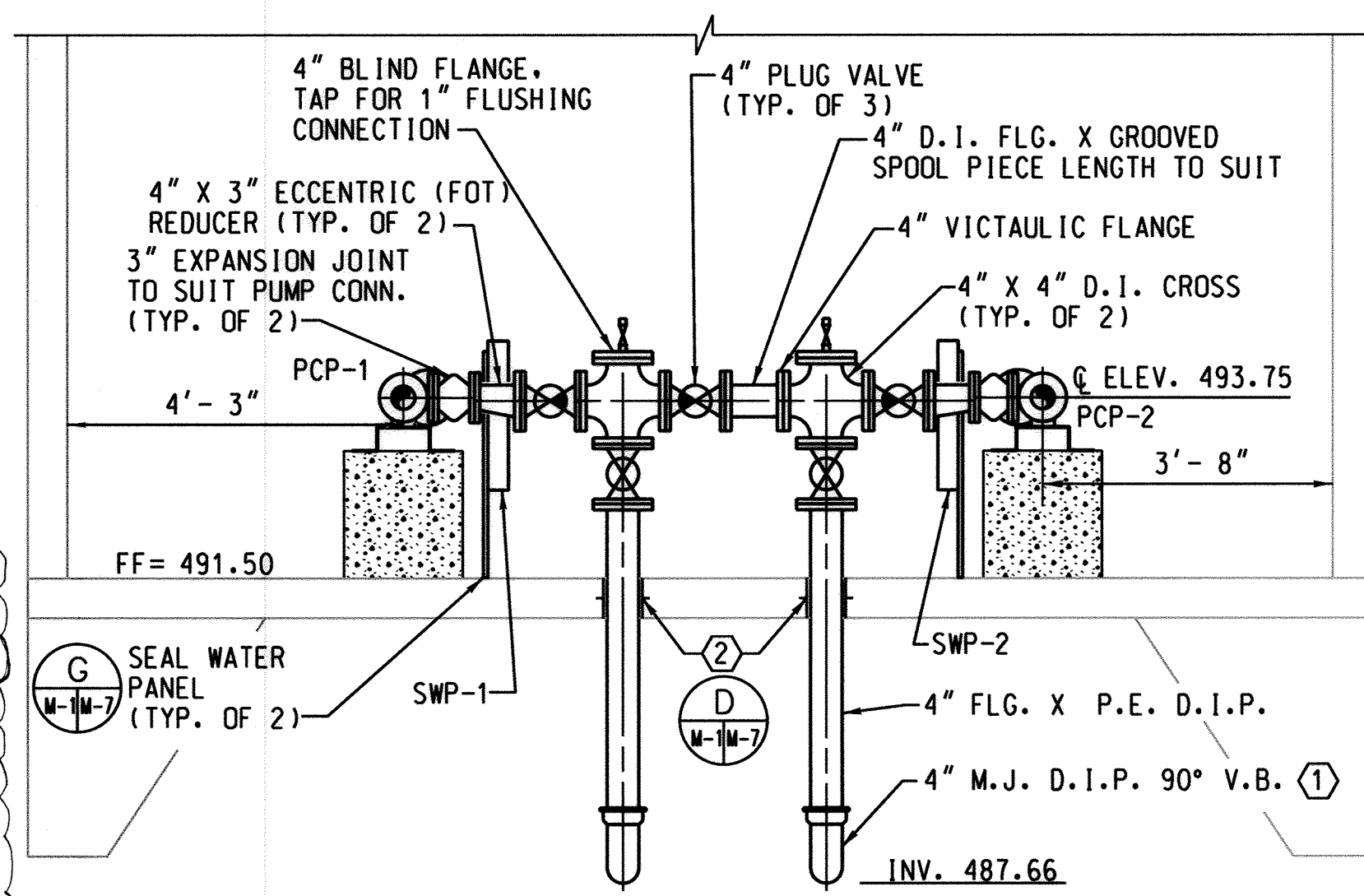


ABBREVIATIONS

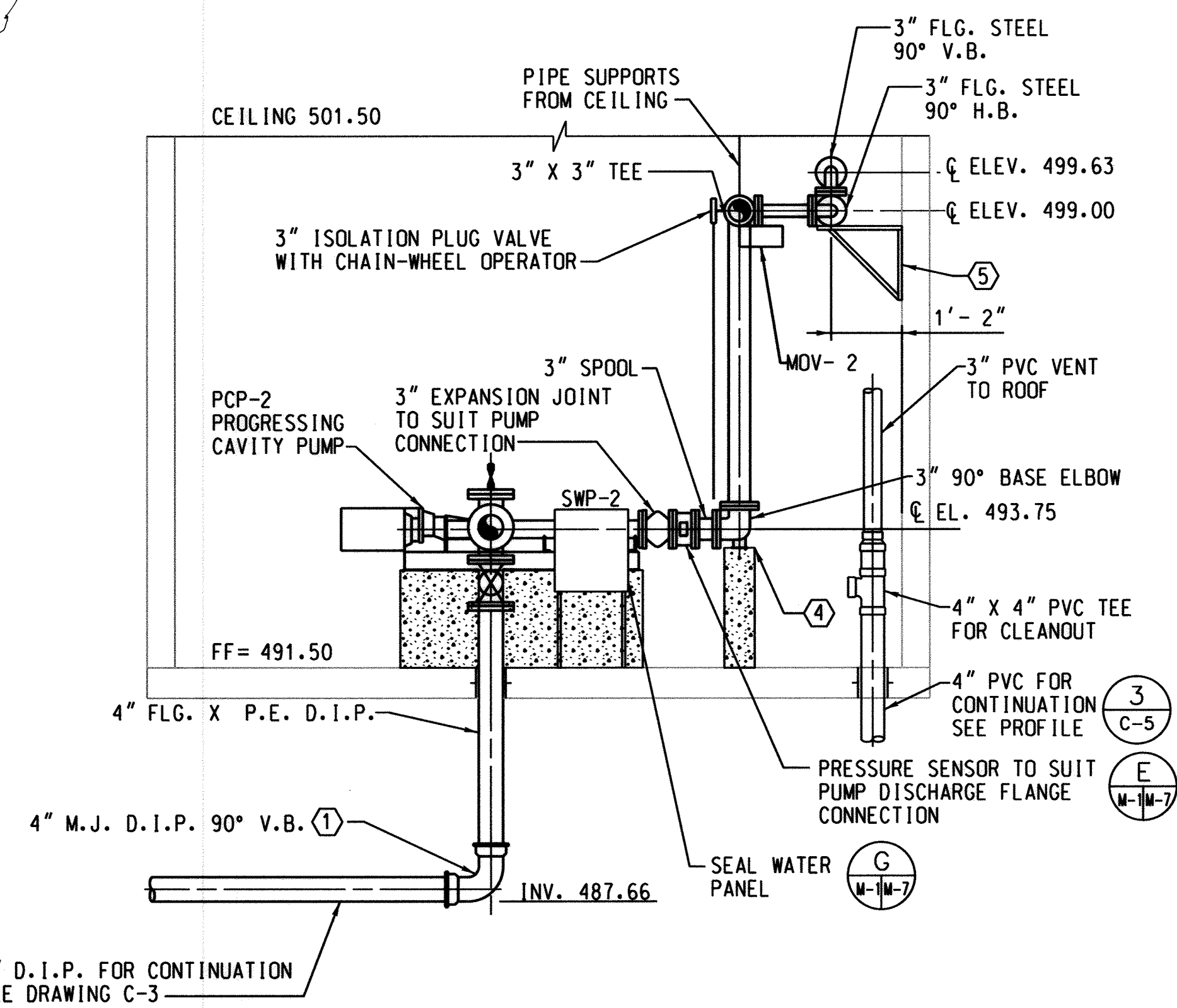


GENERAL MECHANICAL NOTES

- THESE NOTES APPLY TO ALL MECHANICAL DRAWINGS
- UNLESS OTHERWISE NOTED, WALL PIPES AND SLEEVES SHALL HAVE A WATERSTOP COLLAR POSITIONED IN THE CENTER OF THE WALL OR FLOOR. SEE TYPICAL DETAILS FOR CONFIGURATION. WALL PIPES AND SLEEVES SHALL BE INSTALLED AND PROPERLY SECURED PRIOR TO CONCRETE POUR.
- PIPING SMALLER THAN 3" HAS BEEN SCHEMATICALLY SHOWN ON PLAN AND SECTION DRAWINGS. PROVIDE PIPE ROUTING AND ALL APPURTENANCES IN ACCORDANCE WITH RESPECTIVE SCHEMATICS. PROVIDE ALL NECESSARY FITTINGS TO MAKE CONNECTIONS. UNIONS, BUSHING AND/OR REDUCING INSERTS, ETC. NOT SHOWN ON DRAWINGS BUT REQUIRED FOR INSTALLATION SHALL BE FURNISHED AND INSTALLED.
- SCHEMATIC DRAWINGS SHOW PROCESS CONNECTIONS AND NOT SPATIAL ORIENTATION.
- THE SIZE OF THE PIPE CONNECTIONS AT THE PROCESS EQUIPMENT ARE SHOWN TO DEMONSTRATE INTENT. SIZES MAY VARY FROM WHAT IS SHOWN. COORDINATE THE SIZE OF CONNECTIONS TO ALL APPROVED PROCESS EQUIPMENT.
- SIZE OF FITTINGS SHOWN SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED.
- UNLESS OTHERWISE NOTED, MINIMUM SLOPE FOR DRAINS SHALL BE 1/4 INCH PER LINEAR FOOT.
- VALVES ARE NORMALLY OPEN (N.O.) UNLESS NOTED AS NORMALLY CLOSED (N.C.).
- COORDINATE THE LOCATION OF VALVE SUPPORTS SO THAT ACCESS TO VALVE BEARINGS IS NOT RESTRICTED.



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



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

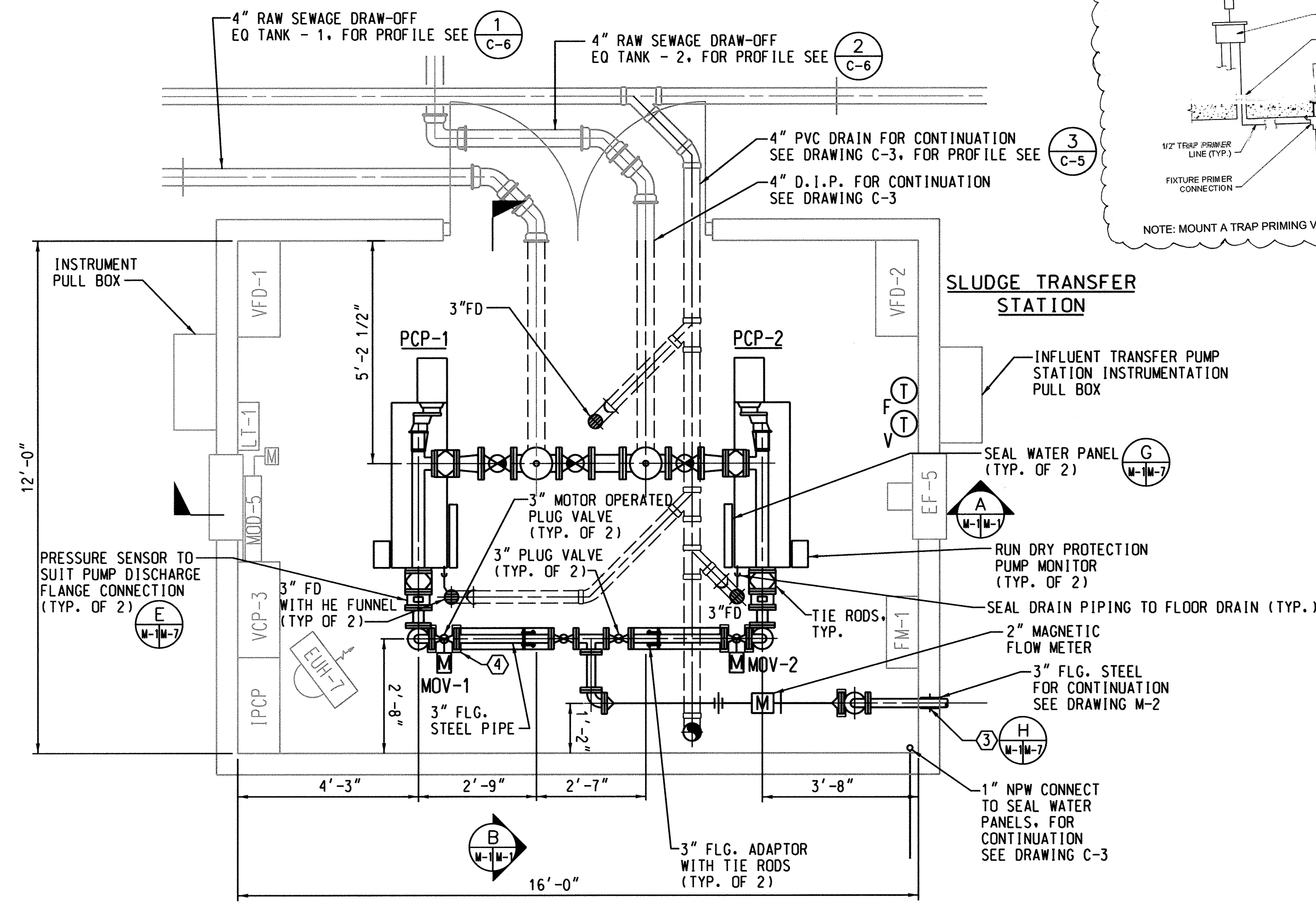
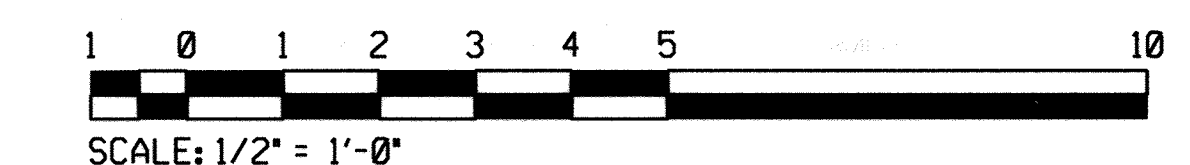
EQUIPMENT NAMES

