



Planning Commission MEETING AGENDA

Thursday, November 17, 2022 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Call to Order

2. Approval of Minutes.

- a. Approval of Minutes from the September 15, 2022 and October 10, 2022 meeting.

3. New Business

- a. **Applicant:** Casey Rauch, RAUCH Inc.
Owner: Donald Carter
Location: 521 August Street
Nature of Request: The Applicant proposes to develop lots 0102 (521 August St) and lot 0303 (523 August St) as one consolidated lot, 521 August.

4. Old Business

- a. **Applicant:** Brendan S. Mullaney
Owner: Lands of Lot 16, LLC and Mr. Thomas Cohee
Location: 28580 Marys Court
Nature of Request: The Applicant formally requests an award for Growth Allocation for lots 16 & 20 in the Talbot Commerce Park project to reclassify Lot 20's 8.348 Acres+/- from RCA to IDA.

- b. Review and Approval of Subdivision Regulations

5. Discussion Item

- a. **Applicant:** Brett Ewing - Lane Engineering, LLC
Owner: 5001 SHR, L.C.
Location: Oxford Road- Poplar Hill

Nature of Request:

The purpose of this meeting is to discuss the layout and site design of the proposed PUD for 456 residential units, a commercial area consisting of two office buildings and two retail buildings, a public park to be dedicated to the Town of Easton, community open space, walking trails, two community clubhouses and swimming pools and a satellite fire department building with associated utilities and Stormwater Management features. The Applicant is also formally requesting an award of Supplemental Growth Allocation to reclassify 65.977 acres +/- from RCA to IDA on the property.

b. Applicant:

Rick Van Emburgh, P.E., Easton Park Board

Owner:

Town of Easton

Location:

Easton Point Park

Nature of Request:

The purpose of this meeting is to discuss the revised site design of the Easton Point Park Plan. The Applicant is requesting the approval of the location, conceptual character, and extent of development as consistent with the Comprehensive Plan.

c. Continue discussion of Amendments to Zoning Ordinance.

6. Adjournment.



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**TOWN OF EASTON
PLANNING & ZONING
14 S Harrison Street, Easton MD 21601**

Date of Hearing: November 17, 2022

3a

**PLANNING COMMISSION
PUBLIC HEARING
STAFF REPORT**

SUBJECT: Sketch Site Plan Review for 521 August Street (41 N. Park Street – Pending New Address)

ELECTION WARD: Ward 4

CRITICAL ACTION DATE: At the pleasure of the Commission

STAFF CONTACTS: Joseph Mayer, Plan Reviewer
Lynn Thomas, Town Planner
Miguel Salinas, Director of Planning and Zoning

APPLICANT: Casey Rauch, Rauch Inc.

PURPOSE: The applicant is seeking sketch site plan and architectural approval under the Planned Redevelopment Overlay District for a new 3-story, 12,999 square foot Single Mansion Apartment that will provide 12 units with a total of 8 parking spaces. The total height of the building is 49'. A landscaping and buffering waiver is also being requested from the full installation of landscaping and Bufferyard E requirements within the site.

RECOMMENDATION: Staff supports a Planning Commission approval of the proposed site plan, architecture, and landscaping/buffering waiver subject to conditions (see below).

APPLICATION INFORMATION:	
APPLICANT: Better Homes, Better Communities (BHBC) 443-310-1553	REPRESENTATIVE: Rauch Inc. Casey Rauch
PARCELS/ACREAGE:	
Parcel Information	Acreage
Map 103, Grid 00EA, Parcel 1028, Lot 2 & 3	0.192
ACCEPTANCE DATE: November 3, 2022	LOCATION: 521 & 523 August Street, Lots 2 & 3
EXISTING ZONING CB	EXISTING LAND USE: Unimproved
HISTORIC DISTRICT: Applicable	FUTURE LAND USE: Residential

CONTEXT:

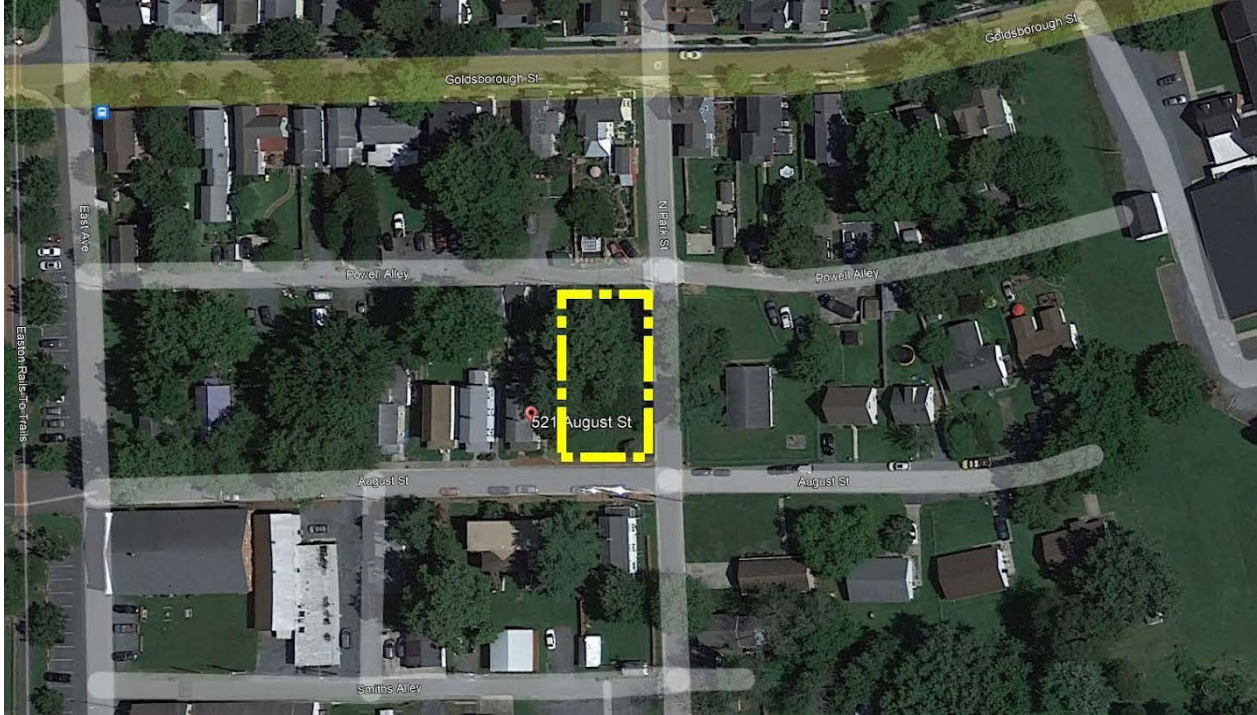
Location/Site Access – The subject property is located on the northwest corner of August and N Park Street, fronting on the west side of N. Park Street.

Existing Conditions – The subject property is currently unimproved.

Surrounding Properties

- 26 N Park Street – R7A, PUD Infill
- 401 Goldsborough Street – R7A, Historic District, PUD Infill
- 524 Goldsborough Street – R7A, Historic District, PUD Infill
- 522 Goldsborough Street – R7A, Historic District, PUD Infill
- 517 August Street – CB, PR District, Historic District, PUD Infill
- 516 August Street – CB, PR District, Historic District, PUD Infill
- 522 August Street – CB, PR District, Historic District, PUD Infill
- 602 August Street – R7A, Historic District, PUD Infill

Figure 1: Vicinity Map



PROPOSAL: The applicant is proposing a 12-unit Mansion Apartment building. The three-story building will have a square footage of 12,999 square feet. A subsurface SWM chamber, permeable asphalt & pavers, and SWM planter box facility will be provided to manage stormwater.

The Zoning Code permits one Mansion Apartment building to be constructed on any recorded lot that meets all development standards, without regard to density limitations. Also, because this is proposed as a Planned Redevelopment application, the Commission has the flexibility to establish a number of site-specific and unique development standards, if necessary (e.g., height, setbacks, etc...).

The applicant is proposing four Off-Street Parking spaces adjacent to Powell Alley and four On-Street Parking spaces along N. Park Street. Off-Street Parking is not required within the Central Business Commercial District. There is a Landscaping & Buffering Waiver request for relief from the Bufferyard E requirements within the site. The applicant has provided landscaping close to the building that faces street fronts. The total site area is less than 40,000 sf; therefore, no Forest Conservation Plan is required.

BACKGROUND: This Applicant submitted applications for Easton Staff Development Review on September 7, 2022 and October 26, 2022.

OUTSTANDING ISSUES: There are no outstanding issues.

ZONING ANALYSIS:

28-201 table 2.1 (1) 103.7

CB

103.7	Mansion Apartment*	--	SE	SE	--	SE	--	--	--	--	--	
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Analysis – The proposed land use was determined by staff to be within the confines of a Mansion Apartment (Middle Housing).

28-501 B (7) DEVELOPMENT STANDARDS (Planned Redevelopment Overlay District)

7. Off-street parking is not required for projects proposed in the Planned Redevelopment Overlay District, although adequacy of parking may be a consideration of site plan review.

28-305.2 DEVELOPMENT STANDARDS (CB-CENTRAL BUSINESS COMMERCIAL DISTRICT)

B. Off-Street Parking shall not be required for uses within the CB Zoning District. The adequacy of parking relative to the proposed use of the property shall be evaluated during the site plan review process.

28-1001.3 Parking Requirements

	Use/Activity	Minimum Vehicle Spaces	Maximum Vehicle Spaces	Minimum Bicycle Spaces	Notes
	Residential Buildings				
3	Any Middle Housing Type (except single-family attached/Townhome)	0.75 per du	1.0 per du		

Mansion Apartment (Middle Housing): 12 Dwelling Units (9 Spaces Minimum, 12 Spaces Maximum)

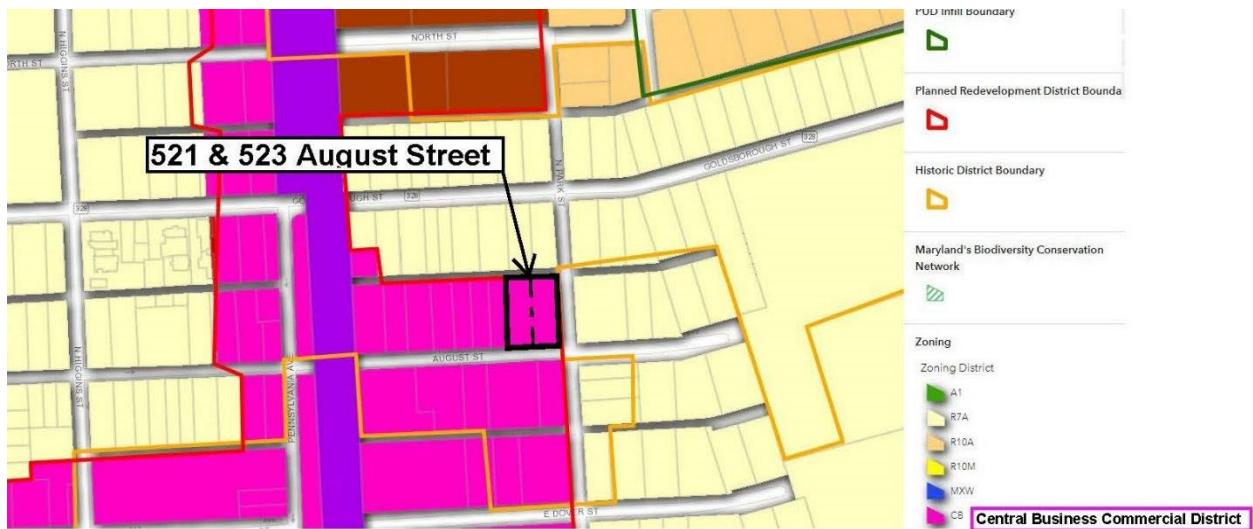
Analysis- Off-street parking is not required within the Planned Redevelopment Overlay District or Central Business Commercial District. However, the adequacy of the parking relative to the proposed use of a Mansion Apartment needs to be evaluated. A 12-unit Mansion Apartment requires a minimum of 9 parking spaces and a maximum of 12 parking spaces. The applicant has

provided four off-street parking spaces north of the building and four parallel on-street parking spaces along N. Park Street on the east side of the building. Please note, the proposed parking along N. Park Street is for public use and is not a guarantee for use by the apartment exclusively. The applicant has indicated on the Site Plan that additional existing parking is available along August Street and N. Park Street and is adequate for the proposed development. They anticipate that the development will not cause any significant traffic congestion, based on observations of evening parking conditions after 6:30 PM during weekdays. The staff recommends the applicant to provide a location map for potential on-street parking areas for the proposed site. The Planning Commission needs to determine if the applicant has provided adequate parking for the proposed use.

This would seem to be an overriding consideration with this application and actually ties in conveniently with the Commission's considerations of ways in which you may amend the Zoning Code to further encourage the development of Middle Housing Types. On some level we are faced with competing/conflicting goals of wanting to provide greater diversity in housing types (and, presumably providing more affordable housing options) versus not overly burdening neighborhood streets with cars because you have approved a project with insufficient parking. There are on-street parking options, although as noted above, that does not guarantee the availability of such spaces for the residents of the proposed project. It is also worth noting that some of the streets in the vicinity of the subject property are exceptionally narrow, making their suitability for on-street parking questionable. Finally, it is worth noting that there are public parking spaces available reasonably close to the subject property (along the Rail Trail) although they are not available for use 24 hours per day.

POLICY ANALYSIS:

Figure 2: Zoning Map



Compatibility with the Comprehensive Plan:

1. The integrated use is desirable for the proximity and location to existing areas and town amenities
2. There are no compelling natural features or non-tidal wetlands, and the proposed layout utilizes the natural features.
3. A forest conservation plan is not required. The proposed site is under 40,000 sf.
4. Parking is provided at the north side of the building complying with the Comprehensive Plan's goal that automobiles should not determine site design.
5. Architectural compatibility is consistent with the Town of Easton. Approval from the Historic District is also required.
6. There are no proposed monument signs.
7. The diversity of neighborhood housing types, having neighborhoods as interesting places with connectivity, is advanced with the addition of a new housing type (Mansion Apartment) to this site.

RECOMMENDED CONDITIONS:

1. The proposed materials and architectural components shall meet the guidelines laid out in 28-601 of the Zoning Ordinance for the Historic District Commission.

DRAFT MOTIONS:

1. I move that the Planning Commission approve the site plan, parking waiver, and landscaping & buffering waiver subject to the Conditions of Approval.

OR

2. I move that the Planning Commission forward the application, to the December 15th Commission meeting for further discussion.

OR

3. I move an alternate motion.



TOWN OF EASTON

Planning & Zoning Department

14 South Harrison Street

P.O. Box 520

Easton, Maryland 21601

Easton Staff Development Review Worksheet

Date: October 26, 2022

Project: 521 August Street

To: Mr. Casey Rauch – Rauch, Inc.

CC: Better Homes, Better Communities (BHBC)., c/o Mr. Donald Carter

The Easton Staff Development Review meeting was held on October 26th, at 11:00 pm. Staff reviewed the Site Sketch Plan for the proposed Apartment Building (12 Units) and provided comments for the proposed project.

It was determined that the project will need to address specific areas of Staff concerns that were discussed at the meeting and review letters prior to filing a Planning Commission Application. Specific areas of Staff concern discussed at the meeting and Comments (attached) are as follows:

- Relocate proposed parking bays along August Street to Powel Alley.
- Adjust the building away from all utility easements.
- Revise Stormwater Management comments per site plan revisions.

At this time, based on the ESDR sketch plan submission Staff did not identify any constraints which require action by the Board of Zoning Appeals.

The applicant is required to submit all revisions on or before October 31st for Staff review. The Staff will determine if the project is ready for the November 17th Planning Commission meeting by November 3rd. Upon Staff approval, the Applicant will submit files for presentation at the Planning Commission. Files need to be provided on a flash drive. In addition, provide a digital submittal (via email) of the Planning Commission Application and its supporting documents, including **ten paper copies**. Submit all documentation for the Planning Commission no later than November 7th. (Please send all digital copies of the submission to jmayer@eastonmd.gov.)

Contingent upon completion of the requested items, please submit for the Planning Commission meeting scheduled for **Thursday, November 17, 2022 at 1:00 pm**. Submit all necessary files no later than **Monday, November 7, 2022**.

Please contact the Planning & Zoning Department at 410 822-1943 with any questions.

Sincerely,

Joseph A. Mayer
Plan Reviewer



TOWN OF EASTON PLANNING & ZONING DEPARTMENT

P.O. Box 520
Easton, Maryland 21601
410-820-8822
www.EastonMD.gov

DATE: October 21, 2022
TO: Casey Rauch – Rauch, Inc.
cc: Miguel Salinas – Director of Planning & Zoning Department
Rick Van Emburgh – Town Engineer, Department of Engineering
FROM: Joseph A. Mayer - Plan Reviewer, Planning & Zoning Department

SUBJECT: 521 August Street – Apartment Building (12 Units) - Site Plans

We reviewed the **October 6, 2022** Sketch Site Plan Submittal for the Subject Project and have the following comments:

PLANNING & ZONING COMMENTS

Sketch Site Plan

1. The building's foundation footer cannot be located within a Utility Easement. Please verify and/or adjust building location.
2. The plan view for Sheet C-601 (Landscape Plan) is missing. Please revise.
3. Please submit a Supplemental Waiver Request Application for Landscaping & Buffering. See attached documents.
4. Please add the Design Principles from the 2010 Comprehensive Plan, pages 94 thru 111 to the cover sheet. See attached documents.
5. Provide dimensions between the building and all property lines.

Legal Agreements (To be addressed at Final Site Plan submission)

Impact Fees (To be addressed upon Building Permit)

DEPARTMENT OF ENGINEERING COMMENTS

COMMENTS ATTACHED.

BUILDING INSPECTION AND PERMIT DEPARTMENT COMMENTS

NO COMMENTS ATTACHED

EASTON UTILITIES COMMENTS

COMMENTS ATTACHED.

Sketch SITE PLAN REVIEW – 521 August Street - Site Plans

Plan Review Status

FINAL SITE PLAN REVIEW			Comments
Plans Approved	☐ Y	☒ N	Please review comments above Revise and Resubmit.

GRADING PERMIT STATUS			
Application and Final Approved Site Plan Submitted to Town Engineer	☐ Y	☒ N	
Easements			
Storm Water			
☒ Required ☐ Submitted ☐ Approved			Submit Exhibit under Development Site Plan review.
Storm Drain			
☒ Required ☐ Submitted ☐ Approved			Submit Exhibit under Development Site Plan review
Sidewalk			
☒ Required ☐ Submitted ☐ Approved			Required.
Forest Conservation			
☐ Required ☐ Submitted ☐ Approved			Not Required.
Declaration of Covenants			
☒ Required ☐ Submitted ☐ Approved			To be prepared by Town Attorney.
Public Works Agreement			
☒ Required ☐ Submitted ☐ Approved			Required.
Bond/Letter of Credit/ Cash Agreement			
☒ Required ☐ Submitted ☐ Approved			SWM – Required RoW -- Required
Talbot Soil Conservation District Approval			
☒ Approval Required			Submit approved SCD plans prior to Final Site Plan approval
Other			
☒ Required ☐ Submitted ☐ Approved			Approval from the Historic District is required. Lot Line Revision Plat to be recorded.

Please contact me if you have any questions. Thank you.

END OF DOCUMENT



Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

Supplemental Waiver Request Application

Waiver Request Type

Sidewalk ☐ Parking Spaces ☐ Parking/Aisle Dimension ☐
Landscaping & Buffering ☐ Signage ☐ Other ☐

Project Information

Address							
Tax Map		Grid		Parcel		Lot	
Zoning District		PC Meeting Date			Historic District	Yes ☐	No ☐
Owner or Agent							
Mailing Address							
Telephone No.		Email					

Request Details

Please attach a detailed description of the waiver request(s) being made and the justification(s) for requesting said waiver(s).

☐ Ordinance Section Supporting Waiver Request.

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Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

Printed Name of Applicant or Agent

- o *Saving Face: How Corporate Franchise Design Can Respect Community Identity*, by Ronald Lee Fleming, 1994, American Planning Association and The Townscape Institute.

Before proceeding, a word is probably in order about the purpose of including this list of publications. They are listed merely to provide potential developers (as well as those who are responsible for reviewing developers' proposals) with a resource list of publications that generally contain ideas, goals and strategies that reflect the community's vision for Easton. They should not be taken as a Design Manual for Easton. Their inclusion herein does not infer in any way that each and every part of these publications are necessarily appropriate in Easton. They may even in some cases contradict one another on a given point. The general idea is simply that if one reviews all of these documents, one will gain an understanding of what the Town is trying to achieve in terms of development design.

An occasional criticism of the Design Principles in the 1997 Comprehensive Plan was that while the Plan specifies the types of design that should not be encouraged in Easton, it only speaks in broad generalities, at best, about what it is that we want to see. Thus the 2004 Plan reviewed each of the Design Principles, made some revisions, some additions and some deletions and presented a more comprehensive set of Design Principles. We believe it is appropriate for this Plan to repeat this same exercise to develop the Design Principles to guide us throughout the next Planning Period.

2009 DESIGN PRINCIPLES FOR EASTON

Principle #1 – Integrated Uses are Desirable

Originally in the 1997 Plan, this Design Principle stated, "Mixed Uses are Desirable." Since that time we have found that it is not enough to simply mix uses within a development. A vast area of residential uses with a disconnected

pod of commercial use is not the concept we are trying to promote. Unfortunately that is often times what was presented. Too often, when any commercial development was presented at all, it was improperly located, of an inappropriate scale, or both.

What we are actually looking for is old-fashioned, neighborhood-style development. That means development that includes housing, with retail located at or near the center of the area, offices, civic space, open space, and possibly industrial development. Each subcomponent is of a size necessary to serve the residents of the proposed neighborhood, which, given the single-use developments of recent years, may also include surrounding and nearby developments. It does not mean a strip shopping center located along a State Road with the remainder of the site devoted to housing. Nor does it mean fast-food franchise restaurants or any level of regional-scale retail. The open and civic spaces are not afterthoughts or the land that can't otherwise be developed. Instead they are prominently and thoughtfully located so as to be a driving force in establishing the character of the neighborhood being created.

The amount of each subcomponent present in a neighborhood, as well as its design, will be different depending on the setting. A couple of options are shown in the illustrations on the next few pages. Perhaps the key to this principle is to provide the right amount of retail and office uses to ensure that a true neighborhood is created. Sufficient office and/or industrial space should be provided so that the neighborhood functions as an employment center. If this component is under-represented, residents will still be forced to commute outside of the neighborhood to work. We recognize that the majority of residents will still commute outside of the neighborhood, but at least in the neighborhoods that we envision, they might have a choice. Unless one works in

a home occupation or home-based business, that choice almost never exists in the developments of the post World War II era.

Similarly, the amount and nature of the retail provided should be sufficient to provide convenience type goods and services for the neighborhood. These might include a convenience or small grocery store, drug store, hardware store, restaurants and similar places that fulfill most daily shopping needs of the residents of the neighborhood. Again, residents might not always choose to frequent these establishments, but at least the option would be available.

Providing an overall mix of uses in a community is important not only from a community character point-of-view, but also for fiscal reasons. Subdivisions of simply single-family housing generate a large number of school children (unless they are age-restricted and/or possibly high-end housing), as well as a large number of automobile trips. Such developments create a negative budgetary impact. That is, they cost more to serve than they create in tax revenue. Commercial and industrial development, on the other hand, usually has a net positive fiscal impact. The goal is to have the two impacts balanced within the same neighborhood (thereby reducing traffic and further reducing costs for the Town) rather than having pockets of positive and negative fiscal impacts spread around Town.

Finally, mixed and integrated use communities are desirable because they are more ecologically-friendly and sustainable. Because they potentially decrease automobile usage, they also potentially decrease the community's carbon footprint. These are important considerations today that are only expected to become more important in the future.

Principle #2 – Natural Features Should Determine Design

The Maryland Smart Growth Initiative that presently shapes so much of what happens relative to growth and development in Maryland is both a pro-

growth and pro-environment program. The issue is not growth or no-growth. Rather, the issue is one of location. Smart Growth dictates that growth should occur in places with the infrastructure in place to handle it, and should not occur in rural, undeveloped areas. Occasionally, these goals come into conflict when, for example, a site is proposed for development within a Town, but that site also contains environmentally sensitive areas. This is most often the case when development is proposed on the undeveloped periphery of the Town.

This Design Principle is about finding the right balance between these two competing goals. It does not mean that all sites within a municipality should be leveled, filled, and developed with no regard for the environment. Nor does it mean that sites with special environmental features should be totally precluded from development. Instead, the Design Principle, “Natural Features Should Determine Design” means simply that sites should be planned based on the environmental resources present. Too often in Easton we have seen situations where, for example, land with gently rolling hills (at least by Eastern Shore standards) is first leveled (and the top soil sold) and then developed (with a much thinner layer of imported top soil) when instead a much more interesting community could be built using the existing topography. Similarly wetlands should be protected, but that does not necessarily mean that they are left on the developed periphery or designated as part of the required open space. They also can be a site amenity as well as an environmental resource.

Under the general theme of this Design Principle, there are several objectives that should be followed in order to achieve environmentally responsible and sensitive design. These include:

- Neighborhoods should only be located on land suitable for development.

- Development should avoid impacts to air, land, water, and vegetation. Any negative impacts on these resources should be mitigated.
- Site landscaping should utilize existing vegetation complemented with native species.
- Important visual features should be preserved and made an integral part of the design of the site.
- Site design and development should consider noise and light impacts on adjacent properties.
- Above all else, neighborhood development can be environmentally responsible by providing adequate opportunities for walking to jobs, convenience retail, and community facilities.

Principle # 3 – Automobiles should not Determine Design

This Design Principle would, at first glance, seem to go without saying. However, so much of what is undesirable with contemporary development is directly related to the automobile. It begins with the very location of uses, which have been separated and isolated, in part, because of the general ready availability of automobiles. With the explosion of automobile ownership after World War II, it became less important, from an availability perspective, to locate jobs and commercial shops and services within walking distance of residences. Now of course this is viewed as a root cause of the demise of the true neighborhood and thus we are trying to return to the way development used to occur.

The separation of uses only describes the problem that the influence of the automobile has from the macro perspective. There are even more problems on the micro scale. These include:

- In many cases garages have become the most prominent feature of single-family homes. They are often times quite large, set closer to the street than the house and have the door opening facing the street.
- Many streets are much too wide. This is not only unattractive, but is also unnecessarily expensive, invites speeding, and negatively impacts water quality.
- Parking lots are generally the least attractive site feature in commercial developments and yet they are usually located such that they are the most prominent site feature. Too frequently parking lots are inadequately screened and are placed between the street and the front of the building.

This design principle is all about reversing this trend. The desire to return to growing by integrated-use neighborhoods was described previously. The three points discussed above are relatively easy to address and in many cases the Town has already adopted regulations to reverse these problems. The one exception is the first item described above concerning the prominence of garages in residential settings. However, this is an easy problem to rectify, at least for future development. Garages are already listed as a permitted accessory use in the Zoning Ordinance. It would be a very simple matter to add supplemental standards specifying the preferred location, size, and orientation of garages.

As for street widths, the Town already permits narrower streets than otherwise required via Planned Unit Developments. The standard details should be examined and compared to new nationally recognized guidelines to determine if Easton's standard street widths can be reduced for conventional subdivisions.

Finally, in the matter of parking lots, the Easton Zoning Ordinance requires screening of lots from public streets, as well as ample landscaping within the parking lots. One of our Zoning Districts requires that all parking be located in the side or rear yard. Major retail uses also have requirements regarding the location of parking spaces. These standards should be examined again, but probably require little adjustment. Also, the next time the Zoning Ordinance is comprehensively updated, we should closely examine the amount of parking required for various uses so that we are not unnecessarily forcing developers to pave more land than is truly required for their use.

Principle #4 – Ample Open Spaces should be provided within and Around Neighborhoods

Part of this Design Principle was discussed previously when it was pointed out that open spaces need to become an integral and prominent part of the design of neighborhoods. Too often they appear to have been an afterthought. Even more often the open spaces that are included as the developers attempt to satisfy the Town's open space requirements are the lands that are otherwise not developable anyway.

Several things need to change relative to how Open Space is viewed in Easton. First, developers need to provide significant, usable open space as part of their projects. Second, Town officials need to look at ways to make our open spaces more valuable. In some cases this might mean enhancing existing open space areas. In others it might mean planning open space or wildlife corridors so that larger protected areas are actually connected via "green infrastructure." The 2004 Plan recommended that the Town revisit its 1/35th acre/dwelling unit standard to determine if it was still sufficient in light of our other proposals to change the way development occurs. This was accomplished and the standard was changed such that today a minimum of 35% open space is required in all

conventional residential subdivisions, of which a minimum of 1,200 square feet per unit is required to be provided for parks.

Principle #5– Architecture Should Respect Easton’s Historical Development

This is perhaps the most important Design Principle in the struggle to make Easton a unique place, rather than the latest version of “Anywhere USA.” The mix and layout of development was discussed above and it emphasized that the Town desires to look at the past for a blueprint of the future. Much is the same relative to architecture. New development in Easton, especially new commercial development, should look to buildings constructed prior to the 1940’s for an example of what to emulate.

One thing that is clearly not welcome in Easton is generic, corporate franchise architecture. That was clearly expressed in the 1997 Comprehensive Plan, reiterated in the 2004 Plan and emphasized through the Design Guidelines for New Development. A common criticism of the original 1997 language was that while we clearly stated what we did not want to see, we did not give much direction relative to what we do want to see. The 2004 Plan as well as the Design Guidelines attempted to clarify this point and again, to this end, prospective builders should look to the past for guidance. In doing so, one will find many architectural styles from which to choose. In downtown Easton, the predominant architectural style is Federal. Clearly new buildings designed in the Federal style would be appropriate for new development, especially infill development in the downtown area. However, the Federal style is not the only answer. Colonial architecture clearly has a place in Easton as do numerous other styles. The only thing we are specifically trying to avoid is generic buildings, which, if built in Easton would look little, if any, different than those in any other community. Along these same lines, tract housing with little variation is to be discouraged in residential subdivisions, so that these neighborhoods are as

unique architecturally as other areas of the Town. In the 2006 update of the Zoning Ordinance, standards were added to address this issue. A series of so-called “anti-monotony” standards were added to the Zoning Ordinance as a Supplemental Standard for the single-family detached housing. Since we have only reviewed one subdivision since these regulations were adopted (and to date less than ten homes have been constructed in it), we cannot fully assess the success of these standards. Thus we will continue to monitor the effect and the effectiveness of these standards and make modifications as appropriate.

It is not enough, however, to simply provide unique architecture. Context is also important. A grand Victorian building set amongst a development of contemporary structures would not be fitting. Similarly, while a southwestern desert motif would definitely be unique, it would certainly not be suitable in Easton.

Despite this lack of direction as to what is appropriate commercial architecture in Easton, progress was made. The desire to improve the quality of commercial development extends back at least 20 years. Initially, we had nothing more to stand on than the Planning Commission’s desire for “something nice” and, with regards to franchises, “different from their standard building”. Thus the Wal*Mart and the Giant Shopping Center were developed with little in the way of design, site planning, or landscaping standards. Instead, the developers simply had to satisfy the Planning Commission.



*Easton's Wal*Mart and Giant were approved with an expressed desire for "better design" but little to back that desire up other than the comments of the Planning Commission.*

Next, we adopted the 1997 Comprehensive Plan with the first version of these Design Principles and a strong statement concerning the lack of interest in typical corporate franchise architecture in Easton. We followed that up by beginning to add design standards for specific uses and creating Landscaping Standards in the Zoning Ordinance. Examples of buildings developed under these regulations include Boater's World and the Route 50 McDonalds.

Next, the 2004 Plan included even more emphasis on improving design and more standards were added to the Zoning Ordinance. Buildings constructed under these regulations include the Wawa, Royal Farms, and Lowe's.



Easton's Wawa and Royal Farms Convenience Stores represent significant departures from those stores's corporate architecture. Below, the new Lowe's tests the Town's Major Retail design guidelines.



Finally, we adopted Design Guidelines for New Development in 2006. Pizza Hut, Starbucks, Panera Bread, and KFC are examples of buildings constructed under these design standards.



Pizza Hut, Starbucks (above), KFC and Panera Bread (below) are all examples of buildings designed and constructed under the Town's 2006 Design Guidelines for New Development.



The point is simply that this has been a long and evolving process and we are undoubtedly not finished with this evolution yet. It is also important to recognize that there is a necessary lag time between the time when new standards are implemented and the effects of those standards can be seen. The new residential design anti-monotony standards are a perfect example. They were adopted in 2006, yet nothing (but for a handful of houses) built today were subject to those standards. So, while it may be easy and tempting to call for more or stricter standards because we do not like what we see today, we might very well already have the tools that we need. It is often times simply too early to tell.



The new McDonalds (above) on US Route 50. Note the departure from a prototypical McDonalds in terms of roof shape, building materials, and window treatments. Similarly the new Boater's World (below) represents a significant change from that franchise's standard building and even though this franchise is closing nationally, since Easton's store is not franchise architecture it should be more ready for a new user.



Principle #6 – Signs should Inform but not Dominate

This is one Design Principle that has had the most concrete action occur to implement it since first appearing in the 1997 Plan. Since that time the Town has amended the Zoning Ordinance on three occasions relative to sign standards. The first amendment reduced the maximum permitted height of freestanding signs in half, from 20 to 10 feet. The same amendment also required that landscaping be incorporated around the base of the freestanding sign and specified the amount of landscaping to be provided. The second amendment was a more comprehensive overhaul of the sign regulations, which added clarity and a number of design standards. Finally, the most recent amendment to sign regulations cut the maximum permitted size of freestanding signs in half from 100 square feet per face to 50 square feet.

Given the interest in the topic and the fact that we now have several examples of signs constructed throughout Town under various different rules and regulations, it seems reasonable to expect that we will examine the issue once again to determine if we are on the right track, have gone too far, not far enough, etc. In the meantime applicants will be guided by what is allowed under the terms of the Town's Zoning Ordinance. Beyond that signs should be tasteful and architecturally compatible with the building that they identify.

Principle #7 – Neighborhoods Should Contain a Diversity of Housing Types

This was a new Design Principle added to the list in 2004. It is similar in nature to Principle # 1 above concerning mixed or integrated uses. However this Principle goes further to look at one specific component of the mix of uses, residential, and says that this component itself should be mixed.

In recent years Easton has experienced a significant absence of affordable housing. The problem is not just within the realm of low-income housing. That level of housing is certainly needed in Easton, but more recently we have seen

fewer and fewer homes built in the general “entry-level” market, as well as the “move-up” market. In addition, there is a demonstrated need for apartment units in Town.

Compounding this problem from a community character perspective is that to the extent any of this type of housing exists, it is strictly segregated. This is a mistake. It is important to provide a diversity of housing types to enable people from a broad spectrum of economic levels (as well as age groups) to live within the same neighborhood. Taken to the extreme, the recent trend of only providing higher-end housing can lead to the situation where nearly all of the service and “labor” employees have to commute into the community from places where they can afford to live. This is already happening to a certain extent as anyone who has witnessed the regular morning influx of commuters on Dover and Matthewstown Roads can attest. These are people who work in Easton, but live in Caroline and Dorchester Counties (or even farther distant) where housing prices are generally lower.

Principle # 8 – Residential Developments Should be Interesting Places

This is the second new design principle added to the original 1997 list. It was added because of a concern by Easton’s Planning Commission that while we are at least recognizing and starting to address the problem of commercial design, residential design has been overlooked for too long and they see many problems.

There was a time when residents would drive or walk around a particular neighborhood just because they enjoyed the look and feel of that place. To a certain extent that still exists today in places like Oxford, St. Michaels and Easton’s Historic District. On the other hand, it is hard to imagine anyone seeking out most of our subdivisions approved in the last 30 years for this same experience.

Why has this become the case? One simple reason is that such places exhibit little architectural variety. Often times all the houses in these developments are built by one or two contractors (increasingly national homebuilders), and it shows. Here one can find block after block, or worse yet cul-de-sac after cul-de-sac, of monotonous replications of a handful of stock housing models. Lending to the monotony, these houses are often also situated on identically sized lots and covered in no more than a handful of variations of beige-tinted vinyl siding.

By contrast, the older, historic areas of Easton were generally built one house at a time, by many different builders. Here you will find a great variety of lot sizes and configurations as well as house types.

Future residential developers in Easton should note and incorporate the following objectives into their plans:

- Adjacent lots should be different sizes.
- There should be no two lots of the same size and configuration within 300 feet.
- Adjacent detached single-family homes should be architecturally different. This does not mean that one lot has a Cape Cod with red shutters and the next has a Cape Cod with green shutters. There should be significantly different architectural features on adjacent houses, if not different house styles altogether.
- When developments are constructed by one or a limited number of builders, care should be taken to vary such things as the color of roof shingles, siding or paint colors, sizes and styles of porches, etc...

It is this Design Principle that led to the adoption of the so-called residential anti-monotony standards which incorporate much of the objectives outlined above.

Principle # 9 – Neighborhoods Should Connect

The one new Design Principle to be added in this 2009 Plan concerns the connectivity of neighborhoods and subdivisions. In short, we believe that they should be connected to neighboring properties to the maximum extent possible. This is a fundamental characteristic of the older parts of Easton that is essential to emulate in new development projects. There are a myriad of reasons for promoting connectivity. The most important include:

- Connected neighborhoods offer multiple travel options. This diminishes traffic by distributing it amongst the various possible routes, as opposed to forcing all of it onto one particular road. It also affords alternatives in the event that one's usual path of travel is blocked, for whatever reason. If a tree falls across the road, utility work is taking place, an accident occurs, etc., and this happens on the only road into a development, all of the community from that point on is effectively isolated until the road is cleared. In a more traditional, well-connected neighborhood, one generally need only travel one block out of the way to bypass the problem and one block back to get back on route.
- Connected neighborhoods promote community. Neighborhoods that are connected enable residents from one part of Town to easily travel to nearby areas, thus increasing the likelihood for social interaction. They also greatly increase the opportunities for walking between adjacent developments, which has both this social interaction as well as a health benefit. To illustrate this point, consider a real-world example of adjacent non-connected developments is Easton. The illustration below shows two

houses whose lots abut one another. One is in the Old Beechwood Subdivision (a Talbot County Subdivision) and one is in the Woods at Stoney Ridge. The two homes in this example, in adjacent subdivisions are approximately 140 feet apart and yet, in order to walk or drive from one of these houses to the other, one must travel approximately 3 miles. That in a nutshell is one of the major problems created by a lack of connectivity.



TOWN OF
EASTON
ENGINEERING DEPARTMENT

DATE: October 25, 2022
TO: Casey Rauch
cc: Donald Carter - Owner
Sierra Crist - Town of Easton Engineering Department
Miguel Salinas - Town of Easton Planning & Zoning Department
Joe Mayer - Town of Easton Planning & Zoning Department
FROM: Rick Van Emburgh, P.E. – Town Engineer
SUBJECT: 521 August Street
Sketch Site Plan Review and
Sketch Stormwater Management Plan Review

I reviewed the Application for the Subject project received on 10/21/2022.

Plan Review

The **Sketch Site Plan** is acceptable to the Engineering Department with the following condition:

1. **SHEET C-601** - Provide a Landscaping Plan.

Please address the comment above and submit a Preliminary Site Plan.

Stormwater Management

The **Sketch Stormwater Management Plan** is approved with the following conditions:

1. **SHEET C-401** - The proposed Rain Tank system appears to be located partially in the Town Park Street ROW. Revise the footprint so the Rain Tank is entirely on private property.
2. **SHEET C-401** - Provide a proposed inlet for access at the 90 degree bend immediately downstream of the Rain Tank System (at Station 1+28± in Section A of SHEET C-403.01). Show the proposed inlet on SHEET C-403.01 as well. Alternatively, extend the Rain Tank north so the proposed pipe exits the Rain Tank on the west face (instead of north face).
3. **SHEET C-401** - Provide proposed inlets for access at all proposed stormdrain bends in Powell Alley.
4. **SHEET C-401** - Proposed stormdrain pipe in Powell Alley ROW should be 15" minimum and maintain 0.5% minimum slope if possible.
5. **SHEET C-401** - An existing "10" TERA" label is shown on the top left corner of the sheet pointing to something above the "7" label. Please address.

6. **SHEET C-403.01 - Section A Station 1+26±** - The proposed stormdrain pipe immediately downstream of the Rain Tank appears to be at an elevation higher than the Rain Tank. Please revise.
7. **SHEET C-403.01 - Section A Station 2+35±** - Show the existing gas main.
8. **SHEET C-403.01 - Sections B & C** - Show the proposed Planter Boxes.

Please address the comments above and submit a Preliminary Stormwater Management Plan.

Please contact me if you have any questions. Thank you.



EASTON UTILITIES

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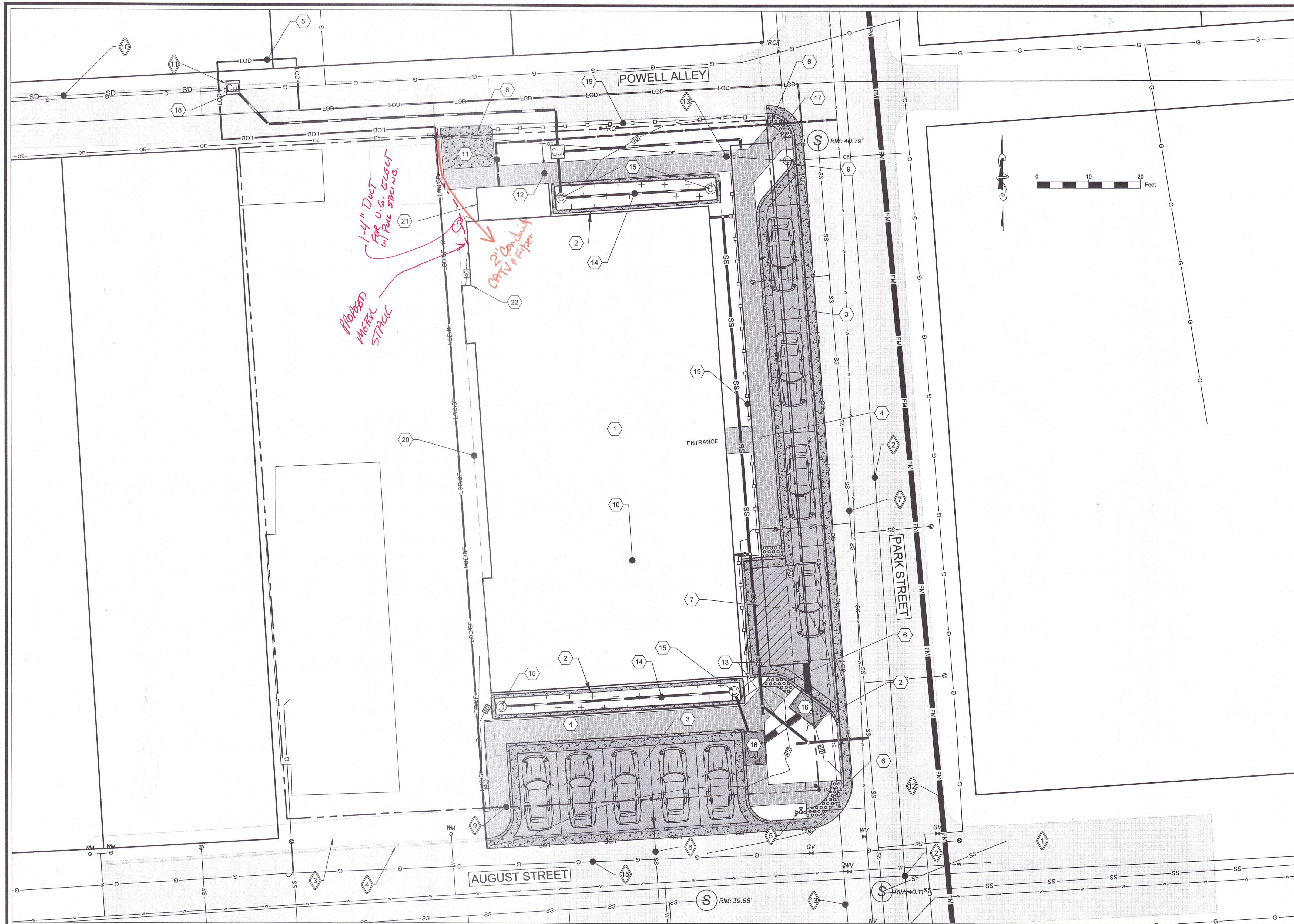
Easton Utilities Commission

Plan Review Comments

Date: Thursday, October 20, 2022
To: Joe Mayer; Shelby Ruf; Beverly Williamson; Ryan Heckler; Robert Haase
From: Kia Gibbs on behalf of Aaron Goller, PE
Re: 521 August Street
Review Type: - **SUBM:** 2 **Plan Phase:** Sketch Site Plan
Status: Approved as Noted **No. of Pages**

Easton Utilities Commission has reviewed the above referenced plans and have provided the following comments. Please provide your corrections as listed below. Additional reviews will be required to ensure comments have been addressed. Items or documents not provided on initial submission will be subject to further review. Please contact Kia Gibbs, Admin Support at kgibbs@eucmail.com should you have any questions.

ITEM:	DRAWING / PAGE	COMMENTS:
1	C-101	Install 2" conduit for CATV & Fiber Communications
2	General	If entrance is on Park St. side, address will need to be changed.
3	V-100	Lot Line Adjustment required, Plans approved as noted (existing features: Comment #7)



PROPOSED SITE PLAN NOTES

- 1 APARTMENT BUILDING F.F.E = 40.89'
- 2 SWM PLANTER BOX. SEE DETAIL ON SHEET C-405.01
- 3 PERMEABLE ASPHALT. SEE DETAIL ON SHEET C-405.01
- 4 PROPOSED BRICK SIDEWALK. SEE DETAIL ON SHEET C-305.01
- 5 LIMIT OF DISTURBANCE
- 6 ADA SIDEWALK RAMP. SEE DETAIL ON SHEET C-305.02
- 7 8' WIDE A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
- 8 DUMPSTER PAD. SEE DETAIL ON SHEET C-305.02
- 9 STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
- 10 6" SDR-35 SEWER CONNECTION. SEE DETAIL ON SHEET C-505.01
- 11 6" FIRE C-900 WATER LINE CONNECTION. SEE DETAIL ON SHEET C-505.01
- 12 2" POTABLE SDR-9 HDPE PIPE WATER LINE. SEE DETAIL ON SHEET C-505.01
- 13 12" HDPE PIPE
- 14 4" PVC PIPE
- 15 4" PVC CLEANOUT
- 16 CONCRETE OPEN THROAT CURB INLET WITH BACKSIDE INLETS. SEE DETAIL ON SHEET C-405.01
- 17 HEAVY DUTY (HD) R-TANK STORMWATER MANAGEMENT SUBSURFACE CHAMBER. SEE DETAIL ON SHEET C-405.02-.03
- 18 TRAFFIC BEARING YARD INLET. SEE DETAIL ON SHEET C-405.01
- 19 HISTORIC STYLE WOODEN CONCAVE PICKET FENCE WITH SIDE GATE
- 20 PROPOSED EASEMENT
- 21 PROPOSED SPRINKLER ROOM
- 22 PROPOSED BUILDING FOOTPRINT

EXISTING FEATURES

- 1 ROAD
- 2 ROAD CENTERLINE
- 3 BRICK SIDEWALK
- 4 CURB AND GUTTER
- 5 FIRE HYDRANT
- 6 APPROXIMATE LOCATION OF EXISTING SANITARY SEWER
- 7 SURVEYED LOCATION OF EXISTING SEWER
- 8 EASEMENT LINE / R.O.W.
- 9 SURVEYED PROPERTY LINES
- 10 10" TERRACOTTA STORM DRAIN
- 11 BRICK GRATE INLET
- 12 APPROXIMATE LOCATION OF EXISTING SEWER FORCE MAIN (GIS DATA)
- 13 OVERHEAD ELECTRIC
- 14 APPROXIMATE LOCATION OF EXISTING WATER LINES (GIS DATA)
- 15 APPROXIMATE LOCATION OF EXISTING GIS LINES (GIS DATA)

HATCH LEGEND

- ASPHALT
- BRICK SIDEWALK
- A.D.A. ACCESS AISLE
- ESD BED BOTTOM
- EASEMENT
- BRICK SIDEWALK

SITE PLAN

OF THE LANDS OF

521 AUGUST ST

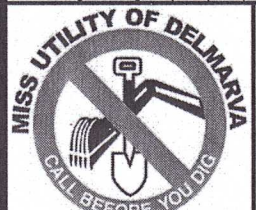
TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

REVISIONS

DESCRIPTION

DATE

REV. #



DATE: 10/6/2022
SCALE: 1" = 10'
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-101

FOR REVIEW



TOWN OF EASTON

Planning & Zoning Department

14 South Harrison Street

P.O. Box 520

Easton, Maryland 21601

Easton Staff Development Review Worksheet

Date: September 29, 2022

Project: 521 August Street

To: Mr. Casey Rauch – Rauch, Inc.

CC: Better Homes, Better Communities (BHBC)., c/o Mr. Donald Carter

The Easton Staff Development Review meeting was held on September 28th, at 11:00 pm. Staff reviewed the Site Sketch Plan for the proposed Apartment Building (12 Units) and provided comments for the proposed project.

It was determined that the project will return to the next available ESDR meeting. Specific areas of Staff concern discussed in the meeting and Comments (attached) are as follows:

- Address parking adequacy.
- Provide a three-dimensional architectural rendering.
- The Stormwater Management ESD calculations need to be revised.

Send revised plans to jmayer@eastonmd.gov. (It is recommended that all digital copies of Site Plan, ESDR, BoZA, HDC Submissions, etc. be sent to jmayer@eastonmd.gov.)

At this time, based on the ESDR sketch plan submission Staff did not identify any constraints which require action by the Board of Zoning Appeals.

Upon completion of requested items, please re-submit to ESDR. The next available ESDR meeting is scheduled for **Wednesday, October 26, 2022 at 11:00 am**. The application deadline is **Wednesday, October 5, 2022**.

Please contact the Planning & Zoning Department at 410 822-1943 with any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Joseph A. Mayer".

Joseph A. Mayer
Plan Reviewer



TOWN OF EASTON PLANNING & ZONING DEPARTMENT

P.O. Box 520
Easton, Maryland 21601
410-820-8822
www.EastonMD.gov

DATE: September 27, 2022
TO: Casey Rauch – Rauch, Inc.
cc: Miguel Salinas – Planning & Zoning Department
Rick Van Emburgh – Department of Engineering
FROM: Joseph A. Mayer

SUBJECT: 521 August Street – Apartment Building (12 Units) - Site Plans

We reviewed the **September 7, 2022** Sketch Site Plan Submittal for the Subject Project and have the following comments:

PLANNING & ZONING COMMENTS

Sketch Site Plan

1. Materials and massing will need to meet the HDC's guidelines for new construction.
2. Tree Removal for any trees over 10" in diameter at breast height will require HDC approval.
3. Verify and label on the Site Sketch Plan that all proposed landscape material will be native plant species. Please see the attached *"Talbot County Buffer Management Plan Guideline & Plant List"* for reference. In addition, please supplement with *"U.S. Fish & Wildlife Service, Native Plants for Wildlife Habitat and Conservation Landscaping – Chesapeake Bay Watershed."* In addition, verify that all plantings will be consistent with the *"Maryland Aviation Administration Approved Planting List"*.
4. Prior to Final Site Plan Review add a separate Landscape Plan with landscape requirements described under section 28-1014. Include applicable notes from section 28-1014.2. Label and quantify proposed landscaping on the plan view sheet.
5. Street trees must be deciduous shade/canopy trees (28-1014.6 B) instead of understory trees.
6. Parking lot must be landscaped with an evergreen shrub hedge (28-1014.6 C).

Sketch SITE PLAN REVIEW – 521 August Street - Site Plans

7. Parking dimensions need to be labeled.
8. Provide the minimum and maximum parking space requirements for the apartment building. Add a statement to the parking calculations that justifies the adequacy of the proposed spaces relative to the proposed use.
9. Verify the existing sidewalk and ramp along August Street is ADA compliant. Revise if necessary.
10. A Bufferyard must be provided between the adjacent less intense land use. (28-1014.7 A).
11. Please provide a three-dimensional color rendering of the site.
12. Add the Design Principles to the cover sheet.
13. Cover sheet states that non-tidal wetlands are present on site but are not labeled on the site plan.
14. Please show the Zoning District boundaries on the cover sheet.
15. Add the total gross floor area on the cover sheet.
16. Dimension building setback lines from all property lines.
17. Revise the refuse collection area per the requirements of the Town Department of Public Works (DPW).
18. A Lot Line Revision Plat will be required.
19. Show all adjacent existing structures to establish the existing front building line of that block.

Legal Agreements (To be addressed at Final Site Plan submission)

1. There will be a required Declaration of Covenants that addresses maintenance and inspections for Storm Water Management. In addition, a Bond/Letter of Credit is required.
2. A Storm Water Management Easement and Sidewalk/Parking Easement is required. Please provide SWM Exhibit and Sidewalk Exhibit upon instruction of Town Attorney. Exhibit should be on an 8 ½" x 11" or 8 ½ "x 14" sheet signed and sealed by a Maryland Licensed Surveyor.

Sketch SITE PLAN REVIEW – 521 August Street - Site Plans

3. There will be a required Public Works Agreement for all construction within the right-of-way. In addition, a Bond/Letter of Credit is required
4. Prior to Final Site Plan approval, please provide a Construction Cost Estimate for the stormwater management and right-of-way improvements. Please see attached item list.
5. Please confirm or provide items listed below for preparing legal documents.
 - **Owner name**
Mr. Donald Carter
 - **Address for property**
521 August Street, Easton, MD 21601
 - **Legal agreements required (To be prepared by the Town Attorney)**
Declaration of Covenants for SWM, SWM and Storm Drain Easement.
Sidewalk Easement.
Public Works Agreement.
 - **Approved Cost Estimate**
To be submitted at Development Site Plan review.
 - **The Title of the Improvement Plans and who they were prepared by.**
Title: 521 August Street – Development Plans.
Prepared by: Rauch, Inc.
 - **The Authorized Person who will be signing the documents and their title.**
Please advise.
6. Per the latest requirement of the Clerk's Office-Circuit Court of Talbot County, add the title Exhibit 'A' above the top boarder to all exhibit sheets.

Impact Fees (To be addressed upon Building Permit)

- 1) Please note, there will be a required Impact Fee for all proposed buildings. the Town's Impact Fees and Inspection Fees are to be paid upon the time you pick up your Building Permit. Please provide building square footage with appropriate use for calculation of Impact Fee.
- 2) Talbot County Impact Fees are due prior to obtaining your Building Permit. Please provide receipt of payment to the Town's Building Inspection Division.

Sketch SITE PLAN REVIEW – **521 August Street - Site Plans**

- 3) Please add estimated Town Impact Fee calculations to cover sheet and add note below calculations; *“Note: The Impact Fee indicated in this notation shall not be constructed as vested and until submission of the building application.”*

DEPARTMENT OF ENGINEERING COMMENTS

COMMENTS ATTACHED.

BUILDING INSPECTION AND PERMIT DEPARTMENT COMMENTS

COMMENTS ATTACHED.

EASTON UTILITIES COMMENTS

COMMENTS ATTACHED.

Sketch SITE PLAN REVIEW – 521 August Street - Site Plans

Plan Review Status

FINAL SITE PLAN REVIEW			Comments
Plans Approved	☐ Y	☒ N	Please review comments above Revise and Resubmit.

GRADING PERMIT STATUS			
Application and Final Approved Site Plan Submitted to Town Engineer	☐ Y	☒ N	
Easements			
Storm Water			
☒ Required ☐ Submitted ☐ Approved			Submit Exhibit under Development Site Plan review.
Storm Drain			
☒ Required ☐ Submitted ☐ Approved			Submit Exhibit under Development Site Plan review
Sidewalk			
☒ Required ☐ Submitted ☐ Approved			Required.
Forest Conservation			
☐ Required ☐ Submitted ☐ Approved			Not Required.
Declaration of Covenants			
☒ Required ☐ Submitted ☐ Approved			To be prepared by Town Attorney.
Public Works Agreement			
☒ Required ☐ Submitted ☐ Approved			Required.
Bond/Letter of Credit/ Cash Agreement			
☒ Required ☐ Submitted ☐ Approved			SWM – Required RoW -- Required
Talbot Soil Conservation District Approval			
☒ Approval Required			Submit approved SCD plans prior to Final Site Plan approval
Other			
☐ Required ☐ Submitted ☐ Approved			

Please contact me if you have any questions. Thank you.

END OF DOCUMENT



TOWN OF
EASTON
ENGINEERING DEPARTMENT

DATE: September 27th, 2022
TO: Casey Rauch – Rauch Engineering
cc: Donald Carter – Owner
Sierra Crist – Town of Easton Engineering Department
Miguel Salinas – Town of Easton Department of Planning & Zoning
Joe Mayer – Town of Easton Department of Planning & Zoning
FROM: Rick Van Emburgh, P.E. – Town Engineer
**SUBJECT: 521 August Street
Sketch Site Plan and
Sketch Stormwater Management Plan Review**

I reviewed the Application for the Subject Project received on September 7th, 2022 and have the following comments:

Site Plan

The **Sketch Site Plan** must be revised to address the following comments:

1. **SHEET G-100** – Provide parking calculations. Although this is a Planning & Zoning requirement and parking may not be required in this zoning district, parking on Town streets must be approved by the Engineering Department. There does not appear to be adequate parking for the proposed (8 parking spaces for 12 units). More parking should be provided.
2. **SHEET C-101** – Show the existing structure on the property west of the proposed building.
3. **SHEET C-101** – The existing August Street sidewalk must be maintained/reconstructed to make it level and ADA compliant. The reconstructed sidewalk should be brick or pervious brick pavers.
4. **SHEET C-101** – Park Street Parking is partially on private property. A lot line revision, license agreement, or some other agreement is required.
5. **SHEET C-101** – Proposed sidewalk on Park Street should be brick or pervious brick pavers to be consistent with August Street. This sidewalk should be for public use and should either be in Town ROW or in an easement.
6. Trash pickup location should be revised. Town Department of Public Works (DPW) trash pickup is performed with an automated truck and the fenced in bins does not accommodate this.

Please address the comments above and submit a revised Sketch Site Plan.

Stormwater Management Plan

The **Sketch Stormwater Management Plan** must be revised to address the following comments:

1. The State Spreadsheet indicates the existing site impervious area is 62% and the project qualifies for Redevelopment. This is incorrect. Please revised.
2. Please update the SWM report to correctly reflect no existing impervious area.
3. The site area on the plans is 8,382 sf, but the SWM report indicates the site area is 10,812.4 sf. This should be revised and the existing streets should not count toward redevelopment.
4. **SHEET C-401** – The Grass Swale (6) does not show as a Flat Bottom Swale in Section F on Sheet C-403.02. There does not appear to be enough room to construct or maintain the swale. The Flat Bottom Swale does not show at all in Section D on Sheet C-403.02.
5. **SHEET C-401** - The proposed stormdrain inlet in Park Street directs runoff through private property. Revise the plan to show the proposed stormdrain currently shown on the west side of the property to the east side for ease of maintenance. This will require an easement.
6. **SHEET C-401** – The proposed stormdrain inlet in Park Street conveys runoff into the Rain Tank ESD system, then into an existing 10" terracotta stormdrain pipe in Powell Alley that is at a higher elevation than the Park Street inlet invert. This will cause ponding water in the system. Please revise.
7. **SHEET C-401** –Provide a doghouse manhole at the connection of the proposed pipe to the existing 10" terracotta pipe.

Please address the comments above and submit a revised Sketch Stormwater Management Plan.

Please contact me if you have any questions. Thank you.



TOWN OF EASTON
PO Box 520
Easton, Maryland 21601
(410)-822-2526 Fax (410)-822-8738
Office of Building Inspection.



ESDR- Building Inspection and Permit Department Comments

Date: September 28, 2022

Project; 521 August Street Three story R-2 Apartment Building

A Town of Easton Building Permit is required for all new construction. Contact this Department and verify current Building Codes including the Town of Easton's modifications prior to preparation of Building plans. State of Maryland is reviewing 2021 I Codes. Permits will be reviewed using adopted codes at the time of application.

The following lists items required on the construction drawings in order to apply for a Building Permit.

- Construction Documents (3 sets) for new construction will be required. Documents must be prepared by a Maryland Registered Architect, with original plans signed and sealed. A code analysis completed by the Maryland Architect including, classification (use group), construction type, and occupant loads must be completed and included on the construction documents.
- Items that must be addressed by the construction documents will be structural strength, means of egress (include travel distance), facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment, **Accessibility**, and other safety requirements for public access.
- All mechanical, electrical, and plumbing permits as required must include construction documents signed and sealed by a professional engineer and by a responsible party for the contractor receiving the permit. Be sure the Town of Easton modifications are included. Section 6-16 of the Town Code.
- Pursuant to Town of Easton Ordinance 477, Chapter 9 Fire Protection, Article VII Security Key Lock Boxes, a lockbox shall be provided on the exterior of the building and shall be located as required by the chief of the Easton Volunteer Fire Department, Inc. (410-822-4848).
- An appointment may be set up with this department to review your permit application materials prior to permit application submission.

State Fire Marshal, (410-822-7609) plan review and inspections are required. It is your responsibility to contact them and make application.



EASTON UTILITIES

Life. Made better.™

Easton Utilities Commission

Plan Review Comments

Date: Tuesday, September 27, 2022
To: Joe Mayer; Shelby Ruf; Beverly Williamson; Ryan Heckler; Robert Haase
From: Kia Gibbs on behalf of Aaron Goller, PE
Re: 521 August St. - BHBC
Review Type: Preliminary **SUBM:** 1 **Plan Phase:** Sketch
Proceed ? ☐ Yes ☐ No

Easton Utilities Commission has reviewed the above referenced plans and have provided the following comments. Please provide your corrections as listed below. Additional reviews will be required to ensure comments have been addressed. Items or documents not provided on initial submission will be subject to further review. Please contact Kia Gibbs, Admin Support at kgibbs@eucmail.com should you have any questions.

ITEM:	DRAWING / PAGE	COMMENTS:
-------	-------------------	-----------

Addressing Department

- | | | |
|---|-------|---|
| 1 | C-101 | If building fronts to Park Street, a new address is required. Contact W. Cottingham for new addressing. |
| 2 | C-101 | "Lot Line Abandonment" plat is required for removal of lot line and easement between lots 2 & 3. See attached previously recorded plat. |

Electric Department

- | | | |
|---|-------|--|
| 2 | C-301 | Show easement extents and boundaries. |
| 3 | C-501 | Proposed secondary electric service. Install 4" duct with pull-string by owner. Contact EUC for electric design. |

Gas & Meter Dept

- | | |
|---------|--|
| C-505.1 | 2" only not 1 ½" water meter. |
| C-505.1 | Natural gas is available in most areas within the Easton town limits. If natural gas is desired, please contact Easton Utilities Gas Department Manager at (410) 822-6110 ext. 1425. |

Easton Utilities Comments

RE: 521 August St. - BHBC

Permit Type: Sketch

ITEM: DRAWING / PAGE COMMENTS:

Engineering

- | | |
|---------|--|
| G-100 | Capital Charges required for water and wastewater in the amount of \$70,500. (10 EDU's) |
| G-100 | Please return the attached "Request for Allocation of Capacity for W-WW" form with capital charge payment. |
| V-100 | Locate existing sewer laterals and show on plans. |
| General | Show all utilities. |
| C-101 | Stormwater feature in utility easement |
| General | Show utility easements on plans |
| C-101 | Minimize taps on watermain and connections to sewer main. Provide 1 tap and 1 lateral. |
| C-101 | Cleanouts and water meters shall be located in easement. |
| C-201 | Note 1 is covered by block on top of sheet. |
| C-201 | Stockpile area is under an overhead powerline. Height restrictions will be required. |
| C-401 | Valves shall be located on fire services. |
| C-501 | Show inverts for existing manholes. |
| C-601 | Trees shall be located 10' from existing / proposed utilities. |
| C-601 | Provide height of trees under overhead electric. |
| C-601 | Canopy trees not to be planted in utility easements. |

CONTACT INFORMATION

OWNER/DEVELOPER: BETTER HOMES, BETTER COMMUNITIES (BHBC)
DONALD CARTER
6030 DAYBREAK CIRCLE #150-103
CLARKSVILLE, MD 21029
443-310-1553

ENGINEER: RAUCH Inc.
106 N HARRISON ST
EASTON, MARYLAND 21301
(410)770-9081

SITE DATA

PROPERTY ADDRESS: 521 AUGUST STREET
EASTON, MD 21601

LATITUDE: 38°46'31.3" N

LONGITUDE: -76°04'00.8" W

PRESENT ZONING CLASSIFICATION: CBD, PRD, PUD-INFILL, HISTORIC

PROPOSED ZONING: CBD, PRD, PUD-INFILL, HISTORIC
(PROPOSAL REFLECTS PUD-INFILL APPLICATION)

PRESENT USE: UNDEVELOPED SITE

TAX MAP: 0103
GRID: 00EA
PARCEL: 01028
DEED REFERENCE: 02429/ 00366

SITE AREA: 8,382 SQ. FT / 0.192 ACRES

FEMA FLOOD MAP: PANEL 2400670002B

SURVEY DATUM:
HORIZONTAL: NAVD83
VERTICAL: NAVD88
EPSG CODE: 2248

521 AUGUST STREET
DEVELOPMENT PLANS

FOR
BETTER HOMES, BETTER COMMUNITIES (BHBC)
TALBOT COUNTY, MARYLAND 21601



VICINITY MAP
SCALE: 1" = 500'

DRAWING LIST	
SHEET NUMBER	DRAWING TITLE
G-100	COVER SHEET
V-101	EXISTING & DEMOLITION PLAN
C-101	SITE PLAN
C-200.00	EROSION AND SEDIMENT CONTROL COVER
C-201	EROSION AND SEDIMENT CONTROL PLAN
C-205.01-02	EROSION AND SEDIMENT CONTROL DETAILS
C-301	SITE GRADING PLAN
C-305.01-02	SITE DETAILS
C-401	STORMWATER & STORM DRAIN PLAN
C-403.01-02	STORMWATER & STORM DRAIN PROFILES
C-405.01-03	STORMWATER DETAILS
C-501	UTILITY PLAN
C-503.01	UTILITY PROFILES
C-505.01-02	UTILITY DETAILS
C-601	LANDSCAPING PLAN
C-605.01	LANDSCAPING NOTES & DETAILS

GENERAL NOTES

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, LOCAL BUILDING CODES, BEST PRACTICES OF THE RESPECTIVE TRADES AND THE STANDARD SPECIFICATIONS AND DETAILS REFERRED TO HEREON.

THIS DRAWING SHOWS INFORMATION OBTAINED FROM AVAILABLE RECORDS REGARDING PIPES, CONDUITS, TELEPHONE LINES AND OTHER STRUCTURES AND CONDITIONS WHICH EXIST WITHIN LIMITS OF THE WORK AT AND BELOW THE SURFACE OF THE GROUND. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORTING AND PROTECTING ALL PIPES, CONDUITS, TELEPHONE LINES, AND OTHER STRUCTURES.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO START OF CONSTRUCTION AND SHALL COORDINATE ALL CONSTRUCTION PHASES WITH THEM:

MDE (Main Number)	410-537-3000
MDE (Eastern Shore Field Office)	410-901-4020
TOWN OF EASTON DPW	410-882-0513
EASTON UTILITIES	410-822-8110
TALBOT COUNTY SCD	410-882-1577 x 3
MISS UTILITY	800-257-7777 or 811

SHOULD ANY DAMAGE OCCUR TO ANY MARKED UTILITIES, THEY SHALL BE REPAIRED SOLELY AT THE CONTRACTORS EXPENSE.

ALL LANDSCAPING SHALL BE PERFORMED BY QUALIFIED PROFESSIONALS. ALL PLANT MATERIALS SHALL BE FROM CERTIFIED NURSERYMAN AND BE GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF PLANTING.

ANY PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTORS EXPENSE.

FIRE LANE AND ACCESS WILL MEET REQUIREMENTS FOR THE PROPOSED BUILDING PRIOR TO THE FINAL SITE PLAN.

w/wo Capital charges Required
12 units = 2 (for existing bld) = 10 edu's
10 edu's x \$7,050/EDU = \$70,500

ENVIRONMENTAL NOTES:

- THE PROJECT SITE IS NOT LOCATED WITHIN THE CRITICAL AREA BUFFER
- THE SITE IS NOT LOCATED WITHIN A 100 YEAR FLOODPLAIN
- NON-TIDAL WETLANDS ARE PRESENT ON-SITE

STANDARD STABILIZATION NOTE

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

- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING

REVIEWED FOR THE TALBOT SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

APPROVED:

TALBOT SOIL CONSERVATION DISTRICT
DATE

NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT THAT ADDITIONAL PROTECTION BECOMES NECESSARY.

DEVELOPER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL OF THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE IN ACCORDANCE TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.

SIGNATURE
DATE

- IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION MADE IN THIS PLAN. ANY CHANGE MADE TO THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.
- ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.

LINETYPES

TOPOGRAPHY
MAJOR CONTOURS
MINOR CONTOURS
TOP OF SLOPE BREAKLINE
BOTTOM OF SLOPE BREAKLINE
TOPOGRAPHY BREAKLINE

CATCHMENT AREA

To FLOW PATH

PARCEL BOUNDARY
PARCEL SETBACK/EASEMENT
FENCELINE WOOD
FENCELINE STEEL
TREELINE/VEGETATION
ROADWAY CENTERLINE
HIGHWAY BARRIER

UTILITIES
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
TELEPHONE LINE
GAS PIPE LINE
CABLE TV
WATER PIPE
STORMWATER PIPE

UNDERDRAIN
SANITARY SEWER
FORCE MAIN SEWER

ENVIRONMENTAL
WETLAND LINE
FLOOD PLANE 100/500 YR
MEAN HIGH WATER
MEAN LOW WATER
CRITICAL AREA BOUNDARY
BUFFER 25'/100'
SOILS BOUNDARY

EROSION AND SEDIMENT CONTROL

SILT FENCE
SUPER SILT FENCE
SILT FENCE ON PAVEMENT
LIMITS OF DISTURBANCE
LOD & SILT FENCE
LOD & SUPER SILT FENCE
LOD & SILT FENCE ON PAVEMENT
STANDARD INLET PROTECTION
AT-GRADE INLET PROTECTION
CURB INLET PROTECTION
SWM EASEMENT 5'/10'

PROPOSED

EXISTING

SYMBOLS

FLARED END SECTION

YARD INLET

CURB INLET

CUSTOM INLET

NYLOPLAST INLET

STORM DRAIN MANHOLE

SANITARY SEWER MANHOLE

CLEANOUT

GATE VALVE

STUB

SIGN

WATER METER

FIRE HYDRANT

WELL

BOLLARD

ELECTRIC TRANSFORMER

TELEPHONE PEDESTAL

UTILITY POLE

GUY WIRE

CONIFEROUS TREE

DECIDUOUS TREE

SPOT ELEVATION

LAND SLOPE

BENCHMARK

BOREHOLE/MONITORING WELL

PROPOSED EXISTING

HATCHES

ASPHALT

GRAVEL

CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

BRICK PAVING

EXISTING, TO BE
DEMOLISHED

STEEP SLOPES

ROOFTOP/NON-ROOFTOP
DISCONNECT

ABBREVIATIONS

ADA AMERICANS WITH DISABILITIES ACT
AGIP AT GRADE INLET PROTECTION
@ AT
BC BACK OF CURB
BM BENCHMARK
BRL BUILDING RESTRICTION LINE
CES CONCRETE END SECTION
C/O CLEAN OUT
CHRD CHORD
CI CURB INLET
CIP CURB INLET PROTECTION
CL CENERLINE
CMP CORRUGATED METAL PIPE
Cul CUSTOM INLET
CY CUBIC YARD
DI DUCTILE IRON
E EAST
EL/ELEV ELEVATION
EP EDGE OF PAVE
ESC EROSION AND SEDIMENT CONTROL
EX EXISTING
FES FLARED END SECTION
FFE FINISHED FLOOR ELEVATION
FH FIRE HYDRANT
FL FLOW LINE
FT FOOT
GFA GROSS FLOOR AREA
GPD GALLONS PER DAY
GV GATE VALVE
HDPE HIGH DENSITY POLYETHYLENE
I INLET
INV INVERT
KV KILOVOLTS
L ARC LENGTH
LF LINEAR FEET
LOD LIMITS OF DISTURBED AREA
LT LEFT
MAX MAXIMUM
MBR MICRO-BIORETENTION
MD MARYLAND
MEP MECHANICAL, ELECTRICAL, AND PLUMBING
MH MANHOLE
MHW MEAN HIGH WATER

MIN MINIMUM
MLW MEAN LOW WATER
MSHA MARYLAND STATE HIGHWAY ADMINISTRATION
MUTCD MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N NORTH
NO NUMBER
PC POINT OF CURVATURE
PE POLYETHYLENE
PERF PERFORATED
PR PROPOSED
PT POINT OF TANGENCY
PVC POLYVINYL CHLORIDE
PVI POINT OF VERTICAL INTERSECTION
Q DISCHARGE
R RADIUS
RCP REINFORCED CONCRETE PIPE
RCN RUNOFF CURVE NUMBER
ROW RIGHT-OF-WAY
RT RIGHT
S SOUTH
SCE STABILIZED CONSTRUCTION ENTRANCE
SD STORM DRAIN
SDMH STORM DRAIN MANHOLE
Sf FRICTION SLOPE
SF SILT FENCE
SHA STATE HIGHWAY ADMINISTRATION
SIP STANDARD INLET PROTECTION
SQ SQUARE
SS SANITARY SEWER
SSF SUPER SILT FENCE
SSMH SANITARY SEWER MANHOLE
STA STATION
STD STANDARD
SWM STORM WATER MANAGEMENT
TAN TANGENT
TB THRUST BLOCK
TBR TO BE REMOVED
TC TOP OF CURB
Tc TIME OF CONCENTRATION
TP TAX PARCEL
TYP TYPICAL
UE UNDERGROUND ELECTRIC
UL UNDERGROUND LIGHT CABLE
UT UNDERGROUND TELEPHONE
V VELOCITY
W WEST
WI WITH

COVER SHEET

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH
INC.
Engineering | Survey | Architecture | Environmental

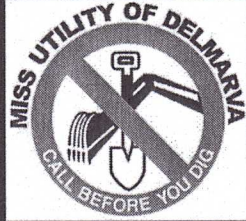
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Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410-770-9081 | Fax: 410-770-9087

REVISIONS

DESCRIPTION

DATE

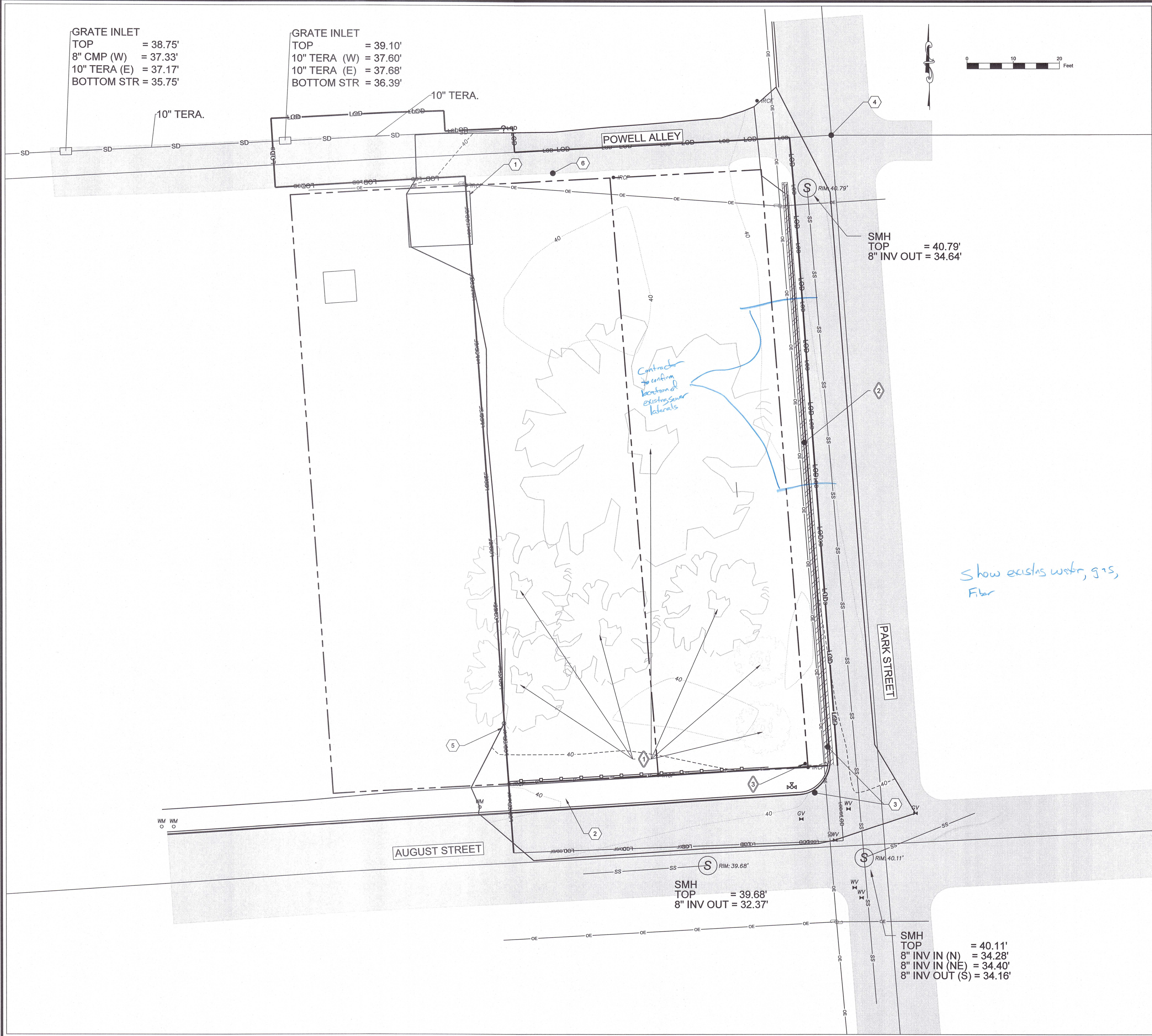
REV. #



DATE: 9/7/2022
SCALE: AS SHOWN
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: G-100

FOR
REVIEW



EXISTING FEATURES

- 1 EXISTING CONCRETE PARKING PAD
- 2 EXISTING BRICK SIDEWALK
- 3 EXISTING CONCRETE CURB & GUTTER
- 4 CENTERLINE OF ROAD
- 5 EXISTING WOODEN FENCE
- 6 EXISTING EDGE OF PAVEMENT

DEMOLITION

- 1 CLEAR & GRUB EXISTING TREES (5) AND LARGE SHRUBS (2)
- 2 DEMOLISH AND REMOVE APPROXIMATELY 126 LF OF EXISTING CONCRETE CURB & GUTTER ALONG PARK STREET AND HAUL OFF SITE
- 3 EXISTING METAL STREET SIGN AND POST TO BE TEMPORARILY REMOVED AND RE-INSTALLED UPON PROJECT COMPLETION

EXISTING & DEMOLITION PLAN

OF THE LANDS OF

521 AUGUST ST

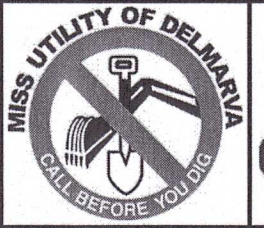
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REVISIONS

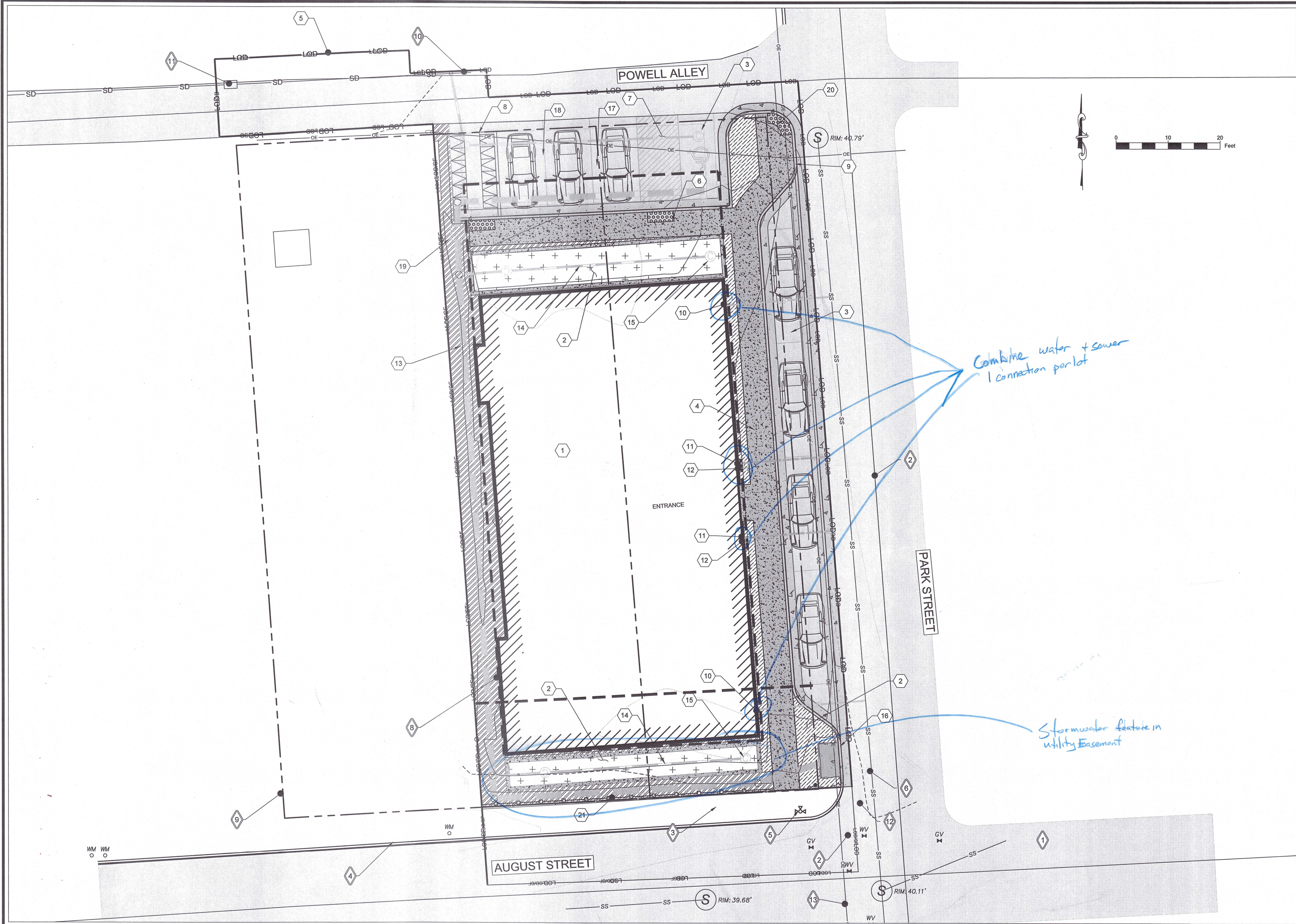
REV #	DATE	DESCRIPTION
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DATE: 9/7/2022
SCALE: 1" = 10'
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: V-100

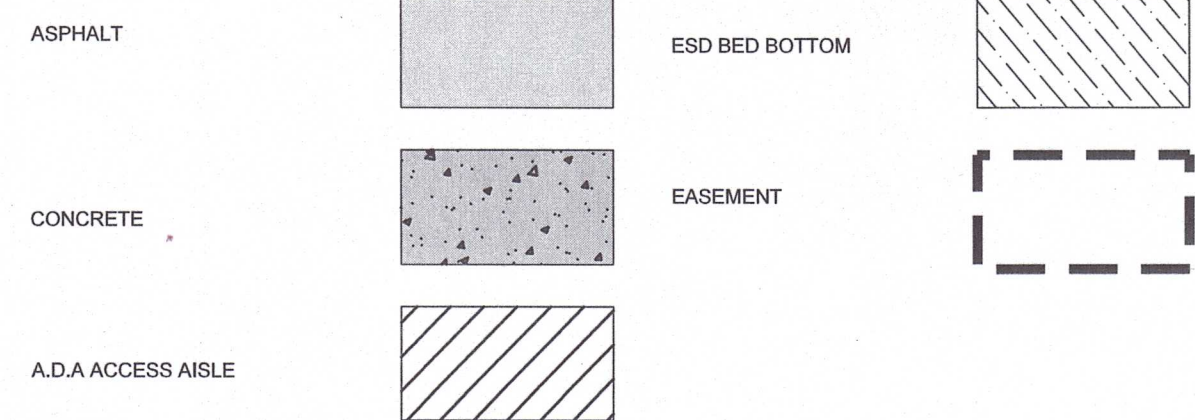
FOR REVIEW



PROPOSED SITE PLAN NOTES

- 1 APARTMENT BUILDING F.F.E = 41.10'
- 2 SWM PLANTER BOX. SEE DETAIL ON SHEET C-405.01
- 3 PERMEABLE ASPHALT. SEE DETAIL ON SHEET C-405.01
- 4 PROPOSED 5 FT CONCRETE SIDEWALK. SEE DETAIL ON SHEET C-305.01
- 5 LIMIT OF DISTURBANCE
- 6 HANDICAP RAMP. SEE DETAIL ON SHEET C-305.01
- 7 8' WIDE A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
- 8 REFUSE BIN COLLECTION AREA WITH WOODEN FENCE
- 9 STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
- 10 6" SDR-35 SEWER CONNECTION. SEE DETAIL ON SHEET C-505.01
- 11 6" FIRE C-900 WATER LINE CONNECTION. SEE DETAIL ON SHEET C-505.01
- 12 2" POTABLE SDR-9 HDPE PIPE WATER LINE. SEE DETAIL ON SHEET C-505.01
- 13 12" HDPE PIPE
- 14 4" PVC PIPE
- 15 4" PVC CLEANOUT
- 16 CONCRETE OPEN THROAT CURB INLET WITH BACKSIDE INLETS. SEE DETAIL ON SHEET C-405.01
- 17 HEAVY DUTY (HD) R-TANK STORMWATER MANAGEMENT SUBSURFACE CHAMBER. SEE DETAIL ON SHEET C-405.02-03
- 18 6" PVC UNDERDRAIN
- 19 30" X 24" AT-GRADE LAWN INLET FOR SWALE DRAINAGE. SEE DETAIL ON SHEET C-405.01
- 20 ADA SIDEWALK RAMP. SEE DETAIL ON SHEET C-305.02
- 21 HISTORIC STYLE WOODEN CONCAVE PICKET FENCE WITH SIDE GATE

HATCH LEGEND



EXISTING FEATURES

- 1 ROAD
- 2 ROAD CENTERLINE
- 3 BRICK SIDEWALK
- 4 CURB AND GUTTER
- 5 FIRE HYDRANT
- 6 APPROXIMATE LOCATION OF EXISTING SEWER (GIS DATA)
- 7 SURVEYED LOCATION OF EXISTING SEWER
- 8 EASEMENT LINE / R.O.W.
- 9 SURVEYED PROPERTY LINES
- 10 10" TERRACOTTA STORM DRAIN
- 11 GRATE INLET
- 12 APPROXIMATE LOCATION OF EXISTING SEWER (GIS DATA)
- 13 OVERHEAD ELECTRIC

SITE PLAN

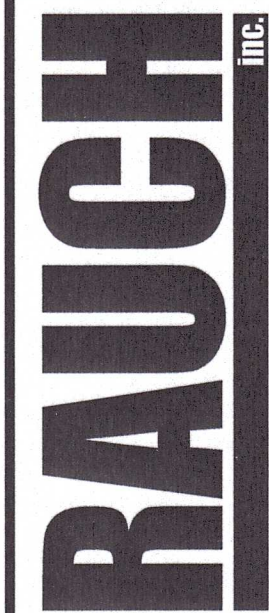
OF THE LANDS OF

521 AUGUST ST

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)



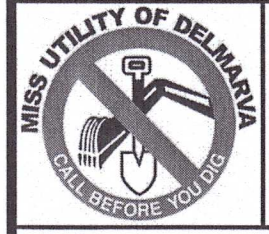
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REVISIONS

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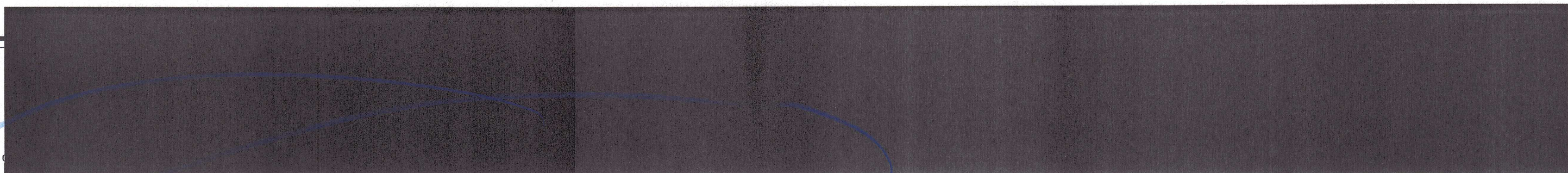
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DATE: 9/7/2022
SCALE: 1" = 10'
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-101

FOR REVIEW



- height restrictions required on overhead power

OF THE LANDS OF

521 AUGUST ST

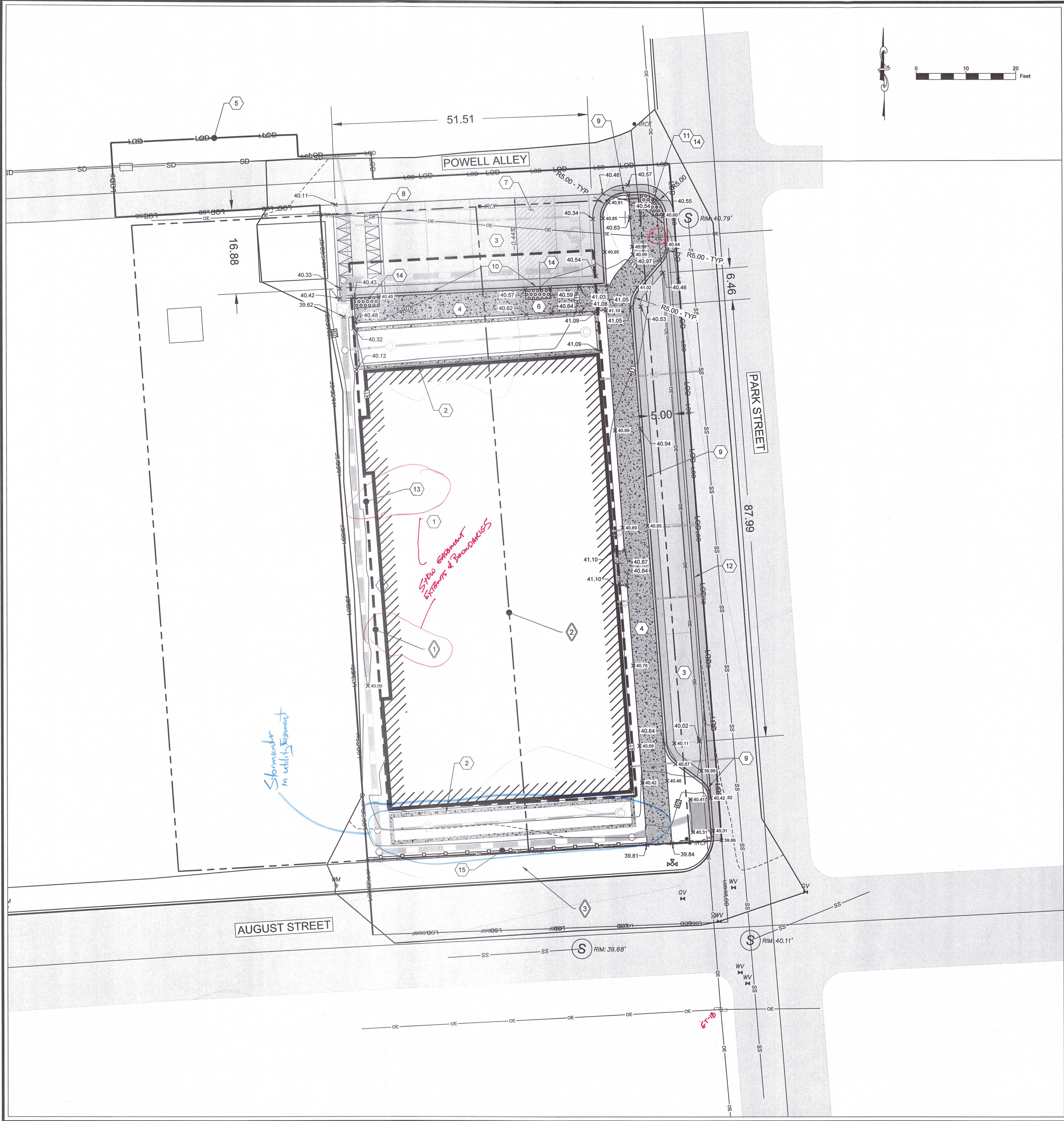
TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR BETTER HOMES, BETTER COMMUNITIES

ROUGH

Engineering | Survey | Architecture | Environmental

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Phone: 410 770 9081 | Fax: 410 770 3667

[illegible]



PROPOSED SITE PLAN NOTES

- 1 APARTMENT BUILDING F.F.E = 41.10'
- 2 STORMWATER PLANTER BOX WITH CONCRETE MASONRY BLOCKS AND BRICK FACADE. SEE DETAIL ON SHEET C-405.01
- 3 PERMEABLE ASPHALT. SEE DETAIL ON SHEET C-405.01
- 4 PROPOSED 5 FT CONCRETE SIDEWALK. SEE DETAIL ON SHEET C-305.01
- 5 LIMIT OF DISTURBANCE
- 6 PARALLEL HANDICAP RAMP. SEE DETAIL ON SHEET C-305.01
- 7 8' WIDE A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
- 8 REFUSE BIN COLLECTION AREA WITH WOODEN FENCE
- 9 STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
- 10 DEPRESSED CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
- 11 SIDEWALK RAMP. SEE DETAIL ON SHEET C-305.02
- 12 CONCRETE VALLEY GUTTER. SEE DETAIL ON SHEET C-305.01
- 13 EASTON UTILITIES R.O.W. / EASEMENT
- 14 DETECTABLE WARNING SURFACE. SEE DETAIL ON SHEET C-305.02
- 15 HISTORIC STYLE WOODEN PICKET FENCE

EXISTING FEATURES

- 1 EASTON UTILITIES R.O.W. / EASEMENT
- 2 EXISTING PROPERTY LINE (TWO ADJACENT PROPERTIES TO BE CONSOLIDATED INTO ONE PROPERTY FUTURE)
- 3 BRICK SIDEWALK

SITE GRADING PLAN

OF THE LANDS OF

521 AUGUST ST

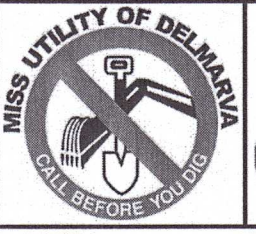
TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
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REVISIONS

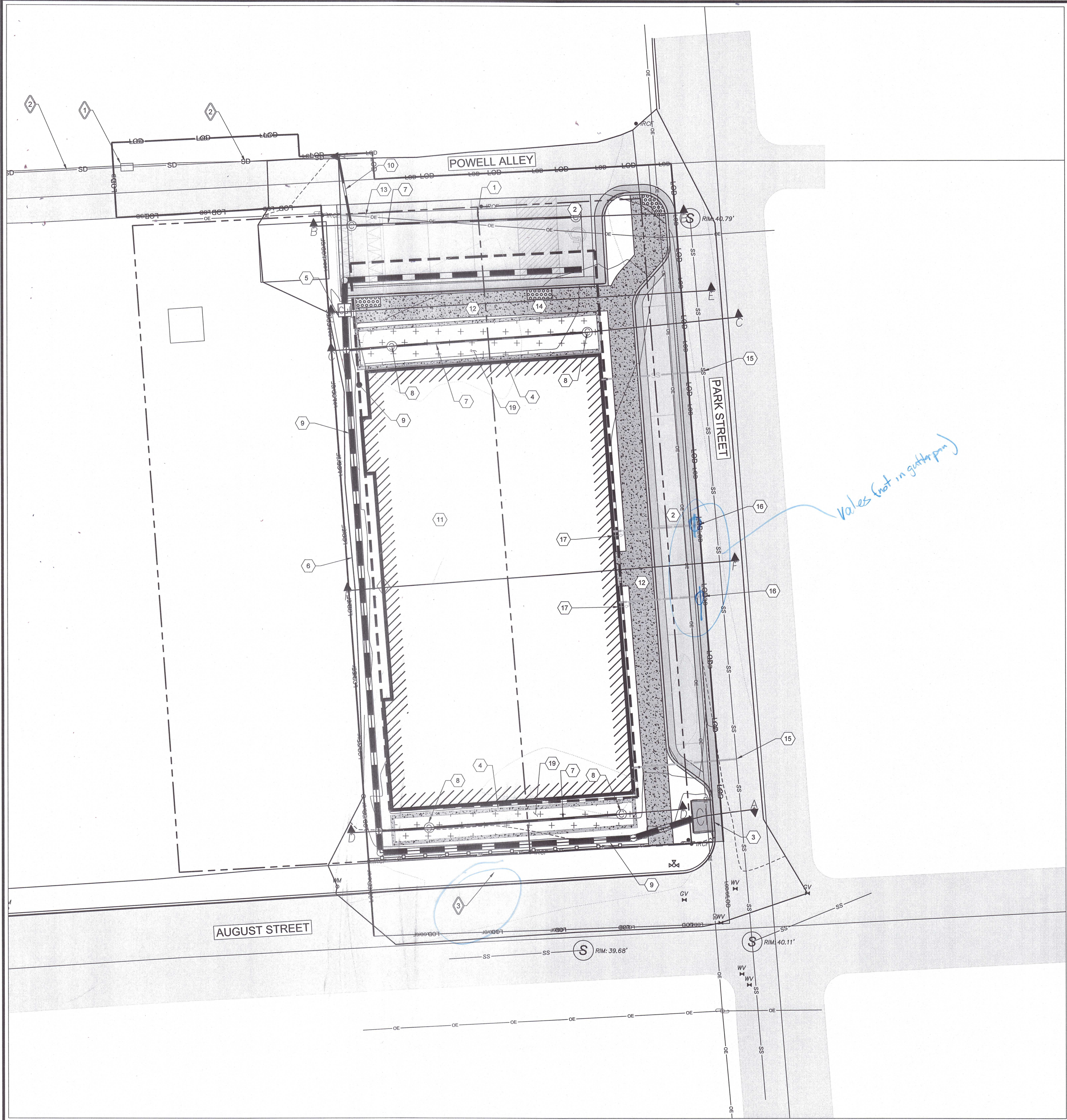
REV. #	DATE	DESCRIPTION
1		



DATE: 9/7/2022
SCALE: 1" = 10'
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-301

FOR REVIEW



PROPOSED STORMWATER FEATURES & NOTES

- 1 R-TANK HD STORMWATER MANAGEMENT SUBSURFACE CHAMBERS. SEE DETAILS ON SHEET C-405.02-03
- 2 PERMEABLE ASPHALT. SEE DETAILS ON SHEET C-405.01
- 3 STANDARD CURB INLET MODIFIED WITH WEIRS ON BACK 3 SIDES. SEE DETAIL ON SHEET C-405.01
- 4 STORMWATER MANAGEMENT PLANT BOX. SEE DETAIL ON SHEET C-405.01
- 5 STANDARD LAWN INLET BOX. SEE DETAIL ON SHEET C-405.01
- 6 GRASS SWALE
- 7 4" PVC PIPE
- 8 4" PVC CLEANOUT
- 9 12" HDPE PIPE
- 10 4" PVC PIPE UNDERDRAIN TO EXISTING STORMWATER PIPE
- 11 PROPOSED BUILDING F.F.E.: 41.10'
- 12 PROPOSED 5 FT WIDE CONCRETE SIDEWALK. SEE DETAIL ON SHEET C-305.01
- 13 REFUSE BIN COLLECTION AREA WITH WOODEN FENCE
- 14 PARALLEL HANDICAP RAMP. SEE DETAIL ON SHEET C-305.01
- 15 6" SDR-35 SEWER CONNECTION. SEE DETAIL ON SHEET C-505.01.
- 16 6" FIRE C-900 WATER LINE. SEE DETAIL ON SHEET C-505.01
- 17 2" POTABLE SDR-9 HDPE PIPE WATER LINE. SEE DETAIL ON SHEET C-505.01
- 18 EASTON UTILITIES R.O.W. / EASEMENT
- 19 PLANTER BOX PLANTING BED

EXISTING FEATURES

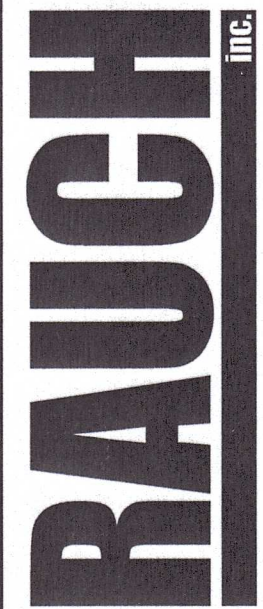
- 1 AT-GRADE STEEL INLET WITH BRICK CULVERT BOX
- 2 10" TERRACOTTA STORMWATER DRAIN PIPE
- 3 5 FT WIDE BRICK SIDEWALK

STORMWATER & STORM DRAIN PLAN

OF THE LANDS OF

521 AUGUST ST

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBG)



Main Office: 108 N Harrison St., Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauch.com
Phone: 410 770 9881 | Fax: 410 770 3667

REVISIONS

DESCRIPTION

DATE

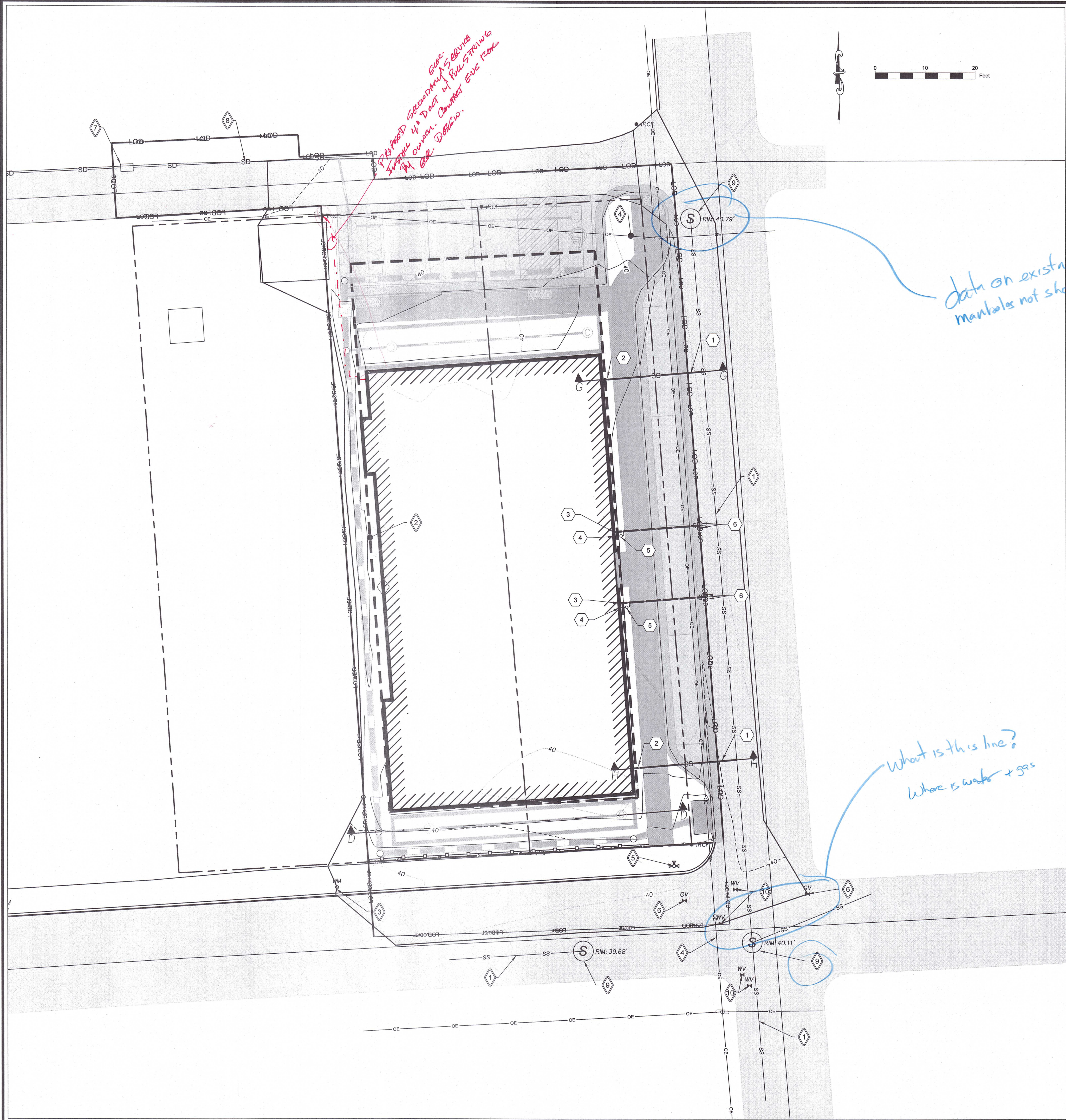
REV. #



DATE: 9/7/2022
SCALE: 1" = 10'
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-401

