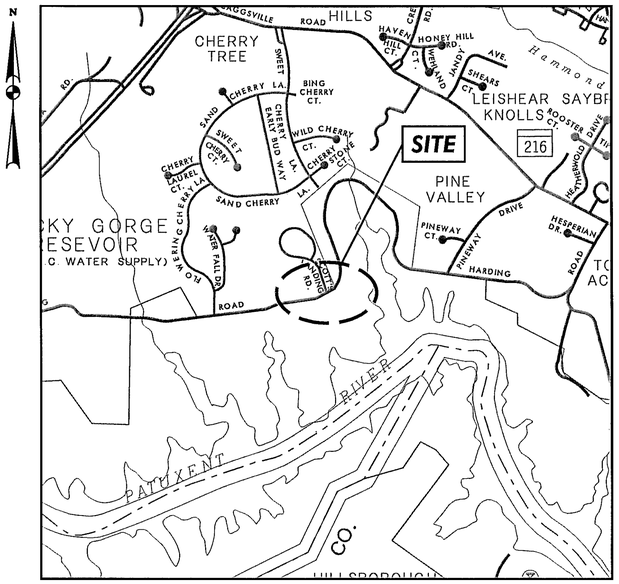
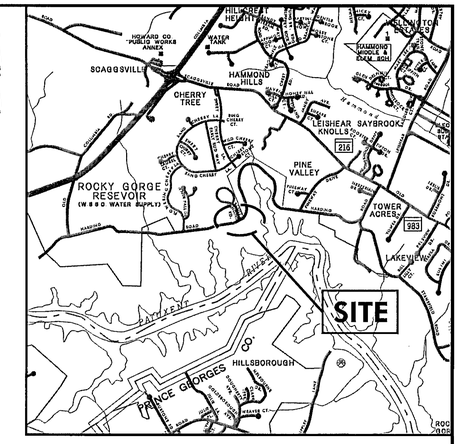
Harding Road Roadway Improvements
Scaggsville, Maryland

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT NO.: J-4188



LOCATION MAP
SCALE: 1" = 1000'



VICINITY MAP
SCALE: 1" = 2000'

SEQUENCE OF CONSTRUCTION

0 DAYS	1. NOTIFY HOWARD COUNTY SEDIMENT AND EROSION CONTROL INSPECTOR AT LEAST 48 HOURS IN ADVANCE OF ANY CONSTRUCTION AND SCHEDULE A PRE-CONSTRUCTION WALK-THROUGH OF THE SITE.
2 DAYS	2. COORDINATE LOCATION OF STABILIZED CONSTRUCTION ENTRANCE WITH SEC INSPECTOR. IMMEDIATELY STABILIZE ALL AREAS DISTURBED BY STORM DRAIN INSTALLATION. ALL TREE CLEARING SHALL BE MINIMIZED.
21 DAYS	3. BEGIN INSTALLATION OF STORM DRAIN SYSTEM, CONSTRUCTION SHALL PROCEED FROM DOWNSTREAM TO UPSTREAM.
5 DAYS	4. INSTALL NEW CONCRETE CURB.
7 DAYS	5. INSTALL NEW BITUMINOUS PAVEMENT.
2 DAYS	6. PLACE TOPSOIL, SEED AND MULCH IN ANY REMAINING DISTURBED AREAS.
4 DAYS	7. ONCE ALL DISTURBED AREAS ARE STABILIZED AND WITH APPROVAL BY THE SEDIMENT AND EROSION CONTROL INSPECTOR, SEDIMENT CONTROL DEVICES MAY BE REMOVED.
TOTAL 41 DAYS	

GENERAL NOTES

1. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM THE BEST AVAILIBLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF THE UTILITIES BY DIGGING TEST PITS AT ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION. IF CLEARANCES ARE LESS THAN SPECIFIED ON THIS PLAN OR LESS THAN 12 INCHES WHEN NOT SPECIFIED, CONTACT THE ENGINEER AND THE OWNER OF OTHER INVOLVED UTILITY.

2. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

   MISS UTILITY 1-800-257-7777,

   CONSTRUCTION INSPECTION DIVISION, HOWARD COUNTY (410) 313-1880,

   BALTIMORE GAS & ELECTRIC COMPANY - UNDERGROUND ELECTRIC DISTRIBUTION CUSTOMER SERVICE (410) 685-0123,

   VERIZON 1 (410) 224-9285,

   AMERICAN TELEPHONE & TELEGRAPH CABLE LOCATION DIVISION (410) 393-3553,

   BUREAU OF UTILITIES, HOWARD COUNTY (410) 313-2040,

   HOWARD COUNTY SOIL CONSERVATION DISTRICT (410) 489-7987

3. THE SITE SURVEY WAS PERFORMED BY J.A. RICE IN JULY OF 2006. THE HORIZONTAL IS REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 MARYLAND STATE PLANE GRID SYSTEM WITH THE 1991 HARNS ADJUSTMENT (NAD 83/91). THE VERTICAL IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). THE HORIZONTAL AND VERTICAL ARE BASED ON AND ESTABLISHED FROM HOWARD COUNTY GEODETIC CONTROL STATIONS 0010 (24IA), 24F2 and 24F3.