EF-X	EXHAUST FAN
EUH-X	ELECTRIC UNIT HEATER
IPCP	INFLUENT PUMP CONTROL PANEL
MOD-X	MOTOR OPERATED DAMPER
MOV-X	MOTOR OPERATED VALVE
PCP-X	PROGRESSING CAVITY PUMP
VFD-X	VARIABLE FREQUENCY DRIVE
VCP	VENTILATION CONTROL PANEL
SWP-X	SEAL WATER PANEL

CONSTRUCTION NOTES

- ALL BURIED M.J. PIPING JOINTS SHALL BE RESTRAINED.
- SLEEVE FLOOR, GROUT AND MAKE WATERTIGHT.
- SLEEVE WALL TO SUIT PIPE PENETRATION, SEAL AND MAKE WATERTIGHT WITH MECHANICAL SEAL.
- TYPICAL PIPE SUPPORT SHALL BE AN ADJUSTABLE PIPE STANCHION OR CONCRETE PIER TO SUIT HEIGHT REQUIREMENTS.
- PROVIDE WALL BRACKET STYLE PIPE SUPPORT.
- NOT ALL PLUMBING AND HVAC SHOWN FOR CLARITY.

GRAPHIC SCALE



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

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PLOTTED: 11:59 AM on Thursday, October 06, 2016 BY: BUSERNAMES FILE: M:\2007\01071375_06\Drawings\01071375_06_M-001_Sludge Trans.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John A. ... 2/6/17
DIRECTOR OF PUBLIC WORKS DATE

Thomas S. ... 2/6/17
CHIEF, BUREAU OF ENGINEERING DATE

... 2/6/17
CHIEF, UTILITY DESIGN DIVISION DATE

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STATE OF MARYLAND
LICENSED PROFESSIONAL ENGINEER
NO. 33925
EXPIRATION DATE: 01/15/2017

DES:	KFJ
DRN:	KFJ
CHK:	SEA
DATE:	NOVEMBER 21, 2018
BY:	NO.
NO.	

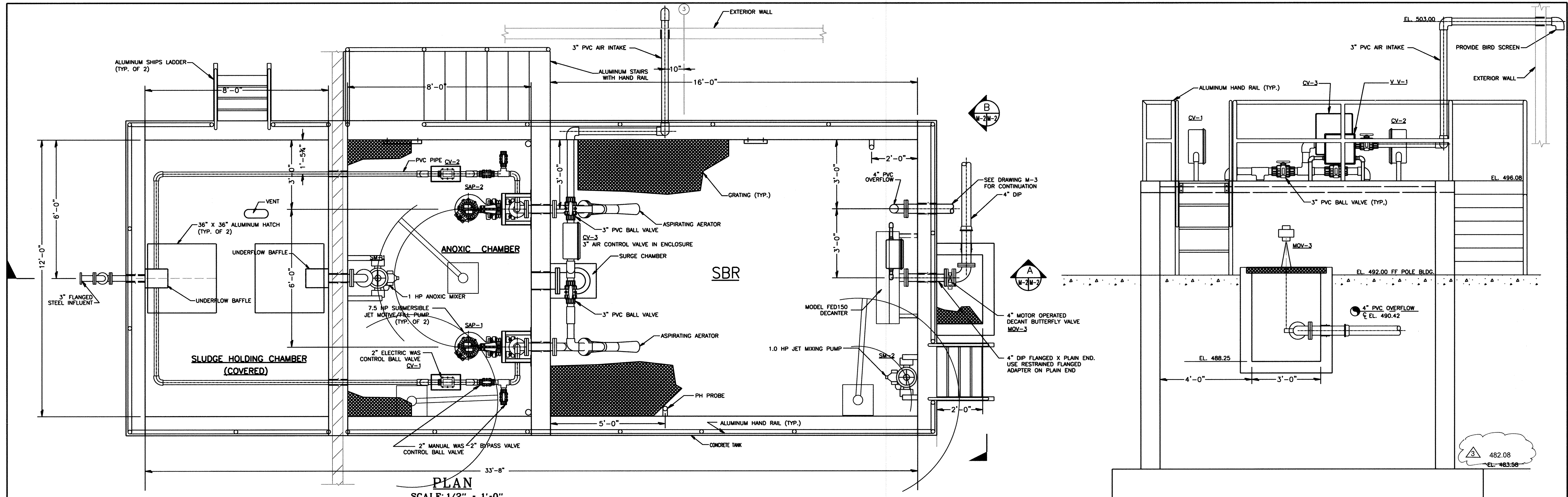
**INFLUENT TRANSFER STATION
PLAN AND SECTIONS**

DATE: 60' SCALE MAP NO. 40-41 BLOCK NO. 12

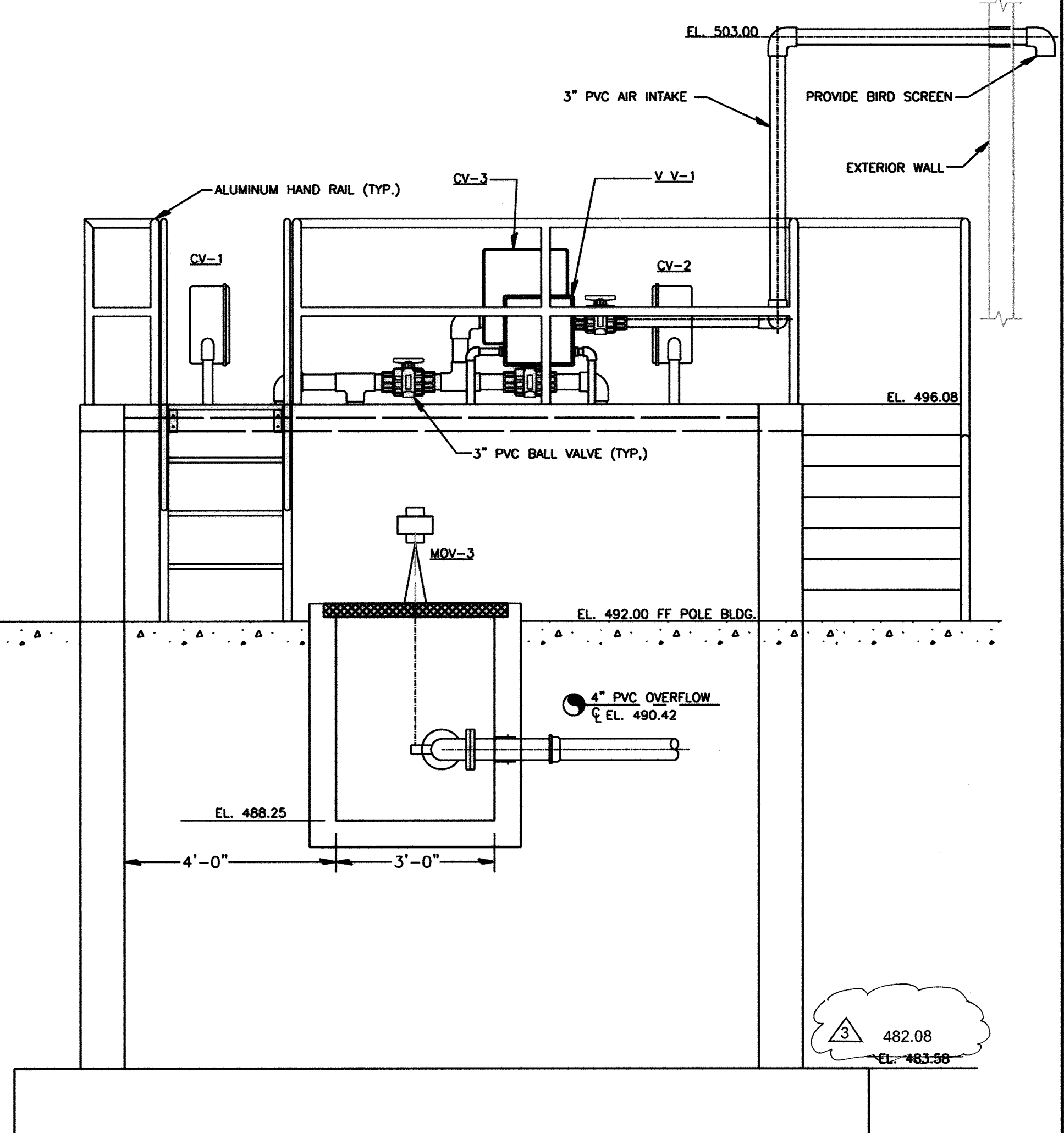
**ASHLEIGH KNOLLS
SHARED SEWAGE DISPOSAL FACILITY**

CAPITAL PROJECT No. S-6269
CONTRACT No. 50-4972

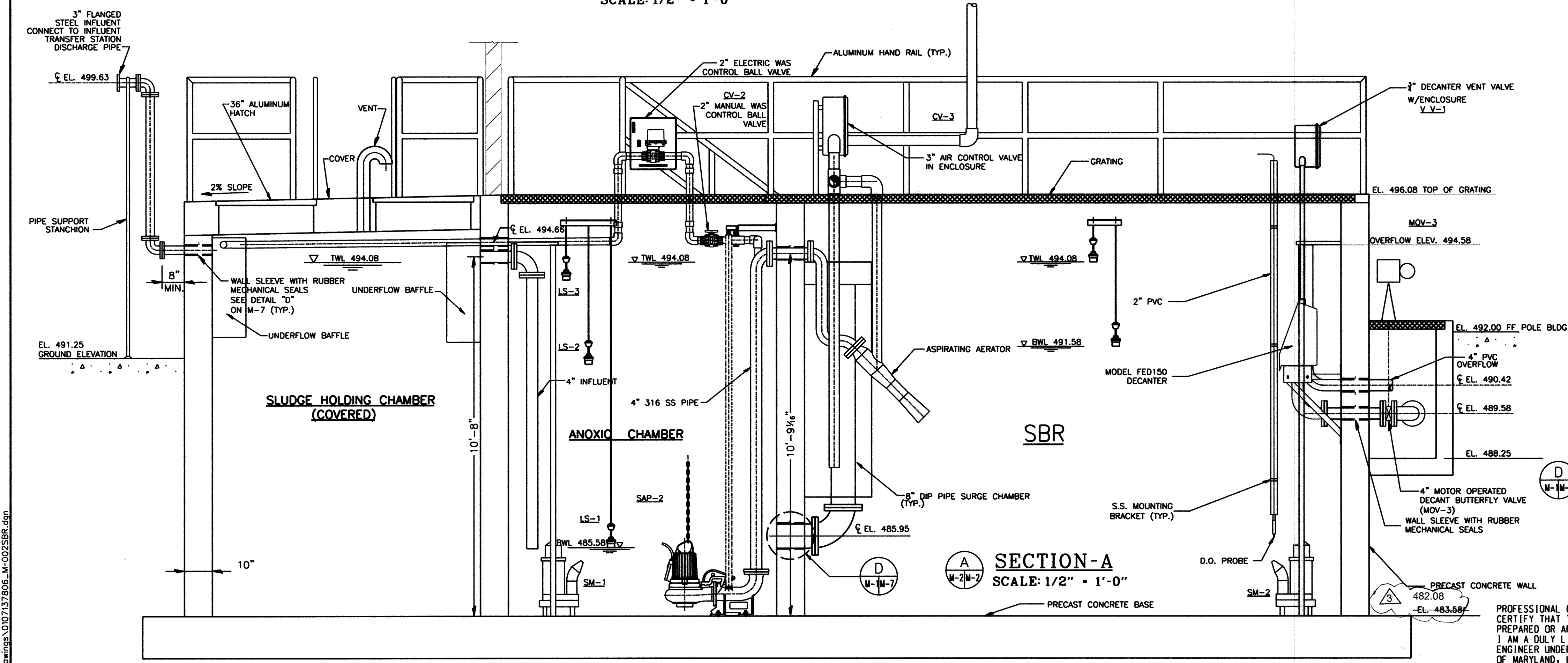
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND



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

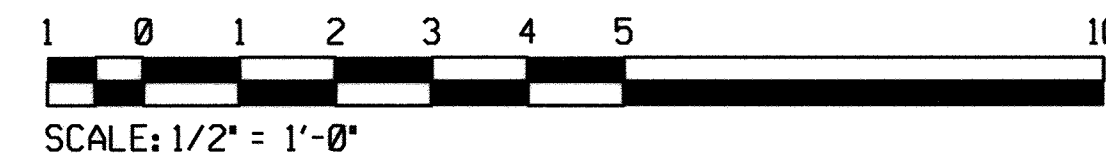


SECTION-B
SCALE: 1/2" = 1'-0"



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

- NOTE:
1. SEE HIGH PERFORMANCE COATING SPECIFICATION FOR THE COATING REQUIREMENT FOR THE SLUDGE HOLDING CHAMBER.
 2. COORDINATE DAVIT CRANE LOCATIONS TO SUIT EQUIPMENT REMOVAL LOCATIONS.
 3. COORDINATE WITH WOOD POST FRAME BUILDING MANUFACTURER FOR PIPE PENETRATIONS AT THE BUILDING.



