

## Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

Main: 410-313-2640 | Fax: 410-313-2648

TDD 410-313-2323 | Toll Free 1-866-313-6300

[www.hchealth.org](http://www.hchealth.org)

Facebook: [www.facebook.com/hocohealth](https://www.facebook.com/hocohealth)

Twitter: HowardCoHealthDep

**Maura J. Rossman, M.D., Health Officer**

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### MEMORANDUM

TO: Kent Sheubrooks, Chief  
Division of Land Development

FROM: Jeff Williams  
Program Supervisor, Well & Septic Program  
Bureau of Environmental Health

DATE: July 19, 2019

RE: WP-19-123

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The Health Department has reviewed the above referenced petition and has the following objection:

1. The proposed plan does not show the locations of any wells or sewage disposal areas or system components on the plan. The Health Department cannot adequately review the project without seeing those items and their location relative to the proposed activities. There are staging areas and driving lanes proposed in the vicinity of some components according to our property records.

**HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**  
Division of Land Development

DATE: June 14, 2019DPZ File No. WP-19-123**Department of Planning and Zoning**

1 Research  
1 Resource Conservation (Historic/Ag Pres)  
 \_\_\_\_\_ Public Service and Zoning Administration  
 \_\_\_\_\_ Address Coordinator  
 \_\_\_\_\_

1 Comprehensive & Community Planning  
2 Development Engineering Division  
 \_\_\_\_\_ Other  
1 File  
 \_\_\_\_\_

**See: Attached****Agencies**

1 Soil Conservation District  
1 Department of Inspections, Licenses & Permits  
1 Department of Fire and Rescue Services  
1 State Highway Administration  
1 Health Department  
1 Public School System  
1 Recreation and Parks  
1 Office of Transportation  
 \_\_\_\_\_ MD Aviation Administration  
 \_\_\_\_\_ WSSC (Non-Residential Only)

\_\_\_\_\_ Tax Assessment  
 \_\_\_\_\_ Verizon  
 \_\_\_\_\_ BGE  
 \_\_\_\_\_ Cable TV  
 \_\_\_\_\_ Police  
 \_\_\_\_\_ MTA  
 \_\_\_\_\_ Finance  
1 DPW, Real Estate Services  
 \_\_\_\_\_ DPW, Construction and Inspection  
 \_\_\_\_\_ DPW, Bureau of Utilities

RE: Tributaries to South Branch Patapsco River Stream RestorationENCLOSED FOR YOUR \_\_\_\_\_ Signature Approval ✓ Review & Comments \_\_\_\_\_ FilesTHE ENCLOSED ≡ \_\_\_\_\_ Original \_\_\_\_\_ **Pre-Packaged Plan Set**Plans

\_\_\_\_\_ Sketch Plan  
 \_\_\_\_\_ Prel Equiv Sketch Plan  
 \_\_\_\_\_ Preliminary Plan  
 \_\_\_\_\_ Final Plat/Plat of Easement/RE Plat  
 \_\_\_\_\_ Final Constr Plans (RDS)  
 \_\_\_\_\_ Final Development Plan  
 \_\_\_\_\_ Site Development Plan  
 \_\_\_\_\_ Landscape Plan/Supplemental Plan  
 \_\_\_\_\_ Grading Plan  
 \_\_\_\_\_ House Type Revision/Walk-Thru Red-Line  
 \_\_\_\_\_ Water and Sewer Plan

# of Plans

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Supplemental Documents

\_\_\_\_\_ Wetlands Report  
 \_\_\_\_\_ Soils/Topo Map/Drain Area Map  
 \_\_\_\_\_ FSD/FCP/Worksheet and Application  
 \_\_\_\_\_ Declaration of Intent (Forest Cons)  
 \_\_\_\_\_ Drainage and/or Computation/Pond Safety Comps  
 \_\_\_\_\_ Preliminary Road Profiles  
 \_\_\_\_\_ APFO Roads Test/Mitigation Plan/Traffic Study  
 \_\_\_\_\_ Noise Study  
 \_\_\_\_\_ Sight Distance Analysis/Speed Flow Study  
 \_\_\_\_\_ Floodplain Study  
 \_\_\_\_\_ Stormwater Management Comps/Geo-Tech Report  
 \_\_\_\_\_ Industrial Waste Survey (DPW)  
 \_\_\_\_\_ Road Poster Form Letter  
✓ Justification Letter  
 \_\_\_\_\_ Perc Plat  
 \_\_\_\_\_ Scenic Road Exhibits  
 \_\_\_\_\_ Deeds  
 \_\_\_\_\_ Photographs  
 \_\_\_\_\_ Retaining Wall Comps/Details  
 \_\_\_\_\_ Poster/Community or HDC Meeting Information  
 \_\_\_\_\_ Route 1 Details/Summary

Applications

X Alternative Compliance Application  
 \_\_\_\_\_ Planning Board Application  
 \_\_\_\_\_ ASDP/CSDP Application  
 \_\_\_\_\_ DED Application/Checklist  
 \_\_\_\_\_ DED Fee Receipt/Deeds/Cost Estimate  
 \_\_\_\_\_  
 \_\_\_\_\_ Overall Scaled Composite  
 \_\_\_\_\_ Water & Sewer Plans  
 \_\_\_\_\_ List of Street Names

15  
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WAS: ✓ Received \_\_\_\_\_ Tentatively Approved  
 \_\_\_\_\_ Received and Revised \_\_\_\_\_ Approved

\_\_\_\_\_ Recorded  
 On June 14, 2019

COMMENTS: See memoDue- 17 Working Days: 7/10/19

Check, initial and return to the Department of Planning and Zoning if plan is approved with no comments.

DPZ STAFF INITIALS: JS





**Ecotone, Inc.**  
410.420.2600 (P)  
410.420.6983 (F)

June 14, 2019

Howard County Dept. of Planning and Zoning  
3430 Court House Drive  
Ellicott City, MD 21043

**RE:                    *Alternative Compliance – Letter of Justification***  
***Tributaries to South Branch Patapsco River Stream Restoration***

Department of Planning and Zoning,

On behalf of the applicants we are submitting this Alternative Compliance application and justification letter in support of stream restoration efforts at Indian Cave Farm, 1485 Underwood Road, Sykesville, MD 21784. Ecotone is working in coordination with Indian Cave Farm to provide Maryland State Highway Administration with MS4 pollutant removal credits. The project will restore approximately 5,497 linear feet of stream on three tributaries to the South Branch Patapsco River. The project will reduce in channel velocities and shear stresses during high flow events by promoting floodplain connection and providing natural in-stream grade control structures. The project aims to improve water quality by reducing erosion rates and pollutant runoffs into the proposed reaches. The tracking number for this permit application at the Maryland Department of the Environment is 201861512. This project has received approval from the U.S. Army Corps of Engineers under the permit number 2018-61512-M15.

Three (5) alternative compliance requests are being made for this project. The following points outline the requests and their justifications.

1. Section 16.155(a)(1)(i) – Site Development Plan (SDP): The alternate compliance for the SDP requirement is relevant as the limits of the project area are isolated to forested floodplain and stream channel which will be fully replanted upon completion of the stream restoration.
2. Sec.16.115(c)(2) Floodplain Preservation; minimize excavating, clearing, filling, alternative drainage, etc. within the 100-year floodplain: In its nature, the proposed stream restoration will temporarily impact existing floodplain. For the project to be completed grading, clearing, excavating, filling, and altering drainage will occur within the floodplain for the project to be completed. However, upon the completion of the project, all impacted areas will be restored to a more stable environment and replanted with native species. Stream restoration efforts will not result in the change of land use, addition of impervious surface, the addition of structural buildings, or significant changes to floodplain extent with the project are or downstream.
3. Sec. 16.116 (c) Protection of Wetlands, Streams, and Steep Slopes: The proposed stream restoration will temporarily impact existing stream, stream buffer, wetland, and steep slopes. The project will focus on enhancing wetlands, streams, and steep banks. Therefore, grading, clearing, excavating, filling, and altering drainage will need to occur within these areas for the project to be complete. The limit of disturbance has been minimalized where

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**FOREST HILL**

129 Industry Lane  
Forest Hill, MD 21050

**[www.ecotoneinc.com](http://www.ecotoneinc.com)**

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possible to protect areas not being enhanced from the temporary impacts associated with this project. The project will be restored to a more stable environment and replanted with native species after construction.

4. Section 16.1201 (n) -Definition of net tract area for Forest Conservation computations: The application aims to allow the LOD to serve as the net tract area for forest conservation calculations. Per the Forest Conservation regulations (Subtitle 12) the entirety of all parcels impacted by the propped work are to be used to define the net tract area for forest conservation calculations. The LOD is only 18.0 acres as opposed to the total parcel acreage of 347.21 acres. The Forest Conservation Worksheet has been completed to calculate planting requirements and is included with this submittal. The proposed reforestation area is 13.1 acres which exceeds the total required reforestation area of 8.7 acres calculated through the Forest Conservation Worksheet.
5. Section 16.1205(a)(7) -Forest retention priorities: State champion trees, trees 75 percent of the diameter of State champion trees, and trees 30 inch in diameter or larger: Only trees impacting construction directly will be removed within the proposed limit of disturbance. A Forest Stand Delineation has been included with this report. Prior to the start of the Stream Restoration project, the landowner has scheduled a timber harvest which will impact some species trees shown on the included plan. The stream restoration plans included with this submittal provide a detailed planting plan. This planting plan will completely reforest the floodplain and the entire limits of the project area. This planting will provide increased diversity of species to the forest.

Section III of the Alternative Compliance Request asks for justification of five points. The following points address these items:

- a. Based on the aforementioned justification, strict compliance with the SDP, floodplain preservation, and stream protection requirements would result in an extraordinary hardship for a project aimed at habitat restoration, stability, and pollutant removal. Project funds can be used more effectively by limiting the net tract area for forest conservation strictly to the LOD as opposed to all impacted parcels.
- b. This stream restoration has undergone county erosion and sediment control review in addition to Maryland Department of the Environment. All necessary measures were taken to reduce impacts to wetland, buffer, stream, and floodplain by minimizing the size of the LOD to an area necessary for construction. Existing forested areas will be protected and undisturbed outside of the LOD.
- c. The approval of this alternative compliance will not have a negative impact on public interests. The intention of this alternative compliance request is to more appropriately match the goals and resources of the project to the overall intent of the regulations. The restoration work will occur within stream and floodplain area. No development or increase in impervious surface is occurring from this project.



- d. The approval of the alternative compliance will not nullify the intent of the regulations. The intention of this alternative compliance request is to more appropriately match the goals and resources of the project to the overall intent of the regulations. The purpose of the project is to restore a previous stream stabilization job to reduce sediment erosion and provide additional habitat in the stream and floodplain areas.

Approval of the alternative compliance request will allow the project to move forward in an efficient and cost-effective manner to resolve the existing stream erosion problems. The restoration work will still be compliant with the intent of the County regulations with the approval of the alternative compliance approval.

