

PINE ORCHARD WATER PUMPING STATION UPGRADE

CONTRACT NO. 44-4730


CAPITAL PROJECT NO. W-8299
HOWARD COUNTY, MARYLAND

GENERAL NOTES

PART I - GENERAL

- 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 AUGUST 2011 BY WHITMAN, REQUARDT & ASSOCIATES, LLP.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:

THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0105 AND NO. 0043.

ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE WHITMAN, REQUARDT & ASSOCIATES, LLP.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL UTILITY POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS NOT CONTACTED THE UTILITY COMPANIES TO MAKE ARRANGEMENTS FOR BRACING OF POLES BECAUSE NO BRACINGS ARE ANTICIPATED. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ANY UTILITY POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE ANY BRACING OF POLES.
- 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.
- 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 IN THE APPENDIX OF THE SPECIFICATIONS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED HORIZONTALLY AND VERTICALLY BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AND 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).....	410-685-0123
BUREAU OF UTILITIES (HOWARD COUNTY).....	410-313-4900
COLONIAL PIPELINE CO.....	410-795-1390
MISS UTILITY.....	1-800-257-7777
STATE HIGHWAY ADMINISTRATION.....	410-531-5533
VERIZON.....	1-800-743-0033

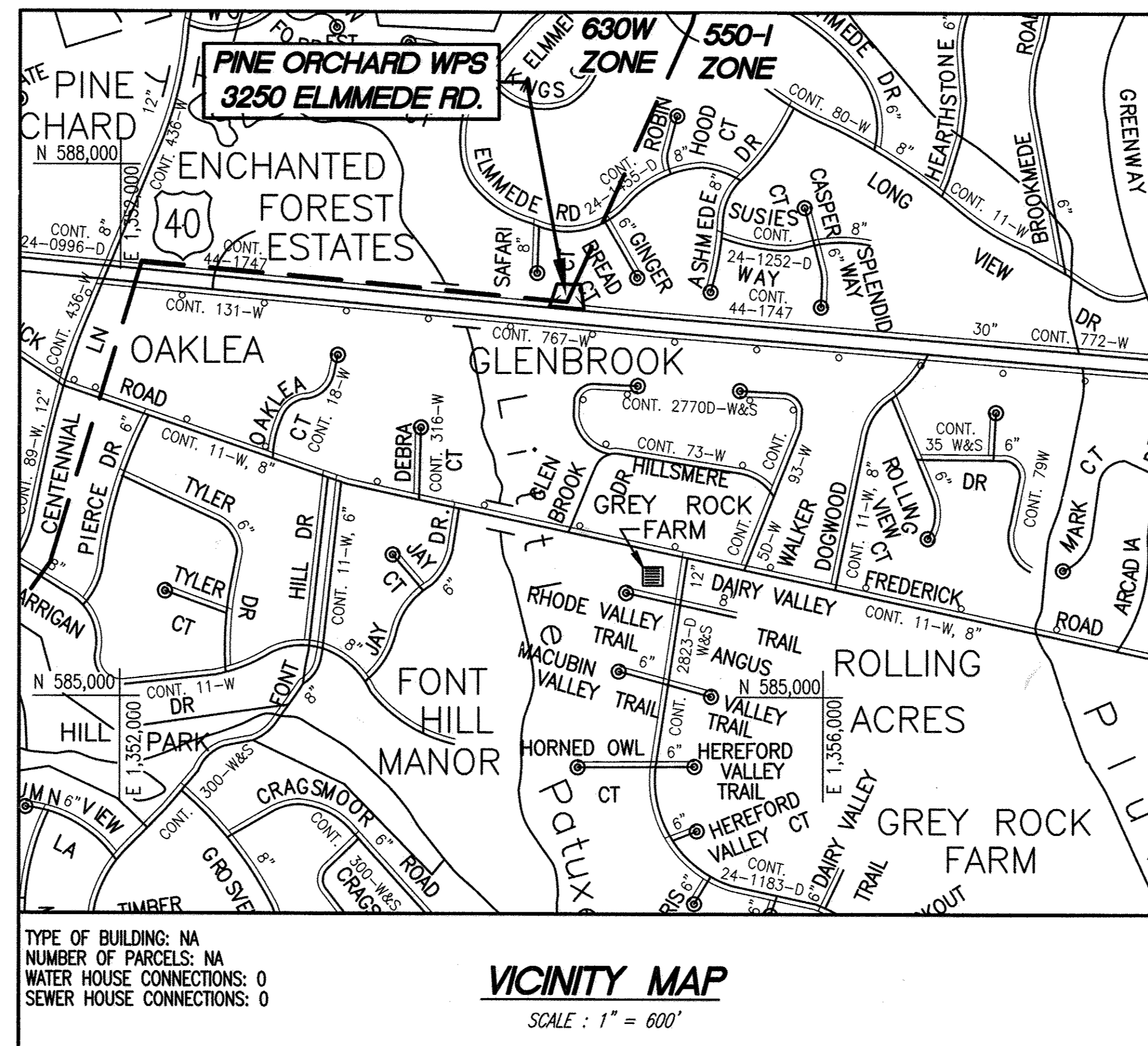
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED 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(g) OF THE HOWARD COUNTY CODE.

PART II - WATER

- ALL WATER MAIN PIPE SHALL BE DIP CLASS 54 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 PVC PRESSURE PIPE SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO APPROVAL OF THE MATERIAL FOR USE. THE TEST RECORDS SHALL BE FOR THE PIPE TO BE INSTALLED UNDER THIS CONTRACT. ALL PVC PIPE SHALL CONTAIN MARKINGS TO ALLOW CROSS REFERENCING OF THE PIPE SUPPLIED TO THE TEST RECORDS RECEIVED.
- UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SEVENTEEN (17) POUND SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC MAINS SHALL BE DUCTILE IRON.

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	DESCRIPTION
1	G-1	TITLE SHEET, INDEX OF DRAWINGS, VICINITY MAP, AND GENERAL NOTES
2	C-1	SITE PLAN
3	SC-1	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
4	SC-2	SEDIMENT AND EROSION CONTROL NOTES
5	L-1	LANDSCAPE PLAN
6	A-1	FLOOR PLAN AND DETAILS
7	A-2	EXTERIOR ELEVATIONS AND DETAILS
8	A-3	EXTERIOR ELEVATIONS AND DETAILS
9	A-4	SCHEDULES AND MISCELLANEOUS DETAILS
10	S-1	STRUCTURAL GENERAL NOTES AND DETAILS
11	S-2	STRUCTURAL PLANS AND SECTIONS
12	S-3	STRUCTURAL SECTIONS AND DETAILS
13	M-1	GENERAL NOTES, LEGEND, ABBREVIATIONS, SYSTEM CHARACTERISTICS, AND DEMOLITION PLAN
14	M-2	PLANS AND DETAILS
15	E-1	ELECTRICAL LEGEND, MEZZANINE AND LOWER LEVEL PLANS - DEMOLITION
16	E-2	ELECTRICAL PLAN - NEW WORK
17	E-3	ELECTRICAL SINGLE LINE DIAGRAMS AND MCC SCHEDULE
18	I-1	INSTRUMENTATION SYMBOLS, SCHEDULE, AND LEGEND
19	I-2	PROCESS AND INSTRUMENTATION DIAGRAM (P&ID)
20	I-3	PUMP CONTROL PANEL ELEMENTARY DIAGRAM
21	I-4	VFD ELEMENTARY DIAGRAM
22	I-5	PANEL ELEVATIONS AND DETAILS
23	I-6	INSTRUMENTATION PLAN



NAME OF UTILITY CONTRACTOR:
SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT (SCD).
[Signature] 1/29/13
HOWARD SOIL CONSERVATION DISTRICT DATE

*PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 24478, EXPIRATION DATE: 10/28/13.

ENGINEERS/ARCHITECT DESIGN CERTIFICATION
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
[Signature] 24478 1/29/13
SIGNATURE REGISTRATION NUMBER DATE

OWNERS/DEVELOPERS CERTIFICATION:
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
[Signature] 1.14.13
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
[Signature] 1/29/13
DIRECTOR OF PUBLIC WORKS DATE
[Signature] 1/29/13
CHIEF, BUREAU OF UTILITIES DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231
WR&A



DES: JMR			
DRN: JMR			
CHK: HWL/LAP			
DATE: 1/2013	DATE: 1/2013	DATE: 1/2013	DATE: 1/2013
BY: WRA	NO. AS-BUILTS	REVISION	DATE: 1/14/13

TITLE SHEET, INDEX OF DRAWINGS,
VICINITY MAP, AND GENERAL NOTES

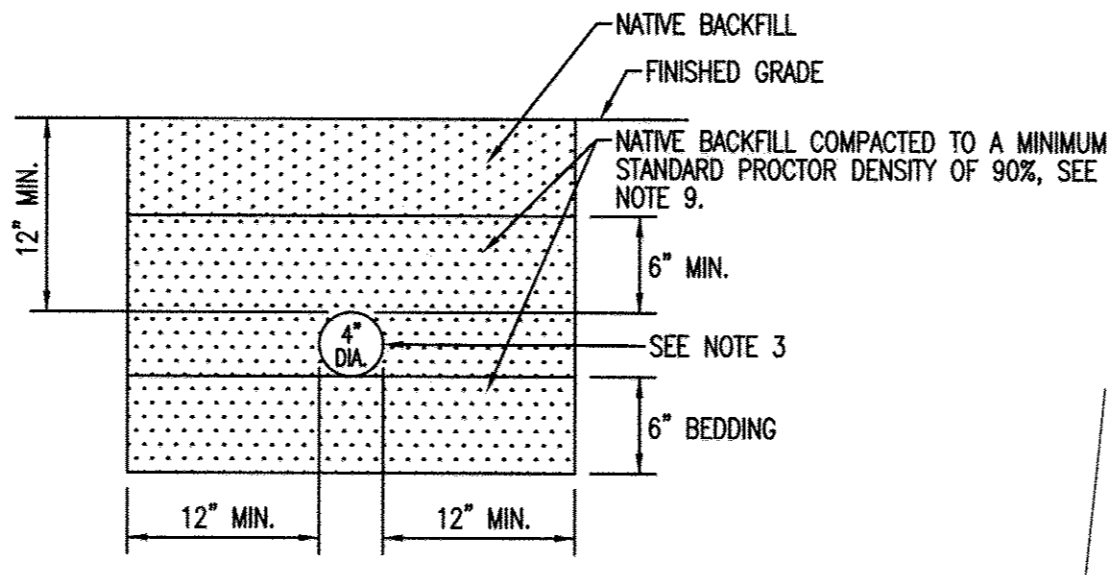
PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299
ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

AS-BUILT
G-1
SCALE AS SHOWN
SHEET 1 OF 23

FILENAME: W:\8299-001\CD\01\09\PROJ\G-1.dwg

NOTES:

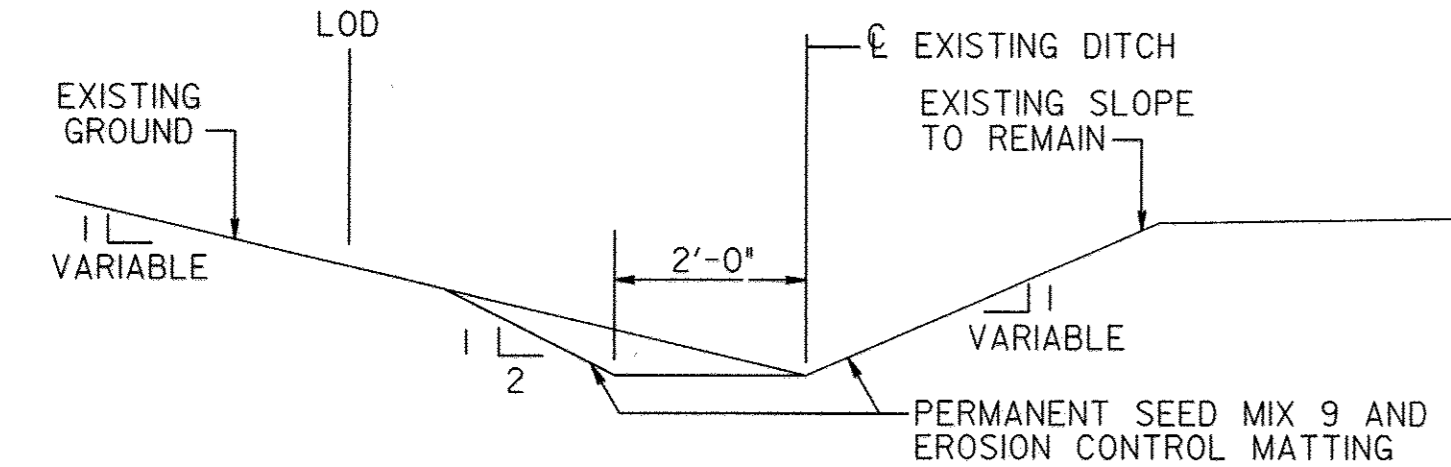
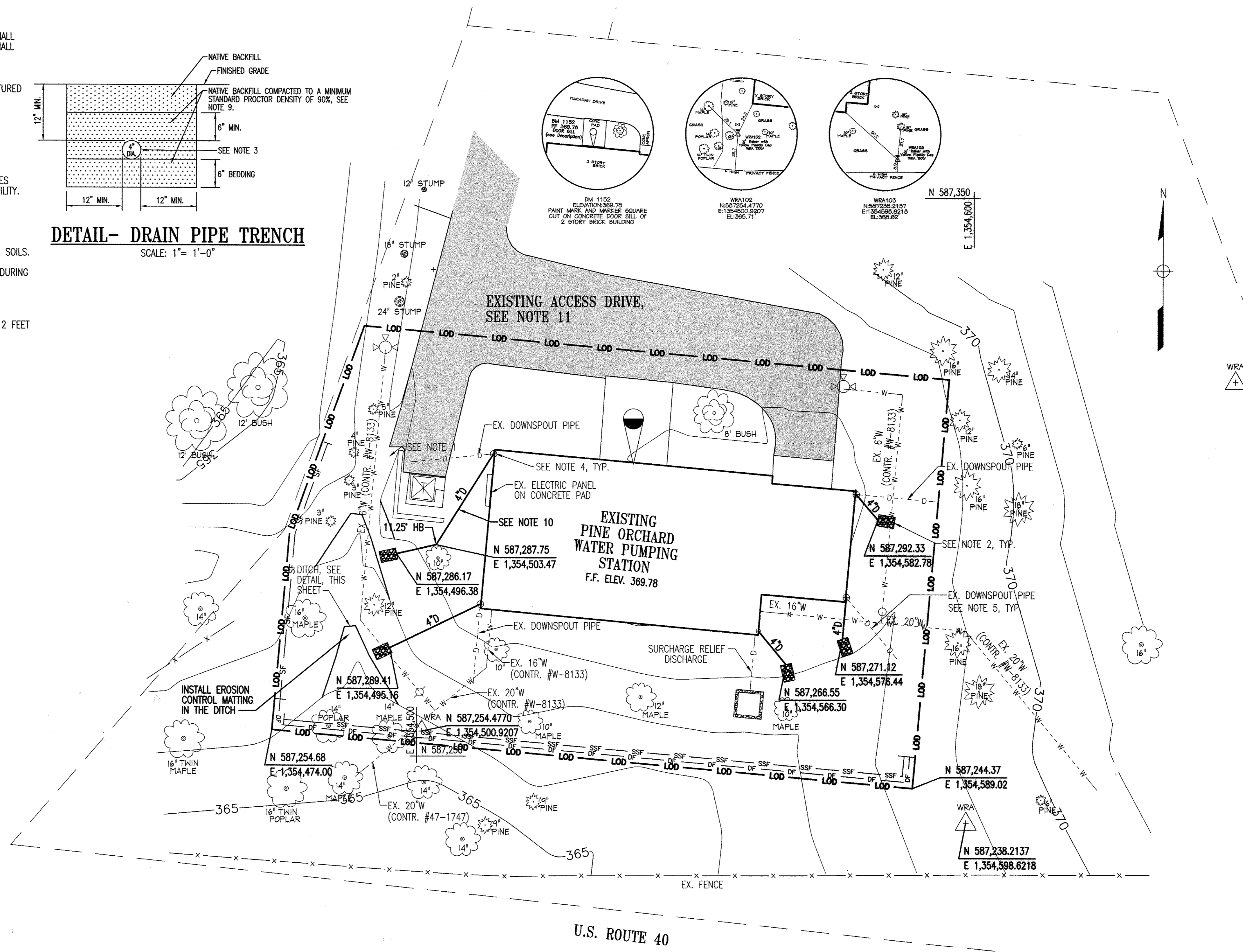
- SLOPE GROUND TO DITCH LOCATION.
- PROVIDE SLOPE PROTECTION AT DISCHARGE POINT USING RIP-RAP WITH 4-INCH STONES. THE WIDTH OF RIP-RAP STONE PROTECTION SHALL BE 2 FEET WIDE AND SHALL BE ON THE SLOPE OF THE DRAINAGE DITCH. THE LENGTH SHALL BE 4 FEET. RIPRAP LAYER THICKNESS SHALL BE 8-INCHES MINIMUM.
- THE 4-INCH PIPE SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) WITH DUAL WALL PIPE WITH SMOOTH INTERIOR WALL AND CORRUGATED EXTERIOR WALL. PIPE SHALL BE JOINED USING A BELL AND SPIGOT JOINT MEETING AASHTO M252 AND SHALL BE SOIL-TIGHT. MANUFACTURED BEND FITTINGS SHALL BE USED. THE FITTINGS SHALL CONFORM TO AASHTO M252. THE PIPE SHALL BE ADS N-12 ST 1B, HANCOR SURE-LOK ST 1B, OR APPROVED EQUAL.
- INSTALL A DOWNSPOUT ADAPTER SIZED FOR THE PROPOSED ROOF DRAIN AND THE NEW 4-INCH PIPE AND A 90-DEGREE BEND AT EACH DOWNSPOUT. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF DRAIN DETAILS.
- REMOVE OR ABANDON-IN-PLACE THE EXISTING BURIED DOWNSPOUT PIPING.
- DOWNSPOUT DRAIN PIPE SHALL BE PER DETAIL, THIS SHEET. MAINTAIN A MINIMUM OF 0.9% SLOPE AND PROVIDE A MINIMUM OF 12 INCHES OF COVER ON TOP OF THE PIPE. ALLOW FOR A MINIMUM 6-INCH VERTICAL SPACING BETWEEN THE DRAIN PIPE AND ANY CROSSING UTILITY.
- ALL GRADING AND DRAINAGE SHALL BE PER HOWARD COUNTY DESIGN MANUAL, VOLUME IV.
- REFER TO LANDSCAPING PLANS FOR PLANTING DETAILS IN FRONT OF STATION.
- NATIVE BACKFILL CAN BE UTILIZED IF IT MEETS CLASS I OR II PER ASTM D 2321. NO. 57 AGGREGATE CAN BE USED IN LIEU OF NATIVE SOILS.
- CONTRACTOR SHALL PROTECT THE EXISTING CONDUITS LOCATED BETWEEN THE TRANSFORMER AND THE ELECTRIC PANEL BOX AS NEEDED DURING CONSTRUCTION. NOTIFY THE ENGINEER OF ANY UTILITY CONFLICTS WITH THE PROPOSED ROOF DRAIN PIPE.
- STABILIZED CONSTRUCTION ENTRANCE IS TO BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- AT DOWNHILL GRADE INSTALL A "J" CONFIGURATION WITH SILT FENCE CURLING INTO THE PROPOSED LIMIT OF DISTURBANCE AND UPHILL 2 FEET IN ELEVATION.
- STOCKPILE SHALL BE WITHIN THE LOD. ADDITIONAL STOCKPILE AREAS, IF REQUIRED, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.



DETAIL- DRAIN PIPE TRENCH

SCALE: 1" = 1'-0"

EXISTING	PROPOSED	DESCRIPTION
---	---	CONTOURS
		BENCHMARK
		FLY MONUMENT
		GPS MONUMENT
		TRAVERSE MONUMENT
		FIRE HYDRANT
		WATER VALVE
		DOWN SPOUT
---	---	WATER MAIN
---	---	DRAIN PIPE
---	---	RIP RAP
---	---	LIMITS OF DISTURBANCE
---	---	SILT FENCE
---	---	SUPER SILT FENCE
---	---	DIVERSION FENCE
---	---	PROPERTY LINE
---	---	FENCE



TYPICAL DITCH SECTION

NOT TO SCALE

MIX NO.*	SPECIES	PLANTING RATE (lb/ac)	LOCATION	SEEDING DATES
9	TALL FESCUE (86%)	125	DRAINAGE DITCH	3/15 - 6/1 8/1 - 10/1
	ROUGH BLUEGRASS (7%)	10		
	BIRDFOOT TREFLOIL (7%)	10		
3	TALL FESCUE (85%)	125	LAWN AREAS	
	PERENNIAL RYEGRASS (10%)	15		
	KENTUCKY BLUEGRASS (5%)	10		

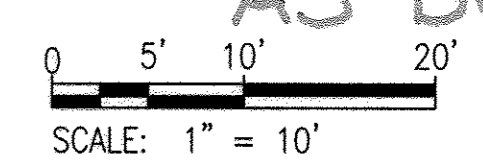
PLAN

SCALE: 1" = 10'

SURVEY NOTES:

- FOR STAKEOUT PURPOSES, LIMIT OF DISTURBANCE (LOD) WILL BE PROVIDED TO THE CONTRACTOR ELECTRONICALLY BEFORE THE START OF CONSTRUCTION.
- HORIZONTAL AND VERTICAL INFORMATION SHOWN HEREON BASED ON HOWARD COUNTY GEODETIC CONTROLS AS ESTABLISHED BY A GPS SURVEY PERFORMED BY WHITMAN, REQUARDT AND ASSOCIATES FROM THE FOLLOWING HOWARD COUNTY GEODETIC CONTROL POINTS (MARYLAND STATE REFERENCE SYSTEM NAD '83 & NAVD '88)

	NORTH	EAST	ELEVATION
HOWARD COUNTY #0105	606,849.08	1,349,431.28	278.139
HOWARD COUNTY #0043	558,479.03	1,386,642.03	189.494



AS-BUILT

"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. 24478, EXPIRATION DATE: 10/28/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Ca. J. ... DATE: 11/13/13
DIRECTOR OF PUBLIC WORKS

Morgan & ... DATE: 11/13/13
CHIEF, BUREAU OF ENGINEERING

... DATE: 11/13/13
CHIEF, BUREAU OF UTILITIES

... DATE: 11/13/13
CHIEF, UTILITY DESIGN DIVISION

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



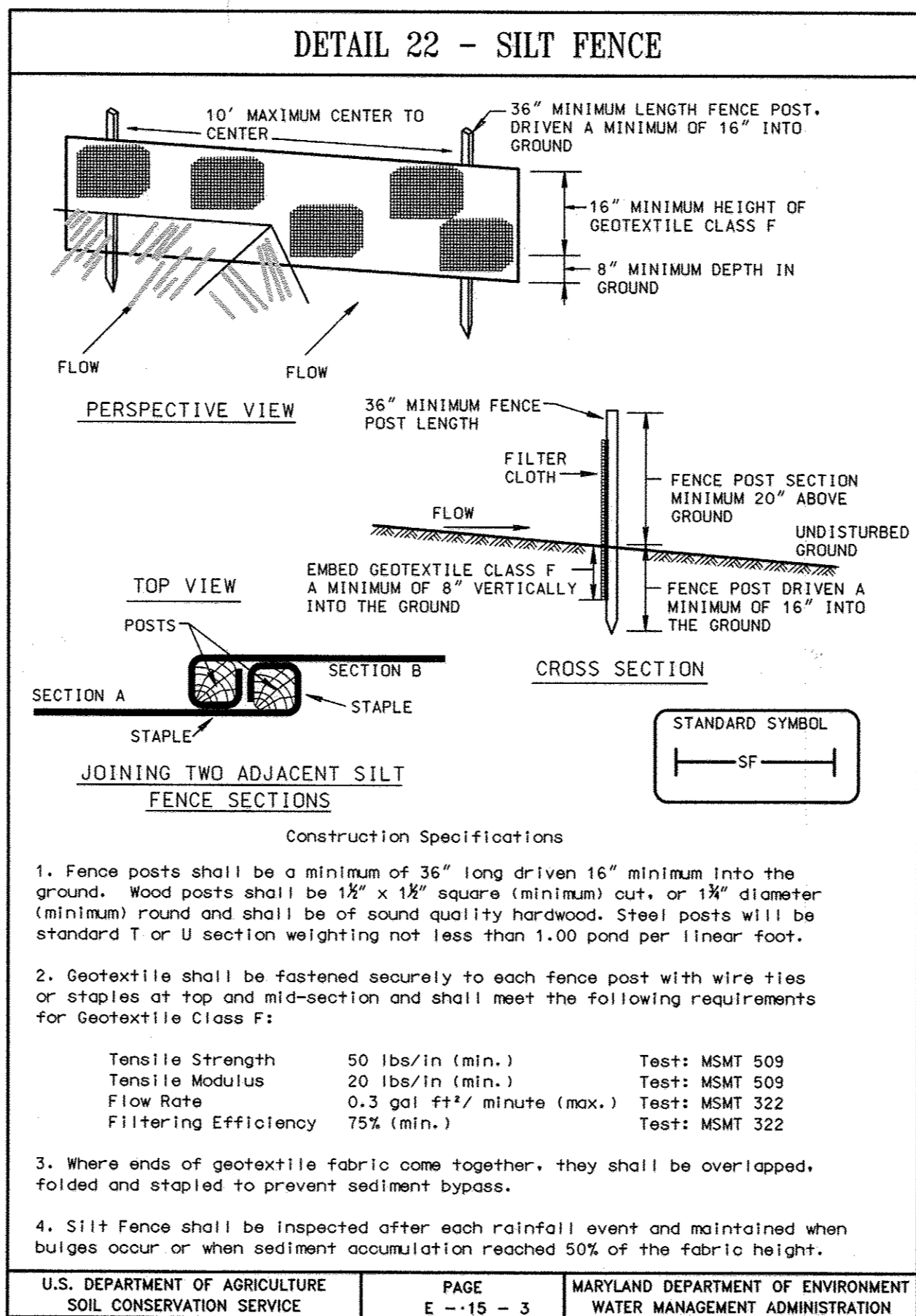
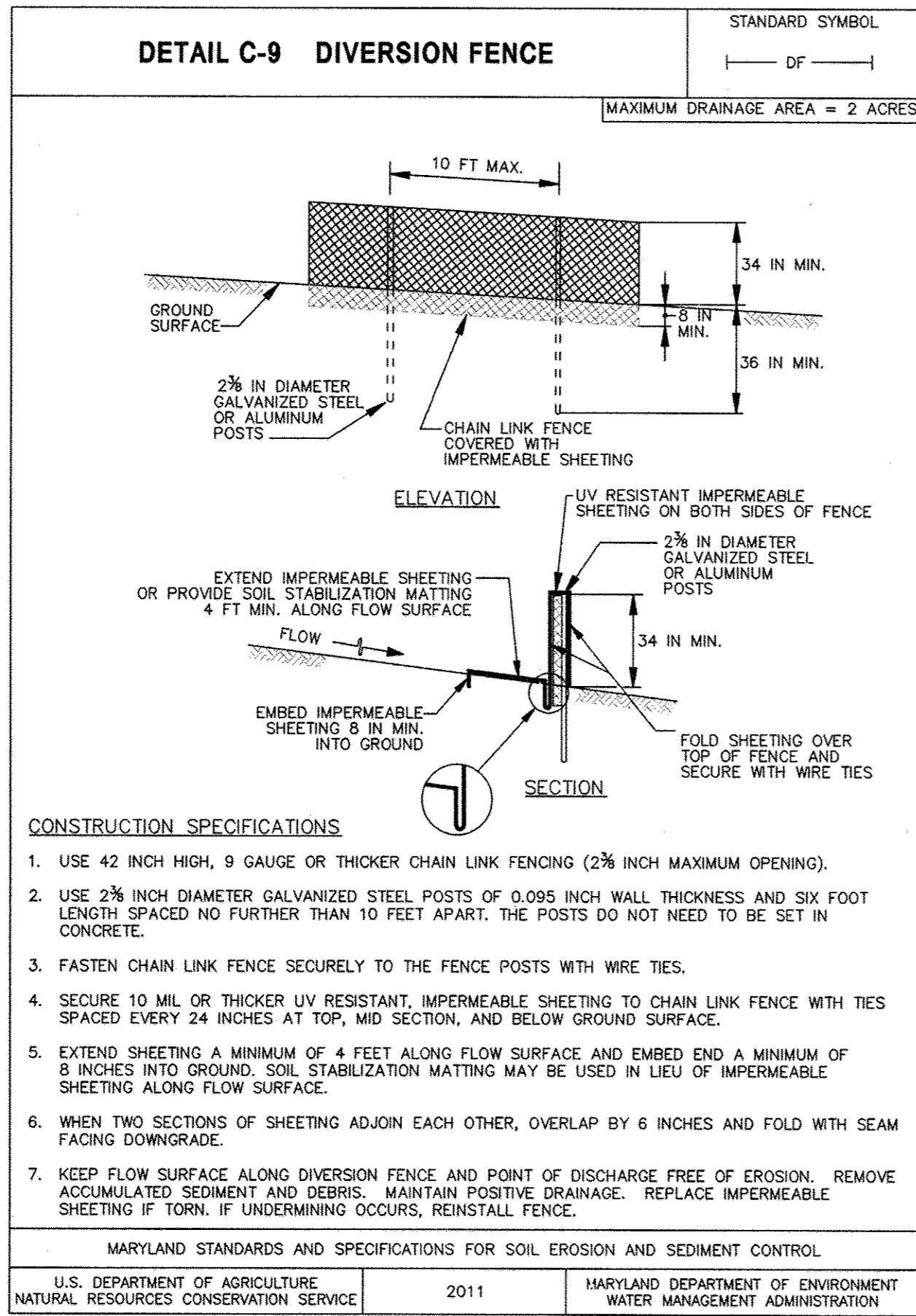
DES:	MB		
DRN:	GWG		
CHK:	HWL		
DATE:	1/2013		
BY:	WRA	AS-BUILTS	10/14
NO.:			
REVISION:			

600' SCALE MAP NO.	24	BLOCK NO.	2&3
--------------------	----	-----------	-----

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 2 OF 23



SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

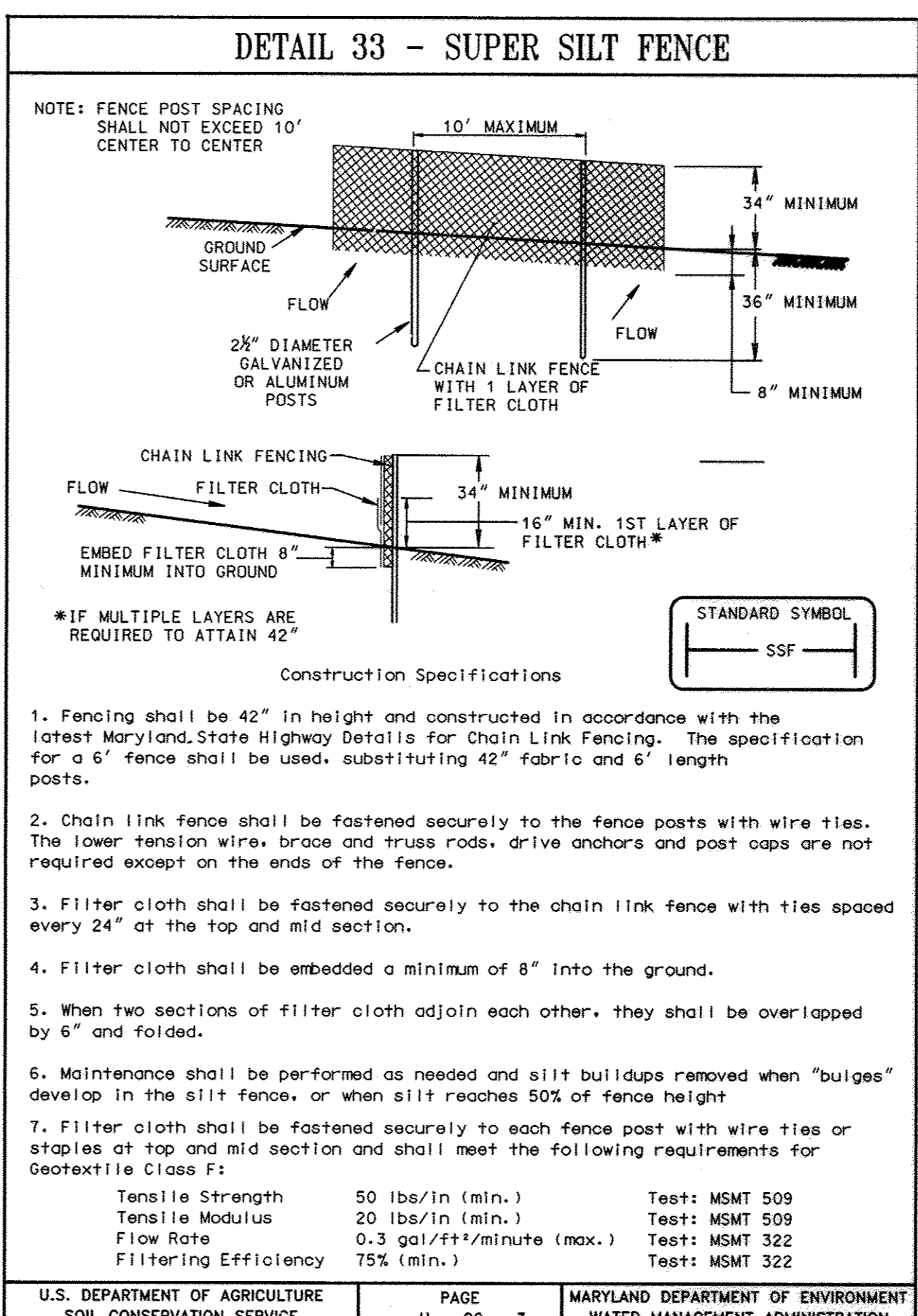
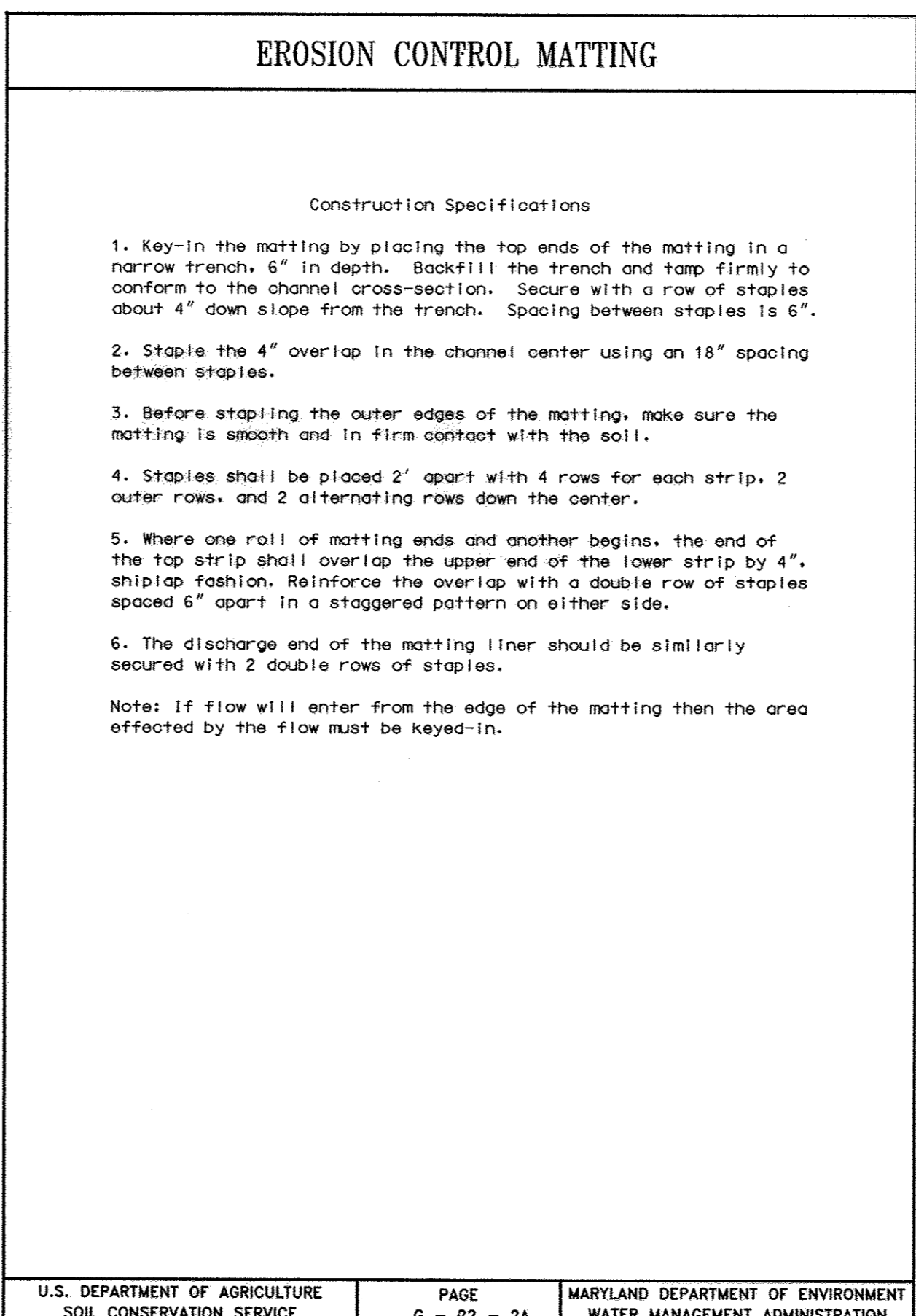
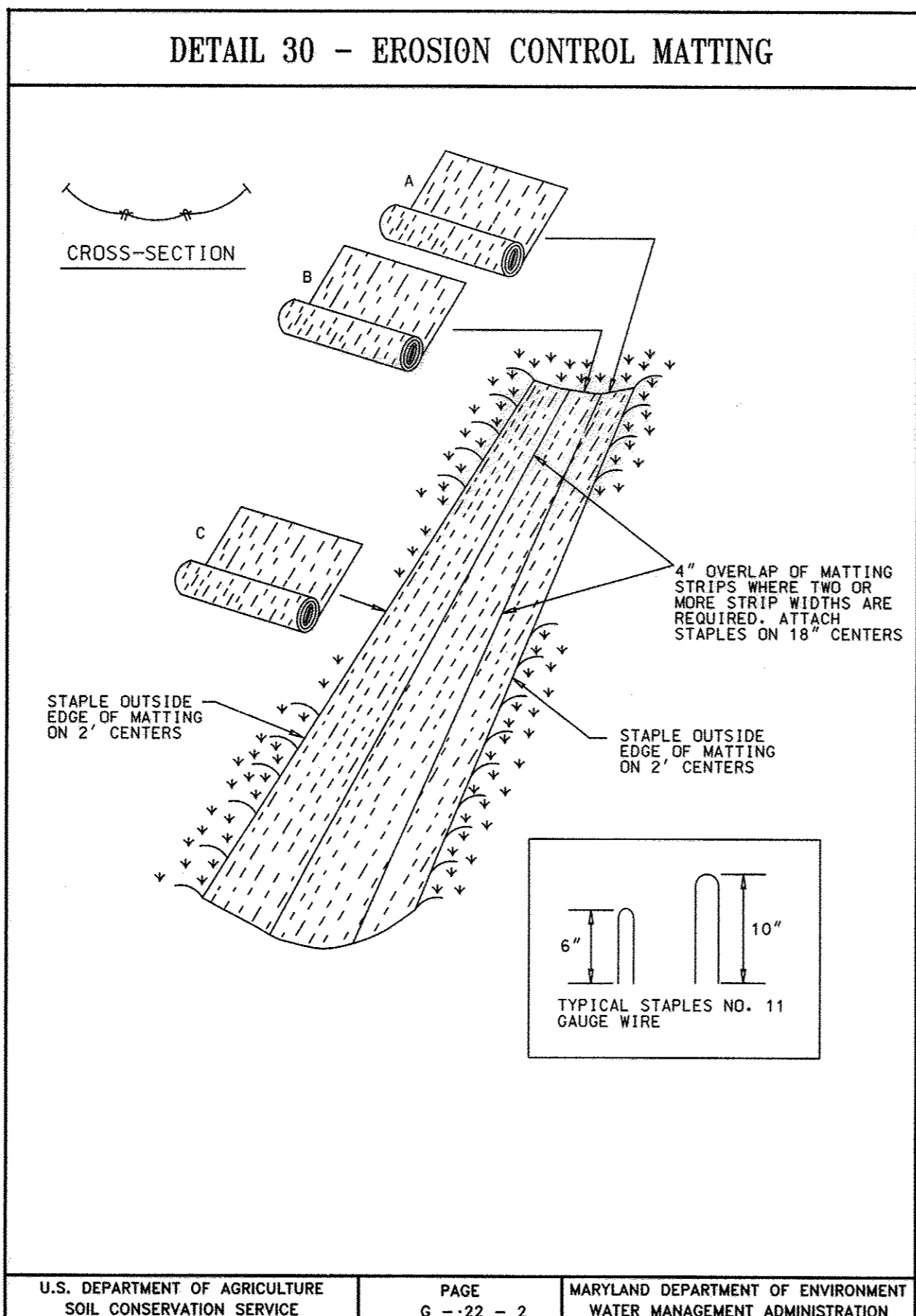
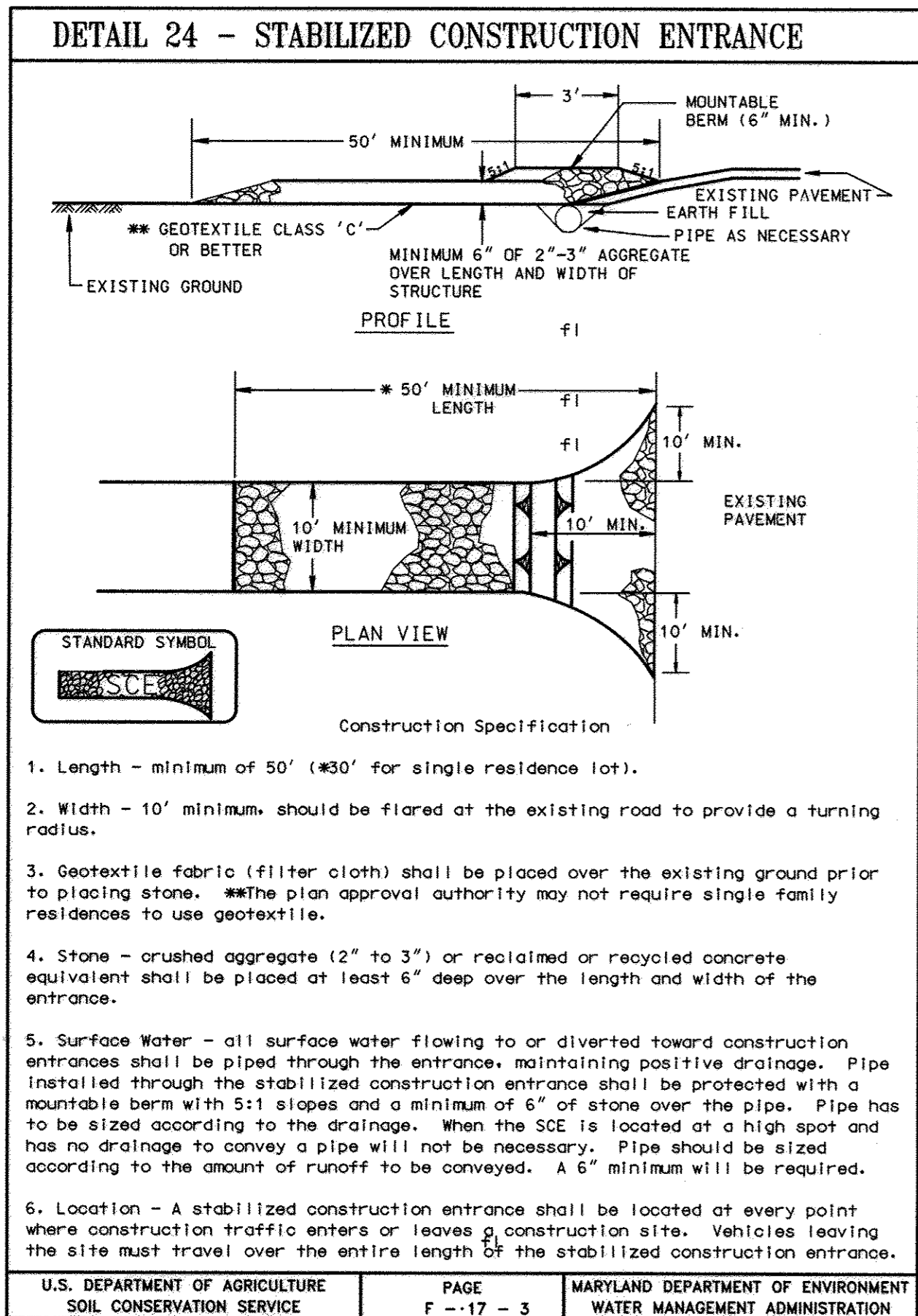
Note: In areas of less than 2% slope and sandy soils (USDA general classification system soil class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

STANDARD SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF IS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1.
 - 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SO, TEMPORARY SEEDING, AND MULCHING (SEC. C). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

TOTAL AREA OF SITE	0.47 ACRES
AREA DISTURBED	0.18 ACRES
AREA TO BE ROOFED OR PAVED	0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.18 ACRES
TOTAL CUT	4.5 CU. YARDS
OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT	0 CU. YARDS
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY.
- SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SED. ENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
- SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
- CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL. NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.



SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

"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. 24478, EXPIRATION DATE: 10/28/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Director of Public Works: [Signature] DATE: 1/14/13
Chief, Bureau of Engineering: [Signature] DATE: 1/14/13
Chief, Bureau of Utilities: [Signature] DATE: 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES: MB
DRN: GWG
CHK: HWL
DATE: 1/2013

BY: WRA NO. AS-BUILTS REVISION DATE: 10/14

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

AS-BUILT SC-1

SCALE AS SHOWN
SHEET 3 OF 23

SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS

- SITE PREPARATION**
- INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
 - PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
 - SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.
- B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 - FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME, OR TRADEMARK, AND WARRANTEE OF THE PRODUCER.
 - LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98-100% WILL PASS THROUGH A #20 MESH SIEVE.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDBED PREPARATION**i. TEMPORARY SEEDING**

- SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3"-5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPER MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
- APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
- INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

ii. PERMANENT SEEDING

- MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT.
 - SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
 - SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (ppm).
 - THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
 - SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.
- AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3"-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
- APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.
- MIX SOIL AMENDMENTS INTO THE TOP 3"-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1"-3" OF SOIL SHOULD BE LOOSE AND FRABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.
- SEE TECHNICAL SPECIFICATIONS, SECTION 02260, FOR SPECIAL REQUIREMENTS.

D. SEED SPECIFICATIONS

- ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.
- INOCULANT - THE INOCULANT FOR TREATING LEGUME SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING.

NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75°-80°F CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING

- HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.
 - IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATE AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN: MAXIMUM OF 100 lbs. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 lbs. PER ACRE; K20 (POTASSIUM): 200 lbs. PER ACRE.
 - LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - SEED AND FERTILIZER SHALL BE MIXED ON-SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

- DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLE 25 OR 26. THE SEEDING AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4" OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

- STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEEDS SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.
- WOOD CELLULOSE FIBER MULCH (WCFM)
 - WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10mm, DIAMETER APPROXIMATELY 1mm, pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

- MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
 - WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS PER ACRE.
 - WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - A MULCH ANCHORING TOOL IS A TRACTOR-DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.
 - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS - SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
 - LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4'-15" WIDE AND 300'-3,000' LONG.

- INCREMENTAL STABILIZATION - CUT SLOPES
 - ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.
 - CONSTRUCTION SEQUENCE (REFER TO FIGURE 4 BELOW):
 - EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.
 - PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.
 - PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

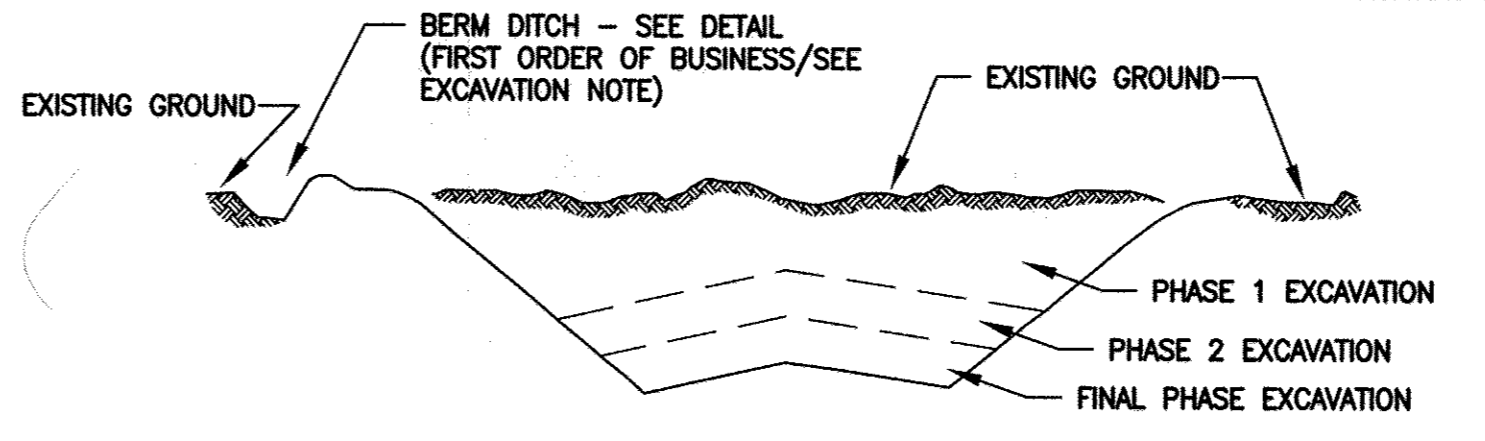


FIGURE 4: INCREMENTAL STABILIZATION - CUT

J. INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES

- EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.
- SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15', OR WHEN GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS
- AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.
- CONSTRUCTION SEQUENCE: REFER TO FIGURE 5 (BELOW).
 - EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
 - PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.
 - PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.
 - PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

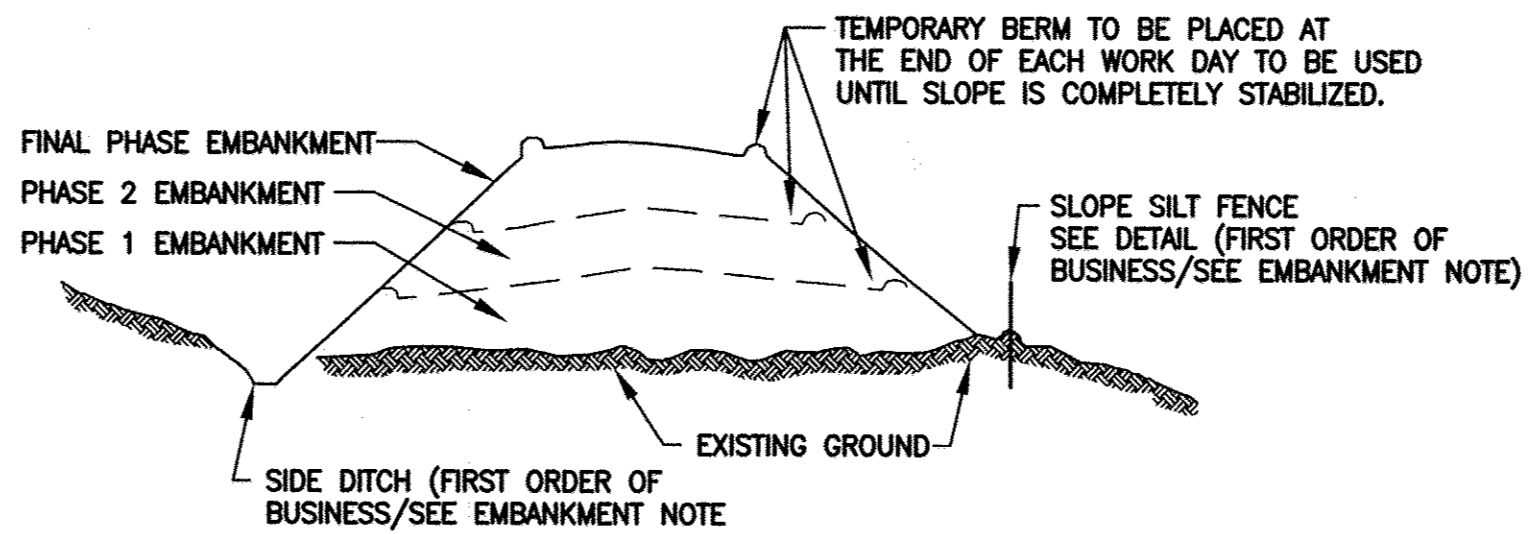


FIGURE 5: INCREMENTAL STABILIZATION - FILL

SECTION II - TEMPORARY SEEDING

VEGETATION - ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

A. SEED MIXTURES - TEMPORARY SEEDING

- SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES, AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.
- FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

TEMPORARY SEEDING SUMMARY

NO.	SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 26			FERTILIZER RATE (10-10-10)		LIME RATE
	SPECIES	APPLICATION RATE (lb/acre)	SEEDING DATES	SEEDING DEPTHS		
	RYE PLUS FOXTAIL MILLET	150	3/1-4/30 5/1-8/14 8/15-11/15	1"	600 lb/acre (15 lb/1000sf)	2 tons/acre 100 lb/1000sf

SECTION III - PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES - PERMANENT SEEDING

- SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS FIELD OFFICE TECHNICAL GUIDE, SECTION 342 - CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD AND V TURFGRASS.

- THIS SITE HAS A DISTURBED AREA OVER 5 ACRES, THEREFORE, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
- FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3-1/2 lbs. PER 1000 sq. ft. (150 lbs/acre), IN ADDITION TO THE ABOVE, SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

PERMANENT SEEDING SUMMARY

NO.	SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 25				FERTILIZER RATE (10-20-20)			LIME RATE
	SPECIES	APPLICATION RATE (lb/acre)	SEEDING DATES	LOCATION	N	P205	K20	
3	TALL FESCUE (85%) PERENNIAL RYEGRASS (10%) KENTUCKY BLUEGRASS (5%)	125 10 10	3/1-6/1 AND 8/1-10/1	DRAINAGE DITCH 1" DEPTH	90 lb/acre (2.0 lb/1000 sf)	175 lb/acre (4 lb/1000 sf)	175 lb/acre (4 lb/1000 sf)	2 tons/acre (100 lb/1000 sf)
9	TALL FESCUE (86%) POAIRESS (7%) BIRDFOOT TREFOIL (7%)	125 15 10	3/1-6/1 AND 8/1-10/1	LAWN AREAS 1" DEPTH	90 lb/acre (2.0 lb/1000 sf)	175 lb/acre (4 lb/1000 sf)	175 lb/acre (4 lb/1000 sf)	2 tons/acre (100 lb/1000 sf)

SECTION IV - SOD

TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

A. GENERAL SPECIFICATIONS

- CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
- SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5%. BROKEN PADS AND TORN OR UNEVEN EDGES WILL NOT BE ACCEPTABLE.
- STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10% OF THE SECTION.
- SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

- DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.
- THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
- WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

- IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN MOISTURE CONTENT.
- THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

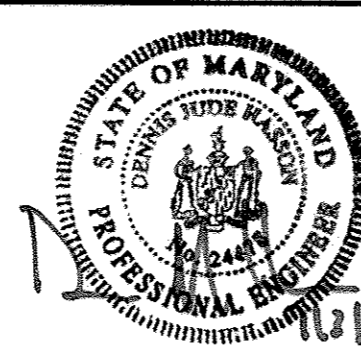
PROJECT SEQUENCE OF CONSTRUCTION

- OBTAIN THE REQUIRED PERMIT. (7 DAYS)
- NOTIFY MISS UTILITY 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS BEFORE STARTING ANY WORK AT 410-313-1870. (2 DAYS)
- INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AND STABILIZED CONSTRUCTION ENTRANCE (SCE). (2 DAYS)
- CLEAR AND GRUB SITE, AND EXCAVATE AS REQUIRED. (5 DAYS)
- INSTALL ROOF DRAINS AND GRADE SITE AS REQUIRED. (5 DAYS)
- FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE REMAINING DISTURBED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. (3 DAYS)
- COMPLETE INTERNAL MODIFICATIONS TO THE PUMPING STATION. (276 DAYS)

"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. 24478, EXPIRATION DATE: 10/28/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES: MB

DRN: GWG

CHK: HWL

DATE: 1/2013

BY NO. AS-BUILTS
REVISION

600' SCALE MAP NO. 24 BLOCK NO. 2&3

SEDIMENT AND EROSION CONTROL
NOTES

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

AS-BUILT

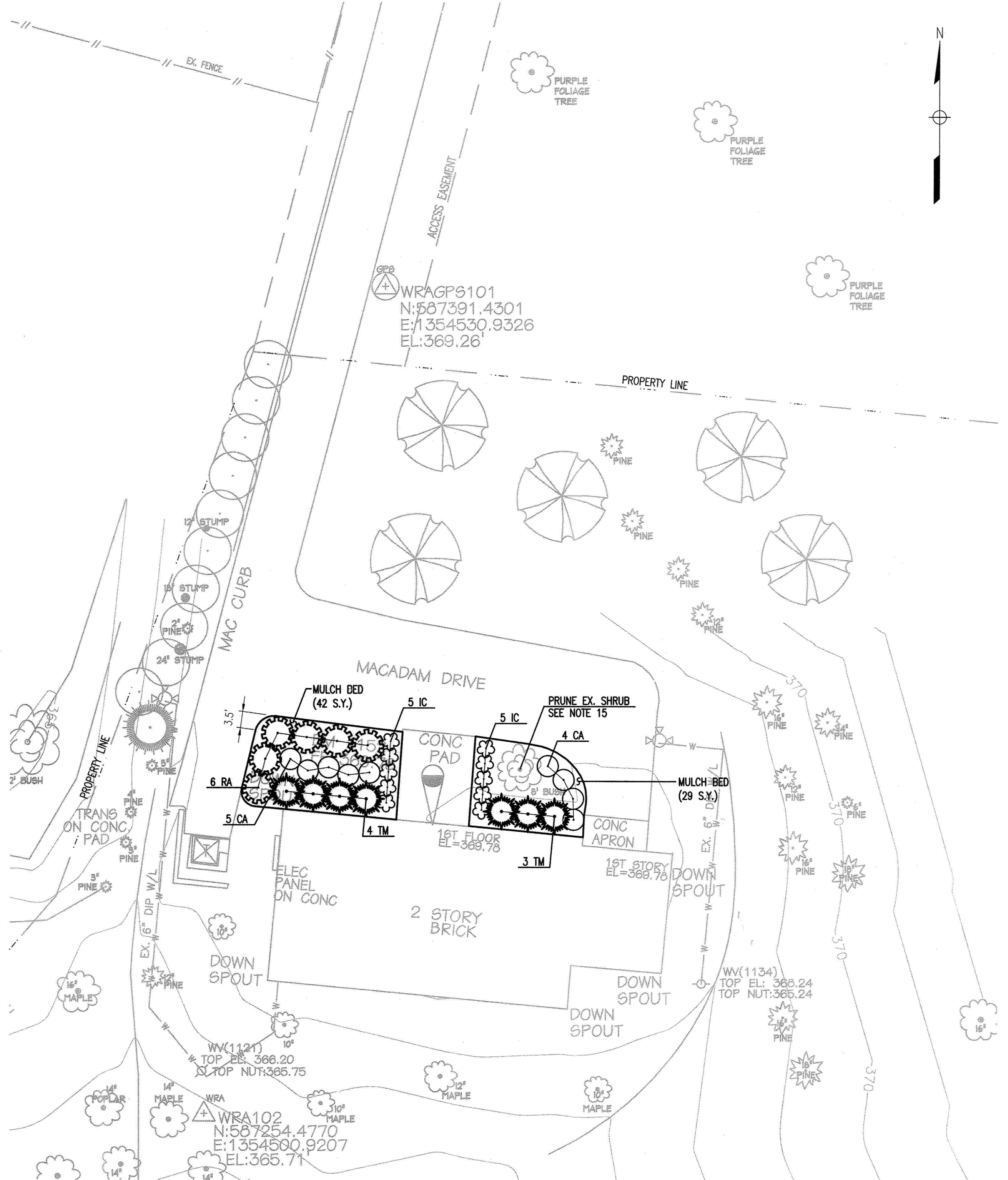
SC-2

SCALE AS SHOWN

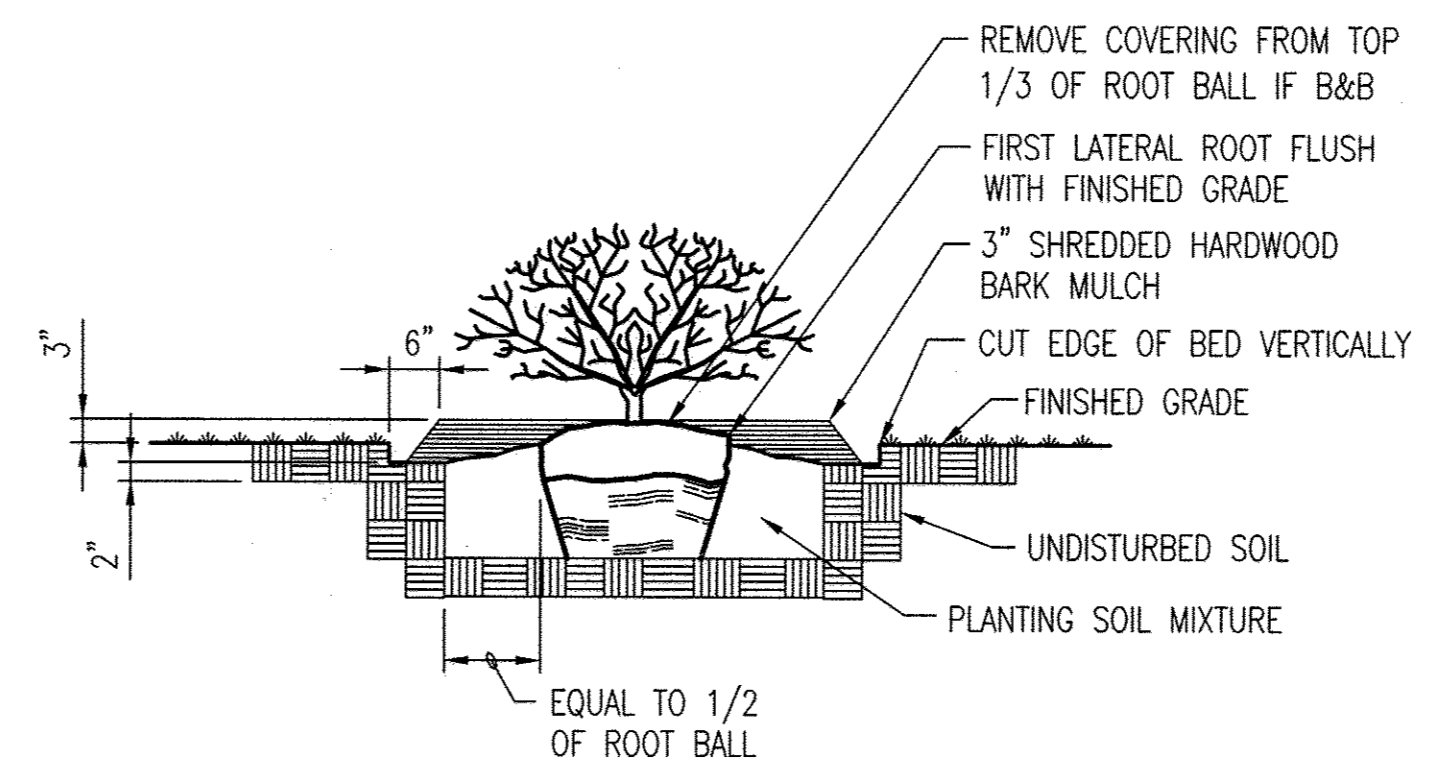
SHEET

4 OF 23

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND



PLAN VIEW
1" = 10'



PLANTING DETAIL - SHRUB
SCALE: NONE

LANDSCAPE NOTES

- THIS DRAWING IS FOR LANDSCAPE PURPOSES ONLY. AS-BUILT CONDITIONS MAY VARY. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND UTILITY LOCATIONS SHOWN WITHIN THE PROJECT LIMITS, AND SHALL INFORM THE ARCHITECT OF ANY DISCREPANCIES OR POTENTIAL PROBLEMS PRIOR TO COMMENCING WORK.
- LANDSCAPE MAINTENANCE OBLIGATIONS SHALL IN ACCORDANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS MANUAL AND THE HOWARD COUNTY LANDSCAPE MANUAL, ADOPTED JANUARY 4, 1993, AMENDED MARCH 2, 1998.
- ALL MULCH BEDS SHALL BE SPREAD WITH THREE INCH (3") DEEP SHREDDED HARDWOOD BARK MULCH. ALL TREES SHALL HAVE A MULCH BED FOUR FEET (4') IN DIAMETER.
- DO NOT PLANT TREES WITHIN 5'-0" OF THE CENTERLINE OF ALL UNDERGROUND UTILITY LINES. DO NOT PLANT TREES WITHIN 10'-0" OF THE CENTERLINE OF ALL OVERHEAD UTILITY LINES. "MISS UTILITY" (1-800-257-7777) MUST BE CONTACTED A MINIMUM OF 72 HOURS PRIOR TO PROCEEDING WITH ANY EXCAVATION FOR PLANT MATERIAL INSTALLATION.
- ALL DECIDUOUS TREES GREATER THAN OR EQUAL TO 6'-0" HEIGHT MUST BE STAKED.
- LANDSCAPE CONTRACTOR SHALL VERIFY PLANT MATERIAL QUANTITIES SHOWN ON PLANS WITH TOTALS IN PLANT SCHEDULE. WHERE DISCREPANCIES OCCUR BETWEEN THE PLANS AND SCHEDULE, THE PLANS SHALL GOVERN.
- ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE FULL YEAR TO BE IN A HEALTHY GROWING CONDITION. PLANT MATERIALS WHICH DO NOT FULFILL THIS GUARANTEE SHALL BE REPLACED AT NO COST TO THE OWNER. REPLACEMENT SHALL BE GUARANTEED THROUGHOUT THE ORIGINAL GUARANTEE PERIOD. PLANTS THAT DIE WITHIN 30-60 DAYS SHALL BE REPLACED IMMEDIATELY.
- THE ONE YEAR GUARANTEE PERIOD SHALL BEGIN UPON THE OWNER'S APPROVAL OF THE PLANTING INSTALLATION. THE LANDSCAPE CONTRACTOR SHALL ALSO PROVIDE LANDSCAPE MAINTENANCE DURING THIS PERIOD.
- THE LANDSCAPE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL WATERING DURING CONSTRUCTION AND DURING THE ONE YEAR MAINTENANCE PERIOD.
- ALL PLANTS SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE 'AMERICAN STANDARD FOR NURSERY STOCK', LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (HEREAFTER REFERRED TO AS AAS STANDARDS). ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF GROWTH, AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL BRANCHED AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECT PESTS AND MECHANICAL INJURIES.
- ALL PLANTS SHALL HAVE BEEN NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER THE SAME CLIMATIC CONDITIONS AS THE LOCATION OF THIS PROJECT FOR AT LEAST TWO YEARS BEFORE PLANTING. NEITHER HEELED IN PLANTS NOR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.
- ALL SUBSTITUTIONS OF PLANT MATERIAL SHALL BE REQUESTED IN WRITING TO THE LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER, FAILURE TO OBTAIN SUBSTITUTIONS IN WRITING MAY RESULT IN LIABILITY TO THE CONTRACTOR.
- ALL PLANT MATERIALS, TOPSOIL, MULCH FERTILIZERS, SOIL AMENITIES, PLANTING SUPPLIES AND METHODS SHALL BE SUBJECT TO THE LANDSCAPE ARCHITECT'S APPROVAL. REJECTED MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT DELAY.
- ALL TREE GUYING AND/OR STAKING MATERIAL MUST BE REMOVED PRIOR TO THE EXPIRATION OF THE ONE YEAR MAINTENANCE PERIOD.
- THE EXISTING OTTO LUYKENS LAURELCHERRY SHALL BE PRUNED IMMEDIATELY AFTER FLOWERING IN THE SPRING.

LANDSCAPE PLANT SCHEDULE

QUANTITY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	MATURE SIZE	SPACING
9	CA	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	2'-3'	CONT./ B&B	HEIGHT: 3'-4' SPREAD: 4'-6'	3.5 O.C.
10	IC	ILEX CRENATA 'SOFT TOUCH'	SOFT TOUCH JAPANESE HOLLY	18"-24"	CONT./ B&B	HEIGHT: 2'-3' SPREAD: 2'-3'	2.5 O.C.
6	RA	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	18"-24"	CONT./ B&B	HEIGHT: 2'-3' SPREAD: 5'-6'	4.5 O.C.
7	TM	TAXUS X MEDIA 'EVERLOW'	EVERLOW YEW	18"-24"	CONT./ B&B	HEIGHT: 3'-4' SPREAD: 4'-5'	4' O.C.

AS-BUILT

I-1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

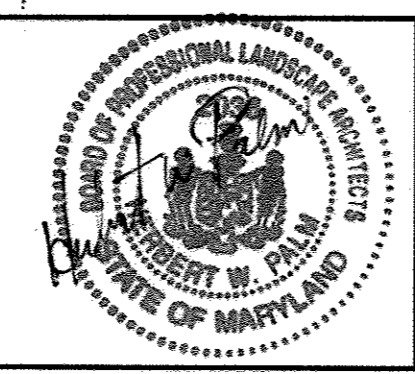
John A. ... 1/29/13
DIRECTOR OF PUBLIC WORKS
DATE

Thomas ... 1-14-13
CHIEF, BUREAU OF ENGINEERING
DATE

... 1/14/13
CHIEF, UTILITY DESIGN DIVISION
DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES: HWP			
DRN: SAZ			
CHK: AUO			
DATE: 1/2013			

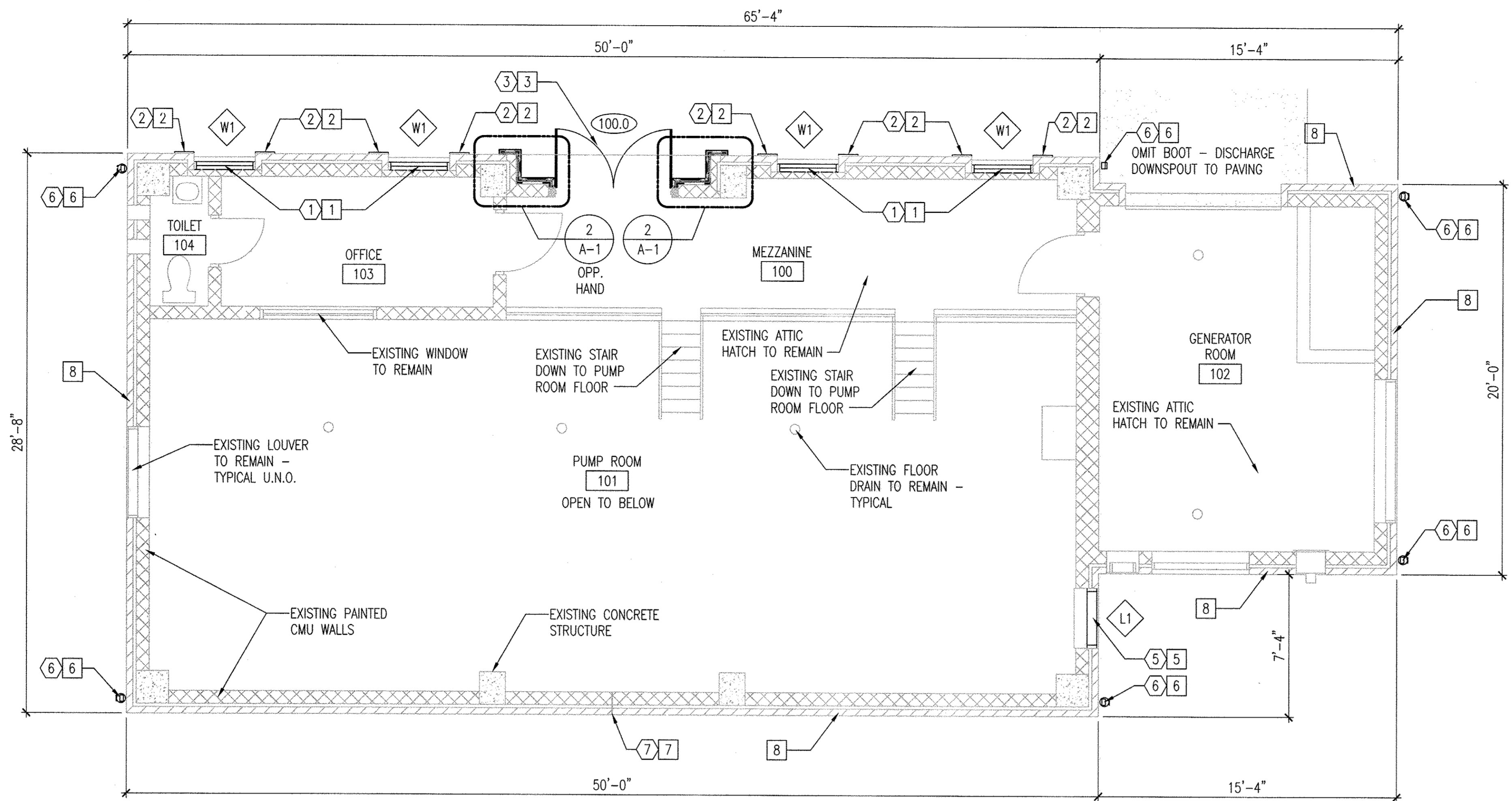
BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	10/14

LANDSCAPE PLAN

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 5 OF 23

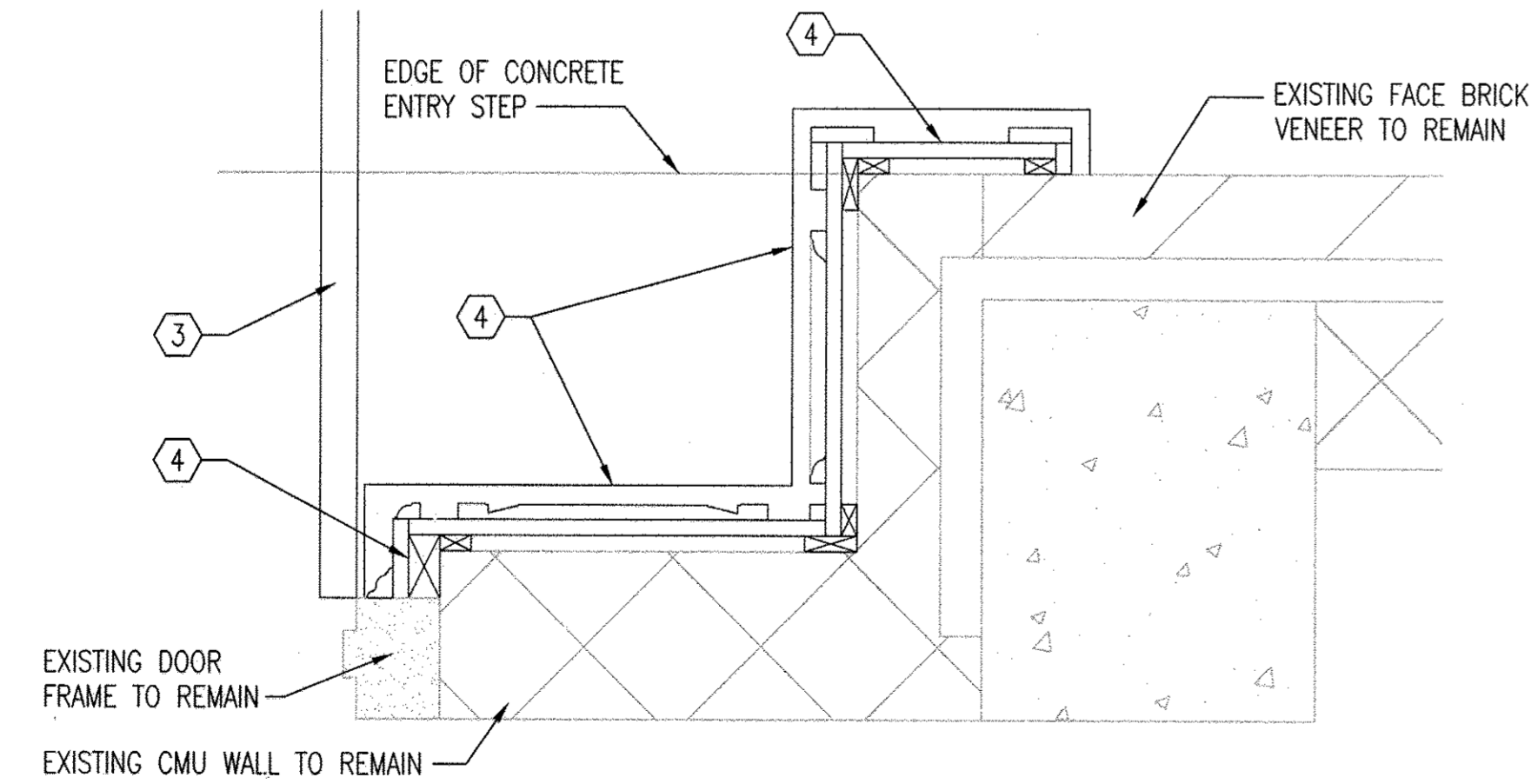


1 UPPER LEVEL FLOOR PLAN
 A-1 SCALE: 1/4" = 1'-0"

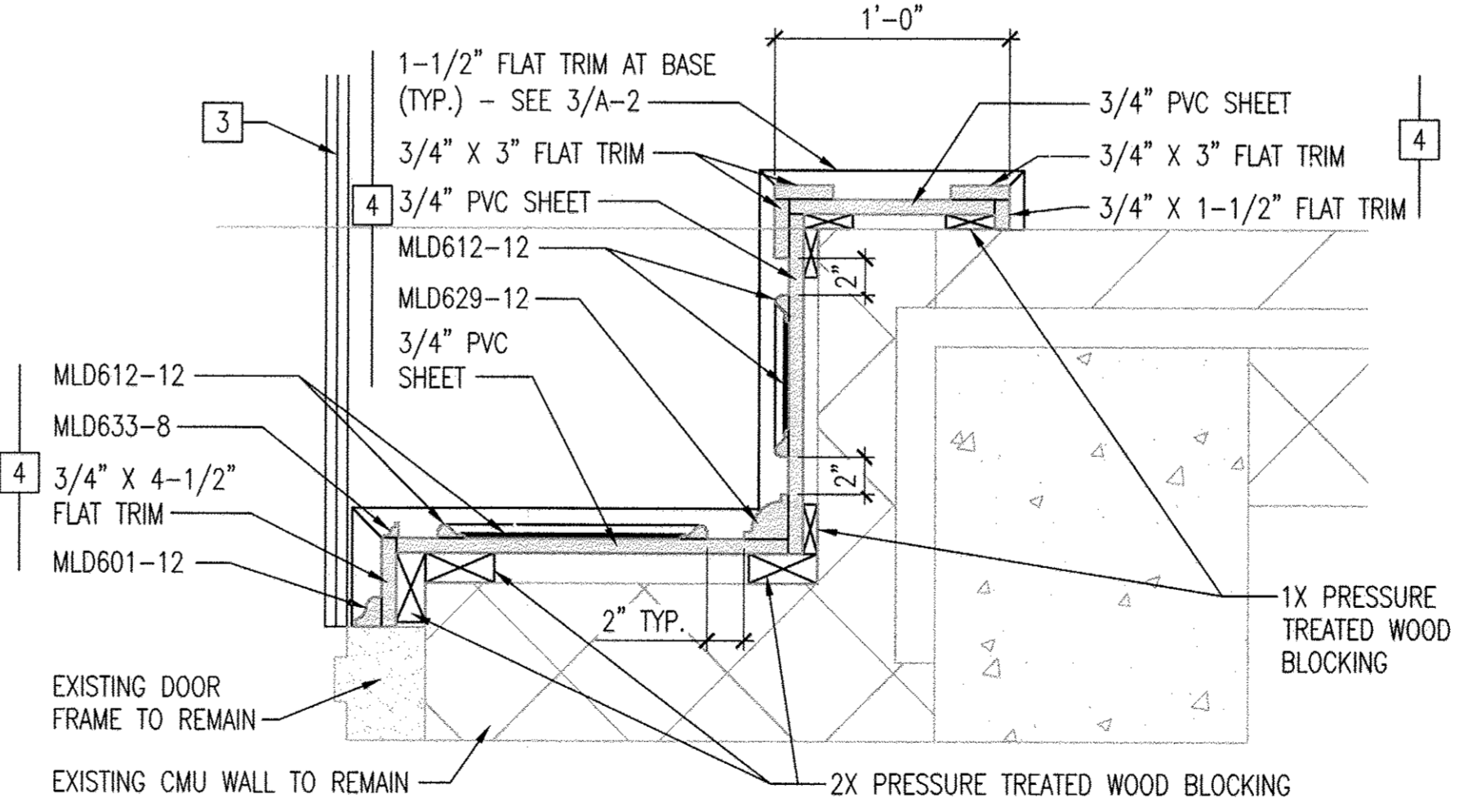
- SELECTIVE DEMOLITION GENERAL NOTES:**
- UNLESS OTHERWISE INDICATED, DEMOLITION WASTE BECOMES PROPERTY OF CONTRACTOR.
 - OWNER WILL OCCUPY PORTIONS OF BUILDING IMMEDIATELY ADJACENT TO SELECTIVE DEMOLITION AREA. CONDUCT SELECTIVE DEMOLITION SO OWNER'S OPERATIONS WILL NOT BE DISRUPTED. MAINTAIN A SECURE AND WATERTIGHT ENVIRONMENT.
 - COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
 - DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED.
 - PROTECT CONSTRUCTION INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION. REPAIR ANY DAMAGE AT NO COST TO THE OWNER.
 - NOT USED.
 - CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY SELECTIVE DEMOLITION OPERATIONS.

- SELECTIVE DEMOLITION NOTES:**
- COMPLETELY REMOVE AND DISPOSE OF EXISTING DOUBLE-HUNG METAL FRAMED WINDOWS INCLUDING GLAZING.
 - COMPLETELY REMOVE AND DISPOSE OF ALL EXISTING WINDOW SHUTTERS.
 - COMPLETELY REMOVE AND DISPOSE OF EXISTING HOLLOW METAL EXTERIOR PAIR OF DOORS. EXISTING HOLLOW METAL DOOR FRAME SHALL REMAIN. REMOVE ALL EXISTING DOOR HARDWARE AND COORDINATE SALVAGE OF EXISTING LOCKING MECHANISM WITH OWNER.
 - COMPLETELY REMOVE EXISTING TRIM AROUND FRONT DOORWAY DOWN TO CONCRETE MASONRY WALLS AS INDICATED IN DETAIL 2 THIS SHEET.
 - COMPLETELY REMOVE AND DISPOSE OF EXISTING ALUMINUM LOUVER AND SURROUNDING BLANK-OFF TRIM.
 - COMPLETELY REMOVE AND DISPOSE OF EXISTING METAL GUTTERS AND DOWNSPOUTS - SEE ALSO BUILDING ELEVATIONS SHEET A-2. SEE CIVIL FOR REMOVAL AND REPLACEMENT OF CONNECTED CORRUGATED PLASTIC PIPING BELOW GRADE.
 - COMPLETELY REMOVE SEALANT AND BACKER ROD IN BRICK CONTROL JOINT. CLEAN JOINT AND PREPARE SURFACES FOR PLACEMENT OF NEW SEALANT.

- NEW CONSTRUCTION NOTES:**
- PROVIDE NEW ALUMINUM CLAD WOOD WINDOWS IN EXISTING MASONRY OPENINGS. WINDOWS SHALL HAVE IMPACT RESISTANT POLYCARBONATE GLAZING WITH OBSCURING FILM APPLIED TO INTERIOR FACE OF GLAZING. SEE SPECIFICATIONS.
 - PROVIDE NEW POLY/VINYL WINDOW SHUTTERS WITH WOOD GRAIN PATTERN - "BUILDERS EDGE" 15" X 63" RAISED PANEL SHUTTERS OR APPROVED EQUAL.
 - PROVIDE NEW INSULATED HOLLOW METAL DOORS AND NEW HARDWARE AT FRONT DOOR. SEE SCHEDULES ON SHEET A-4 AND SPECIFICATIONS.
 - PROVIDE NEW MOLDED POLYURETHANE/PVC TRIM AND PANELING AROUND FRONT ENTRY AS INDICATED ON DETAIL 3 THIS SHEET AND ON ELEVATIONS.
 - PROVIDE NEW FIXED ALUMINUM LOUVER IN EXISTING MASONRY OPENING. SEE BUILDING ELEVATIONS ON SHEET A-2 AND LOUVER SCHEDULE ON SHEET A-4.
 - PROVIDE NEW METAL GUTTERS AND DOWNSPOUTS AS SHOWN ON SHEET A-2. CONNECT DOWNSPOUTS TO UNDERGROUND PIPING. SEE NOTE 4 ON SHEET C-1 FOR CONNECTION TO UNDERGROUND PIPING.
 - INSTALL SILICONE SEALANT AND COMPATIBLE BACKER ROD IN BRICK CONTROL JOINT. INSTALL PER SPECIFICATIONS AND PER MANUFACTURERS RECOMMENDATIONS.
 - CLEAN ALL EXTERIOR BRICK SURFACES OF DIRT AND ALGAE GROWTH IN ACCORDANCE WITH SPECIFICATION SECTION 04120 "MAINTENANCE OF UNIT MASONRY"



2 DOOR TRIM DETAIL - DEMOLITION
 A-1 SCALE: 1-1/2" = 1'-0"



3 DOOR TRIM DETAIL - NEW WORK
 A-1 SCALE: 1-1/2" = 1'-0"

NOTE: TRIM MODEL NUMBERS LISTED ABOVE DENOTE FYPON INC. PRODUCTS - USE OF THESE MODEL NUMBERS IS INTENDED TO PROVIDE A BASIS OF DESIGN FOR PROFILES AND SIZES OF TRIM. OTHER MANUFACTURERS MAY PRODUCE EQUAL PRODUCTS.

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3466-A, EXPIRATION DATE: 11-24-2013."

