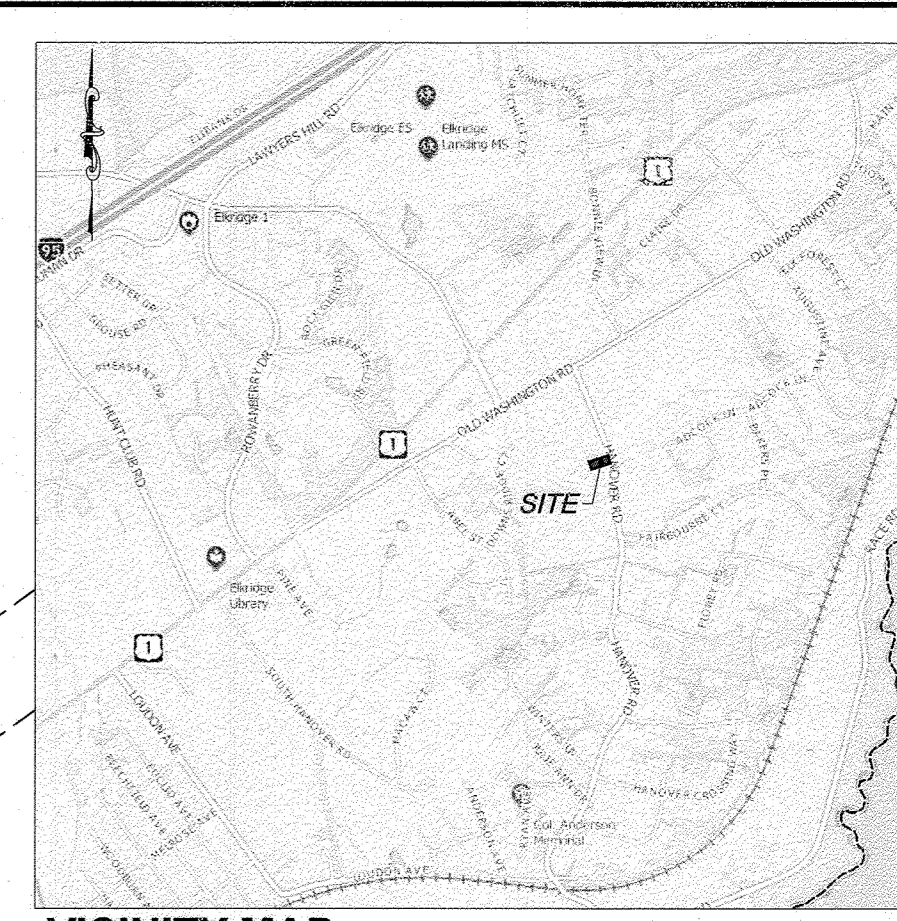
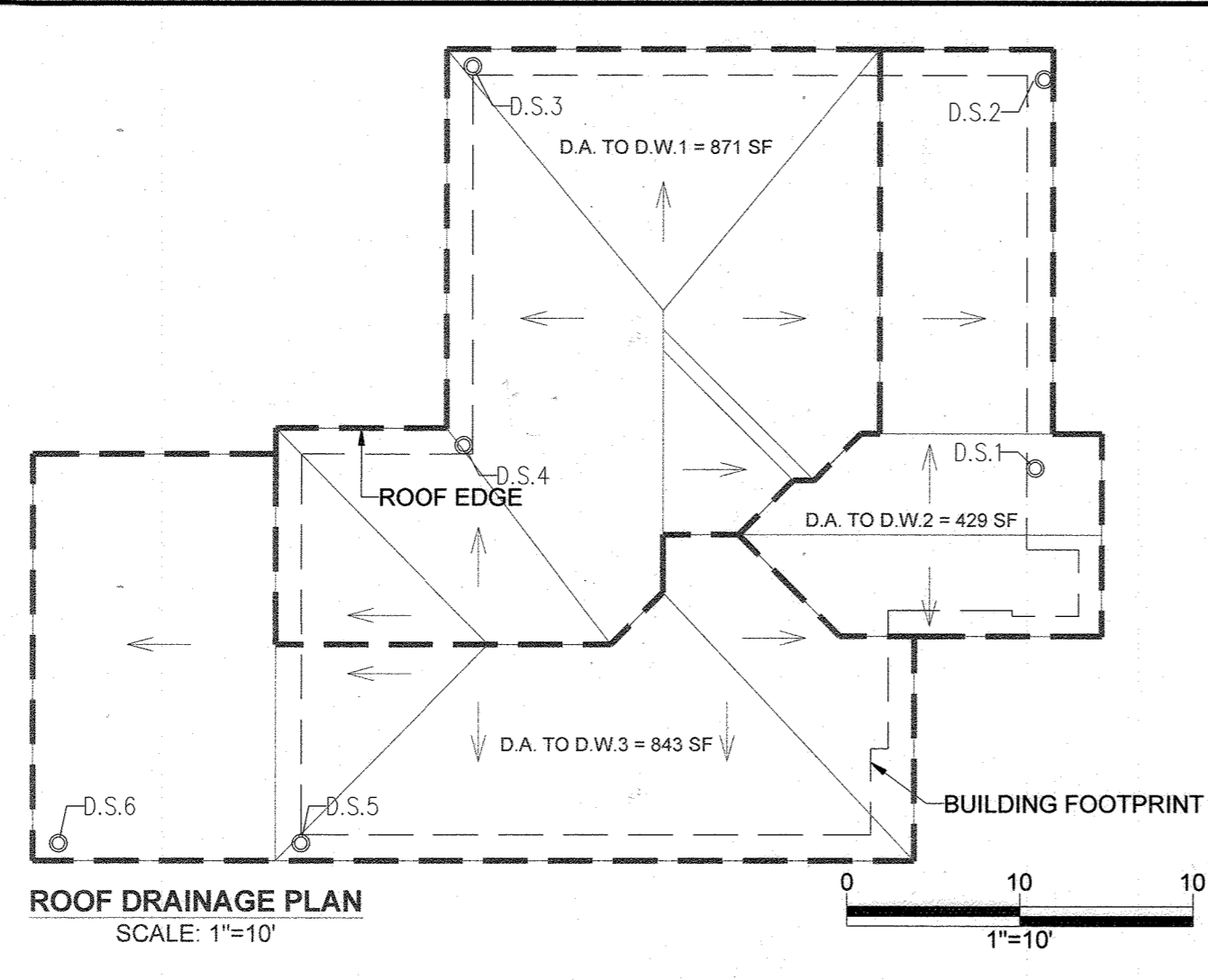
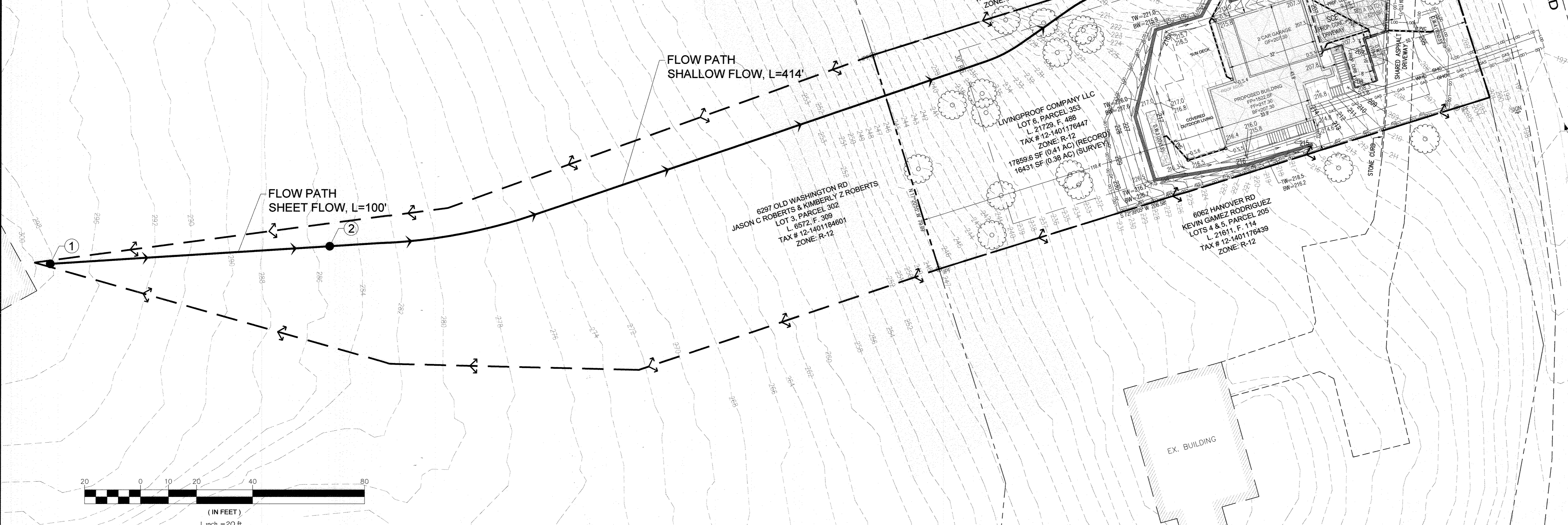


