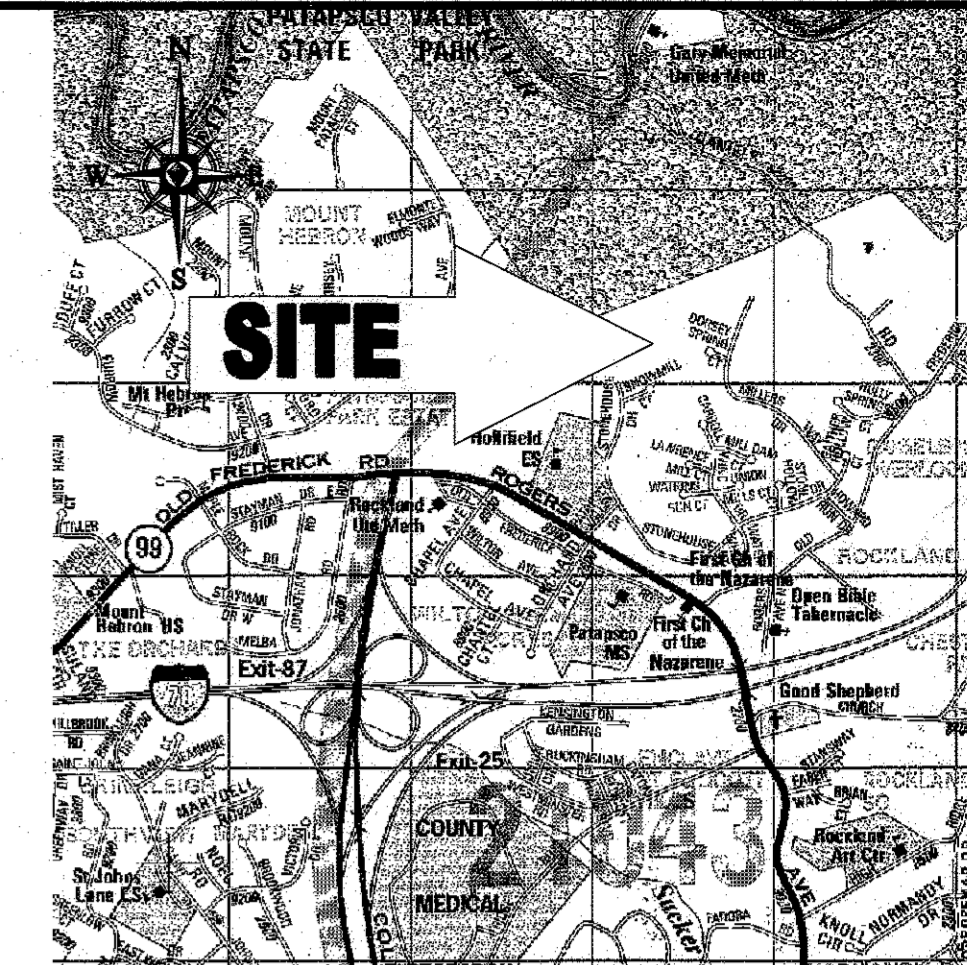


# MODIFICATIONS TO THE OLD FREDERICK ROAD WASTEWATER PUMPING STATION



VICINITY MAP  
COPYRIGHT ADC THE MAP PEOPLE  
PERMIT USE NO. 20802153-5  
SCALE: 1"=2000'  
ADC MAP COORDINATES: 4815102

LOCATION OF SITE  
8516 DORSEY SPRING COURT  
HOWARD COUNTY, MARYLAND  
CONTRACT NO. 10-4925-D  
(EXISTING PUMP STATION CONSTRUCTED  
UNDER CONTRACT # 10-3500)

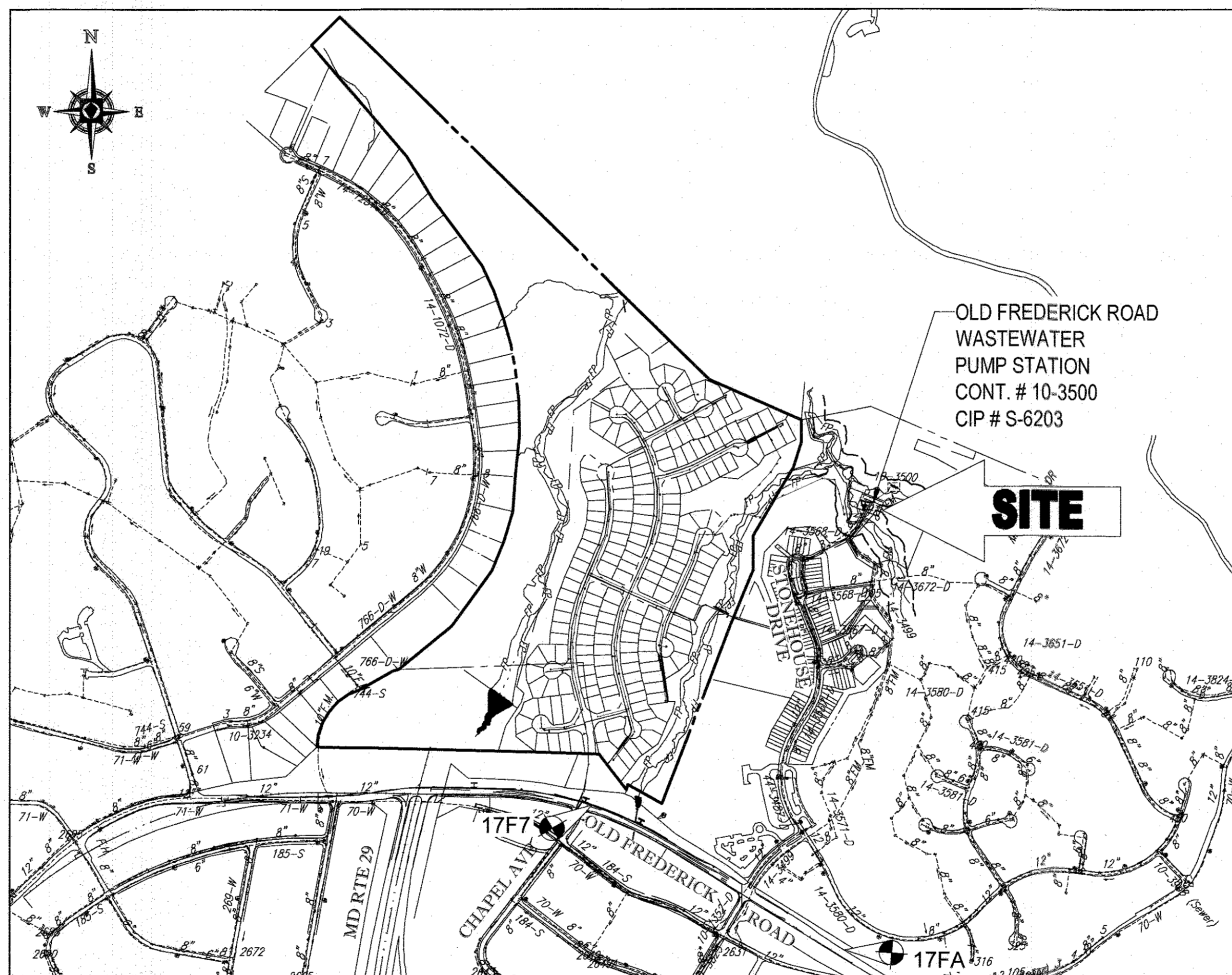
**LEGEND**

- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY TERMINAL MANHOLE
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED WATER BEND
- PROPOSED SEWER HOUSE CONNECTION
- PROPOSED WATER HOUSE CONNECTION
- DOMESTIC WATER METER
- SEWER CLEANOUT
- UTILITY TEST PIT LOCATION

ITEMS	QUANTITIES ESTIMATED	QUANTITIES	AS-BUILT TYPE	MANUFACTURER / SUPPLIER
56 HP DRY PIT SUBMERSIBLE PUMP & MOTOR	2			
150 KW EMERGENCY GENERATOR	1			
NAME OF UTILITY CONTRACTOR				
EMERGENCY PUMP AROUND SYSTEM	1			
			CHECK BOX	
			AS-BUILT DATE	
			SURVEY AND DRAFTING DIVISION	

EXISTING FLOWS (RESIDENTIAL)	348 GPM *
EXISTING FLOWS (INSTITUTIONAL)	44 GPM *
FUTURE FLOWS (EXISTING RESIDENTIAL)	74 GPM *
FUTURE FLOWS (ESTATES @ PATAPSCO PARK)	141 GPM *
TOTAL DESIGN FLOWS	600 GPM (ROUNDED) *

\* FROM REPORT: "OLD FREDERICK ROAD WASTEWATER PUMPING STATION ANALYSIS" BY BOHLER ENGINEERING



VICINITY MAP  
SCALE: 1"=600'

TYPE OF BUILDING - EXISTING WASTEWATER PUMPING STATION  
DRAINAGE AREA - PATUXENT  
TREATMENT PLANT - PATAPSCO WWTP CITY OF BALTIMORE  
NUMBER OF LOTS/PARCELS/UNITS: ONE (1) BUILDABLE  
NUMBER OF W.H.C.: N/A  
NUMBER OF S.H.C.: N/A

**BENCHMARK**

GEODETIC SURVEY CONTROL - 17FA  
ELEV. 476.721'  
N 594.948.426  
E 1,364.626.770

GEODETIC SURVEY CONTROL - 17F7  
ELEV. 469.399'  
N 595.829.688  
E 1,363.088.330

**GENERAL NOTES**

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON SEPTEMBER 1, 1997 ("AS BUILT") BY FISHER, COLLINS & CARTER, INC.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 17FA AND 17F7 WHICH WERE USED FOR THIS PROJECT.  
HOWARD COUNTY MONUMENT NO. 17FA ELEV. = 476.72  
HOWARD COUNTY MONUMENT NO. 17F7 ELEV. = 469.40
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED BY THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWING, 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.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE 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  
BGE (CONSTRUCTION SERVICES) 410-637-8713  
BGE (EMERGENCY) 410-885-0123  
BUREAU OF UTILITIES 410-313-4500  
COLONIAL PIPELINE COMPANY 410-795-1390  
MISS UTILITY 1-800-257-7777  
STATE HIGHWAY ADMINISTRATION 410-531-5533  
VERIZON 1-800-743-0333
- 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.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS, AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.
- REMOVE AND SALVAGE EXISTING PUMPS AND GENERATOR. DELIVER TO B & U SELECTED DESTINATION.

**SHEET INDEX**

SHEET TITLE	SHEET NUMBER
TITLE SHEET	1
SITE PLAN	2
MECHANICAL PLANS	3
MECHANICAL SECTIONS	4
ELECTRICAL PLANS	5
ELECTRICAL ONE LINE DIAGRAM AND MCC DETAILS	6
MISCELLANEOUS DETAILS	7 & 8

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

FORWARD SCD

**OWNER**

HOWARD COUNTY, MARYLAND  
3430 COURT HOUSE DRIVE  
ELLCOTT CITY, MARYLAND 21043

CONTACT: DEPT. OF PUBLIC WORKS  
PHONE: (410) 313-4401

**DEVELOPER**

PLEASANTS DEVELOPMENT, INC.  
24012 FREDERICK ROAD, SUITE 200,  
CLARKSVILLE, MD 20871

CONTACT: DAN SNYDER  
PHONE: (301) 428-0800

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND

7/20/17  
CHIEF, BUREAU OF UTILITIES

7-20-17  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**BOHLER ENGINEERING**  
901 DULANEY VALLEY ROAD, SUITE 801  
TOWSON, MARYLAND 21204  
Phone: (410) 821-7900  
Fax: (410) 821-7987  
www.BohlerEngineering.com

THE FOLLOWING SERVICES REQUIRE NOTIFICATION BY EXCAVATORS, OWNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF MARYLAND, AND THE DISTRICTS OF COLUMBIA, AND DELAWARE CALL: 811 OR 1-800-281-8474. 1-800-281-8474. 1-800-281-8474. 1-800-281-8474.