FOR REVIEW



PROPOSED UTILITY FEATURES

- 1 6" SDR-35 SEWER LATERAL. SEE DETAIL ON SHEET C-505.01
- 2 6" SDR-35 SEWER CLEAN OUT. SEE DETAIL ON SHEET C-505.01
- 3 6" FIRE C-900 WATER LINE. SEE DETAIL ON SHEET C-505.01
- 4 2" POTABLE SDR-9 HDPE PIPE WATER LINE. SEE DETAIL ON SHEET C-505.01
- 5 WATER METER. SEE DETAIL ON SHEET C-505.01
- 5 WATER GATE VALVES AT APPROXIMATE LOCATION OF WATER MAIN. SEE DETAIL ON SHEET C-505.01

EXISTING FEATURES

- 1 8" SEWER MAIN. INVERT ELEVATIONS INTERPOLATED FROM MANHOLE INVERTS FOR PROPOSED SEWER LATERAL CONNECTIONS. CONTRACTOR TO VERIFY EXISTING PIPE ELEVATIONS.
- 2 EASTON UTILITY R.O.W. / EASEMENT LINE
- 3 WATER METER
- 4 OVERHEAD ELECTRIC LINES
- 5 FIRE HYDRANT
- 6 GAS VALVE
- 7 AT-GRADE STORM DRAIN INLET
- 8 10" TERRACOTTA STORM PIPE
- 9 SEWER MAINHOLE
- 10 WATER VALVE

UTILITY PLAN

OF THE LANDS OF

521 AUGUST ST

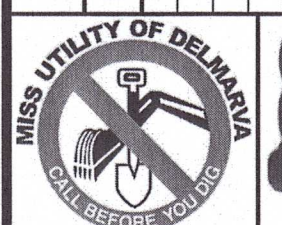
TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH
INC.
Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauch-inc.com
Phone: 410 770 9381 | Fax: 410 770 3667

REVISIONS

REV. #	DATE	DESCRIPTION
1		



DATE: 9/7/2022
SCALE: 1" = 10'
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-501

FOR REVIEW



	SIZE	



CATION	STRUCTURE TYPE AND SIZE	CONNECTED PIPES	P
06, E1578370.56	4 IN SDR-35 CLEANOUT	INV IN = 35.00 INV OUT = 35.00	
54, E1578376.84	4 IN SDR-35 CLEANOUT	INV IN = 35.00 INV OUT = 35.00	

✓

OF THE LANDS OF

521 AUGUST ST

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
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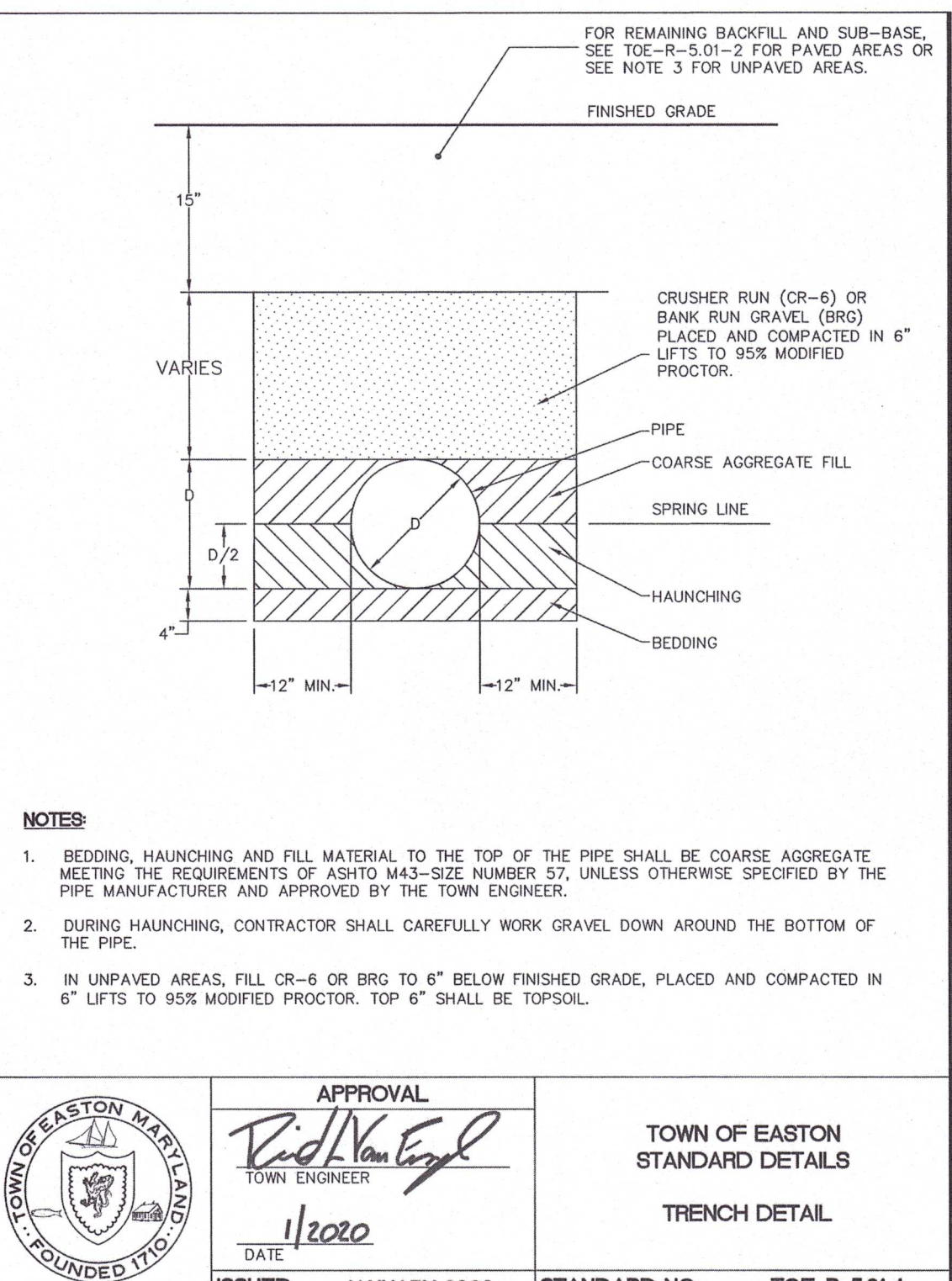
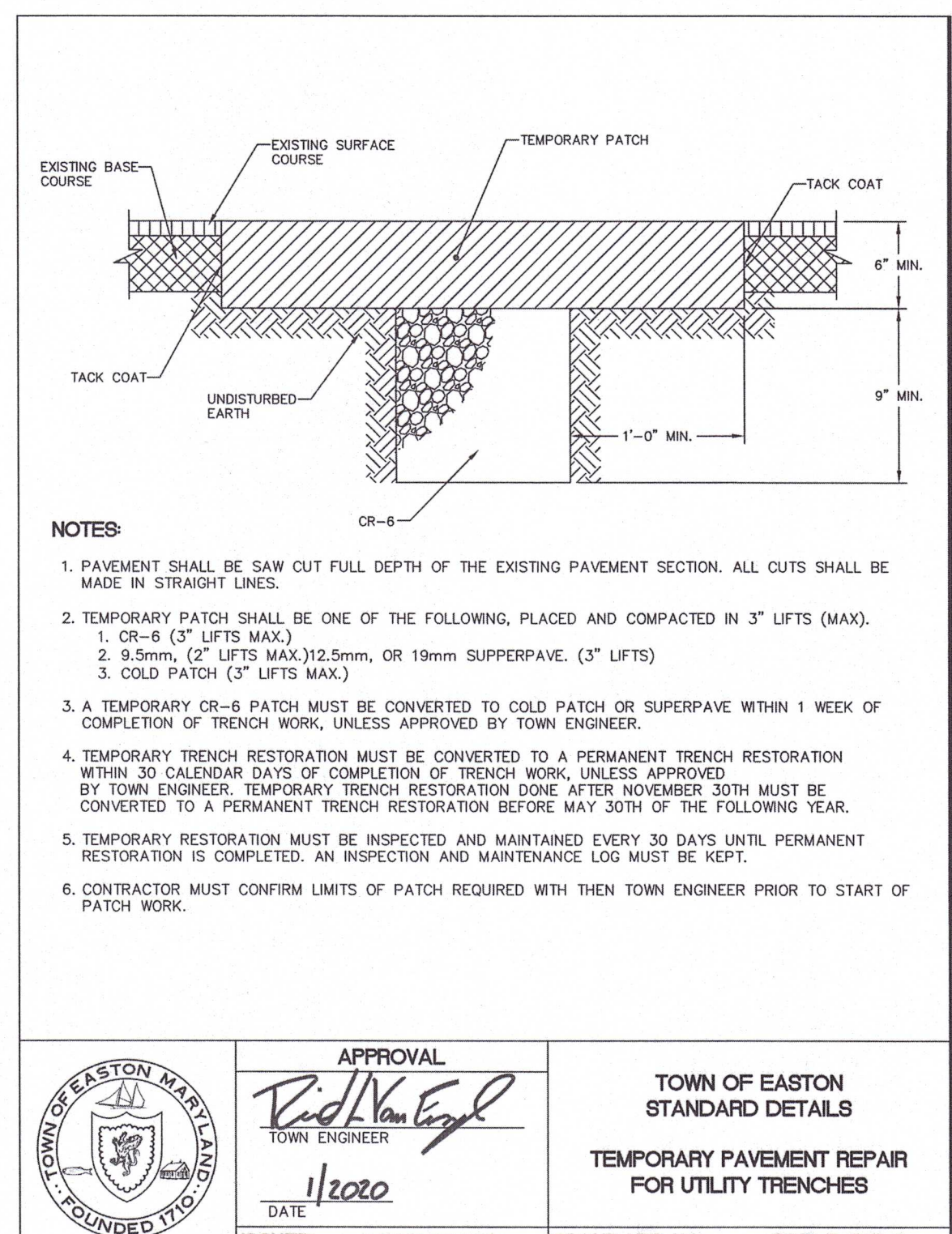
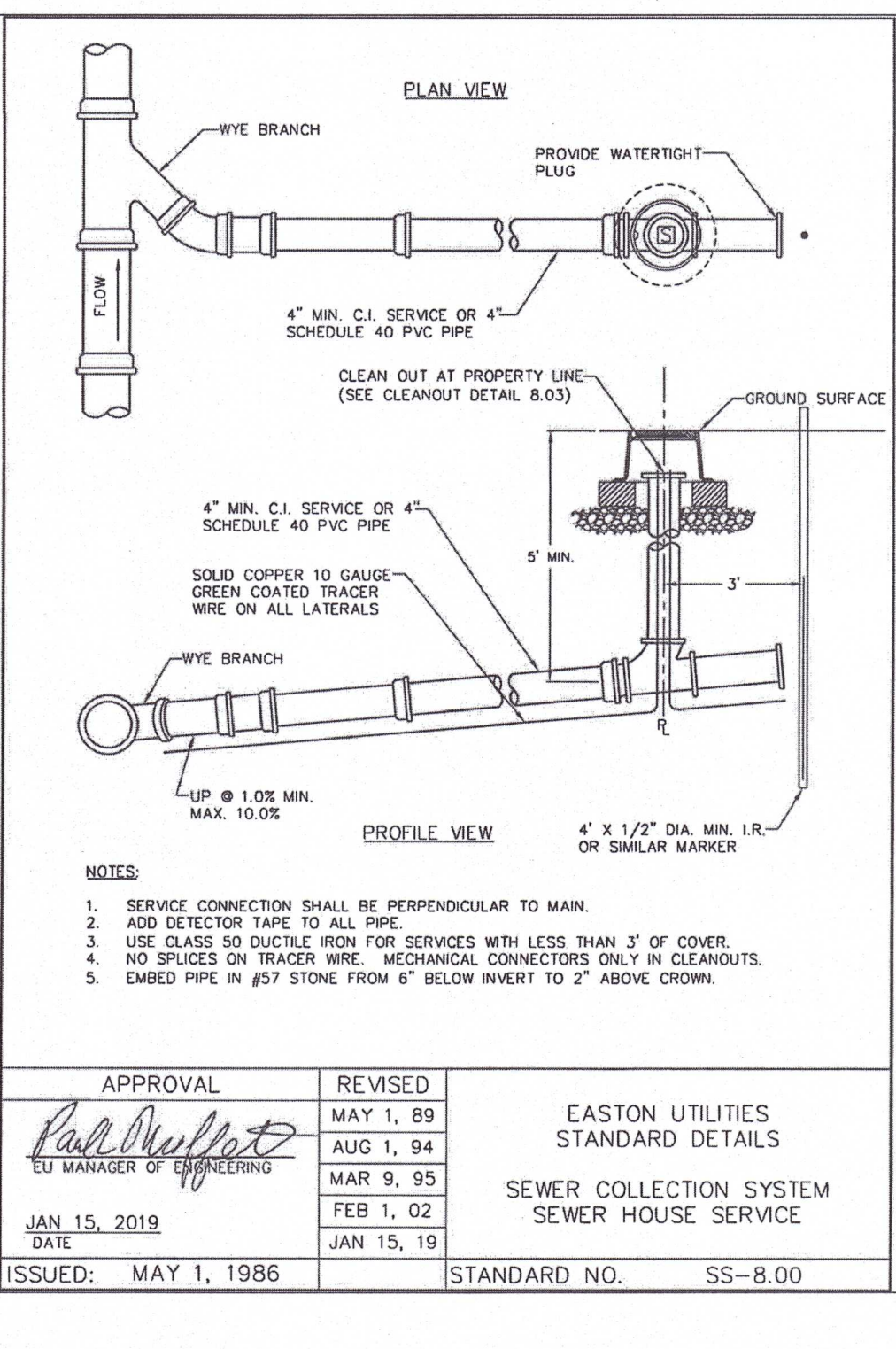
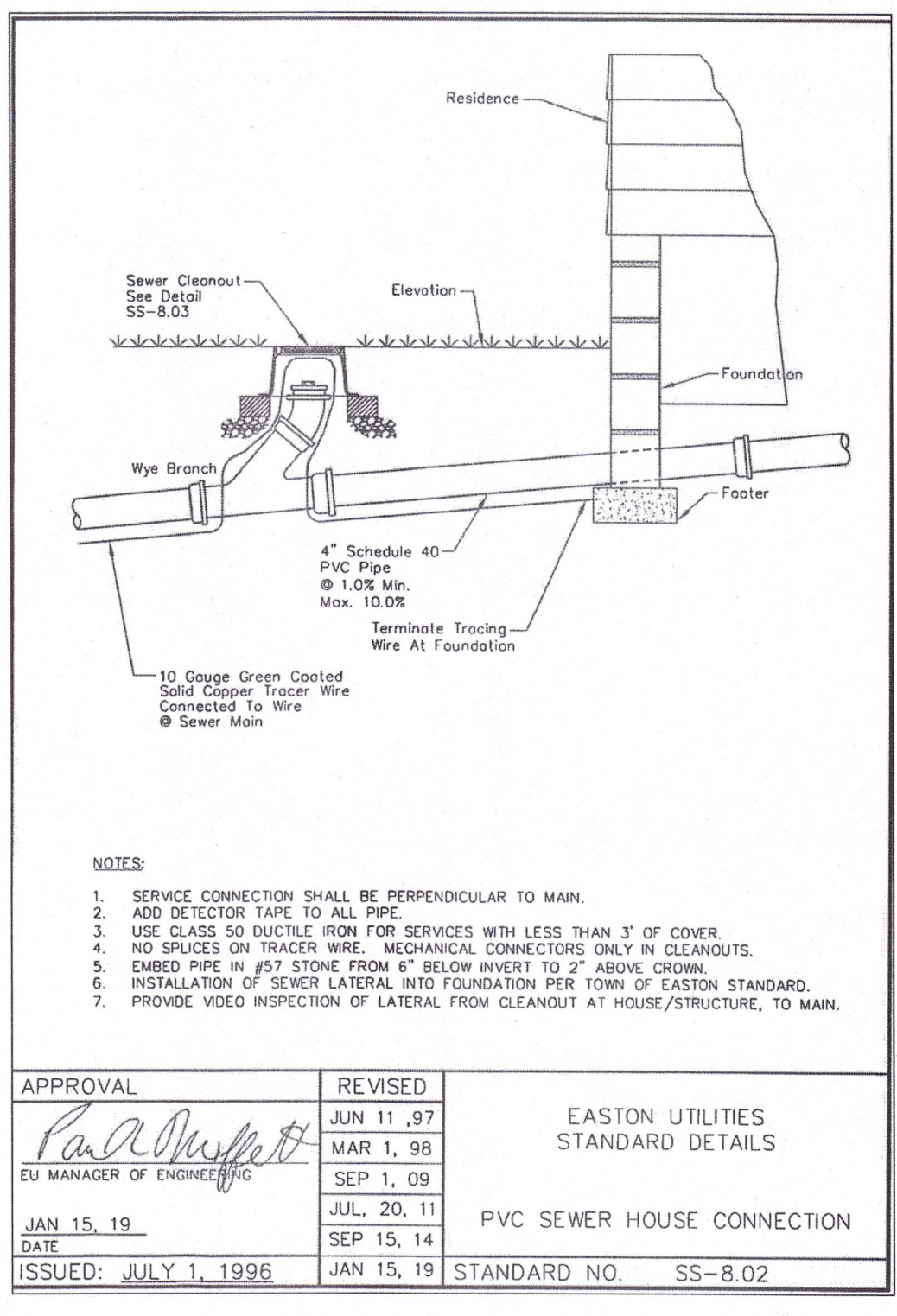
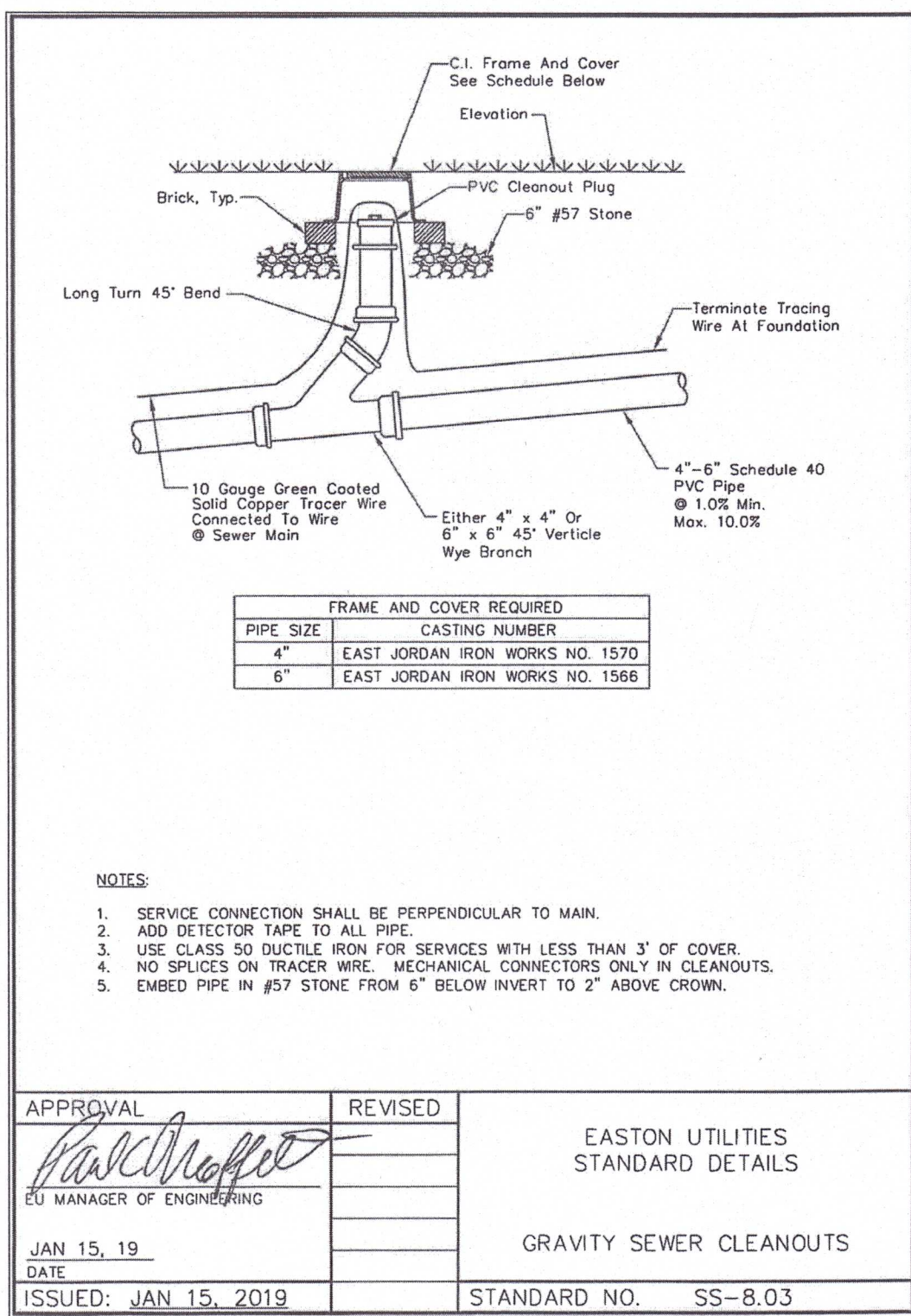
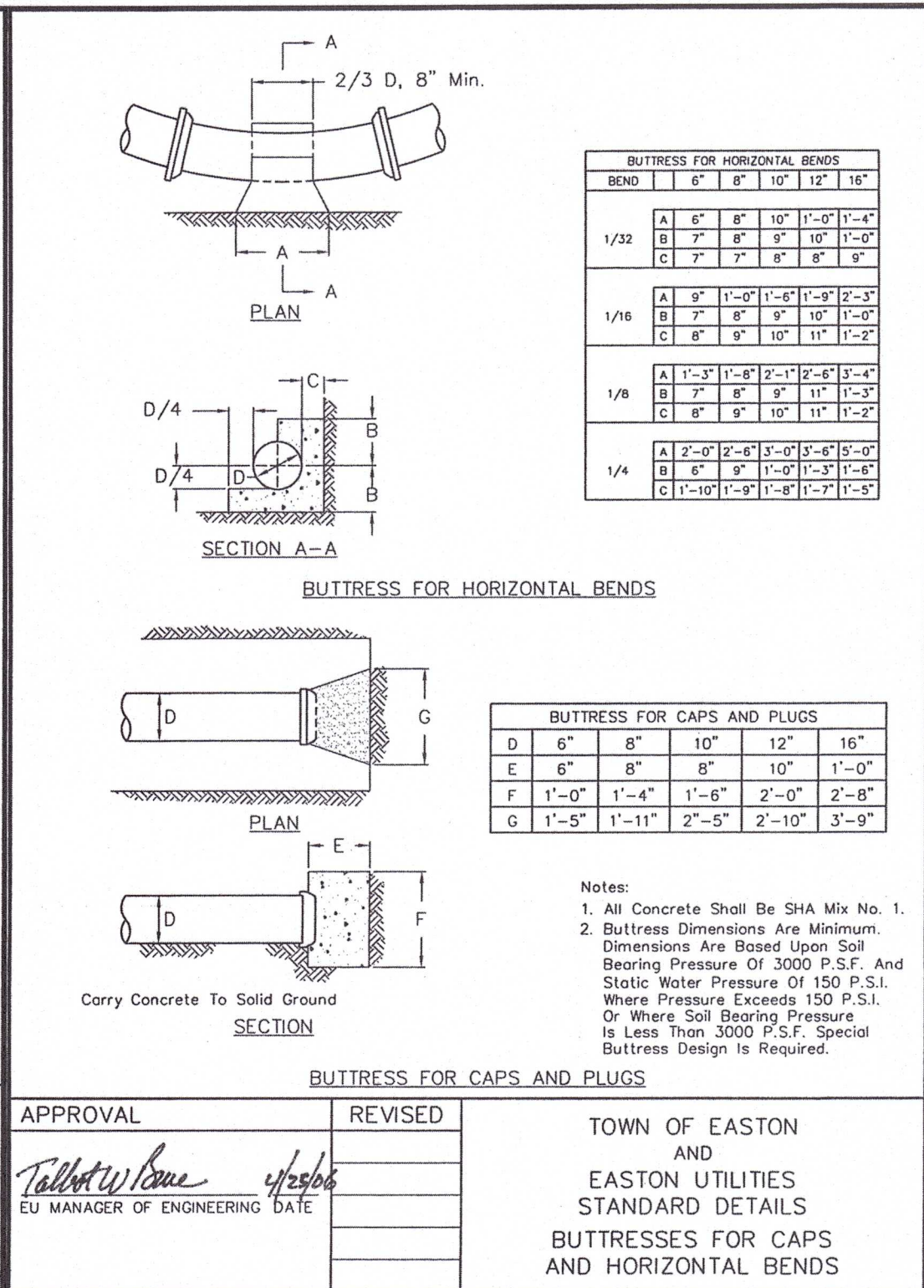
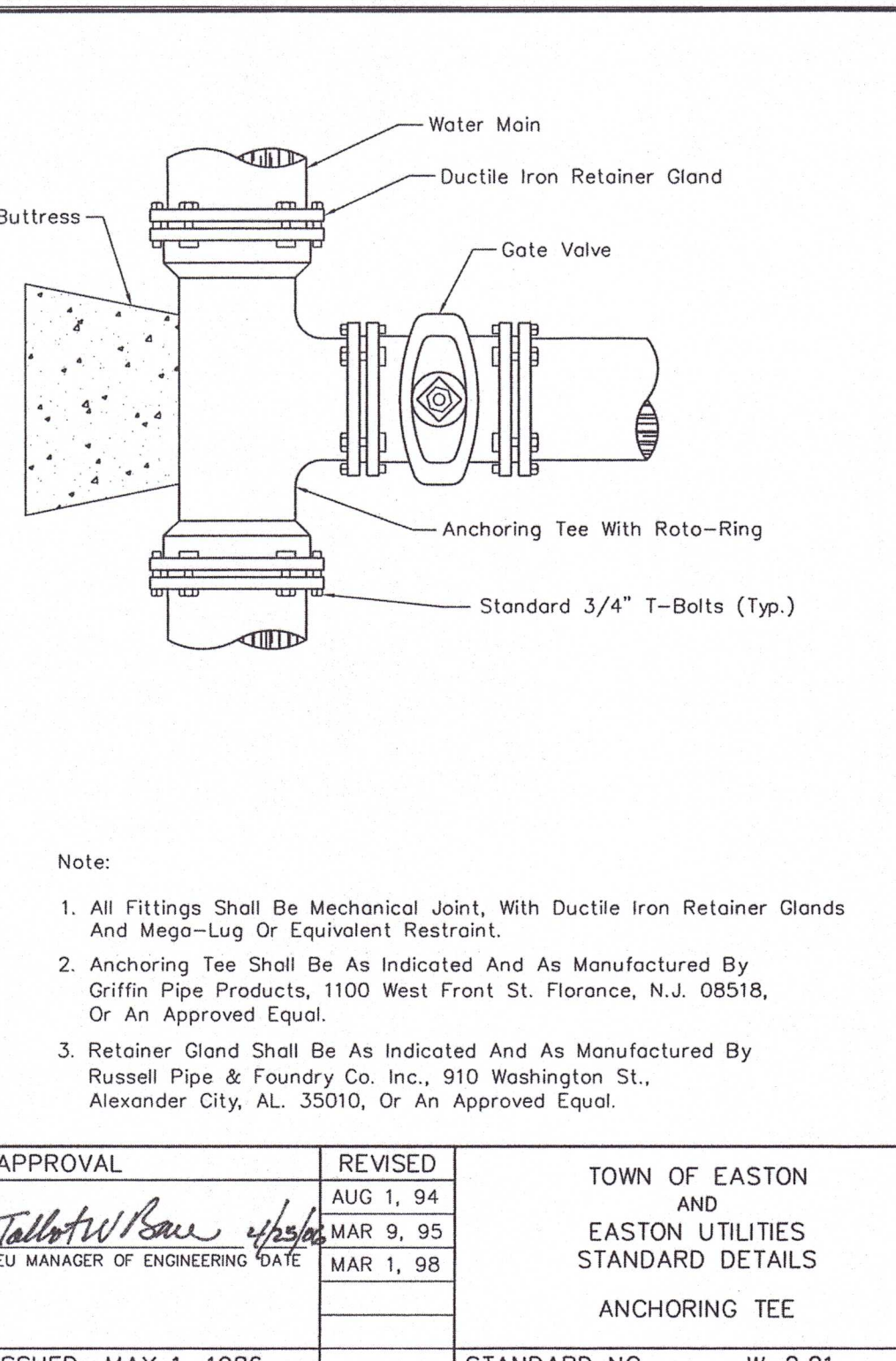
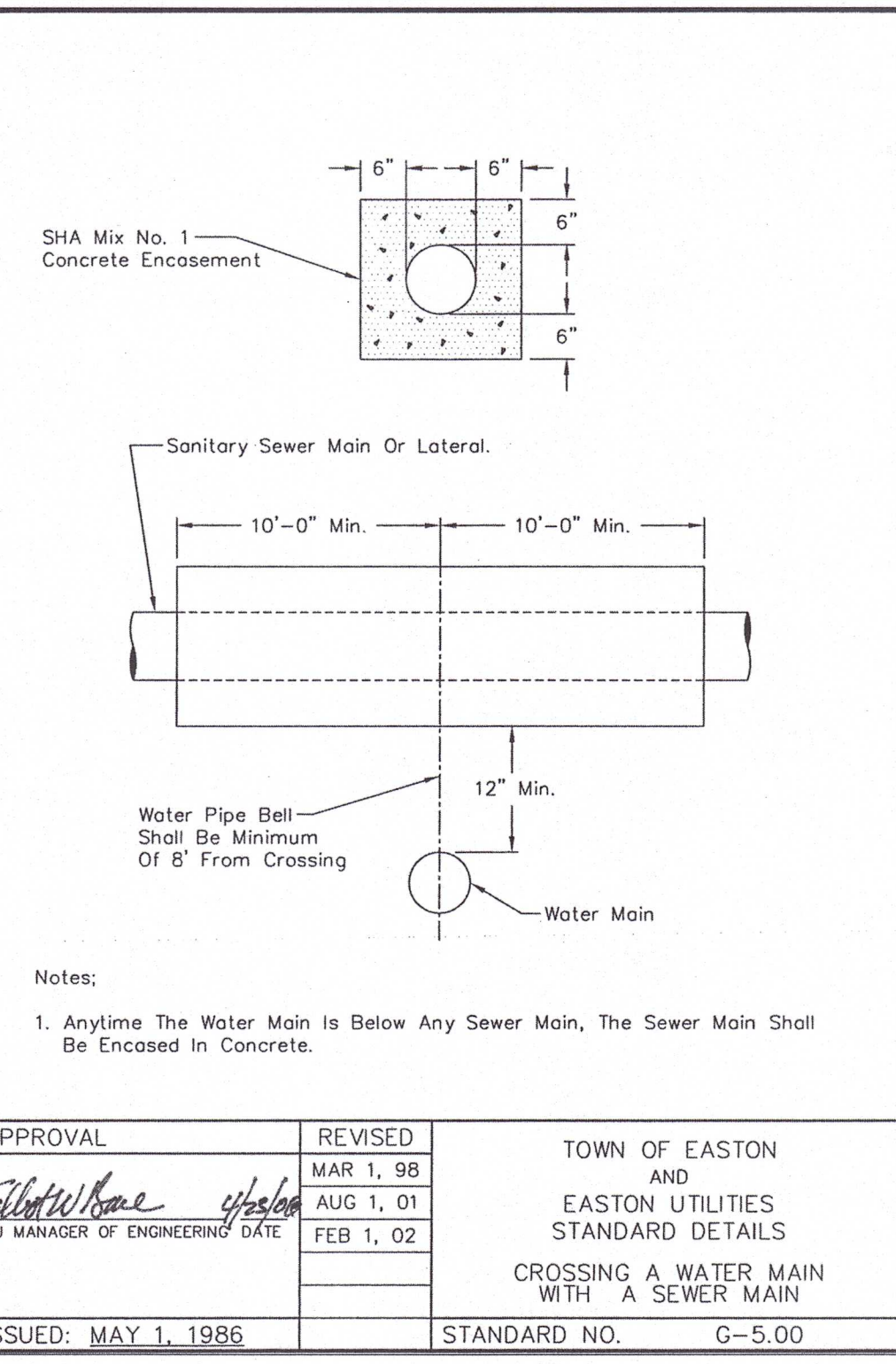
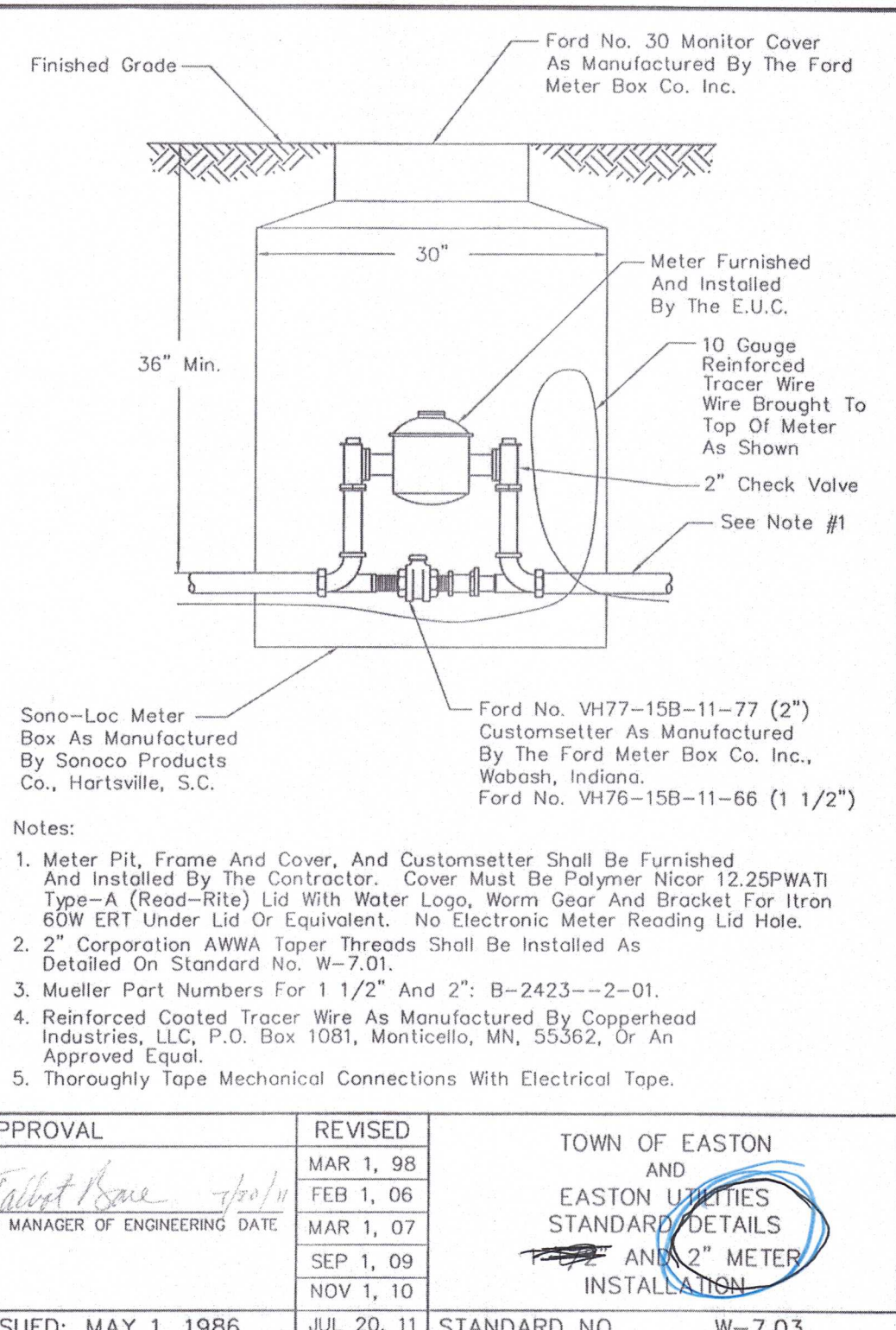
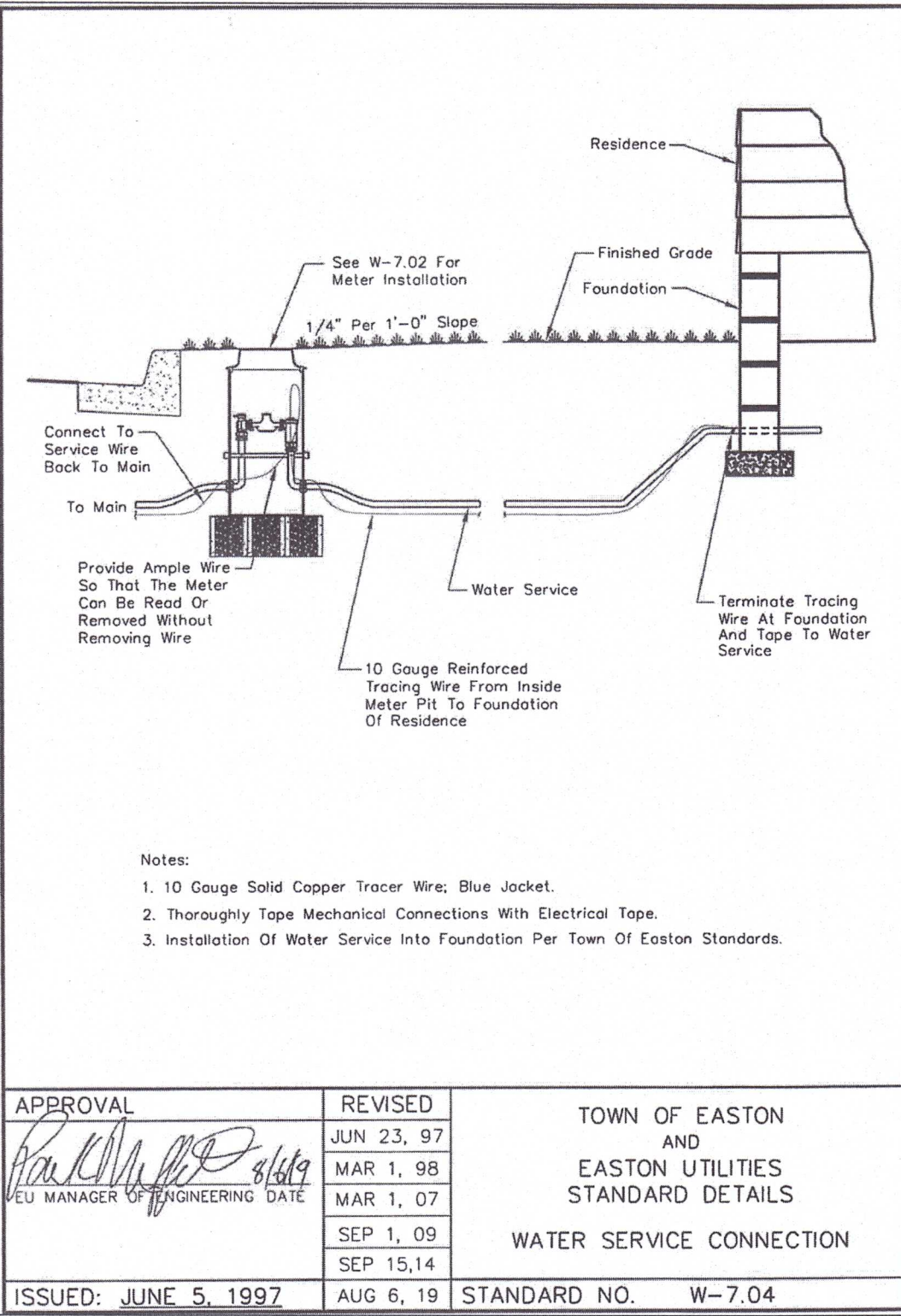
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DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: **C-503.01**

**FOR
REVIEW**



UTILITY DETAILS

OF THE LANDS OF

521 AUGUST ST

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH

Engineering Survey / Architecture / Environmental

Main Office: 108 N Harrison St., Easton, MD 21601

Web: www.rauch-inc.com | Email: design@rauch.com

Phone: 410 770 9881 | Fax: 410 770 3867

REVISIONS

DESCRIPTION

DATE

REV. #

1

MISS UTILITY OF DELMANY

811

DATE: 9/7/2022

SCALE: N/A

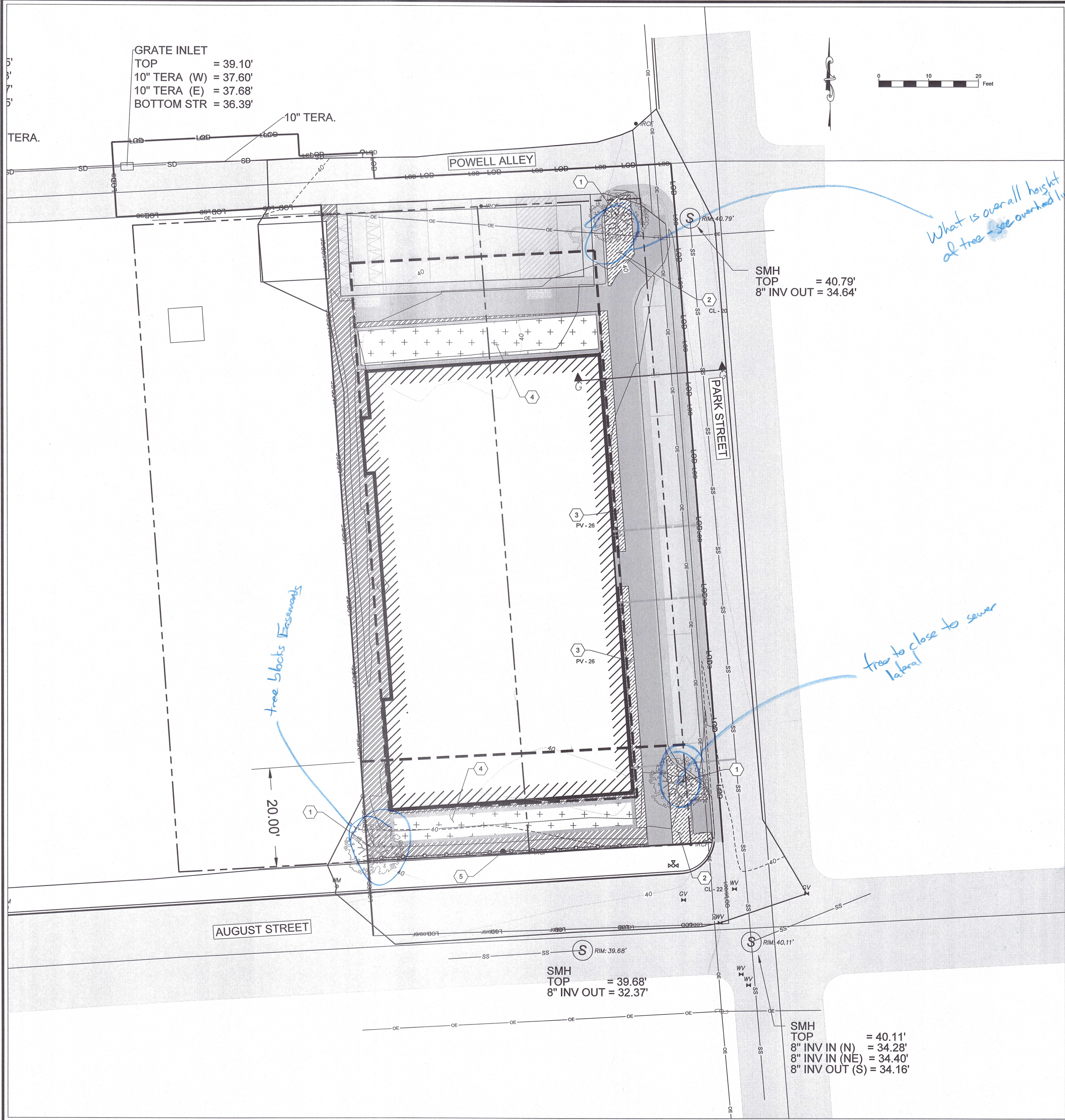
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DESIGNED BY: WCS

APPROVED BY: BBF

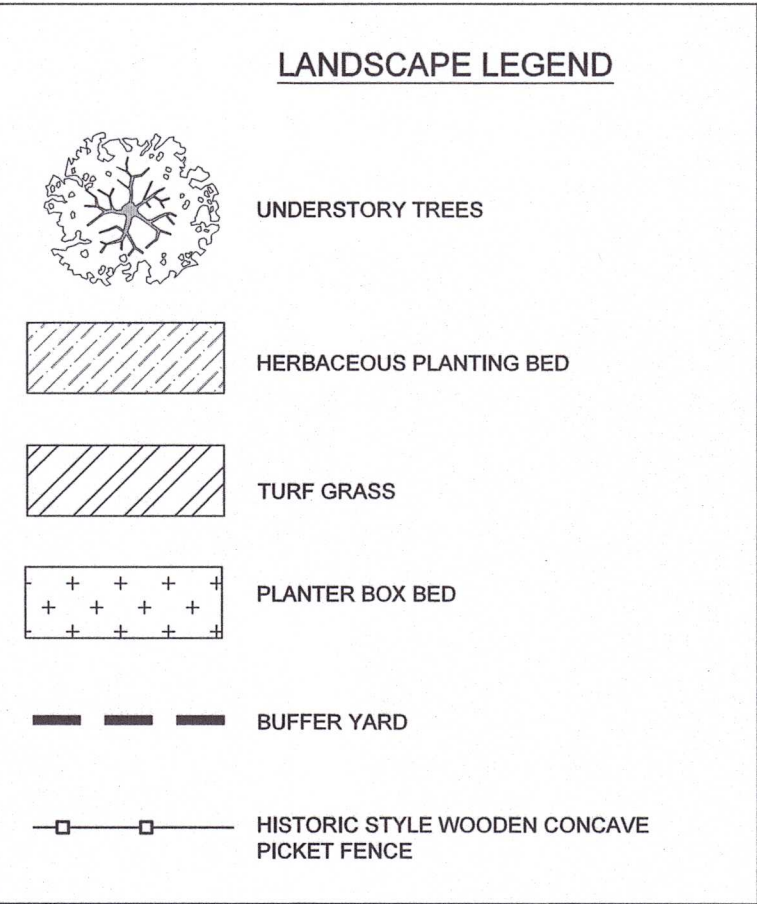
SHEET NO.: C-505.01

FOR REVIEW



BUFFERYARD & LANDSCAPE FEATURES

- 1 UNDERSTORY TREE - SERVICEBERRY (PLANTING TABLE ON 605.01)
- 2 NORTHERN SEA OAT GRASS (PLANTING TABLE ON 605.01)
- 3 SWITCHGRASS (PLANTING TABLE ON 605.01)
- 4 PLANTER BOX PLANTING (SEE PLANTING DETAILS AND SCHEDULE ON C-405.01)
- 5 HISTORIC STYLE WOODEN PICKET FENCE



NOTE: NO FORESTATION
REQUIRED BECAUSE PARCEL
<40,000 SQ-FT

LANDSCAPING PLAN

OF THE LANDS OF

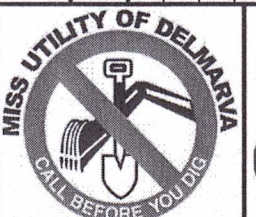
521 AUGUST ST

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBCT)

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REVISIONS

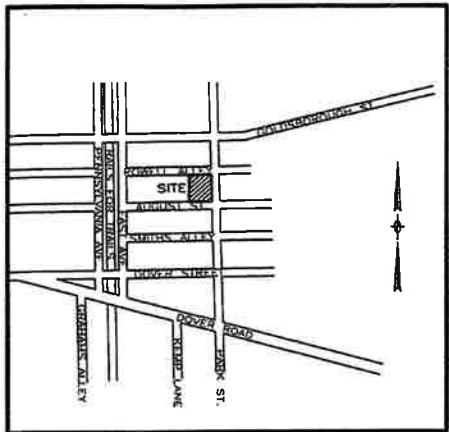
REV. #	DATE	DESCRIPTION
1		



DATE: 9/7/2022
SCALE: 1" = 10'
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-601

FOR
REVIEW



VICINITY MAP
SCALE 1" = 500'

STATE OF MARYLAND
Talbot County, TO WIT:
Recorded in the Land Records of Talbot County
Mary Ann Shortall
Mary Ann Shortall, Clerk
Circuit Court for Talbot County



Ch. Waters
MY LICENSE EXPIRE 2 / 10 / 2019

GENERAL NOTES

OWNERS : BRENDA M. WOOD
517 August St
EASTON, MARYLAND 21601

SUBDIVIDERS: BRENDA M. WOOD
517 August St
EASTON, MARYLAND 21601

PROPERTY ADDRESS: 517 AUGUST STREET
EASTON, MARYLAND 21601

PROFESSIONAL LAND SURVEYOR: (CHRISTOPHER D. WATERS) DAVIS BOWEN & FRIDEL, INC.
106 N. WASHINGTON STREET
SUITE 103, EASTON MARYLAND 21601

TOTAL AREA TO BE SUBDIVIDED: 13,319 SQ. FT.
WATER SUPPLY: TOWN OF EASTON
SEWAGE DISPOSAL: TOWN OF EASTON

ZONING CLASSIFICATION: CG / PRD
SETBACK: (BASED ON 2017 TOWN OF EASTON DEPARTMENT OF PLANNING AND ZONING APPROVAL)
FRONT = 5 FEET
SIDE = 5 FEET
REAR = 5 FEET
SPECIAL WESTERLY SIDE YARD SETBACK FOR LOT 1 = 2 FEET FOR GARAGE/APARTMENT

CURRENT DEED REFERENCE: 2083 / 412

APPROVED:

John A. Thomas Jr. 11/2/17
DIRECTOR, TOWN OF EASTON
PLANNING & ZONING
RATCOTA 10/27/17
CHAIRMAN OF PLANNING AND ZONING COMMISSION

LOTS 1-3 OF TAX MAP 103 PARCEL 1028 AS SHOWN HEREON ARE APPROVED FOR COMMUNITY WATER SUPPLY AND COMMUNITY SEWAGE AND THEIR USE IS IN ACCORDANCE WITH TALBOT COUNTY COMPREHENSIVE WATER AND SEWAGE PLAN AND MDE REGULATION 26.04.03

Anne J. Moore, LPHS 10/26/17
TALBOT COUNTY APPROVING AUTHORITY

ALL STREETS AND STREET WIDENINGS, PARKS AND OTHER LANDS INTENDED FOR PUBLIC USE ARE RESERVED BY THE OWNER FOR FUTURE CONVEYANCE TO THE TOWN OF EASTON.

ALL EASEMENTS SHOWN ARE HEREBY DEDICATED FOR PUBLIC USE.

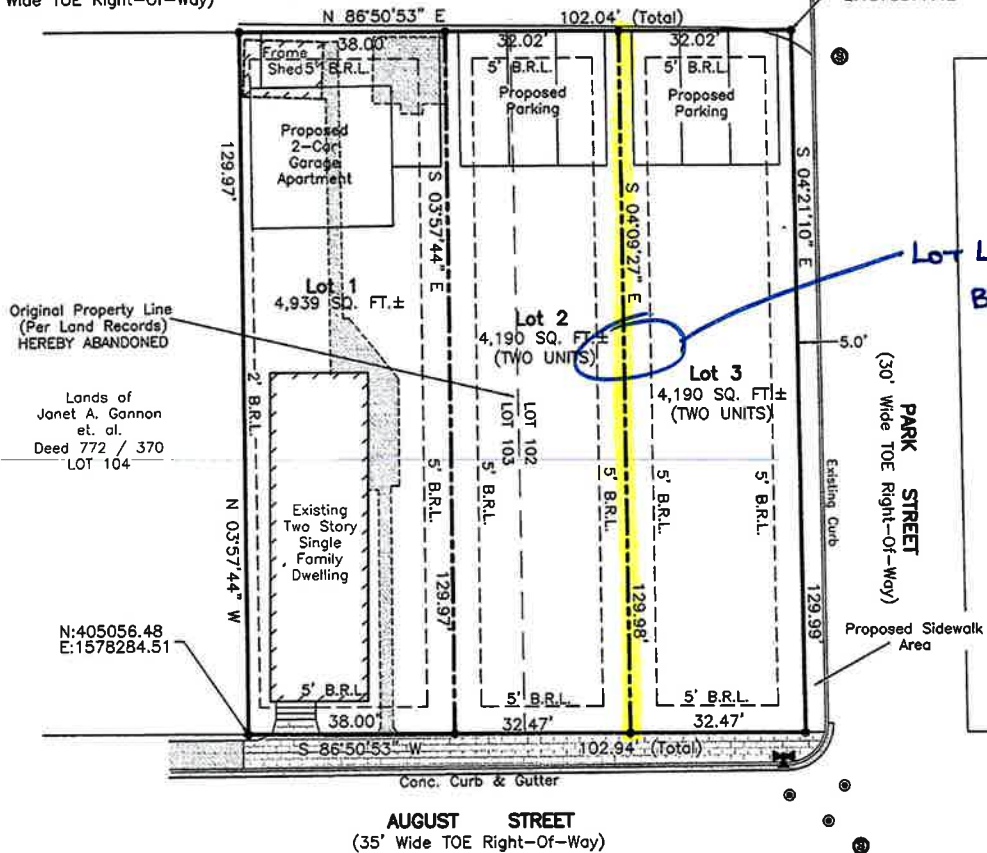
A UTILITIES DISTRIBUTION RIGHT-OF-WAY AND EASEMENT IS HEREBY DEDICATED TO THE TOWN OF EASTON IN AND OVER STRIPS OF LAND TEN (10) FEET WIDTH ALONG THOSE BOUNDARY LINES CONTIGUOUS TO ANY STREET OR ALLEY AND FIVE (5) FEET IN WIDTH ON EACH SIDE OF SIDE LOT LINES.

THE PLANNING AND ZONING COMMISSION MAY WAIVE OR TERMINATE, UPON RESUBDIVISION, SUCH UTILITY EASEMENT WHICH HAS NOT BEEN ACCEPTED BY USE THEREOF, UPON RECEIVING APPROVAL FROM THE TOWN ENGINEER.

BUILDING PERMITS SHALL BE ISSUED ONLY IF SUFFICIENT CAPACITY IS AVAILABLE IN THE COMMUNITY WATER SUPPLY SYSTEM, SEWAGE SYSTEM, AND SOLID WASTE ACCEPTANCE FACILITY SERVING THE SUBDIVISION.

LAND SHOWN UPON THIS PLAT MAY CONTAIN NONTIDAL WETLANDS REGULATED UNDER COMAR 08.0504; THE FEDERAL WATER POLLUTION ACT SECTION 404; OR THE RIVERS HARBOR ACT SECTION 10. DEVELOPMENT AND CONSTRUCTION WITHIN WETLANDS ARE SUBJECT TO FEDERAL AND STATE REGULATIONS AND MAY BE PROHIBITED OR RESTRICTED BY SUCH REGULATIONS.

POWELL'S ALLEY
(15' Wide TOE Right-Of-Way)



LEGEND

- Proposed Property Line
- Existing Property Line
- Abandoned Property Line
- B.R.L. (As Labeled)
- Existing Pavement
- Existing Brick Sidewalk
- Existing Concrete
- Proposed Sidewalk Easement (Refer to Public Works Agreement)
- Existing Fire Hydrant
- Existing Sewer Manhole
- Existing Valve
- Iron Rod & Cap Set

STORMWATER MANAGEMENT

STORMWATER MANAGEMENT MUST BE ADDRESSED FOR LOTS 2 & 3 PRIOR TO ISSUING A BUILDING PERMIT FOR EACH LOT.

PURPOSE STATEMENT

THE PURPOSE OF THIS PLAT IS TO ABANDON THE PROPERTY LINE BETWEEN LOTS 102 & 103 AND TO ESTABLISH 3 BUILDABLE LOTS, RESULTING IN 1 ADDITIONAL LOT.

OWNER CERTIFICATION

I BRENDA MILLER WOOD (CONTRACT PURCHASER), THE OWNER OF THE PROPERTY SHOWN AND DESCRIBED HEREON, HEREBY ADOPTS THIS PLAN OF SUBDIVISION.

Brenda M. Wood 10-27-17
OWNER DATE

THE OWNER HAS SWORN TO AND SUBSCRIBED BEFORE ME
THIS 27th DAY OF October
Stacie Sauca-Rice
NOTARY



REVISED 10-24-2017 PER COUNTY & TOWN COMMENTS

FINAL SUBDIVISION & LOT LINE REVISION ON THE LAND OF

Brenda M. Wood
IN THE TOWN OF EASTON, TALBOT COUNTY, MARYLAND
TAX MAP 103 PARCEL 1028

DAVIS, BOWEN & FRIDEL, INC. ARCHITECTS ENGINEERS SURVEYORS

EASTON, MARYLAND (410) 770-4744
SAUSBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

Date: 3 / 28 / 17
Scale: 1" = 20'
Dwn.By: DED
Proj.No.:
Dwg.No.: 1 OF 1

061091681013

P224547

MSA 51254 - 5035



Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

Supplemental Waiver Request Application

Waiver Request Type

Sidewalk ☐ Parking Spaces ☐ Parking/Aisle Dimension ☐
Landscaping & Buffering ☒ Signage ☐ Other ☐

Project Information

Address	521 AUGUST STREET				
Tax Map	0103	Grid	00EA	Parcel	01028
Zoning District	PRD	PC Meeting Date	11-17-22	Historic District	Yes ☒ No ☐
Owner or Agent	RAUCH INC. (AGENT) ON BEHALF OF BETTER HOMES, BETTER COMMUNITIES				
Mailing Address	106 N. HARRISON STREET, EASTON, MD 21301				
Telephone No.	410-770-9081	Email	CASEY@RAUCHENG.COM		

Request Details

Please attach a detailed description of the waiver request(s) being made and the justification(s) for requesting said waiver(s).

SITE PLAN AND EXISTING SITE CONSTRAINTS DO NOT ALLOW FOR FULL INSTALLATION OF LANDSCAPING AND BUFFERYARD REQUIREMENTS PER ZONING ORDINANCE.
PRD OVERLAY DISTRICTS ALLOW LANDSCAPING AND YARD REQUIREMENTS TO BE WAIVED AND MAY BE ESTABLISHED PER PROJECT BY THE PLANNING COMMISSION.

☒ Ordinance Section Supporting Waiver Request.

28-501.B.5

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

10/31/2022

Printed Name of Applicant or Agent

CASEY RAUCH

**Town of Easton**

Engineering, Planning and Zoning

14 South Harrison Street, Easton, MD 21601

Planning Commission Concept, Use, and Design Application**Site Information**

Structure's Floor Area	17,332 sf	Structure's Square Feet	4,333 sf
Area of Disturbance	10,651 sf	Number of Dwelling Units	12
Property Size	Acres 0.192	Square Feet	8,382
Address	521 August Street, Easton, MD (will become a N. Park Street address upon lot revision)		
Tax Map	0103	Grid	00EA
		Parcel	01028
		Lot	
Zoning District	CB	Historic District	Y ☒ N ☐
		PRD	Y ☒ N ☐
Other Information	Also within PUD-Infill zoning overlay.		
Existing Use	Undeveloped site		

Owner

Name	Donald Carter		
Mailing Address	6030 Daybreak Circle #150-103, Clarksville, MD 21029		
Telephone No.	443-310-1553	Email	dcarter@bhbcmd.com

Applicant / Agent

Name	Casey Rauch (Agent)		
Mailing Address	RAUCH Inc., 106 N. Harrison St., Easton, MD 21301		
Telephone No.	410-770-9081	Email	casey@raucheng.com

General Information:

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date


11/7/2022

Printed Name of Applicant or Agent

Casey Rauch, P.E.

For Office Use Only

Planned Commission Meeting Date	
Review Fee Amount	
Review Fee Paid Date	
ESDR Y / N Date	

Revised 02-2019

CONTACT INFORMATION

OWNER/DEVELOPER: BETTER HOMES, BETTER COMMUNITIES (BHBC)
DONALD CARTER
6030 DAYBREAK CIRCLE #150-103
CLARKSVILLE, MD 21029
443-310-1553

ENGINEER: RAUCH Inc.
106 N HARRISON ST
EASTON, MARYLAND 21301
(410)770-9081

SITE DATA

CURRENT PROPERTY ADDRESS: 521 AUGUST STREET
EASTON, MD 21601

FUTURE ADDRESS AFTER LOT LINE REVISION: 41 N. PARK STREET (NEW ADDRESS CONFIRMATION PENDING)
EASTON, MD 21601

LATITUDE: 38°46'31.3" N
LONGITUDE: -76°04'00.8" W

PRESENT ZONING CLASSIFICATION: CBD, PRD, PUD-INFILL, HISTORIC
PROPOSED ZONING: PRD
PRESENT USE: UNDEVELOPED SITE
PROPOSED USE: SINGLE MANSION APARTMENT (TOTAL GROSS FLOOR AREA: 4,333 SQ-FT)

TAX MAP: 0103
GRID: 00EA
PARCEL: 01028
DEED REFERENCE: 02429/ 00366

SITE AREA: 8,382 SQ. FT / 0.192 ACRES

FEMA FLOOD MAP: PANEL 2400670002B

FOREST CONSERVATION: TOTAL SITE AREA IS LESS THAN 40,000 S.F.
THEREFORE NO FCP IS REQUIRED

SURVEY DATUM: NAVD83
HORIZONTAL: NAVD88
VERTICAL: 2248
EPSG CODE:

ZONING & PARKING NOTE:
THE REQUIREMENTS FOR OFF-STREET PARKING IN THE SUPPLEMENTAL REQUIREMENTS OF THE ZONING ORDINANCE ARE NOT A REQUIREMENT IN PRD OVERLAY ZONE NOR IN THE CB ZONE. THIS APPLICATION REFLECTS A SINGLE MANSION APARTMENT MIDDLE-HOUSING TYPE WITH PROPOSED 12 DWELLING UNITS.

AS A MANSION APARTMENT, A MINIMUM 0.75 PARKING SPACES ARE NORMALLY REQUIRED PER DWELLING UNIT FOR ALL MIDDLE HOUSING TYPES, WITH A MAXIMUM OF 1 PER DU (12 DU's X 0.75 = 9). 8 PARKING SPACES ARE PROVIDED, INCLUDING 1 HANDICAP VAN SPACE AND AN AISLE. IN ADDITION TO THE PROVIDED PARKING SPACES, THE EXISTING PUBLIC PARKING ALONG AUGUST AND PARK STREETS ARE ADEQUATE FOR THE PROPOSED DEVELOPMENT AND ARE NOT ANTICIPATED TO CAUSE SIGNIFICANT TRAFFIC CONGESTION, BASED ON OBSERVATIONS OF EVENING PARKING CONDITIONS AFTER 6:30 PM DURING WEEKDAYS.

DESIGN PRINCIPLES FOR EASTON

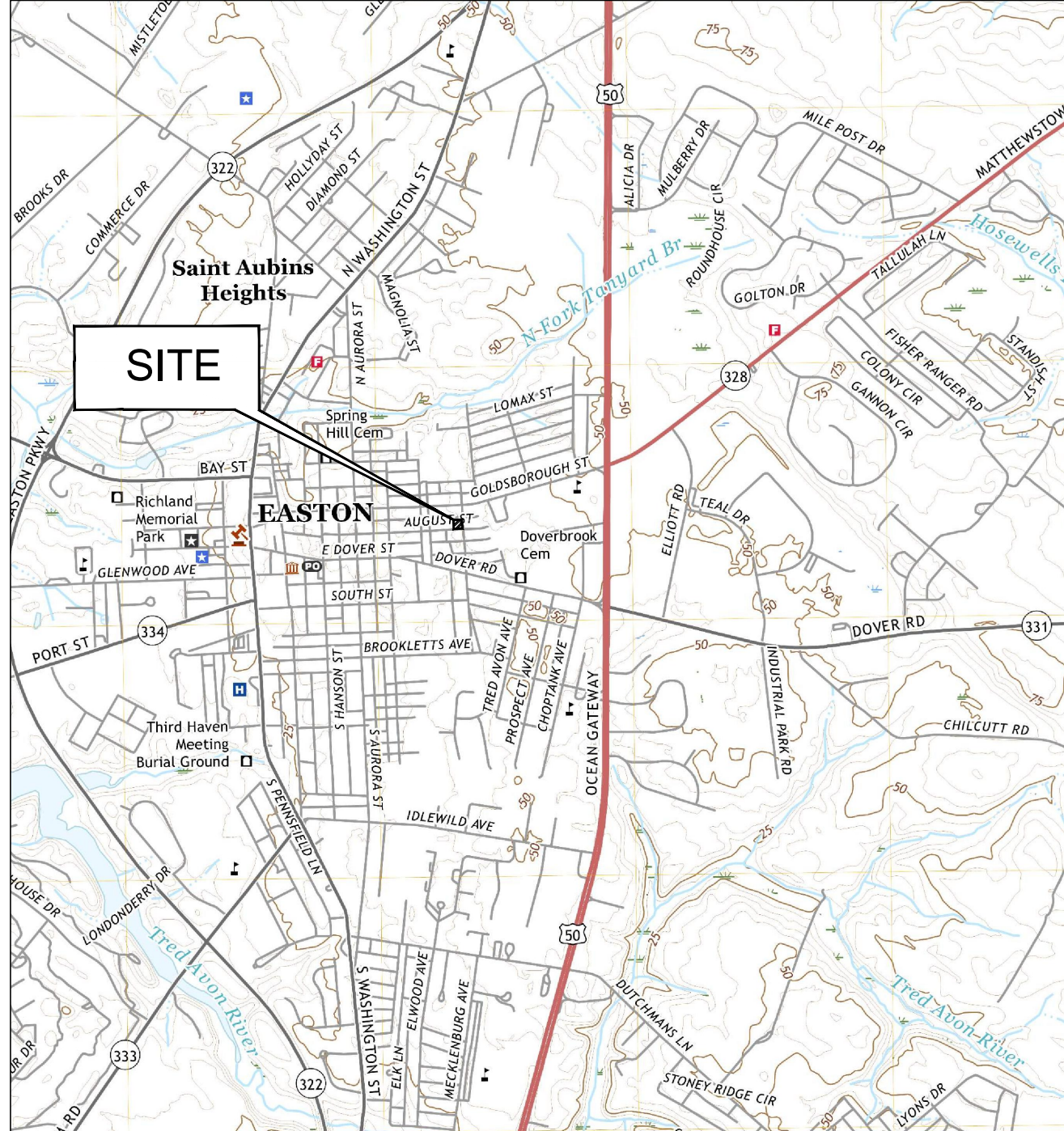
(2010 COMPREHENSIVE PLAN, PG. 94 - 111)

1. INTEGRATED USES ARE DESIRABLE
2. NATURAL FEATURES SHOULD DETERMINE DESIGN
3. AUTOMOBILES SHOULD NOT DETERMINE DESIGN
4. AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN AND AROUND NEIGHBORHOODS
5. ARCHITECTURE SHOULD RESPECT EASTON'S HISTORIC DISTRICT
6. SIGNS SHOULD INFORM BUT NOT DOMINATE
7. NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES
8. RESIDENTIAL DEVELOPMENTS SHOULD BE INTERESTING PLACES
9. NEIGHBORHOODS SHOULD CONNECT

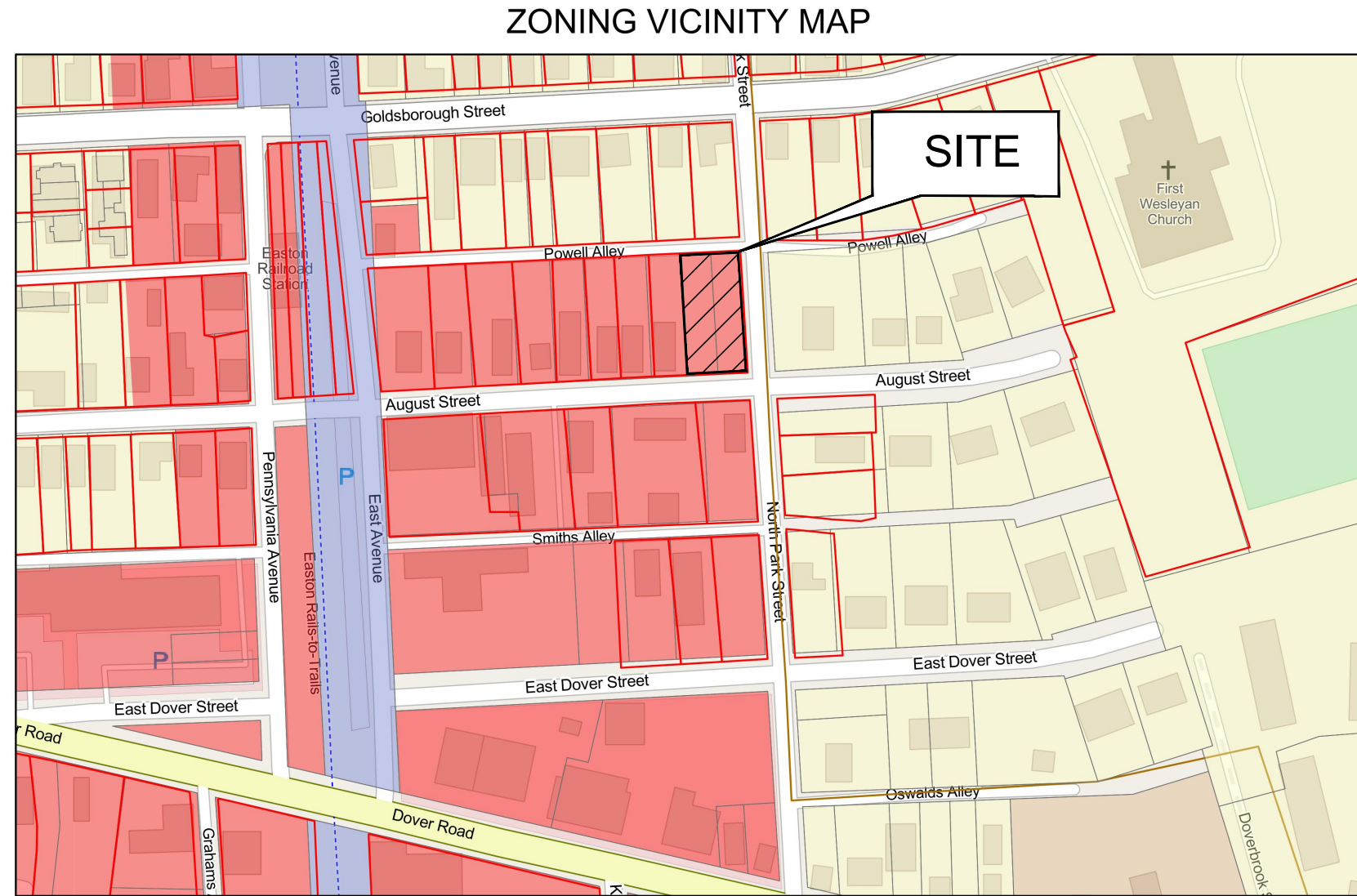
41 N. PARK STREET

DEVELOPMENT PLANS

FOR
BETTER HOMES, BETTER COMMUNITIES (BHBC)
TALBOT COUNTY, MARYLAND 21601



VICINITY MAP
SCALE: 1" = 2,000'



10/4/2022, 5:52:56 PM
1:2,257
0 0.01 0.03 0.06 mi
0 0.02 0.04 0.09 km
Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri
Aerial Web Application
Map layer by Esri

10/4/2022, 5:52:56 PM
1:2,257
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0 0.02 0.04 0.09 km
Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri
Aerial Web Application
Map layer by Esri

DRAWING LIST

SHEET NUMBER	DRAWING TITLE
G-100	COVER SHEET
V-101	EXISTING & DEMOLITION PLAN
C-101	SITE PLAN
C-200.00	EROSION AND SEDIMENT CONTROL COVER
C-201	EROSION AND SEDIMENT CONTROL PLAN
C-205.01-.02	EROSION AND SEDIMENT CONTROL DETAILS
C-301	SITE GRADING PLAN
C-305.01-.02	SITE DETAILS
C-401	STORMWATER & STORM DRAIN PLAN
C-405.01	STORMWATER & STORM DRAIN PROFILES
C-405.01-.03	STORMWATER DETAILS
C-501	UTILITY PLAN
C-505.01	UTILITY DETAILS
C-601	LANDSCAPING PLAN
C-605.01	LANDSCAPING NOTES & DETAILS

ESTIMATED TOWN IMPACT FEES

TOTAL FEE COST: \$161,790

ZONING & SUBDIVISION FEES

PLANNING REVIEW: \$150.00
STORMWATER MANAGEMENT - UP TO 1 ACRE: \$1,250.00

PLANNING COMMISSION FEES

CONCEPT, USE & DESIGN REVIEW: \$250.00

EASTON UTILITIES:

CAPITAL CHARGES FOR WATER & WASTEWATER: \$7,050 PER EDU
FOR 10 EDU'S = \$70,500

PLANNING & ZONING:

PROPOSED MANSION APARTMENT FOR 12 DWELLING UNITS. (12 DU X \$2,470 PER DU = \$29,640 TOTAL).

NOTE: THE IMPACT FEES INDICATED IN THIS NOTATION SHALL NOT BE CONSTRUCTED AS VESTED AND UNTIL SUBMISSION OF THE BUILDING APPLICATION.

GENERAL NOTES

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, LOCAL BUILDING CODES, BEST PRACTICES OF THE RESPECTIVE TRADES AND THE STANDARD SPECIFICATIONS AND DETAILS REFERRED TO HEREON.

THIS DRAWING SHOWS INFORMATION OBTAINED FROM AVAILABLE RECORDS REGARDING PIPES, CONDUITS, TELEPHONE LINES AND OTHER STRUCTURES AND CONDITIONS WHICH EXIST WITHIN LIMITS OF THE WORK AT AND BELOW THE SURFACE OF THE GROUND. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORTING AND PROTECTING ALL PIPES, CONDUITS, TELEPHONE LINES, AND OTHER STRUCTURES.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO START OF CONSTRUCTION AND SHALL COORDINATE ALL CONSTRUCTION PHASES WITH THEM:

MDE (Main Number)	410-537-3000
MDE (Eastern Shore Field Office)	410-901-4020
TOWN OF EASTON DPW	410-882-0513
EASTON UTILITIES	410-822-6110
TALBOT COUNTY SCD	410-882-1577 x 3
MISS UTILITY	800-257-7777 or 811

SHOULD ANY DAMAGE OCCUR TO ANY MARKED UTILITIES, THEY SHALL BE REPAIRED SOLELY AT THE CONTRACTORS EXPENSE.

ALL LANDSCAPING SHALL BE PERFORMED BY QUALIFIED PROFESSIONALS. ALL PLANT MATERIALS SHALL BE FROM CERTIFIED NURSERYMAN AND BE GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF PLANTING.

ANY PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTORS EXPENSE.

FIRE LANE AND ACCESS WILL MEET REQUIREMENTS FOR THE PROPOSED BUILDING PRIOR TO THE FINAL SITE PLAN.

ENVIRONMENTAL NOTES:

1. THE PROJECT SITE IS NOT LOCATED WITHIN THE CRITICAL AREA BUFFER
2. THE SITE IS NOT LOCATED WITHIN A 100 YEAR FLOODPLAIN
3. NON-TIDAL WETLANDS ARE NOT PRESENT ON-SITE

STANDARD STABILIZATION NOTE:

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

- A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND
- B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISBURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING

LINETYPES

TOPOGRAPHY
MAJOR CONTOURS
MINOR CONTOURS
TOP OF SLOPE BREAKLINE
BOTTOM OF SLOPE BREAKLINE
TOPOGRAPHY BREAKLINE

CATCHMENT AREA

To FLOW PATH

PARCEL BOUNDARY
PARCEL SETBACK/EASEMENT
FENCELINE WOOD
FENCELINE STEEL
TREELINE/VEGETATION
ROADWAY CENTERLINE
HIGHWAY BARRIER

UTILITIES

OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
TELEPHONE LINE
GAS PIPE LINE
CABLE TV
WATER PIPE
STORMWATER PIPE

UNDERDRAIN
SANITARY SEWER
FORCE MAIN SEWER

ENVIRONMENTAL

WETLAND LINE
FLOOD PLANE 100/500 YR
MEAN HIGH WATER
MEAN LOW WATER
CRITICAL AREA BOUNDARY
BUFFER 25'/100'
SOILS BOUNDARY

EROSION AND SEDIMENT CONTROL

SILT FENCE
SUPER SILT FENCE
SILT FENCE ON PAVEMENT
LIMITS OF DISTURBANCE
LOD & SILT FENCE
LOD & SUPER SILT FENCE
LOD & SILT FENCE ON PAVEMENT
STANDARD INLET PROTECTION
AT-GRADE INLET PROTECTION
CURB INLET PROTECTION
SWM EASEMENT 5'/10'

PROPOSED

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EXISTING

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EXISTING

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SYMBOLS

FLARED END SECTION

YARD INLET

CURB INLET

CUSTOM INLET

NYLOPLAST INLET

STORM DRAIN MANHOLE

SANITARY SEWER MANHOLE

CLEANOUT

GATE VALVE

STUB

SIGN

WATER METER

FIRE HYDRANT

WELL

BOLLARD

ELECTRIC TRANSFORMER

TELEPHONE PEDESTAL

UTILITY POLE

GUY WIRE

CONIFEROUS TREE

DECIDUOUS TREE

SPOT ELEVATION

LAND SLOPE

BENCHMARK

BOREHOLE/MONITORING WELL

FLARED END SECTION

YARD INLET

CURB INLET

CUSTOM INLET

NYLOPLAST INLET

STORM DRAIN MANHOLE

SANITARY SEWER MANHOLE

CLEANOUT

GATE VALVE

STUB

SIGN

WATER METER

FIRE HYDRANT

WELL

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ELECTRIC TRANSFORMER

TELEPHONE PEDESTAL

UTILITY POLE

GUY WIRE

CONIFEROUS TREE

DECIDUOUS TREE

SPOT ELEVATION

LAND SLOPE

BENCHMARK

BOREHOLE/MONITORING WELL

HATCHES

ASPHALT

GRAVEL

CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

BRICK PAVING

EXISTING, TO BE DEMOLISHED

STEEP SLOPES

ROOFTOP/NON-ROOFTOP DISCONNECT

ASPHALT

GRAVEL

CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

BRICK PAVING

EXISTING, TO BE DEMOLISHED

STEEP SLOPES

ROOFTOP/NON-ROOFTOP DISCONNECT

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ESD BED BOTTOM

BRICK PAVING

EXISTING, TO BE DEMOLISHED

STEEP SLOPES

ROOFTOP/NON-ROOFTOP DISCONNECT

ASPHALT

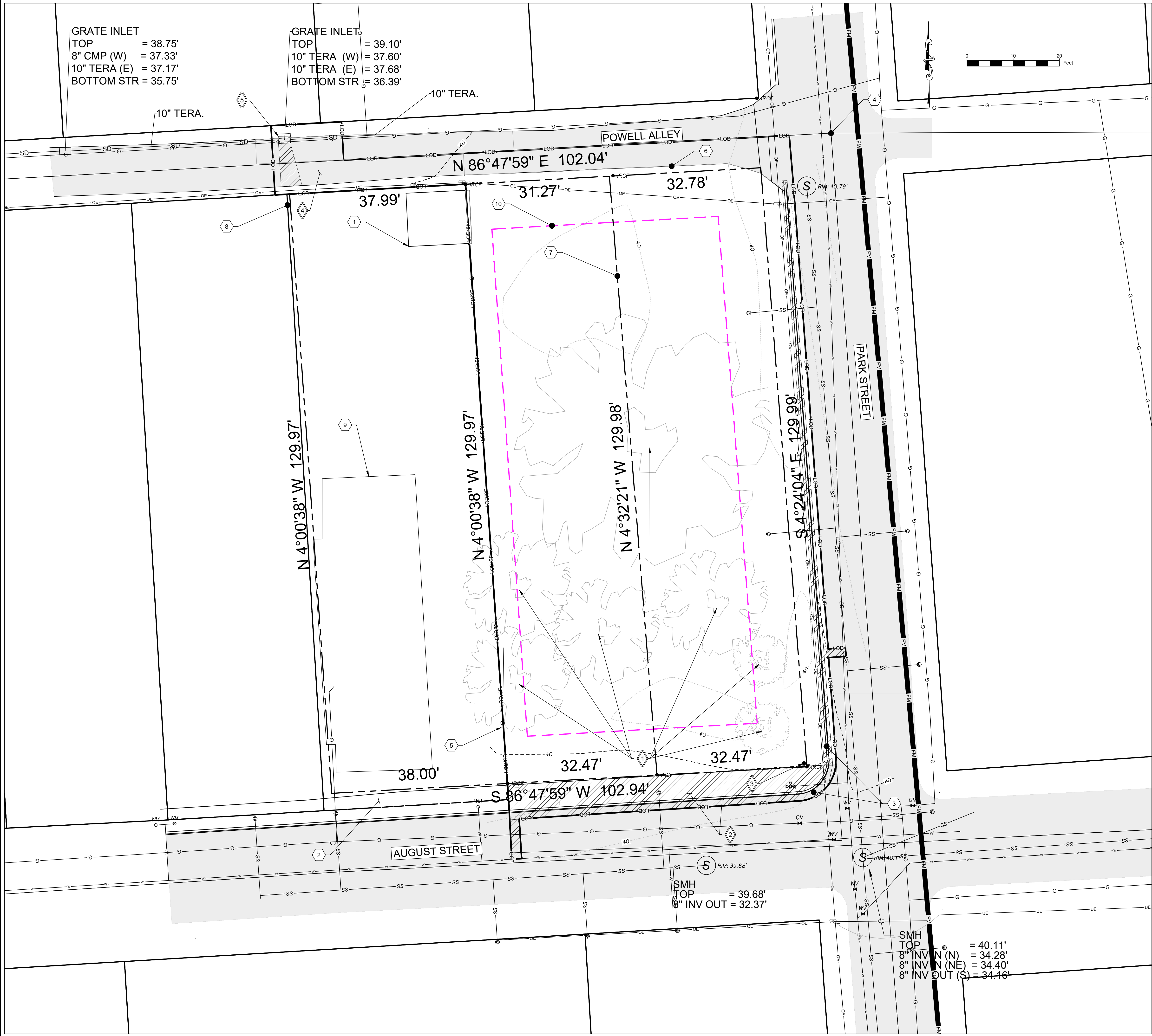
GRAVEL

CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

BRICK PAVING



EXISTING FEATURES

- 1 EXISTING CONCRETE PARKING PAD
- 2 EXISTING BRICK SIDEWALK
- 3 EXISTING CONCRETE CURB & GUTTER
- 4 CENTERLINE OF ROAD
- 5 EXISTING WOODEN FENCE ALONG SHARED PROPERTY LINE
- 6 EXISTING EDGE OF PAVEMENT
- 7 EXISTING SURVEYED PROPERTY LINE SHARED BETWEEN 521 AUGUST ST AND 523 AUGUST WILL BE DISSOLVED UPON LOT LINE REVISION. PROPOSED PLAN DRAWINGS WILL HIDE THIS LINE FOR CLARITY AND TO REPRESENT PROPOSED INTENTIONS.
- 8 EXISTING UNTAMPERED GIS PARCEL LINES.
- 9 EXISTING HOUSE
- 10 EASTON UTILITY EASEMENT/R.O.W.

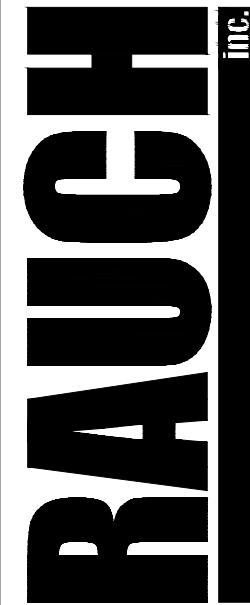
DEMOLITION

- 1 CLEAR & GRUB EXISTING TREES (5) AND LARGE SHRUBS (2)
- 2 DEMOLISH AND REMOVE APPROXIMATELY 200 LF OF EXISTING CONCRETE CURB & GUTTER ALONG AUGUST AND PARK STREET, AND APPROXIMATELY 367 SF OF EXISTING BRICK SIDEWALK ALONG PARK STREET AND HAUL OFF SITE.
- 3 EXISTING METAL STREET SIGN AND POST TO BE TEMPORARILY REMOVED AND RE-INSTALLED UPON PROJECT COMPLETION
- 4 DEMOLISH AND REPAIR APPROXIMATELY 40 SF OF ALLEY TO INSTALL PROPOSED STORMWATER PIPE. DEMOLISH AND REPAIR REMAINING ASPHALT AREAS AS SHOWN ON PLAN FOR PROPOSED UTILITY CONNECTIONS. SEE PATCH REPAIR DETAIL ON SHEET C-305.02
- 5 DEMOLISH AND REPLACE BRICK GRATE INLET BOX IN POWELL ALLEY WITH STANDARD TRAFFIC BEARING CONCRETE YARD INLET. SEE DETAIL ON SHEET C-405.01

EXISTING & DEMOLITION PLAN

OF THE LANDS OF
BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)



Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9081 | Fax: 410 770 3987

REVISIONS

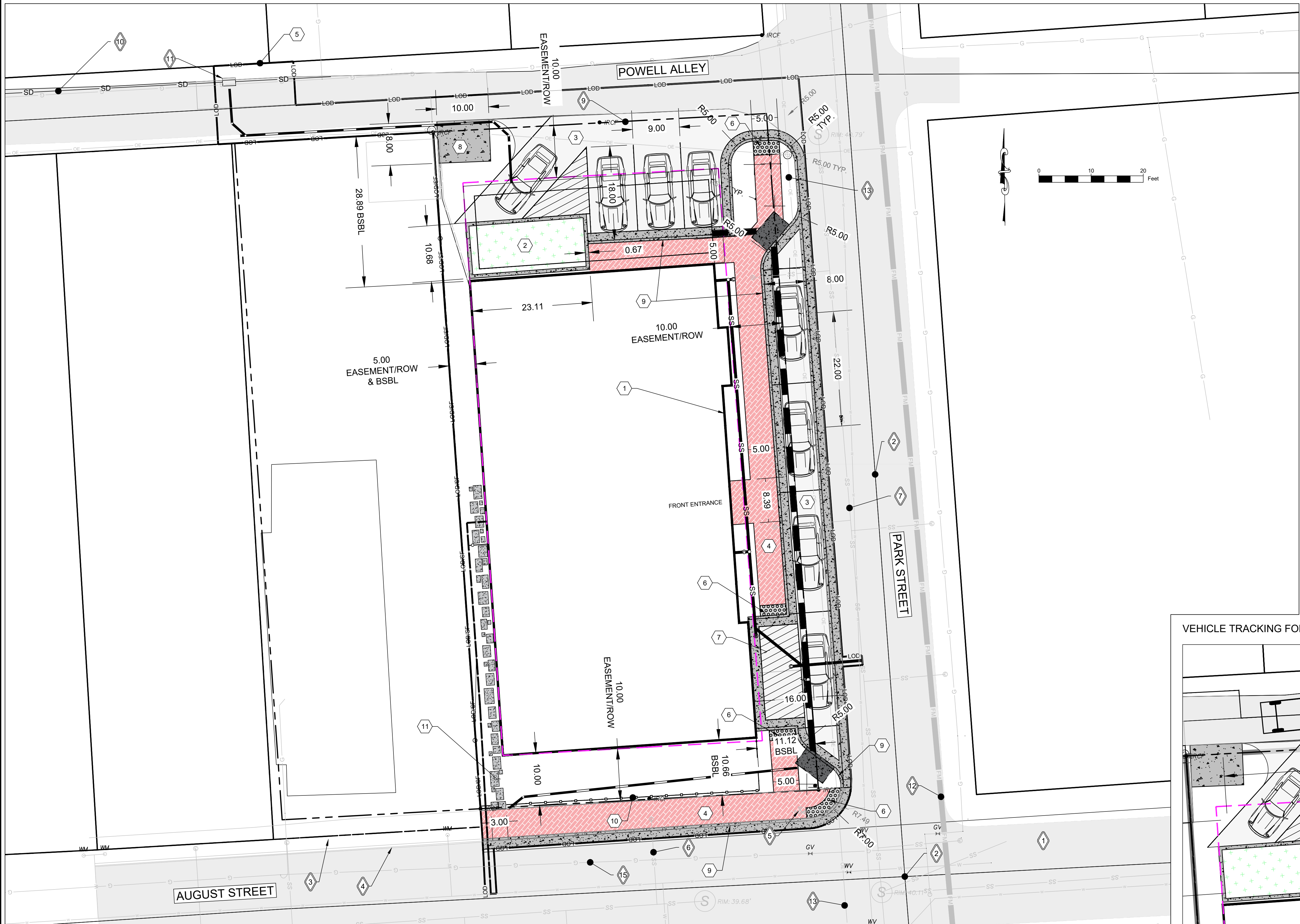
REV. #	DATE	DESCRIPTION
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DATE: 10/3/2022
SCALE: 1" = 10'
DRAWN BY: JWJ & WCS
DESIGNED BY: JWJ & WCS
APPROVED BY: BBF

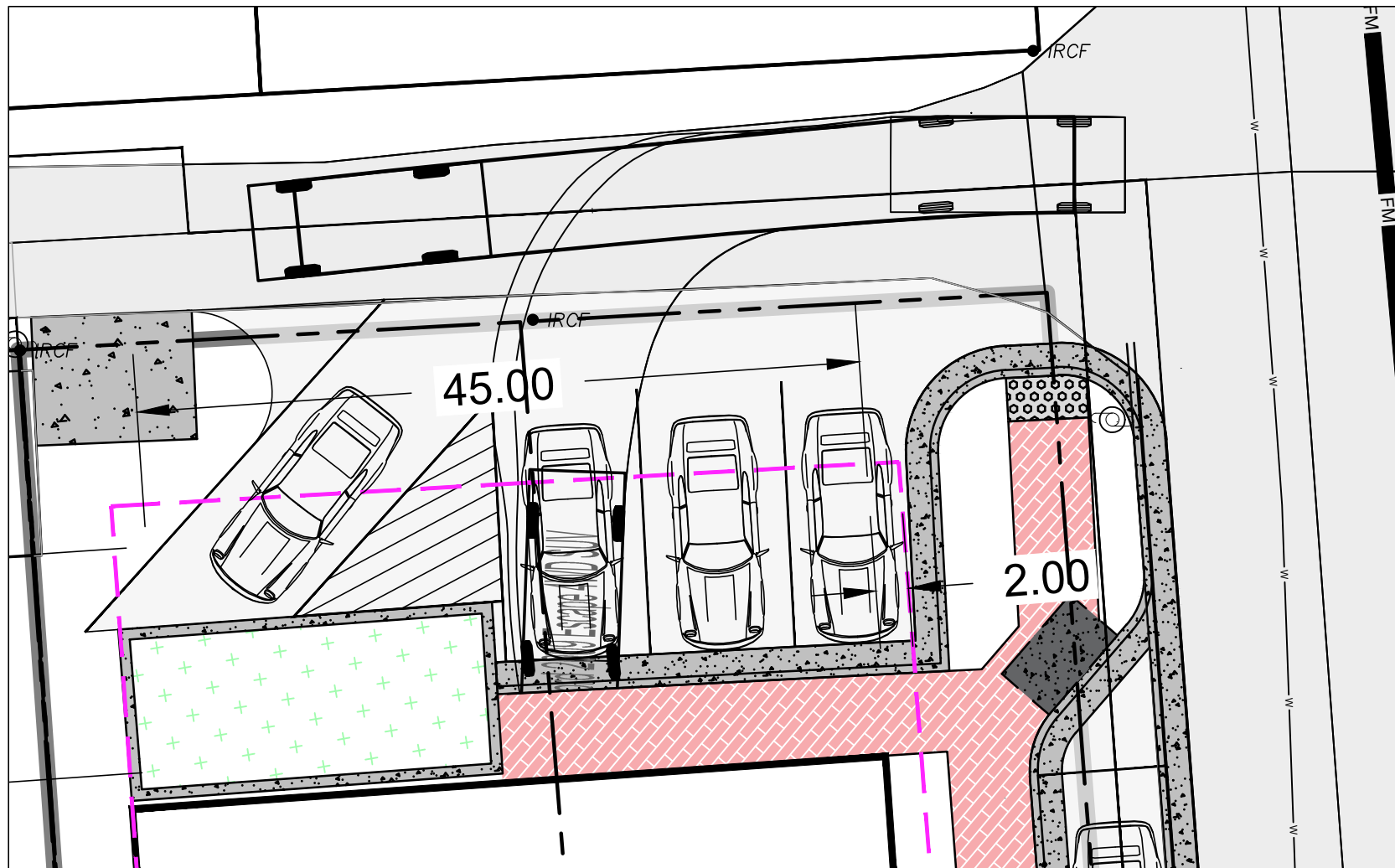
SHEET NO.:
V-100

FOR
REVIEW



- PROPOSED SITE PLAN NOTES
- 1 APARTMENT BUILDING FOOTPRINT (F.F.E = 40.691')
 - 2 SWM PLANTER BOX. SEE DETAIL ON SHEET C-405.01
 - 3 PERMEABLE ASPHALT. SEE DETAIL ON SHEET C-405.01
 - 4 PERMEABLE BRICK PAVER SIDEWALK. SEE DETAIL ON SHEET C-305.01
 - 5 LIMITS OF DISTURBANCE
 - 6 ADA SIDEWALK RAMP. SEE DETAIL ON SHEET C-305.02
 - 7 A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
 - 8 DUMPSTER PAD. SEE DETAIL ON SHEET C-305.02
 - 9 STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
 - 10 HISTORIC STYLE WOODEN CONCAVE PICKET FENCE WITH SIDE GATE
 - 11 STEPPING STONE PATH TO SPRINKLER ROOM DOOR

VEHICLE TRACKING FOR POWELL ALLEY PARKING



HATCH LEGEND			
ASPHALT		ESD BED BOTTOM	
BRICK SIDEWALK		EASEMENT	
A.D.A ACCESS AISLE		BRICK SIDEWALK	

EXISTING FEATURES

- | | | |
|---|---|--|
| 1 ROAD | 7 SURVEYED LOCATION OF EXISTING SEWER | 13 OVERHEAD ELECTRIC |
| 2 ROAD CENTERLINE | 8 EASEMENT LINE / R.O.W. | 14 APPROXIMATE LOCATION OF EXISTING WATER LINES (GIS DATA) |
| 3 BRICK SIDEWALK | 9 SURVEYED PROPERTY LINES | 15 APPROXIMATE LOCATION OF EXISTING GIS LINES (GIS DATA) |
| 4 CURB AND GUTTER | 10 10" TERRACOTTA STORM DRAIN | |
| 5 FIRE HYDRANT | 11 BRICK GRATE INLET | |
| 6 APPROXIMATE LOCATION OF EXISTING SANITARY SEWER | 12 APPROXIMATE LOCATION OF EXISTING SEWER FORCE MAIN (GIS DATA) | |

SITE PLAN

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH

Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3987

REV. #	DATE	DESCRIPTION
1		

REVISIONS

FOR REVIEW

SHEET NO.: C-101

DATE: 10/3/2022
SCALE: 1" = 10'
DRAWN BY: JWL & WCS
DESIGNED BY: JWL & WCS
APPROVED BY: BBF

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MARYLAND UTILITY OF DELAWARE
CALL BEFORE YOU DIG

CONTACT INFORMATION

OWNER/DEVELOPER: BETTER HOMES, BETTER COMMUNITIES (BHBC)
DONALD CARTER
6030 DAYBREAK CIRCLE #150-103
CLARKSVILLE, MD 21029
443-310-1553

ENGINEER: RAUCH Inc.
106 N HARRISON ST
EASTON, MARYLAND 21301
(410)770-9081

ESC DRAWING LIST	
SHEET NUMBER	DRAWING TITLE
C-200.00	EROSION AND SEDIMENT CONTROL COVER
C-201	EROSION AND SEDIMENT CONTROL PLAN
C-205.01-02	EROSION AND SEDIMENT CONTROL DETAILS

STANDARD EROSION AND SEDIMENT CONTROL NOTES

- The contractor shall notify the Maryland Department of the Environment (MDE) Sediment Control Inspector at 410-901-4020 and the Talbot County Department of Public Works (DPW) at 410-770-8170 at least 48 hours prior to commencing any land disturbing activities and, unless waived by the Sediment Control Inspector, shall be required to hold a pre-construction meeting at the project site. The contractor must provide the name of the person on the site who is responsible for inspection and maintenance of erosion and sediment control measures and a copy of their green card to the Sediment Control Inspector.
- All projects with construction activities disturbing 1 acre or more are required to submit a General Permit (NOI) to MDE to comply with the General Permit for Construction Activity for Stormwater Discharges. The General Permit must be approved prior to disturbance activities. To obtain a General Permit (NOI) form, contact the Permits Coordinator at the MDE Compliance Program at 410-537-3510.
- The limit of disturbance shall be clearly delineated in the field prior to the pre-construction meeting and any grading activities to ensure compliance with the approved plan.
- The approved Erosion and Sediment Control Plan must be kept at the project site.
- The Talbot Soil Conservation District (TSCD) reserves the right to modify the Erosion and Sediment Control Plans.
- The TSCD may revoke the approval of the Erosion and Sediment Control Plan if work performed at the project site does not conform to the provisions of the grading permit, to the approved plan or to any written instructions from MDE, Talbot County DPW or the TSCD.
- The contractor must request that the Sediment Control Inspector approve work completed in accordance with the approved Erosion and Sediment Control Plan, the grading or building permit and the Talbot County Erosion and Sediment Control Ordinance at the following points of project development:
 - Upon completion of the installation of perimeter erosion and sediment control measures but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by MDE is made.
 - Prior to removal or modification of any sediment control structure(s).
 - Upon final stabilization of the site and prior to the removal of any sediment control measures.
- The contractor shall construct all erosion and sediment control measures per the approved plan and construction sequence and shall have them inspected and approved by the Sediment Control Inspector prior to beginning any other land disturbances.
- The contractor shall ensure that all runoff from disturbed areas is directed to the sediment control devices and shall not remove any erosion or sediment control measure without prior permission from the Sediment Control Inspector.
- The following minor plan modifications may be approved by the Sediment Control Inspector in the field:
 - Sediment control structures (except basins and traps) may be moved to meet the existing contours and field conditions, when moving these structures would have no impact on their function or design criteria.
 - Substitution of perimeter control measures may be made provided the measure substituted is equivalent (i.e., silt fence for straw bales) or is an upgrade of the original measure (i.e., silt fence to a perimeter berm with properly sized outlet).
 - Addition and extension of perimeter controls (including stone construction entrances) may be made to meet field conditions. Any modifications to the plan which are not listed above require the plan to be submitted to the TSCD for review and approval.
- The contractor shall protect all points of construction ingress and egress to prevent the deposition of materials onto public roads. All materials deposited onto public roads shall be removed immediately.
- On-site temporary stockpile areas must be placed as shown on the approved plan. If the construction schedule is to exceed 3 days, the stockpile areas must be stabilized. Stockpile areas should not exceed fifteen feet in height. If a stockpile is to exceed fifteen feet in height, it must be shown on the plan to be terraced with pipe slope drains installed and approved by TSCD. Upon the completion of the use of the stockpile area, existing ground surfaces shall be restored to their original conditions and permanently stabilized.
- Various steps in the sequence of construction may require the contractor to remove excess excavated material to an approved location or to import material from an approved location. For purposes of this plan, an approved location shall be one which is operating under an approved erosion and sediment control plan and an active grading permit at the time of construction.
- The contractor shall inspect daily and maintain continuously in an effective operating condition all erosion and sediment control measures until such time as they are removed with prior permission from the Sediment Control Inspector.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within:
 - Three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes equal to or greater than 3 horizontal to 1 vertical (3:1), and
 - Seven (7) days as to all other disturbed or graded areas on the project site. The above requirements do not apply to those areas which are shown on the plan and are currently being used for material storage or for those areas on which actual construction activities are currently being performed or to interior areas of a surface mine site where the stabilization material would contaminate the recoverable resource. Maintenance shall be performed as necessary to ensure that the stabilized areas continuously meet the appropriate requirements of the most current Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- Sediment control practices will be maintained until the entire contributing area to the practice has been permanently stabilized and meets the satisfaction of the Sediment Control Inspector. Sediment controls may only be removed with the authorization of the Sediment Control Inspector.
- All areas disturbed by the removal of sediment control devices must be immediately stabilized.
- Surface drainage flows over unstabilized cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing protective devices to convey the water downslope without causing erosion. Dikes shall be installed and maintained at the top of cut or fill slopes until the slope and drainage area to be fully stabilized, at which time the dikes must be removed and final grading done to promote sheet flow drainage. Erosion control measures must be implemented at points of concentrated flow where erosion is likely to occur.
- No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in low maintenance areas. A slope gradient of up to 2:1 will be permitted in non-maintenance areas provided that those areas are indicated on the erosion and sediment control plans with a low-maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetation stabilization.
- All flow lines are to be stabilized with sod or seed with erosion control matting to a depth of flow of 1 foot.
- Sediment traps or basins are not permitted within 20 feet of a foundation which is existing or under construction. No structure may be constructed within 20 feet of an active sediment trap or basin.
- Temporary sediment traps and sediment basins shall be cleaned out and restored to the original dimensions when sediment has accumulated to one half (1/2) the wet storage depth of the trap or basin.
- Sediment removed from traps (and basins) shall be placed and stabilized in approved areas, but not within a floodplain, wetland or forest retention area. When pumping sediment laden water, the discharge must be directed to a sediment trapping device prior to release from the site.
- For approved dewatering strategies for traps and basins, see section F of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control. Pumping sediment laden water into the waters of the State without filtration is strictly forbidden.
- Sediment control devices placed in infiltration areas must have bottom elevations at least two (2) feet higher than the finished grade elevation of the infiltration practice. When converting a sediment trap to an infiltration device, all accumulated sediment must be removed and disposed of prior to final grading of infiltration device.
- The developer is responsible for obtaining all necessary permits prior to any construction activities. Further, the issuance of a grading permit does not relieve the developer of the responsibility to obtain any additional local, state or federal permits.

