

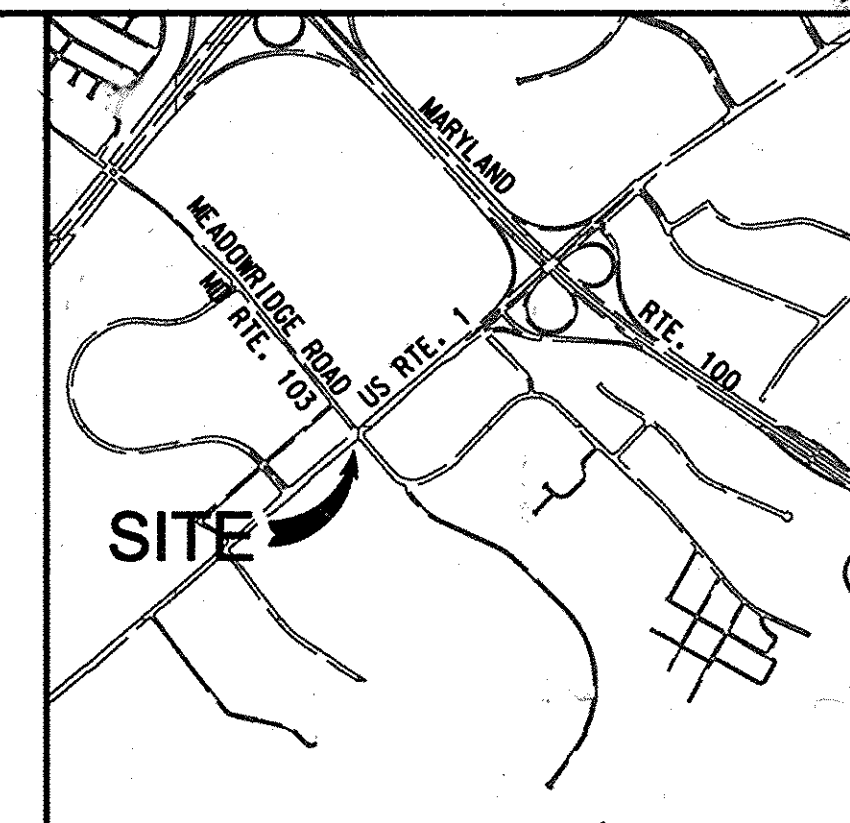
GENERAL NOTES

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON FEB 2013 BY KCI TECHNOLOGIES, INC.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/ADJUSTED 2007 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 43BA, NO. 371A AND NO. 43CA.
ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE REBAR & CAPS.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- UNLESS OTHERWISE SHOWN, SPECIFIED, OR DIRECTED, 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 CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE 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.
- WHEN TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

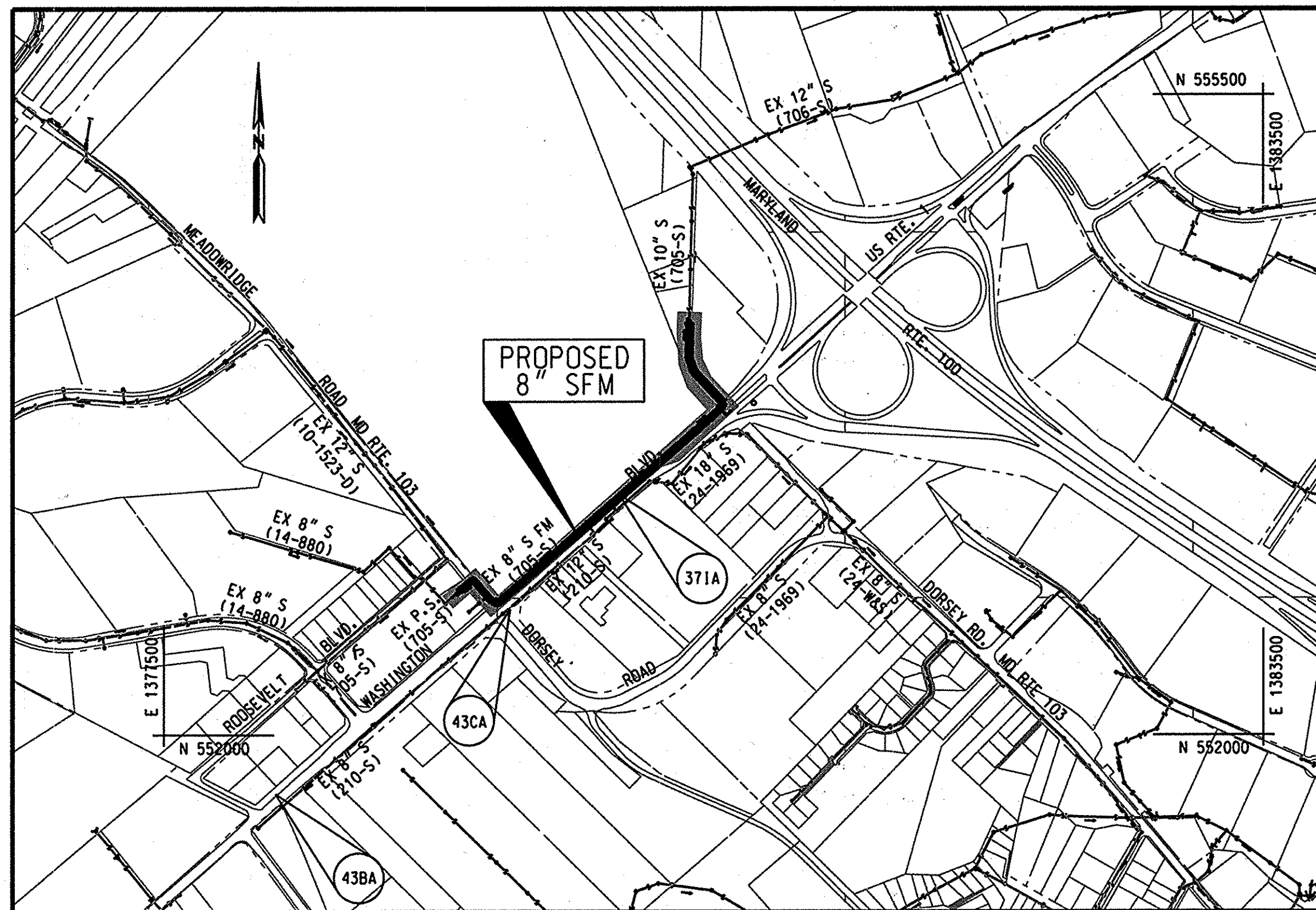
AT & T	1-800-252-1133
BCE (CONSTRUCTION SERVICES)	410-637-8713
BCE (UNDERGROUND DAMAGE CONTROL)	410-787-9068
BCE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO	410-795-1390
MISS UTILITY	1-800-251-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033
MCI WORLDCOM	1-800-624-9675
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE TEMPORARY CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- CONTRACTOR SHALL REMOVE TREES, STUMPS, AND ROOTS WITHIN THE HOWARD COUNTY SEWER EASEMENT. 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 SECTION 18.114(A) OF HOWARD COUNTY CODE.
- THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES, GRADES AND ELEVATIONS OF THE PROPOSED FACILITIES.
- EXISTING STORM DRAINS DISTURBED BY THE CONSTRUCTION SHALL BE REPLACED IN KIND AT THE SAME LINE AND GRADE AS THE EXISTING STORM DRAINS. STORM DRAIN REPLACEMENT SHALL BE INCIDENTAL TO THE WORK OF THE CONTRACT.
- ANY TREES OUTSIDE OF EXISTING EASEMENTS, DISTURBED BY CONSTRUCTION SHALL BE REPLACED IN KIND (3" CALIPER MINIMUM).
- THE CONTRACTOR MUST FOLLOW ALL CONDITIONS AND REQUIREMENTS AS SET FORTH IN THE REQUIRED PERMITS FOR THIS PROJECT.
- THE CONTRACTOR SHALL NOT ENTER UPON PUBLIC OR PRIVATE PROPERTY (OUTSIDE OF THE RIGHT-OF-WAY OR CONSTRUCTION STRIP) FOR ANY PURPOSE WITHOUT OBTAINING PERMISSION AND IT SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL PUBLIC AND PRIVATE PROPERTY, TREES, MONUMENTS, SIGNS AND MARKERS AND FENCES THEREON, AND SHALL USE EVERY PRECAUTION NECESSARY TO PREVENT DAMAGE OR INJURY THERETO.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE OR INJURY TO PROPERTY OF ANY CHARACTER DURING THE PROSECUTION OF THE WORK, RESULTING FROM ANY ACT, OMISSION, NEGLIGENCE OR MISCONDUCT IN IT'S MANNER OR METHOD OF EXECUTING SAID WORK, OR AT ANY TIME DUE TO DEFECTIVE WORK OR MATERIALS, AND SAID RESPONSIBILITY SHALL NOT BE RELEASED UNTIL THE WORK SHALL HAVE BEEN COMPLETED AND ACCEPTED.

MEADOWRIDGE WASTEWATER PUMP STATION UPGRADE AND FORCE MAIN REPLACEMENT HOWARD COUNTY, MARYLAND

CAPITAL PROJECT No. S-6279
CONTRACT No. 10-4844



VICINITY MAP
SCALE: 1" = 200'



DRAINAGE AREA: MIDDLE PATUXENT

LOCATION MAP
SCALE: 1" = 600'

HOWARD COUNTY GEODETIC SURVEY CONTROL

THE HORIZONTAL AND VERTICAL DATUM BASED ON NAD 83/ADJUSTED 2007 (HORIZONTAL) NAVD 88 (VERTICAL)

43BA N 551676.40 E 1378108.39 ELEV. 209.43	371A N 553315.18 E 1379982.09 ELEV. 195.01
43CA N 552686.12 E 1379388.37 ELEV. 191.59	

LEGEND

- | | | | |
|--|---------------------------------|--|-----------------------|
| | PROPOSED SEWER HOUSE CONNECTION | | DECIDUOUS TREE |
| | CONTINUITY TEST STATION | | CONIFEROUS TREE |
| | TEST PIT LOCATION | | FIRE HYDRANT |
| | CORROSION TEST STATION | | WATER VALVE |
| | LIMIT OF DISTURBANCE | | WATER MAIN |
| | SILT FENCE | | GAS MAIN |
| | SEWER MAIN | | UNDERGROUND ELECTRIC |
| | SEWER MANHOLE | | SEWER MAIN |
| | BYPASS PUMPING PIPE | | UNDERGROUND CABLE TV |
| | TEMPORARY CONSTRUCTION EASEMENT | | MANHOLE |
| | PROPOSED SEWER EASEMENT | | WATER METER |
| | | | SANITARY CLEANOUT |
| | | | TELEPHONE |
| | | | STORM DRAIN |
| | | | FIBER OPTIC |
| | | | GUARD RAIL |
| | | | TREELINE |
| | | | OVERHEAD UTILITY WIRE |

RESTORATION SCHEDULE

LOCATION	DISTANCE	TYPE
ACCESS ROAD	97'	ASPHALT
MEADOWRIDGE RD.	193'	ASPHALT
WASHINGTON BLVD.	1634'	ASPHALT
SEWER EASEMENT	500'	SEED & MULCH*

* REFER TO PERMANENT SEEDING NOTES ON SHEET 6 OF 15

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

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

John R. Robertson /cs/ 1/21/15
HOWARD SOIL CONSERVATION DISTRICT DATE APPROVED

SEWER NOTES (CONTINUED)

- WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF ANNA C900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICE FOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPIGOTS OR PLAIN ENDS INTO THE PUSH ON BELL JOINT ON BOTH SIDES OF THE HIGH DEFLECTION COUPLINGS AND 5-DEGREE SWEEPS. BELL STOPS SHALL BE PLACED AT THE PROPER INSERTION LINE FOR THE FITTING. THE BELL STOP SHALL BE MANUFACTURED OF DUCTILE IRON AND INCORPORATE AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.
- PIPE TRENCHING SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS INCLUDING STANDARD DETAIL G-2.12. "PIPE TRENCH PLASTIC AND COPPER". PAVEMENT REPLACEMENT SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY AND SHA STANDARDS AND THE DETAILS ON SHEET 2.
- THE CONTRACTOR SHALL MILL AND OVERLAY ASPHALT FOR THE FULL LANE WIDTH FOR ANY LANE ENCLOSED BY THE UTILITY TRENCH MORE THAN 1 FOOT. PER SHA SPECIFICATIONS. PRIOR TO EXCAVATION, CONTRACTOR SHALL NOTIFY ENGINEER IF UTILITY TRENCH WILL ENCLOSE MORE THAN ONE LANE. THE CONTRACTOR SHALL ALSO MILL AND OVERLAY 50 LINEAR FEET BEYOND THE LIMITS OF THE NEW 8-INCH FORCE MAIN.
- THE HMA MATERIALS SHALL MEET THE TYPICAL SUPERPAVE MIX SPECIFIED IN HOWARD COUNTY STANDARD DETAIL R2-02, P-5 AND SHA 64-22 FOR US RTE 1 AND MD RTE 103 BASE SURFACE AND SHA PG 76-22 FOR US ROUTE 1 FINAL SURFACE & SHA PG 64-22 FOR MD RTE 103 FINAL SURFACE.
- TEMPORARY BYPASS OPERATIONS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 960.10.
- THE CONTRACTOR SHALL ABANDON EXISTING FORCE MAIN IN PLACE UNLESS OTHERWISE INDICATED ON THE PLANS. CONTRACTOR SHALL CAP ALL CUT OR OPEN ENDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF EXISTING FORCE MAINS WHERE INDICATED TO BE REPLACED IN-KIND.

TRAFFIC NOTES

- THE WORKING HOURS FOR THIS PROJECT ARE 9:00 AM TO 3:00 PM MONDAY-FRIDAY FOR DAYTIME WORK AND 9:00 PM TO 5:00 AM SUNDAY-THURSDAY FOR NIGHTTIME WORK.
- THE CONTRACTOR SHALL COORDINATE WITH THE SHA INSPECTOR FOR THE PLACEMENT OF ALL TRAFFIC CONTROL DEVICES AND FOR THE CLOSURE OF ANY LANE OR ROADWAY WHICH MAY BE NECESSARY TO COMPLETE THE PROJECT.
- THE CONTRACTOR SHALL CONSTRUCT THE FORCE MAIN FROM STATION 0+50 TO STATION 4+00 AT NIGHT. REFER TO THE TRAFFIC CONTROL PLAN FOR THE CLOSURE OF MEADOWRIDGE ROAD

QUANTITIES

ITEM	UNIT	ESTIMATE	AS-BUILT	MATERIAL SUPPLIER
MOBILIZATION	L.S.	1		
M.O.T.	L.S.	1		
8" FORCE MAIN (PVC)	L.F.	2424		
CORROSION PROTECTION SYSTEM	L.S.	1		
PUMPING STATION REHABILITATION	L.S.	1		
EX. EMERGENCY CONNECTION VALVE VAULT UPGRADE	L.S.	1		
BYPASS PUMPING SYSTEM	L.S.	1		
NAME OF UTILITY CONTRACTOR:				
AS-BUILT DATE:				

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.....G-01	TITLE SHEET
2.....C-01	8" SEWER FORCEMAIN PLAN & PROFILE STA. 0+00 TO STA. 9+50
3.....C-02	8" SEWER FORCEMAIN PLAN & PROFILE STA. 9+50 TO STA. 18+50
4.....C-03	8" SEWER FORCEMAIN PLAN & PROFILE STA. 18+50 TO STA. 24+21
5.....C-04	SEDIMENT AND EROSION CONTROL PLAN
6.....C-05	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
7.....T-01	TRAFFIC CONTROL PLAN
8.....T-02	TRAFFIC CONTROL DETAILS
9.....M-01	MECHANICAL PROCESS LEGEND, ABBREVIATIONS AND GENERAL NOTES
10.....M-02	PUMPING STATION DEMOLITION PLANS AND SECTION
11.....M-03	PUMPING STATION NEW WORK PLANS AND SECTION
12.....E-01	ELECTRICAL GENERAL NOTES AND ABBREVIATIONS
13.....E-02	ELECTRICAL DEMOLITION AND NEW WORK
14.....I-01	INSTRUMENT PLANS & DETAILS
15.....I-02	ELECTRICAL CONTROL DIAGRAM

OWNER'S/DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THE PLAN AND THAT A RESPONSIBLE PERSON INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE, BEFORE BEGINNING THE PROJECT, A CERTIFICATION OF TRAINING AT A PROGRAM APPROVED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THE CONTROL OF SEDIMENT AND EROSION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Kevin H. Duvigne 1/15/2015
BUREAU OF ENGINEERING DATE
DEPARTMENT OF PUBLIC WORKS

ENGINEER'S CERTIFICATION

"I/WE 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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Guihua Wang 1/8/2015
GUIHUA WANG DATE
KCI TECHNOLOGIES, INC.
936 RIDGEBROOK ROAD
SPARKS, MD 21152

600 0 600 1200
SCALE: 1" = 600'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Janet R. Ickles 1/20/15
DIRECTOR OF PUBLIC WORKS DATE
Steve C. Conner 1/20/15
CHIEF, BUREAU OF UTILITIES DATE

Thomas P. Switzer 1/15/15
BUREAU OF ENGINEERING DATE
Kevin C. Conner 1/15/15
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI
TECHNOLOGIES

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE (410) 316-7800
FAX (410) 316-7818
www.kci.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. 31993, EXPIRATION DATE: 1/18/2016

Guihua Wang 1/8/15
PROFESSIONAL ENGINEER

DES: GS				
DRN: KFJ				
CHK: GW				
DATE: DEC., 2014	BY	NO.	REVISION	DATE

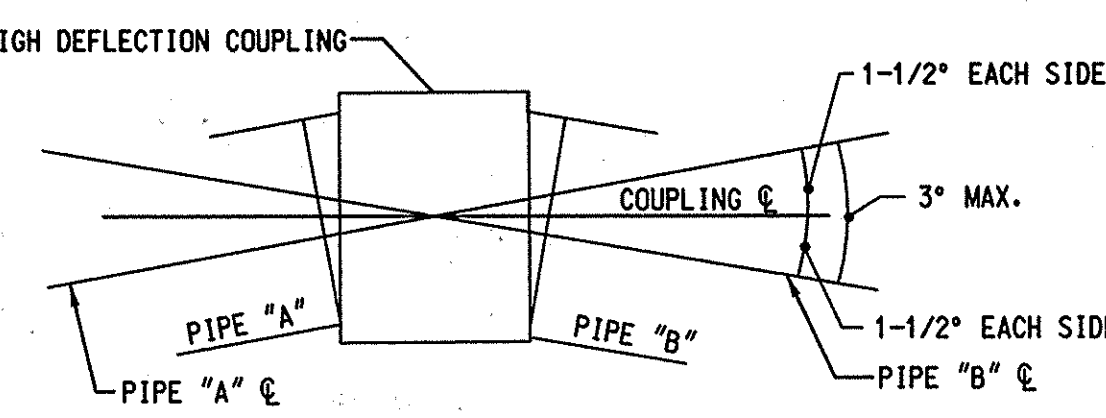
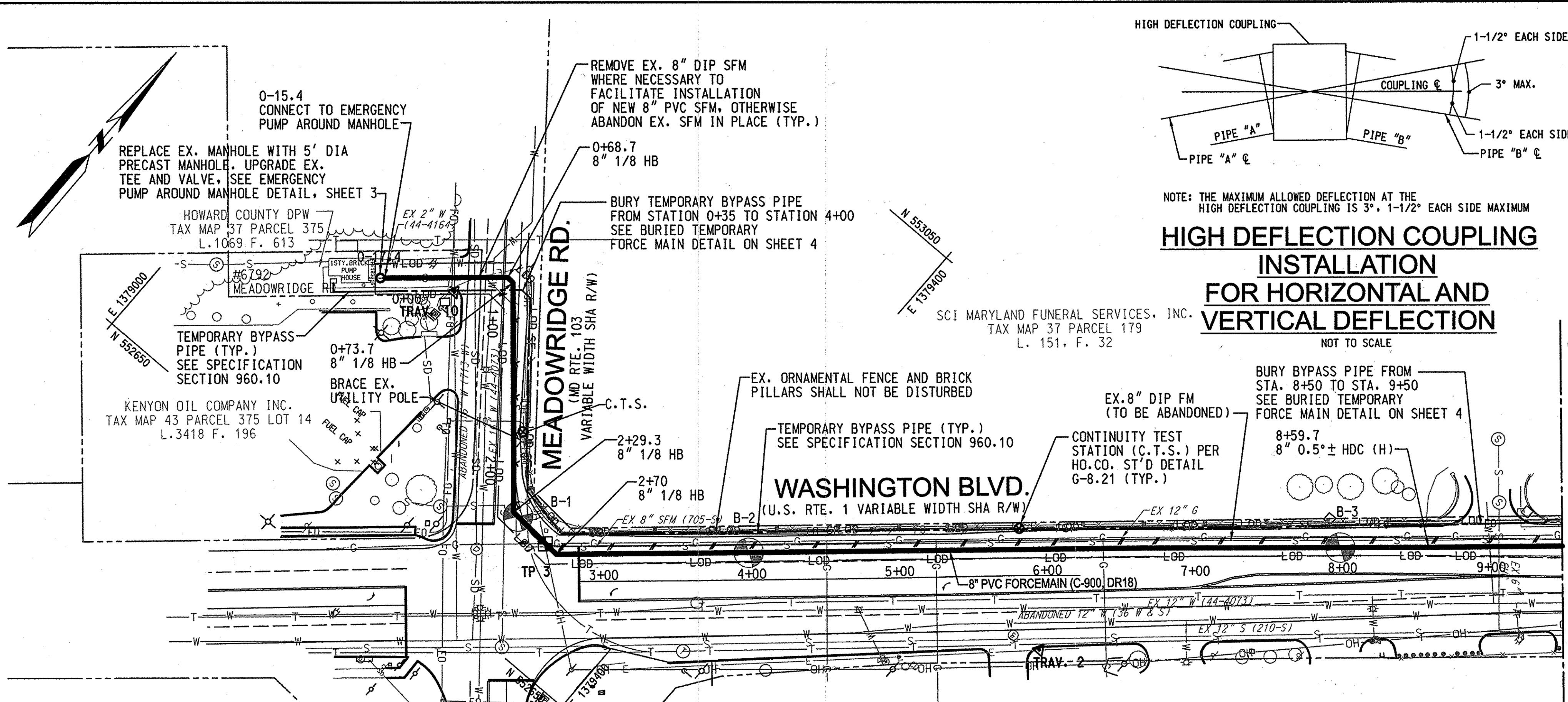
TITLE SHEET

600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

MEADOWRIDGE WASTEWATER PUMP STATION
UPGRADE AND FORCE MAIN REPLACEMENT
CAPITAL PROJECT No. S-6279
CONTRACT No. 10-4844

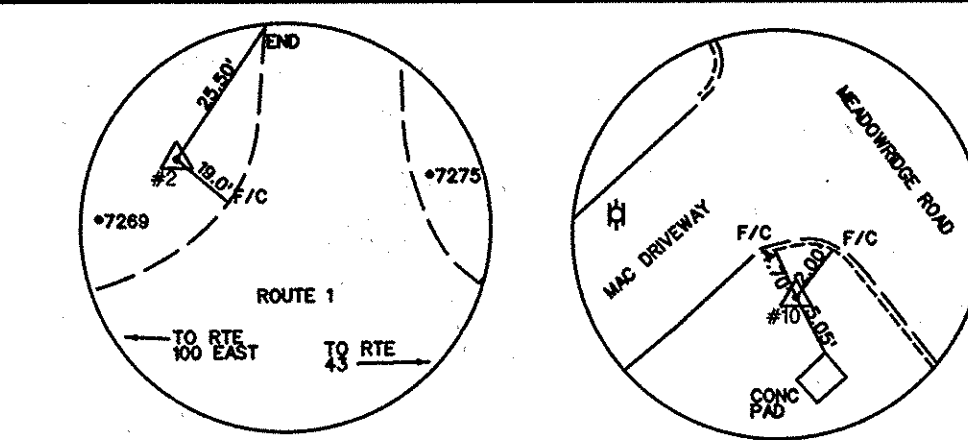
ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

G-01
SCALE AS SHOWN
SHEET
1 OF 15



HIGH DEFLECTION COUPLING INSTALLATION FOR HORIZONTAL AND VERTICAL DEFLECTION
NOT TO SCALE

NOTE: THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3°, 1-1/2° EACH SIDE MAXIMUM



TRAV 2
NOT TO SCALE

TRAV 10
NOT TO SCALE

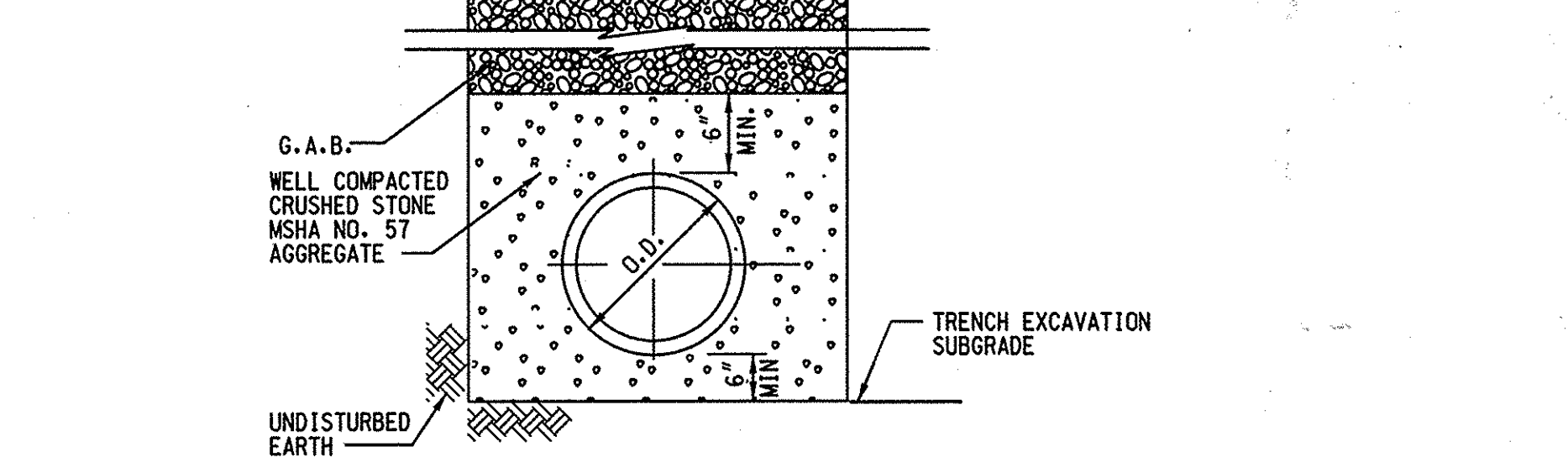
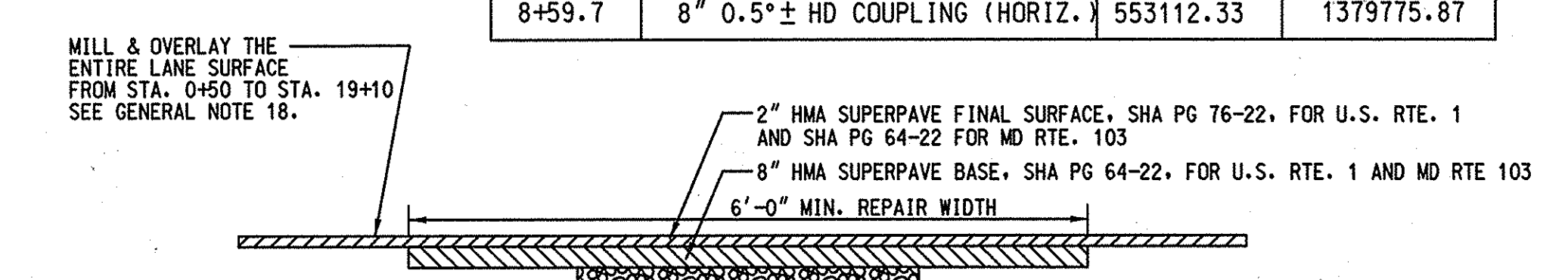
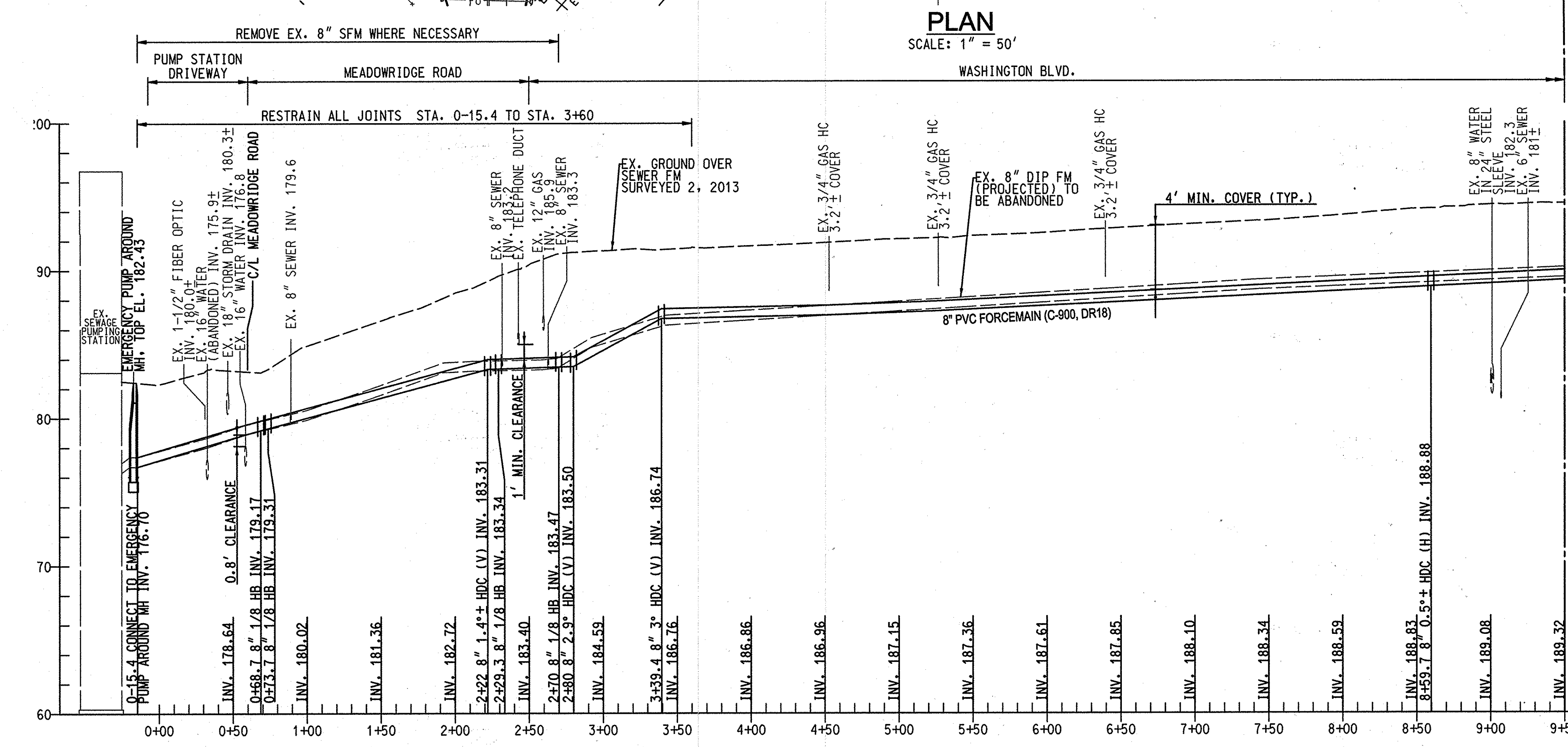
TRAVERSE COORDINATE SCHEDULE				
NUMBER	NORTHING	EASTING	ELEVATION	TYPE
TRAV 2	552888.55	1379620.61	191.73	P.K.
TRAV 10	552816.51	1379162.01	184.29	REBAR & CAP