4. AVOID DAMAGE TO TREES ON THE SITE TO MAXIMUM EXTENT. OTHER TREES WITHIN LIMITS OF CONSTRUCTION SHALL NOT BE DESTROYED WITHOUT APPROVAL OF THE ENGINEER. TREES > 12" DBH WITHIN LOD SHALL BE PROTECTED USING TREE PROTECTIVE FENCING.

5. FOR DETAILS NOT SHOWN ON THESE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD CO. DESIGN MANUAL, VOL. IV STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOL. IV ON THE JOB.

6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

7. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE PLACED PRIOR TO THE PLACEMENT OF ANY ASPHALT.

LEGEND

EX. CONTOURS	400
EX. TREES	
EX. UTILITY POLE	
EX. FIRE HYDRANT	
EX. SANITARY MAIN	SAN
EX. STORMDRAIN PIPE	
EX. STORMDRAIN STRUCTURE	
EX. WATER MAIN	W
PROPOSED CONTOURS	400
PROPOSED STORMDRAIN PIPE	
PROPOSED STORMDRAIN STRUCTURE	
PROPOSED OVERLAY AREA	
REMOVE AND REPLACE DRIVEWAY APRON	
LIMIT OF DISTURBANCE	LOD

INDEX

DEVELOPERS CERTIFICATE

"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 Approval Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

Signature of Chief, Bureau of Engineering — Date

ENGINEERS CERTIFICATE

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

7-16-13
Signature of Engineer — Date

Professional Certification:

"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 19916 Expiration Date: 1/14/2015

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	7/18/13 DATE	CHIEF, BUREAU OF ENGINEERING	7/17/13 DATE
CHIEF, BUREAU OF HIGHWAYS	7-18-13 DATE	CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS	7/17/13 DATE

GPI — GREENMAN-PEDERSEN, INC.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
10977 GUILFORD RD., ANNAPOLIS JUNCTION, MD. 20701
WASH. (301) 470-2772 BALT. (410) 880-3055
FAX (301) 490-2649 www.gpinet.com

DES: M.S.Z.
DRN: K.K.K.
CHK: D.J.
DATE: JULY, 2013

BY	NO	REVISION	DATE
KLS		CONSOLIDATED COMMENTS	4/11

SITE PLAN

SCALE MAP NO. _____ BLOCK NO. _____

Harding Road Roadway Improvements

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4188

SCALE: AS SHOWN

SHEET 1 OF 6

FILE: N:\2005\2005019\2005019.19\dgn\pgn-TI01_scottlndng.dgn
DATE: Tuesday, July 16, 2013 AT 11:57 AM

ABBREVIATIONS

CONC. MON............CONCRETE MONUMENT
I-PIN.......................IRON PIPE
R&C.........................REBAR & CAP

THE CONTRACTOR SHALL RE-ESTABLISH PROPERTY MARKERS DAMAGED DUE TO CONSTRUCTION OR RELATED ACTIVITY. THE COST OF THIS WORK IS INCIDENTAL TO THE CONTRACT.

Professional Certification:
"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 19916 Expiration Date: 1/14/2015

Professional Certification:
"I hereby certify that these documents were prepared by me or under my responsible charge, and that I am a duly licensed professional land surveyor under the laws of the state of Maryland license No. 21324, Expiration Date: 01/07/2015.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	7/18/13 DATE	CHIEF, BUREAU OF ENGINEERING	7/17/13 DATE
CHIEF, BUREAU OF HIGHWAYS	7-18-13 DATE	CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS	7/17/13 DATE

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	BY	NO	REVISION	DATE
DES: M.S.Z.				
DRN: K.K.K.				
CHK: D.J.				
DATE: JULY, 2013	KLS		CONSOLIDATED COMMENTS	4/11

EXISTING CONDITION PLAN

SCALE MAP NO. ________ BLOCK NO. ________

Harding Road Roadway Improvements

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4188

SCALE: AS SHOWN

SHEET 2 OF 6

FILE: N:\2005\2005019\2005019.19\dgn\phd-E001_scottlndng.dgn
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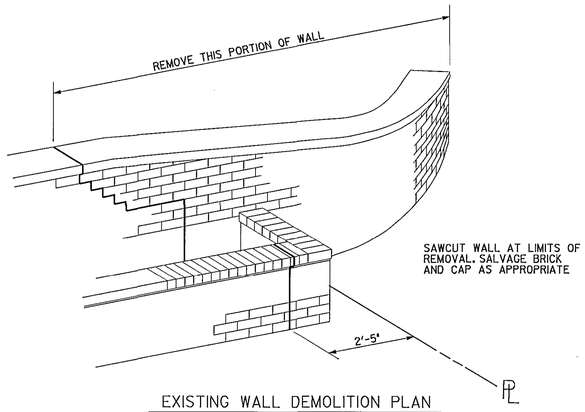
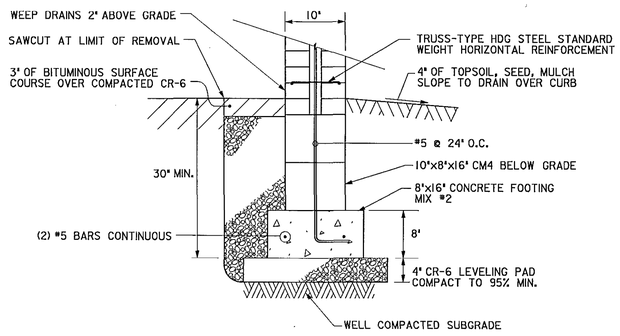


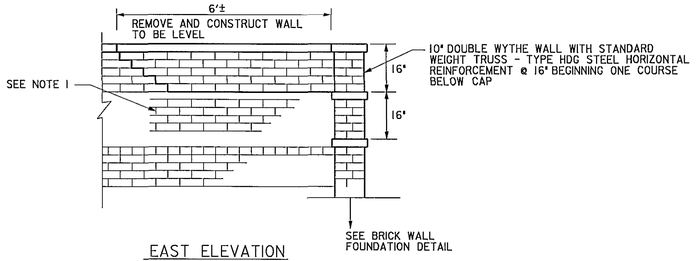
EXISTING WALL DEMOLITION PLAN

SCALE: 1/2" = 1'



BRICK WALL FOUNDATION DETAIL

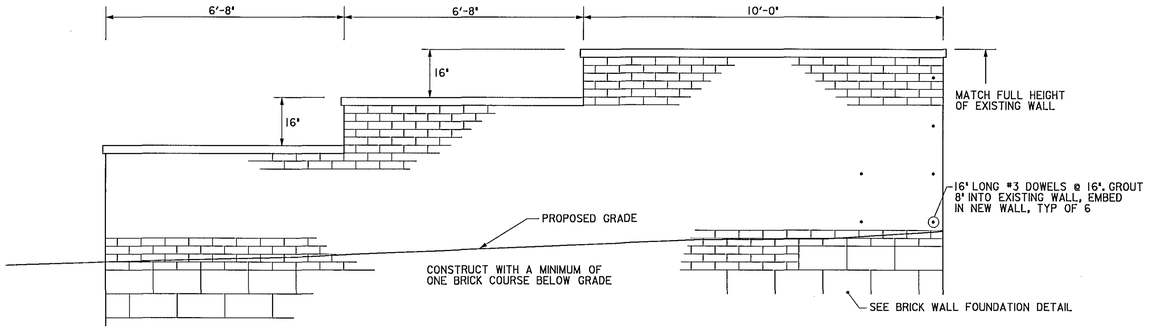
SCALE: 1" = 1'



EAST ELEVATION

NOTES: SCALE: 1/2" = 1'

1. REMOVE DAMAGED BRICK AND MORTAR. REPOINT MORTAR JOINTS AND REPLACE DAMAGED BRICKS WITH SALVAGED BRICKS.
2. CUT OFF AND CAP EXISTING LIGHTING CIRCUIT IN WALL, WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.
3. REUSE SALVAGED BRICK AND (AS REQUIRED BY AND APPROVED BY THE ENGINEER) NEW MATCHING BRICK TO CONSTRUCT NORTH ELEVATION WALL.

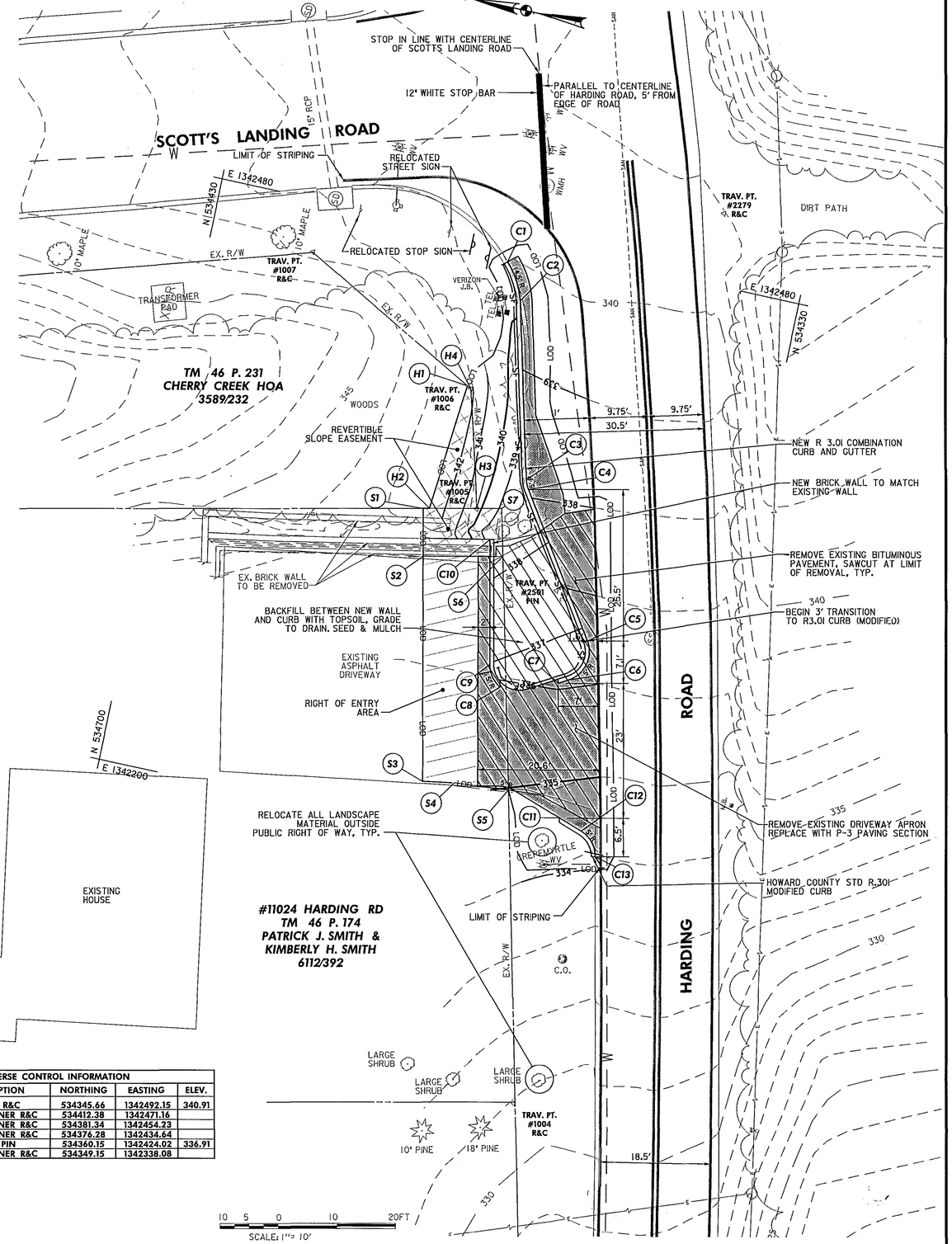


NORTH ELEVATION

SCALE: 1/2" = 1'

LEGEND

LOD	LIMIT OF DISTURBANCE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	5" SOLID STRIPE
	DOUBLE SOLID STRIPE
	12" SOLID STRIPE
C1	PROPOSED CURB POINTS
	REVERTIBLE SLOPE EASEMENT
	RIGHT OF ENTRY AREA
	PAVEMENT REMOVAL
	NEW PAVING



FIELD LOCATION TABLE			
POINT #	DESRIPTION	NORTHING	EASTING
H1	HOA EASEMENT	534382.01	1342454.59
H2	HOA EASEMENT	534384.08	1342433.05
H3	HOA EASEMENT	534376.25	1342434.73
H4	HOA EASEMENT	534381.34	1342454.23
S1	SMITH EASEMENT	534385.11	1342432.84
S2	SMITH EASEMENT	534383.45	1342424.96
S3	SMITH EASEMENT	534375.63	1342387.85
S4	SMITH EASEMENT	534370.32	1342388.71
S5	SMITH EASEMENT	534361.10	1342389.46
S6	SMITH EASEMENT	534370.23	1342427.75
S7	SMITH EASEMENT	534372.11	1342435.63

FIELD LOCATION TABLE			
POINT #	DESRIPTION	NORTHING	EASTING
C1	LIMIT OF CURB	534379.77	1342476.45
C2	POINT OF CURVATURE	534376.27	1342470.48
C3	POINT OF CURVATURE	534369.03	1342441.25
C4	POINT OF CURVATURE	534368.35	1342439.70
C5	POINT OF CURVATURE	534353.29	1342416.83
C6	POINT OF CURVATURE	534354.99	1342409.74
C7	END OF CURB	534356.61	1342408.82
C8	END OF WALL	534366.10	1342406.13
C9	POINT OF CURVATURE	534368.61	1342409.50
C10	END OF WALL	534372.95	1342430.07
C11	END OF CURB	534351.69	1342386.69
C12	POINT OF CURVATURE	534347.62	1342385.29
C13	POINT OF CURVATURE	534344.36	1342381.62

TRAVERSE CONTROL INFORMATION				
POINT #	DESCRIPTION	NORTHING	EASTING	ELEV.
2279	TRAV. R&C	534345.66	1342492.15	340.91
1007	PROP. CORNER R&C	534412.38	1342471.16	
1006	PROP. CORNER R&C	534381.34	1342454.23	
1005	PROP. CORNER R&C	534376.28	1342434.64	
2501	TRAV. PIN	534360.15	1342424.02	336.91
1004	PROP. CORNER R&C	534349.15	1342338.08	

Professional Certification:

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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CHIEF, BUREAU OF HIGHWAYS — DATE 7-18-13
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BY	NO	REVISION	DATE
KLS		CONSOLIDATED COMMENTS	4/11

SITE PLAN WEST OF SCOTTS LANDING ROAD

SCALE MAP NO. _____ BLOCK NO. _____

Harding Road Roadway Improvements

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4188

SCALE: 1"=10'

SHEET 3 OF 6

FILE: N:\2005\2005019\2005019.19\dgn\phd-p001_scottlndng.dgn
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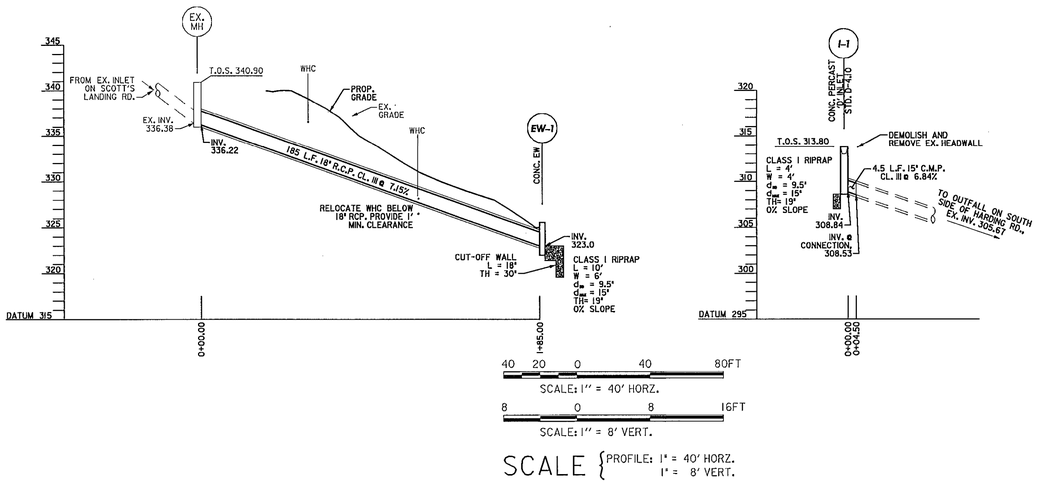
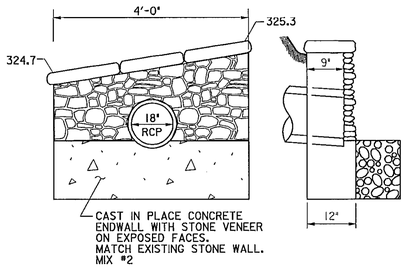


SCALE { PROFILE: 1" = 40' HORZ.
1" = 8' VERT.

FIELD LOCATION TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
D1	LIMIT OF CURB	534401.63	1342542.22
D2	POINT OF CURVATURE	534412.92	1342570.18
D3	POINT OF CURVATURE	534418.72	1342573.17
D4	POINT OF CURVATURE	534425.42	1342590.10
D5	POINT OF CURVATURE	534424.43	1342596.05
D6	END OF CURB	534462.82	1342569.15

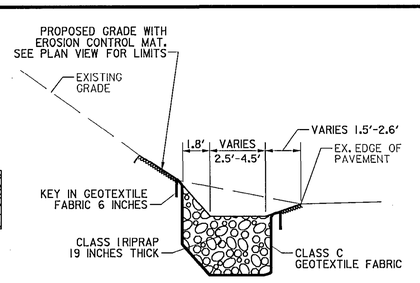
COORDINATES FOR CURB AND GUTTER ON THIS SHEET ONLY REFER TO BACK OF CURB

TRAVERSE CONTROL INFORMATION				
POINT #	DESCRIPTION	NORTHING	EASTING	ELEV.
1008	PROP. CORNER R&C	534428.94	1342518.30	
1009	PROP. CORNER R&C	534414.44	1342548.63	
1010	PROP. CORNER R&C	534421.19	1342563.77	
2500	TRAV. R&C	534454.33	1342583.68	346.15
1033	PROP. CORNER R&C	534466.02	1342656.20	
4	TRAV. R&C	534415.14	1342649.78	332.26



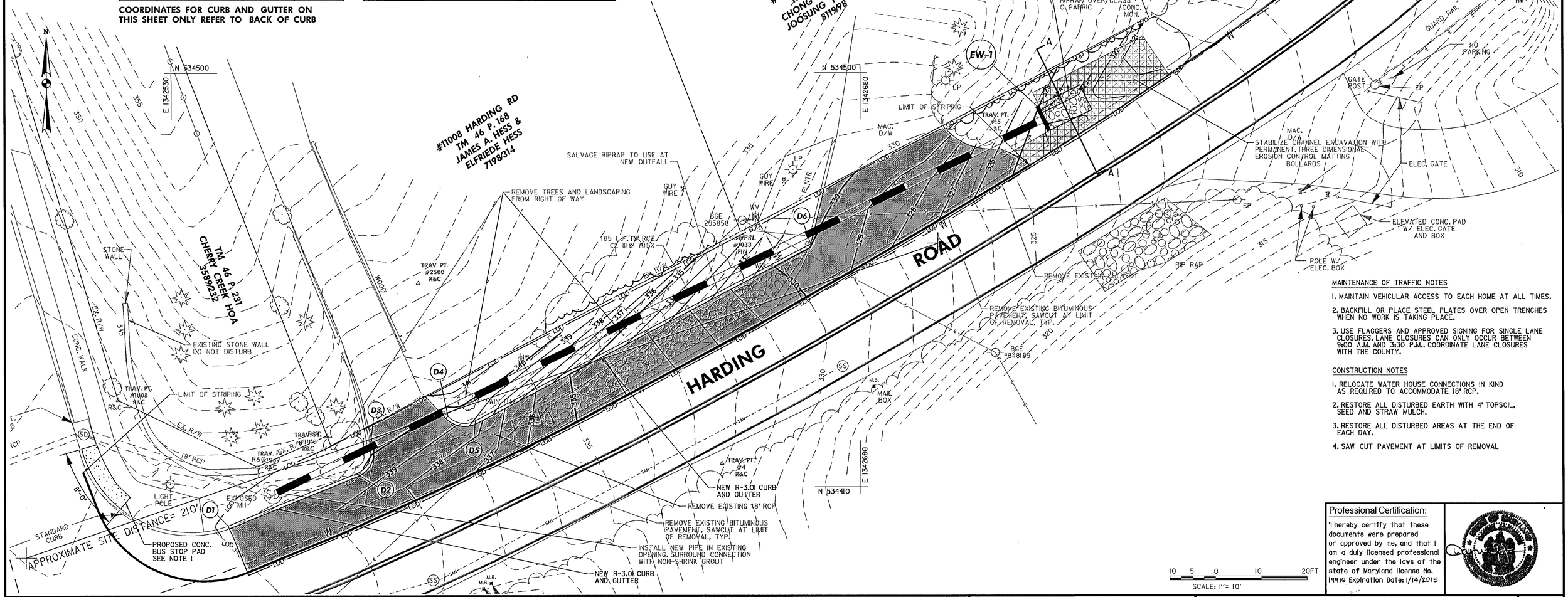
STONE FACED ENDWALL EW-1 DETAIL

NOT TO SCALE, PIPE SHALL EXTEND 2' FROM THE FACE OF THE ENDWALL. FIT STONE CLOSELY TO EXTENDED PIPE.



RIPRAP CHANNEL: SECTION A-A

N.T.S.



MAINTENANCE OF TRAFFIC NOTES

1. MAINTAIN VEHICULAR ACCESS TO EACH HOME AT ALL TIMES.
2. BACKFILL OR PLACE STEEL PLATES OVER OPEN TRENCHES WHEN NO WORK IS TAKING PLACE.
3. USE FLAGGERS AND APPROVED SIGNING FOR SINGLE LANE CLOSURES. LANE CLOSURES CAN ONLY OCCUR BETWEEN 9:00 A.M. AND 3:30 P.M.. COORDINATE LANE CLOSURES WITH THE COUNTY.

CONSTRUCTION NOTES

1. RELOCATE WATER HOUSE CONNECTIONS IN KIND AS REQUIRED TO ACCOMMODATE 18" RCP.
2. RESTORE ALL DISTURBED EARTH WITH 4" TOPSOIL, SEED AND STRAW MULCH.
3. RESTORE ALL DISTURBED AREAS AT THE END OF EACH DAY.
4. SAW CUT PAVEMENT AT LIMITS OF REMOVAL

10 5 0 10 20FT
SCALE: 1"= 10'

Professional Certification:

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HOWARD COUNTY, MARYLAND

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BY	NO	REVISION	DATE
KLS		CONSOLIDATED COMMENTS	4/11

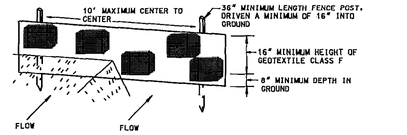
SITE PLAN
EAST OF SCOTTS LANDING ROAD
SCALE MAP NO. ____ BLOCK NO. ____

Harding Road Roadway Improvements
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4188

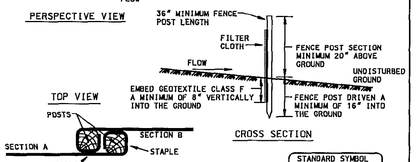
SCALE: AS SHOWN
SHEET 4 OF 6

FILE: N:\2005\2005019\2005019.19\dgn\phd-p002_scottlndng.dgn
DATE: Tuesday, July 16, 2013 AT 11:54 AM

DETAIL 22 – SILT FENCE



PERSPECTIVE VIEW



STANDARD SYMBOL: SF

JOINING TWO ADJACENT SILT FENCE SECTIONS

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE

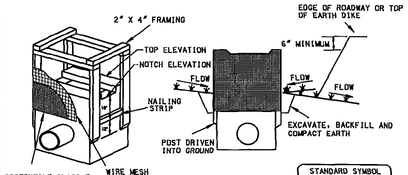
Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A – STANDARD INLET PROTECTION



STANDARD SYMBOL: SIP

MAX. DRAINAGE AREA = ¼ ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. 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.

3. 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.

4. 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.

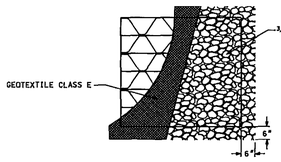
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. 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.

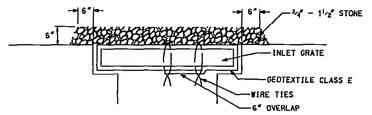
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B – AT GRADE INLET PROTECTION



PLAN/CUT AWAY VIEW



STANDARD SYMBOL: AGIP

CROSS SECTION

MAX. DRAINAGE AREA = ¼ ACRE

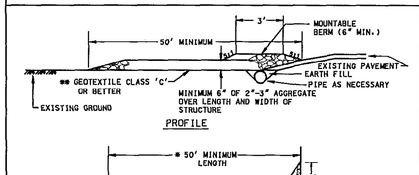
Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.

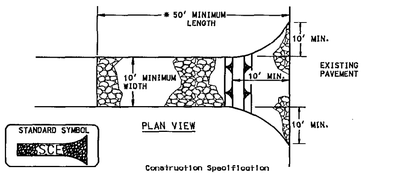
2. Place ¾" to 1½" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 5A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



PROFILE



PLAN VIEW

STANDARD SYMBOL: SCE

Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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STABILIZED CONSTRUCTION ENTRANCE

Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3"), or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Professional Certification:

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 19916 Expiration Date: 1/14/2015

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	7/16/13 DATE	CHIEF, BUREAU OF ENGINEERING	7/17/13 DATE
CHIEF, BUREAU OF HIGHWAYS	7-18-13 DATE	CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS	7/17/13 DATE

GPI

GREENMAN-PEDERSEN, INC.
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DES: M.S.Z.					
DRN: K.K.K.					
CHK: D.J.					
DATE: JULY, 2013	KLS		CONSOLIDATED COMMENTS	4/11	
	BY	NO	REVISION	DATE	

SCALE MAP NO. _____ BLOCK NO. _____

SEDIMENT AND EROSION CONTROL DETAILS

Harding Road Roadway Improvements

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4188

SCALE: AS SHOWN

SHEET 5 OF 6

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19.0 STANDARDS AND SPECIFICATIONS FOR LAND GRADING

Design Criteria:

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal and vegetative treatment, etc.

Many counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed. The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (include grade and cross section), grade stabilization structures, retaining walls, and surface and subsurface drains. The plan shall also include phasing of these practices. The following shall be incorporated into the plan:

I. Provisions shall be made to safely conduct surface runoff to storm drains, protected outlets or to stable water courses to insure that surface runoff will not damage slopes.

II. Cut and fill slopes that are to be stabilized with grasses shall not be steeper than 2:1. (Where the slope is to be mowed the slope should be no steeper than 3:1; 4:1 is preferred because of safety factors related to mowing steep slopes.) Slopes exceeding 2:1 shall require special design and stabilization considerations that shall be adequately shown on the plans.

III. Reverse benches shall be provided whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slope it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located to divide the slope face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.

A. Benches shall be a minimum of six-feet wide to provide for ease of maintenance.

B. Benches shall be designed with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 2 percent and 3 percent, unless accompanied by appropriate design and computations.

C. The flow length within a bench shall not exceed 800' unless accompanied by appropriate design and computations.

IV. Surface water shall be diverted from the face of all cut and/or fill slopes by the use of earth dikes, ditches and swales or conveyed downslope by the use of a designed structure, except:

A. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected from surface runoff until they are stabilized.

B. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainageways, graded swales, downspouts, etc.

C. The face of the slope will be protected by special erosion control materials, to include, but not to: approved vegetative stabilization practices (see section C), rip-rap or other approved stabilization methods.

V. Cut slopes occurring in ripable rock shall be serrated as shown on the following diagram. These serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut at nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1:1. These steps will weather and act to hold moisture, lime, fertilizer and seed thus producing a much quicker and longer lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and carries to a suitable outlet.

VI. Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.

VII. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence or other related damages.

VIII. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.

IX. Stockpiles, borrow areas and spoil shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

X. All disturbed areas shall be stabilized structurally or vegetatively in compliance with 20.0 Standards and Specifications for Vegetative Stabilization.

Seed Mix Table For Turf Establishment in Shaded areas:

Common Name	Percent of Seed Mix	Percent Purity Min.	Percent Weedseed Max.	Percent Germination Min.
Shadow chewing fescue or other improved chewing fescue	30	90	1	80
Aurora hard fescue or other improved hard fescue	30	90	1	80
Flyer creeping red fescue or other creeping red fescue	20	90	1	80
Glade Kentucky bluegrass or improved Kentucky bluegrass	10	90	1	80
Manhattan II, Affinity or other improved perenial ryegrass	10	90	1	80

Notes:

- Application rate shall be 20 lbs/Acre.
- Seed mix percentages are based upon weight.
- This seed mix will supersede any other permanent seed mixture listed in the contract documents unless otherwise allowed by the engineer.
- Seeds shall be mixed offsite and delivered throughly mixed.
- This mix is to be used for temporary seeding when directed by the engineer.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition:

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose:

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies:

I. This practice is limited to areas having 2:1 or flatter slopes where:

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

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

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

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

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications:

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

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

B. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsage, poison ivy, thistle, or others as specified.

C. Where the subsoil is either highly acidic or composed of heavy clays, (ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 sq. ft.) prior to the placement of topsoil. Lime shall be distrubited uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Method and Materials.

IV. For sites having disturbed areas over 5 acres:

A. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

1. Ph for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a ph of less than 6.0, sufficient lime shall be prescribed to raise the ph to 6.5 or higher.

2. Organic content of topsoil shall be not less than 1.5 percent by weight.

3. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

4. No sod or seed shall be placed on soil which has been treated with soil sterilents or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of of phyto-toxic materials,

Note:

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

B. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I- Vegetative Stabilization Methods and Materials.

V. Topsoil Application:

A. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment trap basins.

1. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

2. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

3. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

A. Composted Sludge Material for use as a soil conditioner for sites having disturbed area over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

1. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

2. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

3. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

B. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

HOWARD SOIL CONSERVATION DISTRICT PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation:

Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:

In lieu of soil test recommendations, use one of the following schedules:

1. Preferred - Apply 2 tons/acres dolomitic limestone (92 lbs/1000 sq. ft.) And 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs/acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable - Apply 2 tons/acres dolomitic limestone (92 lbs/1000 sq. ft.)and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding:

For the periods March 1 - April 30 and August 1 - October 15, seed with 60 lbs/acres (1.4 lbs./1,000 sq. ft.) of kentucky 31 tall fescue per acres and 2 lbs/acre (0.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 - February 28, protect site by:

Option 1 - two tons per acres of well anchored straw mulch and seed as soon as possible in the spring.

Option 2 - use sod.

Option 3 - seed with 60 lbs/acres Kentucky 30 tall fescue and mulch with 2 tons/acre well anchored straw.

Mulching:

Apply 1-1/2 to 2 tons per acre (70 - 90 lbs/1000 sq. ft.)of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance:

Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

Seedbed Preparation:

Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:

Apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding:

For periods March 1 - April 30 and from August 15 - October 15, seed with 2-1/2 bushel per acre of of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 - August 14, seed with 3 lbs/acre of weeping lovegrass (0.07 lbs/1000 lbs/sq. ft.). For the period November 16 - February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching:

Apply 1-1/2 to 2 tons per acre (70 - 90 lbs/1000 sq. ft.)of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to start of any construction (313-1855).

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within:

   A) 7 calender days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes steeper than 3:1.

   B) 14 calender days as to all other disturbed or graded areas on the project site.

4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in in accordance with Vol. I, Chapter 7 of the HOWARD COUNTY DESIGN MANUAL, Storm drainage.

5. 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, sod, temporary seeding and mulching (section g). Temporary stabilization with mulch alone shall only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for there removal has been obtained from the Howard County Sediment Control Inspector.

7. Site Analysis:

   Total Area of Site, R/W and Easements = 0.2 Ac.
   Area Disturbed = WEST SITE 0.04 Ac., 1555 sf.; EAST SITE 0.10 Ac., 4293 s.f.
   Area to be Roofed or Paved = 0.08 Ac.
   Area to be Vegetatively Stabilized = 0.06 Ac.
   Total Fill = 0.0 CY.

   - Offsite waste/borrow area location to be determined by the contractor.

   - A site with a current active grading permit is needed for offsite waste/borrow. Site plan grading permit or waiver may be necessary.

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

10. 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.

11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

Professional Certification:

"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 19916 Expiration Date: 1/14/2015

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/12/13
CHIEF, BUREAU OF ENGINEERING — DATE 7/17/13
CHIEF, BUREAU OF HIGHWAYS — DATE 7-18-13
CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS — DATE 7/17/13

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DES: M.S.Z.
DRN: K.K.K.
CHK: D.J.
DATE: JULY, 2013

BY	NO	REVISION	DATE
KLS		CONSOLIDATED COMMENTS	4/11

SEDIMENT AND EROSION CONTROL NOTES

SCALE MAP NO. _____ BLOCK NO. _____

Harding Road Roadway Improvements

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4188

SCALE: AS SHOWN

SHEET 6 OF 6

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