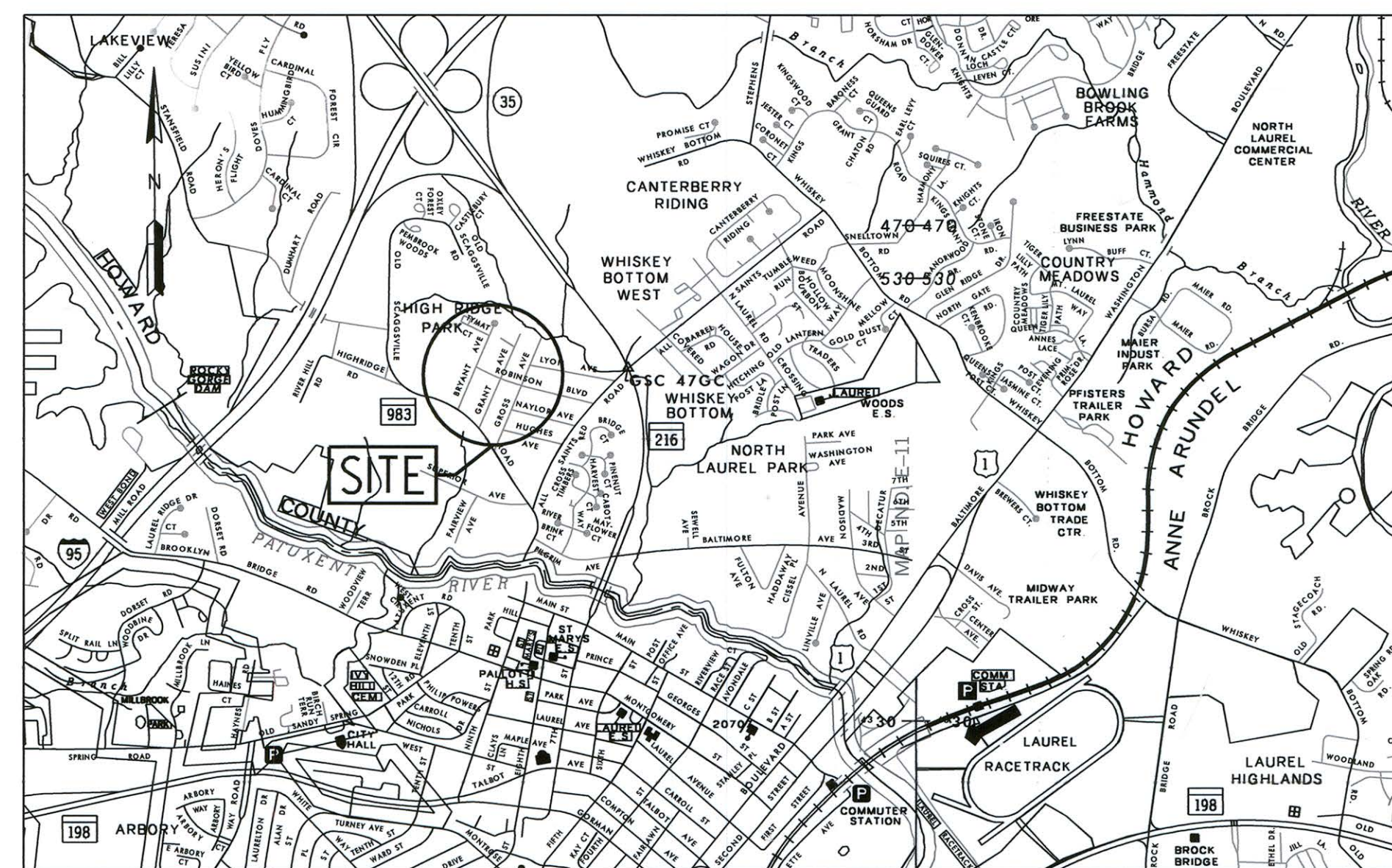


INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET (TI-1)
2-4	TYPICAL SECTIONS (TS-1 - TS-3)
5	ROADWAY DETAILS (DE-1)
6	BASELINE GEOMETRICS (GS-1)
7-11	ROADWAY PLANS (PS-1 - PS-5)
12	ROADWAY PROFILE (PR-1)
13-14	STORM DRAIN PROFILES (PP-1 - PP-2)
15	DRAINAGE DETAILS (DD-1)
16-18	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS (ED-1 - ED-3)
19-23	EROSION AND SEDIMENT CONTROL PLANS (EP-1 - EP-5)
24	MAINTENANCE OF TRAFFIC PLAN (TP-1)

CONVENTIONAL SIGNS

MAILBOX		PROPOSED PIPE/CULVERT	
EXISTING FENCE LINE		EXISTING PIPE/CULVERT	
EXISTING RIGHT OF WAY LINE		UTILITY POLE	
BASE LINE		HEDGE / TREE LINE	
FIRE HYDRANT		BUSH / DECIDUOUS TREE	
PROPOSED FULL DEPTH PAVEMENT		CONIFEROUS TREE	
PROPOSED GRINDING & HMA PAVEMENT OVERLAY		RIP-RAP	
PROPOSED CONCRETE SIDEWALK, DRIVEWAY ENTR.			
WATER LINE			
GAS LINE			
SAN. SEWER			
UG ELECTRIC			
UG TV CABLE			
FILL LINE			



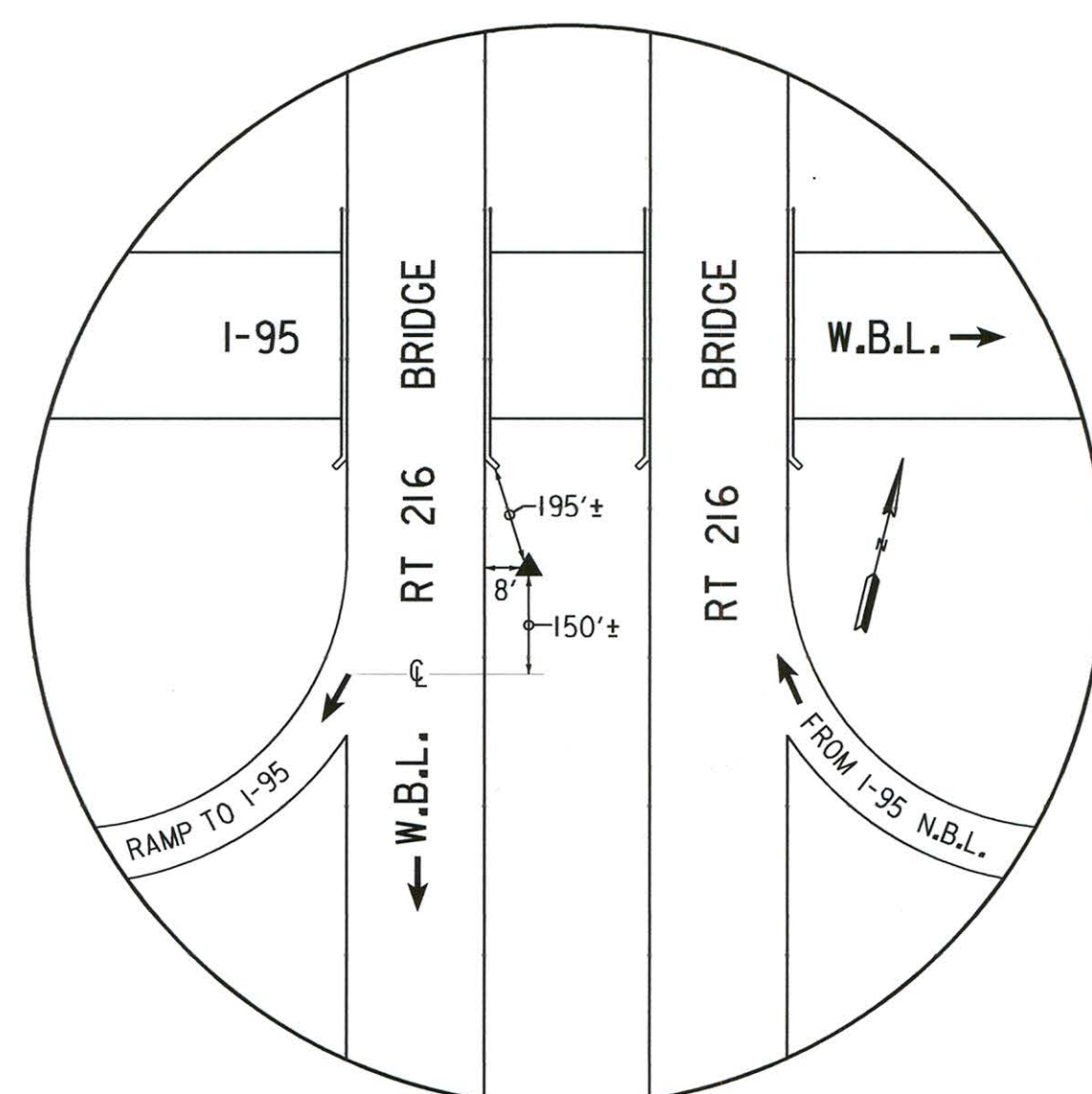
LOCATION MAP

SCALE 1" = 2000'

CAPITAL PROJECT NO. D-1150

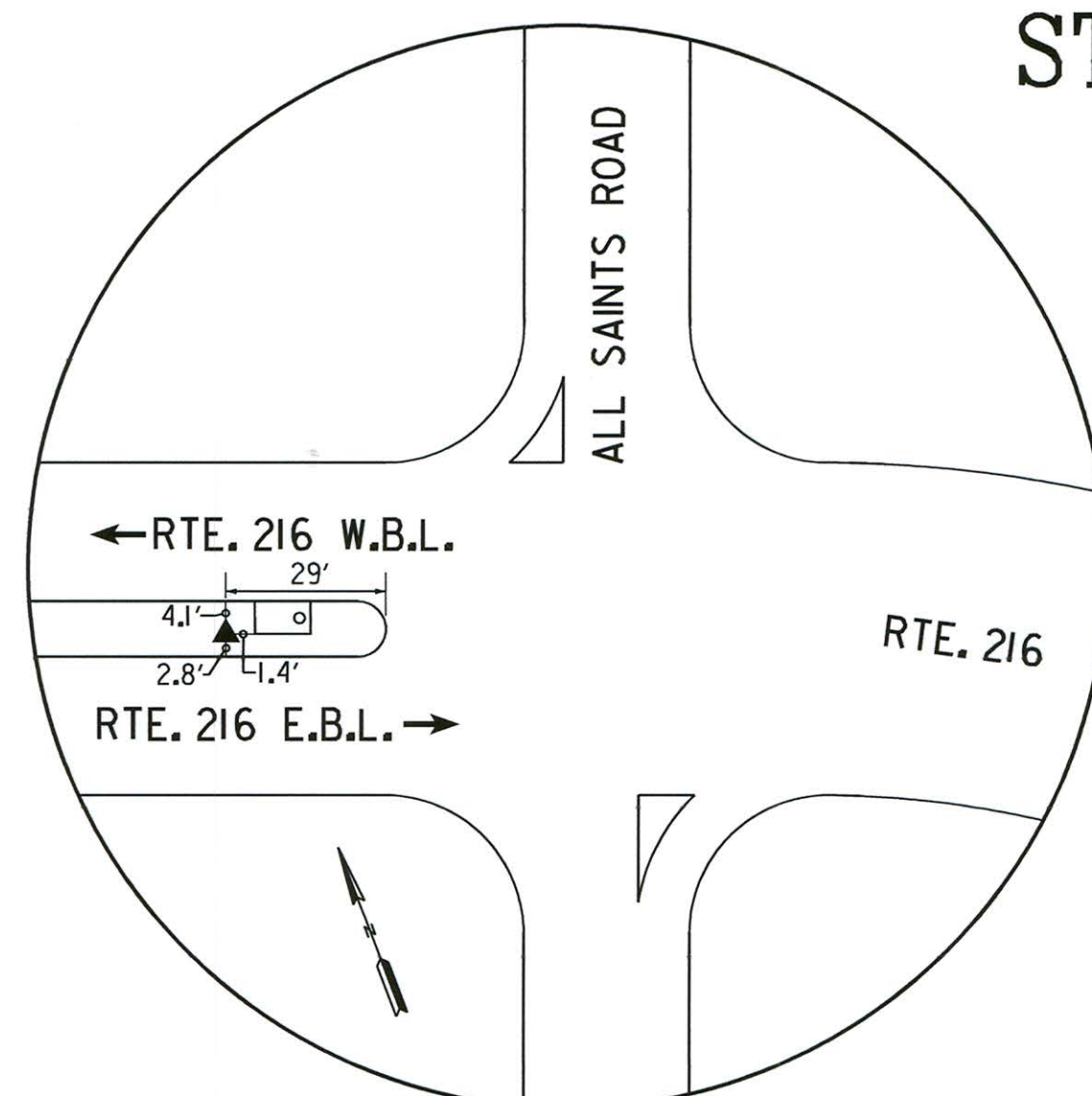
BRYANT AVENUE AND GRANT AVENUE
STORM DRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS



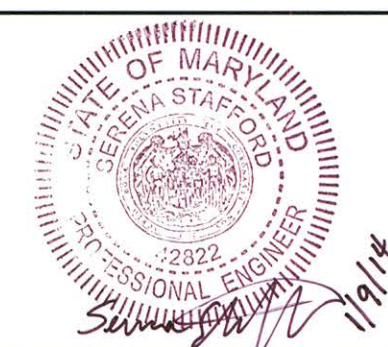
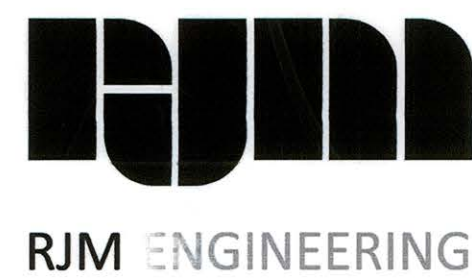
0051
OLD *47GA*

HOWARD COUNTY SURVEY CONTROL



47GC
CONCRETE MONUMENT

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42822, EXPIRATION DATE: 11/20/14.



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466 EXPIRATION DATE: 07/15/15.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Steve Sherr 1/28/14
DIRECTOR OF PUBLIC WORKS
Steve Sherr 1/28/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

Wills R. Smith 1-24-14
CHIEF, BUREAU OF HIGHWAYS
Thomas B. Butler 1-24-14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS

DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

TITLE SHEET
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS
ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

SHEET
1 OF 24

GENERAL NOTES

- ALL INFORMATION AND DETAILS ON THESE DRAWINGS SHALL BE CONSTRUCTED AS PER THE PLANS OR AS DIRECTED BY THE HOWARD COUNTY ENGINEER.
- ALL STATIONING AND DIMENSIONING ARE TO BE FIELD VERIFIED BY THE CONTRACTOR
- STORM DRAINAGE SLOPES ARE TO BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE HOWARD COUNTY ENGINEER
- APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN. THESE LOCATIONS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.

AT&T	1-800-252-1133
COMCAST	410-461-1362
BG&E (CONTRACTOR SERVICES)	410-850-4620
BG&E (UNDERGROUND DRAINAGE CONTROL)	410-787-9068
MISS UTILITY	1-800-257-7777
HOWARD COUNTY BUREAU OF UTILITIES	410-313-4900
HOWARD COUNTY DIVISION OF CONSTRUCTION INSPECTION	410-313-1880
VERIZON	1-800-743-0033/410-224-9210

THE CONTRACTOR SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION OF ENGINEERING FOR VERIFICATION AND/OR INFORMATION REGARDING:

- PROPOSED/EXISTING RIGHT-OF-WAY.
- UTILITY RELOCATION.
- MAINTENANCE OF TRAFFIC DURING CONSTRUCTION.
- EROSION/SEDIMENT CONTROL CERTIFICATION AND PERMIT.
- HORIZONTAL/VERTICAL SURVEY CONTROL.
- GRADING PERMIT.

5. SEE HOWARD COUNTY STANDARD DETAILS NO'S G-1.01 AND G-1.02 FOR STANDARD SYMBOLS.

6. HORIZONTAL COORDINATES ARE BASED ON MD NAD 83/91 DATUM AND VERTICAL ELEVATIONS ARE BASED ON NAVD 1988 ELEVATIONS, TRANSFERRED FROM N.G.S. AND HOWARD COUNTY CONTROL STATIONS:

COUNTY MONUMENT 47GC (HORIZONTAL AND VERTICAL)
N 528,939.75
E 1,354,223.5
ELEV. 226.27

COUNTY MONUMENT 0051 (OLD *47GA*) (HORIZONTAL ONLY) PID NO. A18508
N 532,404.18
E 1,351,627.37
ELEV. 349.70

7. A STAGING AND STOCKPILE AREA WILL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE HOWARD COUNTY ENGINEER. STOCKPILING WILL NOT BE PERMITTED ON SITE.

8. TOPOGRAPHY SURVEY INFORMATION BASED ON FIELD SURVEY PERFORMED BY JOHNSON, MIRMIRAN & THOMPSON DATED MAY 2005.

9. UTILITY TEST HOLES PERFORMED BY KCI TECHNOLOGIES, JULY 2008, AUGUST 2008, MARCH 2010 AND APRIL 2010.

- STATIONS FOR TYPE 'S' COMBINATION INLETS ARE GIVEN TO THE GEOMETRIC CENTER OF THE STRUCTURE. OFFSETS ARE GIVEN TO THE FACE OF THE INLET HEADPIECE (FLOWLINE OF MODIFIED COMBINATION CURB AND GUTTER). TOP OF CURB (T.C.) ELEVATIONS ARE GIVEN TO THE TOP OF THE INLET HEADPIECE.
- STATIONS FOR PRECAST STD. TYPE A-5 & STD. TYPE A-10 INLETS ARE GIVEN TO THE GEOMETRIC CENTER OF THE STRUCTURE. OFFSETS ARE GIVEN TO THE FACE OF THE CURB. TOP ELEVATIONS ARE GIVEN TO THE TOP OF CURB (T.C.).
- STATIONS AND OFFSETS FOR 48" DIA. PRECAST MANHOLES ARE GIVEN TO THE GEOMETRIC CENTER OF THE STRUCTURE. TOP ELEVATIONS ARE GIVEN TO THE TOP OF MANHOLE RIM (T.R.).

By the Developer:

"I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance of a Department of the Environment approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Marshall N. Davidson, P.E.

1/16/14

Date

Signature of Developer

Print name below Signature

By the Engineer:

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

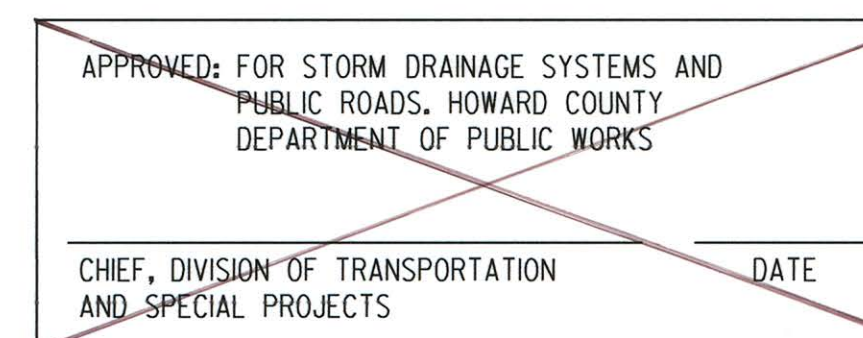
Paul F. Clement

01/10/14

Date

Signature of Engineer

Print name below Signature



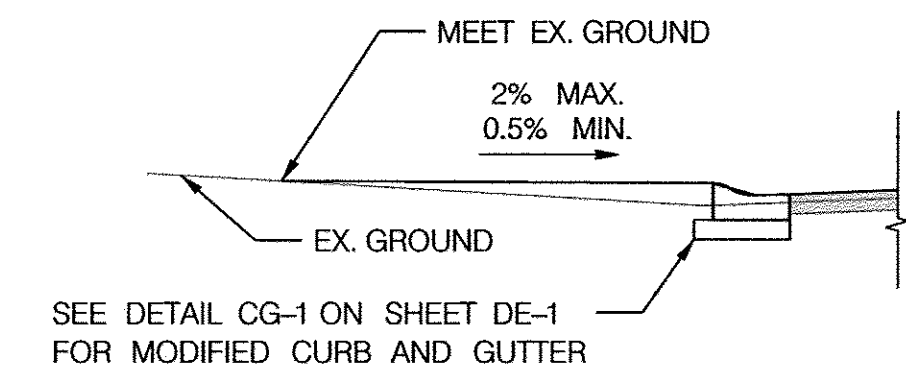
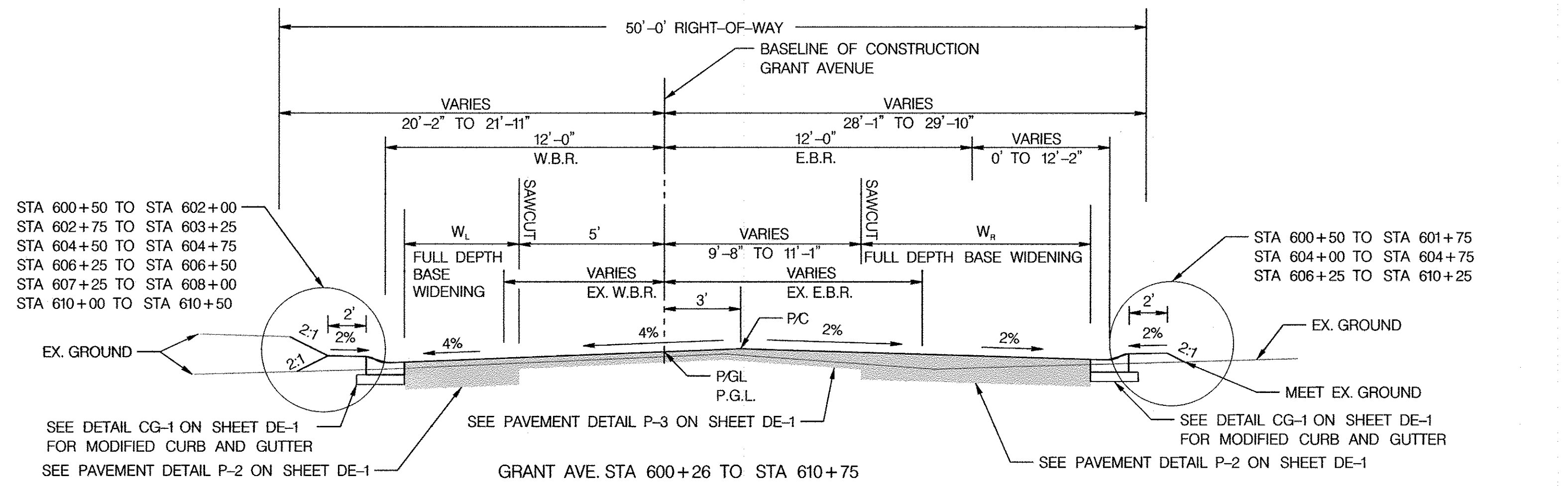
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

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

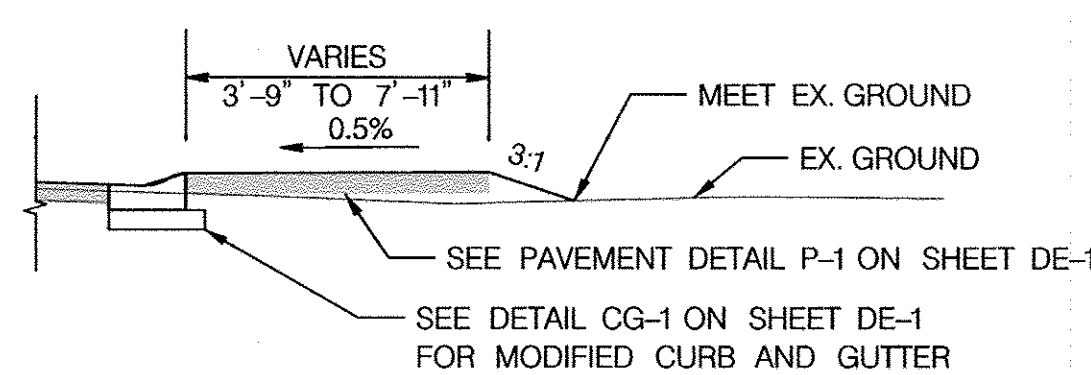
John R. Robertson 1/16/14
Howard Soil Conservation District
EP-10-016
Date

AS-BUILT

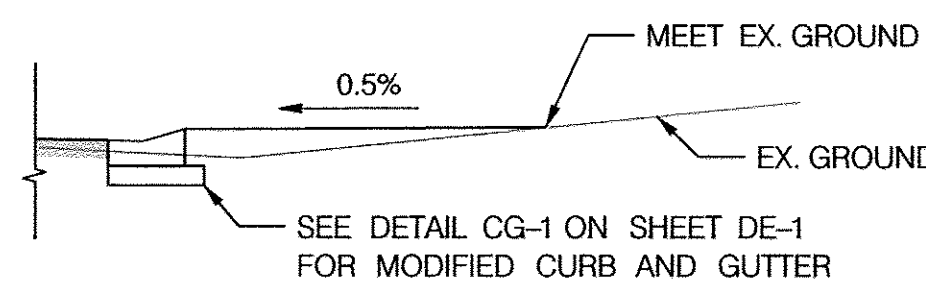
TI-1



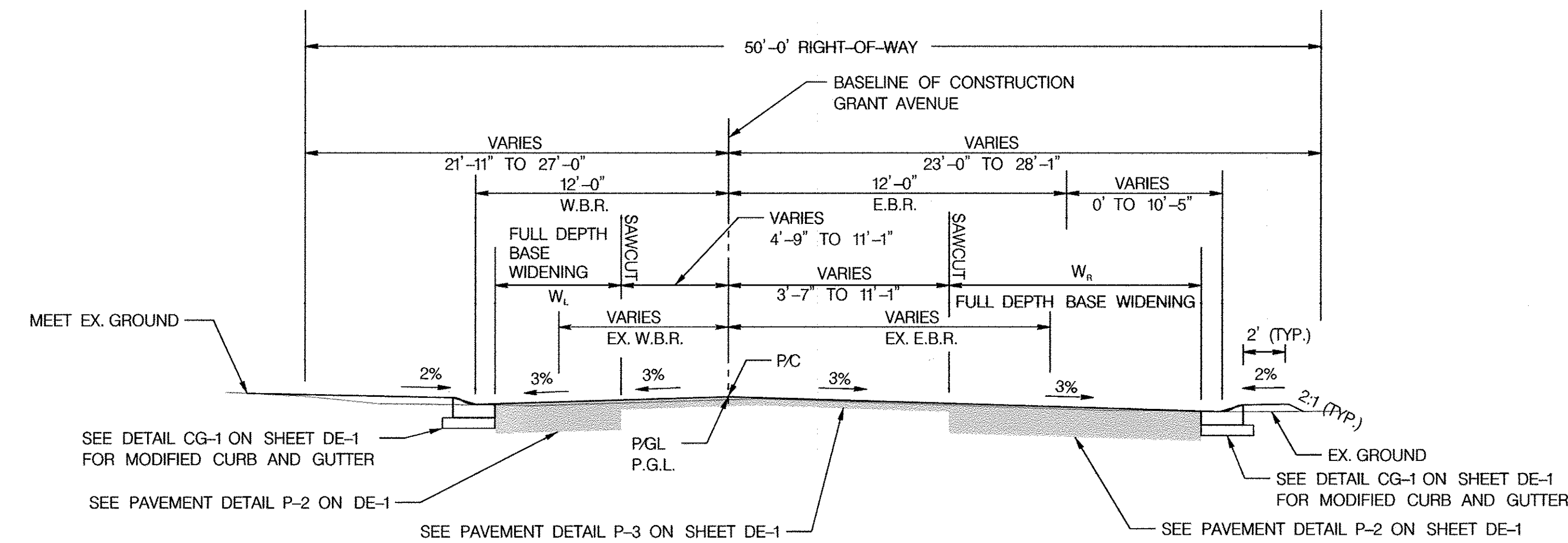
STA 602+25 TO STA 602+50
 STA 603+50 TO STA 604+25
 STA 605+00 TO STA 606+00
 STA 606+75 TO STA 607+00
 STA 608+25 TO STA 609+75
 STA 610+75 TO STA 611+00



STA 605+00 TO STA 605+95.87



STA 602+00 TO STA 603+75
 STA 610+50 TO STA 610+75

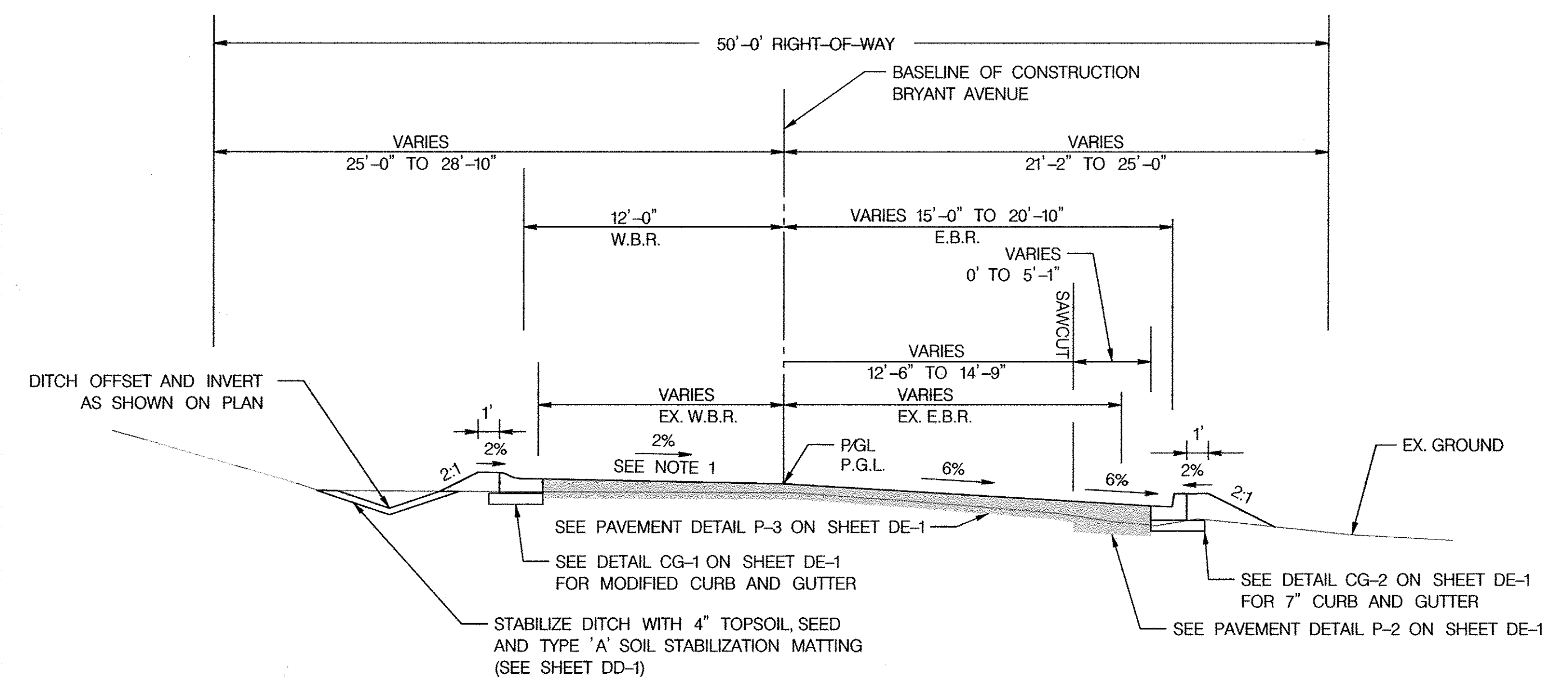


- NOTES:
- TRANSITION FROM EX. CROSS SLOPE TO PROPOSED CROSS SLOPE OCCURS BETWEEN STA 600+25 AND STA 600+50.
 - CROSS SLOPE TRANSITION BETWEEN THE TWO TYPICAL SECTIONS OCCURS FROM STA 610+75 TO STA 611+00.
 - TRANSITION FROM PROPOSED CROSS SLOPE TO EX. CROSS SLOPE OCCURS BETWEEN STA 615+00 AND STA 615+31.8.
 - SECTIONS FOR TIE-INS NOT INDICATED ABOVE ARE TO PROVIDE TRANSITION BETWEEN TWO ADJACENT TYPICAL SECTIONS.

GRANT AVE. STA 611+00 TO STA 615+32

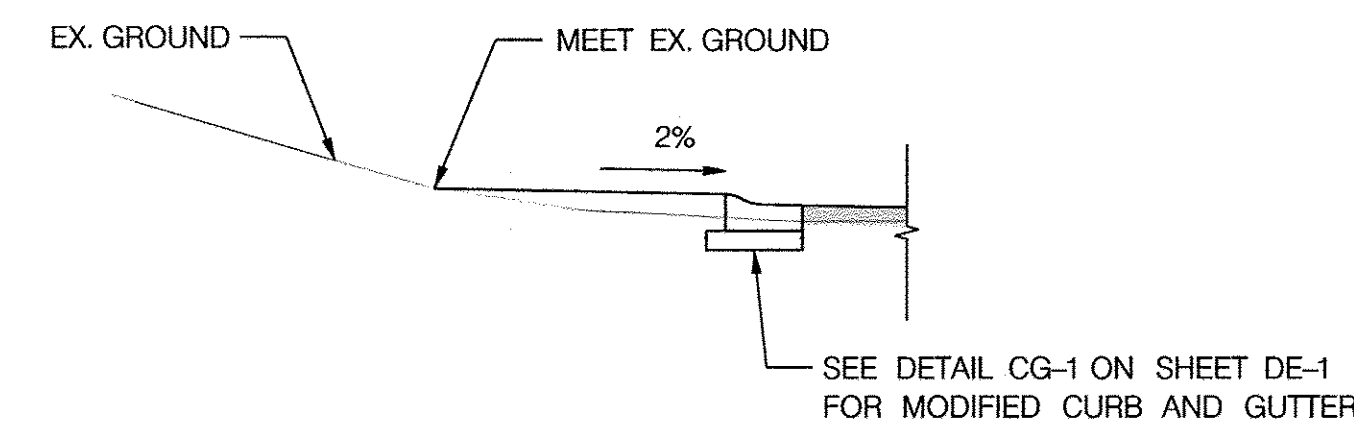
STATION	FULL-DEPTH BASELINE WIDENING WIDTH	
	W _L	W _R
STA 600+26.00 TO STA 610+04.92	6.00'	0.00'
STA 610+04.92 TO STA 611+27.68	6.00'	11.62' TO 12.06'
STA 611+27.68 TO STA 614+35.70	0.00'	7.52' TO 11.62'
STA 614+35.70 TO STA 615+31.83	4.00'	0.00'

GRANT AVE TYPICAL SECTION

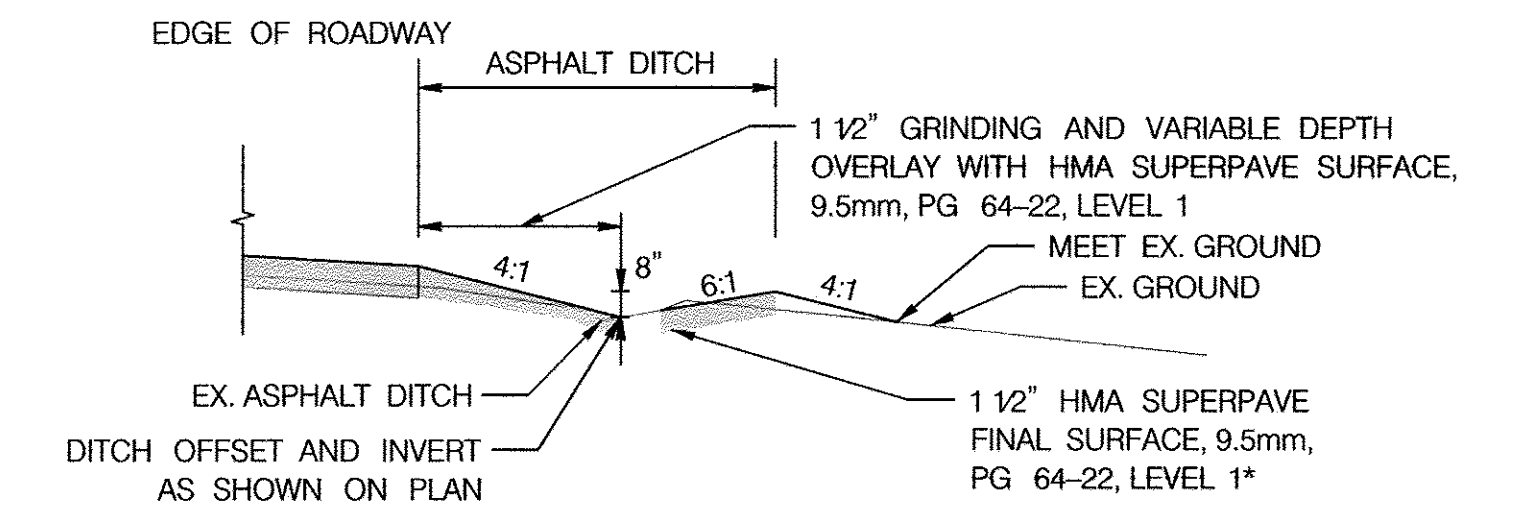


STA 500+22 TO STA 503+75
 STA 507+80 TO STA 508+89

STA 501+80 TO STA 508+89



STA 504+00 TO STA 507+50



STA 500+75 TO STA 501+80

- NOTES:
- TRANSITION FROM EX. CROSS SLOPE TO PROPOSED CROSS SLOPE OCCURS BETWEEN STA 500+22 AND STA 500+75.
 - SECTIONS FOR TIE-INS NOT INDICATED ABOVE ARE TO PROVIDE TRANSITION BETWEEN TWO ADJACENT TYPICAL SECTIONS.

BRYANT AVE TYPICAL SECTION
 STA. 500+22 TO STA. 508+89

- NOTES:
- SEE SHEET TS-2 FOR DRIVEWAY AND WALKWAY TIE-IN DETAILS.
 - SEE CURB GEOMETRY SCHEDULE ON PS-1 THRU PS-5 FOR CURB OFFSETS.
 - ALL DISTURBED AREAS BEYOND PAVEMENT SHALL BE STABILIZED WITH 4" TOPSOIL, SEED AND MULCH UNLESS OTHERWISE NOTED ON PLANS.

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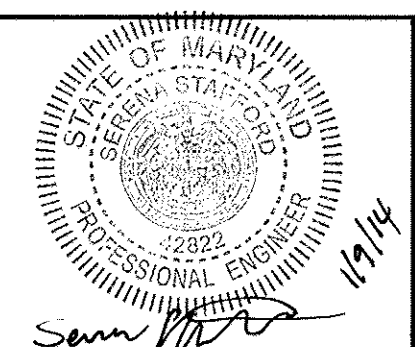
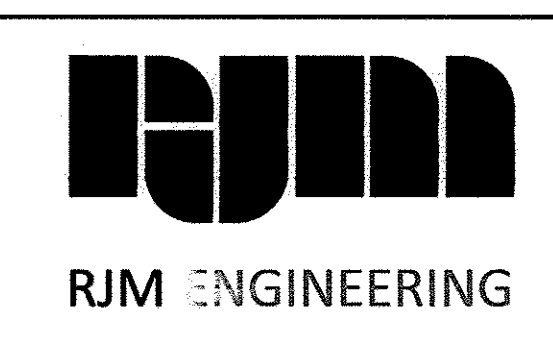
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Steve Shaver 1/23/14
 DIRECTOR OF PUBLIC WORKS

William R. Smith 1-24-14
 CHIEF, BUREAU OF HIGHWAYS

Thomas B. Butler 1-24-14
 CHIEF, BUREAU OF ENGINEERING

DEPUTY DIRECTOR OF PUBLIC WORKS



DES: JP	BY	NO.	DATE
DRN: JP/SY			
CHK: DZ			
DATE: DEC 2013			

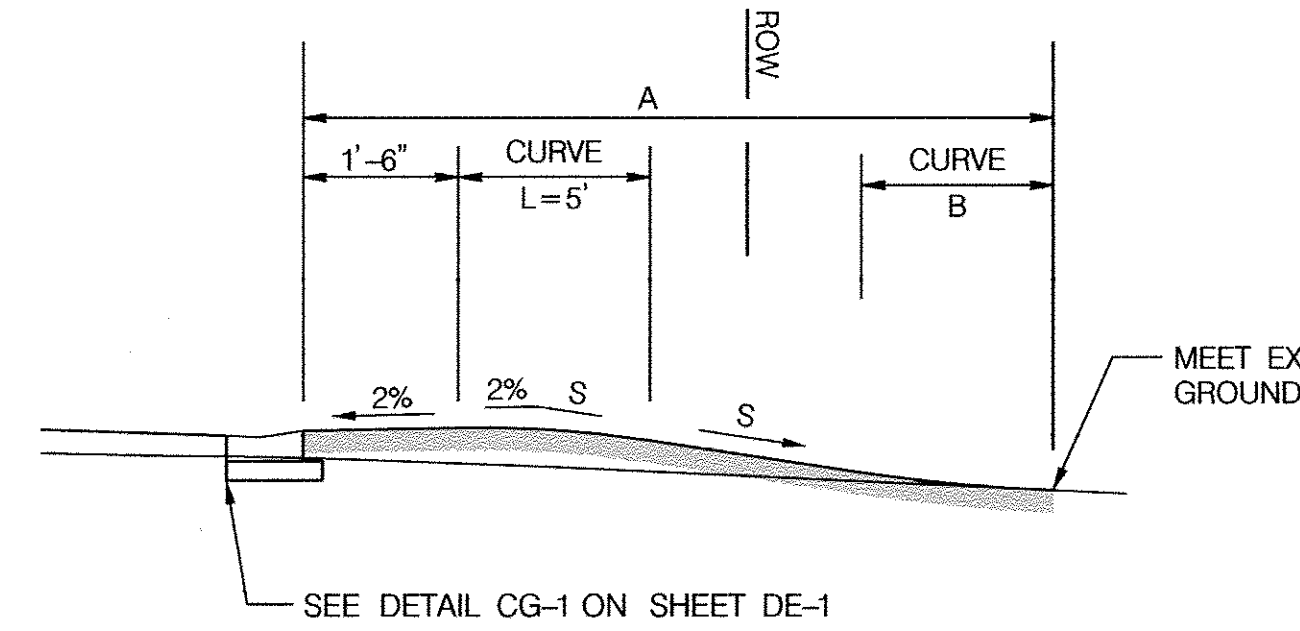
CAPITAL PROJECT NO.
 D-1150

TYPICAL SECTIONS
 BRYANT AVENUE & GRANT AVENUE
 - STORM DRAIN IMPROVEMENTS

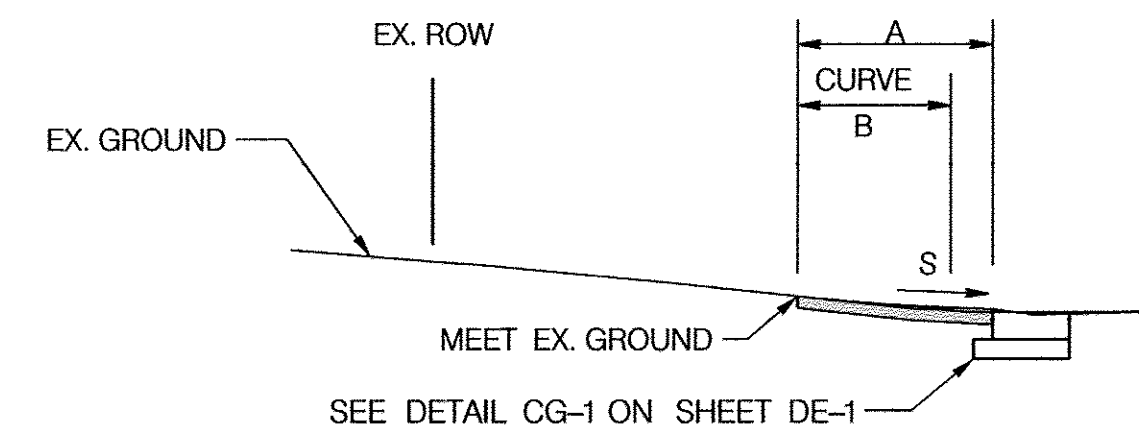
ELECTION DISTRICT 6
 HOWARD COUNTY, MARYLAND

DRIVEWAY /WALKWAY TIE IN TYPICALS FOR GRANT AVE

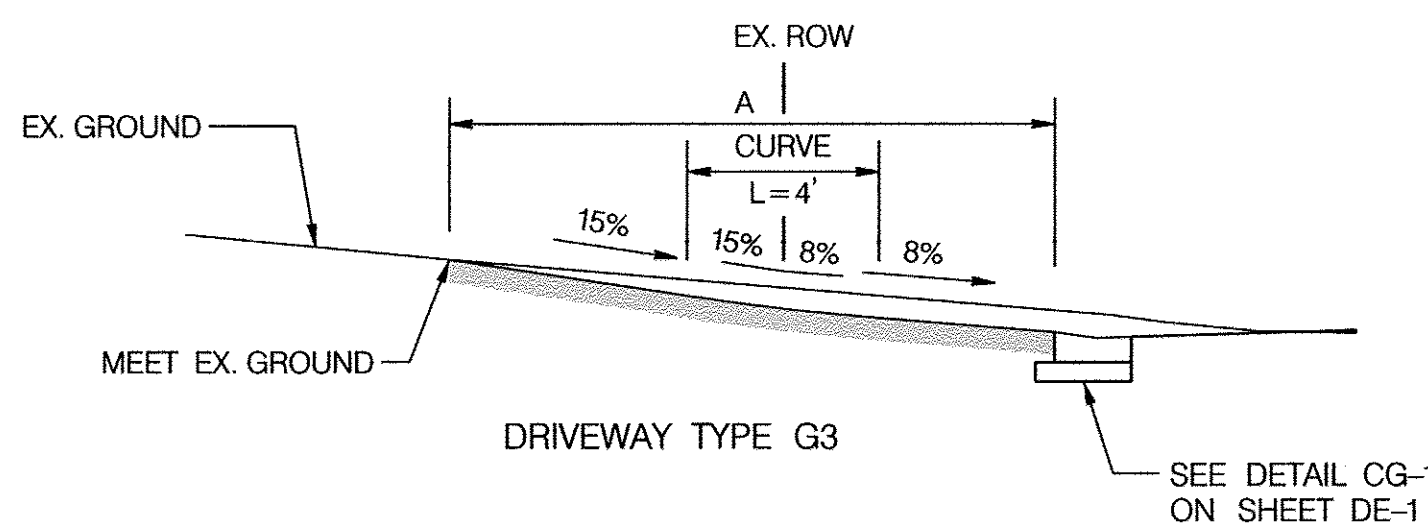
STATION	LT OR RT	TYPICAL SECTION	PAVEMENT DETAIL	A	B	S (%)
601+17	RT	G1	P-1	14'-6"	4'	8
601+82	RT	G1	R-6.03	16'-7"	10'	8
602+47	LT	G4	R-6.03	17'-0"	-	-
603+12	RT	G2	P-3	12'-1"	-	0.5
603+28	LT	G2	P-1	4'-0"	-	8
603+77	LT	G2	P-3	6'-4"	-	0.5
603+81	RT	G2	P-3	14'-9"	-	0.5
604+34	LT	G4	P-3	11'-2"	-	-
604+72	LT	G4	5" CONC.	11'-5"	-	-
605+30	LT	G2	P-1	1'-4"	-	8
605+36	RT	G5	P-1/5" CONC.	12'-9"	-	-
605+69	RT	G1	P-1	15'-7"	4'	8
605+69	LT	CONC. STEPS	SEE DETAILS ON TS-3	-	-	-
606+05	RT	G1	P-1	18'-10"	4'	8
606+05	LT	G3	P-1	14'-0"	-	-
606+33	LT	G3	R-6.03	19'-0"	-	-
606+38	RT	CONC. STEPS	SEE DETAILS ON TS-3	-	-	-
606+90	RT	G1	R-6.03	20'-0"	8'	12
607+93	LT	G3	R-6.03	12'-2"	-	-
608+13	RT	G1	P-1	32'-7"	4'	8
608+29	LT	G2	P-1	4'-0"	-	8
608+64	RT	G1	P-1	26'-1"	10'	12
608+65	LT	G2	P-3	5'-3"	4'	2
608+75	LT	G2	R-6.03	4'-4"	4'	4
609+09	RT	G1	P-1	27'-8"	10'	12
609+21	RT	G1	P-1	28'-3"	10'	12
609+32	LT	G2	R-6.03	4'-5"	4'	2
610+11	RT	G1	R-6.03	12'-5"	4'	4
610+14	LT	G1	R-6.03	11'-2"	4'	8
610+65	RT	G2	R-6.03	13'-10"	-	0.5
610+65	LT	G2	R-6.03	9'-3"	-	0.5
610+85	RT	G2	R-6.03	2'-1"	-	8
611+38	LT	G2	R-6.03	4'-11"	-	2
611+57	LT	G2	P-3	2'-5"	-	2
611+78	RT	G1	P-1	11'-9"	4'	8
612+94	LT	G2	P-3	5'-1"	4'	4
613+27	LT	G2	P-3	6'-0"	-	2
613+51	RT	G1	P-1	27'-2"	10'	8
614+48	RT	G1	P-1	21'-3"	10'	8
614+81	RT	G1	P-1	17'-0"	10'	8
614+98	LT	G2	P-3	2'-7"	-	2
615+28	RT	G2	P-3	12'-5"	-	0.5



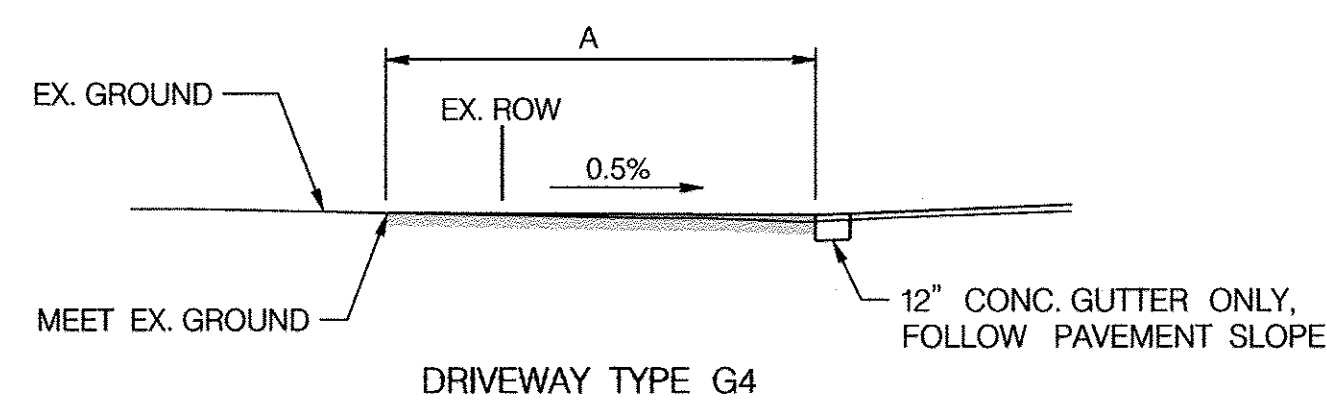
DRIVEWAY TYPE G1



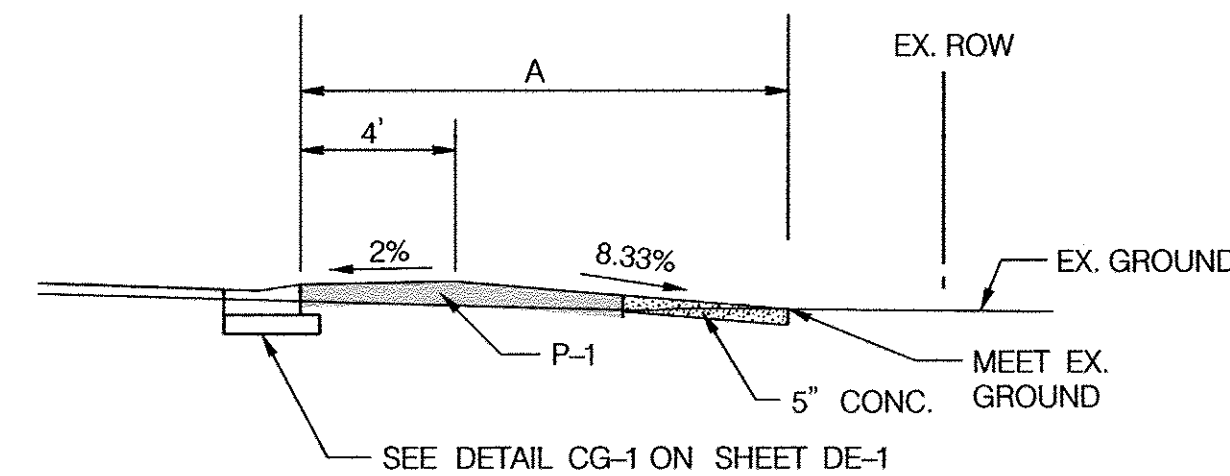
DRIVEWAY TYPE G2



DRIVEWAY TYPE G3



DRIVEWAY TYPE G4



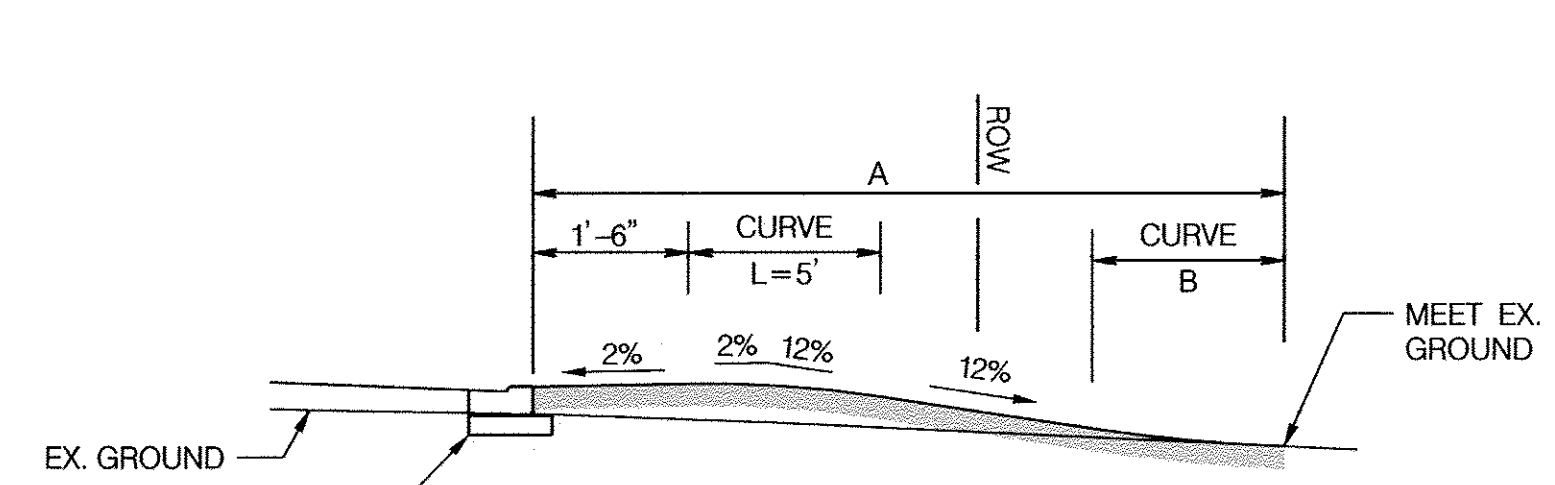
WALKWAY TYPE G5

GRANT AVE. AT DRIVEWAYS /WALKWAYS TYPICAL SECTIONS

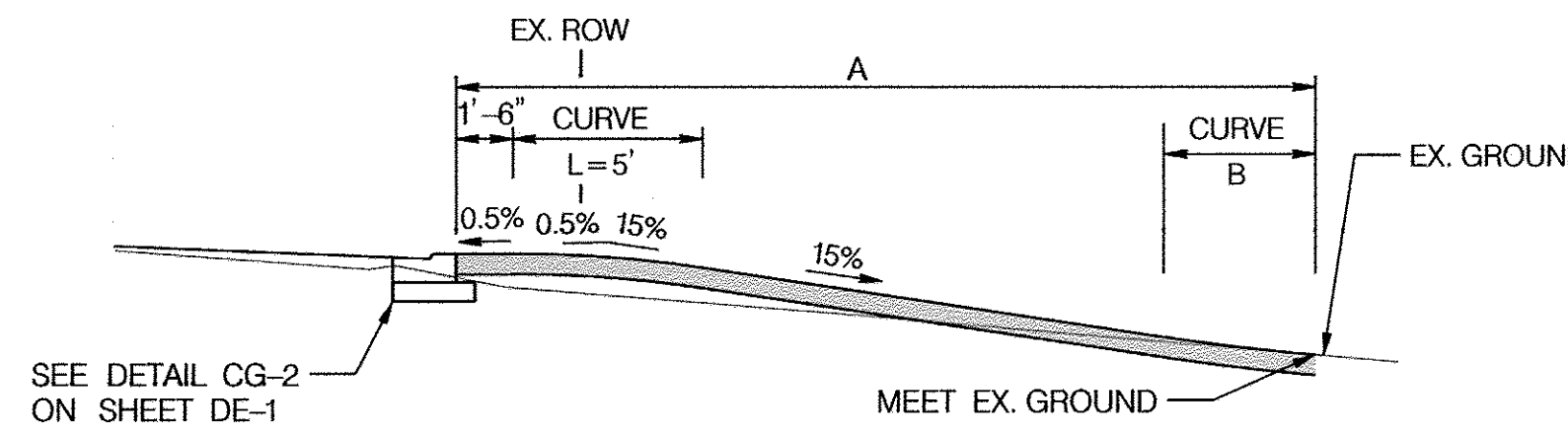
PAVING LEGEND

PAVEMENT SECTION

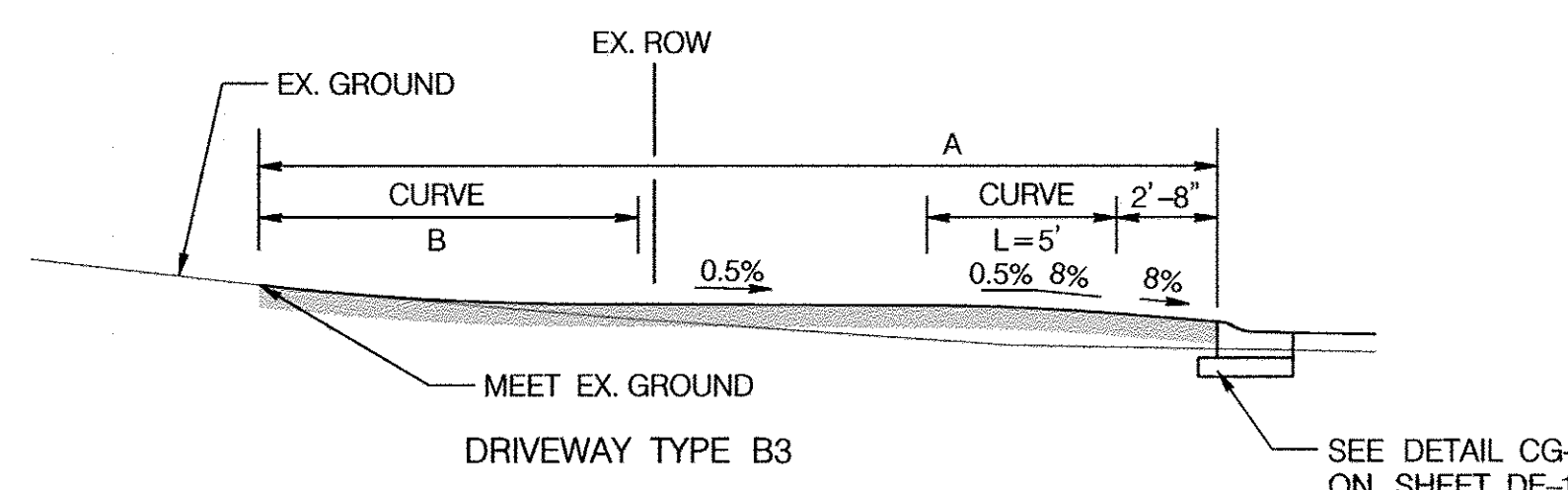
- NOTES:
- WHEN A VERTICAL CURVE IS TO BE BUILT AT THE DRIVEWAY TIE-INS TO MEET THE EX. GROUND, THE VPI OF THE CURVE SHALL BE LOCATED ON THE EX. GROUND.
 - SEE CURB GEOMETRY SCHEDULE FOR CURB OFFSETS.
 - FOR ALL CONCRETE OR ASPHALT DRIVEWAY RECONSTRUCTION (P-1), CONTRACTOR SHALL REMOVE EXISTING PAVEMENT AND BACKFILL TO THE BOTTOM OF THE GRADED AGGREGATE BASE.
 - FOR BRYANT AVE. STA. 501+18, STA. 501+95 AND STA. 508+44, DO NOT DEPRESS MODIFIED CURB AT DRIVEWAYS.



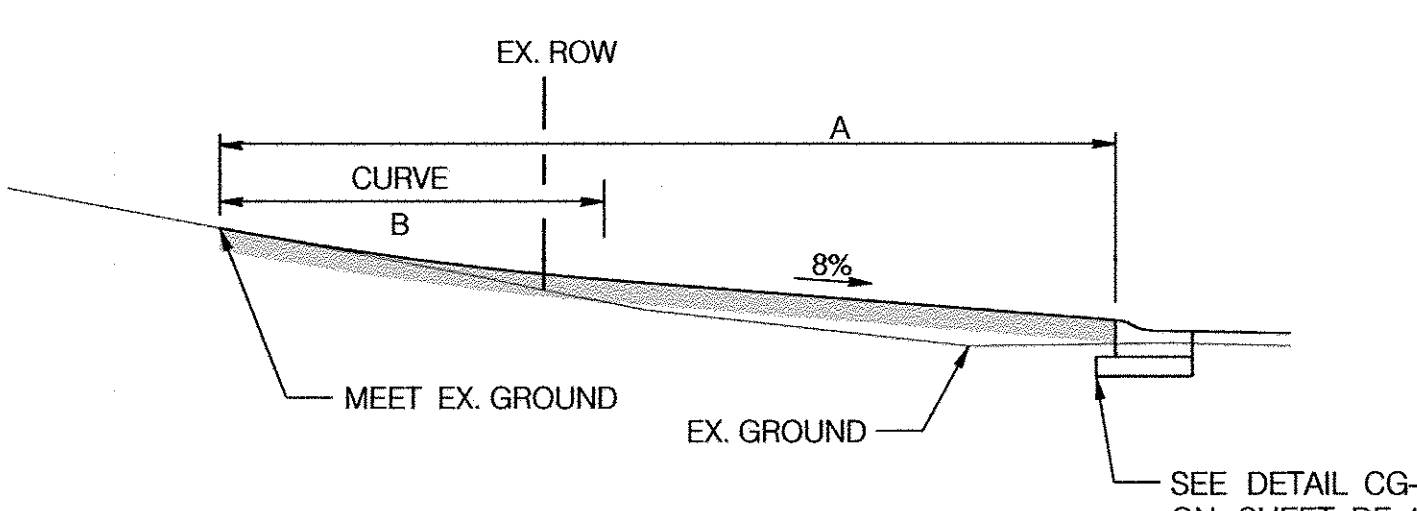
DRIVEWAY TYPE B1



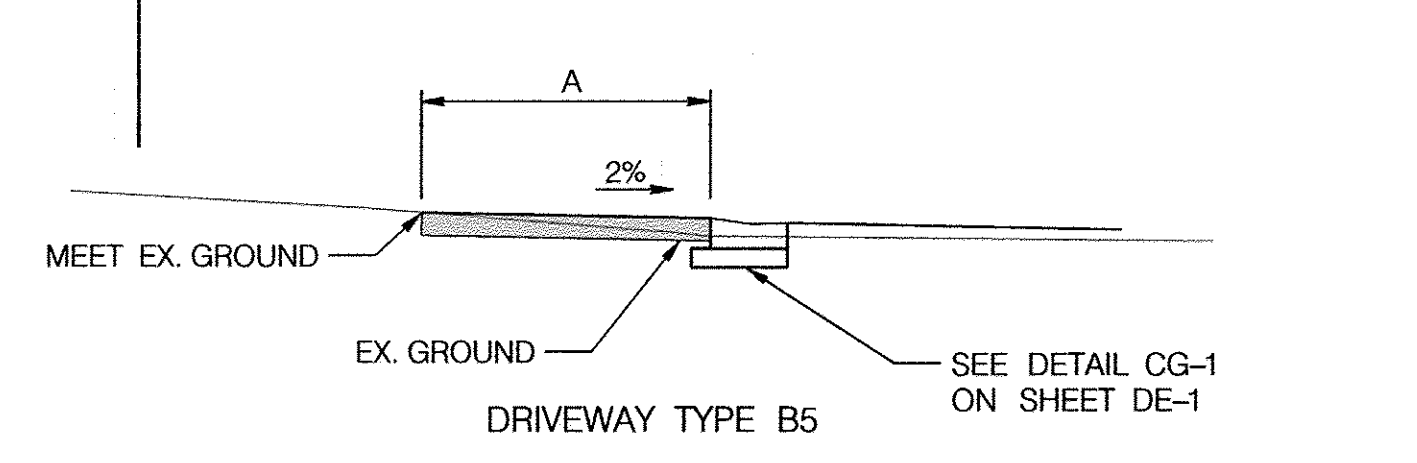
DRIVEWAY TYPE B2



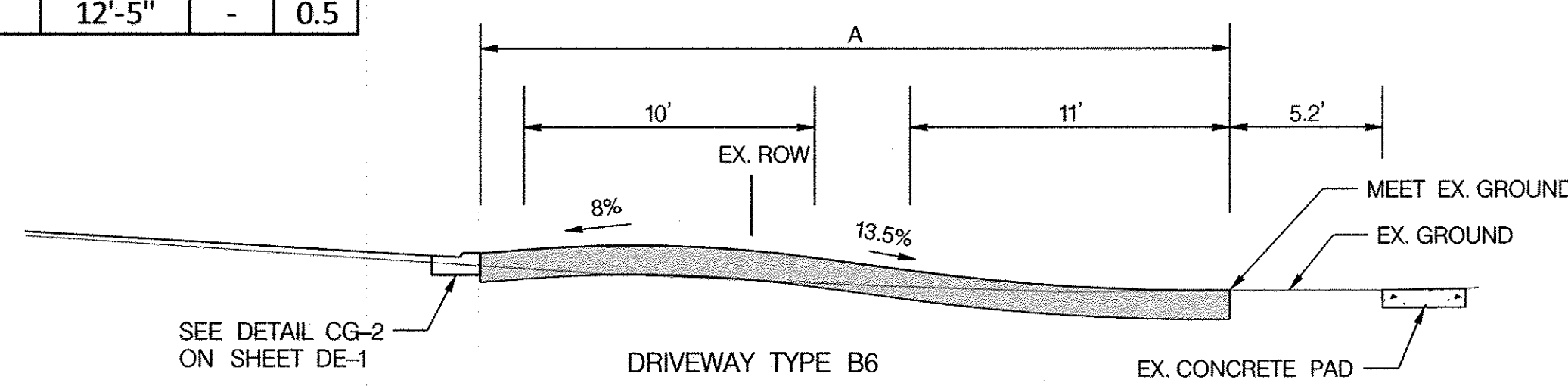
DRIVEWAY TYPE B3



DRIVEWAY TYPE B4

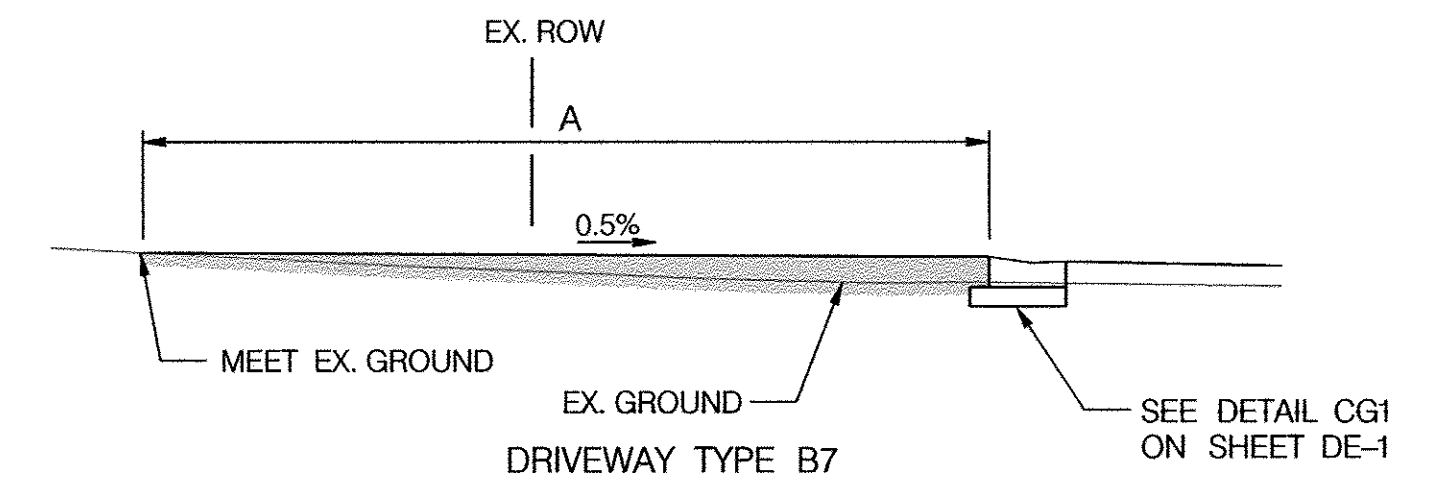


DRIVEWAY TYPE B5

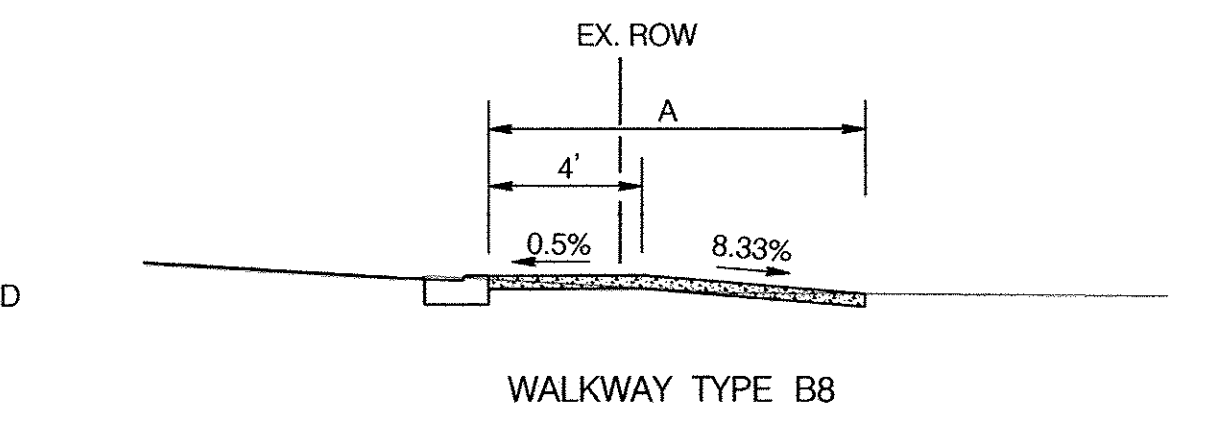


DRIVEWAY TYPE B6

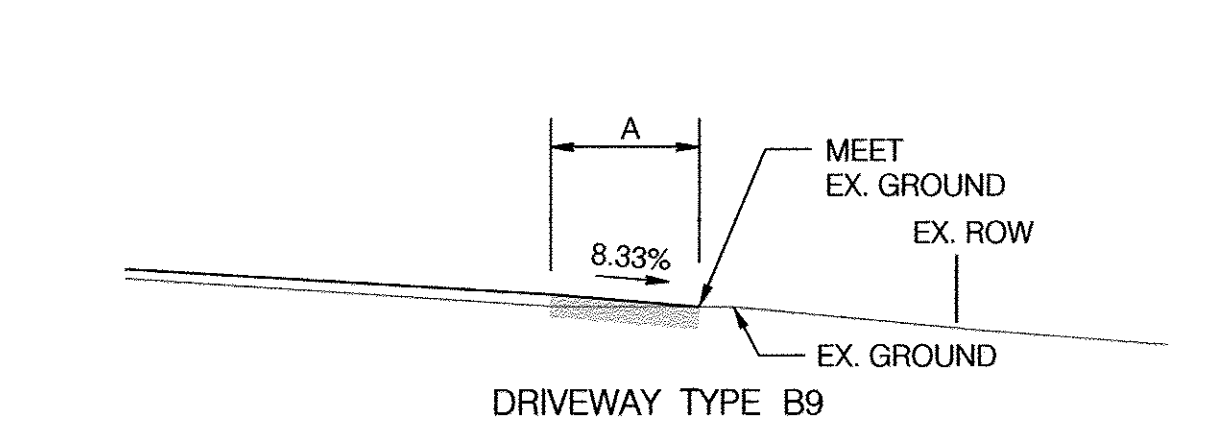
BRYANT AVE. AT DRIVEWAYS /WALKWAYS TYPICAL SECTIONS



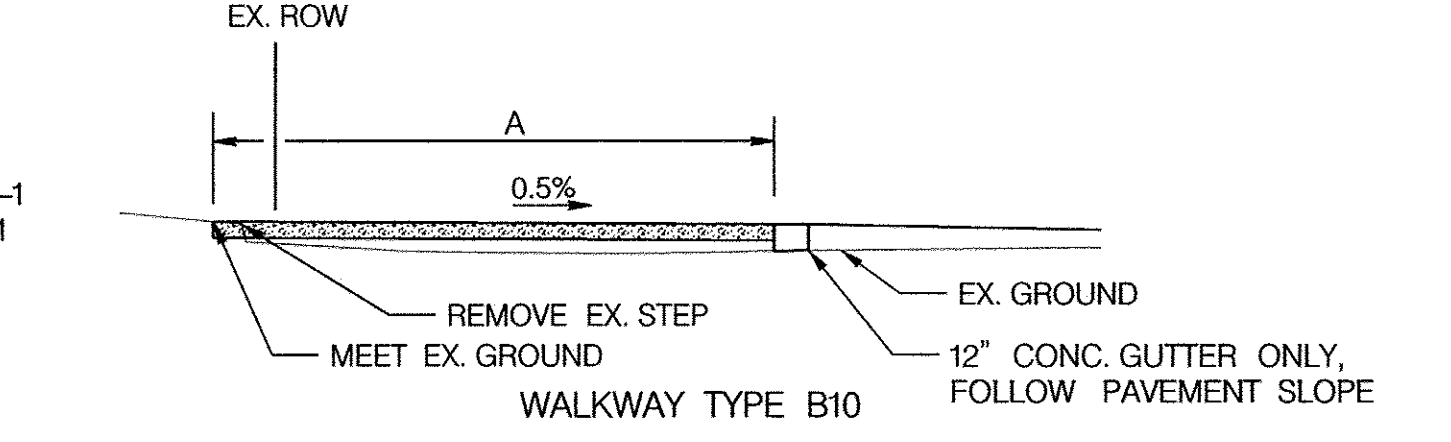
DRIVEWAY TYPE B7



WALKWAY TYPE B8



DRIVEWAY TYPE B9



WALKWAY TYPE B10

DRIVEWAY /WALKWAY TIE IN TYPICALS FOR BRYANT AVE

STATION	LT OR RT	TYPICAL SECTION	PAVEMENT DETAIL	A	B
500+81	RT	B9	P-3	3'-11"	-
501+18	LT	B3	P-1	24'-3"	8'
501+95	LT	B4	P-1	23'-2"	10'
502+11	RT	CONC. STEPS	SEE DETAILS ON TS-3	-	-
502+50	RT	B1	R-6.03	14'-6"	8'
503+16	RT	B8	5" CONC.	8'-2"	-
503+54	RT	B1	R-6.03	11'-2"	4'
503+78	LT	B4	P-1	16'-2"	14'
504+11	RT	B8	5" CONC.	9'-10"	-
504+29	LT	B4	P-1	14'-6"	8'
504+42	RT	B2	R-6.03	22'-8"	4'
504+97	LT	B5	R-6.03	1'-1"	-
505+16	RT	CONC. STEPS	SEE DETAILS ON TS-3	-	-
505+69	RT	B1	P-1	18'-4"	10'
505+70	LT	B10	5" CONC.	15'-1"	-
505+85	RT	B1	P-1	15'-1"	4'
506+13	RT	CONC. STEPS	SEE DETAILS ON TS-3	-	-
506+29	LT	B7	P-1	19'-0"	-
507+21	LT	B5	P-3	7'-2"	-
507+27	RT	CONC. STEPS	SEE DETAILS ON TS-3	-	-
507+61	RT	B6	P-1	25'-9"	-
507+71	LT	B5	P-3	6'-1"	-
508+00	RT	B1	P-1	16'-7"	4'
508+44	LT	B3	P-1	22'-10"	-

TYPICAL SECTION

TS-2

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DATE: 1/24/14

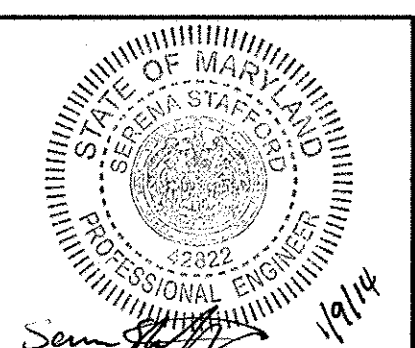
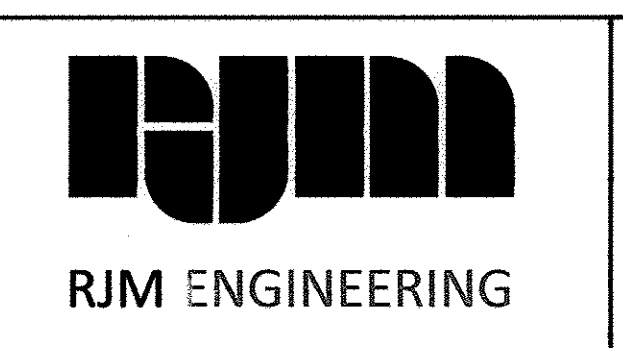
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Sharan 1/23/14
DIRECTOR OF PUBLIC WORKS

1-24-14
Chief, Bureau of Highways

1-24-14
Chief, Bureau of Engineering

1-24-14
Deputy Director of Public Works



DES: JP	BY	NO.	DATE
DRN: JP/SY			
CHK: DZ			
DATE: DEC 2013			

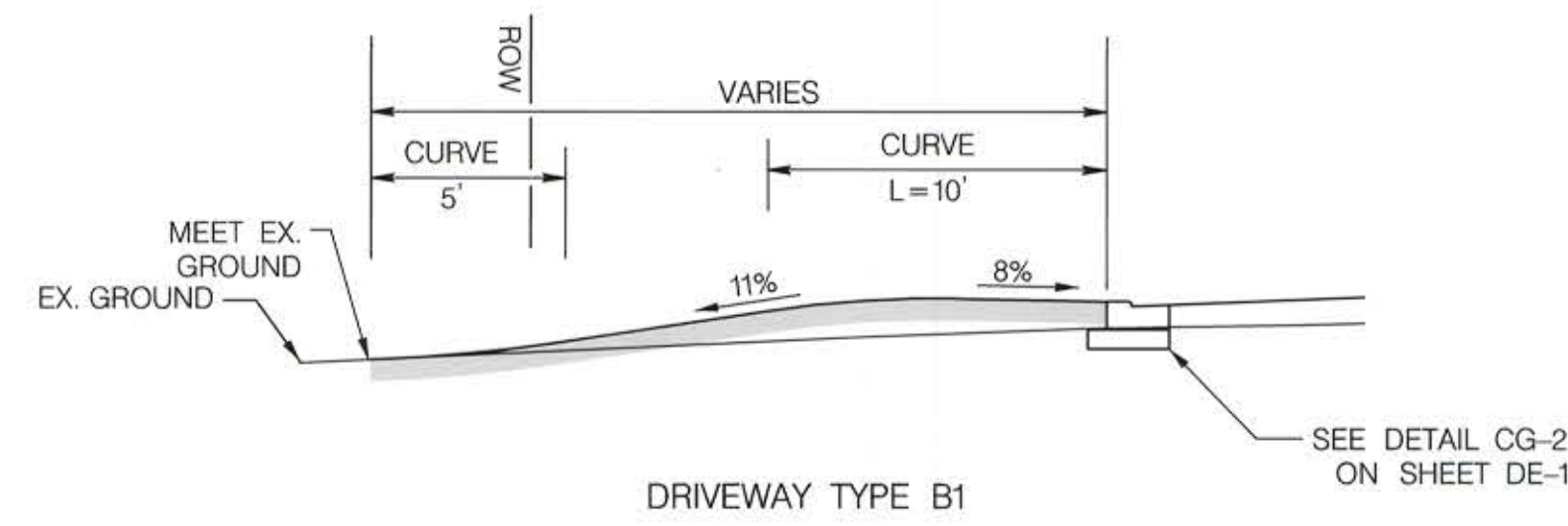
CAPITAL PROJECT NO.
D-1150

TYPICAL SECTIONS
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

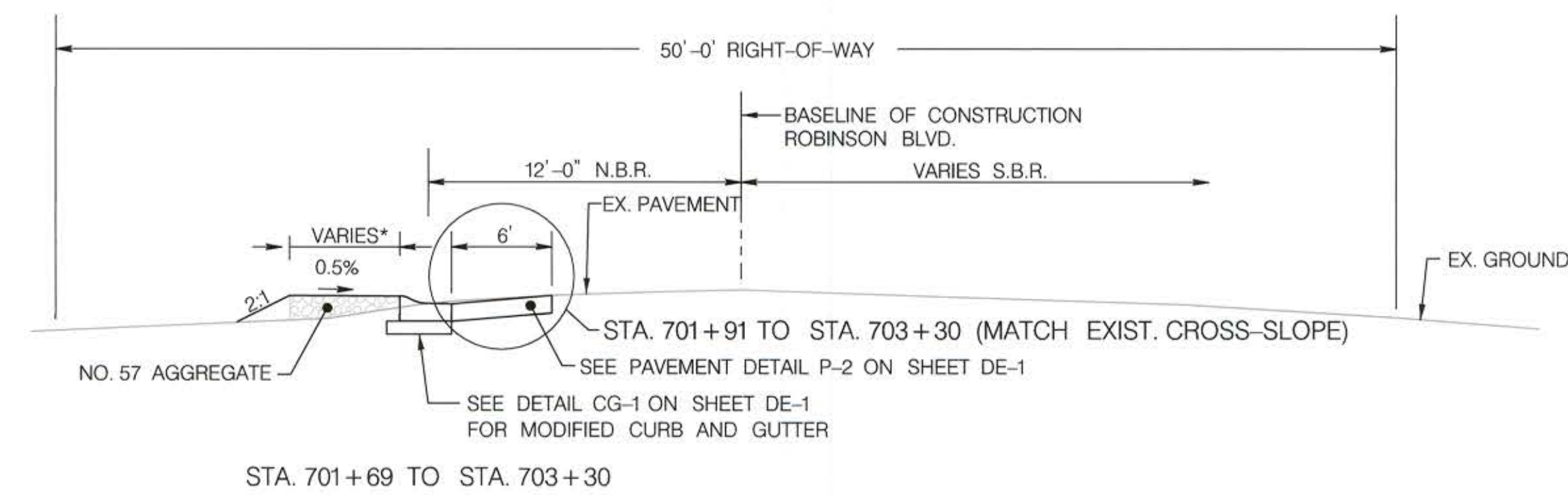
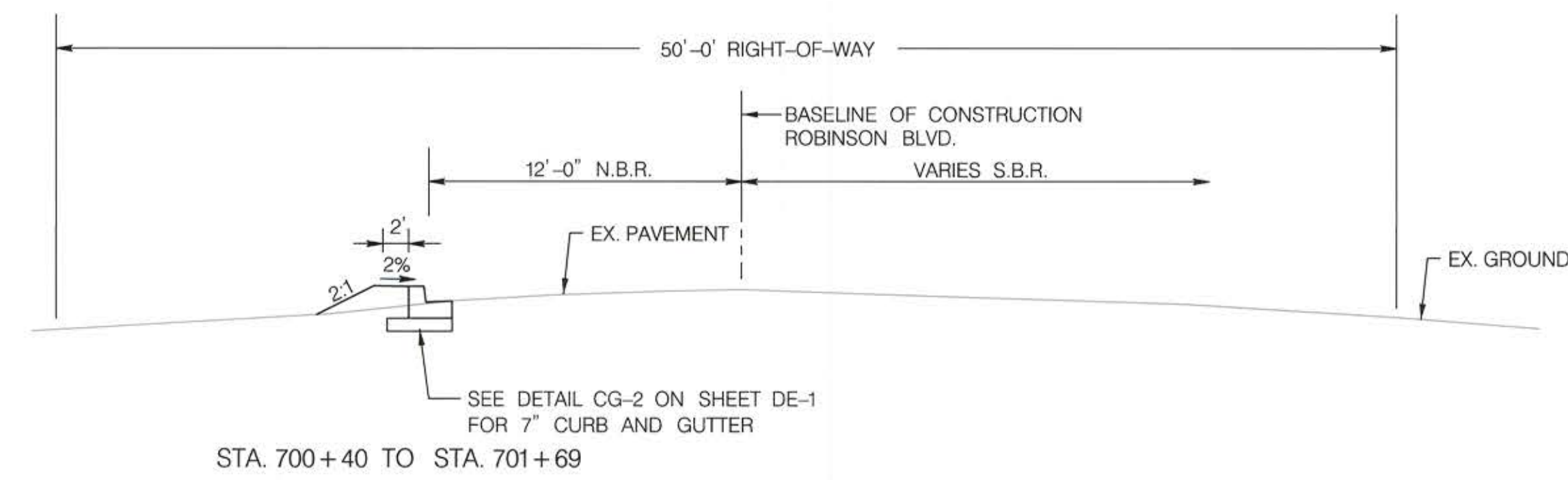
ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

SCALE
NONE

SHEET
3 OF 24



ROBINSON BLVD. AT DRIVEWAYS TYPICAL SECTIONS



*MATCH EX. WIDTH OF GRAVEL PARKING AREA.

- NOTES:
 1. SEE CURB GEOMETRY SCHEDULE ON PS-1 THRU PS-6 FOR CURB OFFSETS.
 2. ALL DISTURBED AREAS BEYOND PAVEMENT SHALL BE STABILIZED WITH 4" TOPSOIL, SEED AND MULCH UNLESS OTHERWISE NOTED ON PLANS.

ROBINSON BLVD. TYPICAL SECTION

"PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015"

DATE: 01/20/2015 10:13:24 AM FILE: 2912015.dwg USER: jmt

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

CHIEF, BUREAU OF HIGHWAYS
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS



DES:	BY:	NO.:	DATE:
DRN:		1	01/20/15
CHK:			
DATE: DEC 2013			

CAPITAL PROJECT NO.
D-1150

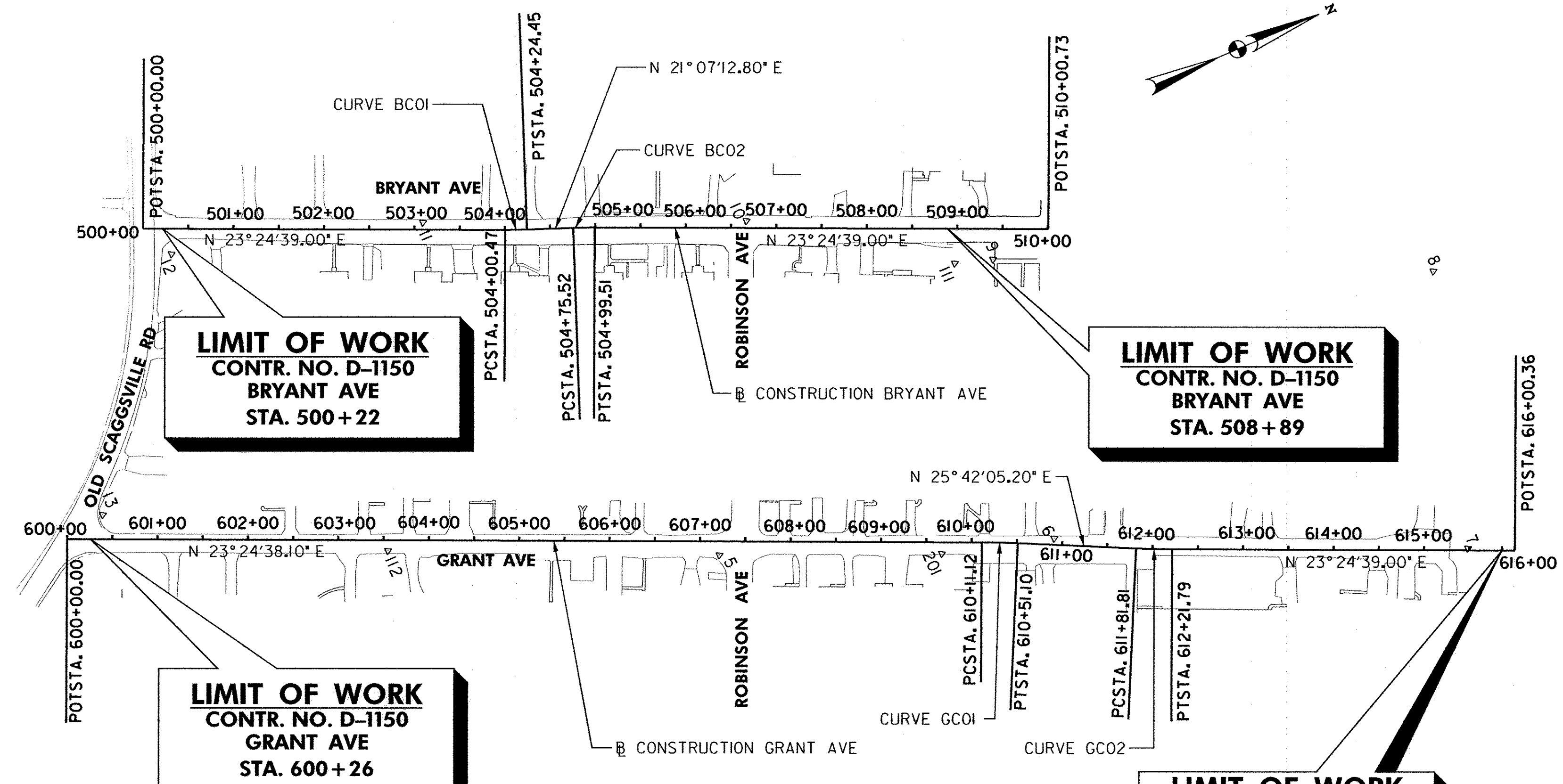
MAP NO. BLOCK NO.

TYPICAL SECTIONS
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS
ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND

TS-4

SCALE NONE
SHEET 4A OF 24

E 1351500
N 523000



CURVE DATA						
CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH	EXTERNAL
BCO1	2°17'26.20" (LT)	9°32'57.46"	600.00'	12.00'	23.99'	0.12'
BCO2	2°17'26.20" (RT)	9°32'57.46"	600.00'	12.00'	23.99'	0.12'
GCO1	2°17'27.10" (RT)	5°43'46.48"	1,000.00'	19.99'	39.98'	0.20'
GCO2	2°17'26.20" (LT)	5°43'46.48"	1,000.00'	19.99'	39.98'	0.20'

BASELINE CONSTRUCTION CONTROL POINTS					
	POINT NO.	STATION	NORTH	EAST	BEARING
BRYANT AVE	POT	STA. 500+00.00	528,239.9553	1,351,869.1067	N 23° 24' 39.00" E
	PC	STA. 504+00.47	528,607.4546	1,352,028.2204	
	PI	STA. 504+12.46	528,618.4623	1,352,032.9863	
	CC		528,845.8474	1,351,477.6127	
	PT	STA. 504+24.45	528,629.6518	1,352,037.3085	N 21° 07' 12.80" E
	PC	STA. 504+75.52	528,677.2908	1,352,055.7102	
	PI	STA. 504+87.52	528,688.4803	1,352,060.0324	
GRANT AVE	CC		528,461.0952	1,352,615.4061	
	PT	STA. 504+99.51	528,699.4880	1,352,064.7983	N 23° 24' 39.00" E
	POT	STA. 510+00.73	529,159.4455	1,352,263.9430	
	POT	STA. 600+00.00	528,028.2991	1,352,150.3318	N 23° 24' 38.10" E
	PC	STA. 610+11.12	528,956.1848	1,352,552.0672	
	PI	STA. 610+31.11	528,974.5331	1,352,560.0113	
	CC		528,558.8674	1,353,469.7485	
	PT	STA. 610+51.10	528,992.5492	1,352,568.6824	N 25° 42' 05.20" E
	PC	STA. 611+81.81	529,110.3238	1,352,625.3672	
	PI	STA. 612+01.80	529,128.3379	1,352,634.0373	
CC		529,544.0056	1,351,724.3011		
PT	STA. 612+21.79	529,146.6842	1,352,641.9806	N 23° 24' 39.00" E	
POT	STA. 616+00.36	529,494.0913	1,352,792.3951		

TRAVERSE POINTS				
POINT NO.	NORTH	EAST	ELEVATION	REMARKS
1	528456.3634	1353402.4863	238.241	NAIL (GPS)
2	528597.9802	1352770.5806	252.026	NAIL (GPS)
3	528278.9090	1352666.2077	262.567	R&C (GPS)
4	528053.9615	1353453.5562	250.762	R&C (GPS)
5	528684.1289	1352450.8516	267.271	MAG NAIL
6	529031.5503	1352579.5870	267.281	MAG NAIL
7	529447.3748	1352769.6194	255.006	R&C
8	529532.0790	1352473.9063	267.917	
9	529090.0931	1352270.4017	278.056	MAG NAIL
10	528856.3599	1352124.1248	282.771	MAG NAIL
11	528526.9994	1351984.7156	281.236	MAG NAIL
12	528257.8667	1351907.1092	277.016	R&C
13	528075.0743	1352141.676	263.376	R&C
14	527691.6380	1352356.9501	259.128	
15	528036.9291	1352560.0335	265.925	
III	529049.5624	1352257.8511	276.336	FLY POINT
II2	528349.3662	1352302.0757	269.276	FLY POINT
201	528910.6381	1352546.2600	264.630	MAG NAIL

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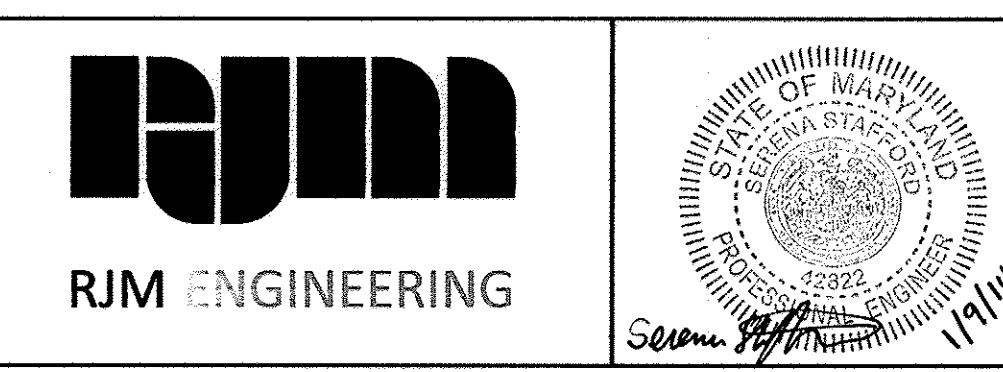
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Gay B. 1/24/14
DIRECTOR OF PUBLIC WORKS

Steve Shaner 1/23/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

Walter R. Smith 1-24-14
CHIEF, BUREAU OF HIGHWAYS

Thomas B. Butler 1-24-14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS



DES: JP BY NO. DATE

DRN: JP/SY

CHK: DZ

DATE: DEC 2013

CAPITAL PROJECT NO.
D-1150

MAP NO. BLOCK NO.

BASELINE GEOMETRICS
**BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS**

ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

GS-1
SCALE
1" = 100'
SHEET
6 OF 24

FROM	TO	TYPE	LENGTH
E-3	E-2	12" RCP, CL. IV	17 L.F.
E-5	E-4	12" RCP, CL. IV	21 L.F.

LOCATION	CLASS	LENGTH	WIDTH	QUANTITY
E-2	I	10'	5'	4 S.Y.
E-4	I	10'	5'	4 S.Y.

~~NOT CONSTRUCTED~~

NO.	STATION	OFFSET	TYPE	STD. NO.	DEPTH
E-2	501+09.8	18.1'.LT.	STD. CONC. END SECTION - 12" RCP	D-5.51	---
E-3	501+27.1	18.6'.LT.	STD. CONC. END SECTION - 12" RCP	D-5.51	---
E-4	501+83.9	18.4'.LT.	STD. CONC. END SECTION - 12" RCP	D-5.51	---
E-5	502+05.4	18.1'.LT.	STD. CONC. END SECTION - 12" RCP	D-5.51	---

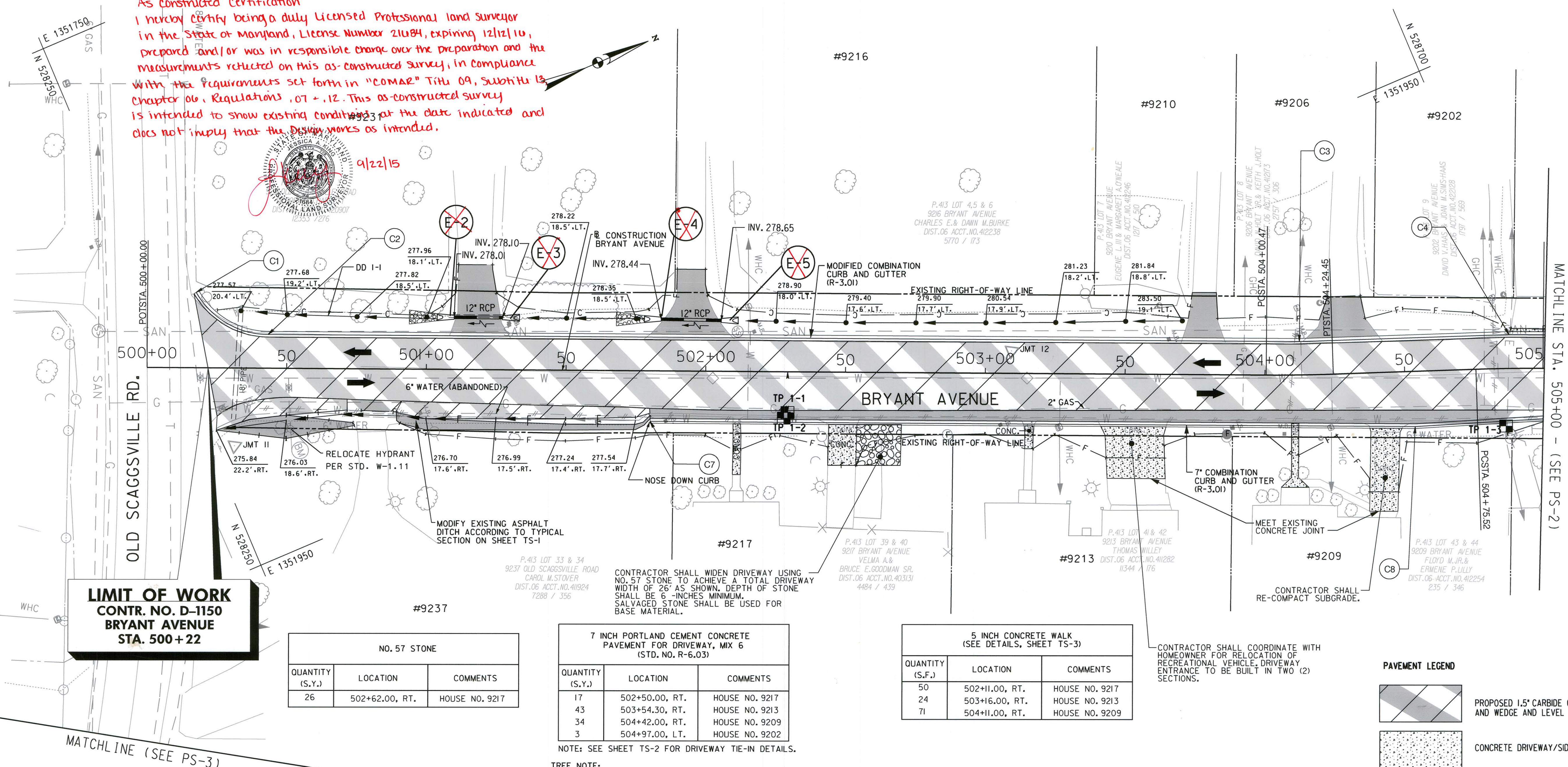
CURB GEOMETRY SCHEDULE					
FROM			TO		
POINT NO.	LOCATION	POINT NO.	LOCATION	CURVE RADIUS	LENGTH
C1	500+17, 26.9' LT.	C2	500+43, 12.0' LT.	30.0'	31'
C2	500+43, 12.0' LT.	C3	504+12, 11.9' LT.	---	369'
C3	504+12, 11.9' LT.	C4	504+88, 12.1' LT.	---	75'
C7	501+80, 18.0' RT	C8	504+53, 19.6' RT	---	274'
C8	504+53, 19.6' RT	C9	505+44, 15.0' RT	---	90'

LOCATION	CLASS	LENGTH
E-2	I	5 L.F.
E-4	I	5 L.F.

DITCH NO.	FROM	TO	SSI (H/V)	SS2 (H/V)	d (F)	w (F)	TYPE	QUANTITY
DD I-1	STA. 503+70.1 (BRYANT AVE.)	STA. 500+33.1 (BRYANT AVE.)	3	3	1.0	0	TYPE A MATTING	190 S.Y.

NOTES:
1. LOCATIONS AND LENGTHS ARE GIVEN ALONG CURB AND GUTTER AT FLOW LINE.

As Constructed Certification
I hereby certify being a duly licensed Professional Land Surveyor in the State of Maryland, License Number 21084, expiring 12/12/10, prepared and/or was in responsible charge over the preparation and the measurements reflected on this as-constructed survey, in compliance with the requirements set forth in "COMAR" Title 09, Subtitle 13, Chapter 06, Regulations .07 + .12. This as-constructed survey is intended to show existing conditions at the date indicated and does not imply that the design works as intended.



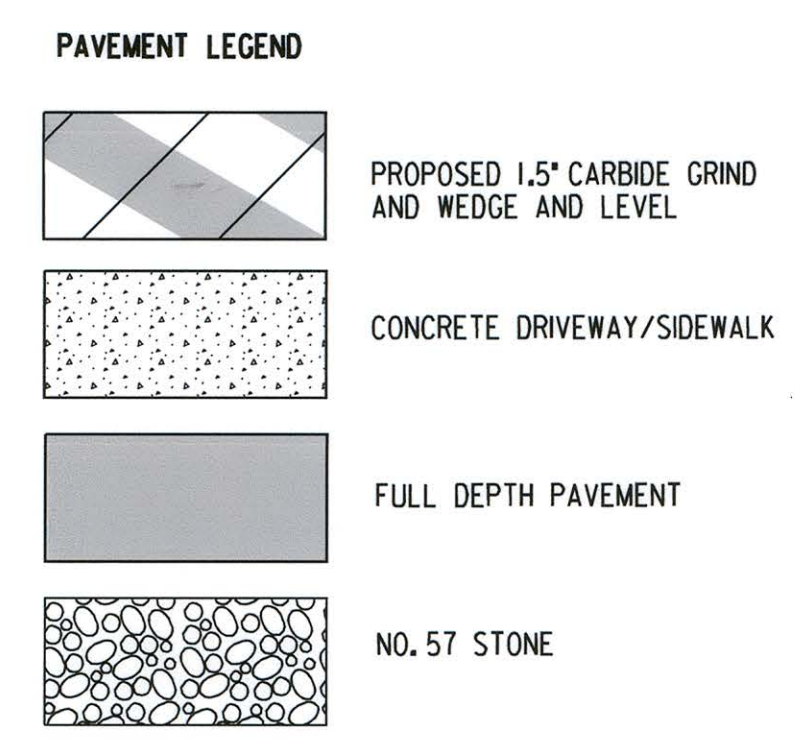
LIMIT OF WORK
CONTR. NO. D-1150
BRYANT AVENUE
STA. 500+22

NO. 57 STONE		
QUANTITY (S.Y.)	LOCATION	COMMENTS
26	502+62.00, RT.	HOUSE NO. 9217

7 INCH PORTLAND CEMENT CONCRETE PAVEMENT FOR DRIVEWAY, MIX 6 (STD. NO. R-6.03)		
QUANTITY (S.Y.)	LOCATION	COMMENTS
17	502+50.00, RT.	HOUSE NO. 9217
43	503+54.30, RT.	HOUSE NO. 9213
34	504+42.00, RT.	HOUSE NO. 9209
3	504+97.00, LT.	HOUSE NO. 9202

5 INCH CONCRETE WALK (SEE DETAILS, SHEET TS-3)		
QUANTITY (S.F.)	LOCATION	COMMENTS
50	502+11.00, RT.	HOUSE NO. 9217
24	503+16.00, RT.	HOUSE NO. 9213
71	504+11.00, RT.	HOUSE NO. 9209

CONTRACTOR SHALL COORDINATE WITH HOMEOWNER FOR RELOCATION OF RECREATIONAL VEHICLE, DRIVEWAY ENTRANCE TO BE BUILT IN TWO (2) SECTIONS.



UTILITY TEST PIT SCHEDULE			
NO.	LOCATION	UTILITY	DEPTH
TP I-1	STA. 502+29, 14.5' RT.	2" GAS	3.31'
TP I-2	STA. 502+28, 16.5' RT.	8" WATER	4.92'
TP I-3	STA. 504+86, 20.4' RT.	1" ELECTRIC	2.99'

GRINDING EXISTING ASPHALT PAVEMENT - 1.5 INCH DEPTH
1373 S.Y. - STA. 500+28 TO STA. 505+00, LT. - RT.

FULL DEPTH ASPHALT PAVEMENT
315 S.Y. - STA. 500+28 TO STA. 505+00, LT. - RT.

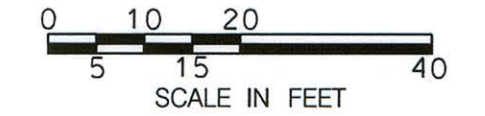
NOTE: SEE SHEET TS-2 FOR DRIVEWAY TIE-IN DETAILS.
TREE NOTE:
ALL TREES AND SHRUBS WITHIN THE LOD ARE TO REMAIN IN PLACE AND UNHARMED, UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.

NOTE:
CONTRACTOR SHALL REMOVE AND RESET MAILBOXES AND FENCES IMPACTED BY CURB CONSTRUCTION AND GRADING OPERATIONS AS DIRECTED BY THE COUNTY ENGINEER. COST SHALL BE INCIDENTAL TO THE CONTRACT LUMP SUM COST FOR CLEARING AND GRUBBING.

MOD. COMBINATION CURB AND GUTTER (STD. NO. R-3.01)		
FROM	TO	LENGTH (L.F.)
STA. 500+17, LT.	STA. 505+00, LT.	488

STD. 7" COMBINATION CURB AND GUTTER (STD. NO. R-3.01)			
FROM	TO	LENGTH (L.F.)	REMARKS
STA. 501+80, RT.	STA. 505+00, RT.	322	NOSE DOWN AT 501+80, RT.

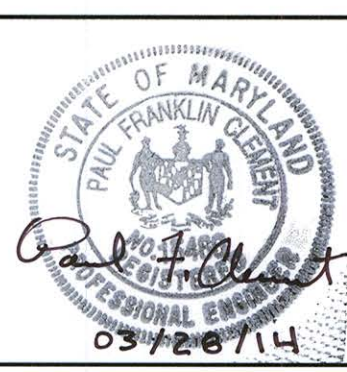
PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015



FILE: g:\m\04044_03\p\ent\dwg\main\arc\g\road\p001\Bryant-Storm.dwg DATE: 12/28/14

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works: Steve Sharan
Chief, Bureau of Highways: Thomas R. Butler
Chief, Bureau of Engineering: Thomas R. Butler
Deputy Director of Public Works: Thomas R. Butler

JM/T
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
27 Loveton Circle Baltimore, Maryland 21152-0949



DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

ROADWAY PLAN
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS
ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

PS-1
SCALE 1" = 20'
SHEET 7 OF 24

MOD. COMBINATION CURB AND GUTTER (STD. NO. R-3.0I)		
FROM	TO	LENGTH (L.F.)
STA. 505+00, LT.	STA. 508+87, LT.	387

STD. 7" COMBINATION CURB AND GUTTER (STD. NO. R-3.0I)			
FROM	TO	LENGTH (L.F.)	REMARKS
STA. 505+00, RT.	STA. 506+47, RT.	162	NOSE DOWN AT STA. 506+47, RT (STD. NO. R-3.02)
STA. 506+75, RT.	STA. 508+91, RT.	232	NOSE DOWN AT STA. 506+75, RT (STD. NO. R-3.02)

DRAINAGE STRUCTURE SCHEDULE					
NO.	STATION	OFFSET	TYPE	STD. NO.	DEPTH
I-8	506+19.72	15.0' RT.	TYPE 'S' COMB. INLET	SD-4.32	7.05'
I-9	507+47.24	15.0' RT.	PRECAST STD. TYPE A-5 INLET	SD-4.01	4.71'
I-10	508+82.83	14.8' RT.	PRECAST STD. TYPE A-10 INLET	SD-4.01	5.49'
E-6	508+36.2	18.2' LT.	STD. CONC. END SECTION	D-5.5I	---
E-7	508+49.7	18.8' LT.	STD. CONC. END SECTION	D-5.5I	---

GRINDING EXISTING ASPHALT PAVEMENT - 1.5 INCH DEPTH
1208 S.Y. - STA. 505+00 TO STA. 508+91, RT. - LT.

FULL DEPTH ASPHALT PAVEMENT
174 S.Y. - STA. 505+57 TO STA. 508+50, RT. - LT.

PIPE SCHEDULE				
FROM	TO	TYPE	LENGTH	
I-8	I-9	15" RCP, CL. IV	123 L.F.	
I-9	I-10	18" RCP, CL. IV	128 L.F.	
I-10	EX. I-3	18" RCP, CL. IV	7 L.F.	
E-6	E-7	12" RCP, CL. IV	14 L.F.	

RIPRAP OUTLET PROTECTION				
LOCATION	CLASS	LENGTH	WIDTH	QUANTITY
E-7	I	10'	5'	4 S.Y.

RIPRAP CUTOFF WALL			
LOCATION	CLASS	LENGTH	
E-7	I	5 L.F.	

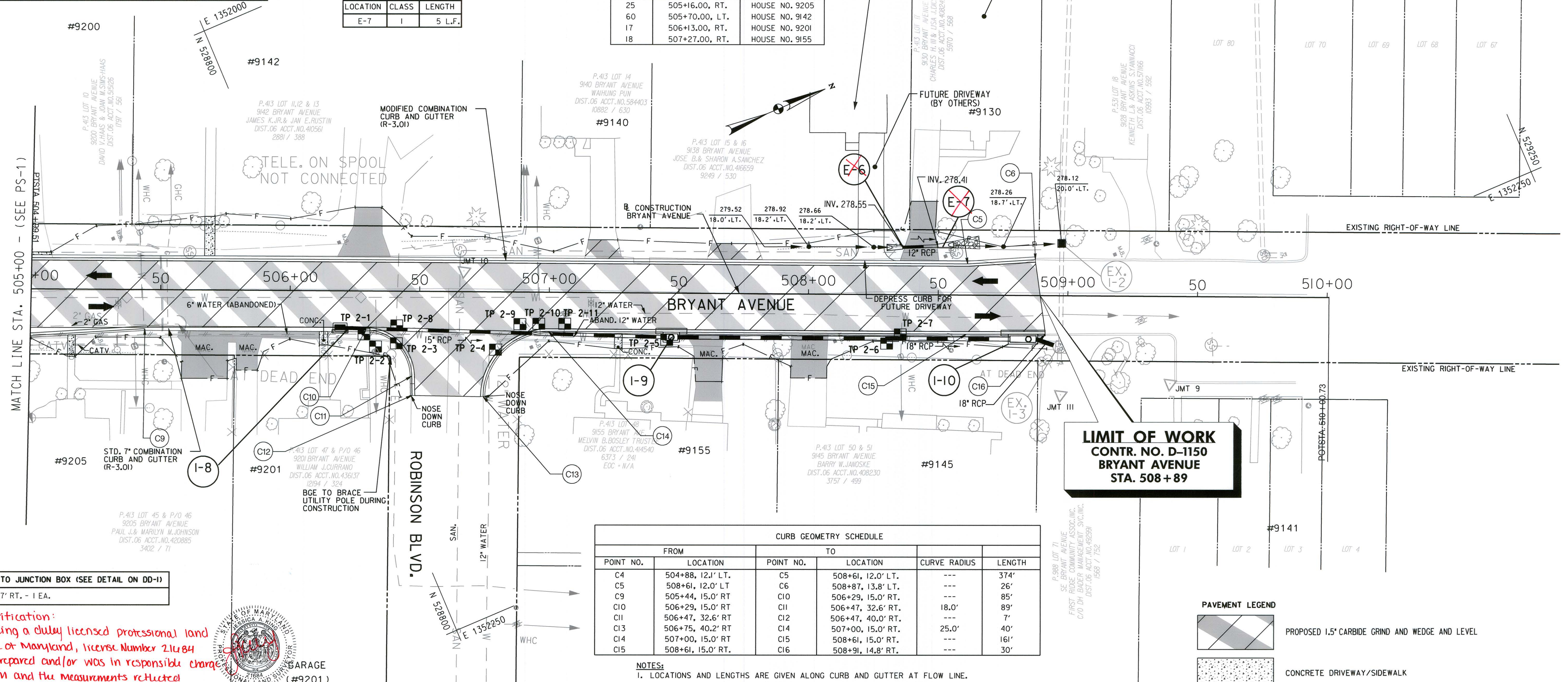
UTILITY TEST PIT SCHEDULE			
NO.	LOCATION	UTILITY	DEPTH
TP 2-1	STA. 506+29, 16.6' RT.	6" WATER	3.88'
TP 2-2	STA. 506+33, 21.3' RT.	1" WATER	3.10'
TP 2-3	STA. 506+41, 20.0' RT.	1" ELECTRIC	2.60'
TP 2-4	STA. 506+79, 22.2' RT.	8" WATER	5.40'
TP 2-5	STA. 507+45, 18.0' RT.	6" WATER	4.44'
TP 2-6	STA. 508+30, 18.8' RT.	6" WATER	4.52'
TP 2-7	STA. 508+35, 15.3' RT.	3/4" WATER	4.08'
TP 2-8	STA. 506+41, 13.2' RT.	(3) 1/2" ELECTRIC	2.94'
TP 2-9	STA. 506+89, 12.3' RT.	12" WATER	5.46'
TP 2-10	STA. 506+96, 12.1' RT.	1/2" WATER	4.31'
TP 2-II	STA. 507+06, 12.0' RT.	8" WATER	4.14'

5 INCH CONCRETE WALK/STEPS (SEE DETAILS, SHEET TS-3)		
QUANTITY (S.F.)	LOCATION	COMMENTS
25	505+16.00, RT.	HOUSE NO. 9205
60	505+70.00, LT.	HOUSE NO. 9142
17	506+13.00, RT.	HOUSE NO. 9201
18	507+27.00, RT.	HOUSE NO. 9155

TREE NOTE:
ALL TREES AND SHRUBS WITHIN THE LOD ARE TO REMAIN IN PLACE AND UNHARMED; UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.

NOTE:
GRATE FOR EXISTING INLET EX. I-2 TO BE REPLACED WITH HOWARD COUNTY STANDARD YARD INLET GRATE.

DITCH LINING SCHEDULE								
DITCH NO.	FROM	TO	SSI (HdV)	SS2 (HdV)	d (FT)	w (FT)	TYPE	QUANTITY
DD 2-1	STA. 507+85, LT. (BRYANT AVE.)	STA. 508+98, LT. (BRYANT AVE.)	3	3	1.0	0	TYPE 'A' MATTING	56 S.Y.



CONVERT EXISTING INLET TO JUNCTION BOX (SEE DETAIL ON DD-1)
EX. I-3 STA. 508+97, 19.7' RT. - I.E.A.

As Constructed Certification:
I hereby certify being a duly licensed professional land surveyor in the State of Maryland, license number 211484 expiring 12/12/16 prepared and/or was in responsible charge over the preparation and the measurements reflected on this As-Constructed survey in compliance with the requirements set forth in "COMAR" Title 9 Subtitle 13, Chapter 06, Equations .07 + .12 This as constructed survey is intended to show existing conditions at the date indicated and does not imply that the design works as intended.



NOTE:
CONTRACTOR SHALL REMOVE AND RESET MAILBOXES AND FENCES IMPACTED BY CURB CONSTRUCTION AND GRADING OPERATIONS AS DIRECTED BY THE COUNTY ENGINEER. COST SHALL BE INCIDENTAL TO THE CONTRACT LUMP SUM COST FOR CLEARING AND GRUBBING.

*PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015

CURB GEOMETRY SCHEDULE					
POINT NO.	FROM	TO	LOCATION	CURVE RADIUS	LENGTH
C4	504+88, 12.1' LT.	C5	508+61, 12.0' LT.	---	374'
C5	508+61, 12.0' LT.	C6	508+87, 13.8' LT.	---	26'
C9	505+44, 15.0' RT.	C10	506+29, 15.0' RT.	---	85'
C10	506+29, 15.0' RT.	C11	506+47, 32.6' RT.	18.0'	89'
C11	506+47, 32.6' RT.	C12	506+47, 40.0' RT.	---	7'
C13	506+75, 40.2' RT.	C14	507+00, 15.0' RT.	25.0'	40'
C14	507+00, 15.0' RT.	C15	508+61, 15.0' RT.	---	161'
C15	508+61, 15.0' RT.	C16	508+91, 14.8' RT.	---	30'

NOTES:
1. LOCATIONS AND LENGTHS ARE GIVEN ALONG CURB AND GUTTER AT FLOW LINE.

PAVEMENT LEGEND

- PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND LEVEL
- CONCRETE DRIVEWAY/SIDEWALK
- FULL DEPTH PAVEMENT

0 10 20
5 15 40
SCALE IN FEET

PS-2

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works
Steve Sharau
4/1/14

Chief, Bureau of Highways
Thomas R. Suttler
4/1/14

Chief, Bureau of Engineering
Deputy Director of Public Works

JMT
Johnson, Mirmiran & Thompson
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

Professional Engineer
Paul F. Cloutier
63/26714

DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

MAP NO. BLOCK NO.

ROADWAY PLAN
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6

HOWARD COUNTY, MARYLAND

SCALE
1" = 20'

SHEET
8 OF 24

MOD. COMBINATION CURB AND GUTTER (STD. NO. R-3.01)		
FROM	TO	LENGTH (L.F.)
STA. 505+00, LT.	STA. 508+87, LT.	387

STD. 7" COMBINATION CURB AND GUTTER (STD. NO. R-3.01)			
FROM	TO	LENGTH (L.F.)	REMARKS
STA. 505+00, RT.	STA. 506+47, RT.	162	NOSE DOWN AT STA. 506+47, RT (STD. NO. R-3.02)
STA. 506+75, RT.	STA. 508+91, RT.	232	NOSE DOWN AT STA. 506+75, RT (STD. NO. R-3.02)

DRAINAGE STRUCTURE SCHEDULE					
NO.	STATION	OFFSET	TYPE	STD. NO.	DEPTH
I-8	506+19.3	15.0', RT.	TYPE 'S' COMB. INLET	SD-4.32	7.05'
I-9	507+47.2	15.0', RT.	PRECAST STD. TYPE A-5 INLET	SD-4.01	4.71'
I-10	508+82.9	14.8', RT.	PRECAST STD. TYPE A-10 INLET	SD-4.01	5.49'
E-6	508+36.2	18.2', LT.	STD. CONC. END SECTION - 12" RCP	D-5.51	---
E-7	508+49.7	18.8', LT.	STD. CONC. END SECTION - 12" RCP	D-5.51	---

GRINDING EXISTING ASPHALT PAVEMENT - 1.5 INCH DEPTH
1208 S.Y. - STA. 505+00 TO STA. 508+91, RT. - LT.

FULL DEPTH ASPHALT PAVEMENT
174 S.Y. - STA. 505+57 TO STA. 508+50, RT. - LT.

PIPE SCHEDULE			
FROM	TO	TYPE	LENGTH
I-8	I-9	15" RCP, CL. IV	123 L.F.
I-9	I-10	18" RCP, CL. IV	128 L.F.
I-10	EX. I-3	18" RCP, CL. IV	7 L.F.
E-6	E-7	12" RCP, CL. IV	14 L.F.

RIPRAP OUTLET PROTECTION				
LOCATION	CLASS	LENGTH	WIDTH	QUANTITY
E-7	I	10'	5'	4 S.Y.

RIPRAP CUTOFF WALL		
LOCATION	CLASS	LENGTH
E-7	I	5 L.F.

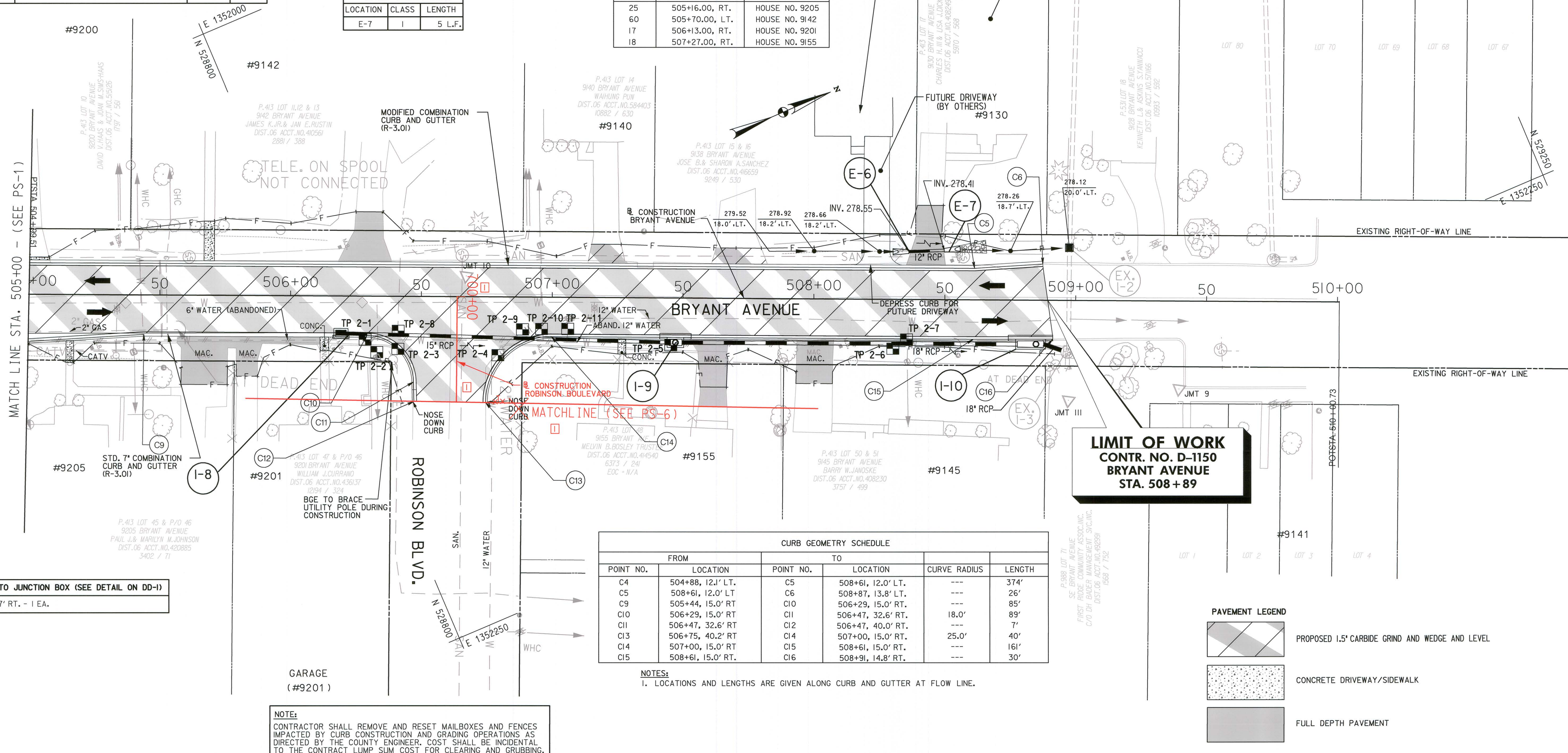
UTILITY TEST PIT SCHEDULE			
NO.	LOCATION	UTILITY	DEPTH
TP 2-1	STA. 506+29, 16.6' RT.	6" WATER	3.88'
TP 2-2	STA. 506+33, 21.3' RT.	1" WATER	3.10'
TP 2-3	STA. 506+41, 20.0' RT.	1" ELECTRIC	2.60'
TP 2-4	STA. 506+79, 22.2' RT.	8" WATER	5.40'
TP 2-5	STA. 507+45, 18.0' RT.	6" WATER	4.44'
TP 2-6	STA. 508+30, 18.8' RT.	6" WATER	4.52'
TP 2-7	STA. 508+35, 15.3' RT.	3/4" WATER	4.08'
TP 2-8	STA. 506+41, 13.2' RT.	(3) 1/2" ELECTRIC	2.94'
TP 2-9	STA. 506+89, 12.3' RT.	12" WATER	5.46'
TP 2-10	STA. 506+96, 12.1' RT.	1/2" WATER	4.31'
TP 2-11	STA. 507+06, 12.0' RT.	8" WATER	4.14'

5 INCH CONCRETE WALK/STEPS (SEE DETAILS, SHEET TS-3)		
QUANTITY (S.F.)	LOCATION	COMMENTS
25	505+16.00, RT.	HOUSE NO. 9205
60	505+70.00, LT.	HOUSE NO. 9142
17	506+13.00, RT.	HOUSE NO. 9201
18	507+27.00, RT.	HOUSE NO. 9155

TREE NOTE:
ALL TREES AND SHRUBS WITHIN THE LOD ARE TO REMAIN IN PLACE AND UNHARMED, UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.

NOTE:
GRATE FOR EXISTING INLET EX. I-2 TO BE REPLACED WITH HOWARD COUNTY STANDARD YARD INLET GRATE.

DITCH LINING SCHEDULE									
DITCH NO.	FROM	TO	SS1 (H&V)	SS2 (H&V)	d (FT)	w (FT)	TYPE	QUANTITY	
DD 2-1	STA. 507+85, LT. (BRYANT AVE.)	STA. 508+98, LT. (BRYANT AVE.)	3	3	1.0	0	TYPE 'A' MATTING	56 S.Y.	



CONVERT EXISTING INLET TO JUNCTION BOX (SEE DETAIL ON DD-1)
EX. I-3 STA. 508+97, 19.7' RT. - I.E.A.

CURB GEOMETRY SCHEDULE					
POINT NO.	FROM LOCATION	POINT NO.	TO LOCATION	CURVE RADIUS	LENGTH
C4	504+88, 12.1' LT.	C5	508+61, 12.0' LT.	---	374'
C5	508+61, 12.0' LT.	C6	508+87, 13.8' LT.	---	26'
C9	505+44, 15.0' RT.	C10	506+29, 15.0' RT.	---	85'
C10	506+29, 15.0' RT.	C11	506+47, 32.6' RT.	18.0'	89'
C11	506+47, 32.6' RT.	C12	506+47, 40.0' RT.	---	7'
C13	506+75, 40.2' RT.	C14	507+00, 15.0' RT.	25.0'	40'
C14	507+00, 15.0' RT.	C15	508+61, 15.0' RT.	---	161'
C15	508+61, 15.0' RT.	C16	508+91, 14.8' RT.	---	30'

NOTES:
1. LOCATIONS AND LENGTHS ARE GIVEN ALONG CURB AND GUTTER AT FLOW LINE.

PAVEMENT LEGEND	
	PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND LEVEL
	CONCRETE DRIVEWAY/SIDEWALK
	FULL DEPTH PAVEMENT

NOTE:
CONTRACTOR SHALL REMOVE AND RESET MAILBOXES AND FENCES IMPACTED BY CURB CONSTRUCTION AND GRADING OPERATIONS AS DIRECTED BY THE COUNTY ENGINEER. COST SHALL BE INCIDENTAL TO THE CONTRACT LUMP SUM COST FOR CLEARING AND GRUBBING.

*PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015

0 10 20
5 15 40
SCALE IN FEET

PS-2

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS _____ CHIEF, BUREAU OF HIGHWAYS _____

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION _____ CHIEF, BUREAU OF ENGINEERING DEPUTY DIRECTOR OF PUBLIC WORKS _____

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

STATE OF MARYLAND
PAUL FANKLIN DEWEY
Professional Engineer
License No. 15466
Expiration Date: 7/15/2015

DES:	BY:	NO.	DATE
VRM	JMB	1	01/2015
DRN:	JMB		
CHK:	SAM		
DATE:	DEC 2013		

CAPITAL PROJECT NO.
D-1150

MAP NO. _____ BLOCK NO. _____

ROADWAY PLAN
**BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS**

ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND

SCALE
1" = 20'

SHEET
8A OF 24

UTILITY TEST PIT SCHEDULE			
NO.	LOCATION	UTILITY	DEPTH
TP 3-1	STA. 600+56, 8.6' LT.	8" x 6" WATER	4.38'
TP 3-2	STA. 600+48, 16.4' RT.	3/4" WATER	5.30'
TP 3-3	STA. 600+53, 16.9' RT.	2" GAS	3.74'
TP 3-4	STA. 600+71, 15.7' RT.	2" x 3/4" GAS	3.31'
TP 3-5	STA. 602+88, 15.6' RT.	2" GAS	4.10'

GRINDING EXISTING ASPHALT PAVEMENT - 1.5 INCH DEPTH
929 S.Y. - STA. 600+26 TO STA. 605+00, LT. - RT.

NOTE:
CONTRACTOR SHALL REMOVE AND RESET MAILBOXES AND FENCES IMPACTED BY CURB CONSTRUCTION AND GRADING OPERATIONS AS DIRECTED BY THE COUNTY ENGINEER. COST SHALL BE INCIDENTAL TO THE CONTRACT LUMP SUM COST FOR CLEARING AND GRUBBING.

FULL DEPTH ASPHALT PAVEMENT
368 S.Y. - STA. 600+32 TO STA. 605+00, LT. - RT.

5 INCH CONCRETE WALK/STEPS
(SEE DETAILS, SHEET TS-3)

QUANTITY (S.F.)	LOCATION	COMMENTS
22	604+72, LT	HOUSE NO. 9212

7 INCH PORTLAND CEMENT CONCRETE PAVEMENT FOR DRIVEWAY, MIX 6 (STD. NO. R-6.03)

QUANTITY (S.Y.)	LOCATION	COMMENTS
27	601+82, RT.	HOUSE NO. 9231
21	602+47, LT.	HOUSE NO. 9230

NOTE: SEE SHEET TS-2 FOR DRIVEWAY TIE-IN DETAILS.

As Constructed Certification
I hereby certify being a duly licensed professional land surveyor in the State of Maryland, License Number 21084 expiring 12/12/16 prepared and/or was in responsible charge over the preparation and the measurements reflected on this As-constructed survey in compliance with the requirements set forth in "COMAR" Title 9, Subtitle 13, Chapter 01, Regulations .07 + .12 this As-constructed survey is intended to show existing conditions at the date indicated and does not imply that the design works as intended.



PAVEMENT LEGEND

- PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND LEVEL
- CONCRETE DRIVEWAY/SIDEWALK
- FULL DEPTH PAVEMENT

DRAINAGE STRUCTURE SCHEDULE					
NO.	STATION	OFFSET	TYPE	STD. NO.	DEPTH
I-6	600+72.3	12.4' LT.	PRECAST STD. TYPE A-10 INLET	SD-4.03	3.32
I-7	600+57.3	12.4' RT.	PRECAST OPEN BACK TYPE A-10 INLET	SEE DD-1	---
I-15	600+96.2	12.4' RT.	PRECAST OPEN BACK TYPE A-5 INLET	SEE DD-1	---

NOTE: SEE SHEET DD-1 FOR OPEN BACK INLET DETAIL

PIPE SCHEDULE			
FROM	TO	TYPE	LENGTH
I-6	EX. I-7	15" RCP, CL. IV	16 L.F.

No.	Station	OFFSET
I-6	600+71.9	12.0' LT
I-7	600+57.2	12.0' RT
I-15	600+96.0	12.0' RT

CURB GEOMETRY SCHEDULE						
FROM		TO		CURVE RADIUS	LENGTH	
POINT NO.	LOCATION	POINT NO.	LOCATION			
C17	600+38, 16.8' LT.	C18	600+54, 12.0' LT.	30.0'	17'	
C37	600+18, 16.1' RT.	C38	600+41, 12.0' RT.	65.0'	23'	
C38	600+41, 12.0' RT.	C39	607+04, 12.0' RT.	---	663	

NOTES:

- LOCATIONS AND LENGTHS ARE GIVEN ALONG CURB AND GUTTER AT FLOW LINE.
- SEE STD. DETAIL R-3.06 FOR TRANSITION TO STD. 7" COMBINATION CURB AND GUTTER AT TYPE 'A-10' INLETS.

TREE NOTE:

ALL TREES AND SHRUBS WITHIN THE LOD ARE TO REMAIN IN PLACE AND UNHARMED; UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.

MOD. COMBINATION CURB AND GUTTER (STD. NO. R-3.01)		
FROM	TO	LENGTH (L.F.)
STA. 600+18, RT.	STA. 600+37, RT.	19
STA. 601+4, RT.	STA. 605+00, RT.	386
STA. 600+38, LT.	STA. 600+51, LT.	15
STA. 600+93, LT.	STA. 605+00, LT.	407

5 INCH CONCRETE FOR EROSION PROTECTION FOR OPEN BACK INLETS		
QUANTITY (S.Y.)	LOCATION	COMMENTS
5	600+57.3	AT INLET I-7
3	600+96.2	AT INLET I-15

NOTE (HOUSE NO. 9214): CONTRACTOR SHALL NOT DISTURB IRON FENCE AND BRICK POSTS IN FRONT OF HOME.

NOTE: CONTRACTOR SHALL NOTIFY COUNTY PROJECT MANAGER WHO WILL NOTIFY OWNERS OF 9212 AND 9214 48 HOURS BEFORE ANY CONSTRUCTION OR DISTURBANCE.

LIMIT OF WORK
CONTR. NO. D-1150
GRANT AVENUE
STA. 600+26

STD. 7" COMBINATION CURB AND GUTTER (STD. NO. R-3.01)			
FROM	TO	LENGTH (L.F.)	REMARKS
STA. 600+37, RT.	STA. 600+52, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 600+37 RT.
STA. 600+63, RT.	STA. 600+93, RT.	30	
STA. 600+99, RT.	STA. 601+14, RT.	15	10' TRANSITION TO MODIFIED CURB ENDS AT STA. 601+14 RT.
STA. 600+51, LT.	STA. 600+51, LT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 600+51 LT.
STA. 600+78, LT.	STA. 600+93, LT.	15	10' TRANSITION TO MODIFIED CURB ENDS AT STA. 600+93 LT.

*PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Shavano 4/18/14
DIRECTOR OF PUBLIC WORKS

Steve Shavano 4/14/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

William A. Murrell 4-8-14
CHIEF, BUREAU OF HIGHWAYS

Thomas R. Suttler 4/14/14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

STATE OF MARYLAND
PAUL FRANKLIN CLEMENT
PROFESSIONAL ENGINEER
03/28/14

DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

ROADWAY PLAN
**BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS**

ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

SCALE
1" = 20'

SHEET
9 OF 24



PS-3

UTILITY TEST PIT SCHEDULE							
NO.	LOCATION	UTILITY	DEPTH	NO.	LOCATION	UTILITY	DEPTH
TP 4-1	STA. 607+08, 2.0' RT.	3/4" TELE.	1.58'	TP 4-13	STA. 609+26, 9.3' LT.	12" WATER	4.13'
TP 4-2	STA. 607+09, 5.2' RT.	(3) 1/2" ELECTRIC	1.54'	TP 4-14	STA. 609+24, 3.6' LT.	(4) 1/2" ELECTRIC	2.21'
TP 4-3	STA. 607+08, 15.1' RT.	2" GAS	4.06'	TP 4-15	STA. 609+35, 6.1' RT.	(4) 1/2" ELECTRIC	2.67'
TP 4-4	STA. 607+08, 19.8' RT.	3/4" TELE.	1.60'	TP 4-16	STA. 609+43, 5.7' RT.	1" WATER	4.00'
TP 4-5	STA. 607+59, 6.3' RT.	12" WATER	5.96'	TP 4-17	STA. 609+48, 5.9' RT.	(3) 1/2" ELECTRIC	3.76'
TP 4-6	STA. 607+97, 6.7' RT.	1" WATER	4.31'	TP 4-18	STA. 609+50, 5.8' RT.	1" GAS	3.39'
TP 4-7	STA. 608+18, 6.7' RT.	1 1/2" ELECTRIC	1.80'	TP 4-19	STA. 607+20, 15.6' RT.	3" GAS	3.85'
TP 4-8	STA. 608+20, 6.6' RT.	2" GAS	3.29'	TP 4-21	STA. 609+46, 14.3' LT.	1/2" GAS	2.46'
TP 4-9	STA. 608+21, 6.6' RT.	1 1/4" TELE.	2.43'	TP 4-22	STA. 609+45, 14.2' LT.	(3) 1/2" ELECTRIC	2.66'
TP 4-10	STA. 608+28, 7.3' RT.	1" GAS	3.10'	TP 4-23	STA. 609+82, 24.4' RT.	3" GAS	5.52'
TP 4-11	STA. 608+46, 7.5' RT.	1" WATER	4.00'	TP 4-24	STA. 610+01, 18.7' RT.	1" WATER	4.17'
TP 4-12	STA. 608+97, 6.6' RT.	1" WATER	4.34'				

7 INCH PORTLAND CEMENT CONCRETE PAVEMENT FOR DRIVEWAY, MIX 6 (STD. NO. R-6.03)		
QUANTITY (S.Y.)	LOCATION	COMMENTS
20	606+33, LT.	HOUSE NO. 9204
35	606+90, RT.	HOUSE NO. 9201
16	607+93, LT.	HOUSE NO. 9160
32	608+13, RT.	HOUSE NO. 9157
5	608+75, LT.	HOUSE NO. 9150
6	609+32, LT.	HOUSE NO. 9144
26	610+11, RT.	HOUSE NO. 9135
19	610+14, LT.	HOUSE NO. 9140
13	610+65, LT.	HOUSE NO. 9130
27	610+65, RT.	HOUSE NO. 9127
4	610+85, RT.	HOUSE NO. 9125

STD. 7" COMBINATION CURB AND GUTTER (STD. NO. R-3.01)				
FROM	TO	LENGTH (L.F.)	REMARKS	
STA. 607+02, RT.	STA. 607+16, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 607+02 RT.	
STA. 607+21, RT.	STA. 607+29, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 607+29 RT.	
STA. 609+19, RT.	STA. 609+34, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 609+19 RT.	
STA. 609+41, RT.	STA. 609+56, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 609+41 RT.	
STA. 609+84, RT.	STA. 609+97, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 609+84 RT.	
STA. 610+02, RT.	STA. 610+05, RT.	4	4' TRANSITION FROM INLET I-11 TO MODIFIED CURB BEGINS AT STA. 610+05 RT.	
STA. 608+94, LT.	STA. 609+09, LT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 608+94 LT.	
STA. 609+21, LT.	STA. 609+36, LT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 609+21 LT.	

PIPE SCHEDULE				
FROM	TO	TYPE	LENGTH	
I-11	M-4	15" RCP, CL. IV	37 L.F.	
I-13	EX. I-4	15" RCP, CL. IV	9 L.F.	
I-12	EX. I-4	15" RCP, CL. IV	8 L.F.	
M-3	M-4	18" RCP, CL. IV	14 L.F.	
I-4	M-3	15" RCP, CL. IV	6 L.F.	
M-2	M-3	18" RCP, CL. IV	208 L.F.	
I-3	M-2	15" RCP, CL. IV	9 L.F.	
I-5	I-13	15" RCP, CL. IV	28 L.F.	
I-14	I-12	15" RCP, CL. IV	50 L.F.	

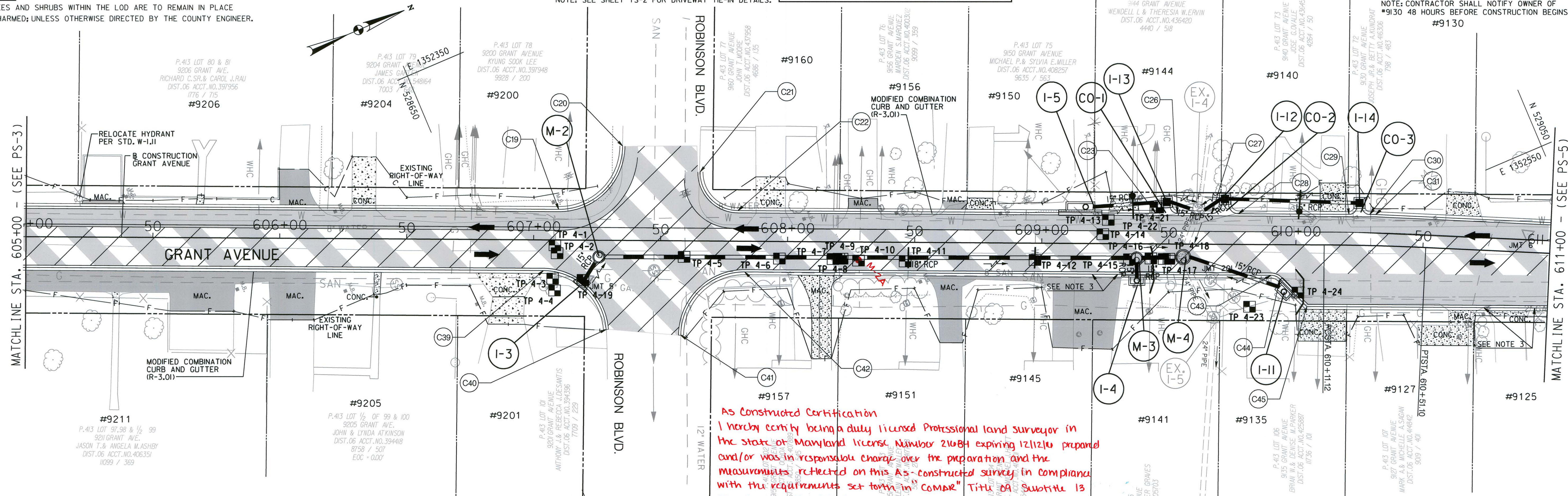
TREE NOTE:
ALL TREES AND SHRUBS WITHIN THE LOD ARE TO REMAIN IN PLACE AND UNHARMED; UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.

NOTE: SEE SHEET TS-2 FOR DRIVEWAY TIE-IN DETAILS.

GRINDING EXISTING ASPHALT PAVEMENT - 1.5 INCH DEPTH
1249 S.Y. - STA. 605+00 TO STA. 611+00, LT. - RT.

FULL DEPTH ASPHALT PAVEMENT
851 S.Y. - STA. 605+00 TO STA. 611+00, LT. - RT.

NOTE: CONTRACTOR SHALL NOTIFY OWNER OF #9130 48 HOURS BEFORE CONSTRUCTION BEGINS #9130



STANDARD CURB OPENING (MSHA STD. NO. MD 640.02)			
NO.	LOCATION	TYPE	NOTE
CO-1	609+49J, LT.	ON GRADE	5' CONCRETE GUTTER TO MEET I-13
CO-2	609+72J, LT.	ON GRADE	5' CONCRETE GUTTER TO MEET I-12
CO-3	610+24.7, LT.	ON GRADE	5' CONCRETE GUTTER TO MEET I-14

5 INCH CONCRETE WALK/STEPS (SEE DETAILS, SHEET TS-3)		
QUANTITY (S.F.)	LOCATION	COMMENTS
11	605+36, RT.	HOUSE NO. 9211
10	605+69, LT.	HOUSE NO. 9206
22	606+38, RT.	HOUSE NO. 9205

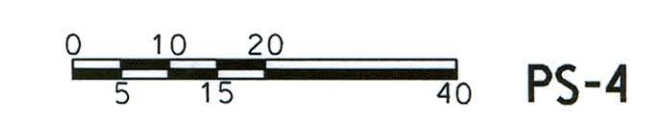
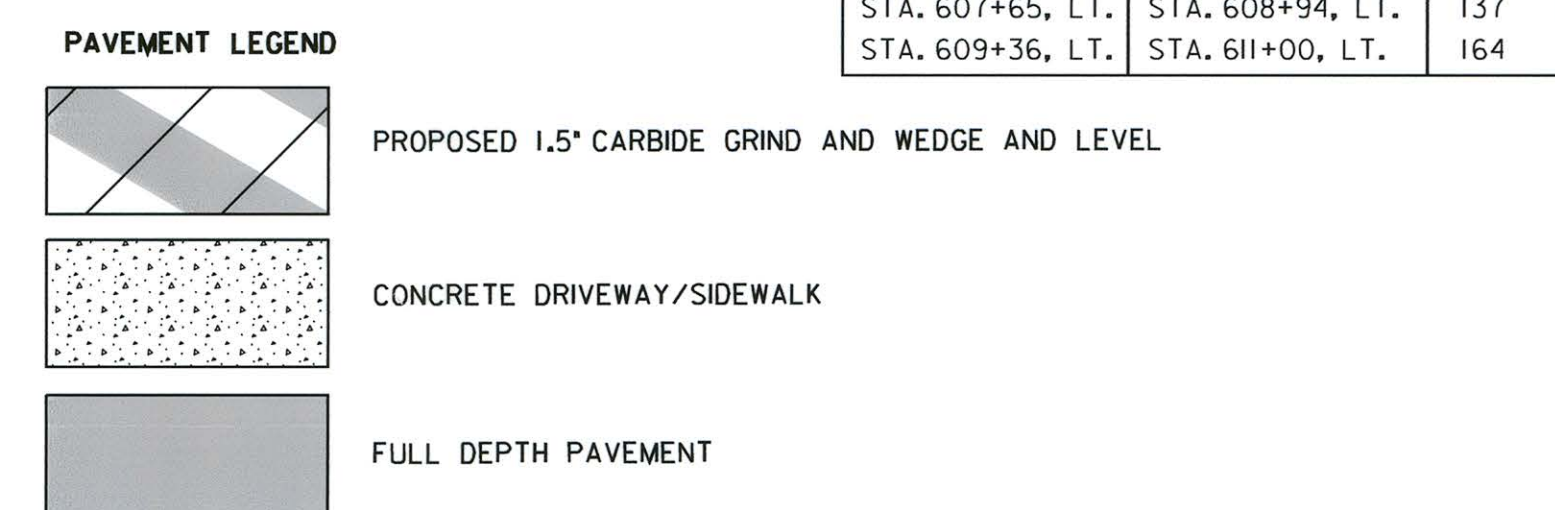
CONVERT EXISTING INLET TO JUNCTION BOX (SEE DETAIL ON DD-1)		
NO.	STATION	TYPE
EX. I-4	STA. 609+62, 14.2' LT.	- 1 EA.

- NOTES:**
- LOCATIONS AND LENGTHS ARE GIVEN ALONG CURB AND GUTTER AT FLOW LINE.
 - SEE STD. DETAIL R-3.06 FOR TRANSITION TO STD. 7" COMBINATION CURB AND GUTTER AT TYPE "A-5", TYPE "A-10" AND TYPE "S" COMBINATION INLETS.
 - CONTRACTOR SHALL CONSTRUCT CURB AND GUTTER ACCORDING TO THE FOLLOWING FLOW LINE ELEVATIONS:
 - a. BETWEEN STA. 609+20 AND INLET I-4: STA. 609+20, FL. ELEV. 264.93; STA. 609+30, FL. ELEV. 264.87.
 - b. BETWEEN STA. 610+75 AND STA. 610+95: STA. 610+75, FL. ELEV. 266.89; STA. 610+95, FL. ELEV. 267.06.

As Constructed Certification
I hereby certify being a duly licensed Professional Land Surveyor in the state of Maryland license number 21084 expiring 12/12/16 prepared and/or was in responsible charge over the preparation and the measurements reflected on this As-constructed survey in compliance with the requirements set forth in COMAR Title 08 Subtitle 13 Chapter 08, Regulation 08-12. This as-constructed survey is intended to show existing conditions at the date indicated and does not imply that the design works as intended.

WATER SERVICE NOTE:
RELOCATE WATER SERVICE AS SHOWN IN PLAN. SPLICE SERVICE CONNECTION AT BOTH ENDS. SEE PROFILE FOR VERTICAL LOCATION.

CURB GEOMETRY SCHEDULE					
POINT NO.	FROM	LOCATION	POINT NO.	TO	LENGTH
C18	600+54, 12.0' LT.		C19	607+10, 12.0' LT.	656'
C19	607+10, 12.0' LT.		C20	607+35, 36.9' LT.	25'
C20	607+35, 36.9' LT.		C21	607+80, 12.0' LT.	15'
C21	607+80, 12.0' LT.		C22	609+45, 12.0' LT.	164'
C22	609+45, 12.0' LT.		C23	609+67, 12.0' LT.	13'
C23	609+67, 12.0' LT.		C24	610+21, 12.0' LT.	44'
C24	610+21, 12.0' LT.		C25	610+31, 12.2' LT.	2'
C25	610+31, 12.2' LT.		C26	607+29, 34.8' RT.	25'
C26	607+29, 34.8' RT.		C27	607+83, 12.0' RT.	25'
C27	607+83, 12.0' RT.		C28	609+90, 12.0' RT.	207'
C28	609+90, 12.0' RT.		C29	609+94, 13.5' RT.	4'
C29	609+94, 13.5' RT.		C30	610+05, 24.2' RT.	15'



609+97.2
 607+24.4
 609+71.8
 609+49.0
 610+24.7
 609+55.7
 M-2A 608+24.7 1.0' RT

NOTE:
CONTRACTOR SHALL REMOVE AND RESET MAILBOXES AND FENCES IMPACTED BY CURB CONSTRUCTION AND GRADING OPERATIONS AS DIRECTED BY THE COUNTY ENGINEER. COST SHALL BE INCIDENTAL TO THE CONTRACT LUMP SUM COST FOR CLEARING AND GRUBBING.

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Steve Shaban* 4/14/14
 Chief, Transportation and Special Projects Division

Chief, Bureau of Highways: *Mich 2 mall* 4-8-14
 Chief, Bureau of Engineering: *Monica B. Butler* 4/14/14
 Deputy Director of Public Works

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

STATE OF MARYLAND
PAUL FRANKLIN CLAYTON
Professional Engineer
03/28/14

DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150
MAP NO. BLOCK NO.

ROADWAY PLAN
BRYANT AVENUE & GRANT AVENUE - STORM DRAIN IMPROVEMENTS
ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

SCALE
1" = 20'
SHEET
10 OF 24

UTILITY TEST PIT SCHEDULE							
NO.	LOCATION	UTILITY	DEPTH	NO.	LOCATION	UTILITY	DEPTH
TP 4-1	STA. 607+08, 2.0' RT.	3/4" TELE.	1.58'	TP 4-13	STA. 609+26, 9.3' LT.	12" WATER	4.13'
TP 4-2	STA. 607+09, 5.2' RT.	(3) 1/2" ELECTRIC	1.54'	TP 4-14	STA. 609+24, 3.6' LT.	(4) 1/2" ELECTRIC	2.21'
TP 4-3	STA. 607+08, 15.1' RT.	2" GAS	4.06'	TP 4-15	STA. 609+35, 6.1' RT.	(4) 1/2" ELECTRIC	2.67'
TP 4-4	STA. 607+08, 19.8' RT.	3/4" TELE.	1.60'	TP 4-16	STA. 609+43, 5.7' RT.	1" WATER	4.00'
TP 4-5	STA. 607+59, 6.3' RT.	12" WATER	5.96'	TP 4-17	STA. 609+48, 5.9' RT.	(3) 1/2" ELECTRIC	3.76'
TP 4-6	STA. 607+97, 6.7' RT.	1" WATER	4.31'	TP 4-18	STA. 609+50, 5.8' RT.	1" GAS	3.39'
TP 4-7	STA. 608+18, 6.7' RT.	1 1/2" ELECTRIC	1.80'	TP 4-19	STA. 607+20, 15.6' RT.	3" GAS	3.85'
TP 4-8	STA. 608+20, 6.6' RT.	2" GAS	3.29'				
TP 4-9	STA. 608+21, 6.6' RT.	1 1/4" TELE.	2.43'	TP 4-21	STA. 609+46, 14.3' LT	1/2" GAS	2.46'
TP 4-10	STA. 608+28, 7.3' RT.	1" GAS	3.10'	TP 4-22	STA. 609+45, 14.2' LT	(3) 1/2" ELECTRIC	2.66'
TP 4-11	STA. 608+46, 7.5' RT.	1" WATER	4.00'	TP 4-23	STA. 609+82, 24.4' RT	3" GAS	5.52'
TP 4-12	STA. 608+97, 6.6' RT.	1" WATER	4.34'	TP 4-24	STA. 610+01, 18.7' RT	1" WATER	4.17'

7 INCH PORTLAND CEMENT CONCRETE PAVEMENT FOR DRIVEWAY, MIX 6 (STD. NO. R-6.03)		
QUANTITY (S.F.)	LOCATION	COMMENTS
20	606+33, LT.	HOUSE NO. 9204
35	606+90, RT.	HOUSE NO. 9201
16	607+93, LT.	HOUSE NO. 9160
32	608+13, RT.	HOUSE NO. 9157
5	608+75, LT.	HOUSE NO. 9150
6	609+32, LT.	HOUSE NO. 9144
26	610+11, RT.	HOUSE NO. 9135
19	610+14, LT.	HOUSE NO. 9140
13	610+65, LT.	HOUSE NO. 9130
27	610+65, RT.	HOUSE NO. 9127
4	610+85, RT.	HOUSE NO. 9125

STD. 7" COMBINATION CURB AND GUTTER (STD. NO. R-3.01)			
FROM	TO	LENGTH (L.F.)	REMARKS
STA. 607+02, RT.	STA. 607+16, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 607+02 RT.
STA. 607+21, RT.	STA. 607+29, RT.	15	10' TRANSITION TO MODIFIED CURB ENDS AT STA. 607+29 RT.
STA. 609+19, RT.	STA. 609+34, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 609+19 RT.
STA. 609+41, RT.	STA. 609+56, RT.	15	10' TRANSITION TO MODIFIED CURB ENDS AT STA. 609+56 RT.
STA. 609+84, RT.	STA. 609+97, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 609+84 RT.
STA. 610+02, RT.	STA. 610+05, RT.	4	4' TRANSITION FROM INLET I-II TO MODIFIED CURB ENDS AT STA. 610+05 RT.
STA. 608+94, LT.	STA. 609+09, LT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 608+94 LT.
STA. 609+21, LT.	STA. 609+36, LT.	15	10' TRANSITION TO MODIFIED CURB ENDS AT STA. 609+36 LT.

PIPE SCHEDULE			
FROM	TO	TYPE	LENGTH
I-11	M-4	15"RCP, CL. IV	37 L.F.
I-13	EX. I-4	15"RCP, CL. IV	9 L.F.
I-12	EX. I-4	15"RCP, CL. IV	8 L.F.
M-3	M-4	18"RCP, CL. IV	14 L.F.
I-4	M-3	15"RCP, CL. IV	6 L.F.
M-2	M-3	18"RCP, CL. IV	208 L.F.
I-3	M-2	15"RCP, CL. IV	9 L.F.
I-5	I-13	15"RCP, CL. IV	28 L.F.
I-14	I-12	15"RCP, CL. IV	50 L.F.

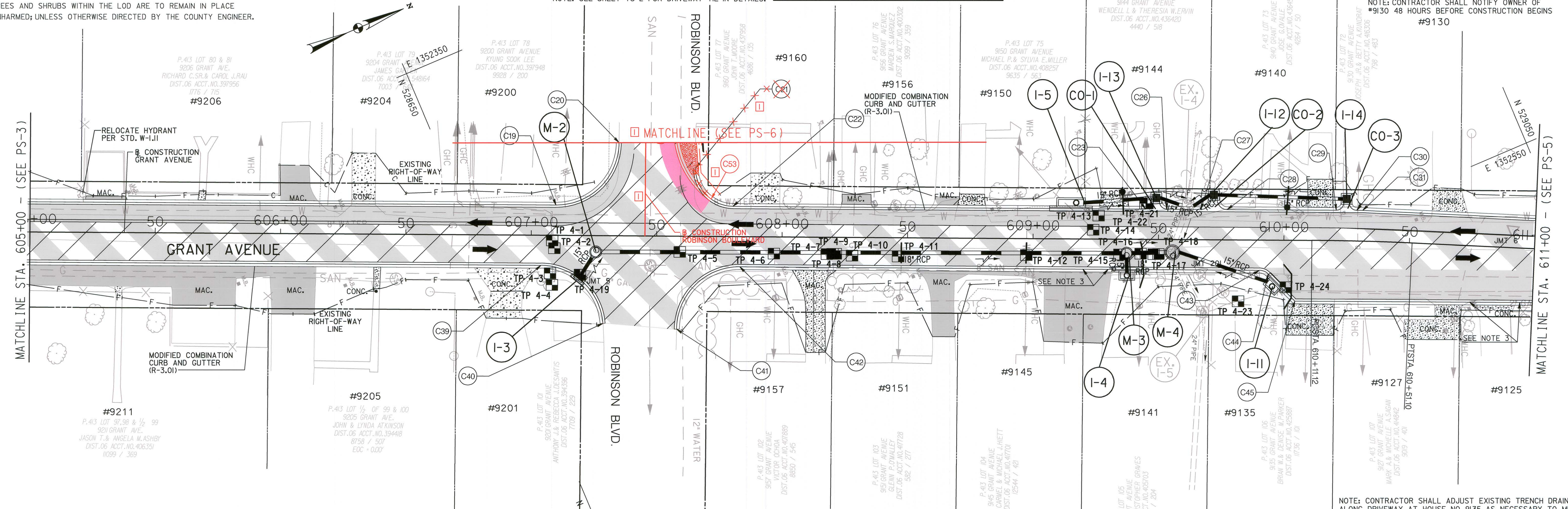
TREE NOTE:
ALL TREES AND SHRUBS WITHIN THE LOD ARE TO REMAIN IN PLACE AND UNHARMED; UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.

NOTE: SEE SHEET TS-2 FOR DRIVEWAY TIE-IN DETAILS.

GRINDING EXISTING ASPHALT PAVEMENT - 1.5 INCH DEPTH
1249 S.Y. - STA. 605+00 TO STA. 611+00, LT. - RT.

FULL DEPTH ASPHALT PAVEMENT
851 S.Y. - STA. 605+00 TO STA. 611+00, LT. - RT.

NOTE: CONTRACTOR SHALL NOTIFY OWNER OF #9130 48 HOURS BEFORE CONSTRUCTION BEGINS #9130



STANDARD CURB OPENING (MSHA STD. NO. MD 640.02)			
NO.	LOCATION	TYPE	NOTE
CO-1	609+49.1, LT.	ON GRADE	5" CONCRETE GUTTER TO MEET I-13
CO-2	609+72.1, LT.	ON GRADE	5" CONCRETE GUTTER TO MEET I-12
CO-3	610+24.7, LT.	ON GRADE	5" CONCRETE GUTTER TO MEET I-14

5 INCH CONCRETE WALK/STEPS (SEE DETAILS, SHEET TS-3)		
QUANTITY (S.F.)	LOCATION	COMMENTS
11	605+36, RT.	HOUSE NO. 9211
10	605+69, LT.	HOUSE NO. 9206
22	606+38, RT.	HOUSE NO. 9205

DRAINAGE STRUCTURE SCHEDULE					
NO.	STATION	OFFSET	TYPE	STD. NO.	DEPTH
I-3	607+18.8	17.2', RT.	TYPE 'S' COMB. INLET	D-4.32	4.42
I-4	609+37.5	12.4', RT.	PRECAST STD. TYPE A-5 INLET	D-4.01	5.19
I-5	609+15.0	12.4', LT.	PRECAST STD. TYPE A-10 INLET	D-4.03	3.64
I-11	609+96.8	17.0', RT.	PRECAST STD. TYPE A-5 INLET	D-4.01	4.24
M-2	607+25.7	6.5', RT.	48" STD. PRECAST MANHOLE	G-5.12	4.56
M-3	609+37.4	5.6', RT.	48" STD. PRECAST MANHOLE	G-5.12	5.58
I-12	609+71.9	17.8', LT.	TYPE 'K' INLET	D-4.12	3.73
I-13	609+49.0	16.5', LT.	TYPE 'K' INLET	D-4.12	3.97
I-14	610+24.7	16.6', LT.	TYPE 'K' INLET	D-4.12	4.55
M-4	609+55.7	5.1', RT.	60" STD. PRECAST MANHOLE	G-5.11	5.98

CONVERT EXISTING INLET TO JUNCTION BOX (SEE DETAIL ON DD-I)
EX. I-4 STA. 609+62, 14.2' LT. - I EA.

- NOTES:**
- LOCATIONS AND LENGTHS ARE GIVEN ALONG CURB AND GUTTER AT FLOW LINE.
 - SEE STD. DETAIL R-3.06 FOR TRANSITION TO STD. 7" COMBINATION CURB AND GUTTER AT TYPE 'A-5', TYPE 'A-10' AND TYPE 'S' COMBINATION INLETS.
 - CONTRACTOR SHALL CONSTRUCT CURB AND GUTTER ACCORDING TO THE FOLLOWING FLOW LINE ELEVATIONS:
 - a. BETWEEN STA. 609+20 AND INLET I-4: STA. 609+20, FL. ELEV. 264.93; STA. 609+30, FL. ELEV. 264.87.
 - b. BETWEEN STA. 610+75 AND STA. 610+95: STA. 610+75, FL. ELEV. 266.89; STA. 610+95, FL. ELEV. 267.06.

*PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015

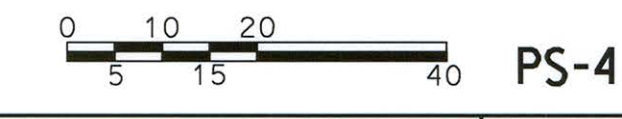
WATER SERVICE NOTE:
RELOCATE WATER SERVICE AS SHOWN IN PLAN. SPLICE SERVICE CONNECTION AT BOTH ENDS. SEE PROFILE FOR VERTICAL LOCATION.

CURB GEOMETRY SCHEDULE					
POINT NO.	FROM LOCATION	TO LOCATION	CURVE RADIUS	LENGTH	
C18	600+54, 12.0' LT.	C19	607+10, 12.0' LT.	---	656'
C19	607+10, 12.0' LT.	C20	607+35, 36.9' LT.	25'	39'
C20	607+35, 36.9' LT.	C21	607+80, 12.0' LT.	15'	24'-9"
C21	607+80, 12.0' LT.	C23	609+45, 12.0' LT.	---	164'
C23	609+45, 12.0' LT.	C27	609+67, 12.0' LT.	---	13'
C27	609+67, 12.0' LT.	C29	610+21, 12.0' LT.	---	44'
C29	610+21, 12.0' LT.	C31	610+31, 12.2' LT.	---	2'
C31	610+31, 12.2' LT.	C40	607+29, 34.8' RT.	25'	37'
C40	607+29, 34.8' RT.	C42	607+83, 12.0' RT	25'	39'
C42	607+83, 12.0' RT.	C43	609+90, 12.0' RT.	---	207'
C43	609+90, 12.0' RT.	C44	609+94, 13.5' RT.	5'	4'
C44	609+94, 13.5' RT.	C45	610+05, 24.2' RT.	---	15'

PAVEMENT LEGEND

- PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND LEVEL
- CONCRETE DRIVEWAY/SIDEWALK
- FULL DEPTH PAVEMENT

MOD. COMBINATION CURB AND GUTTER (STD. NO. R-3.01)		
FROM	TO	LENGTH (L.F.)
STA. 605+00, RT.	STA. 607+02, RT.	202
STA. 607+28, RT.	STA. 607+29, RT.	3
STA. 607+58, RT.	STA. 609+19, RT.	175
STA. 609+56, RT.	STA. 609+84, RT.	29
STA. 610+05, RT.	STA. 611+00, RT.	95
STA. 607+65, LT.	STA. 608+94, LT.	+37' 123
STA. 609+36, LT.	STA. 611+00, LT.	164



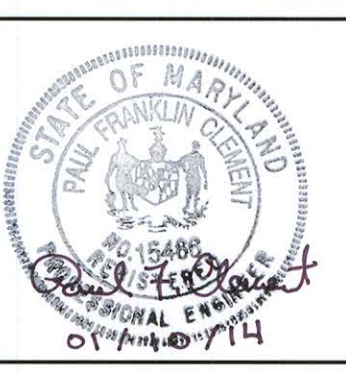
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS: _____ CHIEF, BUREAU OF HIGHWAYS

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION: _____ CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949



DES:	BY:	NO.:	DATE:
VRM	JMB	1	01/2015
DRN:	JMB		
CHK:	SAM		
DATE:	DEC 2013		

CAPITAL PROJECT NO.
D-1150

ROADWAY PLAN
BRYANT AVENUE & GRANT AVENUE - STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND

SCALE: 1" = 20'

SHEET: 10A OF 24

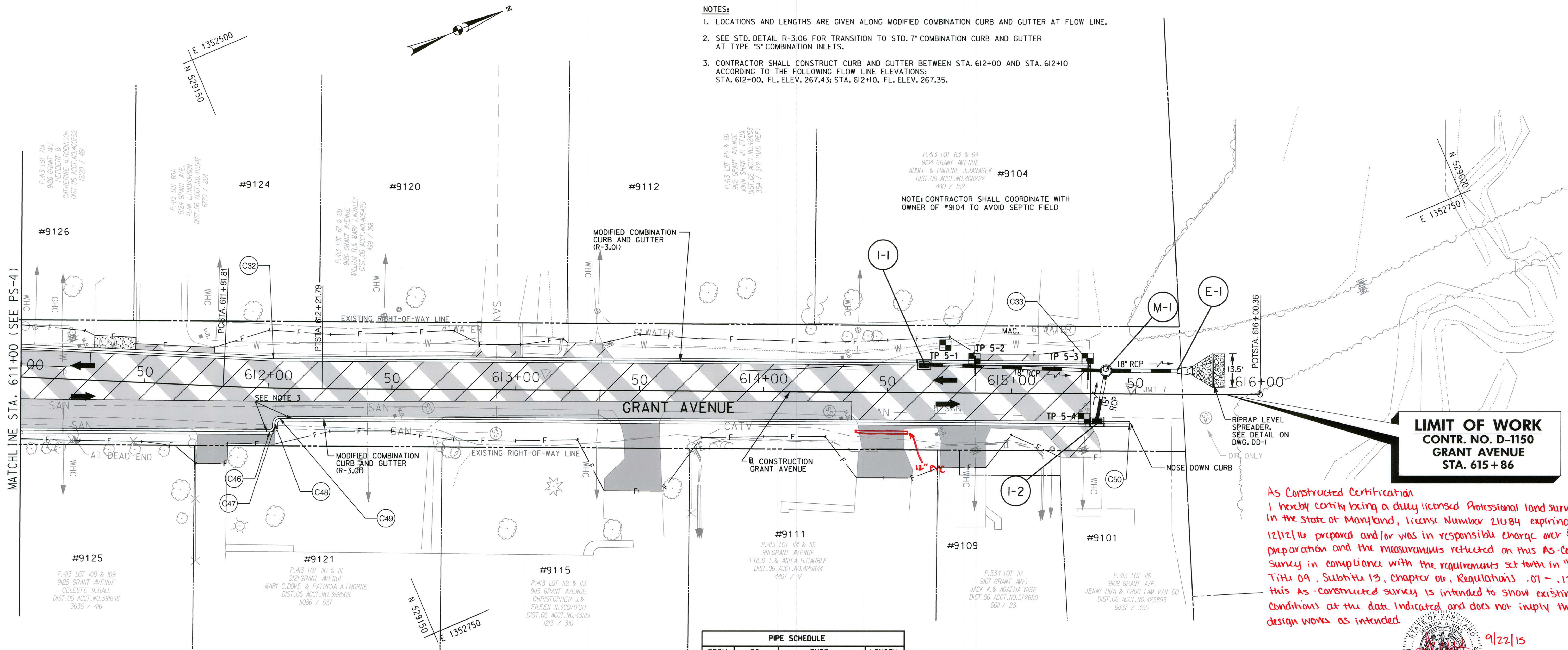
MOD. COMBINATION CURB AND GUTTER (STD. NO. R-3.01)		
FROM	TO	LENGTH (L.F.)
STA. 611+00, LT.	STA. 614+47, LT.	347
STA. 614+83, LT.	STA. 615+32, LT.	49
STA. 611+00, RT.	STA. 615+17, RT.	420

GRINDING EXISTING ASPHALT PAVEMENT - 1.5 INCH DEPTH	
868 S.Y. - STA. 611+00 TO STA. 615+32, LT. - RT.	
FULL DEPTH ASPHALT PAVEMENT	
469 S.Y. - STA. 611+00 TO STA. 615+13, LT. - RT.	

CURB GEOMETRY SCHEDULE					
FROM		TO		CURVE RADIUS	LENGTH
POINT NO.	LOCATION	POINT NO.	LOCATION		
C31	610+31, 12.2' LT.	C32	612+02, 11.8' LT.	---	171'
C32	612+02, 11.8' LT.	C33	615+32, 12.0' LT.	---	330'
C45	610+05, 24.2' RT.	C46	612+01, 17.6' RT.	---	196'
C46	612+01, 17.6' RT.	C47	612+03, 15.5' RT.	---	3'
C47	612+03, 15.5' RT.	C48	612+03, 14.2' RT.	---	1'
C48	612+03, 14.2' RT.	C49	612+05, 12.1' RT.	---	3'
C49	612+05, 12.1' RT.	C50	615+48, 12.0' RT.	---	343'

UTILITY TEST PIT SCHEDULE			
NO.	LOCATION	UTILITY	DEPTH
TP 5-1	STA. 614+73, 19.1' LT.	8" WATER	3.68'
TP 5-2	STA. 614+85, 13.8' LT.	1" WATER	3.84'
TP 5-3	STA. 615+31, 14.2' LT.	1" WATER	4.66'
TP 5-4	STA. 615+29, 10.1' RT.	1" WATER	3.94'

- NOTES:
- LOCATIONS AND LENGTHS ARE GIVEN ALONG MODIFIED COMBINATION CURB AND GUTTER AT FLOW LINE.
 - SEE STD. DETAIL R-3.06 FOR TRANSITION TO STD. 7" COMBINATION CURB AND GUTTER AT TYPE 'S' COMBINATION INLETS.
 - CONTRACTOR SHALL CONSTRUCT CURB AND GUTTER BETWEEN STA. 612+00 AND STA. 612+10 ACCORDING TO THE FOLLOWING FLOW LINE ELEVATIONS:
STA. 612+00, FL. ELEV. 267.43; STA. 612+10, FL. ELEV. 267.35.



LIMIT OF WORK
CONTR. NO. D-1150
GRANT AVENUE
STA. 615+86

As Constructed Certification
I hereby certify being a duly licensed Professional Land Surveyor in the State of Maryland, license number 21084 expiring 12/12/16 prepared and/or was in responsible charge over the preparation and the measurements reflected on this As-Constructed Survey in compliance with the requirements set forth in "COMAR" Title 09, Subtitle 13, Chapter 09, Regulations .01 - .12. This As-Constructed survey is intended to show existing conditions at the date indicated and does not imply the design works as intended.



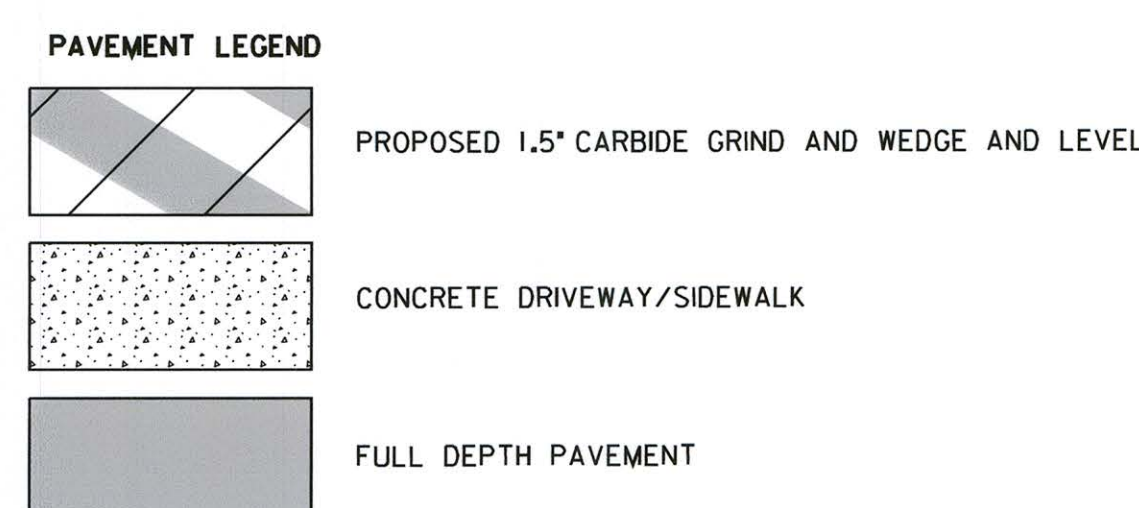
PIPE SCHEDULE				
FROM	TO	TYPE	LENGTH	
I-1	M-1	18" RCP, CL. IV	70 L.F.	
M-1	E-1	18" RCP, CL. IV	27 L.F.	
I-2	M-1	15" RCP, CL. IV	18 L.F.	

RIPRAP OUTLET PROTECTION				
LOCATION	CLASS	LENGTH	WIDTH	QUANTITY
E-1	I	•	13.5'	15 S.Y.

• SEE DETAIL FOR LEVEL SPREADER ON DWG. DD-1.

DRAINAGE STRUCTURE SCHEDULE					
NO.	STATION	OFFSET	TYPE	STD. NO.	DEPTH
I-1	614+64.71	12.0' LT.	TYPE 'S' COMB. INLET	12.3	3.84'
M-1	615+38.1	9.3' LT.	48" STD. PRECAST MANHOLE	10.4	5.37'
E-1	615+66.89	9.3' LT.	STD. CONC. END SECTION - 18" RCP	9.5	---
I-2	615+34.6	12.4' RT.	TYPE 'S' COMB. INLET	11.7	3.96'

STD 7" COMBINATION CURB AND GUTTER (STD. NO. R-3.01)					
FROM	TO	LENGTH (L.F.)	REMARKS		
STA. 614+47, LT.	STA. 614+62, LT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 614+47 LT.		
STA. 614+68, LT.	STA. 614+83, LT.	15	10' TRANSITION TO MODIFIED CURB ENDS AT STA. 614+83 RT.		
STA. 615+17, RT.	STA. 615+32, RT.	15	10' TRANSITION TO MODIFIED CURB BEGINS AT STA. 615+17 RT.		
STA. 615+38, RT.	STA. 615+48, RT.	10	NOSE DOWN AT STA. 615+48 RT (STD. NO. R-3.02)		



7 INCH PORTLAND CEMENT CONCRETE PAVEMENT FOR DRIVEWAY, MIX 6 (STD. NO. R-6.03)		
QUANTITY (S.Y.)	LOCATION	COMMENTS
9	611+38, LT.	HOUSE NO. 9126

NOTE: SEE SHEET TS-2 FOR DRIVEWAY TIE-IN DETAILS.

NOTE: CONTRACTOR SHALL REMOVE AND RESET MAILBOXES AND FENCES IMPACTED BY CURB CONSTRUCTION AND GRADING OPERATIONS AS DIRECTED BY THE COUNTY ENGINEER. COST SHALL BE INCIDENTAL TO THE CONTRACT LUMP SUM COST FOR CLEARING AND GRUBBING.

TREE NOTE:
ALL TREES AND SHRUBS WITHIN THE LOD ARE TO REMAIN IN PLACE AND UNHARMED; UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.

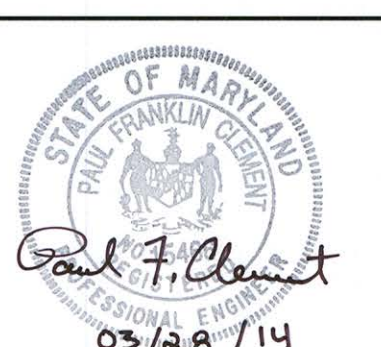
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Steve Sharan* 4/14/14
Chief, Bureau of Highways: *William J. Miller* 4-8-14
Chief, Bureau of Engineering: *Thomas J. Suttle* 4/14/14
Deputy Director of Public Works: *Paul F. Clewett*

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

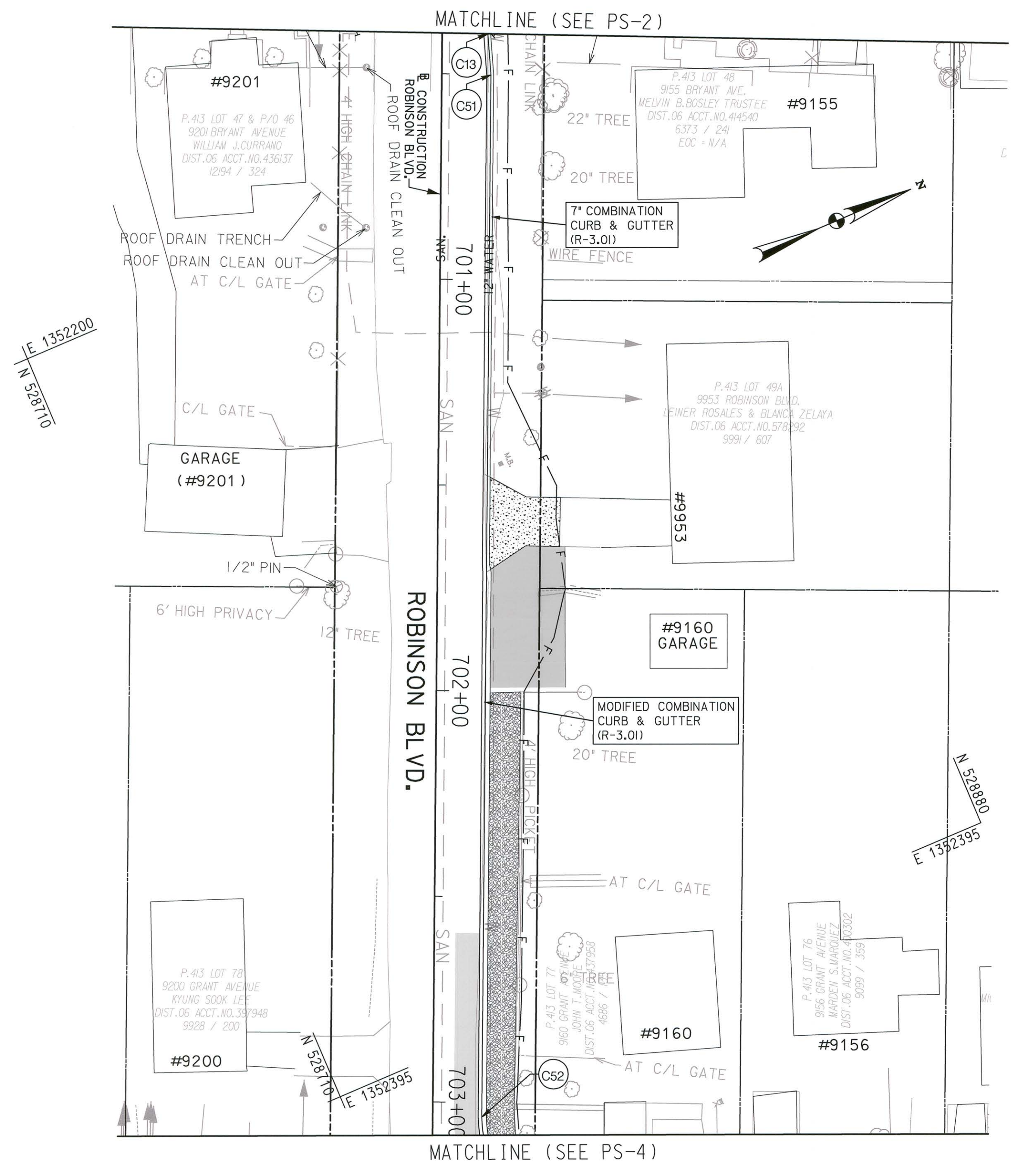


DES:	BY:	NO.:	DATE:
VRM	JMB		
DRN:	SAM		
CHK:			
DATE:	DEC 2013		

CAPITAL PROJECT NO.
D-1150

ROADWAY PLAN
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS
ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

PS-5
SCALE 1" = 20'
SHEET 11 OF 24



MOD. COMBINATION CURB AND GUTTER - (STD. NO. R-3.01)			
FROM	TO	LENGTH (L.F.)	REMARKS
STA. 701+69, LT.	STA. 703+30, LT.	165	MEET TANGENT OF CURB FROM GRANT AVE. AT STA. 703+30, LT. TRANSITION TO MODIFIED CURB & GUTTER AT STA. 701+69, LT.

- NOTES:**
- LOCATIONS AND LENGTHS ARE GIVEN ALONG CURB AND GUTTER AT FLOW LINE.
 - SEE STD. DETAIL R-6.05 FOR RESIDENTIAL DRIVEWAY ENTRANCE.

TREE NOTE:
ALL TREES AND SHRUBS WITHIN THE LOD ARE TO REMAIN IN PLACE AND UNHARMED; UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.

STD. 7" COMBINATION CURB AND GUTTER (STD. NO. R-3.01)			
FROM	TO	LENGTH (L.F.)	REMARKS
STA. 506+75, LT.	STA. 700+50, LT.	10	MEET EXISTING CURB FROM BRYANT AVE. AT STA. 506+75, LT.
STA. 700+50, LT.	STA. 701+47, LT.	97	BEGIN DRIVEWAY ENTRANCE STA. 701+47, LT.
STA. 701+47, LT.	STA. 701+69, LT.	22	DRIVEWAY ENTRANCE - MATCH EXISTING WIDTH

CURB GEOMETRY SCHEDULE					
POINT NO.	FROM		TO		LENGTH
	LOCATION	POINT NO.	LOCATION	CURVE RADIUS	
C13	506+75, 40.2' RT.	C51	700+50, 12.0' LT.	---	10'
C51	700+50, 12.0' LT.	C52	703+04, 12.0' LT.	---	254'
C52	703+04, 12.0' LT.	C53	607+72, 14.8' LT.	34'	32'

7 INCH PORTLAND CEMENT CONCRETE PAVEMENT FOR DRIVEWAY, MIX 6 (STD. NO. R-6.03)		
QUANTITY (S.Y.)	LOCATION	HOUSE NUMBER
28	STA. 701+58, LT.	9953

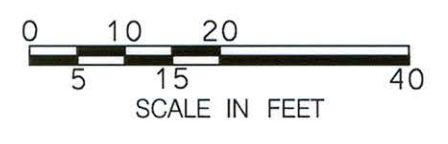
FULL DEPTH ASPHALT PAVEMENT
*121 S.Y. - STA. 700+00 TO STA. 703+36, LT.
*INCLUDES DRIVEWAY STA. 701+82, LT. (HOUSE NO. 9160)

NO. 57 STONE FOR PARKING AREA
13 TON - STA. 702+00 TO STA. 703+21, LT.

BASELINE CONSTRUCTION CONTROL POINTS					
	POINT NO.	STATION	NORTH	EAST	BEARING
ROBINSON BLVD.	POT	700+00	528,850.1725	1,352,130.0392	S 66° 27' 06.00 E
	POT	703+45.17	528,712.2702	1,352,446.4625	

PAVEMENT LEGEND

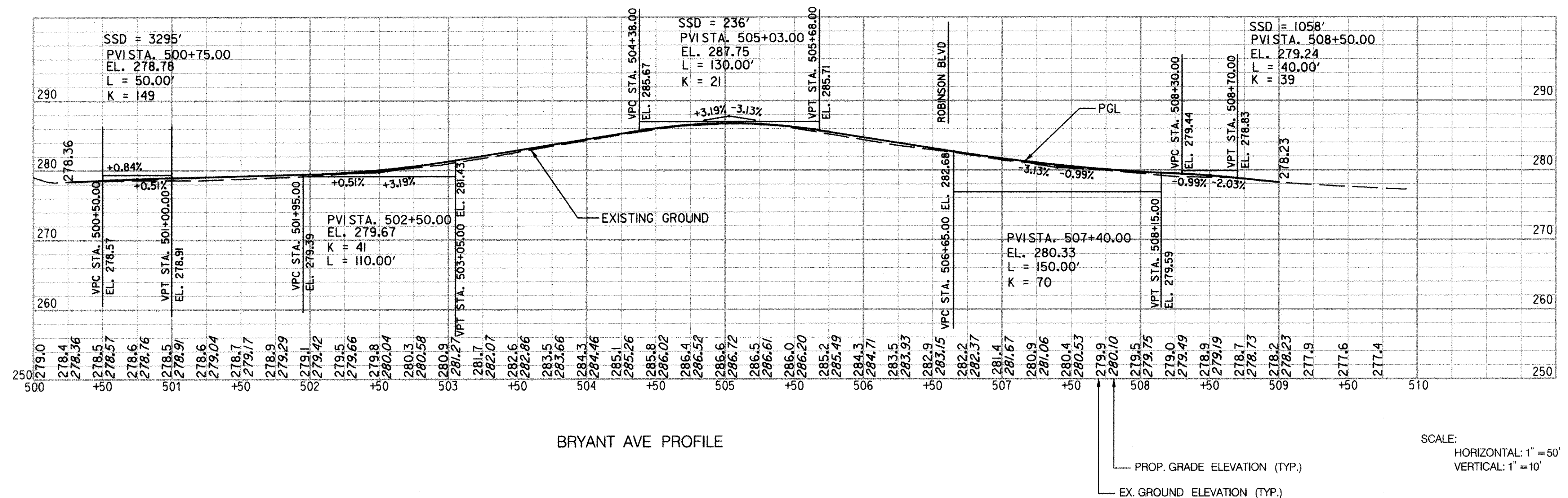
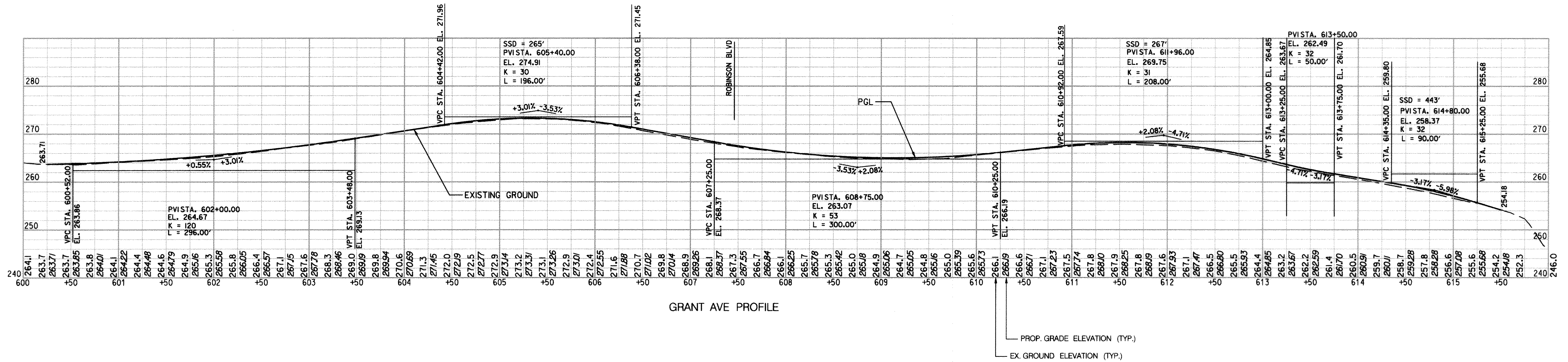
- PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND LEVEL
- CONCRETE DRIVEWAY/SIDEWALK
- FULL DEPTH PAVEMENT
- NO. 57 STONE



*PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER, UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015

FILE: D:\SUN\040444_0315\Bryant Avenue.dwg, C:\UD\980906\9806_888888.dwg DATE: 2/27/2015

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND		 JOHNSON, MIRIRAN & THOMPSON <i>Engineering A Brighter Future®</i> 72 Loveton Circle Baltimore, Maryland 21152-0949				DES: VRM DRN: JMB CHK: SAM DATE: DEC 2013	BY: [Signature] NO. 1 REDLINE REVISION NO. 1 - NEW SHEET DATE: 01/2015	CAPITAL PROJECT NO. D-1150	ROADWAY PLAN BRYANT AVENUE & GRANT AVENUE - STORM DRAIN IMPROVEMENTS	SCALE 1" = 20' SHEET 11A OF 24
DIRECTOR OF PUBLIC WORKS CHIEF, BUREAU OF HIGHWAYS		CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION CHIEF, BUREAU OF ENGINEERING DEPUTY DIRECTOR OF PUBLIC WORKS		STATE OF MARYLAND PROFESSIONAL ENGINEER		MAP NO. BLOCK NO.		ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND		



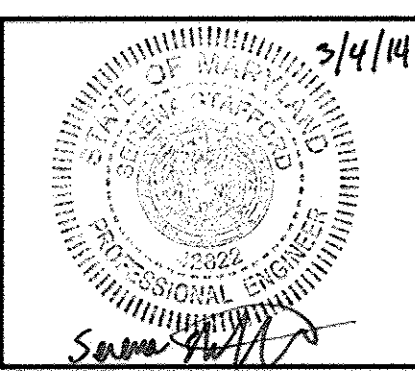
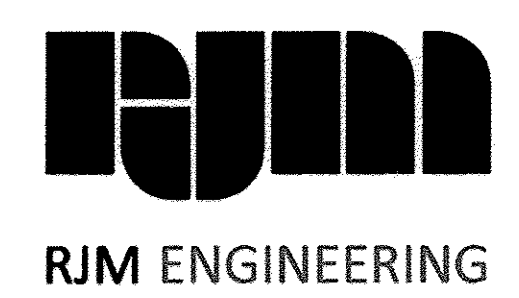
SCALE:
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 10'

E:\Projects\Bryant Ave Storm Drain\DWG\Bryant Ave Storm Drain.dwg DATE: Tuesday, March 04, 2014 10:51 AM

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

J. J. Sheppard 4/16/14
DIRECTOR OF PUBLIC WORKS
Steve Shuman 4/16/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

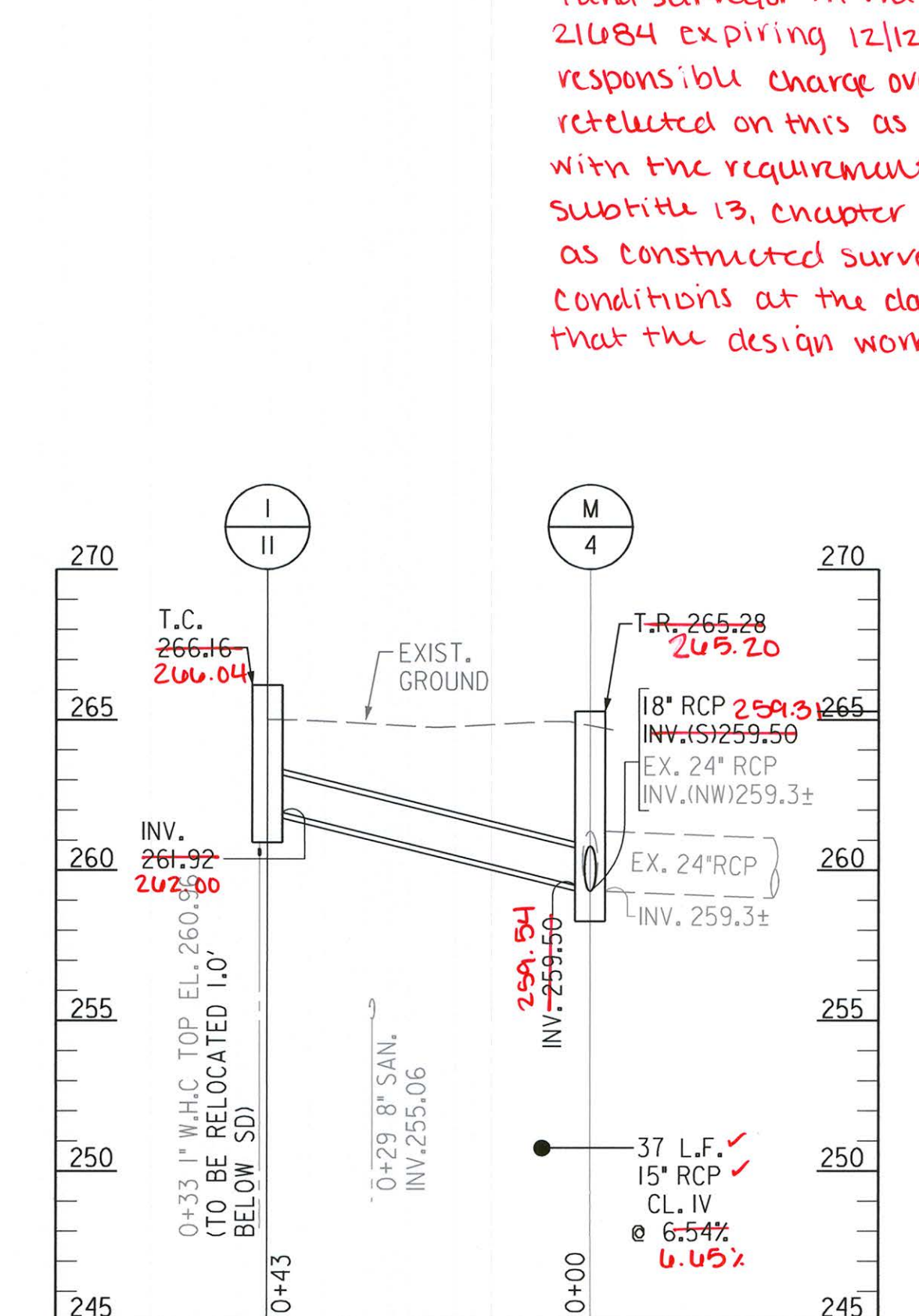
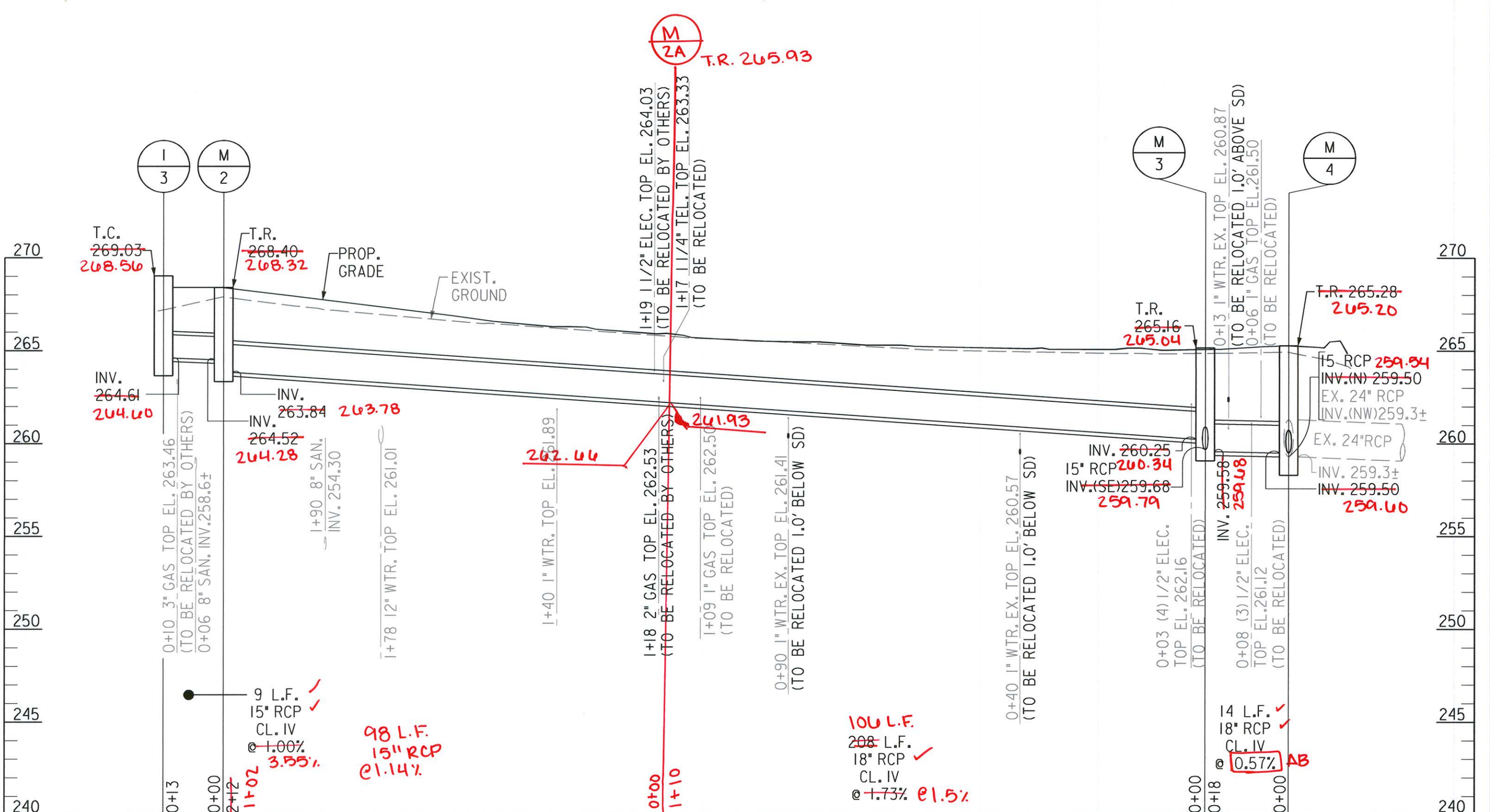
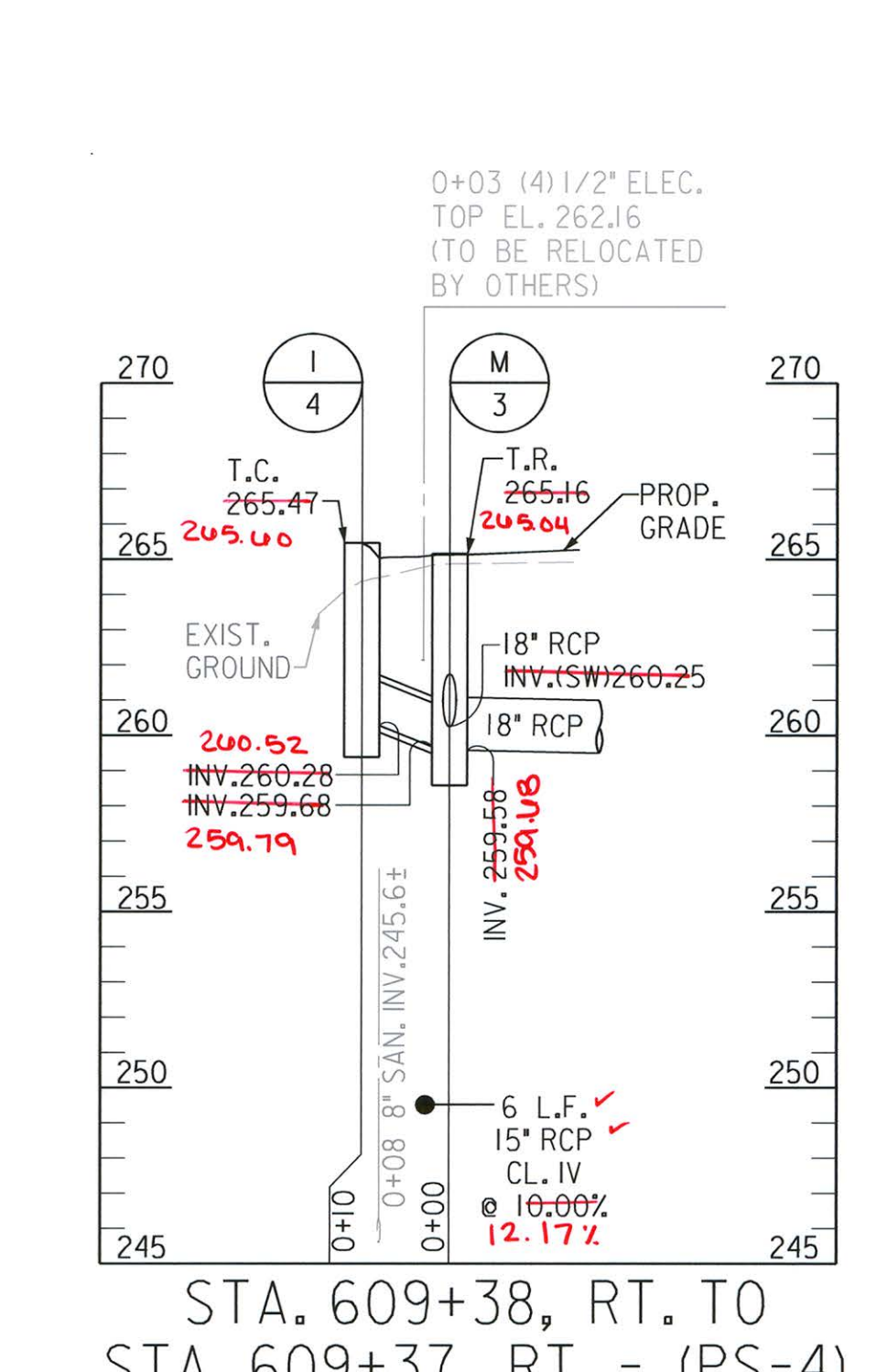
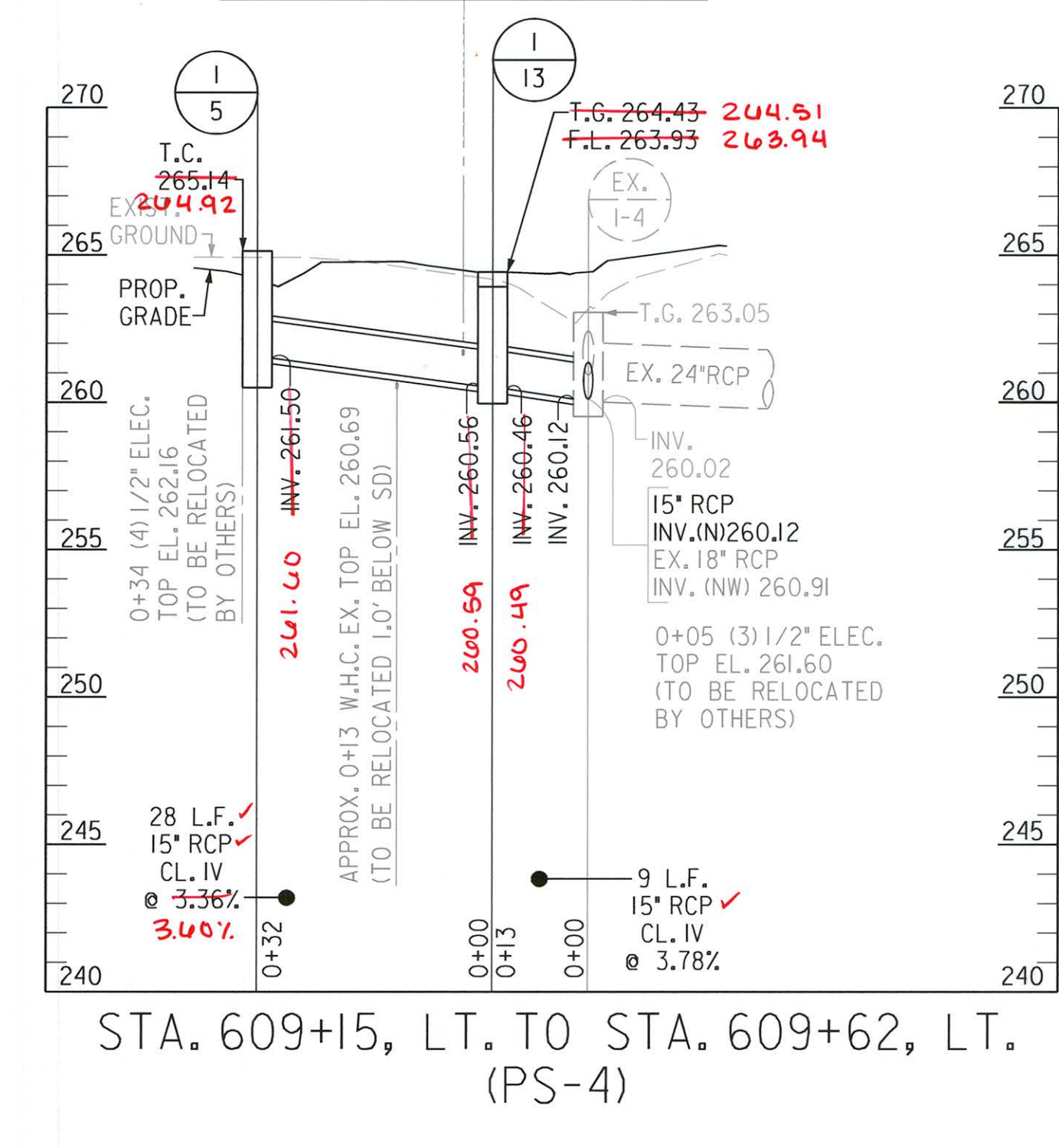
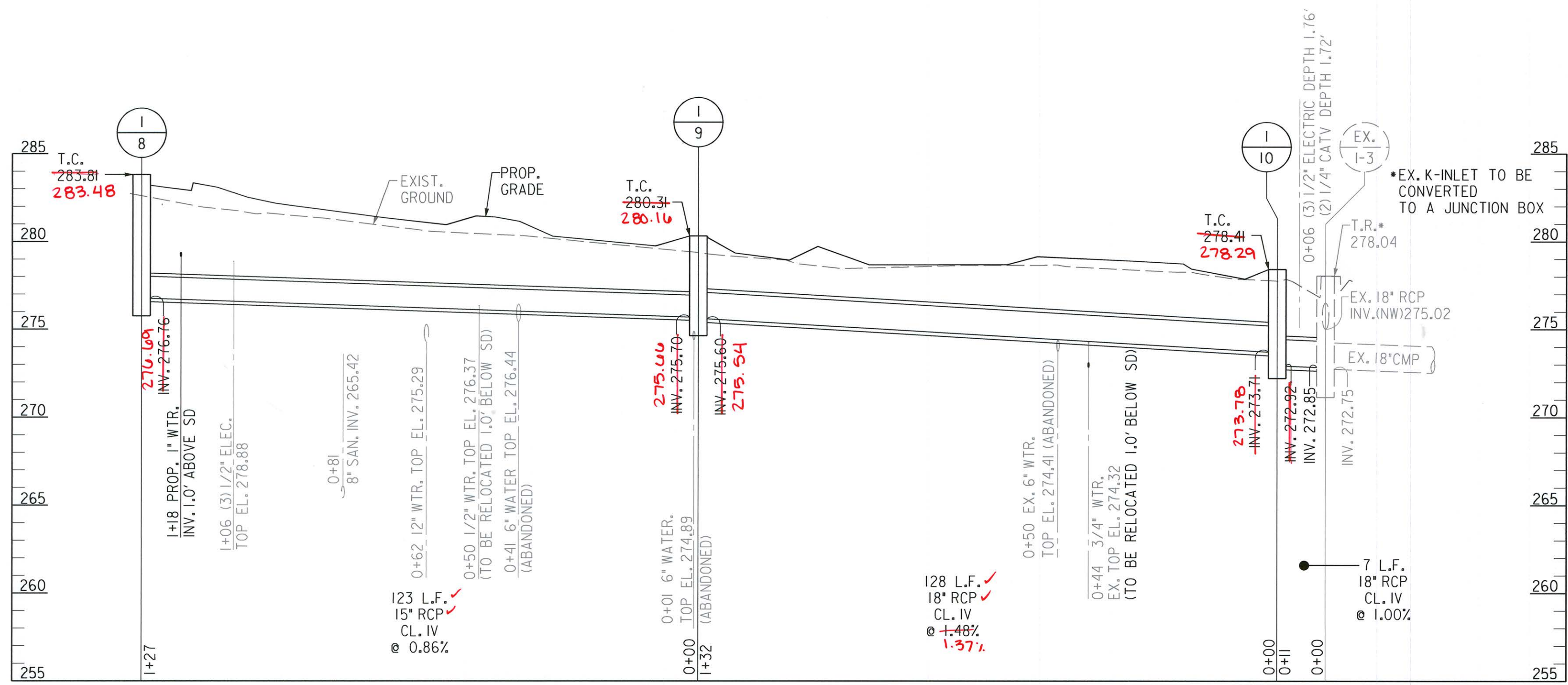
Wesley Miller 4-8-14
CHIEF, BUREAU OF HIGHWAYS
Monica R. Butler 4/14/14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS



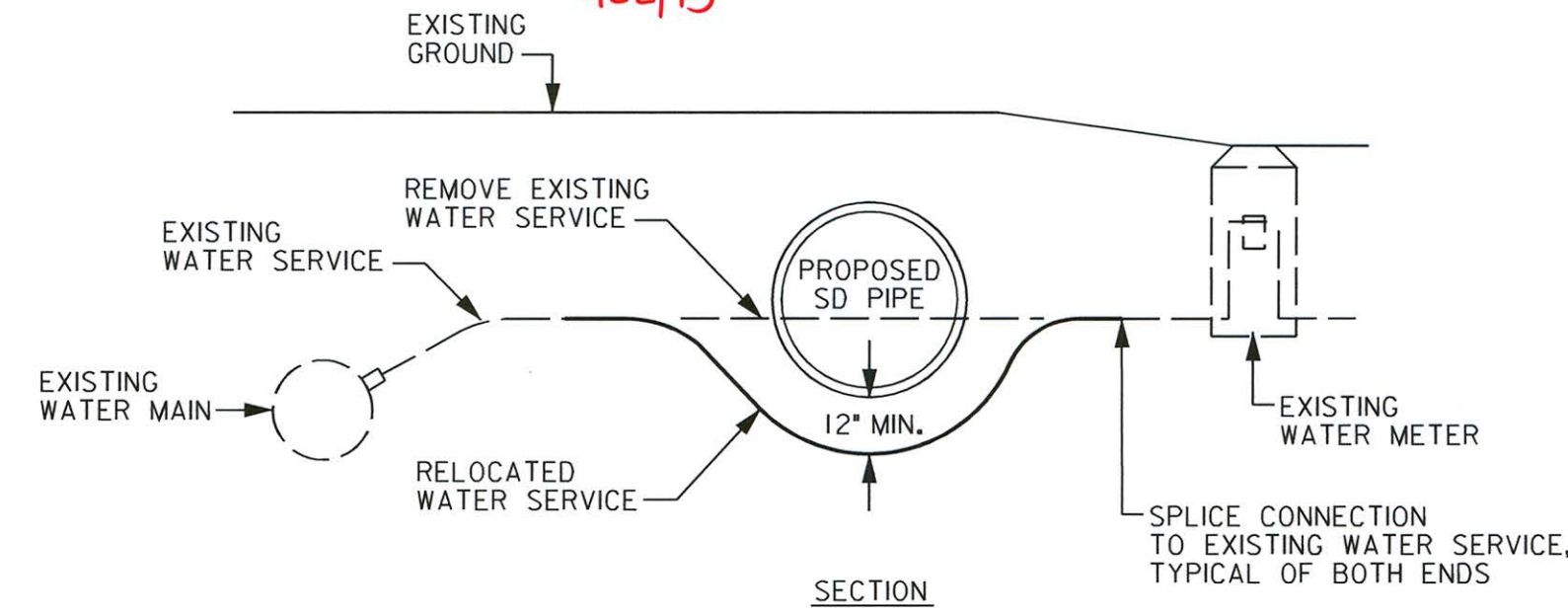
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DRN:	JP/SY			
CHK:	DZ			
DATE:	MAR 2014			

CAPITAL PROJECT NO.
D-1150
MAP NO. BLOCK NO.

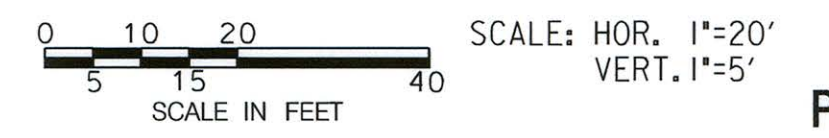
ROADWAY PROFILE
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS
ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND



As constructed certification:
 I hereby certify being a duly licensed professional land surveyor in the state of Maryland, License Number 21084 expiring 12/12/16 prepared and/or was in responsible charge over the preparation and the measurements reflected on this as constructed survey in compliance with the requirements set forth in "COMAR" title 09, subtitle 13, chapter 04 Regulations .07 + .12. This as constructed survey is intended to show existing conditions at the date indicated and does not imply that the design works as intended.



- NOTES:
- THIS DETAIL APPLIES TO EXISTING WATER SERVICE WHEN CROSSING ABOVE OR BELOW PROPOSED STORM DRAIN PIPE, UNLESS OTHERWISE NOTED ON PLAN OR PROFILE.
 - ALL WATER SERVICES SHALL HAVE A MINIMUM OF 3'-6" COVER UNLESS OTHERWISE NOTED.
 - REPLACEMENT WATER SERVICES SHALL MATCH EXISTING SIZE UNLESS OTHERWISE NOTED.
 - CONTRACTOR SHALL REFER TO HOWARD COUNTY DESIGN MANUAL VOLUME IV FOR ADDITIONAL STANDARDS AND SPECIFICATIONS FOR WATER SERVICE RELOCATIONS.



*PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015

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DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

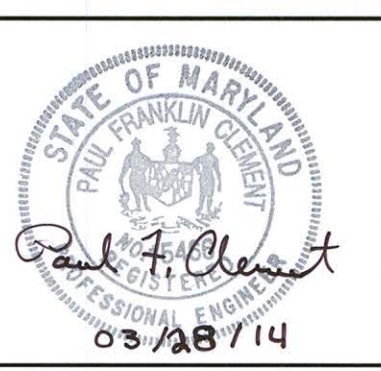
Steve Shahan 4/2/14
 DIRECTOR OF PUBLIC WORKS

Thomas R. Butler 4/14/14
 CHIEF, BUREAU OF HIGHWAYS

James R. Butler 4/14/14
 CHIEF, BUREAU OF ENGINEERING

Paul F. Clement
 DEPUTY DIRECTOR OF PUBLIC WORKS

JMT
 JOHNSON, MIRMIRAN & THOMPSON
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 72 Loveton Circle Baltimore, Maryland 21152-0949



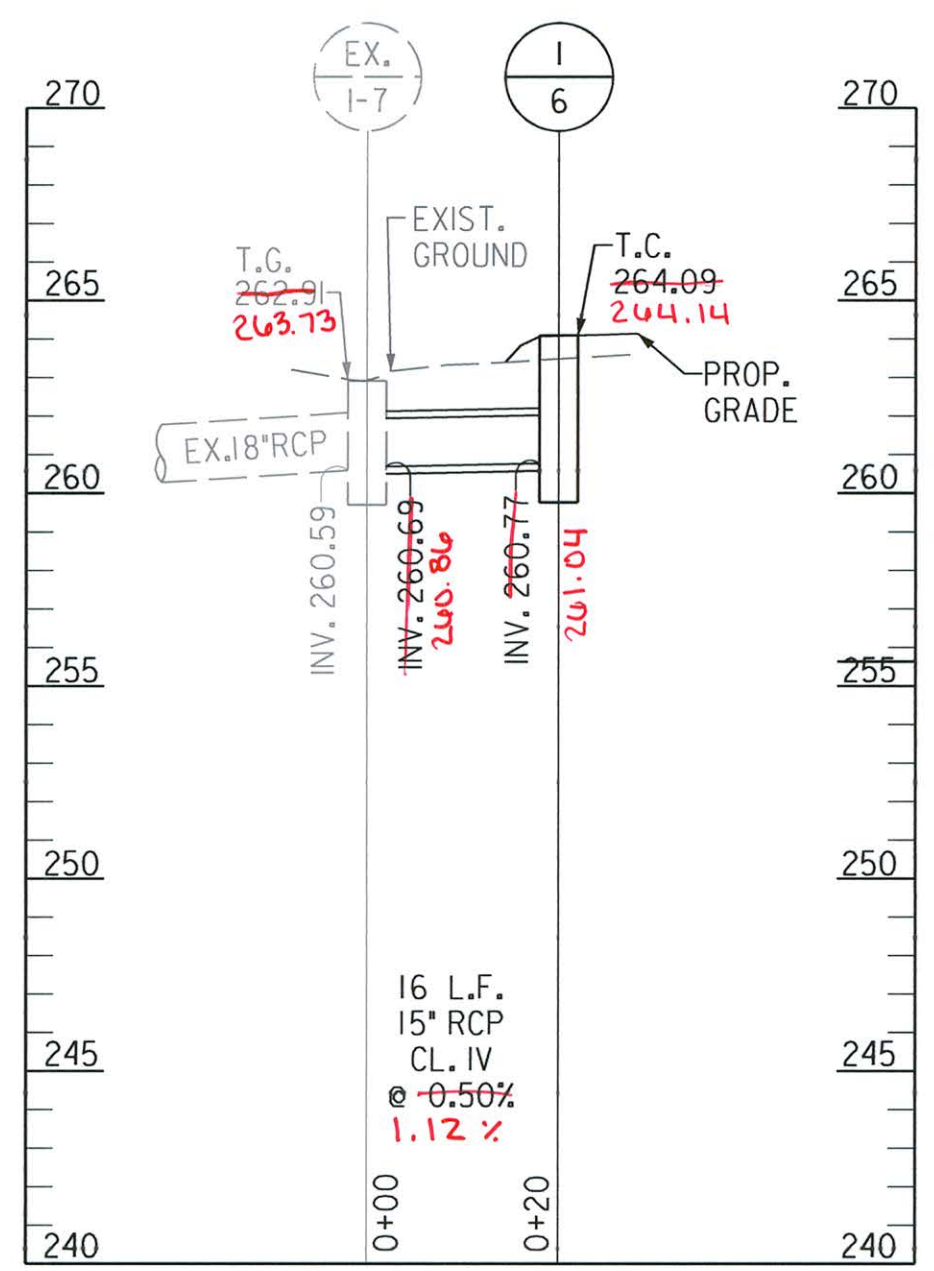
DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

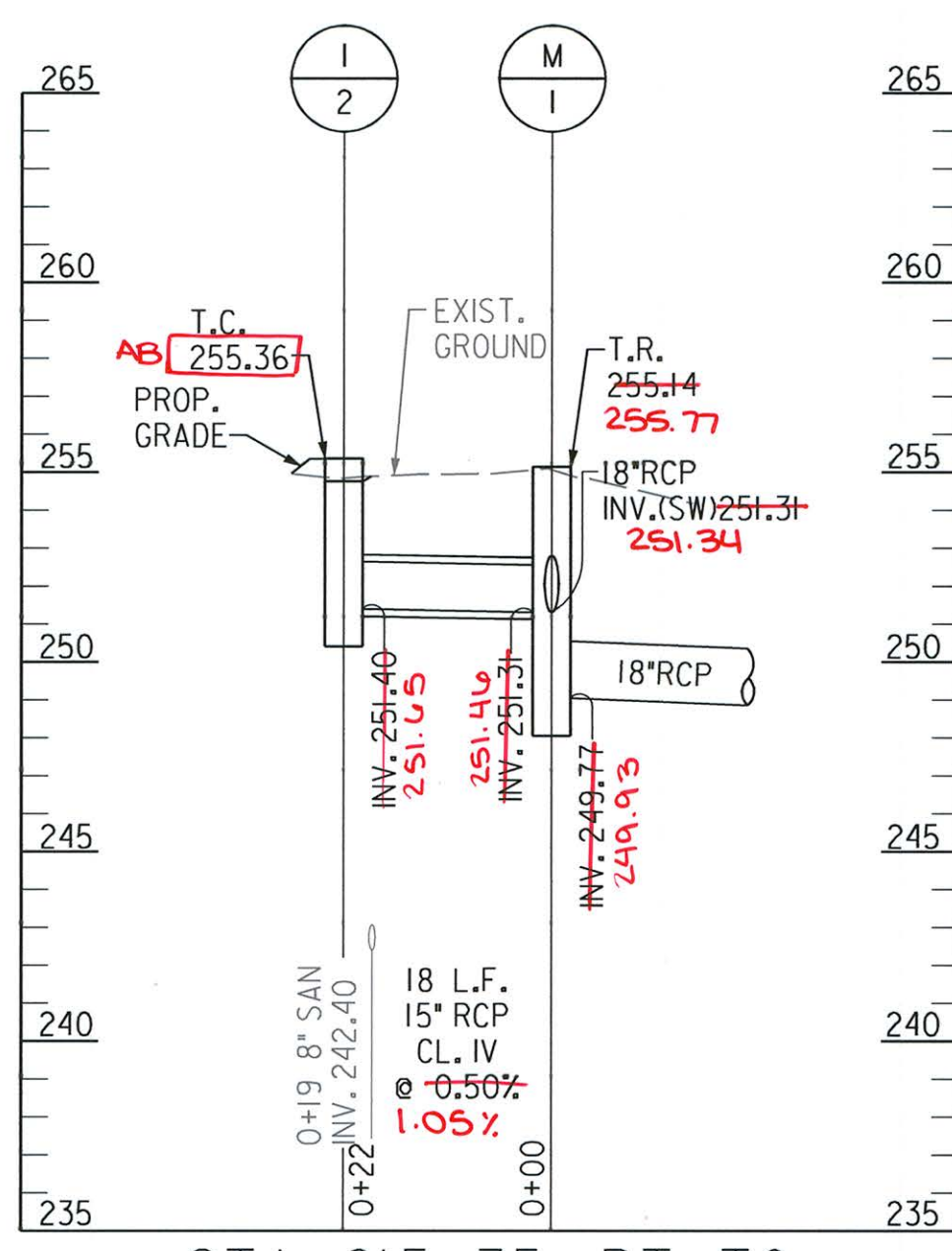
STORM DRAIN PROFILES
BRYANT AVENUE & GRANT AVENUE
 - STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6
 HOWARD COUNTY, MARYLAND

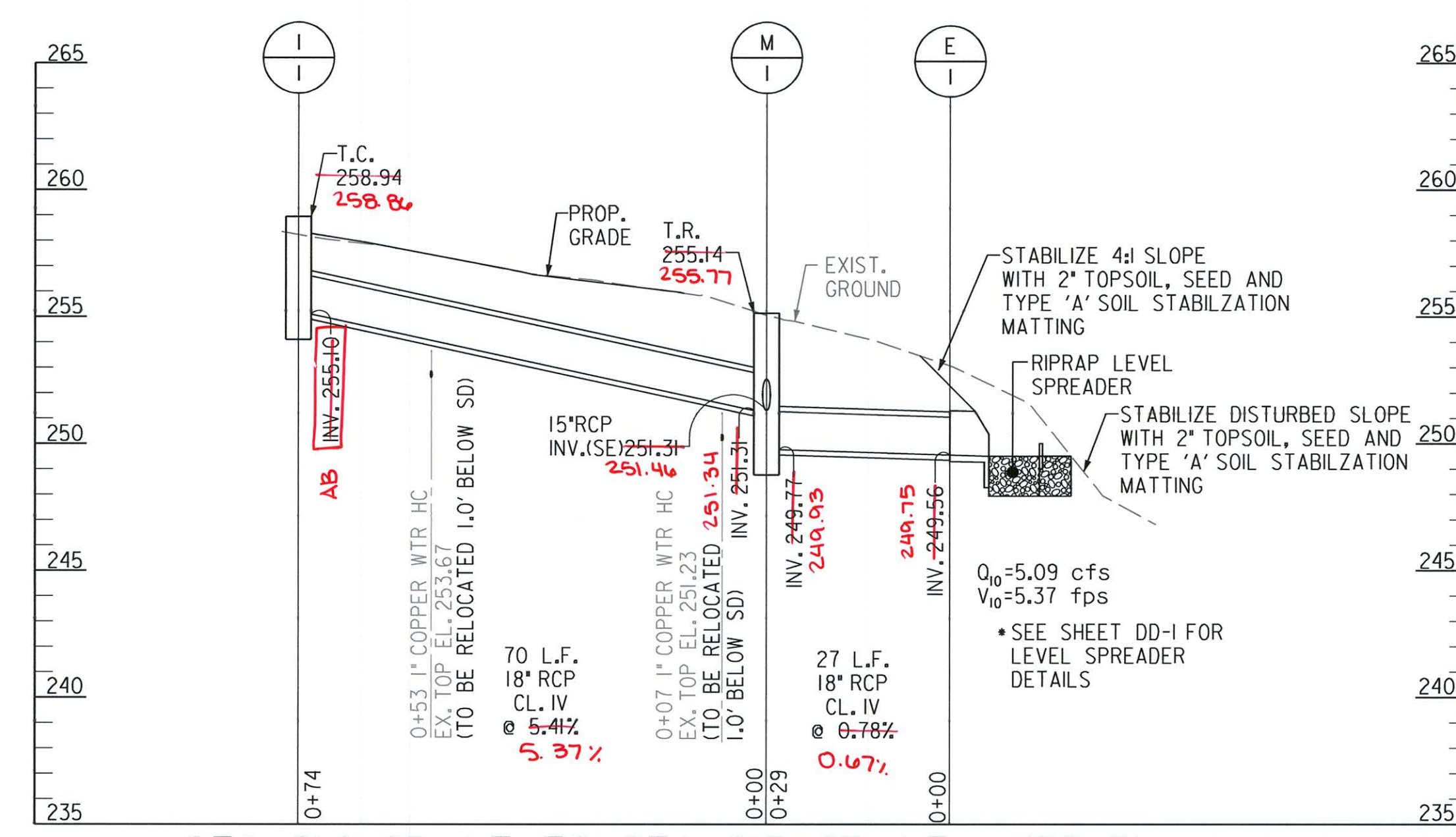
SCALE AS SHOWN
 SHEET 13 OF 24



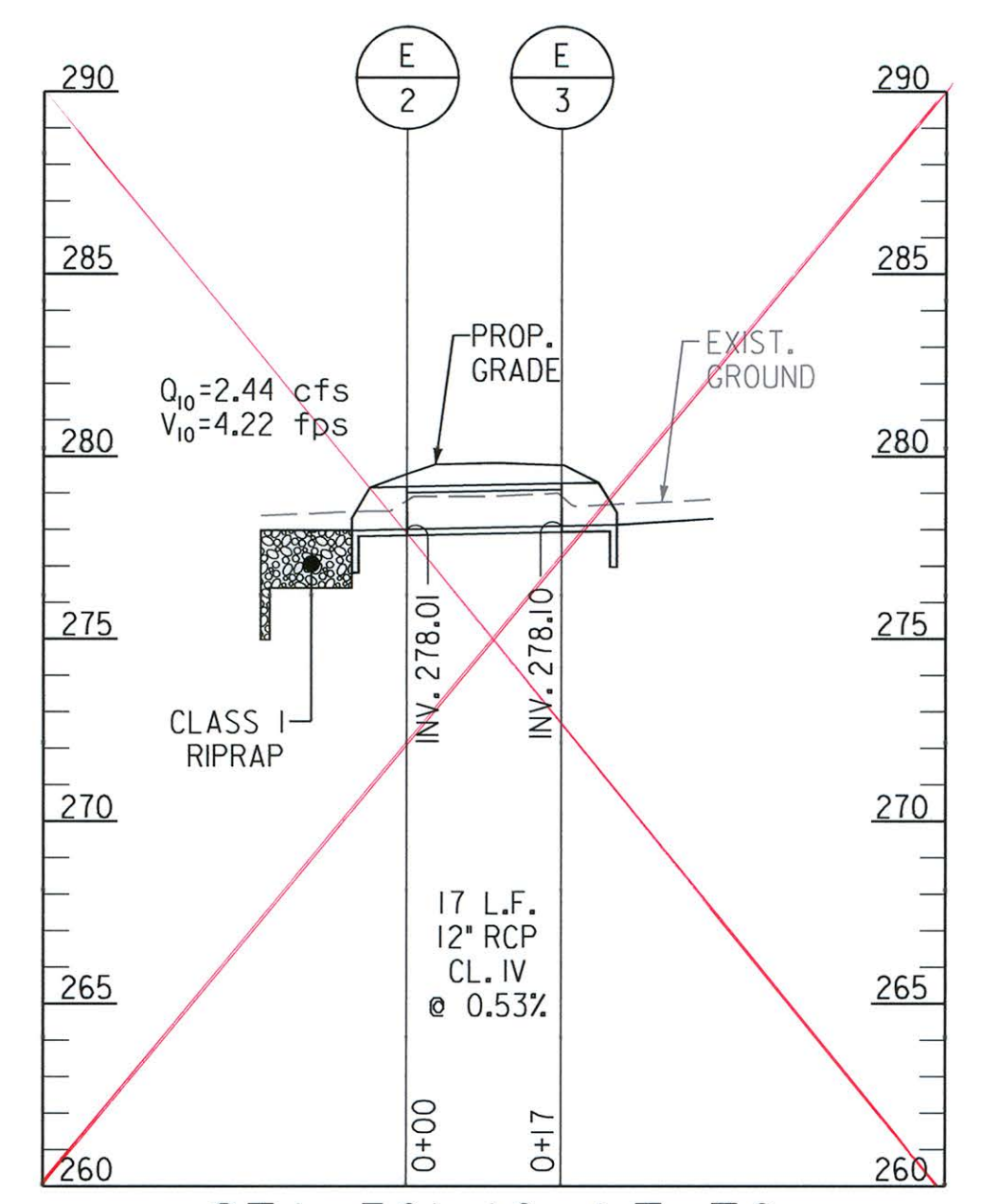
STA. 600+52 TO STA. 600+72, LT. (PS-3)



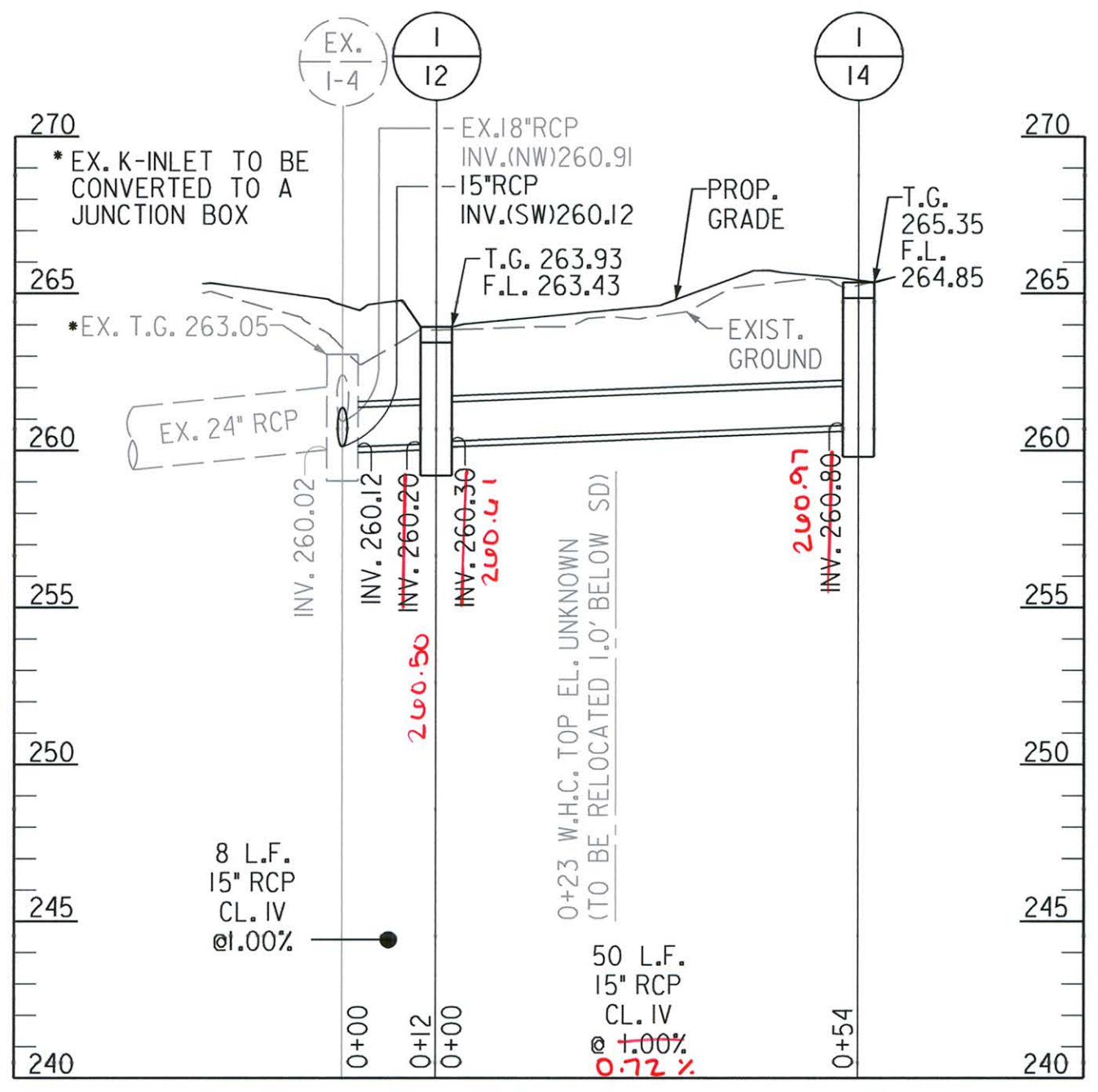
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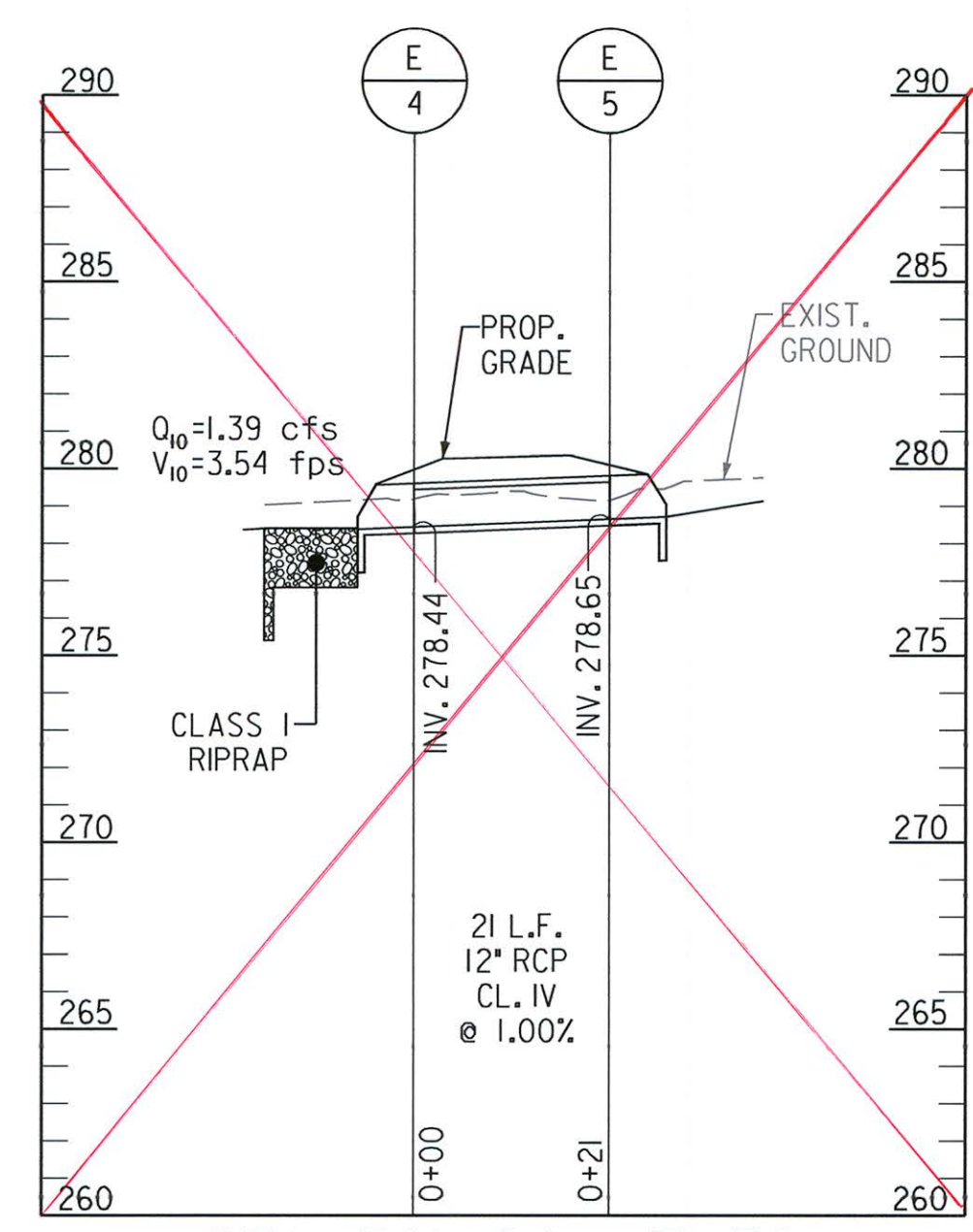
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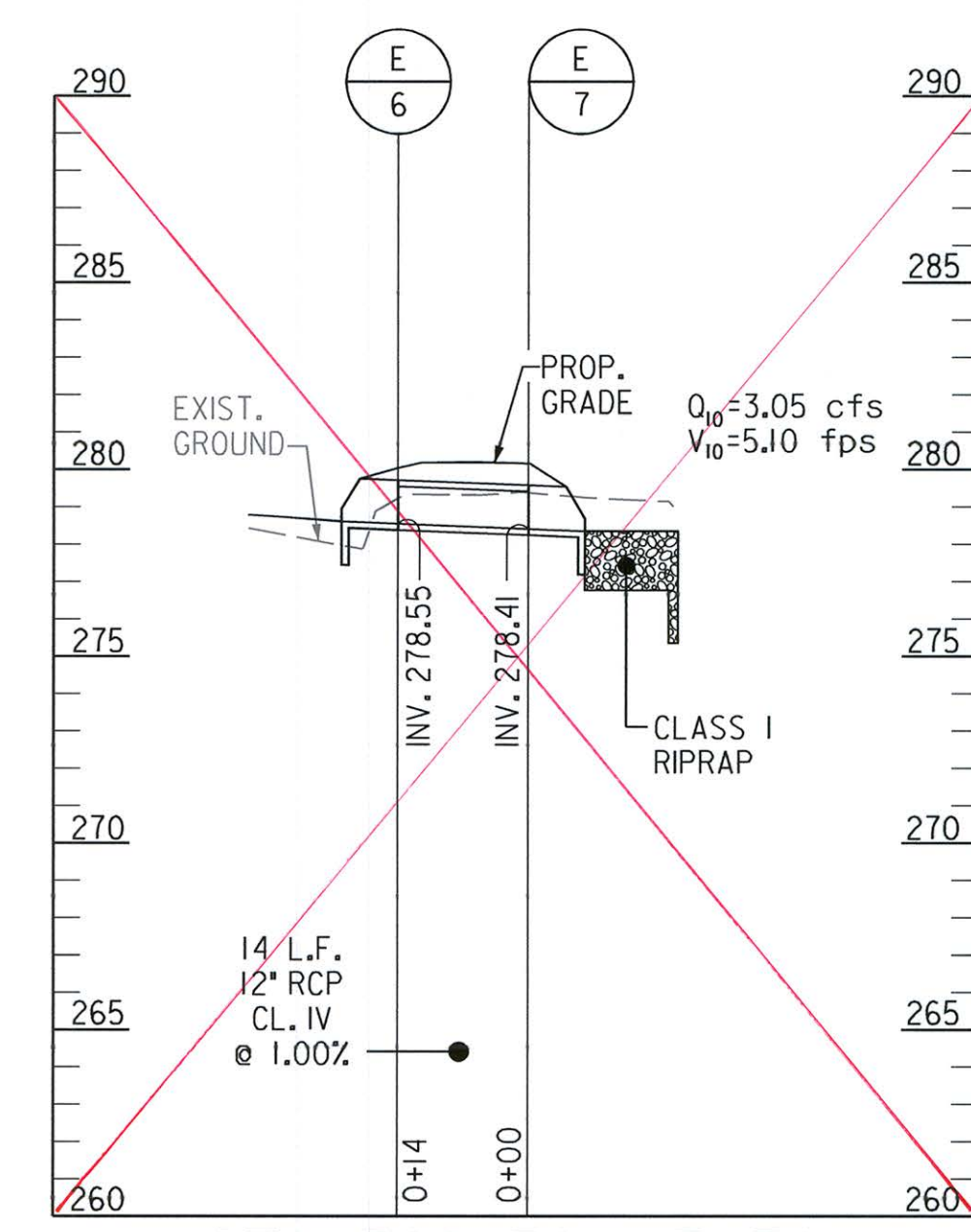
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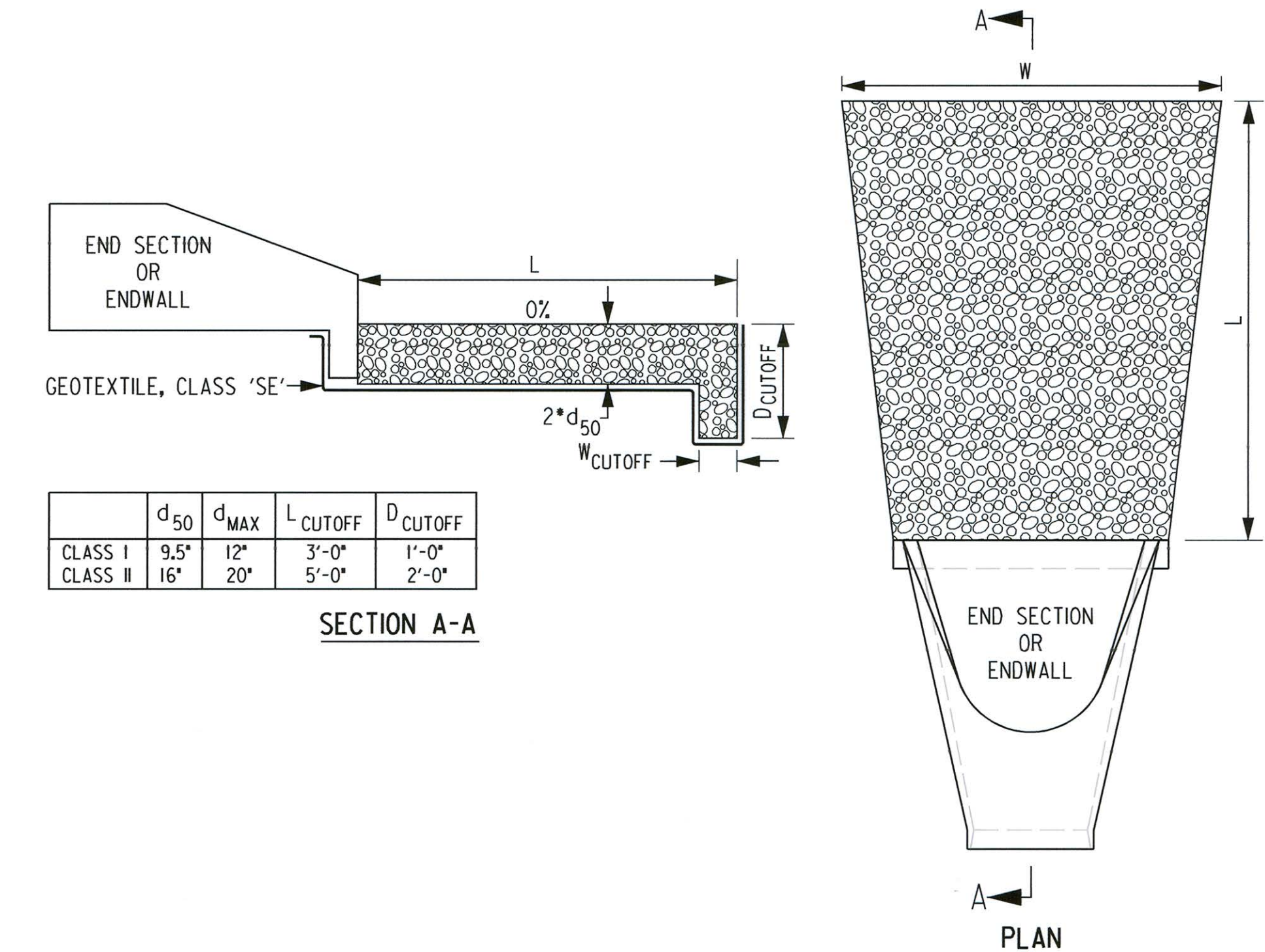
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STA. 508+36, LT. TO STA. 508+50, LT. - (PS-2)

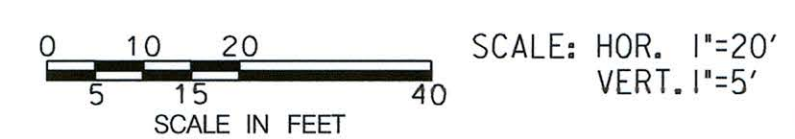


RIPRAP OUTLET PROTECTION TYPICAL DETAIL
N.T.S.

As Constructed Certification.
I here by certify being a duly licensed professional land surveyor in the state of Maryland, License Number 21684 expiring 12/12/16 prepared and/or was in responsible charge over the preparation and measurements reflected on this as constructed survey, in compliance with the requirements set forth in "COMAR" Title 9, Subtitle 13, Chapter 06, Regulations 07 + 12 thus as constructed survey is intended to show existing conditions at the date indicated and does not imply that the design works as intended.



"PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015"



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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

La. g. de 1/24/14
DIRECTOR OF PUBLIC WORKS

Steve Sharan 1/23/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

William R. Hall 1-24-14
CHIEF, BUREAU OF HIGHWAYS

Thomas S. Sedley 1-24-14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

STATE OF MARYLAND
PAUL FRANKLYN CERY
LICENSED PROFESSIONAL ENGINEER
NO. 15466

DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

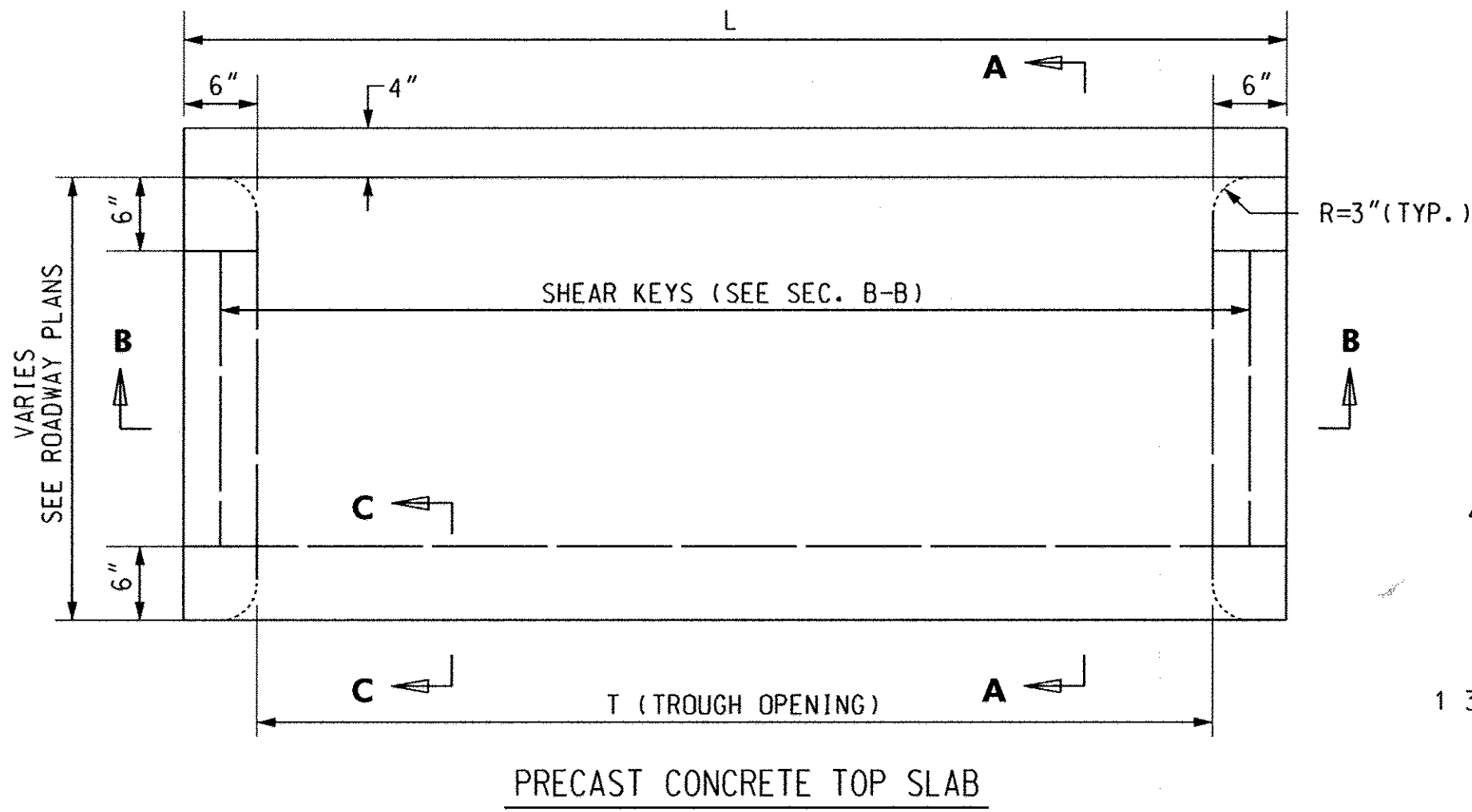
CAPITAL PROJECT NO.
D-1150

MAP NO. BLOCK NO.

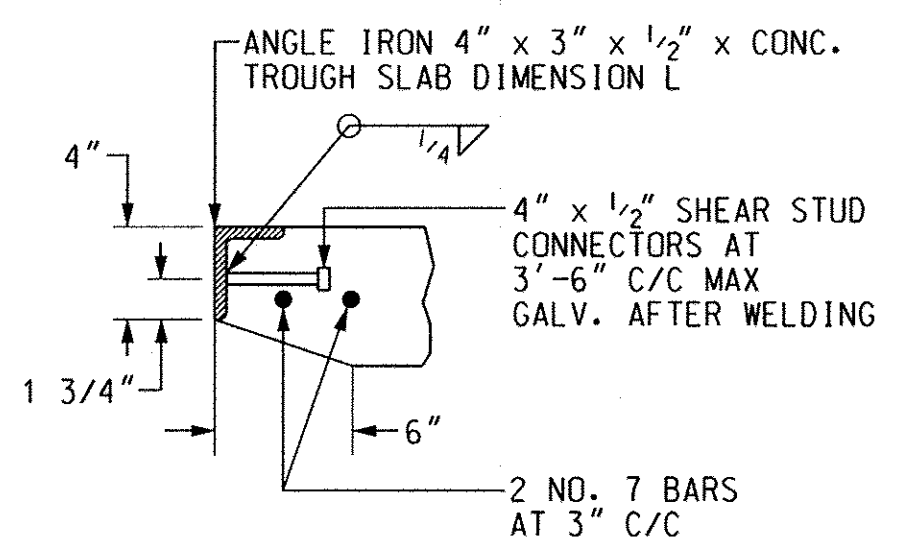
STORM DRAIN PROFILES
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

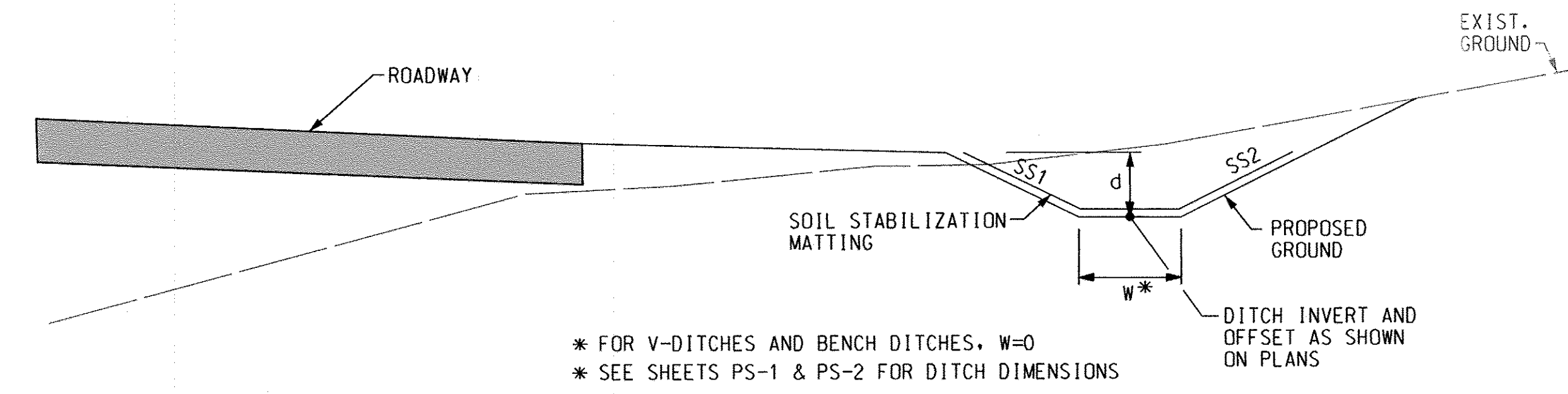
SCALE AS SHOWN
SHEET 14 OF 24



SLAB TYPE	L	T
I	6'-0"	5'-0"
II	11'-0"	10'-0"

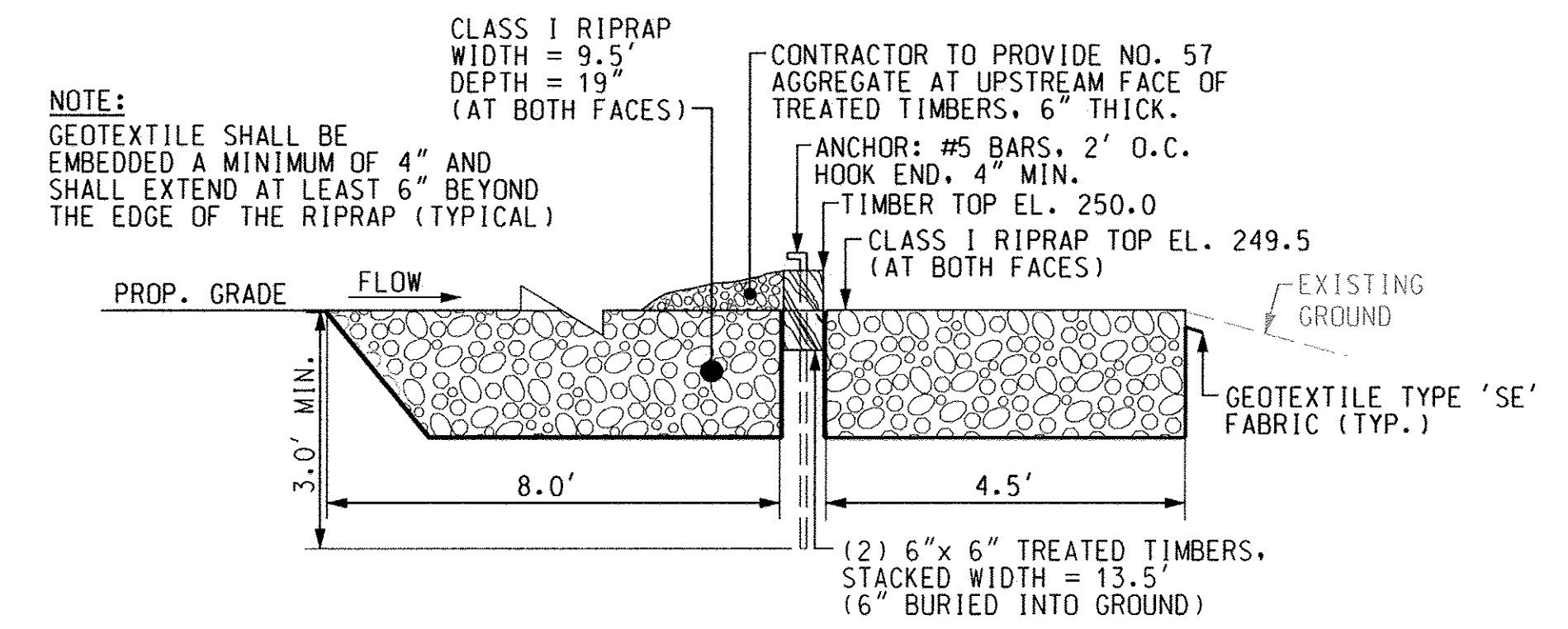


NOTE: FOR 6" CURB, SEE NOTE 4 BELOW.
SECTION C-C

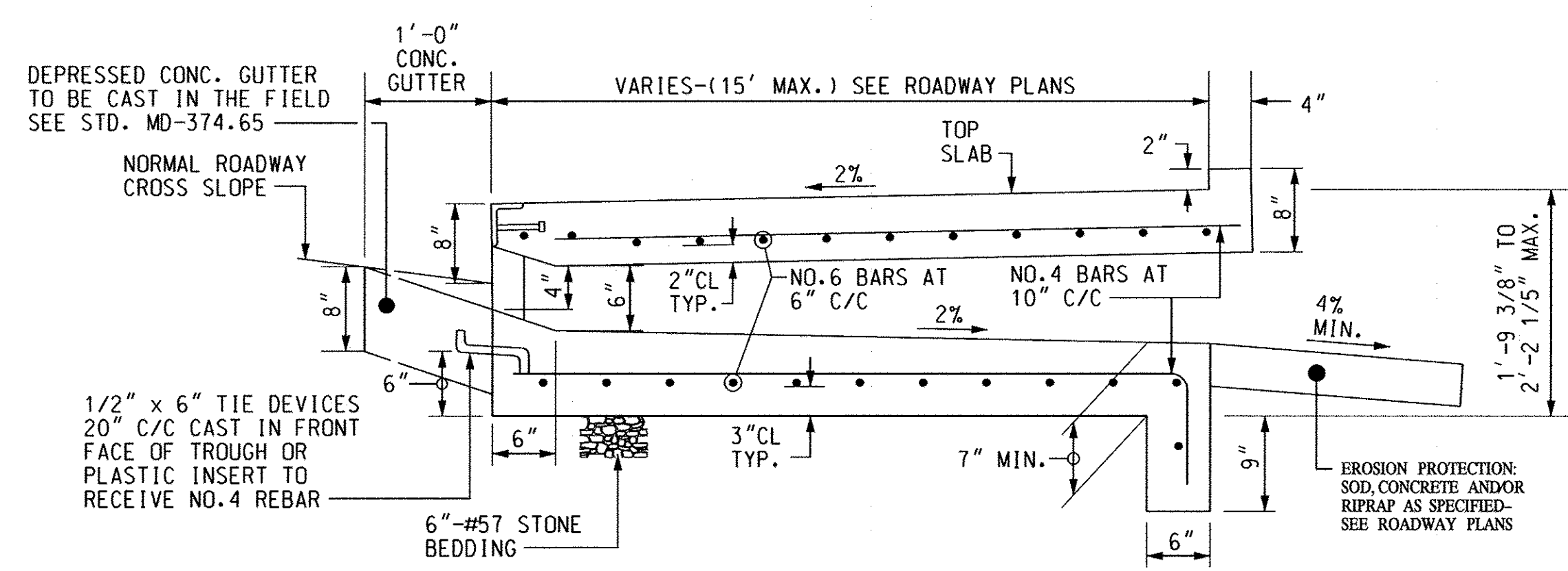


* FOR V-DITCHES AND BENCH DITCHES, W=0
* SEE SHEETS PS-1 & PS-2 FOR DITCH DIMENSIONS

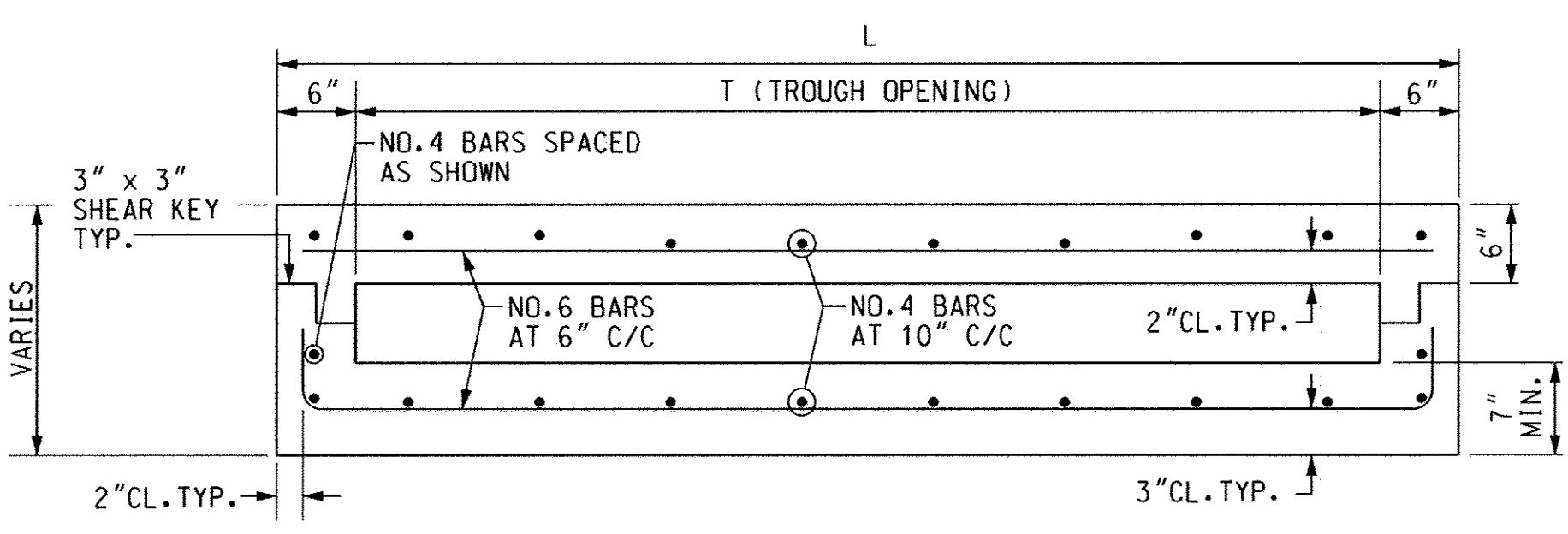
TYPICAL MATTING LINED DITCH
N.T.S.



RIPPRAP LEVEL SPREADER
SCALE: 1/2" = 1'



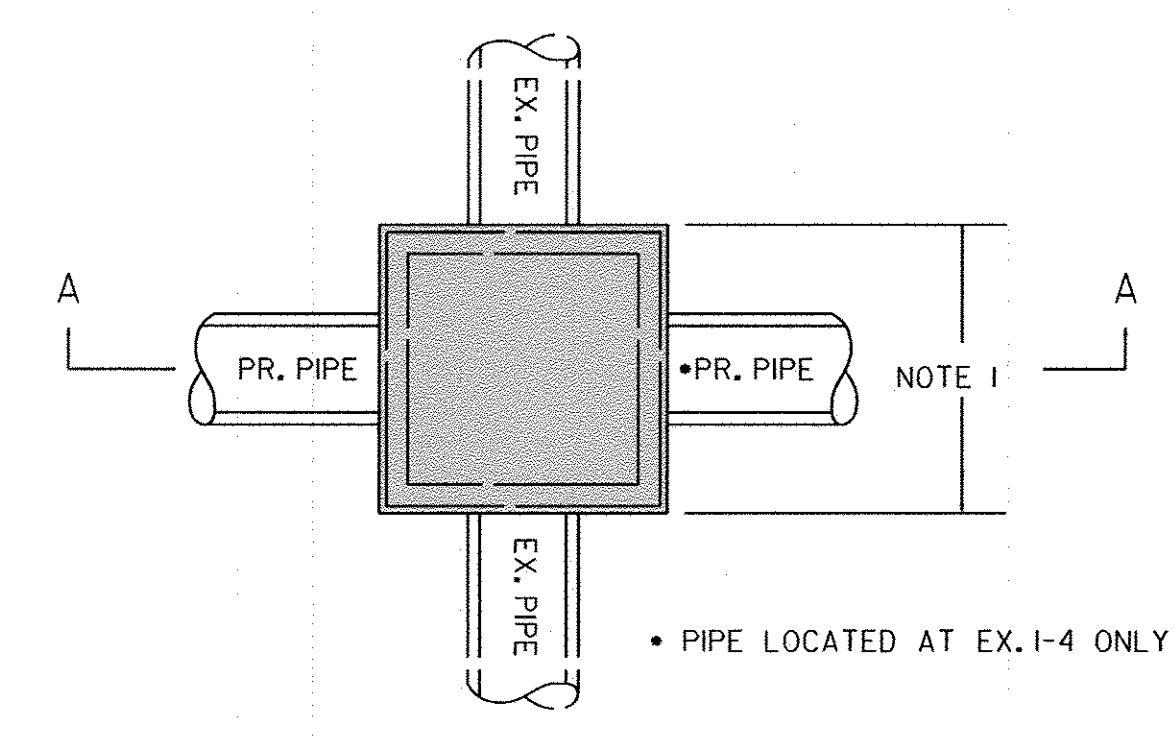
SECTION A-A



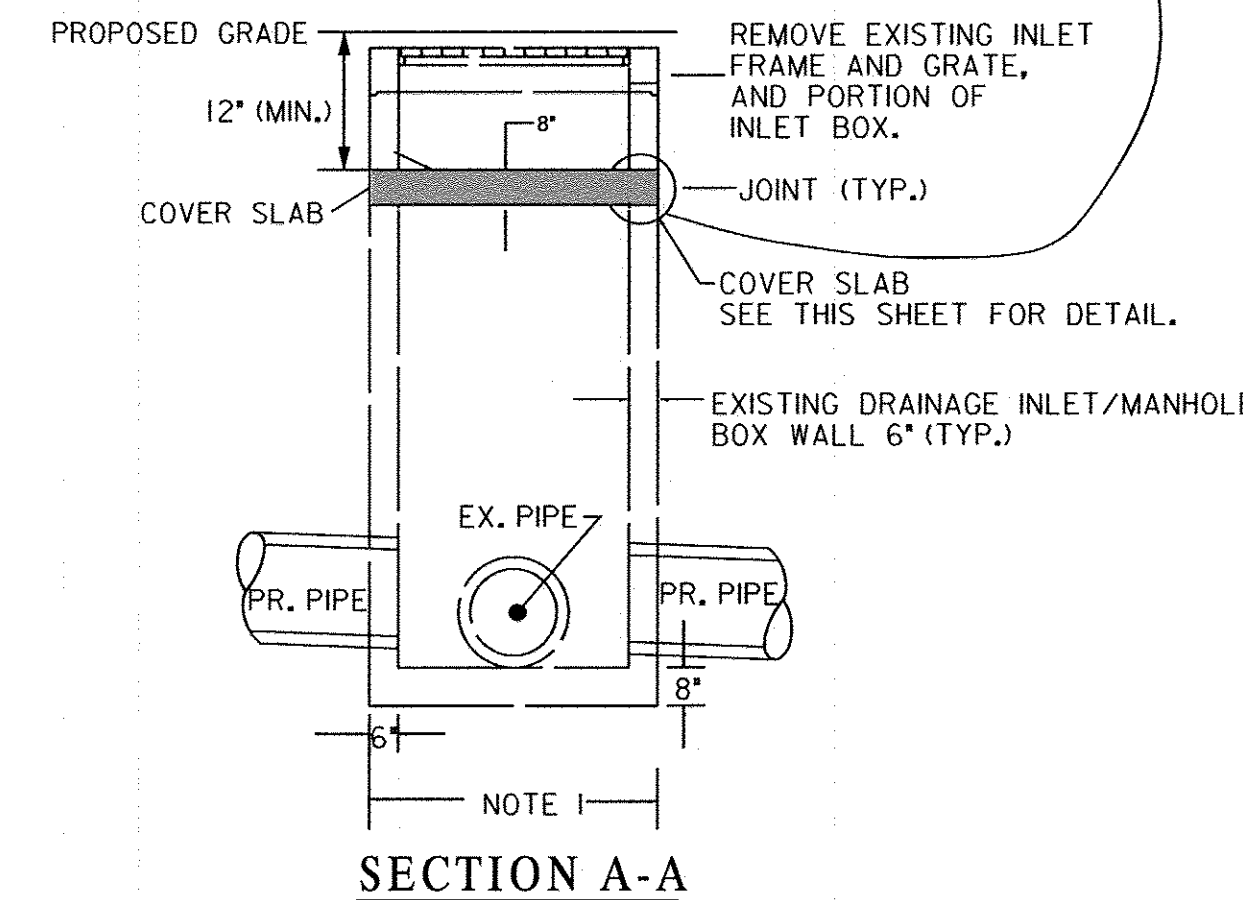
SECTION B-B

PRECAST OR CAST-IN-PLACE
COG/COS OPENING FOR 8" CURB
5' OR 10' ONLY
N.T.S.

- NOTES:
1. CONCRETE SHALL BE MIX # 6 (4500 PSI).
 2. REINFORCEMENT STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615, GRADE 60.
 3. ANGLE IRON AND SHEAR STUD CONNECTORS SHALL BE GALVANIZED AFTER WELDING IN ACCORDANCE WITH ASTM A 123.
 4. FOR 6" CURB, REFER TO MD 374.55-01, SECTIONS C-C AND D-D.
 5. EROSION PROTECTION TO BE PAID FOR SEPARATELY.

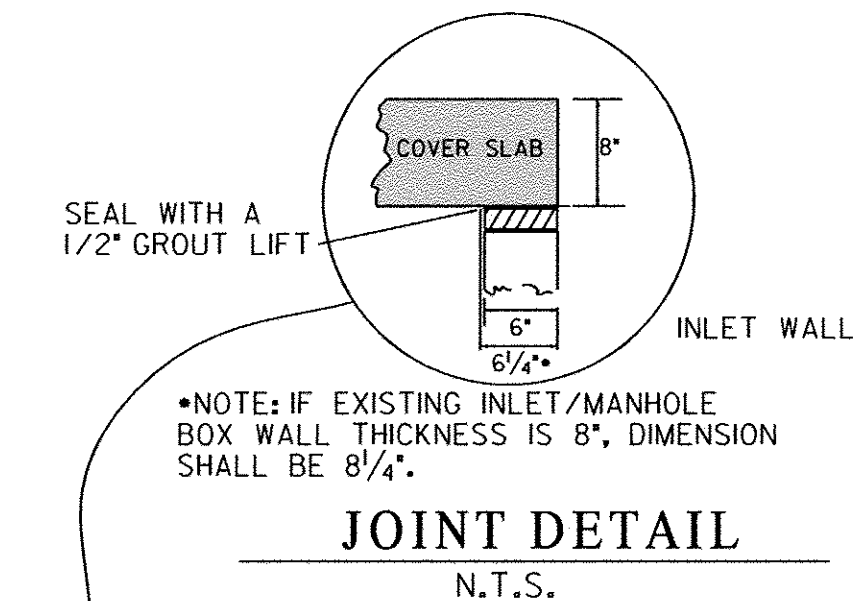


PLAN



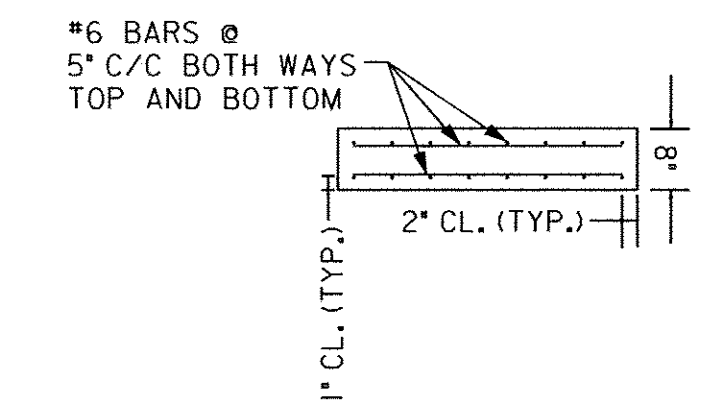
SECTION A-A

CONVERSION OF EXISTING DRAINAGE
INLET/MANHOLE TO JUNCTION BOX DETAIL
EX. I-3 AND EX. I-4
N.T.S.



JOINT DETAIL
N.T.S.

- NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL NECESSARY EXISTING INLET BOX DIMENSIONS, INCLUDING WALL THICKNESSES, PRIOR TO FABRICATION OF COVER SLAB.
 2. COVER SLAB IS TO BE PRE-CAST.
 3. ALL BARS ARE TO BE #6 SPACED @ 5" C/C.
 4. MINIMUM BAR COVER = 1".
 5. CONCRETE TO BE MSHA MIX NO. 6.



JUNCTION BOX COVER SLAB DETAIL
(FOR EX. INLET/MANHOLE CONVERSION)

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FILE: S:\Users\jsh44.031\pwork\storm_drain_improvements\ps-1.dwg 4/15/14 10:52:27 AM

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Sharan 4/15/14
DIRECTOR OF PUBLIC WORKS
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

Thomas R. Butler 4/14/14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

STATE OF MARYLAND
PROFESSIONAL ENGINEER
John F. O'Connell
03/28/14

DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

STORM DRAIN DETAIL SHEET
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

MAP NO. BLOCK NO. ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND

DD-1
SCALE AS SHOWN
SHEET 15 OF 24

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

B-4-5 STANDARDS AND SPECIFICATIONS
FOR
PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A.

Seeding Mixtures

1. General Use

- Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixtures, application rates and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
- Additional planting specifications for exceptional sites such as shorelines, stream banks or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
- For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
- For areas receiving low maintenance, apply urea form Fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): <u>6B</u>				Fertilizer Rate (10-20-20)			Lime Rate
Seed Mixture (from Table B.3):				N	P ₂ O ₅	K ₂ O	
Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths				
Switch Grass	10	3-1 to 5-15 and 5-16 to 6-15	0.5 in.				
Creeping Red Fescue	15	3-1 to 5-15 and 5-16 to 6-15	0.5 in.	45 lb/ac (1.0 lb/1000 sf)	90 lb/ac (2.0 lb/1000 sf)	90 lb/ac (2.0 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
Wild Indigo	2	3-1 to 5-15 and 5-16 to 6-15	0.5 in.				

2. Turfgrass Mixtures

- Areas where turfgrass may be desired include lawns, parks, playgrounds and commercial sites which will receive a medium to high level of maintenance.
- Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixtures, application rates and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
 - Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Kentucky Bluegrass/Perennial Ryegrass: 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 per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
 - Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Notes:

Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77 "Turfgrass Cultivar Recommendations for Maryland"

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.

c. Ideal Times of Seeding for Turf Grass Mixtures

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6B)

- Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons or on adverse sites.

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B-4-1 STANDARDS AND SPECIFICATIONS
FOR
INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

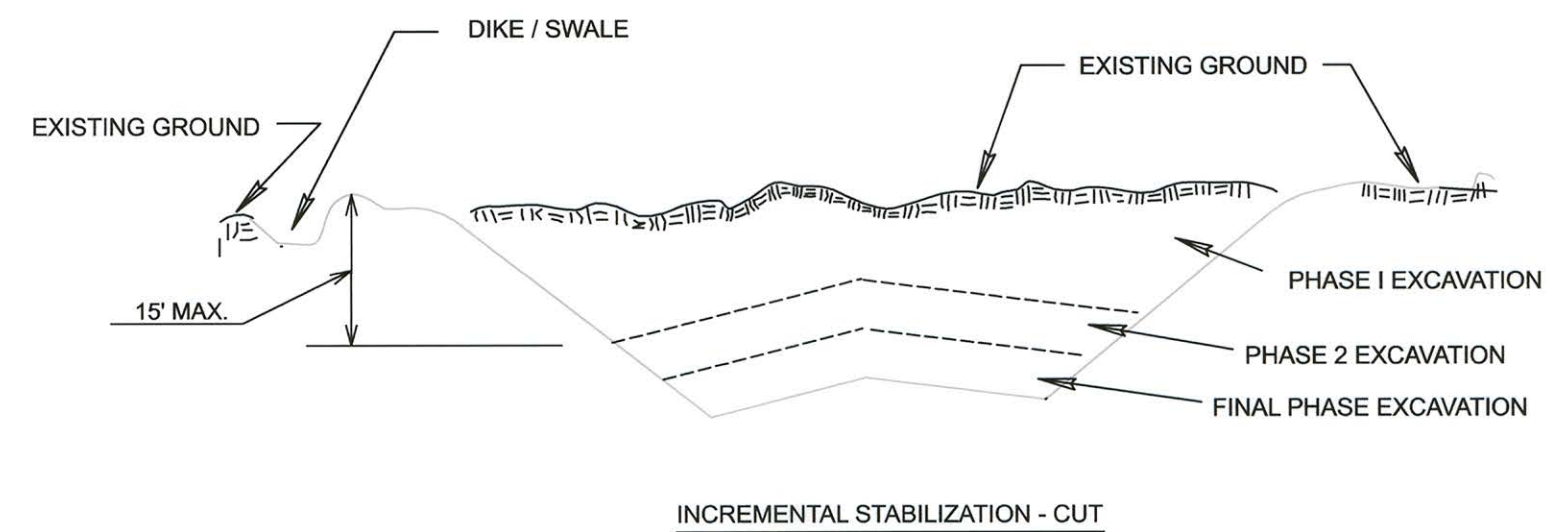
Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

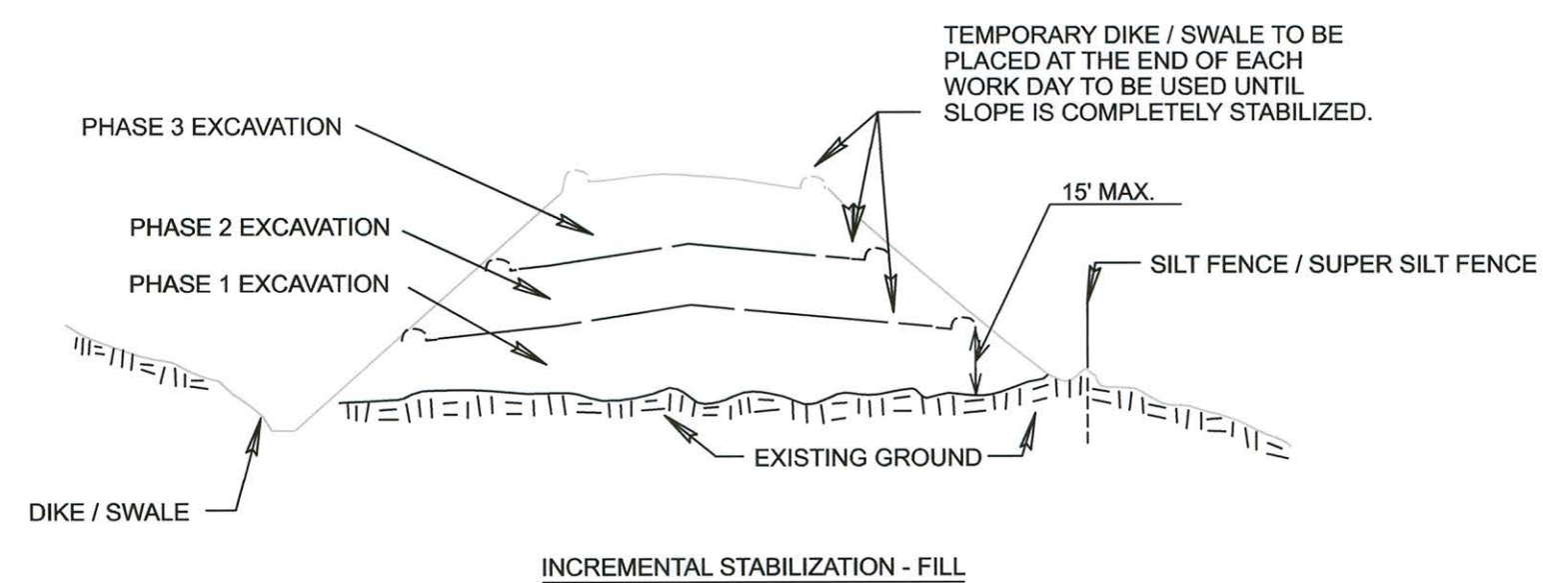
A. Incremental Stabilization - Cut Slopes

- Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
 - Construction sequence example (Refer to Figure B.1):
 - Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
 - Perform Phase 1 excavation, prepare seedbed, and stabilize.
 - Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
 - Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.
- Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.



B. Incremental Stabilization - Fill Slopes

- Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
 - Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
 - At the end of each day, install temporary water conveyance practices, as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
 - Construction sequence example (Refer to Figure B.2):
 - Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
 - At the end of each day, install temporary water conveyance practices, as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
 - Place Phase 1 fill, prepare seedbed, and stabilize.
 - Place Phase 2 fill, prepare seedbed, and stabilize.
 - Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.
- Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.



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

HOWARD SOIL CONSERVATION DISTRICT

DATE

B-4-4 STANDARDS AND SPECIFICATIONS
FOR
TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), 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 plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): <u>6B</u>				Fertilizer Rate (10-20-20)	Lime Rate
Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
Annual Ryegrass	40	3-1 to 5-15 and 8-1 to 10-15	0.5 in.	436 lb/ac (1.0 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
Foxtail Millet	30	5-16 to 7-31	0.5 in.		
Pearl Millet	20	5-16 to 7-31	0.5 in.		

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS



72 Loveton Circle Baltimore, Maryland 21152-0949



DES:	VRM	BY:	NO.	DATE:
DRN:	JMB		1	01/2015
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.

D-1150

MAP NO.

BLOCK NO.

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6

HOWARD COUNTY, MARYLAND

SCALE NONE

SHEET 16 OF 24

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.

2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.

3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.

4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked 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 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization

a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

i. Soil pH between 6.0 and 7.0.

ii. Soluble salts less than 500 parts per million (ppm).

iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

iv. Soil contains 1.5 percent minimum organic matter by weight.

v. Soil contains sufficient pore space to permit adequate root penetration.

b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

"PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015"

STORM DRAIN CONSTRUCTION NOTES:

1. INSTALLATION OF THE STORM DRAIN SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND STABILIZED AT THE END OF EACH WORKING DAY.
2. SPOIL FROM THE TRENCHING OPERATION IS TO BE PLACED ON THE UPHILL SIDE OF CONSTRUCTION.
3. STOCKPILING WILL NOT BE ALLOWED ON-SITE WITHOUT PRIOR APPROVAL FROM THE INSPECTOR AND ENGINEER.

d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

4. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter. 3/4 inches in diameter.

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications

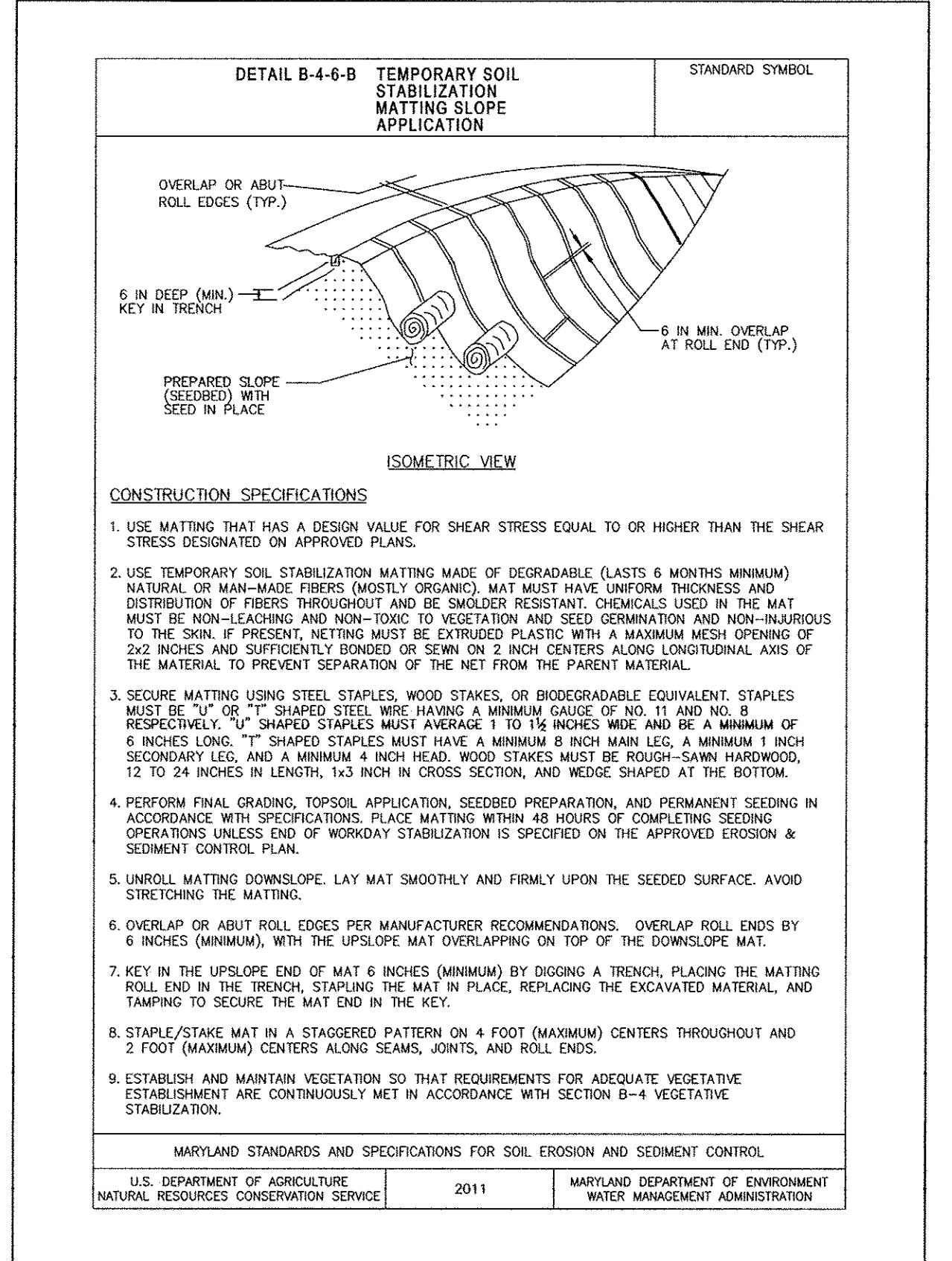
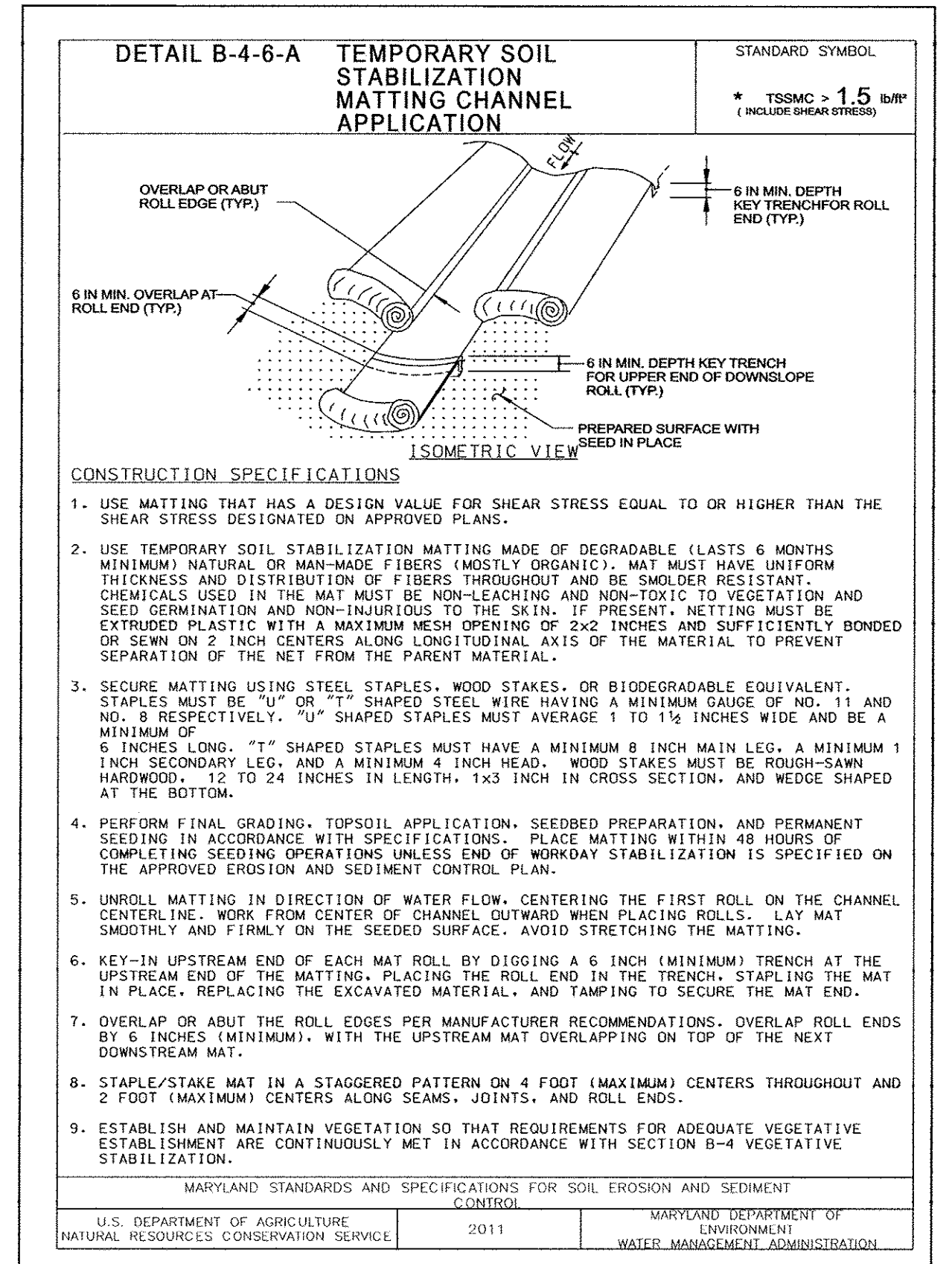
a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.

c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the 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 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (4 days min.) to permit dissipation of phyto-toxic materials.



This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson 1/16/14
Howard SCD Date

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Ray D. ... 1/24/14
DIRECTOR OF PUBLIC WORKS

Steve Shagan 1/23/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

Thomas R. ... 1-24-14
CHIEF, BUREAU OF ENGINEERING

Thomas J. ... 1-24-14
DEPUTY DIRECTOR OF PUBLIC WORKS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

STATE OF MARYLAND
PAUL W. ROBERTSON
PROFESSIONAL ENGINEER
104666
01/16/2014

DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

MAP NO. BLOCK NO.

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

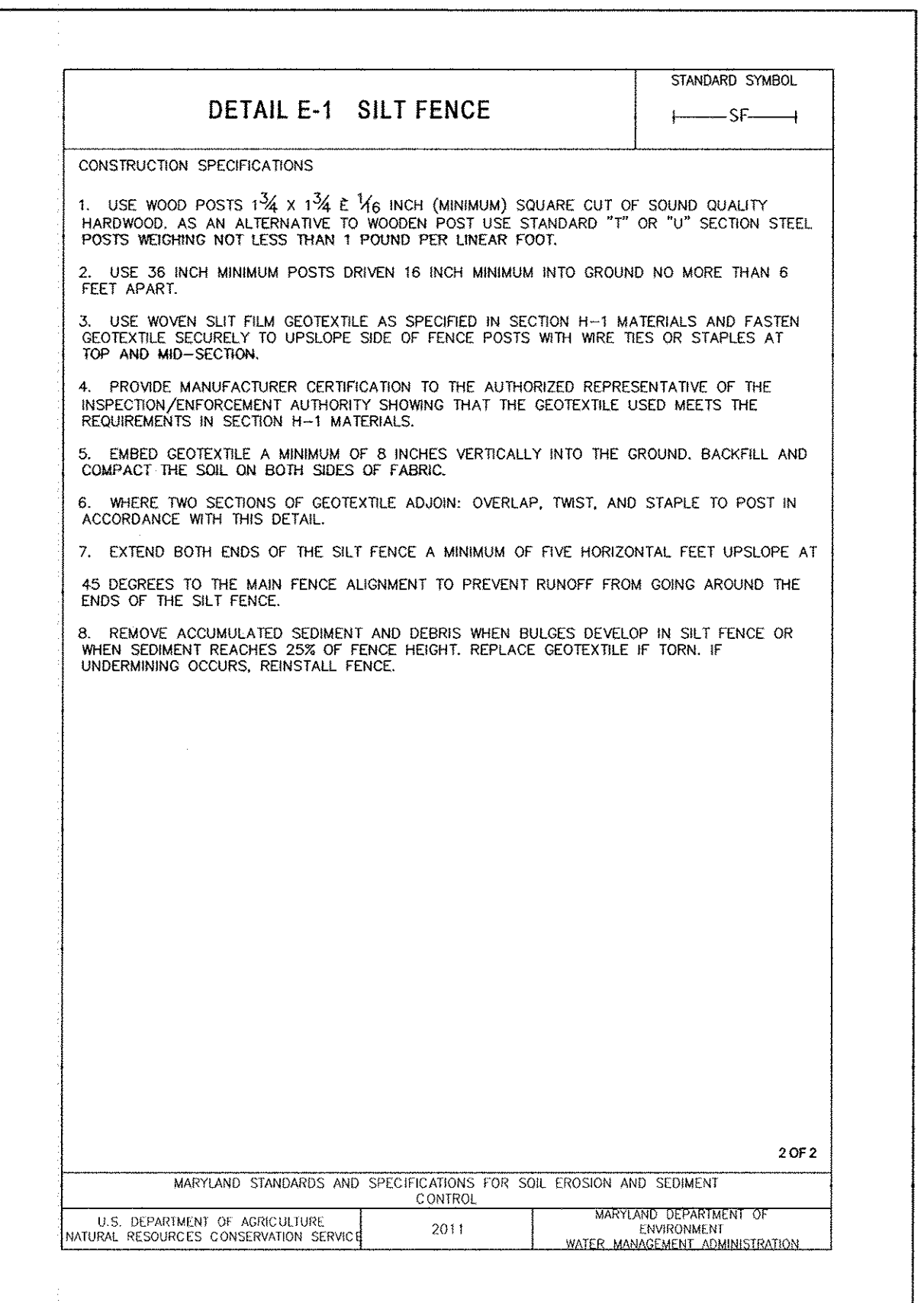
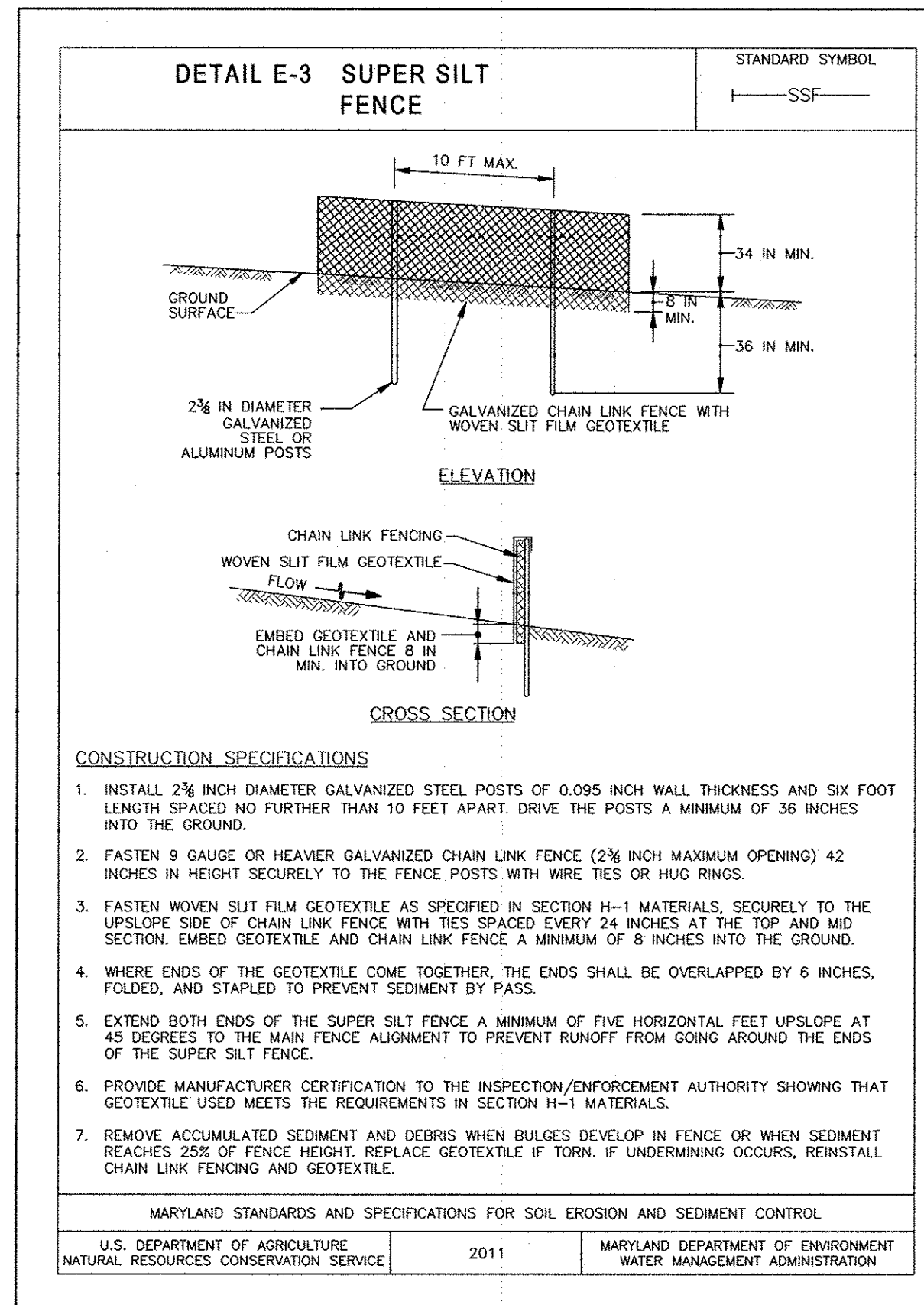
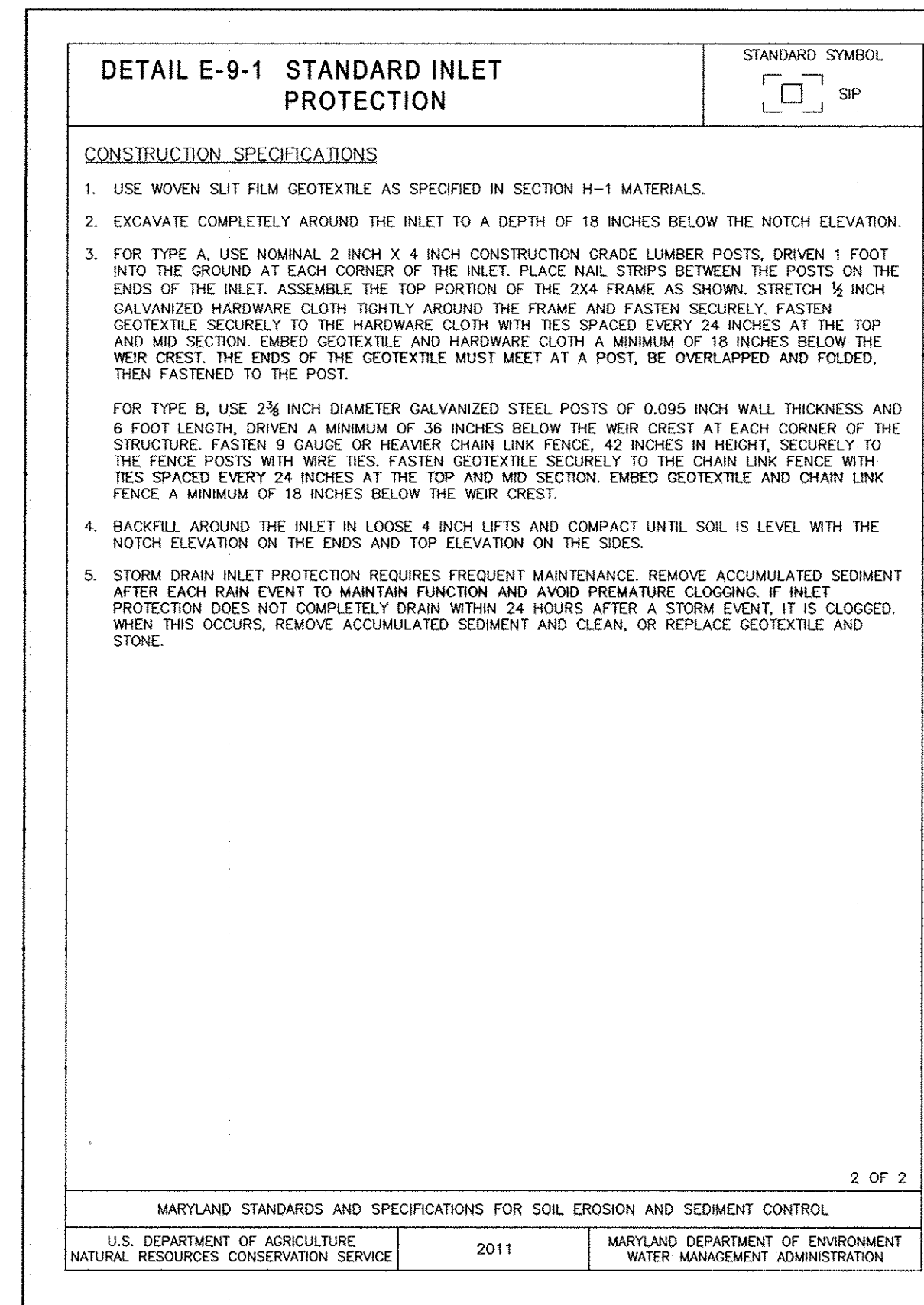
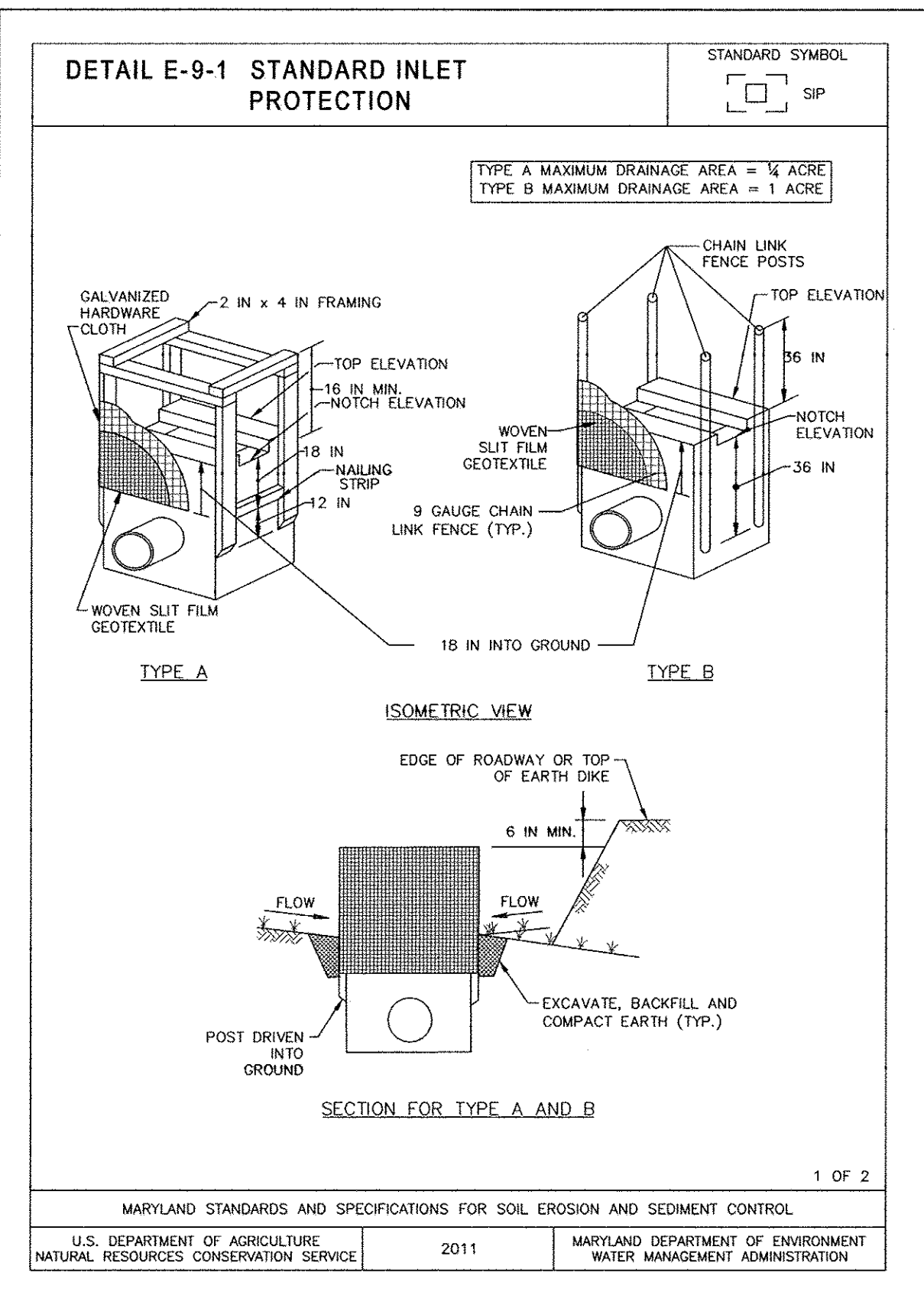
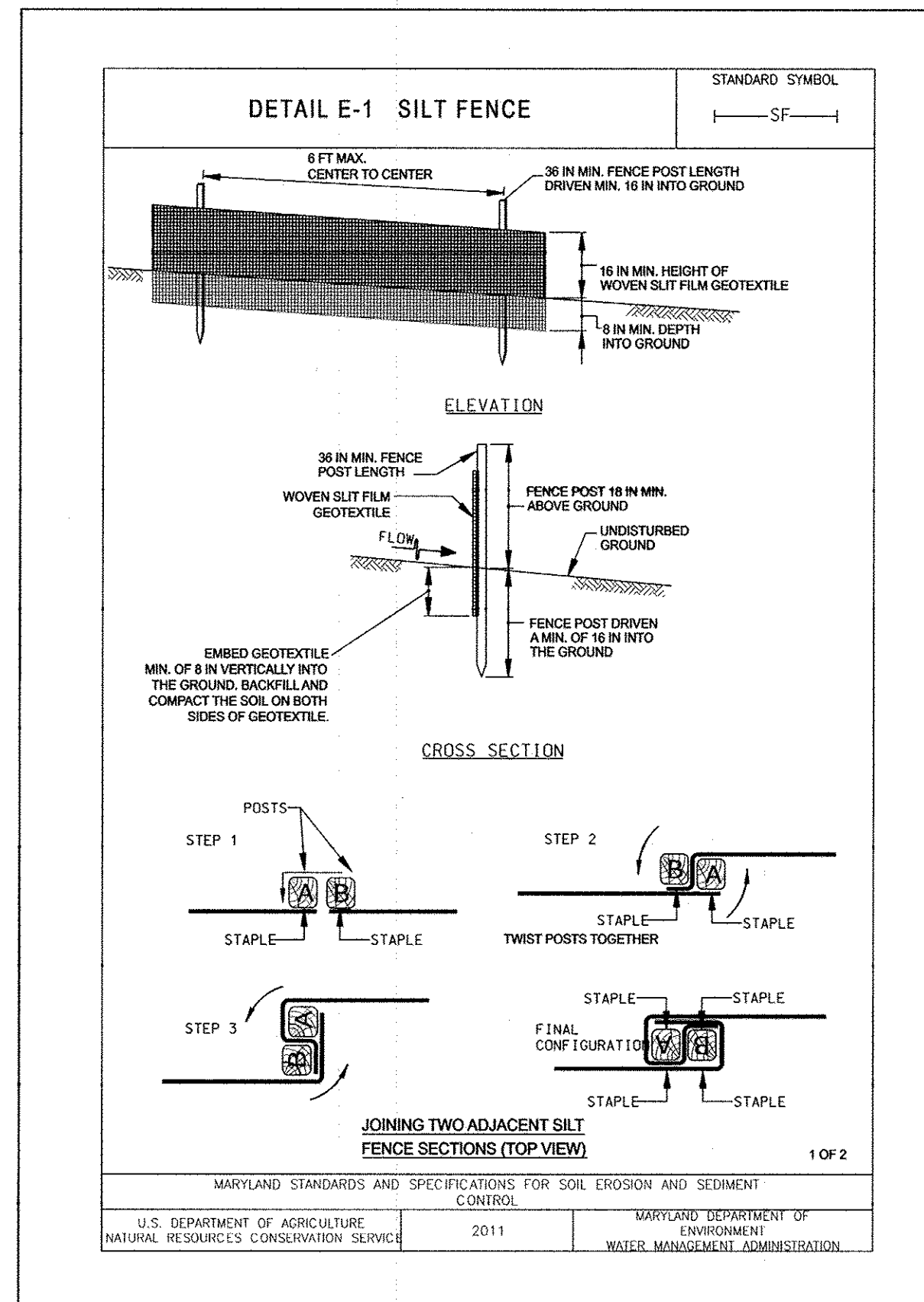
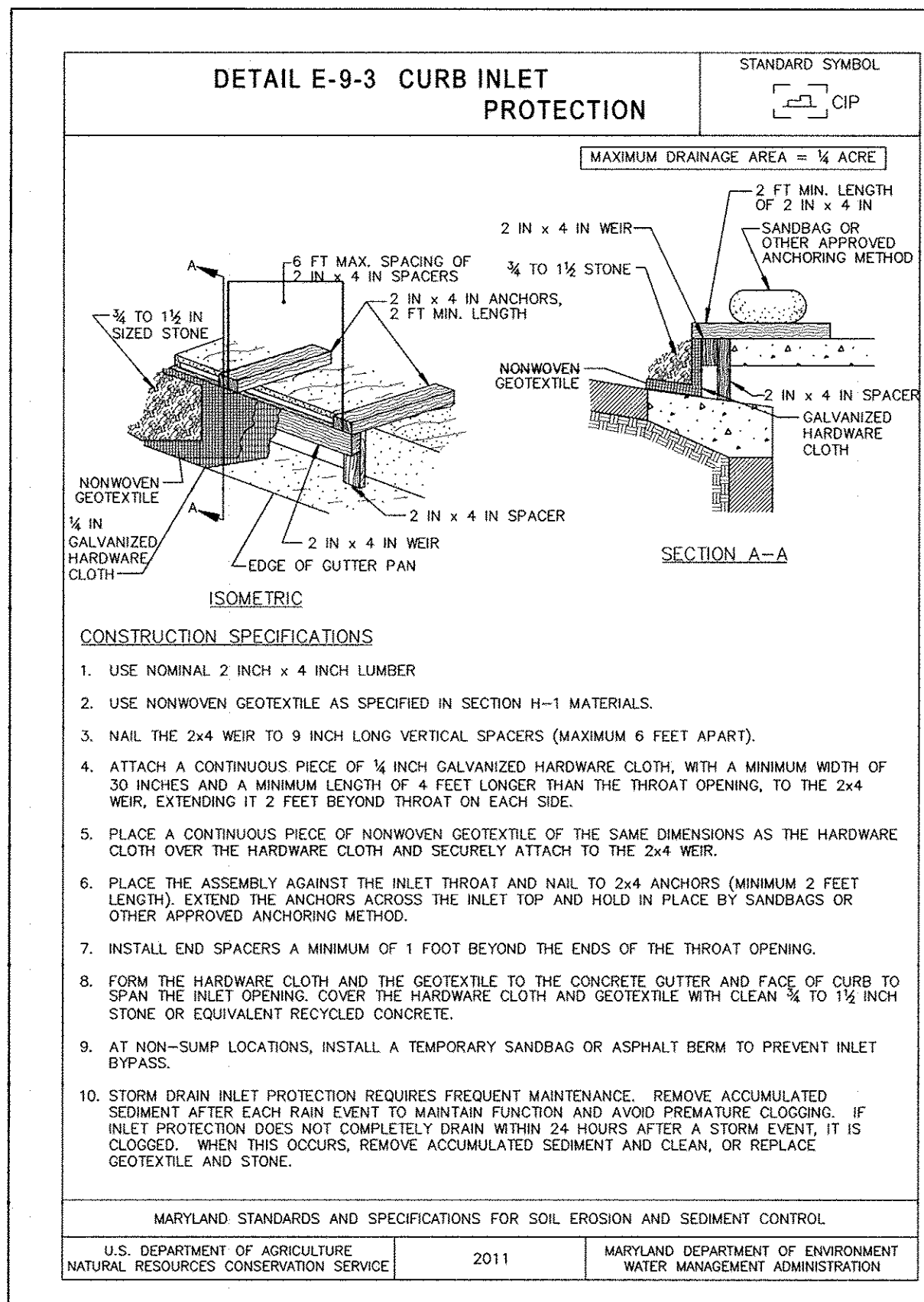
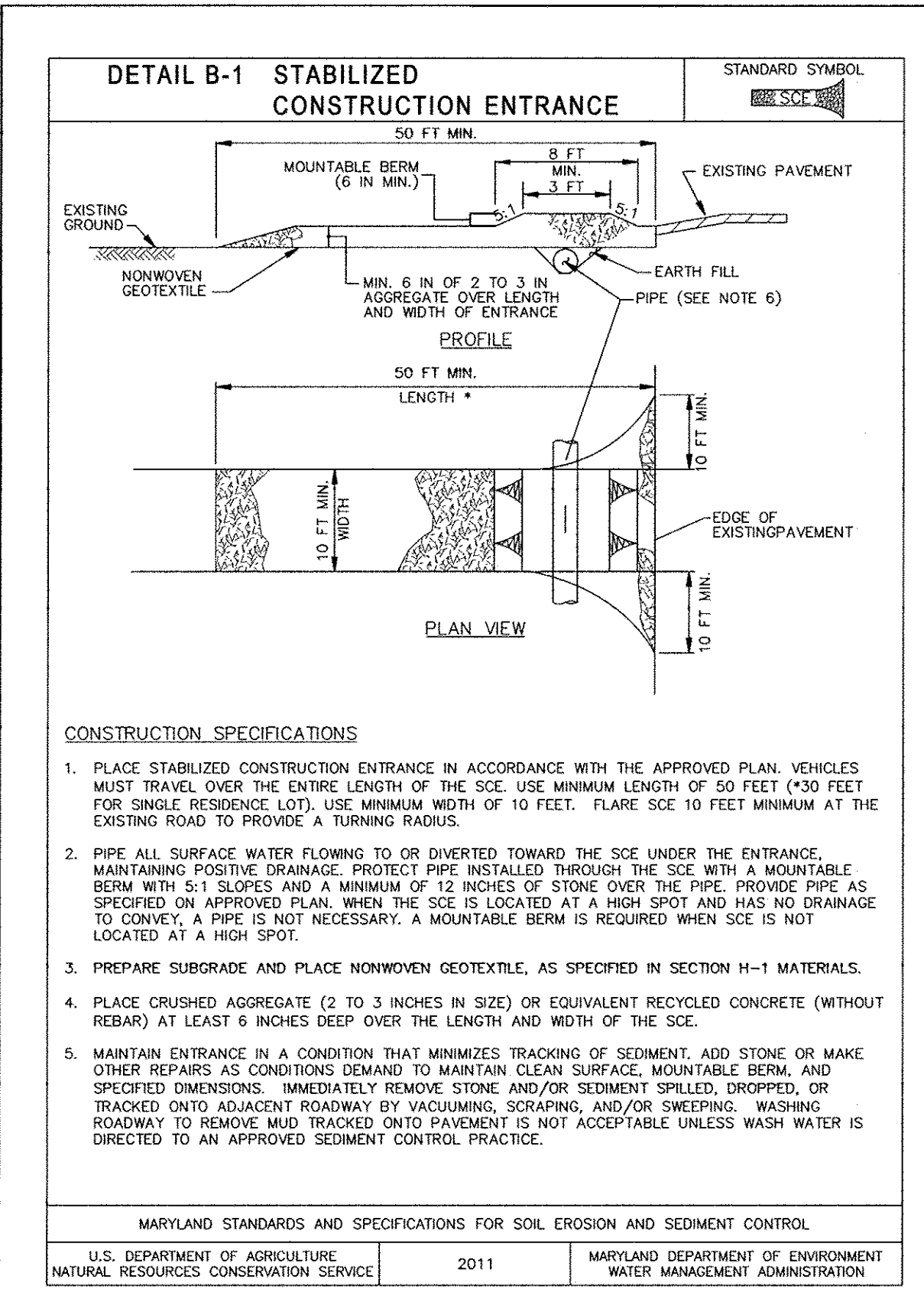
BRYANT AVENUE & GRANT AVENUE - STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND

SCALE N.T.S.
SHEET 17 OF 24

SEQUENCE OF CONSTRUCTION

- CONTRACTOR SHALL OBTAIN GRADING PERMIT FROM HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR SHALL CONTACT HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES, AND PERMITS AT (410) 313-2455 TO SCHEDULE A PRE-CONSTRUCTION MEETING AT LEAST 72 HOURS BEFORE CONSTRUCTION IS TO BEGIN.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE AS SHOWN ON PLANS. EXACT LOCATION TO BE DETERMINED IN THE FIELD WITH THE APPROVAL OF THE C.I.D. INSPECTOR.
- INSTALL SSF-1 DOWNSTREAM OF PROPOSED LEVEL SPREADER. CONSTRUCT STORMDRAIN FROM E-1 TO I-1 AND M-1 TO I-2 AS SHOWN ON EP-5. CONSTRUCT LEVEL SPREADER PER DETAIL ON DD-01. SEDIMENT LADEN WATER ENCOUNTERED DURING STORMDRAIN CONSTRUCTION SHALL BE PUMPED TO A PORTABLE SEDIMENT TANK PRIOR TO DISCHARGING TO A STABLE OUTFALL DOWNSTREAM OF THE WORK AREA. ONCE LEVEL SPREADER IS COMPLETE, REMOVE SSF-1.
- INSTALL INLET PROTECTION AT EXISTING INLETS AS SHOWN ON THE PLANS.
- CONSTRUCT STORM DRAIN SYSTEM ALONG BRYANT AVENUE AND GRANT AVENUE. ALL DISTURBED AREA UNDER ROADS SHALL BE STABILIZED WITH GAB AND/OR PAVEMENT ON THE SAME DAY OF INITIAL DISTURBANCE. ANY SEDIMENT LADEN WATER SHALL BE DIRECTED TO A HOWARD COUNTY APPROVED SEDIMENT CONTROL DEVICE.
- INSTALL INLET PROTECTIONS AS EACH INLET IS BUILT. CIP AT COMBINATION INLETS SHALL BE MODIFIED PER THE DETAIL FOR AN AGIP TO PROTECT THE GRATE OF THE INLET.
- CONSTRUCT CONCRETE CURB AND GUTTER ALONG BRYANT AVENUE AND GRANT AVENUE. STABILIZE BACKFILL AT THE END OF EACH WORKING DAY.
- GRADE DITCHES 1-1 AND 2-1 ALONG BRYANT AVENUE FROM DOWNSTREAM TO UPSTREAM AS SHOWN ON PLANS. CONCURRENT WITH DITCH GRADING, CONSTRUCT CULVERTS ACROSS DRIVEWAYS AND INSTALL RIPRAP OUTFALL PROTECTION. STABILIZE DITCHES WITH TYPE 'A' MATTING. CONTRACTOR ONLY TO CONSTRUCT THAT WHICH CAN BE STABILIZED BY THE END OF EACH WORKING DAY. ANY SEDIMENT LADEN WATER ENCOUNTERED DURING DITCH GRADING SHALL BE DIRECTED TO A HOWARD COUNTY APPROVED SEDIMENT CONTROL DEVICE.
- CONSTRUCT FULL DEPTH PAVEMENT SECTION IN AREAS AS SHOWN ON PS-1 THRU PS-5.
- PERFORM DRIVEWAY/WALKWAY RECONSTRUCTION PER THE TYPICAL SECTIONS SHOWN ON TS-2 AND TS-3.
- PERFORM CARBIDE GRIND AND OVERLAY ALONG BRYANT AVENUE AND GRANT AVENUE.
- ONCE ALL DISTURBED AREAS HAVE BEEN STABILIZED AND WITH APPROVAL OF THE INSPECTOR, REMOVE INLET PROTECTIONS.



By the Developer:
 "I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance of a Department of the Environment approved Training Program for the Control of Sediment and Erosion before beginning the project, also authorize periodic on-site inspection by the Howard Soil Conservation District."
 Marshall A. Davidson P.E. 1/16/14
 Signature of Developer
 Print name below Signature

By the Engineer:
 "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
 Paul F. Clement 01/10/14
 Signature of Engineer
 Print name below Signature
 "PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015."

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.
 John R. Ralston 1/16/14
 Howard SCD Date

FILE: c:\projects\04044.03\by\envt\external\and\cadd\sed-001.dwg, 2013.01.24 10:53 AM

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: Steve Sharan 1/23/14
 Chief, Bureau of Highways: Lisa Z. Miller 1-24-14
 Chief, Transportation and Special Projects Division: Thomas J. Butler 1-24-14
 Chief, Bureau of Engineering: Deputy Director of Public Works

JMT
 JOHNSON, MIRMIRAN & THOMPSON
 Engineering A Brighter Future®
 72 Loveton Circle Baltimore, Maryland 21152-0949



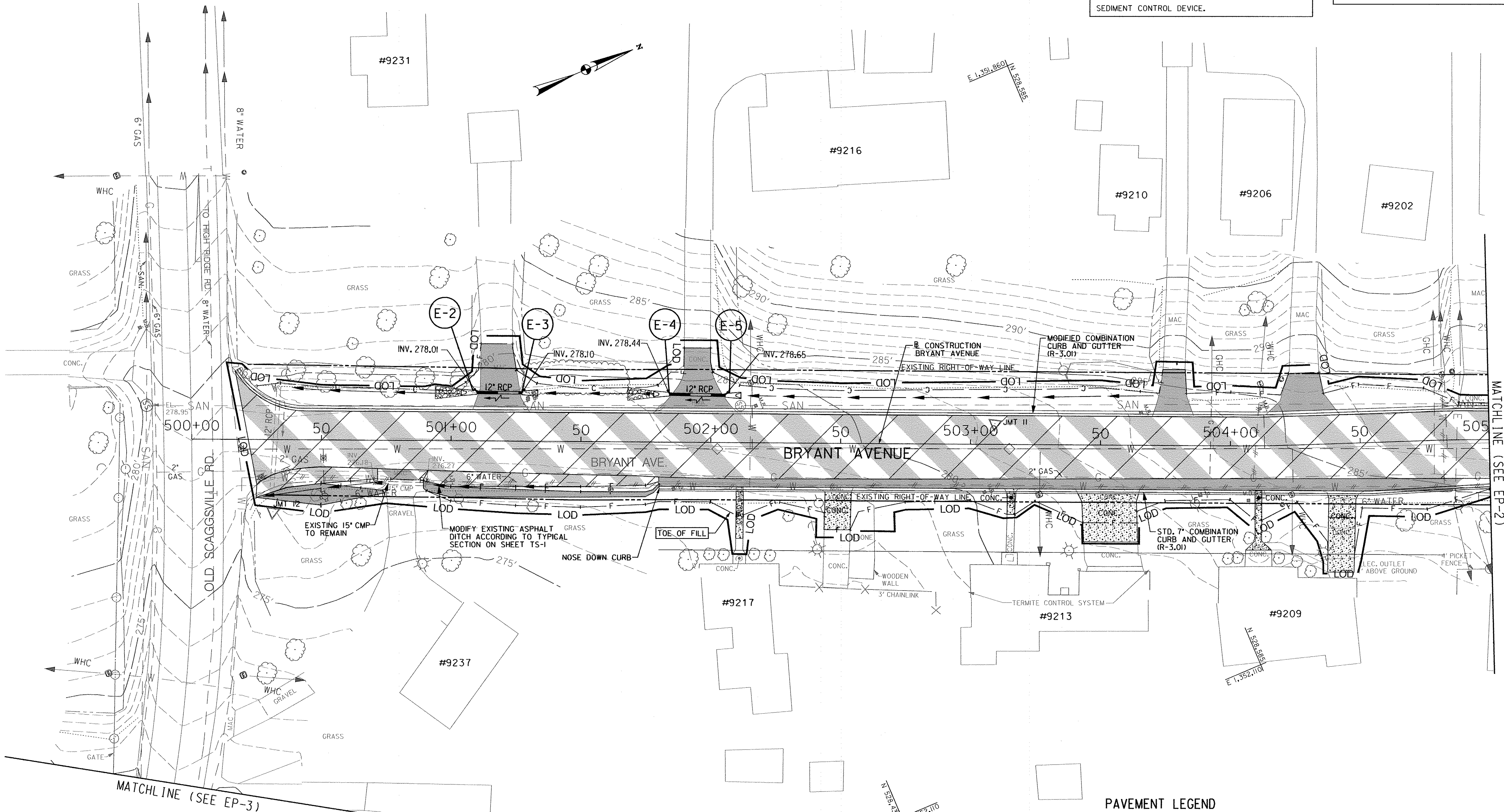
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VRM	JMB		
DRN:	JMB		
CHK:	SAM		
DATE:	DEC 2013		

CAPITAL PROJECT NO.
D-1150
 MAP NO. BLOCK NO.

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
 BRYANT AVENUE & GRANT AVENUE
 - STORM DRAIN IMPROVEMENTS
 ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND
 SCALE N.T.S.
 SHEET 18 OF 24

NOTE:
NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED
OVERNIGHT UNLESS DIRECTED TO AN MDE APPROVED
SEDIMENT CONTROL DEVICE.

NOTE:
SILT FENCE TO BE INSTALLED AS REQUIRED BY THE
SEDIMENT CONTROL INSPECTOR.

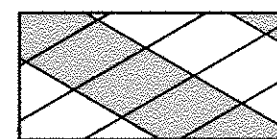
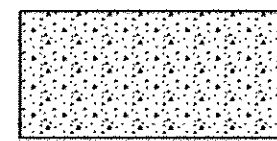



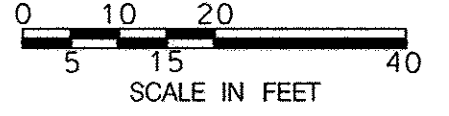
NOTE:
STOCKPILING WILL NOT BE PERMITTED ON SITE.

NOTE:
TRACKING OF SEDIMENT ONTO ROADS IS NOT PERMITTED. IF SEDIMENT IS
TRACKED ONTO ROADS, IT SHOULD BE CLEARED AND HAULED OFF SITE
AT THE END OF EACH WORKING DAY.

*PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND,
LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015

PAVEMENT LEGEND

-  PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND OVERLAY
-  CONCRETE DRIVEWAY/SIDEWALK
-  FULL DEPTH PAVEMENT/DRIVEWAY



EP-1

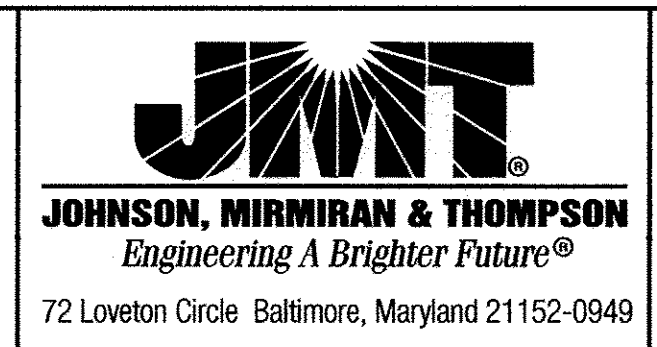
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Shavan 1/23/14
DIRECTOR OF PUBLIC WORKS

William J. Smith 1-24-14
CHIEF, BUREAU OF HIGHWAYS

Monica S. Suttler 1-24-14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS



DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

MAP NO. BLOCK NO.

EROSION AND SEDIMENT CONTROL PLAN
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND

SCALE
1" = 20'

SHEET
19 OF 24

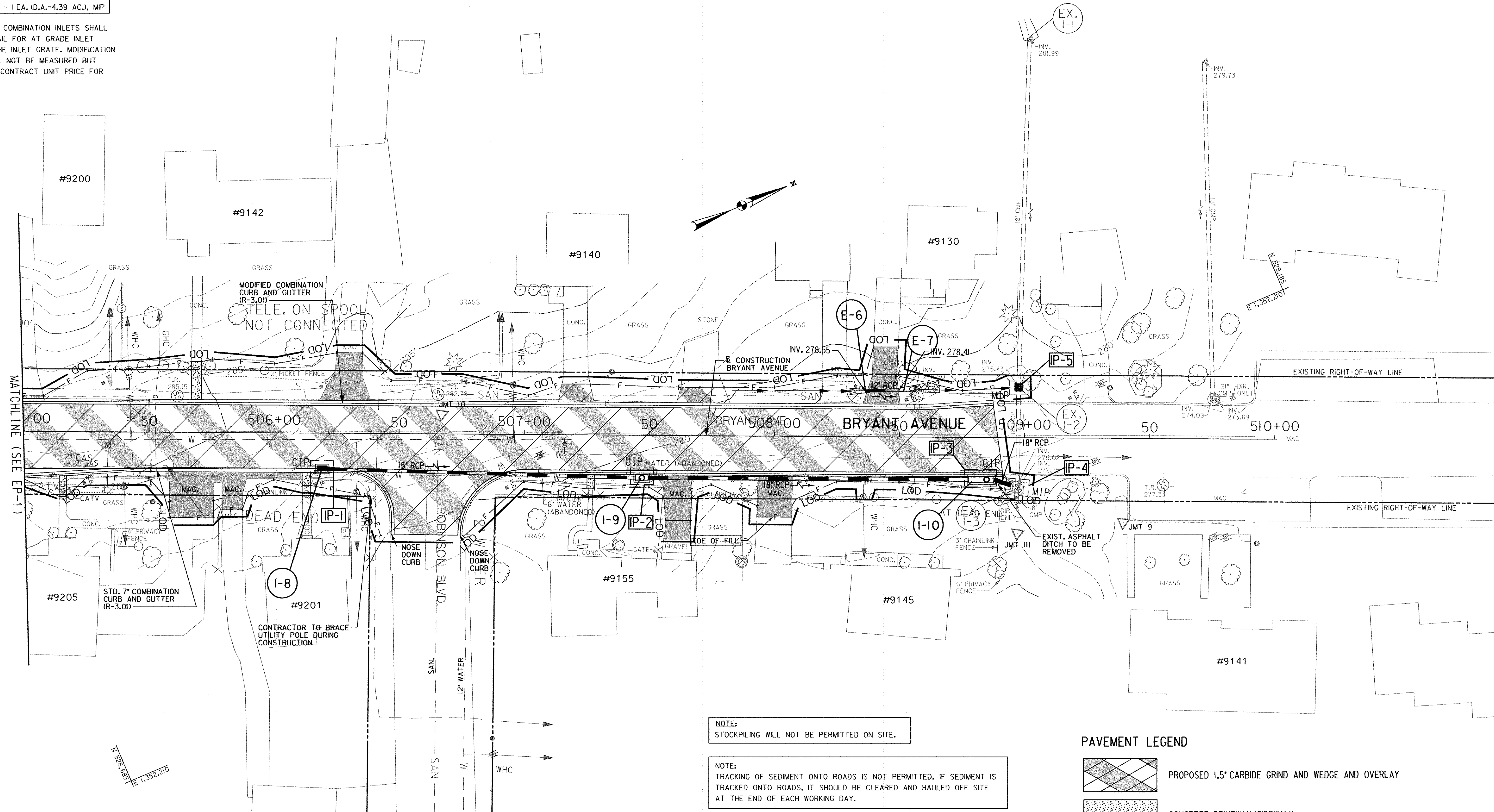
INLET PROTECTION (IP)	
IP-1	STA. 506+19, 15' RT. - 1 EA. (D.A.=0.39 AC.), CIP
IP-2	STA. 507+47, 15' RT. - 1 EA. (D.A.=0.62 AC.), CIP
IP-3	STA. 508+83, 15' RT. - 1 EA. (D.A.=0.69 AC.), CIP
IP-4	STA. 508+97, 20' RT. - 1 EA. (D.A.=0.05 AC.), MIP
IP-5	STA. 508+97, 20' LT. - 1 EA. (D.A.=4.39 AC.), MIP

CURB INLET PROTECTION AT COMBINATION INLETS SHALL BE MODIFIED PER THE DETAIL FOR AT GRADE INLET PROTECTION TO PROTECT THE INLET GRATE. MODIFICATION OF INLET PROTECTION SHALL NOT BE MEASURED BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR INLET PROTECTION.

NOTE:
GRATE FOR EXISTING INLET EX. I-2 TO BE REPLACED WITH HOWARD COUNTY STANDARD YARD INLET GRATE.

NOTE:
NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS DIRECTED TO AN MDE APPROVED SEDIMENT CONTROL DEVICE.


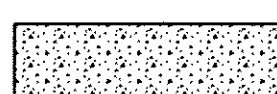

NOTE:
SILT FENCE TO BE INSTALLED AS REQUIRED BY THE SEDIMENT CONTROL INSPECTOR.



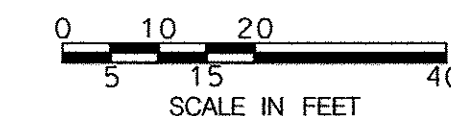
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PAVEMENT LEGEND

-  PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND OVERLAY
-  CONCRETE DRIVEWAY/SIDEWALK
-  FULL DEPTH PAVEMENT/DRIVEWAY

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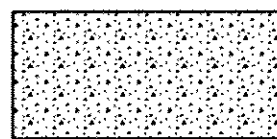
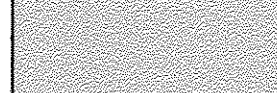
EP-2

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Ray G. Chan</i> 1/24/14 DIRECTOR OF PUBLIC WORKS</p> <p><i>Steve Shanan</i> 1/23/14 CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION</p>	<p>JMT JOHNSON, MIRMIRAN & THOMPSON Engineering A Brighter Future® 72 Loveton Circle Baltimore, Maryland 21152-0949</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DES:</th> <th>BY</th> <th>NO.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>VRM</td> <td></td> <td></td> <td></td> </tr> <tr> <td>DRN:</td> <td>JMB</td> <td></td> <td></td> </tr> <tr> <td>CHK:</td> <td>SAM</td> <td></td> <td></td> </tr> <tr> <td>DATE:</td> <td colspan="3">DEC 2013</td> </tr> </tbody> </table>	DES:	BY	NO.	DATE	VRM				DRN:	JMB			CHK:	SAM			DATE:	DEC 2013			<p>CAPITAL PROJECT NO. D-1150</p>	<p>EROSION AND SEDIMENT CONTROL PLAN BRYANT AVENUE & GRANT AVENUE - STORM DRAIN IMPROVEMENTS</p> <p>ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND</p>	<p>SCALE 1" = 20'</p> <p>SHEET 20 OF 24</p>
DES:	BY	NO.	DATE																							
VRM																										
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CHK:	SAM																									
DATE:	DEC 2013																									

INLET PROTECTION (IP)	
IP-6	STA. 600+72, 12' LT. - 1 EA. (D.A.=0.51 AC.), CIP
IP-7	STA. 600+57, 12' RT. - 1 EA. (D.A.=0.01 AC.), CIP
IP-8	STA. 600+18, 25' RT. - 1 EA. (D.A.=1.10 AC.), MIP
IP-9	STA. 600+52, 24' LT. - 1 EA. (D.A.=3.091 AC.), MIP
IP-21	STA. 600+96, 12' RT. - 1 EA. (D.A.=0.57 AC.), CIP

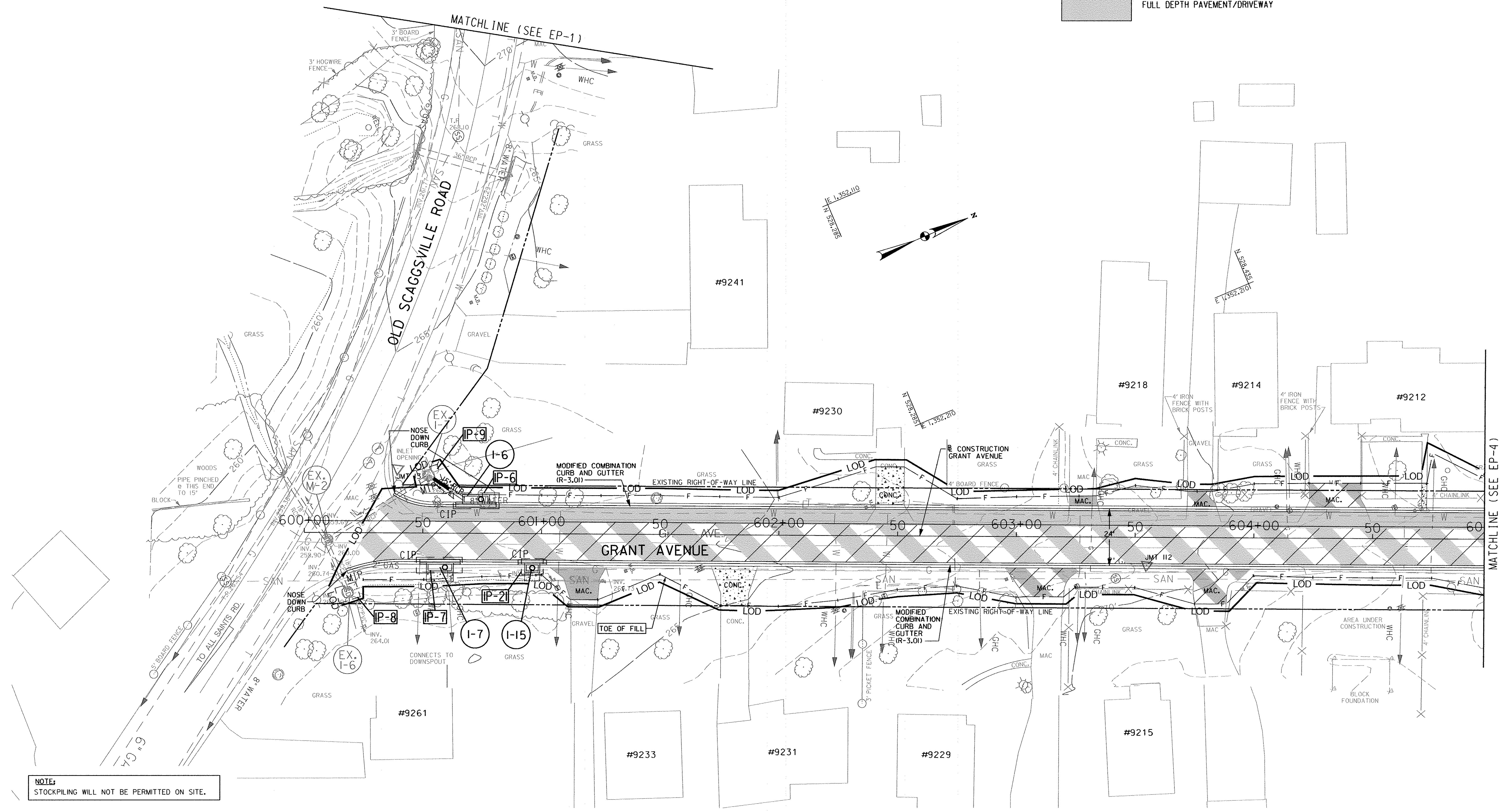
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PAVEMENT LEGEND

-  PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND OVERLAY
-  CONCRETE DRIVEWAY/SIDEWALK
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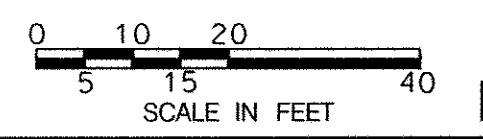
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NOTE:
SILT FENCE TO BE INSTALLED AS REQUIRED BY THE SEDIMENT CONTROL INSPECTOR.

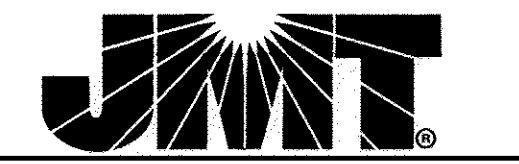



NOTE:
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*PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015



EP-3

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Steve Slaven</i> 1/24/14 DIRECTOR OF PUBLIC WORKS</p> <p><i>Steve Slaven</i> 1/23/14 CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION</p>	 <p>JOHNSON, MIRMIRAN & THOMPSON Engineering A Brighter Future® 72 Loveton Circle Baltimore, Maryland 21152-0949</p>	 <p>DATE: DEC 2013</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DES:</th> <th>BY:</th> <th>NO.:</th> <th>DATE:</th> </tr> </thead> <tbody> <tr> <td>VRM</td> <td></td> <td></td> <td></td> </tr> <tr> <td>DRN:</td> <td>JMB</td> <td></td> <td></td> </tr> <tr> <td>CHK:</td> <td>SAM</td> <td></td> <td></td> </tr> </tbody> </table>	DES:	BY:	NO.:	DATE:	VRM				DRN:	JMB			CHK:	SAM			<p>CAPITAL PROJECT NO. D-1150</p>	<p>EROSION AND SEDIMENT CONTROL PLAN BRYANT AVENUE & GRANT AVENUE - STORM DRAIN IMPROVEMENTS</p> <p>ELECTION DISTRICT 6 HOWARD COUNTY, MARYLAND</p>	<p>SCALE 1" = 20'</p> <p>SHEET 21 OF 24</p>
DES:	BY:	NO.:	DATE:																			
VRM																						
DRN:	JMB																					
CHK:	SAM																					

INLET PROTECTION (IP)	
IP-10	STA. 607+19, 17' RT. - 1 EA. (D.A.=0.06 AC.), CIP
IP-11	STA. 609+38, 12' RT. - 1 EA. (D.A.=0.07 AC.), CIP
IP-12	STA. 609+15, 12' LT. - 1 EA. (D.A.=2.78 AC.), CIP
IP-13	STA. 609+97, 17' RT. - 1 EA. (D.A.=0.11 AC.), CIP
IP-14	STA. 609+49, 16' LT. - 1 EA. (D.A.=0.49 AC.), MIP
IP-15	STA. 609+62, 14' LT. - 1 EA. (D.A.=0.05 AC.), MIP
IP-16	STA. 609+72, 18' LT. - 1 EA. (D.A.=1.11 AC.), MIP
IP-17	STA. 610+25, 17' LT. - 1 EA. (D.A.=0.26 AC.), MIP
IP-18	STA. 609+68, 29' RT. - 1 EA. (D.A.=0.03 AC.), MIP

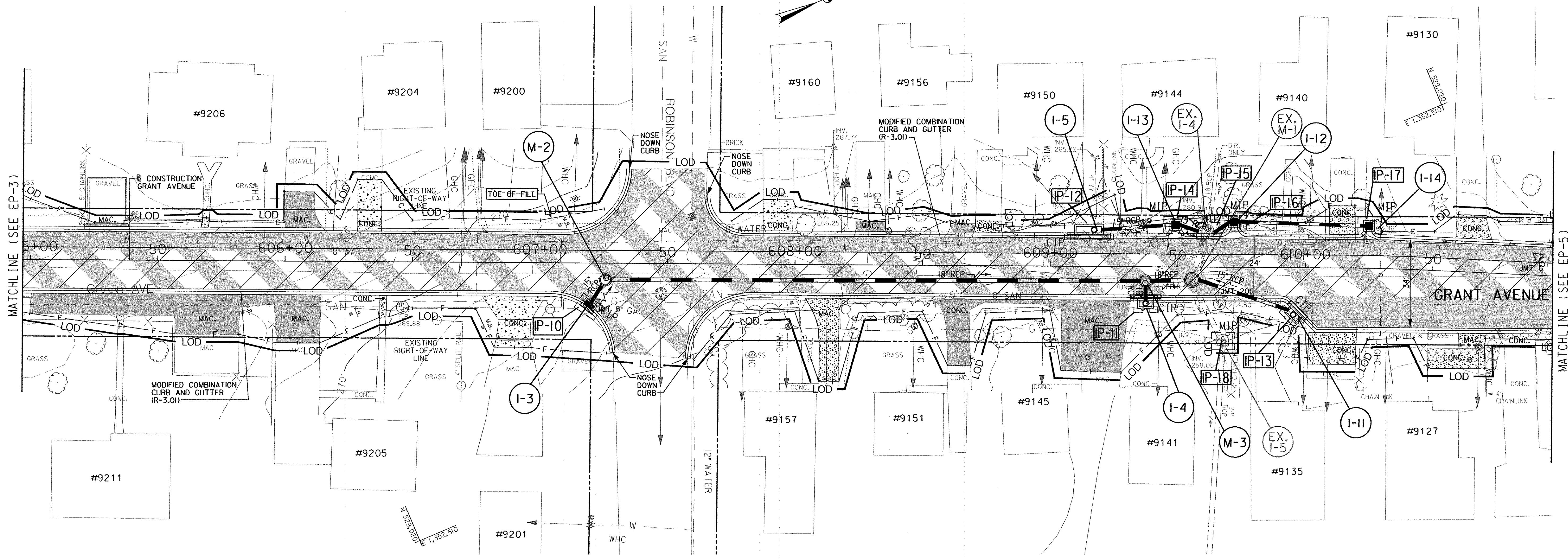
CURB INLET PROTECTION AT COMBINATION INLETS SHALL BE MODIFIED PER THE DETAIL FOR AT GRADE INLET PROTECTION TO PROTECT THE INLET GRATE. MODIFICATION OF INLET PROTECTION SHALL NOT BE MEASURED BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR INLET PROTECTION.

NOTE:
NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS DIRECTED TO AN MDE APPROVED SEDIMENT CONTROL DEVICE.

NOTE:
SILT FENCE TO BE INSTALLED AS REQUIRED BY THE SEDIMENT CONTROL INSPECTOR.

NOTE:
TRACKING OF SEDIMENT ONTO ROADS IS NOT PERMITTED. IF SEDIMENT IS TRACKED ONTO ROADS, IT SHOULD BE CLEARED AND HAULLED OFF SITE AT THE END OF EACH WORKING DAY.

E 1,352.410
N 533.020



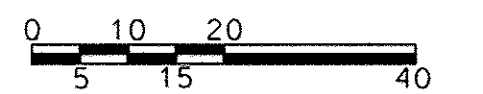
MATCHLINE (SEE EP-3)

MATCHLINE (SEE EP-5)

PAVEMENT LEGEND	
	PROPOSED 1.5" CARBIDE GRIND AND WEDGE AND OVERLAY
	CONCRETE DRIVEWAY/SIDEWALK
	FULL DEPTH PAVEMENT/DRIVEWAY

NOTE:
STOCKPILING WILL NOT BE PERMITTED ON SITE.

*PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015



EP-4

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

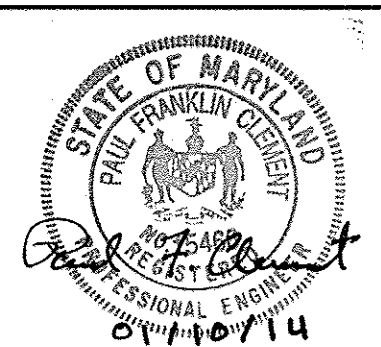
Steve Slaven 1/23/14
DIRECTOR OF PUBLIC WORKS

Steve Slaven 1/23/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

Will Z. Smith 1-20-14
CHIEF, BUREAU OF HIGHWAYS

Thomas J. Buttle 1-24-14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949



DES:	BY:	NO.:	DATE:
VRM			
9/11	JMB		
CHK:	SAM		
DATE:	DEC 2013		

CAPITAL PROJECT NO.
D-1150

EROSION AND SEDIMENT CONTROL PLAN
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

SCALE
1" = 20'

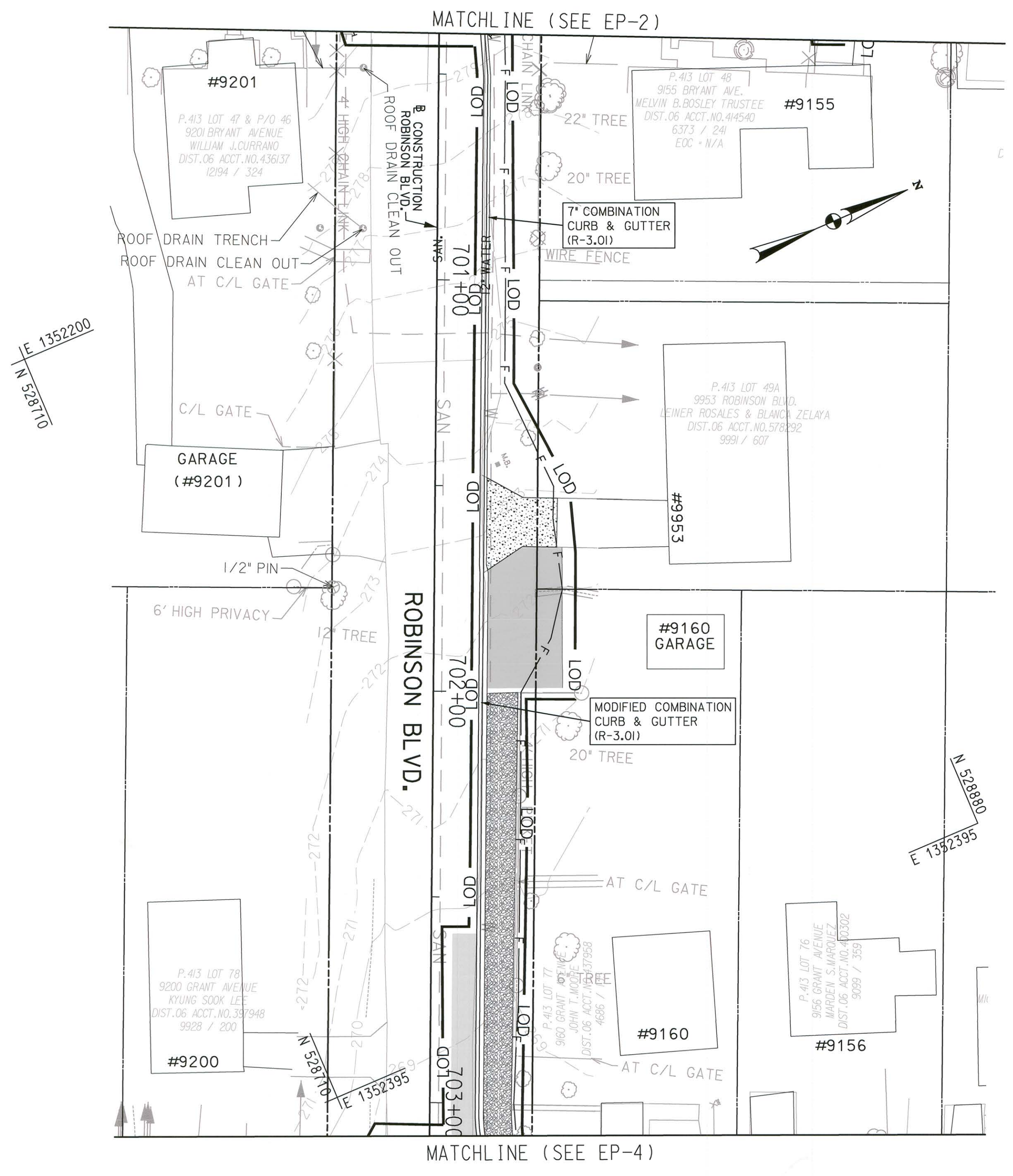
SHEET
22 OF 24

NOTE:
TRACKING OF SEDIMENT ONTO ROADS IS NOT PERMITTED. IF SEDIMENT IS TRACKED ONTO ROADS, IT SHOULD BE CLEARED AND HAULED OFF SITE AT THE END OF EACH WORKING DAY.

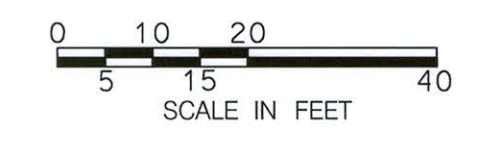
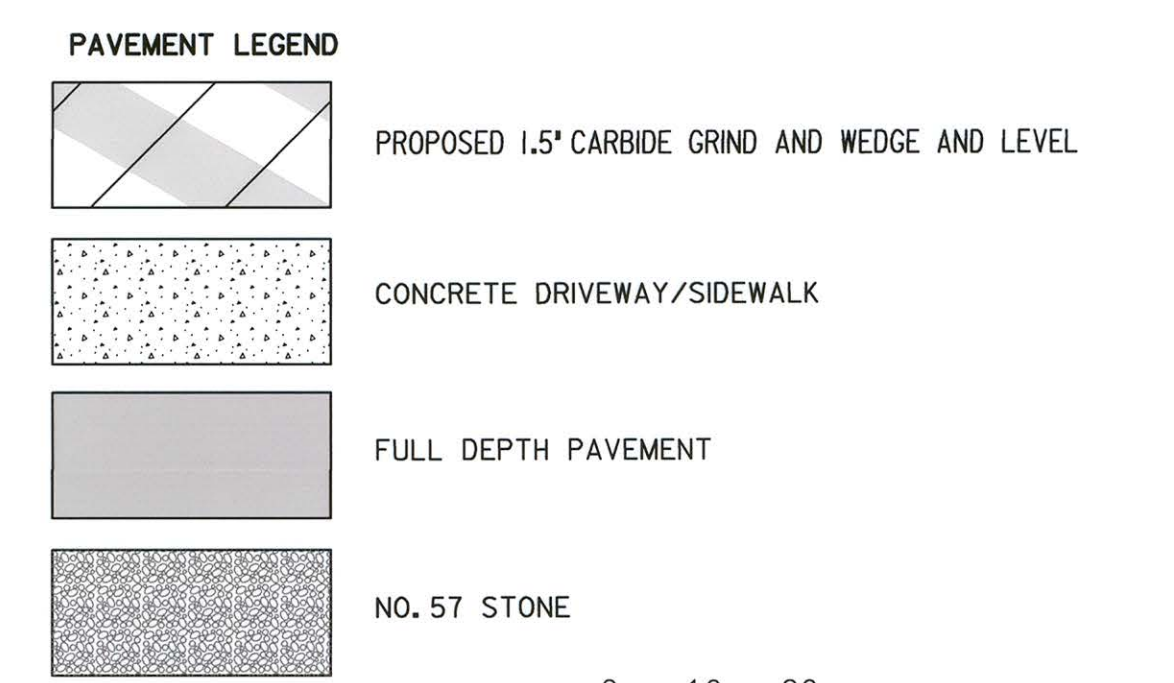
NOTE:
NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS DIRECTED TO AN MDE APPROVED SEDIMENT CONTROL DEVICE.

NOTE:
SILT FENCE TO BE INSTALLED AS REQUIRED BY THE SEDIMENT CONTROL INSPECTOR.

NOTE:
STOCKPILING WILL NOT BE PERMITTED ON SITE.



*PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015



EP-6

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS _____ CHIEF, BUREAU OF HIGHWAYS _____
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION _____ CHIEF, BUREAU OF ENGINEERING DEPUTY DIRECTOR OF PUBLIC WORKS _____



DES:	VRM	BY	NO.	DATE
DRN:	JMB			01/2015
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.
D-1150

EROSION AND SEDIMENT CONTROL PLAN
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

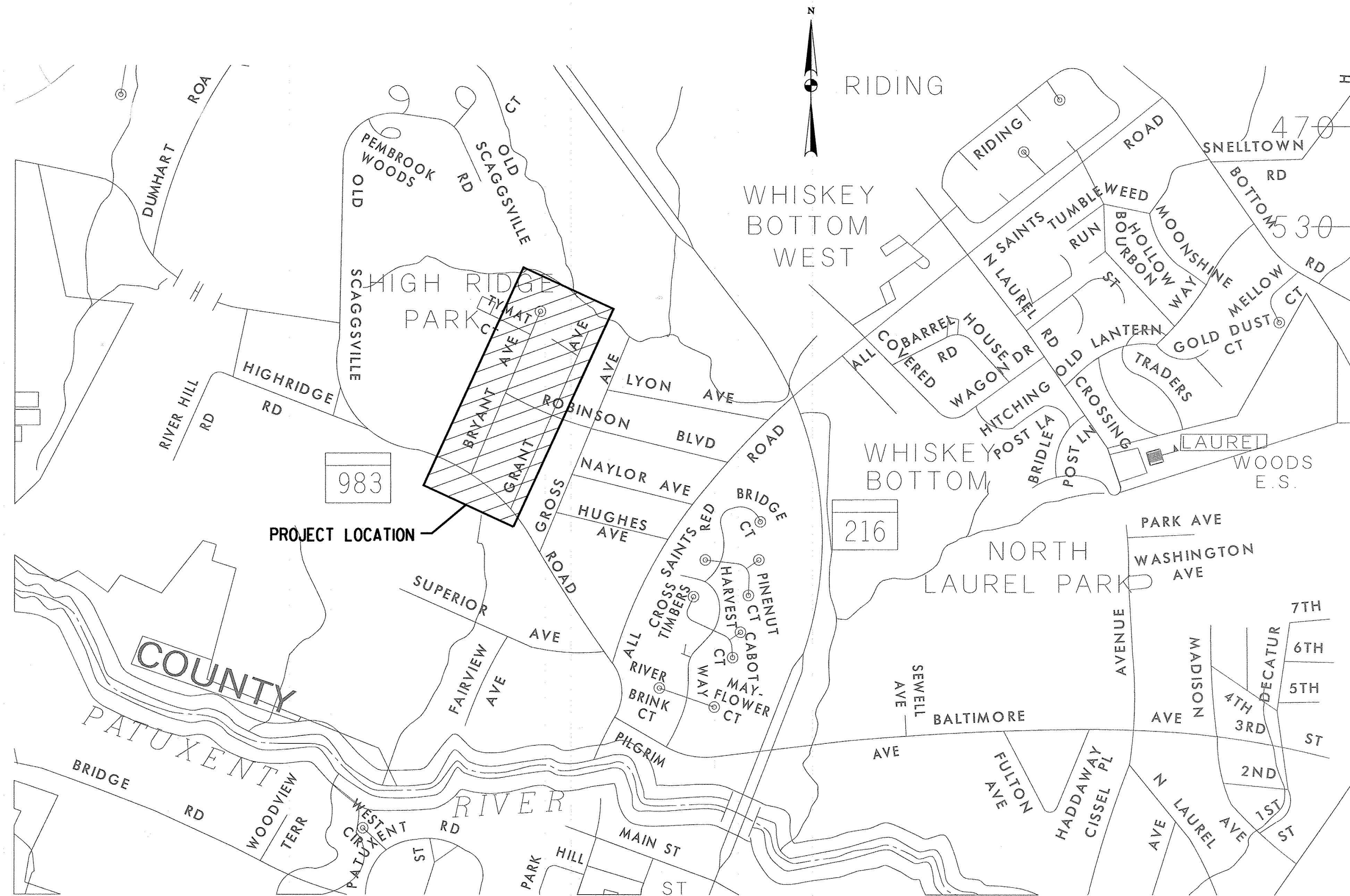
ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

SCALE
1" = 20'

SHEET
23A OF 24

TRAFFIC CONTROL GENERAL NOTES:

1. CONTRACTOR SHALL NOTIFY HOWARD COUNTY 48 HOURS IN ADVANCE OF BEGINNING ANY WORK IN ORDER TO SCHEDULE A FIELD INSPECTION OF THE TRAFFIC CONTROL DEVICES, (410) 313-2430.
2. ALL CONSTRUCTION AND MATERIALS FOR THE TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE STANDARDS IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED OPERATIONAL THROUGHOUT THE DURATION OF THE CONSTRUCTION. ALL CONES, BARRELS AND FLAGGERS SHALL BE MOVED ACCORDINGLY AS CONSTRUCTION PROGRESSES.
3. THROUGHOUT THE PERIOD OF CONSTRUCTION, TRAFFIC WILL BE MAINTAINED BY IMPLEMENTING STANDARD TRAFFIC CONTROL WORK ZONE TYPICAL PRACTICES IN ACCORDANCE WITH THE LATEST PLANS AND MANUALS OF THE MARYLAND STATE HIGHWAY ADMINISTRATION.
4. NO TRENCH MORE THAN ONE-HALF THE ROADWAY WIDTH SHALL BE OPEN AT ANY TIME, ACROSS A GIVEN STREET, SO THAT TRAFFIC IS ALWAYS MAINTAINED. ANY TRENCH LEFT OPEN AT NIGHT SHALL BE COVERED WITH STEEL PLATES. THE SIZE AND THICKNESS OF THE STEEL PLATES SHALL BE DETERMINED BY THE ENGINEER AND/OR INSPECTOR IN THE FIELD.
5. VEHICULAR ACCESS TO ALL PROPERTIES SHALL BE MAINTAINED. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO EACH PROPERTY OWNER THREE (3) DAYS IN ADVANCE OF PERFORMING DRIVEWAY RE-CONSTRUCTION AT THEIR PROPERTY. ACCESS TO THE PROPERTY SHALL BE PROVIDED BY THE END OF EACH WORK DAY.
6. PIPE TRENCH SHALL BE BACKFILLED OR COVERED WITH STEEL PLATES AT THE END OF EACH WORK DAY. THE USE OF STEEL PLATES FOR TRAFFIC CONTROL SHALL BE INCIDENTAL TO THE LUMP SUM ITEM FOR MAINTENANCE OF TRAFFIC.
7. TRAVEL LANES SHALL BE A MINIMUM OF TWELVE (12) FEET IN WIDTH. SINGLE LANE CLOSURES SHALL BE ALLOWED BETWEEN THE HOURS OF 9:00 AM AND 4:00 PM. FLAGGERS AND THE APPROPRIATE SIGNING SHALL BE PROVIDED. THE CONTRACTOR SHALL UTILIZE A TWO LANE, TWO WAY ROADWAY FLAGGING OPERATION AS SPECIFIED IN THE MARYLAND SHA BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES, STANDARD NO. MD 104.02-10 FOR TRAFFIC CONTROL DURING CONSTRUCTION. THE ROADWAY SHALL BE OPENED TO TWO LANES AT NIGHT UNLESS APPROVED BY THE ENGINEER.
8. CONSTRUCTION EQUIPMENT AND WORKERS VEHICLES SHALL NOT BE PARKED IN A MANNER THAT WILL IMPEDE TRAFFIC OR IMPAIR SITE DISTANCE. THESE VEHICLES SHOULD BE PARKED OFF-STREET ON THE CONSTRUCTION SITE OR ON A SIDE-STREET NOT UNDER CONSTRUCTION.
9. THE CONTRACTOR SHALL DESIGNATE A TRAFFIC MANAGER MEETING ALL REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION AND NOTIFY THE COUNTY'S CONSTRUCTION INSPECTION DIVISION PRIOR TO ANY WORK BEING DONE. THE TRAFFIC MANAGER SHALL BE RESPONSIBLE FOR THE PROPER IMPLEMENTATION AND MAINTENANCE OF THE TRAFFIC CONTROL PLAN, DAILY INSPECTIONS DURING HOURS OF OPERATION AND MAINTAINING REGULAR SURVEILLANCE OVER ALL ASPECTS OF TRAFFIC CONTROL FOR PEDESTRIAN AND VEHICULAR SAFETY.
10. AT THE CONCLUSION OF ALL STORM DRAIN AND CURB CONSTRUCTION BRYANT AVENUE AND GRANT AVENUE SHALL BE MILLED AND OVERLAYED AS SHOWN ON THE DESIGN PLANS. THE CONTRACTOR SHALL UTILIZE A FLAGGING OPERATION FOR MILL AND OVERLAY CONSTRUCTION.



PLAN
SCALE: 1" = 500'

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15466, EXPIRATION DATE: JULY 15, 2015

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jay De... 4/8/14
DIRECTOR OF PUBLIC WORKS
Steve Shaver 4/14/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

William J. ... 4-8-14
CHIEF, BUREAU OF HIGHWAYS
Thomas B. ... 4/14/14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949



DES:	VRM	BY	NO.	DATE
DRN:	JMB			
CHK:	SAM			
DATE:	DEC 2013			

CAPITAL PROJECT NO.

D-1150

MAP NO. BLOCK NO.

MAINTENANCE OF TRAFFIC PLAN

BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS

ELECTION DISTRICT 6

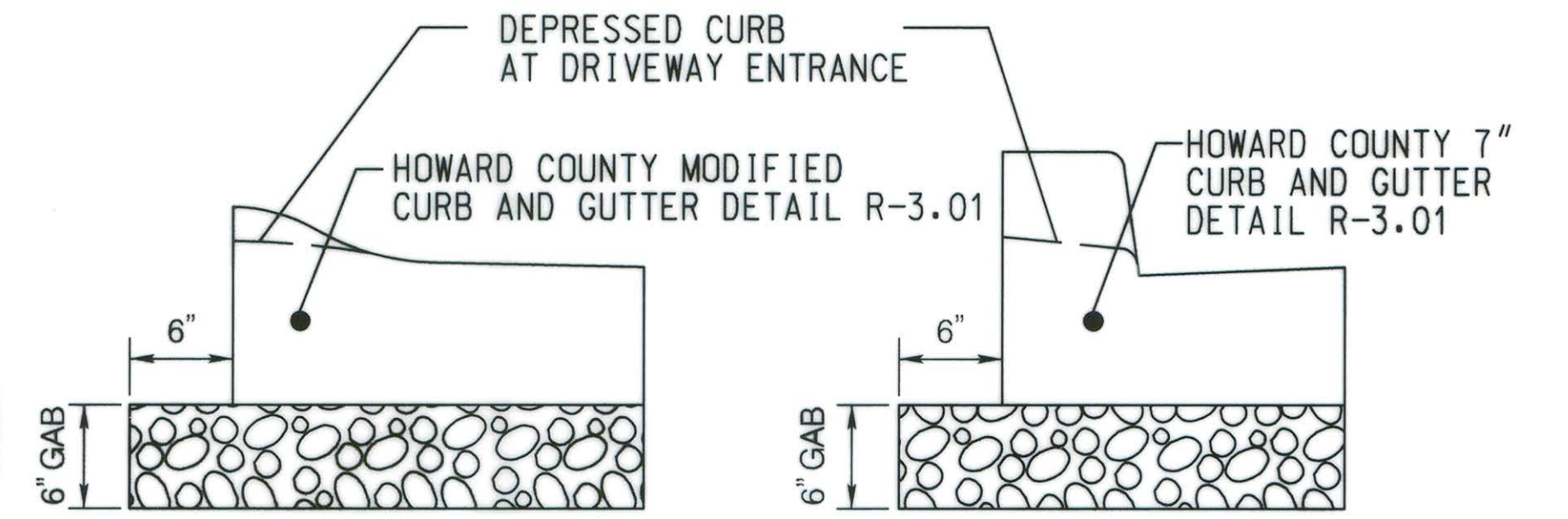
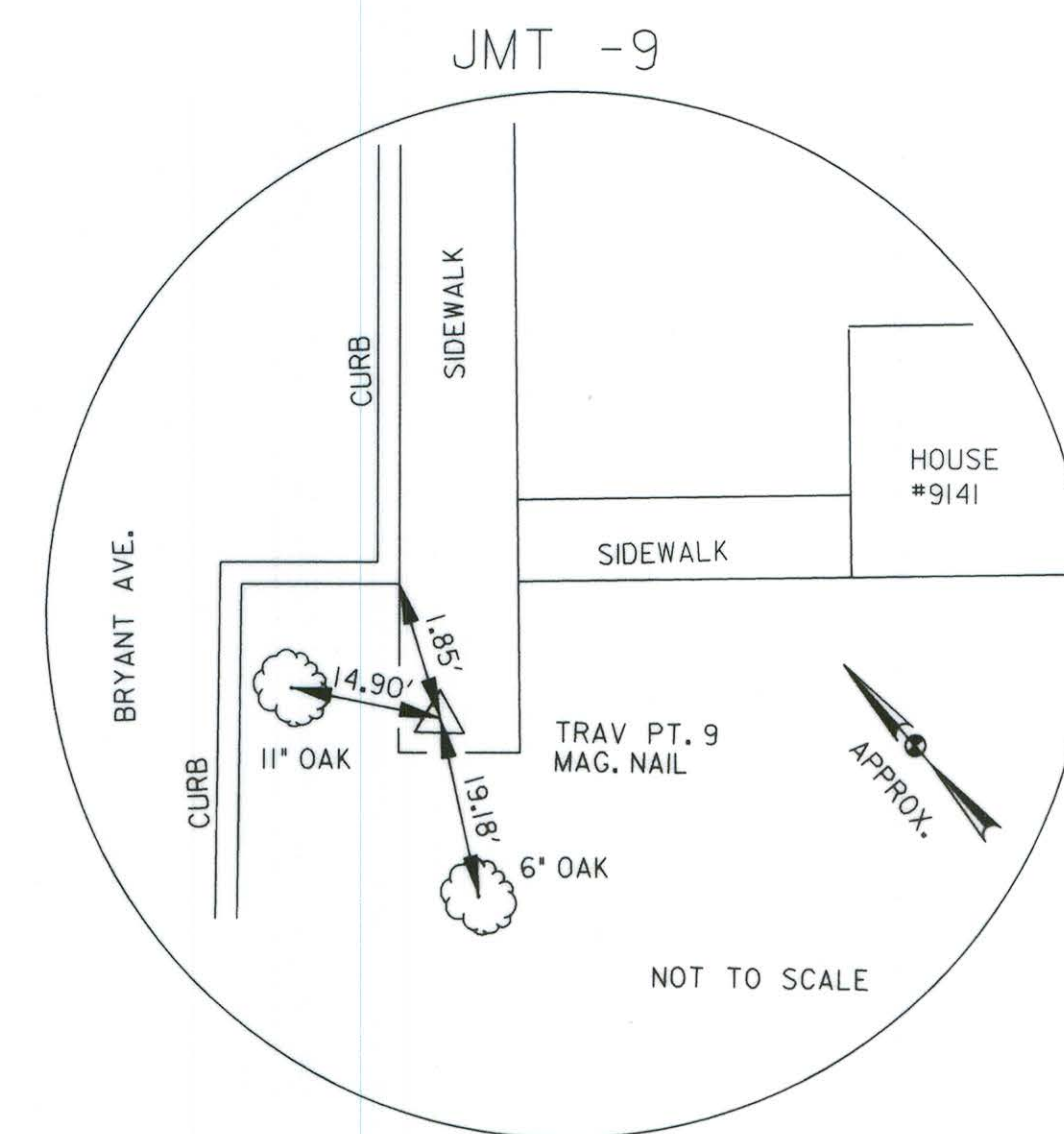
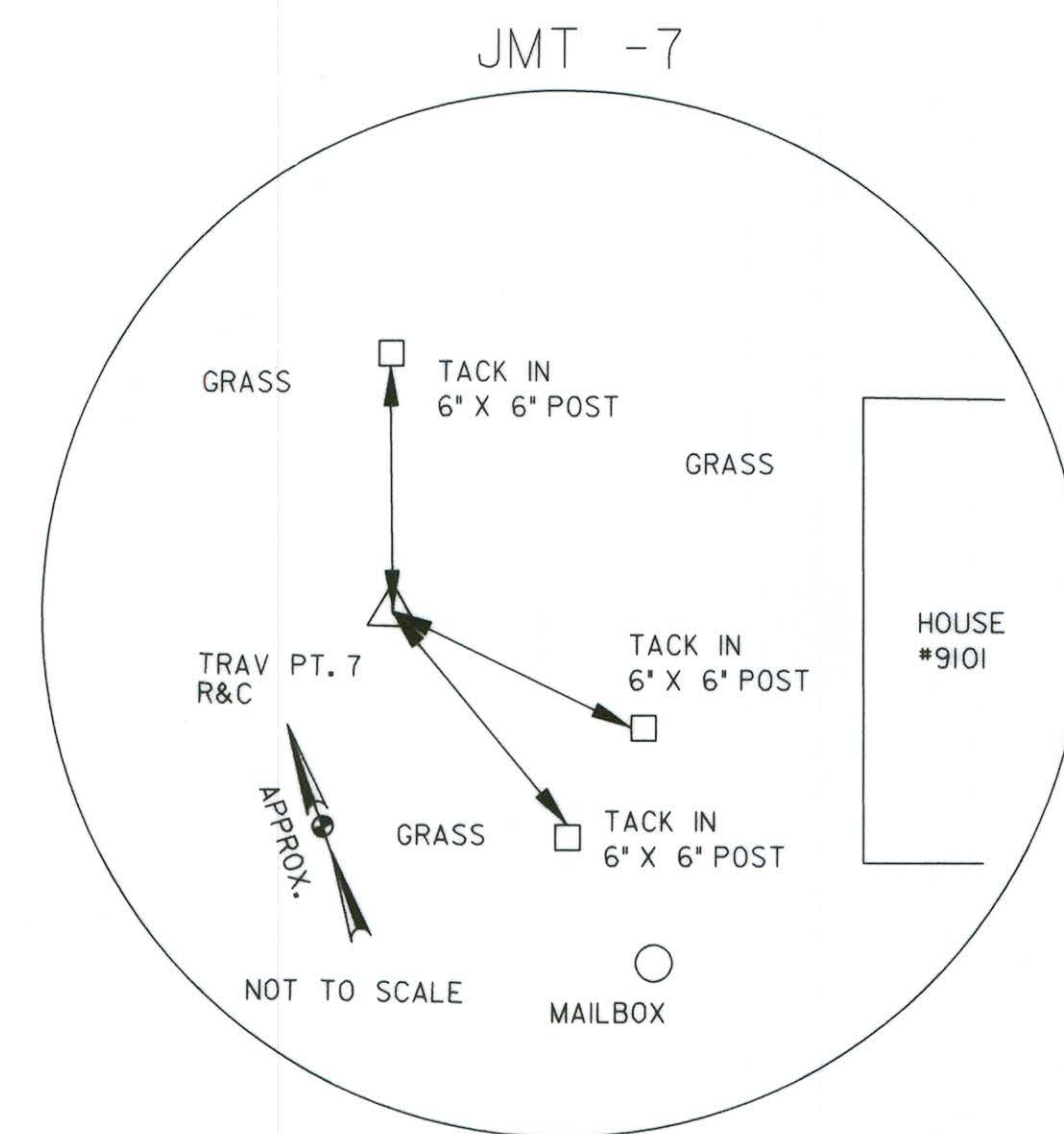
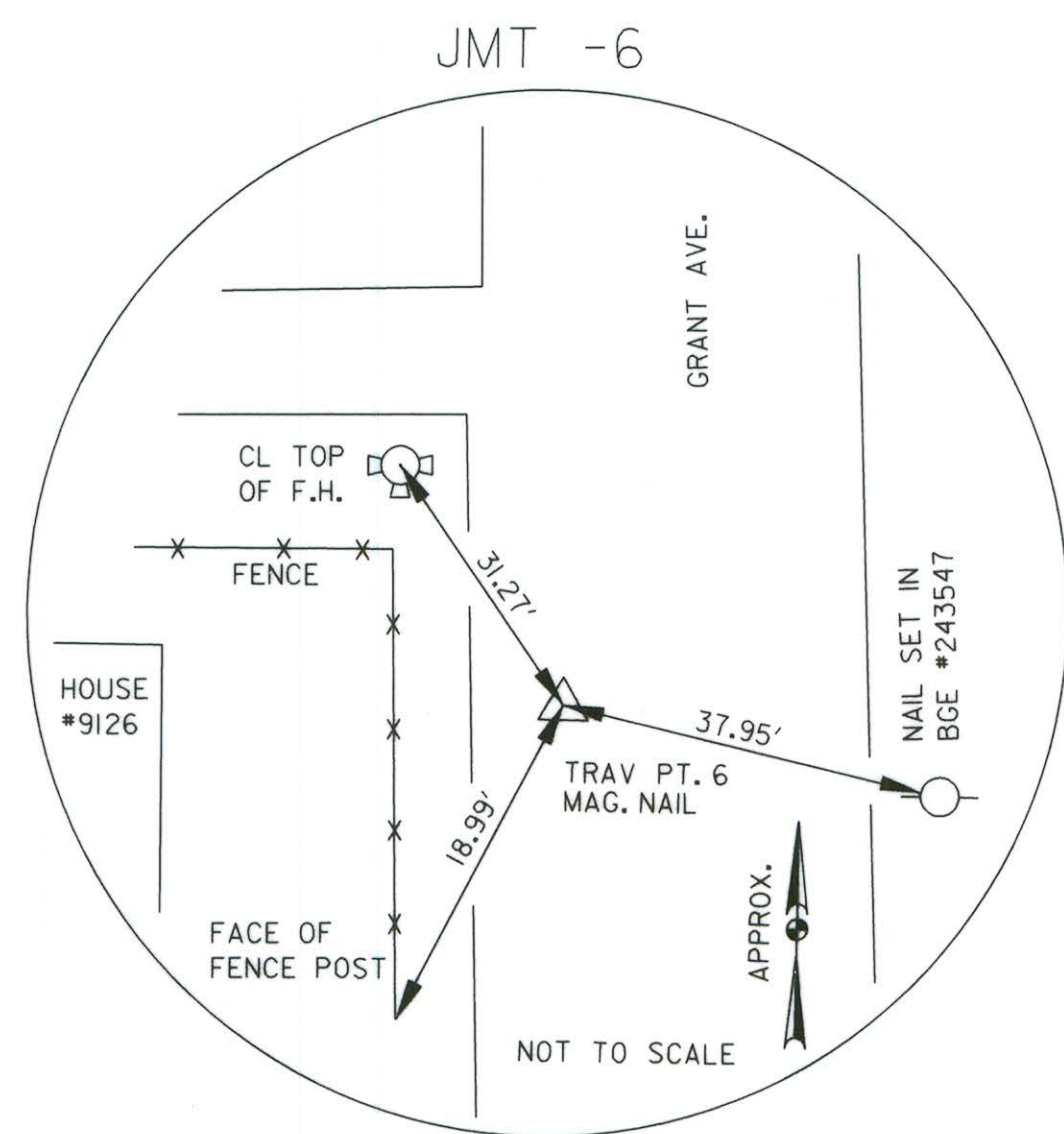
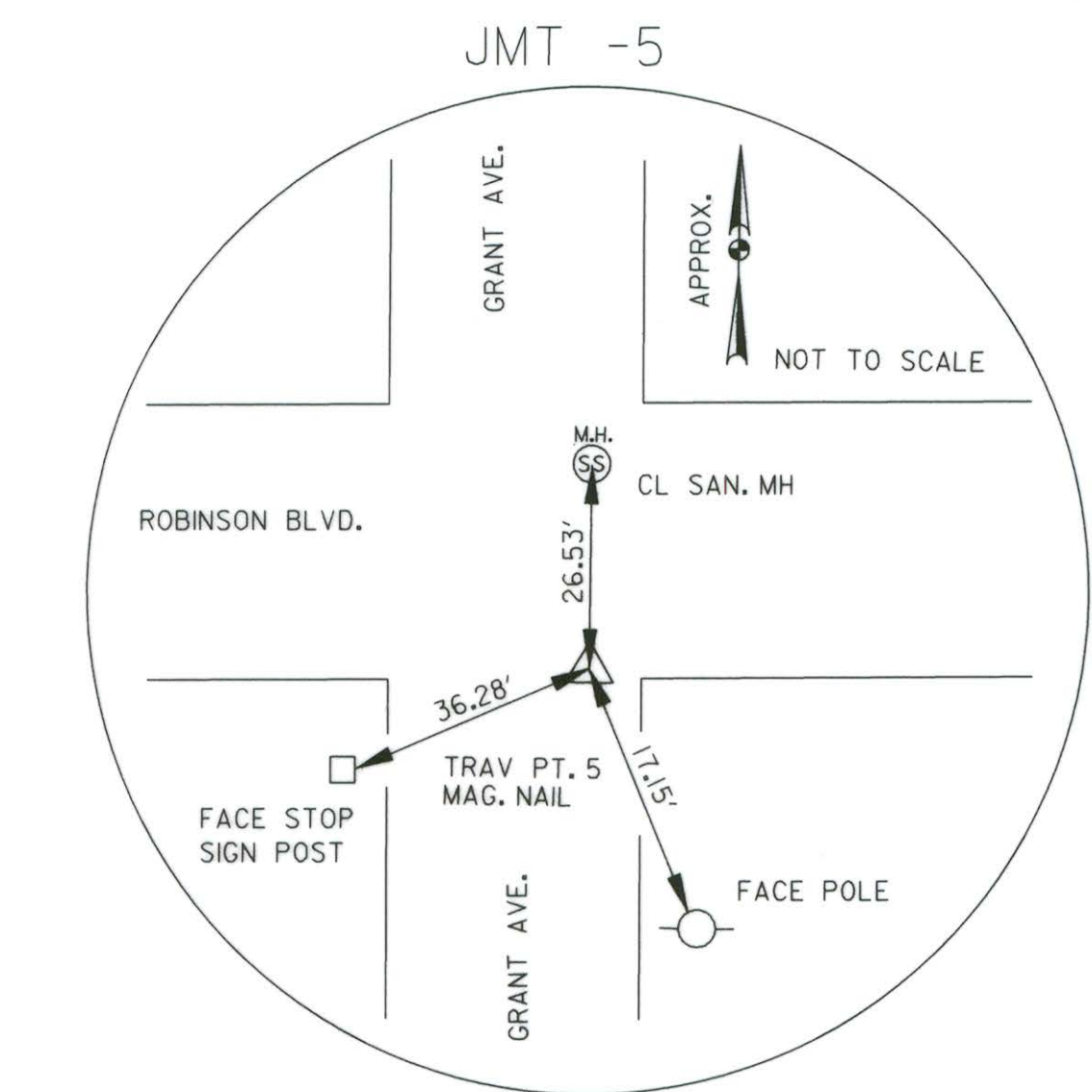
HOWARD COUNTY, MARYLAND

TP-1

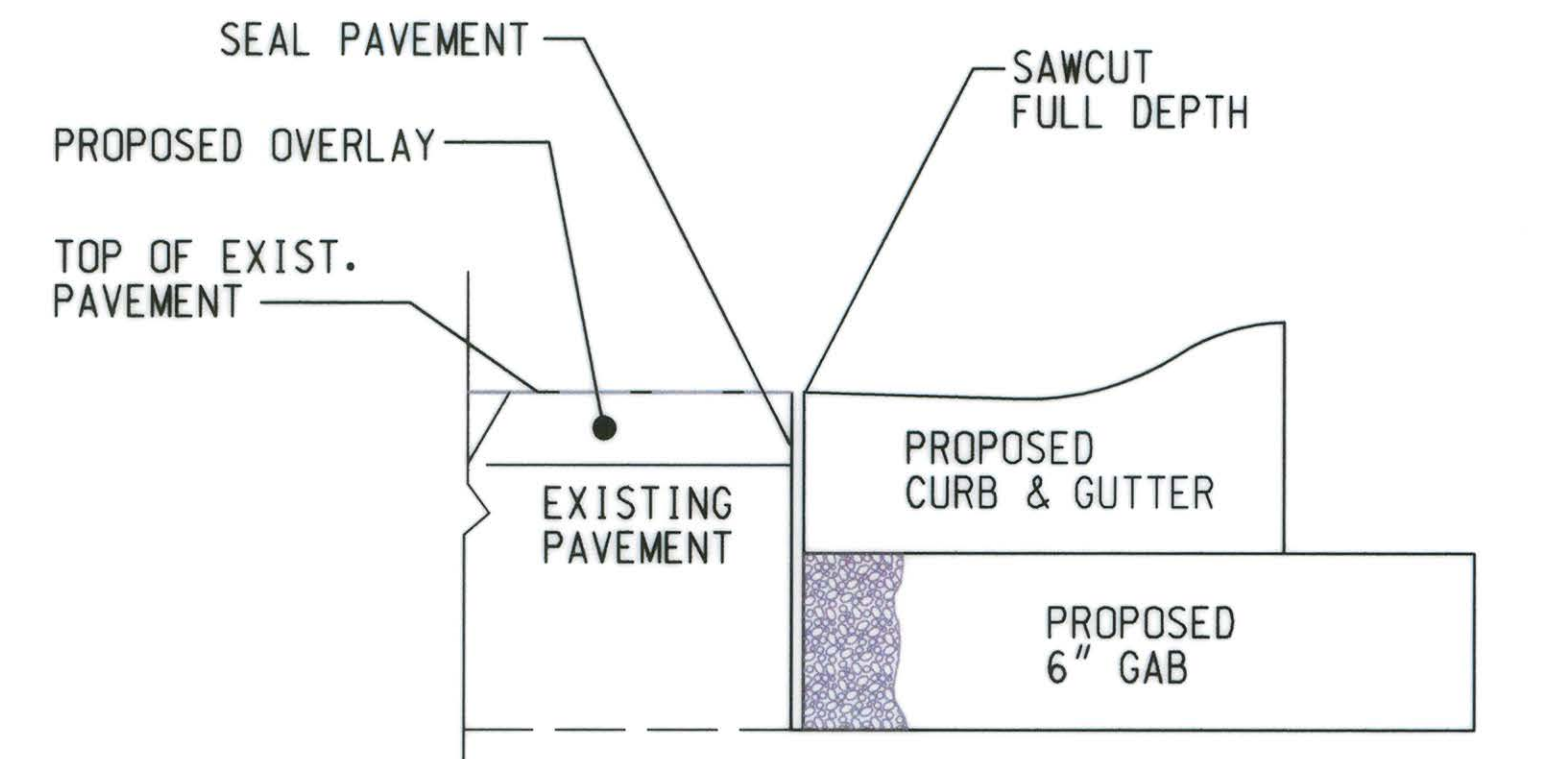
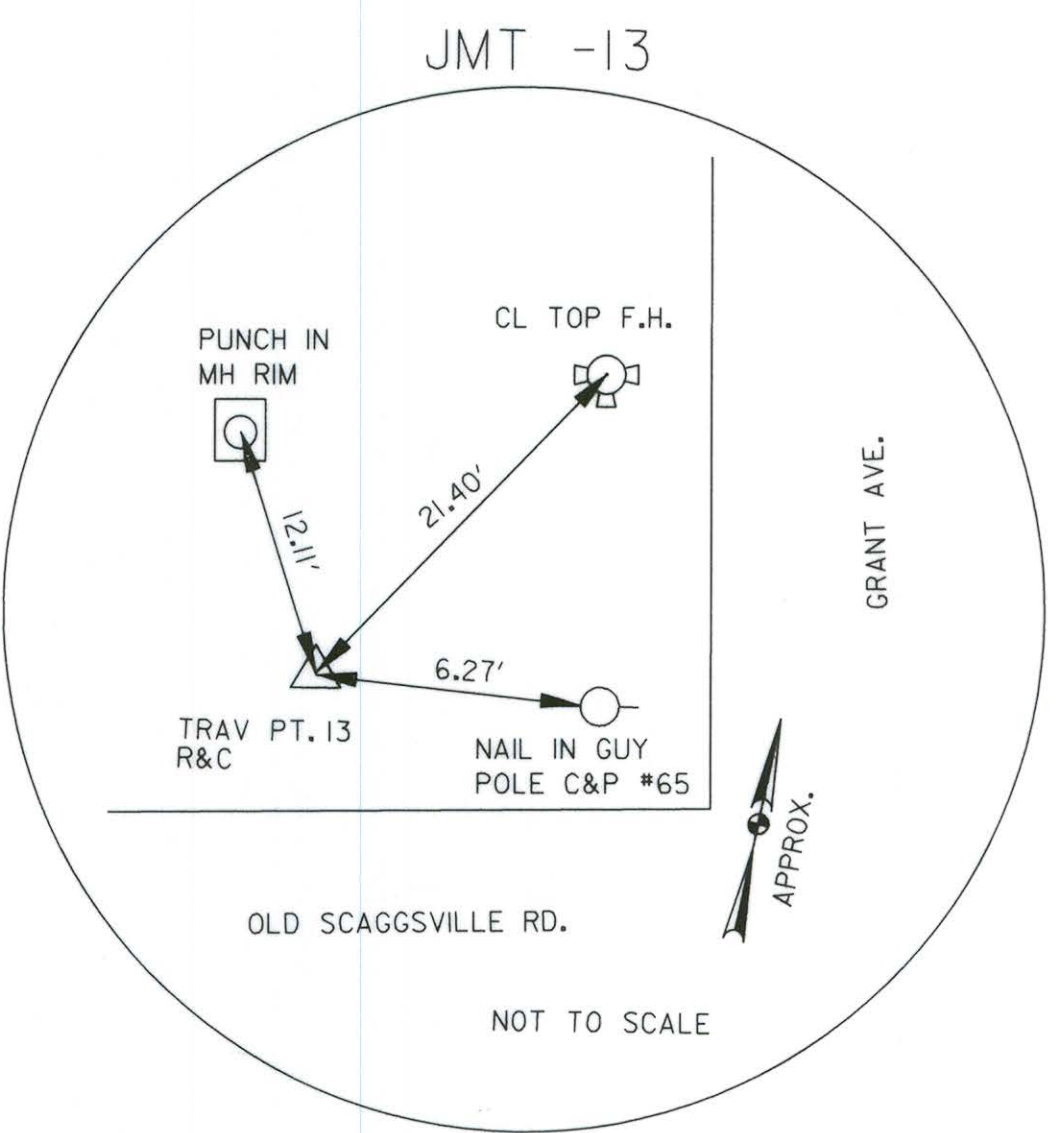
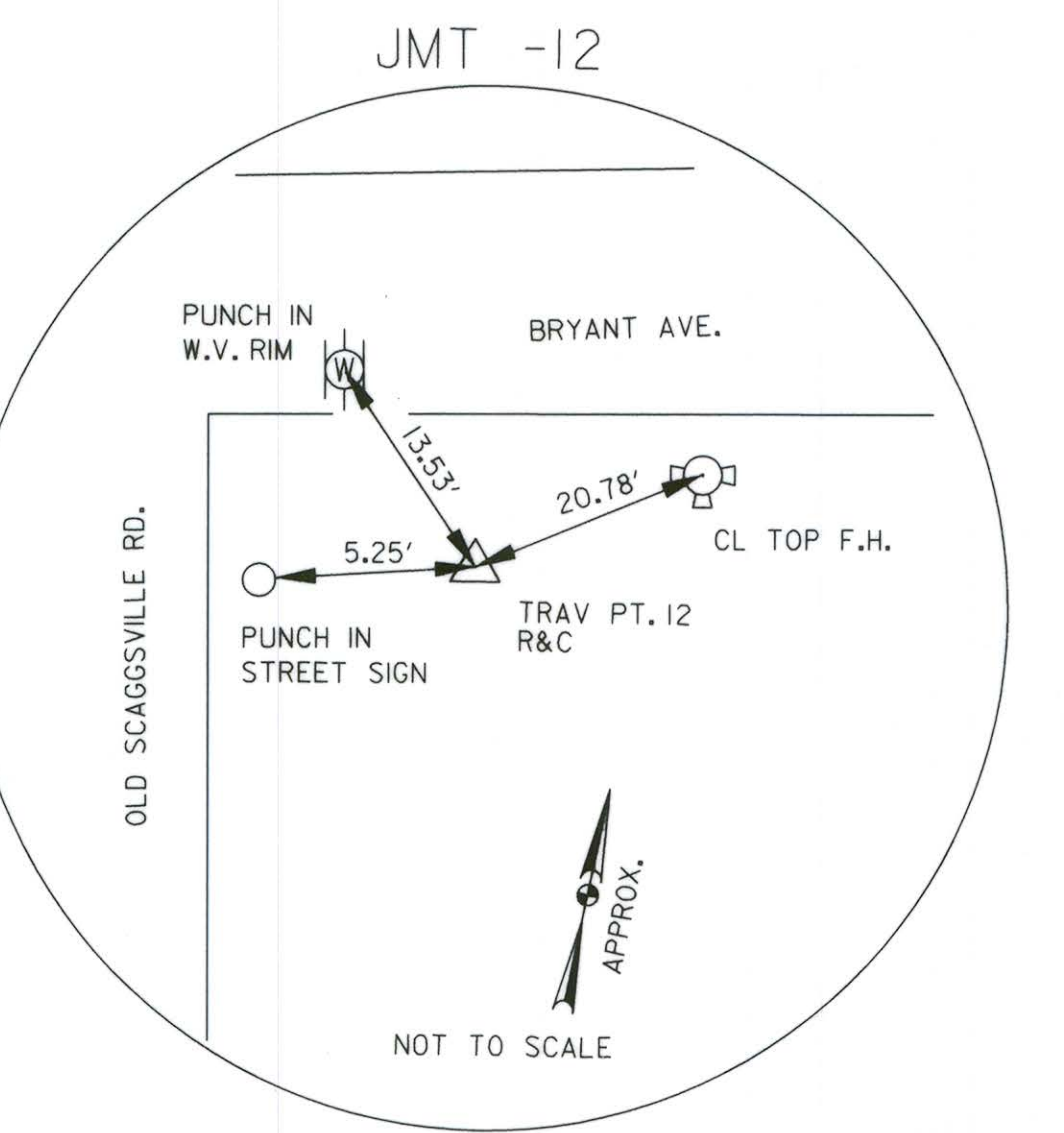
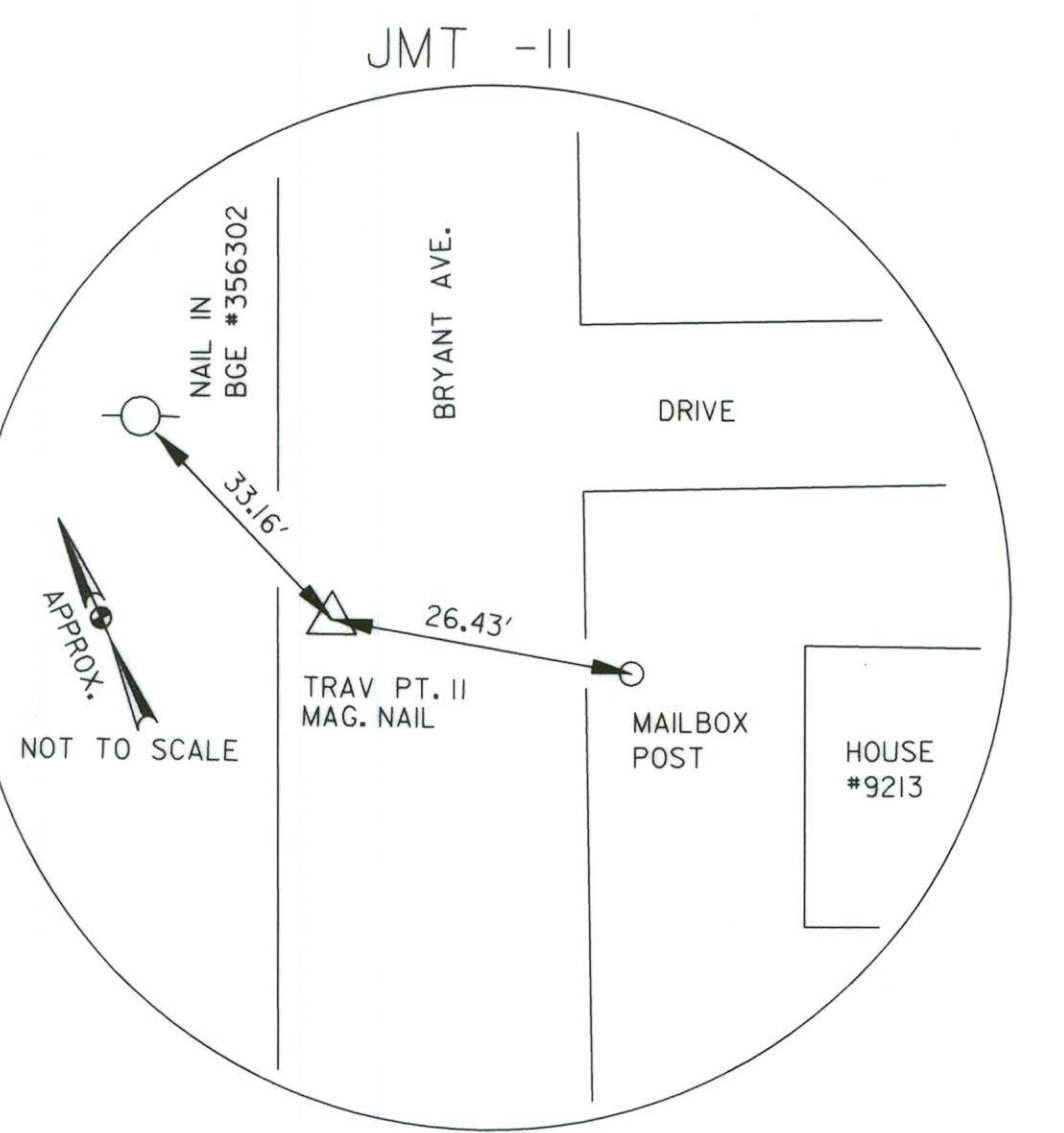
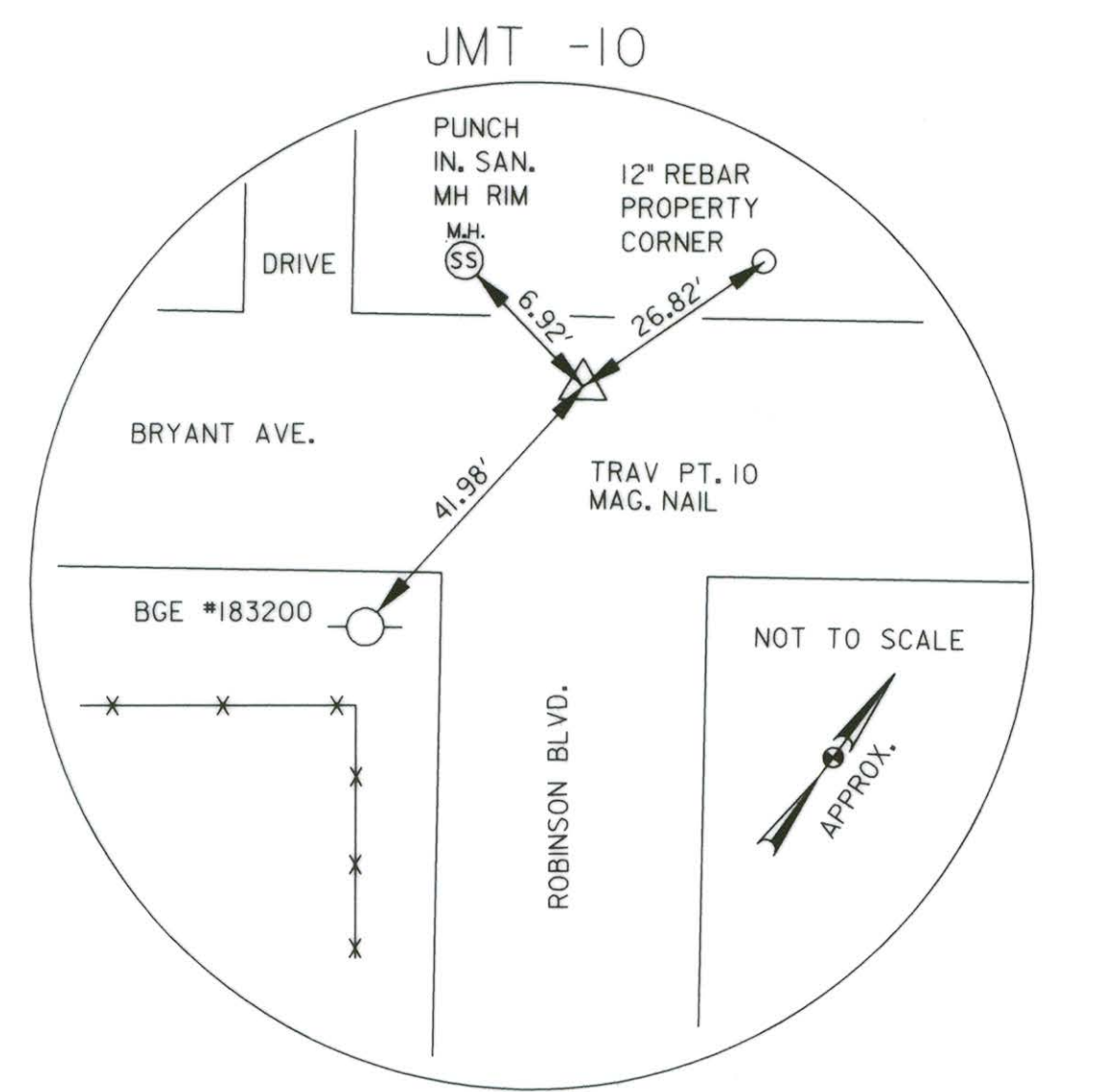
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SHEET 24 OF 24

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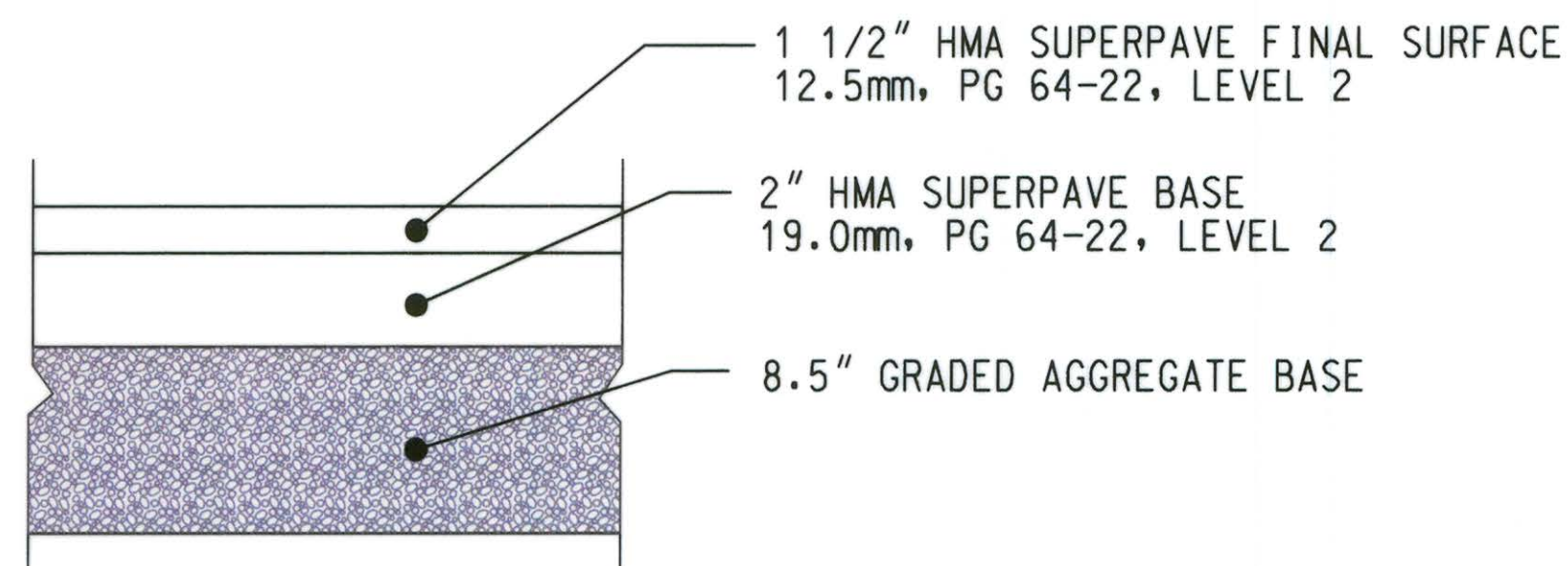


CG-1
CG-2
CURB AND GUTTER DETAIL
NOT TO SCALE

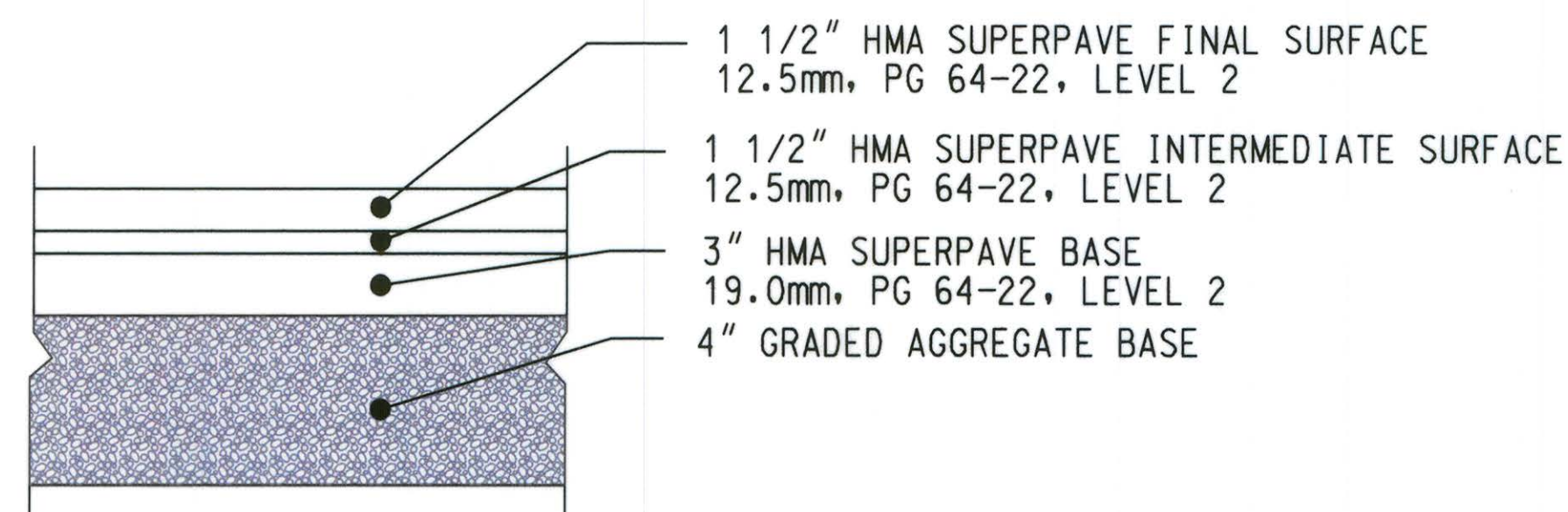


TYPICAL PAVEMENT JOINT DETAIL
(ADJACENT TO NEW CURB)
NOT TO SCALE

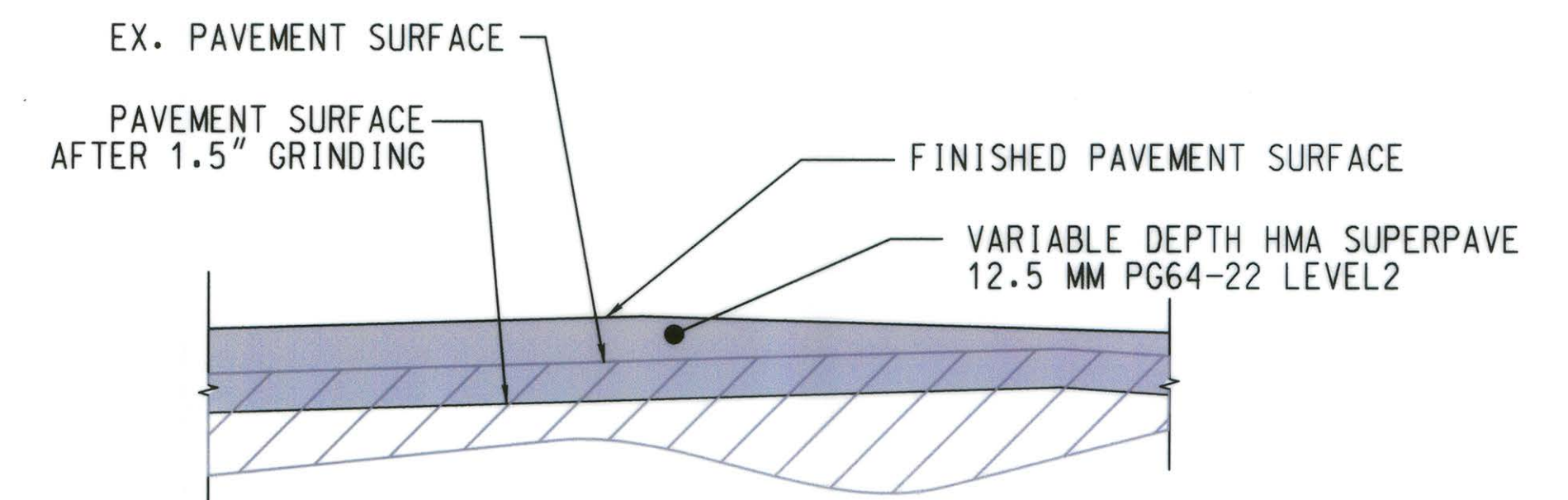
SURVEY CONTROL POINTS
NOT TO SCALE



PAVEMENT DETAIL P-1 (MODIFIED)
NOT TO SCALE



PAVEMENT DETAIL P-2 (MODIFIED)
NOT TO SCALE



PAVEMENT GRINDING AND WEDGING DETAIL P-3
NOT TO SCALE

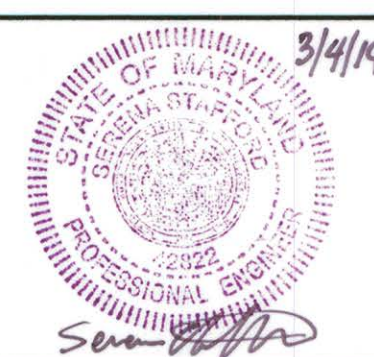
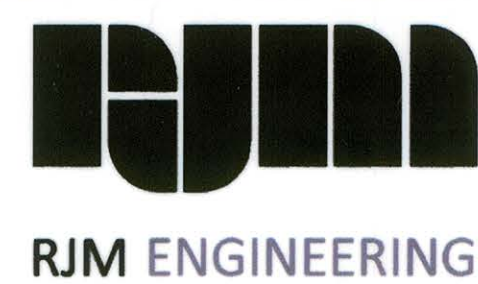
PAVEMENT DETAILS

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CHECKED BY: [Signature]

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 4/8/14
DIRECTOR OF PUBLIC WORKS
Steve Shaver 4/14/14
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

[Signature] 4-8-14
CHIEF, BUREAU OF HIGHWAYS
[Signature] 4/14/14
CHIEF, BUREAU OF ENGINEERING
DEPUTY DIRECTOR OF PUBLIC WORKS



DES: JP	BY	NO.	DATE
DRN: JP/SY			
CHK: DZ			
DATE: DEC 2013			

CAPITAL PROJECT NO.
D-1150

MAP NO. BLOCK NO.

ROADWAY DETAILS
BRYANT AVENUE & GRANT AVENUE
- STORM DRAIN IMPROVEMENTS
ELECTION DISTRICT 6
HOWARD COUNTY, MARYLAND

DE-1
SCALE NONE
SHEET 3 OF 24