Based on the waiver request enclosed herein, including all exhibits enclosed, I hereby request approval of this alternative compliance request.

Thank you for consideration of this request. Please contact me at 410-420-2600 or [smoxey@ecotoneinc.com](mailto:smoxey@ecotoneinc.com)

Sincerely,

**Ecotone, Inc.**  
Samantha Moxey  
Restoration Designer

Enclosures:

Exhibit A – Vicinity Map  
Exhibit B – Pre-Submission Community Meetings Documents  
Exhibit C – Forest Conservation Worksheet  
Exhibit D – Forest Stand Delineation  
Exhibit E – Deed  
Exhibit F – Photo Exhibit  
Exhibit G – Historic Structure Review  
Exhibit H – Stream Restoration Planset  
Exhibit I – Proposed Conservation Easement

Howard County Department of Planning and Zoning  
Division of Land Development  
**ALTERNATIVE COMPLIANCE APPLICATION**  
[Alternative Compliance from Subdivision and Land Development Regulations]

Date Submitted/Accepted June 14, 2019

DPZ File Number WP-19-123

I. **Site Description**

Subdivision Name/Property Identification: Indian Cave Farm LLC

Location of property: 1485 Underwood Road, Sykesville, MD 21784

(Street Address and/or Road Name)

Single-Family Detached/Agricultural

(Existing Use)

0009

(Tax Map No.)

0015/0009

(Grid/Block No.)

Single-Family Detached/Agricultural

(Proposed Use)

0012-0013/0002

(Parcel No.)

03

(Election District)

RC-DEO

(Zoning District)

347.21

(Total Site Area)

**See addendum document for Site Description for additional properties.**

Provide a brief site history including reference to all previously submitted or currently active plans on file with the County (subdivision plans, Board of Appeals petitions, alternative compliance petitions, etc.)

Site is predominately agriculture with rural residential houses spread throughout the property. The property is currently under an Agricultural Preservation Easement (HO-86-06E). This project has been approved by the Agricultural Preservation Board in accordance with their Conservation Practices Overlay policies. plans are at final approval from review with the Howard Soil Conservation District.

II. **Alternative Compliance Request**

In accordance with Section 16.104 of the Howard County Subdivision and Land Development Regulations, the Department of Planning and Zoning, in conjunction with the Subdivision Review Committee **may grant alternative compliances or modifications to the minimum requirements stipulated within the Regulations if it is determined that extraordinary hardships or practical difficulties may result from strict compliance with the regulations, or if it is determined that the regulations may be served to a greater extent by an alternative proposal.**

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 regulation. Attach a separate sheet if additional information is appropriate.

<u>Section Reference No.</u>	<u>Summary of Regulation</u>
1. <u>Sec. 16.155(a)(l)(i)</u>	<u>Site Development plan is needed for nonresidential development</u>
2. <u>Sec. 16.115 (c)(2)</u>	<u>Floodplain preservation; minimize excavating, clearing, filling, alternative drainage, etc. within the 100-YR floodplain</u>
3. <u>Sec. 16.116 (c)</u>	<u>Protection of wetlands, streams, and steep slopes</u>
4. <u>Sec. 16.1201 (n)</u>	<u>Forest Conservation, net tract area</u>
5. <u>Sec. 16.1205 (a)(7)</u>	<u>Specimen trees 30 inch in diameter or larger</u>



### III. *Justification*

**All alternative compliance requests must be fully justified by the petitioner. Incomplete or inadequate justification may result in rejection of the application at the time of submission.** Justification must be specific to the subject property. The justification provided by the petitioner should include all factors which rationalize or substantiate the request in accordance with the following criteria:

- a. Summarize any extraordinary hardships or practical difficulties which may result from strict compliance with the Regulations.
- b. Verify that the intent of the Regulations will be served to a greater extent through the implementation of the alternative proposal.
- c. Substantiate that approval of the alternative compliance will not be detrimental to the public interests.
- d. Confirm that approval of the alternative compliance will not nullify the intent of the Regulations.

**PLEASE ATTACH A SEPARATE LETTER OF JUSTIFICATION TO SUPPORT THE ALTERNATIVE COMPLIANCE REQUESTS.**

### IV. *Pre-Submission Meeting Requirements*

- a. **Community Meeting Requirement** - If no previous subdivision plans and/or zoning or conditional use petitions were processed, a pre-submission community meeting is required for the initial plan submittal of all new residential development and for new non-residential development located within 200 feet of a residential zoning district or an existing non-residential development which is located within 200 feet of a residential zoning district and proposed for a floor area expansion of more than 25% in accordance with Sections 16.156(a) and 16.128 of the Subdivision and Land Development Regulations for alternative compliance of the site development plan requirement. [See DPZ policy memo dated 3/22/04 for existing lots/parcels]. The property owner/developer must provide 3 weeks advance notice regarding the community meeting's date, time and location to all adjoining property owners identified in the records of the State Department of Assessments and Taxation and any community association that represents the geographic area of the subject property by first class mail; and sent electronically to any community association registered with the County for projects in a certain geographic area; the Howard County Council; and DPZ, which will place the meeting notice on the DPZ's website. The developer shall send a copy of the minutes and written responses to the meeting attendees and DPZ, either electronically or by first class mail. **A certification that meeting notices were mailed, contact information for the attendees and a copy of the minutes and a written response with a dated return mail receipt or dated email attached to all of the major comments recorded at the meeting must be submitted to DPZ along with the initial plan application. The meeting minutes, including a written response to all questions, shall be sent to all meeting attendees within 60 days of the meeting either electronically or by first class mail [Council Bill 6-2011].**
- b. **HPC Meeting Requirement** - A pre-submission advisory meeting with the Historic Preservation Commission is required for new development located within a Historic District or if the site contains a historic structure (50 years or older) in accordance with Section 16.603A of the Howard County Code. Verify this requirement by checking the Historic Sites Inventory list and maps available at the DPZ public service desk or checking with the Resource Conservation Division. The property owner/developer must contact the DPZ, Resource Conservation Division for the HPC scheduling process and procedures. **The property owner/developer must submit a copy of the minutes from the HPC Advisory Meeting to DPZ along with the initial subdivision or site development plan application.**
- c. **MAA Meeting Requirement** - For all proposed subdivisions or developments located within the BWI Airport Noise Zone or the Airport Zoning District (4 mile radius from the center of the airport), the review and approval by the Maryland Aviation Administration is required prior to signature approval of final plan road and SWM construction drawings, and/or site development plans, or alternative compliance approval of SDP. Please contact the MAA at P.O. Box 8766, BWI Airport, Maryland, 21240-0766, or (410) 859-7100. A copy of the MAA approval letter must accompany the submission of the final road/SWM construction plan original drawings, and/or site development plan original, or alternative compliance application.



- provide a professional certification that environmental features do not exist on the property.
- NA 10. Road profile to evaluate sight distance, if the application includes a request for direct access to a major collector or more restrictive roadway classification.
- ✓ 11. Any additional information to allow proper evaluation (e.g. for alternative compliance to wetland buffers an alternative analysis and mitigation proposal are needed; for alternative compliance to SDP requirements where there is no subdivision of land, an APFO Roads Test evaluation may be needed, for alternative compliance of final plat or SDP, a copy of property deeds to confirm legal creation or status of property is needed).
- ✓ 12. Photographs, perspective sketches or cross-sections as necessary to adequately portray the alternative compliance request.
- ✓ 13. The exhibit plans should be highlighted to accurately illustrate the requested alternative compliance(s) to allow proper evaluation (i.e. proposed grading, tree clearing or other disturbances within environmentally sensitive areas or buffers).
- NA 14. Submit 2 sets of photographs for all existing on-site structures.
- NA 15. Identify the location of any existing wells and/or private septic systems.
- NA 16. **Route 1 Manual**  
Compliance with the Route 1 Manual is required for new development and some alterations or enlargements located in the CE, TOD and CAC zoning districts and for other zoning districts located within the Route 1 corridor. All plan submissions, beginning with the initial subdivision or site development plan, shall show all applicable streetscape, site and building designs responding to the Route 1 Manual's requirements and recommendations. All plan submissions shall provide a written summary of how the proposed design achieves the objectives of the Route 1 Manual. Also, building design and schematic architectural elevation details must be included with the initial subdivision or site development plan submission.
- NA 17. **Route 40 Design Manual**  
Compliance with the Route 40 Design Manual is required for new development and redevelopment projects located in the Traditional Neighborhood Center (TNC) zoning districts and on parcels located within the Route 40 Corridor as defined in the Route 40 Design Manual. All plan submissions within the Route 40 corridor, beginning with the initial subdivision or site development plan, shall show all applicable streetscape, site and building designs responding to the Route 40 Design Manual's requirements and recommendations. All plan submissions within the Route 40 corridor shall provide a written summary of how the proposed design achieves the objectives of the Route 40 Design Manual. Also, building design and schematic architectural elevation details must be included with the initial subdivision or site development plan submission.
- ✓ 18. **Property Deeds** – Information to confirm the legal creation or status of the property to be improved. (Copy of deeds from Howard County Land Records Office or record plat name and recording reference number). **A complete chronological deed history is required for all deeded residential properties. Provide 2 copies of the recorded deeds for the subject property tracing its history back to 1960.**
- ✓ 19. Please complete the following:

A pre-submission meeting was held with DPZ on 05/29/2019 with \_\_\_\_\_ [date]  
N/A \_\_\_\_\_, if applicable.  
 [DPZ, Director, DLD Division Chief or other SRC representatives]

## VI. Fees

The Alternative Compliance application fee shall be in accordance with the adopted fee schedule. All checks shall be made payable to the *Director of Finance*. **The petition will not be accepted for processing until the fee has been paid. Incomplete, incorrect or missing information may result in the rejection of the application** and could cause additional time to be required to revise the application for resubmittal and re-review. For more information or questions, contact DPZ at (410) 313-2350.



- d. **Design Advisory Panel (DAP)** – A pre-submission advisory meeting with the Design Advisory Panel is required for sketch and preliminary equivalent sketch plans that are submitted on or after November 3, 2008 for new development or redevelopment projects on parcels located in the U.S. Route 1 corridor that are zoned 'CE', 'CAC' or 'TOD' or that adjoin the Route 1 right-of-way and that are subject to the Route 1 Design Manual; on parcels located within the U.S. Route 40 corridor that are zoned 'TNC' or that are subject to the Route 40 Design Manual; on parcels which age-restricted adult housing is to be constructed pursuant to a conditional use; on redevelopment parcels located in the New Town Village Centers with boundaries proposed by a property owner or established by the Zoning Board or County Council; and for revitalization and redevelopment of Downtown Columbia in accordance with Sections 16.1501 and 16.1504 of the Howard County Code. The property owner/developer must contact the DPZ, Division of Comprehensive and Community Planning to verify this requirement and for information concerning the DAP meeting scheduling process and procedures. **The property owner/developer must submit a copy of the DAP project design recommendations to DPZ along with the initial subdivision plan application.**

## V. Plan Exhibit

### A. Number of Copies Required

The alternative compliance application must be accompanied by copies of a detailed plot plan, subdivision plat or site development plan (**15 sets of the completed alternative compliance application and plan exhibit if the subject property adjoins a County road; 19 sets for properties adjoining a State road**).