TEST PIT DATA

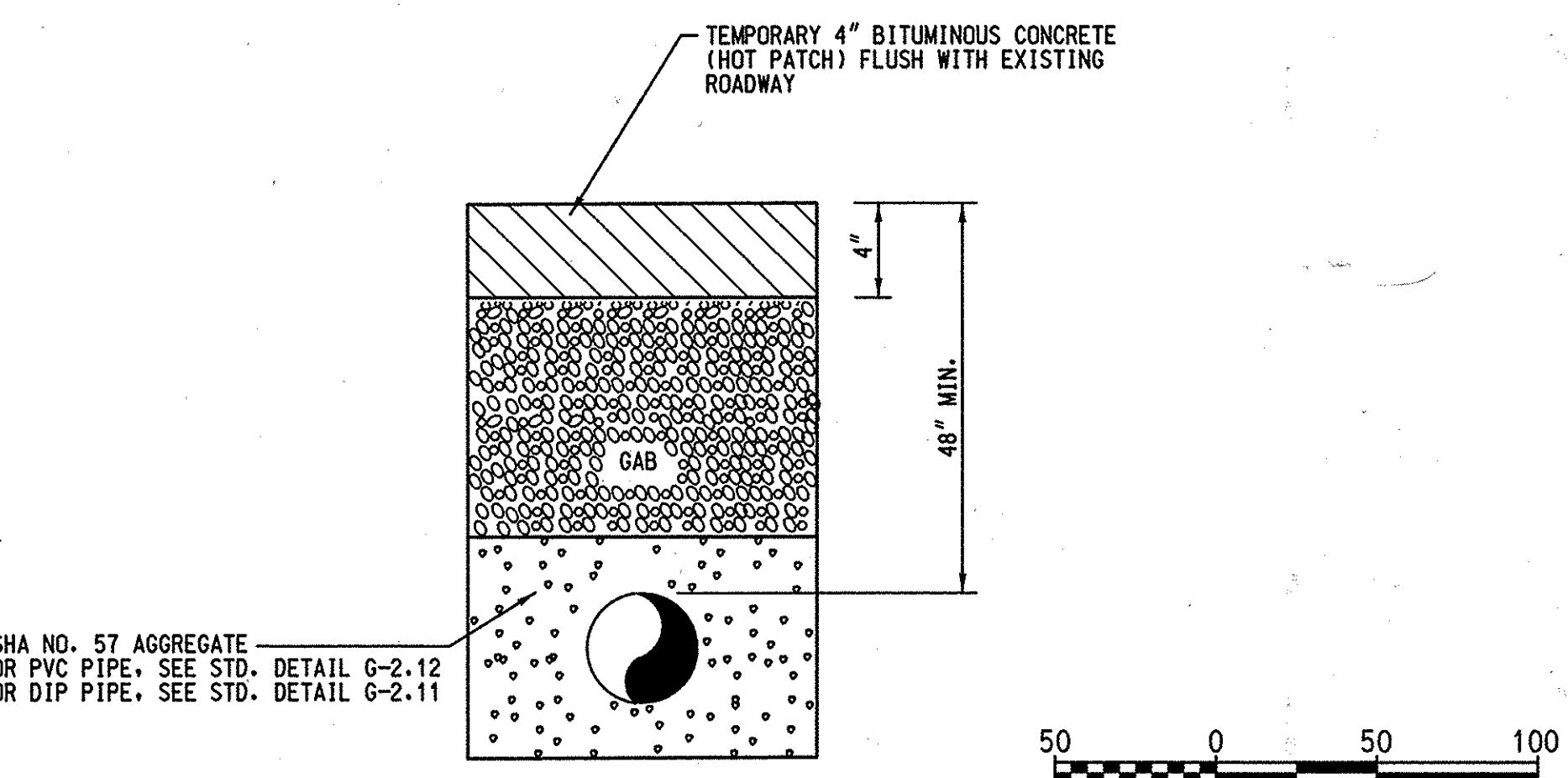
TEST PIT NUMBER	UTILITY	MATERIAL	DEPTH
TEST PIT 3	GAS	12" STEEL	3.82'

SEWER FORCE MAIN STAKEOUT COORDINATE SCHEDULE

STATION	FITTING	NORTHING	EASTING
0-15.4±	TIE-IN	552793.40	1379120.10
0+68.7	8" 1/8 HB	552847.54	1379183.18
0+73.7	8" 1/8 HB	552847.16	1379188.16
2+29.3	8" 1/8 HB	552729.13	1379289.47
2+70	8" 1/8 HB	552726.20	1379330.06
8+59.7	8" 0.5°± HD COUPLING (HORIZ.)	553112.33	1379775.87



*** DETAIL - PVC PIPE TRENCH AND PERMANENT PAVING RESTORATION**
NOT TO SCALE
* BASED ON HOWARD COUNTY STANDARD DETAIL G-2.12 AND SHA STANDARD DETAIL 578.01



DETAIL - TEMPORARY PAVING RESTORATION
NOT TO SCALE

MSHA NO. 57 AGGREGATE FOR DIP PIPE. SEE STD. DETAIL G-2.11
FOR PVC PIPE. SEE STD. DETAIL G-2.12

PROFILE
SCALE: HOR. 1" = 50'
VERT. 1" = 5'

NOTE: THE EX. GAS MAIN IS NOT SHOWN ON THE PROFILE FOR CLARITY. THE INVERT OF THE EX. GAS IS APPROXIMATELY AT THE SAME ELEVATION AS THE EX. 8" DIP FORCEMAIN.

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. 31393, EXPIRATION DATE: 1/18/2016

PLOTTED: 10:00 AM on Wednesday, December 24, 2014
By: Chuliu Wang, Division: P042, Water-WW, Emp. FILE: M:\2014\13122877\8-C-001 PLAN_PROFILE.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *James L. Hanks*
Chief, Bureau of Utilities: *James L. Hanks*

Chief, Bureau of Engineering: *Thomas P. Butler*
Chief, Utility Design Division: *James L. Hanks*

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES
936 RIDGEBOOM ROAD
SHARPS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
www.kci.com

STATE OF MARYLAND
Professional Engineer
Chuliu Wang
12/15

DES: GS					
DRN: KFJ					
CHK: GW					
DATE: DEC. 2014	BY	NO.	REVISION	DATE	

8" SEWER FORCEMAIN PLAN & PROFILE
STA. 0+00 TO STA. 9+50

600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

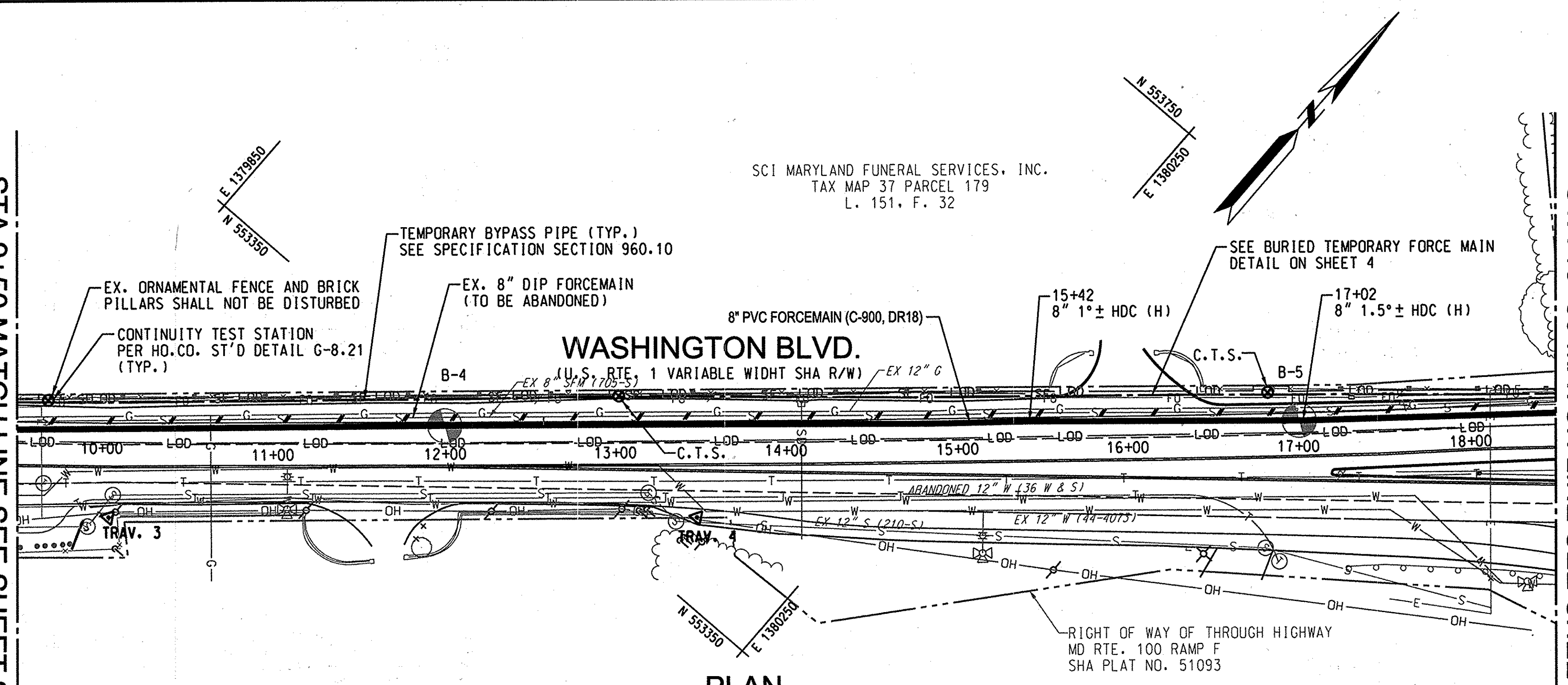
MEADOWRIDGE WASTEWATER PUMP STATION UPGRADE AND FORCE MAIN REPLACEMENT
CAPITAL PROJECT No. S-6279
CONTRACT No. 10-4844

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

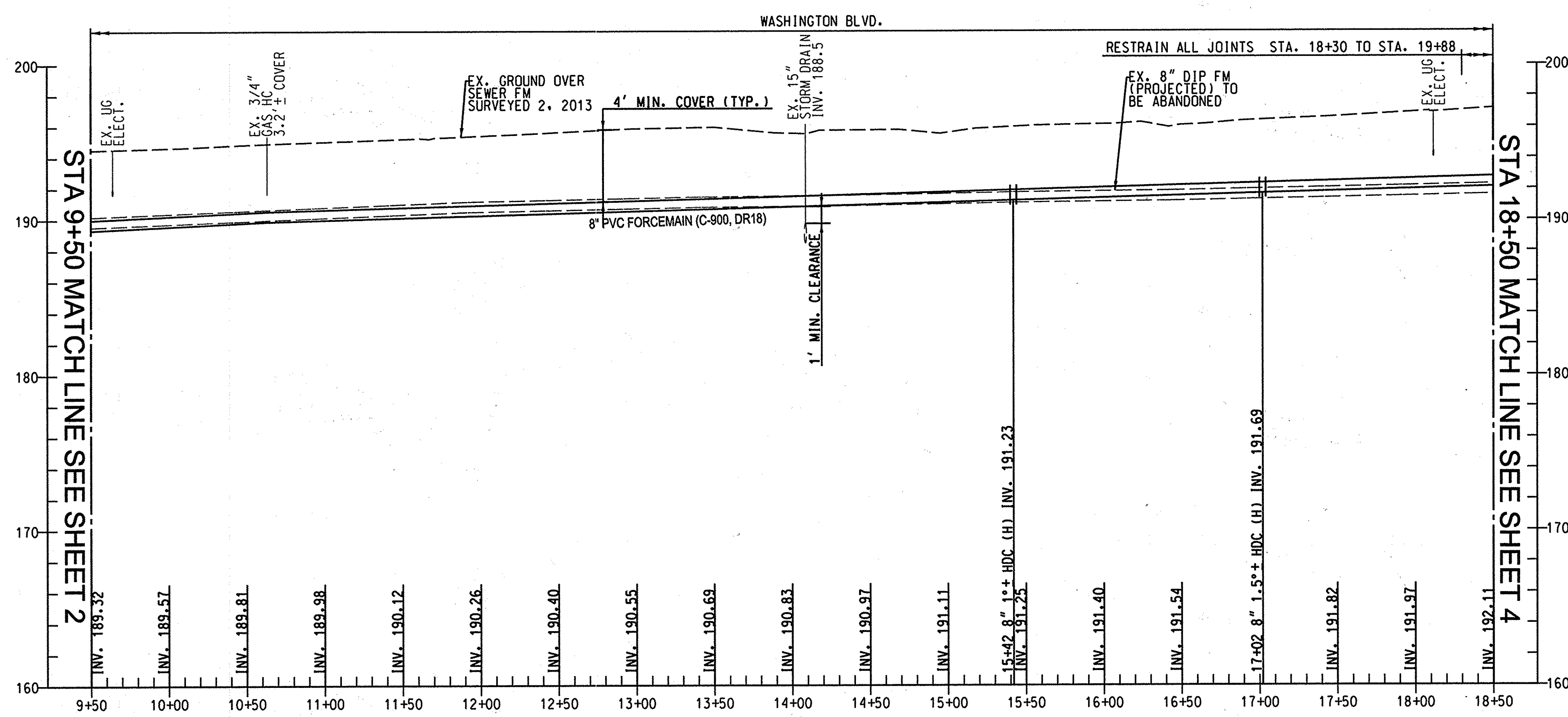
C-01
SCALE AS SHOWN
SHEET 2 OF 15

STA 9+50 MATCH LINE SEE SHEET 2

STA 18+50 MATCH LINE SEE SHEET 4



PLAN
SCALE: 1" = 50'



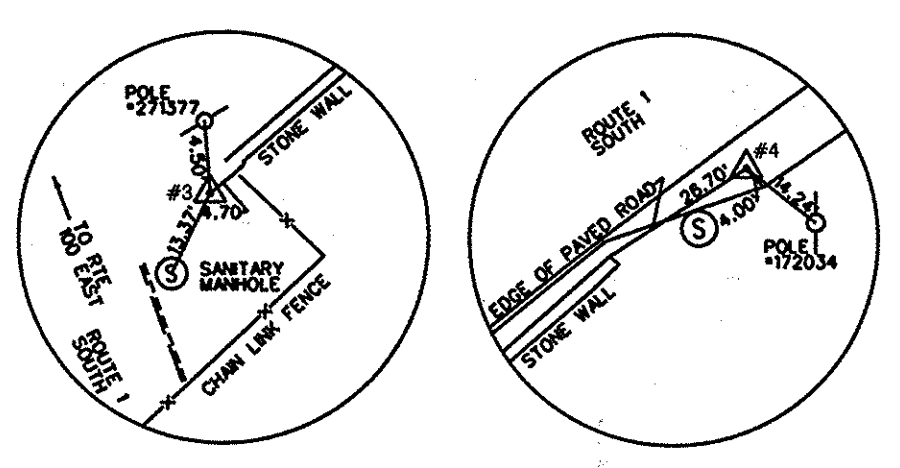
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NOTE:
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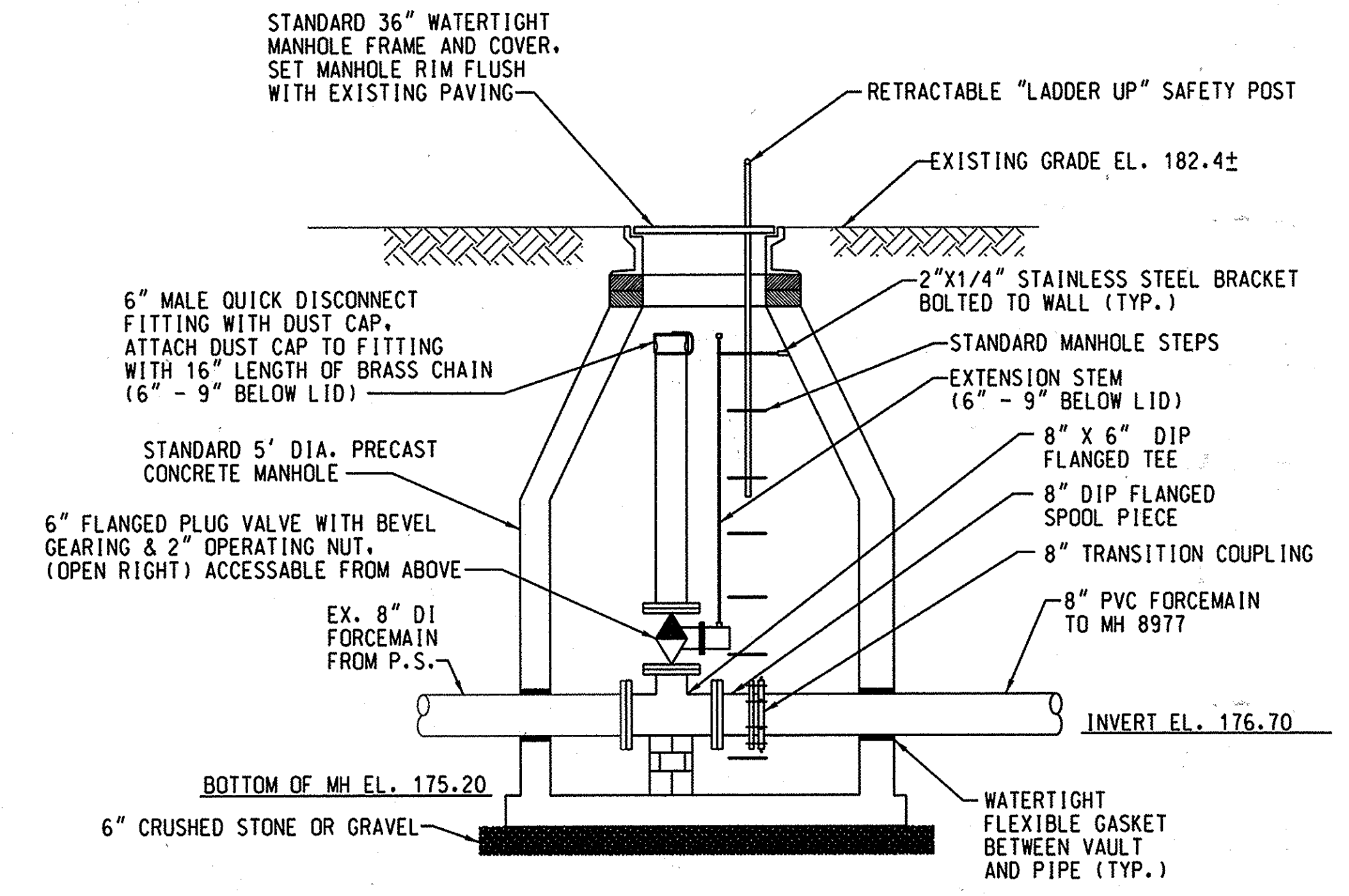
TRAVERSE COORDINATE SCHEDULE				
NUMBER	NORTHING	EASTING	ELEVATION	TYPE
TRAV 3	553167.34	1379918.16	195.13	REBAR & CAP
TRAV 4	553391.87	1380178.87	195.59	P.K.

SEWER FORCE MAIN STAKEOUT COORDINATE SCHEDULE			
STATION	FITTING	NORTHING	EASTING
15+42	1° ± HD COUPLING (HORIZ.)	553561.58	1380289.32
17+02	1.5° ± HD COUPLING (HORIZ.)	553666.42	1380410.28

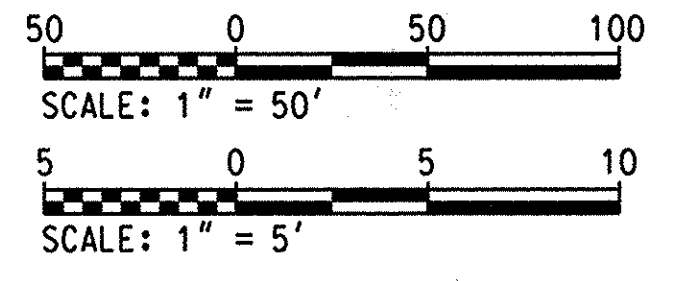


TRAV 3
NOT TO SCALE

TRAV 4
NOT TO SCALE



**DETAIL - EMERGENCY
PUMP AROUND MANHOLE**
SCALE: NOT TO SCALE



PLOTTED: 08:06 AM on Friday, December 12, 2014
BY: Kevin Jackson Division: P042 Water-WW Emp
FILE: M:\2013\131267716\Drawings\131267716-C-002-PLAN_PROFILE.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John P. ... 12/01/15
DATE

Mona E. Butler 1/15/15
DATE

CHIEF, BUREAU OF UTILITIES

CHIEF, BUREAU OF ENGINEERING

CHIEF, UTILITY DESIGN DIVISION

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DES: GS					
DRN: KFJ					
CHK: GW					
DATE: DEC, 2014	BY	NO.	REVISION	DATE	

**8" SEWER FORCEMAIN
PLAN & PROFILE
STA. 9+50 TO STA. 18+50**

600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

**MEADOWRIDGE WASTEWATER PUMP STATION
UPGRADE AND FORCE MAIN REPLACEMENT**

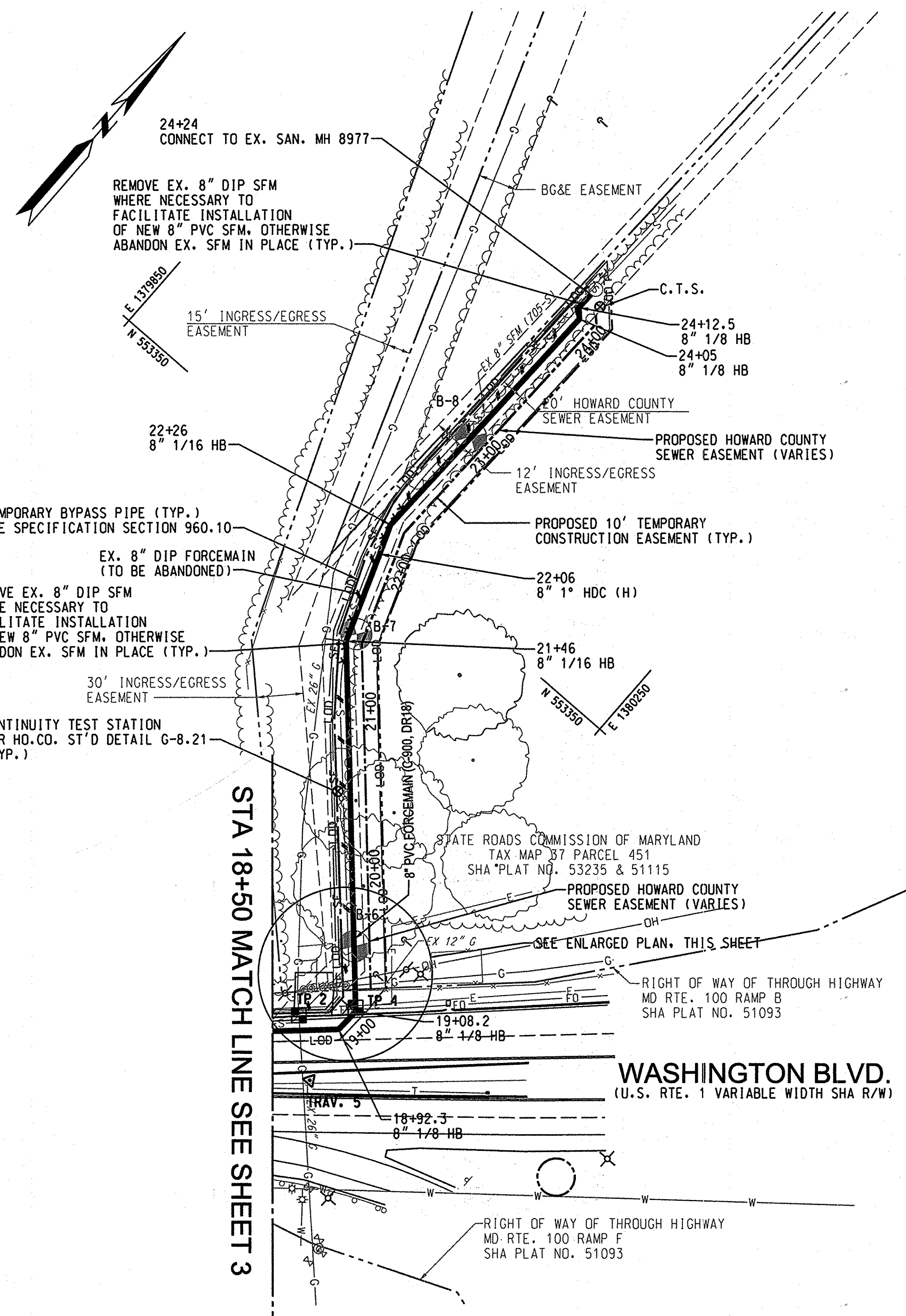
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ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

