

**GENERAL NOTES**

- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON 9/22/2011 BY KCI TECHNOLOGIES, INC.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/2007 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 38AA, 311, AND 0024. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE REBAR & CAP AND NAILS.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES AS SHOWN ON THE DRAWINGS, ANY COST INCURRED BY THE OWNER FOR THE 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.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A TABLE CONTAINING THE RESULTS OF THE TEST PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN NOTED SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- 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  
 BG&E (CONSTRUCTION SERVICES).....410-850-4620  
 BG&E (EMERGENCY).....410-685-1400  
 BUREAU OF UTILITIES (DPW).....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 / 410-224-9210
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- 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.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)313-7450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(c) OF THE HOWARD COUNTY CODE.
- THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES.
- THE CONTRACTOR SHALL PROVIDE STAGING/STORAGE AREA. THE WORK SHALL BE CONDUCTED UNDER STRICT ADHERENCE TO SECTION 308 - EROSION AND SEDIMENT CONTROL OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE VARIOUS BUSINESSES AND RESIDENCES AND COORDINATE THE WORK ACTIVITIES SO AS NOT TO NEGATIVELY IMPACT THE CONNECTED CUSTOMERS. THE INSTALLATION OF WATER MAIN SHALL CAUSE MINIMUM DISTURBANCE TO THE EXISTING BUSINESSES AND RESIDENCES AND NOTIFICATION OF ANY INTERRUPTIONS OF SERVICE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COUNTY REQUIRES THAT THE CONTRACTOR NOTIFY EACH AFFECTED BUSINESS AND RESIDENCE OF THE IMPENDING INTERRUPTION BY LETTER OR WITH DOOR TAGS AT LEAST 48 HOURS IN ADVANCE OF THE PLANNED INTERRUPTION. IN THE EVENT OF UNPLANNED INTERRUPTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR NOTIFYING THE BUSINESSES AND RESIDENCES BY DOOR-TO DOOR CANVASSING.
- A GEOTECHNICAL REPORT HAS BEEN PREPARED FOR THIS PROJECT BY KCI TECHNOLOGIES, INC. THIS REPORT IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT BE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. THE OPINIONS AND CONCLUSIONS OF KCI REPRESENT OUR INTERPRETATION OF THE SUBSURFACE CONDITIONS AND THE PLANNED CONSTRUCTION AT THE TIME OF THE REPORT PREPARATION. THE DATA IN THIS REPORT MAY NOT BE ADEQUATE FOR CONTRACTORS ESTIMATING PURPOSES.

**WATER MAIN NOTES**

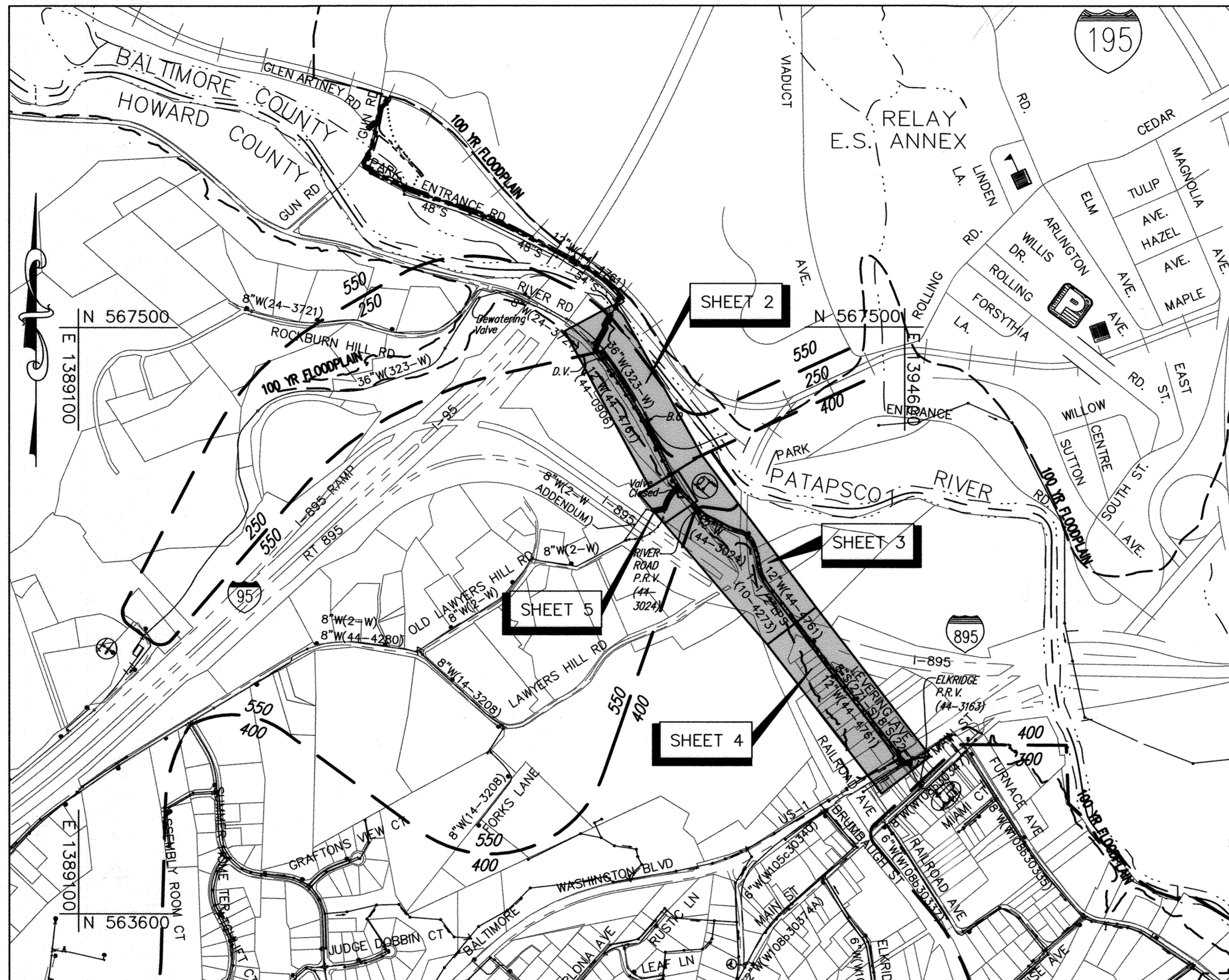
- ALL WATER MAINS SHALL BE DUCTILE IRON CLASS 54 PIPE UNLESS OTHERWISE NOTED. SEE THE HOWARD COUNTY DESIGN MANUAL VOLUME IV- STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
- TOPS OF WATER MAIN SHALL HAVE A MINIMUM OF 4'-0" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANT 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 DETAIL AND SPECIFICATIONS. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON (DIP) PIPE AND CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV- STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF UTILITIES HOWARD COUNTY, 15 DAYS PRIOR TO WATER MAIN SHUT DOWN.
- WATER MAINS SHALL BE FILLED WITH WATER AND BROUGHT TO 315 PSI (550 ZONE) AND 240 PSI (400 ZONE) HYDROSTATIC TEST PRESSURE AT THE LOW POINT FOR 2 HOURS.
- THE ABANDONMENT OF THE EXISTING WATER MAIN SHALL BE IN ACCORDANCE WITH SECTION 1015 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL RETURN ALL SALVAGED FIRE HYDRANTS, FRAMES AND COVERS, VALVES AND ROADWAY BOXES TO THE BUREAU OF UTILITIES AT 8250 OLD MONTGOMERY ROAD, COLUMBIA, MD, 21045.
- WHERE CONNECTING TO EX. CAST IRON PIPE, THE CONTRACTOR SHALL USE PE X PE SPOOL PIECE, A RESTRAINED COUPLING AND BUTTRESS OR ANCHORAGE.

# LEVERING AVENUE WATER MAIN HOWARD COUNTY, MARYLAND

## DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT No. W-8300

CONTRACT No. 44-4761



**LOCATION MAP**

SCALE: 1" = 600'

DRAINAGE AREA: PATAPSCO  
 PRESSURE ZONE: 550, 400  
 WATER TEST GRADIENT: 760, 600  
 NUMBER OF WATER HOUSE CONNECTIONS: 24

**HOWARD COUNTY GEODETIC SURVEY CONTROL**

THE HORIZONTAL AND VERTICAL DATUM BASED ON NAD83/91 (HORIZONTAL) NAVD 88 (VERTICAL)

38AA	N 561158.85	311	N 565004.73
	E 1389726.32		E 1381586.89
	ELEV.219.99		ELEV.305.93
0024	N 565065.48		E 1395212.08
	ELEV.26.89		

**OWNER'S/DEVELOPER'S CERTIFICATION**

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

*Wes Daub* 7/5/2017  
 BUREAU OF ENGINEERING  
 DEPARTMENT OF PUBLIC WORKS  
 Wes Daub, P.E., Project Manager  
 PRINTED NAME & TITLE

**ENGINEER'S CERTIFICATION**

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."  
*John Wang* 6/22/2017  
 JOHN WANG, P.E.  
 MD REGISTRATION NO. 31363  
 KCI TECHNOLOGIES, INC.  
 936 RIDGEBROOK ROAD  
 SPARKS, MD 21152

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 1/16/2020.

**INDEX OF SHEETS**

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	WATER MAIN PLAN STA. 25+40 TO STA. 39+00
3	WATER MAIN PLAN STA. 39+00 TO STA. 52+00
4	WATER MAIN PLAN STA. 52+00 TO STA. 63+33
5	WATER MAIN PLAN STA. 0+00 TO STA. 2+32 (PART OF OLD LAWYERS HILL RD.)
6	TEMPORARY WATER PLAN AND DETAILS
7	SEDIMENT AND EROSION CONTROL PLAN - 1
8	SEDIMENT AND EROSION CONTROL PLAN - 2
9	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
10	CORROSION CONTROL LAYOUT - 1 STA. 25+40 TO STA. 52+00
11	CORROSION CONTROL LAYOUT - 2 STA. 52+00 TO STA. 63+33
12	CORROSION CONTROL DETAILS - 1
13	CORROSION CONTROL DETAILS - 2
14	CORROSION CONTROL DETAILS - 3
15	CORROSION CONTROL DETAILS - 4

**QUANTITIES**

ITEM	UNIT	ESTIMATE	AS-BUILT	MANUFACTURER
12" CLASS 54 DIP	L.F.	3684	3740	US PIPE
8" CLASS 54 DIP	L.F.	255	282	US PIPE
6" CLASS 54 DIP	L.F.	27	51.5	US PIPE
12" RESTRAINED COUPLING	EA.	2	2	TYLER UNION
FIRE HYDRANT AND 6" VALVE	EA.	5	6	AMERICAN FLOW
12" VALVE	EA.	4	5	AMERICAN FLOW
8" VALVE	EA.	2	2	AMERICAN FLOW
WATER HOUSE CONNECTION-REPLACE IN KIND	L.F.	420	540	CAMBRIDGE LEE
10'X10' ACCESS PIT	-EA-	+0		
DOUBLE CAPS, JACK & BUTRESS	EA.	2	2	TYLER UNION
4" TEMPORARY WATER	L.F.	850	2137	CERTA-LOK
6" VALVE FOR TEMPORARY WATER	EA.	1	0	
6" TEMPORARY WATER	L.F.	1320	0	
TEMPORARY FIRE HYDRANT CONNECTION	EA.	2	2	VICTAULIC

CHECKBOX	
AS-BUILT DATE	7-12-19
SURVEY AND DRAFTING DIVISION	

**RESTORATION SCHEDULE**

LOCATION	DISTANCE	TYPE
PATAPSCO RIVER	130'	SEED & MULCH
RIVER RD.	1335'	MACADAM
RIVER RD.	23'	SEED & MULCH
LEVERING AVE.	2176'	MACADAM
LEVERING AVE.	915'	SEED & MULCH
OLD LAWYERS HILL RD.	220'	SEED & MULCH
DEPT. OF FOREST AND PARKS	232'	SEED & MULCH

**LEGEND**

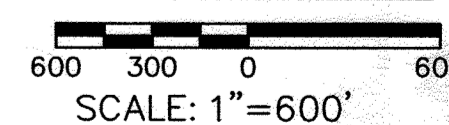
PROPOSED	EXISTING		
△	TRAVERSE POINT	○	DECIDUOUS TREE
—	WATER MAIN	○	CONIFEROUS TREE
⊕	FIRE HYDRANT	⊕	EXISTING FIRE HYDRANT
⊕	VALVE	⊕	EXISTING VALVE
⊕	CONTINUITY TEST STATION	— W —	EXISTING WATER MAIN
⊕	TEST STATION	— G —	EXISTING GAS MAIN
⊕	TEST PIT	— E —	EXISTING UNDERGROUND ELECTRIC
⊕	SOIL BORING (COMPLETED, SEE GEOTECHNICAL REPORT)	— WL —	WETLAND LIMIT
— W —	ABANDON EXISTING WATER MAIN	— WB —	WETLAND BUFFER
—	TEMPORARY WATER	— W —	ABANDONED WATER MAIN
---	UTILITY EASEMENT	---	PROPERTY BOUNDARY
---	TEMPORARY CONSTRUCTION EASEMENT	---	RAILROAD TRACKS
		---	100 YEAR FLOODPLAIN

**HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION**

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

*John P. Blanton* 7/12/17  
 JOHN P. BLANTON  
 HOWARD SOIL CONSERVATION DISTRICT  
 APPROVED

**GRAPHIC SCALE**



EP-12-019 AS-BUILT REPLACEMENT SHEET

KCI TECHNOLOGIES PROJECT No.: 01071378.34

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

*Janey Van* 7/1/13  
 DIRECTOR OF PUBLIC WORKS DATE  
*Charles* 7/10/17  
 CHIEF, BUREAU OF UTILITIES DATE  
*Monroe & Butler* 7/1/17  
 CHIEF, BUREAU OF ENGINEERING DATE  
*W.D.* 9/6/17  
 CHIEF, UTILITY DESIGN DIVISION DATE

**KCI TECHNOLOGIES**  
 ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS  
 936 Ridgbrook Road  
 Sparks, MD 21152  
 Phone: (410) 316-7800  
 Fax: (410) 316-7817  
 www.kci.com

**STATE OF MARYLAND**  
 PROFESSIONAL ENGINEER  
 No. 31363  
 12/1/2020

DES:	GW, KJ
DRN:	KJ
CHK:	TW
DATE:	SEPT. 2019
BY:	JER
NO.:	AS-BUILT
REVISION:	
DATE:	12/1/20

**TITLE SHEET**

**LEVERING AVENUE  
WATER MAIN**

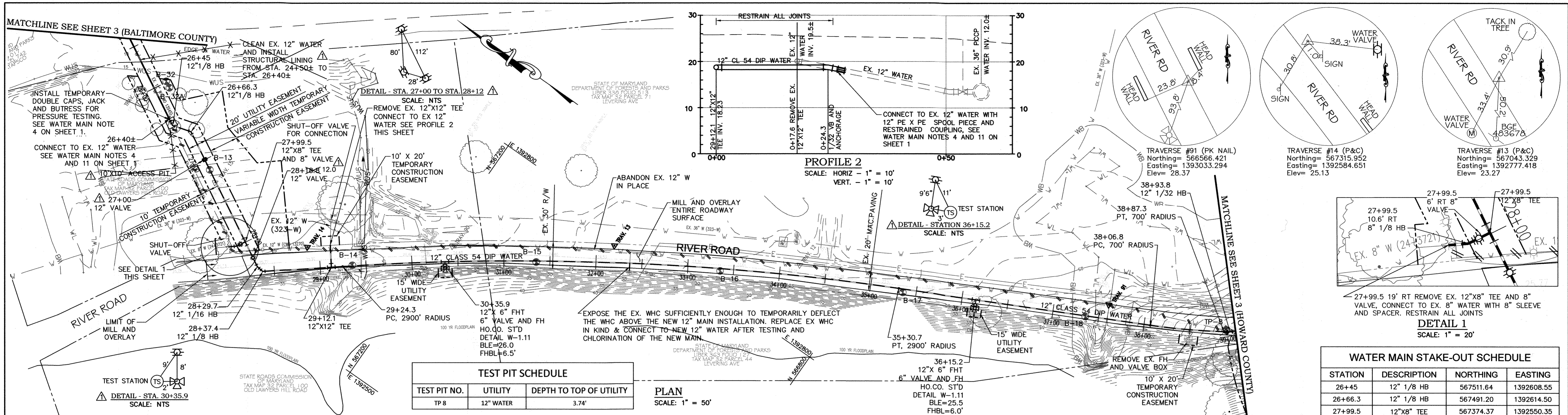
CAPITAL PROJECT No. W-8300  
 CONTRACT No. 44-4761

SCALE  
 AS SHOWN  
 SHEET  
 1 OF 18

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

KCI TECHNOLOGIES PROJECT No.: 01071378.34

Dec 04, 2020 - 2:28pm  
User: jordan.nong  
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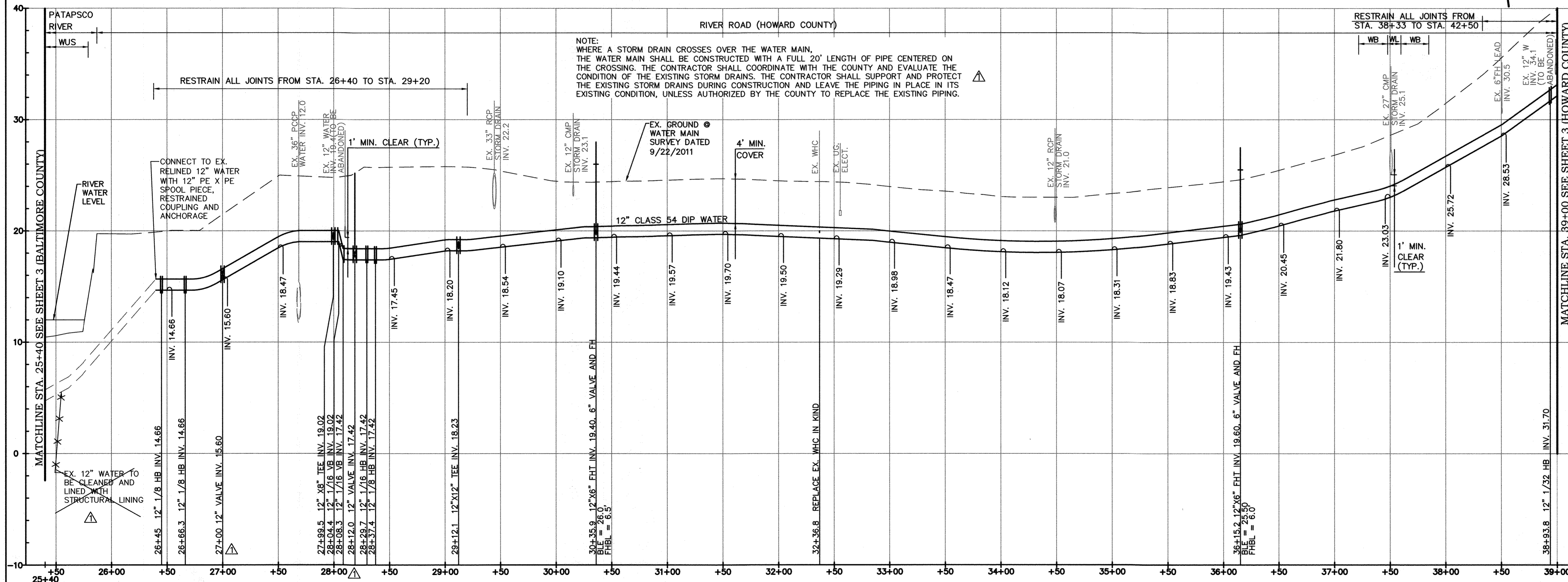


TEST PIT NO.	UTILITY	DEPTH TO TOP OF UTILITY
TP 8	12" WATER	3.74'

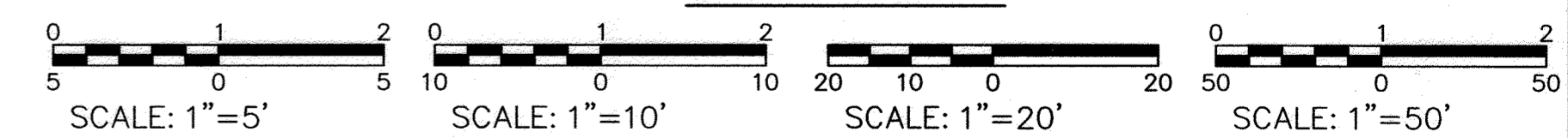
PLAN  
SCALE: 1" = 50'

STATION	DESCRIPTION	NORTHING	EASTING
26+45	12" 1/8 HB	567511.64	1392608.55
26+66.3	12" 1/8 HB	567491.20	1392614.50
27+99.5	12"x8" TEE	567374.37	1392550.35
28+18.8	12" VALVE	567357.50	1392541.08
28+29.7	12" 1/16 HB	567347.94	1392535.83
28+37.4	12" 1/8 HB	567340.31	1392534.99
29+12.1	12"x12" TEE	567282.05	1392581.71
29+24.3	PC, 2900' RADIUS	567272.48	1392589.39
30+35.9	12"x6" FHT	567184.15	1392657.47
35+30.7	PT, 2900' RADIUS	566763.38	1392916.68
36+15.2	12"x6" FHT	566687.91	1392954.71
38+06.8	PC, 700' RADIUS	566516.80	1393040.95
38+87.3	PT, 700' RADIUS	566447.19	1393081.20
38+93.8	12" 1/32 HB	566441.74	1393084.79

- SUGGESTED SEQUENCE OF CONSTRUCTION**
- INSTALL WATER MAIN FROM STA. 26+45 TO STA. 40+90
  - PERFORM PRESSURE TESTING AND DISINFECT THE WATER MAIN.
  - REMOVE THE DOUBLE CAPS, JACK AND BUTTRESS AND MAKE CONNECTION TO EXISTING 12" WATER AT STA. 26+40.
  - CLOSE THE EXISTING 12" VALVE ON THE NE SIDE OF RIVER ROAD OPPOSITE STA. 28+37.4 OF THE NEW MAIN. INSTALL NEW CONNECTION TO EX. 8" WATER AT STA. 27+99.5. CLOSE NEW 12" VALVE AT STA. 28+18.8 AND OPEN NEW 12" VALVE AT STA. 24+09.7. OPEN NEW 8" VALVE AT STA. 27+99.5.
  - CLOSE EXISTING VALVES AT PRV NEAR STA. 41+00, AND EXISTING 12" VALVE FROM EXISTING 36" WATER NEAR STA. 29+12.1 AND MAKE CONNECTION TO EXISTING 12" WATER AT STA. 40+95.6 AND CONNECTION TO EXISTING 12" WATER AT STA. 29+12.1.
  - OPEN THE NEW VALVE AT STA. 28+18.8 AND OPEN EX. VALVES AT THE PRV NEAR STA. 41+00.
  - REPLACE AND RECONNECT WHC ON COMPLETED SECTIONS OF WATER MAIN.
  - INSTALL THE 2 IN-LINE THRUST BLOCKS AT STATIONS 63+24 (30' LEFT) AND 63+45, CLOSE THE 2 EXISTING VALVES AT INTERSECTION OF WASHINGTON BLVD. AND AT STATION 41+03.. INSTALL TEE, 6" VALVE AND DOUBLE CAPS NEAR STA. 45+17. OPEN THESE SAME VALVES AND CONSTRUCT THE TEMPORARY WATER ON LEVERING AVE. WHEN ALL WATER HOUSE CONNECTIONS HAVE BEEN TRANSFERRED TO THE TEMPORARY MAIN, CLOSE THE VALVES IN WASHINGTON BLVD. AGAIN. SEE THE TEMPORARY WATER SERVICE SEQUENCE OF CONSTRUCTION ON SHEET 5 OF 10.
  - INSTALL THE WATER MAIN FROM STA. 41+25.3 TO STA. 63+29.
  - PRESSURE TEST AND DISINFECT THE WATER MAIN.
  - CLOSE THE VALVES AT THE PRV.
  - MAKE CONNECTIONS AT STA. 41+25.3, STA. 63+24.3 AND STA. 63+29. AND OPEN VALVES.
  - INSTALL AND CONNECT HOUSE CONNECTIONS.



PROFILE  
SCALE: HORIZ - 1" = 50'  
VERT. - 1" = 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. 31363, Expiration Date 1/16/2020.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Janey Van* 7/1/13  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas & Butler* 7/1/17  
CHIEF, BUREAU OF ENGINEERING DATE

*Chris* 7/1/17  
CHIEF, BUREAU OF UTILITIES DATE

*WB* 11/17  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

936 Ridgebrook Road  
Stuart, MD 21153  
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STATE OF MARYLAND  
JOSHUA WALKER  
PROFESSIONAL ENGINEER  
12/1/2020

