



May 23, 2023

Howard County Department of Public Works  
c/o Robert Hollenbeck  
Sent via email to [rhollenbeck@howardcountymd.gov](mailto:rhollenbeck@howardcountymd.gov)

RE: WP-23-041 Ellicott City Tunnel North  
Papillon Drive Site

Dear Mr. Hollenbeck:

This letter is to inform you that your request for alternative compliance to the Howard County Subdivision and Land Development Regulations for the subject project was reviewed.

On May 18, 2023 and pursuant to Section 16.116(d), the Director of the Department of Planning and Zoning, and the Administrator of the Office of Community Sustainability considered and **approved** your request for alternative compliance with respect to **Sections 16.116(a)(1) and 16.116(a)(2)(ii)** of the Subdivision and Land Development Regulations to disturb wetland, stream, and their buffers for the Ellicott City North Tunnel capital project. Please see the attached Final Decision Action Report for more information.

On May 18, 2023 and pursuant to Section 16.1216, the Director of the Department of Planning and Zoning, Director of the Recreation and Parks and Administrator of the Office of Community Sustainability considered and **approved** your request for a variance with respect to **Sections 16.1201(v) and 16.1205(a)(3)** of the Subdivision and Land Development Regulations to use the limit of disturbance as the net tract area to calculate the forest conservation obligation and remove three (3) specimen trees for the Ellicott City North Tunnel capital project. Please see the attached Final Decision Action Report for more information.

On May 15, 2023 and pursuant to Section 16.104, the Director of the Department of Planning and Zoning, considered and **approved** your request for alternative compliance with respect to **Section 16.155(a)(1)(i)** of the Subdivision and Land Development Regulations to use the alternative compliance process as a substitute to the site development process to construct the Ellicott City North Tunnel capital project.

The Department of Planning and Zoning hereby determines that you have demonstrated to its satisfaction that strict enforcement of Section 16.155(a)(1)(i) would result in an unreasonable hardship or practical difficulty. This determination is made with consideration of your alternative compliance application and the one (1) item you were required to address, pursuant to Section 16.104(a)(1):

**1. Unreasonable hardship or practical difficulties may result from strict compliance with the regulations.**

The Howard County Department of Public Works is managing a task under Capital Project C-0337 to design the Ellicott City North Tunnel which will divert storm flows from the Hudson Branch, via subterranean conveyance, to an outlet along the Patapsco River. Strict compliance with the regulations would require the applicant to submit a formal site development plan for the proposed project. The project goal is to mitigate the risk of major, damaging flooding in the Ellicott City Historic District. The timeline for this project is sensitive and strict compliance with the

regulations would lengthen the schedule and take away valuable funds from the implementation of the project. Approval of the alternative compliance promotes efficiency of the plan review process. The alternative compliance plan exhibit contains all necessary information for permitting and construction.

Approval of the Alternative Compliance to Section 16.155(a)(1)(i) is subject to the following conditions:

1. The alternative compliance plan exhibit shall serve as the substitute for a site development plan. No disturbance is permitted beyond the limit of disturbance as shown on the final capital project construction plans unless it can be sufficiently demonstrated by the applicant to be justified.
2. Revise the alternative compliance plan exhibit per the attached comments from the Division of Land Development. Electronic copies of the alternative compliance plan exhibit shall be submitted to the Department of Planning Zoning for signatures within 180 days of the date of this letter (**on or before November 18, 2023**).
3. Prior to submitting the electronic alternative compliance plan exhibit originals, the plat of revision to modify and/or add easements must be approved by the Department of Planning and Zoning and recorded in the Land Records Office of Howard County.
4. The applicant shall comply with all grading and building permit requirements from the Department of Inspections, Licenses and Permits and Howard Soil Conservation District.

Indicate this alternative compliance petition file number, request, section of the regulations, action, conditions of approval, and date on all related plats, and site development plans, and building permits. This alternative compliance approval will remain valid for one year from the date of this letter or as long as a subdivision or site development plan is being actively processed in accordance with the processing provisions of the Regulations, or for the time period specified in the conditions of approval.

If you have any questions, please contact Julia Sauer at (410) 313-2350 or email at [jsauer@howardcountymd.gov](mailto:jsauer@howardcountymd.gov).

Sincerely,

DocuSigned by:  
  
1EB75478A22B49A...

Anthony Cataldo, AICP, Chief  
Division of Land Development

AC/js

cc: Research  
DLD - Julia Sauer  
Anne Gilbert- DNR [anne.gilbert@maryland.gov](mailto:anne.gilbert@maryland.gov)  
DRP  
OCS  
Andrew McLean, McCormick Taylor ([admclean@mccormicktaylor.com](mailto:admclean@mccormicktaylor.com))



HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 3430 Courthouse Drive ■ Ellicott City, Maryland 21043 ■ 410-313-2350  
 Mary Kendall, Acting Director FAX 410-313-3467

**ALTERNATIVE COMPLIANCE  
 FINAL DECISION ACTION REPORT**

DEPARTMENT OF PLANNING AND ZONING  
 DEPARTMENT OF RECREATION AND PARKS  
 OFFICE OF COMMUNITY SUSTAINABILITY

**RE:** **WP-23-041 Ellicott City North Tunnel – Papillon Drive Site**  
*Request for an alternative compliance or variance to Sections 16.116(a)(1), 16.116(a)(2)(ii), 16.1201(v) and 16.1205(a)(3) of the Subdivision and Land Development Regulations.*

**Applicant:** Howard County Department of Public Works

Pursuant to Section 16.116(d), the Director of the Department of Planning Zoning, Director of the Department of Public Works, and the Administrator of the Office of Community Sustainability considered and **approved** the applicants request for an alternative compliance with respect to **Sections 16.116(a)(1) and 16.116(a)(2)(ii)** of the Subdivision and Land Development Regulations. The purpose is to disturb wetland, stream, and their buffers for the Ellicott City North Tunnel capital project. The Directors deliberated the application in a meeting on May 18, 2023.

Each Department hereby determines that the applicant has demonstrated to its satisfaction that strict enforcement of the above-cited regulation would result in unreasonable hardship or practical difficulty. This determination is made with consideration of the alternative compliance application and the seven (7) items the applicant was required to address, pursuant to Section 16.104(a)(1) and Section 16.116(d):

1. **Strict conformance with the requirements will deprive the applicant of rights commonly enjoyed by other in similar areas.**  
 Strict compliance with the regulations would not permit disturbance to the stream, stream bank buffer, wetland or wetland buffer. The disturbance to these features represents the minimal necessary for the proposed work with the goal of reducing downstream flooding to support public safety. Alternative compliances have previously been granted for projects where the disturbance of the stream and wetlands is necessary for the construction of a stormwater management or flood control facility. Additionally, strict conformance with the requirements would not allow the County to protect both private and public property from further damage.
2. **The uniqueness of the property or topographical conditions would result in practical difficulty, other than economic, or unreasonable hardship from strict adherence to the regulations.**  
 The goal of the project is to reduce flow running through the Hudson Branch to mitigate flooding to support public safety. The nature of the project requires disturbance to the stream, stream bank buffer, wetland, and wetland buffer to achieve the project public safety goals. The project goals would not be attained if strict adherence to the regulations was enforced, and the alternative compliance was not granted.

- 3. The variance will not confer to the applicant a special privilege that would be denied to other applicants.**  
The project goal is to serve the public safety with structural measures that will reduce downstream flooding. Alternative compliance requests have been granted for capital projects where the disturbance of the stream, wetland and their buffers are necessary for the construction of a stormwater management or flood control facility. The County plan to pursue increased public safety does not constitute a special privilege.
- 4. The modification is not detrimental to the public health, safety or welfare, or injurious to other properties.**  
The intent of this project is to improve the health, safety, and welfare of the public by reducing flooding and to help the environment by reducing the erosion and transportation of sediment downstream, which will reduce pollution to the Patapsco River.
- 5. Any area of disturbance is returned to its natural condition to the greatest extent possible.**  
All disturbed areas will be returned to their natural state wherever possible while maintaining the project design objectives of reducing downstream flooding and supporting public safety. The design proposes to rehabilitate a 762 linear foot section of stream channel that is currently incised and exhibits evidence of active erosion. The stream design supports a sinuous channel alignment with an accessible floodplain that will promote natural ecological process to the greatest extent practicable. The landscaping proposed as part of the site restoration will mimic natural conditions while maintaining operation and maintenance compatibility with the project.
- 6. Mitigation is provided to minimize adverse impacts to water quality and fish, wildlife, and vegetative habitat.**  
Mitigation is provided within the proposed design that will promote the natural function of the stream channel and minimize adverse environmental impacts. The stream design will reduce the erosion potential of the stream banks in the existing system, which minimizes and improves water quality and fish habitat. The stream design includes a series of cascades and pool elements for improved habitat and stability. The proposed design also features landscaping along the stream bank that includes livestock and tree plantings which will further assist in stabilization and provide vegetative habitat, once established.
- 7. Grading, removal of vegetative cover and trees, or construction shall only be the minimum necessary to afford relief and to the extent required to accommodate the necessary improvements.**  
The limit of disturbance for the project has been minimized to the greatest extent possible to reduce the grading and tree removal areas to only those necessary for the completion of the project. The final design of the project includes proposed features which contain the smallest footprint while satisfying design objectives. The final design provides a more stable stream system incorporating stabilizing, naturalized structures such as cascades and riffles, that reduce erosion potential of the channel as compared to the current system; the floodplain surrounding the pilot channel will be accessed more frequently, and the new system will have greater sedimentation within the floodplain areas. Vegetative stabilization for the stream and landscape establishment, including substantial tree plantings in the adjacent and upland areas, will provide tree cover and natural areas promoting ecological function while maintaining the design objective and future maintenance needs of the project.

**Directors Action:** Approval of alternative compliance of Sections 16.116(a)(1) and 16.116(a)(2)(ii) is subject to the following conditions:

1. The applicant shall obtain all required authorizations and permits from the Maryland Department of the Environment and U.S. Army Corps of Engineers for disturbances within the regulated environmental features. Reference the applicable MDE or USACE permit numbers and provide approval letters with all associated grading permit applications.

DocuSigned by:

Mary Kendall

Mary Kendall, Acting Director  
Department of Planning and Zoning

Recused – Capital Project

Yosef Kebede, Director  
Department of Public Works

DocuSigned by:

Lindsay DeMarzo

Lindsay DeMarzo, Acting Administrator  
Office of Community Sustainability

Pursuant to Section 16.1216, the Director of the Department of Planning Zoning, Director of the Department of Recreation and Parks and the Administrator of the Office of Community Sustainability considered and **approved** the applicants request for a variance with respect to **Sections 16.1201(v) and 16.1205(a)(3)** of the Forest Conservation Regulations. The purpose is to use the limit of disturbance as the net tract area to calculate the forest conservation obligation and remove three (3) specimen trees. The Directors deliberated the application in a meeting on May 18, 2023.

Each Department hereby determines that the applicant has demonstrated to its satisfaction that strict enforcement of the above-cited regulation would result in an unwarranted hardship. This determination is made with consideration of the alternative compliance application and the six (6) items the applicant was required to address, pursuant to Section 16.1216:

**1. Describe the special conditions peculiar to the property which would cause the unwarranted hardship;**

The application requests to use the Limit of Disturbance (2.283 acres) as the Net Tract Area for forest conservation calculations instead of the entirety of the parcels (18.50 acres). A portion of the project is located within the 100-year floodplain (1.7 acres). This results in a forest obligation of 0.5 acres. The applicant proposed to pay a fee-in-lieu to satisfy the forest conservation obligation.

The construction of the project will require the removal of three specimen trees. The three specimen trees conflict with the proposed structures and construction will impact over 30% of their critical root zones. The proposed entrance structure geometry is based on minimizing overall site impacts and reducing the risk of future downstream flooding. The limit of disturbance could not be reduced to preserve the trees and removal of the trees is necessary for the completion of the project. Native trees species will be planted in all suitable areas within the project limits after construction is complete. A total of six native shade trees with a diameter of 3"+ will be planted to mitigate the removal of the three specimen trees.

**2. Describe how enforcement of the regulations would deprive the landowner of rights commonly enjoyed by others in similar areas;**

The capital project is part of the county's Safe and Sound flood mitigation plan and will provide essential flood control within the Tiber-Hudson watershed. Strict enforcement of the regulations would prohibit the construction of the facility. The project goal is to mitigate the risk of major, damaging flooding in the Ellicott City Historic District.

Permitting the LOD to be used as the Net Track Area allows the forest conservation regulations to be applied to the portions of property that are physically impacted by this work. Similar projects to repair existing or deteriorated conditions have used the LOD as the net tract area when impacts are necessary and the work returns the project area to an improved natural or increased public safety condition. Approval does not confer special privileges that other similar projects enjoy.

**3. Verify that the granting of a variance will not adversely affect water quality;**

Granting the variance will not adversely affect water quality as the purpose of the project is to reduce the quantity of flow during large storm events. Reducing the quantity will also reduce any further erosion and excess sediment and nutrient transport through the stream.

**4. Verify that the granting of a variance will not confer on the applicant a special privilege that would be denied to other applicants;**

Approval of the request will not grant the applicant a special privilege since the capital project is design to provide essential flood control in the Tiber-Hudson watershed and mitigate the risk of major, damaging flooding in the Ellicott City Historic District.

**5. Verify that the variance request is not based on conditions or circumstances which are the result of actions by the applicant;**

This variance is not requested based on conditions or circumstances which are the result of actions by the applicant. This request is based on the documented need to reduce the flooding that has been historically prevalent in the Tiber-Hudson watershed.

**6. Verify that the condition did not arise from a condition relating to land or building use, either permitted or nonconforming on a neighboring property; and**

There is no evidence that the conditions arose from a condition relating to land or building use, either permitted or nonconforming on a neighboring property.

**7. Provide any other information appropriate to support the request.**

The application included a forest stand delineation, landscaping plan and a photo log for the three specimen trees to be removed.

**Directors Action:** Approval of alternative compliance of Sections 16.1201(v) and 16.1205(a)(3) is subject to the following conditions:

1. Prior to applying for the grading permit, the Department of Public Works shall pay a fee-in-lieu in the amount of \$49,005.00 for the reforestation requirement totaling 0.9 acres based on the total planting requirement for outside the development site watershed. The payment shall be made through the transfer of funds to SAP Account 2060000000-3000-3000000000-PWPZ000000000000-432521. A copy of the transfer receipt shall be submitted to DPZ – Division of Land Development. The applicant shall be responsible for any increase in fee at the time of payment.
2. The removal of the three specimen trees is permitted and requires the planting of six (6) native shade trees onsite per Section 16.1216(d) of the forest conservation regulations. The trees shall be a minimum of 3” DBH.

DocuSigned by:

*Mary Kendall*

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Mary Kendall, Acting Director  
Department of Planning and Zoning

DocuSigned by:

*Nicola Morgal*

4A49AA64DE9460...

Nicola Morgal, Acting Director  
Department of Recreation and Parks

DocuSigned by:

*Lindsay DeMarzo*

9E444983F005184

Lindsay DeMarzo, Acting Administrator  
Office of Community Sustainability

cc: Research  
OCS  
DRP  
DPW



<b>DPZ Office Use only:</b> File No. Date Filed
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**ALTERNATIVE COMPLIANCE APPLICATION**

**Site Description:**

**Subdivision Name/Property Identification:**

**Location of property:**

**Existing Use:**

**Proposed Use:**

**Tax Map:**

**Grid:**

**Parcel No:**

**Election District:**

**Zoning District:**

**Total site area:**

Please list all previously submitted or currently active plans on file with the County (subdivision plans, Board of Appeals petitions, alternative compliance petitions, etc.). If no previous plans have been submitted, please provide a brief history of the site and related information to the request:

In the area below, the petitioner shall enumerate the specific numerical section(s) from the Subdivision and Land Development Regulations for which an alternative compliance is being requested and provide a brief summary of the request. Please use the additional page if needed.

Section Reference No.	Brief Summary of Request

Section Reference No.	Brief Summary of Request

**Signature of Property Owner:**

**Date:**

**Signature of Petitioner Preparer:**

**Date:**

**Name of Property Owner:**

**Name of Petition Preparer:**

**Address:**

**Address:**

**City, State, Zip:**

**City, State, Zip:**

**E-Mail:**

**E-Mail:**

**Phone No.:**

**Phone No.:**

**Contact Person:**

**Contact Person:**

**Owner's Authorization Attached**

Section Reference No.	Brief Summary of Request
16.1205(a)(3)	Request to remove three (3) specimen trees that conflict with the proposed work. The construction of the tunnel entrance structure will impact greater than 30% of their critical root zones (CRZ).
16.116(a)(2)(ii)	Request to temporarily and permanently impact the stream and stream buffer during construction. All disturbed areas will be fully stabilized and vegetation will be planted where applicable and viable within the impacted area.

**Signature of Property Owner:**  **Date:** 5/24/2024

**Signature of Petitioner Preparer:**  **Date:** 5/21/24

**Name of Property Owner:** Howard County SWM Division **Name of Petition Preparer:** McCormick Taylor

**Address:** 9801 Broken Land Parkway **Address:** 1501 S. Clinton Street Suite 1150

**City, State, Zip:** Columbia, MD 21046 **City, State, Zip:** Baltimore, MD 21202

**E-Mail:** rhollenbeck@howardcountymd.gov **E-Mail:** admclean@mccormicktaylor.com

**Phone No.:** 410-313-6444 **Phone No.:** 667-219-3331

**Contact Person:** Robert Hollenbeck **Contact Person:** Andrew McLean

**Owner's Authorization Attached**

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT, NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.

# HOWARD COUNTY

## Capital Project #C-0337

### Ellicott City North Tunnel

# Papillon Drive Diversion Facility - ACA

Storm Water Management Division  
 Bureau Of Environmental Services

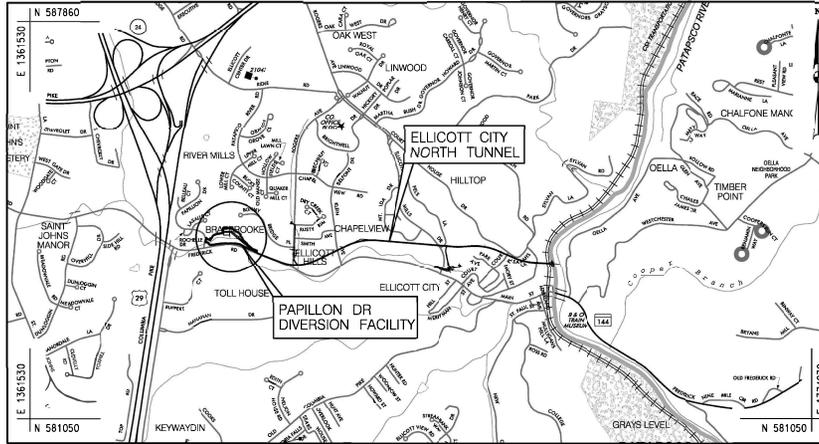
**GENERAL NOTES**

- THESE PLANS WERE PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.24 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- SURVEY OF THE SITE WAS PERFORMED BY AB CONSULTANTS OCTOBER 2021-NOVEMBER 2022.
- WETLANDS AND WATERS OF THE US WERE DELINEATED BY MCCORMICK TAYLOR - AUGUST 2019.
- FEMA FIRM PANEL NO. 24027C0095D AND 24027C0090D THERE ARE FEMA REGULATED FLOODPLAINS LOCATED WITHIN THE PROJECT BOUNDARY.
- AN ALTERNATIVE COMPLIANCE WAS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING DEPARTMENT OF RECREATION AND PARKS AND OFFICE OF COMMUNITY SUSTAINABILITY ON MAY 18, 2023 TO ALLOW DISTURBANCE TO WETLAND STREAM AND THEIR BUFFERS, THE REMOVAL OF SPECIMEN TREES AND TO USE THE LOA AS THE NTA FOR FOREST CONSERVATION APPROVAL IS SUBJECT TO:
  - THE APPLICANT SHALL OBTAIN ALL REQUIRED AUTHORIZATIONS AND PERMITS FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND U.S. ARMY CORPS OF ENGINEERS FOR DISTURBANCES WITHIN THE REGULATED ENVIRONMENTAL FEATURES. REFERENCE THE APPLICABLE MDE OR USACE PERMIT NUMBERS AND PROVIDE APPROVAL LETTERS WITH ALL ASSOCIATED GRADING PERMIT APPLICATIONS.
  - PRIOR TO APPLYING FOR THE GRADING PERMIT, THE DEPARTMENT OF PUBLIC WORKS SHALL PAY A FEE-IN-LIEU IN THE AMOUNT OF \$40,000.00 FOR THE REFORESTATION REQUIREMENT TOTALING 0.9 ACRES BASED ON THE TOTAL PLANTING REQUIREMENT FOR OUTSIDE THE DEVELOPMENT SITE WATERSHED. THE PAYMENT SHALL BE MADE THROUGH THE TRANSFER OF FUNDS TO SAP ACCOUNT 290000000-3000-300000000-INV2000000000-43294. A COPY OF THE TRANSFER RECEIPT SHALL BE SUBMITTED TO DPZ - DIVISION OF LAND DEVELOPMENT. THE APPLICANT SHALL BE RESPONSIBLE FOR ANY INCREASE IN FEE AT THE TIME OF PAYMENT.
  - THE REMOVAL OF THE THREE SPECIMEN TREES IS PERMITTED AND REQUIRES THE PLANTING OF SIX (6) NATIVE SHADE TREES ON-SITE PER SECTION 16.216(D) OF THE FOREST CONSERVATION REGULATIONS. THE TREES SHALL BE A MINIMUM OF 3" DBH.