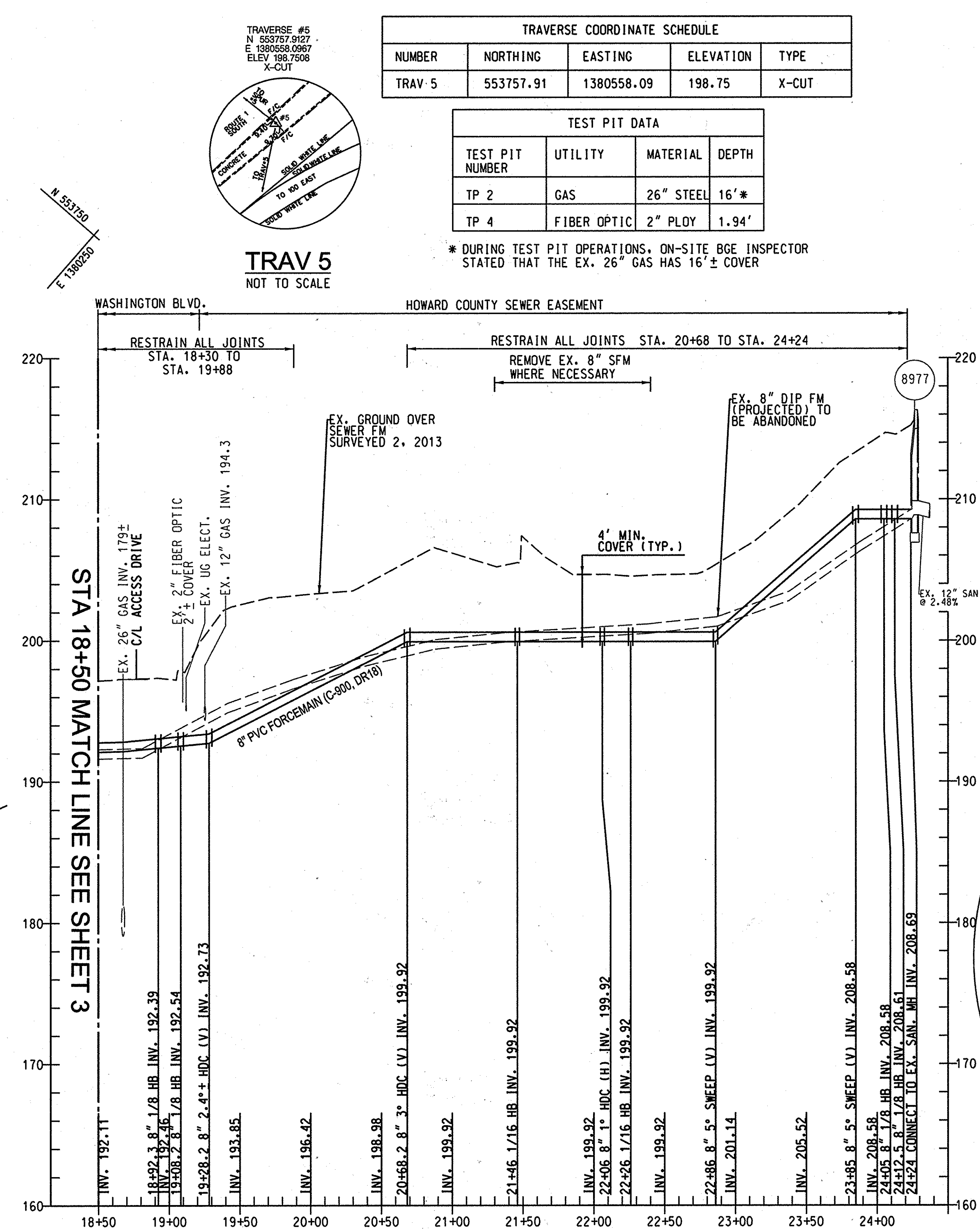
C-02

SCALE AS SHOWN

SHEET 3 OF 16



PLAN
SCALE: 1" = 50'



PROFILE
SCALE: HOR. 1" = 50'
VERT. 1" = 5'

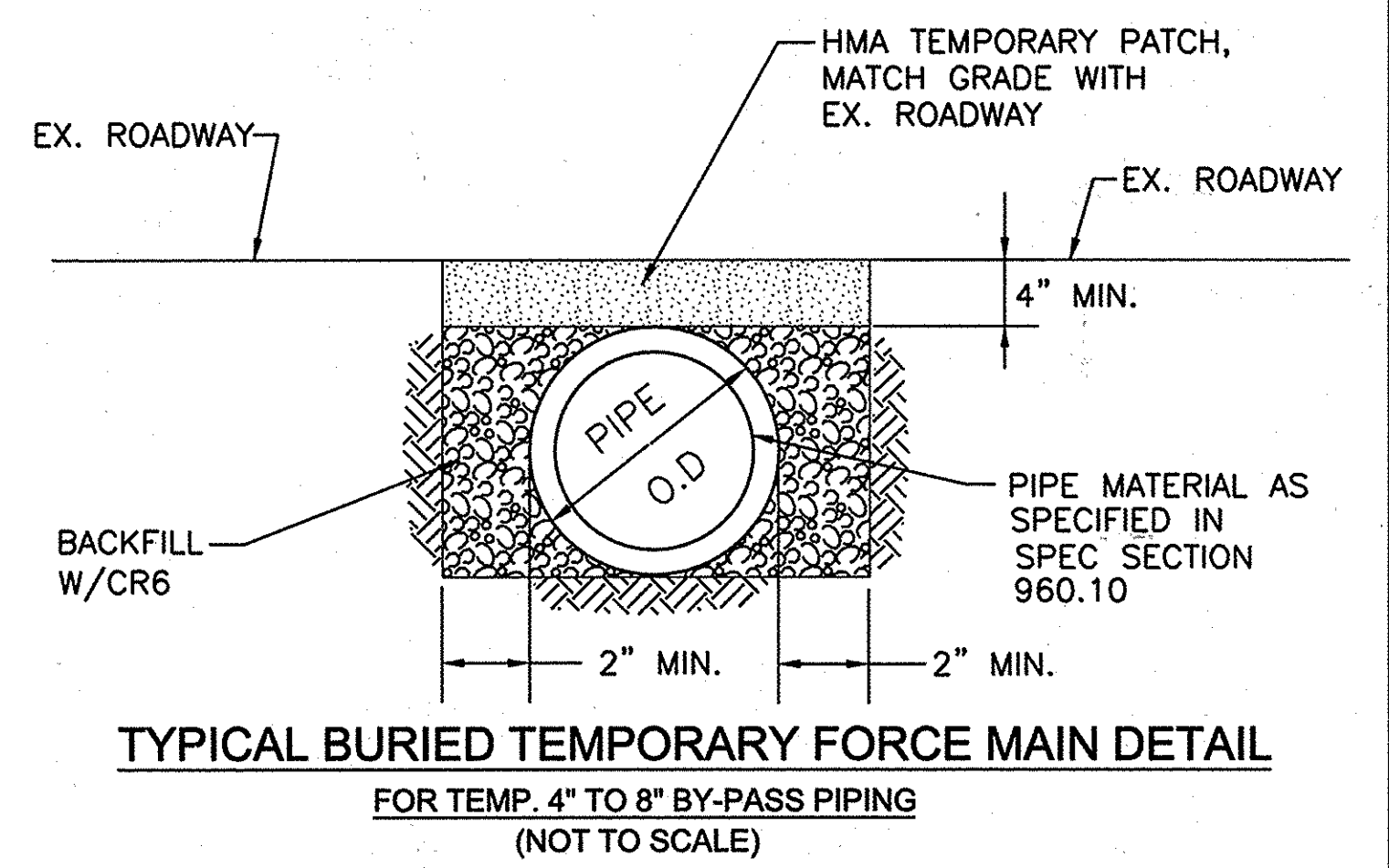
NOTE:
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THE INVERT OF THE EX. GAS IS APPROXIMATELY AT THE SAME
ELEVATION AS THE EX. 8" DIP FORCEMAIN.

TRAVERSE COORDINATE SCHEDULE				
NUMBER	NORTHING	EASTING	ELEVATION	TYPE
TRAV 5	553757.91	1380558.09	198.75	X-CUT

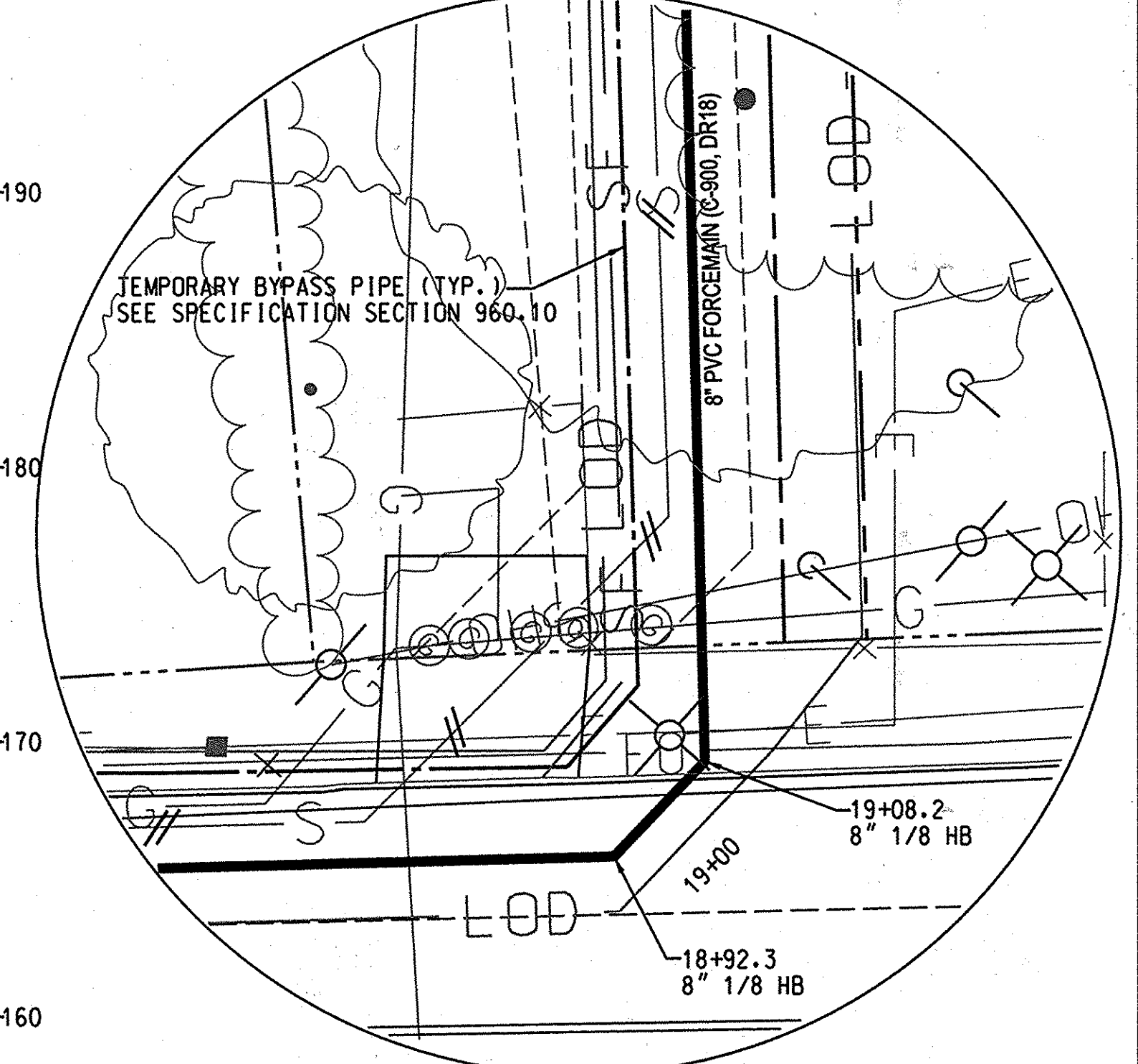
TEST PIT DATA			
TEST PIT NUMBER	UTILITY	MATERIAL	DEPTH
TP 2	GAS	26" STEEL	16'*
TP 4	FIBER OPTIC	2" PLOY	1.94'

* DURING TEST PIT OPERATIONS, ON-SITE BGE INSPECTOR STATED THAT THE EX. 26" GAS HAS 16' ± COVER

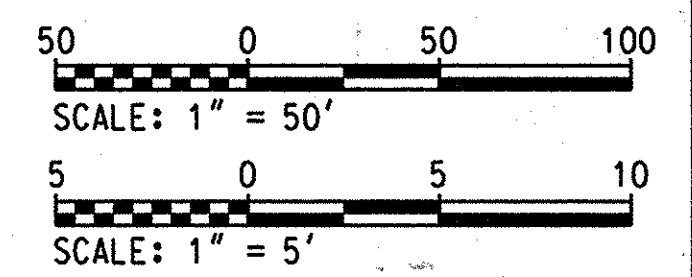
SEWER FORCE MAIN STAKEOUT COORDINATE SCHEDULE				
STATION	FITTING	NORTHING	EASTING	
18+92.3	8" 1/8 HB	553794.75	1380550.46	
19+08.2	8" 1/8 HB	553810.67	1380551.16	
21+46	8" 1/16 HB	553986.03	1380390.52	
22+06	8" 1" HD COUPLING (HORIZ.)	554042.41	1380370.00	
22+26	8" 1/16 HB	554061.07	1380362.81	
24+05	8" 1/8 HB	554240.02	1380367.24	
24+12.5	8" 1/8 HB	554245.39	1380362.13	
24+24	CONNECT TO EX. SAN MH	554256.86	1380362.41	



TYPICAL BURIED TEMPORARY FORCE MAIN DETAIL
FOR TEMP. 4" TO 8" BY-PASS PIPING
(NOT TO SCALE)



ENLARGED PLAN
NOT TO SCALE



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS
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THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE
OF MARYLAND, LICENSE NO. 31393
EXPIRATION DATE: 1/18/2016

PLOTTED: 08:07 AM on Friday, December 12, 2014
BY: Kevin Jackson Division: P042 Water-WW Emp. ELEC. M.V. 2014.1312877.15.000000.1312877.15-C-003_P.LIN_PROFILE.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John A. ... 1/2/15
CHIEF, BUREAU OF UTILITIES

M. ... 1/15/15
CHIEF, UTILITY DESIGN DIVISION

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PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

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STATE OF MARYLAND
GUILIUA WANG
PROFESSIONAL ENGINEER
NO. 31393
1/8/15

DES: GS					
DRN: KFJ					
CHK: GW					
DATE: DEC, 2014	BY	NO.	REVISION	DATE	

**8" SEWER FORCEMAIN
PLAN & PROFILE
STA. 18+50 TO STA. 24+21**

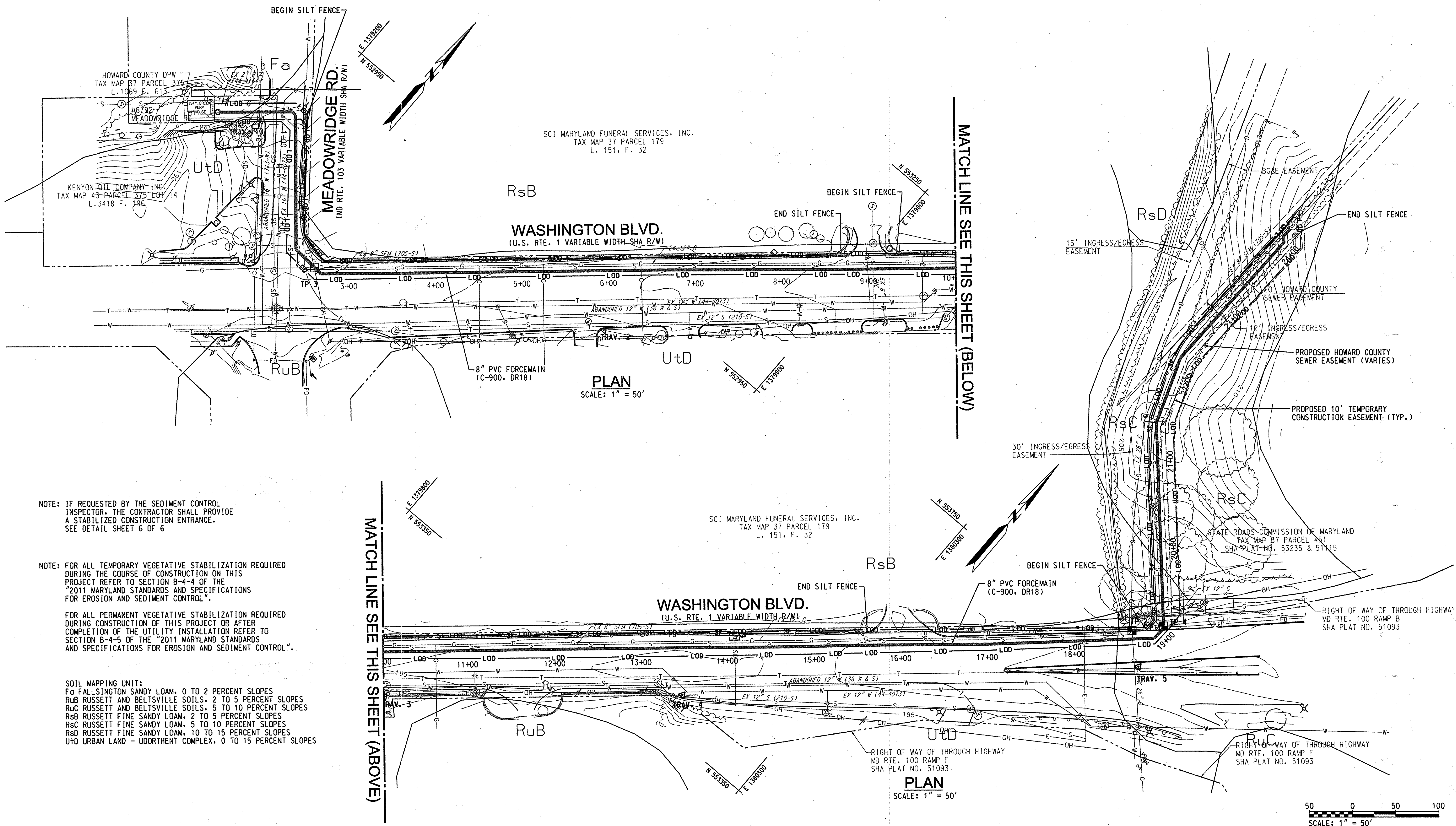
600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

**MEADOWRIDGE WASTEWATER PUMP STATION
UPGRADE AND FORCE MAIN REPLACEMENT**

CAPITAL PROJECT No. S-6279
CONTRACT No. 10-4844

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

C-03
SCALE AS SHOWN
SHEET 4 OF 15



NOTE: IF REQUESTED BY THE SEDIMENT CONTROL INSPECTOR, THE CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION ENTRANCE. SEE DETAIL SHEET 6 OF 6

NOTE: FOR ALL TEMPORARY VEGETATIVE STABILIZATION REQUIRED DURING THE COURSE OF CONSTRUCTION ON THIS PROJECT REFER TO SECTION B-4-4 OF THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".

FOR ALL PERMANENT VEGETATIVE STABILIZATION REQUIRED DURING CONSTRUCTION OF THIS PROJECT OR AFTER COMPLETION OF THE UTILITY INSTALLATION REFER TO SECTION B-4-5 OF THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".

SOIL MAPPING UNIT:
 F0 FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES
 RUB RUSSETT AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES
 RUC RUSSETT AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES
 RSB RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES
 RSC RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES
 RSD RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES
 UTD URBAN LAND - UDORTHEMENT COMPLEX, 0 TO 15 PERCENT SLOPES

MATCH LINE SEE THIS SHEET (ABOVE)

MATCH LINE SEE THIS SHEET (BELOW)

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. 31383
 EXPIRATION DATE: 1/18/2018

PLOTTED: 08/07 AM on Friday, December 12, 2014
 BY: Kevin Jackson Division: P042, Water-WW Emp
 FILE: M:\2013\13122677-16-C-004 ESC PLAN.dgn

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Kevin Jackson 11/5/15
 DIRECTOR OF PUBLIC WORKS DATE

John C. Gorman 12/15/15
 CHIEF, BUREAU OF UTILITIES DATE

Thomas B. Switzer 11/5/15
 CHIEF, BUREAU OF ENGINEERING DATE

John C. Gorman 11/5/15
 CHIEF, UTILITY DESIGN DIVISION DATE

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STATE OF MARYLAND
 QIUIHUA WANG
 PROFESSIONAL ENGINEER
 No. 31383
 1/8/15

DES: GS					
DRN: KFJ					
CHK: GW					
DATE: DEC., 2014	BY	NO.	REVISION	DATE	

SEDIMENT AND EROSION CONTROL PLAN

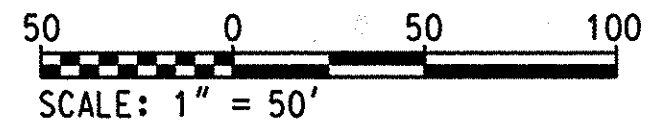
600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

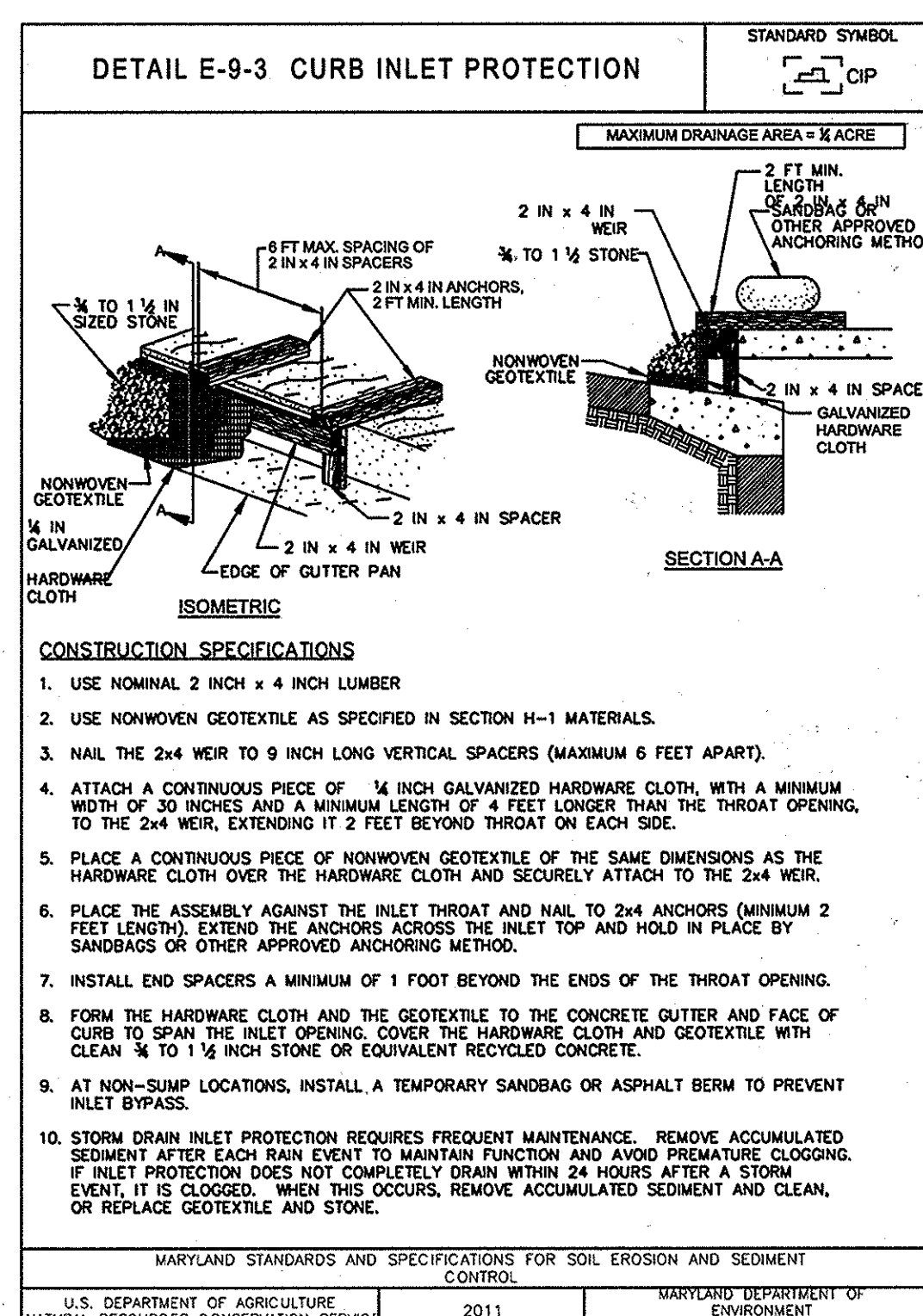
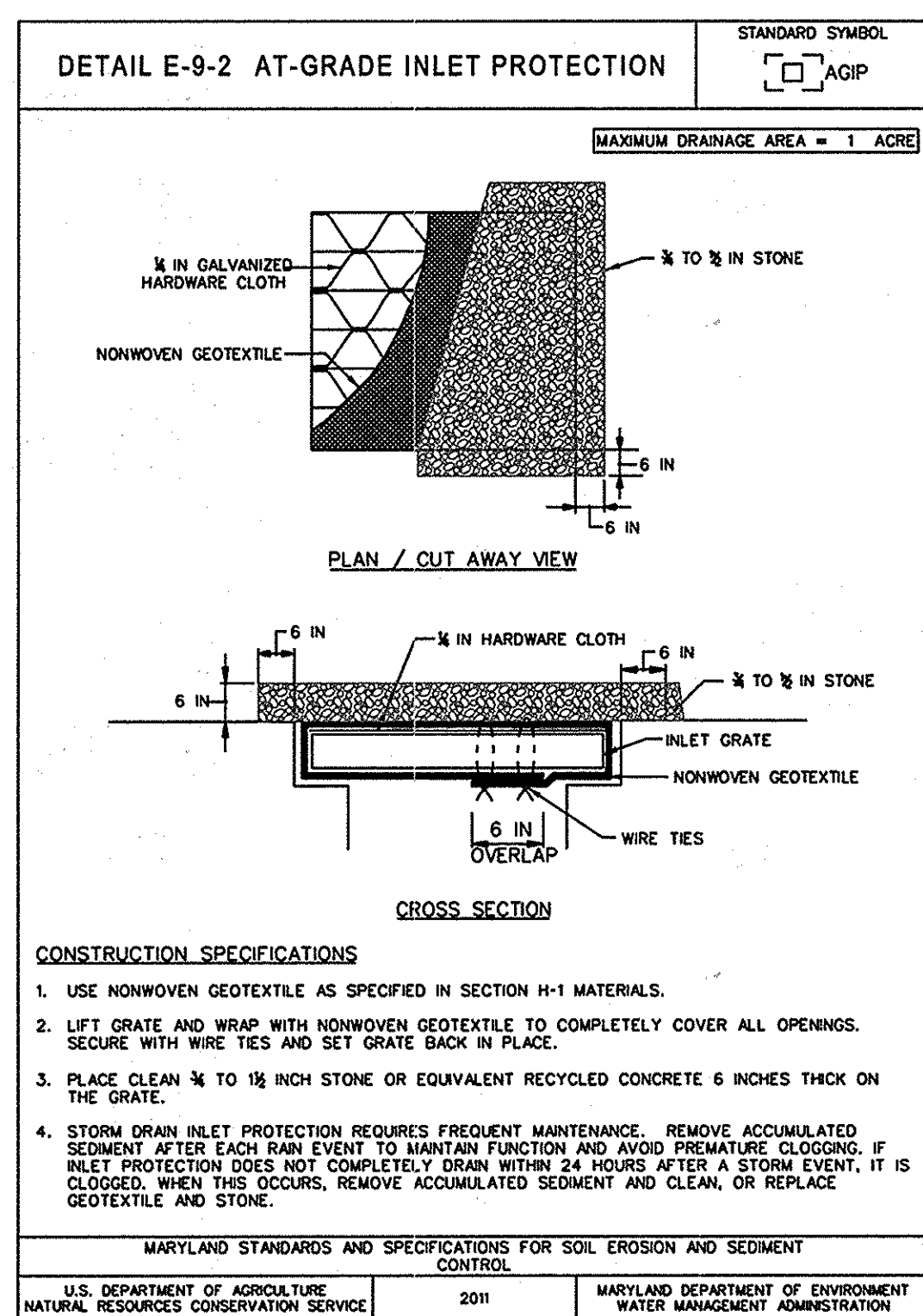
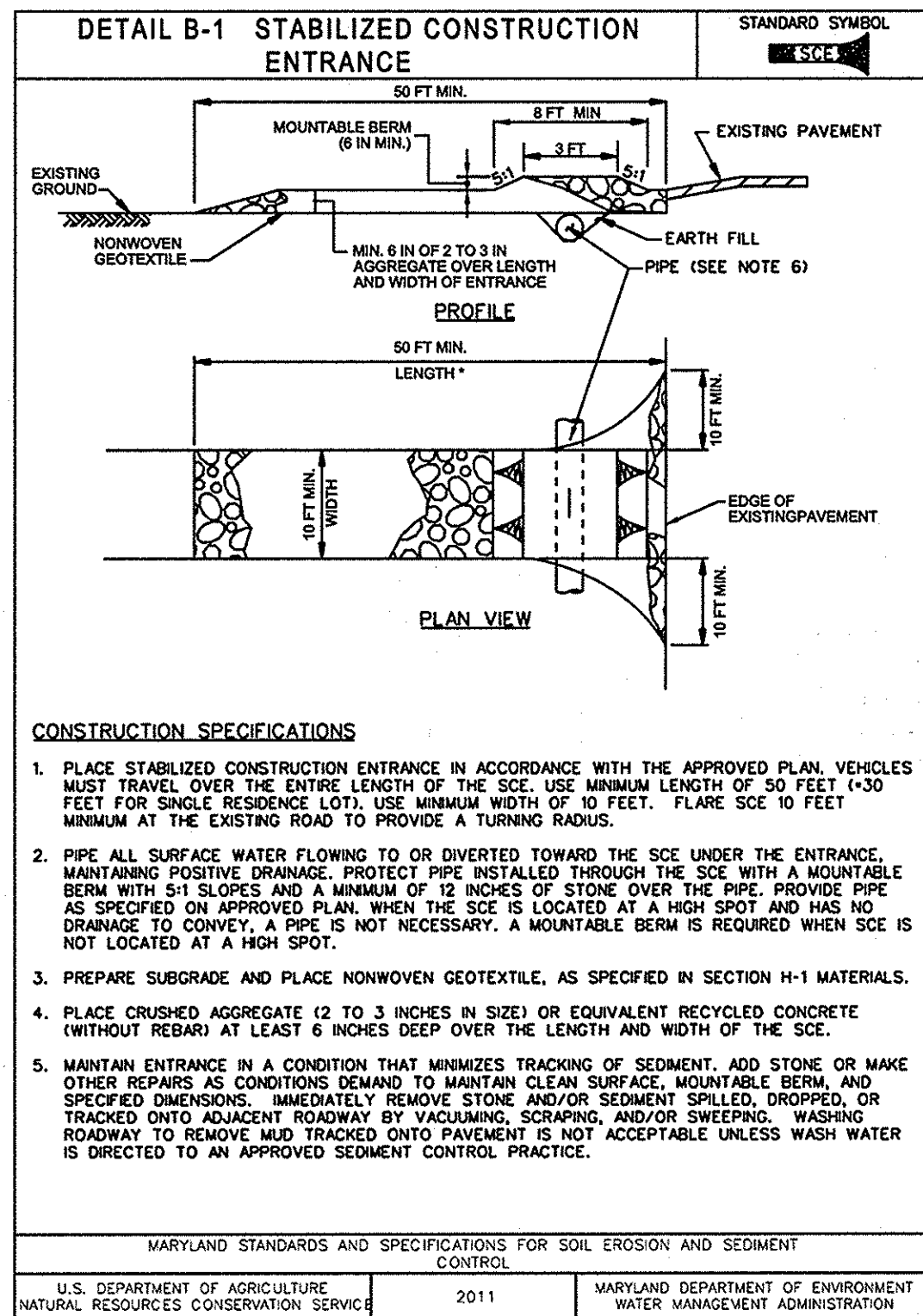
MEADOWRIDGE WASTEWATER PUMP STATION UPGRADE AND FORCE MAIN REPLACEMENT

CAPITAL PROJECT No. S-6279
 CONTRACT No. 10-4844

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

C-04
SCALE AS SHOWN
SHEET 5 OF 15





HOWARD SOIL CONSERVATION DISTRICT
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 (313-1855).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current 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: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can 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	1.30	Acres
Area Disturbed	0.24	Acres
Area to be roofed or paved	0.17	Acres
Area to be vegetatively stabilized	0.07	Acres
Total Cut	N/A	Cu. Yds.
Total Fill	N/A	Cu. Yds.

