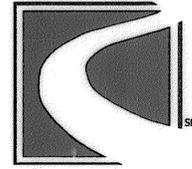


Maryland Transportation Authority



U.S. ROUTE 50 / 301

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT

QUEEN ANNE'S COUNTY, MARYLAND

STRUCTURE NO. : 8870,8201

CONTRACT NO.: BB-972-000-006

BB-972-000-006

AASHTO DESIGN CRITERIA

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE 2004 EDITION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."

EROSION AND SEDIMENT CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION.

STANDARDS AND SPECIFICATIONS

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MARYLAND STATE HIGHWAY ADMINISTRATION'S "STANDARDS FOR HIGHWAY AND INCIDENTAL CONSTRUCTION", THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, JULY 2008" AND ALL REVISIONS THEREOF, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND AS SPECIFIED IN THE CONTRACT DOCUMENTS.

COMPLETENESS OF DOCUMENTS

THE MARYLAND TRANSPORTATION AUTHORITY SHALL ONLY BE RESPONSIBLE FOR THE COMPLETENESS OF DOCUMENTS OBTAINED DIRECTLY FROM THE MARYLAND TRANSPORTATION AUTHORITY'S CASHIER'S OFFICE. FAILURE TO ATTACH ADDENDA MAY CAUSE THE BID TO BE IRREGULAR.

RIGHT OF WAY

RIGHT OF WAY AND EASEMENT LINES SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THEY ARE NOT OFFICIAL. FOR OFFICIAL FEE RIGHT OF WAY AND EASEMENT INFORMATION, SEE APPROPRIATE RIGHT OF WAY PLATS.

UTILITIES

THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE OF THE ACCURACY OF SAID LOCATIONS. NOTIFICATION TO "MISS UTILITY", 1.800.257.7777, SHALL BE GIVEN 72 HOURS (THREE FULL WORKING DAYS) IN ADVANCE OF WORKING IN THE AREA OF THE SPECIFIC AFFECTED UTILITY. THE NOTIFICATION TO "MISS UTILITY" IS REQUIRED WHENEVER ANY EXCAVATING OR SIMILAR WORK IS TO BE PERFORMED.

NOTIFICATION TO BOBBY WOJCIK, THE MTA UTILITIES MANAGER, SHALL BE GIVEN 72 HOURS (THREE FULL WORKING DAYS) IN ADVANCE OF WORKING IN THE AREA OF MTA UTILITIES.

ENVIRONMENTAL INFORMATION MDE # 10-SF-0332

ALL STORMWATER MANAGEMENT FACILITIES CONSTRUCTED FOR CONTRACT NO. BB-972-000-006 SHALL BE INSPECTED BIANNUALLY WITH MAINTENANCE PROVIDED WHEN REQUIRED.

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

THE GRADING LIMITS SHOWN ON THE PLAN SHALL NOT BE EXCEEDED. ANY CHANGES IN THE SEDIMENT CONTROL PLAN, STORMWATER MANAGEMENT FACILITY OR OTHER SEGMENT OF WORK MUST BE REVIEWED AND APPROVED BY THE OFFICE OF ENVIRONMENTAL DESIGN AND/OR THE OFFICE OF THE CHIEF ENGINEER.

ADA COMPLIANCE

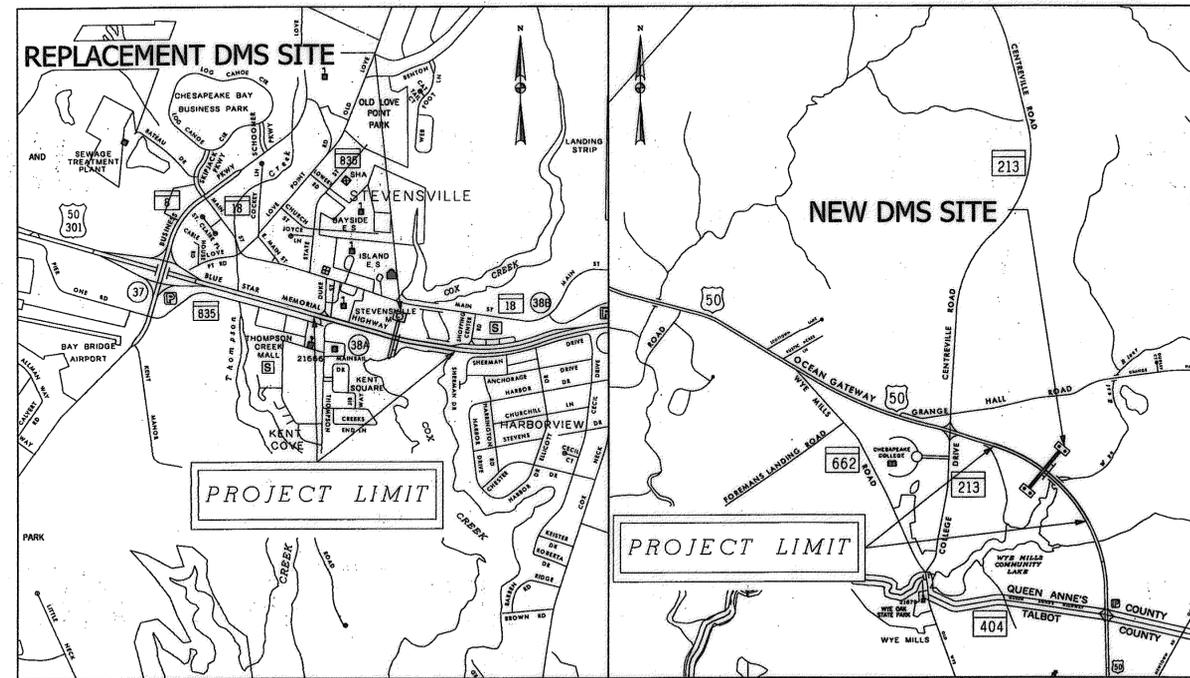
THE DESIGN OF THIS PROJECT HAS INCORPORATED FACILITIES IN COMPLIANCE WITH THE STATE AND FEDERAL LEGISLATION.

OWNERS / DEVELOPERS CERTIFICATION :

I / WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I HEREBY AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE INSPECTORS.

5/19/2010
DATE: _____
OWNER/DEVELOPER SIGNATURE: _____

165
CARD NO. _____
PRINTED NAME AND TITLE: Douglas Novacek, Esq., Mgr.



HORIZONTAL DATUM: NAD 83 / 91
VERTICAL DATUM: NAVD 88
LOCATION MAP
NOT TO SCALE
MILEAGE: 0.5 MILES
DESIGN SPEED: 60 MPH

ADVERTISEMENT
DATE: _____

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FAIRFAX, VA 22030
PHONE: 703-359-5861
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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. 37187, EXPIRATION DATE: 6-11-11.

SABRA, WANG & ASSOCIATES, INC.
1504 JOH AVENUE
SUITE 100
BALTIMORE, MD 21227
(410) 737-8564
WWW.SABRA-WANG.COM

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. 14714, EXPIRATION DATE: 12-11-11.

ADDENDA	MARYLAND TRANSPORTATION AUTHORITY
	RECOMMENDED FOR APPROVAL DATE: 6/2/10
	DIRECTOR OF ENGINEERING
	APPROVED DATE: 6/7/10
	CHIEF ENGINEER, OFFICE OF ENGINEERING AND CONSTRUCTION
	APPROVED DATE: 6/6/10
	EXECUTIVE SECRETARY

INDEX OF SHEETS

SHEET	TOTAL	DWG	DESCRIPTION
1	OF 25	TITLE	TITLE SHEET
2	OF 25	INDX	INDEX OF SHEETS
3	OF 25	GEN-1	GENERAL NOTES AND LEGEND
4	OF 25	DEM-1	DMS (1) DEMOLITION DETAILS
5	OF 25	DMS-1	DMS (1) INSTALLATION DETAILS
6	OF 25	DMS-2	DMS (2) INSTALLATION DETAILS
7	OF 25	S-1	REPLACEMENT DMS (1) STRUCTURE - CROSS SECTION
8	OF 25	S-2	DMS (2) STRUCTURE - CROSS SECTION
9	OF 25	SN-8.1	OVERHEAD DMS STRUCTURE AND GENERAL NOTES
10	OF 25	SN-8.2	OVERHEAD DMS STRUCTURE - ELEVATION
11	OF 25	SN-8.3	OVERHEAD DMS STRUCTURE DETAIL - 1
12	OF 25	SN-8.4	OVERHEAD DMS STRUCTURE DETAIL - 2
13	OF 25	SN-8.5	OVERHEAD DMS STRUCTURE FOUNDATION
14	OF 25	SN-8.6	TYPICAL DMS CONDUIT ROUTING DETAIL
15	OF 25	CAB-1	TYPICAL BASE MOUNTED CABINET DETAILS
16	OF 25	CAB-2	DMS CABINET LINE DIAGRAM
17	OF 25	TC-1	MAINTENANCE OF TRAFFIC: GENERAL NOTES AND SEQUENCE OF CONSTRUCTION
18	OF 25	TC-2	DMS (1) - MOT PLAN (PHASE 1)
19	OF 25	TC-3	DMS (1) - MOT PLAN (PHASE 2)
20	OF 25	TC-4	DMS (2) - MOT PLAN (PHASE 3)
21	OF 25	TC-5	DMS (2) - MOT PLAN (PHASE 4)
22	OF 25	ESC-1	EROSION AND SEDIMENT CONTROL NOTES (SHEET 1 OF 2)
23	OF 25	ESC-2	EROSION AND SEDIMENT CONTROL NOTES (SHEET 2 OF 2)
24	OF 25	ESC-3	EROSION AND SEDIMENT CONTROL DETAILS (SHEET 1 OF 1)
25	OF 25	TAB-1	QUANTITY TABULATION



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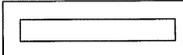
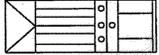
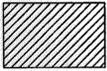


Maryland Transportation Authority
ENGINEERING DIVISION

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT			CONTRACT NO. BB-972-000-006
INDEX OF SHEETS			DRAWING NO. INDX
DESIGNED BY <u>SJW</u>	DRAWN BY <u>JRL</u>	CHECKED BY <u>AJM</u>	SHEET NO.
CONST. REVIEW BY _____	DATE <u>FEBRUARY, 2010</u>	SCALE <u>NOT TO SCALE</u>	<u>2</u> OF <u>25</u>

SYMBOL LEGEND

	DYNAMIC MESSAGE SIGN (PROPOSED)		EXISTING POLE LUMINAIRE
	DYNAMIC MESSAGE SIGN (EXISTING)		(CHANNELIZING DEVICE) DRUM
	FULL SPAN SIGN SUPPORT STRUCTURE		FLASHING ARROW PANEL
	SIGN STRUCTURE NUMBER		PROTECTION VEHICLE
	EXISTING DMS CONTROLLER CABINET		SIGN POST
	PROPOSED DMS CONTROLLER CABINET		TRAFFIC WORK ZONE AREA
	COMMUNICATION MANHOLE		W BEAM TRAFFIC BARRIER (EXISTING)
	METER AND BREAKER		W BEAM TRAFFIC BARRIER (PROPOSED)
	POWER DISTRIBUTION ASSEMBLY		DRAINAGE INLET
			UTILITY POLE
			PROPOSED CONDUIT
			EXISTING CONDUIT

GENERAL NOTES

- THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MARYLAND STATE HIGHWAY ADMINISTRATION (MDSHA) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2008 AND ALL ADENDA AND REVISIONS, MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), MARYLAND SUPPLEMENT TO THE MUTCD, AND SHA TEMPORARY CONTROL STANDARDS.
- THE HORIZONTAL CONTROL FOR THIS PROJECT IS BASED ON EXISTING MARYLAND TRANSPORTATION AUTHORITY (MDTA) PLANS. HORIZONTAL CONTROL WAS NOT ESTABLISHED.
- THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO SHA OR MDTA PROPERTY RESULTING FROM HIS OPERATION AND SHALL BE REQUIRED TO REPAIR ANY AND ALL DAMAGES INCURRED AS DIRECTED BY THE ENGINEER.
- ANY EXISTING UTILITIES SHOWN ON THE PLANS ARE IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE AND ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. ALL EXISTING UTILITIES SHALL BE PROTECTED AND TEMPORARILY SUPPORTED OR RELOCATED AS NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE PERTINENT UTILITY COMPANY REQUIREMENT AND SECTION 107.03.06 OF THE 2008 MSHA STANDARD SPECIFICATIONS (OR LATEST VERSION). BEFORE EXCAVATION IS STARTED, THE CONTRACTOR SHALL NOTIFY "MISS UTILITY", TEL. 800-257-7777 AND MDTA UTILITIES' MR. BOBBY WOJCIK (410-537-6669) AND SHA UTILITIES MR. BARRY CLOTHIER (410-810-3275) PRIOR TO STARTING WORK.
- THE CONTRACTOR SHALL INSTALL SLACK CABLE AS REQUIRED TO PREVENT CABLE DAMAGE DURING INSTALLATION AND TO ACCOMMODATE SPLICES. THE CONTRACTOR SHALL ALLOW 50 FT. OF SLACK CABLE IN EACH JUNCTION BOX TO ACCOMMODATE FUTURE CABLE SPLICES.
- ALL EXISTING SIGNS TO BE REMOVED ARE SHOWN ON DEMOLITION PLANS. THE SIGNS SHALL BE DISPOSED OF BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER; HOWEVER, MDTA SHALL HAVE FIRST RIGHT OF REFUSAL OF ANY EQUIPMENT THAT HAS BEEN REMOVED.
- THE CONTRACTOR SHALL FOLLOW APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE (NEC) FOR INSTALLATION OF ALL PROJECT ELEMENTS.
- ALL WORK SHALL BE CONFINED WITHIN THE EXISTING HIGHWAY RIGHT-OF-WAY.
- DMS SIGNS AND CONTROLLERS TO BE INSTALLED UNDER THIS CONTRACT SHALL BE FURNISHED UNDER A SEPARATE CONTRACT (MA 727-000-002). THE CONTRACTOR SHALL COORDINATE WITH MDTA FOR DELIVERY OF THESE SIGNS AND CONTROLLERS TO THE LOCATIONS IDENTIFIED ON THESE PLANS.
- THE TYPES OF DMS AND FIELD CABINETS TO BE INSTALLED UNDER THIS CONTRACT ARE IDENTIFIED IN THE EQUIPMENT SUMMARY TABLE AND SYMBOL LEGEND.

TYPE	DESCRIPTION
I	LED DMS
	3 LINES/21 CHARACTERS PER LINE
	FULL MATRIX, 15° VIEWING ANGLE
	18" CHARACTERS
	WALK-IN ACCESS
	DMS



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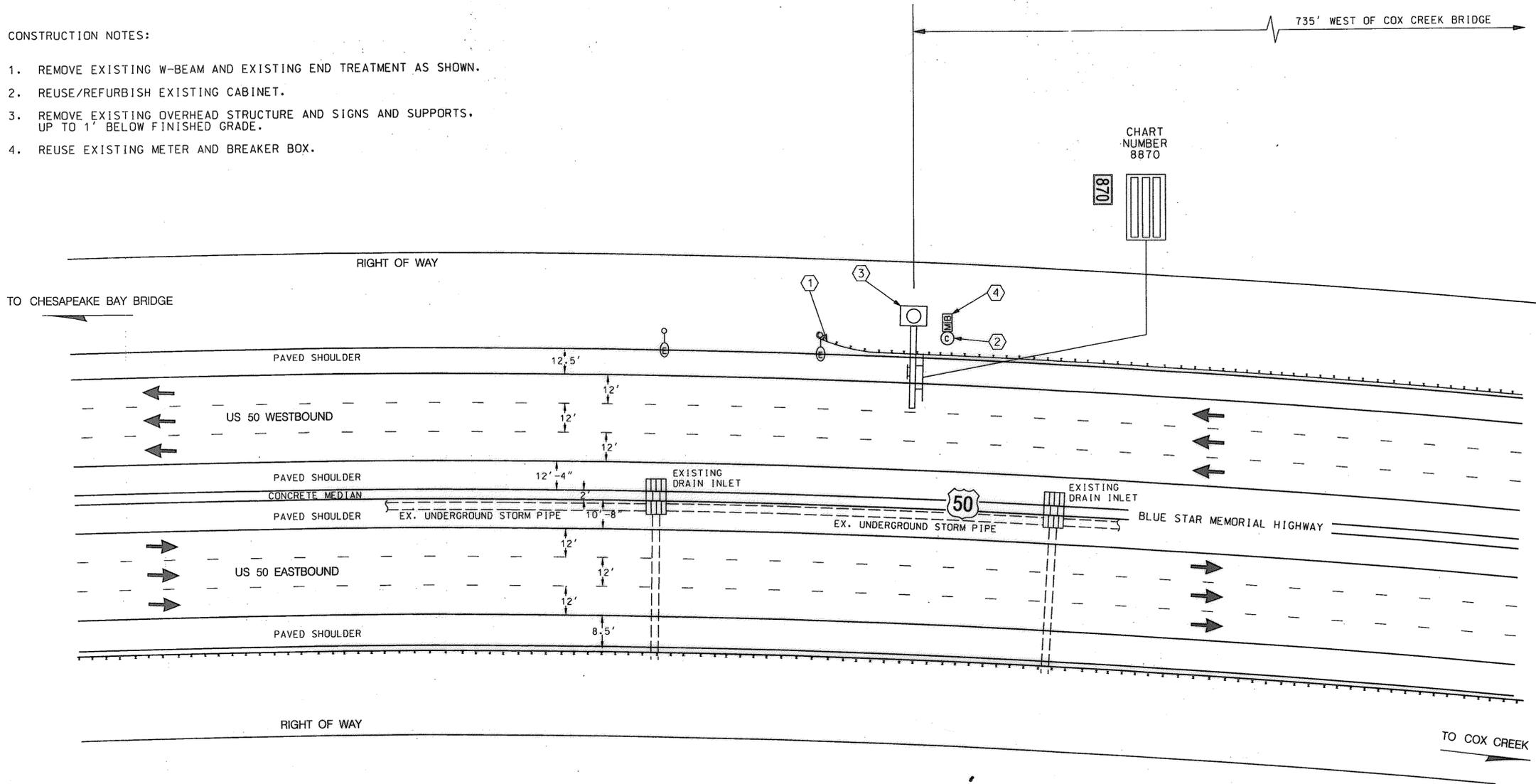


ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT			CONTRACT NO. BB-972-000-006
GENERAL NOTES AND LEGEND			DRAWING NO. GEN-1
DESIGNED BY <u>SJW</u>	DRAWN BY <u>JRL</u>	CHECKED BY <u>AJM</u>	SHEET NO.
CONST. REVIEW BY _____	DATE <u>FEBRUARY, 2010</u>	SCALE <u>NOT TO SCALE</u>	<u>3</u> OF <u>25</u>

CONSTRUCTION NOTES:

1. REMOVE EXISTING W-BEAM AND EXISTING END TREATMENT AS SHOWN.
2. REUSE/REFURBISH EXISTING CABINET.
3. REMOVE EXISTING OVERHEAD STRUCTURE AND SIGNS AND SUPPORTS, UP TO 1' BELOW FINISHED GRADE.
4. REUSE EXISTING METER AND BREAKER BOX.



NOTES:

- A. EXISTING DMS AND SUPPORTING STRUCTURE SHOWN ON THIS SHEET SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AS DIRECTED BY THE AUTHORITY. THE AUTHORITY SHALL HAVE THE RIGHT OF FIRST REFUSAL OF ANY EQUIPMENT THAT HAS BEEN REMOVED.
- B. THE EXISTING DMS SHALL REMAIN OPERATIONAL UNTIL THE PROPOSED DMS IS INSTALLED. REMOVAL OF THE EXISTING DMS AND SUPPORTING STRUCTURE SHALL BE PERFORMED AFTER THE PROPOSED DMS INSTALLATION IS COMPLETED.
- C. EXISTING CONTROLLER CABINET AND ATTACHED ELECTRICAL BREAKER SHALL REMAIN. ENSURE BREAKER IS SIZED ACCORDING TO CABINET TYPE.
- D. THE CONTRACTOR SHALL REFURBISH THE EXISTING CABINET TO "LIKE-NEW" CONDITION, AS DIRECTED BY THE AUTHORITY AND AS NOTED IN THE SPECIAL PROVISIONS.
- E. SEE DRAWING NO.'S TC-1 THROUGH TC-3 FOR MOT PLANS.