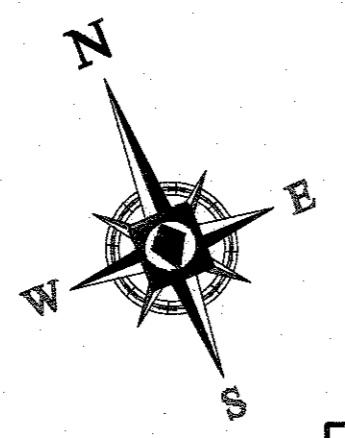
**B. F. ROWE**  
PROFESSIONAL ENGINEER  
1 GRAND OAK DRIVE, SUITE 100  
POTOMAC, MARYLAND 20854  
PHONE: (301) 441-1111  
FAX: (301) 441-1111  
LICENSE NO. 4008 EXPIRATION DATE: 7/20/17

DES: BRR					
DRN: RLB					
CHK: BRR					
DATE: 5/22/17					
REV.	DATE	DESCRIPTION	BY		

TITLE SHEET	
PARCEL NO.	N/A
600' SCALE MAP NO.	17
BLOCK NO.	12

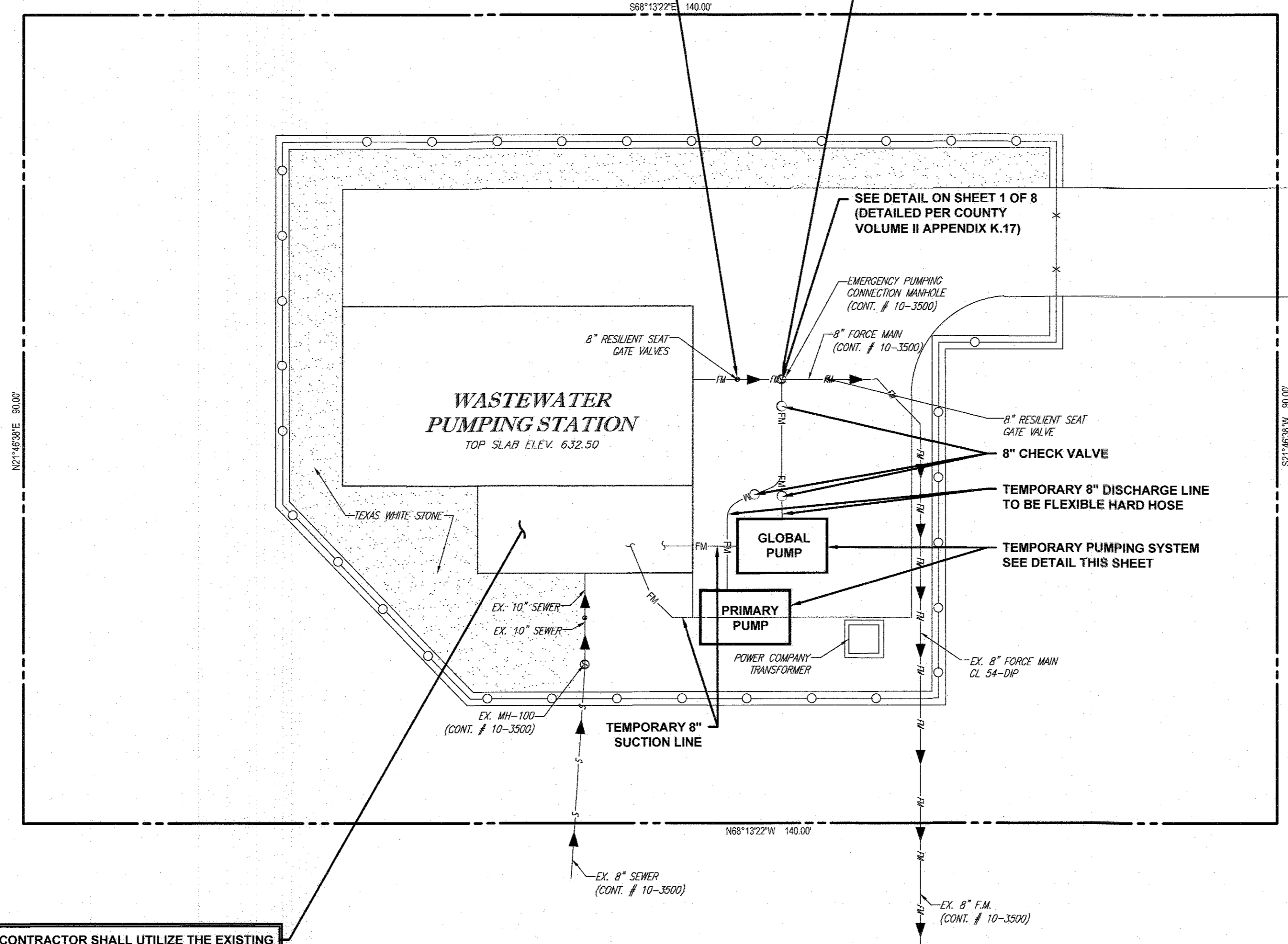
MODIFICATION TO THE  
OLD FREDERICK RD.  
WASTEWATER PUMPING STATION  
AS-BUILT  
CONTRACT NO. 10-4925-D  
2ND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE  
SHEET  
1 OF 8



COUNTY PERSONNEL SHALL CLOSE EXISTING 8" VALVE ON THE FORCE MAIN TO ISOLATE PUMPING STATION DURING STANDBY PUMPING OPERATIONS - REFERENCE SPECIFICATIONS

THE CONTRACTOR SHALL OPEN EXISTING 6" BY-PASS VALVE WITHIN THE EMERGENCY PUMPING CONNECTION MANHOLE & UTILIZE CONNECTION WITHIN THE MANHOLE AS DISCHARGE FOR THE STANDBY PUMP DURING PUMPING OPERATIONS - REFER TO SPECIFICATION C-14. SEE DETAIL SHEET

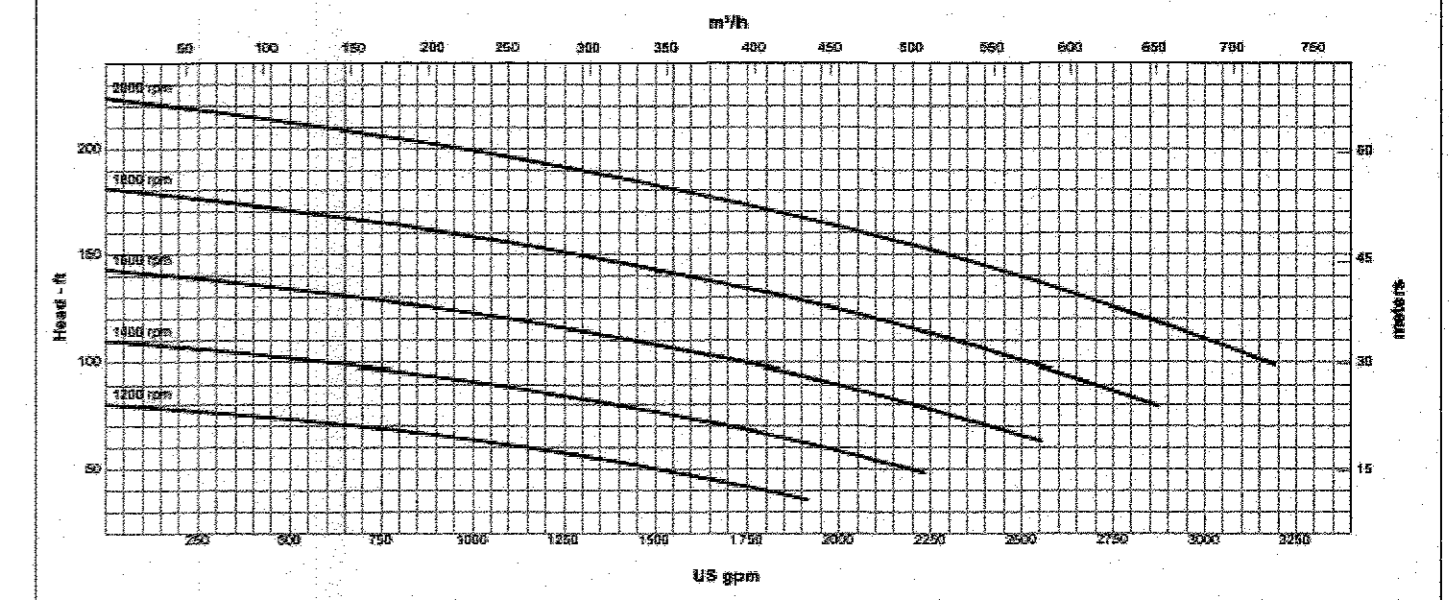
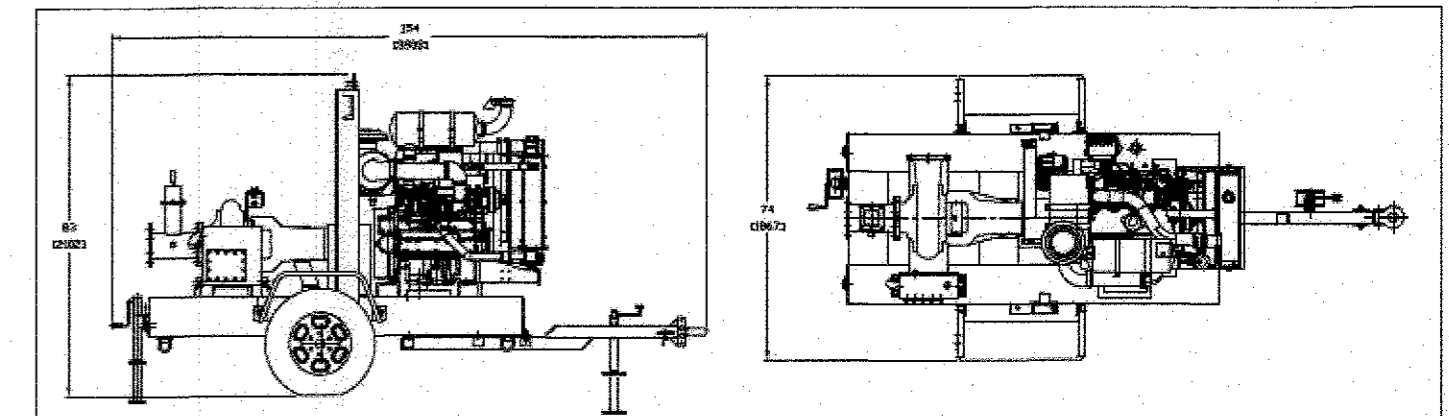
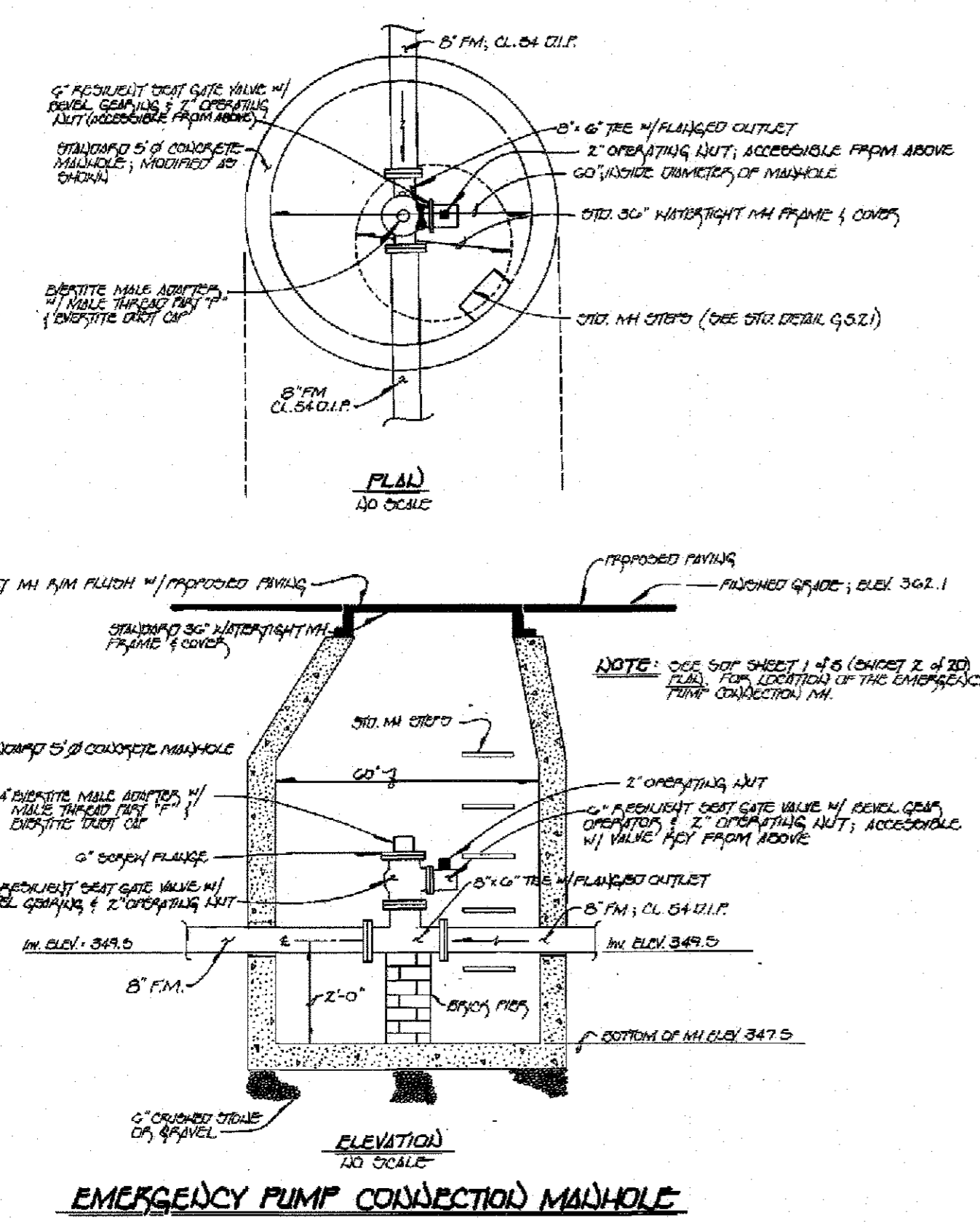