Offsite waste/borrow are location: **CONTRACTOR TO COORDINATE**
- Any sediment control practice that is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control 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 three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter.
- Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
- A project is to be sequenced so that grading activities begin on one grading unit (maximum average of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.

Rev. 4/2013

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

FOR PERMANENT STABILIZATION

Definition: To stabilize disturbed soils with permanent vegetation.

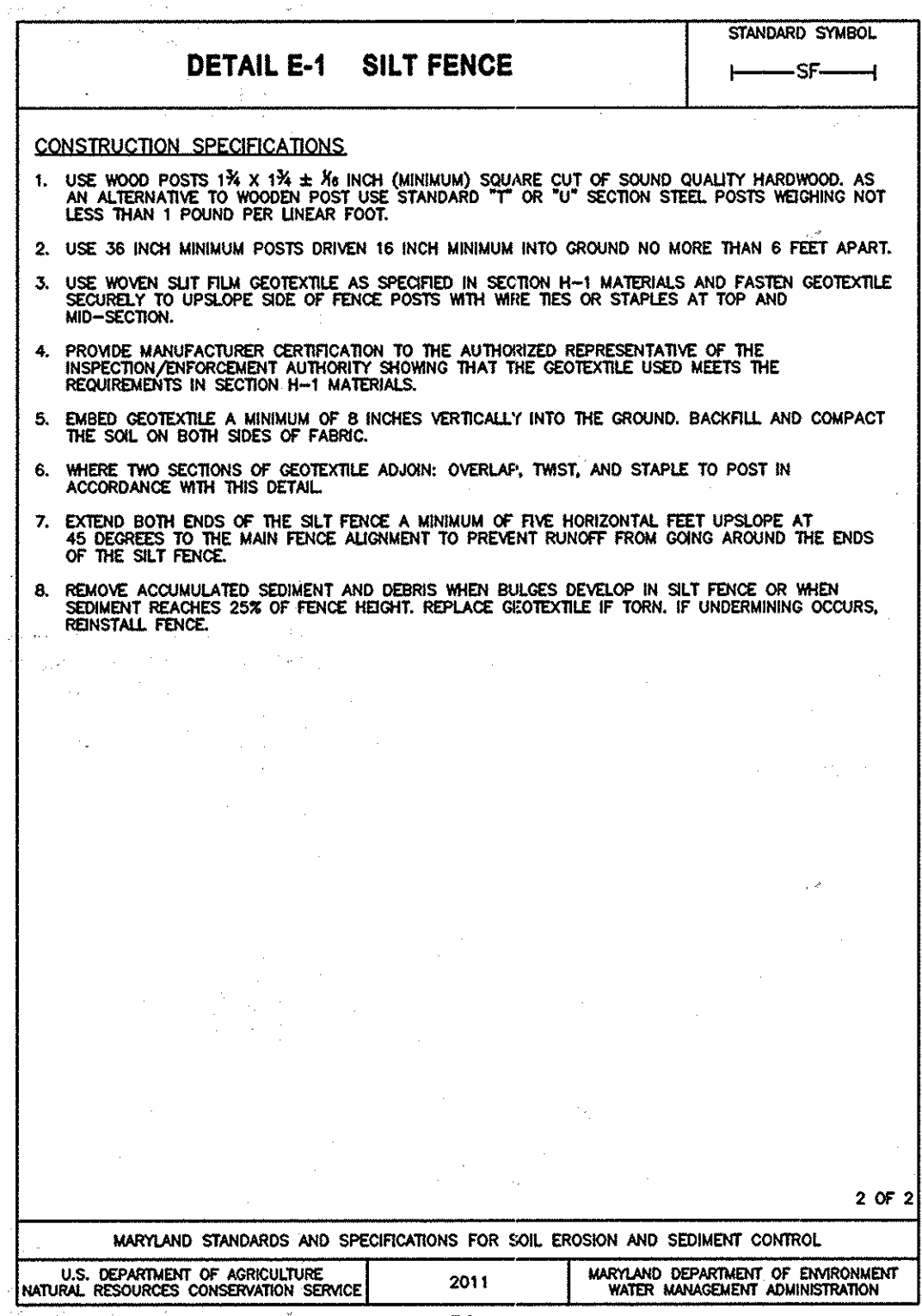
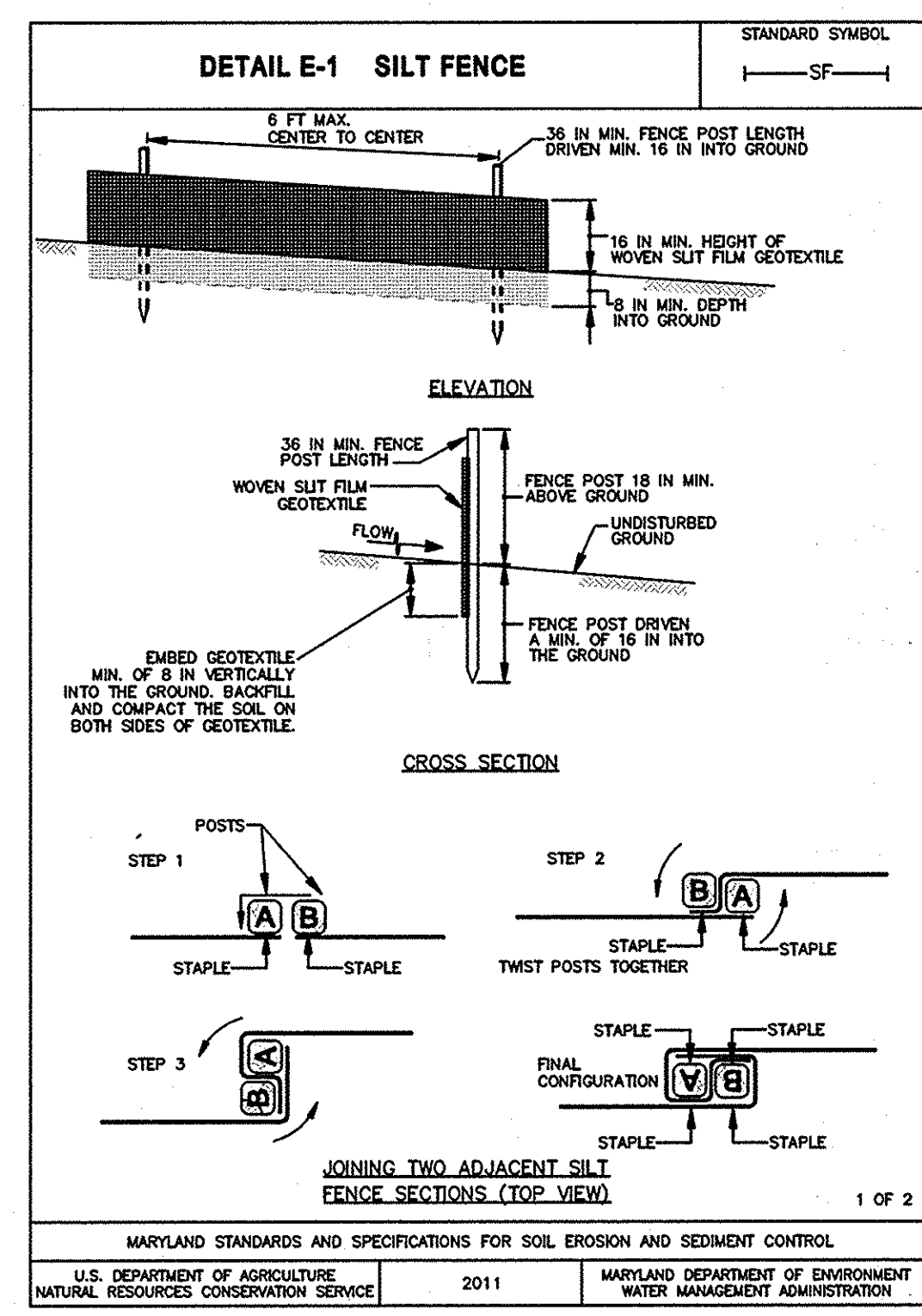
Purpose: To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies: Exposed soils where ground cover is needed for 6 months or more.

Criteria:

- Seed Mixtures
 - General Use
 - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose listed on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
 - Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planning.
 - For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
 - For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 lbs. pounds per 1000 square feet (50 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
 - Turfgrass Mixtures
 - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
 - Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
 - Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 15 percent of the total mixture by weight.
 - Kentucky Bluegrass/Perennial Ryegrass: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 15 percent of the total mixture by weight.
 - Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium maintenance in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 2 to 5 pounds per 1000 square feet. One or more cultivars may be blended.
 - Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/4 to 3 pounds per 1000 square feet.

Notes:
 Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"
 Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line



SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT
- REQUEST PRE-CONSTRUCTION MEETING ON-SITE WITH THE SEDIMENT CONTROL INSPECTOR.
- LAYOUT ALIGNMENT AT SITE. (2 DAYS)
- INSTALL AND STABILIZE SEDIMENT CONTROL DEVICES AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR. INSTALL A STABILIZED CONSTRUCTION ENTRANCE AT THE DIRECTION OF THE INSPECTOR IF NECESSARY.
- INSTALL TRAFFIC CONTROL IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS. SEE THE PROJECT SPECIFICATIONS DOCUMENT "C" SPECIAL PROVISIONS PARAGRAPH 14 "MAINTENANCE OF TRAFFIC" AND APPENDIX "A".
- EXCAVATE TRENCH TO THE GRADE SPECIFIED ON THE SEWER FORCE MAIN PROFILES. INSTALL SEWER FORCE MAIN AND BACKFILL AND STABILIZE TRENCH. THIS IS SHEET 2 OF 6 FOR TYPICAL TRENCH DETAIL. DURING THE COURSE OF CONSTRUCTION, TRENCHES FOR THE CONSTRUCTION OF THE NEW SEWER FORCE MAIN SHALL BE LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH CAN BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER. WHEN WITHIN THE ROADWAY, EXCAVATED MATERIAL SHALL BE REMOVED AND DISPOSED OF. WHEN WITHIN OPEN SPACES THE CONTRACTOR SHALL PLACE EXCAVATED MATERIALS ON UPHILL SIDE OF TRENCH AND PLACE SILT FENCE ON DOWNHILL SIDE OF TRENCH. AT THE END OF EACH WORK DAY, ALL VEGETATED AREAS DISTURBED DURING THE COURSE OF CONSTRUCTION SHALL BE TEMPORARILY STABILIZED IN ACCORDANCE WITH THE TEMPORARY SEEDING SUMMARY SHOWN ON THIS SHEET AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION B-4-4. AT THE END OF EACH WORKING DAY ALL DISTURBED PAVING AREAS WITHIN THE EXISTING ROAD SHALL BE REPLACED WITH PERMANENT SUBGRADE AND BASE ASPHALT. THEN TEMPORARILY PATCHED. SEE TEMPORARY PAVING DETAIL ON SHEET 2 OF 6. THE ESTIMATED CONSTRUCTION TIME FOR THE SEWER FORCE MAIN IS 45 DAYS.
- PERMANENTLY STABILIZE ALL DISTURBED VEGETATED AREAS IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION SHOWN ON THIS SHEET AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION B-4-5.
- PERMANENTLY REPAIR ALL DISTURBED PAVING AREAS IN ACCORDANCE WITH THE DETAIL ON SHEET 2 OF 6.
- CLEAN UP CONSTRUCTION SITE. (1 DAY)
- REMOVE SEDIMENT CONTROL DEVICES AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR.
- STABILIZE ALL AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROL DEVICES.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3):					FERTILIZER RATE (10-20-20)	LIME RATE
SEED MIXTURE (FROM TABLE B.1):						
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
	COOL-SEASON GRASS					
	ANNUAL RYE GRASS (LULIUM PERENNE SSP. MULTIFLORUM)	40	MAR 1 TO MAY 15 AUG 1 TO SEP 30	0.5		
	BARLEY (HORDEUM)	96	MAR 15 TO MAY 31 AUG 1 TO SEP 30	1.0	436 LB/AC	2 TONS/AC
	DATS (AVENA SATIVA)	72	MAR 15 TO MAY 31 AUG 1 TO SEP 30	1.0	(10LB/1000 SF)	(90LB/1000 SF)
	WHEAT (TRITICUM AESTIVUM)	120	MAR 15 TO MAY 31 AUG 1 TO SEP 30	1.0		
	CERIAL RYE (LACTUCA CEREALE)	112	MAR 15 TO MAY 31 AUG 1 TO OCT 30	1.0		
	WARM-SEASON GRASS					
	FOXTAIL MILLET (SETARIA ITALICA)	30	JUN 1 TO JUL 31	0.5		
	PEARL MILLET (Pennisetum GLAUCUM)	20	JUN 1 TO JUL 31	0.5		

Notes:
 1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as noted. Adjustments are usually made for the cool-season grasses.
 2/ Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent and native, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For multi-cropland grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 75% (by weight) of the overall permanent seeding rate. Cover crop should be established as a nurse crop, unless planting will occur in a high soil fertility area with high soil moisture and adequate soil organic matter.
 3/ Cover crops have allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/2 the rate listed above.
 4/ Use the recommended nurse crop for warm-season grasses.
 5/ For sandy soils, plant seeds at twice the depth listed above.
 6/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.
 7/ The contractor shall refer to http://howard.scd.org/SD/seed_records/documents.htm for Permanent and Temporary Seeding Notes.

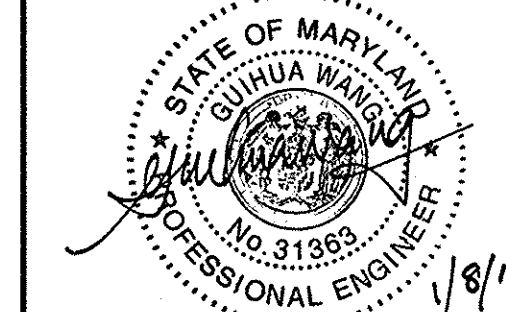
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 BY: Kevin Jackson Division: P042 - Water-WW Emp.
 FILE: M:\2012\13122677\B\Drawings\13122677-B-C-005 ESC NOTES.dgn

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. 31393, EXPIRATION DATE: 1/18/2016

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DRN: KFJ					
CHK: GW					
DATE: DEC., 2014	BY	NO.	REVISION	DATE	

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

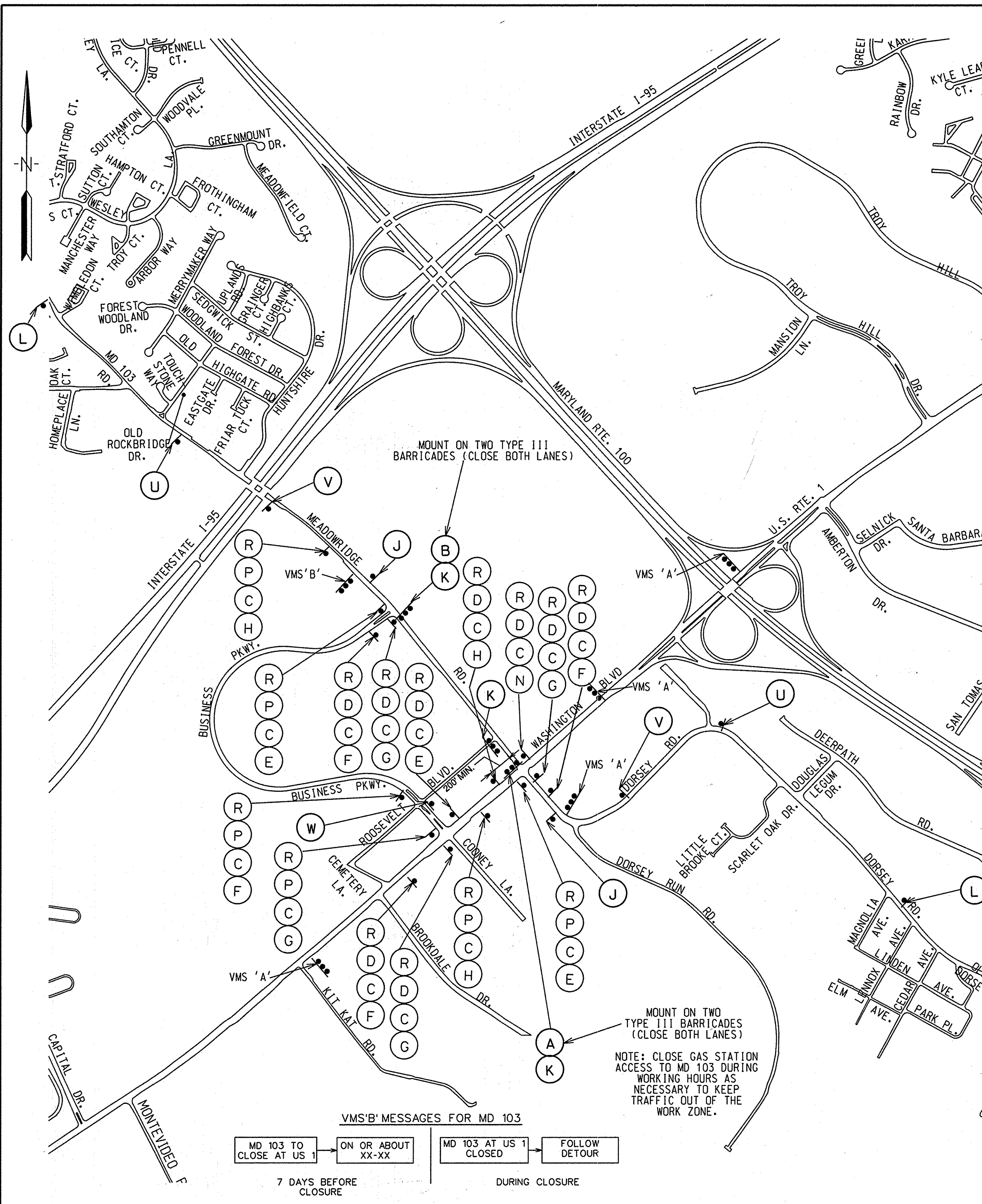
600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

MEADOWRIDGE WASTEWATER PUMP STATION UPGRADE AND FORCE MAIN REPLACEMENT

CAPITAL PROJECT No. S-6279
 CONTRACT No. 10-4844

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

C-05
 SCALE AS SHOWN
 SHEET 6 OF 16



TRAFFIC CONTROL NOTES

- ALL STANDARD REGULATORY AND WARNING SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- ALL TEMPORARY TRAFFIC SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, MSHA BOOK OF STANDARDS, AND NCHRP 350.
- ALL BARRICADES AND OTHER TRAFFIC CONTROL DEVICES MUST BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- ALL BARRICADES MUST MEET AND HAVE BEEN TESTED UNDER THE NCHRP 350 CRASH CRITERIA.
- ALL DETOUR SIGNS SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES (MINIMUM 200' SPACING).
- ANY CORRECTIONS, MODIFICATIONS, OR ADDITIONS TO THIS PLAN MUST BE APPROVED BY THE HOWARD COUNTY DEPT. OF PUBLIC WORKS TRAFFIC DIVISION AND MSHA.
- MISS UTILITY MUST BE NOTIFIED PRIOR TO PLACEMENT OF SIGNING, IF MOUNTING ON POSTS.
- SIGN INSTALLATION SHALL NOT LAST ANY LONGER THAN 15 MINUTES PER LOCATION. IF LONGER THAN 15 MINUTES APPROPRIATE TRAFFIC CONTROL AND PERMITS MUST BE USED.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES. AT ANYTIME THE CONTRACTOR DOES NOT MAKE NECESSARY REPAIRS WITHIN 24 HOURS OF NOTIFICATION, APPROPRIATE WORK TIME REDUCTION AND/OR FINES MAY BE APPLIED.
- THE HOWARD COUNTY TRAFFIC ENGINEER AND MSHA SHALL DETERMINE EXACT PLACEMENT OF THE TYPE III BARRICADES.
- ALL SIGNS SHALL CONFORM TO CURRENT MSHA MATERIAL AND REFLECTIVITY REQUIREMENTS.
- ALL DRIVEWAY ENTRANCES MUST BE MAINTAINED AT ALL TIMES.
- THE DAILY TRENCHING OPERATION SHALL NOT EXTEND MORE THAN 30 FEET IN ADVANCE OF THE PIPE LAYING OPERATION. THE ROADWAY SHALL BE OPENED TO TWO FULL LANES AT THE END OF EACH WORK PERIOD.
- ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORK PERIOD.
- ALL SIGN LOCATIONS SHALL BE MARKED AND/OR APPROVED BY HOWARD COUNTY TRAFFIC (410-313-2430) AND MSHA PRIOR TO THE INSTALLATION OF ANY SIGNS.

TRAFFIC CONTROL NOTES (CONT.)

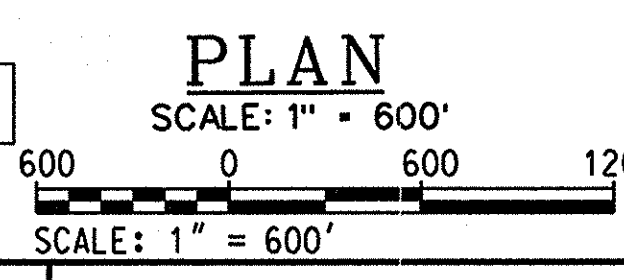
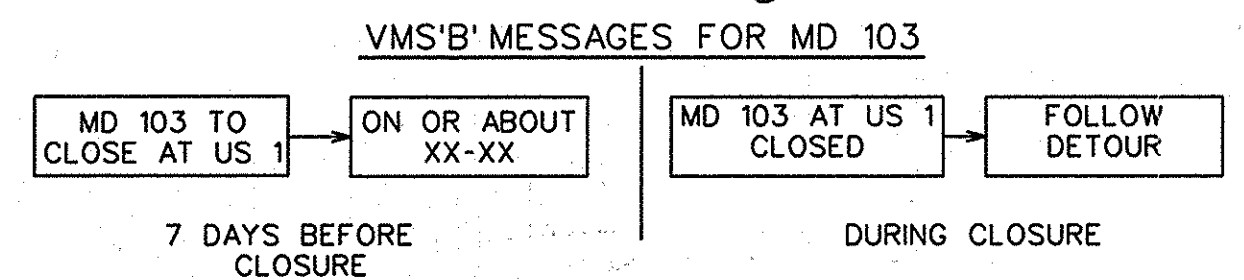
- ALL DETOUR SIGNS SHALL BE COVERED WITH OPAQUE MATERIAL UNTIL THE ROAD IS CLOSED.
- ROADWAY CLOSURE NOTIFICATION: THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES AT LEAST 4 WEEKS IN ADVANCE. HOWARD COUNTY DPW - TRAFFIC DIVISION-410-313-2430 HOWARD COUNTY PUBLIC SCHOOLS/TRANSPORTATION DIVISION-410-313-6728 (IF DURING SCHOOL TIMES) HOWARD COUNTY TRANSIT SERVICES-240-581-5800 HOWARD COUNTY BUREAU OF ENVIRONMENTAL SERVICES-410-313-6470 HOWARD COUNTY EMERGENCY COMMUNICATIONS/911 CENTER-410-313-2300
- ALL DETOURS AND ROADWAY WORK IN THE SHA R/W SHALL BE PERFORMED IN ACCORDANCE WITH THE SHA UTILITY PERMIT AND THE SHA MASTER PERMIT.
- THE CONTRACTOR SHALL CONSTRUCT THE FORCE MAIN FROM STATION 0+50 TO STATION 4+00 AT NIGHT, SUNDAY THROUGH THURSDAY 9:00PM TO 5:00AM.
- DAYTIME LANE CLOSURES ALONG US 1 ARE PERMITTED MONDAY THROUGH FRIDAY 9:00AM TO 3:00PM. NO WEEKEND WORK IS PERMITTED.

SEQUENCE OF CONSTRUCTION

- CONSTRUCT SEWER FORCE MAIN FROM STA. 4+00 TO STA. 19+00 USING MSHA STANDARD NO. 104.03-05, 104.03-11 AND 104.05-15. SEE SHEET T-02 FOR STANDARDS.
- CONSTRUCT SEWER FORCE MAIN FROM STA. 0+00 TO STA. 4+00 BY CLOSING MEADOWRIDGE ROAD AND DETOURING TRAFFIC AS SHOWN.

