

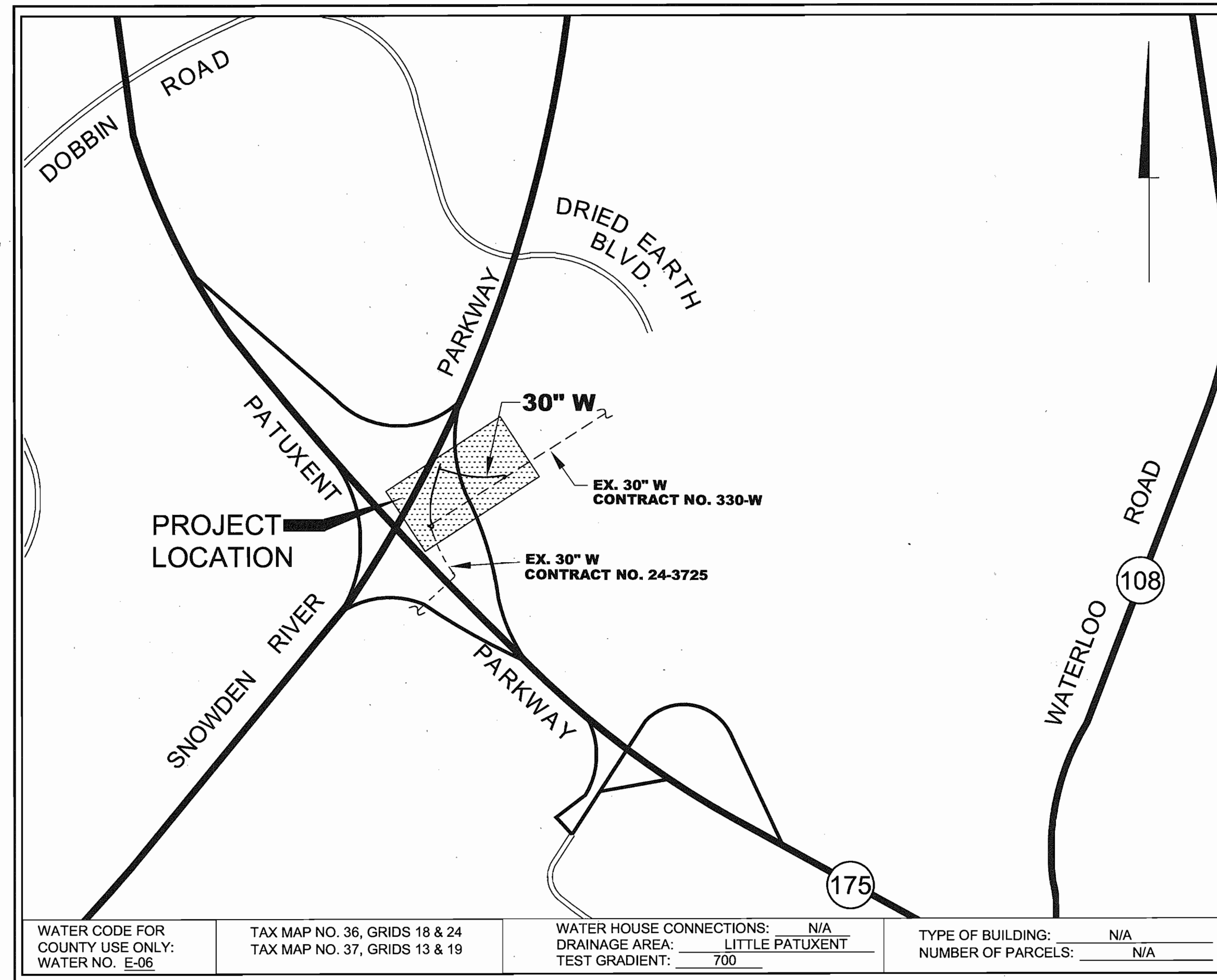
HOWARD RESEARCH AND DEVELOPMENT CORPORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS ELLCOTT CITY, MARYLAND 21043

GENERAL NOTES

WATER STAKEOUT TABLE			
ITEM	STATION	COORDINATES	
		NORTHING	EASTING
30" X 24" TIE-IN	0+00	555,237.87	1,366,179.96
1/8 HB	0+13.4	555,237.87	1,366,191.27
1/8 HB	0+23.4	555,247.62	1,366,193.45
1/16 HB	0+52.2	555,271.95	1,366,178.02
PC	0+52.2	555,271.95	1,366,178.02
PT	2+55.5	555,473.24	1,366,194.02
30" X 30" T	03+89.1	555,601.69	1,366,230.73
PC	4+03.5	555,597.95	1,366,244.95
PT	4+63.5	555,583.85	1,366,303.26
PC	6+25.5	555,554.53	1,366,462.59
PT	7+52.8	555,544.79	1,366,589.32
1/32 HB	7+82.8	555,545.64	1,366,619.24
1/16 HB	7+87.4	555,544.75	1,366,623.79
30" X 24" TIE-IN	7+94.7	555,538.41	1,366,627.81

QUANTITIES				
ITEM	UNIT	ESTIMATE	AS-BUILT	SUPPLIER
30" WATER MAIN D.I.P. CL. 53	L.F.	750	-	-
24" WATER MAIN D.I.P. CL. 53	L.F.	64	-	-
30" VALVE	EACH	1	-	-
30" X 24" TAPPING SLEEVE AND RSGV (DIP)	EACH	1	-	-
30" X 24" TAPPING SLEEVE AND RSGV W/ PCCP X DIP ADAPTER	EACH	1	-	-
30" X 24" DIP REDUCER	EACH	2	-	-
1/8 HORIZONTAL BEND	EACH	2	-	-
1/16 HORIZONTAL BEND	EACH	2	-	-
1/32 HORIZONTAL BEND	EACH	1	-	-
30" X 30" TEE	EACH	1	-	-
30" LINE STOP	EACH	1	-	-
30" CAP AND BUTTRESS	EACH	3	-	-
AIR RELEASE VALVE	EACH	1	-	-



VICINITY MAP
SCALE: 1" = 600'

- Approximate location of existing water mains are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer by the Contractor at the Contractor's expense.
- All existing utilities shall be test pitted/located as necessary and in advance of the proposed construction, in order to properly make all required utility crossings and/or connections. Any discrepancies or utility conflicts shall be immediately reported to the Engineer.
- Topography was taken from a survey prepared by Gutschick, Little & Webber, P.A. (GLW) and provided to Dewberry.
- All horizontal controls are based on Maryland State Coordinates, NAD 83.
- All vertical controls are based on NAVD 88 DATUM.
- 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 (2) weeks in advance of construction operations at his own expense.
- Contractor shall notify the following utility companies or agencies at least five (5) working days before starting work shown on these plans:
 - AT&T 1-800-252-1133
 - BGE - Contractor Services 410-850-4620
 - BGE - Underground Damage Control 410-787-9068
 - Bureau of Utilities (DPW) 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.
- Contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- The Contractor shall notify the Bureau of Highways, Howard County at (410) 313-7450 at least five (5) working days before any open cut of any County road or trenchless installation 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(a) of the Howard County Code.
- The Contractor is responsible for contacting the various businesses and coordinating his work activities so as not to negatively impact connected customers. The installation of water main shall cause a minimum of disturbance to the existing businesses and notification to the businesses of any "interruptions of service" shall be the responsibility of the Contractor. The County requires that the Contractor notify each business affected, by letter or with door tags, of the impending service interruption at least 48 hours in advance of the planned interruption. In the event of an unplanned interruption, the Contractor will be responsible for notifying the businesses by "door to door" canvassing.
- The Contractor shall provide all necessary lines, grades and elevations, and cut sheets shall be prepared based on the lines and grades shown on the Contract drawings.