LEGEND	
	W BEAM TRAFFIC BARRIER (EXISTING)
	DRAINAGE INLET
	UTILITY POLE
	EXISTING CONDUIT
	EXISTING DMS CONTROLLER CABINET
	EXISTING METER AND BREAKER
	TRAFFIC FLOW ARROW

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ADDENDUMS & REVISIONS				ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT			CONTRACT NO. BB-972-000-006				
NO.	DESCRIPTION	BY	DATE	DMS (I) DEMOLITION DETAILS			DRAWING NO. DEM-1				
				DESIGNED BY	SJW	DRAWN BY	JRL	CHECKED BY	AJM	SHEET NO.	4 OF 25
				CONST. REVIEW BY		DATE	FEBRUARY, 2010	SCALE	NOT TO SCALE		

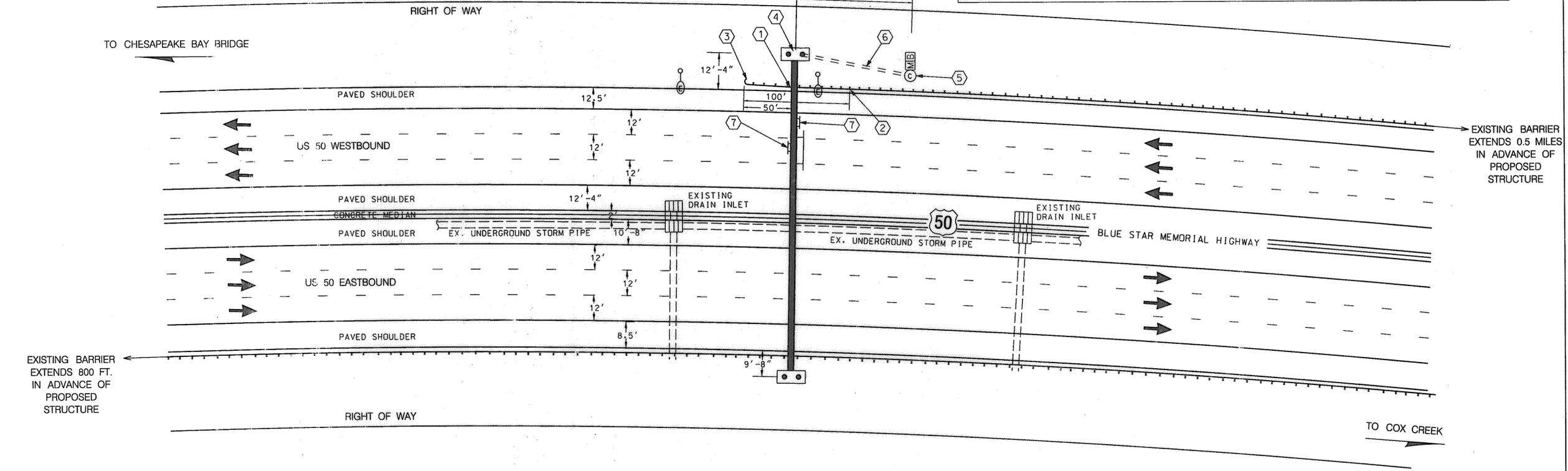
CONSTRUCTION NOTES:

1. INSTALL W-BEAM TRAFFIC BARRIER AS PER SHA STANDARD NO. MD 605.21, 605.22, AND 605.23.
2. CONNECT PROPOSED W-BEAM TO EXISTING W-BEAM.
3. INSTALL TYPE I TRAFFIC BARRIER END TREATMENT AS SHA STANDARD NOS. MD 605.1, MD 605.02, AND MD 605.10.
4. INSTALL NEW STRUCTURE 1 AND DMS (1) PER DWG. NO S-1, 50' WEST OF EXISTING DMS STRUCTURE.
5. USE AND REFURBISH EXISTING BASE MOUNTED FIELD EQUIPMENT CABINET AND REMOVE EXISTING DMS CONTROL EQUIPMENT AND INSTALL PROPOSED DMS CONTROL EQUIPMENT.
6. INSTALL 2- 1 1/2" GRS CONDUITS FOR POWER AND COMMUNICATION FROM EXISTING CABINET TO PROPOSED OVERHEAD STRUCTURE 1 FOR DMS (1).
7. INSTALL DMS IDENTIFICATION NUMBER SIGNS "8870" TO THE FRONT AND BACK OF THE STRUCTURE ALONG THE TRUSS CHORD.

50' 735' WEST OF COX CREEK BRIDGE

SPECIAL NOTES:

1. A PORTABLE VARIABLE MESSAGE SIGN SHALL BE INSTALLED AND OPERATIONAL DURING DOWNTIME.
2. BEFORE EXCAVATION IS STARTED, THE CONTRACTOR SHALL NOTIFY "MISS UTILITY", TEL. 800-257-7777 AND MDTA UTILITIES' MR. BOBBY WOJCIK (410-537-6669) AND SHA UTILITIES MR. BARRY CLOTHIER (410-810-3275) PRIOR TO STARTING WORK. THE CONTRACTOR SHALL TEST PIT TO DETERMINE EXACT LOCATION AND DEPTH OF EXISTING CONDUIT PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL NOT DAMAGE EXISTING CONDUIT DURING INSTALLATION OF PROPOSED DMS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING EXISTING CONDUIT AND FOR IMMEDIATE REPAIR OF ALL DAMAGE DUE TO NEGLIGENCE DURING CONSTRUCTION.



NOTES:

- A. THE EXISTING DMS SHALL REMAIN OPERATIONAL UNTIL THE PROPOSED DMS IS INSTALLED. REMOVAL OF THE EXISTING DMS AND SUPPORTING STRUCTURE SHALL BE PERFORMED AFTER THE PROPOSED DMS INSTALLATION IS COMPLETED.
- B. EXISTING CONTROLLER CABINET AND ATTACHED ELECTRICAL BREAKER SHALL REMAIN. ENSURE BREAKER IS SIZED ACCORDING TO CABINET TYPE.
- C. NEW DMS SHOWN ON THIS SHEET IS PROPOSED REPLACEMENT FOR INSTALLATION BY THE CONTRACTOR. THE DMS SHALL BE INSTALLED 785 FEET WEST OF THE COX CREEK BRIDGE DECK.
- D. THE CONTRACTOR SHALL INSTALL THE SIGN SUPPORT STRUCTURE AS SHOWN IN DRAWING NO. S-1.
- E. THE CONTRACTOR SHALL REFURBISH THE EXISTING CABINET TO "LIKE-NEW" CONDITION, AS DIRECTED BY THE AUTHORITY AND AS NOTED IN THE SPECIAL PROVISIONS.
- F. NEW DMS SHALL BE POWERED THROUGH ELECTRIC CONDUIT CONNECTED & SPLICED AT THE EXISTING CABINET.
- G. SEE DRAWING NO.'S TC-1 THROUGH TC-3 FOR MOT PLANS.

W-BEAM / BARRIER

LENGTH OF NEED (WESTBOUND) = $\frac{425 \times (25.4 - 14.5)}{25.4} = 183 \text{ FT}$

LENGTH OF NEED (EASTBOUND) = $\frac{425 \times (18.75 - 10.17)}{18.75} = 195 \text{ FT}$

RUN OUT LENGTH = 425 FT

END TREATMENT TYPE C, STANDARD NO. MD 605.03

$LON = \frac{R \times (D - d)}{D}$

WHERE:

LON = LENGTH OF NEED

R = RUNOUT LENGTH

D = DISTANCE FROM EDGE OF TRAVEL LANE TO FAR SIDE OF AREA OF CONCERN

d = DISTANCE FROM EDGE OF TRAVEL LANE TO FACE OF TRAFFIC BARRIER

LEGEND	
	W BEAM TRAFFIC BARRIER (EXISTING)
	W BEAM TRAFFIC BARRIER (PROPOSED)
	DRAINAGE INLET
	UTILITY POLE
	PROPOSED CONDUIT
	EXISTING CONDUIT
	REFURBISH EXISTING DMS CONTROLLER CABINET
	EXISTING METER AND BREAKER
	TRAFFIC FLOW ARROW



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

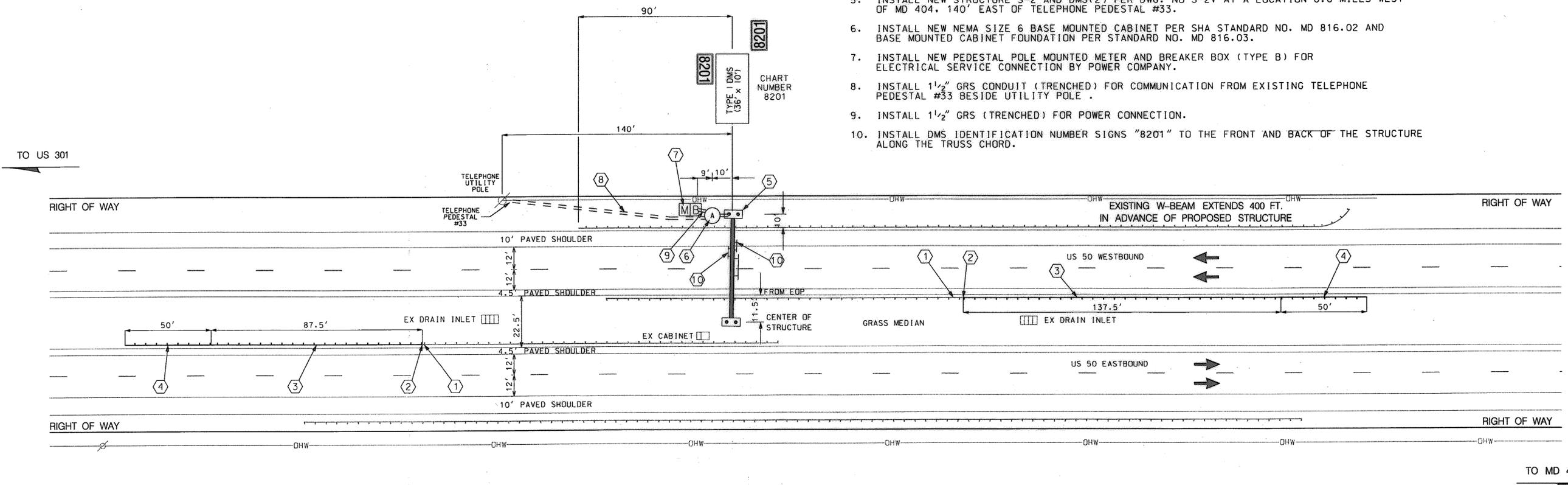
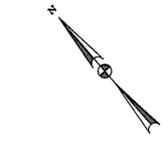
ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
DMS (1) INSTALLATION DETAILS

DESIGNED BY SJW DRAWN BY JRL CHECKED BY AJM
CONST. REVIEW BY _____ DATE FEBRUARY, 2010 SCALE NOT TO SCALE

CONTRACT NO.
BB-972-000-006
DRAWING NO.
DMS-1
SHEET NO.
5 OF 25

CONSTRUCTION NOTES:

1. REMOVE EXISTING END TREATMENT.
2. CONNECT PROPOSED W-BEAM TO EXISTING W-BEAM.
3. INSTALL W-BEAM TRAFFIC BARRIER AS PER STANDARD NO. MD 605.21, 605.22, AND 605.23.
4. INSTALL TYPE C TRAFFIC BARRIER END TREATMENT AS PER STANDARD NO. MD 605.03.
5. INSTALL NEW STRUCTURE S-2 AND DMS(2) PER DWG. NO S-2, AT A LOCATION 0.6 MILES WEST OF MD 404, 140' EAST OF TELEPHONE PEDESTAL #33.
6. INSTALL NEW NEMA SIZE 6 BASE MOUNTED CABINET PER SHA STANDARD NO. MD 816.02 AND BASE MOUNTED CABINET FOUNDATION PER STANDARD NO. MD 816.03.
7. INSTALL NEW PEDESTAL POLE MOUNTED METER AND BREAKER BOX (TYPE B) FOR ELECTRICAL SERVICE CONNECTION BY POWER COMPANY.
8. INSTALL 1 1/2" GRS CONDUIT (TRENCHED) FOR COMMUNICATION FROM EXISTING TELEPHONE PEDESTAL #33 BESIDE UTILITY POLE.
9. INSTALL 1 1/2" GRS (TRENCHED) FOR POWER CONNECTION.
10. INSTALL DMS IDENTIFICATION NUMBER SIGNS "8201" TO THE FRONT AND BACK OF THE STRUCTURE ALONG THE TRUSS CHORD.



W-BEAM / BARRIER

LENGTH OF NEED (WESTBOUND RIGHT SIDE)
 $= \frac{425 \times (20.6 - 12)}{20.6} = 177 \text{ FT}$

LENGTH OF NEED (WESTBOUND MEDIAN)
 $= \frac{425 \times (16.6 - 6.5)}{16.6} = 259 \text{ FT}$

LENGTH OF NEED (EASTBOUND MEDIAN)
 $= \frac{425 \times (16.1 - 6.5)}{16.1} = 253 \text{ FT}$

RUN OUT LENGTH = 425 FT

END TREATMENT TYPE C, STANDARD NO. MD 605.03

$LON = \frac{R \times (D - d)}{D}$

WHERE:
 LON = LENGTH OF NEED
 R = RUNOUT LENGTH
 D = DISTANCE FROM EDGE OF TRAVEL LANE TO FAR SIDE OF AREA OF CONCERN
 d = DISTANCE FROM EDGE OF TRAVEL LANE TO FACE OF TRAFFIC BARRIER

LEGEND	
	W BEAM TRAFFIC BARRIER (EXISTING)
	W BEAM TRAFFIC BARRIER (PROPOSED)
	DRAINAGE INLET
	UTILITY POLE
	PROPOSED CONDUIT
	EXISTING CONDUIT
	EXISTING DMS CONTROLLER CABINET
	PROPOSED DMS CONTROLLER CABINET
	COMMUNICATION MANHOLE
	METER AND BREAKER
	TRAFFIC FLOW ARROW

- NOTES:
- A. THE DMS SHOWN ON THIS SHEET IS PROPOSED FOR INSTALLATION BY THE CONTRACTOR.
 - B. THE CONTRACTOR SHALL INSTALL THE SIGN SUPPORT STRUCTURE 2 AS SHOWN IN DRAWING NO. S-2.
 - C. SEE DRAWING NO.'S TC-1, TC-4, AND TC-5 FOR MOT PLANS.



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

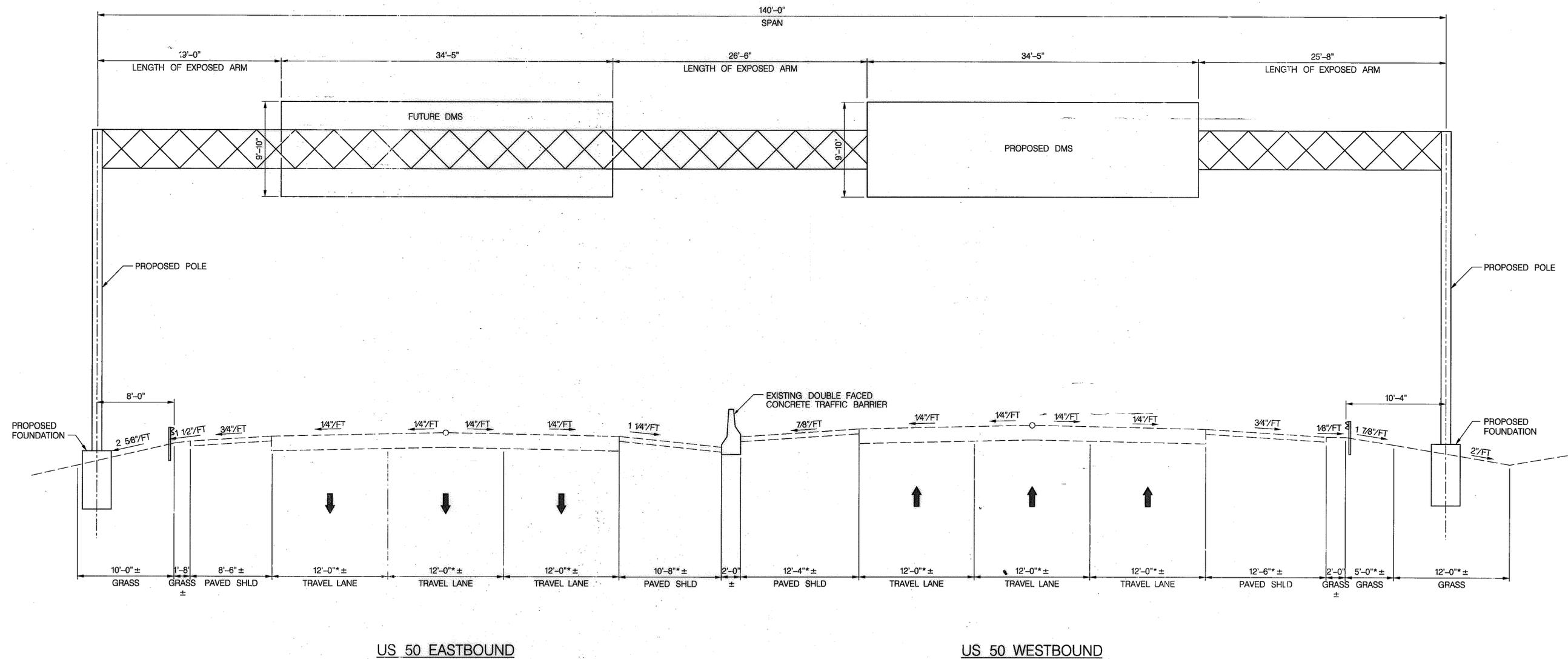
ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
 DMS (2) INSTALLATION DETAILS

DESIGNED BY SJW DRAWN BY JRL CHECKED BY AJM
 CONST. REVIEW BY _____ DATE MAY, 2010 SCALE NOT TO SCALE

CONTRACT NO.
 BB-972-000-006

DRAWING NO.
 DMS-2

SHEET NO.
6 OF 25



**DMS NO. 1
OVER US 50**
50' WEST OF EXISTING CANTILEVER DMS STRUCTURE
(* - DIMENSIONS ASSUMED)

EXISTING STRUCTURE NOTES:

1. ALL DIMENSIONS AFFECTED BY THE GEOMETRICS, AND/OR LOCATION OF THE EXISTING STRUCTURE SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR, BEFORE ANY CONSTRUCTION IS DONE, AND BEFORE ANY REINFORCING STEEL, ETC., IS ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAIL DRAWINGS. THE ± MARKS SHOWN WITH DIMENSIONS AND STATIONS DO NOT INDICATE ANY DEGREE OF PRECISION. THESE MARKS (±) INDICATE EXISTING DIMENSIONS AND STATIONS THAT MAY VARY AND DO REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.