CONTRACTOR SHALL UTILIZE THE EXISTING WET WELL AS SUCTION FOR THE STANDBY PUMP DURING STANDBY PUMPING OPERATIONS - SEE SPECIFICATION C-14

SITE PLAN  
SCALE: 1" = 10'

SEQUENCE OF CONSTRUCTION

1. INSTALL BYPASS PUMPING SYSTEM CONSISTING OF 1 - PRIMARY 6" CRITICAL SILENT PUMP AND 1 - BACK-UP 6" CRITICAL SILENT PUMP. INCLUDES REMOTE ALARM PANEL AND FLOAT CONTROL SYSTEM. THE SUCTION LINES WILL BE INSTALLED THROUGH THE 3'-6" X 3'-6" WET WELL HATCH. THE DISCHARGE LINES WILL BE TIED INTO A COMMON HEADER AND TIED INTO THE BYPASS CONNECTION ON THE OUTSIDE OF THE STATION. BYPASS PUMPING SYSTEM WILL BE SUPPLIED BY GLOBAL PUMP. 24 HOUR PUMP WATCH WILL BE PROVIDED DURING TIME THE EMERGENCY PUMP AROUND IS IN SERVICE.
2. TEST BYPASS PUMPING SYSTEM TO SATISFACTION OF THE COUNTY.
3. UPON APPROVAL OF THE BYPASS SYSTEM, DEMO AND REMOVE THE EXISTING GENERATOR, EXHAUST PIPE, SILENCER, AND WALL THIMBLE. DEMO PUMP #1 AND #2 CONCRETE BASES.
4. MODIFY THE EXISTING GENERATOR PAD TO ACCEPT THE NEW GENERATOR, INSTALL NEW GENERATOR. INSTALL A NEW WALL THIMBLE. INSTALL A NEW EXHAUST SILENCER. INSTALL NEW EXHAUST PIPING, BATTERY CHARGER, AND INSULATE. WIRE THE NEW GENERATOR AND BATTERY CHARGER.
5. POUR NEW PUMP BASES. INSTALL THE NEW PUMPS. MODIFY PIPING IF NECESSARY TO CONNECT THE PUMPS.
6. WIRE NEW PUMP AND REPLACE BREAKER.
7. TEST GENERATOR AND PUMPS TO SATISFACTION.
8. DEMO BYPASS SYSTEM.



SPECIFICATIONS

- Connections: 6" (150 mm) ANSI Flanges
- Maximum Pump Speed: 2000 rpm
- Maximum Flow: 3200 gpm (727 m<sup>3</sup>/h)
- Maximum Head: 220' (67 m)
- Maximum Static Priming Lift: 28' (8.5 m)
- Water Temperature Limit: 160° F (70° C)
- Solids Handling Capability: 3" (75 mm)
- Maximum Casing Pressure: 125 psig (862 kPa)
- Standard Compact Fuel Tank: 70 gallons (265 liters)
- Optional Large Fuel Tank: 110 gallons (416 liters)

PUMP MATERIALS

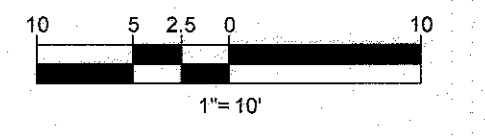
- Casing: Cast Steel (CD4MCu is an option)
- Impeller: Cast Iron (CD4MCu is an option)
- Bearing Housing: Cast Iron
- Bearing Lubrication: Grease
- Shaft: Steel
- Shaft Sleeve: Stainless Steel
- Seal: Silicon Carbide on Silicon Carbide
- Chassis/Fuel Cell: Steel
- Non-Return Valve: Nitrile Fitted Cast Iron
- Environmental Box (Optional): Steel

GLOBAL PUMP

NOTES:

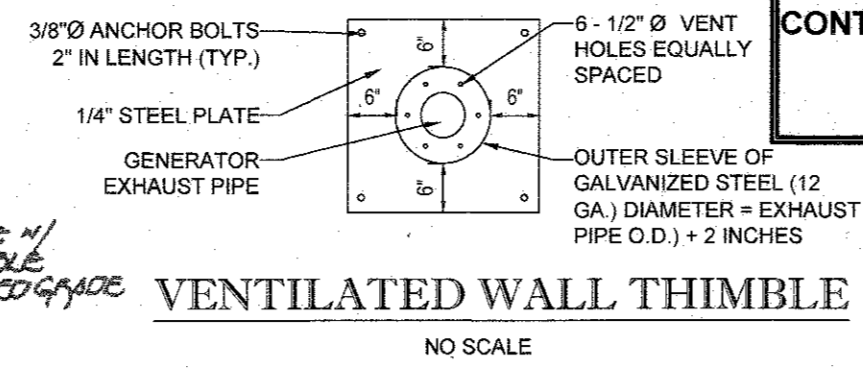
1. THE CONTRACTOR MAY OPERATE ANY VALVES ON THE EXISTING SEWER SYSTEM WITH COUNTY APPROVAL.
2. THE CONTRACTOR SHALL FOLLOW ALL CONFINED SPACE ENTRY REQUIREMENTS AND PROCEDURES WHEN SETTING UP THE TEMPORARY PUMPING SYSTEM.

CONTRACT NO: 10-4925-D  
OLD FREDERICK ROAD  
WASTEWATER PUMPING STATION  
HOWARD COUNTY, MARYLAND



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  CHIEF, BUREAU OF UTILITIES DATE: 7/20/17	DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 7-20-17	 <b>BOHLER ENGINEERING</b> 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21204 Phone: (410) 521-7900 Fax: (410) 521-7987 <a href="http://www.BohlerEngineering.com">www.BohlerEngineering.com</a>	 <b>BRANDON H. ROWE</b> PROFESSIONAL ENGINEER LICENSE NO. 40866, EXPIRES DATE: 12/31/2017	DES: BRR DRN: RLB CHK: BRR DATE: 5/22/17	<table border="1"> <thead> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REV.	DATE	DESCRIPTION	BY					SITE PLAN PARCEL NO. N/A 600' SCALE MAP NO. 17 BLOCK NO. 12	<b>MODIFICATION TO THE OLD FREDERICK RD. WASTEWATER PUMPING STATION AS-BUILT</b> CONTRACT NO: 10-4925-D 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE SHEET 2 OF 8
REV.	DATE	DESCRIPTION	BY													

NOTE: SEE SITE DEVELOPMENT PLAN SHEET 3 OF 20 FOR OVERALL MAIN FACILITY



CONTRACTOR TO PROVIDE NEW CONCRETE PAD FOR GENERATOR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

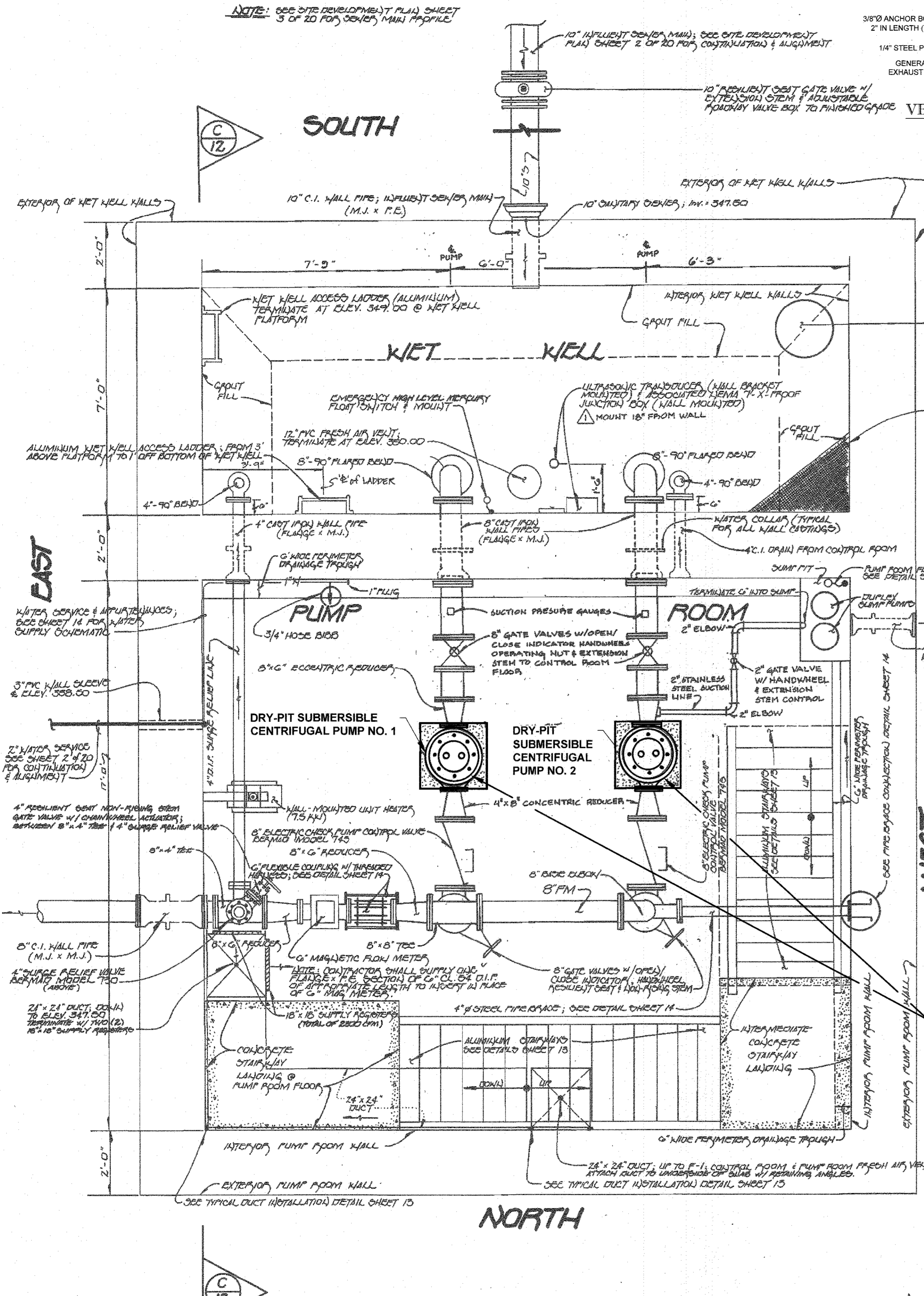
CONTRACTOR SHALL REMOVE THE EXISTING GENERATOR AND REPLACE IN KIND WITH A NEW 150KW GENERATOR. SEE SPECIFICATIONS.