WATER MAIN NOTES

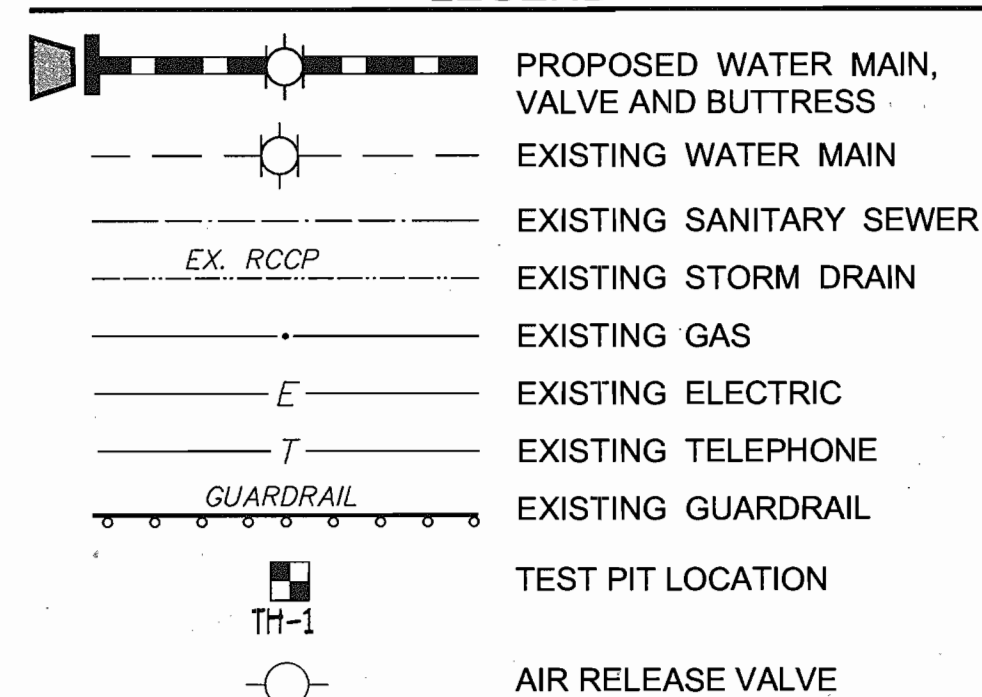
- All water mains shall be D.I.P. Pressure Class 350 (Thickness Class 53) with Restrained Joints unless otherwise noted.
- All water main shall be externally coated with a tape wrapping and shall conform to AWWA C214-89 and AWWA C209-90.
- Tops of water mains shall have a minimum of 3'-6" of cover unless otherwise noted.
- Distances shown for the water main are along the centerline of the pipe.
- Valves adjacent to tees shall be strapped to tees.
- All fittings shall be restrained joints, unless otherwise provided for on the drawings.
- Fire Hydrants shall be set to the bury line elevations shown on the drawings. All fire hydrants shall be installed in accordance with Standard Details. Soil around the fire hydrant shall be compacted in accordance with Section 1000 and Section 1005 of the Howard County Standard Specifications.
- The Contractor shall not operate any water main valves on the existing water system.
- The Contractor shall notify the Howard County Bureau of Utilities at least fifteen (15) days prior to any water main shut downs.
- Existing 30" water main may not be shut down prior to November 15, 2003 or unless otherwise approved by the Bureau of Utilities.
- Contractor shall notify the Howard County Bureau of Utilities at least five (5) working days prior to performing line-stops or taps.

SNOWDEN RIVER BUSINESS PARK 30 - INCH WATER MAIN RELOCATION CONTRACT NO. 44-4153-D

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	PLAN AND PROFILE
3	CATHODIC PROTECTION LAYOUT
4	CATHODIC PROTECTION DETAILS-1
5	CATHODIC PROTECTION DETAILS-2

LEGEND



REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

Jim Meyer 8/14/03
SIGNATURE DATE

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

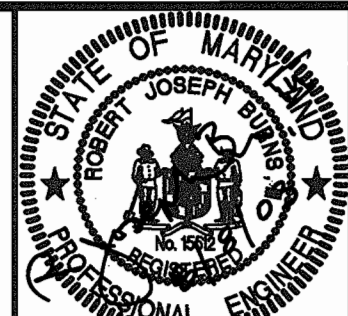
APPROVED:
John R. Roberts 8/14/03
HOWARD S.C.D. DATE

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND THESE PLANS F-01-142.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
R. B. B... 8-13-03
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
... 8/14/03
CHIEF, DEVELOPMENT ENG. DIV. DATE

Dewberry & Davis LLC
3120 Timanus Lane
Baltimore, Maryland 21244
(410) 285-9500 FAX: (410) 285-8875
Architects Engineers Planners Surveyors



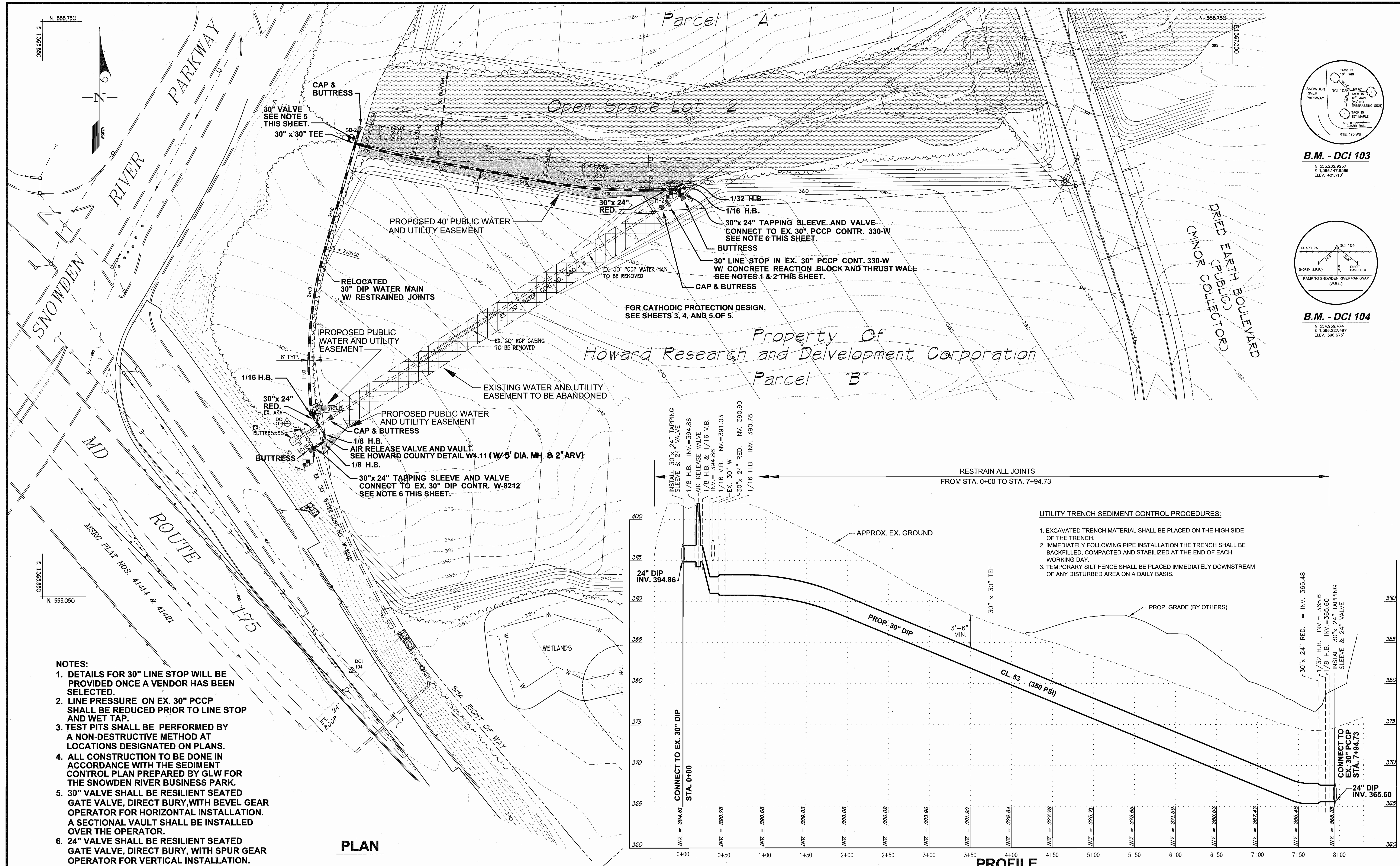
DES: RJB
DRN: CD
CHK: TND
DATE: August 8, 2003

BY	NO.	REVISIONS	DATE

COVER SHEET
600' SCALE MAP NO. W36 BLOCK NO. 24

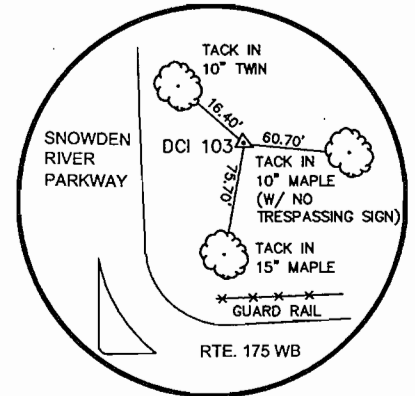
SECTION 1 AREA 1
SNOWDEN RIVER BUSINESS PARK
30 - INCH WATER MAIN RELOCATION
CONTRACT NO. 44-4153-D
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 1 OF 5

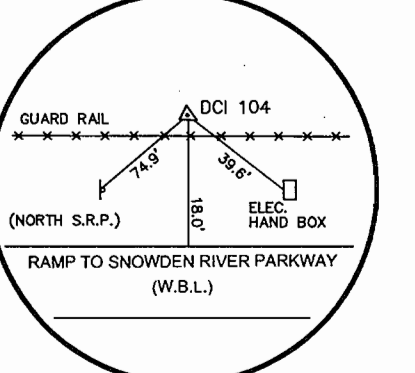


- NOTES:**
1. DETAILS FOR 30" LINE STOP WILL BE PROVIDED ONCE A VENDOR HAS BEEN SELECTED.
 2. LINE PRESSURE ON EX. 30" PCCP SHALL BE REDUCED PRIOR TO LINE STOP AND WET TAP.
 3. TEST PITS SHALL BE PERFORMED BY A NON-DESTRUCTIVE METHOD AT LOCATIONS DESIGNATED ON PLANS.
 4. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE SEDIMENT CONTROL PLAN PREPARED BY GLW FOR THE SNOWDEN RIVER BUSINESS PARK.
 5. 30" VALVE SHALL BE RESILIENT SEATED GATE VALVE, DIRECT BURY, WITH BEVEL GEAR OPERATOR FOR HORIZONTAL INSTALLATION. A SECTIONAL VAULT SHALL BE INSTALLED OVER THE OPERATOR.
 6. 24" VALVE SHALL BE RESILIENT SEATED GATE VALVE, DIRECT BURY, WITH SPUR GEAR OPERATOR FOR VERTICAL INSTALLATION.