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BY: BUSENAMES
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Raymond L. ... 2/1/17
DIRECTOR OF PUBLIC WORKS DATE

Thomas J. Butler 2/3/17
CHIEF, BUREAU OF ENGINEERING DATE

... 2/3/17
CHIEF, UTILITY DESIGN DIVISION DATE

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STATE OF MARYLAND
GUTHRIE WARRICK
PROFESSIONAL ENGINEER
10/10/2016

DES: KfJ			
DRN: KfJ			
CHK: GW			
DATE: AUG. 2016	BY: GW	NO.:	REVISION
			NOVEMBER 21, 2018

SEQUENCING BATCH REACTOR

DATE: 60' SCALE MAP NO. 40-41 BLOCK NO. 12

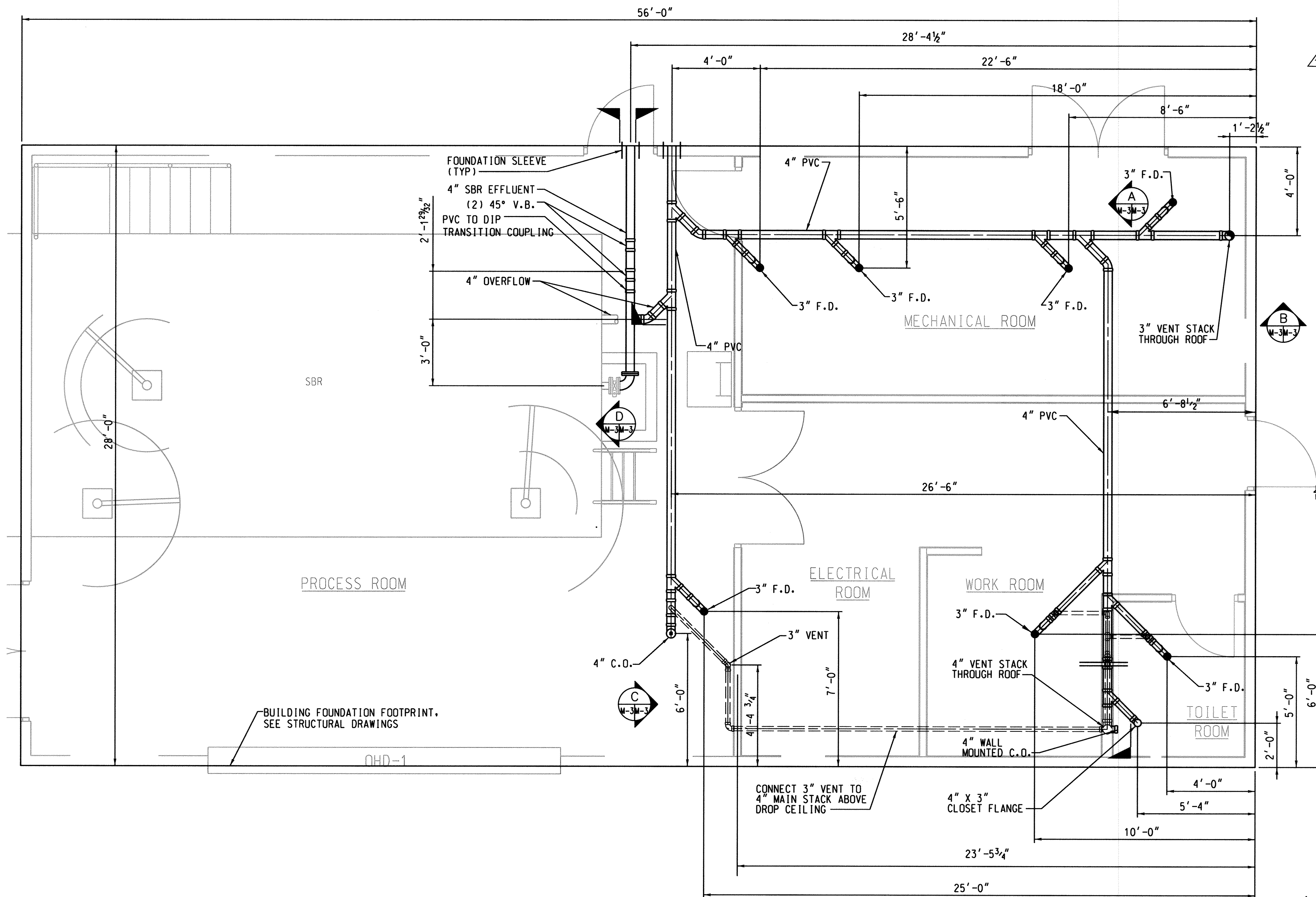
ASHLEIGH KNOLLS
SHARED SEWAGE DISPOSAL FACILITY
CAPITAL PROJECT No. S-6269
CONTRACT No. 50-4972
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

M-2
SCALE AS SHOWN
SHEET
18 OF 43

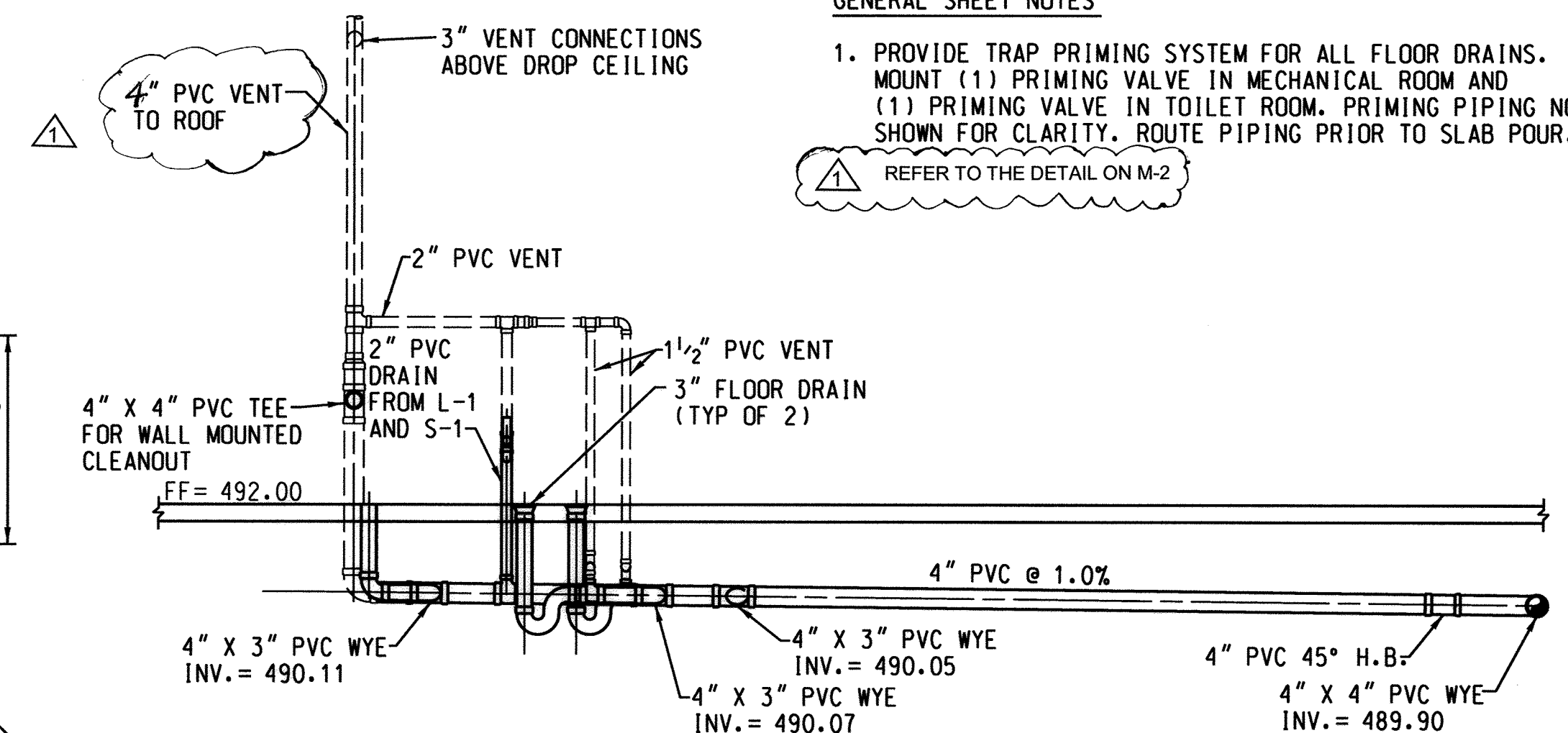
GENERAL SHEET NOTES

1. PROVIDE TRAP PRIMING SYSTEM FOR ALL FLOOR DRAINS. MOUNT (1) PRIMING VALVE IN MECHANICAL ROOM AND (1) PRIMING VALVE IN TOILET ROOM. PRIMING PIPING NOT SHOWN FOR CLARITY. ROUTE PIPING PRIOR TO SLAB POUR.