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND.		PREPARED BY: WHITMAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, MD 21231	
<i>John P. ...</i> DIRECTOR OF PUBLIC WORKS DATE: 1/20/13	<i>Marcus ...</i> CHIEF, BUREAU OF ENGINEERING DATE: 1/14/13	<i>...</i> CHIEF, BUREAU OF UTILITIES DATE: 1/14/13	<i>...</i> CHIEF, UTILITY DESIGN DIVISION DATE: 1/14/13

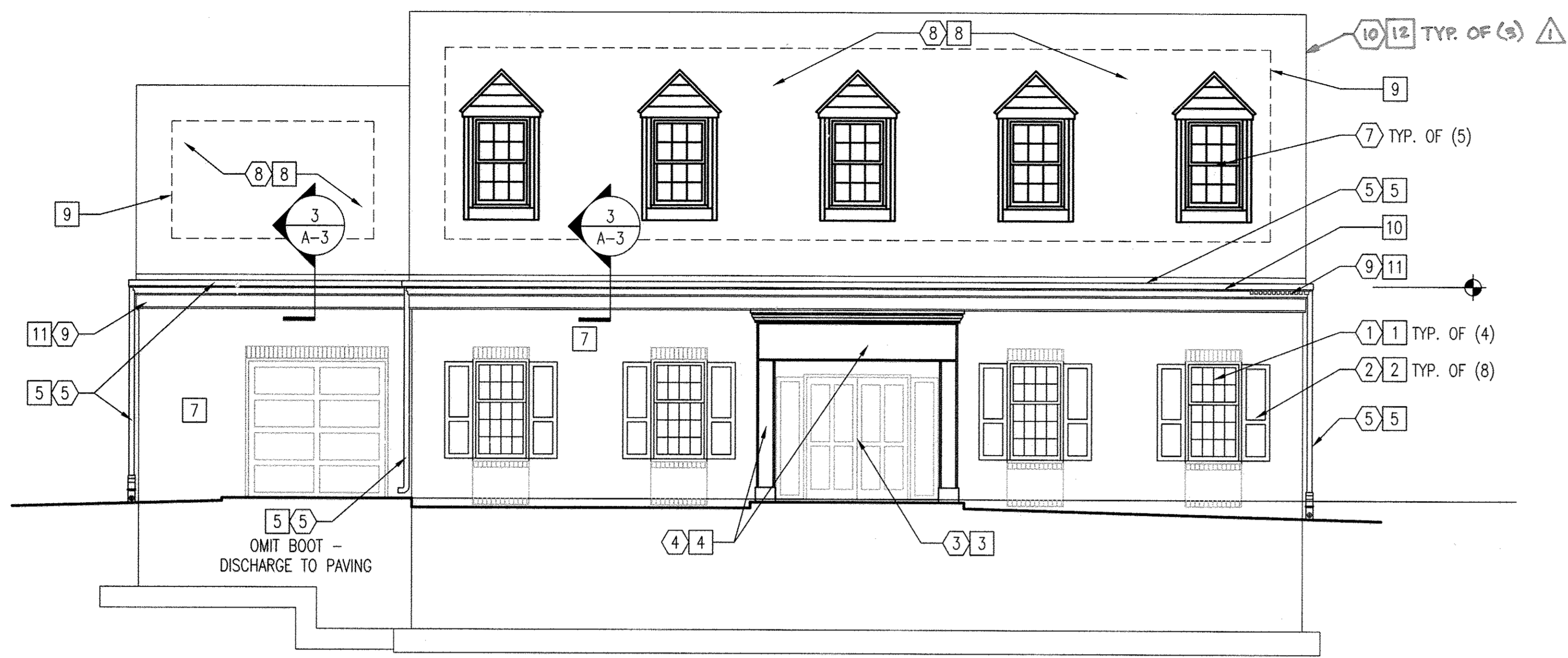
ARCHITECTURAL REGISTRATION BOARD
 3468-A
WR&A
 STATE OF MARYLAND

DES: EBL			
DRN: EBL			
CHK: ---			
DATE: 1/2013	BY: WRA	NO. 1	AS-BUILTS
	REVISION		DATE: 10/14

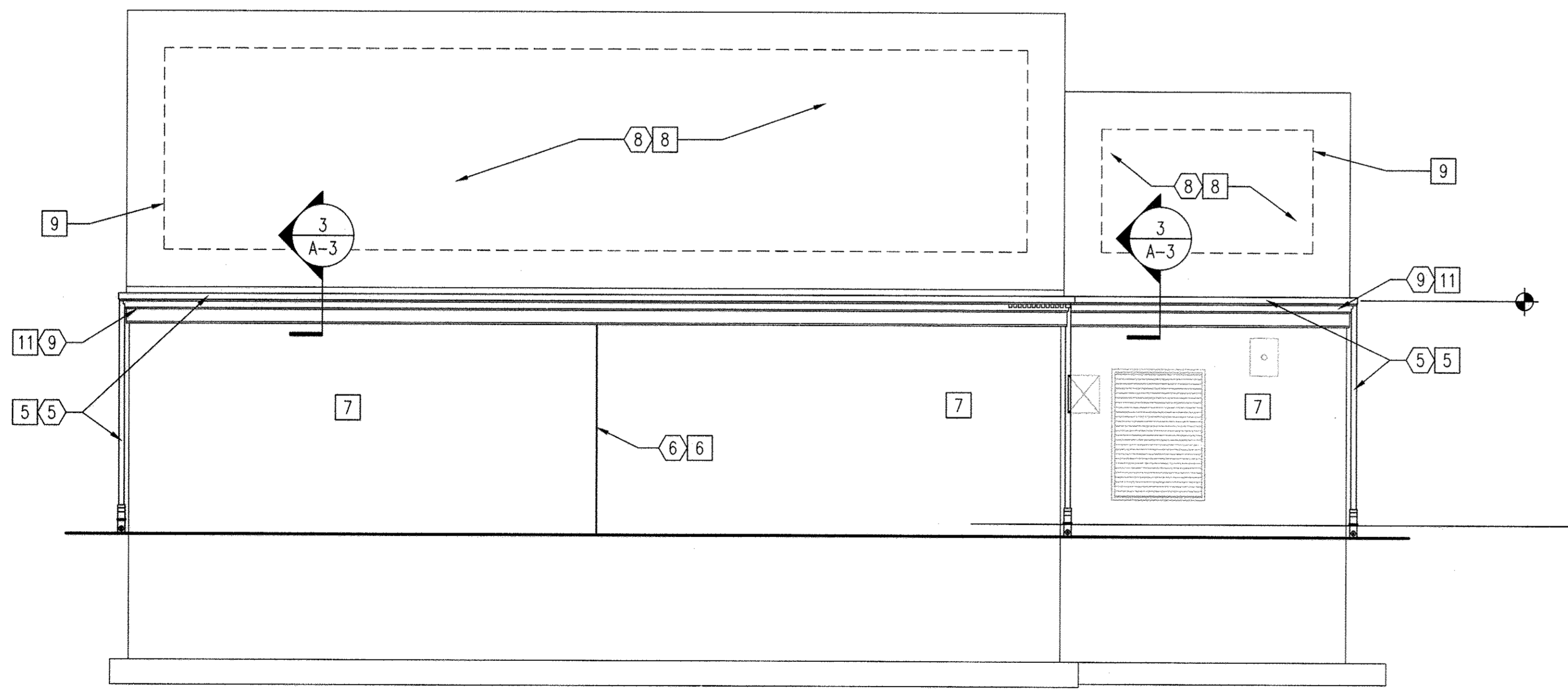
FLOOR PLAN AND DETAILS
 600' SCALE MAP NO. 24 BLOCK NO. 2&3

AS-BUILT
 PINE ORCHARD WATER PUMPING STATION UPGRADE
 CONTRACT NO. 44-4730
 CAPITAL PROJECT NO. W-8299
 ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

A-1
 SCALE AS SHOWN
 SHEET 6 OF 23



1 NORTH ELEVATION
A-2 SCALE: 3/16" = 1'-0"



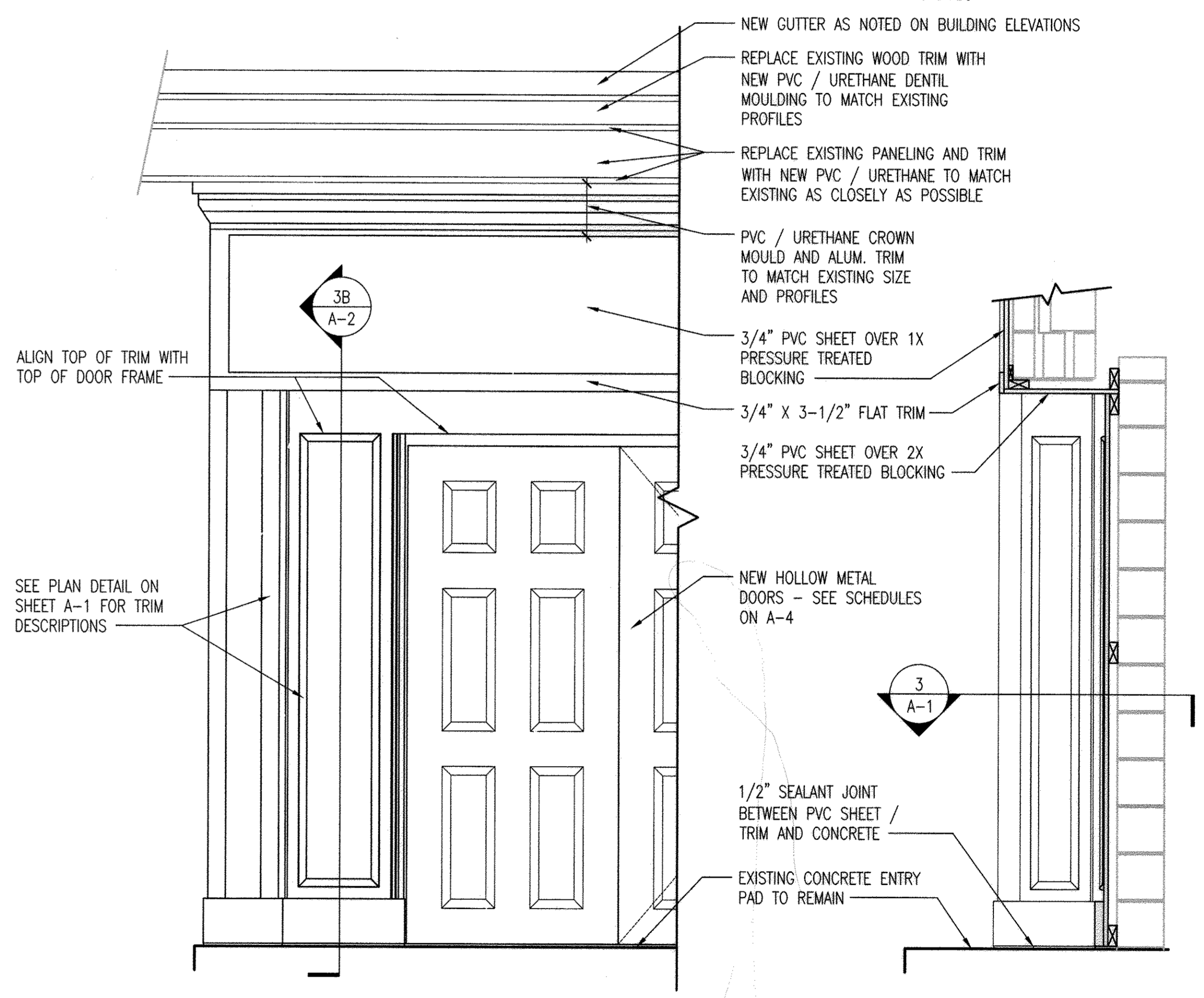
2 SOUTH ELEVATION
A-2 SCALE: 3/16" = 1'-0"

SELECTIVE DEMOLITION NOTES:

- 1 COMPLETELY REMOVE AND DISPOSE OF EXISTING DOUBLE-HUNG METAL FRAMED WINDOWS INCLUDING GLAZING.
- 2 COMPLETELY REMOVE AND DISPOSE OF ALL EXISTING WINDOW SHUTTERS.
- 3 COMPLETELY REMOVE AND DISPOSE OF EXISTING HOLLOW METAL EXTERIOR PAIR OF DOORS. REMOVE ALL EXISTING DOOR HARDWARE. EXISTING HOLLOW METAL DOOR FRAME SHALL REMAIN.
- 4 COMPLETELY REMOVE EXISTING TRIM AROUND FRONT DOORWAY DOWN TO CONCRETE MASONRY WALLS AS INDICATED IN DETAIL 2 ON SHEET A-1.
- 5 COMPLETELY REMOVE AND DISPOSE OF EXISTING METAL GUTTERS AND DOWNSPOUTS. SEE CIVIL FOR REMOVAL AND REPLACEMENT OF CONNECTED PIPING BELOW GRADE.
- 6 COMPLETELY REMOVE SEALANT AND BACKER ROD IN BRICK CONTROL JOINT. CLEAN JOINT AND PREPARE SURFACES FOR PLACEMENT OF NEW SEALANT.
- 7 COMPLETELY REMOVE AND DISPOSE OF EXISTING DORMERS INCLUDING ROOFING, SIDING, TRIM, WINDOWS, AND FRAMING. CONTRACTOR SHALL EXERCISE CAUTION NOT TO DAMAGE PLYWOOD ROOF SHEATHING ON TRUSSES BELOW DORMERS.
- 8 COMPLETELY REMOVE ALL SHINGLE ROOFING AND FELT UNDERLAYMENT. PLYWOOD ROOF SHEATHING TO REMAIN. INSPECT SHEATHING AND NOTIFY OWNER IMMEDIATELY IF THERE IS ANY INDICATION OF WATER DAMAGE OR DECAY IN THE SHEATHING.
- 9 REMOVE EXISTING WOOD TRIM BELOW GUTTERS.
- 10 REMOVE EXISTING FLASHING ON RAKE BOARDS

NEW CONSTRUCTION NOTES:

- 1 PROVIDE NEW ALUMINUM CLAD WOOD WINDOWS IN EXISTING MASONRY OPENINGS. WINDOWS SHALL HAVE IMPACT RESISTANT POLYCARBONATE GLAZING WITH OBSCURING FILM APPLIED TO INTERIOR FACE OF GLAZING. SEE SPECIFICATIONS.
- 2 PROVIDE NEW POLY/VINYL WINDOW SHUTTERS WITH WOOD GRAIN PATTERN - "BUILDERS EDGE" 15" X 63" RAISED PANEL SHUTTERS OR APPROVED EQUAL.
- 3 PROVIDE NEW INSULATED HOLLOW METAL DOORS AND NEW HARDWARE AT FRONT DOOR. SEE SCHEDULES ON SHEET A-4 AND SPECIFICATIONS.
- 4 PROVIDE NEW MOLDED POLYURETHANE TRIM AND PANELING AROUND FRONT ENTRY AS INDICATED ON DETAIL 3 THIS SHEET AND ON A-1.
- 5 PROVIDE NEW METAL GUTTERS AND DOWNSPOUTS TO MATCH EXISTING SIZE AND PROFILE. CONNECT DOWNSPOUTS TO UNDERGROUND PIPING. SEE NOTE 4 ON SHEET C-1 FOR CONNECTION TO PIPING.
- 6 INSTALL SILICONE SEALANT AND COMPATIBLE BACKER ROD IN BRICK CONTROL JOINT. INSTALL PER SPECIFICATIONS AND PER MANUFACTURERS RECOMMENDATIONS.
- 7 CLEAN ALL EXTERIOR BRICK SURFACES OF DIRT AND ALGAE GROWTH IN ACCORDANCE WITH SPECIFICATION SECTION 04120 "MAINTENANCE OF UNIT MASONRY".
- 8 INSTALL NEW ARCHITECTURAL SHINGLE ROOFING AND FELT UNDERLAYMENT OVER EXISTING PLYWOOD SHEATHING.
- 9 INSTALL NEW 3'-0" WIDE SELF-ADHESIVE ICE DAM MEMBRANE AT ALL ROOF EDGES.
- 10 INSTALL PRE-FINISHED ALUMINUM TRIM FLASHING BEHIND NEW GUTTERS AND OVER FRP TRIM. SEE ALSO DETAIL 3 ON SHEET A-3.
- 11 REPLACE WOOD TRIM WITH NEW PVC/URETHANE DENTIL MOULDING, PANELING, AND TRIM TO MATCH ORIGINAL PROFILES
- 12 REPLACE EXISTING FLASHING ON RAKE BOARDS. INSTALL NEW FLASHING. FLASHING SHALL BE SMOOTH, WHITE, ALUMINUM MATERIAL.



3A: FRONT ELEVATION

3B: RETURN ELEVATION

3 ENTRANCE TRIM ELEVATION
A-2 SCALE: 3/4" = 1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3466-A, EXPIRATION DATE: 11-24-2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Prepared by: **WHITMAN, REQUARDT & ASSOCIATES, LLP**
801 South Caroline Street, Baltimore, MD 21231

ARCHITECTURAL REGISTRATION BOARD
3466-A
STATE OF MARYLAND

DES: EBL
DRN: EBL
CHK: ---
DATE: 1/2013

WRA AS-BUILTS

10/14

600' SCALE MAP NO. 24 BLOCK NO. 2&3

ELECTION DISTRICT 2

HOWARD COUNTY, MARYLAND

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DATE: 1/2013

WRA AS-BUILTS

10/14

600' SCALE MAP NO. 24 BLOCK NO. 2&3

ELECTION DISTRICT 2

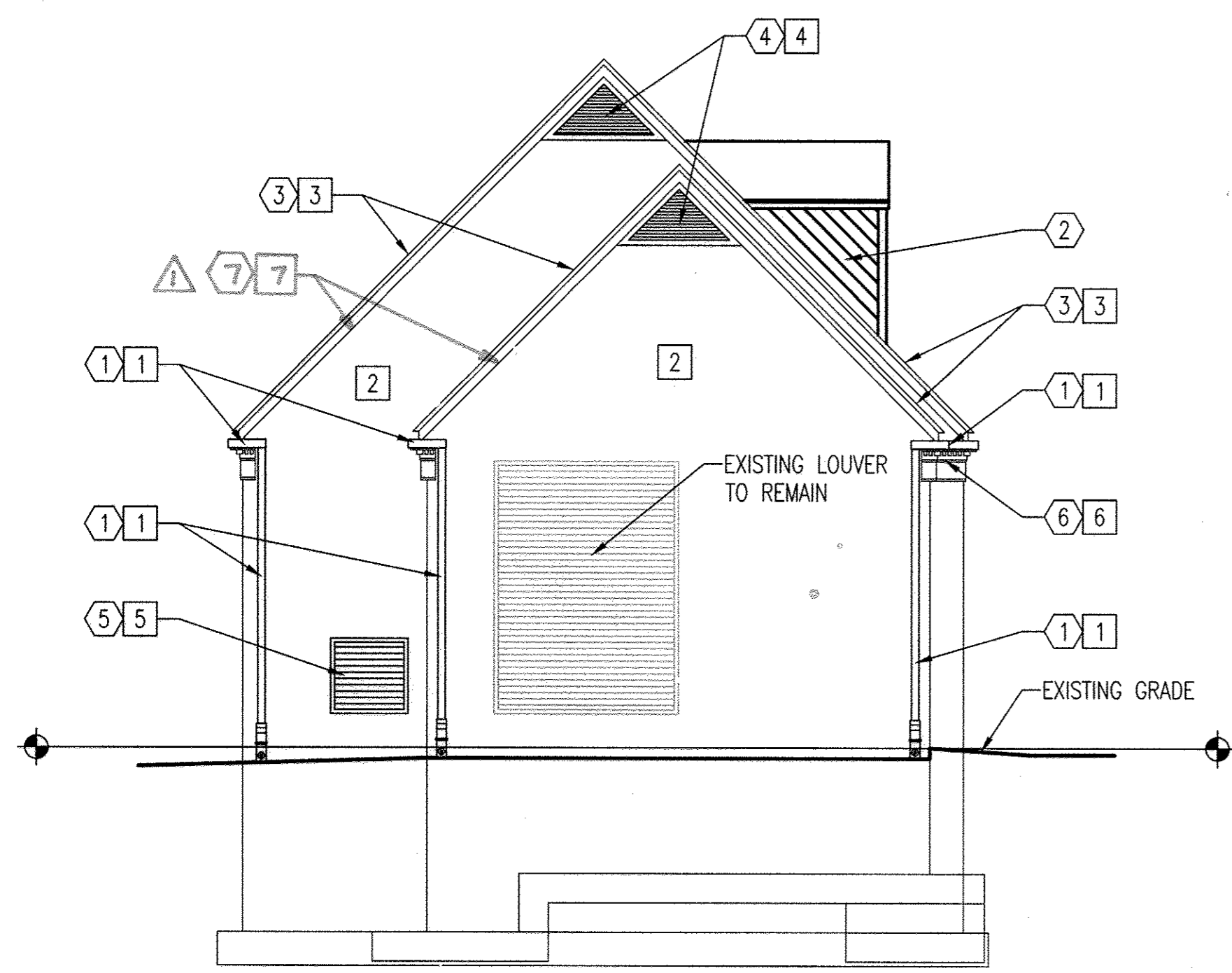
HOWARD COUNTY, MARYLAND

EXTERIOR ELEVATIONS AND DETAILS

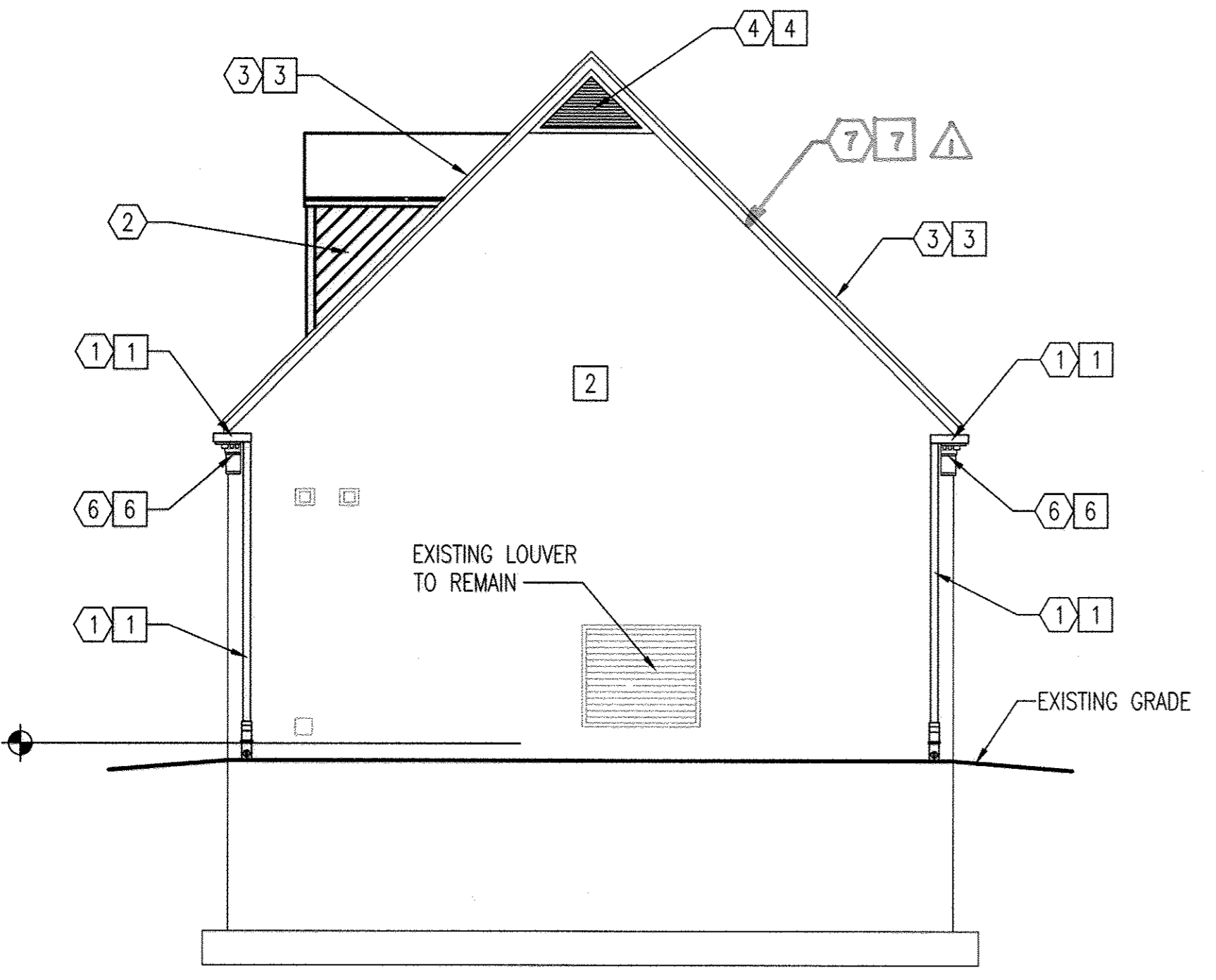
PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

AS-BUILT

A-2
SCALE AS SHOWN
SHEET 7 OF 23



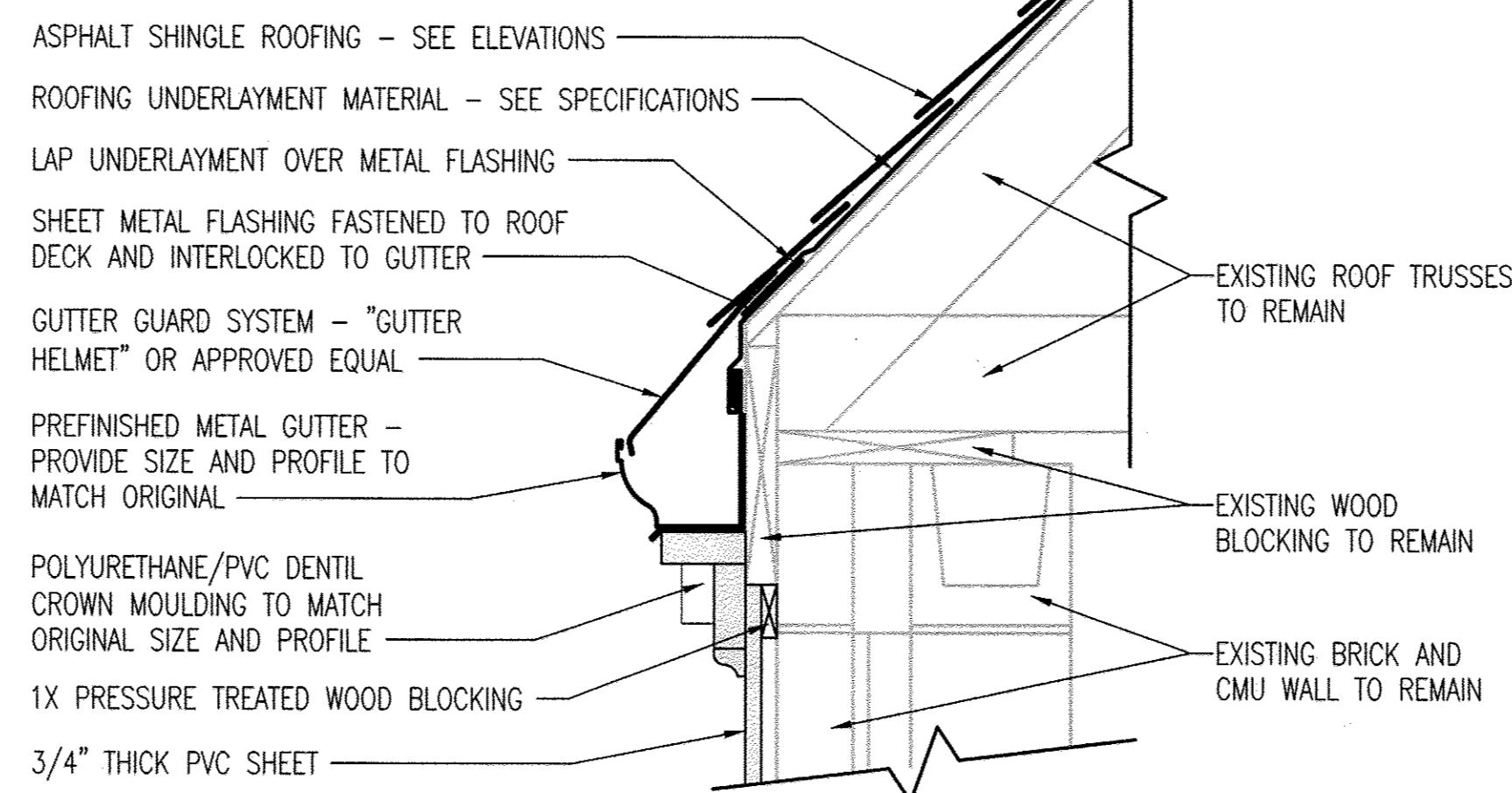
1 EAST ELEVATION
A-3 SCALE: 3/16" = 1'-0"



2 WEST ELEVATION
A-3 SCALE: 3/16" = 1'-0"

- SELECTIVE DEMOLITION NOTES:**
- 1 COMPLETELY REMOVE AND DISPOSE OF EXISTING METAL GUTTERS AND DOWNSPOUTS - SEE ALSO BUILDING ELEVATIONS SHEET A-2. SEE CIVIL FOR REMOVAL AND REPLACEMENT OF CONNECTED PIPING BELOW GRADE.
 - 2 COMPLETELY REMOVE AND DISPOSE OF EXISTING DORMERS INCLUDING ROOFING, SIDING, TRIM, WINDOWS, AND FRAMING. CONTRACTOR SHALL EXERCISE CAUTION NOT TO DAMAGE PLYWOOD ROOF SHEATHING ON TRUSSES BELOW DORMERS.
 - 3 COMPLETELY REMOVE ALL SHINGLE ROOFING AND FELT UNDERLAYMENT. PLYWOOD ROOF SHEATHING TO REMAIN. INSPECT SHEATHING AND NOTIFY OWNER IMMEDIATELY IF THERE IS ANY INDICATION OF WATER DAMAGE OR DECAY IN THE SHEATHING.
 - 4 COMPLETELY REMOVE ALL EXISTING GABLE WALL VENTS INCLUDING LOUVER, FRAME, AND SILL FLASHING.
 - 5 COMPLETELY REMOVE AND DISPOSE OF EXISTING LOUVER, BLANK-OFF PANEL AND ANY INSULATION OR FILL MATERIAL TO COMPLETELY CLEAR EXISTING MASONRY OPENING.
 - 6 COMPLETELY REMOVE AND DISPOSE OF EXISTING PAINTED WOOD TRIM.
 - 7 REMOVE EXISTING FLASHING ON RAKE BOARDS.

- NEW CONSTRUCTION NOTES:**
- 1 PROVIDE NEW METAL GUTTERS AND DOWNSPOUTS AS SHOWN ON SHEET A-2. CONNECT DOWNSPOUTS TO UNDERGROUND PIPING. SEE NOTE 4 ON SHEET C-1 FOR CONNECTION TO PIPING.
 - 2 CLEAN ALL EXTERIOR BRICK SURFACES OF DIRT AND ALGAE GROWTH IN ACCORDANCE WITH SPECIFICATION SECTION 04120 "MAINTENANCE OF UNIT MASONRY"
 - 3 INSTALL NEW ARCHITECTURAL SHINGLE ROOFING AND FELT UNDERLAYMENT OVER EXISTING PLYWOOD SHEATHING.
 - 4 PROVIDE NEW ALUMINUM GABLE VENTS IN EXISTING ROUGH OPENINGS. VERIFY ALL OPENING SIZES IN FIELD.
 - 5 PROVIDE NEW ALUMINUM LOUVER (LV-1) IN EXISTING MASONRY OPENING. SET LOUVER FLUSH WITH FACE OF BRICK TO MATCH LOUVERS TO REMAIN. SEAL PERIMETER OF FRAME ON INTERIOR AND EXTERIOR WITH SILICONE SEALANT PER THE SPECIFICATIONS.
 - 6 PROVIDE NEW FORMED POLYURETHANE / PVC EXTERIOR TRIM AS SHOWN ON SHEETS A-1 AND A-2. PROVIDE ADDITIONAL PRESSURE TREATED SUPPORT BLOCKING AS INDICATED.
 - 7 REPLACE EXISTING FLASHING ON RAKE BOARDS. INSTALL NEW FLASHING. FLASHING SHALL BE SMOOTH, WHITE, ALUMINUM MATERIAL.



3 ROOF EDGE DETAIL
A-3 SCALE: 1-1/2" = 1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3466-A, EXPIRATION DATE: 11-24-2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

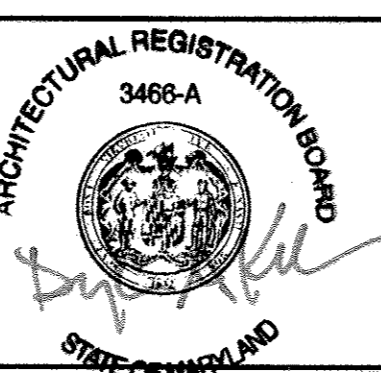
Raymond J. Kelly
DIRECTOR OF PUBLIC WORKS
DATE: 1/23/13

Thomas J. Butler
CHIEF, BUREAU OF ENGINEERING
DATE: 1/14/13

Chris Decker
CHIEF, UTILITY DESIGN DIVISION
DATE: 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES:	EBL				
DRN:	EBL				
CHK:	---				
DATE:	1/2013	BY:	WRA	NO.	AS-BUILTS
		REVISION			10/14

EXTERIOR ELEVATIONS AND DETAILS

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

AS-BUILT

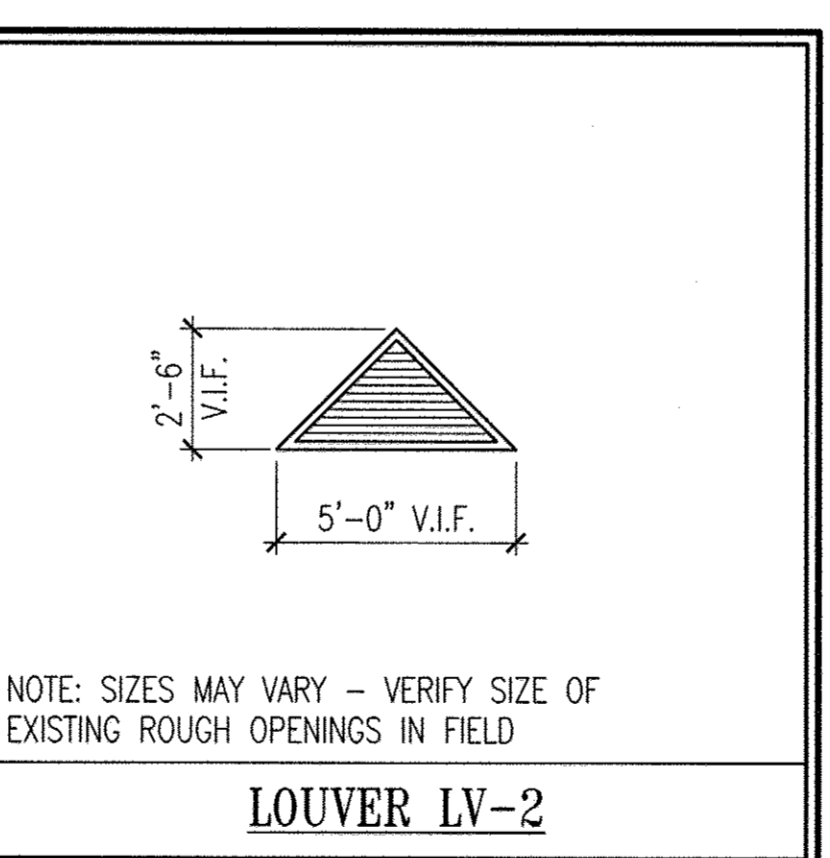
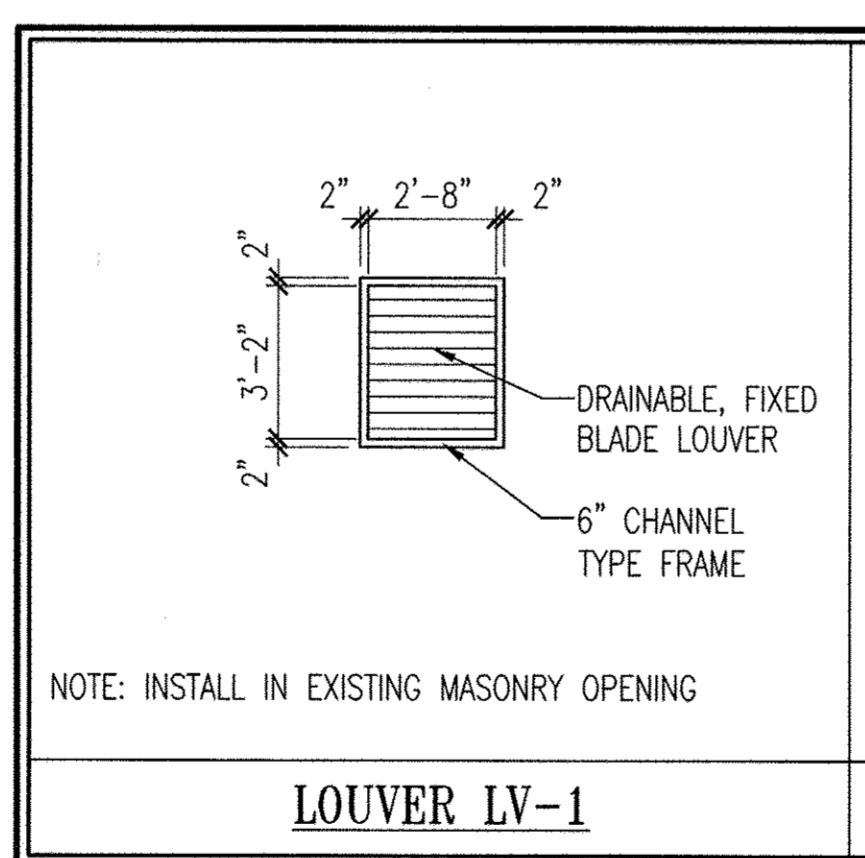
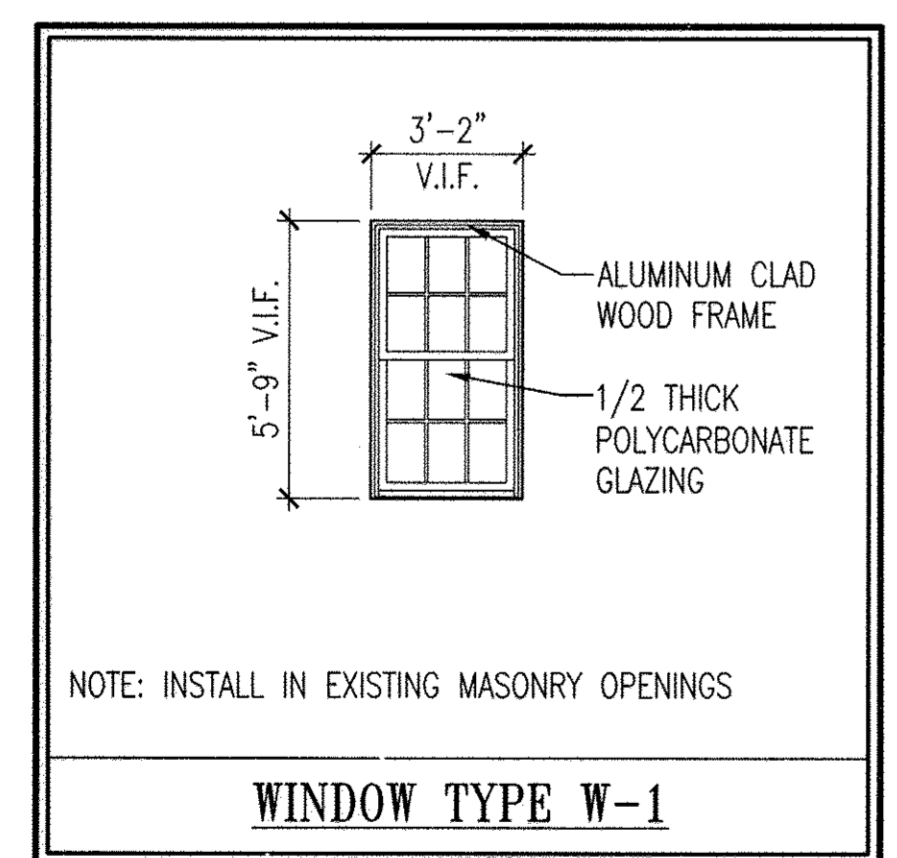
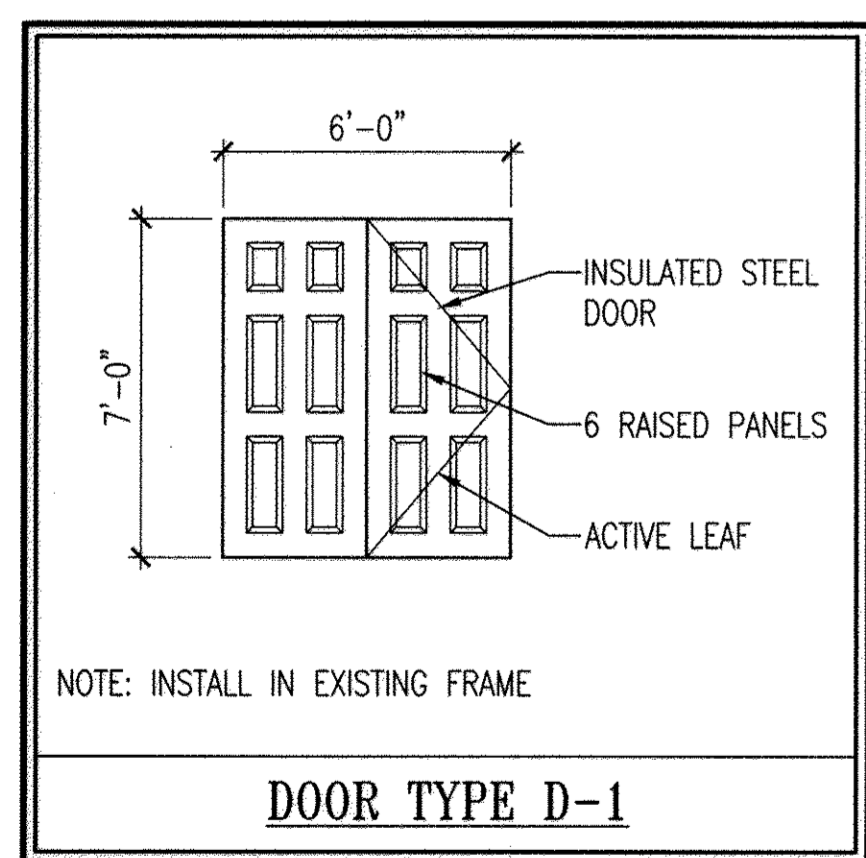
A-3
SCALE AS SHOWN
SHEET 8 OF 23

DOOR		SCHEDULE										REMARKS	
DOOR NUMBER	NOMINAL OPENING		LOCATION (ROOM NO.)	OPENING DETAILS	FIRE RATING	DOORS				FRAMES			
	WIDTH	HEIGHT				TYPE	THICKNESS	MATERIAL	FINISH	TYPE	MATERIAL		FINISH
100.0	6'-0"	7'-0"	MEZZANINE (100)	--	NOT RATED	D1	1 3/4"	HM	EP-1	ETR	ETR	EP-1	--

HARDWARE SCHEDULE													COMMENTS
HINGES		DOOR CLOSERS		LOCKSETS		DOOR STOP		KICK PLATES	SURFACE BOLTS	WEATHER STRIP	THRESH HOLD		
HEAVY	NRP	OUT.	INS.	PASS.	ENTRY	WALL	FLOOR						
3 PR	YES	1	0	0	1	0	2	2	1	1 SET	ETR	ONLY (1) LEAF ACTIVE	

HARDWARE LIST					
DESIGNATION	MANUFACTURER	DESCRIPTION	FINISH	BHMA NUMBER	
HINGES	HEAVY	HAGER	FULL MORTISE HEAVY DUTY 5 KNUCKLE BALL BEARING 4.5" X 4.5"	630	A5111
	NRP	--	NON REMOVABLE PINS	630	--
DOOR CLOSER	OUT.	CORBIN-RUSSWIN	3000 SERIES OUTSWING PARALLEL ARM CLOSER	630	C02021
LOCKSET	ENTRY	CORBIN-RUSSWIN	ML2067-NSV; MORTISE LOCKSET, LATCHBOLT AND DEADBOLT, VANDAL RESISTANT LEVER HARDWARE	630	F13
DOOR STOP	FLOOR	ROCKWOOD	473 FLOOR MOUNTED STOP WITH KEEPER AND STUD TYPE ANCHOR	630	L01371
KICK PLATES		ROCKWOOD	K1050 10" X 34" X US32D X CSK (INTERIOR SIDES ONLY)	630	J102
SURFACE BOLTS		ROCKWOOD	580-8" STAINLESS STEEL SURFACE BOLT	630	L04161
WEATHERSTRIP (SET)		REESE	772C - SURFACE APPLIED DOOR SWEEP WITH POLYURETHANE INSERT	628	R3H435
		REESE	769C - STOP APPLIED WEATHER STRIP WITH POLYURETHANE BULB INSERT	628	R3H165
		REESE	103C - MEETING STILE WEATHER STRIP WITH OVERLAPPING NEOPRENE INSERTS	628	R3B635
THRESHHOLD		EXISTING TO REMAIN	ETR - EXISTING TO REMAIN	--	--

EXTERIOR FINISH SCHEDULE		
MATERIALS	FINISHES	COLORS
ASPHALT SHINGLES	--	SEE SHINGLE SPECIFICATIONS
HOLLOW METAL DOORS AND FRAMES	EXTERIOR PAINTED FINISH (EP-1)	MATCH INTEGRALLY COLOR WINDOW SHUTTERS
METAL TRIM, GUTTERS, AND DOWNSPOUTS	FACTORY FINISHED 2-COAT FLUOROPOLYMER	WHITE
ALUMINUM LOUVERS	FACTORY FINISHED 2-COAT FLUOROPOLYMER	MATCH EXISTING LOUVERS AS CLOSELY AS POSSIBLE
ALUMINUM CLAD WOOD WINDOWS	FACTORY FINISHED - SEE SPECIFICATIONS	WHITE - AS SELECTED FROM MANUFACTURERS FULL RANGE
WINDOW SHUTTERS	POLYPROPYLENE/ VINYL INTEGRAL COLOR	MATCH EXISTING AS CLOSELY AS POSSIBLE



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3466-A, EXPIRATION DATE: 11-24-2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

John P. De... 1/29/13
DIRECTOR OF PUBLIC WORKS DATE

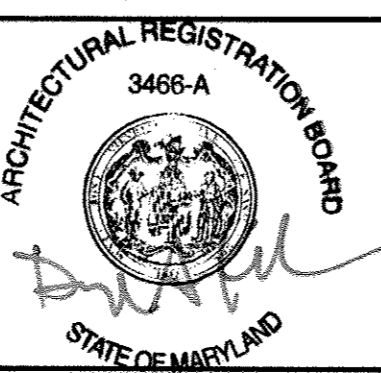
Thomas R. Butler 1/24/13
CHIEF, BUREAU OF ENGINEERING DATE

... 1/29/13
CHIEF, BUREAU OF UTILITIES DATE

... 1/14/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES:	EBL			
DRN:	EBL			
CHK:	---			
DATE:	1/2013	BY:	WRA	NO. AS-BUILTS
REVISION:		DATE:	10/14	

SCHEDULES AND MISCELLANEOUS DETAILS

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

AS-BUILT

A-4
SCALE AS SHOWN
SHEET 9 OF 23

GENERAL NOTES:

- FIELD VERIFY ALL DIMENSIONS, LOCATIONS AND ELEVATIONS SHOWN ON CONTRACT DRAWINGS FOR EXISTING STRUCTURES. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- THE SIZES AND LOCATIONS OF EQUIPMENT PADS AND PEDESTALS, AS WELL AS EQUIPMENT-RELATED FLOOR AND WALL OPENINGS, ARE DEPENDENT ON THE ACTUAL EQUIPMENT FURNISHED. VERIFY AND COORDINATE ALL SUCH ITEMS. DIMENSIONS INDICATED ON THESE DRAWINGS SHALL NOT BE ALTERED WITHOUT APPROVAL OF THE ENGINEER. STRUCTURAL DRAWINGS MAY NOT SHOW ALL EQUIPMENT PADS AND OTHER EQUIPMENT SUPPORTS REQUIRED. REFER TO CIVIL, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.