- UTILITY TRENCH SEDIMENT CONTROL PROCEDURES:**
1. EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
 2. IMMEDIATELY FOLLOWING PIPE INSTALLATION THE TRENCH SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY.
 3. TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA ON A DAILY BASIS.



B.M. - DCI 103
 N 555,262.9237
 E 1,366,147.9566
 ELEV. 401.710'



B.M. - DCI 104
 N 554,959.474
 E 1,366,227.497
 ELEV. 398.675'

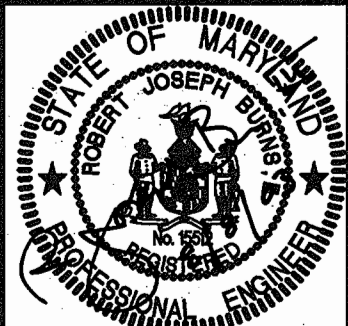
PLAN

PROFILE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

Dewberry & Davis LLC
 3120 Timanus Lane
 Baltimore, Maryland 21244
 (410) 265-9500 FAX: (410) 265-8875
 Architects Engineers Planners Surveyors

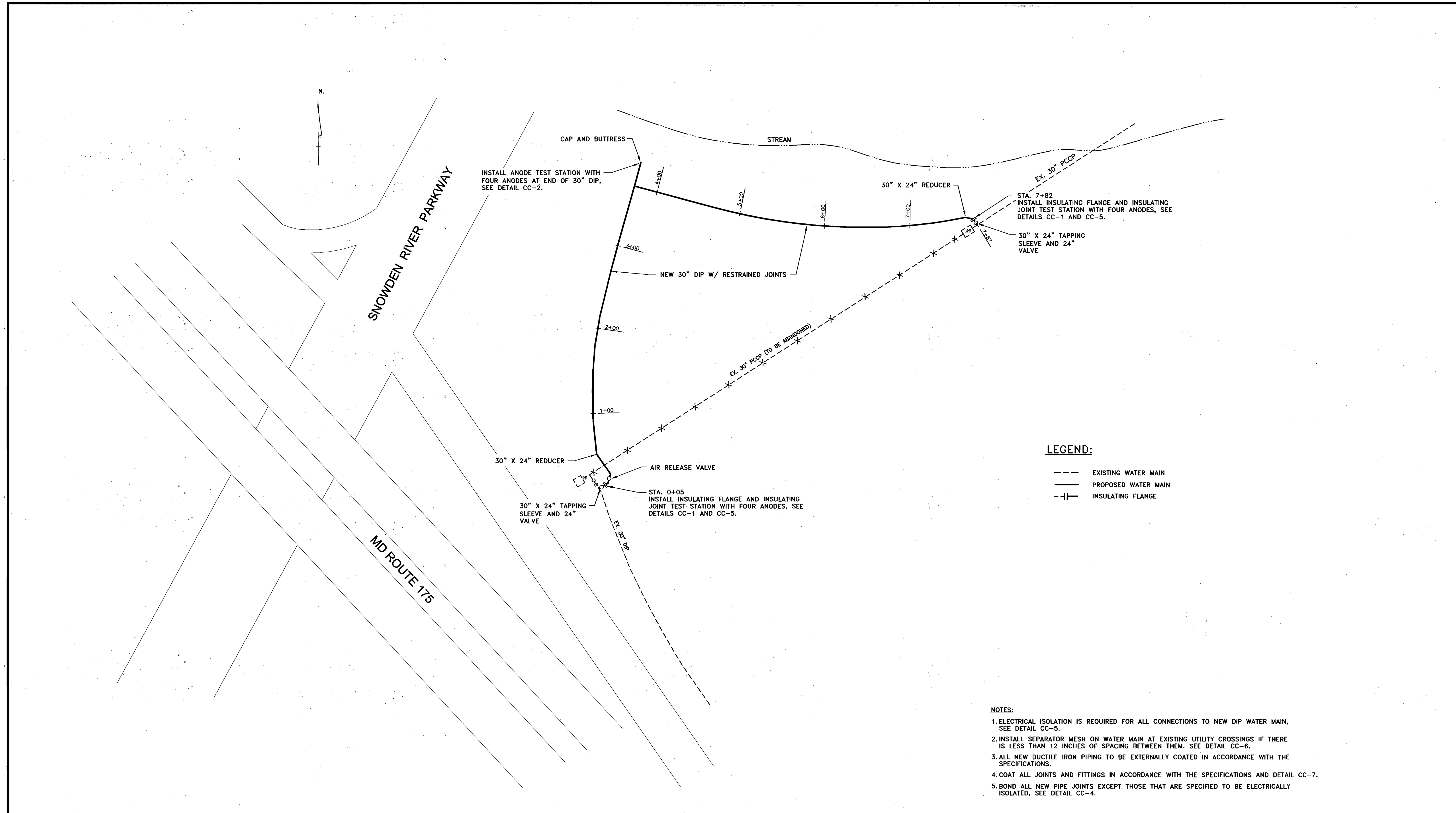


DES: RJB	
DRN: CD	
CHK: TND	
DATE: August 8, 2003	
BY NO.	
REVISIONS	
DATE	

PLAN AND PROFILE
 600' SCALE MAP NO. W36 BLOCK NO. 24

SECTION 1 AREA 1
 SNOWDEN RIVER BUSINESS PARK
 30 - INCH WATER MAIN RELOCATION
 CONTRACT NO. 44-4153-D
 ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE
 1"=50' Horiz.
 1"=5' Vert.
 SHEET
 2 OF 5



CATHODIC PROTECTION LAYOUT FOR 30-INCH DIP

SCALE: 1"=50'

LEGEND:

- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- | | INSULATING FLANGE

NOTES:

1. ELECTRICAL ISOLATION IS REQUIRED FOR ALL CONNECTIONS TO NEW DIP WATER MAIN, SEE DETAIL CC-5.
2. INSTALL SEPARATOR MESH ON WATER MAIN AT EXISTING UTILITY CROSSINGS IF THERE IS LESS THAN 12 INCHES OF SPACING BETWEEN THEM. SEE DETAIL CC-6.
3. ALL NEW DUCTILE IRON PIPING TO BE EXTERNALLY COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
4. COAT ALL JOINTS AND FITTINGS IN ACCORDANCE WITH THE SPECIFICATIONS AND DETAIL CC-7.
5. BOND ALL NEW PIPE JOINTS EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED, SEE DETAIL CC-4.

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 DUPLICATED 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.

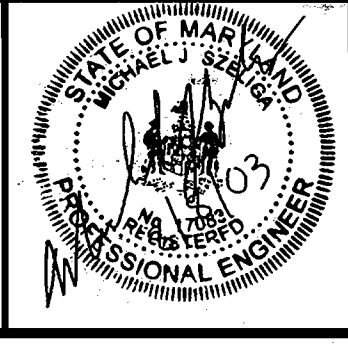
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Robert B. Berman 8-8-03
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Charles J. ... 8/8/03
CHIEF, DEVELOPMENT ENG. DIV. M.B.T. DATE

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland



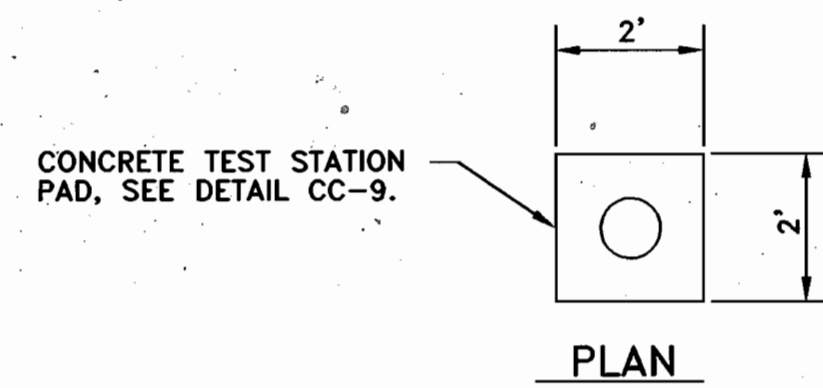
DES:	MJS			
DRN:	DJD/PCD			
CHK:	MJS			
DATE:	August 8, 2003	BY:	NO.	REVISIONS