DES: GW, KJ	
DRN: KJ	
CHK: TW	
DATE: SEPT. 2019	
JER	AS-BUILT
BY	NO.
REVISION	
DATE	12/1/20

WATER MAIN PLAN  
STA. 25+40 TO STA. 39+00

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

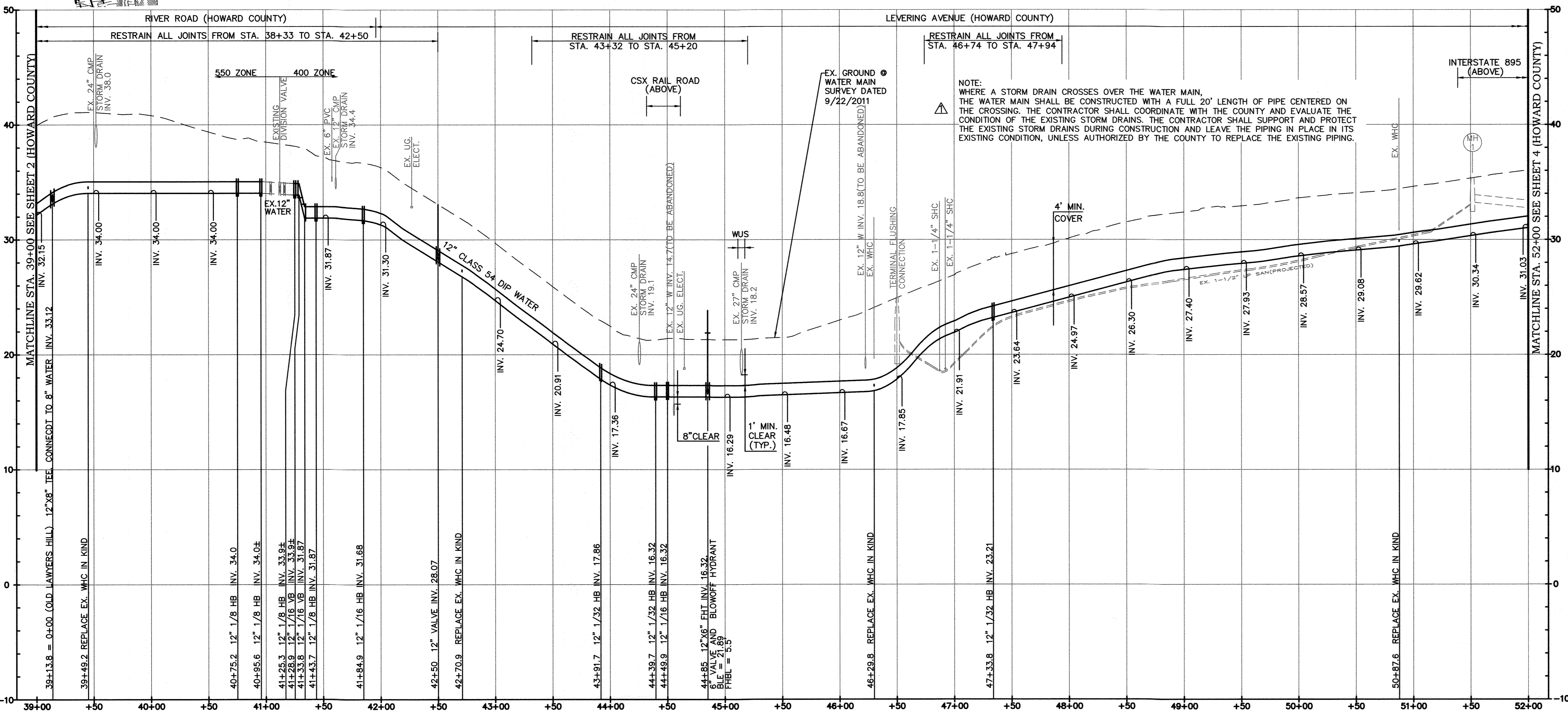
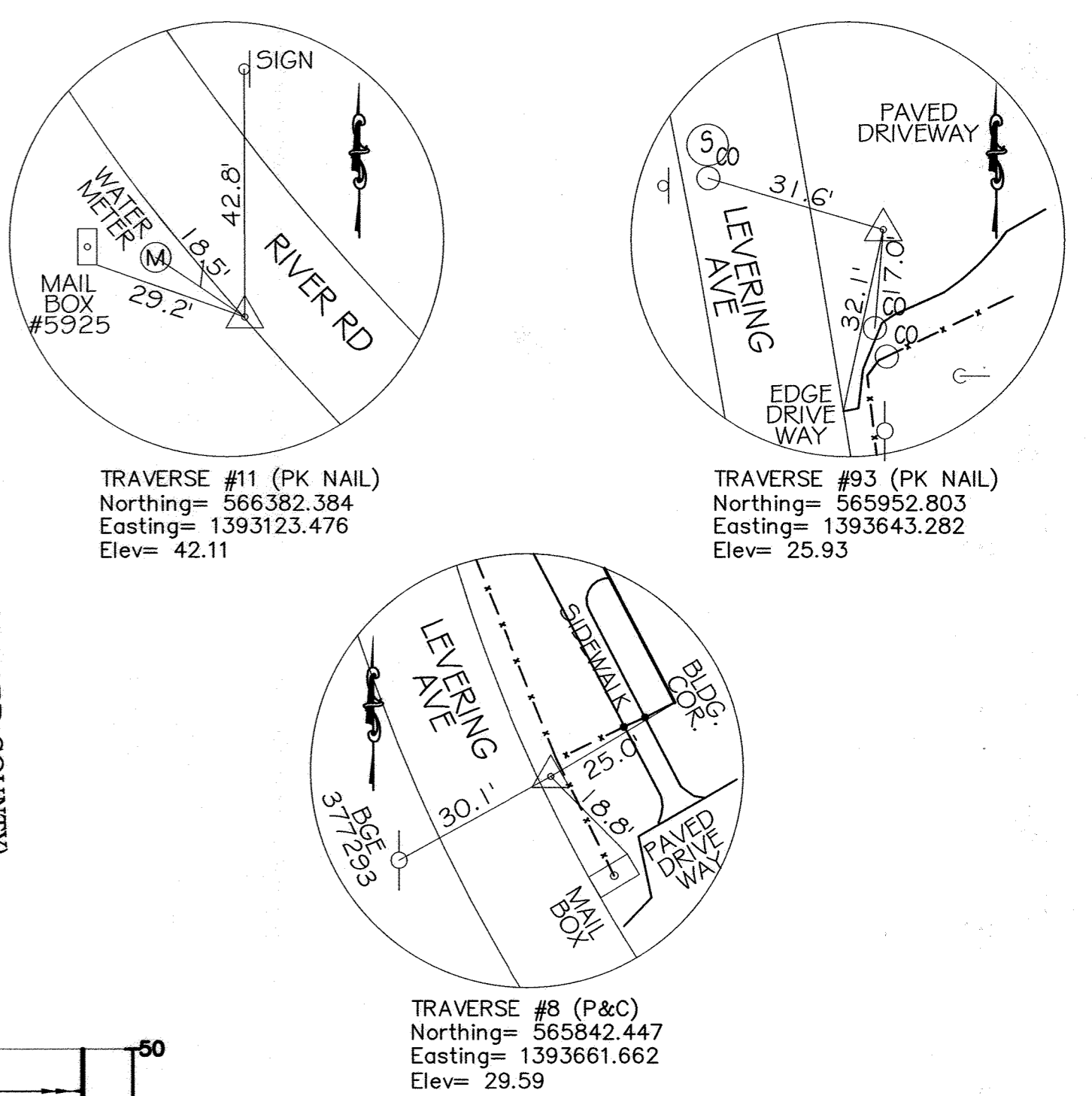
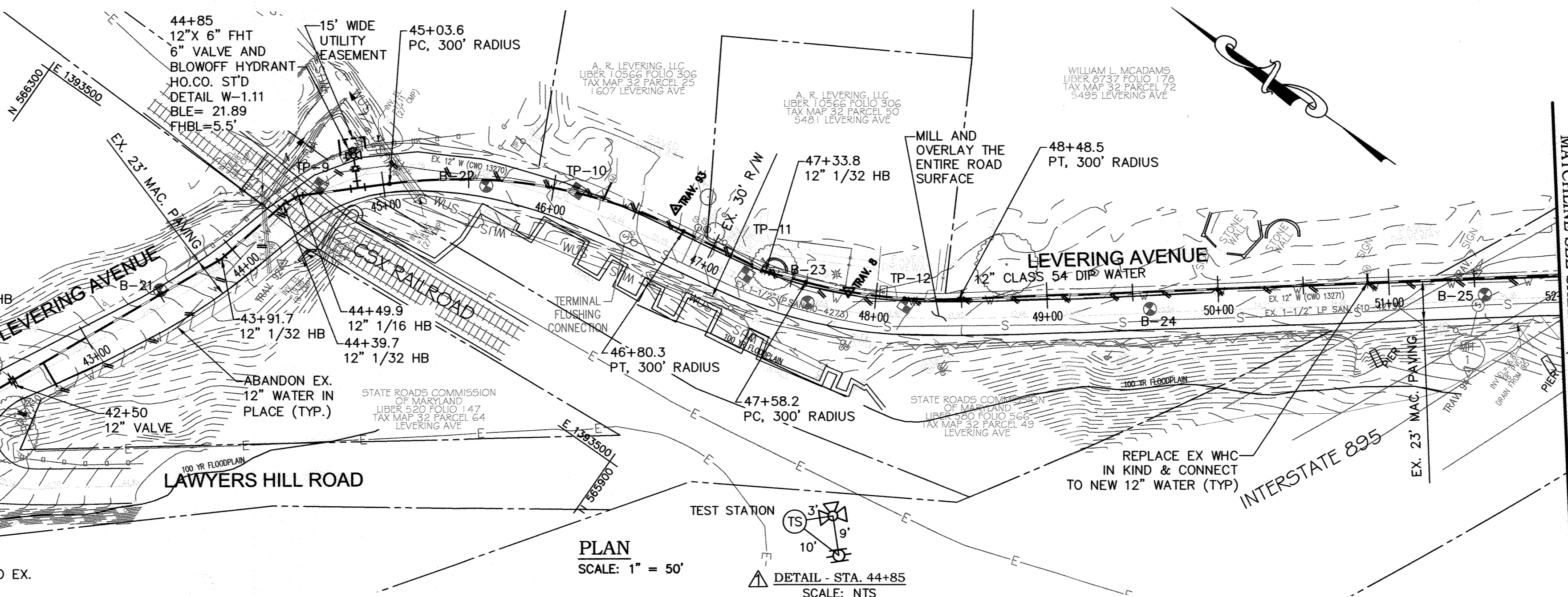
LEVERING AVENUE  
WATER MAIN

CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

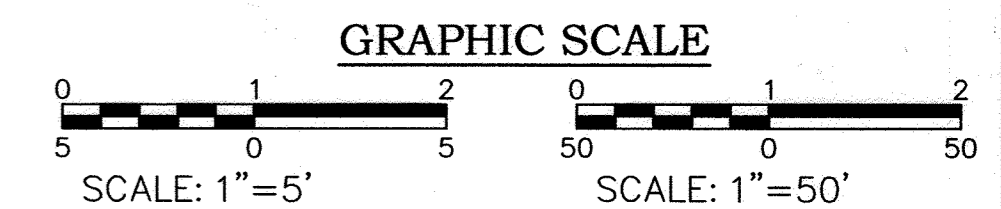
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 2 OF 18

TEST PIT SCHEDULE		
TEST PIT NO.	UTILITY	DEPTH TO TOP OF UTILITY
TP 9	12" WATER	5.25'
TP 10	12" WATER	4.63'
TP 11	12" WATER	3.98'
TP 12	12" WATER	3.80'



WATER MAIN STAKE-OUT SCHEDULE			
STATION	DESCRIPTION	NORTHING	EASTING
39+13.8	12"x8" TEE	566427.48	1393098.84
40+75.2	12" 1/8" HB	566312.49	1393212.08
40+95.6	12" 1/8" HB	566292.05	1393211.93
41+25.3	12" 1/8" HB	566270.84	1393232.60
41+43.7	12" 1/8" HB	566270.48	1393251.05
41+84.9	12" 1/16" HB	566240.77	1393279.62
42+50	12" VALVE	566213.38	1393338.65
43+91.7	12" 1/32" HB	566153.73	1393467.21
44+39.7	12" 1/32" HB	566142.40	1393513.83
44+49.9	12" 1/16" HB	566138.07	1393523.15
44+85	12"x6" FHT	566112.28	1393546.85
45+03.6	PC, 300' RADIUS	566098.57	1393559.45
46+80.3	PT, 300' RADIUS	565941.63	1393635.00
47+33.8	12" 1/32" HB	565888.82	1393643.21
47+58.2	PC, 300' RADIUS	565865.93	1393651.57
48+48.5	PT, 300' RADIUS	565787.00	1393694.80



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 1/16/2020.

KCI TECHNOLOGIES PROJECT No.: 01071378.34

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Charles J. Butler* 7/1/13  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas J. Butler* 7/1/17  
CHIEF, BUREAU OF ENGINEERING DATE

*Charles J. Butler* 7/1/17  
CHIEF, BUREAU OF UTILITIES DATE

*Thomas J. Butler* 7/1/17  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

**KCI TECHNOLOGIES**

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FAX: (410) 316-7817  
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STATE OF MARYLAND  
QUIRINA WALKER  
PROFESSIONAL ENGINEER  
No. 31363  
12/1/2020

DES:	GW, KJ
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CHK:	TW
DATE:	SEPT. 2019
JER:	AS-BUILT
BY:	NO.
NO.	
REVISION	
DATE	12/1/20

**WATER MAIN PLAN**  
STA. 39+00 TO STA. 52+00

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

**AS-BUILT REPLACEMENT SHEET**

**LEVERING AVENUE WATER MAIN**

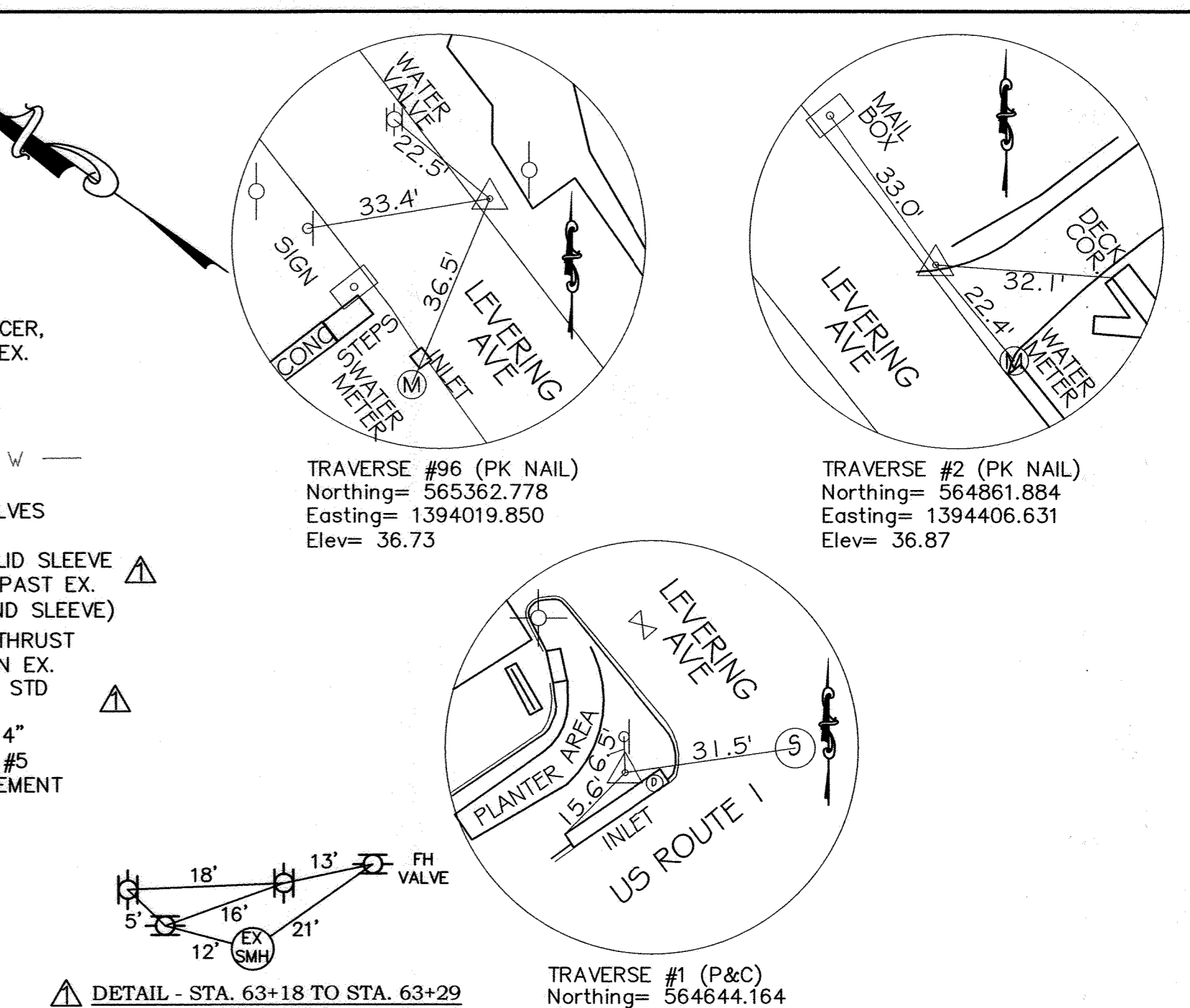
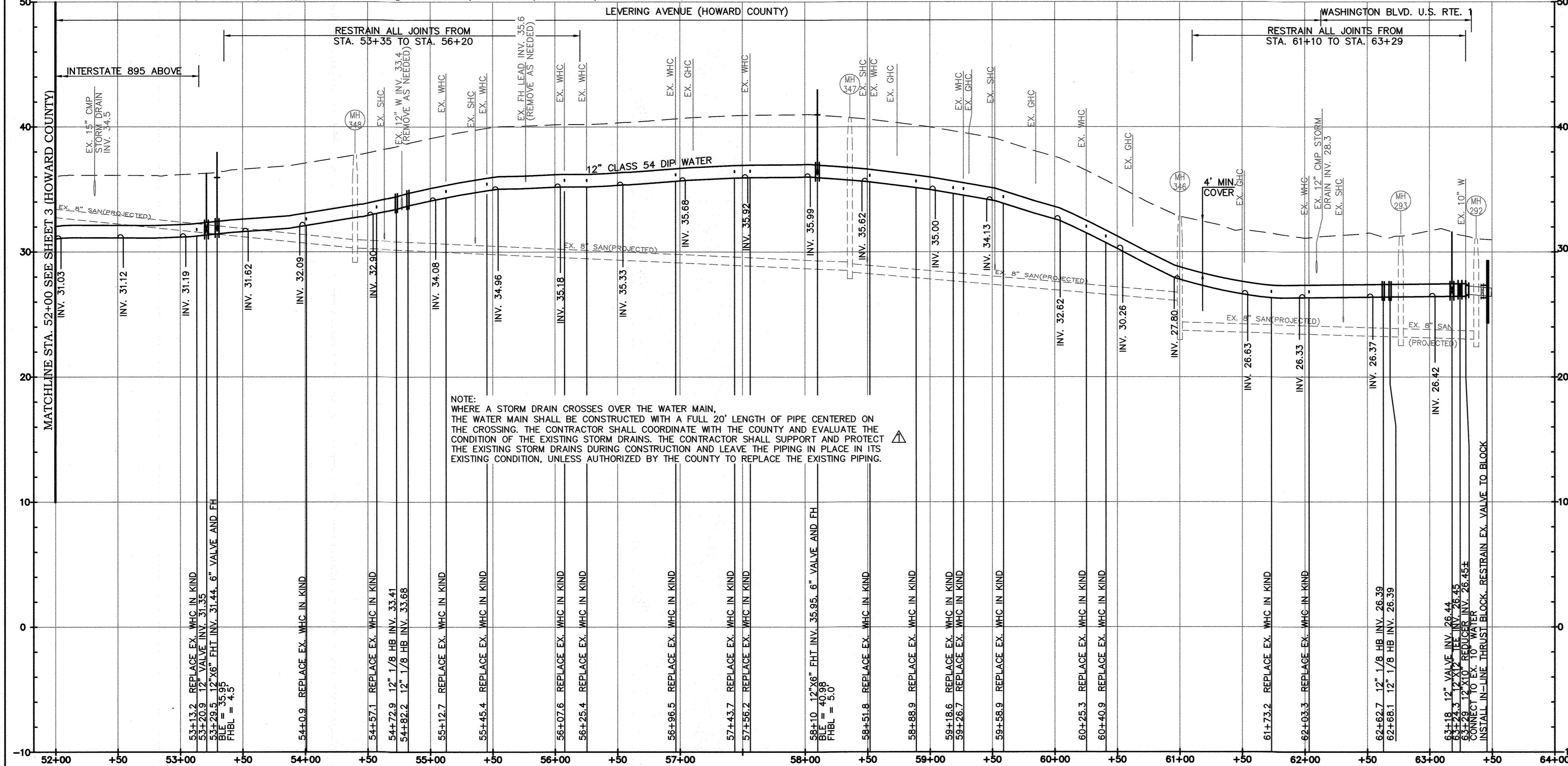
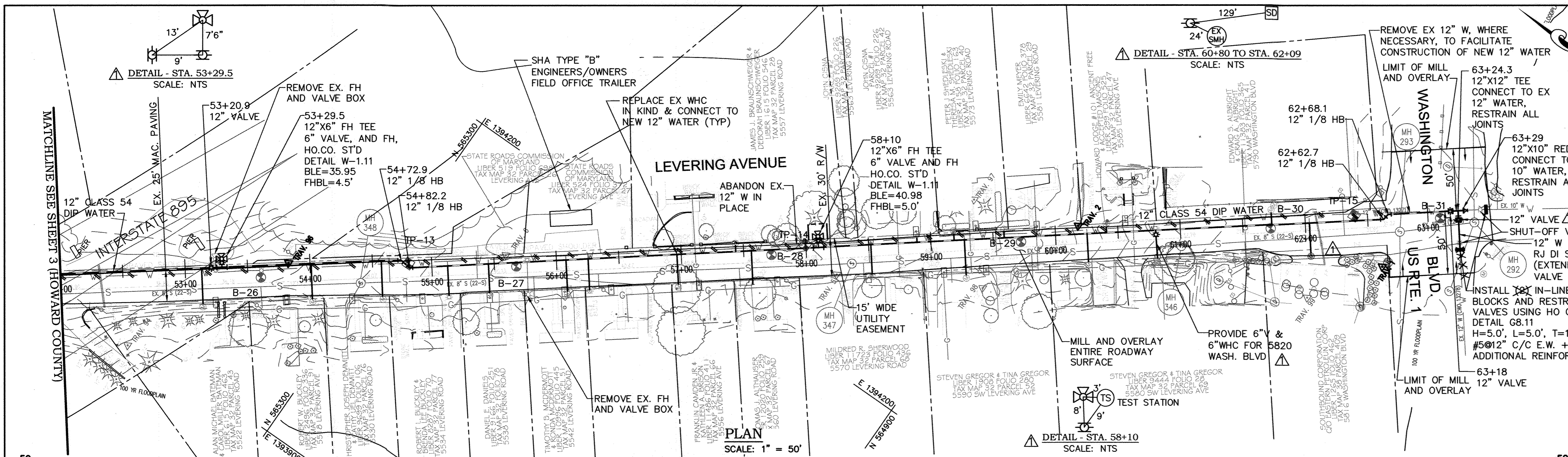
CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

ELECTION DISTRICT NO. 1  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 3 OF 18

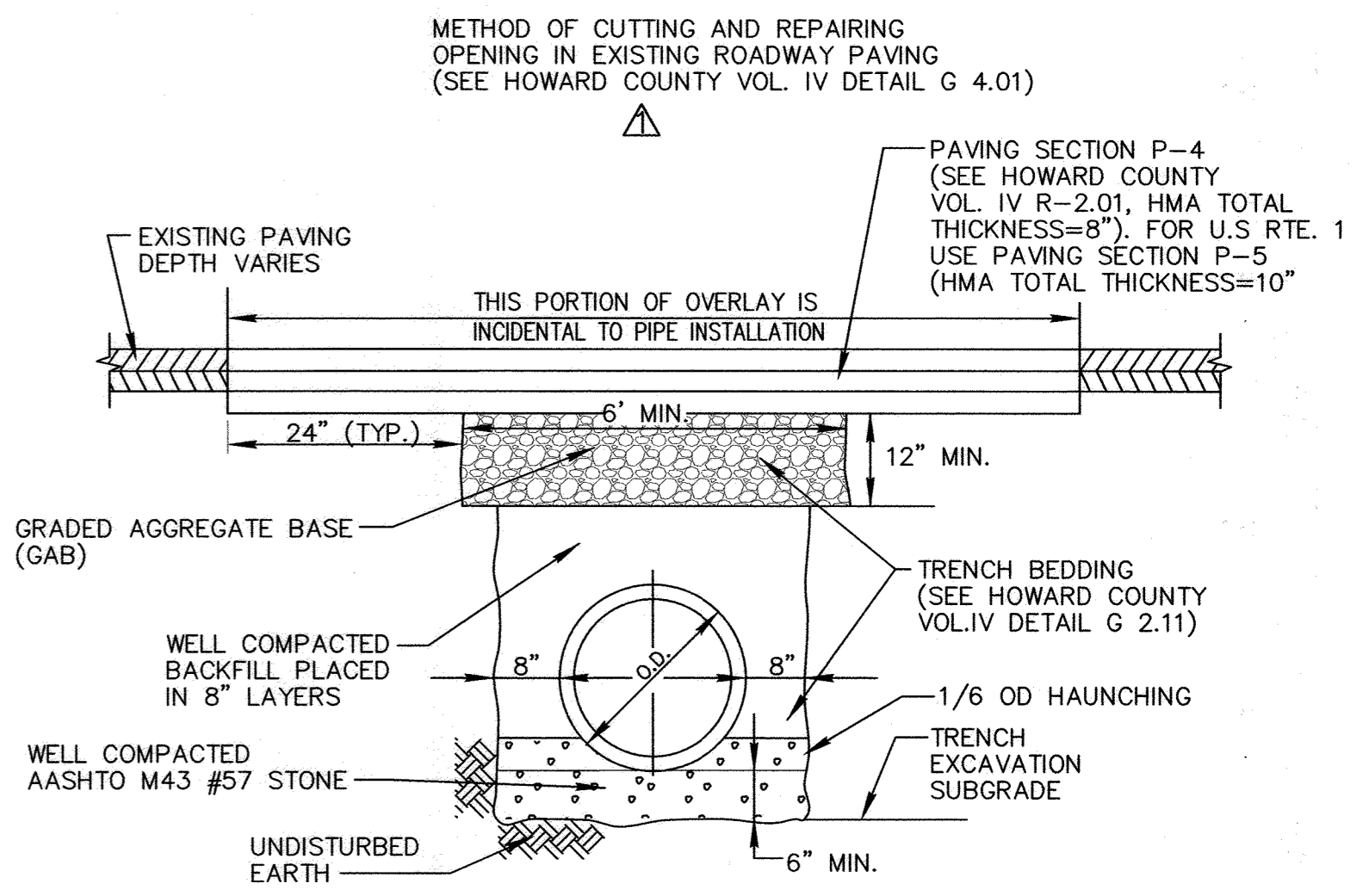
KCI TECHNOLOGIES PROJECT No.: 01071378.34

Doc 04, 2020 - 2:35pm User: jordan.nong  
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**WATER MAIN STAKE-OUT SCHEDULE**

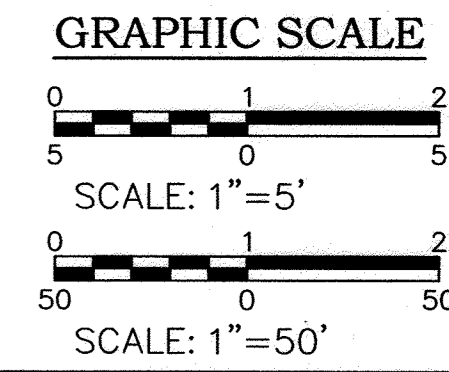
STATION	DESCRIPTION	NORTHING	EASTING
53+20.9	12" VALVE	565411.34	1393981.32
53+29.5	12"x6" FHT	565404.52	1393986.51
54+72.9	12" 1/8 HB	565290.47	1394073.52
54+82.2	12" 1/8 HB	565281.34	1394072.37
58+10	12"x6" FHT	565022.46	1394273.49
62+62.7	12" 1/8 HB	564664.88	1394551.28
62+68.1	12" 1/8 HB	564664.22	1394556.58
63+18	12" VALVE	564624.90	1394587.18
63+24.3	12" x 12" TEE	564619.89	1394591.08



- DETAIL: TRENCH FOR DIP PIPE \***  
NO SCALE  
\*BASED ON HOWARD COUNTY STANDARD DETAIL G2.11
- NOTES:  
1. UTILITY CONSTRUCTION SECTION 1000  
2. BACKFILLING SECTION 1000.03.07  
3. MILL AND OVERLAY TO THE WIDTH AS INDICATED ON THE PLAN. MILL AND OVERLAY SHALL COVER THE PERMANENT TRENCH REPAIR.  
4. SEE PLAN FOR ADDITIONAL MILL AND OVERLAY LIMITS.  
5. THE CONTRACTOR SHALL FURNISH PERMANENT PAVEMENT MARKINGS IN ACCORDANCE WITH MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATION SECTION 550 AND SECTION 951. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR THIS ITEM, THE COST SHALL BE INCLUDED.

**TEST PIT SCHEDULE**

TEST PIT NO.	UTILITY	DEPTH TO TOP OF UTILITY
TP 13	12" WATER	4.16'
TP 14	12" WATER	3.84'
TP 15	12" WATER	7.00'



**PROFILE**  
SCALE: HORIZ - 1" = 50'  
VERT. - 1" = 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. 31363, Expiration Date 1/16/2020.

**AS-BUILT REPLACEMENT SHEET**

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Janey Van* 7/1/13  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas & Butler* 7/1/17  
CHIEF, BUREAU OF ENGINEERING DATE

*Chris* 7/1/17  
CHIEF, BUREAU OF UTILITIES DATE

*W.D.* 7/1/17  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES

936 Reisterstown Road  
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Fax: (410) 316-7817  
www.kci.com

STATE OF MARYLAND  
JENNIFER WALKER  
PROFESSIONAL ENGINEER  
NO. 31363  
12/1/2020

DES: GW, KJ	DATE: SEPT. 2019
DRN: KJ	
CHK: TW	
JER	AS-BUILT
BY	NO.
REVISION	DATE
12/1/20	

WATER MAIN PLAN  
STA. 52+00 TO STA. 63+33

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

LEVERING AVENUE  
WATER MAIN

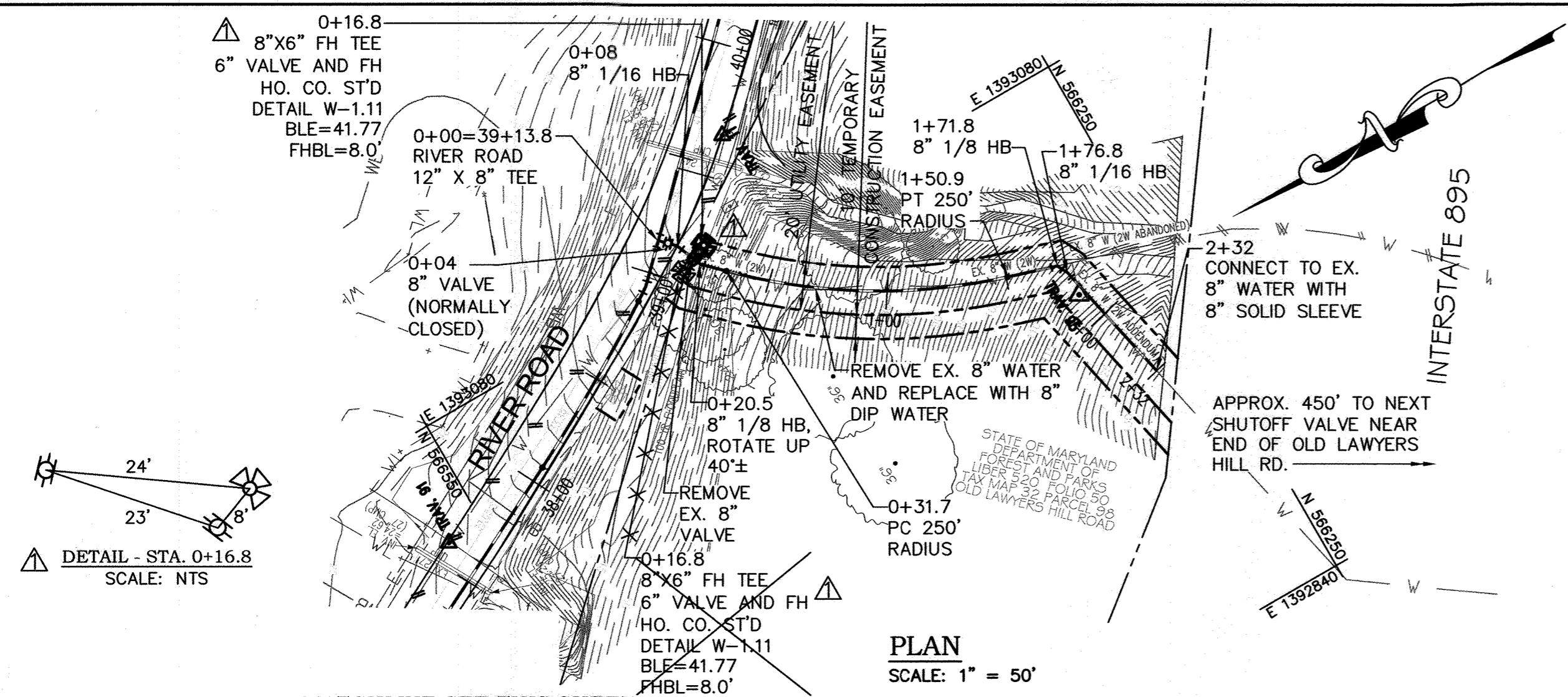
CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