SITE SEQUENCE OF CONSTRUCTION:

- NOTIFY AT LEAST 2 WEEKS PRIOR TO START OF CONSTRUCTION:
MDE (410) 901-4020
NOTIFY TALBOT SOIL CONSERVATION DISTRICT (410) 822-1577
TOWN OF EASTON (410) 822-0513
- PRE-CONSTRUCTION MEETING.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE.
- INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES (SILT FENCING & INLET PROTECTION) PER PLANS.
- COMPLETE SITE DEMOLITION AND HAUL OFF SITE (SEE SHEETS V-101).
- REMOVE TOPSOIL AND HAUL OFFSITE.
- ROUGH GRADE SITE INSIDE LIMITS OF DISTURBANCE.
- FINE GRADE SITE
- INSTALL LANDSCAPE PLANTS AND TURF AREAS SHOWN ON PLANS AND AS SPECIFIED.
- ALL DISTURBED AREAS TO BE PERMANENTLY STABILIZED.
- MAINTAIN ALL PERIMETER CONTROLS AND SEDIMENT CONTROL DEVICES UNTIL FINAL STABILIZATION HAS BEEN COMPLETELY ESTABLISHED.
- REMOVE PERIMETER CONTROLS UPON APPROVAL BY THE MDE SEDIMENT CONTROL INSPECTOR

GENERAL NOTES

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, LOCAL BUILDING CODES, BEST PRACTICES OF THE RESPECTIVE TRADES AND THE STANDARD SPECIFICATIONS AND DETAILS REFERRED TO HEREON.

THIS DRAWING SHOWS INFORMATION OBTAINED FROM AVAILABLE RECORDS REGARDING PIPES, CONDUITS, TELEPHONE LINES AND OTHER STRUCTURES AND CONDITIONS WHICH EXIST WITHIN LIMITS OF THE WORK AT AND BELOW THE SURFACE OF THE GROUND. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORTING AND PROTECTING ALL PIPES, CONDUITS, TELEPHONE LINES, AND OTHER STRUCTURES.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO START OF CONSTRUCTION AND SHALL COORDINATE ALL CONSTRUCTION PHASES WITH THEM:

MDE (Main Number)	410-537-3000
MDE (Eastern Shore Field Office)	410-901-4020
TOWN OF EASTON DPW	410-882-0513
EASTON UTILITIES	410-822-6110
TALBOT COUNTY SCD	410-882-1577 x 3
MISS UTILITY	800-257-7777 or 811

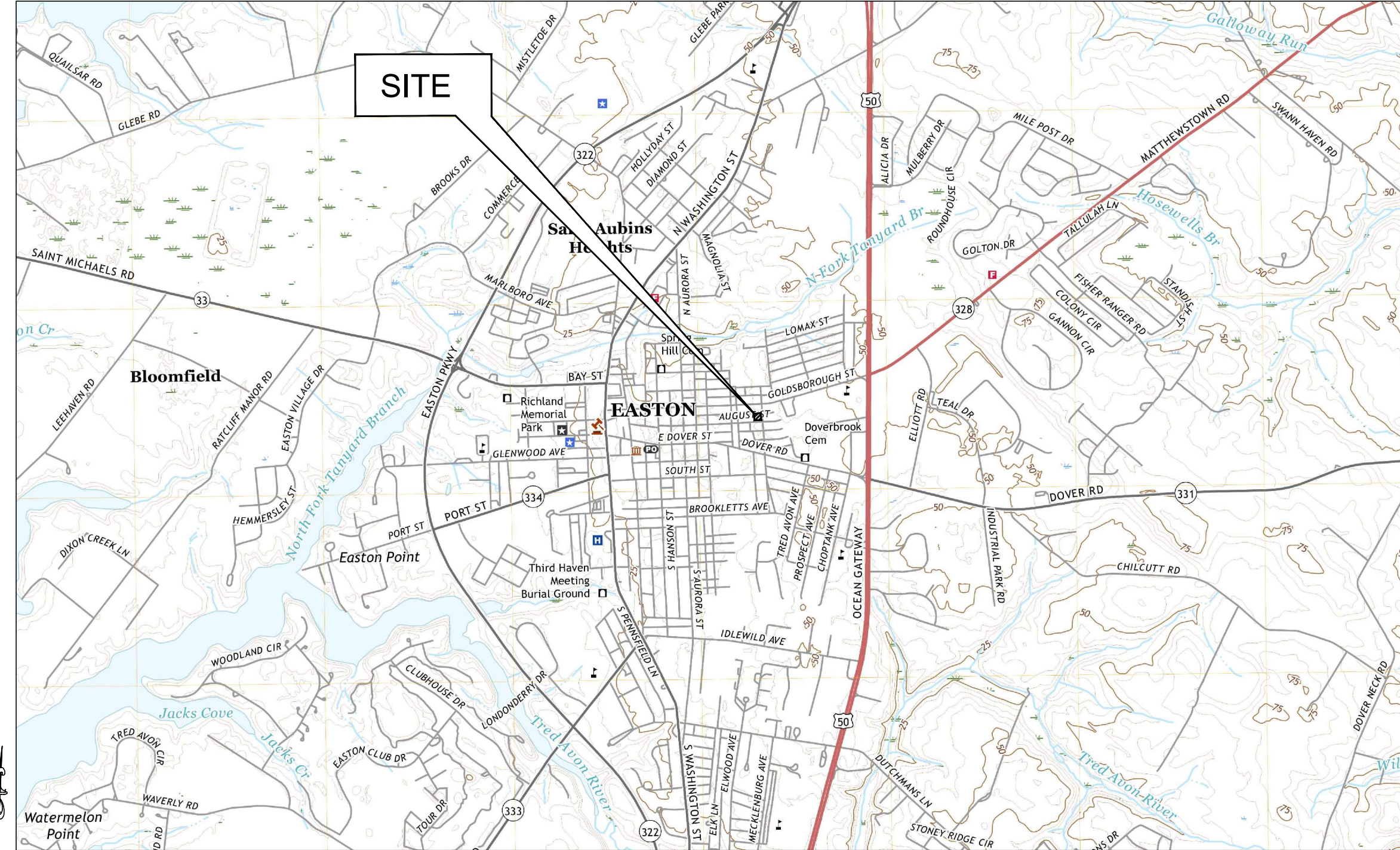
SHOULD ANY DAMAGE OCCUR TO ANY MARKED UTILITIES, THEY SHALL BE REPAIRED SOLELY AT THE CONTRACTORS EXPENSE.

ALL LANDSCAPING SHALL BE PERFORMED BY QUALIFIED PROFESSIONALS. ALL PLANT MATERIALS SHALL BE FROM CERTIFIED NURSERYMAN AND BE GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF PLANTING.

ANY PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTORS EXPENSE.

41 N. PARK STREET DEVELOPMENT PLANS

FOR
BETTER HOMES, BETTER COMMUNITIES (BHBC)
TALBOT COUNTY, MARYLAND 21601



ENVIRONMENTAL NOTES:
1. THE PROJECT SITE IS PARTIALLY LOCATED WITHIN THE 1,000' CRITICAL AREA BUFFER
2. THE SITE IS NOT LOCATED WITHIN A 100 YEAR FLOODPLAIN

VICINITY MAP
SCALE: 1" = 2,000'

STANDARD STABILIZATION NOTE
FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETE WITHIN:
A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING

HYDROLOGY NOTES:
1. THE PROJECT WILL NOT ALTER HYDROLOGY TO OR FROM THE SITE
2. NO OUTLETS WILL BE ALTERED BY THIS PROJECT

SITE DATA

CURRENT PROPERTY ADDRESS:	521 AUGUST STREET EASTON, MD 21601
FUTURE ADDRESS AFTER LOT LINE REVISION:	41 N. PARK STREET (NEW ADDRESS CONFIRMATION PENDING) EASTON, MD 21601
LATITUDE:	38°46'31.3" N
LONGITUDE:	-76°04'00.8" W
PRESENT ZONING CLASSIFICATION:	CBD, PRD, PUD-INFILL, HISTORIC
PROPOSED ZONING:	PRD
PRESENT USE:	UNDEVELOPED SITE
PROPOSED USE:	SINGLE MANSION APARTMENT (TOTAL GROSS FLOOR AREA: 4,333 SQ-FT)
TAX MAP:	0103
GRID:	00EA
PARCEL:	01028
DEED REFERENCE:	02429/ 00366
PROPERTY AREA:	8,382 SQ. FT / 0.192 ACRES
LIMIT OF DISTURBANCE (LOD):	10,651 SF / 0.244 ACRES
TOTAL EXISTING IMPERVIOUS WITHIN LOD	1325 SF / 0.030 ACRES (12%)
TOTAL PROPOSED IMPERVIOUS:	5,902 SF / 0.135 ACRES (55%)
TOTAL CUT:	26.3 CY
TOTAL FILL:	131.3 CY
NET CUT/FILL:	105 CY (FILL)
FEMA FLOOD MAP:	PANEL 2400670002B
SURVEY DATUM:	
HORIZONTAL:	NAVD83
VERTICAL:	NAVD88
EPSC CODE:	2248

REVIEWED FOR THE TALBOT SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

APPROVED:

TALBOT SOIL CONSERVATION DISTRICT DATE

NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT THAT ADDITIONAL PROTECTION BECOMES NECESSARY.

OWNER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL OF THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE IN ACCORDANCE TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.

SIGNATURE DATE

- IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION MADE IN THIS PLAN. ANY CHANGE MADE TO THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.
- ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.

LINETYPES

TOPOGRAPHY
MAJOR CONTOURS
MINOR CONTOURS
TOP OF SLOPE BREAKLINE
BOTTOM OF SLOPE BREAKLINE
TOPOGRAPHY BREAKLINE

CATCHMENT AREA

Tc FLOW PATH

PARCEL BOUNDARY
PARCEL SETBACK/EASEMENT
FENCELINE WOOD
FENCELINE STEEL
TREELINE/VEGETATION
ROADWAY CENTERLINE
HIGHWAY BARRIER

UTILITIES
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
TELEPHONE LINE
GAS PIPE LINE
CABLE TV
WATER PIPE
STORMWATER PIPE

UNDERDRAIN
SANITARY SEWER
FORCE MAIN SEWER

ENVIRONMENTAL
WETLAND LINE
FLOOD PLANE 100/500 YR
MEAN HIGH WATER
MEAN LOW WATER
CRITICAL AREA BOUNDARY
BUFFER 25'/100'
SOILS BOUNDARY

EROSION AND SEDIMENT CONTROL
SILT FENCE
SUPER SILT FENCE
SILT FENCE ON PAVEMENT
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LOD & SUPER SILT FENCE
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AT-GRADE INLET PROTECTION
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SWM EASEMENT 5'/10'

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YARD INLET

CURB INLET

CUSTOM INLET

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SANITARY SEWER MANHOLE

CLEANOUT

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BOREHOLE/MONITORING WELL

PROPOSED

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EXISTING

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HATCHES

ASPHALT

GRAVEL

CONCRETE

RIPRAP/ROCK

ESD BED BOTTOM

BRICK PAVING

EXISTING TO BE DEMOLISHED

STEEP SLOPES

ROOFTOP/NON-ROOFTOP DISCONNECT

ABBREVIATIONS

ADA

AGIP

@

BC

BM

BRL

CES

C/O

CHRD

CI

CIP

CL

CMP

Cul

CUBIC YARD

DI

E

EL/ELEV

EP

ESC

EX

FES

FEE

FL

FT

GFA

GPD

GV

HDPE

I

INV

KV

L

LF

LOD

LT

MAX

MBR

MD

MEP

MH

MHW

MEAN HIGH WATER

MEAN LOW WATER

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

NORTH

NUMBER

PC

PERF

PR

PT

PVC

PVI

Q

R

RCP

RON

ROW

RT

S

SCE

SD

SDMH

Sf

SF

SHA

SIP

SQ

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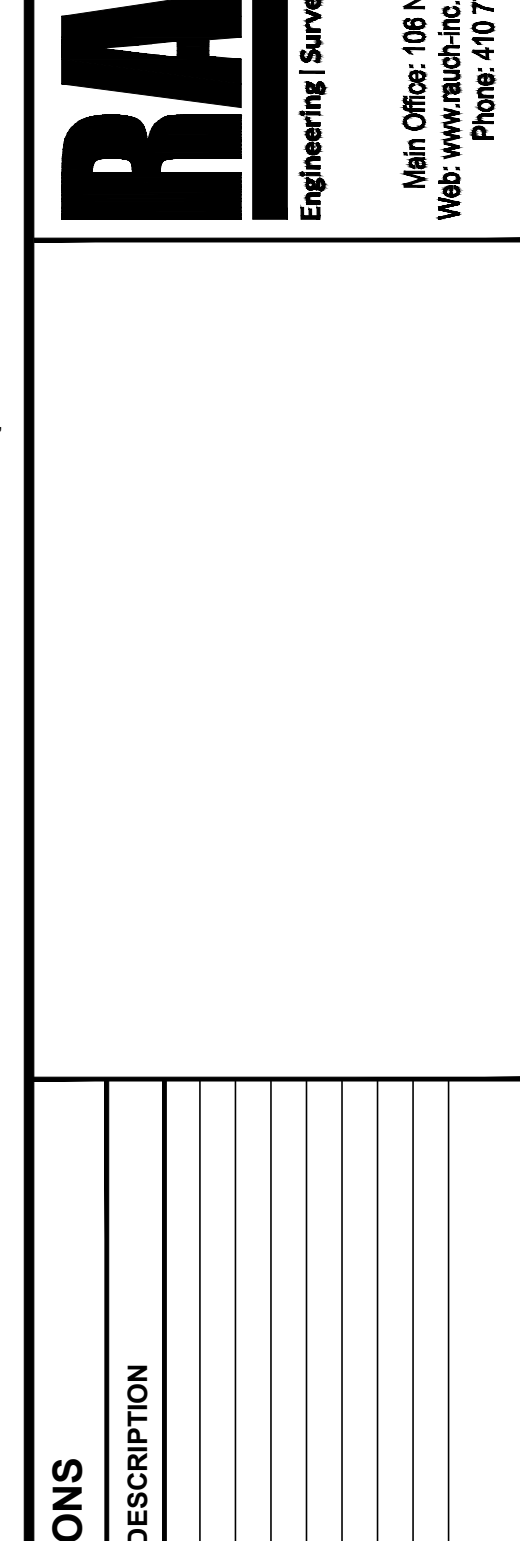
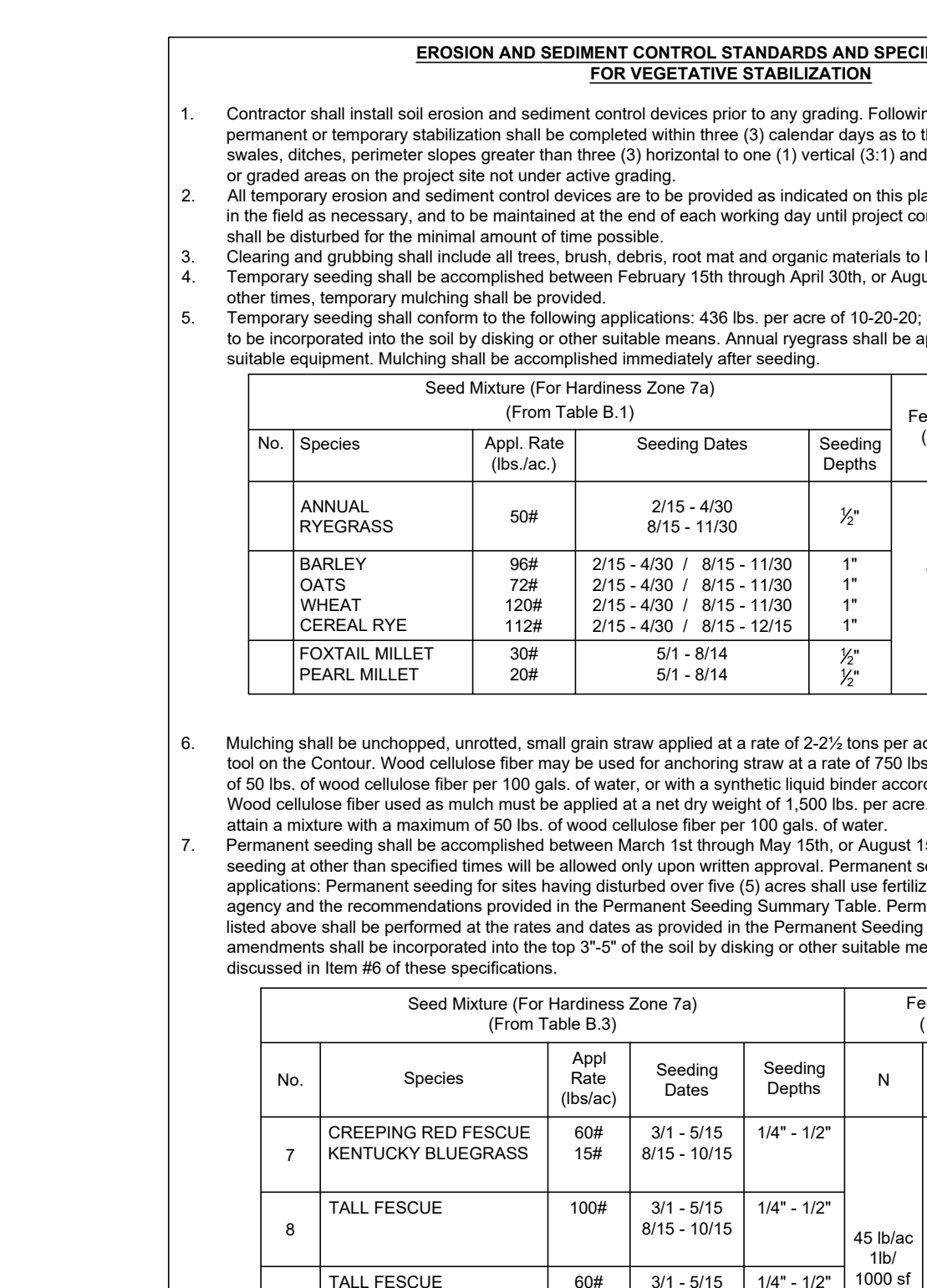
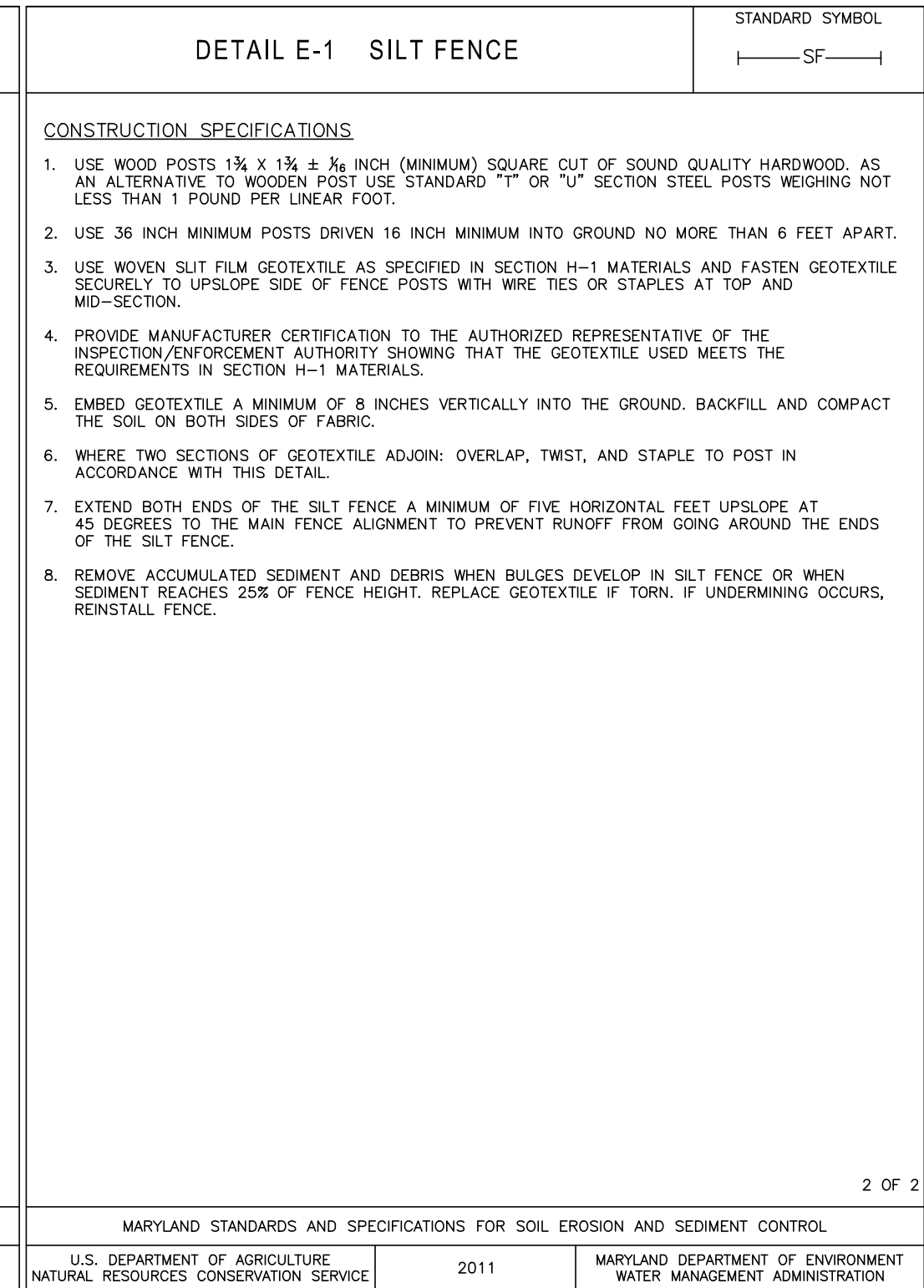
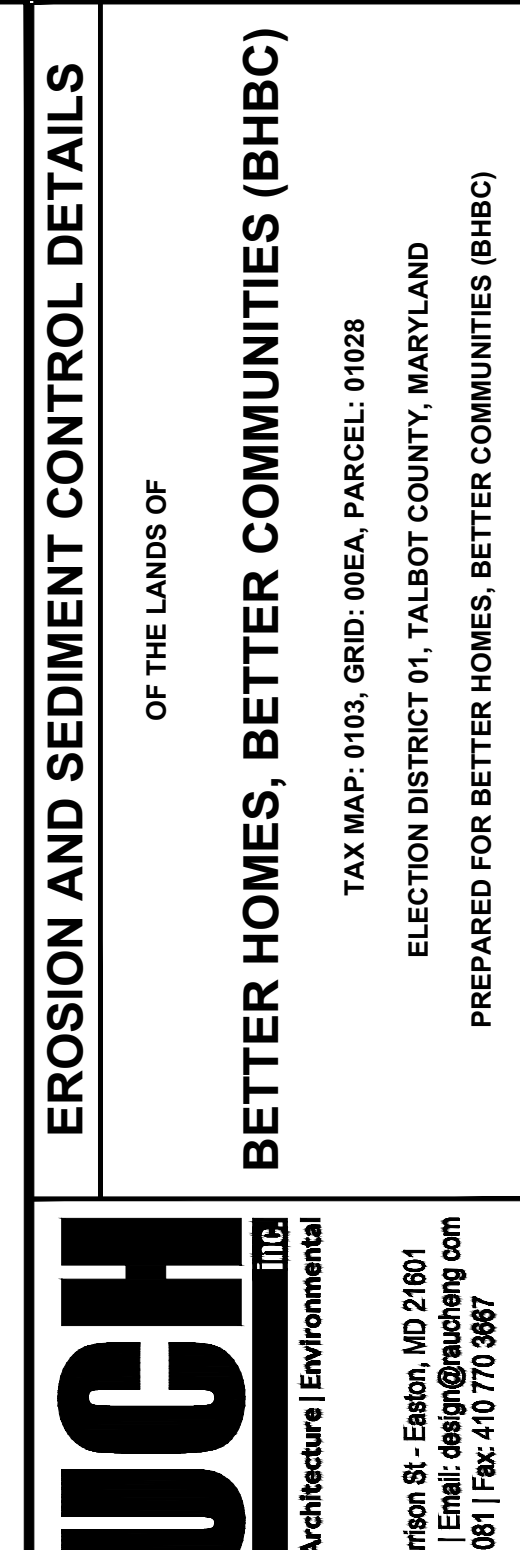
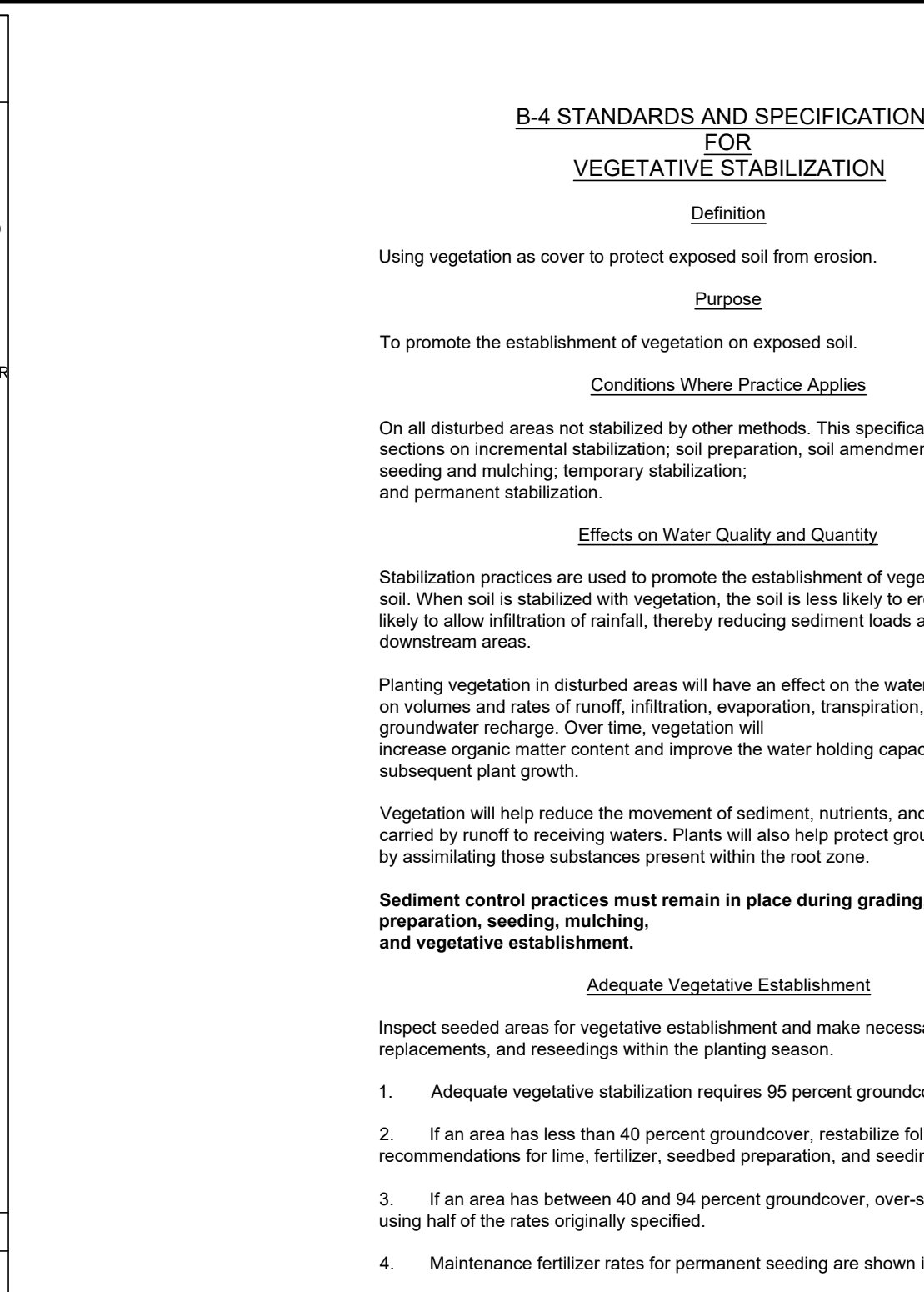
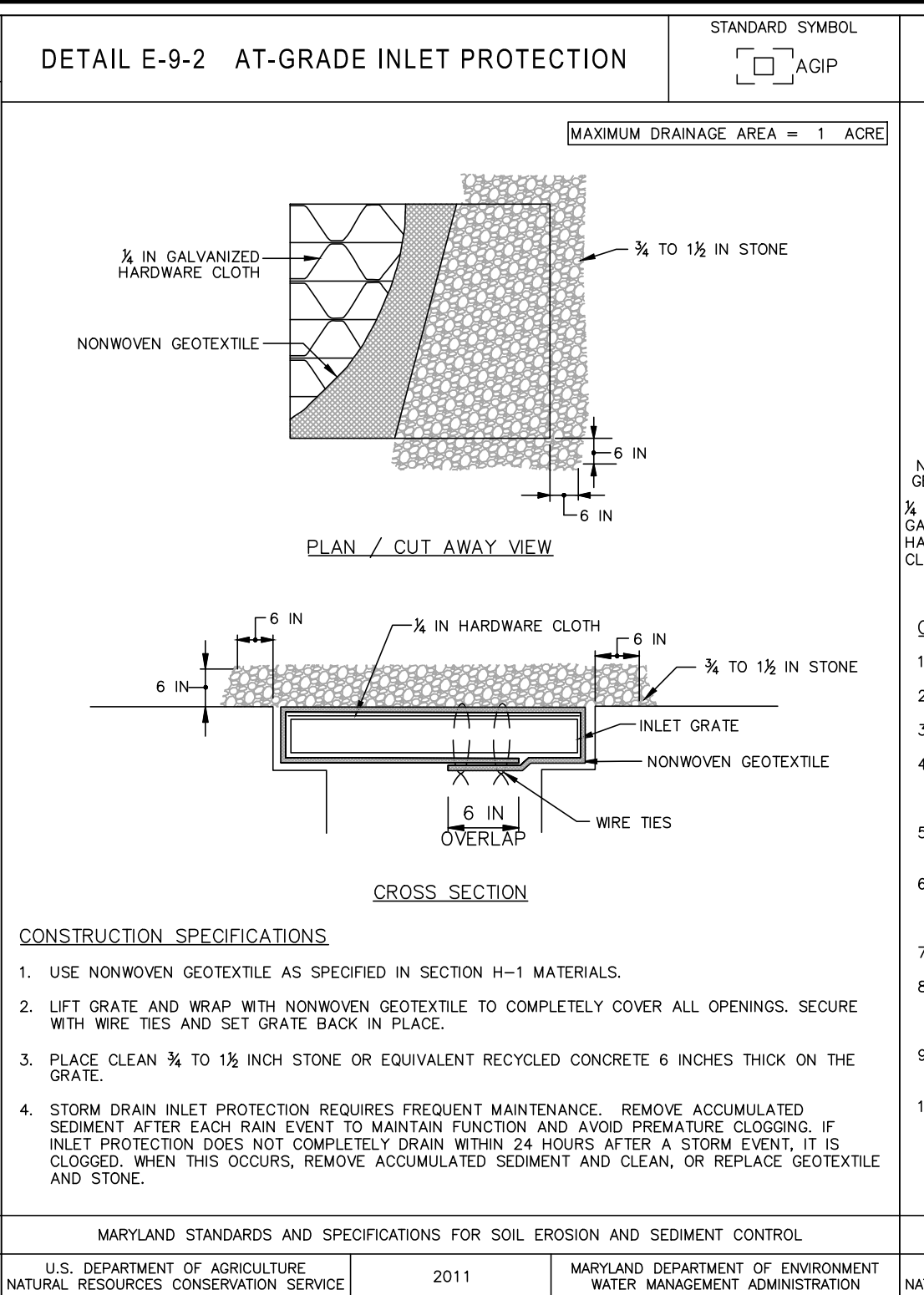
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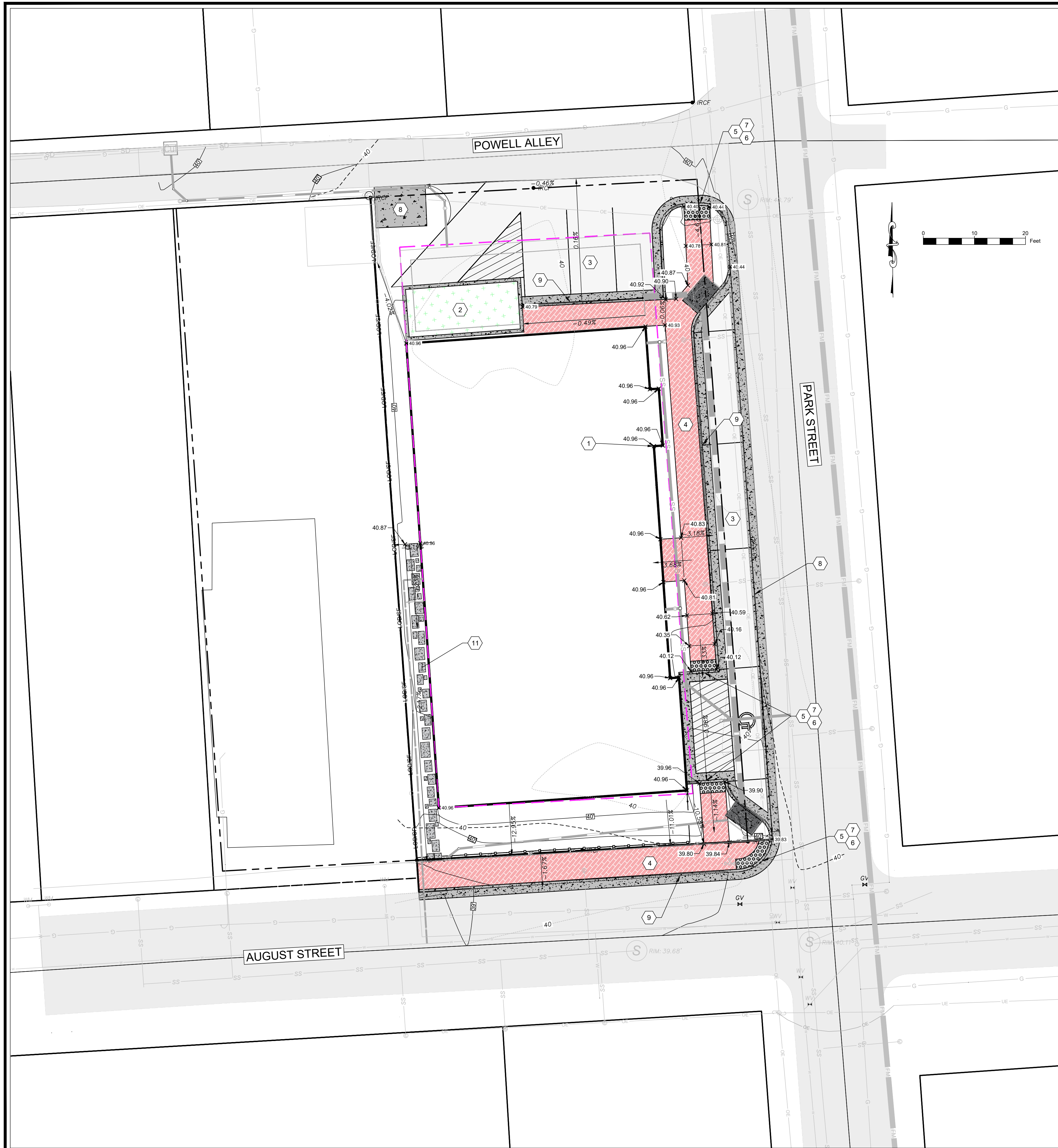
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PROPOSED SITE PLAN NOTES

- 1 APARTMENT BUILDING FOOTPRINT (F.F.E = 40.691)
- 2 STORMWATER PLANTER BOX WITH CONCRETE MASONRY BLOCKS AND BRICK FACADE. SEE DETAIL ON SHEET C-405.01
- 3 PERMEABLE ASPHALT. SEE DETAIL ON SHEET C-405.01
- 4 PERMEABLE 5 FT BRICK PAVER SIDEWALK EXCEPT WHERE SHOWN. SEE DETAIL ON SHEET C-405.01
- 5 SIDEWALK RAMP. SEE DETAIL ON SHEET C-305.02
- 6 DETECTABLE WARNING SURFACE. SEE DETAIL ON SHEET C-305.02
- 7 DEPRESSED CURB. SEE DETAIL ON SHEET C-305.01
- 8 CONCRETE DUMPSTER PAD. SEE DETAIL ON SHEET C-305.02
- 9 STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
- 10 A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
- 10 STEPPING STONE PATH TO SPRINKLER ROOM

NOTE: ALL FLOW LINE FILLETS RADIUS OF 5', UNLESS OTHERWISE SPECIFIED

[illegible]

B-4-3 STANDARDS AND SPECIFICATIONS
FOR
SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

- Specifications
 - All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
 - Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
 - Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
- Application
 - Dry Seeding: This includes use of conventional drop or broadcast spreaders. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
 - Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
 - Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
 - Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer). If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
 - Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - Mix seed and fertilizer on site and seed immediately and without interruption.
 - When hydroseeding do not incorporate seed into the soil.

B. Mulching

- Mulch Materials (in order of preference)
 - Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
 - Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - WCFM, including dye, must contain no germination or growth inhibiting factors.
 - WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - WCFM material must not contain elements or compounds at concentration levels that will be phytotoxic.
 - WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

- Application
 - Apply mulch to all seeded areas immediately after seeding.
 - When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
 - Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- Anchoring
 - Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
 - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
 - Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
 - Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 STANDARDS AND SPECIFICATIONS
FOR
TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3-A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): _____ 7a _____				Fertilizer Rate (10-20-20)		Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
	ANNUAL RYEGRASS	40	FEB 15 - APR 30 AUG 15 - NOV 30	0.5		
	BARLEY	96	FEB 15 - APR 30 AUG 15 - NOV 30	1.0	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf

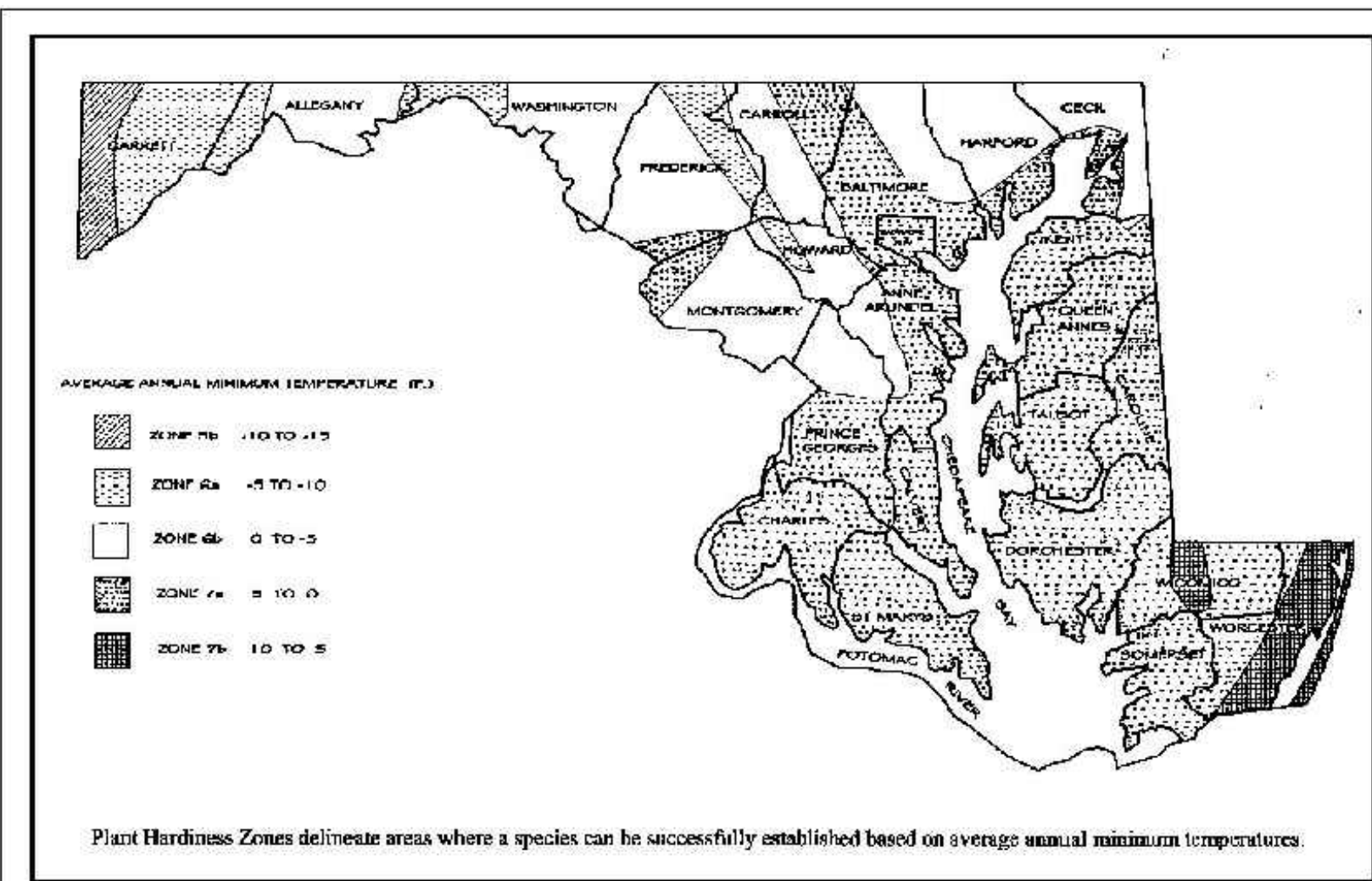


Figure B.3: U.S.D.A. Plant Hardiness Zones

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ^{1/}		Seeding Depth ^{2/} (inches)	Recommended Seeding Dates by Plant Hardiness Zone ^{3/}		
	lb/ac	lb/1000 ft ²		5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (<i>Lolium perenne</i> spp. <i>multiflorum</i>)	48	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (<i>Hordeum vulgare</i>)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (<i>Avena sativa</i>)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (<i>Triticum aestivum</i>)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (<i>Secale cereale</i>)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (<i>Setaria italica</i>)	38	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (<i>Pennisetum glaucum</i>)	28	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:

- 1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixtures, use 1/5 of the seeding rate listed above for barley, oats, and wheat. For cool-season grasses (annual ryegrass, pearl millet, tall millet), do not exceed more than 5% (by weight) of the overall permanent seeding rate. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

- 2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustments to reflect local conditions, especially near the boundaries of the zones.

EROSION AND SEDIMENT CONTROL STANDARDS & SPECIFICATIONS FOR VEGETATIVE STABILIZATION

- Contractor shall install soil erosion and sediment control devices prior to any grading. Following initial disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes greater than three (3) horizontal to one (1) vertical (3:1) and seven (7) days as to all other disturbed or graded areas on the project site not under active grading.
- All temporary erosion and sediment control devices are to be provided as indicated on this plan, with location adjustments to be made in the field as necessary, and to be maintained at the end of each working day until project completion. The minimum area practical shall be disturbed for the minimal amount of time possible. Clearing and grubbing shall include all trees, brush, debris, root mat and organic materials to be removed.
- Temporary seeding shall be accomplished between February 15th through April 30th, and August 15th through November 30th. During other times, temporary mulching shall be provided.
- Temporary seeding shall conform to the following applications: 436 lbs. per acre of 10-20-20, 4,000 lbs. per acre of ground limestone, to be incorporated into the soil by disk or other suitable means. Annual ryegrass shall be applied at a rate of 50 lbs. per acre using suitable equipment. Mulching shall be accomplished immediately after seeding.

Seed Mixture (For Hardness Zone 7a) (From Table B.1)				Fertilizer Rate (10-20-20)	Lime Rate
Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
ANNUAL RYEGRASS	50#	2/15 - 4/30 8/15 - 11/30	1/2"		
BARLEY	96#	2/15 - 4/30; 8/15 - 11/30	1"	436 lbs. / ac. 10 lbs. / 1000 sf	2 tons / ac. 90 lbs. / 1000 sf
OATS	72#	2/15 - 4/30; 8/15 - 11/30	1"		
WHEAT	120#	2/15 - 4/30; 8/15 - 11/30	1"		
CEREAL RYE	112#	2/15 - 4/30; 8/15 - 12/15	1"		
FOXTAIL MILLET	30#	5/1 - 8/14	1/2"		
PEARL MILLET	20#	5/1 - 8/14	1/2"		

- Mulching shall be un-chopped, un-rotted, small grain straw applied at a rate of 2-2½ tons per acre. Anchor mulch with a mulch anchoring tool on the Contour. Wood cellulose fiber may be used for anchoring straw at a rate of 750 lbs. per acre mixed with water at a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water, or with a synthetic liquid binder according to manufacturer recommendations. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1,500 lbs. per acre. Mix wood cellulose fiber with water to attain a mixture with a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water.
- Permanent seeding shall be accomplished between February 15th through April 30th, or August 15th through October 31st. Permanent seeding at other than specified times will be allowed only upon written approval. Permanent seeding shall conform to the following applications: Permanent seeding for sites having disturbed over five (5) acres shall use fertilizer rates recommended by a soil testing agency and the recommendations provided in the Permanent Seeding Summary Table. Permanent seeding for conditions other than listed above shall be performed at the rates and dates as provided in the Permanent Seeding Summary Table below. Fertilizer and lime amendments shall be incorporated into the top 3"-5" of the soil by disk or other suitable means. Mulching shall be accomplished as discussed in Item #6 of these specifications.

Seed Mixture (For Hardness Zone 7a) (From Table B.3)					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths	N	P2O5	K2O	
7	CREeping RED FESCUE KENTUCKY BLUEGRASS	60# 15#	2/15-4/30 8/15-10/31	3/4"-1/2"	45 lb./ac. 1 lb./1000 sf	90 lb./ac.	90 lb./ac.	2 tons/ac. 90 lbs./1000 sf
8	TALL FESCUE	100#	2/15-4/30 8/15-10/31	3/4"-1/2"		2 lbs./1000 sf	2 lbs./1000 sf	
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60# 40# 20#	2/15-4/30 8/15-10/31	3/4"-1/2"				

- Any spoil or borrow will be placed at a site approved by the Talbot Soil Conservation District.
- All areas remaining or intended to remain disturbed for longer than seven (7) days shall be stabilized in accordance with the USDA, Natural Resources Conservation Service Standards and Specifications for Soil Erosion and Sediment Control in developing areas for critical area stabilization.
- It will be the responsibility of the Contractor or Subcontractor to notify the Engineer of any deviation from this plan. Any change made in this plan without written authorization from the Engineer will place responsibility of said change on the Contractor or Subcontractor.

EROSION AND SEDIMENT CONTROL DETAILS

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH
Engineering | Survey | Architecture | Environmental

11/13

Main Office: 106 N Harrison St. - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauch.com
Phone: 410 770 8081 | Fax: 410 770 3887

REVISIONS

DESCRIPTION

DATE

REV. #

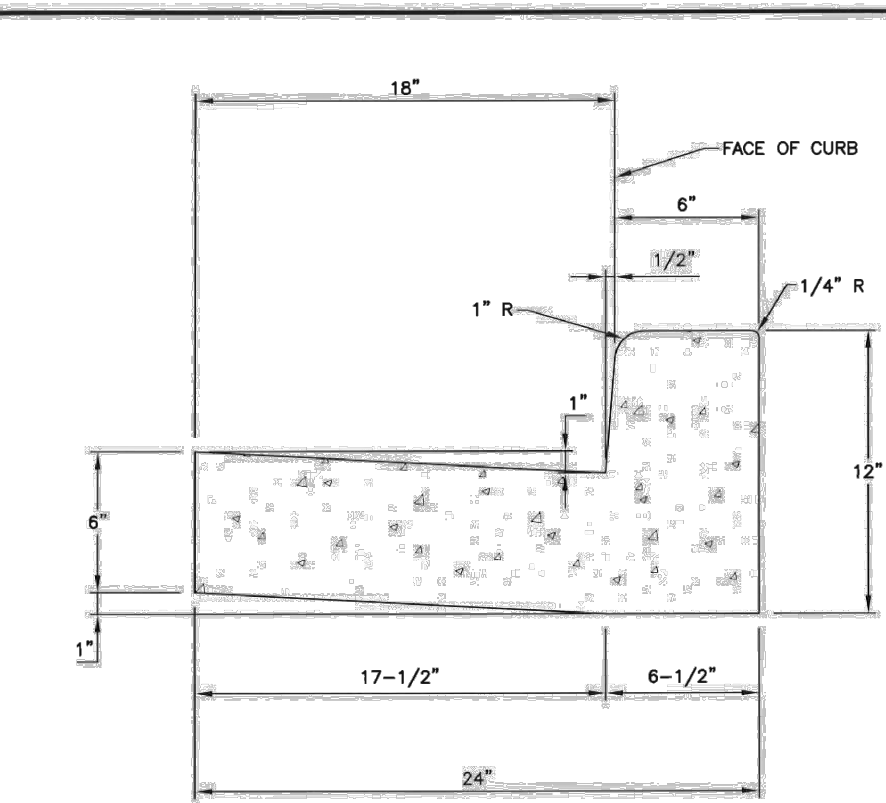


DATE: 10/31/2022
SCALE: N/A
DRAWN BY: JWL & WCS
DESIGNED BY: JWL & WCS
APPROVED BY: BBF

SHEET NO.: C-205.02

FOR
REVIEW

Y:\0000\CADD STANDARDS\DETAILS\Std Details\Easton MID\DETAILS\PW-2.00.dwg [Dec 22, 2010 - 3:17pm, (hard)]



- NOTES:
1. ALL CONCRETE USED FOR CURB & GUTTER SHALL BE SHA MIX NO. 7.
 2. CURB & GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 40'-0". EXTRUDED CONCRETE CURB & GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 100'-0" AND AT PT OR PC.
 3. DEPRESSED CURB AND GUTTER SHALL BE UTILIZED AT HANDICAPPED RAMPS WHEN TRANSITIONING FROM STANDARD CURB AND GUTTER.
 4. MAXIMUM GUTTER SLOPE ON CURB RETURNS SHALL BE 2% WHERE HANDICAPPED RAMPS ARE REQUIRED.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
	MAY 1, 89	
TOWN ENGINEER	DATE	
	AUG 1, 84	
	FEB 25, 09	
	JAN 1, 11	
ISSUED: MAY 1, 1986		STANDARD NO. PW-2.00

PAVING NOTES

PAVING REQUIREMENTS

A. BASE COURSE

1. SUB-GRADE SHALL BE PLACED ON PREPARED AND COMPACTED REFILLED EXCAVATIONS TO THE COMPACTED DEPTH AS SHOWN ON DETAIL 09W-1.03. MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF MD SHA STANDARDS, SECTION 208.
2. GRADED AGGREGATE BASE COURSE:
 - a) GRADED AGGREGATE BASE COURSE SHALL BE SPREAD ON PREPARED AND COMPACTED REFILLED EXCAVATION TO THE COMPACTED DEPTH SHOWN ON THE DRAWING DETAILS.
 - b) GRADED AGGREGATE SHALL BE PER MD SHA STANDARD, SECTION 801.
 - c) RECYCLED CRUSHED CONCRETE IS AN ACCEPTABLE ALTERNATIVE PROVIDED THICKNESS ADJUSTMENTS ARE MADE BASED ON SUPPLEMENTAL TESTING TO BE SUBMITTED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY THE TOWN ENGINEER.

B. TACK COAT

1. COATING SHALL BE RESIDUAL ASPHALT UNIFORMLY SPREAD BETWEEN .01 AND .05 GALLONS/SQ. YARD.
2. CONTRACTOR SHALL TAKE CARE NOT TO TRACK COAT ON SURFACE COURSES.

C. HOT MIX ASPHALT PAVEMENT

1. HOT MIX ASPHALT PAVEMENT SHALL CONSIST OF A NUMBER OF COURSES OF HMA SUPERPAVE MATERIAL AND AGGREGATE ON A PREPARED SUB-BASE AS SHOWN WITHIN THE TOWN STANDARDS.
2. MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF SECTION 504 AND SECTION 804 OF THE MD SHA STANDARDS AND DETAILS.
3. SURFACE COURSES OF BITUMINOUS CONCRETE MIXES SHALL HAVE LESS THAN 15% OF RECYCLED ASPHALT PAVEMENT (RAP).
4. BASE COURSES SHALL HAVE NO MORE THAN 20% RAP.
5. WEATHER RESTRICTIONS:
 - a) PLANT MIXED SEAL - MINIMUM SURFACE TEMPERATURE 60°F AND RISING.
 - b) SURFACE COURSE - MINIMUM SURFACE TEMPERATURE 40°F AND RISING.
 - c) BASE COURSE - MINIMUM SURFACE TEMPERATURE 35°F AND RISING.

D. CONCRETE PAVEMENT

1. CONCRETE USED IN THE RESTORATION OF STREET AND ROADS SHALL BE PLACED TO THE MINIMUM THICKNESS THAT SHALL BE APPROVED BY THE TOWN. CONCRETE MAY BE A BASE COURSE WITH A BITUMINOUS CONCRETE OVERLAY OR A FINISHED SURFACE COURSE.
2. CONCRETE PAVEMENT SHALL MEET THE PROVISIONS OF MD SHA STANDARDS, SECTION 522.
3. CONCRETE SIDEWALK AND CURB AND GUTTER RESTORATION SHALL BE AS INDICATED WITHIN THE TOWN STANDARDS.

E. SOIL CEMENT

1. WHERE THE CBR VALUES ARE FOUND TO BE LOW WITHIN THE PAVED AREA, THE TOWN WILL ALLOW THE SUB-GRADE BE REINFORCED BY A CEMENTITIOUS MATERIAL BEING MIXED IN THE SUBGRADE. APPLICATION SHALL BE SUBJECT TO THE GEOTECHNICAL INVESTIGATION.
2. A MINIMUM OF 2" OF GRADED AGGREGATE SHALL BE INSTALLED BETWEEN THE AMENDED SOIL AND BITUMINOUS PAVEMENT.
3. MINIMUM MIX DEPTH OF THE SOIL CEMENT MIXTURE SHALL BE 8" WITH A 5-5.5% MINIMUM CEMENT CONTENT.



APPROVAL

TOWN ENGINEER
DATE 1/20/20

TOWN OF EASTON
STANDARD DETAILS
PAVING NOTES

ISSUED: JANUARY 2020 STANDARD NO: TOE-R-102

CONCRETE QUICK REFERENCE LIST

CAST-IN-PLACE CONCRETE SIDEWALKS AND CURBING

A. SUBMITTALS

1. SUBMIT MIX DESIGN FOR APPROVAL PRIOR TO PLACING CONCRETE (MSHA MIX #3 FOR ALL CONCRETE SIDEWALKS, AIR ENTRAINED, MINIMUM 3500 PSI MIX). FOR CURB AND GUTTER, UTILIZE MSHA MIX #7, EXCEPT MAXIMUM WATER CEMENTITIOUS RATIO OF 0.45 AND 611 POUNDS MINIMUM CEMENTITIOUS MATERIALS - AIR ENTRAINED, MINIMUM 4000 PSI MIX.
2. SUBMIT CONCRETE TESTING AGENCY FOR APPROVAL, WHICH CONTRACTOR OR PROJECT OWNER SHALL EMPLOY FOR INFIELD AND LABORATORY TESTING.

B. CONCRETE PLACEMENT

1. NOTIFY TOWN OF INTENTION TO POUR CONCRETE 24 HOURS PRIOR TO PERFORMING WORK. (PHONE: 410-822-8822).
2. DRIVER SHALL PRESENT COMPUTER GENERATED MIX DELIVERY TICKET UPON ARRIVAL TO SITE.
3. DO NOT ADD WATER TO MIX AT JOB SITE UNLESS APPROVED BY ENGINEER. DO NOT POUR CONCRETE DURING RAIN EVENTS.
4. TESTING AGENCY SHALL TEST FOR SLUMP, TEMPERATURE AND AIR ENTRAINMENT AT THE JOB SITE. PRIOR TO POURING EACH TRUCK LOAD DELIVERED TO SITE, THE MAXIMUM TIME FROM ADDING WATER TO BATCH AT PLANT TO DISCHARGE AT SITE SHALL BE WITHIN 1½ HOURS. TESTING AGENCY SHALL VERIFY THAT SUB-GRADE IS PROPERLY COMPACTED.
5. TESTING AGENCY SHALL COLLECT CYLINDERS FOR COMPRESSION TESTING ON EACH TRUCK LOAD OF CONCRETE DELIVERED TO SITE PER AG REQUIREMENTS. TEST RESULTS SHALL BE PROVIDED TO THE ENGINEER WITHIN 48 HOURS OF 7 AND 28 DAY BREAKS, REPORT SHALL INCLUDE LOCATION OF POUR PER PLAN STATIONING.
6. ENGINEER OF HIS/HER REPRESENTATIVE SHALL VERIFY THAT AREA OF CONCRETE WORK IS PROPERLY PREPARED, FREE OF WATER, FREE OF UNSTABLE MATERIALS AND THAT ALL REINFORCEMENT REQUIRED AT DRIVEWAYS, RAMP, VALLEY GUTTERS, ETC. IS IN PLACE AND PROPERLY SUPPORTED.
7. COLD WEATHER CONCRETE PLACEMENT SHALL BE PROTECTED FROM DAMAGE AND FROST, FREEZING ACTION OR LOW TEMPERATURES. NO UNAPPROVED ADMIXTURES ARE PERMITTED.
8. CONCRETE CURB AND SIDEWALKS SHALL HAVE PROPER CONTROL JOINTS INSTALLED AT 10 FOOT INTERVALS FOR CURB AND 5 FOOT INTERVALS FOR SIDEWALK. EXPANSION JOINTS FOR CURBING SHALL BE AT EACH 100 FOOT INTERVAL PLUS AT EACH POINT OF TANGENT OR CURVE. SIDEWALKS SHALL HAVE EXPANSION JOINTS AT 20 FOOT INTERVALS OR AT CHANGE OF DIRECTION.

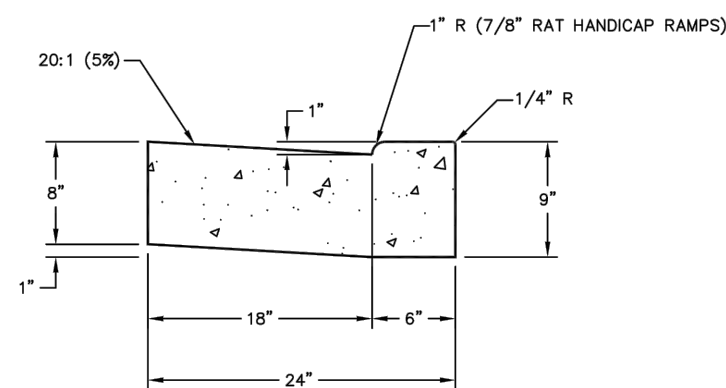


APPROVAL

TOWN ENGINEER
DATE 1/20/20

TOWN OF EASTON
STANDARD DETAILS
CONCRETE QUICK REFERENCE LIST

ISSUED: JANUARY 2020 STANDARD NO: TOE-R-103



NOTES

1. ALL CONCRETE USED FOR CURB AND GUTTER SHALL BE SHA MIX NO. 7.
2. CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 40'-0". EXTRUDED CONCRETE CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 100'-0".
3. MAXIMUM GUTTER SLOPE ON CURB RETURNS SHALL BE 2% WHERE HANDICAPPED RAMPS ARE REQUIRED.



APPROVAL

TOWN ENGINEER
DATE 1/20/20

TOWN OF EASTON
STANDARD DETAILS
STANDARD DEPRESSED
CURB AND GUTTER
FOR SIDEWALK RAMPS

ISSUED: JANUARY 2020 STANDARD NO: TOE-R-6.03

SITE DETAILS

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALEOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH
Engineering | Survey | Architecture | Environmental

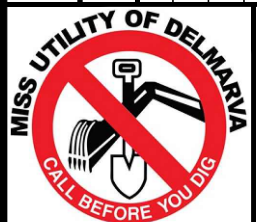
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3987

REVISIONS

DESCRIPTION

DATE

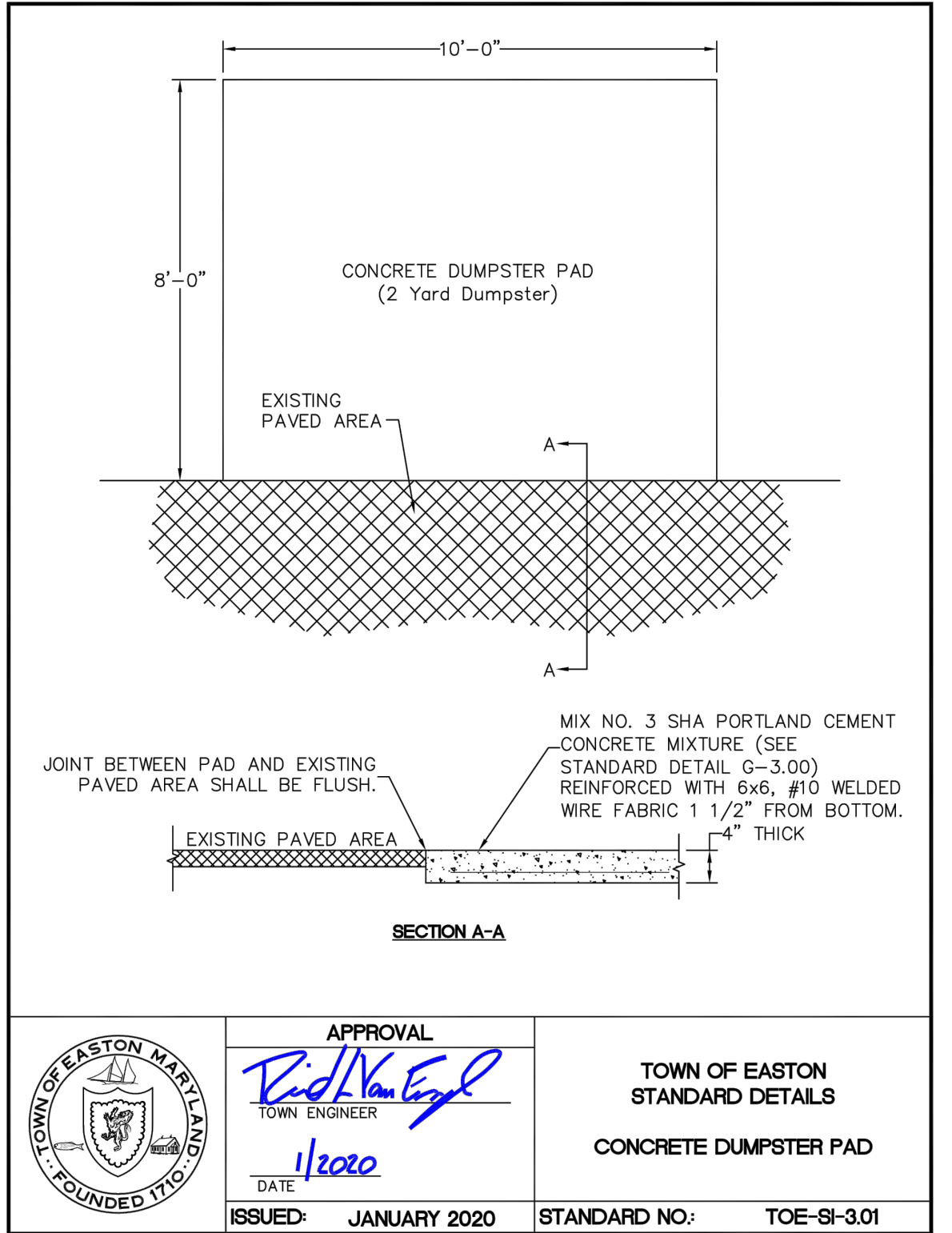
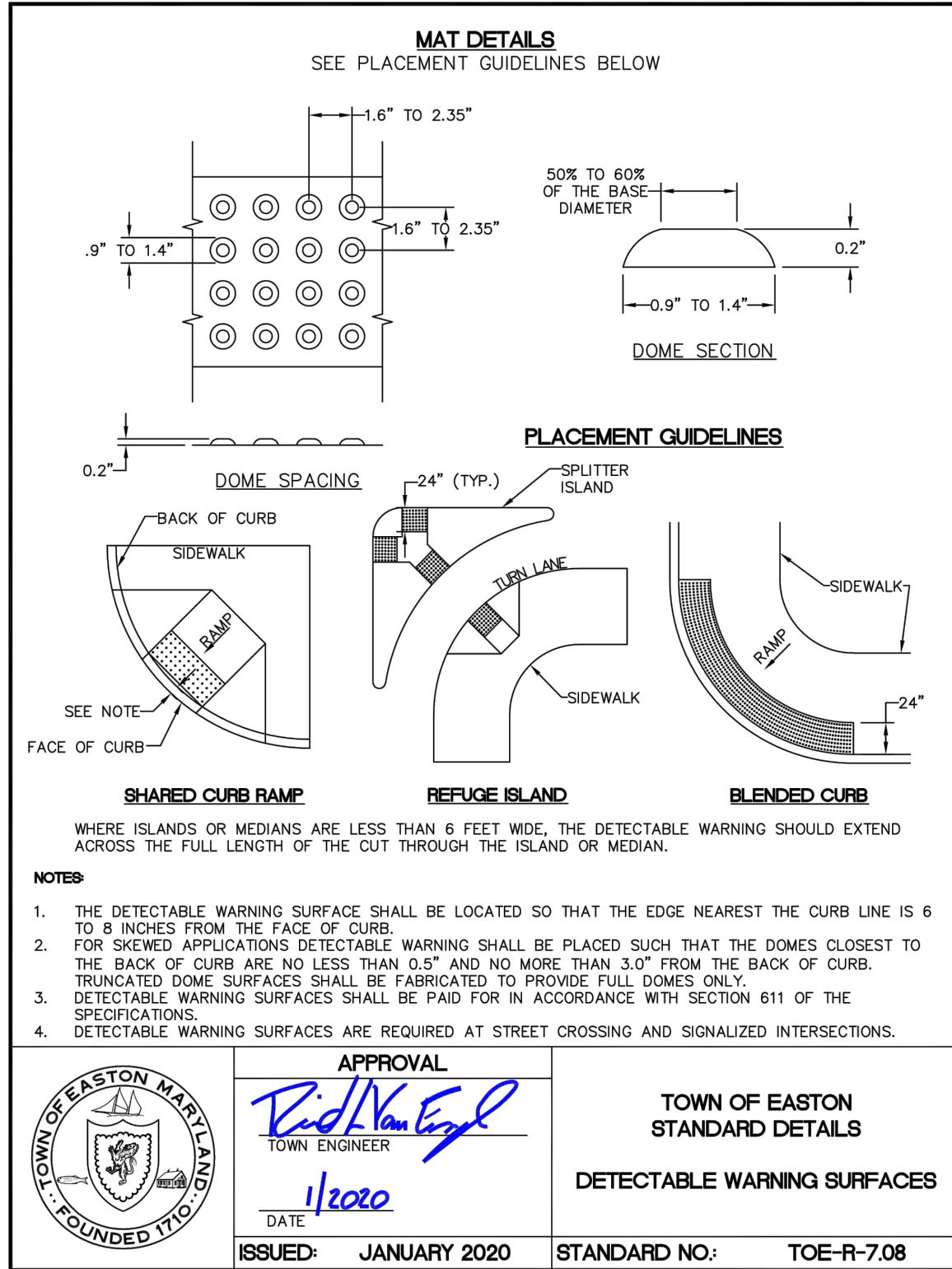
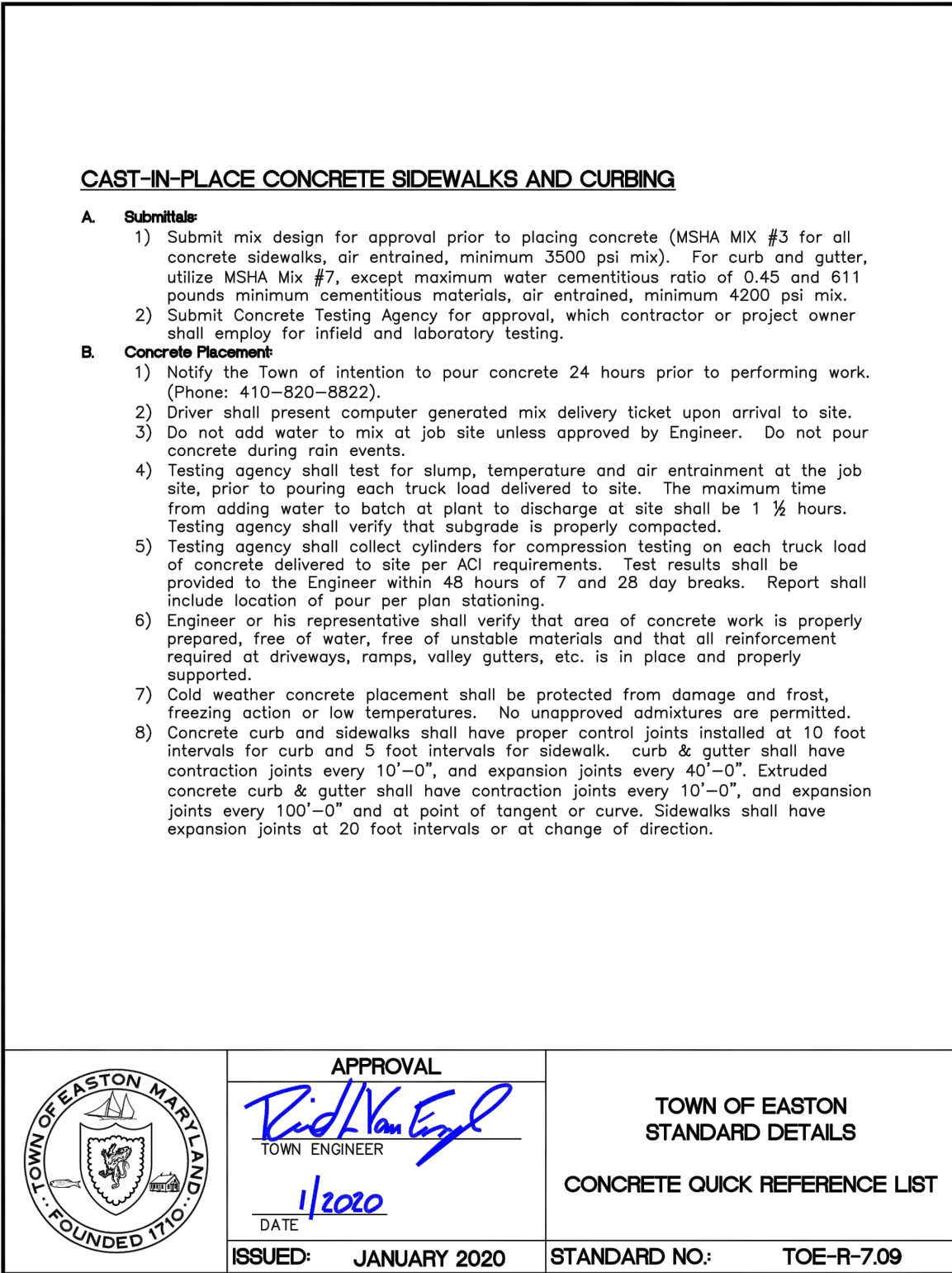
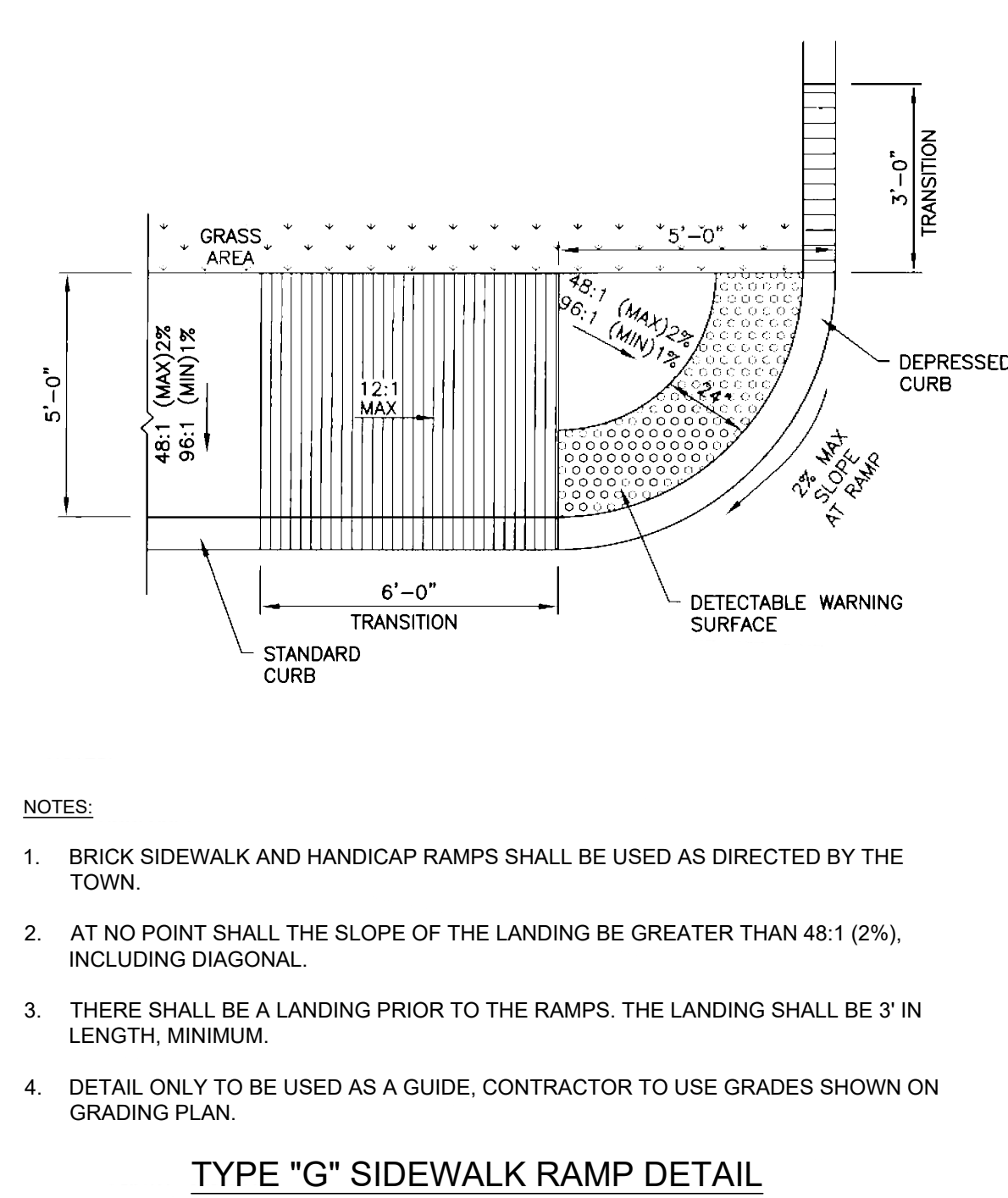
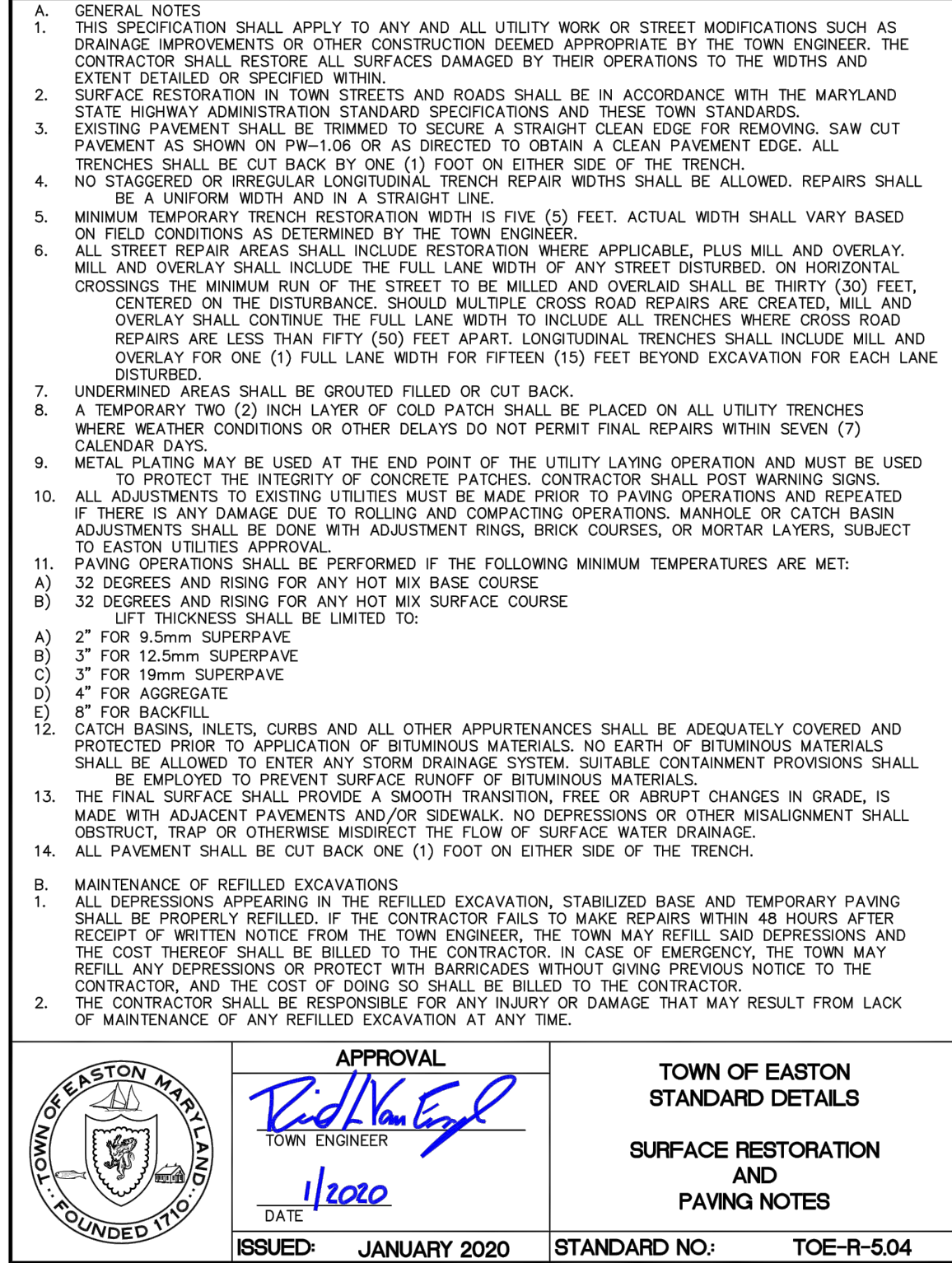
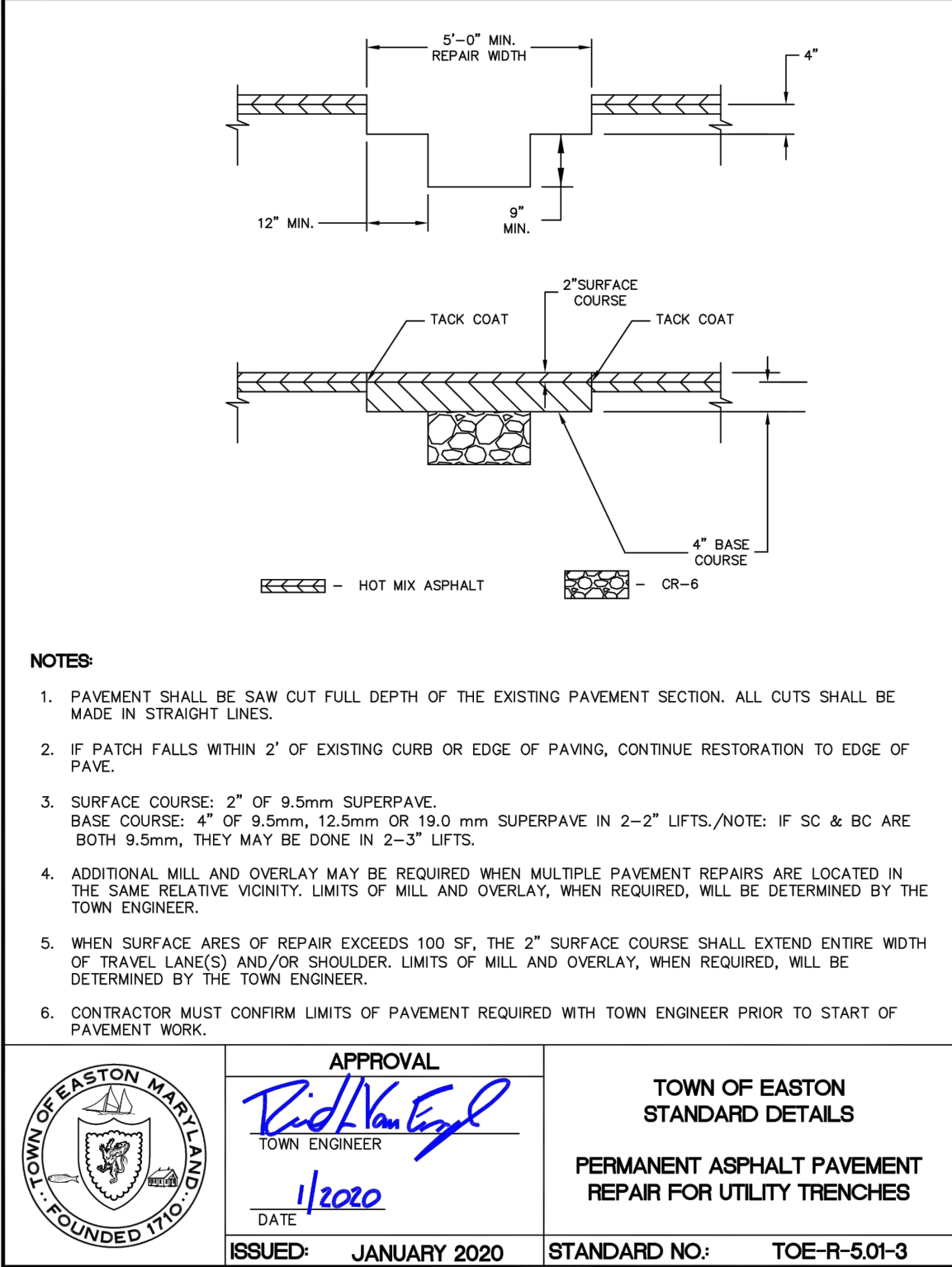
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DATE: 10/31/2022
SCALE: N/A
DRAWN BY: JWL & WCS
DESIGNED BY: JWL & WCS
APPROVED BY: BBF

SHEET NO.: C-305.01

FOR REVIEW



SITE DETAILS

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALEOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH
Engineering | Survey | Architecture | Environmental

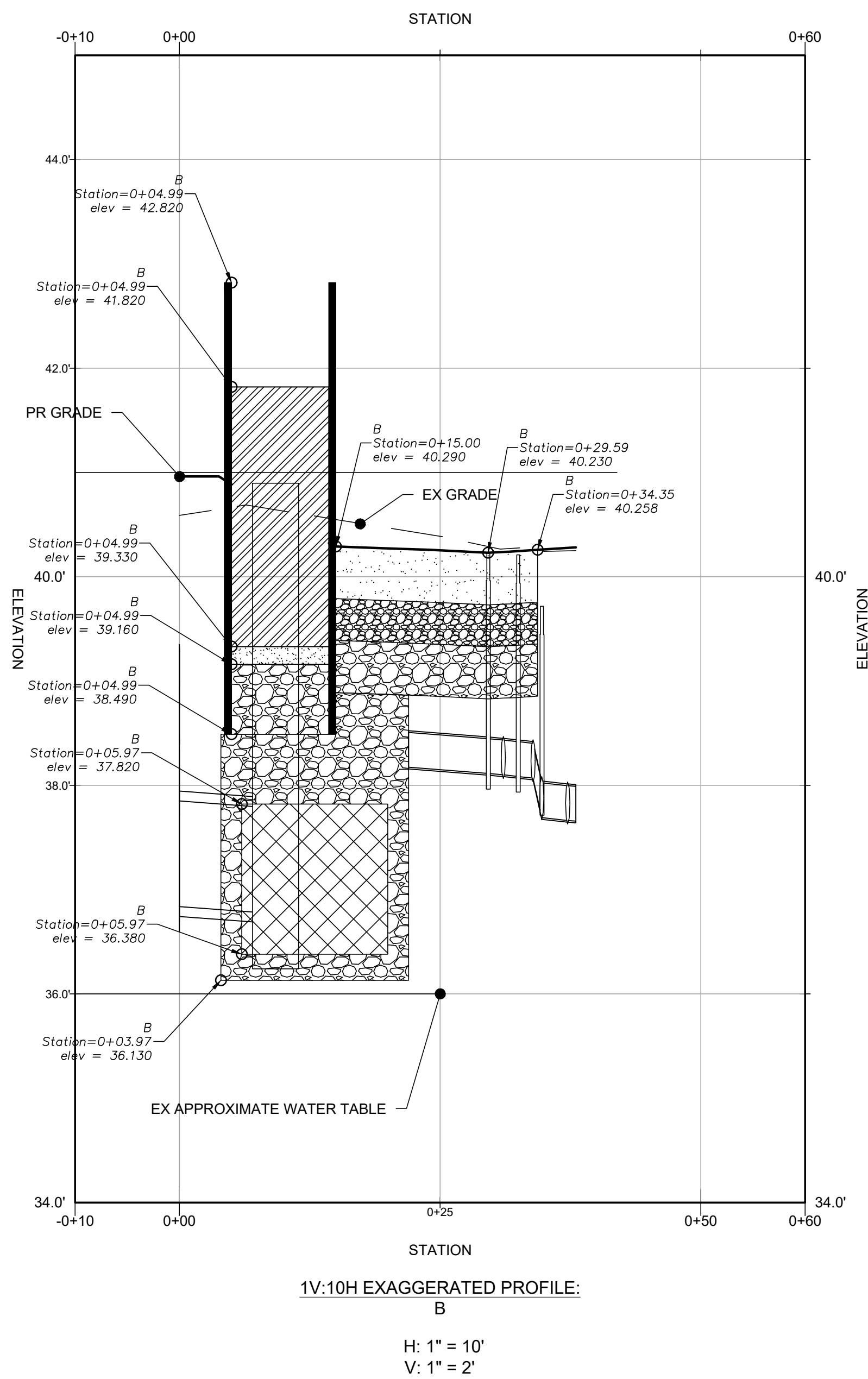
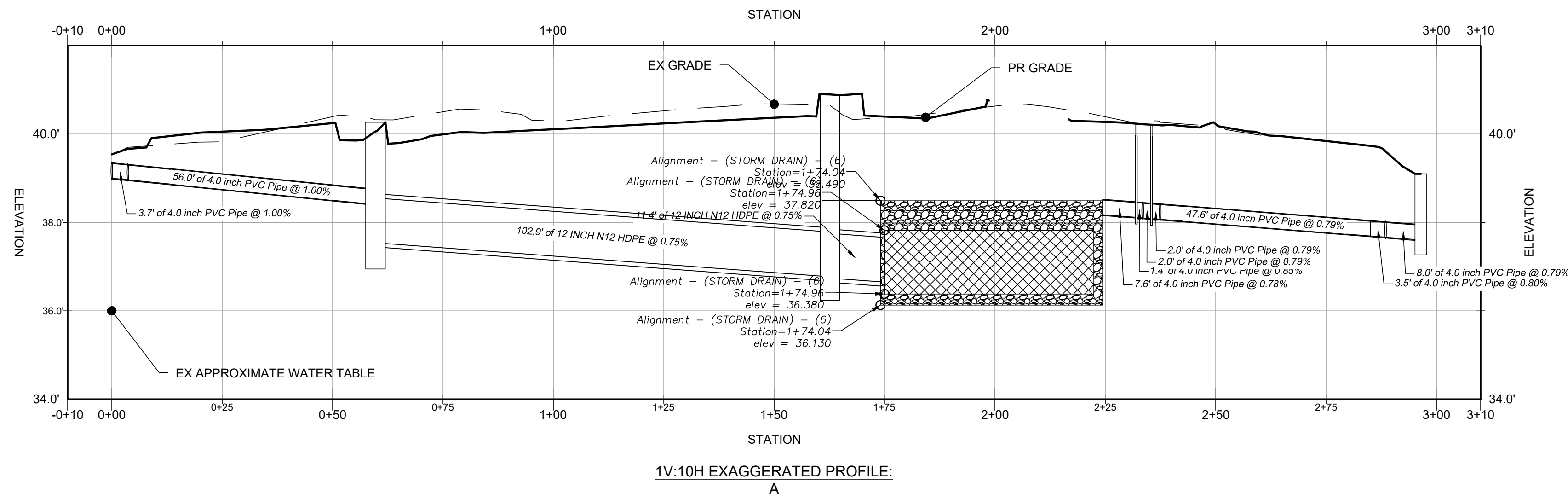
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3467

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DATE: 10/31/2022
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DRAWN BY: JWL & WCS
DESIGNED BY: JWL & WCS
APPROVED BY: BBF

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FOR REVIEW

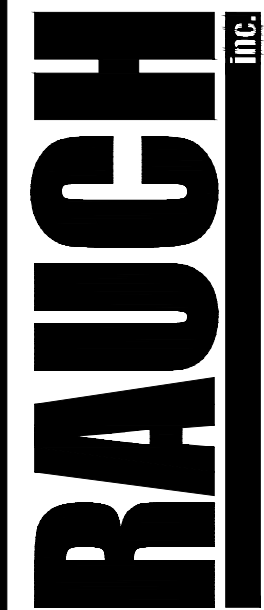


STORMWATER & STORM DRAIN PROFILES

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

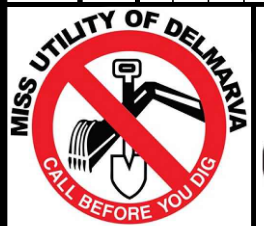
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ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
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Phone: 410 770 9081 | Fax: 410 770 3987

REVISIONS

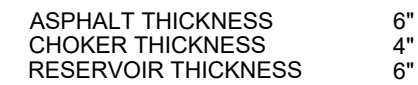
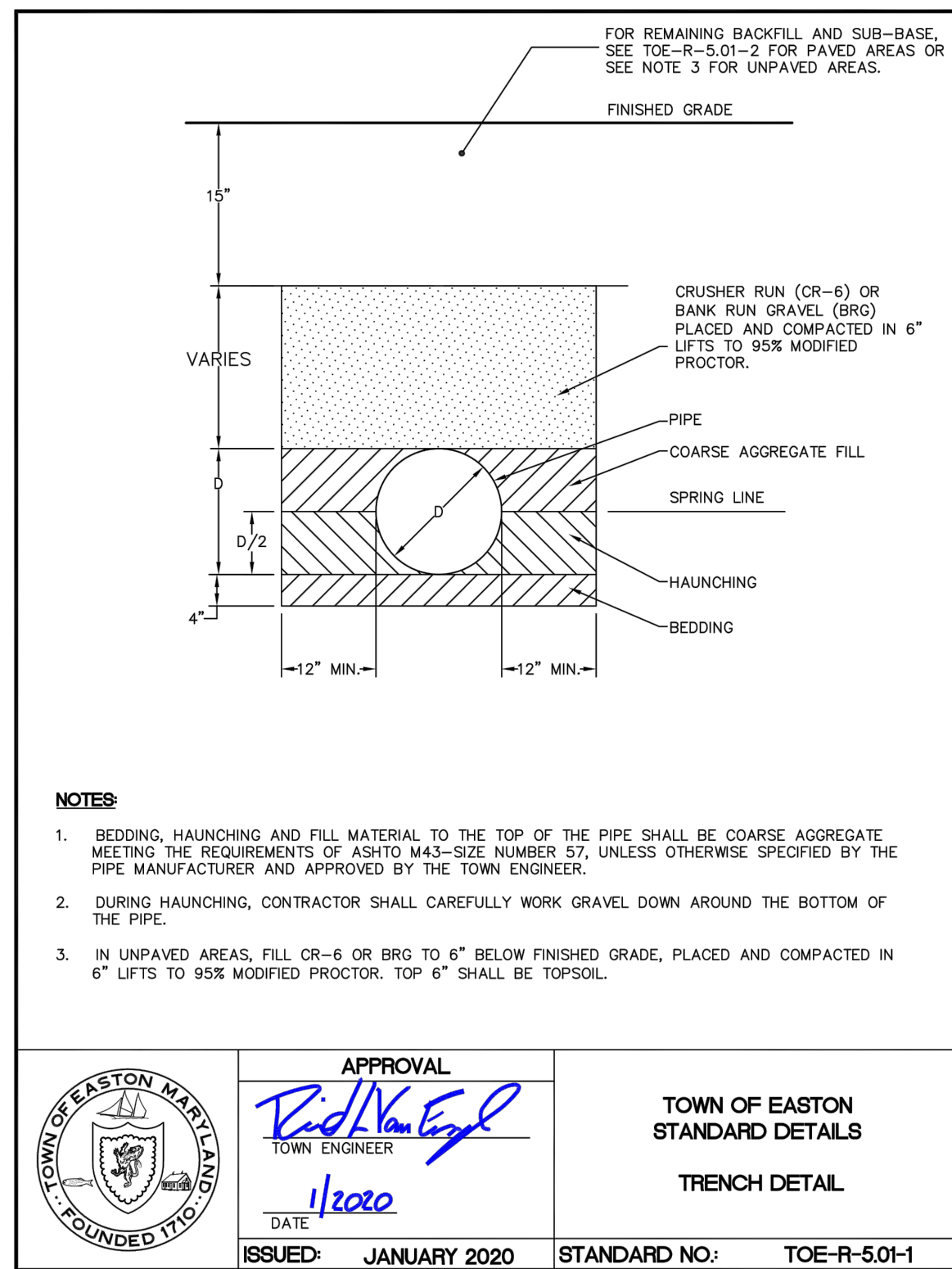
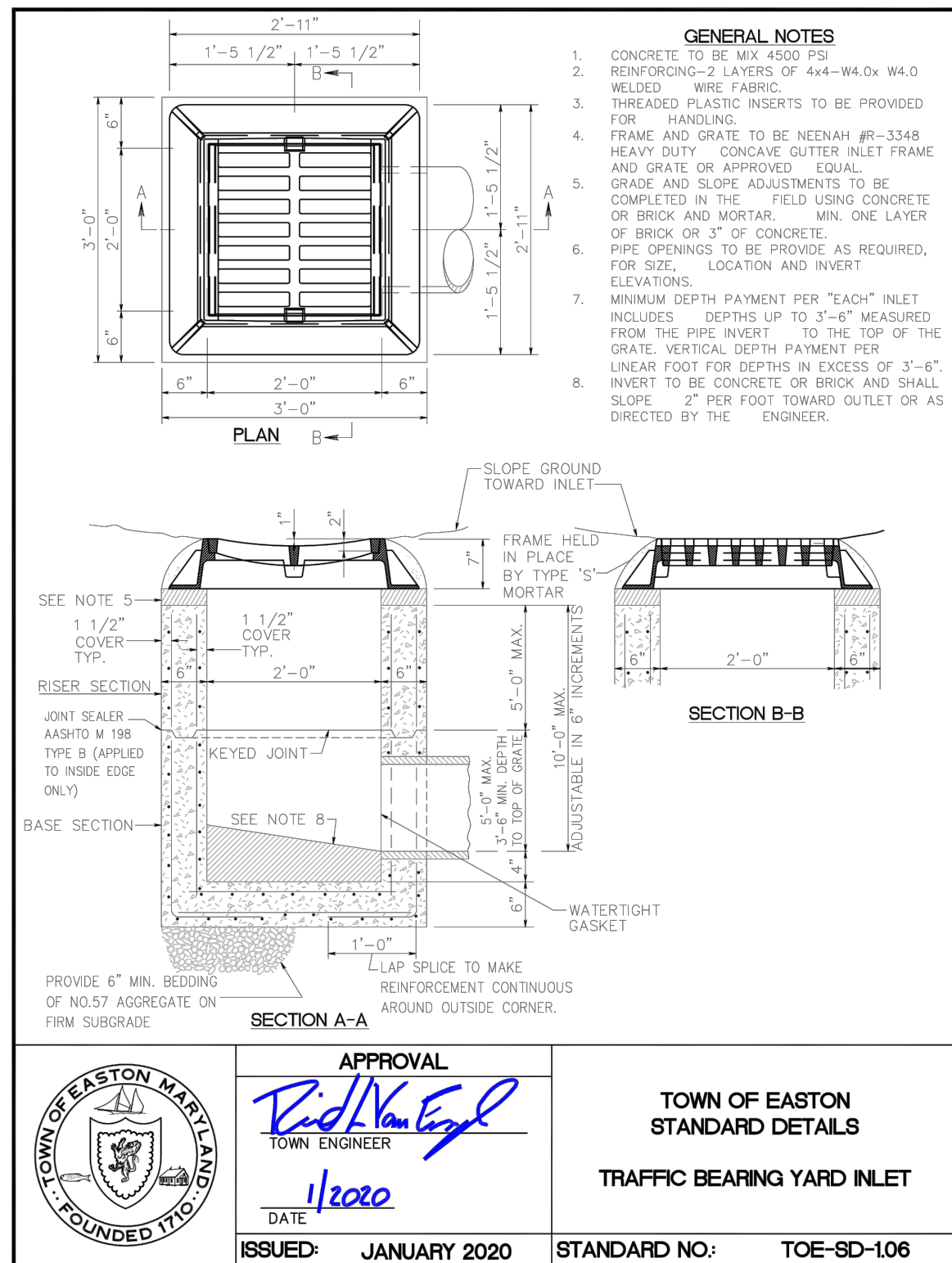
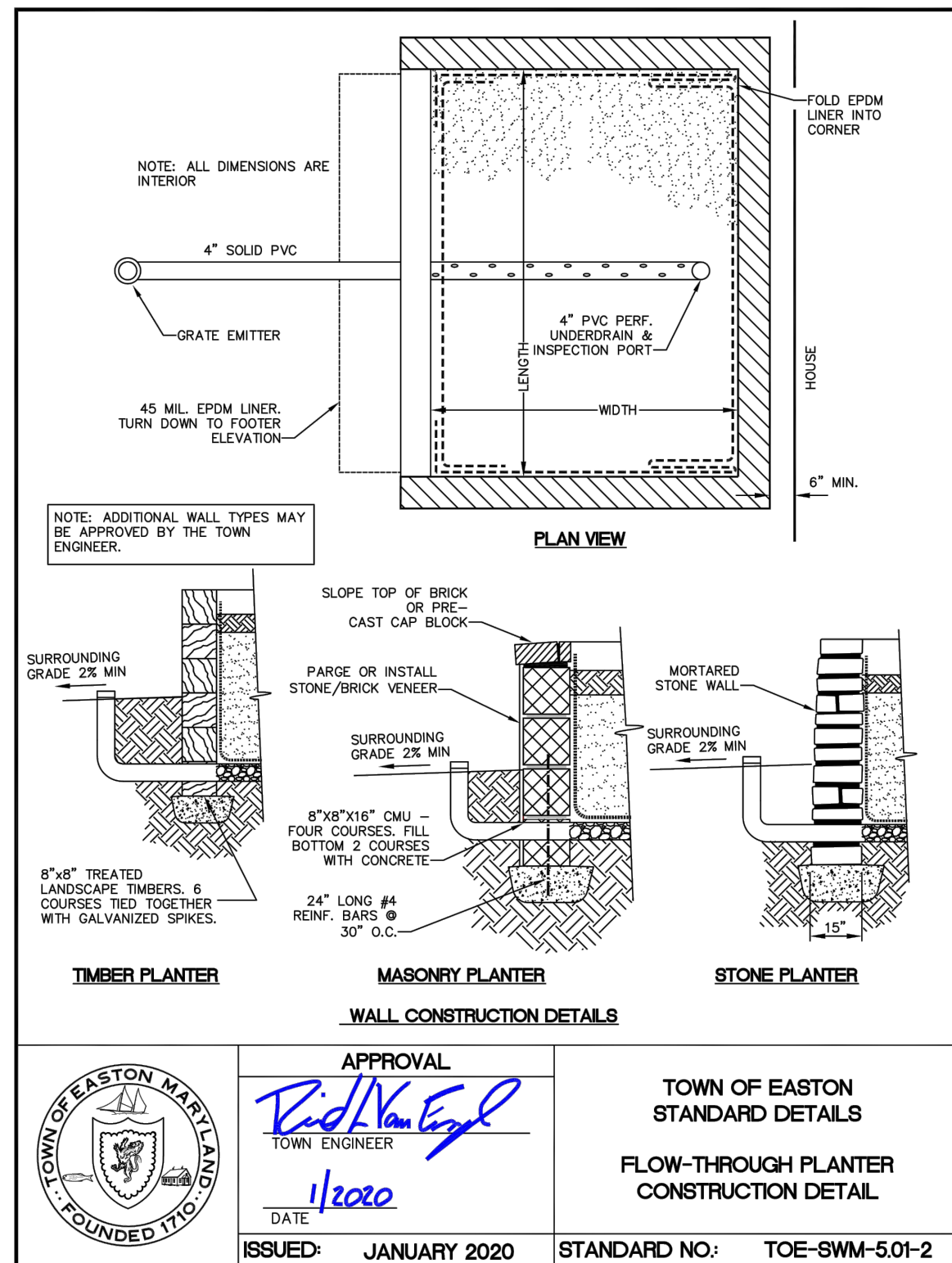
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SCALE: 1" = 10'
DRAWN BY: JWJ & WCS
DESIGNED BY: JWJ & WCS
APPROVED BY: BBF

SHEET NO.:
C-403.01

FOR
REVIEW



Section 33 46 23 MODULAR STORMWATER STORAGE UNITS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED

A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.

B. Provide and install R-Tank^{LD}, R-Tank^{HD}, R-Tank^{SD}, or R-Tank^{UD} system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.

C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.

D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL

A. All materials shall be manufactured in ISO certified facilities.

B. Installation Contractor shall demonstrate the following experience:

1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,

2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.

3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.

C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.

D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS

A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.

B. Submit manufacturer's product data, including compressive strength and unit weight.

C. Submit manufacturer's installation instructions.

D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.

E. Submit material certificates for geotextile, geogrid, base course and backfill materials.

F. Submit required experience and personnel requirements as specified in Section 1.03.

G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.

B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.

C. Cold weather:

1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.

2. Do not use frozen materials or materials mixed or coated with ice or frost.

3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.

A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS

A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.

B. Protect adjacent work from damage during R-Tank system installation.

C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.

D. Contractor is responsible for any damage to the system during construction.

PART 2 – PRODUCTS

2.01 R-TANK UNITS

A. R -Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).

B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank ^{LD} VALUE	R-Tank ^{HD} VALUE	R-Tank ^{SD} VALUE	R-Tank ^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (Stone Backfill)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (Stone Backfill)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

C. Supplier: ACF Environmental 2831 Cardwell Road Richmond, VA 23234
(T): 800-448-3636; (F): 804-743-7779 www.acfenvironmental.com

2.02 GEOSYNTHETICS

A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.

1. **Standard Application:** The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).

2. **Infiltration Applications:** When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.

B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-Tank^{UD} installations, and is often not required for non-traffic load applications.

2.03 BACKFILL & COVER MATERIALS

A. **Bedding Materials:** Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.

B. **Side and Top Backfill:** Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

1. **Traffic Applications** - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.

a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).

b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.

2. **Non-Traffic / Green Space Applications** - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.

C. **Additional Cover Materials:** Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS

A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 – EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS

A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION

A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.

B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.

C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.

D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.

1. **Standard Applications:** Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.

2. **Infiltration Applications:** Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.

E. **Unsuitable Soils or Conditions:** All questions about the base of the excavation shall be directed to the owner's

engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.

1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.

2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.

3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE

A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within 1/2" (+/- 1/4") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.

1. **Standard Applications:** Static roll or otherwise compact bedding materials until they are firm and unyielding.

2. **Infiltration Applications:** Bedding materials shall be prepared in accordance with the contract documents.

B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS

A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.

B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.

C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.

1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details

2. For UD installations, there is no perpendicular end row required.

D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.

E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (buted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.

F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.

G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic

performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with "U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS

A. Backfill and fill with recommended materials as follows:

1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.

2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.

3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.

4. No compaction equipment is permissible to operate directly on the R-Tank modules.

5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.

a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.

b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.

6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.

7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.

8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.

B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).

C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.

D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS

A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).

B. All inlet pipes and inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.

C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.