CONTRACTOR SHALL REMOVE THE EXISTING CONCRETE PAD AT THE EMERGENCY DIESEL GENERATOR

GENERATOR EXHAUST SYSTEM & WALL THIMBLE TO BE REPLACED TO ACCOMMODATE 6\"/>

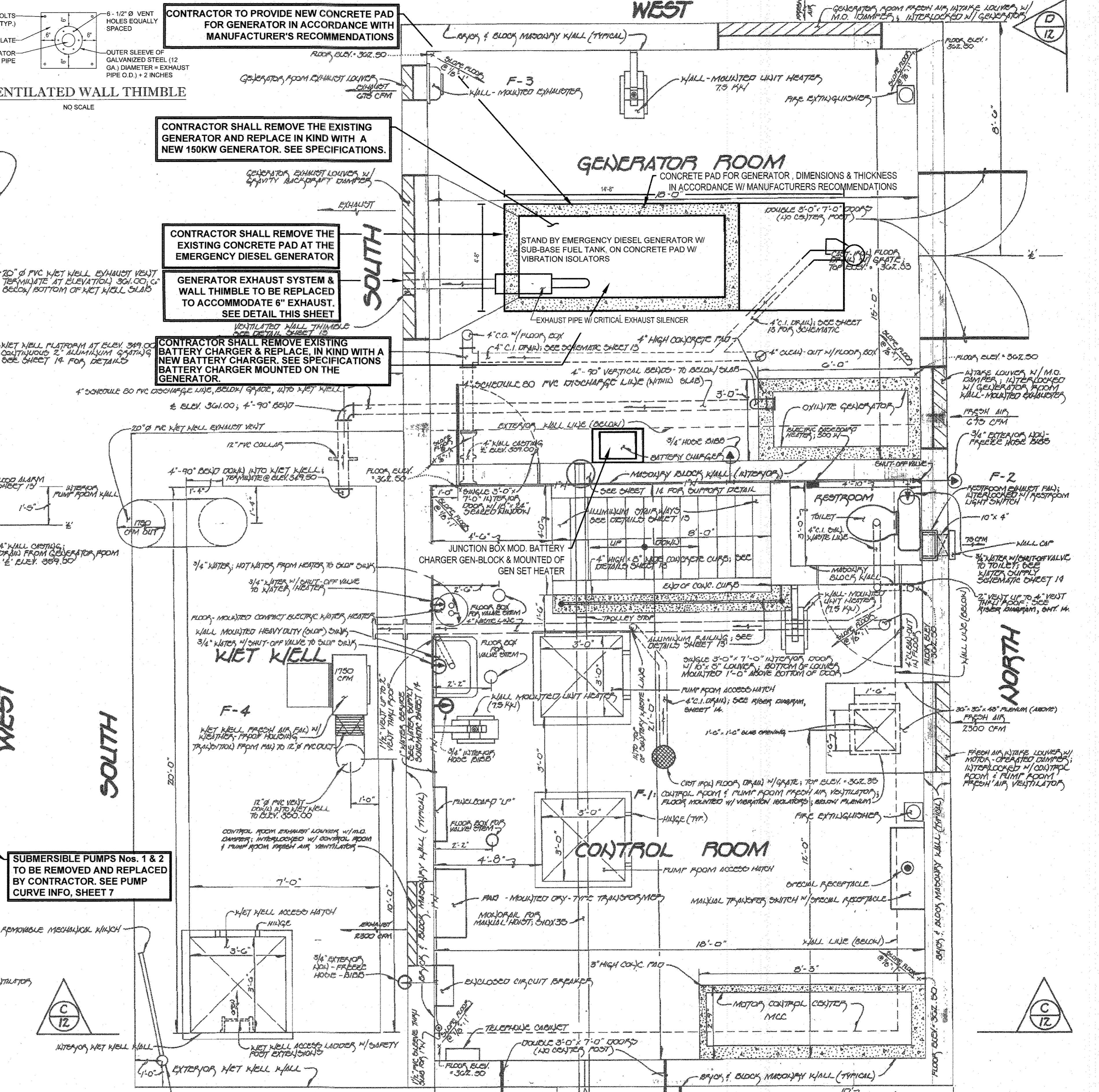
CONTRACTOR SHALL REMOVE EXISTING BATTERY CHARGER & REPLACE IN KIND WITH A NEW BATTERY CHARGER. SEE SPECIFICATIONS

SUBMERSIBLE PUMPS Nos. 1 & 2 TO BE REMOVED AND REPLACED BY CONTRACTOR. SEE PUMP CURVE INFO, SHEET 7



PUMP ROOM & WET WELL PLAN

SCALE: 1/2\"/>



CONTROL ROOM & GENERATOR ROOM PLAN

SCALE: 1/2\"/>

CONTRACT NO: 10-4925-D  
OLD FREDERICK ROAD  
WASTEWATER PUMPING STATION  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  
CHIEF, BUREAU OF UTILITIES  
DATE: 2/20/17

DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 2/20/17

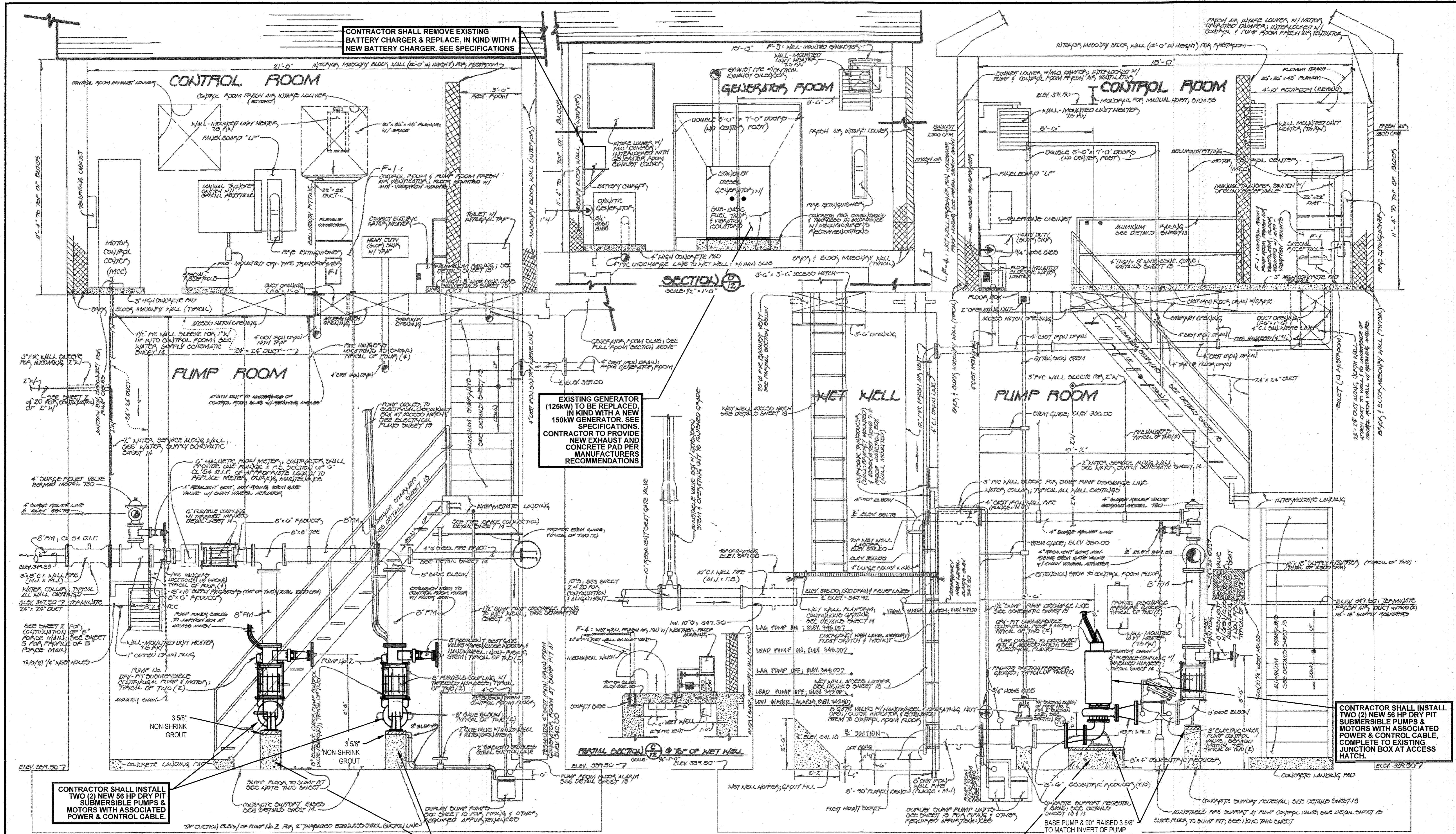
BOHLER ENGINEERING  
901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21284  
Phone: (410) 821-7900 Fax: (410) 821-7987  
www.BohlerEngineering.com

BA ROWE  
PROFESSIONAL ENGINEER  
1000 W. BROADWAY, SUITE 200 BALTIMORE, MARYLAND 21201  
PHONE: (410) 528-1100 FAX: (410) 528-1101  
www.BARowe.com

Table with columns: DES, BRR, DRN, RLB, CHK, BRR, DATE, REV, DATE, DESCRIPTION, BY

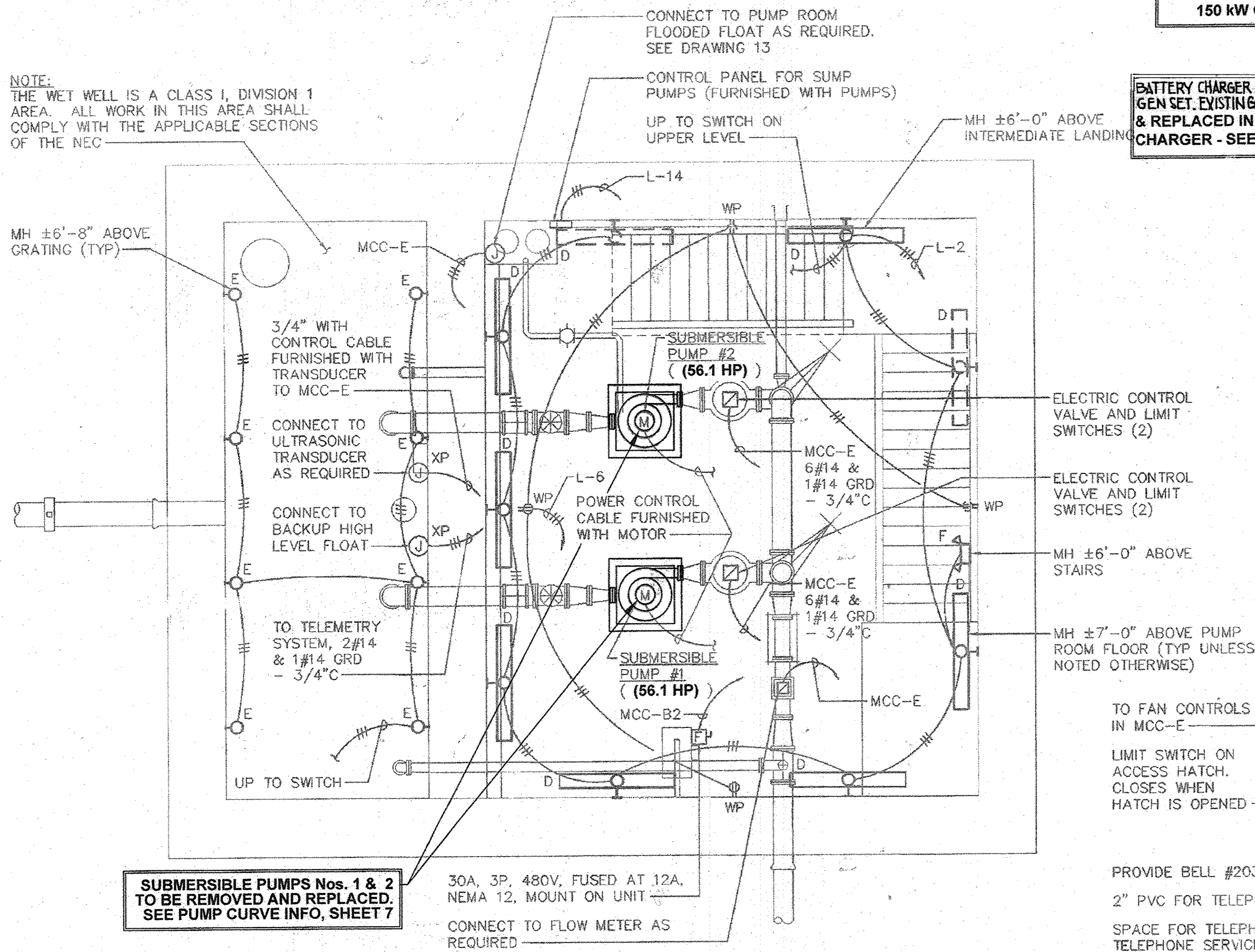
MECHANICAL PLANS  
PARCEL NO: N/A  
600' SCALE MAP NO: 17  
BLOCK NO: 12

MODIFICATION TO THE OLD FREDERICK RD. WASTEWATER PUMPING STATION  
AS-BUILT  
CONTRACT NO: 10-4925-D  
2ND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: SHEET 3 OF 8