LEGEND			
FEATURE	SYMBOL	FEATURE	SYMBOL
EXISTING STRUCTURES	[Symbol]	EXISTING WATER LINE	[Symbol]
PROPOSED STRUCTURES	[Symbol]	EXISTING SEWER LINE	[Symbol]
PROPERTY BOUNDARY LINE	[Symbol]	EXISTING SANITARY SEWER MANHOLE	[Symbol]
EXISTING TOPOGRAPHY	[Symbol]	PROPOSED WATER HOUSE CONNECTION	[Symbol]
PROPOSED SPOT ELEVATION	[Symbol]	PROPOSED SEWER HOUSE CONNECTION	[Symbol]
PROPOSED GRADING	[Symbol]	PROPOSED GRAVEL DRY-WELL	[Symbol]
STEEP SLOPES (2% AND GREATER)	[Symbol]	PROPOSED TRENCH DRAIN	[Symbol]
PROPOSED SPOT ELEVATION	[Symbol]	PROPOSED UNDERGROUND ELECTRIC LINE	[Symbol]
PROPOSED STORM DRAIN PIPE	[Symbol]	PROPOSED DOWN-SPOUT	[Symbol]
EXISTING FENCE	[Symbol]	ROAD CENTERLINE	[Symbol]
LIMIT OF DISTURBANCE	[Symbol]	PROPOSED RETAINING WALL	[Symbol]
POWER POLE	[Symbol]	SUPER SILT FENCE	[Symbol]
OVERHEAD ELECTRIC WIRE	[Symbol]	DIVERSION FENCE	[Symbol]
DRAINAGE AREA LINE	[Symbol]	BUILDING RESTRICTION LINE	[Symbol]
FLOW PATH	[Symbol]	TREE PROTECTION FENCE/ROOT PRUNING	[Symbol]
SOIL TYPE	[Symbol]	GAS LINE	[Symbol]
EXISTING TREE (TO BE REMOVED)	[Symbol]	EXISTING TREE (TO BE SAVED)	[Symbol]