ELECTION DISTRICT NO. 1  
HOWARD COUNTY, MARYLAND

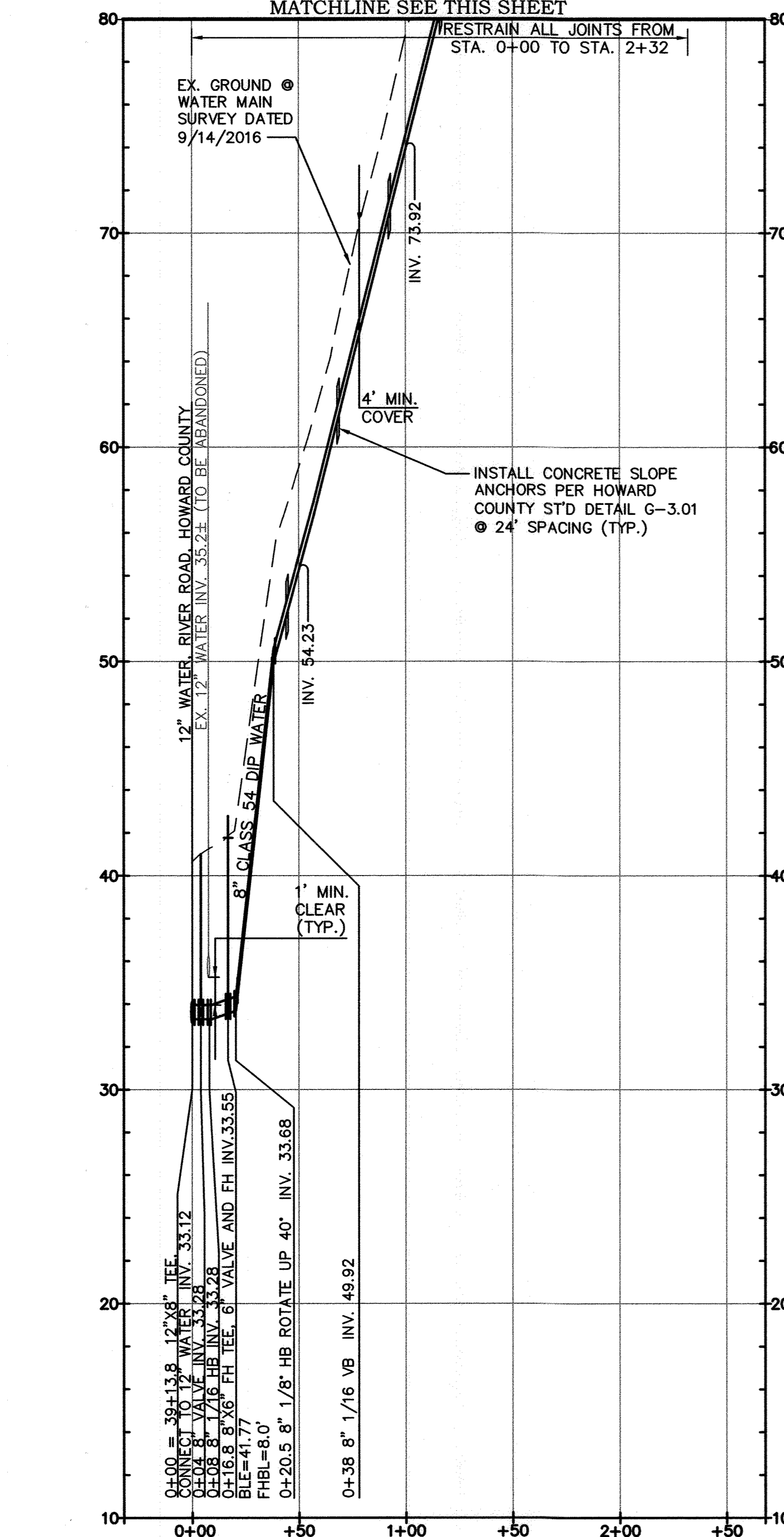
SCALE AS SHOWN  
SHEET 4 OF 18

KCI TECHNOLOGIES PROJECT No.: 01071378.34

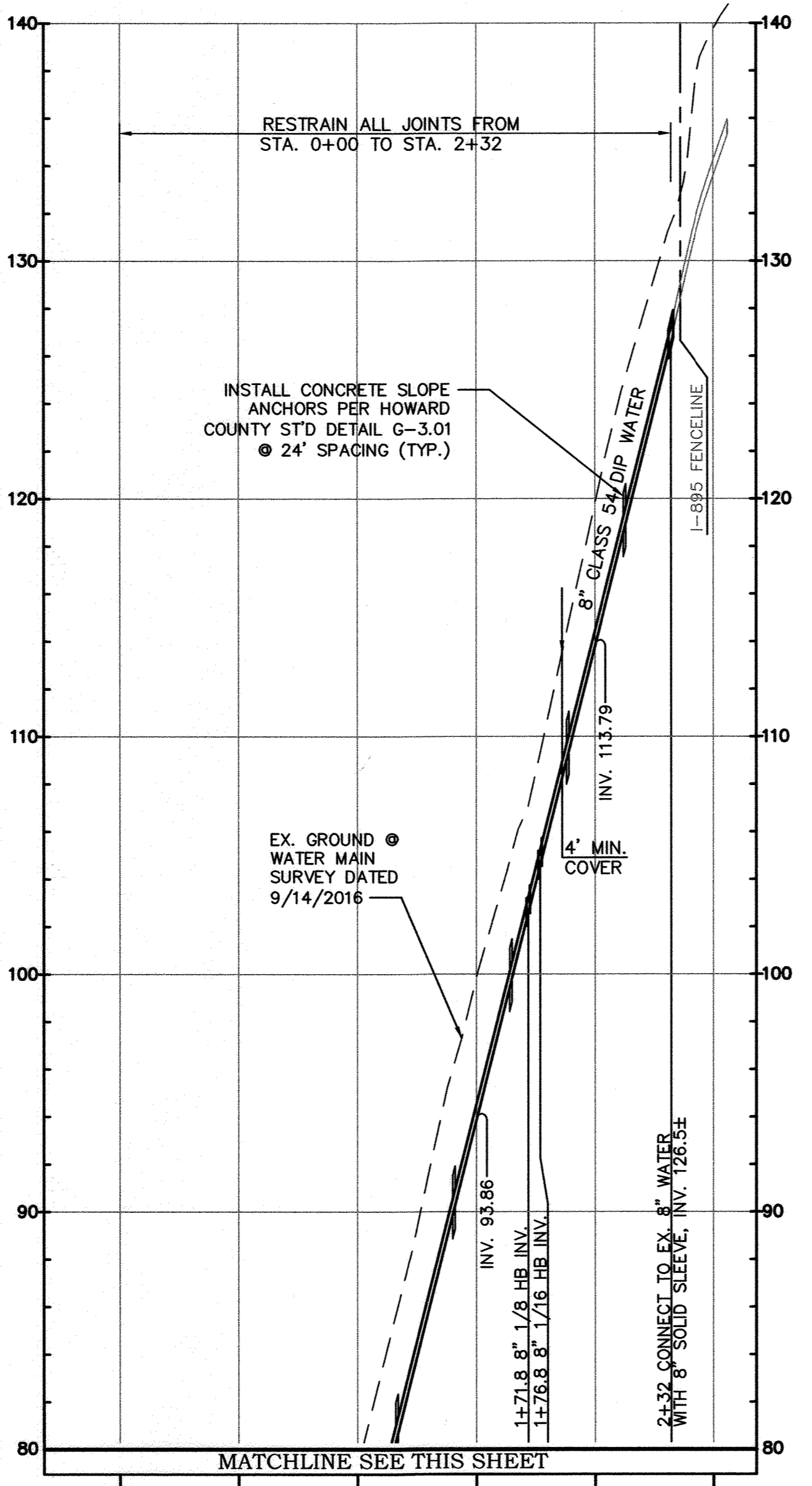
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PLAN  
SCALE: 1" = 50'

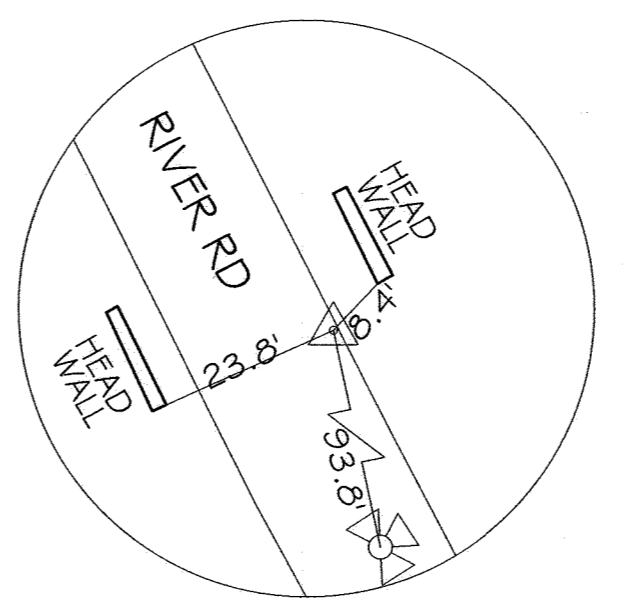


PROFILE  
SCALE: HORIZ - 1" = 50'  
VERT. - 1" = 5'

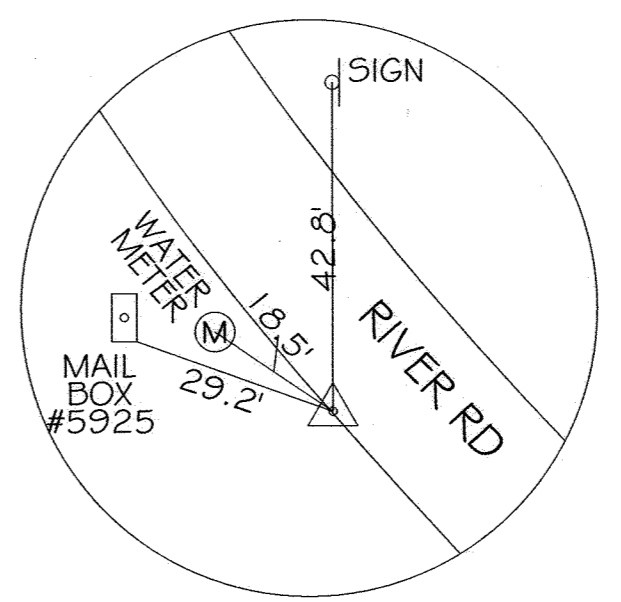


PROFILE  
SCALE: HORIZ - 1" = 50'  
VERT. - 1" = 5'

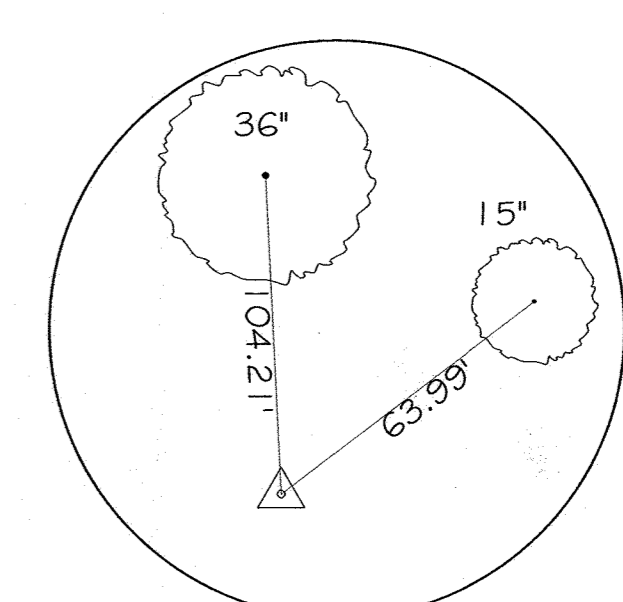
PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 31363, Expiration Date 1/16/2020.



TRAVERSE #91 (PK NAIL)  
Northing= 566566.421  
Easting= 1393033.294  
Elev= 28.37



TRAVERSE #11 (PK NAIL)  
Northing= 566382.384  
Easting= 1393123.476  
Elev= 42.11



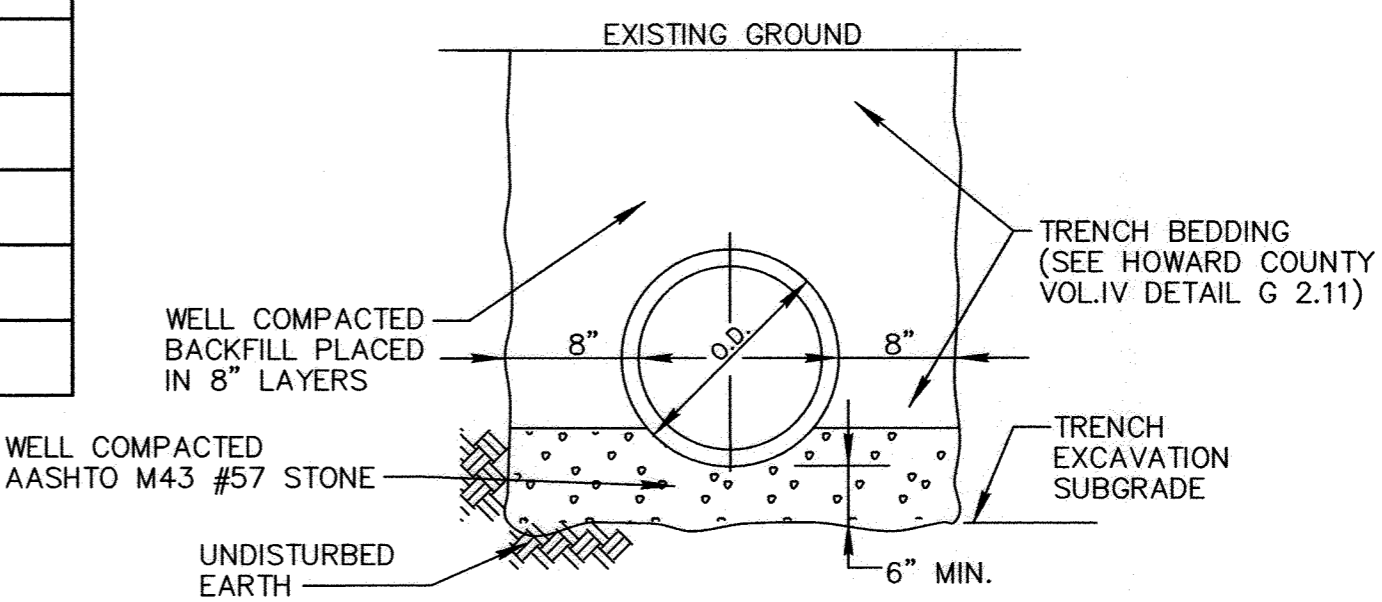
TRAVERSE #95  
Northing= 566286.479  
Easting= 1392991.377  
Elev= 114.11

LEVERING AVE. 12" WATER MAIN CP # W-8300  
CONTRACT # 4762

ADDRESS	LOCATION 1	MEASUREMENT	LOCATION 2	MEASUREMENT
5518 LEVERING ROAD	EX. F.H.	39'	INLINE VALVE @ LEVER. RD.	29'
5522 LEVERING ROAD	EX. SMH @ LEVER. RD.	41'	EX. F.H.	82'
5530 LEVERING ROAD	EX. SMH @ LEVER. RD.	22'	WHC @ 5534	54'
5534 LEVERING ROAD	EX. SMH @ LEVER. RD.	73'	WHC @ 5530	54'
5538 LEVERING ROAD	STORM DRAIN INLET	21'	WHC @ 5534	31'
5542 LEVERING ROAD	STORM DRAIN INLET	3'	WHC @ 5548	63'
5552 LEVERING ROAD	STORM DRAIN INLET	63'	EX. F.H.	146'
5556 LEVERING ROAD	WHC @ 5552	26'	EX. F.H.	120'
5560 LEVERING ROAD	EX. SMH @ LEVER. RD.	79'	EX. F.H.	63'
5570 LEVERING ROAD	EX. SMH @ LEVER. RD.	18'	EX. F.H.	52'
5580 LEVERING ROAD	EX. SMH @ LEVER. RD.	92'	EX. F.H.	124'
5580 LEVERING ROAD	EX. SMH @ LEVER. RD.	76'	INLINE VALVE @ LEVER. RD.	62'
5816 LEVERING ROAD	STORM DRAIN INLET	13'	GAS MH @ LEVER. RD.	40'
5790 LEVERING ROAD	STORM DRAIN INLET	31'	WHC @ 5816	50'
5585 LEVERING ROAD	EX. SMH @ LEVER. RD.	59'	INLINE VALVE @ LEVER. RD.	36.5'
5581 LEVERING ROAD	EX. F.H.	149'	INLINE VALVE @ LEVER. RD.	122.5'
5573 LEVERING ROAD	EX. F.H.	105'	WHC @ 5581	40'
5563 LEVERING ROAD	EX. F.H.	75'	EX. SMH @ LEVER. RD.	57'
5557 LEVERING ROAD	EX. F.H.	68'	INLINE VALVE @ LEVER. RD.	68'
5925 LEVERING ROAD	EX. F.H.	7'	TEST STATION FOR EX. F.H.	10'

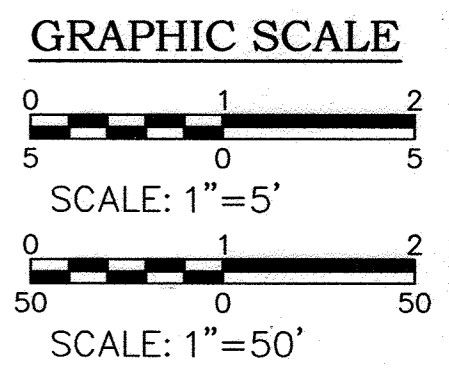
WATER MAIN STAKE-OUT SCHEDULE

STATION	DESCRIPTION	NORTHING	EASTING
0+00	12" X 8" TEE	566427.48	1393098.84
0+04	8" VALVE	566424.57	1393095.88
0+08	8" 1/16 HB	566421.82	1393093.06
0+16.8	8"x6" FH TEE	566418.53	1393084.95
0+20.5	8" 1/8 HB	566417.14	1393081.52
0+31.7	PC 250' RADIUS	566409.16	1393073.67
1+50.9	PT 250' RADIUS	566308.58	1393012.70
1+71.8	8" 1/8 HB	566288.37	1393006.29
1+76.8	8" 1/16 HB	566286.07	1393001.84
2+32	CONNECT TO EX. 8" WATER	566274.30	1392947.70



DETAIL: TRENCH FOR DIP PIPE \*  
NO SCALE  
\*BASED ON HOWARD COUNTY STANDARD DETAIL G2.11

NOTES:  
1. UTILITY CONSTRUCTION SECTION 1000  
2. BACKFILLING SECTION 1000.03.07



AS-BUILT REPLACEMENT SHEET

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Jerry Van* 7/1/13  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas & Butler* 7/1/17  
CHIEF, BUREAU OF ENGINEERING DATE

*Chris* 7/10/17  
CHIEF, BUREAU OF UTILITIES DATE

*Tom* 7/10/17  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

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www.kci.com

STATE OF MARYLAND  
JEROME W. WALKER  
PROFESSIONAL ENGINEER  
No. 31363  
12/1/2020

DES: GW, KJ  
DRN: KJ  
CHK: TW  
DATE: SEPT. 2019

JER  
BY NO. AS-BUILT  
REVISION  
DATE: 12/1/20

WATER MAIN PLAN  
STA. 0+00 TO STA. 2+32  
(PART OF OLD LAWYERS HILL RD.)

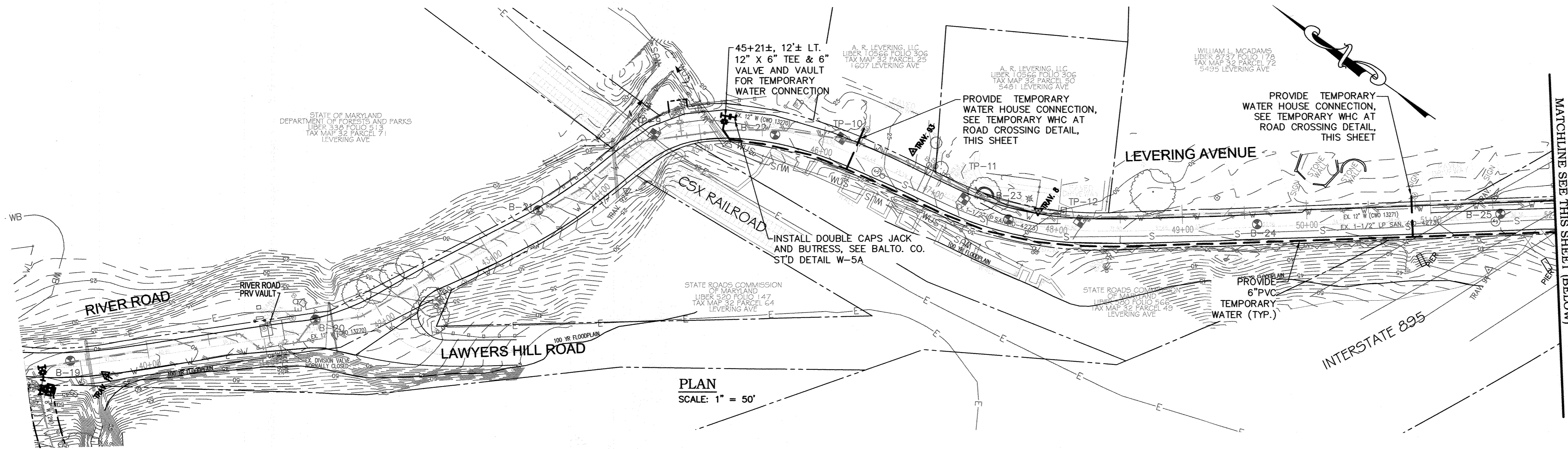
600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

LEVERING AVENUE WATER MAIN  
CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761  
ELECTION DISTRICT NO. 1  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 5 OF 18

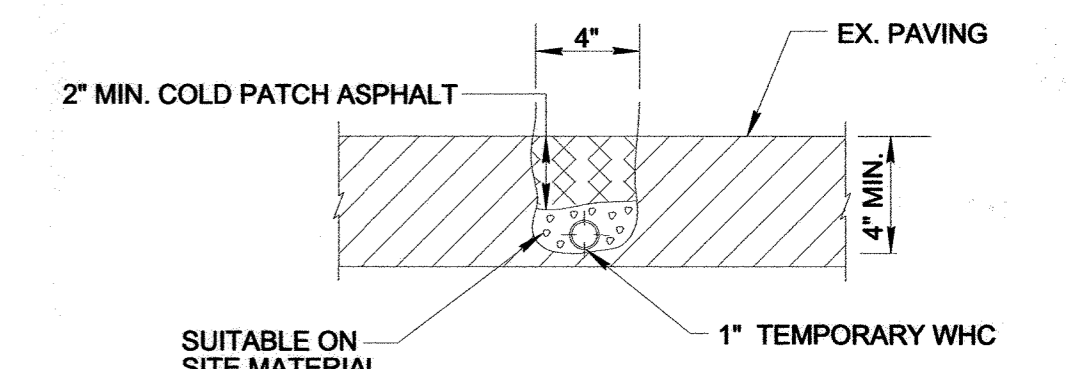
**TEMPORARY WATER SERVICE SEQUENCE OF CONSTRUCTION**

1. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES FOR THE INSTALLATION OF THE TEMPORARY WATER SERVICE PER SHIA STANDARD DETAILS.
2. AS MENTIONED IN NOTE 8 IN THE SUGGESTED SEQUENCE OF CONSTRUCTION ON SHEET 2 OF 10, AFTER INSTALLING THE 2 IN-LINE THRUST BLOCKS AT STATIONS 63+24 AND 63+45, CLOSE THE 2 EXISTING VALVES AT THE INTERSECTION OF WASHINGTON BLVD. AND AT STATION 41+03. INSTALL A 12" X 6" TEE AND DOUBLE CAPS NEAR STATION 45+17.
3. INSTALL A 6" VALVE RESTRAINED TO THE 12" X 6" TEE. CLOSE THE 6" VALVE AND OPEN THE 2 VALVES AT WASHINGTON BLVD. AND AT STATION 41+03.
4. CONSTRUCT THE TEMPORARY WATER SERVICE AS SHOWN ON THIS SHEET, INCLUDING THE TEMPORARY FIRE HYDRANTS. SUBMIT A PLAN FOR CONNECTING THE 6" TEMPORARY WATER SERVICE TO THE EXISTING 6" WHC FOR 5820 WASHINGTON BLVD TO THE ENGINEER FOR APPROVAL.
5. OPEN THE 6" VALVE ON THE TEMPORARY WATER SERVICE PIPING, CHLORINATE AND FLUSH THE NEW 6" TEMPORARY WATER PIPING THROUGHOUT.
6. TRANSFER THE WATER HOUSE CONNECTIONS WITHIN THE LIMITS OF THE TEMPORARY WATER SERVICE PIPING.
7. REMOVE THE TRAFFIC CONTROL DEVICES FOR THE TEMPORARY WATER SERVICE INSTALLATION AND SET UP TEMPORARY TRAFFIC CONTROL DEVICES FOR THE NEW PERMANENT 12" WATER MAIN INSTALLATION.
8. PROCEED WITH THE INSTALLATION OF THE NEW PERMANENT WATER MAIN SYSTEM IN LEVERING AVE. AS PROPOSED IN THE OVERALL WORK PLAN ON SHEET 2 OF 10.
9. AFTER TESTING AND CHLORINATING THE NEW 12" WATER MAIN, TRANSFER THE WATER HOUSE CONNECTIONS TO THE NEW WATER MAIN. CLOSE THE 6" VALVE ON THE TEMPORARY WATER SERVICE AND REMOVE THE TEMPORARY WATER PIPING, HYDRANTS AND TEMPORARY WATER HOUSE CONNECTIONS. IF PIPING WAS INSTALLED SUCH THAT THE LIMITS OF PAVING ENCROACH UPON PRIVATE PROPERTY, PERMISSION SHALL BE OBTAINED FROM THE PROPERTY OWNER PRIOR TO WORK.

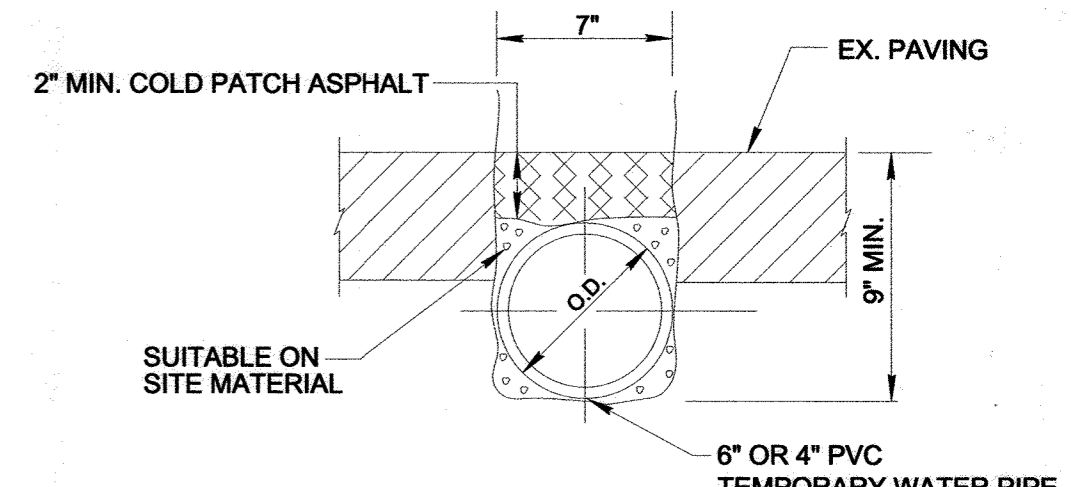


**PLAN**  
SCALE: 1" = 50'

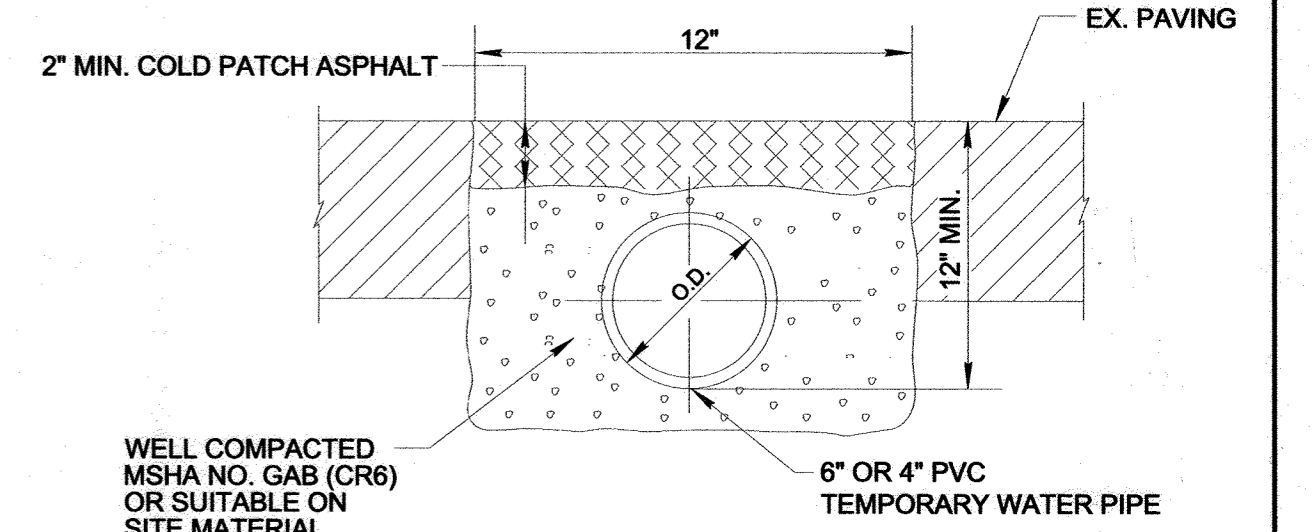
**NOTE:**  
THE CONTRACTOR SHALL PLACE THE TEMPORARY WATER SYSTEM AS SHOWN ON THE PLAN, HOWEVER THE PIPE MAY BE MOVED ON TO PRIVATE PROPERTY IF THAT IS MORE CONVENIENT AND PERMISSION IS GRANTED BY THE PROPERTY OWNER.