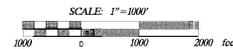
PLANS  
 NOT FOR  
 CONSTRUCTION

**LEGEND**

- ELECTRICAL HAND BOX - SIGNALS 
- FLOW LINE 
- STATE, COUNTY OR CITY LINES 
- EXISTING TRAFFIC BARRIER 
- PROPOSED FENCE LINE 
- EXISTING FENCE LINE 
- PROPERTY LINE 
- EASEMENT LINE 
- EXISTING ROADWAY 
- BASE OR SURVEY LINE 
- TRAVERSE POINT 
- APPROXIMATE LIMITS OF CUT AND/OR FILL 
- PROPOSED MAJOR CONTOUR 
- PROPOSED MINOR CONTOUR 
- LIMIT OF DISTURBANCE 
- EXISTING MAJOR CONTOURS 
- EXISTING MINOR CONTOURS 
- EXISTING PIPE/CULVERT 
- EXISTING DROP INLET 
- WETLAND 
- WATERS OF THE US 
- HEDGE / TREE LINE 
- BUSH / TREE 
- CONIFEROUS TREE 
- LIGHT POLE 
- SANITARY LINE 
- BUSH / TREE TO BE REMOVED 
- SOIL BORING 
- LIMIT OF DISTURBANCE 
- LIMIT OF ACCESS 



HORIZONTAL DATUM NAD 83 / 97  
 VERTICAL DATUM NAVD 88



**DESIGN NARRATIVE**

THE PROPOSED ELICOTT CITY NORTH TUNNEL PROJECT PROVIDES SIGNIFICANT FLOOD RELIEF TO LOWER MAIN STREET AND THE WEST END OF ELICOTT CITY THROUGH THE CONSTRUCTION OF FLOW DIVERSION STRUCTURES, DROP SHAFTS AND AN 18-FT DIAMETER TUNNEL THAT DISCHARGES TO THE PATAPSCO RIVER FLOW FROM THE HUDSON BRANCH AND FROM SEVERAL DISCRETE SURFACE RUNOFF LOCATIONS WILL BE CAPTURED AT SHAFT SITES LOCATED ALONG THE HUDSON BRANCH NEAR PAPILLON DRIVE AND ELICOTT MILLS DRIVE (LOT F). THE DESIGN INCLUDES PROVISIONS FOR A FUTURE DROP SHAFT NEAR ROGERS AVENUE. A TUNNEL OUTFALL STRUCTURE WILL DISSIPATE ENERGY FROM THE TUNNEL FLOWS ALONG THE WEST BANK OF THE PATAPSCO RIVER.

APPROVALS/PERMITS				
AGENCY	#	DATE APPLIED	DATE APPROVED	
MDE JOINT PERMIT APPLICATION	201961647	8/20/19	TBD	
MDE WATER APPROPRIATION PERMIT	19-NT-3250 / AI 166463	6/01/22	12/08/23	
USACE WATERWAYS CONSTRUCTION PERMIT	NAB-2019-61647	02/26/2022	11/15/2021	
MDE-WATER QUALITY CERTIFICATION	20-WQC-0033		3/26/2021	
CSX FACILITY ENCROACHMENT AGREEMENT	CSXT OP # MD0489	03/30/2022	TBD	
MD DNR ROADSIDE TREE PERMIT	TBD	12/14/2022	TBD	
MDE GENERAL PERMIT FOR DISCHARGE	TBD	TBD	TBD	
HOWARD SOIL CONSERVATION DISTRICT	EP-22-013	30% 04/19/2023 65% 02/12/2023 90% 12/14/2022	30% 04/25/2023 65% 07/26/2022 90% 01/12/2023	100% 03/29/2023 100% 03/07/2024
HOWARD COUNTY DPZ ALTERNATIVE COMPLIANCE APP	WP-23-041	03/02/2023	TBD	
HOWARD COUNTY DPZ ESSENTIAL/NECESSARY DISTURBANCE REQUEST	NA	NA	NA	
HOWARD COUNTY DPL: BUILDING PERMIT	NA	NA	NA	
HOWARD COUNTY HISTORIC PRESERVATION COMMISSION	NA	03/02/2023	03/02/2023	
HOWARD COUNTY DPZ SIMPLIFIED ENVIRONMENTAL CONCEPT PLAN	NA	11/9/2022	01/21/2023	

ADDRESS: 8800 FREDERICK ROAD, ELICOTT CITY, MD 21043

APPROVED: DEPARTMENT OF PLANNING AND ZONING 6/3/2024

CHIEF, DEVELOPMENT ENGINEERING DIVISION <i>David Edmondson</i>	6/5/2024	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT <i>Robert B. B. B.</i>	6/7/2024	DATE
DIRECTOR <i>Lynda Eisenberg</i>		DATE

**MCCORMICK TAYLOR**  
 1501 S. Clinton Street  
 11th Floor  
 Baltimore, Maryland 21224  
 (410) 662-7400

**Howard County**  
 MARYLAND  
 Storm Water Management Division  
 Bureau of Environmental Services  
 9801 Broken Land Parkway  
 Columbia, Maryland 21046  
 (410) 313-6444

Digitally signed by Andy McLean  
 Date: 2024.05.20 10:49:35 -0400

BS: JLE/CMH	DRN: JLE/CMH
CHK: ADM	DATE: 5/21/24

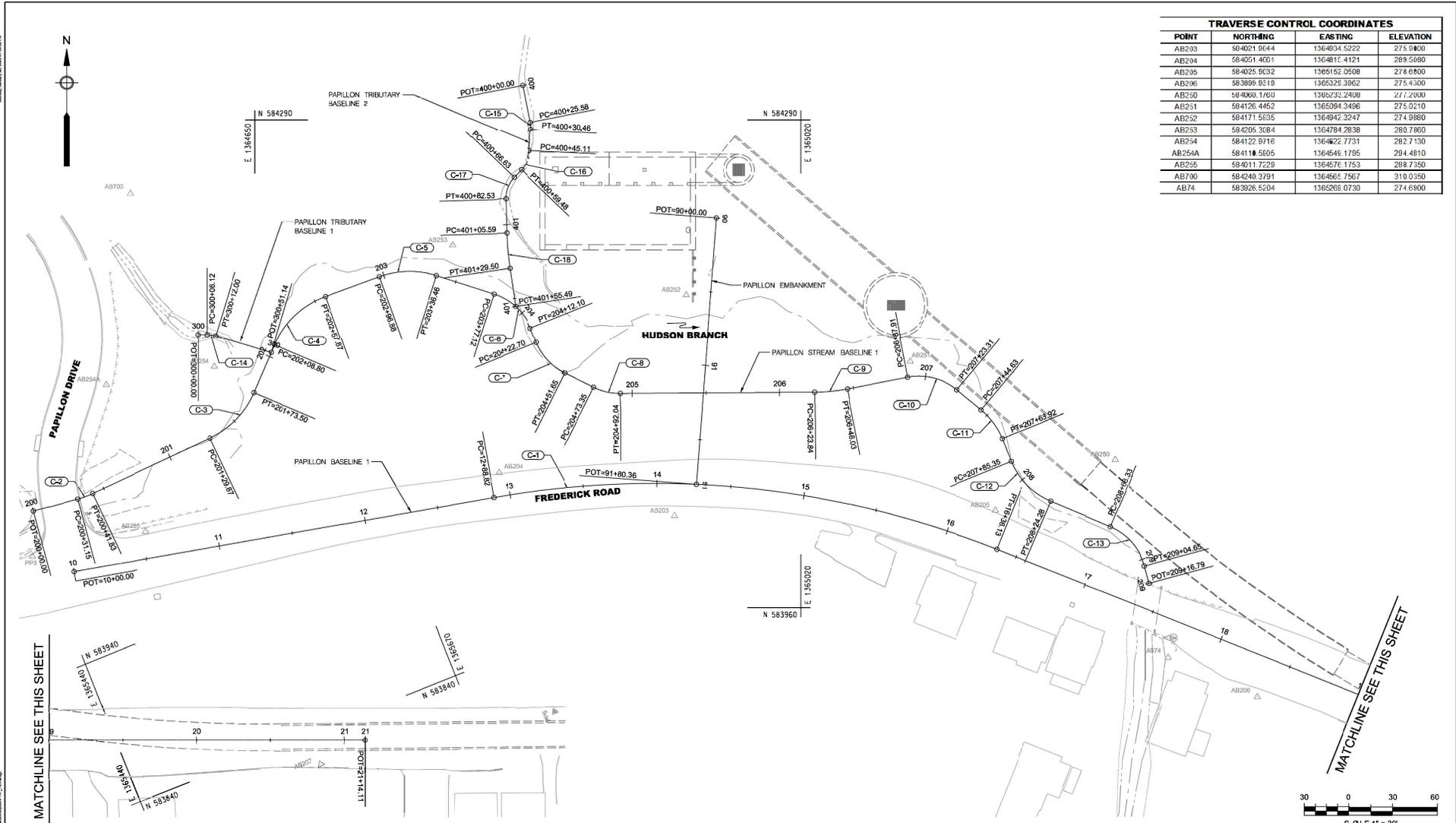
REVISIONS

ELICOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-2 2013

PAPILLON DRIVE SITE  
 ALTERNATIVE COMPLIANCE PLAN SET  
 TITLE SHEET

SCALE AS SHOWN
SHEET G-001
PROJECT 1 OF 25

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
AB233	584021.9644	1364834.5222	273.9400
AB234	584051.4601	1364811.4121	289.5680
AB235	584025.9632	1365152.0508	278.6700
AB236	583898.9318	1365325.3502	275.4300
AB250	584060.1761	1365232.2408	277.2400
AB251	584126.4452	1365094.3496	275.0210
AB252	584171.5635	1364942.3247	274.9860
AB253	584205.3684	1364784.2838	280.7860
AB254	584122.9716	1364622.7731	282.7130
AB254A	584118.5605	1364545.1795	294.4810
AB255	584011.7228	1364576.1753	288.7350
AB700	584240.3791	1364565.7567	310.0350
AB74	583926.5204	1365268.0730	274.6600

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 6/3/2024  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 6/5/2024 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 6/7/2024 DATE  
 DIRECTOR  
 4220836883942E DATE

**McCORMICK TAYLOR**  
 509 South Exeter Street  
 4th Floor  
 Baltimore, Maryland 21202  
 (410) 662-7400

**Howard County**  
 MARYLAND  
 Storm Water Management Division  
 Bureau of Environmental Services  
 9801 Broken Land Parkway  
 Columbia, Maryland 21046  
 (410) 313-6444

Digitally signed by Andy McLean  
 Date: 2024.05.20 15:49:53 -0400

DES: JLE/CMH					
DRN: JLE/CMH					
CHK: ADM					
DATE: 5/21/24	BY	NO.	REVISION	DATE	

ELLCOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSC# EP-22-0 13  
 PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 SURVEY CONTROL MAP

S SCALE  
 1"=30'  
 S HET  
 G-007  
 PROJECT  
 2 OF 28

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**

BASELINE GEOMETRY CONTROL COORDINATES						
BASELINE	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
PAPILLON BASELINE 1	PCB	580394.2065	1364527.5910	10+00.00	N 79°5'17" E	
	PC	580403.0664	1364811.8820	12+86.82	N 79°57'15" E	
	PI	580405.7621	1364987.5161	14+67.09	S 68°12'24" E	
	CC	580419.2483	1364921.0038			525.00'
	PCE	580322.1229	1365096.8616	21+14.11		
PAPILLON STREAM BASELINE 1	PCB	584025.3631	1364499.9390	200+00.00	N 75°00'50.4845" E	
	PC	584033.4169	1364530.0258	200+31.15	N 75°00'50.4845" E	
	PI	584034.8020	1364535.1988	200+36.50	N 64°48'41.3630" E	
	CC	584061.3763	1364514.5109			60.00'
	PT	584037.0815	1364540.0467	200+41.83	N 64°48'41.3630" E	
	PC	584074.5487	1364819.7120	201+29.87	N 64°48'41.3630" E	
	PI	584084.2674	1364640.3739	201+52.70	N 23°08'34.2732" E	
	CC	584128.8444	1364594.1762			60.00'
	PT	584105.2629	1364640.3478	201+73.50	N 23°08'34.2732" E	
	PC	584137.7227	1364693.2216	202+08.80	N 23°08'34.2732" E	
	PI	584161.6271	1364673.4390	202+34.89	N 69°59'43.4738" E	
	CC	584111.1407	1364718.3932			60.00'
	PT	584170.5206	1364997.0670	202+57.87	N 69°59'43.4738" E	
	PC	584183.8603	1364734.5254	202+96.88	N 69°59'43.4738" E	
	PI	584190.8928	1364753.8261	203+17.42	S 72°12'32.8024" E	
CC	584127.4884	1364750.0512			60.00'	
PT	584184.6171	1364773.3838	203+36.46	S 72°12'32.8024" E		
PC	584172.1919	1364812.1048	203+77.12	S 72°12'32.8024" E		
PI	584166.4789	1364829.9062	203+95.82	S 22°06'36.4237" E		
CC	584134.1048	1364799.8831			40.00'	
PT	584149.1603	1364836.9416	204+12.10	S 22°06'36.4237" E		
PC	584139.3410	1364840.9307	204+22.70	S 22°06'36.4237" E		
PI	584125.3110	1364846.6300	204+37.84	S 63°34'57.6679" E		
CC	584154.3966	1364877.9802			40.00'	
PT	584118.5735	1364860.1930	204+51.65	S 63°34'57.6679" E		
PC	584108.9213	1364879.6224	204+73.35	S 63°34'57.6679" E		
PI	584104.6050	1364860.1489	204+82.07	N 69°30'16.7851" E		
CC	584144.7444	1364897.4187			40.00'	
PT	584104.7452	1364897.6714	204+82.04	N 69°30'16.7851" E		
PC	584105.5779	1365029.4657	204+23.84	N 69°30'16.7851" E		
PI	584105.0462	1365040.5852	204+34.97	N 78°02'24.6516" E		
CC	584225.5765	1365029.7075			120.00'	
PT	584107.7642	1365051.5219	204+46.03	N 78°02'24.6516" E		
PC	584115.7256	1365092.6335	204+87.91	N 78°02'24.6516" E		
PI	584119.3297	1365111.2440	207+06.87	S 50°14'40.7859" E		
CC	584076.4551	1365100.2384			40.00'	
PT	584107.2084	1365125.8188	207+23.31	S 50°14'40.7859" E		
PC	584063.5781	1365142.2820	207+44.63	S 50°14'40.7859" E		
PI	584085.6578	1365151.7293	207+57.07	S 22°24'13.3270" F		
CC	584056.1300	1365110.2264			50.00'	
PT	584074.1056	1365156.4526	207+68.02	S 22°24'13.3270" E		
PC	584059.0108	1365162.7123	207+85.35	S 22°24'13.3270" E		
PI	584040.0438	1365170.5315	208+05.98	S 67°01'18.0817" E		
CC	584078.0673	1365208.9384			50.00'	
PI	584032.0347	1365189.4193	208+24.28	S 67°01'18.0817" E		
PC	584014.8384	1365229.9739	208+68.33	S 67°01'18.0817" E		
PI	584007.2175	1365247.9464	208+87.85	S 14°59'36.4610" E		
CC	583978.0123	1365214.3586			40.00'	
PT	583988.3006	1365252.9968	209+04.65	S 14°59'36.4610" E		
PCE	583976.6420	1365256.1353	209+16.79			

BASELINE GEOMETRY CONTROL COORDINATES						
BASELINE	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
PAPILLON TRIBUTARY BASELINE 1	PCB	584144.7135	1364611.6166	300+00.00	S 90°00'00.0000" E	
	PC	584144.7135	1364617.7358	300+06.12	S 90°00'00.0000" E	
	PI	584144.7135	1364623.6356	300+09.08	S 73°06'51.4255" E	
	CC	584124.7135	1364617.7358			20.00'
	PCE	584143.8563	1364623.5284	300+12.00	S 73°06'51.4255" E	
POE	584132.5183	1364663.6973	300+51.14			
PAPILLON TRIBUTARY BASELINE 2	PCB	584313.5119	1364831.6384	400+00.00	S 11°10'51.2101" E	
	PC	584288.4130	1364839.5984	400+25.58	S 11°10'51.2101" E	
	PI	584286.0084	1364837.0447	400+28.04	S 2°47'37.4199" W	
	CC	584284.6349	1364819.8490			20.00'
	PT	584283.5601	1364830.8202	400+30.46	S 2°47'37.4199" W	
	PC	584288.9309	1364830.2114	400+45.11	S 2°47'37.4199" W	
	PI	584261.4268	1364835.8452	400+52.62	S 43°58'13.3835" W	
	CC	584269.9057	1364813.2351			20.00'
	PT	584256.0198	1364833.6291	400+59.48	S 43°58'13.3835" W	
	PC	584250.0753	1364825.6561	400+68.63	S 43°58'13.3835" W	
PI	584244.8319	1364819.8361	400+75.03	S 1°34'49.6564" E		
CC	584236.8896	1364843.0501			20.00'	
PT	584235.4380	1364823.0577	400+82.63	S 1°34'49.6564" E		
PC	584213.3833	1364823.7336	401+05.59	S 1°34'49.6564" E		
PI	584201.4227	1364821.0336	401+17.56	S 6°25'40.2747" E		
CC	584218.8995	1365029.6277			200.00'	
PT	584188.5087	1364822.7375	401+28.50	S 0°25'40.2747" E		
PCE	584163.8709	1364820.5307	401+55.48			
PAPILLON EMBANKMENT	PCB	584223.4615	1364962.6983	90+00.00	S 41°19'52.8552" W	
POE	584043.6180	1364949.0968	91+68.38			

CURVE DATA										
BASELINE	CURVE NO.	DELTA	Dc	R	T	L	E	CENTER OF CURVE		
CONSTRUCTION								NORTH	EAST	
PAPILLON BASELINE 1	C-1	31°50'29.7207"	91°10'42.3690"	625.0000'	178.2660'	347.3105'	24.9261'	583419.2483	1364681.0038	
	C-2	10°12'88.1215"	95°2934.5771"	60.00'	5.36'	10.68'	0.24	584991.3763	1364514.5109	
	C-3	41°40'07.0898"	95°2934.5771"	60.00'	22.83'	43.64'	4.2	584128.8444	1364584.1762	
PAPILLON STREAM BASELINE 1	C-4	46°51'09.2005"	95°2934.5771"	60.00'	26.00'	49.00'	5.39	584114.1407	1364718.3932	
	C-5	37°47'43.7238"	95°2934.5771"	60.00'	20.54'	39.58'	3.42	584127.4884	1364755.0512	
	C-6	50°05'56.3788"	143°14'22.0156"	40.00'	18.69'	34.98'	4.15	584134.1048	1364799.8831	
	C-7	41°28'21.2448"	143°14'22.0156"	40.00'	15.14'	28.95'	2.77	584154.3966	1364877.9802	
	C-8	26°46'45.5373"	143°14'22.0156"	40.00'	9.52'	18.70'	1.12	584144.7444	1364887.4187	
	C-9	10°35'52.1434"	47°44'47.3365"	128.00'	11.13'	22.20'	0.52	584225.5765	1365028.7075	
	C-10	50°42'45.5625"	143°14'22.0156"	40.00'	18.96'	35.41'	4.26	584076.4551	1365100.2384	
	C-11	27°56'27.4589"	114°35'29.6125"	50.00'	12.39'	24.30'	1.51	584055.1390	1365110.2264	
	C-12	44°37'04.7517"	114°35'29.6125"	50.00'	20.52'	38.64'	4.05	584078.0673	1365208.9384	
	C-13	52°01'41.6207"	143°14'22.0156"	40.00'	19.52'	36.32'	4.51	583976.6420	1365214.3586	
TRIBUTARY BASELINE 1	C-14	1°05'08.5745"	286°28'44.0312"	20.00'	2.90'	5.88'	0.22	584124.7135	1364617.7358	
	C-15	13°58'28.6330"	286°28'44.0312"	20.00'	2.45'	4.88'	0.15	584284.6349	1364816.9490	
TRIBUTARY BASELINE 2	C-16	41°16'36.5637"	286°28'44.0312"	20.00'	7.51'	14.37'	1.36	584260.0753	1364816.2351	
	C-17	45°33'03.6338"	286°28'44.0312"	20.00'	8.40'	15.90'	1.49	584236.8896	1364840.8601	
	C-18	6°50'50.6195"	28°38'52.4031"	208.00'	11.97'	23.90'	0.36	584218.8995	1365020.6277	

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
6/3/2024  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DIRECTOR

**MCCORMICK TAYLOR**  
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**Howard County**  
 MARYLAND  
 Storm Water Management Division  
 Bureau of Environmental Services  
 9801 Broken Land Parkway  
 Columbia, Maryland 21046  
 (410) 313-6444

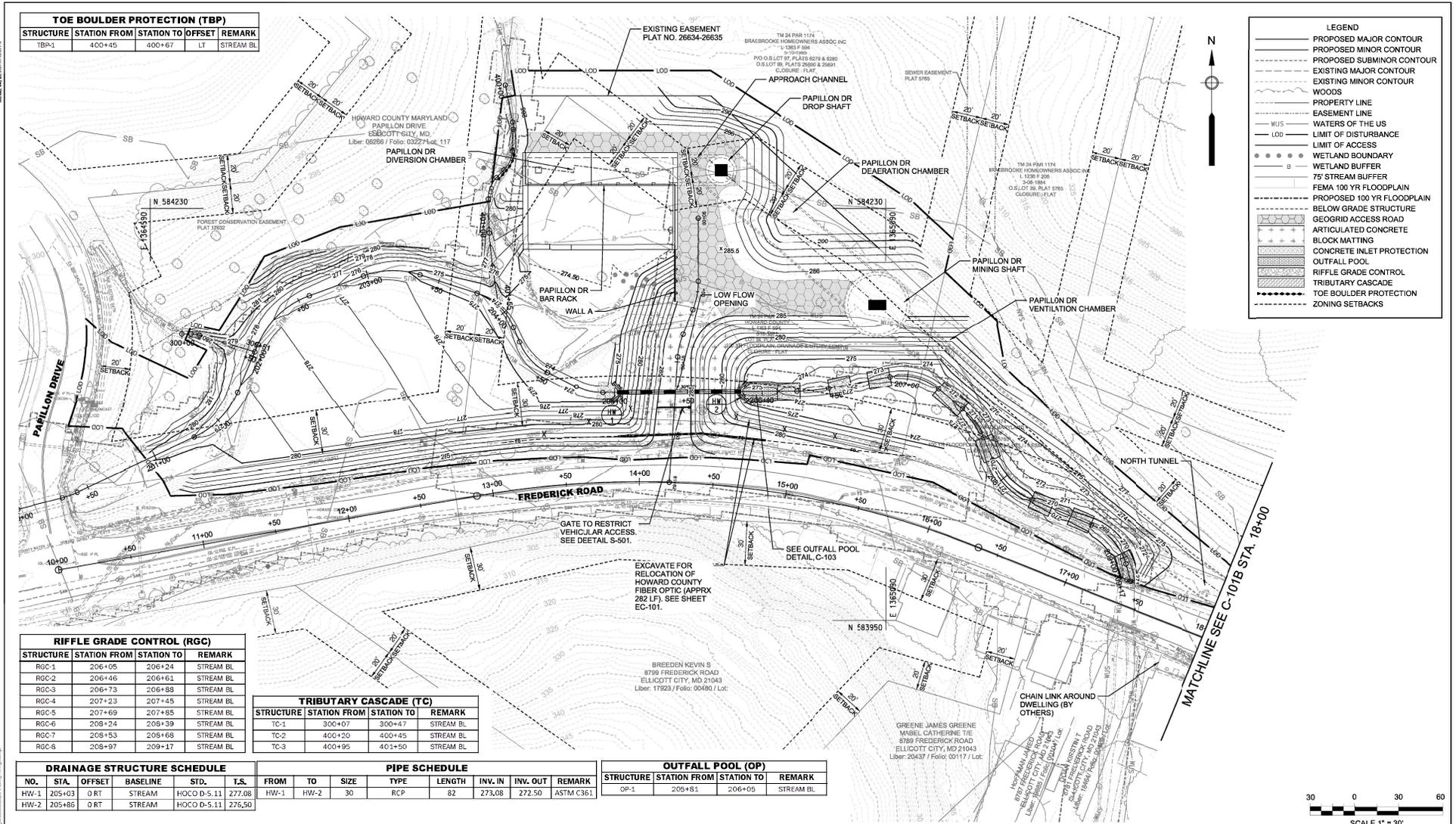
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 BY NO. REVISION DATE

ELLCOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013  
 PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 SURVEY CONTROL MAP

SCALE  
 NTS  
 SHEET  
 G-008  
 PROJECT  
 3 OF 28

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**



**TOE BOULDER PROTECTION (TBP)**

STRUCTURE	STATION FROM	STATION TO	OFFSET	REMARK
TBP-1	400+45	400+67	LT	STREAM BL

**RIFFLE GRADE CONTROL (RGC)**

STRUCTURE	STATION FROM	STATION TO	REMARK
RGC-1	206+05	206+24	STREAM BL
RGC-2	206+46	206+61	STREAM BL
RGC-3	206+73	206+88	STREAM BL
RGC-4	207+23	207+45	STREAM BL
RGC-5	207+69	207+85	STREAM BL
RGC-6	208+24	208+39	STREAM BL
RGC-7	208+53	208+68	STREAM BL
RGC-8	208+97	209+17	STREAM BL

**TRIBUTARY CASCADE (TC)**

STRUCTURE	STATION FROM	STATION TO	REMARK
TC-1	300+07	300+17	STREAM BL
TC-2	400+20	400+45	STREAM BL
TC-3	400+95	401+50	STREAM BL

**DRAINAGE STRUCTURE SCHEDULE**

NO.	STA.	OFFSET	BASELINE	STD.	T.S.
HW-1	205+03	0 RT	STREAM	HOCO D-5-11	277.08
HW-2	205+86	0 RT	STREAM	HOCO D-5-11	276.50

**PIPE SCHEDULE**

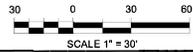
FROM	TO	SIZE	TYPE	LENGTH	INV. IN	INV. OUT	REMARK
HW-1	HW-2	30	RCP	82	273.08	272.50	ASTM C361

**OUTFALL POOL (OP)**

STRUCTURE	STATION FROM	STATION TO	REMARK
OP-1	205+81	206+05	STREAM BL

**LEGEND**

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- WOODS
- PROPERTY LINE
- EASEMENT LINE
- W/US
- WATERS OF THE US
- LIMIT OF DISTURBANCE
- LIMIT OF ACCESS
- WETLAND BOUNDARY
- WETLAND BUFFER
- 75' STREAM BUFFER
- FEMA 100 YR FLOODPLAIN
- PROPOSED 100 YR FLOODPLAIN
- BELOW GRADE STRUCTURE
- GEORID ACCESS ROAD
- ARTICULATED CONCRETE
- BLOCK MATTING
- CONCRETE INLET PROTECTION
- OUTFALL POOL
- RIFFLE GRADE CONTROL
- TRIBUTARY CASCADE
- TOE BOULDER PROTECTION
- ZONING SETBACKS



**APPROVED: DEPARTMENT OF PLANNING AND ZONING**  
6/3/2024

Chief, Development Engineering Division: *David Edmondson* 6/5/2024  
 Chief, Division of Land Development: *Lynda Eisenberg* 6/7/2024  
 Director: *Lynda Eisenberg*

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MARYLAND  
Storm Water Management Division  
Bureau of Environmental Services  
9801 Broken Land Parkway  
Columbia, Maryland 21046  
(410) 313-6444

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DATE: 5/21/24

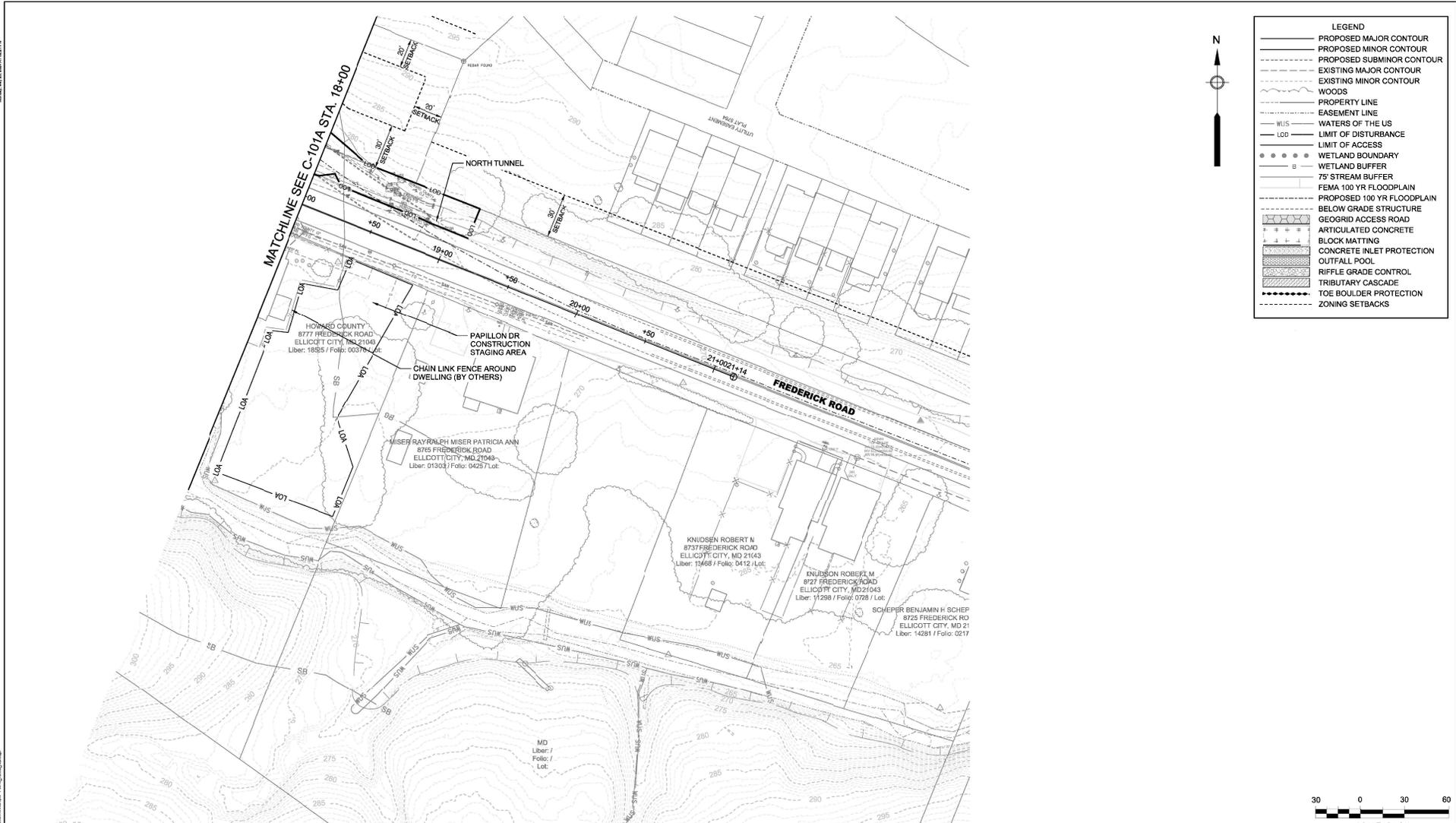
REVISIONS

ELLICOTT CITY NORTH TUNNEL  
CAPITAL PROJECT #C-0337  
HOWARD COUNTY  
HSCD# EP-22-013

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
SITE PLAN

SCALE 1" = 30'  
SHEET C-101A  
PROJECT 1 OF 25

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 6/3/2024  
 Digitally signed by: *Andr Edman*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 6/5/2024 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 6/7/2024 DATE  
 DIRECTOR: *Linda Eisenberg*  
 42208635863942E

**McCORMICK TAYLOR**  
 Howard County  
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 Storm Water Management Division  
 Bureau of Environmental Services  
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 Columbia, Maryland 21046  
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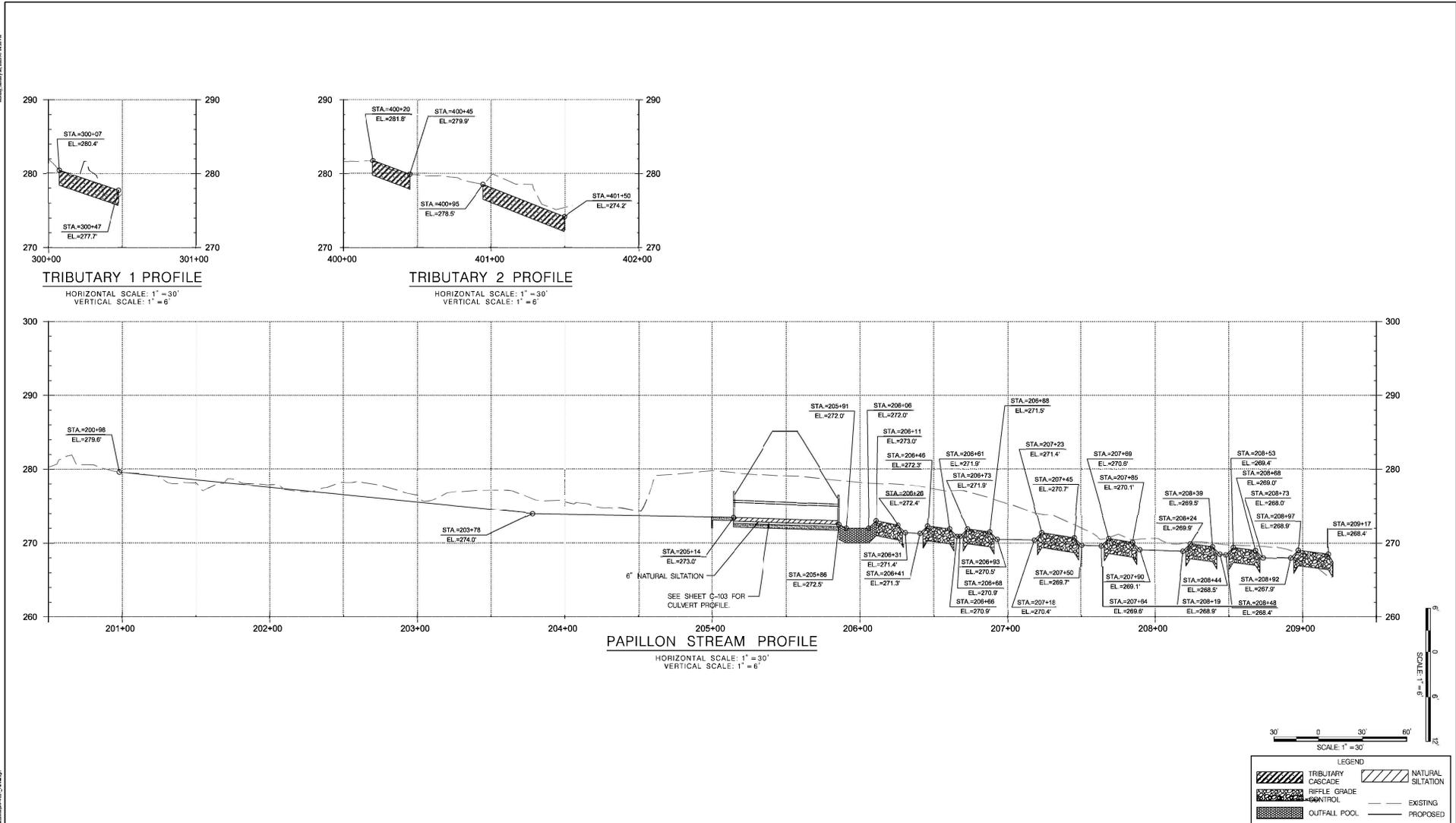
REVISIONS

ELLICOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 SITE PLAN

SCALE  
 1" = 30'  
 SHEET  
 C-101B  
 PROJECT  
 15 OF 25

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 6/3/2024  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 6/5/2024 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 6/7/2024 DATE  
 DIRECTOR  
 42208635883942E

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**Howard County**  
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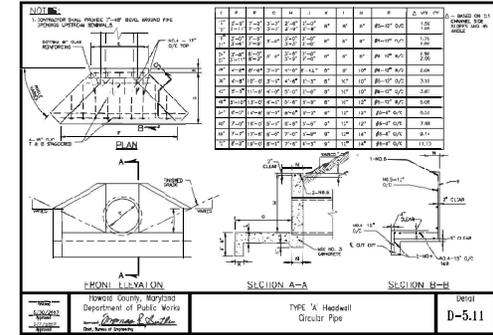
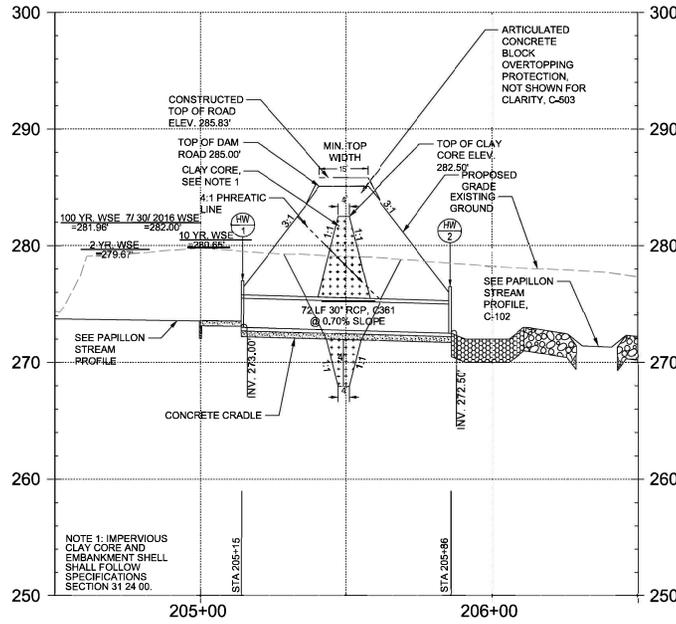
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C HK: ADM				
DATE: 5/21/24	BY	NO.	REV ISION	DATE

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 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

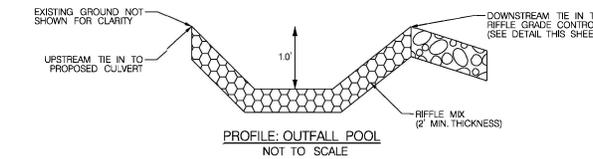
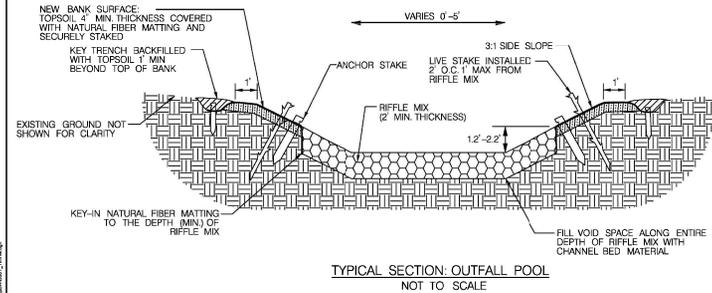
PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 STREAM PROFILE

SCALE AS SHOWN  
 SHEET C-102  
 PROJECT 8 OF 28

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



PIPE TRENCH AND CONCRETE CRADLE DETAIL  
 NOT TO SCALE



10-YEAR DESIGN INFORMATION  
 $L = 0.7 \text{ lb/ft}^2$   
 $D = 2.2 \text{ ft}$   
 $V = 4.5 \text{ ft/s}$   
 MINIMUM DESIGN SHEAR STRENGTH =  $2.1 \text{ lb/ft}^2$

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>David Edmondson</i>	6/3/2024
CHIEF, DEVELOPMENT ENGINEERING DIVISION	6/5/2024 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	6/7/2024 DATE
DIRECTOR	DATE

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**Howard County**  
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 Storm Water Management Division  
 Bureau of Environmental Services  
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 (410) 313-6444

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*Andy McLean*  
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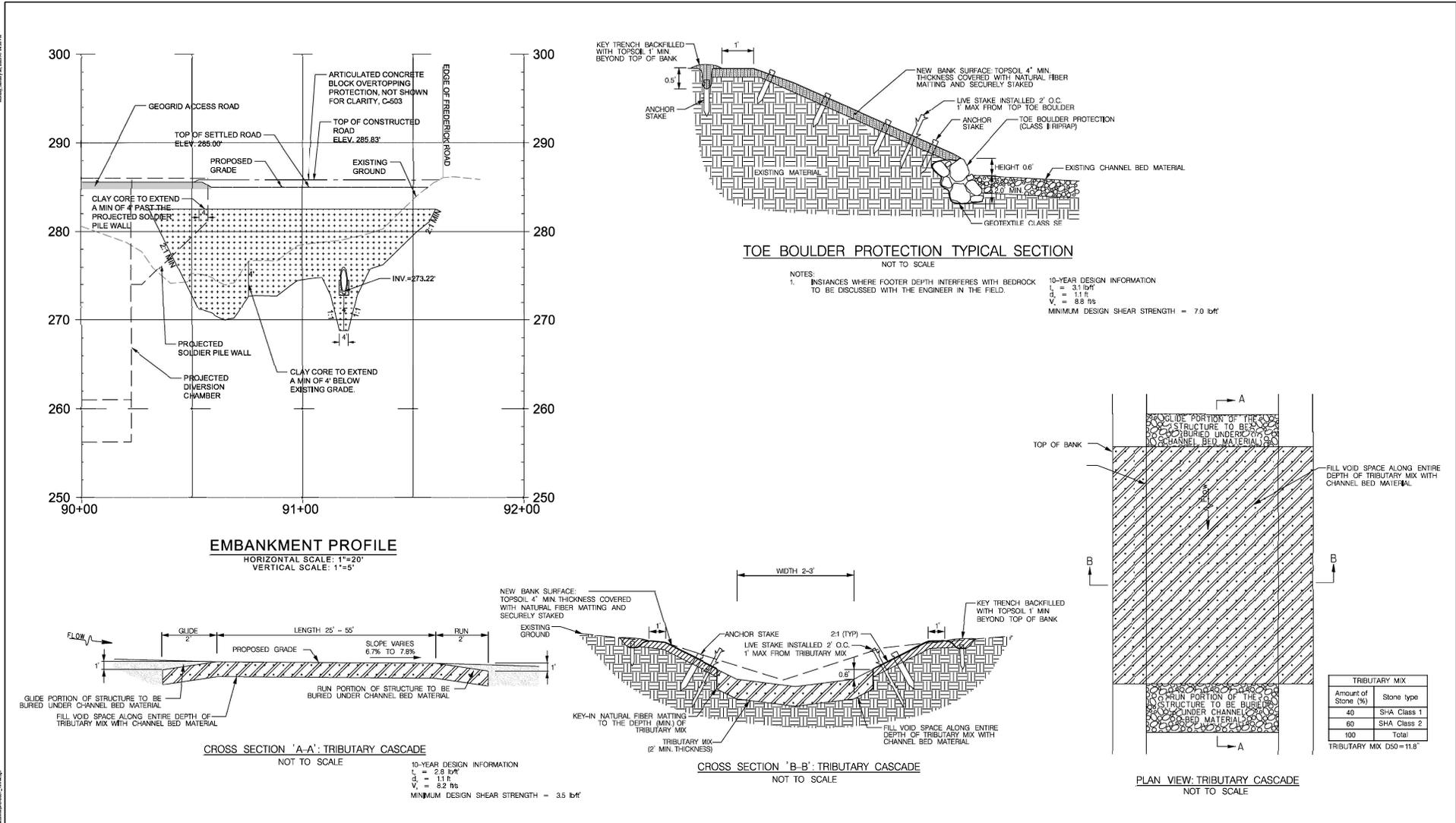
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DRN: JLE/CMH			
CHK: ADM			
DATE: 5/21/24	BY	NO.	REVISION

ELLIOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

PAPILLON DRIVE SITE- ALTERNATIVE COMPLIANCE PLAN SET  
 DRAINAGE DETAILS AND PROFILES

SCALE AS SHOWN  
 SHEET C-103  
 PROJECT 7 OF 28

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 6/5/2024 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT  
 6/7/2024 DATE

DIRECTOR

**McCORMICK TAYLOR**  
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 Storm Water Management Division  
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DRN: JLE/CMH					
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DATE: 5/21/24	BY	NO.	REVISION	DATE	

ELLCOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

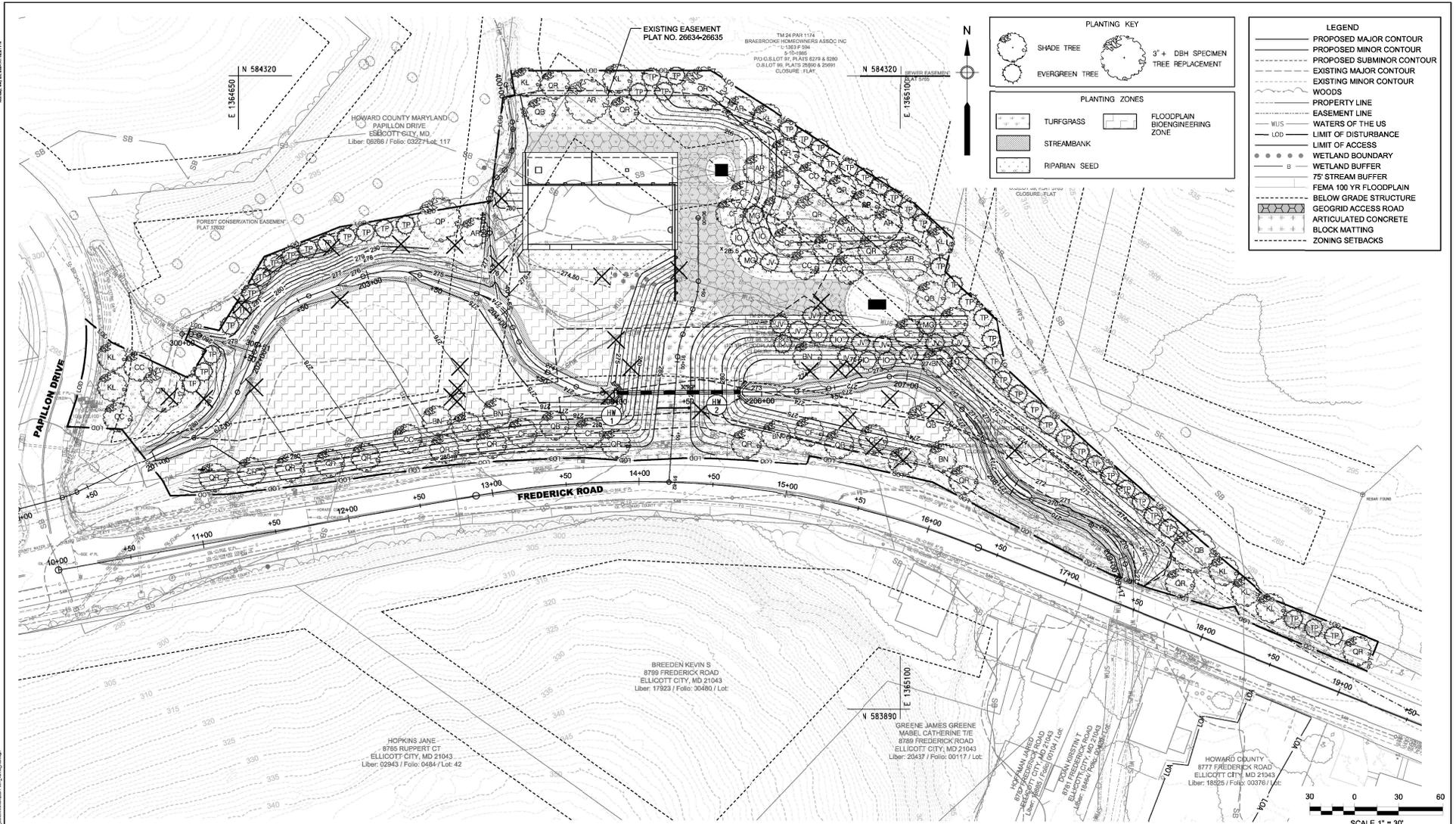
PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 DRAINAGE DETAILS AND PROFILES