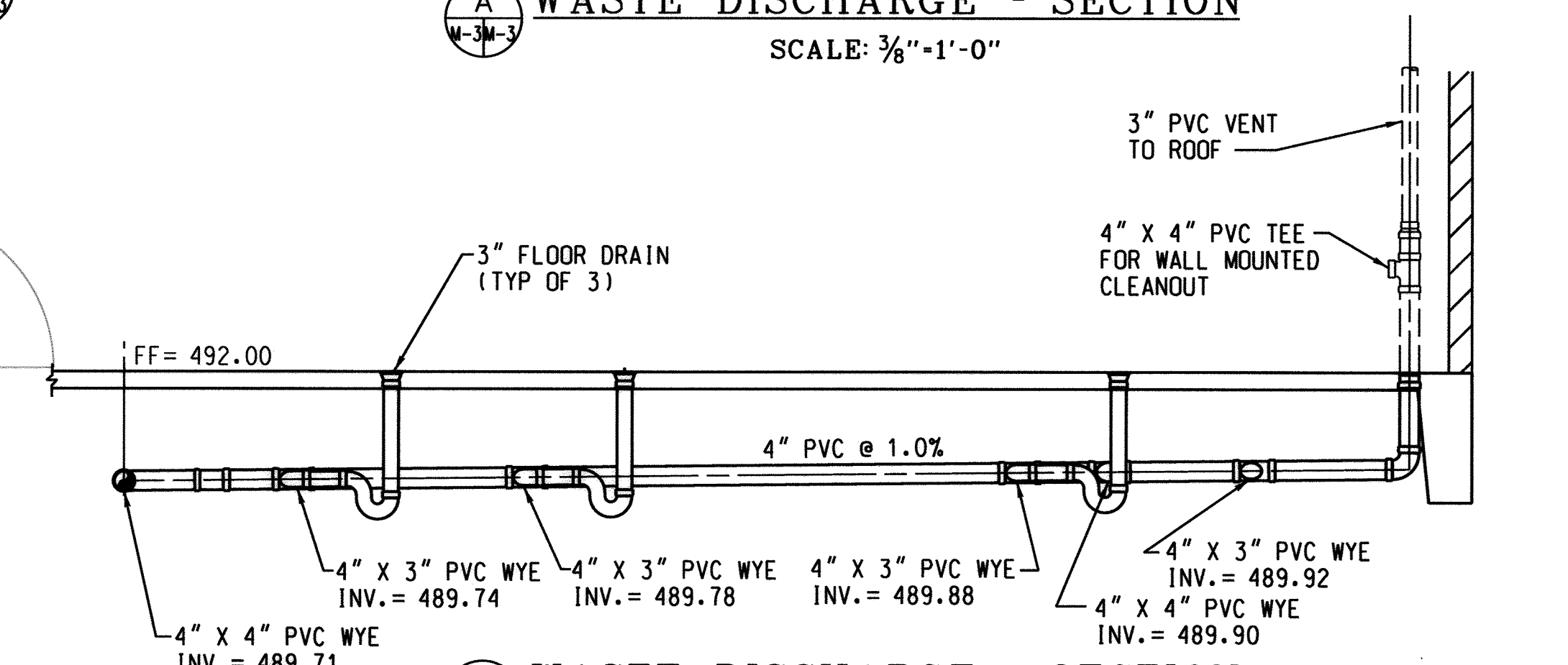
REFER TO THE DETAIL ON M-2



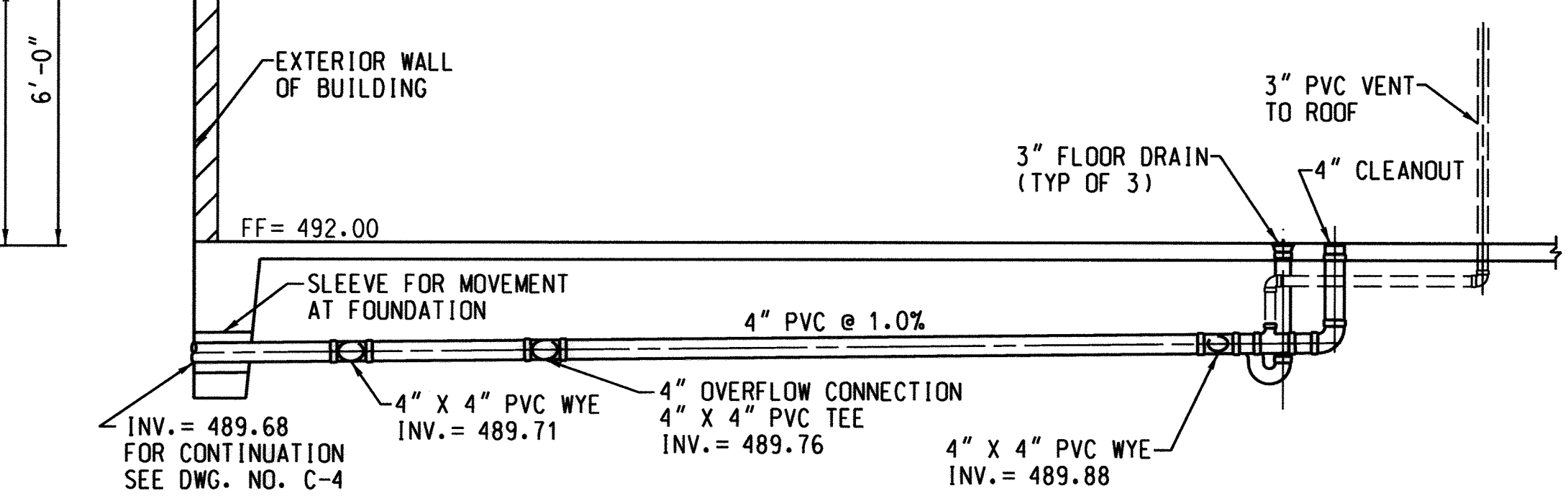
1 WASTE DISCHARGE - PLAN
SCALE: 3/8"=1'-0"



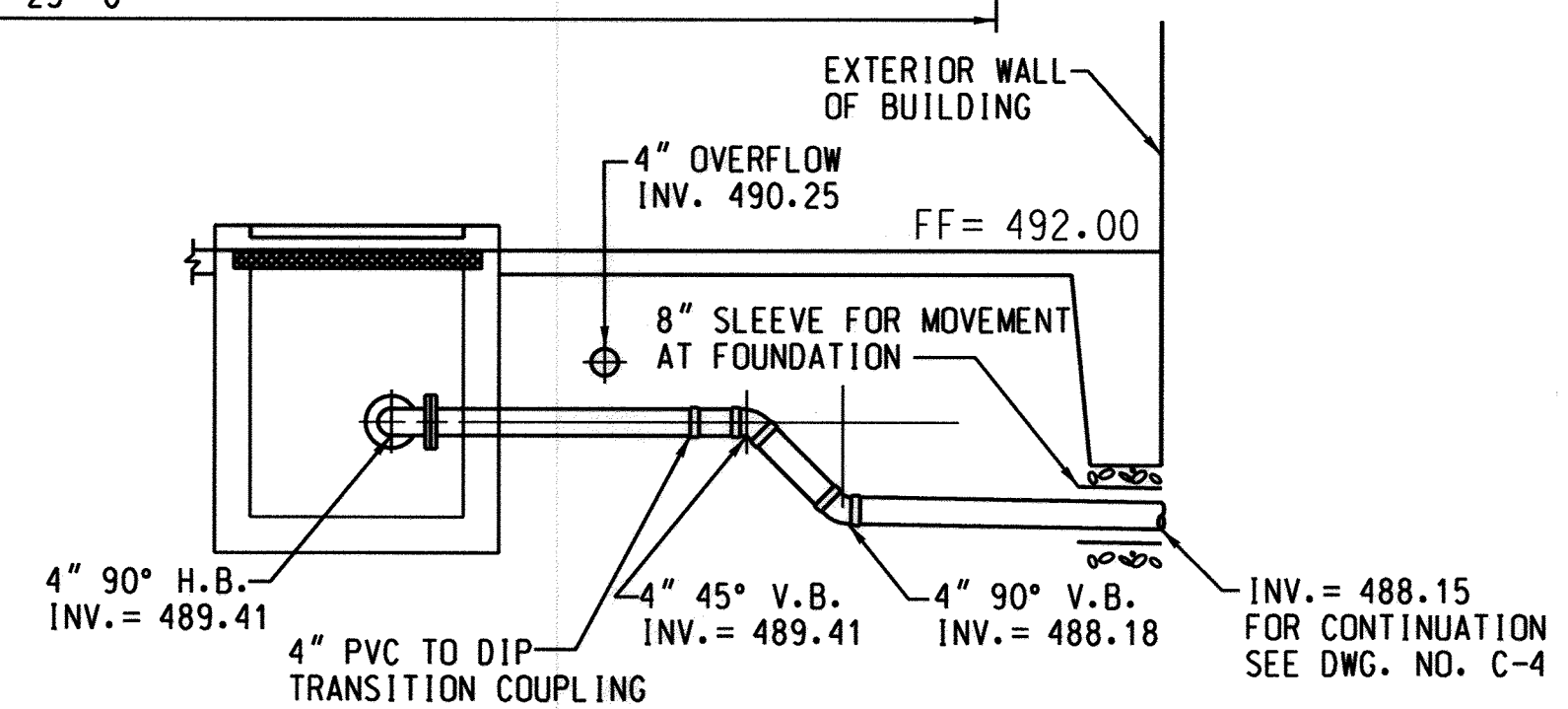
A WASTE DISCHARGE - SECTION
SCALE: 3/8"=1'-0"



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

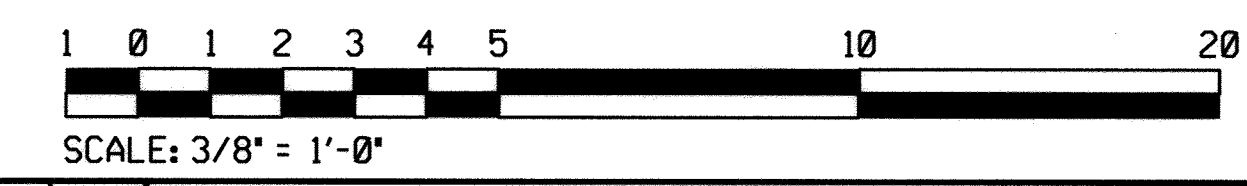


C WASTE DISCHARGE - SECTION
SCALE: 3/8"=1'-0"



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

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BY: BUSENAMES
FILE: M:\2017\10\07\1378_06 Drawings\1007137806_M-03 Plumbing_Waste.dwg

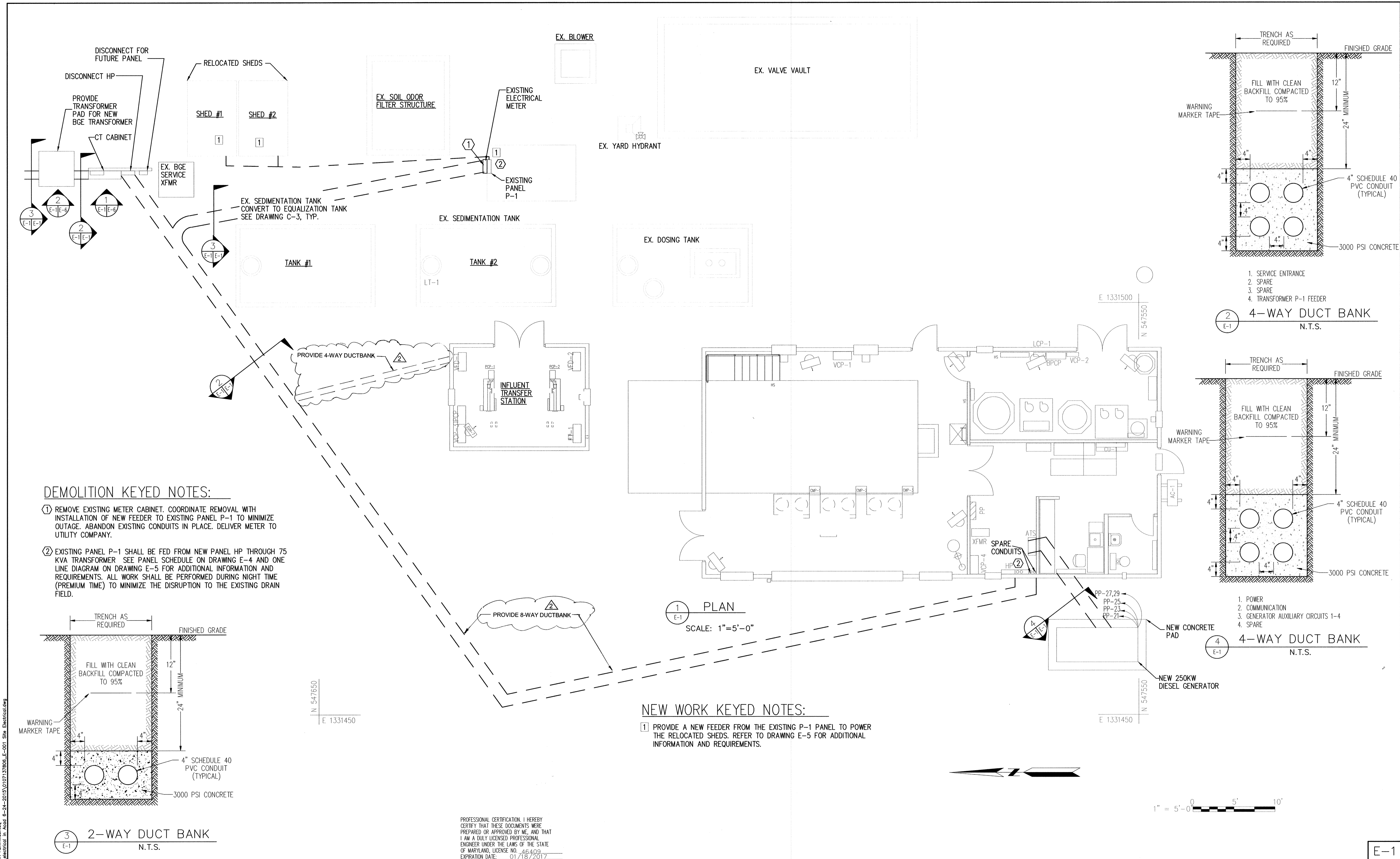
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND		 ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS 936 RIDGEBROOK ROAD SHARPS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818 www.kci.com
Director of Public Works <i>[Signature]</i> 2/1/17 DATE	Chief, Bureau of Engineering <i>[Signature]</i> 2/3/17 DATE	
Chief, Bureau of Utilities <i>[Signature]</i> 11/20/17 DATE	Chief, Utility Design Division <i>[Signature]</i> 2/3/17 DATE	

 10/10/2016	DES: KFJ				
	DRN: KFJ				
	CHK: SEA				
	DATE: AUG. 2016	GW	NO.	NOVEMBER 21, 2018	

PLUMBING- WASTE DISCHARGE		DATE	60' SCALE MAP NO.	40-41	BLOCK NO.	12
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ASHLEIGH KNOLLS SHARED SEWAGE DISPOSAL FACILITY CAPITAL PROJECT No. S-6269 CONTRACT No. 50-4972		ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND
		SHEET 19 OF 43

M-3



DEMOLITION KEYED NOTES:

- ① REMOVE EXISTING METER CABINET. COORDINATE REMOVAL WITH INSTALLATION OF NEW FEEDER TO EXISTING PANEL P-1 TO MINIMIZE OUTAGE. ABANDON EXISTING CONDUITS IN PLACE. DELIVER METER TO UTILITY COMPANY.
- ② EXISTING PANEL P-1 SHALL BE FED FROM NEW PANEL HP THROUGH 75 KVA TRANSFORMER SEE PANEL SCHEDULE ON DRAWING E-4 AND ONE LINE DIAGRAM ON DRAWING E-5 FOR ADDITIONAL INFORMATION AND REQUIREMENTS. ALL WORK SHALL BE PERFORMED DURING NIGHT TIME (PREMIUM TIME) TO MINIMIZE THE DISRUPTION TO THE EXISTING DRAIN FIELD.