In instances where the alternative compliance request concerns an approval extension or if an associated plan is in active processing, only 2 sets of plans are required along with 15 or 19 copies of the application form. **Plans must be folded to a size no larger than 7-1/2" x 12". The pre-packaging of plans and supplemental reports by SRC agency will be permitted by DPZ provided that each package contains a cover letter which itemizes all plans, reports and documents included in the package.**

**Please be advised that all plan application submissions are ACCEPTED BY APPOINTMENT ONLY. All plan submission appointments must be scheduled with the Division of Land Development at (410) 313-2350.**

Plan applications are available on the DPZ website at <https://howardcountymd.gov/Departments/Planning-and-Zoning/Land-Development>.

### B. Plan Requirement Checklist

The detailed alternative compliance exhibit, plot plan, subdivision plan or site development plan must indicate the following required information relevant to the alternative compliance request to ensure acceptance of the alternative compliance application for processing.

Legend:	<input checked="" type="checkbox"/> Information Provided	<input type="checkbox"/> Information Not Provided, Justification Attached
	<input type="checkbox"/> NA Not Applicable	

- ☒ 1. Vicinity map scale 1" = 2,000' indicating and identifying the total boundary of the property, exact site location, vicinity roads and north arrow.
- ☐ 2. Bearings and distances of property boundary lines for the entire tract and size of tract area.
- ☒ 3. North arrow and scale of plan.
- ☐ 4. Location, extent, boundary lines and area of any proposed lots.
- ☒ 5. Any existing or proposed building(s), structures, points of access, driveways, topography, natural features and other objects and/or uses on the subject and adjacent properties which may be relevant to the petition; i.e. historic structures, cemeteries or environmentally sensitive areas.
- ☐ 6. Delineation of building setback lines.
- ☐ 7. Delineation of all existing public road and/or proposed street systems.
- ☒ 8. Identification and location of all easements.
- ☒ 9. Approximate delineation of floodplain, streams, wetland and forested areas, if applicable, and/or



Howard County Department of Planning and Zoning  
Division of Land Development

INITIAL SUBMISSION  
ALTERNATIVE COMPLIANCE WORKSHEET  
(For DPZ Use Only)

Project Name \_\_\_\_\_ DPZ File No. \_\_\_\_\_  
DPZ Plan Reviewer \_\_\_\_\_ Submission Date \_\_\_\_\_  
Plan Consultant Representative \_\_\_\_\_ Time \_\_\_\_\_

- I. **Application Requirements** *Indicate Yes, No or N/A*
- a. Application is complete ..... \_\_\_\_\_
  - b. Required number of plans and applications are provided ..... \_\_\_\_\_
    - \_\_\_\_\_ Plans (15 sets on County Road or
    - \_\_\_\_\_ Applications 19 sets on State Road)
  - c. Supplemental Information is provided ..... \_\_\_\_\_
  - d. Certification of pre-submission community meeting and summary of community comments with dated responses to all meeting attendees within 60 days is provided and three week notice given to DPZ and County Council, if applicable ..... \_\_\_\_\_
  - e. Certification of pre-submission HPC advisory meeting for new projects in Historic District or listed in Historic Sites Inventory ..... \_\_\_\_\_
  - f. Photographs of existing structures (for Historic Preservation Review) ..... \_\_\_\_\_
  - g. MAA Approval Letter (if applicable) ..... \_\_\_\_\_
  - h. Written summary of Route 1 Manual/Route 40 Design Manual compliance (if applic) ..... \_\_\_\_\_
  - i. DAP project design recommendation for Route 1/Route 40 projects ..... \_\_\_\_\_

- II. **Fee Computation** **Fee**
- Number of alternative compliance sections requested ..... \_\_\_\_\_
- \* Base Fee for first two alternative compliance sections (**\$450**) ..... \_\_\_\_\_
- Fee for each additional alternative compliance section (\_\_\_\_ additional alternative compliances x **\$50** each) ..... \_\_\_\_\_
- ..... \_\_\_\_\_
- \* (Maximum fee of **\$350** for Agricultural Preservation parcels) ..... \_\_\_\_\_

**TOTAL** \_\_\_\_\_

- III. **Certification**
- Cash Receipt No. \_\_\_\_\_ Amount \_\_\_\_\_
- SAP Acct 1000000000-3000-3000000000-PWPW000000000000-432530**

Check issued by \_\_\_\_\_

\_\_\_\_ Alternative Compliance application is accepted for processing.

\_\_\_\_ Scheduled SRC meeting date.

\_\_\_\_ Alternative Compliance application is rejected.

Reason: \_\_\_\_\_

\_\_\_\_ Resubmission is accepted. Date \_\_\_\_\_ Staff initials \_\_\_\_\_

Comments/Notes \_\_\_\_\_  
\_\_\_\_\_



VII. **Owner's/Petitioner's Certification**

**I/WE** the undersigned fee simple owner(s) hereby make application to the Howard County Department of Planning and Zoning to provide an alternative compliance request of the minimum requirements of the Howard County Subdivision and Land Development Regulations. The undersigned hereby certifies the information supplied herewith is correct and complete, confirms that the regulations and policies as referred to in the attached are understood, and authorizes periodic on-site inspections by the Howard County Subdivision Review Committee agencies. **\*If the applicant is the owner's agent, written documentation from owner granting that authority is required at the time of the submission.**

☐ Owner's authorization attached \*

Timothy J. Jones  
(Signature of Property Owner)  
(Fee Simple Owner Only)

4-5-19  
(Date)

Samantha Moxey  
(Signature of Petition Preparer)\*

6/11/2019  
(Date)

Timothy J. Jones  
(Name of Property Owner) - for Indian Cave Farm LLC

Samantha Moxey Ecotone Inc.  
(Name of Petition Preparer, Surveyor/Engineering/Architect or Agent/Developer)

2921 Greenway Drive  
(Address)

129 Industry Lane  
(Address)

Ellicott City MD 21042  
(City, State, Zip Code)

Forest Hill, MD 21050  
(City, State, Zip Code)

E-Mail annholmesjones@gmail.com

E-Mail smoxey@ecotoneinc.com

410-461-6869  
(Telephone) (Fax)

410-598-1178 410-420-6983  
(Telephone) (Fax)

Contact Person: Ann H. Jones

Contact Person: Sam Moxey

Additional Property Owner Signatures:

Ann Holmes Jones  
(Signature of Property Owner)

4-5-19  
(Date)

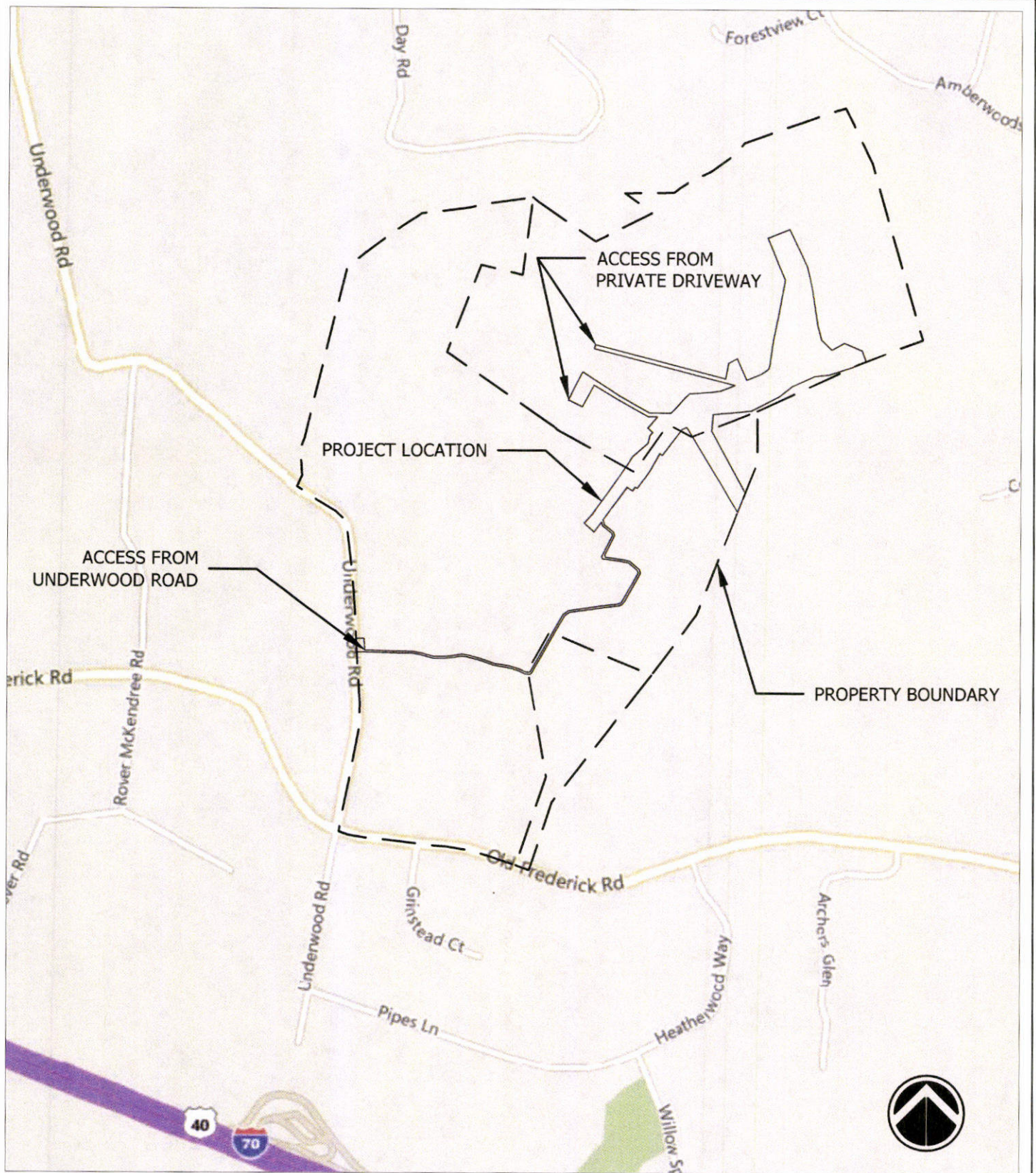
James Philip Jones 3-27-19  
(Signature of Property Owner) (Date)

Ann Holmes Jones  
(Name of Property Owner)

James Philip Jones  
(Name of Property Owner)

EXHIBIT A  
VICINITY MAP





**ecotone**  
ecological restoration

129 Industry Lane · Forest Hill, Maryland 21050  
(410) 420 2600 · www.ecotoneinc.com

# UNNAMED TRIBUTARIES TO SOUTH BRANCH PATAPSCO RIVER STREAM RESTORATION VICINITY MAP

1485 UNDERWOOD ROAD, SYKESVILLE, MD 21784

PRO. #:18-15-001 | DATE:4/22/2019 | DRAWN BY: SJM | CHECKED BY: SJM

SCALE: 1" = 1000'

SHEET:

1 of 1

**EXHIBIT B**  
**PRE-SUBMISSION**  
**COMMUNITY MEETINGS**  
**DOCUMENTS**



**RECEIVED**

**JUN 17 2019**

**HOWARD COUNTY HEALTH DEPT.  
FOOD PROTECTION PROGRAM**



**Ecotone, Inc.**  
410.420.2600 (P)  
410.420.6983 (F)

June 14, 2019

***Project: Unnamed Tributaries to South Branch Patapsco River Stream Restoration***  
***Sign Code: N15***

To Whom It May Concern:

In accordance with Section 16.156 of the Howard County Subdivision and Land Development Regulations, a pre-submission community meeting is required prior to the submission of the Alternative Compliance to the Department of Planning and Zoning for non-residential development and certain existing redevelopment.