- FOR NOTES PERTAINING TO INDIVIDUAL STRUCTURES, SEE DRAWINGS FOR THOSE STRUCTURES.

CONCRETE NOTES:

- PROVIDE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
- DETAIL AND CONSTRUCT REINFORCED CONCRETE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE."
- DETAIL REINFORCING STEEL IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE SP-66, "ACI DETAILING MANUAL," WHICH INCLUDES ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
- PROVIDE REINFORCEMENT CONFORMING TO ASTM A 615, GRADE 60, DEFORMED BARS. ALL REINFORCEMENT IS DESIGNATED IN SOFT METRIC UNITS.
- PROVIDE WELDED WIRE FABRIC CONFORMING TO ASTM A 185.
- UNLESS NOTED OTHERWISE ON THE DRAWINGS, THE CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:

BEAMS, SLABS, COLUMNS AND WALLS: 2"

- SUBMIT REINFORCING STEEL DETAILS (SHOP DRAWINGS) AND RECEIVE APPROVAL BEFORE PROCEEDING WITH FABRICATION.
- CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS OTHERWISE NOTED.
- DETAIL ALL SPLICES FOR REINFORCING BARS NOT DIMENSIONED ON THE DRAWINGS AS TABULATED ON THIS DRAWING.
- WHERE A SLAB IS SLOPED (TOP AND/OR BOTTOM), PROVIDE SLOPED REINFORCING PARALLEL TO THE CONCRETE SURFACE.
- SIZE AND LOCATE ANCHOR BOLTS AND EQUIPMENT PADS OR PEDESTALS TO SUIT EQUIPMENT FURNISHED.
- REVIEW ALL DRAWINGS FROM OTHER DISCIPLINES AND COORDINATE ALL OPENINGS AND EMBEDDED ITEMS SUCH AS SLEEVES, ANCHORS, CONDUIT, ETC. THAT WILL BE INCORPORATED INTO CONCRETE WORK.
- PROVIDE BONDING COMPOUND AT ALL LOCATIONS IN WHICH FRESH CONCRETE COMES IN CONTACT WITH CURED CONCRETE.

CONCRETE REMOVAL NOTES:

- ALL CONCRETE REMOVAL WORK SHALL BE DONE CAREFULLY WITH MINIMUM DAMAGE TO ADJACENT WORK. DO NOT ALLOW LARGE DEBRIS WHICH CAN CAUSE DAMAGE TO FALL ON ANY EQUIPMENT OR THE SLAB BELOW.
- EXTREME CARE SHALL BE TAKEN IN REMOVING THE EXISTING CONCRETE SO AS TO NOT DAMAGE THE EXISTING WALLS, SLABS, OR REINFORCING STEEL NOTED TO REMAIN. REPAIR ANY DAMAGE TO EXISTING STRUCTURES AND FACILITIES AT NO ADDITIONAL COST TO THE OWNER.

STRUCTURAL STEEL NOTES:

- FABRICATE AND ERECT STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), "MANUAL OF STEEL CONSTRUCTION".
- SUBMIT ERECTION PLANS AND SHOP DETAILS AND RECEIVE APPROVAL BEFORE PROCEEDING WITH FABRICATION.

- PROVIDE STRUCTURAL STEEL WIDE-FLANGE SHAPES CONFORMING TO ASTM A992, HSS MEMBERS CONFORMING TO ASTM A500, AND ALL OTHER MEMBERS CONFORMING TO ASTM A36.
- PROVIDE ANCHOR BOLTS CONFORMING TO ASTM F1554.
- PROVIDE HIGH STRENGTH BOLTS CONFORMING TO ASTM A325. PROVIDE ALL BOLTED CONNECTIONS WITH COMPRESSIBLE-WASHER-TYPE DIRECT-TENSION INDICATORS CONFORMING TO ASTM F959.
- WELD IN COMPLIANCE WITH AMERICAN WELDING SOCIETY AWS D1.1, "STRUCTURAL WELDING CODE."
- WELD ALL SHOP CONNECTIONS WITH CLASS E-70 SERIES ELECTRODES. PROVIDE FIELD CONNECTIONS WITH HIGH STRENGTH BOLTED CONNECTIONS EXCEPT WHERE NOTED.
- CONNECTIONS NOT INDICATED SHALL BE DESIGNED BY THE FABRICATOR. DESIGN BEAM CONNECTIONS FOR ONE HALF OF THE TOTAL ALLOWABLE UNIFORM LOAD FOR THE SPAN OF THE BEAM AS GIVEN IN PART 2 OF THE "MANUAL OF STEEL CONSTRUCTION". PROVIDE MINIMUM CONNECTION OF TWO 3/4" DIAMETER HIGH STRENGTH STEEL BOLTS OR WELDS OF EQUIVALENT STRENGTH.
- MILL BOTTOM OF ALL COLUMNS AND FINISH TOP OF ALL BASE PLATES IN ACCORDANCE WITH AISC SPECIFICATIONS. WELD BASE PLATES TO BOTTOM OF COLUMNS.

GRATING NOTES:

- FABRICATE ALL GRATING IN ACCORDANCE WITH THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS, "METAL BAR GRATING MANUAL"
- PROVIDE ALUMINUM GRATING (1-1/2" x 3/16").
- BAND OUTSIDE EDGES OF ALL GRATING AND ALL OPENINGS IN GRATING USING BARS OF THE SAME DEPTH AS THE BEARING BARS.
- ALL GRATING SHALL BE SERRATED.
- COAT ALL ALUMINUM IN CONTACT WITH CONCRETE AND DISSIMILAR METALS WITH BITUMINOUS PAINT ON THE CONTACT SURFACE.

DESIGN LOADS:

- DEAD LOADS:
 - STRUCTURES - ACTUAL WEIGHT
 - FLOORS - 150 PSF IN AREAS NOT OCCUPIED BY EQUIPMENT.
 - EQUIPMENT - ACTUAL WEIGHT OF EQUIPMENT OR MINIMUM 150 PSF.
 - WALKWAYS AND STAIRWAYS - 100 PSF.

CODES AND STANDARDS:

- INTERNATIONAL BUILDING CODE IBC (2009) INCLUDING THE MODIFICATIONS MADE BY LOCAL JURISDICTION.
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION - THIRTEENTH EDITION."
- AMERICAN CONCRETE INSTITUTE ACI-318 (2008), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
- AMERICAN CONCRETE INSTITUTE ACI-350 (2006), "ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES."
- AMERICAN SOCIETY OF CIVIL ENGINEERS ASCE 7 (2005), "MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES."

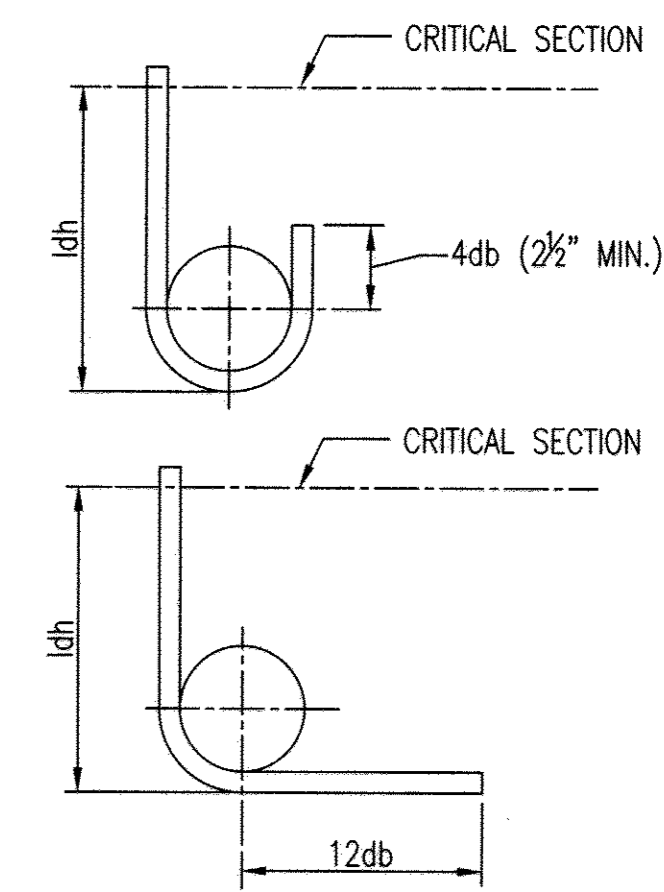
ALUMINUM NOTES:

- FABRICATE ALL STRUCTURAL ALUMINUM IN ACCORDANCE WITH THE SPECIFICATIONS OF THE ALUMINUM ASSOCIATION.
- PROVIDE ALLOY 6061-T6 STRUCTURAL ALUMINUM.
- COAT ALL ALUMINUM IN CONTACT WITH CONCRETE AND OTHER DISSIMILAR METALS WITH BITUMINOUS PAINT ON THE CONTACT SURFACE.
- USE TYPE 316 STAINLESS STEEL CONNECTION BOLTS FOR CONNECTING ALUMINUM MEMBERS.

LAP SPLICE LENGTH						MINIMUM TENSION EMBEDMENTS			
BAR SIZE		SLAB AND WALL		BEAM		STD 90° HOOK		STD 180° HOOK	
ENGLISH	SOFT METRIC	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	ldh	12db	ldh	4db
#3	#10	12"	15"	12"	15"	6"	5"	6"	3"
#4	#13	15"	20"	18"	23"	7"	6"	7"	3"
#5	#16	19"	25"	26"	34"	9"	8"	9"	3"
#6	#19	23"	29"	35"	46"	10"	9"	10"	3"
#7	#22	37"	48"	54"	71"	12"	11"	12"	4"
#8	#25	47"	61"	62"	81"	14"	12"	14"	4"
#9	#29	58"	75"	70"	91"	15"	14"	15"	5"
#10	#32	70"	91"	79"	102"	17"	16"	17"	6"
#11	#36	84"	109"	87"	114"	19"	17"	19"	6"

LAP SPLICE ASSUMPTIONS:

- CONCRETE: 4000 PSI COMPRESSIVE STRENGTH (NORMAL WEIGHT CONCRETE)
- SLAB AND WALL: 6" MINIMUM REBAR SPACING WITH CONCRETE COVER = 1.5" CLEAR
- BEAM: MINIMUM CLEAR SPACING BETWEEN BARS = 1.5 db (1.5" MIN). MINIMUM CONCRETE COVER = 1.5" CLEAR. MINIMUM STIRRUP #4@12" PROVIDED.
- TOP BAR: TOP BAR FOR SLAB AND BEAM SHALL BE DEFINED AS REINFORCEMENT SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST BELOW THE SPLICE.

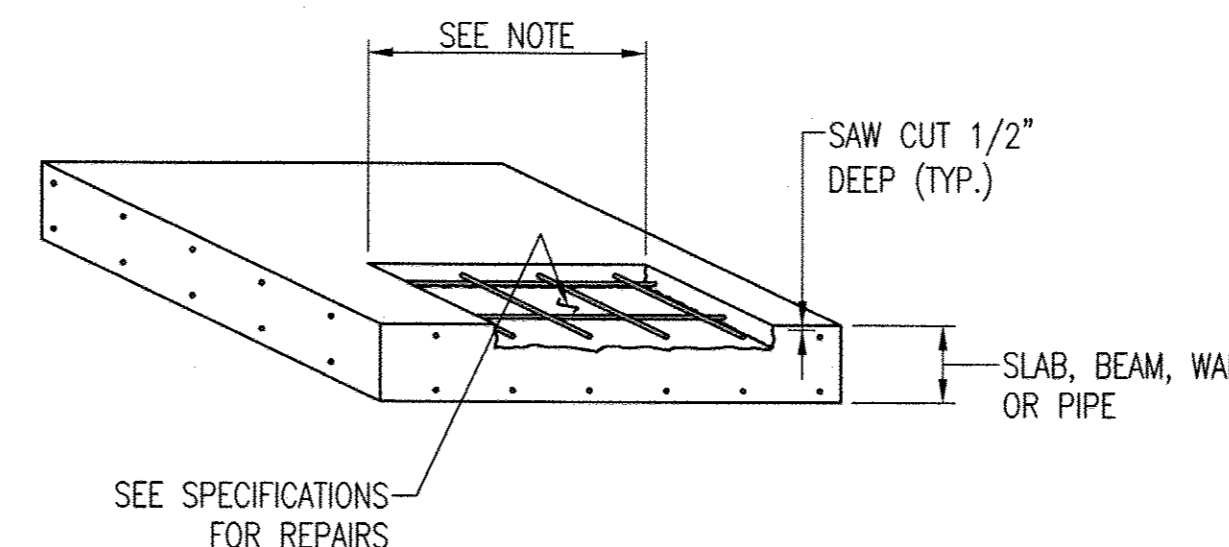


STANDARD HOOK ASSUMPTIONS:

SIDE COVER SHALL NOT BE LESS THAN 2.5"
END COVER ON 90° HOOK SHALL NOT BE LESS THAN 2"

STANDARD 180° AND 90° END HOOKS

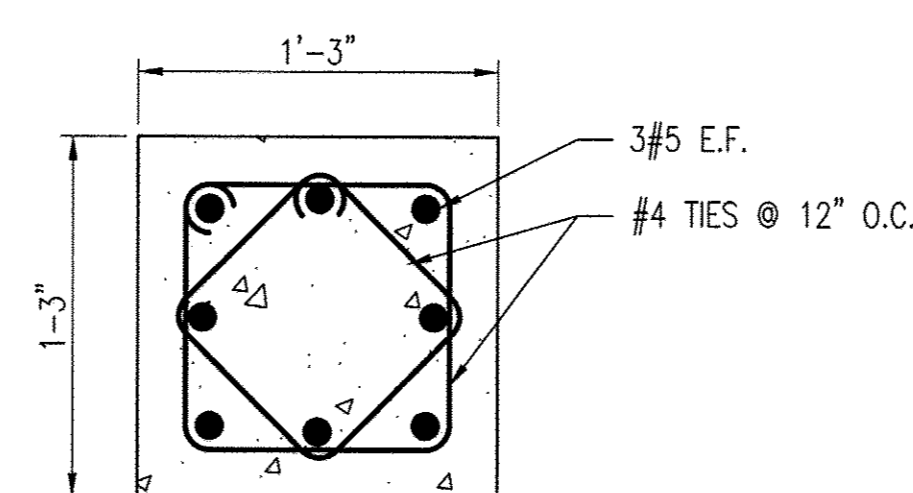
TENSION LAP SPLICE AND STANDARD HOOK LENGTH (ACI 318-08/ACI 350-06)
(NON-EPOXY COATED)



NOTE: LIMIT OF DETERIORATED CONCRETE REMOVAL TO BE REPLACED WITH POLYMER-MODIFIED REPAIR MORTAR.

CONCRETE EQUIPMENT PAD REMOVAL REPAIR DETAIL

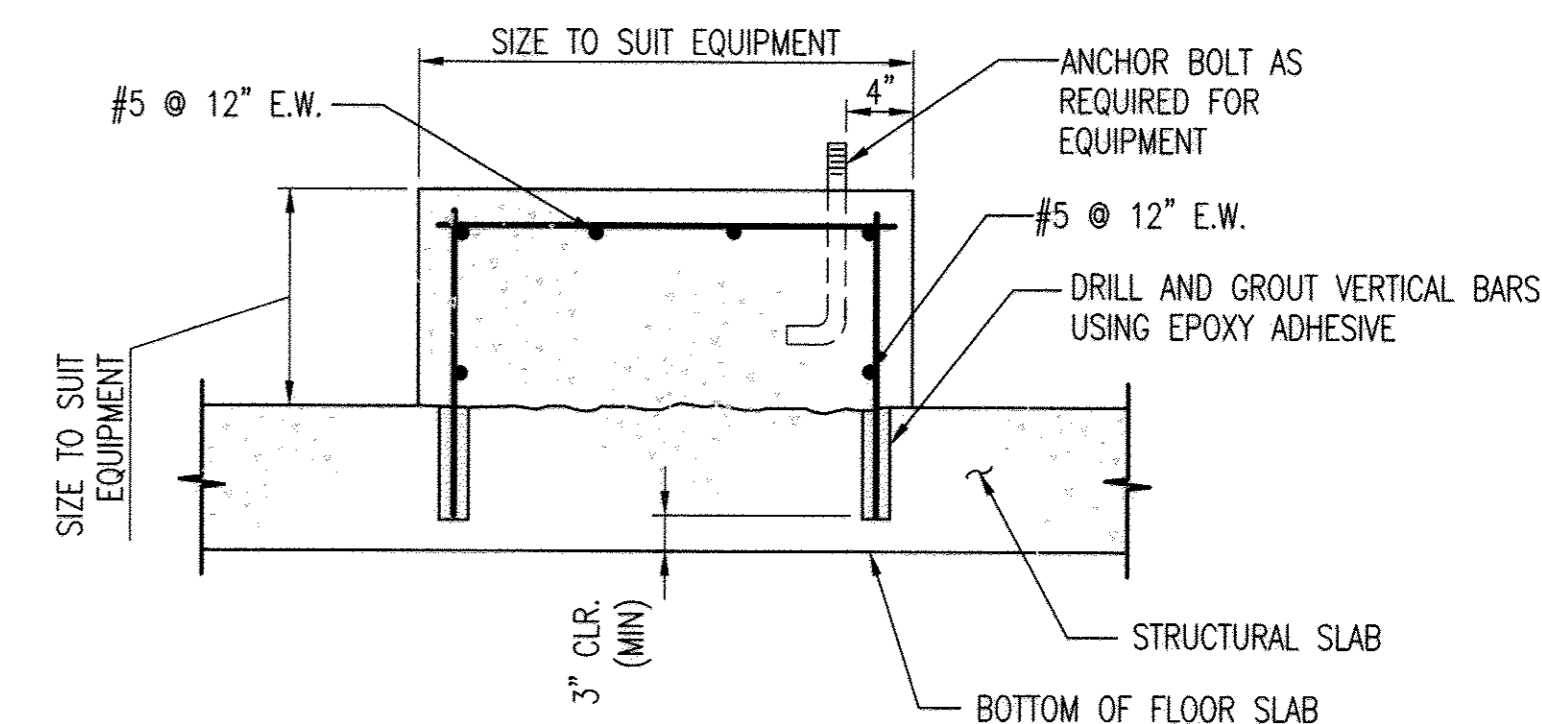
SCALE: NONE



NOTE: DRILL AND INSTALL WITH ADHESIVE 8-#5 DOWELS, MINIMUM EMBEDMENT IN FLOOR 6", TO ANCHOR PIPE SUPPORT TO FLOOR. DOWELS SHALL BE TIED TO VERTICAL BARS IN PEDESTAL. HEIGHT TO SUIT PIPES. SEE MECHANICAL FOR PIPE PEDESTAL LOCATIONS.

TYPICAL PIPE SUPPORT PEDESTAL PLAN

SCALE: NONE



TYPICAL EQUIPMENT SUPPORT

NO SCALE

"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. 9495, EXPIRATION DATE: 9/12/13."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

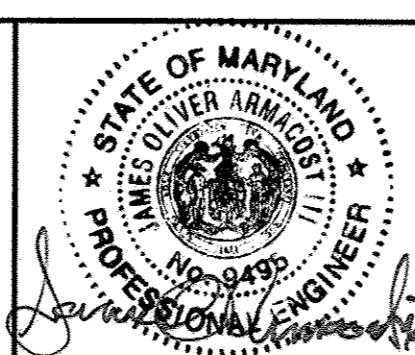
Director of Public Works: [Signature] 1/29/13
Date: 1/29/13

Chief, Bureau of Utilities: [Signature] 1/29/13
Date: 1/29/13

Chief, Utility Design Division: [Signature] 1/14/13
Date: 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES: MLM					
DRN: MLM					
CHK: JOA					
DATE: 1/2013	BY: WRA	NO. 1	AS-BUILTS	DATE: 10/14	

STRUCTURAL GENERAL NOTES AND DETAILS

600' SCALE MAP NO. 24 BLOCK NO. 2&3

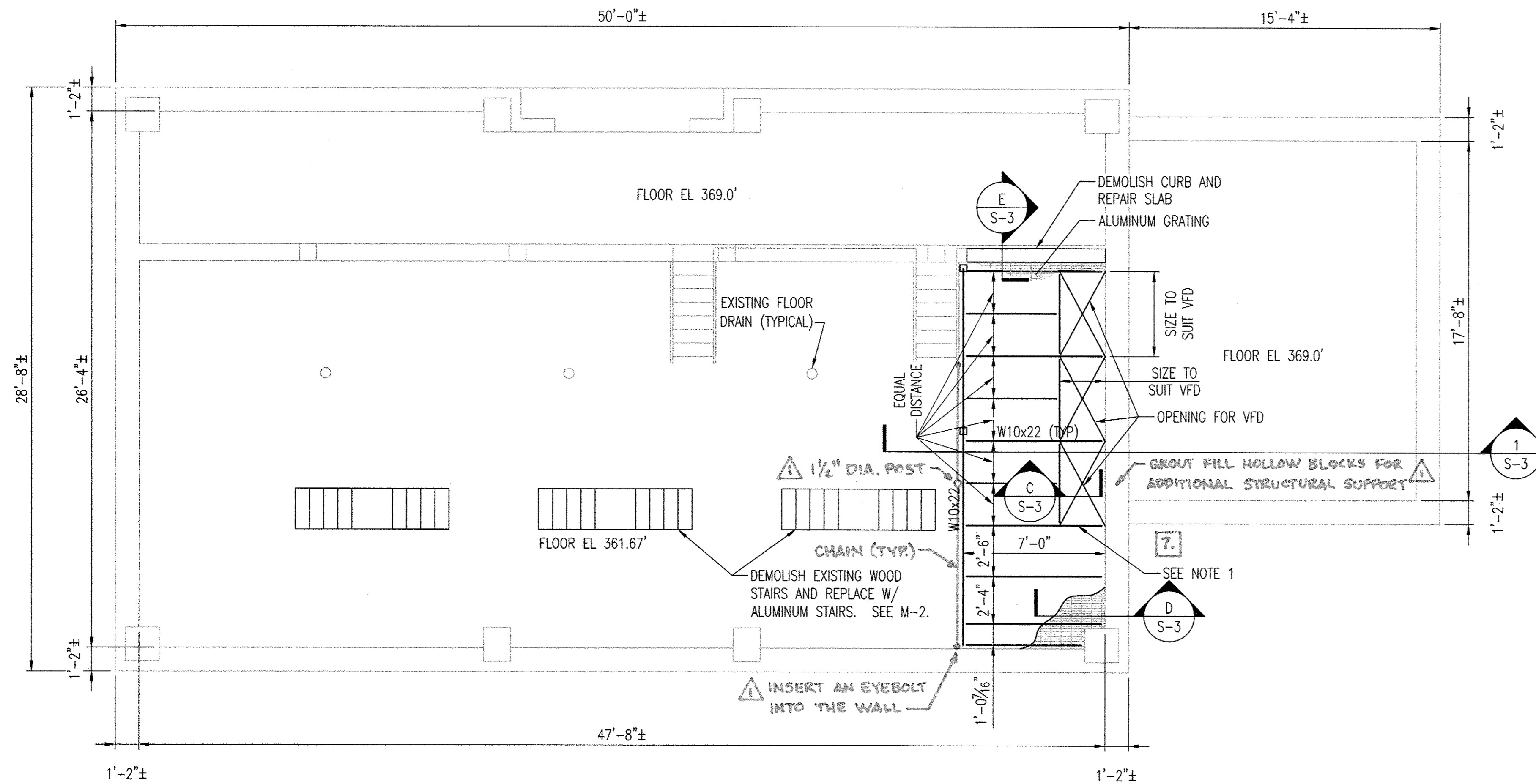
PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

AS-BUILT
S-1
SCALE AS SHOWN
SHEET 10 OF 23

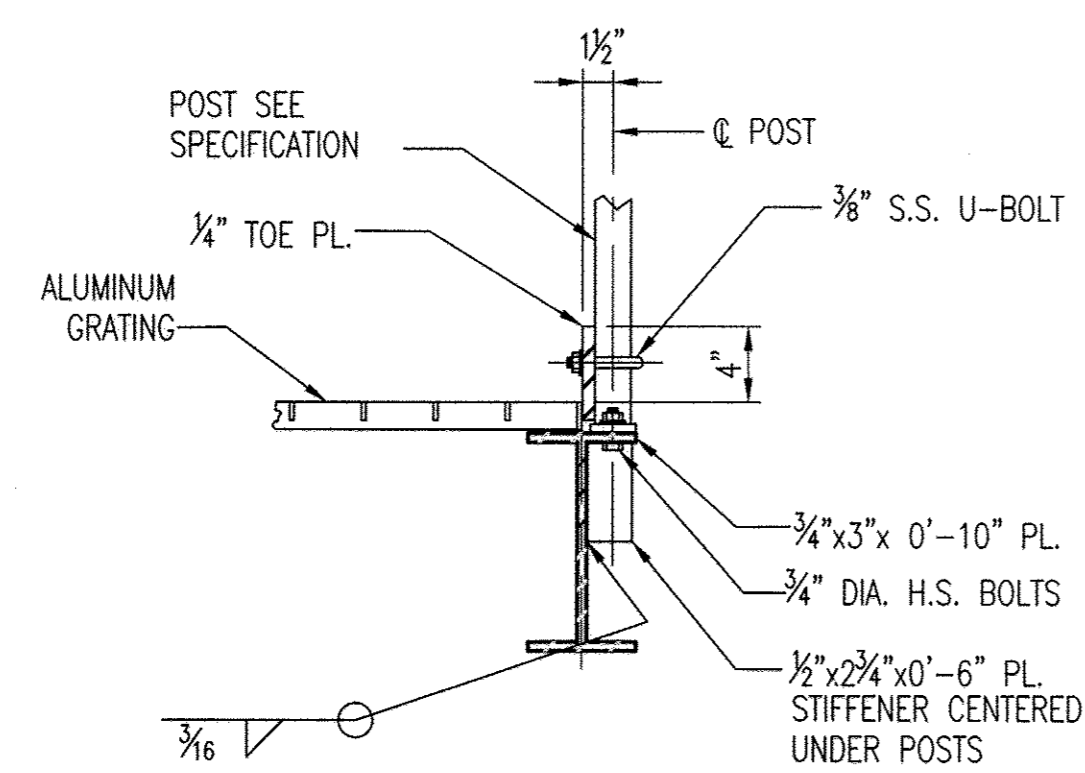
NOTES:

1. LOCATION OF STEEL SHALL SUIT VFD EQUIPMENT. IF DIMENSIONS EXCEED DIMENSIONS SHOWN BY +/- 3", VERIFY WITH ENGINEER. MOUNT VFD UNITS DIRECTLY ON STRUCTURAL FRAMING MEMBERS. COORDINATE VFD MOUNTING REQUIREMENTS WITH VFD MANUFACTURER.



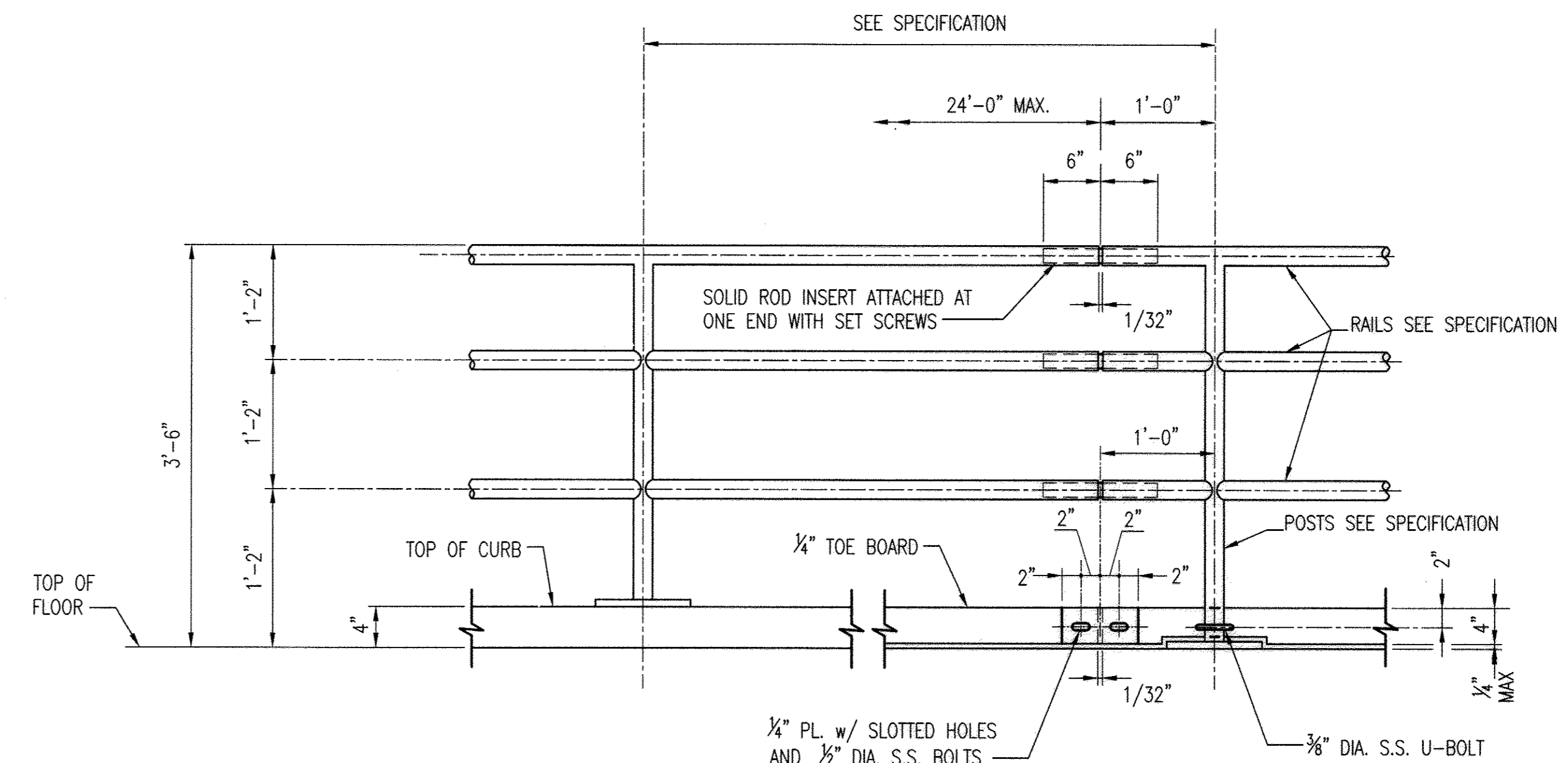
FIRST FLOOR PLAN

1/4" = 1'-0"



POST CONNECTION TO STEEL BEAMS

SCALE: NONE



NOTE:
ALL HANDRAIL COMPONENTS SHALL BE ALUMINUM,
UNLESS NOTED

TYPICAL HANDRAIL ELEVATION - ALUMINUM

NO SCALE

"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. 9495, EXPIRATION DATE: 9/27/13."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Joseph A. ... 1/22/13
DIRECTOR OF PUBLIC WORKS DATE

Thomas R. ... 1/14/13
CHIEF, BUREAU OF ENGINEERING DATE

... 1/22/13
CHIEF, BUREAU OF UTILITIES DATE

... 1/14/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES:	MLM			
DRN:	MLM			
CHK:	JOA			
DATE:	1/2013	WRA	AS-BUILTS	10/14
BY:		NO.	REVISION	DATE

