

**BOARD OF COUNTY COMMISSIONERS  
FOR ST. MARY'S COUNTY, MARYLAND**



**MANUAL OF DESIGN  
AND CONSTRUCTION STANDARDS**

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

P. O. BOX 508  
CALIFORNIA, MARYLAND 20619

Adopted: May 7, 2002  
Revised May 19, 2017  
Revised June 29, 2021

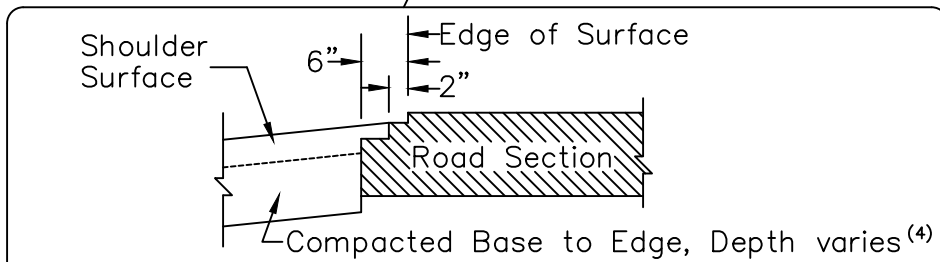
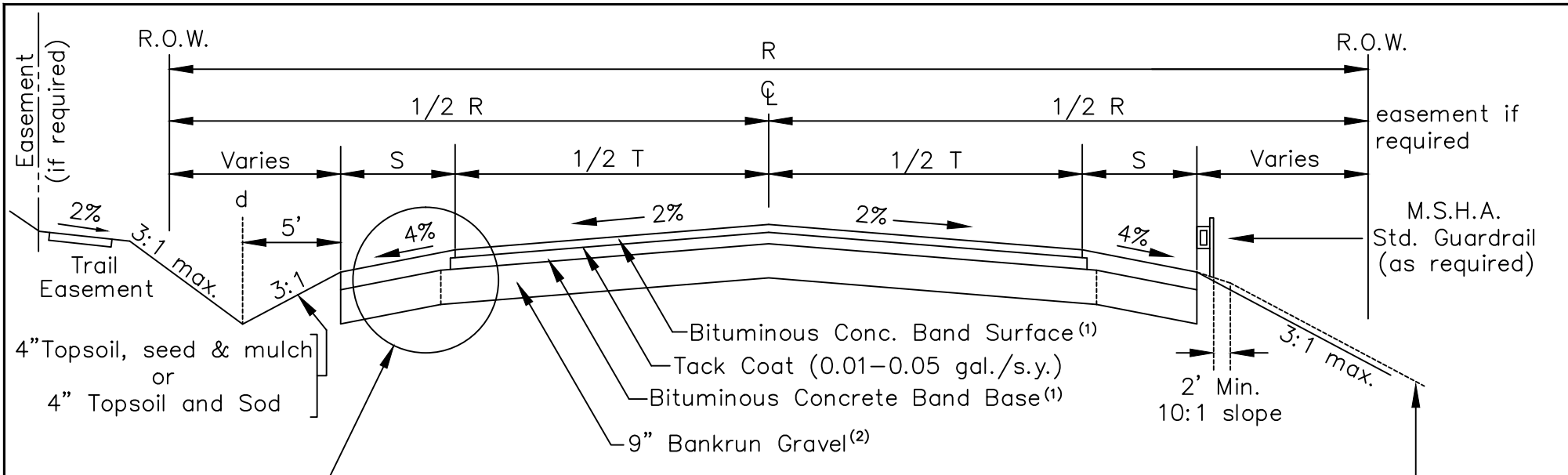
**ST. MARY'S COUNTY  
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION  
MANUAL OF DESIGN AND CONSTRUCTION STANDARDS**

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Road Grade	Shoulder Treatment
< 5%	4" Topsoil, seed & mulch on top of compacted 6" Bankrun Gravel base
≥ 5%	4" Topsoil and Sod or 3" bituminous concrete band base surface on top of a compacted 8" Bankrun Gravel base

Typical Shoulder Detail<sup>(3,4)</sup>  
(applies to roads classified as Local or lesser)

4" Topsoil, seed & mulch  
or  
4" Topsoil and sod

Notes:

- 1) Surface course and base course pavement to be according to Job Mix Formula as approved by DPW&T.
- 2) Compacted Sub-Base must consist of a minimum of 9" of Bankrun Gravel (BRG). R/5, R/10 requires a minimum of 10" of BRG. Equal thickness of Graded Aggregate Base (GAB) maybe substituted for BRG whenever BRG is specified.
- 3) A driveway entrance and shoulder treatment schedule is required on each plan view.
- 4) Roadways classified as Minor Collector or above shall have full width and depth, paved shoulder treatment on both sides of the roadway.

Revised:  
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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Approved  
  
*John Groeger* 4/19/17  
John J. Groeger, P.E. Date  
Interim Director of DPW&T



Typical Section  
Rural Public Road  
St. Mary's County  
Department of  
Public Works & Transportation

R/1  
THRU  
R/5

**ST. MARY'S COUNTY DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION  
RURAL PUBLIC ROAD STANDARDS**

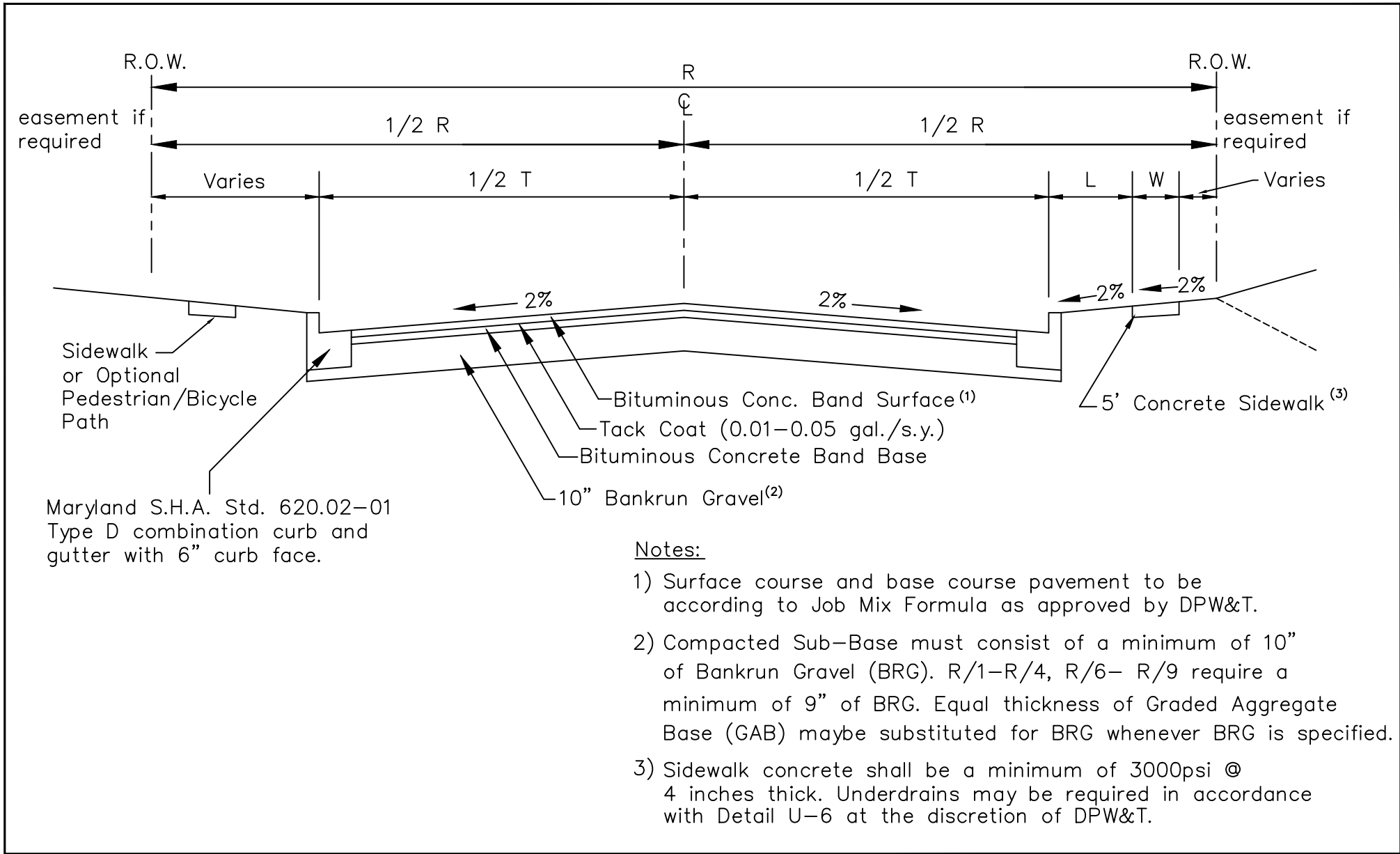
Road Classification	Road Type	Travel Width (T)	R/W Width (R)	Min. Posted Speed/Max. Design Speed	Minimum Horizontal Radius	Min. - Max. Longitudinal Grade	Pavement Section (See Note #1)	Shoulder Width (S)	Number of Lots	Min. Sight Distance Stop/Int.	Remarks (See Below)
Cul-De-Sac (R/1)	Place	18'	40'	25/25	165'	0.75-10%	1 1/2" Surface 2 1/2" Base	2'	1-5 Lots	150/260	(A)
Local Road (R/2)	Court	18'	45'	25/25	200'	0.75-10%	1 1/2" Surface 2 1/2" Base	4'	6-50 Lots	150/260	(B)
	Street	20'	45'	30/30	275'	0.75-10%	1 1/2" Surface 2 1/2" Base	4'	6-100 Lots	200/310	(C)
Minor Collector (R/3)	Drive	20'	50'	35/35	375'	0.75-8%	1 1/2" Surface 2 1/2" Base	6'	501-2,000 ADT	250/360	(D)
Major Collector (R/4)	Road	22'	60'	35/45	625'	0.75-8%	1 1/2" Surface 4" Base	8'	2,001-6,000 ADT	400/460	(E)
Arterial (R/5)	Boulevard	12' Lanes AASHTO	80-100'	45/55	AASHTO	0.75-8%	1 1/2" Surface 5" Base	8'-10'	6,001-12,000 ADT	500/560	(F)

**Remarks:**

- (A) Minimum/maximum road length is 250'/1,320'. Two (2) off-street parking spaces/lot required. Parking on one side and staggered parking on alternate sides is allowed. Minor acceleration/deceleration lanes may be required. Single or shared rural entrances may be required.
- (B) Applies only to dead-end roads that shall have a maximum length of 1,320'. At a minimum, minor acceleration/deceleration lanes shall be required.
- (C) Applies only to loop streets with two (2) outlets onto a higher classification road, parking one side is allowed. Acceleration/deceleration lane may be required. For lengths less than 1/2 mile, travel width may be reduced by two (2) feet.
- (D) On-street parking is not encouraged. Acceleration/deceleration lane may be required.
- (E) Individual lot access will be restricted. Acceleration/deceleration lane may be required. On-street parking may be prohibited.
- (F) AASHTO guidelines are to be followed. Specific design criteria shall be approved by DPW&T. On-street parking is prohibited.

**Notes:**

- 1) Surface course and base course pavement to be according to Job Mix Formula as approved by DPW&T. Pavement to be placed on 3" Graded Aggregate Base (GAB) (4" for Arterial Sections) on top of 6" Bank Run Gravel. Use of recycled materials may be considered on a case-by-case basis.



Notes:

- 1) Surface course and base course pavement to be according to Job Mix Formula as approved by DPW&T.
- 2) Compacted Sub-Base must consist of a minimum of 10" of Bankrun Gravel (BRG). R/1-R/4, R/6- R/9 require a minimum of 9" of BRG. Equal thickness of Graded Aggregate Base (GAB) maybe substituted for BRG whenever BRG is specified.
- 3) Sidewalk concrete shall be a minimum of 3000psi @ 4 inches thick. Underdrains may be required in accordance with Detail U-6 at the discretion of DPW&T.

Revised:	Approved		Typical Section Urban Public Road	R/6 THRU R/10		
					St. Mary's County Department of Public Works & Transportation	
	John J. Groeger, P.E. Date					
			4/19/17			
			Interim Director of DPW&T			

**ST. MARY'S COUNTY DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION**  
**URBAN PUBLIC ROAD STANDARDS**

Road Classification	Road Type	Travel Width (T)	R/W Width (R)	Min. Posted Speed/Max. Design Speed	Minimum Horizontal Radius	Min. - Max Longitudinal Grade (G)	Pavement Section (See Note #1)	Sidewalk Width (W) # of Sides	Landscape Width (L)	Number of Lots/ ADT	Min. Sight Distance Stop/Int.	Remarks (See Below)
Cul-De-Sac (R/6)	Place Circle	20'	40'	25/25	165'	0.50-10%	1 1/2" Surface 2 1/2" Base	5' Two	4'	1-5 Lots	150/260	(A)
Local Road (R/7)	Court	24'	45'	25/25	200'	0.50-10%	1 1/2" Surface 2 1/2" Base	5' Two	4.5'	6-30 Lots	150/260	(B)
	Street	26'	45'	30/30	275'	0.50-10%	1 1/2" Surface 2 1/2" Base	5' Two	4.5'	6-60 Lots	200/310	(C)
Minor Collector (R/8)	Drive	30'	50'	35/35	375'	0.50-8%	1 1/2" Surface 2 1/2" Base	5' Two	4'	250-1,500 ADT	250/360	(D)
Major Collector (R/9)	Road	36'	60'	45/45	625'	0.50-8%	1 1/2" Surface 4" Base	5' Two	6'	1,501-6,000 ADT	400/460	(E)
Arterial (R/10)	Boulevard	48'	80-100'	45/55	AASHTO	0.50-8%	1 1/2" Surface 5" Base	5' Two	Varies	6,001-12,000 ADT	550/560	(F)

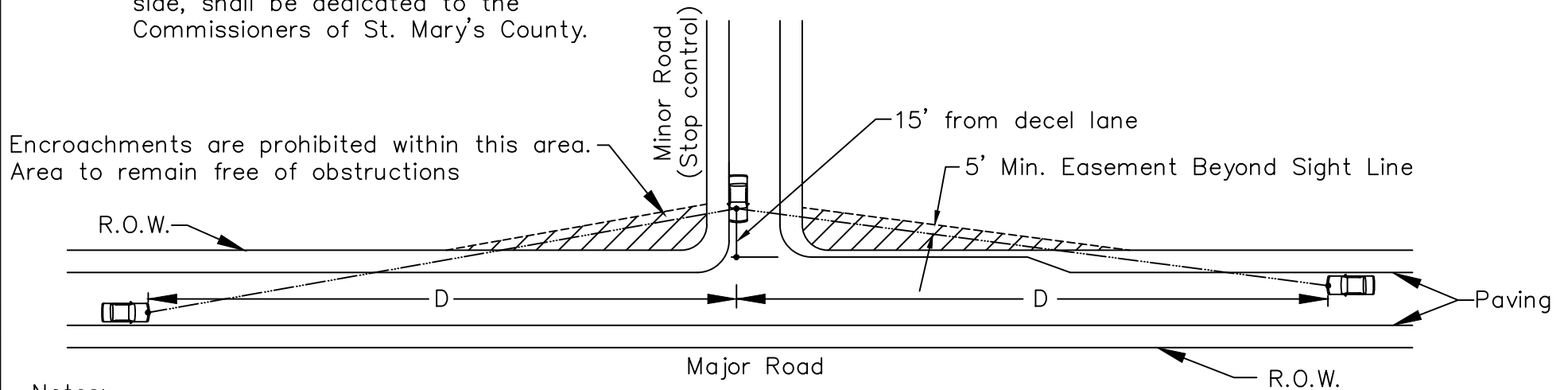
**Remarks:**

- (A) Minimum/maximum road length is 250'/1,320'. Two (2) off-street parking spaces/lot required. Parking on one side is allowed. Minor acceleration/deceleration lane may be required. Single or shared urban entrances may be required.
- (B) Applies only to dead-end roads that shall have a maximum length of 1,320'. Parking on one side is allowed. At a minimum, minor acceleration/deceleration lanes shall be required.
- (C) Applies only to loop streets with two (2) outlets onto a higher classification road. Parking on one side is allowed. Acceleration/deceleration lane may be required. For lengths less than 1/2 mile, travel width may be reduced by two (2) feet.
- (D) Acceleration/deceleration lane is required. Parking on one side is allowed.
- (E) Individual lot access will be restricted. Acceleration/deceleration lane is required. On-street parking may be prohibited.
- (F) AASHTO guidelines to be followed. Specific design criteria shall be approved by DPW&T. On-street parking is prohibited.
- (G) Valley gutters shall be used across intersections for street grades of less than one-percent (1%).

**Notes:**

- 1) Surface course and base course pavement to be according to Job Mix Formula as approved by DPW&T. Pavement to be placed on 3" Graded Aggregate Base (GAB) (4" for Arterial Sections) on top of 6" Bank Run Gravel. Use of recycled materials may be considered on a case-by-case basis.

R.O.W.: Additional R.O.W. if required on owners side, shall be dedicated to the Commissioners of St. Mary's County.

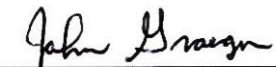


Notes:

- (1) A detailed plan and profile of the intersection of a proposed subdivision street with an existing County Road shall be submitted with the plans and profiles. The detailed plan shall be to a minimum scale of 1"=50' horizontal and 1"=5' vertical. The extent of the plan shall be a minimum of D+50' to either side of intersection.
- (2) Design shall be based on a height of eye of 3.50 to a top of object of 4.25 feet. These are suggested design guides and all sight distances shall be in accordance with AASHTO and subject to review and approval by the County.
- (3) Values shown represent flat roadway conditions and adjustments may be required based on grade of major road.
- (4) Sight distance values in table above are minimum and should be used under constrained conditions only. The design engineer shall strive to achieve longer sight distances, especially under high volume and speed conditions.

Road Classification	Design Speed M.P.H.	Minimum Required Sight Distance Feet *
Private, R/1, R/6	25	260
R/2, R/7(Court)	25	260
R/7(Street)	30	310
R/3, R/8	35	360
R/4, R/9	45	460
R/5, R/10	55	560

Revised:  
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Approved  
  
 John J. Groeger, P.E. Date 4/19/17  
 Interim Director of DPW&T



Minimum Standards for Sight Distance  
 St. Mary's County Department of Public Works & Transportation

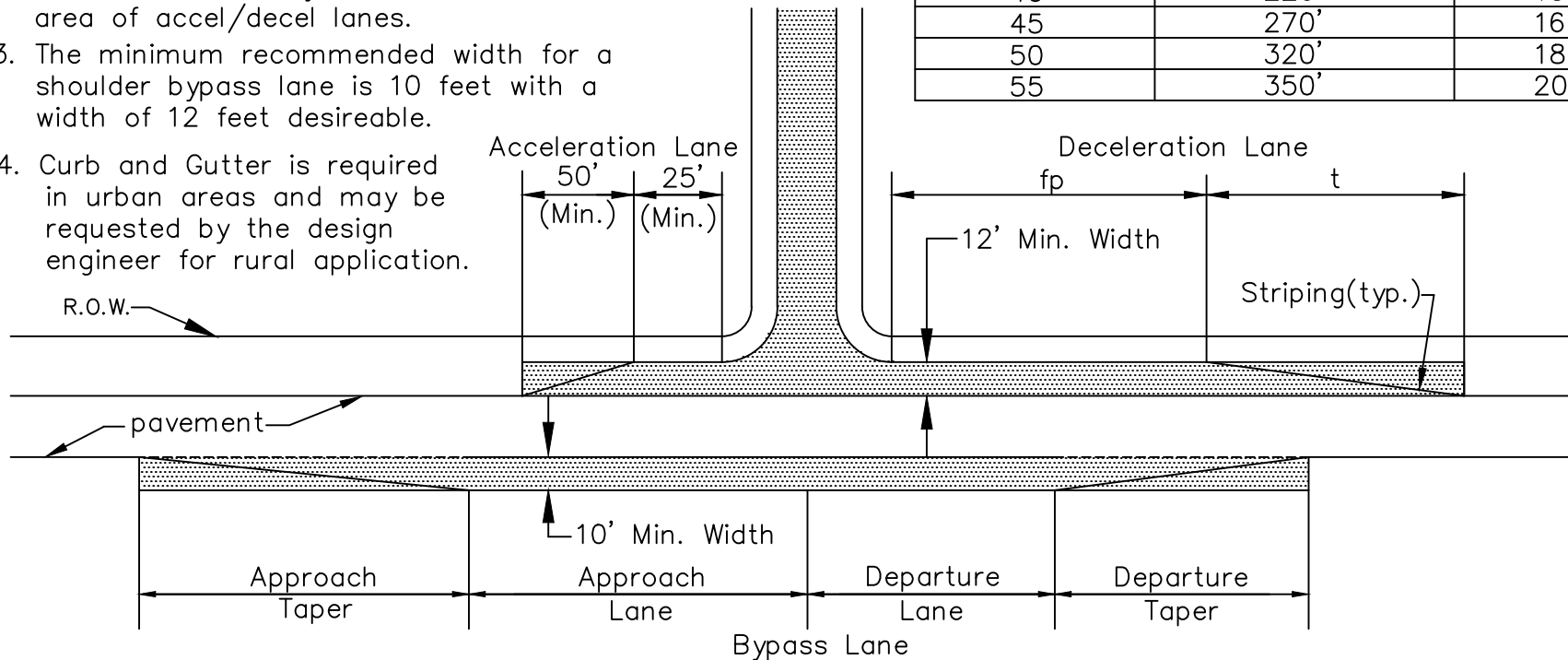
R/11



Notes:

1. Acceleration lanes minimum length 25' full pavement width (widening) 50' taper width
2. An overlay of the existing road may be required for proper construction of a standard roadway section thru the area of accel/decel lanes.
3. The minimum recommended width for a shoulder bypass lane is 10 feet with a width of 12 feet desirable.
4. Curb and Gutter is required in urban areas and may be requested by the design engineer for rural application.