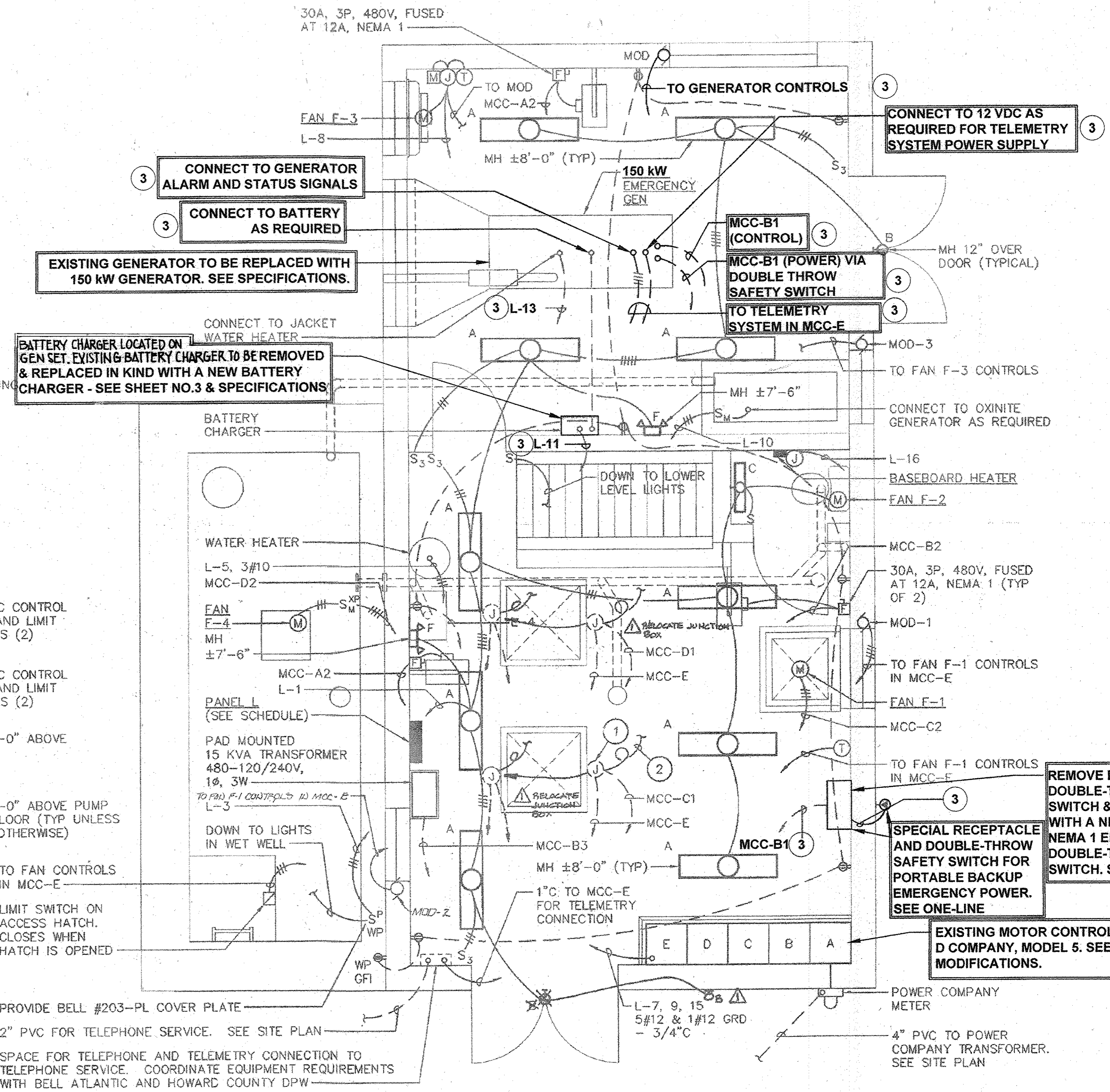
**DRAWING NOTES:**

- ① JUNCTION BOX ON UNDERSIDE OF CONTROL ROOM SLAB, ACCESSIBLE TO HATCH (TYPICAL AT 2 HATCH LOCATIONS).
- ② POWER/CONTROL CABLE FROM SUBMERSIBLE PUMP. PROVIDE SUFFICIENT SLACK IN CABLE SO MOTOR CAN BE LIFTED AND PUT ON PUMP ROOM FLOOR (TYPICAL AT 2 HATCH LOCATIONS).
- ③ DISCONNECT FROM EXISTING EQUIPMENT BEING REMOVED & RECONNECT, IN KIND, TO NEW EQUIPMENT BEING INSTALLED. PROVIDE ADDITIONAL CONDUIT & WIRING AS NEEDED FOR RECONNECTIONS.



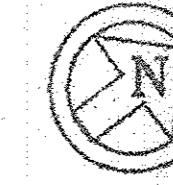
**PUMP ROOM & WET WELL PLAN**

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



**CONTROL ROOM & GENERATOR ROOM PLAN**

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



AS-BUILT  
CONTRACT NO: 10-4925-D  
OLD FREDERICK ROAD  
WASTEWATER PUMPING STATION  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  
Steve Green 2/11/15  
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  
Paul Ehrlich 2.17.16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Gipe Associates Inc. Consulting Engineers  
849 Fairmount Ave Suite 102 Baltimore, MD 21286  
Baltimore, Maryland (410)832-2420  
Easton, Maryland (410)822-8688  
W.O.# 15046.A  
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D.M. DIXON  
PROFESSIONAL ENGINEER  
I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 2010. EXPIRATION DATE: 02/28/2017.

DES: BRR					
DRN: RLB					
CHK: BRR					
DATE: 9/23/15	REV.	DATE	DESCRIPTION	BY	

ELECTRICAL PLANS	
PARCEL NO.	N/A
600' SCALE MAP NO.	17
BLOCK NO.	12

MODIFICATION TO THE OLD FREDERICK RD. WASTEWATER PUMPING STATION  
CONTRACT NO.: 10-4925-D  
2ND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE  
SHEET  
5 OF 8

REMOVE EXISTING ATS & REPLACE IN KIND WITH A NEW 225A., 3P. ATS. SEE SPECIFICATIONS.

REMOVE EXISTING DOUBLE-THROW SAFETY SWITCH & REPLACE IN KIND WITH A NEW 400A., 4P., 600V. NEMA 1 ENCLOSED DOUBLE-THROW SAFETY SWITCH. SEE SPECIFICATIONS.

REMOVE EXISTING CIRCUIT BREAKER & REPLACE WITH NEW 3P., 225A., FRAME, 110A. TRIP CIRCUIT BREAKER.

### MOTOR CONTROL CENTER "MCC" SCHEDULE

480 VOLTS - 3 PHASE - 3 WIRE - 600A. BUS - BONDED AND GROUNDED NEUTRAL TERMINATION													
CIR. NO.	EQUIPMENT DESCRIPTION	HP	BASIC DEVICE	AUX. DES.	CIRCUIT BREAKER			WIRE		GRD. WIRE SIZE	CONDUIT SIZE	LOAD (FLA)	CONTROL DIAGRAM
					FRAME	POLES	CAL.	NO.	SIZE				
A	INCOMING SERVICE 480Y/277V, 3PH, 4W	-	-	-	-	-	-	4	4/0	-	2-1/2"	-	-
A1	MAIN CIRCUIT BREAKER & POWER CIRCUIT MONITOR	-	CIRCUIT BREAKER	-	225	3	225	-	-	-	-	-	-
A2	UNIT HEATERS (GEN RM & CONTROL RM)	-	CIRCUIT BREAKER	-	100	3	30	3	10	10	3/4"	18	-
A3	SPACE AND BUS	-	-	-	-	-	-	-	-	-	-	-	-
B1	AUTOMATIC TRANSFER SWITCH, 225A, 3P	-	-	-	-	-	-	-	-	-	-	-	-
B2	UNIT HEATERS (PUMP RM & CONTROL RM)	-	CIRCUIT BREAKER	-	100	3	30	3	10	10	3/4"	18	-
B3	TRANSFORMER (PANEL L) 15 KVA	-	CIRCUIT BREAKER	-	100	2	40	2	8	10	3/4"	31	-
C1	PUMP #1	MIN 56.1	RVSS STARTER	3,4	225	3	110	3	6	6	1"	66	SEE SHT 5
C2	F-1 (CONTROL/PUMP ROOM)	3/4	SIZE 0 FVNR STARTER	1,2,3	100	3	15	3	12	12	3/4"	1	SEE SHT 5
C3	SPARE STARTER	-	SIZE 0 FVNR STARTER	1,2,3	100	3	15	-	-	-	-	5	-
D1	PUMP #2	MIN 56.1	RVSS STARTER	3,4	225	3	110	3	6	6	1"	66	SEE SHT 5
D2	F-4 (WET WELL)	1/2	SIZE 0 FVNR STARTER	1,2,3	100	3	15	3	12	12	3/4"	1	SEE SHT 5
D3	SPACE AND BUS	-	-	-	-	-	-	-	-	-	-	-	-

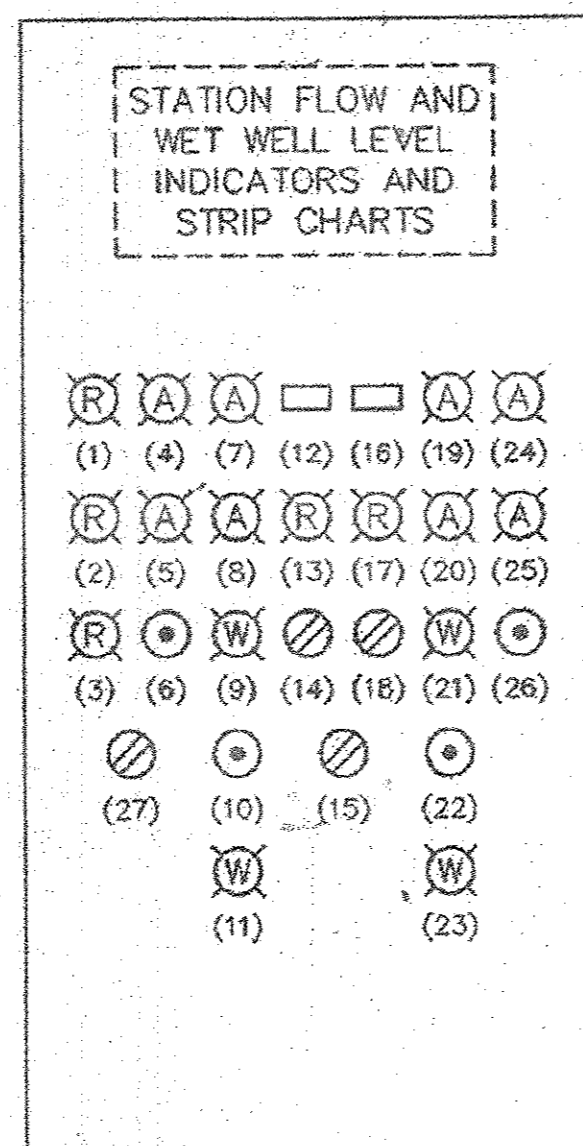
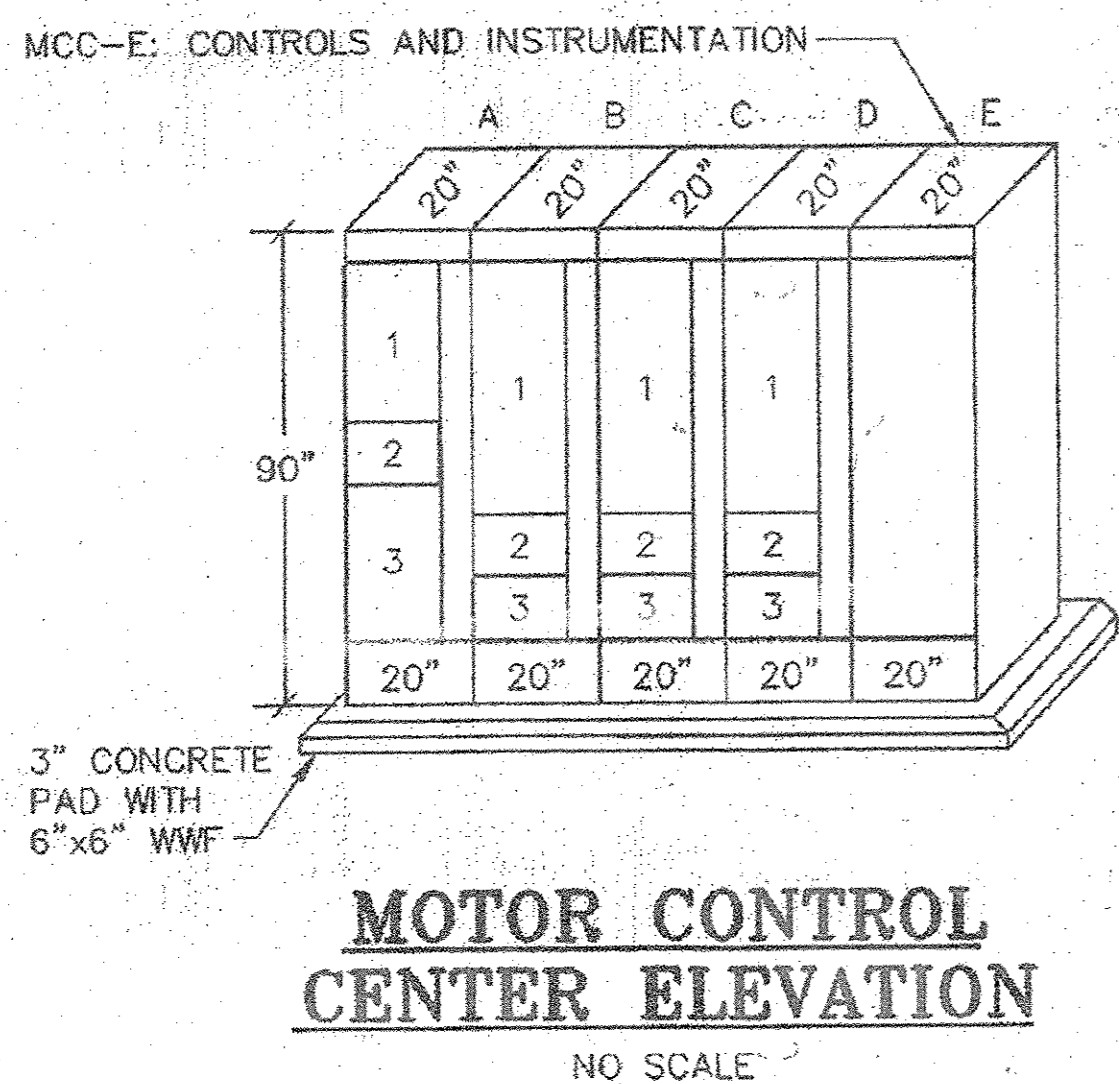
#### AUXILIARIES FOR MOTOR CONTROL CENTER