D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

STORMWATER DETAILS

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH

Environmental Engineering | Survey | Architecture

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3887

REVISIONS

REV. #	DATE	DESCRIPTION
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MARYLAND
DEPARTMENT OF
TRANSPORTATION

811

DATE: 10/31/2022

SCALE: N/A

DRAWN BY: JWL & WCS

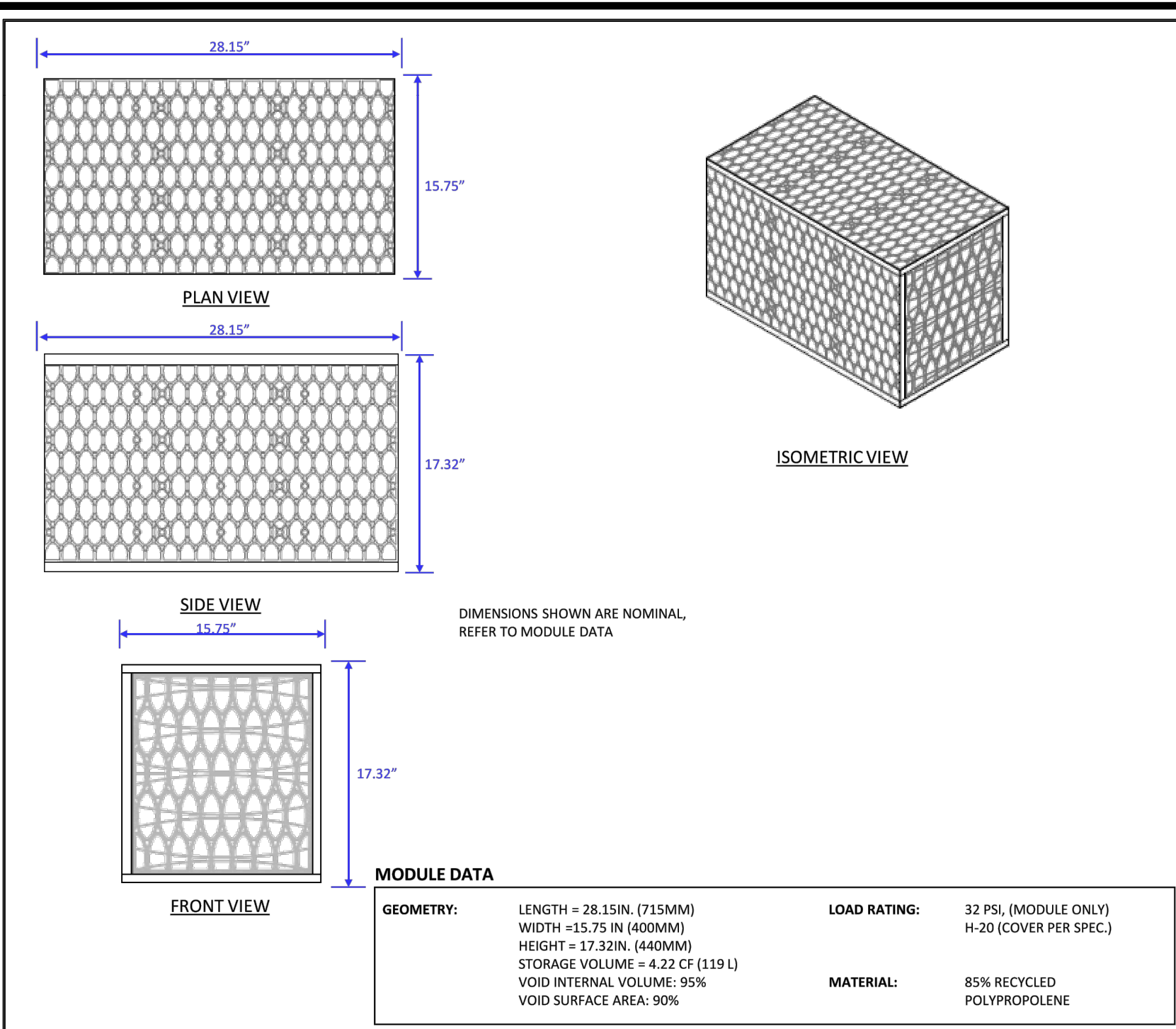
DESIGNED BY: JWL & WCS

APPROVED BY: BBF

SHEET NO.: C-405.03

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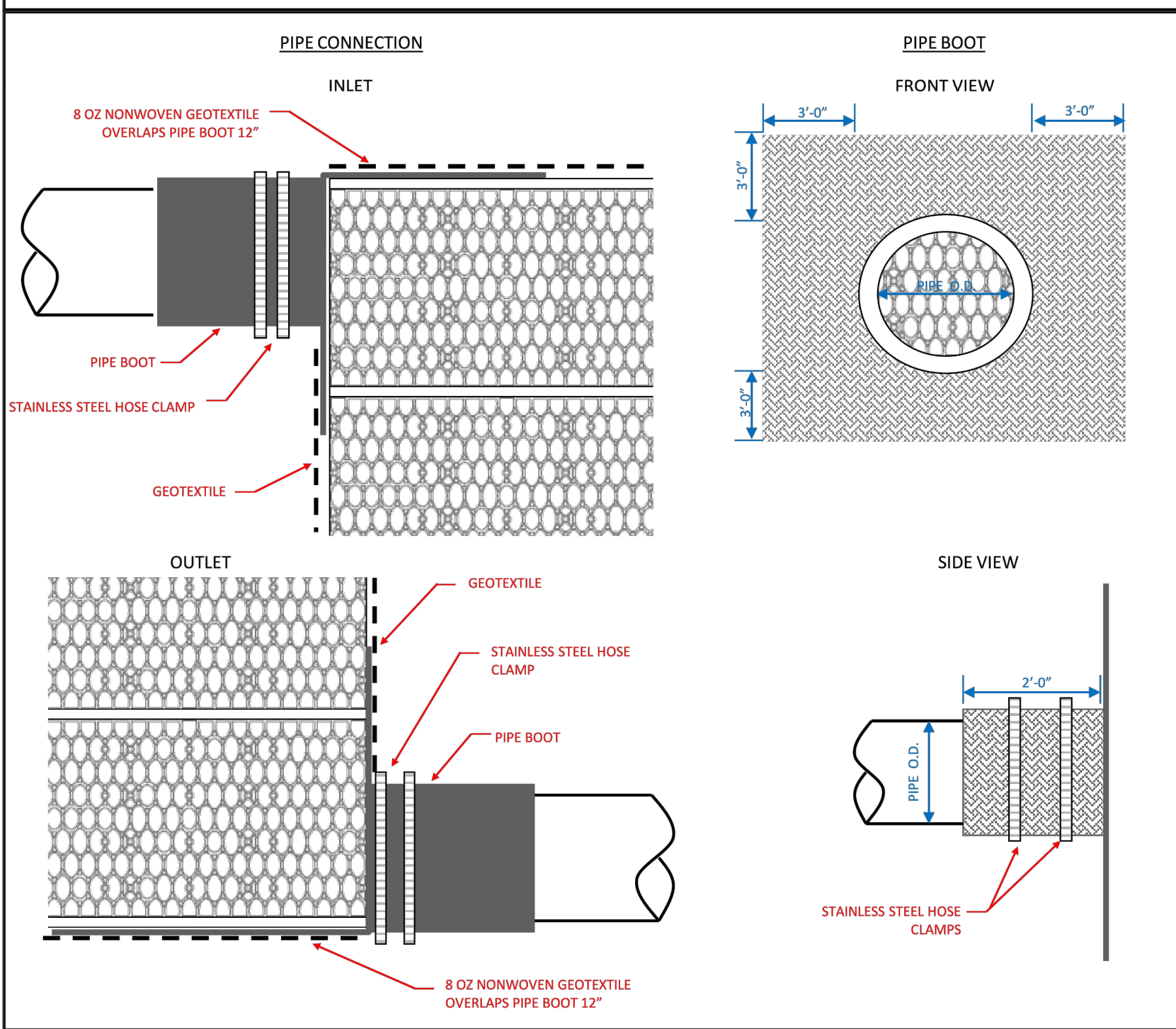
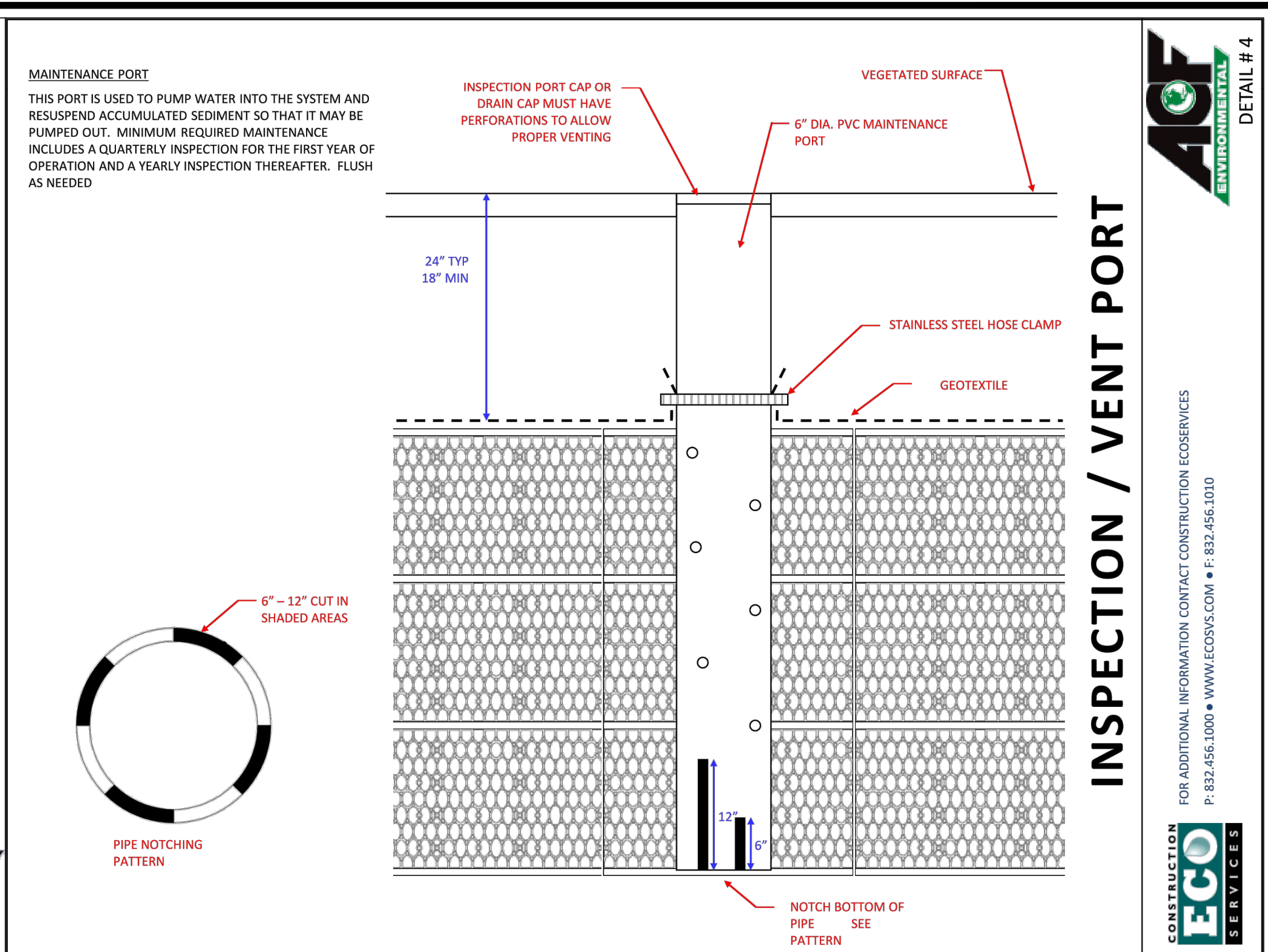
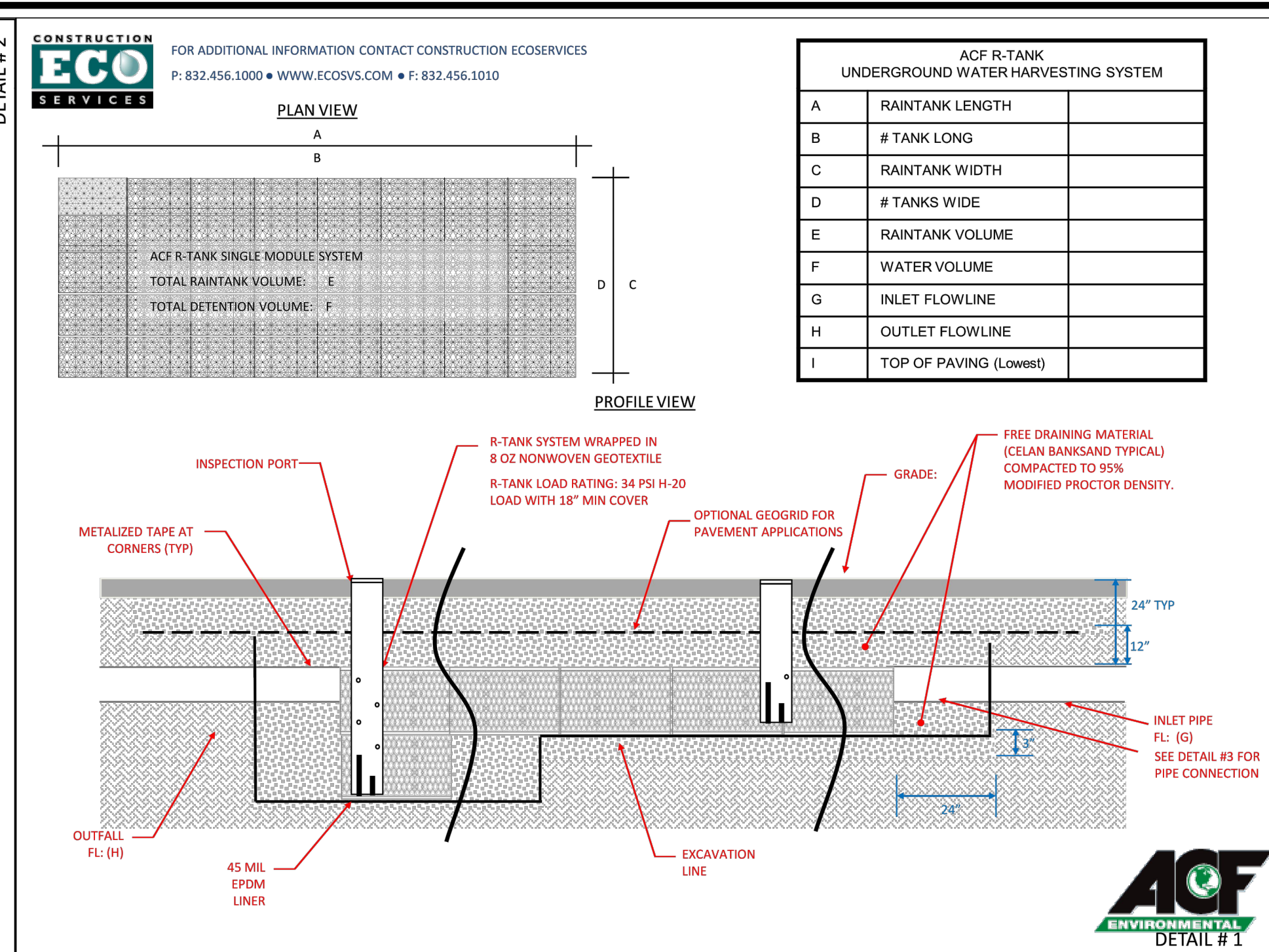
ACF ENVIRONMENTAL

CONSTRUCTION ECO SERVICES

FOR ADDITIONAL INFORMATION CONTACT CONSTRUCTION ECOSERVICES
P: 832.456.1000 • WWW.ECOSYS.COM • F: 832.456.1010

DETAIL # 2

R-TANK SINGLE MODULE

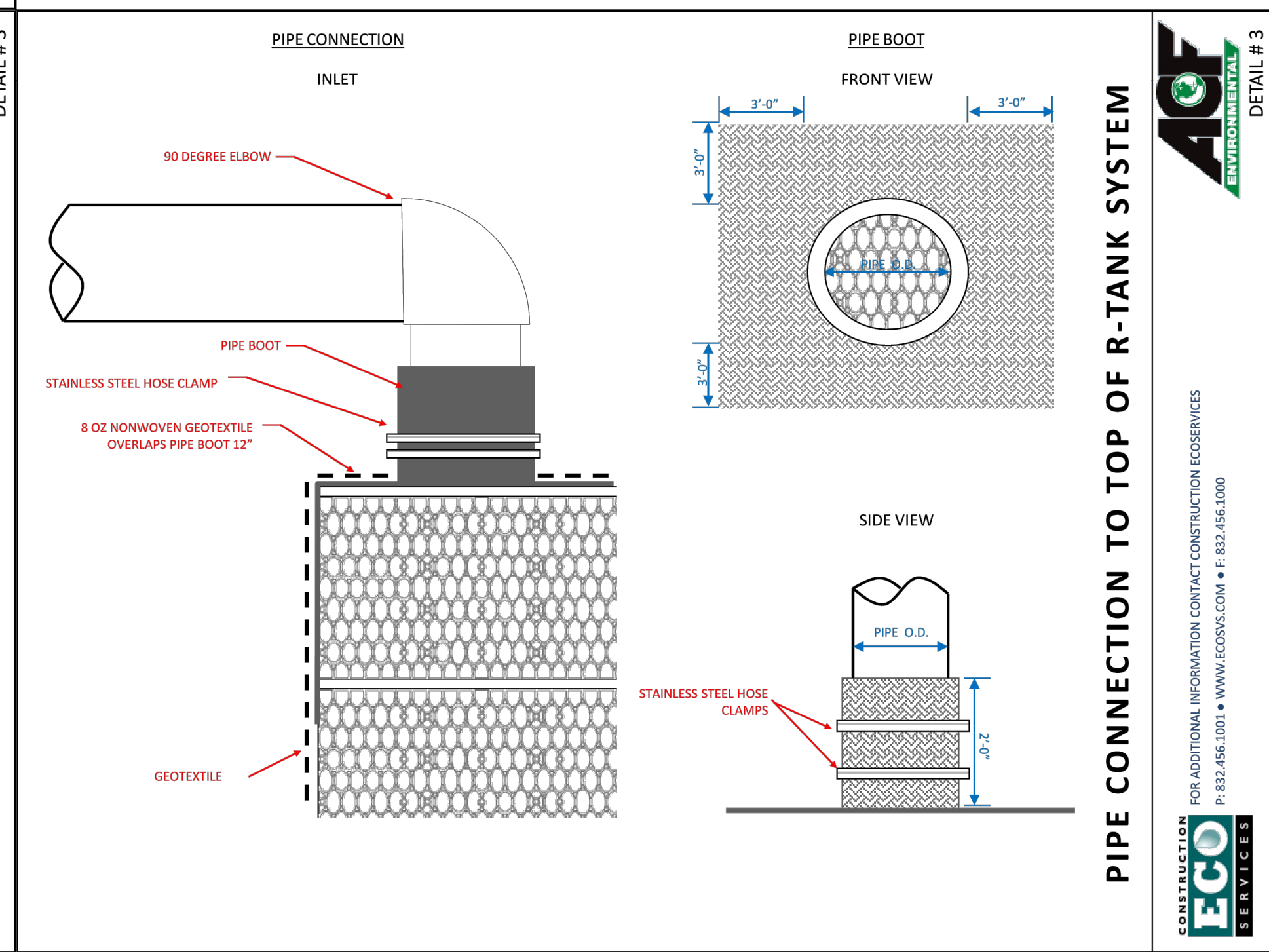


ACF ENVIRONMENTAL

CONSTRUCTION ECO SERVICES

FOR ADDITIONAL INFORMATION CONTACT CONSTRUCTION ECOSERVICES
P: 832.456.1001 • WWW.ECOSYS.COM • F: 832.456.1000

DETAIL # 3



Technical

Heavy Duty R-Tank Specifications

5-Plate Module

Dimensions						
Module (Units)	Width (mm)	Width (inches)	Length (mm)	Length (inches)	Height (mm)	Height (inches)
Mini	400	15.75	715	28.15	240	9.45
Single (1)	400	15.75	715	28.15	440	17.32
Single + Mini (1.5)	400	15.75	715	28.15	660	25.98
Double (2)	400	15.75	715	28.15	880	34.65
Double + Mini (2.5)	400	15.75	715	28.15	1080	42.52
Triple (3)	400	15.75	715	28.15	1280	50.39
Triple + Mini (3.5)	400	15.75	715	28.15	1500	59.06
Quad (4)	400	15.75	715	28.15	1700	66.93
Quad + Mini (4.5)	400	15.75	715	28.15	1920	75.59
Pent (5)	400	15.75	715	28.15	2120	83.46

Details						
Module (Units)	Tank Volume (cf)	Storage Volume (cf)	# of Large Plates	# of Small Plates	# of Mini Sm.Lg Plates	Weight (lbs)
Mini	2.42	2.30	2	0	5/2	10.95
Single (1)	4.44	4.22	4	5	0/0	17.35
Single + Mini (1.5)	6.67	6.33	5	5	5/2	25.98
Double (2)	8.89	8.25	7	10	0/0	32.37
Double + Mini (2.5)	10.91	10.36	8	10	5/2	41.01
Triple (3)	12.93	12.28	10	15	0/0	47.40
Triple + Mini (3.5)	15.15	14.39	11	15	5/2	56.03
Quad (4)	17.17	16.31	13	20	0/0	62.43
Quad + Mini (4.5)	19.39	18.42	14	20	5/2	71.06
Pent (5)	21.41	20.34	16	25	0/0	77.45

Specifications			
Item	Description	Value	Unit
Void Area	Area available for water storage vs. that made up of plastic	95	%
Surface Area Void	Open area where water may percolate into or out of the unit	95	%
Rib Thickness	Thickness of load-bearing members	0.18 (4.5)	inches (mm)
Unit Weight	Weight of plastic per cubic foot of tank	3.62	lbs / cf
Temperature Service	Operating temperatures where unit can be expected to perform adequately	-14 to 167	Degrees Fahrenheit
Unconfined Crush Strength	Using a 5" x 5" load plate placed centrally over the unit will determine the pressure at which the top plate will bend to the point of failure	37.80	psi
Unconfined Crush Strength	Using a full-size load plate that completely covers the top of the unit determines the pressure required to crush the entire unit	40.0	psi
Recycled Content	Percentage of product made from Recycled Polypropylene	100.0	%
180 Day Creep Testing	Used to determine the long-term performance of the system		
	Load Applied	Initial & Sustained	11.16"
	Creep Sustained	After 180 Days	0.2"
	Creep Sustained	After 180 Days	1.128"
	Projected Creep	40 Years	1.72"

*All creep tests performed on STANDARD 4-Plate units (two internal plates), not the HEAVY DUTY 5-Plate units.

Product Assembly Pictures						
Step #1	Step #2	Step #3	Step #4	Single On Its Side	Correct Orientation	Other
						Taller Heavy Duty Modules are Available in All Sizes

ACF ENVIRONMENTAL

800-448-3636

www.acfenvironmental.com



IMAGE: R-TANK STORMWATER MANGEMENT SUBSURFACE CHAMBERS BEING INSTALLED.
PHOTO CREDIT: ACF INTERNATIONAL

STORMWATER DETAILS

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH

Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3887

REVISIONS	
REV. #	DESCRIPTION
1	

MISS. UTILITY OF DELAWARE

811

DATE: 10/31/2022

SCALE: N/A

DRAWN BY: JWJ & WCS

DESIGNED BY: JWJ & WCS

APPROVED BY: BBF

SHEET NO.: C-405.02

FOR REVIEW

[illegible]

Diagram showing water service connection details, including meter installation, foundation, and tracing wire. Notes specify materials and installation requirements.

Notes:

- 10 Gauge Solid Copper Tracer Wire; Blue Jacket.
- Thoroughly Tape Mechanical Connections With Electrical Tape.
- Installation Of Water Service Into Foundation Per Town Of Easton Standards.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>	JUN 23, 97	
EU MANAGER OF ENGINEERING	MAR 1, 98	
	MAR 1, 07	
	SEP 1, 09	
	SEP 15, 14	

ISSUED: JUNE 5, 1997 AUG 6, 19 STANDARD NO. W-7.04

Diagram showing meter installation details, including meter box, foundation, and tracing wire. Notes specify materials and installation requirements.

Notes:

- Meter Pit, Frame And Cover, And Customsetter Shall Be Furnished And Installed By The Contractor. Cover Must Be Polymer Nicor 12.25PWAT Type-A (Read-Rite) Lid With Water Logo, Worm Gear And Bracket For Iron 60W ERT Under Lid Or Equivalent. No Electronic Meter Reading Lid Hole.
- 2" Corporation AWWA Taper Threads Shall Be Installed As Detailed On Standard No. W-7.01.
- Mueller Part Numbers For 1 1/2" And 2": B-2423--2-01.
- Reinforced Coated Tracer Wire As Manufactured By Copperhead Industries, LLC, P.O. Box 1081, Monticello, MN, 55362, Or An Approved Equal.
- Thoroughly Tape Mechanical Connections With Electrical Tape.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>	MAR 1, 98	
EU MANAGER OF ENGINEERING	FEB 1, 06	
	MAR 1, 07	
	SEP 1, 09	
	NOV 1, 10	

ISSUED: MAY 1, 1986 JUL 20, 11 STANDARD NO. W-7.03

Diagram showing water main details, including water main, gate valve, and anchoring tee. Notes specify materials and installation requirements.

Notes:

- All Fittings Shall Be Mechanical Joint, With Ductile Iron Retainer Glands And Mega-Lug Or Equivalent Restraint.
- Anchoring Tee Shall Be As Indicated And As Manufactured By Griffin Pipe Products, 1100 West Front St. Florence, N.J. 08518, Or An Approved Equal.
- Retainer Gland Shall Be As Indicated And As Manufactured By Russell Pipe & Foundry Co. Inc., 910 Washington St., Alexander City, AL 35010, Or An Approved Equal.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>	AUG 1, 94	
EU MANAGER OF ENGINEERING	MAR 9, 95	
	MAR 1, 98	

ISSUED: MAY 1, 1986 STANDARD NO. W-2.01

Diagram showing buttress details for horizontal bends, caps and plugs. Notes specify materials and installation requirements.

Notes:

- All Concrete Shall Be SHA Mix No. 1.
- Buttress Dimensions Are Minimum. Dimensions Are Based Upon Soil Bearing Pressure Of 3000 P.S.F. And Static Water Pressure Of 150 P.S.I. Where Pressure Exceeds 150 P.S.I. Or Where Soil Bearing Pressure Is Less Than 3000 P.S.F., Special Buttress Design Is Required.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>		
EU MANAGER OF ENGINEERING		

ISSUED: MAY 1, 1986 STANDARD NO. W-3.00

Diagram showing water main details, including water main, gate valve, and anchoring tee. Notes specify materials and installation requirements.

Notes:

- Anytime The Water Main Is Below Any Sewer Main, The Sewer Main Shall Be Encased In Concrete.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>	MAR 1, 98	
EU MANAGER OF ENGINEERING	AUG 1, 01	
	FEB 1, 02	

ISSUED: MAY 1, 1986 STANDARD NO. G-5.00

Diagram showing gravity sewer cleanouts details, including frame and cover, cleanout plug, and tracing wire. Notes specify materials and installation requirements.

Notes:

- SERVICE CONNECTION SHALL BE PERPENDICULAR TO MAIN.
- ADD DETECTOR TAPE TO ALL PIPE.
- USE CLASS 50 DUCTILE IRON FOR SERVICES WITH LESS THAN 3' OF COVER.
- NO SPLICES ON TRACER WIRE. MECHANICAL CONNECTORS ONLY IN CLEANOUTS.
- EMBED PIPE IN #57 STONE FROM 6" BELOW INVERT TO 2" ABOVE CROWN.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>	JUN 11, 97	
EU MANAGER OF ENGINEERING	MAR 1, 98	
	SEP 1, 09	
	JUL 20, 11	

ISSUED: JAN 15, 2019 STANDARD NO. SS-8.03

Diagram showing PVC sewer house connection details, including sewer cleanout, wye branch, and tracing wire. Notes specify materials and installation requirements.

Notes:

- SERVICE CONNECTION SHALL BE PERPENDICULAR TO MAIN.
- ADD DETECTOR TAPE TO ALL PIPE.
- USE CLASS 50 DUCTILE IRON FOR SERVICES WITH LESS THAN 3' OF COVER.
- NO SPLICES ON TRACER WIRE. MECHANICAL CONNECTORS ONLY IN CLEANOUTS.
- EMBED PIPE IN #57 STONE FROM 6" BELOW INVERT TO 2" ABOVE CROWN.
- INSTALLATION OF SEWER LATERAL INTO FOUNDATION PER TOWN OF EASTON STANDARD.
- PROVIDE VIDEO INSPECTION OF LATERAL FROM CLEANOUT AT HOUSE/STRUCTURE, TO MAIN.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>	JUN 11, 97	
EU MANAGER OF ENGINEERING	MAR 1, 98	
	SEP 1, 09	
	JUL 20, 11	

ISSUED: JULY 1, 1996 JAN 15, 19 STANDARD NO. SS-8.02

Diagram showing sewer collection system sewer house service details, including wye branch, cleanout, and tracing wire. Notes specify materials and installation requirements.

Notes:

- SERVICE CONNECTION SHALL BE PERPENDICULAR TO MAIN.
- ADD DETECTOR TAPE TO ALL PIPE.
- USE CLASS 50 DUCTILE IRON FOR SERVICES WITH LESS THAN 3' OF COVER.
- NO SPLICES ON TRACER WIRE. MECHANICAL CONNECTORS ONLY IN CLEANOUTS.
- EMBED PIPE IN #57 STONE FROM 6" BELOW INVERT TO 2" ABOVE CROWN.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>	MAY 1, 89	
EU MANAGER OF ENGINEERING	AUG 1, 94	
	MAR 9, 95	
	FEB 1, 02	

ISSUED: MAY 1, 1986 STANDARD NO. SS-8.00

Diagram showing temporary pavement repair for utility trenches details, including existing base, temporary patch, and tack coat. Notes specify materials and installation requirements.

Notes:

- PAVEMENT SHALL BE SAW CUT FULL DEPTH OF THE EXISTING PAVEMENT SECTION. ALL CUTS SHALL BE MADE IN STRAIGHT LINES.
- TEMPORARY PATCH SHALL BE ONE OF THE FOLLOWING, PLACED AND COMPACTED IN 3" LIFTS (MAX).
 - CR-6 (3" LIFTS MAX.)
 - 9.5mm, (2" LIFTS MAX.) 12.5mm, OR 19mm SUPERPAVE. (3" LIFTS)
 - COLD PATCH (2" LIFTS MAX.)
- A TEMPORARY CR-6 PATCH MUST BE CONVERTED TO COLD PATCH OR SUPERPAVE WITHIN 1 WEEK OF COMPLETION OF TRENCH WORK, UNLESS APPROVED BY TOWN ENGINEER.
- TEMPORARY TRENCH RESTORATION MUST BE CONVERTED TO A PERMANENT TRENCH RESTORATION WITHIN 30 CALENDAR DAYS OF COMPLETION OF TRENCH WORK, UNLESS APPROVED BY TOWN ENGINEER. TEMPORARY TRENCH RESTORATION DONE AFTER NOVEMBER 30TH MUST BE CONVERTED TO A PERMANENT TRENCH RESTORATION BEFORE MAY 30TH OF THE FOLLOWING YEAR.
- TEMPORARY RESTORATION MUST BE INSPECTED AND MAINTAINED EVERY 30 DAYS UNTIL PERMANENT RESTORATION IS COMPLETED. AN INSPECTION AND MAINTENANCE LOG MUST BE KEPT.
- CONTRACTOR MUST CONFIRM LIMITS OF PATCH REQUIRED WITH THEN TOWN ENGINEER PRIOR TO START OF PATCH WORK.

APPROVAL	REVISED	TOWN OF EASTON STANDARD DETAILS
<i>Paul D. Hefner</i>		
EU MANAGER OF ENGINEERING		

ISSUED: JANUARY 2020 STANDARD NO. TOE-R-5.01-2

Diagram showing trench detail details, including finished grade, pipe, coarse aggregate fill, and bedding. Notes specify materials and installation requirements.

Notes:

- BEDDING, HAUNCHING AND FILL MATERIAL TO THE TOP OF THE PIPE SHALL BE COARSE AGGREGATE MEETING THE REQUIREMENTS OF ASTM M43-SIZE NUMBER 57, UNLESS OTHERWISE SPECIFIED BY THE PIPE MANUFACTURER AND APPROVED BY THE TOWN ENGINEER.
- DURING HAUNCHING, CONTRACTOR SHALL CAREFULLY WORK GRAVEL DOWN AROUND THE BOTTOM OF THE PIPE.
- IN UNPAVED AREAS, FILL CR-6 OR BRG TO 6" BELOW FINISHED GRADE, PLACED AND COMPACTED IN 6" LIFTS TO 95% MODIFIED PROCTOR. TOP 6" SHALL BE TOPSOIL.

APPROVAL	REVISED	TOWN OF EASTON STANDARD DETAILS
<i>Paul D. Hefner</i>		
EU MANAGER OF ENGINEERING		

ISSUED: JANUARY 2020 STANDARD NO. TOE-R-5.01-1

Diagram showing electric meter, gas meter, and CATV box locations for townhouses details, including meter box, foundation, and tracing wire. Notes specify materials and installation requirements.

Notes:

- SEE TOWN OF EASTON STANDARD DETAIL SS-8.03 FOR METER BOX LOCATIONS.
- SEE TOWN OF EASTON STANDARD DETAIL SS-8.02 FOR GAS METER LOCATIONS.
- SEE TOWN OF EASTON STANDARD DETAIL SS-8.01 FOR CATV BOX LOCATIONS.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>		
EU MANAGER OF ENGINEERING		

ISSUED: NOV 1, 2006 STANDARD NO. E-5.00

Diagram showing electric meter, gas meter, and CATV box locations for townhouses details, including meter box, foundation, and tracing wire. Notes specify materials and installation requirements.

Notes:

- SEE TOWN OF EASTON STANDARD DETAIL SS-8.03 FOR METER BOX LOCATIONS.
- SEE TOWN OF EASTON STANDARD DETAIL SS-8.02 FOR GAS METER LOCATIONS.
- SEE TOWN OF EASTON STANDARD DETAIL SS-8.01 FOR CATV BOX LOCATIONS.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>		
EU MANAGER OF ENGINEERING		

ISSUED: NOV 1, 2006 STANDARD NO. E-5.00

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- SEE TOWN OF EASTON STANDARD DETAIL SS-8.02 FOR GAS METER LOCATIONS.
- SEE TOWN OF EASTON STANDARD DETAIL SS-8.01 FOR CATV BOX LOCATIONS.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>		
EU MANAGER OF ENGINEERING		

ISSUED: NOV 1, 2006 STANDARD NO. E-5.00

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APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
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- SEE TOWN OF EASTON STANDARD DETAIL SS-8.02 FOR GAS METER LOCATIONS.
- SEE TOWN OF EASTON STANDARD DETAIL SS-8.01 FOR CATV BOX LOCATIONS.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
<i>Paul D. Hefner</i>		
EU MANAGER OF ENGINEERING		

ISSUED: NOV 1, 2006 STANDARD NO. E-5.00

Utility Details section containing revision table, project information, and contact details for RAUCH Engineering.

REV.	DATE	DESCRIPTION
1		

DATE: 10/31/2022
SCALE: N/A
DRAWN BY: JWL & WCS
DESIGNED BY: JWL & WCS
APPROVED BY: BBF

SHEET NO.: C-505.01

FOR REVIEW

RAUCH Engineering | Survey | Architecture | Environmental

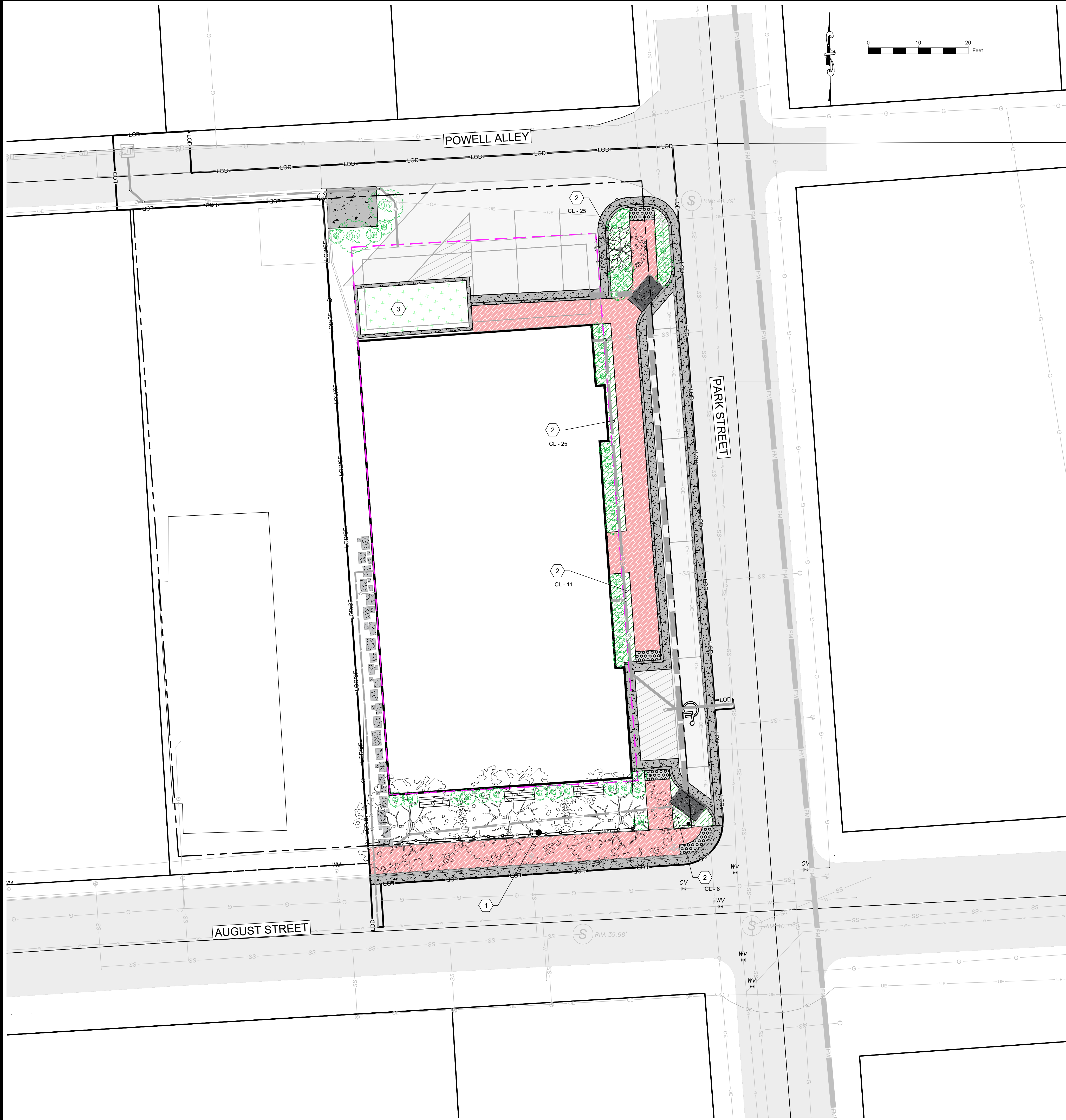
Project: BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8881 | Fax: 410 770 3887



BUFFERYARD & LANDSCAPE FEATURES

- 1 HISTORIC STYLE WOODEN PICKET FENCE
- 2 NATIVE NORTHERN SEA OAT GRASS (PLANTING TABLE THIS SHEET)
- 3 PLANTER BOX PLANTING (SEE PLANTING DETAILS AND SCHEDULE ON C-405.01)

LANDSCAPE LEGEND

DECIDUOUS CANOPY TREES (ALL BLACKGUMS)

DECIDUOUS UNDERSTORY TREES (SERVICEBERRY)

LARGE EVERGREEN SHRUBS (ALL WAX MYRTLES)

SMALL EVERGREEN SHRUBS (ALL INKBERRIES)

HERBACEOUS PLANTING BED

PLANTER BOX BED

HISTORIC STYLE WOODEN CONCAVE PICKET FENCE

PROPOSED BENCHES

PLANTING SCHEDULE:				
SYMBOL	QUAN	SCIENTIFIC NAME	COMMON NAME	SPECIFICATION
CANOPY TREES				
NS	3	NYSSA SYLVATICA (NATIVE)	BLACKGUM / TUPELO	2" CALIPER, MIN
UNDERSTORY TREES				
AC	1	AMELANCHIER CANADENSIS (NATIVE)	SERVICEBERRY	1" CALIPER, MIN
LARGE SHRUBS				
MC	2	MYRICA CERIFERA (NATIVE)	SOUTHERN BAYBERRY / WAX MYRTLE	5 GALLON, MIN
SMALL SHRUBS				
IG	43	ILEX GLABRA (NATIVE)	INKBERRY	3 GALLON, MIN.
HERBACEOUS PLANTS				
CL	52	CHASMANTHIUM LATIFOLIUM (NATIVE)	NORTHERN SEA OATS	1 GALLON, MIN - 24" SPACING

LANDSCAPING PLAN

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH

Engineering | Survey | Architecture | Environmental

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Web: www.rauch-inc.com | Email: design@raucheng.com

Phone: 410 770 8081 | Fax: 410 770 3987

REVISIONS

REV. #	DATE	DESCRIPTION
1		

DATE: 10/31/2022

SCALE: 1" = 10'

DRAWN BY: JWJ & WCS

DESIGNED BY: JWJ & WCS

APPROVED BY: BBF

SHEET NO.: C-601

FOR REVIEW

LANDSCAPE PLANTING REQUIREMENTS

GENERAL REQUIREMENTS:

- COMPLIANCE WITH THE TERMS OF THIS LANDSCAPE PLAN, INCLUDING ALL MAINTENANCE AND WARRANTY REQUIREMENTS PRESCRIBED HEREON IS THE RESPONSIBILITY OF THE OWNER. MAINTENANCE AND WARRANTY TERMS AND RESPONSIBILITIES OF THE CONTRACTOR SHALL BE NEGOTIATED BETWEEN OWNER AND CONTRACTOR.
- THE CONTRACTOR (CONTRACTOR) IS RESPONSIBLE FOR THE COMPLETE INSTALLATION OF ALL LANDSCAPING SHOWN OR IMPLIED ON THIS PLAN. PLANT QUANTITIES ARE SHOWN FOR CONVENIENCE ONLY AND SHALL BE VERIFIED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL NOTIFY THE OWNER, OR DESIGNATED REPRESENTATIVE IF PROPOSED SPECIES AND/OR SITE PLANTING CONDITIONS WARRANT RE-DESIGN CONSIDERATIONS.
- THE CONTRACTOR SHALL DILIGENTLY ATTEMPT TO LOCATE THE SPECIFIED NATIVE PLANT MATERIAL. IF SPECIFIED PLANT MATERIALS CANNOT BE LOCATED, ALTERNATIVES MAY BE CONSIDERED AND APPROVED, IN ADVANCE, BY THE OWNER, OR DESIGNATED REPRESENTATIVE.
- PRIOR TO LANDSCAPE INSTALLATION, THE CONTRACTOR SHALL COORDINATE A SITE MEETING WITH THE OWNER, OR DESIGNATED REPRESENTATIVE TO REVIEW THE PLAN, SITE DRAINAGE CONDITIONS AND TO DETERMINE ANY FIELD ADJUSTMENTS NECESSARY.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK, AND SHALL COORDINATE WITH OTHER CONTRACTORS ON SITE AND MISS UTILITY TO VERIFY UTILITY LOCATIONS. ANY REPAIRS TO EXISTING UNDERGROUND UTILITIES REQUIRED AS A RESULT OF ACTIONS OF THE CONTRACTOR AND/OR HIS ASSIGNS SHALL BE BORNE BY CONTRACTOR.
- THE CONTRACTOR SHALL VERIFY THAT FINAL ROUGH GRADES HAVE BEEN ESTABLISHED AND THAT THE SITE IS READY FOR LANDSCAPE INSTALLATION. THE CONTRACTOR SHALL ENSURE THAT PLANTINGS WILL HAVE ADEQUATE DRAINAGE. THE CONTRACTOR SHALL INSTALL PLANT MATERIAL FACTORING IN ANY "FINAL" GRADING WORK TO BE COMPLETED AFTER LANDSCAPE INSTALLATION.
- THE CONTRACTOR SHALL LAY OUT BEDS AND POSITION PLANTS FOR APPROVAL BY OWNER, OR DESIGNATED REPRESENTATIVE. THE CONTRACTOR SHALL REVIEW ANY SIGNIFICANT FIELD ADJUSTMENTS PRIOR TO INSTALLATION.
- NOTE:** PLANTING WITHIN THE ROOT ZONE OF EXISTING TREES REQUIRES ADDITIONAL CARE. HAND DIGGING OF PLANTING HOLES AND ADJUSTMENT OF PLANTING LAYOUT MAY BE NECESSARY.
- THE CONTRACTOR SHALL MAINTAIN A CLEAN JOB SITE AND REMOVE ALL PLANTING AND RELATED DEBRIS DAILY DURING THE COURSE OF IMPLEMENTATION.
- THE OWNER, OR DESIGNATED REPRESENTATIVE SHALL REJECT ANY AND ALL PLANT MATERIAL THAT DOES NOT MEET SPECIFICATIONS, IS DISEASED OR OTHERWISE UNHEALTHY.
- ALL LANDSCAPE INSTALLATION SHALL BE ACCOMPLISHED WITH QUALIFIED PERSONNEL, UTILIZING INDUSTRY STANDARD PRACTICES AND TECHNIQUES.

PLANT MATERIAL:

- ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK AS APPROVED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE INC. LATEST EDITIONS.
- ALL PLANT MATERIAL SHALL BE NURSERY GROWN WITH SOUND HORTICULTURAL PRACTICES AND UNLESS OTHERWISE APPROVED BY THE OWNER, OR DESIGNATED REPRESENTATIVE, GROWN IN SOIL AND CLIMATE CONDITIONS SIMILAR TO THIS PROJECT SITE.
- ALL MATERIAL SHALL EXHIBIT HEALTHY GROWTH WITH GOOD BRANCHING STRUCTURE, DENSE FOLIAGE AND A FIBROUS, DEVELOPED ROOT SYSTEM.
- ALL MATERIAL SHALL BE FREE OF INSECT INFESTATION AND DISEASE. THE OWNER RESERVES THE RIGHT TO HAVE THE PLANT MATERIAL INSPECTED AND TAGGED AT THE GROWING SITE, AND TO REJECT ANY DEFICIENT MATERIAL AT THE JOB SITE.

PLANT MATERIAL HANDLING:

- ALL PLANT MATERIAL SHALL ARRIVE AT THE JOB SITE IN A HEALTHY CONDITION.
- THE CONTRACTOR SHALL STAGE DELIVERY AND PLANT INSTALLATION TO MINIMIZE STRESS ON PLANT MATERIAL.
- PLANT MATERIAL TO BE STAGED ON OR OFF THE JOB SITE SHALL BE LOCATED TO MAXIMIZE PROTECTION FROM HOT SUN AND DRYING WINDS, AND SHALL BE WATERED TO MAINTAIN A STRESS FREE CONDITION. ON-SITE WATER MAY NOT BE AVAILABLE FOR THE CONTRACTOR TO USE. THE LACK OF AVAILABLE WATER SHALL NOT RELIEVE THE CONTRACTOR OF ADEQUATE MAINTENANCE.

PLANTING SCHEDULE:

- PLANTING SCHEDULES SHALL COINCIDE WITH THE OVERALL PROGRESS OF SITE CONSTRUCTIONS.
- CERTAIN PLANT SPECIES REQUIRE SPECIFIC SEASON INSTALLATION AND SHALL BE COORDINATED APPROPRIATELY.
- PLANTING IS DISCOURAGED IN THE HOT, DRY PERIODS OF SUMMER AND DURING FROZEN GROUND CONDITIONS IN WINTER, BUT MAY BE CONSIDERED YEAR-ROUND WITH MAINTENANCE REQUIREMENTS ADDRESSED ACCORDINGLY.
- THE CONTRACTOR IS RESPONSIBLE FOR PLANT MATERIAL HEALTH AND VIGOR REGARDLESS OF WHEN THE MATERIAL IS INSTALLED.

TREE & SHRUB PLANTINGS:

- ALL TREE/SHRUB PLANTING PITS SHALL BE EXCAVATED TO A DEPTH SO THAT THE PLANT ROOT FLARE SHALL LIE AT THE FINISHED GRADE SURROUNDING THE PLANT. SOIL THAT MAY HAVE BEEN PLACED ON TOP OF ROOT BALL OR SETTLED AROUND TRUNK OR ROOT FLARE DURING TRANSPORT SHALL BE REMOVED TO ADEQUATELY EXPOSE ROOT FLARE SO PROPER PLANTING DEPTH CAN BE ESTABLISHED.
- THE ROOT BALL SHALL REST ON UNDISTURBED OR STABILIZED SOIL. THE CONTRACTOR SHALL NOTIFY THE OWNER, OR DESIGNATED REPRESENTATIVE IF THIS PLANTING DEPTH SPECIFICATION CANNOT BE IMPLEMENTED.
- TREE PLANTING PITS SHALL BE EXCAVATED DEPTH EQUAL TO THE HEIGHT OF THE ROOT BALL AND TO A WIDTH EQUALING TWICE THE ROOT BALL DIAMETER.
- EXCAVATED SOILS NOT PREVIOUSLY COMPACTED OR OTHERWISE DEGRADED SHALL BE RE-USED FOR PLANTING PIT BACKFILL. EXCAVATED SOILS UNSUITED FOR BACKFILL SHALL BE AMENDED WITH FRIABLE TOPSOIL TO CREATE A SUITABLE PLANTING SOIL AS APPROVED BY THE OWNER, OR DESIGNATED REPRESENTATIVE. EXCAVATED SOILS THAT CANNOT BE RESTORED TO A REASONABLE PLANTING SOIL SHALL BE REMOVED AND REPLACED WITH A SUITABLE PLANTING SOIL. NOTE: FOR BEDDING PURPOSES OR UNLESS OTHERWISE SPECIFIED HERON, THE CONTRACTOR SHALL ASSUME EXCAVATED SOILS ARE SUITABLE FOR PLANTING BACKFILL.
- SLOW RELEASE FERTILIZER TAB(S) (20-10-5, 21 GRAM, 2-YEAR) SHALL BE ADDED TO PLANTING HOLES AS PER MANUFACTURER'S SPECIFICATIONS.
- THE SIDES OF CONTAINER GROWN STOCK SHALL BE CUT OR SCARIFIED TO ELIMINATE BOUND ROOTS AND PROMOTE HEALTHY ROOT GROWTH.
- ALL SYNTHETIC MATERIALS FROM AROUND THE TREE TRUNK AND ROOT BALL SHALL BE REMOVED AND NOT EVIDENT WITHIN THE BACKFILL SOIL MIX. STRING, ROPE, SYNTHETIC BURLAP, PLASTIC, STRAPPING, AND OTHER MATERIALS THAT WILL NOT DECOMPOSE IN THE SOIL SHALL BE REMOVED AT THE TIME OF PLANTING
- SOIL GRADES SHALL BE FEATHERED AROUND PLANTINGS TO BLEND WITH SURROUNDING LANDSCAPE OR TURF AREAS. EXCESS EXCAVATED SOIL SHALL BE REMOVED FROM JOB SITE.
- ALL TREES AND SHRUBS SHALL BE WATERED DURING PLANTING TO MINIMIZE AIR POCKETS AND TO ENSURE SOIL CONTACT WITH ROOTS.

TREE STAKING/ GUYING:

- TREES SHALL BE STAKED TO PREVENT TOPPLING BY STRONG WIND.
- STAKES SHALL BE INSTALLED ACCORDING TO DETAIL PROVIDED ON PLAN. ANOTHER STAKING/GUYING METHOD MAY BE USED WITH APPROVAL OF OWNER'S REPRESENTATIVE.

HERBACEOUS PLANT INSTALLATION:

- ROOT MASSES SHALL BE MOIST, BUT NOT SATURATED, AT THE TIME OF PLANTING.
- PLANT PITS SHALL BE PREPARED USING A DIBBLE, SPADE OR MECHANICAL AUGER BY OPENING A HOLE AT THE PLANTING SITE. FOR PLANTINGS UNDER EXISTING TREES, PLANTING HOLES SHALL BE HAND-DUG AND LOCATIONS ADJUSTED TO ACCOMMODATE EXISTING TREE ROOTS.
- PLANTS SHALL BE PLACED IN PLANTING PITS IN A VERTICAL POSITION.
- SOIL SHALL BE BACKFILLED INTO PLANT PITS, LIGHTLY COMPRESSED TO ELIMINATE AIR POCKETS, AND FIRMED AROUND THE PLANTS.
- ALL PLANTS SHALL BE WATERED DURING PLANTING TO MINIMIZE AIR POCKETS AND TO ENSURE SOIL CONTACT WITH ROOTS.

MULCHING:

- TWO TO THREE INCHES OF SHREDDED HARDWOOD MULCH SHALL BE APPLIED TO ALL NEWLY PLANTED TREES AND SHRUBS.
- TWO TO THREE INCHES OF HARDWOOD MULCH SHALL BE APPLIED TO UPLAND HERBACEOUS PLANTING AREAS AS SHOWN ON THE PLANTING PLAN.
- MULCH SHALL NOT BE APPLIED TO SWALE, FOREBAY, OR WETLAND PLANTING SHELF AREAS.

MAINTENANCE

DURING CONSTRUCTION PERIOD:

- THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL THROUGHOUT JOB COMPLETION AND FINAL ACCEPTANCE. ALL PLANT MATERIAL SHALL BE WATERED, WEEDED, MULCHED, PRUNED AND TREATED FOR INSECT DAMAGE, FUNGUS OR DISEASE TO INSURE HEALTHY GROWING CONDITIONS. WATERING SHALL PROVIDE ADEQUATE MOISTURE TO SUPPORT VIGOROUS GROWTH. DURING TIMES OF NORMAL PRECIPITATION, ALL TREES SHALL RECEIVE 1", OR APPROX. 5-10 GALLONS OF WATER PER WEEK. PLANTS IN HEAVIER SOILS SHALL BE MONITORED TO AVOID OVER-WATERING. GATOR BAGS, WATERING TRAYS, IRRIGATION, HAND WATERING, OR OTHER INDUSTRY STANDARD TECHNIQUES SHALL BE EMPLOYED TO MAINTAIN ADEQUATE MOISTURE SUPPLY TO THE PLANT MATERIAL. THE CONTRACTOR SHALL INSTRUCT THE OWNER REGARDING THE REQUIRED AND PROPER ON-GOING MAINTENANCE OF LANDSCAPE MATERIAL.

DURING WARRANTY PERIOD:

- THE CONTRACTOR SHALL VISIT THE SITE PERIODICALLY TO ADVISE OWNER OF ANY DEFICIENT CONDITIONS AFFECTING PLANT SURVIVABILITY. DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED (SEE WARRANTY BELOW).

- THE CONTRACTOR SHALL VISIT THE SITE PERIODICALLY TO ADVISE OWNER OF ANY DEFICIENT CONDITIONS AFFECTING PLANT SURVIVABILITY. DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED (SEE WARRANTY BELOW).

LANDSCAPE WARRANTIES

FROM THE 2018 TOWN OF EASTON ZONING ORDINANCE:

- PRIOR TO ISSUANCE OF AN OCCUPANCY PERMIT, THE APPROVED PRELIMINARY LANDSCAPE PLAN SHALL BE IMPLEMENTED BY THE APPLICANT. AT COMPLETION, THE APPLICANT SHALL REQUEST THAT THE TOWN INSPECT THE COMPLETE LANDSCAPING AND ISSUE THE APPROPRIATE APPROVAL. THE TOWN RECOGNIZES THAT PLANTING SCHEDULES AND FAVORABLE WEATHER/CLIMATIC CONDITIONS DO NOT ALWAYS COINCIDE. THE APPLICANT SHALL MAKE EVERY REASONABLE EFFORT TO COORDINATE BUILDING AND SITE CONSTRUCTION WITH LANDSCAPE IMPROVEMENT INSTALLATION SO THAT ALL PROJECT CONSTRUCTION CAN BE COMPLETE PRIOR TO REQUEST FOR OCCUPANCY PERMITS. UPON DEMONSTRATING THAT SOME OR ALL OF THE REQUIRED LANDSCAPE IMPROVEMENTS SHOULD BE POSTPONED, AND SUBJECT TO THE APPROVAL OF THE TOWN, THE APPLICANT SHALL POST AN IRREVOCABLE FINANCIAL SURETY EQUAL TO THE ESTIMATED INSTALLATION COSTS AS APPROVED BY THE TOWN, GUARANTEEING THE COMPLETE IMPLEMENTATION OF THE LANDSCAPE PLAN WITHIN 6 MONTHS OF OCCUPANCY OR USE OF THE SITE OR SUBDIVISION. AFTER INSTALLATION IS COMPLETE AND INSPECTED AND APPROVED BY THE TOWN, THE APPLICANT SHALL REQUEST IN WRITING TO THE TOWN TO RELEASE ANY UNUSED PORTION OF THE SURETY.
- THE OWNER/DEVELOPER SHALL MAINTAIN ALL LANDSCAPE IMPROVEMENTS PROVIDING ADEQUATE GROWING CONDITIONS TO INSURE HEALTHY, VIGOROUS PLANT SURVIVAL AND GROWTH. THE TOWN RESERVES THE RIGHT TO PERIODICALLY REVIEW INSTALLED LANDSCAPES AND REPORT ANY SIGNIFICANT DEFICIENCIES TO THE OWNER/DEVELOPER. AT THE END OF TWO GROWING SEASONS, AND/OR AT ANY TIME PRIOR TO, THE TOWN SHALL ASSESS THE LANDSCAPE IMPROVEMENTS AND DIRECT REPLACEMENT OR REVITALIZATION OF ANY DEFICIENT AREAS. THE OWNER SHALL REPAIR OR REPLACE DEFICIENT ITEMS WITHIN 30 CALENDAR DAYS.
- FAILURE TO MAINTAIN, REPAIR OR REPLACE THE REQUIRED AND APPROVED LANDSCAPE IMPROVEMENTS SHALL BE CONSIDERED A VIOLATION OF THIS ORDINANCE AND SHALL BE ENFORCED IN ACCORDANCE WITH SECTION 28 – 1308 OF THE TOWN OF EASTON ZONING ORDINANCE.

MAINTENANCE:

DURING CONSTRUCTION PERIOD:

THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL THROUGH JOB COMPLETION AND FINAL ACCEPTANCE. ALL PLANT MATERIAL SHALL BE WATERED, WEEDED, MULCHED, PRUNED AND TREATED FOR INSECT DAMAGE, FUNGUS OR DISEASE TO ENSURE HEALTHY GROWING CONDITIONS. WATERING SHALL PROVIDE ADEQUATE MOISTURE TO SUPPORT VIGOROUS GROWTH. TYPICALLY, ALL TREES SHOULD RECEIVE APPROXIMATELY 1", OR 5-10 GALLONS OF WATER PER WEEK. PLANTS IN HEAVIER SOILS SHALL BE MONITORED TO AVOID OVER-WATERING. GATOR BAGS, WATERING TRAYS, IRRIGATION, HAND WATERING, OR OTHER INDUSTRY STANDARD TECHNIQUES SHALL BE EMPLOYED TO MAINTAIN ADEQUATE MOISTURE SUPPLY TO THE PLANT MATERIAL. INSTRUCT OWNER REGARDING REQUIRED AND PROPER ON-GOING MAINTENANCE OF LANDSCAPE INSTALLATION.

LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE:

SECTION 1014.7.E:

BUFFERYARD "C" (PRD APARTMENTS MAY BE EXCLUDED FROM THIS REQUIREMENT):

BUFFERYARD "C" (FOR ALL RESIDENTIALLY ZONED LOTS OR LAND USE APPLICATIONS TO BUFFER ALL OTHER STREETS EQUALING OR EXCEEDING TOWN OF EASTON "RESIDENTIAL COLLECTOR DESIGNATION) THIS BUFFERYARD IS NOT REQUIRED ALONG THE STREET WHERE THE PRIMARY LOT FRONTAGE IS DESIGNATED.

- 20' WIDTH
- PLANT UNIT:
1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS
NOTE: WHEN THIS BUFFERYARD IS LOCATED BETWEEN A PARKING LOT AND STREET RW, DELETE THE SHRUB REQUIREMENT.
- OPTIONS:
1. Substitute 1 evergreen tree for 5 shrubs

1 CANOPY TREE
2 EVERGREEN TREE
SHRUBS N/A

SECTION 28-1014.6.B: (PRD APARTMENTS MAY BE EXCLUDED FROM THIS REQUIREMENT)

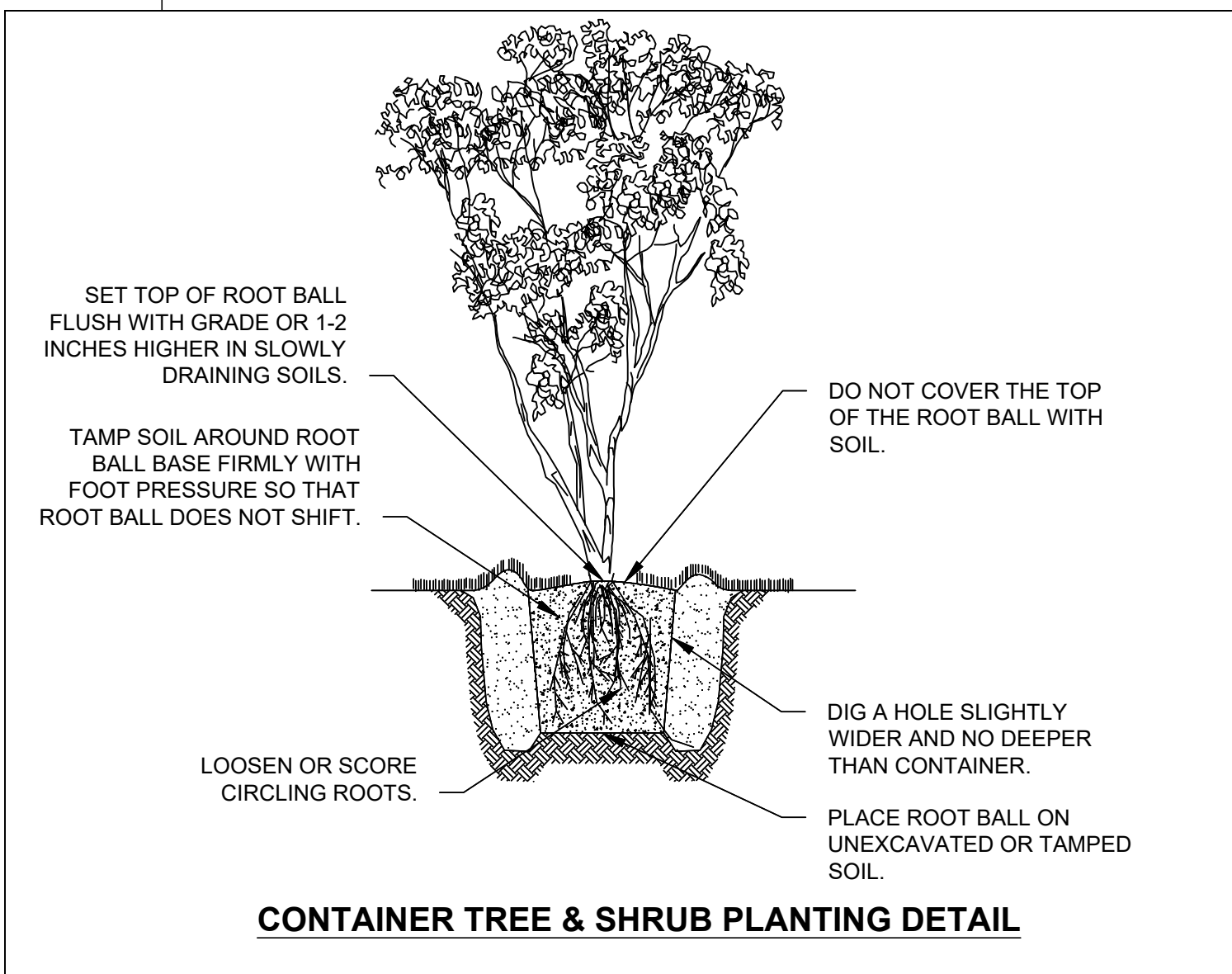
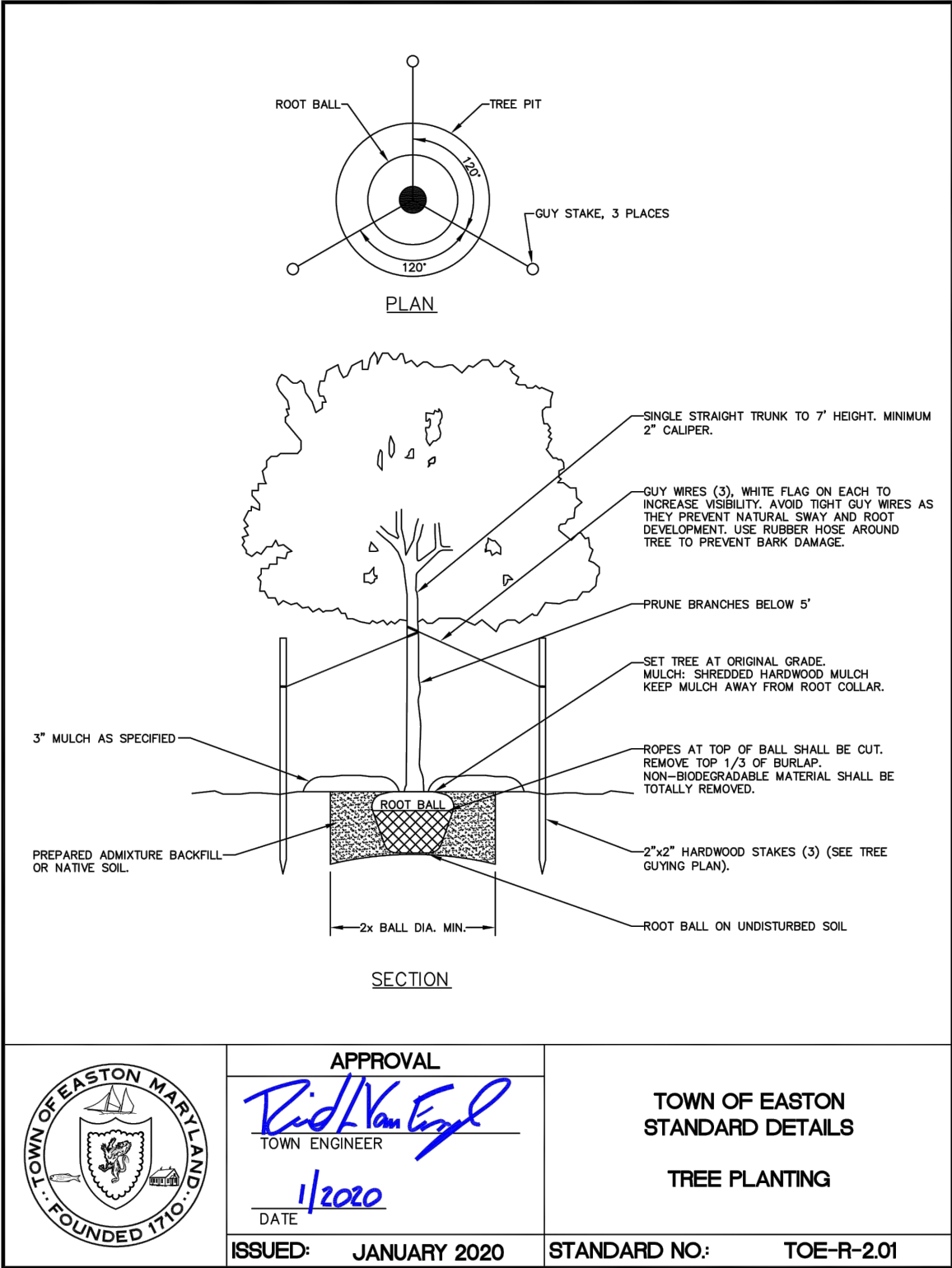
- OVERALL TREES (EXCLUDING BUFFERYARDS): 3 TREE/UNIT (3 X 12) = 36 TREES
a. STREET TREES BOTH PUBLIC AND PRIVATE STREETS: 1 DECIDUOUS CANOPY TREE PER 25' OF STREET CENTERLINE = 3 ALONG AUGUST ST, 5 ALONG PARK ST, 3 ALONG POWELL ALLEY = 11 STREET TREES

- 39 TOTAL TREES/SHRUB COMBINATION NORMALLY REQUIRED AS BASELINE (36 OVERALL TREES + 3 BUFFERYARD TREES)

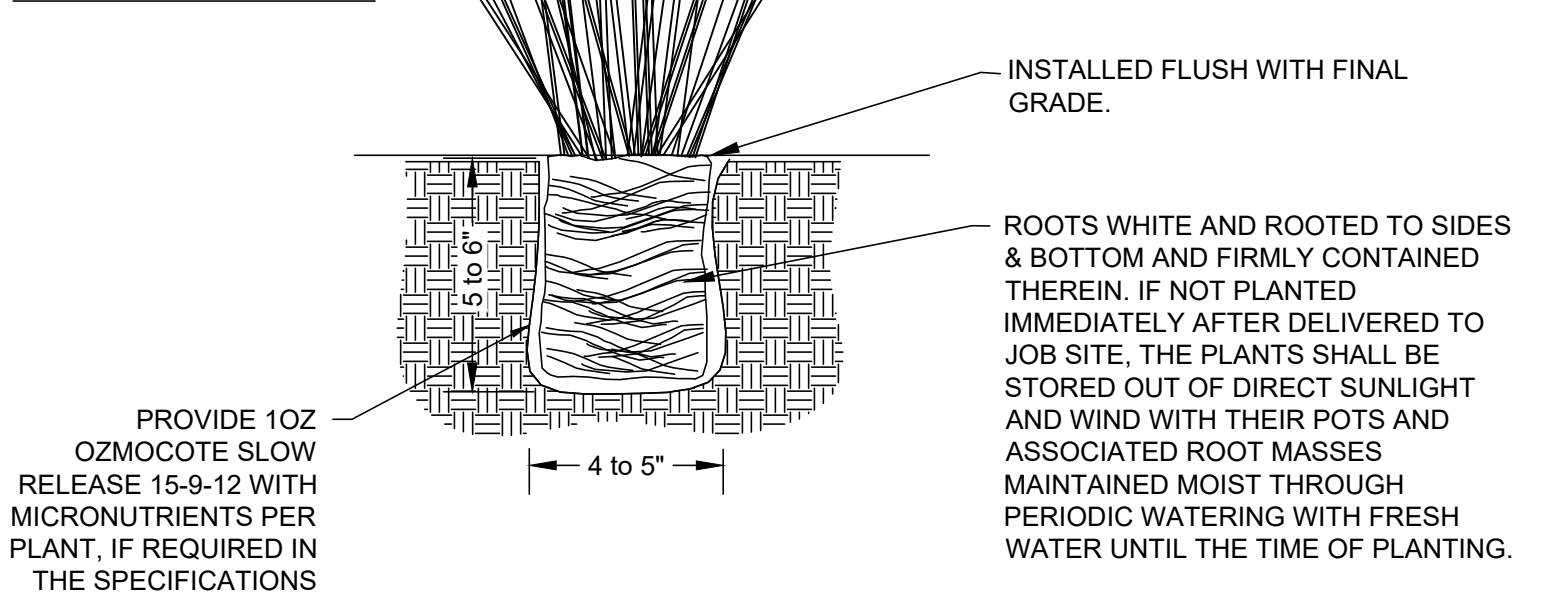
- 4 TOTAL NATIVE TREES PROVIDED (3 CANOPY TREES, 1 UNDERSTORY TREE) & 45 TOTAL NATIVE SHRUBS PROVIDED (2 LARGE SHRUBS, 43 SMALL SHRUBS)

LANDSCAPING NOTES:

- LANDSCAPE INSTALLER SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK. INSTALLER SHALL ENSURE THAT FINAL GRADES HAVE BEEN ESTABLISHED AND THE SITE IS READY FOR LANDSCAPE INSTALLATION.
- LANDSCAPE INSTALLER SHALL MAINTAIN THE LANDSCAPE IMPROVEMENT AREAS IN A CLEAN CONDITION, REMOVING DEBRIS DAILY AND AT THE COMPLETION OF THE INSTALLATION.
- INSTALLER SHALL LAYOUT ALL BEDS AND POSITION PLANTS PER THE PLANS. ADJUST AS REQUIRED FOR FIELD CONDITIONS. REPORT SIGNIFICANT ADJUSTMENTS TO THE OWNER FOR APPROVAL PRIOR TO PLANT INSTALLATION. ALL BED AREAS SHALL BE SPRAYED WITH HERBICIDE AS NEEDED TO KILL AND/OR REMOVE ALL WEED OR GRASS VEGETATION.
- EXCEPT FOR TREE SPADE INSTALLATIONS, ALL TREE PITS SHALL BE EXCAVATED TO A DEPTH SO THAT THE ROOT BALL WILL REST ON SOLID SOIL AT THE PROPER HEIGHT. STREET TREES PLANTING PITS SHALL BE EXCAVATED AND WORKED IN A RECTANGULAR FORM WITH THE SMALL DIMENSION TWICE THE DIAMETER OF THE ROOT BALL AND THE LARGE DIMENSION AT LEAST THREE TIMES THE DIAMETER OF THE ROOT BALL. OPEN AREA TREE PITS SHALL BE EXCAVATED TO A MINIMUM DIMENSION OF TWICE THE ROOTBALL WIDTH. TREES PLANTED ON SLOPES OR SIDE SWALES SHALL BE INSTALLED AT A HEIGHT RELATING TO THE UPHILL SIDE OF THE PIT, AND MOUNDED WITH SOIL AROUND THE LOWER SIDE. ALL SIDES AND BOTTOM OF TREE PLANTING PITS SHALL BE SCARIFIED OR LOOSENED TO PERMIT ROOT GROWTH. EXCAVATED SOILS THAT HAVE BEEN PREVIOUSLY UNDISTURBED SHALL BE LOOSENED AND UTILIZED FOR BACKFILL. COMPACTED SOILS THAT CANNOT BE RESTORED TO A REASONABLE PLANTING SOIL SHALL BE REMOVED AND REPLACED WITH FRIABLE NATIVE SOILS FROM THE REGION.
- ALL SHRUB PLANTING PITS, LANDSCAPE BEDS AND PLANTING MASS AREAS SHALL BE WORKED TOWN OF EASTON 2018 EDITION ZONING ORDINANCE ARTICLE X 10-62 TO A DEPTH OF 12" (OR RAISED SLIGHTLY TO ACHIEVE A 12" FRIABLE SOIL DEPTH). SHRUB PLANTING AREAS SHALL BE WORKED TO 12" MINIMUM OUTSIDE THE ROOT BALL.
- ALL LANDSCAPE BEDS SHALL BE "V" EDGED AND MULCHED WITH MINIMUM 3" DOUBLE SHREDDED HARDWOOD BARK MULCH, OR APPROVED EQUAL. MULCH TO FENCE LINES OR BACK OF CURBS WHERE APPROPRIATE TO ELIMINATE NARROW GRASS AREAS. AVOID MULCH PILED AGAINST TREE TRUNKS, ETC.
- ALL TREES TO BE STAKED AND GUYED WITH HARDWOOD STAKES, MINIMUM OF TWO (2) - 5' LONG, OR OTHER APPROVED GUYING SYSTEM. STAKES SHALL BE DRIVEN INTO STABLE SOILS. PROVIDE WIRE GUYS WITH RUBBER PROTECTANT OR OTHER APPROVED INDUSTRY PRACTICE.
- LANDSCAPE INSTALLER SHALL MAINTAIN ALL PLANT MATERIALS THROUGH THE COMPLETION OF THE LANDSCAPE INSTALLATION, AND THEN AS REQUIRED BY THE OWNER.
- AT THE COMPLETION OF THE LANDSCAPE INSTALLATION (OR BY PHASED COMPLETION IF PROVIDED FOR ON THE PLAN), THE OWNER, OR HIS DESIGNATED REPRESENTATIVE SHALL REQUEST AN INSPECTION BY TOWN OF EASTON.



HERBACEOUS PLANTING DETAIL



LANDSCAPING NOTES & DETAILS

OF THE LANDS OF

BETTER HOMES, BETTER COMMUNITIES (BHBC)

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH
Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9881 | Fax: 410 770 3887

REVISIONS

REV. #	DATE	DESCRIPTION
1		



DATE:	10/31/2022
SCALE:	N/A
DRAWN BY:	JWL & WCS
DESIGNED BY:	JWL & WCS
APPROVED BY:	BBF

SHEET NO.: C-605.01

FOR REVIEW



**SITE DEVELOPMENT
STORMWATER MANAGEMENT ANALYSIS
FOR
BETTER HOMES, BETTER
COMMUNITIES (BHBC) AT
521 AUGUST STREET
EASTON, MD 21601**

**PREPARED FOR:
BETTER HOMES, BETTER COMMUNITIES
6030 DAYBREAKCIRCLE #150-103
CLARKSBILLE, MD 21029**

**PREPARED BY:
RAUCH, INC
106 N. HARRISON STREET
EASTON, MD 21601**

October 31, 2022

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

TABLE OF CONTENTS

SECTION 1.....	Stormwater Management Narrative
SECTION 2.....	ESD Calculation Spreadsheets
SECTION 3.....	Existing & Proposed Drainage Area Plans
SECTION 4.....	Pre/Post-Development Quantity Calculations
SECTION 5.....	Soil Report

SECTION 1 – STORMWATER MANAGEMENT NARRATIVE

SITE DEVELOPMENT STORMWATER MANAGEMENT NARRATIVE

The proposed Better Homes, Better Communities (BHBC) development at 521 August Street is located on an undeveloped 0.19-acre parcel of land with 5 trees and 2 shrubs. The site is outside of the Critical Area, does not qualify for Forest Conservation, is outside of the floodplain, and within the Tanyard Branch watershed. All the existing woods will be cleared for this project. The entire limit of disturbance is Hydrologic Soil Type D.

The proposed development plan will add 0.135 acres of impervious surfaces, comprising of one building, concrete curbs and planter walls. All asphalt and brick sidewalks on the site will be permeable. All soil located within the areas of permeable pavement and sidewalk will be excavated to the groundwater elevation of 36.0' to improve infiltration. Based on the conditions of the existing parcel, the proposed development will be categorized as "New Development". The spreadsheets found in Section 2 of this report calculates the required ESD volume to be 876 CF of ESD storage.

Water quality will be met through one Town of Easton standard planter box, permeable brick sidewalk, and two permeable asphalt parking lots. The planter collects runoff coming from the proposed building and will exfiltrate into the surface of the sub-surface R-Tank chamber. The permeable asphalt parking lots have stone reservoirs that exfiltrates into the ground and directly into the subsurface R-Tank chamber via both exfiltration and distribution pipes. All distribution pipes collect the water around the site and send it to the R-Tank chamber to discharge at the location of an existing inlet in Powell's Alley, referred to as Study Point #1. The inlet that we are discharging into will be replaced with a traffic bearing yard inlet and all existing pipes will be connected to it. The outfall of the R-Tank will be a 4" PVC pipe with intermediate cleanouts in the event that it needs to be flushed. Powell Alley currently has inadequate cover over the existing storm drain pipes therefore the only pipe size capable leaving our site is a 4". All Stormwater practices are designed in accordance with MDE Chap. 5 Guidelines.

Water quantity control is required for a 10-year storm events to be less than a 2-year storm event in the Tanyard Branch watershed. Curb inlets will collect any overflow of the permeable pavement and direct the flow to the R-Tank. The inlet we are discharging into will be replaced with a traffic bearing yard inlet and all existing pipes will be connected to it. The outfall of the R-Tank will be a 4" PVC pipe with intermediate cleanouts in the event it needs to be flushed. Powell Alley currently has inadequate cover over the existing storm drain pipes therefore the only pipe size capable leaving our site is a 4". All on-site water will be collected within our facilities and all off-site/ town's drainage will bypass our facilities as they currently do. The table for all study points is shown below for existing and proposed. Water quantity control is accomplished primarily through a proposed subsurface chamber made from called 'R-Tanks' (model: Heavy Duty (HD), by ACF Environmental and the use of a 4" outfall pipe.

Study Point #1		
	2-YR (CFS)	10-YR (CFS)
Existing	0.49	0.89
Proposed	0.09	0.16

Study Point #2		
	2-YR (CFS)	10-YR (CFS)
Existing	0.26	0.43
Proposed	0.12	0.19

SECTION 2 – ESD CALCULATION SPREADSHEETS

LIMITS OF DISTURBANCE

EXISTING LOD COVERAGE			
COVERAGE DESCRIPTION	COVERAGE CATEGORY	COVERAGE AREA SQ-FT	SOIL TYPE
ROADWAY + CONCRETE TURF LAWN	IMPERVIOUS PERVIOUS	1325 D 9326 D	

TOTAL SITE AREA 10651 SQ-FT
EXISTING IMPERVIOUS AREA 1325 SQ-FT
PERCENT IMPERVIOUS 12%

PROPOSED LOD COVERAGE		
COVERAGE DESCRIPTION	COVERAGE CATEGORY	COVERAGE AREA SQ-FT
SIDEWALK	PERVIOUS	1047
PERVIOUS PARKING	PERVIOUS	1419
ROOFS	IMPERVIOUS	4333
TURF LAWN	PERVIOUS	0.00
PAVEMENT	IMPERVIOUS	609
LANDSCAPING	PERVIOUS	0
ROADWAY	IMPERVIOUS	916
PAVEMENT	IMPERVIOUS	44

TOTAL SITE AREA 10651 SQ-FT
PROPOSED IMPERVIOUS AREA 5902 SQ-FT
PERCENT IMPERVIOUS 55%

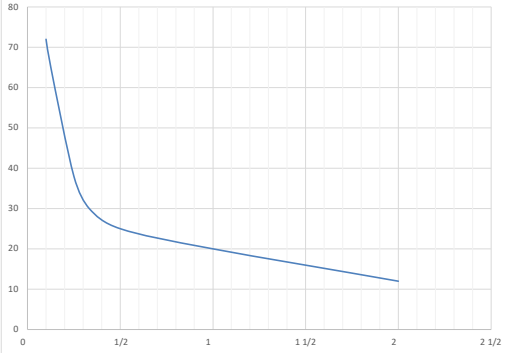
PERCENT HSG A 0%
PERCENT HSG B 0%
PERCENT HSG C 0%
PERCENT HSG D 100%

Proposed Parking 1
Open Turf Space 1
Concrete curb
Planter Box Bed
Existing Road and sidewalk
Concrete Planter Box Wall

FROM TR-55		
LOT SIZE	% IMPERVIOUS	
2.00	12	
1.00	20	
1/2	0.50	25
1/3	0.33	30
1/4	0.25	38
1/8	0.13	65
0.10	72	

0.166667

% IMPERVIOUS vs LOT SIZE in ACRES from TR-55



#DIV/0!

- PERVIOUS A

IMPERVIOUS B

C

D
- GRAVEL IMPERVIOUS

ROOFS IMPERVIOUS

OUS PARKING IMPERVIOUS

DRIVEWAY IMPERVIOUS

ROADWAY IMPERVIOUS

WATER IMPERVIOUS

PAVEMENT IMPERVIOUS

SIDEWALK IMPERVIOUS

LANDSCAPING PERVIOUS

PERVIOUS PARKING PERVIOUS

TREES/VEGETATION PERVIOUS

TURF LAWN PERVIOUS

CONSERVATION AREA PERVIOUS

PERMEABLE PAVEMENT PERVIOUS

Maryland ESD Calculations and 10% Phosphorus Removal

Last Update: 1/6/2019 Rauch Inc.

Project Name:	
Date:	
	data input cells
	calculation cells

1 4
1 4

9326

Step 1: Complete ESD Implementation Checklist

Check all of the Following ESD Practices That Were Implemented at Site	Yes - No - N/A
Environmental Mapping Was Conducted at Site Prior to Layout	YES
Natural Areas Were Conserved (e.g., forests, wetlands, steep slopes, floodplains)	YES
Stream, Wetland and Shoreline Buffers Were Reserved	YES
Disturbance of Permeable Soils Was Minimized	YES
Natural Flow Paths Were Maintained Across the Site	YES
Building Layout Was Fingerprinted to Reduce Clearing and Grading at Site	YES
Site Grading Promoted Sheetflow From Impervious Areas to Pervious Ones	YES
Site Design Was Evaluated to Reduce Creation of Needless Impervious Cover	YES
Site Design Was Evaluated to Maximize Disconnection of Impervious Cover	YES
Site Design Was Evaluated to Identify Potential Hotspot Generating Area for Stormwater Treatment	YES
Erosion and Sediment Control Practices and Post Construction Stormwater Management Practices Were Integrated into a Comprehensive Plan	YES
Tree Planting Was Used at the Site to Convert Turf Areas into Forest	YES

Step 2: Calculate Site Imperviousness and Water Quality Volume, WQv (for redevelopment)

defined as A single tract, lot, parcel of land or combination of tracts, lots parcels of land that are in one ownership or are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision or project. See page 5.117 in the design handbook. This means that a project may be classed as redevelopment even if the LOD is less than 40% impervious

Total SITE Area, A (acres or sq-ft)	10812.4	LOD
Existing SITE Impervious Area (acres or sq-ft)	2430.4	
SITE percent impervious	22%	
Development Category (for ESD)	New Development	

LOD Area, A (acres)	0.24
Existing LOD Impervious Surface Area (acres)	0.03
Proposed LOD Impervious Surface Area (acres)	0.14
Rainfall Depth, P (in)	1.0

Existing LOD Imperviousness, I_{avg}	12%
Proposed LOD Imperviousness, I_{post}	55%

Water Quality Calculation for Redevelopment Only

Required Treatment Area (acres)	0.000
Runoff Coefficient, Rv	0.95

Water Quality Volume, WQv (cf)	0
--------------------------------	---

Step 4: Calculate Environmental Site Design (ESD) Rainfall Target, P_E

% Soil Type A	0%	RCN Soil Type A	72.17
% Soil Type B	0%	RCN Soil Type B	81.17
% Soil Type C	0%	RCN Soil Type C	86.17
% Soil Type D	100%	RCN Soil Type D	90.08

Target Pre-Developed Condition, $RCN_{\text{pre-dev}}$	77.00000	Post-Developed Condition, RCN	90.08
--	----------	-------------------------------	-------

Soil Type A ESD Rainfall Target, P_E (in)	0.00
Soil Type B ESD Rainfall Target, P_E (in)	0.00
Soil Type C ESD Rainfall Target, P_E (in)	0.00
Soil Type D ESD Rainfall Target, P_E (in)	1.80
	1yr
Maximum P_E (in)	2.7

Runoff depths for H and H analysis		
2yr	10yr	100yr
3.4	5.3	7.6

Site ESD Rainfall Target, P_E (in)	1.80
ESD Runoff Depth, Q_E (in)	0.99
ESD Runoff Volume, ESD_v (cf)	876
Total Treatment Volume (cf)	876

Step 3: Calculate Phosphorous Removal Requirement, RR for Critical Area Sites

Development Category (for 10%)	New Development
New Development	
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)	0.12
Redevelopment:	
Predevelopment Runoff Coefficient, $R_{V_{pre}}$	0.16
Phosphorous Mean Concentration, C (mg/L)	0.3
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)	0.10
Post-Development Runoff Coefficient, $R_{V_{post}}$	0.55
Average Annual Post-Development Load, L_{post} (lbs P / yr)	0.33
Removal Requirement, RR (lbs P / yr)	0.22

Step 5: Select Nonstructural Practices to Treat the ESD Rainfall Target

Nonstructural Practices	P _c Credit Description	Contributing Drainage Area (sf)	Direct WQv or ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	Average P _c Credit (in)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)
Disconnection of Rooftop Runoff 1	Up to 1 inch credit provided based upon disconnection flow length.	2,212	473	N/A	#DIV/0!	0	473
Disconnection of Rooftop Runoff 2	Up to 1 inch credit provided based upon disconnection flow length.	0	0	N/A	#DIV/0!	0	0
Disconnection of Non-Rooftop Runoff 1	Up to 1 inch credit provided based upon disconnection and contributing flow lengths.	0	0	N/A	#DIV/0!	0	0
Disconnection of Non-Rooftop Runoff 2	Up to 1 inch credit provided based upon disconnection and contributing flow lengths.	0	0	N/A	#DIV/0!	0	0
Sheetflow to Conservation Areas 1	Up to 1 inch credit provided based upon conservation area width.	0	0	0	#DIV/0!	0	0
Sheetflow to Conservation Areas 2	Up to 1 inch credit provided based upon conservation area width.	0	0	0	#DIV/0!	0	0

Step 6: Select Micro-Scale Practices to Treat the ESD Rainfall Target

Micro-Scale Practices	P _c Credit Description	Contributing Drainage Area (sf)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)
Green Roof (Level 1)	ESDv credit is based on roof thickness	0	0	N/A	0	0
Green Roof (Level 2)	ESDv credit is based on roof thickness	0	0	N/A	0	0
Pemeable Pavement (A Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Pemeable Pavement (B Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness	2,616	29	N/A	351	0
Rainwater Harvesting	ESDv credit is based on design storage volume and annual use	0	0	0	0	0
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	0	0	0	0	0
Infiltration berms	ESDv credit is based on design storage volume	0	0	0	0	0
Rain Gardens 1	ESDv credit is based on design storage volume	0	0	0	0	0
Rain Gardens 2	ESDv credit is based on design storage volume	0	0	0	0	0
Micro-Bioretenention 1	ESDv credit is based on design storage volume	4,309	921	921	528	393
Micro-Bioretenention 2	ESDv credit is based on design storage volume	0	0	0	0	0
Landscape Infiltration	ESDv credit is based on design storage volume	0	0	0	0	0
Grass Swales 1	ESDv credit is based on design storage volume	0	0	0	0	0
Grass Swales 2	ESDv credit is based on design storage volume	0	0	0	0	0
Bio-swales 1	ESDv credit is based on design storage volume	0	0	0	0	0
Bio-swales 2	ESDv credit is based on design storage volume	0	0	0	0	0
Wet Swales	ESDv credit is based on design storage volume	0	0	0	0	0

Critical Area Credits

Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
#VALUE!	#VALUE!	0.12	#VALUE!	#VALUE!
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00

Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
80%	#DIV/0!	0.00	0.00	0.00
80%	#DIV/0!	0.00	0.00	0.00
40%	286%	0.01	0.02	-0.01
45%	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#VALUE!	#VALUE!	0.23	#VALUE!	#VALUE!
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00

Step 7: Check for ESDv to MEP compliance and Revise Site If Necessary

Drainage Area Treated (sf)	9,139
----------------------------	-------

WQv or ESDv Treated (cf) using ESD practices	879
P _E achieved (inches)	1.80

Entire ESDv Treated Through ESD Practices?	YES
ESDv Remaining? (cf)	0
If ESDv is not fully treated, is ESD to MEP achieved?	NO

Redevelopment WQv Requirements Met Through ESD Practices?	N/A
WQv Remaining? (cf)	0

New Development Water Quality Volume Requirements

Required Treatment Area (acres)	0.24
Runoff Coefficient, Rv	0.55
Water Quality Volume, WQv (cf)	487

New Development WQv Requirements Met Through ESD Practices?	YES
WQv Remaining? (cf)	0

Step 8: Determine Reduced RCN and Volume Management Requirements Based Upon P_E Achieved

Reduced RCN for Type A Soils	N/A
Reduced RCN for Type B Soils	N/A
Reduced RCN for Type C Soils	N/A
Reduced RCN for Type D Soils	N/A

Composite Reduced RCN CN* 1 yr	N/A
--------------------------------	-----

Target Reduced RCN _{100% 1 yr}	77.00
---	-------

Q _E (in) for Reduced RCN	N/A
V (ft ³) for Reduced RCN	N/A

Q _E (in) for pre developed RCN	0.87
V (ft ³) for pre developed RCN	771

Volume Management Required (cf)	0
---------------------------------	---

Volume Required for structural practices (cf)	0
---	---

Composite reduced runoff curve number for H and H analysis (TR-55)			
S	Ia	Pe achieved x Rv	
1.10	0.22	0.99	
2 yr	10 yr	100 yr	
Qr	2.36	4.17	6.42
Qr-(Pe achieved x Rv)	1.37	3.19	5.43
CN*	77.24	80.30	81.58

Step 9: Select Structural Practices to Meet Volume Management Requirements

Structural Practices	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	ESDv from Upstream Practices (cf)	Treatment Volume (cf)
Stormwater Ponds (Level 1)	0	0%	0	0	0
Stormwater Ponds (Level 2)	0	0%	0	0	0
Stormwater Wetlands (Level 1)	0	0%	0	0	0
Stormwater Wetlands (Level 2)	0	0%	0	0	0
Stormwater Filtering Systems (Level 1)	0	0%	0	0	0
Stormwater Filtering Systems (Level 2)	0	0%	0	0	0
Stormwater Infiltration (Level 1)	0	0%	0	0	0
Stormwater Infiltration (Level 2)	0	0%	0	0	0

Total structural CPv or WQv provided	0
WQv Requirement Met through structural practices?	YES
WQv Remaining (cf)	0
CPv Requirement Met through structural practices?	YES
CPv Remaining (cf)	0

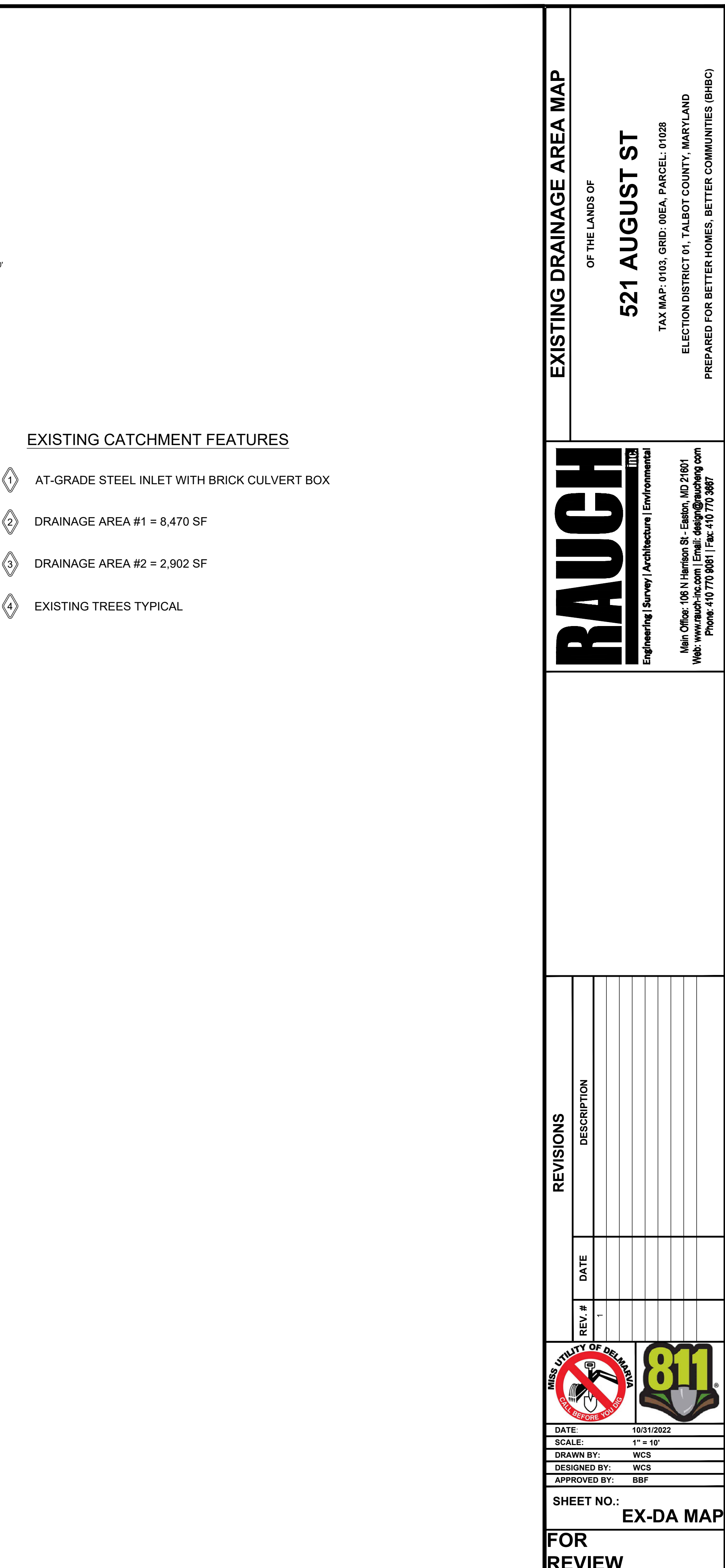
Critical Area Credits				
Phosphorous Removal Efficiency	Adjusted Phosphorus Removal Efficiency	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
50%	0%	0.00	0.00	0.00
75%	0%	0.00	0.00	0.00
50%	0%	0.00	0.00	0.00
75%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
65%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
90%	0%	0.00	0.00	0.00

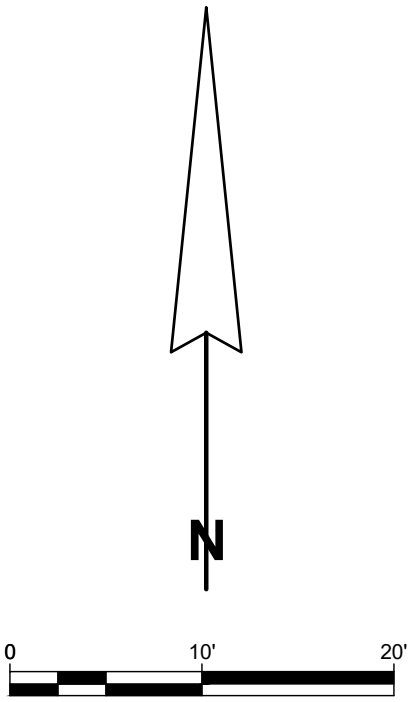
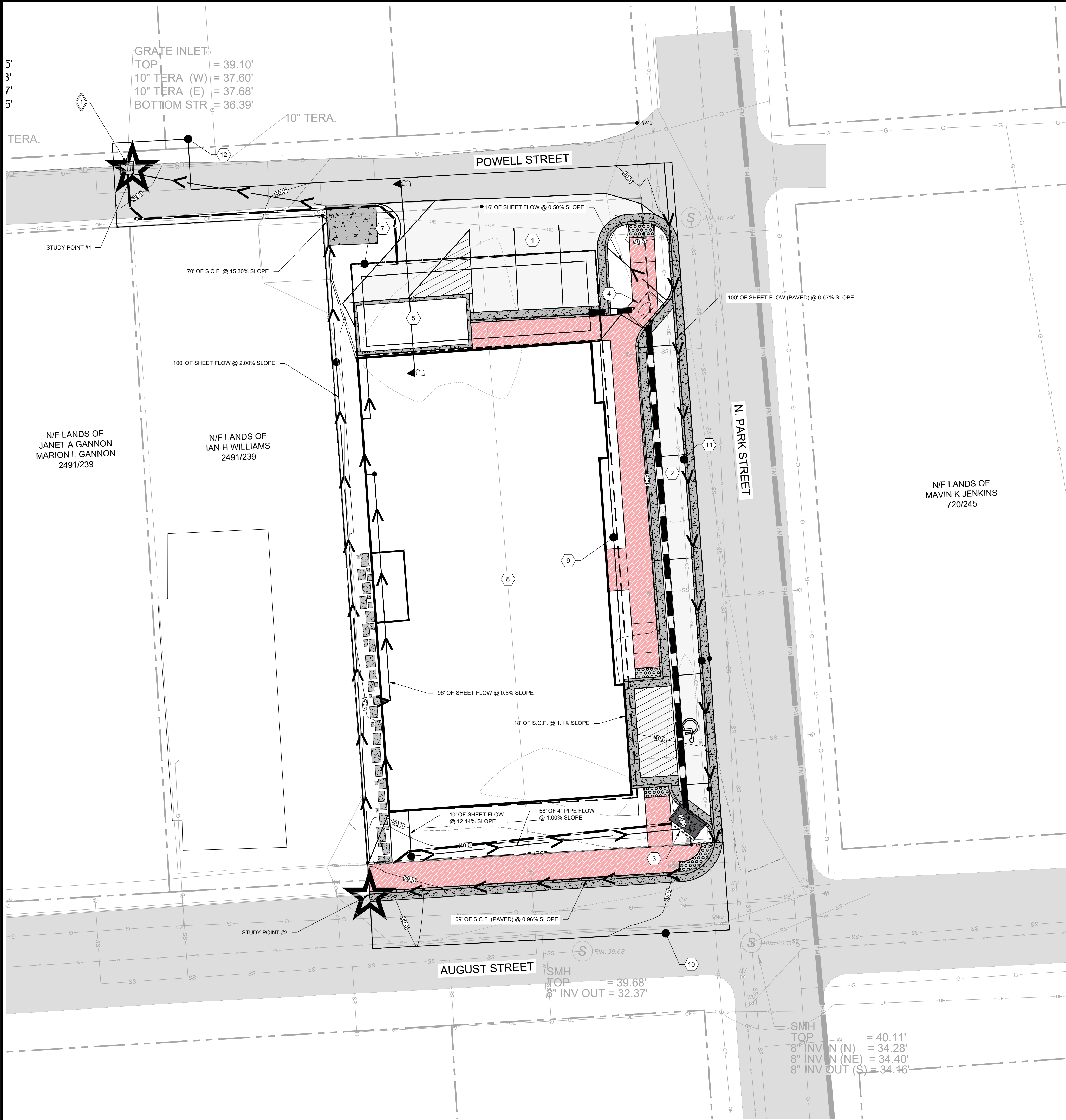
Total Load Reduction (lbs P / year)	#VALUE!
Total Load Reduction Remaining (lbs P / yr)	#VALUE!