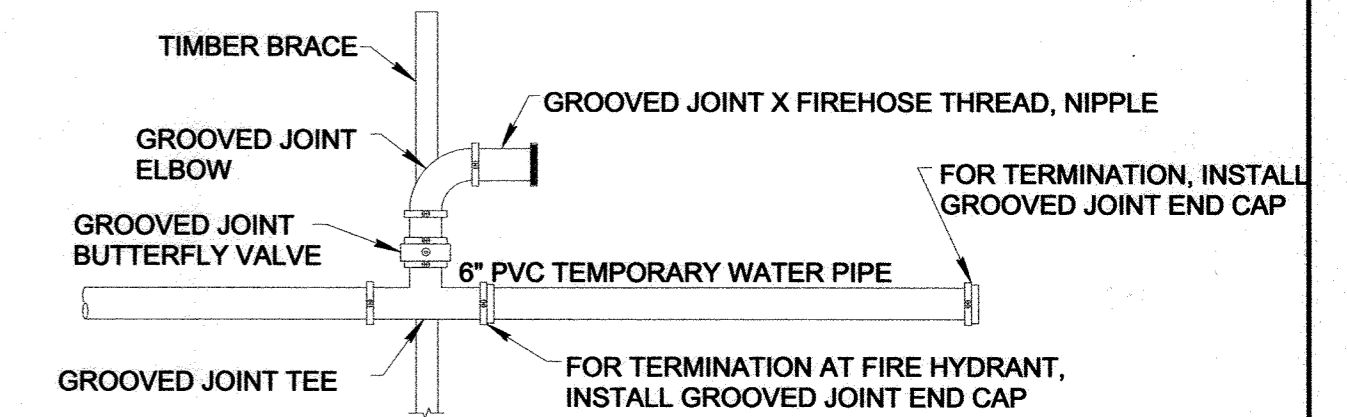
**TEMPORARY WHC AT ROAD CROSSING**  
DETAIL  
NO SCALE



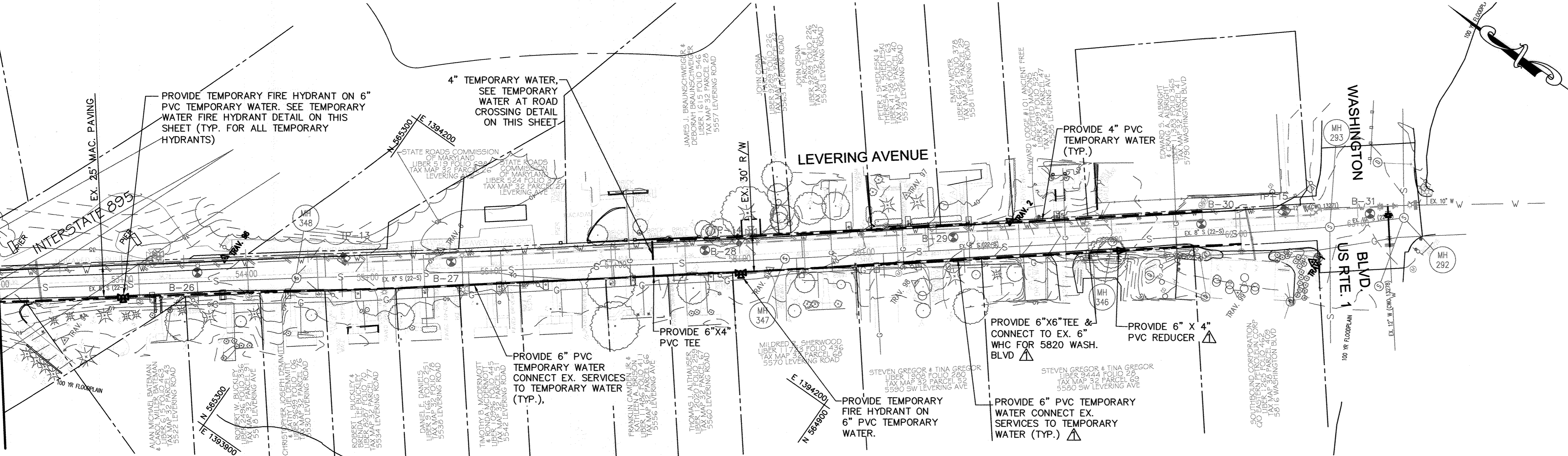
**TEMPORARY WATER AT DRIVEWAY CROSSING**  
DETAIL  
NO SCALE



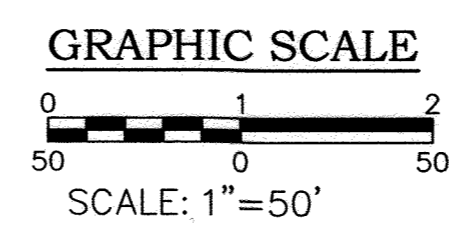
**TEMPORARY WATER AT ROAD CROSSING**  
DETAIL  
NO SCALE



**TEMPORARY WATER FIRE HYDRANT**  
DETAIL  
NO SCALE



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



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 1/16/2020.

**AS-BUILT REPLACEMENT SHEET**

**LEVERING AVENUE WATER MAIN**

CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Janey Van* 7/1/13  
DIRECTOR OF PUBLIC WORKS DATE  
*Charles King* 7/10/17  
CHIEF, BUREAU OF UTILITIES DATE

*Monroe & Butler* 7/1/17  
CHIEF, BUREAU OF ENGINEERING DATE  
*David* 9/16/17  
CHIEF, UTILITY DESIGN DIVISION DATE

**KCI TECHNOLOGIES**  
ENGINEERS  
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CONSTRUCTION MANAGERS  
936 Rappahannock Road  
Sparks, MD 21152  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
www.kci.com

STATE OF MARYLAND  
**QUINCY WALKER**  
PROFESSIONAL ENGINEER  
12/1/2020

DES:	GW, KJ				
DRN:	KJ				
CHK:	TW				
DATE:	SEPT. 2019				
BY:	JER	NO.	AS-BUILT		
REVISION:					
DATE:	12/1/20				

**TEMPORARY WATER PLAN AND DETAILS**

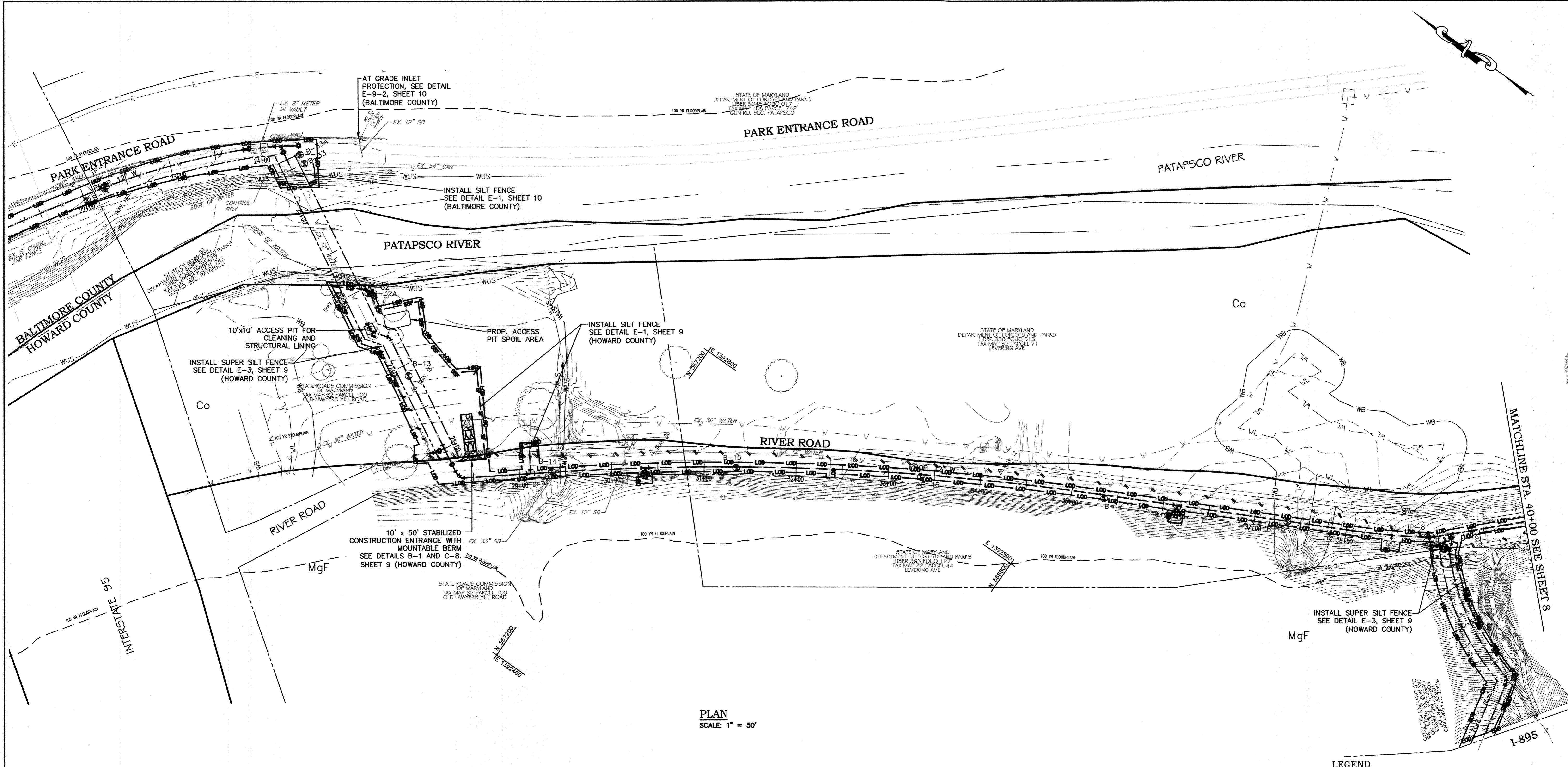
600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

SCALE AS SHOWN  
SHEET 6 OF 18

KCI TECHNOLOGIES PROJECT No.: 01071378.34  
Dec 04, 2020 - 2:37pm User: jordan.ng M:\2007\01071378.34\Drawings\0107137834\_1M-006 Howard County.dwg

KCI TECHNOLOGIES PROJECT No.: 01071378.34

Jun 22, 2017 - 11:18am User: kwan.jackson M:\2007\01071378.34\Drawings\01071378.34-007 PLAN 1 Howard County.dwg



PLAN  
SCALE: 1" = 50'

SOIL ABBREVIATIONS

- Co = CODORUS AND HATBORO SILT LOAMS Kw=0.32
- GbC = GLADSTONE LOAM Kw=0.20
- Ha = HATBORO-CODORUS SILT LOAMS Kw=0.32
- MgF = MANOR-BANNERTOWN SANDY LOAMS Kw=0.24
- UTD = URBAN LAND-UDORTHERTS COMPLEX Kw=0.28

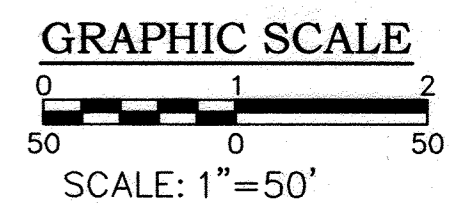
PROPOSED

- WATER MAIN
- FIRE HYDRANT
- VALVE
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE W/ MOUNTABLE BERM
- AT GRADE INLET PROTECTION

EXISTING

- DECIDUOUS TREE
- CONIFEROUS TREE
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING UNDERGROUND ELECTRIC

**AS-BUILT**  
DATE 12-01-2020



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 1/16/2018.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* DATE *7/10/17*  
DIRECTOR OF PUBLIC WORKS

*[Signature]* DATE *7/10/17*  
CHIEF, BUREAU OF ENGINEERING

*[Signature]* DATE *7/10/17*  
CHIEF, BUREAU OF UTILITIES

*[Signature]* DATE *7/10/17*  
CHIEF, UTILITY DESIGN DIVISION

KCI TECHNOLOGIES

ENGINEERS  
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SCIENTISTS  
CONSTRUCTION MANAGERS

936 Ridgeway Road  
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FAX: (410) 316-7817  
www.kci.com

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 31363  
6/22/2017

DES:	GW, KJ				
DRN:	KJ				
CHK:	TW				
DATE:	JUNE, 2017				
BY:	JER	NO.	AS-BUILT		
REVISION:					
DATE:	12/1/20				

SEDIMENT AND EROSION CONTROL PLAN - 1

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

LEVERING AVENUE WATER MAIN

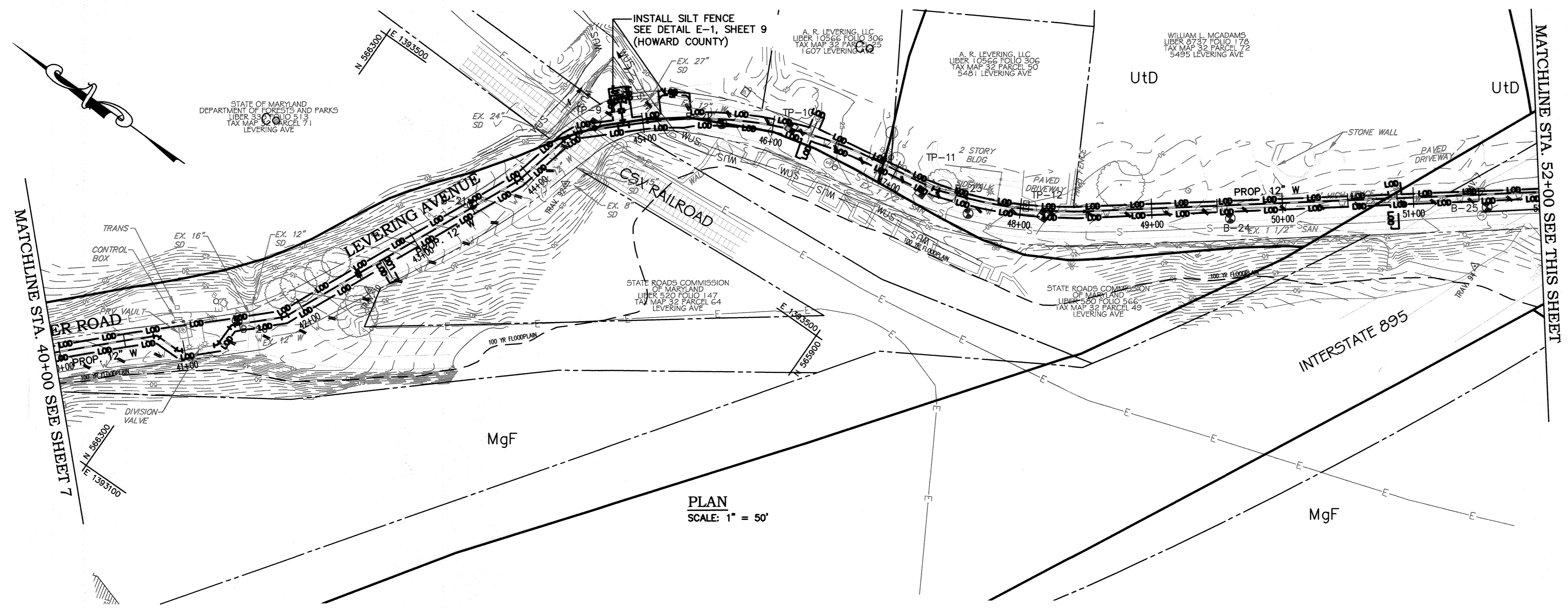
CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

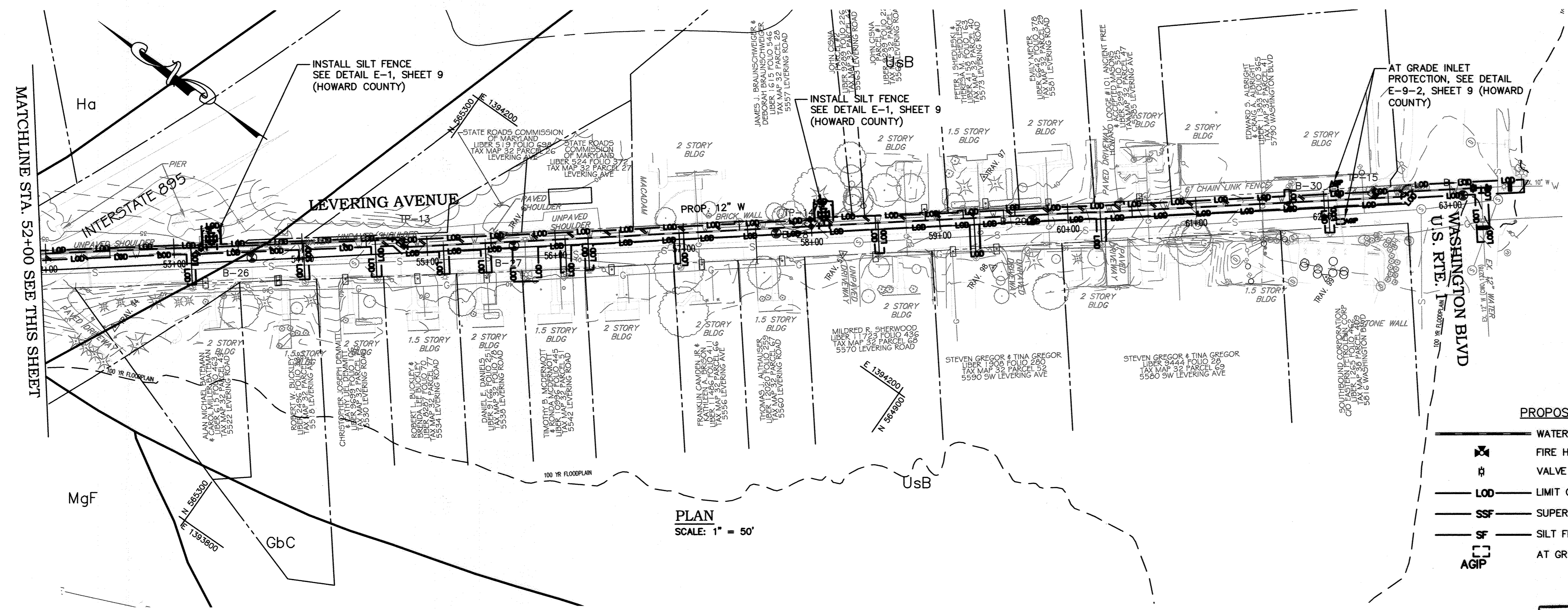
SCALE AS SHOWN  
SHEET 7 OF 18

KCI TECHNOLOGIES PROJECT No.: 01071378.34

Jun 22, 2017 - 11:19am User: kevin.jackson  
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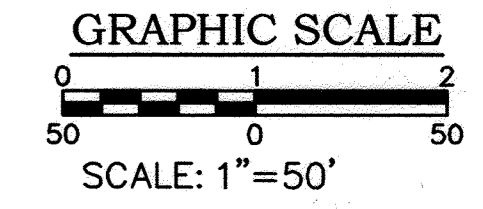
PLAN  
 SCALE: 1" = 50'



PLAN  
 SCALE: 1" = 50'

- SOIL ABBREVIATIONS**
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  - GbC = GLADSTONE LOAM Kw=0.20
  - Ha = HATBORO-CODORUS SILT LOAMS Kw=0.32
  - MgF = MANOR-BANNERTOWN SANDY LOAMS Kw=0.24
  - UtD = URBAN LAND-UDORTHERTS COMPLEX Kw=0.28

- LEGEND**
- |                                    |                                     |
|------------------------------------|-------------------------------------|
| <b>PROPOSED</b>                    | <b>EXISTING</b>                     |
| — W — WATER MAIN                   | ○ DECIDUOUS TREE                    |
| — FH — FIRE HYDRANT                | ⊗ CONIFEROUS TREE                   |
| — V — VALVE                        | ⊕ EXISTING FIRE HYDRANT             |
| — LOD — LIMIT OF DISTURBANCE       | ⊙ EXISTING VALVE                    |
| — SF — SUPER SILT FENCE            | — W — EXISTING WATER MAIN           |
| — SF — SILT FENCE                  | — G — EXISTING GAS MAIN             |
| — AGIP — AT GRADE INLET PROTECTION | — E — EXISTING UNDERGROUND ELECTRIC |



**AS-BUILT**  
 DATE 12-01-2020

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 1/16/2018.

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*David S. ...* 7/10/17  
 DATE  
 CHIEF, BUREAU OF UTILITIES

*Thomas J. Bull* 7/17/17  
 DATE  
 CHIEF, BUREAU OF ENGINEERING

*W.D.* 7/17/17  
 DATE  
 CHIEF, UTILITY DESIGN DIVISION

**KCI TECHNOLOGIES**

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 FAX: (410) 316-7817  
 www.kci.com

STATE OF MARYLAND  
 JOSHUA W. ...  
 PROFESSIONAL ENGINEER  
 License No. 31363  
 6/22/2017

DES:	GW, KJ				
DRN:	KJ				
CHK:	TW				
DATE:	JUNE, 2017				
BY:	JER	NO.	AS-BUILT	REVISION	DATE
					12/1/20

**SEDIMENT AND EROSION CONTROL PLAN - 2**

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

**LEVERING AVENUE WATER MAIN**

CAPITAL PROJECT No. W-8300  
 CONTRACT No. 44-4761

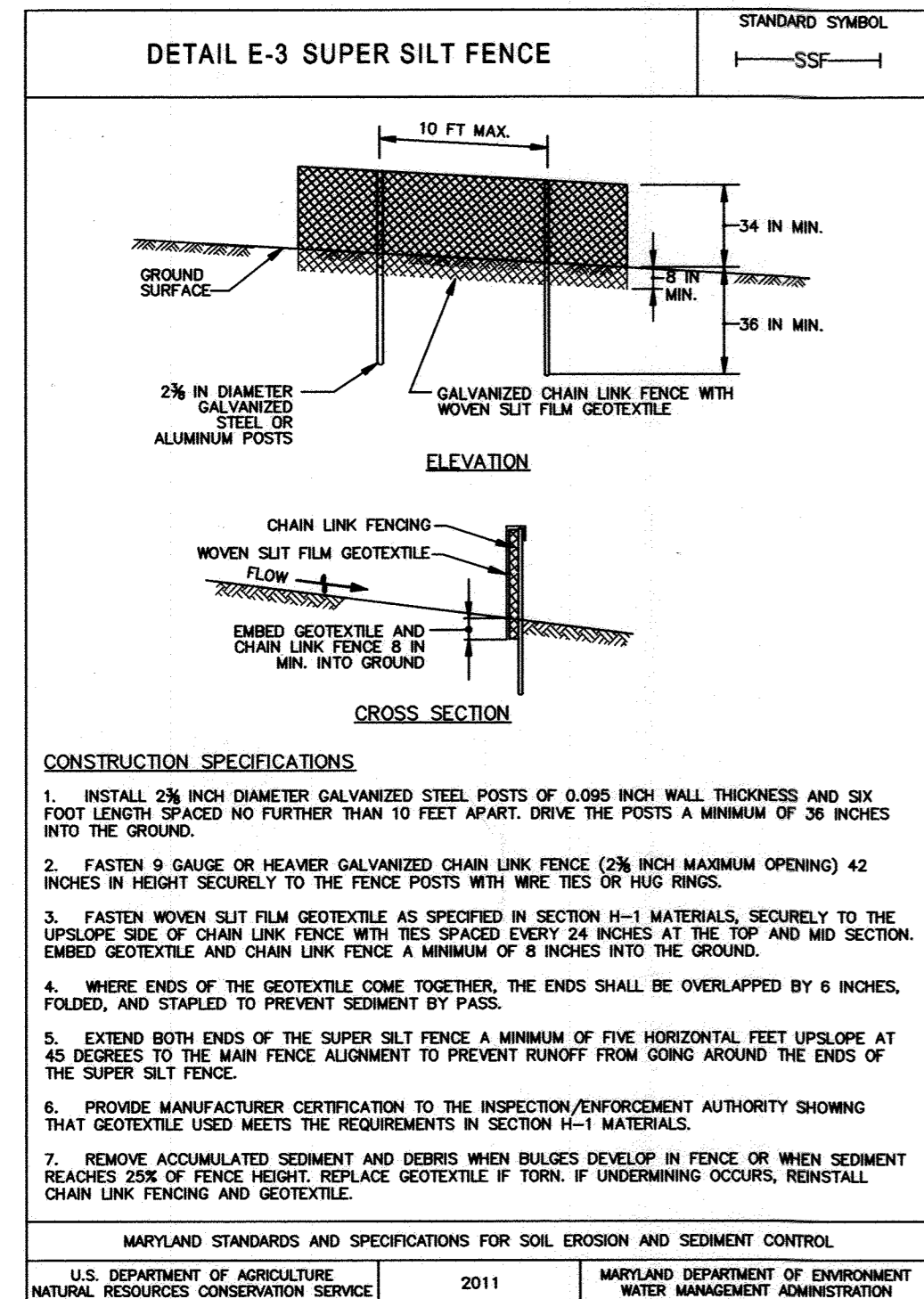
ELECTION DISTRICT NO. 1  
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
 SHEET 8 OF 18



KCI TECHNOLOGIES PROJECT No.: 01071378.34

June 22, 2017 - 11:18am User: kevin.jordan File: C:\2017\01071378\34\Drawings\01071378.34\_23c.dwg Howard County