STRUCTURAL PLANS AND SECTIONS

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

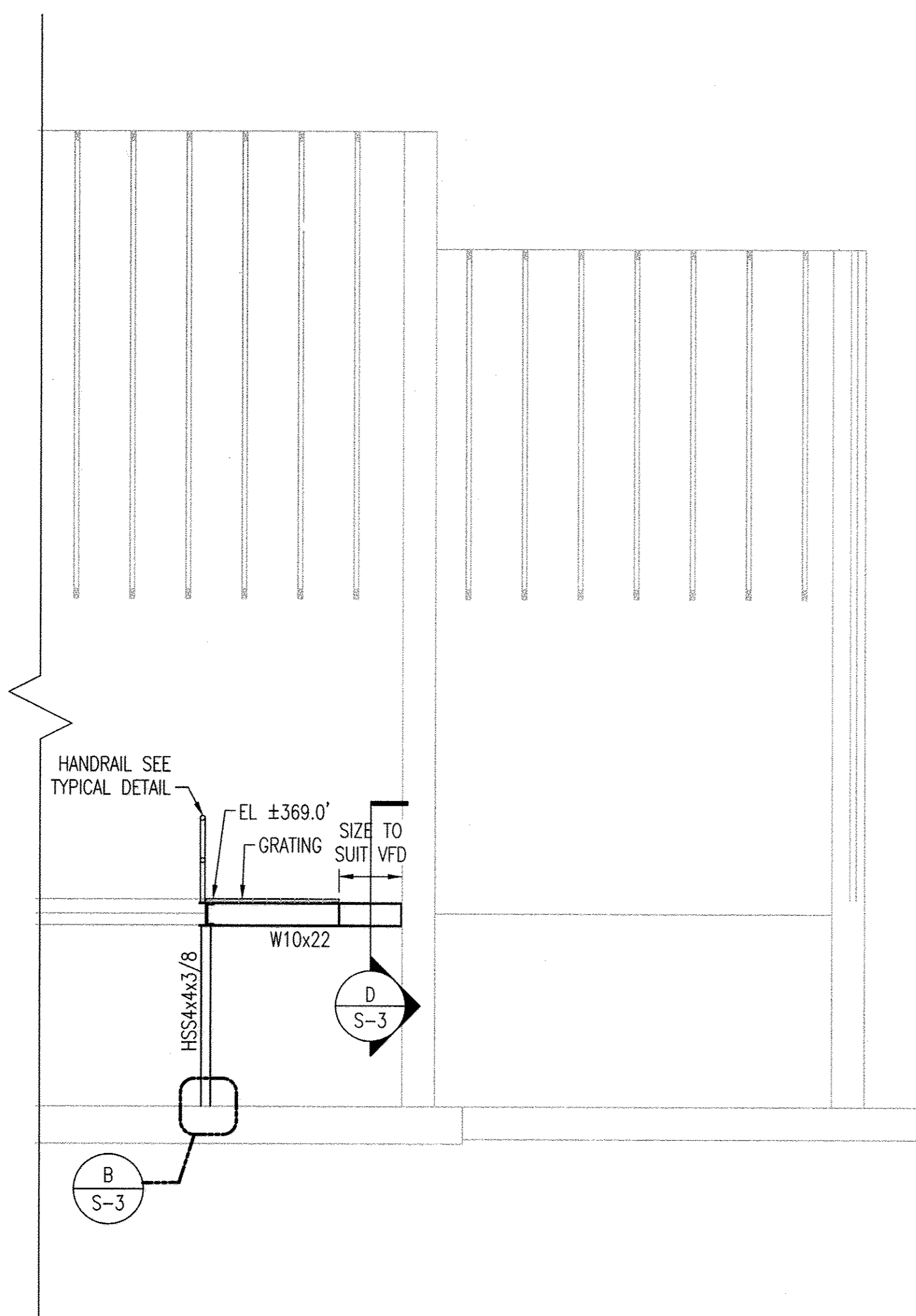
AS-BUILT

S-2

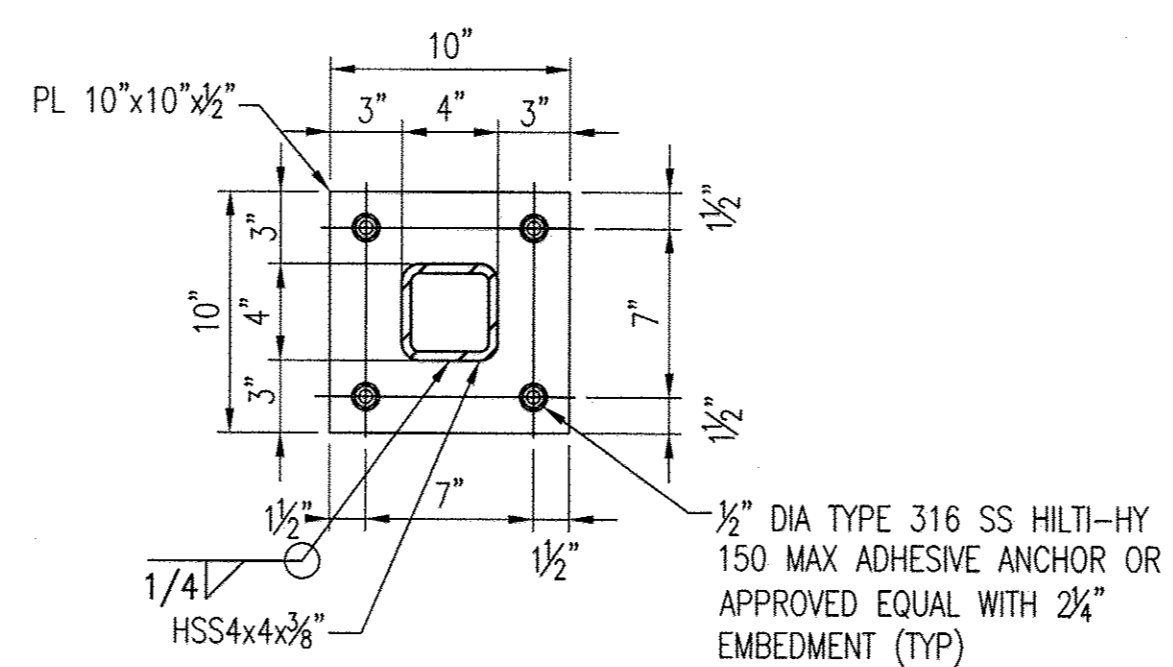
SCALE AS SHOWN

SHEET

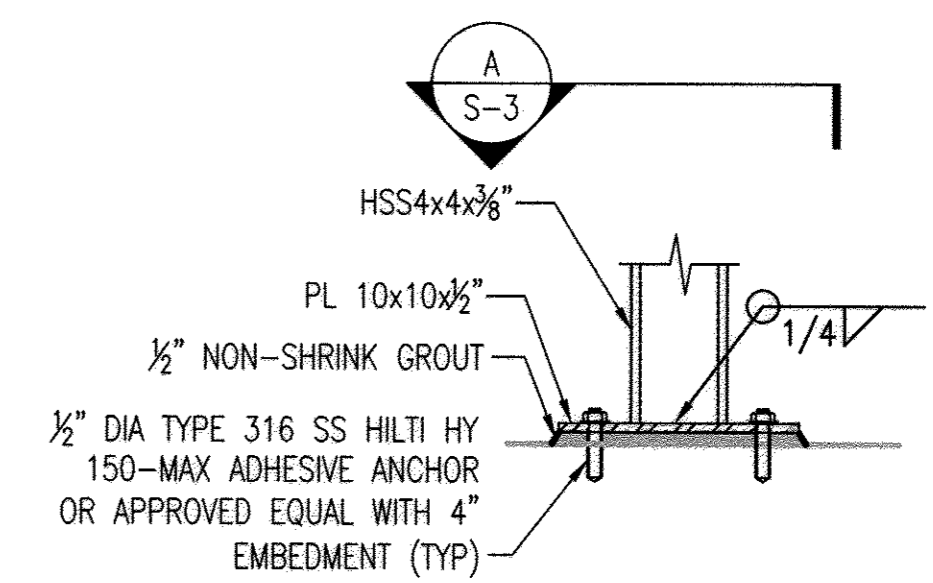
11 OF 23



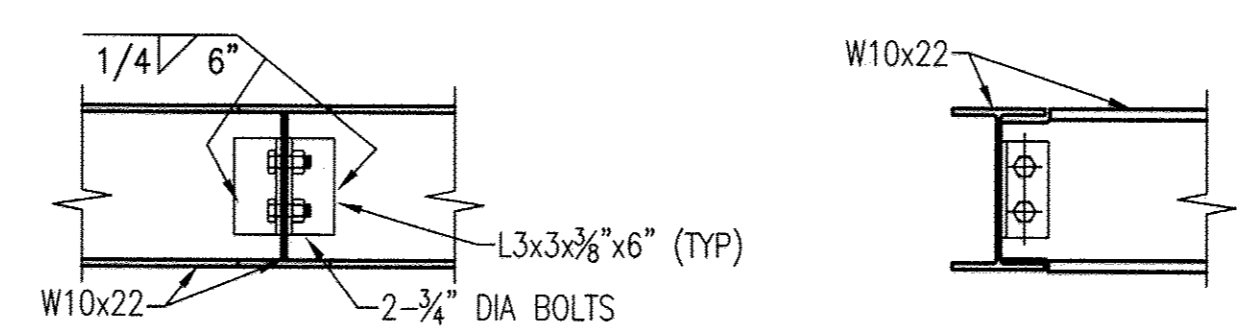
1 SECTION
S-3 1/4" = 1'-0"
REF: S-2



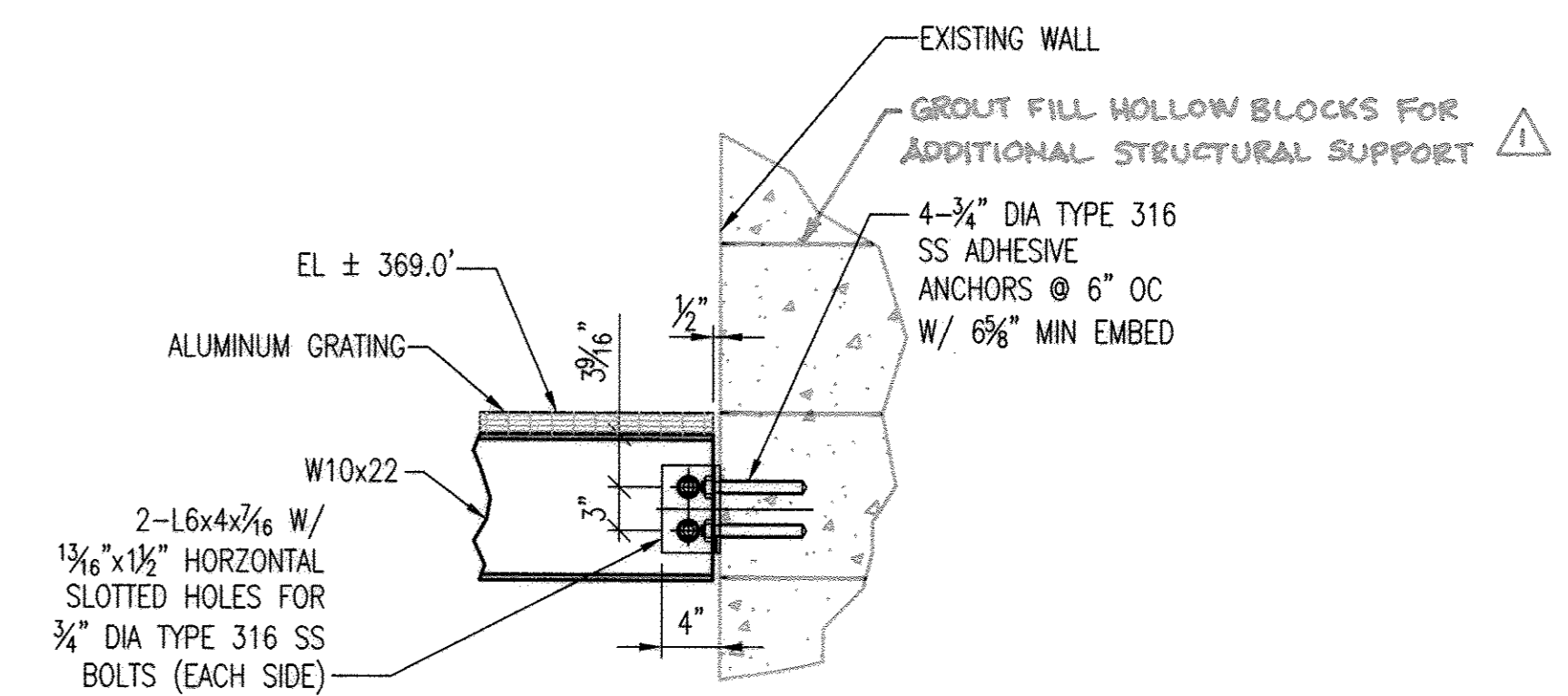
A DETAIL
S-3 1-1/2" = 1'-0"
REF: S-3



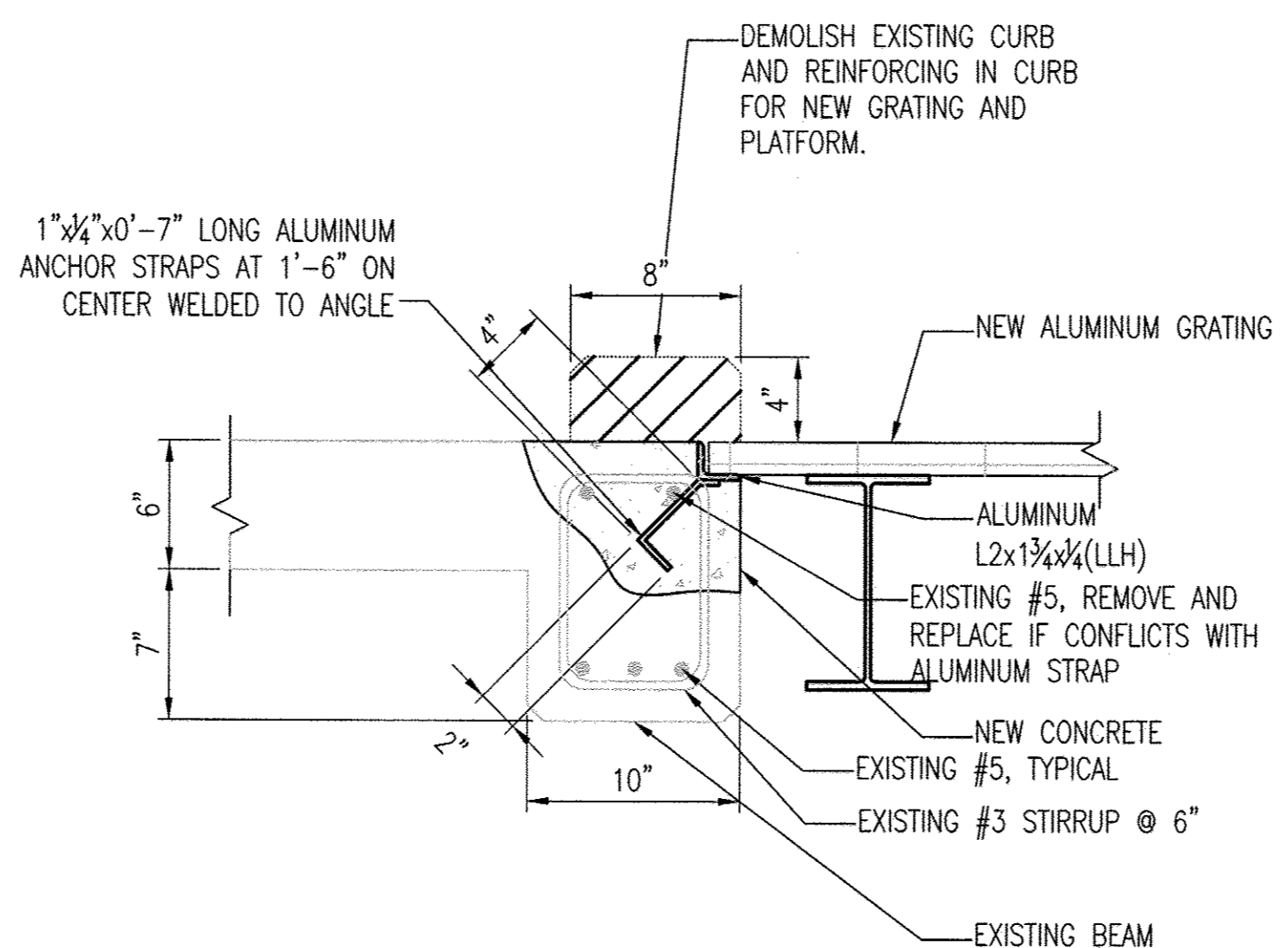
B DETAIL
S-3 1-1/2" = 1'-0"
REF: S-3



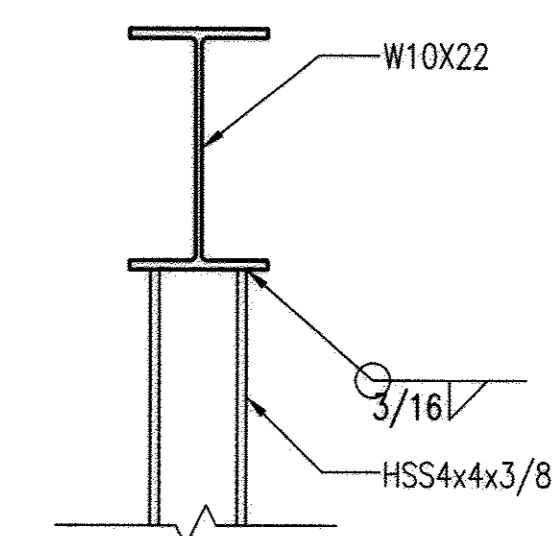
C DETAIL
S-3 1" = 1'-0"
REF: S-2



D DETAIL
S-3 1" = 1'-0"
REF: S-3



E DETAIL
S-3 1" = 1'-0"
REF: S-2



F DETAIL
S-3 1" = 1'-0"
REF: S-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. 9495, EXPIRATION DATE: 9/27/13."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

John P. ... 1/29/13
DIRECTOR OF PUBLIC WORKS DATE

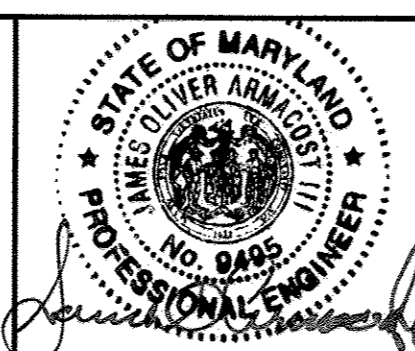
Mona R. ... 1-14-13
CHIEF, BUREAU OF ENGINEERING DATE

... 1/1/13
CHIEF, BUREAU OF UTILITIES DATE

... 1/1/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES:	MLM			
DRN:	MLM			
CHK:	JOA			
DATE:	1/2013			
BY:	WRA	AS-BUILTS	10/14	
NO.:				
REVISION:				

STRUCTURAL SECTIONS AND DETAILS

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

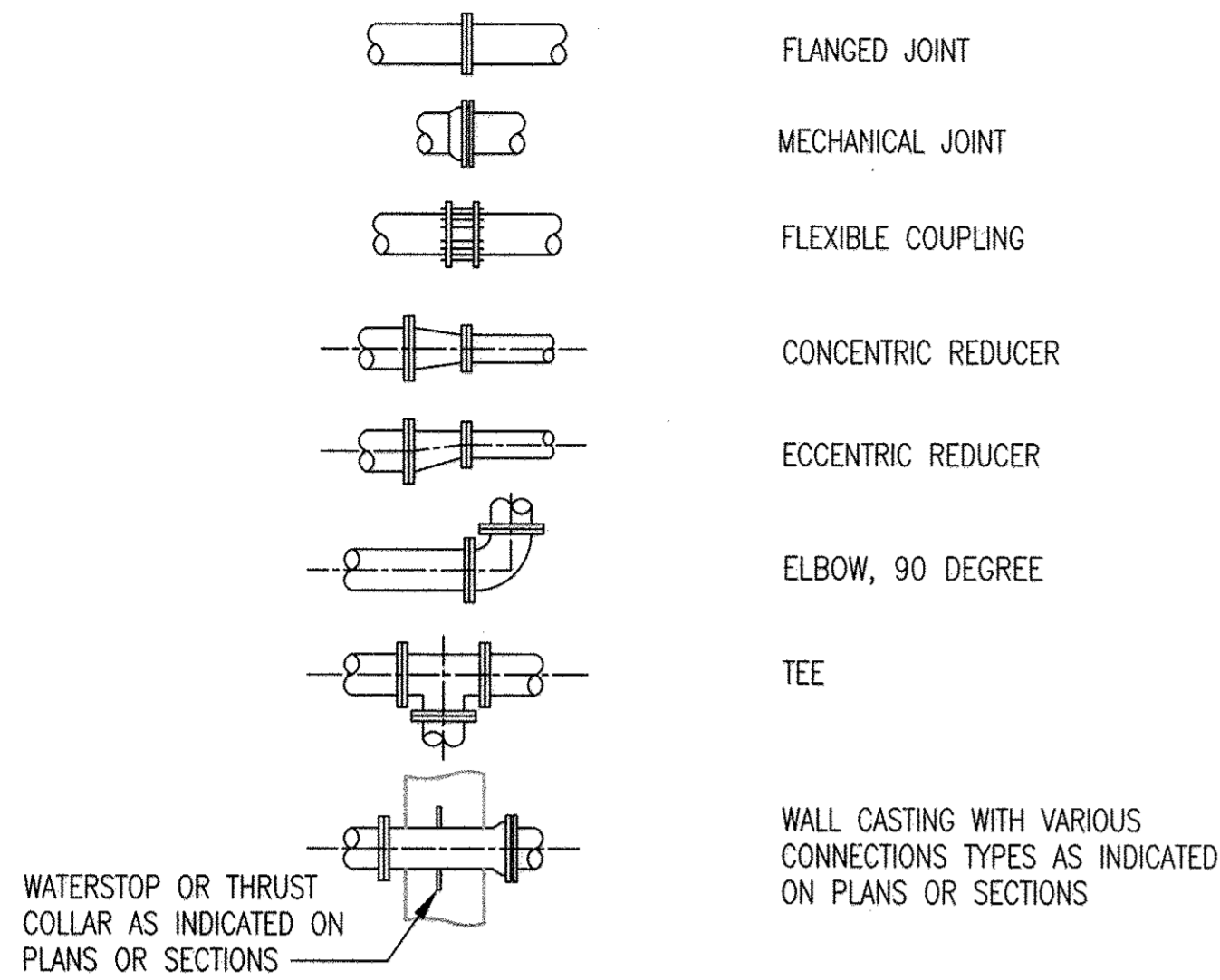
ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

AS-BUILT

S-3
SCALE AS SHOWN
SHEET
12 OF 23

PIPING SYMBOLS

DOUBLE LINE DESCRIPTION



ABBREVIATIONS

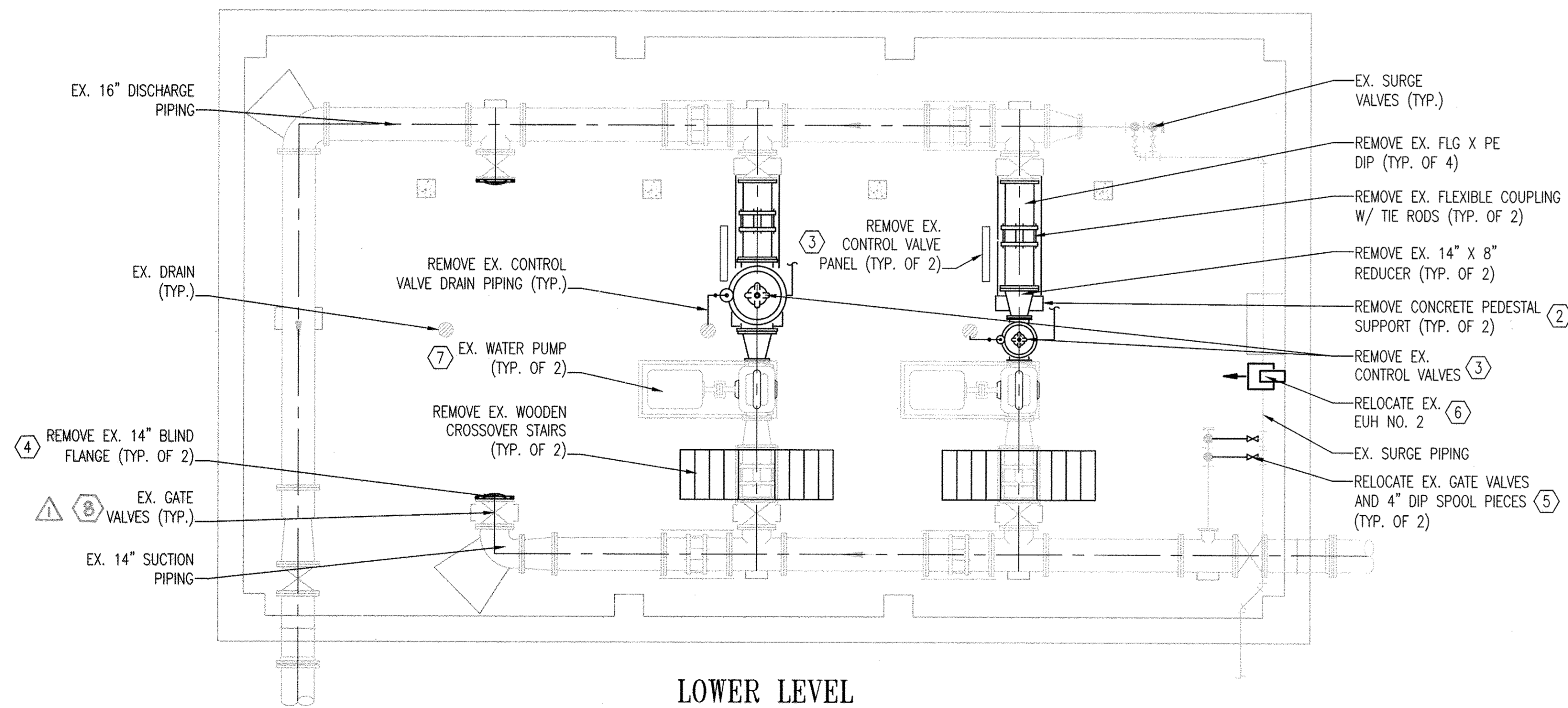
ABBREVIATION	DESCRIPTION
ASTM	AMERICAN STANDARD FOR TESTING AND MATERIALS
B	BELT
CFM	CUBIC FEET PER MINUTE
CL	CENTER LINE
EF	EXHAUST FAN
EL	ELEVATION
EUH	ELECTRIC UNIT HEATER
ETC.	ET CETERA
EX.	EXISTING
FLG	FLANGE
FT.	FEET
GBD	GRAVITY BACKDRAFT DAMPER
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HZ	HERTZ
ID	IDENTIFICATION
I.D.	INSIDE DIAMETER
MAX.	MAXIMUM
MGD	MILLION GALLONS PER DAY
MIN.	MINIMUM
NO.	NUMBER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
P	PROPELLER
PE	PLAIN END
PH	PHASE
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
S.P.	STATIC PRESSURE
S.S.	STAINLESS STEEL
TYP.	TYPICAL
W/	WITH
W.C.	WATER COLUMN

GENERAL NOTES

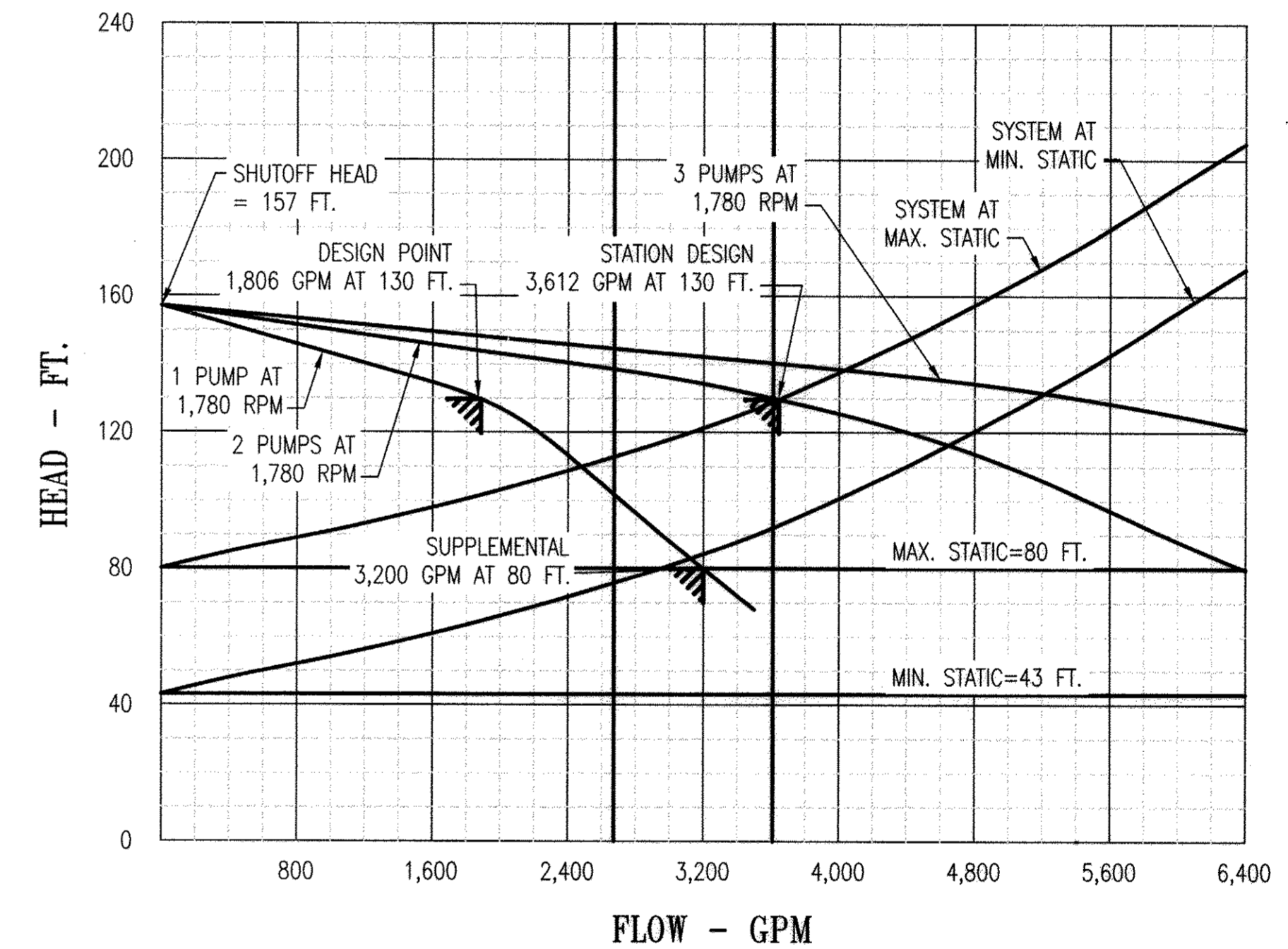
- PIPING CONNECTIONS 3 INCH AND SMALLER HAVE BEEN SCHEMATICALLY SHOWN ON PLAN AND SECTION DRAWINGS. PROVIDE DETAILED PIPE ROUTING AND ALL APPURTENANCES IN ACCORDANCE WITH RESPECTIVE SCHEMATICS. PROVIDE ALL NECESSARY FITTINGS TO MAKE CONNECTIONS.
- ALL EXPANSION JOINTS, FLANGE ADAPTERS AND FLEXIBLE COUPLINGS SHALL HAVE TIE-RODS AS SHOWN ON TYPICAL DETAILS.
- UNLESS OTHERWISE NOTED, ECCENTRIC REDUCERS SHALL BE INSTALLED FLAT SIDE ON TOP.
- UNLESS OTHERWISE NOTED, ALL DUCTILE IRON PIPING INTERNAL TO FACILITY(IES) SHALL HAVE FLANGED CONNECTIONS.
- VALVES ARE NORMALLY OPEN (N.O.) UNLESS NOTED AS NORMALLY CLOSED (N.C.).
- UNLESS OTHERWISE NOTED, ALL EQUIPMENT SHALL BE PROVIDED WITH A MINIMUM 4-INCH CONCRETE HOUSEKEEPING PAD SIZED TO SUIT EQUIPMENT.
- SUPPORTS AND HANGERS ARE ONLY SHOWN WHERE SPECIFIC TYPES OR LOCATIONS ARE REQUIRED. ADDITIONAL SUPPORTS AND HANGERS SHALL BE REQUIRED AS SPECIFIED.
- SEE STRUCTURAL DRAWINGS FOR CONCRETE PIPE SUPPORT AND PEDESTAL DETAILS.

DEMOLITION NOTES:

- UNLESS OTHERWISE NOTED, ITEMS SHOWN IN BOLD ARE TO BE REMOVED.
- SEE STRUCTURAL DRAWINGS FOR CONCRETE PEDESTAL DEMOLITION.
- DISCONNECT WATER LINE FROM CONTROL VALVES. COORDINATE INSTALLATION OF NEW CONTROL VALVE WATER AND DRAIN PIPING WITH EXISTING PIPING AND DRAINS. SEE M-2 FOR INSTALLATION PLAN.
- CONTRACTOR COORDINATE REPAIRS TO EXISTING CONCRETE PEDESTAL SUPPORTS IF DAMAGED DURING REMOVAL OF BLIND FLANGES OR OTHER FITTINGS.
- SEE M-2 FOR RELOCATION OF EXISTING GATE VALVES AND 4" DIP SPOOL PIECES.
- EXISTING EUH NO. 2 TO REMAIN AND SHALL BE RELOCATED. SEE M-2 FOR RELOCATION OF EXISTING EUH NO. 2.
- REMOVE IMPELLERS IN EXISTING WATER PUMPS. SEE M-2 AND SPECIFICATIONS FOR NEW IMPELLERS AND NEW ROTATING ELEMENT AND COMPONENTS.
- REMOVE THE SUCTION AND DISCHARGE GATE VALVES FOR PUMP NO. 3 ONLY.**



LOWER LEVEL DEMOLITION PLAN
 1 M-1 SCALE: 1/4" = 1'-0"



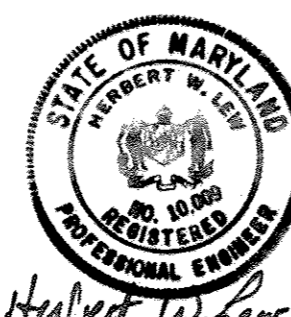
2 SYSTEM CHARACTERISTICS
 M-1 SCALE: 1/4" = 10 FT. IN VERTICAL
 1/4" = 200 GPM IN HORIZONTAL

NUMBER OF PUMPS	1
DESIGN POINT:	1,805 GPM (MIN.) AT 130 FEET
DESIGN POINT EFFICIENCY (MINIMUM):	78%
DESIGN POINT NPSHR (MAXIMUM):	12 FEET
SUPPLEMENTAL POINT:	3,200 GPM (MIN.) AT 80 FEET
SUPPLEMENTAL POINT EFFICIENCY (MINIMUM):	77%
SUPPLEMENTAL POINT NPSHR (MAXIMUM):	38 FEET
SHUTOFF HEAD (MINIMUM):	157 FEET
SUCTION SIZE:	10 INCHES
DISCHARGE SIZE:	8 INCHES
MOTOR HORSEPOWER (MAXIMUM):	100 HP
MOTOR SPEED (MAXIMUM):	1,800 RPM
ELECTRIC SERVICE:	480 V/3 PHASE/60 HZ
OPERATION:	VARIABLE FREQUENCY DRIVE
BASIS OF DESIGN:	ITT/GOULDS 8x10-12S

"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. 10009, EXPIRATION DATE: 2/2/2014."

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.
 Director of Public Works: [Signature] 1/24/13
 Chief, Bureau of Engineering: [Signature] 1/14/13
 Chief, Bureau of Utilities: [Signature] 1/24/13
 Chief, Utility Design Division: [Signature] 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231



DES:	JMR
DRN:	JMR
CHK:	LAP
DATE:	1/2013
BY:	WRA
NO.:	1
REVISION:	AS-BUILTS
DATE:	10/14

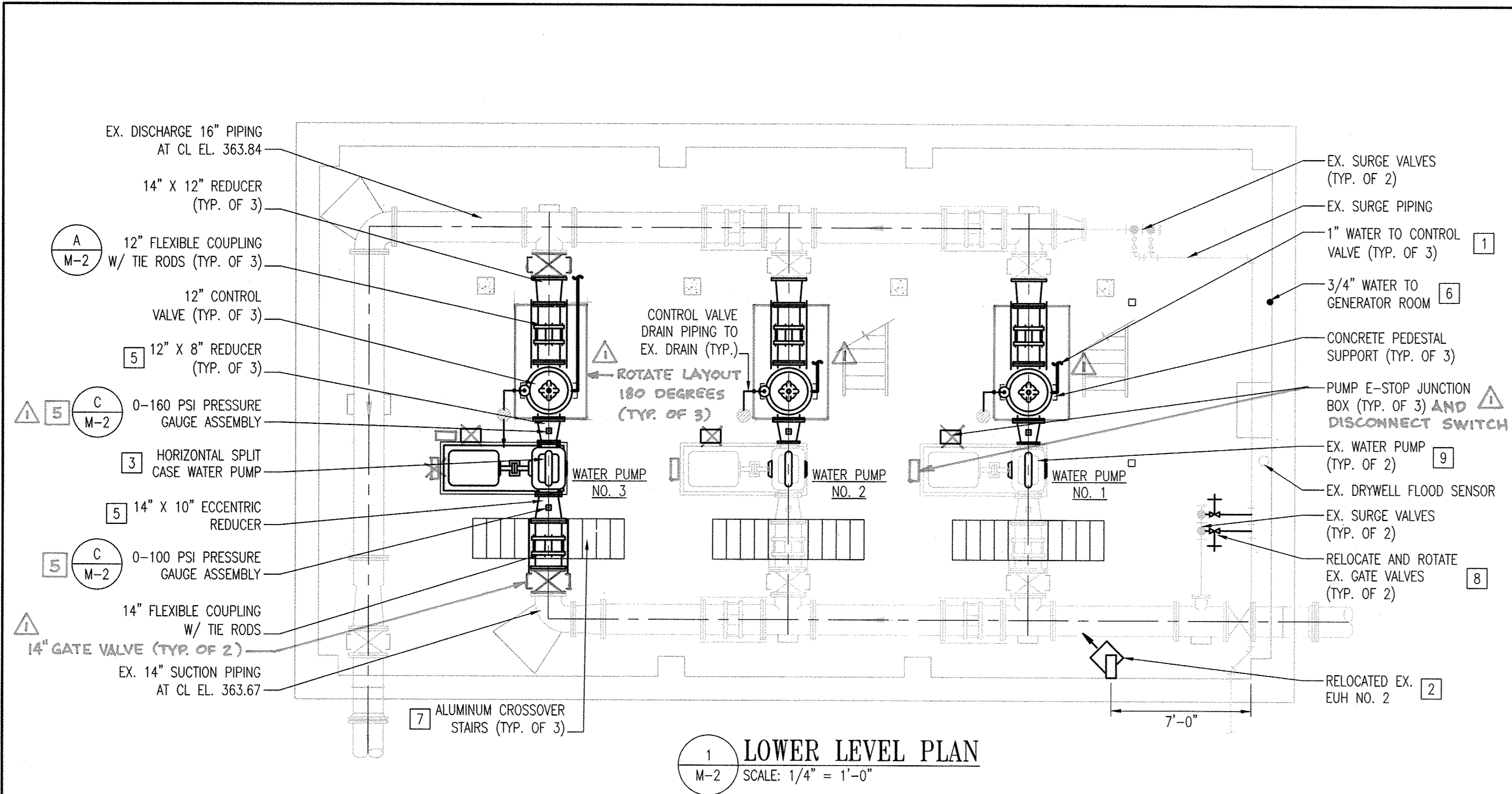
GENERAL NOTES, LEGEND,
 ABBREVIATIONS, SYSTEM CHARACTERISTICS,
 AND
 DEMOLITION PLAN

600' SCALE MAP NO. 24 BLOCK NO. 2&3

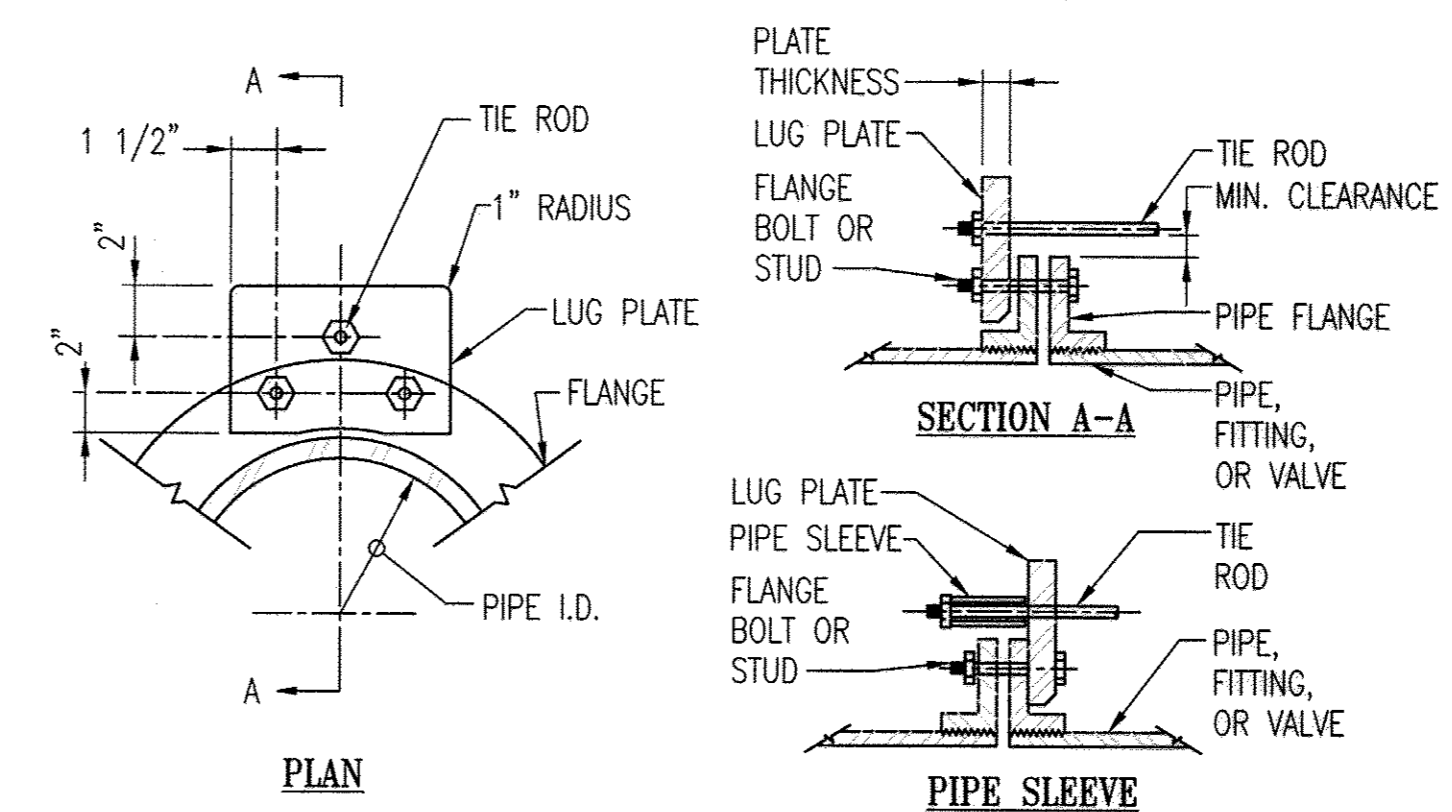
AS-BUILT
 PINE ORCHARD WATER PUMPING
 STATION UPGRADE
 CONTRACT NO. 44-4730
 CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

M-1
 SCALE AS SHOWN
 SHEET 13 OF 23



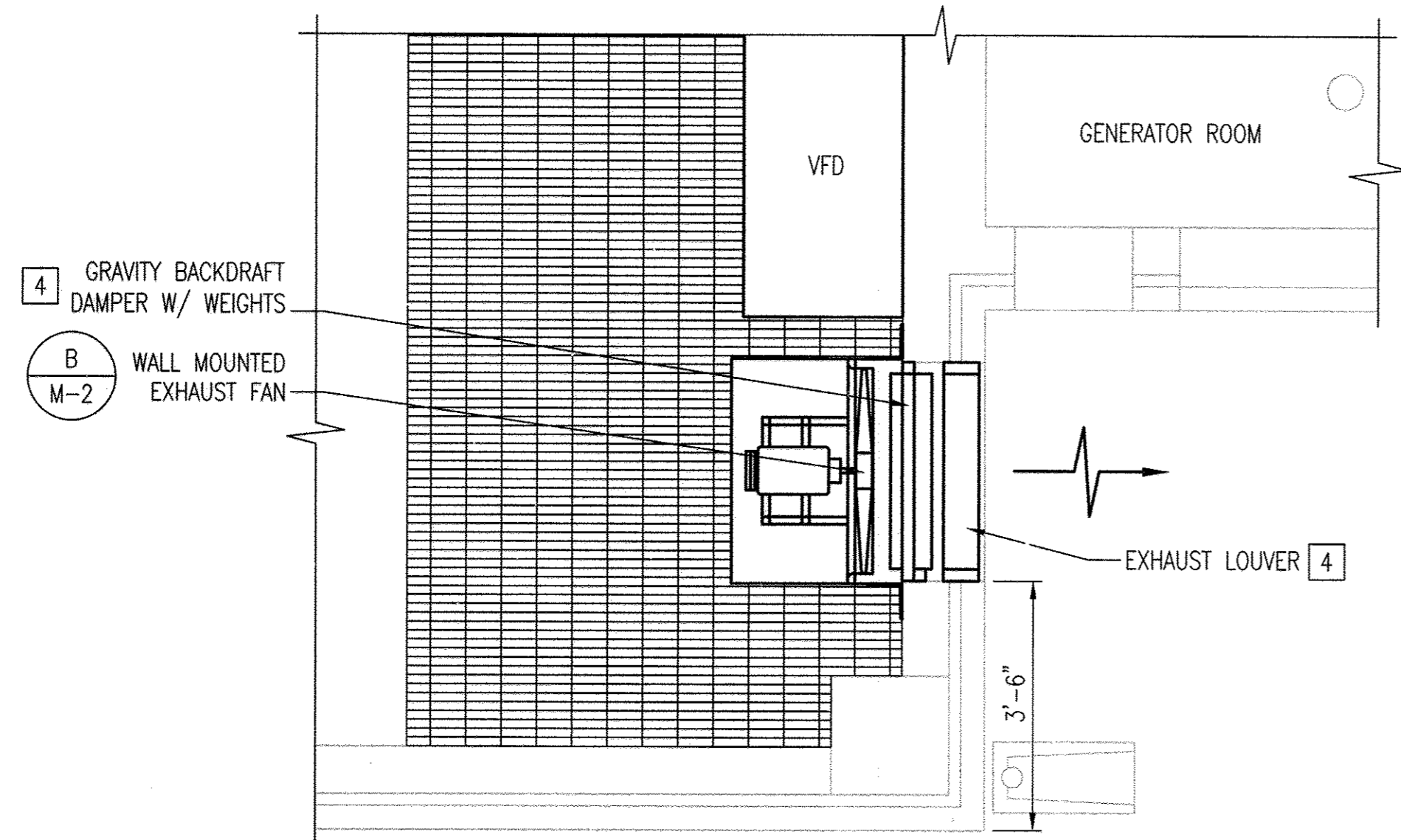
1 LOWER LEVEL PLAN
M-2 SCALE: 1/4" = 1'-0"



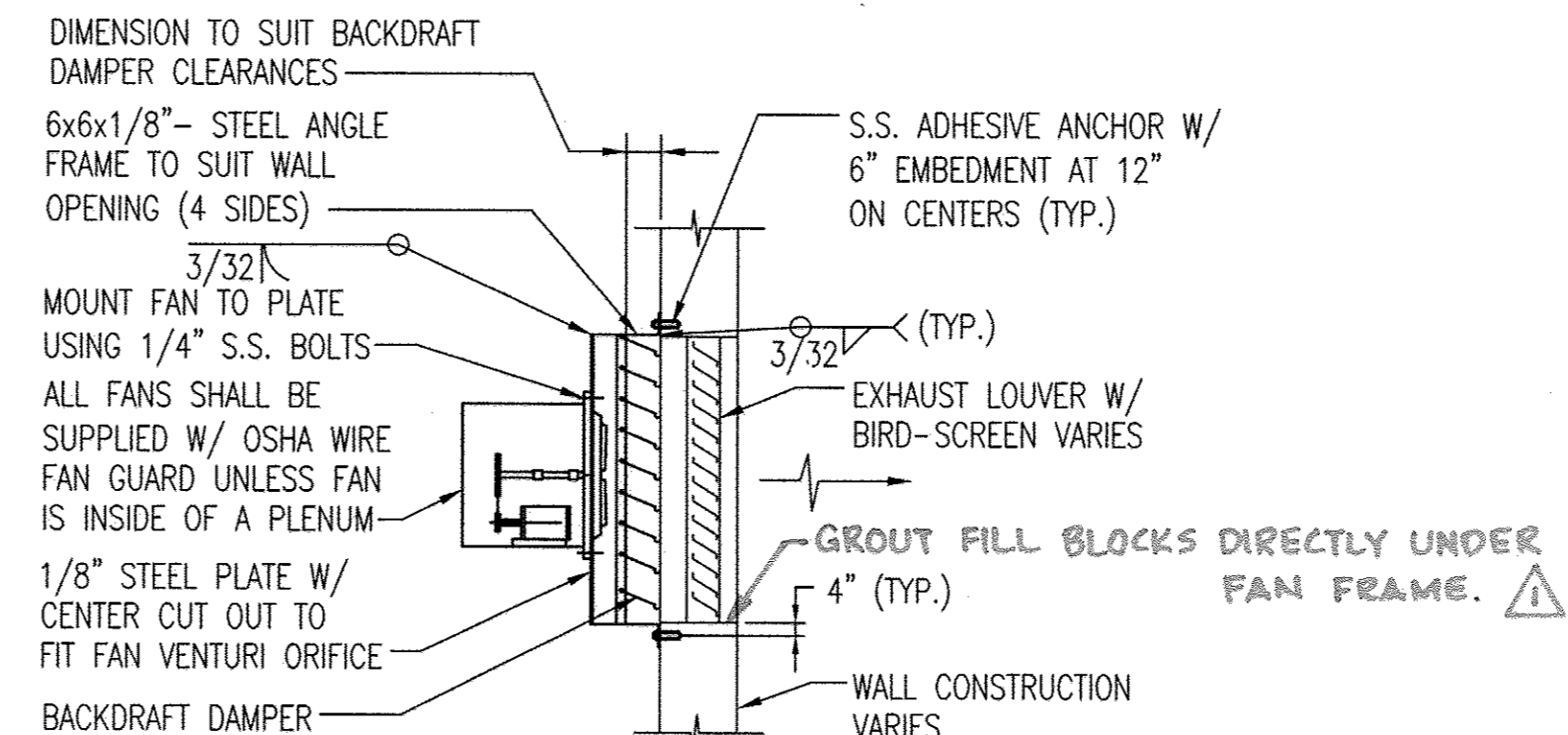
- NOTES:
- ONE FLANGE CONNECTION IS SHOWN FOR CLARITY. DETAIL IS TYPICAL FOR BOTH FLANGES.
 - IF PLATE IS REQUIRED TO BE MOUNTED ON REVERSE SIDE OF FLANGE, PROVIDE A PIPE SLEEVE AND WASHER ON THE END OF THE TIE ROD SO THAT THE MAXIMUM CLEARANCE BETWEEN THE SLEEVE AND THE FLANGE CAN BE MAINTAINED.
 - FLANGE SURFACE IN CONTACT WITH LUG PLATE SHALL BE GROUND SMOOTH TO CLEAR THE CASTING IRREGULARITY AND EMBOSSED LETTERING. CONTACT SURFACE OF LUG PLATE SHALL BE MACHINED TO A ONE DEGREE TAPER FOR PIPE DIAMETERS 12-INCH AND LARGER.
 - MATERIALS SHALL BE AS FOLLOWS:
ROD MATERIAL - ASTM A193, GRADE B7
PLATE MATERIAL - ASTM A36
SLEEVE MATERIAL - SCHEDULE 40 STEEL PIPE

PIPE SIZE	NUMBER OF RODS	DIAMETER OF RODS	PLATE THICKNESS	PIPE SLEEVE (IF REQUIRED)	DESIGN PRESSURE PSI
12"	4	3/4"	1"	7/8"	150
14"	4	3/4"	1"	7/8"	150

A TIE ROD DETAIL
M-2 SCALE: NONE

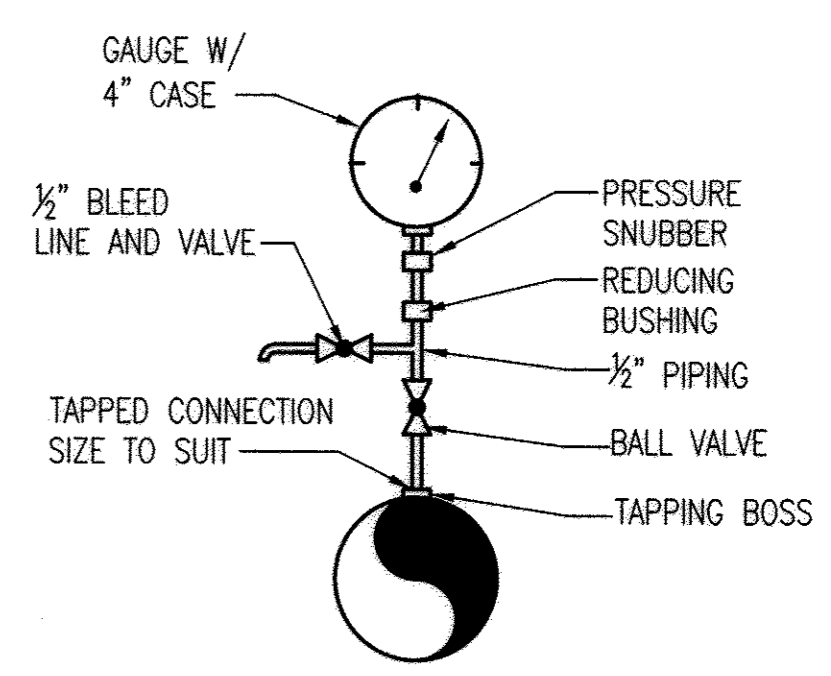


2 ENLARGED UPPER LEVEL PLAN
M-2 SCALE: 1/2" = 1'-0"



- NOTES:
- FRAME AND PLATE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
 - ALL DAMPERS SHALL MATCH IN NOMINAL SIZE WITH THEIR RESPECTIVE LOUVERS UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS. SEAL AS REQUIRED.