SITE ANALYSIS DATA SHEET	
NET TRACT AREA	0.38 ACRES
WETLAND AREA	0.00 ACRES
FLOODPLAIN AREA	0.00 ACRES
FOREST AREA	0.38 ACRES
STEEP SLOPES IN EXCESS OF 15%	0.35 ACRES
STEEP SLOPES IN EXCESS OF 25%	0.14 ACRES
PROBABLE SOILS AREA	0.22 ACRES
LIMIT OF DISTURBANCE (LOD)	0.21 ACRES
FOREST AREA WITHIN LOD	0.21 ACRES
AREA OF STEEP SLOPE DISTURBANCE	0.19 ACRES
GREEN OPEN SPACE	0.29 ACRES
PROPOSED IMPERVIOUS AREA	0.07 ACRES



**[OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER DRY-WELL]**

- Dry wells shall be inspected and cleaned annually. This includes pipes, gutters, downspouts and all filters.
- Ponding, standing water or algae growth on the top of a dry well may indicate failure due to sedimentation in the gravel media.
- If water ponds for more than 48 hours after a major storm or more than 6" of sediment has accumulated, the gravel media should be excavated and replaced.
- Privately owned practices shall have a maintenance plan and shall be protected by easement, deed restriction, ordinance or other legal measures preventing its neglect, adverse alteration and removal.

**NOTE:**

- Approval of this ECP does not constitute an approval of any subsequent and associated development plans or permits. Review of this project for compliance with The Howard County Subdivision and land development regulations and zoning regulations shall occur at the permit stage.
- Per 16.1202.6.1 Exemptions to Requirement for Forest Conservation Plans. (1) Exemptions not requiring a Declaration of Intent. The following development is exempt from the requirement of this subtitle: (i) Development activity on a single lot smaller than 40,000 square feet, as long as the cutting, clearing or grading does not include any area already subject to a previously approved forest conservation plan.