	Contributing Drainage Area (sf)	% Impervious Cover ----- RV	To fully treat sub area ----- PE required ----- WQV required	Max available WQV or ESDv from CDA (cf)	Area of upstream catchment (sf)	WQV or ESDv from Up- Gradient Practices (cf)	Total catchment area ----- Total ESDv to practice	Practice Specific Parameter(s)				Bed area % of direct catchment area	WQV or ESDv provided (cf)	Runoff Volume Remainin g (cf)	Down-Gradient Practice and Row	SOIL TYPE	Baseline Phosphorous Removal Efficiency	Adjusted Removal Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remainin g Load (lbs/yr)	Watershe d-inches treated (PE Provided)	Annual Rainfall Treated (%)
Micro-Scale Practices								Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
PLANTER BOX 1	4,309	100%	2.00	921	0	0	4,309	203	203	1	4	4.7%	528	393				#VALUE!	0.23	#VALUE!	#VALUE!	1.55	93.83%
		0.95	682					0	0	921	0	0	0	0	0	0	0	0	0	0	0	0	0
PLANTER BOX 2			1.00	0	0	0	0																
		0.05	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,309			921		0							528	393			#VALUE!	#VALUE!	0.23	#VALUE!	#VALUE!	1.55	93.83%

Micro-Scale Practices	Contributing Drainage Area (sf)	% Impervious Cover ----- RV	To fully treat sub area ----- PE required ----- WQV required	Max available WQv or ESDv from CDA (cf)	Practice Specific Parameter(s)	WQV or ESDv provided (cf)	Runoff Volume Remainin g (cf)	Down-Gradient Practice and Row	Baseline Phosphor ous Removal Efficiency	Adjusted Removal Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)	Watershe d-inches treated (PE Provided)	Annual Rainfall Treated (%)
Pemeable Pavement (C Soils)	715	0%	1.00	8	Subbase Thickness (in) 10	96	0		40%	400.00%	0.00	0.01	-0.01	32.16	172.11%
Pemeable Pavement (C Soils)	957	0%	1.00	11	Subbase Thickness (in) 10	128	0		40%	400.00%	0.00	0.01	-0.01	32.16	172.11%
Pemeable Pavement (C Soils)	537	0%	1.00	6	Subbase Thickness (in) 10	72	-66		40%	83.38%	0.00	0.00	0.00	32.16	172.11%
Pemeable Pavement (C Soils)	409	0%	1.00	5	Subbase Thickness (in) 10	55	-50		40%	83.38%	0.00	0.00	0.00	32.16	172.11%
Pemeable Pavement (C Soils)		100%	2.00	0	Subbase Thickness (in)	0	0		40%	0.00%	0.00	0.00	0.00	0.00	0.00%
Pemeable Pavement (C Soils)		100%	2	0	Subbase Thickness (in)	0	0		40%	0.00%	0.00	0.00	0.00	0.00	0.00%
Total	2,618			29		351	0		40%	285.61%	0.01	0.02	-0.01	32.16	172.11%

SECTION 3 – EXISTING & PROPOSED DRAINAGE AREA PLANS





STORMWATER NOTES

- 1 PERMEABLE ASPHALT (NORTH)
- 2 PERMEABLE ASPHALT (EAST)
- 3 CURB INLET 1
- 4 CURB INLET 2
- 5 STORMWATER PLANTER BOX 1
- 6 PERMEABLE BRICK PAVERS
- 7 R-TANK STORMWATER MANAGEMENT SUBSURFACE CHAMBER
- 8 BUILDING
- 9 DRAINAGE AREA 1 = 2,338 SF
- 10 DRAINAGE AREA 2 = 2,377 SF
- 11 DRAINAGE AREA 3 = 1,634 SF
- 12 DRAINAGE AREA 4 = 2,159 SF
- 13 DRAINAGE AREA 5 = 1,702 SF

EXISTING CATCHMENT FEATURES

- AT-GRADE STEEL INLET WITH BRICK CULVERT BOX TO BE REPLACED WITH PROPOSED TRAFFIC BEARING YARD INLET

PROPOSED DRAINAGE AREA

OF THE LANDS OF
521 AUGUST ST
TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)



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REVISIONS

REV. #	DATE	DESCRIPTION
1		



DATE:	10/3/2022
SCALE:	1" = 200'
DRAWN BY:	WCS
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: **PR-DA MAP**

FOR
REVIEW

SECTION 4 – PRE/POST-DEVELOPMENT QUANTITY CALCULATIONS

PRE-DEVELOPMENT

2YR = 0.49 CFS &
0.034 AF



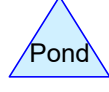
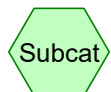
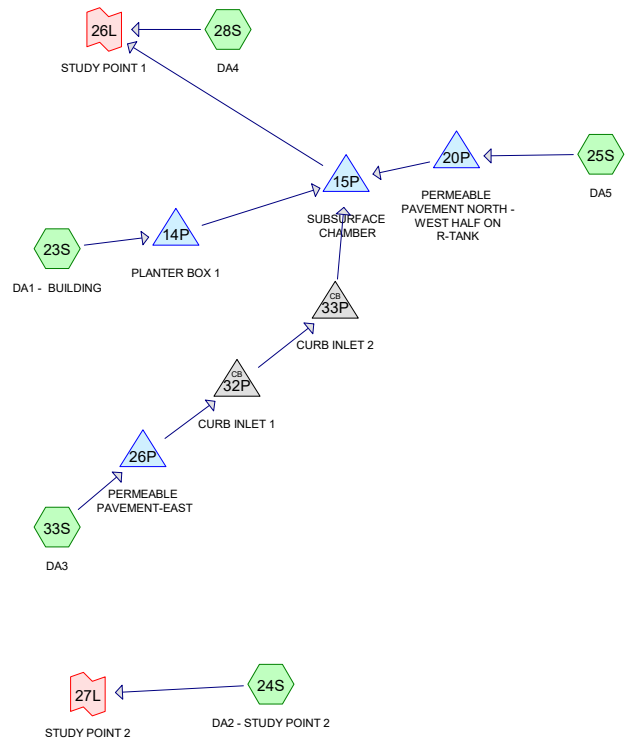
DA1 - STUDY POINT 1



DA2 - STUDY POINT 2

2YR = 0.26 CFS &
0.014 AF

POST-DEVELOPMENT



Routing Diagram for 521 August_SWV_V4 - JW_10-10
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521 August_SWM_V4 - JW_10-10

Prepared by {enter your company name here}

Printed 10/31/2022

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.005	39	>75% Grass cover, Good, HSG A (23S)
0.033	74	>75% Grass cover, Good, HSG C (28S, 33S)
0.003	80	>75% Grass cover, Good, HSG D (25S)
0.064	94	Newly graded area, HSG D (25S, 28S, 33S)
0.105	98	Paved parking, HSG D (1S, 2S, 24S, 25S, 28S, 33S)
0.099	98	Roofs, HSG D (23S)
0.211	86	Woods/grass comb., Poor, HSG D (1S, 2S)

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA1 - STUDY POINT 1 Runoff Area=8,470 sf 7.58% Impervious Runoff Depth=2.09"
Flow Length=197' Tc=8.3 min CN=87 Runoff=0.49 cfs 0.034 af

Subcatchment 2S: DA2 - STUDY POINT 2 Runoff Area=2,902 sf 52.55% Impervious Runoff Depth=2.54"
Flow Length=96' Tc=3.9 min CN=92 Runoff=0.26 cfs 0.014 af

Subcatchment 23S: DA1 - BUILDING Runoff Area=4,536 sf 95.52% Impervious Runoff Depth=2.84"
Flow Length=96' Slope=0.0050 '/' Tc=2.0 min CN=95 Runoff=0.49 cfs 0.025 af

Subcatchment 24S: DA2 - STUDY POINT 2 Runoff Area=1,135 sf 100.00% Impervious Runoff Depth=3.17"
Flow Length=209' Tc=2.7 min CN=98 Runoff=0.12 cfs 0.007 af

Subcatchment 25S: DA5 Runoff Area=1,448 sf 8.01% Impervious Runoff Depth=2.64"
Flow Length=16' Slope=0.0050 '/' Tc=0.5 min CN=93 Runoff=0.16 cfs 0.007 af

Subcatchment 28S: DA4 Runoff Area=1,672 sf 44.38% Impervious Runoff Depth=2.09"
Flow Length=170' Tc=9.6 min CN=87 Runoff=0.09 cfs 0.007 af

Subcatchment 33S: DA3 Runoff Area=2,513 sf 16.20% Impervious Runoff Depth=2.26"
Flow Length=68' Tc=2.2 min CN=89 Runoff=0.23 cfs 0.011 af

Pond 14P: PLANTER BOX 1 Peak Elev=37.82' Storage=1 cf Inflow=0.49 cfs 0.025 af
Outflow=0.48 cfs 0.025 af

Pond 15P: SUBSURFACE CHAMBER Peak Elev=38.17' Storage=0.022 af Inflow=0.13 cfs 0.004 af
Discarded=0.14 cfs 0.026 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.026 af

Pond 20P: PERMEABLE PAVEMENT NORTH - Peak Elev=38.85' Storage=0 cf Inflow=0.16 cfs 0.007 af
Discarded=0.16 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.16 cfs 0.007 af

Pond 26P: PERMEABLE PAVEMENT-EAST Peak Elev=40.41' Storage=320 cf Inflow=0.23 cfs 0.011 af
Outflow=0.13 cfs 0.004 af

Pond 32P: CURB INLET 1 Peak Elev=40.41' Inflow=0.13 cfs 0.004 af
Outflow=0.13 cfs 0.004 af

Pond 33P: CURB INLET 2 Peak Elev=40.44' Inflow=0.13 cfs 0.004 af
Outflow=0.13 cfs 0.004 af

Link 26L: STUDY POINT 1 Inflow=0.09 cfs 0.007 af
Primary=0.09 cfs 0.007 af

Link 27L: STUDY POINT 2 Inflow=0.12 cfs 0.007 af
Primary=0.12 cfs 0.007 af

Summary for Subcatchment 1S: DA1 - STUDY POINT 1

Runoff = 0.49 cfs @ 12.01 hrs, Volume= 0.034 af, Depth= 2.09"

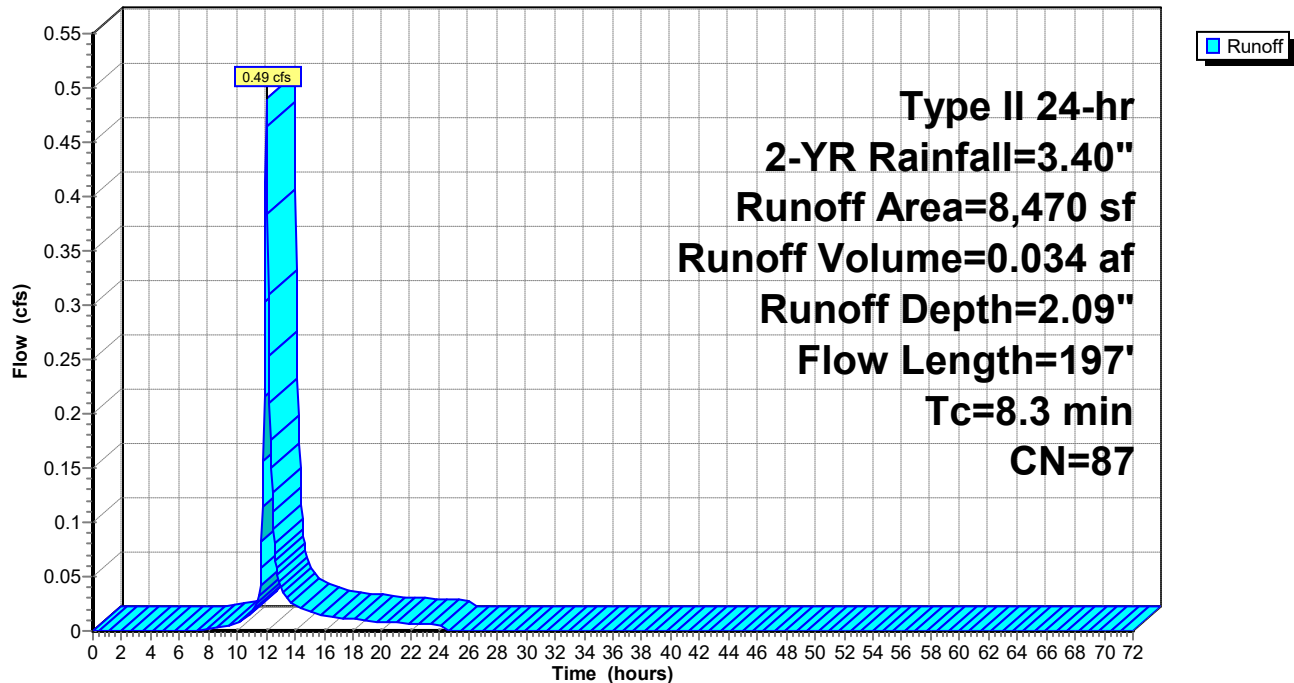
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
7,828	86	Woods/grass comb., Poor, HSG D
642	98	Paved parking, HSG D
8,470	87	Weighted Average
7,828		92.42% Pervious Area
642		7.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
2.2	93	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	54	0.1230	7.12		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	197	Total			

Subcatchment 1S: DA1 - STUDY POINT 1

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Subcatchment 1S: DA1 - STUDY POINT 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	2.09	0.00
1.00	0.04	0.00	0.00	53.00	3.40	2.09	0.00
2.00	0.07	0.00	0.00	54.00	3.40	2.09	0.00
3.00	0.12	0.00	0.00	55.00	3.40	2.09	0.00
4.00	0.16	0.00	0.00	56.00	3.40	2.09	0.00
5.00	0.21	0.00	0.00	57.00	3.40	2.09	0.00
6.00	0.27	0.00	0.00	58.00	3.40	2.09	0.00
7.00	0.34	0.00	0.00	59.00	3.40	2.09	0.00
8.00	0.41	0.01	0.00	60.00	3.40	2.09	0.00
9.00	0.50	0.02	0.00	61.00	3.40	2.09	0.00
10.00	0.62	0.06	0.01	62.00	3.40	2.09	0.00
11.00	0.80	0.13	0.02	63.00	3.40	2.09	0.00
12.00	2.25	1.11	0.49	64.00	3.40	2.09	0.00
13.00	2.62	1.42	0.04	65.00	3.40	2.09	0.00
14.00	2.79	1.56	0.02	66.00	3.40	2.09	0.00
15.00	2.90	1.65	0.02	67.00	3.40	2.09	0.00
16.00	2.99	1.73	0.01	68.00	3.40	2.09	0.00
17.00	3.07	1.80	0.01	69.00	3.40	2.09	0.00
18.00	3.13	1.85	0.01	70.00	3.40	2.09	0.00
19.00	3.19	1.90	0.01	71.00	3.40	2.09	0.00
20.00	3.24	1.95	0.01	72.00	3.40	2.09	0.00
21.00	3.28	1.99	0.01				
22.00	3.32	2.02	0.01				
23.00	3.36	2.06	0.01				
24.00	3.40	2.09	0.01				
25.00	3.40	2.09	0.00				
26.00	3.40	2.09	0.00				
27.00	3.40	2.09	0.00				
28.00	3.40	2.09	0.00				
29.00	3.40	2.09	0.00				
30.00	3.40	2.09	0.00				
31.00	3.40	2.09	0.00				
32.00	3.40	2.09	0.00				
33.00	3.40	2.09	0.00				
34.00	3.40	2.09	0.00				
35.00	3.40	2.09	0.00				
36.00	3.40	2.09	0.00				
37.00	3.40	2.09	0.00				
38.00	3.40	2.09	0.00				
39.00	3.40	2.09	0.00				
40.00	3.40	2.09	0.00				
41.00	3.40	2.09	0.00				
42.00	3.40	2.09	0.00				
43.00	3.40	2.09	0.00				
44.00	3.40	2.09	0.00				
45.00	3.40	2.09	0.00				
46.00	3.40	2.09	0.00				
47.00	3.40	2.09	0.00				
48.00	3.40	2.09	0.00				
49.00	3.40	2.09	0.00				
50.00	3.40	2.09	0.00				
51.00	3.40	2.09	0.00				

Summary for Subcatchment 2S: DA2 - STUDY POINT 2

Runoff = 0.26 cfs @ 11.96 hrs, Volume= 0.014 af, Depth= 2.54"

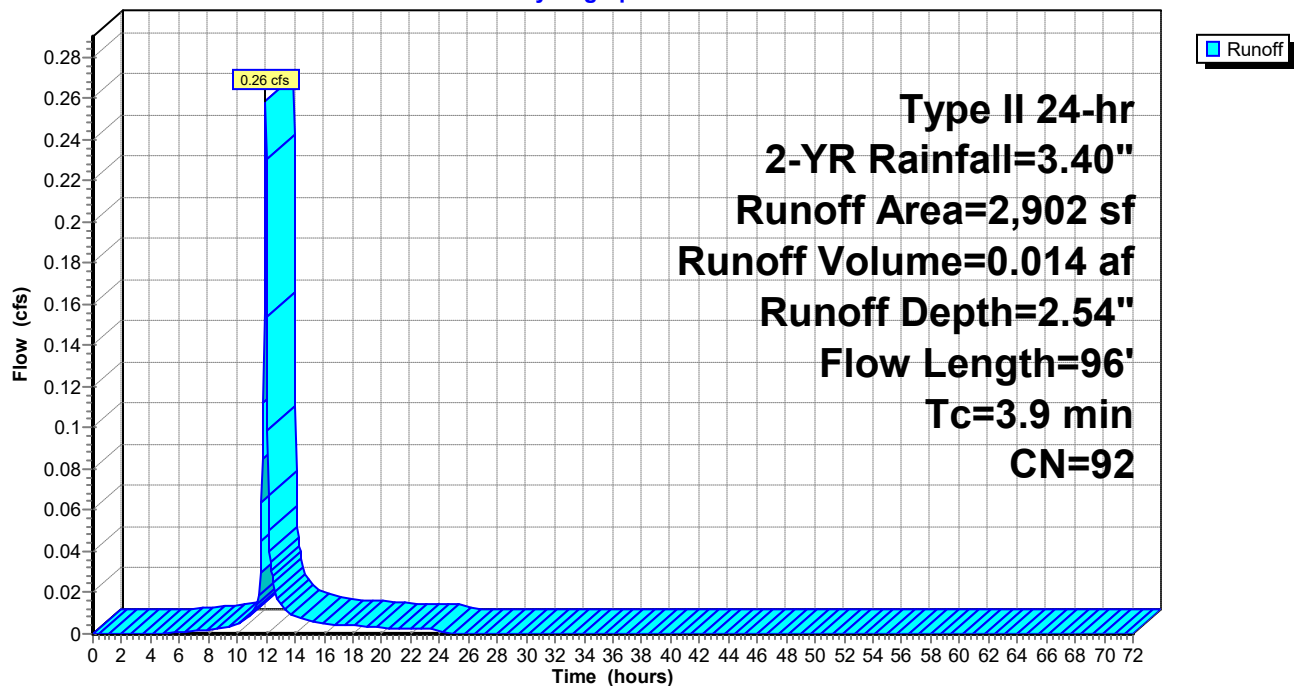
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
1,377	86	Woods/grass comb., Poor, HSG D
1,525	98	Paved parking, HSG D
2,902	92	Weighted Average
1,377		47.45% Pervious Area
1,525		52.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0230	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.5	66	0.0920	2.12		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.9	96	Total			

Subcatchment 2S: DA2 - STUDY POINT 2

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Subcatchment 2S: DA2 - STUDY POINT 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	2.54	0.00
1.00	0.04	0.00	0.00	53.00	3.40	2.54	0.00
2.00	0.07	0.00	0.00	54.00	3.40	2.54	0.00
3.00	0.12	0.00	0.00	55.00	3.40	2.54	0.00
4.00	0.16	0.00	0.00	56.00	3.40	2.54	0.00
5.00	0.21	0.00	0.00	57.00	3.40	2.54	0.00
6.00	0.27	0.01	0.00	58.00	3.40	2.54	0.00
7.00	0.34	0.03	0.00	59.00	3.40	2.54	0.00
8.00	0.41	0.05	0.00	60.00	3.40	2.54	0.00
9.00	0.50	0.09	0.00	61.00	3.40	2.54	0.00
10.00	0.62	0.15	0.00	62.00	3.40	2.54	0.00
11.00	0.80	0.26	0.01	63.00	3.40	2.54	0.00
12.00	2.25	1.47	0.23	64.00	3.40	2.54	0.00
13.00	2.62	1.81	0.01	65.00	3.40	2.54	0.00
14.00	2.79	1.96	0.01	66.00	3.40	2.54	0.00
15.00	2.90	2.07	0.01	67.00	3.40	2.54	0.00
16.00	2.99	2.15	0.01	68.00	3.40	2.54	0.00
17.00	3.07	2.22	0.00	69.00	3.40	2.54	0.00
18.00	3.13	2.29	0.00	70.00	3.40	2.54	0.00
19.00	3.19	2.34	0.00	71.00	3.40	2.54	0.00
20.00	3.24	2.39	0.00	72.00	3.40	2.54	0.00
21.00	3.28	2.43	0.00				
22.00	3.32	2.47	0.00				
23.00	3.36	2.50	0.00				
24.00	3.40	2.54	0.00				
25.00	3.40	2.54	0.00				
26.00	3.40	2.54	0.00				
27.00	3.40	2.54	0.00				
28.00	3.40	2.54	0.00				
29.00	3.40	2.54	0.00				
30.00	3.40	2.54	0.00				
31.00	3.40	2.54	0.00				
32.00	3.40	2.54	0.00				
33.00	3.40	2.54	0.00				
34.00	3.40	2.54	0.00				
35.00	3.40	2.54	0.00				
36.00	3.40	2.54	0.00				
37.00	3.40	2.54	0.00				
38.00	3.40	2.54	0.00				
39.00	3.40	2.54	0.00				
40.00	3.40	2.54	0.00				
41.00	3.40	2.54	0.00				
42.00	3.40	2.54	0.00				
43.00	3.40	2.54	0.00				
44.00	3.40	2.54	0.00				
45.00	3.40	2.54	0.00				
46.00	3.40	2.54	0.00				
47.00	3.40	2.54	0.00				
48.00	3.40	2.54	0.00				
49.00	3.40	2.54	0.00				
50.00	3.40	2.54	0.00				
51.00	3.40	2.54	0.00				

Summary for Subcatchment 23S: DA1 - BUILDING

Runoff = 0.49 cfs @ 11.93 hrs, Volume= 0.025 af, Depth= 2.84"

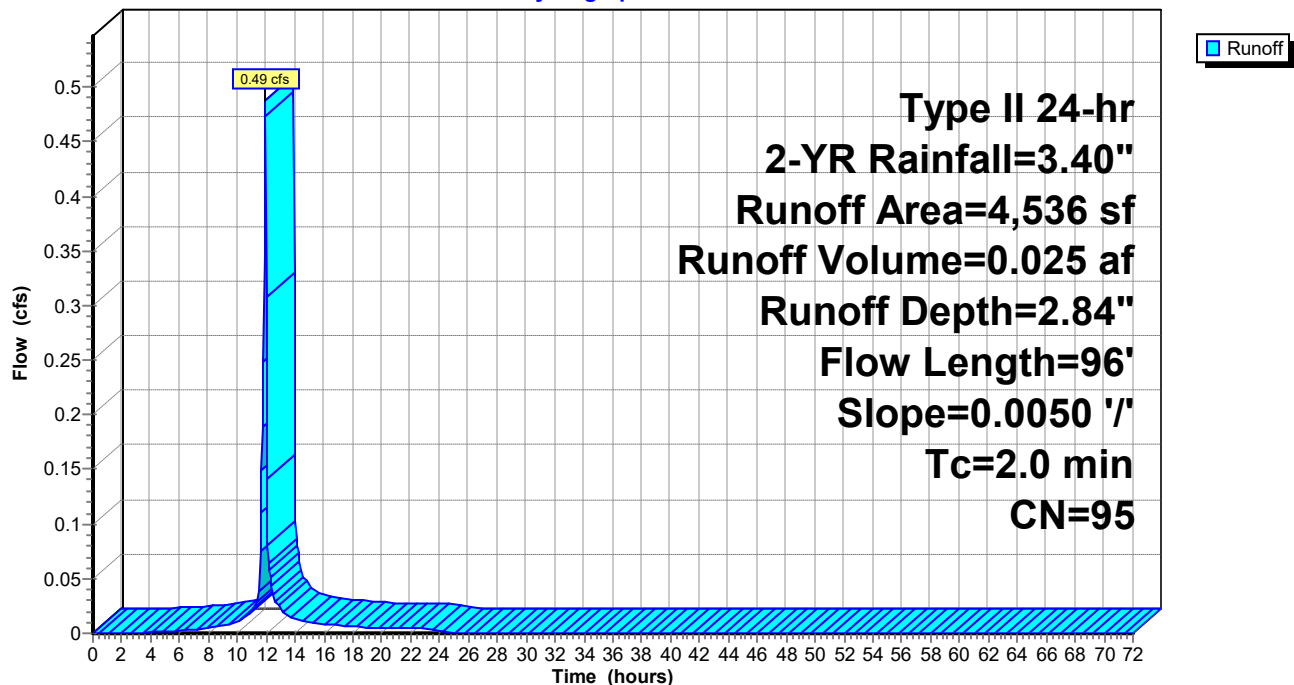
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
4,333	98	Roofs, HSG D
203	39	>75% Grass cover, Good, HSG A
4,536	95	Weighted Average
203		4.48% Pervious Area
4,333		95.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	96	0.0050	0.81		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 23S: DA1 - BUILDING

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Subcatchment 23S: DA1 - BUILDING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	2.84	0.00
1.00	0.04	0.00	0.00	53.00	3.40	2.84	0.00
2.00	0.07	0.00	0.00	54.00	3.40	2.84	0.00
3.00	0.12	0.00	0.00	55.00	3.40	2.84	0.00
4.00	0.16	0.01	0.00	56.00	3.40	2.84	0.00
5.00	0.21	0.02	0.00	57.00	3.40	2.84	0.00
6.00	0.27	0.04	0.00	58.00	3.40	2.84	0.00
7.00	0.34	0.07	0.00	59.00	3.40	2.84	0.00
8.00	0.41	0.11	0.00	60.00	3.40	2.84	0.00
9.00	0.50	0.17	0.01	61.00	3.40	2.84	0.00
10.00	0.62	0.25	0.01	62.00	3.40	2.84	0.00
11.00	0.80	0.39	0.02	63.00	3.40	2.84	0.00
12.00	2.25	1.73	0.31	64.00	3.40	2.84	0.00
13.00	2.62	2.08	0.02	65.00	3.40	2.84	0.00
14.00	2.79	2.24	0.01	66.00	3.40	2.84	0.00
15.00	2.90	2.35	0.01	67.00	3.40	2.84	0.00
16.00	2.99	2.44	0.01	68.00	3.40	2.84	0.00
17.00	3.07	2.51	0.01	69.00	3.40	2.84	0.00
18.00	3.13	2.58	0.01	70.00	3.40	2.84	0.00
19.00	3.19	2.63	0.01	71.00	3.40	2.84	0.00
20.00	3.24	2.68	0.00	72.00	3.40	2.84	0.00
21.00	3.28	2.72	0.00				
22.00	3.32	2.76	0.00				
23.00	3.36	2.80	0.00				
24.00	3.40	2.84	0.00				
25.00	3.40	2.84	0.00				
26.00	3.40	2.84	0.00				
27.00	3.40	2.84	0.00				
28.00	3.40	2.84	0.00				
29.00	3.40	2.84	0.00				
30.00	3.40	2.84	0.00				
31.00	3.40	2.84	0.00				
32.00	3.40	2.84	0.00				
33.00	3.40	2.84	0.00				
34.00	3.40	2.84	0.00				
35.00	3.40	2.84	0.00				
36.00	3.40	2.84	0.00				
37.00	3.40	2.84	0.00				
38.00	3.40	2.84	0.00				
39.00	3.40	2.84	0.00				
40.00	3.40	2.84	0.00				
41.00	3.40	2.84	0.00				
42.00	3.40	2.84	0.00				
43.00	3.40	2.84	0.00				
44.00	3.40	2.84	0.00				
45.00	3.40	2.84	0.00				
46.00	3.40	2.84	0.00				
47.00	3.40	2.84	0.00				
48.00	3.40	2.84	0.00				
49.00	3.40	2.84	0.00				
50.00	3.40	2.84	0.00				
51.00	3.40	2.84	0.00				

Summary for Subcatchment 24S: DA2 - STUDY POINT 2

Runoff = 0.12 cfs @ 11.94 hrs, Volume= 0.007 af, Depth= 3.17"

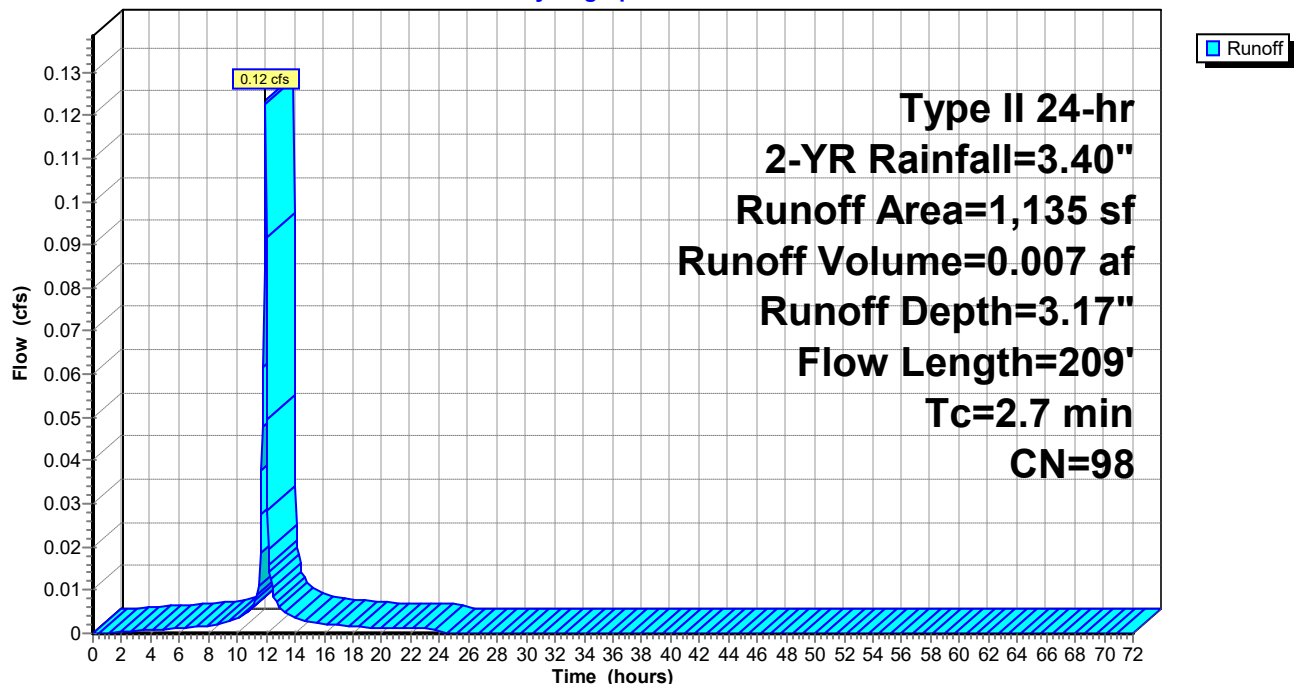
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
0	80	>75% Grass cover, Good, HSG D
1,135	98	Paved parking, HSG D
1,135	98	Weighted Average
1,135		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0067	0.92		Sheet Flow, PAVE/GUTTER Smooth surfaces n= 0.011 P2= 3.40"
0.9	109	0.0096	1.99		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.7	209	Total			

Subcatchment 24S: DA2 - STUDY POINT 2

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

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Printed 10/31/2022

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Hydrograph for Subcatchment 24S: DA2 - STUDY POINT 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	3.17	0.00
1.00	0.04	0.00	0.00	53.00	3.40	3.17	0.00
2.00	0.07	0.00	0.00	54.00	3.40	3.17	0.00
3.00	0.12	0.02	0.00	55.00	3.40	3.17	0.00
4.00	0.16	0.05	0.00	56.00	3.40	3.17	0.00
5.00	0.21	0.08	0.00	57.00	3.40	3.17	0.00
6.00	0.27	0.12	0.00	58.00	3.40	3.17	0.00
7.00	0.34	0.18	0.00	59.00	3.40	3.17	0.00
8.00	0.41	0.24	0.00	60.00	3.40	3.17	0.00
9.00	0.50	0.32	0.00	61.00	3.40	3.17	0.00
10.00	0.62	0.42	0.00	62.00	3.40	3.17	0.00
11.00	0.80	0.60	0.01	63.00	3.40	3.17	0.00
12.00	2.25	2.03	0.09	64.00	3.40	3.17	0.00
13.00	2.62	2.39	0.01	65.00	3.40	3.17	0.00
14.00	2.79	2.56	0.00	66.00	3.40	3.17	0.00
15.00	2.90	2.67	0.00	67.00	3.40	3.17	0.00
16.00	2.99	2.76	0.00	68.00	3.40	3.17	0.00
17.00	3.07	2.83	0.00	69.00	3.40	3.17	0.00
18.00	3.13	2.90	0.00	70.00	3.40	3.17	0.00
19.00	3.19	2.96	0.00	71.00	3.40	3.17	0.00
20.00	3.24	3.00	0.00	72.00	3.40	3.17	0.00
21.00	3.28	3.05	0.00				
22.00	3.32	3.09	0.00				
23.00	3.36	3.13	0.00				
24.00	3.40	3.17	0.00				
25.00	3.40	3.17	0.00				
26.00	3.40	3.17	0.00				
27.00	3.40	3.17	0.00				
28.00	3.40	3.17	0.00				
29.00	3.40	3.17	0.00				
30.00	3.40	3.17	0.00				
31.00	3.40	3.17	0.00				
32.00	3.40	3.17	0.00				
33.00	3.40	3.17	0.00				
34.00	3.40	3.17	0.00				
35.00	3.40	3.17	0.00				
36.00	3.40	3.17	0.00				
37.00	3.40	3.17	0.00				
38.00	3.40	3.17	0.00				
39.00	3.40	3.17	0.00				
40.00	3.40	3.17	0.00				
41.00	3.40	3.17	0.00				
42.00	3.40	3.17	0.00				
43.00	3.40	3.17	0.00				
44.00	3.40	3.17	0.00				
45.00	3.40	3.17	0.00				
46.00	3.40	3.17	0.00				
47.00	3.40	3.17	0.00				
48.00	3.40	3.17	0.00				
49.00	3.40	3.17	0.00				
50.00	3.40	3.17	0.00				
51.00	3.40	3.17	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Subcatchment 25S: DA5

Runoff = 0.16 cfs @ 11.90 hrs, Volume= 0.007 af, Depth= 2.64"

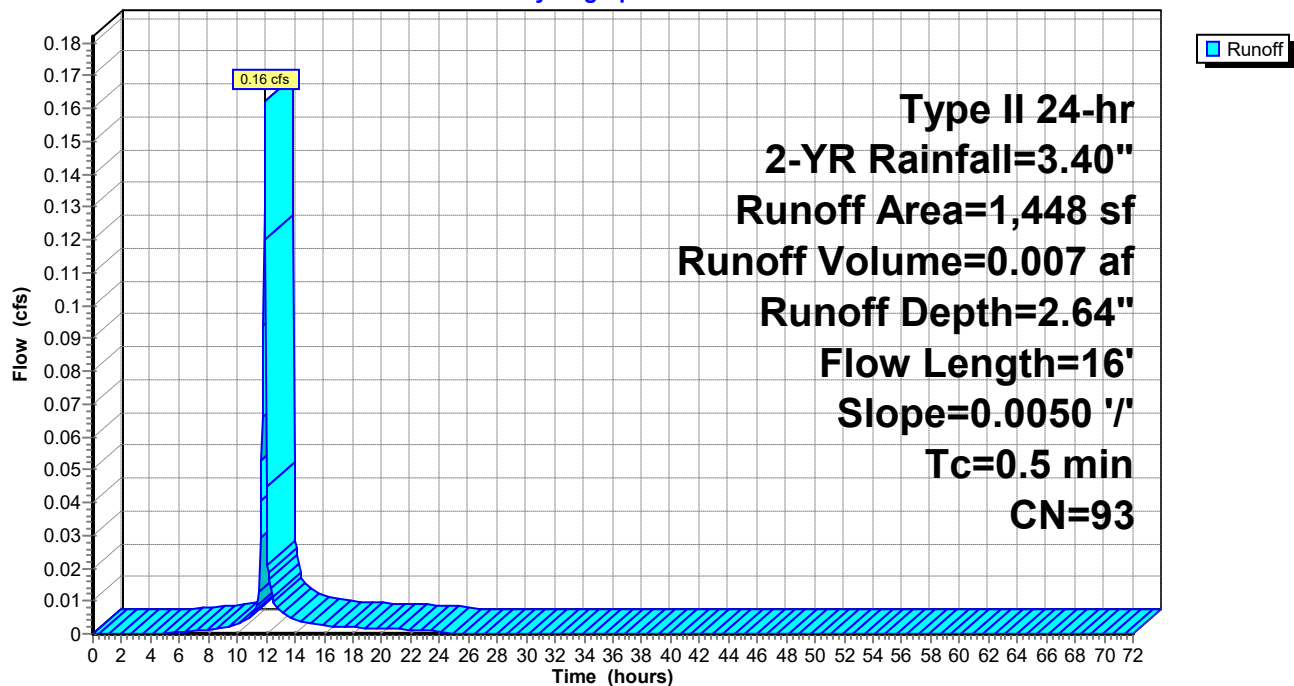
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
118	80	>75% Grass cover, Good, HSG D
1,214	94	Newly graded area, HSG D
116	98	Paved parking, HSG D
1,448	93	Weighted Average
1,332		91.99% Pervious Area
116		8.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	16	0.0050	0.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 25S: DA5

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Subcatchment 25S: DA5

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	2.64	0.00
1.00	0.04	0.00	0.00	53.00	3.40	2.64	0.00
2.00	0.07	0.00	0.00	54.00	3.40	2.64	0.00
3.00	0.12	0.00	0.00	55.00	3.40	2.64	0.00
4.00	0.16	0.00	0.00	56.00	3.40	2.64	0.00
5.00	0.21	0.00	0.00	57.00	3.40	2.64	0.00
6.00	0.27	0.02	0.00	58.00	3.40	2.64	0.00
7.00	0.34	0.04	0.00	59.00	3.40	2.64	0.00
8.00	0.41	0.07	0.00	60.00	3.40	2.64	0.00
9.00	0.50	0.11	0.00	61.00	3.40	2.64	0.00
10.00	0.62	0.18	0.00	62.00	3.40	2.64	0.00
11.00	0.80	0.30	0.01	63.00	3.40	2.64	0.00
12.00	2.25	1.55	0.04	64.00	3.40	2.64	0.00
13.00	2.62	1.90	0.01	65.00	3.40	2.64	0.00
14.00	2.79	2.05	0.00	66.00	3.40	2.64	0.00
15.00	2.90	2.16	0.00	67.00	3.40	2.64	0.00
16.00	2.99	2.25	0.00	68.00	3.40	2.64	0.00
17.00	3.07	2.32	0.00	69.00	3.40	2.64	0.00
18.00	3.13	2.38	0.00	70.00	3.40	2.64	0.00
19.00	3.19	2.43	0.00	71.00	3.40	2.64	0.00
20.00	3.24	2.48	0.00	72.00	3.40	2.64	0.00
21.00	3.28	2.52	0.00				
22.00	3.32	2.56	0.00				
23.00	3.36	2.60	0.00				
24.00	3.40	2.64	0.00				
25.00	3.40	2.64	0.00				
26.00	3.40	2.64	0.00				
27.00	3.40	2.64	0.00				
28.00	3.40	2.64	0.00				
29.00	3.40	2.64	0.00				
30.00	3.40	2.64	0.00				
31.00	3.40	2.64	0.00				
32.00	3.40	2.64	0.00				
33.00	3.40	2.64	0.00				
34.00	3.40	2.64	0.00				
35.00	3.40	2.64	0.00				
36.00	3.40	2.64	0.00				
37.00	3.40	2.64	0.00				
38.00	3.40	2.64	0.00				
39.00	3.40	2.64	0.00				
40.00	3.40	2.64	0.00				
41.00	3.40	2.64	0.00				
42.00	3.40	2.64	0.00				
43.00	3.40	2.64	0.00				
44.00	3.40	2.64	0.00				
45.00	3.40	2.64	0.00				
46.00	3.40	2.64	0.00				
47.00	3.40	2.64	0.00				
48.00	3.40	2.64	0.00				
49.00	3.40	2.64	0.00				
50.00	3.40	2.64	0.00				
51.00	3.40	2.64	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Subcatchment 28S: DA4

Runoff = 0.09 cfs @ 12.03 hrs, Volume= 0.007 af, Depth= 2.09"

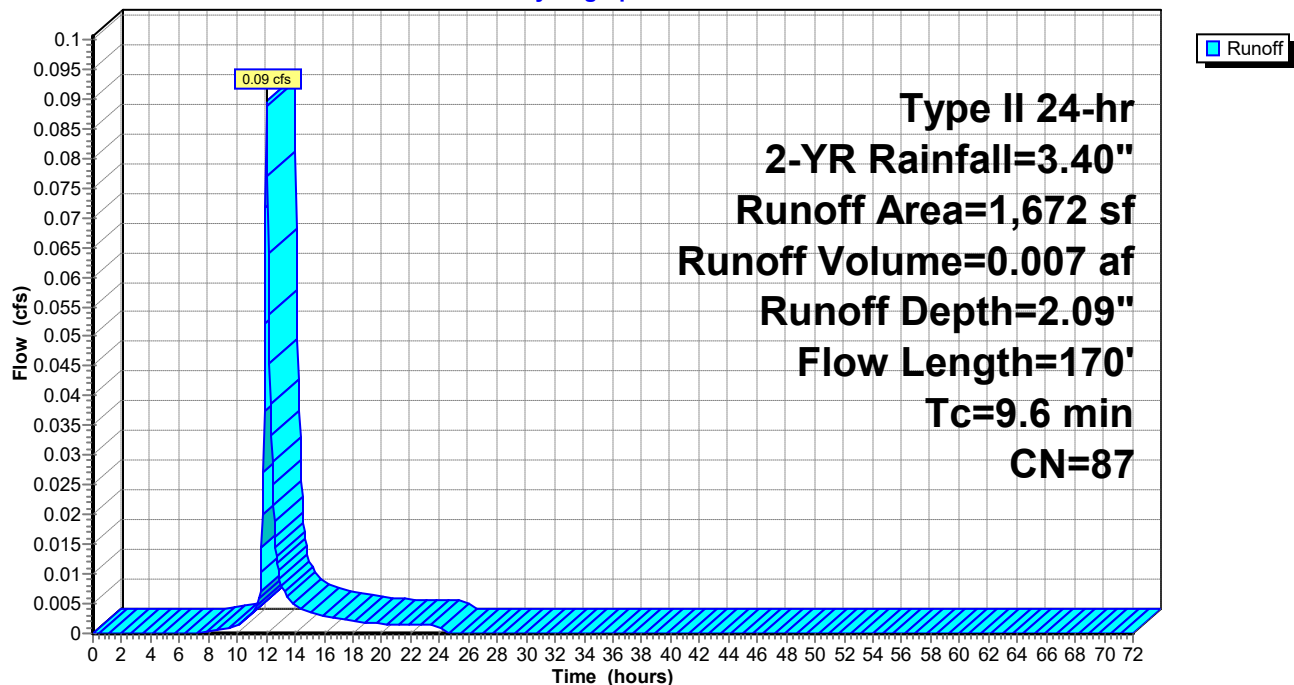
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
742	98	Paved parking, HSG D
719	74	>75% Grass cover, Good, HSG C
211	94	Newly graded area, HSG D
1,672	87	Weighted Average
930		55.62% Pervious Area
742		44.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.1	70	0.1530	7.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.6	170	Total			

Subcatchment 28S: DA4

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Subcatchment 28S: DA4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	2.09	0.00
1.00	0.04	0.00	0.00	53.00	3.40	2.09	0.00
2.00	0.07	0.00	0.00	54.00	3.40	2.09	0.00
3.00	0.12	0.00	0.00	55.00	3.40	2.09	0.00
4.00	0.16	0.00	0.00	56.00	3.40	2.09	0.00
5.00	0.21	0.00	0.00	57.00	3.40	2.09	0.00
6.00	0.27	0.00	0.00	58.00	3.40	2.09	0.00
7.00	0.34	0.00	0.00	59.00	3.40	2.09	0.00
8.00	0.41	0.01	0.00	60.00	3.40	2.09	0.00
9.00	0.50	0.02	0.00	61.00	3.40	2.09	0.00
10.00	0.62	0.06	0.00	62.00	3.40	2.09	0.00
11.00	0.80	0.13	0.00	63.00	3.40	2.09	0.00
12.00	2.25	1.11	0.09	64.00	3.40	2.09	0.00
13.00	2.62	1.42	0.01	65.00	3.40	2.09	0.00
14.00	2.79	1.56	0.00	66.00	3.40	2.09	0.00
15.00	2.90	1.65	0.00	67.00	3.40	2.09	0.00
16.00	2.99	1.73	0.00	68.00	3.40	2.09	0.00
17.00	3.07	1.80	0.00	69.00	3.40	2.09	0.00
18.00	3.13	1.85	0.00	70.00	3.40	2.09	0.00
19.00	3.19	1.90	0.00	71.00	3.40	2.09	0.00
20.00	3.24	1.95	0.00	72.00	3.40	2.09	0.00
21.00	3.28	1.99	0.00				
22.00	3.32	2.02	0.00				
23.00	3.36	2.06	0.00				
24.00	3.40	2.09	0.00				
25.00	3.40	2.09	0.00				
26.00	3.40	2.09	0.00				
27.00	3.40	2.09	0.00				
28.00	3.40	2.09	0.00				
29.00	3.40	2.09	0.00				
30.00	3.40	2.09	0.00				
31.00	3.40	2.09	0.00				
32.00	3.40	2.09	0.00				
33.00	3.40	2.09	0.00				
34.00	3.40	2.09	0.00				
35.00	3.40	2.09	0.00				
36.00	3.40	2.09	0.00				
37.00	3.40	2.09	0.00				
38.00	3.40	2.09	0.00				
39.00	3.40	2.09	0.00				
40.00	3.40	2.09	0.00				
41.00	3.40	2.09	0.00				
42.00	3.40	2.09	0.00				
43.00	3.40	2.09	0.00				
44.00	3.40	2.09	0.00				
45.00	3.40	2.09	0.00				
46.00	3.40	2.09	0.00				
47.00	3.40	2.09	0.00				
48.00	3.40	2.09	0.00				
49.00	3.40	2.09	0.00				
50.00	3.40	2.09	0.00				
51.00	3.40	2.09	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Subcatchment 33S: DA3

Runoff = 0.23 cfs @ 11.94 hrs, Volume= 0.011 af, Depth= 2.26"

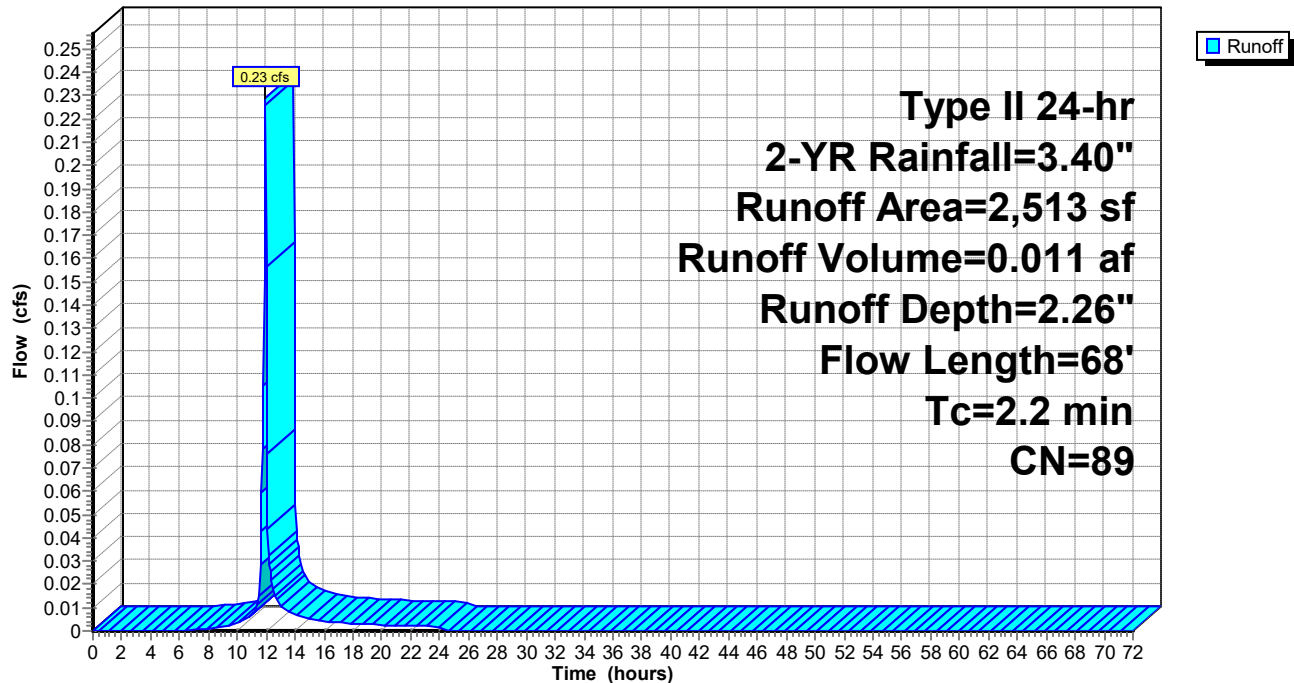
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
407	98	Paved parking, HSG D
733	74	>75% Grass cover, Good, HSG C
1,373	94	Newly graded area, HSG D
2,513	89	Weighted Average
2,106		83.80% Pervious Area
407		16.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	10	0.0120	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.4	58	0.0100	2.58	0.22	Pipe Channel, 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.011
2.2	68	Total			

Subcatchment 33S: DA3

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

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Hydrograph for Subcatchment 33S: DA3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.40	2.26	0.00
1.00	0.04	0.00	0.00	53.00	3.40	2.26	0.00
2.00	0.07	0.00	0.00	54.00	3.40	2.26	0.00
3.00	0.12	0.00	0.00	55.00	3.40	2.26	0.00
4.00	0.16	0.00	0.00	56.00	3.40	2.26	0.00
5.00	0.21	0.00	0.00	57.00	3.40	2.26	0.00
6.00	0.27	0.00	0.00	58.00	3.40	2.26	0.00
7.00	0.34	0.01	0.00	59.00	3.40	2.26	0.00
8.00	0.41	0.02	0.00	60.00	3.40	2.26	0.00
9.00	0.50	0.04	0.00	61.00	3.40	2.26	0.00
10.00	0.62	0.08	0.00	62.00	3.40	2.26	0.00
11.00	0.80	0.17	0.01	63.00	3.40	2.26	0.00
12.00	2.25	1.24	0.16	64.00	3.40	2.26	0.00
13.00	2.62	1.56	0.01	65.00	3.40	2.26	0.00
14.00	2.79	1.71	0.01	66.00	3.40	2.26	0.00
15.00	2.90	1.81	0.01	67.00	3.40	2.26	0.00
16.00	2.99	1.89	0.00	68.00	3.40	2.26	0.00
17.00	3.07	1.96	0.00	69.00	3.40	2.26	0.00
18.00	3.13	2.02	0.00	70.00	3.40	2.26	0.00
19.00	3.19	2.07	0.00	71.00	3.40	2.26	0.00
20.00	3.24	2.12	0.00	72.00	3.40	2.26	0.00
21.00	3.28	2.15	0.00				
22.00	3.32	2.19	0.00				
23.00	3.36	2.23	0.00				
24.00	3.40	2.26	0.00				
25.00	3.40	2.26	0.00				
26.00	3.40	2.26	0.00				
27.00	3.40	2.26	0.00				
28.00	3.40	2.26	0.00				
29.00	3.40	2.26	0.00				
30.00	3.40	2.26	0.00				
31.00	3.40	2.26	0.00				
32.00	3.40	2.26	0.00				
33.00	3.40	2.26	0.00				
34.00	3.40	2.26	0.00				
35.00	3.40	2.26	0.00				
36.00	3.40	2.26	0.00				
37.00	3.40	2.26	0.00				
38.00	3.40	2.26	0.00				
39.00	3.40	2.26	0.00				
40.00	3.40	2.26	0.00				
41.00	3.40	2.26	0.00				
42.00	3.40	2.26	0.00				
43.00	3.40	2.26	0.00				
44.00	3.40	2.26	0.00				
45.00	3.40	2.26	0.00				
46.00	3.40	2.26	0.00				
47.00	3.40	2.26	0.00				
48.00	3.40	2.26	0.00				
49.00	3.40	2.26	0.00				
50.00	3.40	2.26	0.00				
51.00	3.40	2.26	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Pond 14P: PLANTER BOX 1

Inflow Area = 0.104 ac, 95.52% Impervious, Inflow Depth = 2.84" for 2-YR event
 Inflow = 0.49 cfs @ 11.93 hrs, Volume= 0.025 af
 Outflow = 0.48 cfs @ 11.93 hrs, Volume= 0.025 af, Atten= 1%, Lag= 0.0 min
 Discarded = 0.48 cfs @ 11.93 hrs, Volume= 0.025 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.82' @ 11.95 hrs Surf.Area= 203 sf Storage= 1 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 0.4 min (773.6 - 773.2)

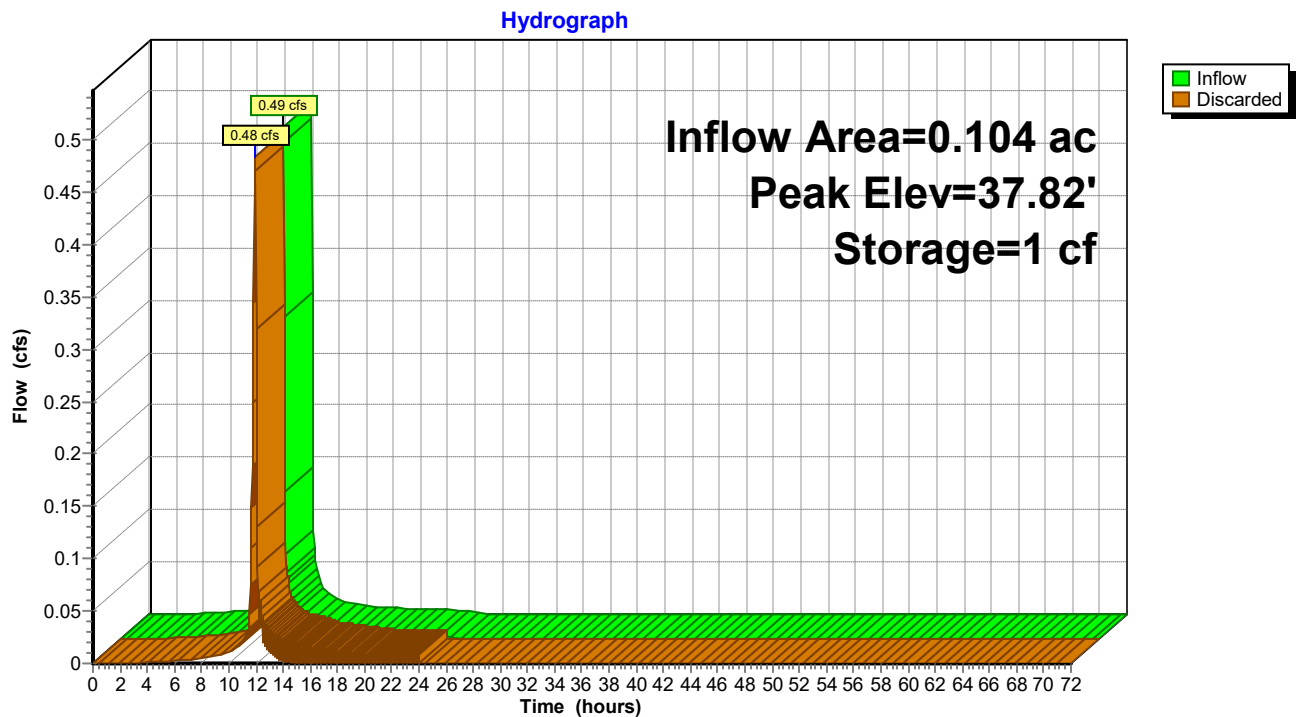
Volume	Invert	Avail.Storage	Storage Description
#1	37.81'	580 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.81	203	0.0	0	0
37.82	203	40.0	1	1
41.82	203	40.0	325	326
41.83	203	100.0	2	328
42.82	203	100.0	201	529
42.83	10,000	100.0	51	580

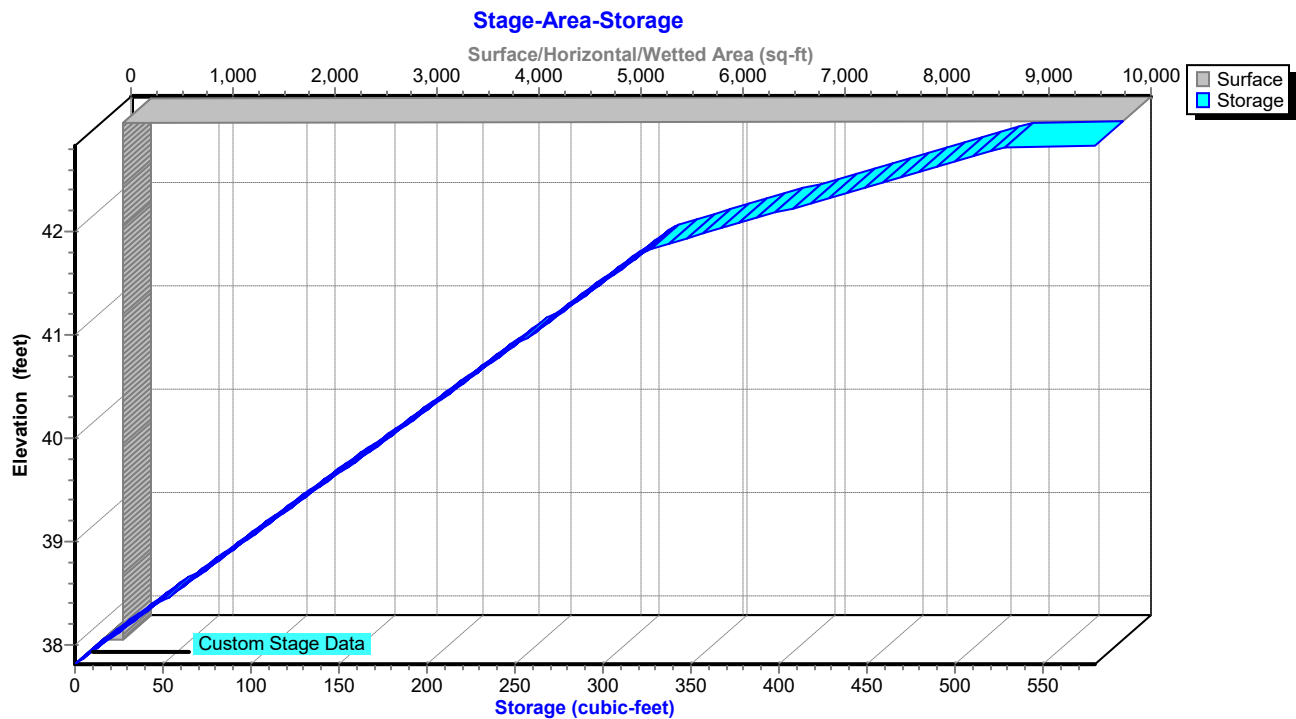
Device	Routing	Invert	Outlet Devices
#1	Discarded	37.81'	100.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.00'

Discarded OutFlow Max=0.47 cfs @ 11.93 hrs HW=37.82' (Free Discharge)
 ↑1=Exfiltration (Controls 0.47 cfs)

Pond 14P: PLANTER BOX 1



Pond 14P: PLANTER BOX 1



521 August_SWM_V4 - JW_10-10*Type II 24-hr 2-YR Rainfall=3.40"*

Prepared by {enter your company name here}

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Hydrograph for Pond 14P: PLANTER BOX 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	37.81	0.00
2.50	0.00	0	37.81	0.00
5.00	0.00	0	37.81	0.00
7.50	0.00	0	37.81	0.00
10.00	0.01	0	37.81	0.01
12.50	0.03	0	37.81	0.04
15.00	0.01	0	37.81	0.02
17.50	0.01	0	37.81	0.01
20.00	0.00	0	37.81	0.01
22.50	0.00	0	37.81	0.01
25.00	0.00	0	37.81	0.00
27.50	0.00	0	37.81	0.00
30.00	0.00	0	37.81	0.00
32.50	0.00	0	37.81	0.00
35.00	0.00	0	37.81	0.00
37.50	0.00	0	37.81	0.00
40.00	0.00	0	37.81	0.00
42.50	0.00	0	37.81	0.00
45.00	0.00	0	37.81	0.00
47.50	0.00	0	37.81	0.00
50.00	0.00	0	37.81	0.00
52.50	0.00	0	37.81	0.00
55.00	0.00	0	37.81	0.00
57.50	0.00	0	37.81	0.00
60.00	0.00	0	37.81	0.00
62.50	0.00	0	37.81	0.00
65.00	0.00	0	37.81	0.00
67.50	0.00	0	37.81	0.00
70.00	0.00	0	37.81	0.00

521 August_SWM_V4 - JW_10-10*Type II 24-hr 2-YR Rainfall=3.40"*

Prepared by {enter your company name here}

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Stage-Area-Storage for Pond 14P: PLANTER BOX 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
37.81	203	0
37.91	203	8
38.01	203	16
38.11	203	24
38.21	203	32
38.31	203	41
38.41	203	49
38.51	203	57
38.61	203	65
38.71	203	73
38.81	203	81
38.91	203	89
39.01	203	97
39.11	203	106
39.21	203	114
39.31	203	122
39.41	203	130
39.51	203	138
39.61	203	146
39.71	203	154
39.81	203	162
39.91	203	171
40.01	203	179
40.11	203	187
40.21	203	195
40.31	203	203
40.41	203	211
40.51	203	219
40.61	203	227
40.71	203	235
40.81	203	244
40.91	203	252
41.01	203	260
41.11	203	268
41.21	203	276
41.31	203	284
41.41	203	292
41.51	203	300
41.61	203	309
41.71	203	317
41.81	203	325
41.91	203	344
42.01	203	364
42.11	203	384
42.21	203	405
42.31	203	425
42.41	203	445
42.51	203	466
42.61	203	486
42.71	203	506
42.81	203	527

Summary for Pond 15P: SUBSURFACE CHAMBER

Inflow Area = 0.195 ac, 57.15% Impervious, Inflow Depth = 0.25" for 2-YR event
 Inflow = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af
 Outflow = 0.14 cfs @ 0.00 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.14 cfs @ 0.00 hrs, Volume= 0.026 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 38.17' Surf.Area= 0.016 ac Storage= 0.022 af

Peak Elev= 38.17' @ 0.00 hrs Surf.Area= 0.016 ac Storage= 0.022 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	36.13'	0.009 af	14.50'W x 48.57'L x 2.36'H Field A 0.038 af Overall - 0.016 af Embedded = 0.023 af x 40.0% Voids
#2A	36.38'	0.015 af	ACF R-Tank HD 1 x 152 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 8 Rows of 19 Chambers
		0.024 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	38.17'	4.0" Round Culvert L= 72.0' Ke= 1.000 Inlet / Outlet Invert= 38.17' / 37.60' S= 0.0079 '/' Cc= 0.900 n= 0.011, Flow Area= 0.09 sf
#2	Discarded	36.13'	0.500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.00'

Discarded OutFlow Max=0.14 cfs @ 0.00 hrs HW=38.17' (Free Discharge)

↑**2=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.17' TW=37.68' (Dynamic Tailwater)

↑**1=Culvert** (Controls 0.00 cfs)

Pond 15P: SUBSURFACE CHAMBER - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)

Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf

Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

19 Chambers/Row x 2.35' Long = 44.57' Row Length +24.0" End Stone x 2 = 48.57' Base Length

8 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 14.50' Base Width

3.0" Base + 17.3" Chamber Height + 8.0" Cover = 2.36' Field Height

152 Chambers x 4.2 cf = 641.7 cf Chamber Storage

152 Chambers x 4.4 cf = 675.5 cf Displacement

1,662.1 cf Field - 675.5 cf Chambers = 986.6 cf Stone x 40.0% Voids = 394.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,036.4 cf = 0.024 af

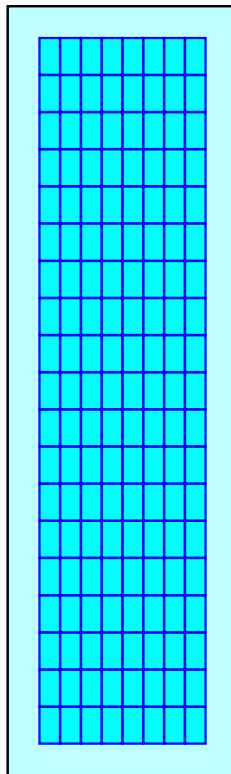
Overall Storage Efficiency = 62.4%

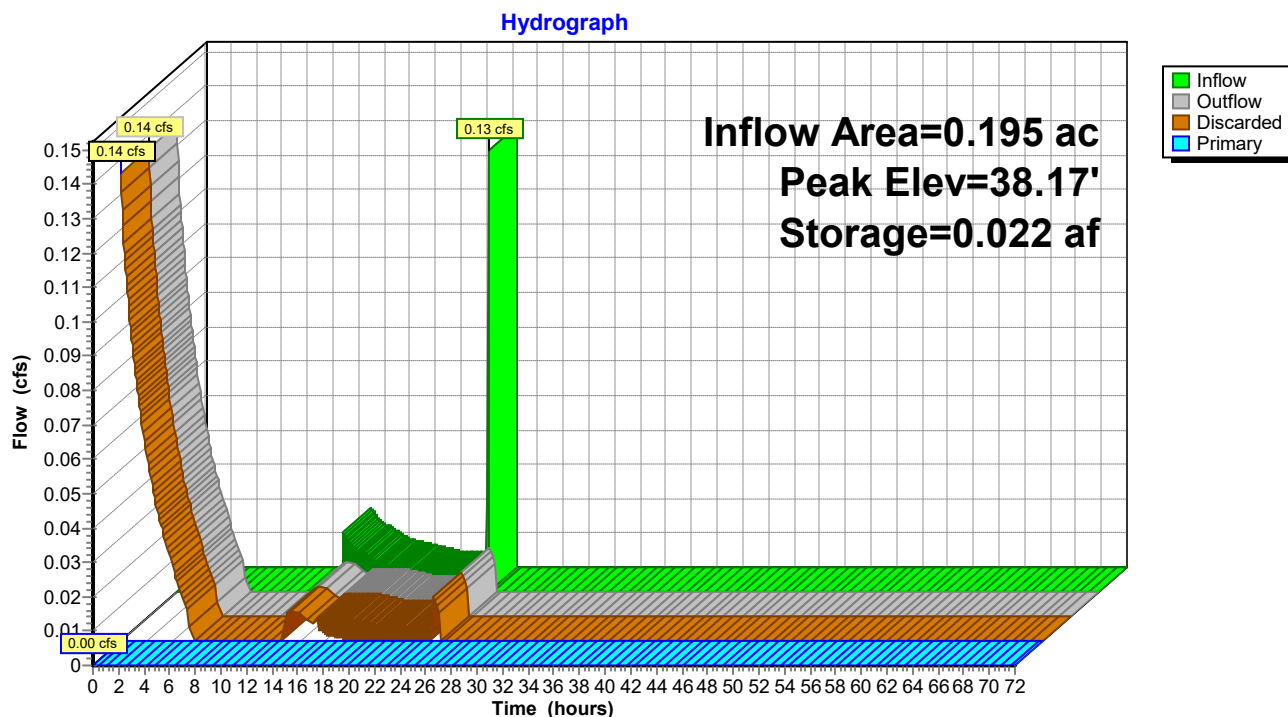
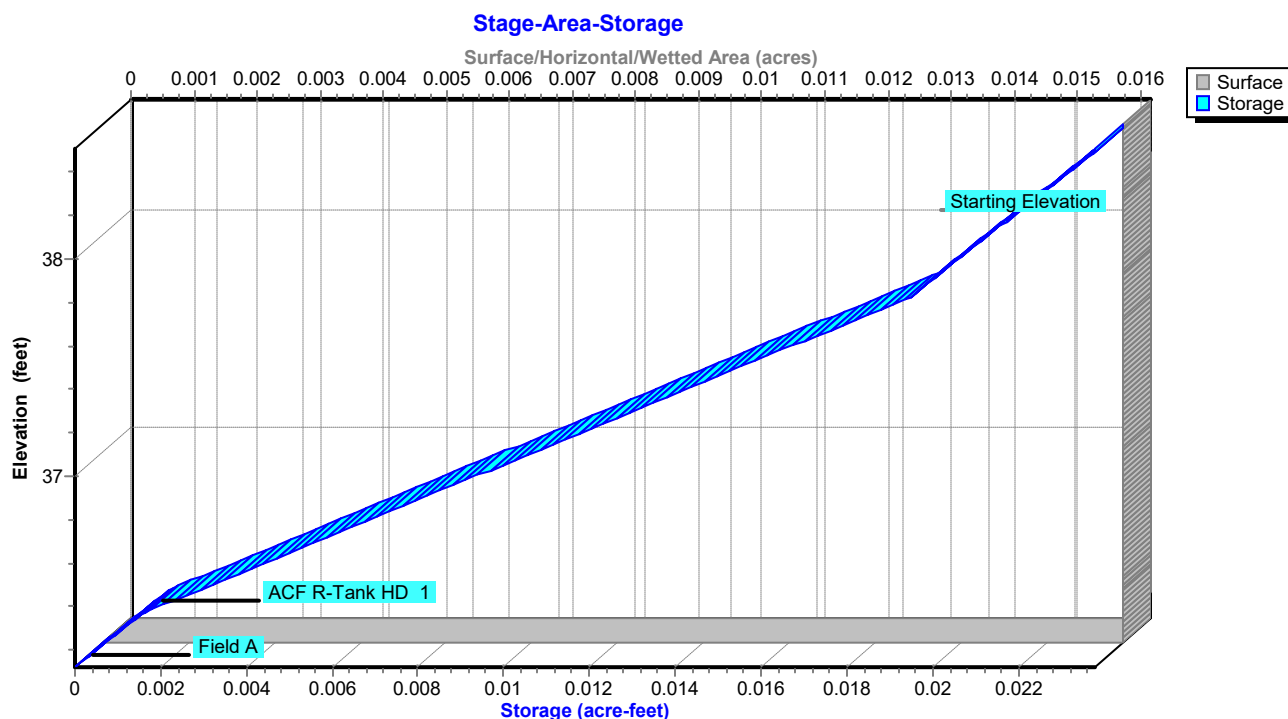
Overall System Size = 48.57' x 14.50' x 2.36'

152 Chambers

61.6 cy Field

36.5 cy Stone



Pond 15P: SUBSURFACE CHAMBER**Pond 15P: SUBSURFACE CHAMBER**

Hydrograph for Pond 15P: SUBSURFACE CHAMBER

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.022	38.17	0.14	0.14	0.00
2.50	0.00	0.006	36.70	0.04	0.04	0.00
5.00	0.00	0.000	36.17	0.01	0.01	0.00
7.50	0.00	0.000	36.13	0.00	0.00	0.00
10.00	0.00	0.000	36.13	0.00	0.00	0.00
12.50	0.00	0.000	36.13	0.00	0.00	0.00
15.00	0.01	0.000	36.13	0.00	0.00	0.00
17.50	0.01	0.000	36.13	0.00	0.00	0.00
20.00	0.00	0.000	36.13	0.00	0.00	0.00
22.50	0.00	0.000	36.13	0.00	0.00	0.00
25.00	0.00	0.000	36.13	0.00	0.00	0.00
27.50	0.00	0.000	36.13	0.00	0.00	0.00
30.00	0.00	0.000	36.13	0.00	0.00	0.00
32.50	0.00	0.000	36.13	0.00	0.00	0.00
35.00	0.00	0.000	36.13	0.00	0.00	0.00
37.50	0.00	0.000	36.13	0.00	0.00	0.00
40.00	0.00	0.000	36.13	0.00	0.00	0.00
42.50	0.00	0.000	36.13	0.00	0.00	0.00
45.00	0.00	0.000	36.13	0.00	0.00	0.00
47.50	0.00	0.000	36.13	0.00	0.00	0.00
50.00	0.00	0.000	36.13	0.00	0.00	0.00
52.50	0.00	0.000	36.13	0.00	0.00	0.00
55.00	0.00	0.000	36.13	0.00	0.00	0.00
57.50	0.00	0.000	36.13	0.00	0.00	0.00
60.00	0.00	0.000	36.13	0.00	0.00	0.00
62.50	0.00	0.000	36.13	0.00	0.00	0.00
65.00	0.00	0.000	36.13	0.00	0.00	0.00
67.50	0.00	0.000	36.13	0.00	0.00	0.00
70.00	0.00	0.000	36.13	0.00	0.00	0.00

Stage-Area-Storage for Pond 15P: SUBSURFACE CHAMBER

Elevation (feet)	Surface (acres)	Storage (acre-feet)
36.13	0.016	0.000
36.18	0.016	0.000
36.23	0.016	0.001
36.28	0.016	0.001
36.33	0.016	0.001
36.38	0.016	0.002
36.43	0.016	0.002
36.48	0.016	0.003
36.53	0.016	0.003
36.58	0.016	0.004
36.63	0.016	0.005
36.68	0.016	0.005
36.73	0.016	0.006
36.78	0.016	0.007
36.83	0.016	0.007
36.88	0.016	0.008
36.93	0.016	0.008
36.98	0.016	0.009
37.03	0.016	0.010
37.08	0.016	0.010
37.13	0.016	0.011
37.18	0.016	0.012
37.23	0.016	0.012
37.28	0.016	0.013
37.33	0.016	0.013
37.38	0.016	0.014
37.43	0.016	0.015
37.48	0.016	0.015
37.53	0.016	0.016
37.58	0.016	0.016
37.63	0.016	0.017
37.68	0.016	0.018
37.73	0.016	0.018
37.78	0.016	0.019
37.83	0.016	0.020
37.88	0.016	0.020
37.93	0.016	0.020
37.98	0.016	0.020
38.03	0.016	0.021
38.08	0.016	0.021
38.13	0.016	0.021
38.18	0.016	0.022
38.23	0.016	0.022
38.28	0.016	0.022
38.33	0.016	0.023
38.38	0.016	0.023
38.43	0.016	0.023
38.48	0.016	0.024

Summary for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Inflow Area = 0.033 ac, 8.01% Impervious, Inflow Depth = 2.64" for 2-YR event
 Inflow = 0.16 cfs @ 11.90 hrs, Volume= 0.007 af
 Outflow = 0.16 cfs @ 11.90 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.16 cfs @ 11.90 hrs, Volume= 0.007 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 38.85' @ 0.00 hrs Surf.Area= 962 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.0 min (782.6 - 782.6)

Volume	Invert	Avail.Storage	Storage Description	
#1	38.85'	413 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.85	962	0.0	0	0
38.86	962	40.0	4	4
39.36	962	40.0	192	196
39.37	962	20.0	2	198
40.20	962	20.0	160	358
40.21	10,000	100.0	55	413

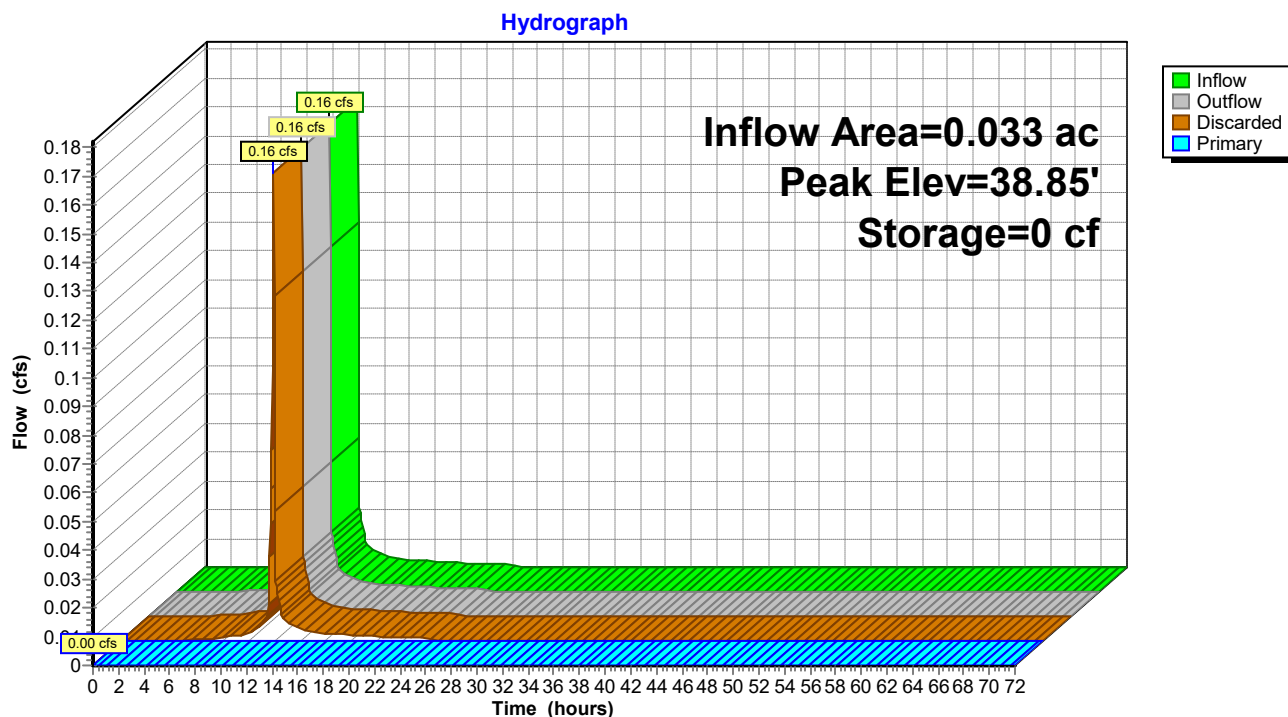
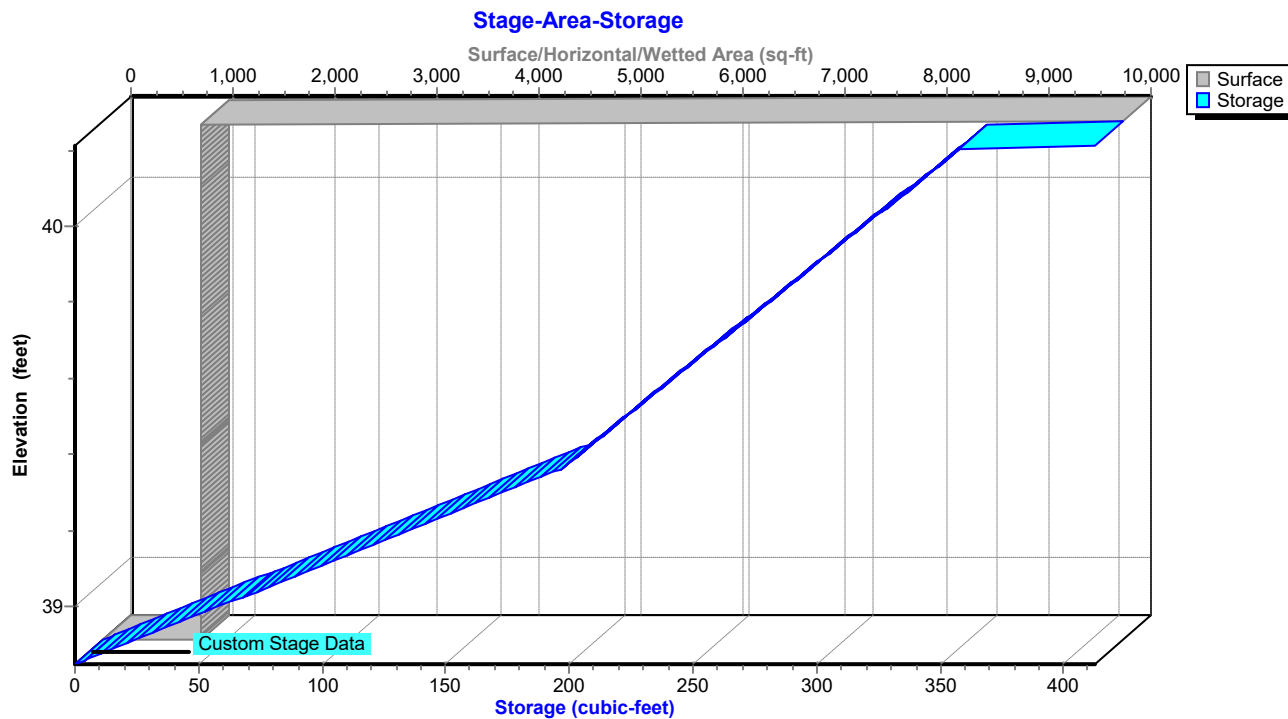
Device	Routing	Invert	Outlet Devices
#1	Primary	39.03'	2.0" Round Culvert L= 5.0' Ke= 1.000 Inlet / Outlet Invert= 39.03' / 39.03' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.02 sf
#2	Discarded	38.85'	100.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.08'

Discarded OutFlow Max=0.00 cfs @ 11.90 hrs HW=38.85' (Free Discharge)

↑ **2=Exfiltration** (Passes 0.00 cfs of 2.23 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.85' TW=38.17' (Dynamic Tailwater)

↑ **1=Culvert** (Controls 0.00 cfs)

Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK**Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	38.85	0.00	0.00	0.00
2.50	0.00	0	38.85	0.00	0.00	0.00
5.00	0.00	0	38.85	0.00	0.00	0.00
7.50	0.00	0	38.85	0.00	0.00	0.00
10.00	0.00	0	38.85	0.00	0.00	0.00
12.50	0.01	0	38.85	0.01	0.01	0.00
15.00	0.00	0	38.85	0.00	0.00	0.00
17.50	0.00	0	38.85	0.00	0.00	0.00
20.00	0.00	0	38.85	0.00	0.00	0.00
22.50	0.00	0	38.85	0.00	0.00	0.00
25.00	0.00	0	38.85	0.00	0.00	0.00
27.50	0.00	0	38.85	0.00	0.00	0.00
30.00	0.00	0	38.85	0.00	0.00	0.00
32.50	0.00	0	38.85	0.00	0.00	0.00
35.00	0.00	0	38.85	0.00	0.00	0.00
37.50	0.00	0	38.85	0.00	0.00	0.00
40.00	0.00	0	38.85	0.00	0.00	0.00
42.50	0.00	0	38.85	0.00	0.00	0.00
45.00	0.00	0	38.85	0.00	0.00	0.00
47.50	0.00	0	38.85	0.00	0.00	0.00
50.00	0.00	0	38.85	0.00	0.00	0.00
52.50	0.00	0	38.85	0.00	0.00	0.00
55.00	0.00	0	38.85	0.00	0.00	0.00
57.50	0.00	0	38.85	0.00	0.00	0.00
60.00	0.00	0	38.85	0.00	0.00	0.00
62.50	0.00	0	38.85	0.00	0.00	0.00
65.00	0.00	0	38.85	0.00	0.00	0.00
67.50	0.00	0	38.85	0.00	0.00	0.00
70.00	0.00	0	38.85	0.00	0.00	0.00

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.85	962	0	39.89	962	298
38.87	962	8	39.91	962	302
38.89	962	15	39.93	962	306
38.91	962	23	39.95	962	310
38.93	962	31	39.97	962	314
38.95	962	38	39.99	962	317
38.97	962	46	40.01	962	321
38.99	962	54	40.03	962	325
39.01	962	62	40.05	962	329
39.03	962	69	40.07	962	333
39.05	962	77	40.09	962	337
39.07	962	85	40.11	962	341
39.09	962	92	40.13	962	344
39.11	962	100	40.15	962	348
39.13	962	108	40.17	962	352
39.15	962	115	40.19	962	356
39.17	962	123	40.21	10,000	413
39.19	962	131			
39.21	962	139			
39.23	962	146			
39.25	962	154			
39.27	962	162			
39.29	962	169			
39.31	962	177			
39.33	962	185			
39.35	962	192			
39.37	962	198			
39.39	962	202			
39.41	962	206			
39.43	962	210			
39.45	962	214			
39.47	962	217			
39.49	962	221			
39.51	962	225			
39.53	962	229			
39.55	962	233			
39.57	962	237			
39.59	962	241			
39.61	962	244			
39.63	962	248			
39.65	962	252			
39.67	962	256			
39.69	962	260			
39.71	962	264			
39.73	962	267			
39.75	962	271			
39.77	962	275			
39.79	962	279			
39.81	962	283			
39.83	962	287			
39.85	962	291			
39.87	962	294			

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Pond 26P: PERMEABLE PAVEMENT-EAST

Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 2.26" for 2-YR event
 Inflow = 0.23 cfs @ 11.94 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af, Atten= 44%, Lag= 741.9 min
 Primary = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.41' @ 13.00 hrs Surf.Area= 10,000 sf Storage= 320 cf

Plug-Flow detention time= 390.2 min calculated for 0.004 af (37% of inflow)
 Center-of-Mass det. time= 267.4 min (1,070.8 - 803.4)

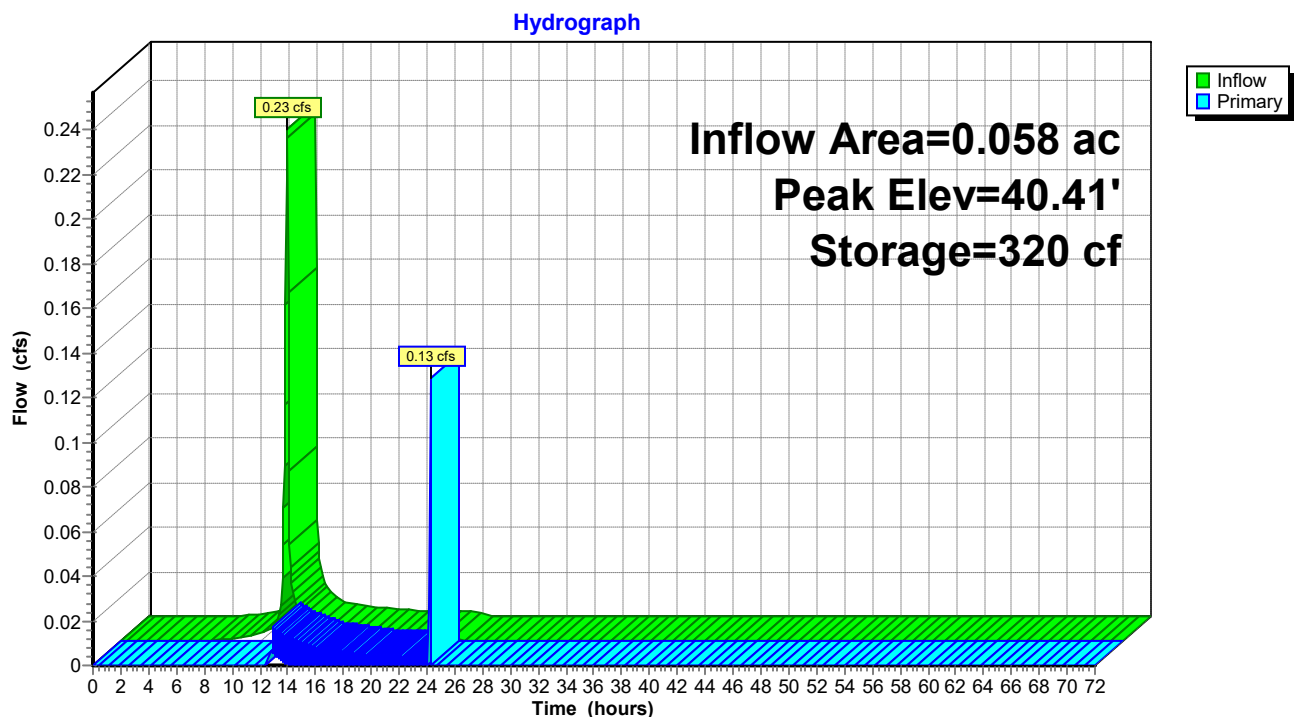
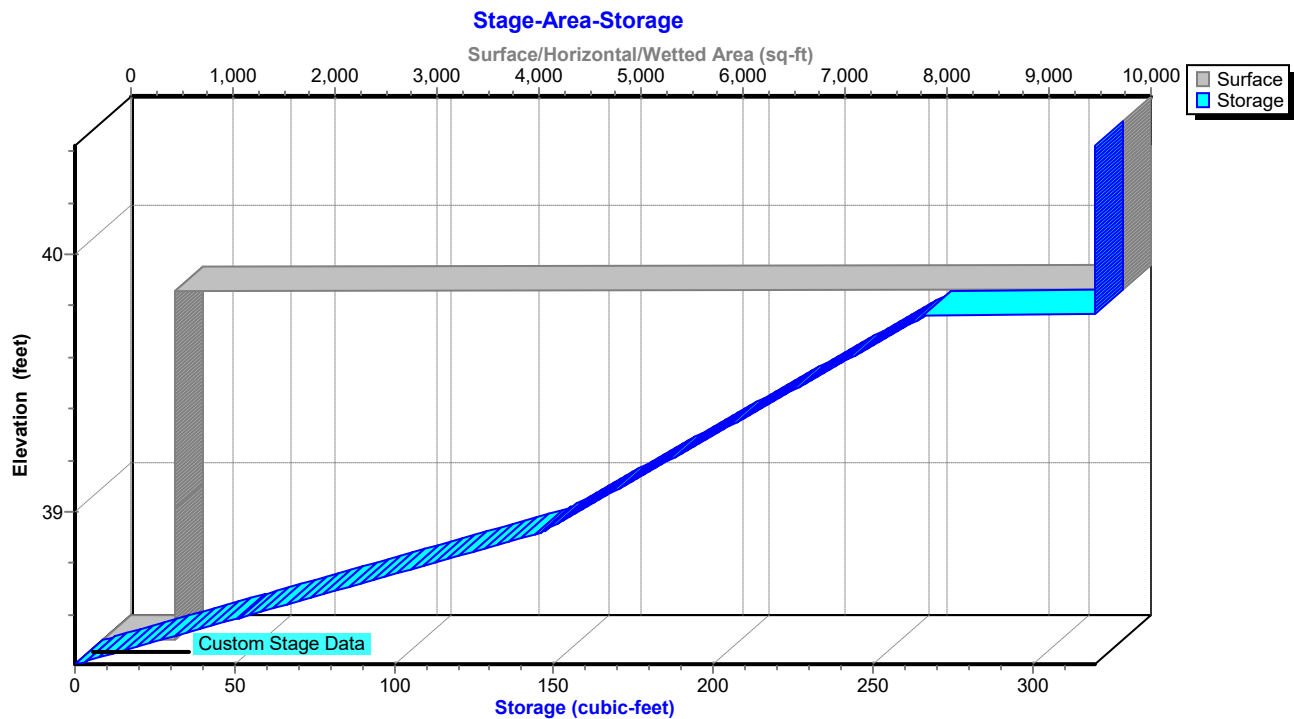
Volume	Invert	Avail.Storage	Storage Description	
#1	38.41'	320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.41	715	0.0	0	0
38.42	715	40.0	3	3
38.92	715	40.0	143	146
38.93	715	20.0	1	147
39.76	715	20.0	119	266
39.77	10,000	100.0	54	320

Device	Routing	Invert	Outlet Devices
#1	Primary	38.59'	2.0" Round Culvert L= 5.0' Ke= 1.000 Inlet / Outlet Invert= 38.59' / 38.59' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 0.02 sf
#2	Primary	39.76'	45.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 24.30 hrs HW=39.77' TW=39.80' (Dynamic Tailwater)

↑ **1=Culvert** (Controls 0.00 cfs)

└ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 26P: PERMEABLE PAVEMENT-EAST**Pond 26P: PERMEABLE PAVEMENT-EAST**

521 August_SWM_V4 - JW_10-10*Type II 24-hr 2-YR Rainfall=3.40"*

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 26P: PERMEABLE PAVEMENT-EAST

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	38.41	0.00
2.50	0.00	0	38.41	0.00
5.00	0.00	0	38.41	0.00
7.50	0.00	2	38.42	0.00
10.00	0.00	17	38.47	0.00
12.50	0.02	301	39.77	0.00
15.00	0.01	320	40.40	0.01
17.50	0.00	320	40.40	0.01
20.00	0.00	320	40.40	0.00
22.50	0.00	320	40.40	0.00
25.00	0.00	296	39.77	0.00
27.50	0.00	296	39.77	0.00
30.00	0.00	296	39.77	0.00
32.50	0.00	296	39.77	0.00
35.00	0.00	296	39.77	0.00
37.50	0.00	296	39.77	0.00
40.00	0.00	296	39.77	0.00
42.50	0.00	296	39.77	0.00
45.00	0.00	296	39.77	0.00
47.50	0.00	296	39.77	0.00
50.00	0.00	296	39.77	0.00
52.50	0.00	296	39.77	0.00
55.00	0.00	296	39.77	0.00
57.50	0.00	296	39.77	0.00
60.00	0.00	296	39.77	0.00
62.50	0.00	296	39.77	0.00
65.00	0.00	296	39.77	0.00
67.50	0.00	296	39.77	0.00
70.00	0.00	296	39.77	0.00

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 26P: PERMEABLE PAVEMENT-EAST

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.41	715	0	39.45	715	222
38.43	715	6	39.47	715	225
38.45	715	11	39.49	715	227
38.47	715	17	39.51	715	230
38.49	715	23	39.53	715	233
38.51	715	29	39.55	715	236
38.53	715	34	39.57	715	239
38.55	715	40	39.59	715	242
38.57	715	46	39.61	715	245
38.59	715	51	39.63	715	247
38.61	715	57	39.65	715	250
38.63	715	63	39.67	715	253
38.65	715	69	39.69	715	256
38.67	715	74	39.71	715	259
38.69	715	80	39.73	715	262
38.71	715	86	39.75	715	265
38.73	715	92	39.77	10,000	320
38.75	715	97	39.79	10,000	320
38.77	715	103	39.81	10,000	320
38.79	715	109	39.83	10,000	320
38.81	715	114	39.85	10,000	320
38.83	715	120	39.87	10,000	320
38.85	715	126	39.89	10,000	320
38.87	715	132	39.91	10,000	320
38.89	715	137	39.93	10,000	320
38.91	715	143	39.95	10,000	320
38.93	715	147	39.97	10,000	320
38.95	715	150	39.99	10,000	320
38.97	715	153	40.01	10,000	320
38.99	715	156	40.03	10,000	320
39.01	715	159	40.05	10,000	320
39.03	715	162	40.07	10,000	320
39.05	715	164	40.09	10,000	320
39.07	715	167	40.11	10,000	320
39.09	715	170	40.13	10,000	320
39.11	715	173	40.15	10,000	320
39.13	715	176	40.17	10,000	320
39.15	715	179	40.19	10,000	320
39.17	715	182	40.21	10,000	320
39.19	715	184	40.23	10,000	320
39.21	715	187	40.25	10,000	320
39.23	715	190	40.27	10,000	320
39.25	715	193	40.29	10,000	320
39.27	715	196	40.31	10,000	320
39.29	715	199	40.33	10,000	320
39.31	715	202	40.35	10,000	320
39.33	715	204	40.37	10,000	320
39.35	715	207	40.39	10,000	320
39.37	715	210	40.41	10,000	320
39.39	715	213			
39.41	715	216			
39.43	715	219			

Summary for Pond 32P: CURB INLET 1

Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 0.85" for 2-YR event
 Inflow = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af
 Outflow = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.41' @ 12.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.54'	12.0" Round Culvert L= 102.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.54' / 36.77' S= 0.0075 '/' Cc= 0.900 n= 0.012 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	39.76'	66.0" W x 4.0" H Vert. STREET SIDE OPENING C= 0.600

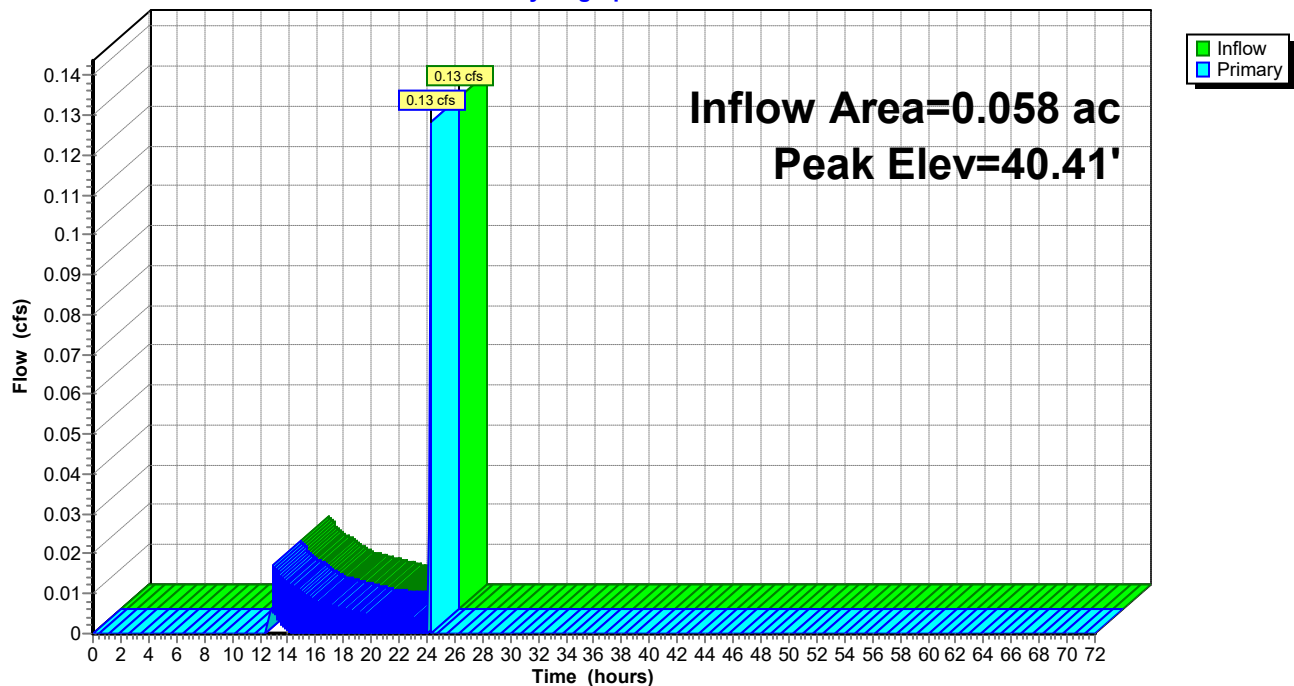
Primary OutFlow Max=0.00 cfs @ 24.30 hrs HW=39.80' TW=40.44' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

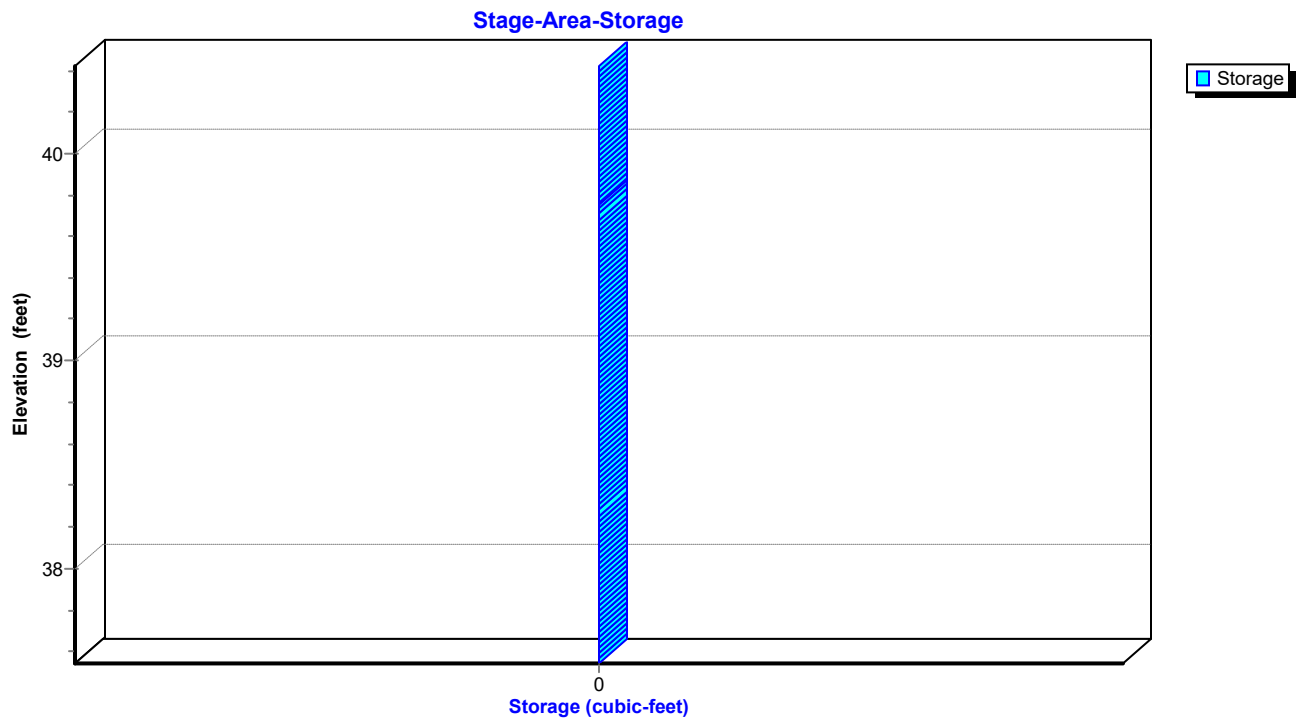
2=STREET SIDE OPENING (Controls 0.00 cfs)

Pond 32P: CURB INLET 1

Hydrograph



Pond 32P: CURB INLET 1



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 32P: CURB INLET 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	37.54	0.00	52.00	0.00	40.40	0.00
1.00	0.00	38.05	0.00	53.00	0.00	40.40	0.00
2.00	0.00	38.56	0.00	54.00	0.00	40.40	0.00
3.00	0.00	39.07	0.00	55.00	0.00	40.40	0.00
4.00	0.00	39.58	0.00	56.00	0.00	40.40	0.00
5.00	0.00	40.07	0.00	57.00	0.00	40.40	0.00
6.00	0.00	40.40	0.00	58.00	0.00	40.40	0.00
7.00	0.00	40.40	0.00	59.00	0.00	40.40	0.00
8.00	0.00	40.40	0.00	60.00	0.00	40.40	0.00
9.00	0.00	40.40	0.00	61.00	0.00	40.40	0.00
10.00	0.00	40.40	0.00	62.00	0.00	40.40	0.00
11.00	0.00	40.40	0.00	63.00	0.00	40.40	0.00
12.00	0.00	40.40	0.00	64.00	0.00	40.40	0.00
13.00	0.02	40.40	0.02	65.00	0.00	40.40	0.00
14.00	0.01	40.40	0.01	66.00	0.00	40.40	0.00
15.00	0.01	40.40	0.01	67.00	0.00	40.40	0.00
16.00	0.01	40.40	0.01	68.00	0.00	40.40	0.00
17.00	0.01	40.40	0.01	69.00	0.00	40.40	0.00
18.00	0.01	40.40	0.01	70.00	0.00	40.40	0.00
19.00	0.01	40.40	0.01	71.00	0.00	40.40	0.00
20.00	0.00	40.40	0.00	72.00	0.00	40.40	0.00
21.00	0.00	40.40	0.00				
22.00	0.00	40.40	0.00				
23.00	0.00	40.40	0.00				
24.00	0.00	40.40	0.00				
25.00	0.00	40.14	0.00				
26.00	0.00	40.40	0.00				
27.00	0.00	40.40	0.00				
28.00	0.00	40.40	0.00				
29.00	0.00	40.40	0.00				
30.00	0.00	40.40	0.00				
31.00	0.00	40.40	0.00				
32.00	0.00	40.40	0.00				
33.00	0.00	40.40	0.00				
34.00	0.00	40.40	0.00				
35.00	0.00	40.40	0.00				
36.00	0.00	40.40	0.00				
37.00	0.00	40.40	0.00				
38.00	0.00	40.40	0.00				
39.00	0.00	40.40	0.00				
40.00	0.00	40.40	0.00				
41.00	0.00	40.40	0.00				
42.00	0.00	40.40	0.00				
43.00	0.00	40.40	0.00				
44.00	0.00	40.40	0.00				
45.00	0.00	40.40	0.00				
46.00	0.00	40.40	0.00				
47.00	0.00	40.40	0.00				
48.00	0.00	40.40	0.00				
49.00	0.00	40.40	0.00				
50.00	0.00	40.40	0.00				
51.00	0.00	40.40	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 32P: CURB INLET 1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
37.54	0	38.58	0	39.62	0
37.56	0	38.60	0	39.64	0
37.58	0	38.62	0	39.66	0
37.60	0	38.64	0	39.68	0
37.62	0	38.66	0	39.70	0
37.64	0	38.68	0	39.72	0
37.66	0	38.70	0	39.74	0
37.68	0	38.72	0	39.76	0
37.70	0	38.74	0	39.78	0
37.72	0	38.76	0	39.80	0
37.74	0	38.78	0	39.82	0
37.76	0	38.80	0	39.84	0
37.78	0	38.82	0	39.86	0
37.80	0	38.84	0	39.88	0
37.82	0	38.86	0	39.90	0
37.84	0	38.88	0	39.92	0
37.86	0	38.90	0	39.94	0
37.88	0	38.92	0	39.96	0
37.90	0	38.94	0	39.98	0
37.92	0	38.96	0	40.00	0
37.94	0	38.98	0	40.02	0
37.96	0	39.00	0	40.04	0
37.98	0	39.02	0	40.06	0
38.00	0	39.04	0	40.08	0
38.02	0	39.06	0	40.10	0
38.04	0	39.08	0	40.12	0
38.06	0	39.10	0	40.14	0
38.08	0	39.12	0	40.16	0
38.10	0	39.14	0	40.18	0
38.12	0	39.16	0	40.20	0
38.14	0	39.18	0	40.22	0
38.16	0	39.20	0	40.24	0
38.18	0	39.22	0	40.26	0
38.20	0	39.24	0	40.28	0
38.22	0	39.26	0	40.30	0
38.24	0	39.28	0	40.32	0
38.26	0	39.30	0	40.34	0
38.28	0	39.32	0	40.36	0
38.30	0	39.34	0	40.38	0
38.32	0	39.36	0	40.40	0
38.34	0	39.38	0	40.42	0
38.36	0	39.40	0		
38.38	0	39.42	0		
38.40	0	39.44	0		
38.42	0	39.46	0		
38.44	0	39.48	0		
38.46	0	39.50	0		
38.48	0	39.52	0		
38.50	0	39.54	0		
38.52	0	39.56	0		
38.54	0	39.58	0		
38.56	0	39.60	0		