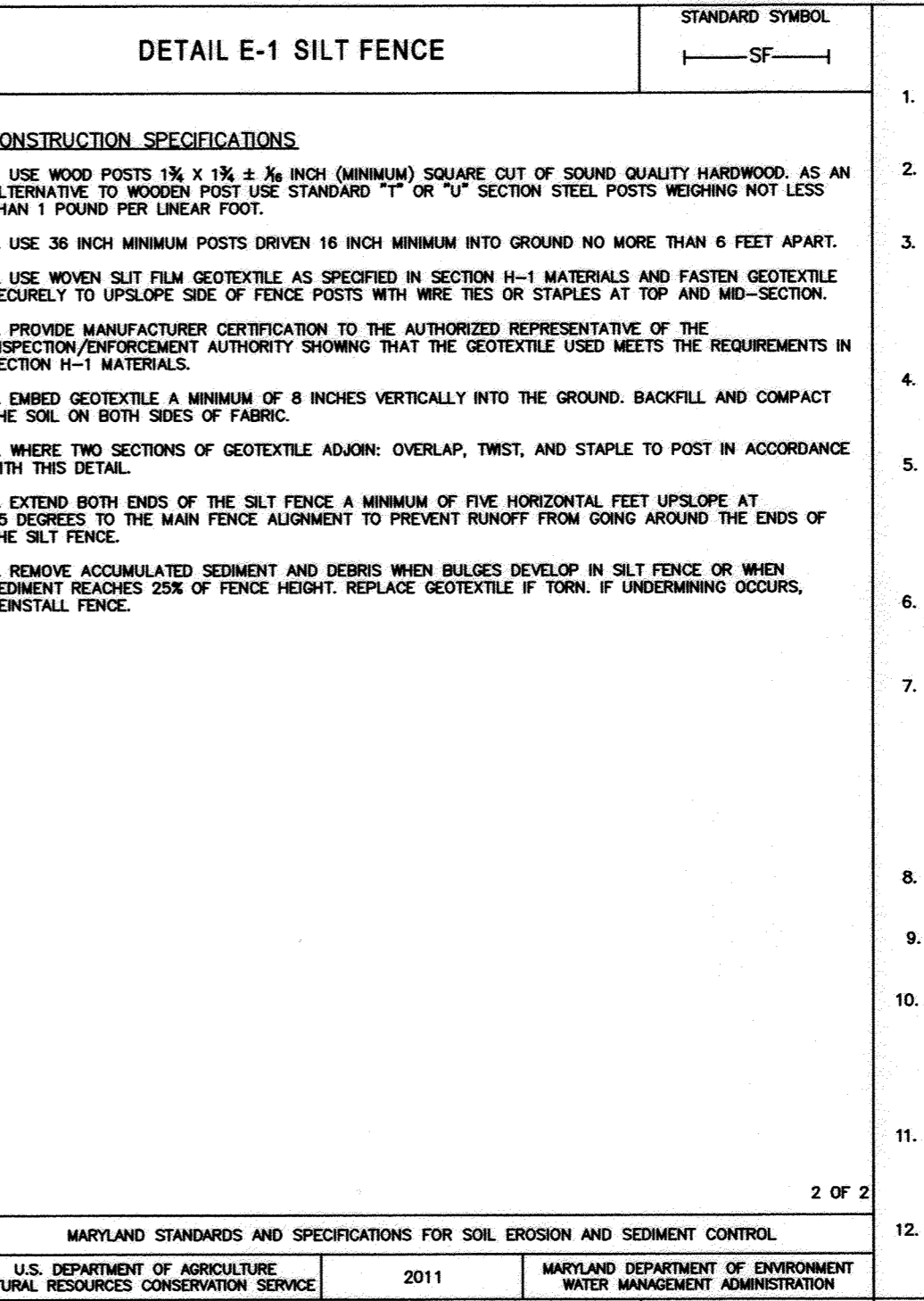
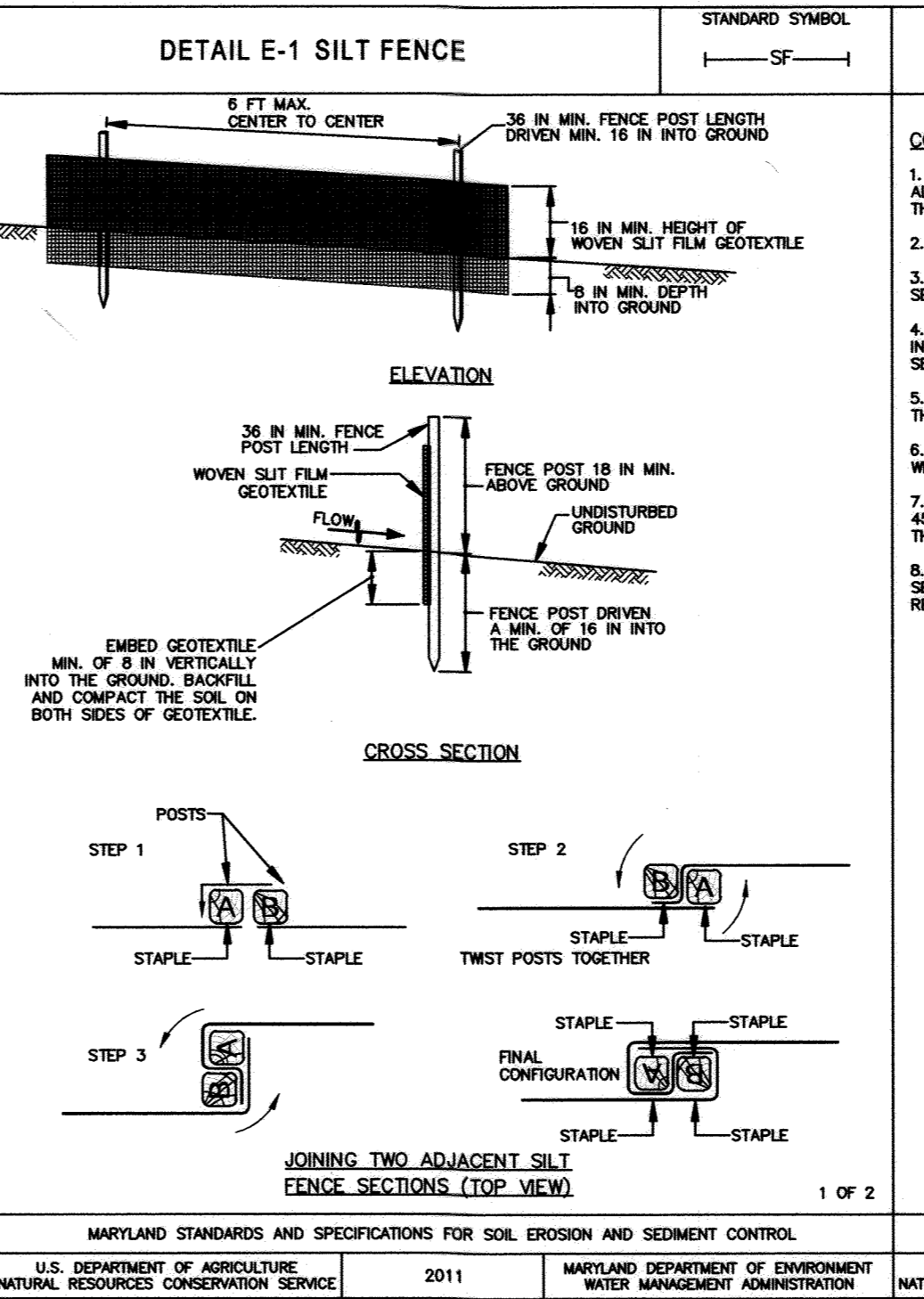
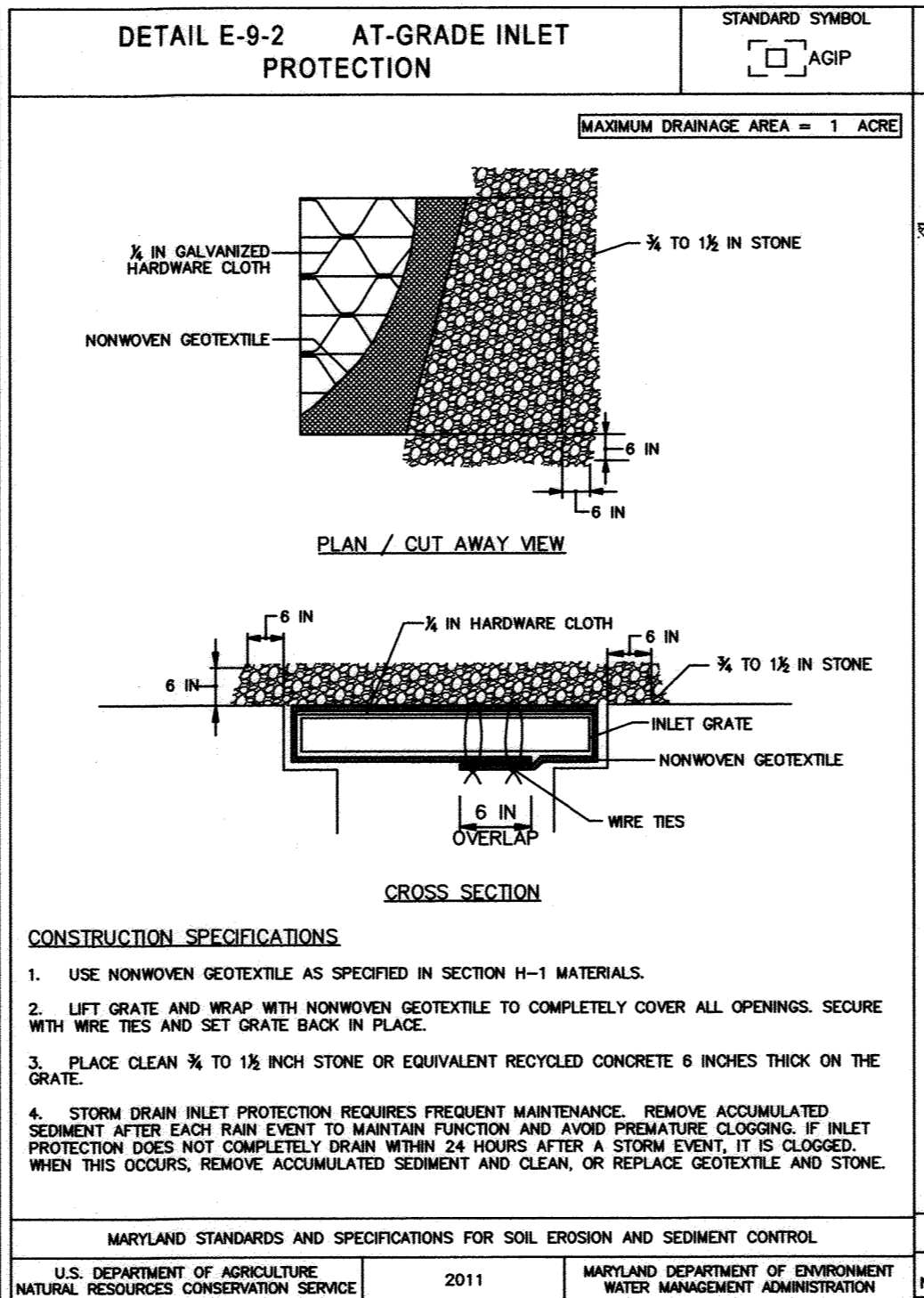


**SUPER SILT FENCE**

Design Criteria

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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.



**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. (315-1855).
- 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 REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1.
  - 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- 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 (SEC. 620.0) FOR PERMANENT SEEDINGS, SOD, TEMPORARY SEEDING AND MULCHING. 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	1.46 ACRES
AREA TO BE ROOFED OR PAVED	1.46 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.70 ACRES
TOTAL CUT	2355 CU. YDS.
TOTAL FILL	2245 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF THE DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
- CONTRACTOR SHALL PLACE EXCAVATED MATERIALS ON UPHILL SIDE OF TRENCH AND PLACE SILT FENCE ON DOWNHILL SIDE OF TRENCH.

**PERMANENT SEEDING NOTES**

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

**SEEDBED PREPARATION:** LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

**SOIL AMENDMENTS:** IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- PREFERRED** - APPLY 2 TONS PER ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14LBS/1000 SQ FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT.).
- ACCEPTABLE** - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT.) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

**SEEDING** - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

**MULCHING** - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT.) FOR ANCHORING.

**MAINTENANCE** - INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

**TEMPORARY SEEDING NOTES**

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

**SEEDBED PREPARATION:** LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

**SOIL AMENDMENTS:** - APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT.).

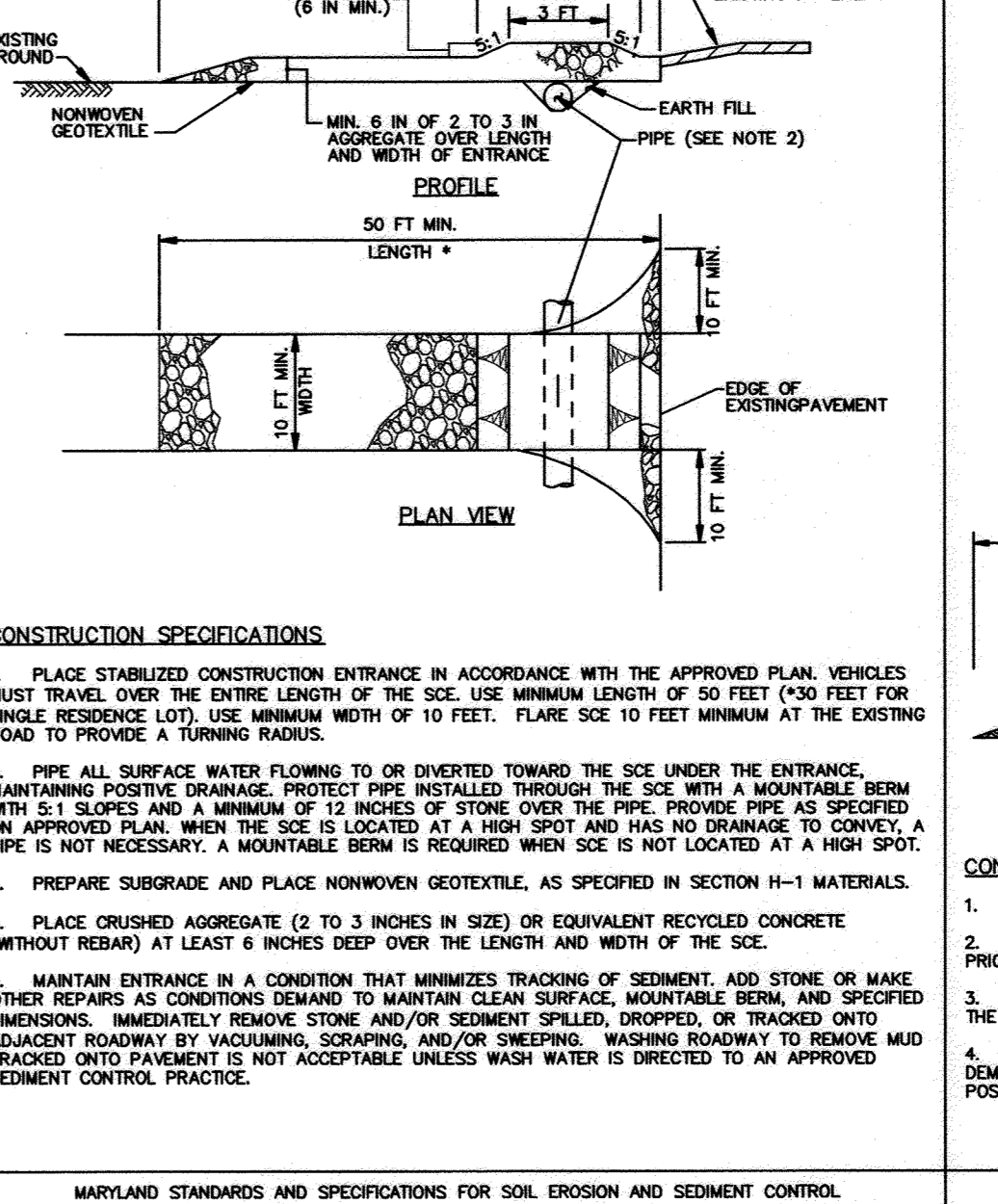
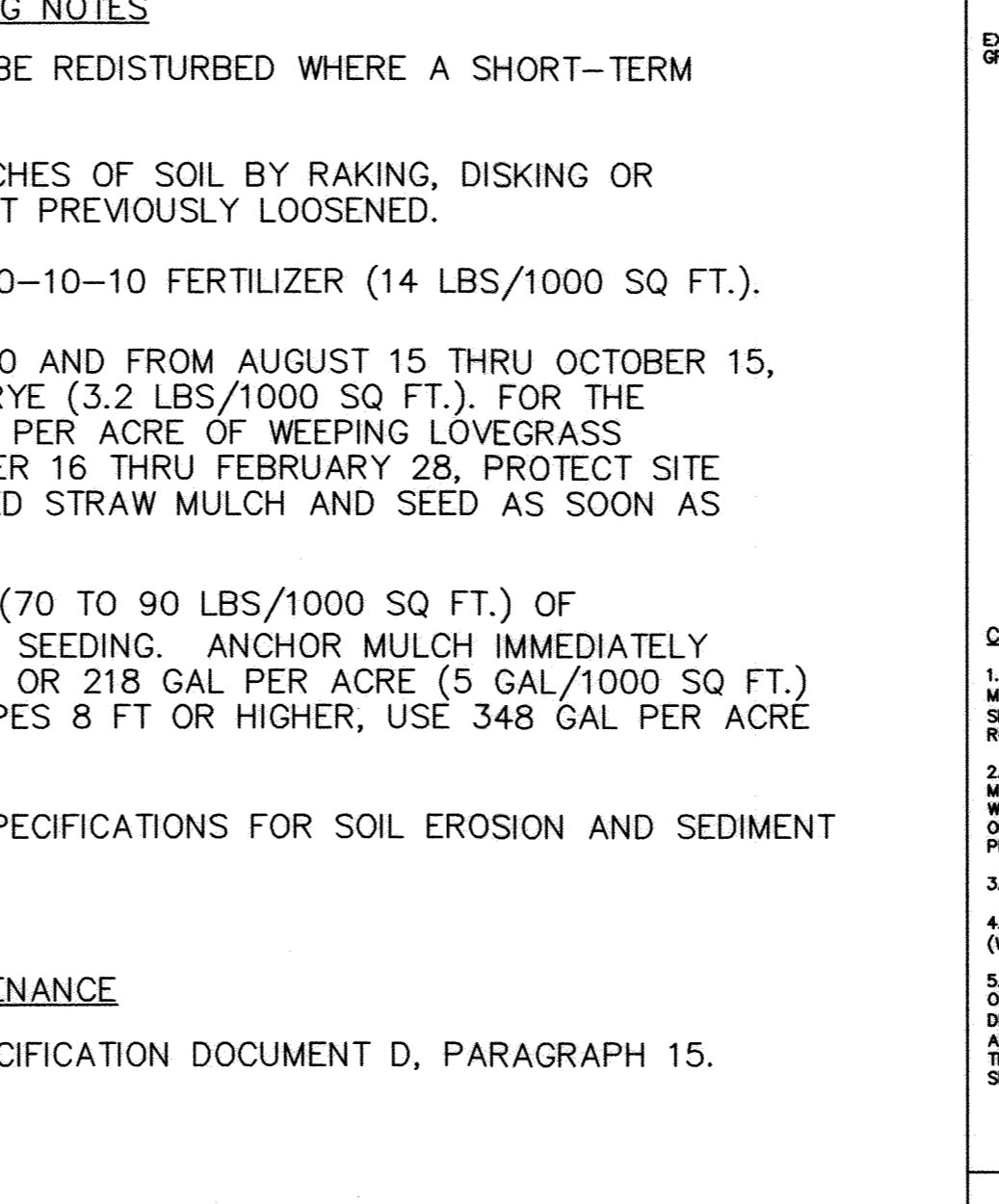
**SEEDING** - FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

**MULCHING** - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FT OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ FT.) FOR ANCHORING.

REFER TO THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

**TRAFFIC MAINTENANCE**

FOR TRAFFIC MAINTENANCE REQUIREMENTS SEE SPECIFICATION DOCUMENT D, PARAGRAPH 15.



**SEQUENCE OF CONSTRUCTION**

- OBTAIN GRADING PERMIT.
- REQUEST PRE-CONSTRUCTION MEETING ON-SITE WITH REPRESENTATIVE OF HOWARD COUNTY SOIL CONSERVATION.
- LAYOUT ALIGNMENT AT SITE. (2 DAYS)
- THE CONTRACTOR SHALL INSTALL SEDIMENT CONTROL DEVICES AT THE DIRECTION OF SEDIMENT CONTROL INSPECTOR.
- EXCAVATE TRENCH TO THE GRADE SPECIFIED ON THE PROFILE, INSTALL WATER MAIN AND BACKFILL AND STABILIZE TRENCH AND RESURFACE WITH BITUMINOUS PAVING AS APPROPRIATE (30 DAYS) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO 25' OF PIPE LENGTH OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER. 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 4 OF 9.
- 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.
- CLEAN UP CONSTRUCTION SITE. (1 DAY)
- REMOVE SEDIMENT CONTROL DEVICES AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR. (1 DAY)

**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 1/16/2018.

Stabilization must be completed within: a) 3 calendar days to all perimeter controls, all slopes 3:1 or greater and b) 7 calendar days to all other disturbances.  
Temp Seed - 3/1 to 5/15 and 8/1 to 10/15; Perm Seed 3/1 to 5/15 and 8/15 to 10/15

*MJR 7/15/17*

This plan revision must meet the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control Sections B-4-2, B-4-3, B-4-4, B-4-5, and where applicable Section B-4-8

*MJR 7/15/17*

**AS-BUILT**  
DATE 12-01-2020

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works DATE  
Chief, Bureau of Utilities DATE

Chief, Bureau of Engineering DATE  
Chief, Utility Design Division DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES

936 Ridgeway Road  
Sparks, MD 21152  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
www.kci.com

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
6/22/2017

DES: GW, KJ					
DRN: KJ					
CHK: TW					
DATE: JUNE, 2017					
BY	NO.	AS-BUILT	REVISION	DATE	
				12/1/20	

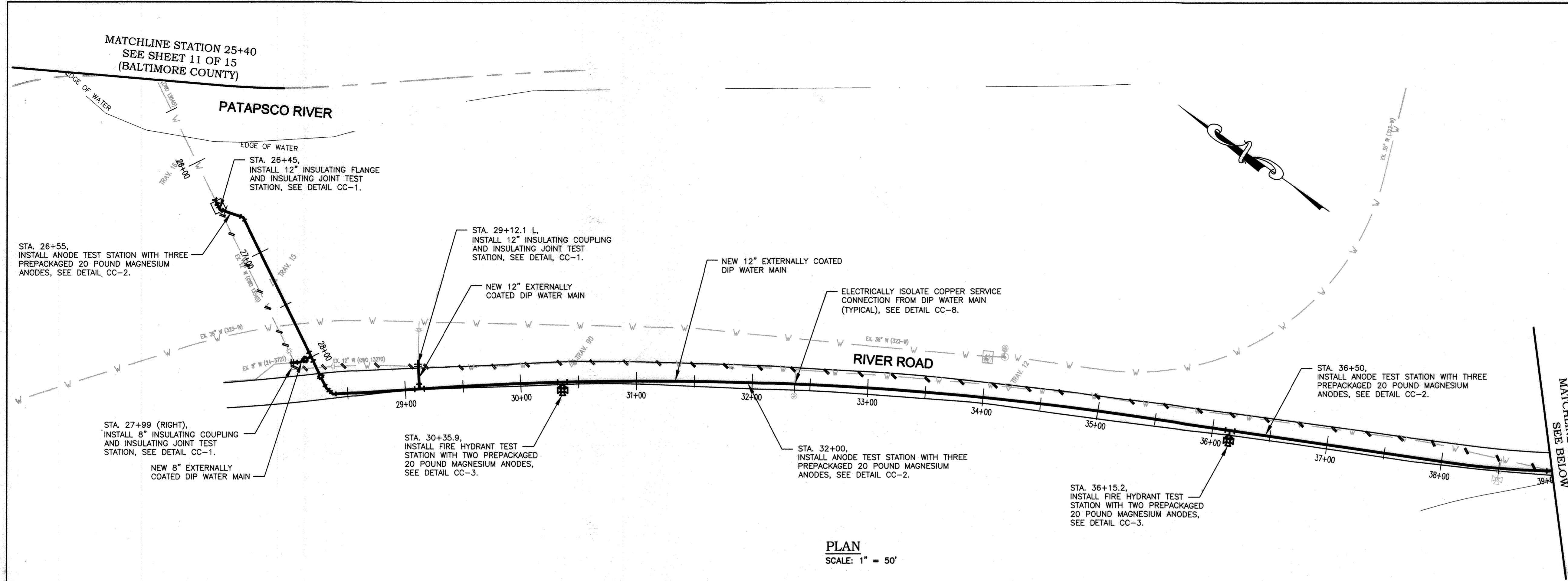
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

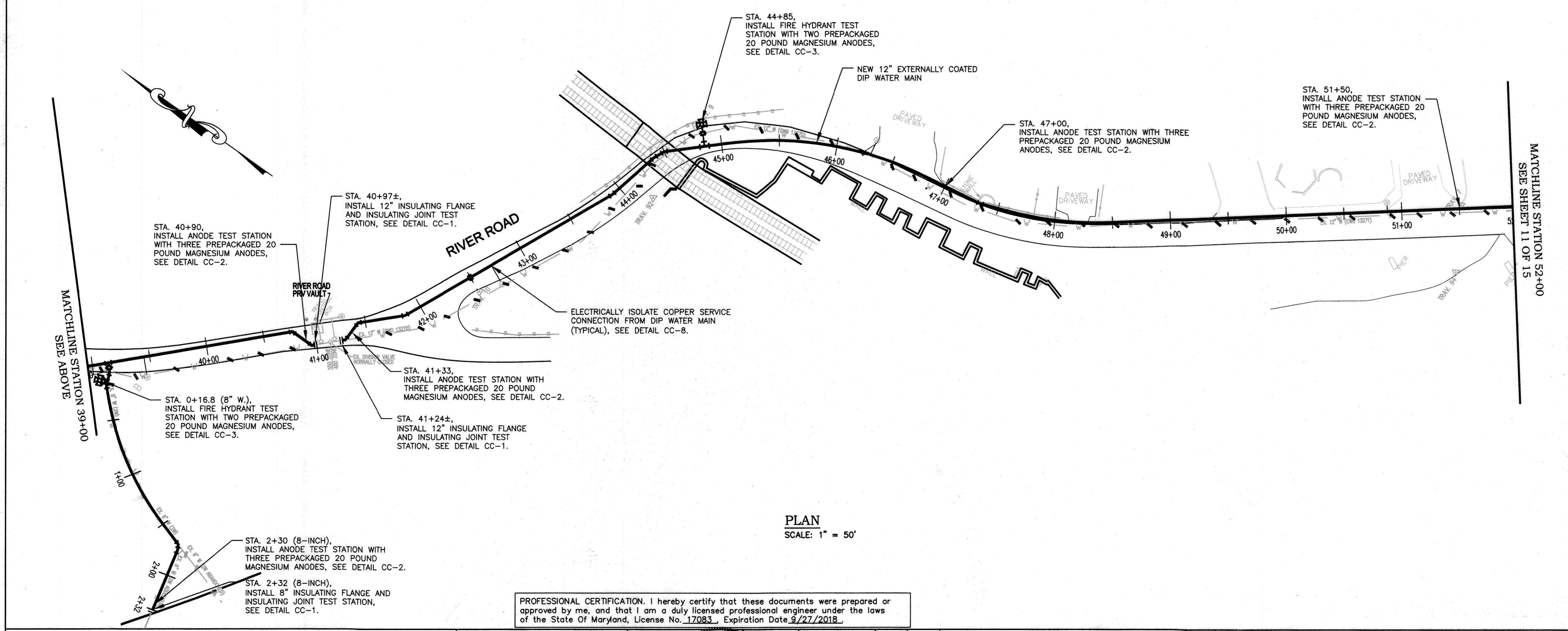
LEVERING AVENUE WATER MAIN  
CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761  
ELECTION DISTRICT NO. 1  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 9 OF 18

KCI TECHNOLOGIES PROJECT No.: 01071378.34



PLAN  
SCALE: 1" = 50'

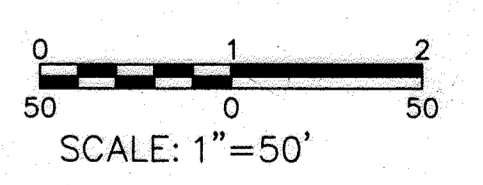


PLAN  
SCALE: 1" = 50'

NOTES:

1. EXTERNALLY COAT ALL DUCTILE IRON PIPE AND FITTINGS IN ACCORDANCE WITH THE SPECIFICATIONS. COAT ALL DUCTILE IRON PIPE JOINTS, SEE DETAILS CC-15, CC-16, AND CC-17.
2. BOND ALL NEW DUCTILE IRON PIPE JOINTS EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED, SEE DETAILS CC-2, CC-3 AND CC-6.
3. ELECTRICAL ISOLATION IS REQUIRED FOR ALL CONNECTIONS, INCLUDING SERVICES, TO NEW DUCTILE IRON WATER MAIN EVEN IF THE CONNECTION OR SERVICE IS NOT SHOWN ON THIS DRAWING, SEE DETAILS CC-7, CC-8, AND CC-9. TEST FACILITIES SHALL BE PROVIDED FOR ALL INSULATING FLANGES AND INSULATING COUPLINGS, SEE DETAIL CC-1. FOR LOCATIONS OF SERVICES, SEE PIPELINE ALIGNMENT SHEETS.
4. INSTALL SEPARATOR MESH ON WATER MAIN AT EXISTING UTILITY CROSSINGS IF THERE IS LESS THAN 12 INCHES OF SPACING BETWEEN THEM IN ANY DIRECTION, SEE DETAIL CC-10.
5. POLYETHYLENE ENCASUREMENT SHALL NOT BE INSTALLED ON NEW DUCTILE IRON WATER PIPING.
6. INSTALL LINKED RUBBER SEALS AT VAULT LOCATIONS TO ISOLATE PIPE FROM CONCRETE, SEE DETAIL CC-18.
7. DO NOT SET TEST STATIONS IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES THROUGH 2-INCH SCHEDULE 80 PVC CONDUIT TO FINAL TEST BOX LOCATION.
8. DO NOT COMBINE ADJACENT TEST STATIONS INTO A SINGLE TEST STATION.
9. INSTALL PIPE BOND CABLES AROUND VAULTS, SEE DETAIL CC-4.
10. SEE DETAIL CC-19 FOR TEST STATION SCHEDULE.

GRAPHIC SCALE



**AS-BUILT**  
DATE 12-01-2020

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. 17083, Expiration Date 9/27/2018.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 7/1/13  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 7/1/13  
CHIEF, BUREAU OF ENGINEERING DATE

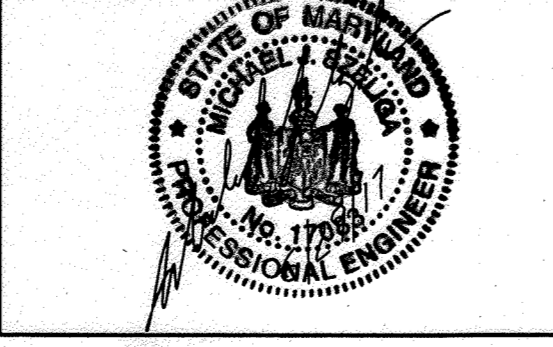
*[Signature]* 7/1/13  
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*[Signature]* 7/1/13  
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ENGINEERS  
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CONSTRUCTION MANAGERS

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DRN: DJD				
CHK: MJS				
DATE: JUNE, 2017				
BY: JER	AS-BUILT			
NO.				
REVISION				
DATE: 12/1/20				

**CORROSION CONTROL  
LAYOUT - 1  
STA. 25+40 TO STA. 52+00**

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

**LEVERING AVENUE  
WATER MAIN**

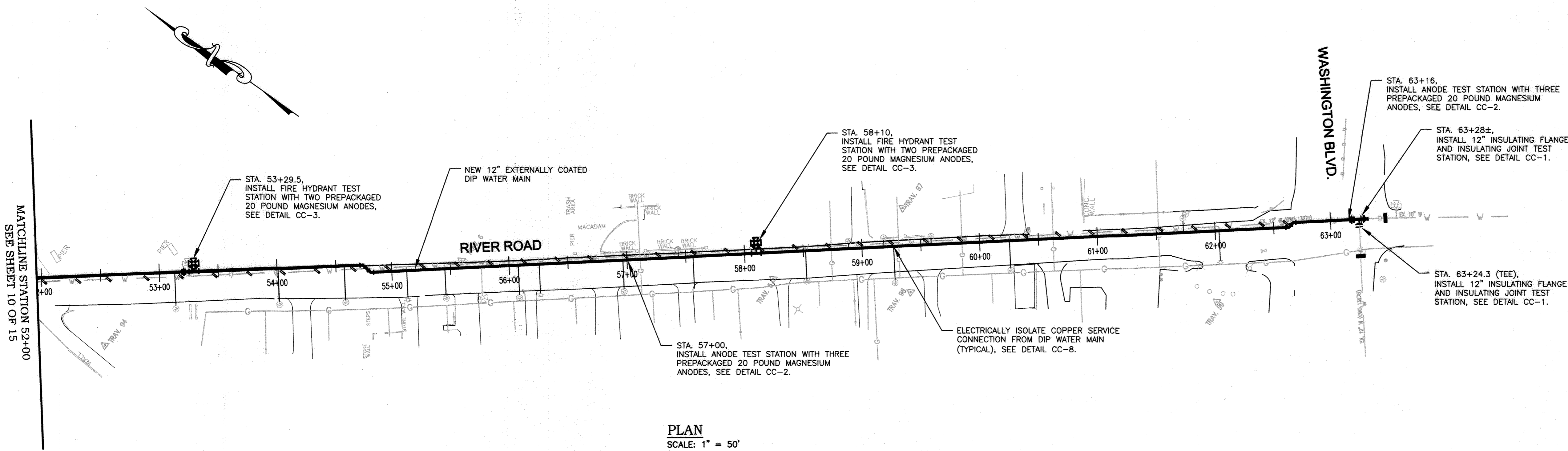
CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 10 OF 18

CP-1

KCI TECHNOLOGIES PROJECT No.: 01071378.34

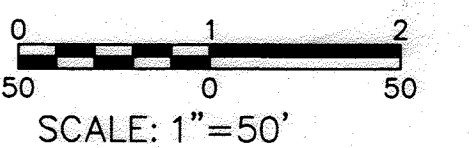


PLAN  
SCALE: 1" = 50'

NOTES:

1. EXTERNALLY COAT ALL DUCTILE IRON PIPE AND FITTINGS IN ACCORDANCE WITH THE SPECIFICATIONS. COAT ALL DUCTILE IRON PIPE JOINTS, SEE DETAILS CC-15, CC-16, AND CC-17.
2. BOND ALL NEW DUCTILE IRON PIPE JOINTS EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED, SEE DETAILS CC-2, CC-3 AND CC-6.
3. ELECTRICAL ISOLATION IS REQUIRED FOR ALL CONNECTIONS, INCLUDING SERVICES, TO NEW DUCTILE IRON WATER MAIN EVEN IF THE CONNECTION OR SERVICE IS NOT SHOWN ON THIS DRAWING, SEE DETAILS CC-7, CC-8, AND CC-9. TEST FACILITIES SHALL BE PROVIDED FOR ALL INSULATING FLANGES AND INSULATING COUPLINGS, SEE DETAIL CC-1. FOR LOCATIONS OF SERVICES, SEE PIPELINE ALIGNMENT SHEETS.
4. INSTALL SEPARATOR MESH ON WATER MAIN AT EXISTING UTILITY CROSSINGS IF THERE IS LESS THAN 12 INCHES OF SPACING BETWEEN THEM IN ANY DIRECTION, SEE DETAIL CC-10.
5. POLYETHYLENE ENCASEMENT SHALL NOT BE INSTALLED ON NEW DUCTILE IRON WATER PIPING.
6. INSTALL LINKED RUBBER SEALS AT VAULT LOCATIONS TO ISOLATE PIPE FROM CONCRETE, SEE DETAIL CC-18.
7. DO NOT SET TEST STATIONS IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES THROUGH 2-INCH SCHEDULE 80 PVC CONDUIT TO FINAL TEST BOX LOCATION.
8. DO NOT COMBINE ADJACENT TEST STATIONS INTO A SINGLE TEST STATION.
9. INSTALL PIPE BOND CABLES AROUND VAULTS, SEE DETAIL CC-4.
10. SEE DETAIL CC-19 FOR TEST STATION SCHEDULE.

GRAPHIC SCALE



**AS-BUILT**  
DATE 12-01-2020

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. 17083, Expiration Date 9/27/2018.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 7/10/17  
DIRECTOR OF PUBLIC WORKS DATE

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CHIEF, BUREAU OF ENGINEERING DATE

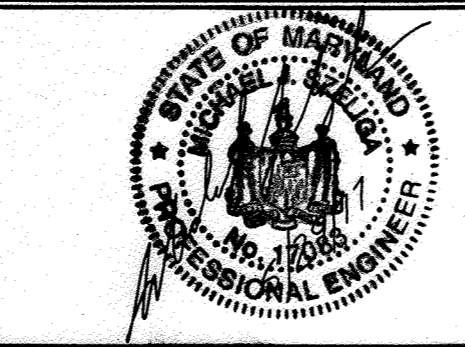
*[Signature]* 7/10/17  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* 7/10/17  
CHIEF, UTILITY DESIGN DIVISION DATE

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	BY	NO.	REVISION	DATE	

**CORROSION CONTROL  
LAYOUT - 2  
STA. 52+00 TO STA. 63+33**

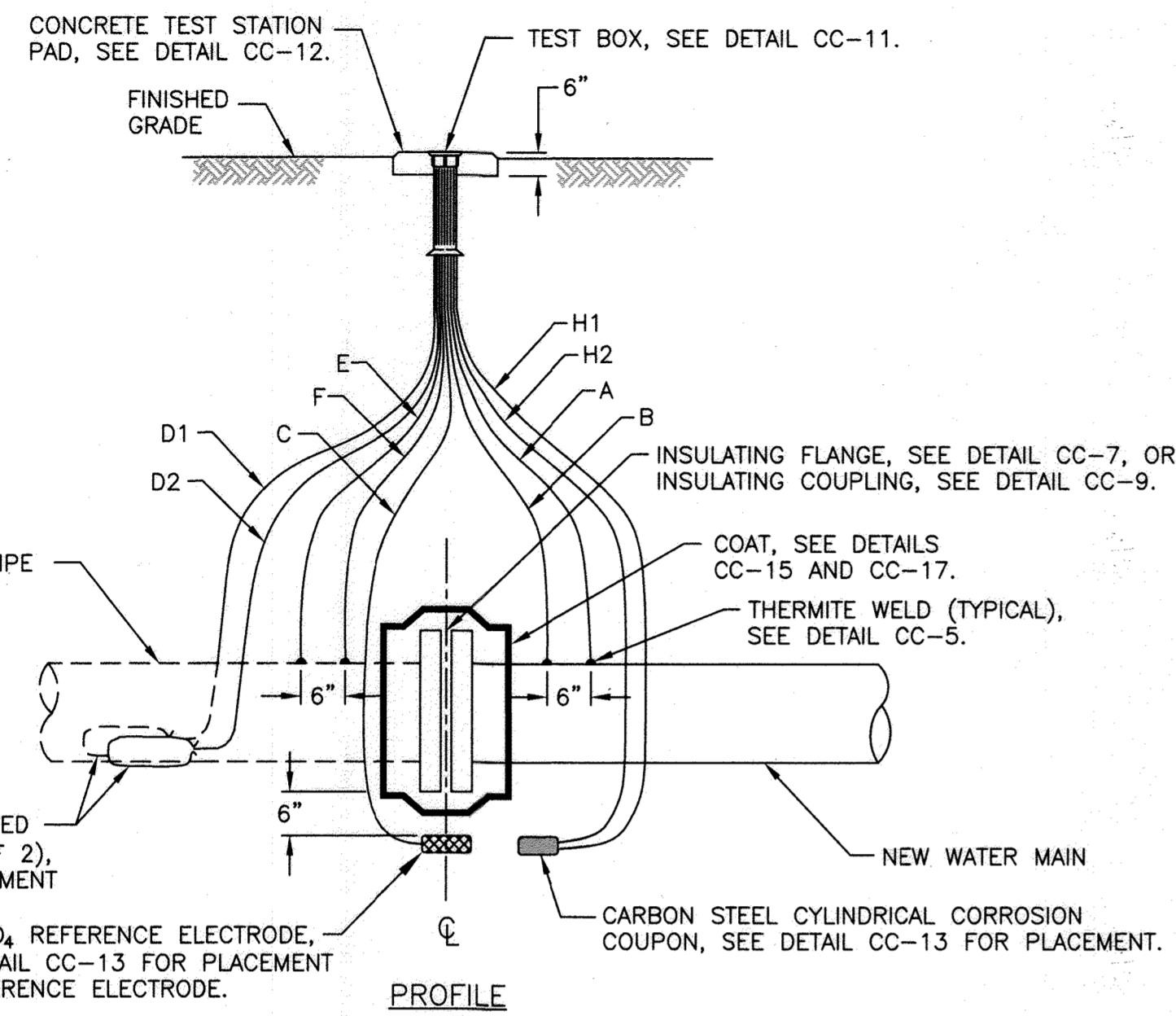
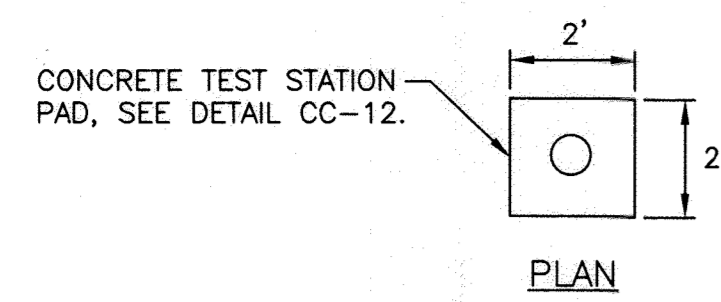
600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

**LEVERING AVENUE  
WATER MAIN**

CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

KCI TECHNOLOGIES PROJECT No.: 01071378.34



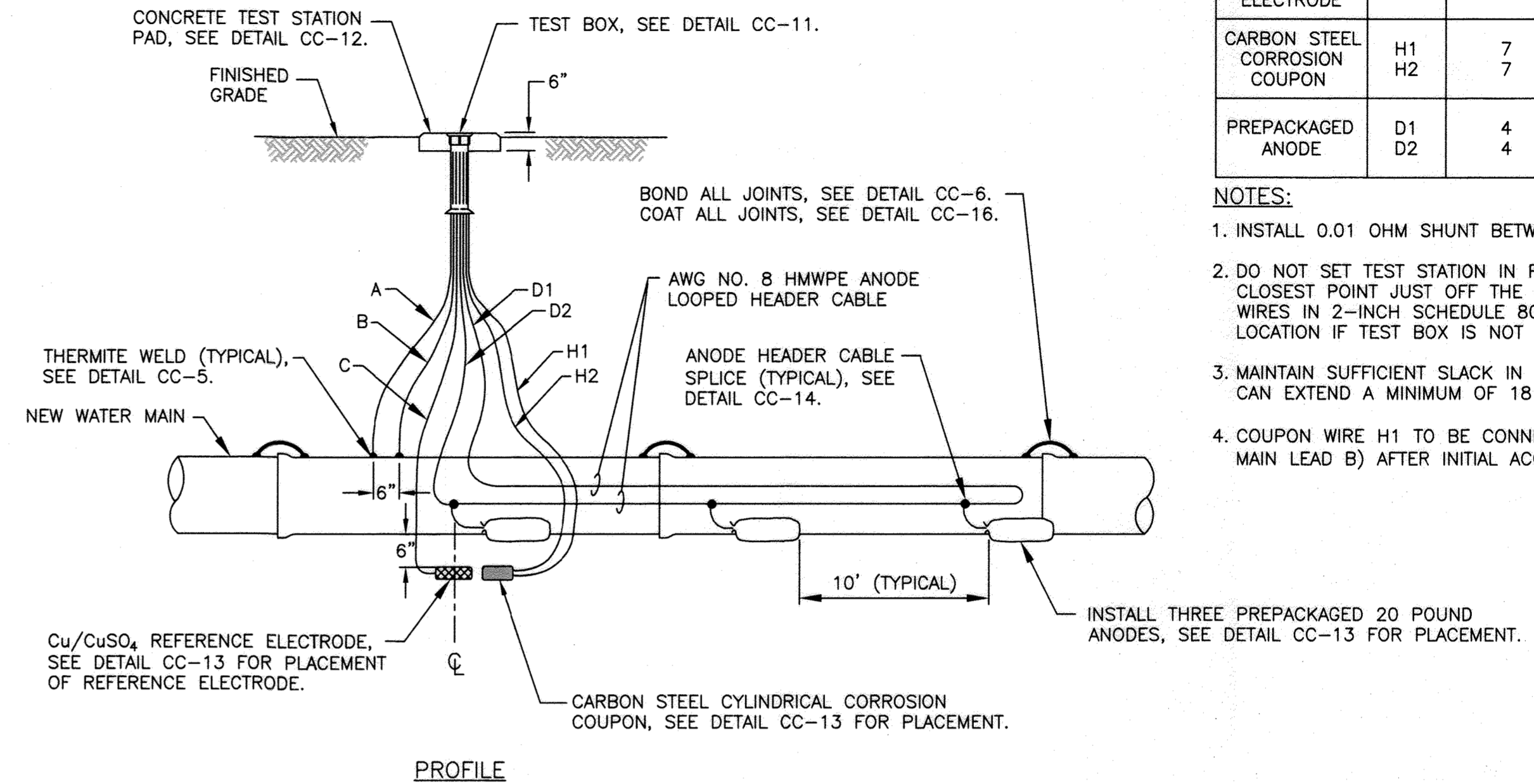
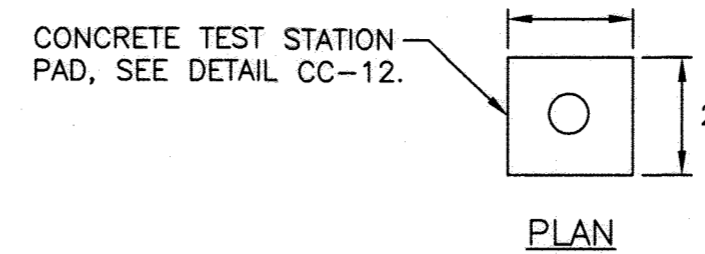
**CC-1: INSULATING JOINT TEST STATION**

Scale: None

WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW WATER MAIN	A B	1 3	#8 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
CARBON STEEL CORROSION COUPON	H1 H2	7 7	#12 #12	THWN THWN	GREEN GREEN
PREPACKAGED MAGNESIUM ANODE	D1 D2	4 4	#12 #12	TW TW	BLACK BLACK
EXISTING PIPE	E F	2 5	#8 #10	THWN THWN	WHITE WHITE

**NOTES:**

- INSTALL 0.01 OHM SHUNT BETWEEN TERMINALS #2 AND #4.
- DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX AT THE CLOSEST POINT JUST OFF THE ROAD RIGHT OF WAY. ROUTE ALL WIRES IN 2-INCH SCHEDULE 80 PVC CONDUIT TO FINAL TEST BOX LOCATION IF TEST BOX IS NOT LOCATED DIRECTLY ABOVE THE MAIN.
- MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18 INCHES FROM THE TEST BOX.
- COUPON WIRE H1 TO BE CONNECTED TO TERMINAL 3 (WITH WATER MAIN LEAD B) AFTER INITIAL ACCEPTANCE TESTING IS DONE.



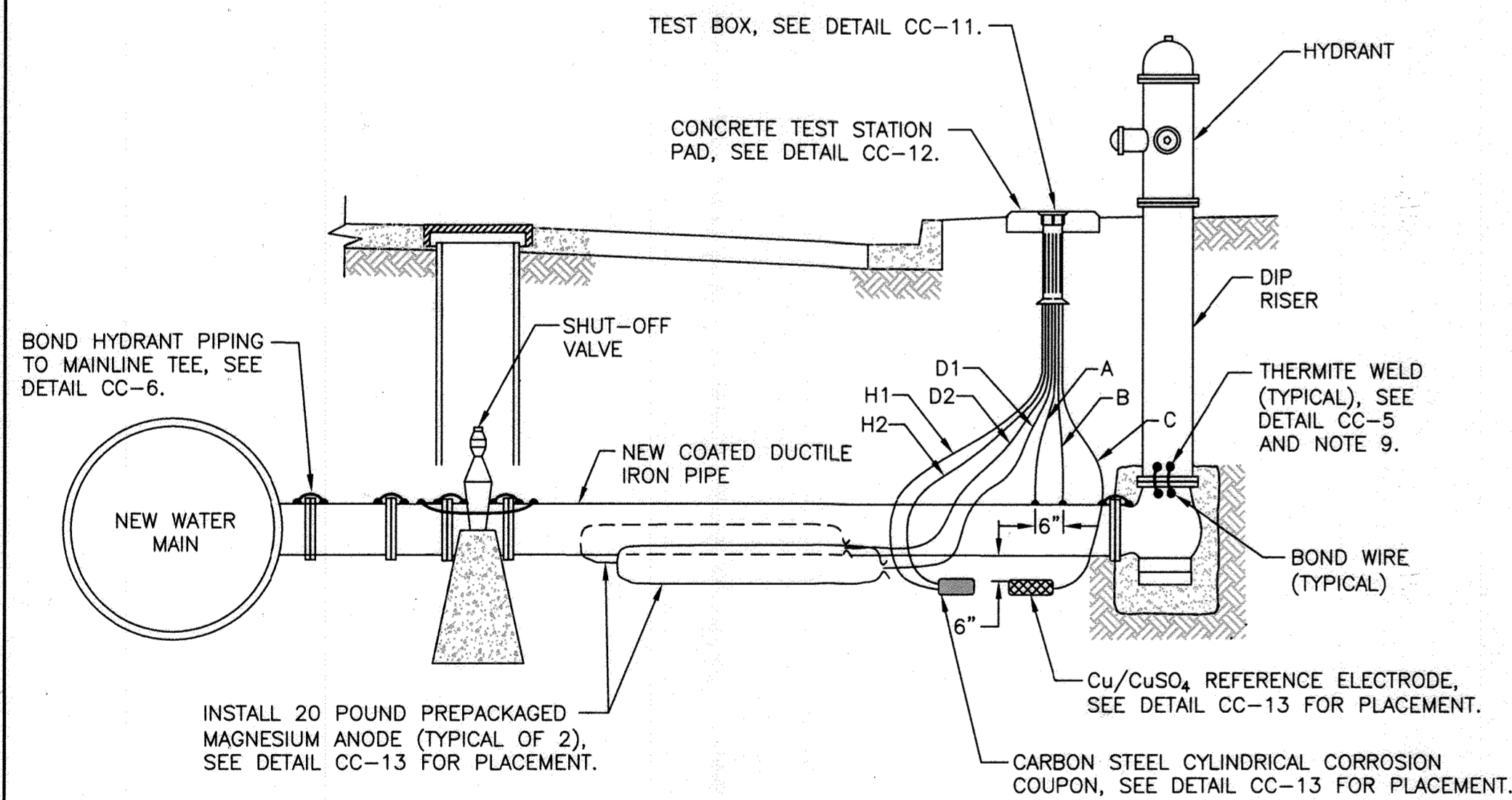
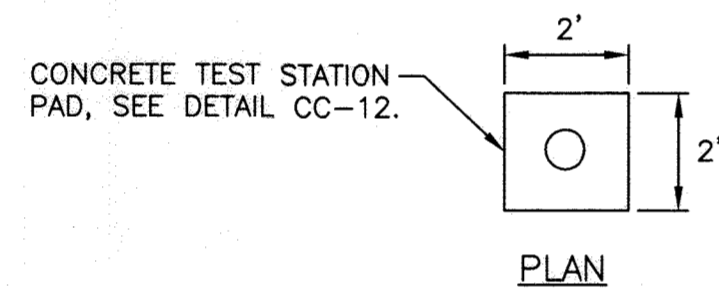
**CC-2: ANODE TEST STATION**

Scale: None

WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW WATER MAIN	A B	1 3	#8 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
CARBON STEEL CORROSION COUPON	H1 H2	7 7	#12 #12	THWN THWN	GREEN GREEN
PREPACKAGED MAGNESIUM ANODE	D1 D2	4 4	#12 #12	TW TW	BLACK BLACK

**NOTES:**

- INSTALL 0.01 OHM SHUNT BETWEEN TERMINALS #1 AND #4.
- DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX AT THE CLOSEST POINT JUST OFF THE ROAD RIGHT OF WAY. ROUTE ALL WIRES IN 2-INCH SCHEDULE 80 PVC CONDUIT TO FINAL TEST BOX LOCATION IF TEST BOX IS NOT LOCATED DIRECTLY ABOVE THE MAIN.
- MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18 INCHES FROM THE TEST BOX.
- COUPON WIRE H1 TO BE CONNECTED TO TERMINAL 3 (WITH WATER MAIN LEAD B) AFTER INITIAL ACCEPTANCE TESTING IS DONE.



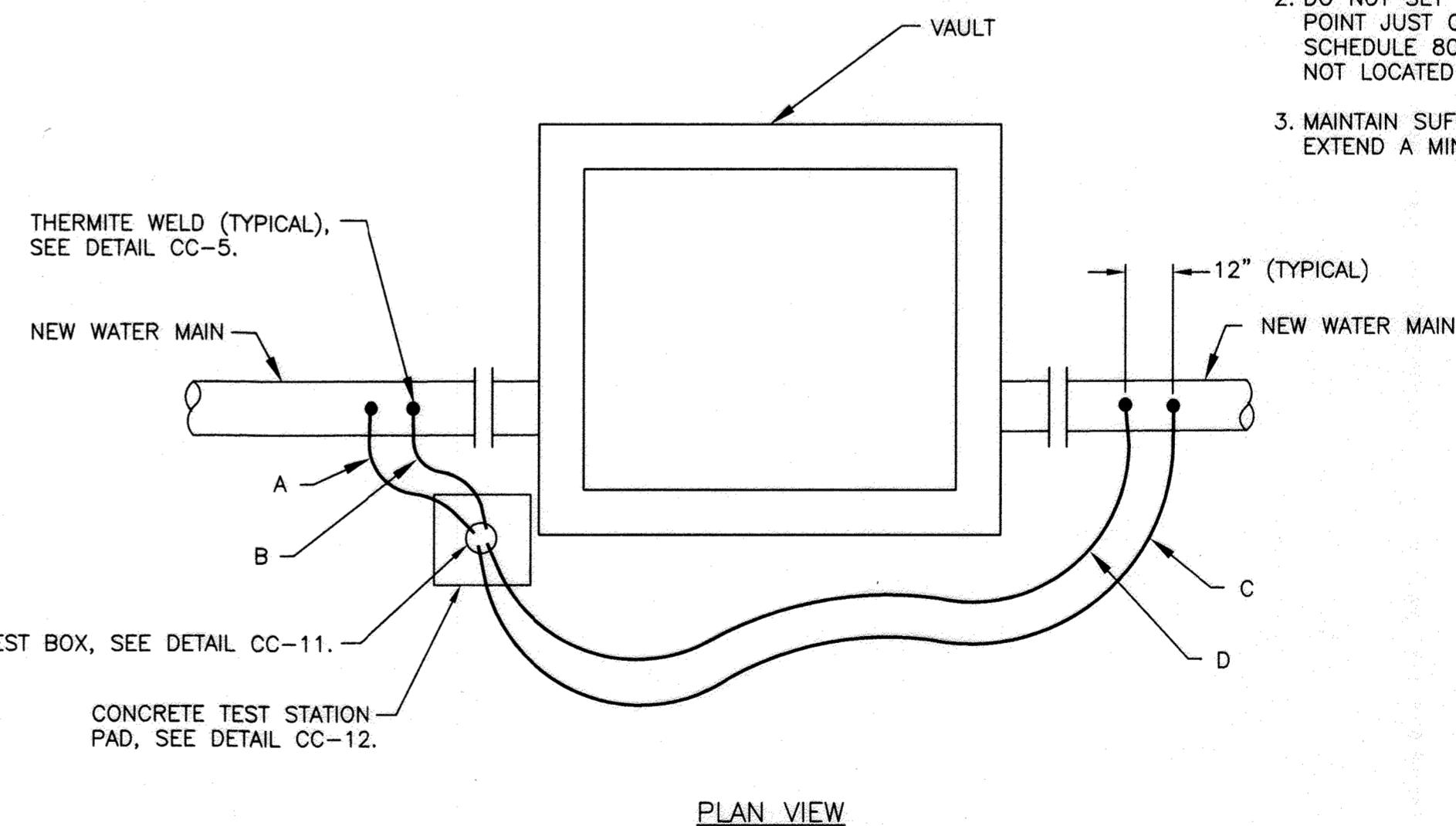
**CC-3: FIRE HYDRANT TEST STATION AND BONDING**

Scale: None

WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW WATER MAIN	A B	1 3	#8 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
CARBON STEEL CORROSION COUPON	H1 H2	7 7	#12 #12	THWN THWN	GREEN GREEN
PREPACKAGED MAGNESIUM ANODE	D1 D2	4 4	#12 #12	TW TW	BLACK BLACK

**NOTES:**

- INSTALL 0.01 OHM SHUNT BETWEEN TERMINALS #1 AND #4.
- DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX AT THE CLOSEST POINT JUST OFF THE ROAD RIGHT OF WAY. ROUTE ALL WIRES IN 2-INCH SCHEDULE 80 PVC CONDUIT TO FINAL TEST BOX LOCATION IF TEST BOX IS NOT LOCATED DIRECTLY ABOVE THE MAIN.
- MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18 INCHES FROM THE TEST BOX.
- BOND ALL DUCTILE IRON COMPONENTS TOGETHER WITH AWG NO. 6 HMWPE WIRES.
- INSTALL BOND WIRES ON TOP OF PIPE OR FITTING WHERE POSSIBLE.
- INSTALL A MINIMUM OF TWO BOND CABLES ACROSS EACH PIPE JOINT.
- SEE DETAIL CC-6 FOR BONDING OF VALVE.
- BOND ALL HYDRANT PIPING ASSOCIATED WITH THE WATER MAIN.
- INSTALL BOND CABLES ON HYDRANT RISER PIPE AND RISER ELBOW BEFORE INSTALLING RISER PIPE IN EXCAVATION.
- COUPON WIRE H1 TO BE CONNECTED TO TERMINAL 3 (WITH WATER MAIN LEAD B) AFTER INITIAL ACCEPTANCE TESTING IS DONE.



**CC-4: VAULT BONDING TEST STATION**

Scale: None

WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW WATER MAIN ON NORTH OR WEST SIDE OF VAULT	A B	1 3	#4 #4	HMWPE HMWPE	BLACK BLACK
NEW WATER MAIN ON SOUTH OR EAST SIDE OF VAULT	A B	4 5	#4 #4	HMWPE HMWPE	BLACK BLACK

**NOTES:**

- INSTALL 0.01 OHM SHUNT BETWEEN TERMINALS #1 AND #4.
- DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX AT THE CLOSEST POINT JUST OFF THE ROAD RIGHT OF WAY. ROUTE ALL WIRES IN 2-INCH SCHEDULE 80 PVC CONDUIT TO FINAL TEST BOX LOCATION IF TEST BOX IS NOT LOCATED DIRECTLY ABOVE THE MAIN.
- MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18 INCHES FROM THE TEST BOX.

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. 17083, Expiration Date 9/27/2018.

**AS-BUILT**  
DATE 12-01-2020

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 7/15/13  
DIRECTOR OF PUBLIC WORKS DATE  
*[Signature]* 7/10/13  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* 7/17/17  
CHIEF, BUREAU OF ENGINEERING DATE  
*[Signature]* 7/16/17  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS  
**KCI TECHNOLOGIES**  
936 Ringbrook Road  
Sparks, MD 21152  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
www.kci.com