NEW WORK KEYED NOTES:

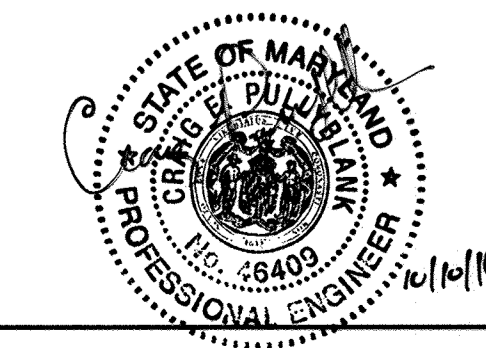
- ① PROVIDE A NEW FEEDER FROM THE EXISTING P-1 PANEL TO POWER THE RELOCATED SHEDS. REFER TO DRAWING E-5 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

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 EXPIRATION DATE: 01/18/2017

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *[Signature]* 11/21/17
 Chief, Bureau of Utilities: *[Signature]* 11/21/17
 Chief, Utility Design Division: *[Signature]* 11/21/17

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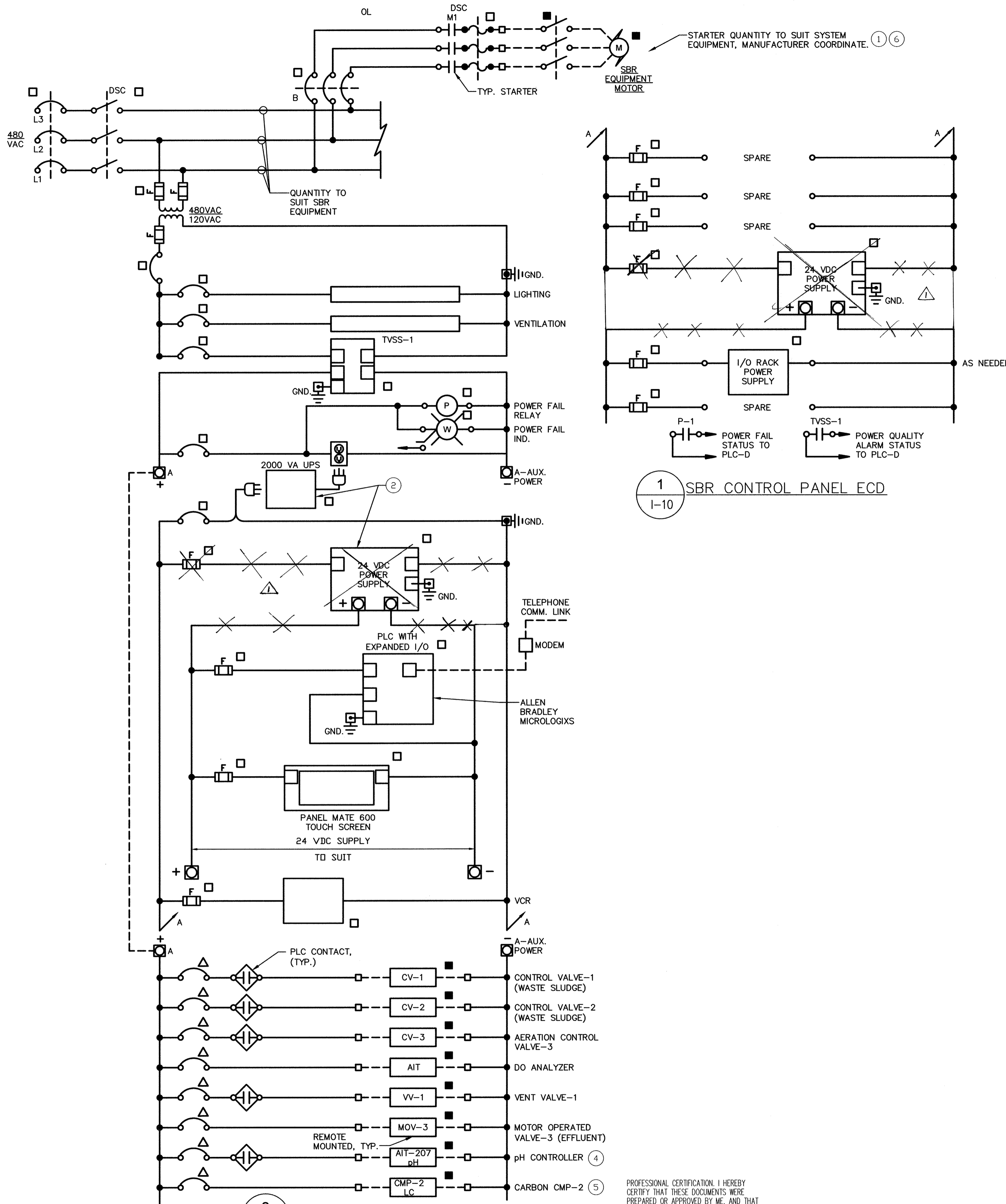


DES: SB	DRN: SB	CHK: CEP	DATE: AUG, 2016	GW	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 40-41	BLOCK NO. 12
								NOVEMBER 21, 2018		

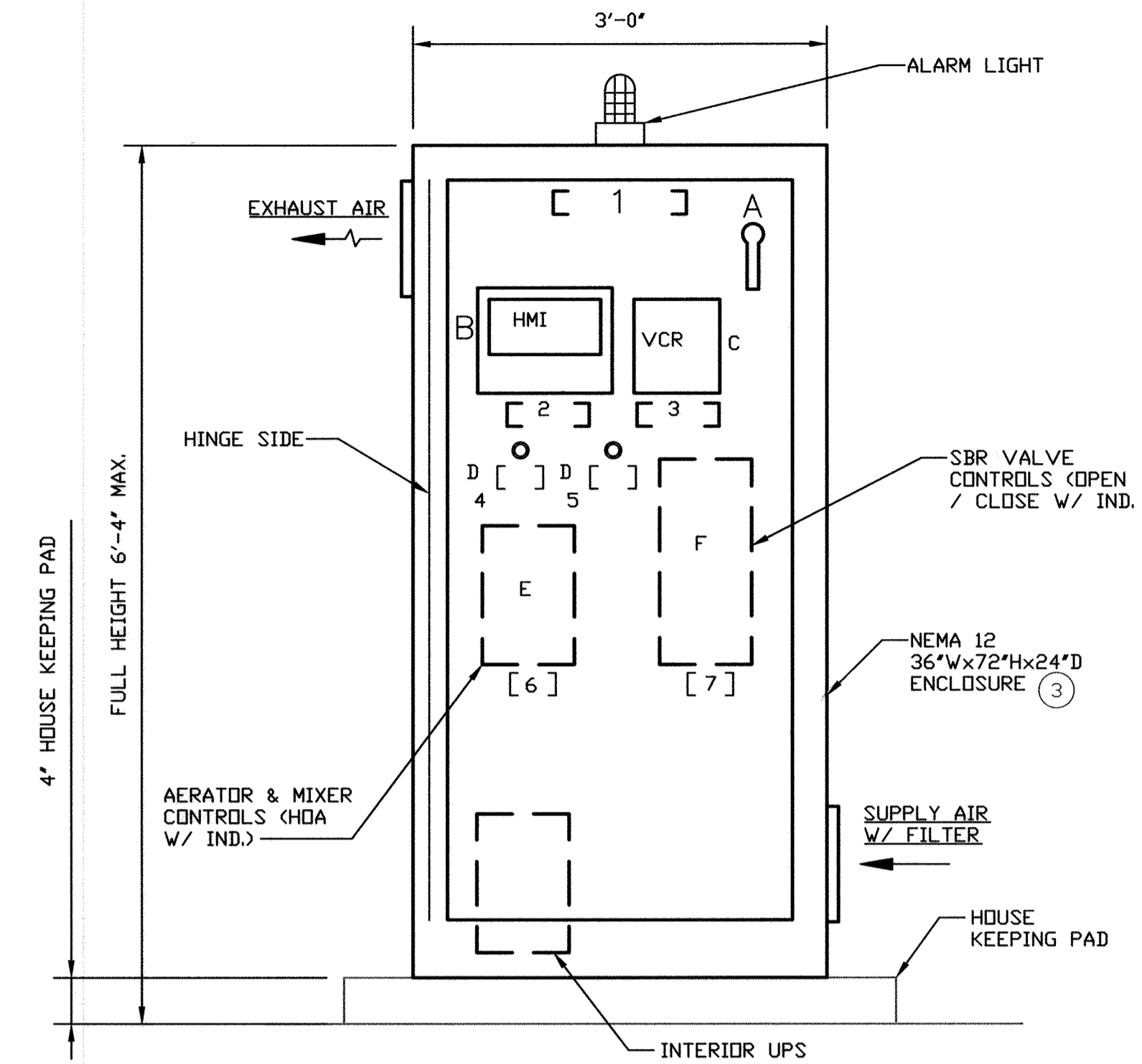
SITE ELECTRICAL PLAN
 600' SCALE MAP NO. 40-41 BLOCK NO. 12

**ASHLEIGH KNOLLS
 SHARED SEWAGE DISPOSAL FACILITY**
 CAPITAL PROJECT No. S-6269
 CONTRACT No. 50-4972
 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