Summary for Pond 33P: CURB INLET 2

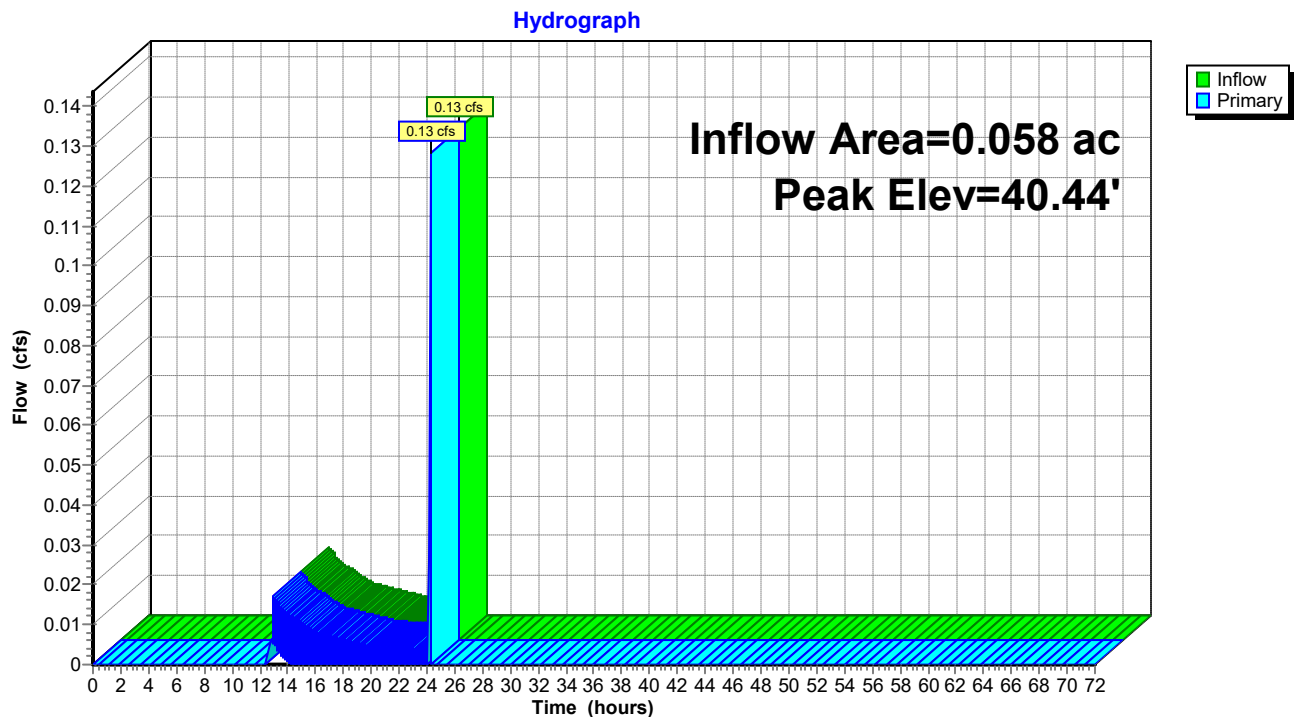
Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 0.85" for 2-YR event
 Inflow = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af
 Outflow = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.13 cfs @ 24.30 hrs, Volume= 0.004 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.44' @ 24.30 hrs

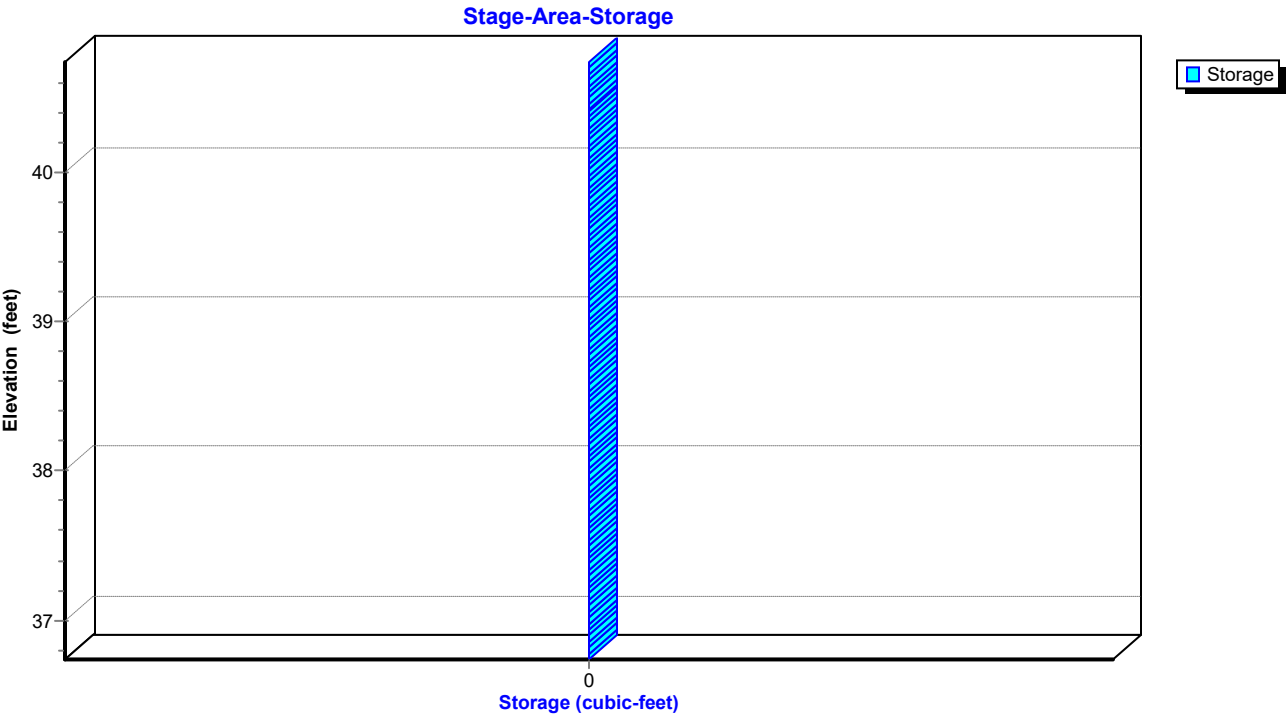
Device	Routing	Invert	Outlet Devices
#1	Primary	36.74'	12.0" Round Culvert L= 11.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 36.74' / 36.65' S= 0.0079 ' S= 0.0079 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	40.40'	66.0" W x 4.0" H Vert. CURB INLET 2 C= 0.600

Primary OutFlow Max=0.13 cfs @ 24.30 hrs HW=40.44' TW=36.17' (Dynamic Tailwater)

1=Culvert (Passes 0.13 cfs of 6.76 cfs potential flow)
 2=CURB INLET 2 (Orifice Controls 0.13 cfs @ 0.62 fps)

Pond 33P: CURB INLET 2

Pond 33P: CURB INLET 2



521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 33P: CURB INLET 2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	36.74	0.00	52.00	0.00	40.40	0.00
1.00	0.00	37.54	0.00	53.00	0.00	40.40	0.00
2.00	0.00	38.34	0.00	54.00	0.00	40.40	0.00
3.00	0.00	39.14	0.00	55.00	0.00	40.40	0.00
4.00	0.00	39.93	0.00	56.00	0.00	40.40	0.00
5.00	0.00	40.40	0.00	57.00	0.00	40.40	0.00
6.00	0.00	40.40	0.00	58.00	0.00	40.40	0.00
7.00	0.00	40.40	0.00	59.00	0.00	40.40	0.00
8.00	0.00	40.40	0.00	60.00	0.00	40.40	0.00
9.00	0.00	40.40	0.00	61.00	0.00	40.40	0.00
10.00	0.00	40.40	0.00	62.00	0.00	40.40	0.00
11.00	0.00	40.40	0.00	63.00	0.00	40.40	0.00
12.00	0.00	40.40	0.00	64.00	0.00	40.40	0.00
13.00	0.02	40.41	0.02	65.00	0.00	40.40	0.00
14.00	0.01	40.41	0.01	66.00	0.00	40.40	0.00
15.00	0.01	40.41	0.01	67.00	0.00	40.40	0.00
16.00	0.01	40.41	0.01	68.00	0.00	40.40	0.00
17.00	0.01	40.41	0.01	69.00	0.00	40.40	0.00
18.00	0.01	40.41	0.01	70.00	0.00	40.40	0.00
19.00	0.01	40.40	0.01	71.00	0.00	40.40	0.00
20.00	0.00	40.40	0.00	72.00	0.00	40.40	0.00
21.00	0.00	40.40	0.00				
22.00	0.00	40.40	0.00				
23.00	0.00	40.40	0.00				
24.00	0.00	40.40	0.00				
25.00	0.00	40.40	0.00				
26.00	0.00	40.40	0.00				
27.00	0.00	40.40	0.00				
28.00	0.00	40.40	0.00				
29.00	0.00	40.40	0.00				
30.00	0.00	40.40	0.00				
31.00	0.00	40.40	0.00				
32.00	0.00	40.40	0.00				
33.00	0.00	40.40	0.00				
34.00	0.00	40.40	0.00				
35.00	0.00	40.40	0.00				
36.00	0.00	40.40	0.00				
37.00	0.00	40.40	0.00				
38.00	0.00	40.40	0.00				
39.00	0.00	40.40	0.00				
40.00	0.00	40.40	0.00				
41.00	0.00	40.40	0.00				
42.00	0.00	40.40	0.00				
43.00	0.00	40.40	0.00				
44.00	0.00	40.40	0.00				
45.00	0.00	40.40	0.00				
46.00	0.00	40.40	0.00				
47.00	0.00	40.40	0.00				
48.00	0.00	40.40	0.00				
49.00	0.00	40.40	0.00				
50.00	0.00	40.40	0.00				
51.00	0.00	40.40	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 33P: CURB INLET 2

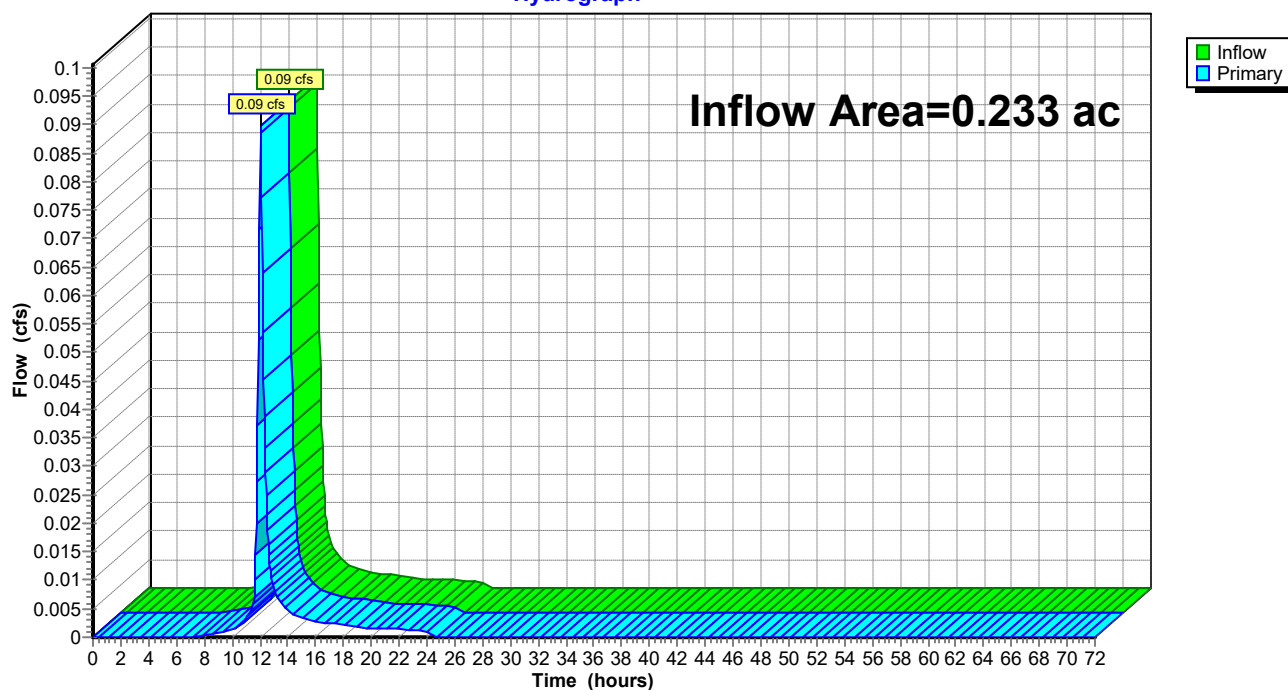
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
36.74	0	39.34	0
36.79	0	39.39	0
36.84	0	39.44	0
36.89	0	39.49	0
36.94	0	39.54	0
36.99	0	39.59	0
37.04	0	39.64	0
37.09	0	39.69	0
37.14	0	39.74	0
37.19	0	39.79	0
37.24	0	39.84	0
37.29	0	39.89	0
37.34	0	39.94	0
37.39	0	39.99	0
37.44	0	40.04	0
37.49	0	40.09	0
37.54	0	40.14	0
37.59	0	40.19	0
37.64	0	40.24	0
37.69	0	40.29	0
37.74	0	40.34	0
37.79	0	40.39	0
37.84	0	40.44	0
37.89	0	40.49	0
37.94	0	40.54	0
37.99	0	40.59	0
38.04	0	40.64	0
38.09	0	40.69	0
38.14	0		
38.19	0		
38.24	0		
38.29	0		
38.34	0		
38.39	0		
38.44	0		
38.49	0		
38.54	0		
38.59	0		
38.64	0		
38.69	0		
38.74	0		
38.79	0		
38.84	0		
38.89	0		
38.94	0		
38.99	0		
39.04	0		
39.09	0		
39.14	0		
39.19	0		
39.24	0		
39.29	0		

Summary for Link 26L: STUDY POINT 1

Inflow Area = 0.233 ac, 55.05% Impervious, Inflow Depth = 0.34" for 2-YR event
Inflow = 0.09 cfs @ 12.03 hrs, Volume= 0.007 af
Primary = 0.09 cfs @ 12.03 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Fixed water surface Elevation= 37.68'

Link 26L: STUDY POINT 1**Hydrograph**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

Printed 10/31/2022

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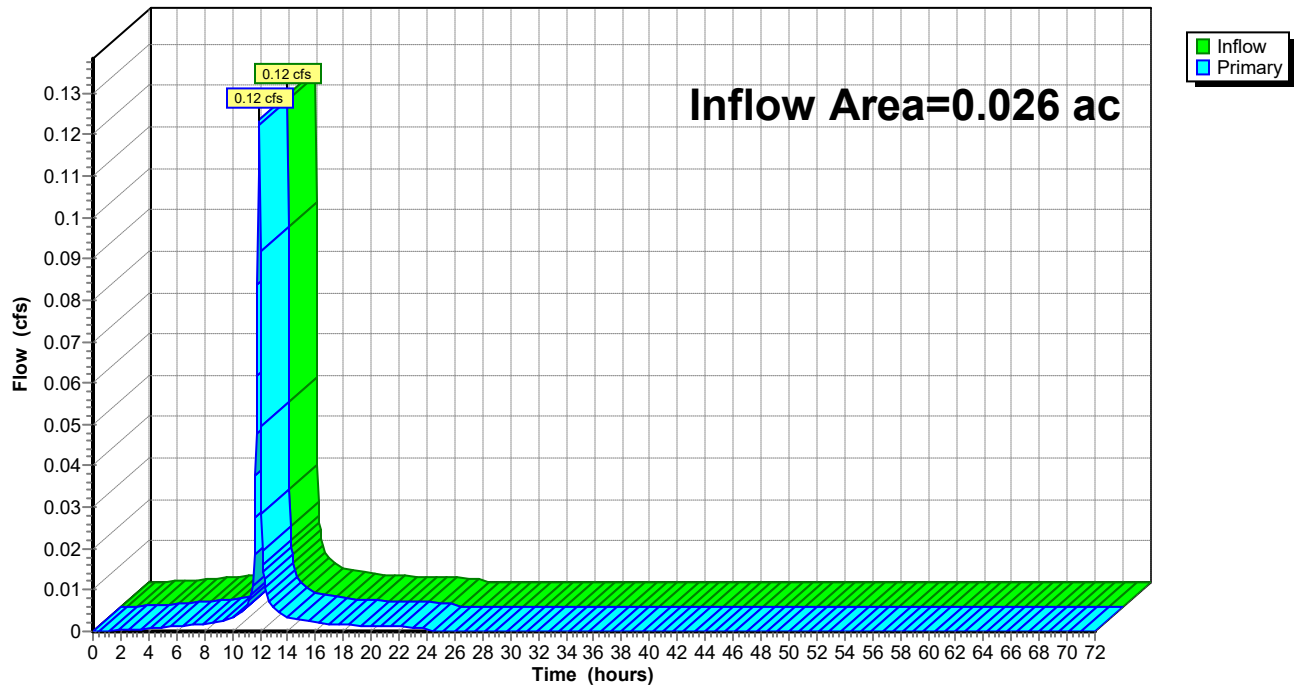
Hydrograph for Link 26L: STUDY POINT 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	37.68	0.00	52.00	0.00	37.68	0.00
1.00	0.00	37.68	0.00	53.00	0.00	37.68	0.00
2.00	0.00	37.68	0.00	54.00	0.00	37.68	0.00
3.00	0.00	37.68	0.00	55.00	0.00	37.68	0.00
4.00	0.00	37.68	0.00	56.00	0.00	37.68	0.00
5.00	0.00	37.68	0.00	57.00	0.00	37.68	0.00
6.00	0.00	37.68	0.00	58.00	0.00	37.68	0.00
7.00	0.00	37.68	0.00	59.00	0.00	37.68	0.00
8.00	0.00	37.68	0.00	60.00	0.00	37.68	0.00
9.00	0.00	37.68	0.00	61.00	0.00	37.68	0.00
10.00	0.00	37.68	0.00	62.00	0.00	37.68	0.00
11.00	0.00	37.68	0.00	63.00	0.00	37.68	0.00
12.00	0.09	37.68	0.09	64.00	0.00	37.68	0.00
13.00	0.01	37.68	0.01	65.00	0.00	37.68	0.00
14.00	0.00	37.68	0.00	66.00	0.00	37.68	0.00
15.00	0.00	37.68	0.00	67.00	0.00	37.68	0.00
16.00	0.00	37.68	0.00	68.00	0.00	37.68	0.00
17.00	0.00	37.68	0.00	69.00	0.00	37.68	0.00
18.00	0.00	37.68	0.00	70.00	0.00	37.68	0.00
19.00	0.00	37.68	0.00	71.00	0.00	37.68	0.00
20.00	0.00	37.68	0.00	72.00	0.00	37.68	0.00
21.00	0.00	37.68	0.00				
22.00	0.00	37.68	0.00				
23.00	0.00	37.68	0.00				
24.00	0.00	37.68	0.00				
25.00	0.00	37.68	0.00				
26.00	0.00	37.68	0.00				
27.00	0.00	37.68	0.00				
28.00	0.00	37.68	0.00				
29.00	0.00	37.68	0.00				
30.00	0.00	37.68	0.00				
31.00	0.00	37.68	0.00				
32.00	0.00	37.68	0.00				
33.00	0.00	37.68	0.00				
34.00	0.00	37.68	0.00				
35.00	0.00	37.68	0.00				
36.00	0.00	37.68	0.00				
37.00	0.00	37.68	0.00				
38.00	0.00	37.68	0.00				
39.00	0.00	37.68	0.00				
40.00	0.00	37.68	0.00				
41.00	0.00	37.68	0.00				
42.00	0.00	37.68	0.00				
43.00	0.00	37.68	0.00				
44.00	0.00	37.68	0.00				
45.00	0.00	37.68	0.00				
46.00	0.00	37.68	0.00				
47.00	0.00	37.68	0.00				
48.00	0.00	37.68	0.00				
49.00	0.00	37.68	0.00				
50.00	0.00	37.68	0.00				
51.00	0.00	37.68	0.00				

Summary for Link 27L: STUDY POINT 2

Inflow Area = 0.026 ac, 100.00% Impervious, Inflow Depth = 3.17" for 2-YR event
Inflow = 0.12 cfs @ 11.94 hrs, Volume= 0.007 af
Primary = 0.12 cfs @ 11.94 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 27L: STUDY POINT 2**Hydrograph**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 2-YR Rainfall=3.40"

Prepared by {enter your company name here}

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Hydrograph for Link 27L: STUDY POINT 2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	0.09	0.00	0.09	64.00	0.00	0.00	0.00
13.00	0.01	0.00	0.01	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA1 - STUDY POINT 1 Runoff Area=8,470 sf 7.58% Impervious Runoff Depth=3.85"
 Flow Length=197' Tc=8.3 min CN=87 Runoff=0.89 cfs 0.062 af

Subcatchment 2S: DA2 - STUDY POINT 2 Runoff Area=2,902 sf 52.55% Impervious Runoff Depth=4.38"
 Flow Length=96' Tc=3.9 min CN=92 Runoff=0.43 cfs 0.024 af

Subcatchment 23S: DA1 - BUILDING Runoff Area=4,536 sf 95.52% Impervious Runoff Depth=4.72"
 Flow Length=96' Slope=0.0050 '/' Tc=2.0 min CN=95 Runoff=0.78 cfs 0.041 af

Subcatchment 24S: DA2 - STUDY POINT 2 Runoff Area=1,135 sf 100.00% Impervious Runoff Depth=5.06"
 Flow Length=209' Tc=2.7 min CN=98 Runoff=0.19 cfs 0.011 af

Subcatchment 25S: DA5 Runoff Area=1,448 sf 8.01% Impervious Runoff Depth=4.49"
 Flow Length=16' Slope=0.0050 '/' Tc=0.5 min CN=93 Runoff=0.27 cfs 0.012 af

Subcatchment 28S: DA4 Runoff Area=1,672 sf 44.38% Impervious Runoff Depth=3.85"
 Flow Length=170' Tc=9.6 min CN=87 Runoff=0.16 cfs 0.012 af

Subcatchment 33S: DA3 Runoff Area=2,513 sf 16.20% Impervious Runoff Depth=4.06"
 Flow Length=68' Tc=2.2 min CN=89 Runoff=0.40 cfs 0.020 af

Pond 14P: PLANTER BOX 1 Peak Elev=38.51' Storage=57 cf Inflow=0.78 cfs 0.041 af
 Outflow=0.65 cfs 0.041 af

Pond 15P: SUBSURFACE CHAMBER Peak Elev=38.17' Storage=0.022 af Inflow=0.72 cfs 0.012 af
 Discarded=0.14 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.034 af

Pond 20P: PERMEABLE PAVEMENT NORTH - Peak Elev=38.85' Storage=0 cf Inflow=0.27 cfs 0.012 af
 Discarded=0.27 cfs 0.012 af Primary=0.00 cfs 0.000 af Outflow=0.27 cfs 0.012 af

Pond 26P: PERMEABLE PAVEMENT-EAST Peak Elev=40.42' Storage=320 cf Inflow=0.40 cfs 0.020 af
 Outflow=0.72 cfs 0.012 af

Pond 32P: CURB INLET 1 Peak Elev=40.81' Inflow=0.72 cfs 0.012 af
 Outflow=0.72 cfs 0.012 af

Pond 33P: CURB INLET 2 Peak Elev=40.52' Inflow=0.72 cfs 0.012 af
 Outflow=0.72 cfs 0.012 af

Link 26L: STUDY POINT 1 Inflow=0.16 cfs 0.012 af
 Primary=0.16 cfs 0.012 af

Link 27L: STUDY POINT 2 Inflow=0.19 cfs 0.011 af
 Primary=0.19 cfs 0.011 af

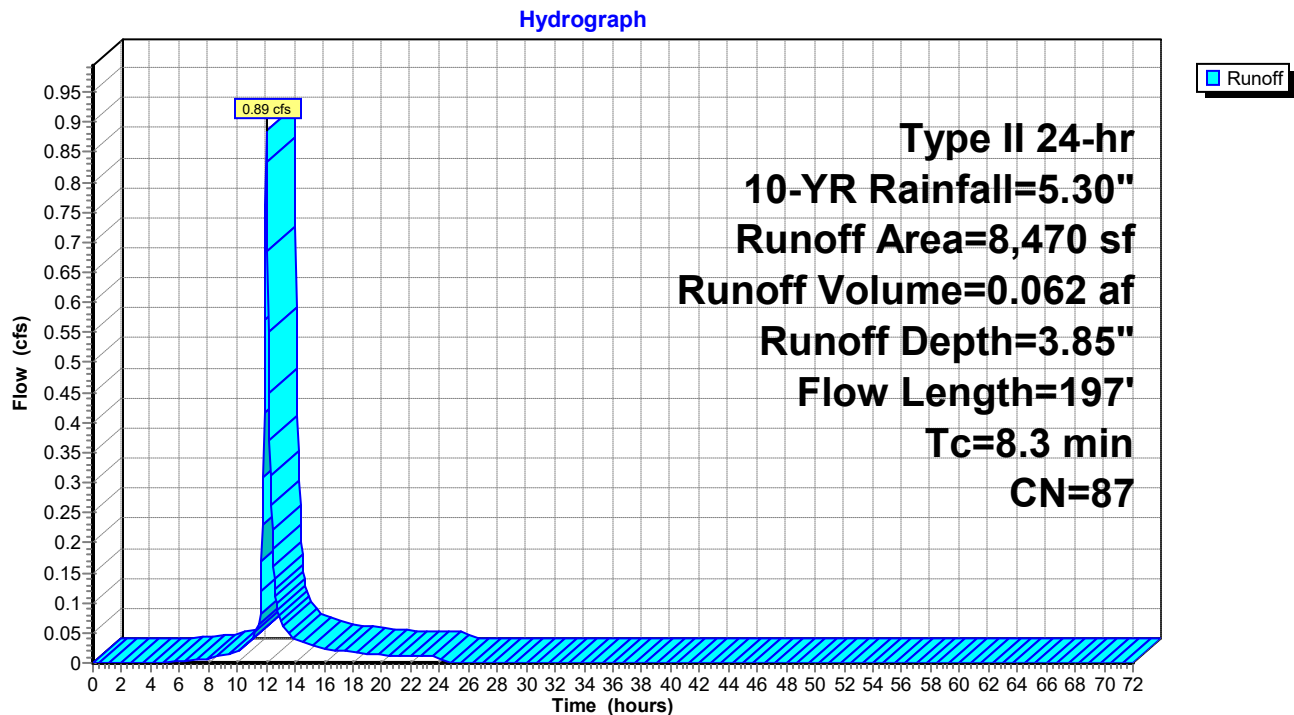
Summary for Subcatchment 1S: DA1 - STUDY POINT 1

Runoff = 0.89 cfs @ 12.01 hrs, Volume= 0.062 af, Depth= 3.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
7,828	86	Woods/grass comb., Poor, HSG D
642	98	Paved parking, HSG D
8,470	87	Weighted Average
7,828		92.42% Pervious Area
642		7.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
2.2	93	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	54	0.1230	7.12		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	197	Total			

Subcatchment 1S: DA1 - STUDY POINT 1

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Subcatchment 1S: DA1 - STUDY POINT 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.85	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.85	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.85	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.85	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.85	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.85	0.00
6.00	0.42	0.01	0.00	58.00	5.30	3.85	0.00
7.00	0.52	0.03	0.00	59.00	5.30	3.85	0.00
8.00	0.64	0.06	0.01	60.00	5.30	3.85	0.00
9.00	0.78	0.12	0.01	61.00	5.30	3.85	0.00
10.00	0.96	0.20	0.02	62.00	5.30	3.85	0.00
11.00	1.25	0.37	0.04	63.00	5.30	3.85	0.00
12.00	3.51	2.19	0.88	64.00	5.30	3.85	0.00
13.00	4.09	2.72	0.07	65.00	5.30	3.85	0.00
14.00	4.35	2.96	0.04	66.00	5.30	3.85	0.00
15.00	4.52	3.12	0.03	67.00	5.30	3.85	0.00
16.00	4.66	3.25	0.02	68.00	5.30	3.85	0.00
17.00	4.78	3.36	0.02	69.00	5.30	3.85	0.00
18.00	4.88	3.46	0.02	70.00	5.30	3.85	0.00
19.00	4.97	3.54	0.02	71.00	5.30	3.85	0.00
20.00	5.05	3.61	0.01	72.00	5.30	3.85	0.00
21.00	5.11	3.67	0.01				
22.00	5.18	3.74	0.01				
23.00	5.24	3.79	0.01				
24.00	5.30	3.85	0.01				
25.00	5.30	3.85	0.00				
26.00	5.30	3.85	0.00				
27.00	5.30	3.85	0.00				
28.00	5.30	3.85	0.00				
29.00	5.30	3.85	0.00				
30.00	5.30	3.85	0.00				
31.00	5.30	3.85	0.00				
32.00	5.30	3.85	0.00				
33.00	5.30	3.85	0.00				
34.00	5.30	3.85	0.00				
35.00	5.30	3.85	0.00				
36.00	5.30	3.85	0.00				
37.00	5.30	3.85	0.00				
38.00	5.30	3.85	0.00				
39.00	5.30	3.85	0.00				
40.00	5.30	3.85	0.00				
41.00	5.30	3.85	0.00				
42.00	5.30	3.85	0.00				
43.00	5.30	3.85	0.00				
44.00	5.30	3.85	0.00				
45.00	5.30	3.85	0.00				
46.00	5.30	3.85	0.00				
47.00	5.30	3.85	0.00				
48.00	5.30	3.85	0.00				
49.00	5.30	3.85	0.00				
50.00	5.30	3.85	0.00				
51.00	5.30	3.85	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Subcatchment 2S: DA2 - STUDY POINT 2

Runoff = 0.43 cfs @ 11.95 hrs, Volume= 0.024 af, Depth= 4.38"

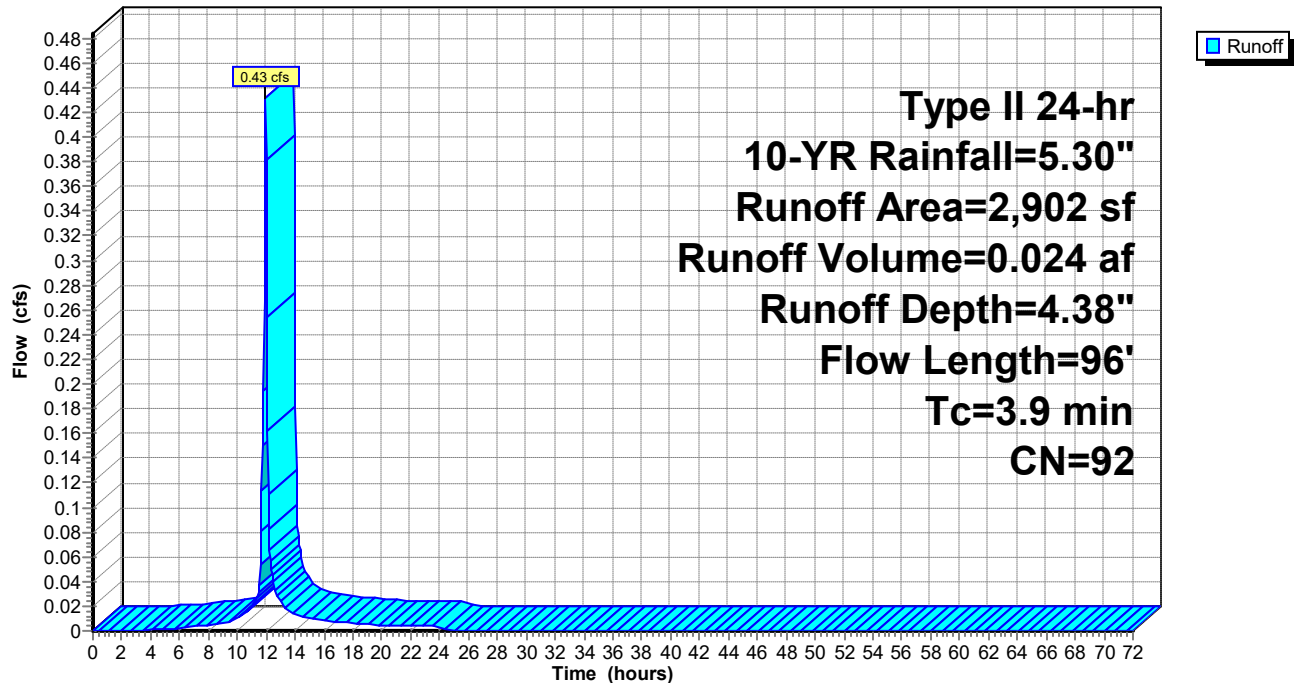
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
1,377	86	Woods/grass comb., Poor, HSG D
1,525	98	Paved parking, HSG D
2,902	92	Weighted Average
1,377		47.45% Pervious Area
1,525		52.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0230	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.5	66	0.0920	2.12		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.9	96	Total			

Subcatchment 2S: DA2 - STUDY POINT 2

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Subcatchment 2S: DA2 - STUDY POINT 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	4.38	0.00
1.00	0.06	0.00	0.00	53.00	5.30	4.38	0.00
2.00	0.12	0.00	0.00	54.00	5.30	4.38	0.00
3.00	0.18	0.00	0.00	55.00	5.30	4.38	0.00
4.00	0.25	0.01	0.00	56.00	5.30	4.38	0.00
5.00	0.33	0.02	0.00	57.00	5.30	4.38	0.00
6.00	0.42	0.06	0.00	58.00	5.30	4.38	0.00
7.00	0.52	0.10	0.00	59.00	5.30	4.38	0.00
8.00	0.64	0.16	0.00	60.00	5.30	4.38	0.00
9.00	0.78	0.25	0.01	61.00	5.30	4.38	0.00
10.00	0.96	0.37	0.01	62.00	5.30	4.38	0.00
11.00	1.25	0.59	0.02	63.00	5.30	4.38	0.00
12.00	3.51	2.65	0.38	64.00	5.30	4.38	0.00
13.00	4.09	3.21	0.02	65.00	5.30	4.38	0.00
14.00	4.35	3.45	0.01	66.00	5.30	4.38	0.00
15.00	4.52	3.62	0.01	67.00	5.30	4.38	0.00
16.00	4.66	3.76	0.01	68.00	5.30	4.38	0.00
17.00	4.78	3.87	0.01	69.00	5.30	4.38	0.00
18.00	4.88	3.97	0.01	70.00	5.30	4.38	0.00
19.00	4.97	4.06	0.01	71.00	5.30	4.38	0.00
20.00	5.05	4.13	0.00	72.00	5.30	4.38	0.00
21.00	5.11	4.20	0.00				
22.00	5.18	4.26	0.00				
23.00	5.24	4.32	0.00				
24.00	5.30	4.38	0.00				
25.00	5.30	4.38	0.00				
26.00	5.30	4.38	0.00				
27.00	5.30	4.38	0.00				
28.00	5.30	4.38	0.00				
29.00	5.30	4.38	0.00				
30.00	5.30	4.38	0.00				
31.00	5.30	4.38	0.00				
32.00	5.30	4.38	0.00				
33.00	5.30	4.38	0.00				
34.00	5.30	4.38	0.00				
35.00	5.30	4.38	0.00				
36.00	5.30	4.38	0.00				
37.00	5.30	4.38	0.00				
38.00	5.30	4.38	0.00				
39.00	5.30	4.38	0.00				
40.00	5.30	4.38	0.00				
41.00	5.30	4.38	0.00				
42.00	5.30	4.38	0.00				
43.00	5.30	4.38	0.00				
44.00	5.30	4.38	0.00				
45.00	5.30	4.38	0.00				
46.00	5.30	4.38	0.00				
47.00	5.30	4.38	0.00				
48.00	5.30	4.38	0.00				
49.00	5.30	4.38	0.00				
50.00	5.30	4.38	0.00				
51.00	5.30	4.38	0.00				

Summary for Subcatchment 23S: DA1 - BUILDING

Runoff = 0.78 cfs @ 11.93 hrs, Volume= 0.041 af, Depth= 4.72"

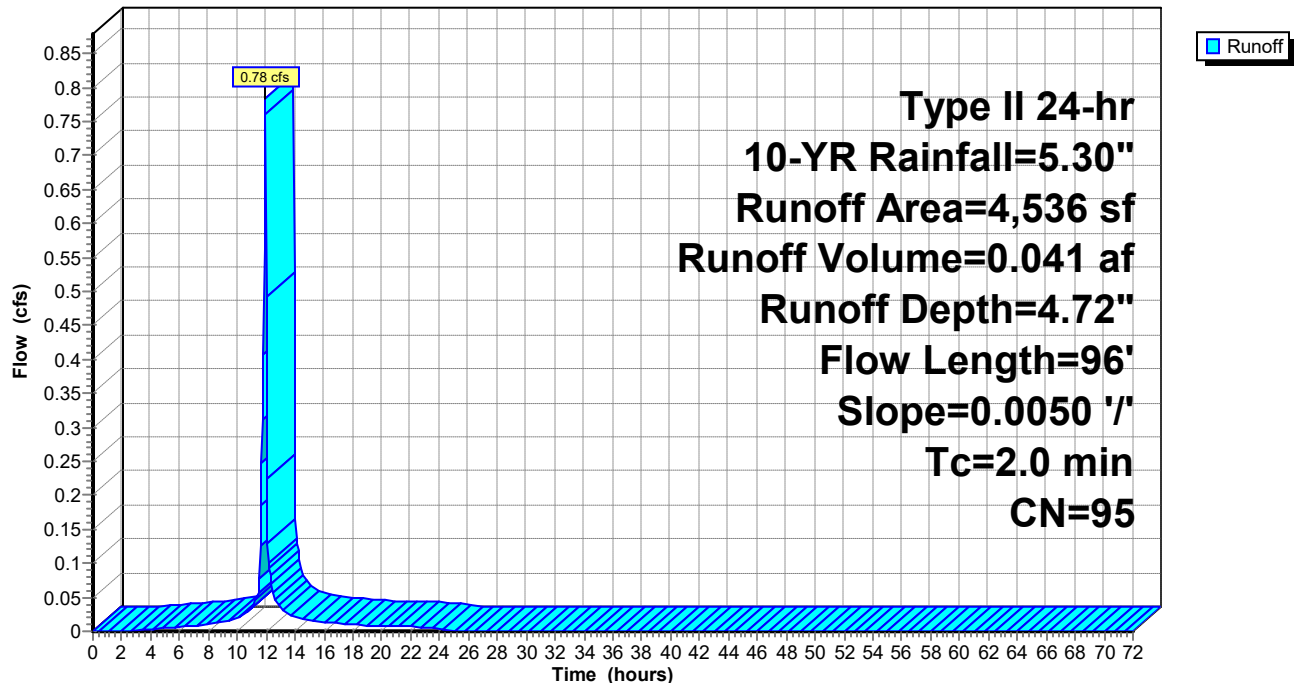
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
4,333	98	Roofs, HSG D
203	39	>75% Grass cover, Good, HSG A
4,536	95	Weighted Average
203		4.48% Pervious Area
4,333		95.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	96	0.0050	0.81		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 23S: DA1 - BUILDING

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

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Hydrograph for Subcatchment 23S: DA1 - BUILDING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	4.72	0.00
1.00	0.06	0.00	0.00	53.00	5.30	4.72	0.00
2.00	0.12	0.00	0.00	54.00	5.30	4.72	0.00
3.00	0.18	0.01	0.00	55.00	5.30	4.72	0.00
4.00	0.25	0.03	0.00	56.00	5.30	4.72	0.00
5.00	0.33	0.07	0.00	57.00	5.30	4.72	0.00
6.00	0.42	0.12	0.01	58.00	5.30	4.72	0.00
7.00	0.52	0.19	0.01	59.00	5.30	4.72	0.00
8.00	0.64	0.27	0.01	60.00	5.30	4.72	0.00
9.00	0.78	0.38	0.01	61.00	5.30	4.72	0.00
10.00	0.96	0.53	0.02	62.00	5.30	4.72	0.00
11.00	1.25	0.78	0.03	63.00	5.30	4.72	0.00
12.00	3.51	2.95	0.49	64.00	5.30	4.72	0.00
13.00	4.09	3.52	0.03	65.00	5.30	4.72	0.00
14.00	4.35	3.77	0.02	66.00	5.30	4.72	0.00
15.00	4.52	3.95	0.02	67.00	5.30	4.72	0.00
16.00	4.66	4.09	0.01	68.00	5.30	4.72	0.00
17.00	4.78	4.20	0.01	69.00	5.30	4.72	0.00
18.00	4.88	4.30	0.01	70.00	5.30	4.72	0.00
19.00	4.97	4.39	0.01	71.00	5.30	4.72	0.00
20.00	5.05	4.46	0.01	72.00	5.30	4.72	0.00
21.00	5.11	4.53	0.01				
22.00	5.18	4.60	0.01				
23.00	5.24	4.66	0.01				
24.00	5.30	4.72	0.01				
25.00	5.30	4.72	0.00				
26.00	5.30	4.72	0.00				
27.00	5.30	4.72	0.00				
28.00	5.30	4.72	0.00				
29.00	5.30	4.72	0.00				
30.00	5.30	4.72	0.00				
31.00	5.30	4.72	0.00				
32.00	5.30	4.72	0.00				
33.00	5.30	4.72	0.00				
34.00	5.30	4.72	0.00				
35.00	5.30	4.72	0.00				
36.00	5.30	4.72	0.00				
37.00	5.30	4.72	0.00				
38.00	5.30	4.72	0.00				
39.00	5.30	4.72	0.00				
40.00	5.30	4.72	0.00				
41.00	5.30	4.72	0.00				
42.00	5.30	4.72	0.00				
43.00	5.30	4.72	0.00				
44.00	5.30	4.72	0.00				
45.00	5.30	4.72	0.00				
46.00	5.30	4.72	0.00				
47.00	5.30	4.72	0.00				
48.00	5.30	4.72	0.00				
49.00	5.30	4.72	0.00				
50.00	5.30	4.72	0.00				
51.00	5.30	4.72	0.00				

Summary for Subcatchment 24S: DA2 - STUDY POINT 2

Runoff = 0.19 cfs @ 11.94 hrs, Volume= 0.011 af, Depth= 5.06"

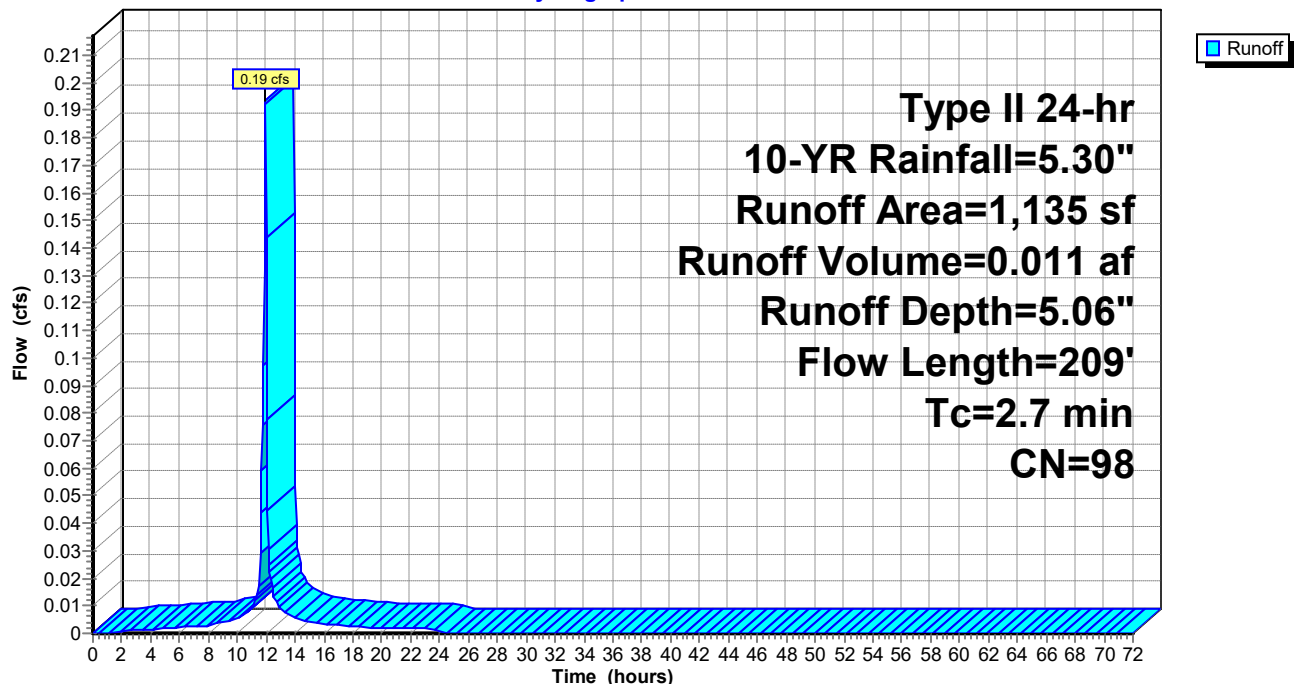
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
0	80	>75% Grass cover, Good, HSG D
1,135	98	Paved parking, HSG D
1,135	98	Weighted Average
1,135		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0067	0.92		Sheet Flow, PAVE/GUTTER Smooth surfaces n= 0.011 P2= 3.40"
0.9	109	0.0096	1.99		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.7	209	Total			

Subcatchment 24S: DA2 - STUDY POINT 2

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Subcatchment 24S: DA2 - STUDY POINT 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	5.06	0.00
1.00	0.06	0.00	0.00	53.00	5.30	5.06	0.00
2.00	0.12	0.02	0.00	54.00	5.30	5.06	0.00
3.00	0.18	0.06	0.00	55.00	5.30	5.06	0.00
4.00	0.25	0.11	0.00	56.00	5.30	5.06	0.00
5.00	0.33	0.17	0.00	57.00	5.30	5.06	0.00
6.00	0.42	0.25	0.00	58.00	5.30	5.06	0.00
7.00	0.52	0.34	0.00	59.00	5.30	5.06	0.00
8.00	0.64	0.44	0.00	60.00	5.30	5.06	0.00
9.00	0.78	0.58	0.00	61.00	5.30	5.06	0.00
10.00	0.96	0.75	0.01	62.00	5.30	5.06	0.00
11.00	1.25	1.03	0.01	63.00	5.30	5.06	0.00
12.00	3.51	3.28	0.14	64.00	5.30	5.06	0.00
13.00	4.09	3.86	0.01	65.00	5.30	5.06	0.00
14.00	4.35	4.11	0.01	66.00	5.30	5.06	0.00
15.00	4.52	4.29	0.00	67.00	5.30	5.06	0.00
16.00	4.66	4.43	0.00	68.00	5.30	5.06	0.00
17.00	4.78	4.54	0.00	69.00	5.30	5.06	0.00
18.00	4.88	4.64	0.00	70.00	5.30	5.06	0.00
19.00	4.97	4.73	0.00	71.00	5.30	5.06	0.00
20.00	5.05	4.81	0.00	72.00	5.30	5.06	0.00
21.00	5.11	4.88	0.00				
22.00	5.18	4.94	0.00				
23.00	5.24	5.00	0.00				
24.00	5.30	5.06	0.00				
25.00	5.30	5.06	0.00				
26.00	5.30	5.06	0.00				
27.00	5.30	5.06	0.00				
28.00	5.30	5.06	0.00				
29.00	5.30	5.06	0.00				
30.00	5.30	5.06	0.00				
31.00	5.30	5.06	0.00				
32.00	5.30	5.06	0.00				
33.00	5.30	5.06	0.00				
34.00	5.30	5.06	0.00				
35.00	5.30	5.06	0.00				
36.00	5.30	5.06	0.00				
37.00	5.30	5.06	0.00				
38.00	5.30	5.06	0.00				
39.00	5.30	5.06	0.00				
40.00	5.30	5.06	0.00				
41.00	5.30	5.06	0.00				
42.00	5.30	5.06	0.00				
43.00	5.30	5.06	0.00				
44.00	5.30	5.06	0.00				
45.00	5.30	5.06	0.00				
46.00	5.30	5.06	0.00				
47.00	5.30	5.06	0.00				
48.00	5.30	5.06	0.00				
49.00	5.30	5.06	0.00				
50.00	5.30	5.06	0.00				
51.00	5.30	5.06	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Subcatchment 25S: DA5

Runoff = 0.27 cfs @ 11.90 hrs, Volume= 0.012 af, Depth= 4.49"

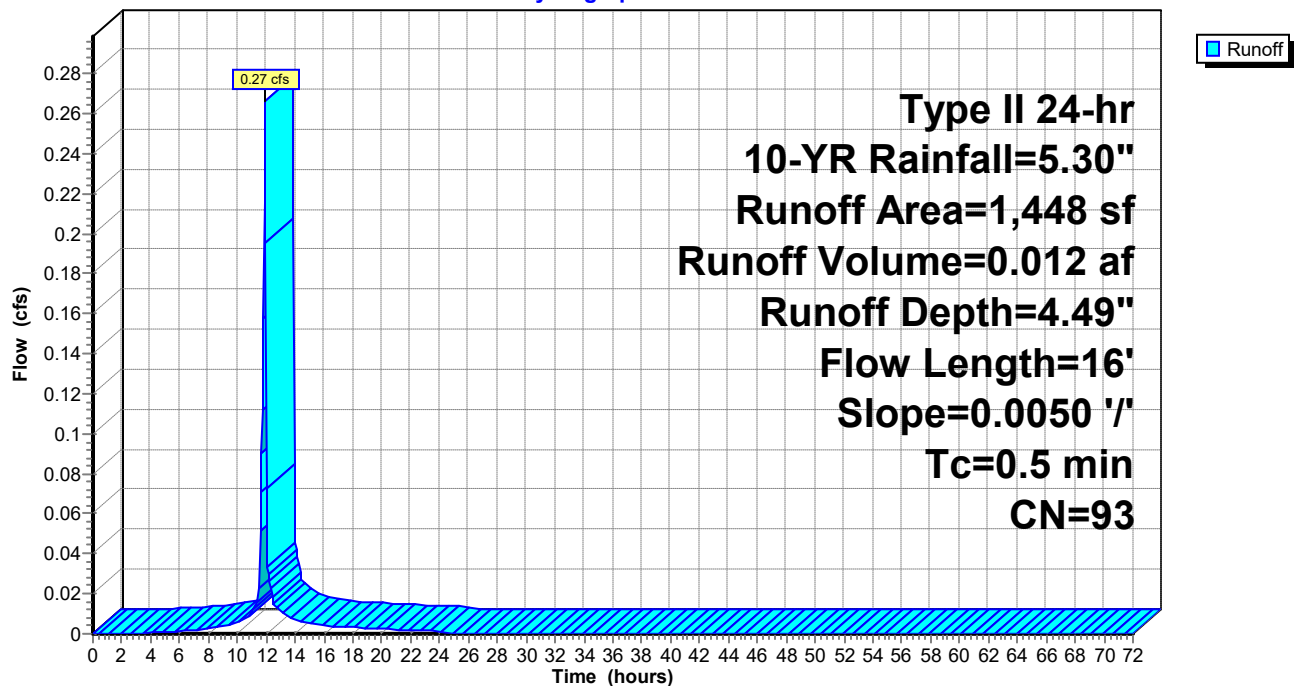
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
118	80	>75% Grass cover, Good, HSG D
1,214	94	Newly graded area, HSG D
116	98	Paved parking, HSG D
1,448	93	Weighted Average
1,332		91.99% Pervious Area
116		8.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	16	0.0050	0.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 25S: DA5

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

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Printed 10/31/2022

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Hydrograph for Subcatchment 25S: DA5

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	4.49	0.00
1.00	0.06	0.00	0.00	53.00	5.30	4.49	0.00
2.00	0.12	0.00	0.00	54.00	5.30	4.49	0.00
3.00	0.18	0.00	0.00	55.00	5.30	4.49	0.00
4.00	0.25	0.01	0.00	56.00	5.30	4.49	0.00
5.00	0.33	0.04	0.00	57.00	5.30	4.49	0.00
6.00	0.42	0.07	0.00	58.00	5.30	4.49	0.00
7.00	0.52	0.12	0.00	59.00	5.30	4.49	0.00
8.00	0.64	0.19	0.00	60.00	5.30	4.49	0.00
9.00	0.78	0.29	0.00	61.00	5.30	4.49	0.00
10.00	0.96	0.42	0.01	62.00	5.30	4.49	0.00
11.00	1.25	0.65	0.01	63.00	5.30	4.49	0.00
12.00	3.51	2.75	0.07	64.00	5.30	4.49	0.00
13.00	4.09	3.31	0.01	65.00	5.30	4.49	0.00
14.00	4.35	3.56	0.01	66.00	5.30	4.49	0.00
15.00	4.52	3.73	0.01	67.00	5.30	4.49	0.00
16.00	4.66	3.87	0.00	68.00	5.30	4.49	0.00
17.00	4.78	3.98	0.00	69.00	5.30	4.49	0.00
18.00	4.88	4.08	0.00	70.00	5.30	4.49	0.00
19.00	4.97	4.17	0.00	71.00	5.30	4.49	0.00
20.00	5.05	4.24	0.00	72.00	5.30	4.49	0.00
21.00	5.11	4.31	0.00				
22.00	5.18	4.37	0.00				
23.00	5.24	4.43	0.00				
24.00	5.30	4.49	0.00				
25.00	5.30	4.49	0.00				
26.00	5.30	4.49	0.00				
27.00	5.30	4.49	0.00				
28.00	5.30	4.49	0.00				
29.00	5.30	4.49	0.00				
30.00	5.30	4.49	0.00				
31.00	5.30	4.49	0.00				
32.00	5.30	4.49	0.00				
33.00	5.30	4.49	0.00				
34.00	5.30	4.49	0.00				
35.00	5.30	4.49	0.00				
36.00	5.30	4.49	0.00				
37.00	5.30	4.49	0.00				
38.00	5.30	4.49	0.00				
39.00	5.30	4.49	0.00				
40.00	5.30	4.49	0.00				
41.00	5.30	4.49	0.00				
42.00	5.30	4.49	0.00				
43.00	5.30	4.49	0.00				
44.00	5.30	4.49	0.00				
45.00	5.30	4.49	0.00				
46.00	5.30	4.49	0.00				
47.00	5.30	4.49	0.00				
48.00	5.30	4.49	0.00				
49.00	5.30	4.49	0.00				
50.00	5.30	4.49	0.00				
51.00	5.30	4.49	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Subcatchment 28S: DA4

Runoff = 0.16 cfs @ 12.03 hrs, Volume= 0.012 af, Depth= 3.85"

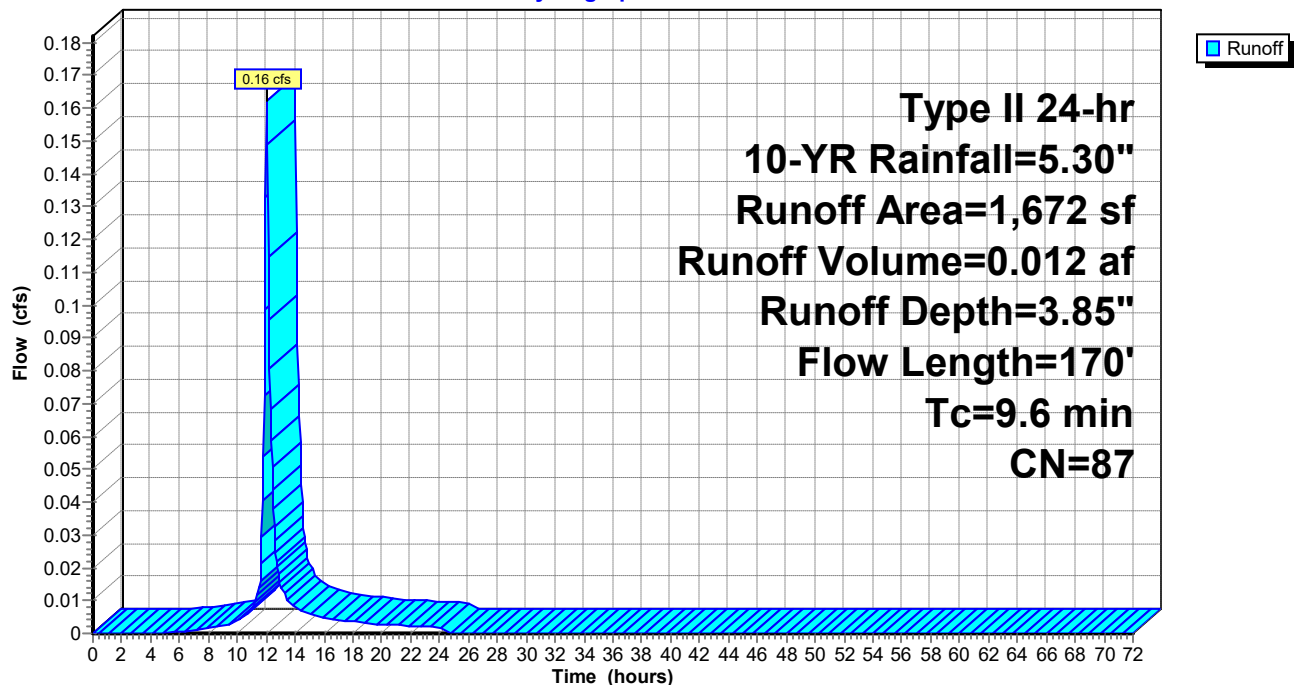
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
742	98	Paved parking, HSG D
719	74	>75% Grass cover, Good, HSG C
211	94	Newly graded area, HSG D
1,672	87	Weighted Average
930		55.62% Pervious Area
742		44.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.1	70	0.1530	7.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.6	170	Total			

Subcatchment 28S: DA4

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Subcatchment 28S: DA4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	3.85	0.00
1.00	0.06	0.00	0.00	53.00	5.30	3.85	0.00
2.00	0.12	0.00	0.00	54.00	5.30	3.85	0.00
3.00	0.18	0.00	0.00	55.00	5.30	3.85	0.00
4.00	0.25	0.00	0.00	56.00	5.30	3.85	0.00
5.00	0.33	0.00	0.00	57.00	5.30	3.85	0.00
6.00	0.42	0.01	0.00	58.00	5.30	3.85	0.00
7.00	0.52	0.03	0.00	59.00	5.30	3.85	0.00
8.00	0.64	0.06	0.00	60.00	5.30	3.85	0.00
9.00	0.78	0.12	0.00	61.00	5.30	3.85	0.00
10.00	0.96	0.20	0.00	62.00	5.30	3.85	0.00
11.00	1.25	0.37	0.01	63.00	5.30	3.85	0.00
12.00	3.51	2.19	0.16	64.00	5.30	3.85	0.00
13.00	4.09	2.72	0.01	65.00	5.30	3.85	0.00
14.00	4.35	2.96	0.01	66.00	5.30	3.85	0.00
15.00	4.52	3.12	0.01	67.00	5.30	3.85	0.00
16.00	4.66	3.25	0.00	68.00	5.30	3.85	0.00
17.00	4.78	3.36	0.00	69.00	5.30	3.85	0.00
18.00	4.88	3.46	0.00	70.00	5.30	3.85	0.00
19.00	4.97	3.54	0.00	71.00	5.30	3.85	0.00
20.00	5.05	3.61	0.00	72.00	5.30	3.85	0.00
21.00	5.11	3.67	0.00				
22.00	5.18	3.74	0.00				
23.00	5.24	3.79	0.00				
24.00	5.30	3.85	0.00				
25.00	5.30	3.85	0.00				
26.00	5.30	3.85	0.00				
27.00	5.30	3.85	0.00				
28.00	5.30	3.85	0.00				
29.00	5.30	3.85	0.00				
30.00	5.30	3.85	0.00				
31.00	5.30	3.85	0.00				
32.00	5.30	3.85	0.00				
33.00	5.30	3.85	0.00				
34.00	5.30	3.85	0.00				
35.00	5.30	3.85	0.00				
36.00	5.30	3.85	0.00				
37.00	5.30	3.85	0.00				
38.00	5.30	3.85	0.00				
39.00	5.30	3.85	0.00				
40.00	5.30	3.85	0.00				
41.00	5.30	3.85	0.00				
42.00	5.30	3.85	0.00				
43.00	5.30	3.85	0.00				
44.00	5.30	3.85	0.00				
45.00	5.30	3.85	0.00				
46.00	5.30	3.85	0.00				
47.00	5.30	3.85	0.00				
48.00	5.30	3.85	0.00				
49.00	5.30	3.85	0.00				
50.00	5.30	3.85	0.00				
51.00	5.30	3.85	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Subcatchment 33S: DA3

Runoff = 0.40 cfs @ 11.93 hrs, Volume= 0.020 af, Depth= 4.06"

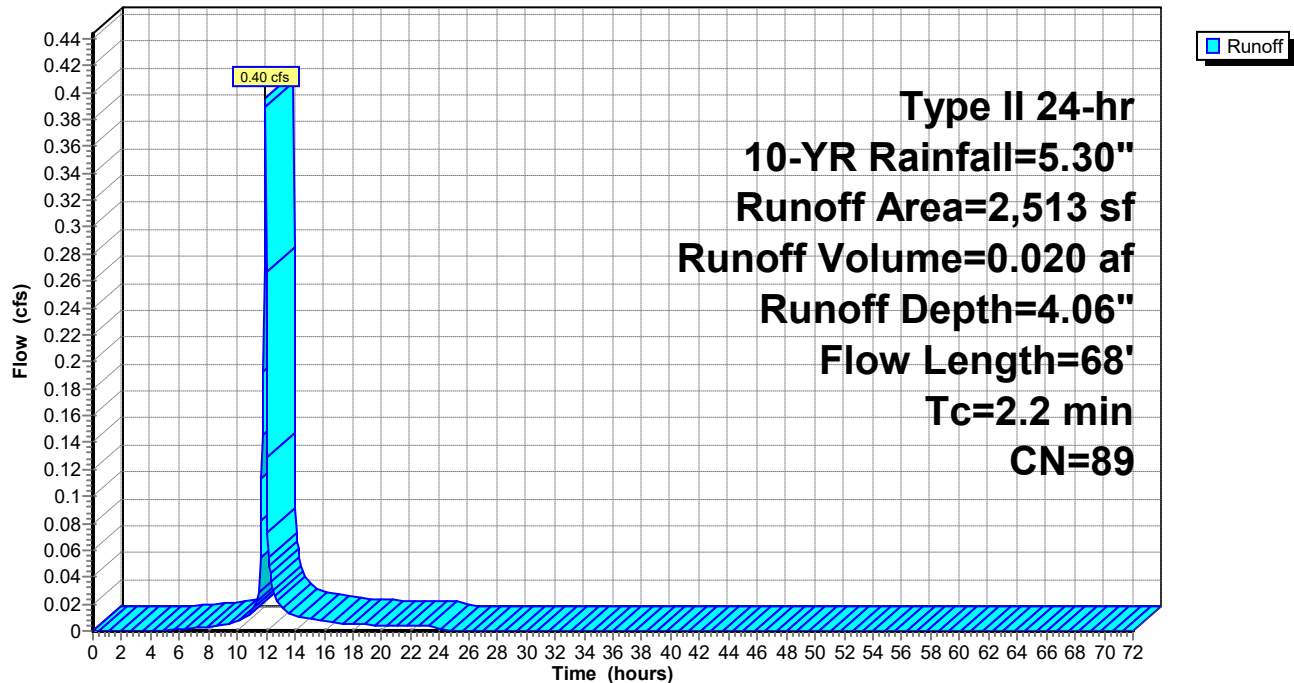
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
407	98	Paved parking, HSG D
733	74	>75% Grass cover, Good, HSG C
1,373	94	Newly graded area, HSG D
2,513	89	Weighted Average
2,106		83.80% Pervious Area
407		16.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	10	0.0120	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.4	58	0.0100	2.58	0.22	Pipe Channel, 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.011
2.2	68	Total			

Subcatchment 33S: DA3

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

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Hydrograph for Subcatchment 33S: DA3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.30	4.06	0.00
1.00	0.06	0.00	0.00	53.00	5.30	4.06	0.00
2.00	0.12	0.00	0.00	54.00	5.30	4.06	0.00
3.00	0.18	0.00	0.00	55.00	5.30	4.06	0.00
4.00	0.25	0.00	0.00	56.00	5.30	4.06	0.00
5.00	0.33	0.01	0.00	57.00	5.30	4.06	0.00
6.00	0.42	0.02	0.00	58.00	5.30	4.06	0.00
7.00	0.52	0.05	0.00	59.00	5.30	4.06	0.00
8.00	0.64	0.09	0.00	60.00	5.30	4.06	0.00
9.00	0.78	0.16	0.00	61.00	5.30	4.06	0.00
10.00	0.96	0.26	0.01	62.00	5.30	4.06	0.00
11.00	1.25	0.45	0.01	63.00	5.30	4.06	0.00
12.00	3.51	2.37	0.27	64.00	5.30	4.06	0.00
13.00	4.09	2.91	0.02	65.00	5.30	4.06	0.00
14.00	4.35	3.15	0.01	66.00	5.30	4.06	0.00
15.00	4.52	3.32	0.01	67.00	5.30	4.06	0.00
16.00	4.66	3.45	0.01	68.00	5.30	4.06	0.00
17.00	4.78	3.56	0.01	69.00	5.30	4.06	0.00
18.00	4.88	3.66	0.01	70.00	5.30	4.06	0.00
19.00	4.97	3.74	0.00	71.00	5.30	4.06	0.00
20.00	5.05	3.82	0.00	72.00	5.30	4.06	0.00
21.00	5.11	3.88	0.00				
22.00	5.18	3.94	0.00				
23.00	5.24	4.00	0.00				
24.00	5.30	4.06	0.00				
25.00	5.30	4.06	0.00				
26.00	5.30	4.06	0.00				
27.00	5.30	4.06	0.00				
28.00	5.30	4.06	0.00				
29.00	5.30	4.06	0.00				
30.00	5.30	4.06	0.00				
31.00	5.30	4.06	0.00				
32.00	5.30	4.06	0.00				
33.00	5.30	4.06	0.00				
34.00	5.30	4.06	0.00				
35.00	5.30	4.06	0.00				
36.00	5.30	4.06	0.00				
37.00	5.30	4.06	0.00				
38.00	5.30	4.06	0.00				
39.00	5.30	4.06	0.00				
40.00	5.30	4.06	0.00				
41.00	5.30	4.06	0.00				
42.00	5.30	4.06	0.00				
43.00	5.30	4.06	0.00				
44.00	5.30	4.06	0.00				
45.00	5.30	4.06	0.00				
46.00	5.30	4.06	0.00				
47.00	5.30	4.06	0.00				
48.00	5.30	4.06	0.00				
49.00	5.30	4.06	0.00				
50.00	5.30	4.06	0.00				
51.00	5.30	4.06	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

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Summary for Pond 14P: PLANTER BOX 1

Inflow Area = 0.104 ac, 95.52% Impervious, Inflow Depth = 4.72" for 10-YR event
 Inflow = 0.78 cfs @ 11.93 hrs, Volume= 0.041 af
 Outflow = 0.65 cfs @ 11.97 hrs, Volume= 0.041 af, Atten= 17%, Lag= 2.5 min
 Discarded = 0.65 cfs @ 11.97 hrs, Volume= 0.041 af

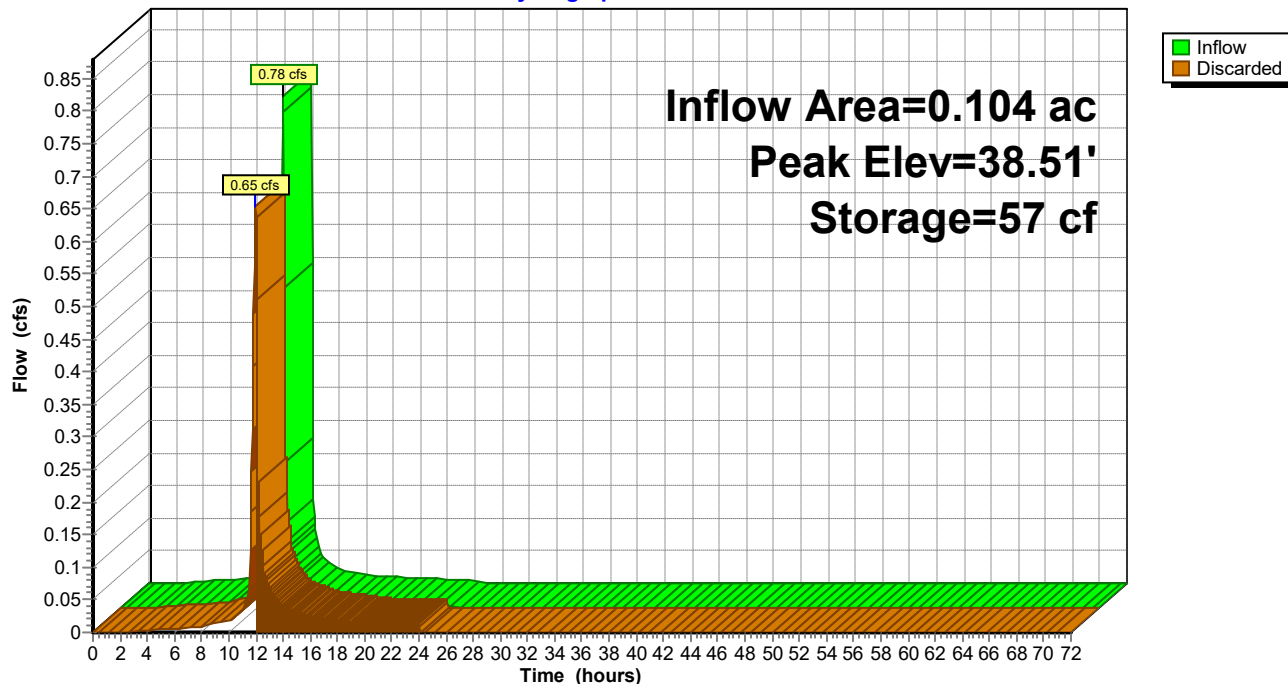
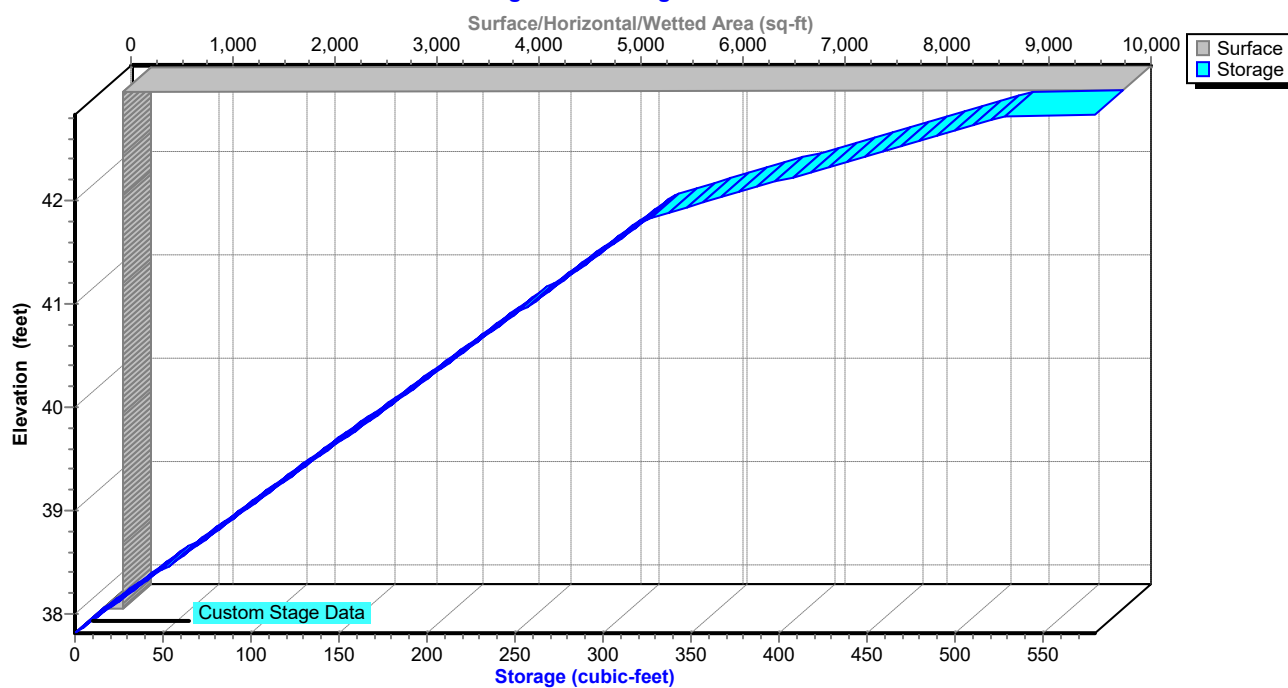
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.51' @ 11.97 hrs Surf.Area= 203 sf Storage= 57 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 0.6 min (761.1 - 760.6)

Volume	Invert	Avail.Storage	Storage Description	
#1	37.81'	580 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.81	203	0.0	0	0
37.82	203	40.0	1	1
41.82	203	40.0	325	326
41.83	203	100.0	2	328
42.82	203	100.0	201	529
42.83	10,000	100.0	51	580

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.81'	100.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.00'

Discarded OutFlow Max=0.64 cfs @ 11.97 hrs HW=38.47' (Free Discharge)
 ↑1=Exfiltration (Controls 0.64 cfs)

Pond 14P: PLANTER BOX 1**Hydrograph****Pond 14P: PLANTER BOX 1****Stage-Area-Storage**

521 August_SWM_V4 - JW_10-10*Type II 24-hr 10-YR Rainfall=5.30"*

Prepared by {enter your company name here}

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Hydrograph for Pond 14P: PLANTER BOX 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	37.81	0.00
2.50	0.00	0	37.81	0.00
5.00	0.00	0	37.81	0.00
7.50	0.01	0	37.81	0.01
10.00	0.02	0	37.81	0.02
12.50	0.05	0	37.81	0.00
15.00	0.02	0	37.81	0.00
17.50	0.01	0	37.81	0.00
20.00	0.01	0	37.81	0.00
22.50	0.01	0	37.81	0.00
25.00	0.00	0	37.81	0.00
27.50	0.00	0	37.81	0.00
30.00	0.00	0	37.81	0.00
32.50	0.00	0	37.81	0.00
35.00	0.00	0	37.81	0.00
37.50	0.00	0	37.81	0.00
40.00	0.00	0	37.81	0.00
42.50	0.00	0	37.81	0.00
45.00	0.00	0	37.81	0.00
47.50	0.00	0	37.81	0.00
50.00	0.00	0	37.81	0.00
52.50	0.00	0	37.81	0.00
55.00	0.00	0	37.81	0.00
57.50	0.00	0	37.81	0.00
60.00	0.00	0	37.81	0.00
62.50	0.00	0	37.81	0.00
65.00	0.00	0	37.81	0.00
67.50	0.00	0	37.81	0.00
70.00	0.00	0	37.81	0.00

521 August_SWM_V4 - JW_10-10*Type II 24-hr 10-YR Rainfall=5.30"*

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Stage-Area-Storage for Pond 14P: PLANTER BOX 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
37.81	203	0
37.91	203	8
38.01	203	16
38.11	203	24
38.21	203	32
38.31	203	41
38.41	203	49
38.51	203	57
38.61	203	65
38.71	203	73
38.81	203	81
38.91	203	89
39.01	203	97
39.11	203	106
39.21	203	114
39.31	203	122
39.41	203	130
39.51	203	138
39.61	203	146
39.71	203	154
39.81	203	162
39.91	203	171
40.01	203	179
40.11	203	187
40.21	203	195
40.31	203	203
40.41	203	211
40.51	203	219
40.61	203	227
40.71	203	235
40.81	203	244
40.91	203	252
41.01	203	260
41.11	203	268
41.21	203	276
41.31	203	284
41.41	203	292
41.51	203	300
41.61	203	309
41.71	203	317
41.81	203	325
41.91	203	344
42.01	203	364
42.11	203	384
42.21	203	405
42.31	203	425
42.41	203	445
42.51	203	466
42.61	203	486
42.71	203	506
42.81	203	527

Summary for Pond 15P: SUBSURFACE CHAMBER

Inflow Area = 0.195 ac, 57.15% Impervious, Inflow Depth = 0.77" for 10-YR event
 Inflow = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af
 Outflow = 0.14 cfs @ 0.00 hrs, Volume= 0.034 af, Atten= 81%, Lag= 0.0 min
 Discarded = 0.14 cfs @ 0.00 hrs, Volume= 0.034 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 38.17' Surf.Area= 0.016 ac Storage= 0.022 af

Peak Elev= 38.17' @ 0.00 hrs Surf.Area= 0.016 ac Storage= 0.022 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	36.13'	0.009 af	14.50'W x 48.57'L x 2.36'H Field A 0.038 af Overall - 0.016 af Embedded = 0.023 af x 40.0% Voids
#2A	36.38'	0.015 af	ACF R-Tank HD 1 x 152 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 8 Rows of 19 Chambers
		0.024 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	38.17'	4.0" Round Culvert L= 72.0' Ke= 1.000 Inlet / Outlet Invert= 38.17' / 37.60' S= 0.0079 '/' Cc= 0.900 n= 0.011, Flow Area= 0.09 sf
#2	Discarded	36.13'	0.500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.00'

Discarded OutFlow Max=0.14 cfs @ 0.00 hrs HW=38.17' (Free Discharge)

↑**2=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.17' TW=37.68' (Dynamic Tailwater)

↑**1=Culvert** (Controls 0.00 cfs)

Pond 15P: SUBSURFACE CHAMBER - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)

Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf

Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

19 Chambers/Row x 2.35' Long = 44.57' Row Length +24.0" End Stone x 2 = 48.57' Base Length

8 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 14.50' Base Width

3.0" Base + 17.3" Chamber Height + 8.0" Cover = 2.36' Field Height

152 Chambers x 4.2 cf = 641.7 cf Chamber Storage

152 Chambers x 4.4 cf = 675.5 cf Displacement

1,662.1 cf Field - 675.5 cf Chambers = 986.6 cf Stone x 40.0% Voids = 394.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,036.4 cf = 0.024 af

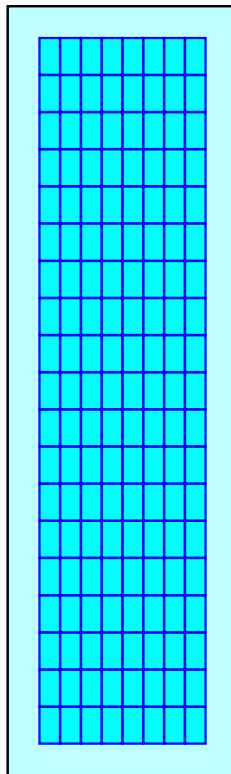
Overall Storage Efficiency = 62.4%

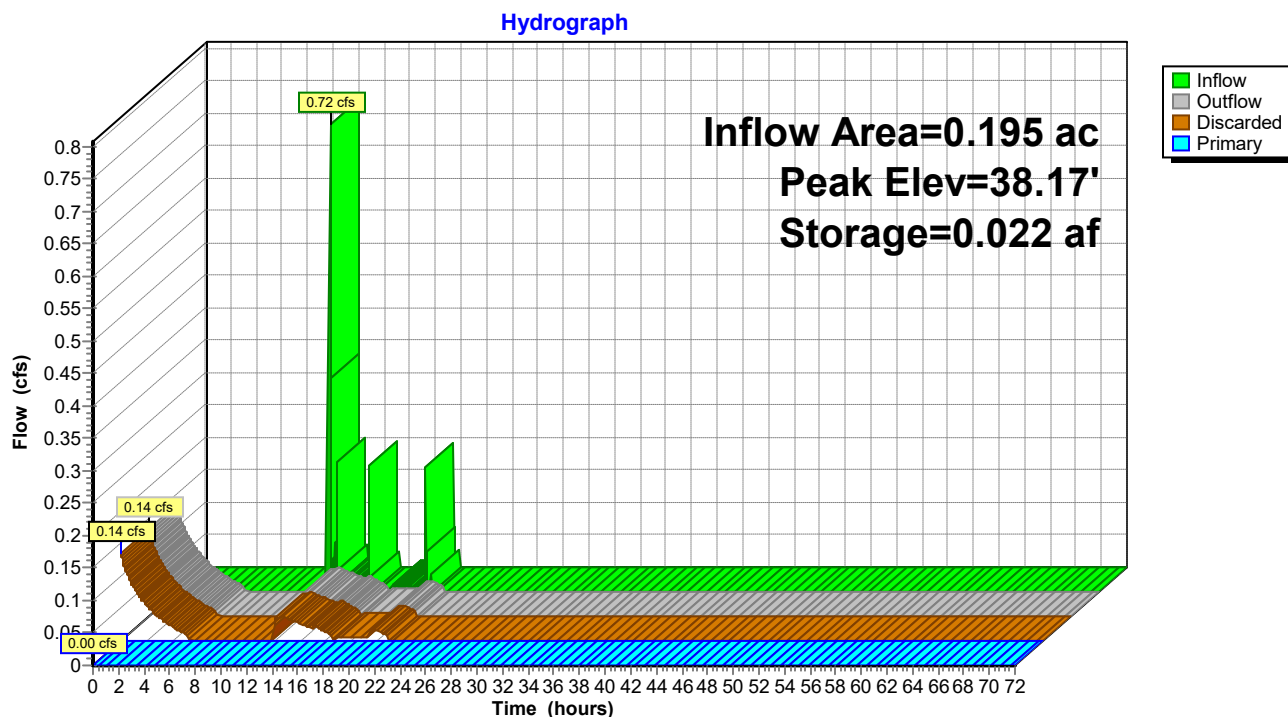
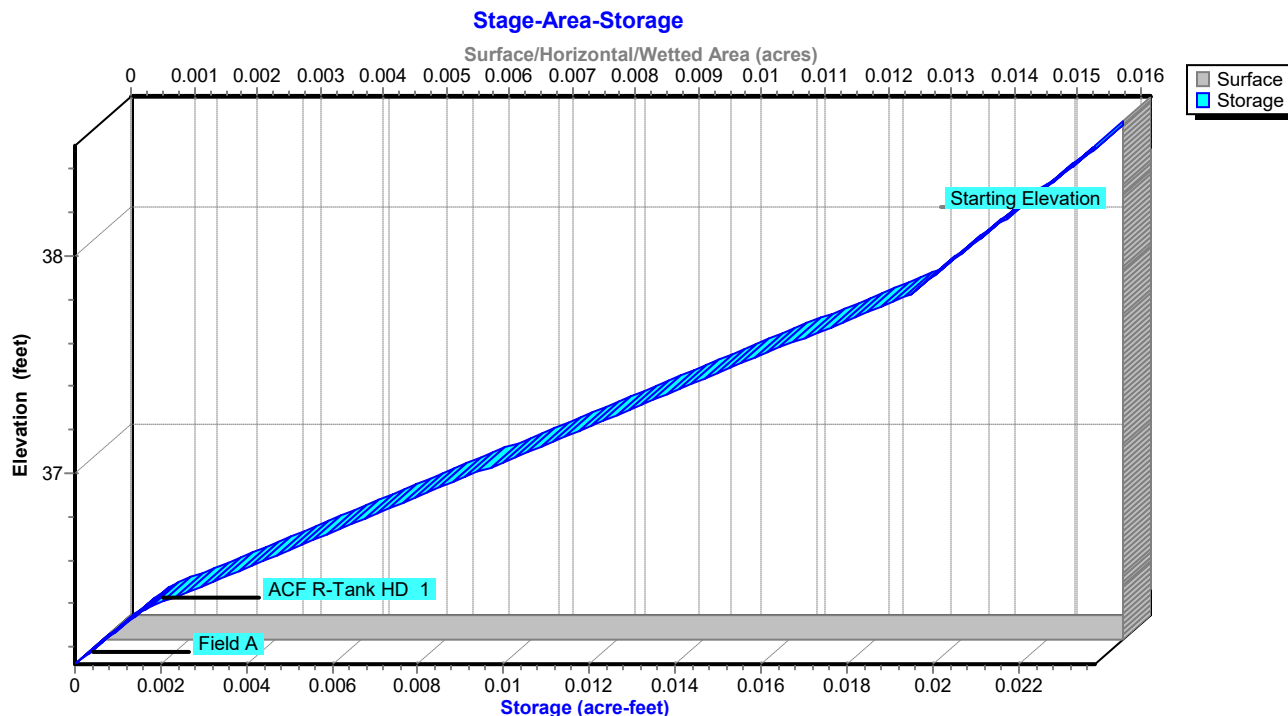
Overall System Size = 48.57' x 14.50' x 2.36'

152 Chambers

61.6 cy Field

36.5 cy Stone



Pond 15P: SUBSURFACE CHAMBER**Pond 15P: SUBSURFACE CHAMBER**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 15P: SUBSURFACE CHAMBER

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.022	38.17	0.14	0.14	0.00
2.50	0.00	0.006	36.70	0.04	0.04	0.00
5.00	0.00	0.000	36.17	0.01	0.01	0.00
7.50	0.00	0.000	36.13	0.00	0.00	0.00
10.00	0.00	0.000	36.13	0.00	0.00	0.00
12.50	0.20	0.004	36.59	0.04	0.04	0.00
15.00	0.19	0.001	36.35	0.02	0.02	0.00
17.50	0.01	0.000	36.13	0.01	0.01	0.00
20.00	0.00	0.001	36.26	0.02	0.02	0.00
22.50	0.00	0.000	36.13	0.00	0.00	0.00
25.00	0.00	0.000	36.13	0.00	0.00	0.00
27.50	0.00	0.000	36.13	0.00	0.00	0.00
30.00	0.00	0.000	36.13	0.00	0.00	0.00
32.50	0.00	0.000	36.13	0.00	0.00	0.00
35.00	0.00	0.000	36.13	0.00	0.00	0.00
37.50	0.00	0.000	36.13	0.00	0.00	0.00
40.00	0.00	0.000	36.13	0.00	0.00	0.00
42.50	0.00	0.000	36.13	0.00	0.00	0.00
45.00	0.00	0.000	36.13	0.00	0.00	0.00
47.50	0.00	0.000	36.13	0.00	0.00	0.00
50.00	0.00	0.000	36.13	0.00	0.00	0.00
52.50	0.00	0.000	36.13	0.00	0.00	0.00
55.00	0.00	0.000	36.13	0.00	0.00	0.00
57.50	0.00	0.000	36.13	0.00	0.00	0.00
60.00	0.00	0.000	36.13	0.00	0.00	0.00
62.50	0.00	0.000	36.13	0.00	0.00	0.00
65.00	0.00	0.000	36.13	0.00	0.00	0.00
67.50	0.00	0.000	36.13	0.00	0.00	0.00
70.00	0.00	0.000	36.13	0.00	0.00	0.00

Stage-Area-Storage for Pond 15P: SUBSURFACE CHAMBER

Elevation (feet)	Surface (acres)	Storage (acre-feet)
36.13	0.016	0.000
36.18	0.016	0.000
36.23	0.016	0.001
36.28	0.016	0.001
36.33	0.016	0.001
36.38	0.016	0.002
36.43	0.016	0.002
36.48	0.016	0.003
36.53	0.016	0.003
36.58	0.016	0.004
36.63	0.016	0.005
36.68	0.016	0.005
36.73	0.016	0.006
36.78	0.016	0.007
36.83	0.016	0.007
36.88	0.016	0.008
36.93	0.016	0.008
36.98	0.016	0.009
37.03	0.016	0.010
37.08	0.016	0.010
37.13	0.016	0.011
37.18	0.016	0.012
37.23	0.016	0.012
37.28	0.016	0.013
37.33	0.016	0.013
37.38	0.016	0.014
37.43	0.016	0.015
37.48	0.016	0.015
37.53	0.016	0.016
37.58	0.016	0.016
37.63	0.016	0.017
37.68	0.016	0.018
37.73	0.016	0.018
37.78	0.016	0.019
37.83	0.016	0.020
37.88	0.016	0.020
37.93	0.016	0.020
37.98	0.016	0.020
38.03	0.016	0.021
38.08	0.016	0.021
38.13	0.016	0.021
38.18	0.016	0.022
38.23	0.016	0.022
38.28	0.016	0.022
38.33	0.016	0.023
38.38	0.016	0.023
38.43	0.016	0.023
38.48	0.016	0.024

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Inflow Area = 0.033 ac, 8.01% Impervious, Inflow Depth = 4.49" for 10-YR event
 Inflow = 0.27 cfs @ 11.90 hrs, Volume= 0.012 af
 Outflow = 0.27 cfs @ 11.90 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.27 cfs @ 11.90 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 38.85' @ 0.00 hrs Surf.Area= 962 sf Storage= 0 cf

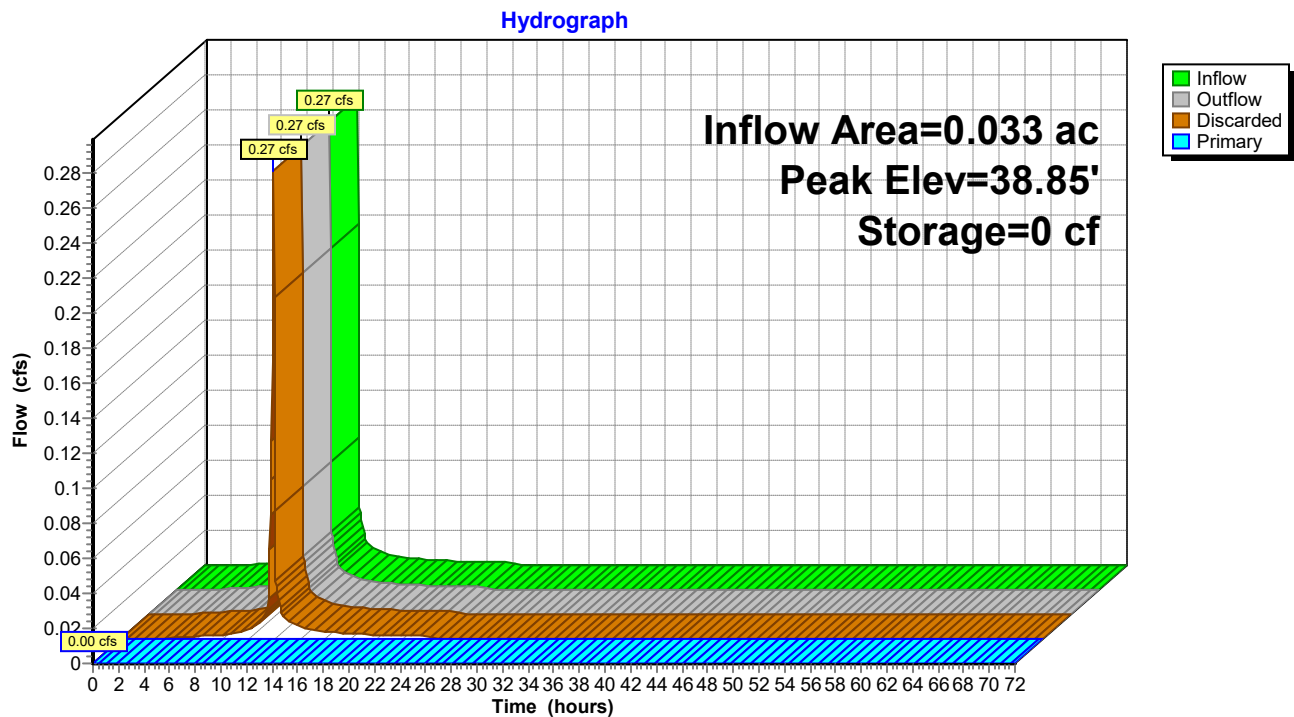
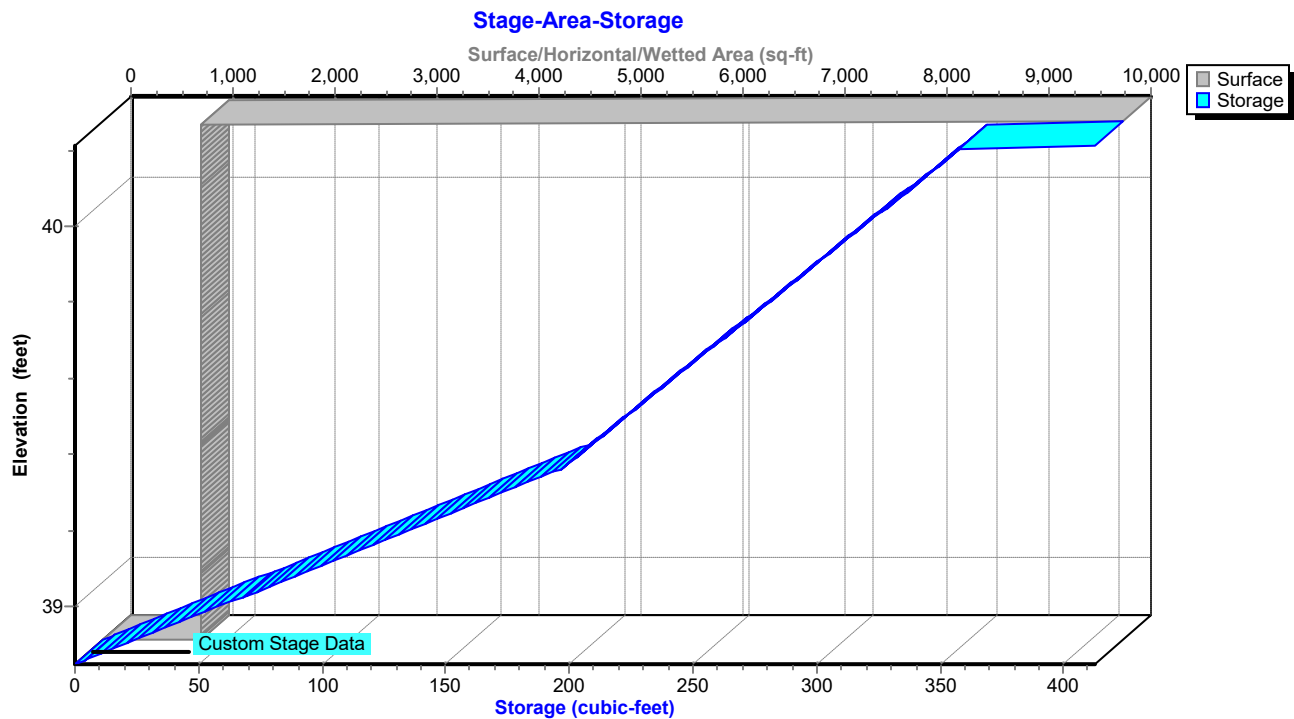
Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.0 min (768.3 - 768.3)

Volume	Invert	Avail.Storage	Storage Description	
#1	38.85'	413 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.85	962	0.0	0	0
38.86	962	40.0	4	4
39.36	962	40.0	192	196
39.37	962	20.0	2	198
40.20	962	20.0	160	358
40.21	10,000	100.0	55	413

Device	Routing	Invert	Outlet Devices
#1	Primary	39.03'	2.0" Round Culvert L= 5.0' Ke= 1.000 Inlet / Outlet Invert= 39.03' / 39.03' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.02 sf
#2	Discarded	38.85'	100.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.08'

Discarded OutFlow Max=0.00 cfs @ 11.90 hrs HW=38.85' (Free Discharge)↑ **2=Exfiltration** (Passes 0.00 cfs of 2.23 cfs potential flow)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=38.85' TW=38.17' (Dynamic Tailwater)↑ **1=Culvert** (Controls 0.00 cfs)

Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK**Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	38.85	0.00	0.00	0.00
2.50	0.00	0	38.85	0.00	0.00	0.00
5.00	0.00	0	38.85	0.00	0.00	0.00
7.50	0.00	0	38.85	0.00	0.00	0.00
10.00	0.01	0	38.85	0.01	0.01	0.00
12.50	0.02	0	38.85	0.02	0.02	0.00
15.00	0.01	0	38.85	0.01	0.01	0.00
17.50	0.00	0	38.85	0.00	0.00	0.00
20.00	0.00	0	38.85	0.00	0.00	0.00
22.50	0.00	0	38.85	0.00	0.00	0.00
25.00	0.00	0	38.85	0.00	0.00	0.00
27.50	0.00	0	38.85	0.00	0.00	0.00
30.00	0.00	0	38.85	0.00	0.00	0.00
32.50	0.00	0	38.85	0.00	0.00	0.00
35.00	0.00	0	38.85	0.00	0.00	0.00
37.50	0.00	0	38.85	0.00	0.00	0.00
40.00	0.00	0	38.85	0.00	0.00	0.00
42.50	0.00	0	38.85	0.00	0.00	0.00
45.00	0.00	0	38.85	0.00	0.00	0.00
47.50	0.00	0	38.85	0.00	0.00	0.00
50.00	0.00	0	38.85	0.00	0.00	0.00
52.50	0.00	0	38.85	0.00	0.00	0.00
55.00	0.00	0	38.85	0.00	0.00	0.00
57.50	0.00	0	38.85	0.00	0.00	0.00
60.00	0.00	0	38.85	0.00	0.00	0.00
62.50	0.00	0	38.85	0.00	0.00	0.00
65.00	0.00	0	38.85	0.00	0.00	0.00
67.50	0.00	0	38.85	0.00	0.00	0.00
70.00	0.00	0	38.85	0.00	0.00	0.00

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.85	962	0	39.89	962	298
38.87	962	8	39.91	962	302
38.89	962	15	39.93	962	306
38.91	962	23	39.95	962	310
38.93	962	31	39.97	962	314
38.95	962	38	39.99	962	317
38.97	962	46	40.01	962	321
38.99	962	54	40.03	962	325
39.01	962	62	40.05	962	329
39.03	962	69	40.07	962	333
39.05	962	77	40.09	962	337
39.07	962	85	40.11	962	341
39.09	962	92	40.13	962	344
39.11	962	100	40.15	962	348
39.13	962	108	40.17	962	352
39.15	962	115	40.19	962	356
39.17	962	123	40.21	10,000	413
39.19	962	131			
39.21	962	139			
39.23	962	146			
39.25	962	154			
39.27	962	162			
39.29	962	169			
39.31	962	177			
39.33	962	185			
39.35	962	192			
39.37	962	198			
39.39	962	202			
39.41	962	206			
39.43	962	210			
39.45	962	214			
39.47	962	217			
39.49	962	221			
39.51	962	225			
39.53	962	229			
39.55	962	233			
39.57	962	237			
39.59	962	241			
39.61	962	244			
39.63	962	248			
39.65	962	252			
39.67	962	256			
39.69	962	260			
39.71	962	264			
39.73	962	267			
39.75	962	271			
39.77	962	275			
39.79	962	279			
39.81	962	283			
39.83	962	287			
39.85	962	291			
39.87	962	294			

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Pond 26P: PERMEABLE PAVEMENT-EAST

Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 4.06" for 10-YR event
 Inflow = 0.40 cfs @ 11.93 hrs, Volume= 0.020 af
 Outflow = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.9 min
 Primary = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.42' @ 12.30 hrs Surf.Area= 10,000 sf Storage= 320 cf

Plug-Flow detention time= 165.7 min calculated for 0.012 af (64% of inflow)
 Center-of-Mass det. time= 63.8 min (850.8 - 787.0)

Volume	Invert	Avail.Storage	Storage Description
#1	38.41'	320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

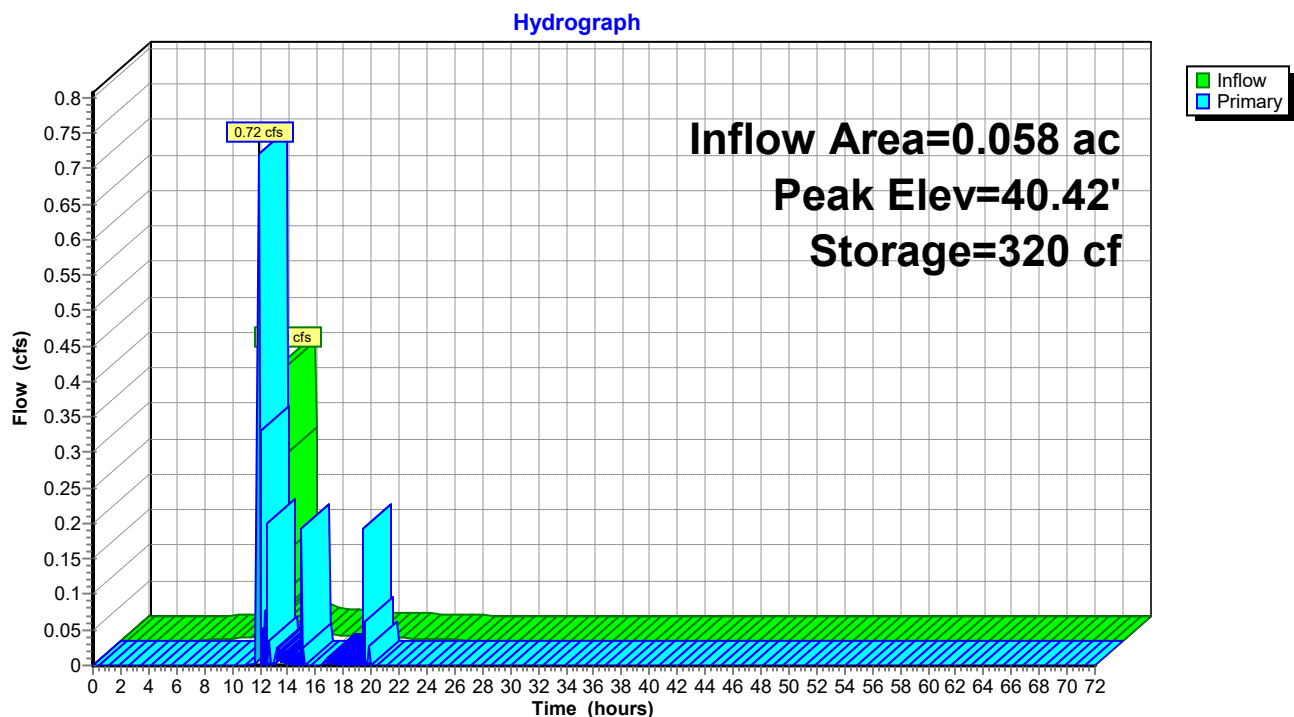
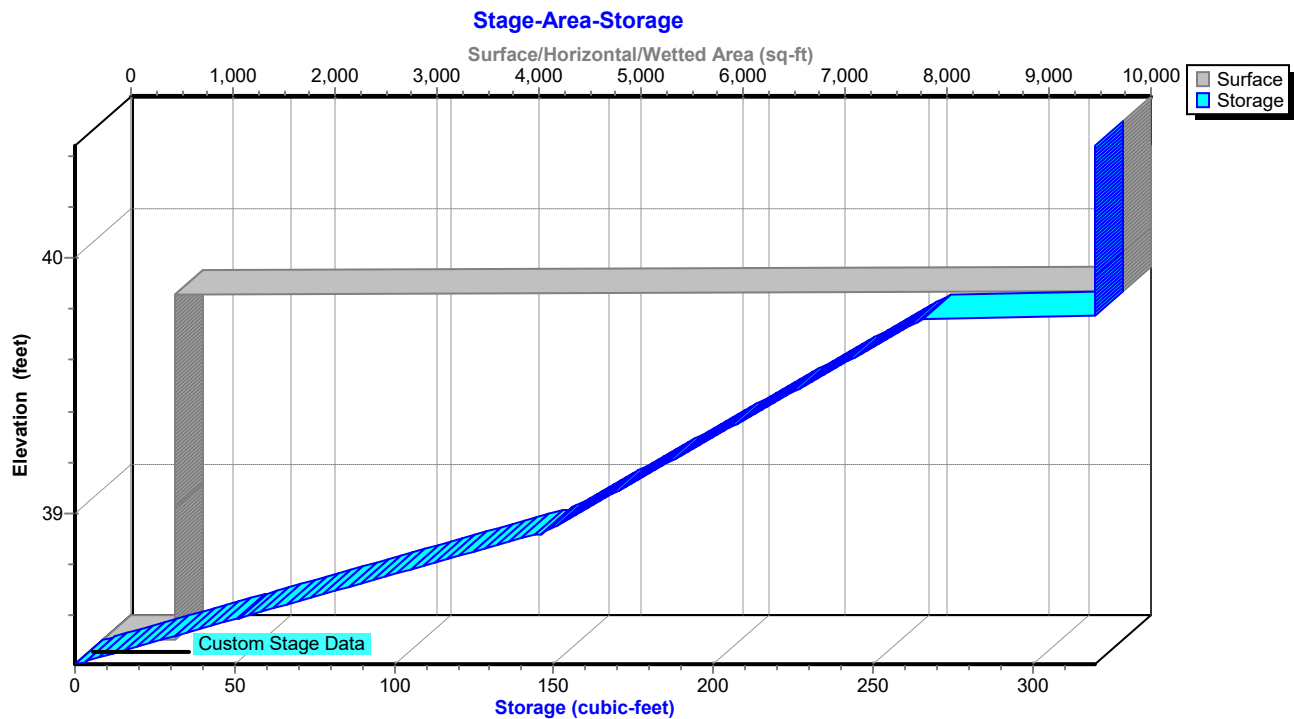
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.41	715	0.0	0	0
38.42	715	40.0	3	3
38.92	715	40.0	143	146
38.93	715	20.0	1	147
39.76	715	20.0	119	266
39.77	10,000	100.0	54	320