A pre-submission meeting will be held on 05/29/2019 at 6:30 p.m. at the West Friendship Volunteer Fire Department (12535 Old Frederick Road, Sykesville, MD 21784) for the proposed Unnamed Tributaries to South Branch Patapsco River Stream Restoration project located at 1485 Underwood Road, Sykesville, MD 21784 (see enclosed site location map). The site is zoned RC-DEO, under agricultural use, and the proposed plan aims to restore and stabilize approximately 5,433 linear feet of stream. The project would create and enhance wetlands and native vegetation along the stream corridor. Once the project is established the restoration would improve water quality throughout the watershed and increase the variety of habitat within the project area. The type of initial plan submission to DPZ is an Alternative Compliance submission.

General information regarding pre-submission community meetings can be located on the Department of Planning & Zoning (<https://www.howardcountymd.gov/Departments/Planning-and-Zoning>) webpage.

Be advised, the proposed site development plan must be formally submitted to the Department of Planning & Zoning within one year from the meeting date. Once the plan is submitted the information will be provided on the Department of Planning & Zoning Search Development Plans and Pubic Meetings web application ([https://data.howardcountymd.gov/Search\\_Plans/Search\\_Plans\\_Web.aspx](https://data.howardcountymd.gov/Search_Plans/Search_Plans_Web.aspx)).

If you are unable to attend the meeting and would like meeting minutes and follow-up information, please email [smoxey@ecotoneinc.com](mailto:smoxey@ecotoneinc.com). If you have any questions concerning this project, please do not hesitate to contact this office at 410.420.2600.

Sincerely,

Samantha Moxey  
Restoration Designer

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**FOREST HILL**

129 Industry Lane  
Forest Hill, MD 21050

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**COLUMBIA**

9693 Gerwig Ln  
Columbia, MD 21046



OWNER NAME		STREET NUMBER	STREET NAME	CITY	STATE	ZIP
James & Ruth Welling		13550	Old Frederick Road	Sykesville	MD	21784
Underwood Subdivision LLC		1445	Underwood Road	Sykesville	MD	21784
Peter & Teresa Nicholl		1124	Day Road	Sykesville	MD	21784
Craig & Cynthia Cairns		1132	Day Road	Sykesville	MD	21784
Darren & Barbara Terzi		1136	Day Road	Sykesville	MD	21784
Charles & Meghan Olsen		1140	Day Road	Sykesville	MD	21784
Roland Hall III		26	PO Box	West Friendship	MD	21794
William Heinz & Nancy Lawson		1148	Day Road	Sykesville	MD	21784
Erwin & Joanna Romero		1152	Day Road	Sykesville	MD	21784
Jennifer Johnson		279	PO Box	West Friendship	MD	21794
Michael Bostron		1164	Day Road	Sykesville	MD	21784
Joyce & Howard White		7079	Saddle Drive	Eldersburg	MD	21784
Bradley & Beth Kay		1172	Day Road	Sykesville	MD	21784
Howard County Maryland Dept of Recreation and Parks		3300	N Ridge Road Ste 107	Ellicott City	MD	21043
Erik & Alyssa Ranson		12849	Amberwoods Way	Sykesville	MD	21784
Davis Streaker		1150	W Friendship	Sykesville	MD	21784
Kennard Warfield Jr Family LLLP		14451	Triadelphia Road	Glenelg	MD	21737
Norris Gordon		13251	Old Frederick Road	Sykesville	MD	21784
Sharon Grim		13245	Old Frederick Road	Sykesville	MD	21784
William Mitchell		13345	Old Frederick Road	Sykesville	MD	21784
John & Christine Frank		13351	Grinstead Ct	Sykesville	MD	21784
Frederick Allen Jr & Phuong Dam		13350	Grinstead Ct	Sykesville	MD	21784
Martin & Caroline Smith		1701	Underwood Road	Sykesville	MD	21784
Neil & Maureen McShane		10330	Cromwell Ct	Ellicott City	MD	21042
Philip & Emily Jones		1453	Underwood Road	Sykesville	MD	21784
Ridgely & Sahar Jones		1451	Underwood Road	Sykesville	MD	21784
James Jones		1465	Underwood Road	Sykesville	MD	21784
Timothy & Mitzi Jones		1475	Underwood Road	Sykesville	MD	21784
Aaron & Silvia Blackshire		13150	Old Frederick Road	Sykesville	MD	21784
Bushy Park Elementary School	ATTN: Molly Ketterer	14601	Carrs Mill Road	Glenwood	MD	21738
Bushy Park PTA	ATTN: Eileen Dietz	14601	Carrs Mill Road	Glenwood	MD	21738
Glenwood Middle School	ATTN: Gina Cash	2680	Route 97	Glenwood	MD	21738
Glenwood Middle School PTA	ATTN: Tracey Heller	2680	Route 97	Glenwood	MD	21738
Glenelg High School	ATTN: David Burton	14025	Burntwoods Road	Glenelg	MD	21737
Glenelg High School PTSA	ATTN: Sarala Katta	117	PO Box	Glenwood	MD	21737
West Friendship Elementary School	ATTN: Kaye Breon	12500	Frederick Road	West Friendship	MD	21794
West Friendship Elementary School PTA	ATTN: Melissa Bonier	12500	Frederick Road	West Friendship	MD	21794
Mount View Middle School	ATTN: Allen Cosentino	12101	Woodford Drive	Marriottsville	MD	21104
Mount View Middle School PTA	ATTN: Mary Klyap	12101	Woodford Drive	Marriottsville	MD	21104
Marriotts Ridge High School	ATTN: Tammy Goldeisen	12100	Woodford Drive	Marriottsville	MD	21104
Marriotts Ridge High School PTSA	ATTN: Sharon Blessings	12100	Woodford Drive	Marriottsville	MD	21104

\*Other property owners/developers were emailed the attached letter providing notice of the pre-submission community meeting from a list generated from the Howard County Community Notification website for sign code N15.

\*All those who attended the pre-submission community meeting were either e-mailed or mailed a copy of the meeting minutes.

Christine Miller	(email request)	christine.miller a)sscoop.com
Mike Bastron	1164 Day Rd	(add howard co projects)
Harold Piper	13439 Old Fred Rd	
Val Swan	13735 Barberrry Way	valn jeff55@gmail.com
Tarot Yeucha	1002 Underwood Rd	sibiemom@earthlink.net





**Ecotone, Inc.**

410.420.2600 (P)

410.420.6983 (F)

June 14, 2019

***Project: Unnamed Tributaries to South Branch Patapsco Stream Restoration***

To Whom It May Concern:

In accordance with Section 16.156 of the Howard County Subdivision and Land Development Regulations, attached are the meeting minutes from the community pre-submission meeting required for an alternative compliance waiver from May 29, 2019. The minutes include all questions posed during the meeting and answers verbally addressed. Once the plans are submitted to DPZ for the alternative compliance waiver, you will be notified via mail or electronic mail if available. This notification shall include instructions on how to be notified when future submissions are made or when DPZ takes action on the proposal.

If you have questions about the project, please email [smoxey@ecotoneinc.com](mailto:smoxey@ecotoneinc.com). If you have any questions concerning this project, please do not hesitate to contact this office at 410.420.2600.

Sincerely,

Samantha Moxey  
Restoration Designer

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**FOREST HILL**

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Forest Hill, MD 21050

**[www.ecotoneinc.com](http://www.ecotoneinc.com)**

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**Ecotone, Inc.**

410.420.2600 (P)

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June 14, 2019

**Tributaries to South Branch Patapsco River  
Community Input Meeting Minutes  
West Friendship Fire Hall  
May 29, 2019  
6:30 p.m.**

**Sam Moxey:** My name is Sam Moxey and I was the lead design on this project. Catherine Hoy is also part of our Design team, and this is Mary Beth who will be taking the meeting minutes for us. Any questions we will record them and send a copy to everyone at the meeting tonight and anyone who requests a copy.

Ecotone, Inc. is an ecological restoration company based out of Forest Hill, which is in Harford County, Maryland. We are a full delivery restoration company which means we do everything from finding landowners to all the permitting, design, construction, and monitoring. That sets us apart from other stream restoration companies that just do design or construction. As I mentioned before, mainly do stream restoration, but we also do wetland mitigation enhancement and reforestation. We have a Howard County on-call contract so for a lot of the ponds around here, our guys will go out maintain them if they need maintenance.

Ecotone is also a little different than other companies in that we use a "Less is More" approach. A lot of other stream restoration companies will bring in a lot of large rock that can be harmful to the system, we use what is existing on site, so any trees we take down or rocks that are currently in the stream, we try to repurpose them in the best fit for our restoration projects. It looks more natural and you're not bringing foreign materials into the project area.

The project we are going to talk about today are the unnamed tributary to the South Bridge Patapsco River. There are three tributaries, this is the longest one about 3,000 feet, or so. We have another trib feeding off the Warfield property and one coming this way as well. Both are high flow and this one is more stream drainage from the agricultural fields surrounding it.

The stream restoration project takes place on three parcels, all zoned agriculture, and all owned by the Jones family. It is an active cattle farm, but they are in the process of phasing out some of the cattle and doing more farming practices and maybe horses in the future. Our work is going to take place within this wooded stream corridor. The farm fields are over here and here as well [showing plans]. The stream restoration project is within the existing fence line so, right now, none of the farm field is impacting the stream and vice versa.

This is Underwood Road, and this is private driveway that goes back on property. We will have 1 access point off Underwood Road. Again, since we use a lot of materials that are already on site, we will not be bringing in a lot of materials. This will just be to get the equipment down to the stream. We will have 2 accesses off the private driveway. The property is currently under an ag preservation easement. Last week, we met with ag board in Howard County and they have introduced an ag overlay easement policy.

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Forest Hill, MD 21050

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*Tributary to South Branch Patapsco River Stream Restoration*  
*June 3, 2019*

We will be putting a conservation easement on top of the stream restoration project. Since we complied with all their standards, the ag board has approved us to do this.

**Citizen:** We have ag pres. too. We sold it 5 yrs. ago and then it re-sold to Warfield.

**Sam Moxey:** The ag board came up with a set of policies that say we must have a minimum buffer of 35 ft on each side of the stream, that we couldn't be impacting any of the agricultural products on the site. By putting the easement, we cannot divide the farm fields up. Their main goal is ag preservation and they sent us a list that our stream restoration must comply to and approved our easement overlay.

The total of this stream restoration project is about 5,400 linear feet of stream and that includes all three of the tributaries. The total disturbed acres are about 18 acres. The funding came from the State Highway Administration. They did a full-service stream restoration grant that came out in 2017 and focused on them reducing their nitrogen, phosphorus, and sediment in the different areas that they work. They looked for companies like Ecotone that could find landowners that were willing to do all phases of construction and design. The plans we are looking at are still in design phase about 90% complete. Construction is scheduled for late fall, early winter. I mentioned that will be putting a conservation easement on the stream restoration of this project. The main reason for this is so that we can say that the credits we guaranteed SHA they are getting. Usually, if you put an easement on a stream restoration project, it helps to keep some of the outside forces away and makes it a slightly better project. The less human impact you have around a stream generally the better it does.

**Citizen:** Did you say nitrogen and phosphorus? Are you putting filters in to keep them from going into the main river?

**Sam Moxey:** No, we will do a planting because the more trees you can establish on-site and more wetlands you create they will soak up that nitrogen and phosphorus. It will be naturally filtered.

**Citizen:** So, it will eventually build-up there?

**Sam Moxey:** A wetland or it will slowly seep into the ground so it's not running downstream but into the water supply.

**Citizen:** Well, that's not good, is it?

**Sam Moxey:** No, but it is naturally filtered.

**Citizen:** Is your purpose to prevent that from running off too much?

**Sam Moxey:** Yes, the more you can slow down water and hold it, the more chance the nitrogen, phosphorus, and sediment must drop out and go into the floodplain and that's how the natural filters kick-in. The quicker the water goes down stream, the more it is carrying all the way through.

So, we had to go through several reviews for this stream restoration project. The first were MDE and the Army Corps of Engineers. We have secured the corps permit and are in final stages of getting the MDE permit. They review it that it is ecologically fits their standards and we aren't going to do anything to harm the stream. We also had to get approval from the ag board and the Howard Soil Conservation District. They are making sure our erosion and sediment controls are best management practices.

The reason we are here today is that we also must apply for alternative compliance from the county. A normal county review for a development plan looks at if you are impacting, wetland, floodplains, or forest areas. With a stream restoration, project of this nature, we are going to be working in floodplains and impacting wetlands, at least temporarily. By applying for alternative compliance, this states that in cases that strict compliance impresses hardship or practical difficulties, you can apply for this so instead of going through the same process that people would go through to build condos, we get a lighter review because we are not putting in any structures and that is why we are going through alternative compliance today.

As part of the process, we had to send letters to all the adjacent landowners. Howard County has a website that notifies us of anyone within a certain radius of our project. We put signs up on the property that must be up for at least three weeks prior to today's meeting and three weeks after. We must have our pre-submission community meeting and send out meeting minutes which is why we had you sign in and then we will submit to the department of planning and zoning that will go through our alternative compliance for review.

**Citizen:** Who pays you all?

**Sam Moxey:** The grant money comes to us. In this case, State Highway Administration is paying.

**Citizen:** SHA approached Jones and said we can do this if you're interested?

**Sam Moxey:** They put out the request for proposal and it was up to companies like us to either have already contacted these landowners or go out and find properties that met the goals that SHA had put out so, we found the Jones family. We also had five other projects that went through the same grant.

**Citizen:** Can landowners turn you down if they're not interested?

**Sam Moxey:** Yes. The Jones' had done some other conservation practices on their property, so they were open to the idea of doing something like a stream restoration project.

**Citizen:** To be clear, you say it is grant money, but SHA is funded by our state taxes, so it is essentially coming from our state taxes?

**Sam Moxey:** Yes, it is. There are different grants too, there is one through the Chesapeake Bay Foundation and a lot of that money comes from the car rental tax that people pay in the state of Maryland. That is another source we get funding from. It is awarded to the State of Maryland and then they divide it up.

**Citizen:** Have the Jones' already done some?

**Sam Moxey:** They have done different conservation practices, not stream restoration but some plantings and other things.

Before we started this project, we had to submit to Department of Natural Resources to make sure there was no historic properties or historic sites within our project area. They also checked for



*June 3, 2019*

endangered species and both of those came back negative. There was a FIDS habitat so nesting birds essentially.

We focus on only taking out the trees we absolutely need to. Our construction crew will look for nests and if they can get around it they will keep the tree. We are doing during the work during the winter so hopefully some of the trees will have time to grow and won't impact the nesting birds.

**Citizen:** They are ground nesters.

**Citizen:** There is a cemetery on the Jones property.

**Sam Moxey:** We have not come across that yet.

**Citizen:** If you're driving down, it's on the left.

**Sam Moxey:** SO, if you're driving down the driveway, it's on the left?

**Citizen:** Yes, the left side.

**Sam Moxey:** So, if you're driving down the driveway, our project is on the right so that is probably why I haven't seen it. I guess it is not considered a historic site. They look mainly for old mills on site which further down site there is an old mill there but that is outside of our project area.

The only other thing that came up with this project was it is slightly higher for fish and insect species. Each stream has class use so this is Use 1 which means that we cannot do work from March 1 – June 15, that is when a lot of the fish species are spawning, or insects are developing. In the state of Maryland each stream is classified by this use and it dictates when we can do work in the stream.

To give you an idea of what things look like out there now, if you haven't seen it, the banks are about 3ft high and more in some places. There is a build up of legacy sediment on top of the floodplain. Legacy sediment is from a history of farming or development in the area and you get a build-up of excess dirt on top of the historic floodplain. You're getting a lot of meander migration which is when the outside curves of the stream starts moving further and further away because the stream is trying to cut through all that extra sediment. In this portion of the stream there is the fence line, their farm fields and troughs. Up here, the stream is slowly creeping towards these structures. We are going to re-align the stream in away that helps prevent it from taking down their fence or threatening their wells.

**Citizen:** Can you make it not rain as hard this year?

**Sam Moxey:** I hope so. The first time I walked the site there was a lot of wetlands and the second time there were a ton. Things were popping up that weren't there historically. As a construction company, rain affects us a lot.

**Citizen:** With the oddball winters we have, it could be hard doing it during the winter too.

**Sam Moxey:** The idea is that hopefully the ground is frozen enough so that those wetlands and anything we must temporarily impact, it's better to do it during the winter when there is a chance that it might be frozen.

*Tributary to South Branch Patapsco River Stream Restoration*  
*June 3, 2019*

One of the other issues is that because of the legacy sediment it doesn't have access to the floodplain. With the banks being 3 ft high, it is eating away at those banks because it can't go out to the floodplain. We are going to work on raising the stream channel and cutting down those banks to the peat layer that way it has access to a floodplain. The more you can spread water out, the slower it will flow. By creating wetlands along the stream, we are slowing down the flow of the water coming out and running in. It has time to sink down and filter.

There are currently a ton of invasives, a lot of Greenbriar and anything that will stick you. The wetter we can make it, the better chance of reducing invasive. Along with the native planting we are going to do, we are going to help by making it really wet so those invasives don't come back in as great of quantities. You will never stop them but hopefully with our design it will be a lot less. As I mentioned before, we delineated all the wetlands and our project focused on trying not to impact them at all and if we were impacting them, only temporarily.

The landowners are doing a timber harvest separate of our project. Some of the trees that we won't be taking down will come down through timber harvest. Our plantings will hopefully replenish any trees taken down through that process too.

Along with cutting down the banks and allowing the banks access to the floodplain we are going to realign the stream. The stream is currently snaking back and forth trying to eat through some of the legacy sediment that is there. We take reference reaches which are the ideal stream for this valley type and try to match our design to that. We correct the sinuosity to what we want it to be. We use a bunch of ratios and numbers to get the right width and depth for our stream. For the most part, it's going to be a little bit wider than it is now and a lot shallower so that way we are spreading the water out to the floodplain. We are going to create a lot of wetlands which I will show you on the next page and we are also going to re-plant about 13 acres.

This is Underwood Road, this is private driveway, these are our three access points. There are a couple of houses located on the property they are all either owned or affiliated with the Jones' and are aware the project is happening. They are ready for our equipment to access the stream.

This is generally what our stream restoration plans look like. This is a profile, mainly for our construction crew, this is what the bed of the stream will look like. This LOD is our limit of disturbance. All our work will be contained within that limit. We close the LOD as much as we could to avoid impacting areas we don't have to. This is the main stem that I talked about before, the 3,000 linear square foot of stream, and your flow is going this way down the property. This purple line is the floodplain line. There was not a FEMA delineated floodplain for this stream so, we ran it through our system and generated a floodplain based on current conditions of this site. The gray area is steep slopes. The darker the gray, the steeper the slope. All the brown lines are soils which is very typical of a stream valley. None of this is good for farming and very characteristic of a normal stream valley we would see.

Generally, what is shown on here is characteristic of the whole project. As I mentioned before, there is an existing fence up here, our grade lines are taking advantage of spreading the water out as much as we can in that green line without pushing any water outside of that fence. Ideally, all within this shaded blue area will be wetland or wetland habitat. That is what will be acting as your filter to help hold the nitrogen, phosphorus, and sediment. The dark blue is our oxbow wetlands. Oxbow are in the existing channel and you leave that, so you will have deep bold wetland habitat within your floodplain. Streams tend to do this naturally. It is setup to mimic what is happening in nature.



"V" structures, located along the reach, are our log crossings, which are made up from logs we have salvaged onsite. They are a V shaped with the point facing upstream. During high flow events, it will relieve the bank of those high sheer stresses and push the high flows more towards the center. They serve as grade control measures, so your stream can't erode as it's moving upstream. They also create deep pools which will hold a lot of sediment that will move through the system and they provide good habitat for fish species.

**Citizen:** So, those will eventually rot?

**Sam Moxey:** Eventually they will, yes, but the idea is that the stream will have enough time to establish on its own, so you can get your vegetation on the banks. They will not rot before that happens. They last between 35-40 years because the more wet you keep wood, the less quickly it will rot.

**Citizen:** It also depends on what type of wood it is.

**Sam Moxey:** That's right. Our guys do a very good job of selecting the correct species to use for the log vanes.

The dotted area are riffles, generally the rocky part of the stream where flows move quickly. The circle areas are pools, or deep-water habitat that slow the flows down. Now there are some riffles, but they are short, and you have these long, not too deep pools, so you don't get a lot of change in your velocity or habitat. You need to be able to move it at a certain point and hold it in your pools. We are focusing on aligning it with a certain width and the pools are supposed to be a certain depth that way it creates different habitats for different species in the stream.

The green hatch area is our toewood which is installed on all the outside meander bends. This is rootwads or brush or different tree material that is lodged into the bank to help slow and protect the bank from the high flows. It is the equivalent of putting a brick wall there. It adds bank protection to the stream.

Here is a sandbag and a pump around. All our work is done in the dry. We pump the water from the stream down to a portion that we are not working on that way we are limiting any impact to the stream that we might have.

**Citizen:** Do you all have quite a bit of work?

**Sam Moxey:** Yes, we do. Our crews are very busy.

One thing specific to this project that not all our projects have since this one is zoned ag are panel crossings. These are prefabricated concrete panels that you install in the stream and it allows for equipment access, or horses or cattle to cross the stream from one field to the other. It helps the farmer. In this case, the easement is broken so they have access from one parcel to the other.

This is our stockpile area. Since we do salvage a lot of our material onsite that is the area where we will temporarily store things. And our access path is here to eliminate equipment trekking in and disturbing areas that don't need to be disturbed.

*Tributary to South Branch Patapsco River Stream Restoration*  
*June 3, 2019*

As we move downstream, pretty much more of the same, no new structures thrown in. You can see that the grad lines tend to come out a little bit more than they did further up. Since we have more room we are spreading that water even further. We are in a steep enough valley that we have enough room to do that without affecting any houses.

This is the one tributary that we will look at in a couple pages. This bank is steep, and we are trying to stabilize it and keep it from eroding. There is existing bedrock feature that we are tying into. You want to take advantage of the cool natural features that are already onsite. We have more toewood, our access points coming in a couple of log vanes as we move downstream.

This is where the larger trib comes flows in, so you really start to pick up discharge further down here. This is where we are tying in our stream restoration project. There is a beautiful stream, looks like a mountain stream, full of big rock, and cascading water and we are going to tie in right before that. Since they are doing a timber harvest, we are going to re-plant anything taken out by the timber harvest. Vegetation is the key to most stream restoration projects. The more vegetated you can make it closer to the banks, the better the stream will be. We hope to keep it the same way as it is now.

This is a close up of the upstream C trib coming in. We aren't doing much work here it's so steep and rocky. Our grading is very minimal, we aren't going to have a lot of wetlands there. With a steep stream, it's just going to flow down the valley. Can't hold the water as much. Using a lot of stream rock already on site.

This is a close up of the downstream trib. A steep bank here, at least 10 ft high. We are going to move the stream over and fill in the area a little to help keep that slope from being extreme. Since we are cutting out a lot of the floodplain, you need areas to spoil or lose your dirt so that would be within this location. There are more oxbow wetlands to spread out the water and connect it to the main stem as we move down.

The next few pages are typical cross sections of what a stream looks like at different reaches. All this is based on design material that we pull of the ideal stream. This is what our construction crews use for the most part.

This a close up of specific cross sections along the stream like the panel crossings. We want to make sure there are built to plan as close as possible. Wherever we need to show a more in-depth view, we use a cross section. As the stream restoration project is complete, we will have to go out and as-built survey the entire stream, so we must make sure that each of these are base off our plan. After that, the Army COE holds us to 5 years of monitoring, there will be selected cross sections that we will have to go out and monitor to make sure that our project is doing what we want it to do.

These are the details that our construction crew uses. This is what our toewood structure will look like. Green hatches on the outside, curves with the stream. We have brush material and logs. Ideally if the flow comes around you are slowing it down with all the material along the outside bend.

Our riffles contain a lot of woody debris to create habitat. The wood that does break down is releasing carbon to the system which is always a positive. The more wood and diversity you can create within a specific structure, the better quality the stream will have. This is what our typical floodplain will look like, light blue hatch area, that will be all wetlands, more wet than it is now. We will grade it to leave it a



*Tributary to South Branch Patapsco River Stream Restoration*

*June 3, 2019*

little bit rough so when the stream does flow out onto the floodplain, it will create microhabitats that hold water in the floodplain.

This is a close up of the log vane using two salvaged logs. They serve as grade control devices and providing habitat.

This is our natural rock and cascade that we are creating on the trib. These start our MDE details. Any construction plan will have these on there and focus on mulch access paths, silt fences, temporary crossings, standard things that go on the original plan.

This is the temporary and permanent seeding summary. As soon as we are finished working on a section of stream, it will immediately be seeded and strawed to help start establishing vegetation. By cutting down historic peat layer we get a lot of seeds that have been hidden for years popping up on these projects. Here is a close up of access path which we talked about previously.

This is our planting plan. We will re-plant about 13.3 acres, the entire green hatch area. We generally plant one-gallon trees, so they are about 18 – 24" when we plant them. We have a nursery which we grow all or most of the trees in. For this project specifically, we are planting Sycamore, River Birch, White Oak, Chokeberry, Red Osier Dogwood, Black Willow, Silky Dogwood and Hazel Otter. We plant Sycamores in slightly higher quantity than the rest of the species because deer don't like to eat them. We use tree tubes as necessary to protect the other species. We plant 350 stems per acre. For this project 4,635 plants that we will use on site.

**Citizen:** None of those trees sound like they are native trees because most of the native trees are Oak, Locust, Poplar, and Maple.

**Sam Moxey:** They are native to the State of Maryland. Maybe not the site specifically but generally, the ones we are planting are native to the state.

**Cat:** Poplar will probably re-gen on their own and most of the Oak. Because we like to use our own stock, we use plants that we know will survive and do well with limited maintenance. Oak like to be drier and aren't as easy to grow.

**Sam Moxey:** We did a forest delineation and surveyed all the trees 30" high or greater. A lot of the Tulip Poplar's are coming down with the timber harvest that is proposed.

**Citizen:** Are they cutting them for use?

**Sam Moxey:** It's a timber harvest so I guess so.

In addition to our 350 stems per acre are this yellow dashed line that runs the entire strength of the project is our live stakes which are a bioengineering practice. We take species like willow and dogwood which can regenerate very quickly, and we take a portion of a plant, either onsite, or that we have in the nursery and stick it in the ground and will regenerate just from the stem you broke off. They will go right along the stream bank as an extra added protection because the more vegetation you get closer to the bank the more stable the stream will be. We are using silky dogwood and two willow species. We have gone back to some sites we have done and the live stakes we have planted of willows are taller than I am, so they usually do well.

**Citizen:** Don't they soak up a lot of water too?

They do and the more rooted vegetation you can get the more it will act as a filter for the stream.

**Citizen:** Willows have a lot of large roots.

**Sam Moxey:** They do. When you get them to generate right along you bank, you are also creating that overhanging habitat that you see a lot in streams, so you get fish hiding under the roots of the willows.

As I mentioned before, we are going to plant in this area, so we are not doing any work down here. This is an example of the bioengineering live stakes.

**Citizen:** Is all this on the Jones property? I think he has 400 acres.

**Sam Moxey:** Yes, all on Jones's property. The three parcels that we are working on is 200 acres.

**Sam Moxey:** That is our project in a nutshell. Any questions.

**Citizen:** I am looking at this map and I can't see that one. This is my lot here, and your property boundary goes along this stream. But there is a stream that runs right there?

**Sam Moxey:** We are not touching that stream at all. This is further down.

**Citizen:** But it goes into this stream?

**Sam Moxey:** These are the two tribs that we are focusing on down here, this feeds into further down [showing plans]. This the end of the property these are all linear wetland, so they are probably running off that stream you can see from your property line.

**Citizen:** This one right here but then there is one that comes off the one you are working on and comes right into it.

**Sam Moxey:** I think it's a little further down once you get into the rocky portion. Construction is about 3 – 4 months give or take and based on the amount of rain we have.

It is down in the stream valley enough, that you aren't going to hear a lot of equipment. On the access roads you might see some materials.

**Citizen:** The stream towards your project is all wooded.

**Sam Moxey:** You won't hear anything.

**Citizen:** I don't think I will hear anything. We had a problem when they did a logging project on the road next to us and they weren't supposed to start until 8:30 according to the county but they started at 6:30 and made a lot of noise.

**Citizens:** Jones' had a lot of woods that they sold.



*Tributary to South Branch Patapsco River Stream Restoration*  
*June 3, 2019*

**Citizen:** What is your background?

**Sam Moxey:** I went to Towson University and majored in Environmental Science with a Bio track. Catherine has an art background and did a lot of development plans for a civil engineering firm before Ecotone.

Any other questions? We are not putting up any buildings or anything so that was a lot of most people's concerns.

**Citizen:** Thank you for all the information.

**Sam Moxey:** Here are my business cards with my phone number. Feel free to take one and if you have any questions, give me a call.

EXHIBIT H  
STREAM RESTORATION  
PLANSET



**EXHIBIT C**  
**FOREST CONSERVATION**  
**WORKSHEET**

# FOREST CONSERVATION WORKSHEET

## VERSION 2.0

(Enter in Yellow Cells)

**Project Name:** Unnamed Tribs. South Branch Patapsco **Date:** 06/14/2019

### NET TRACT AREA:

A. Total tract area.....=	18.0
B. Area within 100 year floodplain .....=	8.7
C. Area to remain in agricultural production.....=	3.6
D. Net tract area.....=	5.7

### LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

Input the number "1" under the appropriate land use zoning, and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CIA
1	0	0	0	0	0

E. Afforestation Threshold.....	20% x D =	1.1
F. Conservation Threshold.....	50% x D =	2.9

### EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain).....=	14.4
H. Area of forest above afforestation threshold .....=	13.3
I. Area of forest above conservation threshold .....=	11.5

### BREAK EVEN POINT (BEP):

J. Forest retention above threshold with no mitigation (BEP).....=	5.2
K. Clearing permitted without mitigation.....=	9.2