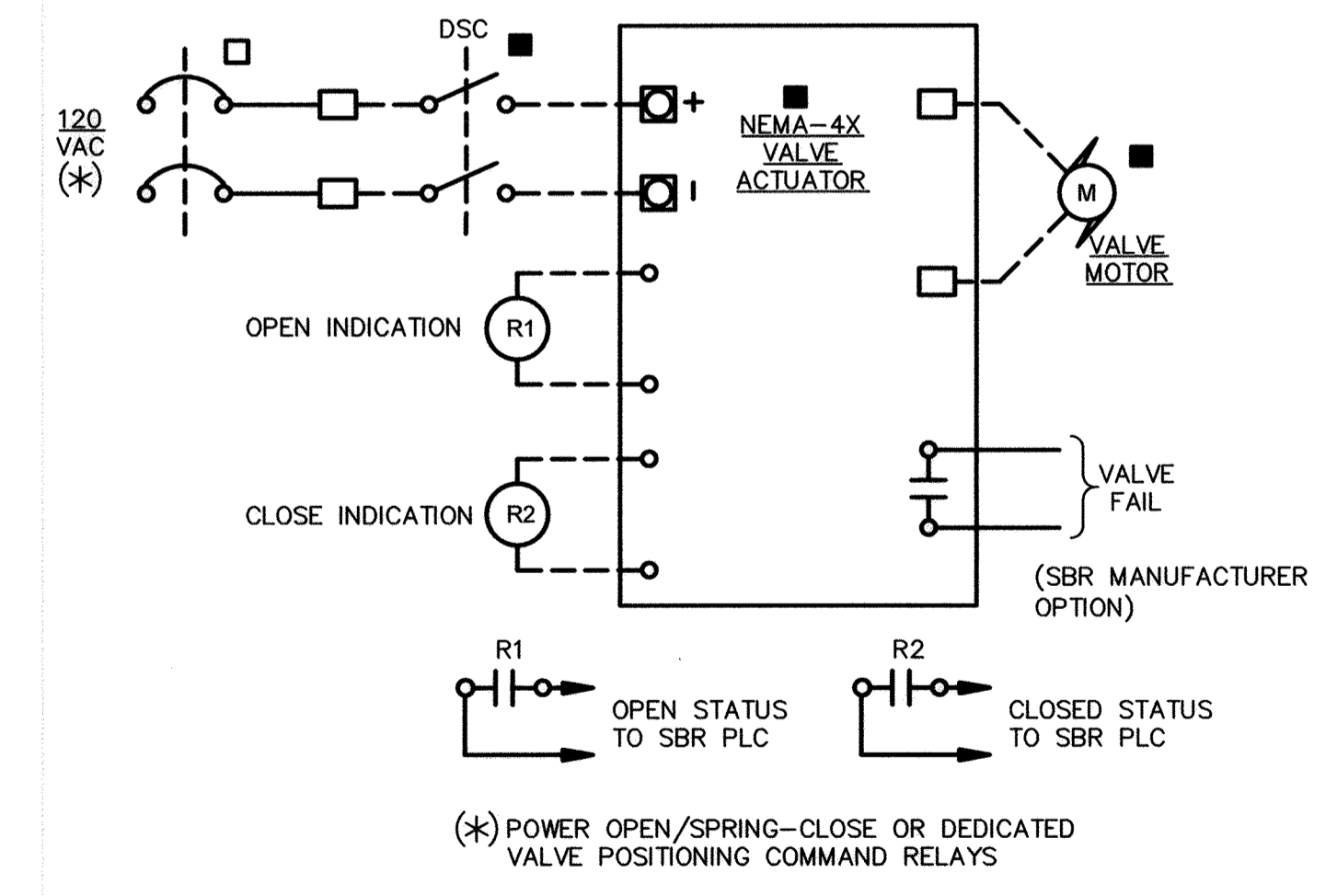
E-1
 SCALE AS SHOWN
 SHEET 25 OF 43



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- NAMEPLATE LEGEND:**
- 1 SBR CONTROL PANEL
 - 2 SYSTEM SCREEN
 - 3 PROCESS RECORDER
 - 4 RESET
 - 5 ACKNOWLEDGE
 - 6 SBR EQUIPMENT
 - 7 SBR CONTROL VALVES
- DEVICE LEGEND:**
- A MAIN PANEL BREAKER
 - B HMI TOUCH SCREEN
 - C VIDEO CHART RECORDER
 - D MOMENTARY PUSH-BUTTON
 - E AERATOR / MIXER CONTROLS
 - F VALVE CONTROLS



- GENERAL NOTES:**
1. SEE SYSTEM P&I DIAGRAMS FOR PROCESS CONTROL IDENTIFICATIONS.
- CONSTRUCTION NOTES:**
- 1 ALL RELAYS SHALL HAVE L.E.D.S.
 - 2 ALL FUSES AND BREAKERS SHALL BE SIZED IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS AND THE MCC MANUFACTURERS RECOMMENDATIONS.
- ELECTRICAL CONTROL DIAGRAM LEGEND (ECD):**
- REMOTE
 - AT PLC CABINET
 - △ AT LOCAL PANEL
 - ▲ AT MOTOR CONTROL PANEL (VFD)
 - ⊙ PANEL BOARD
 - ⊙ AT SYSTEM CONTROL PANEL
- ELECTRICAL CONTROL DIAGRAM TERMINALS (ECD):**
- PANEL WIREWAY TERMINATIONS
 - WIRING CONNECTIONS
 - REMOTE TERMINATIONS
 - PANEL CONNECTIONS
 - - - REMOTE CONNECTIONS
 - + POWER SUPPLY CONNECTION
- NOTES**
- 1 INDIVIDUAL STARTER ALARMS IDENTIFIED ON THE P&I'S SHALL BE TERMINATED FOR COUNTY USE AS SHOWN.
 - 2 SBR MANUFACTURER SHALL CUSTOMIZE THE BACKUP POWER AND I/O MODULE POWER/ISOLATION RELAYS TO SUIT PLC EQUIPMENT PROVIDED.
 - 3 THE SBR CONTROL PANEL ELEVATION DETAILS MINIMUM LAYOUT AND INDICATIONS REQUIRED FOR OPERATOR INTERFACE AND FACILITY HMI. RESPECTIVE MANUFACTURER'S SHALL CUSTOMIZE THIS PANEL TO SUIT THEIR SYSTEM COMPONENTS.
 - 4 SBR POWER SHALL BE FURNISHED TO THE ANALYZER HOA/RECEPTICAL PANEL, SEE SHEET I-11 DETAILS.
 - 5 SBR POWER SHALL BE FURNISHED TO THE CARBON METERING PUMP HOA/RECEPTICAL PANEL, SEE SHEET I-11 DETAILS.
 - 6 SBR MANUFACTURER SHALL PROVIDE EQUIPMENT LABELS FOR ALL BREAKERS.

Oct 24, 2016 - 10:02am User: jordan.w@h...
M:\2016\10\24\10171378\Drawings\1-D ECD.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James De... 2/7/17
DIRECTOR OF PUBLIC WORKS DATE

Thomas E. Butler 2/17/17
CHIEF, BUREAU OF ENGINEERING DATE

... 2/13/17
CHIEF, UTILITY DESIGN DIVISION DATE

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TELEPHONE: (410) 316-7800
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STATE OF MARYLAND
STEVEN E. ANDERSON
PROFESSIONAL ENGINEER
10/24/16

DES: JFW
DRN: JFW
CHK: SEA
DATE: AUG, 2016

GW
BY NO.

NOVEMBER 21, 2018
REVISION

WIRING DIAGRAMS-3

DATE: 600' SCALE MAP NO. 40-41 BLOCK NO. 12

ASHLEIGH KNOLLS
SHARED SEWAGE DISPOSAL FACILITY
CAPITAL PROJECT No. S-6269
CONTRACT No. 50-4972
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

I-10
SCALE AS SHOWN
SHEET 40 OF 43

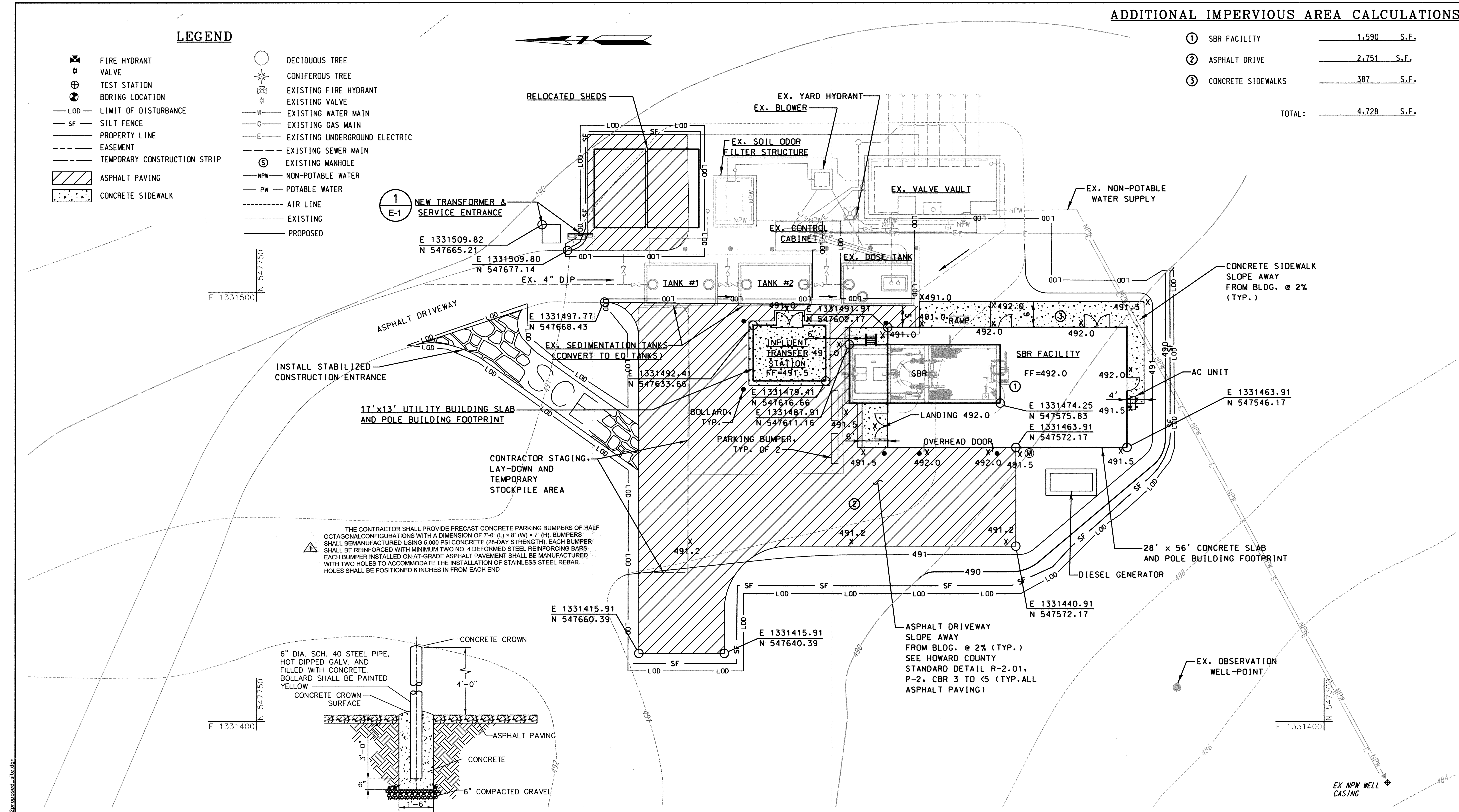
ADDITIONAL IMPERVIOUS AREA CALCULATIONS

①	SBR FACILITY	1,590	S.F.
②	ASPHALT DRIVE	2,751	S.F.
③	CONCRETE SIDEWALKS	387	S.F.
TOTAL:		4,728	S.F.

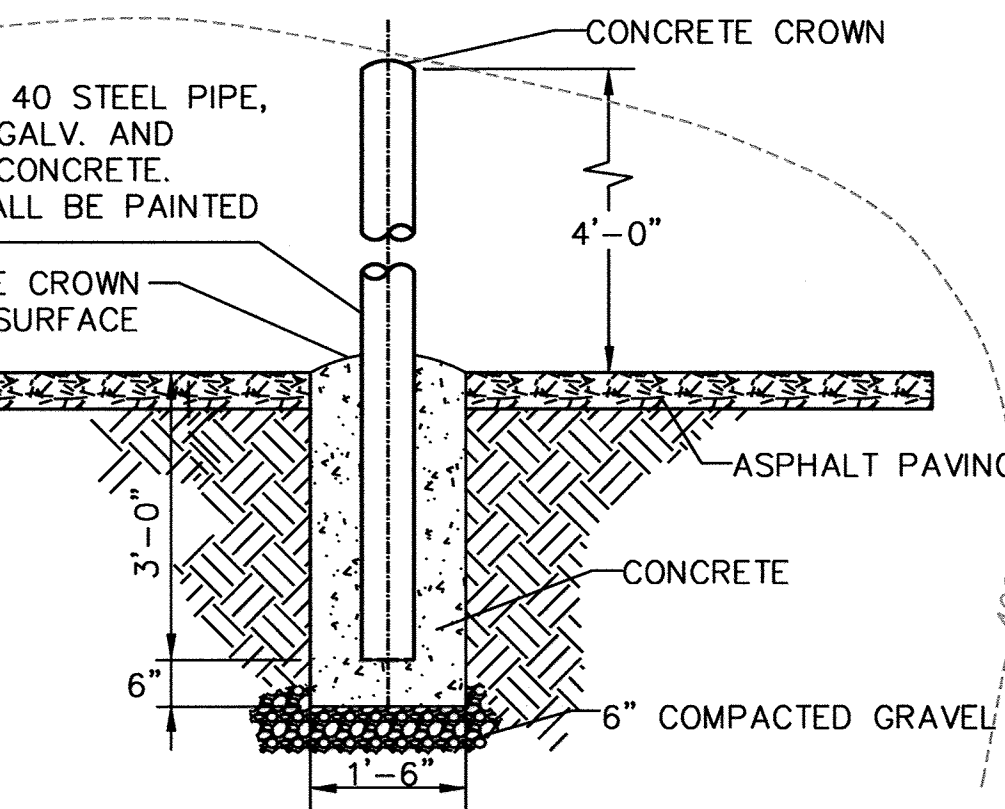
LEGEND

- | | | | |
|-----|------------------------------|-----|-------------------------------|
| ⊕ | FIRE HYDRANT VALVE | ○ | DECIDUOUS TREE |
| ⊕ | TEST STATION | ⊙ | CONIFEROUS TREE |
| ⊕ | BORING LOCATION | ⊕ | EXISTING FIRE HYDRANT |
| --- | LOD - LIMIT OF DISTURBANCE | --- | EXISTING VALVE |
| --- | SF - SILT FENCE | --- | EXISTING WATER MAIN |
| --- | PROPERTY LINE | --- | EXISTING GAS MAIN |
| --- | EASEMENT | --- | EXISTING UNDERGROUND ELECTRIC |
| --- | TEMPORARY CONSTRUCTION STRIP | --- | EXISTING SEWER MAIN |
| ▨ | ASPHALT PAVING | ⊕ | EXISTING MANHOLE |
| ▨ | CONCRETE SIDEWALK | --- | NPW - NON-POTABLE WATER |
| | | --- | PW - POTABLE WATER |
| | | --- | AIR LINE |
| | | --- | EXISTING |
| | | --- | PROPOSED |