DES: MJS  
DRN: DJD  
CHK: MJS  
DATE: JUNE, 2017

BY *[Signature]* NO. **AS-BUILT**

REVISION

**CORROSION CONTROL  
DETAILS - 1**

DATE 600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

LEVERING AVENUE  
WATER MAIN

CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

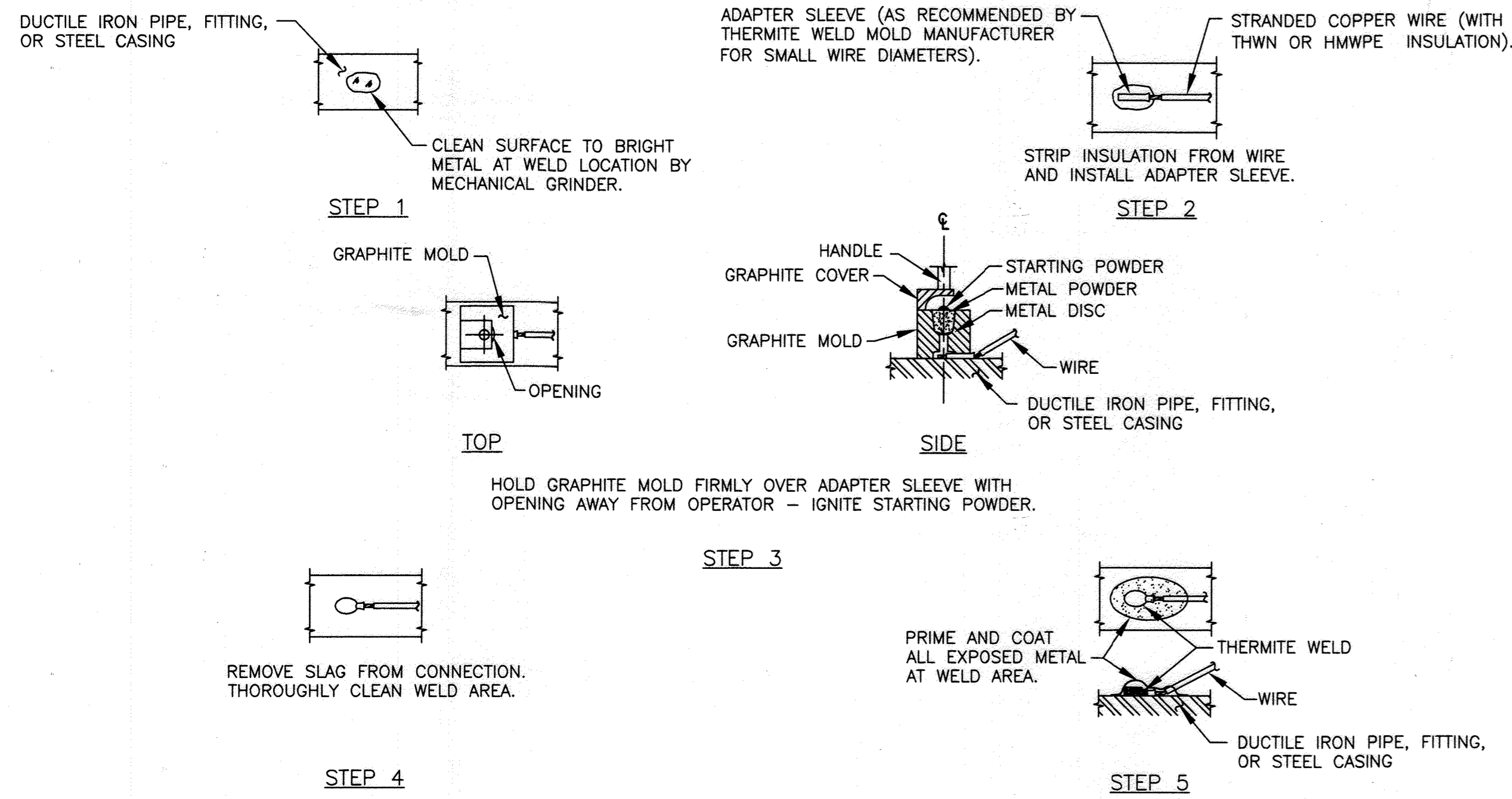
ELECTION DISTRICT NO. 1

HOWARD COUNTY, MARYLAND

CP-3

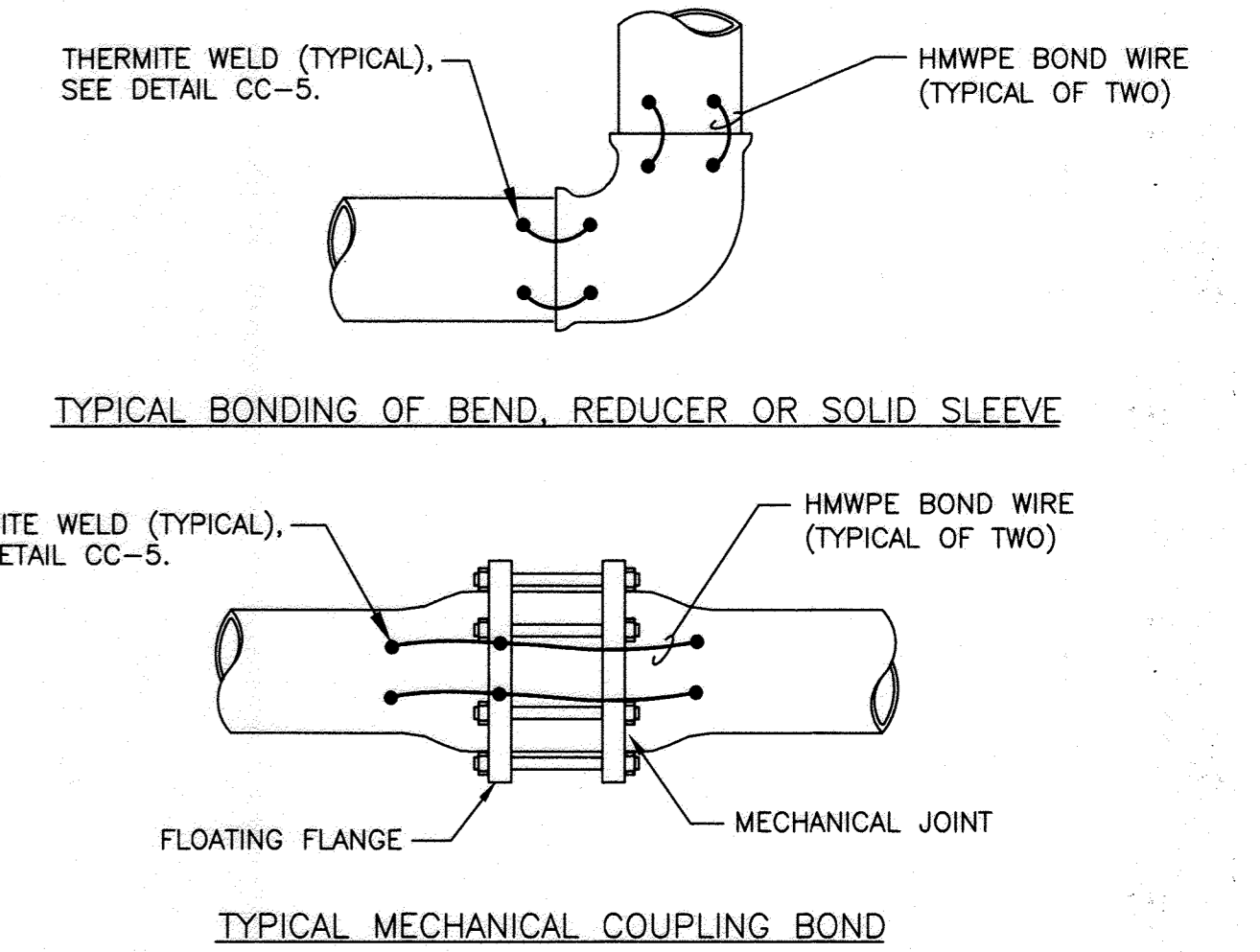
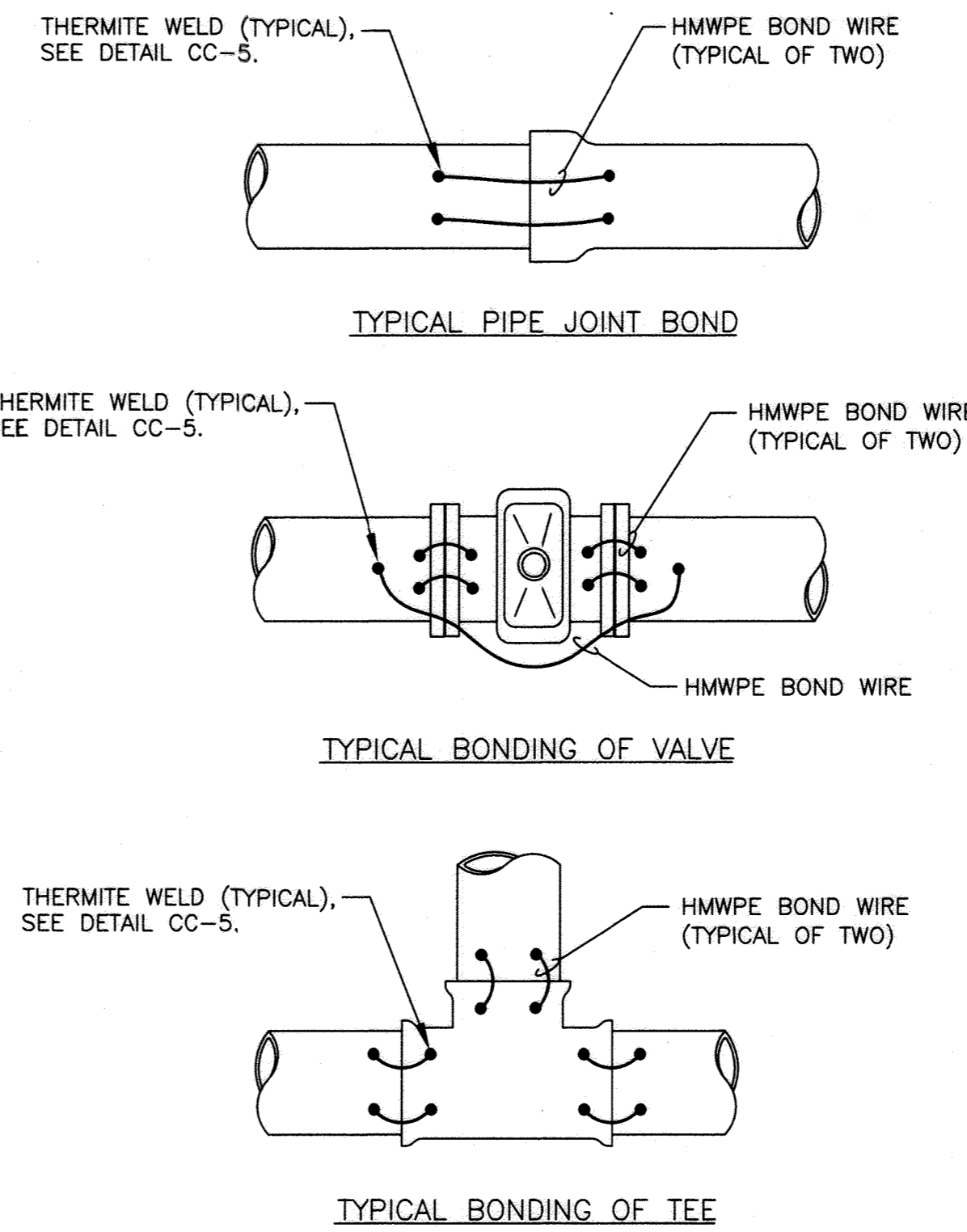
SCALE  
AS SHOWN  
SHEET  
12 OF 18

KCI TECHNOLOGIES PROJECT No.: 01071378.34



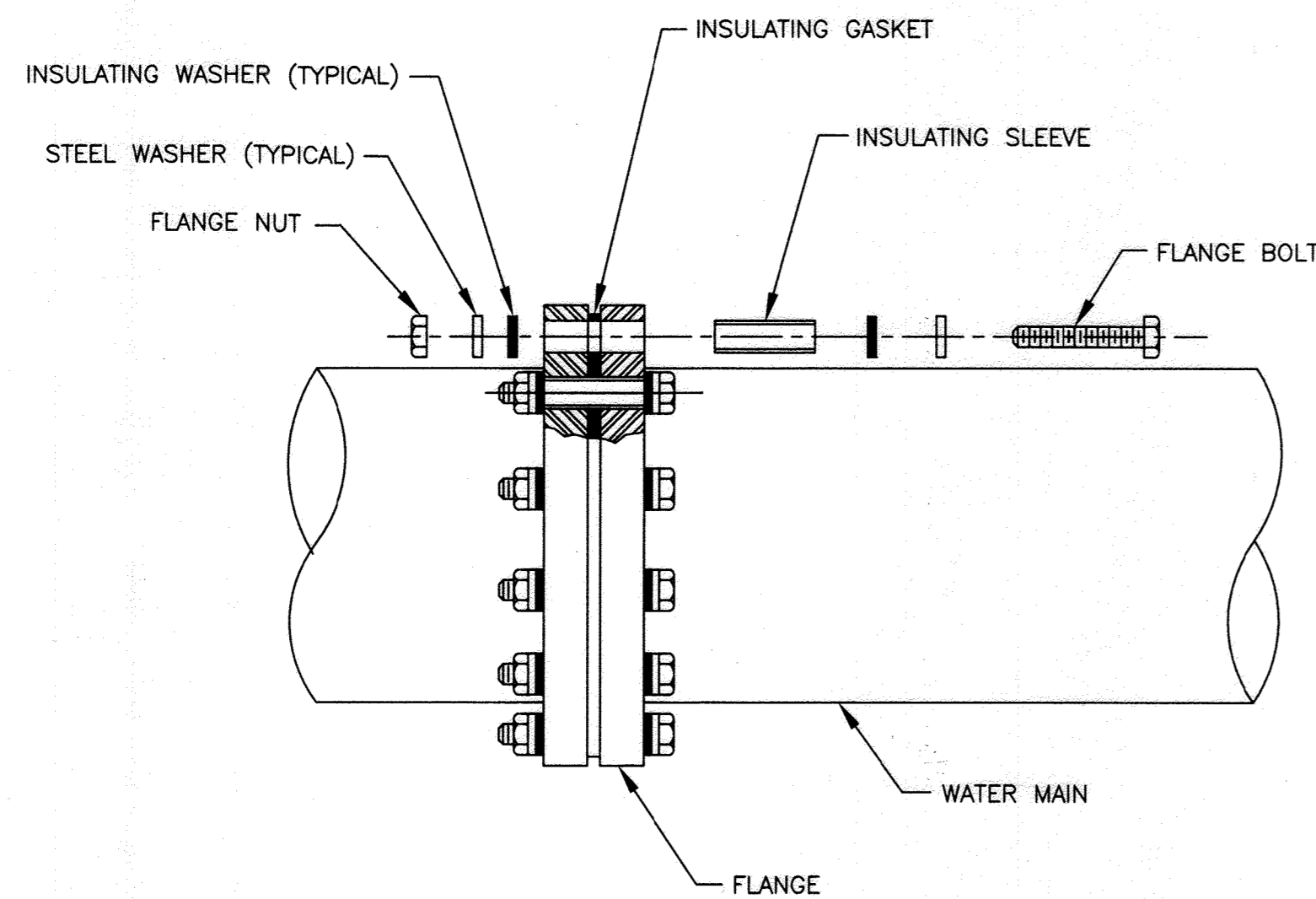
- NOTES:**
- THERMITE WELDS MADE TO PIPE SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY-CAP OR APPROVED EQUAL. REPAIR PIPE COATING AS RECOMMENDED BY COATING MANUFACTURER.
  - PIN BRAZING IS NOT AN ACCEPTABLE ALTERNATIVE TO THERMITE WELDING.

**CC-5: THERMITE WELD**  
Scale: None



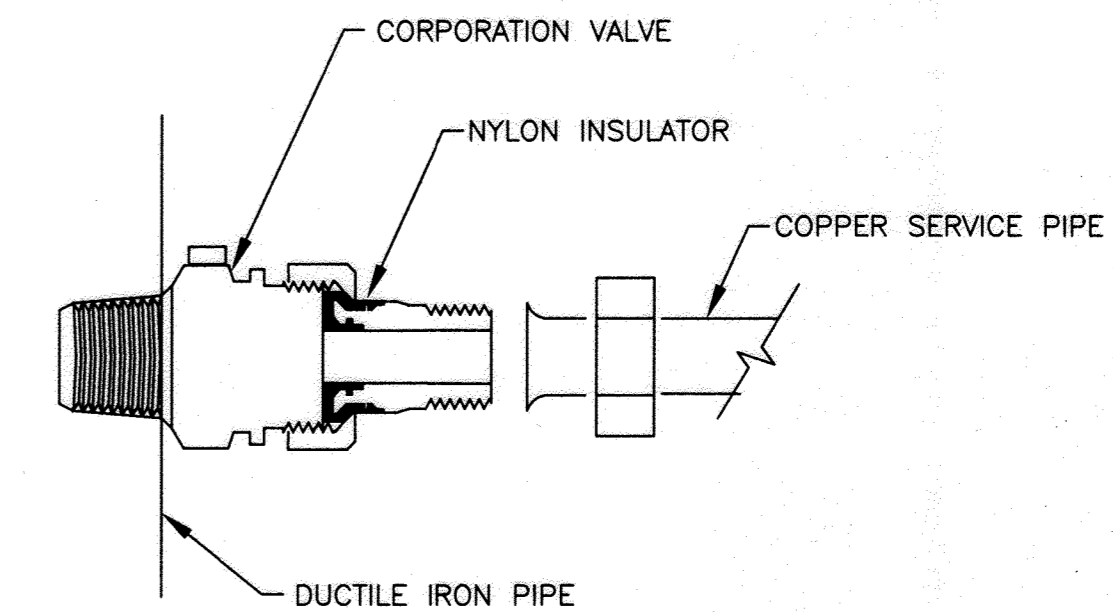
- NOTES:**
- BOND ALL NON-WELDED JOINTS ON UNDERGROUND PIPING ASSOCIATED WITH THE WATER MAIN EXCEPT INSULATED JOINTS.
  - THERMITE WELD BONDING WIRES TO TOP OF PIPE OR FITTINGS, SEE DETAIL CC-5.
  - WIRE SIZE FOR BONDING JOINTS SHALL BE AS FOLLOWS:  
12" & SMALLER - AWG NO. 6  
16" TO 36" - AWG NO. 4  
LARGER THAN 36" - AWG NO. 2
  - INSTALL BOND CABLES ON DUCTILE IRON PIPE AFTER PIPE JOINT IS EXTERNALLY COATED, SEE DETAIL CC-16.
  - BOND WIRE LENGTH SHALL BE A MAXIMUM OF 18 INCHES UNLESS APPROVED BY THE ENGINEER. LEAVE SLACK IN ALL CABLES.
  - PIN BRAZING IS NOT AN ACCEPTABLE ALTERNATIVE TO THERMITE WELDING.

**CC-6: TYPICAL JOINT BONDING**  
Scale: None



- NOTES:**
- AFTER ASSEMBLY, TEST TO VERIFY THAT ISOLATION IS EFFECTIVE. IF ISOLATION IS NOT EFFECTIVE, REPAIR AS NECESSARY AND RETEST. THIS PROCESS SHALL CONTINUE UNTIL ISOLATION IS VERIFIED AS EFFECTIVE.
  - AFTER VERIFYING EFFECTIVE ISOLATION, COAT THE ENTIRE FLANGE AND ALL EXPOSED METAL INCLUDING BOLTS, NUTS, AND WASHERS WITH FOUR COMPONENTS OF DENSO OR TRENTON WAX TAPE COATING SYSTEM. COATING SYSTEM SHALL EXTEND A MINIMUM OF 12 INCHES ON EITHER SIDE OF FLANGE, SEE DETAIL CC-15.
  - ALL INSULATING FLANGES TO BE PROVIDED WITH TEST STATION, SEE DETAIL CC-1.

**CC-7: INSULATING FLANGE**  
Scale: None



- NOTES:**
- AFTER ASSEMBLY, TEST TO VERIFY THAT ISOLATION IS EFFECTIVE. IF ISOLATION IS NOT EFFECTIVE, REPAIR AS NECESSARY AND RETEST. THIS PROCESS SHALL CONTINUE UNTIL ISOLATION IS VERIFIED AS EFFECTIVE.
  - AFTER VERIFYING EFFECTIVE ISOLATION, COAT CORPORATION VALVE WITH FOUR COMPONENTS OF DENSO OR TRENTON WAX TAPE COATING SYSTEM. COATING SYSTEM SHALL EXTEND A MINIMUM OF 12 INCHES ON EITHER SIDE OF CORPORATION VALVE.

**CC-8: INSULATING CORPORATION**  
Scale: None

**AS-BUILT**  
DATE 12-01-2020

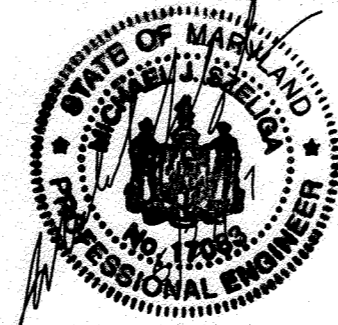
PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 17083, Expiration Date 9/27/2018.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 7/6/17  
DIRECTOR OF PUBLIC WORKS DATE  
*[Signature]* 7/10/17  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* 7/17/17  
CHIEF, BUREAU OF ENGINEERING DATE  
*[Signature]* 7/16/17  
CHIEF, UTILITY DESIGN DIVISION DATE

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Phone: (410) 316-7800  
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www.kci.com



DES: MJS				
DRN: DJD				
CHK: MJS				
DATE: JUNE, 2017	JER	AS-BUILT	12/1/20	
BY	NO.	REVISION	DATE	

**CORROSION CONTROL  
DETAILS - 2**

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

**LEVERING AVENUE  
WATER MAIN**

CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

ELECTION DISTRICT NO. 1

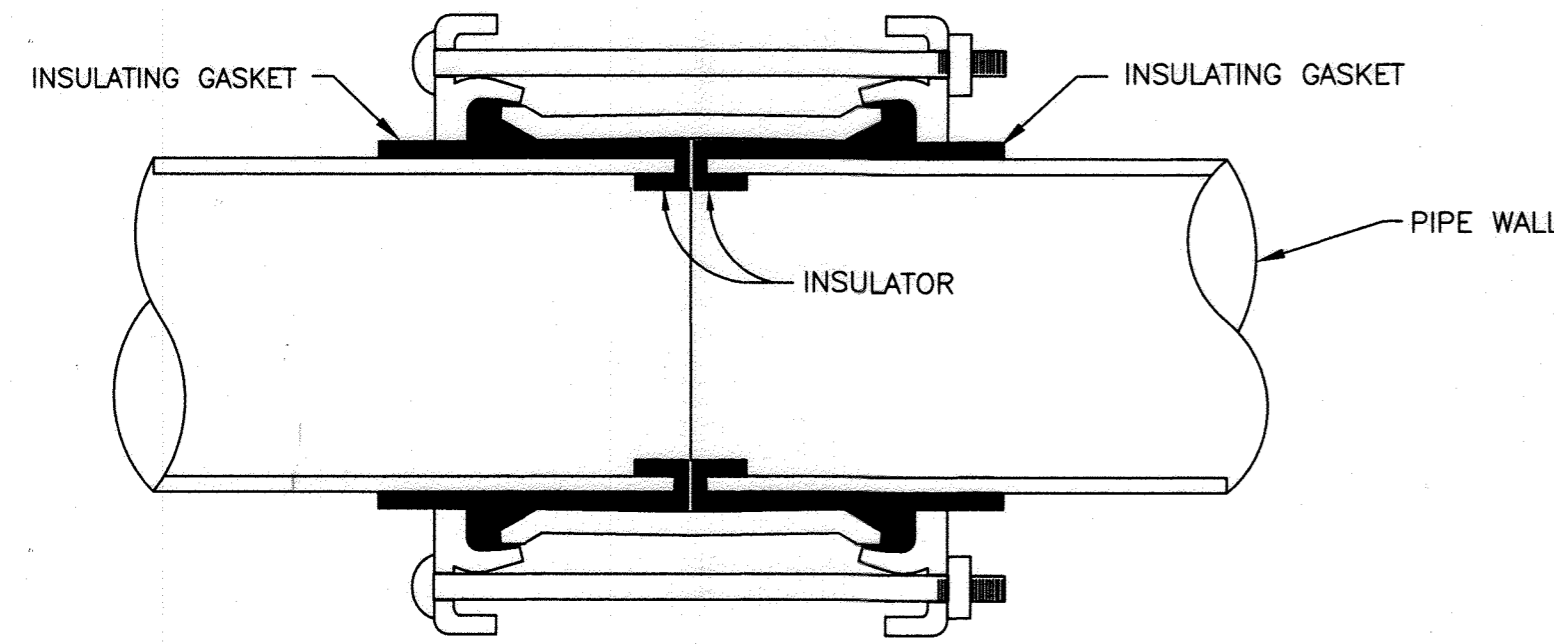
HOWARD COUNTY, MARYLAND

CP-4

SCALE  
AS SHOWN

SHEET  
13 OF 18

KCI TECHNOLOGIES PROJECT No.: 01071378.34

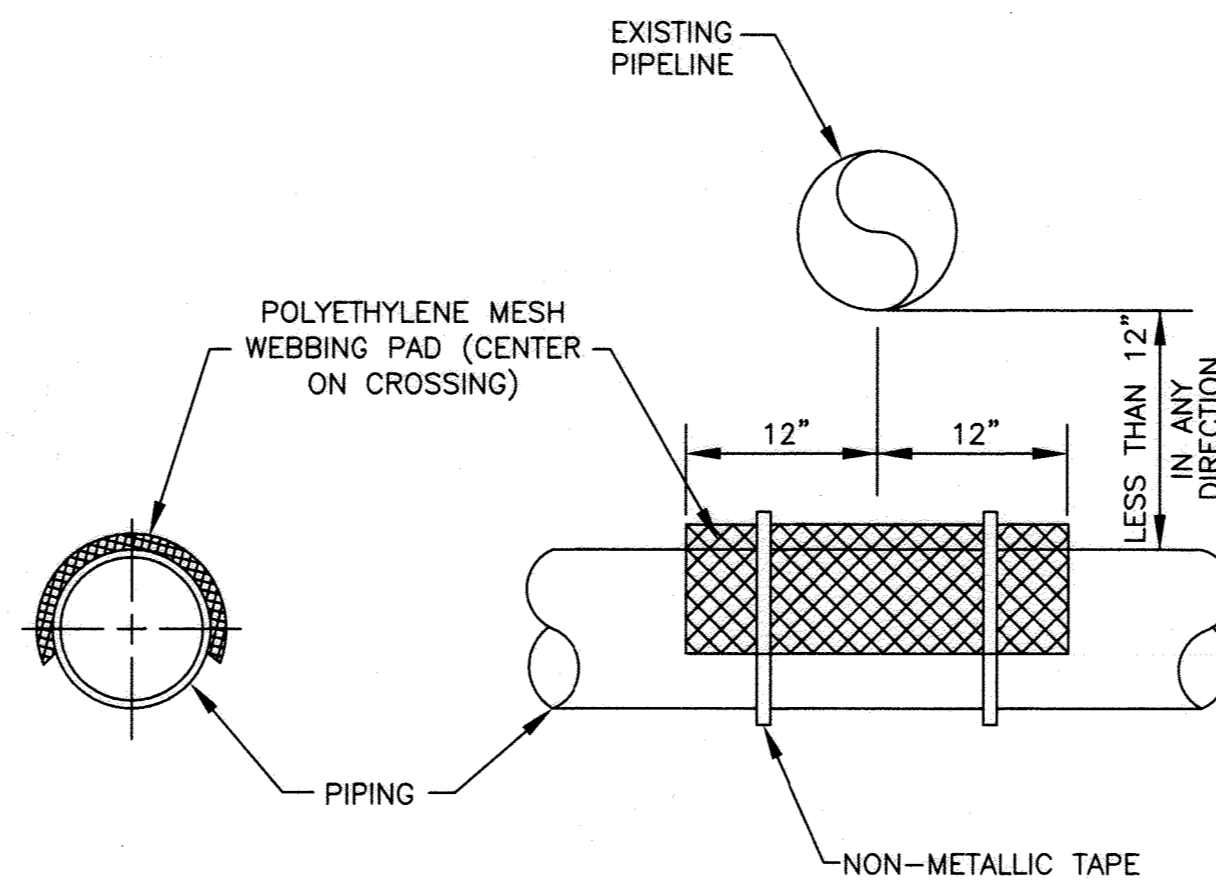


**NOTES:**

1. AFTER ASSEMBLY, TEST TO VERIFY THAT ISOLATION IS EFFECTIVE. IF ISOLATION IS NOT EFFECTIVE, REPAIR AS NECESSARY AND RETEST. THIS PROCESS SHALL CONTINUE UNTIL ISOLATION IS VERIFIED AS EFFECTIVE.
2. AFTER VERIFYING EFFECTIVE ISOLATION, COAT THE ENTIRE COUPLING AND ALL EXPOSED METAL INCLUDING BOLTS, NUTS, AND WASHERS WITH FOUR COMPONENTS OF DENSO OR TRENTON WAX TAPE COATING SYSTEM. COATING SYSTEM SHALL EXTEND A MINIMUM OF 12 INCHES ON EITHER SIDE OF THE COUPLING, SEE DETAIL CC-17.
3. ALL INSULATING COUPLINGS TO BE PROVIDED WITH TEST STATION, SEE DETAIL CC-1.

**CC-9: INSULATING COUPLING**

Scale: None

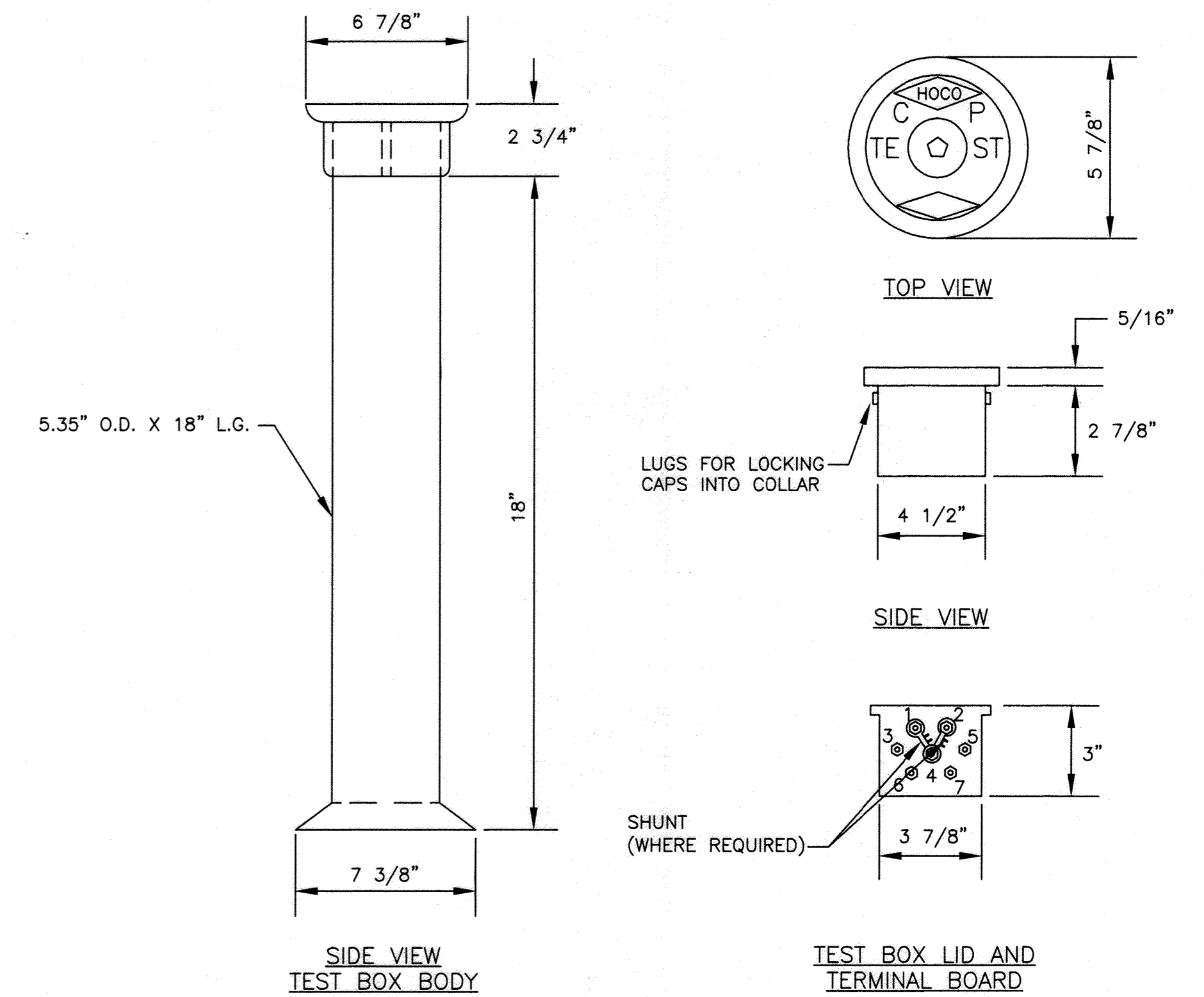


**NOTE:**

USE ONLY WHEN PIPES ARE LESS THAN 12" APART IN ANY DIRECTION.

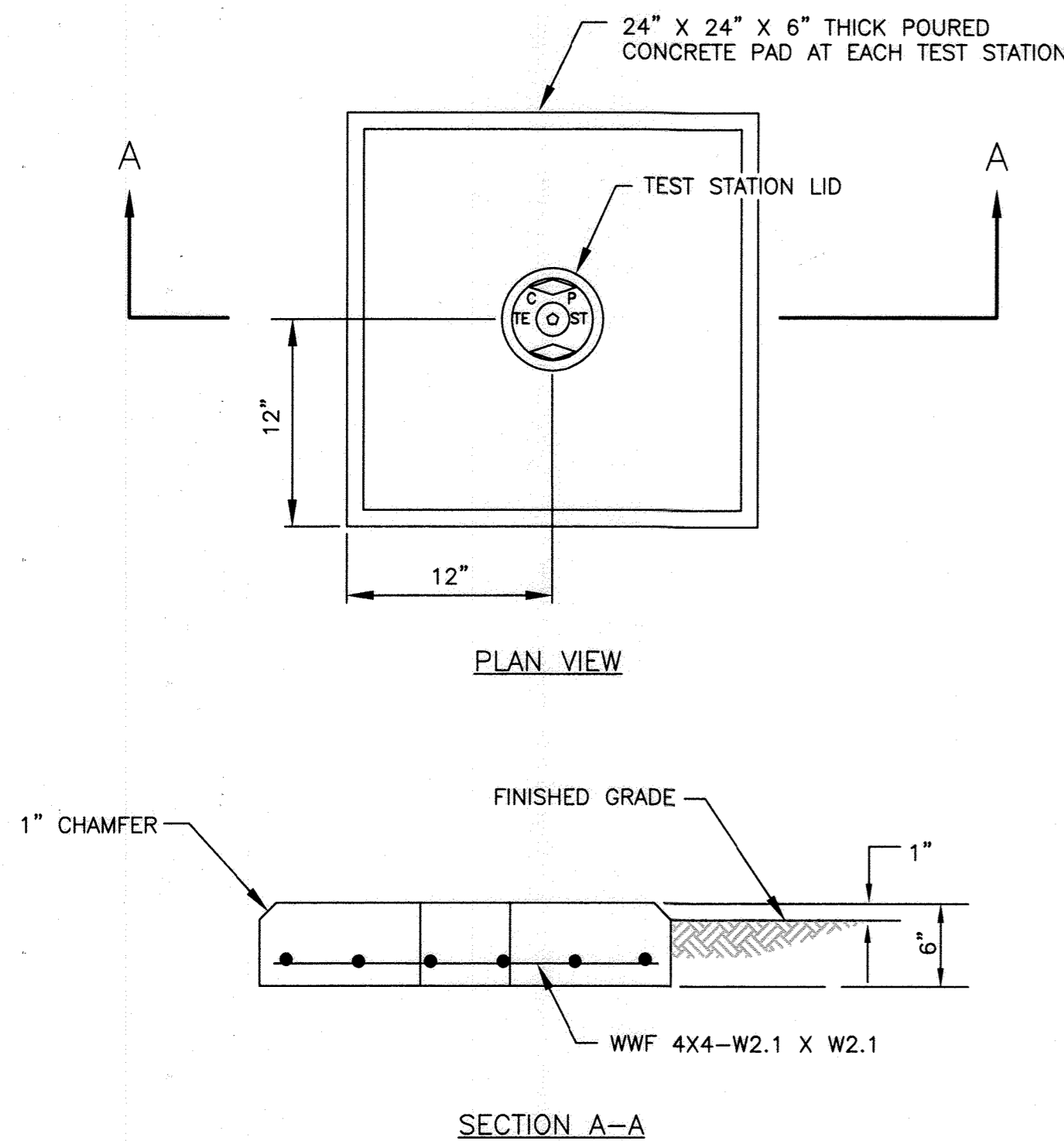
**CC-10: SEPARATOR TO AVOID ELECTRICAL CONTACT**

Scale: None



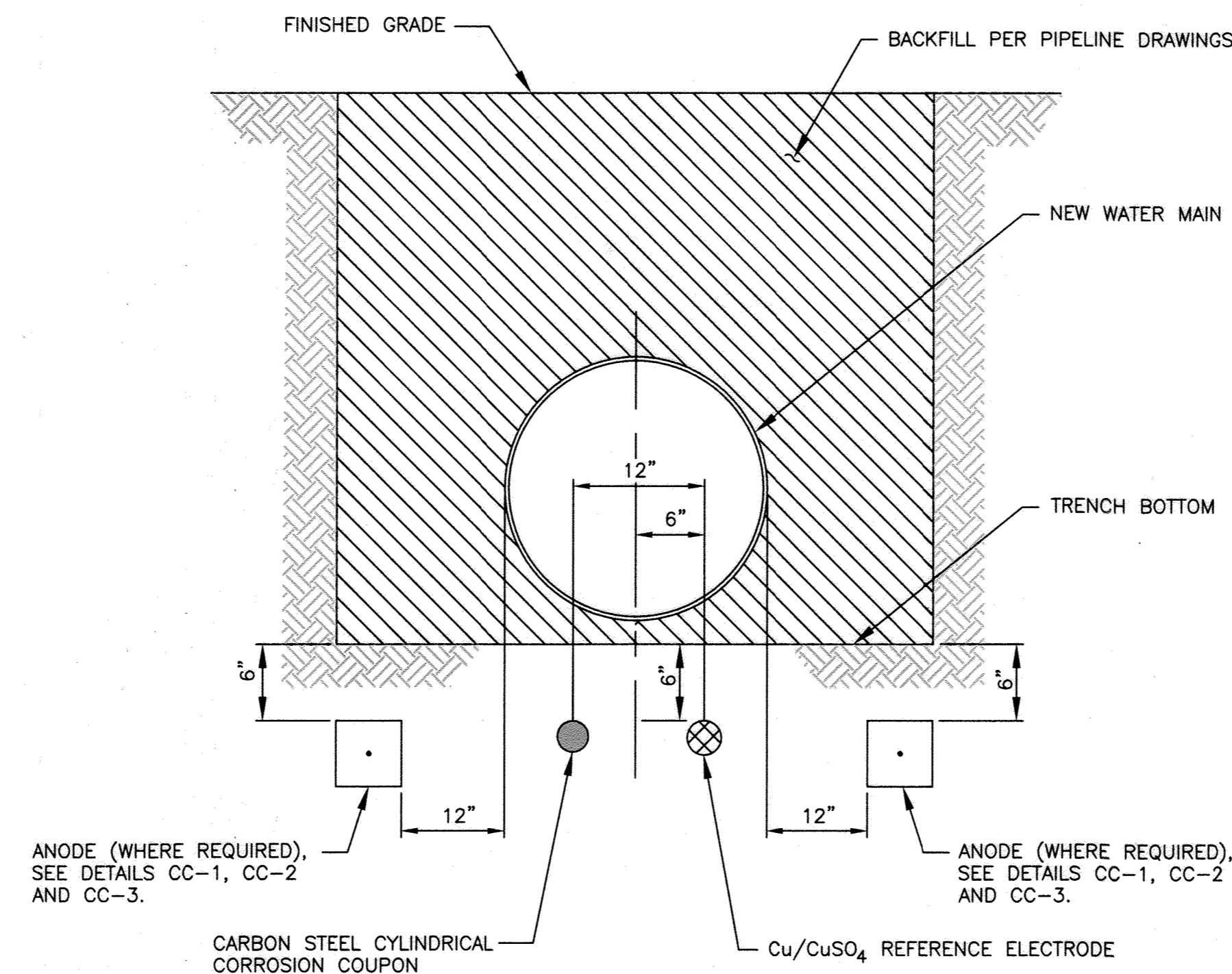
**CC-11: TEST BOX**

Scale: None



**CC-12: CONCRETE TEST STATION PAD**

Scale: None

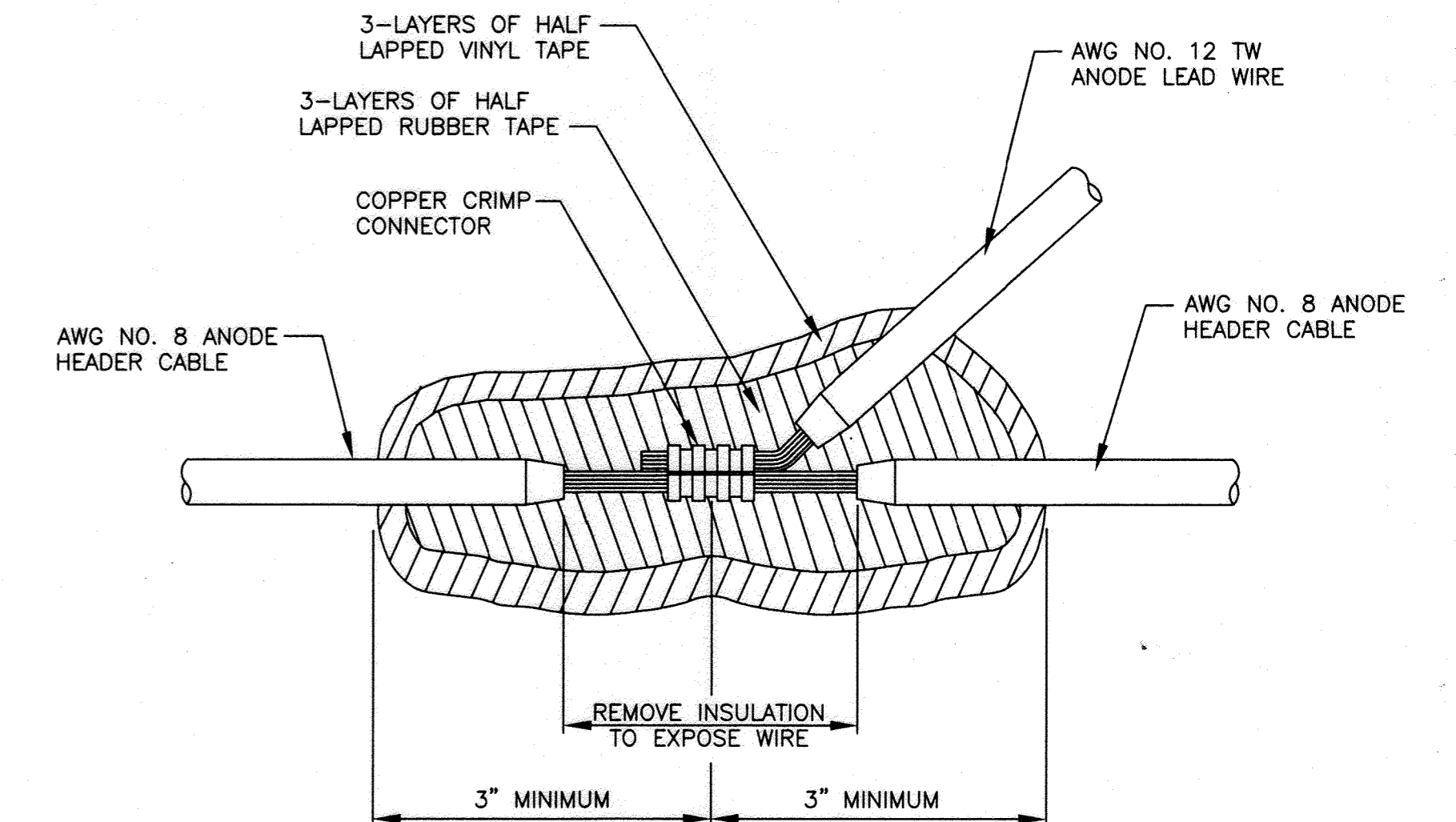


**NOTES:**

1. INSTALL ANODES, REFERENCE ELECTRODES AND CORROSION COUPONS IN NATIVE SOIL. DO NOT BACKFILL ANODES, REFERENCE ELECTRODES OR CORROSION COUPONS WITH SAND OR STONE.
2. BACKFILL PREPACKAGED MAGNESIUM ANODES WITH A MINIMUM OF 6 INCHES OF NATIVE SOIL ON ALL SIDES.

**CC-13: ANODE AND REFERENCE ELECTRODE PLACEMENT**

Scale: None



**CC-14: ANODE HEADER CABLE SPLICE**

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. 17083, Expiration Date 9/27/2018.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 7/1/17  
DIRECTOR OF PUBLIC WORKS DATE

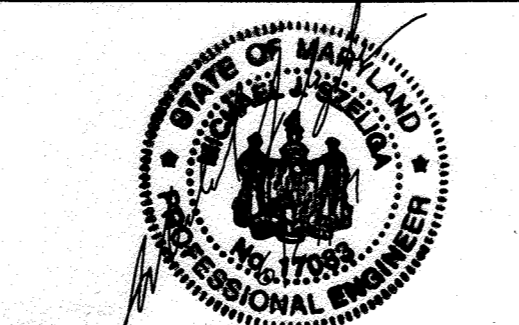
*[Signature]* 7/1/17  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* 7/1/17  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
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**KCI TECHNOLOGIES**



DES: MJS					
DRN: DJD					
CHK: MJS					
DATE: JUNE, 2017	JER	AS-BUILT	12/1/20		
	BY	NO.	REVISION	DATE	

**CORROSION CONTROL  
DETAILS - 3**

600' SCALE MAP NO. 32 BLOCK NO. 14, 21, 22

**AS-BUILT**  
DATE 12-01-2020

LEVERING AVENUE  
WATER MAIN

CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

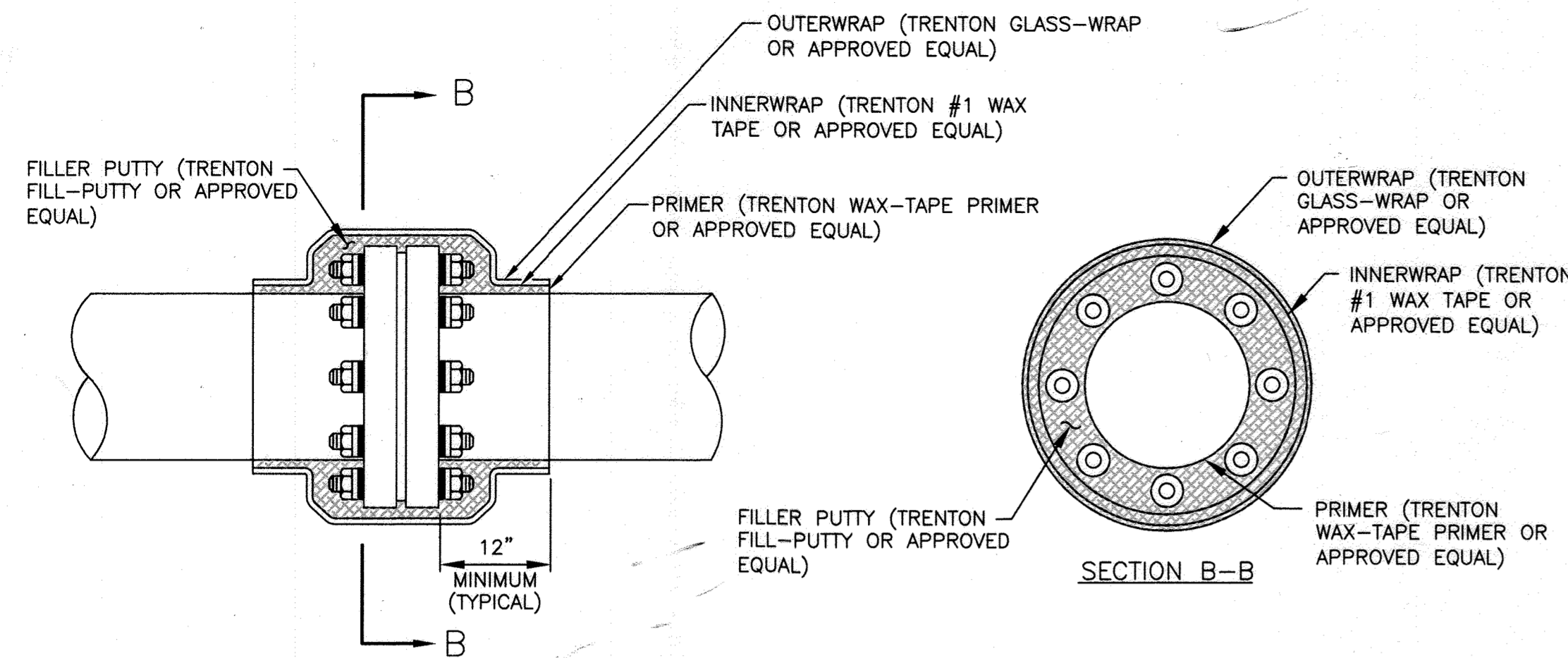
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

CP-5

SCALE AS SHOWN

SHEET 14 OF 18

KCI TECHNOLOGIES PROJECT No.: 01071378.34



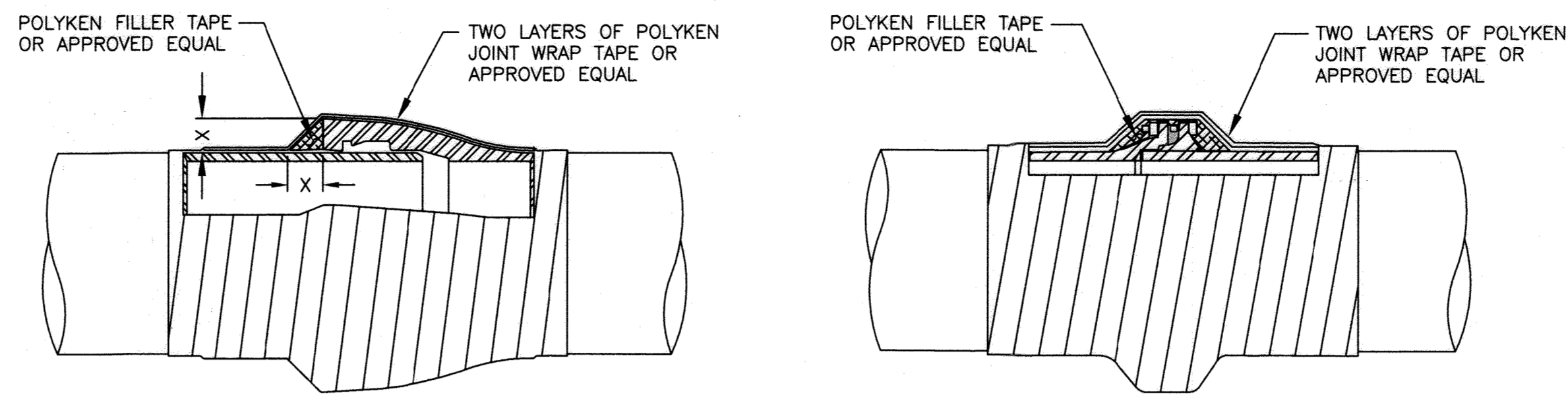
SIDE VIEW

NOTES:

- CLEAN SURFACE OF AREA TO BE COATED OF ALL FOREIGN MATERIAL BY WIRE BRUSHING.
- APPLY COATING PRIMER TO CLEANED SURFACE.
- INSTALL PROFILING MASTIC AS SHOWN, AND FILL ALL VOIDS BETWEEN FLANGES AND BOLTS.
- APPLY INNER WAX TAPE AND OUTER PVC TAPE AS SHOWN.

**CC-15: COATING OF INSULATING FLANGE**

Scale: None



BELL AND SPIGOT JOINT

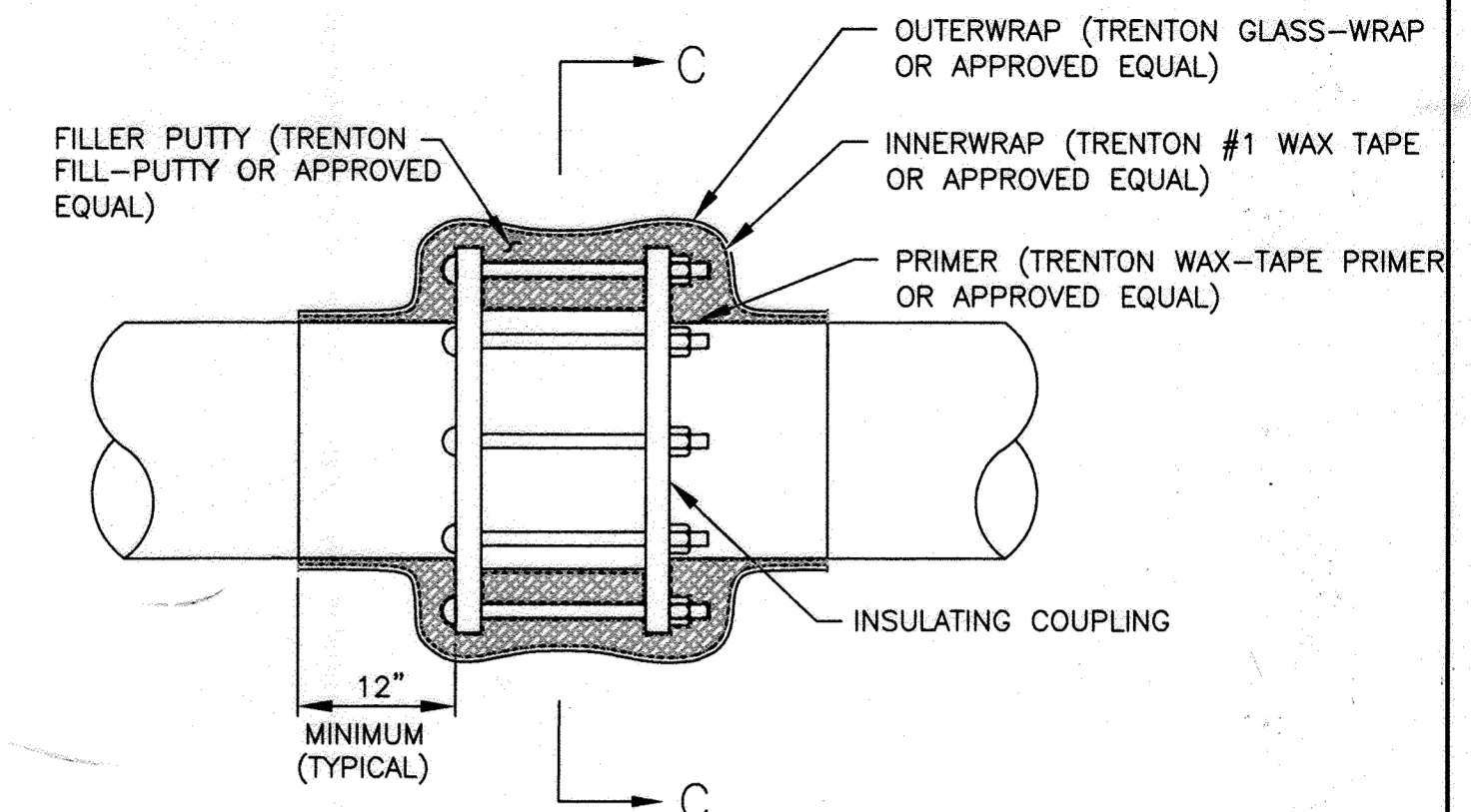
MEGALUG JOINT

NOTES:

- CLEAN SURFACE OF AREA TO BE COATED OF ALL FOREIGN MATERIAL BY WIRE BRUSHING.
- APPLY COATING PRIMER TO CLEANED SURFACE.
- APPLY FILLER TAPE AS SHOWN, AND FILL ALL VOIDS TO CREATE A SMOOTH TRANSITION SURFACE.
- APPLY TWO LAYERS OF JOINT WRAP TAPE.
- COAT PIPE FITTINGS IN A SIMILAR MANNER.
- HEAT SHRINK SLEEVES WITH FILLER MATERIAL AS RECOMMENDED BY HEAT SHRINK SLEEVE MANUFACTURER MAY ALSO BE USED.
- INSTALL BOND CABLES AFTER COATING JOINT.

**CC-16: JOINT COATING**

Scale: None

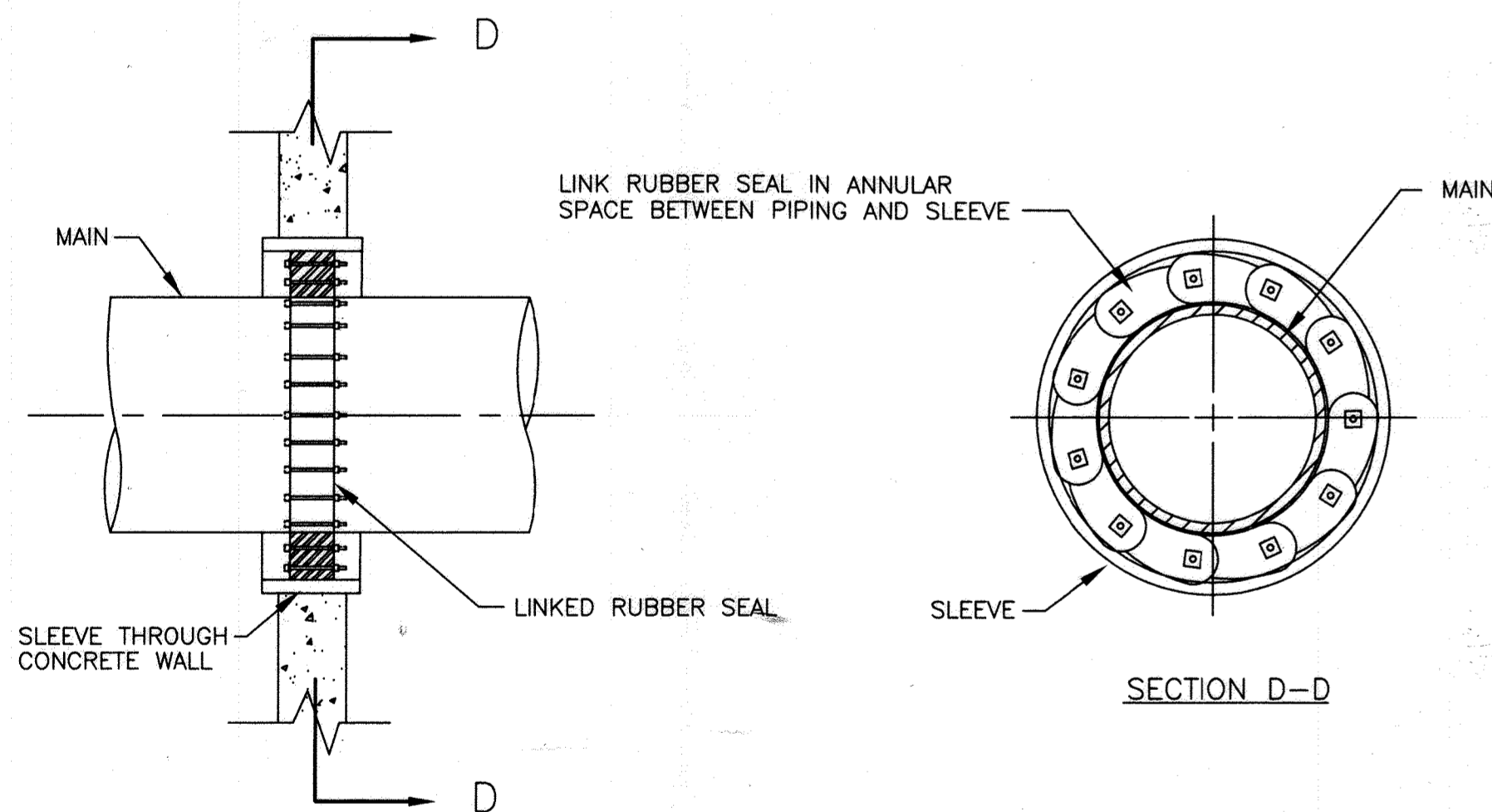


SIDE VIEW

SECTION C-C

**CC-17: COATING OF INSULATING COUPLING**

Scale: None



PLAN VIEW

NOTE:

INSTALL LINKED RUBBER SEAL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURE.

**CC-18: LINKED RUBBER SEAL**

Scale: None

12-INCH DUCTILE IRON WATER MAIN				
STATION NUMBER	TEST STATION TYPE	DETAIL NUMBER	NUMBER OF 20 POUND PREPACKAGED MAGNESIUM ANODES	INSULATING FLANGE OR INSULATING COUPLING
26+45	INSULATING JOINT (12" IN-LINE)	CC-1	2 (BACKSIDE OF INSULATOR)	YES
26+55	ANODE	CC-2	3	NO
27+99 R	INSULATING JOINT (8" CROSS-TIE)	CC-1	2 (BACKSIDE OF INSULATOR)	YES
29+12.1 L	INSULATING JOINT (12" TIE-IN)	CC-1	2 (BACKSIDE OF INSULATOR)	YES
30+35.9	FIRE HYDRANT	CC-3	2	NO
32+00	ANODE	CC-2	3	NO
36+15.2	FIRE HYDRANT	CC-3	2	NO
36+50	ANODE	CC-2	3	NO
0+16.8 (8-INCH LATERAL)	FIRE HYDRANT	CC-3	2	NO
2+30 (8-INCH LATERAL)	ANODE	CC-2	3	NO
2+32 (8-INCH LATERAL)	INSULATING JOINT ( 8" IN-LINE)	CC-1	2 (BACKSIDE OF INSULATOR)	YES
40+90	ANODE	CC-2	3	NO
40+97±	INSULATING JOINT (12" IN-LINE)	CC-1	2 (BACKSIDE OF INSULATOR)	YES
41+24±	INSULATING JOINT (12" IN-LINE)	CC-1	2 (BACKSIDE OF INSULATOR)	YES
41+33	ANODE	CC-2	3	NO
44+85	FIRE HYDRANT	CC-3	2	NO
47+00	ANODE	CC-2	3	NO
51+50	ANODE	CC-2	3	NO
53+29.5	FIRE HYDRANT	CC-3	2	NO
57+00	ANODE	CC-2	3	NO
58+10	FIRE HYDRANT	CC-3	2	NO
63+16	ANODE	CC-2	3	NO
63+24.3 (TEE)	INSULATING JOINT (12" TEE)	CC-1	2 (BACKSIDE OF INSULATOR)	YES
63+28±	INSULATING JOINT (12" IN-LINE)	CC-1	2 (BACKSIDE OF INSULATOR)	YES

**CC-19: TEST STATION SCHEDULE**

Scale: None

**AS-BUILT**  
DATE 12-01-2020

CP-6

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Ken J. Kim* 2/14/23  
DIRECTOR OF PUBLIC WORKS DATE  
*Chris P. ...* 2/14/23  
CHIEF, BUREAU OF UTILITIES DATE

*Thomas K. ...* 7/1/17  
CHIEF, BUREAU OF ENGINEERING DATE  
*...* 7/1/17  
CHIEF, UTILITY DESIGN DIVISION DATE

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DES: MJS					
DRN: DJD					
CHK: MJS					
DATE: JUNE, 2017	JER	AS-BUILT	12/1/20		
BY	NO.	REVISION	DATE	600' SCALE MAP NO. 32	BLOCK NO. 14, 21, 22

**CORROSION CONTROL  
DETAILS - 4**

LEVERING AVENUE  
WATER MAIN

CAPITAL PROJECT No. W-8300  
CONTRACT No. 44-4761

ELECTION DISTRICT NO. 1

HOWARD COUNTY, MARYLAND

SCALE

AS SHOWN

SHEET

15 OF 18