- HAND-OFF-AUTOMATIC SWITCH
- INDICATING LIGHTS
- 120 VOLTS CONTROL POWER TRANSFORMER
- ALARM/STATUS/CONTROLS

#### NOTES

TOTAL CONNECTED LOAD: 206 AMPERES  
ANTICIPATED MAXIMUM DEMAND: 175 AMPERES

CONTRACTOR SHALL UPGRADE EXISTING MOTOR STARTERS AS SHOWN TO ACCOMMODATE NEW 56 HP MOTORS.



- HIGH WET WELL LEVEL
- LOW WET WELL LEVEL
- PUMP ROOM FLOODED
- PUMP #1 OVER-TEMPERATURE
- PUMP #1 SEAL LEAK
- PUMP #1 OVER-TEMPERATURE/SEAL LEAK RESET
- PUMP #1 VALVE FULLY OPEN
- PUMP #1 VALVE FULLY CLOSED
- VALVE #1 - INCOMPLETE SEQUENCE
- VALVE #1 INCOMPLETE SEQUENCE RESET
- VALVE/MOTOR #1 FAILURE/LOCKOUT
- PUMP #1 ELAPSED TIME
- PUMP #1 RUNNING
- PUMP #1 H-O-A SELECTOR SWITCH
- SELECTOR SWITCH: PUMP #1 LEAD; AUTOMATIC; PUMP #2 LEAD
- PUMP #2 ELAPSED TIME
- PUMP #2 RUNNING
- PUMP #2 H-O-A SELECTOR SWITCH
- PUMP #2 VALVE FULLY OPEN
- PUMP #2 VALVE FULLY CLOSED
- VALVE #2 - INCOMPLETE SEQUENCE
- VALVE #2 INCOMPLETE SEQUENCE RESET
- VALVE/MOTOR #2 FAILURE/LOCKOUT
- PUMP #2 OVER-TEMPERATURE
- PUMP #2 SEAL LEAK
- PUMP #2 OVER-TEMPERATURE/SEAL LEAK RESET
- TELEMETRY SYSTEM TEST SWITCH

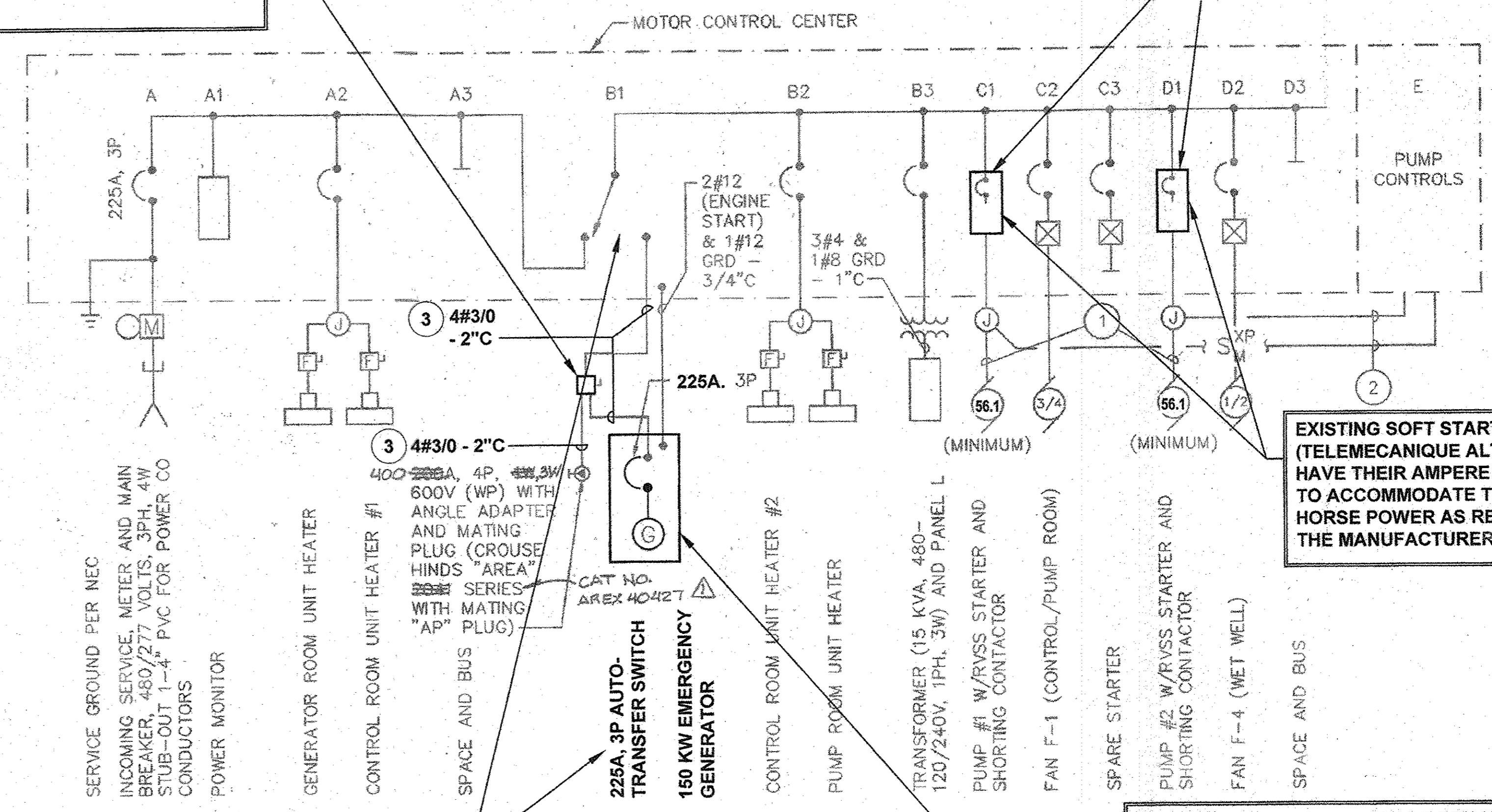
NOTE: (A); A = AMBER; R = RED; W = WHITE

REMOVE EXISTING ATS & REPLACE IN KIND WITH A NEW ATS (225A., 3P.) SEE SPECIFICATIONS.

REMOVE EXISTING DOUBLE-THROW SAFETY SWITCH & REPLACE IN KIND WITH A NEW 400A., 4P., 600V. NEMA 1 ENCLOSED DOUBLE-THROW SAFETY SWITCH. SEE SPECIFICATIONS.

### ONE-LINE DIAGRAM

NO SCALE

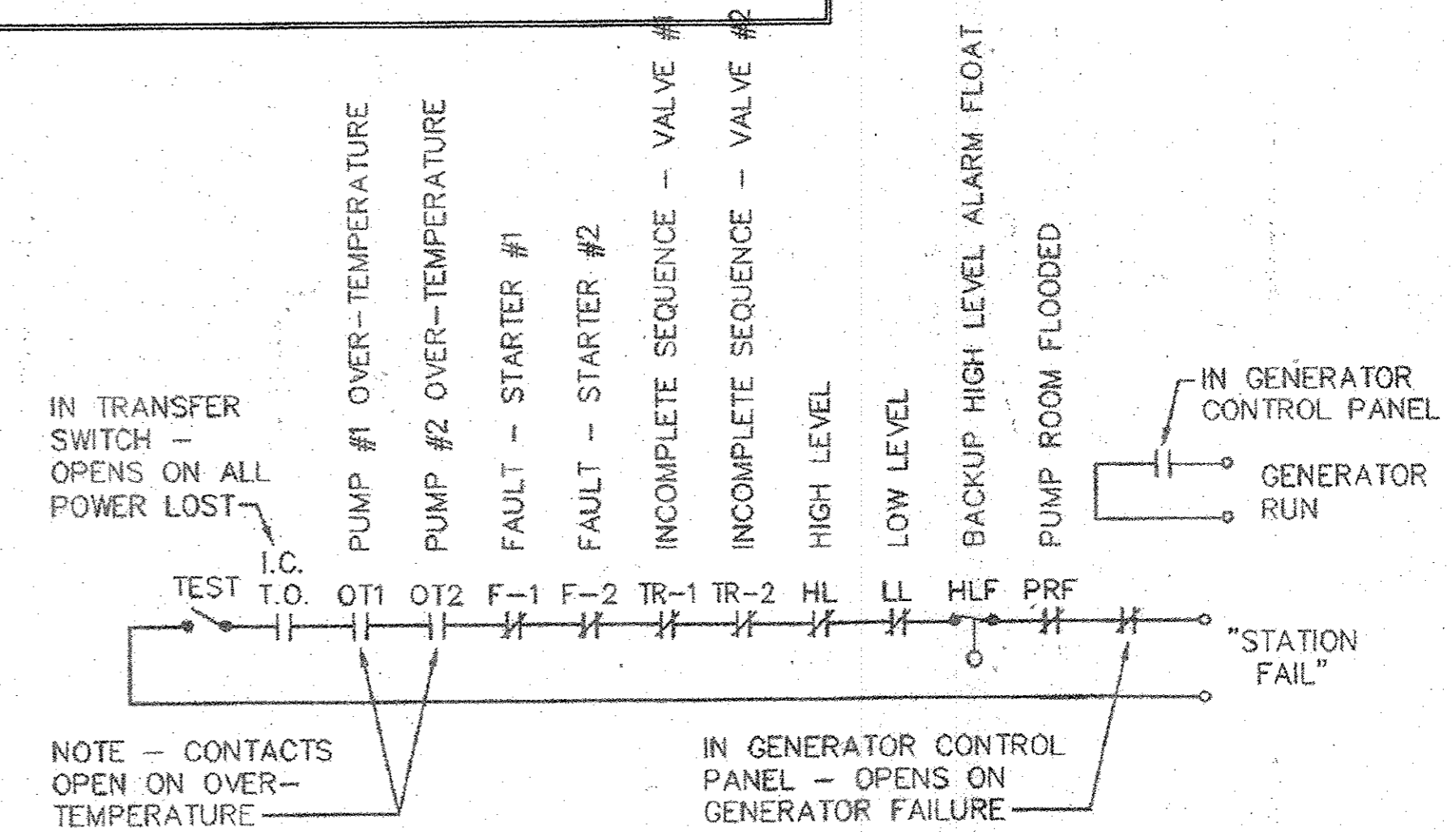


- POWER/ALARM CABLE FURNISHED WITH PUMP MOTOR.
- MOTOR ALARM WIRING: 3#12 & 1#12 GRD - 3/4\"C.
- EXISTING WIRING IS #4/0 & NOT #3/0 AS SHOWN.
- EXISTING PHASE WIRES ARE #4 & NOT #6 AS SHOWN. REMOVE EXISTING #8 GRD. WIRE & REPLACE WITH #6 GRD. WIRE.