B EXHAUST FAN DETAIL
M-2 SCALE: NONE



- NOTES:
- SEE PLANS AND SCHEMATICS FOR QUANTITIES AND RANGES.

C PRESSURE GAUGE DETAIL
M-2 SCALE: NONE

FAN SCHEDULE

UNIT ID	TYPE	DRIVE	TOTAL CAPACITY CFM	TOTAL S.P. IN W.C.	MAX. FAN RPM	ELECTRICAL CHARACTERISTICS VOLTS/PH/Hz	MAX. MOTOR HP	DAMPER	(LOCATION, CLASSIFICATION, ETC.)
EF No.1	P	B	5,300 (MIN.)	0.53"	1,050	480/3/60	1.0	GBD	MEZZANINE LEVEL, GBD W/ COUNTERWEIGHTS

"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. 10009, EXPIRATION DATE: 2/2/2014."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Jay J. ... 1/24/13
DIRECTOR OF PUBLIC WORKS DATE

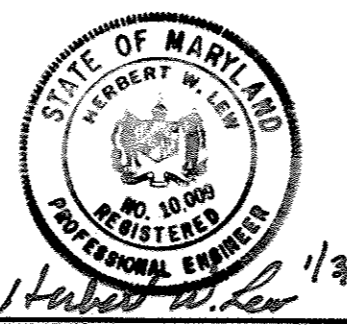
Mona S. ... 1-14-13
CHIEF, BUREAU OF ENGINEERING DATE

... 1/24/13
CHIEF, BUREAU OF UTILITIES DATE

... 1/24/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES: JMR			
DRN: JMR			
CHK: LAP			
DATE: 1/2013	BY: WRA	NO. 1	AS-BUILTS

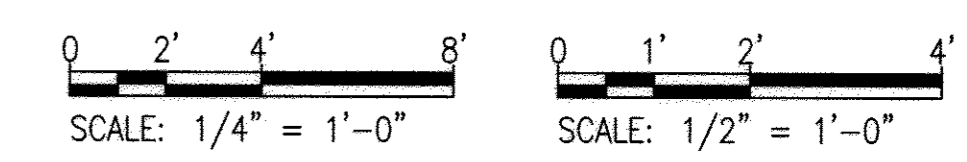
PLANS AND DETAILS

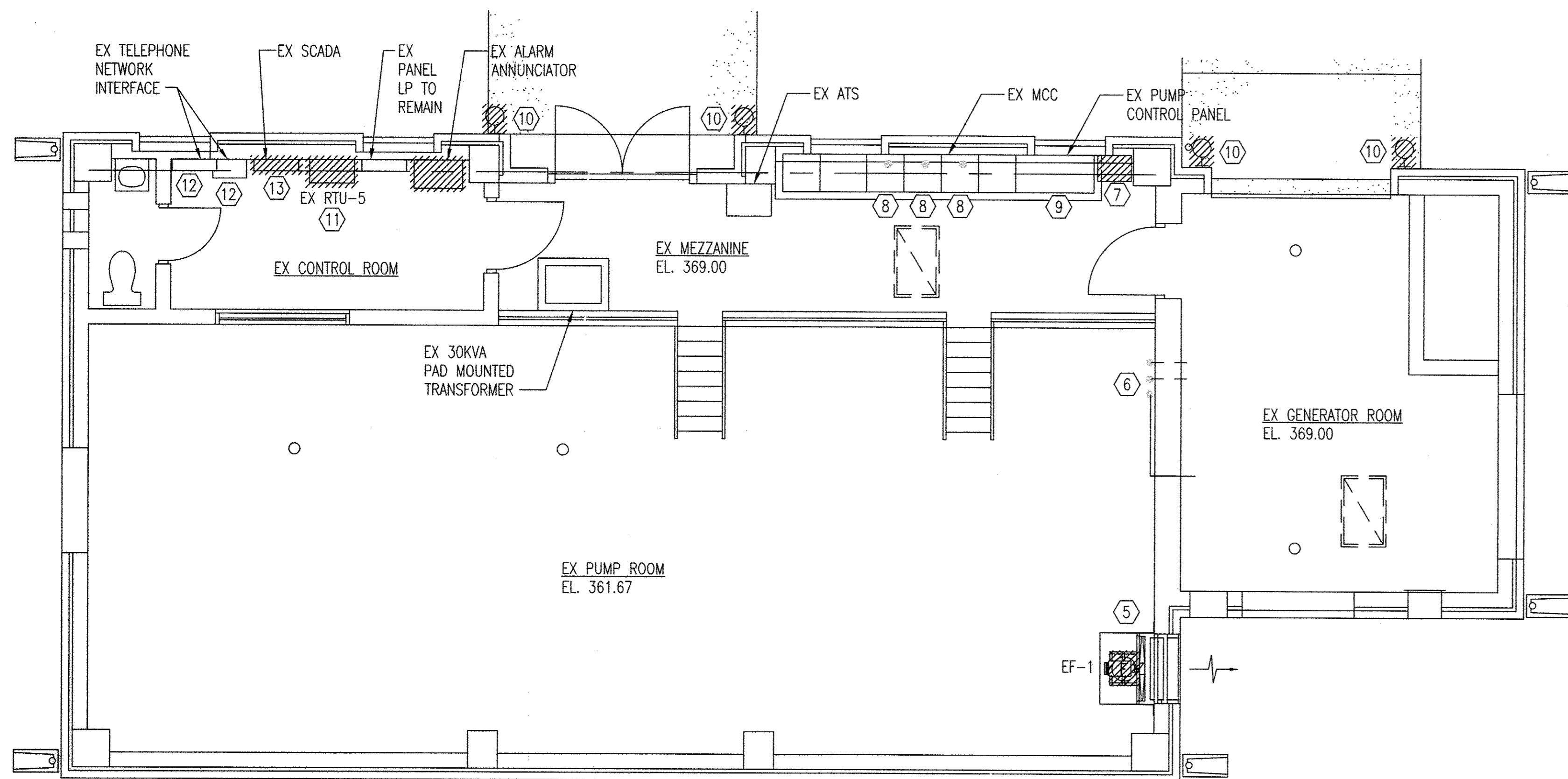
600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

GRAPHIC SCALES AS-BUILT





1 ELECTRICAL MEZZANINE PLAN - DEMOLITION
E-1 SCALE: 1/4" = 1'-0"

ELECTRICAL ABBREVIATIONS

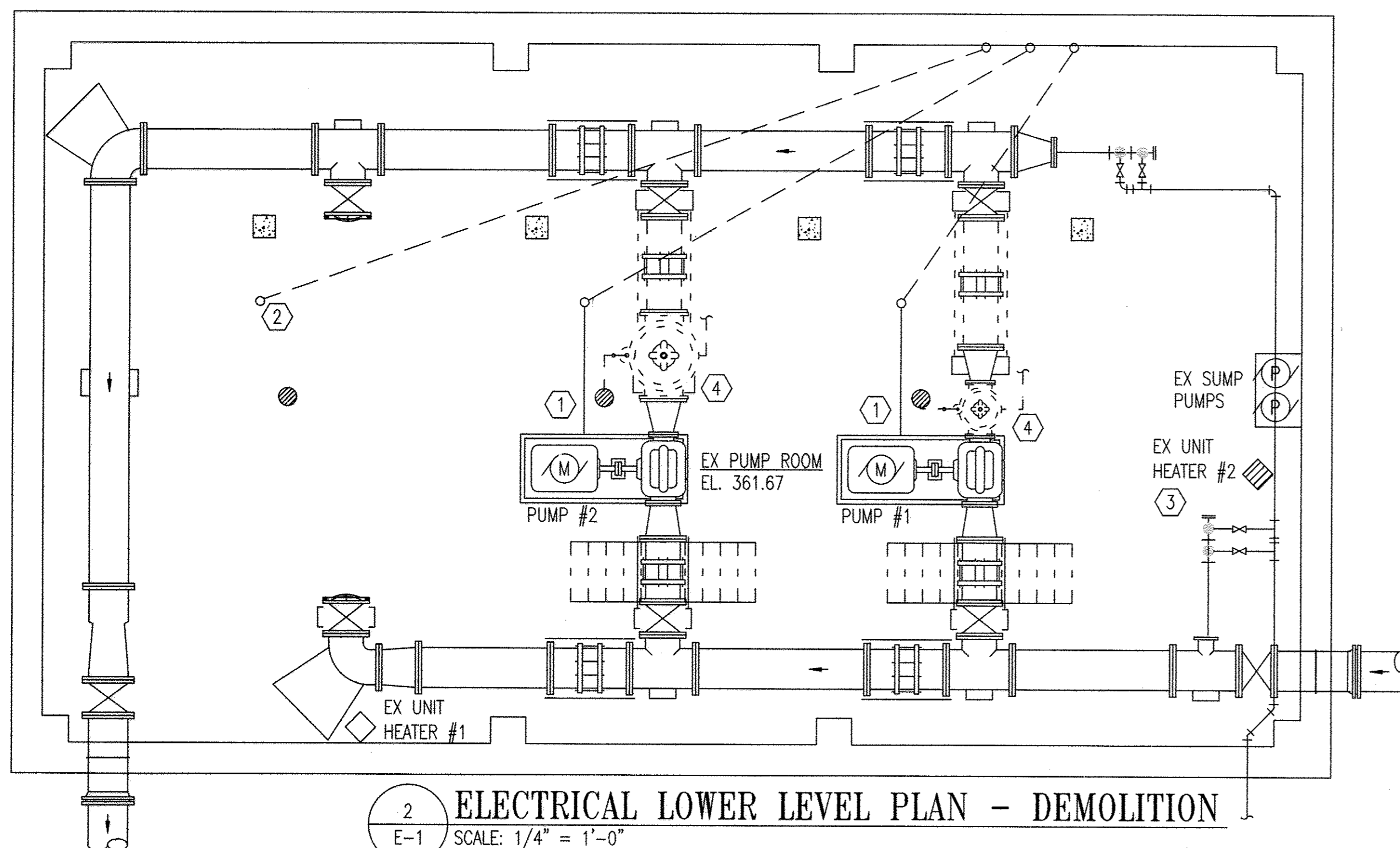
A	AMPERE
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUTOXFMR	AUTOTRANSFORMER
C	CONDUIT, COLUMN
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CONN	CONNECTION OR CONNECT
DET	DETAIL
DWG	DRAWING
ELECT	ELECTRICAL
EX.	EXISTING
HZ	HERTZ
JB	JUNCTION BOX
KW	KILOWATT
KVA	KILOVOLT AMPERE
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MIN	MINIMUM
P	POLE
PB	PULL BOX
PL	PANEL
Ø	PHASE
PWR	POWER
PVC	POLYVINYL CHLORIDE
REC/RECP	RECEPTACLE
RMC	RIGID METAL CONDUIT
RTU	REMOTE TERMINAL UNIT
SSRV	SOLID STATE REDUCED VOLTAGE
SW	SWITCH
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS

ELECTRICAL LEGEND

EXISTING	NEW	DESCRIPTION
		STARTER
		VARIABLE FREQUENCY DRIVE (VFD)
		SOLID STATE REDUCED VOLTAGE STARTER
		GENERATOR
		MOTOR; HP AS NOTED
		FAN
		PUMP
		THERMOSTAT
		VOLTMETER
		AMMETER
		GROUND
		FUSE
		POTENTIAL TRANSFORMER
		CURRENT TRANSFORMER
		CONDUIT SURFACE MOUNTED
		CONDUIT UNDER FLOOR SLAB OR EMBEDDED
		CIRCUIT BREAKER
		LINEWEIGHT; HEAVY FOR NEW EQUIPMENT
		CONDUIT UP
		CONDUIT DOWN
		EXISTING ELECTRICAL EQUIPMENT TO BE DEMOLISHED
		NORMALLY OPEN CONTACT
		OVERLOAD RELAY

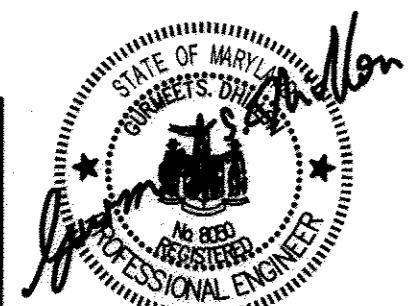
GENERAL DEMOLITION NOTES:

- COORDINATE WORK SCHEDULE WITH COUNTY REPRESENTATIVE. DISCONNECT POWER TO PUMP MOTORS. REMOVE AUTOTRANSFORMER, CABLES, CAPACITOR, & CONDUIT FOR PUMP MOTORS #1 & 2.
 - ELECTRICAL DEVICES SHOWN ARE EXISTING TO REMAIN, UNLESS OTHERWISE NOTED.
- DEMOLITION NOTES:**
- DISCONNECT AND REMOVE EXISTING CABLES IN 2" CONDUIT EMBEDDED IN CONCRETE FLOOR FROM MCC TO MOTOR, CONDUITS TO BE REUSED.
 - EXISTING 2" SPARE CONDUIT AND STUB UP FOR PUMP #3 TO REMAIN.
 - EXISTING UNIT HEATER #2 TO BE RELOCATED. TURN OFF POWER, DISCONNECT WIRING AND STORE FOR FUTURE USE.
 - REMOVE ALL 120VAC CONTROLS INCLUDING CONDUIT AND WIRE BACK TO THE MCC, "STOP", JUNCTION BOX AND EQUIPMENT STAND.
 - TURN OFF BREAKER AND DISCONNECT TERMINAL WIRING TO EXISTING EXHAUST FAN AND INTAKE DAMPER. EXISTING CONDUCTORS AND CONDUITS TO BE REUSED.
 - SEE M-2 FOR PIPING RELOCATION.
 - EXISTING VFD (SAFRONICS FP5 VARIABLE TORQUE INVERTER) TO BE REMOVED AND RETURNED TO THE COUNTY. ELECTRICAL CONTRACTOR TO COORDINATE PUMP STATION OPERATION WITH COUNTY PRIOR TO DEMOLITION. WORK TO BE COORDINATED TO AVOID PUMP STATION SHUTDOWN. ONE PUMP TO BE OPERATIONAL AND ONE PUMP ON STAND BY AT ANY GIVEN TIME.
 - REMOVE EXISTING POWER FACTOR CORRECTION CAPACITOR LOCATED ON TOP OF MCC.
 - PUMP CONTROL PANEL TO BE REMOVED UPON STARTUP OF NEW STATION. CONTRACTOR TO COORDINATE PUMP STATION OPERATION WITH COUNTY PRIOR TO DEMOLITION.
 - REMOVE EXISTING LUMINARIES. OUTLET BOX, WIRING, AND CB TO REMAIN.
 - DEMOLISH ALL CONDUIT AND WIRE FROM PANELS TO ASSOCIATED FIELD DEVICES. PRESERVE EXISTING CONDUIT TO SUCTION AND DISCHARGE PRESSURE, AND FLOW TRANSMITTERS.
 - CONTRACTOR TO PRESERVE EXISTING TELEPHONE LINE NETWORK INTERFACE CONNECTION FOR USE WITH NEW SCADA RTU.
 - CONTRACTOR SHALL PRESERVE THE EXISTING QUINDAR QEI MODULES IN EXISTING SCADA SYSTEM TERMINAL CABINET AND TURN EQUIPMENT OVER TO COUNTY.



2 ELECTRICAL LOWER LEVEL PLAN - DEMOLITION
E-1 SCALE: 1/4" = 1'-0"

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, SUITE 204
OWINGS MILLS, MD 21117
PH: 410-356-1085 FAX: 410-363-4675
E-MAIL: mail@dhillon.com



"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. 8050, EXPIRATION DATE: 08/19/2013."

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

Director of Public Works: *gag* 1/20/13
Chief, Bureau of Utilities: *Silvia* 1/20/13

Chief, Bureau of Engineering: *Mona* 1-14-13
Chief, Utility Design Division: *De* 4/14/13

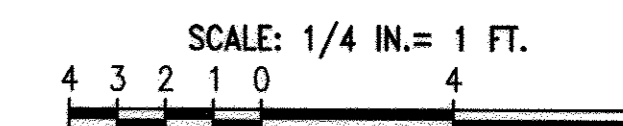
PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES: RG					
DRN: OM					
CHK: RK					
DATE: 1/2013	WRA	AS-BUILTS	10/14		
BY	NO.	REVISION	DATE		

ELECTRICAL LEGEND, MEZZANINE AND LOWER LEVEL PLANS - DEMOLITION

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299



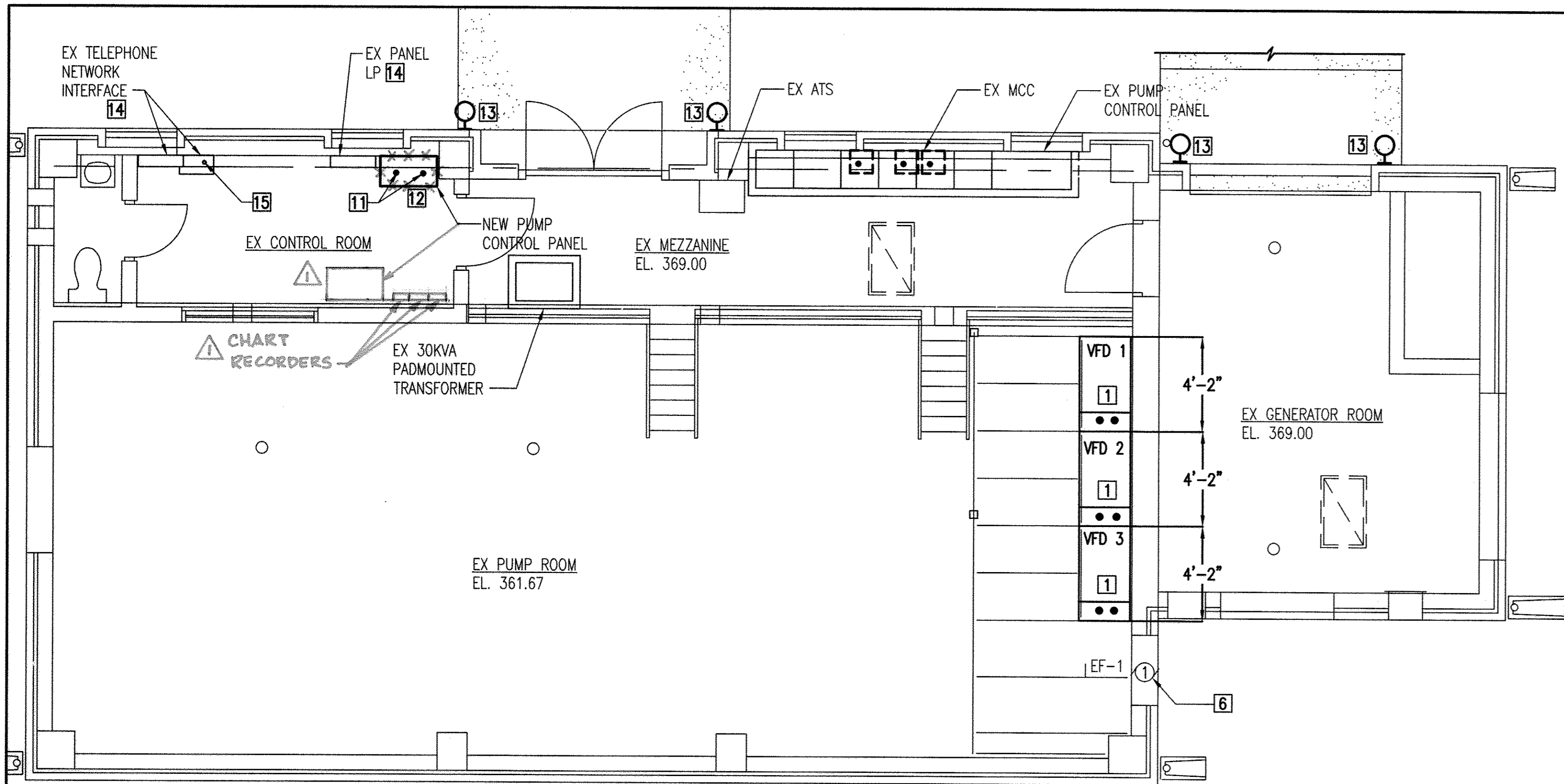
AS-BUILT

E-1

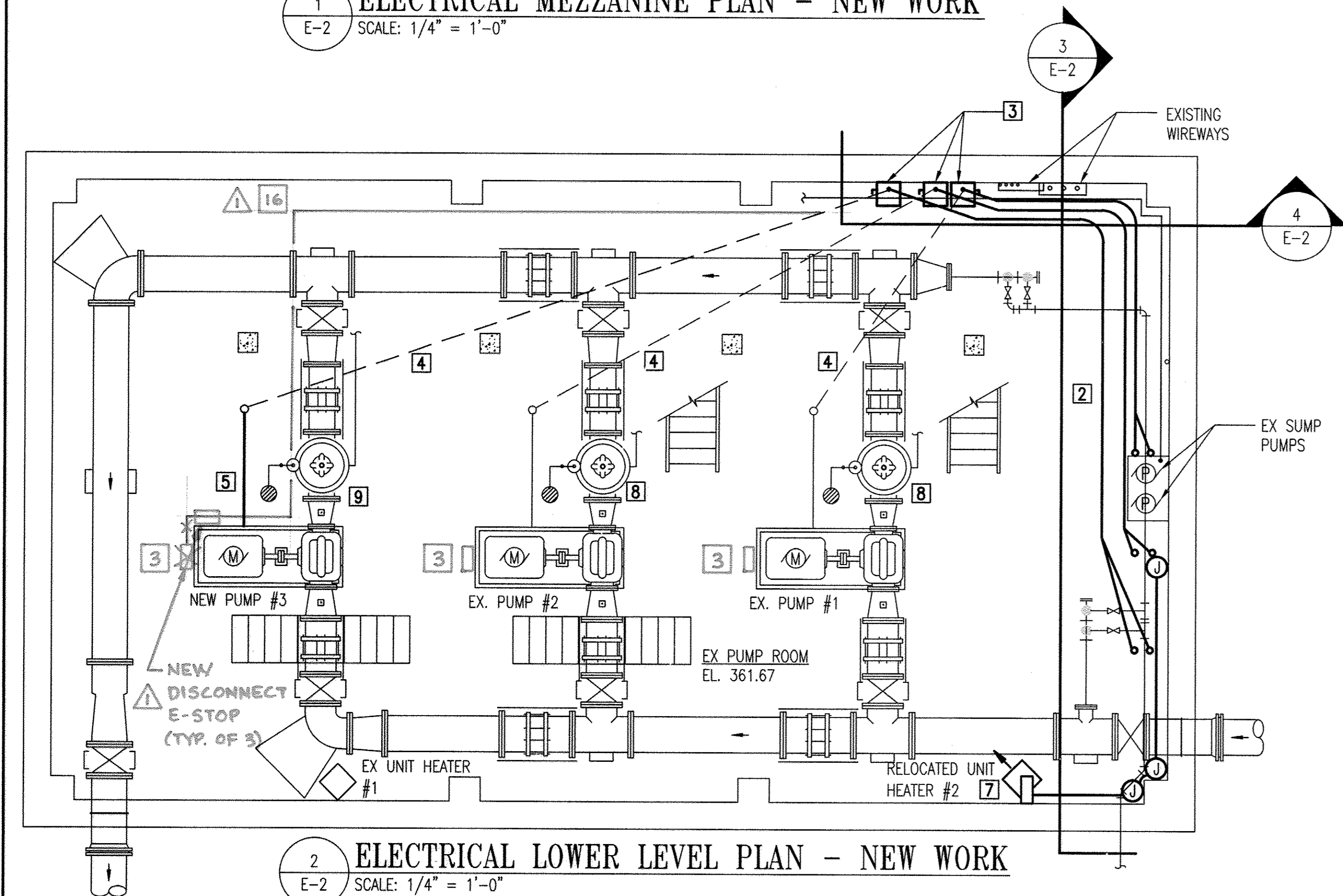
SCALE AS SHOWN

SHEET

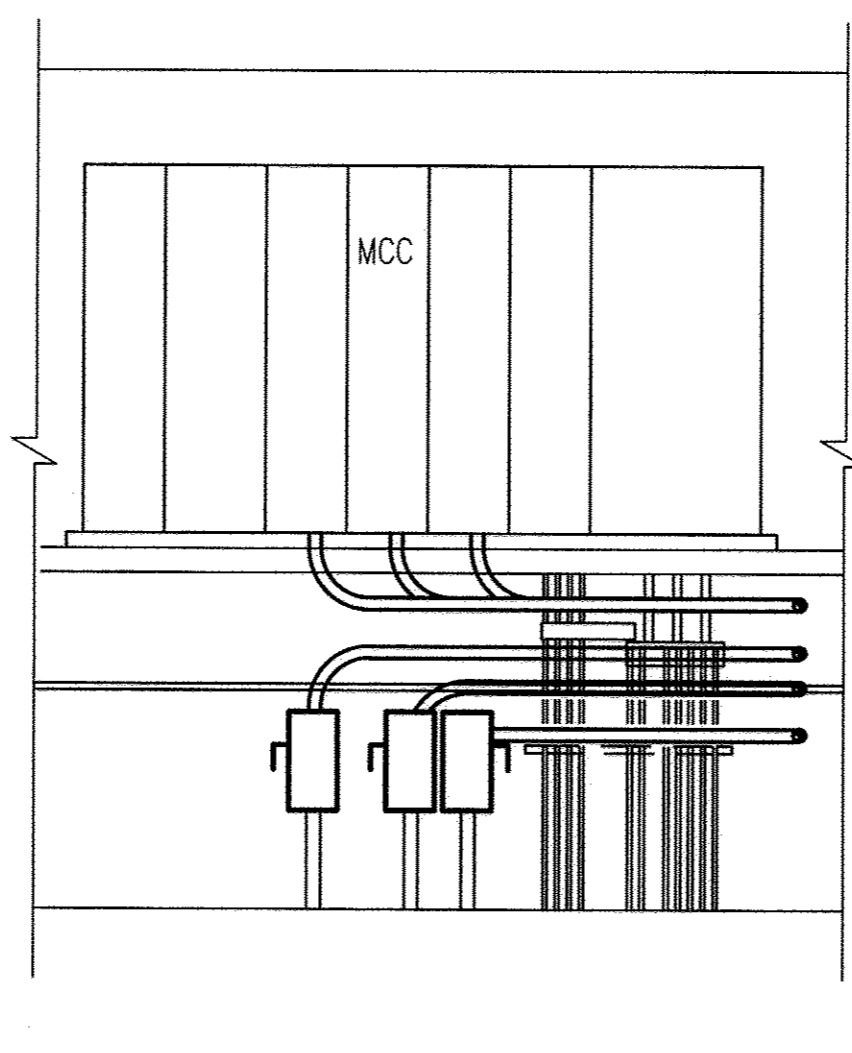
15 OF 23



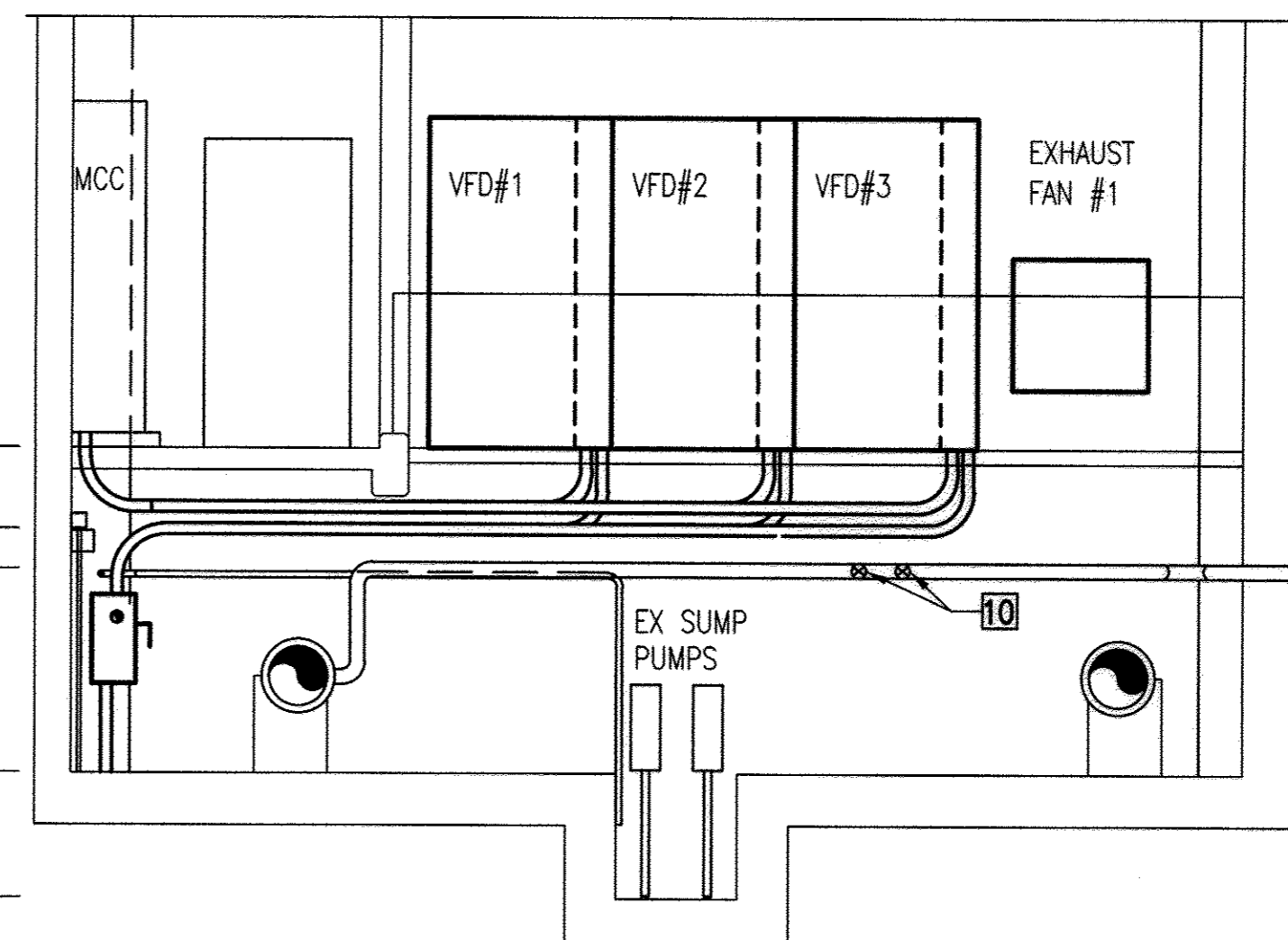
1 ELECTRICAL MEZZANINE PLAN - NEW WORK
E-2 SCALE: 1/4" = 1'-0"



2 ELECTRICAL LOWER LEVEL PLAN - NEW WORK
E-2 SCALE: 1/4" = 1'-0"



4 ELEVATION
E-2 SCALE: 1/4" = 1'-0"



3 ELEVATION
E-2 SCALE: 1/4" = 1'-0"

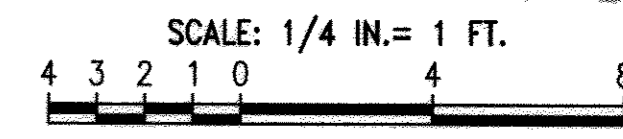
GENERAL NOTES:

- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF NATIONAL ELECTRICAL CODE AND APPLICABLE CODES, RULES AND REGULATIONS.
- ALL CONDUITS AND EQUIPMENT SHALL BE INSTALLED, WIRED AND GROUNDED IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF NATIONAL ELECTRICAL CODE (NEC).
- CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH OTHER EQUIPMENT. EXPOSED CONDUITS SHALL BE RUN ON THE WALLS HORIZONTALLY AND VERTICALLY.
- CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTION TO EQUIPMENT.
- CONDUIT ENDS SHALL BE SUITABLY SEALED TO PREVENT TRANSMISSION OF MOISTURE THROUGH CONDUITS FROM ONE EQUIPMENT TO ANOTHER.
- CONDUITS AND WIRES SHALL BE SIZED IN ACCORDANCE WITH NEC UNO.
- CONDUITS INSTALLED EXPOSED ON EXTERIOR/INTERIOR OF BUILDING SHALL BE GALVANIZED POLYURETHANE COATED RMC.
- ALL WALL AND FLOOR PENETRATIONS FOR ELECTRICAL CONDUITS SHALL BE CORE DRILLED. PROVIDE SEGMENTED RUBBER COMPRESSION SEALS ON BOTH SIDES.
- THIS IS A MODIFICATION JOB, CONTRACTOR SHALL VERIFY DIMENSIONS IN THE FIELD.
- IF CONTRACTOR SHALL HAVE TO CUT EXISTING CONCRETE SLABS TO REMOVE/INSTALL ELECTRICAL CONDUITS, IN SUCH OCCURRENCES CONTRACTOR SHALL REPAIR EXISTING STRUCTURE TO MATCH THE ORIGINAL CONDITION.
- ALL NEW ITEMS ARE SHOWN IN BOLD PRINT AND EXISTING ITEMS IN LIGHT PRINT.
- UPDATE PANEL INDEX TO REFLECT NEW WORK.
- PROVIDE ARC FLASH HAZARD WARNING LABELS REQUIRED PER NEC 110.16.
- PROVIDE AVAILABLE FAULT CURRENT LABEL INFORMATION ON SERVICE BREAKERS A2 AND A3, REQUIRED AS PER NEC 110.24. CONTACT BGE FOR GETTING LATEST FAULT CURRENT VALUES.
- CONTRACTOR TO MAKE ADJUSTMENTS AND MODIFICATIONS BASED ON PLATFORMS ACTUAL STRUCTURAL FIELD CONDITIONS FOR PROPER INSTALLATION OF VFDs AND WIRING.
- CONTRACTOR SHALL MAKE SURE TO PROVIDE VFD UNITS THAT WOULD FIT IN THE PLATFORM PROVIDED COMPLYING WITH NEC CLEARANCES. ANY ADJUSTMENTS AND MODIFICATIONS AS A RESULT WOULD NOT ADD ANY COST TO THE OWNER.

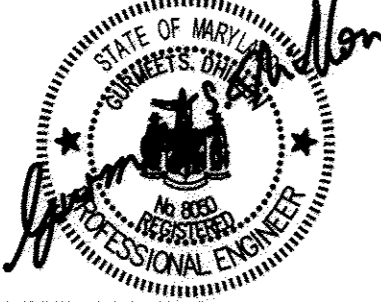
CONSTRUCTION NOTES:

- PROVIDE NEW VFDs - 460V, 100HP, 60HZ, 124A, 18 PULSE. PERFORMANCE MEETING STANDARD IEEE 519 FOR HARMONICS WITH SSRV BYPASS STARTERS IN NEMA 12 ENCLOSURE FOR PUMP MOTORS #1, #2, & #3. THE VFDs SHALL BE LABELED BY A RECOGNIZED TESTING LABORATORY SUCH AS UL.
- PROVIDE 3-#4/0 AWG & 1-#1/0 AWG GND COPPER CABLES SUITABLE FOR VFD OPERATOR IN 2" CONDUIT FROM NEW PULLBOX TO NEW VFD. DISCONNECT TO BE INTERLOCKED WITH VFD'S EXTERNAL FAULT INPUT OR STOP UNIT SO THAT IF THE DEVICE IS OPENED WHILE THE VFD IS RUNNING, IT WILL SHUT OFF THE OUTPUT OF THE VFD. IF WIRED TO THE VFD'S STOP INPUT, THE STOP METHOD MUST BE SET TO COAST. USE 2 #12 AND #12G IN 3/4" C. PROVIDE 120V FOR SIGNAL WIRING FROM VFD TO DISCONNECT. USE CIRCUITS LP-13, LP-15 AND LP-24 FOR VFD'S 1, 2, AND 3, RESPECTIVELY. PROVIDE NEW 1P, 20A CIRCUIT BREAKERS. CONDUIT RUNS TO BE FIELD COORDINATED TO AVOID CONFLICT WITH NEW AND EXISTING PIPING AND EQUIPMENT.
- CUT EXISTING CONDUIT AND PROVIDE 200A, 3P, 600V, NEMA 4 NON-FUSED DISCONNECT IN PUMP ROOM FOR VFD WIRING TO PUMP MOTOR. ELECTRICAL CONTRACTOR TO COORDINATE REROUTING OF EXISTING COPPER PIPE WITH MECHANICAL WORK IN FRONT OF PROPOSED LOCATION OF THE DISCONNECTS.
- EXISTING 2" CONDUIT EMBEDDED IN CONCRETE TO BE REUSED FOR WIRING VFD AND PUMP MOTOR. IS DAMAGED.
- EXTEND CONDUIT FROM STUB UP TO PUMP MOTOR WIRING.
- CONNECT NEW EXHAUST FAN AND INTAKE DAMPER TO EXISTING CIRCUIT.
- RECONNECT RELOCATED UNIT HEATER #2. EXTEND EXISTING CIRCUIT TO NEW LOCATION.
- RECONNECT 120V CIRCUIT TO NEW CONTROL VALVE.
- PROVIDE NEW 120V CIRCUIT TO NEW CONTROL VALVE. USE 2#12 AND #12G IN 3/4" C. CONNECT TO CIRCUIT LP-25. REUSE EXISTING CB.
- COORDINATE CONDUITS AND GATE VALVE CLEARANCES WITH MECHANICAL WORK.
- EXISTING FLOOR PENETRATION TO BE REUSED FOR NEW INSTRUMENTATION PANEL. PROVIDE SEGMENTED RUBBER COMPRESSION SEALS ON BOTH SIDES OF PENETRATIONS.
- CONNECT TO LP-30. PROVIDE NEW 1P, 20A BREAKER, 2-#12 AND #12G IN 3/4" CONDUIT.
- PROVIDE NEW LUMINARIES, PROGRESS #P5737-31 OR APPROVED EQUAL WITH 15W, MEDIUM BASE, SPIRAL COMPACT FLUORESCENT. REUSE EXISTING OUTLET BOX, WIRING AND CIRCUIT BREAKER. MAINTAIN EXISTING LIGHTING CONTROL.
- PROVIDE SEGMENTED RUBBER COMPRESSION SEALS ON BOTH SIDES OF EXISTING PENETRATIONS.
- EXISTING CORE DRILLED HOLE TO BE PATCH'D TO MATCH EXISTING SURFACE.
- ROUTE NEW CONDUIT ALONG WALL AND PIPING AS SHOWN.