Deceleration Lane Minimum Length		
Design Speed m.p.h.	Full Pavement Width 'fp'	Taper Width 't'
30	150'	100'
35	185'	125'
40	220'	150'
45	270'	165'
50	320'	180'
55	350'	200'



5. All pavement striping and markings shall be in accordance with the Maryland Manual on Uniform Traffic Control Devices (MMUTCD).
6. Contractor shall sawcut the edge of the existing roadway along the area of widening.

Typical Design Length for Bypass Lanes (ft.)			
Approach Taper	Approach Lane	Departure Lane	Departure Taper
50-100	100-200	50-100	50-100

Revised:

Approved

*John Groeger*

John J. Groeger, P.E.  
Interim Director of DPW&T

4/19/17

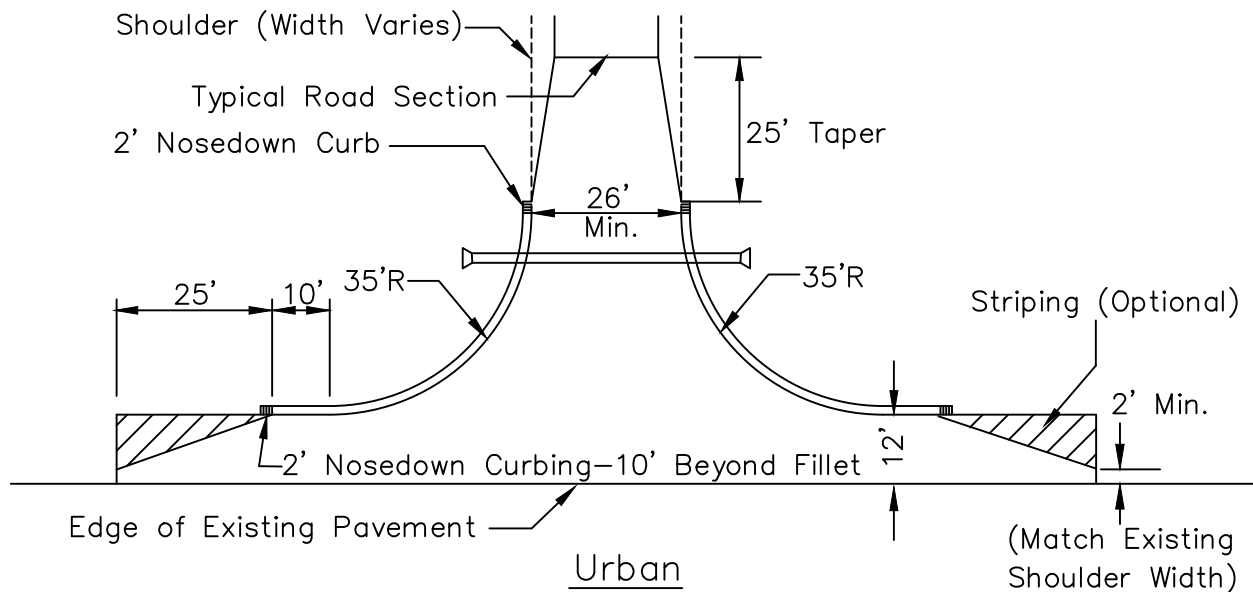
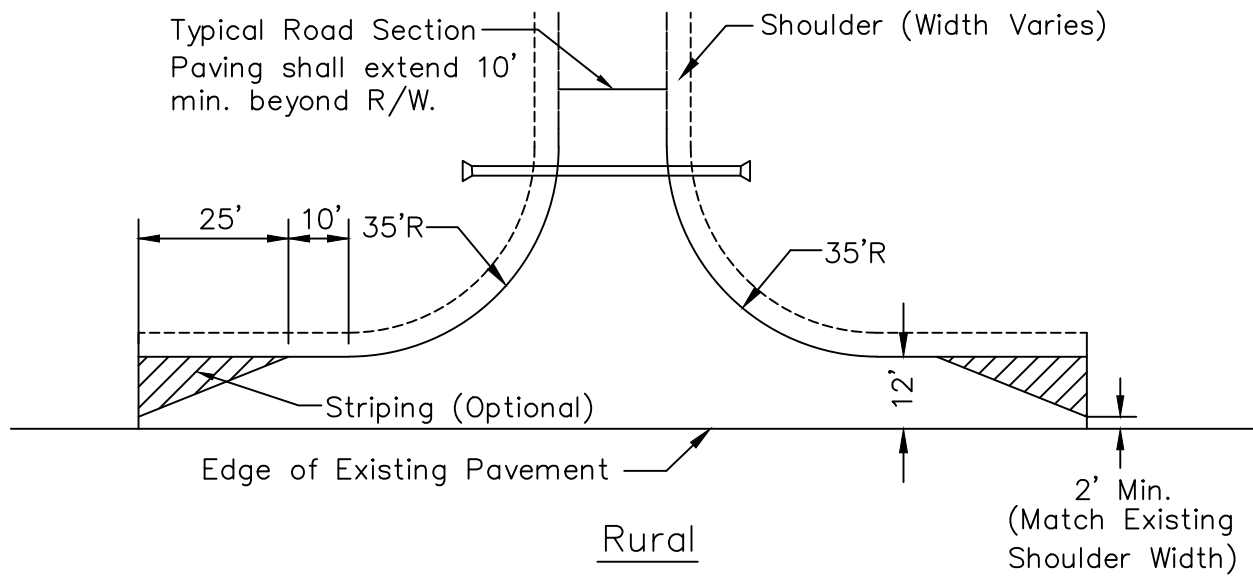
Date



Minimum Standards for  
Auxiliary and Bypass Lanes

St. Mary's County  
Department of  
Public Works & Transportation

R/12



Notes:

1. Design and installation of entrance culverts, end sections and velocity dissipaters shall be in accordance with approved Standards and Specifications.
2. Street name signs shall be in accordance with standard details R/24 for Public and Private roads.
3. A Construction Permit for work within the County Right-of-way is required when an entrance is proposed onto an existing county road. Additional curb and gutter may be required for continuity with adjacent sites and/or drainage as determined by the Department of Public Works & Transportation.(DPW&T)
4. Face of curb on urban entrances must align with the outer edge of shoulder, or existing curb.
6. Contractor shall sawcut the edge of the existing roadway along the area of widening.
7. An overlay of the existing road may be required for proper construction of a standard roadway section thru the area of accel/decel lanes.
8. The requirements shown hereon are minimums for Commercial Development and Major Subdivisions. Specifications beyond the minimums may be required at the discretion of DPW&T.

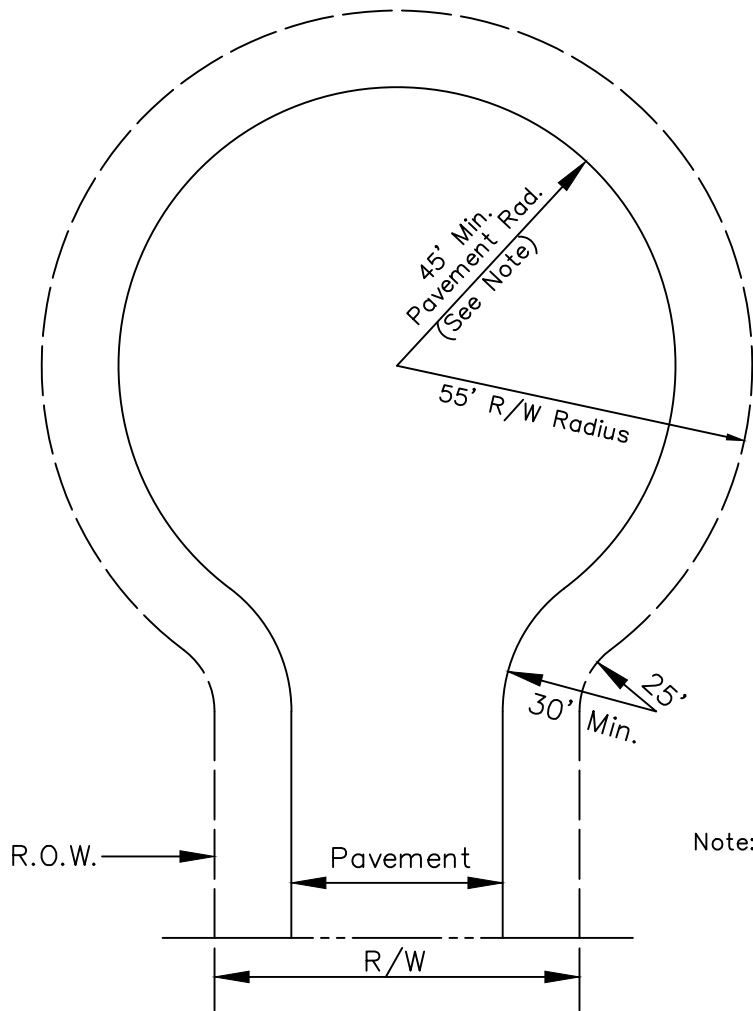
Revised:

Approved  
*John Groeger*  
 John J. Groeger, P.E. Date 4/19/17  
 Interim Director of DPW&T



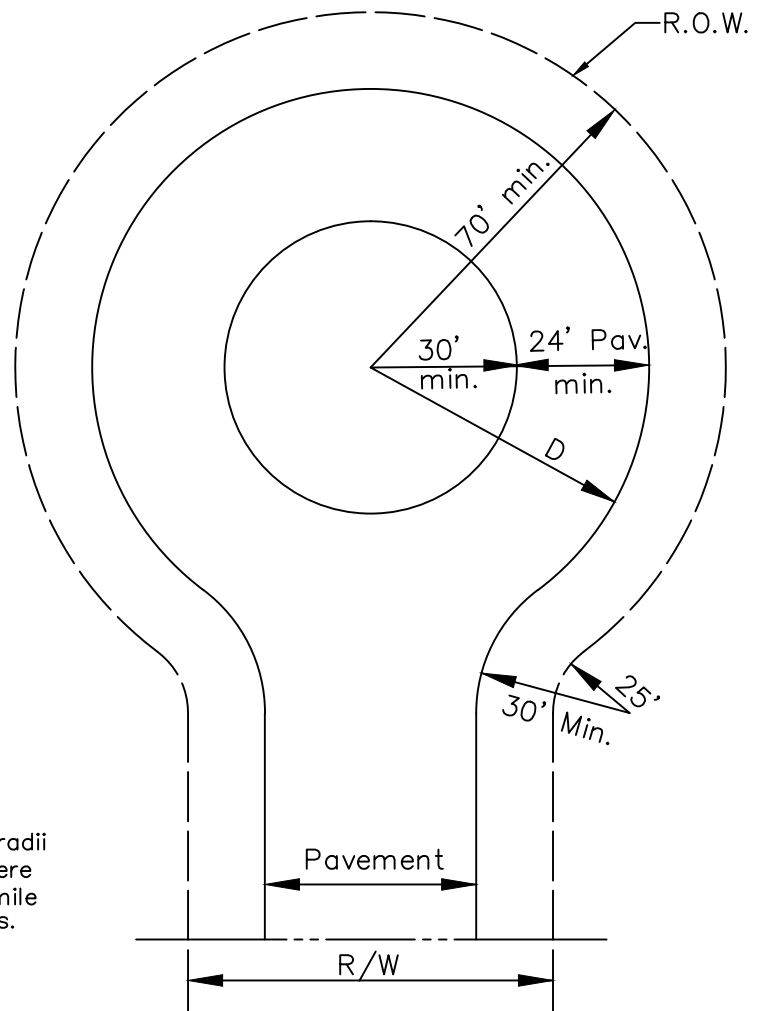
Minimum Entrance Standard  
 Commercial Dev./Major Sub.  
 St. Mary's County  
 Department of  
 Public Works & Transportation

R/13



Standard

Note: Standard cul-de-sac paving radii must be increased to 50' where length of road exceeds 1/2 mile to accommodate school buses.



Landscaped

Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date  
Interim Director of DPW&T



Minimum Dimensions  
for Typical Cul-De-Sacs

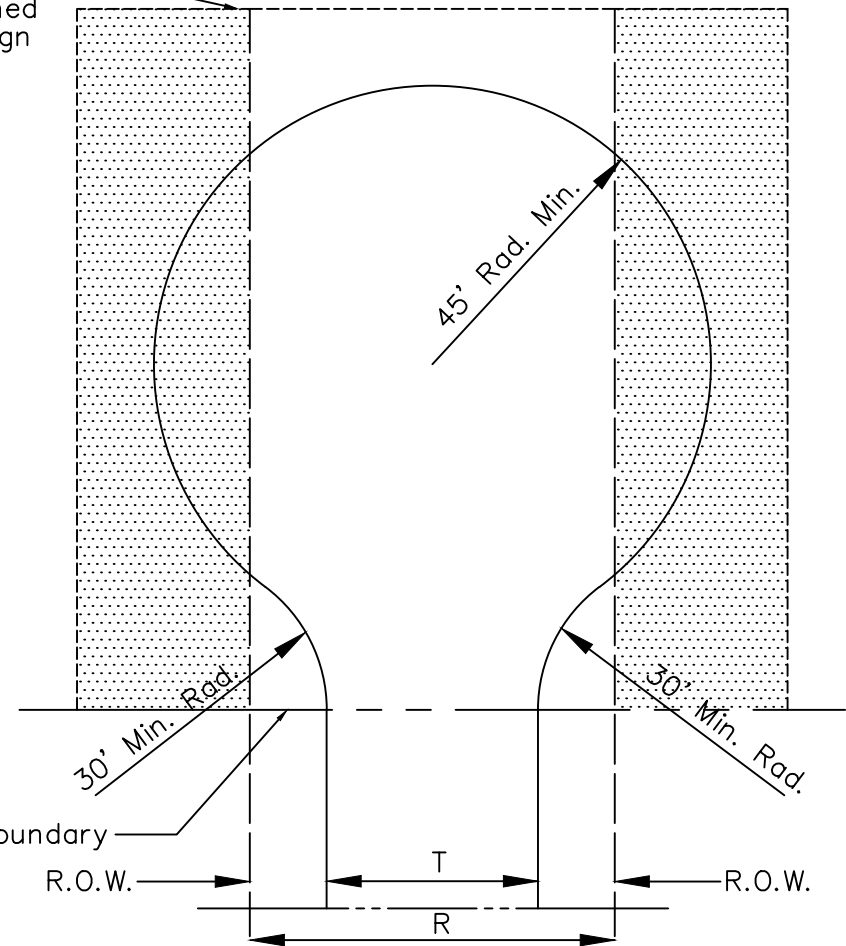
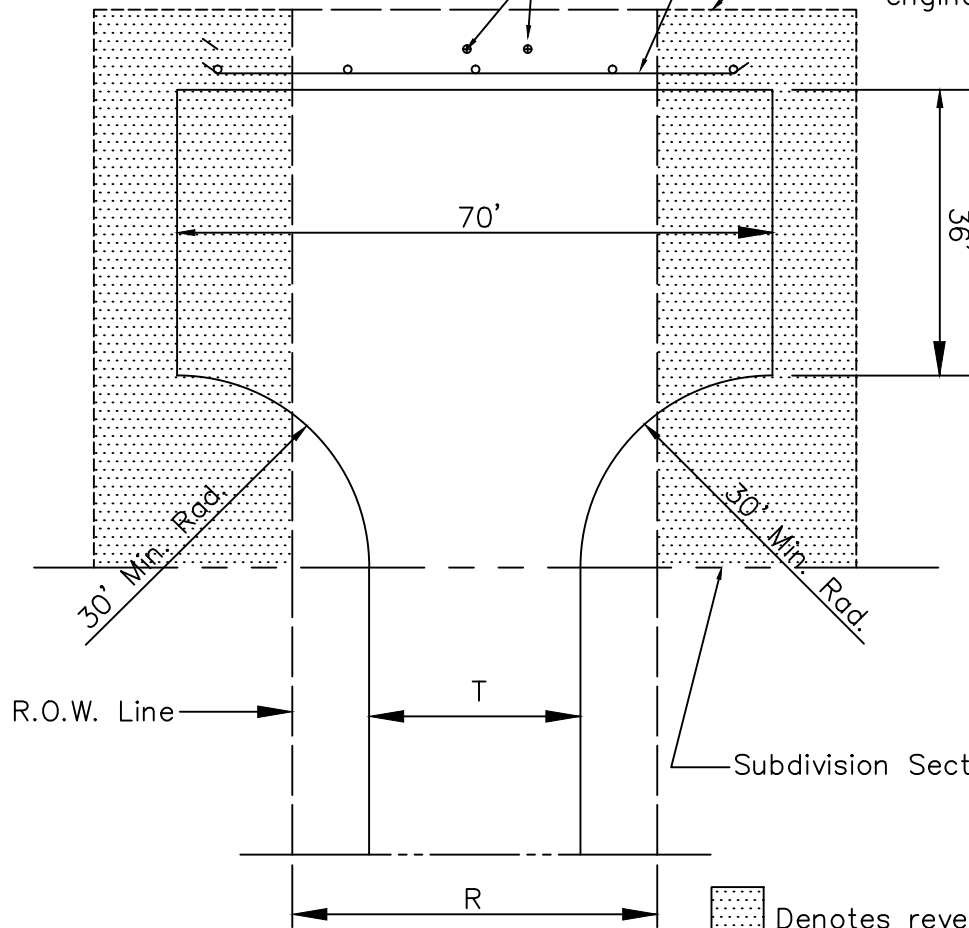
St. Mary's County  
Department of  
Public Works & Transportation


R/14

Erect MSHA W Beam Traffic Barrier (605.27) with Std. W Beam Section (605.22)

End of road marker OM4-3 (2)

Easement lines as determined by the design engineer.



 Denotes revertible grading and construction easement which shall be shown on the design plans and record plat.

(TYPE A) TEMPORARY T-TURNAROUND

(TYPE B) TEMPORARY CIRCULAR TURNAROUND

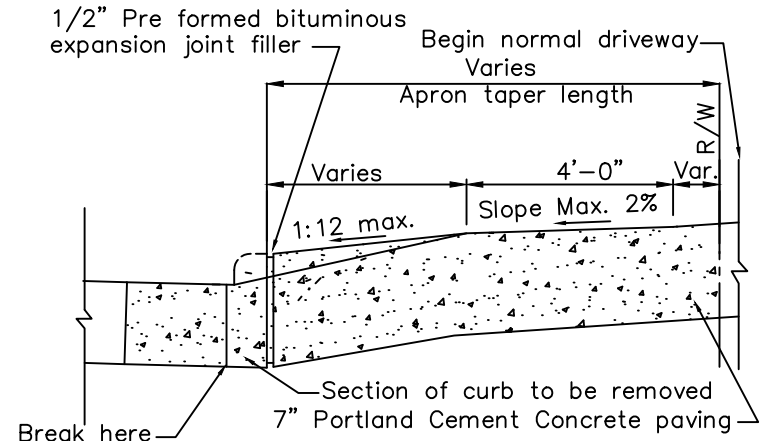
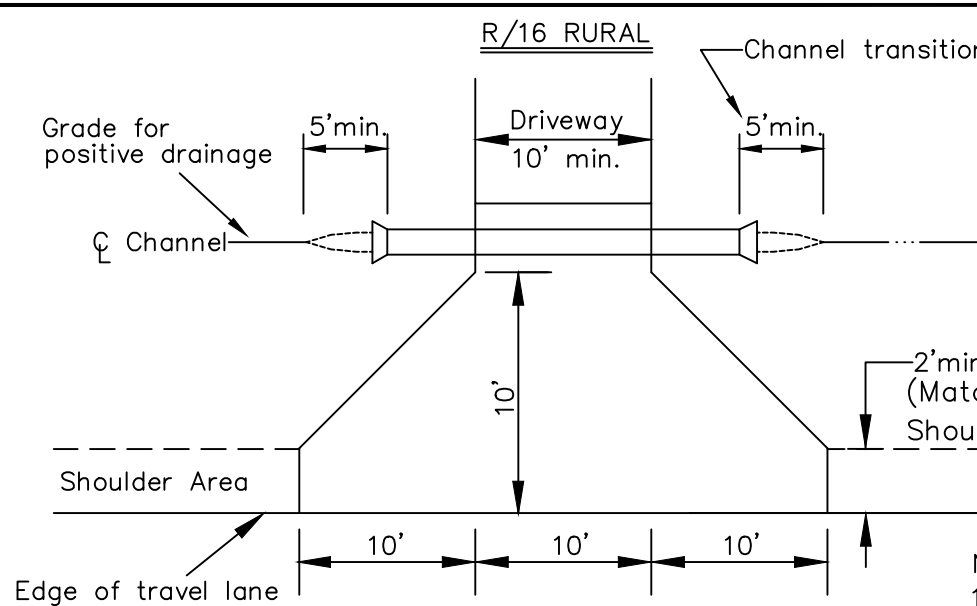
Revised:

Approved  
*John Groeger* 4/19/17  
 John J. Groeger, P.E. Date  
 Interim Director of DPW&T



Minimum Dimensions for  
 Temporary Turnarounds  
 St. Mary's County  
 Department of  
 Public Works & Transportation

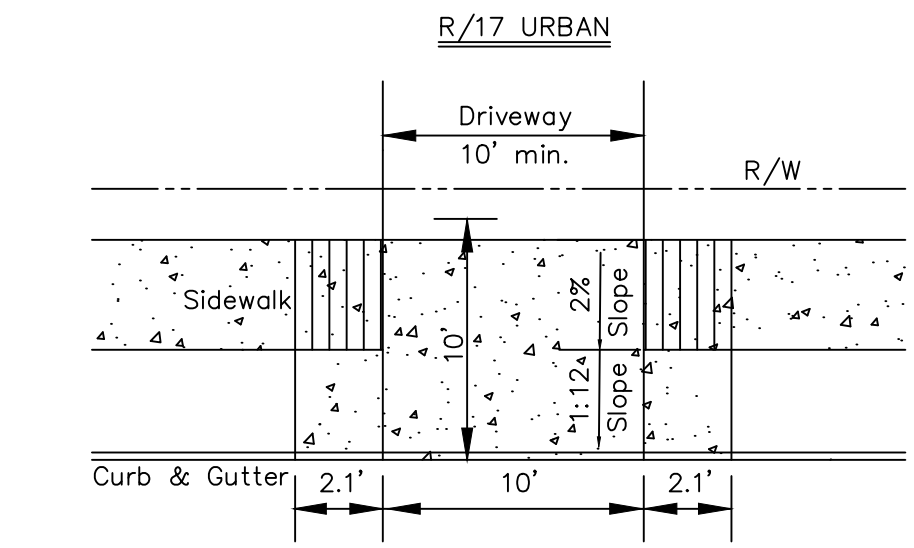
R/15



Section - Driveway In Existing Curb

Notes:

1. Driveway surface shall be 2" minimum Asphalt (Surface Course) on 6" of Bank Run Gravel and shall extend a minimum of 15' beyond the edge of travel lane.
2. A minimum of 20 lin. ft. of A.C.M.P.A. (16 gauge min.) to be installed (17"x13" min.) with end sections. installation shall be in accordance with approved standards and specifications.
3. Channel protection and velocity dissipaters to be provided as required. Flows in excess of 5 c.f.s. require submission of design computations by the applicant.
4. Adjust dimensions slightly if necessary to conform to maximum grades and minimum cover as shown hereon.
5. Builder/Contractor will be responsible for any damage to area within the County right-of-way.
6. The Department of Land Use and Growth Management shall be contacted 48 hours prior to beginning any work.
7. Driveway pipe schedules are required to be shown on all road plan submissions.
8. See MD SHA Detail MD 655.03 for depressed curb standard.



Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date

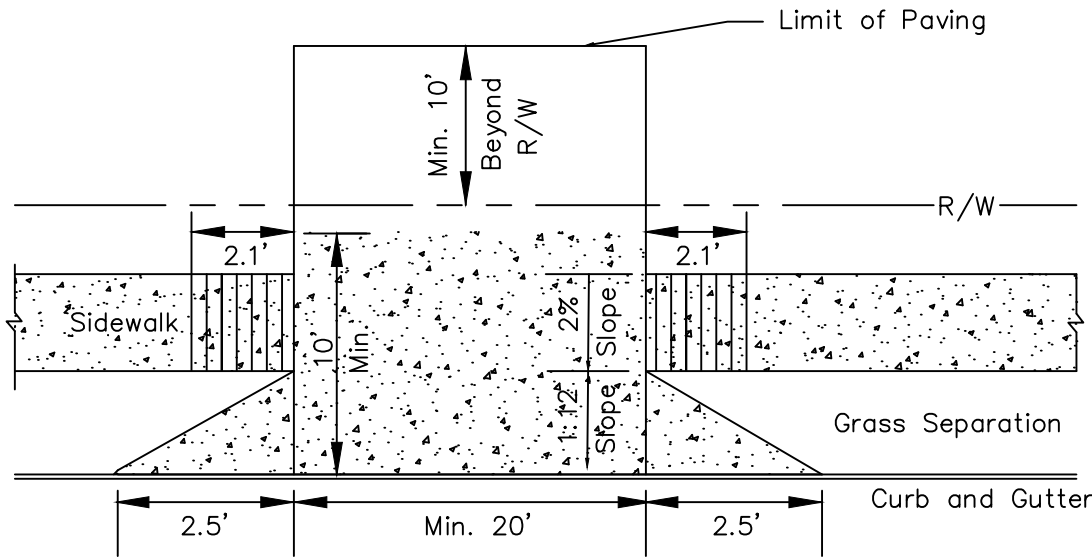
Interim Director of DPW&T



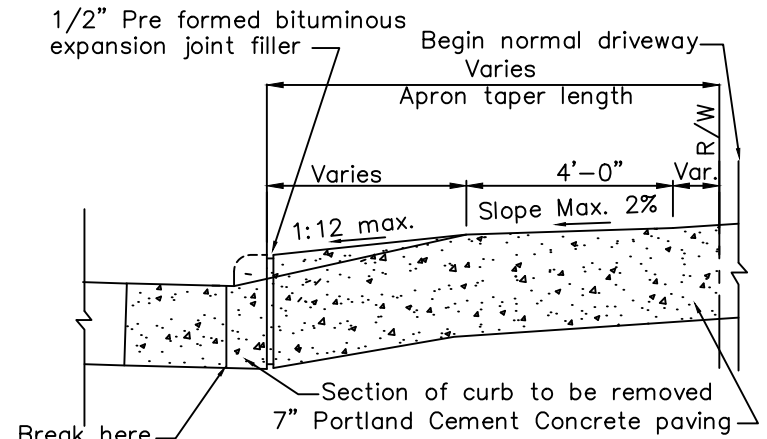
Typical Single Lot Driveway Entrance

St. Mary's County Department of Public Works & Transportation

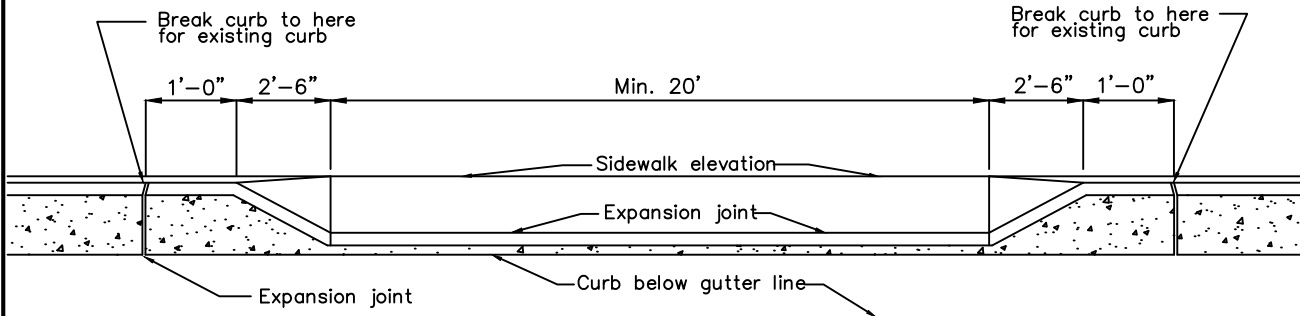
R/16 THRU R/17



Plan View



Section - Driveway In Existing Curb



Front View

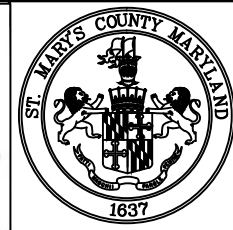
Street name signs must be installed in accordance with Private Street Sign Location detail R/25.

Notes:

1. Where curb and gutter is existing remove to nearest joint beyond this point if joint is more than 4' beyond, cut existing curb to next line.
2. Builder/Contractor will be responsible for any damage to area within the County right-of-way.
3. The Department of Land Use and Growth Management shall be contacted 48 hours prior to beginning any work.
4. Where sidewalk abuts top of curb, transition shall be at 12:1.
5. See MD SHA Detail MD 655.03 for depressed curb standard.

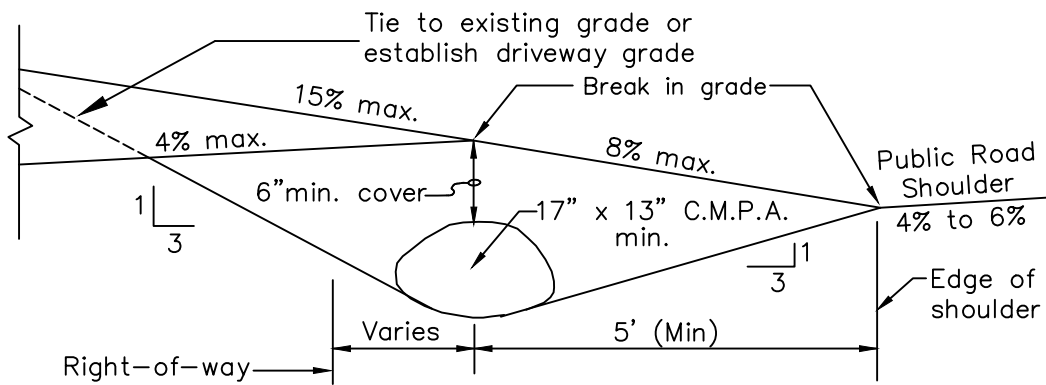
Revised:

Approved  
*John Groeger* 4/19/17  
 John J. Groeger, P.E. Date  
 Interim Director of DPW&T

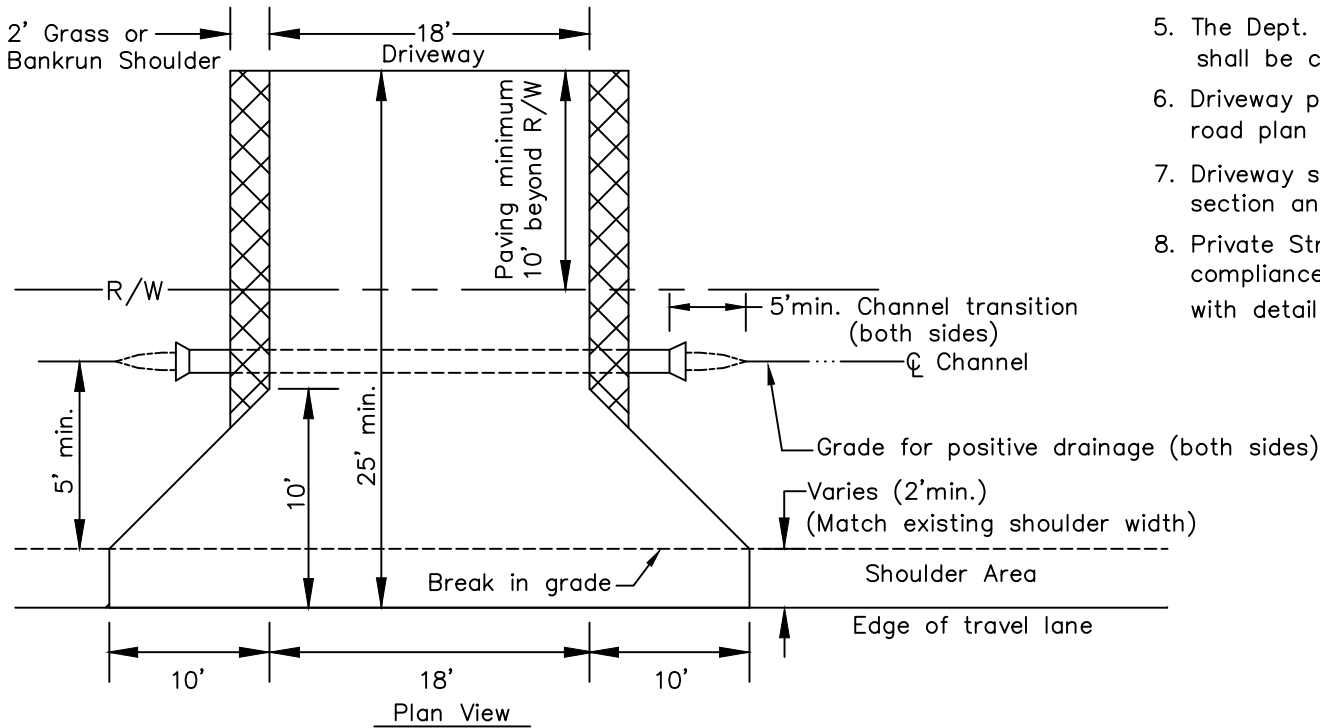


Typical Shared Urban Driveway Entrance  
 St. Mary's County Department of Public Works & Transportation

R/18  
 THRU  
 R/19

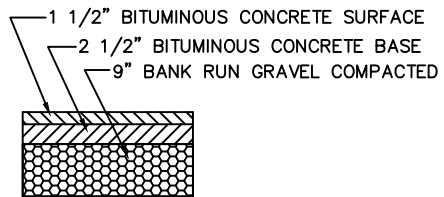


Typical Cross Section  
N.T.S.



Plan View

- Notes: 1. A minimum of 17" x 13" of C.M.P.A. (16 gauge min.) to be installed with end sections. Design and installation shall be in accordance with approved standards and specifications.
2. Ditch flow in excess of 5 c.f.s. requires submission of design computations by the applicant. Channel protection and/or velocity dissipaters, if required are to be installed and stabilized prior to final permit release.
3. Entrance details for all other open sections to be similar. Adjust dimensions to conform to maximum grades and minimum cover as shown hereon.
4. Builder/Contractor will be responsible for any damage to area within the County right-of-way.
5. The Dept. of Public Works and Transportation (DPW&T) shall be contacted 48 hours prior to beginning any work.
6. Driveway pipe schedules are required to be shown on all road plan submissions.
7. Driveway surface shall conform to the typical paving section and shall extend a min. of 10' beyond the R/W.
8. Private Street name signs, if required, must be in compliance with detail R/24 and installed in accordance with detail R/23.



TYPICAL PAVING SECTION

Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date  
Interim Director of DPW&T



Typical Shared Rural  
Driveway Entrance

St. Mary's County  
Department of  
Public Works & Transportation

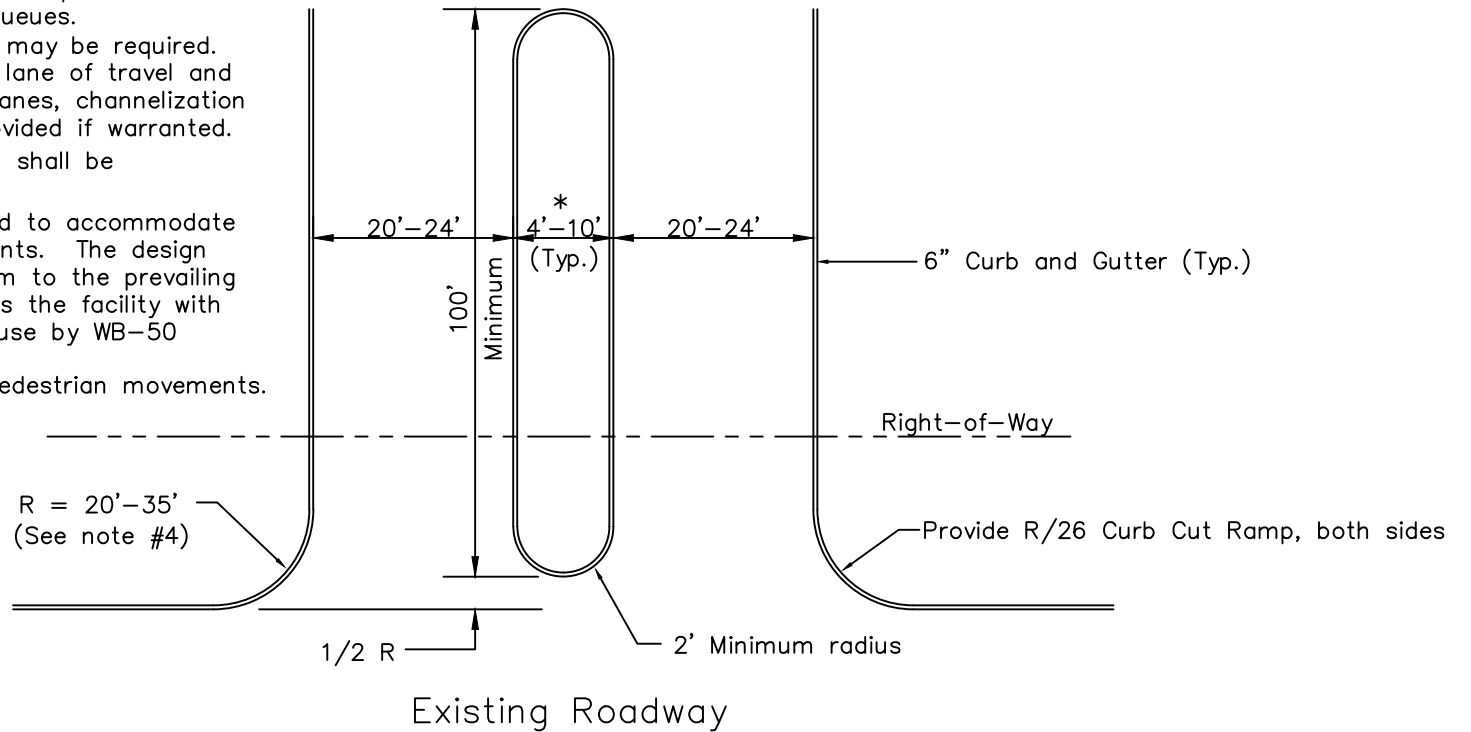
R/20



Notes

1. Minimum storage length must be provided to accommodate peak hour queues.
2. Provide accel/decel lanes as may be required. Min. width shall be 20' for 1 lane of travel and 24' for 2 lanes. Additional lanes, channelization and signalization shall be provided if warranted.
3. Raised medians < 6' in width shall be monolithic concrete.
4. The fillet radius shall be sized to accommodate large vehicle turning movements. The design vehicle template shall conform to the prevailing truck size expected to access the facility with consideration for occasional use by WB-50 vehicles.
5. Design shall accommodate pedestrian movements.

Shopping Center or Other Large Urban Traffic Generator

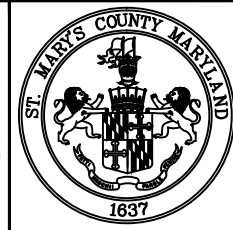


Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date  
Interim Director of DPW&T

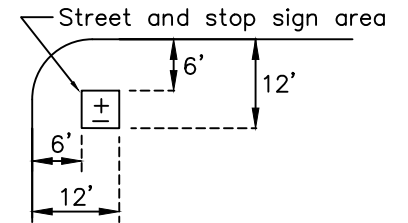
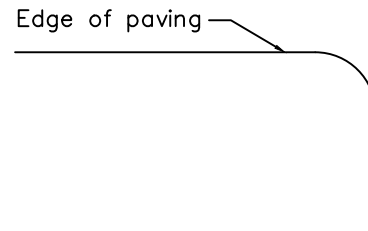
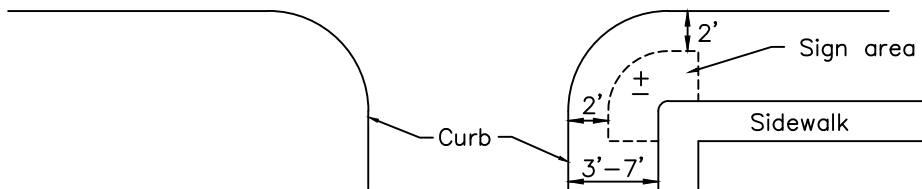
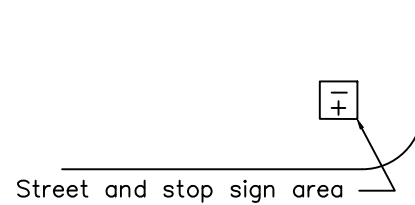
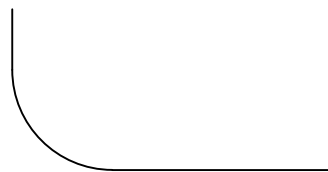
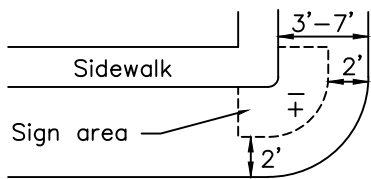


Monumental Entrance  
Typical Standard

St. Mary's County  
Department of  
Public Works & Transportation

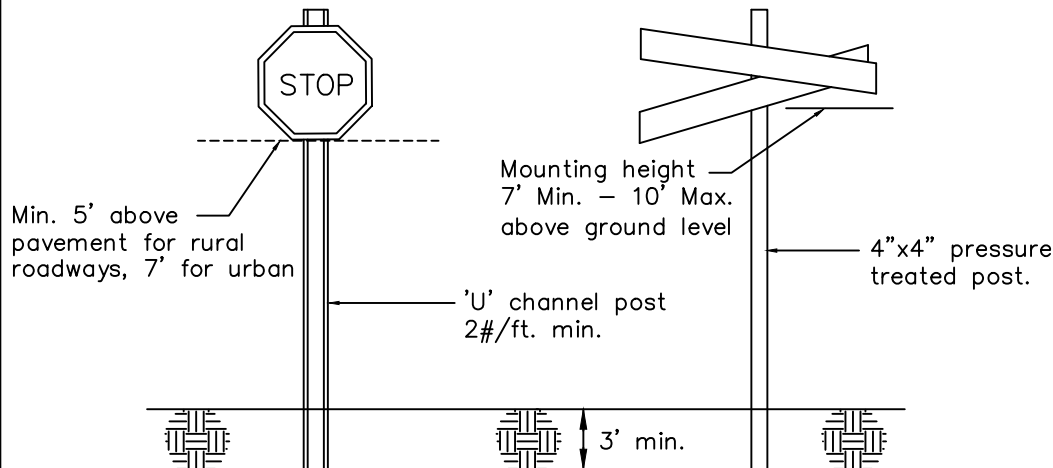
R/22





Urban Road Application

Rural Road Application



**Note:**

Location of signs must not obscure any potential traffic hazard. At any location where the typical placement of a sign interferes with a safe sight distance, an alternate location must be found.

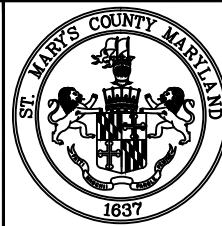
All traffic signs are to be installed prior to or during the process of paving the streets with the base course of asphalt. See detail R24 for street name sign sizes.

Shorter name plate shall be mounted above the longer name plate in the assembly.

In subdivisions where no curb and gutter is placed, the street name sign shall be erected in such a manner that the longer name plate is a minimum of 2 feet back of the ditch line and is safe from damage from traffic.

Revised:

Approved
<i>John Groeger</i> 4/19/17
John J. Groeger, P.E. Date
Interim Director of DPW&T



Typical Sign Location Rural and Urban
St. Mary's County Department of Public Works & Transportation

R/23

24", 30", 36", 42"

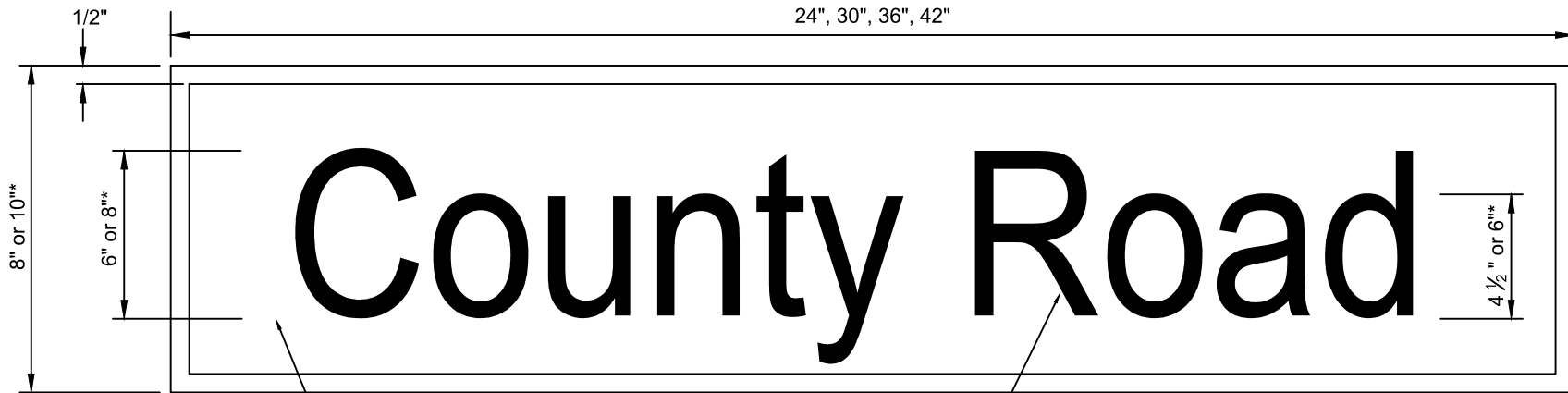


Blue Background White Lettering

Note: Street name signs shall be extruded aluminum with high intensity reflective sheeting, beaded legend and border, 6 inch or 8 inch Clearview Font Series characters with letters and background colors as specified. Std. cap and cross brackets shall be used for cross street signage.

*Minimum Letter Heights On Street Name Signs			
Speed Limit	Initial Upper Case	Lower Case	Sign Height
Multi-lane and more than 40 mph	8 inches	6 inches	10 inches
Multi-lane and 40 mph or less	6 inches	4.5 inches	8 inches
2-lane at all speed limits	6 inches	4.5 inches	8 inches

24", 30", 36", 42"



Green Background White Lettering

Revised:

Approved

*John Groeger* 4/19/17

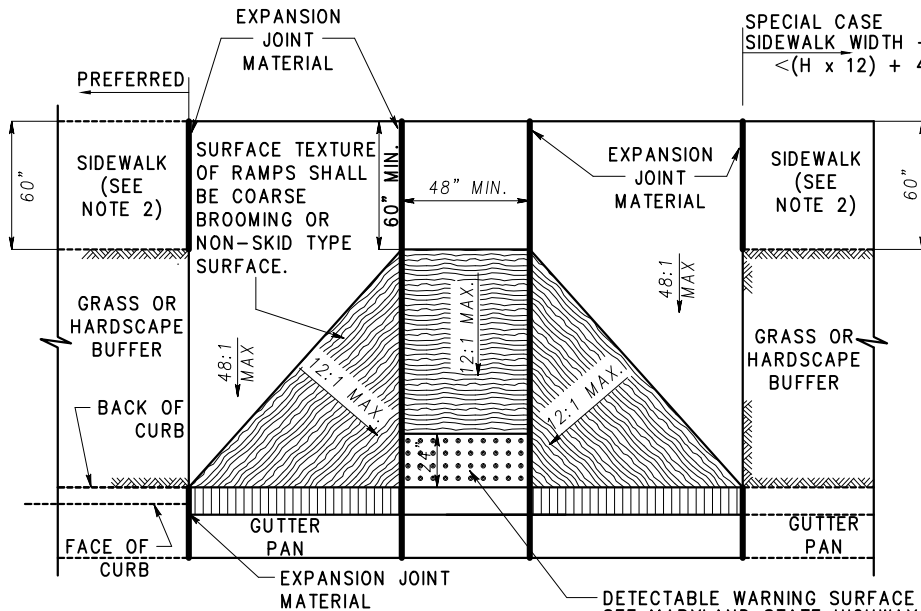
John J. Groeger, P.E. Date  
Interim Director of DPW&T



Typical Street Signage  
Public / Private Roads

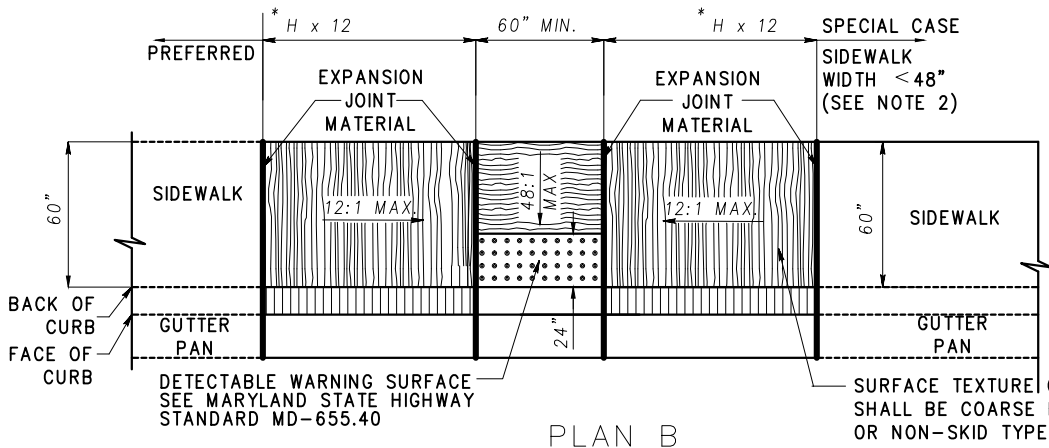
St. Mary's County  
Department of  
Public Works & Transportation

R/24

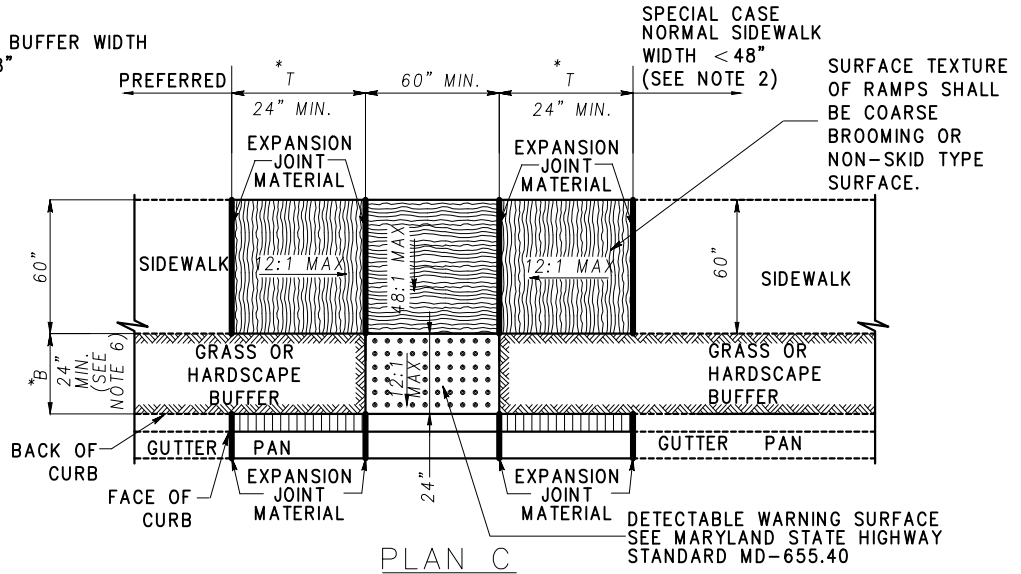


\* - H = HEIGHT OF CURB  
 B = BUFFER WIDTH (BACK OF CURB TO FRONT OF SIDEWALK)  
 T = TRANSITION LENGTH (LENGTH OF RAMP FROM SIDEWALK TO LANDING)  
 $T = (12 \times H) - B$   
 ALL MEASUREMENTS IN INCHES

PLAN A



PLAN B




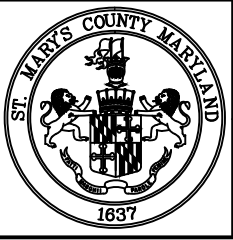
PLAN C

NOTES (CON'T ON R/26)

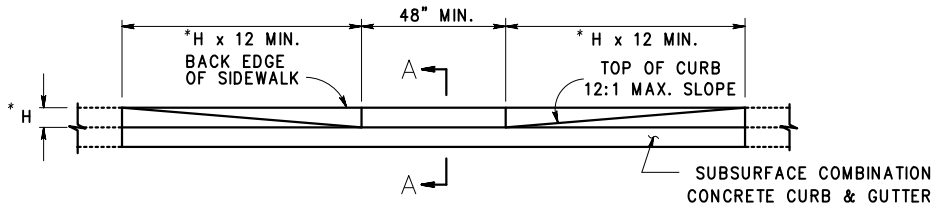
1. PLAN A TO BE USED ON WIDE SIDEWALKS OR SIDEWALKS WITH SIGNIFICANT SEPARATION FROM THE ROADWAY WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. WHERE 60" SIDEWALK CAN NOT BE PROVIDED, A DESIGN WAIVER MUST BE REQUESTED
3. NO TRAVERSABLE SLOPE ON THE RAMP OR SIDEWALK SHALL EXCEED 12:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL, OR 48:1 PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL.
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH SARYLAND STATE HIGHWAY STD. MD-655.01.
5. SIDEWALK RAMPS TO BE SHOWN ON PLANS SYMBOLICALLY AND REFERENCED WITH THE CENTER OF THE RAMP ALIGNED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL BE SHOWN WHERE PROPOSED RAMP VARIES FROM STANDARD CASES.
6. REFER TO DETAIL R/26 FOR ELEVATIONS AND SECTIONS.

Revised:  
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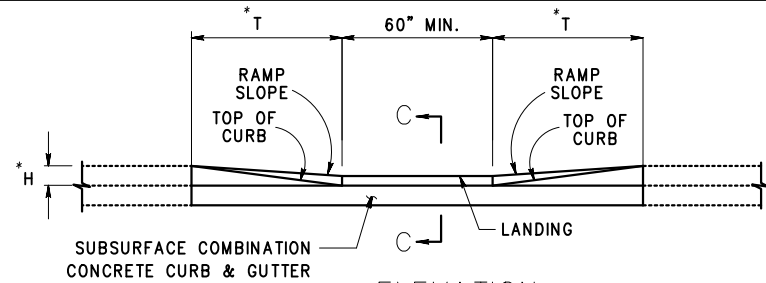
Approved  
  
 John J. Groeger, P.E. Date 4/19/17  
 Interim Director of DPW&T



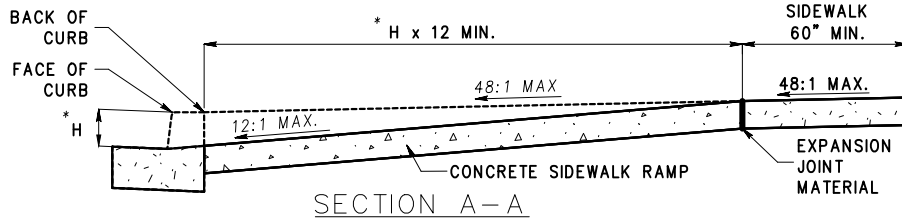
Curb Cut Handicap Ramp  
 Typical Detail A  
 St. Mary's County  
 Department of  
 Public Works & Transportation



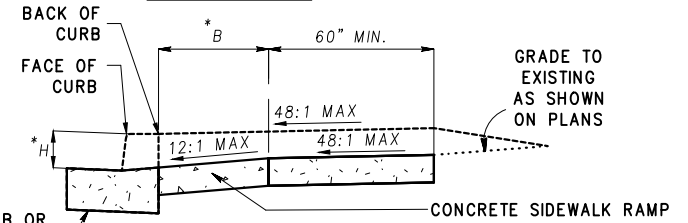
ELEVATION A



ELEVATION



SECTION A-A



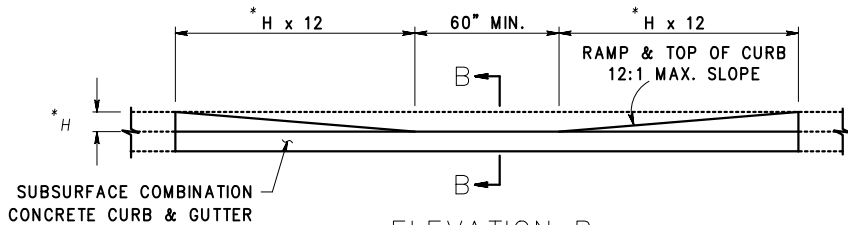
SECTION C-C

- \* - H = HEIGHT OF CURB
- B = BUFFER WIDTH (BACK OF CURB TO FRONT OF SIDEWALK)
- T = TRANSITION LENGTH (LENGTH OF RAMP FROM SIDEWALK TO LANDING)
- $T = (12 \times H) - B$
- ALL MEASUREMENTS IN INCHES

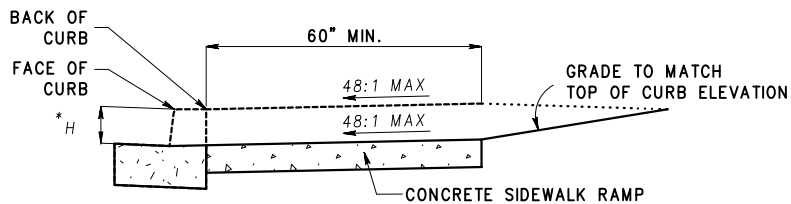
DEPRESSED CURB OR COMBINATION CURB & GUTTER FOR SIDEWALK RAMPS  
SEE STD. MD-620.03

NOTES (CON'T FROM R/25)

7. NO TRAVERSABLE SLOPE ON THE RAMP OR SIDEWALK SHALL EXCEED 12:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL, OR 48:1 PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL. THE CROSS-SLOPE OF THE LANDING AREA CANNOT EXCEED GRADE OF ROADWAY
8. SIDEWALK RAMPS TO BE SHOWN ON PLANS SYMBOLICALLY AND REFERENCED WITH THE CENTER OF THE RAMP ALIGNED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL BE SHOWN WHERE PROPOSED RAMP VARIES FROM STANDARD CASES.
9. PLAN C TO BE USED WHERE AT LEAST 2'-0" EXISTS BETWEEN THE BACK OF CURB AND THE BACK OF SIDEWALK. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
10. FOR BUFFER WIDTHS LESS THAN 24", WIDEN SIDEWALK TO BACK OF CURB AS SHOWN FOR THE SPECIAL CASE, THEN BUILD PARALLEL RAMP USING STANDARD MD-655.12. PLAN B TO BE USED WHERE SIDEWALK IS ADJACENT TO THE CURB. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
11. IF THE BUFFER AREA IS GREATER THAN OR EQUAL TO 4' THE LANDING AREA MUST BE 2% X 2%. IF THE BUFFER AREA IS LESS THAN 4' THE LANDING AREA CROSS-SLOPE CANNOT EXCEED THE GRADE OF THE ROAD.
12. REFER TO DETAIL R/25 FOR PLAN VIEWS.



ELEVATION B



SECTION B-B

Revised:

Approved

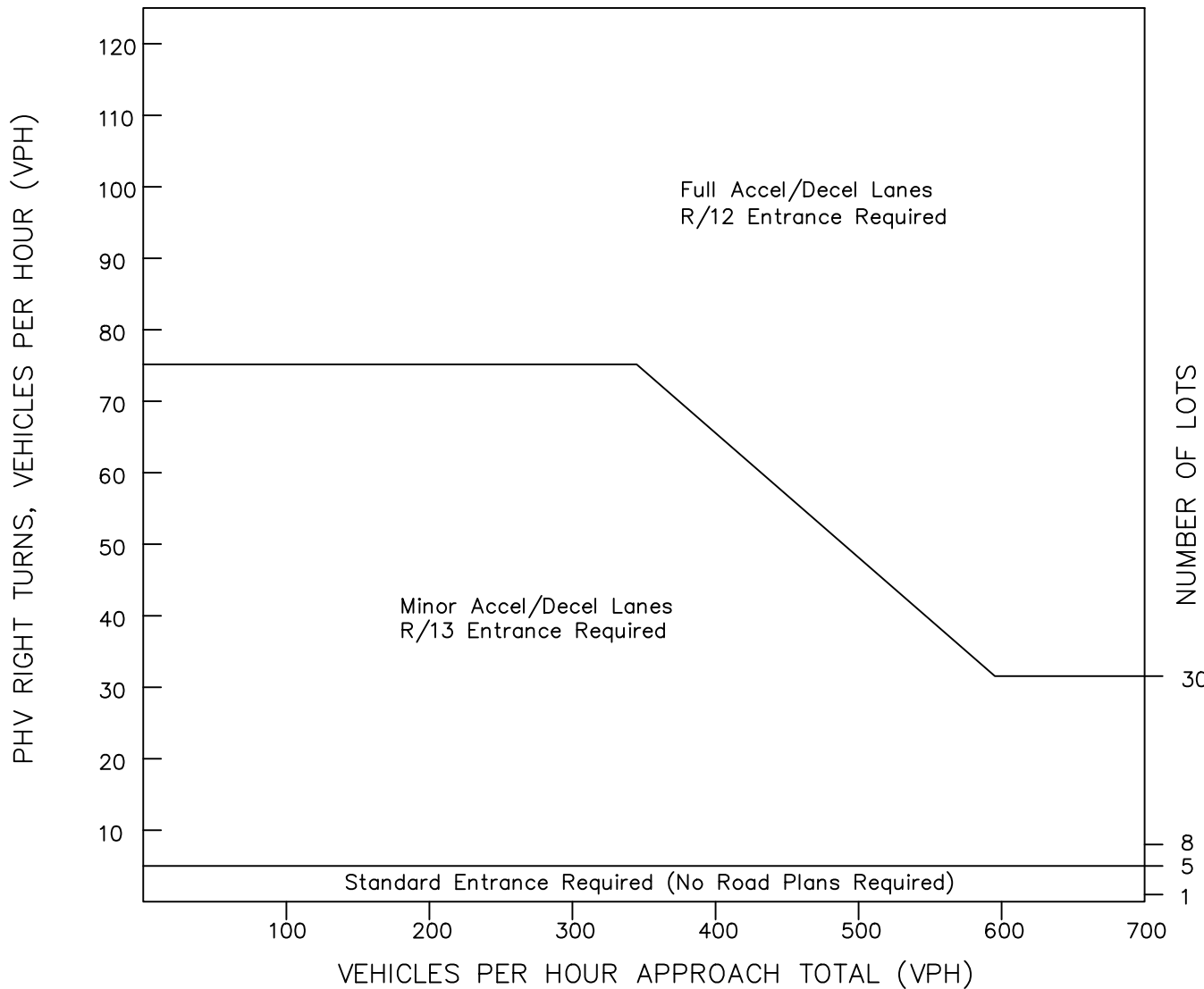
*John J. Groeger* 4/19/17  
John J. Groeger, P.E. Date  
Interim Director of DPW&T



Curb Cut Handicap Ramp  
Typical Detail B

St. Mary's County  
Department of  
Public Works & Transportation

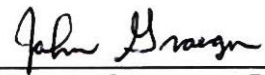
R/26



PHV = Peak Hour Volume  
 ADT = Average Daily Traffic  
 AADT = Annual Average Daily Traffic

If PHV is not known, use  
 $PHV = ADT \times K \times D$   
 $K = \% \text{ AADT in peak hr.}$   
 $D = \% \text{ traffic in peak direction}$   
 Note: An average of 12% for  $K \times D$  will suffice  
 (i.e.  $PHV = ADT \times 12\%$ )  
 - (Use R/16 & R/17 Driveway Entr.)

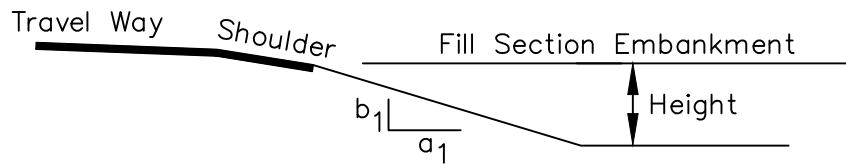
Revised:  
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Approved  
  
 John J. Groeger, P.E. Date  
 Interim Director of DPW&T 4/19/17

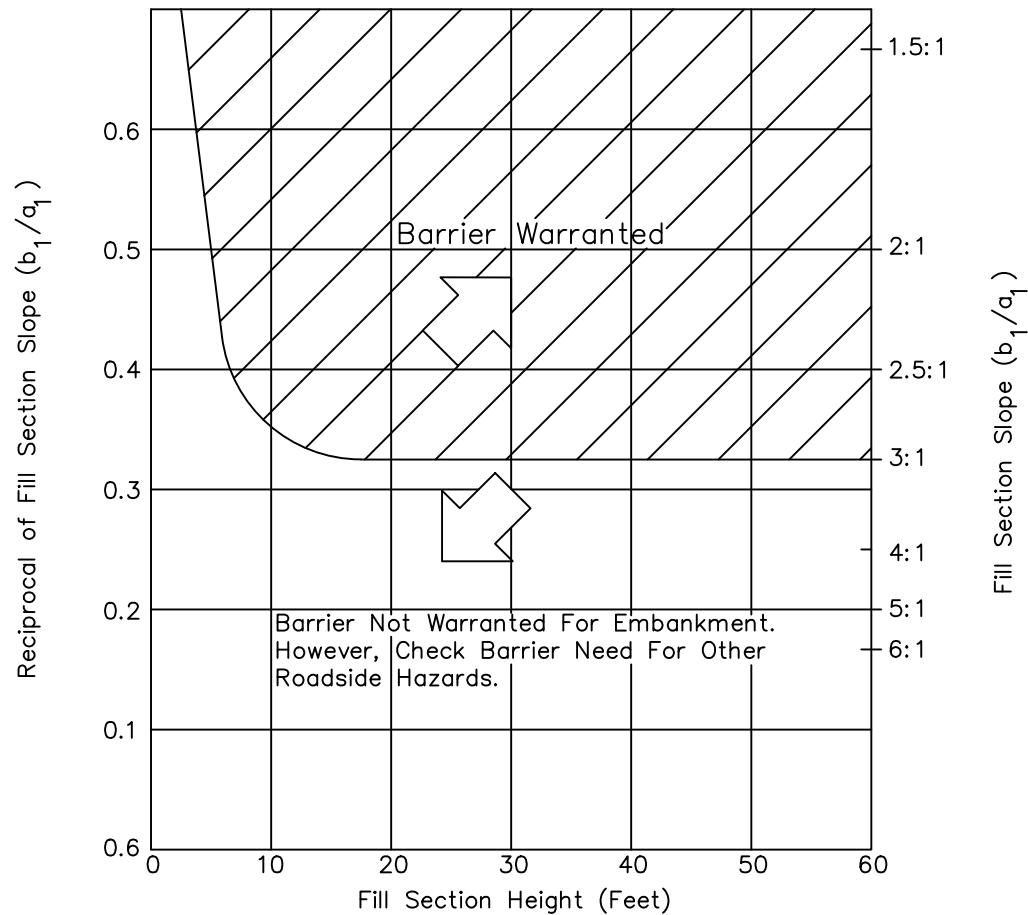


Entrance Requirements  
 for Two-Lane Roads  
 St. Mary's County  
 Department of  
 Public Works & Transportation

R/27



Note: These guidelines are not intended to replace the safety standards specified in the Unified Code.



Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date  
Interim Director of DPW&T



Guardrail Placement  
on Embankments

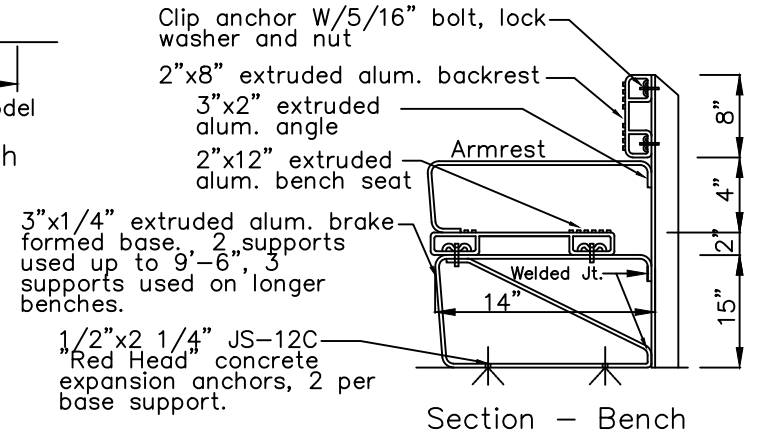
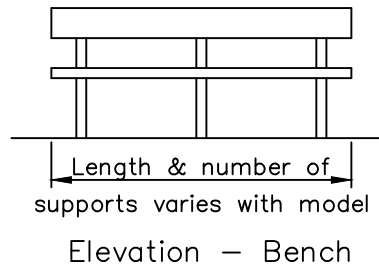
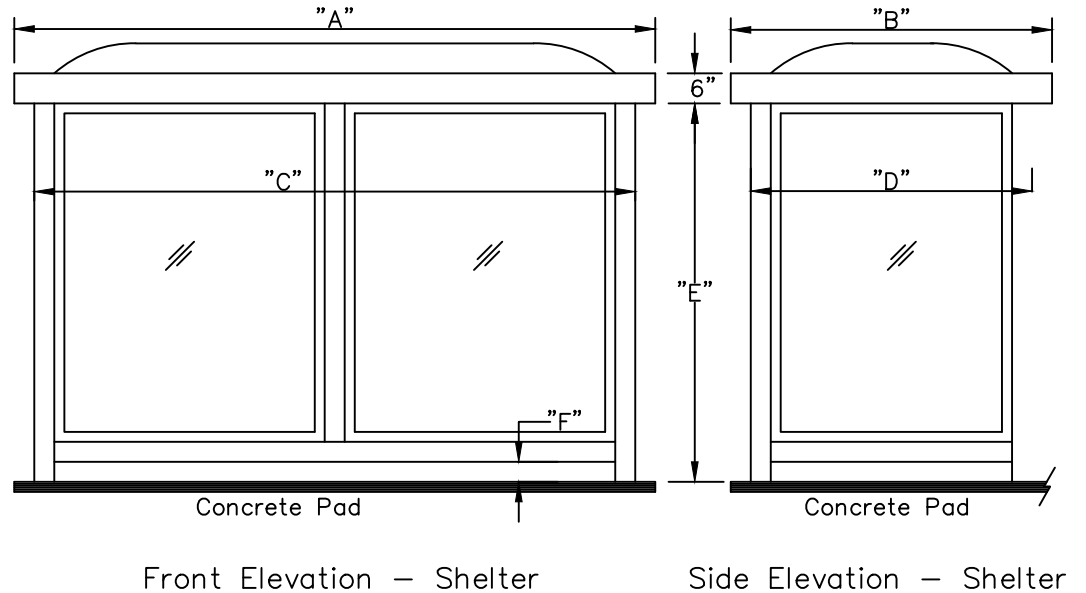
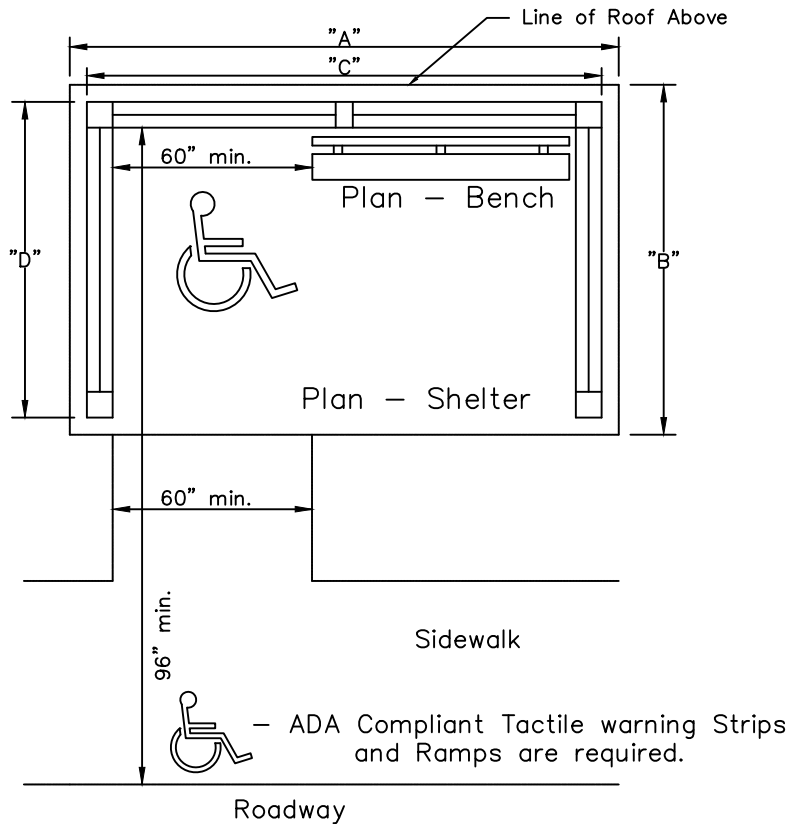
St. Mary's County  
Department of  
Public Works & Transportation

R/28

Notes:

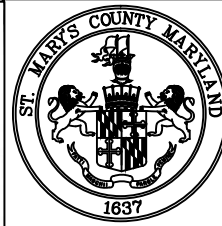
1. All members are of extruded aluminum.
2. All seat and backrests to be capped on ends. There shall be no rough edges.
3. Finish of aluminum to be smooth
4. Solar lighting is to be provided in areas having adequate sun exposure.
5. Concrete shall be SHA Mix No. 3 @ 4 inches thick.

Dimensions	
"A"	8'-1 1/4"
"B"	4'-4 1/4"
"C"	7'-9 1/2"
"D"	4'-0 1/2"
"E"	7'-0"
"F"	8"±



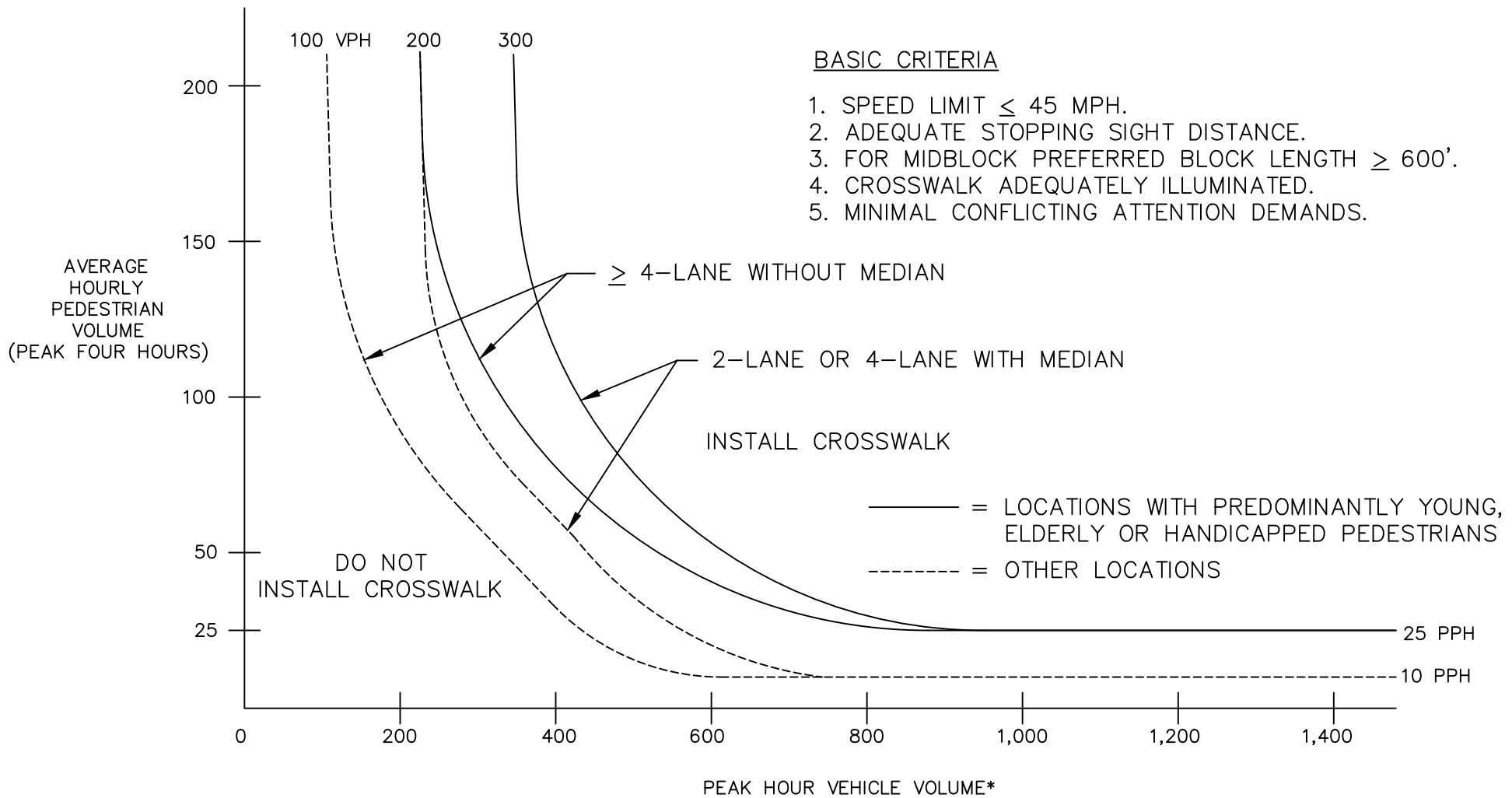
Revised:

Approved  
*John Groeger* 4/19/17  
 John J. Groeger, P.E. Date  
 Interim Director of DPW&T



Bus Shelter & Bench  
 Standard / Typical  
 St. Mary's County  
 Department of  
 Public Works & Transportation

R/29



\*FOR STREETS WITH A MEDIAN, USE ONE-WAY VOLUME.

SOURCE: FIGURE 23, FHWA PUBLICATION "PLANNING, DESIGN AND MAINTENANCE OF PEDESTRIAN FACILITIES".

Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date  
 Interim Director of DPW&T

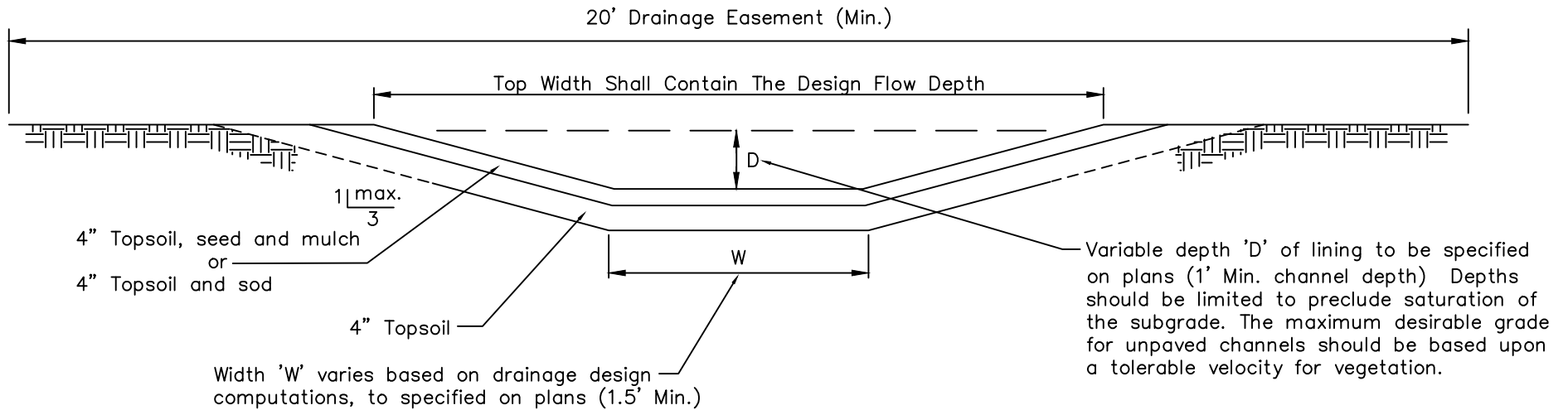


Guidelines for  
 Crosswalk Installation

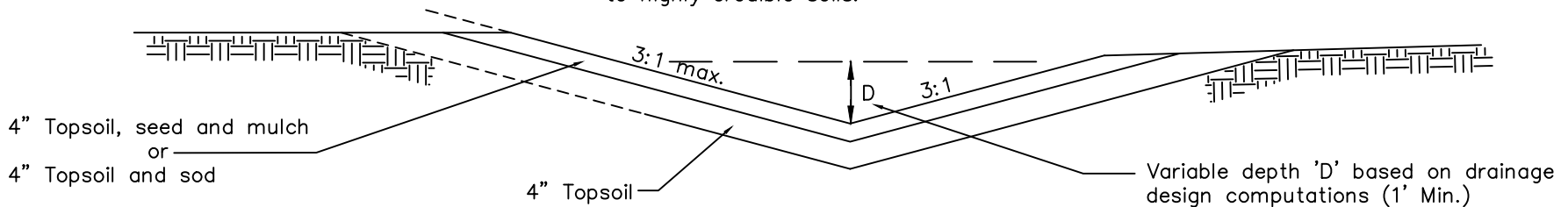
St. Mary's County  
 Department of  
 Public Works & Transportation

R/30





- Notes: (1) In areas where grass will grow, grass is usually the most economical channel lining except on steep slopes where the velocity of flow exceeds the permissible velocities for grass protection.
- (2) The use of erosion control matting may be required.
- (3) Grade stabilization structures and/or additional measures may be required where runoff is directed to highly erodible soils.



Revised:

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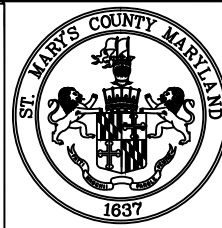
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Approved

*John Groeger* 4/19/17

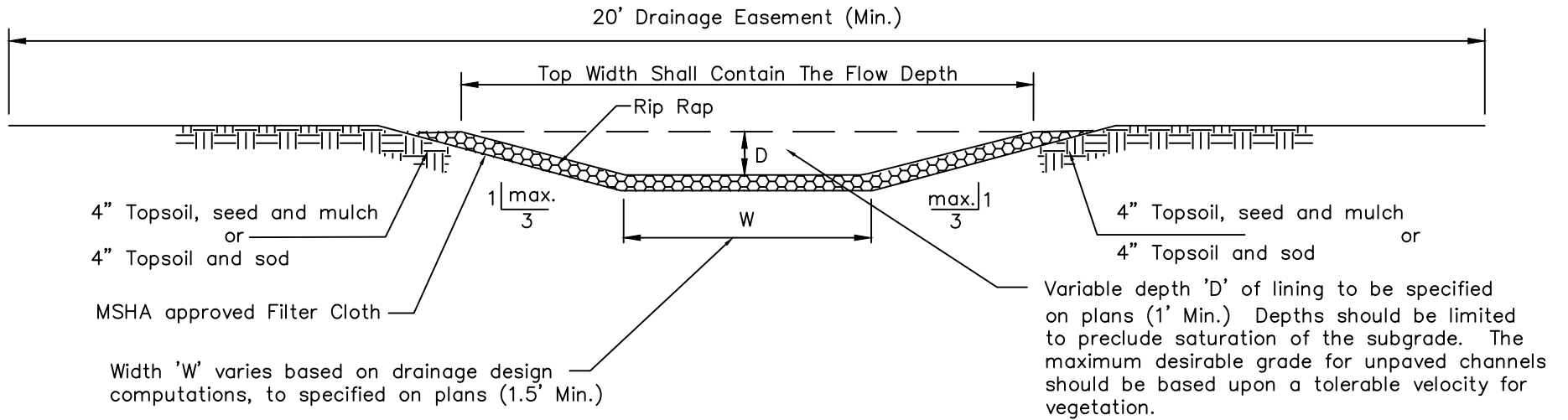
John J. Groeger, P.E. Date  
Interim Director of DPW&T



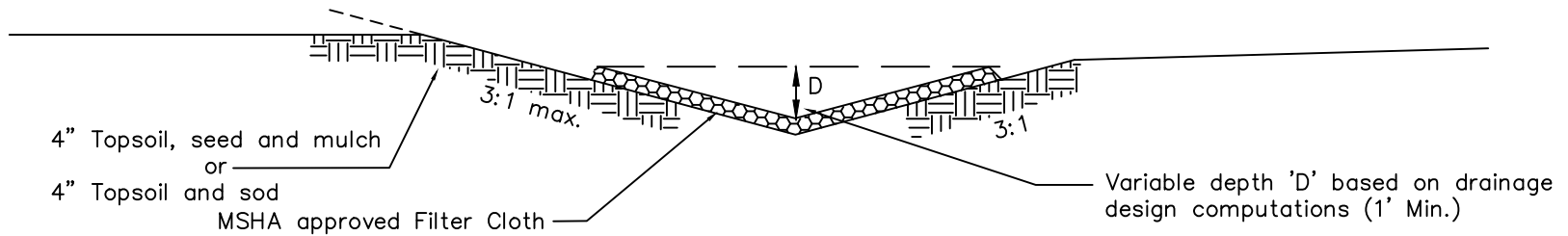
Sod Outfall Channel  
Typical Sections

St. Mary's County  
Department of  
Public Works & Transportation

D/1



- Notes: (1) Provision must be made to dissipate the energy of the high-velocity flow before it is released to a natural channel to avoid scour at the outlet and damage to the proposed channel lining.
- (2) The use of erosion control matting is preferred in lieu of rip-rap within County right-of-ways.
- (3) Grade stabilization structures and/or additional measures may be required where runoff is directed to highly erodible soils.



Revised:

Approved

*John Groeger*

John J. Groeger, P.E.  
Interim Director of DPW&T

4/19/17

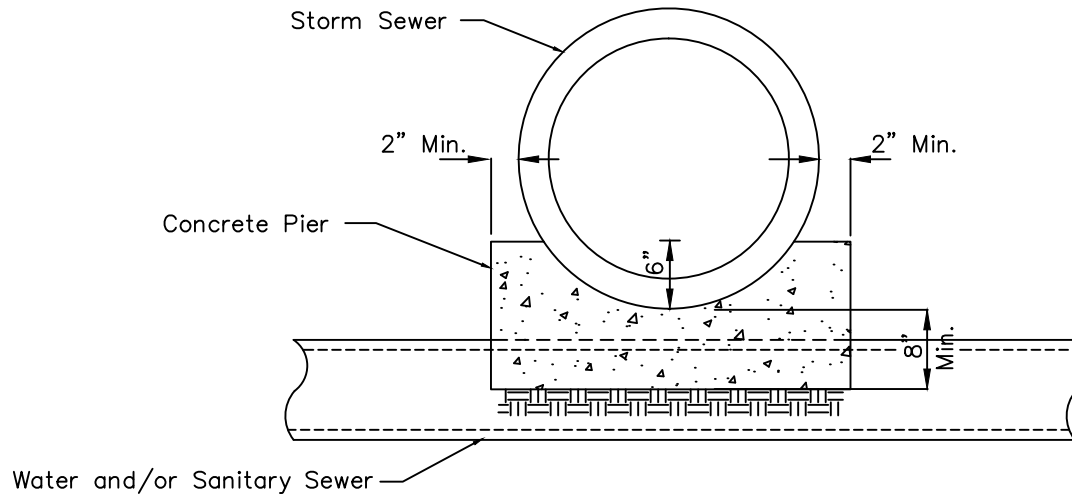
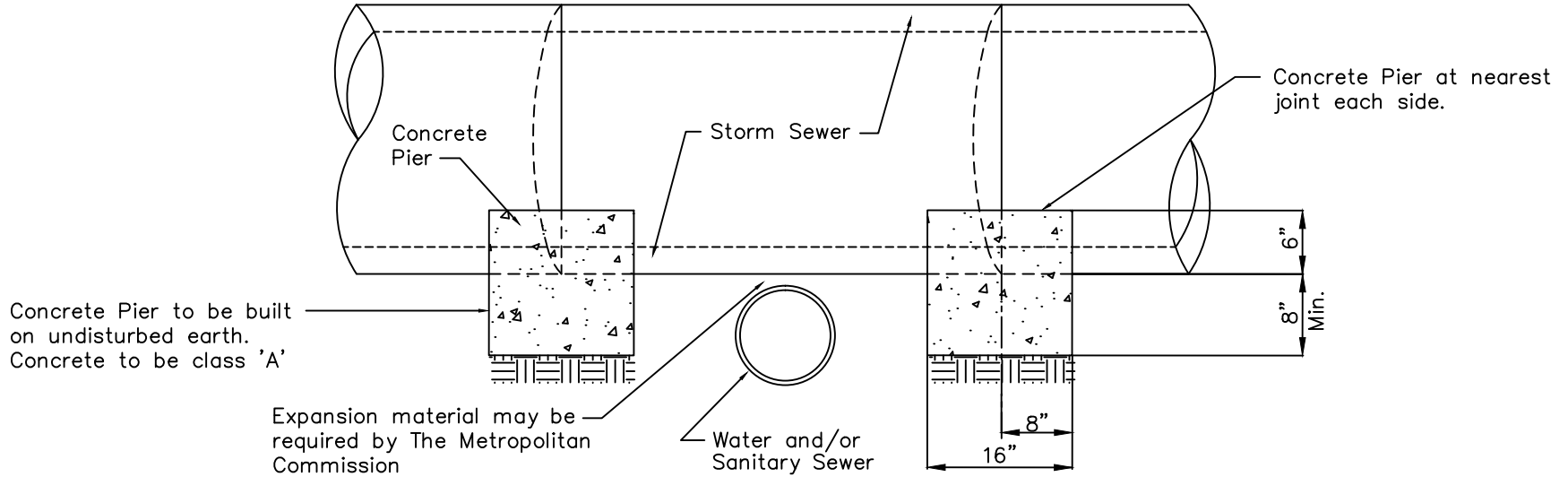
Date



Rip Rap Outfall Channel  
Typical Sections

St. Mary's County  
Department of  
Public Works & Transportation

D/2

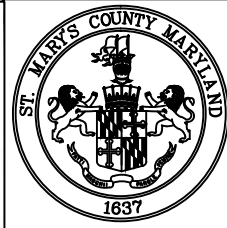


Revised:

Approved

*John Groeger* 4/19/17

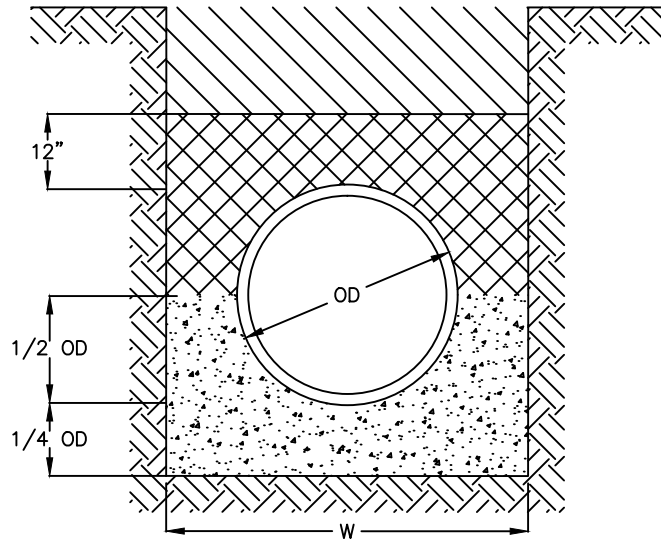
John J. Groeger, P.E. Date  
Interim Director of DPW&T






Concrete Pier for Storm Drain Pipe

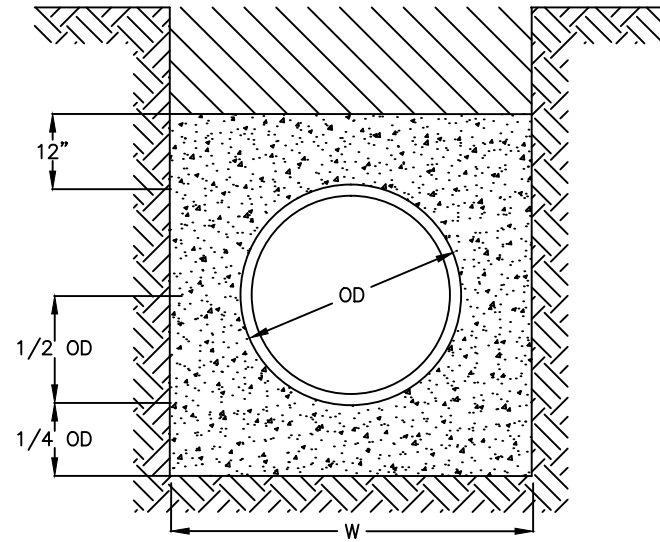
St. Mary's County  
Department of  
Public Works & Transportation



D/3



-  Compacted to not less than 95% of the maximum density.
-  Select backfill – Hand placed to 95% compaction in accordance with MDOT specs.
-  Crushed stone MDOT size 57 in accordance with MDOT specs.

### Pipe Bedding



-  Compacted to not less than 95% of the maximum density.
-  Crushed stone MDOT size 57 in accordance with MDOT specs.

### Pipe Bedding Alternative

1. Permission must be granted by a DPW inspector prior to backfilling areas to be tamped with approved material(s). Soils having maximum dry density of less than 100 lb/ft<sup>3</sup> shall be considered unsatisfactory and shall not be used.
2. Material(s) shall be placed in horizontal layers not to 6 inches in loose depth over the entire area and uniformly compacted in accordance with the Maryland DOT standards. Each layer shall be filled and compacted before the next layer is placed
3. When a trench is located within the paving section of the shoulder area, it is to be backfilled in compliance with the above to within one foot of the top of the sub-grade; the remaining depth of the trench shall be backfilled with thoroughly compacted crusher run stone or gravel to be at the option and approval by the Director of Public Works.
4. The minimum width (W) of the trench shall be 20D or OD+3 whichever is less, unless otherwise approved by the Director of Public Works.

Revised:

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Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date

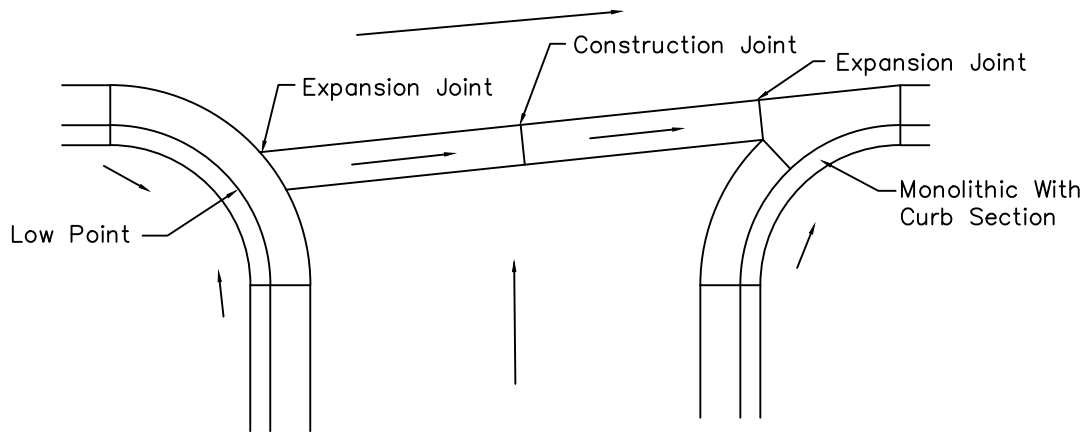
Interim Director of DPW&T



Storm Sewer Bedding Detail

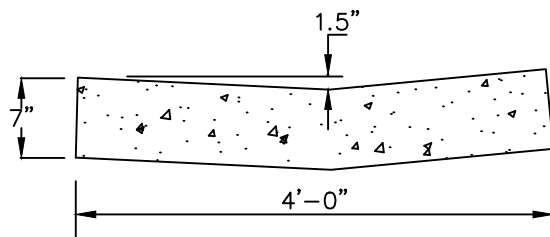
St. Mary's County Department of Public Works & Transportation

D/4

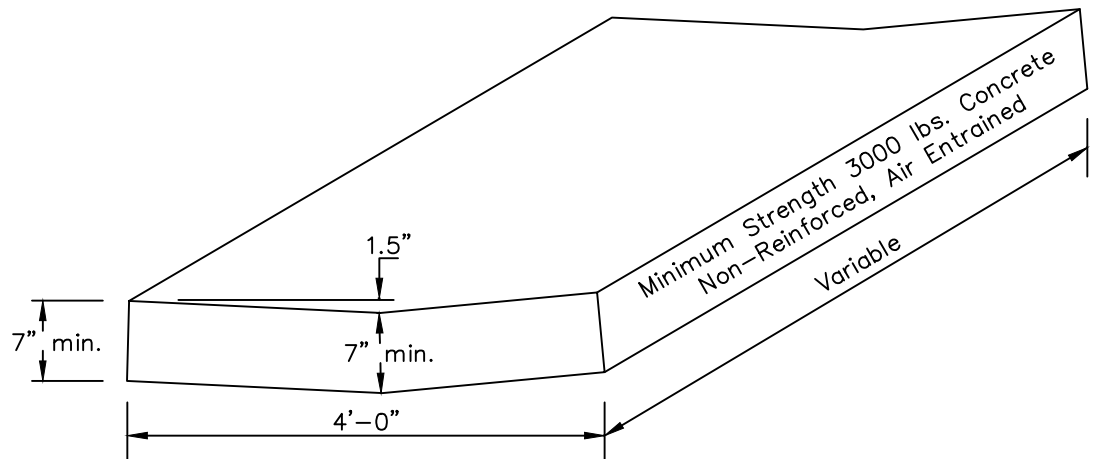


Not To Scale

Note:  
For use where ponding is occurring on the roadway or where intersection slopes are less than or equal to 0.5%.



Not To Scale



Not To Scale

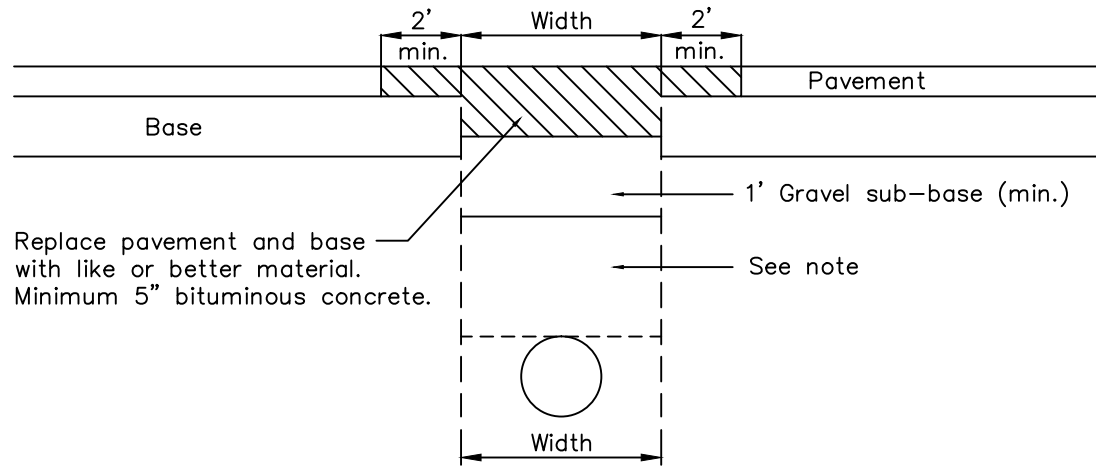
Revised:

Approved  
*John Groeger*  
John J. Groeger, P.E. Date 4/19/17  
Interim Director of DPW&T



Concrete Valley Gutter  
Typical Sections  
St. Mary's County  
Department of  
Public Works & Transportation

D/5



Note: Backfill in trenches shall be in accordance with MSHA specifications and shall be thoroughly compacted in 6" layers for the full depth of the trenches by tamping or by some other approved method to within 1' of the top of subgrade. The remaining depth of the trench shall be filled with thoroughly compacted crushed stone, slag or gravel. Whenever sheeting or shoring is required to prevent cave-ins or bellying due to the depth of the trench or type of material encountered, the sheeting, wherever found necessary, shall remain in place but cut off 1' below the bottom of the replaced surfacing. All backfill replaced shall be compacted to at least 95% of maximum density in accordance with MSHA specifications and certified by an approved geotechnical testing contractor. In lieu of controlled fill, flowable fill in accordance with MSHA specifications may be utilized.

UTILITY	COVER
telephone & cable t.v.	24" min.
electric cable	36" ± †
sewer line	48" min.
water line	42" min.
concrete, steel pipes	12" min.
† frost depth	18"

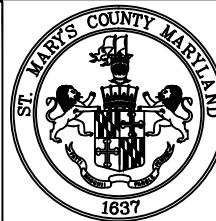
Revised:

Approved

*John J. Groeger*

John J. Groeger, P.E.  
Interim Director of DPW&T

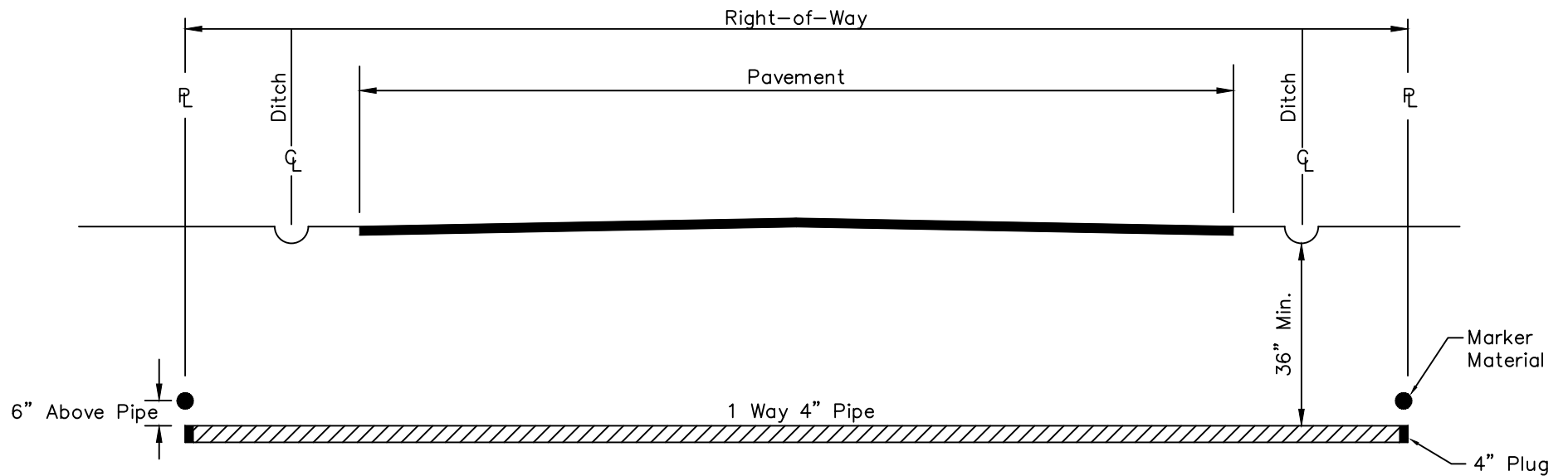
4/19/17  
Date



Utility Trench  
Typical Section

St. Mary's County  
Department of  
Public Works & Transportation

U/1



PROFILE

Notes:

1. SMECO requests, prior to the start of construction of the road, a final record plat (with bearings and distances for all lots) be submitted to the St. Mary's District Office for design of the electrical system. If possible, please submit on disk (contact SMECO for format) to expedite the process. Installation shall conform to SMECO's proposed underground electric distribution design and specifications, and is subject to SMECO inspection.
2. If a final record plat cannot be provided by the developer, conduit will be required at all intersections and at 100 feet intervals along each county road. Intervals between conduit crossings may be changed at SMECO discretion and a written request from the Developer.
3. Conduit, plugs and placement will be at the expense of the developer.
4. SMECO will provide the marking material, but must be notified of placement. (No markers will be considered, no placement)
5. Conduit is to be 4 inch Schedule 40 PVC.
6. Conduit is to be placed a minimum 36 inches and a maximum 42 inches below final grade and is to extend the complete right-of-way width (see profile above)
7. If any conduit road crossings are not placed, SMECO will place the conduit and charge the Developer all associated costs, including restoration.

Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date  
Interim Director of DPW&T



Typical Utility Conduit  
Road Crossings

St. Mary's County  
Department of  
Public Works & Transportation

U/2



Lighting Design Guidance:

1. For leased lighting contact SMECO to receive the latest overhead lighting specifications, manufacturers, bracket arm lengths, and light placement guidelines.
2. For all other lighting within the county, contact DPW&T to receive the latest approved fixture list, specifications, and guidelines.
3. Prior to proceeding with any analysis and design, designer shall seek DPW&T approval on the following:
  - Basis of design and assumptions
  - Fixture/luminaire selection and input variables (mounting height(s), color temperature, distribution type, light loss factor calculations, IES files, lumen outputs, BUG ratings, etc...)
  - Illumination criteria (see Sheet U/4C)
4. All electrical design shall be in accordance with the latest NEC Codebook.
5. St. Mary's County lighting design is based on the following guidelines:
  - IES RP-8-00
  - MDOT SHA Traffic Control Devices Manual
  - MDOT SHA Lighting Design Guidelines (April 2018)

Photometric Analysis Guidance:

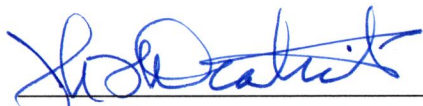
1. Approved Software = Latest version of AGI32
2. Illumination Point to Point spacing for Roadway shall be 5' x 5'
3. Illumination Point to Point spacing for Sidewalk shall be 2.5' x 2.5'
4. Illumination Point to Point spacing for Intersection shall be 5' x 5'
5. Calculation points shall be calculated to 2 decimal places in software
6. Calculation points shall be split into roadway segments, intersection segments (stop bars to stop bars), and sidewalks; designer may split into block-to-block sections for each type rather than full project limits to bring attention to areas of concern/issues/problems that prohibit the designer to meet design criteria
7. Designer shall calculate and apply a Light Loss Factor (LLF) to luminaire IES files within the software. Calculation shall be documented on photometric analysis plans.
  - LLF = Lamp Lumen Depreciation (LLD) \* Lamp Dirt Depreciation (LDD) of 0.9 shall be used for calculation)
  - LLD shall be derived from manufacturer's recommended lumen depreciation at/or greater than 50,000 operating hours. LLD and corresponding hours shall be documented on photometric analysis plans.

Minimum Guidance on Photometric Analysis Plans:

1. Dimension and display pole to pole spacing between poles
2. Highlight lowest calculation point(s) on plans per segment
3. Display photometric analysis results per segment as identified on plan sheets
4. Display luminaire photometric templates
5. Display mounting heights for luminaires
6. Display the type of luminaire and bracket arm length
7. Note the manufacturer's file name of the IES file used for calculation and luminaire input variables (LLF, Mounting Height, Color Temp, Wattage, Distribution Type, Photometric Template, and CAD Legend)

Revised:


Approved



John F. Deatrck  
Director, DPW&T

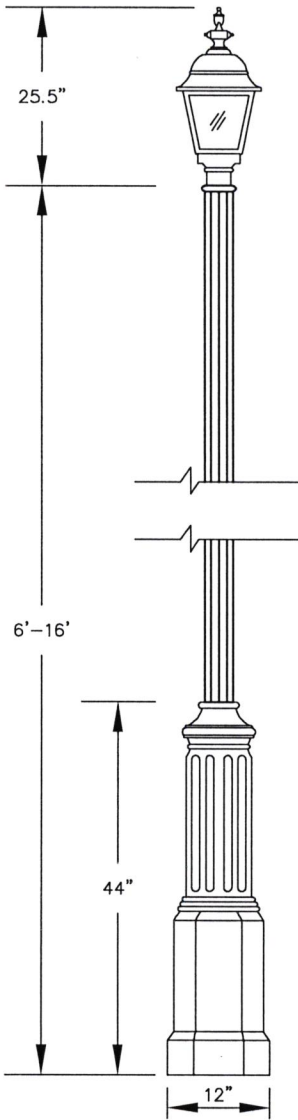


Street Lighting  
Typical Ornamental

St. Mary's County  
Department of  
Public Works & Transportation

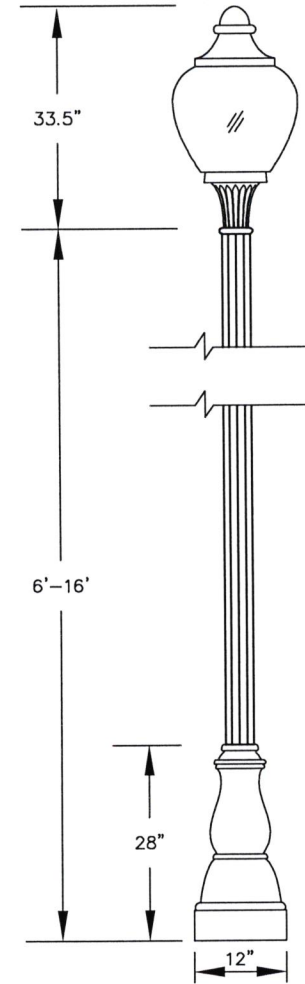
U/4A





Approved Mounting Heights (ft)		
Residential	12,14	Designer shall coordinate luminaire mounting heights with tree canopies as such that the illumination not be impeded.
Multi-Family	12,14	
Village Centers	14,16,18	
Commercial	16,18	

Pole Heights can vary pending geometry and slope restrictions in order to maintain a consistent mounting height along segment.



Residential and Multi-Family

Commercial and Village Centers

Revised:

Approved

John F. Deatrick  
Director, DPW&T



Street Lighting  
Typical Ornamental

St. Mary's County  
Department of  
Public Works & Transportation

U/4B

Recommended Illuminance Values for Roadways  
(Table 2: Illuminance Method – Recommended Values from RP-8-00)

Road and Pedestrian Conflict Area		Pavement Classification (Minimum Maintained Average Values)			Uniformity Ratio Avg/Min	Veiling Luminance Ratio
Road Type	Pedestrian Conflict Area	R1 (fc)	R2 & R3 (fc)	R4 (fc)		
Freeway Class A		0.6	0.9	0.8	3.0	0.3
Freeway Class B		0.4	0.6	0.5	3.0	0.3
Expressway	High	1.0	1.4	1.3	3.0	0.3
	Medium	0.8	1.2	1.0	3.0	0.3
	Low	0.6	0.9	0.8	3.0	0.3
Major	High	1.2	1.7	1.5	3.0	0.3
	Medium	0.9	1.3	1.1	3.0	0.3
	Low	0.6	0.9	0.8	3.0	0.3
Collector	High	0.8	1.2	1.0	4.0	0.4
	Medium	0.6	0.9	0.8	4.0	0.4
	Low	0.4	0.6	0.5	4.0	0.4
Local	High	0.6	0.9	0.8	6.0	0.4
	Medium	0.5	0.7	0.6	6.0	0.4
	Low	0.3	0.4	0.4	6.0	0.4

Pedestrian Conflict Areas as defined in IES RP-8-00.

Recommended Illuminance Values for Intersections per RP-8-00:

Intersection Minimum Maintained Average Values will be equal to 2 times the higher of the values from the intersecting roads.

Recommended Uniformity Ratio will be of the lower of the values from the intersecting roads.

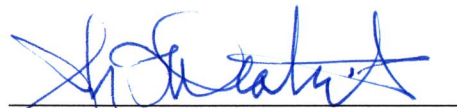
Recommended Maintained Illuminance Values for Walkways/Bikeways  
(Tables 5,6,7: Maintained Illuminance Values for Walkways/Bikeways for High, Medium, and Low Pedestrian Conflict Areas from RP-8-00)

Pedestrian Conflict Area		E(Horizontal) fc	E(Vertical Minimum) fc	E(Avg)/E(Min)
High	Mixed Vehicle and Pedestrian	2.0	1.0	4.0
	Pedestrian	1.0	0.5	4.0
Medium	Pedestrian	0.5	0.2	4.0
Low	Rural/Semi-Rural Areas	0.2	0.06	10.0
	Low Density Residential	0.3	0.08	6.0
	Medium Density Residential	0.4	0.1	4.0

E(Vertical Minimum) = Minimum vertical illumination at 1.5m (4.9ft) above walkway/bikeway measured in both directions parallel to main pedestrian flow.

Revised:

Approved



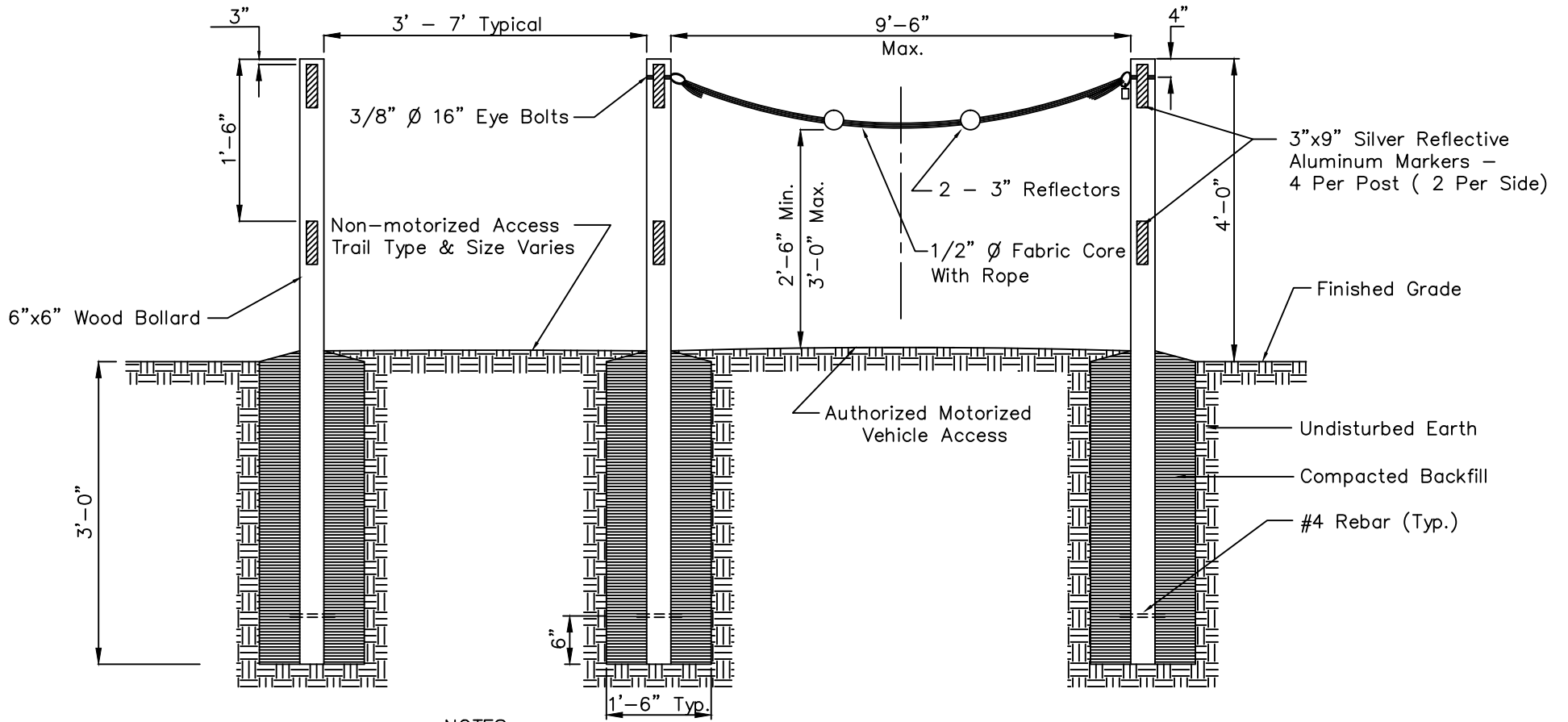
John F. Deatrck  
Director, DPW&T



Street Lighting  
Typical Ornamental

St. Mary's County  
Department of  
Public Works & Transportation

U/4C



**NOTES:**

1. COUNTERSUNK NUT AND WASHER ON 3/8" Ø X 6" EYE BOLTS. PEEN END OF ALL EXPOSED THREADS.
2. MOUNT 3" RED REFLECTORS WITH 1/2" CABLE CLAMPS.
3. CABLE LOOP FORMED WITH 2-1/2" CABLE CLAMPS; 3" SPACING. PEEN ENDS OF ALL EXPOSED THREADS.
4. CABLE LOOP FASTENED TO EYE BOLT WITH LOCK SUPPLIED.
5. STANDARD SIGNING AND MARKINGS FROM THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL BE INCLUDED IN THE DESIGN AND CONSTRUCTION OF THE TRAIL TO ALERT USERS OF POTENTIAL HAZARDS AND TO CONVEY MESSAGES (i.e. "MOTORIZED VEHICLES PROHIBITED").

Revised:

Approved

*John Groeger* 4/19/17

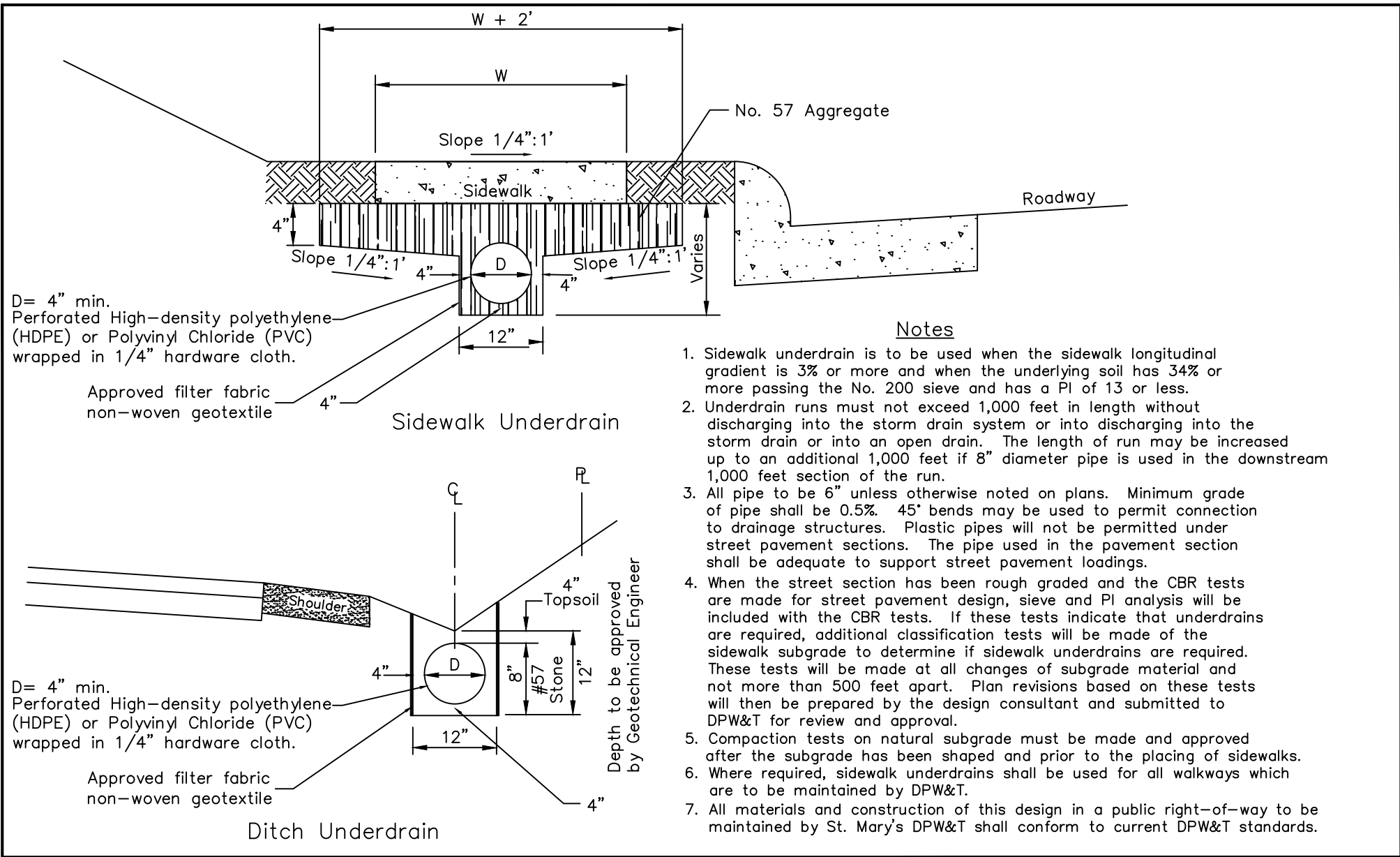
John J. Groeger, P.E. Date  
Interim Director of DPW&T



Cable Barricade  
Typical Detail

St. Mary's County  
Department of  
Public Works & Transportation

U/5



Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date  
Interim Director of DPW&T

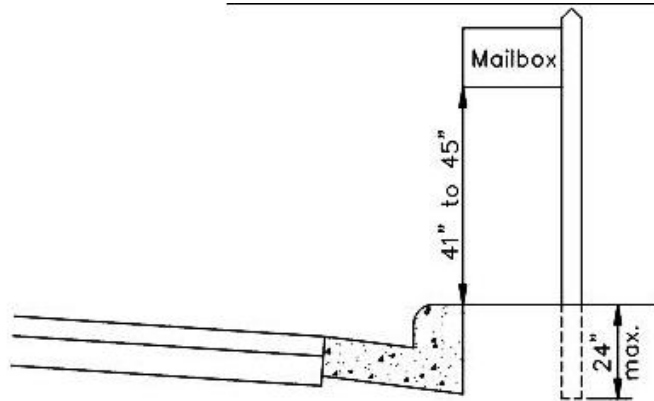


Sidewalk/Ditch Underdrain  
Typical Section

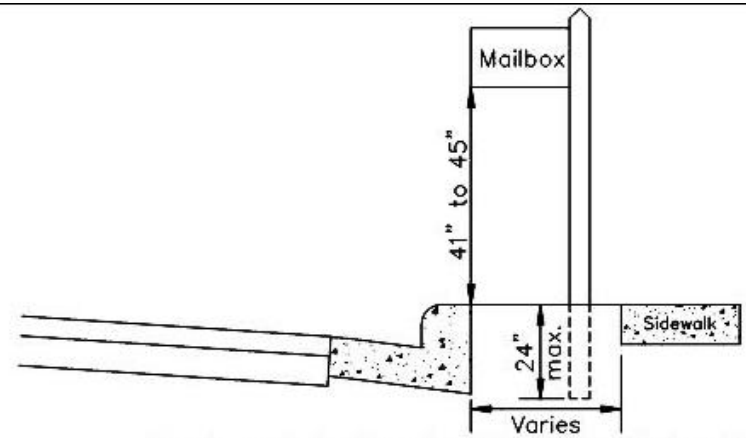
St. Mary's County  
Department of  
Public Works & Transportation

U/6





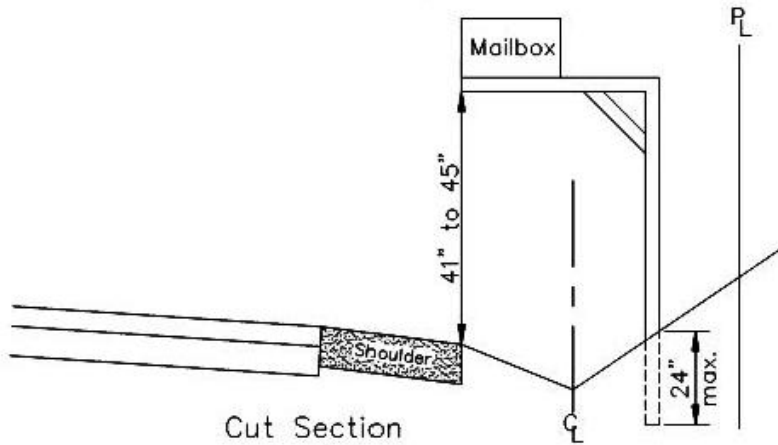
Curb and Gutter Section



Curb and Gutter Section With Sidewalk

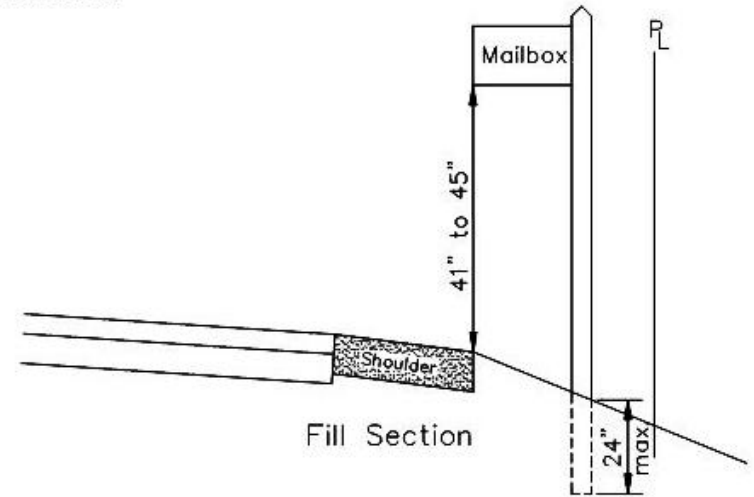
URBAN

- Notes:
1. On ditch section streets, face of mailbox to be in line with back edge of shoulder
  2. On ditch section streets in cut, support for mailbox to be minimum 2 feet to the outside of the ditch line.
  3. On curb and gutter section streets, face of mailbox to be in line with back edge of curb line.
  4. Mailbox height shall be – Ditch Section: 41" to 45" from shoulder grade to bottom of box.  
Curb and Gutter Section: 41" to 45" from top of curb to bottom of box.
  5. The face of the mailbox and post shall be set, as shown on the fill section detail.



Cut Section

RURAL



Fill Section

Revised:

Approved

*John Groeger*

John J. Groeger, P.E.  
Interim Director of DPW&T

4/19/17

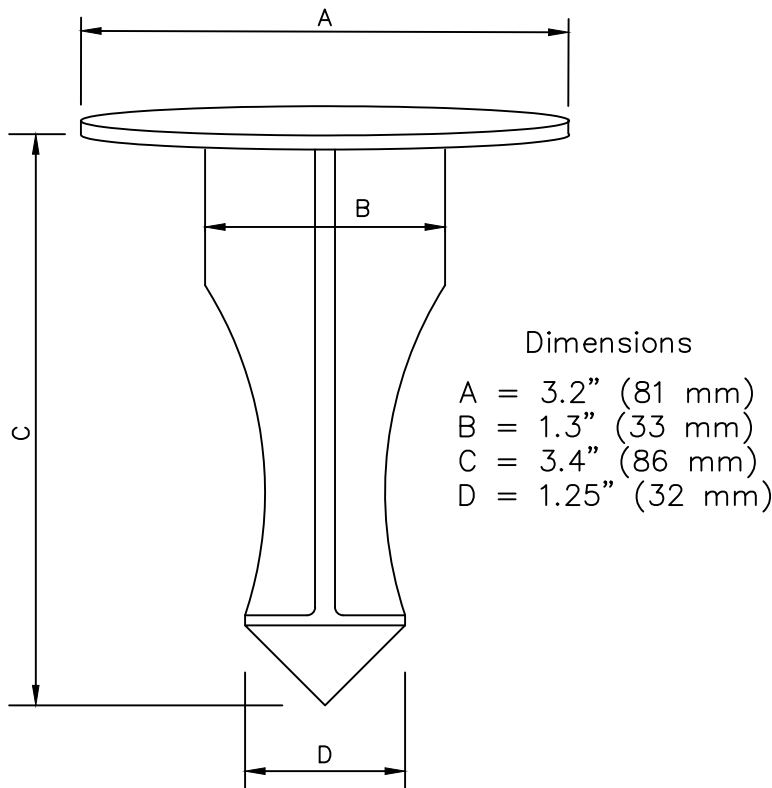
Date



Mailbox Placement  
Rural and Urban

St. Mary's County  
Department of  
Public Works & Transportation

U/7



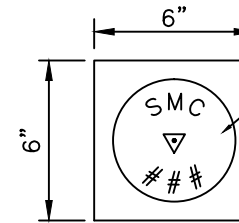
Dimensions

- A = 3.2" (81 mm)
- B = 1.3" (33 mm)
- C = 3.4" (86 mm)
- D = 1.25" (32 mm)

Brass Right-of-Way Marker  
N.T.S.

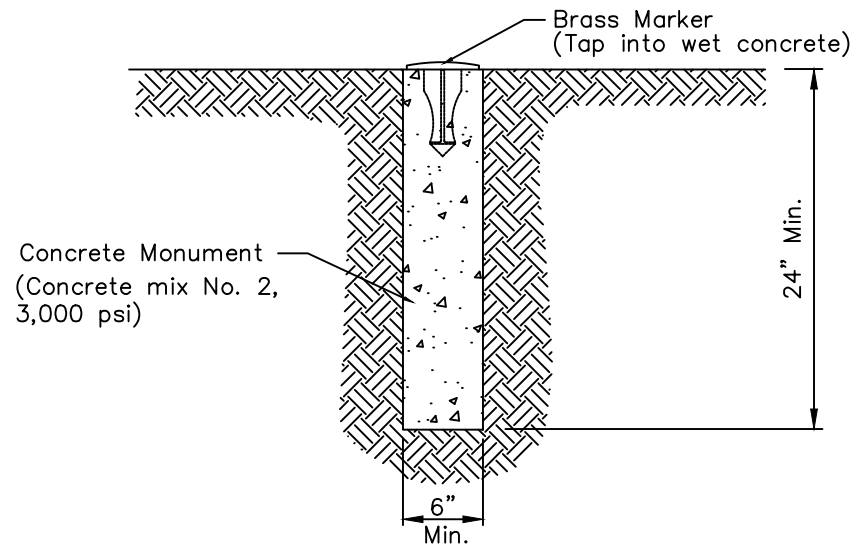
Notes:

- 1) A minimum of two (2) monuments shall be placed in each site/subdivision. Location shall be shown on the recorded record plat with the corresponding reach descriptions.
- 2) Monuments shall be located on street right-of-way lines, at street intersections, angle point of curve and block corners. They shall be spaced as far as possible but that both are within sight of a single point, the sight lines being contained wholly within the street limits.
- 3) Such permanent reference markers shall be set flush with the ground, and in areas least likely to be disturbed by anticipated construction activity.



Note:  
Markers to be consecutively numbered and shall be provided by the DPW&T upon request.

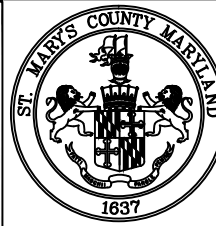
Monument W/Brass Marker – Plan  
N.T.S.



Monument W/Brass Marker – Elevation  
N.T.S.

Revised:

Approved  
*John Groeger* 4/19/17  
John J. Groeger, P.E. Date  
Interim Director of DPW&T



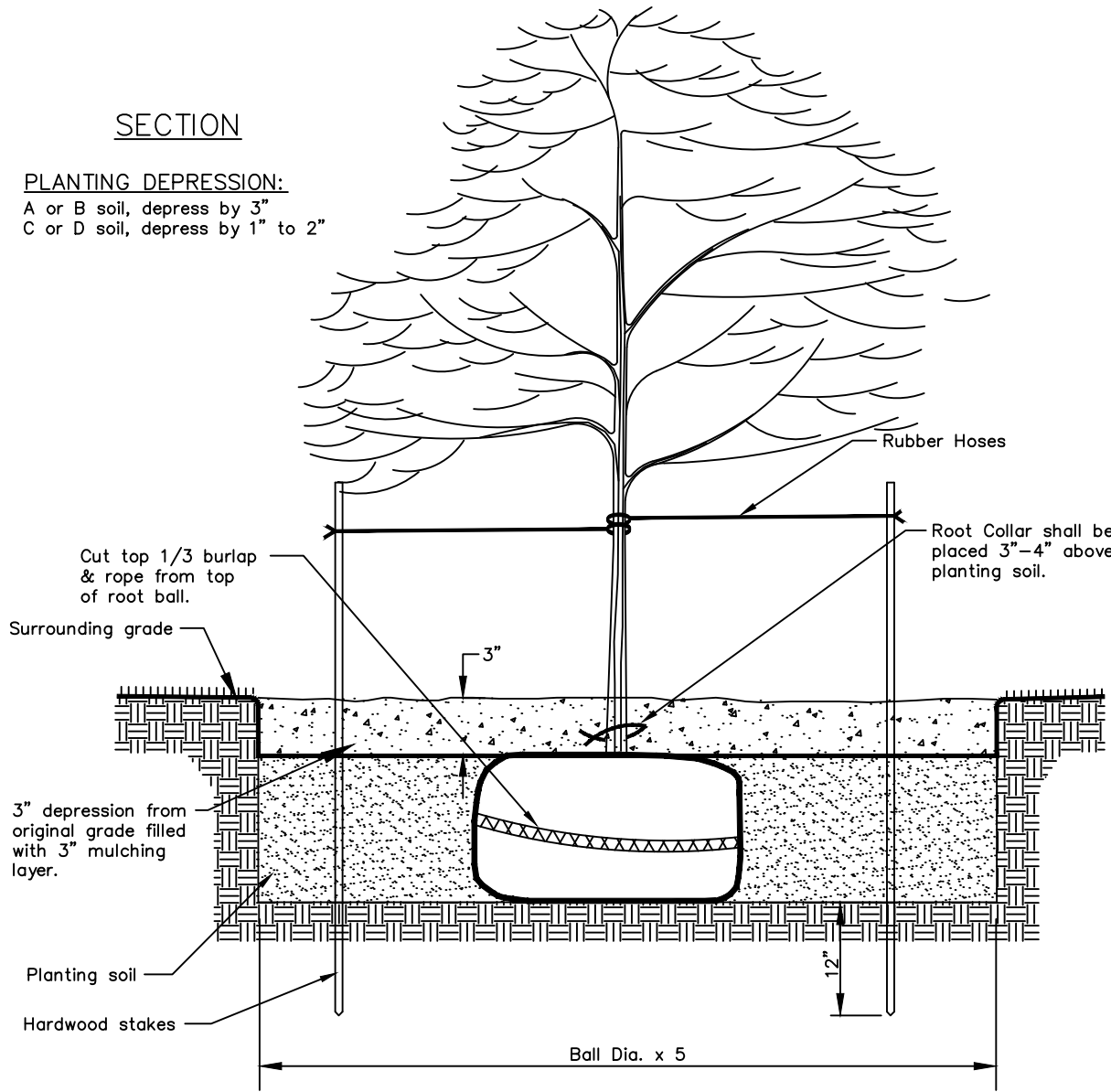
Typical GPS  
Marker and Monument  
St. Mary's County  
Department of  
Public Works & Transportation

U/8

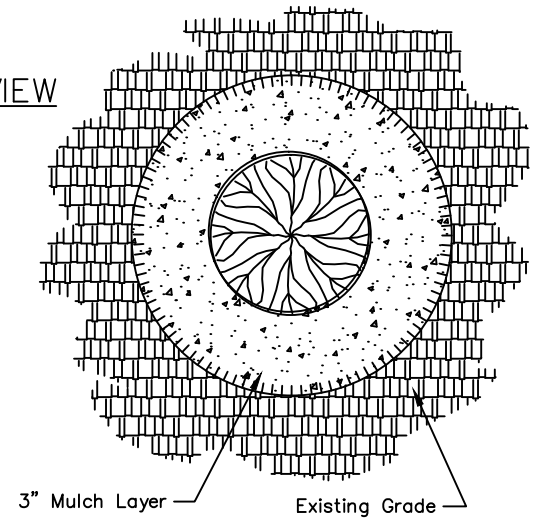
SECTION

PLANTING DEPRESSION:

A or B soil, depress by 3"  
 C or D soil, depress by 1" to 2"



PLAN VIEW



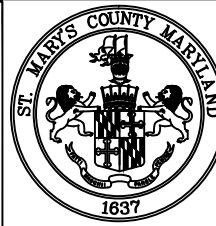
Note:

- Trees shall be located a minimum of:
- 5' from Water Meter
- 5' from Gas Box
- 5' from Inlet or Manhole
- 10' from Fire Hydrant
- 10' from Driveway Entrance
- 15' from Light Post
- 35' from Intersection PC

Revised:


Approved

*John Groeger* 4/19/17  
 John J. Groeger, P.E. Date  
 Interim Director of DPW&T



Street Tree Planting  
 Typical

St. Mary's County  
 Department of  
 Public Works & Transportation

L/1

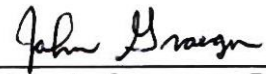
<u>Botanical Name</u>	<u>Common Name</u>	<u>Type</u>	<u>Note</u>
Acer rubrum "Armstrong"	Armstrong Red Maple	1+	Street Tree
Acer rubrum "Autumn Flame"	Armstrong Flame Red Maple	1+	Street Tree
Acer rubrum "Bowhall"	Bowhall Red Maple	1+	Street Tree
Acer rubrum "October Glory"	October Glory Red Maple	1+	Street Tree
Amelanchier Canadensis	Shadbush Serviceberry	3	
Betula nigra	River Birch	1*	
Carpinus caroliniana	American Hornbeam	1	
Chionathus virginicus	Fringe Tree	3	
Cladrastis kentukea	Yellow Wood	2	Street Tree
Cornus alternifolia	Pagoda Dogwood	4*	
Cornus florida	American Flowering Dogwood	4	
Ginkgo biloba	Male Ginko – Male cultivars only	1	Street Tree
Gleditsia triacanthos (imperial) "Shademaster", "Skyline"	Honeylocust	1	Street Tree
Robina pseudoacacia	Black Locust	1	
Ilex "opaca tree form"	Tree form American Holly	2	
Juglans nigra	Black Walnut	1	
Juniperus virginiana	Eastern Red Cedar	2	
Liquidambar styraciflua	Sweetgum	2	
Magnolia grandiflora	Southern Magnolia	2	
Ostrya virginiana	American Hornbeam	2	Street Tree
Platanus acerifolia	London Planetree	1+	Street Tree
Plantanus acerifolia "Bloodgood Strain"	Bloodgood London Planetree	1+	Street Tree
Platanus occidentalis	Sycamore	1	
Quercus bicolor	White Oak, Swamp	2	
Quercus palustris	Pin Oak	1+	Street Tree
Quercus phellos	Willow Oak	1+	Street Tree
Quercus rubra	Northern Red Oak	1	
Robina pseudoacacia	Black Locust	1	
Taxodium distichum	Bald Cypress	2	
Tilia americana	American Linden	1+	Street Tree
Ulmus hybrids	Hybrid Elm	1+	Street Tree
Ulmus parvifolia	Lacebark Elm	1+	Street Tree

**Size Table**

Type	Size
1	2" Caliper
2	1.5" Caliper
3	6 or more branches
4	8 or more branches

Notes: 1. \* designates a multi-stem tree, which shall have a minimum of 4 stems with an average caliper of 1".  
2. + indicates a wide tree box (over 6') is req.

Revised:  
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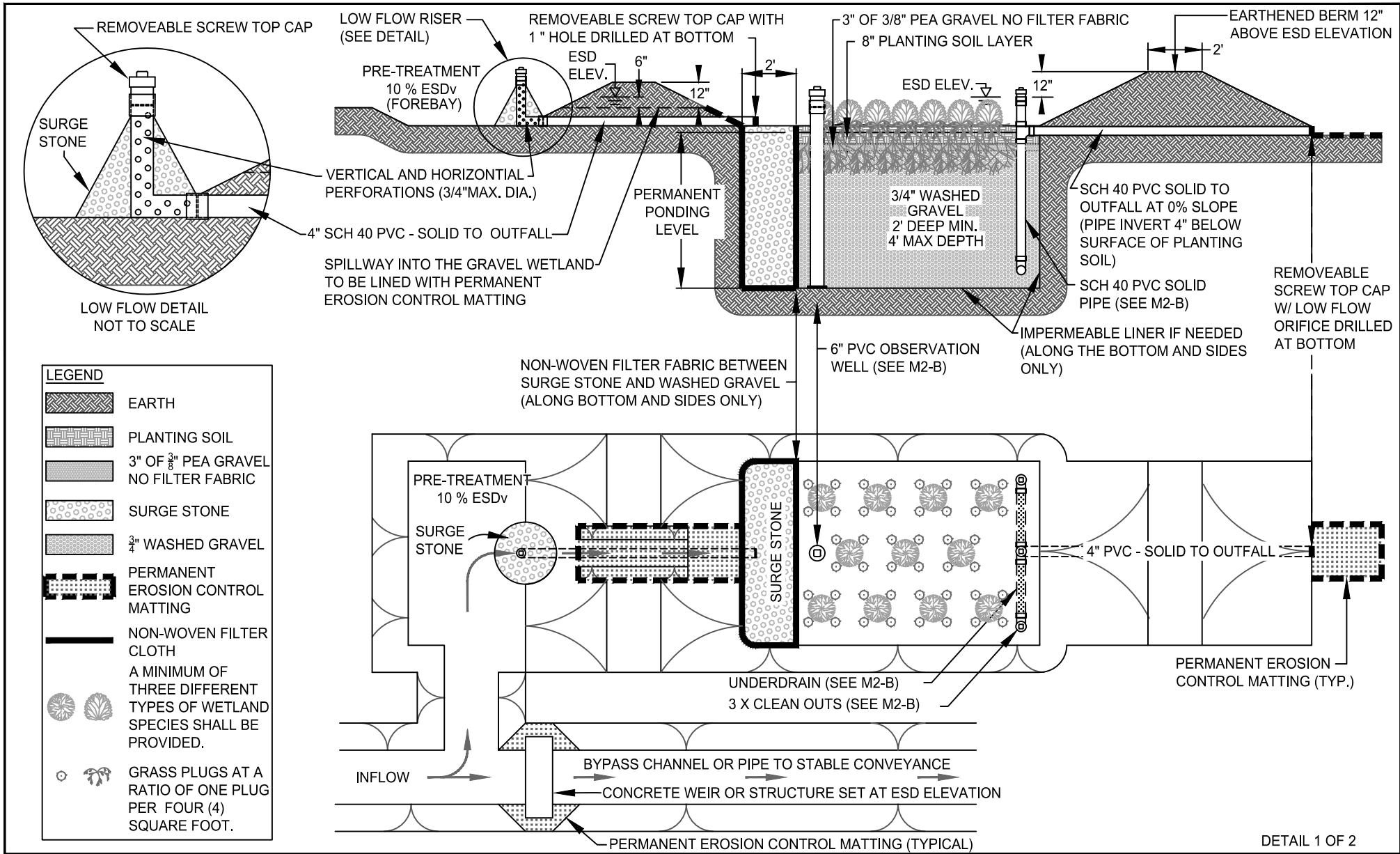
Approved  
  
  
 John J. Groeger, P.E. Date  
 Interim Director of DPW&T 4/19/17



Street Tree Planting  
Species  
\_\_\_\_\_  
St. Mary's County  
Department of  
Public Works & Transportation

L/1A





DETAIL 1 OF 2

Revised:

Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date  
 Interim Director of DPW&T



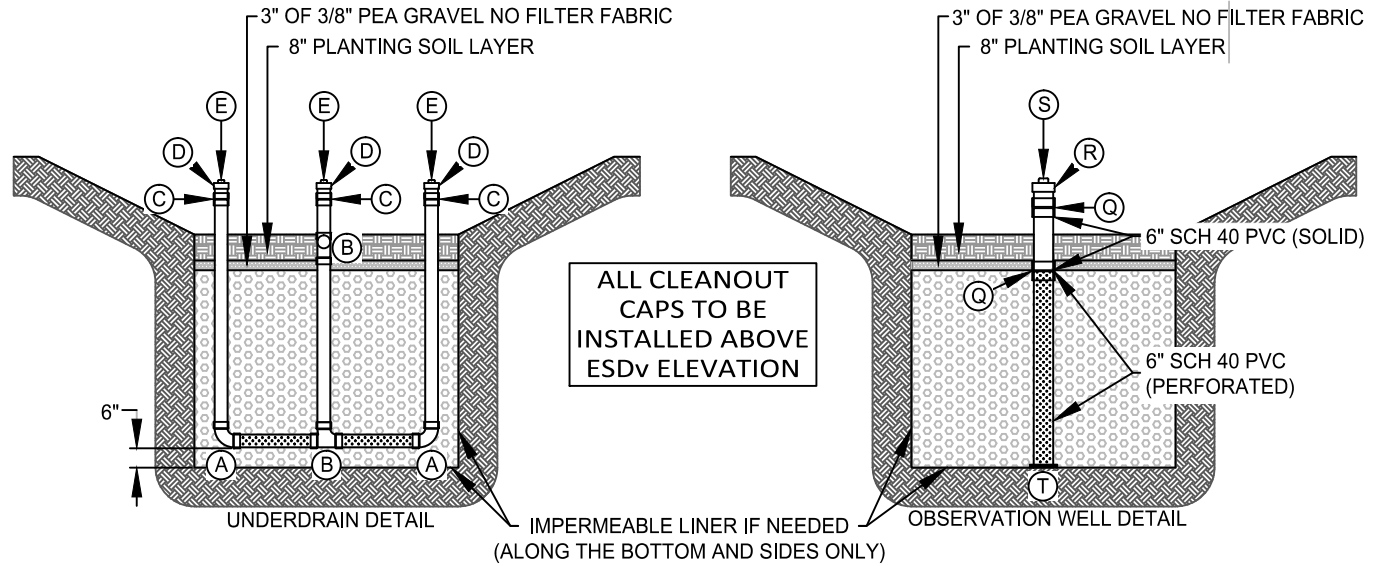
Submerged Gravel Wetland  
 Typical Plan/Profile

St. Mary's County  
 Department of  
 Public Works & Transportation

SWM  
 M-2A

**NOTES**

1. MINIMUM DRAINAGE AREA 1 ACRE, ADDRESS GROUND WATER RECHARGE SEPARATELY.
2. TEMPORARY PONDING PROVIDED FOR 100% (INCLUDING PRE-TREATMENT) OF THE ESDv WITH ORIFICE SIZED TO DRAIN TO THE PERMANENT PONDING LEVEL IN 24-48 HRS. WATER LEVEL NOT TO EXCEED PLANT TOLERANCE.
3. OF THE ESDv WITH ORIFICE SIZED TO DRAIN TO THE PERMANENT PONDING LEVEL IN 24-48 HRS. WATER LEVEL NOT TO EXCEED PLANT TOLERANCE.
4. MINIMUM LENGTH = 15' (LENGTH TO WIDTH RATIO = 2:1).
5. A DENSE STAND OF PLANTS SHALL BE CREATED BY PLANTING WETLAND SHRUBS AT A RATIO OF AT LEAST 400 SHRUBS PER ACRE OF SURFACE AREA, WITH WETLAND GRASS PLUGS AT A RATIO OF ONE PLUG PER FOUR (4) SQUARE FOOT.
6. REFER TO BIORETENTION SPECIFICATIONS FOR PLANTING SOIL MIX SPECIFICATIONS.



**UNDERDRAIN DETAIL NOTES:**

1. ALL PIPING / COUPLINGS TO BE SCHEDULE 40 PVC., USE 4" (FOUR) INCH PIPING UNLESS 6" (SIX) INCH IS NEEDED.
2. CEMENT ALL FITTINGS TO CREATE WATER TIGHT CONNECTION.
3. WRAP PERFORATED PORTIONS WITH 1/4" HARDWARE CLOTH. (NOT SHOWN)
4. MINIMUM CONNECTION MATERIALS NEEDED:
  - (A.) 2 (TWO) 90° 4" OR 6" PVC - ELBOWS
  - (B.) 2 (TWO) 4" OR 6" PVC - TEE
  - (C.) 3 (THREE) 4" OR 6" - COUPLINGS
  - (D.) 3 (THREE) 4" OR 6" PVC CLEANOUT ADAPTERS
  - (E.) 3 (THREE) 4" OR 6" PVC CLEANOUT PLUGS, WITH 3/8" AIR HOLE

**OBSERVATION WELL DETAIL NOTES:**

1. ALL PIPING / COUPLINGS TO BE SCHEDULE 40 PVC AND 6" (SIX) INCHES IN DIAMETER
2. CEMENT ALL FITTINGS TO CREATE WATER TIGHT CONNECTION.
3. WRAP PERFORATED PORTION WITH 1/4" HARDWARE CLOTH.(NOT SHOWN)
4. MINIMUM MATERIALS NEEDED:
  - (Q.) 2 (TWO) 6" PVC - COUPLINGS
  - (R.) 1 (ONE) 6" PVC CLEANOUT ADAPTERS
  - (S.) 1 (ONE) 6" PVC CLEANOUT PLUGS, WITH 3/8" AIR HOLE
  - (T.) FOOT PLATE, 12" X 12" ALUMINUM, 1/2" THICK OR OTHER SOLID, NON CORROSIVE MATERIAL

Revised:

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Approved

*John Groeger* 4/19/17

John J. Groeger, P.E. Date

Interim Director of DPW&T



Submerged Gravel Wetland  
Typical Plan/Profile

St. Mary's County  
Department of  
Public Works & Transportation

SWM  
M-2B