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GENERAL NOTES

- ALL INFORMATION AND DETAILS SHALL BE CONSTRUCTED AS PER PLAN OR AS DIRECTED BY THE HOWARD COUNTY ENGINEER.
- ALL STATIONING AND DIMENSIONING ARE TO BE FIELD VERIFIED BY CONTRACTOR.
- STORM DRAINAGE SLOPES ARE TO BE AS DIRECTED BY HOWARD COUNTY ENGINEER UNLESS OTHERWISE SHOWN ON PLANS.
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. 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. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.

MISS UTILITY 1-800-257-7777
 VERIZON 1-800-743-0033
 BGE (CONTRACTOR SERVICES) 410-850-4620
 BUREAU OF UTILITIES 410-313-4900
 SHA 410-531-5533

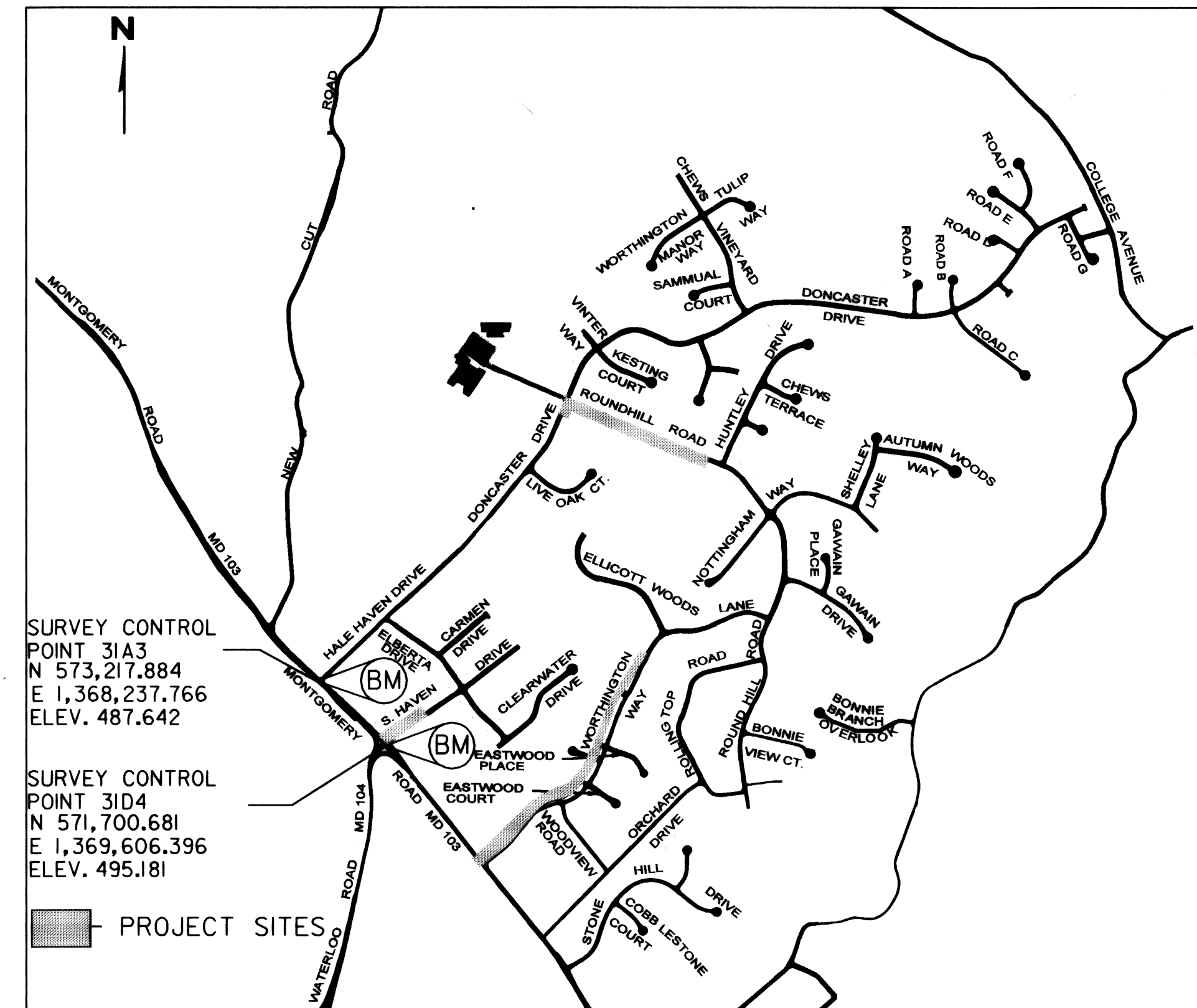
THE CONTRACTOR SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION OF ENGINEERING FOR VERIFICATION AND/OR INFORMATION REGARDING:
 A. PROPOSED/EXISTING RIGHT-OF-WAY.
 B. UTILITY RELOCATION.
 C. MAINTENANCE OF TRAFFIC DURING CONSTRUCTION.
 D. EROSION/SEDIMENT CONTROL CERTIFICATION AND PERMIT
 E. HORIZONTAL/VERTICAL SURVEY CONTROL.

UNDER NO CIRCUMSTANCES SHOULD THE EQUIPMENT MAINTAIN LESS THAN A FIFTEEN (15) FEET CLEARANCE FROM ANY TRANSMISSION WIRES OR LESS THAN A TEN (10) FEET CLEARANCE FROM ANY OTHER OVERHEAD ELECTRIC WIRES. THE CONTRACTOR SHALL ALSO ADHERE TO THE APPLICABLE PROVISIONS OF THE HIGH VOLTAGE LINE ACT, MARYLAND CODE ARTICLE 89 SECTIONS 58 THROUGH 62, AND THE OCCUPATIONAL SAFETY AND HEALTH ACT STANDARDS, TITLE 29 CFR, PARTS 1910 AND 1926.

- SEE HOWARD COUNTY STANDARD DETAILS NO'S G-1.01 & G-1.02 FOR STANDARD SYMBOLS.
- COORDINATES BASED ON NAD 83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 31D4 AND NO. 31A3.

31D4	N. 571,700.681 E. 1,369,606.396 ELEV. 495.181 (NAVD29)
31A3	N. 573,217.884 E. 1,368,237.766 ELEV. 487.642 (NAVD29)

- MAINTENANCE OF TRAFFIC ALONG MD 103 SHALL BE HANDLED BY SHA STANDARD MD-104.33-02 - WORK ZONE TRAFFIC CONTROL TYPICAL-SHOULDER WORK/2 LANE, 2 WAY. MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION ALONG THE RESIDENTIAL STREETS SHALL BE HANDLED BY SHA STANDARD MD-104.32-02-WORK ZONE TRAFFIC CONTROL TYPICAL, INTERSECTION FLAGGING OPERATION. PRIOR TO BEGINNING WORK CONTRACTOR IS TO CONTACT MDSA.
- A STAGING AND STOCKPILE AREA IS TO BE DETERMINED BY CONTRACTOR AND APPROVED BY HOWARD COUNTY ENGINEER.
- TOPOGRAPHIC SURVEY INFORMATION BASED ON FIELD SURVEY PERFORMED BY DEWBERRY & DAVIS DATED 7/12/99.
- NOTIFY BOB SNYDER AT THE STATE HIGHWAY ADMINISTRATION (SHA) PRIOR TO ANY WORK AT THE MD 103/SOUTH HAVEN APPROACH. SHA WILL HAVE A TECHNICIAN ON SITE. (410) 787-7630
- THE CONTRACTOR SHALL VERIFY THE EXISTENCE OF ROOF DRAIN PIPES AND CONNECT TO PROPOSED STORM DRAIN SYSTEM AS NECESSARY.



LOCATION MAP
 SCALE 1" = 1000'

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
Jim Meyer 2/4/03 Date
 U.S. Natural Resources Conservation Service

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John L. Rawson 2/4/03 Date
 Howard Soil Conservation District

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John L. Rawson 2/4/03 Date
 Approved Howard S.C.D.

APPROVED: FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS.
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
Elizabeth Anderson Calva 1/24/03 Date
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT.

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS BUILT' PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
 Signature _____ PE No. _____
 Date _____

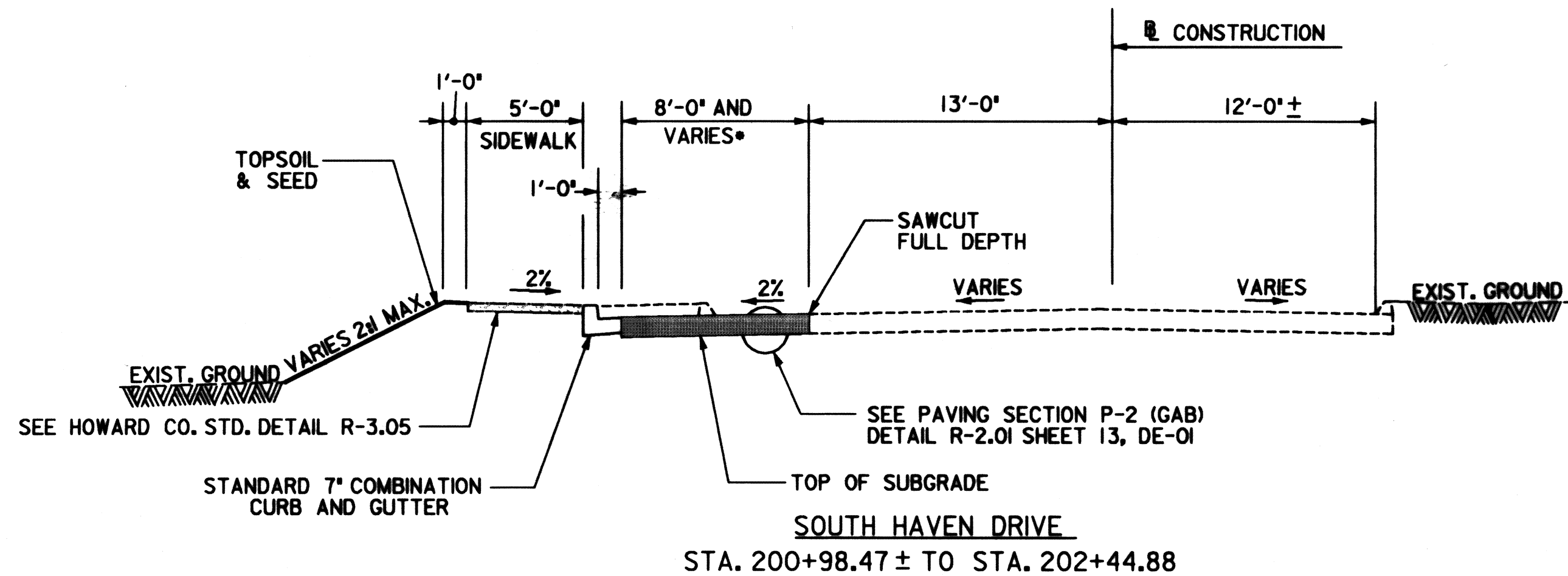
CAPITAL PROJECT NO. J-4158.B

WORTHINGTON AREA VEHICULAR ACCESS

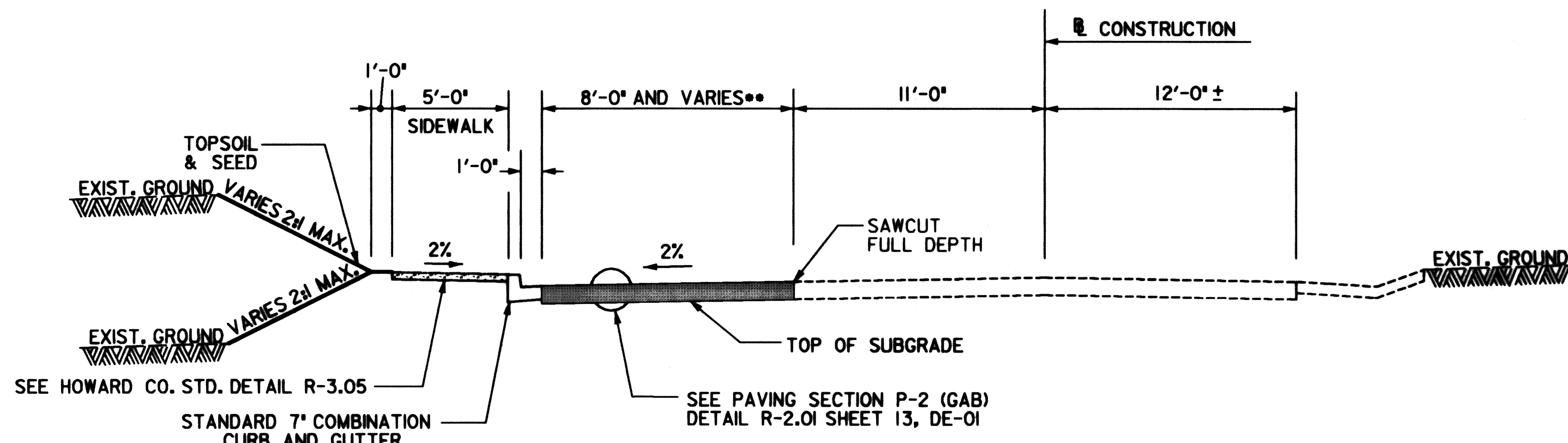
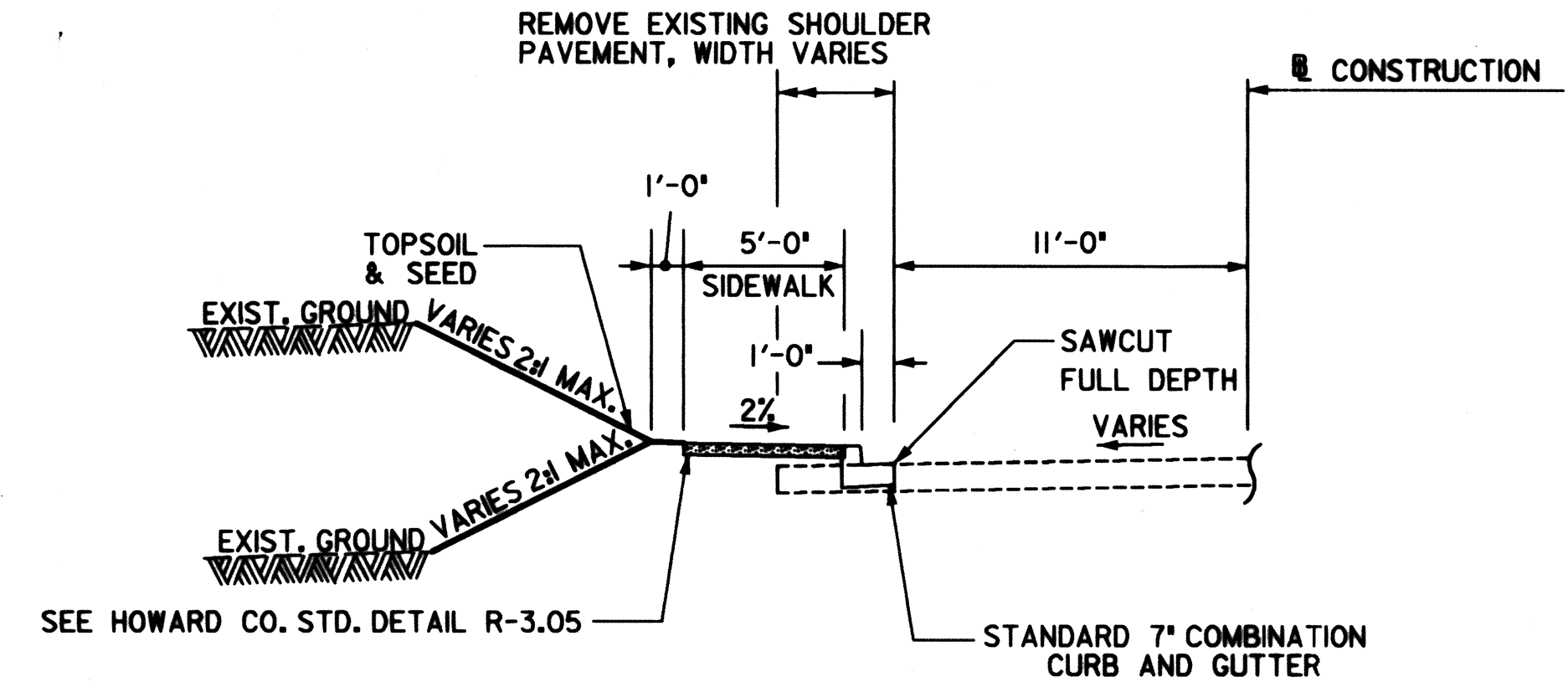
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

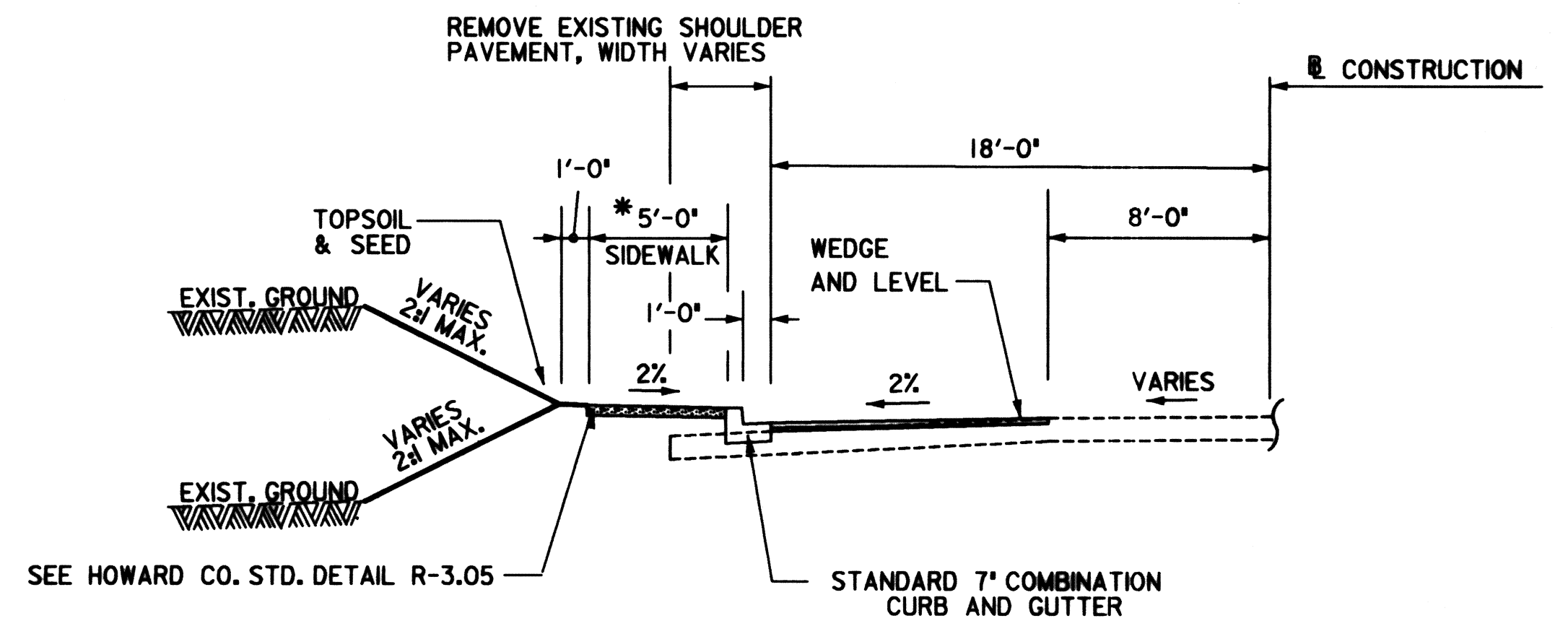
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>James M. Lee</i> 1/27/03 DATE DIRECTOR OF PUBLIC WORKS <i>Elizabeth Anderson Calva</i> 1/24/03 DATE CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION	Dewberry & Davis LLC A Dewberry & Davis Company 3120 Lord Baltimore Drive, Suite #211 Baltimore, Maryland 21244 (410) 265-9500 FAX (410) 265-9875 Engineers Planners Surveyors Landscape Architects		DES:		CAPITAL PROJECT NO. J-4158.B	WORTHINGTON AREA VEHICULAR ACCESS - PHASE II	SCALE: HOR: 1"=50' VERT: 1"=5'
			DRN:				NO.:
			CHK:				
			DATE:	BY NO. REVISION DATE			



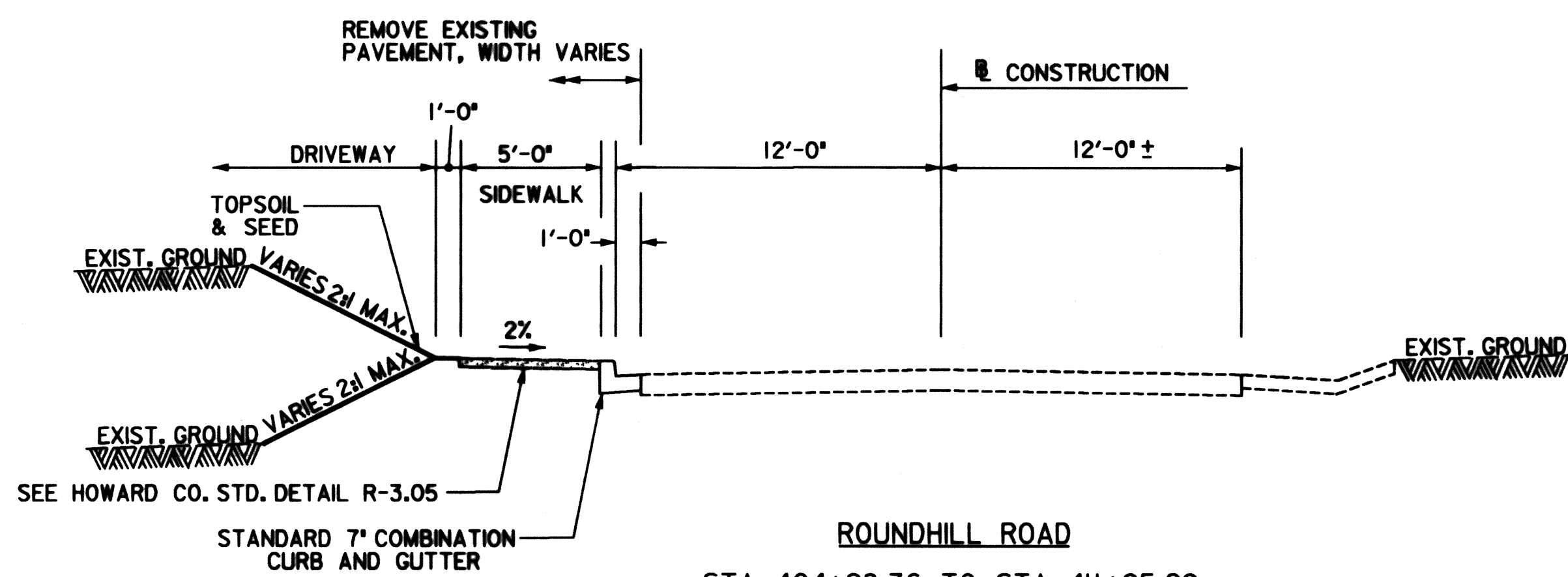
* FROM 43' - 2" AT STA. 200+98.47 TO 8'-0" AT STA. 201+37.09
FROM 8'-0" AT STA. 202+14.87 TO 0'-0" AT STA. 202+44.88



** FROM 0'-0" AT STA. 403+71.64 LT. TO 8'-0" AT STA. 403+87.64 LT.
FROM 8'-0" AT STA. 404+82.36 LT. TO 0'-0" AT STA. 404+98.36 LT.
FROM 0'-0" AT STA. 411+95.29 LT. TO 8'-0" AT STA. 412+11.29 LT.
FROM 8'-0" AT STA. 413+34.00 LT. TO 0'-0" AT STA. 413+50.00 LT.