Device	Routing	Invert	Outlet Devices
#1	Primary	38.59'	2.0" Round Culvert L= 5.0' Ke= 1.000 Inlet / Outlet Invert= 38.59' / 38.59' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 0.02 sf
#2	Primary	39.76'	45.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.95 hrs HW=40.40' TW=40.47' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 26P: PERMEABLE PAVEMENT-EAST**Pond 26P: PERMEABLE PAVEMENT-EAST**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 26P: PERMEABLE PAVEMENT-EAST

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	38.41	0.00
2.50	0.00	0	38.41	0.00
5.00	0.00	1	38.41	0.00
7.50	0.00	14	38.46	0.00
10.00	0.01	53	38.60	0.00
12.50	0.03	307	39.77	0.20
15.00	0.01	304	39.77	0.19
17.50	0.01	320	40.40	0.01
20.00	0.00	256	39.69	0.00
22.50	0.00	289	39.77	0.00
25.00	0.00	308	39.77	0.00
27.50	0.00	308	39.77	0.00
30.00	0.00	308	39.77	0.00
32.50	0.00	308	39.77	0.00
35.00	0.00	308	39.77	0.00
37.50	0.00	308	39.77	0.00
40.00	0.00	308	39.77	0.00
42.50	0.00	308	39.77	0.00
45.00	0.00	308	39.77	0.00
47.50	0.00	308	39.77	0.00
50.00	0.00	308	39.77	0.00
52.50	0.00	308	39.77	0.00
55.00	0.00	308	39.77	0.00
57.50	0.00	308	39.77	0.00
60.00	0.00	308	39.77	0.00
62.50	0.00	308	39.77	0.00
65.00	0.00	308	39.77	0.00
67.50	0.00	308	39.77	0.00
70.00	0.00	308	39.77	0.00

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

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Printed 10/31/2022

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Stage-Area-Storage for Pond 26P: PERMEABLE PAVEMENT-EAST

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.41	715	0	39.45	715	222
38.43	715	6	39.47	715	225
38.45	715	11	39.49	715	227
38.47	715	17	39.51	715	230
38.49	715	23	39.53	715	233
38.51	715	29	39.55	715	236
38.53	715	34	39.57	715	239
38.55	715	40	39.59	715	242
38.57	715	46	39.61	715	245
38.59	715	51	39.63	715	247
38.61	715	57	39.65	715	250
38.63	715	63	39.67	715	253
38.65	715	69	39.69	715	256
38.67	715	74	39.71	715	259
38.69	715	80	39.73	715	262
38.71	715	86	39.75	715	265
38.73	715	92	39.77	10,000	320
38.75	715	97	39.79	10,000	320
38.77	715	103	39.81	10,000	320
38.79	715	109	39.83	10,000	320
38.81	715	114	39.85	10,000	320
38.83	715	120	39.87	10,000	320
38.85	715	126	39.89	10,000	320
38.87	715	132	39.91	10,000	320
38.89	715	137	39.93	10,000	320
38.91	715	143	39.95	10,000	320
38.93	715	147	39.97	10,000	320
38.95	715	150	39.99	10,000	320
38.97	715	153	40.01	10,000	320
38.99	715	156	40.03	10,000	320
39.01	715	159	40.05	10,000	320
39.03	715	162	40.07	10,000	320
39.05	715	164	40.09	10,000	320
39.07	715	167	40.11	10,000	320
39.09	715	170	40.13	10,000	320
39.11	715	173	40.15	10,000	320
39.13	715	176	40.17	10,000	320
39.15	715	179	40.19	10,000	320
39.17	715	182	40.21	10,000	320
39.19	715	184	40.23	10,000	320
39.21	715	187	40.25	10,000	320
39.23	715	190	40.27	10,000	320
39.25	715	193	40.29	10,000	320
39.27	715	196	40.31	10,000	320
39.29	715	199	40.33	10,000	320
39.31	715	202	40.35	10,000	320
39.33	715	204	40.37	10,000	320
39.35	715	207	40.39	10,000	320
39.37	715	210	40.41	10,000	320
39.39	715	213	40.43	10,000	320
39.41	715	216			
39.43	715	219			

Summary for Pond 32P: CURB INLET 1

Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 2.59" for 10-YR event
 Inflow = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af
 Outflow = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.81' @ 11.93 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.54'	12.0" Round Culvert L= 102.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.54' / 36.77' S= 0.0075 '/' Cc= 0.900 n= 0.012 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	39.76'	66.0" W x 4.0" H Vert. STREET SIDE OPENING C= 0.600

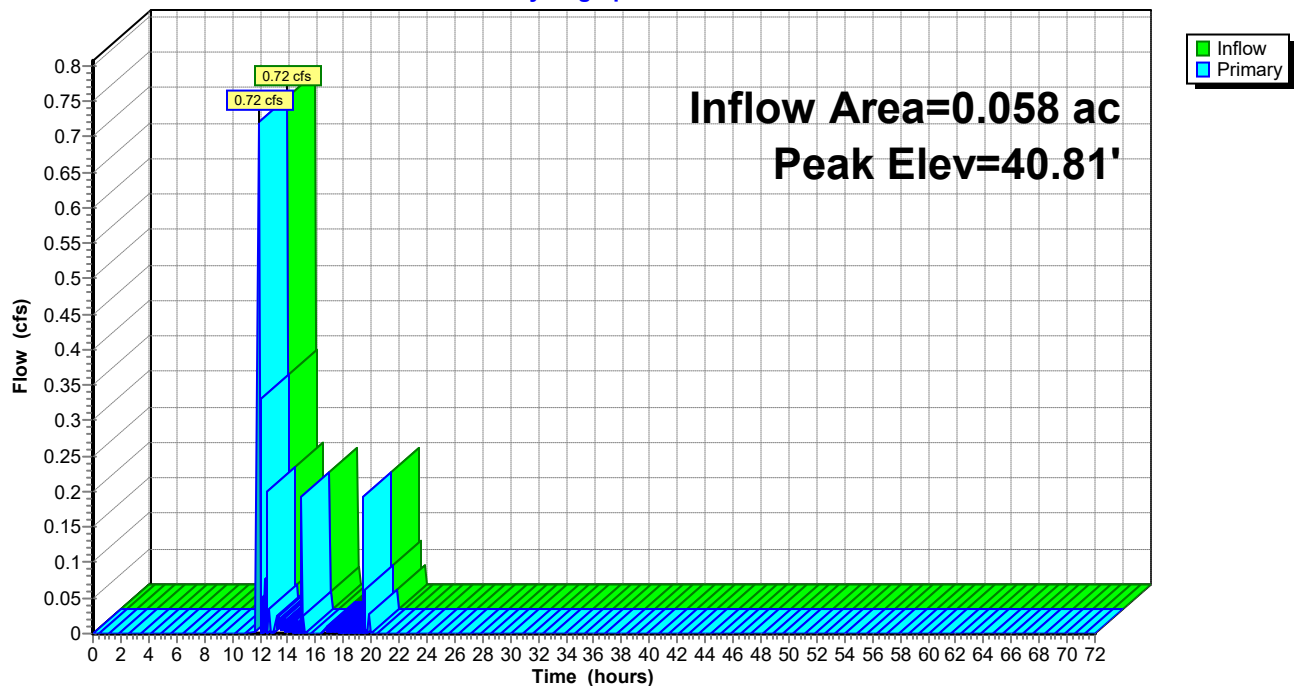
Primary OutFlow Max=0.00 cfs @ 11.95 hrs HW=40.47' TW=40.52' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

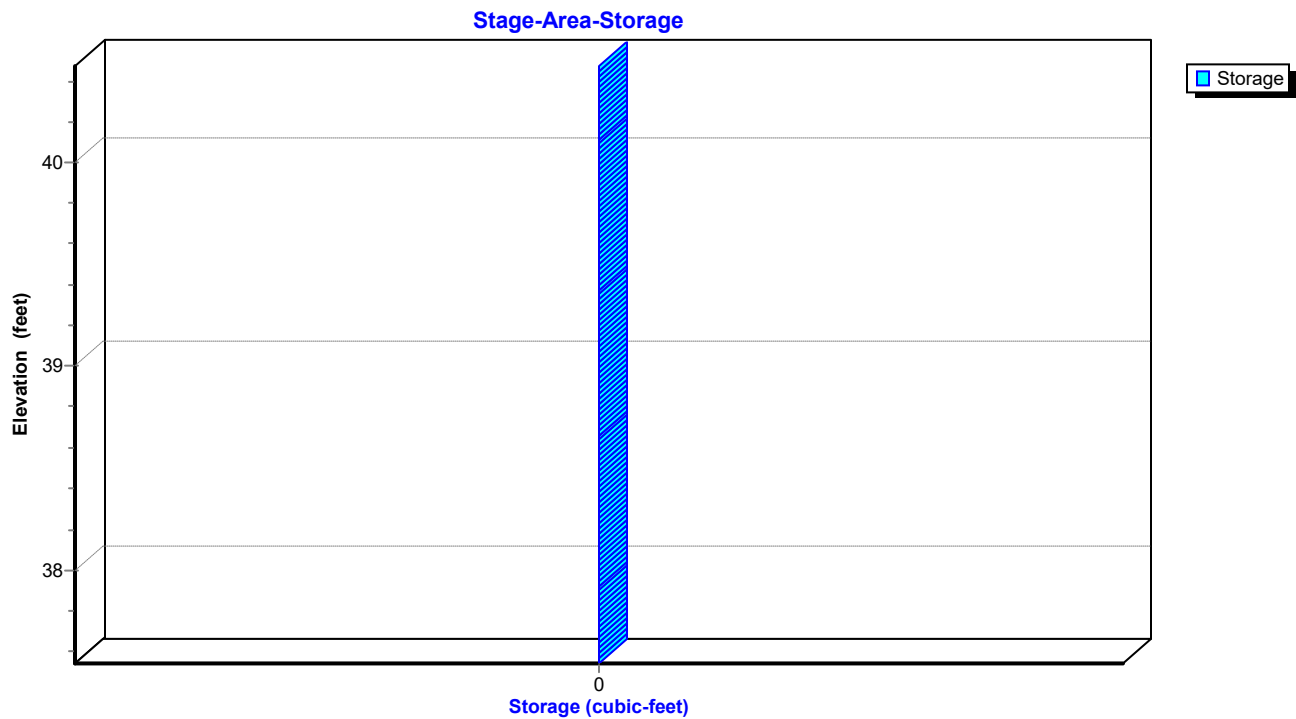
2=STREET SIDE OPENING (Controls 0.00 cfs)

Pond 32P: CURB INLET 1

Hydrograph



Pond 32P: CURB INLET 1



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 32P: CURB INLET 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	37.54	0.00	52.00	0.00	40.40	0.00
1.00	0.00	38.05	0.00	53.00	0.00	40.40	0.00
2.00	0.00	38.56	0.00	54.00	0.00	40.40	0.00
3.00	0.00	39.07	0.00	55.00	0.00	40.40	0.00
4.00	0.00	39.58	0.00	56.00	0.00	40.40	0.00
5.00	0.00	40.07	0.00	57.00	0.00	40.40	0.00
6.00	0.00	40.40	0.00	58.00	0.00	40.40	0.00
7.00	0.00	40.40	0.00	59.00	0.00	40.40	0.00
8.00	0.00	40.40	0.00	60.00	0.00	40.40	0.00
9.00	0.00	40.40	0.00	61.00	0.00	40.40	0.00
10.00	0.00	40.40	0.00	62.00	0.00	40.40	0.00
11.00	0.00	40.40	0.00	63.00	0.00	40.40	0.00
12.00	0.00	37.54	0.00	64.00	0.00	40.40	0.00
13.00	0.00	39.94	0.00	65.00	0.00	40.40	0.00
14.00	0.02	40.40	0.02	66.00	0.00	40.40	0.00
15.00	0.19	40.40	0.19	67.00	0.00	40.40	0.00
16.00	0.00	40.17	0.00	68.00	0.00	40.40	0.00
17.00	0.01	40.40	0.01	69.00	0.00	40.40	0.00
18.00	0.01	40.40	0.01	70.00	0.00	40.40	0.00
19.00	0.01	40.40	0.01	71.00	0.00	40.40	0.00
20.00	0.00	40.40	0.00	72.00	0.00	40.40	0.00
21.00	0.00	40.40	0.00				
22.00	0.00	40.40	0.00				
23.00	0.00	40.40	0.00				
24.00	0.00	40.40	0.00				
25.00	0.00	40.40	0.00				
26.00	0.00	40.40	0.00				
27.00	0.00	40.40	0.00				
28.00	0.00	40.40	0.00				
29.00	0.00	40.40	0.00				
30.00	0.00	40.40	0.00				
31.00	0.00	40.40	0.00				
32.00	0.00	40.40	0.00				
33.00	0.00	40.40	0.00				
34.00	0.00	40.40	0.00				
35.00	0.00	40.40	0.00				
36.00	0.00	40.40	0.00				
37.00	0.00	40.40	0.00				
38.00	0.00	40.40	0.00				
39.00	0.00	40.40	0.00				
40.00	0.00	40.40	0.00				
41.00	0.00	40.40	0.00				
42.00	0.00	40.40	0.00				
43.00	0.00	40.40	0.00				
44.00	0.00	40.40	0.00				
45.00	0.00	40.40	0.00				
46.00	0.00	40.40	0.00				
47.00	0.00	40.40	0.00				
48.00	0.00	40.40	0.00				
49.00	0.00	40.40	0.00				
50.00	0.00	40.40	0.00				
51.00	0.00	40.40	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 32P: CURB INLET 1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
37.54	0	38.58	0	39.62	0
37.56	0	38.60	0	39.64	0
37.58	0	38.62	0	39.66	0
37.60	0	38.64	0	39.68	0
37.62	0	38.66	0	39.70	0
37.64	0	38.68	0	39.72	0
37.66	0	38.70	0	39.74	0
37.68	0	38.72	0	39.76	0
37.70	0	38.74	0	39.78	0
37.72	0	38.76	0	39.80	0
37.74	0	38.78	0	39.82	0
37.76	0	38.80	0	39.84	0
37.78	0	38.82	0	39.86	0
37.80	0	38.84	0	39.88	0
37.82	0	38.86	0	39.90	0
37.84	0	38.88	0	39.92	0
37.86	0	38.90	0	39.94	0
37.88	0	38.92	0	39.96	0
37.90	0	38.94	0	39.98	0
37.92	0	38.96	0	40.00	0
37.94	0	38.98	0	40.02	0
37.96	0	39.00	0	40.04	0
37.98	0	39.02	0	40.06	0
38.00	0	39.04	0	40.08	0
38.02	0	39.06	0	40.10	0
38.04	0	39.08	0	40.12	0
38.06	0	39.10	0	40.14	0
38.08	0	39.12	0	40.16	0
38.10	0	39.14	0	40.18	0
38.12	0	39.16	0	40.20	0
38.14	0	39.18	0	40.22	0
38.16	0	39.20	0	40.24	0
38.18	0	39.22	0	40.26	0
38.20	0	39.24	0	40.28	0
38.22	0	39.26	0	40.30	0
38.24	0	39.28	0	40.32	0
38.26	0	39.30	0	40.34	0
38.28	0	39.32	0	40.36	0
38.30	0	39.34	0	40.38	0
38.32	0	39.36	0	40.40	0
38.34	0	39.38	0	40.42	0
38.36	0	39.40	0	40.44	0
38.38	0	39.42	0	40.46	0
38.40	0	39.44	0	40.48	0
38.42	0	39.46	0		
38.44	0	39.48	0		
38.46	0	39.50	0		
38.48	0	39.52	0		
38.50	0	39.54	0		
38.52	0	39.56	0		
38.54	0	39.58	0		
38.56	0	39.60	0		

Summary for Pond 33P: CURB INLET 2

Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 2.59" for 10-YR event
 Inflow = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af
 Outflow = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.72 cfs @ 11.95 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.52' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.74'	12.0" Round Culvert L= 11.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 36.74' / 36.65' S= 0.0079 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	40.40'	66.0" W x 4.0" H Vert. CURB INLET 2 C= 0.600

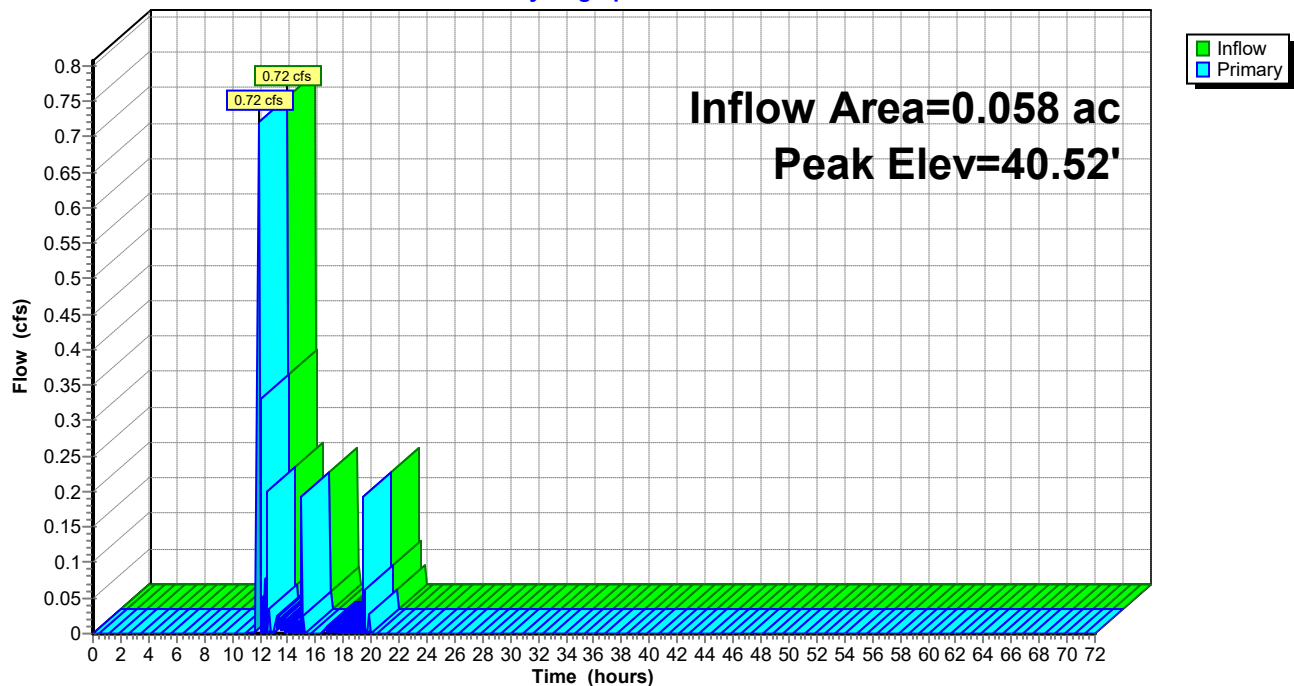
Primary OutFlow Max=0.71 cfs @ 11.95 hrs HW=40.52' TW=36.36' (Dynamic Tailwater)

1=Culvert (Passes 0.71 cfs of 6.85 cfs potential flow)

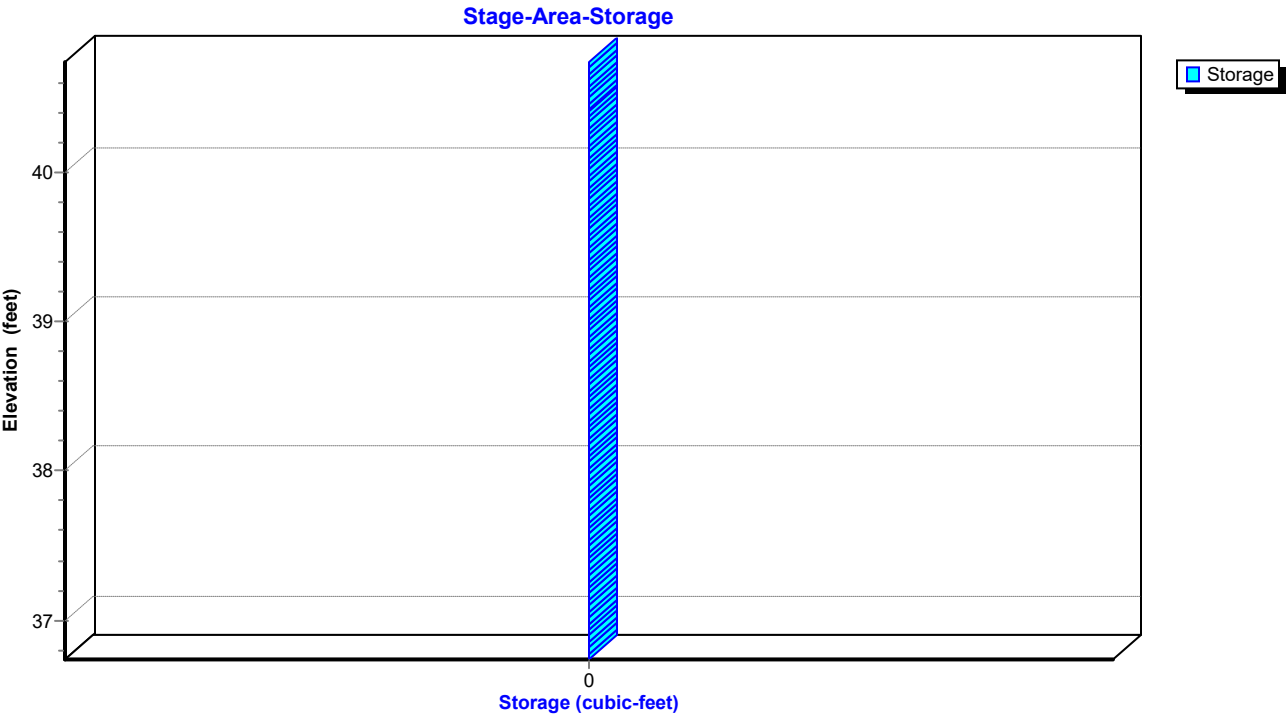
2=CURB INLET 2 (Orifice Controls 0.71 cfs @ 1.10 fps)

Pond 33P: CURB INLET 2

Hydrograph



Pond 33P: CURB INLET 2



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 33P: CURB INLET 2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	36.74	0.00	52.00	0.00	40.40	0.00
1.00	0.00	37.54	0.00	53.00	0.00	40.40	0.00
2.00	0.00	38.34	0.00	54.00	0.00	40.40	0.00
3.00	0.00	39.14	0.00	55.00	0.00	40.40	0.00
4.00	0.00	39.93	0.00	56.00	0.00	40.40	0.00
5.00	0.00	40.40	0.00	57.00	0.00	40.40	0.00
6.00	0.00	40.40	0.00	58.00	0.00	40.40	0.00
7.00	0.00	40.40	0.00	59.00	0.00	40.40	0.00
8.00	0.00	40.40	0.00	60.00	0.00	40.40	0.00
9.00	0.00	40.40	0.00	61.00	0.00	40.40	0.00
10.00	0.00	40.40	0.00	62.00	0.00	40.40	0.00
11.00	0.00	40.40	0.00	63.00	0.00	40.40	0.00
12.00	0.00	40.40	0.00	64.00	0.00	40.40	0.00
13.00	0.00	40.40	0.00	65.00	0.00	40.40	0.00
14.00	0.02	40.41	0.02	66.00	0.00	40.40	0.00
15.00	0.19	40.45	0.19	67.00	0.00	40.40	0.00
16.00	0.00	40.40	0.00	68.00	0.00	40.40	0.00
17.00	0.01	40.41	0.01	69.00	0.00	40.40	0.00
18.00	0.01	40.41	0.01	70.00	0.00	40.40	0.00
19.00	0.01	40.41	0.01	71.00	0.00	40.40	0.00
20.00	0.00	40.40	0.00	72.00	0.00	40.40	0.00
21.00	0.00	40.40	0.00				
22.00	0.00	40.40	0.00				
23.00	0.00	40.40	0.00				
24.00	0.00	40.40	0.00				
25.00	0.00	40.40	0.00				
26.00	0.00	40.40	0.00				
27.00	0.00	40.40	0.00				
28.00	0.00	40.40	0.00				
29.00	0.00	40.40	0.00				
30.00	0.00	40.40	0.00				
31.00	0.00	40.40	0.00				
32.00	0.00	40.40	0.00				
33.00	0.00	40.40	0.00				
34.00	0.00	40.40	0.00				
35.00	0.00	40.40	0.00				
36.00	0.00	40.40	0.00				
37.00	0.00	40.40	0.00				
38.00	0.00	40.40	0.00				
39.00	0.00	40.40	0.00				
40.00	0.00	40.40	0.00				
41.00	0.00	40.40	0.00				
42.00	0.00	40.40	0.00				
43.00	0.00	40.40	0.00				
44.00	0.00	40.40	0.00				
45.00	0.00	40.40	0.00				
46.00	0.00	40.40	0.00				
47.00	0.00	40.40	0.00				
48.00	0.00	40.40	0.00				
49.00	0.00	40.40	0.00				
50.00	0.00	40.40	0.00				
51.00	0.00	40.40	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

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Stage-Area-Storage for Pond 33P: CURB INLET 2

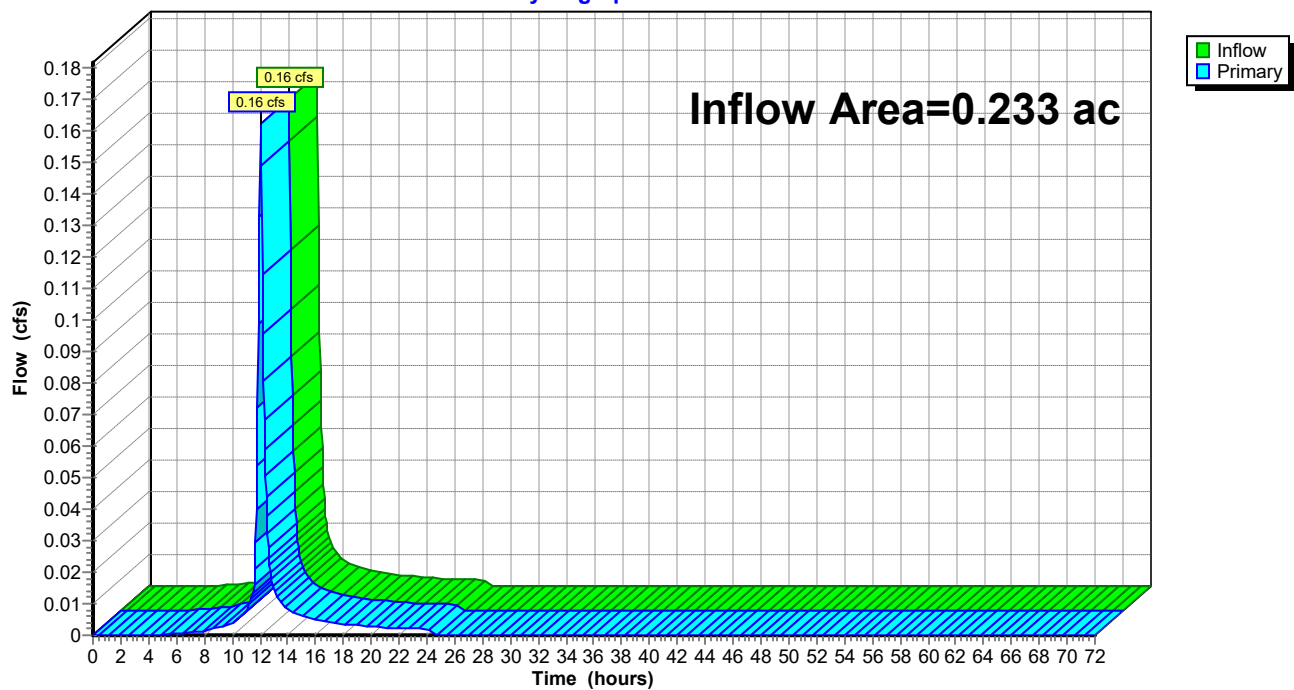
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
36.74	0	39.34	0
36.79	0	39.39	0
36.84	0	39.44	0
36.89	0	39.49	0
36.94	0	39.54	0
36.99	0	39.59	0
37.04	0	39.64	0
37.09	0	39.69	0
37.14	0	39.74	0
37.19	0	39.79	0
37.24	0	39.84	0
37.29	0	39.89	0
37.34	0	39.94	0
37.39	0	39.99	0
37.44	0	40.04	0
37.49	0	40.09	0
37.54	0	40.14	0
37.59	0	40.19	0
37.64	0	40.24	0
37.69	0	40.29	0
37.74	0	40.34	0
37.79	0	40.39	0
37.84	0	40.44	0
37.89	0	40.49	0
37.94	0	40.54	0
37.99	0	40.59	0
38.04	0	40.64	0
38.09	0	40.69	0
38.14	0		
38.19	0		
38.24	0		
38.29	0		
38.34	0		
38.39	0		
38.44	0		
38.49	0		
38.54	0		
38.59	0		
38.64	0		
38.69	0		
38.74	0		
38.79	0		
38.84	0		
38.89	0		
38.94	0		
38.99	0		
39.04	0		
39.09	0		
39.14	0		
39.19	0		
39.24	0		
39.29	0		

Summary for Link 26L: STUDY POINT 1

Inflow Area = 0.233 ac, 55.05% Impervious, Inflow Depth = 0.63" for 10-YR event
Inflow = 0.16 cfs @ 12.03 hrs, Volume= 0.012 af
Primary = 0.16 cfs @ 12.03 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Fixed water surface Elevation= 37.68'

Link 26L: STUDY POINT 1**Hydrograph**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Link 26L: STUDY POINT 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	37.68	0.00	52.00	0.00	37.68	0.00
1.00	0.00	37.68	0.00	53.00	0.00	37.68	0.00
2.00	0.00	37.68	0.00	54.00	0.00	37.68	0.00
3.00	0.00	37.68	0.00	55.00	0.00	37.68	0.00
4.00	0.00	37.68	0.00	56.00	0.00	37.68	0.00
5.00	0.00	37.68	0.00	57.00	0.00	37.68	0.00
6.00	0.00	37.68	0.00	58.00	0.00	37.68	0.00
7.00	0.00	37.68	0.00	59.00	0.00	37.68	0.00
8.00	0.00	37.68	0.00	60.00	0.00	37.68	0.00
9.00	0.00	37.68	0.00	61.00	0.00	37.68	0.00
10.00	0.00	37.68	0.00	62.00	0.00	37.68	0.00
11.00	0.01	37.68	0.01	63.00	0.00	37.68	0.00
12.00	0.16	37.68	0.16	64.00	0.00	37.68	0.00
13.00	0.01	37.68	0.01	65.00	0.00	37.68	0.00
14.00	0.01	37.68	0.01	66.00	0.00	37.68	0.00
15.00	0.01	37.68	0.01	67.00	0.00	37.68	0.00
16.00	0.00	37.68	0.00	68.00	0.00	37.68	0.00
17.00	0.00	37.68	0.00	69.00	0.00	37.68	0.00
18.00	0.00	37.68	0.00	70.00	0.00	37.68	0.00
19.00	0.00	37.68	0.00	71.00	0.00	37.68	0.00
20.00	0.00	37.68	0.00	72.00	0.00	37.68	0.00
21.00	0.00	37.68	0.00				
22.00	0.00	37.68	0.00				
23.00	0.00	37.68	0.00				
24.00	0.00	37.68	0.00				
25.00	0.00	37.68	0.00				
26.00	0.00	37.68	0.00				
27.00	0.00	37.68	0.00				
28.00	0.00	37.68	0.00				
29.00	0.00	37.68	0.00				
30.00	0.00	37.68	0.00				
31.00	0.00	37.68	0.00				
32.00	0.00	37.68	0.00				
33.00	0.00	37.68	0.00				
34.00	0.00	37.68	0.00				
35.00	0.00	37.68	0.00				
36.00	0.00	37.68	0.00				
37.00	0.00	37.68	0.00				
38.00	0.00	37.68	0.00				
39.00	0.00	37.68	0.00				
40.00	0.00	37.68	0.00				
41.00	0.00	37.68	0.00				
42.00	0.00	37.68	0.00				
43.00	0.00	37.68	0.00				
44.00	0.00	37.68	0.00				
45.00	0.00	37.68	0.00				
46.00	0.00	37.68	0.00				
47.00	0.00	37.68	0.00				
48.00	0.00	37.68	0.00				
49.00	0.00	37.68	0.00				
50.00	0.00	37.68	0.00				
51.00	0.00	37.68	0.00				

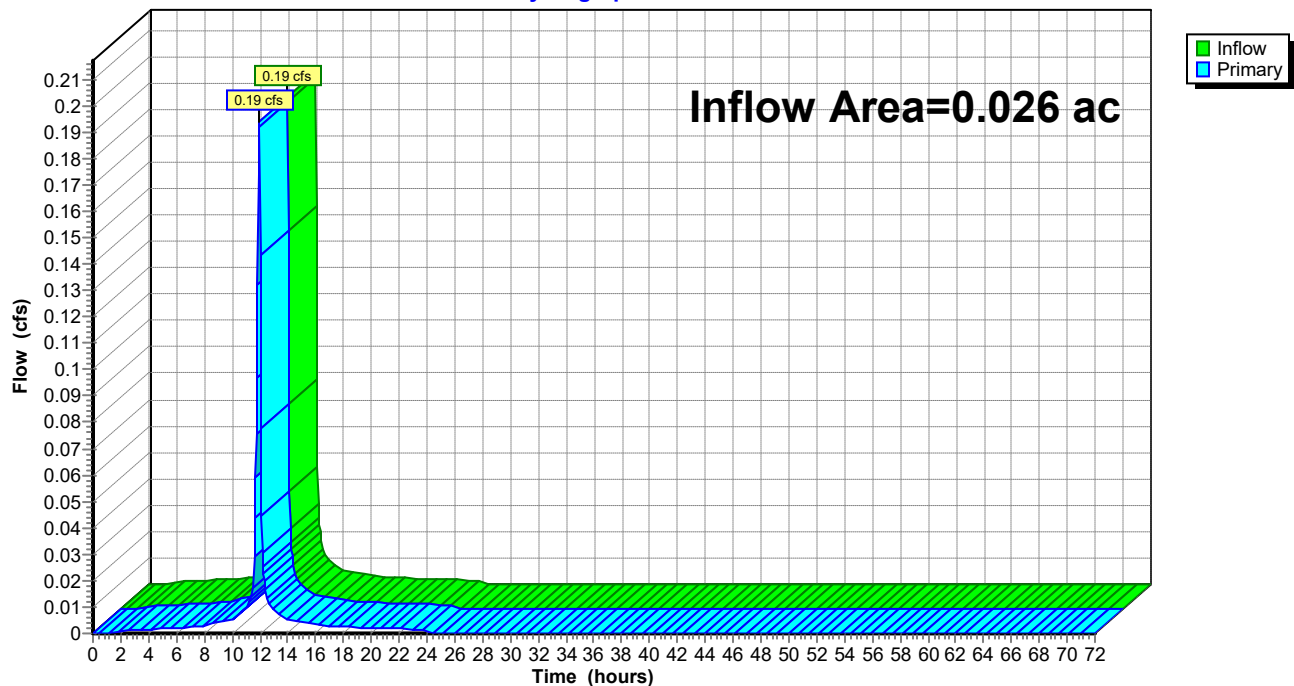
Summary for Link 27L: STUDY POINT 2

Inflow Area = 0.026 ac, 100.00% Impervious, Inflow Depth = 5.06" for 10-YR event
Inflow = 0.19 cfs @ 11.94 hrs, Volume= 0.011 af
Primary = 0.19 cfs @ 11.94 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 27L: STUDY POINT 2

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 10-YR Rainfall=5.30"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Link 27L: STUDY POINT 2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	0.14	0.00	0.14	64.00	0.00	0.00	0.00
13.00	0.01	0.00	0.01	65.00	0.00	0.00	0.00
14.00	0.01	0.00	0.01	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA1 - STUDY POINT 1 Runoff Area=8,470 sf 7.58% Impervious Runoff Depth=6.06"
Flow Length=197' Tc=8.3 min CN=87 Runoff=1.37 cfs 0.098 af

Subcatchment 2S: DA2 - STUDY POINT 2 Runoff Area=2,902 sf 52.55% Impervious Runoff Depth=6.65"
Flow Length=96' Tc=3.9 min CN=92 Runoff=0.64 cfs 0.037 af

Subcatchment 23S: DA1 - BUILDING Runoff Area=4,536 sf 95.52% Impervious Runoff Depth=7.00"
Flow Length=96' Slope=0.0050 '/' Tc=2.0 min CN=95 Runoff=1.14 cfs 0.061 af

Subcatchment 24S: DA2 - STUDY POINT 2 Runoff Area=1,135 sf 100.00% Impervious Runoff Depth=7.36"
Flow Length=209' Tc=2.7 min CN=98 Runoff=0.28 cfs 0.016 af

Subcatchment 25S: DA5 Runoff Area=1,448 sf 8.01% Impervious Runoff Depth=6.77"
Flow Length=16' Slope=0.0050 '/' Tc=0.5 min CN=93 Runoff=0.39 cfs 0.019 af

Subcatchment 28S: DA4 Runoff Area=1,672 sf 44.38% Impervious Runoff Depth=6.06"
Flow Length=170' Tc=9.6 min CN=87 Runoff=0.25 cfs 0.019 af

Subcatchment 33S: DA3 Runoff Area=2,513 sf 16.20% Impervious Runoff Depth=6.29"
Flow Length=68' Tc=2.2 min CN=89 Runoff=0.60 cfs 0.030 af

Pond 14P: PLANTER BOX 1 Peak Elev=39.56' Storage=142 cf Inflow=1.14 cfs 0.061 af
Outflow=0.92 cfs 0.061 af

Pond 15P: SUBSURFACE CHAMBER Peak Elev=38.17' Storage=0.022 af Inflow=0.61 cfs 0.024 af
Discarded=0.14 cfs 0.046 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.046 af

Pond 20P: PERMEABLE PAVEMENT NORTH - Peak Elev=38.85' Storage=0 cf Inflow=0.39 cfs 0.019 af
Discarded=0.39 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.39 cfs 0.019 af

Pond 26P: PERMEABLE PAVEMENT-EAST Peak Elev=40.54' Storage=320 cf Inflow=0.60 cfs 0.030 af
Outflow=0.61 cfs 0.024 af

Pond 32P: CURB INLET 1 Peak Elev=40.54' Inflow=0.61 cfs 0.024 af
Outflow=0.61 cfs 0.024 af

Pond 33P: CURB INLET 2 Peak Elev=40.51' Inflow=0.61 cfs 0.024 af
Outflow=0.61 cfs 0.024 af

Link 26L: STUDY POINT 1 Inflow=0.25 cfs 0.019 af
Primary=0.25 cfs 0.019 af

Link 27L: STUDY POINT 2 Inflow=0.28 cfs 0.016 af
Primary=0.28 cfs 0.016 af

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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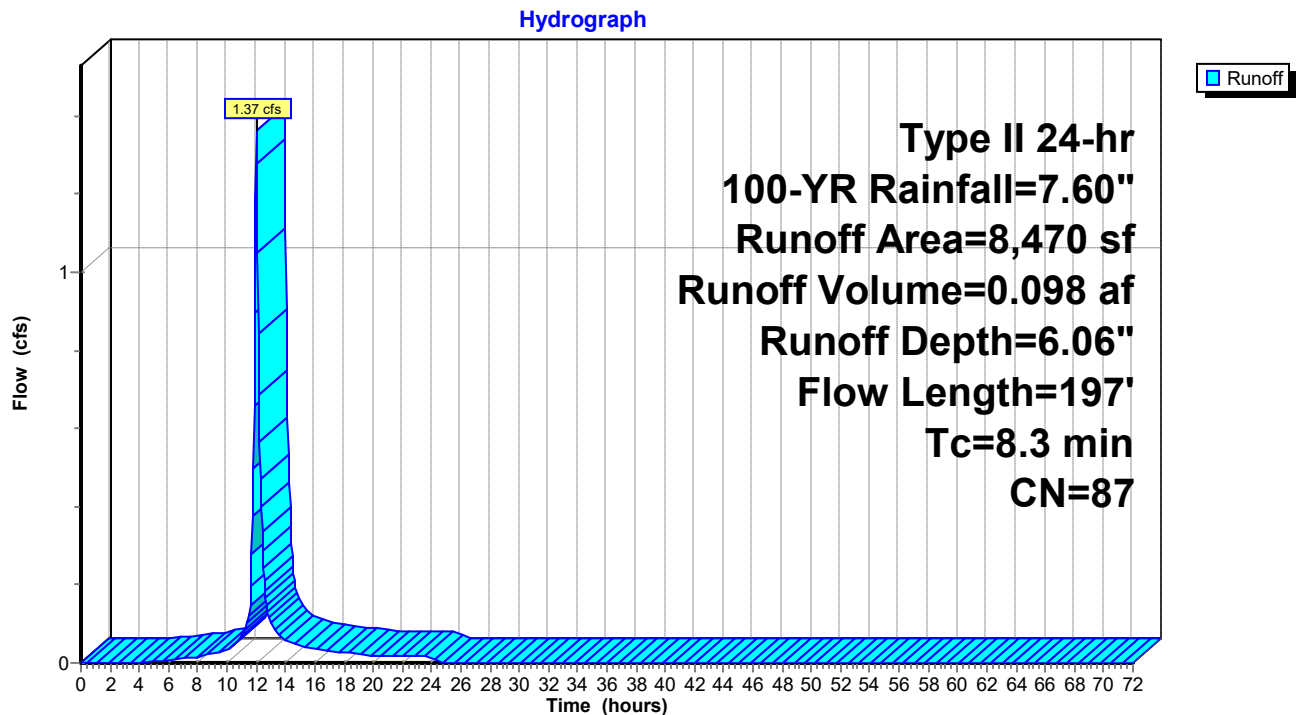
Summary for Subcatchment 1S: DA1 - STUDY POINT 1

Runoff = 1.37 cfs @ 12.01 hrs, Volume= 0.098 af, Depth= 6.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
7,828	86	Woods/grass comb., Poor, HSG D
642	98	Paved parking, HSG D
8,470	87	Weighted Average
7,828		92.42% Pervious Area
642		7.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
2.2	93	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	54	0.1230	7.12		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	197	Total			

Subcatchment 1S: DA1 - STUDY POINT 1

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Subcatchment 1S: DA1 - STUDY POINT 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	6.06	0.00
1.00	0.08	0.00	0.00	53.00	7.60	6.06	0.00
2.00	0.17	0.00	0.00	54.00	7.60	6.06	0.00
3.00	0.26	0.00	0.00	55.00	7.60	6.06	0.00
4.00	0.36	0.00	0.00	56.00	7.60	6.06	0.00
5.00	0.48	0.02	0.00	57.00	7.60	6.06	0.00
6.00	0.61	0.05	0.01	58.00	7.60	6.06	0.00
7.00	0.75	0.11	0.01	59.00	7.60	6.06	0.00
8.00	0.91	0.18	0.02	60.00	7.60	6.06	0.00
9.00	1.12	0.29	0.03	61.00	7.60	6.06	0.00
10.00	1.38	0.45	0.04	62.00	7.60	6.06	0.00
11.00	1.79	0.74	0.07	63.00	7.60	6.06	0.00
12.00	5.04	3.60	1.36	64.00	7.60	6.06	0.00
13.00	5.87	4.39	0.10	65.00	7.60	6.06	0.00
14.00	6.23	4.74	0.06	66.00	7.60	6.06	0.00
15.00	6.49	4.98	0.05	67.00	7.60	6.06	0.00
16.00	6.69	5.18	0.04	68.00	7.60	6.06	0.00
17.00	6.85	5.34	0.03	69.00	7.60	6.06	0.00
18.00	7.00	5.48	0.03	70.00	7.60	6.06	0.00
19.00	7.13	5.60	0.02	71.00	7.60	6.06	0.00
20.00	7.24	5.71	0.02	72.00	7.60	6.06	0.00
21.00	7.33	5.80	0.02				
22.00	7.43	5.89	0.02				
23.00	7.51	5.98	0.02				
24.00	7.60	6.06	0.02				
25.00	7.60	6.06	0.00				
26.00	7.60	6.06	0.00				
27.00	7.60	6.06	0.00				
28.00	7.60	6.06	0.00				
29.00	7.60	6.06	0.00				
30.00	7.60	6.06	0.00				
31.00	7.60	6.06	0.00				
32.00	7.60	6.06	0.00				
33.00	7.60	6.06	0.00				
34.00	7.60	6.06	0.00				
35.00	7.60	6.06	0.00				
36.00	7.60	6.06	0.00				
37.00	7.60	6.06	0.00				
38.00	7.60	6.06	0.00				
39.00	7.60	6.06	0.00				
40.00	7.60	6.06	0.00				
41.00	7.60	6.06	0.00				
42.00	7.60	6.06	0.00				
43.00	7.60	6.06	0.00				
44.00	7.60	6.06	0.00				
45.00	7.60	6.06	0.00				
46.00	7.60	6.06	0.00				
47.00	7.60	6.06	0.00				
48.00	7.60	6.06	0.00				
49.00	7.60	6.06	0.00				
50.00	7.60	6.06	0.00				
51.00	7.60	6.06	0.00				

Summary for Subcatchment 2S: DA2 - STUDY POINT 2

Runoff = 0.64 cfs @ 11.95 hrs, Volume= 0.037 af, Depth= 6.65"

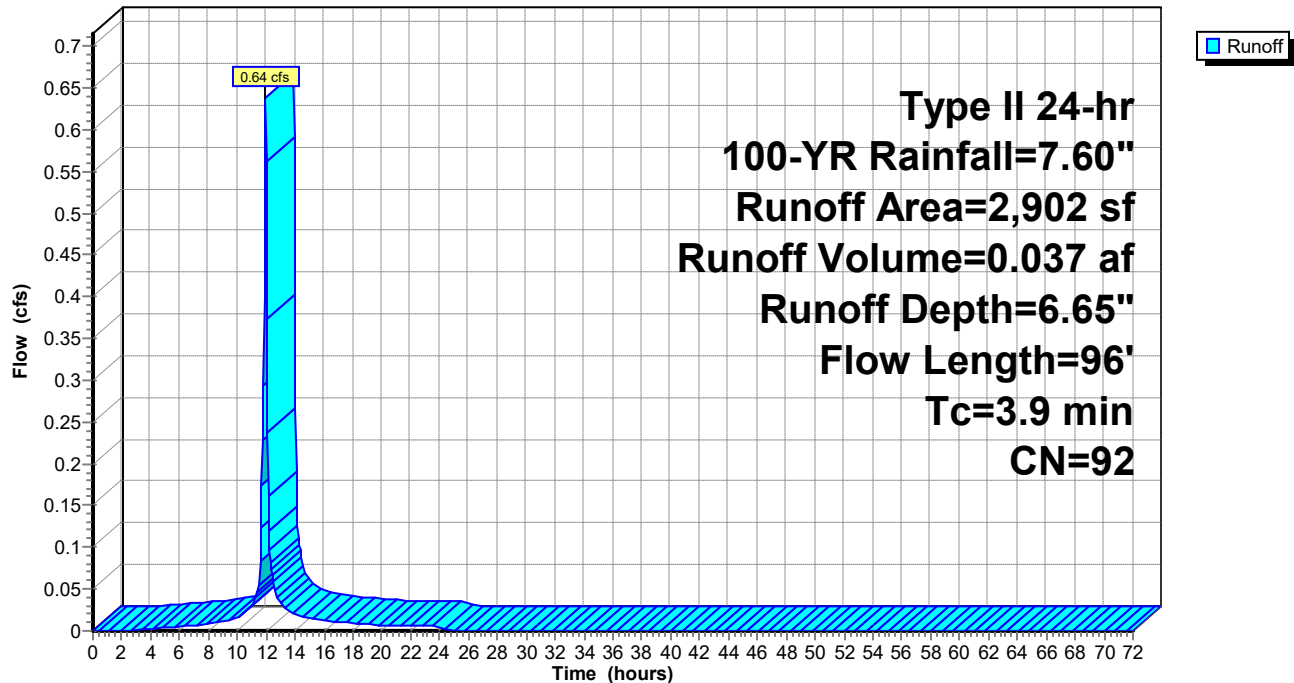
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
1,377	86	Woods/grass comb., Poor, HSG D
1,525	98	Paved parking, HSG D
2,902	92	Weighted Average
1,377		47.45% Pervious Area
1,525		52.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0230	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.5	66	0.0920	2.12		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.9	96	Total			

Subcatchment 2S: DA2 - STUDY POINT 2

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Subcatchment 2S: DA2 - STUDY POINT 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	6.65	0.00
1.00	0.08	0.00	0.00	53.00	7.60	6.65	0.00
2.00	0.17	0.00	0.00	54.00	7.60	6.65	0.00
3.00	0.26	0.01	0.00	55.00	7.60	6.65	0.00
4.00	0.36	0.03	0.00	56.00	7.60	6.65	0.00
5.00	0.48	0.08	0.00	57.00	7.60	6.65	0.00
6.00	0.61	0.14	0.00	58.00	7.60	6.65	0.00
7.00	0.75	0.23	0.01	59.00	7.60	6.65	0.00
8.00	0.91	0.34	0.01	60.00	7.60	6.65	0.00
9.00	1.12	0.49	0.01	61.00	7.60	6.65	0.00
10.00	1.38	0.70	0.02	62.00	7.60	6.65	0.00
11.00	1.79	1.05	0.03	63.00	7.60	6.65	0.00
12.00	5.04	4.13	0.56	64.00	7.60	6.65	0.00
13.00	5.87	4.94	0.03	65.00	7.60	6.65	0.00
14.00	6.23	5.30	0.02	66.00	7.60	6.65	0.00
15.00	6.49	5.55	0.02	67.00	7.60	6.65	0.00
16.00	6.69	5.75	0.01	68.00	7.60	6.65	0.00
17.00	6.85	5.91	0.01	69.00	7.60	6.65	0.00
18.00	7.00	6.05	0.01	70.00	7.60	6.65	0.00
19.00	7.13	6.18	0.01	71.00	7.60	6.65	0.00
20.00	7.24	6.29	0.01	72.00	7.60	6.65	0.00
21.00	7.33	6.38	0.01				
22.00	7.43	6.47	0.01				
23.00	7.51	6.56	0.01				
24.00	7.60	6.65	0.01				
25.00	7.60	6.65	0.00				
26.00	7.60	6.65	0.00				
27.00	7.60	6.65	0.00				
28.00	7.60	6.65	0.00				
29.00	7.60	6.65	0.00				
30.00	7.60	6.65	0.00				
31.00	7.60	6.65	0.00				
32.00	7.60	6.65	0.00				
33.00	7.60	6.65	0.00				
34.00	7.60	6.65	0.00				
35.00	7.60	6.65	0.00				
36.00	7.60	6.65	0.00				
37.00	7.60	6.65	0.00				
38.00	7.60	6.65	0.00				
39.00	7.60	6.65	0.00				
40.00	7.60	6.65	0.00				
41.00	7.60	6.65	0.00				
42.00	7.60	6.65	0.00				
43.00	7.60	6.65	0.00				
44.00	7.60	6.65	0.00				
45.00	7.60	6.65	0.00				
46.00	7.60	6.65	0.00				
47.00	7.60	6.65	0.00				
48.00	7.60	6.65	0.00				
49.00	7.60	6.65	0.00				
50.00	7.60	6.65	0.00				
51.00	7.60	6.65	0.00				

521 August_SWM_V4 - JW_10-10

Prepared by {enter your company name here}

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 10/31/2022

Summary for Subcatchment 23S: DA1 - BUILDING

Runoff = 1.14 cfs @ 11.93 hrs, Volume= 0.061 af, Depth= 7.00"

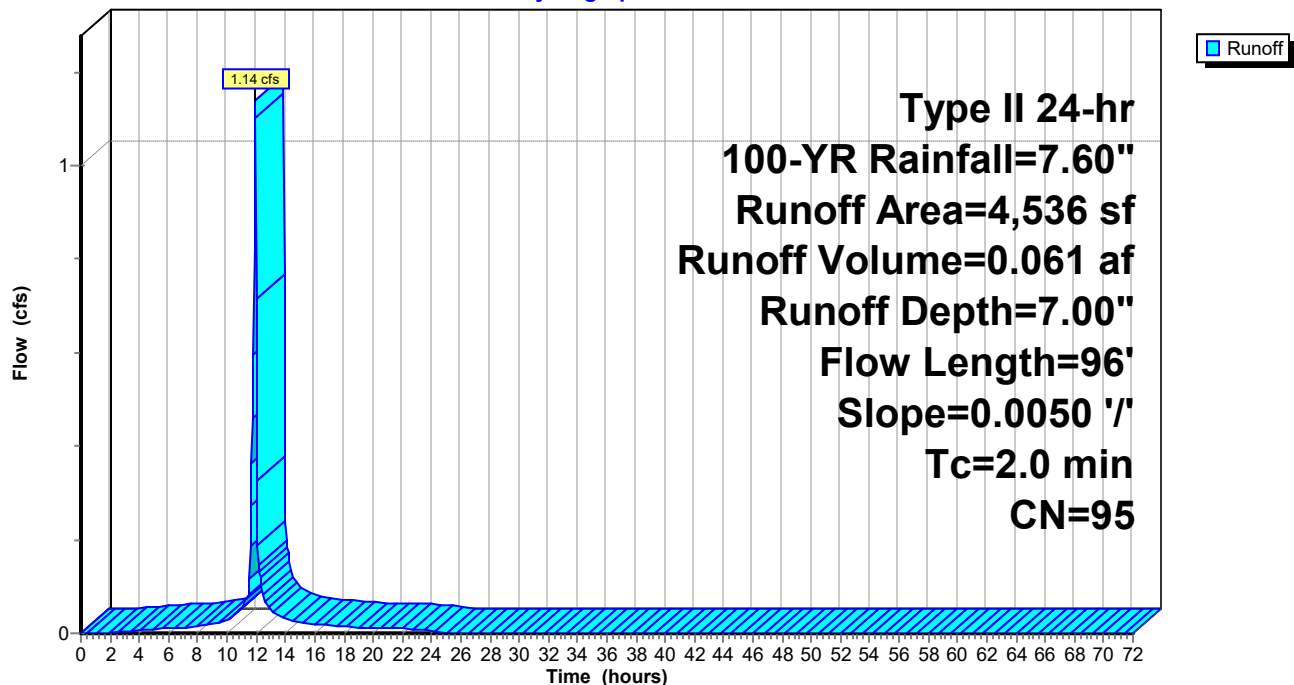
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
4,333	98	Roofs, HSG D
203	39	>75% Grass cover, Good, HSG A
4,536	95	Weighted Average
203		4.48% Pervious Area
4,333		95.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	96	0.0050	0.81		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 23S: DA1 - BUILDING

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Subcatchment 23S: DA1 - BUILDING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	7.00	0.00
1.00	0.08	0.00	0.00	53.00	7.60	7.00	0.00
2.00	0.17	0.01	0.00	54.00	7.60	7.00	0.00
3.00	0.26	0.04	0.00	55.00	7.60	7.00	0.00
4.00	0.36	0.09	0.01	56.00	7.60	7.00	0.00
5.00	0.48	0.16	0.01	57.00	7.60	7.00	0.00
6.00	0.61	0.25	0.01	58.00	7.60	7.00	0.00
7.00	0.75	0.36	0.01	59.00	7.60	7.00	0.00
8.00	0.91	0.49	0.01	60.00	7.60	7.00	0.00
9.00	1.12	0.67	0.02	61.00	7.60	7.00	0.00
10.00	1.38	0.90	0.03	62.00	7.60	7.00	0.00
11.00	1.79	1.28	0.05	63.00	7.60	7.00	0.00
12.00	5.04	4.46	0.71	64.00	7.60	7.00	0.00
13.00	5.87	5.28	0.05	65.00	7.60	7.00	0.00
14.00	6.23	5.64	0.03	66.00	7.60	7.00	0.00
15.00	6.49	5.90	0.02	67.00	7.60	7.00	0.00
16.00	6.69	6.10	0.02	68.00	7.60	7.00	0.00
17.00	6.85	6.26	0.02	69.00	7.60	7.00	0.00
18.00	7.00	6.41	0.01	70.00	7.60	7.00	0.00
19.00	7.13	6.53	0.01	71.00	7.60	7.00	0.00
20.00	7.24	6.64	0.01	72.00	7.60	7.00	0.00
21.00	7.33	6.74	0.01				
22.00	7.43	6.83	0.01				
23.00	7.51	6.92	0.01				
24.00	7.60	7.00	0.01				
25.00	7.60	7.00	0.00				
26.00	7.60	7.00	0.00				
27.00	7.60	7.00	0.00				
28.00	7.60	7.00	0.00				
29.00	7.60	7.00	0.00				
30.00	7.60	7.00	0.00				
31.00	7.60	7.00	0.00				
32.00	7.60	7.00	0.00				
33.00	7.60	7.00	0.00				
34.00	7.60	7.00	0.00				
35.00	7.60	7.00	0.00				
36.00	7.60	7.00	0.00				
37.00	7.60	7.00	0.00				
38.00	7.60	7.00	0.00				
39.00	7.60	7.00	0.00				
40.00	7.60	7.00	0.00				
41.00	7.60	7.00	0.00				
42.00	7.60	7.00	0.00				
43.00	7.60	7.00	0.00				
44.00	7.60	7.00	0.00				
45.00	7.60	7.00	0.00				
46.00	7.60	7.00	0.00				
47.00	7.60	7.00	0.00				
48.00	7.60	7.00	0.00				
49.00	7.60	7.00	0.00				
50.00	7.60	7.00	0.00				
51.00	7.60	7.00	0.00				

Summary for Subcatchment 24S: DA2 - STUDY POINT 2

Runoff = 0.28 cfs @ 11.94 hrs, Volume= 0.016 af, Depth= 7.36"

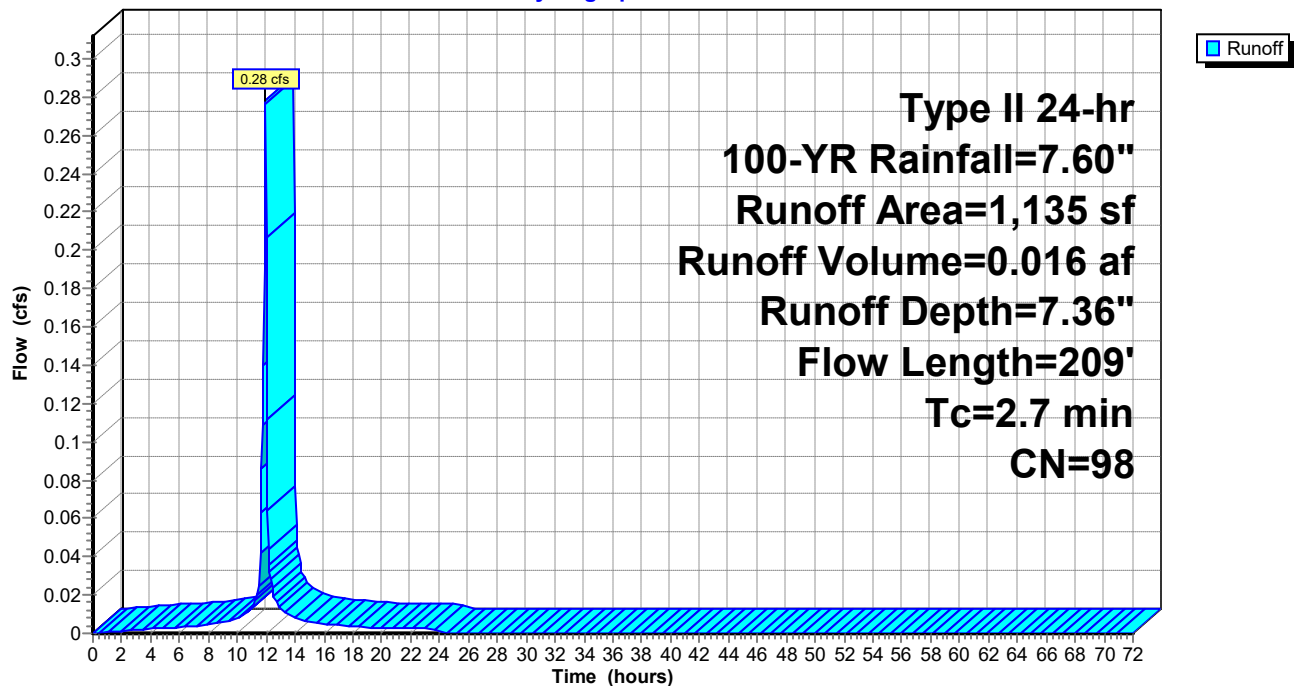
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
0	80	>75% Grass cover, Good, HSG D
1,135	98	Paved parking, HSG D
1,135	98	Weighted Average
1,135		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0067	0.92		Sheet Flow, PAVE/GUTTER Smooth surfaces n= 0.011 P2= 3.40"
0.9	109	0.0096	1.99		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.7	209	Total			

Subcatchment 24S: DA2 - STUDY POINT 2

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Subcatchment 24S: DA2 - STUDY POINT 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	7.36	0.00
1.00	0.08	0.01	0.00	53.00	7.60	7.36	0.00
2.00	0.17	0.05	0.00	54.00	7.60	7.36	0.00
3.00	0.26	0.12	0.00	55.00	7.60	7.36	0.00
4.00	0.36	0.20	0.00	56.00	7.60	7.36	0.00
5.00	0.48	0.30	0.00	57.00	7.60	7.36	0.00
6.00	0.61	0.42	0.00	58.00	7.60	7.36	0.00
7.00	0.75	0.55	0.00	59.00	7.60	7.36	0.00
8.00	0.91	0.71	0.00	60.00	7.60	7.36	0.00
9.00	1.12	0.90	0.01	61.00	7.60	7.36	0.00
10.00	1.38	1.16	0.01	62.00	7.60	7.36	0.00
11.00	1.79	1.56	0.01	63.00	7.60	7.36	0.00
12.00	5.04	4.80	0.21	64.00	7.60	7.36	0.00
13.00	5.87	5.63	0.01	65.00	7.60	7.36	0.00
14.00	6.23	5.99	0.01	66.00	7.60	7.36	0.00
15.00	6.49	6.25	0.01	67.00	7.60	7.36	0.00
16.00	6.69	6.45	0.00	68.00	7.60	7.36	0.00
17.00	6.85	6.61	0.00	69.00	7.60	7.36	0.00
18.00	7.00	6.76	0.00	70.00	7.60	7.36	0.00
19.00	7.13	6.89	0.00	71.00	7.60	7.36	0.00
20.00	7.24	7.00	0.00	72.00	7.60	7.36	0.00
21.00	7.33	7.09	0.00				
22.00	7.43	7.19	0.00				
23.00	7.51	7.28	0.00				
24.00	7.60	7.36	0.00				
25.00	7.60	7.36	0.00				
26.00	7.60	7.36	0.00				
27.00	7.60	7.36	0.00				
28.00	7.60	7.36	0.00				
29.00	7.60	7.36	0.00				
30.00	7.60	7.36	0.00				
31.00	7.60	7.36	0.00				
32.00	7.60	7.36	0.00				
33.00	7.60	7.36	0.00				
34.00	7.60	7.36	0.00				
35.00	7.60	7.36	0.00				
36.00	7.60	7.36	0.00				
37.00	7.60	7.36	0.00				
38.00	7.60	7.36	0.00				
39.00	7.60	7.36	0.00				
40.00	7.60	7.36	0.00				
41.00	7.60	7.36	0.00				
42.00	7.60	7.36	0.00				
43.00	7.60	7.36	0.00				
44.00	7.60	7.36	0.00				
45.00	7.60	7.36	0.00				
46.00	7.60	7.36	0.00				
47.00	7.60	7.36	0.00				
48.00	7.60	7.36	0.00				
49.00	7.60	7.36	0.00				
50.00	7.60	7.36	0.00				
51.00	7.60	7.36	0.00				

Summary for Subcatchment 25S: DA5

Runoff = 0.39 cfs @ 11.90 hrs, Volume= 0.019 af, Depth= 6.77"

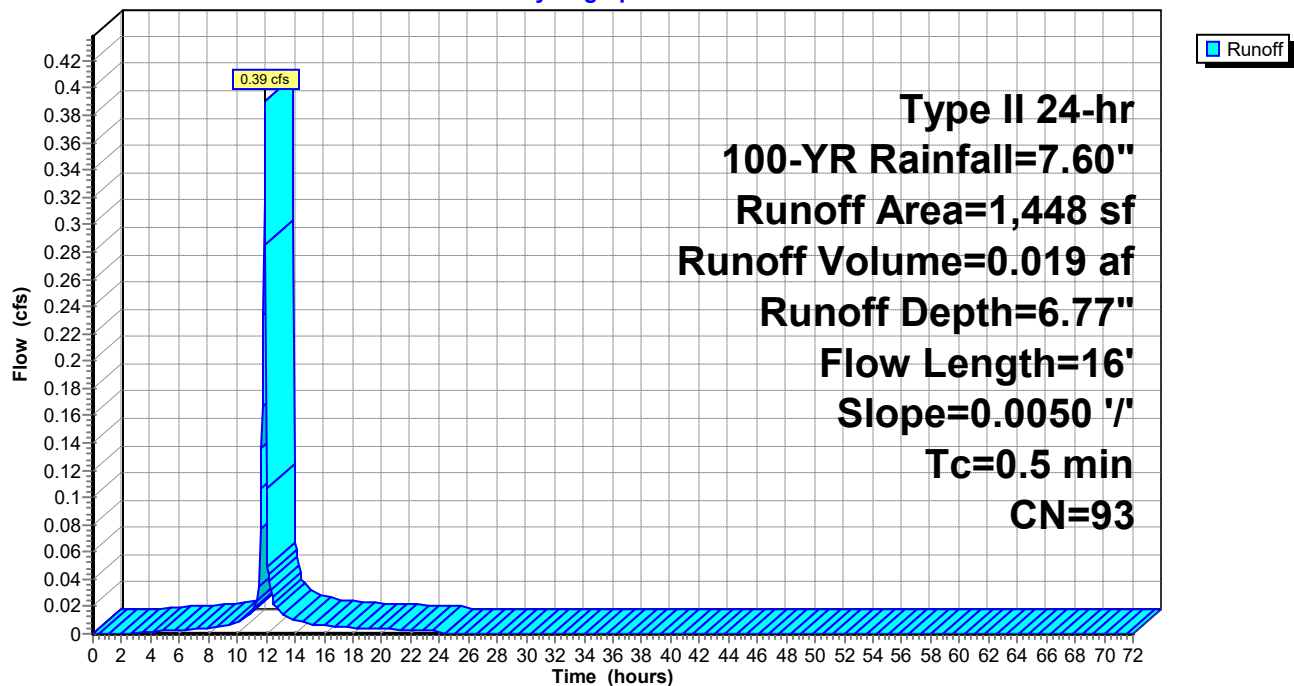
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
118	80	>75% Grass cover, Good, HSG D
1,214	94	Newly graded area, HSG D
116	98	Paved parking, HSG D
1,448	93	Weighted Average
1,332		91.99% Pervious Area
116		8.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	16	0.0050	0.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 25S: DA5

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Subcatchment 25S: DA5

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	6.77	0.00
1.00	0.08	0.00	0.00	53.00	7.60	6.77	0.00
2.00	0.17	0.00	0.00	54.00	7.60	6.77	0.00
3.00	0.26	0.01	0.00	55.00	7.60	6.77	0.00
4.00	0.36	0.05	0.00	56.00	7.60	6.77	0.00
5.00	0.48	0.10	0.00	57.00	7.60	6.77	0.00
6.00	0.61	0.17	0.00	58.00	7.60	6.77	0.00
7.00	0.75	0.27	0.00	59.00	7.60	6.77	0.00
8.00	0.91	0.38	0.00	60.00	7.60	6.77	0.00
9.00	1.12	0.54	0.01	61.00	7.60	6.77	0.00
10.00	1.38	0.76	0.01	62.00	7.60	6.77	0.00
11.00	1.79	1.12	0.02	63.00	7.60	6.77	0.00
12.00	5.04	4.24	0.11	64.00	7.60	6.77	0.00
13.00	5.87	5.05	0.02	65.00	7.60	6.77	0.00
14.00	6.23	5.41	0.01	66.00	7.60	6.77	0.00
15.00	6.49	5.66	0.01	67.00	7.60	6.77	0.00
16.00	6.69	5.86	0.01	68.00	7.60	6.77	0.00
17.00	6.85	6.03	0.01	69.00	7.60	6.77	0.00
18.00	7.00	6.17	0.00	70.00	7.60	6.77	0.00
19.00	7.13	6.30	0.00	71.00	7.60	6.77	0.00
20.00	7.24	6.40	0.00	72.00	7.60	6.77	0.00
21.00	7.33	6.50	0.00				
22.00	7.43	6.59	0.00				
23.00	7.51	6.68	0.00				
24.00	7.60	6.77	0.00				
25.00	7.60	6.77	0.00				
26.00	7.60	6.77	0.00				
27.00	7.60	6.77	0.00				
28.00	7.60	6.77	0.00				
29.00	7.60	6.77	0.00				
30.00	7.60	6.77	0.00				
31.00	7.60	6.77	0.00				
32.00	7.60	6.77	0.00				
33.00	7.60	6.77	0.00				
34.00	7.60	6.77	0.00				
35.00	7.60	6.77	0.00				
36.00	7.60	6.77	0.00				
37.00	7.60	6.77	0.00				
38.00	7.60	6.77	0.00				
39.00	7.60	6.77	0.00				
40.00	7.60	6.77	0.00				
41.00	7.60	6.77	0.00				
42.00	7.60	6.77	0.00				
43.00	7.60	6.77	0.00				
44.00	7.60	6.77	0.00				
45.00	7.60	6.77	0.00				
46.00	7.60	6.77	0.00				
47.00	7.60	6.77	0.00				
48.00	7.60	6.77	0.00				
49.00	7.60	6.77	0.00				
50.00	7.60	6.77	0.00				
51.00	7.60	6.77	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Subcatchment 28S: DA4

Runoff = 0.25 cfs @ 12.02 hrs, Volume= 0.019 af, Depth= 6.06"

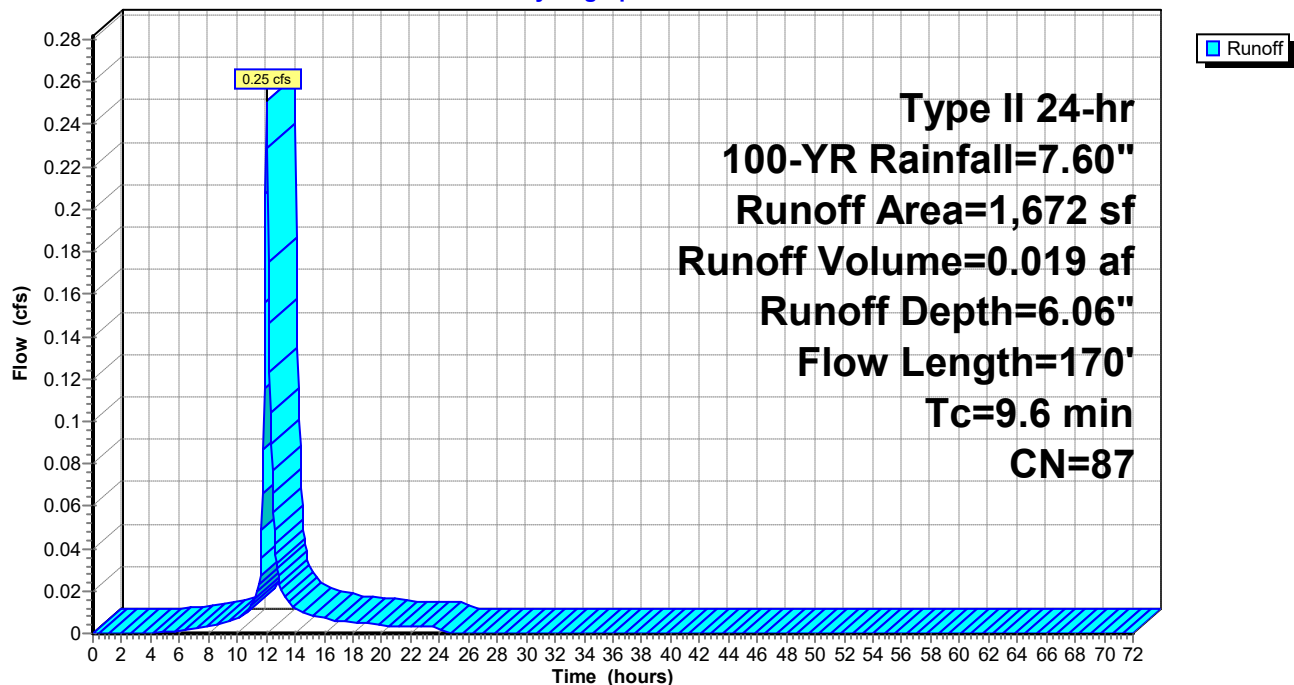
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
742	98	Paved parking, HSG D
719	74	>75% Grass cover, Good, HSG C
211	94	Newly graded area, HSG D
1,672	87	Weighted Average
930		55.62% Pervious Area
742		44.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.1	70	0.1530	7.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.6	170	Total			

Subcatchment 28S: DA4

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Subcatchment 28S: DA4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	6.06	0.00
1.00	0.08	0.00	0.00	53.00	7.60	6.06	0.00
2.00	0.17	0.00	0.00	54.00	7.60	6.06	0.00
3.00	0.26	0.00	0.00	55.00	7.60	6.06	0.00
4.00	0.36	0.00	0.00	56.00	7.60	6.06	0.00
5.00	0.48	0.02	0.00	57.00	7.60	6.06	0.00
6.00	0.61	0.05	0.00	58.00	7.60	6.06	0.00
7.00	0.75	0.11	0.00	59.00	7.60	6.06	0.00
8.00	0.91	0.18	0.00	60.00	7.60	6.06	0.00
9.00	1.12	0.29	0.00	61.00	7.60	6.06	0.00
10.00	1.38	0.45	0.01	62.00	7.60	6.06	0.00
11.00	1.79	0.74	0.01	63.00	7.60	6.06	0.00
12.00	5.04	3.60	0.25	64.00	7.60	6.06	0.00
13.00	5.87	4.39	0.02	65.00	7.60	6.06	0.00
14.00	6.23	4.74	0.01	66.00	7.60	6.06	0.00
15.00	6.49	4.98	0.01	67.00	7.60	6.06	0.00
16.00	6.69	5.18	0.01	68.00	7.60	6.06	0.00
17.00	6.85	5.34	0.01	69.00	7.60	6.06	0.00
18.00	7.00	5.48	0.01	70.00	7.60	6.06	0.00
19.00	7.13	5.60	0.00	71.00	7.60	6.06	0.00
20.00	7.24	5.71	0.00	72.00	7.60	6.06	0.00
21.00	7.33	5.80	0.00				
22.00	7.43	5.89	0.00				
23.00	7.51	5.98	0.00				
24.00	7.60	6.06	0.00				
25.00	7.60	6.06	0.00				
26.00	7.60	6.06	0.00				
27.00	7.60	6.06	0.00				
28.00	7.60	6.06	0.00				
29.00	7.60	6.06	0.00				
30.00	7.60	6.06	0.00				
31.00	7.60	6.06	0.00				
32.00	7.60	6.06	0.00				
33.00	7.60	6.06	0.00				
34.00	7.60	6.06	0.00				
35.00	7.60	6.06	0.00				
36.00	7.60	6.06	0.00				
37.00	7.60	6.06	0.00				
38.00	7.60	6.06	0.00				
39.00	7.60	6.06	0.00				
40.00	7.60	6.06	0.00				
41.00	7.60	6.06	0.00				
42.00	7.60	6.06	0.00				
43.00	7.60	6.06	0.00				
44.00	7.60	6.06	0.00				
45.00	7.60	6.06	0.00				
46.00	7.60	6.06	0.00				
47.00	7.60	6.06	0.00				
48.00	7.60	6.06	0.00				
49.00	7.60	6.06	0.00				
50.00	7.60	6.06	0.00				
51.00	7.60	6.06	0.00				

Summary for Subcatchment 33S: DA3

Runoff = 0.60 cfs @ 11.93 hrs, Volume= 0.030 af, Depth= 6.29"

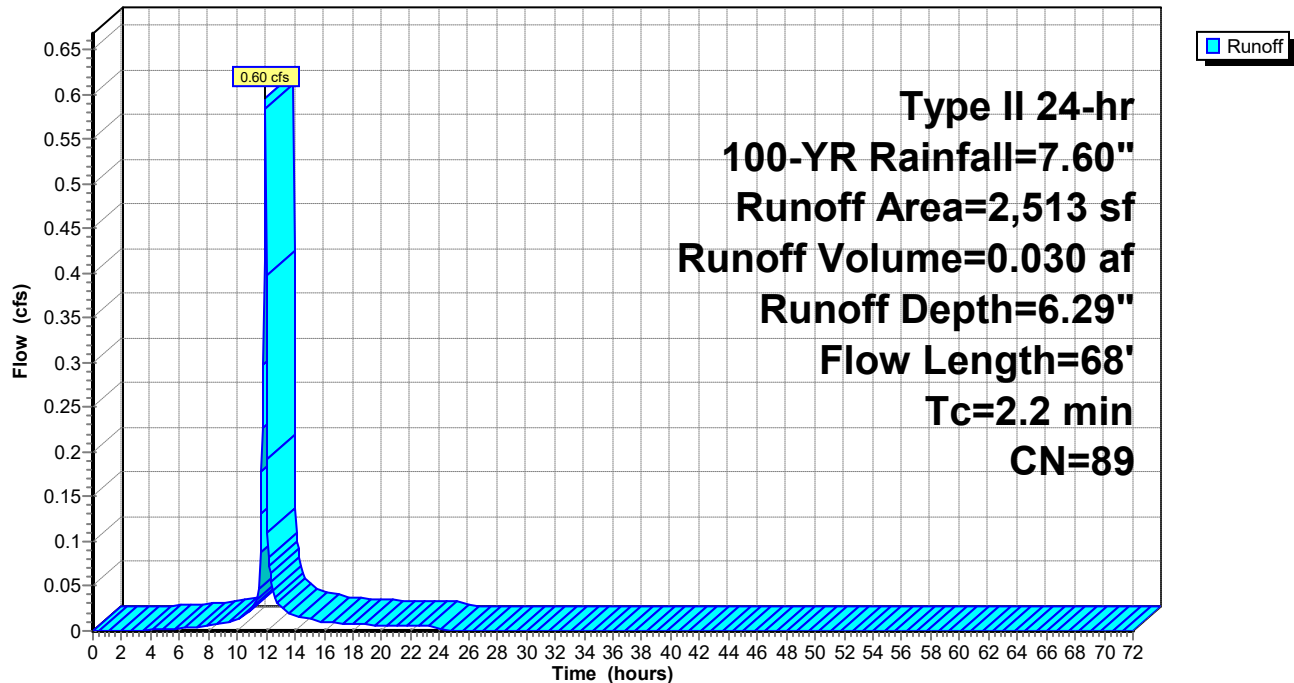
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
407	98	Paved parking, HSG D
733	74	>75% Grass cover, Good, HSG C
1,373	94	Newly graded area, HSG D
2,513	89	Weighted Average
2,106		83.80% Pervious Area
407		16.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	10	0.0120	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
0.4	58	0.0100	2.58	0.22	Pipe Channel, 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.011
2.2	68	Total			

Subcatchment 33S: DA3

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Subcatchment 33S: DA3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	7.60	6.29	0.00
1.00	0.08	0.00	0.00	53.00	7.60	6.29	0.00
2.00	0.17	0.00	0.00	54.00	7.60	6.29	0.00
3.00	0.26	0.00	0.00	55.00	7.60	6.29	0.00
4.00	0.36	0.01	0.00	56.00	7.60	6.29	0.00
5.00	0.48	0.04	0.00	57.00	7.60	6.29	0.00
6.00	0.61	0.08	0.00	58.00	7.60	6.29	0.00
7.00	0.75	0.15	0.00	59.00	7.60	6.29	0.00
8.00	0.91	0.23	0.01	60.00	7.60	6.29	0.00
9.00	1.12	0.36	0.01	61.00	7.60	6.29	0.00
10.00	1.38	0.54	0.01	62.00	7.60	6.29	0.00
11.00	1.79	0.85	0.02	63.00	7.60	6.29	0.00
12.00	5.04	3.81	0.40	64.00	7.60	6.29	0.00
13.00	5.87	4.61	0.03	65.00	7.60	6.29	0.00
14.00	6.23	4.96	0.02	66.00	7.60	6.29	0.00
15.00	6.49	5.21	0.01	67.00	7.60	6.29	0.00
16.00	6.69	5.40	0.01	68.00	7.60	6.29	0.00
17.00	6.85	5.56	0.01	69.00	7.60	6.29	0.00
18.00	7.00	5.71	0.01	70.00	7.60	6.29	0.00
19.00	7.13	5.83	0.01	71.00	7.60	6.29	0.00
20.00	7.24	5.94	0.01	72.00	7.60	6.29	0.00
21.00	7.33	6.03	0.01				
22.00	7.43	6.12	0.01				
23.00	7.51	6.21	0.00				
24.00	7.60	6.29	0.00				
25.00	7.60	6.29	0.00				
26.00	7.60	6.29	0.00				
27.00	7.60	6.29	0.00				
28.00	7.60	6.29	0.00				
29.00	7.60	6.29	0.00				
30.00	7.60	6.29	0.00				
31.00	7.60	6.29	0.00				
32.00	7.60	6.29	0.00				
33.00	7.60	6.29	0.00				
34.00	7.60	6.29	0.00				
35.00	7.60	6.29	0.00				
36.00	7.60	6.29	0.00				
37.00	7.60	6.29	0.00				
38.00	7.60	6.29	0.00				
39.00	7.60	6.29	0.00				
40.00	7.60	6.29	0.00				
41.00	7.60	6.29	0.00				
42.00	7.60	6.29	0.00				
43.00	7.60	6.29	0.00				
44.00	7.60	6.29	0.00				
45.00	7.60	6.29	0.00				
46.00	7.60	6.29	0.00				
47.00	7.60	6.29	0.00				
48.00	7.60	6.29	0.00				
49.00	7.60	6.29	0.00				
50.00	7.60	6.29	0.00				
51.00	7.60	6.29	0.00				

Summary for Pond 14P: PLANTER BOX 1

Inflow Area = 0.104 ac, 95.52% Impervious, Inflow Depth = 7.00" for 100-YR event
 Inflow = 1.14 cfs @ 11.93 hrs, Volume= 0.061 af
 Outflow = 0.92 cfs @ 11.98 hrs, Volume= 0.061 af, Atten= 19%, Lag= 2.8 min
 Discarded = 0.92 cfs @ 11.98 hrs, Volume= 0.061 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.56' @ 11.98 hrs Surf.Area= 203 sf Storage= 142 cf

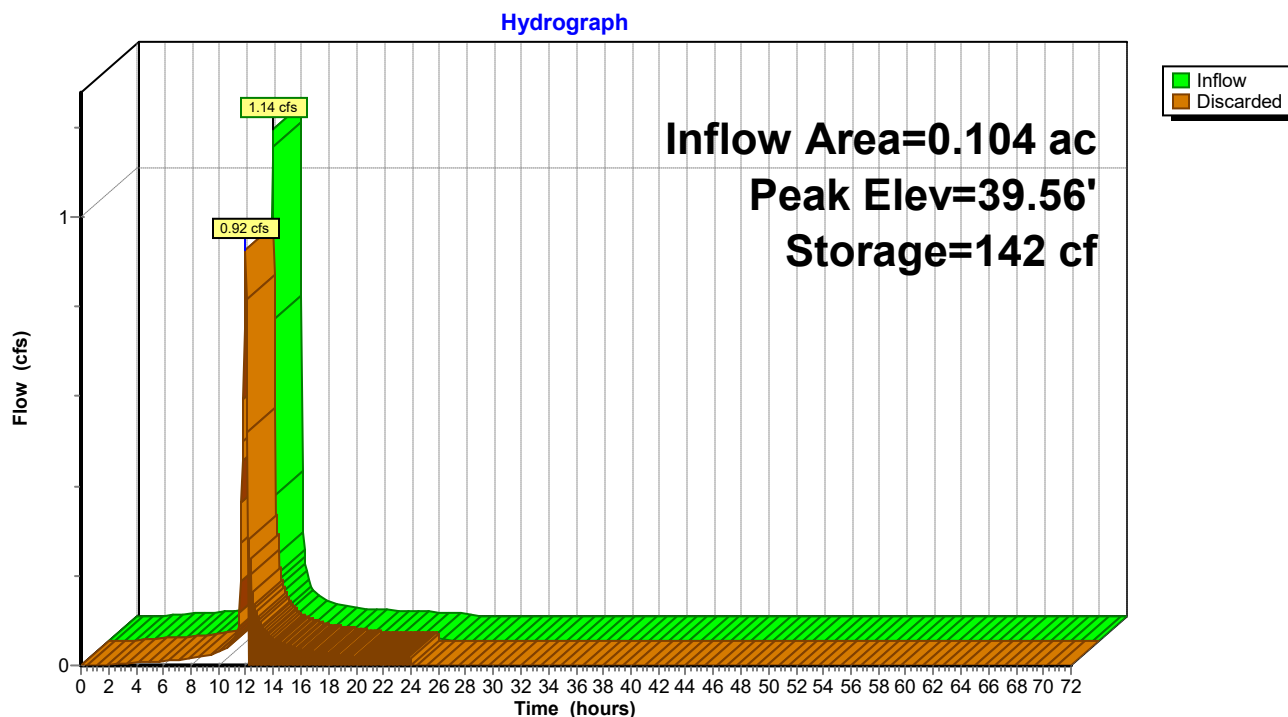
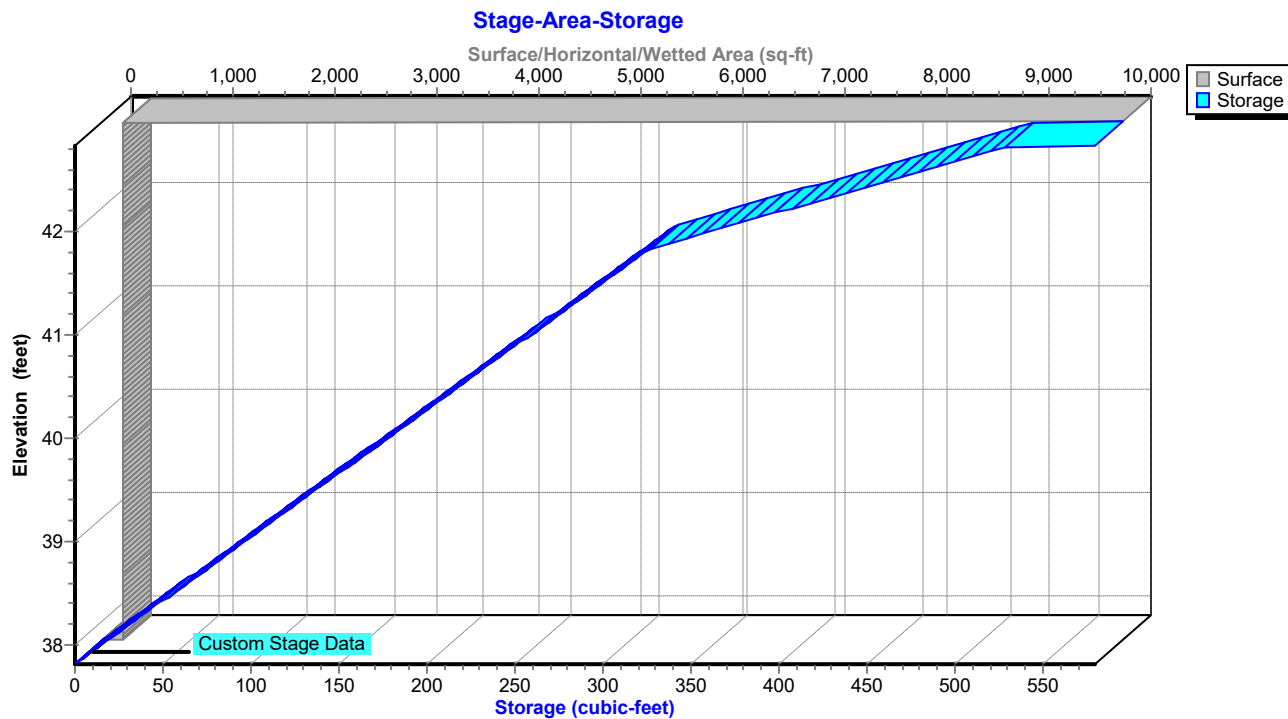
Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 1.0 min (752.8 - 751.8)

Volume	Invert	Avail.Storage	Storage Description
#1	37.81'	580 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.81	203	0.0	0	0
37.82	203	40.0	1	1
41.82	203	40.0	325	326
41.83	203	100.0	2	328
42.82	203	100.0	201	529
42.83	10,000	100.0	51	580

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.81'	100.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.00'

Discarded OutFlow Max=0.90 cfs @ 11.98 hrs HW=39.47' (Free Discharge)
 ↑1=Exfiltration (Controls 0.90 cfs)

Pond 14P: PLANTER BOX 1**Pond 14P: PLANTER BOX 1**

521 August_SWM_V4 - JW_10-10*Type II 24-hr 100-YR Rainfall=7.60"*

Prepared by {enter your company name here}

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Hydrograph for Pond 14P: PLANTER BOX 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	37.81	0.00
2.50	0.00	0	37.81	0.00
5.00	0.01	0	37.81	0.01
7.50	0.01	0	37.81	0.01
10.00	0.03	0	37.81	0.03
12.50	0.08	0	37.81	0.17
15.00	0.02	0	37.81	0.05
17.50	0.02	0	37.81	0.03
20.00	0.01	0	37.81	0.02
22.50	0.01	0	37.81	0.02
25.00	0.00	0	37.81	0.00
27.50	0.00	0	37.81	0.00
30.00	0.00	0	37.81	0.00
32.50	0.00	0	37.81	0.00
35.00	0.00	0	37.81	0.00
37.50	0.00	0	37.81	0.00
40.00	0.00	0	37.81	0.00
42.50	0.00	0	37.81	0.00
45.00	0.00	0	37.81	0.00
47.50	0.00	0	37.81	0.00
50.00	0.00	0	37.81	0.00
52.50	0.00	0	37.81	0.00
55.00	0.00	0	37.81	0.00
57.50	0.00	0	37.81	0.00
60.00	0.00	0	37.81	0.00
62.50	0.00	0	37.81	0.00
65.00	0.00	0	37.81	0.00
67.50	0.00	0	37.81	0.00
70.00	0.00	0	37.81	0.00

521 August_SWM_V4 - JW_10-10*Type II 24-hr 100-YR Rainfall=7.60"*

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Stage-Area-Storage for Pond 14P: PLANTER BOX 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
37.81	203	0
37.91	203	8
38.01	203	16
38.11	203	24
38.21	203	32
38.31	203	41
38.41	203	49
38.51	203	57
38.61	203	65
38.71	203	73
38.81	203	81
38.91	203	89
39.01	203	97
39.11	203	106
39.21	203	114
39.31	203	122
39.41	203	130
39.51	203	138
39.61	203	146
39.71	203	154
39.81	203	162
39.91	203	171
40.01	203	179
40.11	203	187
40.21	203	195
40.31	203	203
40.41	203	211
40.51	203	219
40.61	203	227
40.71	203	235
40.81	203	244
40.91	203	252
41.01	203	260
41.11	203	268
41.21	203	276
41.31	203	284
41.41	203	292
41.51	203	300
41.61	203	309
41.71	203	317
41.81	203	325
41.91	203	344
42.01	203	364
42.11	203	384
42.21	203	405
42.31	203	425
42.41	203	445
42.51	203	466
42.61	203	486
42.71	203	506
42.81	203	527

Summary for Pond 15P: SUBSURFACE CHAMBER

Inflow Area = 0.195 ac, 57.15% Impervious, Inflow Depth = 1.48" for 100-YR event
 Inflow = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af
 Outflow = 0.14 cfs @ 0.00 hrs, Volume= 0.046 af, Atten= 78%, Lag= 0.0 min
 Discarded = 0.14 cfs @ 0.00 hrs, Volume= 0.046 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 38.17' Surf.Area= 0.016 ac Storage= 0.022 af

Peak Elev= 38.17' @ 0.00 hrs Surf.Area= 0.016 ac Storage= 0.022 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	36.13'	0.009 af	14.50'W x 48.57'L x 2.36'H Field A 0.038 af Overall - 0.016 af Embedded = 0.023 af x 40.0% Voids
#2A	36.38'	0.015 af	ACF R-Tank HD 1 x 152 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 8 Rows of 19 Chambers
		0.024 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	38.17'	4.0" Round Culvert L= 72.0' Ke= 1.000 Inlet / Outlet Invert= 38.17' / 37.60' S= 0.0079 '/' Cc= 0.900 n= 0.011, Flow Area= 0.09 sf
#2	Discarded	36.13'	0.500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.00'

Discarded OutFlow Max=0.14 cfs @ 0.00 hrs HW=38.17' (Free Discharge)

↑**2=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.17' TW=37.68' (Dynamic Tailwater)

↑**1=Culvert** (Controls 0.00 cfs)

Pond 15P: SUBSURFACE CHAMBER - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)

Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf

Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

19 Chambers/Row x 2.35' Long = 44.57' Row Length +24.0" End Stone x 2 = 48.57' Base Length

8 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 14.50' Base Width

3.0" Base + 17.3" Chamber Height + 8.0" Cover = 2.36' Field Height

152 Chambers x 4.2 cf = 641.7 cf Chamber Storage

152 Chambers x 4.4 cf = 675.5 cf Displacement

1,662.1 cf Field - 675.5 cf Chambers = 986.6 cf Stone x 40.0% Voids = 394.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,036.4 cf = 0.024 af

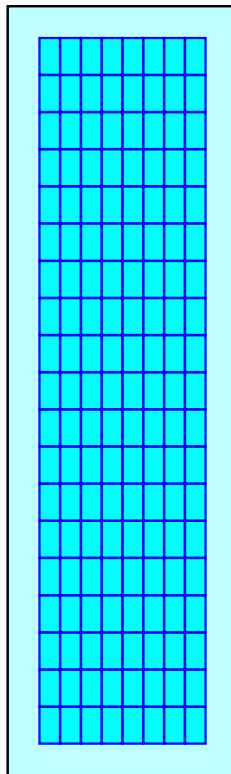
Overall Storage Efficiency = 62.4%

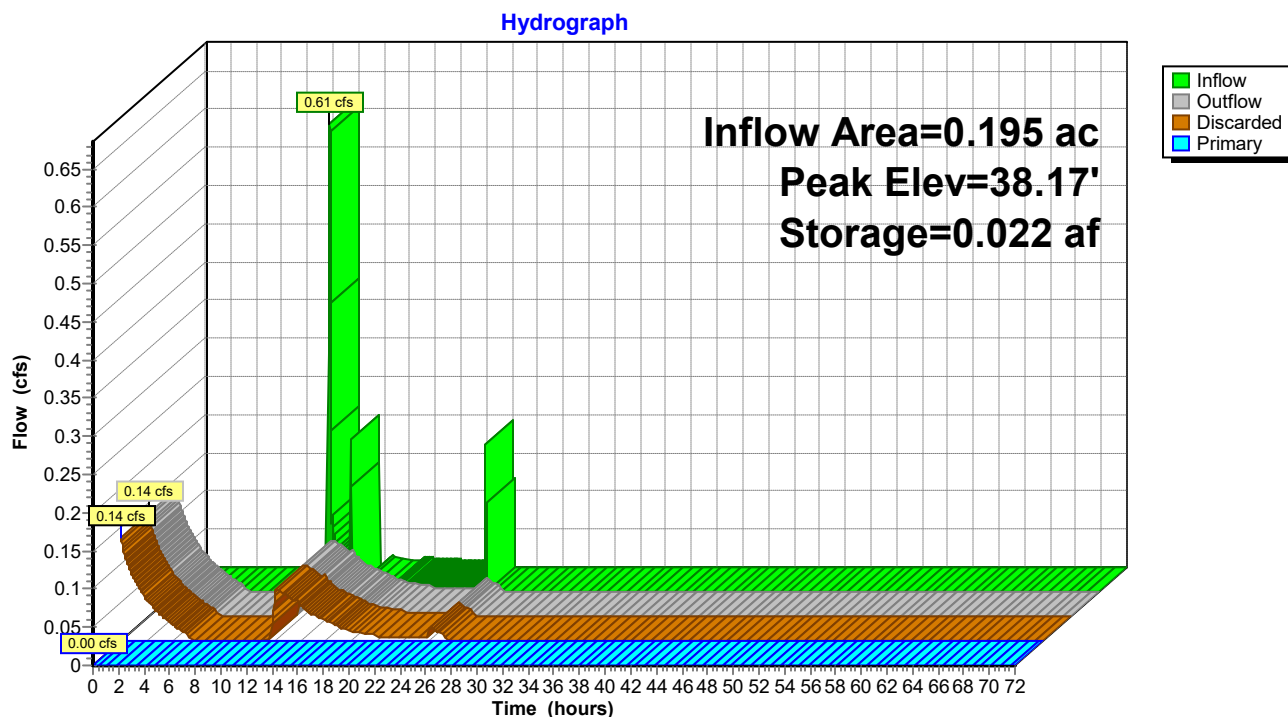
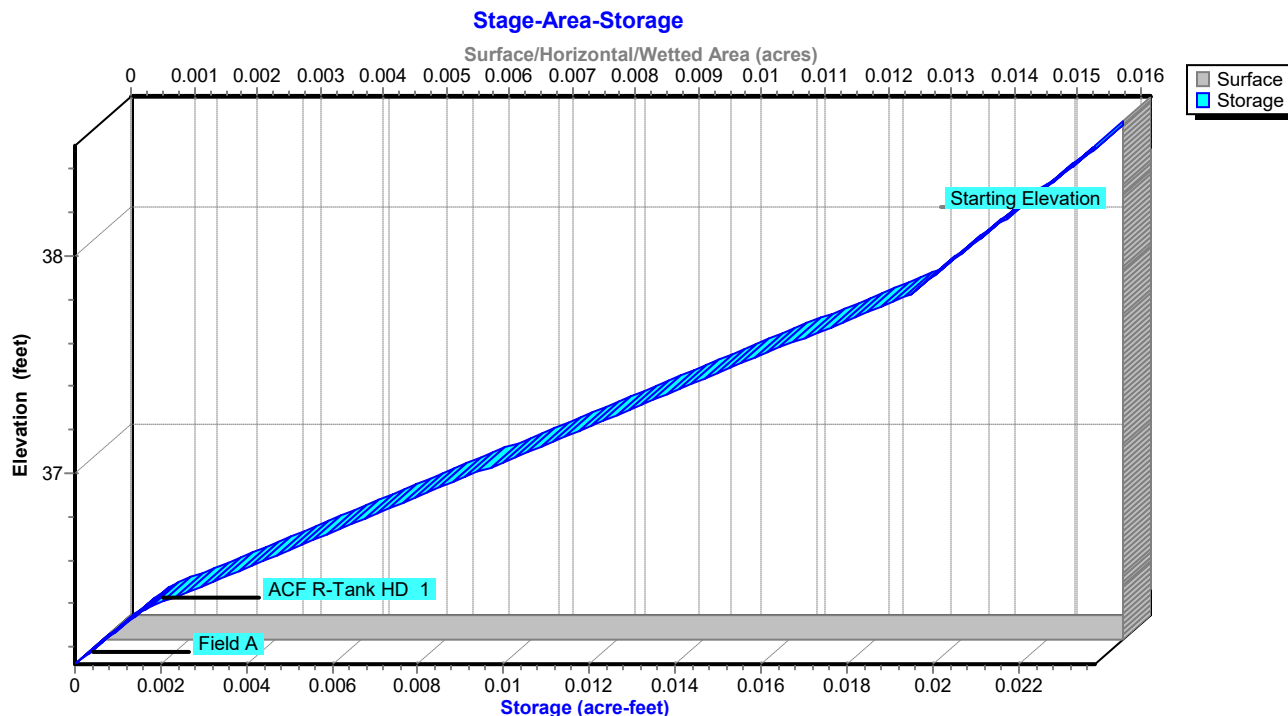
Overall System Size = 48.57' x 14.50' x 2.36'

152 Chambers

61.6 cy Field

36.5 cy Stone



Pond 15P: SUBSURFACE CHAMBER**Pond 15P: SUBSURFACE CHAMBER**

Hydrograph for Pond 15P: SUBSURFACE CHAMBER

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.022	38.17	0.14	0.14	0.00
2.50	0.00	0.006	36.70	0.04	0.04	0.00
5.00	0.00	0.000	36.17	0.01	0.01	0.00
7.50	0.00	0.000	36.13	0.00	0.00	0.00
10.00	0.00	0.000	36.13	0.00	0.00	0.00
12.50	0.02	0.010	37.04	0.07	0.07	0.00
15.00	0.01	0.004	36.55	0.03	0.03	0.00
17.50	0.00	0.001	36.24	0.02	0.02	0.00
20.00	0.00	0.000	36.13	0.01	0.01	0.00
22.50	0.00	0.000	36.13	0.00	0.00	0.00
25.00	0.00	0.000	36.15	0.01	0.01	0.00
27.50	0.00	0.000	36.13	0.00	0.00	0.00
30.00	0.00	0.000	36.13	0.00	0.00	0.00
32.50	0.00	0.000	36.13	0.00	0.00	0.00
35.00	0.00	0.000	36.13	0.00	0.00	0.00
37.50	0.00	0.000	36.13	0.00	0.00	0.00
40.00	0.00	0.000	36.13	0.00	0.00	0.00
42.50	0.00	0.000	36.13	0.00	0.00	0.00
45.00	0.00	0.000	36.13	0.00	0.00	0.00
47.50	0.00	0.000	36.13	0.00	0.00	0.00
50.00	0.00	0.000	36.13	0.00	0.00	0.00
52.50	0.00	0.000	36.13	0.00	0.00	0.00
55.00	0.00	0.000	36.13	0.00	0.00	0.00
57.50	0.00	0.000	36.13	0.00	0.00	0.00
60.00	0.00	0.000	36.13	0.00	0.00	0.00
62.50	0.00	0.000	36.13	0.00	0.00	0.00
65.00	0.00	0.000	36.13	0.00	0.00	0.00
67.50	0.00	0.000	36.13	0.00	0.00	0.00
70.00	0.00	0.000	36.13	0.00	0.00	0.00