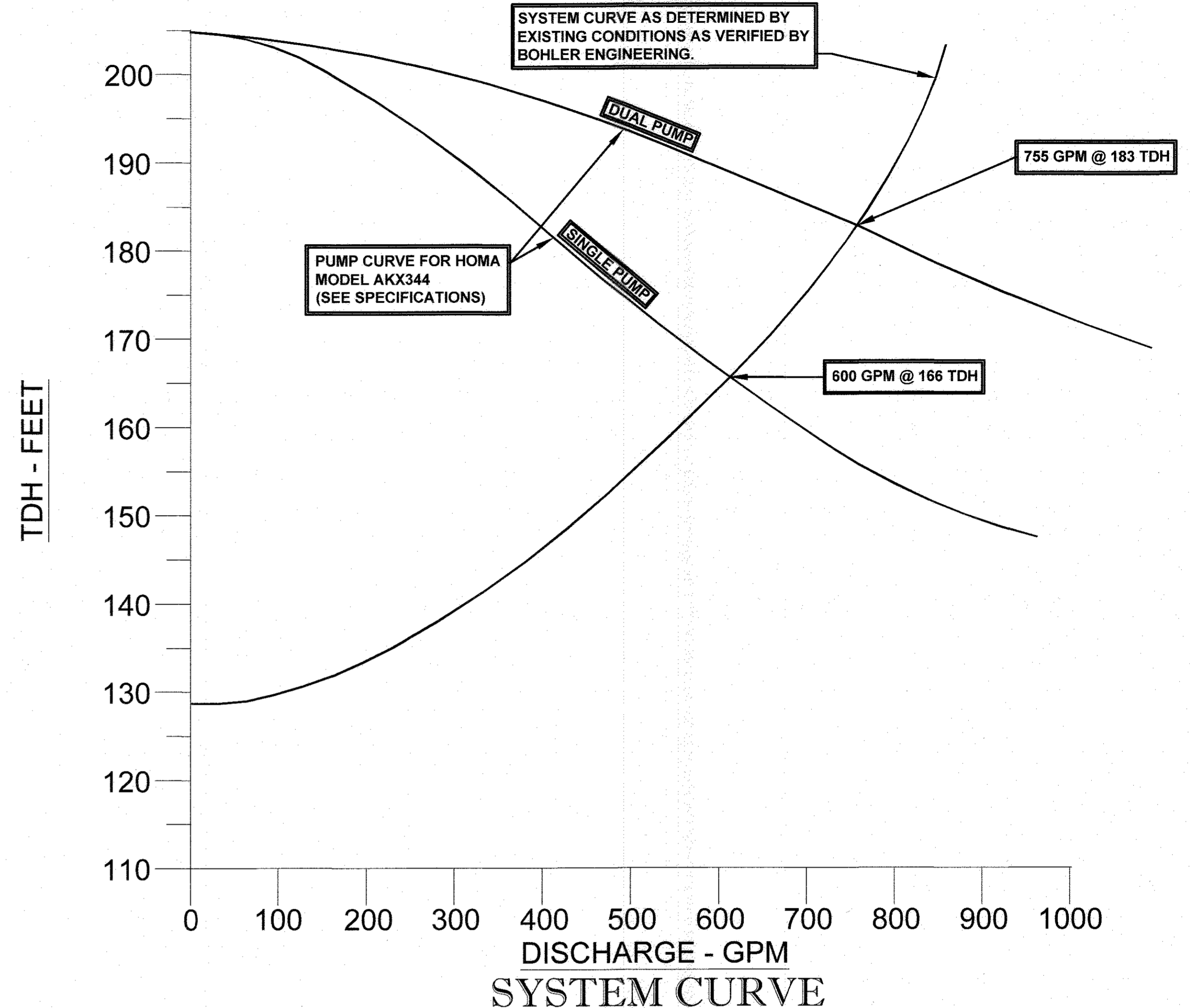
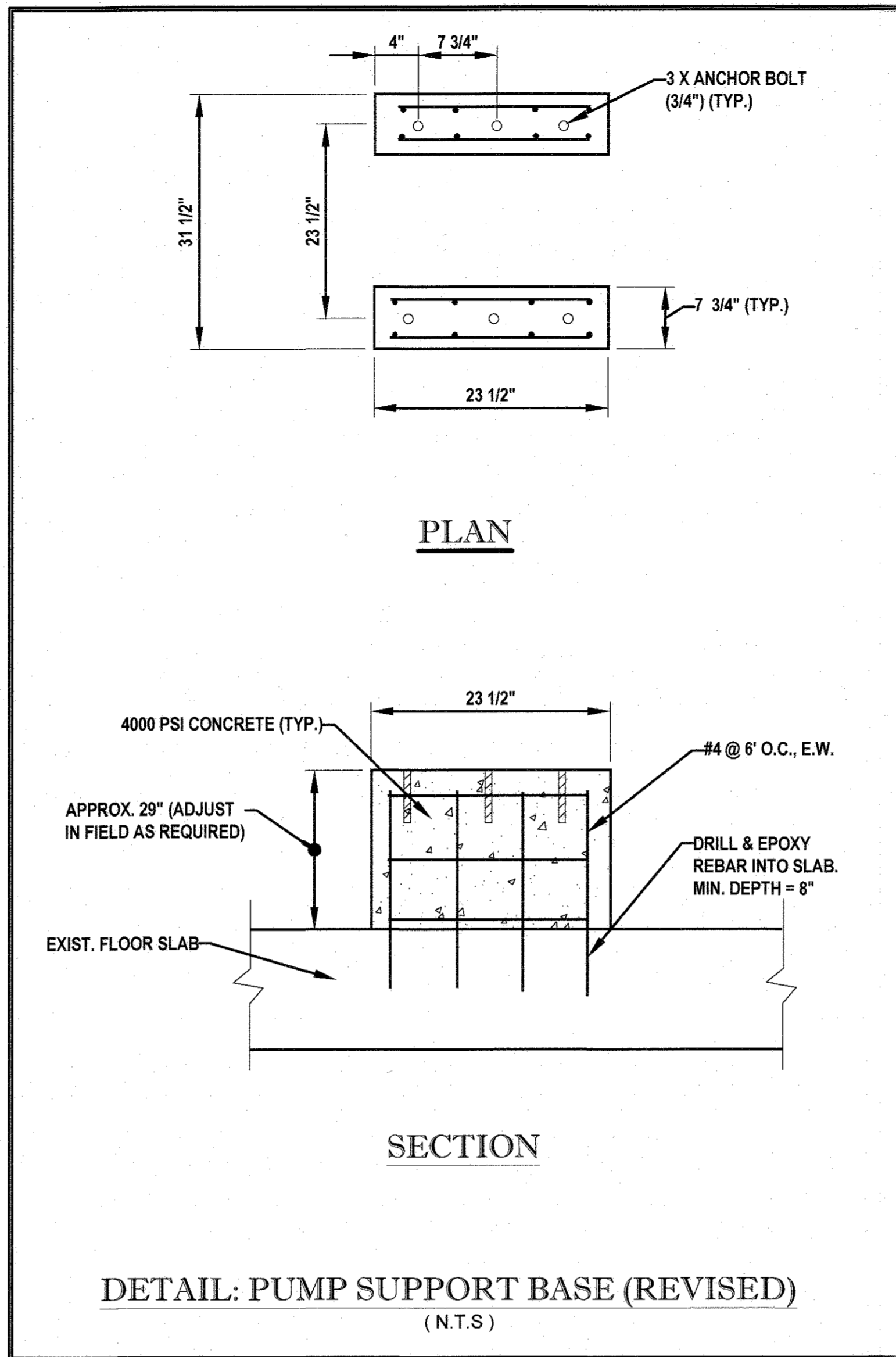
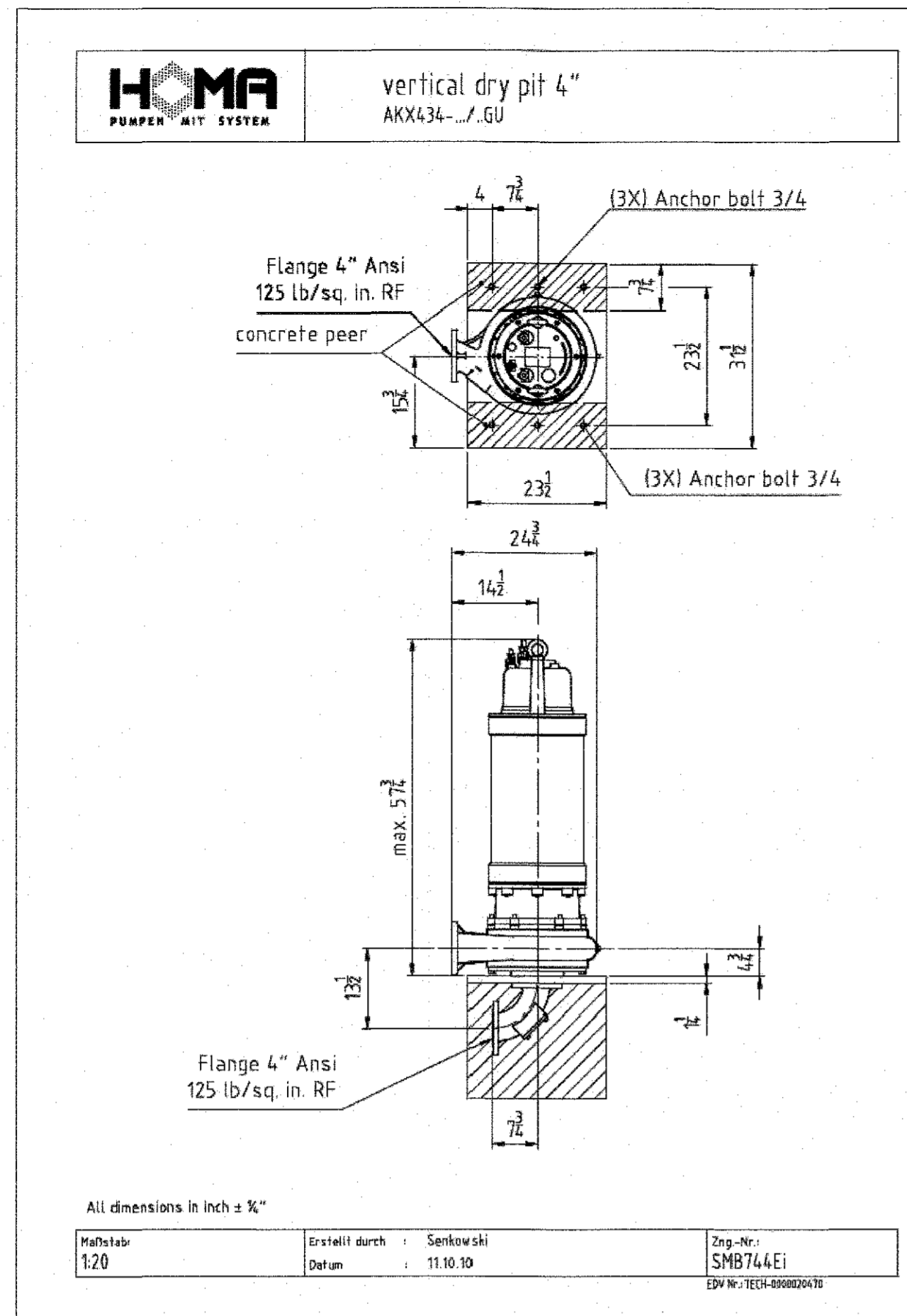
EXISTING GENERATOR IS TO BE REMOVED & REPLACE WITH A NEW 150KW GENERATOR WITH A 225A. LINE CIRCUIT BREAKER AS SHOWN. SEE SHEET NO.3 & SPECIFICATIONS.