* REDUCED TO 3'-9" FROM STA. 1416+50.00 TO STA. 1417+75.00 WITH 5'-0" TRANSITION



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James M. ... 11/29/03
DIRECTOR OF PUBLIC WORKS DATE

Robert ... 1/27/03
CHIEF, BUREAU OF HIGHWAYS DATE

... 1-29-03
CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC
A Dewberry & Davis Company
Engineers Planners Surveyors Landscape Architects
3190 Lord Baltimore Drive, Suite #211
Baltimore, Maryland 21244
(410) 265-9500 FAX (410) 265-8875



DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

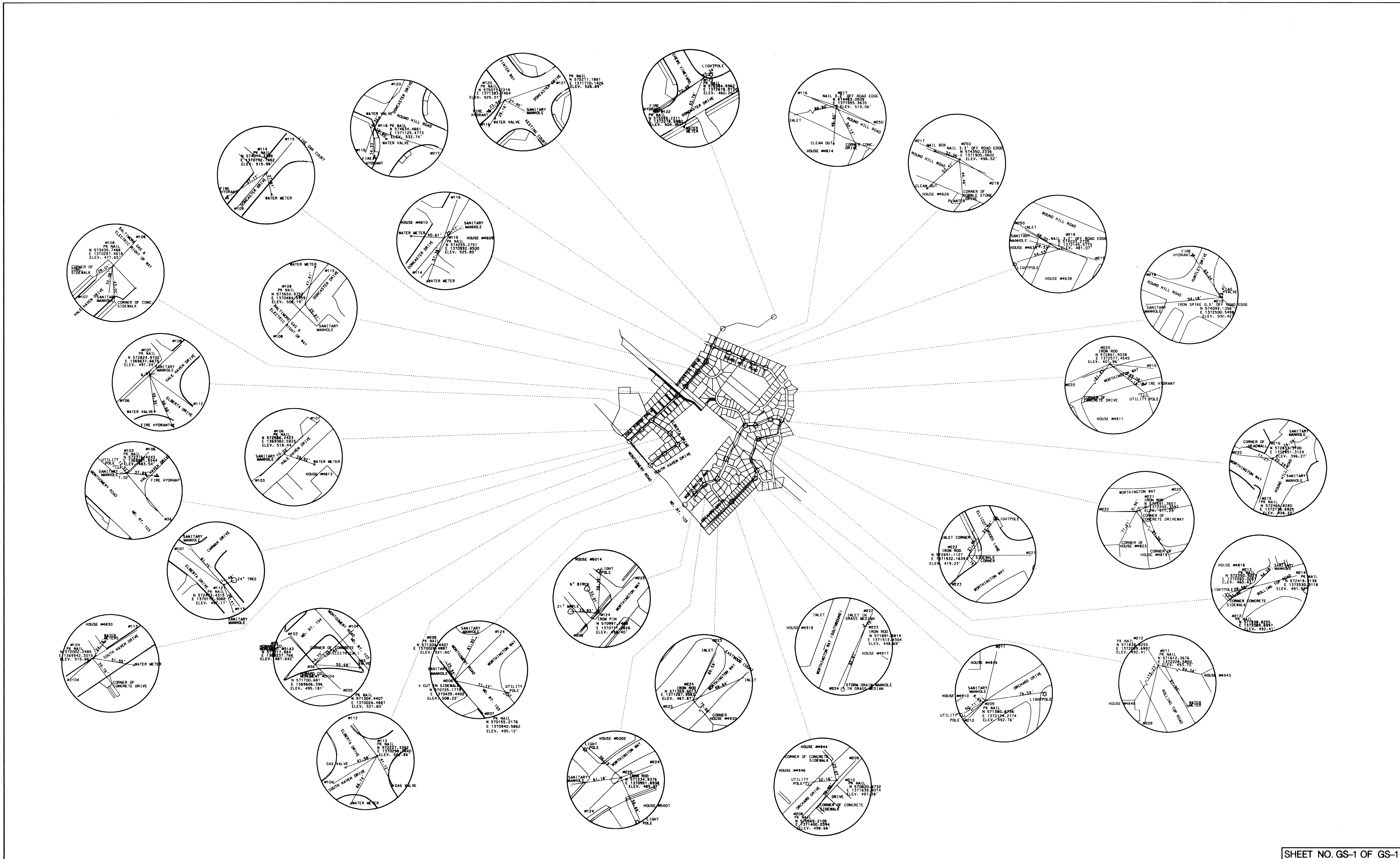
CAPITAL PROJECT NO.
J-4158.B

NO.: _____ DATE: 3-1-02

TYPICAL SECTIONS
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE:
1"=5'

SHEET
2 OF 25



SHEET NO. GS-1 OF GS-1

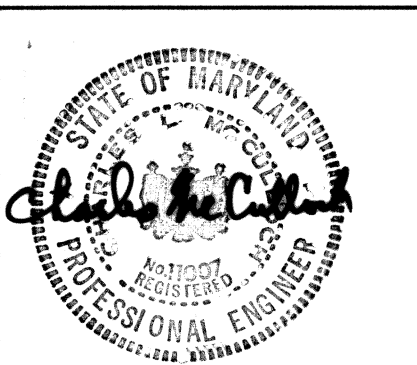
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Wilson 1/29/03
DIRECTOR OF PUBLIC WORKS DATE

Robert J. Sisson 1/27/03
CHIEF, BUREAU OF HIGHWAYS DATE

Robert J. Sisson 1/29/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

Dewberry & Davis LLC Engineers Planners Surveyors Landscape Architects
A Dewberry & Davis Company
3120 Lord Baltimore Drive, Suite #311
Baltimore, Maryland 21244
(410) 305-0600 FAX (410) 305-0875



DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

CAPITAL PROJECT NO.
J-4158.B

NO.: _____ DATE: 3-1-02

SURVEY TRAVERSE AND BENCHMARKS
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE: N.T.S.
SHEET 3 OF 25

CONSTRUCTION NOTES:

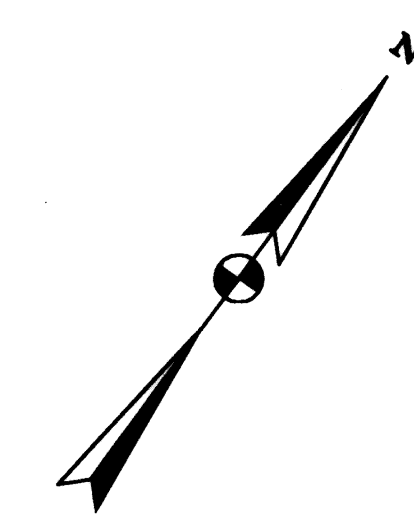
- ALL MAILBOXES DISTURBED DURING CONSTRUCTION ARE TO BE RESET.
- ALL NEW DRIVEWAY ENTRANCES TO MATCH EXISTING WIDTH AS SHOWN AT RIGHT-OF-WAY LINE.
- ALL MEASUREMENTS TAKEN TO FACE OF CURB.
- EXISTING TREES AND SHRUBS NOT WITHIN THE GRADING EASEMENT SHALL NOT BE DISTURBED UNLESS NOTED.
- EXISTING MANHOLES, WATER METERS AND WATER VALVES DISTURBED DURING CONSTRUCTION ARE TO BE ADJUSTED AND CONSIDERED INCIDENTAL TO THE CONTRACT.

SOUTH HAVEN DRIVE - ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
POT	200+00.00	571,712.7770	1,369,587.9690
PC	200+49.76	571,745.8683	1,369,625.1265
PI	201+91.27	571,839.9860	1,369,730.8090
PT	203+32.36	571,919.0132	1,369,848.2042

CURVE NO. SH-1

P.I. STA. = 201+91.27
 $\Delta = 7^\circ 44' 23.75''$ RT
 $D_c = 2^\circ 44' 19.69''$
 $R = 2092.00'$
 $T = 141.52'$
 $L = 282.60'$
 $E = 4.78'$

SOUTH HAVEN DRIVE - CONSTRUCTION POINTS			
STATION	OFFSET	ELEVATION	ITEM
200+99.43	57.14' LT.	493.38'	POC - CURB PC
201+00.34	13.00' LT.	494.69'	PAVEMENT REMOVAL
201+37.18	22.00' LT.	497.18'	POC - CURB PT
202+44.99	22.00' LT.	502.86'	POC
202+44.88	14.03' LT.	504.82'	POC - CURB JOINT



LEGEND

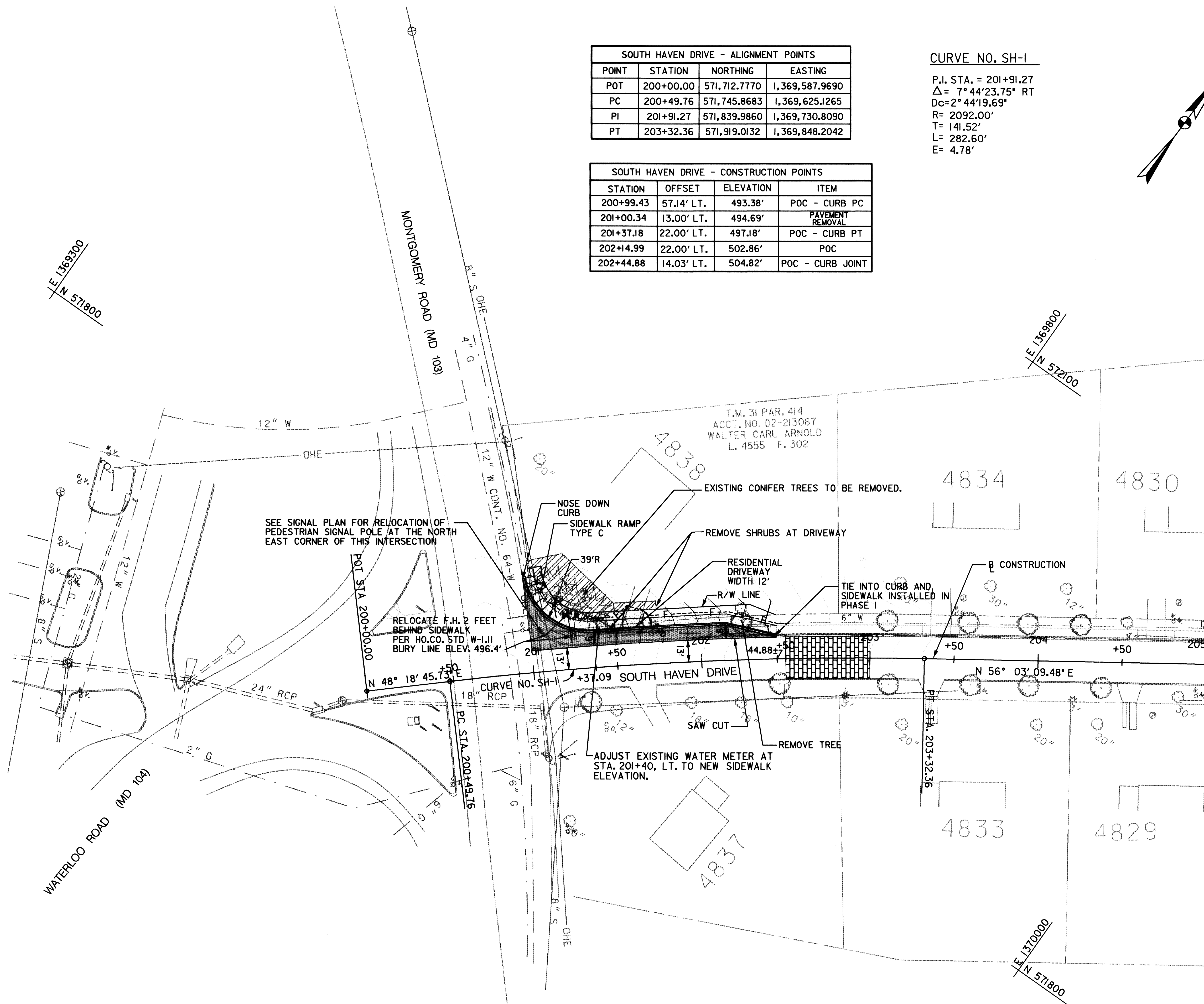
	-CONCRETE SIDEWALK/ENTRANCE
	-ASPHALT PAVEMENT
	-STAMPED ASPHALT PAVEMENT
	-TEMPORARY CONSTRUCTION STRIP

RESIDENTIAL DRIVEWAY - STD. NO. R-6.02			
LOCATION	STATION	SIDE	QTY
SOUTH HAVEN	201+60.00	LT.	13.0 S.Y.

SIDEWALK RAMP TYPE C - STD. NO. R-4.03		
STA.	DESCRIPTION	QTY
201+03.01, LT.	SOUTH HAVEN	1 EA.

STANDARD 7" COMBINATION CURB AND GUTTER. - STD. NO. R-3.01	
STA.	DESCRIPTION
200+98.47, LT. TO 202+45, LT.	SOUTH HAVEN 165 L.F.

CONCRETE SIDEWALK - STD. NO. R-3.05	
STA.	DESCRIPTION
200+99.11, LT. TO 202+44.88, LT.	SOUTH HAVEN 752 S.F.



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James P. ... 1/27/03
 DIRECTOR OF PUBLIC WORKS DATE

Robert W. ... 1-29-03
 CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC
 A Dewberry & Davis Company

3190 Lord Baltimore Drive, Suite #211
 Baltimore, Maryland 21244
 (410) 265-9500 FAX (410) 265-8875

Engineers
 Planners
 Surveyors
 Landscape
 Architects



DES:	
DRN:	
CHK:	
DATE:	

CAPITAL PROJECT NO.	J-4158.B
NO.:	DATE: 3-1-02

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

CONSTRUCTION NOTES:

1. ALL MAILBOXES DISTURBED DURING CONSTRUCTION ARE TO BE RESET.
2. ALL NEW DRIVEWAY ENTRANCES TO MATCH EXISTING WIDTH AS SHOWN AT RIGHT-OF-WAY LINE.
3. ALL MEASUREMENTS TAKEN TO FACE OF CURB.
4. EXISTING TREES AND SHRUBS NOT WITHIN THE GRADING EASEMENT SHALL NOT BE DISTURBED UNLESS NOTED
5. EXISTING MANHOLES, WATER METERS AND WATER VALVES DISTURBED DURING CONSTRUCTION ARE TO BE ADJUSTED AND CONSIDERED INCIDENTAL TO THE CONTRACT.

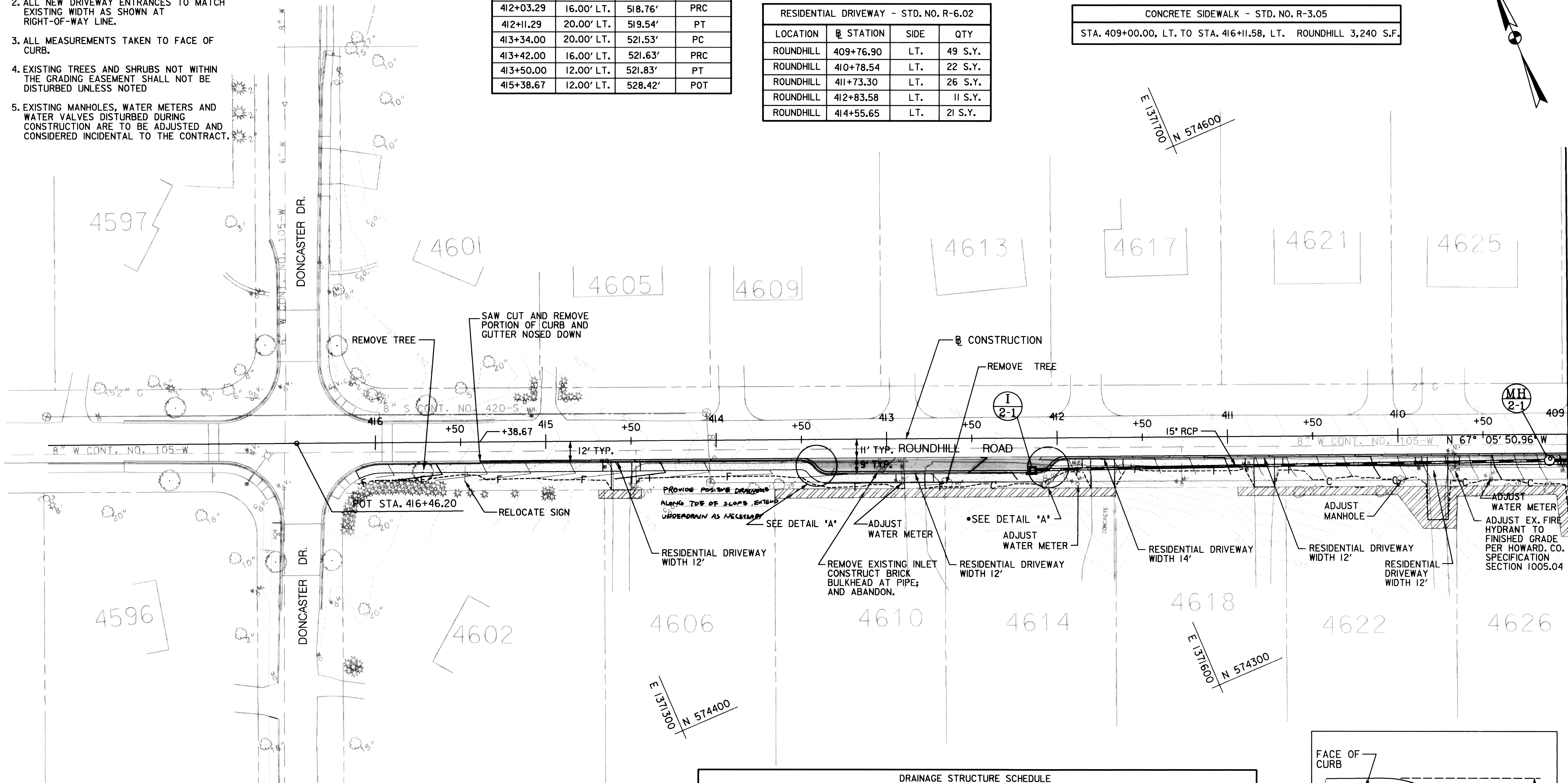
ROUNDHILL ROAD - CONSTRUCTION POINTS			
STATION	OFFSET	ELEVATION	ITEM
411+95.29	12.00' LT.	518.61'	PC
412+03.29	16.00' LT.	518.76'	PRC
412+11.29	20.00' LT.	519.54'	PT
413+34.00	20.00' LT.	521.53'	PC
413+42.00	16.00' LT.	521.63'	PRC
413+50.00	12.00' LT.	521.83'	PT
415+38.67	12.00' LT.	528.42'	POT

ALIGNMENT POINTS			
POINT	STATION	NORTH	EAST
POT	416+46.20	574,644.0770	1,371,158.6040

RESIDENTIAL DRIVEWAY - STD. NO. R-6.02			
LOCATION	STATION	SIDE	QTY
ROUNDHILL	409+76.90	LT.	49 S.Y.
ROUNDHILL	410+78.54	LT.	22 S.Y.
ROUNDHILL	411+73.30	LT.	26 S.Y.
ROUNDHILL	412+83.58	LT.	11 S.Y.
ROUNDHILL	414+55.65	LT.	21 S.Y.

STANDARD 7" COMBINATION CURB AND GUTTER - STD. NO. R-3.01
 STA. 409+00.00, LT. TO STA. 415+38.67, LT. 640 L.F.

CONCRETE SIDEWALK - STD. NO. R-3.05
 STA. 409+00.00, LT. TO STA. 416+11.58, LT. ROUNDHILL 3,240 S.F.

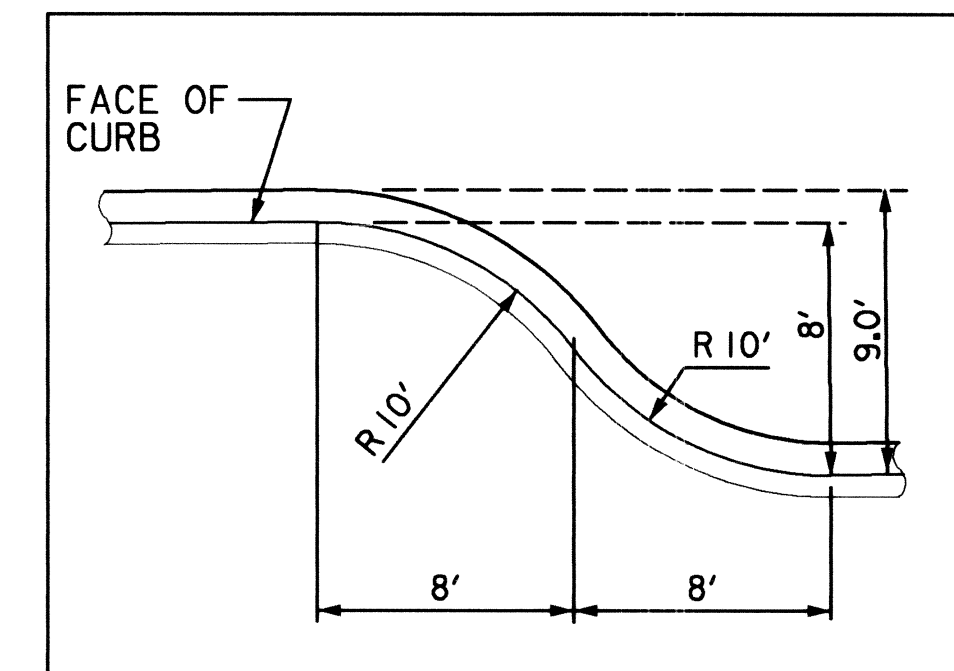


DRAINAGE PIPE SCHEDULE			
STR. TO STR.	SIZE	TYPE	LENGTH *
I-2-1 TO MH-2-1	15"	RCP	304'

* LENGTH MEASURED FROM CENTER TO CENTER OF STRUCTURE

DRAINAGE STRUCTURE SCHEDULE							
STR. NO.	STATION	OFFSET *	STRUCTURE	TOP OF STRUCTURE	INVERT IN	INVERT OUT	HOWARD CO. STD. NO.
I-2-1	412+14.30	20.00' LT.	S-COMB. INLET	519.1	- - -	513.0	SD-4.32
MH-2-1	409+11.01	15.16' LT.	4'-0" MANHOLE	502.5	495.2	495.0	G-5.12

* OFFSETS ARE MEASURED TO THE CENTER OF THE STRUCTURES.



* IMAGE IS REVERSED AT STA. 412+00
 DETAIL "A"
 NTS

- LEGEND**
- CONCRETE SIDEWALK/ENTRANCE
 - ASPHALT PAVEMENT
 - TEMPORARY CONSTRUCTION STRIP

MATCH LINE SEE SHEET PS-3

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 1/29/03
 DIRECTOR OF PUBLIC WORKS

[Signature] 1/27/03
 CHIEF, BUREAU OF ENGINEERING

[Signature] 1-29-03
 CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION

[Signature] 1-29-03
 CHIEF, BUREAU OF HIGHWAYS

Dewberry & Davis LLC
 A Dewberry & Davis Company
 3120 Lord Baltimore Drive, Suite #211
 Baltimore, Maryland 21244
 (410) 285-9500 FAX(410) 285-8875

Engineers
 Planners
 Surveyors
 Landscape Architects

[Signature]
 CHARLES W. CULBERT
 PROFESSIONAL ENGINEER

DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

CAPITAL PROJECT NO.
 J-4158.B

NO.: _____ DATE: 3-1-02

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE:
 1"=30'

SHEET
 5 OF 25

DRAINAGE STRUCTURE SCHEDULE									
STR. NO.	STATION	OFFSET	STRUCTURE	TOP OF STRUCTURE	INVERT IN	INVERT IN	INVERT IN	INVERT OUT	HOWARD CO. STD NO.
I-3-1	404+79.32	20.00' LT.	S-COMB. INLET	486.6*	--	--	--	479.5	SD 4.32
EX-3-2	406+18.80	18.50' LT.	EX. INLET	--	473.3	473.3	473.3	464.6	--
I-3-3	406+17.23	11.00' LT.	S-COMB. INLET	479.9*	--	--	--	473.4	SD 4.32
I-3-4	407+74.54	11.00' LT.	COG-15	490.1	483.2	--	--	483.0	SHA MD-374.62

* MEASURE FROM CENTER OF GRATE AT CURB FACE.

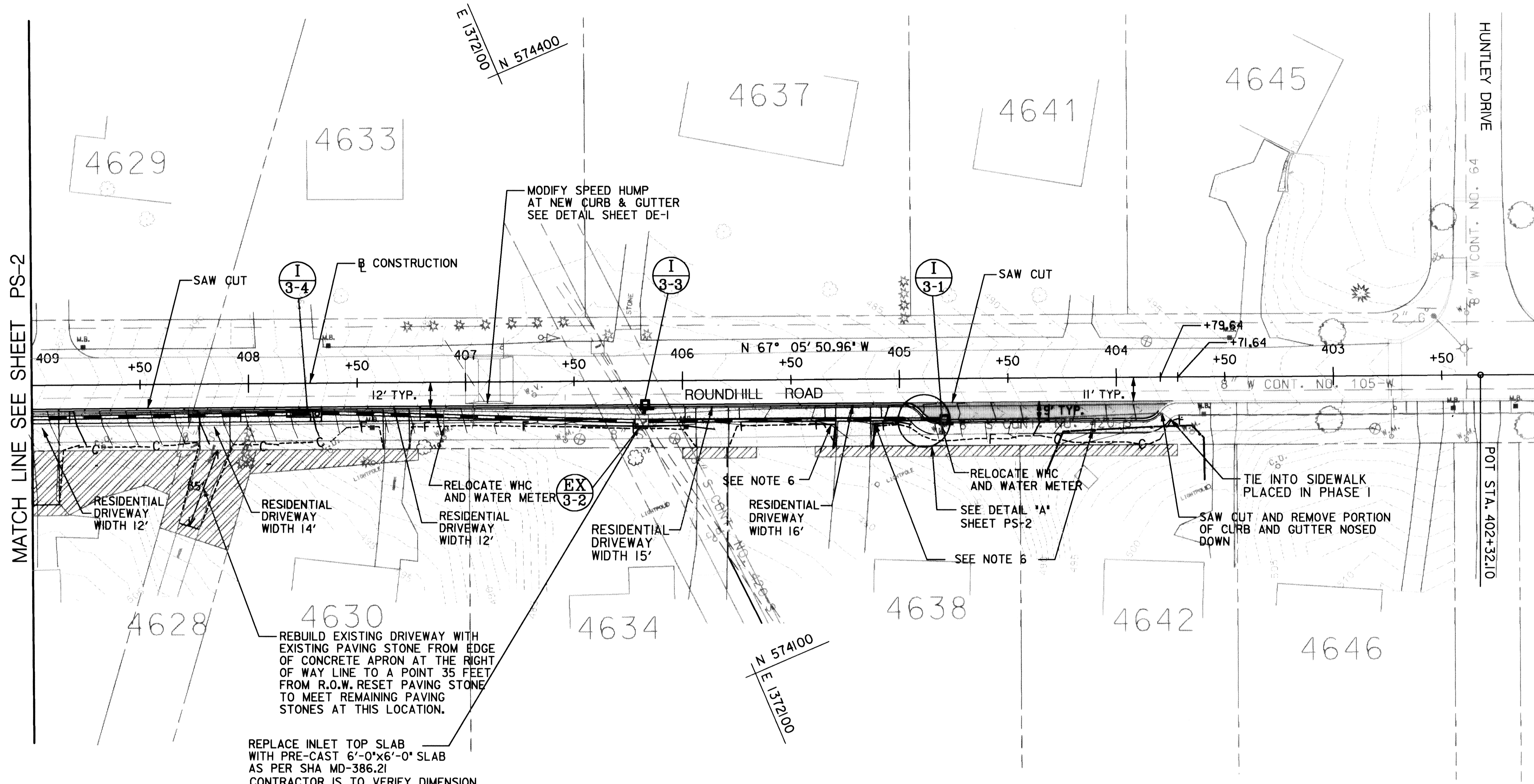
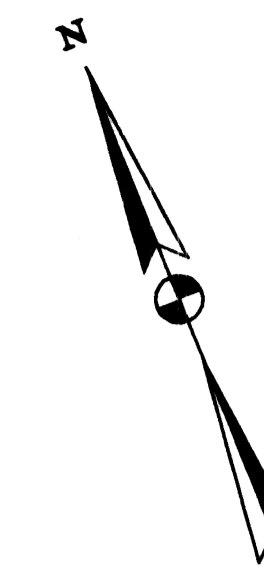
RESIDENTIAL DRIVEWAY - STD. NO. R-6.02			
LOCATION	STATION	SIDE	QTY
ROUNDHILL	405+21.35	LT.	32 S.Y.
ROUNDHILL	405+86.35	LT.	30 S.Y.
ROUNDHILL	407+32.04	LT.	24 S.Y.
ROUNDHILL	408+15.63	LT.	28 S.Y.*
ROUNDHILL	408+93.54	LT.	23 S.Y.

* REMAINING 44 S.F. OF DRIVEWAY TO BE REBUILT WITH EXISTING PAVING STONE.

STANDARD 7" COMBINATION CURB AND GUTTER - STD. NO. R-3.01	
STA. 403+79.64, LT. TO STA. 409+00.00, LT.	526 L.F.

CONCRETE SIDEWALK - STD. NO. R-3.05	
STA. 403+79.10, LT. TO STA. 409+00.00, LT.	ROUNDHILL 2,573 S.F.

ROUNDHILL ROAD - ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
POT	402+32.10	574,093.7590	1,372,461.2300



- CONSTRUCTION NOTES:**
1. ALL MAILBOXES DISTURBED DURING CONSTRUCTION ARE TO BE RESET.
 2. ALL NEW DRIVEWAY ENTRANCES TO MATCH EXISTING WIDTH AS SHOWN AT RIGHT-OF-WAY LINE.
 3. ALL MEASUREMENTS TAKEN TO FACE OF CURB.
 4. EXISTING TREES AND SHRUBS NOT WITHIN THE GRADING EASEMENT SHALL NOT BE DISTURBED
 5. EXISTING MANHOLES, WATER METERS AND WATER VALVES DISTURBED DURING CONSTRUCTION TO BE ADJUSTED AND CONSIDERED INCIDENTAL TO THE CONTRACT.
 6. SPLIT RAIL FENCES AT 4638 AND 4642 ROUNDHILL ROAD TO BE REMOVED AND RESET BY CONTRACTOR.

DRAINAGE PIPE SCHEDULE			
STR. TO STR.	SIZE	TYPE	LENGTH *
MH-2-1 TO I-3-4	18"	RCP	141'
I-3-4 TO EX-3-2	18"	RCP	151'
I-3-3 TO EX-3-2	15"	RCP	10'
I-3-1 TO EX-3-2	15"	RCP	140'

* LENGTH MEASURED FROM CENTER TO CENTER OF STRUCTURE

ROUNDHILL ROAD - CONSTRUCTION POINTS			
STATION	OFFSET	ELEVATION	ITEM
403+71.64	12.00' LT.	494.50'	PC
403+79.64	16.00' LT.	493.80'	PRC
403+87.64	20.00' LT.	493.71'	PT
404+82.36	20.00' LT.	485.87'	PC
404+90.36	16.00' LT.	485.08'	PRC
404+98.36	12.00' LT.	484.84'	PT
406+17.23	12.00' LT.	479.66'	LP/POT
407+00	12.00' LT.	483.27'	POT
409+00	12.00' LT.	501.01'	POT

LEGEND

- CONCRETE SIDEWALK/ENTRANCE
- ASPHALT PAVEMENT
- TEMPORARY CONSTRUCTION STRIP

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND BUREAU OF ENGINEERING

Jan 17 2003 1/27/03
DIRECTOR OF PUBLIC WORKS DATE

Robert J. ... 1-29-03
CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC Engineers Planners Surveyors Landscape Architects
A Dewberry & Davis Company
3120 Lord Baltimore Drive, Suite #211
Baltimore, Maryland 21244
(410) 265-9500 FAX (410) 265-8875

Charles de Culland
PROFESSIONAL ENGINEER

DES:			
DRN:			
CHK:			
DATE:	BY	NO.	REVISION

CAPITAL PROJECT NO.
J-4158.B

NO.: _____ DATE: 3-1-02

SHEET NO. PS-3 OF PS-7

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE: 1"=30'
SHEET 6 OF 25

WORTHINGTON WAY - CONSTRUCTION POINTS			
STATION	OFFSET	ELEVATION	ITEM
1400+38.01	77.35' LT.	508.27'	POT
1400+39.78	40.56' LT.	508.05'	POT-CURB PC
1400+69.75	12.00' LT.	506.93'	POT-CURB PT
1402+28.83	12.00' LT.	504.84'	PC
1403+44.17	12.00' LT.	501.09'	PT
1406+54.81	12.00' LT.	487.22'	PC

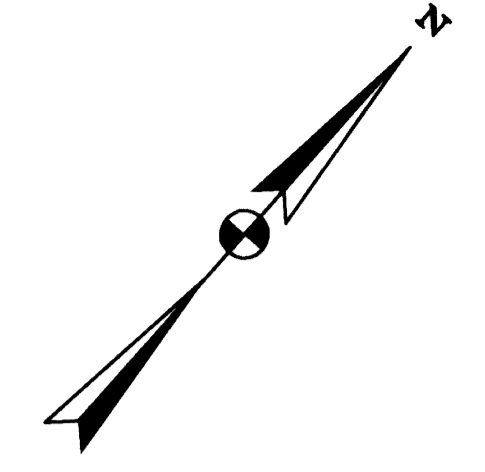
STANDARD 7" COMBINATION CURB AND GUTTER STD. NO. R-3.01	
STA. 1400+38.01, LT. TO STA. 1407+50.00, LT. WORTHINGTON 755 L.F.	

CONCRETE SIDEWALK STD. NO. R-3.05	
STA. 1400+58.02, LT. TO STA. 1407+50.00, LT. WORTHINGTON 3,005 S.F.	

SIDEWALK RAMP TYPE C - STD. NO. R-4.03		
STA. 1400+49.51, LT.	WORTHINGTON WAY	1 EA.

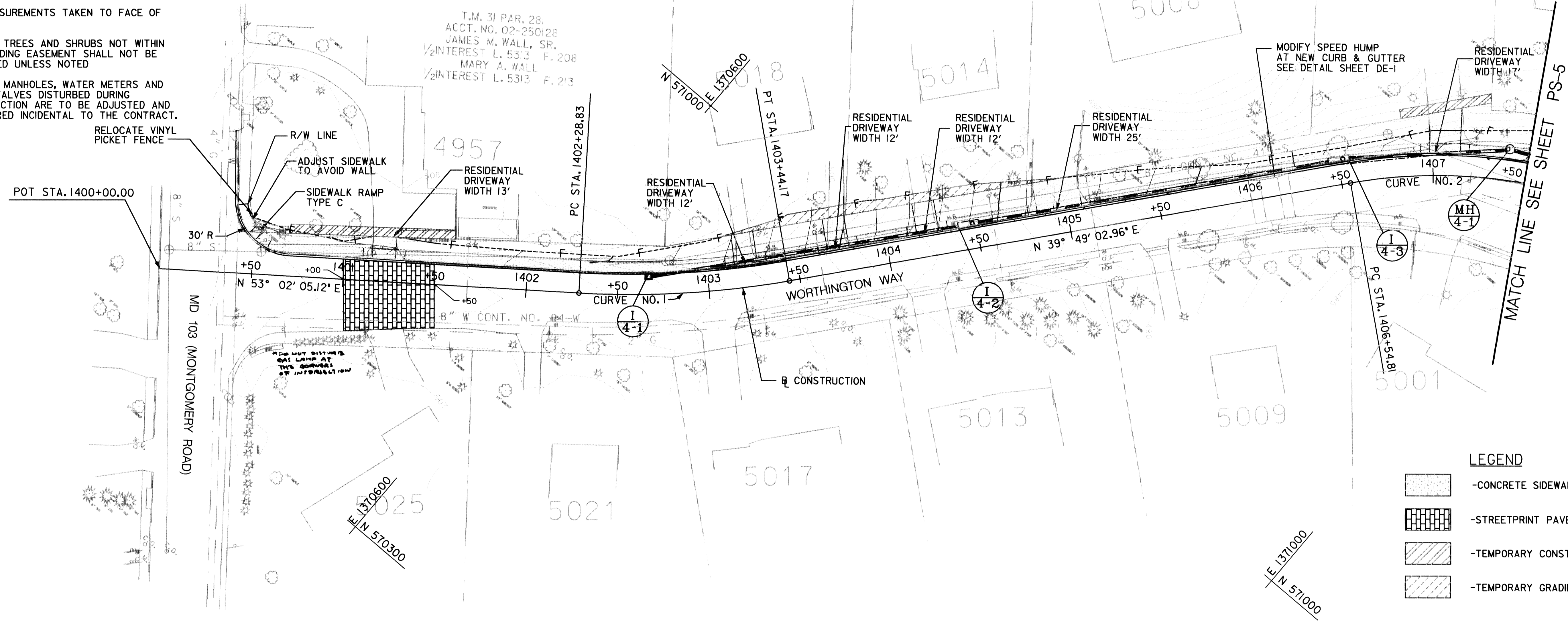
CURVE - NO. 2
P.I. STA. = 1407+48.48
 $\Delta = 37^\circ 37' 00.60''$ RT
 $D_c = 20^\circ 50' 05.38''$
 $R = 275.00'$
 $T = 93.66'$
 $L = 180.55'$
 $E = 15.51'$

CURVE - NO. 1
P.I. STA. = 1402+86.76
 $\Delta = 13^\circ 13' 02.16''$ LT
 $D_c = 11^\circ 27' 32.96''$
 $R = 500.00'$
 $T = 57.93'$
 $L = 115.34'$
 $E = 3.34'$



CONSTRUCTION NOTES:

- ALL MAILBOXES DISTURBED DURING CONSTRUCTION ARE TO BE RESET.
- ALL NEW DRIVEWAY ENTRANCES TO MATCH EXISTING WIDTH AS SHOWN AT RIGHT-OF-WAY LINE.
- ALL MEASUREMENTS TAKEN TO FACE OF CURB.
- EXISTING TREES AND SHRUBS NOT WITHIN THE GRADING EASEMENT SHALL NOT BE DISTURBED UNLESS NOTED
- EXISTING MANHOLES, WATER METERS AND WATER VALVES DISTURBED DURING CONSTRUCTION ARE TO BE ADJUSTED AND CONSIDERED INCIDENTAL TO THE CONTRACT.



T.M. 31 PAR. 281
ACCT. NO. 02-250128
JAMES M. WALL, SR.
1/2 INTEREST L. 5313 F. 208
MARY A. WALL
1/2 INTEREST L. 5313 F. 213

LEGEND

- CONCRETE SIDEWALK/ENTRANCE
- STREETPRINT PAVEMENT TEXTURING
- TEMPORARY CONSTRUCTION STRIP
- TEMPORARY GRADING EASEMENT

RESIDENTIAL DRIVEWAY - STD. NO. R-6.02			
LOCATION	STATION	SIDE	QTY
WORTHINGTON WAY	1401+21.59	LT.	17 S.Y.
WORTHINGTON WAY	1403+21.92	LT.	23 S.Y.
WORTHINGTON WAY	1403+73.40	LT.	23 S.Y.
WORTHINGTON WAY	1404+23.09	LT.	23 S.Y.
WORTHINGTON WAY	1404+96.11	LT.	47 S.Y.
WORTHINGTON WAY	1407+06.07	LT.	44 S.Y.

WORTHINGTON WAY - ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
POT	1400+00.00	570,737.4690	1,370,427.9770
PC	1402+28.83	570,875.0729	1,370,610.8142
PI	1402+86.76	570,909.9070	1,370,657.0990
PT	1403+44.17	570,954.4011	1,370,694.1931
PC	1406+54.81	571,192.9988	1,370,893.1086
PI	1407+48.48	571,264.9400	1,370,953.0850

DRAINAGE PIPE SCHEDULE			
STR. TO STR.	SIZE	TYPE	LENGTH *
I-4-1 TO I-4-2	15"	RCP	176'
I-4-2 TO I-4-3	18"	RCP	205'
I-4-3 TO MH-4-1	18"	RCP	92'

DRAINAGE STRUCTURE SCHEDULE							
STR. NO.	STATION	OFFSET	STRUCTURE TYPE	TOP OF STRUCTURE	INVERT IN	INVERT OUT	HOWARD CO. STD. NO.
I-4-1	1402+66.51	12.00' LT.	S-COMB. INLET	504.0*	- - -	496.5	SD-4.32
I-4-2	1404+45.55	12.00' LT.	A-10 INLET	496.0	490.3	489.8	SD-4.41
I-4-3	1406+50.76	12.00' LT.	A-10 INLET	487.8	482.5	482.3	SD-4.41
MH-4-1	1407+45.14	17.50' LT.	4'-0" MANHOLE	485.4	480.1	479.9	G-5.12

*LENGTH MEASURED FROM CENTER TO CENTER OF STRUCTURES

* MEASURED FROM CENTER OF GRATE AT CURB FACE
** OFFSET IS MEASURED TO THE CENTER OF THE STRUCTURE

SHEET NO. PS-4 OF PS-7

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 1/27/03
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 1-29-03
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 1-29-03
CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC
A Dewberry & Davis Company
3120 Lord Baltimore Drive, Suite #211
Baltimore, Maryland 21244
(410) 265-9500 FAX(410) 265-8875

Engineers
Planners
Surveyors
Landscape Architects

[Signature]
Charles M. Culbert

DES:			
DRN:			
CHK:			
DATE:	BY	NO.	REVISION

CAPITAL PROJECT NO.
J-4158.B

NO.: _____ DATE: 3-1-02

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE:
1"=30'

SHEET
7 OF 25

RESIDENTIAL DRIVEWAY - STD. NO. R-6.02			
LOCATION	STATION	SIDE	QTY (S.Y.)
WORTHINGTON WAY	1407+75.61	LT.	34
WORTHINGTON WAY	1408+61.53	LT.	27
WORTHINGTON WAY	1409+50.97	LT.	25
WORTHINGTON WAY	1411+16.95	LT.	19
WORTHINGTON WAY	1414+81.48	LT.	10

DRAINAGE STRUCTURE SCHEDULE							
STR. NO.	STATION	OFFSET	STRUCTURE TYPE	TOP OF STRUCTURE	INVERT IN	INVERT OUT	HOWARD CO. STD. NO.
MH-5-1	1407+96.22	16.18' LT.	4'-0" MANHOLE	483.4	477.9	477.7	G-5.12
I-5-1	1408+89.30	12.00' LT.	A-10 INLET	477.2	471.1	470.9	SD-4.41
EX-5-2	1409+21.22	16.29' RT.	EX. INLET	- - -	469.4	- - -	- - -
I-5-3	1410+89.77	12.00' LT.	A-10 INLET	467.4	- - -	463.0	SD-4.41
I-5-5	1412+88.54	12.00' LT.	COG-15 INLET	461.1	456.2	456.0	SHA MD-374.62
I-5-6	1413+27.83	53.11' LT.	S-COMB. INLET	461.8	- - -	456.0	SD-4.32
MH-5-2	1413+29.74	13.95' LT.	5'-0" MANHOLE	459.7	455.3	454.8	G-5.13
EX-5-7	1413+30.75	29.69' RT.	EX. INLET	- - -	454.4	- - -	- - -
I-5-7	1414+49.76	19.00' LT.	A-10 INLET	456.4	- - -	453.1	SD-4.41
EX-5-8	1414+52.26	24.72' RT.	EX. INLET	- - -	451.7	- - -	- - -

•• OFFSET IS MEASURED TO THE CENTER OF THE STRUCTURE

CURVE - NO. 2
 P.I. STA. = 1407+48.48
 $\Delta = 37^\circ 37' 00.60''$ RT.
 $D_c = 20^\circ 50' 05.38''$
 $R = 275.00'$
 $T = 93.66'$
 $L = 180.55'$
 $E = 15.51'$

CURVE - NO. 4
 P.I. STA. = 1410+89.71
 $\Delta = 11^\circ 06' 34.73''$ LT.
 $D_c = 11^\circ 27' 32.96''$
 $R = 500.00'$
 $T = 48.63'$
 $L = 96.95'$
 $E = 2.36'$

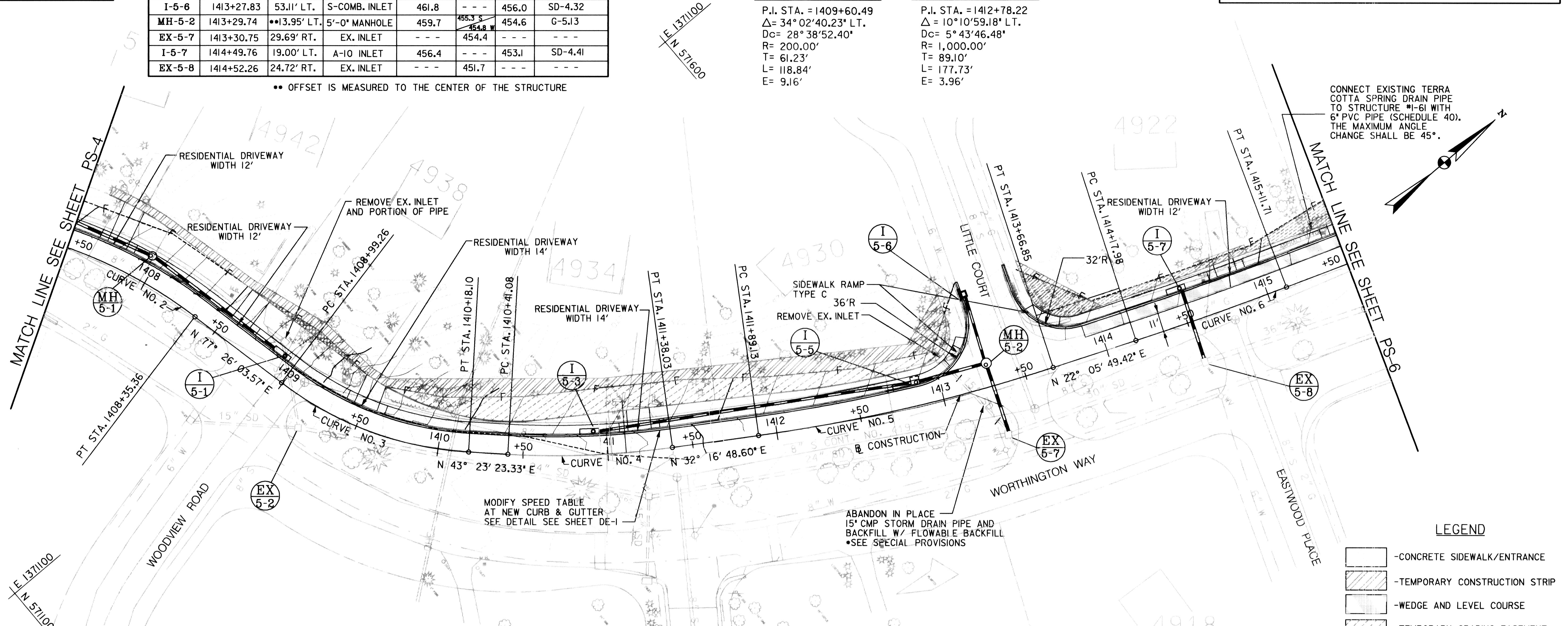
CURVE - NO. 6
 P.I. STA. = 1414+64.85
 $\Delta = 2^\circ 41' 06.27''$ LT.
 $D_c = 2^\circ 51' 53.24''$
 $R = 2,000.00'$
 $T = 46.87'$
 $L = 93.73'$
 $E = 0.55'$

CURVE - NO. 3
 P.I. STA. = 1409+60.49
 $\Delta = 34^\circ 02' 40.23''$ LT.
 $D_c = 28^\circ 38' 52.40''$
 $R = 200.00'$
 $T = 61.23'$
 $L = 118.84'$
 $E = 9.16'$

CURVE - NO. 5
 P.I. STA. = 1412+78.22
 $\Delta = 10^\circ 10' 59.18''$ LT.
 $D_c = 5^\circ 43' 46.48''$
 $R = 1,000.00'$
 $T = 89.10'$
 $L = 177.73'$
 $E = 3.96'$

STANDARD 7" COMBINATION CURB AND GUTTER - STD. NO. R-3.01	
STA. 1407+50.00, LT. TO STA. 1413+26.14, LT. WORTHINGTON	587 L.F.
STA. 1413+56.02, LT. TO STA. 1415+50.00, LT. WORTHINGTON	233 L.F.

SIDEWALK RAMP TYPE C - STD. NO. R-4.03	
STA. 1413+16.00, LT. WORTHINGTON WAY	1 EA.
STA. 1413+68.16, LT. WORTHINGTON WAY	1 EA.



CONNECT EXISTING TERRA COTTA SPRING DRAIN PIPE TO STRUCTURE #1-61 WITH 6" PVC PIPE (SCHEDULE 40). THE MAXIMUM ANGLE CHANGE SHALL BE 45°.

LEGEND

- CONCRETE SIDEWALK/ENTRANCE
- TEMPORARY CONSTRUCTION STRIP
- WEDGE AND LEVEL COURSE
- TEMPORARY GRADING EASEMENT

WORTHINGTON WAY - CONSTRUCTION POINTS			
STATION	OFFSET	ELEVATION	ITEM
1408+35.36	12.00' LT.	480.61'	PT
1408+99.26	12.00' LT.	475.89'	PC
1410+18.10	12.00' LT.	469.21'	PT
1410+41.08	12.00' LT.	468.21'	PC
1411+38.03	12.00' LT.	465.15'	PT
1411+89.13	12.00' LT.	463.57'	PC
1412+88.44	12.00' LT.	460.29'	POC - SW CURB PC
1413+15.90	23.71' LT.	460.13'	POC - SW CURB POT
1413+25.07	64.21' LT.	463.00'	POC - SW CURB PT
1413+26.15	51.53' LT.	461.50'	POC - SW CURB POT
1413+57.09	66.14' LT.	462.93'	POC - NW CURB POT
1413+57.92	49.73' LT.	460.67'	POC - NW CURB PC
1413+68.16	27.94' LT.	457.74'	POC - NW CURB POT
1413+90.34	19.00' LT.	457.12'	POC - NW CURB PT
1415+50.00	19.00' LT.	452.83'	POC - NW CURB POT

CONCRETE SIDEWALK - STD. NO. R-3.05	
STA. 1407+50.00, LT. TO STA. 1413+21.05, LT. WORTHINGTON	2590 S.F.
STA. 1413+62.98, LT. TO STA. 1415+50.00, LT. WORTHINGTON	895 S.F.

DRAINAGE PIPE SCHEDULE			
STR. TO STR.	SIZE	TYPE	LENGTH ••
MH-4-1 TO MH-5-1	18"	RCP	60'
MH-5-1 TO I-5-1	18"	RCP	95'
I-5-1 TO EX-5-2	18"	EX. TO REMAIN	45'*
I-5-3 TO I-5-5	15"	RCP	192'
I-5-5 TO MH-5-2	18"	RCP	43'
I-5-6 TO MH-5-2	15"	RCP	42'
MH-5-2 TO EX-5-7	18"	RCP	44'
I-5-7 TO EX-5-8	18"	RCP	46'

WORTHINGTON WAY - ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
PT	1408+35.36	571,285.3171	1,371,044.5042
PC	1408+99.26	571,299.2187	1,371,106.8716
PI	1409+60.49	571,312.5400	1,371,166.6360
PT	1410+18.10	571,357.0364	1,371,208.6992
PC	1410+41.08	571,373.7396	1,371,224.4890
PT	1411+38.03	571,450.8889	1,371,283.8640
PC	1411+89.13	571,493.3855	1,371,311.1508
PI	1412+78.22	571,568.7140	1,371,358.7350
PT	1413+66.85	571,651.2685	1,371,392.2520
PC	1414+17.98	571,698.6379	1,371,411.4839
PI	1414+64.85	571,742.0670	1,371,429.1160
PT	1415+11.71	571,786.2745	1,371,444.6943

- CONSTRUCTION NOTES:**
- ALL MAILBOXES DISTURBED DURING CONSTRUCTION ARE TO BE RESET.
 - ALL NEW DRIVEWAY ENTRANCES TO MATCH EXISTING WIDTH AS SHOWN AT RIGHT-OF-WAY LINE.
 - ALL MEASUREMENTS TAKEN TO FACE OF CURB.
 - EXISTING TREES AND SHRUBS NOT WITHIN THE GRADING EASEMENT SHALL NOT BE DISTURBED UNLESS NOTED
 - EXISTING MANHOLES, WATER METERS AND WATER VALVES DISTURBED DURING CONSTRUCTION ARE TO BE ADJUSTED AND CONSIDERED INCIDENTAL TO THE CONTRACT.

*ALL MEASUREMENTS TAKEN TO FACE OF CURB.

• FOR INFORMATION ONLY
 •• LENGTH MEASURED FROM CENTER TO CENTER OF STRUCTURE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DIRECTOR OF PUBLIC WORKS: <i>[Signature]</i> 1/29/03 CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION: <i>[Signature]</i> 1/29/03	Dewberry & Davis LLC A Dewberry & Davis Company 3120 Lord Baltimore Drive, Suite #211 Baltimore, Maryland 21244 (410) 265-9500 FAX (410) 265-8875 Engineers Planners Surveyors Landscape Architects	DES: _____ DRN: _____ CHK: _____ DATE: _____	CAPITAL PROJECT NO. J-4158.B	ROADWAY PLAN WORTHINGTON AREA VEHICULAR ACCESS - PHASE II	SCALE: 1"=30' SHEET 8 OF 25

SHEET NO. PS-5 OF PS-7

CONSTRUCTION NOTES:

- ALL MAILBOXES DISTURBED DURING CONSTRUCTION ARE TO BE RESET.
- ALL NEW DRIVEWAY ENTRANCES TO MATCH EXISTING WIDTH AS SHOWN AT RIGHT-OF-WAY LINE.
- ALL MEASUREMENTS TAKEN TO FACE OF CURB.
- EXISTING TREES AND SHRUBS NOT WITHIN THE GRADING EASEMENT SHALL NOT BE DISTURBED UNLESS NOTED
- EXISTING MANHOLES, WATER METERS AND WATER VALVES DISTURBED DURING CONSTRUCTION ARE TO BE ADJUSTED AND CONSIDERED INCIDENTAL TO THE CONTRACT.

CURVE - NO. 7

P.I. STA. = 1418+18.60
 $\Delta = 14^\circ 15' 32.41''$ RT.
 $D_c = 7^\circ 38' 21.97''$
 $R = 750.00'$
 $T = 93.81'$
 $L = 186.65'$
 $E = 5.84'$

CURVE - NO. 8

P.I. STA. = 1421+33.32
 $\Delta = 1^\circ 05' 39.44''$ LT.
 $D_c = 1^\circ 08' 45.30''$
 $R = 5,000.00'$
 $T = 47.75'$
 $L = 95.49'$
 $E = 0.23'$

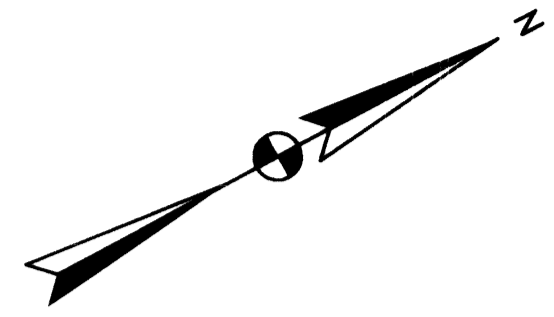
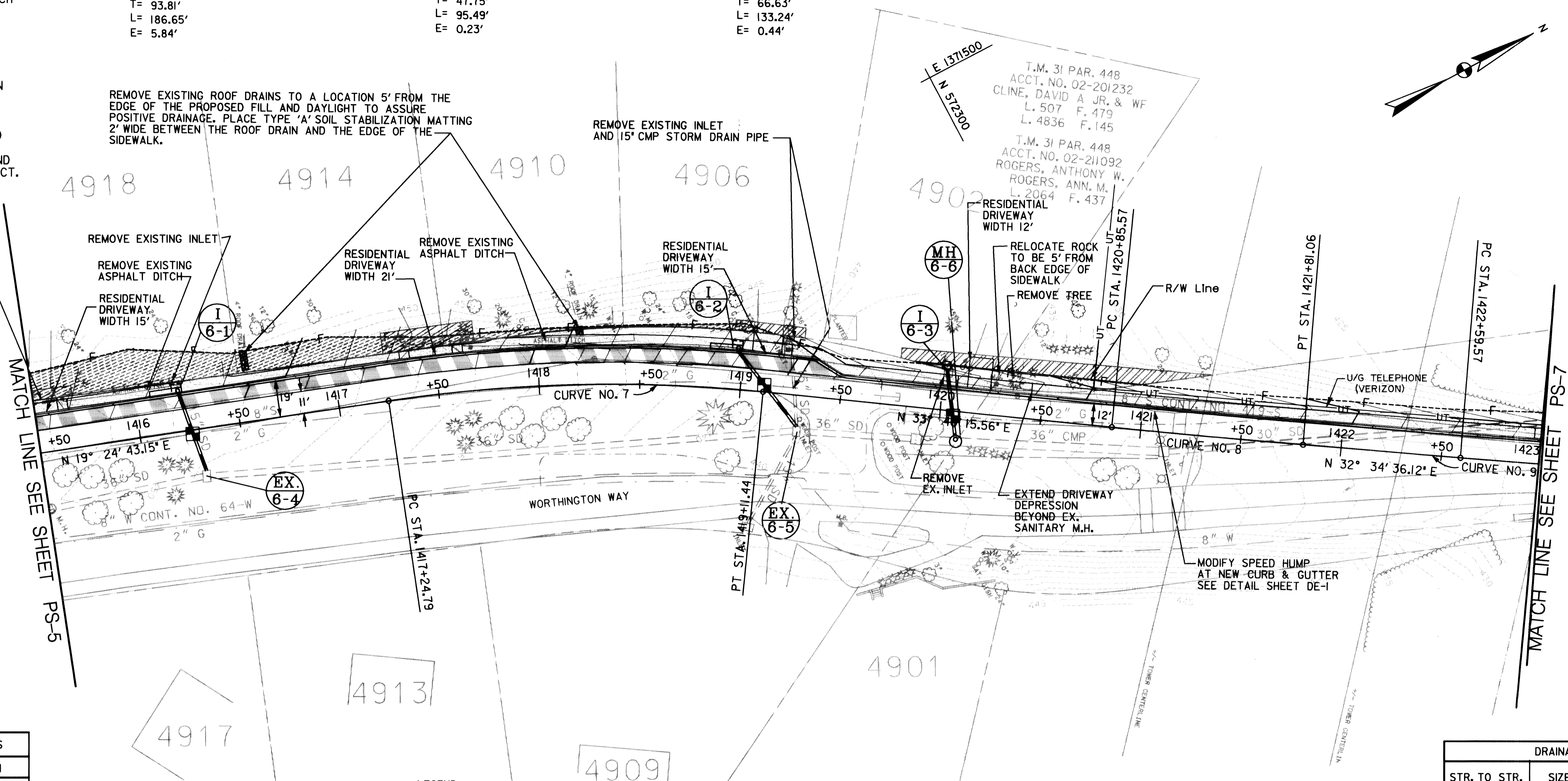
CURVE - NO. 9

P.I. STA. = 1423+26.20
 $\Delta = 1^\circ 31' 36.64''$ LT.
 $D_c = 1^\circ 08' 45.30''$
 $R = 5,000.00'$
 $T = 66.63'$
 $L = 133.24'$
 $E = 0.44'$

CONNECT EXISTING TERRA COTTA SPRING DRAIN PIPE TO STRUCTURE #1-61 WITH 6" PVC PIPE (SCHEDULE 40). THE MAXIMUM ANGLE CHANGE SHALL BE 45°.

REMOVE EXISTING ROOF DRAINS TO A LOCATION 5' FROM THE EDGE OF THE PROPOSED FILL AND DAYLIGHT TO ASSURE POSITIVE DRAINAGE. PLACE TYPE 'A' SOIL STABILIZATION MATTING 2' WIDE BETWEEN THE ROOF DRAIN AND THE EDGE OF THE SIDEWALK.

REMOVE EXISTING INLET AND 15' CMP STORM DRAIN PIPE



WORTHINGTON WAY CONSTRUCTION POINTS			
STATION	OFFSET	ELEV.	ITEM
1417+24.79	19.00' LT.	447.57	PC
1419+11.44	19.00' LT.	440.38	PT
1419+34.35	19.00' LT.	439.08	POC-CURB PC
1419+37.48	18.26' LT.	439.08	POC-CURB PT
1419+48.52	12.74' LT.	438.73	POC-CURB PC
1419+51.65	12.00' LT.	438.61	POC-CURB PT
1420+85.57	12.00' LT.	433.76	PC
1421+81.06	12.00' LT.	430.19	PT
1422+59.57	12.00' LT.	427.28	PC

STANDARD 7" COMBINATION CURB AND GUTTER - STD. NO. R-3.01
STA. 1415+50.00, LT. TO STA. 1423+00.00, LT. WORTHINGTON 750 L.F.

CONCRETE SIDEWALK - STD. NO. R-3.05
STA. 1415+50.00, LT. TO STA. 1423+00.00, LT. WORTHINGTON 3435 S.F.

LEGEND

- CONCRETE SIDEWALK/ENTRANCE
- TEMPORARY CONSTRUCTION STRIP
- WEDGE AND LEVEL COURSE
- TEMPORARY GRADING EASEMENT
- TEST PIT

RESIDENTIAL DRIVEWAY - STD. NO. R-6.02			
LOCATION	STATION	SIDE	QTY (S.Y.)
WORTHINGTON WAY	1415+54.20	LT.	11
WORTHINGTON WAY	1417+48.31	LT.	10
WORTHINGTON WAY	1419+11.47	LT.	16
WORTHINGTON WAY	1420+18.05	LT.	19

WORTHINGTON WAY - BASELINE ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
PC	1417+24.79	571,987.2482	1,371,515.5156
PI	1418+18.60	572,075.7250	1,371,546.6940
PT	1419+11.44	572,153.7966	1,371,598.7042
PC	1420+85.57	572,298.7107	1,371,695.2439
PI	1421+33.32	572,338.4490	1,371,721.7170
PT	1421+81.06	572,378.6856	1,371,747.4263
PC	1422+59.57	572,444.8419	1,371,789.6971

DRAINAGE PIPE SCHEDULE			
STR. TO STR.	SIZE	TYPE	LENGTH
I-6-1 TO EX-6-4	15'	RCP	42'
I-6-2 TO EX-6-5	15'	RCP	48'
I-6-3 TO MH-6-6	15'	RCP	35'

DRAINAGE STRUCTURE SCHEDULE							
STR. NO.	STATION	OFFSET	STRUCTURE TYPE	ELEV. TOP OF STRUCTURE	INVERT IN	INVERT OUT	HOWARD CO. STD. NO.
I-6-1	1416+21.21	19.00' LT.	COG-15	451.4	---	447.2	SHA MD-374.62
I-6-2	1418+97.09	19.00' LT.	COG-15	441.4	---	436.8	SHA MD-374.62
I-6-3	1420+01.03	**22.33' LT.	D INLET	437.5	---	434.5	SD-4.39
EX-6-4	1416+29.82	23.53' RT.	---	---	445.0	---	---
EX-6-5	1419+29.84	17.87' RT.	---	---	435.1	---	---
MH-6-6	1420+09.10	14.80' RT.	5'-0" MANHOLE	435.5	431.2 NW 430.5 SW	430.4	G-5.13

- ** OFFSET IS MEASURED TO THE CENTER OF THE STRUCTURE
- * REDUCE MINIMUM DISTANCE OF TOP SLAB TO CROWN OF PIPE FROM 18' TO 12'

SHEET NO. PS-6 OF PS-7

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

John M. ... 1/29/03
 DIRECTOR OF PUBLIC WORKS DATE

Richard ... 1/27/03
 CHIEF, BUREAU OF ENGINEERING DATE

... 1/24/03
 CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

... 1-10-03
 CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC
 A Dewberry & Davis Company
 3120 Lord Baltimore Drive, Suite #211
 Baltimore, Maryland 21244
 (410) 265-8500 FAX (410) 265-8875

Engineers
 Planners
 Surveyors
 Landscape Architects



DES:	
DRN:	
CHK:	
DATE:	BY NO. REVISION DATE

CAPITAL PROJECT NO.

J-4158.B

NO.: _____ DATE: 3-1-02

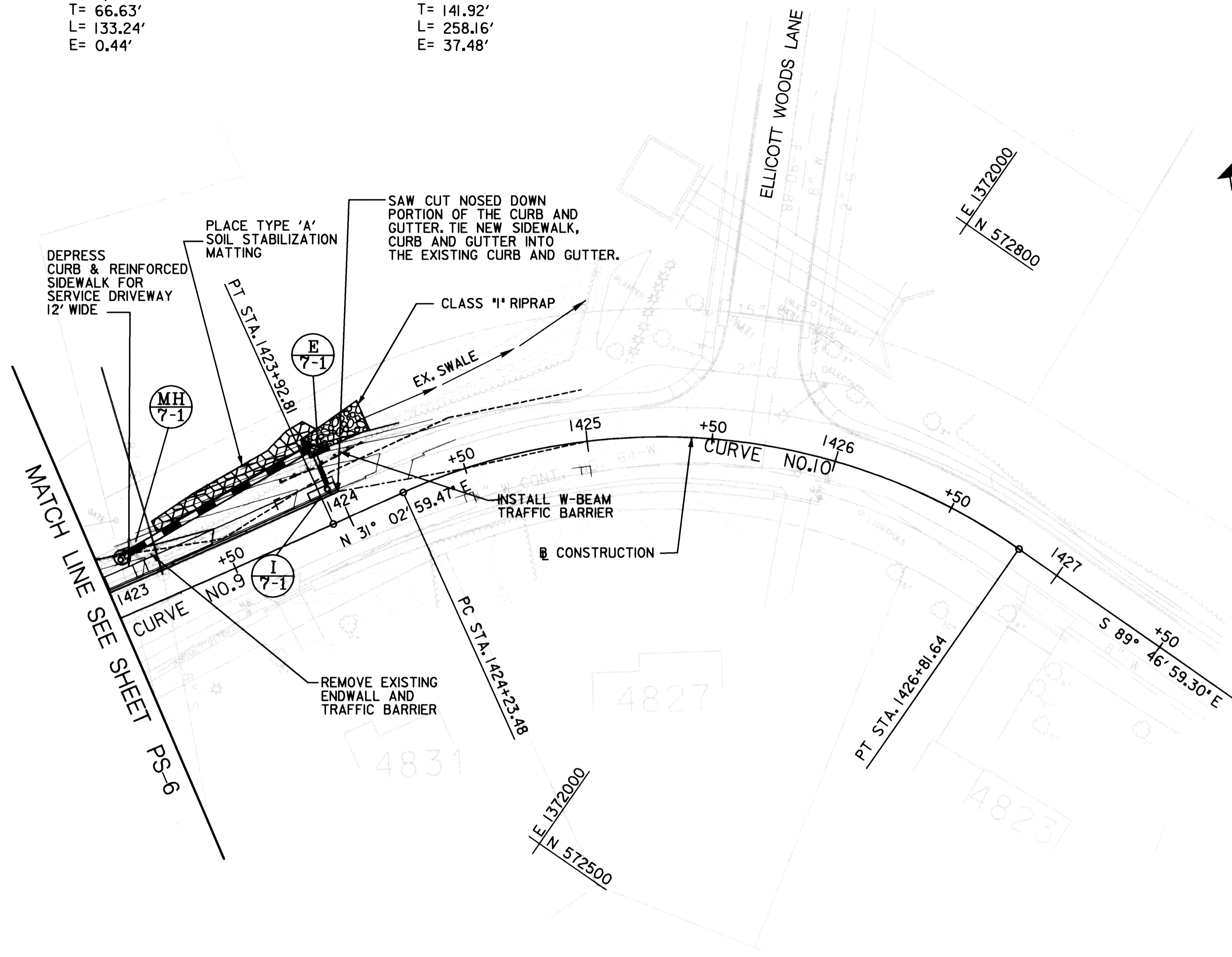
ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE:
 1"=30'

SHEET
 9 OF 25

CURVE - NO.9
P.I. STA. = 1423+26.20
 $\Delta = 1^\circ 31' 36.64''$ LT.
Dc = $1^\circ 08' 45.30''$
R = 5,000.00'
T = 66.63'
L = 133.24'
E = 0.44'

CURVE - NO.10
P.I. STA. = 1425+65.40
 $\Delta = 59^\circ 10' 01.22''$ RT.
Dc = $22^\circ 55' 05.92''$
R = 250.00'
T = 141.92'
L = 258.16'
E = 37.48'



WORTHINGTON WAY CONSTRUCTION POINTS			
STATION	OFFSET	ELEV.	ITEM
1423+92.81	12.00' LT.	423.16	PT
1424+03.00	12.00' LT.	422.94	END OF WORK

DEPRESSED REINFORCED SIDEWALK			
LOCATION	STATION	SIDE	QTY (SY)
WORTHINGTON WAY	1423+06.68	LT.	7

WORTHINGTON WAY - ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
PI	1423+26.20	572,500.9850	1,371,825.5700
PT	1423+92.81	572,558.0640	1,371,859.9342
PC	1424+23.48	572,584.3335	1,371,875.7496
PI	1425+65.40	572,705.9230	1,371,948.9520
PT	1426+81.64	572,705.3858	1,372,090.8756

DRAINAGE PIPE SCHEDULE			
STR. TO STR.	SIZE	TYPE	LENGTH *
I-7-1 TO E-7-1	15"	RCP	16'
MH-7-1 TO E-7-1	30" ϕ	RCP	88'

* LENGTH MEASURED FROM CENTER TO CENTER OF STRUCTURE

CONCRETE SIDEWALK - STD. NO. R-3.05	
STA. 1423+00.00, LT. TO STA. 1424+00.00, LT.	WORTHINGTON 440 S.F.

STANDARD 7' COMBINATION CURB AND GUTTER - STD. NO. R-3.01	
STA. 1423+00.00, LT. TO STA. 1423+89.00, LT.	WORTHINGTON 89 L.F.

TRAFFIC BARRIER W-BEAM - STD. NO. R-7J2	
CENTER OF BARRIER STA. 1423+95.45, LT.	WORTHINGTON 33 L.F.

DRAINAGE STRUCTURE SCHEDULE							
STR. NO.	STATION	•• OFFSET	STRUCTURE TYPE	TOP OF STRUCTURE	INVERT IN	INVERT OUT	HOWARD CO. STD. NO.
MH-7-1	1423+17.22	22.78' LT.	5'-0" MANHOLE	425.0	---	420.8	G-5.13
I-7-1	1423+94.47	13.75' LT.	A-10 INLET	423.7	---	418.5	SD-4.41
E-7-1	1423+95.45	32.00' LT.	TYPE 'H' ENDWALL	420.3	$\frac{418.0}{45.8}$	---	SHA MD -362.01

•• OFFSET IS MEASURED TO THE CENTER OF THE STRUCTURE

LEGEND

- CONCRETE SIDEWALK/ENTRANCE
- RIP RAP OUTFALL PROTECTION
- TYPE 'A' SOIL STABILIZATION MATTING

CONSTRUCTION NOTES:

1. ALL MAILBOXES DISTURBED DURING CONSTRUCTION ARE TO BE RESET.
2. ALL NEW DRIVEWAY ENTRANCES TO MATCH EXISTING WIDTH AS SHOWN AT RIGHT-OF-WAY LINE
3. ALL MEASUREMENTS TAKEN TO FACE OF CURB.

SHEET NO. PS-7 OF PS-7

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Shavar 9/12/05
DIRECTOR OF PUBLIC WORKS DATE

Willie R. Hall 9-12-05
CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC Engineers
A Dewberry & Davis Company Planners
3120 Lord Baltimore Drive, Suite #211 Surveyors
Baltimore, Maryland 21244 Landscape
(410) 265-9500 FAX(410) 265-8875 Architects



DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

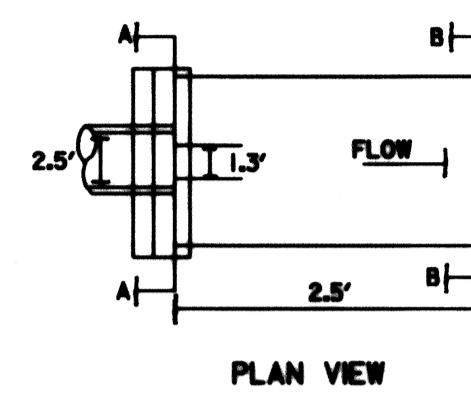
CAPITAL PROJECT NO.
J-4158.B

NO.: _____ DATE: 3-1-02

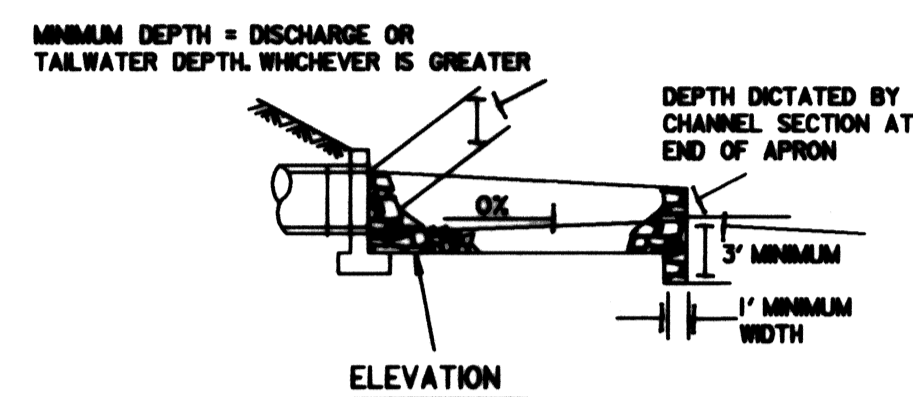
ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE:
1"=30'

SHEET
10 OF 25

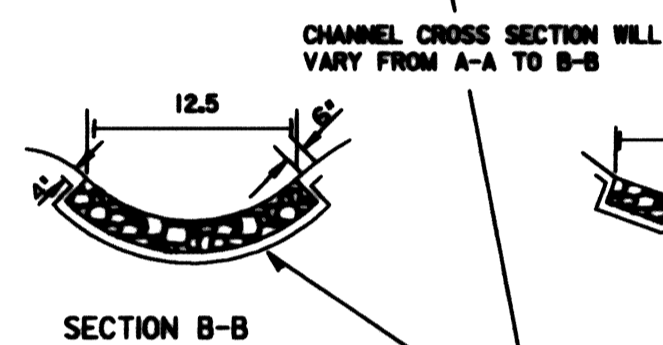


PLAN VIEW

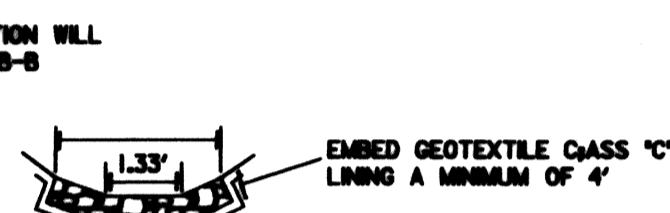


ELEVATION

NOTE: FILTER CLOTH MUST EXTEND A MINIMUM OF 6' BEYOND APRON AND SIDES



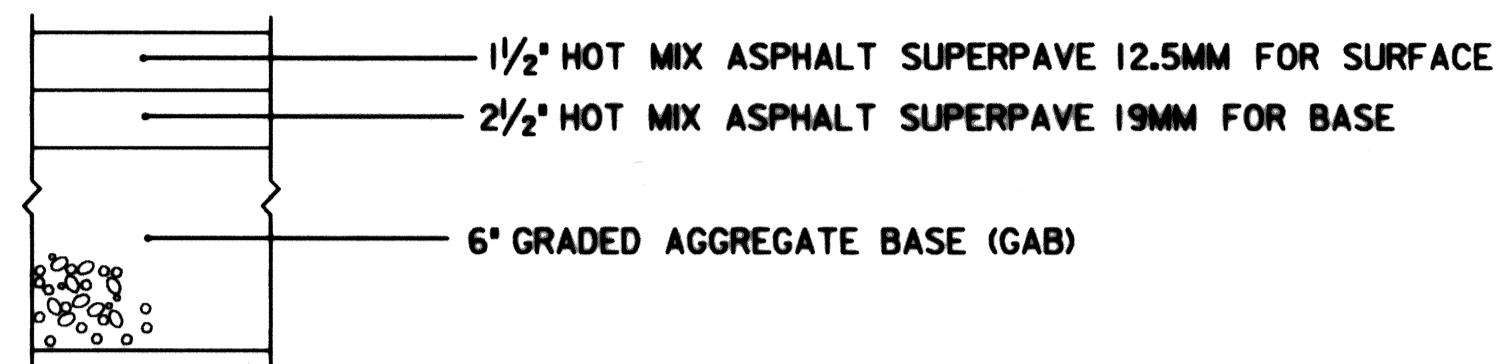
SECTION B-B



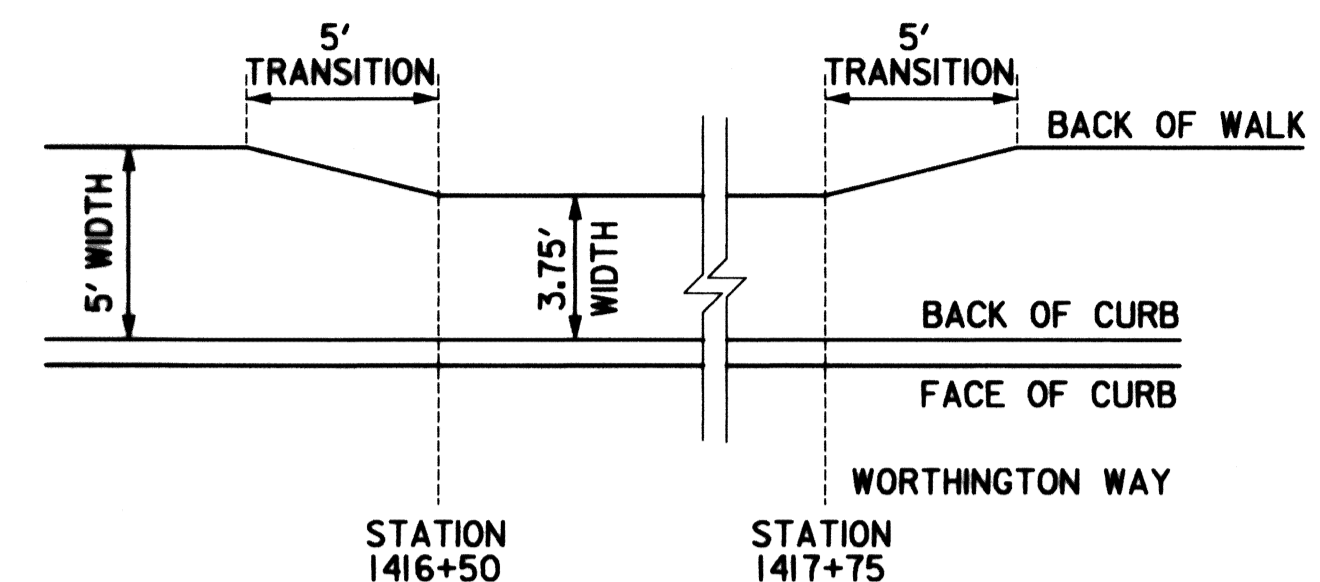
SECTION A-A

NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

ROCK OUTLET PROTECTION



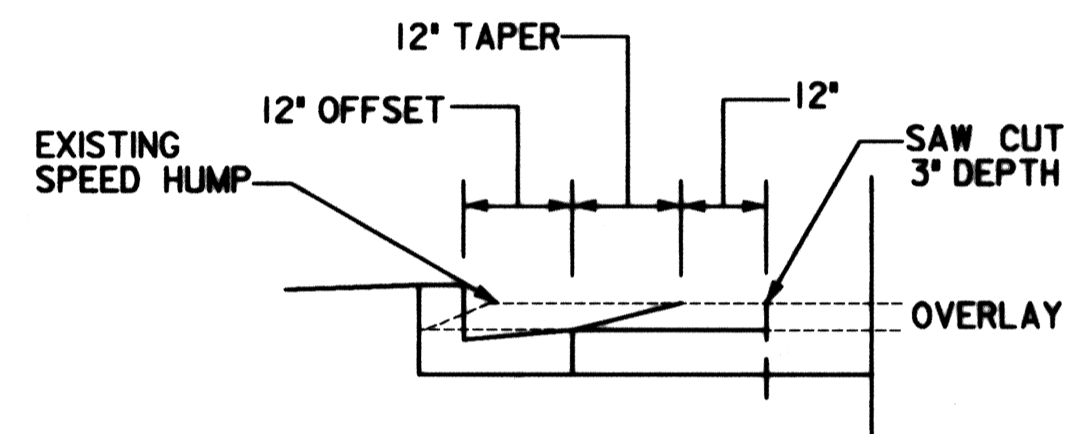
P-2 PAVING SECTION
(GRANULAR BASE ALTERNATIVE)



PLAN VIEW

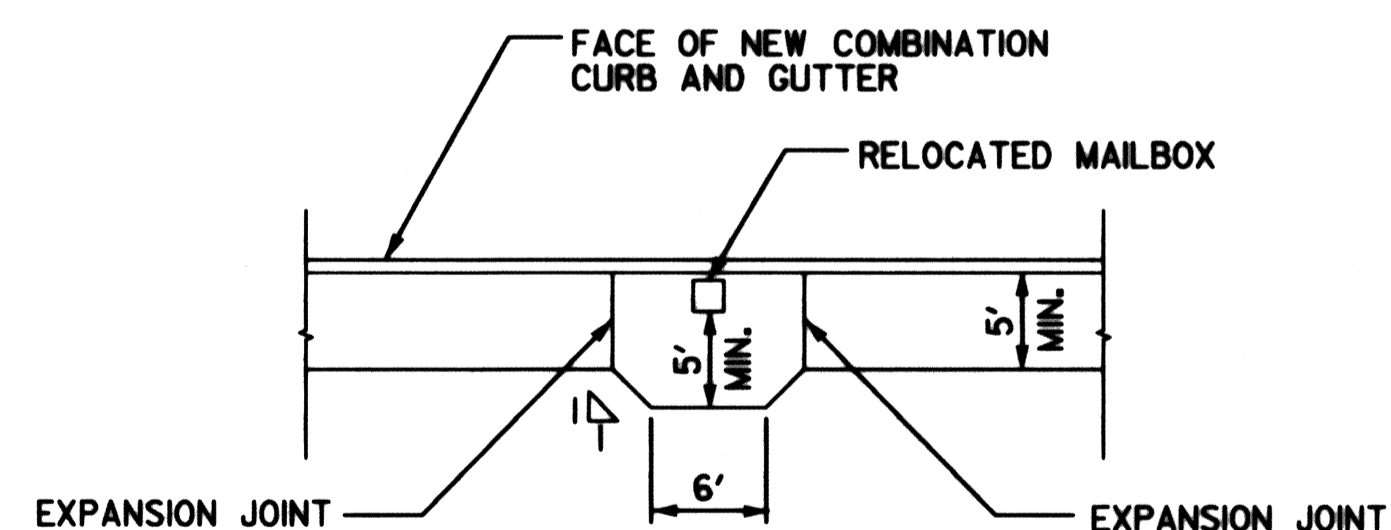
WORTHINGTON WAY SIDEWALK DETAIL

SCALE: N.T.S.

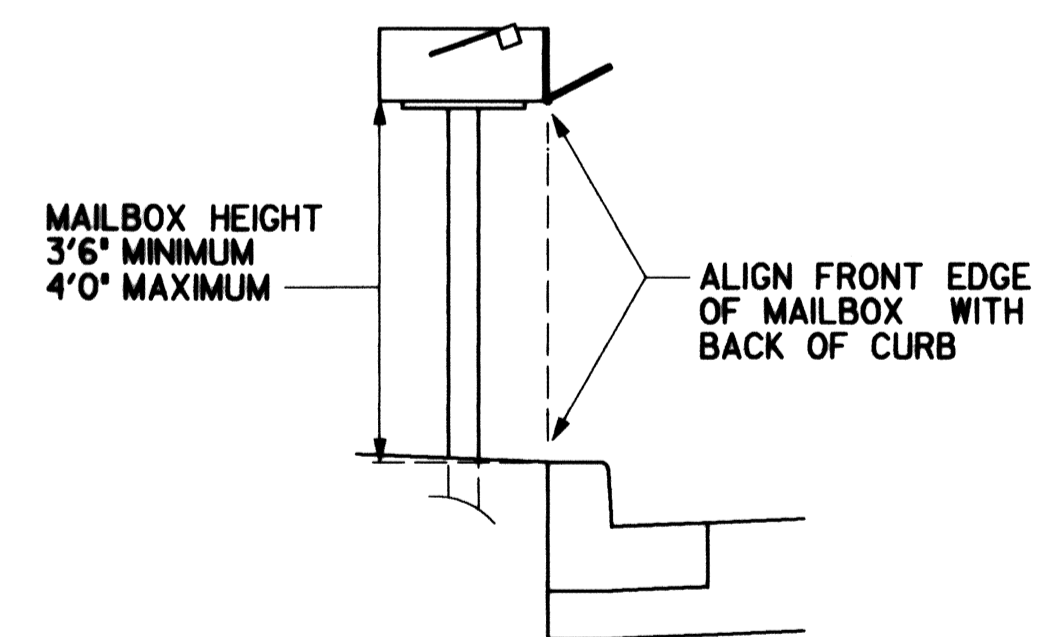


SPEED HUMP TREATMENT AT CURB
(PCC CURB)

SCALE: N.T.S.






PLAN - RELOCATED MAILBOX



MAILBOX PLACEMENT

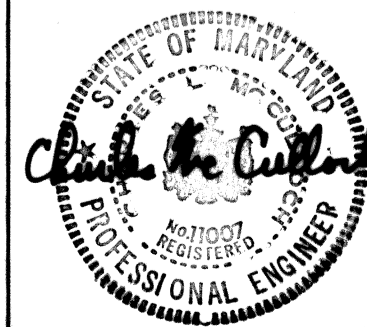
SCALE: N.T.S.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

 1/29/03 DATE
 1/27/03 DATE
 1-29-03 DATE

Dewberry & Davis LLC
 A Dewberry & Davis Company
 3120 Lord Baltimore Drive, Suite #211
 Baltimore, Maryland 21244
 (410) 205-0500 FAX (410) 205-8875

Engineers
 Planners
 Surveyors
 Landscape
 Architects



DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.

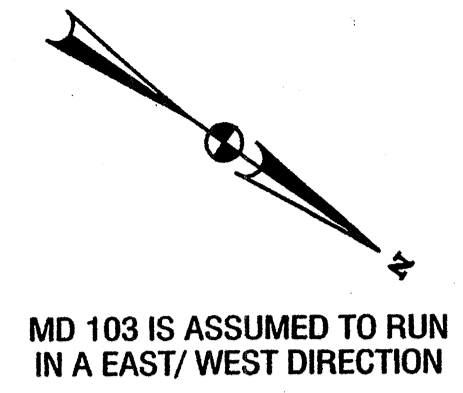
J-4158.B

NO.: _____ DATE: 3-1-02

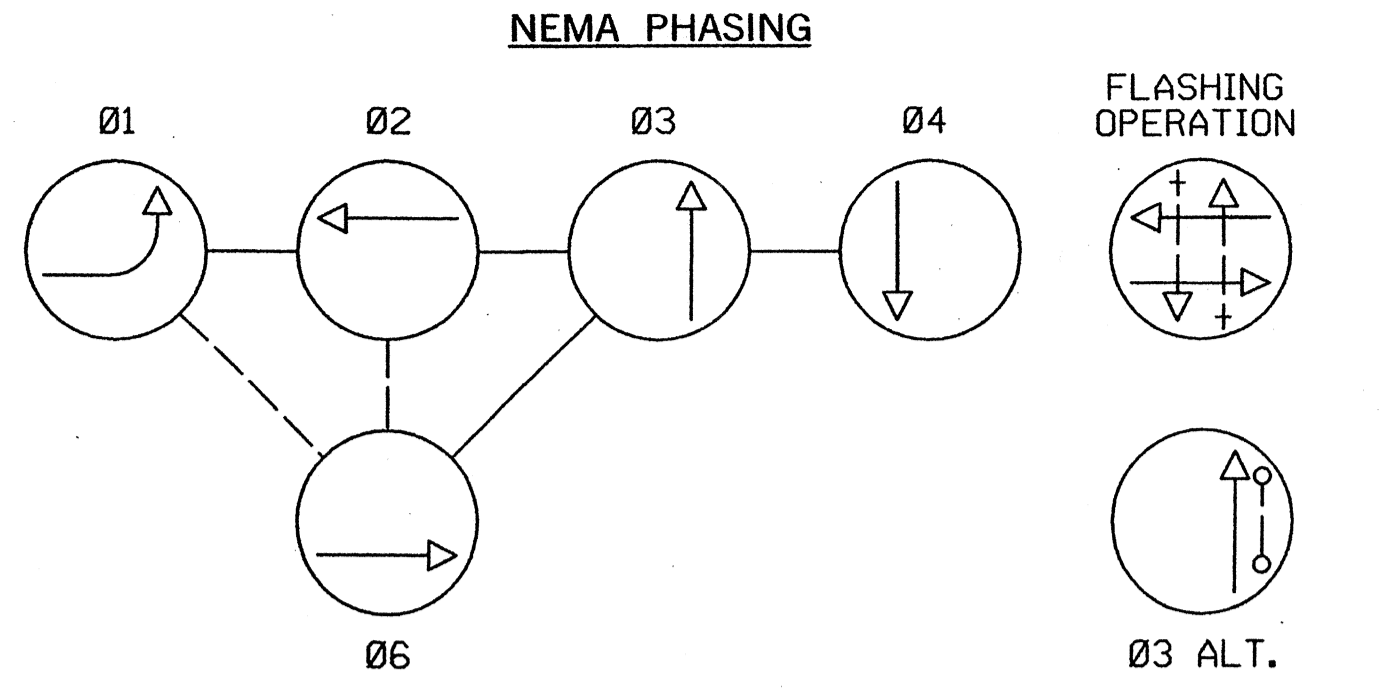
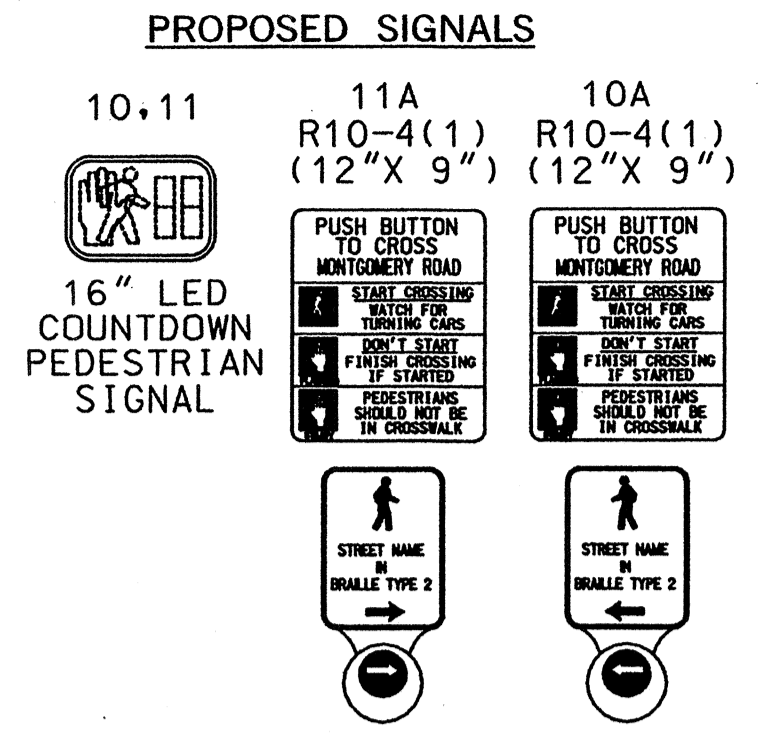
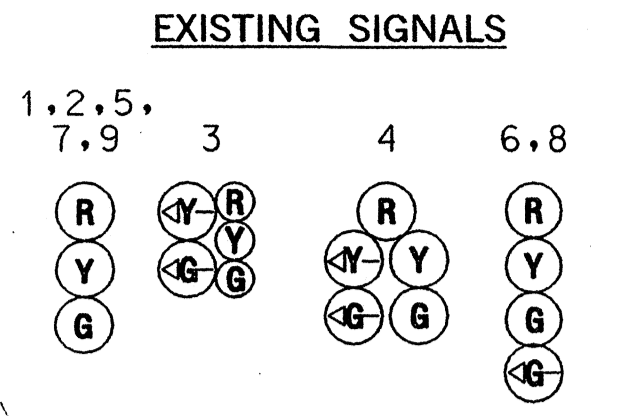
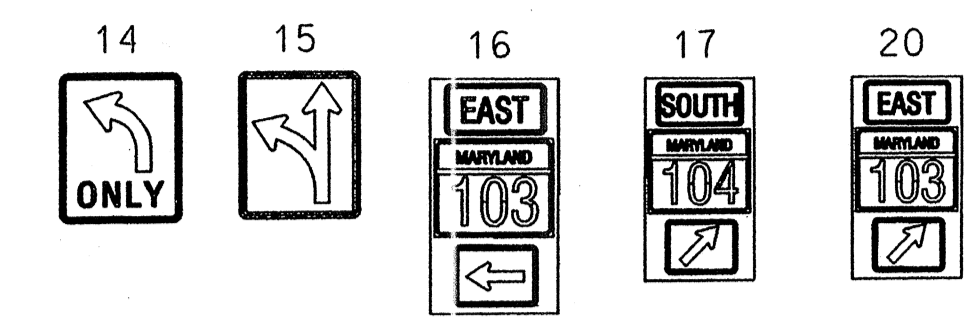
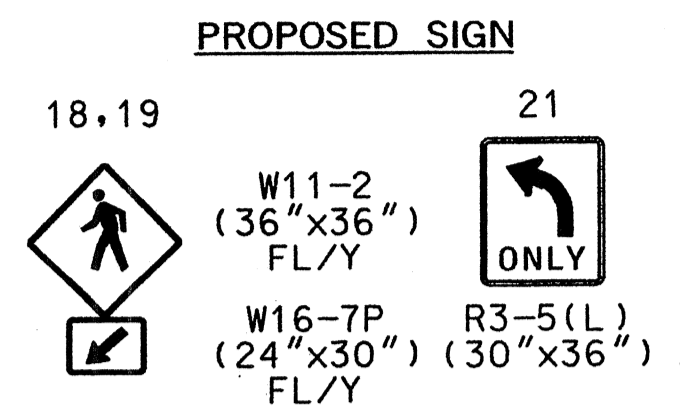
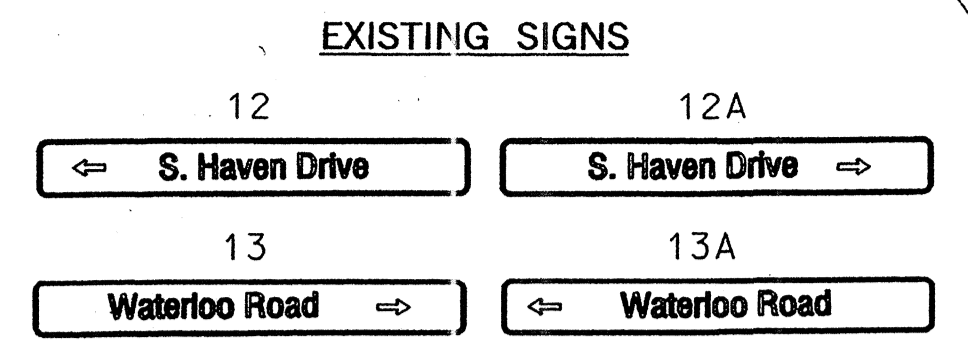
ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE:
1"=30'

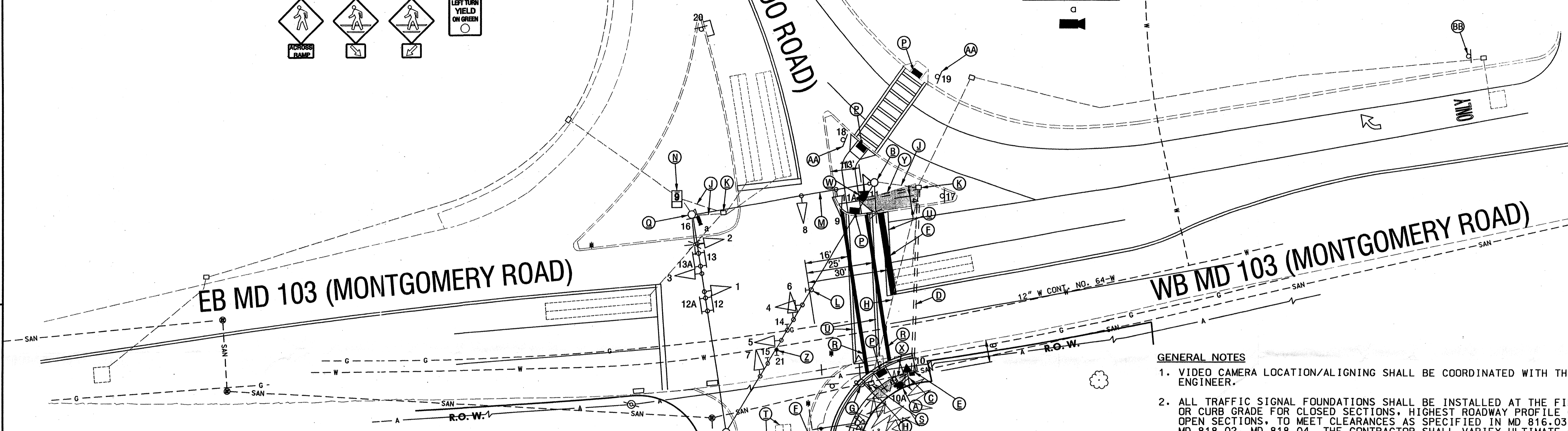
SHEET
13 OF 25



MD 103 IS ASSUMED TO RUN IN A EAST/WEST DIRECTION



NOTE: PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY. PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.



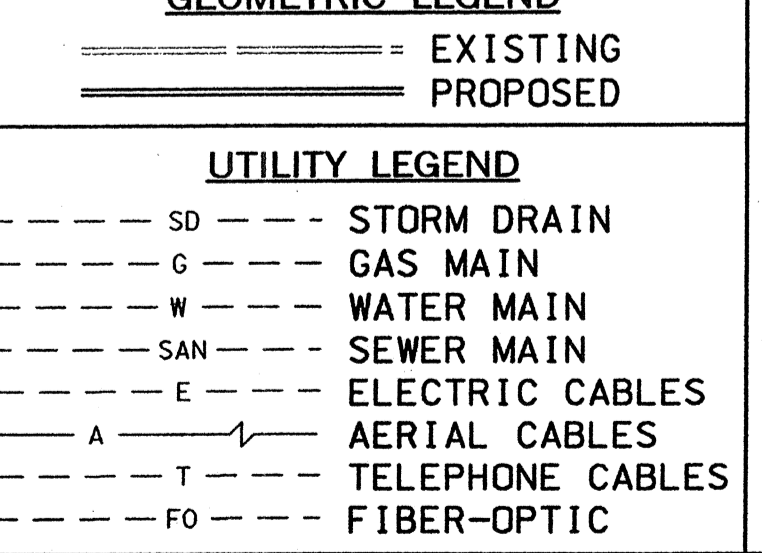
GENERAL NOTES

1. VIDEO CAMERA LOCATION/ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS. HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO INSTALLATION OF ALL SIGNAL EQUIPMENT.
3. ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MISS UTILITY PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN UTILITIES AND TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABEL EACH CABLES END.

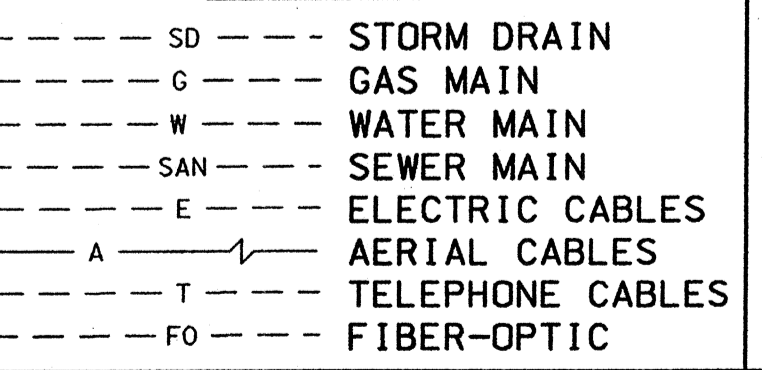
CONSTRUCTION DETAILS:

- INSTALL CONCRETE FOUNDATION WITH 10 FT. STEEL PEDESTAL POLE AND BREAKAWAY BASE WITH COUNTDOWN PEDESTRIAN SIGNAL HEAD SECTION R10-4(1) SIGN AND **APS** PUSHBUTTON STATION WITH BLACK FACE PLATE OPTION "A" SIGN WITH INTERNATIONAL BRAILLE ON FACE PLATE. (NOTE: ONE 3 IN. PVC SCHEDULE 80 CONDUIT BEND).
- REMOVE EXISTING PEDESTRIAN SIGNAL HEAD AND PUSHBUTTON FROM STRAIN POLE. INSTALL NEW COUNTDOWN PEDESTRIAN SIGNAL HEAD SECTION AND MOUNTING HARDWARE TO EXISTING STRAIN POLE AS SHOWN ON PLAN.
- INSTALL 3 IN. PVC SCHEDULE 80 ELECTRICAL CONDUIT - TRENCHED.
- INSTALL 4 IN. PVC SCHEDULE 80 ELECTRICAL CONDUIT - BORED.
- INSTALL HANDHOLE.
- INSTALL 24 IN. HEAT APPLIED, WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING FOR STOP BAR.
- REMOVE EXISTING POLE AND FOUNDATION 12 IN. BELOW GRADE AND BACKFILL.
- CAP AND ABANDON EXISTING CONDUIT.
- USE EXISTING CONDUIT.
- USE EXISTING HANDHOLE.
- REMOVE EXISTING SIGN FROM SPAN WIRE.
- USE EXISTING SPAN WIRE.
- USE EXISTING CABINET.
- INSTALL DETECTABLE WARNING SURFACE.
- USE EXISTING STRAIN POLE. INSTALL OVERHEAD VIDEO DETECTION CAMERA TO STRAIN POLE AS SHOWN ON PLAN.
- INSTALL 12 IN. HEAT APPLIED, WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING FOR CROSSWALK.
- REMOVE EXISTING HANDHOLE 12 IN. BELOW GRADE AND BACKFILL.
- ABANDON EXISTING LOOPS DETECTOR. DISCONNECT AND REMOVE EXISTING LOOP DETECTOR CABLE FROM CONDUIT, HANDHOLES AND CONTROLLER.
- REMOVE EXISTING PAVEMENT MARKINGS.
- INSTALL 5 IN. HEAT APPLIED, WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING FOR LANE LINE.
- INSTALL CONCRETE FOUNDATION WITH 10 FT. STEEL PEDESTAL POLE WITH BREAKAWAY BASE (CUT DOWN TO 4 FT.) AND R10-4(1) SIGN AND **APS** PUSHBUTTON STATION WITH BLACK FACE PLATE OPTION "A" SIGN WITH INTERNATIONAL BRAILLE ON FACE PLATE. (NOTE: ONE 3 IN. PVC SCHEDULE 80 CONDUIT BEND).
- INSTALL 4 IN. CONCRETE SIDEWALK.
- REMOVE EXISTING CONCRETE BLOCKS, INSTALL 3 IN. PVC SCHEDULE 80 CONDUIT - TRENCHED. THEN REPLACE CONCRETE.
- USE EXISTING SPAN WIRE AND INSTALL R3-5(L) SIGN AS SHOWN.
- REMOVE EXISTING SIGNS FROM POST AND REPLACE WITH NEW W11-2 AND W16-7P SIGNS AS SHOWN ON PLAN.
- REMOVE EXISTING SIGN AND SIGN POST COMPLETELY.

GEOMETRIC LEGEND



UTILITY LEGEND



SABRA, WANG & ASSOCIATES, INC.
 1504 JOH AVENUE
 SUITE 100
 BALTIMORE, MD 21227
 (410) 737-8584
 WWW.SABRA-WANG.COM

APPROVALS	REVISIONS
<p>TEAM LEADER, TRAFFIC ENGINEERING DIVISION</p> <p>ASSIST. CHIEF TRAFFIC ENGINEERING DIVISION</p> <p>CHIEF TRAFFIC ENGINEERING DIVISION</p> <p>DIRECTOR, OFFICE OF TRAFFIC & SAFETY</p>	<p>COUNTY GEOMETRIC CHANGE HOWARD CO. No. J-4158 SHA No. _____</p> <p>E AS BUILT: INSTALL PEDESTRIAN SIGNALS ON WEST LEG OF MD 103 SHA NO. 07-1999-1</p> <p>D INSTALL WB EP LEFT TURN PHASE</p>

TRAFFIC SIGNAL PLAN	
SCALE 1"=20'	DATE 05-31-79 CONTRACT NO. 23855T2508333
DESIGNED BY _____ COUNTY HOWARD	LOGMILE 13010304.26
DRAWN BY B. THOMPSON	T.I.M.S. NO. F601
CHECKED BY T. HANNAN	TOD NO. _____
F.A.P. NO. _____	
TS NO. 1520F	DRAWING PSG OF N001 SHEET NO. 14 OF 25

PLOTTED: Wednesday, March 22, 2006 at 12:05 PM
 FILE: ps6-p00copyforctas_md104.dgn

FILE# 99-22-04

PROJECT DESCRIPTION
GENERAL

THIS PROJECT INVOLVES THE MODIFICATION OF AN EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF MD 104 (WATERLOO ROAD)/ SOUTH HAVEN DRIVE AT MD 103 (MONTGOMERY ROAD) FOR THE WORTHINGTON AREA VEHICULAR ACCESS IN HOWARD COUNTY. THE MODIFICATION INVOLVES ADDING ALTERNATE COUNTDOWN PEDESTRIAN SIGNALS AND ACCESSIBLE PEDESTRIAN SIGNALS (APS) FOR THE WEST LEG CROSSING OF MD 103 (MONTGOMERY ROAD). THE SIDE STREET PRESENCE LOOP FOR SOUTH HAVEN DRIVE SHALL BE ABANDONED AND NEW OVERHEAD VIDEO DETECTION CAMERA SHALL BE INSTALLED FOR ACTUATION OF THE NEW LEFT TURN AND THRU MOVEMENTS.

INTERSECTION OPERATION

USE EXISTING CONTROLLER HOUSED IN A BASE MOUNTED CABINET AT THIS LOCATION. THE INTERSECTION OPERATES IN A FULLY ACTUATED MODE USING 5 NEMA PHASES. A MODIFICATION TO THE GEOMETRIC WIDENING ON THE NORTH SIDE OF THE INTERSECTION FOR NEW HAVEN DRIVE SHALL OCCUR. NEW LED COUNTDOWN PEDESTRIAN SIGNAL HEADS WITH APS SHALL BE INSTALLED FOR THE WEST LEG CROSSING OF MD 103 (MONTGOMERY ROAD) AND A VIDEO DETECTION CAMERA SHALL BE INSTALLED FOR PRESENCE DETECTION FOR THE SIDE STREET OF SOUTH HAVEN DRIVE.

SPECIAL NOTES

1. THE FOLLOWING CONTACT PERSONS FOR THIS PROJECT ARE AS FOLLOWS:

PROJECT CONTACTS:

- MR. JOHN CANNON, ASSISTANT DISTRICT ENGINEER - TRAFFIC
PHONE: (301) 624-8141
- MR. ERIC ECKHARDT, ASSISTANT DISTRICT ENGINEER - CONSTRUCTION
PHONE: (301) 624-8200/8201
- MR. RAYMOND F. JOHNSON, ASSISTANT DISTRICT ENGINEER - MAINTENANCE
PHONE: (301) 624-8105/6
- MRS. ANDREA ABEND, DISTRICT UTILITIES ENGINEER
PHONE: (301) 624-8115/6
- MR. ROBERT SNYDER, ASSISTANT DIVISION CHIEF OF TRAFFIC OPERATIONS DIVISION - TELEPHONE DROP
PHONE: (410) 781-7631
OFFICE OF TRAFFIC AND SAFETY
- MR. RICHARD L. DAFF, SR. CHIEF, TRAFFIC OPERATIONS DIVISION
PHONE: (410) 787-7630
- MR. ED RODENHIZER (SIGNAL OPERATIONS)
PHONE: (410)-787-7658
- MR SONNY BAILEY (SIGN OPERATIONS)
PHONE: (410)-7877670

EQUIPMENT LIST

A. EQUIPMENT TO BE SUPPLIED BY THE ADMINISTRATION.

CATEGORY CODE NO.	DESCRIPTION	UNITS	QUANTITY
900000	VIDEO DETECTION INTERFACE EQUIPMENT: 1-4 CAMERAS	EA	1
973023	SHEET ALUMINUM SIGNS	SF	38
	R3-5(L)(30"x36") SPAN WIRE MOUNTED	EA	1
	R10-4(1) (9"x12") POLE MOUNTED	EA	2
	W11-2 (36"x36") GROUND MOUNTED	EA	2
	W16-7P (24"x30") GROUND MOUNTED	EA	2

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

CATEGORY CODE NO.	DESCRIPTION	UNITS	QUANTITY
203030	TEST PIT EXCAVATION	CY	1
585405	5 INCH HEAT APPL. WHITE PERMANENT PREFORMED THERMO. PAVEMENT MARKING	LF	75
585620	12 INCH HEAT APPL. WHITE PERMANENT PREFORMED THERMO. PAVEMENT MARKING	LF	145
585654	24 INCH HEAT APPL. WHITE PERMANENT PREFORMED THERMO. PAVEMENT MARKING	LF	45
585462	REMOVAL OF EXISTING PERMANENT PAVEMENT LINE MARKINGS ANY WIDTH	LF	170
600000	REMOVAL OF EXISTING CONCRETE	SF	175
655104	4 INCH CONCRETE SIDEWALK	SF	230
655120	DETECTABLE WARNING SURFACE FOR CURB RAMPS	SF	32
800000	REMOVE AND DISPOSE OF EXISTING EQUIPMENT	LS	1
800000	NAVIGATOR AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION & SIGN	EA	2
800000	16 INCH PEDESTRIAN LED COUNTDOWN SIGNAL HEAD SECTION - POLE MOUNT	EA	2
800000	NAVIGATOR 2 WIRE CENTRAL CONTROL UNIT	EA	1
800000	CONTROL CABLE, 100 FOOT VIDEO DETECTION CAMERA TO CONTROLLER	EA	1
801004	CONCRETE FOR SIGNAL FOUNDATION	CY	2
802501	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	125
805118	4 INCH SCHED. 80 PVC CONDUIT-BORED	LF	70
805135	3 INCH SCHED. 80 PVC CONDUIT-TRENCHED	LF	35
811001	FURNISH AND INSTALL ELECTRICAL HANDHOLE	EA	1
813014	INSTALL GROUND MOUNTED SIGN	SF	28
813015	INSTALL OVERHEAD SIGN	SF	10
816001	VIDEO DETECTION CAMERA	EA	1
818004	10 FOOT BREAKAWAY PEDESTAL POLE	EA	2
837001	GROUND ROD - 3/4 INCH DIA. X 10 FOOT LENGTH	EA	2
860292	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE	EA	1
861105	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	470
861107	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	440

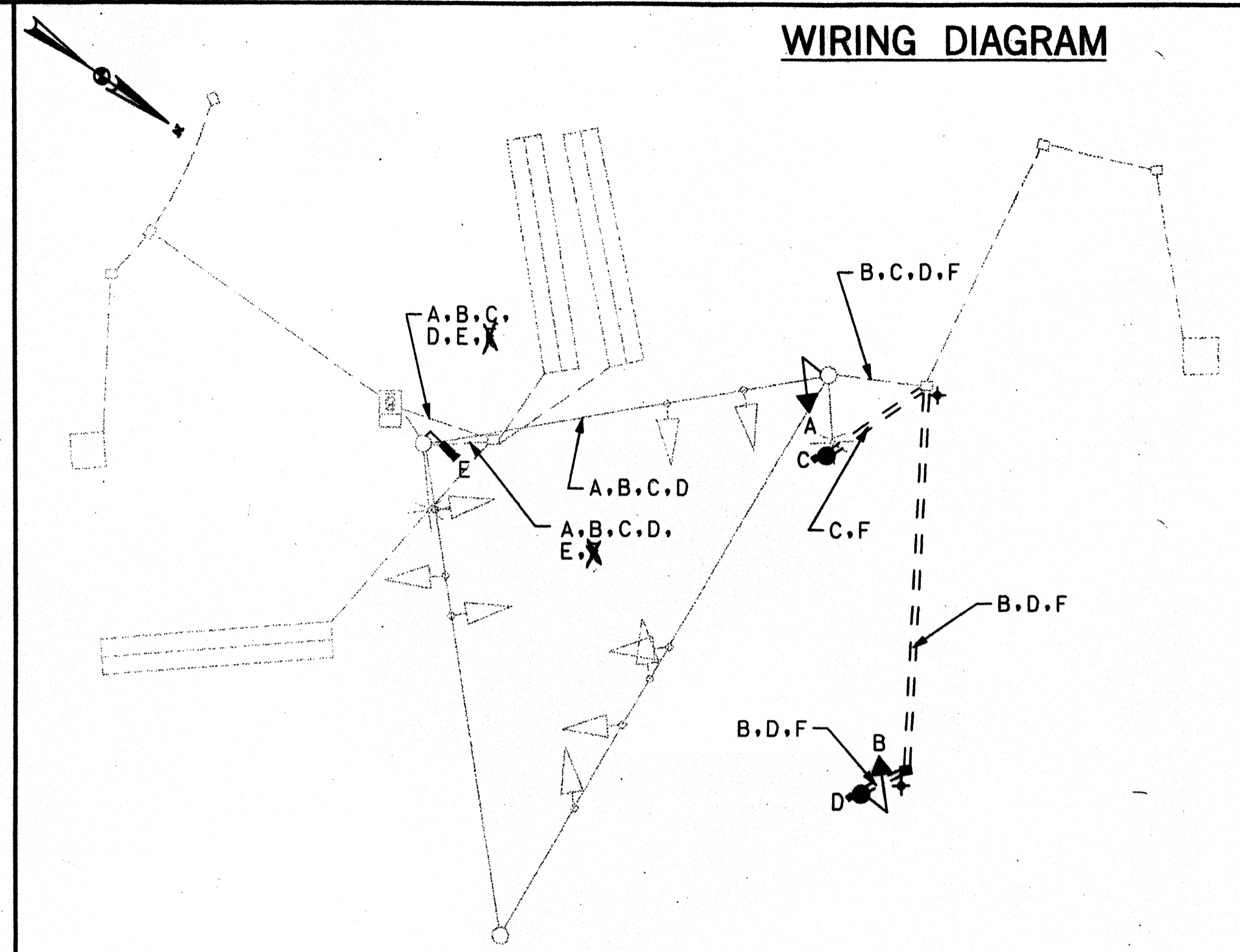
NOTE:

THE CONTRACTOR SHALL DELIVER APS UNIT TO SHA SIGNAL SHOP, PRIOR TO LOCATION INSTALLATION, FOR PROGRAMMING. SHA FORCES SHALL INSTALL CENTRAL CONTROL UNIT IN THE CABINET.

C. SHA FORCES SHALL REMOVE THE CONTROLLER AND ALL AUXILIARY EQUIPMENT FROM THE CONTROLLER CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

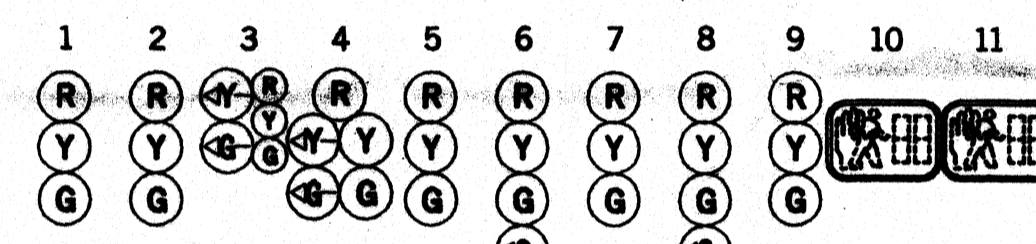
CATEGORY CODE NO.	DESCRIPTION	UNITS	QUANTITY
NONE	NONE		

WIRING DIAGRAM



- KEY**
- A } 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
 - B } 2 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
 - C } VIDEO DETECTION CABLE
 - D } 1 CONDUCTOR (NO. 6 AWG) STRANDED COPPER GROUND WIRE
 - + } GROUND ROD

PHASE CHART

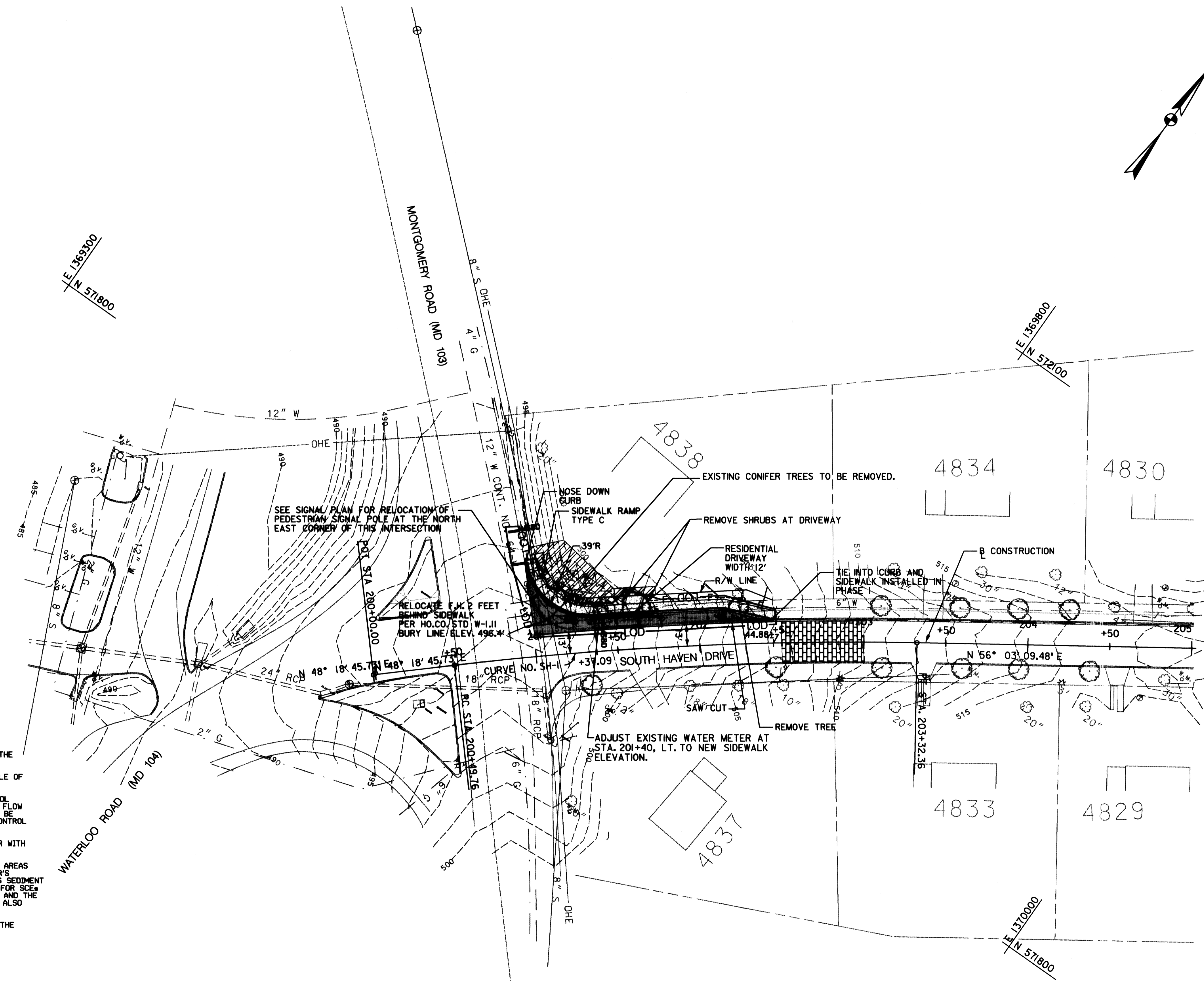
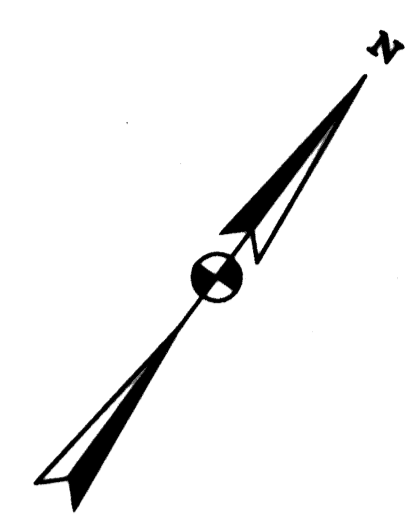


PHASE	1	2	3	4	5	6	7	8	9	10	11
PHASE 1 AND 6	R	R	+GG	+GG	G	R	R	R	R	DW	DW
1 AND 6 CHANGE	R	R	+VG	+VG	G	R	R	R	R	DW	DW
PHASE 2 AND 6	G	G	G	G	G	R	R	R	R	DW	DW
2 AND 6 CHANGE	Y	Y	Y	Y	Y	R	R	R	R	DW	DW
PHASE 3	R	R	R	R	R	R	R	G	G	DW	DW
3 CHANGE	R	R	R	R	R	R	R	Y	Y	DW	DW
PHASE 3 ALT	R	R	R	R	R	R	R	G	G	WK	WK
PED CLEARANCE	R	R	R	R	R	R	R	G	G	FLDW	FLDW
3 ALT CHANGE	R	R	R	R	R	R	R	Y	Y	DW	DW
PHASE 4	R	R	R	R	R	G	G	R	R	DW	DW
4 CHANGE	R	R	R	R	R	Y	Y	R	R	DW	DW
FLASHING OPERATION	FLY	FLY	FLY	FLY	FLY	FLR	FLR	FLR	FLR	DARK	DARK

SHA STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION
MD 103 (MONTGOMERY ROAD) AND MD 104 (WATERLOO ROAD)/SOUTH HAVEN DRIVE
ELLICOTT CITY, MARYLAND

GENERAL INFORMATION PLAN
SCALE NONE DATE 3/06 CONTRACT NO. _____
DESIGNED BY S. SMITH COUNTY HOWARD
DRAWN BY D. BROWN LOGMILE 13010304.26
CHECKED BY S. RENZI TMS NO. F801
FAP NO. _____ TOD NO. _____
TS NO. TS-1520P DRAWING PSG OF N001 SHEET NO. 18 OF 25

SABRA, WANG & ASSOCIATES, INC.
1604 JOHNS AVENUE
SUITE 100
BALTIMORE, MD 21287
(410) 737-6664
WWW.SABRA-WANG.COM



LEGEND

- CONCRETE SIDEWALK/ENTRANCE
- ASPHALT PAVEMENT
- STAMPED ASPHALT PAVEMENT
- TEMPORARY CONSTRUCTION STRIP

SEDIMENT CONTROL CONSTRUCTION NOTES:

1. SEE SHEET ES-8 OF ES-10 FOR SEDIMENT CONTROL LEGEND.
2. ALL DISTURBED AREAS TO BE STABILIZED AT THE END OF EACH DAY.
3. STABILIZED CONSTRUCTION ENTRANCE LOCATIONS ARE TO BE DETERMINED BY THE CONTRACTOR AND THE COUNTY INSPECTOR.
4. THE MODIFIED STRAW BALE DIKES SHOWN ON THE PLANS ARE FOR AN EXAMPLE OF PLACEMENT ALONG THE CONSTRUCTION AREAS.
5. INSTALLATION OF THE MSBD SHALL NOT INTERFERE WITH THE TRAFFIC CONTROL MEASURES NECESSARY FOR THE CONTRACTOR TO MAINTAIN ADEQUATE TRAFFIC FLOW AROUND THE JOB SITE. PHASING OF CONSTRUCTION ALONG HARMEL DRIVE WILL BE NECESSARY IN ORDER FOR THE SEDIMENT CONTROL MEASURES AND TRAFFIC CONTROL PLANS TO WORK EFFICIENTLY.
6. PORTABLE SEDIMENT TANK LOCATIONS TO BE DETERMINED BY THE CONTRACTOR WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR.
7. DUE TO THE CONSTRAINTS OF THE CONSTRUCTION SITE, STAGING & STOCKPILE AREAS AND STABILIZED CONSTRUCTION ENTRANCES (SCE) ARE NOT SHOWN. CONTRACTOR'S RESPONSIBLE FOR LOCATING THEIR STAGING AND STOCKPILE AREAS, INSTALLING SEDIMENT CONTROL MEASURES AND GETTING SEDIMENT INSPECTOR APPROVAL. LOCATIONS FOR SCE WILL BE DETERMINED IN THE FIELD AS APPROVED BY THE PROJECT ENGINEER AND THE SEDIMENT INSPECTOR. ANY CHANGES TO THE LOD SHOWN ON THE PPLANS WILL ALSO REQUIRE APPROVAL BY THE SEDIMENT INSPECTOR.
8. SPOIL FROM TRENCH EXCAVATION SHALL BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION.

SEDIMENT CONTROL PLAN SHEET NO. ES-1 OF ES-10

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 1/29/03
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 1/27/03
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 1/29/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

[Signature] 1-29-03
CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC
A Dewberry & Davis Company

Engineers Planners
Surveyors Landscape Architects

3130 Lord Baltimore Drive, Suite #211
Baltimore, Maryland 21244
(410) 265-9500 FAX (410) 265-9875



DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J-4158.B

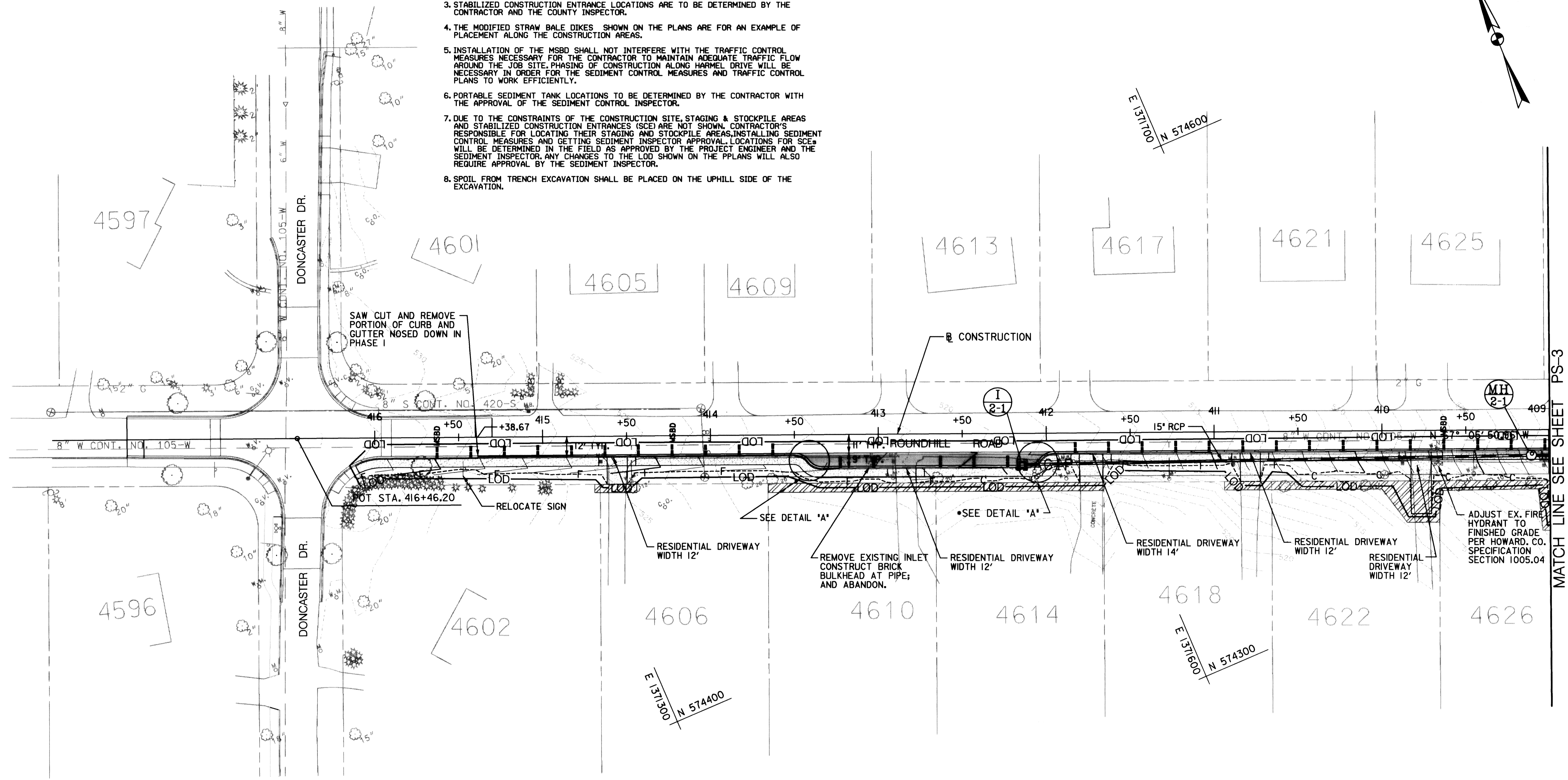
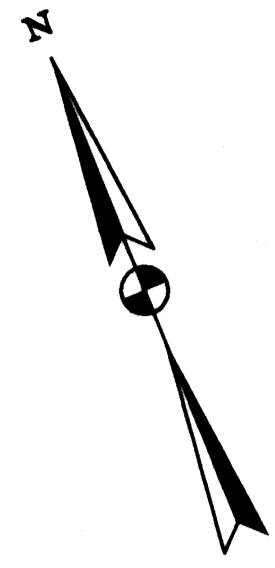
NO.: _____ DATE: 3-1-02

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE: 1"=30'
SHEET 16 OF 25

SEDIMENT CONTROL CONSTRUCTION NOTES:

1. SEE SHEET ES-8 FOR ES-10 FOR SEDIMENT CONTROL LEGEND.
2. ALL DISTURBED AREAS TO BE STABILIZED AT THE END OF EACH DAY.
3. STABILIZED CONSTRUCTION ENTRANCE LOCATIONS ARE TO BE DETERMINED BY THE CONTRACTOR AND THE COUNTY INSPECTOR.
4. THE MODIFIED STRAW BALE DIKES SHOWN ON THE PLANS ARE FOR AN EXAMPLE OF PLACEMENT ALONG THE CONSTRUCTION AREAS.
5. INSTALLATION OF THE MSBD SHALL NOT INTERFERE WITH THE TRAFFIC CONTROL MEASURES NECESSARY FOR THE CONTRACTOR TO MAINTAIN ADEQUATE TRAFFIC FLOW AROUND THE JOB SITE. PHASING OF CONSTRUCTION ALONG HARMEL DRIVE WILL BE NECESSARY IN ORDER FOR THE SEDIMENT CONTROL MEASURES AND TRAFFIC CONTROL PLANS TO WORK EFFICIENTLY.
6. PORTABLE SEDIMENT TANK LOCATIONS TO BE DETERMINED BY THE CONTRACTOR WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR.
7. DUE TO THE CONSTRAINTS OF THE CONSTRUCTION SITE, STAGING & STOCKPILE AREAS AND STABILIZED CONSTRUCTION ENTRANCES (SCE) ARE NOT SHOWN. CONTRACTOR'S RESPONSIBLE FOR LOCATING THEIR STAGING AND STOCKPILE AREAS, INSTALLING SEDIMENT CONTROL MEASURES AND GETTING SEDIMENT INSPECTOR APPROVAL. LOCATIONS FOR SCE WILL BE DETERMINED IN THE FIELD AS APPROVED BY THE PROJECT ENGINEER AND THE SEDIMENT INSPECTOR. ANY CHANGES TO THE LOD SHOWN ON THE PLANS WILL ALSO REQUIRE APPROVAL BY THE SEDIMENT INSPECTOR.
8. SPOIL FROM TRENCH EXCAVATION SHALL BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION.



LEGEND

- CONCRETE SIDEWALK/ENTRANCE
- ASPHALT PAVEMENT
- TEMPORARY CONSTRUCTION STRIP

SEDIMENT CONTROL PLAN SHEET NO. ES-2 OF ES-10

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jan 21/03 1/29/03
DIRECTOR OF PUBLIC WORKS DATE

Robert M. Decker 1-29-03
CHEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC
A Dewberry & Davis Company
3120 Lord Baltimore Drive, Suite #211
Baltimore, Maryland 21244
(410) 285-9500 FAX (410) 285-8975

Engineers
Planners
Surveyors
Landscape
Architects



DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J-4158.B

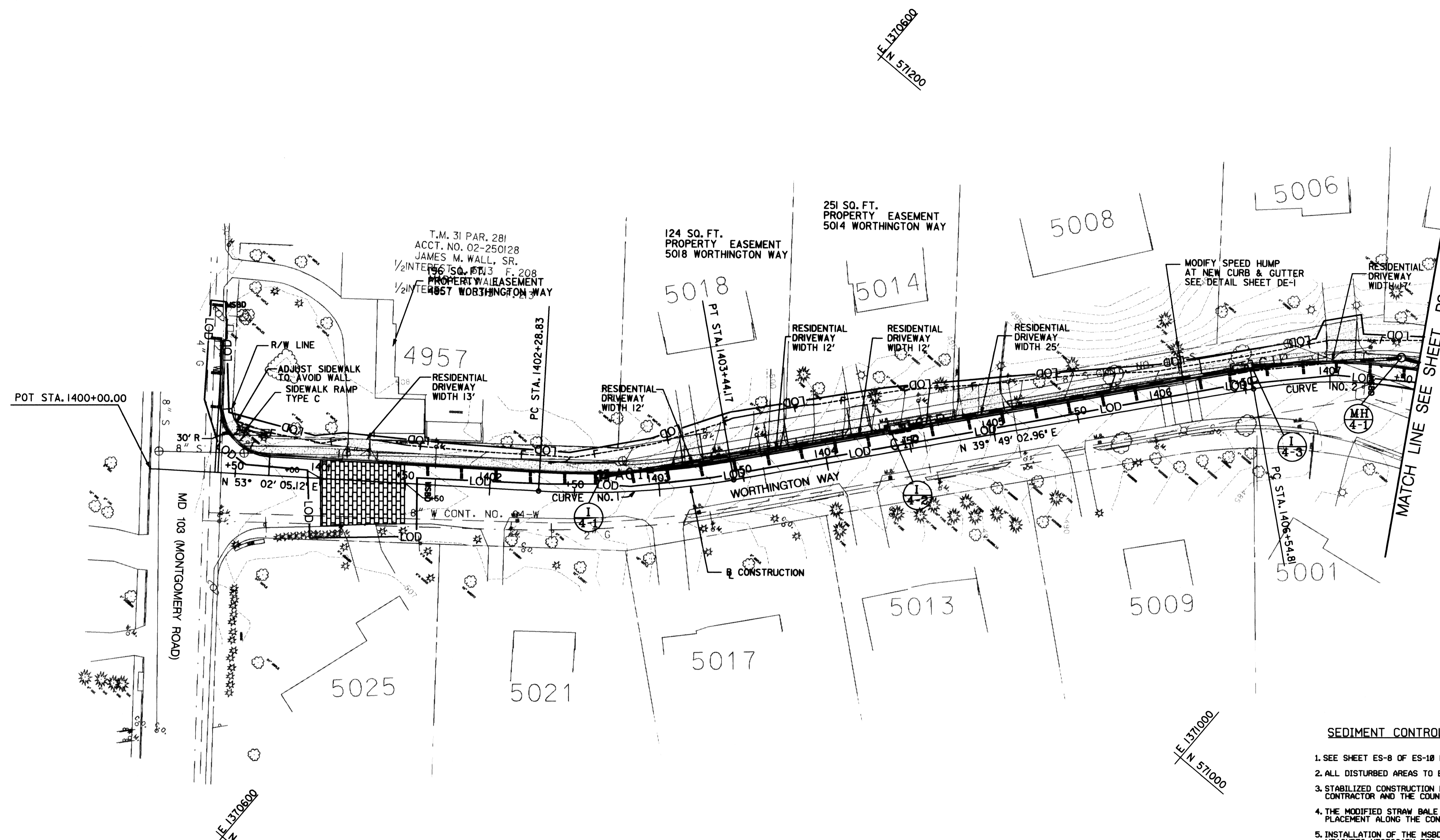
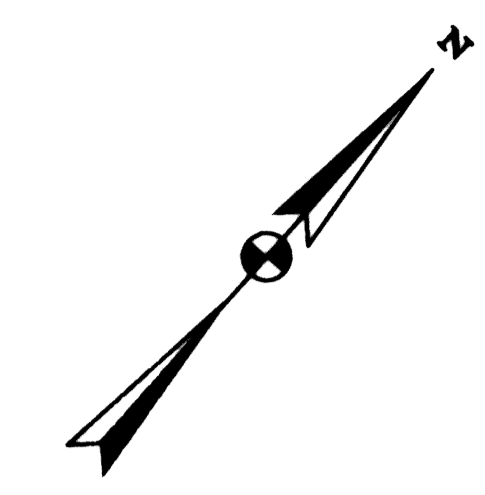
NO.: _____ DATE: 3-1-02

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

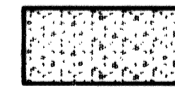
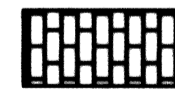

SCALE:
1"=30'

SHEET
17 OF 25

MATCH LINE SEE SHEET PS-3



LEGEND

	-CONCRETE SIDEWALK/ENTRANCE
	-STAMPED ASPHALT PAVEMENT
	-TEMPORARY CONSTRUCTION STRIP

SEDIMENT CONTROL CONSTRUCTION NOTES:

1. SEE SHEET ES-8 OF ES-18 FOR SEDIMENT CONTROL LEGEND.
2. ALL DISTURBED AREAS TO BE STABILIZED AT THE END OF EACH DAY.
3. STABILIZED CONSTRUCTION ENTRANCE LOCATIONS ARE TO BE DETERMINED BY THE CONTRACTOR AND THE COUNTY INSPECTOR.
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8. SPOIL FROM TRENCH EXCAVATION SHALL BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION.

SEDIMENT CONTROL PLAN SHEET NO. ES-4 OF ES-10

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 1/27/03
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 1-24-03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

[Signature] 1-27-03
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 1-27-03
CHIEF, BUREAU OF HIGHWAYS DATE

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Baltimore, Maryland 21244
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Engineers
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Surveyors
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DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

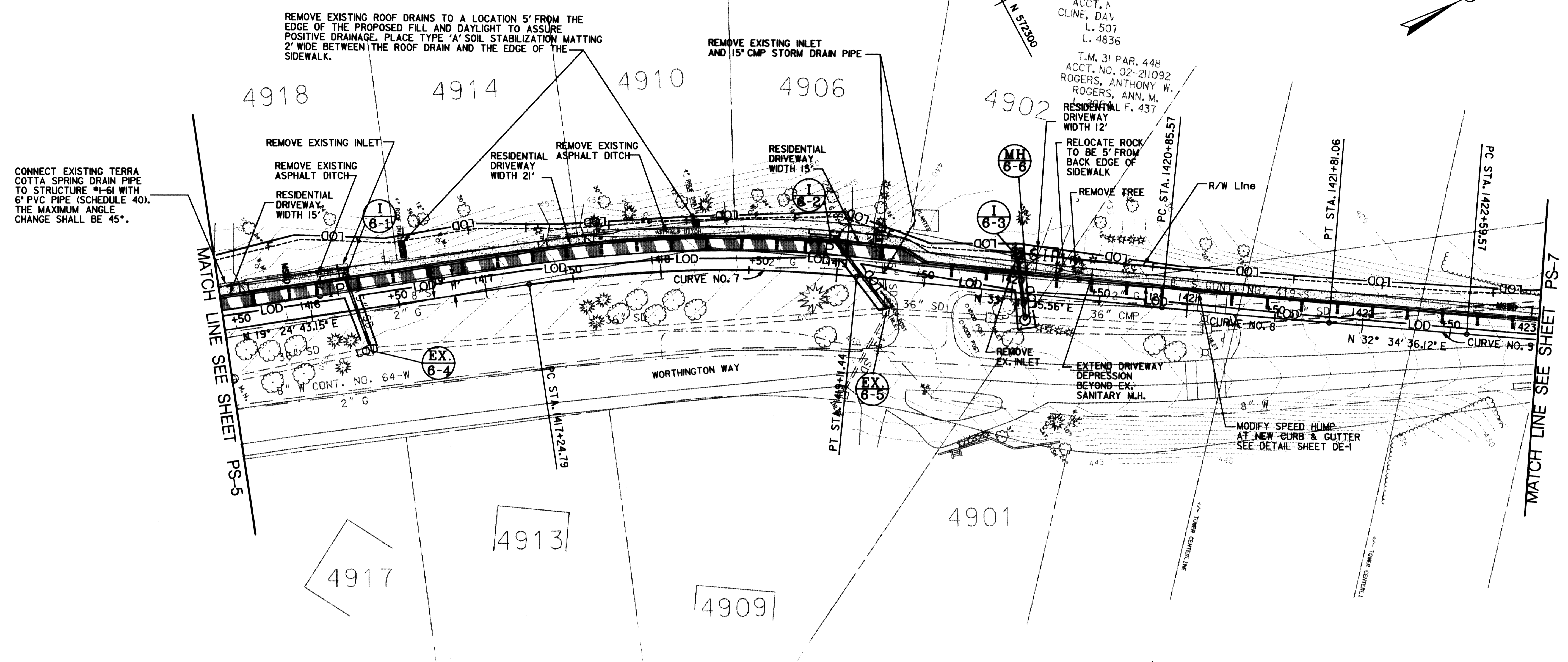
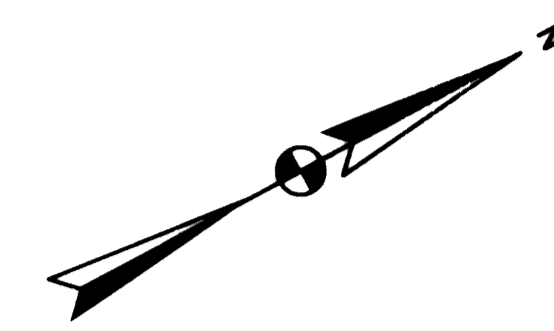
CAPITAL PROJECT NO.
J-4158.B

NO.: _____ DATE: 3-1-02

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

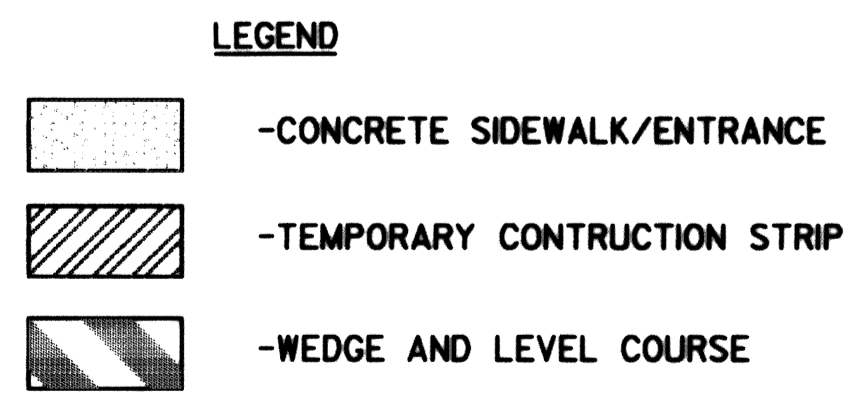
SCALE:
1"=30'

SHEET
19 OF 25



SEDIMENT CONTROL CONSTRUCTION NOTES:

1. SEE SHEET ES-8 OF ES-10 FOR SEDIMENT CONTROL LEGEND.
2. ALL DISTURBED AREAS SHALL BE STABILIZED AT THE END OF EACH DAY.
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SEDIMENT CONTROL PLAN SHEET NO. ES-6 OF ES-10

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. Schaefer 1/22/03
DIRECTOR OF PUBLIC WORKS DATE

Robert J. Schaefer 1/22/03
CHIEF, BUREAU OF CONSTRUCTION DATE

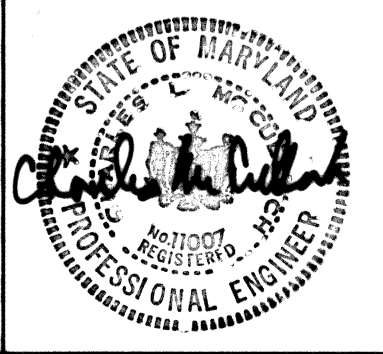
Robert J. Schaefer 1/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

Robert J. Schaefer 1/22/03
CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis LLC
A Dewberry & Davis Company

3120 Lord Baltimore Drive, Suite #211
Baltimore, Maryland 21244
(410) 265-0600 FAX (410) 265-8875

Engineers
Planners
Surveyors
Landscape
Architects



DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

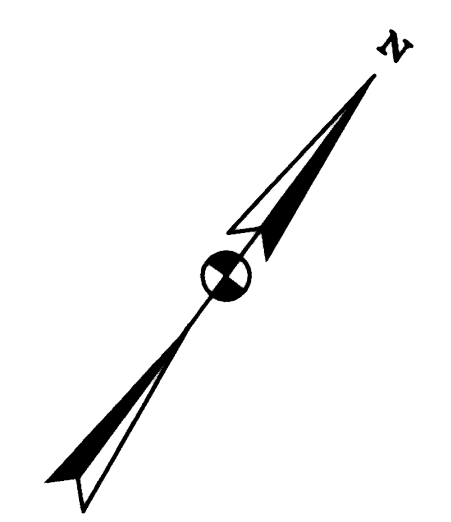
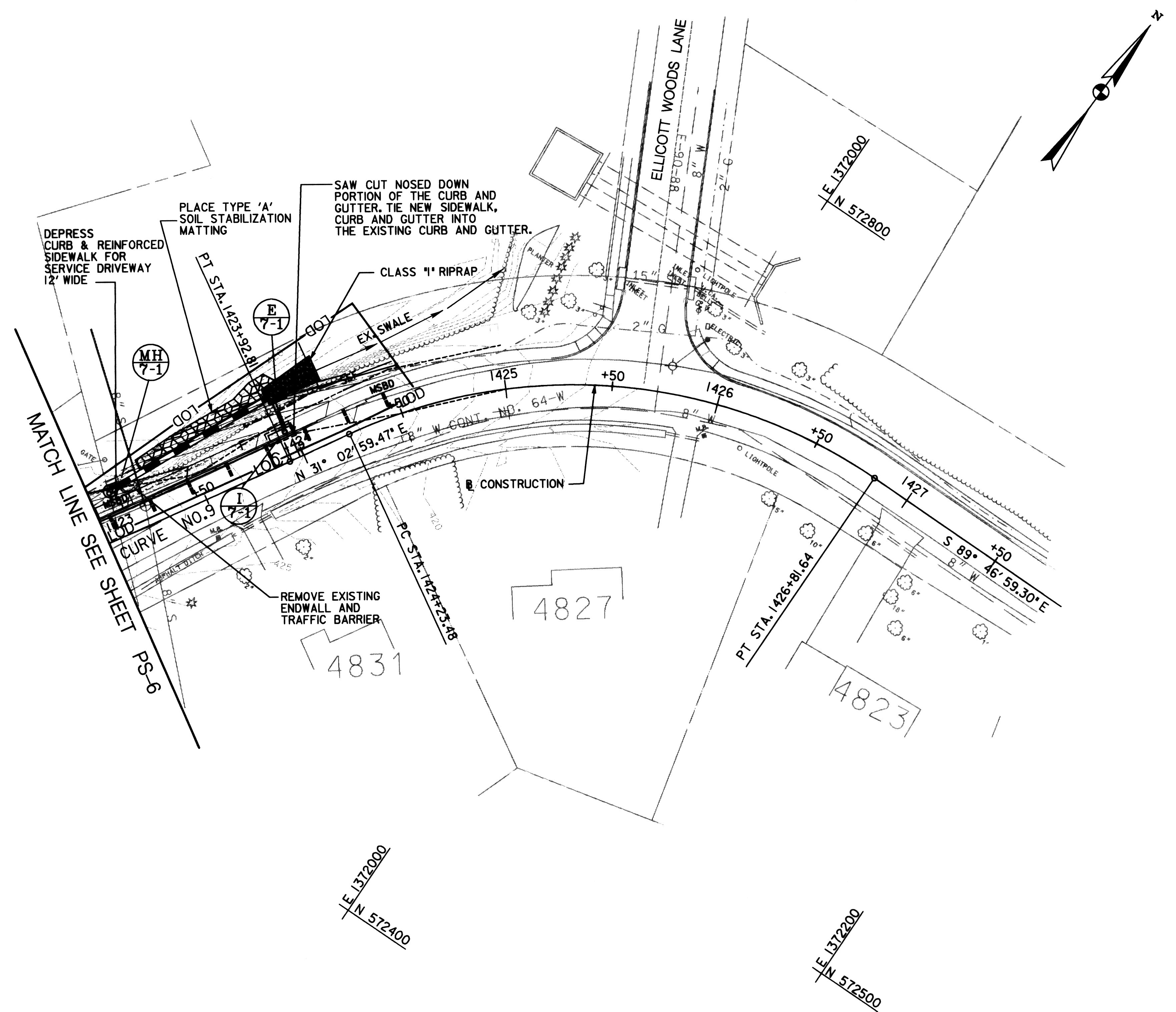
CAPITAL PROJECT NO.
J-4158.B

NO.: _____ DATE: 3-1-02

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE:
1"=30'

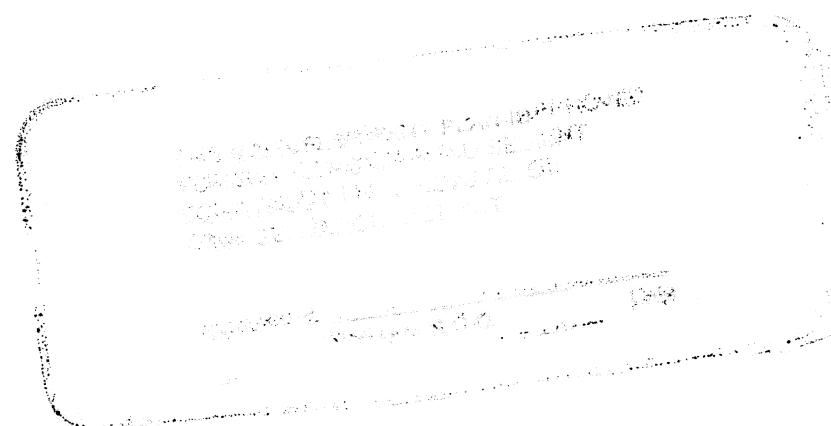
SHEET
21 OF 25



- LEGEND**
- CONCRETE SIDEWALK/ENTRANCE
 - RIP RAP OUTFALL PROTECTION
 - TYPE 'A' SOIL STABILIZATION MATTING

SEDIMENT CONTROL CONSTRUCTION NOTES:

1. SEE SHEET ES-8 OF ES-10 FOR SEDIMENT CONTROL LEGEND.
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SEDIMENT CONTROL PLAN SHEET NO. ES-7 OF ES-10

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 1/29/03
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 1/27/03
CHIEF, BUREAU OF HIGHWAYS DATE

[Signature] 1/29/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

Dewberry & Davis LLC Engineers
A Dewberry & Davis Company Planners
3190 Lord Baltimore Drive, Suite #211 Surveyors
Baltimore, Maryland 21244 Landscape
(410) 265-9500 FAX (410) 265-9875 Architects



DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

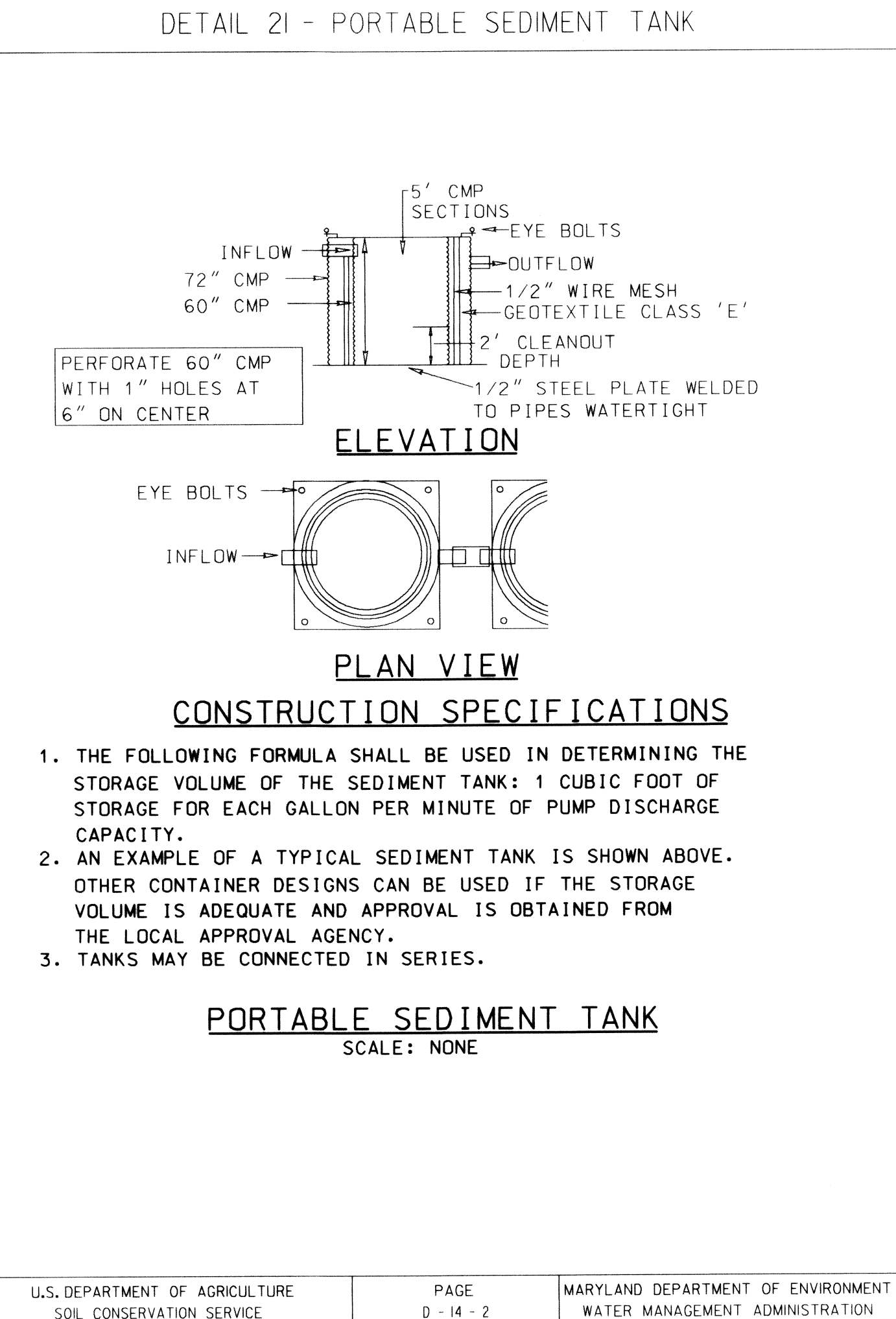
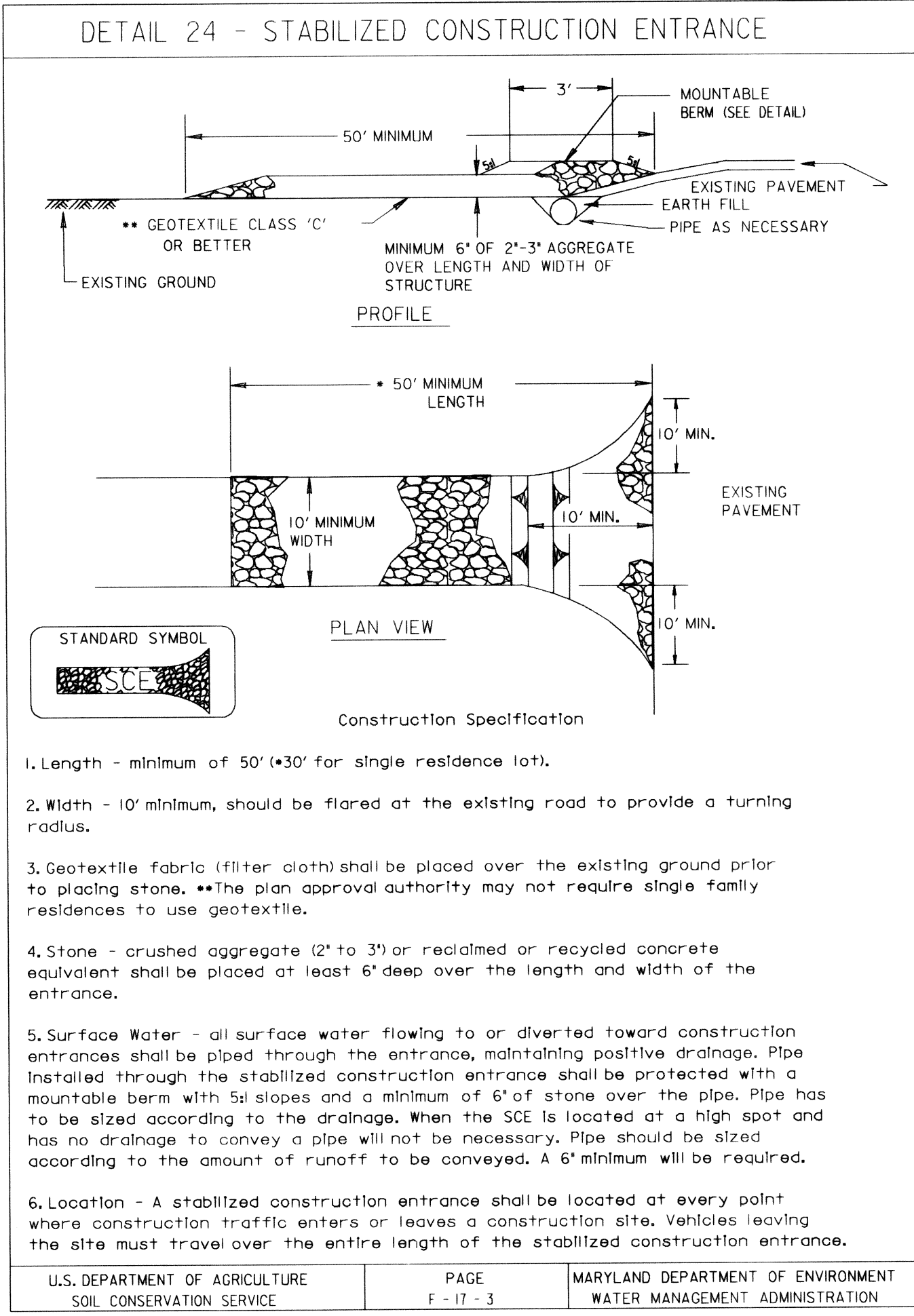
CAPITAL PROJECT NO.
J-4158.B
NO.: _____ DATE: 3-1-02

ROADWAY PLAN
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SCALE:
1"=30'
SHEET
22 OF 25

STANDARD SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current Maryland Standards and Specifications For Soil Erosion and Sediment Control and revisions thereto.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. I, Chapter 12 of the Howard County Design Manual, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). 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 10.23 Acres
 Area Disturbed 2.54 Acres
 Area to be roofed or paved 0.74 Acres (New Pavement 0.00 Acres)
 Area to be vegetatively stabilized 1.80 Acres
 Total Cut 260 Cu. Yds.
 Total Fill 784 Cu. Yds.
 Offsite waste/borrow area location To be determined by contractor and approved by the sediment control inspector.
- 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 work day, whichever is shorter.



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

Signature of Developer _____ Date _____
 Print Name _____

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.

Signature of Engineer _____ Date _____
 Print Name _____

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Signature: Jim Myers _____ Date: 2/4/03
 U.S. Natural Resources Conservation Service

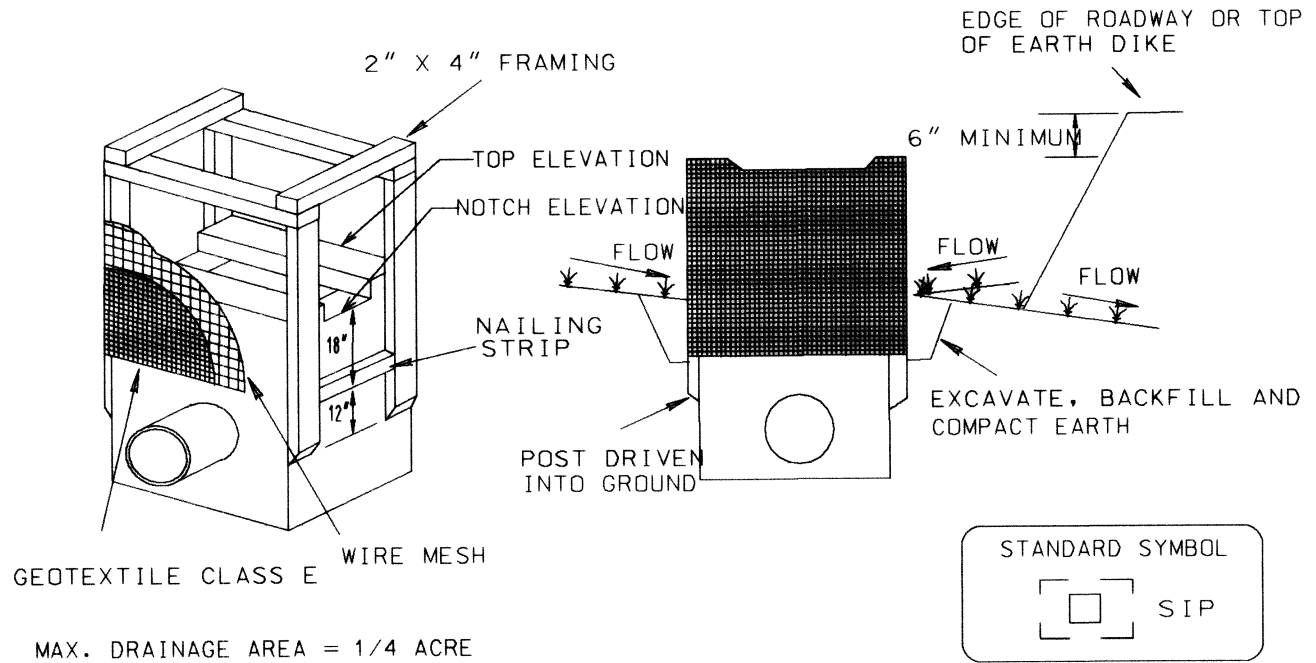
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: John P. Roberts _____ Date: 2/4/03
 Howard Soil Conservation District

STABILIZED CONSTRUCTION ENTRANCE - MAINTENANCE

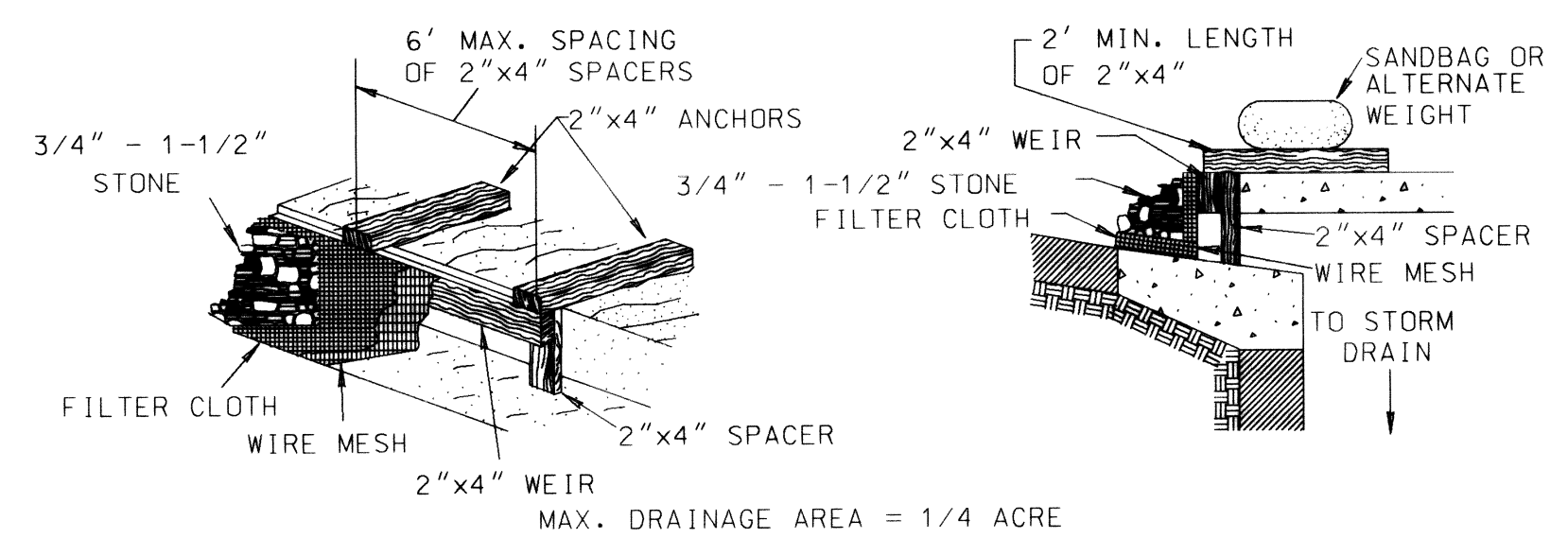
The entrance shall be maintained in a condition which will minimize tracking of sediment onto public rights-of-way. This may require adding stone or other repairs as conditions demand. All sediment spilled, dropped, or tracked onto public rights-of-way must be removed immediately by vacuum sweeping, scraping, or sweeping.

When necessary, wheels shall be cleaned or washed to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device. Daily inspection and maintenance is required.



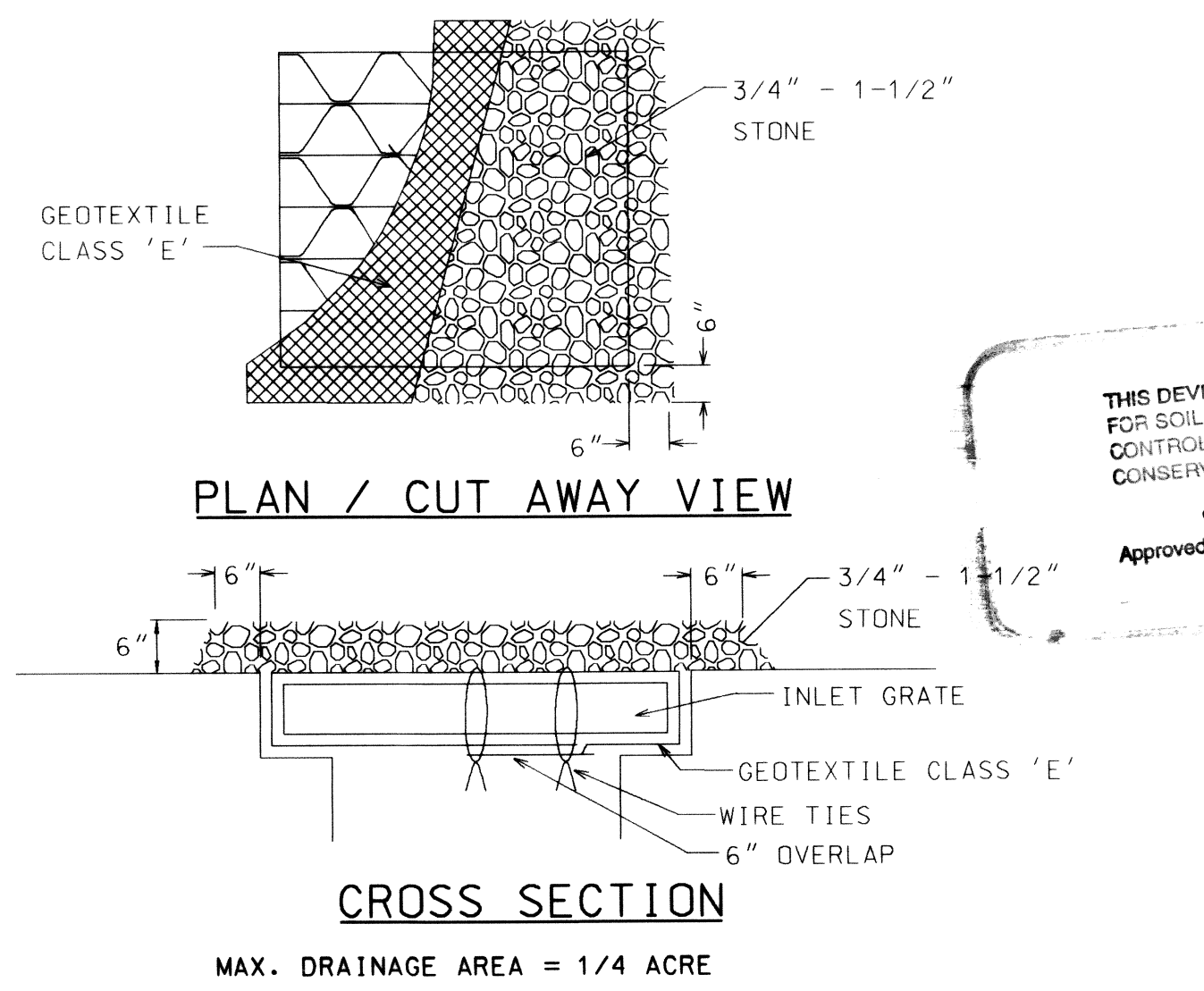
- Excavate completely around the inlet to a depth of 18" below the notch elevation.
- Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
- Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
- Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
- Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
- If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
- The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

STANDARD INLET PROTECTION



- ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MIN. WIDTH BY THROAT LENGTH PLUS 4') TO THE 2"x4" WEIR (MEASURING THROAT LENGTH PLUS 2') AS SHOWN ON THE STANDARD DRAWING.
- PLACE A CONTINUOUS PIECE OF GEOTEXTILE CLASS 'E' THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH IT TO THE 2"x4" WEIR.
- SECURELY NAIL THE 2"x4" WEIR TO A 9" LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAX. 4' APART).
- PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL (MIN. 2' LENGTHS OF 2"x4" TO THE TOP OF THE WEIR AT SPACER LOCATIONS). THESE 2"x4" ANCHORS SHALL EXTEND ACROSS THE INLET TOP AND BE HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHT.
- THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE A MIN. 1' BEYOND BOTH ENDS OF THE THROAT OPENING.
- FORM THE 1/2"x1/2" WIRE MESH AND THE GEOTEXTILE FABRIC TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN 3/4"x1-1/2" STONE OVER THE WIRE MESH AND GEOTEXTILE FABRIC IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
- THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE FILTER CLOTH AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
- ASSURE THAT STORM FLOW DOES NOT BYPASS THE INLET BY INSTALLING A TEMPORARY EARTH OR ASPHALT DIKE TO DIRECT THE FLOW TO THE INLET.

CURB INLET PROTECTION
SCALE: NONE



- LIFT GRATE AND WRAP WITH GEOTEXTILE CLASS 'E' TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
- PLACE 3/4" TO 1-1/2" STONE, 4"-6" THICK ON THE GRATE TO SECURE THE FABRIC AND PROVIDE ADDITIONAL FILTRATION.

AT GRADE INLET PROTECTION
SCALE: NONE

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

Approved: John P. Roberts _____ Date: 2/4/03
 Howard S.C.D.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Director of Public Works: _____ DATE: 1/27/03
 Chief, Bureau of Engineering: _____ DATE: 1/27/03
 Chief, Transportation and Special Projects Division: _____ DATE: 1/27/03
 Chief, Bureau of Highways: _____ DATE: 1/27/03

Dewberry & Davis LLC
 A Dewberry & Davis Company
 Engineers Planners Surveyors Landscape Architects
 3190 Lord Baltimore Drive, Suite #211
 Baltimore, Maryland 21244
 (410) 265-9500 FAX (410) 265-8875

DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

CAPITAL PROJECT NO. J-4158.B

NO.: _____ DATE: 3-1-02

SEDIMENT AND EROSION CONTROL
 WORTHINGTON AREA
 VEHICULAR ACCESS - PHASE II

SCALE: NONE
 SHEET 24 OF 25

STANDARDS AND SPECIFICATIONS
FOR
VEGETATIVE STABILIZATION

Section I - Vegetative Stabilization Methods and Materials

- A. Site Preparation
1. Install erosion and sediment control structures (either temporary or permanent) such as diversion, grade stabilization structures, berms, waterways, or sediment control basins.
 2. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
 3. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
- B. Soil Amendments (Fertilizer and Lime Specifications)
1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
 2. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Nitrate may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
 3. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 90% total oxide (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 90% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.
 4. Incorporate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.
- C. Seeded Protection
1. Temporary Seeding
 - a. Seeded preparation shall consist of loosening soil to a depth of 3" to 5" 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 should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:1) should be treated leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
 - b. Apply fertilizer and lime as prescribed on the plans.
 - c. Incorporate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.
 2. Permanent Seeding
 - a. Minimum soil conditions required for permanent vegetative establishment:
 1. Soil pH shall be between 6.0 and 7.0.
 2. Soluble salts shall be less than 500 parts per million (ppm).
 3. The soil shall contain less than 40% clay but enough fine grained material (60% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if (overgraze or eroded) landscape to be planted, then a sandy soil (40% silt plus clay) would be acceptable.
 4. Soil shall contain 1.5% minimum organic matter by weight.
 5. Soil must contain sufficient pore spaces to permit adequate root penetration.
 6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
 - b. Areas previously graded in accordance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
 - c. Apply soil amendments as per soil tests or as included on the plans.
 - d. Mix soil amendments into the top 3-5" of topsoil by diking or other suitable means. Low areas should be rolled to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit proper seeded preparation, loose surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be treated by a dicer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1"-3" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.
- D. Seed Specifications
1. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
 2. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant cool as possible until use. Temperature above 75-80° F. can weaken bacteria and make the inoculant less effective.
- E. Methods of Seeding
1. Hydroseeding: Apply seed uniformly with hydro-seeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a silt/packer seeder.
 - a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: Nitrogen maximum of 100 lbs. per acre, total of soluble nitrogen: P205 (phosphorus): 200 lbs/acre, K2O (potassium): 200 lbs/acre.
 - b. Lime - use only ground agricultural limestone. Up to 3 tons per acre may be applied by hydroseeding. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
 2. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
 - b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
 3. Drill or Silt/Packer Seeding: Mechanized seeders that apply and cover seed with soil.
 - a. Outfitted seeders are required to bury the seed in such a fashion as to provide at least 1/4" of soil covering. Seeded must be firm after planting.
 - b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
- F. Mulch Specifications (In order of preference)
1. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be overly decayed, dehydrated, or excessively dirty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
 2. Wood Cellulose Fiber Mulch (WCFM)
 - a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
 - d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under application and will disperse evenly with seed, fertilizer and lime to form a homogeneous slurry. The mulch material shall form a biotier-like ground cover, on application having maximum absorption and retention properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - e. WCFM material shall contain no elements or compounds at concentration levels that will be phytotoxic.
 - f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately .6 to .8 mm., pH range of 4.0 to 9.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.
- Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

3. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
 - i. If grading is completed outside of the seeding season, mulch shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
 - ii. Where straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied in a uniform layer depth of between 1-2 inches. Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
 - iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1-500 lbs. per acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons water.
 4. Seeding Straw Mulch (Mulch Anchoring) - Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
 - i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
 - ii. Wood Cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 150 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - iii. Application of liquid binders should be heavier at the edges where wind catches mulch. Synthetic binder application. Synthetic binder may be used as Acrylic DLR (Aqua-Tack), DCA-70, Permacrete, Terra Coat or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
 - iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.
 5. Incremental Stabilization - Cut Slopes
 - i. All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
 - ii. Construction sequence (refer to Figure 4 below):
 - a. Excavate and stabilize all temporary erosion, side ditches, or berms that will be used to convey runoff from the excavation.
 - b. Perform phase 1 excavation, dress and stabilize.
 - c. Perform phase 2 excavation, dress and stabilize. Overseed previously seeded areas as necessary.
 - d. Perform final phase excavation, dress, and stabilize. Overseed previously seeded areas as necessary.
- Note: Once excavation has begun, the operation should be continuous from grubbing through 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.

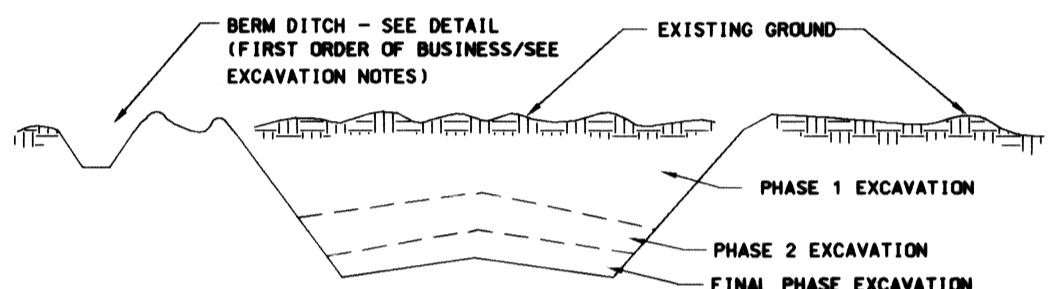


Figure 4 Incremental Stabilization - Cut Slopes

6. Incremental Stabilization of Embankments - Fill Slopes
 - i. Embankments shall be constructed in lifts as prescribed on the plans.
 - ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
 - iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erodible manner to a sediment trapping device.
 7. Construction sequence: Refer to Figure 5 (below)
 - a. Excavate and stabilize all temporary erosion, side ditches, or berms that will be used to divert runoff around the fill. Construct Slope Silt Fence on low side of fill as shown in Figure 4, unless other methods shown on the plans address this area.
 - b. Place phase 1 embankment, dress and stabilize.
 - c. Place phase 2 embankment, dress and stabilize.
 - d. Place final phase embankment, dress 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.

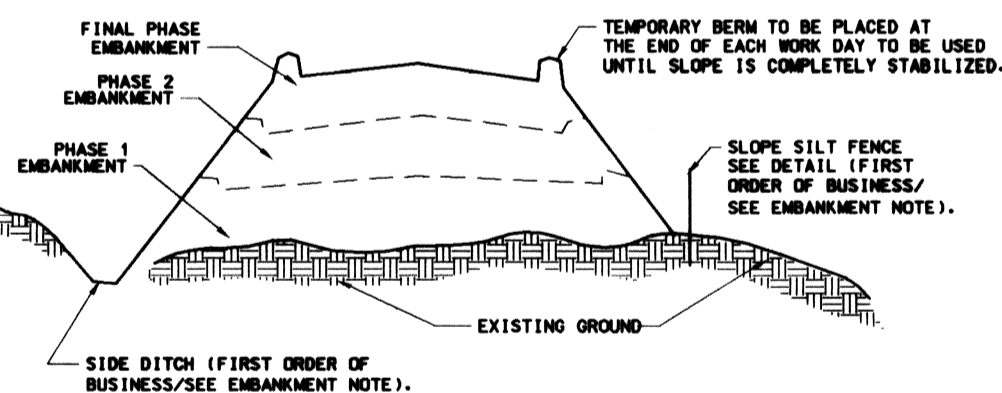


Figure 5 Incremental Stabilization - Embankment Fill Comply with MD 378 Specifications.

- Section II - Temporary Seeding
- Vegetation - annual grass or grain used to provide cover on a disturbed area for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.
- A. Seed Mixtures - Temporary Seeding
1. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary Seeding Summary below, along with application rates, seeding dates and seeding depths. If this Summary is not put on the plans and completed, then Table 26 must be put on the plans.
 2. For sites having soil tests performed, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

SEED MIXTURE (HARDINESS ZONE S ₂ -...)				FERTILIZER RATE (10-20-20)		LIME RATE	
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K2O
ANNUAL RYEGRASS	50 LB/AC	3/1 - 4/20	1/4" - 1/2"	600 LB/AC (15 LB/1000 SF)	2	TONS/AC (100 LB/1000 SF)	
MILLET	50 LB/AC	5/1 - 8/14	1/2"				

- Section III: Permanent Seeding
- Seeding grass and legume to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.
- A. Seed Mixtures - Permanent Seeding
1. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seed Summary below, along with application rates and seeding dates. Seeding depths can be determined using Table 25. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or for special purposes such as wildlife or other treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planting, or similar references. See Section IV Soil Maintenance for details on grasses.
 2. For sites having disturbed areas over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
 3. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

SEED MIXTURE (HARDINESS ZONE S ₂ -...)				FERTILIZER RATE (10-20-20)		LIME RATE	
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K2O
TALL FESCUE	125 LB/AC	3/1 - 5/15	1/4" - 1/2"	90 LB/AC (15 LB/1000 SF)	2	TONS/AC (100 LB/1000 SF)	
PERENNIAL RYE GRASS	15 LB/AC	8/15 - 10/15					
PERENNIAL RYE GRASS	110 LB/AC	3/1 - 5/15	1/4" - 1/2"	1000 SF	1000 SF	1000 SF	
PERENNIAL RYE GRASS	3 LB/AC						
LESPEDEZA	20 LB/AC						

- Section IV - Sod
- To provide quick cover on disturbed areas (2:1 grade or flatter).
- A. General specifications
1. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.
 2. Sod shall be machine cut uniform sod thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall include top growth and thatch. Individual pieces of sod shall be cut to the supplier width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken sods and torn or uneven ends will not be acceptable.
 3. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grass on the upper 10 percent of the section.
 4. Sod shall not be harvested or transported when moisture content (excessively dry or wet) may adversely affect its survival.
 5. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transported within this period shall be approved by an agronomist or soil scientist prior to its installation.
- B. Sod Installation
1. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
 2. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
 3. Whenever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, bagged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.
 4. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.
- C. Sod Maintenance
1. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain sod soil to a depth of 4". Irrigation should be done during the heat of the day to prevent wilting.
 2. After the first week, sod watering is required as necessary to maintain adequate moisture content.
 3. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

- Section IV - Turfgrass Establishment
- Areas where turfgrasses may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Areas to receive seed shall be filled by diking or other approved methods to a depth of 2 to 4 inches, leveled and rolled to provide a proper seedbed. Stones and debris over 1/2" in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.
- Note: Choose certified material. Certified material is the best guarantee to cultivator purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.
- A. Permanent Seeding
1. Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive maintenance. Irrigation required and in the area of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rates: 1.5 to 2.0 pounds/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars should be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.
 2. 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 maintenance. Certified Perennial Ryegrass/Certified Kentucky Bluegrass Seeding rates 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.
 3. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium maintenance in full sun to medium shade. Recommended mixture includes certified Tall Fescue Cultivars 95-100% certified Kentucky Bluegrass Cultivars 5-5%. Seeding rates: 5 to 8 lbs/1000 sq. One or more cultivars may be blended.
 4. 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 30-40% and certified Fine Fescue and 60-70%. Seeding rates: 1/2 - 3 lbs/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.
- Note: Turfgrass varieties should be selected from those listed in the most current University of Maryland and Publication, Agronomy Miscos #77, "Turfgrass Cultivar Recommendations for Maryland".
- B. Ideal times of seeding
- Western MD: March 15 - June 1, August 1 - October 1 (Hardiness Zones - 5b, 6a)
Central MD: March 1 - May 15, August 15 - October 15 (Hardiness Zone - 6b)
Southern MD, Eastern Shore: March 1 - May 15, August 15 - October 15 (Hardiness Zones - 7a, 7b)
- C. Irrigation
- If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2" 0.1" 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.
- D. Repairs and Maintenance
- Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.
1. Once the vegetation is established, the site shall have 95% ground cover to be considered adequately stabilized.
 2. If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer, seedbed preparation and seeding recommendations.
 3. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing half of the area originally applied may be necessary.
 4. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium to high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No. 171.

SEDIMENT CONTROL CONSTRUCTION NOTES:

1. SEE SHEET ES-8 OF ES-10 FRO SEDIMENT CONTROL LEGEND.
2. ALL DISTURBED AREAS SHALL BE STABILIZED AT THE END OF EACH DAY.
3. STABILIZED CONSTRUCTION ENTRANCE LOCATIONS ARE TO BE DETERMINED BY THE CONTRACTOR AND THE COUNTY INSPECTOR.
4. THE MODIFIED STRAW BALE DIKES SHOWN ON THE PLANS ARE FOR AN EXAMPLE OF PLACEMENT ALONG THE CONSTRUCTION AREAS.
5. INSTALLATION OF THE MSBD SHALL NOT INTERFERE WITH THE TRAFFIC CONTROL MEASURES NECESSARY FOR THE CONTRACTOR TO MAINTAIN ADEQUATE TRAFFIC FLOW AROUND THE JOB SITE. PHASING OF CONSTRUCTION ALONG HARNEL DRIVE WILL BE NECESSARY IN ORDER FOR THE SEDIMENT CONTROL MEASURES AND TRAFFIC CONTROL PLANS TO WORK EFFICIENTLY.
6. PORTABLE SEDIMENT TANK LOCATIONS TO BE DETERMINED BY THE CONTRACTOR WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR.
7. DUE TO THE CONSTRAINTS OF THE CONSTRUCTION SITE, STAGING & STOCKPILE AREAS AND STABILIZED CONSTRUCTION ENTRANCES (SCE) ARE NOT SHOWN. CONTRACTOR'S RESPONSIBILITY FOR LOCATING THEIR STAGING AND STOCKPILE AREAS, INSTALLING SEDIMENT CONTROL MEASURES AND GETTING NECESSARY APPROVAL LOCATIONS FOR SCE'S WILL BE DETERMINED IN THE FIELD AS APPROVED BY THE PROJECT ENGINEER AND THE SEDIMENT INSPECTOR. ANY CHANGES TO THE LOD SHOWN ON THE PPLANS WILL ALSO REQUIRE APPROVAL BY THE SEDIMENT INSPECTOR.
8. SPOIL FROM TRENCH EXCAVATION SHALL BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION.

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

Signature of Developer _____ Date _____
Print Name _____

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 IN THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

Signature of Engineer _____ Date 1/20/03
CHARLES MCCULLOUGH
Print Name _____

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Signature of Inspector _____ Date 2/14/03
USDA-Natural Resource Conservation Service

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

Signature of District Director _____ Date 2/4/03
Howard Soil Conservation District

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

Signature of District Director _____ Date 2/19/08
Howard S.C.D.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: 1/29/03
Date: 1/29/03
Date: 1/29/03

Chief, Bureau of Engineering: 1/27/03
Date: 1/27/03
Date: 1-29-03

Chief, Transportation and Special Projects Division: 1/29/03
Date: 1/29/03
Date: 1-29-03

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(410) 265-8500 FAX(410) 265-8875

Engineers
Planners
Surveyors
Landscape Architects

DES:			
DRN:			
CHK:			
DATE:	BY	NO.	REVISION

CAPITAL PROJECT NO.
J-4158.B

NO.: _____ DATE: 3-1-02

SEDIMENT CONTROL NOTES AND DETAILS SHEET NO. ES-10 OF ES-10

SCALE: NONE

SEDIMENT AND EROSION CONTROL
WORTHINGTON AREA
VEHICULAR ACCESS - PHASE II

SHEET 25 OF 25