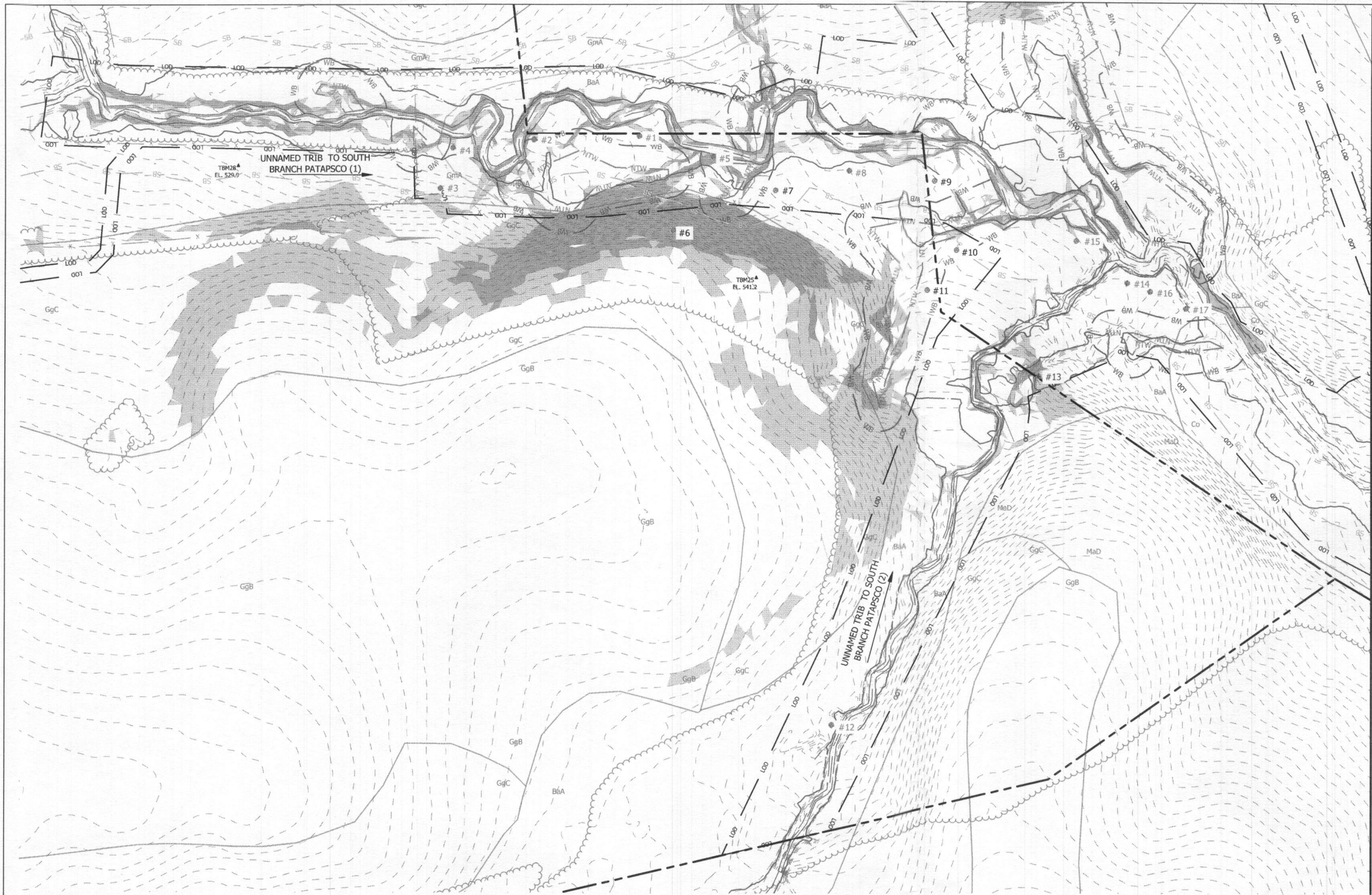
### PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared.....=	14.4
M. Total area of forest to be retained.....=	0.0

### PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold...=	2.9	
P. Reforestation for clearing below conservation threshold...=	5.8	1.0
Q. Credit for retention above conservation threshold.....=	0.0	
R. Total reforestation required.....=	8.7	1.0
S. Total afforestation required.....=	0.0	
T. Total reforestation and afforestation required.....=	8.7	





- GENERAL NOTES**
- PROJECT AREA CONSISTS OF 18 ACRES LOCATED IN THE SYKESVILLE AREA OF HOWARD COUNTY, MD. IT IS OWNED BY INDIAN CAVE FARM, LLC THE JONES PROPERTY. THE PROPERTY IS ZONED RC-DEO. DEED REFERENCE 16053/00065, 16053/00070, 16053/00076. MAP 009, GRID 0015/0009, PARCELS 0012, 0013, /0002. SURVEY INFORMATION PROVIDED BY C.F. KREUTER & ASSOCIATES, INC.
  - THE STREAMS AND WETLANDS WERE DELINEATED ON-SITE BY ECOTONE, INC.
  - PROJECT AREA IS IN THE SOUTH BRANCH PATAPSCO WATERSHED AND STREAMS ARE USE I. THE PROJECT IS PART OF AN AGRICULTURAL PRESERVATION PARCEL. PROJECT AREA IS NOT PART OF A SPECIAL PROTECTION AREA.
  - FOREST STAND DELINEATION CONDUCTED BY ECOTONE, INC. (M. BRADY & S. MCKEY) IN APRIL 2019 FOR THE LIMIT OF DISTURBANCE PLUS 100 FEET, WHERE POSSIBLE (SURVEY AREA). TREES WERE MEASURED WITH A DBH TAPE AND TREE LOCATIONS WERE SURVEYED WITH A ZENO GPS UNIT. A FIELD DATA SUMMARY SHEET WAS PREPARED AND ACCOMPANIES THIS PLAN.
  - STEEP SLOPE ANALYSIS WAS PERFORMED BY ECOTONE.
  - THERE WERE 56 TREES GREATER THAN OR EQUAL TO 30" DBH WITHIN THE LIMIT OF DISTURBANCE.
  - PER THE FEMA PANEL #2402700055D IS MAPPED 100-YEAR FLOODPLAINS LOCATED ON THE PROJECT SITE.
  - NO RARE, THREATENED, OR ENDANGERED SPECIES WERE ENCOUNTERED ON THE SITE. THE MARYLAND DEPARTMENT OF NATURAL RESOURCES WILDLIFE HERITAGE HAS DETERMINED THAT NO RARE, THREATENED, OR ENDANGERED SPECIES ARE KNOWN TO OCCUR ON OR NEAR THE SITE.
  - MARYLAND HISTORIC TRUST HAS DETERMINED THAT THERE ARE NO HISTORIC RESOURCES ON THE SITE.
  - DURING CONSTRUCTION, EVERY EFFORT WILL BE MADE TO RETAIN AS MANY TREES AS POSSIBLE, PARTICULARLY SPECIMEN TREES. THOSE TREES MOST LIKELY TO BE REMOVED ARE NOTED ON THE PLAN.

SITE DESCRIPTION	
The 18.0-acre project site is located in Sykesville, Howard County. The project will involve stream restoration, realignment, and stabilization of Unnamed Tributaries to South Branch Patapsco River. The project area is mostly forested stream corridor surrounded by land for agricultural use. Cover is comprised of forested stream corridor. Steep slopes throughout the project area drain to the unnamed tributaries. A timber harvest will occur on-site prior to the start of the Stream Restoration project (Timber harvest is not included in Ecotone's scope of work). Two forest stands were identified on the project site and is described in detail below. Twelve wetlands were located on-site. Soils are comprised of Baile silt loam, Codorus-Hatboro silt loam, Glenelg loam, Glenville silt loam, Glenville-Codorus silt loam, Manor loam, and Manor-Brinklow complex.	
FOREST STAND CLASSIFICATION AND DESCRIPTION	
F1	Mixed Hardwood Forest 47.2 acres
Forest stand 1 is a mid-successional, mixed hardwood forest, encompassing most of the limit of disturbance. Canopy coverage is approximately 90% and the area is dominated by white oak ( <i>Quercus alba</i> ) and red maple ( <i>Acer rubrum</i> ). The shrub layer and understory are well-developed, with approximately 50% cover, and include black cherry ( <i>Prunus serotina</i> ), greenbrier ( <i>Smilax</i> sps.), and high percentages of multiflora rose ( <i>Rosa multiflora</i> ). Invasive species are relatively high at 50% of the herbaceous plants.	
F2	Mixed Hardwood Forest 47.2 acres
Forest stand 2 is a mid-successional, mixed hardwood forest, encompassing most of the limit of disturbance. Canopy coverage is approximately 70% and the area is dominated by red maple ( <i>Acer rubrum</i> ), tulip poplar ( <i>Liriodendron tulipifera</i> ), and black locust ( <i>Robinia pseudoacacia</i> ). The shrub layer and understory are well-developed, with approximately 50% cover, and include spicebush ( <i>Lindera benzoin</i> ), barberry ( <i>berberis</i> sps.), common privet ( <i>Ligustrum vulgare</i> ) and multiflora rose ( <i>Rosa multiflora</i> ). Invasive species are relatively high at 50% of the herbaceous plants.	

Specimen Trees				
Unnamed Tributaries to South Branch Patapsco River				
Tree ID	DBH (in.)	Common Name	Scientific Name	Health
1	40	Pine Oak	<i>Quercus palustris</i>	Good
2	35	Red Maple	<i>Acer rubrum</i>	Good
3	43	White Oak	<i>Quercus alba</i>	Good
4	36	Pine Oak	<i>Quercus palustris</i>	Good
5	31	Northern Red Oak	<i>Quercus rubra</i>	Good
6	33	White Oak	<i>Quercus alba</i>	Good
7	31	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
8	30	Red Maple	<i>Acer rubrum</i>	Fair
9	34	Red Maple	<i>Acer rubrum</i>	Good
10	35	White Oak	<i>Quercus alba</i>	Good
11	30	White Oak	<i>Quercus alba</i>	Good
12	35	Black Gum	<i>Nyssa sylvatica</i>	Good
13	34	Chestnut Oak	<i>Quercus prinus</i>	Good
14	31	White Oak	<i>Quercus alba</i>	Good
15	32	Red Maple	<i>Acer rubrum</i>	Good
16	38	White Oak	<i>Quercus alba</i>	Good
17	31	White Oak	<i>Quercus alba</i>	Good

**PROPERTY OWNER INFORMATION**  
INDIAN CAVE FARM LLC  
1485 UNDERWOOD ROAD  
SYKESVILLE, MD 21784  
HOWARD COUNTY

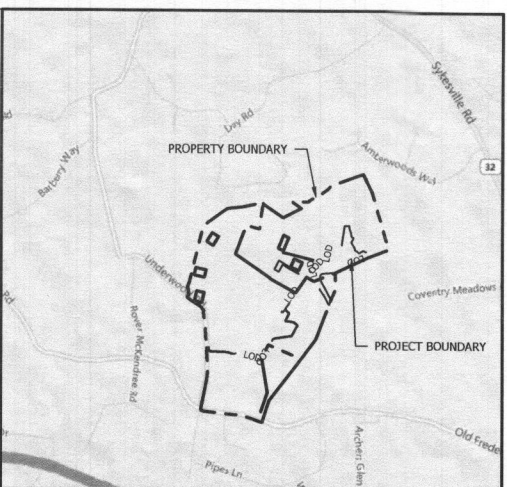
**SITE DATA**  
ELECTION DISTRICT 03  
EXISTING ZONING: AGRICULTURAL  
8 DIGIT HUC: 02060003  
MD 8 DIGIT BASIN: 02130908  
(S BRANCH PATAPSCO)

**PARCEL 1 DATA**  
DEED REF.: 16053/00065  
MAP: 0009, GRID: 0015, PARCEL: 0012  
SITE ACREAGE: ±197 AC.

**PARCEL 2 DATA**  
DEED REF.: 16053/00070  
MAP: 0009, GRID: 0009, PARCEL: 0002  
SITE ACREAGE: ±134 AC.

**PARCEL 3 DATA**  
DEED REF.: 16053/00076  
MAP: 0009, GRID: 0015, PARCEL: 0013  
SITE ACREAGE: ±15 AC.

**SITE ANALYSIS**  
LIMIT OF DISTURBANCE: ±784,607 SF. / 18.0 AC.  
NEW IMPERVIOUS AREA: NONE  
TOTAL AREA TO BE STABILIZED: 18.0 AC.  
APPROXIMATE CUT: 7,264 CY.  
APPROXIMATE FILL: 6,362 CY.  
APPROXIMATE NET: 902 CY. (CUT)