TRAFFIC SIGNS USAGE TABLE

	SIGN	SIZE	QUANTITY	TOTAL S.F.	REMARKS		SIGN	SIZE	QUANTITY	TOTAL S.F.	REMARKS
A	DETOUR	M4-10L 48"x18" (6 S.F.) BK/O	1	6	MOUNT ON TYPE III BARRICADE	P	EAST	M3-2 24"x12" (MIN.) (2 S.F.) BK/W	6	12.0	
B	DETOUR	M4-10R 48"x18" (6 S.F.) BK/O	1	6.0	MOUNT ON TYPE III BARRICADE	R	DETOUR	M4-8 24"x12" (2 S.F.) BK/O	15	30.0	
C	MARYLAND 103	M1-5 30"x24" (5 S.F.) BK/W	15	75.0		S					NOT USED
D	WEST	M3-4 24"x12" (2 S.F.) BK/W	9	18.0		T					NOT USED
E	→	M6-1 21"x15" (2.5 S.F.) BK/W	3	7.5	SIGN MUST BE PLACED WITHIN 50' OF INTERSECTION WHEN LOCATED ON STATE HIGHWAY	U	ROAD CLOSED 1/2 MILE	W20-3(1) 48"x48" (16 S.F.) BK/O	2	32.0	
F	↙	M5-1L 21"x15" (2.5 S.F.) BK/W	4	10.0	SIGN MUST BE PLACED WITHIN 200' TO 800' OF INTERSECTION WHEN LOCATED ON STATE HIGHWAY	V	ROAD CLOSED 1500FT	W20-3(1) 48"x48" (16 S.F.) BK/O	2	32.0	
G	←	M6-1 21"x15" (2.5 S.F.) BK/W	4	10.0	SIGN MUST BE PLACED WITHIN 50' OF INTERSECTION WHEN LOCATED ON STATE HIGHWAY	W	ROAD CLOSED AHEAD LOCAL TRAFFIC ONLY	R11-3a(MOD.) 60"x30" (12.5 S.F.) BK/W	1	12.5	MOUNT ON TYPE III BARRICADE
H	↘	M5-1R 21"x15" (2.5 S.F.) BK/W	3	7.5	SIGN MUST BE PLACED WITHIN 200' TO 800' OF INTERSECTION WHEN LOCATED ON STATE HIGHWAY						
J	END DETOUR	M4-8a(1) 36"x24" (6 S.F.) BK/O	2	12.0							
K	ROAD CLOSED	R11-2 48"x30" (10 S.F.) BK/W	3	30.0	MOUNT ON TYPE III BARRICADE ABOVE M4-10						
L	ROAD CLOSED 1 MILE	W20-3(1) 48"x48" (16 S.F.) BK/O	2	32.0							
M					NOT USED						
N	↑	M6-3 21"x15" (2.5 S.F.) BK/W	1	2.5							



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. 16303,
EXPIRATION DATE: 12/21/2016

PLOTTED: 11:50 AM on Friday, December 12, 2014
BY: Kevin Jackson, Division: PD42, Water-WW Emp
FILE: M:\2013\13122877\13122877-18-MOT-001.PLAN.dgn

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

Director of Public Works: *John J. Hester* DATE: 12/15/15
Chief, Bureau of Engineering: *Thomas P. Stettin* DATE: 12/15/15
Chief, Bureau of Utilities: *Steve C. Green* DATE: 12/15/15
Chief, Utility Design Division: *KS* DATE: 12/15/15

KCI TECHNOLOGIES
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www.kci.com



DES: AMH			
DRN: KFJ			
CHK: JFL			
DATE: DEC., 2014	BY	NO.	
			REVISION
			DATE

TRAFFIC CONTROL PLAN

600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

**MEADOWRIDGE WASTEWATER PUMP STATION
UPGRADE AND FORCE MAIN REPLACEMENT**

CAPITAL PROJECT No. S-6279
CONTRACT No. 10-4844

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

T-01
SCALE AS SHOWN
SHEET
I OF 15

KCI TECHNOLOGIES PROJECT No.: 13-12287716

GENERAL ABBREVIATIONS table with columns for SYMBOL and DESCRIPTION. Includes terms like ADDL, ALT, ARV, BF, BFV, BLDG, BV, CI, CL, CLR, CONC, CONT, CV, D, DIA, DIP, DWG, E, ECC, EF, EFF, EJ, EL & ELEV, ELL, EQ, EW, EXIST, FCA, FCV, FF, FH, FIN, FLG, FLR, FM, FPM, FRP.

FLOWSTREAM ABBREVIATIONS table with columns for SYMBOL and DESCRIPTION. Includes terms like AHP, ALP, CW, D, DS, DW, FCH, FW, G, GS, HW, IR, NAOH, NPW, OVF, P, PS, PW, RAS, RD, RS, SC, S, SEP, SHC, SSC, SW, TD, TS, TWAS, SLUDGE, UW, WAS.

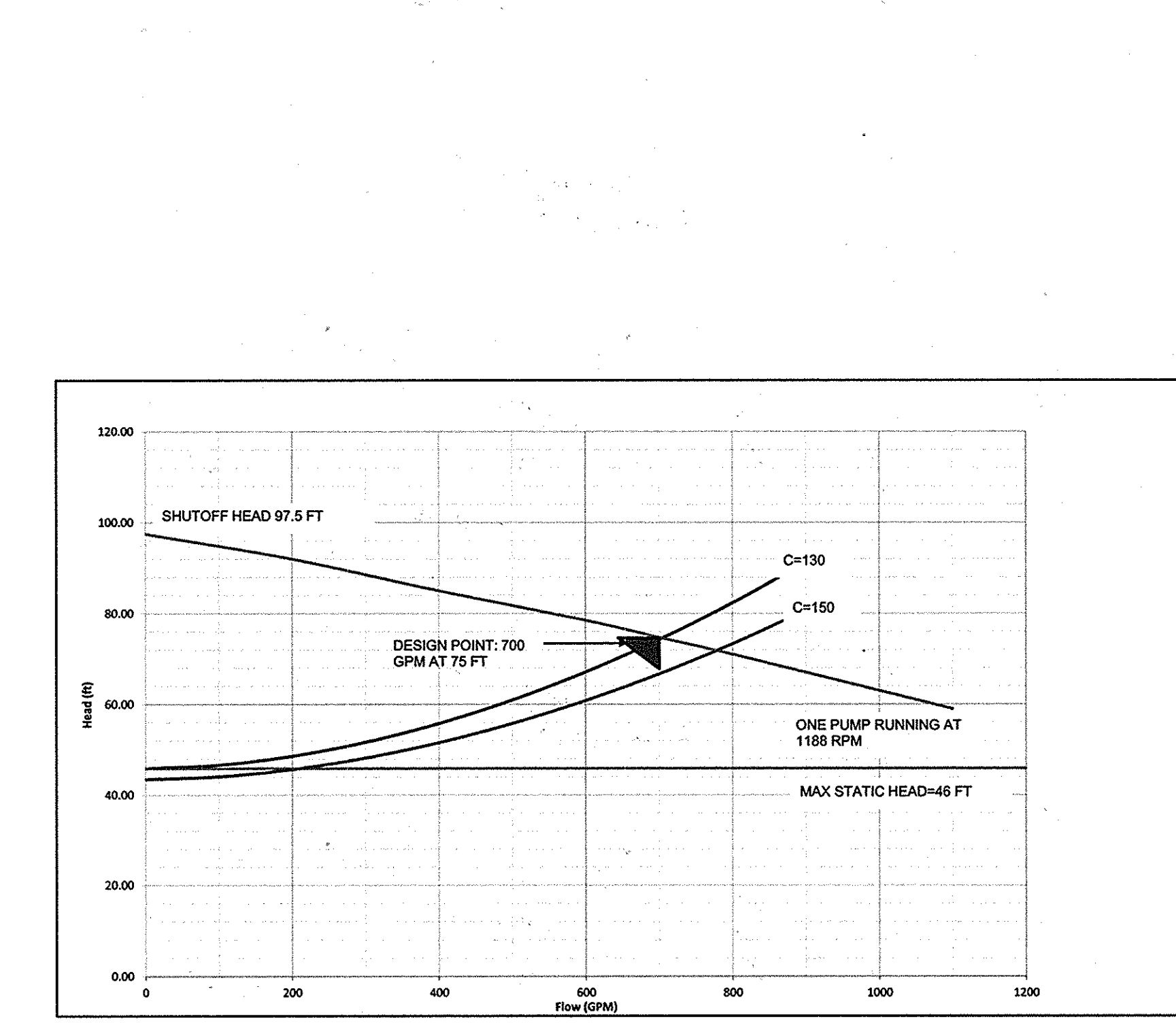
ANNOTATION table with symbols for WATER SURFACE ELEVATION, ONE WAY FLOW DIRECTION, BOTH WAYS FLOW DIRECTION, NEW WORK EXISTING, DEMOLITION, EQUIPMENT TAG, and FLOWSTREAM IDENTIFIER (SIZE AND SERVICE).

- GENERAL MECHANICAL NOTES: 1. COORDINATE ALL SHUTDOWNS AND SEQUENCING WITH THE OWNER. 2. OWNER WILL MAINTAIN AND OPERATE EXISTING EQUIPMENT. 3. UNLESS OTHERWISE NOTED, ITEMS ARE NEW UNLESS CALLED OUT AS EXISTING. 4. COORDINATE ALL WORK TO AVOID EQUIPMENT CLEARANCE ISSUES. 5. CHECK ALL DIMENSIONS OF EXISTING CONSTRUCTION WHICH AFFECT NEW WORK. 6. STRUCTURE ELEVATIONS PROVIDED FOR CLARITY AND ARE BASED ON RECORD DRAWINGS. 7. COORDINATE HATCH LOCATIONS, GRATING AND CLEAR OPENINGS TO SUIT EQUIPMENT REMOVAL. 8. COORDINATE ALL PENETRATIONS WITH OTHER DISCIPLINES. 9. PIPING CONNECTIONS 3 INCH AND SMALLER HAVE BEEN SCHEMATICALLY SHOWN ON PLAN AND SECTION DRAWINGS. 10. SCHEMATIC DRAWINGS SHOW PROCESS CONNECTIONS AND NOT SPATIAL ORIENTATION. 11. THE SIZE OF THE PIPE CONNECTIONS AT THE PROCESS EQUIPMENT ARE SHOWN TO DEMONSTRATE INTENT. 12. SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE. 13. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER. 14. UNLESS OTHERWISE NOTED, MINIMUM SLOPE FOR DRAINS SHALL BE 1/4 INCH PER LINEAR FOOT. 15. PROVIDE PROCESS PIPING DRAINS WHERE INDICATED AND AT THE FOLLOWING: BETWEEN PUMP SUCTION AND DISCHARGE ISOLATION VALVES. 16. UNLESS OTHERWISE NOTED, ECCENTRIC REDUCERS SHALL BE INSTALLED FLAT SIDE ON TOP. 17. CONTRACTOR SHALL CONFIRM ALL VALVE OPERATORS ORIENTATION WITH ENGINEER. 18. VALVES ARE NORMALLY OPEN (N.O.) UNLESS NOTED AS NORMALLY CLOSED (N.C.). 19. COORDINATE THE LOCATION OF VALVE SUPPORTS SO THAT ACCESS TO THE VALVE BEARINGS IS NOT RESTRICTED. 20. UNLESS OTHERWISE NOTED, ALL EQUIPMENT SHALL BE PROVIDED WITH A MINIMUM 4-INCH CONCRETE HOUSEKEEPING PAD SIZED TO SUIT EQUIPMENT. 21. SUPPORTS AND HANGERS ARE ONLY SHOWN WHERE SPECIFIC TYPES OR LOCATIONS ARE REQUIRED. 22. METAL FABRICATIONS WITH BURS, SHARP EDGES OR POSE A HAZARD SHALL BE MADE DULL/BLUNT OR SHALL BE PROVIDED WITH AN APPROPRIATE COVERING THAT SHALL MITIGATE AND DRAW ATTENTION TO THE HAZARD. 23. ALL DUCTS, AIR HANDLERS, FANS AND FILTER BOXES SHALL BE SEALED IN ACCORDANCE WITH SECTION 603.9 OF THE IMC.

PROCESS PIPING SYMBOLS table with columns for DOUBLE LINE and SINGLE LINE. Includes symbols for FLANGED PIPING, MECHANICAL JOINT PIPING, RIGID GROOVED PIPING, THREADED PIPE, ELBOW UP/DOWN, TEE UP/DOWN, LATERAL UP/DOWN, CONCENTRIC/ECCENTRIC REDUCER, UNION, FLANGED COUPLING ADAPTER, FLEXIBLE COUPLING, METAL BELLOWS EXP JOINT, ELASTOMER BELLOWS EXP JOINT, and PIPE CAP.

VALVE SYMBOLS table with symbols for BACKFLOW PREVENTOR, PLUG VALVE*, GATE VALVE, CHECK VALVE, BALL VALVE, PRESSURE REDUCING VALVE, PRESSURE RELIEF VALVE, PUMP CONTROL VALVE, and MAGNETIC FLOW METER. Includes note: *SHADED PORTION INDICATES SEATING SIDE OF VALVE.

EQUIPMENT SYMBOLS table with symbols for SLIDE GATE, CENTRIFUGAL PUMP, HYDRAULIC ACTUATOR, MOTOR ACTUATOR, and HEAT TRACE.



1 PUMP AND SYSTEM CURVE M-01 SCALE: NONE

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. 33984 EXPIRATION DATE 01-15-2017

NOTE: THIS IS A STANDARD LEGEND AND ABBREVIATIONS SHEET. NOT ALL THE INFORMATION SHOWN ON THIS LEGEND IS USED ON THIS PROJECT.

Jan 08, 2016 - 2:47pm User: Linc Peterson M:\031013\12287716\Drawings\M-01 LEGEND & ABBREVIATIONS.dwg

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND. Includes signatures and dates for Director of Public Works, Chief, Bureau of Engineering, and Chief, Utility Design Division.

KCI TECHNOLOGIES logo and address: 935 RIDGEBROOK ROAD, SPARKS, MD 21152. Phone: (410) 316-7800. Fax: (410) 316-7817. www.kci.com

Professional Engineer Seal for State of Maryland, License No. 33984, Expiration Date 01-15-2017. Includes name and date.

Revision table with columns for DES, DRN, CHK, DATE, BY, NO., REVISION, DATE.

MECHANICAL PROCESS LEGEND, ABBREVIATIONS AND GENERAL NOTES

MEADOWRIDGE WASTEWATER PUMP STATION UPGRADE AND FORCE MAIN REPLACEMENT. CAPITAL PROJECT NO. S-6279 CONTRACT NO. 10-4844. ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

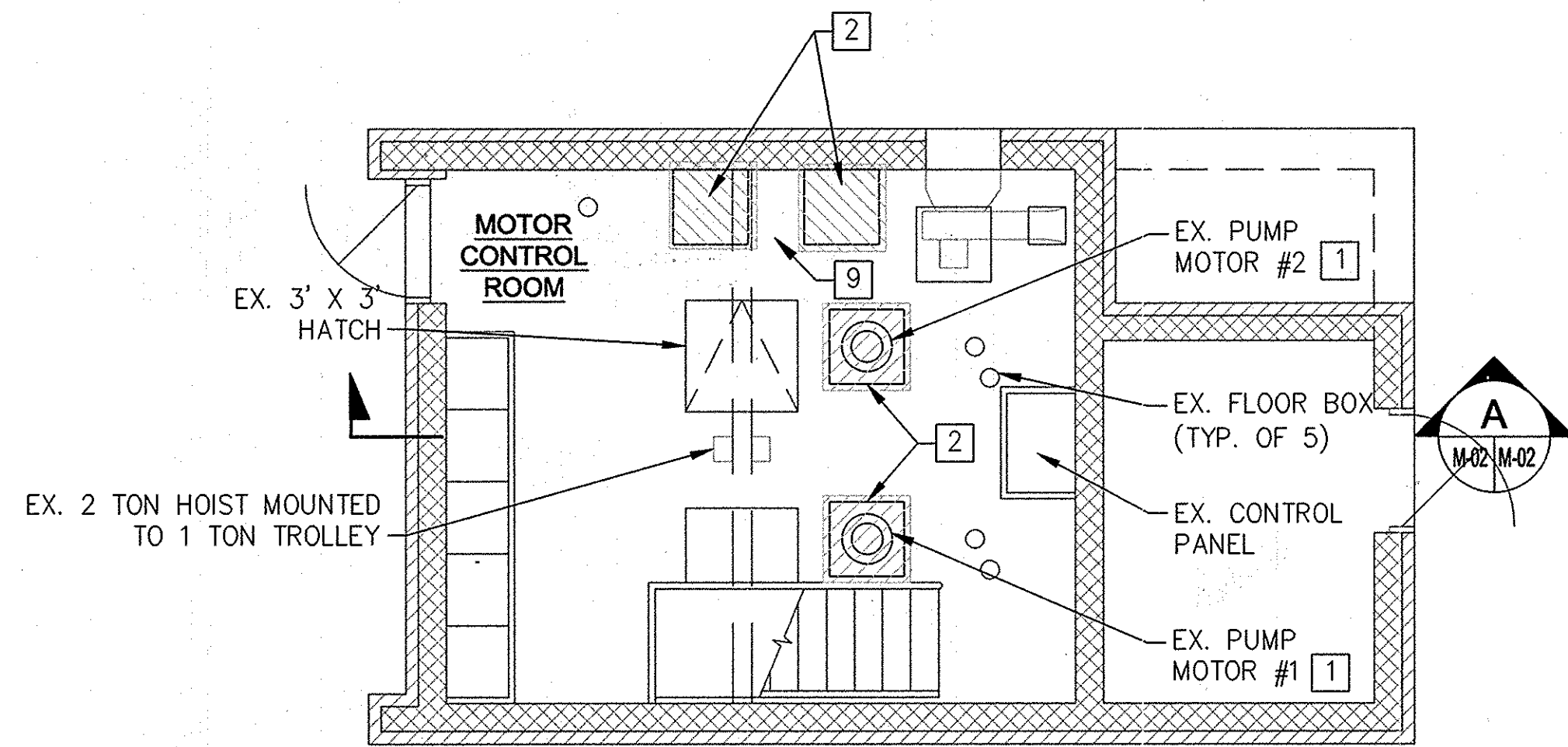
M-01 SCALE AS SHOWN SHEET 9 OF 15

GENERAL SHEET NOTES

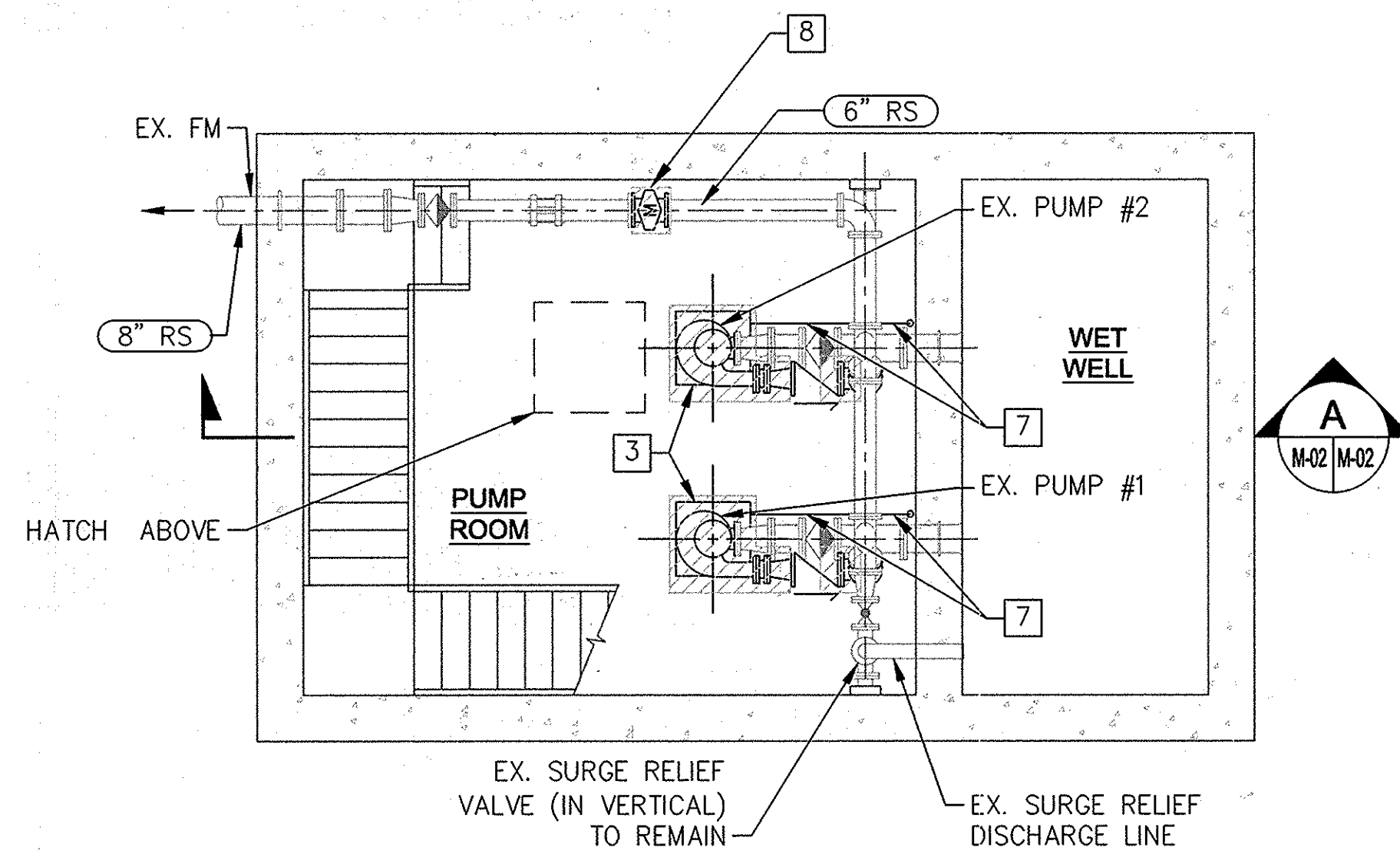
1. COUNTY RESERVES RIGHT TO SALVAGE OF REMOVED EQUIPMENT.
2. NOT ALL EXISTING COMPONENTS ARE SHOWN FOR CLARITY.

REMOVAL NOTES

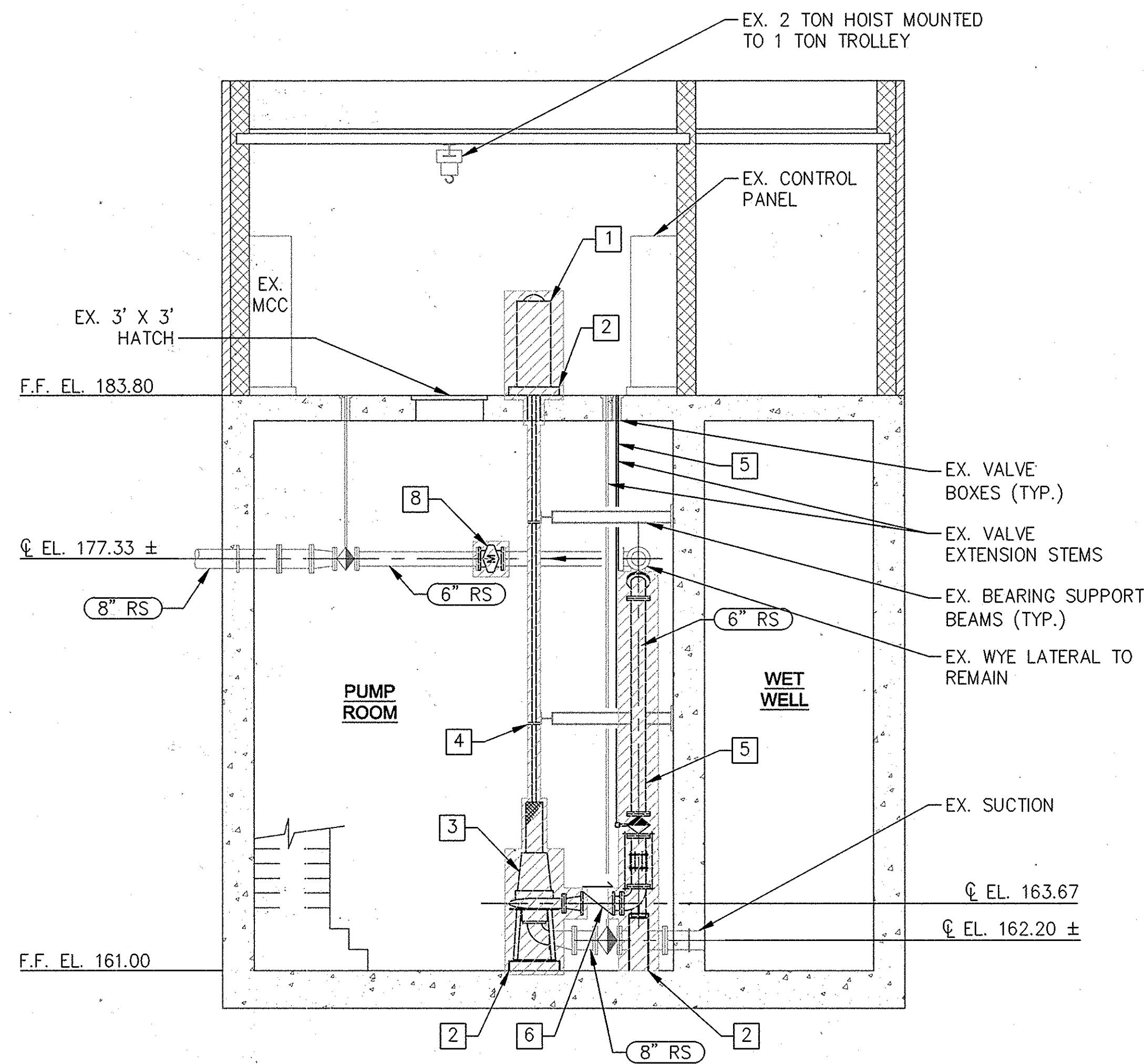
- 1 REMOVE EX. ELECTRIC PUMP MOTOR AND APPURTENANCES.
- 2 REMOVE EX. EQUIPMENT PAD AND REPAIR CONCRETE FLOOR. GROUT SMOOTH TO MATCH EX. FLOOR.
- 3 REMOVE EX. SEWAGE PUMP AND APPURTENANCES.
- 4 REMOVE EX. SHAFTING, COUPLINGS, BEARINGS, AND APPURTENANCES.
- 5 REMOVE EX. DISCHARGE PIPING, VALVES AND APPURTENANCES.
- 6 RELOCATE EX. CHECK VALVE.
- 7 REMOVE EX. SEAL WATER DRAIN PIPING.
- 8 REMOVE EX. MAGNETIC FLOWMETER.
- 9 CORE DRILL FLOOR TO SUIT NEW PUMP CABLE PENETRATIONS. SEE ELECTRICAL DRAWINGS.