SABRA, WANG & ASSOCIATES, INC.
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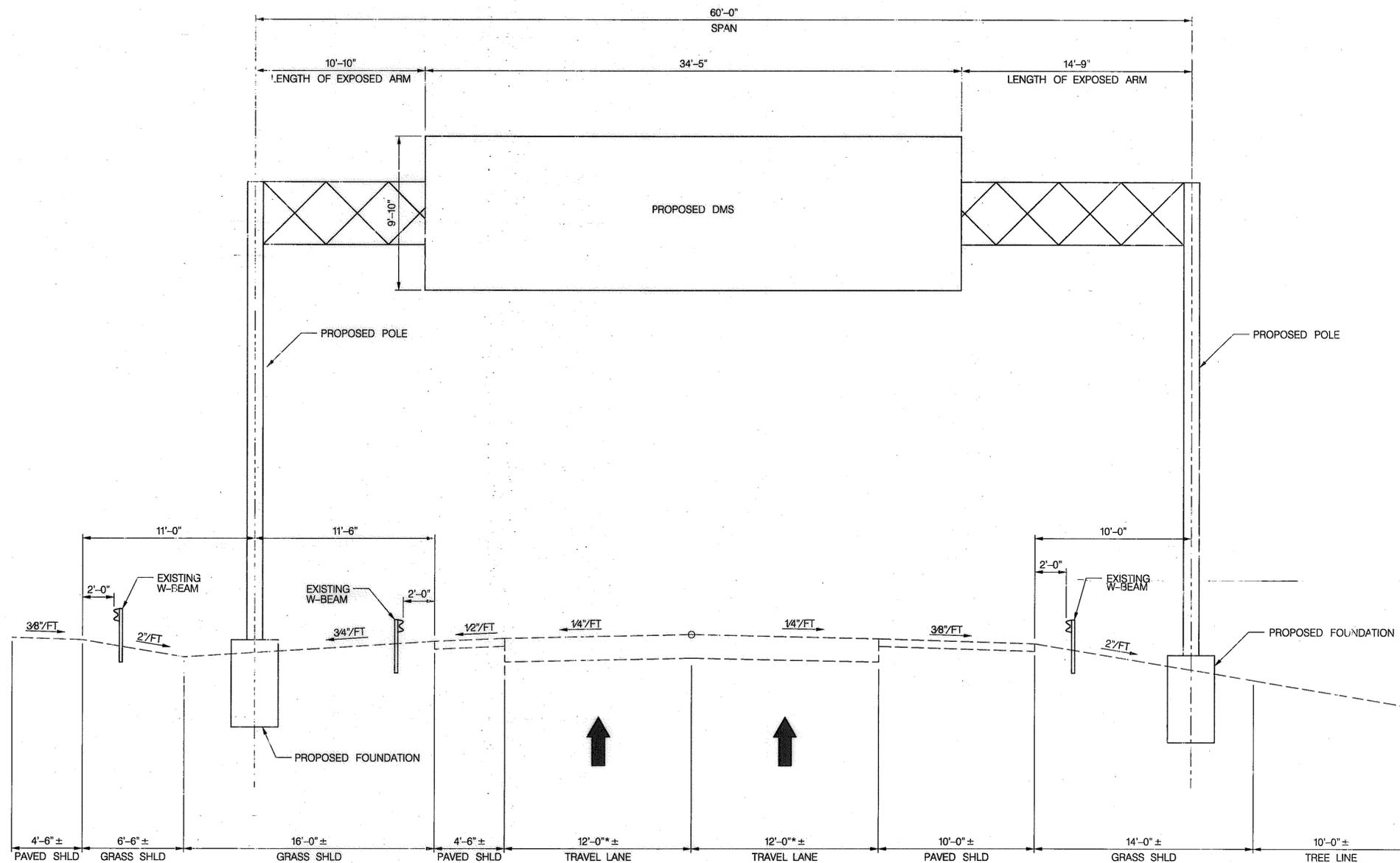

Maryland Transportation Authority
ENGINEERING DIVISION

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

**ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
REPLACEMENT DMS (I) STRUCTURE
CROSS SECTION**

DESIGNED BY SH/SN DRAWN BY NW CHECKED BY DW
CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE N.T.S.

CONTRACT NO. BB-972-000-006
DRAWING NO. S-1
SHEET NO. 7 OF 25



DMS NO. 2
OVER US 50 WESTBOUND
 0.6 MILES WEST OF MD 404
 (* - DIMENSIONS ASSUMED)

REFERENCE NOTES:
 1. FOR EXISTING STRUCTURE NOTES,
 SEE DWG. NO. S-1.

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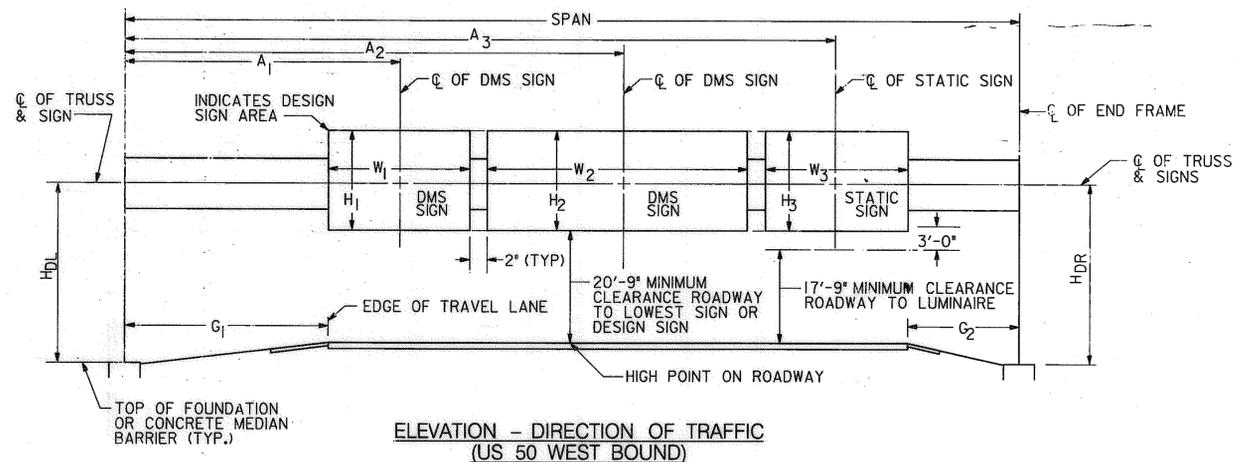

Maryland Transportation Authority
ENGINEERING DIVISION

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
DMS (2) STRUCTURE
CROSS SECTION

DESIGNED BY SH/SN DRAWN BY NW CHECKED BY DW
 CONST. REVIEW BY _____ DATE FEBRUARY, 2010 SCALE N.T.S.

CONTRACT NO. BB-972-000-006
 DRAWING NO. S-2
 SHEET NO. 8 OF 25



OVERHEAD SIGN STRUCTURE																								
SIGN STRUCTURE NO.	STRUCTURE MARK	SPAN	SIGN PANEL LOCATIONS															TOWER DIMENSION				DESIGN SIGN SIZE *	LOCATION	REMARKS
			PANEL NO. 1 DMS					PANEL NO. 2 DMS					PANEL NO. 3 STATIC					H _{DL}	H _{DR}	G ₁	G ₂			
			A ₁	W ₁	H ₁	-	-	A ₂	W ₂	H ₂	-	-	A ₃	W ₃	H ₃	-	-					W x H		
DMS-1	OH-DMS-140	140'-0"	36'-2 1/2"	34'-5"	9'-10"	-	-	97'-1 1/2"	34'-5"	9'-10"	-	-	-	-	-	28'-6 1/2"	28'-5 1/2"	18'-2"	24'-10"	34'-5" (W)x9'-10" (H)	50 FT WEST OF EXISTING CANT. DMS STR.			
DMS-2	OH-DMS-60	60'-0"	28'-1 1/2"	34'-5"	9'-10"	-	-	-	-	-	-	-	-	-	-	26'-10"	27'-10 3/4"	16'-0"	20'-0"	34'-5" (W)x9'-10" (H)	0.6 MILES WEST OF MD-404			

* SEE NOTE 3 & 4

GENERAL NOTES:

- REFER TO THE CONTRACT SPECIFICATIONS AND MD STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JULY 2008) FOR MATERIAL, CONSTRUCTION SPECIFICATIONS AND DETAILS.
- SIGN STRUCTURES DESIGNED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" DATED 2001 INCLUDING ALL INTERIM SPECIFICATIONS THROUGH 2006. EACH OVERHEAD DMS STRUCTURE IS DESIGNED FOR THE FOLLOWING TWO CASES:
a) DESIGN SIGN AREA IS CENTERED OVER THE SPAN.
b) DESIGN SIGN EDGE IS PLACED 5'-0" FROM THE CENTERLINE OF END FRAME FOR DMS-2 AND 10'-0" FROM THE CENTERLINE OF END FRAME FOR DMS-1.
- THE MINIMUM DESIGN SIGN AREA SHALL BE 34'-5"(W)x9'-10"(H) FOR EACH DMS SIGN.
- THE DESIGN WIND VELOCITY CONSIDERED IS 110 MPH AND THE DMS UNIT WEIGHT IS 6500 lbs.
- ALL STRUCTURAL MAIN TUBES SHALL CONFORM TO API5-LX52.
- ALL OTHER TUBES SHALL HAVE MINIMUM 35 KSI YIELD STRENGTH AND CONFORM TO A 501.
- ALL STEEL PLATES, WF BEAMS AND MISCELLANEOUS SHAPES SHALL CONFORM TO A 709, GRADE 36.
- ANY ALTERNATE DESIGN SHALL BE STRUCTURALLY EQUIVALENT AND SUBJECT TO APPROVAL BY THE ENGINEER.
- ANY ALTERNATE DESIGNS MUST BE SIMILAR TO THE DESIGN SHOWN ON THE PLANS.
- ALTERNATE DESIGNS MAY BE REJECTED BY THE ENGINEER FOR ANY REASON, INCLUDING REASONS NOT RELATED TO STRUCTURAL EQUIVALENCY.
- ACTUAL STRUCTURE HEIGHT "H₀" SHALL NOT BE LESS THAN 20'-9" ± 1/2" DESIGN SIGN HEIGHT, ELEVATION DIFFERENCE BETWEEN HIGH POINT OF ROADWAY AND TOP OF FOUNDATION.
- ALL OVERHEAD SIGN SUPPORT TOWERS SHALL BE LOCATED BEHIND PHYSICAL TRAFFIC BARRIERS.
- ALL CONNECTION BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A325 (BOLTS OVER 1/2" DIA. ASTM A 449), WASHERS F 436 AND NUTS A 194, GRADE 2 OR 2H. THE BOLTS SHALL HAVE A FLAT WASHER UNDER THE ELEMENT TO BE TURNED.
- U-BOLTS SHALL CONFORM TO A307. FLAT WASHERS AND HEX LOCK NUTS SHALL BE USED WITH U-BOLTS. REFER TO STANDARD NO. MD 803.02 FOR ADDITIONAL INFORMATION.
- BASE PLATE SHALL BE IN FULL CONTACT WITH ALL FLAT WASHERS.
- GROUT SHALL NOT BE PLACED BETWEEN THE BASE PLATE AND TOP OF CONCRETE FOUNDATION.
- STEEL TEMPLATES SHALL BE USED TO SET ANCHOR BOLTS PLUMB WHEN POURING THE FOUNDATION. ANCHOR BOLT HOLES SHALL BE 1/16" LARGER THAN ANCHOR BOLT DIAMETER.
- ALL ANCHOR BOLTS SHALL CONFORM TO F 1554, GRADE 55 SI.
- ALL ELECTRICAL SYSTEMS SHALL BE COORDINATED WITH ELECTRICAL DRAWINGS.
- TRUSS DEAD LOAD CAMBER SHALL BE INCORPORATED INTO THE TRUSS DURING FABRICATION.
- SIGN STRUCTURE SHALL BE GALVANIZED TO CONFORM TO A 123.
- ALL HARDWARE THAT IS NOT STAINLESS STEEL SHALL BE GALVANIZED TO CONFORM TO A 153.
- REFER TO OTHER PERTINENT SHEETS IN THIS CONTRACT FOR FOUNDATION INFORMATION.
- ALL ANCHOR BOLTS SHALL BE PLUMB AFTER FOUNDATION INSTALLATION.
- ALL ANCHOR BOLT NUTS SHALL BE TIGHTENED USING TURN OF BOLT METHOD. (30° MIN TO 45° MAX. TURN AFTER SNUG TIGHT).
- INSTALL ACCESS HOLE ON POLE OPPOSITE DIRECTION OF TRAFFIC.
- SIGN STRUCTURE APPURTENANCES INCLUDING BUT NOT LIMITED TO 1/8" WEEP HOLES, 5"x9" ACCESS HOLES NEAR TOP OF TOWER, 4"x4"x1/2"x0'-4", AND 1/2" BLIND HALF COUPLING WIRE OUTLET SHALL BE PROVIDED AT EACH TOWER POLE IN CONFORMANCE WITH STANDARD NO. MD 803.08.
- THE CONTRACTOR SHALL ACHIEVE A PLUMB TOWER BY TILTING THE POLE AND ADJUSTING THE LEVELING NUTS DURING INSTALLATION.
- ALL HARDWARE CONNECTION OF DMS SIGN SHALL BE AS PER MANUFACTURER'S RECOMMENDATION.

REFERENCE NOTES:

- FOR SIGN STRUCTURE ELEVATION, SEE DWG. NO. SN-8.2.
- FOR OH DMS STRUCTURE DETAILS, SEE DWG. NO. SN-8.3 AND SN-8.4.
- FOR FOUNDATION TYPE A, SEE DWG. NO. SN-8.5.

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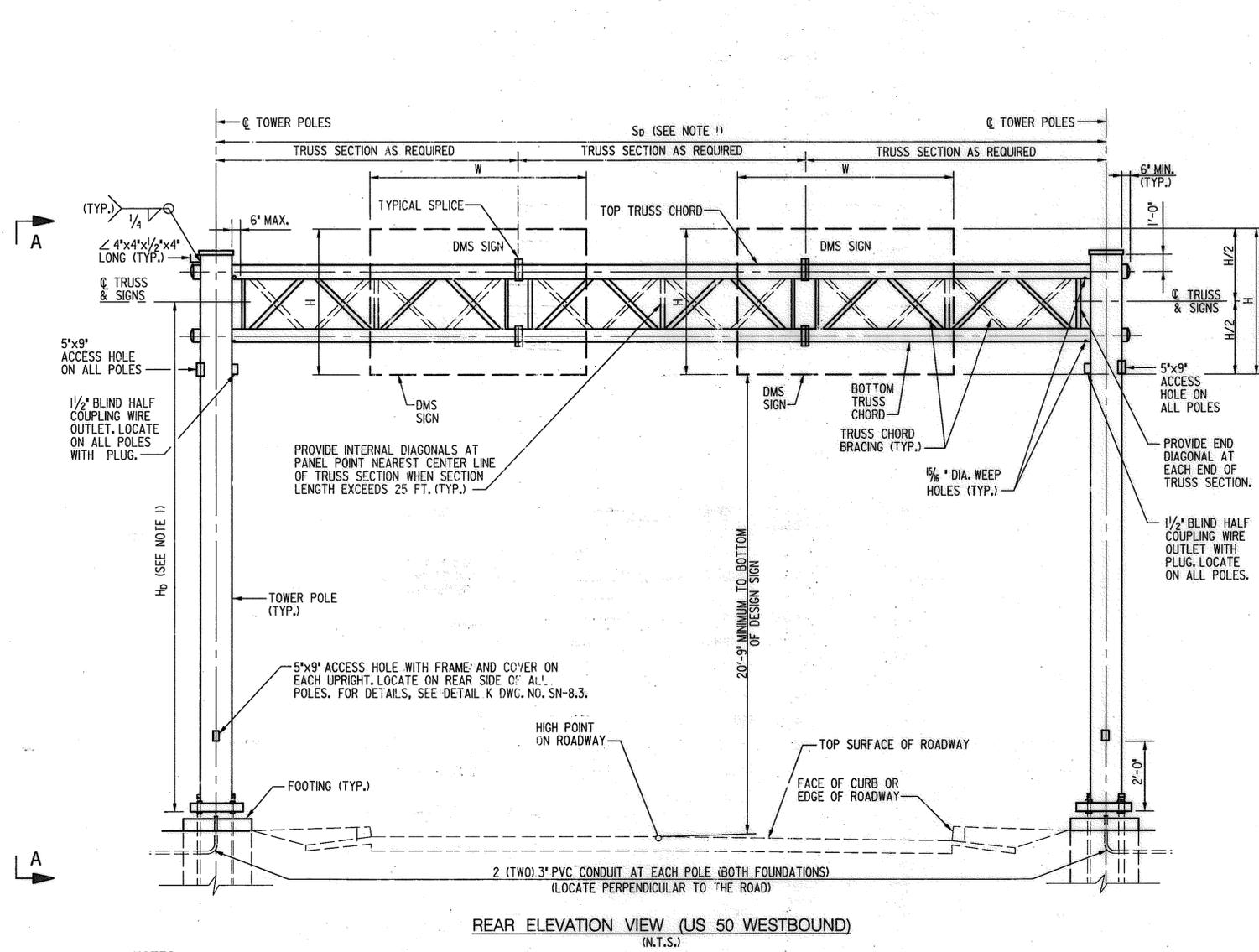
ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
OVERHEAD DMS STRUCTURE AND GENERAL NOTES

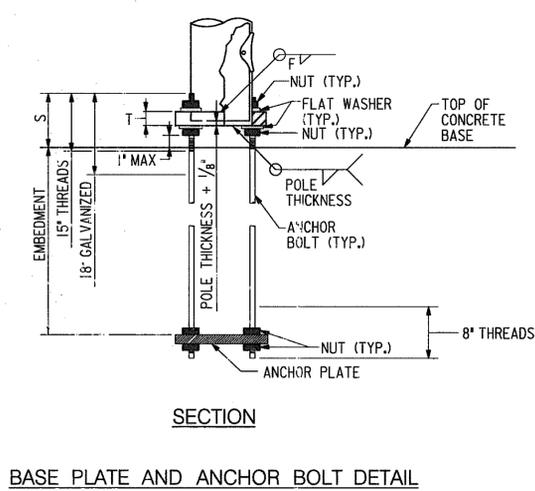
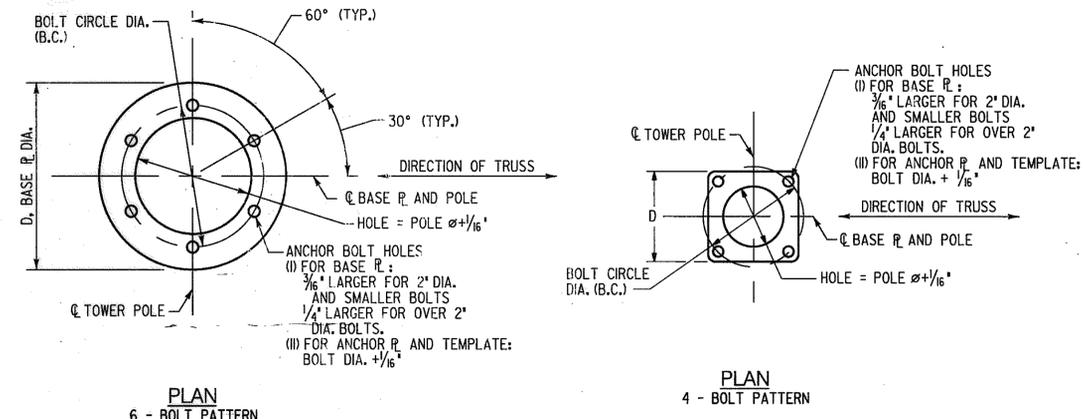
DESIGNED BY SH/SN DRAWN BY NW CHECKED BY DW
CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE N.T.S.

CONTRACT NO. BB-972-000-006
DRAWING NO. SN-8.1
SHEET NO. 9 OF 25

SIGN STRUCTURE NUMBER	STRUCTURE MARK	SPAN	TOWER		HORIZONTAL TRUSS							BASE PLATE & ANCHOR BOLTS								
			TOWER POLE SIZE	TOWER BRACING TUBE SIZE	TRUSS CHORD TUBE SIZE	TRUSS CHORD SPLICE				TRUSS BRACE SIZE DIAGONAL	TRUSS BRACE SIZE END	D.L. CAMBER (IN)	WELD F	B-C	D	S	T	ANCHOR BOLT QTY. & SIZE	ANCHOR PLATE	MINIMUM EMBEDMENT
						FLANGE R THICKNESS	O.D.	B.C.	NO. & SIZE OF BOLTS											
DMS-1	OH-DMS-140	140'-0"	20" O.D.x.375 THK	10.75" O.D.x.365 THK	8.625" O.D.x.250 THK	2"	17 1/2"	13"	8-1 1/4" DIA.	4.5" O.D.x.0.250 THK	4.5" O.D.x.0.250 THK	6 3/4"	1/2"	27 1/2"	36"	11 1/4"	3"	6-2 3/4" DIA	3/4"x36"	6'-0"
DMS-2	OH-DMS-60	60'-0"	14" O.D.x.250 THK	4.5" O.D.x.237 THK	4.5" O.D.x.237 THK	1 1/2"	11 1/2"	8"	6-1" DIA.	2.875" O.D.x.0.203 THK	2.875" O.D.x.0.203 THK	1 1/2"	7/16"	20"	21"	9 1/2"	2 1/4"	4-2 1/4" DIA	3/4"x21"	5'-0"



NOTES:
 1. SPAN LENGTH 'S_D' AND POLE HEIGHT 'H₀' ARE FOR DESIGN PURPOSES ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD MEASURE AND PREPARE THE CROSS SECTION AT THE ACTUAL LOCATION OF THE SIGN STRUCTURE BEFORE ANY STRUCTURAL STEEL ETC. IS ORDERED OR FABRICATED.



- REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. NO. SN-8.1.
 - FOR SIGN SIZE AND SIGN STR. DESIGN SPAN, SEE DWG. NO. SN-8.1.
 - FOR SECTION A-A, SEE DWG. NO. SN-8.3.
 - FOR HORIZONTAL TRUSS CHORD CONNECTION AND SPLICE DETAIL, SEE DWG. NO. SN-8.3.
 - FOR CAMBER DIAGRAM, SEE DWG. NO. SN-8.3.
 - FOR FOUNDATION DETAILS, SEE DWG. NO. SN-8.5.

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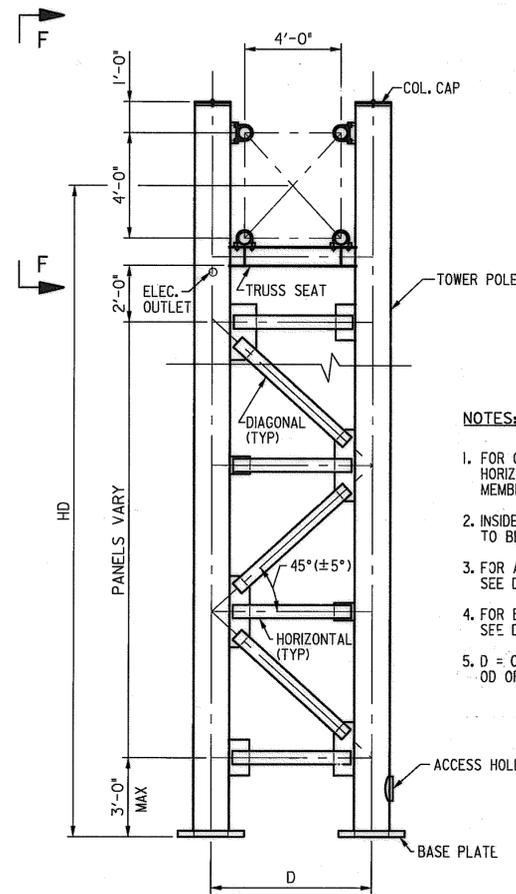
Maryland Transportation Authority
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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

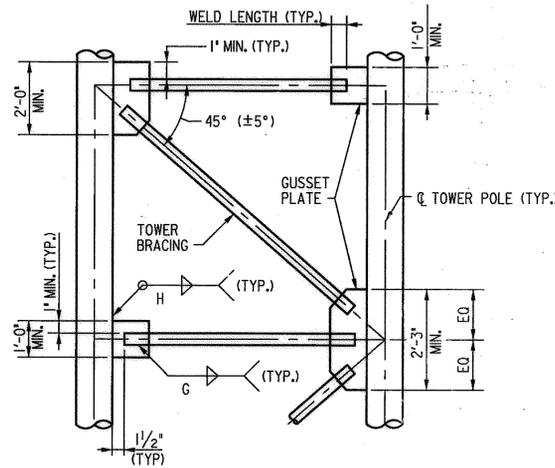
**ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
 OVERHEAD DMS STRUCTURE
 ELEVATION**

DESIGNED BY SH/SN DRAWN BY NW CHECKED BY DW
 CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE N.T.S.

CONTRACT NO. BB-972-000-006
 DRAWING NO. SN-8.2
 SHEET NO. 10 OF 25



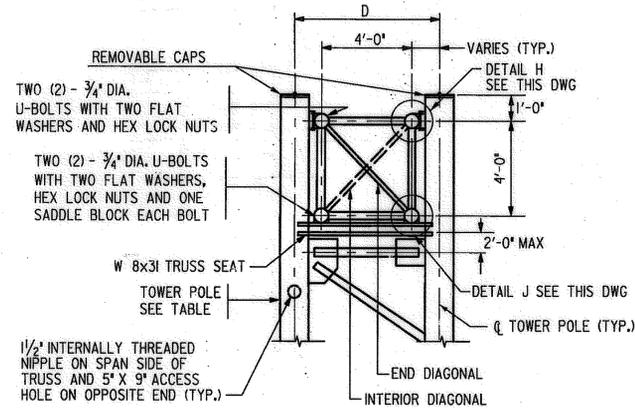
SECTION A-A



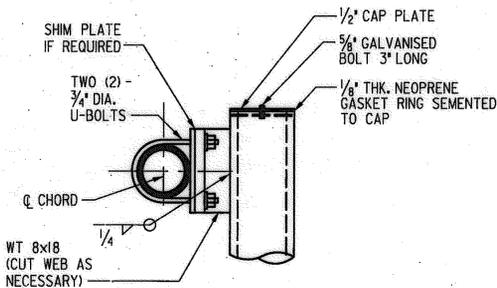
DETAIL F

NOTES:

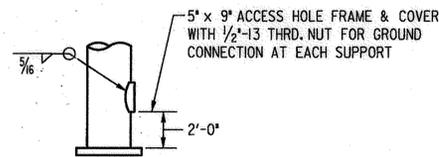
1. FOR CONNECTION BETWEEN HORIZONTAL & VERTICAL MEMBERS, SEE DETAIL G THIS DWG
2. INSIDE WALL OF POLES TO BE PARALLEL
3. FOR ACCESS HOLE, SEE DETAIL K THIS DWG
4. FOR BRACING DETAIL, SEE DETAIL F THIS DWG
5. $D = C/C \text{ OF TRUSS} + POS? \text{ OD} + \text{OD OF TRUSS CHORD} + 6' \text{ MIN.}$



DETAIL G



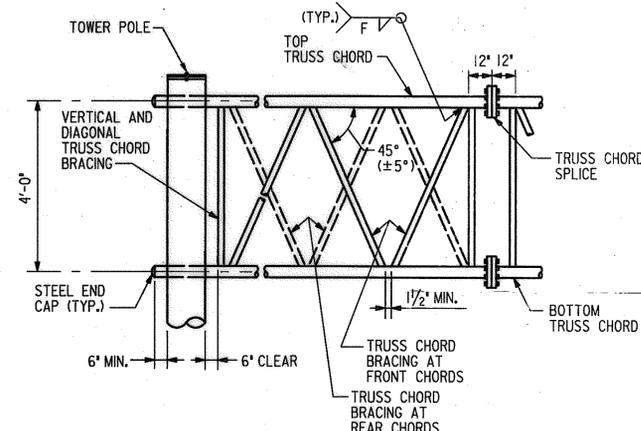
DETAIL H



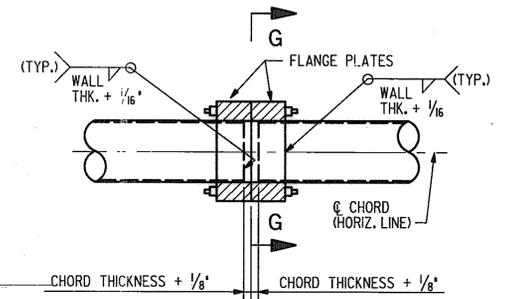
DETAIL K

NOTES:

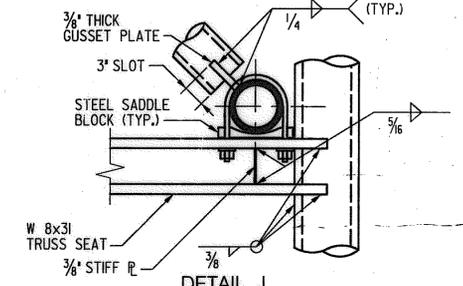
1. TRUSS CHORD BRACING SHALL BE COPED FOR PROPER FIT UP TO TRUSS CHORD IN ACCORDANCE WITH AWS D1.1.
2. PROPER AND ADEQUATE VENTING FOR GALVANIZING SHALL CONFORM TO ASTM A 385.
3. TOP AND BOTTOM TRUSS CHORD BRACING PATTERN SIMILAR TO FRONT AND REAR BRACING.
4. PROVIDE SLOT IN TOWER BRACING MEMBERS FOR CONNECTION TO GUSSET PLATES.



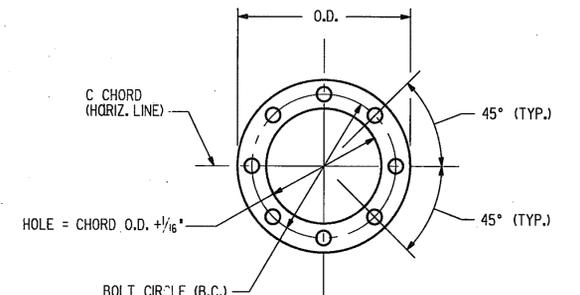
SECTION F-F



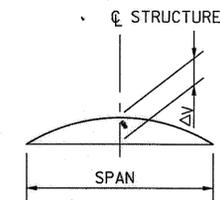
TRUSS CHORD SPLICE DETAIL



DETAIL J
(VERTICAL AND HORIZONTAL TRUSS MEMBERS NOT SHOWN FOR CLARITY.)



SECTION G-G
(8 - BOLT PATTERN)



CAMBER DIAGRAM

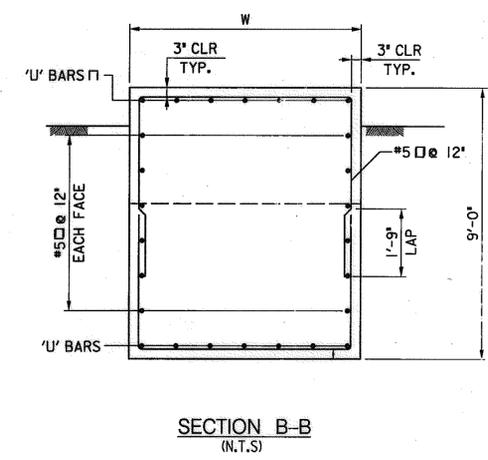
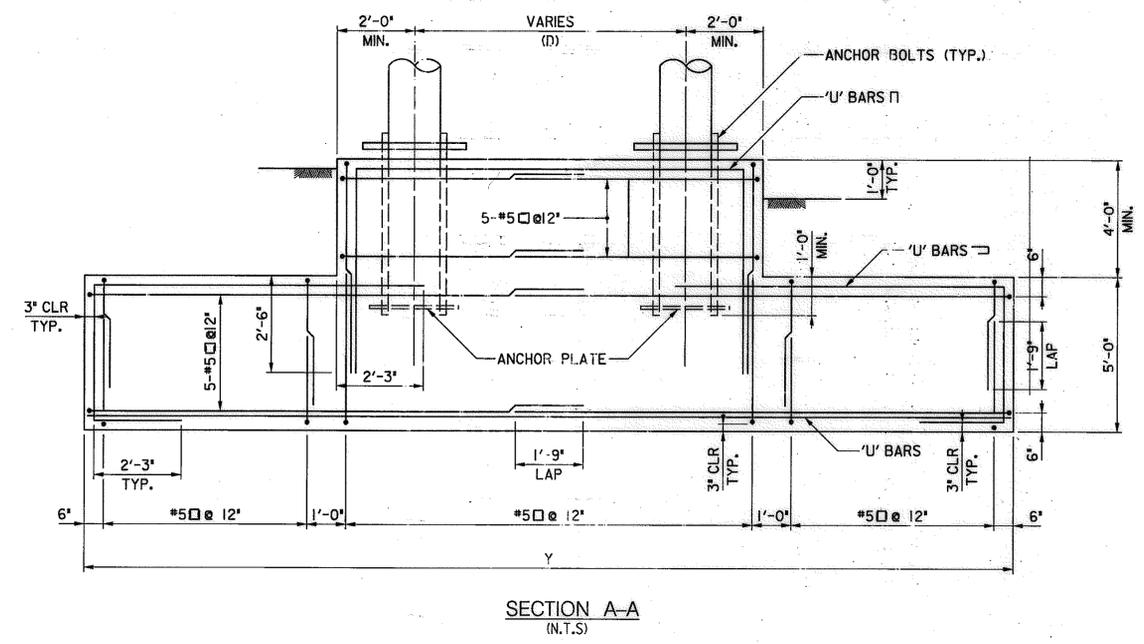
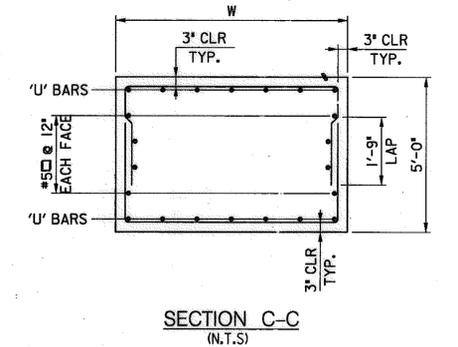
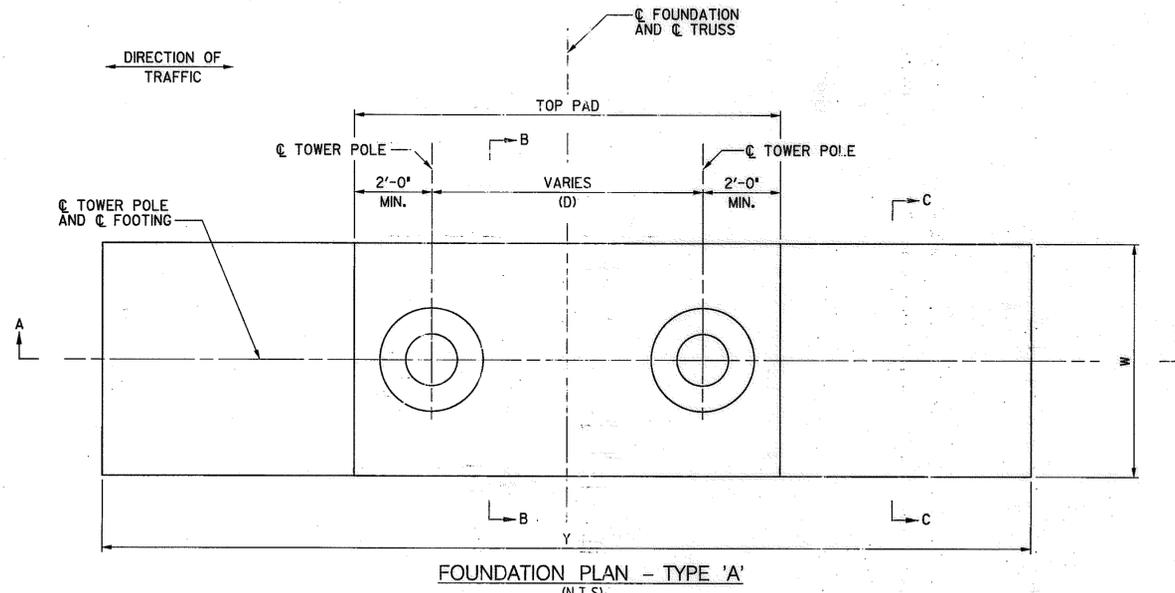
REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. NO. SN-8.1.
2. FOR SIGN SIZE AND SIGN STR. DESIGN SPAN, SEE DWG. NO. SN-8.1.
3. FOR LOCATION OF SECTION A-A, SEE DWG. NO. SN-8.2.
4. FOR BASE PLATE AND ANCHOR BOLT DETAIL, SEE DWG. NO. SN-8.2.
5. FOR TOWER, HORIZONTAL TRUSS, BASE PLATE AND ANCHOR BOLT DIMENSIONS SEE TABLE DWG. NO. SN-8.2.
6. FOR LOCATION OF TRUSS CHORD SPLICE, SEE DWG. NO. SN-8.2.

BRACING SIZE	GUSSET PLATE THICKNESS	WELD SIZE		MINIMUM WELD LENGTH
		G	H	
4.5x0.237	1/2"	3/8"	3/8"	4 1/2'
10.750x0.365	3/4"	3/8"	3/8"	8'

MEMBER SIZE	F
2.875"x0.203" THK.	1/4"
4.5"x0.250" THK.	1/4"

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE



FOUNDATION DETAIL SCHEDULE						
SIGN STRUCTURE NO.	STRUCTURE MARK	FOOTING DIMENSION			'U' BARS (EQUALLY SPACED)	CUBIC YARD OF CONCRETE TYPE A
		W	Y	D		
DMS-1	OH DMS-140	8'-0"	32'-0"	6'-10"	9 * 7	120.5
DMS-2	OH DMS-60	6'-0"	20'-0"	6'-0"	7 * 6	62.5

NOTES:
 1. MAXIMUM DESIGN BEARING PRESSURE AT THE SIGN STRUCTURE FOUNDATIONS ARE 2.00 K/SFT.

- FOUNDATION NOTES:**
- REFER TO THE CONTRACT SPECIFICATIONS AND MD STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JULY 2008) FOR MATERIAL, CONSTRUCTION SPECIFICATIONS AND DETAILS.
 - SIGN STRUCTURES DESIGNED IN ACCORDANCE WITH AASHTO 'STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS' 2001 INCLUDING ALL INTERIM SPECIFICATIONS THROUGH 2003.
 - CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD, $f_c = 1200$ PSI.
 - REINFORCING STEEL DESIGN: $f_s = 24,000$ PSI.
 - ALL CONCRETE FOR THE SIGN STRUCTURE FOUNDATIONS SHALL BE MIX NO. 3 (3500 PSI) AS PER SECTION 801.02.
 - REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS, MINIMUM COVER FOR ANY BAR SHALL BE 3" UNLESS OTHERWISE NOTED.

FOR TIES AND STIRRUPS: STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.

REINFORCING STEEL IN THE FOLLOWING AREAS SHALL BE EPOXY COATED:
 - PARAPET PORTION OF THE SIGN STRUCTURE FOUNDATIONS.
 - FOUNDATION PEDESTALS CLOSER THAN 12 FEET FROM THE TRAVELING LANE.
 - ANY ALTERNATE DESIGN SHALL BE STRUCTURALLY EQUIVALENT AND SUBJECT TO APPROVAL BY THE ENGINEER.
 - ANY ALTERNATE DESIGNS MUST BE SIMILAR TO THE DESIGN SHOWN ON THE PLANS.
 - ALTERNATE DESIGNS MAY BE REJECTED BY THE ENGINEER FOR ANY REASON, INCLUDING REASONS NOT RELATED TO STRUCTURAL EQUIVALENCY.
 - ALL DIMENSIONS AND ELEVATIONS AFFECTED BY THE GEOMETRICS, AND/OR LOCATION OF THE EXISTING STRUCTURE AND FACILITIES SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR, BEFORE ANY CONSTRUCTION IS DONE, AND BEFORE ANY REINFORCING STEEL, ETC., IS ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAIL DRAWINGS.

REFERENCE NOTES:
 1. FOR SIGN STRUCTURES GENERAL NOTES, SEE DWG. NO. SN-8.I.

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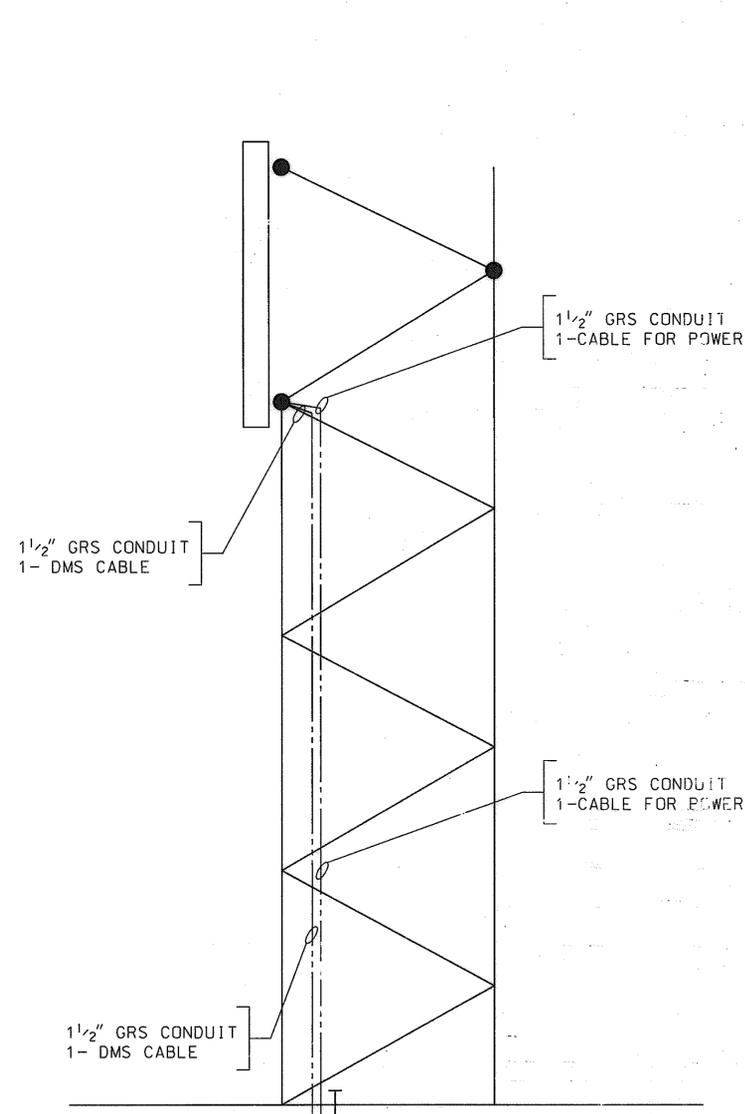
ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
 OVERHEAD DMS STRUCTURE FOUNDATION

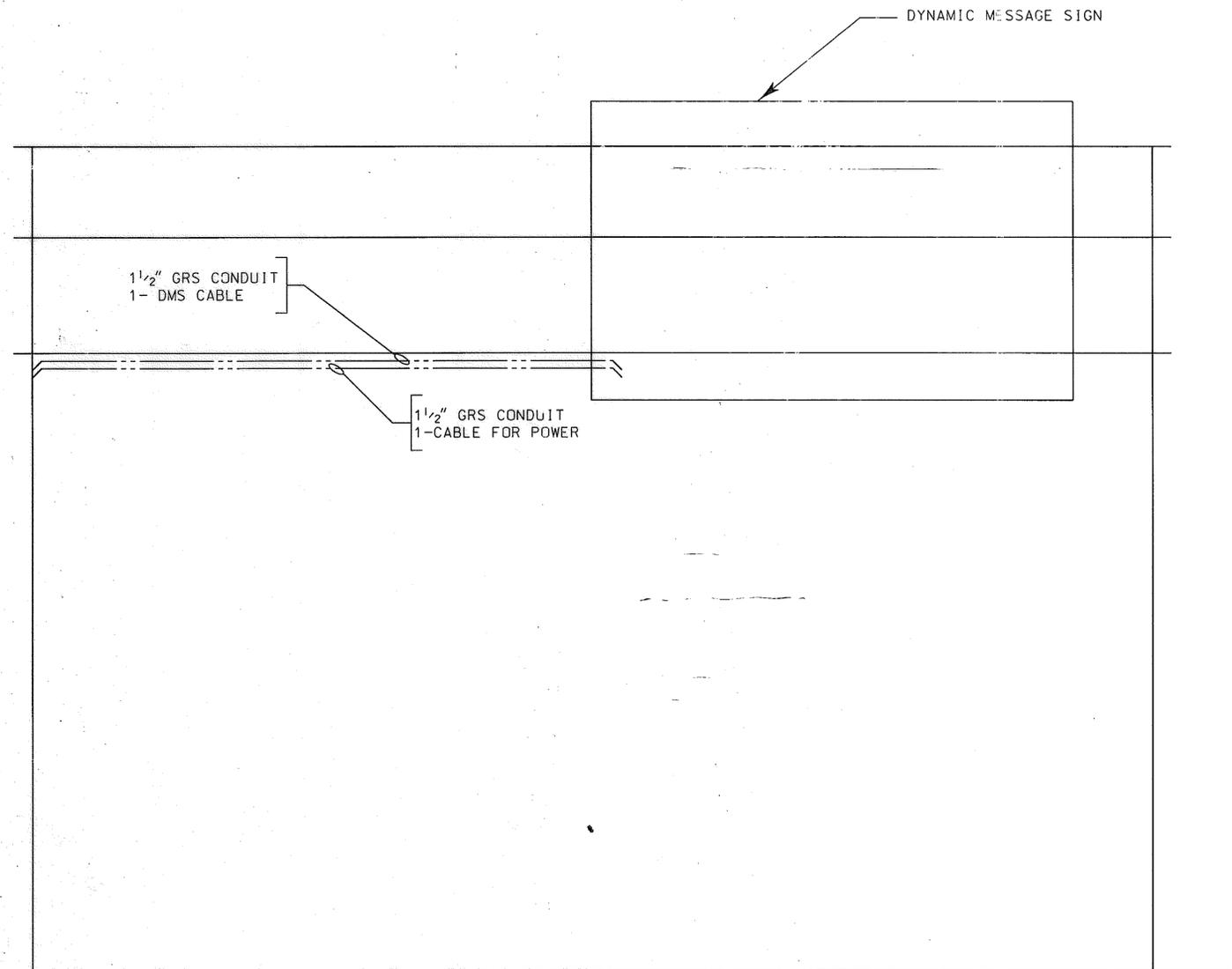
DESIGNED BY SH/SN DRAWN BY NW CHECKED BY DW
 CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE N.T.S.

CONTRACT NO. BB-972-000-006
 DRAWING NO. SN-8.5
 SHEET NO. 13 OF 25

DMS CONDUIT ROUTING ON SIGN STRUCTURE DETAIL



SIDE VIEW
NOT TO SCALE



VIEW FROM BEHIND STRUCTURE
NOT TO SCALE

NOTES:

1. CONDUIT SHALL BE BANDED TO STRUCTURE 3 FEET ABOVE GROUND AND THEN EVERY 10 FEET.
2. CONDUIT SHALL BE BANDED 3 FEET FROM THE VERTICAL MEMBER OF THE STRUCTURE AND THEN EVERY 10 FEET.
3. 1 1/2" FLEX CONDUIT SHALL BE USED FROM THE VERTICAL TRANSITION TO THE HORIZONTAL, 2 PLACES.
4. 1 1/2" FLEX CONDUIT MAY BE USED FROM THE HORIZONTAL CONDUIT RUN TO THE DMS ENTRY FOR POWER AND COMMUNICATION, AS REQUIRED.



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PHONE: 703-359-5861
www.t3design.us



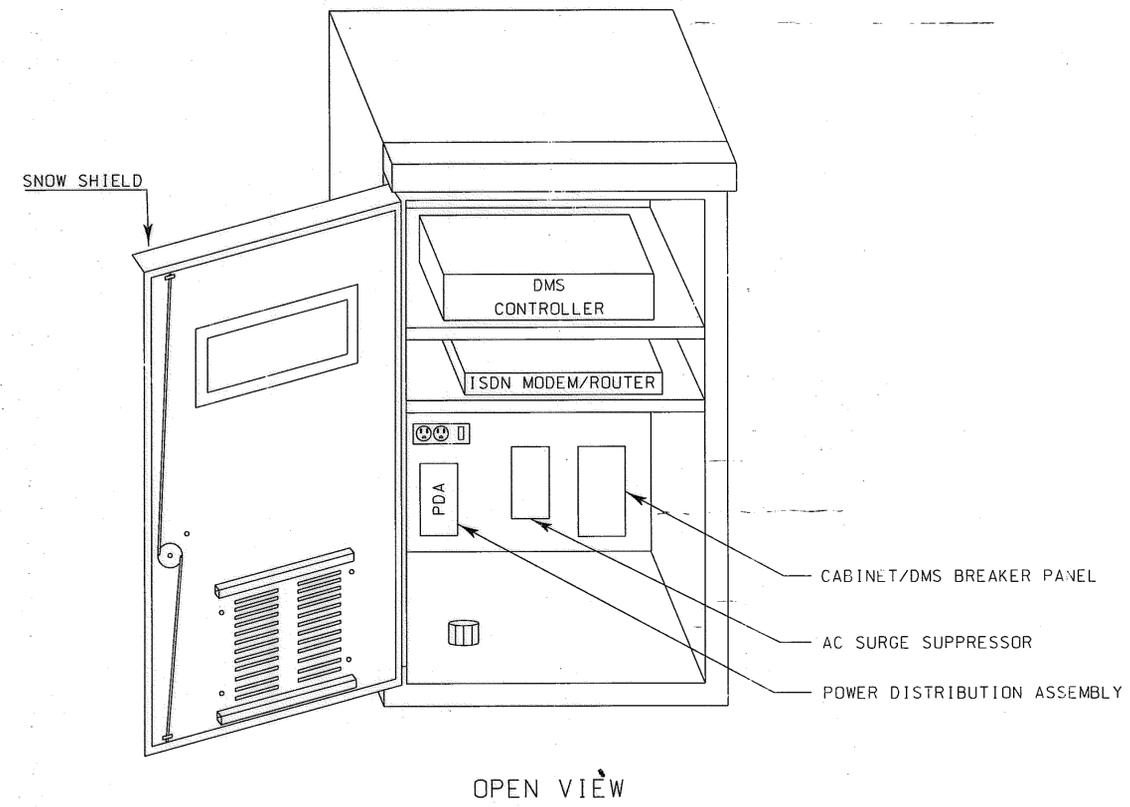
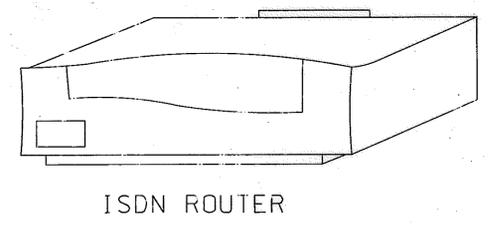
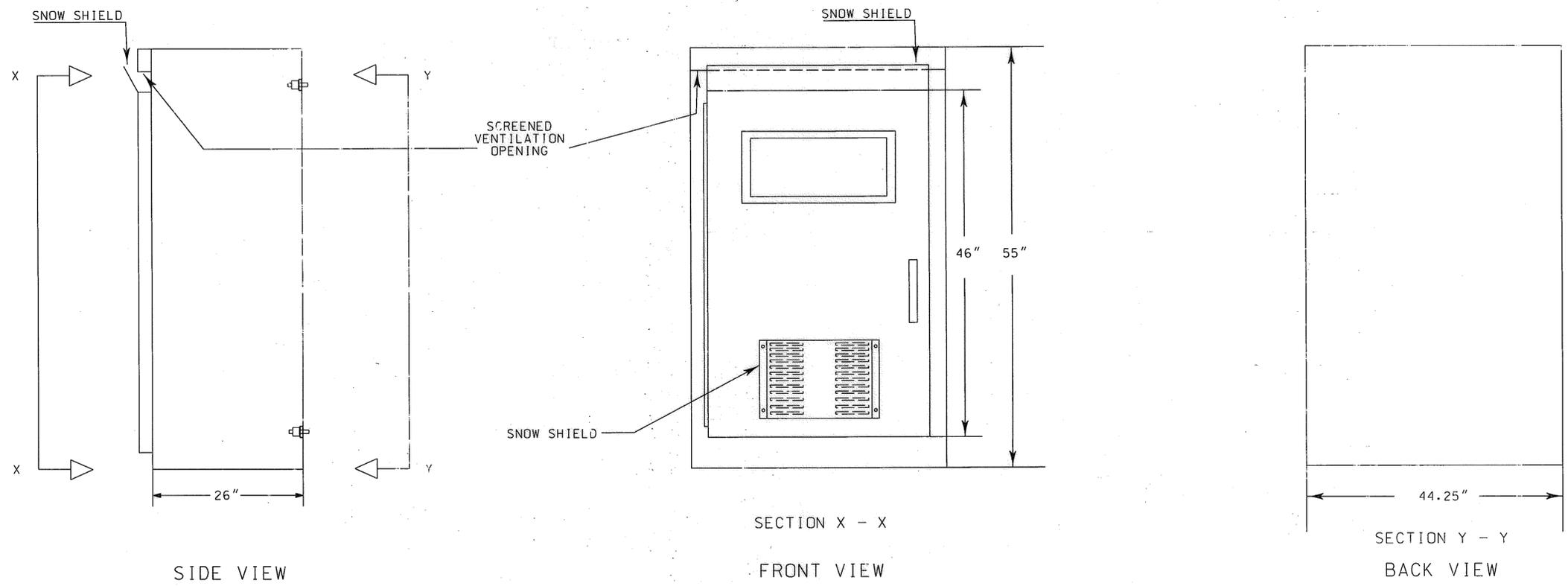
Maryland Transportation Authority
ENGINEERING DIVISION

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
DMS TYPICAL CONDUIT ROUTING DETAIL

DESIGNED BY SJW DRAWN BY JRL CHECKED BY AJM
CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE NOT TO SCALE

CONTRACT NO.
BB-972-000-006
DRAWING NO.
SN-8.6
SHEET NO.
14 OF 25



NOTES:

1. THE CONTRACTOR SHALL INSTALL A NEW NEMA SIZE 6 BASE MOUNTED CABINET PER SHA STANDARD NO. MD 816.02 AND BASE MOUNTED CABINET FOUNDATION PER SHA STANDARD NO. MD 816.03 AT THE LOCATION SHOWN ON DRAWING NO. DMS-2.
2. ALL CABINET DIMENSIONS ARE NOMINAL.
3. ALL CABINET SHELVES SHALL BE ADJUSTABLE FOR VERTICAL SPACING AND SHALL BE REMOVABLE.
4. CONTROLLER UNITS, PLUG-MOUNTED EQUIPMENT AND SHELF-MOUNTED EQUIPMENT SHALL BE LOCATED TO PERMIT ITS SAFE AND EASY REMOVAL OR REPLACEMENT WITHOUT REMOVING ANY OTHER PIECE OF EQUIPMENT.
5. INTERNAL CABINET CONFIGURATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND MAY NOT REFLECT THE INSTALLED LAYOUT.



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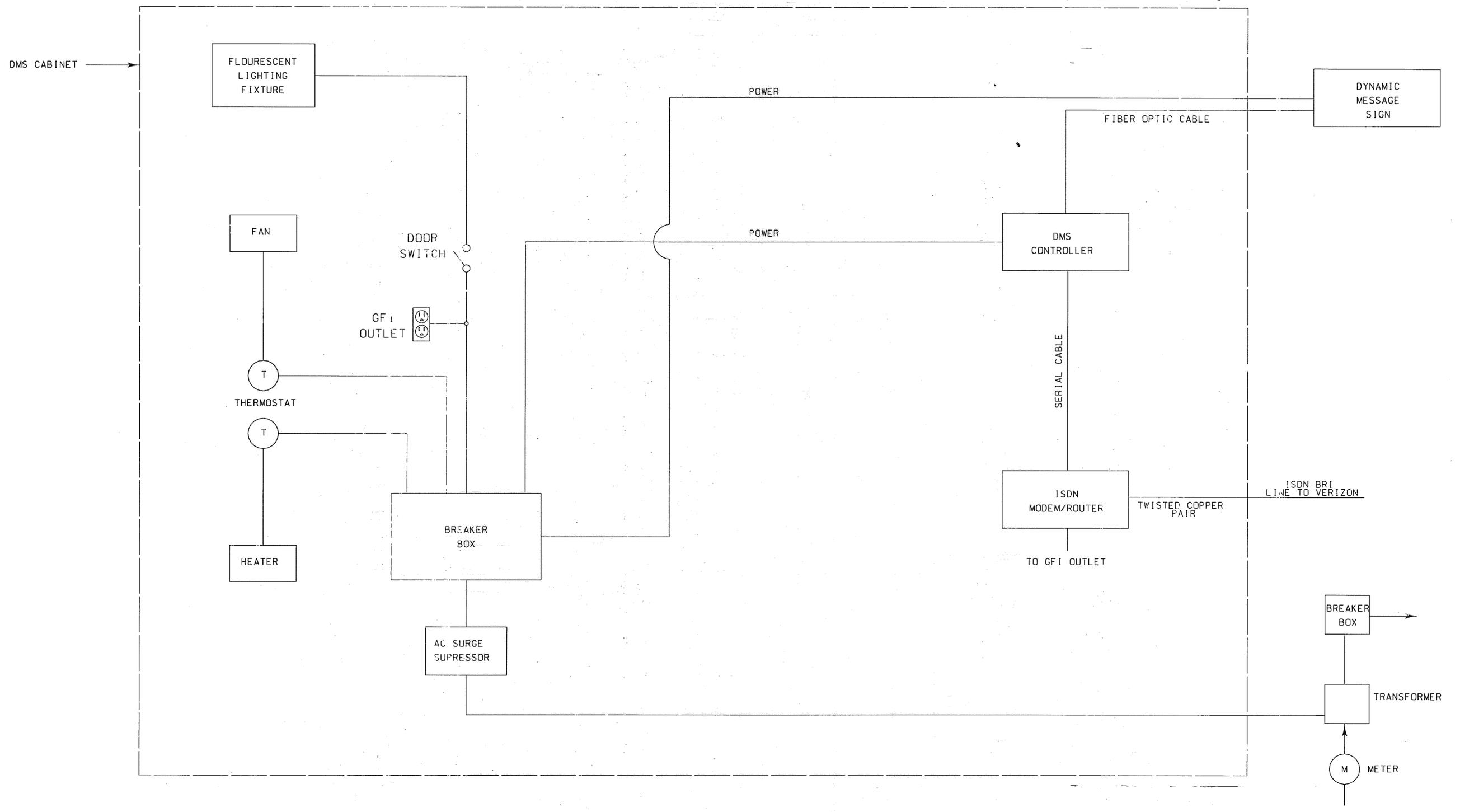


ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
 TYPICAL BASE MOUNTED CABINET DETAILS

DESIGNED BY SJW DRAWN BY JRL CHECKED BY AJM
 CONST. REVIEW BY _____ DATE FEBRUARY, 2010 SCALE NOT TO SCALE

CONTRACT NO. BB-972-000-006
 DRAWING NO. CAB-1
 SHEET NO. 15 OF 25



NOTES:

1. THE CONTRACTOR SHALL CONTACT THE SIGN MANUFACTURER FOR INFORMATION ON DMS WIRING (DMS TERMINATION DIAGRAM) PRIOR TO SIGN INSTALLATION.
2. THIS SHEET IS PROVIDED TO CONTRACTOR FOR INFORMATION PURPOSES ONLY.
3. THE CONTRACTOR SHALL COORDINATE WITH VERIZON IN CONNECTING THE ROUTER TO VERIZON DROP LINE (410-393-7109)



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
 DMS CABINET LINE DIAGRAM

DESIGNED BY SJW DRAWN BY JRL CHECKED BY AJM
 CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE NOT TO SCALE

CONTRACT NO. BB-972-000-006
 DRAWING NO. CAB-2
 SHEET NO. 16 OF 25

MAINTENANCE OF TRAFFIC GENERAL NOTES

1. ALL SIGNS THAT ARE NOT APPLICABLE DUE TO TEMPORARY TRAFFIC CONDITIONS SHALL BE RELOCATED WHEN NECESSARY, TURNED, COMPLETELY COVERED WITH OPAQUE MATERIAL, OR REMOVED WITH APPROVAL FROM THE ENGINEER. ALL APPLICABLE SIGNS SHALL BE MAINTAINED DURING CONSTRUCTION UNLESS OTHERWISE SPECIFIED BY THE ENGINEER OR AS NOTED IN THE CONTRACT DOCUMENTS. ALL SIGNS SHALL BE PROPERLY REDISPLAYED TO TRAFFIC AS SOON AS CONDITIONS WARRANT.

2. ANY DAMAGE TO EXISTING STRUCTURES, SIGNS, POSTS OR HARDWARE AS A RESULT OF OPERATIONS DURING CONSTRUCTION PHASES SHALL BE REPAIRED AND REPLACED AT THE FULL COST AND EXPENSE OF THE CONTRACTOR.

3. ALL TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE FLOUORESCENT ORANGE HIGH PERFORMANCE WIDE ANGLE RETROREFLECTIVE SHEETING. TEMPORARY ROLL-UP WARNING SIGNS SHALL NOT BE USED.

4. ON MONDAY OF EACH WEEK, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A COMPLETE LIST OF ANTICIPATED LANE CLOSURES FOR THE FOLLOWING FOURTEEN (14) CALENDAR DAY PERIOD AND MUST ALLOW THE MDTA FOURTEEN (14) CALENDAR DAYS ADVANCED NOTIFICATION OF LANE CLOSURES.

5. ALL SIGN LOCATIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

6. PLACE TEMPORARY TRAFFIC CONTROL SIGNS AT SPACING AS NOTED ON PLANS. ADJUST PLACEMENT OF TEMPORARY TRAFFIC CONTROL SIGNS TO AVOID CONFLICTS WITH EXISTING SIGNS AND TO NOT VISIBLY OBSTRUCT EXISTING SIGNS OR CREATE A SIGHT DISTANCE DEFICIENCY. MAINTAIN A MINIMUM SPACING OF 300 FEET BETWEEN SIGNS ON ARTERIALS.

7. WHEN NEEDED, THE CONTRACTOR SHALL IMPLEMENT TYPICAL SHOULDER AND LANE CLOSURES IN ACCORDANCE WITH THE FOLLOWING SHA STANDARD NOS. MD 104.05-01, MD 104.05-07, MD 104.05-08, AND MD 104.06-08.

8. THE CONTRACTOR SHOULD BE AWARE THAT PERMANENT VARIABLE MESSAGE SIGNS ARE AVAILABLE TO DISPLAY MESSAGES RELATED TO WORK ZONE TRAFFIC CONTROL. HOWEVER, THE MESSAGES MAY BE REMOVED WITHOUT NOTICE BY CHART TO DISPLAY AN INCIDENT MANAGEMENT MESSAGE. THEREFORE, ONLY SUPPLEMENTAL MESSAGES RELATED TO WORK ZONE TRAFFIC CONTROL CAN BE DISPLAYED. MESSAGES REQUIRED FOR WORK ZONE TRAFFIC CONTROL MAY NOT BE DISPLAYED ON THE PERMANENT VARIABLE MESSAGE SIGNS.

9. A UTILITY STAKEOUT SHALL BE COMPLETED BY THE APPROPRIATE AGENCIES AND A WALK-THROUGH PERFORMED THREE (3) WEEKS PRIOR TO THE CONTRACTOR'S ANTICIPATED BEGINNING OF ANY WORK TO ALLOW THE ENGINEER TO VERIFY LOCATION OF THE PROPOSED FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE LAYOUT PRIOR TO THE WALK-THROUGH.

10. TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH SHA STANDARD NOS. MD 104.01-17, MD 812.01, AND MD 812.04.

11. TEMPORARY ALUMINUM SIGNS ARE NOT PERMITTED TO BE INSTALLED ON PORTABLE SUPPORTS. TEMPORARY ALUMINUM TRAFFIC CONTROL SIGNS ARE PERMITTED WHEN MOUNTED ON POSTS (GROUND MOUNTED), ON CONCRETE BARRIER BRACKETS, OR BANNED TO OVERHEAD SIGN SUPPORTS (END FRAMES).

12. WHEN BARRIER MOUNTING IS PROPOSED FOR TEMPORARY TRAFFIC CONTROL SIGNS, BARRIER MOUNTED BRACKET SHALL BE IN ACCORDANCE WITH SHA STANDARD NOS. MD 813.09-01, MD 813.09-03, AND MD 813.09-04.

13. WOODEN SIGN SKIDS ARE PERMITTED AS PORTABLE SUPPORTS PROVIDED THE MAXIMUM SIGN AREA ON THE SKID IS LESS THAN OR EQUAL TO 16 SF. THE SIGN SKID SHALL BE IN ACCORDANCE WITH THE DETAIL ON THIS DRAWING.

RECOMMENDED SEQUENCE OF CONSTRUCTION

DMS (1)

MAINTENANCE OF TRAFFIC: PHASE 1

1. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES ALONG EB AND WB US 50 TO CLOSE SHOULDERS, AS PER STANDARD NO. MD 104.05-01. MAINTAIN 12' LANE WIDTHS.
2. REMOVE EXISTING W-BEAM AND INSTALL PROPOSED W-BEAM AS SHOWN ON THE PLANS.
3. INSTALL CONDUIT, FOUNDATIONS AND SUPPORTS FOR PROPOSED OVERHEAD SPAN AS SHOWN ON THE PLANS.
4. INSTALL NEW DMS ON NEW OVERHEAD STRUCTURE SPAN AT SIDE OF ROAD.
5. CLOSE BOTH EB AND WB LANES OF US 50 WITH DRAGS AS PER STANDARD NO. MD 104.06-08 TO INSTALL OVERHEAD SPAN WITH DMS SECURED ON SPAN.

MAINTENANCE OF TRAFFIC: PHASE 2

1. DISCONNECT EXISTING DMS WIRING FROM EXISTING CONTROLLER.
2. INSTALL POWER AND COMMUNICATION CONNECTIONS FROM EXISTING CONTROLLER.
3. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES ALONG WB US 50 TO CLOSE RIGHT LANE AND SHOULDER, AS PER STANDARD NO. MD 104.05-07. MAINTAIN 12' LANE WIDTHS.
4. REMOVE EXISTING DMS AND EXISTING CANTILEVER STRUCTURE.

DMS (2)

MAINTENANCE OF TRAFFIC: PHASE 3

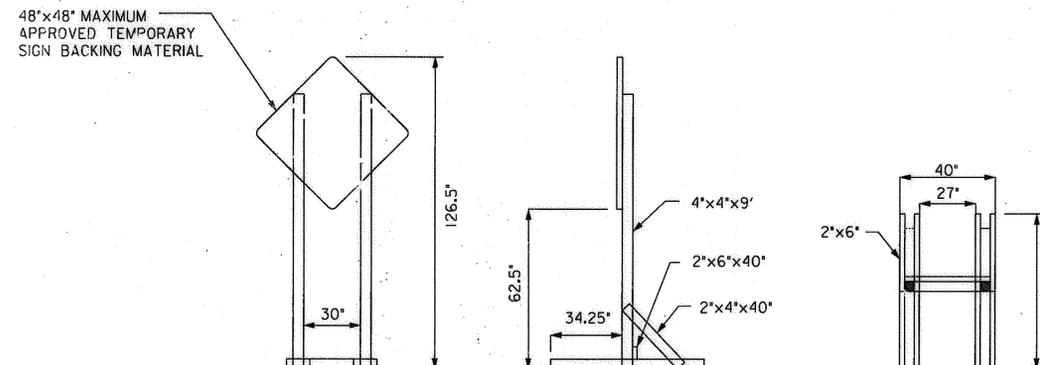
1. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES TO CLOSE THE RIGHT SHOULDER ALONG WB US 50 AND THE LEFT SHOULDER ALONG EB US 50, AS PER STANDARD NO. MD 104.05-01. MAINTAIN 12' LANE WIDTHS.
2. REMOVE EXISTING W-BEAM AND INSTALL PROPOSED W-BEAM AS SHOWN ON THE PLANS.
3. INSTALL CONTROLLER, CONDUIT, FOUNDATION AND RIGHT SUPPORT FOR PROPOSED OVERHEAD SPAN AS SHOWN ON THE PLANS.
4. INSTALL POWER AND COMMUNICATION CONNECTIONS TO CONTROLLER.

MAINTENANCE OF TRAFFIC: PHASE 4

1. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES ALONG WB US 50 TO CLOSE THE LEFT LANE AND LEFT SHOULDER, PER STANDARD NO. MD 104.05-08. MAINTAIN 12' LANE WIDTHS.
2. REMOVE EXISTING W-BEAM AND INSTALL PROPOSED W-BEAM AS SHOWN ON THE PLANS.
3. INSTALL FOUNDATION AND LEFT SUPPORT FOR PROPOSED OVERHEAD STRUCTURE AS SHOWN ON THE PLANS.
4. INSTALL NEW DMS ON NEW OVERHEAD STRUCTURE SPAN AT SIDE OF ROAD.
5. CLOSE WB LANES OF US 50 WITH DRAGS AS PER STANDARD NO. MD 104.06-08 TO INSTALL OVERHEAD SPAN WITH DMS SECURED ON SPAN.

TEMPORARY SIGN ON WOOD SKID SUPPORT

NOT TO SCALE



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
MAINTENANCE OF TRAFFIC:
GENERAL NOTES AND SEQUENCE OF CONSTRUCTION

DESIGNED BY SJW DRAWN BY JRL CHECKED BY AJM
CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE NOT TO SCALE

CONTRACT NO.
BB-972-000-006

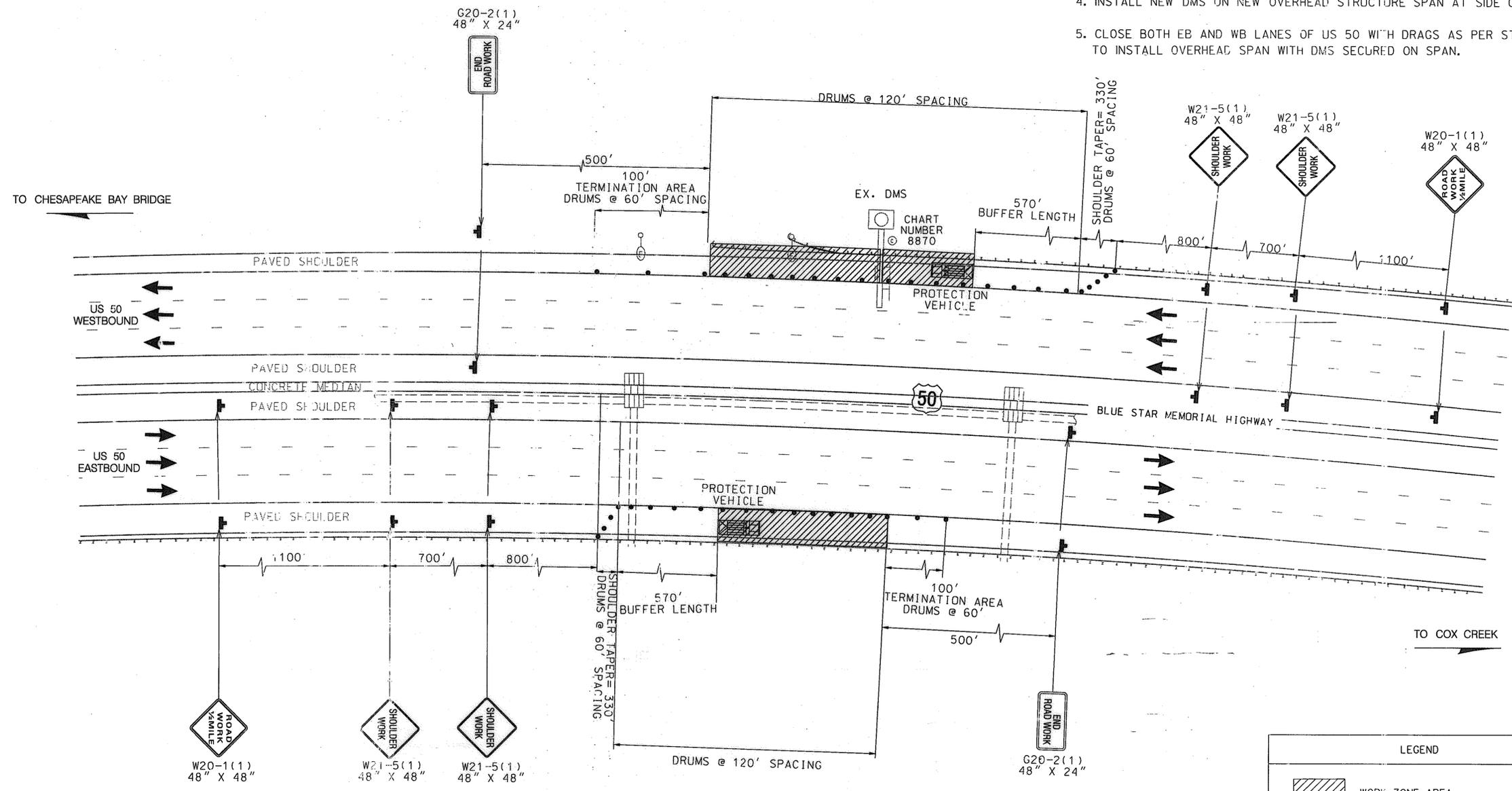
DRAWING NO.
TC-1

SHEET NO.
17 OF 25

15 MINUTE MAXIMUM CLOSURE OF BOTH EASTBOUND AND WESTBOUND LANES WHEN PROPOSED OVERHEAD SPAN IS INSTALLED.

CONSTRUCTION ACTIVITIES - MOT PHASE I:

1. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES ALONG EB AND WB US 50 TO CLOSE SHOULDERS, AS PER STANDARD NO. MD 104.05-01. MAINTAIN 12' LANE WIDTHS.
2. REMOVE EXISTING W-BEAM AND INSTALL PROPOSED W-BEAM AS SHOWN ON THE PLANS.
3. INSTALL CONDUIT, FOUNDATIONS AND SUPPORTS FOR PROPOSED OVERHEAD SPAN AS SHOWN ON THE PLANS.
4. INSTALL NEW DMS ON NEW OVERHEAD STRUCTURE SPAN AT SIDE OF ROAD.
5. CLOSE BOTH EB AND WB LANES OF US 50 WITH DRAGS AS PER STANDARD NO. MD 104.06-08 TO INSTALL OVERHEAD SPAN WITH DMS SECURED ON SPAN.



- PHASE I NOTES:
- A. ASSUMED PREVAILING SPEED IS 60 MPH.
 - B. AT A MINIMUM, THE FOLLOWING MSHA TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS (TTCTA) SHALL BE USED FOR THE WORK SHOWN ON THIS PLAN: STANDARD NO. MD 104.05-01.
 - C. EXISTING CONTROLLER CABINET AND ATTACHED ELECTRICAL BREAKER SHALL REMAIN.
 - D. CONTRACTOR IS RESPONSIBLE FOR LANE CLOSURES WITH DRAGS, AS PER STANDARD NO. MD 104.06-08.
 - E. 15 MINUTE MAXIMUM CLOSURE OF ALL TRAVEL LANES IN THE SAME DIRECTION WHEN PROPOSED OVERHEAD SPAN IS INSTALLED, PER STANDARD NO. MD 104.06-08.

LEGEND	
	WORK ZONE AREA
	DRUM (CHANNELIZING DEVICE)
	FLASHING ARROW PANEL
	PROTECTION VEHICLE
	SIGN POST
	TRAFFIC FLOW ARROW



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ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
DMS (I) - MOT PLAN (PHASE I)

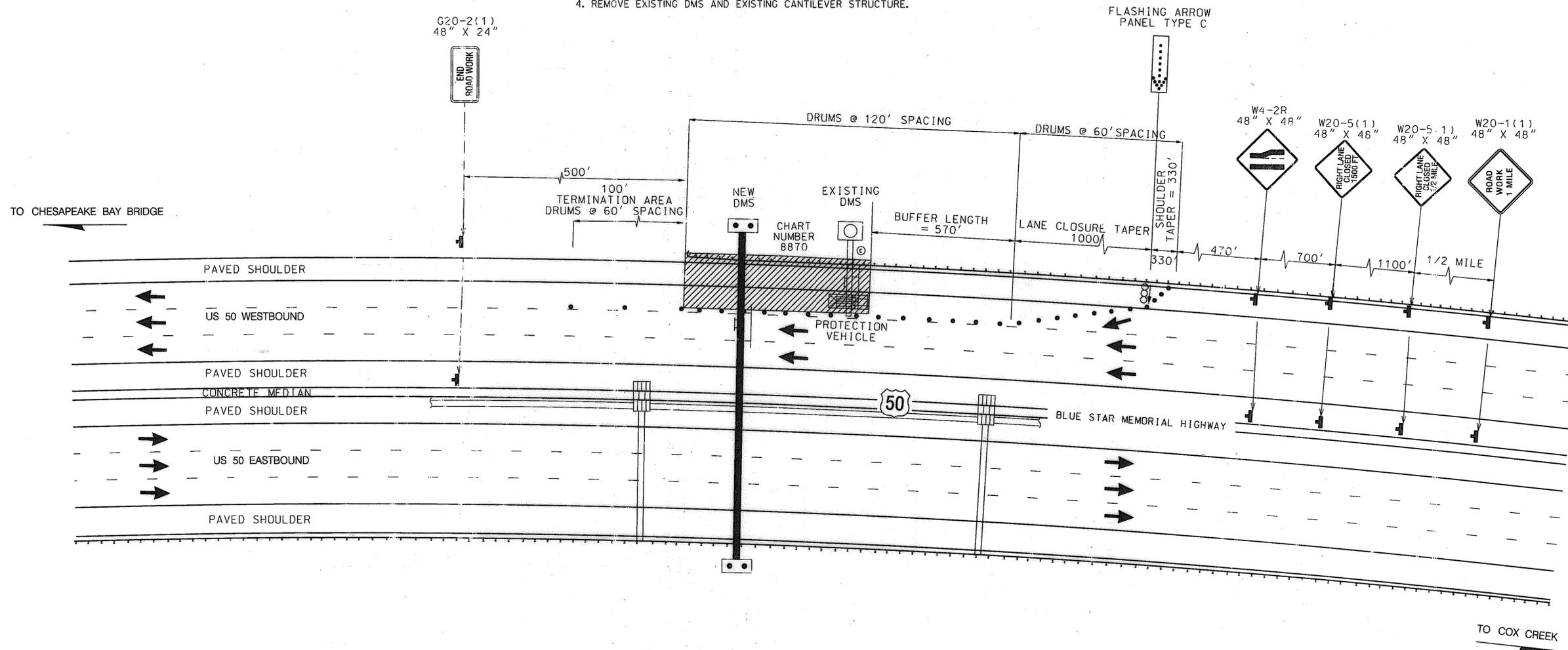
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CONTRACT NO. BB-972-000-006
DRAWING NO. TC-2
SHEET NO. 18 OF 25



CONSTRUCTION ACTIVITIES - MOT PHASE 2:

1. DISCONNECT EXISTING DMS WIRING FROM EXISTING CONTROLLER.
2. INSTALL POWER AND COMMUNICATION CONNECTIONS FROM EXISTING CONTROLLER.
3. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES ALONG WB US 50 TO CLOSE RIGHT LANE AND SHOULDER, AS PER STANDARD NO. MD 104.05-07. MAINTAIN 12' LANE WIDTHS.
4. REMOVE EXISTING DMS AND EXISTING CANTILEVER STRUCTURE.



15 MINUTE MAXIMUM CLOSURE OF ALL WESTBOUND LANES WHEN EXISTING DMS IS REMOVED.

PHASE 3 NOTES:

- A. ASSUMED PREVAILING SPEED IS 60 MPH.
- B. AT A MINIMUM, THE FOLLOWING MSHA TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS (TTCTA) SHALL BE USED FOR THE WORK SHOWN ON THIS PLAN: MD 104.05-07.
- C. CONTRACTOR IS RESPONSIBLE FOR LANE CLOSURES WITH DRAGS.
- D. 15 MINUTE MAXIMUM CLOSURE OF ALL TRAVEL LANES IN THE SAME DIRECTION WHEN EXISTING DMS IS REMOVED, PER STANDARD NO. MD 104.06-08.

LEGEND	
	WORK ZONE AREA
	DRUM (CHANNELIZING DEVICE)
	FLASHING ARROW PANEL
	PROTECTION VEHICLE
	SIGN POST
	TRAFFIC FLOW ARROW



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NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
DMS (1) - MOT PLAN (PHASE 2)

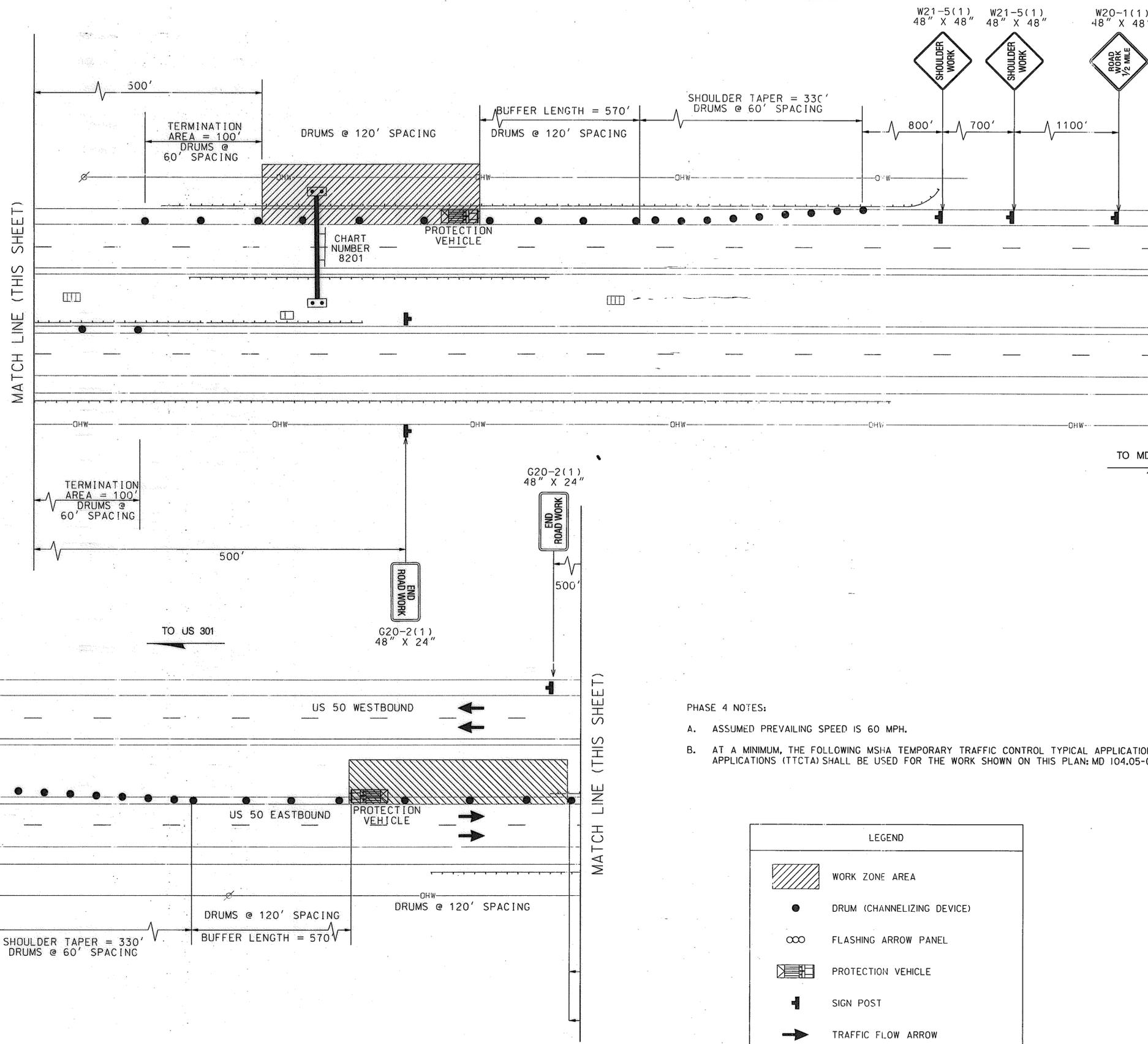
DESIGNED BY SJW DRAWN BY JRL CHECKED BY AJM
CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE NOT TO SCALE

CONTRACT NO.
BB-972-000-006
DRAWING NO.
TC-3
SHEET NO.
19 OF 25



CONSTRUCTION ACTIVITIES - MOT PHASE 3:

1. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES TO CLOSE THE RIGHT SHOULDER ALONG WB US 50 AND THE LEFT SHOULDER ALONG EB US 50, AS PER STANDARD NO. MD 104.05-01. MAINTAIN 12' LANE WIDTHS.
2. REMOVE EXISTING W-BEAM AND INSTALL PROPOSED W-BEAM AS SHOWN ON THE PLANS.
3. INSTALL CONTROLLER, CONDUIT, FOUNDATION AND RIGHT SUPPORT FOR PROPOSED OVERHEAD SPAN AS SHOWN ON THE PLANS.
4. INSTALL POWER AND COMMUNICATION CONNECTIONS TO CONTROLLER.



- PHASE 4 NOTES:
- A. ASSUMED PREVAILING SPEED IS 60 MPH.
 - B. AT A MINIMUM, THE FOLLOWING MSHA TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS (TTCTA) SHALL BE USED FOR THE WORK SHOWN ON THIS PLAN: MD 104.05-01.

LEGEND	
	WORK ZONE AREA
	DRUM (CHANNELIZING DEVICE)
	FLASHING ARROW PANEL
	PROTECTION VEHICLE
	SIGN POST
	TRAFFIC FLOW ARROW



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ADDENDUMS & REVISIONS			
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ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
 DMS (2) - MOT PLAN (PHASE 3)

DESIGNED BY: SJW DRAWN BY: JRL CHECKED BY: AJM
 CONST. REVIEW BY: DATE: FEBRUARY, 2010 SCALE: NOT TO SCALE

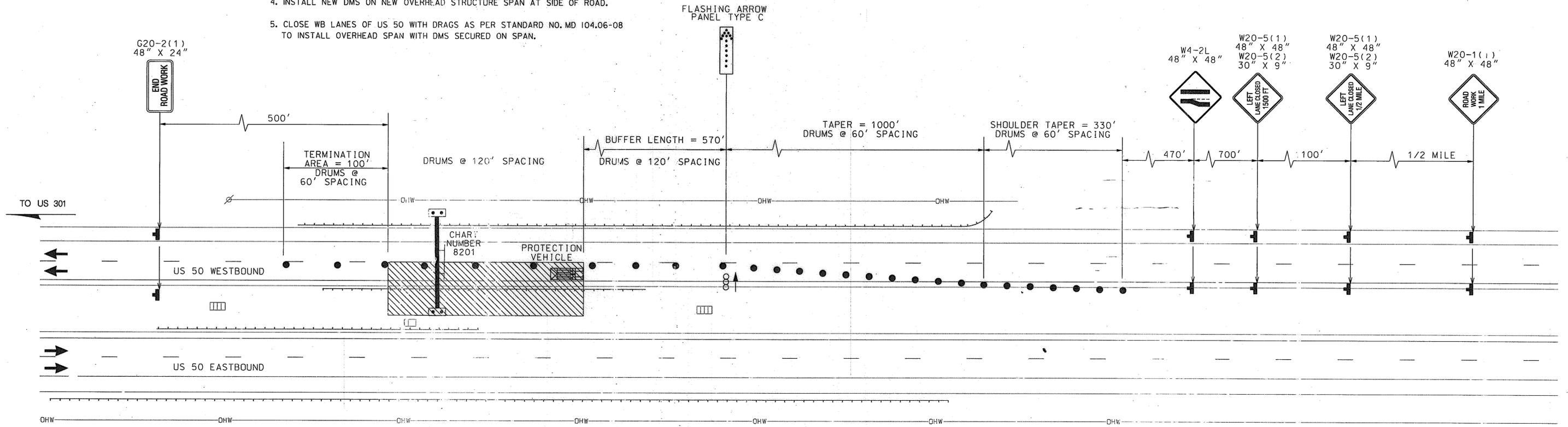
CONTRACT NO. BB-972-000-006
 DRAWING NO. TC-4
 SHEET NO. 20 OF 25



CONSTRUCTION ACTIVITIES - MOT PHASE 4:

1. INSTALL TEMPORARY TRAFFIC CONTROL DEVICES ALONG WB US 50 TO CLOSE THE LEFT LANE AND LEFT SHOULDER, PER STANDARD NO. MD 104.05-08. MAINTAIN 12' LANE WIDTHS.
2. REMOVE EXISTING W-BEAM AND INSTALL PROPOSED W-BEAM AS SHOWN ON THE PLANS.
3. INSTALL FOUNDATION AND LEFT SUPPORT FOR PROPOSED OVERHEAD STRUCTURE AS SHOWN ON THE PLANS.
4. INSTALL NEW DMS ON NEW OVERHEAD STRUCTURE SPAN AT SIDE OF ROAD.
5. CLOSE WB LANES OF US 50 WITH DRAGS AS PER STANDARD NO. MD 104.06-08 TO INSTALL OVERHEAD SPAN WITH DMS SECURED ON SPAN.

15 MINUTE MAXIMUM CLOSURE OF BOTH WESTBOUND LANES WHEN PROPOSED OVERHEAD SPAN IS INSTALLED.



TO MD 404

- PHASE 5 NOTES:
- A. ASSUMED PREVAILING SPEED IS 60 MPH.
 - B. AT A MINIMUM, THE FOLLOWING MSHA TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS (TTCTA) SHALL BE USED FOR THE WORK SHOWN ON THIS PLAN: MD 104.05-08.
 - C. CONTRACTOR IS RESPONSIBLE FOR LANE CLOSURES WITH DRAGS.
 - D. 15 MINUTE MAXIMUM CLOSURE OF ALL TRAVEL LANES IN THE SAME DIRECTION WHEN EXISTING DMS IS REMOVED, PER STANDARD NO. MD 104.06-08.

LEGEND	
	WORK ZONE AREA
	DRUM (CHANNELIZING DEVICE)
	FLASHING ARROW PANEL
	PROTECTION VEHICLE
	SIGN POST
	TRAFFIC FLOW ARROW



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
DMS (2) - MOT PLAN (PHASE 4)

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CONTRACT NO.
BB-972-000-006

DRAWING NO.
TC-5

SHEET NO.
21 OF 25

EROSION AND SEDIMENT CONTROL - GENERAL NOTES

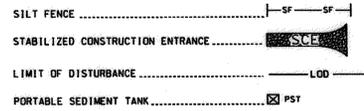
THE WATER MANAGEMENT ADMINISTRATION REQUIRES THAT THESE NOTES, IN THEIR ENTIRETY, BE INCLUDED ON THE EROSION AND SEDIMENT CONTROL PLAN. IT IS RECOGNIZED THAT EVERY NOTE MAY NOT APPLY TO ALL PROJECTS. THE REQUIREMENT OF ANY INDIVIDUAL NOTE NOT APPLICABLE TO THE SUBJECT PROJECT IS NOT BINDING UPON THE APPLICANT OR THE APPLICANT'S CONTRACTOR.

- THE CONTRACTOR SHALL NOTIFY THE ADMINISTRATION (WMA) AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY THE ADMINISTRATION, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF WMA.
- THE CONTRACTOR MUST NOTIFY WMA IN WRITING AND BY TELEPHONE AT THE FOLLOWING POINTS:
 - THE REQUIRED PRE-CONSTRUCTION MEETING.
 - FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES.
 - DURING THE INSTALLATION OF SEDIMENT BASINS (TO BE CONVERTED INTO PERMANENT STORMWATER MANAGEMENT STRUCTURES) AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKLIST ON PLAN), NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION OF EACH STEP IS MANDATORY.
 - PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).
 - PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES.
 - PRIOR TO FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE AND SHALL HAVE THEM INSPECTED AND APPROVED BY THE AGENCY INSPECTOR OR WMA INSPECTOR PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. MINOR SEDIMENT CONTROL DEVICE LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE WMA INSPECTOR. THE CONTRACTOR SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR. THE CONTRACTOR MUST OBTAIN PRIOR AGENCY AND WMA APPROVAL FOR CHANGES TO THE SEDIMENT CONTROL PLAN AND/OR SEQUENCE OF CONSTRUCTION.
- THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.
- THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR.
- ALL SEDIMENT BASINS, TRAP EMBANKMENTS AND SLOPES, PERIMETER DIKES, SWALES AND ALL DISTURBED SLOPES STEEPER OR EQUAL TO 3:1 SHALL BE STABILIZED WITH SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES, AS SOON AS POSSIBLE BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER ESTABLISHMENT. ALL AREAS DISTURBED OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST BE MINIMIZED. MAINTENANCE MUST BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT FOR STABILIZATION MAY BE REDUCED TO THREE (3) DAYS FOR SENSITIVE AREAS.)
- THE CONTRACTOR SHALL APPLY SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS AND STOCKPILES WITHIN FOURTEEN (14) CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED IN THE AREA. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT MAY BE REDUCED TO SEVEN (7) DAYS FOR SENSITIVE AREAS.)
- PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE AND HAVE ESTABLISHED PERMANENT STABILIZATION FOR ALL CONTRIBUTORY DISTURBED AREAS USING SOD OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHERE THE SLOPE DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE, BUT NOT LATER THAN FOURTEEN (14) CALENDAR DAYS AFTER ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, TEMPORARY SEED AND ANCHORED STRAW MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE APPLIED BY MARCH 15 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.
- THE SITE'S APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, DAILY LOG BOOKS, AND TESTS REPORTS SHALL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY APPROVED OFFICIALS OF WMA AND THE AGENCY RESPONSIBLE FOR PROJECT.
- SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING PROTECTIVE DEVICES TO LOWER THE WATER DOWN SLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF A CUT OR FILL SLOPE UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED, AT WHICH TIME THEY MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE. PROTECTIVE METHODS MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.
- PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITH SOD OR SEED WITH AN APPROVED EROSION CONTROL MATTING, RIP-RAP, OR BY OTHER APPROVED STABILIZATION MEASURES.
- TEMPORARY SEDIMENT CONTROL DEVICES MAY BE REMOVED, WITH PERMISSION OF WMA INSPECTOR AND AGENCY INSPECTORS, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CONVERTED TO THE PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL.
- NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 WILL BE PERMITTED IN LAWN MAINTENANCE AREAS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NON-MAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN WITH A LOW-MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATIVE STABILIZATION.
- FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS TO PREVENT WATER FROM PONDING FOR MORE THAN TWENTY-FOUR (24) HOURS AFTER THE END OF A RAINFALL EVENT. DRAINAGE COURSES AND SWALE FLOW AREAS MAY TAKE AS LONG AS FORTY-EIGHT (48) HOURS AFTER THE END OF A RAINFALL EVENT TO DRAIN. AREAS DESIGNED TO HAVE STANDING WATER SHALL NOT BE REQUIRED TO MEET THIS REQUIREMENT.
- SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A FOUNDATION THAT EXISTS OR IS UNDER CONSTRUCTION. NO STRUCTURE MAY BE CONSTRUCTED WITHIN 20 FEET OF AN ACTIVE SEDIMENT TRAP OR BASIN.
- THE WMA INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SAFETY OR SEDIMENT CONTROL MEASURES, IF DEEMED NECESSARY.
- ALL TRAP DEPTH DIMENSIONS ARE RELATIVE TO THE OUTLET ELEVATION. ALL TRAPS MUST HAVE A STABLE OUTFALL. ALL TRAPS AND BASINS SHALL HAVE STABLE INFLOW POINTS.
- VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO APPROPRIATE SPECIFICATIONS FOR TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, SODDING AND GROUND COVERS.
- SEDIMENT SHALL BE REMOVED AND THE TRAP OR BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE QUARTER OF THE TOTAL DEPTH OF THE TRAP OR BASIN. TOTAL DEPTH SHALL BE MEASURED FROM THE TRAP OR BASIN BOTTOM TO THE CREST OF THE OUTLET.
- SEDIMENT REMOVED FROM TRAPS (AND BASINS) SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN, WETLAND OR TREE-SAVE AREA. WHEN PUMPING SEDIMENT LADEN WATER, THE DISCHARGE MUST BE DIRECTED TO A SEDIMENT TRAPPING DEVICE PRIOR TO RELEASE FROM THE SITE. A SUMP PIT MAY BE USED IF SEDIMENT TRAPS THEMSELVES ARE BEING PUMPED OUT.
- ALL WATER REMOVED FROM EXCAVATED AREAS (E.G. UTILITY TRENCHES) SHALL BE PASSED THROUGH AN APPROVED Dewatering PRACTICE OR PUMPED TO A SEDIMENT TRAP OR BASIN PRIOR TO DISCHARGE FROM THE SITE, I.E. VIA FUNCTIONAL STORM DRAIN SYSTEM OR TO STABLE GROUND SURFACE.
- SEDIMENT CONTROL FOR UTILITY CONSTRUCTION FOR AREAS OUTSIDE OF DESIGNED CONTROLS OR AS DIRECTED BY THE ENGINEER OR WMA INSPECTOR:
 - CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK.
 - EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
 - TRENCHES FOR UTILITY INSTALLATION SHALL BE BACKFILLED, COMPACTED, AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAT CAN BE COMPLETED THE SAME DAY, UNLESS:
 - TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY.

- WHERE DEEMED APPROPRIATE BY THE ENGINEER OR INSPECTOR, SEDIMENT BASINS AND TRAPS MAY NEED TO BE SURROUNDED WITH AN APPROVED SAFETY FENCE. THE FENCE MUST CONFORM TO LOCAL ORDINANCES AND REGULATIONS. THE DEVELOPER OR OWNER SHALL CHECK WITH THE LOCAL BUILDING OFFICIALS ON APPLICABLE SAFETY REQUIREMENTS. WHERE SAFETY FENCE IS DEEMED APPROPRIATE AND LOCAL ORDINANCES DO NOT SPECIFY FENCING SIZES OR TYPES, THE FOLLOWING SHALL BE USED AS A MINIMUM STANDARD: THE SAFETY FENCE MUST BE MADE OF WELDED WIRE AND AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THAN 2 INCHES IN WIDTH AND 4 INCHES IN HEIGHT WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED AND IN GOOD CONDITION AT ALL TIMES.
- OFF-SITE SPOIL OR BORROW AREAS ON STATE OR FEDERAL PROPERTY MUST HAVE PRIOR APPROVAL BY WMA AND OTHER APPLICABLE STATE, FEDERAL AND LOCAL AGENCIES; OTHERWISE APPROVAL MUST BE GRANTED BY THE LOCAL AUTHORITIES. ALL WASTE AND BORROW AREAS OFF-SITE MUST BE PROTECTED BY SEDIMENT CONTROL MEASURES AND STABILIZED.
- SITES WHERE INFILTRATION DEVICES ARE USED FOR THE CONTROL OF STORMWATER, EXTREME CARE MUST BE TAKEN TO PREVENT RUNOFF FROM UNSTABILIZED AREAS FROM ENTERING THE STRUCTURE DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES PLACED IN INFILTRATION AREAS MUST HAVE BOTTOM ELEVATIONS AT LEAST TWO (2) FEET HIGHER THAN THE FINISH GRADE BOTTOM ELEVATION OF THE INFILTRATION PRACTICE. WHEN CONVERTING A SEDIMENT TRAP TO AN INFILTRATION DEVICE, ALL ACCUMULATED SEDIMENT MUST BE REMOVED AND DISPOSED OF PRIOR TO FINAL GRADING OF INFILTRATION DEVICE.
- WHEN A STORM DRAIN SYSTEM OUTFALL IS DIRECTED TO A SEDIMENT TRAP OR SEDIMENT BASIN AND THE SYSTEM IS TO BE USED FOR TEMPORARILY CONVEYING CONCENTRATED LADEN WATER, ALL STORM DRAIN INLETS IN NON-SUMP AREAS SHALL HAVE TEMPORARY ASPHALT BERMS CONSTRUCTED AT THE TIME OF BASE PAVING TO DIRECT OUTFALL FLOW INTO THE INLETS TO AVOID SURCHARGING AND OVERFLOW OF INLETS IN SUMP AREAS.
- SITE INFORMATION:

A. TOTAL AREA OF FACILITY (BASE, CAMPUS, PARK, ETC.)	N/A ACRES
B. TOTAL AREA OF PROJECT SITE	1.0 ACRES
C. AREA DISTURBED	0.10 ACRES
D. AREA TO BE ROOFED OR PAVED	N/A ACRES
E. TOTAL CUT	250 CU. YDS.
F. TOTAL FILL	250 CU. YDS.
G. OFF-SITE WASTE/BORROW AREA LOCATION	N/A

STANDARD SYMBOLS



OWNER'S / DEVELOPER'S CERTIFICATION

"I / WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I HEREBY AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE INSPECTORS."

4/9/10
DATE
165
CARD NO.
Doug Novocin, P.E., Environmental Manager
PRINTED NAME AND TITLE

STANDARD STABILIZATION NOTE

* FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND FOURTEEN DAYS (14) AS TO ALL DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

DESIGN CERTIFICATION

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT REGULATIONS."

4/7/10
DATE
NO. REGISTRATION NO. 19850
P.E. R.L.S. OR R.L.A. (CIRCLE)
Chiwen K. Liang, P.E.
PRINTED NAME

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE APPROVED LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17736, EXPIRATION DATE: March 28, 2010.

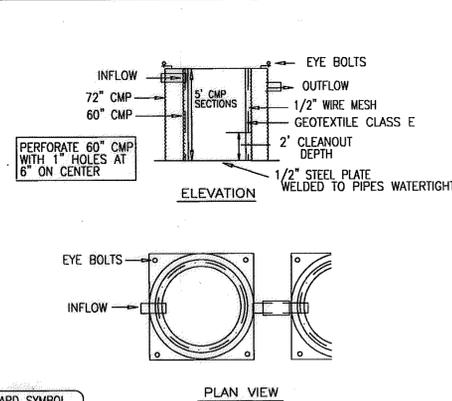
DEVELOPER INFORMATION

Name: MARYLAND TRANSPORTATION AUTHORITY
Address: 300 AUTHORITY DRIVE
BALTIMORE, MARYLAND 21222-2200
Telephone: 410-537-7840

SEQUENCE OF CONSTRUCTION

- The contractor shall notify the MDE water management administration (WMA), 410-537-3510, seven (7) days prior to the commencement of any disturbance activities.
- No disturbed area shall be left unstabilized overnight. If area can not be stabilized, erosion and sediment control shall be implemented as noted on this sheet, in notes 3 and 4 below, and/or as directed by the engineer/MDE WMA inspector.
- For open foundation excavations contractor shall utilize impervious sheeting and stone or sandbag anchors to cover exposed area. Open foundation excavation shall be dewatered. As necessary by PSTS (See detail this sheet) and sediment removed as directed by engineer. PSTS must discharge to stable outfalls.
- All excavated material shall be removed daily from the construction site and be disposed at a previously approved disposal site. In the event that same day removal is not feasible, under direction of engineer, contractor shall install SF (See detail this sheet) to prevent sediment laden water from exiting the disturbed site. Onsite storage shall not exceed five (5) working days.
- All conduit trenching shall be in accordance with note 22, this sheet. The contractor is responsible for ensuring that temporary stabilization methods are effectively employed throughout the duration of the project.
- It is the responsibility of contractor to minimize limits of disturbance due to construction activities and to provide and maintain stabilized access to all disturbed areas of the project, which may include a stabilized construction entrance (SCE) (See detail on Sheet ESC-3). At the direction of the engineer, access to areas of construction may be from the shoulder of the roadway. Contractor must clean any sediment on the adjacent pavement at the end of each working day. Vehicles utilized within non-paved, disturbed areas may not re-enter paved surfaces without the use of an SCE, at a location approved by the MDE WMA inspector.
- It is the contractor's responsibility to prevent sediment laden runoff from leaving disturbed areas. See special provisions section 308.
- The contractor shall provide final stabilization of all areas disturbed by construction activities, per sheet ESC-2.
- Contractor shall perform any necessary cleanup of storm drain inlets and pipes to flush and sediment bypass as a last order of work. All sediment laden water shall be removed and disposed onsite at an approved location. Cost of cleanup and disposal of cleanup material shall be the responsibility of the contractor.

DETAIL 21 - PORTABLE SEDIMENT TANK



STANDARD SYMBOL
 PST

Construction Specifications

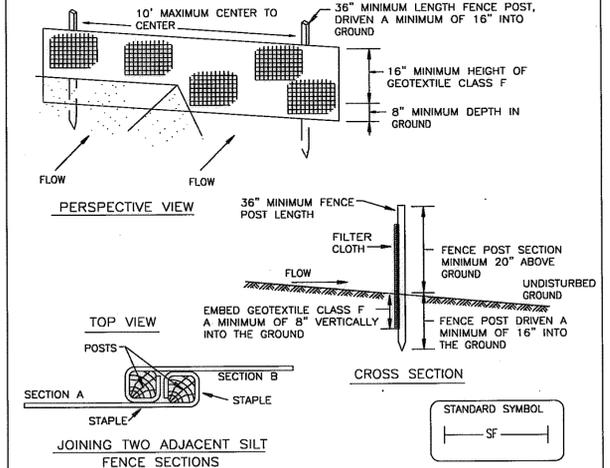
- The following formula should be used in determining the storage volume of the sediment tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity.
- An example of a typical sediment tank is shown above. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.
- Tanks may be connected in series.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PAGE
D - 14 - 2

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE



STANDARD SYMBOL
SF

Construction Specifications

- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1-1/2" x 1-1/2" square (minimum) cut, or 1-3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
- Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ² / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PAGE
E - 15 - 3

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

SABRA, WANG & ASSOCIATES, INC.
1504 JOH AVENUE
SUITE 160
BALTIMORE, MD 21227
(410) 737-8564
WWW.SABRA-WANG.COM

Maryland Transportation Authority
ENGINEERING DIVISION

ADDENDUMS & REVISIONS

NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
EROSION AND SEDIMENT CONTROL NOTES
(SHEET 1 OF 2)

DESIGNED BY CKL
DRAWN BY SWA
CHECKED BY QWT
CONST. REVIEW BY
DATE FEBRUARY, 2010
SCALE N.T.S.

CONTRACT NO.
BB-972-000-006
DRAWING NO.
ESC-1
SHEET NO.
22 OF 25

SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. SITE PREPARATION

- I. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
 - II. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
 - III. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.
- B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
- I. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 - II. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
 - III. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98 - 100% WILL PASS THROUGH A #20 MESH SIEVE.
 - IV. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDING PREPARATION

- I. TEMPORARY SEEDING**
- a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3" TO 5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISK HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3%) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- II. PERMANENT SEEDING**
- a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:
 1. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0
 2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
 3. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SEREGIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
 5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 FROM THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
 - b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOES TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
 - c. APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.
 - d. MIX SOIL AMENDMENTS INTO THE TOP 3-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION, WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (GREATER THAN 3%) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

D. SEED SPECIFICATIONS

- I. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.
- NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.
- II. INOCULANT - THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75-80°F. CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING

- I. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.
 - a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN: MAXIMUM OF 100 LBS. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 LBS./AC; K2O (POTASSIUM): 200 LBS./AC.
 - b. LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE, UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING. NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - c. SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.
- II. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES (SEE TABLES THIS SHEET). THE SEEDED AREA SHALL THEN BE ROLLED WITH WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- III. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - a. CULTIPACKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDING MUST BE FIRM AFTER PLANTING.
 - b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)
 - I. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.
 - II. WOOD CELLULOSE FIBER MULCH (WCFM)
 - a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

- d. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHOTO-TOXIC.
 - f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM, DIAMETER APPROXIMATELY 1MM, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 80% MINIMUM.
- NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

- I. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
- II. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS/ACRE.
- III. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- IV. SECURING STRAW MULCH (MULCH ANCHORING) MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD:
 - I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.
 - II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - III. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS - SUCH AS ACRYLIC OIL (AGRO-TACK), DECA-TO, PETROSEK, TERRA TACK II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
 - IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4' TO 15' FEET WIDE AND 500 TO 3,000 FEET LONG.

SECTION II - TEMPORARY SEEDING

VEGETATION - ANNUAL GRASS OR GRAM USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO TWELVE MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

A. SEED MIXTURES - TEMPORARY SEEDING

- I. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.
- II. FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

SEED MIXTURES (HARDNESS ZONE 7A) FROM TABLE 26 FROM THE MDE ESC MANUAL					FERTILIZER RATE (0-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTH		
	Rye Plus Focktail Millet	150	2/1-11/30	1"	600 lb/oa (5 lb/1000 sf)	2 tons/oa (100 lb/1000 sf)

SECTION III - PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES - PERMANENT SEEDING

- I. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING; FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD AND V TURFGRASS.
- II. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
- III. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3 +/- LBS/1000 SQ. FT. (50 LBS/AC), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

SEED MIXTURES (HARDNESS ZONE 7A) FROM TABLE 25 FROM THE MDE ESC MANUAL					FERTILIZER RATE (0-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTH	N	P205	K20	
3	Tall Fescue (85Z) Perennial Ryegrass (02Z) Kentucky Bluegrass (62Z)	125 15 10	3/1-5/15 8/15-11/15		90 lb/oa (2.0 lb/ 1000 sf)	175 lb/oa (4 lb/ 1000 sf)	175 lb/oa (4 lb/ 1000 sf)	2 tons/oa (100 lb/1000 sf)
6	Creeping Lovegrass (87Z) Sereola Lespedeza (83Z)	4 20	3/1-8/14					
7	Tall Fescue (83Z) Creeping Lovegrass (82Z) Sereola Lespedeza (85Z)	110 3 20	3/1-11/15					

SECTION IV - SOD TO PROVIDE QUICK COVER ON DISTURBED AREAS (24 GRADE OR FLATTER)

A. GENERAL SPECIFICATIONS

- I. CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
 - II. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PICES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH, MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNLIVEN ENDS WILL NOT BE ACCEPTABLE.
 - III. STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
 - IV. SOD SHALL NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
 - V. SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
- B. SOD INSTALLATION**
- I. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.
 - II. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
 - III. WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
 - IV. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

- I. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- II. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- III. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

SECTION V - TURFGRASS ESTABLISHMENT

AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. AREAS TO RECEIVE SEED SHALL BE FILLED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVELLED, AND RAKED TO PREPARE PROPER SEEDBED. STONES AND DEBRIS OVER 1/2 INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDBED SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.

NOTE: CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.

A. TURFGRASS MIXTURES

- I. KENTUCKY BLUEGRASS - FULL SUN MIXTURE - FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND THE EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVATES SEEDING RATE: 1.5 TO 2.0 S/1000 SQUARE FEET. A MINIMUM OF THREE BLUEGRASS CULTIVATES SHOULD BE CHOSEN, RANGING FROM A MINIMUM OF 10% TO A MAXIMUM OF 35% OF THE MIXTURE BY WEIGHT.
 - II. KENTUCKY BLUEGRASS/PERENNIAL RYE - FULL SUN MIXTURE - FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE/1000 SQUARE FEET. A MINIMUM OF 3 KENTUCKY BLUEGRASS CULTIVATES MUST BE CHOSEN, WITH EACH CULTIVAR RANGING FROM 10% TO 35% OF THE MIXTURE BY WEIGHT.
 - III. TALL FESCUE/KENTUCKY BLUEGRASS-FULL SUN MIXTURE-FOR USE IN DROUGHT PRIME AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVATES 95%-100% CERTIFIED KENTUCKY BLUEGRASS CULTIVATES 0-5% SEEDING RATE: 5 TO 8 POUNDS/1000 SQUARE FEET. ONE OR MORE CULTIVATES MAY BE BLENDED.
 - IV. KENTUCKY BLUEGRASS/FINE FESCUE - SHADE MIXTURE - FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA, MIXTURES INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVATES 30-40% AND CERTIFIED FINE FESCUE AND 60-75% SEEDING RATE: 1 1/2 TO 3 POUNDS/1000 SQUARE FEET. A MINIMUM OF 3 KENTUCKY BLUEGRASS CULTIVATES MUST BE CHOSEN, WITH EACH CULTIVAR RANGING FROM A MINIMUM OF 10% TO A MAXIMUM OF 35% OF THE MIXTURE BY WEIGHT.
- NOTE: TURFGRASS VARIETIES SHOULD BE SELECTED FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MIMED #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND."

B. IDEAL TIMES OF SEEDING

WESTERN MARYLAND: MARCH 15 - JUNE 15 AUGUST 1 - OCTOBER 1 (HARDNESS ZONES - 5B, 6A)
CENTRAL MD: MARCH 1 - MAY 15, AUGUST 15 - OCTOBER 15 (HARDNESS ZONE - 6B)
SOUTHERN MD, EASTERN SHORE: MARCH 1 - MAY 15, AUGUST 15 - OCTOBER 15 (HARDNESS ZONES - 7A, 7B)

C. IRRIGATION

IF SOIL MIXTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH 1/2" - 1" EVERY 3 TO 4 DAYS, DEPENDING ON SOIL TEXTURE UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING, IN ABNORMALLY DRY, OR HOT SEASON, OR ON ADVERSE SITES.

D. REPAIRS AND MAINTENANCE

- I. INSPECT ALL SEEDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.
- II. ONCE THE VEGETATION IS ESTABLISHED, THE SITE SHALL HAVE 95% GROUND COVER TO BE CONSIDERED ADEQUATELY STABILIZED.
- III. IF THE STAND PROVIDES LESS THAN 40% GROUND COVERAGE, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING RECOMMENDATIONS.
- IV. IF THE STAND PROVIDES BETWEEN 40% AND 94% GROUND COVERAGE, OVER SEEDING AND FERTILIZING USING HALF OF THE RATES ORIGINALLY APPLIED MAY BE NECESSARY.
- V. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDINGS ARE SHOWN IN TABLE 24. FOR LAWNS AND OTHER MEDIUM TO HIGH MAINTENANCE TURFGRASS AREAS, REFER TO THE UNIVERSITY OF MARYLAND PUBLICATION, "LAWN CARE IN MARYLAND", BULLETIN NO. 171.

TABLE 24 FROM THE MDE ESC MANUAL MAINTENANCE FERTILIZATION FOR PERMANENT SEEDINGS SUMMARY				
USE SOIL TEST RESULTS OR RATES SHOWN BELOW				
SEEDING MIXTURE	TYPE	LB/AC	LB/1000 SF	MOWING
Tall fescue makes up 70% or more of cover	10-10-10 or 30-10-10	500 lb/oa 400	9.2	Yearly or as needed Fall
CONTRACTOR TO USE THIS ONLY.				



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Maryland Transportation Authority
ENGINEERING DIVISION

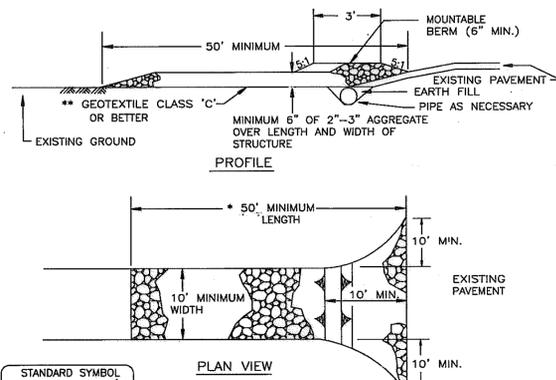
ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

**ROUTE 5C DYNAMIC MESSAGE SIGNS REPLACEMENT
EROSION AND SEDIMENT CONTROL NOTES
(SHEET 2 OF 2)**

DESIGNED BY	CKL	DRAWN BY	SWA	CHECKED BY	QWT	SHEET NO.	
CONST. REVIEW BY		DATE	FEBRUARY, 2010	SCALE	N.T.S.		

CONTRACT NO. BB-972-000-006
DRAWING NO. ESC-2
SHEET NO. 23 OF 25

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

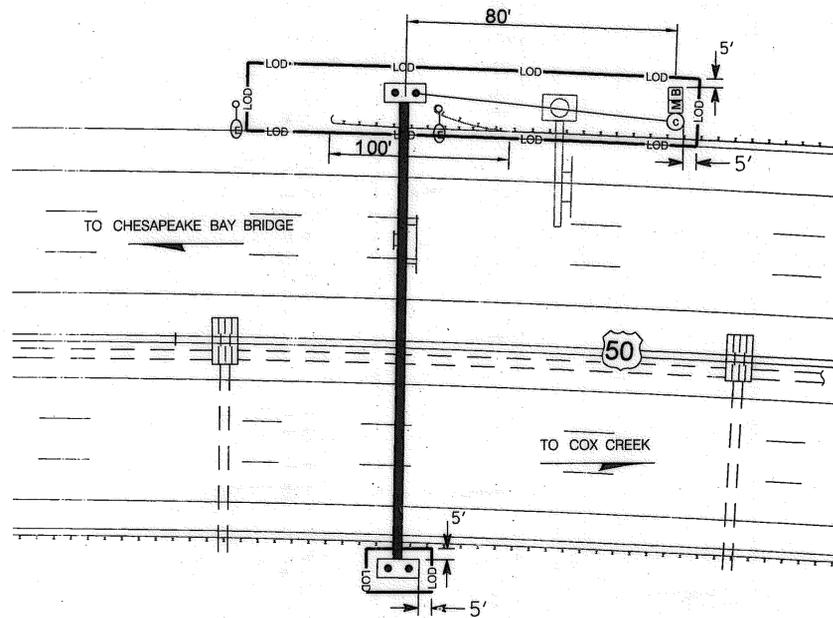


1. Length - minimum of 50' (*30' for single residence lot).
2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 7 - 17 - 3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

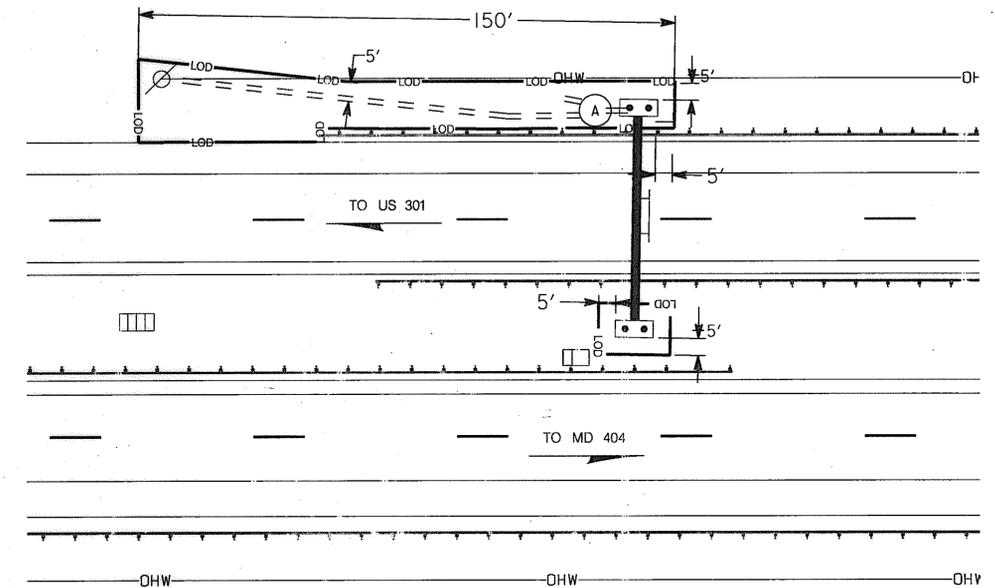
EROSION AND SEDIMENT CONTROL - DETAILS

LOCATIONS OF LIMITS OF DISTURBANCE (LOD) FOR CONSTRUCTION ACTIVITIES



TOTAL DISTURBED AREA = 2,700 SF

EXISTING DMS NO. 1 STRUCTURE FOUNDATION DEMOLITION PLAN AND PROPOSED DMS NO. 1 STRUCTURE FOUNDATION CONSTRUCTION PLAN



TOTAL DISTURBED AREA = 1,985 SF

PROPOSED DMS NO. 2 STRUCTURE FOUNDATION CONSTRUCTION PLAN

- NOTES:**
1. CONTRACTOR MUST CLEAN ANY SEDIMENT ON THE ADJACENT PAVEMENT AT THE END OF EACH WORKING DAY. VEHICLES UTILIZED WITH NON-PAVED, DISTURBED AREAS MAY NOT DIRECTLY RE-ENTER PAVED SURFACES WITHOUT THE USE OF AN SCE. OTHER OPTIONS, SUCH AS EQUIPMENT LIFT-IN AND LIFT-OUT, MAY BE EMPLOYED TO MINIMIZE AREAS OF DISTURBANCE.
 2. THE LOD DEPICTED IN THE PLAN THIS SHEET SHALL NOT BE EXCEEDED DURING CONSTRUCTION ACTIVITIES, WITHOUT WRITTEN APPROVAL FROM MDE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS WITH DEVELOPMENT AND APPROVAL OF LOD MODIFICATIONS.

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Maryland Transportation Authority
ENGINEERING DIVISION

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
EROSION AND SEDIMENT CONTROL DETAILS
(SHEET 1 OF 1)

DESIGNED BY CKL DRAWN BY SWA CHECKED BY OWT
CONST. REVIEW BY DATE FEBRUARY, 2010 SCALE N.T.S.

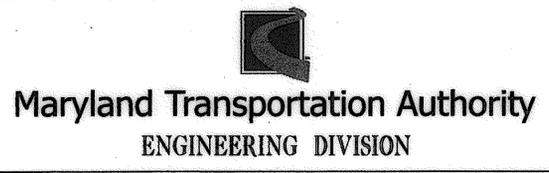
CONTRACT NO. BB-972-000-006
DRAWING NO. ESC-3
SHEET NO. 24 OF 25

ITEM NUMBER	1006	1007	1008	6001	6002	6003	6004	6005	8001	8002	8003	8004	8005	8006	8007	8008	8009	8010	
ITEM TITLE	DRUMS (SECTION 104.12)	PROTECTION VEHICLE (SECTION 104.25)	ARROW PANEL (AP) SECTION 104.07	REMOVE TRAFFIC BARRIER END TREATMENT	REMOVE EXISTING TRAFFIC BARRIER W-BEAM	FURNISH AND INSTALL TYPE 1 TRAFFIC BARRIER END TREATMENT	FURNISH AND INSTALL TYPE C TRAFFIC BARRIER END TREATMENT	REMOVE EXISTING DYNAMIC MESSAGE SIGN	INSTALL TYPE 1 DMS WITH INTEGRATED CONTROLLERS AND FURNISH AND INSTALL CATWALKS	REMOVE EXISTING OVERHEAD STRUCTURE 870	INSTALL NEW OVERHEAD STRUCTURE S-1 (8870)	INSTALL NEW OVERHEAD STRUCTURE S-2 (8201)	FURNISH AND INSTALL BASE MOUNTED CABINET	REFURBISH EXISTING FIELD EQUIPMENT CABINET	FURNISH AND INSTALL NEW GRS CONDUIT	FURNISH AND INSTALL CENTER WITH 480VAC TO 240/120VAC TRANSFORMER (IF REQUIRED)	OTHER ASSEMBLIES INSTALLED WITHIN THE FIELD CABINET		
UNIT	EACH	DAY	DAY	EACH	LF	EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	LF	EACH	EACH		
DMS(1)-COX CREEK	96	17	7	1	50	1	-	100	1	1	1	1	-	-	1	300	-	1	
DMS(2)-MD 213	96	17	7	2	-	-	2	225	-	1	-	-	1	1	-	200	1	-	
TOTALS	192	34	14	3	50	1	2	325	1	2	1	1	1	1	1	500	1	1	

ROUTE 50 DMS REPLACEMENT/DESIGN QUANTITY TABULATION



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

ROUTE 50 DYNAMIC MESSAGE SIGNS REPLACEMENT
QUANTITY TABULATION

DESIGNED BY SJW DRAWN BY JRL CHECKED BY AJM
CONST. REVIEW BY _____ DATE MAY, 2010 SCALE NOT TO SCALE

CONTRACT NO.
BB-972-000-006

DRAWING NO.
TAB-1

SHEET NO.
25 OF 25