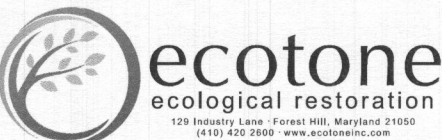
SOILS LEGEND		
SYMBOL	K-FACTOR	SOIL DESCRIPTION
BaA	0.37	Baile silt loam, 0-3% slopes
Co	0.37	Codorus and Hatboro silt loams, 0-3% slopes
GqB	0.24	Glenelg loam, 3-8% slopes
GqC	0.24	Glenelg loam, 8-15% slopes
GmA	0.43	Glenville silt loam, 0-3% slopes
GmB	0.37	Glenville silt loam, 3-8% slopes
GqB	0.43	Glenville-Codorus silt loams, 0-8% slopes
MaC	0.28	Manor loam, 8-15% slopes
MaD	0.28	Manor loam, 15-25% slopes
McD	0.28	Manor loam, 15-25% slopes, very rocky
MkF	0.32	Manor-Brinklow complex, 25-65% slopes, very rocky

- LEGEND**
- PARCEL BOUNDARY
  - - - EXISTING CONTOURS
  - SOIL BOUNDARY
  - LIMIT OF DISTURBANCE
  - TREE LINE
  - EXISTING STREAM
  - FLOODPLAIN
  - NON-TIDAL WETLAND
  - WETLAND BUFFER
  - STREAM BUFFER
  - #1 SPECIMEN TREE
  - × #2 TREE TO BE REMOVED FOR STREAM RESTORATION
  - × #3 TREE TO BE REMOVED BY TIMBER HARVEST
  - STEEP SLOPES 15-25%
  - STEEP SLOPES >25%

RESOURCE AREA INFORMATION	
DESCRIPTION	AREA
TRACT AREA	18.0 ac.
FOREST AREA TOTAL & MAX. AMOUNT REMOVED	14.4 ac.
WETLAND AREA	0.37 ac.
FORESTED WETLAND AREA	0.37 ac.
STREAM BUFFER AREA (IN PROJECT AREA)	9.8 ac.
FORESTED STREAM BUFFER & MAX. AMT REMOVED	9.8 ac.
100-YEAR FLOODPLAIN (IN PROJECT AREA)	8.7 ac.
FORESTED FLOODPLAIN (IN PROJECT AREA)	8.7 ac.
STREAM BUFFER AVERAGE WIDTH	155 ft.
STREAM LENGTH ON-SITE	5,497 l.f.

## UNNAMED TRIBUTARY TO SOUTH BRANCH PATAPSCO RIVER STREAM RESTORATION FOREST STAND DELINEATION

1485 UNDERWOOD ROAD  
SYKESVILLE, MD 21784

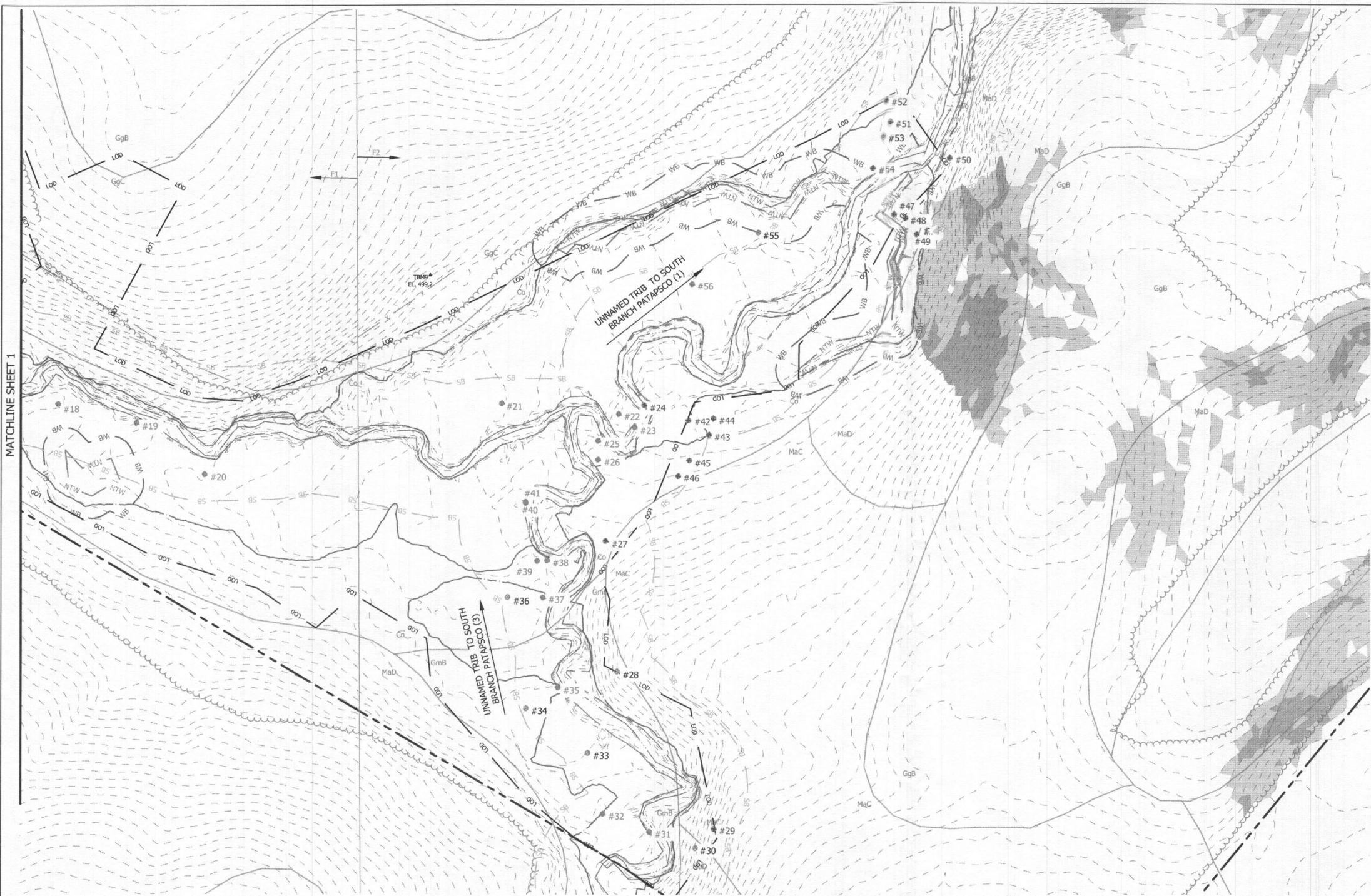


Marie V. Brady  
PLAN PREPARED BY MD DNR APPROVED  
QUALIFIED PROFESSIONAL

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

CHECKED BY: MVB  
DESIGNED: SJM  
DRAWN: SMG  
PROJECT No.: 18-15-001  
DATE: 6/11/2019  
SHEET: 1 of 2





- LEGEND**
- PARCEL BOUNDARY
  - - - EXISTING CONTOURS
  - SOIL BOUNDARY
  - LIMIT OF DISTURBANCE
  - TREE LINE
  - EXISTING STREAM
  - FLOODPLAIN
  - NON-TIDAL WETLAND
  - WETLAND BUFFER
  - STREAM BUFFER
  - #1 SPECIMEN TREE
  - X #2 TREE TO BE REMOVED FOR STREAM RESTORATION
  - X #3 TREE TO BE REMOVED BY TIMBER HARVEST
  - STEEP SLOPES 15-25%
  - STEEP SLOPES >25%

0 60 120 Feet  
**OVERALL PLAN**  
SCALE: 1" = 60'



SOILS LEGEND		
SYMBOL	K-FACTOR	SOIL DESCRIPTION
BaA	0.37	Baile silt loam, 0-3% slopes
Co	0.37	Codorus and Hatboro silt loams, 0-3% slopes
GgB	0.24	Glenelg loam, 3-8% slopes
GgC	0.24	Glenelg loam, 8-15% slopes
GmA	0.43	Glenville silt loam, 0-3% slopes
GmB	0.37	Glenville silt loam, 3-8% slopes
GoB	0.43	Glenville-Codorus silt loams, 0-8% slopes
MaC	0.28	Manor loam, 8-15% slopes
MaD	0.28	Manor loam, 15-25% slopes
McD	0.28	Manor loam, 15-25% slopes, very rocky
MkF	0.32	Manor-Brinklow complex, 25-65% slopes, very rocky

Specimen Trees				
Unnamed Tributaries to South Branch Patapsco River				
Tree ID	DBH (In.)	Common Name	Scientific Name	Health
18	30	Red Maple	<i>Acer rubrum</i>	Fair
19	31	Tulip Poplar	<i>Liriodendron tulipifera</i>	Poor
20	42	Northern Red Oak	<i>Quercus rubra</i>	Good
21	33	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
22	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
23	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Poor
24	35	Tulip Poplar	<i>Liriodendron tulipifera</i>	Poor
25	42	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
26	32	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
27	33	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
28	32	Black Oak	<i>Quercus velutina</i>	Good
29	30	Chestnut Oak	<i>Quercus prinus</i>	Fair
30	34	Chestnut Oak	<i>Quercus prinus</i>	Fair

Specimen Trees				
Unnamed Tributaries to South Branch Patapsco River				
Tree ID	DBH (In.)	Common Name	Scientific Name	Health
31	31	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
32	35	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
33	31	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
34	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
35	33	Tulip Poplar	<i>Liriodendron tulipifera</i>	Poor
36	32	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
37	36	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
38	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
39	31	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
40	32	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
41	34	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
42	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
43	32	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good

Specimen Trees				
Unnamed Tributaries to South Branch Patapsco River				
Tree ID	DBH (In.)	Common Name	Scientific Name	Health
44	44	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
45	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
46	34	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
47	36	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
48	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
49	32	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
50	32	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
51	32	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
52	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good
53	46	Tulip Poplar	<i>Liriodendron tulipifera</i>	Poor
54	30	Tulip Poplar	<i>Liriodendron tulipifera</i>	Poor
55	35	Tulip Poplar	<i>Liriodendron tulipifera</i>	Fair
56	48	Tulip Poplar	<i>Liriodendron tulipifera</i>	Good

**UNNAMED TRIBUTARY TO SOUTH  
BRANCH PATAPSCO RIVER  
STREAM RESTORATION  
FOREST STAND DELINEATION**  
1485 UNDERWOOD ROAD  
SYKESVILLE, MD 21784



Marie V. Brady  
PLAN PREPARED BY MD DNR APPROVED  
QUALIFIED PROFESSIONAL

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

CHECKED BY: MVB  
DESIGNED: S.M.  
DRAWN: SMG  
PROJECT No.: 18-15-001  
DATE: 6/11/2019  
SHEET: 2 of 2



EXHIBIT D  
FOREST STAND  
DELINEATION