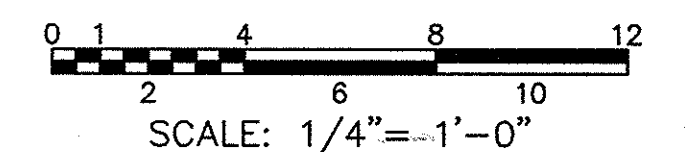
1 DEMOLITION PLAN: GRADE LEVEL
M-02 SCALE: 1/4"=1'-0"



2 DEMOLITION PLAN: LOWER LEVEL
M-02 SCALE: 1/4"=1'-0"



A SECTION: DEMOLITION
M-02/M-02 SCALE: 1/4"=1'-0"



PROFESSIONAL CERTIFICATION
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EXPIRATION DATE 01-15-2017

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 1/15/15
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 1/15/15
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 1/15/15
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 1/15/15
CHIEF, UTILITY DESIGN DIVISION DATE

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www.kci.com

STATE OF MARYLAND
L. PETERSON
PROFESSIONAL ENGINEER
No. 33984
1/8/15

DES: LAP					
DRN: MGH					
CHK: LAP					
DATE: DEC., 2014	BY	NO.	REVISION	DATE	

**PUMPING STATION
DEMOLITION PLANS AND SECTION**

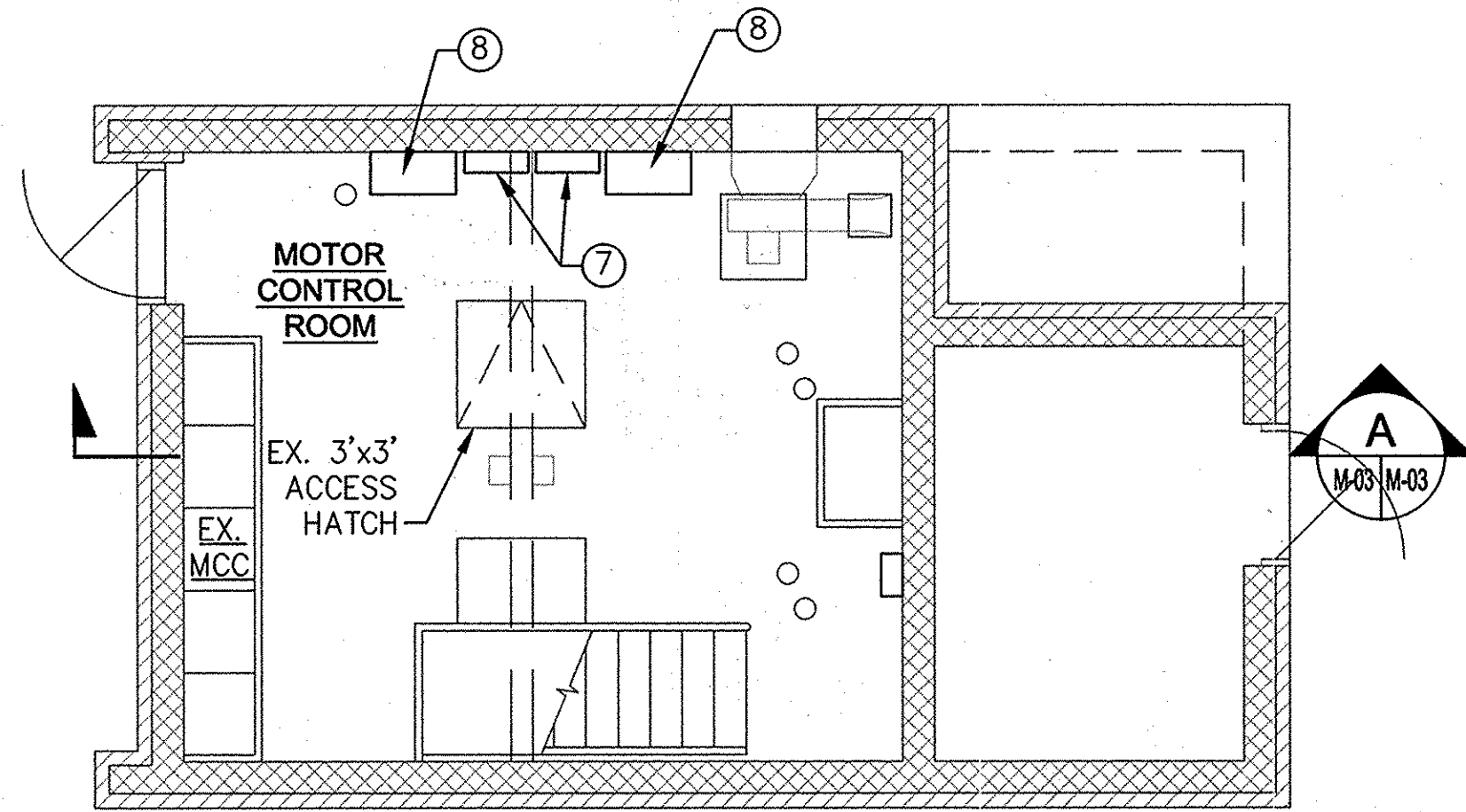
600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

**MEADOWRIDGE WASTEWATER PUMP STATION
UPGRADE AND FORCE MAIN REPLACEMENT**

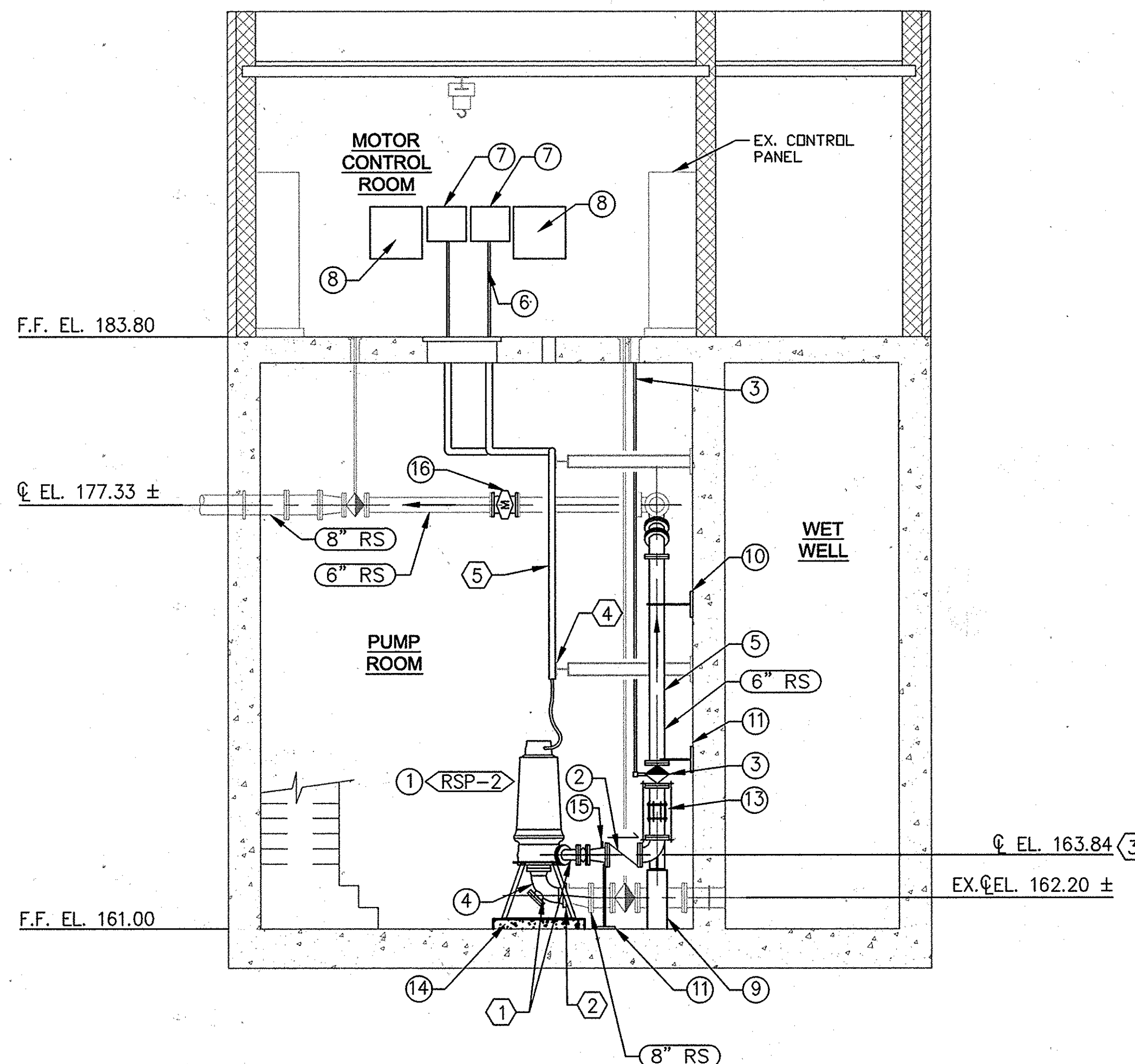
CAPITAL PROJECT NO. S-6279
CONTRACT NO. 10-4844

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

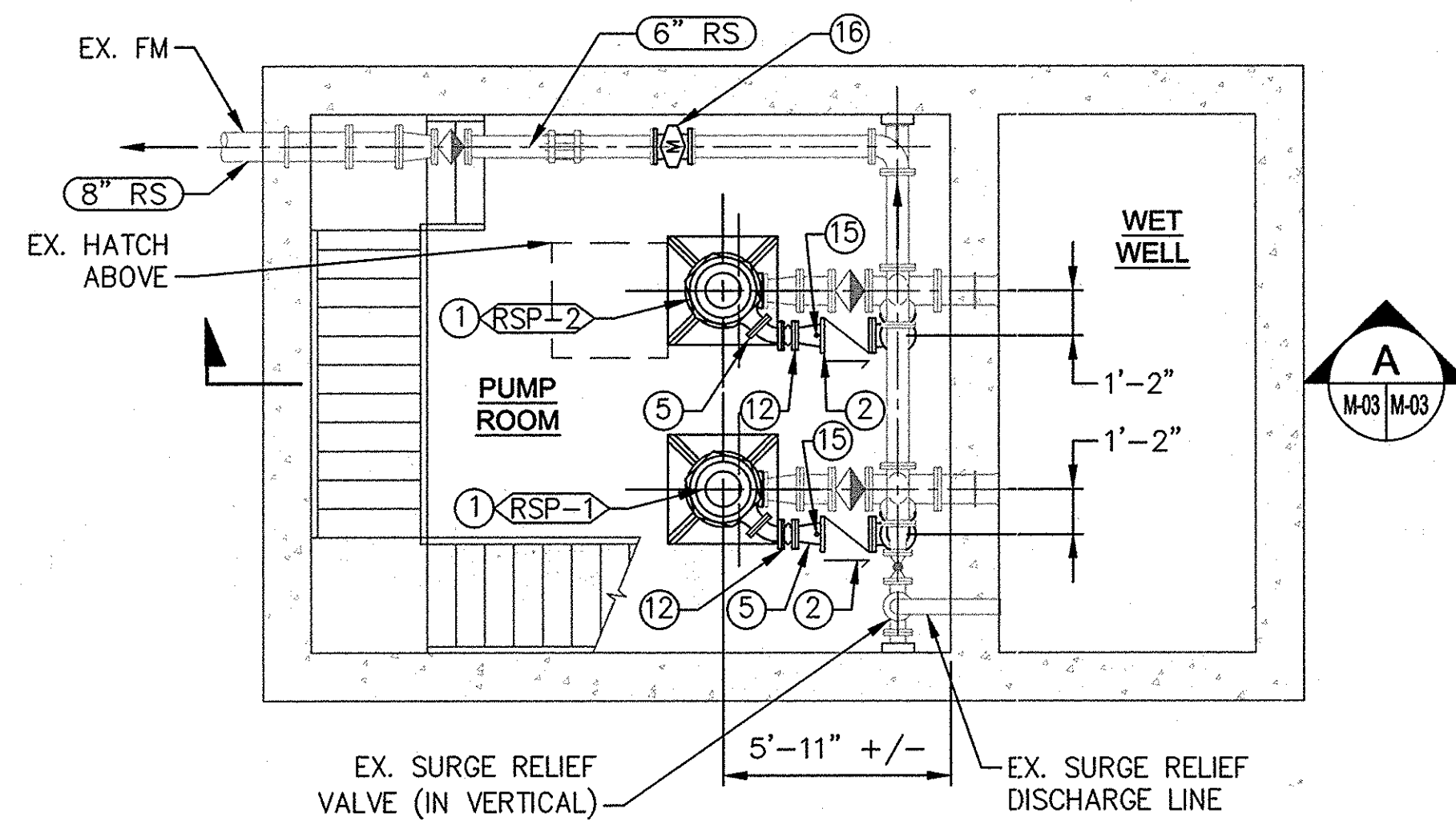
M-02
SCALE AS SHOWN
SHEET 10 OF 15



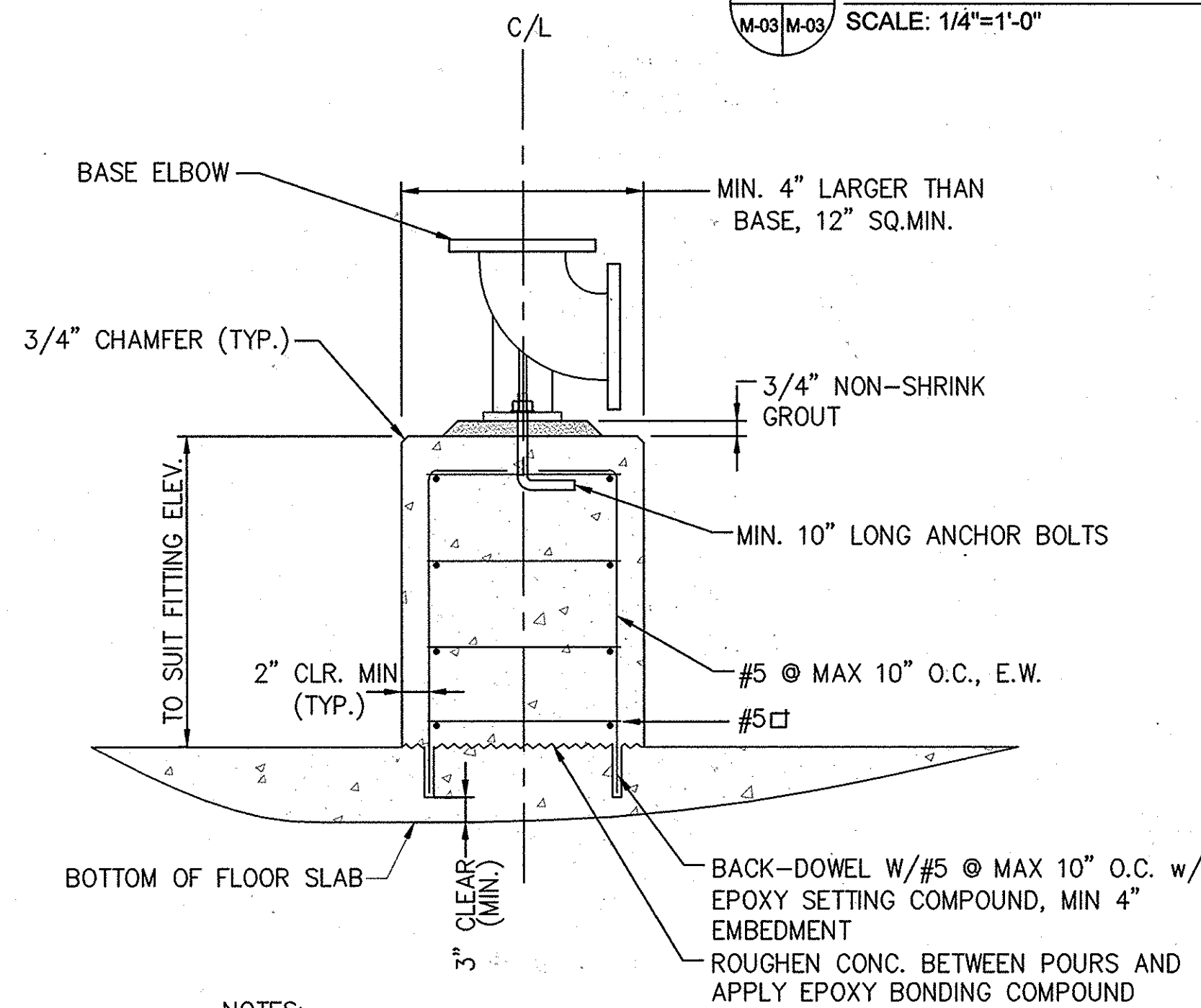
1 NEW PLAN: GRADE LEVEL
M-03 SCALE: 1/4"=1'-0"



SECTION: NEW WORK
M-03 M-03 SCALE: 1/4"=1'-0"

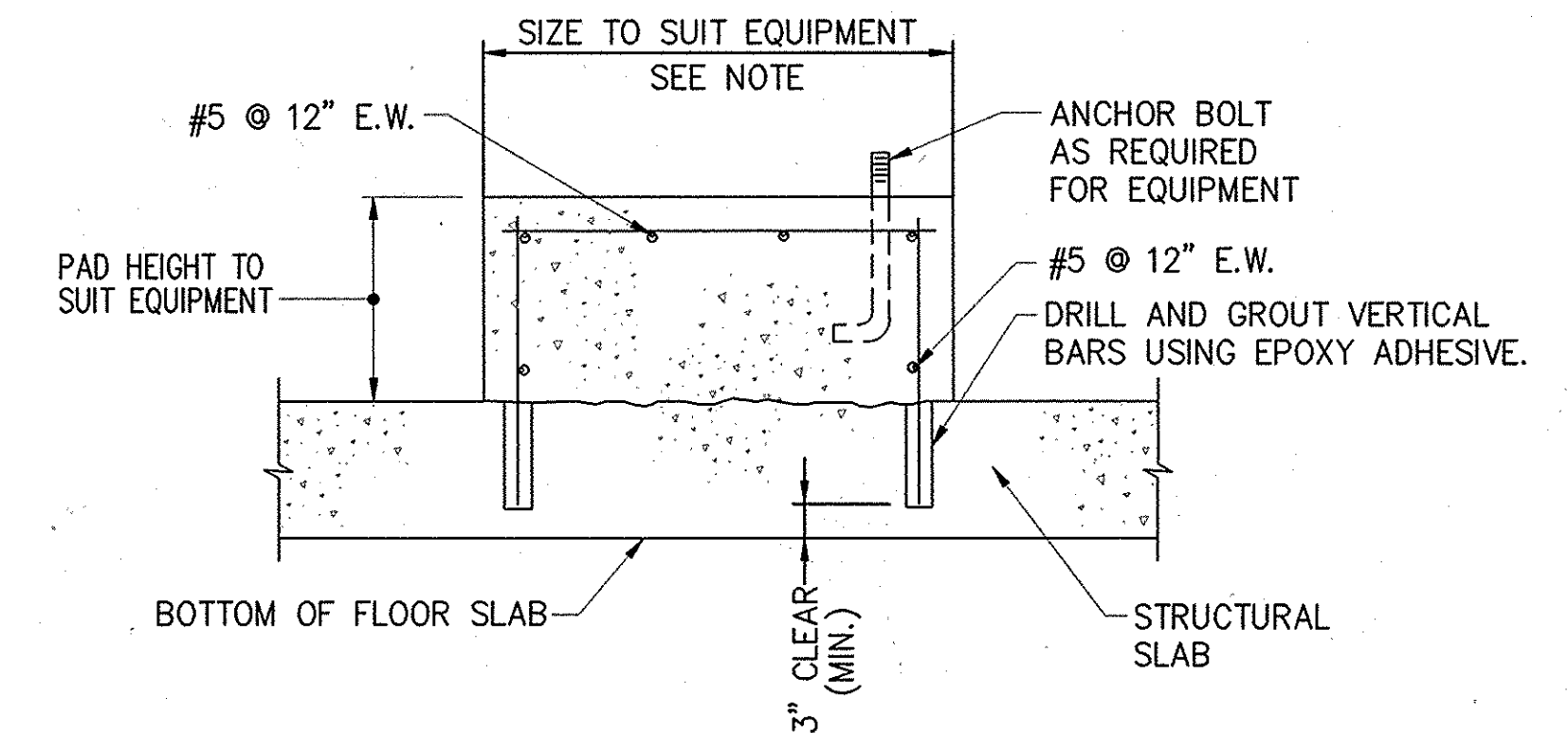


2 NEW PLAN: LOWER LEVEL
M-03 SCALE: 1/4"=1'-0"

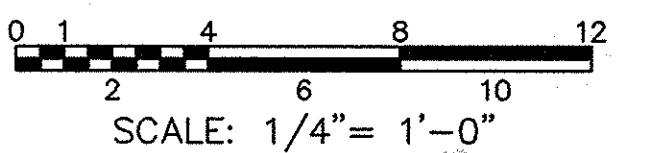


- NOTES:**
1. BASE FITTING DIMENSIONS SHALL BE CONFIRMED WITH THE MANUFACTURER PRIOR TO CONSTRUCTION.
 2. INSTALL BASE ELBOW IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 3. DETAIL IS SIMILAR FOR BASE TEES.

B DETAIL: CONCRETE BASE PEDESTAL
M-03 SCALE: NOT TO SCALE



C DETAIL: CONCRETE EQUIPMENT PAD
M-03 SCALE: NOT TO SCALE



GENERAL NOTES

1. NOT ALL EXISTING COMPONENTS ARE SHOWN FOR CLARITY.
2. PIPE SUPPORTS AND HANGERS SHALL BE IN ACCORDANCE WITH MSS SP-58. PROVIDE PRODUCTS BY COOPER B-LINE, ANVIL INTERNATIONAL, OR EQUAL.

EQUIPMENT LIST

- 1 DRYFIT SUBMERSIBLE SEWAGE PUMP
- 2 RELOCATED EX. CHECK VALVE
- 3 ECCENTRIC PLUG VALVE WITH EXTENSION STEM UP TO FLOOR BOX WITH OPERATING NUT. PROVIDE UNIVERSAL JOINTS AND STEM GUIDES AS REQUIRED.
- 4 SUCTION ELBOW WITH CLEAN OUT
- 5 DUCTILE IRON PIPING AND FITTINGS (TYP.)
- 6 CABLE STRAIN RELIEF AND SUPPORT
- 7 CABLE JUNCTION BOX, SEE ELECTRICAL DWGS.
- 8 PUMP MONITOR MOUNTED IN PANEL, SEE INSTR. DWGS.
- 9 CONCRETE BASE FOR ELBOW SUPPORT
- 10 ADJUSTABLE PIPE SADDLE SUPPORT WITH U-BOLT, SCH. 40 GALVANIZED STEEL PIPE AND BASE STAND, MSS TYPE 37.
- 11 ADJUSTABLE FLANGE SUPPORT, SCH. 40 GALVANIZED STEEL PIPE AND BASE STAND
- 12 SPHERICAL EXPANSION JOINT WITH RESTRAINT CABLES OR RODS.
- 13 MECHANICAL COUPLING WITH HARNESSSES.
- 14 CONCRETE PUMP SUPPORT PAD. HEIGHT TO SUIT PUMP AND FLOOR.
- 15 PRESSURE GAUGE CONNECTION. PROVIDE TAPPING BOSS ON FITTING TO SUIT CONNECTION.
- 16 MAGNETIC FLOWMETER

CONSTRUCTION NOTES

- 1 COORDINATE ELBOW, REDUCER AND EXPANSION JOINT SIZES TO SUIT PUMP FURNISHED AND DISCHARGE AND SUCTION PIPE SIZES. SUBMIT SIZE FOR APPROVAL BY ENGINEER.
- 2 WHERE REQUIRED TO SATISFY LAY LENGTHS FOR LAYOUT SHOWN, PROVIDE FILLER FLANGES.
- 3 ADJUST PIPE ELEVATION TO SUIT PUMP FURNISHED.
- 4 SUPPORT CONDUIT ON EX. GRATING / FRAMING.
- 5 RUN MANUFACTURERS CABLE THRU-WIREWAY, SEE ELECTRICAL DRAWINGS.

PROFESSIONAL CERTIFICATION
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DES: LAP					
DRN: MGH					
CHK: LAP					
DATE: DEC, 2014	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

PUMPING STATION
NEW WORK PLANS AND SECTION

MEADOWRIDGE WASTEWATER PUMP STATION
UPGRADE AND FORCE MAIN REPLACEMENT

CAPITAL PROJECT NO. S-6279
CONTRACT NO. 10-4844

ELECTION DISTRICT 2

HOWARD COUNTY, MARYLAND

M-03

SCALE AS SHOWN

SHEET

11 OF 15

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jan G. ...
DIRECTOR OF PUBLIC WORKS DATE

Thomas S. Butler 1/15/15
CHIEF BUREAU OF ENGINEERING DATE

...
CHIEF, BUREAU OF UTILITIES DATE

...
CHIEF, UTILITY DESIGN DIVISION DATE

KCI TECHNOLOGIES

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STATE OF MARYLAND
PETERSON
PROFESSIONAL ENGINEER
NO. 33984
1/8/15

GENERAL ELECTRICAL NOTES

(THESE NOTES APPLY TO ALL ELECTRICAL DRAWINGS.)

- ALL WORK AND EQUIPMENT SHALL COMPLY WITH ALL AUTHORITIES HAVING JURISDICTION, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL MECHANICAL CODE, THE LOCAL FIRE MARSHALL, UNDERWRITERS LABORATORY (UL), FM, OSHA, AND THE NATIONAL ELECTRICAL CODE (NEC) AND MARYLAND BUILDING PERFORMANCE STANDARDS REGULATIONS (COMAR 05.02.07). WHERE CONTRACT DOCUMENT REQUIREMENTS ARE IN EXCESS OF CODE REQUIREMENTS, THE CONTRACT DOCUMENTS SHALL GOVERN. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, STRUCTURAL, FIRE PROTECTION, AND ELECTRICAL ARE COMPLEMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. IF ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
- CONTRACTORS SHALL VERIFY ALL POINTS OF CONNECTION BEFORE COMMENCING WORK. CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES. CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS, DEBRIS, AND RUBBISH FROM SITE AND LEGALLY DISPOSE OF IT.
- CONTRACTOR SHALL COORDINATE, PREPARE AND SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL AND BRING AREAS OF POTENTIAL CONFLICT TO THE ENGINEER'S ATTENTION.
- A SET OF MEP RECORD/COORDINATION DRAWINGS SHALL BE MAINTAINED IN THE CONTRACTORS OFFICE AT THE JOB SITE. ACTUAL LOCATIONS OF ALL EQUIPMENT, PIPING, DUCTWORK, ETC., AND ALL DEVIATIONS OF THE WORK FROM THAT SHOWN ON THE CONTRACT DOCUMENTS SHALL BE MARKED ON THE RECORD/COORDINATION DRAWINGS. EACH TRADE SHALL REVIEW THE COORDINATION DRAWINGS AND RESOLVE ANY POTENTIAL CONFLICTS WITH OTHER TRADES PRIOR TO INSTALLING ANY PORTION OF THERE WORK. CONTRACTOR SHALL NOT CORE, DRILL, OR CUT CONCRETE SLABS FOR ANY REASON WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE ENGINEER.
- WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR ALL COORDINATING THE WORK UNDER THIS CONTRACT. MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AT THE END OF EACH WORKING DAY.
- IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE COR. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE COR. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK, WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.
- THE CONTRACTOR SHALL BRING TO THE ATTENTION OF THE INSTALLING CONTRACTOR ANY SLAB-TO-SLAB PARTITIONS IN ORDER TO PRESERVE RETURN AIR PATHWAYS. ALL PENETRATIONS OF SLAB-TO-SLAB PARTITIONS SHALL BE SEALED AIRTIGHT. CONTRACTOR SHALL VERIFY PARTITION RATING AND PROVIDE FIRE DAMPER AND ACCESS DOOR AS REQUIRED. CURTAIN TYPE DAMPERS SHALL BE WITH THE CURTAIN OUT OF THE AIR STREAM.
- WHEREVER FIRE RATED WALLS OR PARTITIONS ARE PENETRATED FOR WIRE, DUCT, OR PIPE PASSAGE, SEAL PASSAGE WITH CODE APPROVED, LABORATORY TESTED AND LABELED SEALANT OF FIRE RESISTANCE RATING NOT LESS THAN THAT OF PENETRATED ASSEMBLY THAT WILL PREVENT PASSAGE OF FIRE AND SMOKE.
- CONTRACTOR SHALL MAKE ALL FINAL EQUIPMENT CONNECTIONS AND PROVIDE THE NECESSARY DEVICES, ETC. FOR A COMPLETE AND OPERABLE SYSTEM. COORDINATE REQUIREMENT FOR PROVISION OF MOTOR STARTERS, DISCONNECTS, CONTACTORS, CONTROL WIRING, ETC. AS REQ.
- ARRANGE CONDUIT, WIRING, EQUIPMENT AND OTHER WORK GENERALLY AS SHOWN, PROVIDING PROPER CLEARANCE AND ACCESS AS REQUIRED PER 2011 NEC. CAREFULLY EXAMINE ALL CONTRACT DRAWINGS AND COORDINATE THE WORK WITH ALL TRADES. WHERE DEPARTURES ARE PROPOSED BECAUSE OF FIELD CONDITIONS OR OTHER CAUSES, PREPARE AND SUBMIT DETAILED DRAWINGS FOR ACCEPTANCE BY THE ENGINEER.
- THE CONTRACT DRAWINGS ARE DIAGRAMMATIC. ALL OFFSETS, BENDS, FITTINGS AND ACCESSORIES ARE NOT NECESSARILY SHOWN. PROVIDE ALL SUCH ITEMS AS REQUIRED FOR COMPLETE OPERATIONAL SYSTEM.
- NOT USED.
- CONTRACTOR SHALL ACCOMPANY OWNER'S REPRESENTATIVE FOR INSPECTION AND APPROVAL AT PROJECT COMPLETION.
- CONTRACTOR SHALL OBTAIN ALL PERMITS, CERTIFICATES OF INSPECTION REQUIRED BY THE OWNER'S REPRESENTATIVE. ALL FEES SHALL BE WAIVED BY THE COUNTY.
- MARK EACH ABOVE CEILING JUNCTION BOX COVER WITH RESPECTIVE PANEL BOARD/CIRCUIT NUMBER.
- THE CONTRACTOR IS SPECIFICALLY RESPONSIBLE FOR ALL MEANS AND METHODS OF JOB SAFETY. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.

- ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE AREA OF WORK PRIOR TO THE START OF CONSTRUCTION.
- THE INFORMATION PROVIDED IN THESE DRAWINGS IS MEANT TO SHOW DESIGN INTENT ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ANY NECESSARY MODIFICATIONS TO MEET ACTUAL FIELD CONDITIONS. THESE MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER AND INDICATED ON THE AS-BUILT DRAWINGS.
- IF THE CONTRACTOR OPTS TO INSTALL EQUIPMENT OTHER THAN THAT SPECIFIED, HE SHALL BE RESPONSIBLE FOR PERFORMING THE NECESSARY DESIGN SERVICES TO ADJUST THE DESIGN TO ACCOMMODATE THE EQUIPMENT, CONNECTING MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL ARE TO BE MODIFIED ACCORDINGLY. ANY SUCH CHANGES SHALL BE PERFORMED BY A LICENSED PROFESSIONAL ENGINEER.
- ALL EQUIPMENT FURNISHED SHALL BE NEW UNLESS OTHERWISE NOTED.
- ARRANGE CONDUIT, WIRING, EQUIPMENT AND OTHER WORK GENERALLY AS SHOWN, PROVIDING PROPER CLEARANCE AND ACCESS. CAREFULLY EXAMINE ALL CONTRACT DRAWINGS AND COORDINATE THE WORK WITH ALL TRADES. WHERE DEPARTURES ARE PROPOSED BECAUSE OF FIELD CONDITIONS OR OTHER CAUSES, PREPARE AND SUBMIT DETAILED DRAWINGS FOR ACCEPTANCE.
- CONTRACTOR SHALL IDENTIFY AND MARK ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL USE EXTREME CARE TO AVOID HITTING, DAMAGING OR DISRUPTING EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY IN THE UNLIKELY EVENT ANY UTILITY IS DISTURBED.
- ALL CONDUCTORS SHALL BE COPPER WITH 600V THHN-THWN INSULATION UNLESS OTHERWISE NOTED. MINIMUM SIZE OF BRANCH CIRCUITS SHALL BE #12 AWG. PROVIDE SEPARATE INSULATED GROUND CONDUCTORS IN ALL CONDUITS. ALL WIRING SHALL BE INSTALLED IN CONDUIT UNLESS OTHERWISE NOTED.
- ALL ELECTRICAL DEVICES SHALL BE FLUSH MOUNTED EXCEPT WHERE NOTED OTHERWISE AND IN MECHANICAL ROOMS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ARC FLASH ANALYSIS AND ARC FLASH LABELS AS REQUIRED BY NFPA 70 AND NFPA 70E.