AS-BUILT



DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, SUITE 204
OWINGS MILLS, MD 21117
PH: 410-356-1095 FAX: 410-363-4675
E-MAIL: mail@dhillon.com



"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. 8050, EXPIRATION DATE: 08/19/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Director of Public Works: *Ray J. ...* 1/29/13
Chief, Bureau of Utilities: *Steve ...* 1/29/13

Chief, Bureau of Engineering: *Thomas ...* 1-14-13
Chief, Utility Design Division: *...* 4/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A

DES:	RG				
DRN:	OM				
CHK:	RK				
DATE:	1/2013	BY:	WRA	NO.	AS-BUILTS
		REVISION			10/14

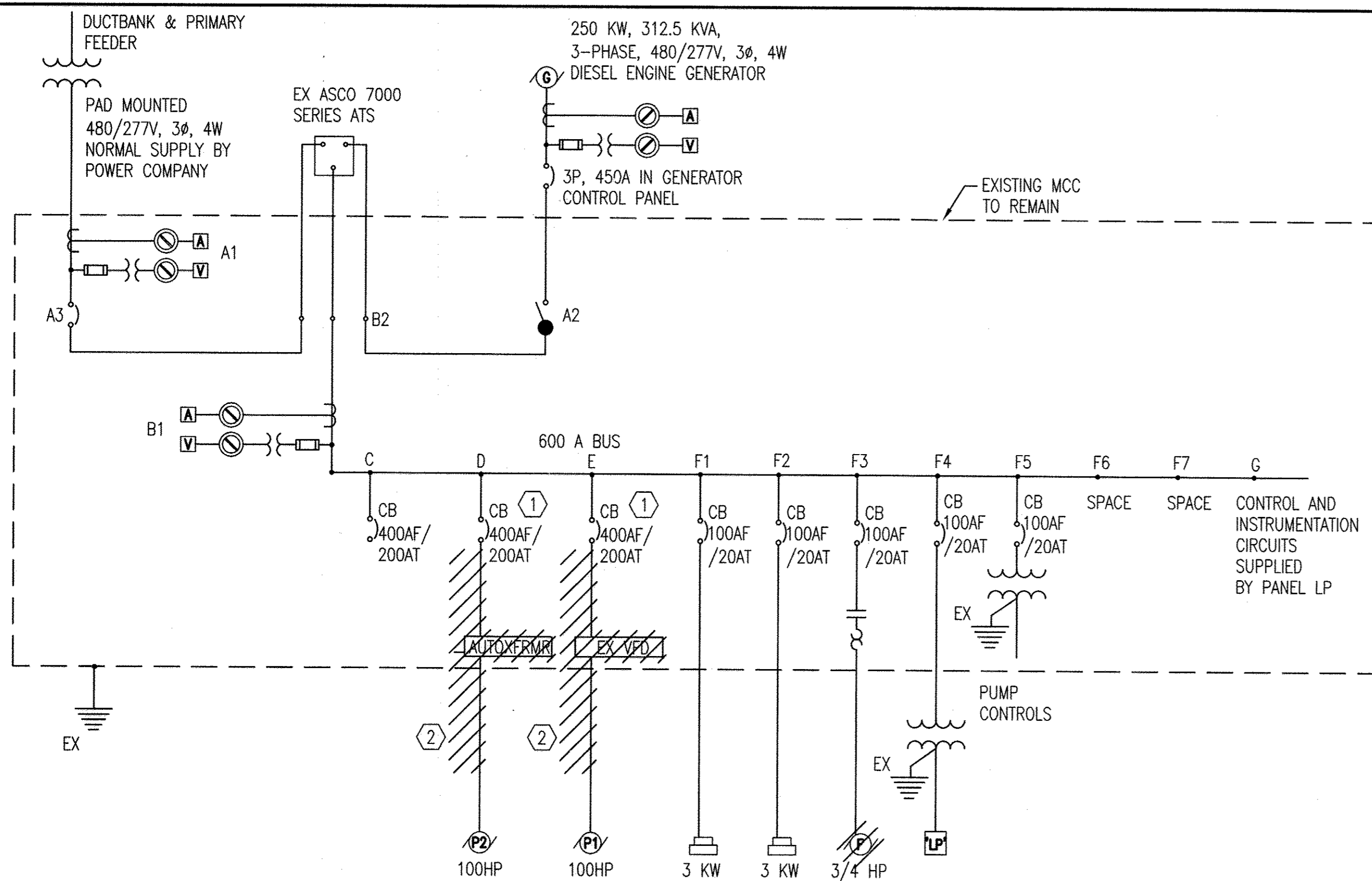
ELECTRICAL PLAN - NEW WORK

600' SCALE MAP NO. 24 BLOCK NO. 2&3

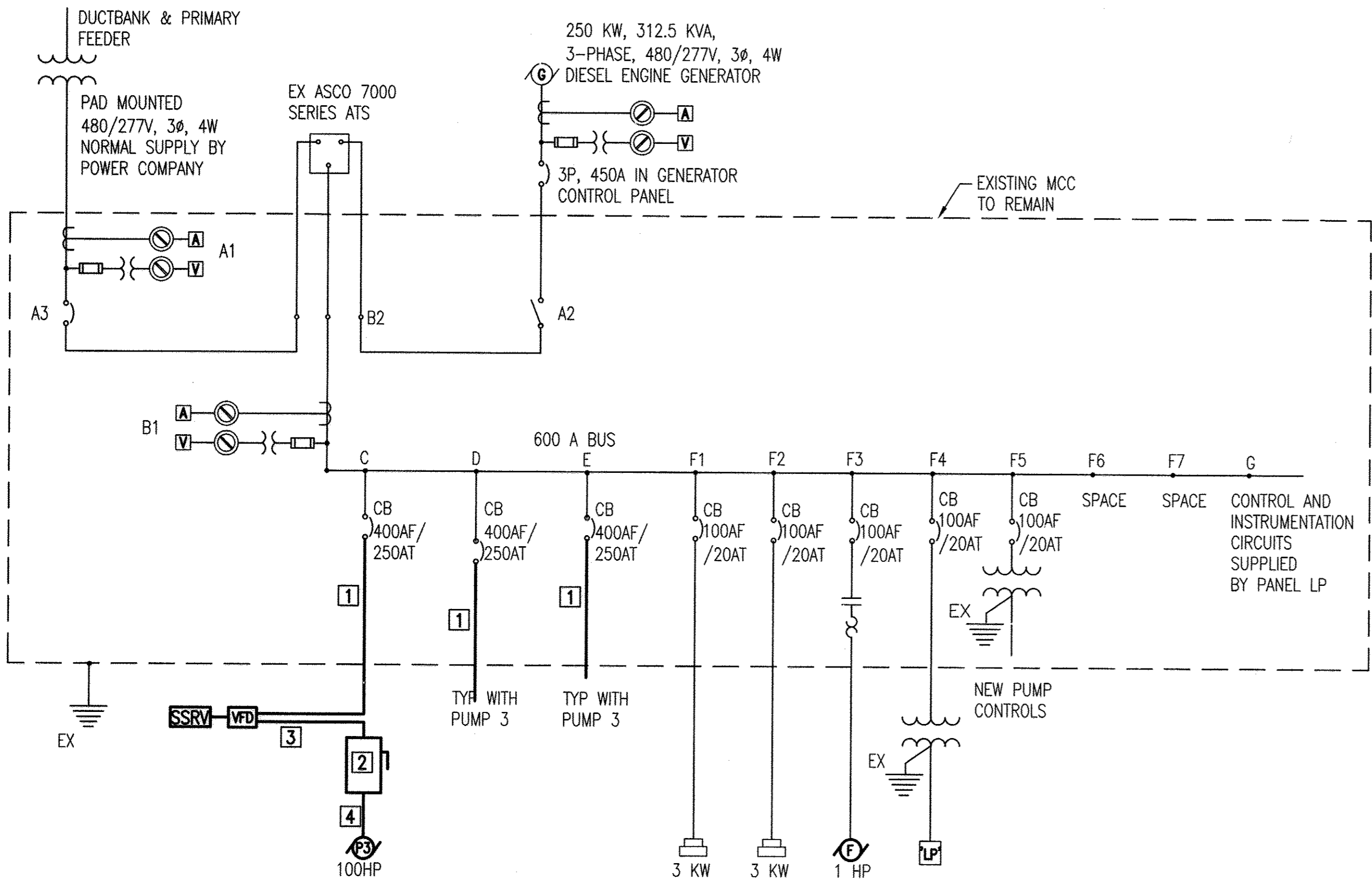
PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

E-2
SCALE AS SHOWN
SHEET 16 OF 23



1 SINGLE LINE DIAGRAM - DEMOLITION
E-3 SCALE: NONE

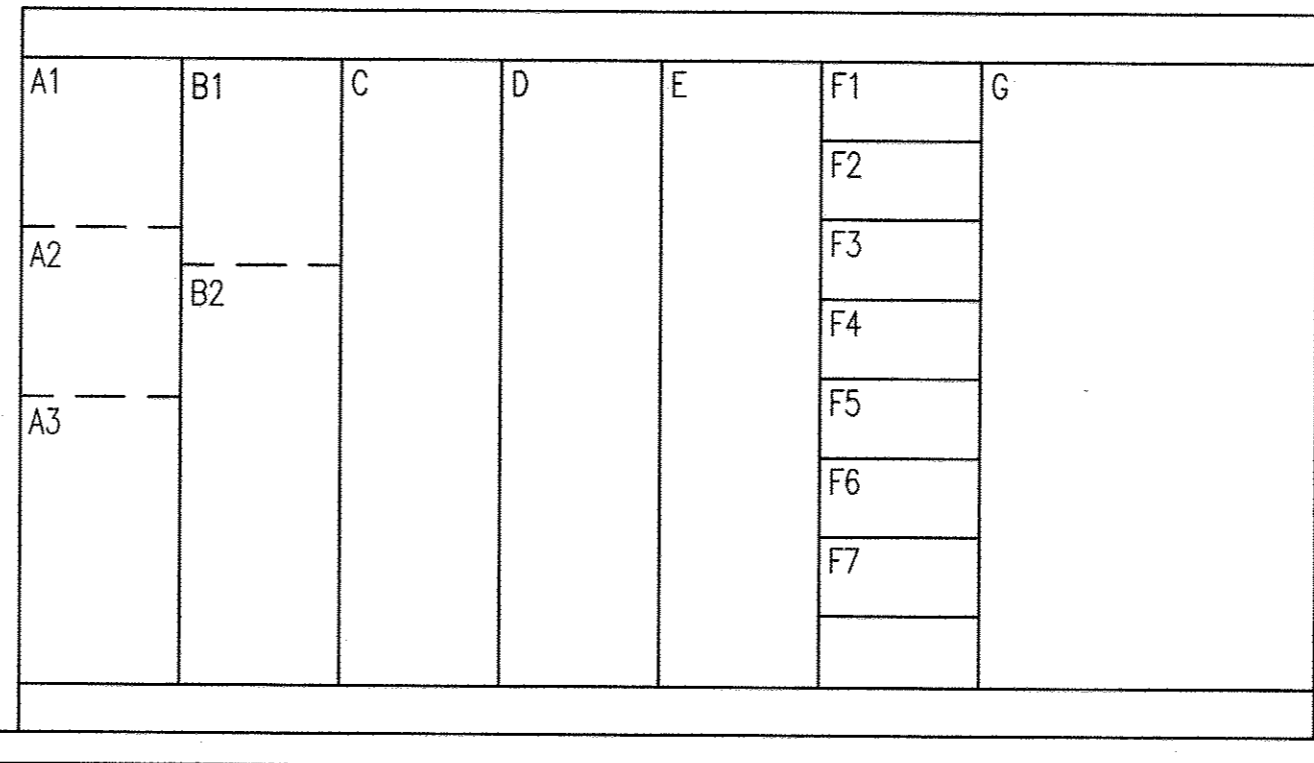


2 SINGLE LINE DIAGRAM - NEW WORK
E-3 SCALE: NONE

UNIT NO.	EQUIPMENT SERVED	LOAD	CIRCUIT BREAKER			NEMA START SIZE	AUXILIARIES	WIRING	CONDUIT	REMARKS
			POLES	TRIP	FRAME					
A1	UTILITY METERING	-	-	-	-	-	-	-	-	EXISTING TO REMAIN
A2	GENERATOR SERVICE DISCONNECT	-	3	-	600AF	-	-	2(3#4/0 & 1#2/0G)	2 1/2"	MOLDED CASE SWITCH EXISTING TO REMAIN
A3	UTILITY SERVICE BREAKER	-	3	450AT	600AF	-	-	2(3#4/0 & 1#2/0G)	2 1/2"	EXISTING TO REMAIN
B1	MCC METERING	-	-	-	-	-	-	-	-	EXISTING TO REMAIN
B2	AUTO TRANSFER SWITCH	-	3	-	-	-	-	-	-	EXISTING TO REMAIN
C	VFD NO. 3/WATER PUMP NO. 3	100HP	3	250AT	400AF	-	A,B,C,D, E,F,G,H,I	3#2/0 & 1#3G	2" [3]	SEE NEW WORK
D	VFD NO. 2/WATER PUMP NO. 2	100HP	3	250AT [5]	400AF	-	A,B,C,D, E,F,G,H,I	3#2/0 & 1#3G	2" [3]	SEE NEW WORK
E	VFD NO. 1/WATER PUMP NO. 1	100HP	3	250AT [5]	400AF	-	A,B,C,D, E,F,G,H,I	3#2/0 & 1#3G	2" [3]	SEE NEW WORK
F1	UNIT HEATER NO. 1	3.0 KW	3	20AT	400AF	-	-	-	3/4"	EXISTING TO REMAIN
F2	UNIT HEATER NO. 2	3.0 KW	3	20AT	100AF	-	-	-	3/4"	EXISTING TO REMAIN
F3	EXHAUST FAN NO. 1	1 HP	3	20AT	100AF	1	A,B,C,D	3#12 1#12G	3/4"	REUSE EX CB AND WIRING
F4	LIGHTING PANEL (LP) TRANSFORMER FEEDER BREAKER	30 KVA	3	60AT	100AF	-	-	3#6 1#10G	1"	EXISTING TO REMAIN
F5	MCC-G CPT FEEDER BREAKER	-	2	-	100AF	-	-	-	-	EXISTING TO REMAIN
F6	SPACE AND BUS	-	-	-	-	-	-	-	-	EXISTING TO REMAIN
F7	SPACE AND BUS	-	-	-	-	-	-	-	-	EXISTING TO REMAIN
G	CONTROL/ INSTRUMENTATION PANEL	-	-	-	-	-	-	-	-	REFER TO P AND I DRAWINGS

- DEMOLITION NOTES:**
- EXISTING BREAKER TO REMAIN UNLESS OTHERWISE NOTED.
 - REMOVE EXISTING CABLES, POWER FACTOR CORRECTION CAPACITOR, AND AUTOTRANSFORMER STARTER. REMOVE EXISTING CABLES FROM CIRCUIT BREAKER DOWNSTREAM TO THE PUMP MOTOR. EXISTING CONDUITS TO BE REUSED.

- CONSTRUCTION NOTES:**
- REUSE EXISTING 2" CONDUIT FROM MCC TO NEW PULLBOX.
 - CUT EXISTING EMPTY CONDUIT TO ACCOMMODATE NEW DISCONNECT.
 - PROVIDE 2" CONDUIT FROM DISCONNECT UP TO NEW VFD.
 - PROVIDE 2" CONDUIT CONNECTION FROM DISCONNECT TO EXISTING STUB OUT FOR CONDUITS EMBEDDED IN CONCRETE.
 - ADJUST THE TRIP SETTING TO 250A.



3 EXISTING MOTOR CONTROL CENTER - ELEVATION
E-3 SCALE: 1/2" = 1'-0"

- MCC AUXILIARIES**
- A - 480V TO 120V CONTROL POWER TRANSFORMER
 - B - RED (ON) INDICATING LIGHT
 - C - GREEN (OFF) INDICATING LIGHT
 - D - HAND/OFF/AUTOMATIC SELECTOR SWITCH
 - E - RUNNING TIME METER
 - F - VALVE POSITION INDICATING LIGHTS - GREEN(CLOSED), RED(OPEN), AMBER(FAILURE)
 - G - ALARM RESET PUSHBUTTON(S) - MOMENTARY CONTACT TYPE
 - H - AUXILIARY CONTROL/TIMING RELAY(S)
 - I - TACHOMETER

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, SUITE 204
OWINGS MILLS, MD 21117
PH: 410-356-1095 FAX: 410-363-4675
E-MAIL: mail@dhillond.com



"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. 8050, EXPIRATION DATE: 08/19/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Jay G. Kealy
DIRECTOR OF PUBLIC WORKS
DATE: 11/20/13

Thomas J. Sullivan
CHIEF, BUREAU OF ENGINEERING
DATE: 11/14/13

Ed O'Keefe
CHIEF, UTILITY DESIGN DIVISION
DATE: 11/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A

DES: RG
DRN: OM
CHK: RK
DATE: 1/2013

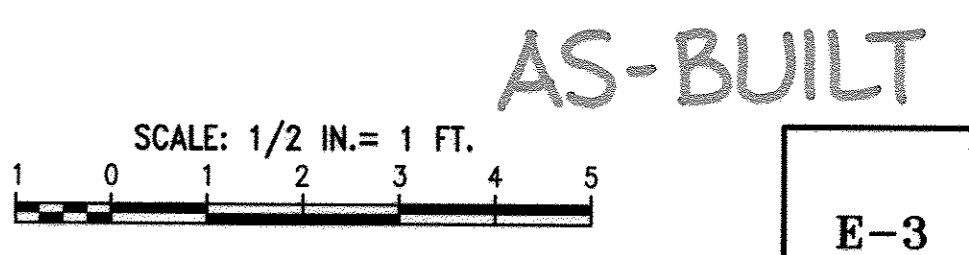
WRA
BY NO. AS-BUILTS
REVISION
DATE: 10/14

ELECTRICAL SINGLE LINE DIAGRAMS AND MCC SCHEDULES

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND



E-3
SCALE AS SHOWN
SHEET 17 OF 23

PROCESS AND INSTRUMENTATION SYMBOLS

- FIELD MOUNTED DEVICE
- PANEL MOUNTED DEVICE
- INDICATING LAMP - X INDICATES LENS COLOR
R = RED, A = AMBER
G = GREEN, W = WHITE
- ABC - LETTERS INDICATE FUNCTION ACCORDING TO ISA SCHEDULE: 123 DIGITS IDENTIFY ASSOCIATED EQUIPMENT
- PROCESS FLOW
- ELECTRICAL SIGNAL
- INTERLOCK-PLC LOGIC OR HARDWIRED AS SHOWN ON DRAWINGS

EQUIPMENT SYMBOLS

- PUMP
- CHECK VALVE
- GATE VALVE
- REDUCER
- CONTROL VALVE W/ SOLENOID
- OPERATOR INTERFACE TERMINAL
- VFD/SOFT STARTER PANEL MOUNTED KEYPAD
- NEW PIPING
- EXISTING PIPING

ABBREVIATIONS

- AI = ANALOG INPUT
- AO = ANALOG OUTPUT
- AUTO = AUTOMATIC
- ATS = AUTOMATIC TRANSFER SWITCH
- BP = BOOSTER PUMP
- CBP = COUNTY BOOSTER PUMP
- CIM = COMMUNICATION INTERFACE MODULE
- CPT = CONTROL POWER TRANSFORMER
- DI = DISCRETE INPUT
- DO = DISCRETE OUTPUT
- DPDT = DOUBLE POLE-DOUBLE THROW
- ETM = ELAPSE TIME METER
- HMI = HUMAN MACHINE INTERFACE
- I/O = INPUT/OUTPUT
- MPD = MOTOR PROTECTIVE DEVICE
- MOD = MOTOR OPERATED DAMPER
- NIC = NETWORK INTERFACE CONNECTION
- OIT = OPERATOR INTERFACE TERMINAL
- PLC = PROGRAMMABLE LOGIC CONTROLLER
- PVCC = PVC COATED
- RTU = REMOTE TELEMETRY UNIT
- SSRV = SOLID STATE REDUCED VOLTAGE
- TEMP = TEMPERATURE
- TSP = TWISTED SHIELDED PAIR
- TYP = TYPICAL
- VAC = VOLTS/ALTERNATING CURRENT
- VDC = VOLTS/DIRECT CURRENT
- VFD = VARIABLE FREQUENCY DRIVE
- WWPS = WASTEWATER PUMP STATION

MISCELLANEOUS

- # - DESIGNATION OF PLAN/SHEET NUMBER (1, 2, ETC.)
X - DESIGNATION OF SECTION LETTER (A, B, ETC.)

INSTRUMENTATION IDENTIFICATION SCHEDULE

	FIRST LETTER		SUCCEEDING LETTER		
	VARIABLE	MODIFIER	PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		AUTOMATIC
B	BREAKER		USER'S CHOICE	CLOSE OR STOP	BYPASS
C	COMMUNICATIONS			CONTROL	
D	DENSITY	DIFFERENTIAL		OPEN OR START	
E	VOLTAGE (EMF)		PRIMARY ELEMENT	SENSOR	
F	FLOW RATE	RATIO	FAIL	FAIL	FAIL
G	GAUGING		GLASS		LOCAL/MANUAL/HAND
H	HAND				HIGH OR OPEN
I	CURRENT		INDICATE		INTERMEDIATE
J	POWER	SCAN			
K	TIME	TIME RATE		CONTROL STATION	
L	LEVEL		LIGHT		LOW OR CLOSE
M	MOTOR	MOMENTARY		MOTOR	MIDDLE
N	USER'S CHOICE		INPUT	FORWARD	ON OR OPERATE
O				OFF	OVERLOAD
P	PRESSURE	PNEUMATIC	POINT (TEST)	POSITION	
Q	QUANTITY OR EVENT	TOTALIZE		EMERGENCY/ABNORMAL	
R	RADIOACTIVITY		RECORD OR PRINT	REMOTE	RUN
S	SPEED OR FREQUENCY	SUM	SWITCH	SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VARIABLE OR VISCOSITY			VALVE OR DAMPER	VFD / VALVE
W	WEIGHT OR FORCE		WELL		
X	MOD, LIGHT OR VALVE		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	INTERLOCK			RELAY OR COMPUTE	RESET
Z	POSITION			DRIVE OR ACTUATOR	

HAND SWITCHES

- SELECTOR SWITCH (MAINTAINED CONTACTS)
XXX = HOA : HAND-OFF-AUTO
- PUSHBUTTON (MOMENTARY CONTACTS)
XXX = RES : RESET
= ACK : ACKNOWLEDGE

INSTRUMENT, EQUIPMENT AND CONTROL DEVICE EXAMPLES

- FE = FLOW ELEMENT
- FIT = FLOW INDICATING TRANSMITTER
- PE = PRESSURE ELEMENT
- PIT = PRESSURE INDICATING TRANSMITTER
- TSH = TEMPERATURE SWITCH HIGH
- TSL = TEMPERATURE SWITCH LOW
- ZSC = POSITION SWITCH CLOSED
- ZSO = POSITION SWITCH OPEN
- FS = FLOW SWITCH
- LSL = LEVEL SWITCH LOW
- LSH = LEVEL SWITCH HIGH

ELEMENTARY WIRING SYMBOLS

- CONTROL RELAY
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- FUSE
- CIRCUIT BREAKER
- SELECTOR SWITCH
X00 = REPRESENT THE NUMBER OF SWITCH POSITIONS
- NORMALLY OPEN PUSH BUTTON
- NORMALLY CLOSED PUSH BUTTON
- EMERGENCY STOP PUSH BUTTON
- PUSH-TO-TEST PILOT LIGHT
R=RED, G=GREEN, A=AMBER, W=WHITE
- PLC DISCRETE OUTPUT VIA INTERPOSING RELAY
- MOTOR
- TERMINAL BLOCK
- THERMOSTAT CLOSE ON RISING/TEMPERATURE
- NORMALLY OPEN LIMIT SWITCH
- NORMALLY OPEN TIMED CLOSED CONTACT
- NORMALLY CLOSE CONTACT TIMED OPEN
- FLOAT SWITCH
- MANUAL MOTOR STARTER WITH OVERLOAD AND SELECTOR SWITCH
- GROUND
- SOLENOID VALVE

GENERAL CIRCUIT/CONDUIT TAG IDENTIFICATION

TAG	CONDUIT SIZE	CONDUCTORS	NOTES
C-X (Y)	3/4" (X=2 THRU 18) 1" (X=19 THRU 30) 2" (X=31 THRU 100)	X-#14, 1-#12G	(Y) DENOTES ADDITIONAL SPARES
P-X (Y)	3/4" (X=2 THRU 14) 1" (X=15 THRU 24) 2" (X=25 THRU 80)	X-#12, 1-#12G	(Y) DENOTES ADDITIONAL SPARES
TSP-X (Y)	3/4" (X=1,2) 1" (X=3,4) 2" (X=5 THRU 16)	X-#18 TWISTED SHIELDED PAIR	(Y) DENOTES ADDITIONAL SPARES
I-M	CONDUIT SIZE AS REQUIRED	CABLE AS PROVIDED OR RECOMMENDED BY EQUIPMENT MANUFACTURER. COORDINATE CONDUIT AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.	
TEL-X	CONDUIT SIZE AS REQUIRED	TELEPHONE LINE IN ACCORDANCE WITH EXISTING COUNTY BRIDGE CONNECTIONS. COORDINATE TELEPHONE LINE WITH VERIZON AND COUNTY B.O.U.	
TOTAL CONDUCTORS REQUIRED = X + Y			

PLAN SYMBOLS

- HOME RUN CONDUIT/CABLE
- JUNCTION BOX
- CONTROL ENCLOSURE
- PRESSURE SWITCH
- PRESSURE TRANSMITTER
- FLOW METER
- FLOW TRANSMITTER
- FLOAT LEVEL SWITCH
- LIMIT SWITCH
- TEMPERATURE SWITCH
- SOLENOID VALVE

SIGNAL LINE TYPES

- ETHERNET SIGNAL
- ANALOG SIGNAL
- DISCRETE SIGNAL

SIGNAL INTERFACE

- ANALOG INPUT
- ANALOG OUTPUT
- DISCRETE INPUT
- DISCRETE OUTPUT

"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. 25318, EXPIRATION DATE: 7/14/14"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

John G. Lee 1/24/13
DIRECTOR OF PUBLIC WORKS DATE

William J. Butler 1-24-13
CHIEF, BUREAU OF ENGINEERING DATE

Debra J. ... 1/24/13
CHIEF, BUREAU OF UTILITIES DATE

... 1/11/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES:	GAH			
DRN:	GAH			
CHK:	PWG			
DATE:	1/2013	WRA	AS-BUILTS	10/14
BY	NO.	REVISION	DATE	

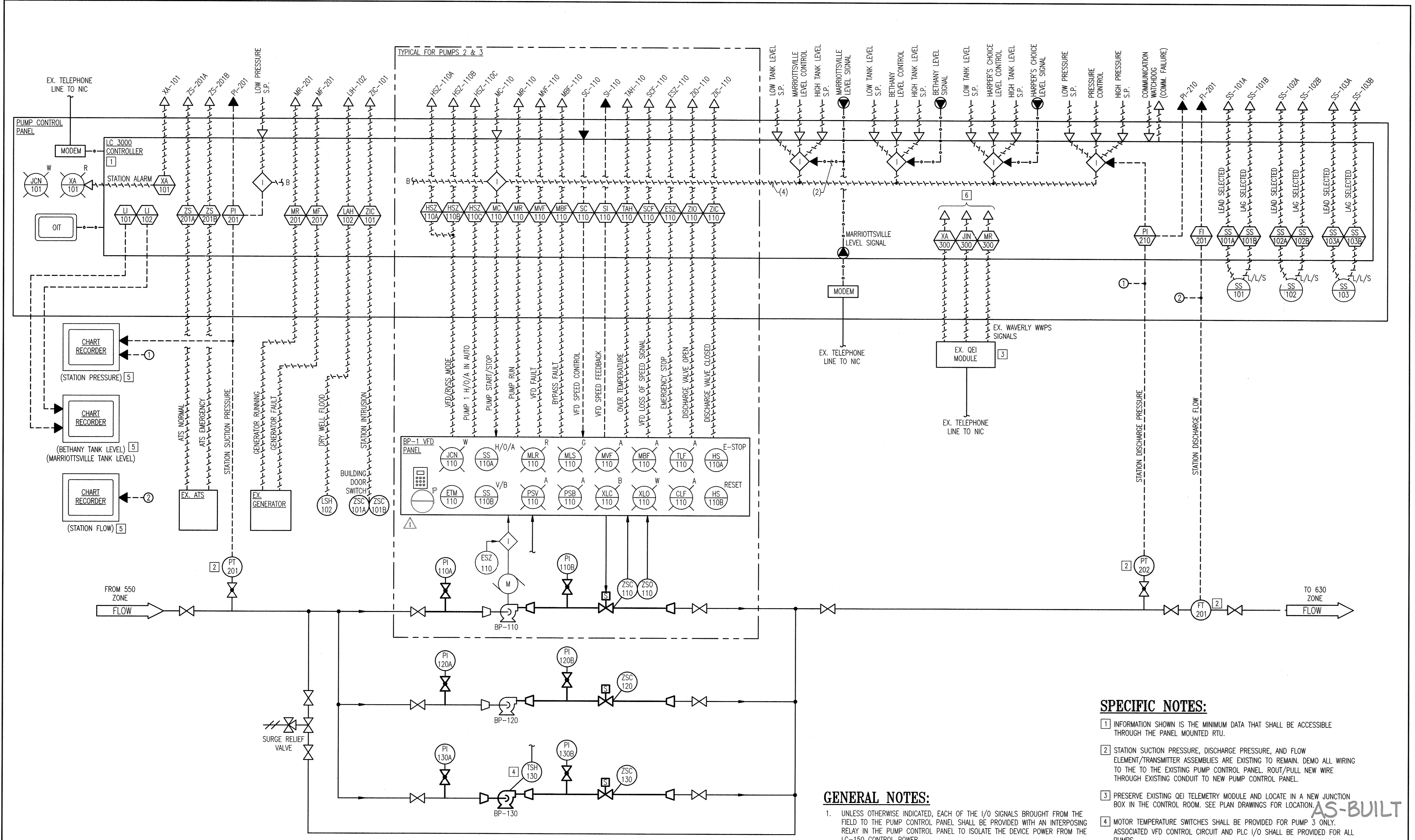
INSTRUMENTATION SYMBOLS, SCHEDULE, AND LEGEND

600' SCALE MAP NO. 24 BLOCK NO. 2&3

AS-BUILT

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W- 8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND



SPECIFIC NOTES:

- 1] INFORMATION SHOWN IS THE MINIMUM DATA THAT SHALL BE ACCESSIBLE THROUGH THE PANEL MOUNTED RTU.
- 2] STATION SUCTION PRESSURE, DISCHARGE PRESSURE, AND FLOW ELEMENT/TRANSMITTER ASSEMBLIES ARE EXISTING TO REMAIN. DEMO ALL WIRING TO THE TO THE EXISTING PUMP CONTROL PANEL. ROUT/PULL NEW WIRE THROUGH EXISTING CONDUIT TO NEW PUMP CONTROL PANEL.
- 3] PRESERVE EXISTING QEI TELEMETRY MODULE AND LOCATE IN A NEW JUNCTION BOX IN THE CONTROL ROOM. SEE PLAN DRAWINGS FOR LOCATION.
- 4] MOTOR TEMPERATURE SWITCHES SHALL BE PROVIDED FOR PUMP 3 ONLY. ASSOCIATED VFD CONTROL CIRCUIT AND PLC I/O SHALL BE PROVIDED FOR ALL PUMPS.
- 5] ALL CHART RECORDERS TO BE LOCATED IN THE CONTROL ROOM.
- 6] WAVERLY WASTEWATER PUMP STATION SIGNALS TO SCADA.

GENERAL NOTES:

1. UNLESS OTHERWISE INDICATED, EACH OF THE I/O SIGNALS BROUGHT FROM THE FIELD TO THE PUMP CONTROL PANEL SHALL BE PROVIDED WITH AN INTERPOSING RELAY IN THE PUMP CONTROL PANEL TO ISOLATE THE DEVICE POWER FROM THE LC-150 CONTROL POWER.
2. ALL SIGNALS TO SCADA SHALL BE VIA LEASED TELEPHONE LINE TO COUNTIES EXISTING SCADA CENTRAL MONITORING SYSTEM.

"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. 25378, EXPIRATION DATE: 7/14/14."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

DATE: 1/2013



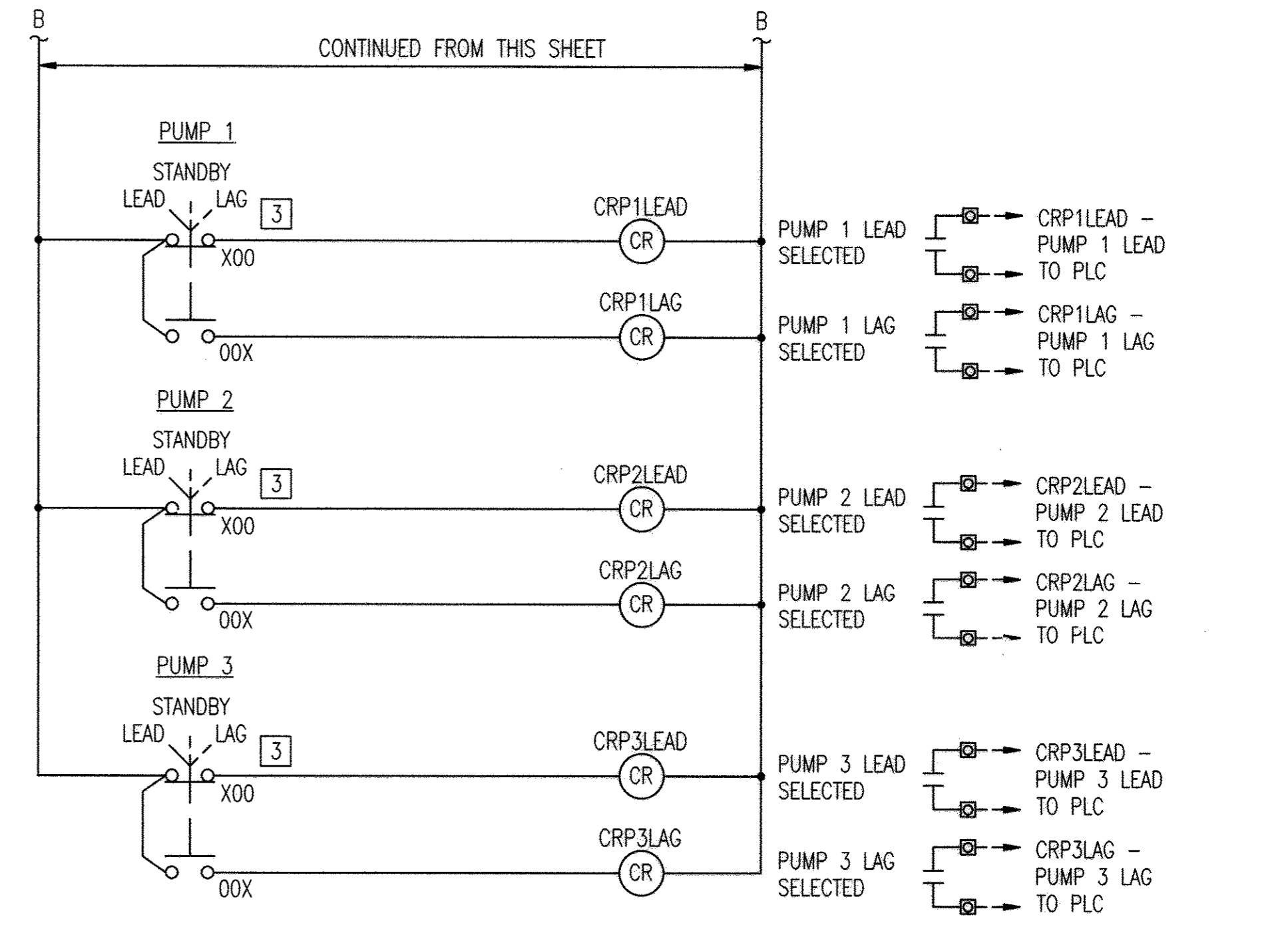
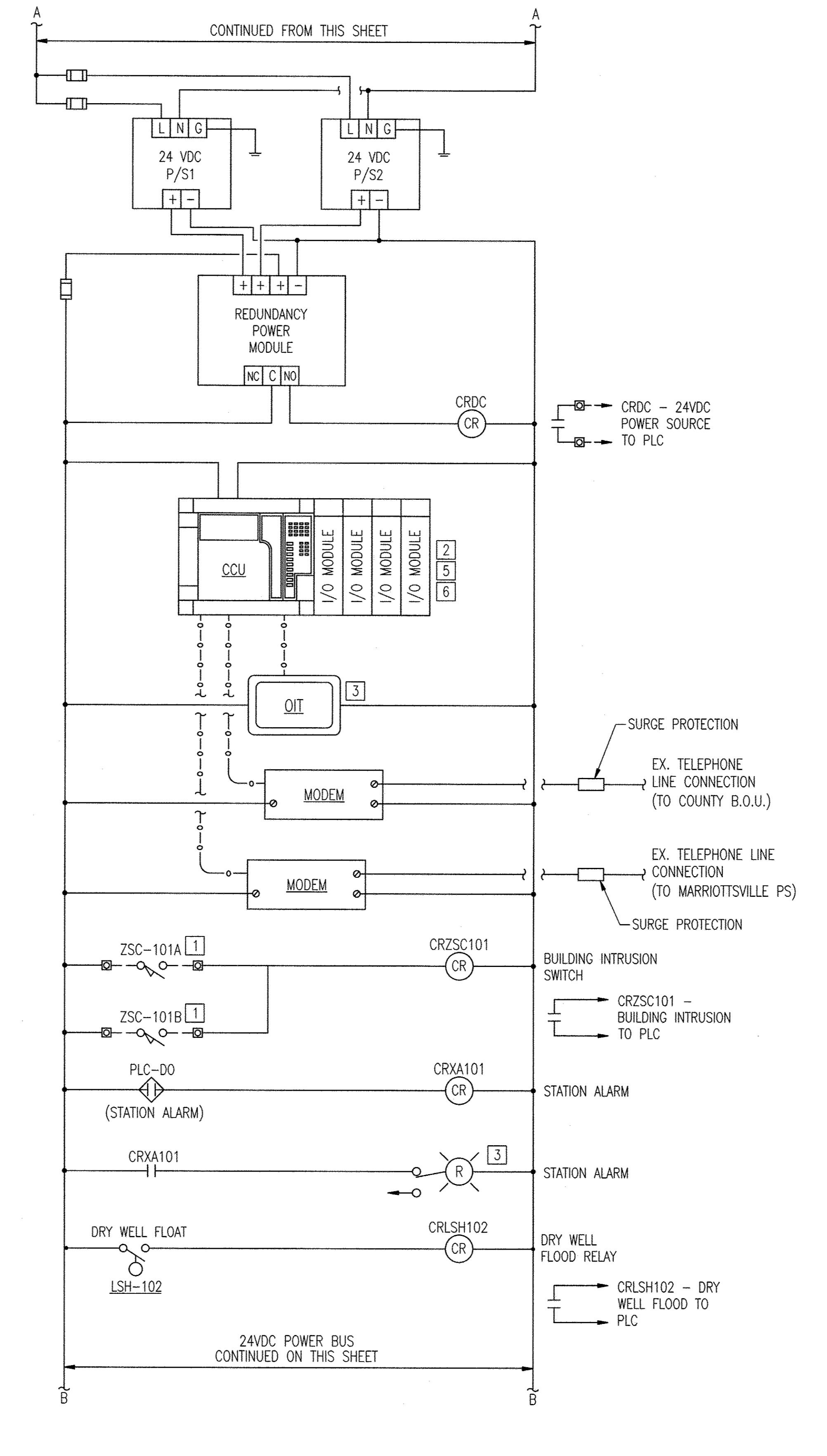
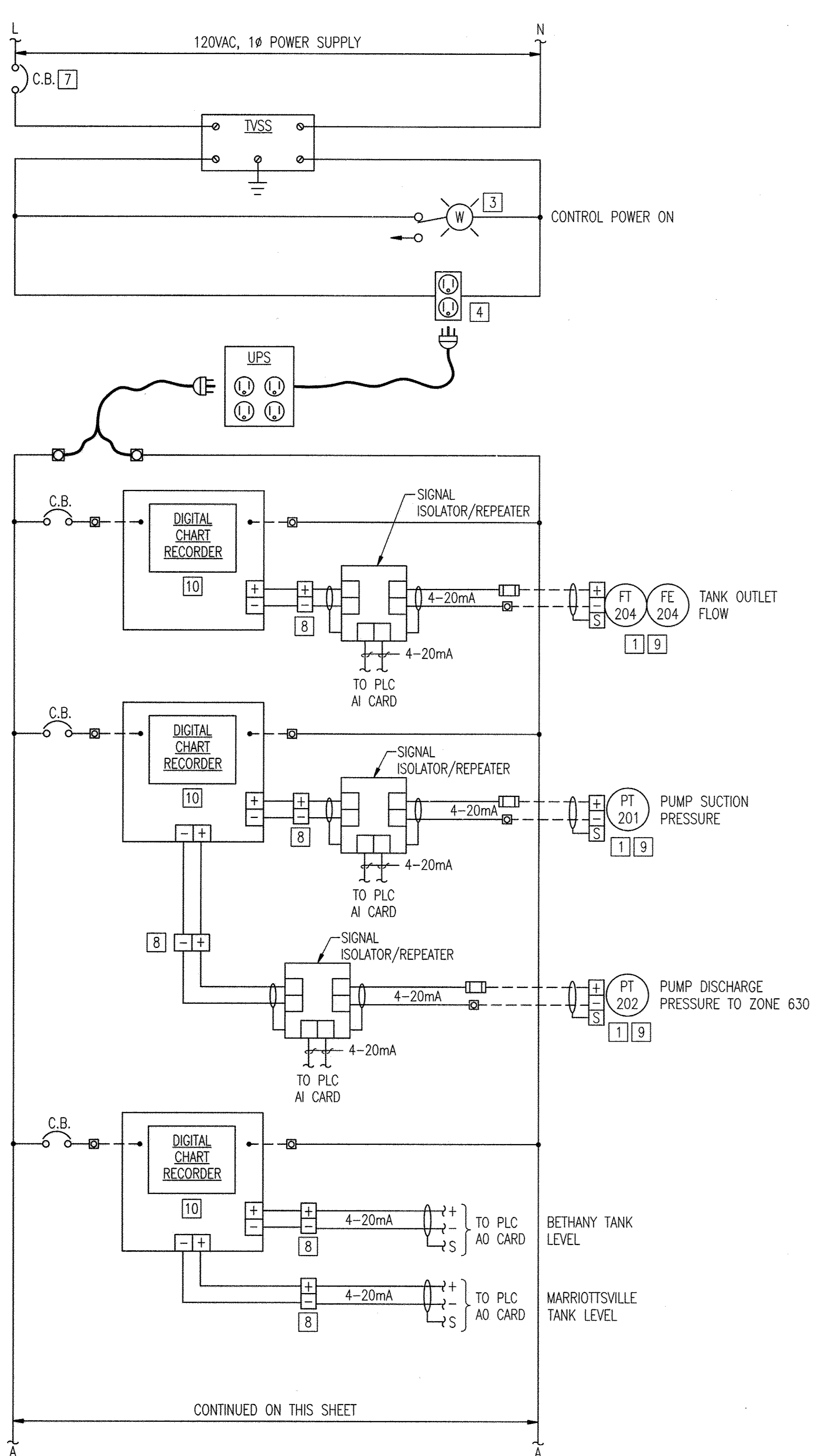
DES:	GAH
DRN:	GAH
CHK:	PWG
DATE:	1/2013
BY:	WRA
NO.:	AS-BUILTS
REVISION:	
DATE:	10/14

PROCESS AND INSTRUMENTATION
DIAGRAM (P&ID)

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND



- GENERAL NOTES:**
- UNLESS OTHERWISE INDICATED, EACH OF THE I/O SIGNALS BROUGHT FROM THE FIELD TO THE PUMP CONTROL PANEL SHALL BE PROVIDED WITH AN INTERPOSING RELAY IN THE PUMP CONTROL PANEL TO ISOLATE THE DEVICE POWER FROM THE LC-150 CONTROL POWER.
 - ALL SIGNALS TO SCADA SHALL BE VIA LEASED TELEPHONE LINE TO COUNTIES EXISTING SCADA CENTRAL MONITORING SYSTEM.
- SPECIFIC NOTES:**
- EQUIPMENT LOCATED IN FIELD.
 - NOT ALL I/O MODULES ARE SHOWN.
 - EQUIPMENT LOCATED ON THE FACE OF THE PCP. ALL OTHER ITEMS ARE MOUNTED INTERIOR TO PCP.
 - LABEL AS "UPS RECEPTACLE"
 - ALL DISCRETE I/O INTERFACE WITH THE PLC SHALL UTILIZE 24VDC POWER.
 - NOT ALL I/O WIRING AND CONNECTIONS TO I/O CARDS ARE SHOWN. PROVIDE WIRING FOR I/O TO PLC I/O AS REQUIRED FOR ACTIVE AND SPARE I/O PER THE I/O LIST ON THE SPECIFICATIONS AND THE CONTRACT DRAWINGS, AS APPLICABLE. PROVIDE INTERPOSING RELAYS WITH SNUBBER CIRCUITS FOR DISCRETE OUTPUTS, BOTH ACTIVE AND SPARES. PROVIDE FUSES ON ANALOG INPUTS AND OUTPUTS, BOTH ACTIVE AND SPARES. PROVIDE WIRING OF ALL I/O, INCLUDING SPARES, TO FIELD TERMINAL STRIPS.
 - PROVIDE PERMANENT LABEL AT EACH CB WITH CIRCUIT AND/OR EQUIPMENT BEING FED.
 - LOOP POWER FOR ANALOG SIGNALS SHALL BE OBTAINED FROM THE 24VDC POWER BUS.
 - STATION SUCTION PRESSURE, DISCHARGE PRESSURE, AND FLOW TRANSMITTER ASSEMBLIES ARE EXISTING TO REMAIN. DEMO ALL WIRING AND CONDUIT TO EXISTING CHART RECORDER AND TELEMETRY UNIT AND WIRE TO NEW PUMP CONTROL PANEL.
 - CHART RECORDERS WALL MOUNTED REMOTELY FROM PUMP CONTROL PANEL.