**GENERAL NOTES**

- Project Name: HANOVER RD - LOT 6
- Project Address: Hanover Rd, Hanover, MD 21076
- Owners: Livingproof Company LLC
- Net Tract Area: 16,431 SF (0.38 AC.)
- Parcel: 353
- Lot: 6
- Map / Grid: 38 / 9
- Liber / Folio: 21729 / 488
- Tax Account #: 1401176447
- Election District Number: 1
- Existing Use: Vacant
- Proposed Use: Residential (Single Family)
- Watershed: Patapsco River
- The Topography information shown hereon is based on field-run survey, conducted by Andrews Land Surveying, 8133 Elliot Rd, Suit 240, Easton, MD 21601
- It has been verified to accurately represent the relative changes on the subject property.
- This plat was prepared without the benefit of a title report. It does not show every matter affecting ownership and use, nor every matter restricting the ownership on use of the property.
- Zoning: R-12
- Setbacks:
 

Required	Provided
Front: 20'	47.17'
Sides: 7.5'	19.19' & 17'
Rear: 30'	113.42'
- Part of the Ridgewood Subdivision Plat Book 4 Page 27

**NARRATIVE-ESD ANALYSIS**

**NATURAL RESOURCE PROTECTION**  
The plan has identified all the existing natural features and forest stands situated on this site. The site does not contain any significant natural resources.

There is an existing woodland area of 0.38 acres, only 0.21 acres will be cleared for construction, with 0.29 Acres. preserved, and therefore remaining undisturbed.

There are 21 trees located on the site, of which 14 will be preserved.

The property contains two types of soil, (Sd, Sfc) with K-factor 0.32, which are above 0.30 and erodible. There are 0.35 acres of steep slopes 15% and greater on the site.

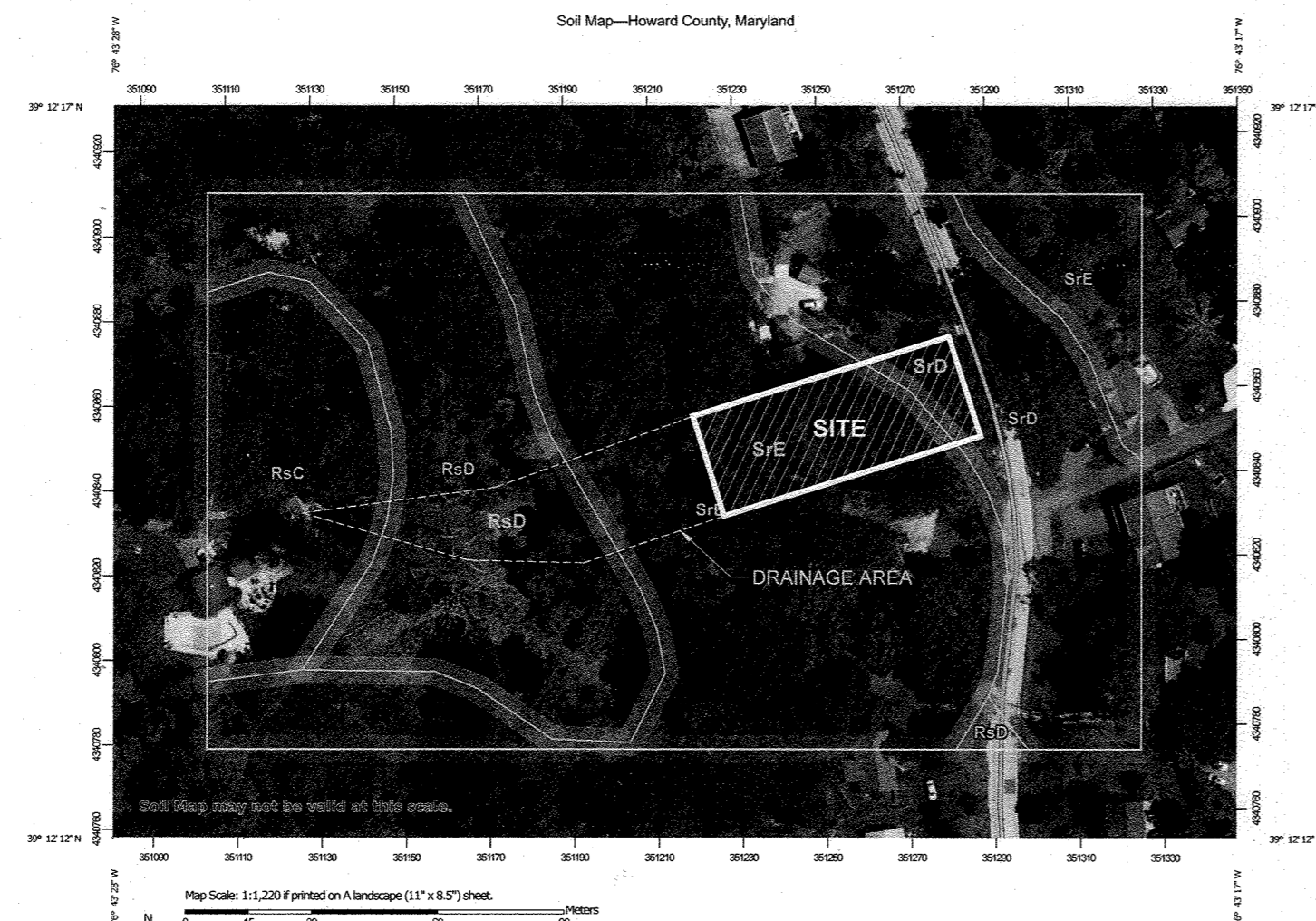
**MAINTENANCE OF NATURAL FLOW PATTERNS**  
The site is comprised of one existing study point. The proposed site development has successfully maintained the drainage area to the study point and maintained existing drainage patterns. Therefore, stability of the drainage areas has been maintained.

**REDUCTION OF IMPERVIOUS AREAS THROUGH BETTER SITE DESIGN, ALTERNATIVE SURFACES, AND NON-STRUCTURAL PRACTICES**  
The existing site area is 0.38 acres, of which 55.6% of the site will be disturbed.

Nonstructural practices is proposed to provide stormwater management for the project, and to meet the requirements of the ESD volumes for the site. Three Dry-Well practices are proposed. This practices will attenuate impervious areas from the proposed project to meet the ESD volume requirements.

**INTEGRATION OF THE EROSION AND SEDIMENT CONTROL INTO STORMWATER MANAGEMENT STRATEGY**  
Sediment control measures will be used to ensure that all construction activity will occur without erosion and transportation of sediment from the site. Furthermore, sediment control measures will be used in a manner to also protect the ultimate location of all Stormwater Management nonstructural practices. No structural sediment control practices are required for this project and therefore there will be no impact on proposed ESD practices. Super silt fence will be utilized close to grading activity to prevent silt and sediment laden runoff from exiting from the site.

**EVALUATION OF STABILIZATION REQUIREMENTS**  
Stabilization of the site will be achieved by both temporary stabilizations as required during construction activity and permanent stabilization upon conclusion of all construction activity. Stabilization will be achieved as required by the 2011 Maryland standards and specifications for soil erosion and sediment control. All stabilization outside of paved areas and building areas will be per the vegetative standards. Stabilization will be provided in the required time frames allowed by state standards.



Address: Hanover Rd, Hanover, MD 21076

Lot 6  
Lot Area: 16,431.00 S.F.  
Lund of Disturbed (LOD) Area: 793.00 S.F.  
Impervious Area

Based On Lot Area	Based On LOD
Building(Roof): 2143.00 S.F.	Building(Roof): 2143.00 S.F.
Driveway: 497.00 S.F.	Driveway: 497.00 S.F.
Sidewalk: 9.00 S.F.	Sidewalk: 9.00 S.F.
Steps & Porch: 207.00 S.F.	Steps & Porch: 207.00 S.F.
Sun Deck: 360.00 S.F.	Sun Deck: 360.00 S.F.
Total Impervious Area (Site Area): 3216.00 S.F.	Total Impervious Area (LOD): 3216.00 S.F.
Percent Total Impervious Area: 19.57%	Based on entire lot
Percent Impervious Area (BASED ON LOD): 42.59%	Based on LOD

Calculation

Hydrologic Soil Group	A	B	C	D
Soil Type	---	Sd, Sfc	---	---
Percentage	0.00%	100.00%	0.00%	0.00%
Target PE: 120 inch				
Rv=0.05+0.009(D) = 0.431				
ESDv=(PE/Rv)(A)/12 = 327.26 C.F.				

Provide Practices to Attenuate Roof Runoff

Gravel Drywell D.W.1  
DA To DS= 871.00 S.F.  
Provide maximum volume equal to 2.67 of rainfall therefore volume allowed is:  
V=(2.67)(.64)(.95)(871 S.F.)/12= 182.04 C.F.  
Provide Gravel Drywell System  
Void Ratio: 0.40

Size Drywell:  
Depth= 5.00 Feet  
Length= 12.00 Feet  
Width= 3.50 Feet  
Drywell Area= 70.00 S.F.  
Sun Deck= 360.00 S.F.  
Volume Provided=(0.4)(Area)(Depth)= 140.00 C.F.  
Rainfall Attenuated by this System is ESDv=(PE/Rv)(A)/12  
Re-Arranging: PE=12ESDv/(Rv)(A)= 2.10 <2.64 inch-OK

**SUMMARY FOR LOT 6**  
Gravel Drywell D.W.1: Size= 5x 12x5 and device Volume= 120 C.F.  
Gravel Drywell D.W.2: Size= 5x 10x4 and device Volume= 80 C.F.  
Gravel Drywell D.W.3: Size= 5x 20x5 and device Volume= 140 C.F.  
Gravel Drywell D.W.4: Size= 5x 10x2.5 and device Volume= 50 C.F.  
Total Volume Provided=390 C.F.

Total volume provided in proposed systems is 390 C.F. which is more than the required target volume of 327.26 C.F. Therefore, the required ESDv to MEP has been satisfied.  
Re-Arranging: PE (achieved)=12ESDv/(Rv)(A)= 1.43 inch <2.64 inch-OK

Gravel Drywell D.W.3  
DA To DS= 843.00 S.F.  
Provide maximum volume equal to 2.67 of rainfall therefore volume allowed is:  
V=(2.67)(.64)(.95)(843 S.F.)/12= 176.19 C.F.  
Provide Gravel Drywell System  
Void Ratio: 0.40

Size Drywell:  
Depth= 5.00 Feet  
Length= 20.00 Feet  
Width= 3.50 Feet  
Drywell Area= 70.00 S.F.  
Sun Deck= 360.00 S.F.  
Volume Provided=(0.4)(Area)(Depth)= 140.00 C.F.  
Rainfall Attenuated by this System is ESDv=(PE/Rv)(A)/12  
Re-Arranging: PE=12ESDv/(Rv)(A)= 2.10 <2.64 inch-OK

Gravel Drywell D.W.4  
DA To DS= 627.00 S.F.  
Provide maximum volume equal to 2.67 of rainfall therefore volume allowed is:  
V=(2.67)(.64)(.95)(627 S.F.)/12= 131.04 C.F.  
Provide Gravel Drywell System  
Void Ratio: 0.40

Size Drywell:  
Depth= 5.00 Feet  
Length= 10.00 Feet  
Width= 2.50 Feet  
Drywell Area= 25.00 S.F.  
Sun Deck= 360.00 S.F.  
Volume Provided=(0.4)(Area)(Depth)= 50.00 C.F.  
Rainfall Attenuated by this System is ESDv=(PE/Rv)(A)/12  
Re-Arranging: PE=12ESDv/(Rv)(A)= 1.01 <2.64 inch-OK

**SOIL SUMMARY TABLE**  
Howard County, Maryland (MD027)

Map unit symbol	Map unit name	HSG	K Factor	Hydric Rating	Drainage Class
SrD	Sassafras and Croom soils, 10 to 15 percent	B	0.32	0	Well drained
SrE	Sassafras and Croom soils, 15 to 25 percent	B	0.32	0	Well drained
R3C	Russett fine sandy loam, 5 to 10 percent slopes	C	0.28	0	Moderately well drained
R3D	Russett fine sandy loam, 10 to 15 percent slopes	C	0.28	0	Moderately well drained

https://websoilsurvey.sc.egov.usda.gov/App/WebSoilsSurvey.aspx

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**

Chief, Development Engineering Division  
Land Development  
DATE: 7/13/23

Chief, Division of Land Development  
Development Engineering  
DATE: 7/20/23

**RAZTEC ASSOCIATES, INC.**  
civil engineers & planners  
3451 Emys Place, Monrovia, Maryland 21770  
Tel (301) 775-4394  
email: raztecengr@comcast.net

PROFESSIONALS' REVIEW STATEMENT:  
I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NUMBER: 22742 EXPIRES: JUNE 15, 2024

DRAWN BY: PG  
CHECKED BY: MR  
DATE: JULY, 2023  
SCALE: 1"=20'  
SHEET NUMBER: ECP 1 OF 1