### TELEMETRY ALARMS

NO SCALE



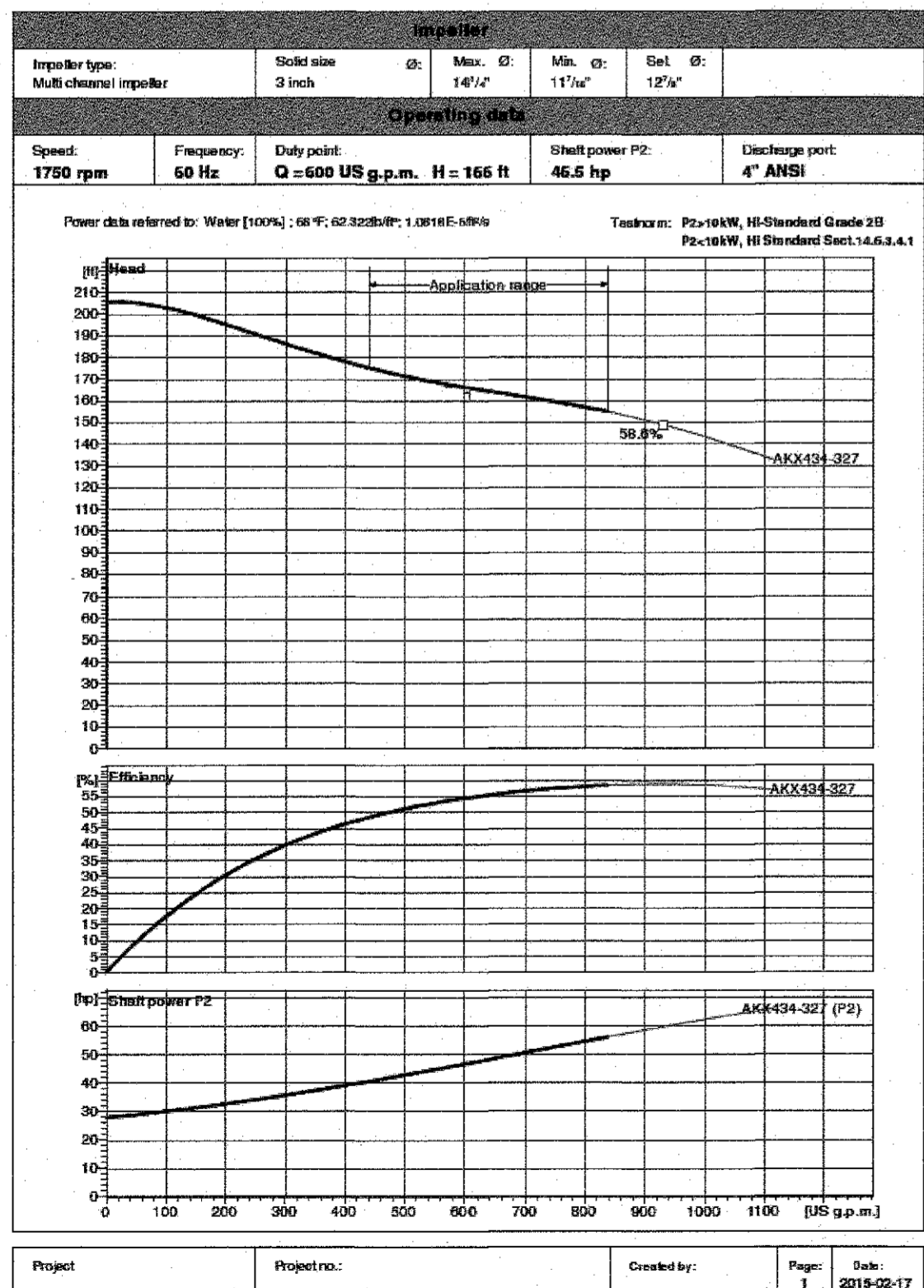
AS-BUILT  
CONTRACT NO: 10-4925-D  
OLD FREDERICK ROAD  
WASTEWATER PUMPING STATION  
HOWARD COUNTY, MARYLAND



Performance Curve  
AKX434-330/56GUFM

**HOMA** Technical Data  
AKX434-330/56GUFM

**HOMA** PUMPER MIT SYSTEM



Operating data				
Flow	600	US g.p.m.	Head 166 ft	
Shaft power P2	46.5	hp	Static head 0 ft	
Pump efficiency	84.2	%	Required pump NPSH ft	
Pump type	Single pump	No. of pumps	1	
Fluid	Water, clean	Temperature	60 °F	
Density	62.32	lb/ft³	Viscosity 1.082E-5 Wtu	
Pump				
Pump Code	AKX434-330/56GUFM	Speed	1750 rpm	
Station point		Head	Max. 174.9 ft	
Discharge port	4" ANSI		Min. 154.6 ft	
Impeller type	Multi channel impeller	Flow	Max. 898.4 US g.p.m.	
Ball size	3	Pump efficiency max.	89.8 %	
Impeller ID	12.9	Required rated power max. P2	69.1 hp	
Motor				
Motor version	Submersible motor	Insulation class	F	
Motor name	AMGG/000/0	Degree of protection	IP 68	
Frequency	60	Hz	Temperature class	T3C
Rated power P1	60.3	hp	MEMA code	E
Rated power P2	56.1	hp	Explosion protection	Class I, Div. 1, Grp. C, D0
Rated speed	1750	rpm		
Rated voltage	200 / 480 V 3φ	Efficiency	100%	80 %
Rated current	132.0 / 80	A	at % rated power	75% 91 %
Starting current, direct starting	821.8 / 516	A	100%	0.88
Starting current, star-delta		A	75%	0.75
Starting mode	Directly	Factor	20%	0.84
Power cable	2x4x16	Control cable	2x4x12.5	
Type of power cable	MESH-DU-L	Type of control cable	MESH-DU-L	
Cable length	32.825 ft	Service factor	1.15	
Shaft seal	Mechanical seal on motor side	SG / SC		
Bearing	Mechanical seal on medium side	SG / SC		
Remarks	Lower bearing	Two angular ball bearings		
	Upper bearing	Deep Groove Ball Bearing		
Materials - Weight				
Motor housing	Cast iron ASTM A536/CI 403	Bolt	AISI 304 Stainless Steel	
Pump housing	Cast iron ASTM A536/CI 403	Elastomer	Nitrile Rubber	
Impeller	Cast iron ASTM A536/CI 403	Motor jacket	Stainless steel	
Wear ring	Stainless steel AISI 316			
Motor shaft	Stainless steel AISI 320			
Weight equipment	On demand lb			

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DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  
7/20/17  
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  
7-20-17  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**BOHLER ENGINEERING**  
901 DULANEY VALLEY ROAD, SUITE 801  
TOWSON, MARYLAND 21284  
Phone: (410) 821-7900  
Fax: (410) 821-7987  
www.BohlerEngineering.com

**B. P. ROWE**  
PROFESSIONAL ENGINEER  
1 BRANCKEN ROAD  
PROFESSIONAL ENGINEER  
STATE OF MARYLAND  
LICENSE NO. 4066 EXPIRES DATE: 10/31/17

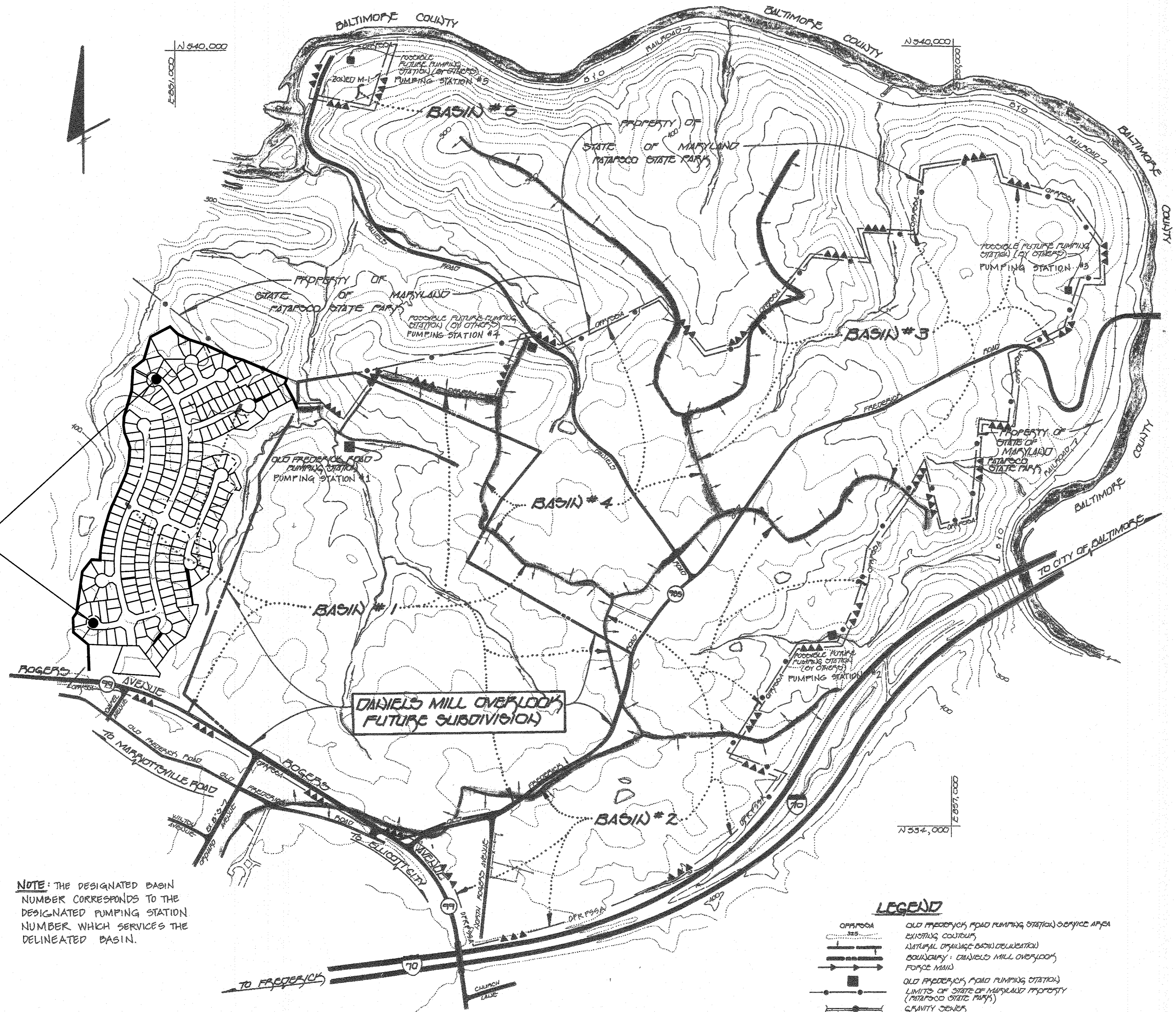
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DRN	RLB			
CHK	BRR			
DATE	5/22/17			
REV.	DATE	DESCRIPTION	BY	

MISCELLANEOUS DETAILS  
PARCEL NO. N/A  
800' SCALE MAP NO. 17 BLOCK NO. 12

MODIFICATION TO THE OLD FREDERICK RD. WASTEWATER PUMPING STATION AS-BUILT  
CONTRACT NO: 10-4925-D  
2ND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE SHEET 7 OF 8

ADDITIONAL AREA ADDED TO THE SEWERSHED TO INCLUDE THE LOTS APPROVED FOR ESTATES OF PATAPSCO PARK (F-14-124) THAT WERE PREVIOUSLY NOT INCLUDED



NOTE: THE DESIGNATED BASIN NUMBER CORRESPONDS TO THE DESIGNATED PUMPING STATION NUMBER WHICH SERVICES THE DELINEATED BASIN.

OLD FREDERICK ROAD PUMPING STATION DRAINAGE AREA MAP  
SCALE: 1" = 400'

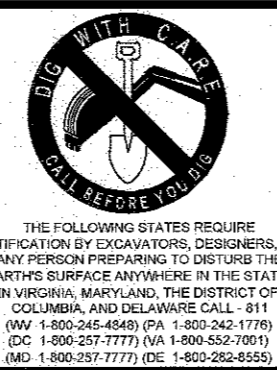
- LEGEND**
- OPF/PSOA OLD FREDERICK ROAD PUMPING STATION SERVICE AREA
  - EXISTING CONTOUR
  - NATURAL DRAINAGE BASIN DELINEATION
  - BOUNDARY: DANIELS MILL OVERLOOK
  - FORCE MAIN
  - OLD FREDERICK ROAD PUMPING STATION
  - LIMITS OF STATE OF MARYLAND PROPERTY (PATAPSCO STATE PARK)
  - GRAVITY SEWER
  - POSSIBLE FUTURE PUMPING STATION (BY OTHERS): SEE NOTE THIS SHEET
  - EXISTING STREAM CHANNEL
  - OPF/PSOA LIMIT OF CONTRIBUTING AREA TO THE OLD FREDERICK ROAD PUMPING STATION

CONTRACT NO: 10-4925-D  
OLD FREDERICK ROAD  
WASTEWATER PUMPING STATION  
HOWARD COUNTY, MARYLAND

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**B.R. ROWE**  
PROFESSIONAL ENGINEER  
BRANDON R. ROWE, REGISTERED PROFESSIONAL ENGINEER UNDER THE BOARD OF THE STATE OF MARYLAND LICENSE NO. 143117 (DATE 07/20/17)

DES: BRR					
DRN: RLB					
CHK: BRR					
DATE: 5/22/17					
REV.	DATE	DESCRIPTION	BY		

MISCELLANEOUS DETAILS  
PARCEL NO. N/A  
600' SCALE MAP NO. 17 BLOCK NO. 12

MODIFICATION TO THE OLD FREDERICK RD. WASTEWATER PUMPING STATION AS-BUILT  
CONTRACT NO: 10-4925-D  
2ND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND