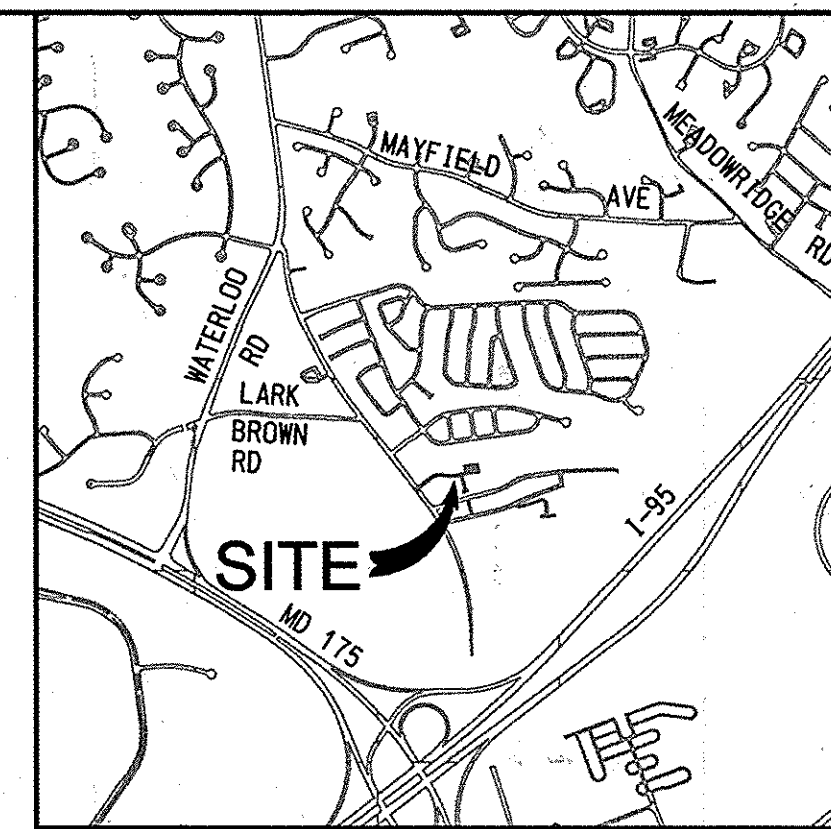


# SANCTUARY COURT WATER MAIN REPLACEMENT

## HOWARD COUNTY, MARYLAND

### DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT No. W-8321  
CONTRACT No. 44-4846



**VICINITY MAP**  
SCALE: 1" = 2000'

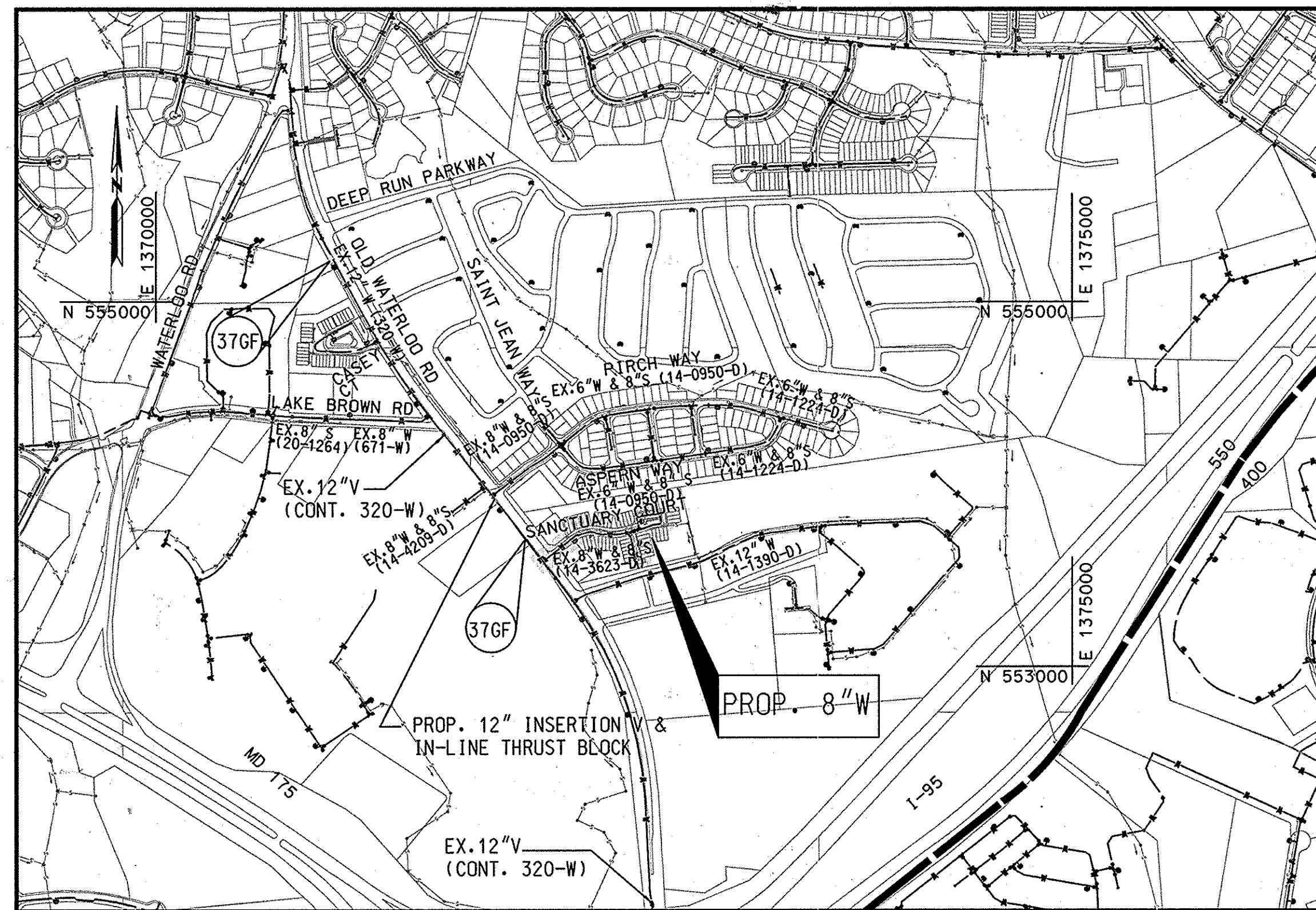
RESTORATION SCHEDULE		
LOCATION	DISTANCE	TYPE
SANCTUARY CT	913	ASPHALT
TRANQUILL WAY	200	ASPHALT
OLD WATERLOO RD	45	ASPHALT

\* REFER TO PERMANENT SEEDING NOTES ON SHEET 6 OF 8

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

#### GENERAL NOTES CONTINUED

29. CONTRACTOR SHALL REPLACE ALL WATER HOUSE CONNECTIONS. ALL WATER HOUSE CONNECTIONS SHALL BE MADE AT THE NEW VALVE BOX (INSIDE METERED LOCATIONS) OR NEW METER VAULTS (OUTSIDE METERED LOCATIONS). FOR TWIN HOUSE CONNECTIONS, THE METERS SHALL BE INSTALLED IN ONE METER VAULT, AS SHOWN IN DETAIL W-3.32.
30. EXISTING WATER MAINS, INCLUDING PIPE MATERIAL, FITTINGS, VALVES AND APPURTENANCES EXCAVATED OR REMOVED FOR THE CONSTRUCTION OF THE NEW WATER MAIN SHALL BE REMOVED FROM THE WORK SITE AND DISPOSED OF BY THE CONTRACTOR AT AN APPROPRIATE RECEIVING FACILITY (LICENSED FOR SUCH DISPOSAL) AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE DIRECTED BY THE HOWARD COUNTY PROJECT MANAGER. EXISTING WATER MAINS ABANDONED IN PLACE SHALL BE CAPPED AT EACH CUT END. VALVES ABANDONED IN PLACE SHALL HAVE VALVE BOXES REMOVED. EXISTING FIRE HYDRANTS REMOVED, AS PART OF CONSTRUCTION, SHALL BE DELIVERED TO THE BUREAU OF UTILITIES.
31. PVC WATER MAINS SHALL BE ALLOWED TO CHANGE VERTICAL OR HORIZONTAL DIRECTION ONLY AT PVC HIGH DEFLECTION (HD) COUPLINGS. 5-DEGREE SWEEPS OR STANDARD BENDS. DEFLECTIONS MADE AT STANDARD PIPE JOINTS AND/OR PIPE LENGTHS BENT TO ACHIEVE CURVATURE OF THE WATER MAIN WILL NOT BE ALLOWED UNDER ANY CIRCUMSTANCES.
32. IF ANY FIRE HYDRANT WILL BE PLACED OUT OF SERVICE IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE HOWARD COUNTY FIRE DEPARTMENT (HCFD) DURING CONSTRUCTION CONCERNING FIRE HYDRANTS THAT ARE OUT OF SERVICE. FIRE HYDRANTS THAT ARE OUT OF SERVICE SHALL BE CLEARLY SIGNED "OUT OF SERVICE".
33. CONTINUITY TEST STATIONS SHALL BE PLACED ADJACENT TO EACH FIRE HYDRANT. REFER TO THE FIRE HYDRANT CONTINUITY TEST STATIONS DETAIL W-1.15 ON SHEET 4. ALL THE REST OF THE CONTINUITY TEST STATIONS SHALL BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY DETAIL G8.21.
34. TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
35. FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE ANWA STANDARD C900 FOR 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.
36. 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.
37. THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES, GRADES AND ELEVATIONS OF THE PROPOSED FACILITIES.
38. EXISTING WATER MAINS SHALL BE LOCATED BY THE ALIGNMENT MARKED IN THE FIELD BY HOWARD COUNTY PERSONNEL. INSTALL NEW WATER MAINS BASED ON THE ALIGNMENT AND OFFSET DIMENSION SHOWN RELATIVE TO THE EXISTING WATER MAINS. MAINTAIN REQUIRED SEPARATION FROM SANITARY AND STORM SEWER PIPING.
39. PIPE TRENCHING AND PAVEMENT REPLACEMENT SHALL BE PERFORMED IN ACCORDANCE WITH THE PVC PIPE TRENCH AND PERMANENT PAVING RESTORATION DETAIL AS SHOWN ON SHEET 4.
40. TEMPORARY PAVING PATCH FOR UTILITY TRENCH REPAIR OF HMA PAVED ROADS AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEET 4. REFILL ALL DEPRESSIONS AND SETTLEMENT (AS THEY DEVELOP) WITH THE SPECIFIED MATERIALS. PRIOR TO PLACEMENT OF THE PERMANENT PAVING SECTION, REMOVE THE TOP SIX INCHES OF MATERIAL, SCARIFY, RECOMPACT, AND TACK COAT THE REMAINING 12-INCH MINIMUM NO. 57 AGGREGATE SUB-BASE, AND REPAVE THE UTILITY TRENCH (AND WHERE REQUIRED, THE REMAINING PORTION OF THE TRAVEL LANE) ALL IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL G-4.01. THE HMA MATERIALS SHALL MEET THE TYPICAL SUPERPAVE MIX SPECIFIED IN HOWARD COUNTY STANDARD DETAIL R-2.01, P-3 ON THE ROADS WITHIN SUBDIVISION AND R2.02, P-5 ON OLD WATERLOO ROAD.
41. WATER MAIN TEST GRADIENT:  
THE EXISTING STATIC PRESSURE GRADIENT FOR PROPOSED WATER MAIN SYSTEM IS 600FT.  
WATER MAIN SHALL BE FILLED WITH WATER AND BROUGHT TO 150PSI HYDROSTATIC TEST PRESSURE AT THE LOW POINT FOR TWO HOURS.
42. IN ACCORDANCE WITH 10 STATE STANDARDS REQUIREMENTS - ALL CROSSINGS OF THE NEW WATER MAIN WITH EXISTING SANITARY OR STORM SEWER PIPING (RESULTING IN LESS THAN 18" OF SEPARATION) SHALL BE ACCOMPLISHED BY CENTERING A FULL LENGTH OF THE NEW WATER MAIN PIPING AT THE CROSSING TO MAXIMIZE THE DISTANCE OF ANY WATER MAIN JOINT FROM THE CROSSING.
43. 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.
44. 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.



**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)

376F N 555222.17 E 1370948.56 ELEV. 330.87	376I N 553697.27 E 1372014.96 ELEV. 292.10
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TYPE OF BUILDING:	RESIDENTIAL
NUMBER OF PARCELS:	1
NUMBER OF WATER HOUSE CONNECTIONS:	7 WHC & 24 TWIN
DRAINAGE AREA:	DEEP RUN
PRESSURE ZONE:	550
WATER TEST GRADIENT:	600

#### INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PHASING PLAN AND TEMPORARY WATER PLAN
3	PLAN & PROFILE SANCTUARY COURT
4	WATER MAIN DETAILS
5	SEDIMENT AND EROSION CONTROL PLAN
6	SEDIMENT AND EROSION CONTROL NOTES & DETAILS
7	MOT/TRAFFIC CONTROL
8	CORROSION CONTROL

APPENDIX A AS-BUILT CONTRACT 14-3623-D

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31363 EXPIRATION DATE: 1/16/2014

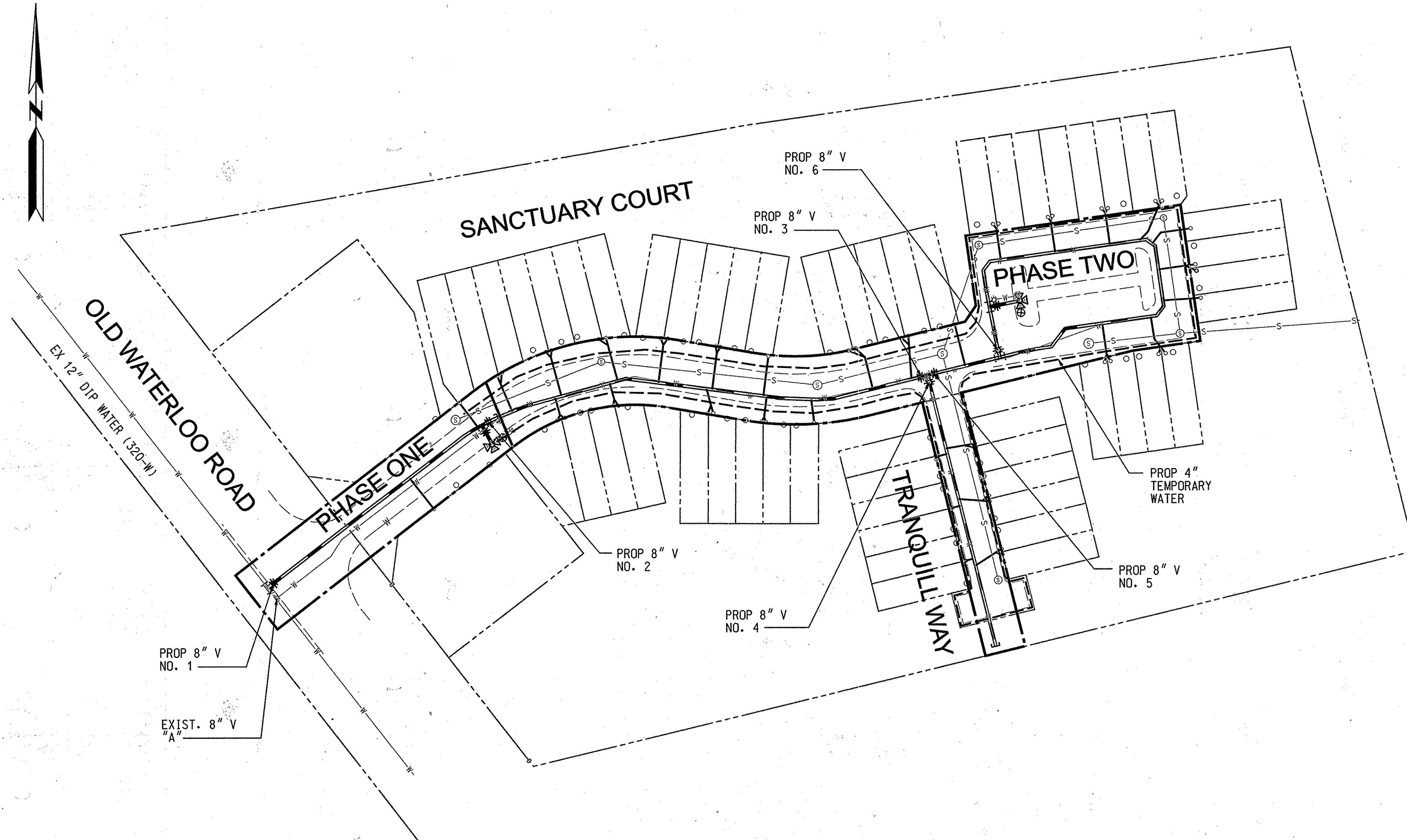
**AS-BUILT**  
DATE 1/04/16

- #### GENERAL NOTES
1. APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN INTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
  2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN MAY 2013 BY KCI TECHNOLOGIES, INC.
  3. 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. 376F AND NO. 376I.  
ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE REBAR & CAPS.
  4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
  5. 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.
  6. 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.
  7. WHEN TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. 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.
  8. 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  
BOE (CONTRACTOR SERVICES).....410-637-8713  
BOE (UNDERGROUND DAMAGE CONTROL).....410-787-9068  
BOE (EMERGENCY).....410-685-0123  
BUREAU OF UTILITIES.....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  
MCI WORLDCOM.....1-800-624-9675
  9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE TEMPORARY CONSTRUCTION EASEMENT/STRIP ARE NOT TO BE REMOVED BY THE CONTRACTOR.
  10. CONTRACTOR SHALL REMOVE TREES, STUMPS, AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
  11. 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 MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS SECTION 18.114(A) OF HOWARD COUNTY CODE.
  12. EXCEPT AS INDICATED ON THE PLANS, ALL PUBLIC WATER MAINS (INCLUDING HYDRANT AND BLOW-OFF LEADS) SHALL BE POLYVINYL CHLORIDE (PVC) ANWA C900 PIPE MEETING THE REQUIREMENTS OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
  13. ALL PROPOSED PVC C900 WATER MAIN PIPING SHALL BE PRESSURE CLASS 305 (DR 14).
  14. ALL HYDRANTS, MAINLINE GATE VALVES, WATER SERVICE VALVE AND PIPING, AND SIMILAR (FOR BOTH PERMANENT AND TEMPORARY INSTALLATIONS) SHALL BE RATED FOR A MINIMUM OPERATING PRESSURE OF 250 PSI.
  15. FIVE (5) DEGREE BENDS SHALL BE ACCOMPLISHED USING SWEEPS, WHICH ALONG WITH HIGH DEFLECTION COUPLINGS, SHALL BE THE PVC PUSH-ON TYPE WITH RUBBER GASKETED JOINTS APPROPRIATE FOR PVC C900 WATER MAIN PIPE (INJECTION MOLDED PER ANWA C907 FOR PRESSURE CLASS 235 PVC PIPE? FABRICATED PER ANWA C900 FOR PRESSURE CLASS 305 PVC PIPE).  
TEES, CROSSES, CAPS, BENDS GREATER THAN 5 DEGREES, AND SIMILAR FITTINGS THAT REQUIRE RESTRAINED JOINTS SHALL BE DUCTILE IRON MECHANICAL JOINT (ANWA C153) FITTINGS APPROPRIATE FOR PVC C900 WATER MAIN PIPE. ALL DUCTILE IRON FITTINGS SHALL BE DOUBLE CEMENT LINED IN ACCORDANCE WITH ANWA/ANSI C104/A21.4.
  16. PIPE RESTRAINT SHALL BE PROVIDED IN THE FOLLOWING MANNER USING SYSTEMS MANUFACTURED BY EBAA IRON INC. OR APPROVED EQUAL:  
1) ALL DUCTILE IRON MECHANICAL JOINT FITTINGS (INCLUDING MECHANICAL JOINT HYDRANT CONNECTIONS) SHALL BE RESTRAINED USING THE SERIES 2000 PVC MECHANICAL JOINT FITTING RESTRAINT SYSTEM, 2) ALL FIVE (5) DEGREE SWEEPS SHALL BE RESTRAINED (BUT ONLY WHEN LOCATED WITHIN THE RESTRAINED JOINT LIMITS NOTED ON THE PROFILES) USING THE SERIES 1500 PVC FITTING HARNESSING SYSTEM.  
3) HIGH DEFLECTION COUPLINGS AND PUSH-ON BELL OR SPIGOT PIPE JOINTS SHALL BE RESTRAINED (BUT ONLY WHEN LOCATED WITHIN THE RESTRAINED JOINT LIMITS NOTED ON THE PROFILES) USING THE SERIES 1500 PVC HARNESSING SYSTEM. BEND HARNESSING RODS TO MATCH THE ANGLE AT HIGH DEFLECTION COUPLINGS.  
HIGH DEFLECTION COUPLINGS ARE LIMITED TO A MAXIMUM DEFLECTION OF 3 DEGREES AND DO NOT REQUIRE RESTRAINT (UNLESS LOCATED WITHIN RESTRAINED JOINT LIMITS NOTED ON THE PROFILES).
  17. ALL MECHANICAL PIPE RESTRAINT SYSTEMS SHALL BE RATED FOR 305 PSI, MINIMUM.
  18. INSTALL CONCRETE ANCHOR COLLARS WHERE SHOWN, SPECIFIED OR DIRECTED, AND WHEN SUFFICIENT ROOM EXISTS (AS DETERMINED BY THE ENGINEER), INSTALL CONCRETE BUTTRESSING AT ALL TEES, CAPS, HORIZONTAL AND VERTICAL BENDS, AND HYDRANT INSTALLATIONS SHOWN WITH OR WITHOUT HARNESSING RESTRAINT UNLESS RESTRAINED JOINTS ARE SPECIFIED ON THE PROFILES. REMOVE PIPING THAT IS TO BE ABANDONED AS NEEDED TO PREVENT CONFLICT WITH THE INSTALLATION OF CONCRETE BUTTRESSING.
  19. MAINLINE VALVES SHALL BE STRAPPED TO ADJACENT TEES OR CROSSES PER HOWARD CO STD. DET W-2.13. MAINLINE VALVES WHICH ARE NOT SHOWN ADJACENT TO TEES OR CROSSES SHALL BE ANCHORED TO A CONCRETE BLOCK IN ACCORDANCE WITH HOWARD CO. STD. DETAIL W-5.01. VALVES ON HYDRANT LEADS SHALL BE RESTRAINED USING THE SERIES 2000 PVC M.J. FITTING RESTRAINT SYSTEM BY EBAA IRON, INC. OR APPROVED EQUAL.
  20. ALL WATER HOUSE CONNECTIONS SHALL BE COPPER MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
  21. TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
  21. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATION SHOWN ON THE DRAWINGS (TO THE NEAREST 6" INCREMENT THAT PLACES THE HYDRANT BOTTOM AT OR ABOVE GRADE). 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.
  22. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
  23. ALL TIE-INS TO EXISTING WATER MAINS SHALL BE COORDINATED WITH THE HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING WORK. A DETAILED PLAN FOR THE SHUTDOWN OF EXISTING WATER MAINS SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE COUNTY.
  24. THE CONTRACTOR SHALL LOCATE ALL WATER AND OR SEWER HOUSE CONNECTIONS, AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THESE EXISTING CONNECTIONS. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE. ALL EXISTING CONNECTIONS SHALL BE RECONNECTED UPON COMPLETION OF CONSTRUCTION IN ACCORDANCE WITH COUNTY STANDARDS. TEMPORARY SERVICE SHALL BE PROVIDED FOR ANY SERVICE THAT IS DAMAGED BY THE WORK OF THE CONTRACTOR. HOMEOWNER SHALL BE IMMEDIATELY NOTIFIED OF THE LOSS OF SERVICE. NO HOUSE SHALL BE WITHOUT SERVICE OF ANY KIND, FOR MORE THAN 2 HOURS AT ANY ONE TIME.
  25. 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.
  26. ANY TREES OUTSIDE OF EXISTING EASEMENTS, DISTURBED BY CONSTRUCTION SHALL BE REPLACED IN KIND (3" CALIPER MINIMUM).
  27. THE CONTRACTOR MUST FOLLOW ALL CONDITIONS AND REQUIREMENTS AS SET FORTH IN THE REQUIRED PERMITS FOR THIS PROJECT.
  28. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AS WELL AS ANY EXISTING THRUST RESTRAINT.

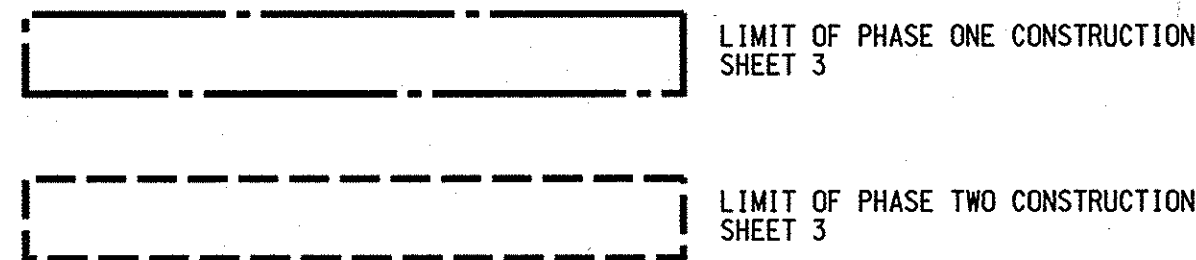
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<p style="text-align: center;">DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>James E. Butler</i> 1/4/16 CHIEF, BUREAU OF ENGINEERING DATE 1/14/16</p> <p><i>Debra</i> 1/14/16 CHIEF, UTILITY DESIGN DIVISION DATE 1/14/16</p>	 <b>KCI</b> TECHNOLOGIES 936 RINGBROOK ROAD SHARPS, MARYLAND 21152 TELEPHONE (410) 316-7800 FAX (410) 316-7818 www.kci.com	 <b>JAMES E. BUTLER</b> PROFESSIONAL ENGINEER 1/10/16	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DES:</td> <td>GS</td> <td></td> <td></td> </tr> <tr> <td>DRN:</td> <td>GS</td> <td></td> <td></td> </tr> <tr> <td>CHK:</td> <td>GW/TWW</td> <td></td> <td></td> </tr> <tr> <td>DATE:</td> <td>JUNE 2013</td> <td>ML</td> <td>AS-BUILT</td> </tr> <tr> <td>BY:</td> <td></td> <td>NO.</td> <td></td> </tr> </table>	DES:	GS			DRN:	GS			CHK:	GW/TWW			DATE:	JUNE 2013	ML	AS-BUILT	BY:		NO.		<h2 style="margin: 0;">TITLE SHEET</h2> <p style="margin: 0;">SANCTUARY COURT &amp; TRANQUILL WAY WATER REPLACEMENT</p> <p style="margin: 0;">CAPITAL PROJECT No. W-8321 CONTRACT No. 44-4846</p> <p style="margin: 0;">ELECTION DISTRICT NO. 1      HOWARD COUNTY, MARYLAND</p>	<p>SCALE AS SHOWN</p> <p>SHEET 1 OF 8</p>
DES:	GS																								
DRN:	GS																								
CHK:	GW/TWW																								
DATE:	JUNE 2013	ML	AS-BUILT																						
BY:		NO.																							

QUANTITIES				
ITEM	UNIT	ESTIMATE	AS-BUILT	MATERIAL SUPPLIER
MOBILIZATION/M.O.T.	EA.	1		
SELECTED BACKFILL	CY	500		GAB
CORROSION PROTECTION	EA.	1	1	Piping & Corrosion Specialties
8" WATER (PVC)	LF	1158	1093	North American Pipe
TS & V	EA.	1	1	Smith Blair/Moeller
REMOVE EX FH & V	EA.	2	2	
6" FH & V	EA.	2	2	American Flow Control
REMOVE EX 8" V	EA.	4	4	
REMOVE EX 6" V	EA.	2	2	
8" V	EA.	5	5	American Flow Control
REMOVE EX WHC	LF	950		
1" WHC	EA.	7	7	Smith Blair/Moeller
1-1/2" WHC	EA.	24	24	Smith Blair/Moeller
4" TEMPORARY WATER	LF	1625		
8" CAP	EA.	1		
NAME OF UTILITY CONTRACTOR: <u>Cossentino Contracting Co.</u>				
AS-BUILT DATE: <u>1/04/16</u>				



**SHEET INDEX MAP**  
SCALE: 1" = 50'



**LEGEND**

PROPOSED FEATURES	EXISTING FEATURES
— WATER MAIN	○ DECIDUOUS TREE
⊕ FIRE HYDRANT	⊙ CONIFEROUS TREE
⊕ WATER VALVE	⊕ FIRE HYDRANT
⊕ WATER HOUSE CONNECTION	⊕ WATER VALVE
⊕ CONTINUITY TEST STATION	— WATER MAIN
⊕ TEST PIT LOCATION	— GAS MAIN
— LIMIT OF DISTURBANCE	— UNDERGROUND ELECTRIC
--- TEMPORARY WATER	— SEWER MAIN
	— UNDERGROUND CABLE TV
	○ MANHOLE
	○ WATER METER
	○ SANITARY CLEANOUT

**SEQUENCE OF CONSTRUCTION**

- PHASE ONE**
- INSTALL 8" WATER MAIN FROM STA 0+05 TO STA 2+10. RESTRAIN ALL JOINTS
  - PRESSURE TEST AND DISINFECT THE 8" WATER MAIN
  - MAKE CONNECTION TO EX. 12" WATER MAIN BY TAPPING SLEEVE & VALVE.
  - PROP 8" V NO. 1 & 2 TO REMAIN CLOSED
  - INSTALL TEMPORARY WATER AS SHOWN ON THIS SHEET. INSTALL TEMPORARY WHC WITHIN THE LIMITS OF PHASE TWO. THE TEMPORARY WATER IS FED FROM THE PROP. FIRE HYDRANT.
  - REPLACE AND RECONNECT EXISTING WHC WITHIN THE LIMITS OF PHASE ONE.
  - OPEN PROP 8" V NO. 1, 2, 3, 4, 5, AND 6
  - ABANDON EXIST VALVE "A" AND EXIST FIRE HYDRANT ASSEMBLY IN PHASE ONE.
- PHASE TWO**
- INSTALL 8" WATER MAIN FROM STA 2+10 TO STA 9+58 SANCTUARY COURT. REMOVE EXISTING WATER MAIN AS REQUIRED TO INSTALL NEW WATER MAIN.
  - INSTALL 8" WATER MAIN ALONG TRANQUILL WAY. REMOVE EXISTING WATER MAIN AS REQUIRED TO INSTALL NEW WATER MAIN.
  - PRESSURE TEST AND DISINFECT THE 8" WATER MAIN.
  - MAKE CONNECTION TO 8" WATER MAIN INSTALLED IN PHASE ONE.
  - REPLACE AND RECONNECT EXISTING WHC.
  - OPEN PROP 8" V NO. 2, 3, 4, 5, AND 6
  - REMOVE TEMPORARY WATER
  - ABANDON EXISTING FIRE HYDRANTS WITHIN THE LIMITS OF PHASE TWO.
  - ABANDON ANY REMAINING EXISTING VALVES ON EXISTING WATER MAIN.

**AS-BUILT**  
DATE 1/04/16

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31363 EXPIRATION DATE: 1/16/2014

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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John G. ...* 1/22/14  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas P. Butler* 1/14/14  
CHIEF, BUREAU OF ENGINEERING DATE

*...* 1/14/14  
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

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 31363  
1/10/14

DES:	GS			
DRN:	GS			
CHK:	GW/TWW			
DATE:	JUNE 2013	BY:	ML	NO. 1
			AS-BUILT	

**PHASING PLAN AND  
TEMPORARY WATER PLAN**

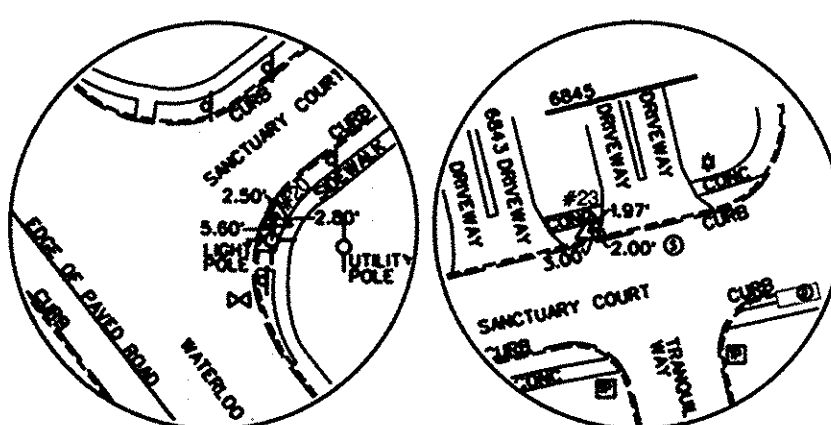
DATE: 1/04/16

600' SCALE MAP NO. 37 BLOCK NO. 21

**SANCTUARY COURT & TRANQUILL WAY  
WATER REPLACEMENT**

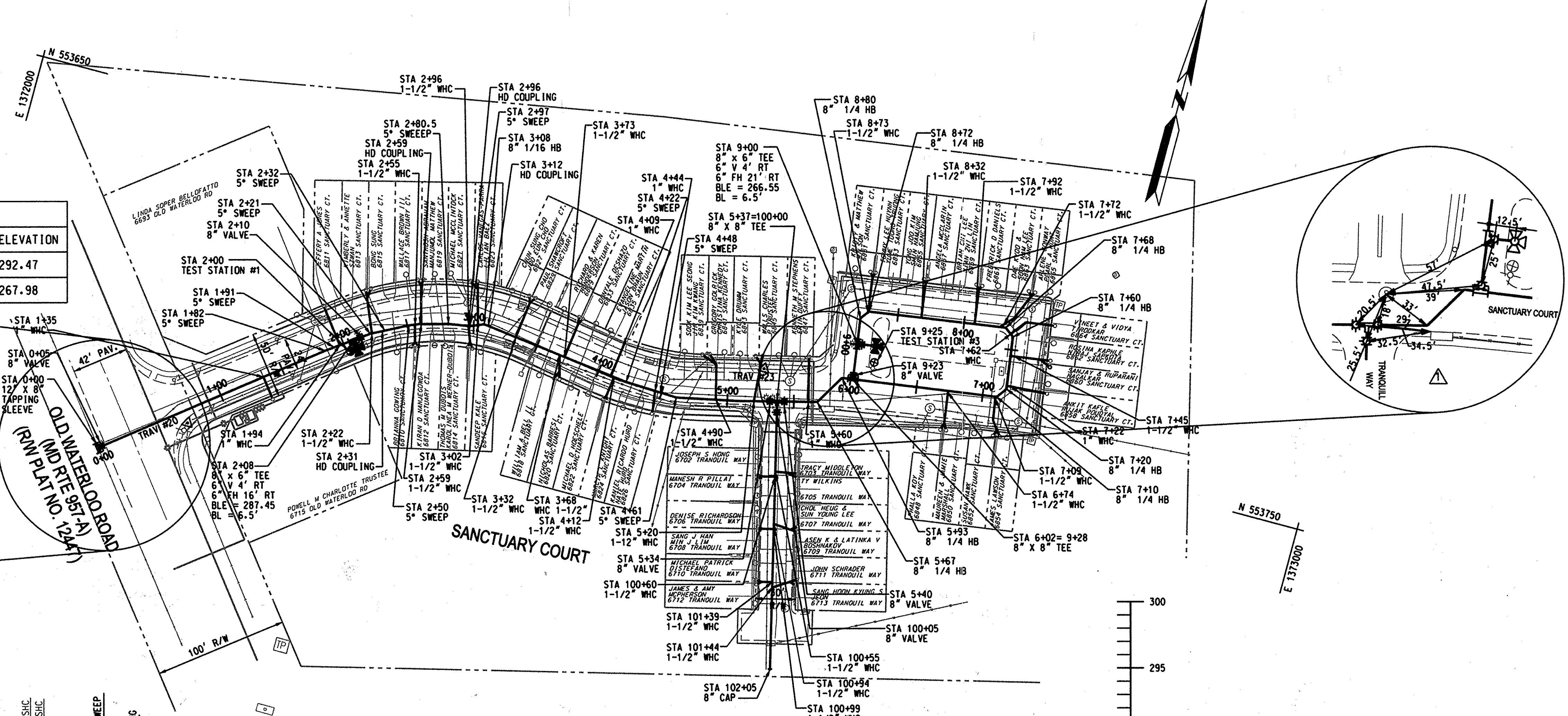
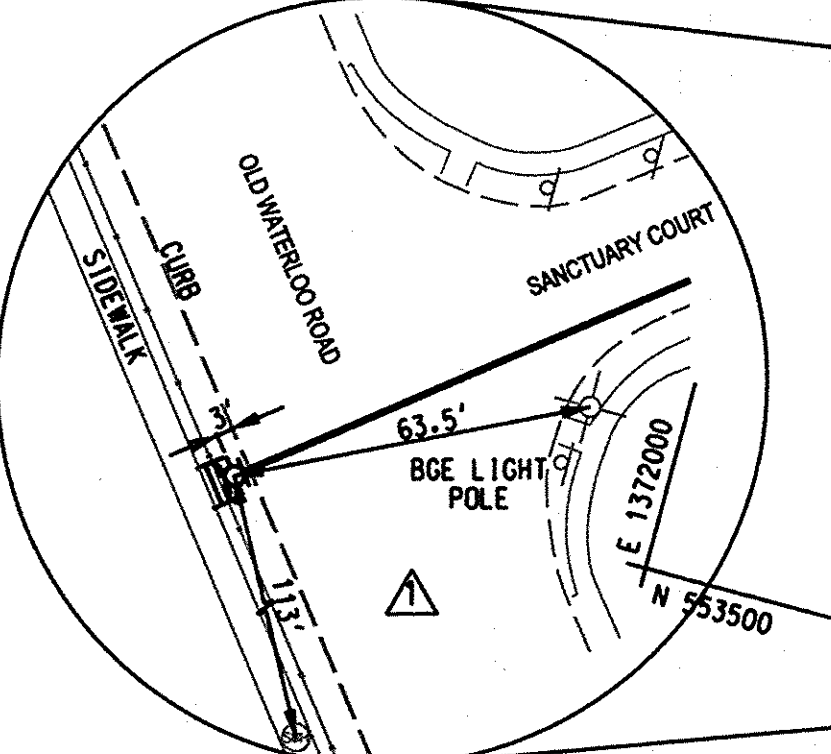
CAPITAL PROJECT No. W-8321  
CONTRACT No. 44-4846

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND



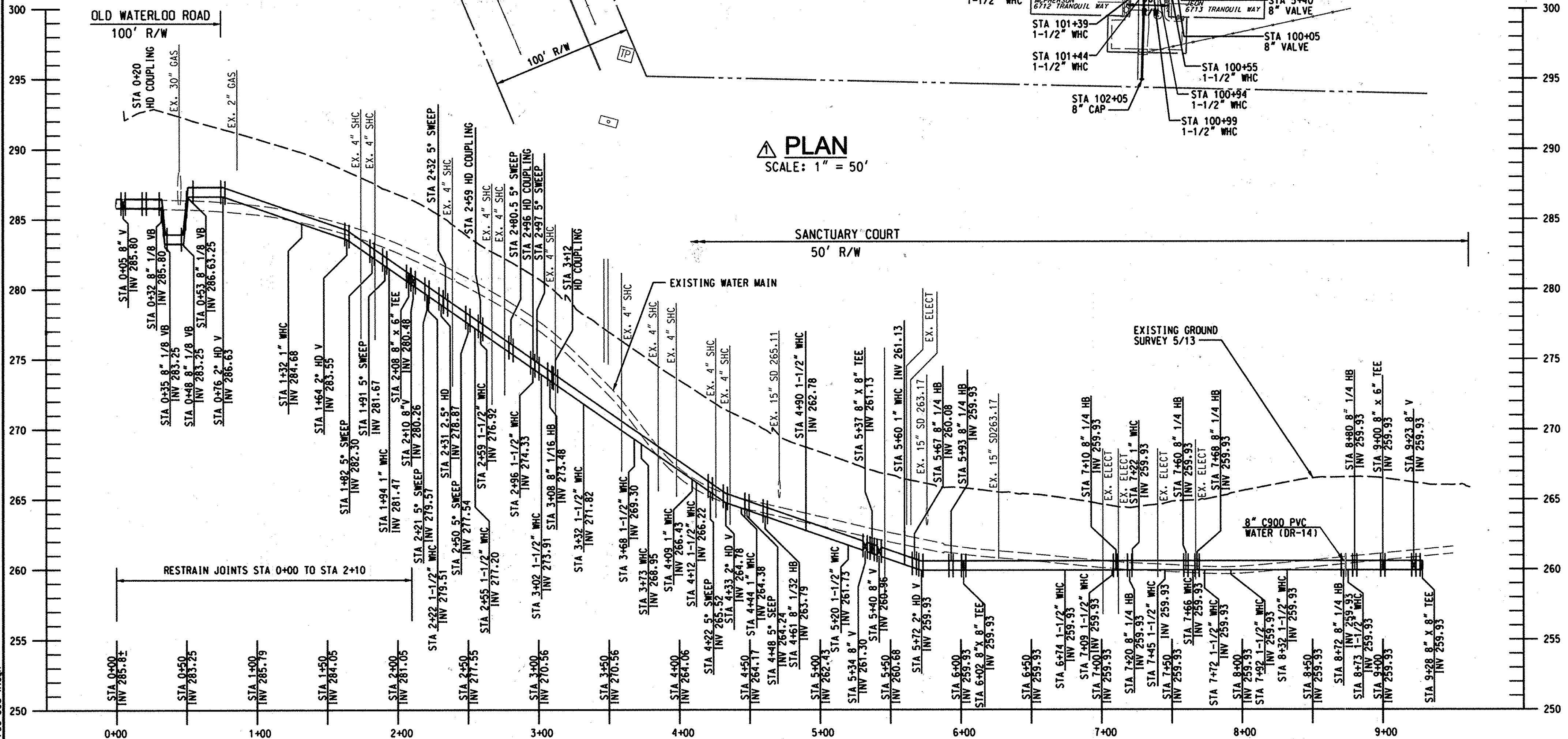
**TRAV #20** NOT TO SCALE  
**TRAV #23** NOT TO SCALE

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV 20	553611.42	1372174.66	292.47
TRAV 23	553762.98	1372582.20	267.98

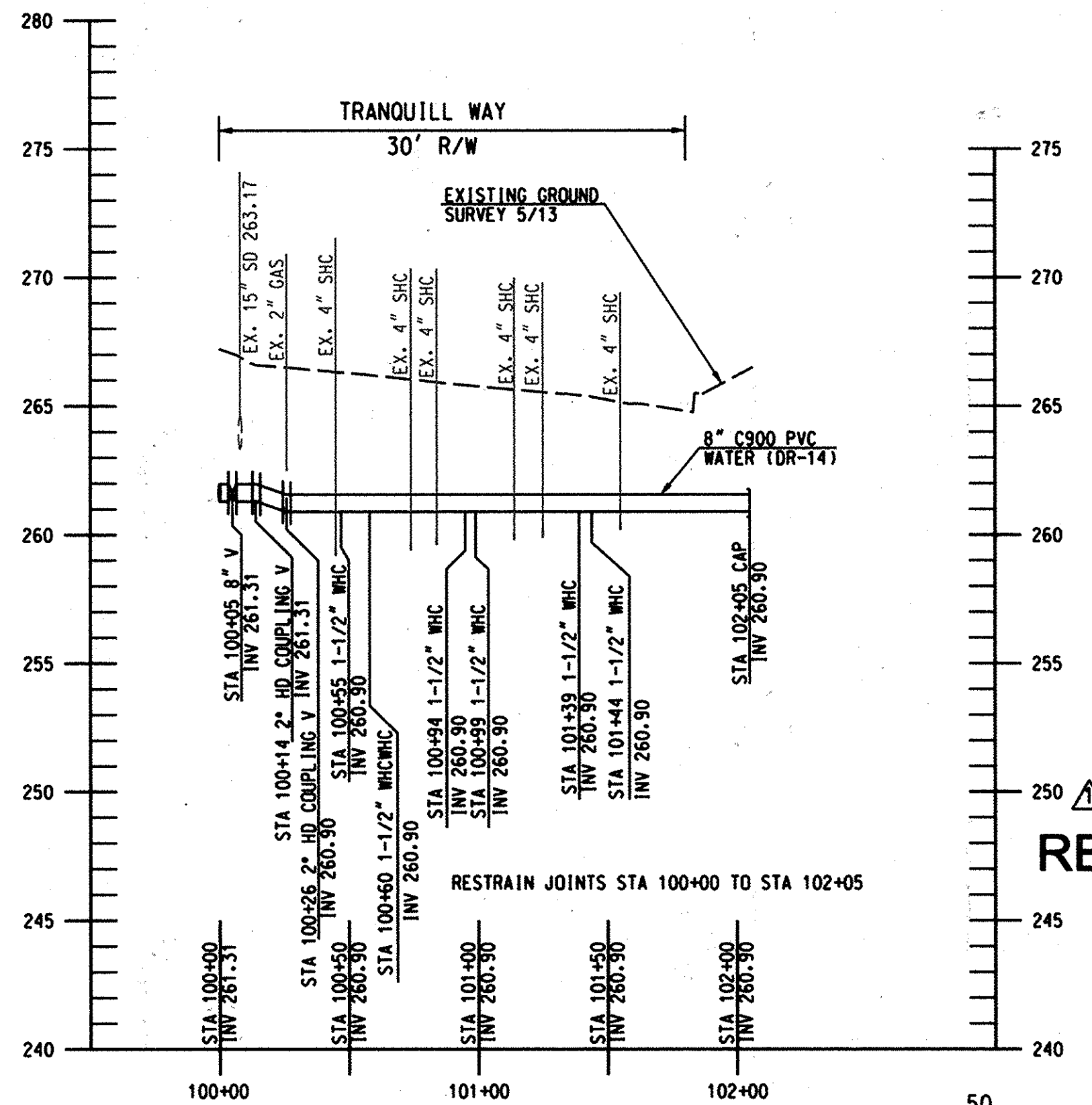


FITTING SCHEDULE			
STATION	FITTING	NORTHING	EASTING
SANCTUARY CT.			
0+00	TIE IN	553576.0±	1372114.8±
0+05	8" VALVE	553577.7±	1372116.9±
1+82	5" SWEEP	553690.8±	1372260.3±
1+91	5" SWEEP	553694.8±	1372266.0±
2+08	8" X 6" TEE	553703.9±	1372278.6±
2+10	8" VALVE	553707.3±	1372283.4±
2+21	5" SWEEP	553711.9±	1372289.7±
2+31	2.5" HD COUPLING	553716.1±	1372297.9±
2+32	5" SWEEP	553716.9±	1372299.5±
2+50	5" SWEEP	553725.5±	1372316.0±
2+97	5" SWEEP	553736.8±	1372360.4±
3+08	8" 1/16 HB	553741.0±	1372370.5±
4+22	5" SWEEP	553726.51	1372484.75
4+48	5" SWEEP	553725.47	1372511.57
4+61	8" 1/32 HB	553724.9±	1372524.0±
5+34	8" VALVE	553740.3±	1372592.7±
5+37	8" X 8" TEE	553741.6±	1372598.0±
5+40	8" VALVE	553742.9±	1372603.3±
5+67	8" 1/4 HB	553749.1±	1372627.3±
5+93	8" 1/4 HB	553771.3±	1372640.4±
6+02	8" X 8" TEE	553722.5±	1372648.7±
7+10	8" 1/4 HB	553787.6±	1372756.3±
7+20	8" 1/4 HB	553795.3±	1372762.0±
7+60	8" 1/4 HB	553834.6±	1372756.5±
7+68	8" 1/4 HB	553839.9±	1372749.4±
8+72	8" 1/4 HB	553825.0±	1372647.2±
8+80	8" 1/4 HB	553818.5±	1372642.2±
9+00	8" X 6" TEE	553799.2±	1372644.9±
9+23	8" VALVE	553775.6±	1372648.3±
102+05	8" CAP	553545.0±	1372645.0±

**PLAN**  
SCALE: 1" = 50'

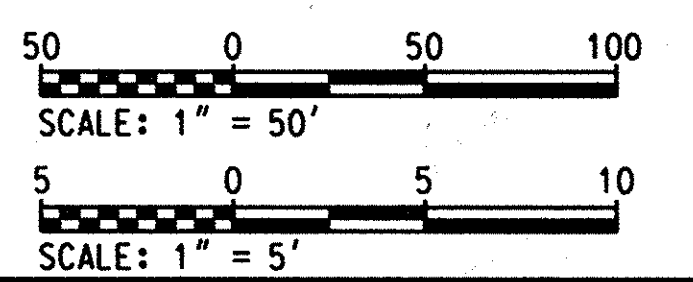


**PROFILE: SANCTUARY CT**  
SCALE: HOR. 1" = 50'  
VERT. 1" = 5'



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

**AS-BUILT  
REPLACEMENT  
SHEET**  
01/04/2016



PLOTTED: 08:24 AM on Tuesday, January 05, 2016  
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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

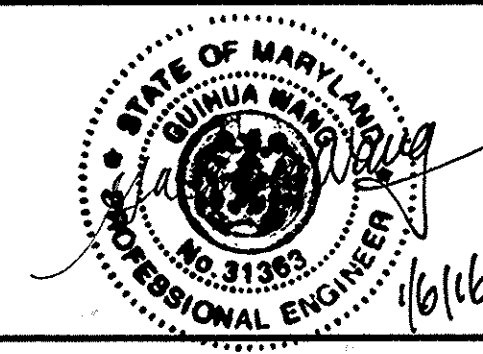
*James R. Hulse*  
DIRECTOR OF PUBLIC WORKS

*Monica R. Gullen 3/1/16*  
CHIEF, BUREAU OF ENGINEERING

*3/3/16*  
CHIEF, UTILITY DESIGN DIVISION

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**KCI TECHNOLOGIES**  
936 RIDGEBOOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE (410) 316-7800  
FAX (410) 316-7818  
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DES:	GS
DRN:	GS
CHK:	GW/TWW
DATE:	JUNE 2013
BY:	KJ
NO.:	AS-BUILT
REVISION:	
DATE:	01/04/16

**PLAN & PROFILE  
SANCTUARY COURT &  
TRANQUILL WAY**

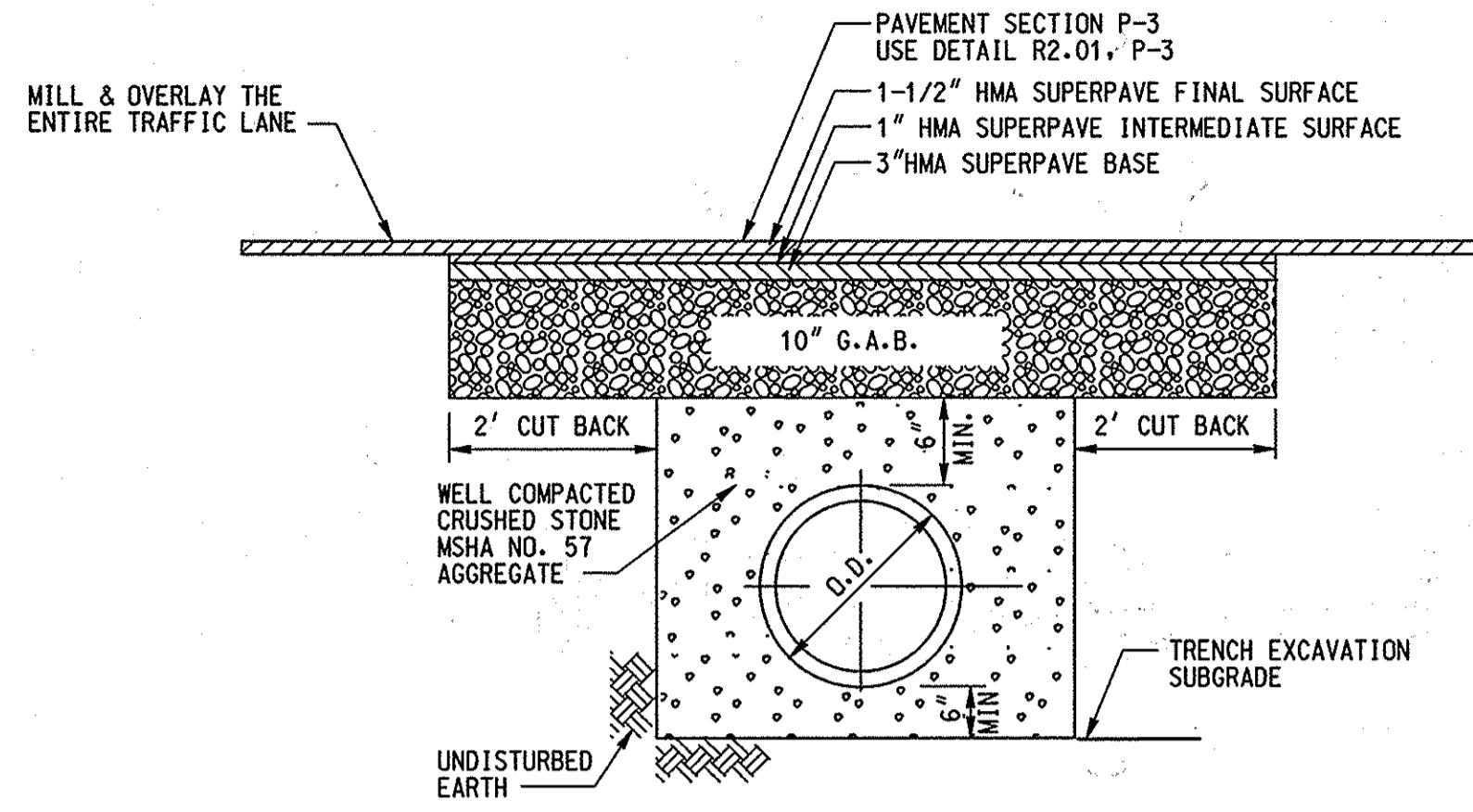
**SANCTUARY COURT & TRANQUILL WAY  
WATER REPLACEMENT**

CAPITAL PROJECT No. W-8321  
CONTRACT No. 44-4846

ELECTION DISTRICT NO. 1  
HOWARD COUNTY, MARYLAND

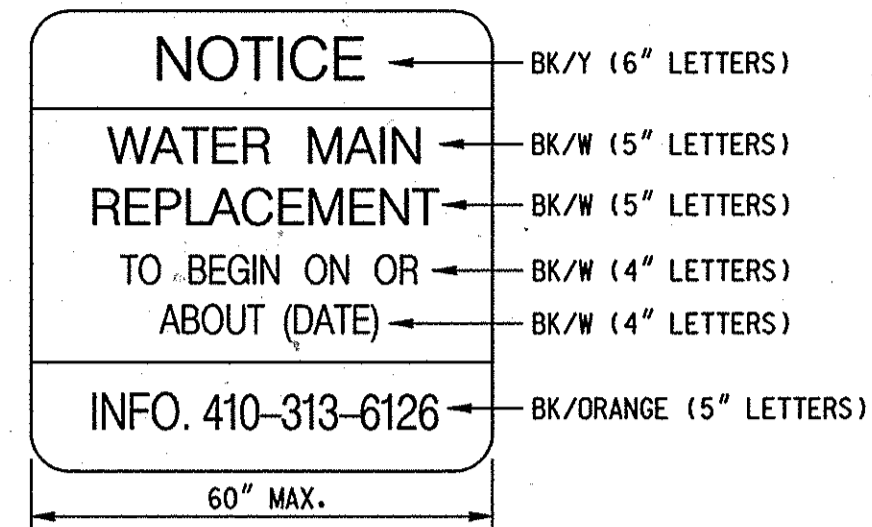
SCALE  
AS SHOWN

SHEET  
3 OF 8

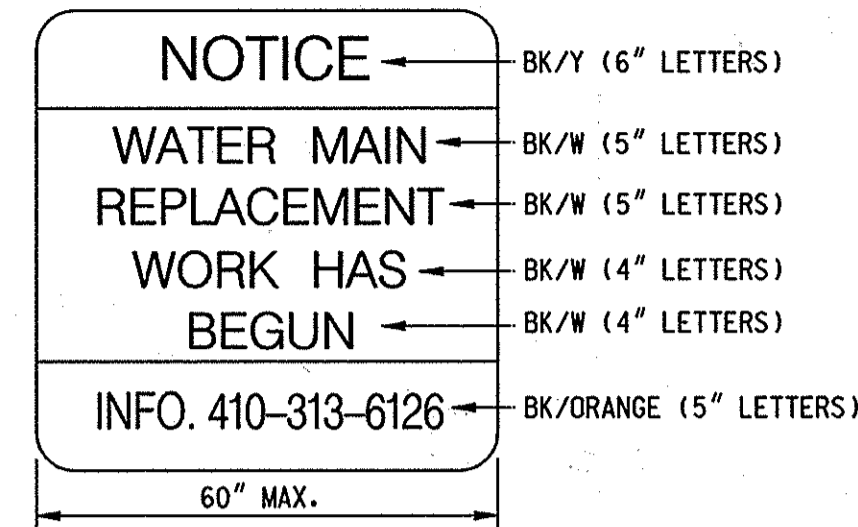


**\* DETAIL - PVC PIPE TRENCH AND PERMANENT PAVING RESTORATION**

NOT TO SCALE  
 \* BASED ON HOWARD COUNTY STANDARD DETAIL G-2.12 & G-4.01  
 THE PAVEMENT SHOWN IS FOR THE ROADS WITHIN THE SUBDIVISION. FOR THE PAVEMENT ON OLD WATERLOO ROAD, USE DETAIL R-2.02, P-5 IN HOWARD COUNTY STANDARD DETAIL.

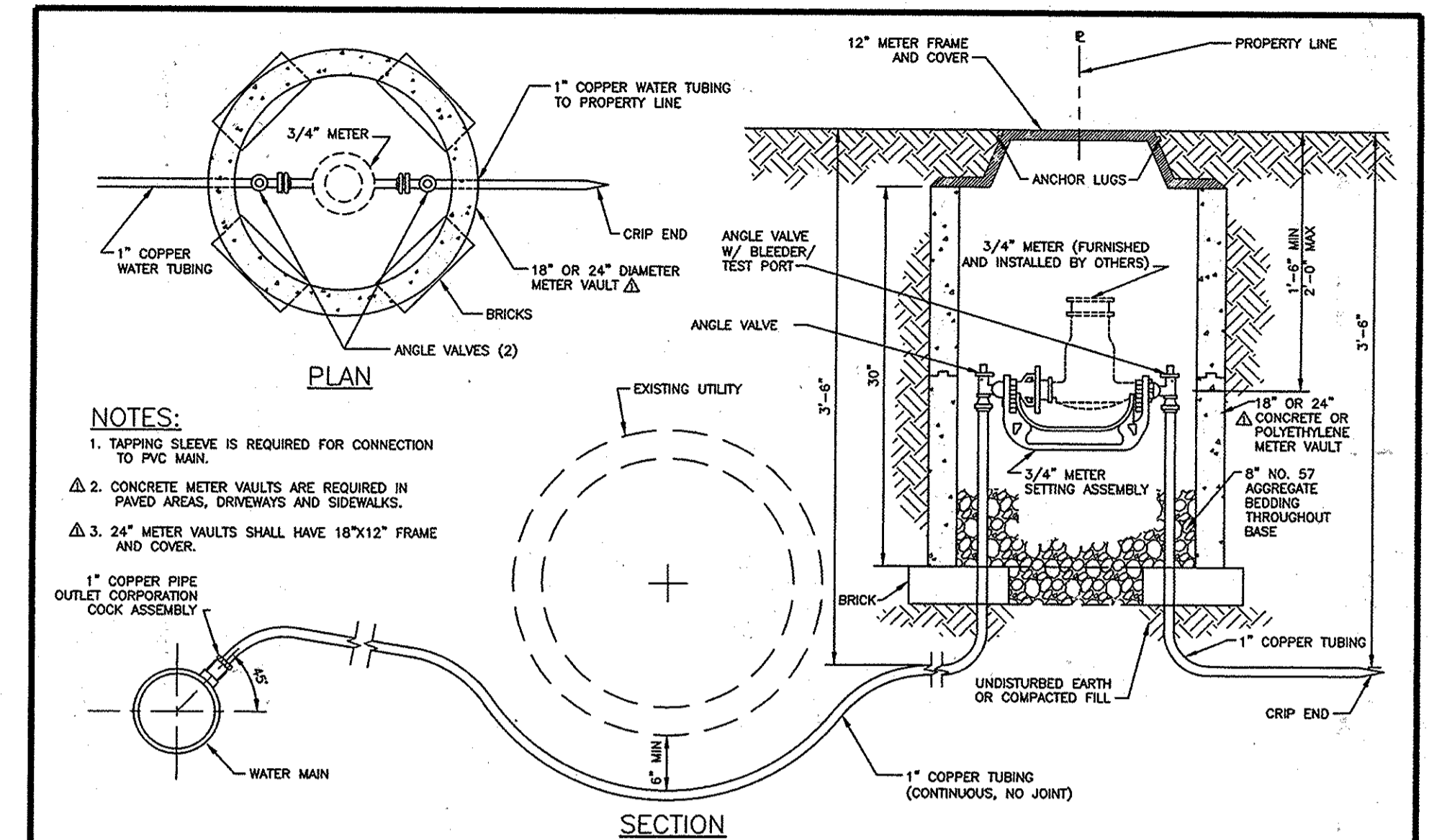


**NOTICE SIGN  
WORK TO BEGIN**  
NOT TO SCALE

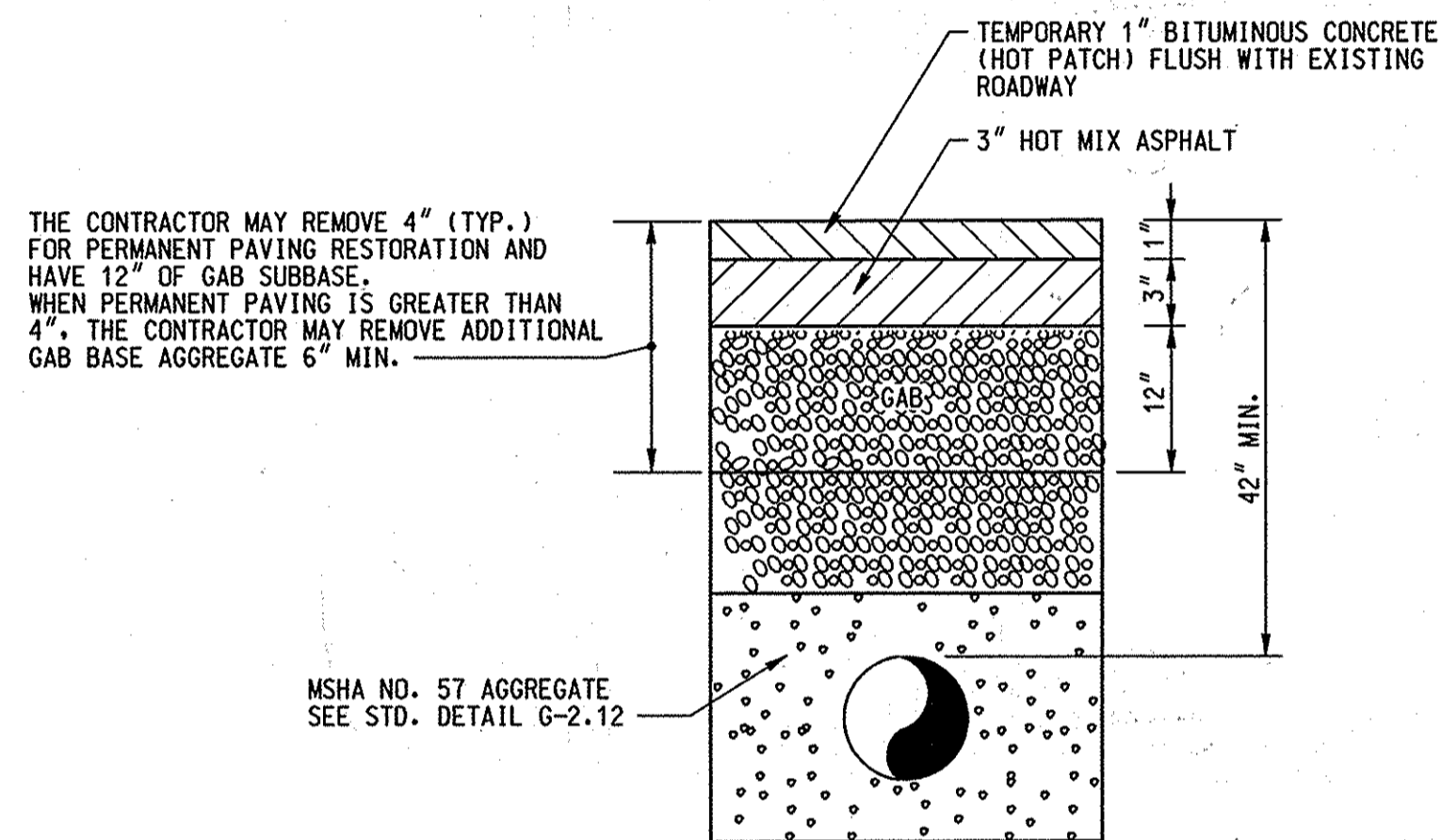


**NOTICE SIGN  
WORK HAS BEGUN**  
NOT TO SCALE

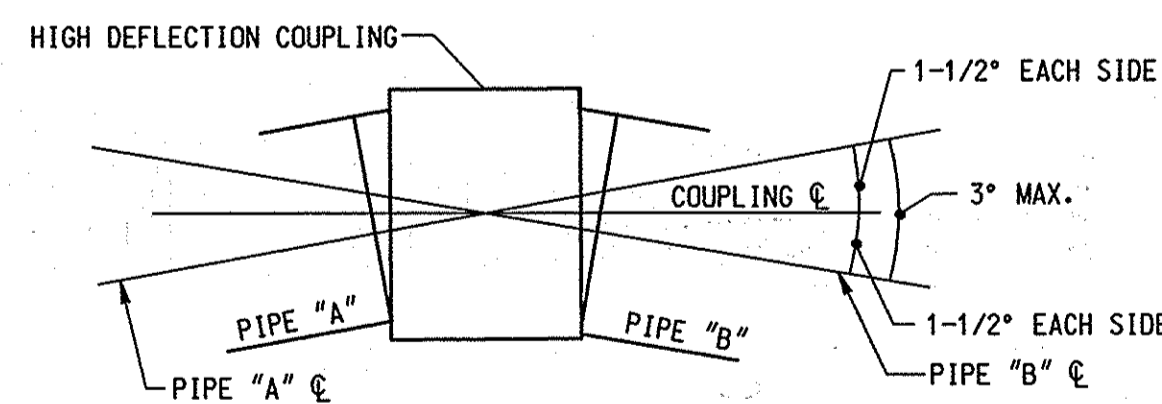
NOTE: LOCATE THESE SIGNS AT EACH ENTRANCE TO THE WORK SITE



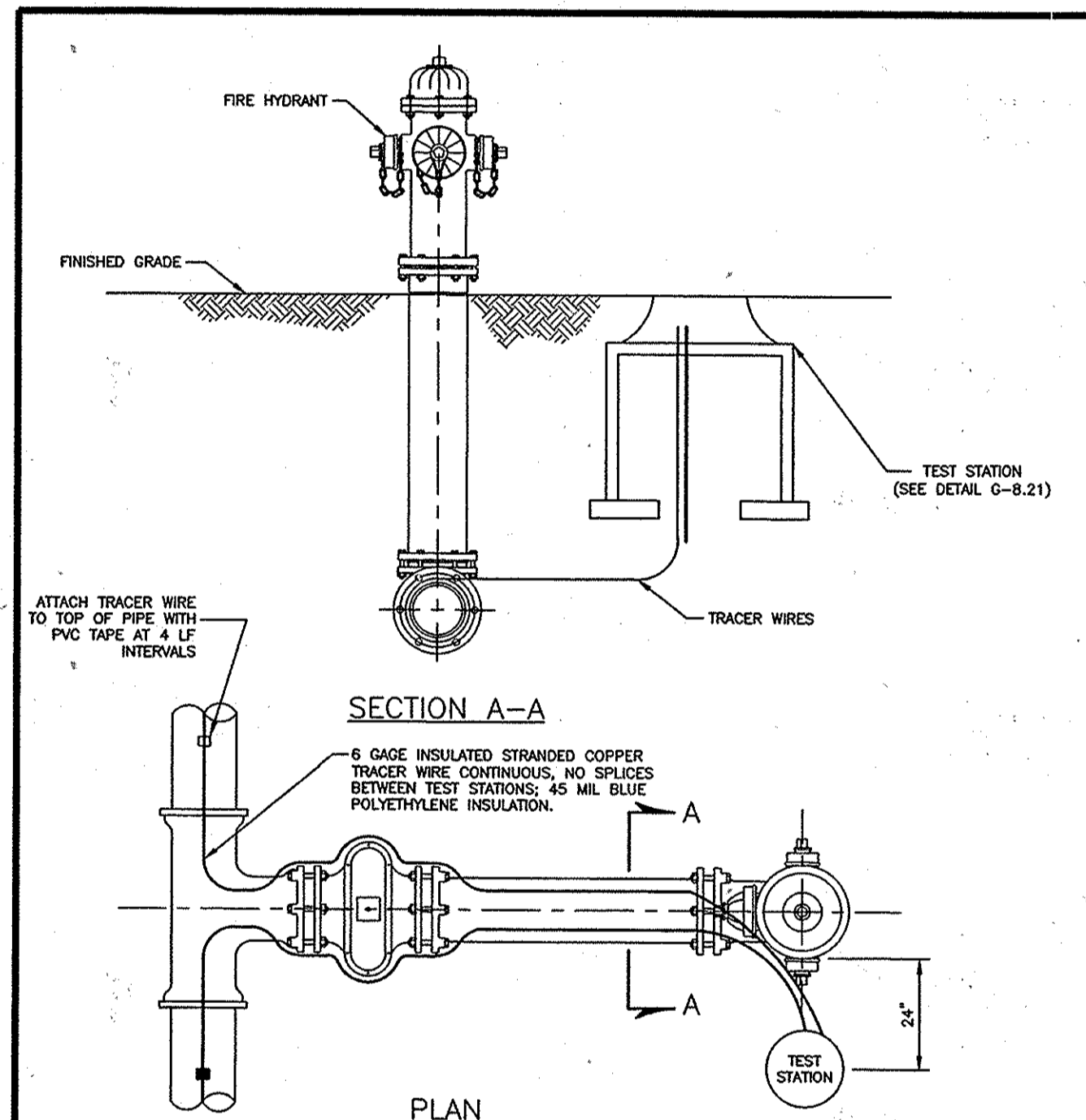
Howard County, Maryland  
 Department of Public Works  
**WATER METER  
3/4"  
Outside Meter Setting**  
 Detail  
**W-3.27**



