

BELLANCA DRIVE WATER MAIN REHABILITATION

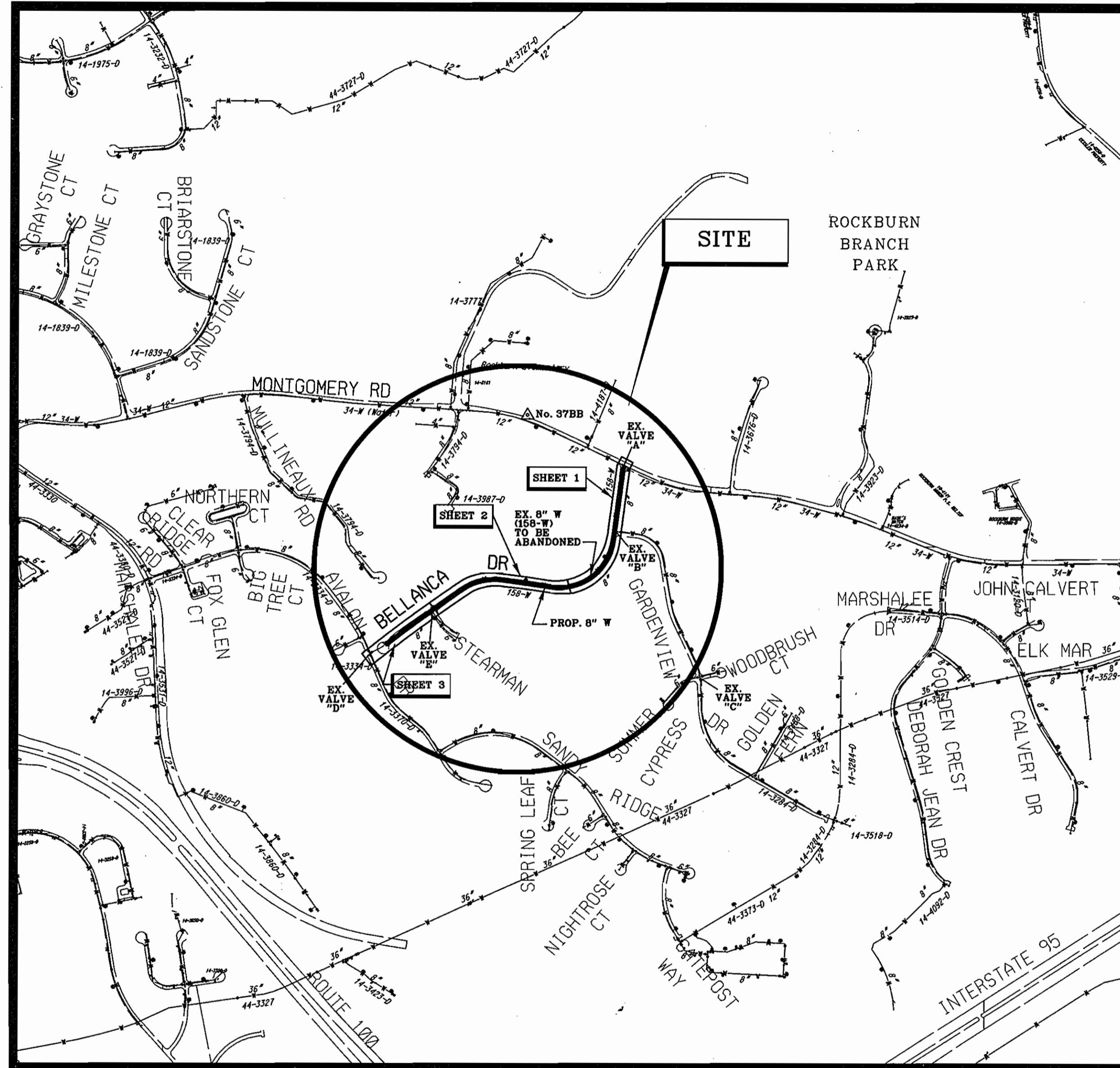
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411

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 CONTRACTOR EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON MAY, 2006 BY KCI TECHNOLOGIES
- HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE NAD '83/91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATION No. 37BB and No. 0060. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE IRON BARS.
- 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. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY 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 LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- 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 410-313-4900
VERIZON 1-800-743-0033 / 410-224-9210
COLONIAL PIPELINE CO. 410-795-1390
MISS UTILITY 1-800-257-7777
STATE HIGHWAY ADMINISTRATION 410-531-5533
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL 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 MAINS, SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(a) OF THE HOWARD COUNTY CODE.
- ALL DUCTILE IRON PIPES TO BE USED ON THE PUBLIC WATER SYSTEM SHALL BE CLASS 54. DUCTILE IRON FITTINGS SHALL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND SHALL BE EXTERIOR EPOXY COATED IN ACCORDANCE WITH AWWA C116.
- 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.
- ALL FIRE HYDRANT LEADS SHALL BE AWWA C900 DR18, PRESSURE CLASS 150 MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- ALL WATER MAINS CONSTRUCTED IN FILL AREAS SHALL BE RESTRAINED DUCTILE IRON PIPE CLASS 54 MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- ALL WATER MAINS WITHIN CASING PIPES SHALL BE RESTRAINED DUCTILE IRON PIPE CLASS 54 MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- THE FOLLOWING NOTE IS ADDED TO HOWARD COUNTY STANDARD DETAIL W2.22. BUTTRESSES AND ANCHORAGES FOR VERTICAL BENDS. "WHEN ANCHORING PVC PIPE, THE STRAPPING IN CONTACT WITH THE PIPE SURFACE SHALL BE 1/4" INCH WIDE BY INCH THICK STEEL. THE REMAINING PORTION OF THE STRAP SHALL BE REINFORCING BAR SIZED IN ACCORDANCE WITH THE PERTINENT CHART SHOWN ON THE DETAIL."
- EXCEPT AS INDICATED ON THE PLANS AND NOTED ABOVE, ALL PUBLIC WATER MAINS SHALL BE POLYVINYLCHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA C900 DR18, PRESSURE CLASS 150 AND THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE VARIOUS HOMEOWNERS AND COORDINATING HIS WORK ACTIVITIES SO AS NOT TO NEGATIVELY IMPACT CONNECTED CUSTOMERS. THE WATER MAIN REPLACEMENT SHALL CAUSE A MINIMUM DISTURBANCE TO THE EXISTING HOMEOWNERS AND NOTIFICATION TO THE HOMEOWNERS OF ANY "INTERRUPTION OF SERVICE" SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COUNTY REQUIRES THAT THE CONTRACTOR NOTIFY EACH HOMEOWNER AFFECTED BY LETTER OR DOOR TAGS OF THE IMPENDING SERVICE INTERRUPTION AT LEAST 72 HOURS IN ADVANCE OF THE PLANNED INTERRUPTION.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF UTILITIES HOWARD COUNTY, 15 DAYS PRIOR TO WATER MAIN SHUT DOWNS.
- THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES, GRADES AND ELEVATION OF THE PROPOSED FACILITIES.
- WATER MAINS SHALL BE FILLED WITH WATER AND BROUGHT TO 150 PSI FOR 2 HOURS, VARYING 5 PSI. SEE SPECIFICATIONS SPECIAL PROVISION D-19.
- ALL VALVES ABANDONED IN PLACE SHALL BE CLOSED AND HAVE ROADWAY BOX REMOVED.
- THE CONTRACTOR SHALL RETURN ALL SALVAGED FIRE HYDRANTS, FRAMES AND COVERS, VALVES, ROADWAY BOXES TO THE BUREAU OF UTILITIES AT 8250 MONTGOMERY RD. COLUMBIA, MD 21045.



LOCATION MAP
SCALE: 1" = 600'

TYPE OF BUILDING:	RESIDENTIAL
NUMBER OF PARCELS:	N/A
NUMBER OF WATER HOUSE CONNECTIONS:	28
DRAINAGE AREA:	PATAPSCO
PRESSURE ZONE:	550
WATER TEST GRADIENT:	700

HOWARD COUNTY GEODETIC SURVEY CONTROL
THE HORIZONTAL AND VERTICAL DATUM BASED ON
NAD83(91) (HORIZONTAL)
NAVD88 (VERTICAL)

NO. 37BB	NO. 0060
N 563663.417	N 553643.289
E 1378040.518	E 1380355.605
ELEV. 373.10	ELEV. 195.977

FOR COUNTY USE ONLY
WATER CODE.

LEGEND		LEGEND	
	DECIDUOUS TREE		EXISTING FIRE HYDRANT
	CONIFEROUS TREE		EXISTING VALVE
	TRAVERSE POINT		EXISTING WATER MAIN
	WATER MAIN		EXISTING GAS MAIN
	FIRE HYDRANT		EXISTING OVERHEAD SERVICE
	VALVE		EXISTING WATER TO BE ABANDONED
	WATER HOUSE CONNECTION		
	FIRE HYDRANT CONTINUITY TEST STATION		

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	8" WATER MAIN PLAN AND PROFILE
3	8" WATER MAIN PLAN AND PROFILE
4	8" WATER MAIN PLAN AND PROFILE
5	DETAILS
6	EROSION & SEDIMENT CONTROL DETAILS
6A	CORROSION CONTROL LAYOUT
6B	CORROSION CONTROL DETAILS 1
6C	CORROSION CONTROL DETAILS 2
6D	CORROSION CONTROL DETAILS 3

QUANTITIES				
ITEM	UNIT	ESTIMATE	AS-BUILT	MATERIAL SUPPLIER
6" WATER (PVC)	L.F.	98	9	JMM/PVC
8" WATER (PVC)	L.F.	2392	2434	JMM/PVC
FH ASSEMBLY	EACH	5	5	AMERICAN DARLING
TEST STATION	EACH	5	5	CARSON
6" V	EACH	1	1	KENNEDY
8" V	EACH	6	6	KENNEDY
8" TSBV	EACH	1	1	KENNEDY
8" BLOWOFF VALVE	EACH	1	1	KENNEDY
RECONNECT 1" WHC (COPPER)	L.F.	5	.5	K COPPER
RECONNECT 2" WHC (COPPER)	L.F.	5	5	K COPPER
REPLACE 1" WHC (COPPER)	L.F.	700	960	K COPPER

NAME OF UTILITY CONTRACTOR: CALLAHAN PIPELINE

CHECKBOX

AS-BUILT DATE: 7-30-08

RESTORATION SCHEDULE

LOCATION	DISTANCE	TYPE
BELLANCA DRIVE	2400	ASPHALT

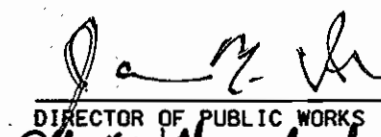
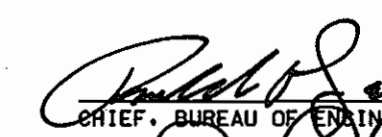

SUGGESTED SEQUENCE OF CONSTRUCTION

- CONSTRUCT ALL IN-LINE THRUST BLOCKS ON THE EXISTING WATER MAIN.
- CONSTRUCT NEW 8" WATER MAIN FROM 0+00 TO 23+67 BELLANCA DRIVE, 4+61 TO 4+61 LT9' GARDENVIEW DRIVE, AND 20+27 TO 20+27 LT9' STEARMAN COURT, INCLUDING ALL THRUST BLOCKS.
- INSTALL TEMPORARY CAP AT 23+67 AND RESTRAIN TO IN-LINE THRUST BLOCK.
- TEST WATER MAINS PER HOWARD COUNTY STANDARD SPECIFICATIONS.
- CLOSE NEW VALVES LOCATED AT 4+61 LT2', 20+27 LT2' AND OPEN NEW 8" VALVE AT 0+00.
- TRANSFER ALL HOUSE CONNECTIONS TO NEW 8" WATER MAIN.
- CLOSE EX. VALVES "A", "B", "C", AND "D".
- CONSTRUCT NEW 8" WATER FROM 4+61 LT9' TO 4+66 LT16'. CONNECT TO EX. 8" WATER AND RESTRAIN 45" HB TO IN-LINE THRUST BLOCK. OPEN EX. VALVES "A", "C", AND "D" AND NEW VALVE AT 4+61 LT2'.
- CLOSE EX. VALVES "A" AND "D".
- CONSTRUCT NEW 6" WATER FROM 20+27 LT9' TO 20+22 LT16'. CONNECT TO EX. 6" WATER AND RESTRAIN 45" HB TO IN-LINE THRUST BLOCK. OPEN NEW 6" VALVE AT 20+27 LT2'.
- CLOSE NEW 8" VALVE AT 20+29.
- REMOVE TEMPORARY CAP AT 23+67 AND CONSTRUCT NEW 8" WATER FROM 23+67 TO 23+76. CONNECT TO EX. 8" WATER. RESTRAIN BOTH 45" HB'S TO IN-LINE THRUST BLOCKS. OPEN EX. VALVE "D" AND NEW 8" VALVE AT 20+29.
- ABANDON EX. 8" WATER MAIN FROM 0+00 TO 23+76 BY INSTALLING PERMANENT CAPS AS SHOWN ON THE DRAWINGS. CLOSE EX. VALVES "A", "B", AND "E", AND REMOVE VALVE STEMS AND BOXES. RETURN ALONG WITH ABANDONED FH'S TO HOWARD COUNTY (SEE GENERAL NOTES 27 & 28).

AS-BUILT
DATE 7-30-08

PLOTTED: 08/18 AM on Tuesday, April 24, 2007
 BY: C:\Users\kci\Documents\BELLANCA\BELLANCA.DWG
 FILE: M:\2004\04\04\3464\BELLANCA.DWG

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

 5/10/07
 DIRECTOR OF PUBLIC WORKS DATE
 5/14/07
 CHIEF, BUREAU OF ENGINEERING DATE
 5-11-07
 CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI
TECHNOLOGIES

10 North Park Drive
Hunt Valley, MD 21030
Phone (410) 316-7800
Fax (410) 316-7817
www.kci.com



DES: RWJ			
DRN: RWJ			
CHK: TWW			
DATE: 4/24/07	LFN	AS BUILT	73008
	BY	NO.	REVISION

TITLE

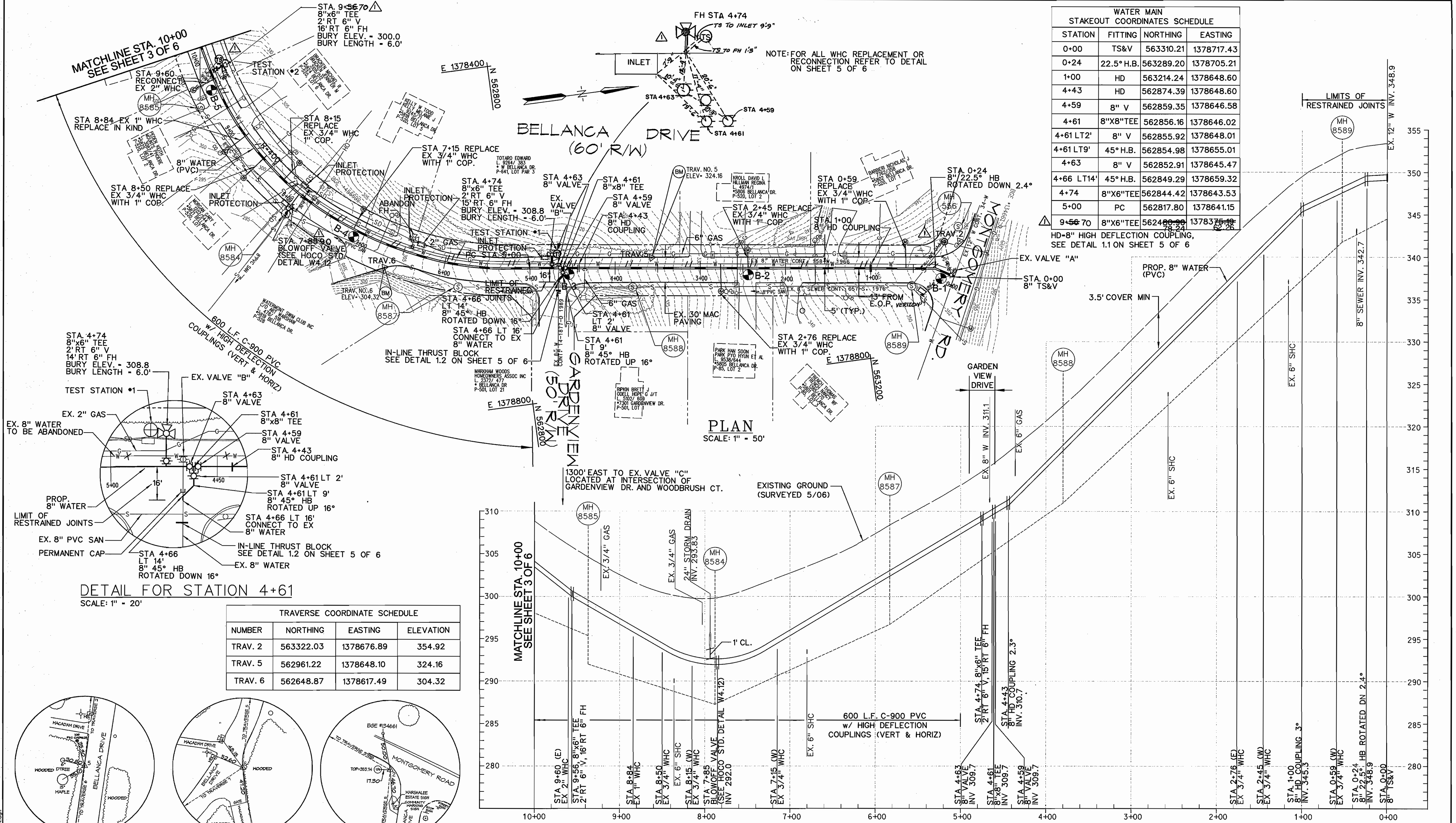
DATE 600' SCALE MAP NO. 37 BLOCK NO. 4

BELLANCA DRIVE WATER MAIN
REPLACEMENT
CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 1 OF 6

WATER MAIN STAKEOUT COORDINATES SCHEDULE			
STATION	FITTING	NORTHING	EASTING
0+00	TS&V	563310.21	1378717.43
0+24	22.5° H.B.	563289.20	1378705.21
1+00	HD	563214.24	1378648.60
4+43	HD	562874.39	1378648.60
4+59	8" V	562859.35	1378646.58
4+61	8"X8" TEE	562856.16	1378646.02
4+61 LT2'	8" V	562855.92	1378648.01
4+61 LT9'	45° H.B.	562854.98	1378655.01
4+63	8" V	562852.91	1378645.47
4+66 LT14'	45° H.B.	562849.29	1378659.32
4+74	8"X6" TEE	562844.42	1378643.53
5+00	PC	562817.80	1378641.15
9+56.70	8"X6" TEE	562489.99	1378375.19

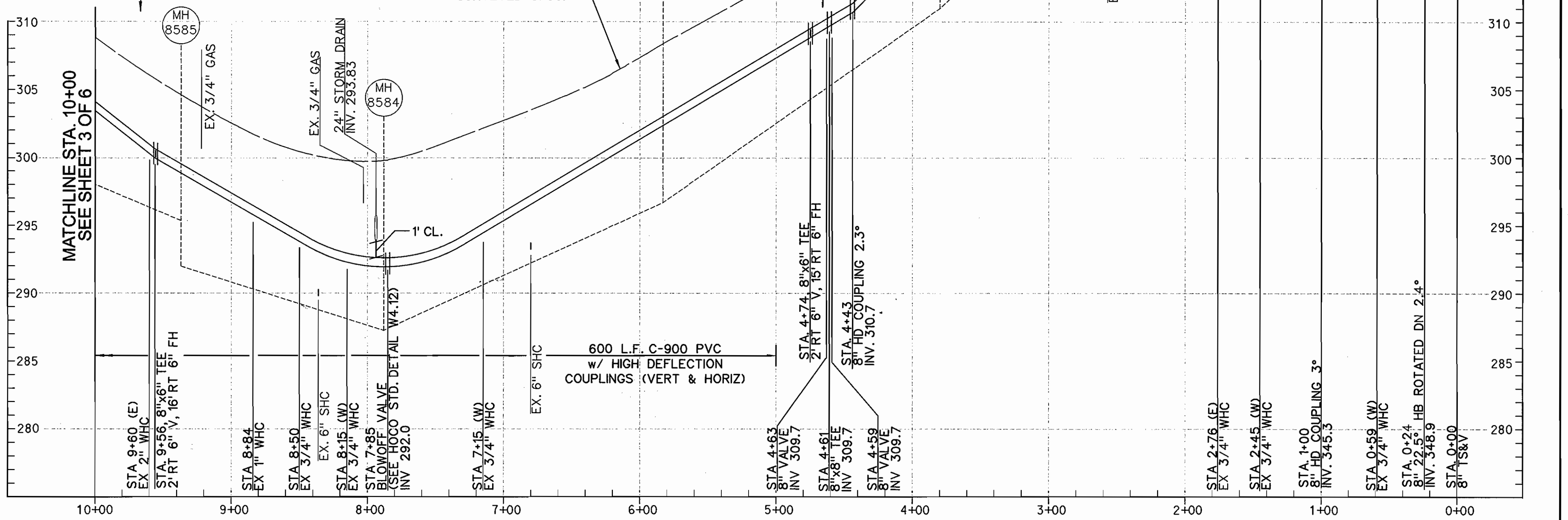
HD=8" HIGH DEFLECTION COUPLING, SEE DETAIL 1.1 ON SHEET 5 OF 6



PLAN SCALE: 1" = 50'

DETAIL FOR STATION 4+61 SCALE: 1" = 20'

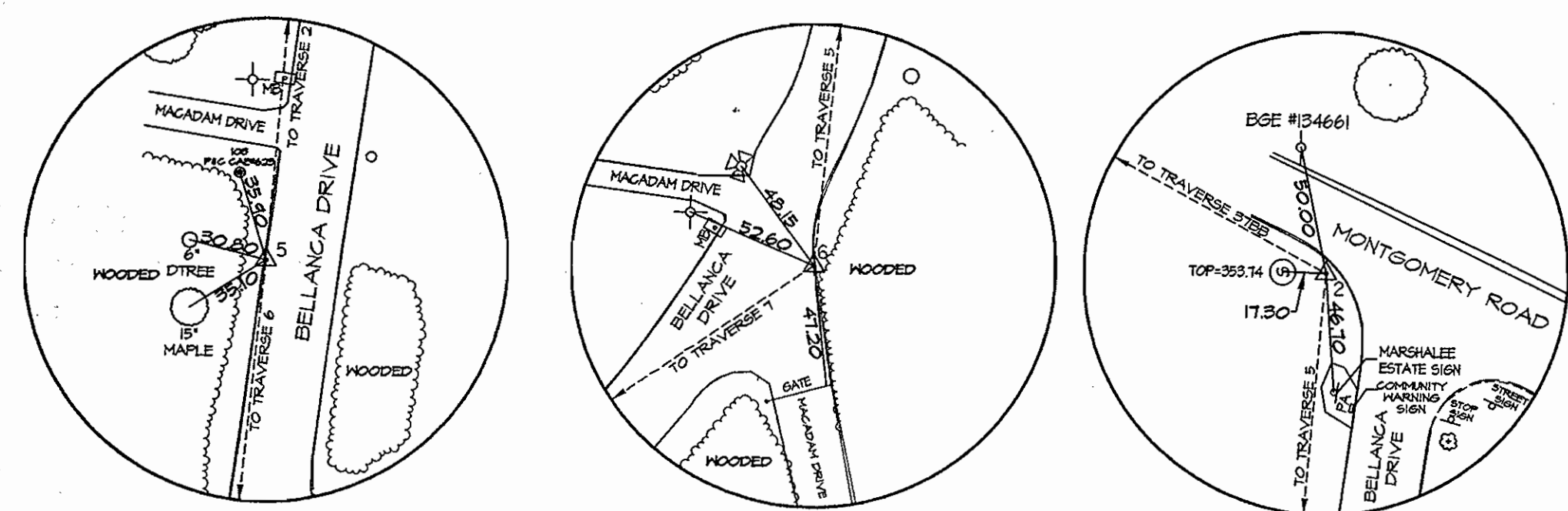
TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 2	563322.03	1378676.89	354.92
TRAV. 5	562961.22	1378648.10	324.16
TRAV. 6	562648.87	1378617.49	304.32



AS-BUILT DATE: 7-30-08

PROFILE SCALE: HORIZONTAL 1" = 50' VERTICAL 1" = 5'

BELLANCA DRIVE WATER MAIN REPLACEMENT



TRAVERSE POINT 5 PK NAIL TRAVERSE POINT 6 PK NAIL TRAVERSE POINT 2 PIN AND CAP

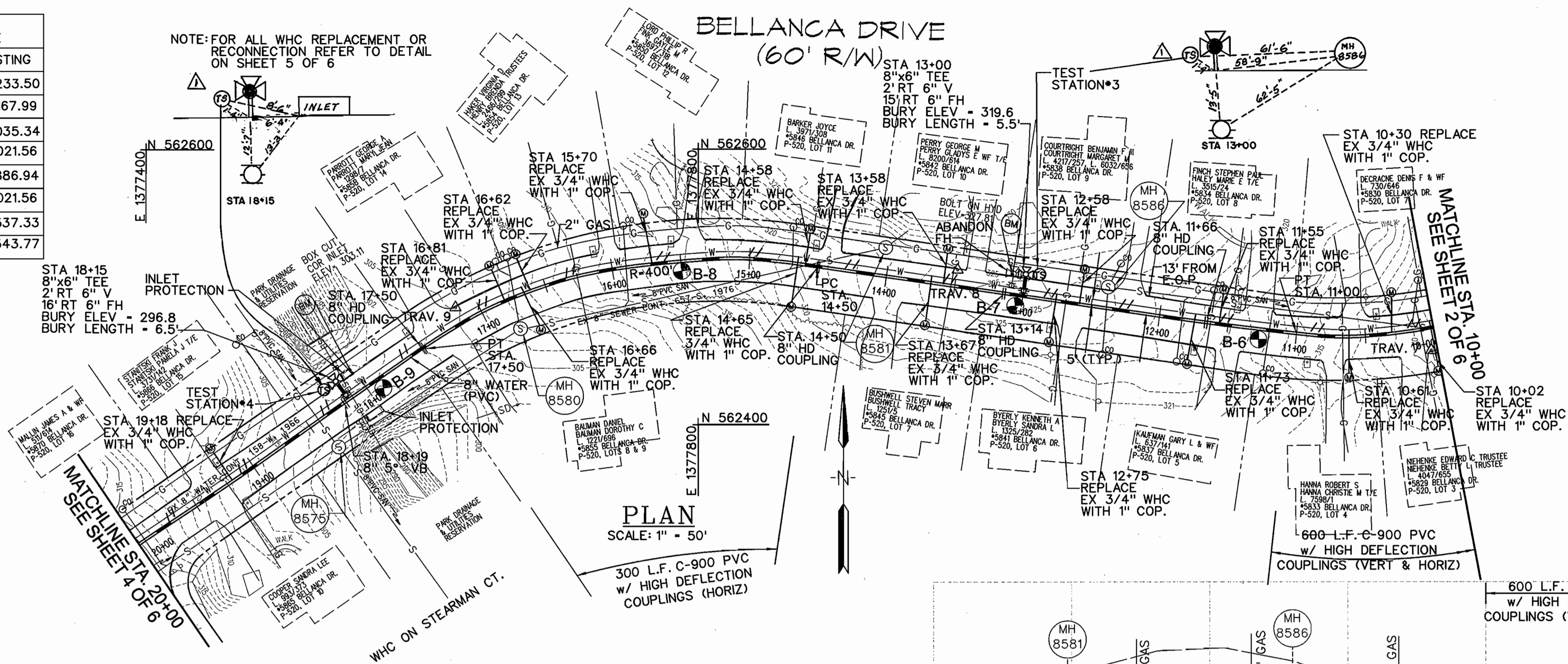
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: [Signature] 5/10/09 Chief, Bureau of Engineering: [Signature] 5/14/07 Chief, Utility Design Division: [Signature] 5-11-07	 ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS 10 North Park Drive Hunt Valley, MD 21030 Phone: (410) 316-7800 Fax: (410) 316-7817 www.kci.com	 DES: RWJ DRN: RWJ CHK: TWW DATE: 4/24/07	8" WATER MAIN PLAN AND PROFILE DATE: 6/00' SCALE MAP NO. 37 BLOCK NO. 4	BELLANCA DRIVE WATER MAIN REPLACEMENT CAPITAL PROJECT No. W-8272 CONTRACT No. 44-4411 ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
					SHEET 2 OF 6

WATER MAIN STAKEOUT COORDINATES SCHEDULE			
STATION	FITTING	NORTHING	EASTING
11+55	PT	562465.93	1378233.50
11+66	HD	562473.96	1378167.99
13+00	8"x6"TEE	562493.16	1378035.34
13+14	HD	562495.22	1378021.56
14+50	PC, HD	562514.88	1377886.94
17+50	PT, HD	562456.24	1378021.56
18+15	8"x6"TEE	562431.86	1377537.33
18+19	5"VB	562416.59	1377543.77

HD-8" HIGH DEFLECTION COUPLING,
SEE DETAIL 1.1 ON SHEET 5 OF 6

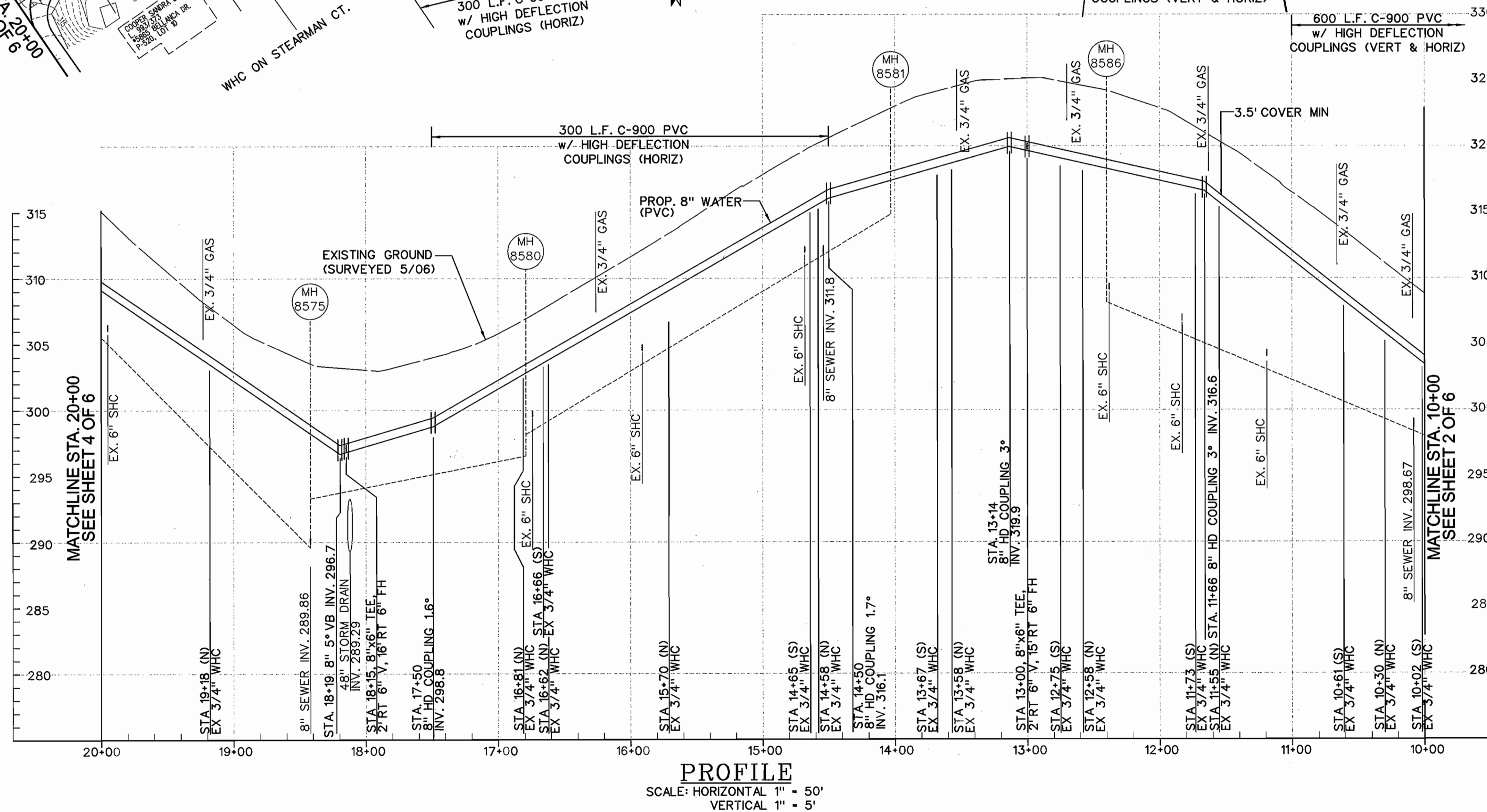
STA 18+15
8"x6" TEE
2' RT 6" V
16' RT 6" FH
BURY ELEV = 296.8
BURY LENGTH = 6.5'

NOTE: FOR ALL WHC REPLACEMENT OR
RECONNECTION REFER TO DETAIL
ON SHEET 5 OF 6

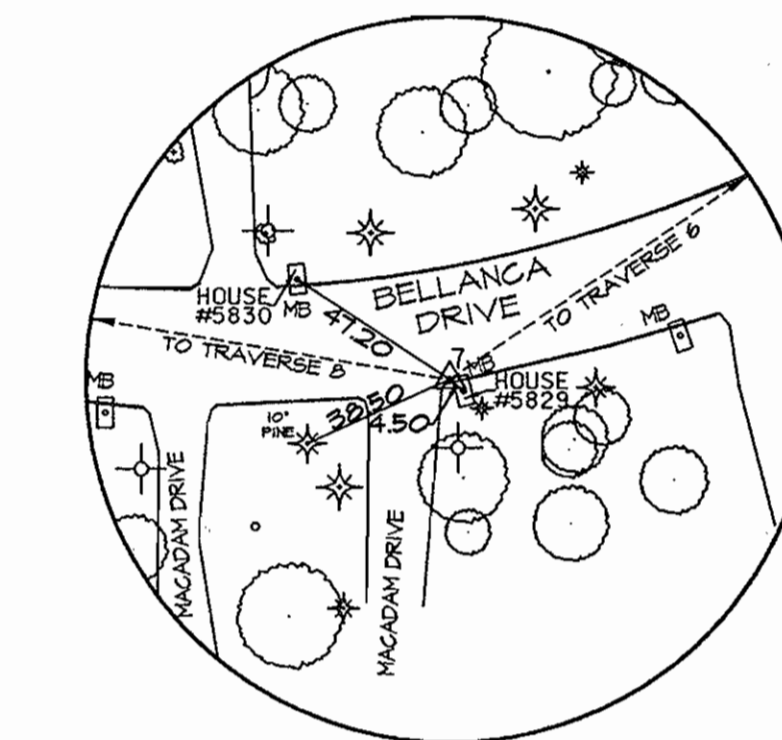


PLAN
SCALE: 1" = 50'

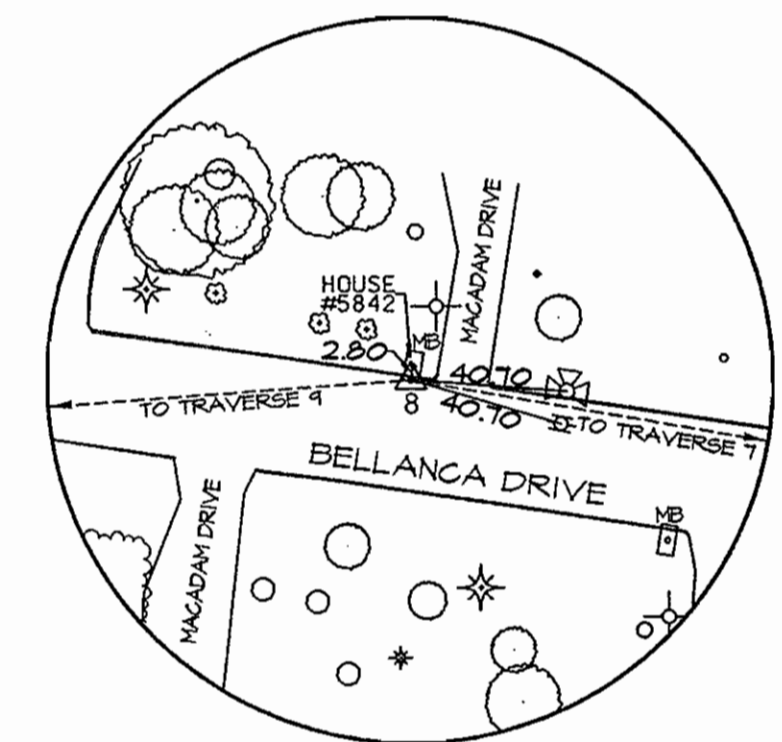
TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 7	562453.59	1378331.02	309.08
TRAV. 8	562512.22	1377988.02	324.57
TRAV. 9	562485.44	1377624.08	304.82



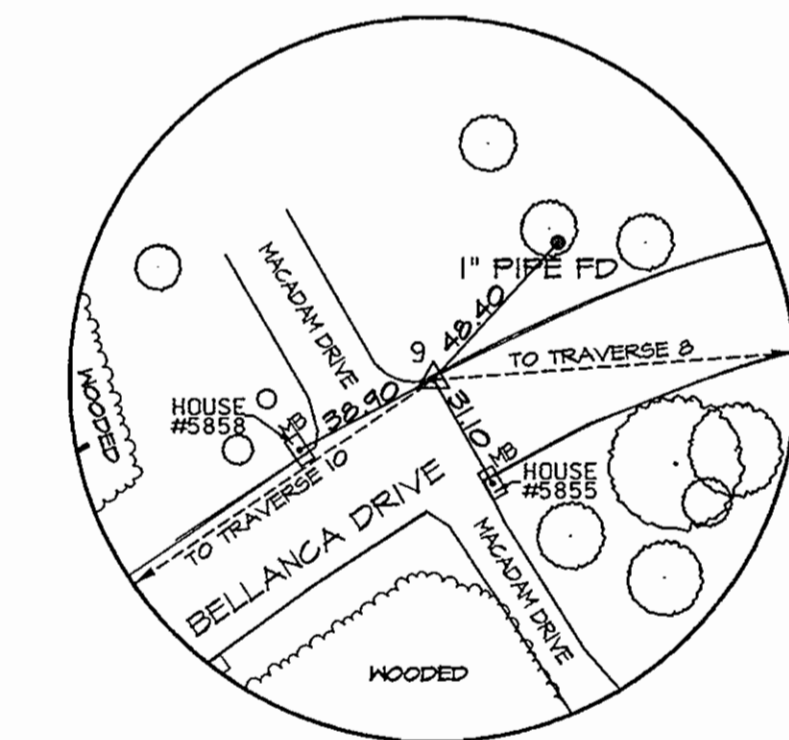
PROFILE
SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



TRAVERSE POINT 7
PK NAIL



TRAVERSE POINT 8
PK NAIL



TRAVERSE POINT 9
PK NAIL

AS-BUILT
DATE 7-30-08

PLOTTED: 08:20 AM on Tuesday, April 24, 2007
BY: Bob Jacobsen
Title: Environmental Engineering
File: W-8272-01-24-07.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Janet Van Slyke 5/14/07
DIRECTOR OF PUBLIC WORKS DATE

Paul J. Spon 5/14/07
CHIEF, BUREAU OF ENGINEERING DATE

John R. Amos 5/9/07
DIRECTOR, BUREAU OF UTILITIES DATE

Cliff 5-11-07
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES

10 NORTH PARK DRIVE
HUNT VALLEY, MD 21030
PHONE (410) 316-7800
FAX (410) 316-7817
www.kci.com



DES: RWJ			
DRN: RWJ			
CHK: TWW			
DATE: 4/24/07	LFN	AS BUILT	73008
	BY	NO.	REVISION

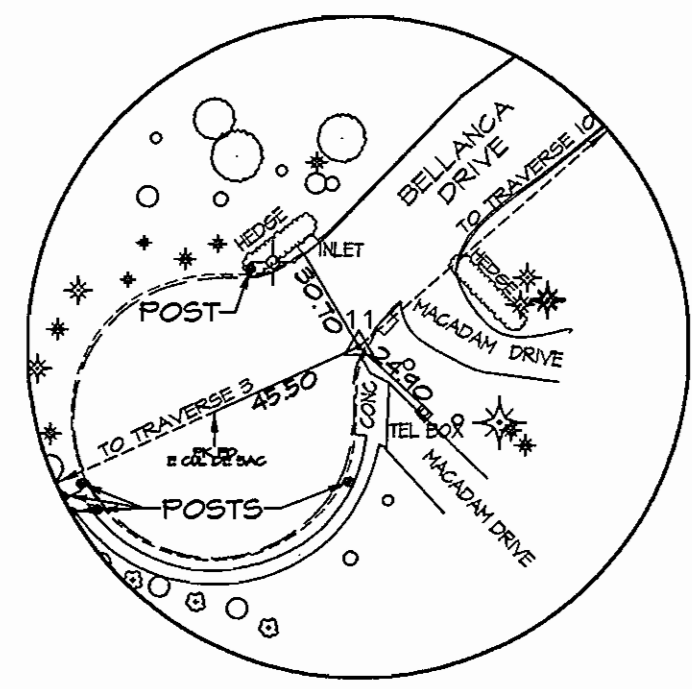
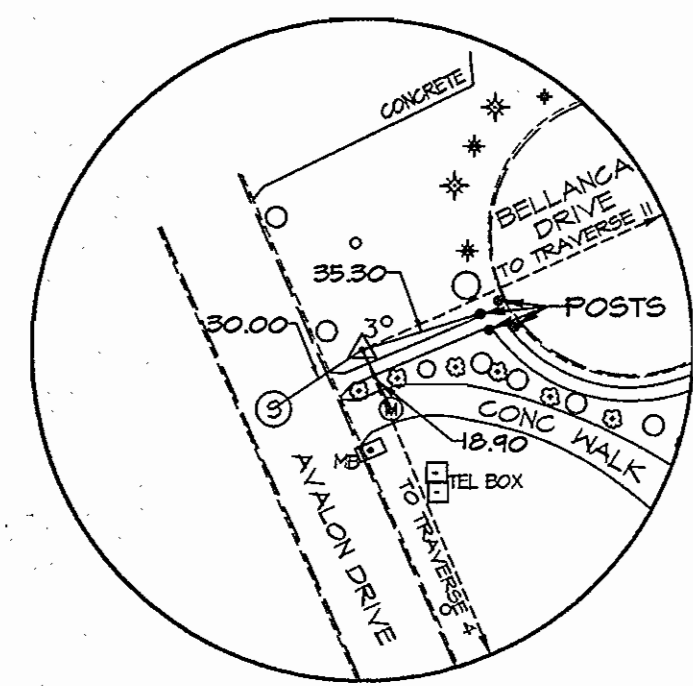
**8" WATER MAIN
PLAN AND PROFILE**

DATE 600' SCALE MAP NO. 37 BLOCK NO. 4

**BELLANCA DRIVE WATER MAIN
REPLACEMENT**
CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 3 OF 6



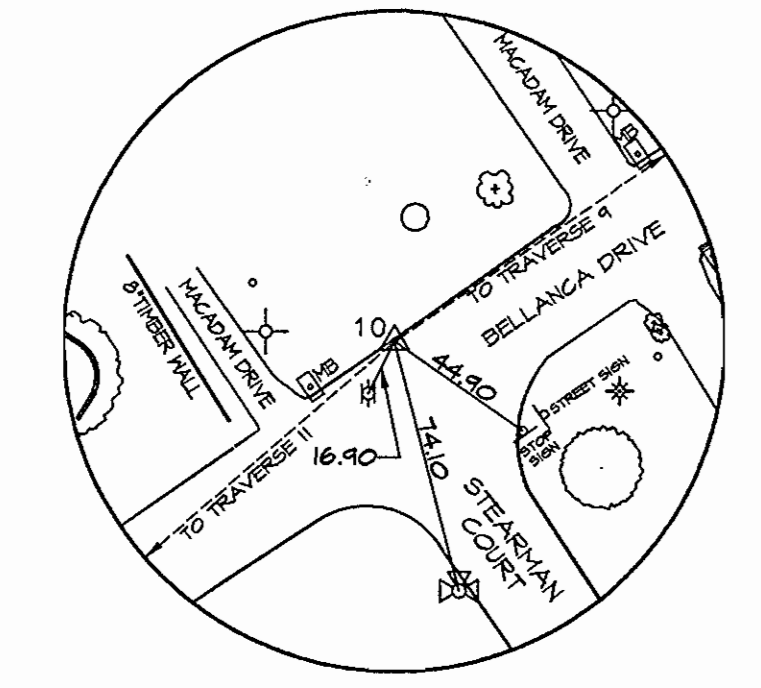
TRAVERSE POINT 3
PIN AND CAP

TRAVERSE POINT II
PK NAIL

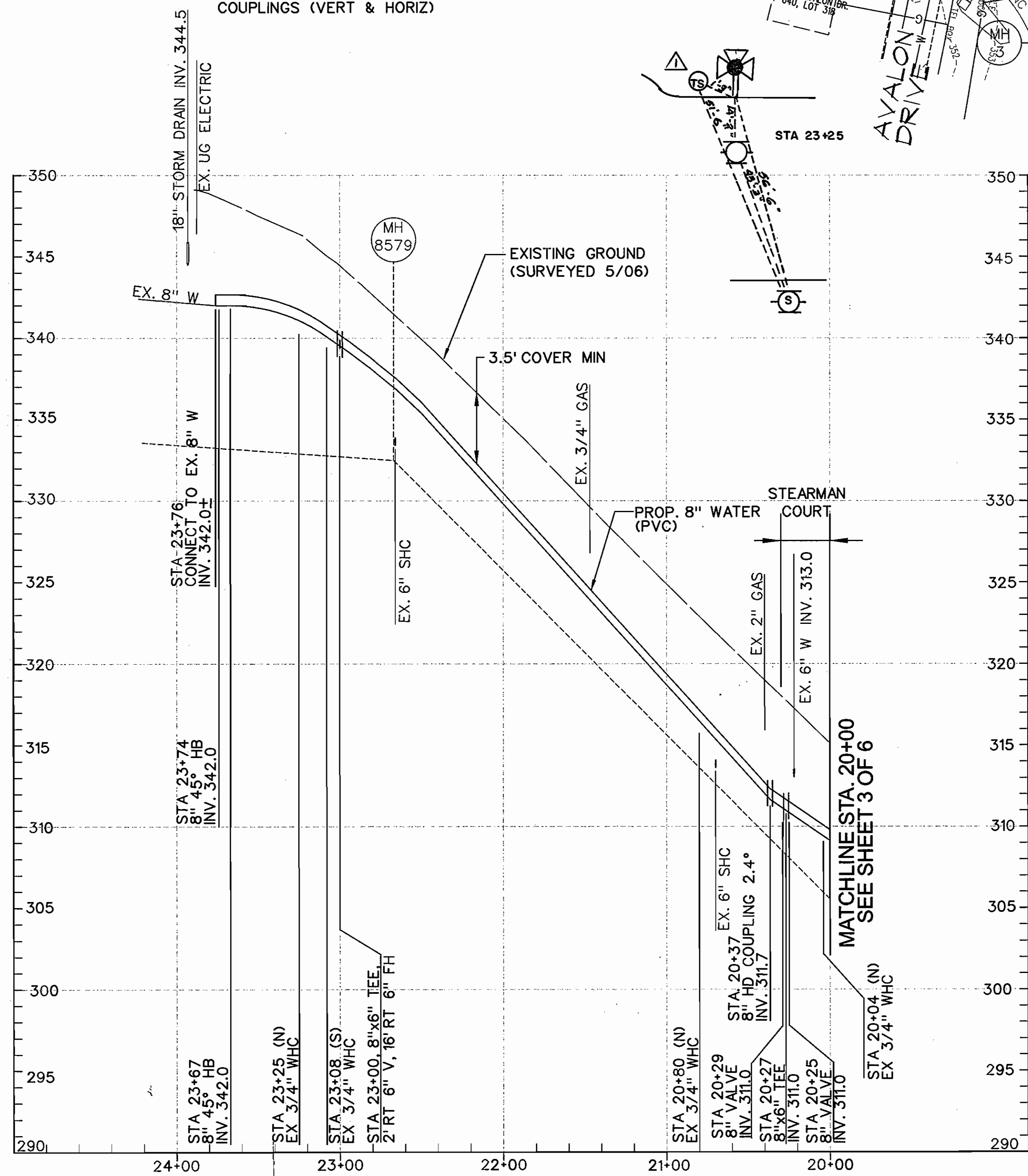
120 L.F. C-900 PVC
w/ HIGH DEFLECTION
COUPLINGS (VERT & HORIZ)

120 L.F. C-900 PVC
w/ HIGH DEFLECTION
COUPLINGS (VERT & HORIZ)

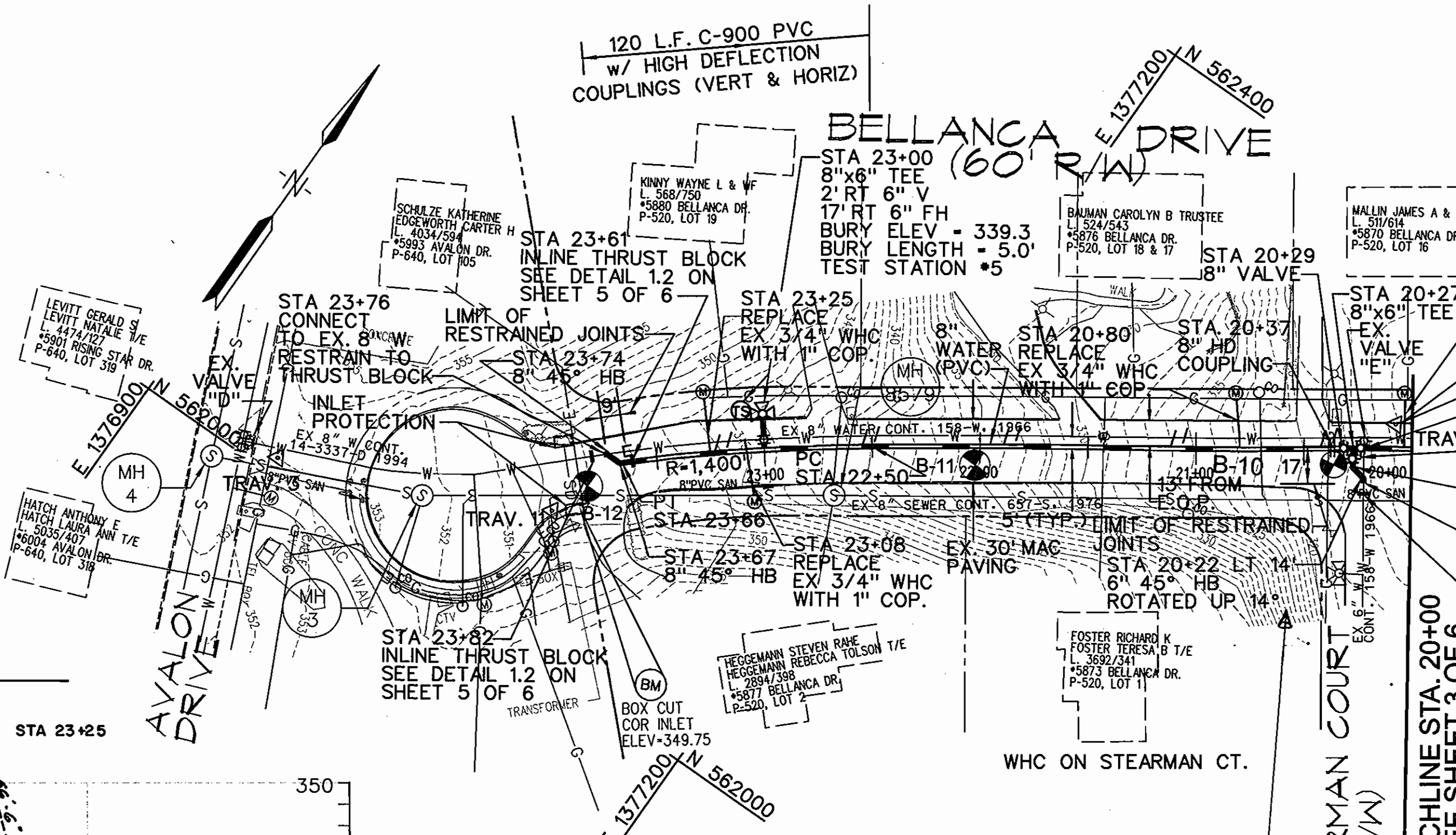
NOTE: FOR ALL WHC REPLACEMENT OR
RECONNECTION REFER TO DETAIL
ON SHEET 5 OF 6



TRAVERSE POINT 10
PK NAIL



PROFILE
SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'

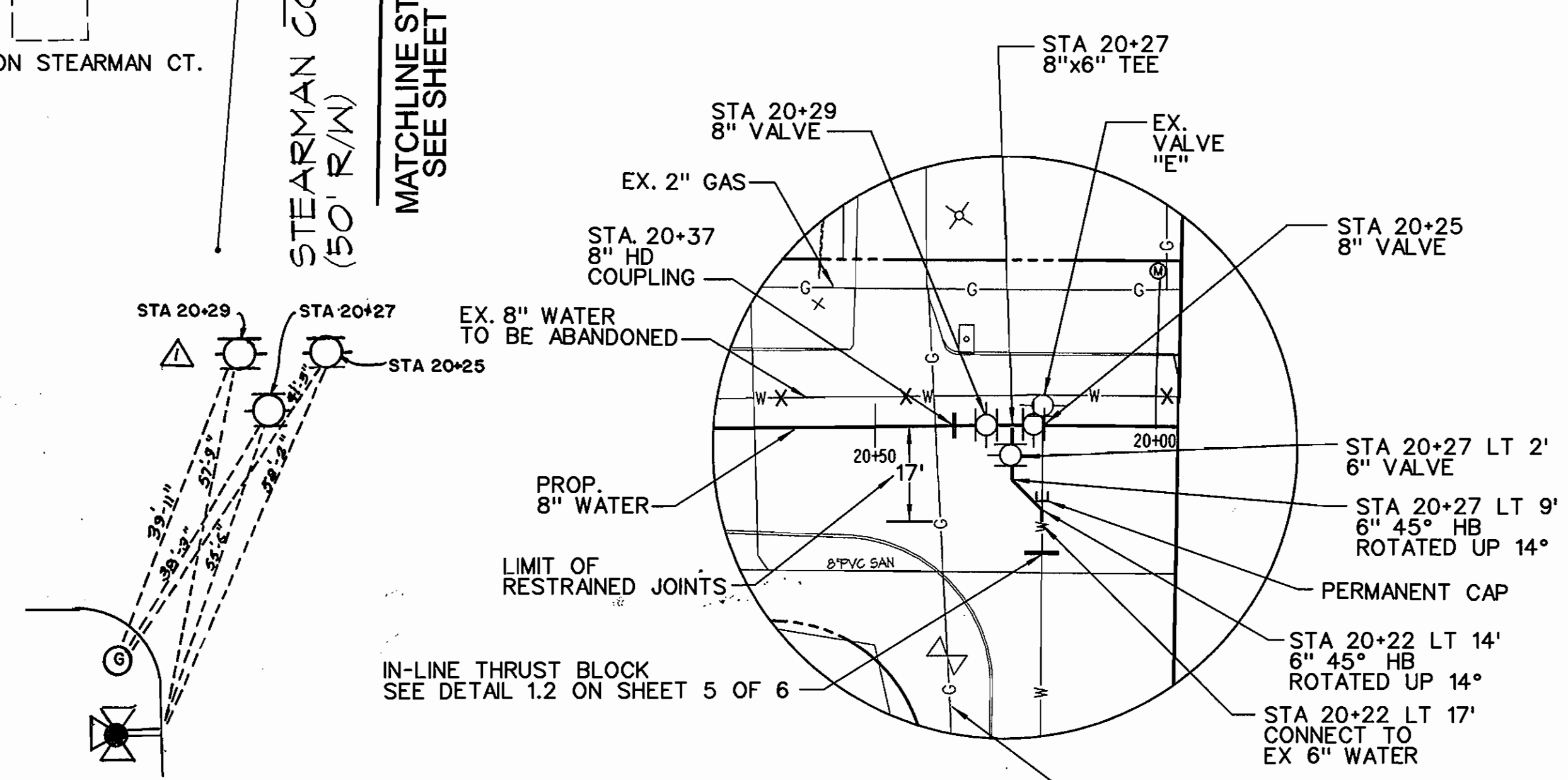


PLAN
SCALE: 1" = 50'

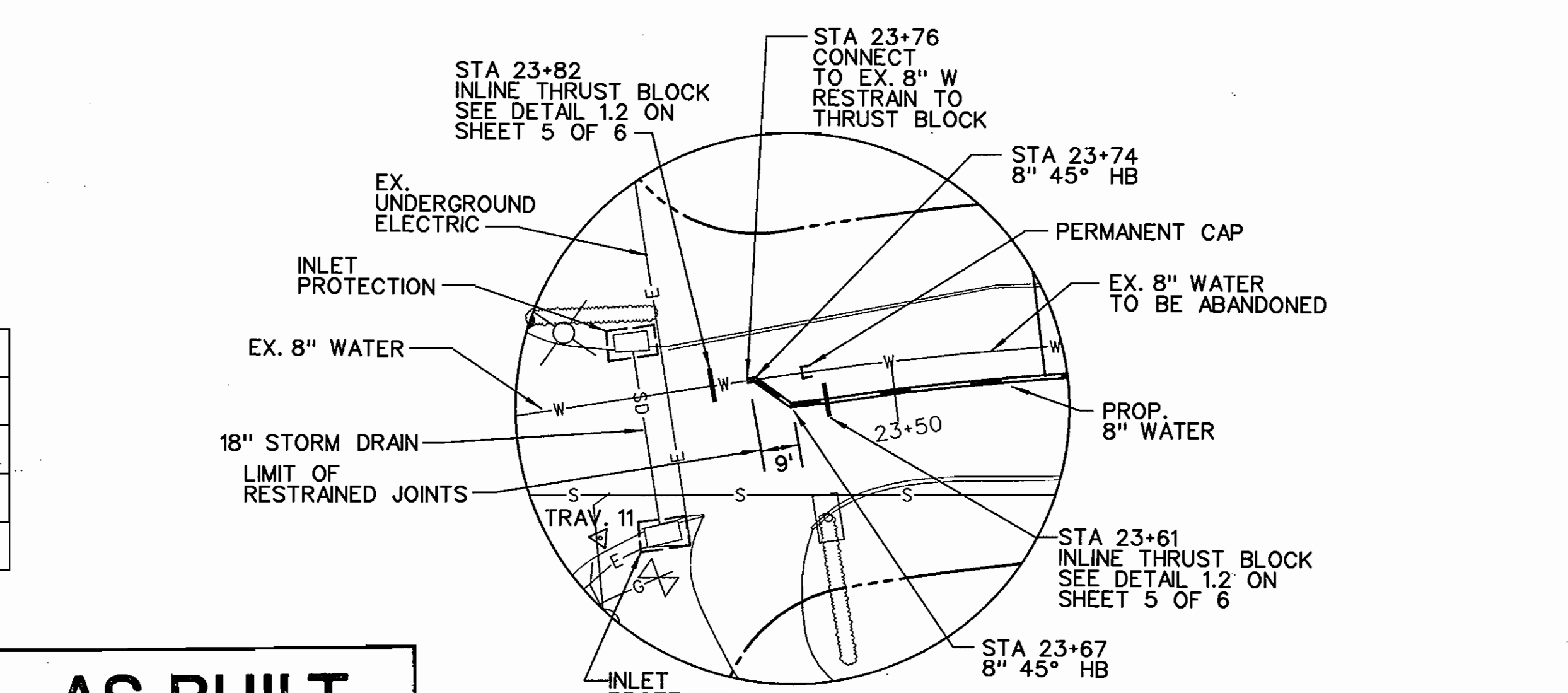
WATER MAIN STAKEOUT COORDINATES SCHEDULE			
STATION	FITTING	NORTHING	EASTING
20+22LT14'	45° H.B.	562289.77	1377384.34
20+25	8" V	562299.64	1377373.75
20+27	8"x6" TEE	562298.42	1377372.14
20+27LT2'	6" V	562296.82	1377373.36
20+27LT9'	45° H.B.	562291.03	1377377.40
20+29	8" V	562297.30	1377370.48
20+37	HD	562292.97	1377364.53
22+50	PC	562170.90	1377189.79
23+00	FH	562154.05	1377139.45
23+66	PT	562098.09	1377099.51
23+67	45° H.B.	562097.119	1377098.58
23+74	45° H.B.	562097.32	1377091.42

HD-8" HIGH DEFLECTION COUPLING,
SEE DETAIL 1.1 ON SHEET 5 OF 6

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 3	562008.11	1376967.50	353.21
TRAV. 10	562318.94	1377382.07	315.67
TRAV. 11	562061.10	1377085.68	349.60



DETAIL FOR STATION 20+27
SCALE: 1" = 20'



DETAIL FOR STATION 23+76
SCALE: 1" = 20'

AS-BUILT
DATE 7-30-08

PLOTTED: 08:20 AM on Tuesday, April 24, 2007
BY: Bob Jacobson
FILE: H:\2004\04\24\24-08\Drawings\3-08P1A.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jan M. ... 5/10/07
DIRECTOR OF PUBLIC WORKS DATE

Paul ... 5/14/07
CHIEF, BUREAU OF ENGINEERING DATE

... 5/11/07
CHIEF, UTILITY DESIGN DIVISION DATE

KCI TECHNOLOGIES

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10 NORTH PARK DRIVE
HUNT VALLEY, MD 21030
PHONE (410) 316-7800
FAX (410) 316-7817
www.kci.com



DES: RWJ			
DRN: RWJ			
CHK: TWJ			
DATE: 4/24/07			
BY: LFN	AS BUILT		
NO.:			
REVISION:			
DATE: 7/30/08			

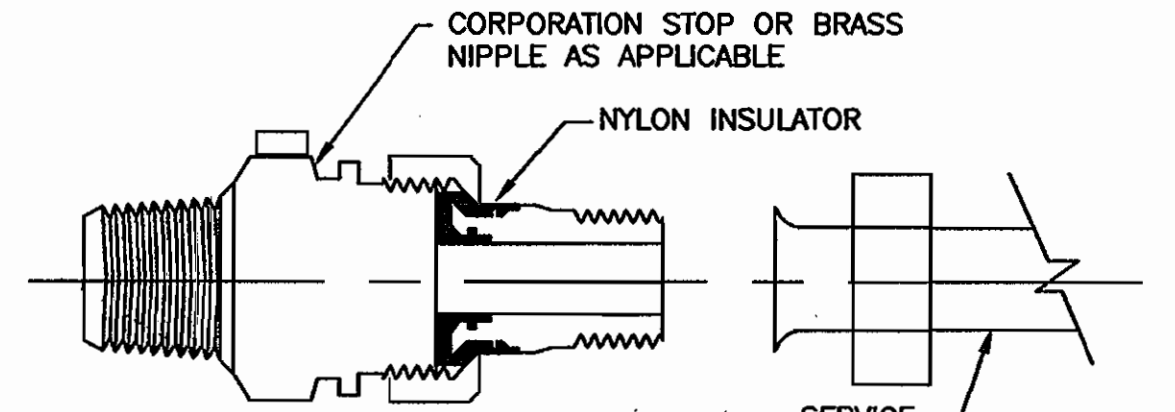
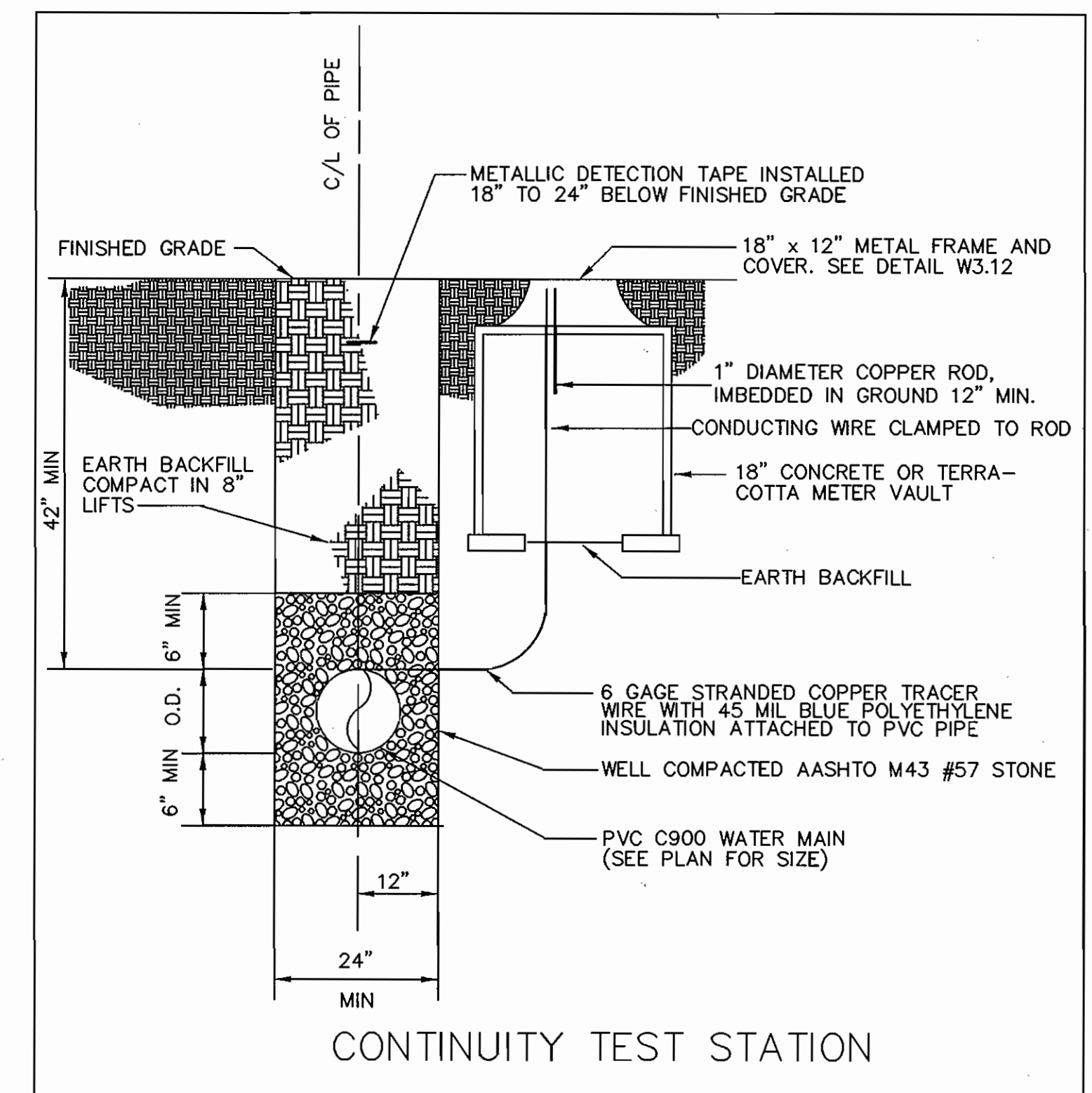
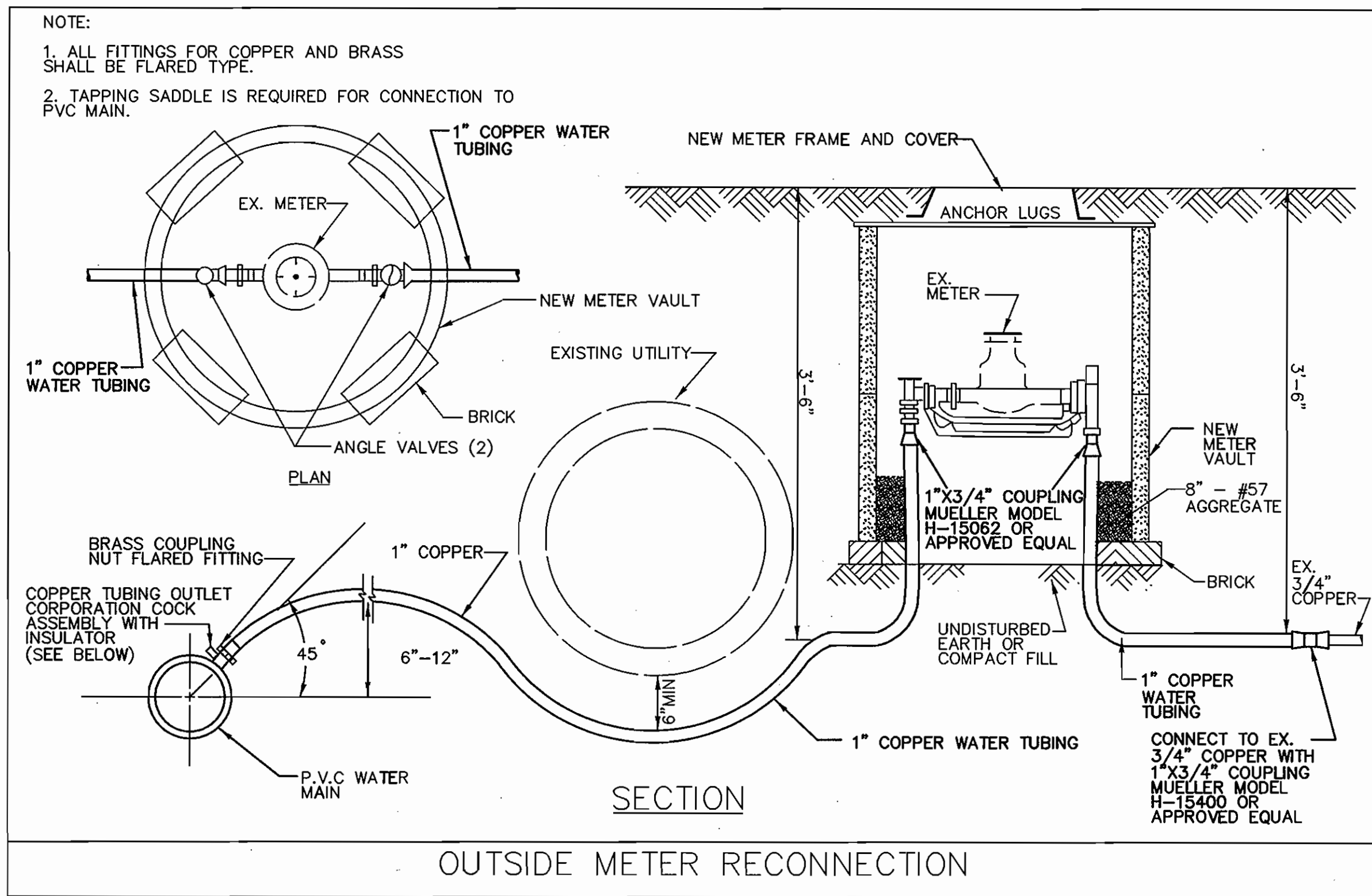
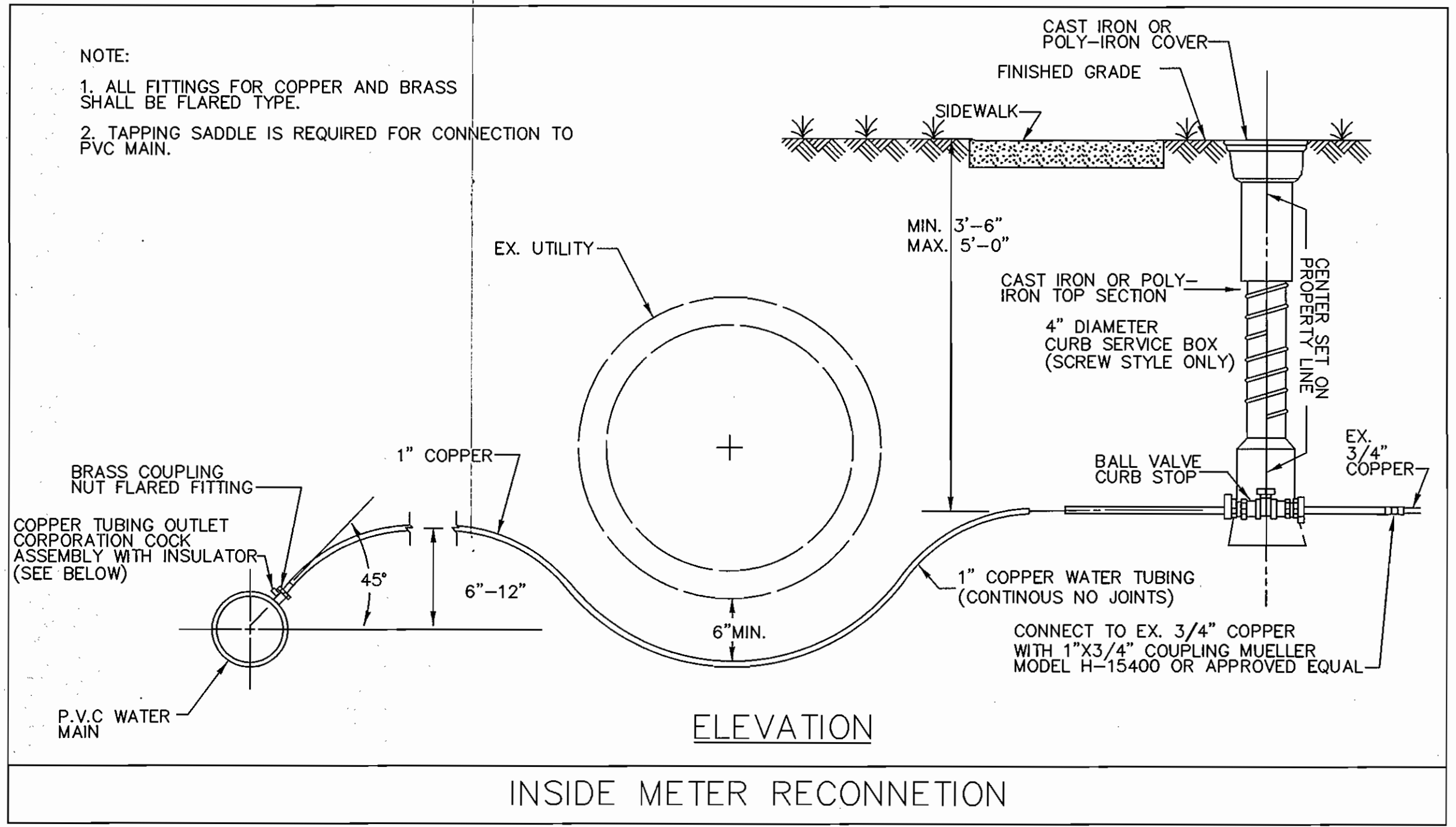
**8" WATER MAIN
PLAN AND PROFILE**

600' SCALE MAP NO. 37 BLOCK NO. 4

**BELLANCA DRIVE WATER MAIN
REPLACEMENT**
CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411

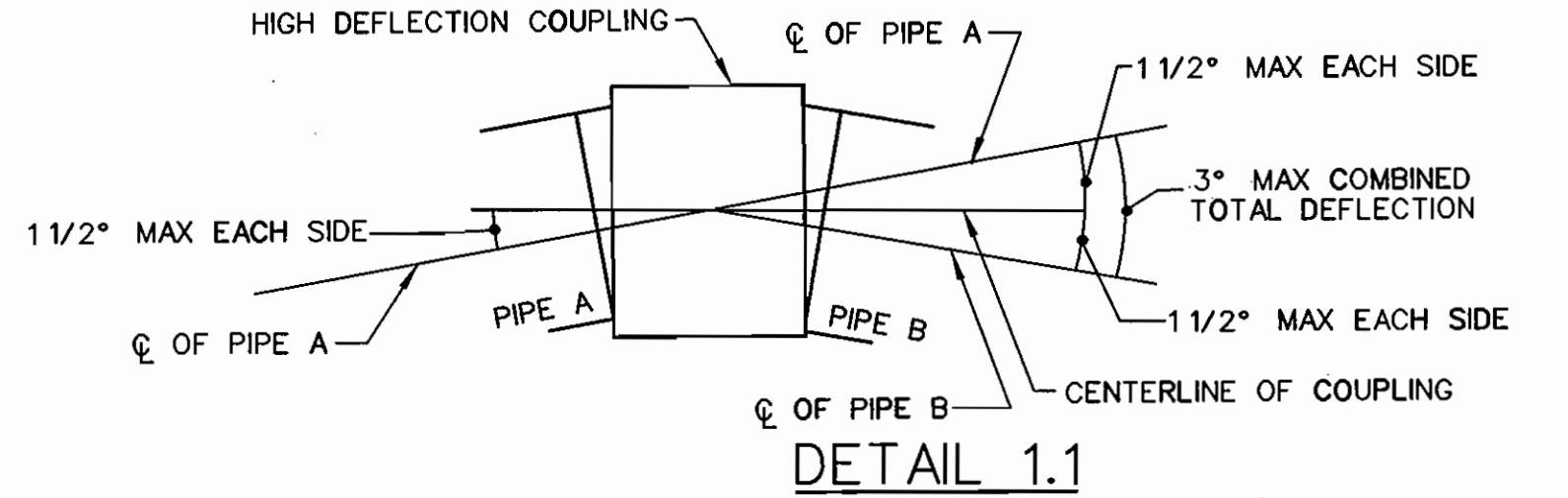
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 4 OF 6

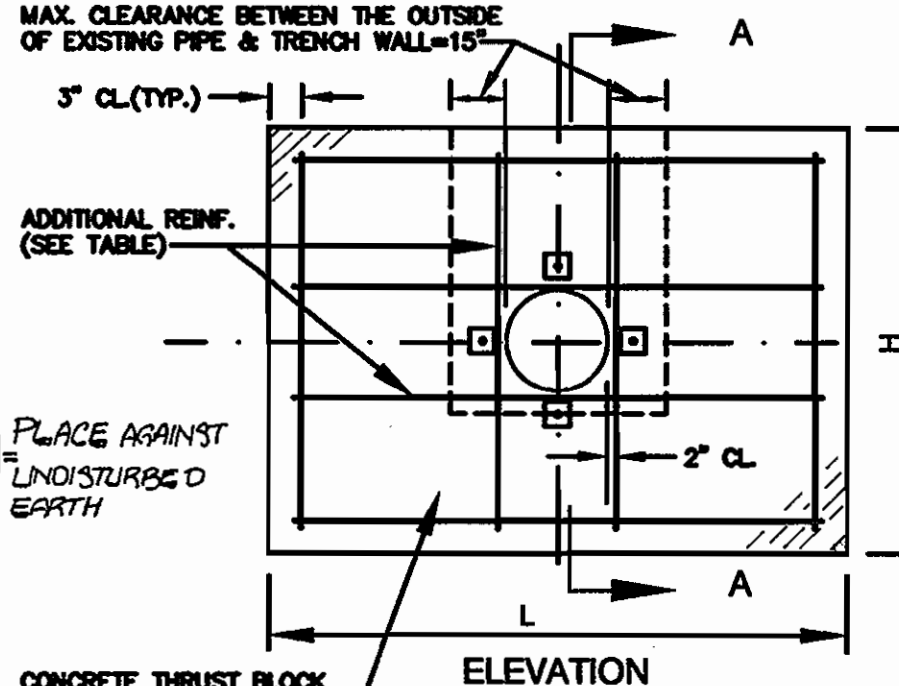
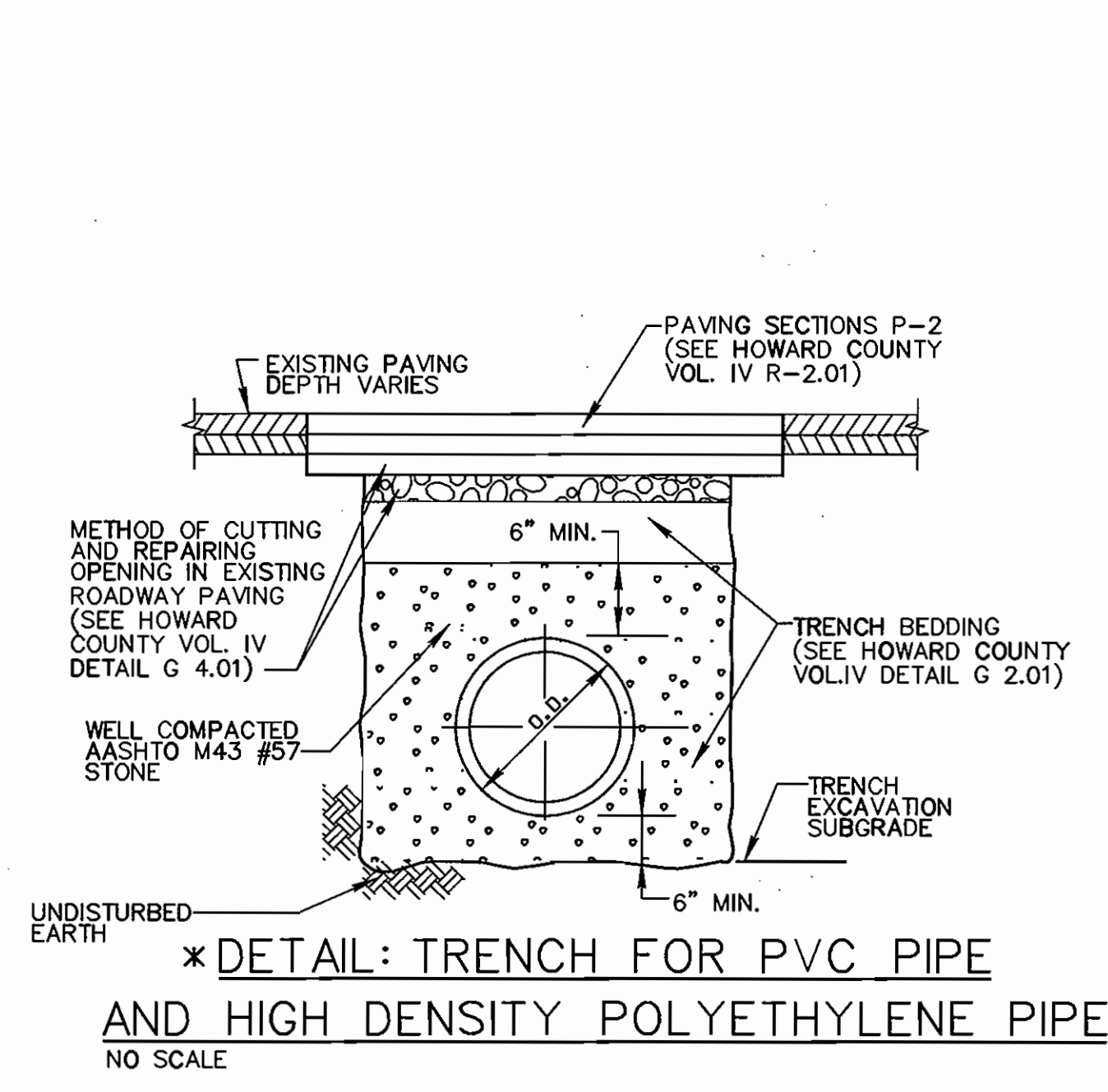


NOTES:
1. INSTALL ELECTRICAL ISOLATION ON ALL SMALL DIAMETER (2" AND LESS) WATER SERVICE CONNECTIONS TO MAIN.
2. COAT EXTERIOR OF SERVICE PIPING IN ACCORDANCE WITH THE SPECIFICATIONS FOR A DISTANCE OF 12 INCHES ON EITHER SIDE OF INSULATOR.

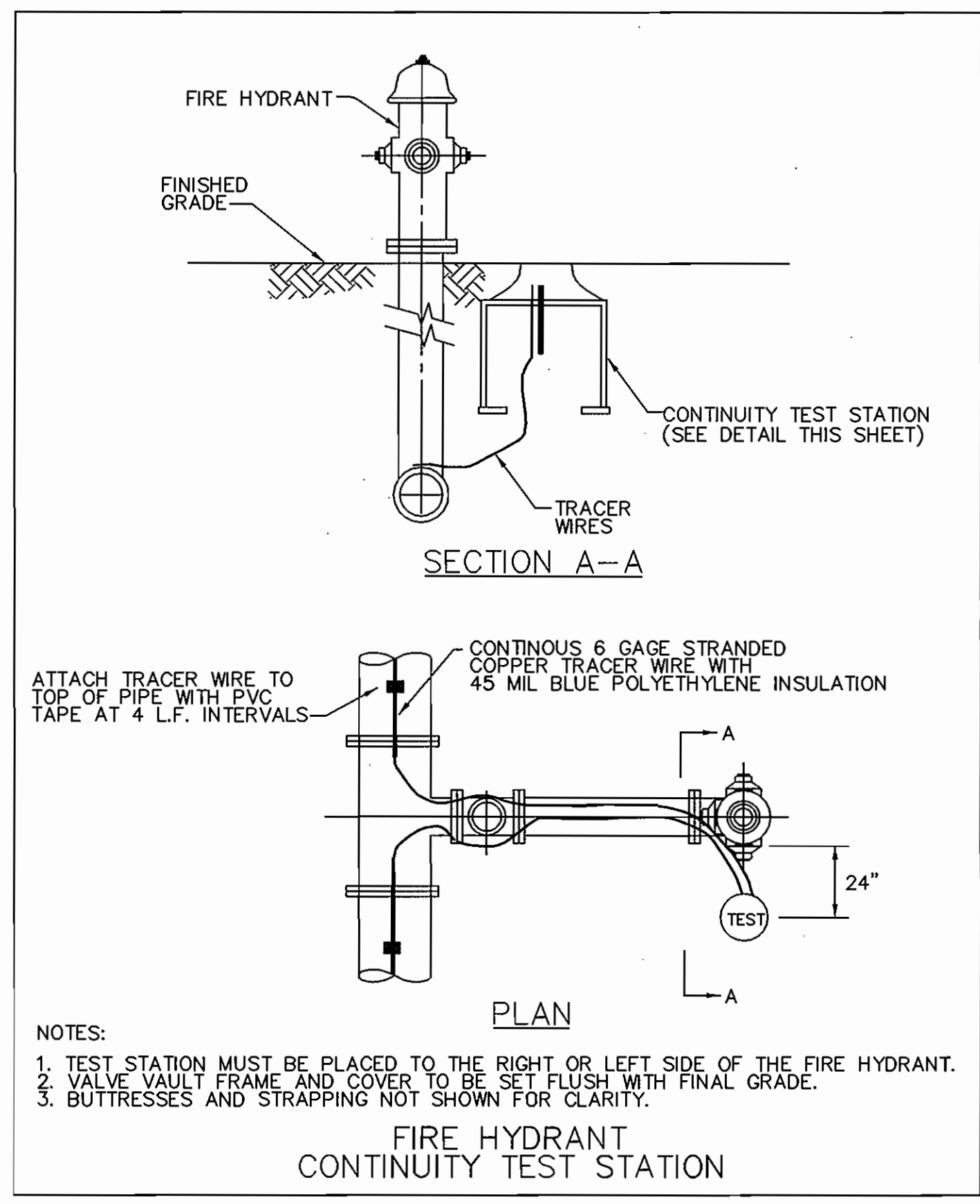
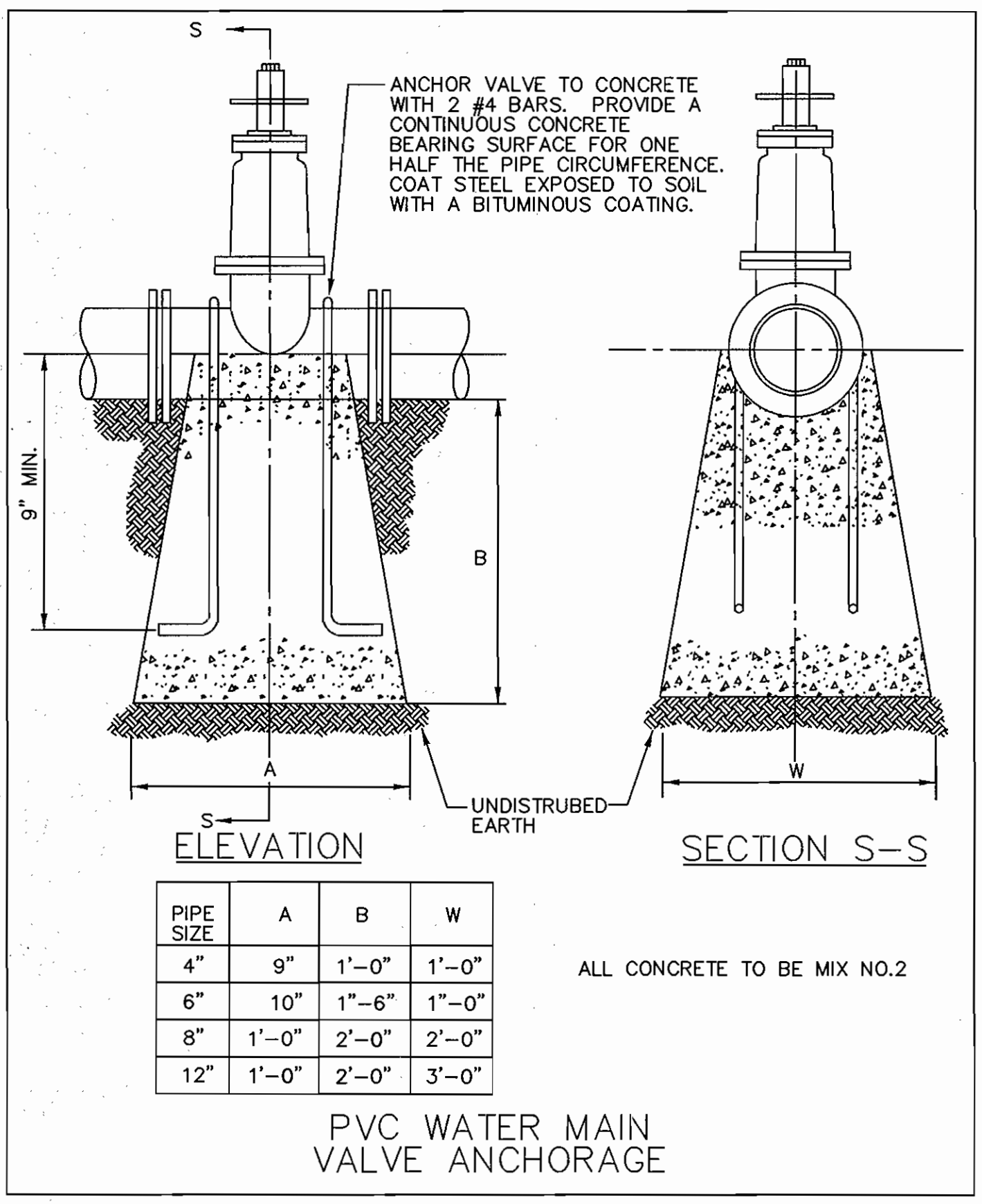
INSULATING CORPORATION
SCALE: NONE



HIGH DEFLECTION COUPLING INSTALLATION
NOT TO SCALE



PIPE DIAMETER INCH	THRUST BLOCK DIMENSIONS			THRUST BLOCK REINF.
	T	H	L	
4 AND 6	1'-2"	2'-6"	3'-6"	#5 @ 12" c/c E.W.+4#5 ADD'L REINF.
8	1'-2"	3'-0"	4'-0"	#5 @ 12" c/c E.W.+4#5 ADD'L REINF.
10	1'-4"	4'-0"	4'-0"	#5 @ 12" c/c E.W.+4#5 ADD'L REINF.
12	1'-4"	5'-0"	5'-0"	#5 @ 12" c/c E.W.+4#5 ADD'L REINF.
14	1'-4"	6'-0"	6'-0"	#5 @ 10" c/c E.W.+4#5 ADD'L REINF.
16	1'-6"	6'-0"	8'-0"	#5 @ 8" c/c E.W.+4#5 ADD'L REINF.
18	1'-6"	6'-0"	11'-0"	#5 @ 6" c/c E.W.+4#5 ADD'L REINF.



AS-BUILT
DATE 7-30-08

DETAIL 1.2
IN LINE THRUST BLOCK
NOT TO SCALE

PIPE DIAMETER INCH	TIE BOLT SIZE	NO. OF BOLTS REQUIRED
4	#3/4"	2
6	#3/4"	2
8	1"	3
10	1"	4
12	1"	4

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. Williams 5/14/07
DIRECTOR OF PUBLIC WORKS DATE

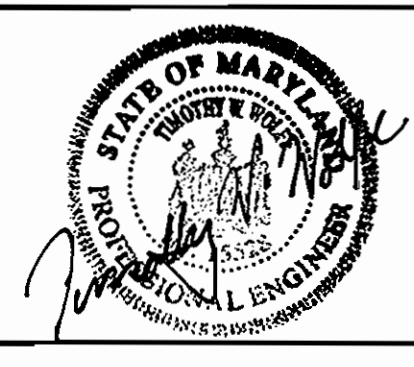
Paul J. Seaman 5-11-07
CHIEF, BUREAU OF ENGINEERING DATE

John P. Williams 5-11-07
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS
PLANNERS
SCIENTISTS
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KCI
TECHNOLOGIES

10 NORTH PARK DRIVE
HUNT VALLEY, MD 21030
PHONE: (410) 316-7800
FAX: (410) 316-7817
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DES:	RWJ			
DRN:	RWJ			
CHK:	TWW			
DATE:	4/24/07			
BY:	LFN	AS BUILT		73006
NO.				
REVISION				
DATE:	4/24/07			

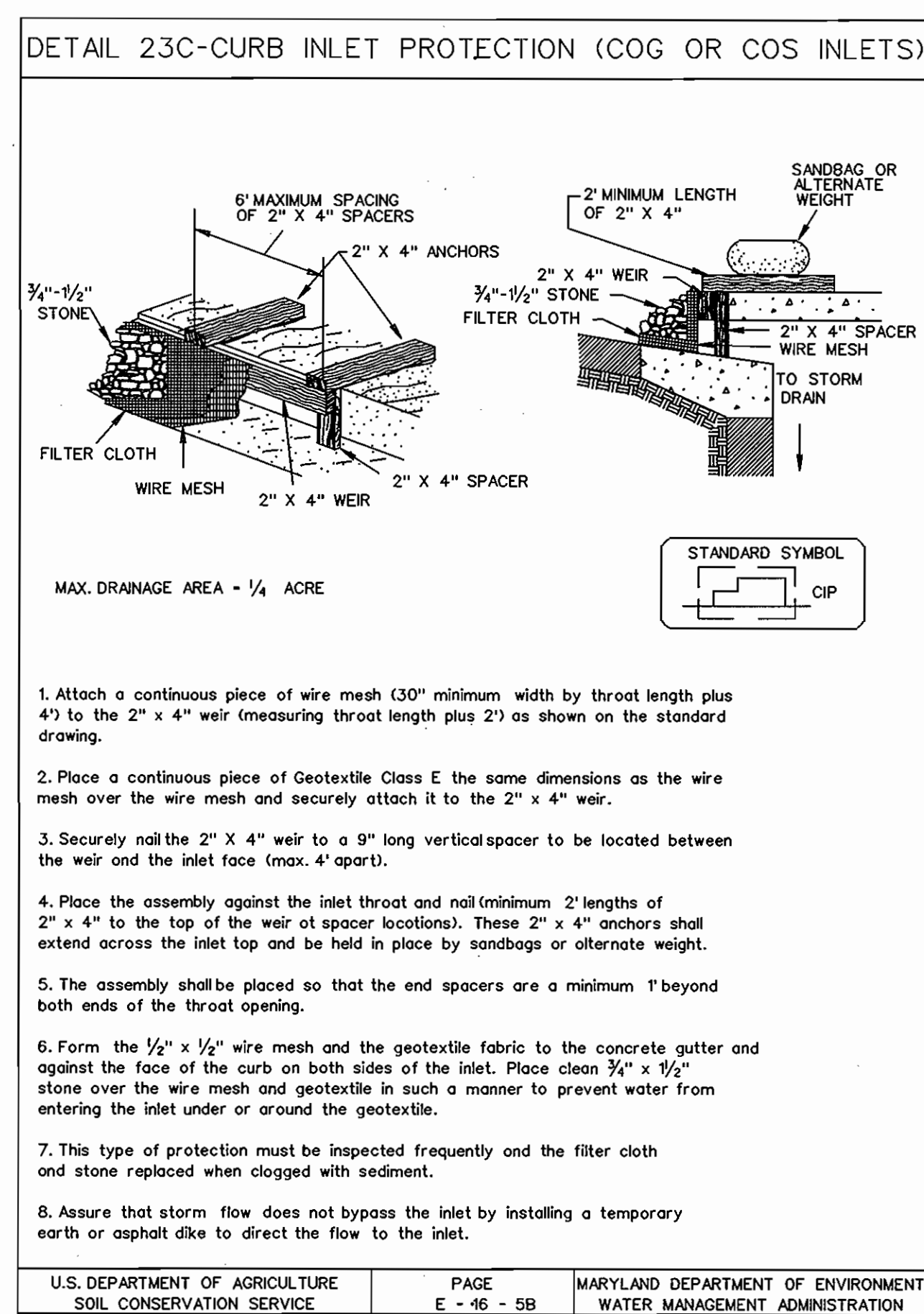
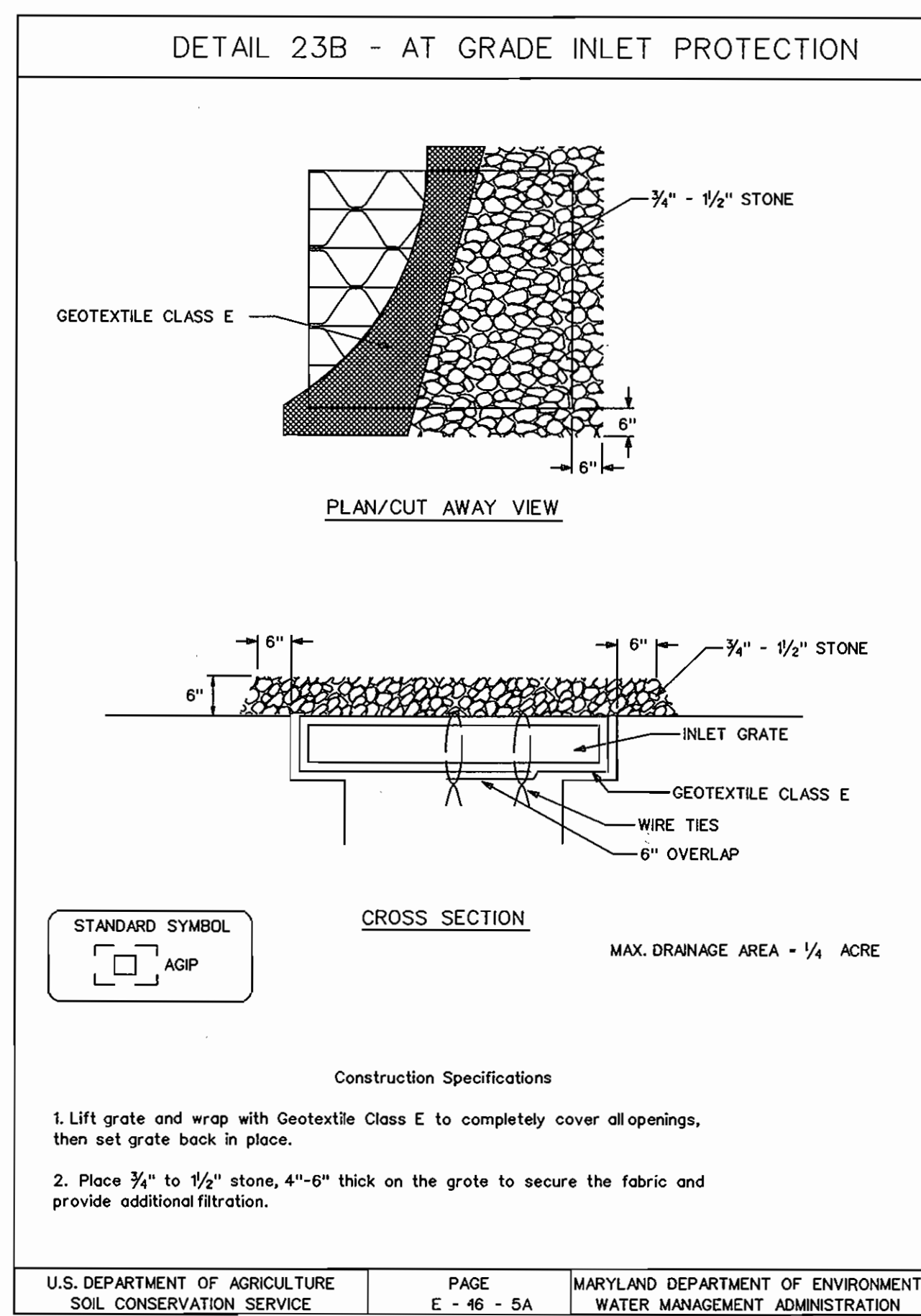
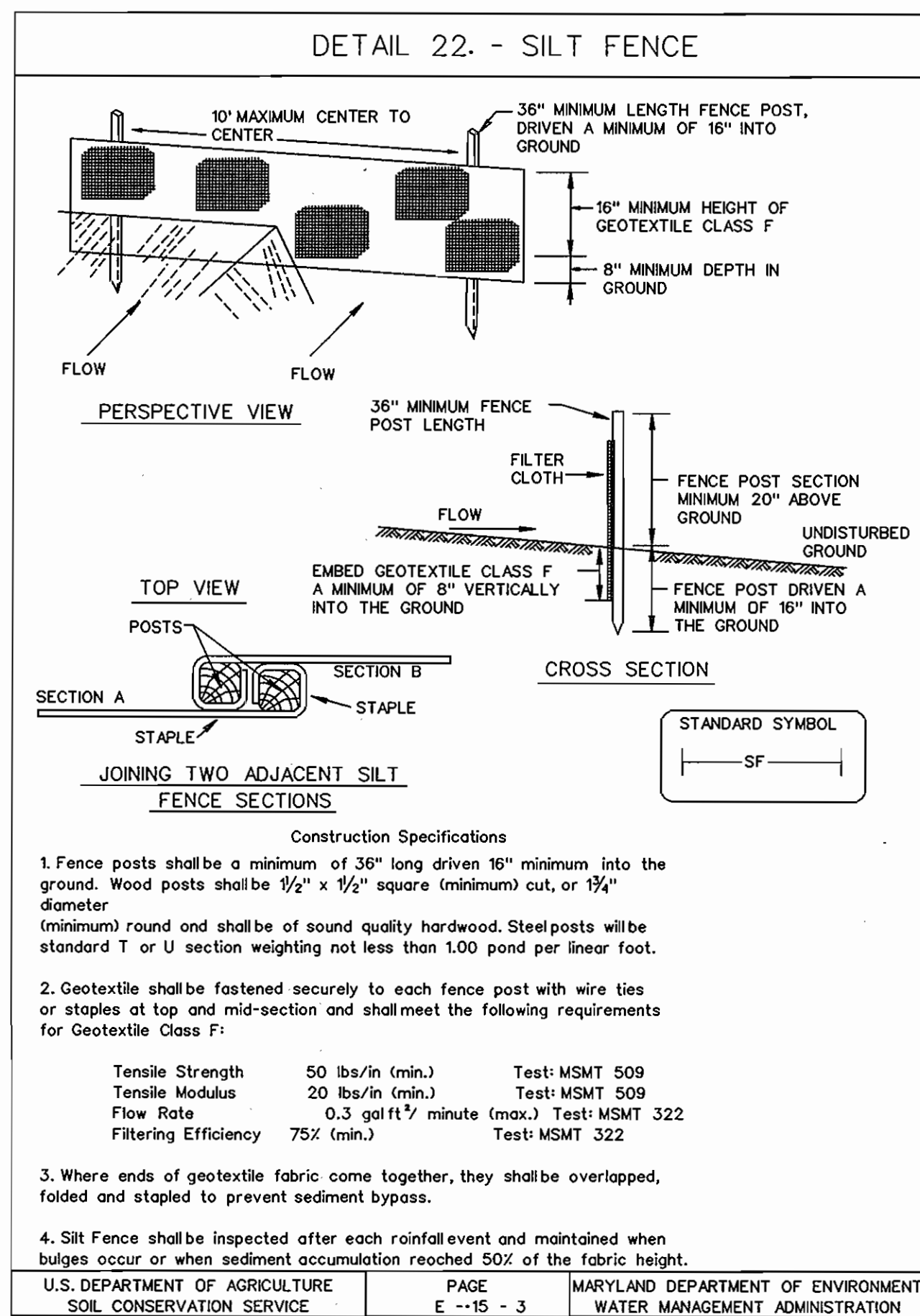
DETAILS

600' SCALE MAP NO. 37 BLOCK NO. 4

BELLANCA DRIVE WATER MAIN REPLACEMENT
CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 5 OF 6



STANDARD SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION. (313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THEREOF.
- 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 1994 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	0.2 ACRES
AREA DISTURBED	0.2 ACRES
AREA TO BE ROOFED OR PAVED	0.18 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.02 ACRES
TOTAL CUT	N/A CU. YDS.
TOTAL FILL	N/A 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.

SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT.
- LAYOUT ALIGNMENT AT SITE. (1 DAY)
- INSTALL SEDIMENT CONTROL DEVICES, FOR GRASSED AREAS AS SHOWN ON PLAN.
- EXCAVATE DITCH TO THE GRADE SPECIFIED ON THE PROFILE. INSTALL WATER MAIN AND STABILIZE OR BACKFILL 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.
- CLEAN UP CONSTRUCTION SITE. (1 DAY)
- REMOVE SEDIMENT CONTROL DEVICES AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR. (1 DAY)

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 1994 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.

DEVELOPER'S CERTIFICATION

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

William J. Roman
BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS
5/14/07
DATE

ENGINEER'S CERTIFICATION

"I/WE CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Timothy W. Wolfe
TIMOTHY W. WOLFE
KCI TECHNOLOGIES
10 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND 21030
4/24/07
DATE

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

John R. Polston
APPROVED
DATE

HOWARD S.C.D.

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

Jim Meyer
JIM MEYER
U.S. NATURAL RESOURCES
CONSERVATION SERVICE
5/21/07
DATE

AS-BUILT
DATE 7-30-08

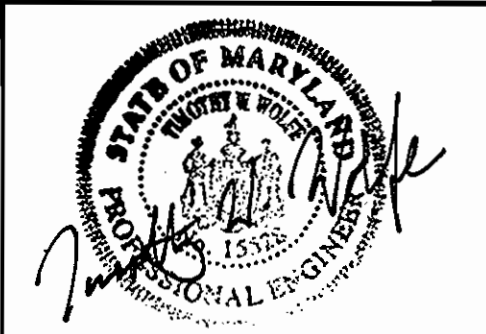
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DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
<i>John W. Wolfe</i> DIRECTOR OF PUBLIC WORKS DATE 5/14/07	<i>William J. Roman</i> CHIEF, BUREAU OF ENGINEERING DATE 5-14-07
<i>John W. Wolfe</i> CHIEF, BUREAU OF UTILITIES DATE 5/14/07	<i>John W. Wolfe</i> CHIEF, UTILITY DESIGN DIVISION DATE 5-14-07

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI
TECHNOLOGIES

10 North Park Drive
Hunt Valley, MD 21030
Phone: (410) 316-7800
Fax: (410) 316-7817
www.kci.com



DES: RWJ				
DRN: RWJ				
CHK: TWW				
DATE: 4/24/07	BY	NO.	REVISION	DATE

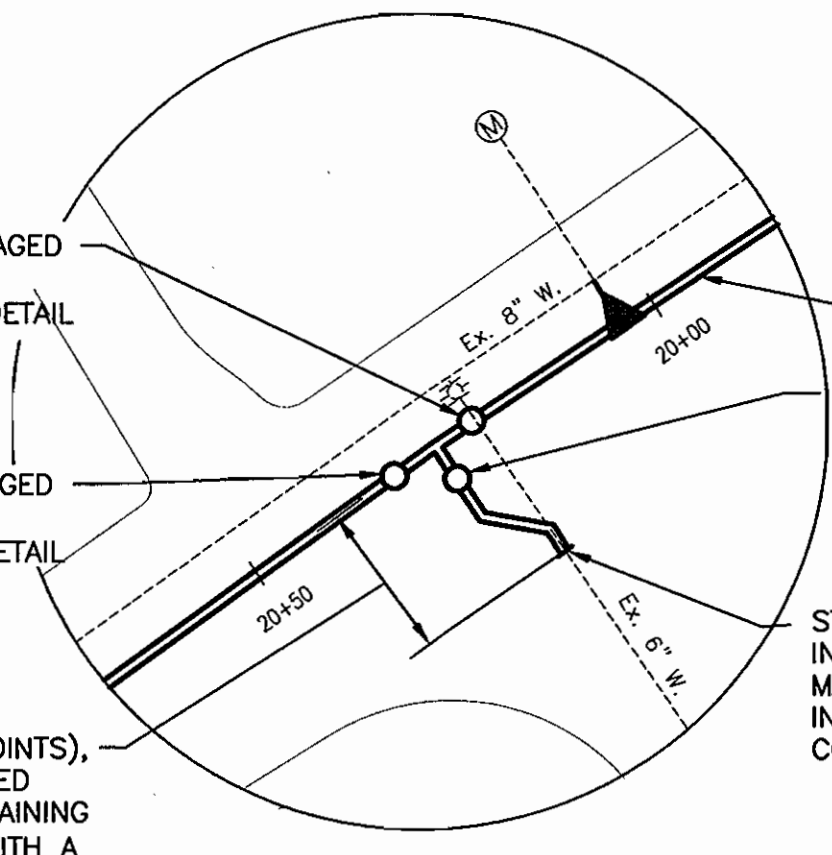
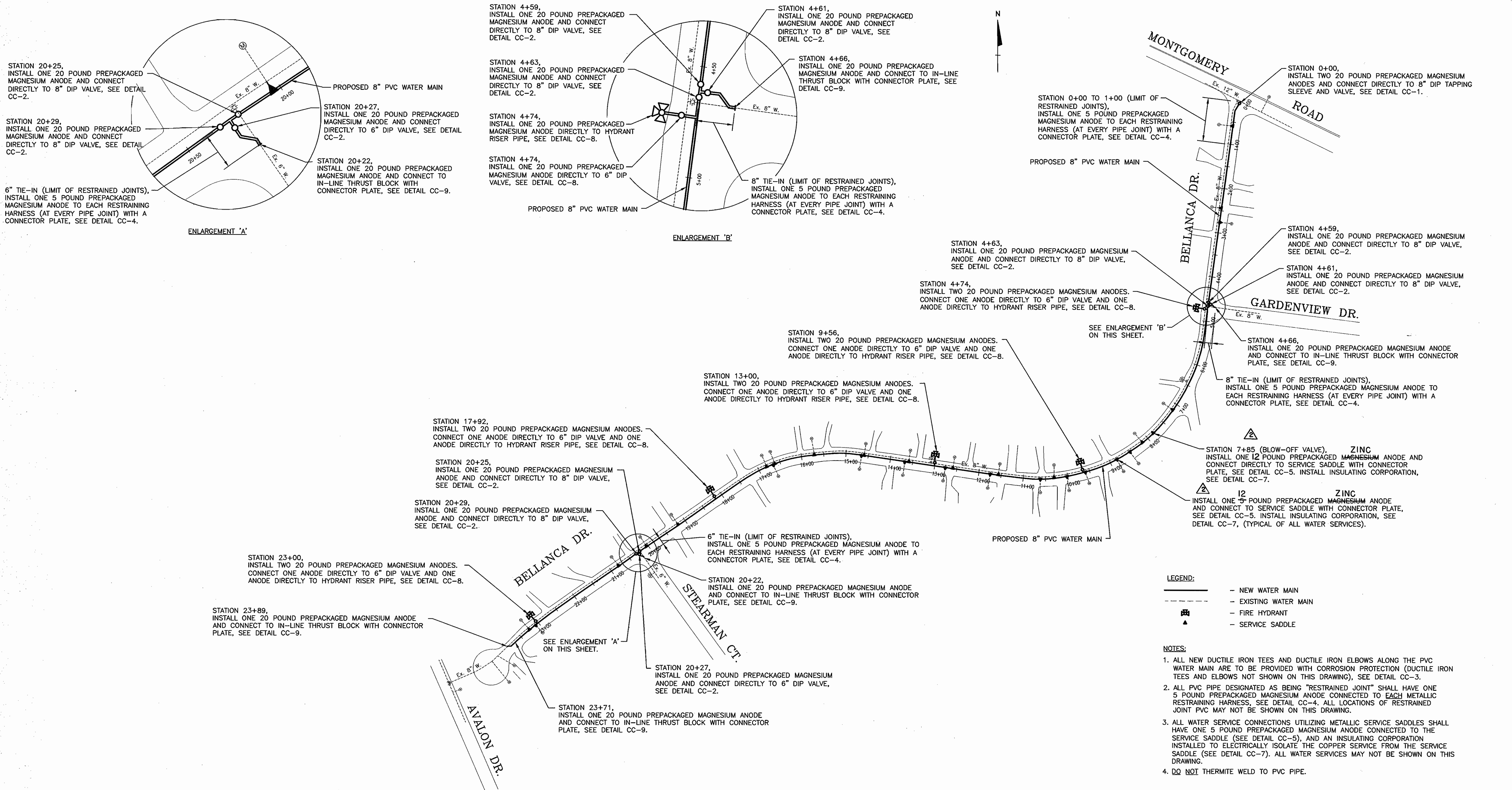
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 37 BLOCK NO. 4

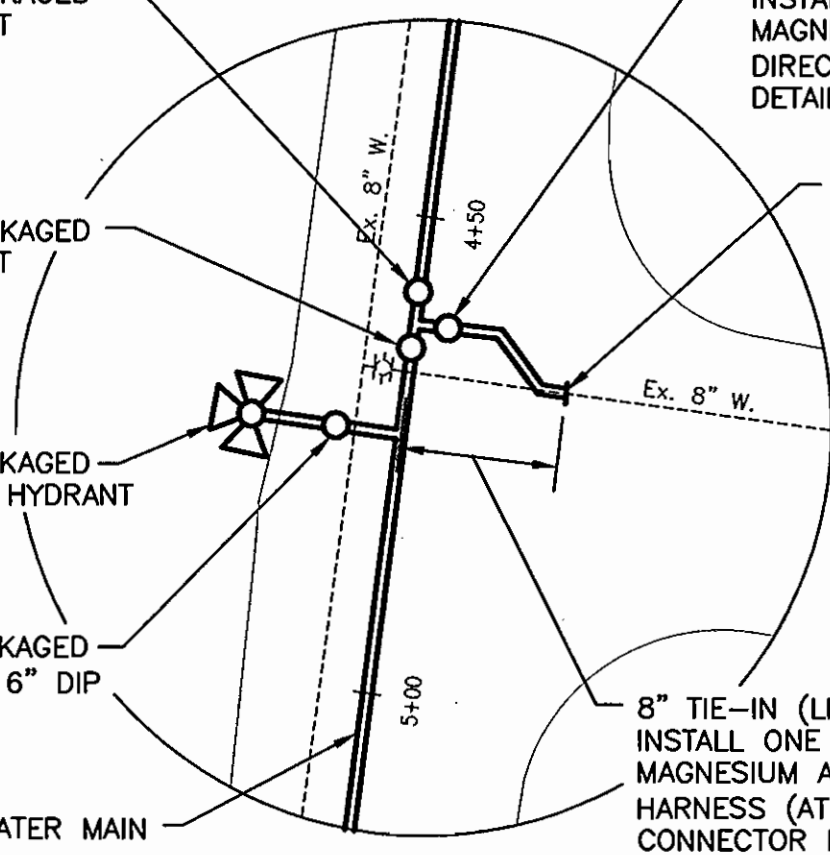
BELLANCA DRIVE WATER MAIN REPLACEMENT
CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

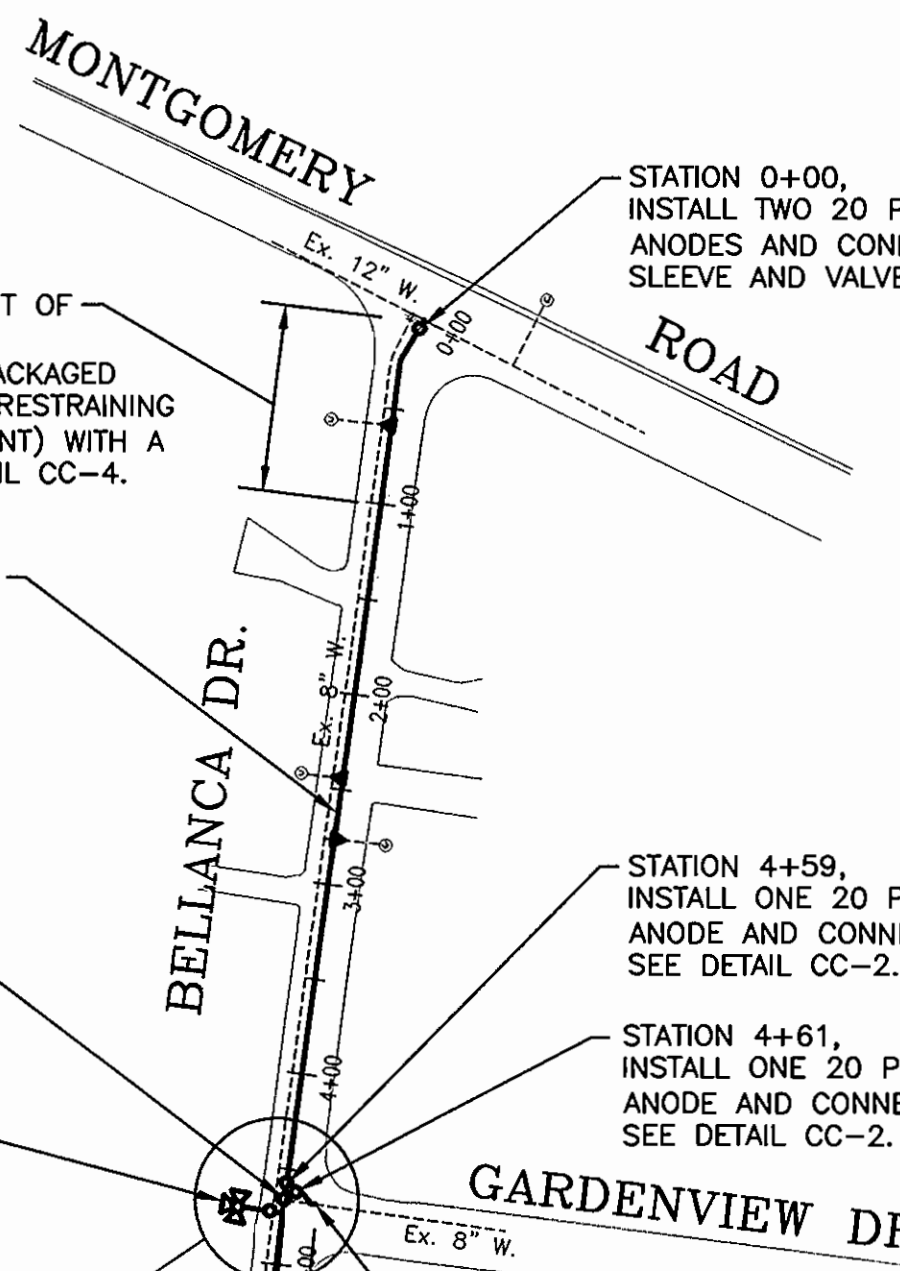
SCALE AS SHOWN
SHEET 6 OF 6



ENLARGEMENT 'A'

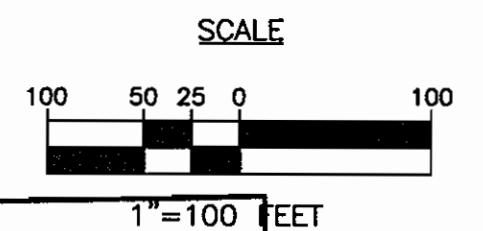


ENLARGEMENT 'B'



- LEGEND:**
- NEW WATER MAIN
 - - - EXISTING WATER MAIN
 - ⊕ FIRE HYDRANT
 - ▲ SERVICE SADDLE

- NOTES:**
1. ALL NEW DUCTILE IRON TEES AND DUCTILE IRON ELBOWS ALONG THE PVC WATER MAIN ARE TO BE PROVIDED WITH CORROSION PROTECTION (DUCTILE IRON TEES AND ELBOWS NOT SHOWN ON THIS DRAWING), SEE DETAIL CC-3.
 2. ALL PVC PIPE DESIGNATED AS BEING "RESTRAINED JOINT" SHALL HAVE ONE 5 POUND PREPACKAGED MAGNESIUM ANODE CONNECTED TO EACH METALLIC RESTRAINING HARNESS; SEE DETAIL CC-4. ALL LOCATIONS OF RESTRAINED JOINT PVC MAY NOT BE SHOWN ON THIS DRAWING.
 3. ALL WATER SERVICE CONNECTIONS UTILIZING METALLIC SERVICE SADDLES SHALL HAVE ONE 5 POUND PREPACKAGED MAGNESIUM ANODE CONNECTED TO THE SERVICE SADDLE (SEE DETAIL CC-5), AND AN INSULATING CORPORATION INSTALLED TO ELECTRICALLY ISOLATE THE COPPER SERVICE FROM THE SERVICE SADDLE (SEE DETAIL CC-7). ALL WATER SERVICES MAY NOT BE SHOWN ON THIS DRAWING.
 4. DO NOT THERMITE WELD TO PVC PIPE.



AS-BUILT
DATE 7-30-08



THIS DRAWING IS NOT APPLICABLE FOR USE AS STANDARD CORROSION CONTROL PROCEDURES FOR OTHER PROJECTS DUE TO VARIABLE CONDITIONS AT OTHER SITES. NEITHER THIS DESIGN NOR ANY PART THEREOF MAY BE REPRODUCED IN ANY WAY FOR OTHER PROJECTS OR MODIFIED IN ANY WAY FOR THIS OR OTHER PROJECTS, EXCEPT BY WRITTEN AGREEMENT WITH RUSSELL CORROSION CONSULTANTS, INC.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Robert Bumpus 6-6-09
DIRECTOR OF PUBLIC WORKS DATE
CHIEF, BUREAU OF UTILITIES

Robert J. Spon 6/5/07
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, UTILITY DESIGN DIVISION

KCI TECHNOLOGIES
10 NORTH PARK DRIVE
HENRY VALLEY, MD 21030
PHONE: (410) 316-7800
FAX: (410) 316-7817
WWW.KCI.COM

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

DES: MJS				
DRN: DJD				
CHK: MJS	LFN	AS BUILT		7/30/08
DATE: JUNE, 2007	MJS	1	ADD CORROSION PROTECTION	6/07
BY	NO.		REVISION	DATE

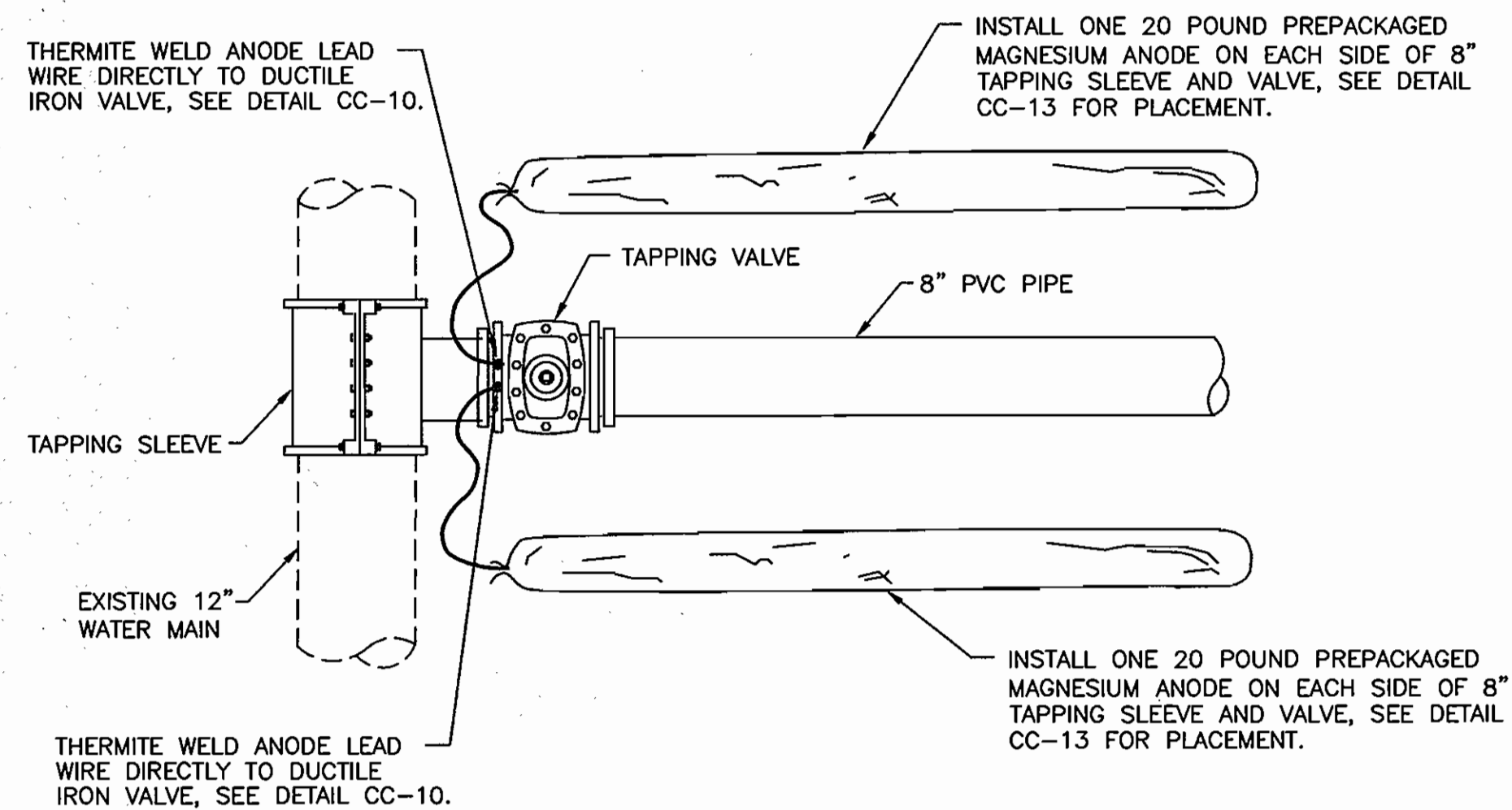
CORROSION CONTROL LAYOUT

600' SCALE MAP NO. 37 BLOCK NO.

BELLANCA DRIVE WATER MAIN REPLACEMENT
CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411

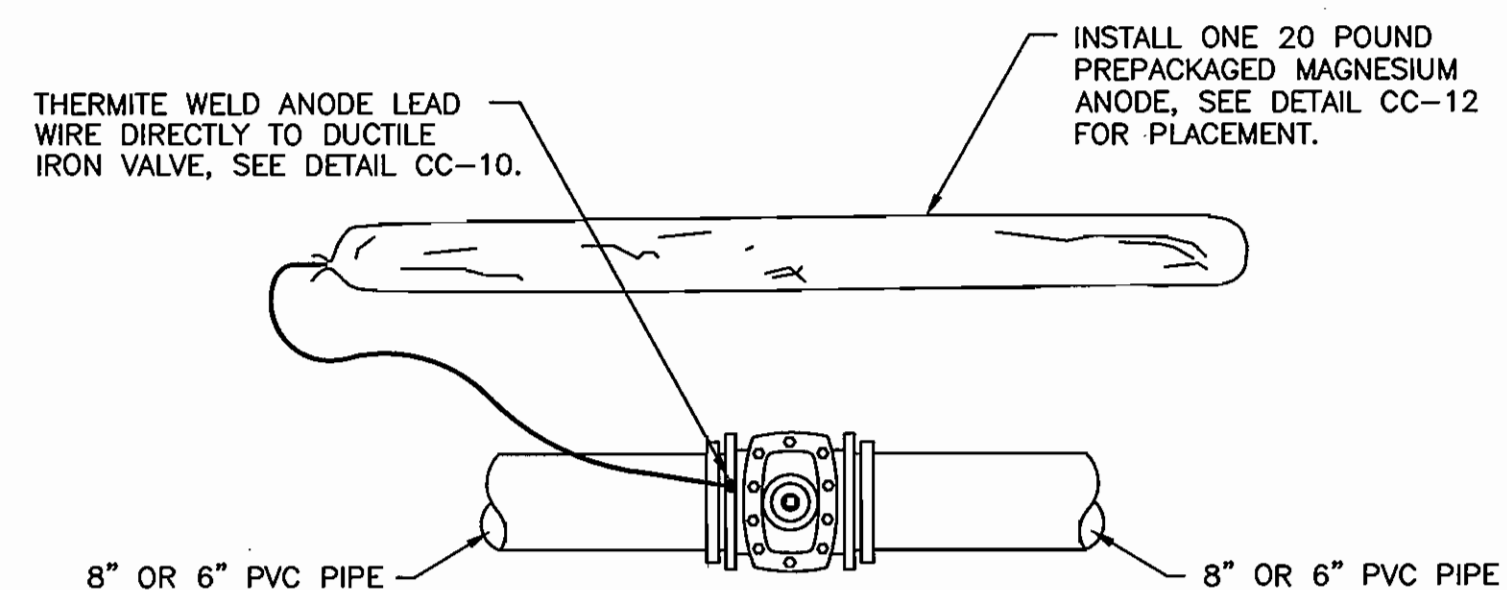
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN SHEET 6A OF 6



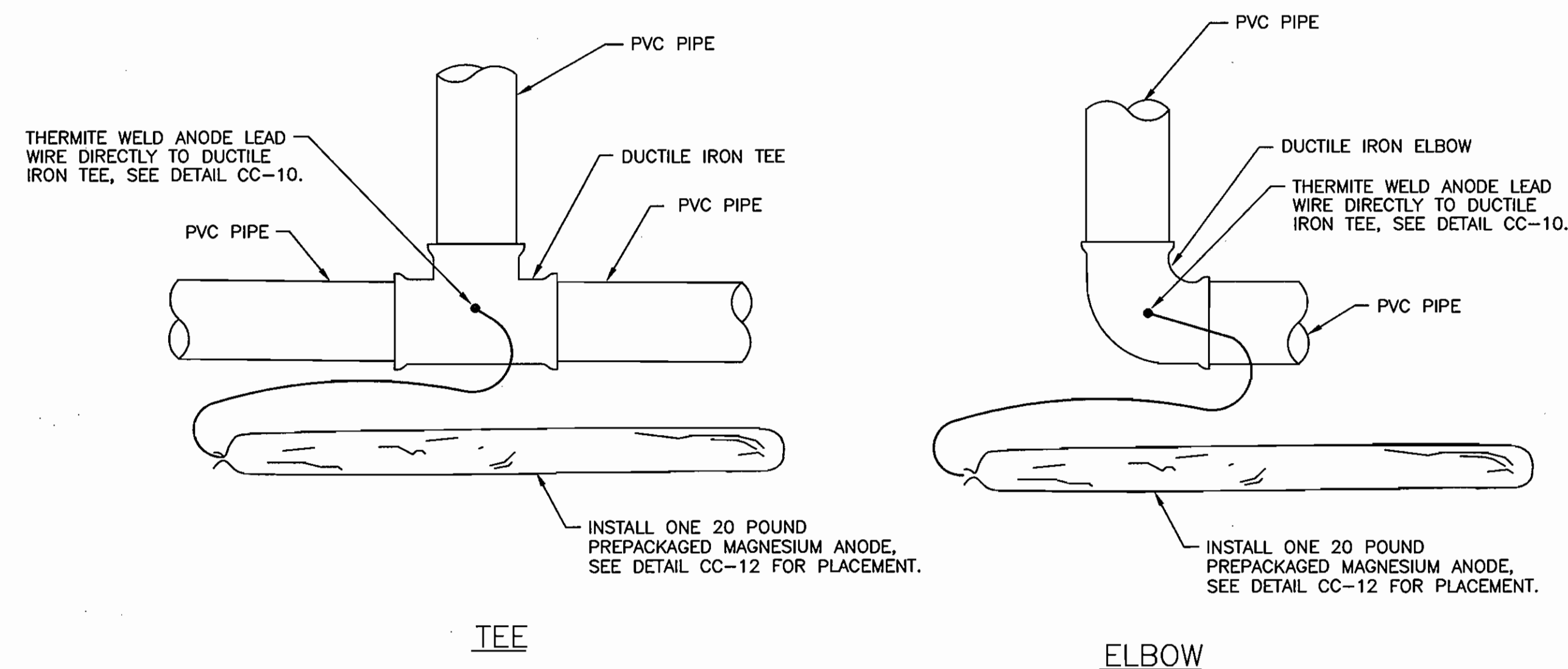
- NOTES:**
1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-13.
 2. DO NOT THERMITE WELD TO PVC PIPE.

CC-1: CORROSION PROTECTION OF TAPPING SLEEVE AND VALVE
SCALE: NONE



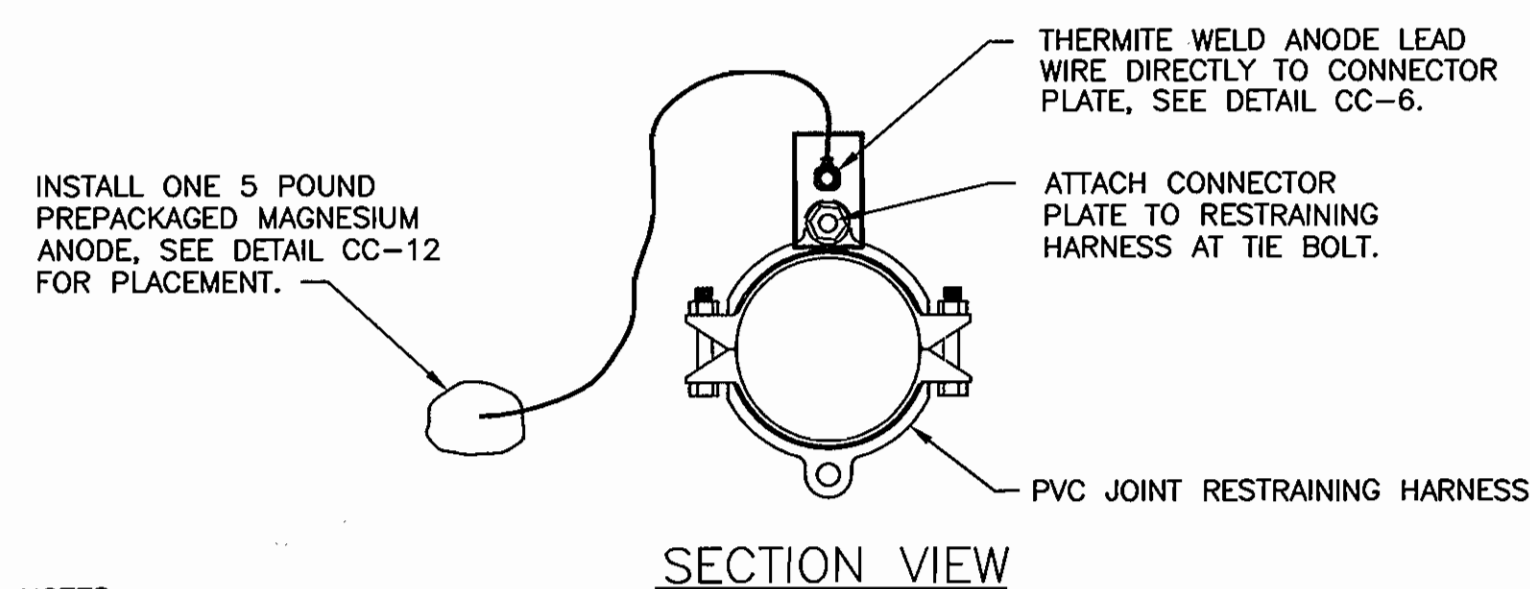
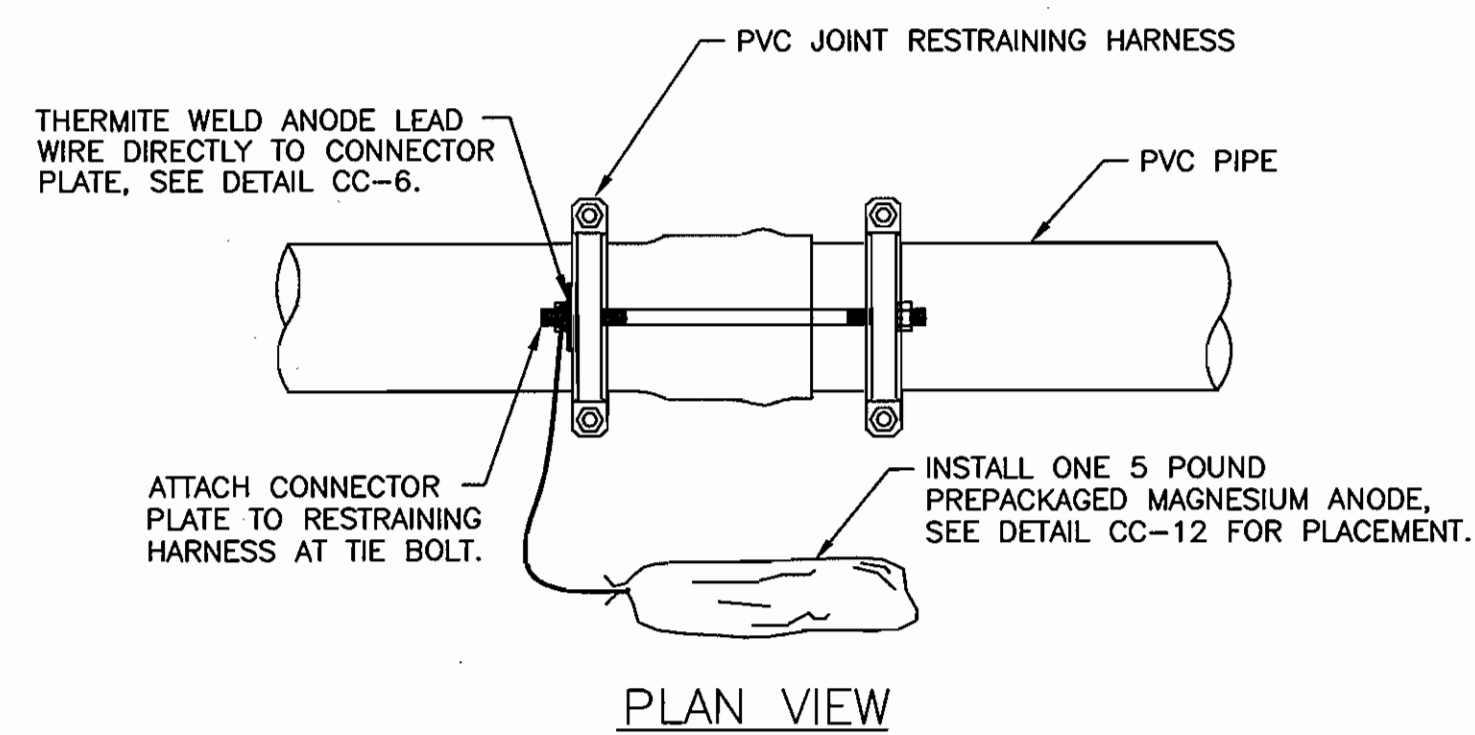
- NOTES:**
1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
 2. DO NOT THERMITE WELD TO PVC PIPE.

CC-2: CORROSION PROTECTION OF DUCTILE IRON VALVE (8" AND 6")
SCALE: NONE



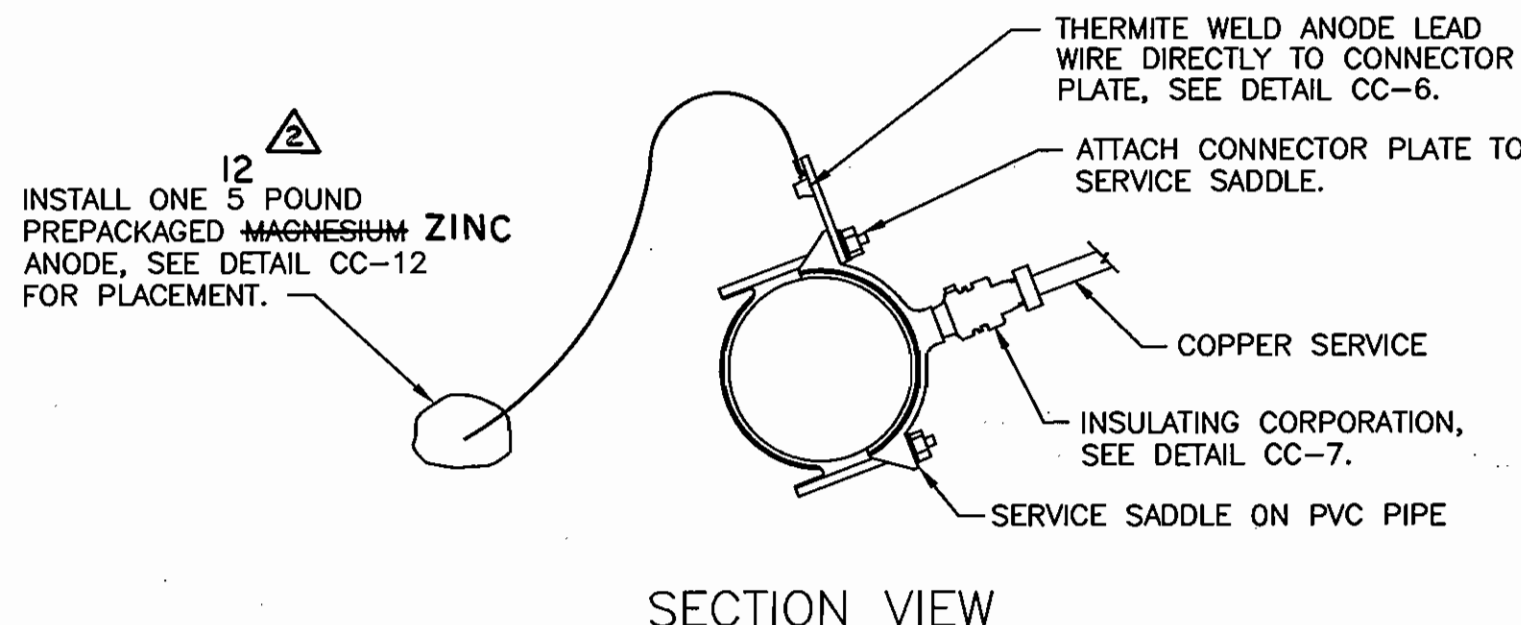
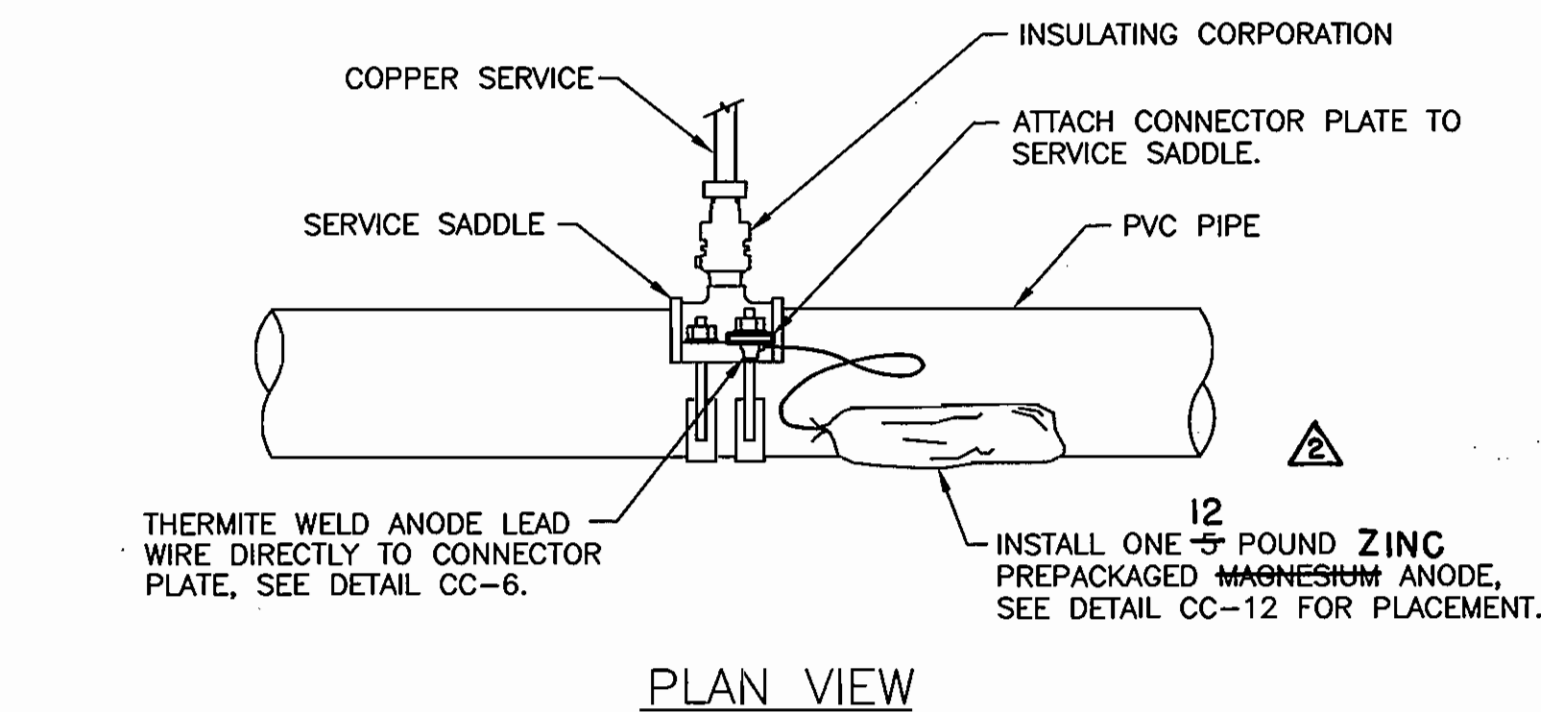
- NOTES:**
1. ANODES REQUIRED ONLY IF TEE OR ELBOW IS DUCTILE IRON.
 2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
 3. DO NOT THERMITE WELD TO PVC PIPE.

CC-3: CORROSION PROTECTION OF DUCTILE IRON FITTINGS
SCALE: NONE



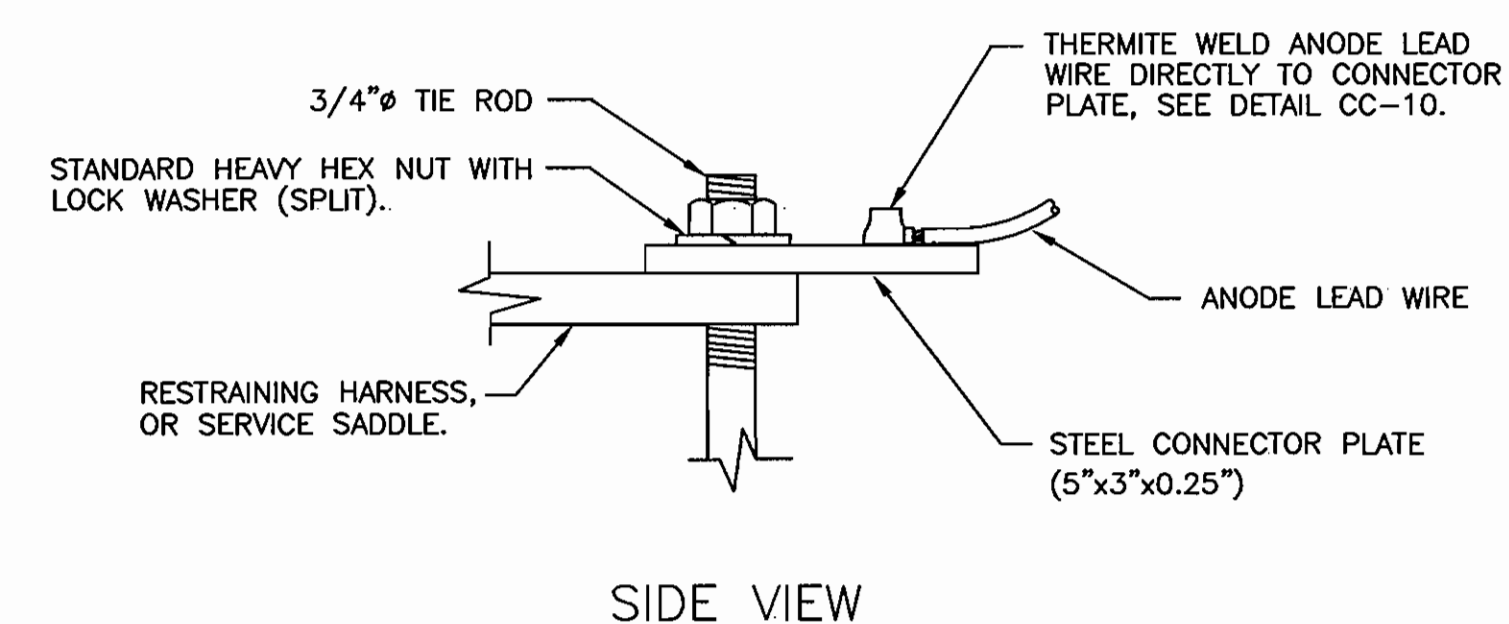
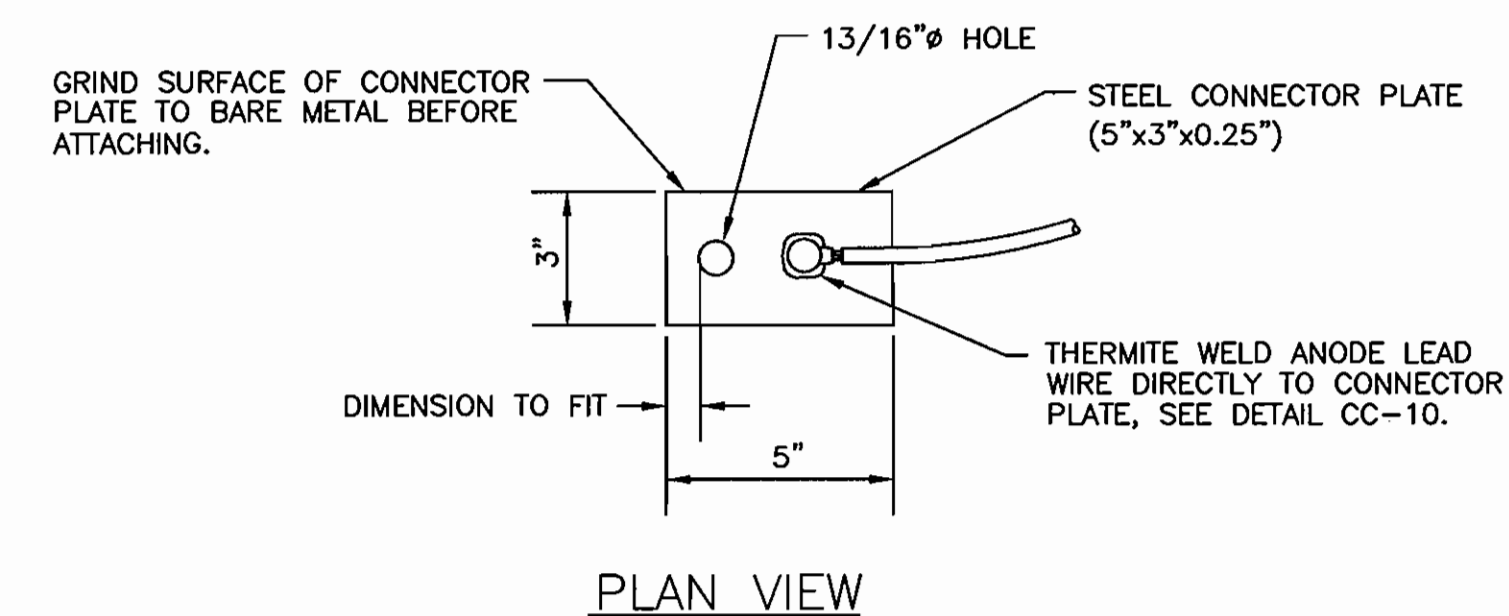
- NOTES:**
1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO RESTRAINING HARNESS.
 2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
 3. SCRAPE COATING FROM RESTRAINING HARNESS WHERE CONNECTOR PLATE IS TO BE MOUNTED IMMEDIATELY PRIOR TO ATTACHING CONNECTOR PLATE.
 4. DO NOT THERMITE WELD TO PVC PIPE.

CC-4: CORROSION PROTECTION OF RESTRAINING HARNESS
SCALE: NONE



- NOTES:**
1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO SERVICE SADDLE.
 2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
 3. SCRAPE COATING FROM RESTRAINING HARNESS WHERE CONNECTOR PLATE IS TO BE MOUNTED IMMEDIATELY PRIOR TO ATTACHING CONNECTOR PLATE.
 4. DO NOT THERMITE WELD TO PVC PIPE.

CC-5: CORROSION PROTECTION OF SERVICE SADDLE
SCALE: NONE



- NOTES:**
1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO RESTRAINING HARNESS, OR SERVICE SADDLE.
 2. THERMITE WELDS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY-CAP OR APPROVED EQUAL.

CC-6: CONNECTOR PLATE DETAIL
SCALE: NONE

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Robert D. ...* DATE: 6-6-07
 Chief, Bureau of Engineering: *...* DATE: 6-5-07
 Chief, Bureau of Utilities: *...* DATE: 6-5-07

KCI TECHNOLOGIES
 ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS
 10 North Park Drive
 Hunt Valley, MD 21030
 Phone: (410) 316-7800
 Fax: (410) 316-7817
 www.kci.com

RUSSELL CORROSION CONSULTANTS, INC.
 Columbia, Maryland

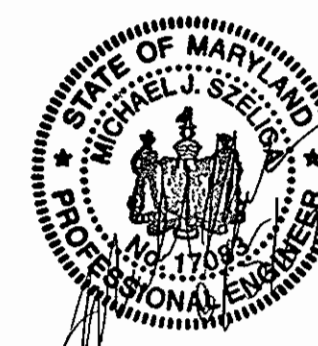
DES: MJS					
DRN: DJD					
CHK: MJS	LFN	AS BUILT			73008
DATE: JUNE, 2007	MJS	1	ADD CORROSION PROTECTION		6/07
	BY	NO.	REVISION		DATE

AS-BUILT
DATE: 7-30-08

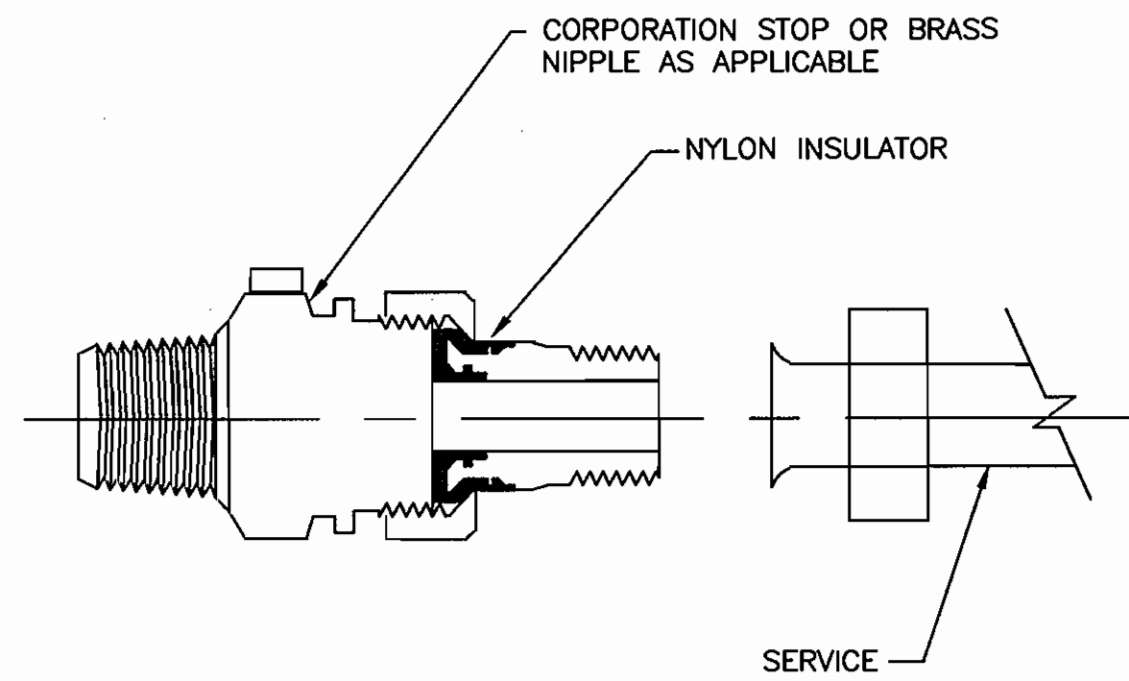
CORROSION CONTROL DETAILS 1

BELLANCA DRIVE WATER MAIN REPLACEMENT
 CAPITAL PROJECT No. W-8272
 CONTRACT No. 44-4411

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND



SCALE AS SHOWN
SHEET 8B OF 6

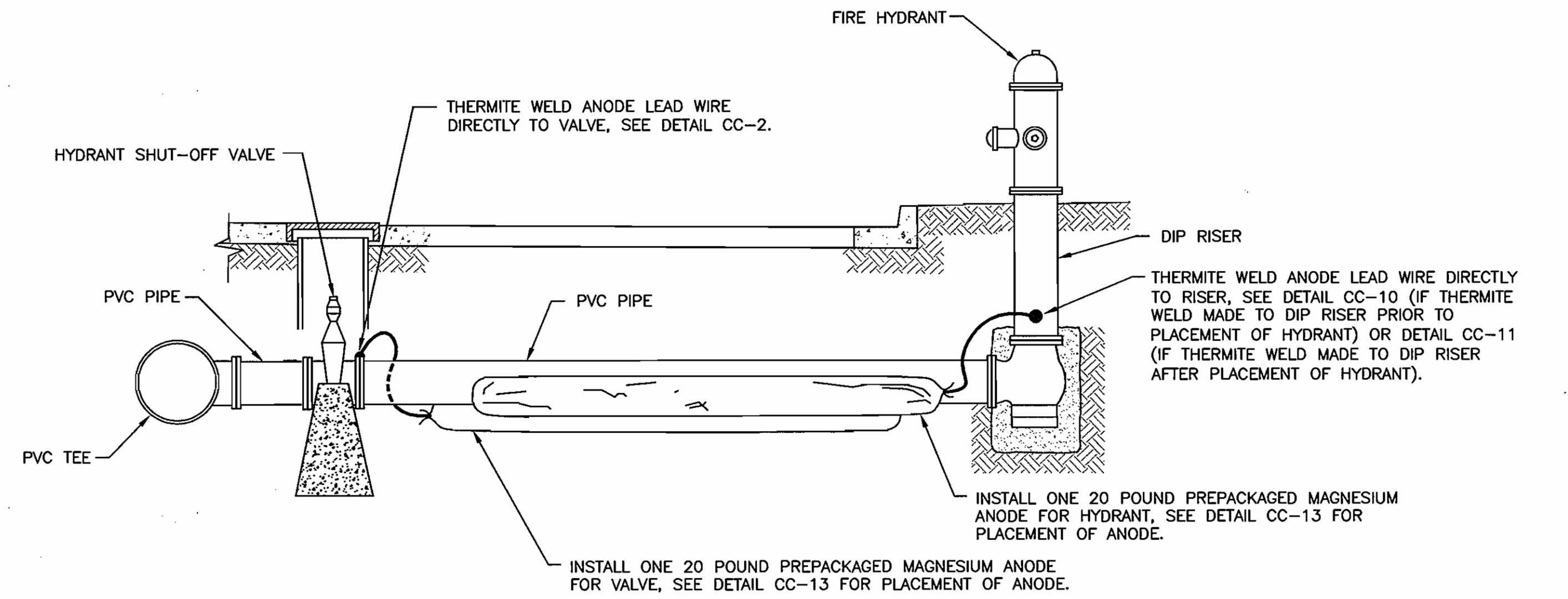


NOTES:

1. INSTALL ELECTRICAL ISOLATION ON ALL SMALL DIAMETER (2" AND LESS) WATER SERVICE CONNECTIONS TO MAIN.
2. COAT EXTERIOR OF SERVICE PIPING IN ACCORDANCE WITH THE SPECIFICATIONS FOR A DISTANCE OF 12 INCHES ON EITHER SIDE OF INSULATOR.

CC-7: INSULATING CORPORATION

SCALE: NONE

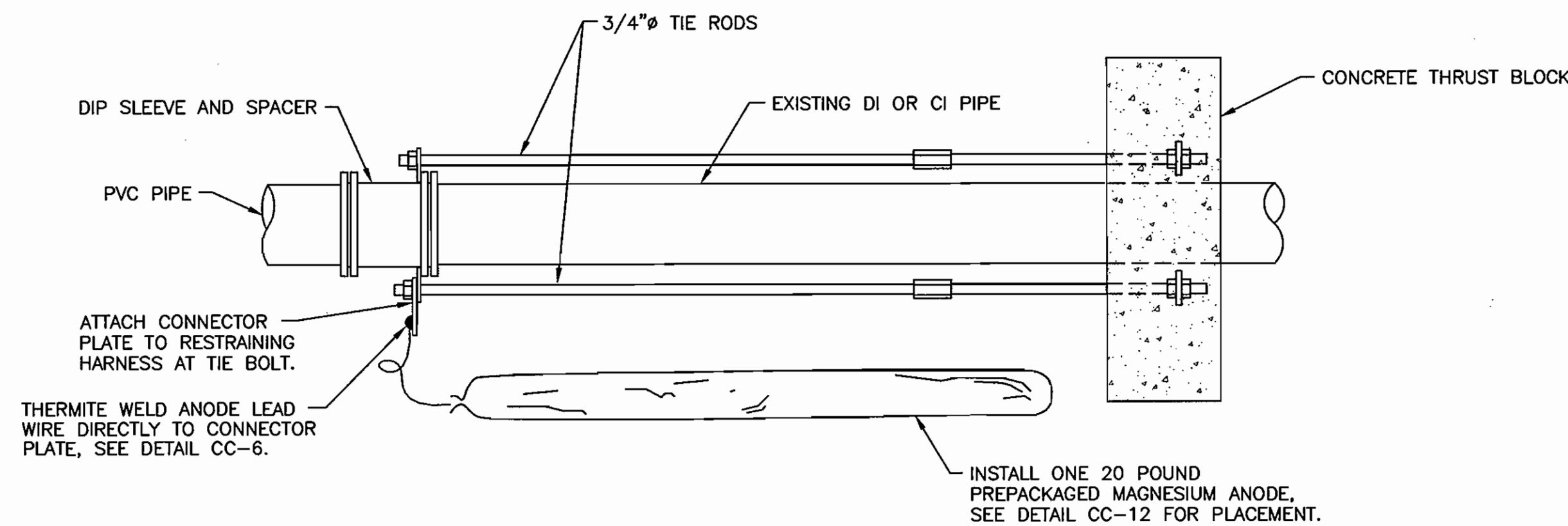


NOTES:

1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-13.
2. DO NOT THERMITE WELD TO PVC PIPE.

CC-8: CORROSION PROTECTION AT FIRE HYDRANT

SCALE: NONE

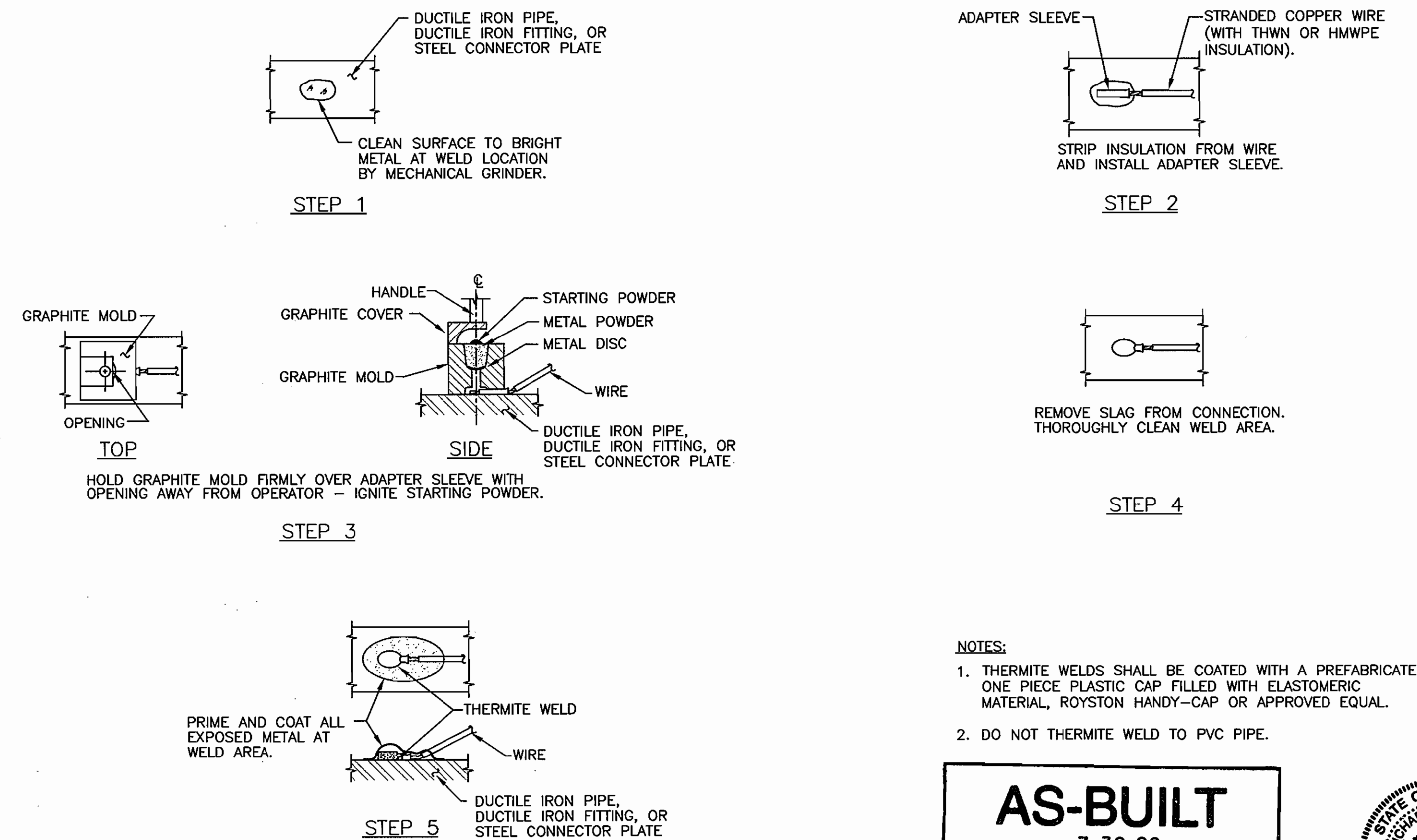


NOTES:

1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
2. SCRAPE COATING FROM RESTRAINING HARNESS WHERE CONNECTOR PLATE IS TO BE MOUNTED IMMEDIATELY PRIOR TO ATTACHING CONNECTOR PLATE.
3. DO NOT THERMITE WELD TO PVC PIPE.

CC-9: CORROSION PROTECTION AT IN-LINE THRUST BLOCK

SCALE: NONE



NOTES:

1. THERMITE WELDS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY-CAP OR APPROVED EQUAL.
2. DO NOT THERMITE WELD TO PVC PIPE.

AS-BUILT
DATE: 7-30-08

CC-10: TYPICAL THERMITE WELD

SCALE: NONE

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Janet G. Gable
DIRECTOR OF PUBLIC WORKS
DATE: 6-6-07
CHIEF, BUREAU OF UTILITIES

Robert J. Sisson 6/5/07
CHIEF, BUREAU OF ENGINEERING
John J. Sisson 6-5-07
CHIEF, UTILITY DESIGN DIVISION

KCI TECHNOLOGIES
10 NORTH PARK DRIVE
HUNT VALLEY, MD 21030
PHONE: (410) 316-7800
FAX: (410) 316-7817
www.kci.com

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

DES: MJS					
DRN: DJD					
CHK: MJS					
DATE: JUNE, 2007	MJS	1	ADD CORROSION PROTECTION	6/07	
	BY	NO.	REVISION	DATE	

**CORROSION CONTROL
DETAILS 2**

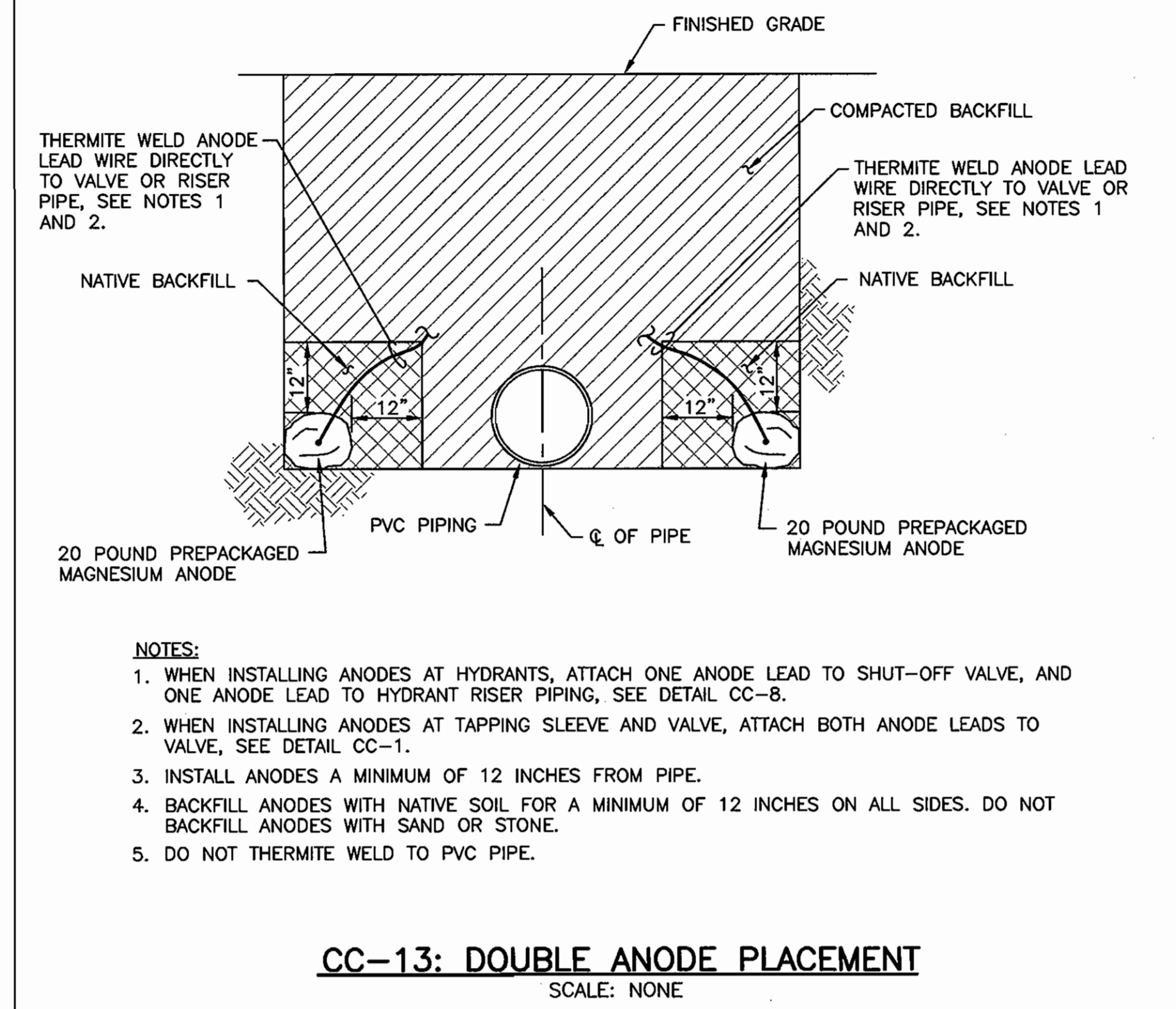
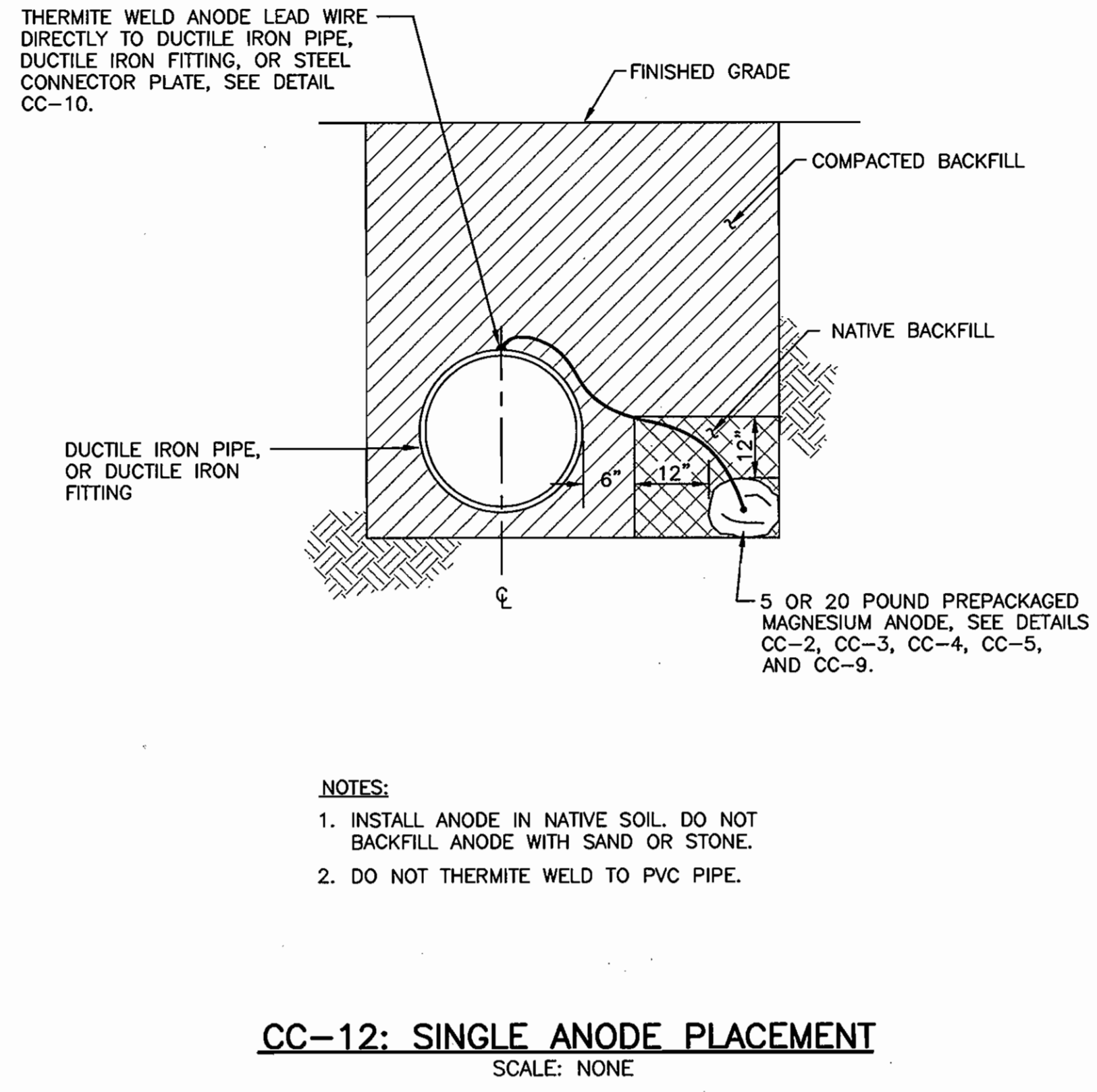
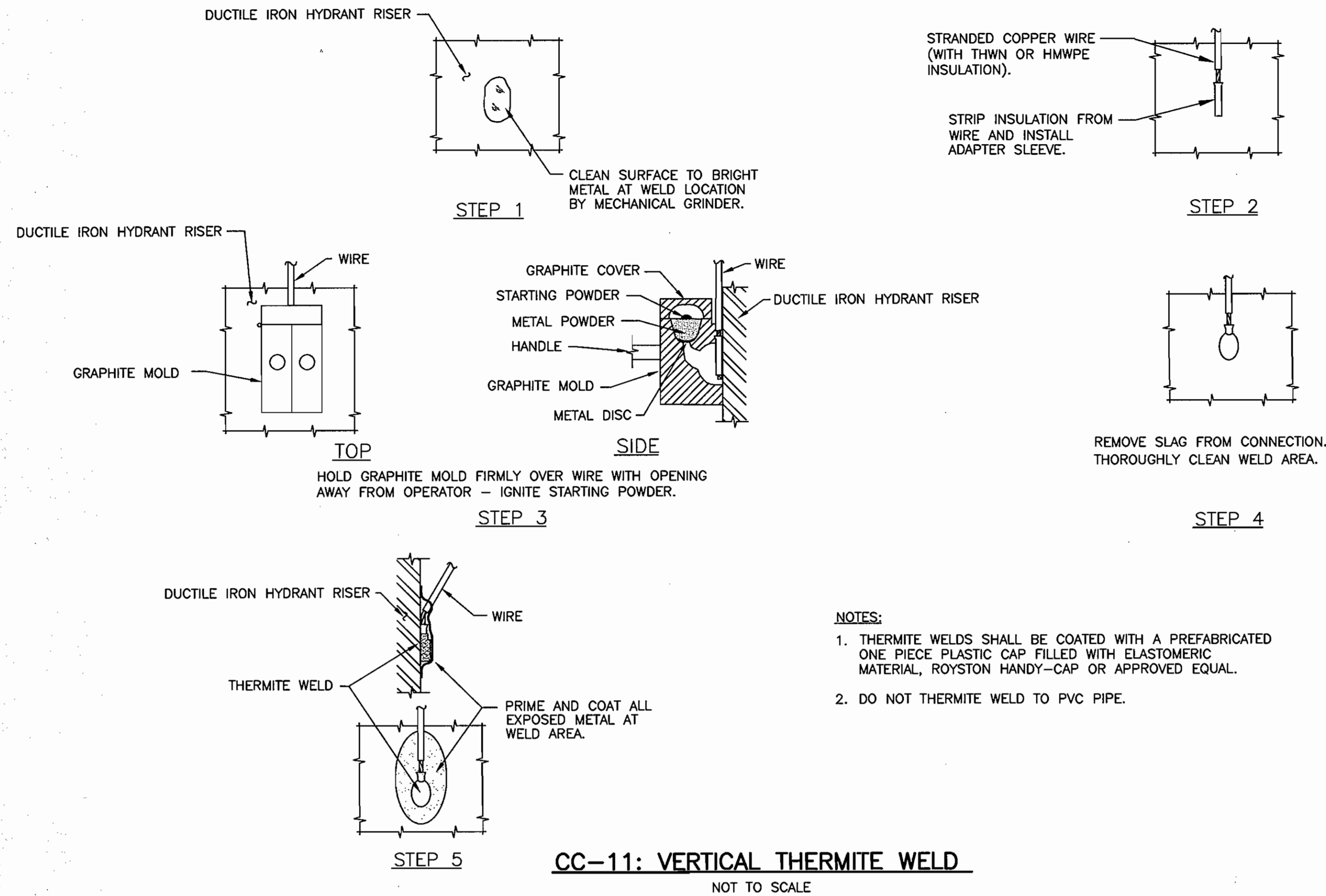
600' SCALE MAP NO. 37 BLOCK NO.

**BELLANCA DRIVE WATER MAIN
REPLACEMENT**
CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND



SCALE AS SHOWN
SHEET 6 OF 6



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AS-BUILT
DATE 7-30-08



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *John De...* 6/6/07
Chief, Bureau of Utilities: *Robert...* 6-6-07

Chief, Bureau of Engineering: *Robert...* 6/5/07
Chief, Utility Design Division: *Robert...* 6-5-07

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RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

DES:	MJS				
DRN:	DJD				
CHK:	MJS				
DATE:	JUNE, 2007	BY:	MJS	NO. 1	DATE 6/07
				ADD CORROSION PROTECTION	
				REVISION	

**CORROSION CONTROL
DETAILS 3**

600' SCALE MAP NO. 37 BLOCK NO. _____

**BELLANCA DRIVE WATER MAIN
REPLACEMENT**
CAPITAL PROJECT No. W-8272
CONTRACT No. 44-4411

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 60 OF 60