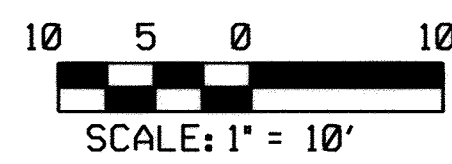
① NEW TRANSFORMER & SERVICE ENTRANCE E-1



THE CONTRACTOR SHALL PROVIDE PRECAST CONCRETE PARKING BUMPERS OF HALF OCTAGONAL CONFIGURATIONS WITH A DIMENSION OF 7'-0" (L) x 8" (W) x 7" (H). BUMPERS SHALL BE MANUFACTURED USING 5,000 PSI CONCRETE (28-DAY STRENGTH), EACH BUMPER SHALL BE REINFORCED WITH MINIMUM TWO NO. 4 DEFORMED STEEL REINFORCING BARS. EACH BUMPER INSTALLED ON AT-GRADE ASPHALT PAVEMENT SHALL BE MANUFACTURED WITH TWO HOLES TO ACCOMMODATE THE INSTALLATION OF STAINLESS STEEL REBAR. HOLES SHALL BE POSITIONED 6 INCHES IN FROM EACH END.



① SITE PLAN SCALE: 1"=10'



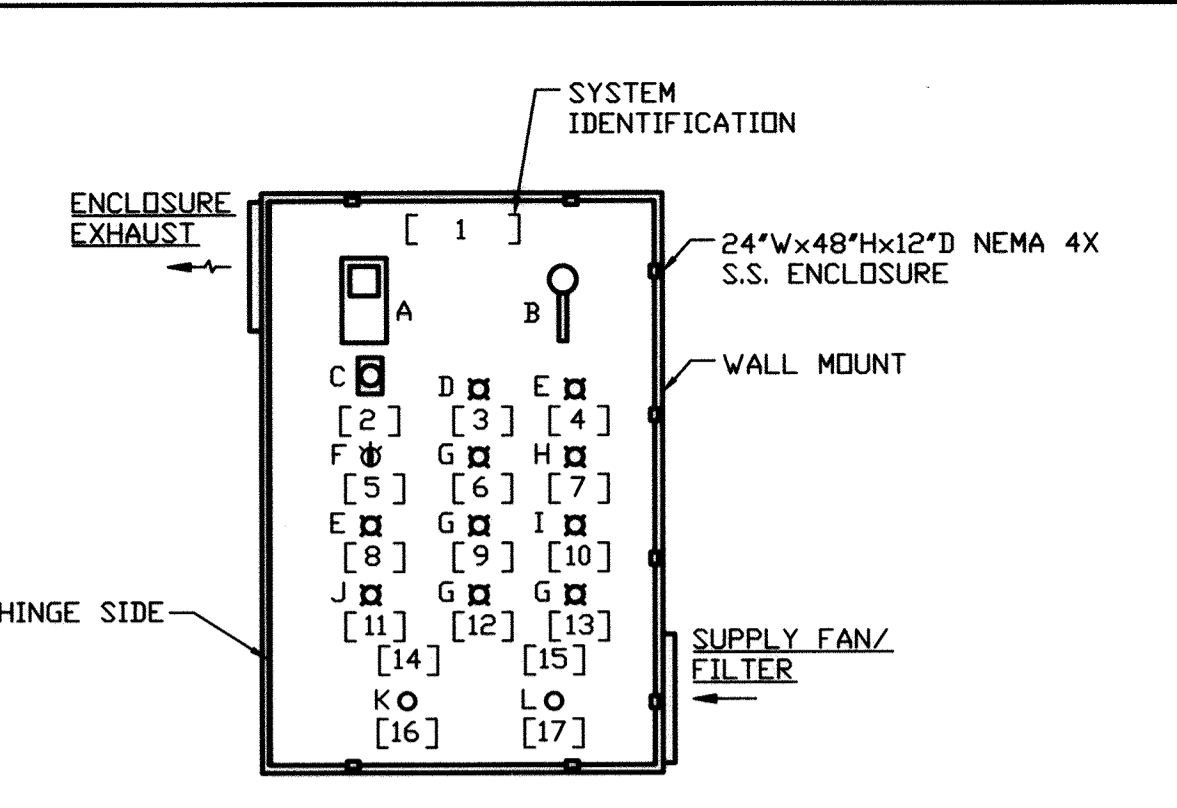
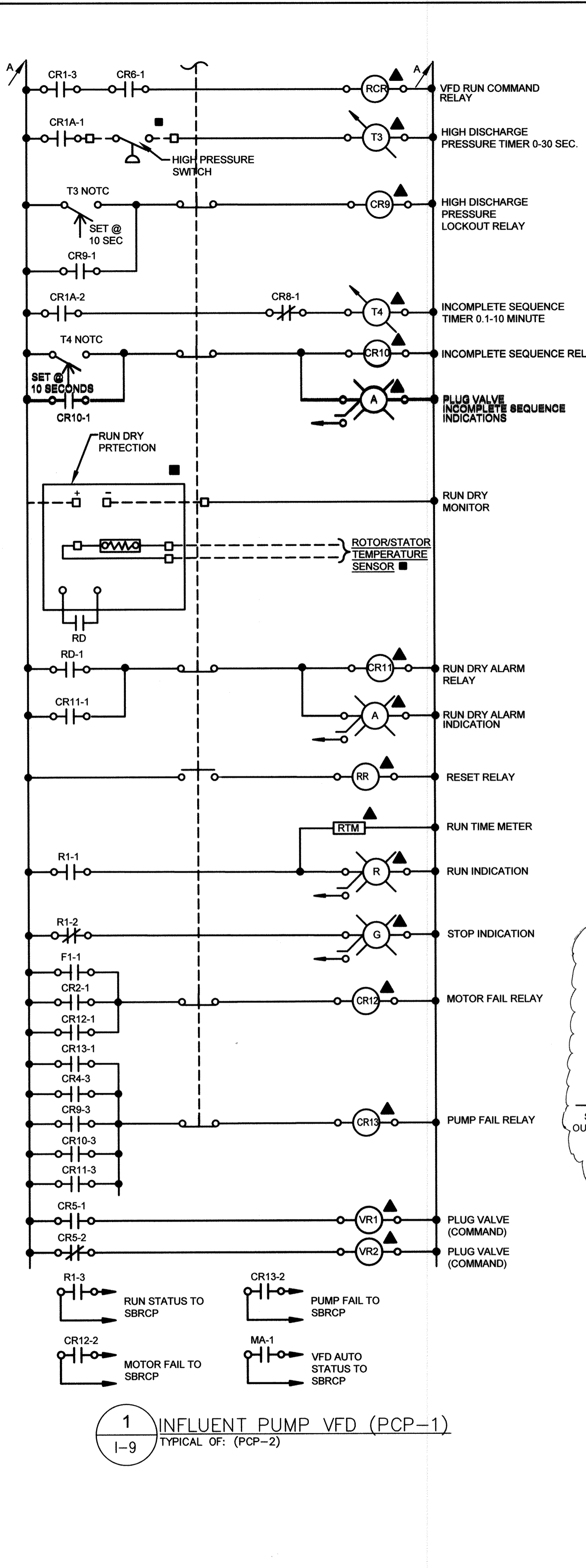
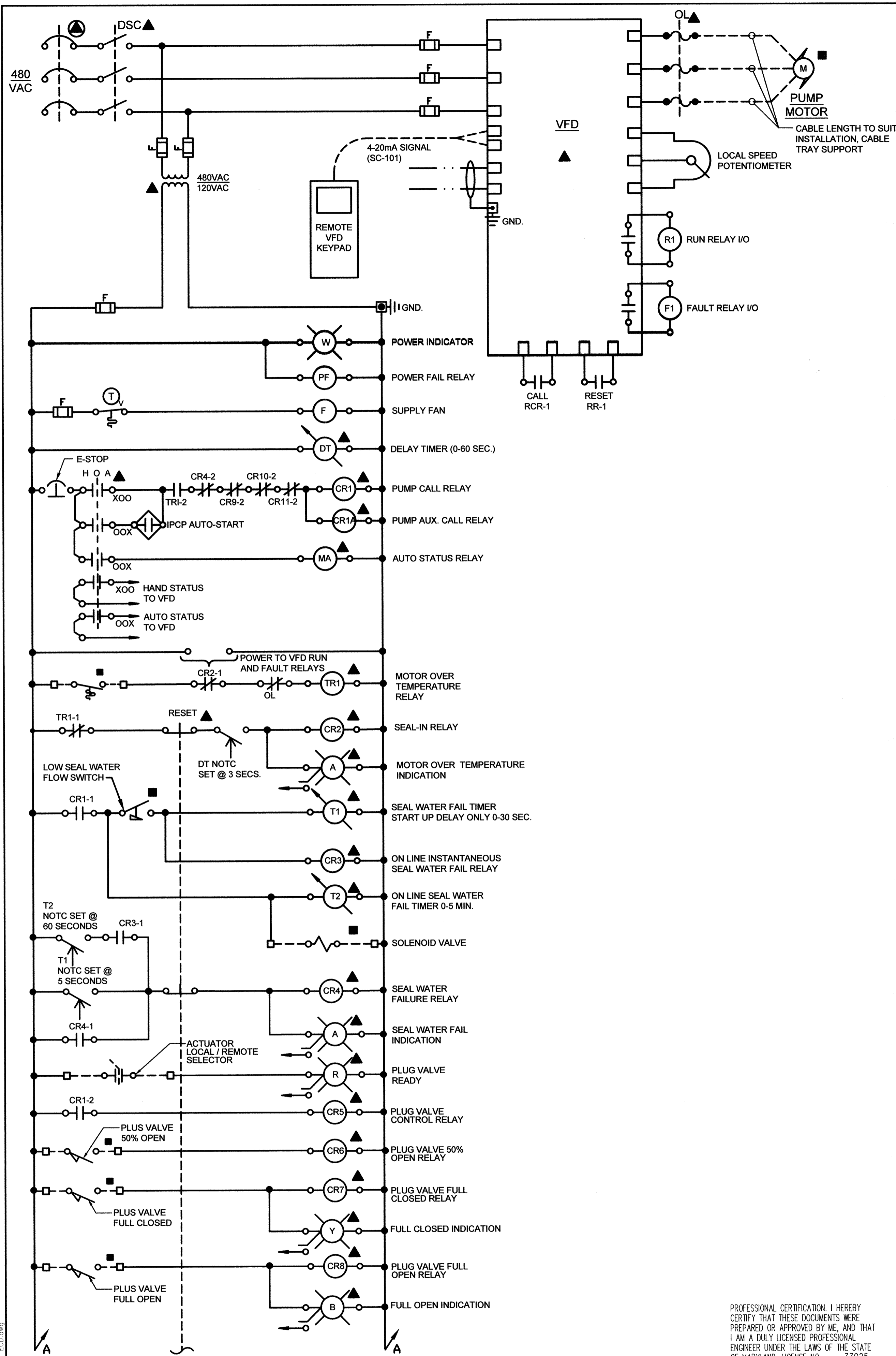
- CONSTRUCTION NOTES:**
- PROVIDE MINIMUM 42" OF COVER WHEN INSTALLING THE NPW SUPPLY
 - SEE UTILITY TRENCHING DETAILS FOR MINIMUM SUBSURFACE INSTALLATION REQUIREMENTS.
 - REPLACE APPROX. 200 S.F. EXISTING ASPHALT AND FIVE EXISTING BOLLARDS.