1 PUMP CONTROL PANEL ELEMENTARY
1-3 NOT TO SCALE

"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. 29328, EXPIRATION DATE: 4/14/14."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

DES: GAH
DRN: GAH
CHK: PWG
DATE: 1/2013

DATE: 1/2013



DATE: 1/2013

WRA AS-BUILTS

REVISION

DATE: 10/14

PUMP CONTROL PANEL
ELEMENTARY DIAGRAM

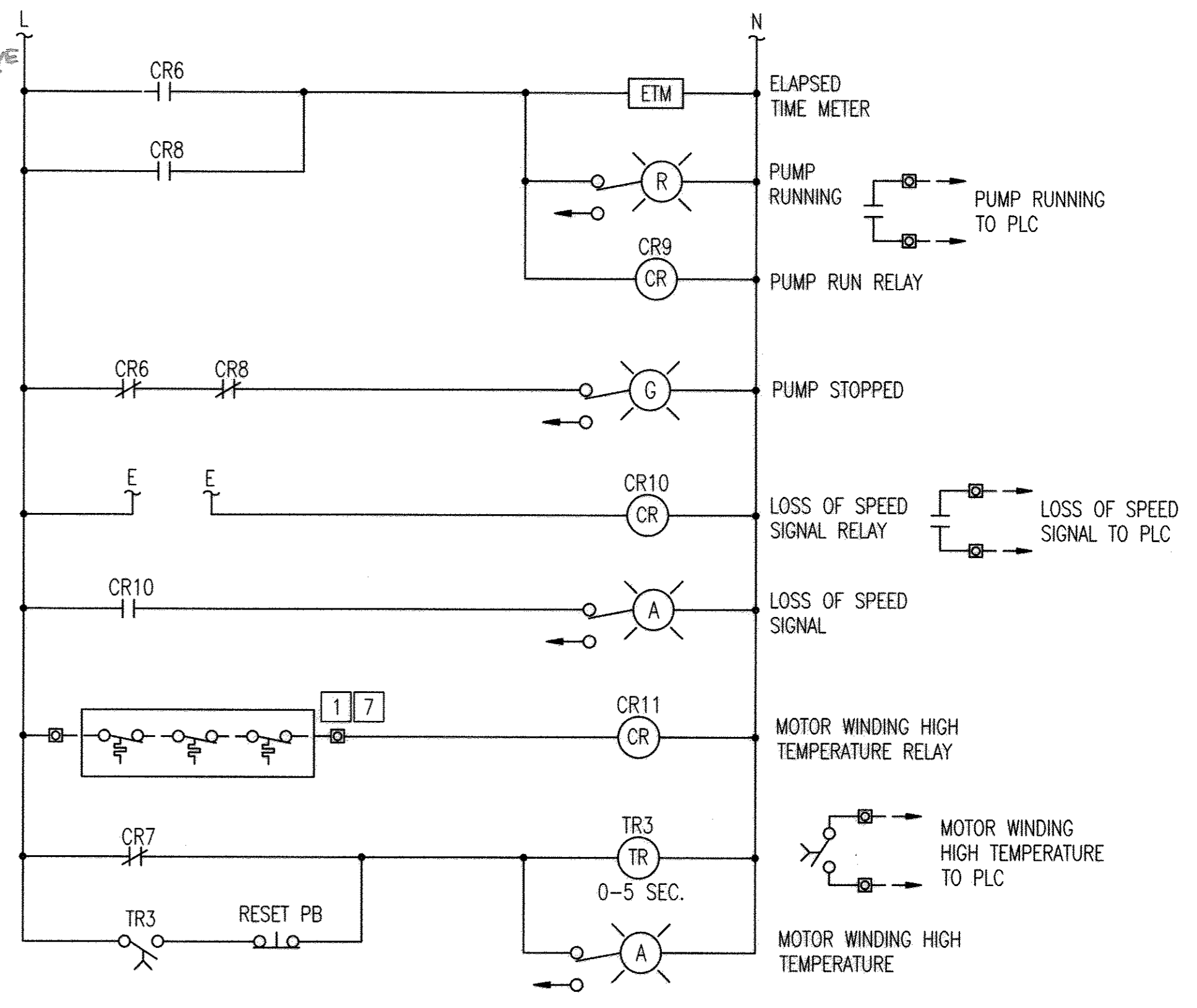
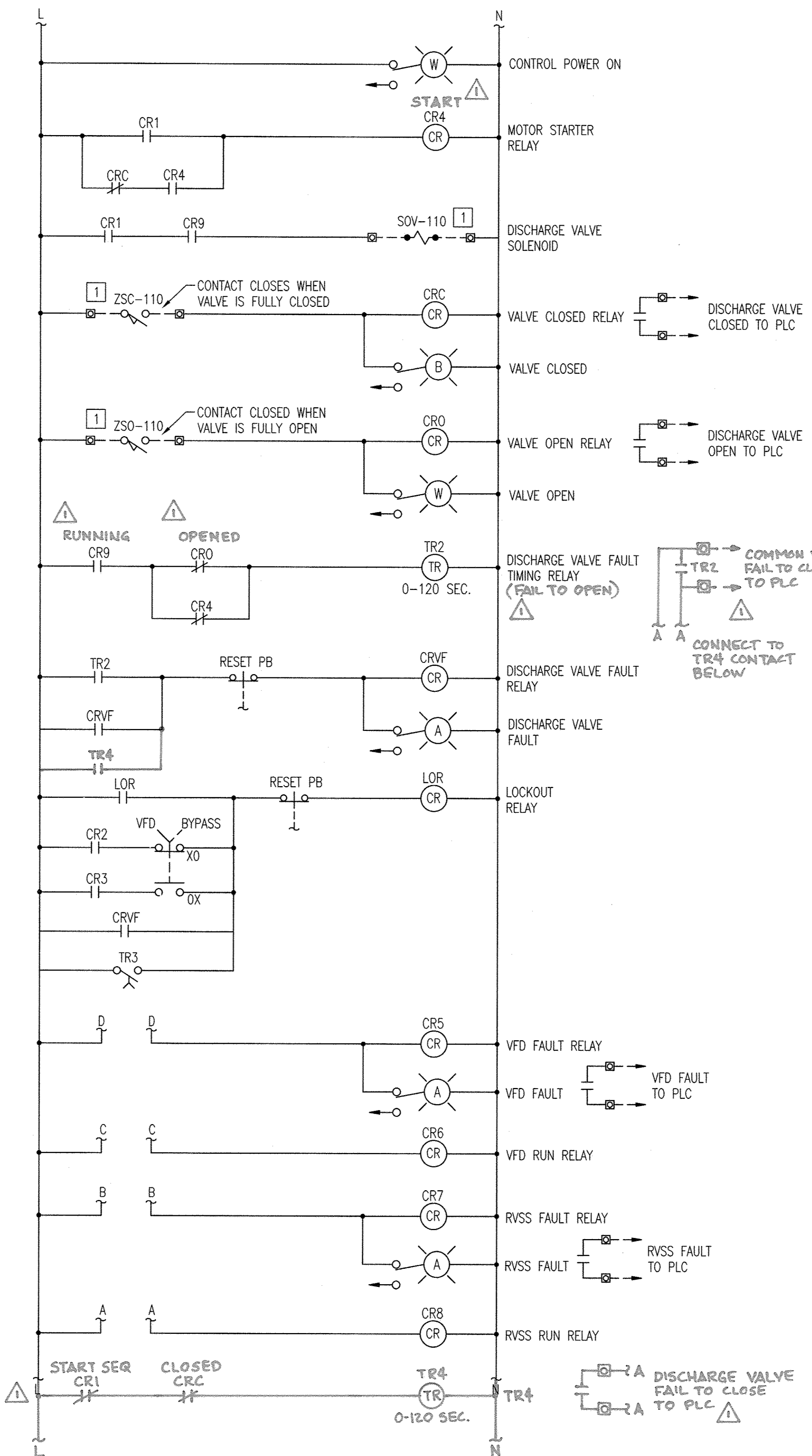
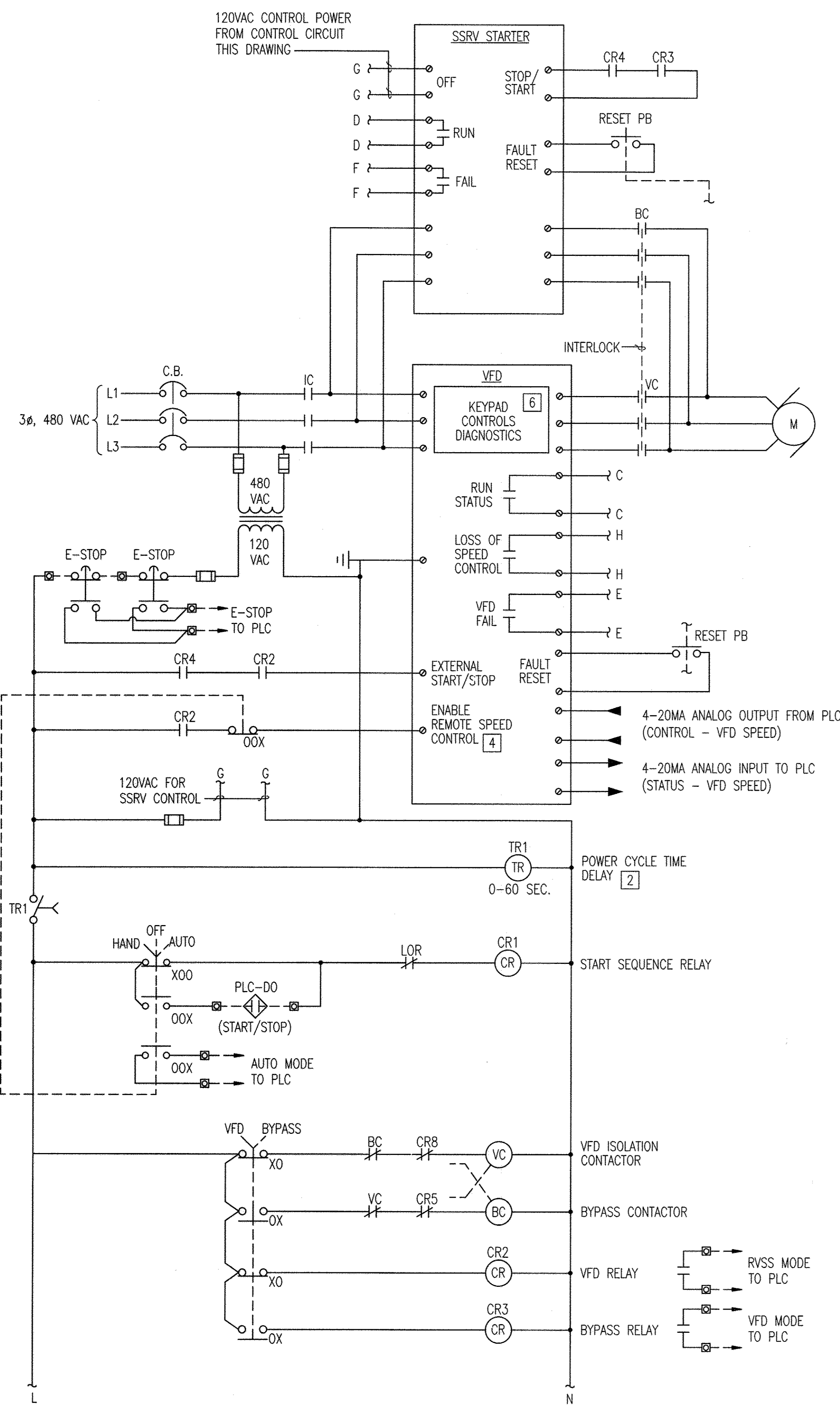
600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

AS-BUILT

I-3
SCALE AS SHOWN
SHEET
20 OF 23



SPECIFIC NOTES:

- 1 EQUIPMENT LOCATED REMOTE FROM VFD ENCLOSURE.
- 2 SET AT 10 SECOND DELAY FOR PUMP-1, 20 SECOND DELAY FOR PUMP-2 AND 30 SECONDS FOR PUMP-3
- 3 PROVIDE INDIVIDUAL CIRCUIT BREAKERS FOR VFD AND SSRV STARTER.
- 4 AUTO MODE-EXTERNAL SPEED CONTROL ENABLED.
- 5 ALL DISCRETE I/O INTERFACE WITH THE PLC SHALL UTILIZE 24VDC POWER.
- 6 DOOR MOUNTED HMI.
- 7 MOTOR TEMPERATURE SWITCHES SHALL BE PROVIDED FOR PUMP 3 ONLY. ASSOCIATED VFD CONTROL CIRCUIT AND PLC I/O SHALL BE PROVIDED FOR ALL PUMPS.

VFD PUMP 1 CONTROL PANEL ELEMENTARY
(TYPICAL FOR PUMP 2 & 3)

"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. 25378, EXPIRATION DATE: 7/14/14"

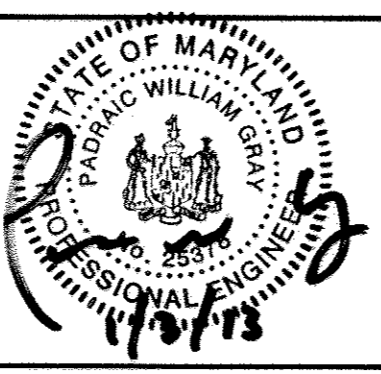
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Director of Public Works: *James A. ...* DATE: 1/29/13
Chief, Bureau of Utilities

Prepared by: *William ...* DATE: 1-14-13
Chief, Utility Design Division

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES:	GAH			
DRN:	GAH			
CHK:	PWG			
DATE:	1/2013			
BY:	WRA	AS-BUILTS		10/14
NO.:				
REVISION:				

VFD ELEMENTARY DIAGRAM

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

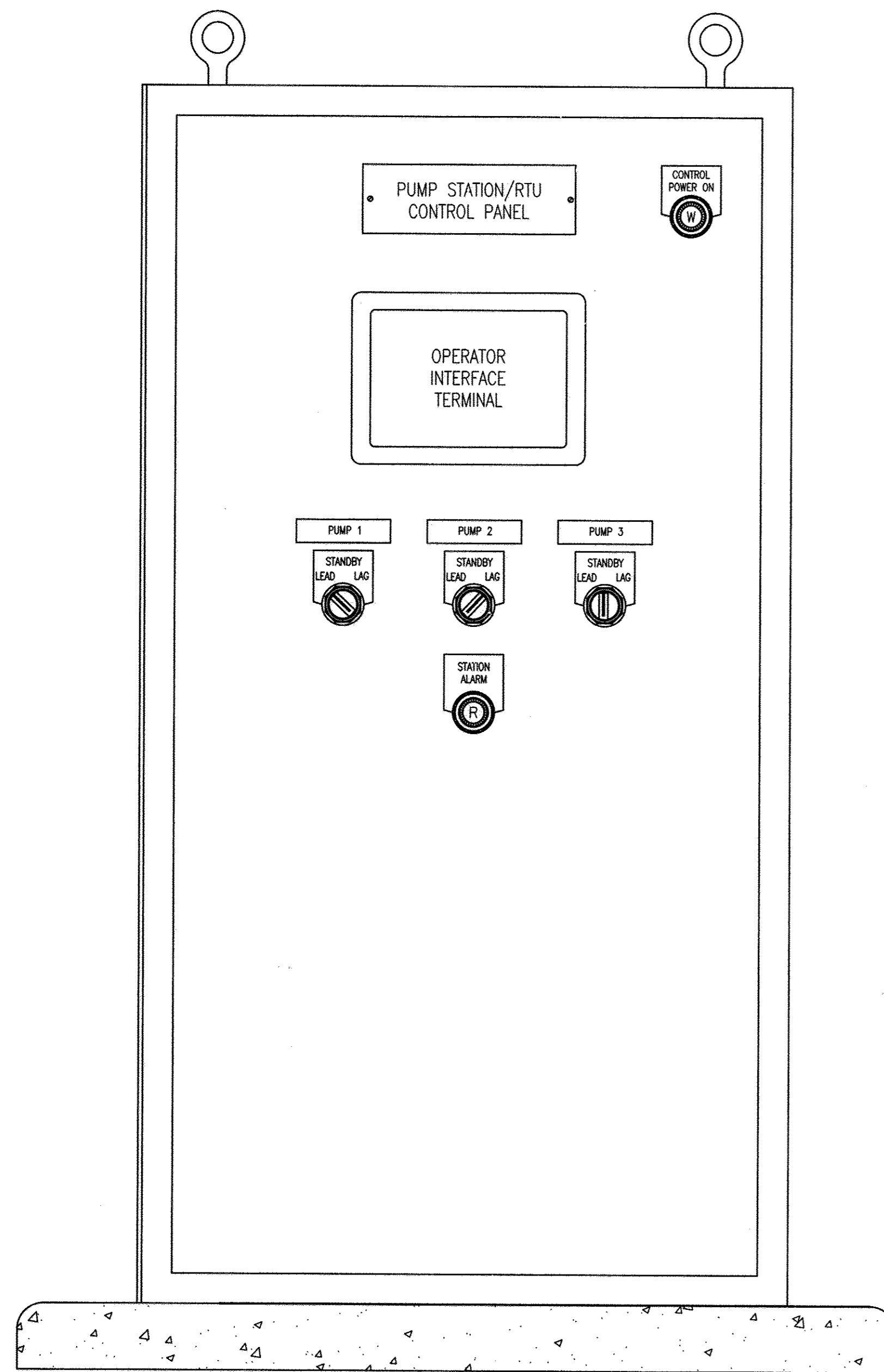
ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

AS-BUILT

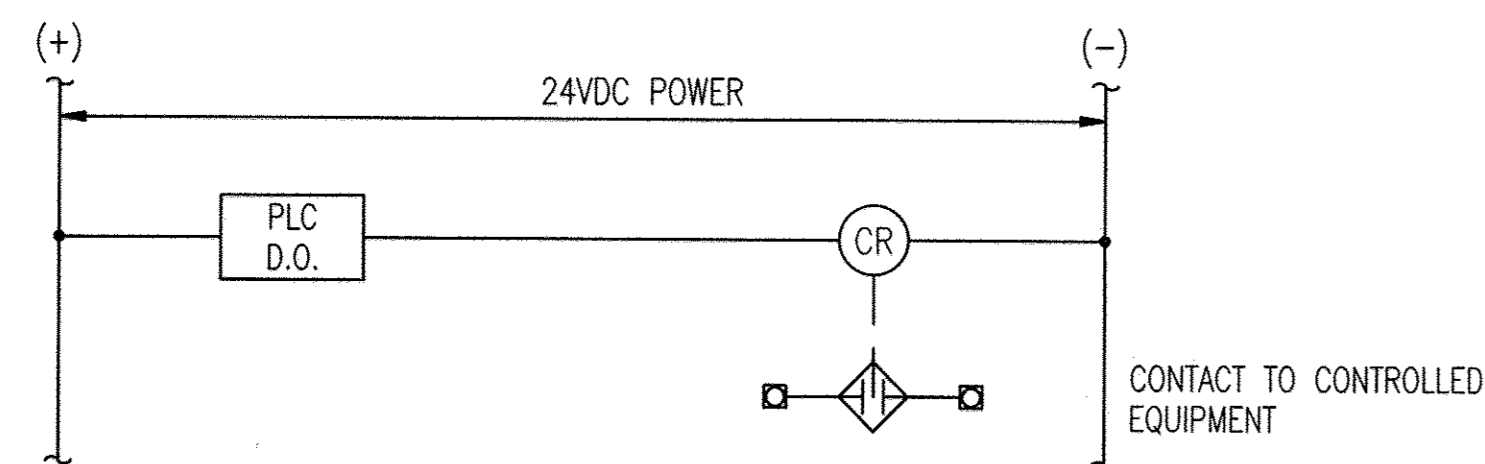
I-4
SCALE AS SHOWN
SHEET 21 OF 23

SPECIFIC NOTES:

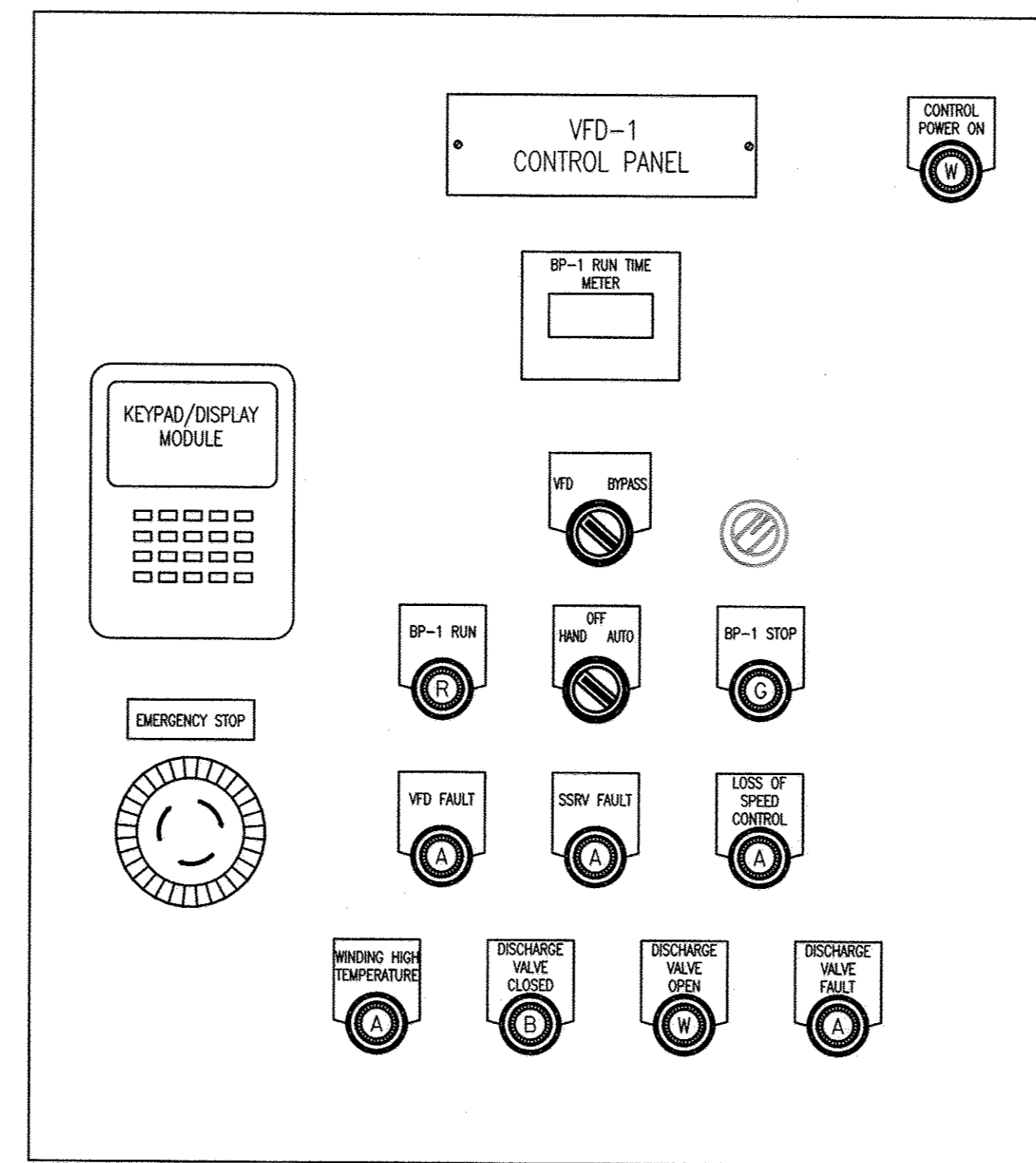
- EXISTING TELEPHONE LINE/NEW FIELD WIRING.
- NEW TELEPHONE LINE/NEW PANEL WIRING.
- 1 EXISTING WAVERLY WWPS QEI MODULE TO BE LOCATED IN NEW QEI MODULE JUNCTION BOX.



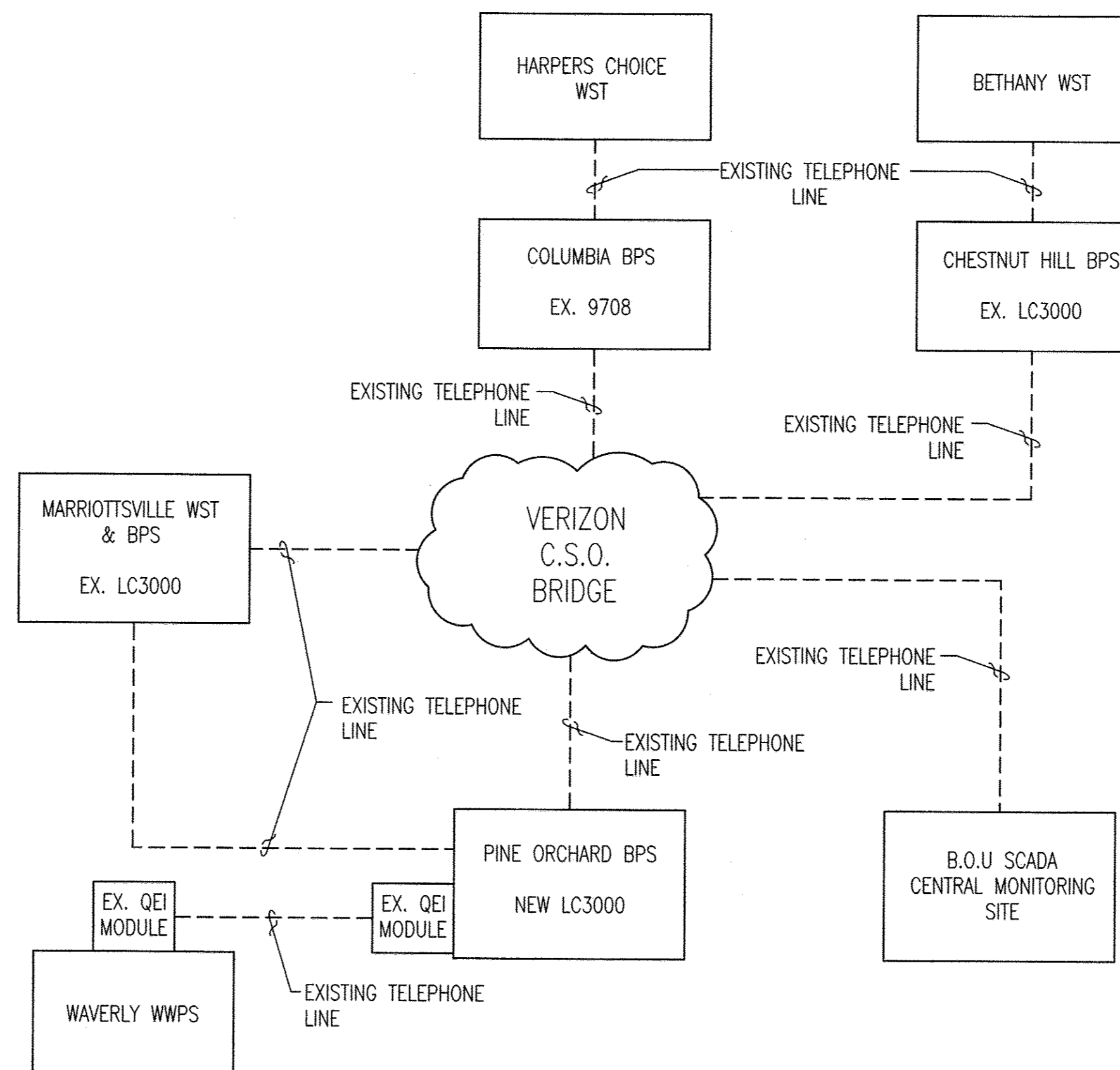
1 **PUMP STATION CONTROL PANEL ELEVATION**
1-4 NOT TO SCALE



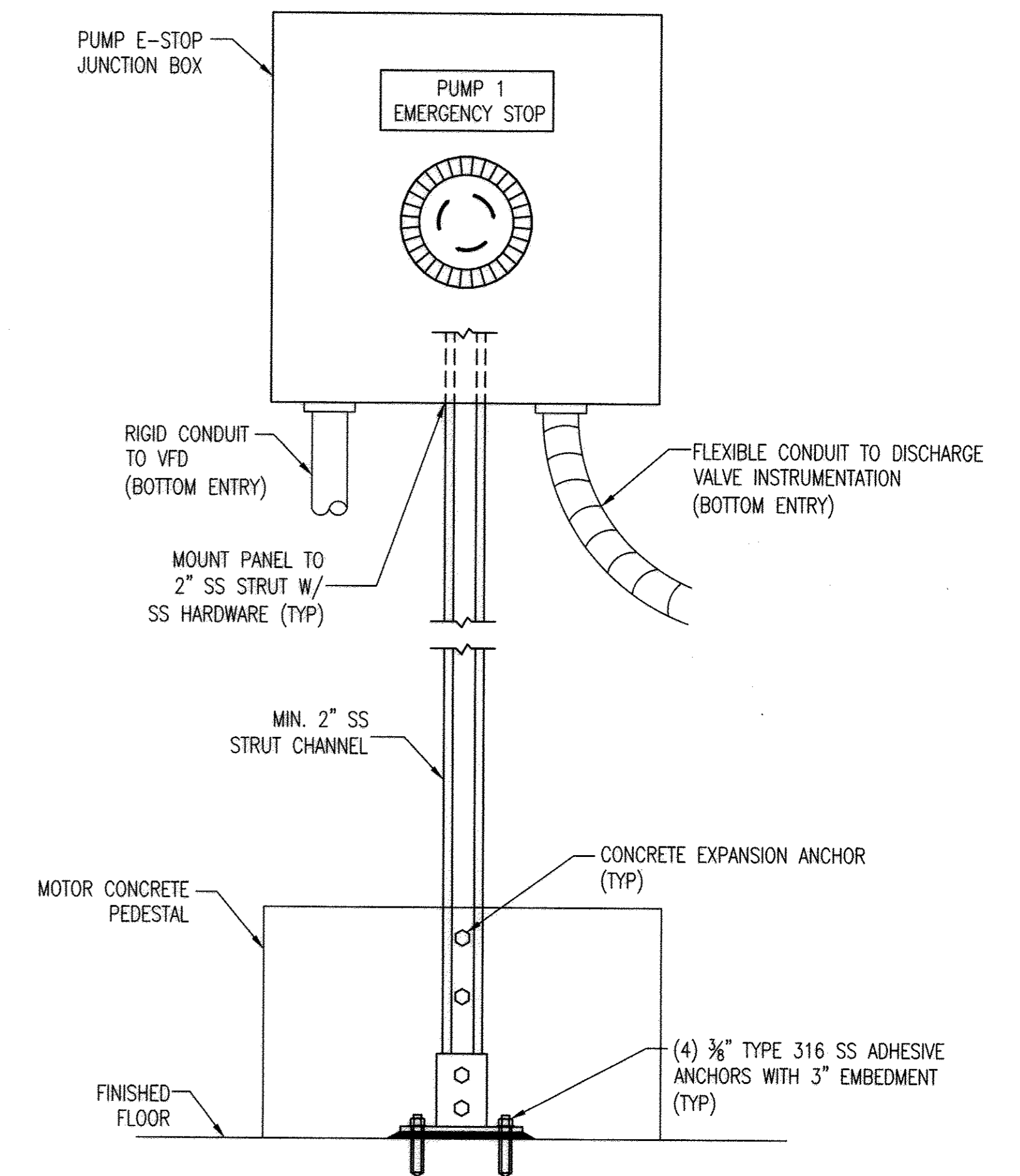
3 **PLC D.O. INTERPOSING RELAY (TYP.)**
1-4 NOT TO SCALE



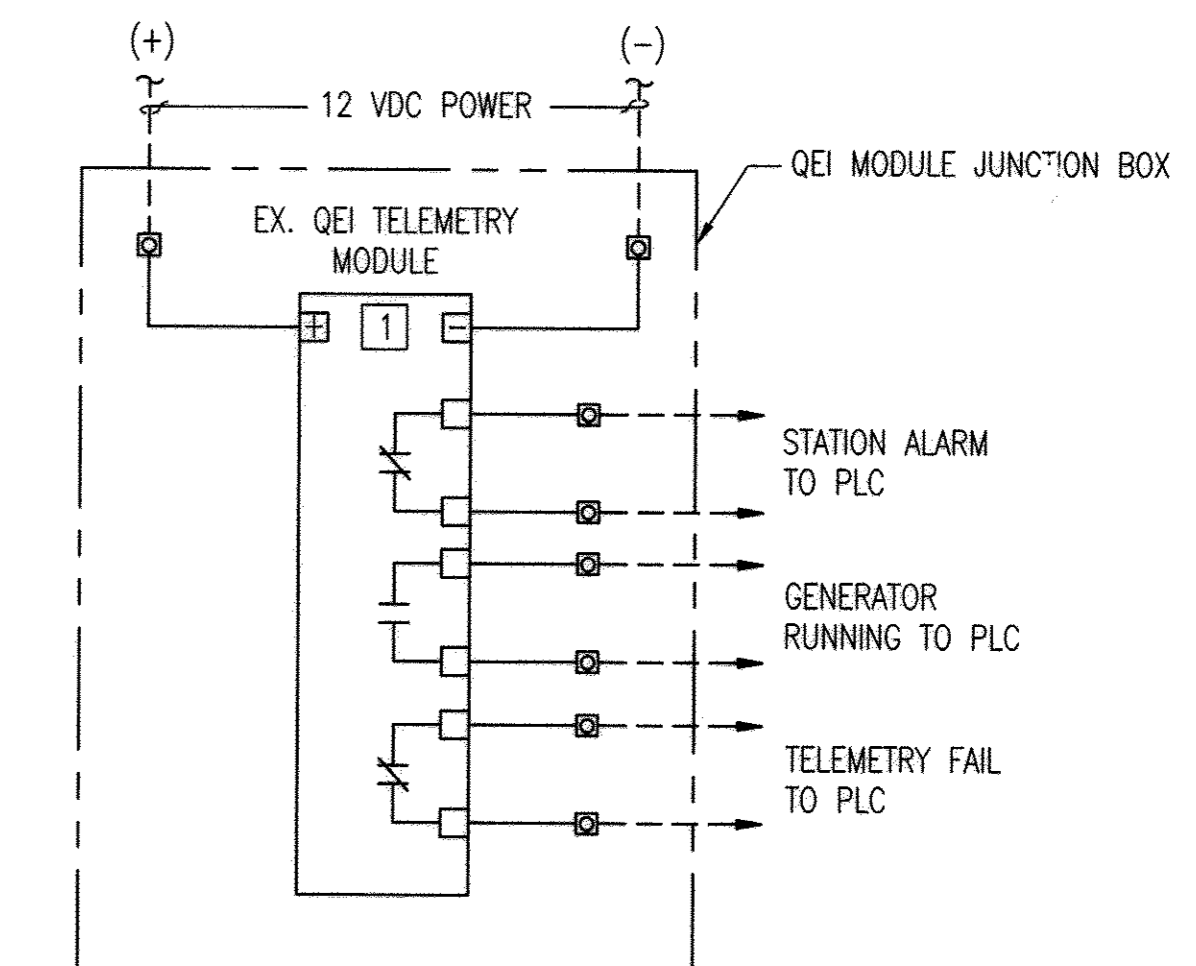
2 **VFD-1 PARTIAL PANEL ELEVATION**
1-4 NOT TO SCALE (TYPICAL FOR PUMP 2 & 3)



4 **SCADA INTERFACE SCHEMATIC**
1-4 NOT TO SCALE



5 **PUMP E-STOP JUNCTION BOX**
1-4 NOT TO SCALE

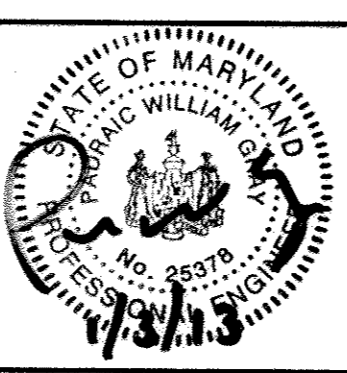


6 **QEI MODULE JUNCTION BOX**
1-4 NOT TO SCALE

"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. 25378, EXPIRATION DATE: 7/14/14."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
Director of Public Works: [Signature] 1/25/13
Chief, Bureau of Engineering: [Signature] 1-14-13
Chief, Bureau of Utilities: [Signature] 1/25/13
Chief, Utility Design Division: [Signature] 4/1/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231
WR&A



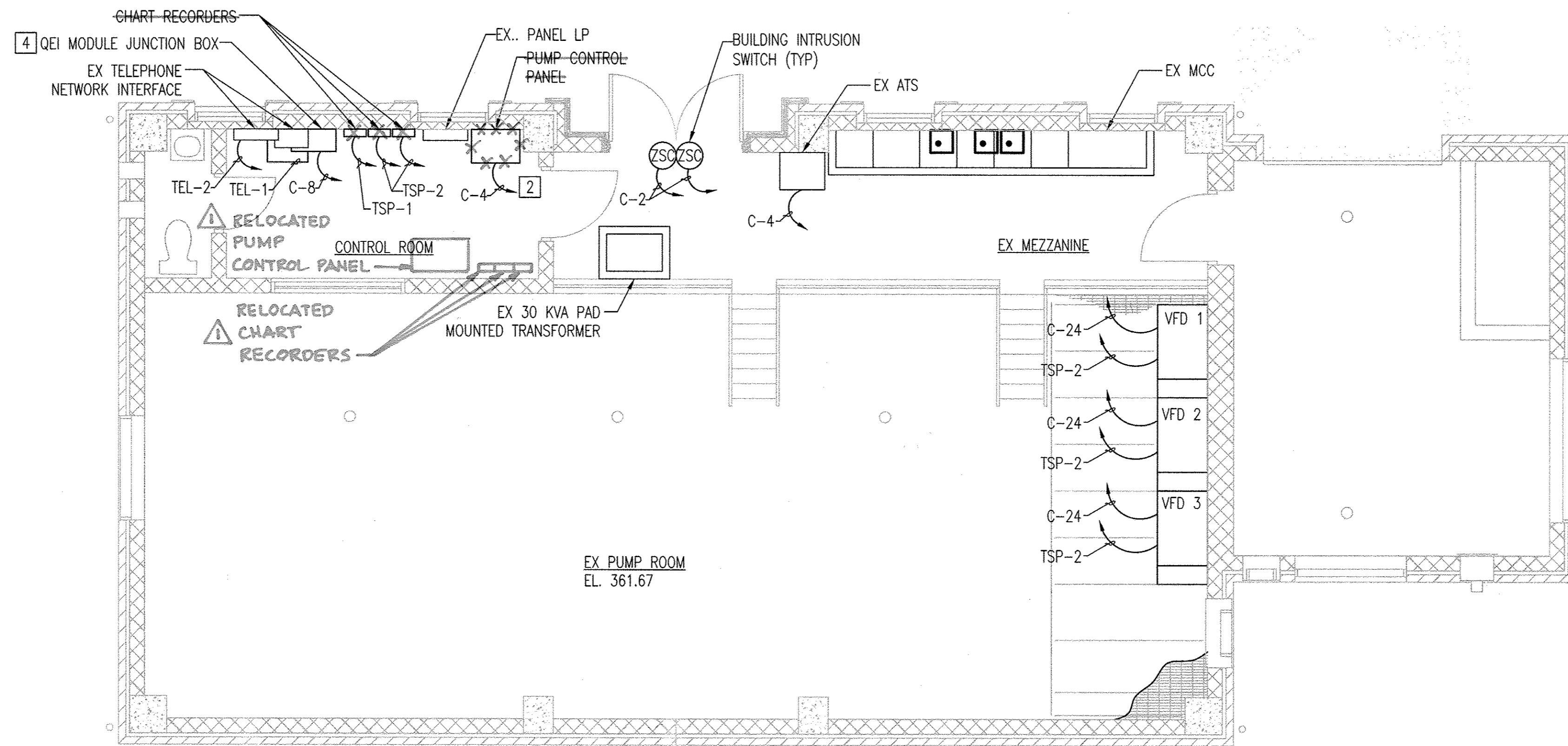
DES:	GAH			
DRN:	GAH			
CHK:	PWG			
DATE:	1/2013	BY:	NO.	REVISION
		WR&A	AS-BUILTS	10/14

PANEL ELEVATIONS AND DETAILS
600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299
ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

I-5
SCALE AS SHOWN
SHEET 22 OF 23

AS-BUILT



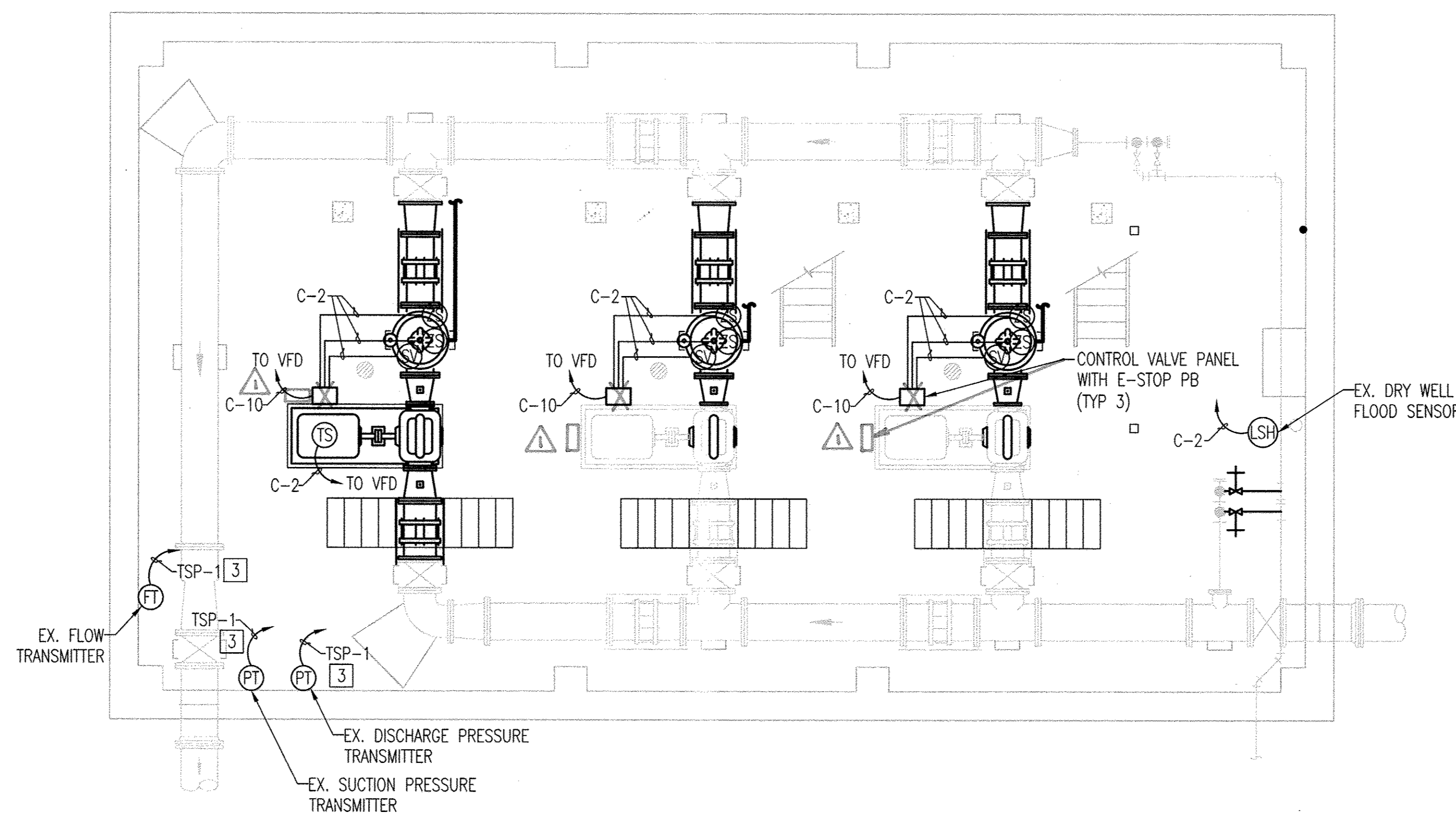
DRAWING NOTES:

1. ALL CONDUITS ARE TO BE ROUTED TO THE PUMP CONTROL PANEL UNLESS OTHERWISE SHOWN.

SPECIFIC NOTES:

- 1 WIRE 120VAC TO EXISTING VALVE JUNCTION BOX. WIRE POWER JUNCTION BOX IN SERIES WITH EXISTING STOP PUSH BUTTON.
- 2 TO GENERATOR CONTROL PANEL.
- 3 EXISTING SUCTION AND DISCHARGE PRESSURE TRANSMITTERS, AND FLOW TRANSMITTER CONDUIT IS EXISTING AND TO REMAIN. PULL NEW CABLE THROUGH EXISTING CONDUIT TO NEW PUMP CONTROL PANEL.
- 4 LOCATE QEI JUNCTION BOX BELOW EXISTING TELEPHONE INTERFACE NETWORK PANELS.

1 INSTRUMENTATION MEZZANINE PLAN
 I-6 SCALE: 1/4"=1'-0"



2 INSTRUMENTATION LOWER LEVEL PLAN
 I-6 1/4"=1'-0"

"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. 25378, EXPIRATION DATE: 7/14/14."

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.
 Director of Public Works: [Signature] 1/29/13
 Chief, Bureau of Engineering: [Signature] 1-14-13
 Chief, Bureau of Utilities: [Signature] 1/29/13
 Chief, Utility Design Division: [Signature] 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231
WR&A



DES: GAH
 DRN: GAH
 CHK: PWG
 DATE: 1/2013
 BY: WRA
 NO.: AS-BUILTS
 REVISION: 10/14

INSTRUMENTATION PLAN
 600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
 CONTRACT NO. 44-4730
 CAPITAL PROJECT NO. W-8299
 ELECTION DISTRICT 2
 HOWARD COUNTY, MARYLAND

AS-BUILT

I-6
 SCALE AS SHOWN
 SHEET 23 OF 23