**DETAIL - TEMPORARY PAVING RESTORATION**  
NOT TO SCALE

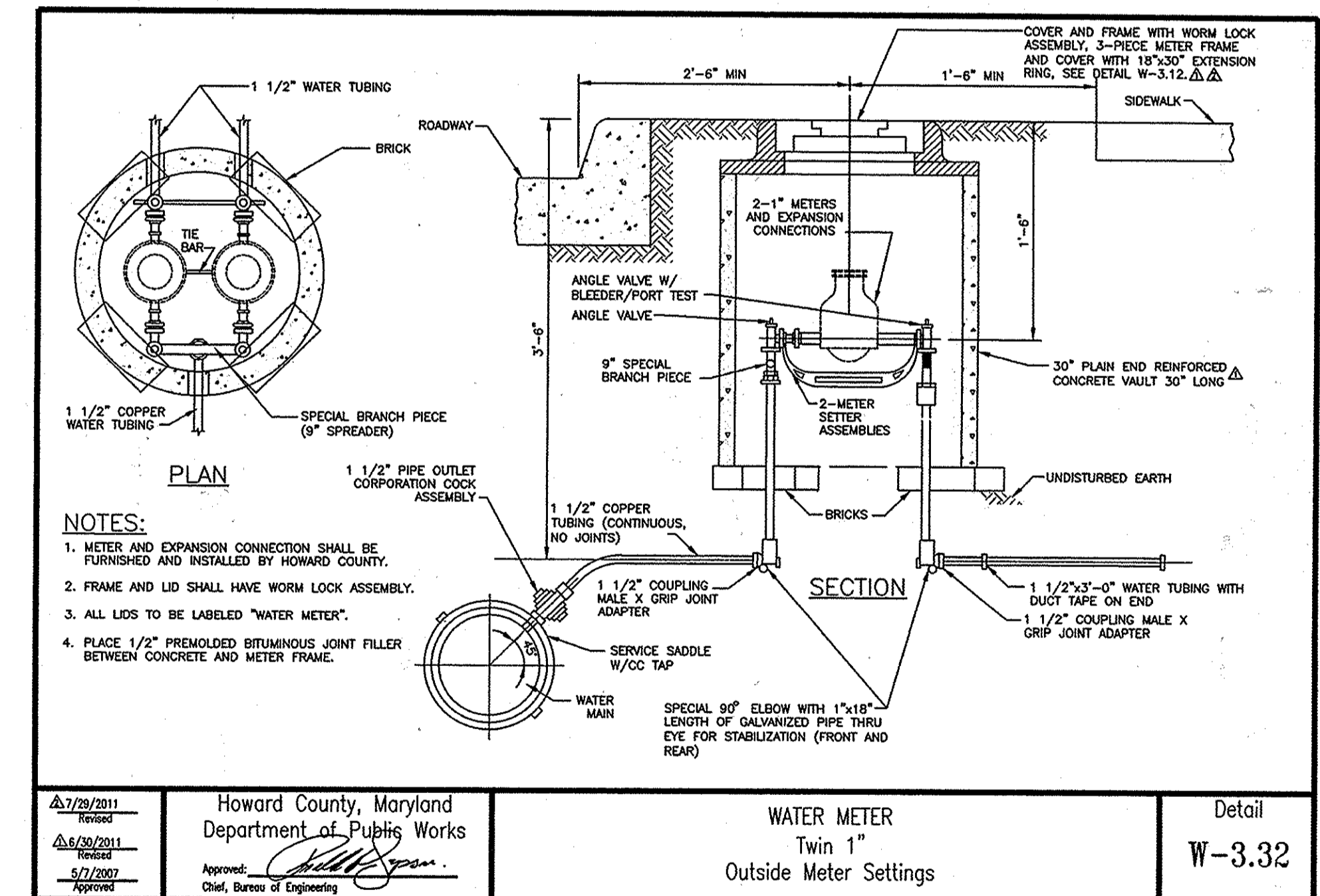


**HIGH DEFLECTION COUPLING  
INSTALLATION  
FOR HORIZONTAL AND  
VERTICAL DEFLECTION**  
NOT TO SCALE



**SECTION A-A**  
**PLAN**  
 NOTES:  
 1. TEST STATION MUST BE PLACED TO THE RIGHT OR LEFT SIDE OF THE FIRE HYDRANT.  
 2. VALVE VAULT FRAME AND COVER TO BE SET FLUSH WITH FINAL GRADE.  
 3. BUTTRESSES AND STRAPPING NOT SHOWN FOR CLARITY.  
 4. NO SPICES BETWEEN TEST STATIONS, UNLESS APPROVED BY HOWARD COUNTY. LATERAL SPICES APPROVED BY THE COUNTY SHALL CONSIST OF A BRASS COMPRESSION NUT, WATERPROOF BINDER, AND UNDERGROUND ELECTRICAL TAPE. EXTENSION SPICES SHALL BE MADE USING A GRIP CONNECTOR AND SHRINK TUBING.

Howard County, Maryland  
 Department of Public Works  
**FIRE HYDRANT  
Continuity Test Station**  
 Detail  
**W-1.15**



Howard County, Maryland  
 Department of Public Works  
**WATER METER  
Twin 1"  
Outside Meter Settings**  
 Detail  
**W-3.32**

**AS-BUILT**  
 DATE 1/04/16

PLOTTED: 08:56 AM on Friday, January 10, 2014  
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DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

[Signature] DATE 1/14/14  
 DIRECTOR OF PUBLIC WORKS  
 [Signature] DATE 1/14/14  
 CHIEF, BUREAU OF UTILITIES

[Signature] DATE 1/14/14  
 CHIEF, UTILITY DESIGN DIVISION

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 PLANNERS  
 SCIENTISTS  
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 SHARPS, MARYLAND 21152  
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 FAX (410) 316-7818  
 WWW.KCI.COM

PROFESSIONAL CERTIFICATION. I HEREBY  
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 PREPARED OR APPROVED BY ME, AND THAT  
 I AM A DULY LICENSED PROFESSIONAL  
 ENGINEER UNDER THE LAWS OF THE STATE  
 OF MARYLAND. LICENSE NO. 31363  
 EXPIRATION DATE: 1/16/2014

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 [Signature]  
 NO. 31363

DES:	GS				
DRN:	GS				
CHK:	GW/TWW				
DATE:	JUNE 2013	ML	AS-BUILT	1/04/16	
BY:	NO.				
REVISION:					

**WATER MAIN  
DETAILS**

600' SCALE MAP NO. 37 BLOCK NO. 21

**SANCTUARY COURT & TRANQUILL WAY  
WATER REPLACEMENT**

CAPITAL PROJECT No. W-8321  
 CONTRACT No. 44-4846

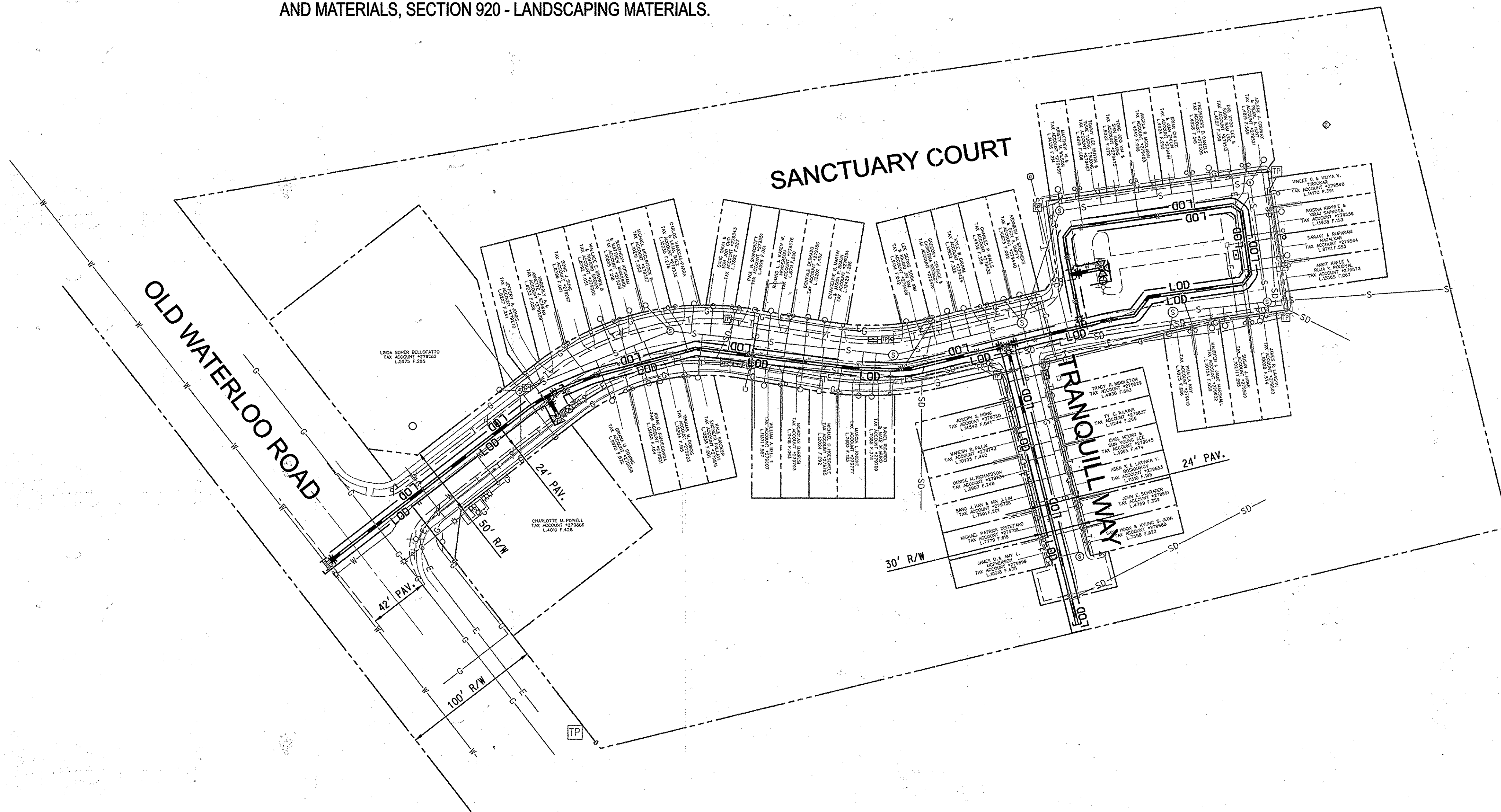
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
 SHEET 4 OF 8

NOTES:

- SOIL INFORMATION IS BASED ON HOWARD COUNTY GIS SOIL MAP  
 ChB: CHILLUM-RUSSETT LOAMS, 2 TO 5 PERCENT SLOPES  
 Fa: FALLSINGTON SANDY LOADM, 0 TO 2 PERCENT SLOPES  
 RuB: RUSSETT AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES  
 Ufa: URBAN LAND - FALLSINGTON COMPLEX, 0 TO 2 PERCENT SLOPES

- TOPSOIL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF THE SHA STANDARD SPECIFICATION OF CONSTRUCTION AND MATERIALS, SECTION 920 - LANDSCAPING MATERIALS.



PLAN

SCALE: 1" = 50'



N 554000  
E 1371750

N 554000  
E 1373250

N 553500  
E 1371750

PLOTTED: 08:57 AM on Friday, January 10, 2014  
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**AS-BUILT**  
DATE: 1/04/16

50' 0 50' 100'  
SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

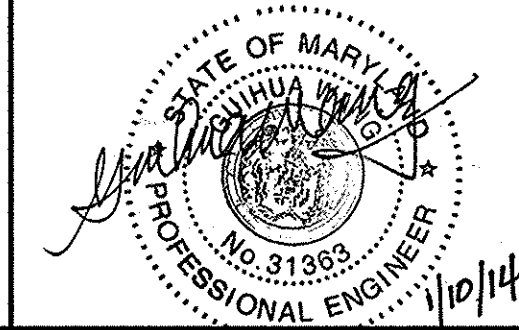
*[Signature]* 1/14/14  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 1/14/14  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 1/14/14  
CHIEF, UTILITY DESIGN DIVISION DATE

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DES:	GS				
DRN:	GS				
CHK:	GW/TWW				
DATE:	JUNE 2013	BY:	ML	NO.	AS-BUILT
REVISION:		DATE:	1/04/16		