SCALE AS SHOWN

SHEET C-104

PROJECT 8 OF 28

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



APPROVED: DEPARTMENT OF PLANNING AND ZONING 6/3/2024	
CHIEF, DEVELOPMENT ENGINEERING DIVISION <i>David Edmondson</i>	DATE: 6/5/2024
CHIEF, DIVISION OF LAND DEVELOPMENT <i>David Edmondson</i>	DATE: 6/7/2024
DIRECTOR <i>Lynda Eisenberg</i>	DATE:

**McCORMICK TAYLOR**  
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**Howard County**  
 MARYLAND  
 Storm Water Management Division  
 Bureau of Environmental Services  
 9801 Broken Land Parkway  
 Columbia, Maryland 21046  
 (410) 313-6444

Digitally signed by Andy McLean  
 Date: 2024.05.21 08:51:57 -0400  
 Andy McLean

DES: JLE/CMH	DRN: JLE/CMH
CHK: ADM	DATE: 5/21/24

REVISIONS
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ELLICOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 LANDSCAPING PLAN

SCALE 1" = 30'

SHEET C-105  
 PROJECT 2 OF 25

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**

Turfgrass Seed Mix				
Zone	Botanical Name	Common Name	Percent Mix	Quantity (lbs.)
Turfgrass	<i>Poa pratensis</i>	Kentucky Blue Grass	33	
	<i>Lolium perenne</i>	Perennial Rye Grass	33	
	<i>Schedonorus phoenix</i>	Tall Fescue	34	
Total			100	67.3

\* SEED SOWING RATE TO BE APPLIED AT 200 LBS/AC

Riparian Seed Mix					
Zone	Botanical Name	Common Name	Wetland Status	Percent Mix	Total Mix (lbs.)
Riparian	<i>Schizachyrium scoparium</i>	Little Bluestem/Campier	FACU	71.6	
	<i>Elymus virginicus</i>	Virginia Wild Rye	FACW	15	
	<i>Rudbeckia hirta</i>	Blackeyed Susan	FACU	3	
	<i>Chamaecrista fasciculata</i>	Partridge Pea	FACU	2.5	
	<i>Senna hebecarpa</i>	Wild Senna	FAC	2	
	<i>Aster novae-angliae</i>	New England Aster	FACW	1.3	
	<i>Chamaecrista nictitana</i>	Sensitive Pea	FACU	1	
	<i>Aster praeanthoides</i>	Zigzag Aster	FAC	0.7	
	<i>Pycnanthemum tenuifolium</i>	Narrowleaf Mountainmint	FACW	0.7	
	<i>Asclepias tuberosa</i>	Butterfly Milkweed	N/A	0.5	
	<i>Monarda fistulosa</i>	Wild Bergamot	UPL	0.5	
	<i>Solidago nemoralis</i>	Gray Goldenrod	N/A	0.5	
	<i>Aster laevis</i>	Smooth Blue Aster	FACU	0.4	
	<i>Solidago juncea</i>	Early Goldenrod	N/A	0.2	
	<i>Penstemon hirsutus</i>	Hairy Beardtongue	N/A	0.1	
	Total			100	59.5

\* SEED SOWING RATE TO BE APPLIED AT 50 LBS/AC

Wetland Seed Mix					
ZONE	BOTANICAL NAME	COMMON NAME	WETLAND STATUS	PERCENT MIX	TOTAL MIX (LBS)
Streambank, Floodplain	<i>Carex vulpinoidea</i>	Fox Sedge	OBL	33	
	<i>Elymus riparius</i>	Riverbank Wildrye	FACW	19	
	<i>Carex lurida</i>	Lurid (Shallow) Sedge	OBL	17	
	<i>Carex scoparia</i>	Blunt Broom Sedge	FACW	6	
	<i>Cinna arundinacea</i>	Wood Reetgrass	FACW	5	
	<i>Carex lupulina</i>	Hop Sedge	OBL	4	
	<i>Sparganium eurycarpum</i>	Giant Bur Reed	OBL	4	
	<i>Scirpus expansus</i>	Wood Bulrush	OBL	3	
	<i>Juncus effusus</i>	Soft Rush	FACW	2.5	
	<i>Carex intumescens</i>	Star Sedge	FACW	2	
	<i>Sparganium americanum</i>	Eastern Bur Reed	OBL	2	
	<i>Carex crinita</i>	Fringed (Nodding) Sedge	OBL	1	
	<i>Scirpus cypripetius</i>	Woodgrass	FACW	1	
	<i>Juncus tenuis</i>	Path Rush	FAC	0.5	
	Total			100	46.4

\* SEED SOWING RATE TO BE APPLIED AT 50 LBS/AC

Planting Schedule							
Zone	Quantity	Botanical Name	Common Name	Wetland Status	Size	Root	Comment
Streambank	210	<i>Cornus amomum</i>	Silky Dogwood	FACW	3'-4" Long x 1/2"-1 1/2" Dia	Live Stake	Plant 2' O. C.
	210	<i>Sambucus nigra</i>	American Black Elderberry	FAC	3'-4" Long x 1/2"-1 1/2" Dia	Live Stake	Plant 2' O. C.
	421	<i>Salix nigra</i>	Black Willow	OBL	3'-4" Long x 1/2"-1 1/2" Dia	Live Stake	Plant 2' O. C.
Floodplain Bench	184	<i>Cornus amomum</i>	Silky Dogwood	FACW	3'-4" Long x 1/2"-1 1/2" Dia	Live Stake	Plant 8' O. C.
	184	<i>Sambucus nigra</i>	American Black Elderberry	FAC	3'-4" Long x 1/2"-1 1/2" Dia	Live Stake	Plant 8' O. C.
	184	<i>Salix nigra</i>	Black Willow	OBL	3'-4" Long x 1/2"-1 1/2" Dia	Live Stake	Plant 8' O. C.
	1127	<i>Andropogon gerardii</i>	Big Bluestem	FAC	5" Deep x 2" Dia	Plug	Plant 3' O. C.
	1127	<i>Carex tribuloides</i>	Blunt Broom Sedge	FACW	5" Deep x 2" Dia	Plug	Plant 3' O. C.
	1127	<i>Juncus effusus</i>	Soft Rush	FACW	5" Deep x 2" Dia	Plug	Plant 3' O. C.
	1127	<i>Acorus americanus</i>	Sweetflag	OBL	5" Deep x 2" Dia	Plug	Plant 3' O. C.

Tree Planting Schedule					
SHADE TREES					
Symbol	Botanical Name	Common Name	Spacing	Size	Quantity
AR	<i>Acer rubrum</i> 'Autumn Glory'	Autumn Glory Red Maple	20' O.C.	1.5" CAL. B&B	5
QP	<i>Quercus phellos</i>	Willow Oak	20' O.C.	1.5" CAL. B&B	3
QR	<i>Quercus nra</i>	Northern Red Oak	20' O.C.	1.5" CAL. B&B	17
CC	<i>Cercis canadensis</i>	Eastern Redbud	20' O.C.	1.5" CAL. B&B	8
CF	<i>Cornus florida</i>	Flowering White Dogwood	20' O.C.	1.5" CAL. B&B	8
BN	<i>Betula nigra</i>	River Birch	20' O.C.	1.5" CAL. B&B	6
QB	<i>Quercus bicolor</i>	Swamp White Oak	20' O.C.	1.5" CAL. B&B	5
AR	<i>Acer rubrum</i> 'Autumn Glory'	Autumn Glory Red Maple	20' O.C.	3" + CAL. B&B	2
QP	<i>Quercus phellos</i>	Willow Oak	20' O.C.	3" + CAL. B&B	2
QR	<i>Quercus nra</i>	Northern Red Oak	20' O.C.	3" + CAL. B&B	2
QB	<i>Quercus bicolor</i>	Swamp White Oak	20' O.C.	3" + CAL. B&B	2
EVERGREEN TREES					
Symbol	Botanical Name	Common Name	Spacing	Size	Quantity
JV	<i>Juniperus virginiana</i>	Eastern Red Cedar	15' O.C.	5-HT, CG	10
IO	<i>Ilex opaca</i>	American Holly	15' O.C.	5-HT, CG	9
MG	<i>Magnolia grandifolia</i>	Southern Magnolia	15' O.C.	5-HT, CG	3
TP	<i>Thuja plicata</i> x <i>standishii</i>	Arnotvae Green Giant	15' O.C.	5'-6" HT, CG	50
KL	<i>Kalmia latifolia</i>	Mountain Laurel	10' O.C.	5'-6" HT, CG	9

**FOREST CONSERVATION WORKSHEET FOR \_\_\_\_\_**

**Net Tract Area**

- A. Total (Gross) Tract Area A = 2.3
- B. Area within 100-year Floodplain B = 1.7
- C. Other Deductions (Identify: \_\_\_\_\_) C = 0.0
- D. Net Tract Area D = 0.6

**Land Use Category**

Insert the number "1" under the appropriate land use (limit to only one entry)

Rural LD	Rural MD	Resid. Suburban	Inst./Linear	Retail/Ind./Office	Mixed Use/PUD
0	0	1	0	0	0

- E. Afforestation Threshold (Net Tract Area x 15%) E = 0.1
- F. Reforestation Threshold (Net Tract Area x 20%) F = 0.1

**Existing Forest Cover**

- G. Existing Forest Cover within the Net Tract Area G = 0.6
- H. Area of Forest above Afforestation Threshold H = 0.5
- I. Area of Forest above Reforestation Threshold I = 0.5

**Break Even Point**

- J. Break Even Point J = 0.3
- K. Forest Clearing Permitted without Mitigation K = 0.3

**Proposed Forest Clearing**

- L. Total Area of Forest to be Cleared L = 0.6
- M. Total Area of Forest to be Retained M = 0.0

**Planting Requirements Inside Watershed**

- N. Reforestation for Clearing above the Reforestation Threshold N = 0.3
- P. Reforestation for Clearing below the Reforestation Threshold P = 0.2
- Q. Credit for Retention above the Reforestation Threshold Q = 0.0
- R. Total Reforestation Required R = 0.5
- S. Total Afforestation Required S = 0.0
- T. Total Reforestation and Afforestation Requirement T = 0.5
- U. 75% of Total Obligation (Retention + Planting) U = 0.4
- V. Planting Required Onsite to meet 75% Obligation V = 0.4

**Planting Requirements Outside Watershed**

- W. Total Planting within Development Site Watershed W = 0.0
- X. Total Afforestation Required X = 0.0
- Y. Remaining Planting within Watershed for Reforestation Credit Y = 0.0
- Z. Reforestation for Clearing above the Reforestation Threshold Z = 0.5
- AA. Reforestation for Clearing below the Reforestation Threshold AA = 0.3
- BB. Credit for Retention above the Reforestation Threshold BB = 0.0
- CC. Total Reforestation Required CC = 0.5
- DD. Total Afforestation and Reforestation Requirement DD = 0.9

Date: \_\_\_\_\_

APPROVED DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT PERMITTING DIVISION **6/5/2024** DATE  
 CHIEF, DEVELOPMENT PERMITTING DIVISION **6/7/2024** DATE  
 DIRECTOR **Lynda Eisenberg** DATE

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Digitally signed by Andy McLean  
 Date: 2024.06.05 09:52:06 -0400

DES: JLE/CMH  
 DRN: JLE/CMH  
 CHK: ADM  
 DATE: 5/21/24

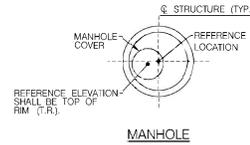
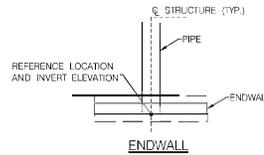
REVISIONS

ELLCOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

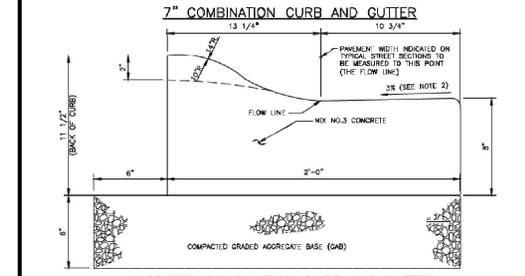
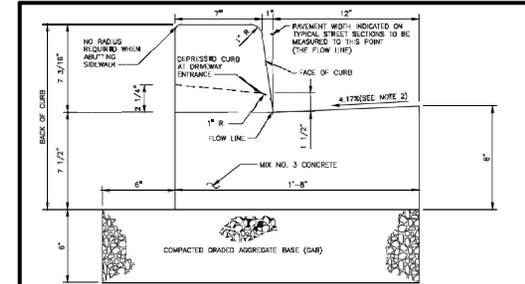
PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 LANDSCAPE DETAILS

SCALE AS SHOWN  
 SHEET C-106  
 PROJECT 10 OF 25

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.

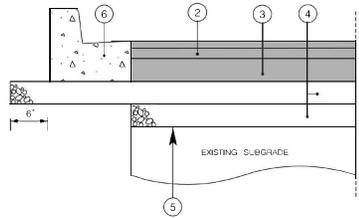


DRAINAGE STRUCTURE STAKEOUT LOCATION DETAILS  
 N.T.S.

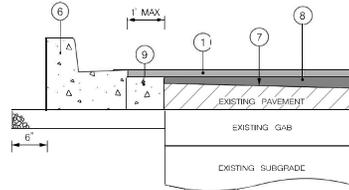


**NOTE: MODIFIED COMBINATION CURB AND GUTTER**  
 1. A REVERSE GUTTER PAN SHALL HAVE A GUTTER SLOPE OF 4:1% AWAY FROM THE FLOW LINE, AND SHALL NOT BE USED WHERE THIS DRAINAGE CREATES A HAZARDOUS CONDITION.  
 2. GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT WIDTH TAPERING CROSS SLOPE, WITH CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB & GUTTER.  
 3. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.  
 4. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS REPORT: <i>Andrew R. Smith</i> DATE: 08/19/2024 TITLE: Chief, Bureau of Engineering	CURB AND GUTTER 7" & Modified	Detail R-3.01
--	----------------------------------	------------------



FULL DEPTH RECONSTRUCTION  
 DETAIL  
 NOT TO SCALE



WEDGE LEVEL DETAIL  
 NOT TO SCALE

PAVEMENT LEGEND:

- ① 1.5" SUPERPAVE ASPHALT MIX 9.5 mm FOR FINAL SURFACE, PG 64S-22, LEVEL 1
- ② 1.5" SUPERPAVE ASPHALT MIX 9.5 mm FOR INTERMEDIATE SURFACE, PG 64S-22, LEVEL 1
- ③ 3" SUPERPAVE ASPHALT MIX 19.0 mm FOR BASE, PG 64S-22, LEVEL 1
- ④ 5" GRADED AGGREGATE BASE
- ⑤ TOP OF SUBGRADE
- ⑥ 7" COMBINATION CURB AND GUTTER
- ⑦ TOP OF EXISTING PAVEMENT SURFACE AFTER MILLING
- ⑧ VARIABLE DEPTH SUPERPAVE ASPHALT MIX 9.5mm FOR WEDGELEVEL, PG 64S-22, LEVEL 2 (SEE NOTE 2)
- ⑨ 8" PORTLAND CEMENT CONCRETE, MX NO.9

NOTES:

- 1) CONTRACTOR SHOULD FINE MILL PARKING LOT TO REMOVE DISTORTIONS PRIOR TO RESURFACING AND WEDGELEVEL.
- 2) WEDGELEVEL SHALL BE USED TO MAKE GRADE ADJUSTMENTS AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE USE THE FOLLOWING MATERIAL:  
 FOR WEDGE LEVEL 0" TO 2":  
 SUPERPAVE ASPHALT MIX 9.5mm FOR WEDGELEVEL, PG 64S-22, LEVEL 2 (1" MINIMUM AND 2" MAXIMUM LIFT THICKNESS)  
 FOR WEDGE LEVEL GREATER THAN 2":  
 SUPERPAVE ASPHALT MIX 19.0mm FOR WEDGELEVEL, PG 64S-22, LEVEL 2 (MAXIMUM 4" LIFT THICKNESS)

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Date: 6/3/2024  
 CHIEF, DEPT. OF PLANNING AND ZONING: *Chad Edmondson*  
 CHIEF, DIVISION OF LAND DEVELOPMENT: *Lynda Eisenberg*  
 DATE: 6/5/2024  
 DATE: 6/7/2024

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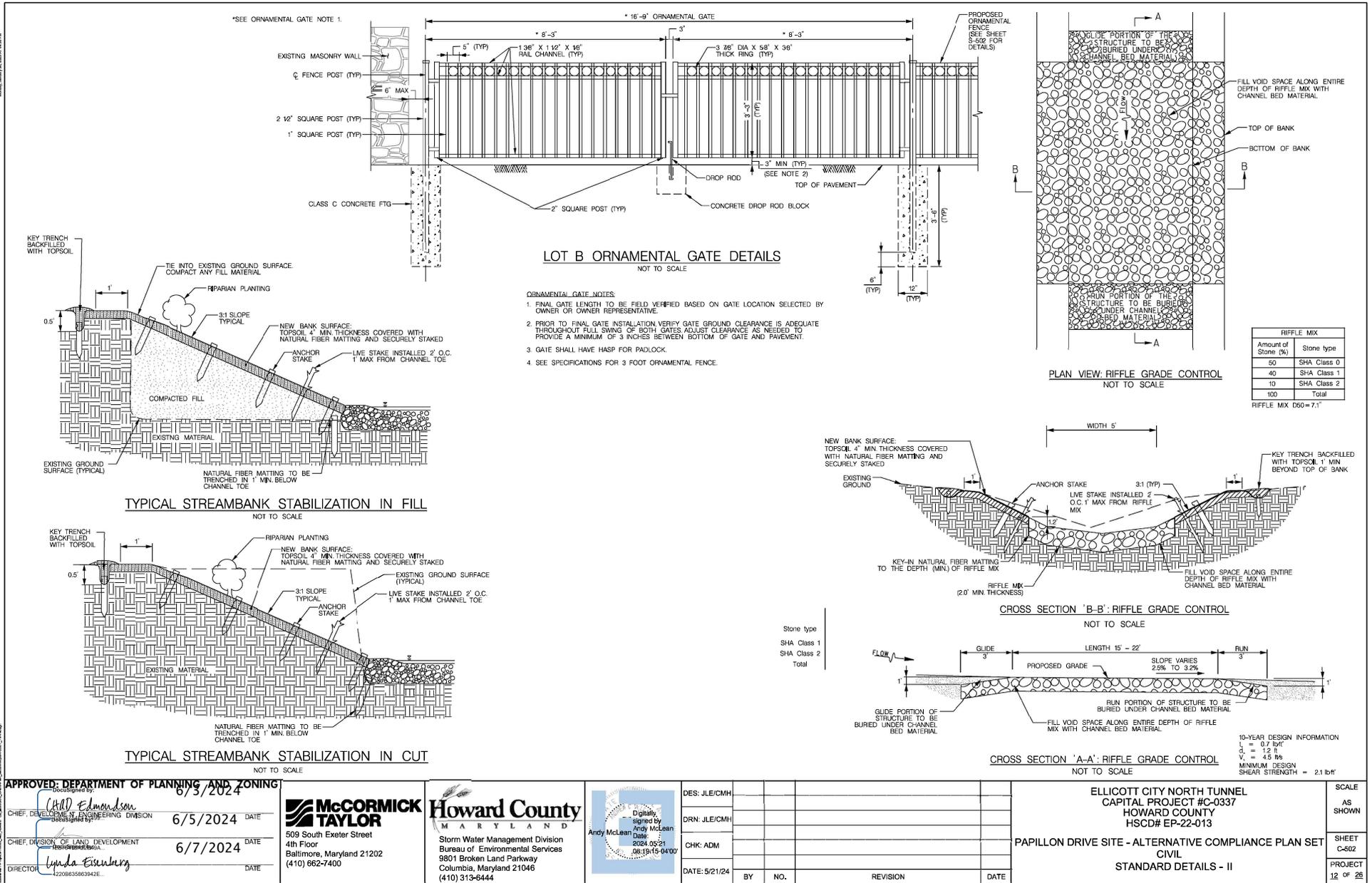
Digitally signed by  
 Andy McLean  
 Date: 2024.05.21  
 08:19:10 -0400

DES: JLE/CMH			
DRN: JLE/CMH			
CHK: ADM			
DATE: 5/21/24	BY	NO.	REVISION
			DATE

ELLICOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013  
 PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 CIVIL  
 STANDARD DETAILS - I

SCALE  
 AS SHOWN  
 SHEET  
 C-501  
 PROJECT  
 11 OF 29

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 8/3/2024

DocuSigned by:  
**Chad Edmondson**  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 6/5/2024 DATE

DocuSigned by:  
**Lynda Eisenberg**  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 6/7/2024 DATE

DIRECTOR  
 4220836880942E DATE

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Digitally signed by  
**Andy McLean**  
 Date: 2024.05.21  
 08:15:15-0400

DES: JLE/CMH					
DRN: JLE/CMH					
CHK: ADM					
DATE: 5/21/24	BY	NO.	REVISION	DATE	

ELLCOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

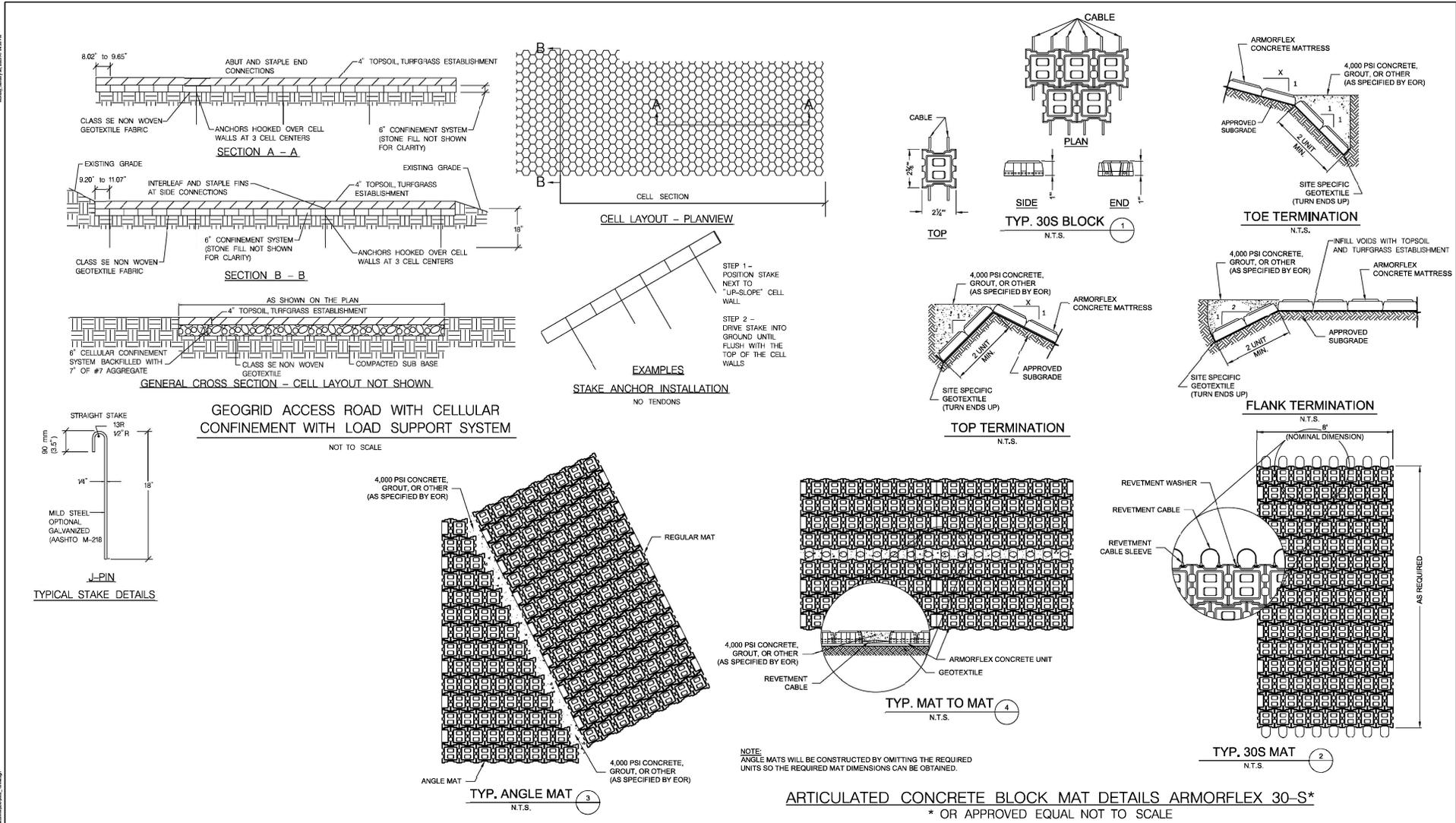
PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 CIVIL  
 STANDARD DETAILS - II

SCALE  
 AS SHOWN

SHEET  
 C-502

PROJECT  
 12 OF 28

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 (Bill) Edmondson  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 6/5/2024 DATE  
 CHIEF, DIVISION OF DEVELOPMENT 6/7/2024 DATE  
 DIRECTOR 220693583942C DATE

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 Date: 2024.05.21 08:50:10 -0400  
 Andy McLean

DES: JLE/CMH				
DRN: JLE/CMH				
CHK: ADM				
DATE: 5/21/24	BY	NO.	REVISION	DATE

ELLCOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013  
 PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 CIVIL  
 STANDARD DETAILS - III

SCALE AS SHOWN  
 SHEET C-503  
 PROJECT 13 OF 28

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**

**GENERAL NOTES**

- NURSERY GROWN PLANT MATERIAL SHOULD MEET OR EXCEED THE REQUIREMENTS OF THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION'S (ANLA) LATEST EDITION OF "AMERICAN STANDARD NURSERY STOCK (ANS Z60.1) FOR SPECIFICATIONS PARTICULARLY REGARDING THE SIZE, GROWTH, SIZE OF THE ROOT BALL, AND FORM & DENSITY OF BRANCH STRUCTURE.
- PLANT MATERIAL SHALL BE INSPECTED TO BE FREE OF DISEASE, DAMAGE, INSECT INFESTATION, AND WOOD UPON DELIVERY TO THE SITE. ALL PLANTS SHOULD BE HEALTHY AND WELL STRUCTURED. NO HEELED-COLD STORAGE OR COLLECTED STOCK WILL BE ACCEPTED. PLANTS IN POOR CONDITION SHALL BE REJECTED, REMOVED FROM THE SITE, AND REPLACED WITH APPROVED ACCEPTABLE MATERIALS.
- AFTER INSTALLATION OF PLANTS, MONITOR SOIL MOISTURE AND WATER NEEDS OF PLANTS APPLY WATER TO PLANTING PITS AS SPECIFIED IN SPECIFICATIONS.

**DEER PROTECTION - TREE TOP VIEW**  
NOT TO SCALE

**DEER PROTECTION DETAIL - TREE SECTION VIEW**  
NOT TO SCALE

**KEY-IN TOP 6" (MIN) DEPTH, REINFORCE WITH STAKES (3 SPACING) AND BACKFILL**  
**STAKE SPACING 8-12" MAX ON OVERLAP 1" MINIMUM OVERLAP WITH UPSTREAM FABRIC ON TOP OF DOWNSTREAM FABRIC**

**ANCHOR STAKE**  
NOT TO SCALE

**USE NEDIA KOR MAT 700 TYPE MATTING, ECO MESH CM 700, GEODUR DESKONE 900 TYPE MATTING, OR AN EQUIVALENT MATTING CONSISTING OF MACHINE PRODUCED MATTING MEETING THE FOLLOWING MINIMUM SPECIFICATIONS:**

MATERIAL	WOVEN COIR MATTING
THICKNESS	0.3 IN.
WEIGHT	20 OZ/SY
WATER VELOCITY	1/2 FT/SEC
OPEN AREA	50%

**SLOPE PLANTING DETAIL FOR TREES CONTAINER GROWN**  
NOT TO SCALE

**LIVE STAKE**  
NOTE: 1. LIVE STAKES MUST BE INSTALLED WHILE DORMANT (LATE FALL TO EARLY SPRING). DO NOT ALLOW THEM TO DRY CUT.

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**

CHIEF, DEVELOPMENT AND ENGINEERING DIVISION: *Chad Edmondson* DATE: 6/5/2024

CHIEF, DIVISION OF LAND DEVELOPMENT: *Lynda Eisenberg* DATE: 6/7/2024

DIRECTOR: *Lynda Eisenberg* DATE: 2206535863942E

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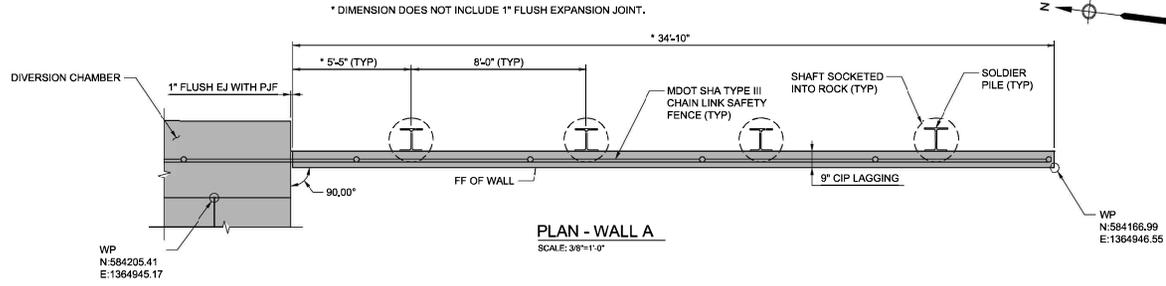
BY: NO. REVISION DATE

**ELLICOTT CITY NORTH TUNNEL CAPITAL PROJECT #C-0337 HOWARD COUNTY HSCD# EP-22-013**

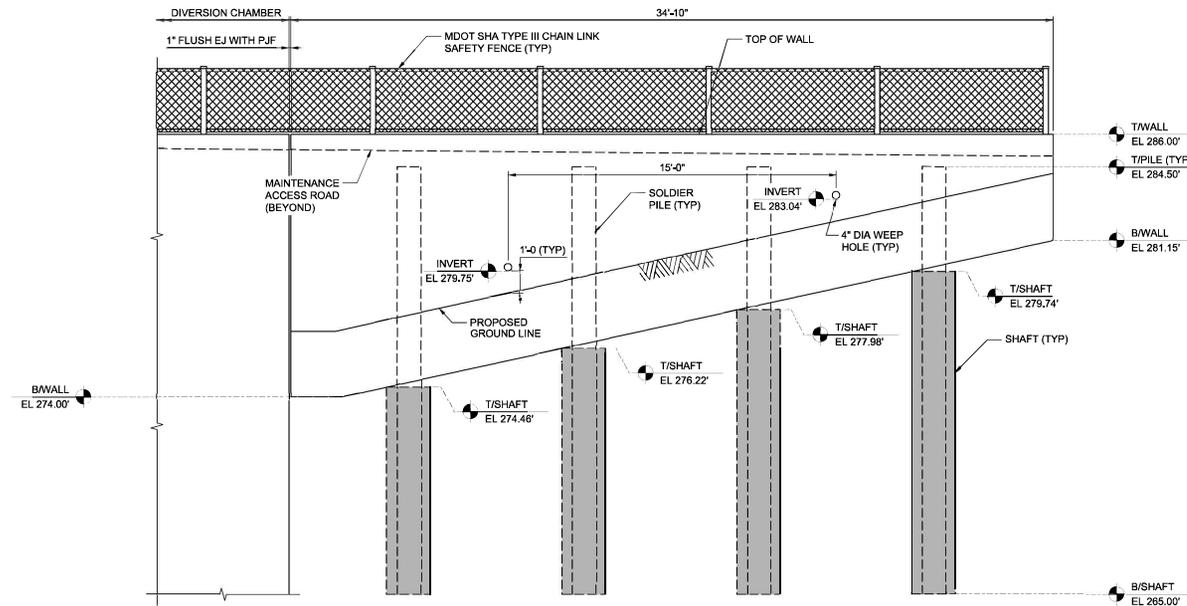
**PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET CIVIL LANDSCAPE DETAILS**

SCALE AS SHOWN  
SHEET C-504  
PROJECT 14 OF 28

PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



PLAN - WALL A  
 SCALE: 3/8"=1'-0"



ELEVATION - WALL A  
 SCALE: 3/8"=1'-0"

NOTES

1. FOR GEOTECHNICAL INFORMATION, SEE THE GEOTECHNICAL BASELINE REPORT (GBR).
2. WALL A CONCRETE SHALL BE CLASS C.

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 (Signature) 6/5/2024 DATE  
 CHIEF, DEVELOPMENT AND PERMITTING DIVISION  
 (Signature) 6/7/2024 DATE  
 CHIEF, DEVELOPMENT AND PERMITTING DIVISION  
 (Signature) 6/7/2024 DATE  
 DIRECTOR 42208635863942E DATE

**McCORMICK TAYLOR**  
 509 South Exeter Street  
 4th Floor  
 Baltimore, Maryland 21202  
 (410) 662-7400

**Howard County**  
 MARYLAND  
 Storm Water Management Division  
 Bureau of Environmental Services  
 9801 Broken Land Parkway  
 Columbia, Maryland 21046  
 (410) 313-6444

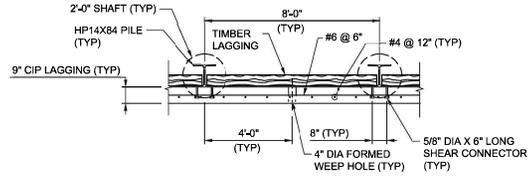
Digitally signed by Andy McLean  
 Date: 2024.05.21 08:22:26 -0400  
 Andy McLean

DES: FT					
DRN: FT					
CHK: AGB					
DATE: 5/21/24	BY	NO.	REVISION	DATE	

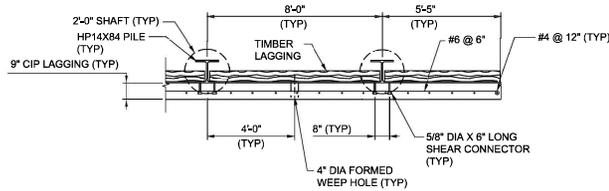
ELLICOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013  
 PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 PAPILLON DR SHAFT SITE - WALL A  
 PLAN & ELEVATION

SCALE  
 3/8" = 1'-0"  
 SHEET  
 S-109  
 PROJECT  
 15 OF 28

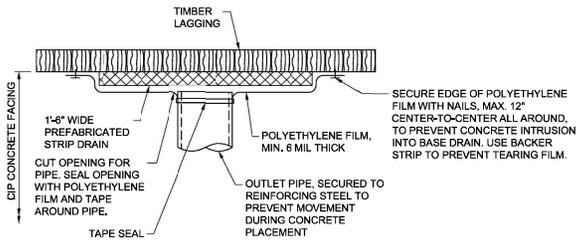
PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
 ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.



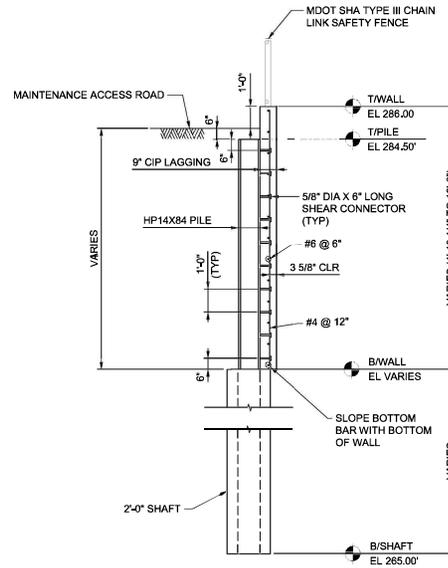
TYPICAL WALL PANEL PLAN  
 SCALE: 3/8"=1'-0"



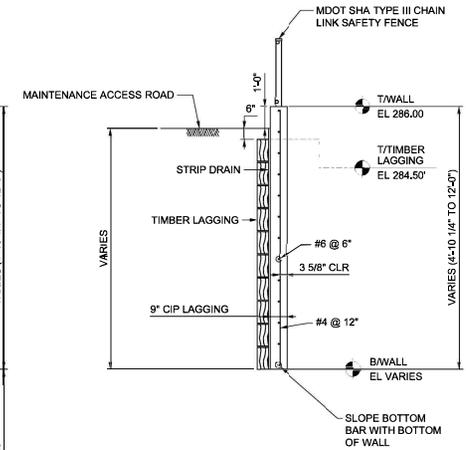
TYPICAL END WALL PANEL PLAN  
 SCALE: 3/8"=1'-0"



STRIP DRAIN DETAIL  
 SCALE: N.T.S.



SECTION THROUGH BEAM  
 SCALE: 3/8"=1'-0"



SECTION BETWEEN BEAMS  
 SCALE: 3/8"=1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
6/3/2024	DATE
<i>Will Edmondson</i>	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	6/5/2024
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
6/7/2024	DATE
<i>Lynnda Eisenberg</i>	DATE
DIRECTOR	DATE

**McCORMICK TAYLOR**  
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Digitally signed by Andy McLean  
 Date: 2024.05.21 08:29:15 -0400

DES: FT					
DRN: FT					
CHK: AGB					
DATE: 5/21/24	BY	NO.	REVISION	DATE	

ELLCOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 PAPILLON DR SHAFT SITE - WALL A  
 TYPICAL SECTIONS & REINFORCING DETAILS

SCALE	3/8"=1'-0"
SHEET	S-110
PROJECT	16 OF 28



**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT, NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**

# EROSION AND SEDIMENT CONTROL - GENERAL NOTES

## MODIFIED BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

- EXCEPT WHERE SPECIFIED AS "STOCKPILE AREA" ON THE EROSION & SEDIMENT CONTROL PLANS, NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN SERVICABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- STABILIZATION FOR TEMPORARY IMPACTS IN FORESTED WETLANDS SHALL CONSIST OF LOWLAND SHRUB SEEDING WITH WET MEADOW ESTABLISHMENT AND ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), ALL OTHER STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), WILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (LIMOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NONPERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
  - USE I WATER: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
  - USE III WATER: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE DURING ANY YEAR.
  - USE IV WATER: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

## FLOODPLAIN ACTION AND PREVENTION PLAN (FAPP)

- WORK LOCATED WITHIN THE HUDSON BRANCH AND THE PATAPSCO RIVER 100-YEAR FLOODPLAIN, THE PROTECTION OF THE HUDSON BRANCH AND THE PATAPSCO RIVER AND THE ADJACENT 100-YEAR FLOODPLAIN IS A KEY COMPONENT AND GOAL FOR THIS PROJECT. IT IS ESSENTIAL THAT NO UNSECURED MATERIALS OR EQUIPMENT BE ALLOWED TO BE LEFT AT THE SITE DURING A HIGH WATER EVENT. TO PREVENT EQUIPMENT, CONSTRUCTION MATERIALS, AND DEBRIS FROM ENTERING THE WATERWAYS DURING FLOOD EVENTS, THE FOLLOWING ACTIONS AND PREVENTATIVE MEASURES WILL BE ENFORCED FOR THE DURATION OF ALL ACTIVITIES THAT ARE BEING PERFORMED WITHIN THE HUDSON BRANCH, THE PATAPSCO RIVER, AND ADJACENT FLOODPLAIN AREAS.
  - WEATHER AND THE POSSIBILITY OF A RAINFALL EVENT SHALL BE MONITORED BY THE CONTRACTOR ON A DAILY BASIS, SEVEN (7) DAYS A WEEK DURING CONSTRUCTION. THE CONTRACTOR SHALL MONITOR WEATHER FORECASTS ISSUED BY THE NATIONAL WEATHER SERVICE IN AND AROUND THE PROJECT AREA, AND SUPPLY THE ENGINEER WITH UPDATED FORECAST INFORMATION AT THE BEGINNING OF EACH WORK DAY.
  - A SIGNIFICANT RAINFALL EVENT IS DEFINED AS ANY FORECAST IN THE LOCAL NOAA 3-DAY FORECAST IN WHICH THERE IS MORE THAN A 50% CHANCE OF A 2-YEAR STORM, DEFINED AS:
    - 3.2 INCHES OR MORE OF RAINFALL PREDICTED WITHIN A 24-HOUR PERIOD; OR
    - 3.7 INCHES OR MORE OF RAINFALL PREDICTED WITHIN A 48-HOUR PERIOD.
 OTHER SIGNIFICANT WEATHER EVENTS TO CONSIDER ARE HEAVY RUNOFF FROM SNOW MELT OR WINTER STORMS, AND THE IMPACT OF SUMMER TROPICAL STORMS AND HURRICANES AS DETERMINED BY THE ENGINEER.
  - SHOULD A SIGNIFICANT RAINFALL EVENT BE FORECASTED, ALL EQUIPMENT AND UNSECURED CONSTRUCTION MATERIALS MUST BE REMOVED FROM THE WATERS OF THE U.S. AND THE 100-YEAR FLOODPLAIN BEFORE THE SIGNIFICANT RAINFALL EVENT BEGINS. WORK MAY ONLY RESUME AND EQUIPMENT AND UNSECURED CONSTRUCTION MATERIALS BE RETURNED TO THE 100-YEAR FLOODPLAIN AND WATERS OF THE U.S. AFTER THE SIGNIFICANT RAINFALL EVENT HAS ENDED AND FLOODWATERS HAVE REGRESSED BACK INTO THE MAIN CHANNEL.
 

IN THE EVENT OF A FLOOD WATCH, THE CONTRACTOR SHALL NOT BE PERMITTED TO PERFORM ANY WORK ONCE PRECIPITATION IS DETECTED AND SHALL DEMOBILIZE FROM THE SITE UNTIL SUCH TIME AS THE WATCH IS CANCELLED.
  - HOWARD COUNTY HAS IDENTIFIED THE FOLLOWING LOCATIONS OUTSIDE OF THE 100-YEAR FLOODPLAIN THAT THE CONTRACTOR MAY UTILIZE FOR TEMPORARY STORAGE OF THE FOREMENTIONED EQUIPMENT AND MATERIALS DURING A SIGNIFICANT RAINFALL EVENT. THE CONTRACTOR MUST COORDINATE WITH THE HOWARD COUNTY PROJECT MANAGER AND THE ENGINEER PRIOR TO STORING EQUIPMENT AND MATERIALS AT THESE LOCATIONS.
 

TBD
  - NO HAZARDOUS MATERIALS, INCLUDING FUEL FOR EQUIPMENT AND PUMPS, WILL BE STORED AT ANY TIME WITHIN THE HUDSON BRANCH, THE PATAPSCO RIVER, OR THE 100-YEAR FLOODPLAIN. ALL EQUIPMENT SHALL BE INSPECTED EACH DAY TO VERIFY THAT NOTHING IS LEAKING FUEL OR LUBRICANTS INTO THE WATERWAY OR DEWATERED WORK AREAS. ANY LEAKING EQUIPMENT SHALL BE IMMEDIATELY REMOVED FROM THE WORK SITE FOR REPAIRS. IN ADDITION, THE CONTRACTOR SHALL HAVE A SPILL CONTAINMENT AND CLEAN UP KIT ON SITE TO ADDRESS ANY SPILLS THAT MAY OCCUR DURING THE NORMAL DAILY OPERATION OF THE EQUIPMENT. ABSORBENT SPILL CLEANUP MATERIALS SHALL BE DISPOSED OF PROPERLY AFTER EACH USE. MOBILE FUELING OF EQUIPMENT SHALL BE MINIMIZED. EQUIPMENT SHALL BE TRANSPORTED TO DESIGNATED AREAS OUTSIDE OF THE 100-YEAR FLOODPLAIN FOR FUELING.
  - THE SITE SHALL BE SECURED AT THE END OF EACH WORK DAY SO THAT IF AN UNEXPECTED RAIN EVENT DOES OCCUR, THERE WILL BE MINIMAL IMPACT ON THE ENVIRONMENT.
  - IN THE EVENT OF A WORK STOPPAGE OR PROLONGED SHUTDOWN, THE CONTRACTOR SHALL CONTINUE TO MONITOR THE WEATHER ON A DAILY BASIS AND REMOVE ALL EQUIPMENT AND UNSECURED MATERIALS FROM THE 100-YEAR FLOODPLAIN. A PROLONGED SHUTDOWN IS ANY STOPPAGE IN THE WORK LASTING FOR MORE THAN ONE (1) WEEK.
  - AFTER CONSTRUCTION HAS BEEN COMPLETED, THE CONTRACTOR SHALL ENSURE THAT POST-CONSTRUCTION GRADES AND ELEVATIONS ARE THE SAME AS THE ORIGINAL GROUND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
  - ALL COSTS ASSOCIATED WITH IMPLEMENTING THE FLOODPLAIN ACTION AND PROTECTION PLAN SHALL BE INCIDENTAL TO THE WORK AS INDICATED IN THE CONTRACT SPECIFICATIONS.
  - ADDITIONAL REQUIREMENTS MAY BE ADDED TO THE FAPP WITH INPUT FROM REGULATING AGENCIES AS CONDITIONS OF PERMIT ISSUANCE. ADDITIONAL CONSIDERATIONS MAY INCLUDE ANCHORING REQUIREMENTS FOR TRAILERS PLACED WITHIN THE FLOODPLAIN TO RESIST FLOATION, TEMPORARY STOCKPILE ENCLOSURES TO ISOLATE FLOWABLE EXCAVATIONS, AND PARKING OR OTHER RESTRICTIONS INTENDED TO MINIMIZE FLOOD RISK ON THE WORK SITE, MINIMIZE TEMPORARY IMPACTS TO THE FLOODPLAIN OF ADJACENT PROPERTIES AND MINIMIZE POTENTIAL FOR SEDIMENT LEAVING THE WORK AREA.

## B-4-3 SEEDING AND MULCHING

- SEEDING SPECIFICATIONS
  - ALL SEEDS MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO TESTING BY A LICENSED TESTING LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 12 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIALS IN ANY PROJECT. SEED CHITABLES A RECORDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
  - MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE QUANTITY IS PROVEN. THE APPROPRIATE SEEDING METHOD MUST BE APPLIED WHERE THE GROUND IS OPEN.
  - NOOCLANTS: THE NOOCLANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. NOOCLANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH NOOCLANTS AS DIRECTED ON THE PACKAGE. APPLY THEM AT THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP NOOCLANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE NOOCLANT LESS EFFECTIVE.
  - S/OO OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STABILIZERS OR CHEMICALS USED FOR WEED CONTROL, UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSOLUTION OF PHYTO-TOXIC MATERIALS.
- DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
  - INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B. PERMANENT SEEDING TABLE B.3 OR SITE SPECIFIC SEEDING SUMMARIES.
  - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDING AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
- DRILL OR CULT/PACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
  - CULT/PACKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST A 1/4 INCH OF SOIL COVERING. SEEDERS MUST BE FIRM AFTER PLANTING.
  - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- HYDROSEEDING: APPLY SEED UNIFORM WITH HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZERS).
  - IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN: 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHORUS): 200 POUNDS PER ACRE; K2O (POTASSIUM): 200 POUNDS PER ACRE.
  - LINE USE ONLY: GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING) NORMALLY NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
  - MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
  - WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.
- MULCHING
  - MULCH MATERIALS (IN ORDER OF PREFERENCE)
    - STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGH IN COLOR. STRAW IS TO BE FREE OF MOULD OR WEEDS. STRAW IS TO BE SPREAD IN THE MARCH OR APRIL, SWELL, SEASOIL, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIALLY OF BRASS IS DESIRED.
    - WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
      - WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL MONITORING OF THE MULCH. UNIFORM GREENING IS REQUIRED.
      - WCFM INCLUDING DYE MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
      - WCFM MATERIALS ARE TO BE STORED SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADJUSTIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A STICKLE GROUND COVER ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL. VISUAL MONITORING OF THE GROUND COVER IS REQUIRED.
      - WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 50 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.5 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 95 PERCENT MINIMUM.
  - APPLICATION
    - APPLY MULCH TO ALL SEEDING AREAS IMMEDIATELY AFTER SEEDING.
    - WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDING AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
    - WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
  - ANCHORING
    - PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR EROSION. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND WHETHER HAZARDOUS:
      - A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES.
      - WHERE EQUIPMENT CAN OPERATE SAFELY, IF USED ON SLOPING LAND, THE PRACTICE SHOULD FOLLOW THE CONTOUR.
      - WOOD CELLULOSE FIBER MAY BE USED FOR MULCH ANCHORING STRAW. APPLY THE FIBER BRINGS AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 30 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
      - SYNTHETIC BINDERS SUCH AS ACRYLIC COPOLYMER, DCA 70, PETROSEAL, TERRA TACK, TERRA TACK OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON GREYS OR BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
      - LESTWEG HT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 16 FEET WIDE AND 300 TO 1200 FEET LONG.

## B-4-4 TEMPORARY STABILIZATION

NO.	SPECIES	APPLICATION RATE (SEEDS)	7A		FERTILIZER RATE (10-20-20)	LIME RATE
			SEEDING DATE	SEEDING DEPTH		
	ANNUAL RYEGRASS	40	FEB 15 TO APR 30 AUG 15 TO NOV 30	0.5	45 LB/AC (13.5 LB/1000 SF)	2 TON/AC (600 SF)
	FORKTAIL MILLET	30	MAY 1 TO AUG 14	0.5		

## B-4-5 PERMANENT STABILIZATION

NO.	SPECIES	APPLICATION RATE (SEEDS)	7A		FERTILIZER RATE (10-20-20)	LIME RATE		
			SEEDING DATE	SEEDING DEPTH				
1	COASTAL PANIC GRASS	10	MAY 1 TO AUG 14	0.4-0.9 IN	N 45 LB/AC (13.5 LB/1000 SF)	P <sub>2</sub> O <sub>5</sub> 80 LB/AC (23.0 LB/1000 SF)	K <sub>2</sub> O 80 LB/AC (23.0 LB/1000 SF)	2 TON/AC (600 SF)
5	CREEPING RED PEGUE	15	FEB 15 TO APR 30 AUG 15 TO NOV 30	0.4-0.9 IN	45 LB/AC (13.5 LB/1000 SF)	80 LB/AC (23.0 LB/1000 SF)	80 LB/AC (23.0 LB/1000 SF)	2 TON/AC (600 SF)
	PARTIHOSE PEA	8	FEB 15 TO APR 30 AUG 15 TO NOV 30	0.4-0.9 IN				

NOTE: MAY 15 TO LIME. LIME IS AN ADDITIONAL PLANTING DATE FOR WET WEATHER SUPPLEMENTAL WATERING MAY BE NEEDED TO ENSURE PLANT ESTABLISHMENT.

NO.	SPECIES	APPLICATION RATE (SEEDS)	7A		FERTILIZER RATE (10-20-20)	LIME RATE		
			SEEDING DATE	SEEDING DEPTH				
6	TALL FESCUE	40	FEB 15 TO APR 30 AUG 15 TO NOV 30	0.4-0.9 IN	N 45 LB/AC (13.5 LB/1000 SF)	P <sub>2</sub> O <sub>5</sub> 80 LB/AC (23.0 LB/1000 SF)	K <sub>2</sub> O 80 LB/AC (23.0 LB/1000 SF)	2 TON/AC (600 SF)
6	PERENNIAL RYEGRASS	35	FEB 15 TO APR 30 AUG 15 TO NOV 30	0.4-0.9 IN	45 LB/AC (13.5 LB/1000 SF)	80 LB/AC (23.0 LB/1000 SF)	80 LB/AC (23.0 LB/1000 SF)	2 TON/AC (600 SF)
	WHITE CLOVER	5	FEB 15 TO APR 30 AUG 15 TO NOV 30	0.4-0.9 IN				

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT  
See EP-22-013 for HSCD Signatures  
Howard SOCD \_\_\_\_\_ Date \_\_\_\_\_

**ENGINEER'S CERTIFICATE**  
I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District. Signed by Andy McLean  
Signature of Engineer (print name below signature) \_\_\_\_\_ Date \_\_\_\_\_

**DEVELOPER'S CERTIFICATE**  
I hereby certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Approval as a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.  
Robert Z. Hollenbeck  
Signature of Developer (print name below signature) \_\_\_\_\_ Date \_\_\_\_\_

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**  
8/31/2024  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
6/5/2024  
CHIEF, DIVISION OF LAND DEVELOPMENT  
6/7/2024  
DIRECTOR

**McCORMICK TAYLOR**  
509 South Exeter Street  
4th Floor  
Baltimore, Maryland 21202  
(410) 662-7400

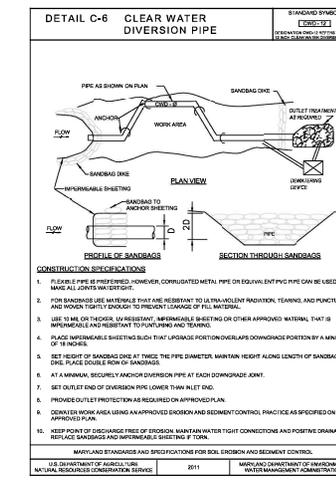
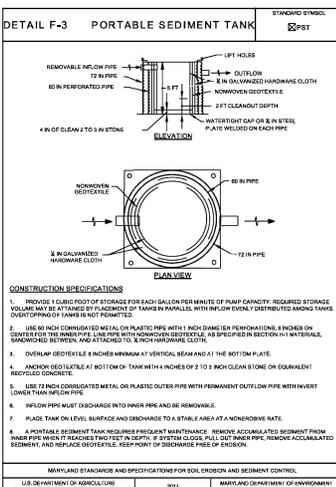
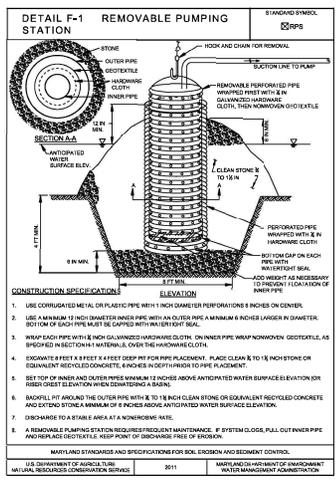
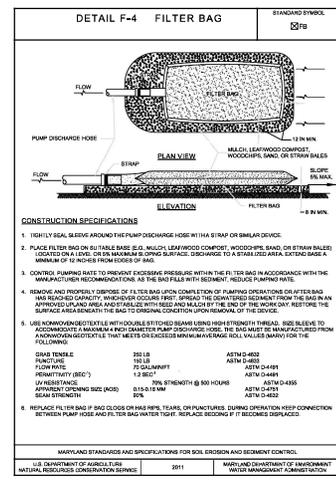
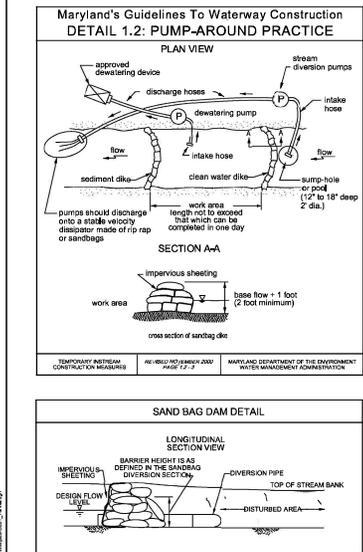
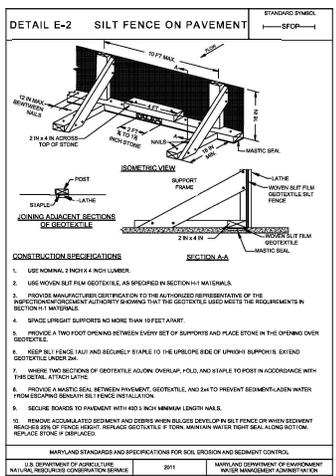
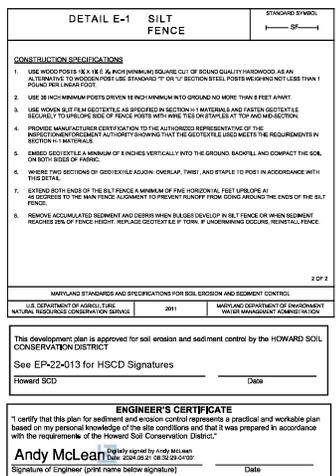
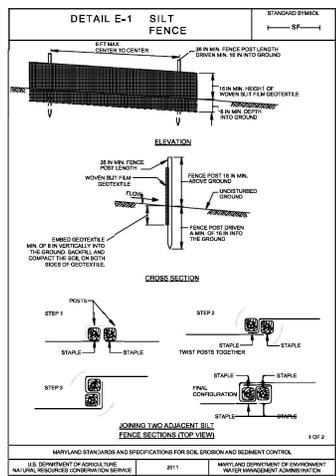
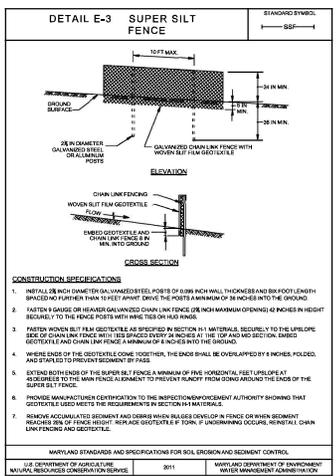
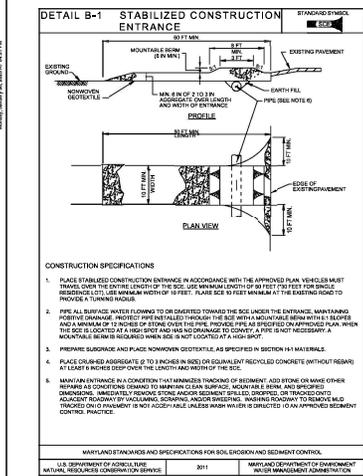
**Howard County**  
Storm Water Management Division  
Bureau of Environmental Services  
9801 Broken Land Parkway  
Columbia, Maryland 21046  
(410) 313-6444

Digitally signed by Andy McLean  
Date: 2024.09.21 09:29:21 -0400

DES: JLE/CMH					
DRN: JLE/CMH					
CHK: ADM					
DATE: 5/21/24	BY	NO.	REVISION	DATE	

ELLCOTT CITY NORTH TUNNEL  
CAPITAL PROJECT #C-0337  
HOWARD COUNTY  
HSCD# EP-22-013  
PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
EROSION & SEDIMENT CONTROL  
NOTES-I  
SCALE: NONE  
SHEET: EC-002  
PROJECT: 19 OF 28

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Chad Edmondson* 6/5/2024  
 CHIEF, DESIGN AND PERMIT DEVELOPMENT: *Yvonne Ewing* 6/7/2024  
 DIRECTOR: *Yvonne Ewing*

McCORMICK TAYLOR  
 509 South Exeter Street  
 4th Floor  
 Baltimore, Maryland 21202  
 (410) 662-7400

Howard County  
 Storm Water Management Division  
 Bureau of Environmental Services  
 9801 Broken Land Parkway  
 Columbia, Maryland 21046  
 (410) 313-6444

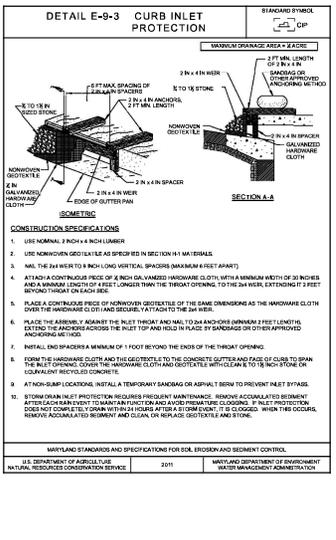
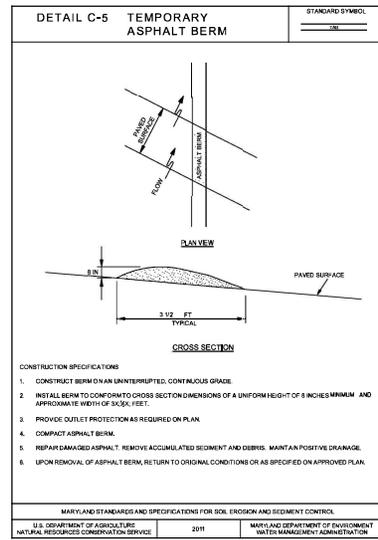
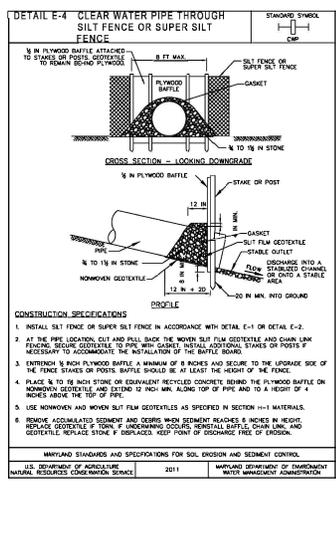
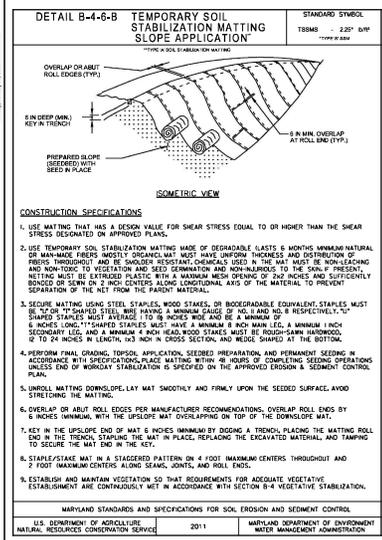
DES: JLE/CMH  
 DRN: JLE/CMH  
 CHK: ADM  
 DATE: 5/21/24

ELLICOTT CITY NORTH TUNNEL  
 CAPITAL PROJECT #C-0337  
 HOWARD COUNTY  
 HSCD# EP-22-013

SCALE: NONE  
 SHEET: EC-003  
 PROJECT: 19 OF 28

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
 EROSION AND SEDIMENT CONTROL  
 STANDARD DETAILS-I

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**



**B-8 STANDARDS AND SPECIFICATIONS**

**STOCKPILE AREA**

**Definition**

A mound or pile of soil/gravel/protection by appropriately designed erosion and sediment control measures.

**Purpose**

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

**Common Uses/Typical Locations**

Stockpile areas are defined as areas where it is necessary to salvage and reuse soil for later use.

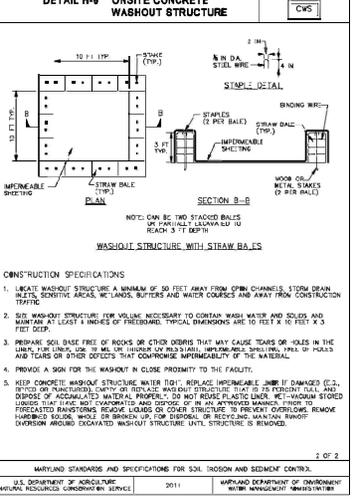
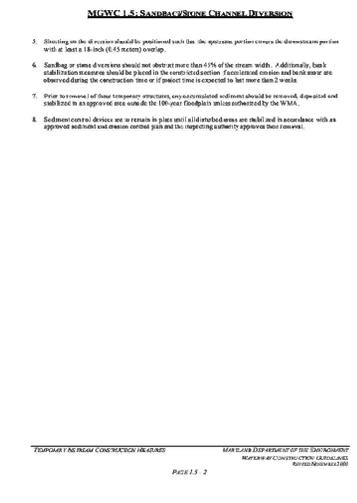
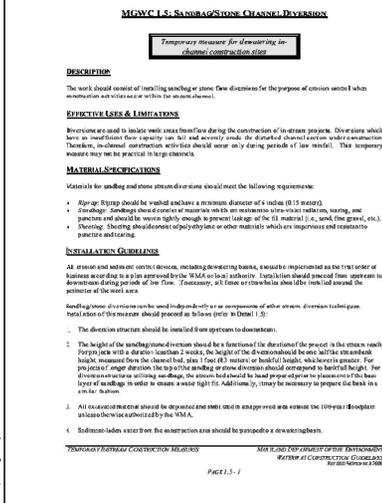
**Notes**

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The location of the stockpile must be indicated on the approved plan. The location of the stockpile must be based on a site slope ratio no steeper than 3:1. Banking must be provided in accordance with Section B-3 Land Grading.
- Soil from the stockpile must be used to a suitable sediment control practice.
- Access the stockpile area from the up-slope side.
- Clearance must be maintained in accordance with the 30 day maintenance requirement as well as Section B-3 in Erosion and Sediment Control and Section B-4 Temporary Stabilization.
- When runoff occurs along the toe of the stockpile, an appropriate erosion/sediment control practice must be used to intercept the runoff.
- Stockpiles must be stabilized in accordance with the 30 day maintenance requirement as well as Section B-3 in Erosion and Sediment Control and Section B-4 Temporary Stabilization.
- If the stockpile is located on an impervious surface, a liner should be provided below the stockpile facilities to contain. Stockpiles containing non-hazardous material must be covered with impervious covering.

Maintain

The stockpile area must continuously meet the requirements for Alternative Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained in no steeper than 2:1 ratio. The stockpile area must be kept free of erosion. If the top of the stockpile exceeds 24 feet in 2:1 slope, 18 feet in 1:1 slope, or 18 feet for 4:1 slope, a liner must be provided in accordance with Section B-3 Land Grading.

8-3



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

See EP-22-013 for HSCD Signatures

Howard SOCD \_\_\_\_\_ Date \_\_\_\_\_

**ENGINEER'S CERTIFICATE**

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

Signature of Engineer (print name below signature) \_\_\_\_\_ Date \_\_\_\_\_

**DEVELOPER'S CERTIFICATE**

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

Signature of Developer (print name below signature) \_\_\_\_\_ Date \_\_\_\_\_

APPROVED: DEPARTMENT OF PLANNING AND ZONING

8/9/2024

CHIEF, DEVELOPMENT AND ENGINEERING DIVISION: **Edmondson** DATE: 6/5/2024

CHIEF, DIVISION OF LAND DEVELOPMENT: **Edmondson** DATE: 6/7/2024

DIRECTOR: **Edmondson** DATE: 6/7/2024

**McCORMICK TAYLOR**

509 South Exeter Street  
4th Floor  
Baltimore, Maryland 21202  
(410) 662-7400

**Howard County**

MARYLAND

Storm Water Management Division  
Bureau of Environmental Services  
9801 Broken Land Parkway  
Columbia, Maryland 21046  
(410) 313-6444

Digitally Signed by Andy McLean Date: 2024.05.21 08:53:44 -0400

DES: JLE/CMH  
DRN: JLE/CMH  
CHK: ADM  
DATE: 5/21/24

BY NO. REVISION DATE

ELLICOTT CITY NORTH TUNNEL  
CAPITAL PROJECT #C-0337  
HOWARD COUNTY  
HSCD# EP-22-013

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
EROSION AND SEDIMENT CONTROL  
STANDARD DETAILS-II

SCALE: NONE

SHEET: EC-004

PROJECT: EP 22

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**

### DETAIL C-7 TEMPORARY BARRIER DIVERSION

**CONSTRUCTION SPECIFICATIONS**

- FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE AND WORK TIGHT ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
- USE BARRIER MADE OF CONCRETE OR OTHER APPROVED MATERIAL.
- USE 10 LB OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURING AND TEARING.
- ESTABLISH TOP ELEVATION AT  $1/2" \pm 1'$  FOOT FOR PROJECTS OF DURATION LESS THAN 2 WEEKS OR AS SPECIFIED ON APPROVED PLAN.
- INSTALL DIVERSION STRUCTURE FROM UPGRADE TO DOWNGRADE.
- PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
- USE SANDBAG BASE FOR LEVELING AND TO ESTABLISH MINIMUM TOP ELEVATION OF THE BARRIER AS REQUIRED.
- DISPOSE OF ALL EXCAVATED MATERIALS IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN.
- SEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
- KEEP ABUTMENTS BETWEEN CONCRETE BARRIERS WATER TIGHT, REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TOPN.

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

### DETAIL C-9 DIVERSION FENCE

**CONSTRUCTION SPECIFICATIONS**

- USE 42 INCH-HIGH, 9 GAUGE (OR THICKER) CHAIN LINK FENCING (2 1/2 INCH MAXIMUM OPENING).
- USE 18 INCH-DIAMETER GALVANIZED STEEL PILES OF 1/2 INCH MINIMUM THICKNESS AND 180 FOOT LENGTH SPACED NO FURTHER THAN 14 FEET APART. THE PILES DO NOT NEED TO BE SET IN CONCRETE.
- PATTERN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
- SEWER LINE (OR OTHER) IMPERMEABLE SHEETING TO BE INSTALLED UNDER AND ALONG BOTTOM OF DIVERSION.
- EXTEND IMPERMEABLE SHEETING A FEET ALONG FLOW SURFACE AND COVERED MINIMUM OF 6 INCHES AND COVERING SOIL STABILIZATION MATTING AND BE USED IN PLACE OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
- WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND HOLD WITH BEAM WADING DOWNGRADE.
- KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DOWNGRADE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TOPN IF UNDERMINING OCCURS. REPAIR ALL TOPN.

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

### PATAPSCO OUTFALL TEMPORARY STREAM DIVERSION STRUCTURE SCHEMATIC CROSS SECTION

SEE SPECIFICATION SECTION 7.32 FOR ADDITIONAL DETAILS AND SPECIFICATIONS.

### TEMPORARY BARRIER DIVERSION TYPICAL CROSS SECTION A-A

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT  
See EP-22-013 for HSCD Signatures

Howard SCD \_\_\_\_\_ Date \_\_\_\_\_

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

Andy McLean \_\_\_\_\_ Date \_\_\_\_\_  
Signature of Engineer (print name below signature)

**DEVELOPER'S CERTIFICATE**  
We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all 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.

Robert Z. Hollenbeck \_\_\_\_\_ Date \_\_\_\_\_  
Signature of Developer (print name below signature)

### DETAIL E-4 CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE

**CONSTRUCTION SPECIFICATIONS**

- INSTALL SILT FENCE OR SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-1 OR DETAIL E-2.
- AT THE PIPE LOCATION, CUT AND PULL BACK THE NONWOVEN SILT FENCE GEOTEXTILE AND CHAIN LINK FENCING, SECURE GEOTEXTILE TO PIPE WITH GASKETS, INSTALL ADDITIONAL STAKES OR POSTS IF NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE BAFFLE BOARD.
- ENTRANCE 18 INCH PLYWOOD BAFFLE A MINIMUM OF 8 INCHES AND SECURE TO THE UPGRADE SIDE OF THE FENCE STAKES OR POSTS, SHAFTED AT LEAST THE HEIGHT OF THE FENCE.
- PLACE 18 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE BEHIND THE PLYWOOD BAFFLE ON DOWNWATER SIDE AND AT LEAST 12 INCH MIN ALONG TOP OF PIPE AND A HEIGHT OF 4 INCHES ABOVE THE TOP OF PIPE.
- USE NONWOVEN AND WOVEN SILT FENCE GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN SEDIMENT REACHES 6 INCHES IN HEIGHT. REPLACE GEOTEXTILE IF TOPN IF UNDERMINING OCCURS. REPAIR SILT FENCE, CHAIN LINK, AND GEOTEXTILE REPLACE STONE IF SPACED. KEEP TOP OF DOWNGRADE FREE OF EROSION.

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

### DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

**CONSTRUCTION SPECIFICATIONS**

- PREPARE STORAGE VOLUME AS SPECIFIED ON APPROVED PLAN.
- USE NONWOVEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STONE.
- PERFORATE BAFFLE BOARD WITH 3 ROWS OF 1 INCH DIAMETER HOLES 8 INCHES ON CENTER, FENCED A MINIMUM OF 4 INCHES INTO GROUND. AND EXTEND BAFFLE BOARD MINIMUM OF 12 INCHES INTO EARTH DIRT.
- USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. PLACE NONWOVEN GEOTEXTILE ON UPGRADE SIDE AND COVER WITH A MINIMUM OF 6 INCHES OF ADDITIONAL STONE.
- USE NONWOVEN AND WOVEN NONWOVEN GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
- SET MEAR CHEST OF STONE 6 INCHES LOWER THAN THE TOP OF EXISTING DIRT. USE MINIMUM LENGTH OF 6 FEET FOR MEAR CHEST.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6 INCHES OF MEAR CHEST. REPLACE GEOTEXTILE AND STONE FRAMED WITH STRUCTURE. GRAZE TO GRADE, MAINTAIN LINE, GRAZE, AND GULLY SILL.
- UPON REMOVAL OF STONE OUTLET STRUCTURE, GRAZE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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

### DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

**CONSTRUCTION SPECIFICATIONS**

- PREPARE STORAGE VOLUME AS SPECIFIED ON APPROVED PLAN.
- USE NONWOVEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STONE.
- PERFORATE BAFFLE BOARD WITH 3 ROWS OF 1 INCH DIAMETER HOLES 8 INCHES ON CENTER, FENCED A MINIMUM OF 4 INCHES INTO GROUND. AND EXTEND BAFFLE BOARD MINIMUM OF 12 INCHES INTO EARTH DIRT.
- USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. PLACE NONWOVEN GEOTEXTILE ON UPGRADE SIDE AND COVER WITH A MINIMUM OF 6 INCHES OF ADDITIONAL STONE.
- USE NONWOVEN AND WOVEN NONWOVEN GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
- SET MEAR CHEST OF STONE 6 INCHES LOWER THAN THE TOP OF EXISTING DIRT. USE MINIMUM LENGTH OF 6 FEET FOR MEAR CHEST.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6 INCHES OF MEAR CHEST. REPLACE GEOTEXTILE AND STONE FRAMED WITH STRUCTURE. GRAZE TO GRADE, MAINTAIN LINE, GRAZE, AND GULLY SILL.
- UPON REMOVAL OF STONE OUTLET STRUCTURE, GRAZE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**  
6/3/2024

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Chad Edmondson* 6/5/2024  
CHIEF, DIVISION OF LAND DEVELOPMENT: *Lynne Eberhart* 6/7/2024  
DIRECTOR: \_\_\_\_\_

**McCORMICK TAYLOR**  
509 South Exeter Street  
4th Floor  
Baltimore, Maryland 21202  
(410) 662-7400

**Howard County MARYLAND**  
Storm Water Management Division  
Bureau of Environmental Services  
9801 Broken Land Parkway  
Columbia, Maryland 21046  
(410) 313-6444

Digitally signed by Andy McLean Date: 2024.05.21 08:43:05 -0400

DES: JLE/CMH  
DRN: JLE/CMH  
CHK: ADM  
DATE: 5/21/24

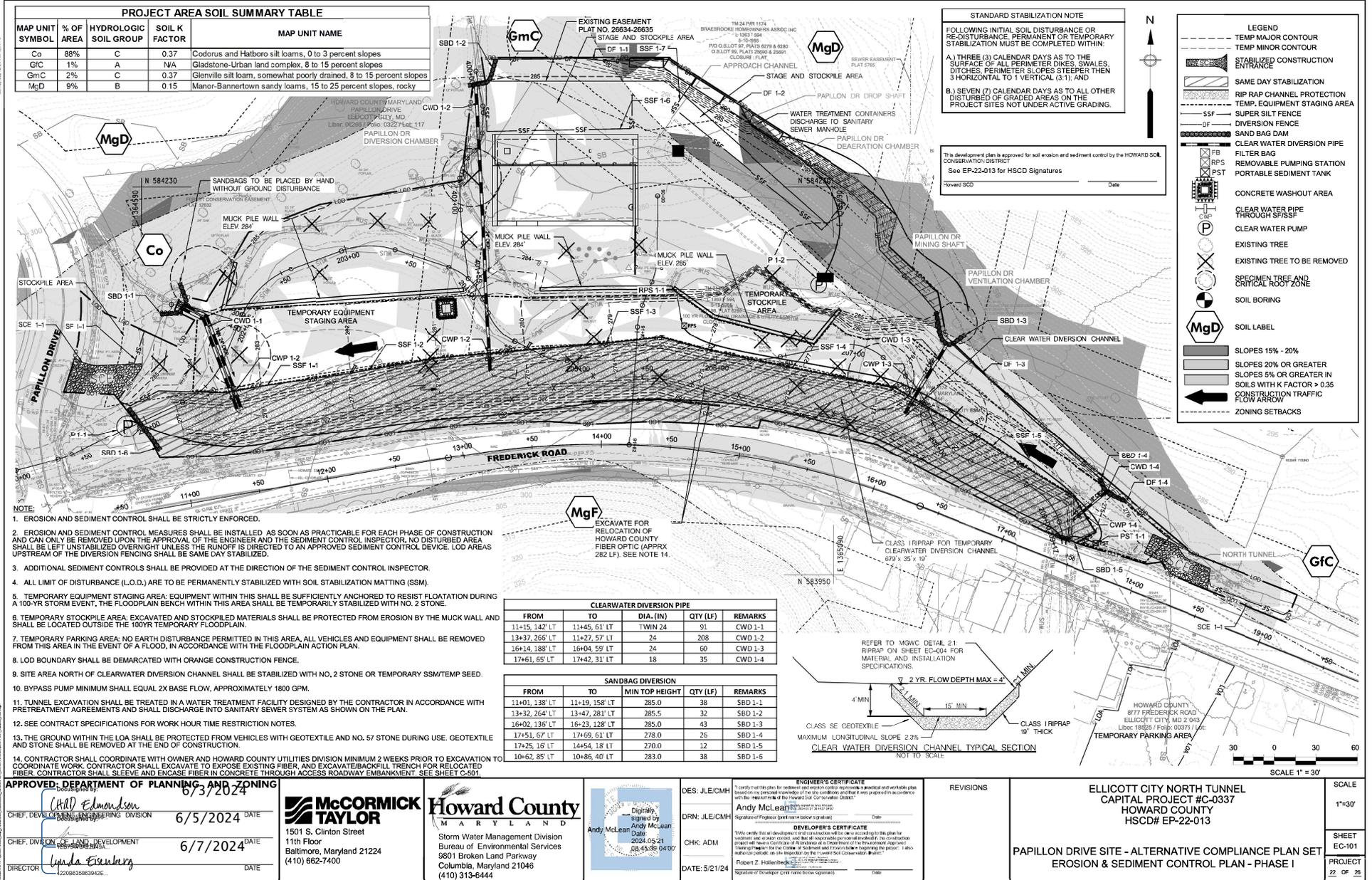
BY	NO.	REVISION	DATE

ELLICOTT CITY NORTH TUNNEL  
CAPITAL PROJECT #C-0337  
HOWARD COUNTY  
HSCD# EP-22-013

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
EROSION AND SEDIMENT CONTROL  
STANDARD DETAILS-III

SCALE: NONE  
SHEET: EC-005  
PROJECT: 21 OF 28

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**



**APPROVED: DEPARTMENT OF PLANNING AND ZONING**  
8/3/2024

CHIEF, DEVELOPMENT PERMITTING DIVISION: *Andrzej J. Edmondson* 6/5/2024 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT: *Lynette Eisenberg* 6/7/2024 DATE

DIRECTOR: *Lynette Eisenberg* DATE

**MCCORMICK TAYLOR**  
1501 S. Clinton Street  
11th Floor  
Baltimore, Maryland 21224  
(410) 662-7400

**Howard County**  
Maryland  
Storm Water Management Division  
Bureau of Environmental Services  
9801 Broken Land Parkway  
Columbia, Maryland 21046  
(410) 313-6444

Dignity, signed by  
*Andy McLean*  
Date: 2024.05.21  
28.45.36.1400

DES: JLE/CMH  
DRN: JLE/CMH  
CHK: ADM  
DATE: 5/21/24

**ENGINEER'S CERTIFICATE**  
I certify that this plan for sediment and erosion control equipment is practical and workable plan based on the natural conditions of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.  
*Andy McLean*  
Signature of Engineer (print name below signature) Date: \_\_\_\_\_

**DEVELOPER'S CERTIFICATE**  
I certify that all development on this site will be in accordance with the plan for sediment and erosion control equipment and that the proposed equipment will be installed and maintained in accordance with the plan for sediment and erosion control equipment. I also certify that the plan complies with the requirements of the Howard Soil Conservation District.  
*Robert Z. Hollander*  
Signature of Developer (print name below signature) Date: \_\_\_\_\_

REVISIONS

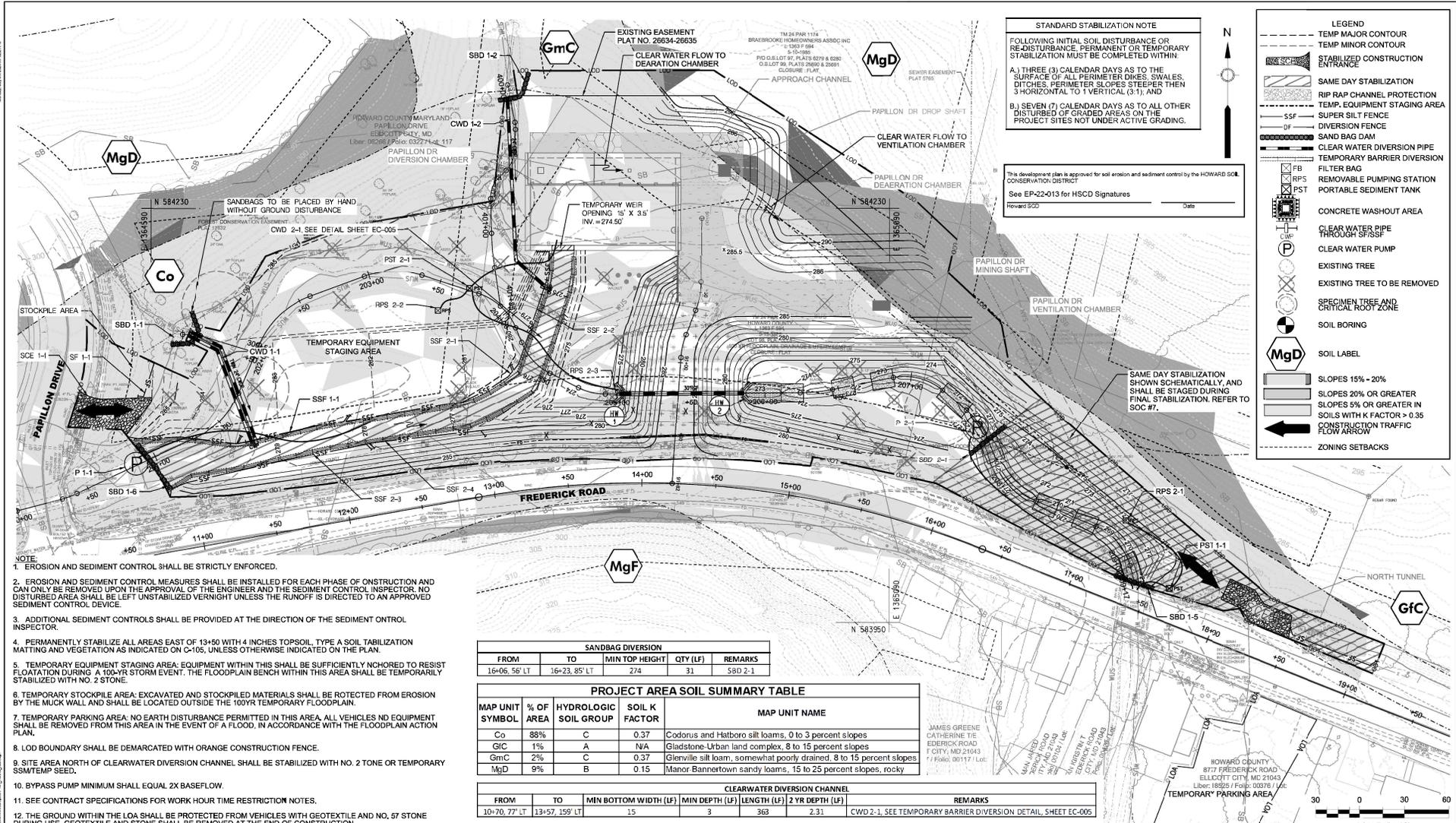
**ELLICOTT CITY NORTH TUNNEL  
CAPITAL PROJECT #C-0337  
HOWARD COUNTY  
HSCD# EP-22-013**

**PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
EROSION & SEDIMENT CONTROL PLAN - PHASE I**

SCALE 1" = 30'

SHEET EC-101  
PROJECT 22 OF 25

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**



- NOTE**
1. EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
  2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED FOR EACH PHASE OF CONSTRUCTION AND CAN ONLY BE REMOVED UPON THE APPROVAL OF THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED VERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
  3. ADDITIONAL SEDIMENT CONTROLS SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
  4. PERMANENTLY STABILIZE ALL AREAS EAST OF 13+50 WITH 4 INCHES TOPSOIL, TYPE A SOIL, TABULIZATION MATING AND VEGETATION AS INDICATED ON G-105, UNLESS OTHERWISE INDICATED ON THE PLAN.
  5. TEMPORARY EQUIPMENT STAGING AREA: EQUIPMENT WITHIN THIS SHALL BE SUFFICIENTLY CHORED TO RESIST FLOATION DURING A 100-YR STORM EVENT. THE FLOODPLAIN BENCH WITHIN THIS AREA SHALL BE TEMPORARILY STABILIZED WITH NO. 2 STONE.
  6. TEMPORARY STOCKPILE AREA: EXCAVATED AND STOCKPILED MATERIALS SHALL BE PROTECTED FROM EROSION BY THE MUCK WALL AND SHALL BE LOCATED OUTSIDE THE 100YR TEMPORARY FLOODPLAIN.
  7. TEMPORARY PARKING AREA: NO EARTH DISTURBANCE PERMITTED IN THIS AREA. ALL VEHICLES NO EQUIPMENT SHALL BE REMOVED FROM THIS AREA IN THE EVENT OF A FLOOD, IN ACCORDANCE WITH THE FLOODPLAIN ACTION PLAN.
  8. LOD BOUNDARY SHALL BE DEMARCATED WITH ORANGE CONSTRUCTION FENCE.
  9. SITE AREA NORTH OF CLEARWATER DIVERSION CHANNEL SHALL BE STABILIZED WITH NO. 2 TONE OR TEMPORARY SSM/TEMP SEED.
  10. BYPASS PUMP MINIMUM SHALL EQUAL 2X BASEFLOW.
  11. SEE CONTRACT SPECIFICATIONS FOR WORK HOUR TIME RESTRICTION NOTES.
  12. THE GROUND WITHIN THE LOA SHALL BE PROTECTED FROM VEHICLES WITH GEOTEXTILE AND NO. 57 STONE DURING USE. GEOTEXTILE AND STONE SHALL BE REMOVED AT THE END OF CONSTRUCTION.

SANDBAG DIVERSION					
FROM	TO	MIN TOP HEIGHT	QTY (LF)	REMARKS	
16+06, 56' LT	16+23, 85' LT	274	31	SBD 2-1	

PROJECT AREA SOIL SUMMARY TABLE				
MAP UNIT SYMBOL	% OF AREA	HYDROLOGIC SOIL GROUP	SOIL K FACTOR	MAP UNIT NAME
Co	88%	C	0.37	Codorus and Hatboro silt loams, 0 to 3 percent slopes
GmC	1%	A	N/A	Gladstone-Urban land complex, 8 to 15 percent slopes
GmC	2%	C	0.37	Glierville silt loam, somewhat poorly drained, 8 to 15 percent slopes
MgD	9%	B	0.15	Manor-Bannertown sandy loams, 15 to 25 percent slopes, rocky

CLEARWATER DIVERSION CHANNEL						
FROM	TO	MIN BOTTOM WIDTH (LF)	MIN DEPTH (LF)	LENGTH (LF)	2 YR DEPTH (LF)	REMARKS
10+70, 77' LT	13+57, 159' LT	15	3	363	2.31	CWD 2-1, SEE TEMPORARY BARRIER DIVERSION DETAIL, SHEET EC-005

**STANDARD STABILIZATION NOTE**

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN

A.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES STEEPER THEN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND

B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITES NOT UNDER ACTIVE GRADING.

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

See EP-22-013 for HSCD Signatures

Howard SOCD \_\_\_\_\_ Date \_\_\_\_\_

**LEGEND**

- TEMP MAJOR CONTOUR
- TEMP MINOR CONTOUR
- STABILIZED CONSTRUCTION ENTRANCE
- SAME DAY STABILIZATION
- RIP RAP CHANNEL PROTECTION
- TEMP. EQUIPMENT STAGING AREA
- SUPER SILT FENCE
- DIVERSION FENCE
- SAND BAG DAM
- CLEAR WATER DIVERSION PIPE
- TEMPORARY BARRIER DIVERSION
- FILTER BAG
- REMOVABLE PUMPING STATION
- PORTABLE SEDIMENT TANK
- CONCRETE WASHOUT AREA
- CLEAR WATER PIPE THROUGH SF/SSF
- CLEAR WATER PUMP
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- SPECIMEN TREE AND CRITICAL ROOT ZONE
- SOIL BORING
- SOIL LABEL
- SLOPES 15% - 20%
- SLOPES 20% OR GREATER
- SLOPES 5% OR GREATER IN SOILS WITH K FACTOR > 0.35
- CONSTRUCTION TRAFFIC FLOW ARROW
- ZONING SETBACKS

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**

6/3/2024

CHIEF, DEVELOPMENT SERVICES DIVISION: *Chad Edmondson* DATE: 6/5/2024

CHIEF, DIVISION OF LAND DEVELOPMENT: *Shirley Siskind* DATE: 6/7/2024

DIRECTOR: *Lynda Eisenberg* DATE: 6/20/2024

**McCORMICK TAYLOR**

1501 S. Clinton Street  
11th Floor  
Baltimore, Maryland 21224  
(410) 662-7400

**Howard County**

MARYLAND

Storm Water Management Division  
Bureau of Environmental Services  
9801 Broken Land Parkway  
Columbia, Maryland 21046  
(410) 313-6444

Digitally signed by Andy McLean  
Date: 2024.05.21 08:54:00-0400

DES: JLE/CMH  
DRN: JLE/CMH  
CHK: ADM  
DATE: 5/21/24

**ENGINEER'S CERTIFICATE**

I certify that this plan, for sediment and erosion control, conforms to a mechanical and workable plan based on my personal inspection of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Andy McLean  
Signature of Engineer (print name below signature) Date: \_\_\_\_\_

**DEVELOPER'S CERTIFICATE**

I hereby certify that all development and construction will be in accordance with the plan for sediment and erosion control, and that the construction will be completed in accordance with the requirements of the Howard Soil Conservation District. I also certify that the project will have a Certificate of Finalization as a requirement of the Environment Department's approval of the final plan for sediment and erosion control.

Robert Z. Hollenback  
Signature of Developer (print name below signature) Date: \_\_\_\_\_

REVISIONS

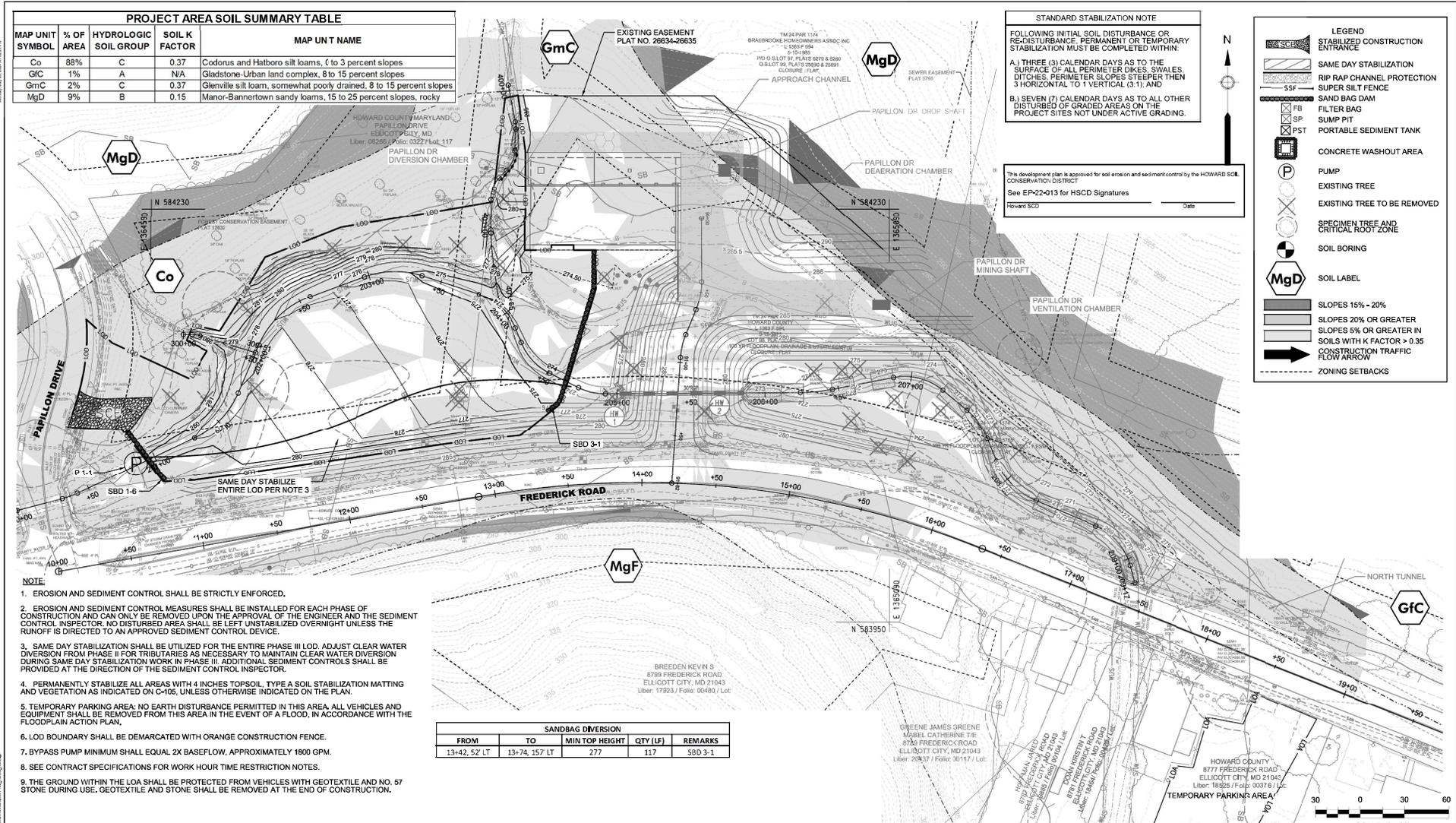
ELLICOTT CITY NORTH TUNNEL  
CAPITAL PROJECT #C-0337  
HOWARD COUNTY  
HSCD# EP-22-013

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
EROSION & SEDIMENT CONTROL PLAN - PHASE II

SCALE 1" = 30'

SHEET EC-102  
PROJECT 23 OF 25

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**



**PROJECT AREA SOIL SUMMARY TABLE**

MAP UNIT SYMBOL	% OF AREA	HYDROLOGIC SOIL GROUP	SOIL K FACTOR	MAP UNIT NAME
Co	88%	C	0.37	Codorus and Harbor silt loams, 0 to 15 percent slopes
GfC	1%	A	NA	Gladstone-Urban land complex, 8 to 15 percent slopes
GmC	2%	C	0.37	Glenville silt loam, somewhat poorly drained, 8 to 15 percent slopes
MgD	9%	B	0.15	Manor-Bannertown sandy loams, 15 to 25 percent slopes, rocky

**STANDARD STABILIZATION NOTE**

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES STEEPER THEN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITES NOT UNDER ACTIVE GRADING.

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

See EP-22-013 for HSCD Signatures

Howard SOCD \_\_\_\_\_ Date \_\_\_\_\_

**LEGEND**

- STABILIZED CONSTRUCTION ENTRANCE
- SAME DAY STABILIZATION
- RIP RAP CHANNEL PROTECTION
- SUPER SILT FENCE
- SSF
- SAND BAG DAM
- SB
- SP
- PST
- CONCRETE WASHOUT AREA
- PUMP
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- SPECIMEN TREE AND CRITICAL ROOT ZONE
- SOIL BORING
- SOIL LABEL
- SLOPES 15% - 20%
- SLOPES 20% OR GREATER
- SLOPES 5% OR GREATER IN SOILS WITH K FACTOR > 0.35
- CONSTRUCTION TRAFFIC FLOW ARROW
- ZONING SETBACKS

- NOTE:**
- EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
  - EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED FOR EACH PHASE OF CONSTRUCTION AND CAN ONLY BE REMOVED UPON THE APPROVAL OF THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
  - SAME DAY STABILIZATION SHALL BE UTILIZED FOR THE ENTIRE PHASE III LOD. ADJUST CLEAR WATER DIVERSION FROM PHASE II FOR TRIBUTARIES AS NECESSARY TO MAINTAIN CLEAR WATER DIVERSION DURING GAME DAY STABILIZATION WORK IN PHASE III. ADDITIONAL SEDIMENT CONTROLS SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
  - PERMANENTLY STABILIZE ALL AREAS WITH 4 INCHES TOPSOIL, TYPE A SOIL STABILIZATION MATTING AND VEGETATION AS INDICATED ON C-105, UNLESS OTHERWISE INDICATED ON THE PLAN.
  - TEMPORARY PARKING AREA: NO EARTH DISTURBANCE PERMITTED IN THIS AREA. ALL VEHICLES AND EQUIPMENT SHALL BE REMOVED FROM THIS AREA IN THE EVENT OF A FLOOD, IN ACCORDANCE WITH THE FLOODPLAIN ACTION PLAN.
  - LOD BOUNDARY SHALL BE DEMARCATED WITH ORANGE CONSTRUCTION FENCE.
  - BYPASS PUMP MINIMUM SHALL EQUAL 2X BASE FLOW, APPROXIMATELY 1800 GPM.
  - SEE CONTRACT SPECIFICATIONS FOR WORK HOUR TIME RESTRICTION NOTES.
  - THE GROUND WITHIN THE LOA SHALL BE PROTECTED FROM VEHICLES WITH GEOTEXTILE AND NO. 57 STONE DURING USE. GEOTEXTILE AND STONE SHALL BE REMOVED AT THE END OF CONSTRUCTION.

**SANDBAG DIVERSION**

FROM	TO	MIN TOP HEIGHT	QTY (LF)	REMARKS
13+42, 52' LT	13+74, 157' LT	277	117	SBD 3-1

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**  
6/3/2024

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*6/5/2024* DATE

CHIEF, DIVISION OF LAND DEVELOPMENT  
*6/7/2024* DATE

DIRECTOR  
DATE

**McCORMICK TAYLOR**  
Howard County  
1501 S. Clinton Street  
11th Floor  
Baltimore, Maryland 21224  
(410) 662-7400

Storm Water Management Division  
Bureau of Environmental Services  
9801 Broken Land Parkway  
Columbia, Maryland 21046  
(410) 313-6444

**DESIGNER:** JLE/CMH  
**DRN:** JLE/CMH  
**CHK:** ADM  
**DATE:** 5/21/24

**Signature of Engineer (print name below signature):**  
Andy McLean  
Date: 2024.05.21 09:54:56 (UTC-04:00)

**ENGINEER'S CERTIFICATE**  
I certify that this plan for sediment and erosion control complies with a master soil and water plan based on my personal knowledge of the site conditions and that I am prepared to be held accountable with the requirements of the Howard Soil Conservation District.

**Signature of Engineer (print name below signature):**  
Andy McLean  
Date: 2024.05.21 09:54:56 (UTC-04:00)

**DEVELOPER'S CERTIFICATE**  
I hereby certify that all development and construction will be done according to the plan for sediment and erosion control and that I am prepared to be held accountable with the requirements of the Howard Soil Conservation District.

**Signature of Developer (print name below signature):**  
Robert Z. Hollenbeck

**REVISIONS**

**ELLIOTT CITY, NORTH TUNNEL  
CAPITAL PROJECT #C-0337  
HOWARD COUNTY  
HSCD# EP-22-013**

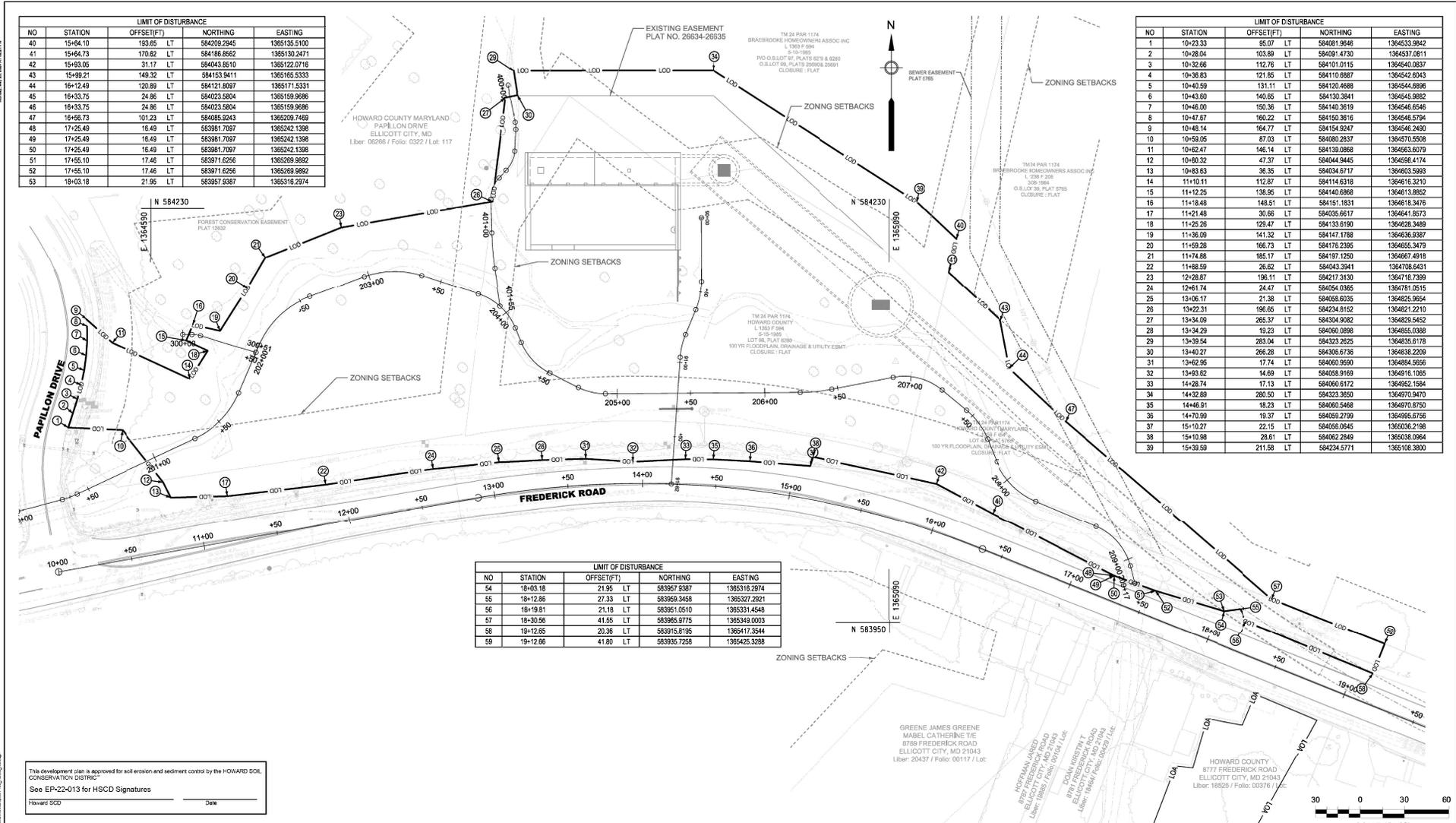
**PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
EROSION & SEDIMENT CONTROL PLAN - PHASE III**

SCALE 1" = 30'

SHEET EC-103

PROJECT 24 OF 25

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**



This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
See EP-22-013 for HSCD Signatures  
Howard SCD \_\_\_\_\_ Date \_\_\_\_\_

**APPROVED DEPARTMENT OF PLANNING AND ZONING**  
 6/3/2024  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 CHIEF, DIVISION OF ENVIRONMENTAL DEVELOPMENT  
 DIRECTOR

**McCORMICK TAYLOR**  
 1501 S. Clinton Street  
 11th Floor  
 Baltimore, Maryland 21224  
 (410) 662-7400

**Howard County**  
 MARYLAND  
 Storm Water Management Division  
 Bureau of Environmental Services  
 9801 Broken Land Parkway  
 Columbia, Maryland 21046  
 (410) 313-6444

Digitally signed by Andy McLean  
 Date: 2024.05.21 08:57:51 -0400

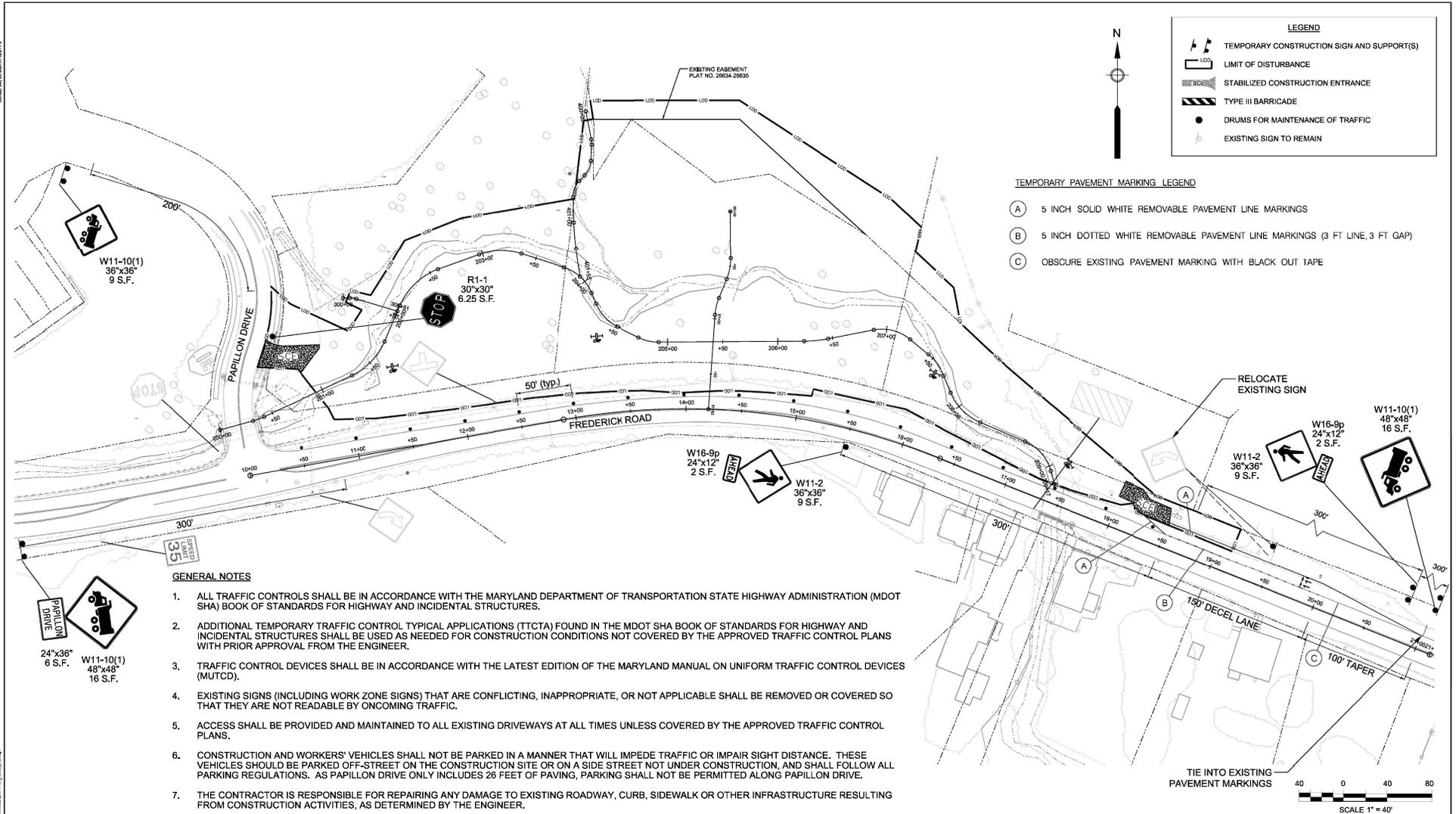
DES: JLE/CMH  
 DRN: JLE/CMH  
 CHK: ADM  
 DATE: 5/21/24

**ENGINEER'S CERTIFICATE**  
 I certify that the plans for soil erosion and sediment control, site-specific structural and workable plans provided are prepared in accordance with the requirements of the Howard Soil Conservation District.  
 Andy McLean  
 Signature of Engineer (print name below signature)  
 Date: \_\_\_\_\_  
**DEVELOPER'S CERTIFICATE**  
 We certify that all development and construction will be done according to this plan for soil erosion and sediment control, and that all structural and workable plans for the construction project will have a Certificate of Adequacy as a Supplement of the Environment Approval (working program for the Center of Storm and Drainage before and the project). Also, we authorize parties on site inspection by the Howard Soil Conservation District.  
 Robert Z. Hollenbeck  
 Signature of Developer (print name below signature)  
 Date: \_\_\_\_\_

REVISIONS

**ELLICOTT CITY NORTH TUNNEL CAPITAL PROJECT #C-0337**  
**HOWARD COUNTY HSCD# EP-22-013**  
**PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET**  
**EROSION & SEDIMENT CONTROL PLAN - GEOMETRY**  
 SCALE 1" = 30'  
 SHEET EC-104  
 PROJECT 25 OF 26

**PLANS INCLUDED ARE SPECIFIC TO PAPILLON DRIVE ENTRANCE SITE.  
ALTERNATIVE COMPLIANCE EXHIBIT. NOT FOR CONSTRUCTION. PLEASE SEE IFB CONSTRUCTION SET.**



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
6/3/2024

CHIEF, DEVELOPMENT AND PERMITTING DIVISION  
6/5/2024 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT  
6/7/2024 DATE

DIRECTOR  
DATE

**McCORMICK TAYLOR**  
1501 S. Clinton Street  
11th Floor  
Baltimore, Maryland 21224  
(410) 662-7400

**Howard County**  
MARYLAND  
Storm Water Management Division  
Bureau of Environmental Services  
9801 Broken Land Parkway  
Columbia, Maryland 21046  
(410) 313-6444

Digitally signed by Andy McLean  
Date: 2024.05.29 09:50:52 -0400  
Andy McLean

DES: JMC  
DRN: JMC  
CHK: MAS  
DATE: 5/21/24

REVISIONS

ELLCOTT CITY NORTH TUNNEL  
CAPITAL PROJECT #C-0337  
HOWARD COUNTY  
HSCD# EP-22-013

PAPILLON DRIVE SITE - ALTERNATIVE COMPLIANCE PLAN SET  
MAINTENANCE OF TRAFFIC PLAN

SCALE  
1"=30'

SHEET  
MT-101

PROJECT  
25 OF 25