30-INCH DIP WATER MAIN
CATHODIC PROTECTION LAYOUT

600' SCALE MAP NO. W36 BLOCK NO. 24

SECTION 1 AREA 1
SNOWDEN RIVER BUSINESS PARK
30 - INCH WATER MAIN RELOCATION
CONTRACT NO. 44-4153-D
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

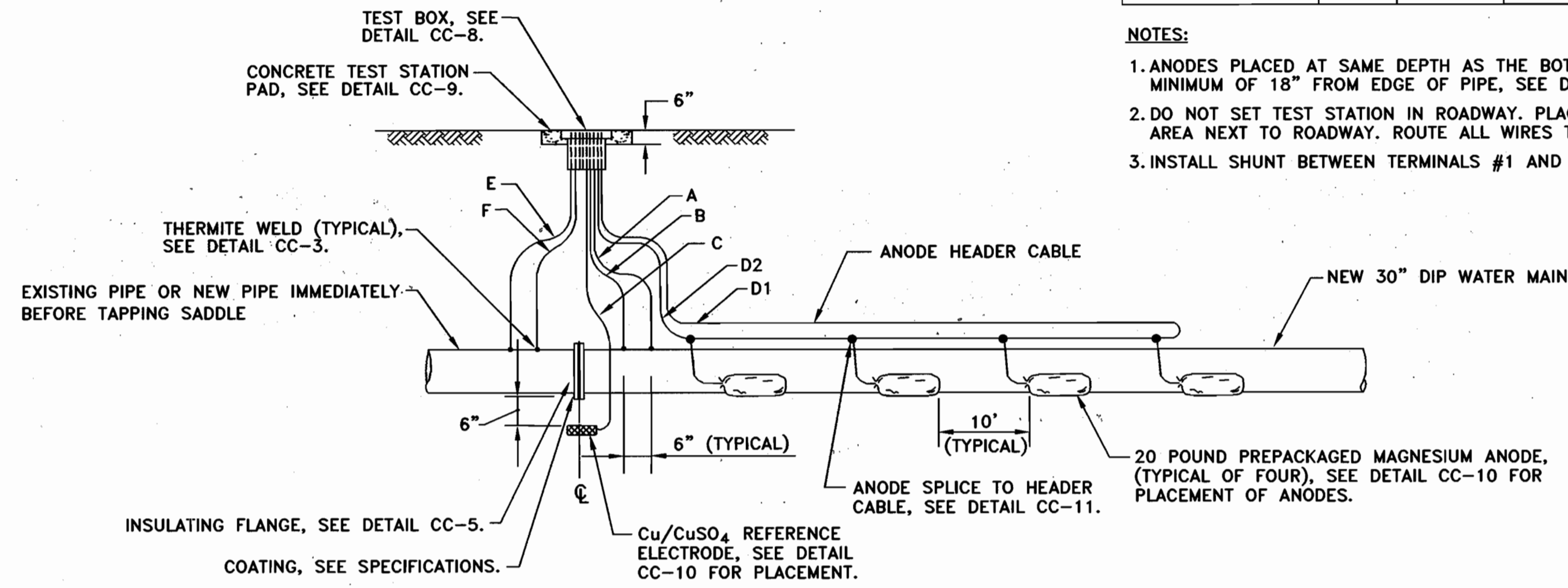
CP-1
SCALE
As Shown
SHEET
3 OF 5



WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE INSULATION	COLOR INSULATION
NEW DIP WATER MAIN	A B	1 3	#10 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
MAGNESIUM ANODE HEADER CABLE	D1 D2	4 7	#8 #8	HMWPE HMWPE	BLACK BLACK
EXISTING WATER MAIN	E F	2 5	#10 #10	THWN THWN	WHITE WHITE

NOTES:

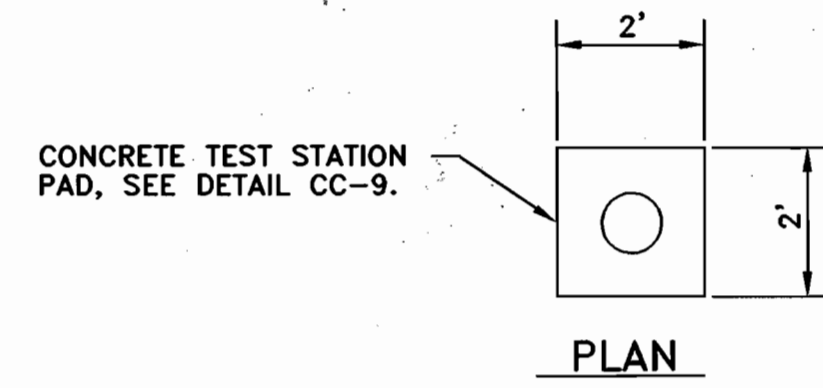
1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 18" FROM EDGE OF PIPE, SEE DETAIL CC-10.
2. DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES TO FINAL TEST BOX LOCATION.
3. INSTALL SHUNT BETWEEN TERMINALS #1 AND #4.



PROFILE

CC-1: INSULATING JOINT TEST STATION WITH ANODES

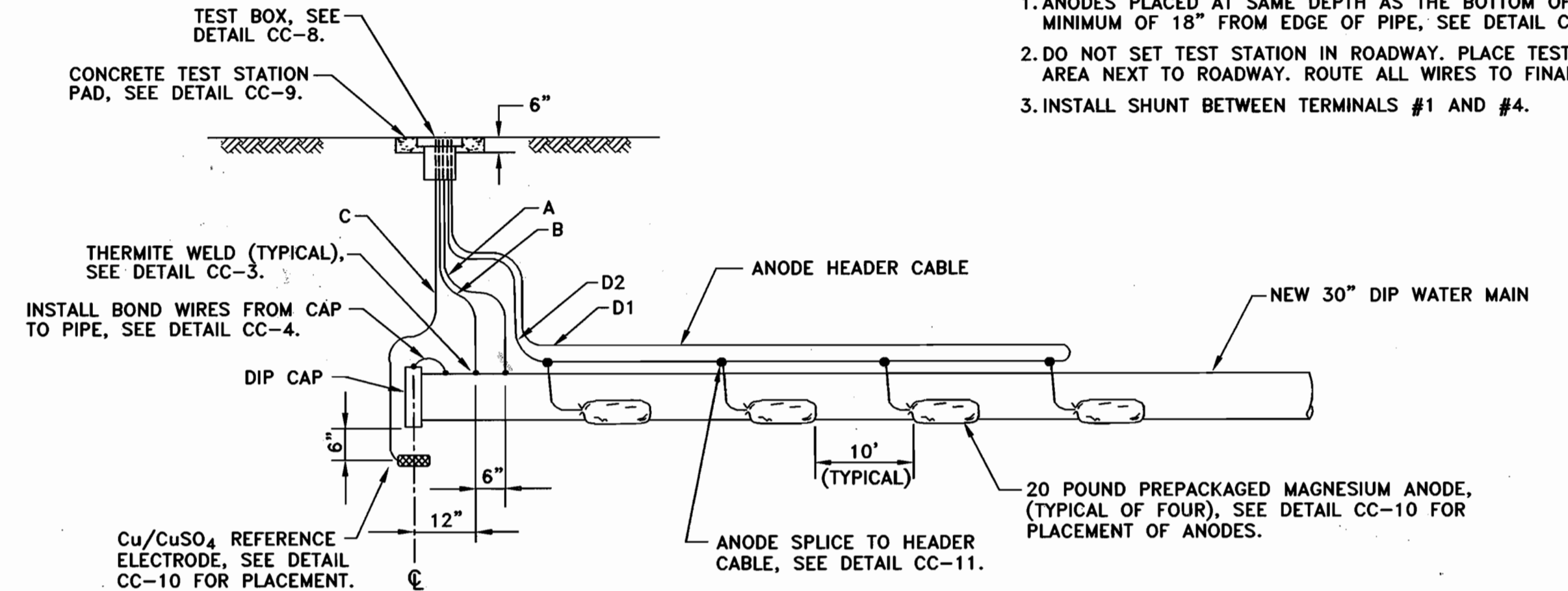
NOT TO SCALE



WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE INSULATION	COLOR INSULATION
NEW DIP WATER MAIN	A B	1 3	#10 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
MAGNESIUM ANODE HEADER CABLE	D1 D2	4 7	#8 #8	HMWPE HMWPE	BLACK BLACK

NOTES:

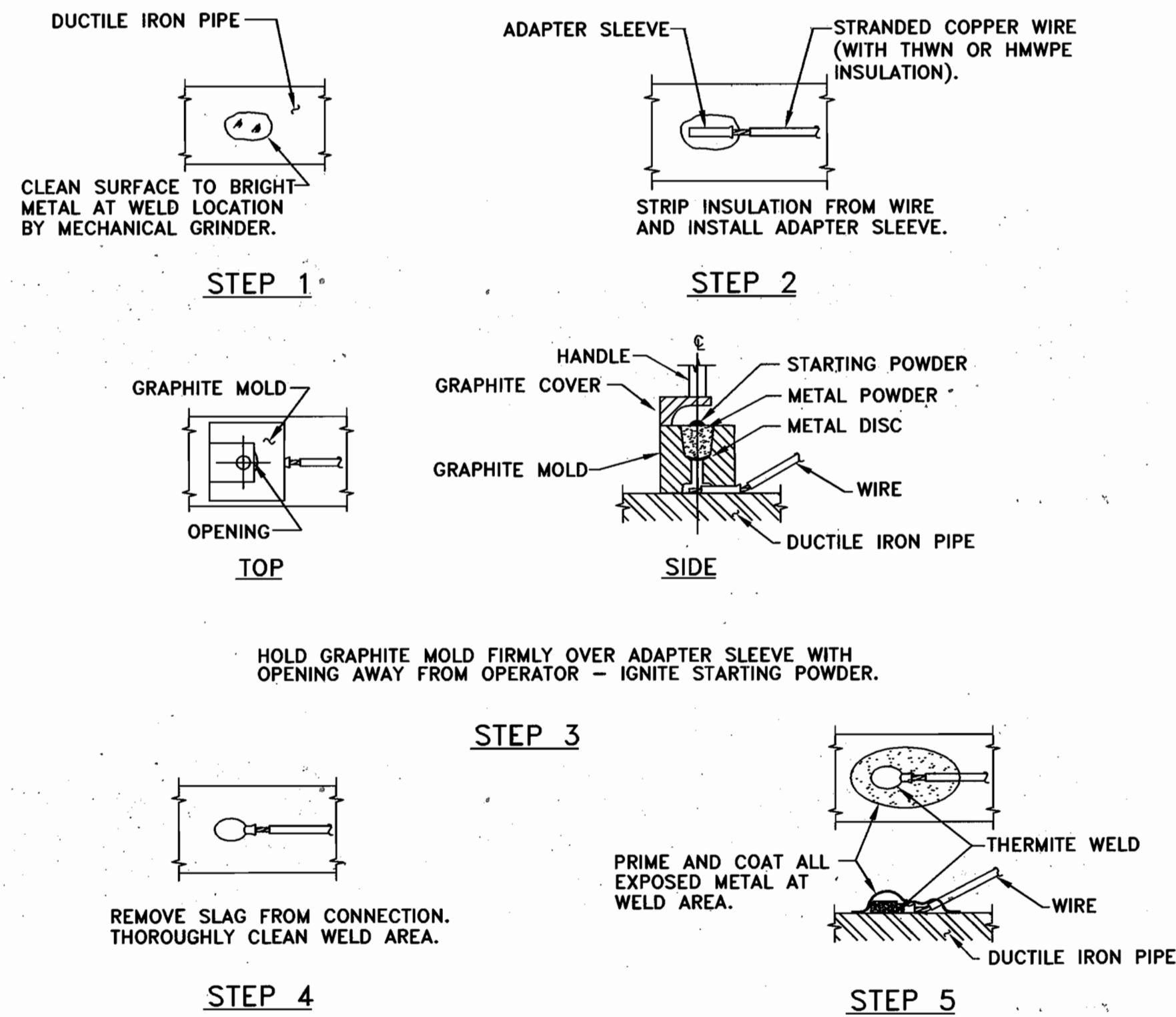
1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 18" FROM EDGE OF PIPE, SEE DETAIL CC-10.
2. DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES TO FINAL TEST BOX LOCATION.
3. INSTALL SHUNT BETWEEN TERMINALS #1 AND #4.



PROFILE

CC-2: ANODE TEST STATION

NOT TO SCALE

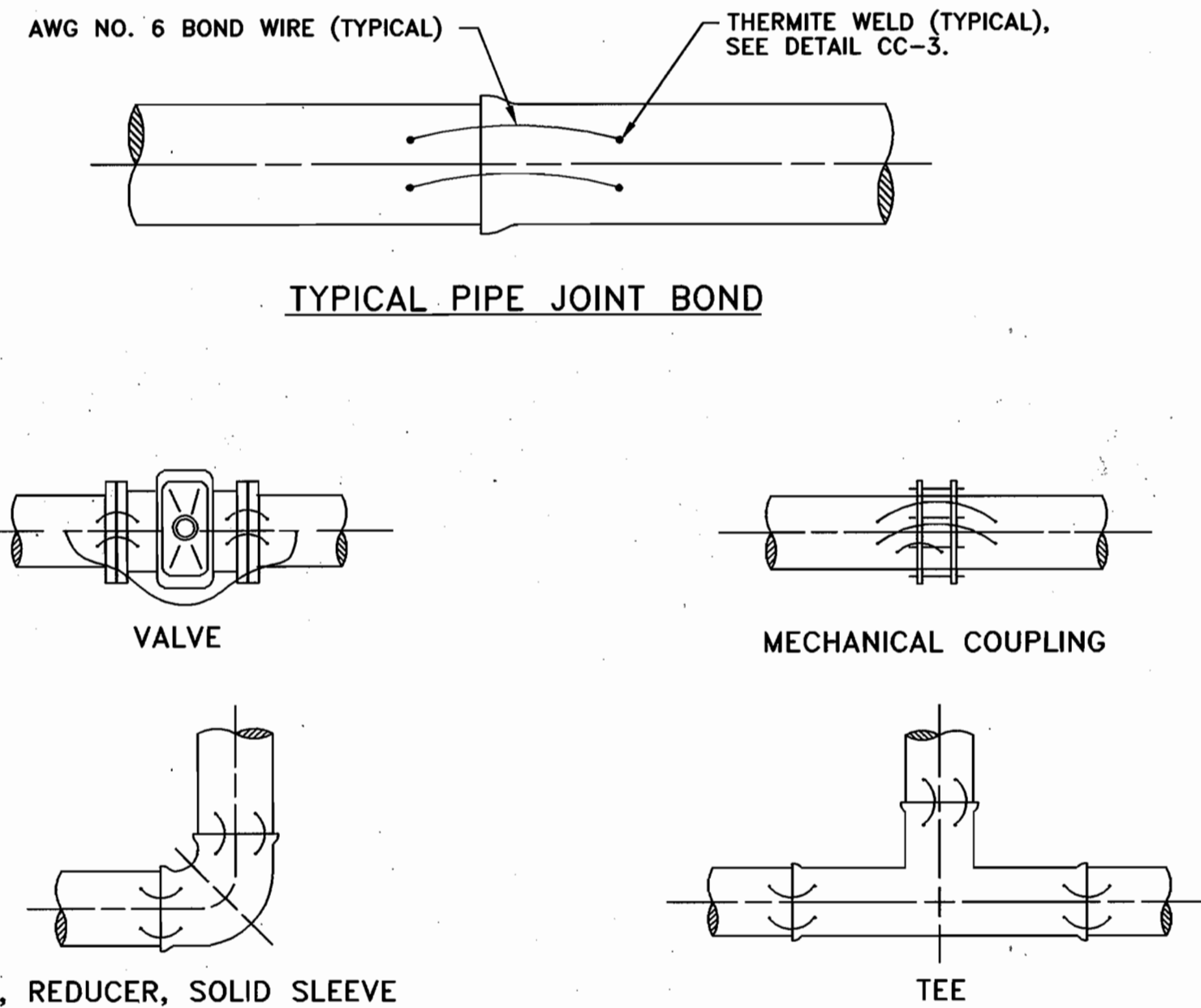


NOTES:

1. THERMITE WELDS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY-CAP OR APPROVED EQUAL.
2. REPAIR PIPE COATING IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS.