OWNER'S ADDRESS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 BUREAU OF UTILITIES
 8250 OLD MONTGOMERY ROAD
 COLUMBIA MARYLAND, 21045

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31363 EXPIRATION DATE: 01/16/2018

PLOTTED: 09:40 AM on Thursday, October 06, 2016 BY: BUSEFNAMES FILE: M:\2007\01071375_05\Drawings\007137806_C-002\proposed_site.dgn

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Jay C. ...</i> 2/1/17 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>Thomas E. ...</i> 2/1/17 CHIEF, BUREAU OF ENGINEERING DATE</p> <p><i>...</i> 2/1/17 CHIEF, UTILITY DESIGN DIVISION DATE</p>	<p>ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS</p> <p>KCI TECHNOLOGIES</p> <p>936 RIDGEBROOK ROAD SHARPS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818 www.kci.com</p>	<p>STATE OF MARYLAND PROFESSIONAL ENGINEER NO. 31363 EXPIRATION DATE: 01/16/2018</p> <p>10/10/2016</p>	<p>DES: KFJ</p> <p>DRN: KFJ</p> <p>CHK: GW</p> <p>DATE: AUG. 2016</p> <p>BY NO. REVISION</p>	<p>PROPOSED SITE PLAN & SEDIMENT AND EROSION CONTROL PLAN</p> <p>NOVEMBER 21, 2018</p> <p>NOVEMBER 21, 2018</p> <p>DATE 600' SCALE MAP NO. 40-41 BLOCK NO. 12</p>	<p>ASHLEIGH KNOLLS SHARED SEWAGE DISPOSAL FACILITY</p> <p>CAPITAL PROJECT No. S-6269 CONTRACT No. 50-4972</p> <p>ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND</p>	<p>C-2</p> <p>SCALE AS SHOWN</p> <p>SHEET 4 OF 43</p>
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NAMEPLATE LEGEND:

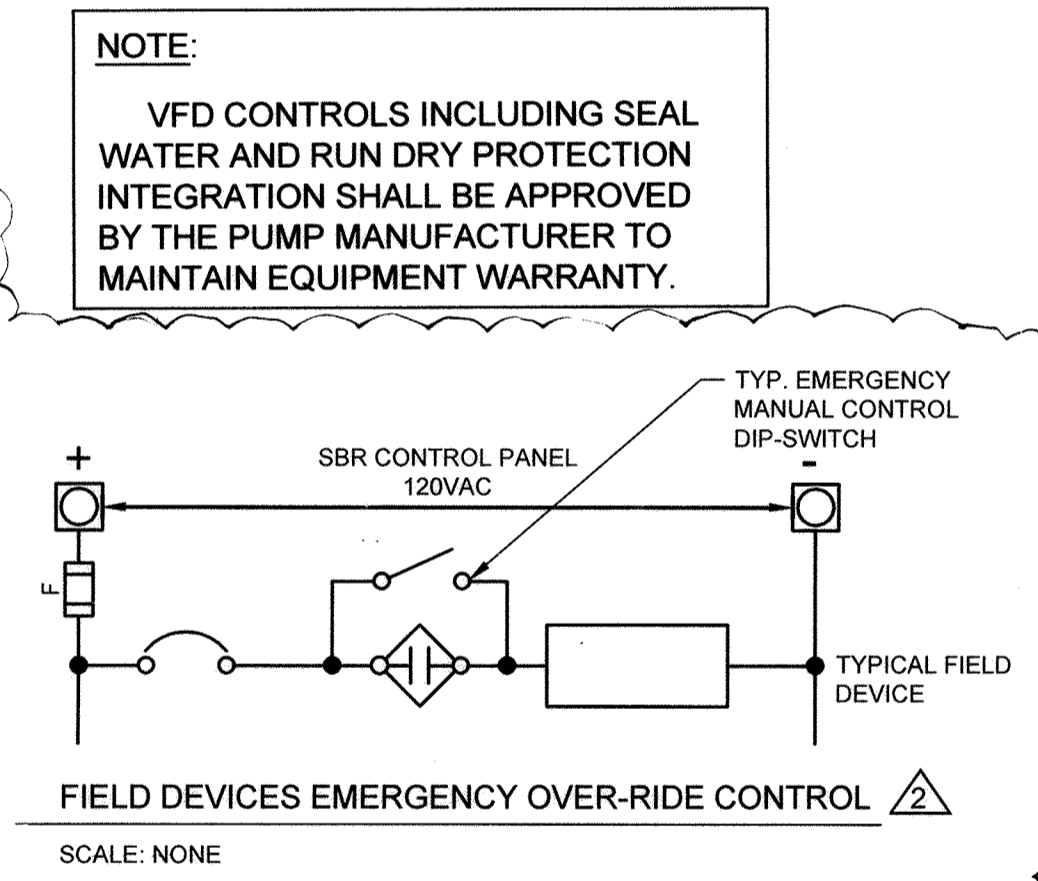
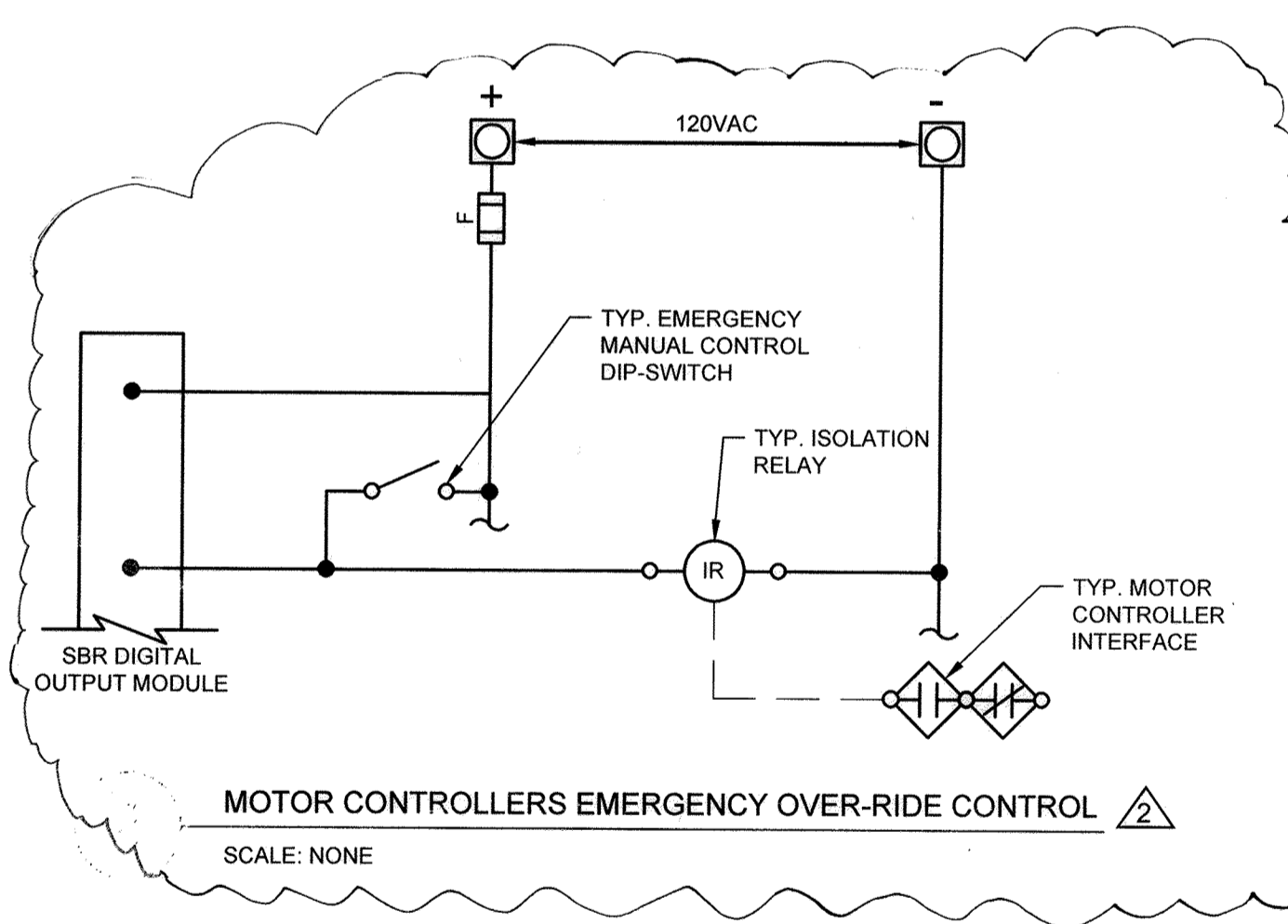
1	INFLUENT PUMP VFD-1
2	RUN-HOURS
3	POWER
4	VALVE READY
5	HOA
6	MOTOR FAIL
7	VALVE CLOSED
8	PUMP RUN
9	SEAL-WATER FAIL
10	VALVE OPEN
11	PUMP STOP
12	RUN DRY ALARM
13	INCOMPLETE SEQUENCE
14	VFD
15	MOTORIZED PLUG VALVE
16	RESET
17	E-STOP

DEVICE LEGEND:

A	VFD KEYPAD
B	MAIN BREAKER
C	ETM-ELAPSED TIME METER
D	IND. LAMP (WHITE)
E	IND. LAMP (RED)
F	3-POSITION SELECTOR SWITCH
G	IND. LAMP (AMBER)
H	IND. LAMP (YELLOW)
I	IND. LAMP (BLUE)
J	IND. LAMP (GREEN)
K	MOMENTARY PUSHBUTTON
L	MAINTAIN PUSH-PULL BUTTON

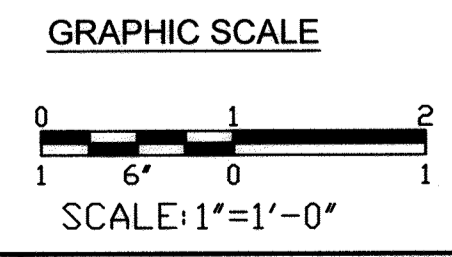
- GENERAL NOTES:**
- SEE SYSTEM P&I DIAGRAMS FOR PROCESS CONTROL IDENTIFICATIONS.
- CONSTRUCTION NOTES:**
- ALL RELAYS SHALL HAVE L.E.D.S.
 - ALL FUSES AND BREAKERS SHALL BE SIZED IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS AND THE MCC MANUFACTURERS RECOMMENDATIONS.
 - AT THE INTEGRATORS OPTIONS, PERMISSIVE ALARM SEQUENCES CAN BE INCLUDED WITHIN THE VFD PROCESSOR. VFD CONTROLS SHALL BE COORDINATED WITH ALL EXTERNAL INSTRUMENTS AND SEQUENCED EQUIPMENT FOR PROPER OPERATIONS.
- ELECTRICAL CONTROL DIAGRAM LEGEND (ECD):**
- REMOTE
 - AT PLC CABINET
 - ▲ AT LOCAL PANEL
 - ▲ AT MOTOR CONTROL PANEL (VFD)
 - ⊙ PANEL BOARD
 - ⊙ AT SYSTEM CONTROL PANEL
- ELECTRICAL CONTROL DIAGRAM TERMINALS (ECD):**
- PANEL WIREWAY TERMINATIONS
 - WIRING CONNECTIONS
 - REMOTE TERMINATIONS
 - PANEL CONNECTIONS
 - - - REMOTE CONNECTIONS
 - ⊕ POWER SUPPLY CONNECTION

A PCP VFD CONTROL PANEL ELEVATION
1-9 TYPICAL OF: (INFLUENT PUMP VFD-2)
SCALE: 1"=1'-0"



NOTE:
VFD CONTROLS INCLUDING SEAL WATER AND RUN DRY PROTECTION INTEGRATION SHALL BE APPROVED BY THE PUMP MANUFACTURER TO MAINTAIN EQUIPMENT WARRANTY.

1 INFLUENT PUMP VFD (PCP-1)
1-9 TYPICAL OF: (PCP-2)



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33925, EXPIRATION DATE: 07/15/17

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

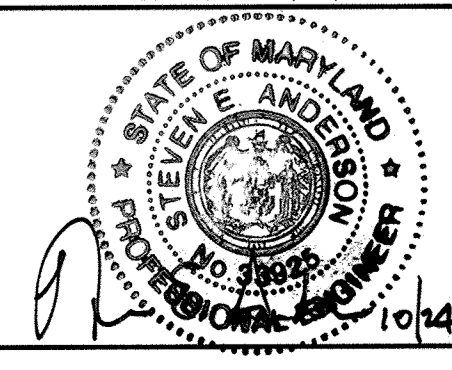
James E. Butler 2/3/17
CHIEF, BUREAU OF UTILITIES

James E. Butler 2/3/17
CHIEF, UTILITY DESIGN DIVISION

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

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TECHNOLOGIES

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www.kci.com



DES:	JFW
DRN:	JFW
CHK:	SEA
DATE:	AUG, 2016
BY:	GW
NO.:	NOVEMBER 21, 2018
REVISION:	

WIRING DIAGRAM -2

600' SCALE MAP NO. 40-41 BLOCK NO. 12

**ASHLEIGH KNOLLS
SHARED SEWAGE DISPOSAL FACILITY**

CAPITAL PROJECT No. S-6269
CONTRACT No. 50-4972

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND