

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS / ROADWAY DETAILS
3	ROADWAY PLAN AND PROFILE
4	TRAFFIC CONTROL DETAIL
5-6	TRAFFIC CONTROL PLANS
7-8	EROSION AND SEDIMENT CONTROL DETAILS AND NOTES
9	EROSION AND SEDIMENT CONTROL PLANS
10	GENERAL SIGNING NOTES
11	SIGNING AND PAVEMENT MARKING PLAN

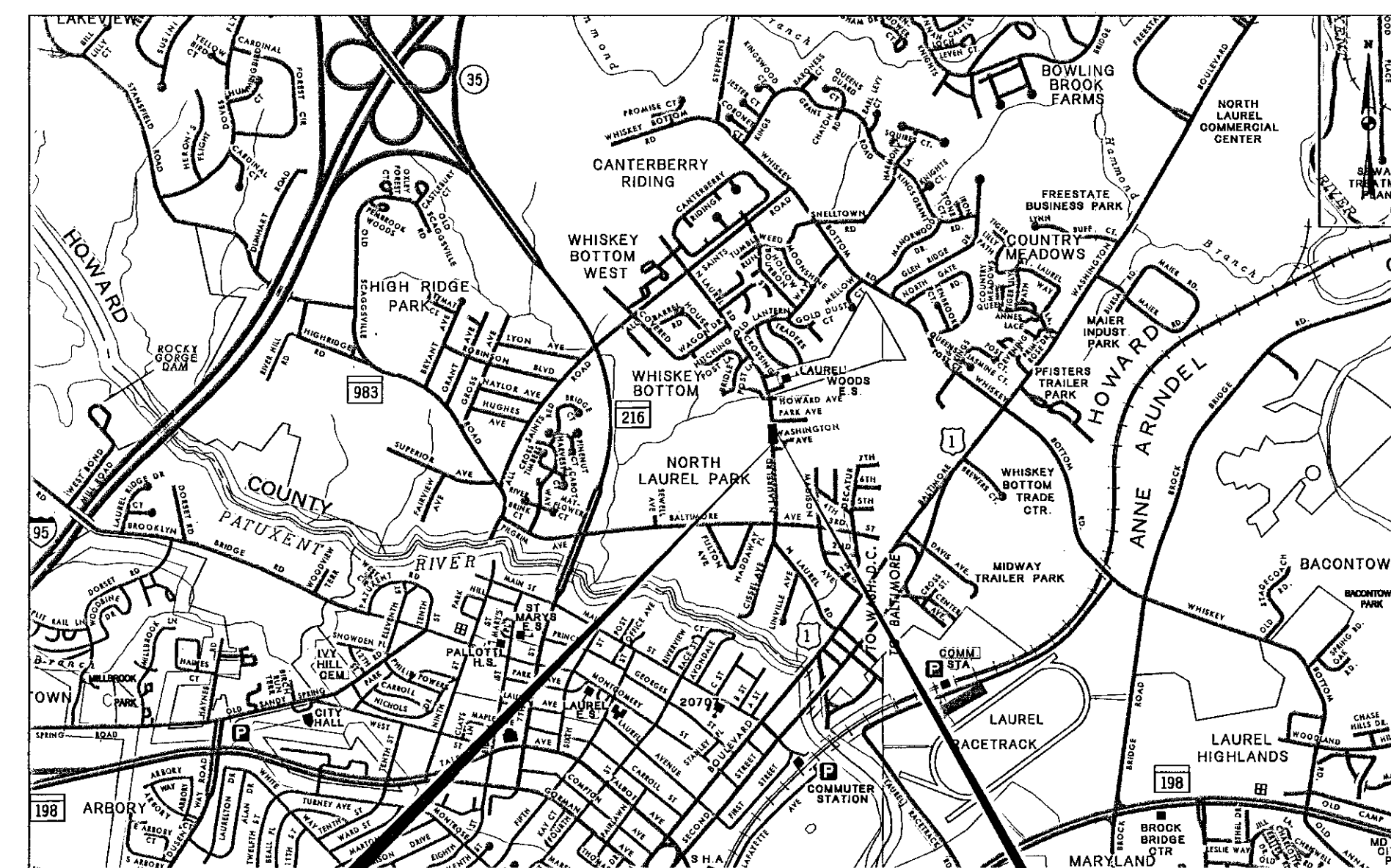
GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY AND MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- 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 BASED ON UTILITY PLANS OR TOPOGRAPHIC SURVEYS. TEST PIT LOCATIONS ARE PROVIDED IN THE SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO RESOLVE ANY DISCREPANCIES BETWEEN THE UTILITY LOCATIONS SHOWN ON THE PLANS AND THE TEST PIT INFORMATION PROVIDED. 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.

COMCAST 410-461-1362
 BGE (CONTRACTOR SERVICES) 410-850-4620
 BGE (UNDERGROUND DAMAGE 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

- SEE HOWARD COUNTY STANDARD DETAILS NO'S G-1.01 AND G-1.02 FOR STANDARD SYMBOLS AND ABBREVIATIONS.
- HORIZONTAL COORDINATES ARE BASED ON MD NAD 83/1991 HORIZONTAL DATUM AND VERTICAL ELEVATIONS ARE BASED ON NAVD 1988 VERTICAL DATUM, TRANSFERRED FROM NATIONAL GEODETIC SURVEY CONTROL STATIONS; GIS 47HA AND GIS 47H2.

GIS 47HA: N 531,046.8940 GIS 47H2: N 529,706.4275
 E 1,356,987.6300 E 1,355,445.3854
 ELEV. 291.64 ELEV. 256.12



LOCATION MAP
 SCALE 1" = 2000'

LIMIT OF WORK
 NORTH LAUREL ROAD
 STA. 11+00
 CAPITAL PROJECT NO. J-4176

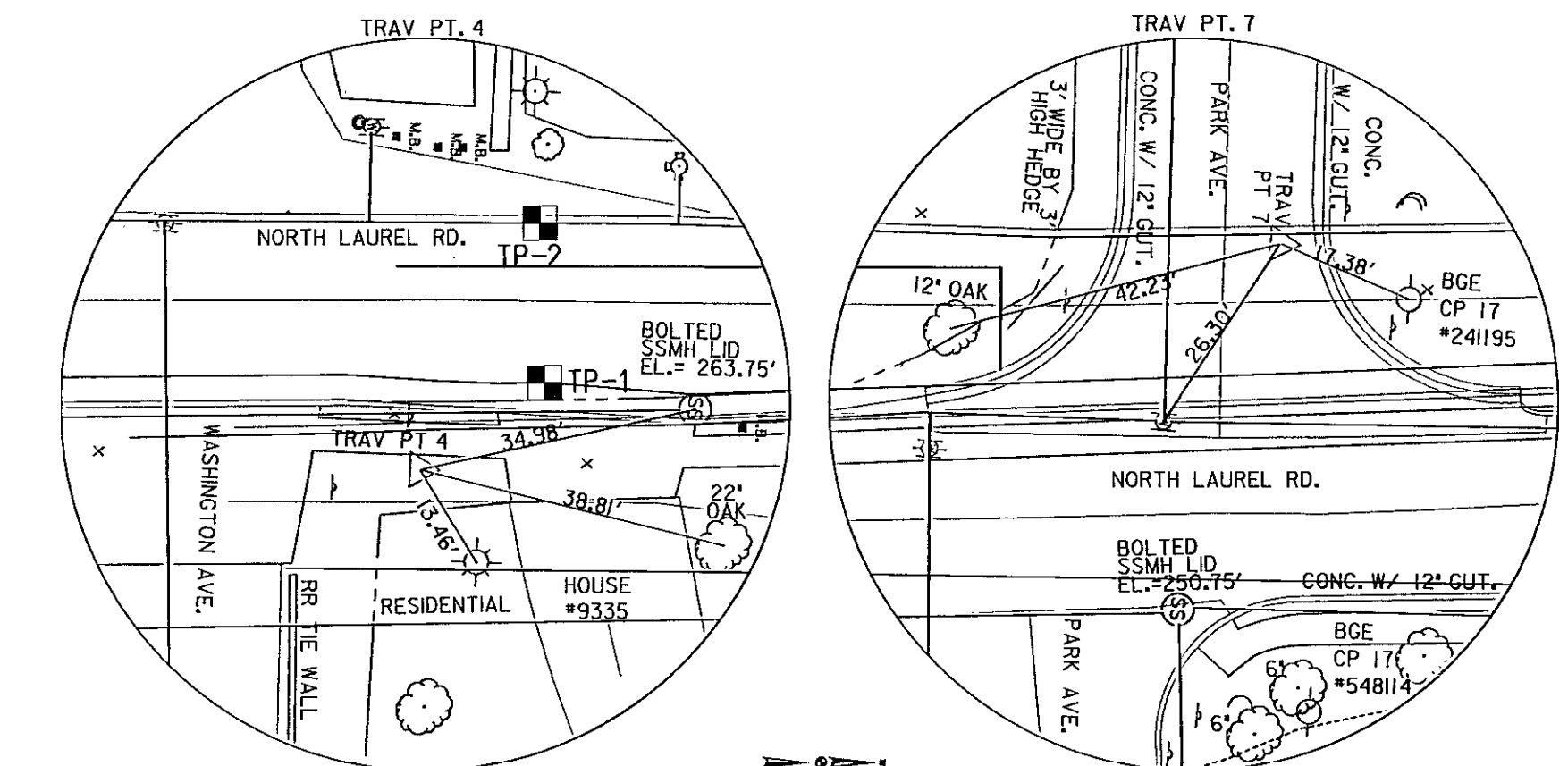
CAPITAL PROJECT NO. J-4176

LIMIT OF WORK
 NORTH LAUREL ROAD
 STA. 14+86
 CAPITAL PROJECT NO. J-4176

NORTH LAUREL ROAD- VERTICAL CURVE IMPROVEMENT

HOWARD COUNTY, MARYLAND
 DEPARTMENT OF PUBLIC WORKS

TRAVERSE PT.	NORTH	EAST	ELEV.	DESC.
4	527428.3066	1356906.7969	263.81	
7	527773.3236	1356831.4643	249.33	
8	527752.9849	1357042.5493	257.89	
9	527420.6507	1357004.6791	263.58	



SURVEY CONTROL POINTS
 NOT TO SCALE

CONVENTIONAL SIGNS

DRAINAGE AREA BOUNDARY		TEST PIT	
EXISTING SIGN		PROPOSED FULL DEPTH HMA PAVEMENT	
LIMIT OF GRADING		PROPOSED GRADED AGGREGATE BASE	
ELECTRICAL HAND BOX - SIGNALS		EXISTING CULVERT	
PROPOSED MEDIAN BARRIER		PROPOSED CULVERT	
BURIED UTILITY LINES & NO. OF CABLES		EXISTING DROP INLET	
STATE, COUNTY OR CITY LINES		UTILITY POLE	
PROPOSED TRAFFIC BARRIER		MARSH	
EXISTING TRAFFIC BARRIER		HEDGE	
FENCE LINE		GROUND ELEVATION	
RIGHT OF WAY LINE		GRADE ELEVATION	
EXISTING ROADWAY			
RAILROAD			
BASE OR SURVEY LINE			
FIRE HYDRANT			
EXISTING SEWER			
EXISTING WATER			

APPROVED: FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

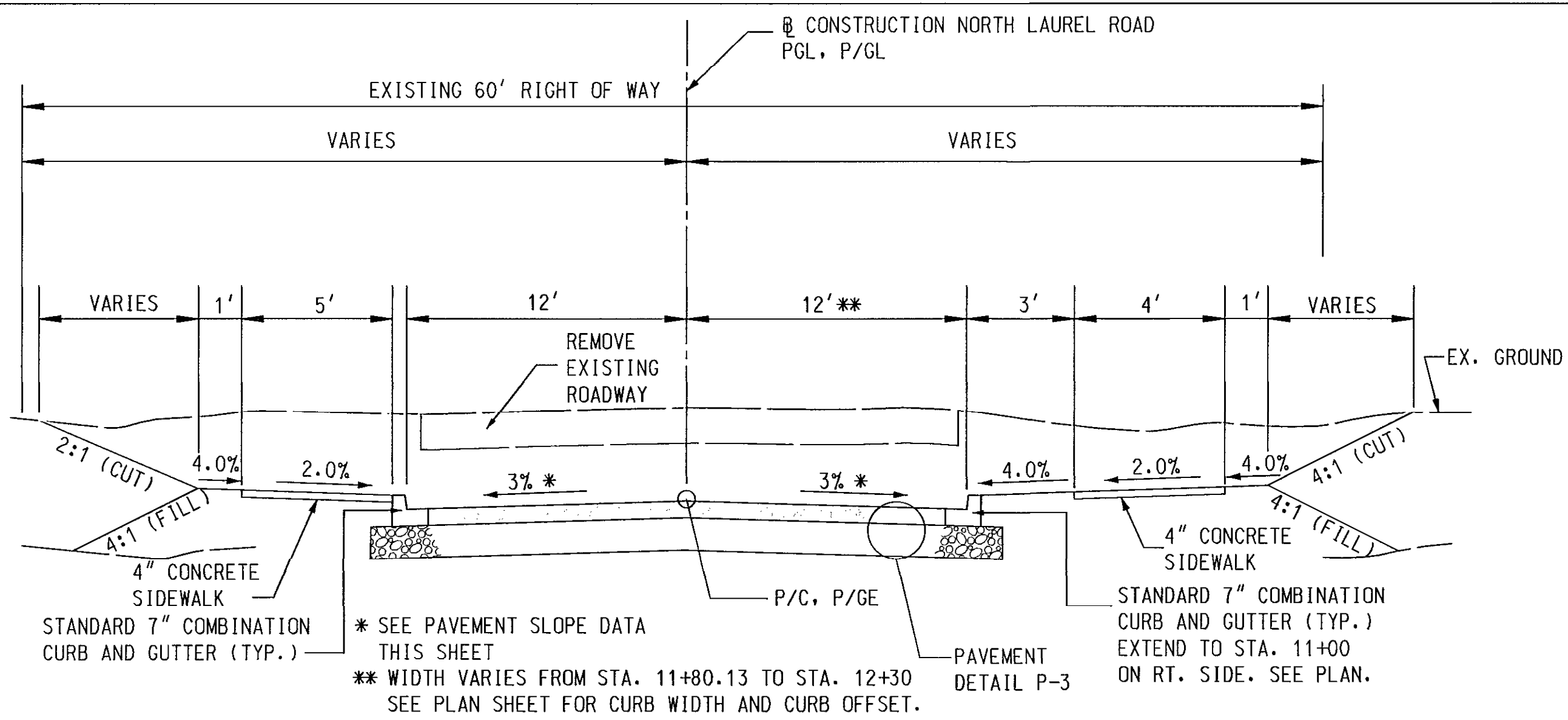
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

*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. 12966, EXPIRATION DATE: MAY 19, 2014

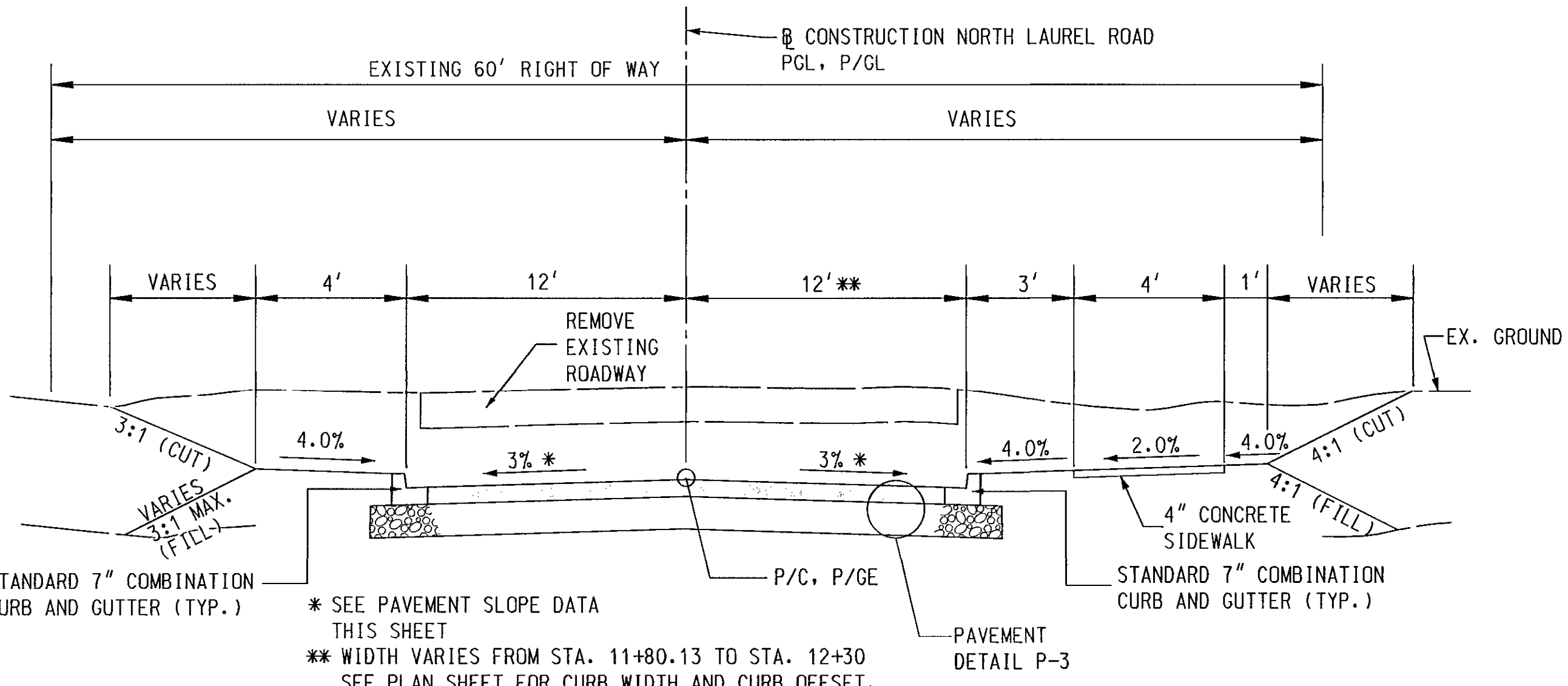
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Roberts 5/28/13
 HOWARD SOIL CONSERVATION DISTRICT DATE

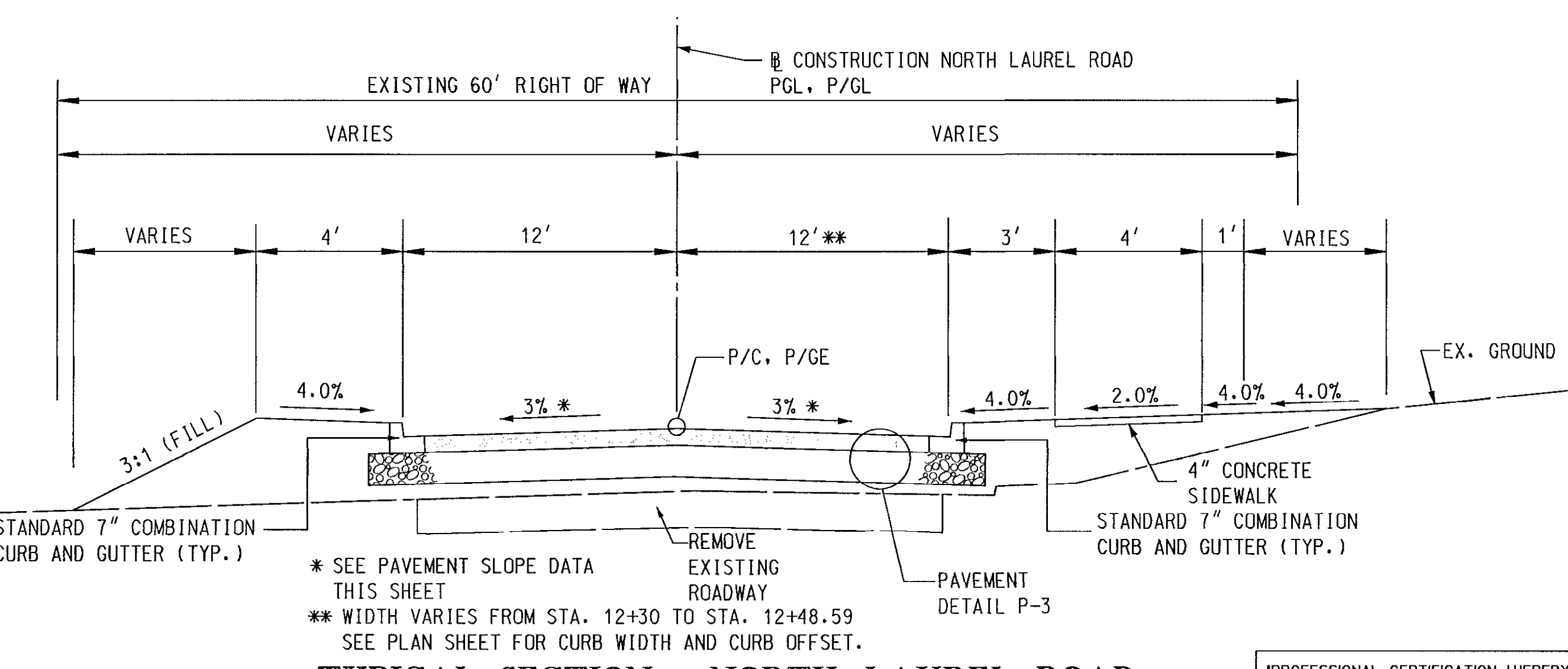
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>John G. ...</i> 5/31/13 DIRECTOR OF PUBLIC WORKS <i>Steve Shaver</i> 5/25/13 CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION	 JOHNSON, MIRMIRAN & THOMPSON Engineering A Brighter Future® 5/21/13	 STATE OF MARYLAND JOHN R. ROBERTS LICENSE NO. 12966 REGISTERED PROFESSIONAL ENGINEER 5/21/13	DES: SER	BY	NO.	DATE	CAPITAL PROJECT NO. J-4176	TITLE SHEET NORTH LAUREL ROAD VERTICAL CURVE IMPROVEMENT	SCALE AS SHOWN
			DRN: OAA	CHK: WRK	DATE: MAY 2013	MAP NO.			



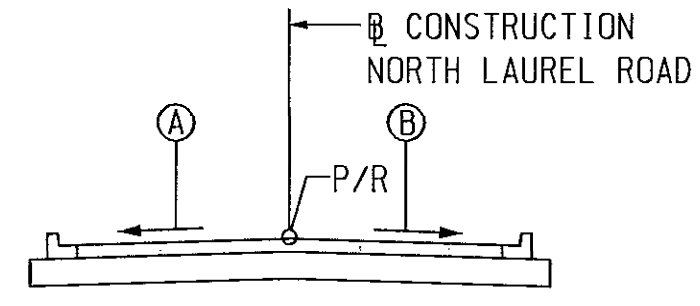
TYPICAL SECTION - NORTH LAUREL ROAD
STA. 11+10 TO STA. 11+94



TYPICAL SECTION - NORTH LAUREL ROAD
STA. 11+94 TO STA. 12+30

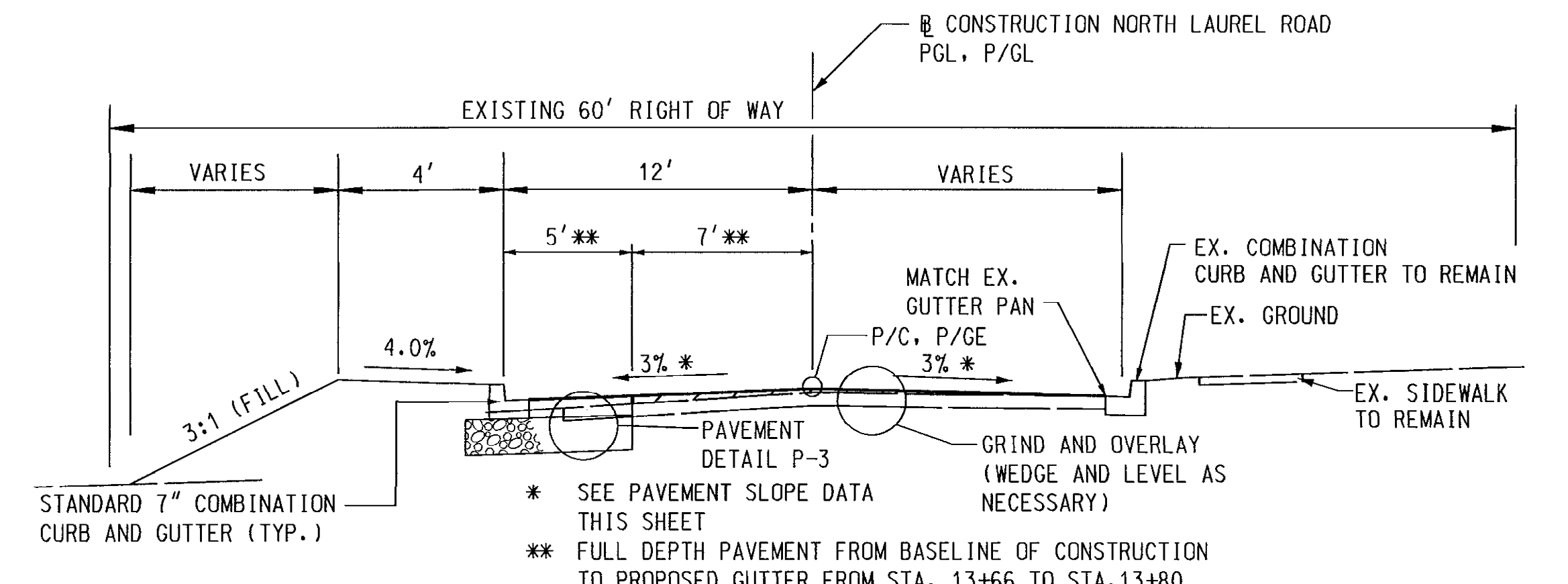


TYPICAL SECTION - NORTH LAUREL ROAD
STA. 12+30 TO STA. 13+66



C=0.0005833 FT./FT./FT.

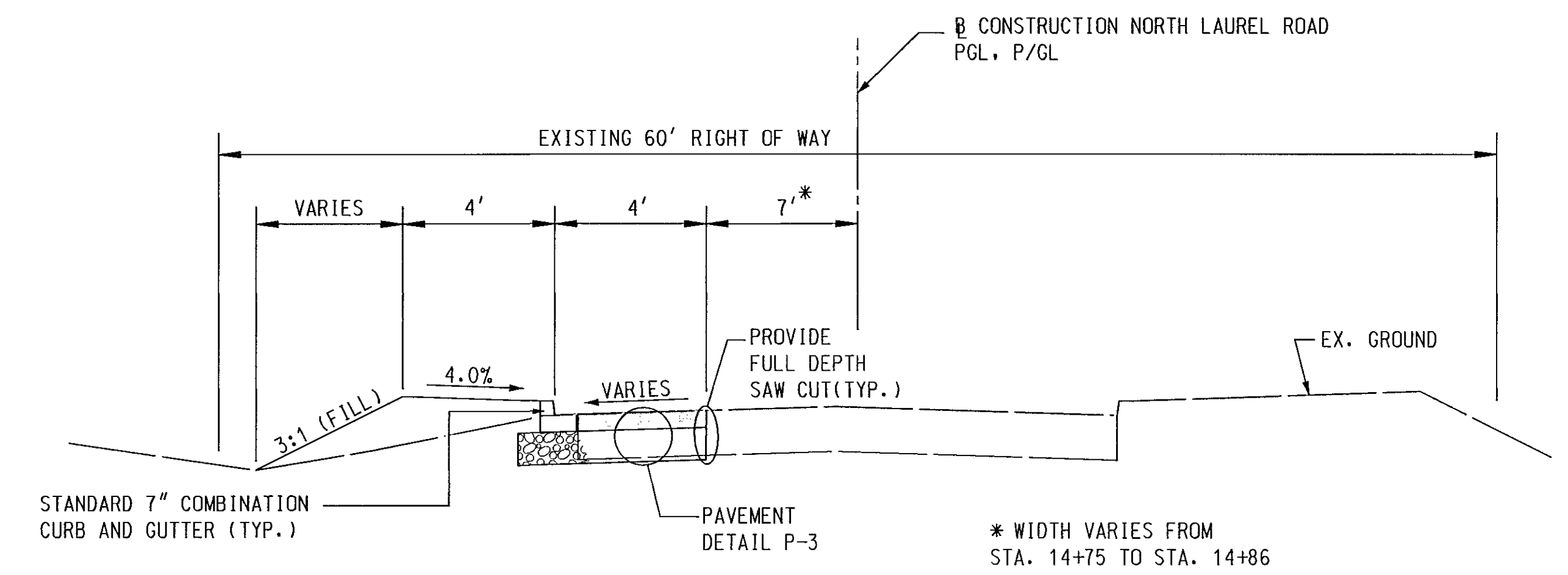
PAVEMENT SLOPE DATA			
STATION	(A)	(B)	REMARKS
11+10.00	-6.14%	-2.09%	MATCH EXISTING SLOPE
11+25.60	-5.23%	-3.00%	END TRANS. RIGHT SIDE
11+63.83	-3.00%	-3.00%	END TRANS. LEFT SIDE, FIRST NORMAL
13+78.61	-3.00%	-3.00%	BEGIN TRANS. LEFT SIDE, LAST NORMAL
13+80.00	-3.08%	-3.50%	TIE TO EX. EDGE GUTTER (RT.)
13+90.00	-3.66%	-2.17%	TIE TO EX. EDGE GUTTER (RT.)
13+99.52	-4.22%	-3.00%	TIE TO EX. EDGE GUTTER (RT.)
14+00.00	-4.25%	-1.87%	TIE TO EX. EDGE GUTTER (RT.)
14+06.51	-4.63%	-1.41%	TIE TO EX. EDGE GUTTER (RT.)
14+21.75	-5.52%	-1.21%	TIE TO EX. EDGE GUTTER (RT.)
14+31.75	-6.10%	-1.12%	MATCH EXISTING SLOPE



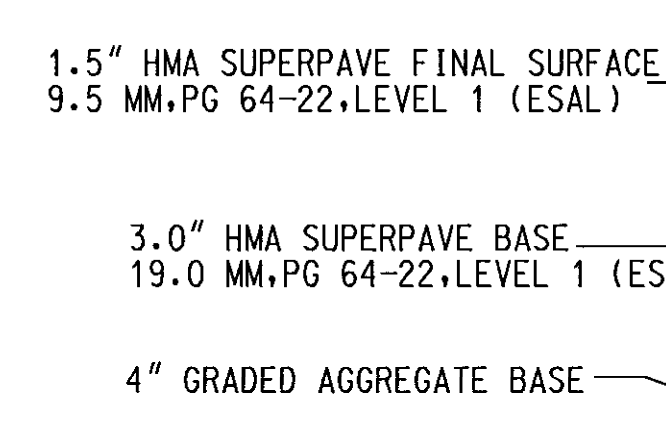
TYPICAL SECTION - NORTH LAUREL ROAD
STA. 13+66 TO STA. 14+31.75

NOTES:

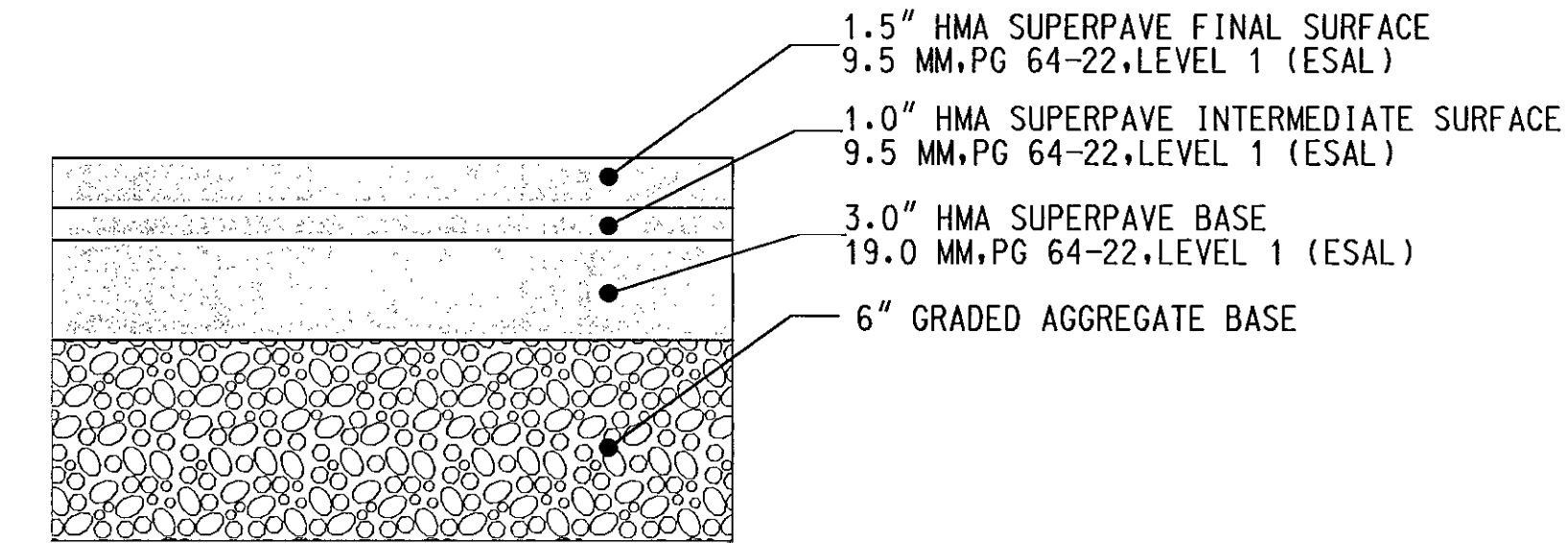
- REMOVE EXISTING PAVEMENT, DRIVEWAYS, AND SIDEWALK UNDER PROPOSED PAVEMENT, CURB, AND GRADING AS DIRECTED BY THE COUNTY. REPLACE WITH COMPACTED COMMON BORROW. THE EXISTING GRADED AGGREGATE BASE DOES NOT NEED TO BE REPLACED.
- ALL FULL DEPTH SAW CUTS SHALL BE A MINIMUM 1' FROM THE EDGE OF EXISTING PAVEMENT. ALL FULL DEPTH SAW CUTS REQUIRED WILL NOT BE MEASURED BUT THE COST WILL BE INCIDENTAL TO THE CONTRACT UNIT PRICE FOR THE PAVEMENT ITEMS.
- THE GAB PLACED UNDER AND BEHIND THE CURB AND GUTTER WILL BE PAID FOR AT THE SQUARE YARD UNIT PRICE BID FOR 6" GRADED AGGREGATE BASE COURSE IN THIS CONTRACT. THE GAB PLACED FOR THE PROPOSED PAVEMENT SECTIONS WILL BE PAID FOR AT THE SQUARE YARD UNIT PRICE BID FOR THE DEPTH REQUIRED.
- UNLESS SPECIFIED OTHERWISE, ALL EXCAVATION REQUIRED FOR THE CONSTRUCTION OF THE PROPOSED PAVEMENT, DRIVEWAYS, AND CURB AND GUTTER SHALL BE CONSIDERED CLASS I EXCAVATION AND WILL BE PAID FOR AT THE CUBIC YARD UNIT PRICE BID FOR CLASS I EXCAVATION.
- 2" TOPSOIL, SEED, AND MULCH SHALL BE PLACED ON ALL GRADED AREAS, UNLESS DIRECTED OTHERWISE BY THE COUNTY.



TYPICAL SECTION - NORTH LAUREL ROAD
STA. 14+31.75 TO STA. 14+86.46



DRIVEWAY PAVEMENT DETAIL P-1
NOT TO SCALE



PAVEMENT DETAIL P-3
NOT TO SCALE

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. 12966, EXPIRATION DATE: MAY 19, 2014

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Janet A. ... 5/21/13
DIRECTOR OF PUBLIC WORKS

Thomas E. ... 5/29/13
DEPUTY DIRECTOR OF PUBLIC WORKS
ENGINEERING, DEVELOPMENT AND CONSTRUCTION

Steve ... 5/28/13
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

Walter R. ... 5-30-13
CHIEF, BUREAU OF HIGHWAYS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®

STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER
5/21/13

DES:	SER	BY	NO.	DATE
DRN:	OAA			
CHK:	WRK			
DATE:	MAY 2013			

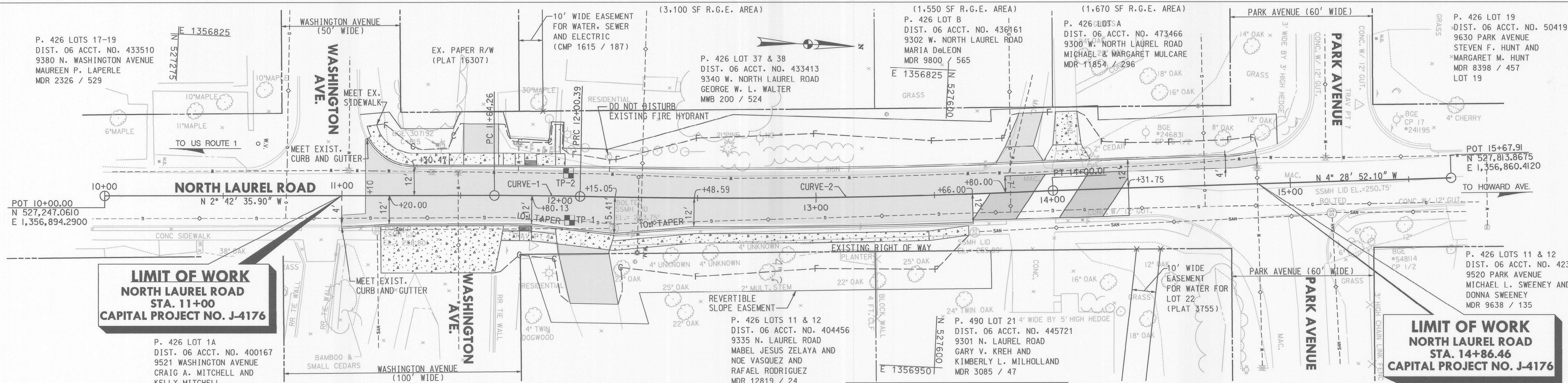
CAPITAL PROJECT NO.
J-4176

TYPICAL SECTION AND DETAILS
NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT

ELECTION DISTRICT 3
HOWARD COUNTY, MARYLAND

SCALE
NONE

SHEET
2 OF 11



**LIMIT OF WORK
NORTH LAUREL ROAD
STA. 11+00
CAPITAL PROJECT NO. J-4176**

**LIMIT OF WORK
NORTH LAUREL ROAD
STA. 14+86.46
CAPITAL PROJECT NO. J-4176**

CURVE-1
P.I. Station 11+82.33
N 527.429.1827
E 1,356,885.6696
Δ = 1°17'36.61" RT
D = 3°34'50.72"
R = 1,600.10'
T = 18.06'
L = 36.12'
S/E = 0.10
S/E = 3%
DS = >45 MPH

CURVE-2
P.I. Station 13+00.24
N 527,547.0596
E 1,356,882.7548
Δ = 3°53'04.04" RT
D = 1°56'45.18"
R = 2,944.45'
T = 99.85'
L = 199.62'
S/E = 1.69'
S/E = 3%
DS = >45 MPH

**7" COMBINATION CURB AND GUTTER
STD. NO. (R 3.01)**
367 L.F.- STA. 11+19 LT. TO STA. 14+85.76 LT.
267 L.F.- STA. 11+00 RT. TO STA. 13+66.00 RT.

**RESIDENTIAL DRIVEWAY ENTRANCE
7" REINFORCED CONCRETE
STD. NO. (R 6.01)**
990 S.F.- STA. 11+16 RT. TO STA. 11+68 RT.
150 S.F.- STA. 11+90 RT. TO STA. 12+15 RT.
74 S.F.- STA. 11+51 LT. TO STA. 11+66 LT.
247 S.F.- STA. 13+97 LT. TO STA. 14+16 LT.*

**CONCRETE SIDEWALK
STD. NO. (R 3.05)**
92 S.F.- STA. 11+67 RT. TO STA. 11+91 RT.
601 S.F.- STA. 12+13 RT. TO STA. 13+64 RT.
224 S.F.- STA. 11+11 LT. TO STA. 11+51 LT.
155 S.F.- STA. 11+66 LT. TO STA. 11+94 LT.*

**MODIFIED COMBINATION CURB AND GUTTER
STD. NO. R-3.01**
12 L.F.- STA. 11+11 LT. TO STA. 11+19 LT.

ADJUST EXISTING UTILITY APPURTENANCES
1 EA.- SANITARY MANHOLE STA. 12+15 RT.
1 EA.- WATER METER STA. 12+25 RT.
1 EA.- WATER VALVE STA. 11+49 LT.
1 EA.- CLEANOUT STA. 12+24 RT.

TRANSITION 7" CURB TO DEPRESSED CURB AT DRIVEWAYS IN ACCORDANCE WITH STD. NO. R-6.01 AND R-6.05, AND AT PEDESTRIAN RAMPS
TRANSITION 7" CURB TO MODIFIED COMBINATION CURB IN ACCORDANCE WITH STD. NO. R-3.02
FROM STA. 11+19 LT. TO STA. 11+29 LT. AND FROM STA. 14+75 LT. TO STA. 14+86 LT.
CURB WITHIN THIS TRANSITION SHALL BE INCLUDED IN THIS LINEAR FOOT ITEM.

* INCLUDES CONCRETE DRIVEWAY AS SHOWN PAST APRON
NOTE: ALL RAMP DETAILS, SIGNING, AND PAVEMENT MARKING SPECIFICATIONS, DRAWINGS, AND MATERIAL REQUIREMENTS FOR THE PEDESTRIAN RAMPS AND CROSSWALK LOCATED AT APPROXIMATELY STA. 11+80 WILL BE PROVIDED BY HOWARD COUNTY DPW.

* INCLUDES 2' WIDE CONCRETE SIDEWALK CONNECTION TO RESIDENCE AT STA. 11+90.

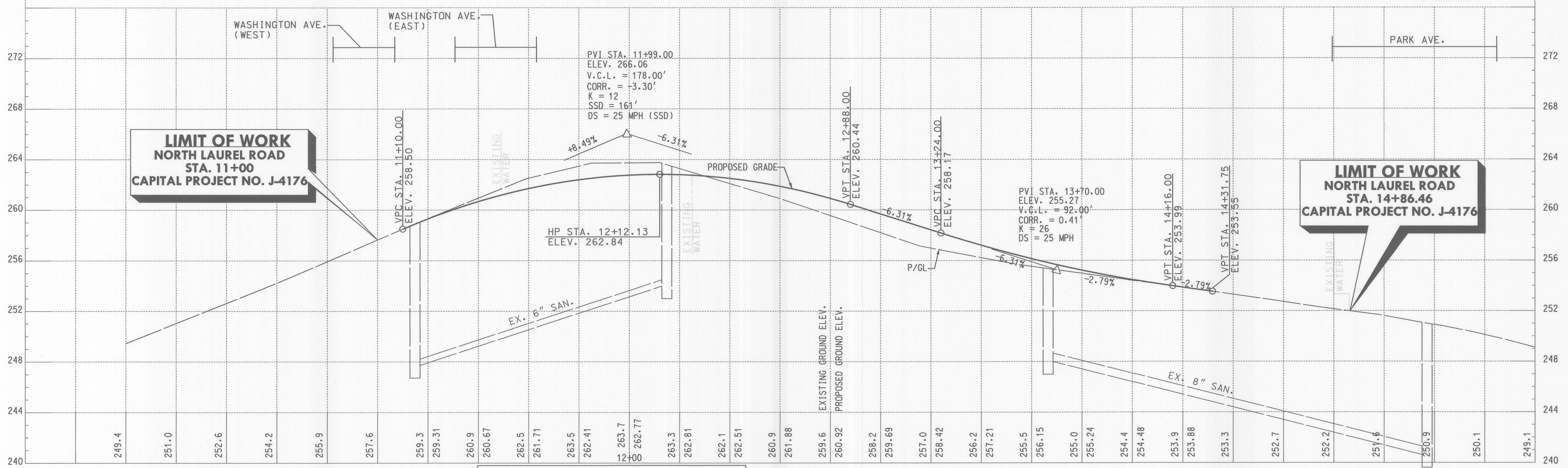
SIDEWALK RAMPS		
LOCATION	TYPE	DETECTABLE WARNING SURFACE (S.F.)
STA. 11+75 RT.	SEE NOTE	10
STA. 11+77 LT.	SEE NOTE	10

REMOVE AND RESET EXISTING MAILBOX
1 EA.- STA. 12+21 RT.
1 EA.- STA. 11+77 LT.*
1 EA.- STA. 11+83 LT.*
1 EA.- STA. 11+86 LT.*
1 EA.- STA. 13+70 LT.

* RELOCATE MAILBOXES TO CURBLINE NORTH OF THE PROPOSED SIDEWALK.

PAVING LEGEND

- PROPOSED FULL DEPTH HMA PAVEMENT
- PROPOSED CONCRETE SIDEWALK OR DRIVEWAY
- GRIND AND OVERLAY (WEDGE / LEVEL AS NECESSARY)



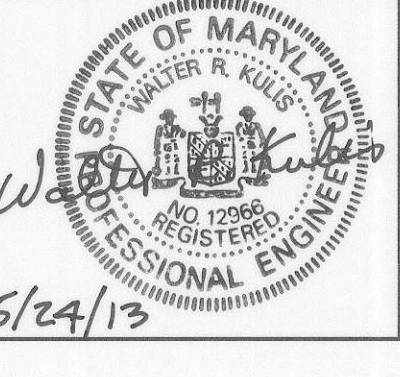
*PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12966, EXPIRATION DATE: MAY 13, 2014

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Shaver 5/28/13
DIRECTOR OF PUBLIC WORKS

Deanna R. Buttle 5/28/13
DEPUTY DIRECTOR OF PUBLIC WORKS
ENGINEERING, DEVELOPMENT AND CONSTRUCTION

Wade R. McMillan 5-30-13
CHIEF, BUREAU OF HIGHWAYS



DES:	SER	BY	NO.	DATE
DRN:	OAA			
CHK:	WRK			
DATE:	MAY 2013			

CAPITAL PROJECT NO.
J-4176

ROADWAY PLAN AND PROFILE
**NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT**

ELECTION DISTRICT 3
HOWARD COUNTY, MARYLAND

SCALE
H1"=20'
V1"=4'

SHEET
3 OF 11

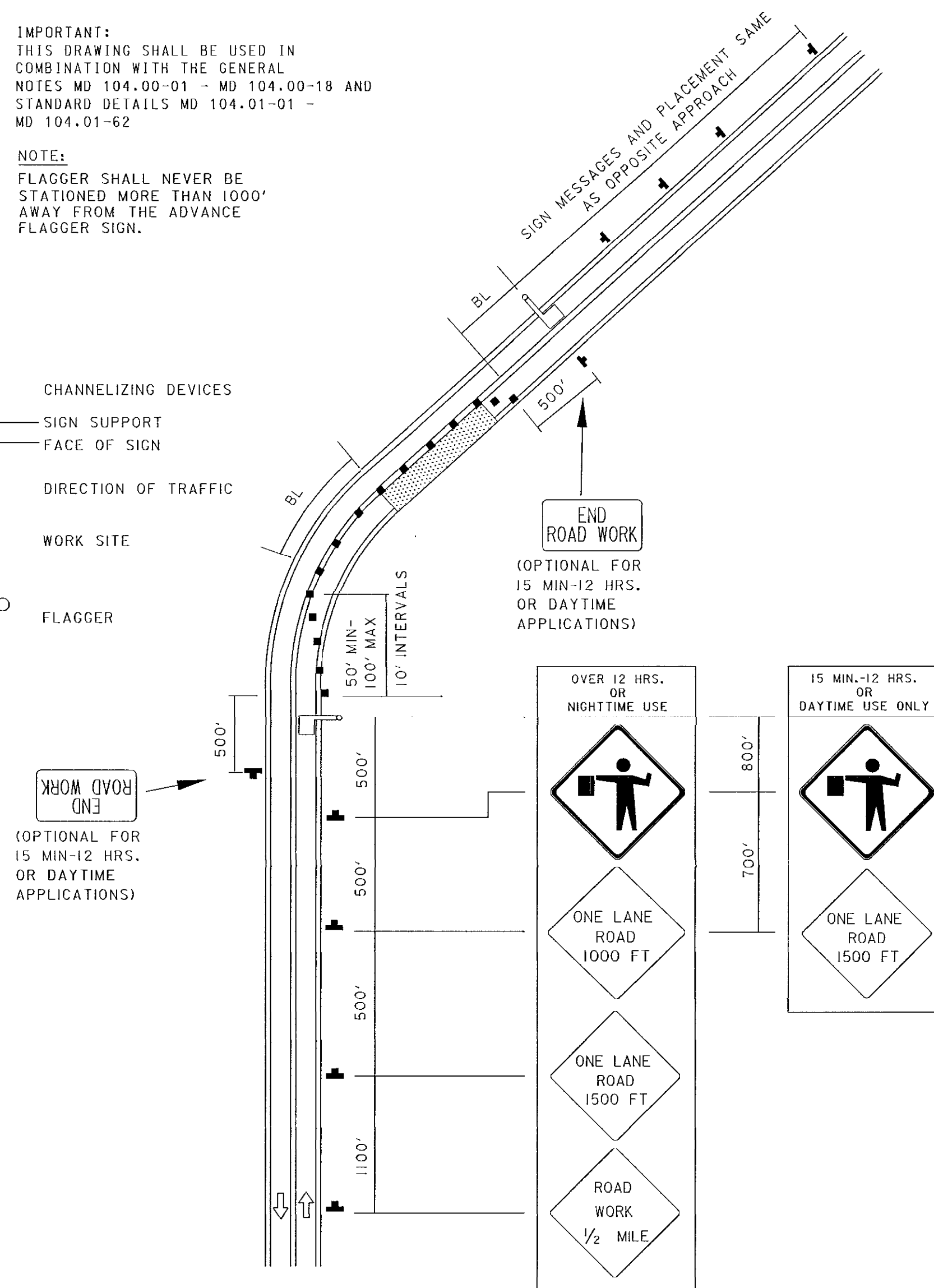
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-62

NOTE:
FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- ↑ DIRECTION OF TRAFFIC
- ▨ WORK SITE
- FLAGGER



**FLAGGING OPERATION/2-LANE, 2-WAY
EQ/LESS THAN 40 MPH**

MD 104.02-10

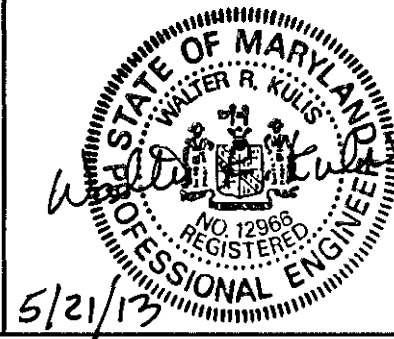
NOTE: ALL REFERENCES TO STANDARD DETAILS AND GENERAL NOTES ARE MDSA STANDARDS. CONTRACTOR SHALL UTILIZE LATEST VERSION OF THESE STANDARDS, AS APPLICABLE.

*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. 12966, EXPIRATION DATE: MAY 19, 2014

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Shavar 5/20/13
DIRECTOR OF PUBLIC WORKS
Steve Shavar 5/20/13
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

Dennis Kelleher 5/29/13
DEPUTY DIRECTOR OF PUBLIC WORKS
ENGINEERING, DEVELOPMENT AND CONSTRUCTION
Will R. Williams 5-30-13
CHIEF, BUREAU OF HIGHWAYS



DES:	SER	BY	NO.	DATE
DRN:	OAA			
CHK:	WRK			
DATE:	MAY 2013			

CAPITAL PROJECT NO.
J-4176

MAP NO. BLOCK NO.

TRAFFIC CONTROL DETAIL
**NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT**

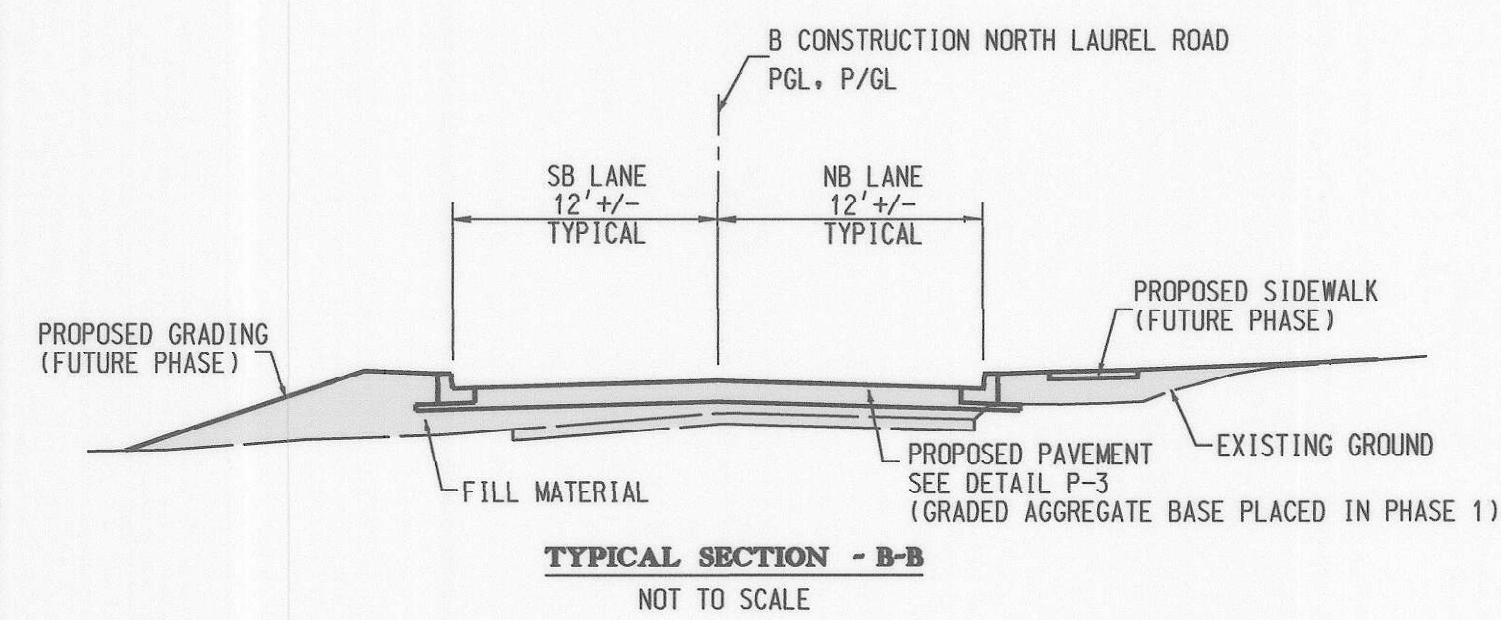
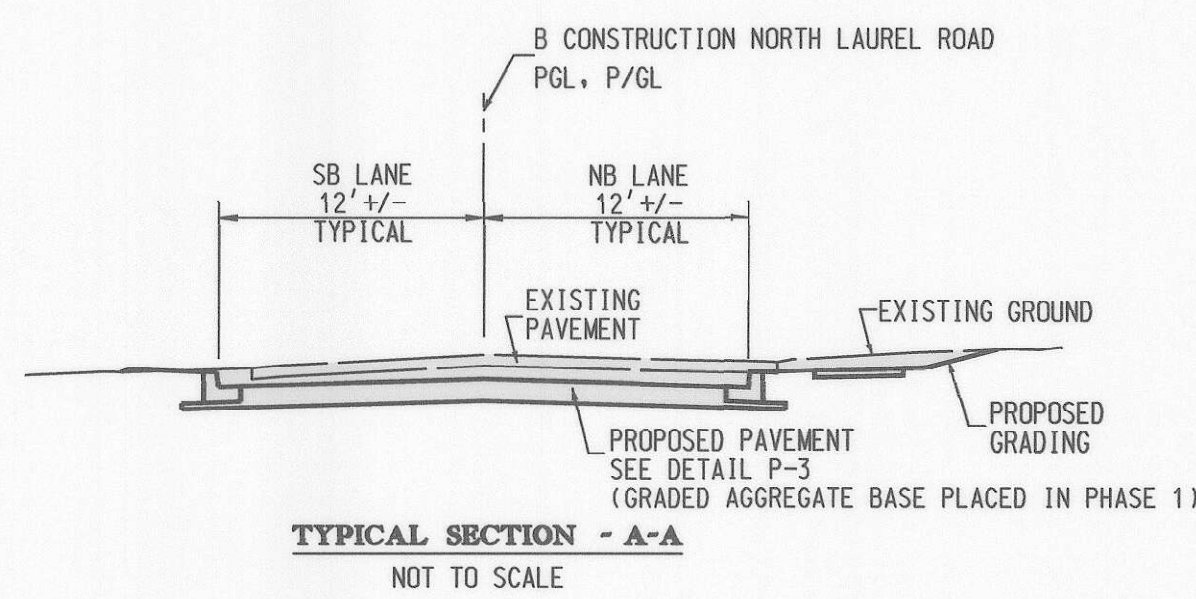
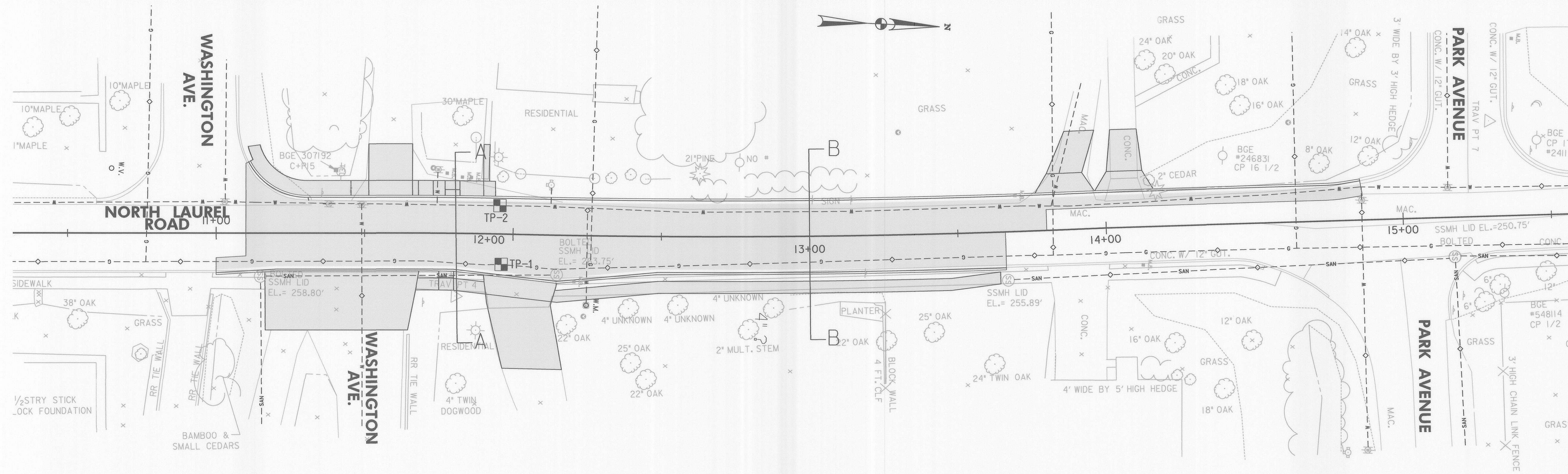
ELECTION DISTRICT 3

HOWARD COUNTY, MARYLAND

SCALE
NONE

SHEET

4 OF 11



- PHASE 1:
1. NO WORK IS TO BEGIN UNTIL ALL TEMPORARY ADVANCED ROADWAY AND DETOUR SIGNS, BARRICADES, CHANNELIZATION DEVICES AND BARRIERS ARE IN PLACE AND OPERATIONAL. USE SHA STANDARD MD 104.02-10 (SEE TRAFFIC CONTROL DETAIL SHEET NO. 3) FOR FLAGGING OPERATION/2-LANE, 2-WAY LESS THAN 40 MPH TO MAINTAIN TRAFFIC.
 2. THE CONTRACTOR SHALL REMOVE THE EXISTING SOUTHBOUND PAVEMENT, EXCAVATE OR FILL TO THE BOTTOM OF PROPOSED SUBGRADE AND PLACE GRADED AGGREGATE BASE WITHIN THE LIMIT OF WORK SPECIFIED. THE EXISTING SIDEWALK AND DRIVEWAYS WILL ALSO BE REMOVED AND ROUGH GRADED. THE CONTRACTOR WILL THEN MOVE THE ACTIVE WORKZONE TO THE NORTHBOUND SIDE AND PERFORM THE SAME TASKS WHICH WERE LISTED FOR THE SOUTHBOUND SIDE.
 3. PHASING ALTERNATIVE - THE CONTRACTOR MAY ELECT TO CONSTRUCT THE PROJECT LONGITUDINALLY ALONG THE BASELINE, CONSTRUCTING BOTH NB AND SB ROADWAY IN A PARTICULAR AREA SWITCHING THE SINGLE LANE CLOSURE THROUGHOUT THE DAY DURING ACTIVE CONSTRUCTION.
 4. ALL DRIVEWAYS AND ADJACENT ROADWAYS WITHIN THE LIMIT OF WORK ARE TO BE ACCESSIBLE TO VEHICULAR TRAFFIC AT ALL TIMES.
 5. ANY VERTICAL DROP EXCEEDING 2 INCHES IN DEPTH MUST BE RAISED UP BY THE END OF THE WORK DAY USING GRADED AGGREGATE BASE.
 6. PROVIDE FOR TWO WAY TRAFFIC WHEN ACTIVE CONSTRUCTION IS NOT IN PROGRESS.

*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. 12966, EXPIRATION DATE: MAY 19, 2014

MOT LEGEND

■ CURRENT PHASE WORK AREA

← TRAFFIC DIRECTION

PHASE 1 MOT

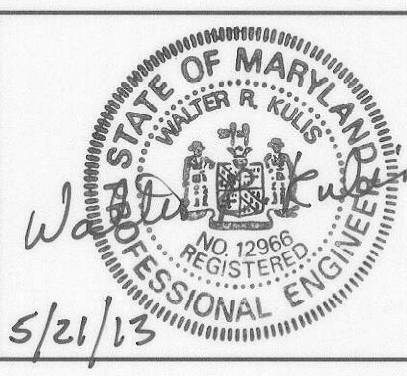
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Janet... 5/31/13
DIRECTOR OF PUBLIC WORKS

Deborah... 5/29/13
DEPUTY DIRECTOR OF PUBLIC WORKS
ENGINEERING, DEVELOPMENT AND CONSTRUCTION

Steve... 5/29/13
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

William... 5-30-13
CHIEF, BUREAU OF HIGHWAYS



DES: SER	BY	NO.	DATE
DRN: OAA			
CHK: WRK			
DATE: MAY 2013			

CAPITAL PROJECT NO.
J-4176

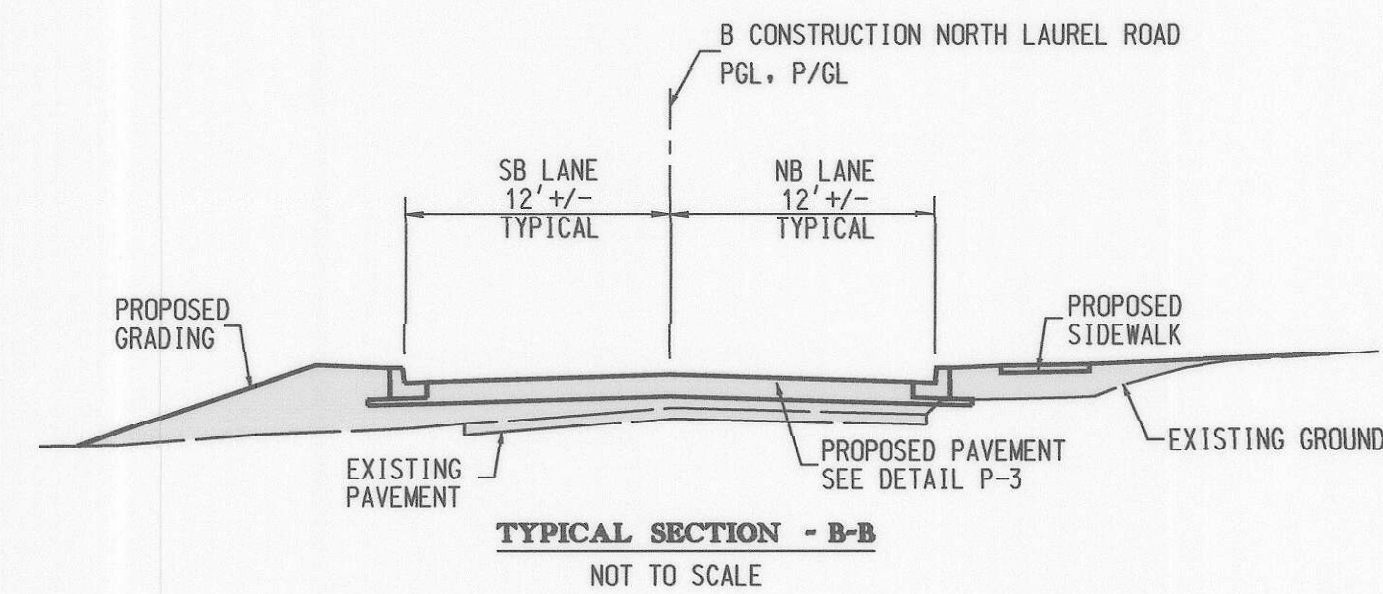
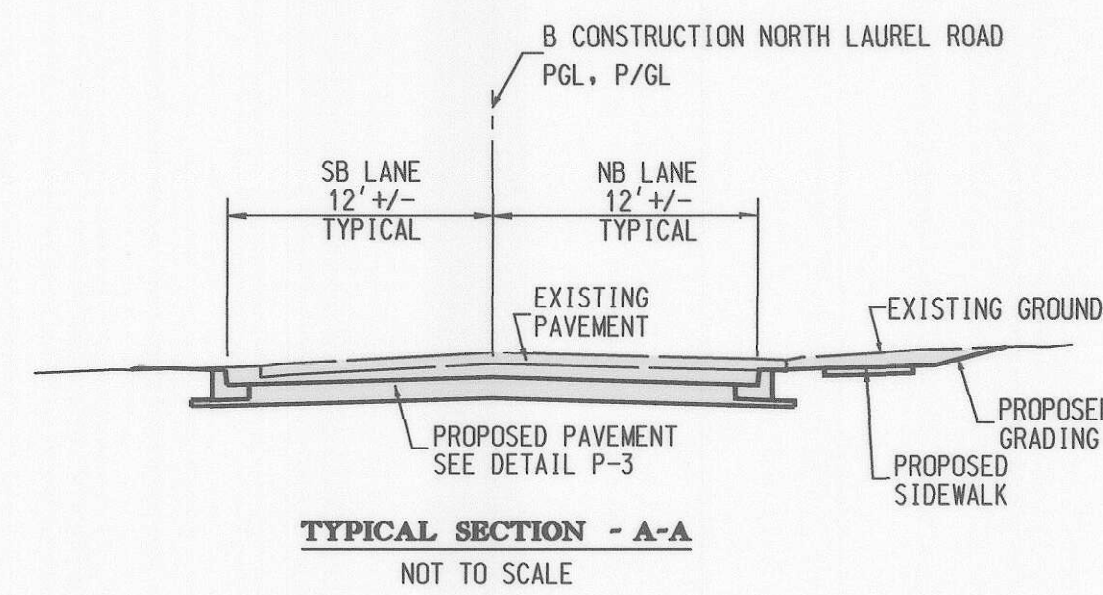
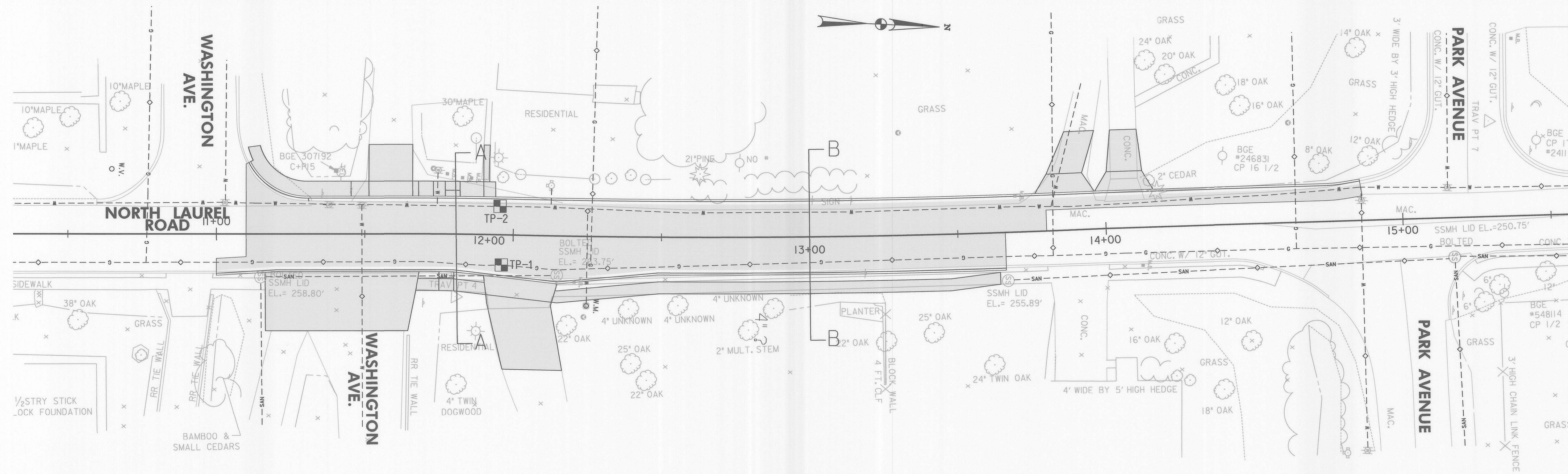
MAP NO. BLOCK NO.

TRAFFIC CONTROL PLAN
**NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT**

ELECTION DISTRICT 3 HOWARD COUNTY, MARYLAND

SCALE
1"=20'

SHEET
5 OF 11



- PHASE 2:
- NO WORK IS TO BEGIN UNTIL ALL PHASE 1 WORK IS COMPLETED AND ALL TEMPORARY ADVANCED ROADWAY AND DETOUR SIGNS, BARRICADES, CHANNELIZATION DEVICES AND BARRIERS ARE IN PLACE AND OPERATIONAL. USE SHA STANDARD MD 104.02-10 (SEE TRAFFIC CONTROL DETAIL SHEET NO. 3) FOR FLAGGING OPERATION/2-LANE, 2-WAY LESS THAN 40 MPH TO MAINTAIN TRAFFIC.
 - THE CONTRACTOR SHALL PLACE CONCRETE CURB AND GUTTER, SIDEWALK, HMA PAVEMENT AND FINISH GRADING EMBANKMENT ON THE NORTHBOUND SIDE OF NORTH LAUREL. THE CONTRACTOR WILL THEN MOVE THE ACTIVE WORKZONE TO THE SOUTHBOUND SIDE AND PERFORM THE SAME TASKS WHICH ARE LISTED FOR THE NORTHBOUND SIDE.
 - PHASING ALTERNATIVE - THE CONTRACTOR MAY ELECT TO CONSTRUCT THE PROJECT LONGITUDINALLY ALONG THE BASELINE, CONSTRUCTING BOTH NB AND SB ROADWAY IN A PARTICULAR AREA SWITCHING THE SINGLE LANE CLOSURE THROUGHOUT THE DAY DURING ACTIVE CONSTRUCTION.
 - ALL DRIVEWAYS AND ADJACENT ROADWAYS WITHIN THE LIMIT OF WORK ARE TO BE ACCESSIBLE TO VEHICULAR TRAFFIC AT ALL TIMES.
 - ANY VERTICAL DROP EXCEEDING 2 INCHES IN DEPTH MUST BE RAISED UP BY THE END OF THE WORK DAY USING GRADED AGGREGATE BASE OR HMA PAVEMENT.
 - PROVIDE FOR TWO WAY TRAFFIC WHEN ACTIVE CONSTRUCTION IS NOT IN PROGRESS.

MOT LEGEND

- CURRENT PHASE WORK AREA
- TRAFFIC DIRECTION

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. 12966, EXPIRATION DATE: MAY 19, 2014

PHASE 2 MOT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John P. Clavin 5/31/13
DIRECTOR OF PUBLIC WORKS

Deanna E. Suttley 5/29/13
DEPUTY DIRECTOR OF PUBLIC WORKS
ENGINEERING, DEVELOPMENT AND CONSTRUCTION

Steve Sharav 5/29/13
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

Wade R. Powell 5-30-13
CHIEF, BUREAU OF HIGHWAYS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®

STATE OF MARYLAND
WALTER R. KILGUS
REGISTERED PROFESSIONAL ENGINEER
NO. 12966
5/21/13

DES: SER	BY	NO.	DATE
DRN: OAA			
CHK: WRK			
DATE: MAY 2013			

CAPITAL PROJECT NO.
J-4176

MAP NO. BLOCK NO.

TRAFFIC CONTROL PLAN
NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT

ELECTION DISTRICT 3 HOWARD COUNTY, MARYLAND

SCALE 1"=20'
SHEET 6 OF 11

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (410) 313-1855.
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within a 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

Total Area of Site	0.65	Acres
Area Disturbed	0.43	Acres
Area to be roofed or paved	0.25	Acres
Area to be vegetatively stabilized	0.18	Acres
Total Cut	500	Cu. Yds.
Total Fill	150	Cu. Yds.
Off-site waste/borrow area locations:	UNKNOWN	
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter.
- Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
- A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.

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.I 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.I 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

Hardness 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 (10lb/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.		

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

- Seeding Mixtures
 - 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 mixture(s), 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.
 - 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 of purpose. Enter selected mixture(s), 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 Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture 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: 1/2 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.
 - Ideal Times of Seeding for Turf Grass Mixtures

Central MD: March 1 to May 15, August 15 to October 15 (Hardness 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.

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.
- CLEAR AND GRUB FOR AND INSTALL PERIMETER CONTROLS SF 1-1, SF 1-2, SF 1-3 AND SF 1-4.
- BEGIN CONSTRUCTION OF ROADWAY. NO AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
- ONCE GAB HAS BEEN PLACED FOR FULL DEPTH PAYEMENT BEYOND SCE, REMOVE SCE AS NEEDED TO COMPLETE ROADWAY FULL DEPTH PAVEMENT.
- STABILIZE ALL DISTURBED AREAS.

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

05/20/13

Date

PAUL F. CLEMENT

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, 2013.

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

John R. Roberts
HOWARD SOIL CONSERVATION DISTRICT

5/28/13
DATE

By the Developer:

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

Steve Sharar

5/28/13

Date

Steve Sharar

Signature of Developer
Print name below Signature

ED-1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John G. ...
DIRECTOR OF PUBLIC WORKS

Thomas R. ...
DEPUTY DIRECTOR OF PUBLIC WORKS

Steve Sharar
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

William ...
CHIEF, BUREAU OF HIGHWAYS



DES:	BY	NO.	DATE
BJM			
DRN:	BJM		
CHK:	SAM		
DATE:	MAY 2013		

CAPITAL PROJECT NO.

J-4176

MAP NO. BLOCK NO.

EROSION AND SEDIMENT CONTROL DETAILS AND NOTES

NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT

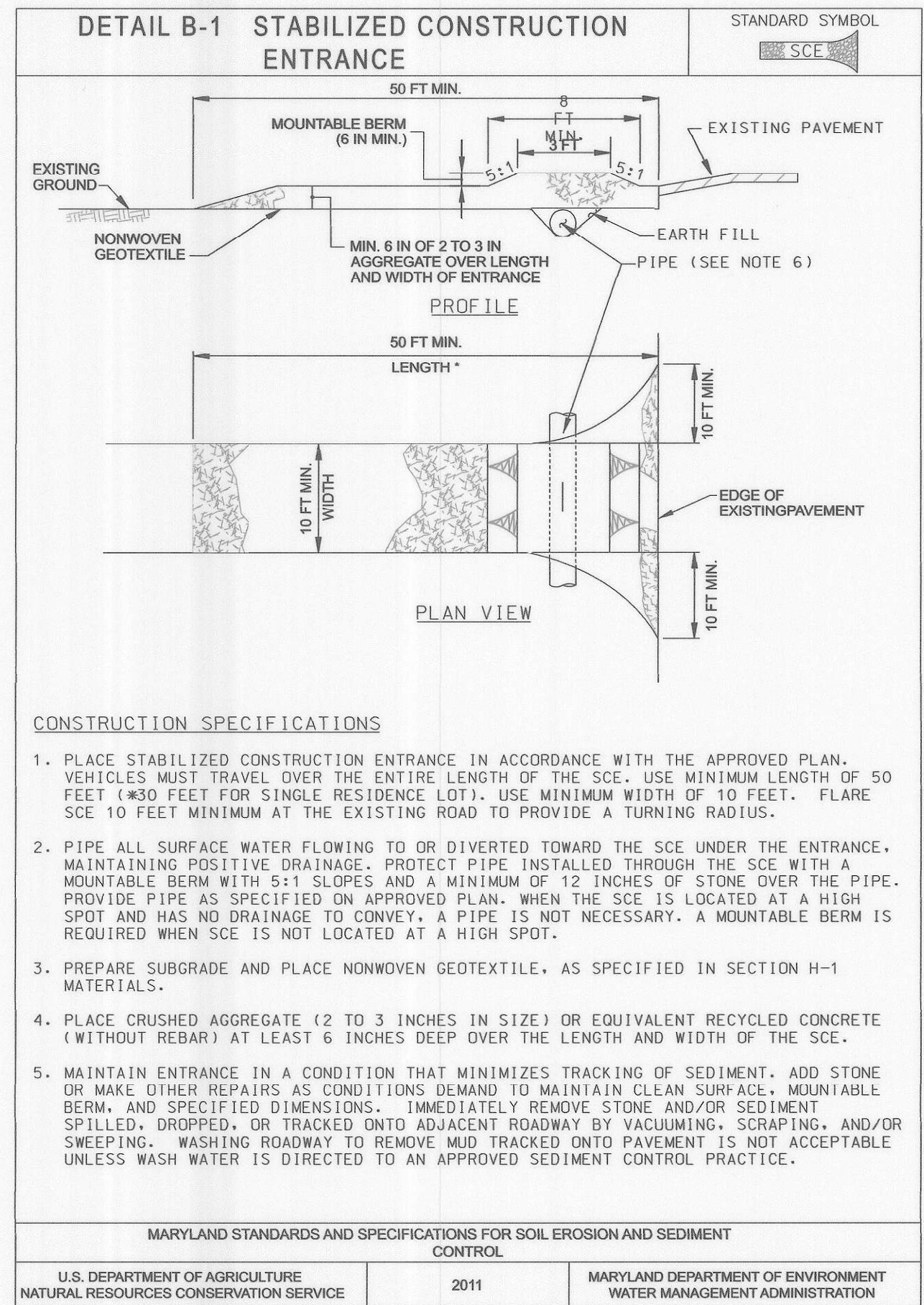
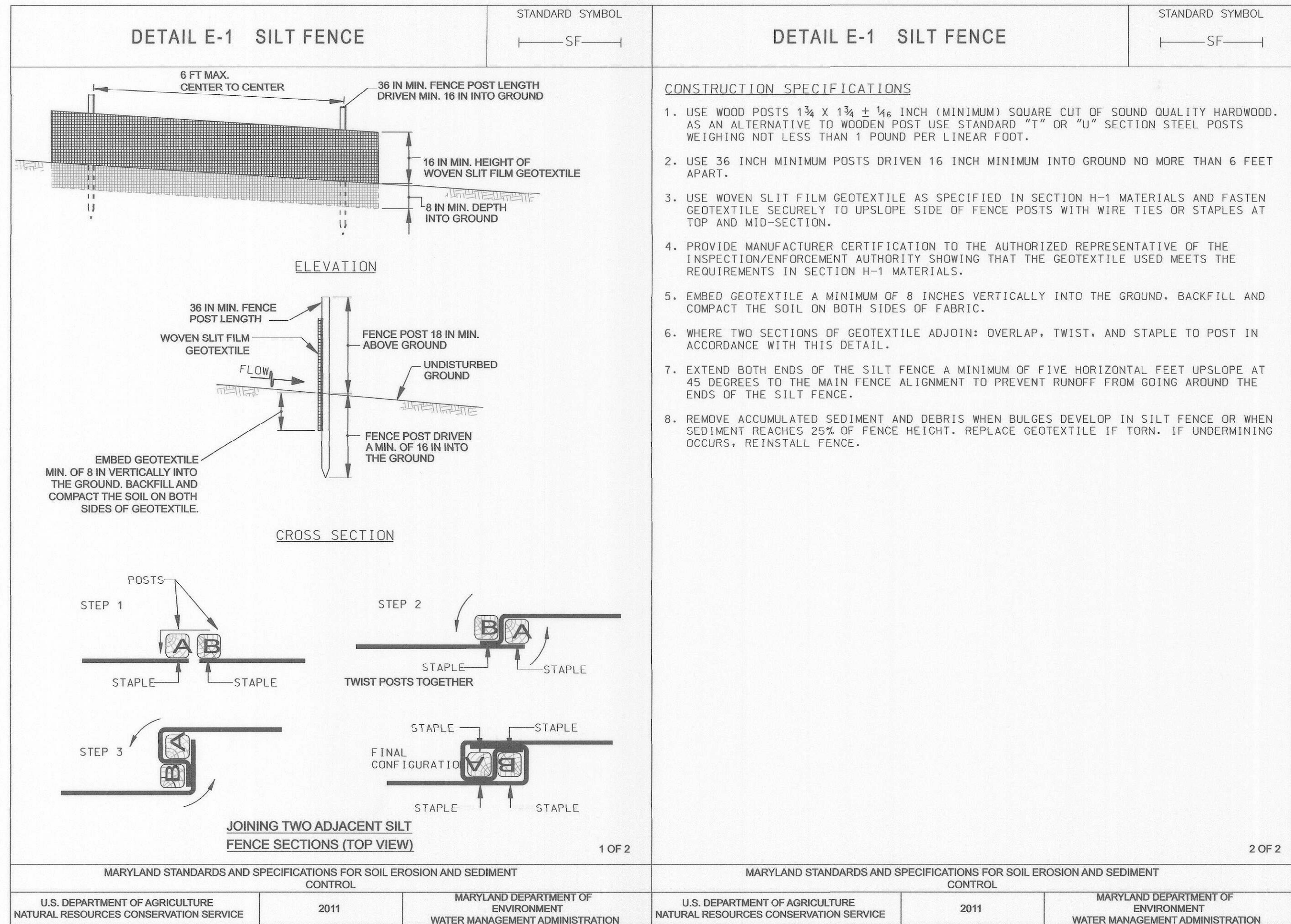
ELECTION DISTRICT 3

HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET

7 OF 11



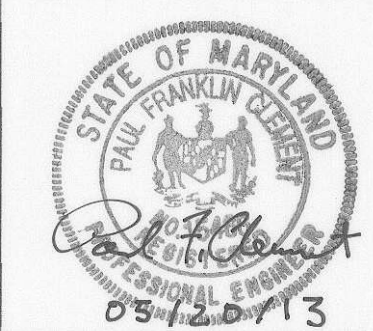
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

*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, 2013

FOR THE HOWARD SOIL CONSERVATION DISTRICT:
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John R. Robertson
 HOWARD SOIL CONSERVATION DISTRICT
 DATE: 5/28/13

ED-2

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
John Z. Vito 5/31/13
 DIRECTOR OF PUBLIC WORKS
Thomas R. Butler 5/29/13
 DEPUTY DIRECTOR OF PUBLIC WORKS
 ENGINEERING, DEVELOPMENT AND CONSTRUCTION
Steve Shaver 5/28/13
 CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION
Walter R. Powell 5-30-13
 CHIEF, BUREAU OF HIGHWAYS

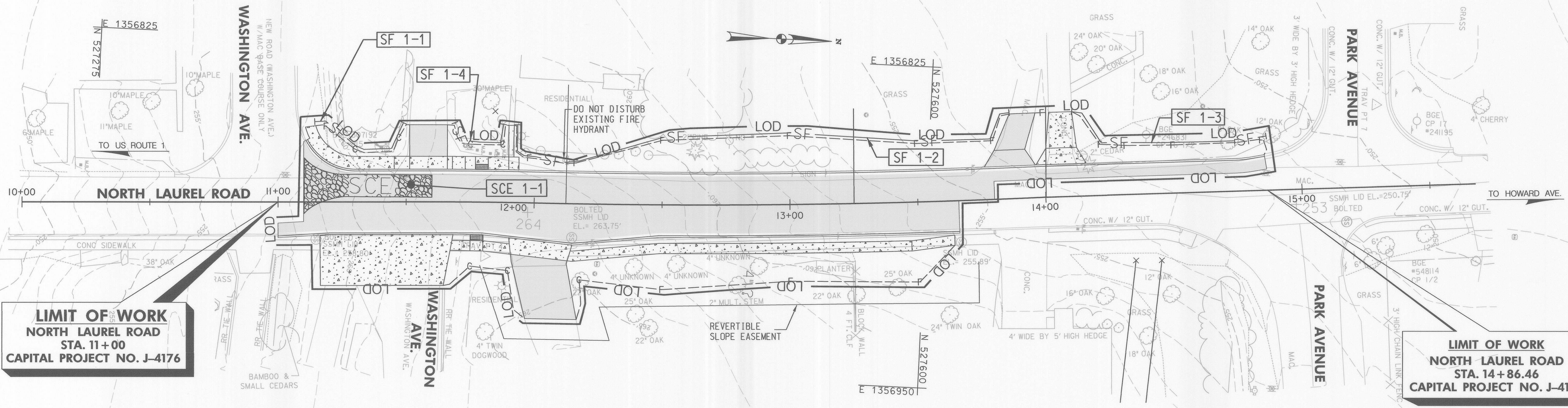


DES: BJM	BY	NO.	DATE
DRN: BJM			
CHK: SAM			
DATE: MAY 2013			

CAPITAL PROJECT NO.
 J-4176
 MAP NO. BLOCK NO.

EROSION AND SEDIMENT CONTROL DETAILS AND NOTES
 NORTH LAUREL ROAD
 VERTICAL CURVE IMPROVEMENT
 ELECTION DISTRICT 3
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 8 OF 11



LIMIT OF WORK
NORTH LAUREL ROAD
STA. 11+00
CAPITAL PROJECT NO. J-4176

LIMIT OF WORK
NORTH LAUREL ROAD
STA. 14+86.46
CAPITAL PROJECT NO. J-4176

- NOTES:**
- NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO AN MDE APPROVED SEDIMENT CONTROL DEVICE.
 - STOCKPILING WILL NOT BE PERMITTED ON SITE.

SILT FENCE		
SF 1-1	STA. 11+14, 31' LT. TO STA. 11+49, 31' LT.	45 L.F.
SF 1-2	STA. 11+93, 30' LT. TO STA. 13+87, 34' LT.	211 L.F.
SF 1-3	STA. 14+11, 33' LT. TO STA. 14+87, 21' LT.	83 L.F.
SF 1-4	STA. 11+69, 31' LT. TO STA. 11+88, 30' LT.	30 L.F.

* STABILIZED CONSTRUCTION ENTRANCE
SCE 1-1 STA. 11+10, 6' LT. 50 TONS

* EXACT LOCATION OF STABILIZED CONSTRUCTION ENTRANCE SHALL BE DETERMINED IN THE FIELD WITH APPROVAL OF THE CID INSPECTOR.

REMOVE PORTION OF EXISTING PAVEMENT AS NECESSARY TO INSTALL SCE 1-1.

PAVING LEGEND

PROPOSED FULL DEPTH HMA PAVEMENT

PROPOSED CONCRETE SIDEWALK OR DRIVEWAY

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

John R. Roberts
 HOWARD SOIL CONSERVATION DISTRICT

5/28/13
 DATE

*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, 2013

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Steve Shaver 5/31/13
 DIRECTOR OF PUBLIC WORKS

Donna Butler 5/29/13
 DEPUTY DIRECTOR OF PUBLIC WORKS
 ENGINEERING, DEVELOPMENT AND CONSTRUCTION

Walter Caldwell 5-30-13
 CHIEF, BUREAU OF HIGHWAYS

JMPT
 JOHNSON, MIRMIRAN & THOMPSON
 Engineering A Brighter Future®

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 JOHN R. ROBERTS
 05284713

DES:	BY:	NO.:	DATE:
BJM			
BJM			
SAM			
DATE: MAY 2013			

CAPITAL PROJECT NO.
J-4176

MAP NO. BLOCK NO.

EROSION AND SEDIMENT CONTROL PLAN
NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT

ELECTION DISTRICT 3 HOWARD COUNTY, MARYLAND

EP-1
 SCALE 1"=20'
 SHEET 9 OF 11

FILE: D:\SMD\040444_HowardCounty\040444\Task_028NorthLaurelRd\CAD\pES-P001_NL.cad.dgn
 DATE: 5/23/2013 11:36:04 AM

CRITERIA

THE CONTRACTOR SHALL BE GOVERNED BY THE STANDARDS AND REQUIREMENTS OF THE FOLLOWING PUBLICATIONS, EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS OF THIS CONTRACT:

DESIGN

MDSHA - "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", 2006 EDITION AND SUBSEQUENT REVISIONS. (MdmUTCd)

A A S H T O - "HIGHWAY SAFETY DESIGN AND OPERATIONS GUIDE"-1997

A A S H T O - "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES AND TRAFFIC SIGNALS", 2001 EDITION (CATEGORY II FOR ALL OVERHEAD AND CANTILEVER SIGN STRUCTURES).

MATERIALS AND CONSTRUCTION

MDSHA - "STANDARD SPECIFICATIONS FOR CONSTRUCTION & MATERIALS", 2008 EDITION AND SUBSEQUENT SUPPLEMENTS.

DESIGN WIND

- 100 MPH - WOOD SUPPORTS
10 YEAR RECURRENCE INTERVAL
 - 100 MPH - GROUND MOUNT SIGN STEEL SUPPORTS
10 YEAR RECURRENCE INTERVAL
 - 100 MPH - OVERHEAD AND CANTILEVER STRUCTURES
50 YEAR RECURRENCE INTERVAL
- } ALL DISTRICTS

DESIGN STRESS

SOIL BEARING PRESSURE - S = 3,000 P.S.F. (ASSUMED)
SEE MATERIAL & CONSTRUCTION ABOVE AND SPECIAL PROVISIONS FOR DESIGN STRESSES FOR STRUCTURAL STEEL, ALUMINUM, REINFORCING STEEL AND CONCRETE.

CHAMFER

ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" X 3/4" CHAMFER.

CLASSIFICATION OF SIGNS

SIGNS ARE DIVIDED INTO TWO (2) GENERAL CATEGORIES.

1. GUIDE SIGNS
 - A) STRUCTURAL TYPES
 - OH - OVERHEAD
 - C - CANTILEVER
 - GM - GROUND MOUNT, BREAKAWAY OR NON-BREAKAWAY
 - BM - BRIDGE MOUNTED
 - B) PANELS
 - MATERIAL - EXTRUDED ALUMINUM
 - COPY - DIRECT APPLIED
2. STANDARD SIGNS (REGULATORY, WARNING, ETC.)
 - A) STRUCTURAL TYPES
 - WOOD SUPPORTS
 - SQUARE TUBE
 - B) PANELS
 - MATERIAL - SHEET ALUMINUM
 - COPY - DIRECT APPLIED

IDENTIFICATION OF SIGNS AND PANELS

- GUIDE SIGNS**
EACH GUIDE SIGN IS IDENTIFIED BY A SIGN NUMBER ON THE PLANS AND IN THE TABULATIONS. (GM-1, GM-2, GM-3, etc)
SIGNS ON STRUCTURES ARE IDENTIFIED WITH A NUMBER AND WHERE VARIATIONS OCCUR, A LOWER CASE LETTER. (OH-1a, OH-1b, OH-1c)
- STANDARD SIGNS**
STANDARD SIGNS ARE IDENTIFIED BY PANEL NUMBERS AND ARE CLASSIFIED AS FOLLOWS
R - REGULATORY
W - WARNING
M - ROUTE MARKERS AND ACCESSORIES
D - DESTINATION AND MILEAGE PANELS
S - SCHOOL
PANELS SHALL BE DESIGNATED TO AGREE WITH MARYLAND STANDARD SIGN BOOK. EACH STANDARD SIGN IS IDENTIFIED FIRST BY THE SHEET NUMBER, THEN BY THE NUMERICAL ORDER OF THE SIGN AS IT APPEARS ON THE PLAN.
FOR EXAMPLE SHEET SN 2.1-101,102,103, ETC. SHEET SN 2.2-201,202,203, ETC.

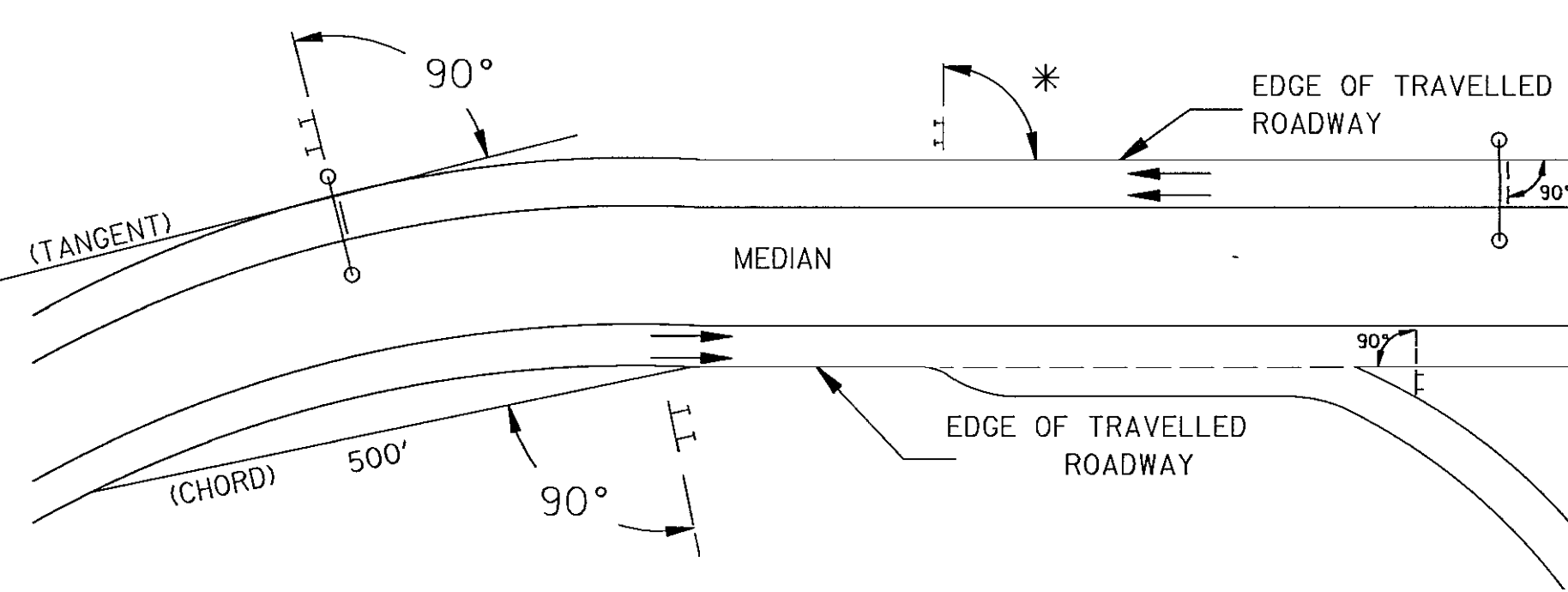
PANEL LAYOUT AND ALPHABETS

1. GUIDE SIGN PANEL LAYOUTS ARE BASED ON THE A.A.S.H.T.O. MANUALS NOTED ABOVE.
2. STANDARD SIGN PANEL LAYOUTS ARE BASED ON THE MDMUTCd WITH SPECIFICATIONS DETAILED IN THE MARYLAND STATE HIGHWAY ADMINISTRATION PUBLICATION, "STANDARD SIGN BOOK", AVAILABLE ONLINE @ https://www.marylandroads.com/businesswithsha/bizstdspecs/desManualStdPub/publicationonline/oofs/Internet_signbook.asp

REFLECTORIZATION

BACKGROUNDS, BORDERS, TEXTS AND ALL OTHER ELEMENTS OF SIGN PANELS SHALL BE REFLECTORIZED EXCEPT WHERE NOTED. REFER TO PROJECT REQUIREMENTS FOR MORE DETAIL.

ORIENTATION OF SIGN FACES



- * UNDER 30 FEET FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - 93° AWAY FROM THE ROAD TO AVOID SPECULAR REFLECTION AS INDICATED IN 813.03 OF THE MARYLAND STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
- OVER 30 FEET FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - 90°

SIGN LOCATIONS

1. GUIDE SIGNS ARE LOCATED ON THE PLANS BY DIMENSION TO SURVEY STATIONS, OR WHEN NECESSARY, TO IDENTIFIABLE PHYSICAL FEATURES.
2. ALL CHANGES IN THE LOCATIONS OF SIGNS AS SHOWN ON THE PLAN SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.

EXISTING UTILITIES

THE ENGINEER DOES NOT WARRANT OR GUARANTEE THE ACCURACY OR COMPLETENESS OF UTILITY INFORMATION SHOWN ON THE PLAN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROTECT ALL EXISTING FACILITIES WHICH MIGHT BE AFFECTED BY THIS WORK OR HIS OPERATION.

ROADSIDE SIGNS

1. VERTICAL ALIGNMENT
POSITION PANEL SO FACE IS PLUMB.
2. HORIZONTAL ALIGNMENT (SEE DIAGRAM ABOVE)
 - A) ON STRAIGHT ROADWAY SECTIONS, ANGLE OF SIGN FACE TO ROADWAY VARIES WITH DISTANCE FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - SEE DIAGRAM.
 - B) ON THE INSIDE OF HORIZONTAL CURVES, POSITION SIGN SO FACE OF PANEL MAKES AN ANGLE OF 90° WITH A CHORD BETWEEN A POINT ON NEAR EDGE OF PAVEMENT AT SIGN LOCATION AND A POINT ON EDGE OF PAVEMENT 500' IN ADVANCE OF SIGN.
 - C) ON THE OUTSIDE OF HORIZONTAL CURVES, POSITION SIGN SO FACE OF PANEL IS AT RIGHT ANGLES TO THE TANGENT OF THE CURVE AT THE SIGN LOCATION.
 - D) POSITIONING OF SIGNS AT GORES AND RAMP SEPARATIONS IS REFERRED TO THE NORMAL EDGE OF THE MAINLINE ROADWAY.

OVERHEAD SIGNS

1. VERTICAL ALIGNMENT
POSITION PANELS FOR ALL OVERHEAD STRUCTURES SO THAT PANEL FACE IS PLUMB.
2. OVERHEAD SIGN STRUCTURES SHALL NOT BE ERECTED WITHOUT ATTACHING LUMINAIRES, SUPPORTS, AND/OR SIGNS.
3. HORIZONTAL ALIGNMENT
 - A) POSITION ALL OVERHEAD SIGNS SO THAT THE FACE OF THE PANEL IS AT RIGHT ANGLES TO THE NORMAL EDGE OF ROADWAY, IF ON A STRAIGHT ROADWAY SECTION.
 - B) POSITION ALL OVERHEAD SIGNS SO THAT THE FACE OF THE PANEL IS AT RIGHT ANGLES TO THE TANGENT OF THE CURVE AT SIGN LOCATION, IF ON A HORIZONTAL CURVE.
 - C) POSITIONING OF SIGNS AT GORES AND RAMP SEPARATIONS IS REFERRED TO THE NORMAL EDGE OF THE MAINLINE ROADWAY.
4. VERTICAL CLEARANCE
 - A) OVERHEAD SIGNS SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 17'-9" FROM ROADWAY TO THE BOTTOM OF LIGHT FIXTURES. ALL LIGHT FIXTURES ARE TO BE AT THE SAME ELEVATION.
 - B) IF THE CONTRACTOR CANNOT OBTAIN 17'-9" (SEE 3A) CLEARANCE, HE IS TO CEASE WORK AND CONTACT THE PROJECT ENGINEER FOR FURTHER INSTRUCTIONS. THE PROJECT ENGINEER MAY CONTACT THE TRAFFIC ENGINEERING DESIGN DIVISION FOR ASSISTANCE.
 - C) ON ALL OVERHEAD SIGNS, THE MINIMUM CLEARANCE TO BOTTOM OF SIGN: 20'-9".

PROJECT REQUIREMENTS

ALL NEW SIGNS ON THIS PROJECT SHALL BE FABRICATED FROM SHEETING WHICH MEETS ALL OF THE FOLLOWING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS DIRECTED BY THE ENGINEER:

1. SHEETING SHALL MEET THE REQUIREMENTS OF SECTIONS 813 AND 950.03 OF MDSHA'S STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JULY 2008) AND SUBSEQUENT REVISIONS
2. LISTED ON MSHA OFFICE OF TRAFFIC AND SAFETY'S QUALIFIED PRODUCTS LIST (QPL)

PROJECT REQUIREMENTS CONT'D

3. THE FOLLOWING TYPES OF SHEETING SHALL BE USED FOR THE SPECIFIED SIGN CLASSIFICATIONS
 - A) GUIDE, EXIT GORE, AND GENERAL INFORMATION SIGNS- RETROREFLECTIVE SHEETING FOR GUIDE SIGNS, EXIT GORE, AND GENERAL INFORMATION (INCLUDES WHITE ON GREEN, WHITE ON BLUE, WHITE ON BROWN AND THE REVERSE OF THESE COLORS) SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX LEGEND ON ASTM TYPE IX BACKGROUND. REGULATORY AND WARNING MESSAGES WITHIN GUIDE SIGNS SHALL BE NON-REFLECTIVE BLACK LEGEND ON BACKGROUND SHEETING WHICH MEETS OR EXCEEDS THE REQUIREMENTS FOR ASTM TYPE IX SHEETING.
 - B) WARNING SIGNS - RETROREFLECTIVE SHEETING FOR BLACK ON FLUORESCENT YELLOW WARNING SIGNS SHALL BE NON-REFLECTIVE BLACK LEGEND ON BACKGROUND SHEETING WHICH MEETS OR EXCEEDS THE REQUIREMENTS FOR ASTM TYPE IX SHEETING. REGULATORY MESSAGES WITHIN WARNING SIGNS SHALL FOLLOW THE GUIDELINES FOR REGULATORY SIGNS.
 - C) SCHOOL SIGNS - RETROREFLECTIVE SHEETING FOR SCHOOL SIGNS (BLACK ON FLUORESCENT YELLOW AND BLACK ON FLUORESCENT YELLOW GREEN) SHALL BE NON-REFLECTIVE BLACK LEGEND ON BACKGROUND SHEETING WHICH MEETS OR EXCEEDS THE REQUIREMENTS FOR ASTM TYPE IX SHEETING. REGULATORY MESSAGES WITHIN SCHOOL SIGNS SHALL FOLLOW THE REQUIREMENTS FOR REGULATORY SIGNS.
 - D) REGULATORY SIGNS - FALL INTO THREE SUBCATEGORIES:
 - i. "RED" REGULATORY SIGNS (STOP, YIELD, DO NOT ENTER AND WRONG WAY) RETROREFLECTIVE SHEETING FOR THESE SIGNS AND THEIR SUPPLEMENTAL PANELS (INCLUDES WHITE ON RED AND RED ON WHITE) SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX SHEETING.
 - ii. ALL R7 AND R8 SERIES PARKING RELATED SIGNS AND THEIR SUPPLEMENTAL PANELS, NO TRESPASSING SIGNS, AND SIGNS DIRECTED AT PEDESTRIANS AND BICYCLISTS ONLY (INCLUDES RED ON WHITE, GREEN ON WHITE, BLUE ON WHITE, BLACK ON WHITE AND THE REVERSE OF THESE COLORS) SHALL BE ASTM TYPE I LEGEND ON ASTM TYPE I BACKGROUND.
 - iii. ALL OTHER REGULATORY SIGNS - RETROREFLECTIVE SHEETING FOR THESE SIGNS AND THEIR SUPPLEMENTAL PANELS (INCLUDES BLACK ON WHITE) SHALL BE NON-REFLECTIVE BLACK LEGEND ON ASTM TYPE IV BACKGROUND. WHERE RED IS SPECIFIED, OR WHERE THE COLOR OF THE SIGN IS WHITE ON BLACK, THE LEGEND SHALL BE ASTM TYPE IV RETROREFLECTIVE SHEETING ON NON-REFLECTIVE BLACK BACKGROUND. WARNING MESSAGES WITHIN REGULATORY SIGNS SHALL FOLLOW THE GUIDELINES FOR WARNING SIGNS.
 - E) ROUTE MARKERS - RETROREFLECTIVE SHEETING FOR ROUTE MARKERS (INCLUDES BLACK ON WHITE, GREEN ON WHITE, WHITE ON GREEN, WHITE ON RED/BLUE) SHALL MEET THE REQUIREMENTS OF GUIDE SIGNS ABOVE WHEN SPECIFIED AS THE LEGEND OF A GUIDE SIGN. RETROREFLECTIVE SHEETING FOR ALL INDEPENDENT ROUTE MARKERS AND THEIR AUXILIARY PANELS SHALL BE ASTM TYPE IV AND/OR NON-REFLECTIVE BLACK LEGEND ON ASTM TYPE IV BACKGROUND.
 - F) LOGOS AND/OR GRAPHICS - WITHIN SIGNS SHALL FOLLOW THE GUIDELINES FOR THE RESPECTIVE SIGN CLASSIFICATION UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS DIRECTED BY THE ENGINEER.
 - G) CIVIL DEFENSE SIGNS AND OTHER SIGNS - NOT SPECIFICALLY FALLING INTO ONE OF THE CATEGORIES ABOVE, SHALL FOLLOW THE GUIDELINES FOR THE SIGN CLASSIFICATION THAT MOST CLOSELY MATCHES THE COLOR(S) OF THE PROPOSED SIGN.

4. THE FOLLOWING MINIMUM THICKNESS SHALL BE USED FOR THE APPROPRIATE WIDTH OF SHEET ALUMINUM BLANKS.

LONGEST DIMENSION	MINIMUM THICKNESS
UP TO 12"	0.040"
GREATER THAN 12" TO 24"	0.063"
GREATER THAN 24" TO 36"	0.080"
GREATER THAN 36" TO 48"	0.100"
OVER 48"	0.125"

*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. 12966, EXPIRATION DATE: MAY 19, 2014

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Slavan 5/28/13
DIRECTOR OF PUBLIC WORKS

Thomas E. Hubler 5/29/13
DEPUTY DIRECTOR OF PUBLIC WORKS
ENGINEERING, DEVELOPMENT AND CONSTRUCTION

William R. Williams 5-30-13
CHIEF, BUREAU OF HIGHWAYS

JMT
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®

STATE OF MARYLAND
PROFESSIONAL ENGINEER
WALTER R. KILGUS
NO. 12966
EXPIRES 5/19/2014

5/21/13

DES: SER	BY	NO.	DATE
DRN: OAA			
CHK: WRK			
DATE: MAY 2013			

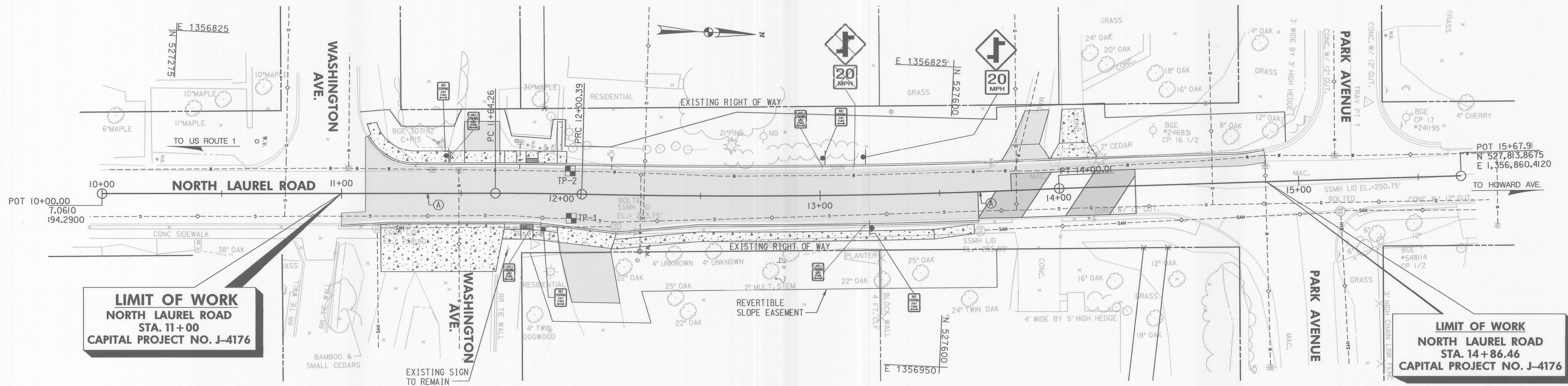
CAPITAL PROJECT NO.
J-4176

MAP NO. BLOCK NO.

GENERAL SIGNING NOTES
**NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT**

ELECTION DISTRICT 3 HOWARD COUNTY, MARYLAND

SCALE
SHEET
10 OF 11

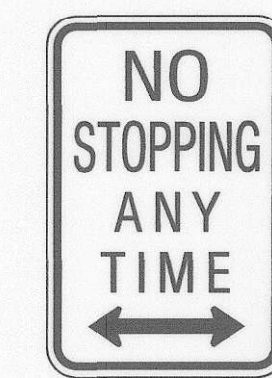


LIMIT OF WORK
NORTH LAUREL ROAD
STA. 11+00
CAPITAL PROJECT NO. J-4176

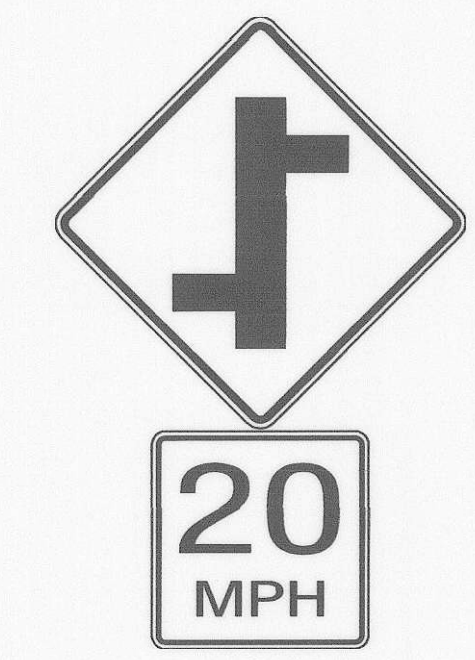
LIMIT OF WORK
NORTH LAUREL ROAD
STA. 14+86.46
CAPITAL PROJECT NO. J-4176

PAVEMENT MARKING AND SIGN LEGEND

- Ⓐ 5 INCH YELLOW PAVEMENT MARKING PAINT LINES
- ⊗ EXISTING SIGN TO BE REMOVED
- NEW/PROPOSED SIGN
- ⌋ EXISTING SIGN LOCATION
- ⌋ PROPOSED SIGN LOCATION
- ▨ PROPOSED PAVEMENT
- ▨ PROPOSED SIDEWALK OR DRIVEWAY



NO STOPPING ANY TIME
 STANDARD NO. R7-4(2)
 18"X24"
 MOUNTED ON SQUARE PERFORATED TUBULAR STEEL SUPPORT

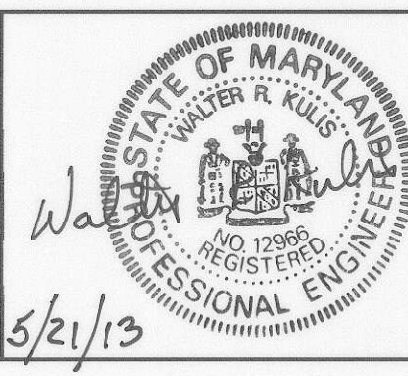


SIDE ROAD
 STANDARD NO. W2-1(1)
 30"X30"

ADVISORY SPEED
 STANDARD NO. W13-1
 18"X18"
 MOUNTED ON 4"X6" WOOD POST

*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. 12966, EXPIRATION DATE: MAY 19, 2014

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *Steve Shaver* 5/28/13
 Deputy Director of Public Works: *William R. Butler* 5/29/13
 Chief, Transportation and Special Projects Division: *Steve Shaver* 5/28/13
 Chief, Bureau of Highways: *William R. Butler* 5-30-13



DES:	SER	BY	NO.	DATE
DRN:	OAA			
CHK:	WRK			
DATE:	MAY 2013			

CAPITAL PROJECT NO.
J-4176

SIGNING AND PAVEMENT MARKING PLAN
NORTH LAUREL ROAD
VERTICAL CURVE IMPROVEMENT
 ELECTION DISTRICT 3
 HOWARD COUNTY, MARYLAND

SCALE
 H1=20'
 SHEET
 11 OF 11

FILE: g:\s\01\040444_howard\county\pww\task_02\hor\11\laurel\road\psh-P001\LA_aur\rd.dgn
 DATE: 5/21/2013 12:28:09 PM