CC-3: THERMITE WELD

NOT TO SCALE



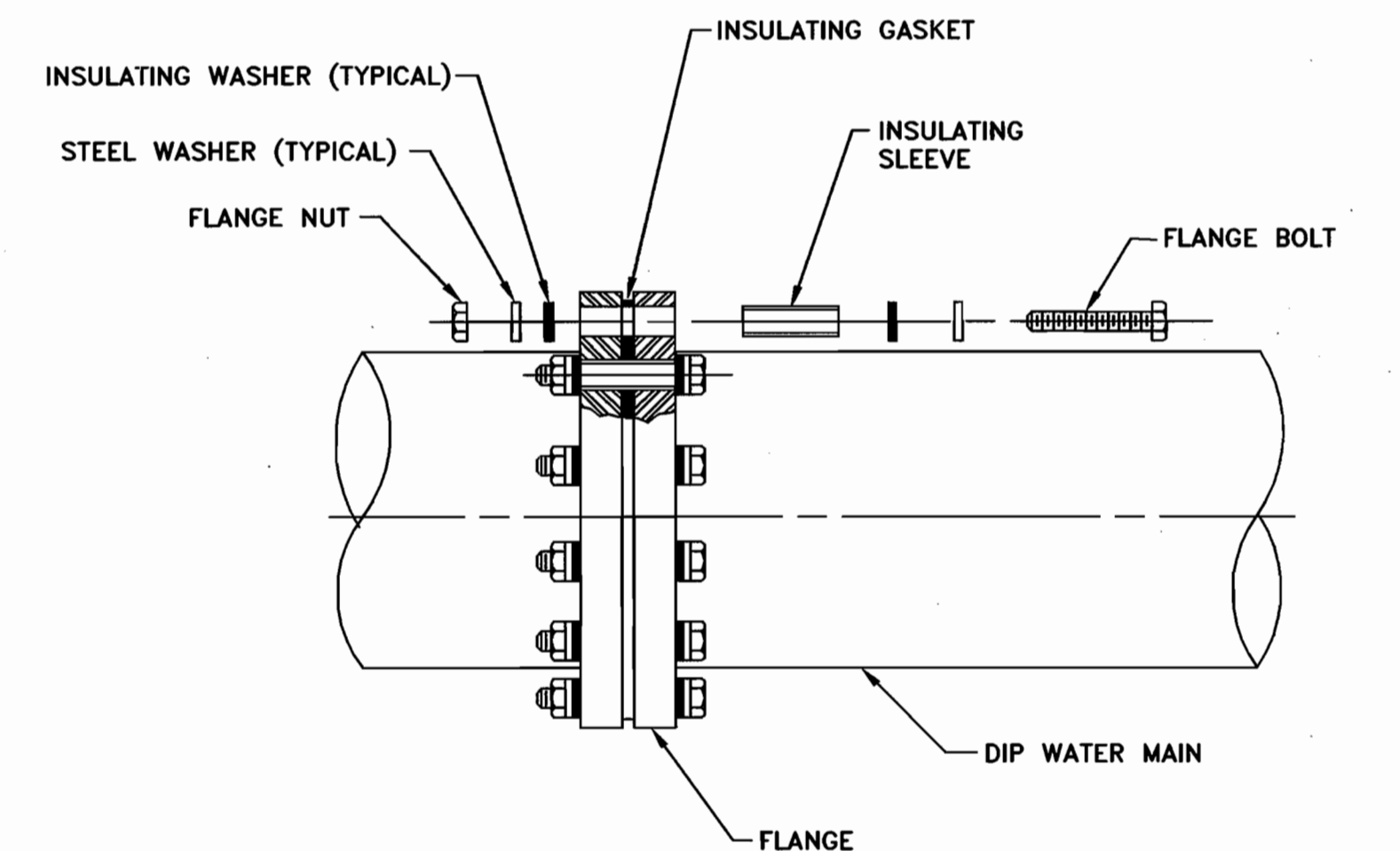
TYPICAL BONDING FOR FITTINGS

NOTES:

1. BOND ALL JOINTS ON UNDERGROUND PIPING ASSOCIATED WITH THE WATER MAIN EXCEPT INSULATED JOINTS.
2. THERMITE WELD BONDING WIRES TO TOP OF PIPE OR FITTINGS, SEE DETAIL CC-3.
3. INSTALL TWO BOND WIRES TO END CAP IN A SIMILAR MANNER AS SHOWN ABOVE.

CC-4: DIP JOINT BONDING

NOT TO SCALE



NOTE:

SEE SPECIFICATIONS FOR EXTERNAL COATING OF INSULATING FLANGE.

CC-5: INSULATING FLANGE

NOT TO SCALE

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland



DES: MJS
DRN: DJD/PGD
CHK: MJS
DATE: August 8, 2003

BY	NO.	REVISIONS	DATE

CATHODIC PROTECTION
DETAILS - 1

600' SCALE MAP NO. W36 BLOCK NO. 24

SECTION 1 AREA 1
SNOWDEN RIVER BUSINESS PARK
30 - INCH WATER MAIN RELOCATION
CONTRACT NO. 44-4153-D

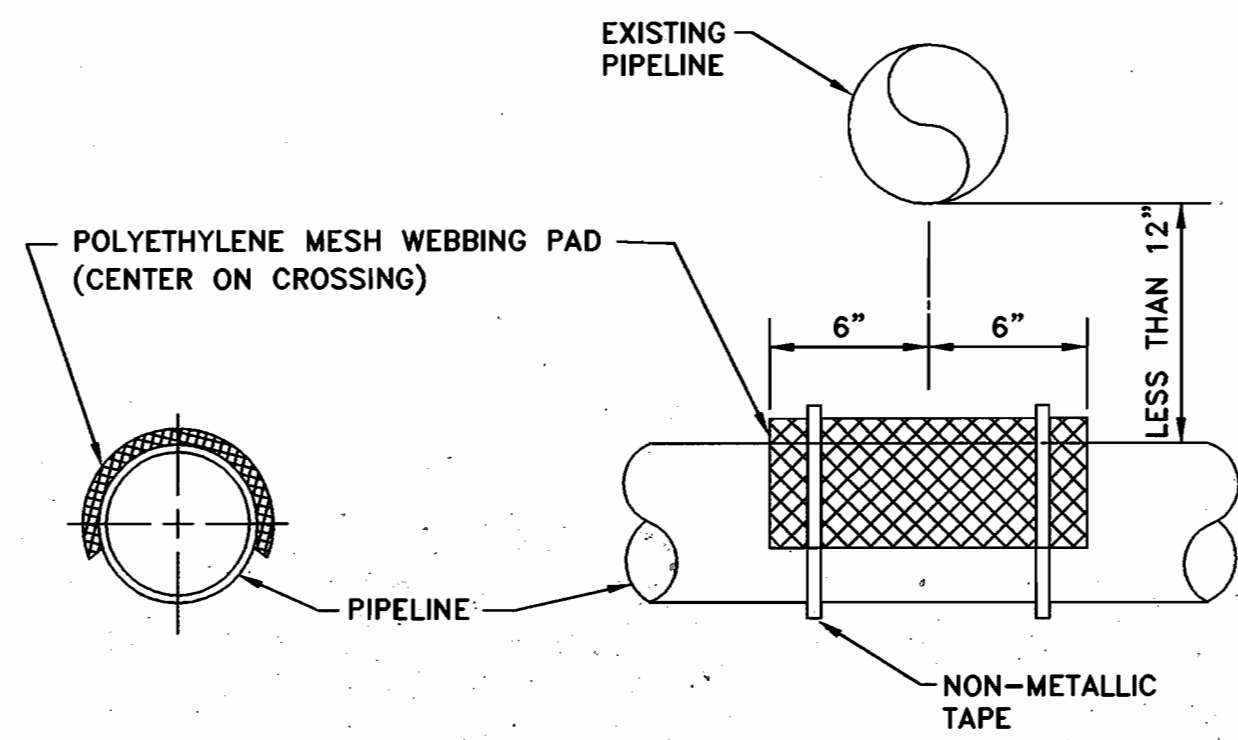
ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

CP-2

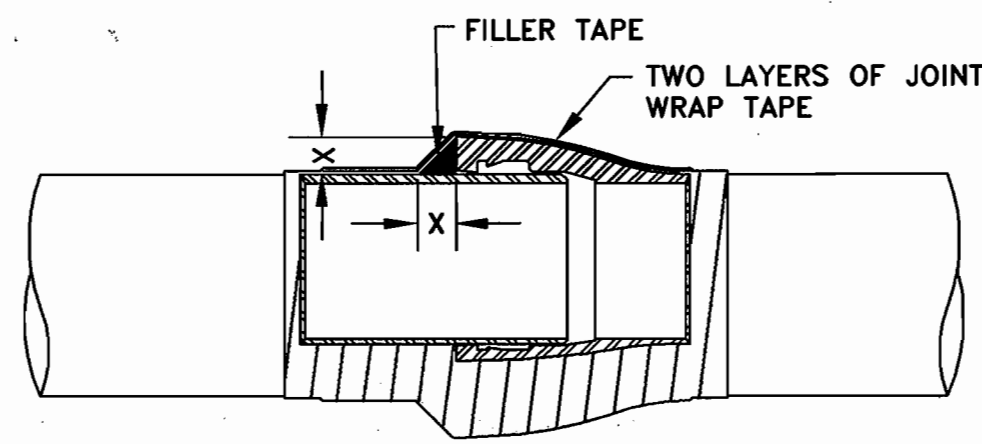
SCALE
As Shown

SHEET
4 OF 5



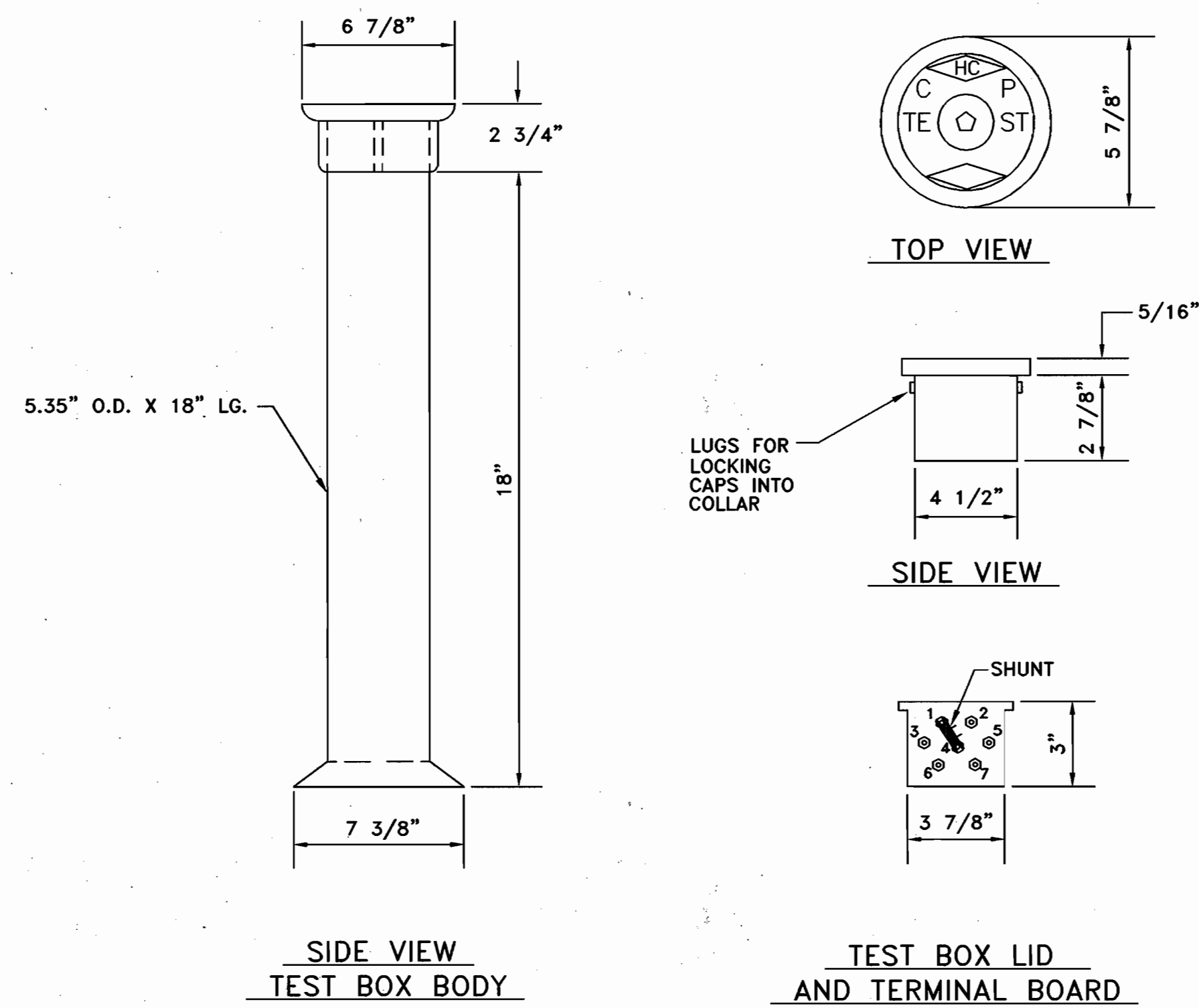
NOTE:
USE ONLY WHEN PIPES ARE LESS THAN 12" APART.

CC-6: SEPARATOR TO AVOID ELECTRICAL CONTACT
NOT TO SCALE



NOTES:
1. CLEAN JOINT OF ALL FOREIGN MATERIAL BY WIRE BRUSHING.
2. APPLY COATING PRIMER TO JOINT.
3. INSTALL FILLER TAPE AS SHOWN.
4. APPLY TWO LAYERS OF JOINT WRAP TAPE.
5. COAT PIPE FITTINGS IN A SIMILAR MANNER.

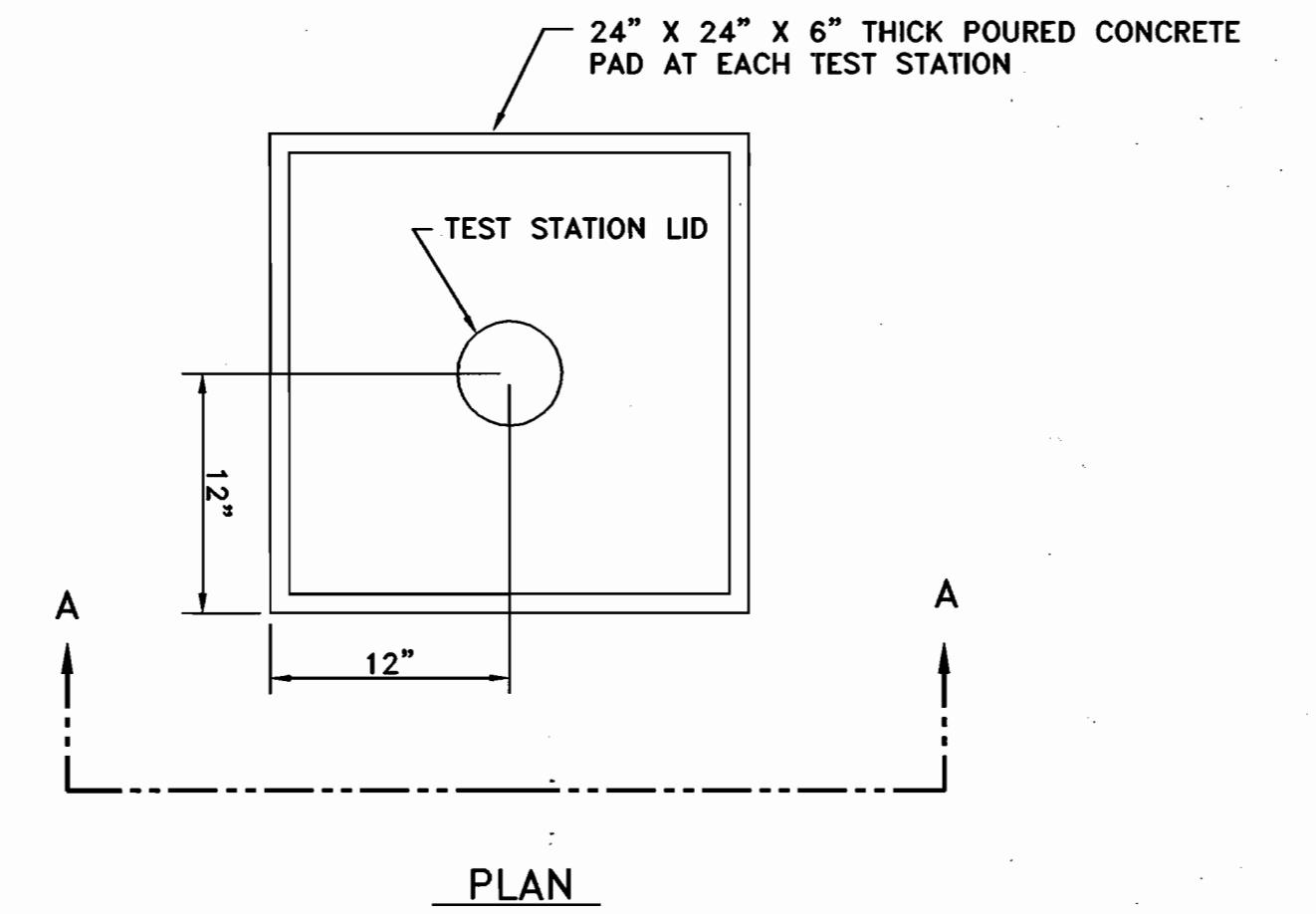
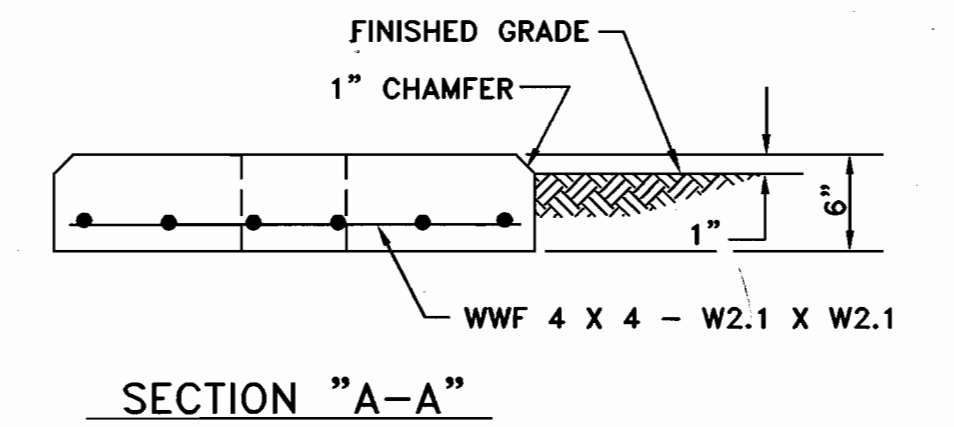
CC-7: JOINT COATING
NOT TO SCALE