**SEDIMENT AND EROSION CONTROL PLAN**  
**SANCTUARY COURT**

600' SCALE MAP NO. 37 BLOCK NO. 21

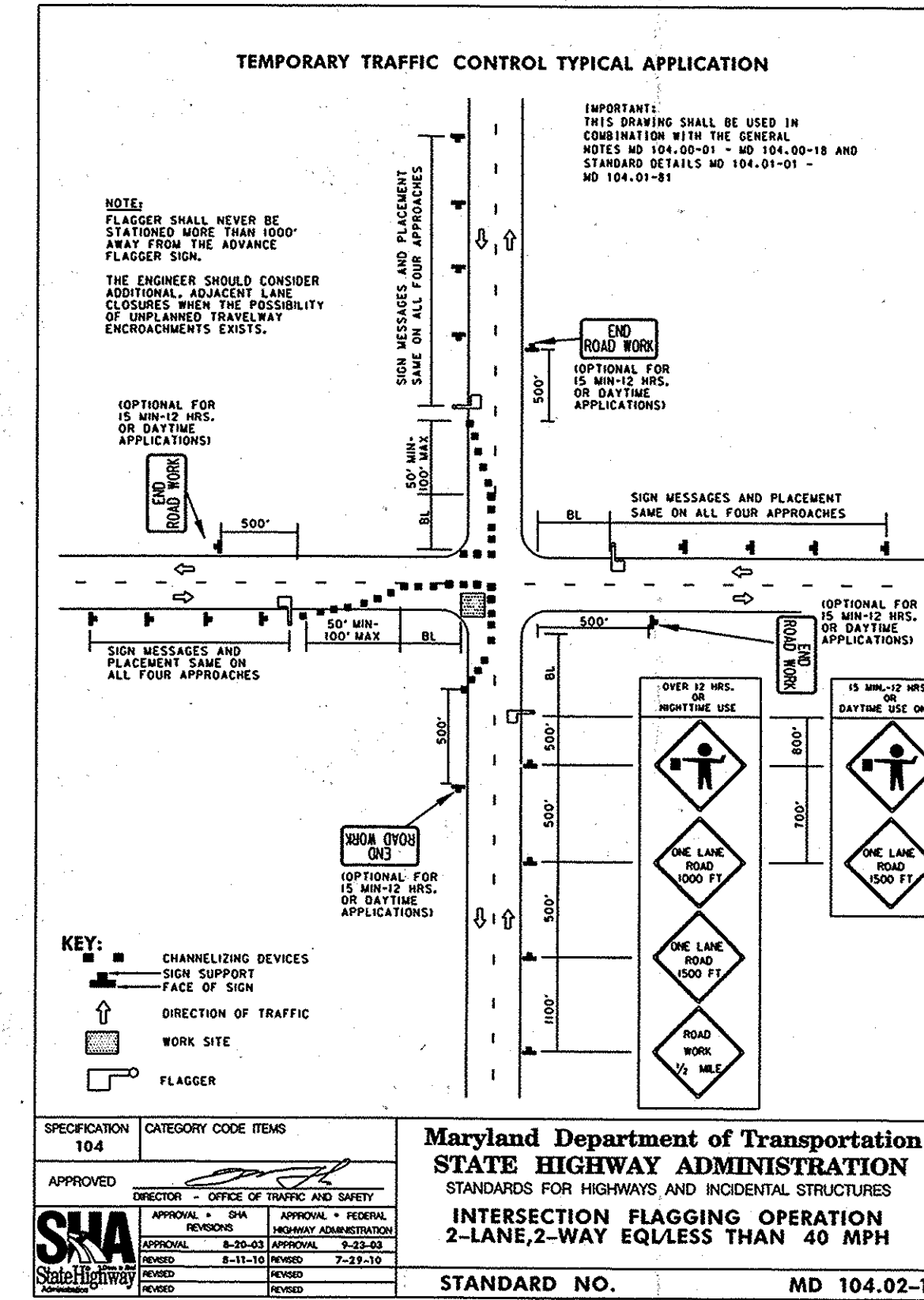
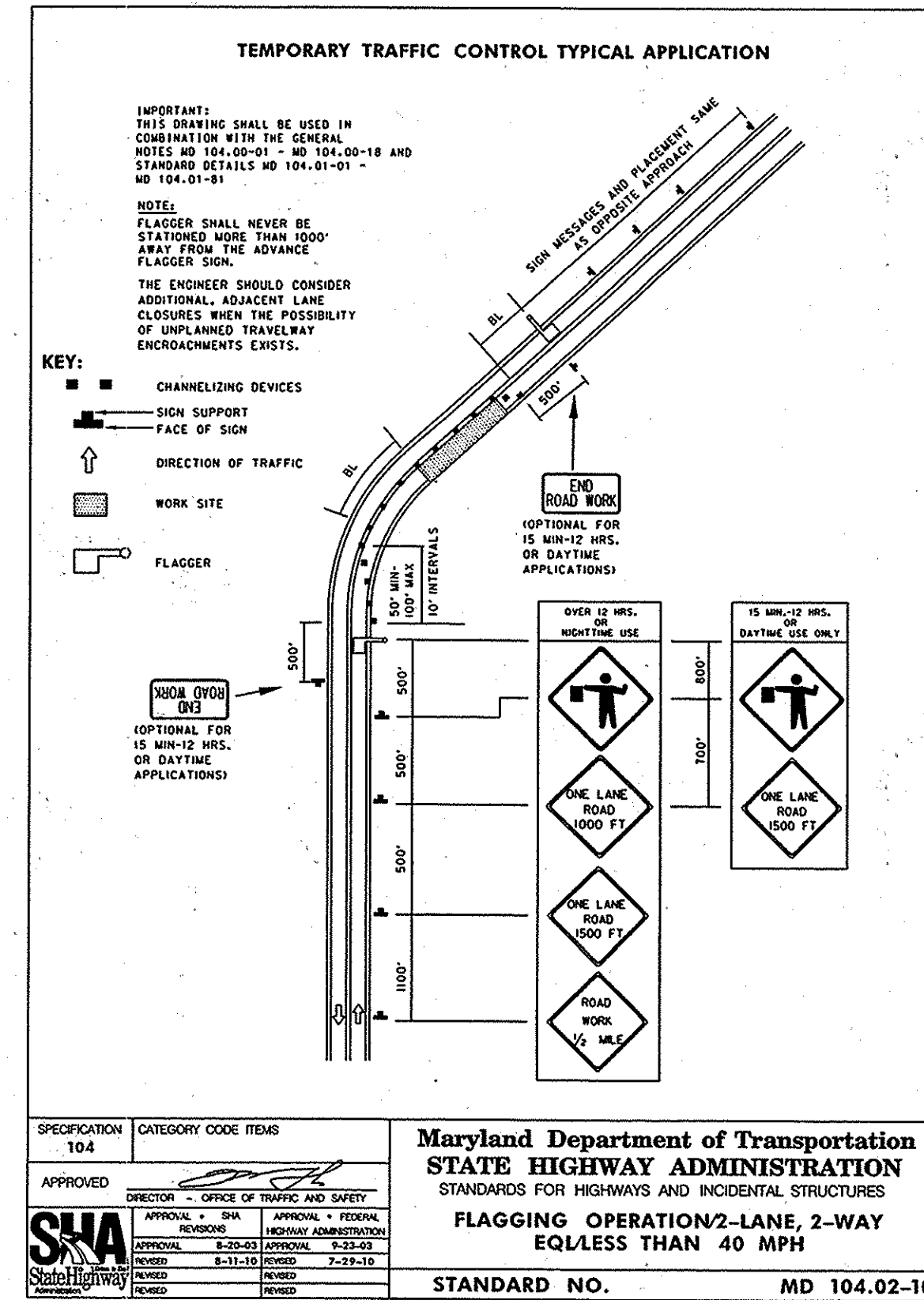
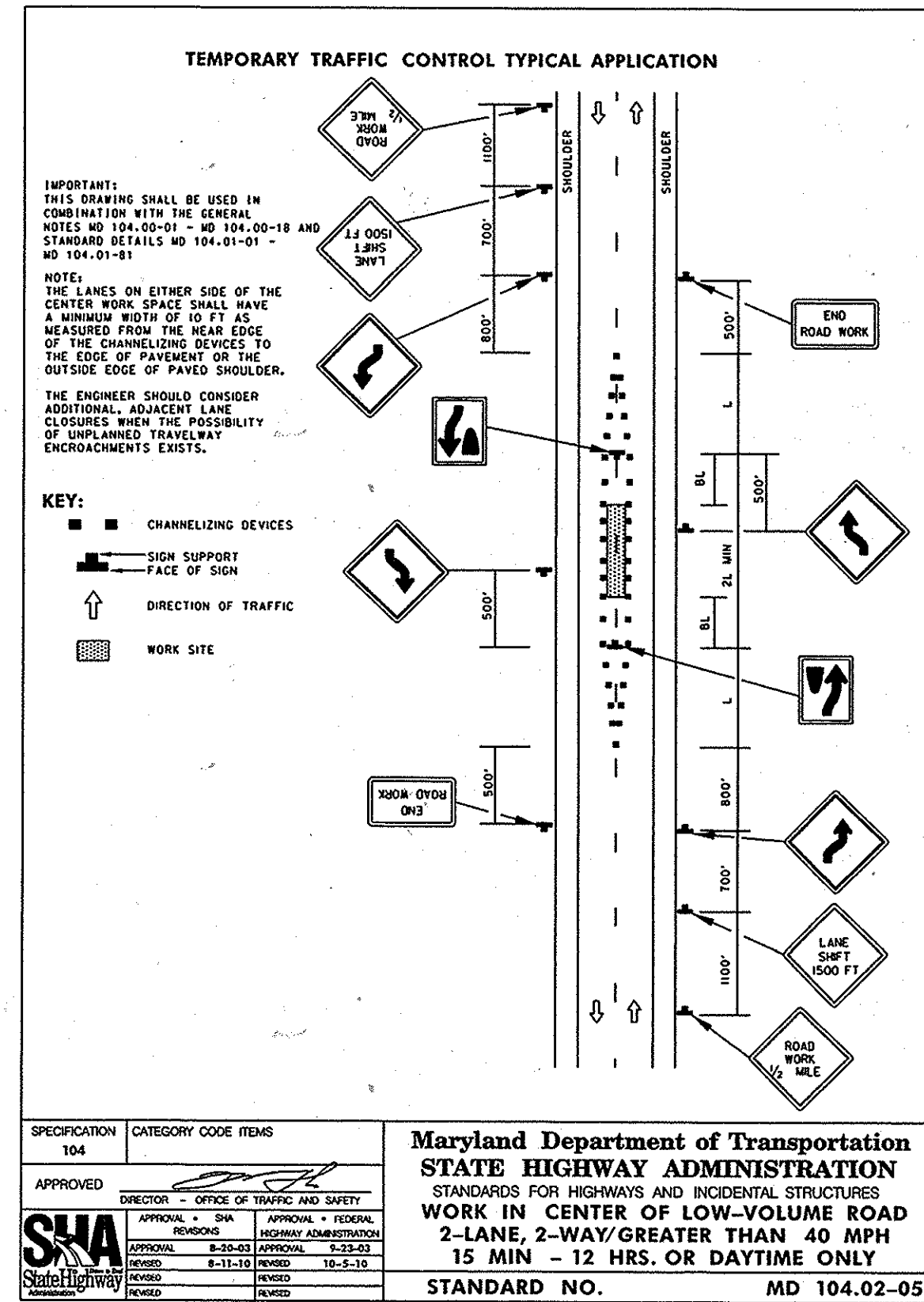
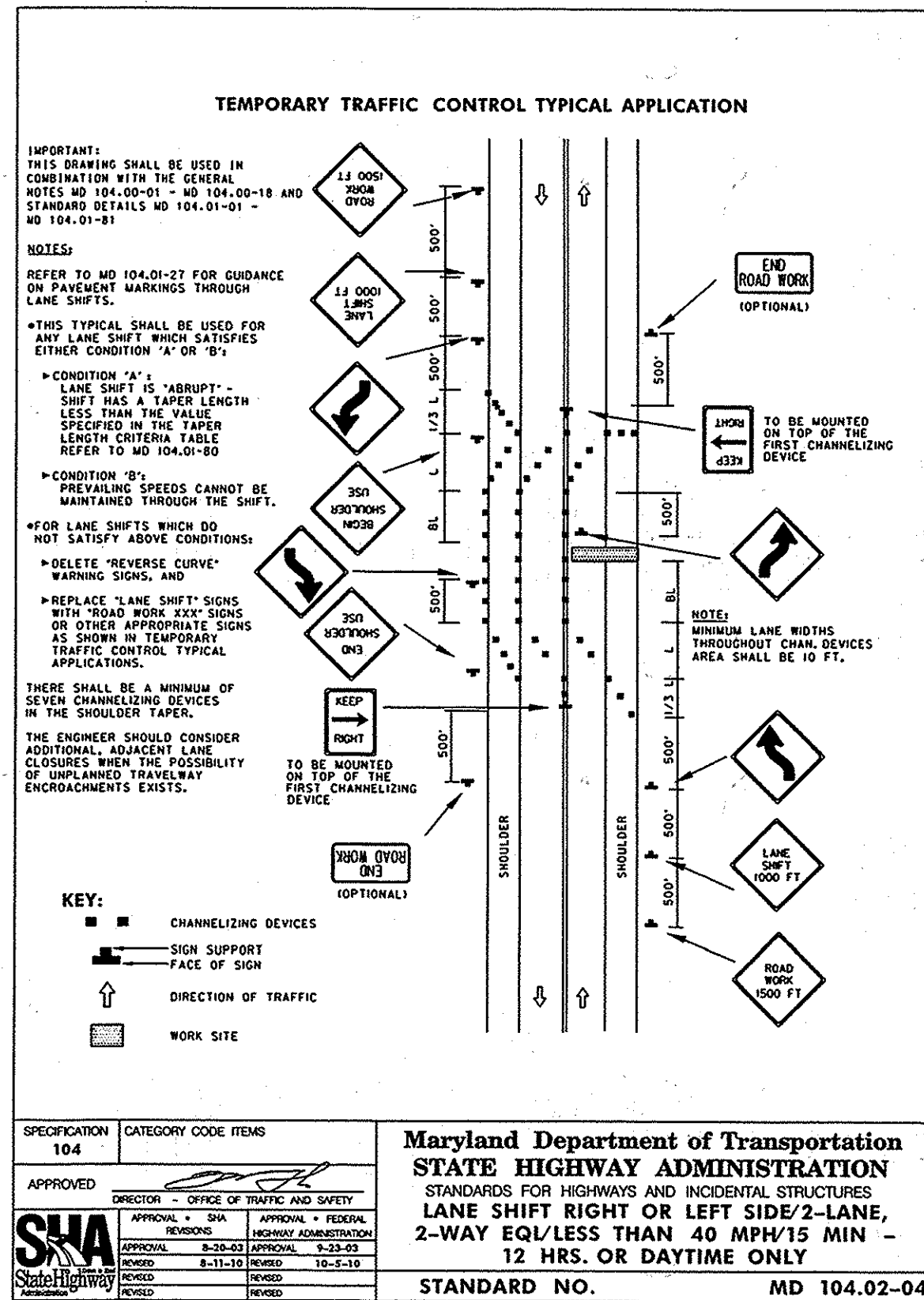
**SANCTUARY COURT & TRANQUILL WAY**  
**WATER REPLACEMENT**

CAPITAL PROJECT No. W-8321  
CONTRACT No. 44-4846

ELECTION DISTRICT NO. 1  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 5 OF 8



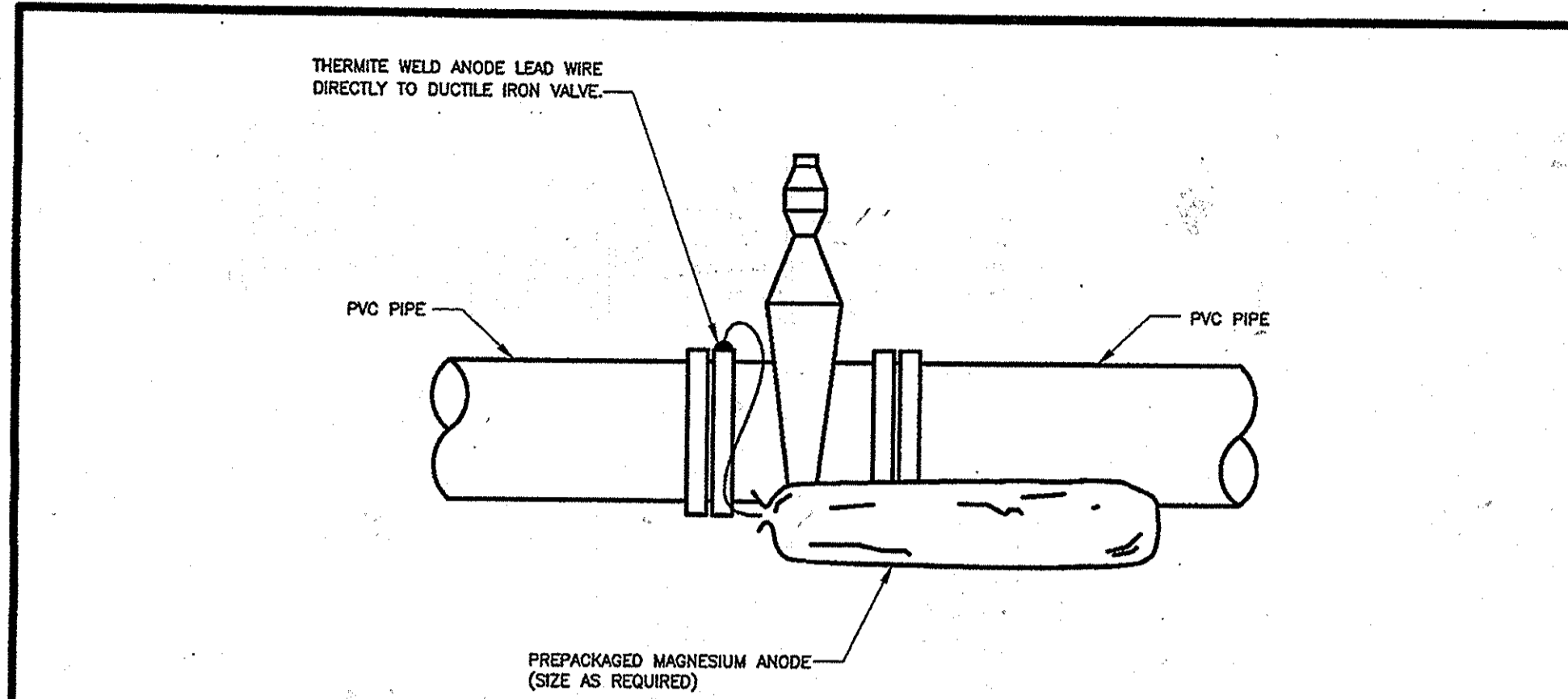


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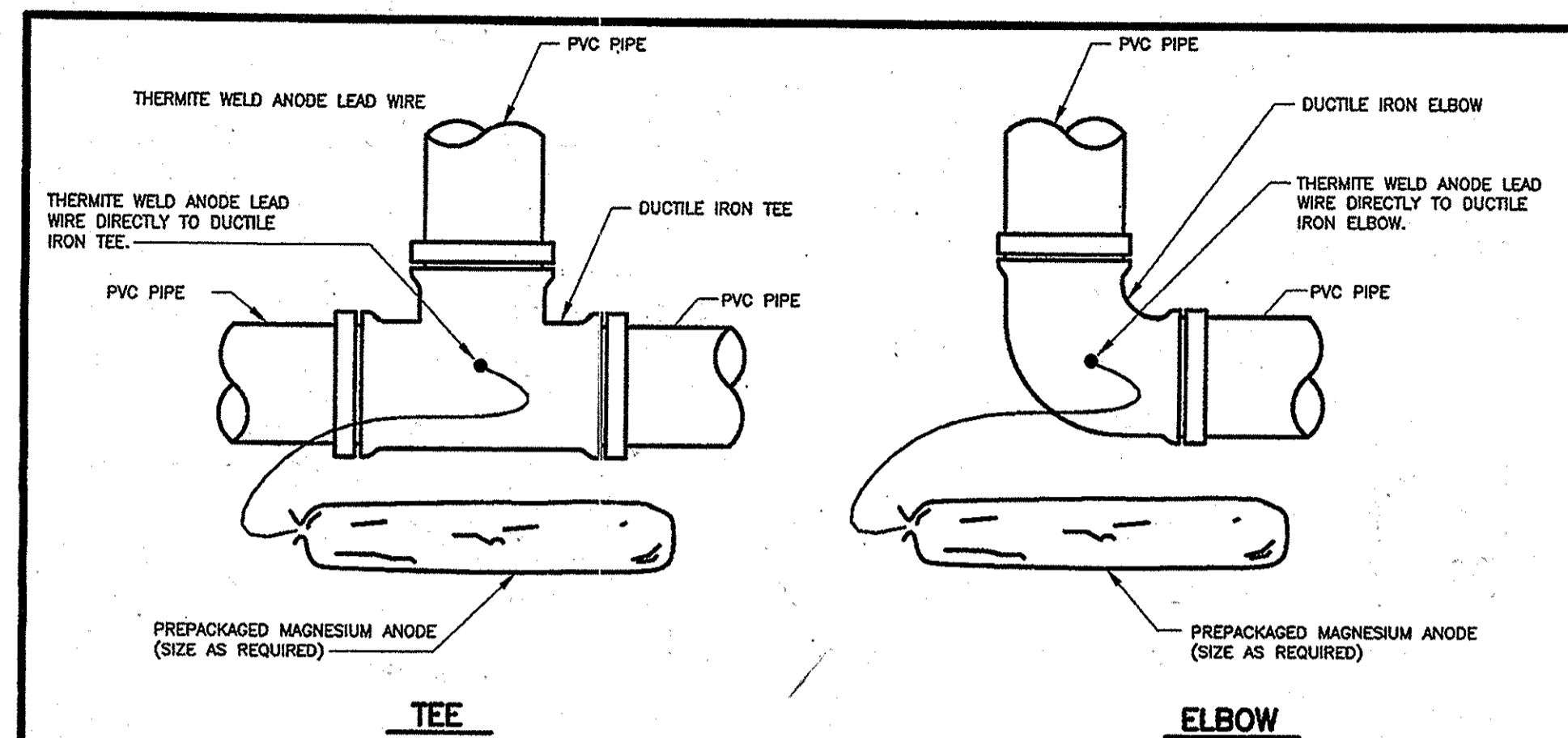
**AS-BUILT**  
 DATE 1/14/14

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>[Signature]</i> Bureau of Utilities: <i>[Signature]</i>	ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS <b>KCI TECHNOLOGIES</b> 936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152 TELEPHONE (410) 316-7800 FAX (410) 316-7818 WWW.KCI.COM	DES: GS DRN: GS CHK: GW/TWW DATE: JUNE 2013 BY: ML NO.: AS-BUILT	M.O.T. <b>MAINTENANCE OF TRAFFIC</b>	SANCTUARY COURT & TRANQUILL WAY WATER REPLACEMENT CAPITAL PROJECT No. W-8321 CONTRACT No. 44-4846 ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 7 OF 8
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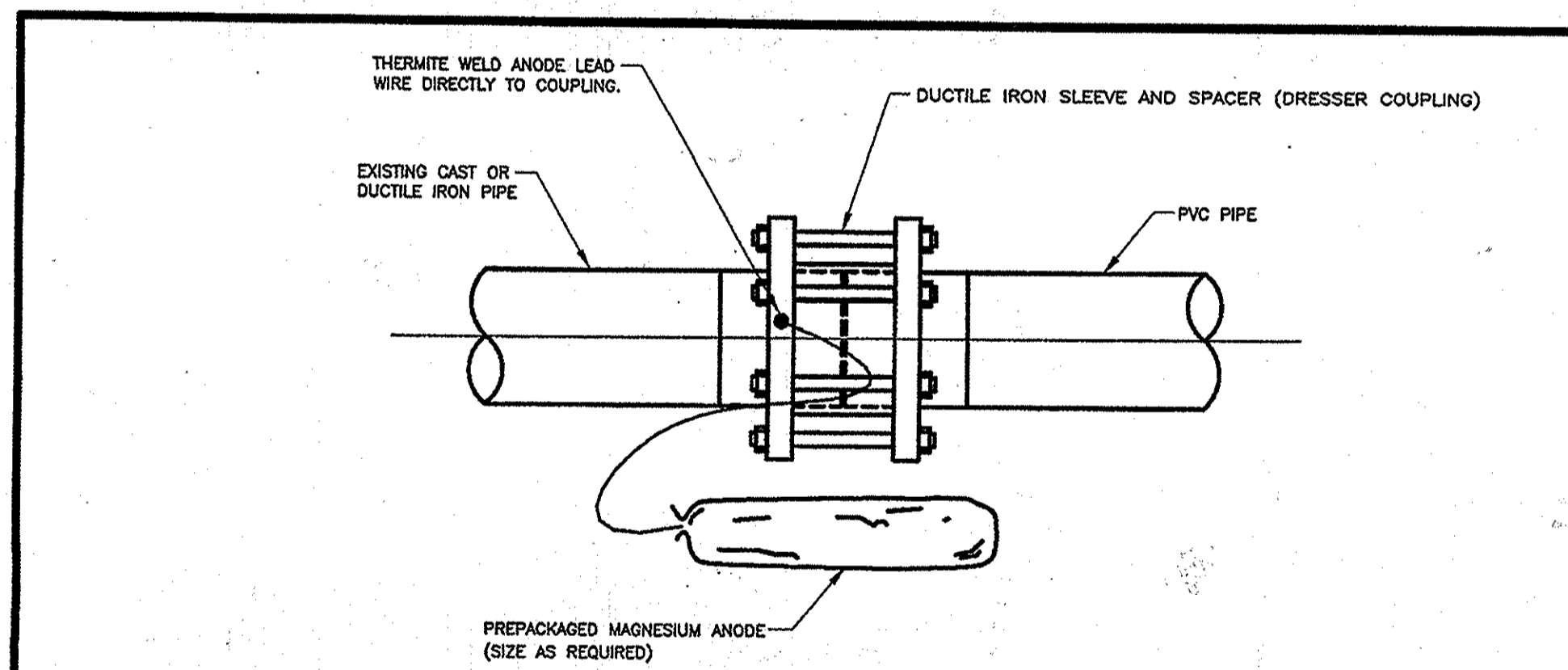
- NOTES:**
1. DO NOT THERMITE WELD TO PVC PIPE.
  2. INSTALL ANODE A MINIMUM OF 12 INCHES FROM MAIN.
  3. INSTALL ANODE IN NATIVE SOIL. DO NOT BACKFILL WITH SAND OR STONE.
  4. SEE ANODE AND REFERENCE ELECTRODE PLACEMENT DETAIL.

Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: <i>[Signature]</i> Chief, Bureau of Engineering	PVC MAIN Ductile Iron Valve	Detail C-5.01
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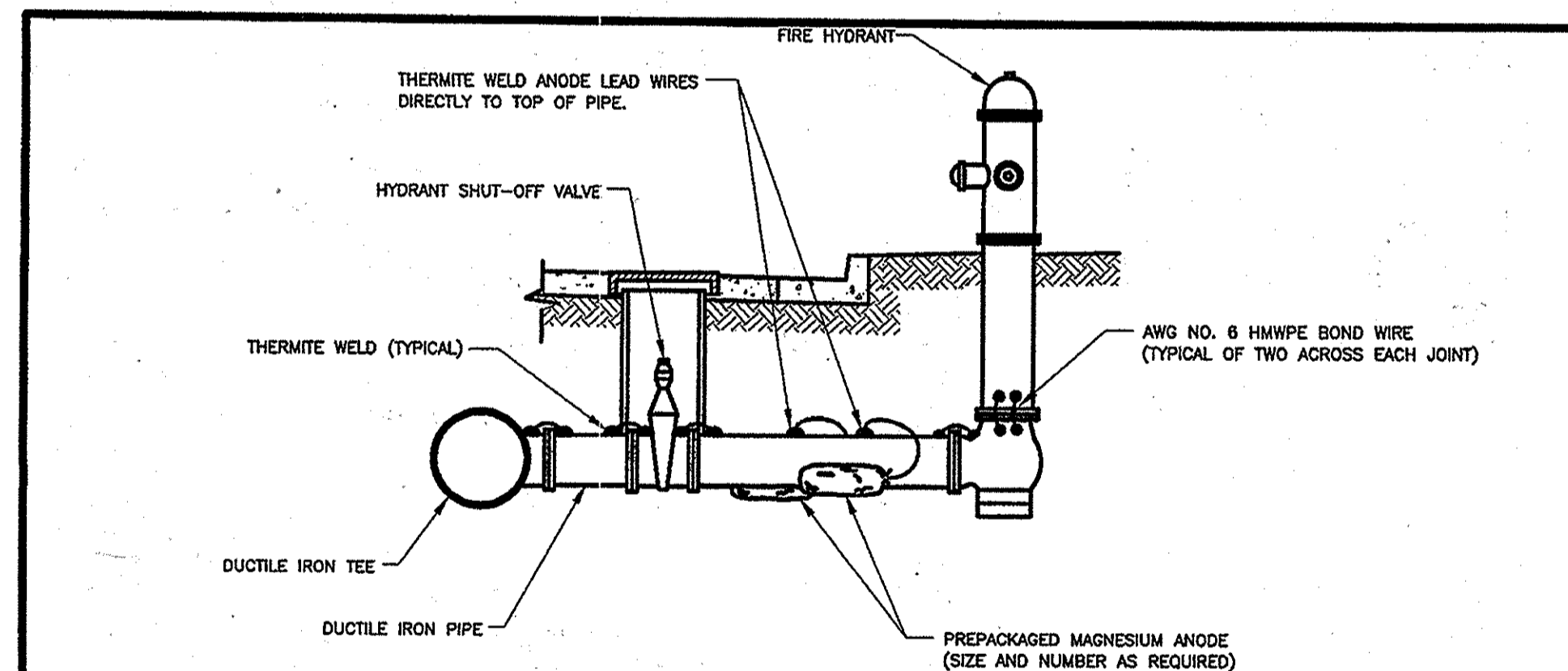
- NOTES:**
1. ANODES REQUIRED ONLY IF TEE OR ELBOW IS DUCTILE IRON.
  2. DO NOT THERMITE WELD TO PVC PIPE.
  3. INSTALL ANODES A MINIMUM OF 12 INCHES FROM MAIN.
  4. INSTALL ANODES IN NATIVE SOIL. DO NOT BACKFILL WITH SAND OR STONE.
  5. SEE ANODE AND REFERENCE ELECTRODE PLACEMENT DETAIL.

Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: <i>[Signature]</i> Chief, Bureau of Engineering	PVC MAIN Ductile Iron Fittings	Detail C-5.02
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- NOTES:**
1. DO NOT THERMITE WELD TO PVC PIPE.
  2. INSTALL ANODE A MINIMUM OF 12 INCHES FROM MAIN.
  3. INSTALL ANODE IN NATIVE SOIL. DO NOT BACKFILL WITH SAND OR STONE.
  4. SEE ANODE AND REFERENCE ELECTRODE PLACEMENT DETAIL.

Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: <i>[Signature]</i> Chief, Bureau of Engineering	PVC MAIN Ductile Iron Sleeve and Spacer	Detail C-5.03
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- NOTES:**
1. BOND ALL DUCTILE IRON COMPONENTS TOGETHER WITH AWG NO. 6 HMWPE WIRES.
  2. INSTALL BOND WIRES ON TOP OF DUCTILE IRON PIPE OR DUCTILE IRON FITTING WHERE POSSIBLE.
  3. INSTALL A MINIMUM OF TWO BOND CABLES ACROSS EACH DUCTILE IRON PIPE OR FITTING JOINT. ALL PIPE JOINTS NOT SHOWN ON THIS DETAIL.
  4. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE.
  5. DO NOT THERMITE WELD TO PVC PIPE.
  6. SEE ANODE AND REFERENCE ELECTRODE PLACEMENT DETAIL.
  7. SEE JOINTS BONDING DETAIL.

Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: <i>[Signature]</i> Chief, Bureau of Engineering	PVC MAIN Ductile Iron Fire Hydrant Piping	Detail C-5.04
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**AS-BUILT**  
DATE 1/04/16

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 PLOTTER: HP DesignJet 5000

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>[Signature]</i> 1/22/14 Chief, Bureau of Utilities: <i>[Signature]</i> 1/21/14	ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS <b>KCI</b> TECHNOLOGIES 936 RINGBROOK ROAD SMARKS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818 www.kci.com	STATE OF MARYLAND PROFESSIONAL ENGINEER No. 31363 1/10/14	DES: GS DRN: GS CHK: GW/TWW DATE: JUNE 2013 BY: ML NO. AS-BUILT REVISION DATE: 1/04/16	CORROSION CONTROL	SANCTUARY COURT & TRANQUILL WAY WATER REPLACEMENT CAPITAL PROJECT No. W-8321 CONTRACT No. 44-4846 ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 8 OF 8
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