ELECTRICAL ABBREVIATIONS

A	- AMPERE	NIC	- NOT IN CONTRACT
AFB	- ABOVE FINISHED FLOOR	NTS	- NOT TO SCALE
AFG	- ABOVE FINISHED GRADE	N	- NEW
AIC	- AMPERE INTERRUPTING CAPACITY	OH	- OVERHEAD
APPROX	- APPROXIMATE	OP	- OWNER PROVIDED
ATS	- AUTOMATIC TRANSFER SWITCH	OSHA	- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
AWG	- AMERICAN WIRE GAUGE	PH, Ø	- PHASE
C	- CONDUIT	PNL	- PANEL
CCTV	- CLOSED CIRCUIT TELEVISION	PRI	- PRIMARY
CB	- CIRCUIT BREAKER	PVC	- POLYVINYL CHLORIDE
COR	- CONTRACTING OFFICER REPRESENTATIVE	QTY	- QUANTITY
CR	- CARD READER	RGS	- RIGID GALVANIZED STEEL
DISC	- DISCONNECT	RMC	- RIGID METAL CONDUIT
DL	- DOOR LOCK	SCH	- SCHEDULE
DWG	- DRAWING	SYM	- SYMMETRICAL
EMT	- ELECTRICAL METALLIC TUBING	SST	- STAINLESS STEEL
ETR	- EXISTING TO REMAIN	STL	- STEEL
EX	- EXISTING	SWBD	- SWITCHBOARD
FLA	- FULL LOAD AMPS	SWGR	- SWITCHGEAR
FLUOR	- FLUORESCENT	TP	- TAMPER PROOF
FSS	- FUSED SAFETY SWITCH	TEMP	- TEMPERATURE
FT	- FOOT/FEET	TVSS	- TRANSIENT VOLTAGE SURGE SUPPRESSOR
G, GND	- GROUND	TYP	- TYPICAL
GEC	- GROUNDING ELECTRODE CONDUCTOR	UG	- UNDERGROUND
GFI	- GROUND FAULT INTERRUPTING	UH	- UNIT HEATER
GRS	- GALVANIZED RIGID STEEL	UL	- UNDERWRITERS LABORATORIES
HP	- HORSE POWER	UON	- UNLESS OTHERWISE NOTED
HZ	- HERTZ	V	- VOLT
JB	- JUNCTION BOX	VA	- VOLT AMPERE
KCMIL	- THOUSAND CIRCULAR MILS	VD	- VOLTAGE DROP
KVA	- KILOVOLT AMPERES	W	- WIRE, WATT
KW	- KILOWATT	W/	- WITH
MAX	- MAXIMUM	WP	- WEATHERPROOF
MEP	- MECHANICAL ELECTRICAL PLUMBING	XFMR	- TRANSFORMER
MH	- MOUNTING HEIGHT		
MIN	- MINIMUM		
MTD	- MOUNTED		
MTR	- MOTOR		
NEC	- NATIONAL ELECTRIC CODE		
NEMA	- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION		
NFPA	- NATIONAL FIRE PROTECTION ASSOCIATION		
NFSS	- NON-FUSED SAFETY SWITCH		

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. 14749
 EXPIRATION DATE 01-11-2016

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 1/22/15
 DIRECTOR OF PUBLIC WORKS
 DATE

[Signature] 1/15/15
 CHIEF, BUREAU OF UTILITIES
 DATE

[Signature] 1/15/15
 CHIEF, BUREAU OF UTILITIES
 DATE

[Signature] 1/15/15
 CHIEF, UTILITY DESIGN DIVISION
 DATE

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DRN: SEB					
CHK: BDS					
DATE: DEC., 2014	BY	NO.	REVISION	DATE	

ELECTRICAL GENERAL NOTES AND ABBREVIATIONS

MEADOWRIDGE WASTEWATER PUMP STATION UPGRADE AND FORCE MAIN REPLACEMENT

CAPITAL PROJECT NO. S-6279
 CONTRACT NO. 10-4844

ELECTION DISTRICT 2

HOWARD COUNTY, MARYLAND

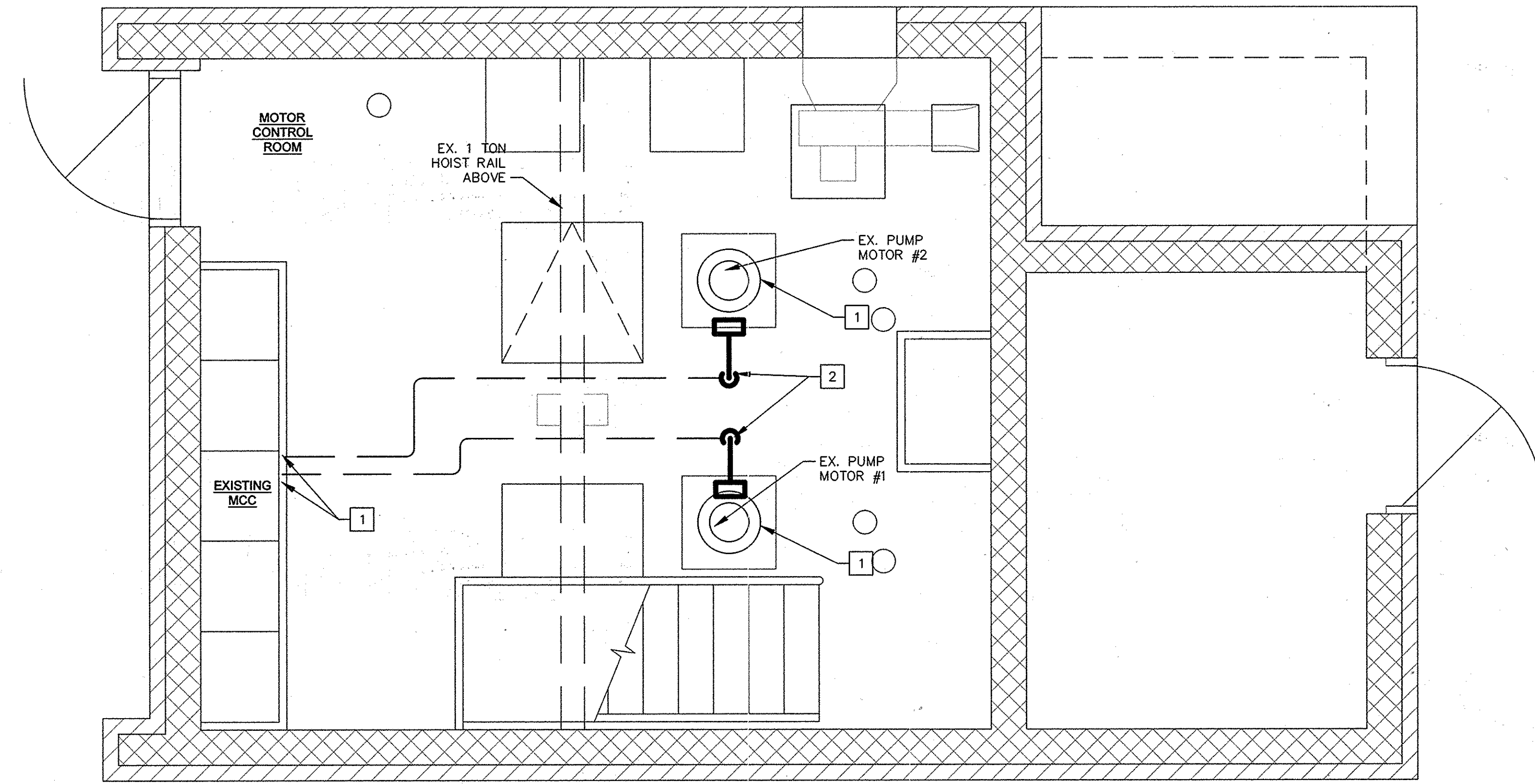
E-01

SCALE AS SHOWN

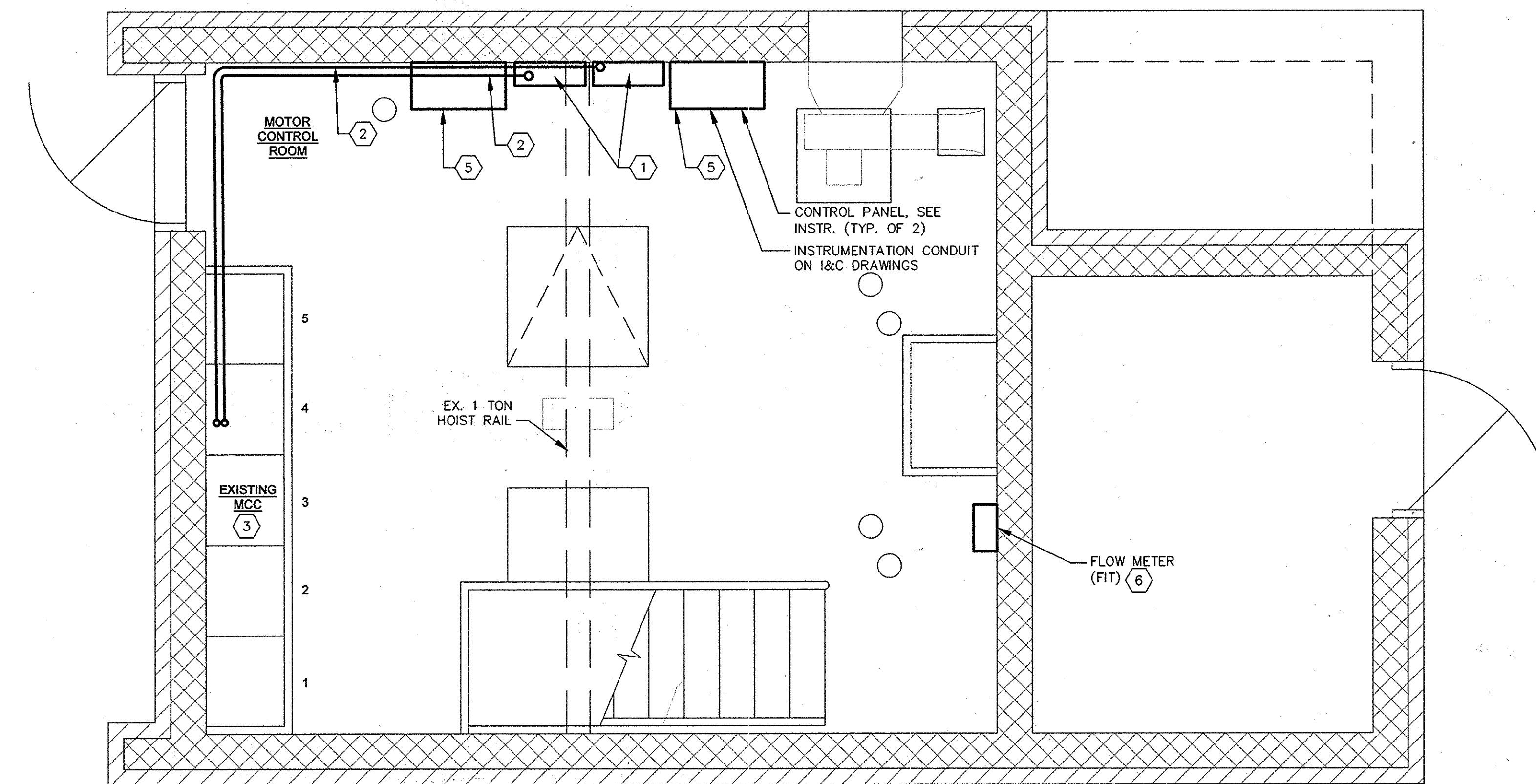
SHEET

12 OF 15

KCI TECHNOLOGIES PROJECT NO.: 13-12267716

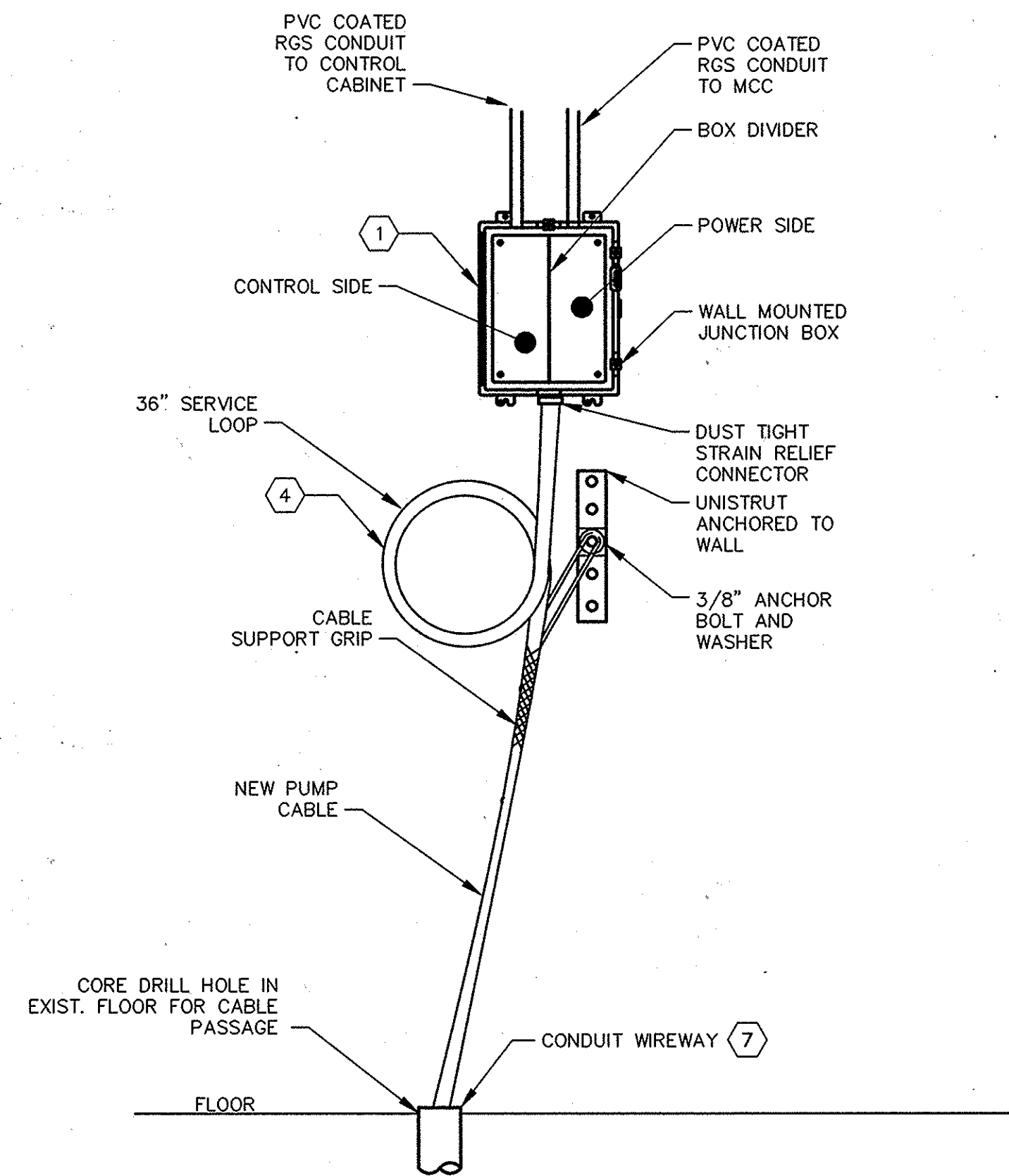


1 ELECTRICAL DEMOLITION
E-02
UPPER LEVEL
SCALE: 1/2"=1'-0"

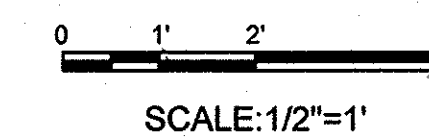


2 ELECTRICAL NEW WORK
E-02
UPPER LEVEL
SCALE: 1/2"=1'-0"

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EXPIRATION DATE 01-11-2016



3 JUNCTION BOX SUPPORT DETAIL
E-02
SCALE: NTS



GENERAL NOTES

- COORDINATE ALL OUTAGES WITH OWNER.

DEMOLITION NOTES

- DISCONNECT AND REMOVE CONDUCTORS AND CONDUIT BETWEEN EXISTING SEWAGE PUMP MOTORS #1 (BUCKET 5A) AND EXISTING SEWAGE PUMP #2 (BUCKET 5C). COORDINATE OUTAGE WITH OWNER.
- CUT CONDUIT FLUSH WITH FLOOR AND GROUT SMOOTH.

NEW WORK NOTES

- PROVIDE WALL MOUNTED STAINLESS STEEL, GASKETED, DIVIDED, 12" x 12" x 6" JUNCTION BOX. CONNECT NEW PUMP CABLE TO NEW FEEDERS FROM EXISTING MCC.
- PROVIDE 1 SET: 3-#4,#8GND, THHN-THWN, IN 1" PVC COATED RGS CONDUIT BETWEEN BUCKET 4A AND NEW JUNCTION BOX. PROVIDE SECOND SET: 3-#4,#8GND, THWN, IN 1" PVC COATED RGS BETWEEN BUCKET 4C AND NEW JUNCTION BOX. ROUTE CONDUIT TO AVOID HOIST TRAVEL AND EXISTING LIGHT FIXTURES.
- BUCKETS 4A AND 4C: REPLACE EXISTING OVERLOAD HEATER ELEMENTS IN EXISTING STARTERS. COORDINATE EXACT SIZE WITH MECHANICAL CONTRACTOR.
- NEW PUMP CABLE (SUPPLIED BY PUMP MANUFACTURER) INSTALL NEW PUMP CABLE AND CONNECT TO NEW FEEDERS FROM EXISTING MCC.
- PROVIDE 3/4" PVC COATED RGS CONDUIT FOR CONTROLS AS DESCRIBED ON THE INSTRUMENTATION DRAWINGS.
- RELOCATE EXISTING FLOW METER 120V CIRCUIT TO NEW FLOW METER TRANSMITTER.
- PROVIDE 3" PVC COATED RGS CONDUIT TO SUIT CABLE ROUTING. TERMINATE CONDUIT AT PUMP AND CONTROL LEVEL FLOOR WITH 6-FOOT SLACK CABLE.

Jan 09, 2016 - 2:48pm User: sheldon.bogert
\\p0101.com\Share\Projects\13122677_16\Drawings\E-02 ELECTRICAL DEMO AND NEW WORK PLANS.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jan 7 2016
DATE
CHIEF, BUREAU OF UTILITIES

1/13/16
DATE
CHIEF, UTILITY DESIGN DIVISION

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DATE:	DEC., 2014	BY	NO.	REVISION	DATE

ELECTRICAL DEMOLITION AND NEW WORK

**MEADOWRIDGE WASTEWATER PUMP STATION
UPGRADE AND FORCE MAIN REPLACEMENT**

CAPITAL PROJECT NO. S-6279
CONTRACT NO. 10-4844

ELECTION DISTRICT 2

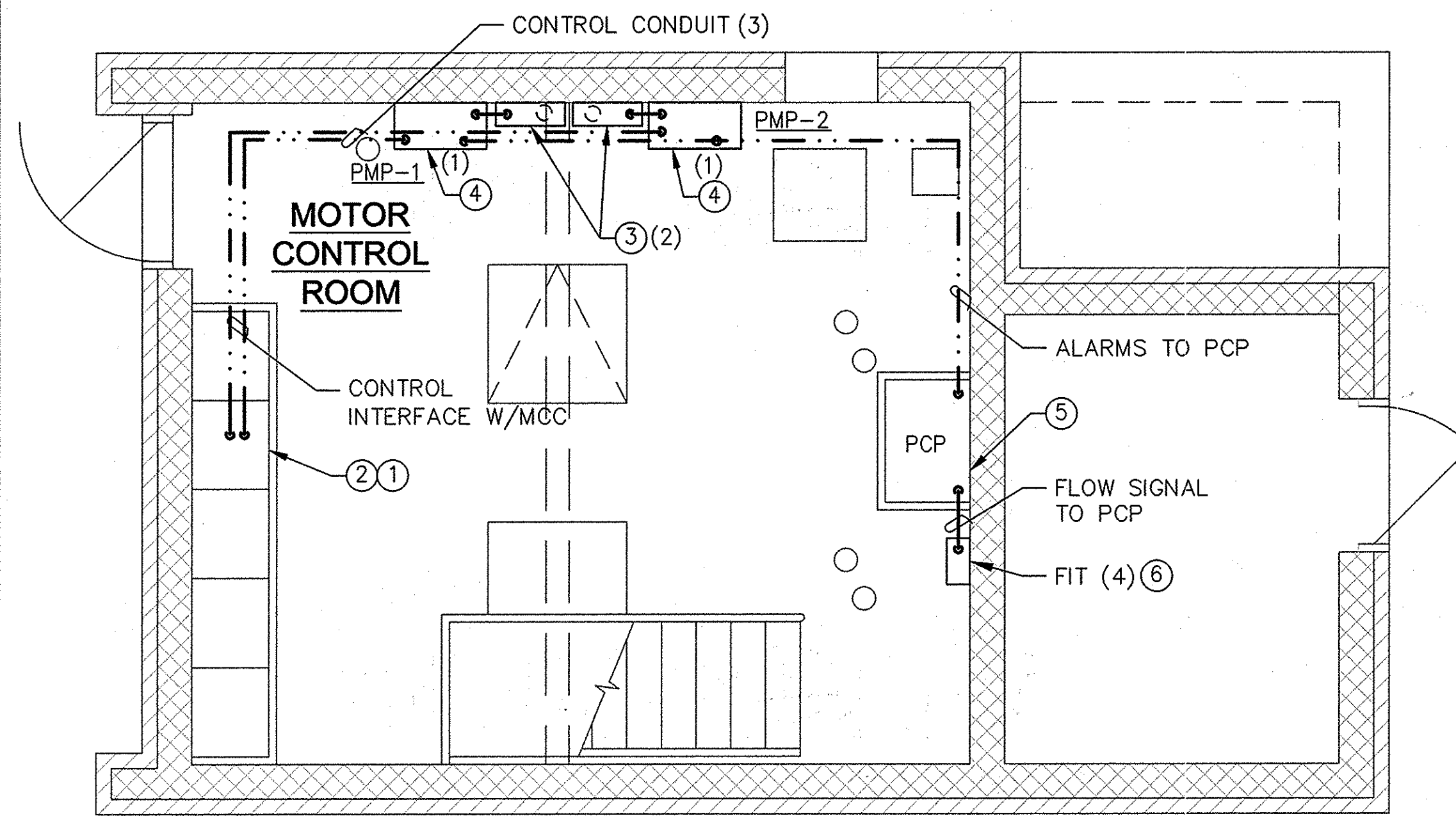
HOWARD COUNTY, MARYLAND

E-02

SCALE AS SHOWN

SHEET

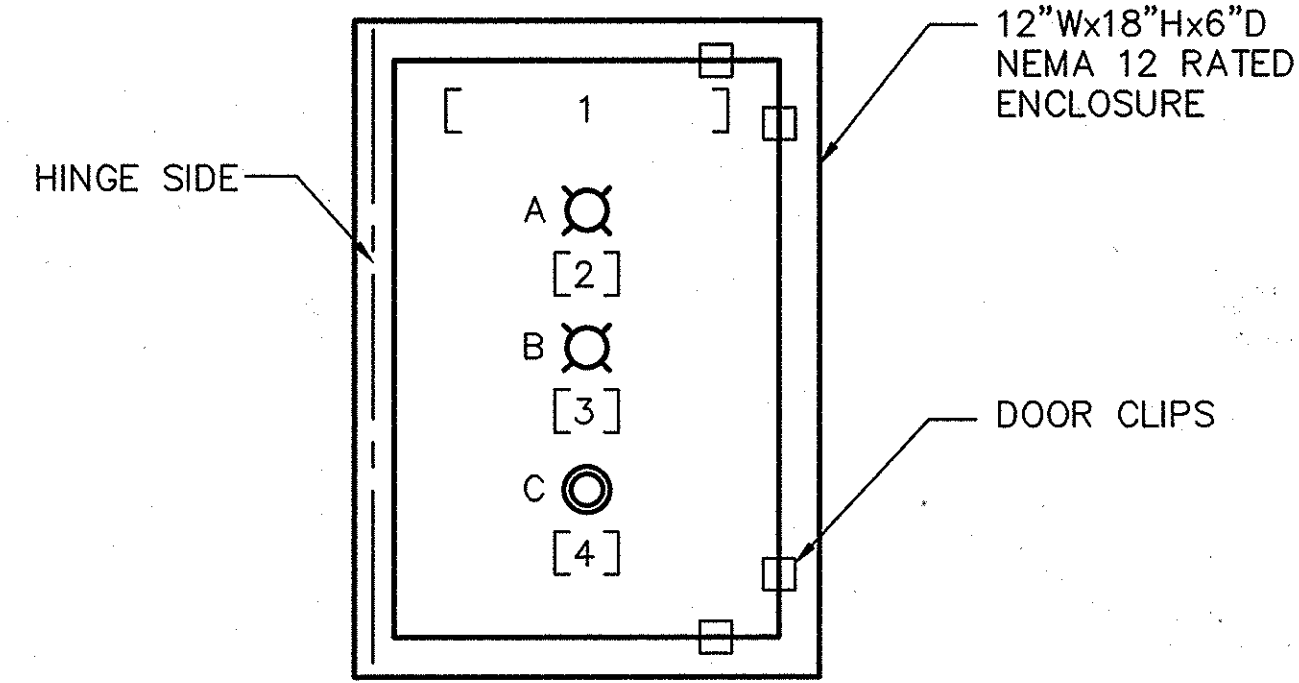
13 OF 15



NOTES

- (1.) E-STOP LOCATED AT PUMP IN LOWER LEVEL.
- (2.) PUMP MOTOR MONITOR SENSORS ARE INTEGRAL WITH MOTOR. MANUFACTURERS POWER CABLE INCLUDES PUMP MONITOR SIGNAL CONDUCTORS.
- (3.) CONDUIT QUANTITY TO SUIT INTEGRATED CONTROLS. SEE DRAWING I-02.
- (4.) CONTRACTOR TO COORDINATE RELOCATION OF 120VAC POWER CIRCUIT.