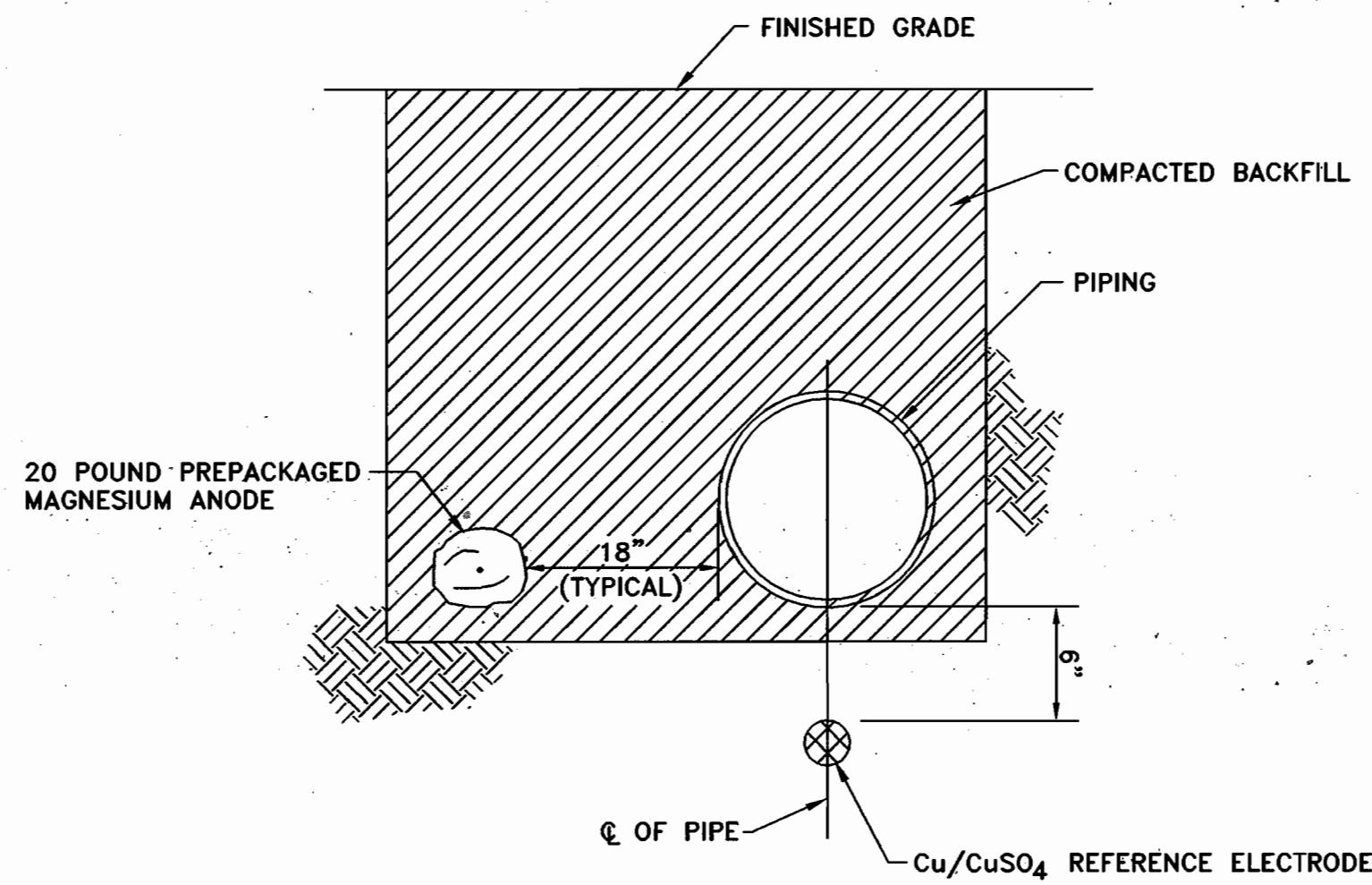
TEST BOX BODY

TEST BOX LID AND TERMINAL BOARD

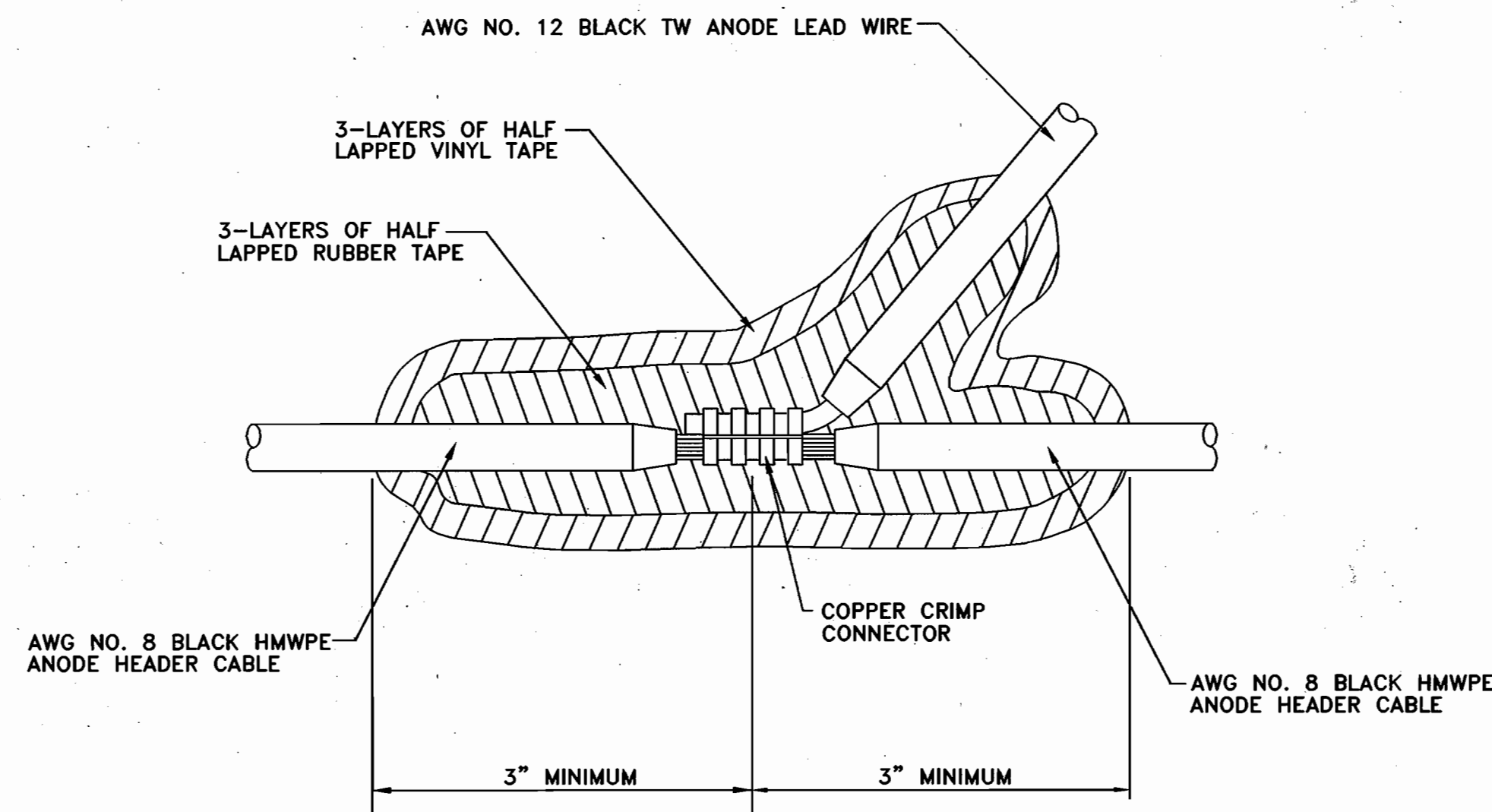
CC-8: TEST BOX
NOT TO SCALE



CC-9: TEST STATION PAD
NOT TO SCALE



CC-10: ANODE AND REFERENCE ELECTRODE PLACEMENT
NOT TO SCALE



CC-11: ANODE TO HEADER CABLE SPLICE
NOT TO SCALE

HOWARD COUNTY 30" DIP WATER MAIN				
STATION NUMBER	TEST STATION TYPE	DETAIL NUMBER	NUMBER OF ANODES	REFERENCE ELECTRODE
0+05	INSULATED FLANGE WITH ANODES	CC-1	4	YES
-	ANODE	CC-2	4	YES
7+82	INSULATED FLANGE WITH ANODES	CC-1	4	YES

CC-12: TEST STATION SCHEDULE

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
R. H. B... 8-13-03
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
C. P. ... 10/4/03
CHIEF, DEVELOPMENT ENG. DIV. M.B.T. DATE

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

STATE OF MARYLAND
PROFESSIONAL ENGINEER

DES:	MJS			
DRN:	DJD/PCD			
CHK:	MJS			
DATE:	August 8, 2003	BY	NO.	REVISIONS

CATHODIC PROTECTION
DETAILS - 2
600' SCALE MAP NO. W36 BLOCK NO. 24

SECTION 1 AREA 1
SNOWDEN RIVER BUSINESS PARK
30 - INCH WATER MAIN RELOCATION
CONTRACT NO. 44-4153-D
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

CP-3
SCALE
As Shown
SHEET
5 OF 5