1 NEW INSTRUMENT PLAN: GRADE LEVEL
M-03 SCALE: 3/8"=1'-0"



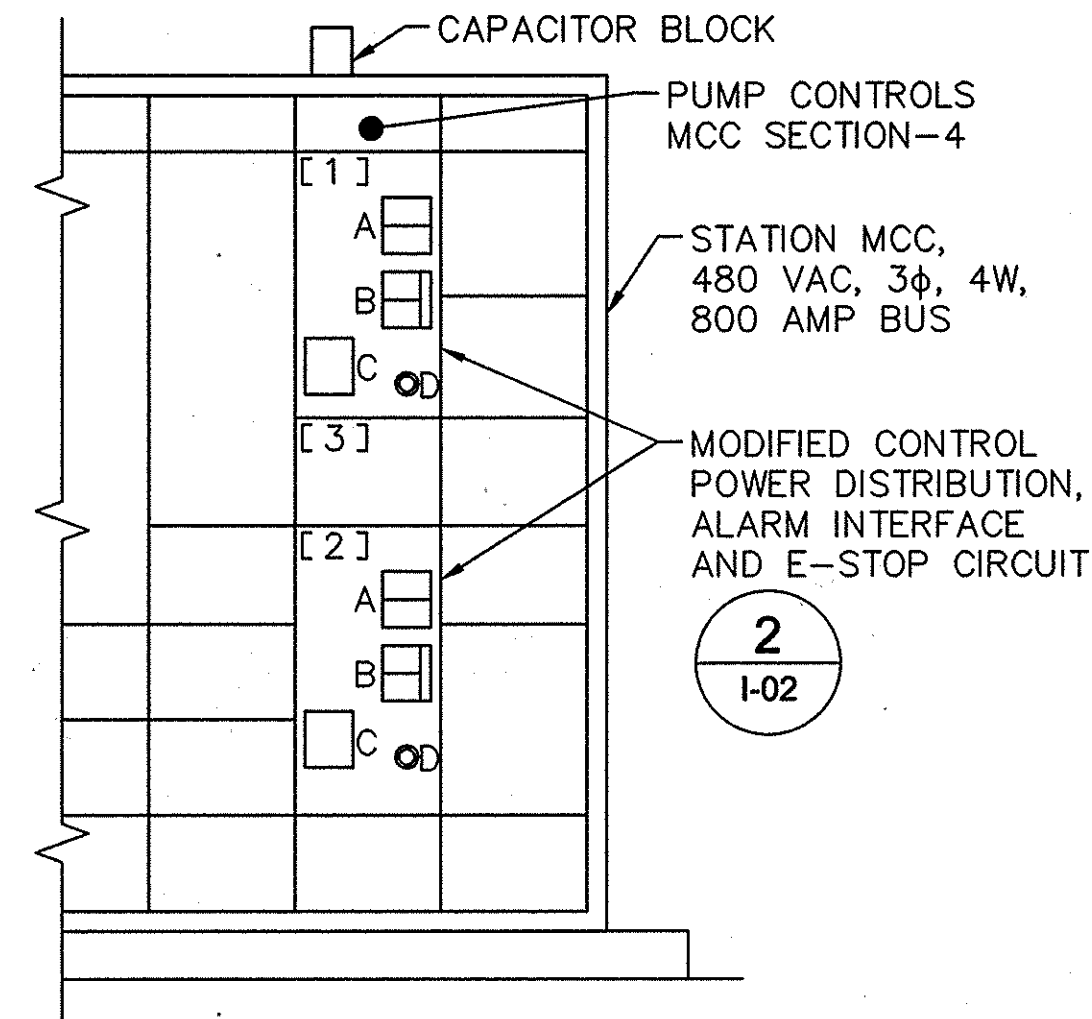
DEVICE LEGEND:

- A INDICATION LAMP (BLUE)
- B INDICATION LAMP (AMBER)
- C MOMENTARY PUSHBUTTON

NAMEPLATE LEGEND:

- 1 PUMP #_ MONITOR PANEL
- 2 SEAL FAILURE TROUBLE
- 3 MOTOR HIGH TEMPERATURE
- 4 RESET

A ELEVATION: PUMP MONITOR PANEL
I-01 SCALE: 2" = 1'-0"



DEVICE LEGEND:

- A RUN/STOP INDICATION
- B HOA SELECTOR
- C RUN TIME METER (RTM)
- D STARTER OL-RESET

NAMEPLATE LEGEND:

- 1 SEWAGE PUMP #1
- 2 SEWAGE PUMP #2
- 3 PHASE MONITORS

B ELEVATION: MCC
I-01 SCALE: 1" = 1'-0"

GENERAL NOTES

- 1. PROVIDE 24-INCHES SLACK WIRE AT EACH END OF ALL SPARE INSTRUMENTATION WIRES.
- 2. SEE SYSTEM P&I DIAGRAMS AND ECD DETAILS FOR CONTROL WIRE IDENTIFICATIONS.
- 3. CONDUIT CONTAINING #16 TPS (4-20mA) WIRE SHALL BE LOCATED 6-INCHES (MINIMUM) AWAY FROM CONDUIT CONTAINING POWER CONDUCTORS AND CONDUIT CONTAINING #14 OR #12 POWER AND DIGITAL SIGNAL WIRE.
- 4. ALL CONDUIT SHALL BE 3/4-INCH IN SIZE UNLESS OTHERWISE NOTED ON INSTRUMENT RISER DIAGRAMS.
- 5. SYSTEM INTEGRATOR SHALL VERIFY ALL APPROVED EQUIPMENT AND TERMINATIONS PRIOR TO INSTALLATION. THE SYSTEMS INTEGRATOR SHALL VERIFY ALL WIRE COUNTS AND INCLUDE SPARES AS SHOWN HERE IN AND ASSEMBLE INSTRUMENT RISERS FOR CONSTRUCTION. THE RISERS SHALL BE SUBMITTED FOR APPROVAL AS A SHOP DRAWING.
- 6. SYSTEMS INTEGRATOR SHALL COORDINATE ANALOG SIGNAL CONDUIT QUANTITIES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

EQUIPMENT LIST

- ① MCC BUCKET PUMP 1
- ② MCC BUCKET PUMP 2
- ③ PUMP CABLE JUNCTION BOX
- ④ PUMP MONITOR PANEL
- ⑤ PUMP CONTROL PANEL
- ⑥ MAGNETIC FLOW METER/REMOTE TRANSMITTER

CONSTRUCTION NOTES

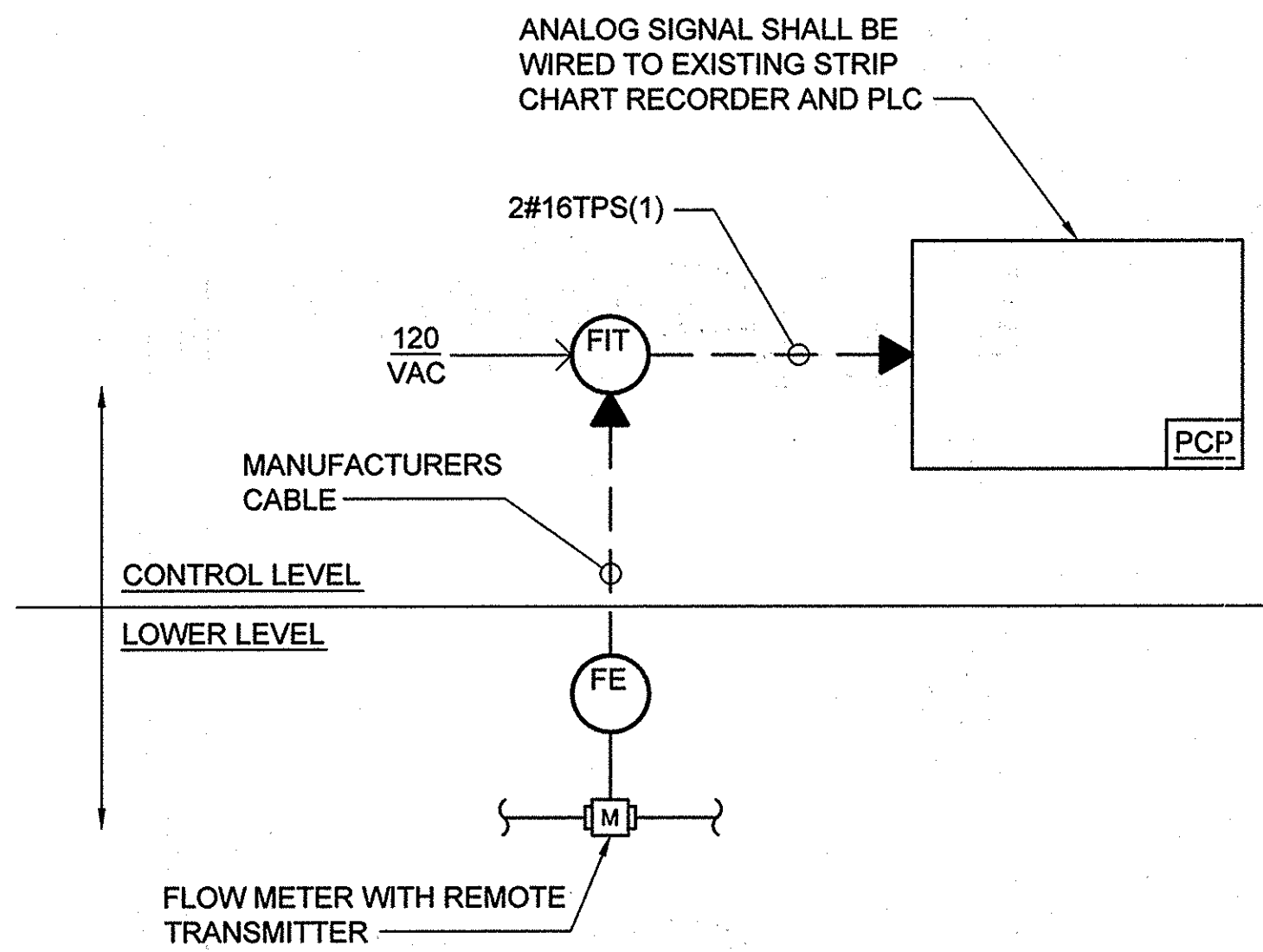
- ① ALL RELAYS SHALL HAVE L.E.D.S.
- ② ALL FUSES AND BREAKERS SHALL BE SIZED IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS AND THE MCC MANUFACTURERS RECOMMENDATIONS.
- ③ ALL EXTERIOR PULL BOXES, PANELS, AND DEVICES SHALL BE RATED NEMA 4X STAINLESS STEEL.
- ④ CONTRACTOR TO COORDINATE APPROVED LOCATION WITH COUNTY FIRE MARSHAL.
- ⑤ PROVIDE CONDUIT AND CONTROL PANEL TERMINATIONS TO SUIT P&ID AND CONTROL DIAGRAM DETAILS.
- ⑥ ALL LIGHTS SHALL BE LED PUSH TO TEST TRANSFORMER TYPE UNLESS OTHERWISE SHOWN.

EQUIPMENT LEGEND:

- PCP PUMP CONTROL PANEL
- PMP-X PUMP MONITORING PANEL

LEGEND:

- NEW WORK
- EXISTING FEATURES
- NEMA BOUNDARY
- CONTROL POWER CONDUIT
- SIGNAL CONDUIT



2 RISER DIAGRAM: FLOW METER
M-03 SCALE: NONE

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HOWARD COUNTY, MARYLAND

[Signature] DIRECTOR OF PUBLIC WORKS
[Signature] CHIEF, BUREAU OF UTILITIES

[Signature] CHIEF, BUREAU OF ENGINEERING
[Signature] CHIEF, UTILITY DESIGN DIVISION

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STATE OF MARYLAND
PROFESSIONAL ENGINEER
LEWIS AND CLARK
NO. 33926
11/9/2015

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DRN:	JFW				
CHK:	SEA				
DATE:	DEC., 2014	BY:	NO.	REVISION	

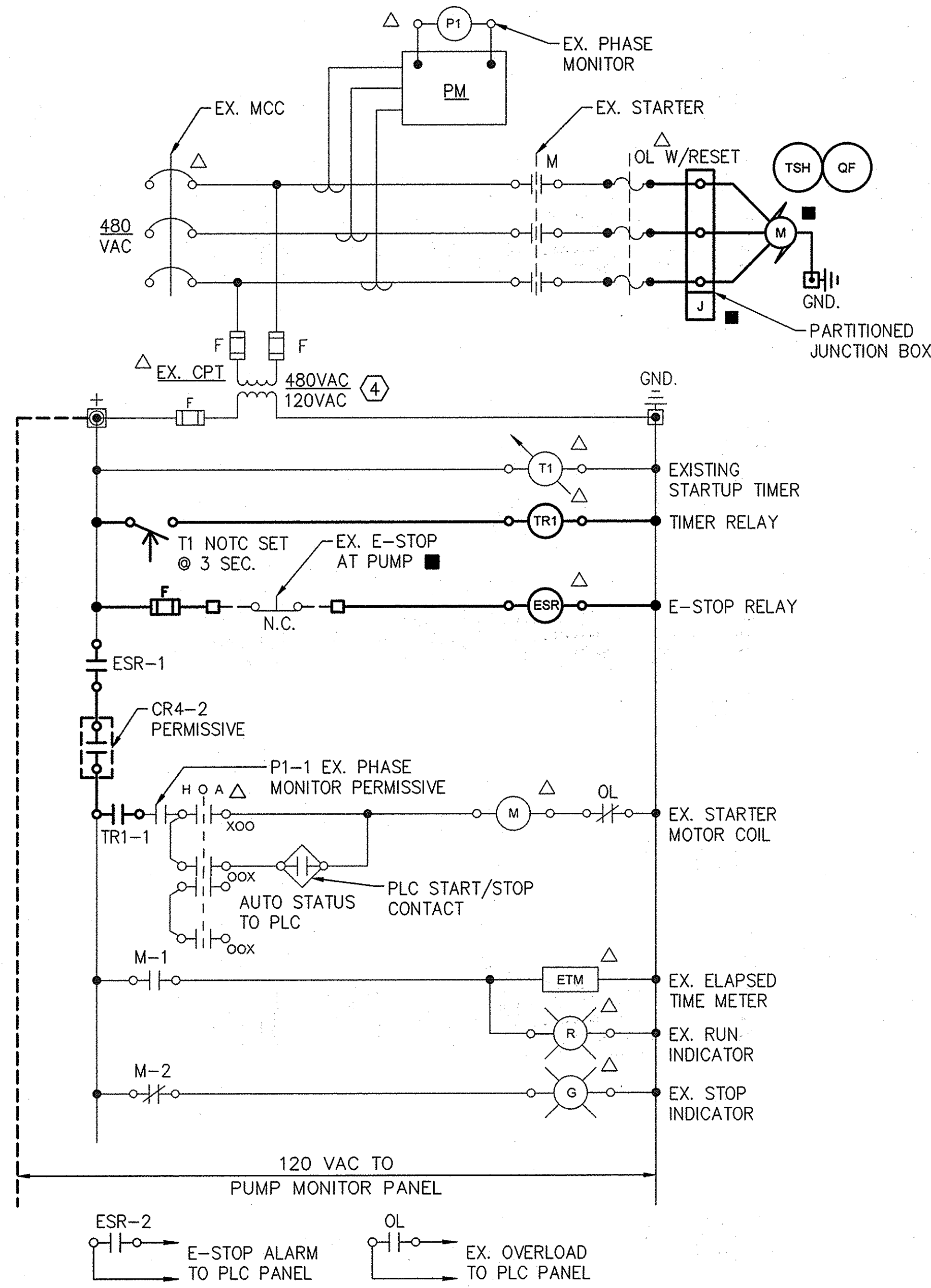
DATE	60' SCALE MAP NO.	37 & 43	BLOCK NO.	23 & 5
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MEADOWRIDGE WASTEWATER PUMP STATION UPGRADE AND FORCE MAIN REPLACEMENT

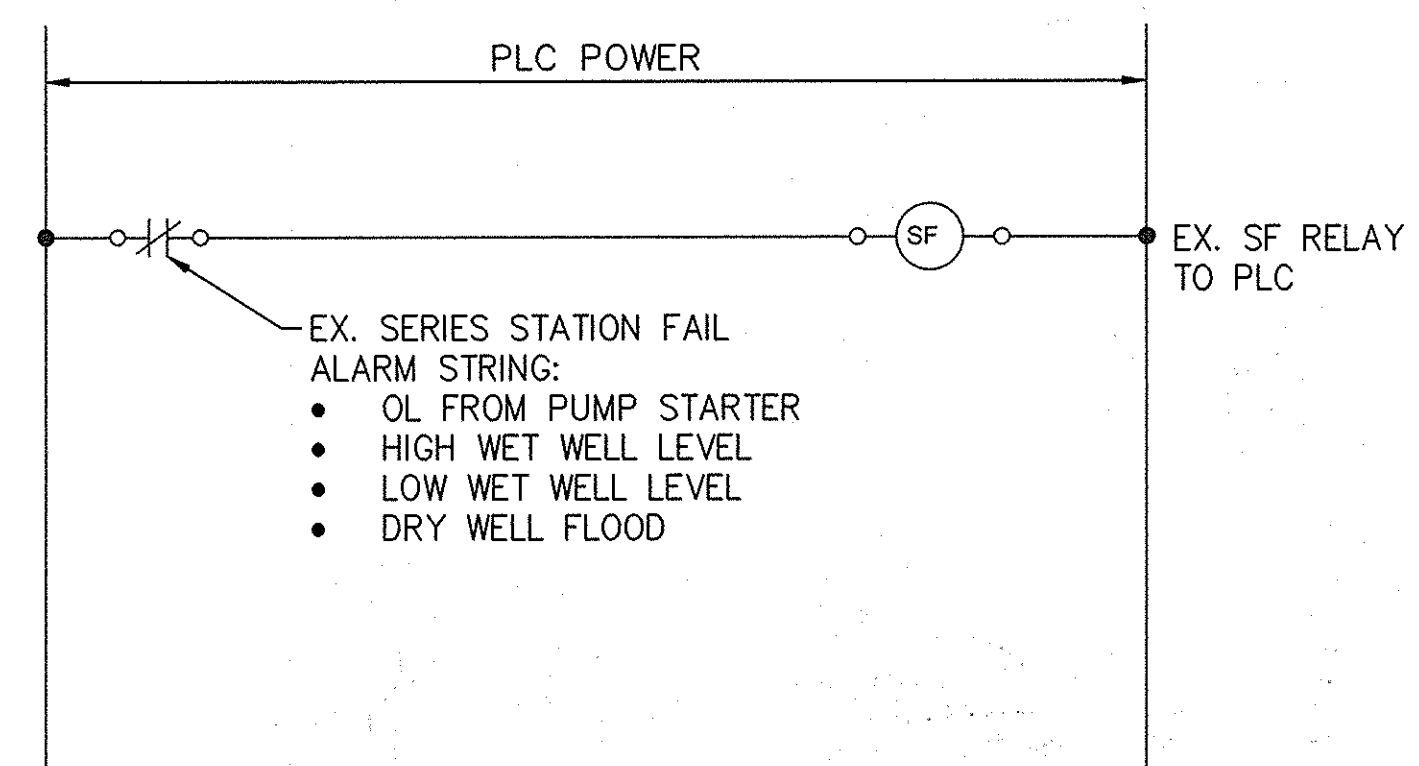
CAPITAL PROJECT NO. S-6279
CONTRACT NO. 10-4844

ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

INSTRUMENT PLAN & DETAILS

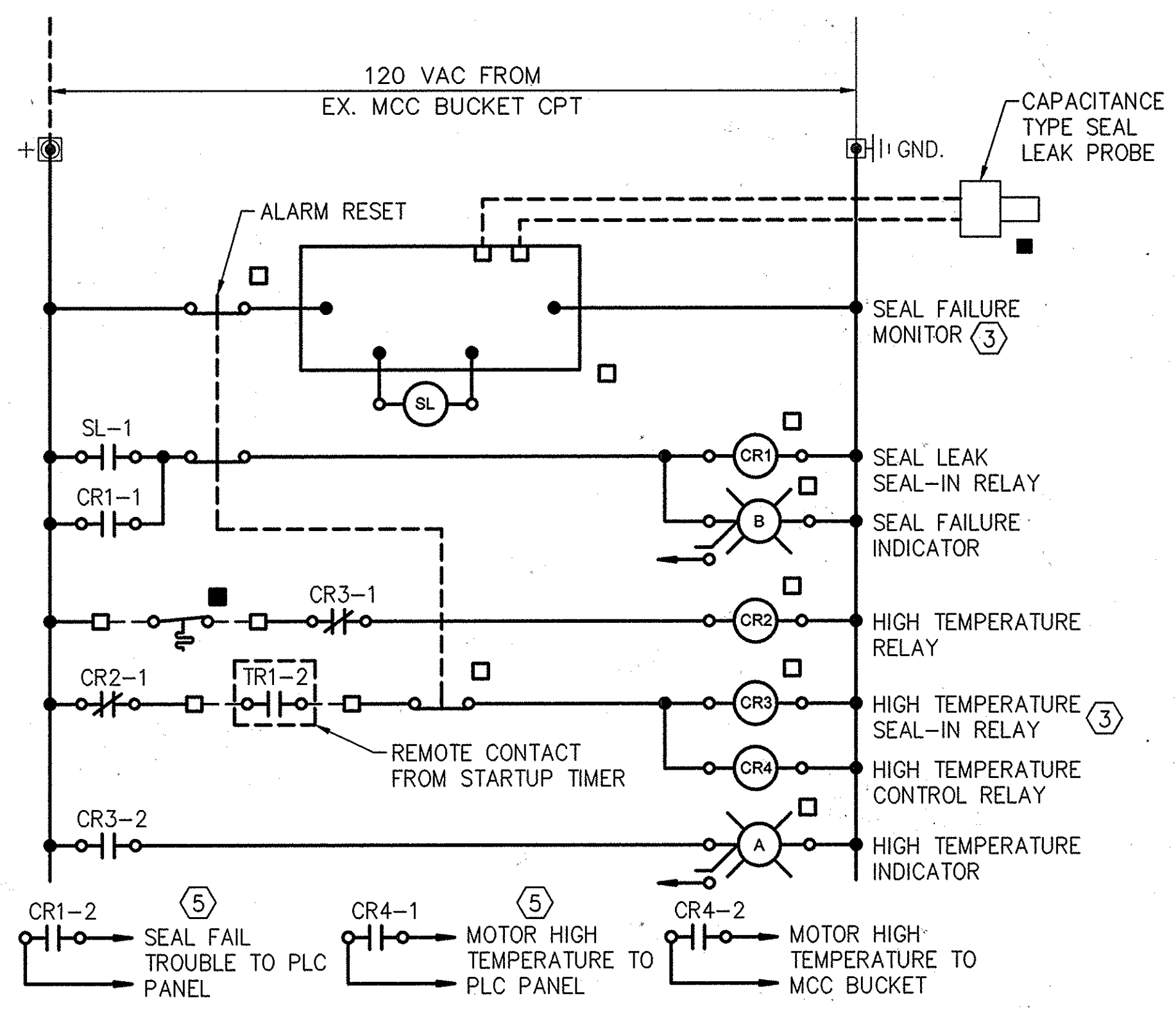


1 ECD: MODIFIED MCC-PUMP BUCKET
I-02 SCALE: NONE

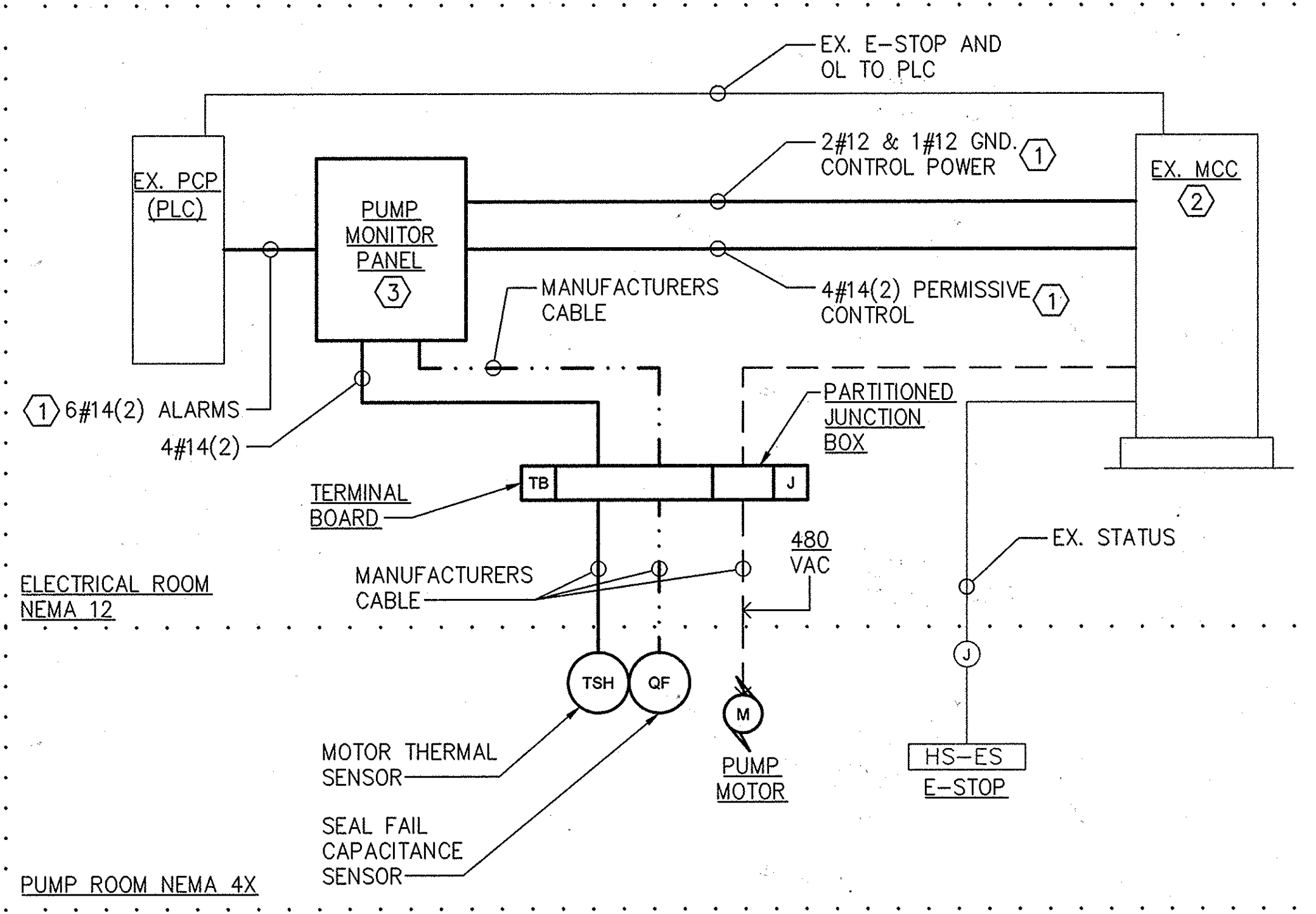


A ECD: STATION ALARM DIAGRAM
I-02 SCALE: NONE

NOTE:
ADD FOLLOWING ALARMS TO SERIES STRING: SEAL FAIL TROUBLE AND MOTOR HIGH TEMPERATURE FROM EACH PUMP MOTOR MONITOR AS SHOWN.



2 ECD: PUMP MONITOR (TYP. OF TWO PUMPS)
I-02 SCALE: NONE



3 RISER DIAGRAM: TYPICAL PUMP CONTROL
I-02 SCALE: NONE

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GENERAL NOTES

1. PROVIDE 24-INCHES SLACK WIRE AT EACH END OF ALL SPARE INSTRUMENTATION WIRES.
2. CONDUIT CONTAINING #16 TPS (4-20mA) WIRE SHALL BE LOCATED 6-INCHES (MINIMUM) AWAY FROM CONDUIT CONTAINING POWER CONDUCTORS AND CONDUIT CONTAINING #14 OR #12 POWER AND DIGITAL SIGNAL WIRE.
3. ALL CONDUIT SHALL BE 3/4-INCH IN SIZE UNLESS OTHERWISE NOTED ON INSTRUMENT RISER DIAGRAMS.
4. SYSTEM INTEGRATOR (ELECTRICAL CONTRACTOR) SHALL VERIFY ALL APPROVED EQUIPMENT AND TERMINATIONS PRIOR TO INSTALLATION. THE SYSTEMS INTEGRATOR SHALL VERIFY ALL WIRE COUNTS AND INCLUDE SPARES AS SHOWN HERE IN AND ASSEMBLE INSTRUMENT RISERS FOR CONSTRUCTION. THE RISERS SHALL BE SUBMITTED FOR APPROVAL AS A SHOP DRAWING.
5. SYSTEMS INTEGRATOR SHALL COORDINATE ANALOG SIGNAL CONDUIT QUANTITIES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

CONSTRUCTION NOTES

- ① CONTROL POWER FOR EACH PUMP AND SIGNALS MAY BE COMBINED INTO COMMON CONDUITS BY SERVICE.
- ② CONTRACTOR SHALL INVESTIGATE EXISTING RELAY LOGIC INCLUDING REMISSIVES AND PHASE MONITORS TO VERIFY PROPOSED CONTROL FUNCTIONS AND ISOLATION RELAYS. MODIFY EXISTING CONTROLS TO SUIT FUNCTIONS SHOWN HEREIN.
- ③ CONTRACTOR TO COORDINATE SEAL FAIL AND MOTOR OVER TEMPERATURE CONTROLS AND PERMISSIVE LOGIC WITH APPROVED PUMP MONITOR AND MOTOR THERMALS. SEE PUMP MONITOR ECD FOR TROUBLE, ALARM AND RESET FEATURES.
- ④ SYSTEM INTEGRATOR SHALL VERIFY TOTAL CONTROL POWER LOADS INCLUDING APPROVED MOTOR MONITORS, AND APPROVE OR UPGRADE THE CPT AS REQUIRED TO SUIT OPERATING CONDITION.
- ⑤ MODIFY PLC PANEL ALARM STRING AS SHOWN IN DIAGRAM WITH NEW MOTOR MONITOR ALARMS.

CONDUIT LEGEND:

- A#14-B (C)
- A - QUANTITY OF CONDUCTORS
 - B - SIZE OF CONDUIT (LARGER THAN 3/4-INCH)
 - C - QUANTITY OF SPARE CONDUCTORS INCLUDED IN TOTAL COUNT (ITEM-A)

ELECTRICAL CONTROL DIAGRAM LEGEND (ECD):

- REMOTE
- AT LOCAL PANEL
- △ AT MCC

ELECTRICAL CONTROL DIAGRAM TERMINALS (ECD):

- PANEL WIREWAY TERMINATIONS
- WIRING CONNECTIONS
- REMOTE TERMINATIONS
- PANEL CONNECTIONS
- - - REMOTE CONNECTIONS
- ⊕ POWER SUPPLY CONNECTION

LEGEND:

- NEW WORK
- EXISTING ECD LOGIC
- NEMA BOUNDARY
- POWER CONDUIT
- - - SIGNAL CONDUIT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John W. Hinkle DATE 11/20/15
CHIEF, BUREAU OF UTILITIES

Thomas P. Butler DATE 11/15/15
CHIEF, BUREAU OF ENGINEERING

[Signature] DATE 11/15/15
CHIEF, UTILITY DESIGN DIVISION

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ELECTRICAL CONTROL DIAGRAM

600' SCALE MAP NO. 37 & 43 BLOCK NO. 23 & 5

MEADOWRIDGE WASTEWATER PUMP STATION UPGRADE AND FORCE MAIN REPLACEMENT

CAPITAL PROJECT NO. S-6279
CONTRACT NO. 10-4844

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

15 OF 15