Stage-Area-Storage for Pond 15P: SUBSURFACE CHAMBER

Elevation (feet)	Surface (acres)	Storage (acre-feet)
36.13	0.016	0.000
36.18	0.016	0.000
36.23	0.016	0.001
36.28	0.016	0.001
36.33	0.016	0.001
36.38	0.016	0.002
36.43	0.016	0.002
36.48	0.016	0.003
36.53	0.016	0.003
36.58	0.016	0.004
36.63	0.016	0.005
36.68	0.016	0.005
36.73	0.016	0.006
36.78	0.016	0.007
36.83	0.016	0.007
36.88	0.016	0.008
36.93	0.016	0.008
36.98	0.016	0.009
37.03	0.016	0.010
37.08	0.016	0.010
37.13	0.016	0.011
37.18	0.016	0.012
37.23	0.016	0.012
37.28	0.016	0.013
37.33	0.016	0.013
37.38	0.016	0.014
37.43	0.016	0.015
37.48	0.016	0.015
37.53	0.016	0.016
37.58	0.016	0.016
37.63	0.016	0.017
37.68	0.016	0.018
37.73	0.016	0.018
37.78	0.016	0.019
37.83	0.016	0.020
37.88	0.016	0.020
37.93	0.016	0.020
37.98	0.016	0.020
38.03	0.016	0.021
38.08	0.016	0.021
38.13	0.016	0.021
38.18	0.016	0.022
38.23	0.016	0.022
38.28	0.016	0.022
38.33	0.016	0.023
38.38	0.016	0.023
38.43	0.016	0.023
38.48	0.016	0.024

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Inflow Area = 0.033 ac, 8.01% Impervious, Inflow Depth = 6.77" for 100-YR event
 Inflow = 0.39 cfs @ 11.90 hrs, Volume= 0.019 af
 Outflow = 0.39 cfs @ 11.90 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.39 cfs @ 11.90 hrs, Volume= 0.019 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 38.85' @ 0.00 hrs Surf.Area= 962 sf Storage= 0 cf

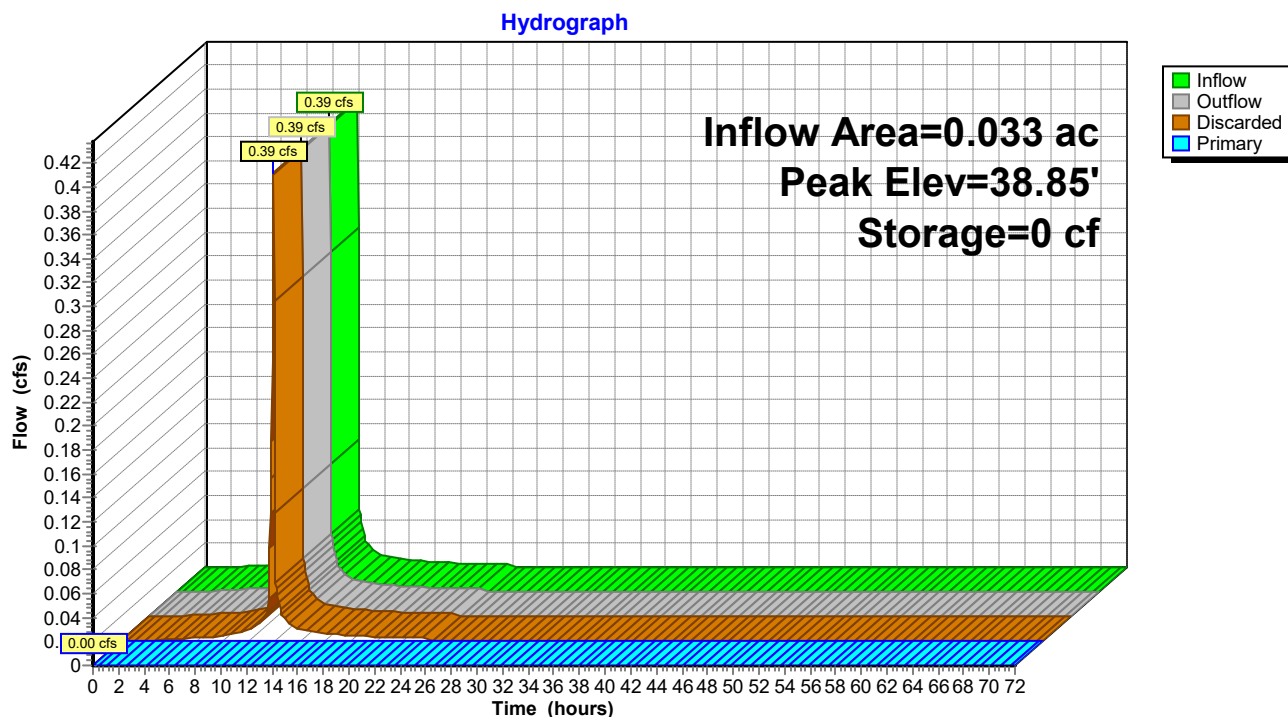
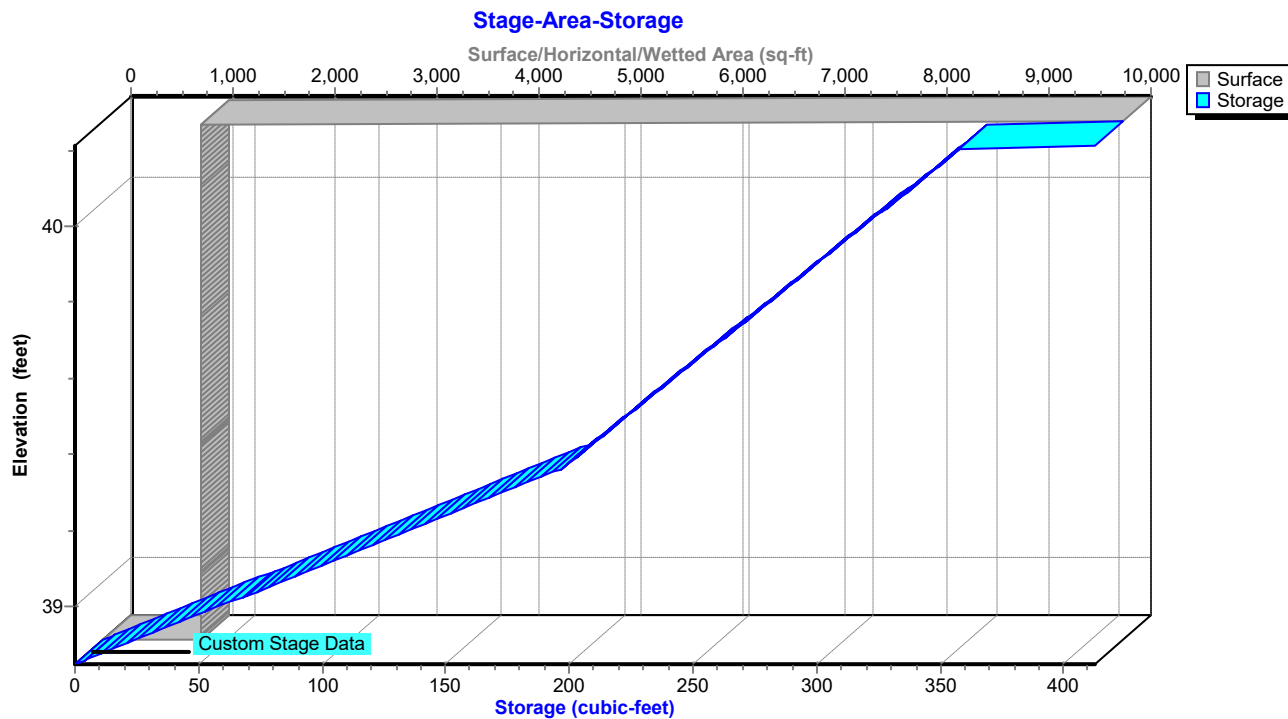
Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.0 min (758.2 - 758.2)

Volume	Invert	Avail.Storage	Storage Description	
#1	38.85'	413 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.85	962	0.0	0	0
38.86	962	40.0	4	4
39.36	962	40.0	192	196
39.37	962	20.0	2	198
40.20	962	20.0	160	358
40.21	10,000	100.0	55	413

Device	Routing	Invert	Outlet Devices
#1	Primary	39.03'	2.0" Round Culvert L= 5.0' Ke= 1.000 Inlet / Outlet Invert= 39.03' / 39.03' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.02 sf
#2	Discarded	38.85'	100.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 36.08'

Discarded OutFlow Max=0.00 cfs @ 11.90 hrs HW=38.85' (Free Discharge)↑ **2=Exfiltration** (Passes 0.00 cfs of 2.23 cfs potential flow)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=38.85' TW=38.17' (Dynamic Tailwater)↑ **1=Culvert** (Controls 0.00 cfs)

Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK**Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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Hydrograph for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	38.85	0.00	0.00	0.00
2.50	0.00	0	38.85	0.00	0.00	0.00
5.00	0.00	0	38.85	0.00	0.00	0.00
7.50	0.00	0	38.85	0.00	0.00	0.00
10.00	0.01	0	38.85	0.01	0.01	0.00
12.50	0.02	0	38.85	0.02	0.02	0.00
15.00	0.01	0	38.85	0.01	0.01	0.00
17.50	0.00	0	38.85	0.00	0.00	0.00
20.00	0.00	0	38.85	0.00	0.00	0.00
22.50	0.00	0	38.85	0.00	0.00	0.00
25.00	0.00	0	38.85	0.00	0.00	0.00
27.50	0.00	0	38.85	0.00	0.00	0.00
30.00	0.00	0	38.85	0.00	0.00	0.00
32.50	0.00	0	38.85	0.00	0.00	0.00
35.00	0.00	0	38.85	0.00	0.00	0.00
37.50	0.00	0	38.85	0.00	0.00	0.00
40.00	0.00	0	38.85	0.00	0.00	0.00
42.50	0.00	0	38.85	0.00	0.00	0.00
45.00	0.00	0	38.85	0.00	0.00	0.00
47.50	0.00	0	38.85	0.00	0.00	0.00
50.00	0.00	0	38.85	0.00	0.00	0.00
52.50	0.00	0	38.85	0.00	0.00	0.00
55.00	0.00	0	38.85	0.00	0.00	0.00
57.50	0.00	0	38.85	0.00	0.00	0.00
60.00	0.00	0	38.85	0.00	0.00	0.00
62.50	0.00	0	38.85	0.00	0.00	0.00
65.00	0.00	0	38.85	0.00	0.00	0.00
67.50	0.00	0	38.85	0.00	0.00	0.00
70.00	0.00	0	38.85	0.00	0.00	0.00

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 20P: PERMEABLE PAVEMENT NORTH - WEST HALF ON R-TANK

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.85	962	0	39.89	962	298
38.87	962	8	39.91	962	302
38.89	962	15	39.93	962	306
38.91	962	23	39.95	962	310
38.93	962	31	39.97	962	314
38.95	962	38	39.99	962	317
38.97	962	46	40.01	962	321
38.99	962	54	40.03	962	325
39.01	962	62	40.05	962	329
39.03	962	69	40.07	962	333
39.05	962	77	40.09	962	337
39.07	962	85	40.11	962	341
39.09	962	92	40.13	962	344
39.11	962	100	40.15	962	348
39.13	962	108	40.17	962	352
39.15	962	115	40.19	962	356
39.17	962	123	40.21	10,000	413
39.19	962	131			
39.21	962	139			
39.23	962	146			
39.25	962	154			
39.27	962	162			
39.29	962	169			
39.31	962	177			
39.33	962	185			
39.35	962	192			
39.37	962	198			
39.39	962	202			
39.41	962	206			
39.43	962	210			
39.45	962	214			
39.47	962	217			
39.49	962	221			
39.51	962	225			
39.53	962	229			
39.55	962	233			
39.57	962	237			
39.59	962	241			
39.61	962	244			
39.63	962	248			
39.65	962	252			
39.67	962	256			
39.69	962	260			
39.71	962	264			
39.73	962	267			
39.75	962	271			
39.77	962	275			
39.79	962	279			
39.81	962	283			
39.83	962	287			
39.85	962	291			
39.87	962	294			

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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Summary for Pond 26P: PERMEABLE PAVEMENT-EAST

Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 6.29" for 100-YR event
 Inflow = 0.60 cfs @ 11.93 hrs, Volume= 0.030 af
 Outflow = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.3 min
 Primary = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.54' @ 12.01 hrs Surf.Area= 10,000 sf Storage= 320 cf

Plug-Flow detention time= 165.8 min calculated for 0.024 af (80% of inflow)
 Center-of-Mass det. time= 85.6 min (860.6 - 775.1)

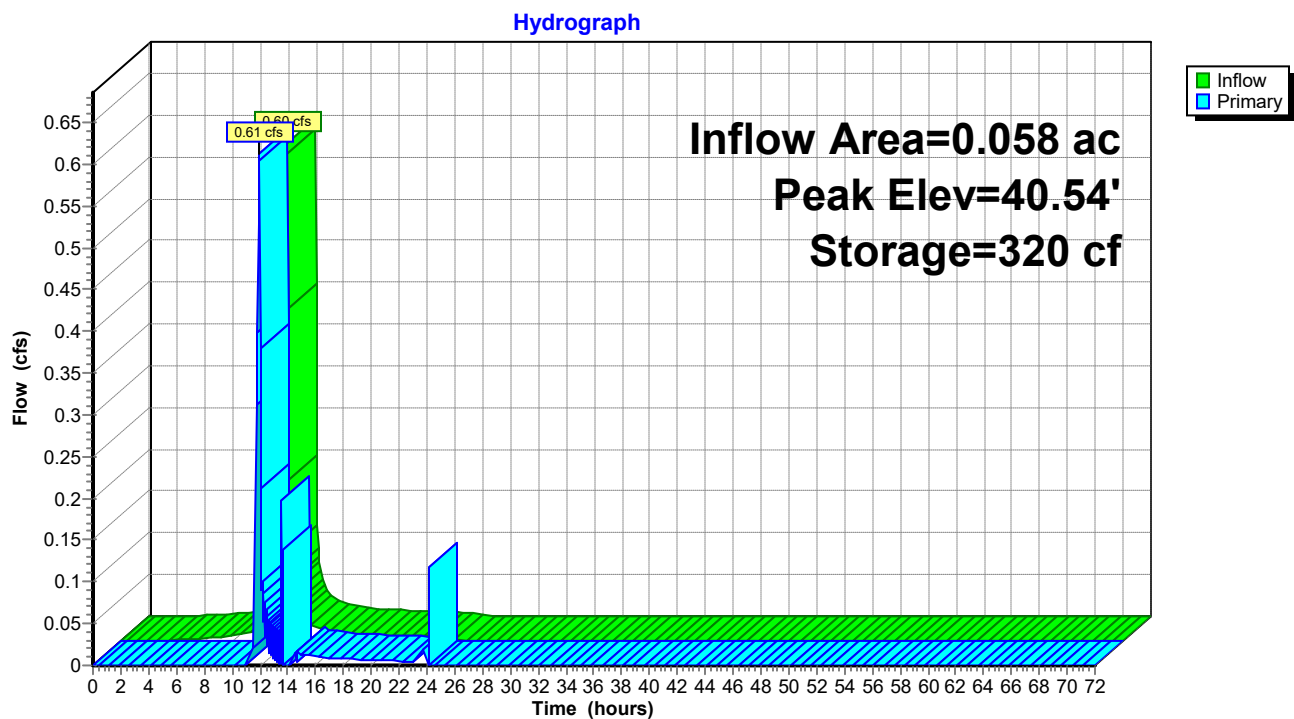
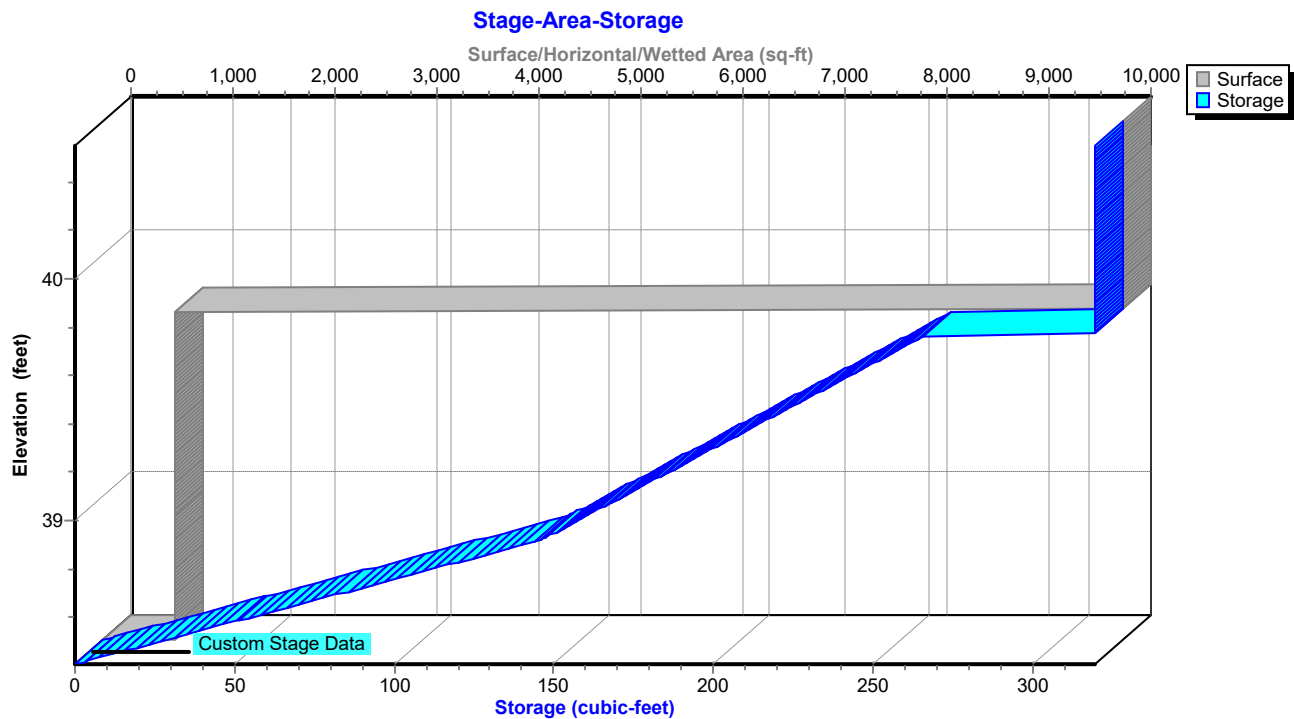
Volume	Invert	Avail.Storage	Storage Description	
#1	38.41'	320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.41	715	0.0	0	0
38.42	715	40.0	3	3
38.92	715	40.0	143	146
38.93	715	20.0	1	147
39.76	715	20.0	119	266
39.77	10,000	100.0	54	320

Device	Routing	Invert	Outlet Devices
#1	Primary	38.59'	2.0" Round Culvert L= 5.0' Ke= 1.000 Inlet / Outlet Invert= 38.59' / 38.59' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.02 sf
#2	Primary	39.76'	45.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 11.94 hrs HW=40.50' TW=40.53' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 26P: PERMEABLE PAVEMENT-EAST**Pond 26P: PERMEABLE PAVEMENT-EAST**

Hydrograph for Pond 26P: PERMEABLE PAVEMENT-EAST

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	38.41	0.00
2.50	0.00	0	38.41	0.00
5.00	0.00	7	38.44	0.00
7.50	0.00	38	38.54	0.00
10.00	0.01	110	38.80	0.00
12.50	0.04	320	40.41	0.02
15.00	0.01	320	40.40	0.01
17.50	0.01	320	40.40	0.01
20.00	0.01	320	40.40	0.00
22.50	0.01	320	40.40	0.00
25.00	0.00	265	39.75	0.00
27.50	0.00	265	39.75	0.00
30.00	0.00	265	39.75	0.00
32.50	0.00	265	39.75	0.00
35.00	0.00	265	39.75	0.00
37.50	0.00	265	39.75	0.00
40.00	0.00	265	39.75	0.00
42.50	0.00	265	39.75	0.00
45.00	0.00	265	39.75	0.00
47.50	0.00	265	39.75	0.00
50.00	0.00	265	39.75	0.00
52.50	0.00	265	39.75	0.00
55.00	0.00	265	39.75	0.00
57.50	0.00	265	39.75	0.00
60.00	0.00	265	39.75	0.00
62.50	0.00	265	39.75	0.00
65.00	0.00	265	39.75	0.00
67.50	0.00	265	39.75	0.00
70.00	0.00	265	39.75	0.00

521 August_SWM_V4 - JW_10-10*Type II 24-hr 100-YR Rainfall=7.60"*

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 26P: PERMEABLE PAVEMENT-EAST

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.41	715	0
38.46	715	14
38.51	715	29
38.56	715	43
38.61	715	57
38.66	715	72
38.71	715	86
38.76	715	100
38.81	715	114
38.86	715	129
38.91	715	143
38.96	715	152
39.01	715	159
39.06	715	166
39.11	715	173
39.16	715	180
39.21	715	187
39.26	715	194
39.31	715	202
39.36	715	209
39.41	715	216
39.46	715	223
39.51	715	230
39.56	715	237
39.61	715	245
39.66	715	252
39.71	715	259
39.76	715	266
39.81	10,000	320
39.86	10,000	320
39.91	10,000	320
39.96	10,000	320
40.01	10,000	320
40.06	10,000	320
40.11	10,000	320
40.16	10,000	320
40.21	10,000	320
40.26	10,000	320
40.31	10,000	320
40.36	10,000	320
40.41	10,000	320
40.46	10,000	320
40.51	10,000	320

Summary for Pond 32P: CURB INLET 1

Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 5.01" for 100-YR event
 Inflow = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af
 Outflow = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.54' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.54'	12.0" Round Culvert L= 102.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.54' / 36.77' S= 0.0075 '/' Cc= 0.900 n= 0.012 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	39.76'	66.0" W x 4.0" H Vert. STREET SIDE OPENING C= 0.600

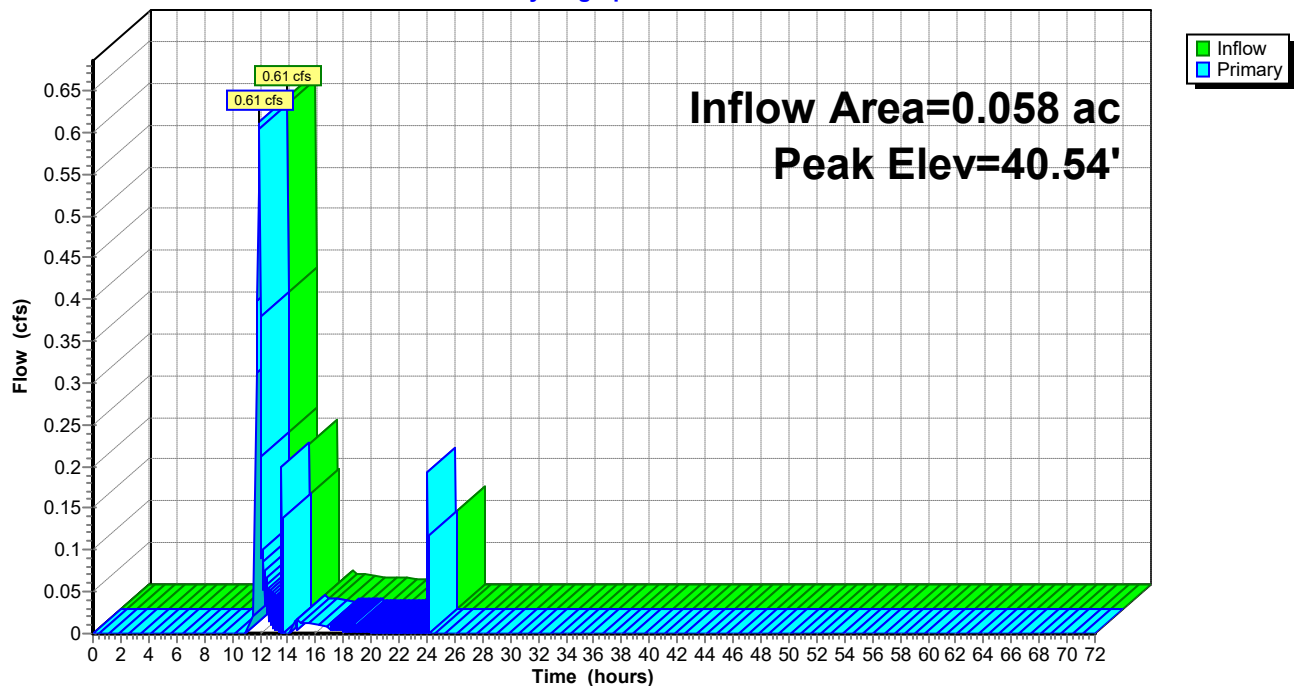
Primary OutFlow Max=0.49 cfs @ 11.94 hrs HW=40.53' TW=40.50' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.49 cfs @ 0.63 fps)

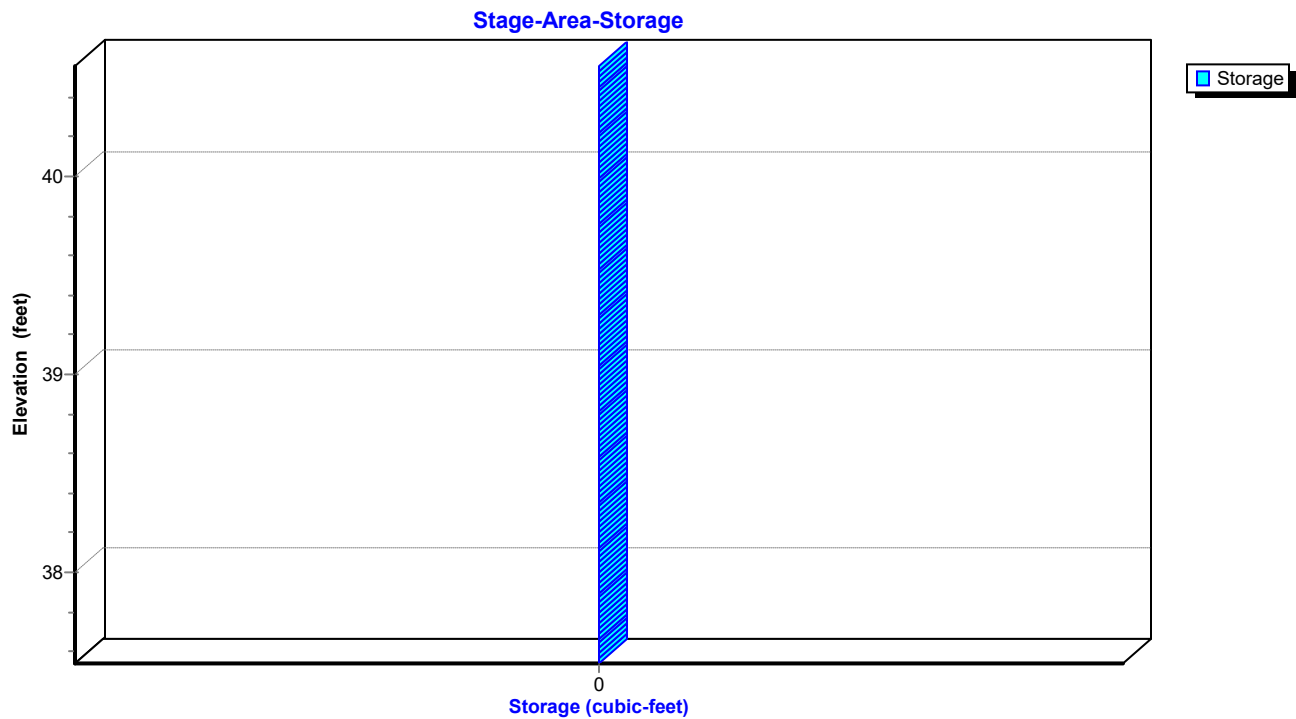
2=STREET SIDE OPENING (Passes 0.49 cfs of 1.42 cfs potential flow)

Pond 32P: CURB INLET 1

Hydrograph



Pond 32P: CURB INLET 1



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Pond 32P: CURB INLET 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	37.54	0.00	52.00	0.00	40.40	0.00
1.00	0.00	38.05	0.00	53.00	0.00	40.40	0.00
2.00	0.00	38.56	0.00	54.00	0.00	40.40	0.00
3.00	0.00	39.07	0.00	55.00	0.00	40.40	0.00
4.00	0.00	39.58	0.00	56.00	0.00	40.40	0.00
5.00	0.00	40.07	0.00	57.00	0.00	40.40	0.00
6.00	0.00	40.40	0.00	58.00	0.00	40.40	0.00
7.00	0.00	40.40	0.00	59.00	0.00	40.40	0.00
8.00	0.00	40.40	0.00	60.00	0.00	40.40	0.00
9.00	0.00	40.40	0.00	61.00	0.00	40.40	0.00
10.00	0.00	40.40	0.00	62.00	0.00	40.40	0.00
11.00	0.00	40.40	0.00	63.00	0.00	40.40	0.00
12.00	0.38	40.52	0.38	64.00	0.00	40.40	0.00
13.00	0.01	40.42	0.01	65.00	0.00	40.40	0.00
14.00	0.00	39.97	0.00	66.00	0.00	40.40	0.00
15.00	0.01	40.41	0.01	67.00	0.00	40.40	0.00
16.00	0.01	40.41	0.01	68.00	0.00	40.40	0.00
17.00	0.01	40.41	0.00	69.00	0.00	40.40	0.00
18.00	0.01	40.41	0.00	70.00	0.00	40.40	0.00
19.00	0.00	40.40	0.00	71.00	0.00	40.40	0.00
20.00	0.00	40.40	0.00	72.00	0.00	40.40	0.00
21.00	0.00	40.40	0.00				
22.00	0.00	40.40	0.00				
23.00	0.00	40.40	0.00				
24.00	0.00	37.54	0.00				
25.00	0.00	39.76	0.00				
26.00	0.00	39.76	0.00				
27.00	0.00	39.76	0.00				
28.00	0.00	39.76	0.00				
29.00	0.00	40.22	0.00				
30.00	0.00	40.40	0.00				
31.00	0.00	40.40	0.00				
32.00	0.00	40.40	0.00				
33.00	0.00	40.40	0.00				
34.00	0.00	40.40	0.00				
35.00	0.00	40.40	0.00				
36.00	0.00	40.40	0.00				
37.00	0.00	40.40	0.00				
38.00	0.00	40.40	0.00				
39.00	0.00	40.40	0.00				
40.00	0.00	40.40	0.00				
41.00	0.00	40.40	0.00				
42.00	0.00	40.40	0.00				
43.00	0.00	40.40	0.00				
44.00	0.00	40.40	0.00				
45.00	0.00	40.40	0.00				
46.00	0.00	40.40	0.00				
47.00	0.00	40.40	0.00				
48.00	0.00	40.40	0.00				
49.00	0.00	40.40	0.00				
50.00	0.00	40.40	0.00				
51.00	0.00	40.40	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

Prepared by {enter your company name here}

Printed 10/31/2022

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Stage-Area-Storage for Pond 32P: CURB INLET 1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
37.54	0	38.58	0	39.62	0
37.56	0	38.60	0	39.64	0
37.58	0	38.62	0	39.66	0
37.60	0	38.64	0	39.68	0
37.62	0	38.66	0	39.70	0
37.64	0	38.68	0	39.72	0
37.66	0	38.70	0	39.74	0
37.68	0	38.72	0	39.76	0
37.70	0	38.74	0	39.78	0
37.72	0	38.76	0	39.80	0
37.74	0	38.78	0	39.82	0
37.76	0	38.80	0	39.84	0
37.78	0	38.82	0	39.86	0
37.80	0	38.84	0	39.88	0
37.82	0	38.86	0	39.90	0
37.84	0	38.88	0	39.92	0
37.86	0	38.90	0	39.94	0
37.88	0	38.92	0	39.96	0
37.90	0	38.94	0	39.98	0
37.92	0	38.96	0	40.00	0
37.94	0	38.98	0	40.02	0
37.96	0	39.00	0	40.04	0
37.98	0	39.02	0	40.06	0
38.00	0	39.04	0	40.08	0
38.02	0	39.06	0	40.10	0
38.04	0	39.08	0	40.12	0
38.06	0	39.10	0	40.14	0
38.08	0	39.12	0	40.16	0
38.10	0	39.14	0	40.18	0
38.12	0	39.16	0	40.20	0
38.14	0	39.18	0	40.22	0
38.16	0	39.20	0	40.24	0
38.18	0	39.22	0	40.26	0
38.20	0	39.24	0	40.28	0
38.22	0	39.26	0	40.30	0
38.24	0	39.28	0	40.32	0
38.26	0	39.30	0	40.34	0
38.28	0	39.32	0	40.36	0
38.30	0	39.34	0	40.38	0
38.32	0	39.36	0	40.40	0
38.34	0	39.38	0	40.42	0
38.36	0	39.40	0	40.44	0
38.38	0	39.42	0	40.46	0
38.40	0	39.44	0	40.48	0
38.42	0	39.46	0	40.50	0
38.44	0	39.48	0	40.52	0
38.46	0	39.50	0	40.54	0
38.48	0	39.52	0		
38.50	0	39.54	0		
38.52	0	39.56	0		
38.54	0	39.58	0		
38.56	0	39.60	0		

Summary for Pond 33P: CURB INLET 2

Inflow Area = 0.058 ac, 16.20% Impervious, Inflow Depth = 5.01" for 100-YR event
 Inflow = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af
 Outflow = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.61 cfs @ 11.94 hrs, Volume= 0.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.51' @ 11.94 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.74'	12.0" Round Culvert L= 11.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 36.74' / 36.65' S= 0.0079 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	40.40'	66.0" W x 4.0" H Vert. CURB INLET 2 C= 0.600

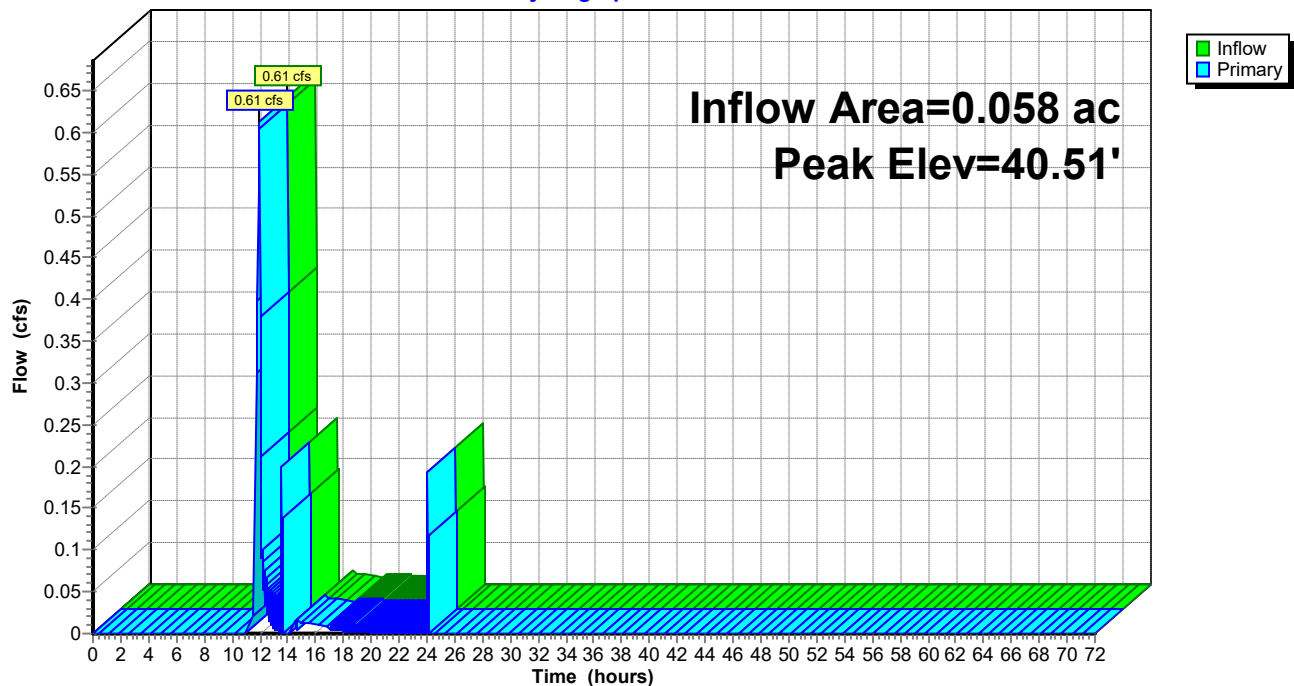
Primary OutFlow Max=0.58 cfs @ 11.94 hrs HW=40.50' TW=36.75' (Dynamic Tailwater)

1=Culvert (Passes 0.58 cfs of 6.83 cfs potential flow)

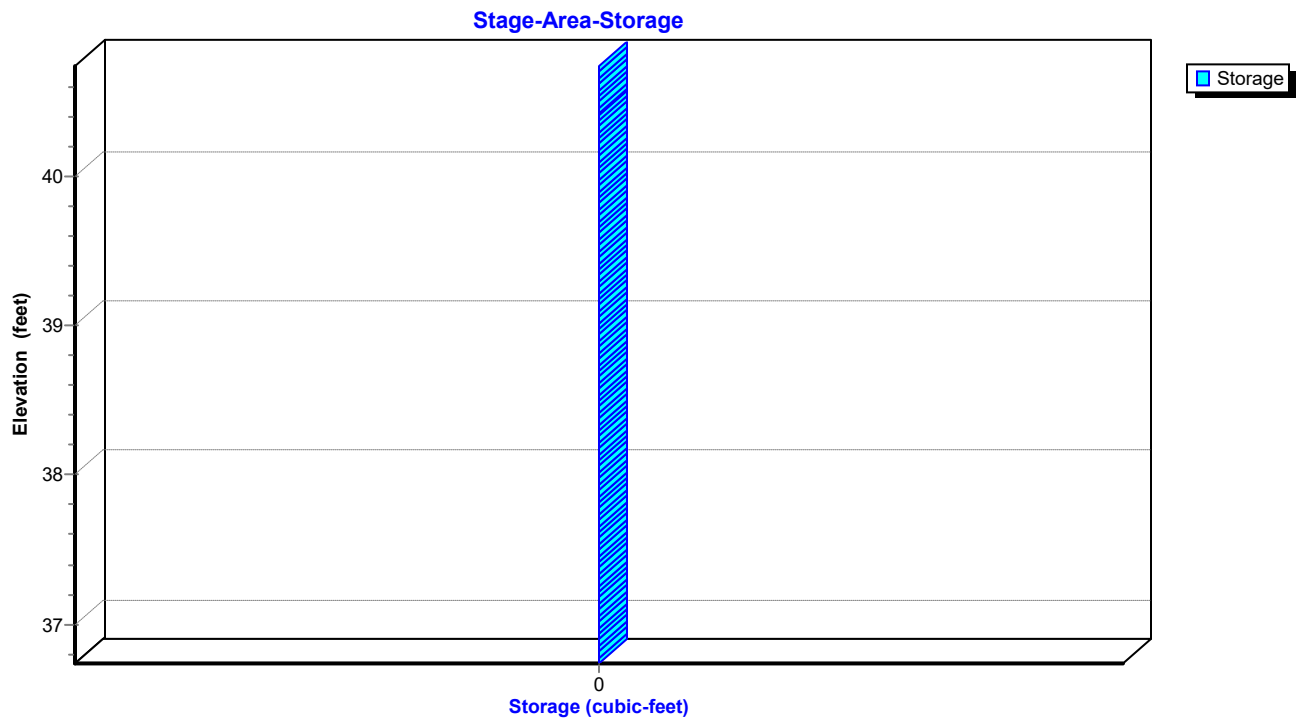
2=CURB INLET 2 (Orifice Controls 0.58 cfs @ 1.03 fps)

Pond 33P: CURB INLET 2

Hydrograph



Pond 33P: CURB INLET 2



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Pond 33P: CURB INLET 2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	36.74	0.00	52.00	0.00	40.40	0.00
1.00	0.00	37.54	0.00	53.00	0.00	40.40	0.00
2.00	0.00	38.34	0.00	54.00	0.00	40.40	0.00
3.00	0.00	39.14	0.00	55.00	0.00	40.40	0.00
4.00	0.00	39.93	0.00	56.00	0.00	40.40	0.00
5.00	0.00	40.40	0.00	57.00	0.00	40.40	0.00
6.00	0.00	40.40	0.00	58.00	0.00	40.40	0.00
7.00	0.00	40.40	0.00	59.00	0.00	40.40	0.00
8.00	0.00	40.40	0.00	60.00	0.00	40.40	0.00
9.00	0.00	40.40	0.00	61.00	0.00	40.40	0.00
10.00	0.00	40.40	0.00	62.00	0.00	40.40	0.00
11.00	0.00	40.40	0.00	63.00	0.00	40.40	0.00
12.00	0.38	40.48	0.38	64.00	0.00	40.40	0.00
13.00	0.01	40.41	0.01	65.00	0.00	40.40	0.00
14.00	0.00	40.40	0.00	66.00	0.00	40.40	0.00
15.00	0.01	40.41	0.01	67.00	0.00	40.40	0.00
16.00	0.01	40.41	0.01	68.00	0.00	40.40	0.00
17.00	0.00	40.40	0.00	69.00	0.00	40.40	0.00
18.00	0.00	40.40	0.00	70.00	0.00	40.40	0.00
19.00	0.00	40.40	0.00	71.00	0.00	40.40	0.00
20.00	0.00	40.40	0.00	72.00	0.00	40.40	0.00
21.00	0.00	40.40	0.00				
22.00	0.00	40.40	0.00				
23.00	0.00	40.40	0.00				
24.00	0.00	40.40	0.00				
25.00	0.00	37.34	0.00				
26.00	0.00	38.14	0.00				
27.00	0.00	38.94	0.00				
28.00	0.00	39.73	0.00				
29.00	0.00	40.40	0.00				
30.00	0.00	40.40	0.00				
31.00	0.00	40.40	0.00				
32.00	0.00	40.40	0.00				
33.00	0.00	40.40	0.00				
34.00	0.00	40.40	0.00				
35.00	0.00	40.40	0.00				
36.00	0.00	40.40	0.00				
37.00	0.00	40.40	0.00				
38.00	0.00	40.40	0.00				
39.00	0.00	40.40	0.00				
40.00	0.00	40.40	0.00				
41.00	0.00	40.40	0.00				
42.00	0.00	40.40	0.00				
43.00	0.00	40.40	0.00				
44.00	0.00	40.40	0.00				
45.00	0.00	40.40	0.00				
46.00	0.00	40.40	0.00				
47.00	0.00	40.40	0.00				
48.00	0.00	40.40	0.00				
49.00	0.00	40.40	0.00				
50.00	0.00	40.40	0.00				
51.00	0.00	40.40	0.00				

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Printed 10/31/2022

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Stage-Area-Storage for Pond 33P: CURB INLET 2

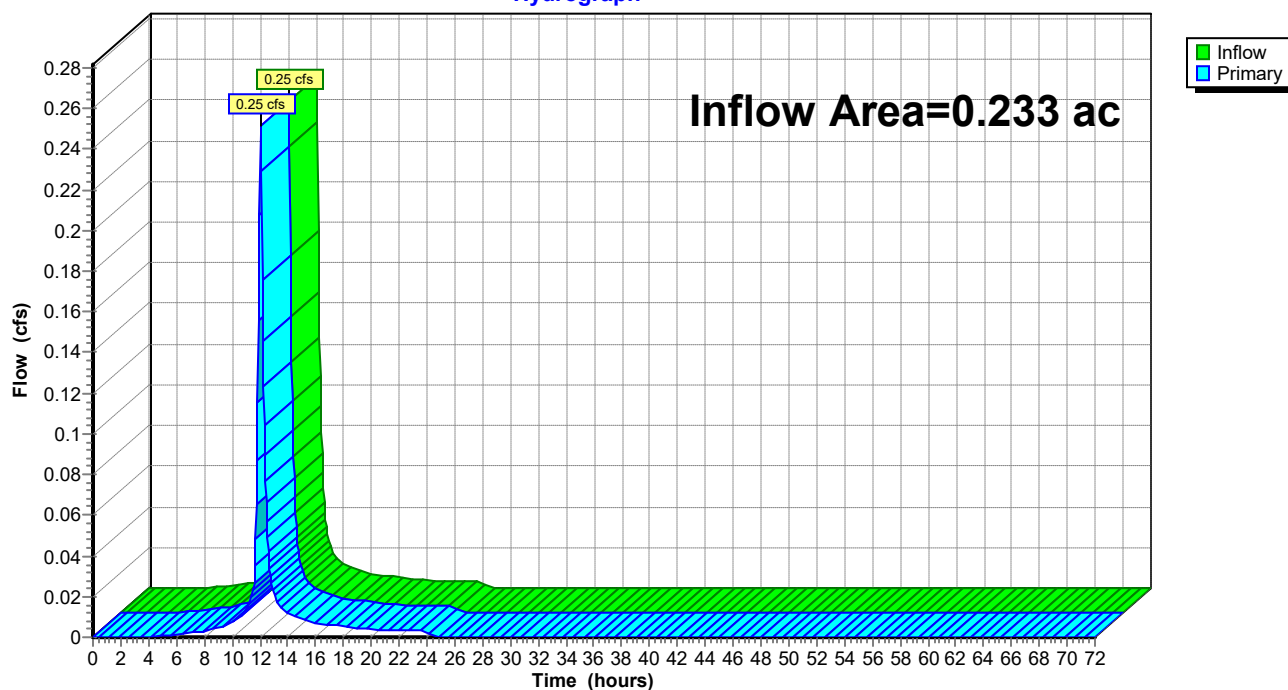
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
36.74	0	39.34	0
36.79	0	39.39	0
36.84	0	39.44	0
36.89	0	39.49	0
36.94	0	39.54	0
36.99	0	39.59	0
37.04	0	39.64	0
37.09	0	39.69	0
37.14	0	39.74	0
37.19	0	39.79	0
37.24	0	39.84	0
37.29	0	39.89	0
37.34	0	39.94	0
37.39	0	39.99	0
37.44	0	40.04	0
37.49	0	40.09	0
37.54	0	40.14	0
37.59	0	40.19	0
37.64	0	40.24	0
37.69	0	40.29	0
37.74	0	40.34	0
37.79	0	40.39	0
37.84	0	40.44	0
37.89	0	40.49	0
37.94	0	40.54	0
37.99	0	40.59	0
38.04	0	40.64	0
38.09	0	40.69	0
38.14	0		
38.19	0		
38.24	0		
38.29	0		
38.34	0		
38.39	0		
38.44	0		
38.49	0		
38.54	0		
38.59	0		
38.64	0		
38.69	0		
38.74	0		
38.79	0		
38.84	0		
38.89	0		
38.94	0		
38.99	0		
39.04	0		
39.09	0		
39.14	0		
39.19	0		
39.24	0		
39.29	0		

Summary for Link 26L: STUDY POINT 1

Inflow Area = 0.233 ac, 55.05% Impervious, Inflow Depth = 1.00" for 100-YR event
Inflow = 0.25 cfs @ 12.02 hrs, Volume= 0.019 af
Primary = 0.25 cfs @ 12.02 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Fixed water surface Elevation= 37.68'

Link 26L: STUDY POINT 1**Hydrograph**

521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Hydrograph for Link 26L: STUDY POINT 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	37.68	0.00	52.00	0.00	37.68	0.00
1.00	0.00	37.68	0.00	53.00	0.00	37.68	0.00
2.00	0.00	37.68	0.00	54.00	0.00	37.68	0.00
3.00	0.00	37.68	0.00	55.00	0.00	37.68	0.00
4.00	0.00	37.68	0.00	56.00	0.00	37.68	0.00
5.00	0.00	37.68	0.00	57.00	0.00	37.68	0.00
6.00	0.00	37.68	0.00	58.00	0.00	37.68	0.00
7.00	0.00	37.68	0.00	59.00	0.00	37.68	0.00
8.00	0.00	37.68	0.00	60.00	0.00	37.68	0.00
9.00	0.00	37.68	0.00	61.00	0.00	37.68	0.00
10.00	0.01	37.68	0.01	62.00	0.00	37.68	0.00
11.00	0.01	37.68	0.01	63.00	0.00	37.68	0.00
12.00	0.25	37.68	0.25	64.00	0.00	37.68	0.00
13.00	0.02	37.68	0.02	65.00	0.00	37.68	0.00
14.00	0.01	37.68	0.01	66.00	0.00	37.68	0.00
15.00	0.01	37.68	0.01	67.00	0.00	37.68	0.00
16.00	0.01	37.68	0.01	68.00	0.00	37.68	0.00
17.00	0.01	37.68	0.01	69.00	0.00	37.68	0.00
18.00	0.01	37.68	0.01	70.00	0.00	37.68	0.00
19.00	0.00	37.68	0.00	71.00	0.00	37.68	0.00
20.00	0.00	37.68	0.00	72.00	0.00	37.68	0.00
21.00	0.00	37.68	0.00				
22.00	0.00	37.68	0.00				
23.00	0.00	37.68	0.00				
24.00	0.00	37.68	0.00				
25.00	0.00	37.68	0.00				
26.00	0.00	37.68	0.00				
27.00	0.00	37.68	0.00				
28.00	0.00	37.68	0.00				
29.00	0.00	37.68	0.00				
30.00	0.00	37.68	0.00				
31.00	0.00	37.68	0.00				
32.00	0.00	37.68	0.00				
33.00	0.00	37.68	0.00				
34.00	0.00	37.68	0.00				
35.00	0.00	37.68	0.00				
36.00	0.00	37.68	0.00				
37.00	0.00	37.68	0.00				
38.00	0.00	37.68	0.00				
39.00	0.00	37.68	0.00				
40.00	0.00	37.68	0.00				
41.00	0.00	37.68	0.00				
42.00	0.00	37.68	0.00				
43.00	0.00	37.68	0.00				
44.00	0.00	37.68	0.00				
45.00	0.00	37.68	0.00				
46.00	0.00	37.68	0.00				
47.00	0.00	37.68	0.00				
48.00	0.00	37.68	0.00				
49.00	0.00	37.68	0.00				
50.00	0.00	37.68	0.00				
51.00	0.00	37.68	0.00				

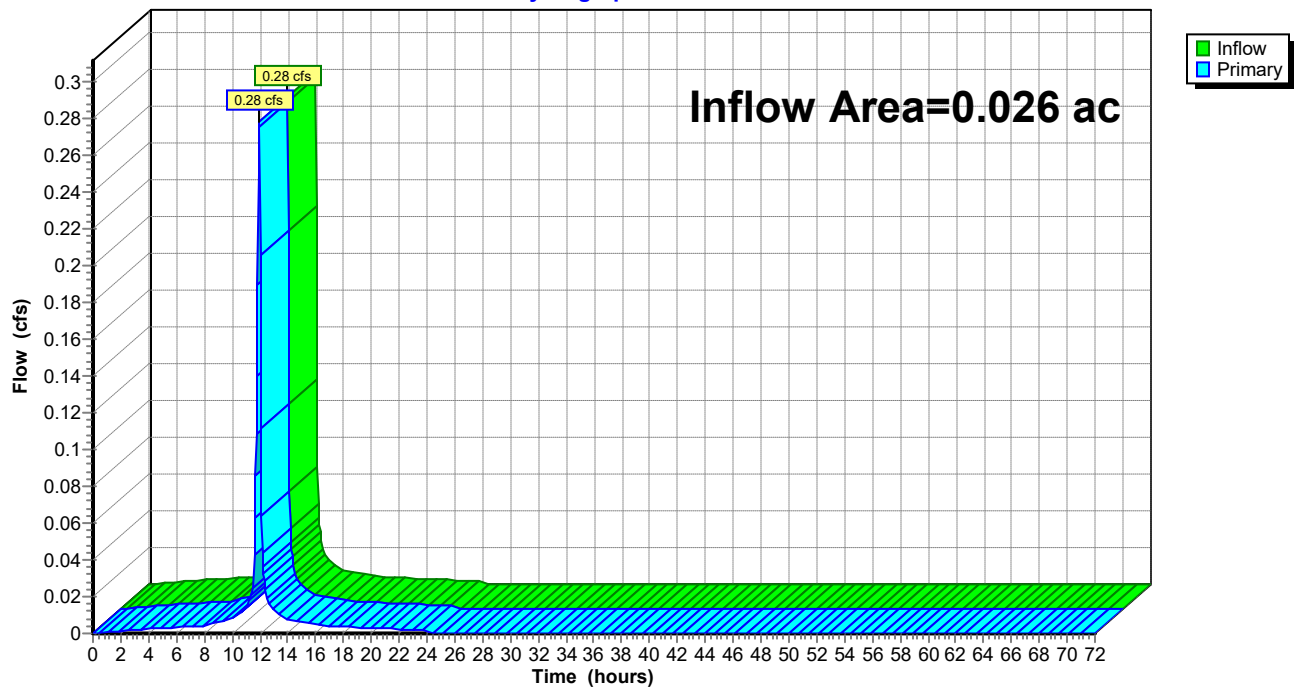
Summary for Link 27L: STUDY POINT 2

Inflow Area = 0.026 ac, 100.00% Impervious, Inflow Depth = 7.36" for 100-YR event
Inflow = 0.28 cfs @ 11.94 hrs, Volume= 0.016 af
Primary = 0.28 cfs @ 11.94 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 27L: STUDY POINT 2

Hydrograph



521 August_SWM_V4 - JW_10-10

Type II 24-hr 100-YR Rainfall=7.60"

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Printed 10/31/2022

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Hydrograph for Link 27L: STUDY POINT 2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	0.21	0.00	0.21	64.00	0.00	0.00	0.00
13.00	0.01	0.00	0.01	65.00	0.00	0.00	0.00
14.00	0.01	0.00	0.01	66.00	0.00	0.00	0.00
15.00	0.01	0.00	0.01	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

SECTION 5 – SOIL REPORTS



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Talbot County, Maryland



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Talbot County, Maryland
Survey Area Data: Version 18, Aug 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2021—Oct 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FgcA	Fallsington loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	0.8	99.6%
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	0.0	0.4%
Totals for Area of Interest		0.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Talbot County, Maryland

FgcA—Fallsington loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2s96t

Elevation: 10 to 70 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Fallsington, undrained, and similar soils: 38 percent

Fallsington, drained, and similar soils: 37 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fallsington, Undrained

Setting

Landform: Drainageways, flats, depressions, swales

Landform position (three-dimensional): Dip, tal

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Loamy fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: mucky peat

A - 2 to 10 inches: loam

Btg - 10 to 32 inches: sandy clay loam

BCg - 32 to 39 inches: loamy sand

Cg1 - 39 to 46 inches: sandy clay loam

Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Fallsington, Drained

Setting

Landform: Flats, depressions, swales
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand
Cg1 - 39 to 46 inches: sandy clay loam
Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 1.98 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Hammonton

Percent of map unit: 7 percent
Landform: Flats, drainageways
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear
Hydric soil rating: No

Woodstown

Percent of map unit: 7 percent
Landform: Flats, fluviomarine terraces, depressions, broad interstream divides
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Othello

Percent of map unit: 6 percent
Landform: Depressions, swales, drainageways, flats
Landform position (two-dimensional): Footslope, toeslope

Custom Soil Resource Report

Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Marshyhope

Percent of map unit: 5 percent
Landform: Depressions, flats, drainageways
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

HfA—Hambrook-Sassafras complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1vh08
Elevation: 0 to 330 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Hambrook and similar soils: 41 percent
Sassafras and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting

Landform: Fluvio-marine terraces, flats, depressions
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Typical profile

Ap - 0 to 10 inches: sandy loam
BE - 10 to 14 inches: loam
Bt - 14 to 28 inches: sandy clay loam
BC - 28 to 65 inches: loamy sand
2Cg - 65 to 80 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)

Custom Soil Resource Report

Depth to water table: About 42 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Knolls, fluviomarine terraces, flats, low hills
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 9 inches: sandy loam
E - 9 to 15 inches: sandy loam
Bt - 15 to 30 inches: loam
BC - 30 to 37 inches: sandy loam
C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 10 percent
Landform: Depressions, flats
Landform position (three-dimensional): Dip
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Talf

Hydric soil rating: No

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Redefining the Building Potential





Redefining the Building Potential



Planning Commission MEETING AGENDA

Thursday, November 17, 2022 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Call to Order

2. Approval of Minutes.

- a. Approval of Minutes from the September 15, 2022 and October 10, 2022 meeting.

3. New Business

- a. **Applicant:** Casey Rauch, RAUCH Inc.
Owner: Donald Carter
Location: 521 August Street
Nature of Request: The Applicant proposes to develop lots 0102 (521 August St) and lot 0303 (523 August St) as one consolidated lot, 521 August.

4. Old Business

- | | |
|----|--|
| a. | Applicant: Brendan S. Mullaney
Owner: Lands of Lot 16, LLC and Mr. Thomas Cohee
Location: 28580 Marys Court
Nature of Request: The Applicant formally requests an award for Growth Allocation for lots 16 & 20 in the Talbot Commerce Park project to reclassify Lot 20's 8.348 Acres+/- from RCA to IDA. |
|----|--|

- b. Review and Approval of Subdivision Regulations

5. Discussion Item

- a. **Applicant:** Brett Ewing - Lane Engineering, LLC
Owner: 5001 SHR, L.C.
Location: Oxford Road- Poplar Hill

Nature of Request:

The purpose of this meeting is to discuss the layout and site design of the proposed PUD for 456 residential units, a commercial area consisting of two office buildings and two retail buildings, a public park to be dedicated to the Town of Easton, community open space, walking trails, two community clubhouses and swimming pools and a satellite fire department building with associated utilities and Stormwater Management features. The Applicant is also formally requesting an award of Supplemental Growth Allocation to reclassify 65.977 acres +/- from RCA to IDA on the property.

- b. **Applicant:** Rick Van Emburgh, P.E., Easton Park Board
Owner: Town of Easton
Location: Easton Point Park
Nature of Request: The purpose of this meeting is to discuss the revised site design of the Easton Point Park Plan. The Applicant is requesting the approval of the location, conceptual character, and extent of development as consistent with the Comprehensive Plan.

- c. Continue discussion of Amendments to Zoning Ordinance.

6. Adjournment.



TOWN OF EASTON

PLANNING & ZONING

PO Box 520

Easton, Maryland 21601

(410)-822-2526

Date of Meeting: November 17, 2022

4a

PLANNING COMMISSION PUBLIC HEARING STAFF REPORT

SUBJECT: Supplemental Growth Allocation Request for the Lands of Lot 16, LLC and Mr. Thomas Cohee

ELECTION WARD: Ward 1

STAFF CONTACTS: Joseph Mayer, Plan Reviewer
Miguel Salinas, Director of Planning and Zoning

PURPOSE: The applicant is seeking a recommendation from the Planning Commission to the Town Council for the granting of supplemental growth allocation for the purpose of reclassifying approximately 8.348 acres of lands located in the Critical Area, currently designated as Resource Conservation Area (RCA), to be reclassified as Intensely Developed Area (IDA).

RECOMMENDATION:

Staff: Staff supports a Planning Commission recommendation of approval to the Town Council subject to conditions (see below).

UPDATE: COMAR 27.01.02.06-2 specifies the contents of the environmental report that is part of the submission requirements for growth allocation requests: 1) the method and description of proposed stormwater management (SWM), including all qualitative and quantitative management measures, and 2) the preliminary plan for compliance with the 10% pollutant reduction rule, including all worksheets and all supporting documentation.

Staff, Town Engineering Department and Critical Area Commission (CAC) staff received the Revised SWM report on Monday, October 17, 2022. The Critical Area Commission (CAC) staff (Attachment 3) provided a response letter on October 24, 2022. The Town Engineering Department will provide a response letter prior to the November 17, 2022 meeting.

In addition, the CAC provided comments on October 24, 2022 (Attachment 2). Staff's response to the comments are below:

- With the submission of the Revised SWM Narrative and Environmental Report, the applicant has complied with the submittal requirements of COMAR 27.01.02.06-1 and COMAR 27.01.02.06-2 (Comment #1).
- Growth allocation is contingent on the supplemental growth allocation process to receive acreage from Talbot County and approvals by the Easton Town Council and Talbot County Council prior to the Critical Area Commission for review and approval. (Comment #2).

In light of the above, staff supports a Planning Commission recommendation of approval with the following conditions:

1. The applicant shall make an application to the Town of Easton for a rezoning of Lot 20 to a Town of Easton zoning district that permits the proposed uses. Approval of the supplemental growth allocation request is subject to approval of the rezoning.
2. The conceptual site plan submitted with the supplemental growth allocation application is conceptual in nature and was assessed by staff for conformance to § 28-401.8.E and § 28-401.8.F of the Town Code. Approval of the supplemental growth allocation shall not infer Town of Easton site plan approval. Prior to any lot consolidation or site plan approval of Lots 16 and 20, the proposed development will be evaluated by the applicable reviewing agencies for conformance to all applicable Zoning; Subdivision; Forest Conservation; Stormwater Management; Erosion and Sediment Control; and other applicable regulations. Such review may result in modifications to the conceptual site plan.

DRAFT MOTIONS:

1. I move that the Planning Commission recommend to the Town Council support of CC-22-2, Supplemental Growth Allocation Request for the Lands of Lot 16, LLC and Mr. Thomas Cohee subject to the conditions of approval.

OR

2. I move that the Planning Commission recommend to the Town Council denial of CC-22-2, Supplemental Growth Allocation Request for the Lands of Lot 16, LLC and Mr. Thomas Cohee, based on the following findings.....

OR

3. I move an alternate motion.

ATTACHMENTS:

1. Town of Easton/Talbot County Planning Commissions Joint Public Hearing Staff Report, September 26, 2022.
2. Town of Easton/Talbot County Planning Commissions Joint Public Hearing Staff Report – Supplemental, September 26, 2022.
3. Review comments from Critical Area Commission, August 8, 2022, October 7, 2022 and October 24, 2022.
4. Revised Stormwater Management Narrative.
5. Growth Allocation Plan.
6. Revised Environmental Report.
7. Revised application cover letter.
8. MDE property concurrence.
9. Response letter to CAC.
10. 400' Notices.

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor



Charles C. Deegan
Chairman
Katherine Charbonneau
Executive Director

**STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS**

October 24, 2022

Mr. Joseph Mayer
Town of Easton Planning and Zoning
14 South Harrison Street
Easton, MD 21601

**Re: Mary's Court Site Plan
Growth Allocation (TM 25, P 46, Lots 16 & 20)**

Dear Mr. Mayer:

We have received revised information from the applicant regarding the above-referenced project. The application is requesting 8.348 acres of growth allocation from the Town of Easton to change a portion of the Critical Area designation on the above-referenced property from Resource Conservation Area (RCA) to Intensely Developed Area (IDA). Lot 16 is 6.56 acres, with 3.51 acres located in the Critical Area and designated as IDA, while Lot 20 is 8.35 acres and is designated as RCA. If approved, the growth allocation will allow the property to be developed for commercial use as a part of Talbot Commerce Park. This letter is a follow-up to our August 23, 2022, and October 6, 2022, letters (attached).

Based on the revised information provided, our previous comments have been largely addressed. We do still want to note the following:

1. The Town must determine that the information provided by the applicant meets the growth allocation requirements found in 28-401.8 of the Easton Zoning Ordinance, including the growth allocation location standards, IDA size standards, and growth allocation factors to be considered. This includes having the applicant submit all information outlined in COMAR 27.01.02.06-1 ("Growth Allocation Submittal Requirements") and COMAR 27.01.02.06-2 ("Environmental Report").
2. Since the Town does not have any growth acreage remaining, this proposal must go through the supplemental growth allocation process to receive acreage from Talbot County. The growth allocation request shall also require approval by the Easton Town Council prior to submission to the Critical Area Commission for review and approval.

If you have any questions, please contact me at nick.kelly@maryland.gov or (410) 260-3483.
Thank you for the opportunity to provide comments.



Nick Kelly
Regional Program Chief

cc: Annie Sekerak, Critical Area Commission

File: EA 280-22

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor



Charles C. Deegan
Chairman
Katherine Charbonneau
Executive Director

**STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS**

October 6, 2022

Mr. Joseph Mayer
Town of Easton Planning and Zoning
14 South Harrison Street
Easton, MD 21601

**Re: Mary's Court Site Plan
Growth Allocation (TM 25, P 46, Lots 16 & 20)**

Dear Mr. Mayer:

Thank you for providing revised information regarding the Buffer and stormwater management for the above-referenced project. The application is requesting 8.348 acres of growth allocation from the Town of Easton to change a portion of the Critical Area designation on the above-referenced property from Resource Conservation Area (RCA) to Intensely Developed Area (IDA). Lot 16 is 6.56 acres, with 3.51 acres located in the Critical Area and designated as IDA, while Lot 20 is 8.35 acres and is designated as RCA. If approved, the growth allocation will allow the property to be developed for commercial use as a part of Talbot Commerce Park.

Based on the information provided, and based on a conversation with the applicant's consultant, we have the following comments regarding the proposed growth allocation request:

1. Prior to Critical Area Commission review and approval, the growth allocation proposal must go through the supplemental growth allocation process which includes local approval from both the Town of Easton and Talbot County.
2. The project must meet the standards and address the factors found in Natural Resources Article 8-1808.1 and COMAR 27.01.02.06. This information is required to be submitted by the Town of Easton as part of the application for growth allocation to the Critical Area Commission, per COMAR 27.01.02.06-1 and COMAR 27.01.02.06-2.

Based on preliminary review of the submitted materials by Commission staff, it appears that the growth allocation request can meet adjacency and IDA size standards (1), (2), (5), and (6) found in the Town's Zoning Ordinance (§228-401.8.E). However, additional information is required to ensure that the location standards found in (3), (4) and (7) are met.

3. Please have the applicant provide information on how the growth allocation factors outlined in §228-401.8.F of the Town's Critical Area Code are addressed.
4. The project has a 100-foot Buffer on the site from a perennial stream. We have received a revised plan from the applicant's consultant that shows that the 100-foot Buffer on the growth allocation site is currently established in native vegetation. Based on these revised plans, establishment of the Buffer is not required as part of the growth allocation process.

We do note that portions of the Buffer on sites not associated with the growth allocation request are not fully established. Future development on these lots will be subject to meeting Buffer establishment requirements found within the Town's Critical Area Code.

5. The applicant proposes to treat stormwater for the project using eight microbioretention areas. In reviewing the updated conceptual 10% spreadsheet, drainage area maps, and stormwater narrative, it appears that the project can meet Critical Area 10% phosphorus reductions as proposed. Provided that the Town Engineer concurs that the stormwater requirements onsite can be met as proposed, we have no further comments on the conceptual plans at this time. Final stormwater plans will require additional review by this office.

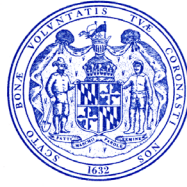
Thank you for the opportunity to provide comments. Please have the applicant submit the above information to this office. If you have any questions, please contact me at nick.kelly@maryland.gov or (410) 260-3483.



Nick Kelly
Regional Program Chief

cc: Annie Sekerak, Critical Area Commission

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor



Charles C. Deegan
Chairman
Katherine Charbonneau
Executive Director

**STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS**

August 25, 2022

Mr. Joseph Mayer
Town of Easton Planning and Zoning
14 South Harrison Street
Easton, MD 21601

**Re: Mary's Court Site Plan
Growth Allocation (TM 25, P 46, Lots 16 & 20)**

Dear Mr. Mayer:

Thank you for providing information on the above-referenced project. The application is requesting 8.348 acres of growth allocation from the Town of Easton to change a portion of the Critical Area designation on the above-referenced property from Resource Conservation Area (RCA) to Intensely Developed Area (IDA). Lot 16 is 6.56 acres, with 3.51 acres located in the Critical Area and designated as IDA, while Lot 20 is 8.35 acres and is designated as RCA. If approved, the growth allocation will allow the property to be developed for commercial use as a part of Talbot Commerce Park.

Based on the information provided, we have the following comments regarding the proposed growth allocation request:

1. Prior to Critical Area Commission review and approval, the growth allocation proposal must go through the supplemental growth allocation process which includes local approval from both the Town of Easton and Talbot County.
2. The project must meet the standards and address the factors found in Natural Resources Article 8-1808.1 and COMAR 27.01.02.06. This information is required to be submitted by the Town of Easton as part of the application for growth allocation to the Critical Area Commission, per COMAR 27.01.02.06-1 and COMAR 27.01.02.06-2.

Based on preliminary review of the submitted materials by Commission staff, it appears that the growth allocation request can meet adjacency and IDA size standards (1), (2), (5), and (6) found in the Town's Zoning Ordinance (§228-401.8.E). However, additional information is required to ensure that the location standards found in (3), (4) and (7) are met.

3. Please have the applicant provide information on how the growth allocation factors outlined in §228-401.8.F are addressed.
4. The project has a 100-foot Buffer on the site from a perennial stream. It appears that a portion of the 100-foot Buffer is not currently established in native vegetation. The applicant will be required to submit a Buffer Management Plan that provides full establishment of the 100-foot Buffer.
5. The site plan denotes the Buffer as a “100-foot nontidal wetland buffer.” It appears that the Buffer has been drawn from the edge of nontidal wetlands and not from the edge of each bank of the tributary stream, as required per COMAR 27.01.09.01. Please have the applicant revise the Buffer delineation accordingly.
6. The applicant proposes to treat stormwater for the project using environmental site design (ESD) features. However, the 10% worksheets and stormwater plans were not provided to this office as part of the application. Please have the applicant forward these plans to this office for review and comment.
7. It is our understanding from previous conversations with the applicant’s attorney that a portion of Lot 16 along Goldsborough Neck Road is to be transferred to Talbot County prior to the request for growth allocation. Please have the applicant provide information verifying whether this has been completed. If this has not been executed, then additional growth allocation acreage will be required for this portion of the lot.
8. Please have the applicant provide information explaining why Forest Protection Areas A and B are required to be modified. In addition, please have the applicant provide information to this office regarding the easements for both forest protection areas and the stormwater management areas for review.
9. We note that in several places within the application letter and environmental report that the growth allocation request is for conversion of Limited Development Area (LDA) to IDA instead of RCA to IDA. Please have the applicant correct these discrepancies.

Thank you for the opportunity to provide comments. Please have the applicant submit the above information to this office. If you have any questions, please contact me at nick.kelly@maryland.gov or (410) 260-3483.



Nick Kelly
Regional Program Chief

cc: Alex DeWeese, Critical Area Commission

STORMWATER MANAGEMENT NARRATIVE

Lot 16, LLC New Development

The subject property is located at 28580 Mary's Court in the Town of Easton, Maryland. There are two parcels of record as shown on Talbot County Tax Map 25 identified as Parcel 46, Lots 16 & 20. The property is situated at the cul de sac end of Mary's Court, is bordered by Goldsborough Neck Road to the west, private property to the north, and developed industrial lots to the south and east. The property is partially located within the Chesapeake Bay Critical Area with land use designations of Intensely Developed Area (IDA) and Resource Conservation Area (RCA). There are non-tidal wetlands, streams, and forested areas along the northern, western, and southern boundaries of the site. Per a site visit with the MDE non-tidal wetlands division, there are no non-tidal wetlands in the areas of the proposed development for the site. There are no natural resources in the area of proposed development as the existing conditions, except for existing stormwater management pond, is maintained in meadow/lawn cover.

The site has a high topographical point near the center of the proposed development area and generally drains towards the existing pond on the front part of the lot, and towards the wooded wetlands and stream towards the rear of the lot. The soils inherent to the subject property in the development area are mapped by the US Dept. of Agriculture soil survey as Mattapex silt loams (MtcA & MtcB) and Woodstown silt loam (WocB), all of which are identified as type "C" hydrologic soil group classification.

The applicant is requesting critical area growth allocation to re-designate the RCA portion of the site as Intensely Developed Area (IDA), and then will propose to develop the site with an addition to the existing office building, three new office buildings, a mixed use office/warehouse building, with associated access drives, loading zones, parking, stormwater management, etc... as shown on the plans submitted as part of the growth allocation request.

The project will propose stormwater management (SWM) measures to address requirements in accordance with the Stormwater Management Act of 2007, Town of Easton Stormwater Management Ordinance, and MDE SWM requirements. Proposed SWM treatment measures will address Environmental Site Design (ESD) to the Maximum Extent Practicable (MEP) as required by the MDE SWM design manual. It is currently estimated during this concept design phase that the site will require approximately 3.56 acres of disturbance within the critical area portions of the site and 1.50 acres of disturbance outside of the critical area to construct the project. Approximately 1.94 acres or approximately 54% imperviousness is proposed within the critical area and approximately 0.81 acres or approximately 53% imperviousness is proposed outside the critical area. The resulting ESD volume (ESDv) requirement within the critical area is 12,571 cf and outside of the critical area is 5,194 cf. This project must also address the 10% pollutant reduction requirement for the proposed IDA portion of the project in accordance with Critical Area IDA requirements since the project is requesting growth allocation. SWM treatment must include the removal of 3.11 lbs of phosphorus per year for the critical area portion of the project.

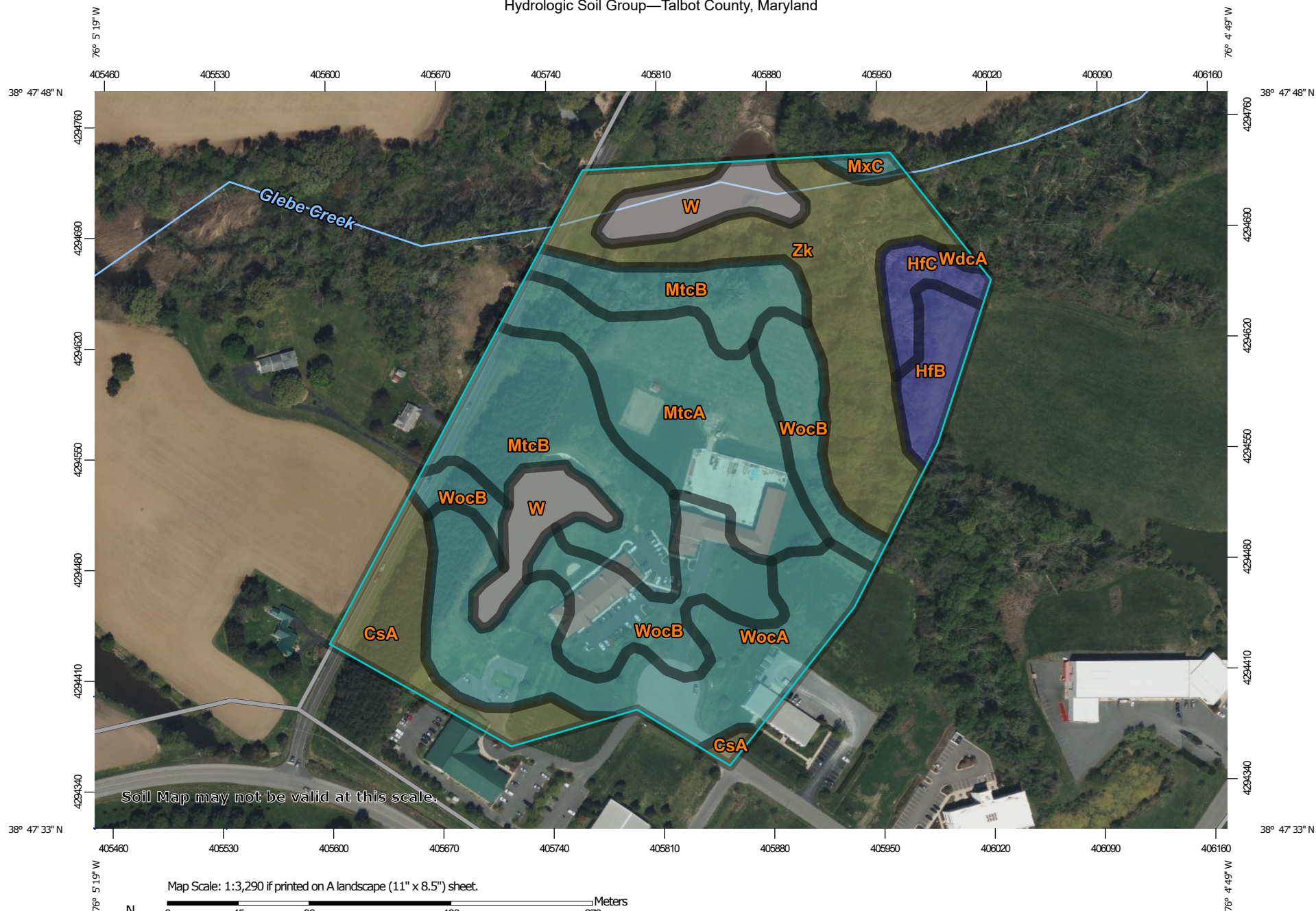
At this conceptual site development design phase, we propose the use of micro-bioretenion systems to address SWM and pollutant reduction requirements. Multiple micro-bioretenion system locations

have been sited around the project area that will be designed to collect surface runoff from proposed buildings and site improvements, provide storage and treatment, with ultimate discharge to the existing stormwater management pond via use of on-site closed storm drain systems. At this conceptual design phase, the designated SWM areas shown on the conceptual site development plan inside the critical area can provide over 17,651 c.f. of ESD treatment volume. Furthermore, these measures provide 3.56 lbs of phosphorus per year reduction, which is 14% above the requirement. Treatment areas outside the critical area provide over 5,825 c.f. of ESD treatment volume. The micro-bioretenion systems are conceptually designed to provide 1 ft. of temporary storage and 3 ft of media storage. It is noted that there are potential areas of the site that could meet rooftop and non-rooftop disconnection criteria but at this time we have excluded such areas from these conceptual ESD calculations. Further design detail and more associated calculations will be developed at the formal Site Plan design phase, however at this time we want to only ensure adequate treatment areas are planned for accordingly to address quality and pollutant reduction requirements.

In conclusion the conceptual stormwater management measures address ESD to the MEP as required by the Town and MDE. Furthermore the proposed stormwater management design will satisfy COMAR 27.01.02.06-2.A.6 as they will address qualitative and quantitative requirements. All quality volume requirements are met with the systems also provided storage and attenuation for quantity control. The treatment systems will then discharge to the large existing stormwater pond for further quantity control. The proposed measures within the critical area phosphorous removal in excess of 14% of the 3.11 lbs of phosphorous per year removal requirement, thereby meeting the 10% pollutant removal requirement as required in COMAR 06-2.A.7.

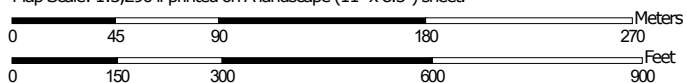
The following two sets of calculations have been prepared for the 3.56 ac. disturbance project area inside the critical area and 1.50 ac. disturbance project area outside the critical area, respectively.

Hydrologic Soil Group—Talbot County, Maryland



Soil Map may not be valid at this scale.

Map Scale: 1:3,290 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Talbot County, Maryland
 Survey Area Data: Version 18, Aug 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2021—Oct 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CsA	Crosiadore silt loam, 0 to 2 percent slopes	C/D	1.7	6.5%
HfB	Hambrook-Sassafras complex, 2 to 5 percent slopes	B	0.8	3.3%
HfC	Hambrook-Sassafras complex, 5 to 10 percent slopes	B	0.7	2.5%
MtcA	Mattapex silt loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C	3.7	14.4%
MtcB	Mattapex silt loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain	C	4.3	16.7%
MxC	Mattapex-Woodstown complex, 5 to 10 percent slopes	C	0.2	0.6%
W	Water		1.8	6.8%
WdcA	Woodstown sandy loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C	0.0	0.1%
WocA	Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C	4.4	16.9%
WocB	Woodstown loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain	C	3.7	14.3%
Zk	Zekiah silt loam, frequently flooded	C/D	4.6	17.7%
Totals for Area of Interest			25.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

	VERSION	4.0			
Maryland ESD Calculations and 10% Phosphorus Removal					
Project Name:	Lot 16 LLC inside Critical Area				
Date:	Sept. 2022				
	data input cells				
	calculation cells				
Step 1: Complete ESD Implementation Checklist					
<i>Check all of the Following ESD Practices That Were Implemented at Site</i>			Yes - No - N/A		
Environmental Mapping Was Conducted at Site Prior to Layout			YES		
Natural Areas Were Conserved (e.g., forests, wetlands, steep slopes, floodplains)			YES		
Stream, Wetland and Shoreline Buffers Were Reserved			YES		
Disturbance of Permeable Soils Was Minimized			N/A		
Natural Flow Paths Were Maintained Across the Site			YES		
Building Layout Was Fingerprinted to Reduce Clearing and Grading at Site			YES		
Site Grading Promoted Sheetflow From Impervious Areas to Pervious Ones			YES		
Site Design Was Evaluated to Reduce Creation of Needless Impervious Cover			YES		
Site Design Was Evaluated to Maximize Disconnection of Impervious Cover			YES		
Site Design Was Evaluated to Identify Potential Hotspot Generating Area for Stormwater Treatment			N/A		
Erosion and Sediment Control Practices and Post Construction Stormwater Management Practices Were Integrated into a Comprehensive Plan			YES		
Tree Planting Was Used at the Site to Convert Turf Areas into Forest			N/A		

Step 2: Calculate Site Imperviousness and Water Quality Volume, WQv (for redevelopment)				
Site Area, A (acres)	3.56			
Existing Impervious Surface Area (acres)	0.00			
Proposed Impervious Surface Area (acres)	1.94			
Rainfall Depth, P (in)	1.0			
Existing Imperviousness, I_{pre}	0.0%			
Proposed Imperviousness, I_{post}	54.5%			
<i>Water Quality Calculation for Redevelopment Only</i>				
Required Treatment Area (acres)	0.00			
Runoff Coefficient, Rv	0.95			
Water Quality Volume, WQv (cf)	0			

Step 3: Calculate Phosphorous Removal Requirement, RR for Critical Area Sites					
Development Category (for 10%)			New Development		
New Development					
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)				1.78	
Redevelopment:					
Predevelopment Runoff Coefficient, Rv_{pre}				0.05	
Phosphorous Mean Concentration, C (mg/L)				0.3	
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)				0.44	
Post-Development Runoff Coefficient, Rv_{post}				0.54	
Average Annual Post-Development Load, L_{post} (lbs P / yr)				4.71	
Removal Requirement, RR (lbs P / yr)				3.11	

Step 4: Calculate Environmental Site Design (ESD) Rainfall Target, P_E				
Development Category (for ESD)	New Development			
% Soil Type A	0%			
% Soil Type B	0%			
% Soil Type C	100%			
% Soil Type D	0%			
Pre-Developed Condition, RCN_{woods}	70			
Soil Type A ESD Rainfall Target, P_E (in)	0.00			
Soil Type B ESD Rainfall Target, P_E (in)	0.00			
Soil Type C ESD Rainfall Target, P_E (in)	1.80			
Soil Type D ESD Rainfall Target, P_E (in)	0.00			
Maximum P_E (in)	2.7			
Site ESD Rainfall Target, P_E (in)		1.80		
ESD Runoff Depth, Q_E (in)		0.97		
ESD Runoff Volume, ESD_v (cf)		12,571		
Total Treatment Volume (cf)		12,571		

Step 5: Select Nonstructural Practices to Treat the ESD Rainfall Target							
Nonstructural Practices	P _E Credit Description	Contributing Drainage Area (sf)	Direct WQv or ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	P _E Credit (in)	WQV or ESDv credit (cf)	Runoff Volume Remaining (cf)
Disconnection of Rooftop Runoff (A/B Soils)	Up to 1 inch credit provided based upon disconnection flow length.	0	0	0	0.00	0	0
Disconnection of Rooftop Runoff (C/D Soils)	Up to 1 inch credit provided based upon disconnection flow length.	0	0	0	0.00	0	0
Disconnection of Non-Rooftop Runoff (A/B Soils)	Up to 1 inch credit provided based upon disconnection and contributing flow lengths.	0	0	0	0	0	0
Disconnection of Non-Rooftop Runoff (C/D Soils)	disconnection and contributing flow lengths.	0	0	0	0	0	0
Sheetflow to Conservation Areas (A/B Soils)	Up to 1 inch credit provided based upon conservation area width.	0	0	0	0	0	0
Sheetflow to Conservation Areas (C/D Soils)	Up to 1 inch credit provided based upon conservation area width.	0	0	0	0	0	0

	<i>Critical Area Credits</i>			
Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
50%	0%	0.00	0.00	0.00
25%	0%	0.00	0.00	0.00
50%	0%	0.00	0.00	0.00
25%	0%	0.00	0.00	0.00
50%	0%	0.00	0.00	0.00
25%	0%	0.00	0.00	0.00

Step 6: Select Micro-Scale Practices to Treat the ESD Rainfall Target						
Micro-Scale Practices	P _E Credit Description	Contributing Drainage Area (sf)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)
Green Roof (Level 1)	ESDv credit is based on roof thickness	0	0	N/A	0	0
Green Roof (Level 2)	ESDv credit is based on roof thickness	0	0	N/A	0	0
Pemeable Pavement (A Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Pemeable Pavement (B Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Rainwater Harvesting	ESDv credit is based on design storage volume and annual use	0	0	0	0	0
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	0	0	0	0	0
Micro-Infiltration	ESDv credit is based on design storage volume	0	0	0	0	0
Rain Gardens (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Rain Gardens (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Micro-Bioretenention (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Micro-Bioretenention (C/D Soils)	ESDv credit is based on design storage volume	157,750	23,567	0	17,651	5,915
Landscape Infiltration	ESDv credit is based on design storage volume	0	0	0	0	0
Grass Swales (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Grass Swales (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Bio-swales (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Bio-swales (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Wet Swales	ESDv credit is based on design storage volume	0	0	0	0	0

Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
45%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
80%	0%	0.00	0.00	0.00
80%	0%	0.00	0.00	0.00
40%	0%	0.00	0.00	0.00
45%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
65%	0%	0.00	0.00	0.00
65%	0%	0.00	0.00	0.00
25%	0%	0.00	0.00	0.00
75%	0%	0.00	0.00	0.00
50%	62%	5.89	3.56	2.33
75%	0%	0.00	0.00	0.00
40%	0%	0.00	0.00	0.00
20%	0%	0.00	0.00	0.00
75%	0%	0.00	0.00	0.00
50%	0%	0.00	0.00	0.00
40%	0%	0.00	0.00	0.00
Total Load Reduction (lbs P / year)				3.56
Total Load Reduction Remaining (lbs P / yr)				0.00

Step 7: Check for ESDv to MEP compliance and Revise Site If Necessary								
	Drainage Area Treated (sf)	157,750				WQv or ESDv Treated (cf)	17,651	
						P _E achieved (inches)	2.53	
					Entire ESDv Treated Through Environmental Site Design?		YES	
					ESDv Remaining? (cf)		0	
					If ESDV is not fully treated, is ESD to MEP achieved?			
					Redevelopment WQv Requirements Met Through Environmental Site Design?		N/A	
<i>New Development Water Quality Volume Requirements</i>						WQv Remaining? (cf)	0	
	Required Treatment Area (acres)	3.56						
	Runoff Coefficient, Rv	0.54						
	Water Quality Volume, WQv (cf)	6,984			New Development WQv Requirements Met Through Environmental Site Design?		YES	
						WQv Remaining? (cf)	0	

Step 8: Determine Reduced RCN and Volume Management Requirements Based Upon P _E Achieved					
Reduced RCN for Type A Soils	N/A				
Reduced RCN for Type B Soils	N/A				
Reduced RCN for Type C Soils	N/A				
Reduced RCN for Type D Soils	N/A				
Composite Reduced RCN	N/A				
Q _E (in) for Reduced RCN	N/A		Q _E (in) for RCN of 55	0.12	
V (ft ³) for Reduced RCN	N/A		V (ft ³) for RCN of 55	1599	
Volume Management Required (cf)	0				

Step 9: Select Structural Practices to Meet Volume Management Requirements					
Structural Practices	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	ESDv from Upstream Practices (cf)	Treatment Volume (cf)
Stormwater Ponds (Level 1)	0	0%	0	0	0
Stormwater Ponds (Level 2)	0	0%	0	0	0
Stormwater Wetlands (Level 1)	0	0%	0	0	0
Stormwater Wetlands (Level 2)	0	0%	0	0	0
Stormwater Filtering Systems (Level 1)	0	0%	0	0	0
Stormwater Filtering Systems (Level 2)	0	0%	0	0	0
Stormwater Infiltration (Level 1)	0	0%	0	0	0
Stormwater Infiltration (Level 2)	0	0%	0	0	0
			Total structural CPv provided		0
			Management Requirement Met?		YES
			Volume Remaining (cf)		0

	<i>Critical Area Credits</i>			
Phosphorous Removal Efficiency	Adjusted Phosphorus Removal Efficiency	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
50%	0%	0.00	0.00	0.00
75%	0%	0.00	0.00	0.00
50%	0%	0.00	0.00	0.00
75%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
65%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
90%	0%	0.00	0.00	0.00
Total Load Reduction (lbs P / year)				3.56
Total Load Reduction Remaining (lbs P / yr)				0.00

			Contributing Drainage Area (sf)	% Impervious Cover	ESDv Received by Practice	ESDv from Up- Gradient Practices	Practice Specific Parameter(s)			WQv or ESDv credit (cf)	Runoff Volume Remainin g (cf)	Down- Gradient Practice		Phosphor ous Removal Efficiency	Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remainin g Load (lbs/yr)
	Micro-Scale Practices	P _E Credit Description																
MB-C1	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	24,150	70%	3,695	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	3,695	0			50%	66%	0.92	0.60	0.32
							2,330	1	3									
MB-C2	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	29,400	76%	4,855	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	2,303	2,552			50%	54%	1.21	0.65	0.56
							1,917	1	3									
MB-C3	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	23,800	71%	3,690	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	2,620	1,069			50%	60%	0.92	0.55	0.37
							1,191	1	3									
MB-C4	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	22,450	82%	3,980	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	2,647	1,334			50%	59%	0.99	0.59	0.41
							1,203	1	3									
MB-C5	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	18,400	74%	2,964	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	2,004	960			50%	59%	0.74	0.44	0.30
							911	1	3									
MB-C6	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	9,500	46%	992	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	992	0			50%	66%	0.25	0.16	0.09
							911	1	3									
MB-C7	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	13,050	66%	1,891	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	1,891	0			50%	66%	0.47	0.31	0.16
							911	1	3									
MB-C8	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	17,000	38%	1,499	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	1,499	0			50%	66%	0.37	0.25	0.13
							2,352	1	3									
							Total											

	VERSION	4.0			
Maryland ESD Calculations and 10% Phosphorus Removal					
Project Name:	Lot 16 LLC outside the Critical Area				
Date:	Sept. 2022				
	data input cells				
	calculation cells				
Step 1: Complete ESD Implementation Checklist					
<i>Check all of the Following ESD Practices That Were Implemented at Site</i>			<i>Yes - No - N/A</i>		
Environmental Mapping Was Conducted at Site Prior to Layout			YES		
Natural Areas Were Conserved (e.g., forests, wetlands, steep slopes, floodplains)			YES		
Stream, Wetland and Shoreline Buffers Were Reserved			YES		
Disturbance of Permeable Soils Was Minimized			N/A		
Natural Flow Paths Were Maintained Across the Site			YES		
Building Layout Was Fingerprinted to Reduce Clearing and Grading at Site			YES		
Site Grading Promoted Sheetflow From Impervious Areas to Pervious Ones			YES		
Site Design Was Evaluated to Reduce Creation of Needless Impervious Cover			YES		
Site Design Was Evaluated to Maximize Disconnection of Impervious Cover			YES		
Site Design Was Evaluated to Identify Potential Hotspot Generating Area for Stormwater Treatment			N/A		
Erosion and Sediment Control Practices and Post Construction Stormwater Management Practices Were Integrated into a Comprehensive Plan			YES		
Tree Planting Was Used at the Site to Convert Turf Areas into Forest			N/A		

Step 2: Calculate Site Imperviousness and Water Quality Volume, WQv (for redevelopment)				
Site Area, A (acres)	1.50			
Existing Impervious Surface Area (acres)	0.00			
Proposed Impervious Surface Area (acres)	0.80			
Rainfall Depth, P (in)	1.0			
Existing Imperviousness, I_{pre}	0.0%			
Proposed Imperviousness, I_{post}	53.3%			
<i>Water Quality Calculation for Redevelopment Only</i>				
Required Treatment Area (acres)	0.00			
Runoff Coefficient, Rv	0.95			
Water Quality Volume, WQv (cf)	0			

Step 4: Calculate Environmental Site Design (ESD) Rainfall Target, P_E			
Development Category (for ESD)	New Development		
% Soil Type A	0%		
% Soil Type B	0%		
% Soil Type C	100%		
% Soil Type D	0%		
Pre-Developed Condition, RCN_{woods}	70		
Soil Type A ESD Rainfall Target, P_E (in)	0.00		
Soil Type B ESD Rainfall Target, P_E (in)	0.00		
Soil Type C ESD Rainfall Target, P_E (in)	1.80		
Soil Type D ESD Rainfall Target, P_E (in)	0.00		
Maximum P_E (in)	2.7		

Step 5: Select Nonstructural Practices to Treat the ESD Rainfall Target							
Nonstructural Practices	P _E Credit Description	Contributing Drainage Area (sf)	Direct WQv or ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	P _E Credit (in)	WQV or ESDv credit (cf)	Runoff Volume Remaining (cf)
Disconnection of Rooftop Runoff (A/B Soils)	Up to 1 inch credit provided based upon disconnection flow length.	0	0	0	0.00	0	0
Disconnection of Rooftop Runoff (C/D Soils)	Up to 1 inch credit provided based upon disconnection flow length.	0	0	0	0.00	0	0
Disconnection of Non-Rooftop Runoff (A/B Soils)	Up to 1 inch credit provided based upon disconnection and contributing flow lengths.	0	0	0	0	0	0
Disconnection of Non-Rooftop Runoff (C/D Soils)	disconnection and contributing flow lengths.	0	0	0	0	0	0
Sheetflow to Conservation Areas (A/B Soils)	Up to 1 inch credit provided based upon conservation area width.	0	0	0	0	0	0
Sheetflow to Conservation Areas (C/D Soils)	Up to 1 inch credit provided based upon conservation area width.	0	0	0	0	0	0

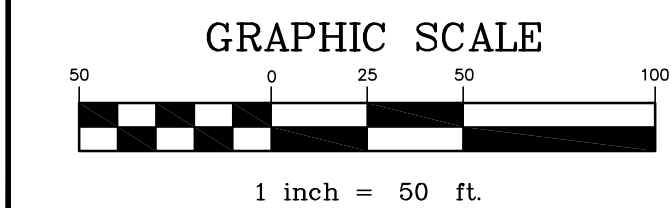
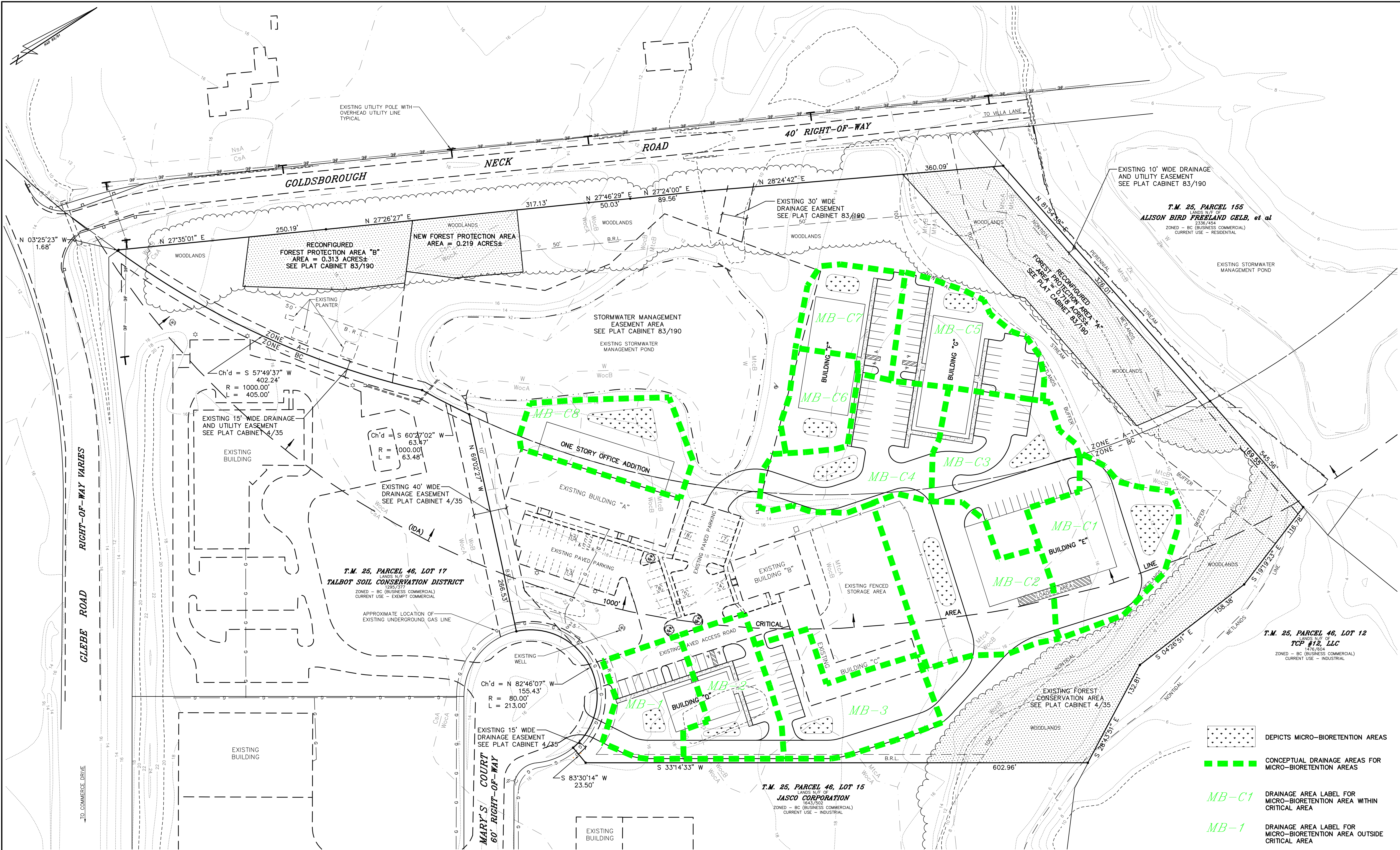
Step 6: Select Micro-Scale Practices to Treat the ESD Rainfall Target						
Micro-Scale Practices	P _E Credit Description	Contributing Drainage Area (sf)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)
Green Roof (Level 1)	ESDv credit is based on roof thickness	0	0	N/A	0	0
Green Roof (Level 2)	ESDv credit is based on roof thickness	0	0	N/A	0	0
Pemeable Pavement (A Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Pemeable Pavement (B Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Rainwater Harvesting	ESDv credit is based on design storage volume and annual use	0	0	0	0	0
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	0	0	0	0	0
Micro-Infiltration	ESDv credit is based on design storage volume	0	0	0	0	0
Rain Gardens (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Rain Gardens (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Micro-Bioretenention (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Micro-Bioretenention (C/D Soils)	ESDv credit is based on design storage volume	49,200	7,528	0	5,825	1,702
Landscape Infiltration	ESDv credit is based on design storage volume	0	0	0	0	0
Grass Swales (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Grass Swales (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Bio-swales (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Bio-swales (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0
Wet Swales	ESDv credit is based on design storage volume	0	0	0	0	0

Step 7: Check for ESDv to MEP compliance and Revise Site If Necessary								
	Drainage Area Treated (sf)	49,200				WQv or ESDv Treated (cf)	5,825	
						P _E achieved (inches)	2.02	
					Entire ESDv Treated Through Environmental Site Design?		YES	
						ESDv Remaining? (cf)	0	
					If ESDV is not fully treated, is ESD to MEP achieved?			
					Redevelopment WQv Requirements Met Through Environmental Site Design?		N/A	
<i>New Development Water Quality Volume Requirements</i>						WQv Remaining? (cf)	0	
	Required Treatment Area (acres)	1.50						
	Runoff Coefficient, Rv	0.53						
	Water Quality Volume, WQv (cf)	2,886						
					New Development WQv Requirements Met Through Environmental Site Design?		YES	
						WQv Remaining? (cf)	0	

Step 8: Determine Reduced RCN and Volume Management Requirements Based Upon P _E Achieved				
Reduced RCN for Type A Soils	N/A			
Reduced RCN for Type B Soils	N/A			
Reduced RCN for Type C Soils	N/A			
Reduced RCN for Type D Soils	N/A			
Composite Reduced RCN	N/A			
Q _E (in) for Reduced RCN	N/A		Q _E (in) for RCN of 55	0.12
V (ft ³) for Reduced RCN	N/A		V (ft ³) for RCN of 55	674
Volume Management Required (cf)	0			

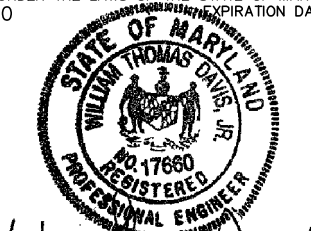
Step 9: Select Structural Practices to Meet Volume Management Requirements					
<i>Structural Practices</i>	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	ESDv from Upstream Practices (cf)	Treatment Volume (cf)
Stormwater Ponds (Level 1)	0	0%	0	0	0
Stormwater Ponds (Level 2)	0	0%	0	0	0
Stormwater Wetlands (Level 1)	0	0%	0	0	0
Stormwater Wetlands (Level 2)	0	0%	0	0	0
Stormwater Filtering Systems (Level 1)	0	0%	0	0	0
Stormwater Filtering Systems (Level 2)	0	0%	0	0	0
Stormwater Infiltration (Level 1)	0	0%	0	0	0
Stormwater Infiltration (Level 2)	0	0%	0	0	0
			Total structural CPv provided		0
			Management Requirement Met?		YES
			Volume Remaining (cf)		0

			Contributing Drainage Area (sf)	% Imperviou s Cover	ESDv Received by Practice	ESDv from Up- Gradient Practices				WQv or ESDv credit (cf)	Runoff Volume Remainin g (cf)	Down- Gradient Practice
	Micro-Scale Practices	P _E Credit Description					Practice Specific Parameter(s)					
MB-1	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	13,200	73%	2,100	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	1,760	340	
							800	1	3			
MB-2	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	15,300	85%	2,806	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	1,443	1,363	
							1,200	1	3			
MB-3	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	20,700	57%	2,622	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	2,622	0	
							1,500	1	3			
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
	Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume			0	0	Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)	0	0	
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	Micro-Bioretention (C/D Soils)</											



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PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR
APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE
No. 17660


Wm. Moore
9-29-22
DATE SEAL

**DAVIS, MOORE, SHEARON
& ASSOCIATES, LLC**
ENGINEERING, DRAFTING/DESIGN,
ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

CONCEPTUAL STORMWATER MANAGEMENT DRAINAGE AREA MAP
ON LOTS 16 AND 20 IN
TALBOT COMMERCE PARK
IN THE TOWN OF EASTON
TAX MAP - 25, GRID - 22, PARCEL - 46, LOTS - 16 & 20
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR : LOT 16 LLC

DATE	SCALE
DECEMBER '19	1" = 50'
JOB No. 2017052	DRAWN BY WJM
FOLDER Ref. 25-2017052	DESIGNED BY WTD, Jr.
SHEET No. - DA	
CADD FILE - 17052-DA	

**CRITICAL AREA
ENVIRONMENTAL IMPACT ASSESSMENT**

Talbot Commerce Park
In the Town of Easton
Thomas R. Cohee
28580 Marys Court
Easton, Maryland 21601

TALBOT COUNTY

28580 Court
Tax Map 0025
Grid 22
Parcels: 0046 Lots 16 & 20

**M. Stark McLaughlin
Environmental Planner – Forester
Fink, Whitten & Associates, LLC
113 East Dover Street -C
Easton, MD 21601
410-822-8484**

March 12, 2020

Revised October 6, 2022

TABLE OF CONTENTS

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Natural Resources Inventory

Environmental Factors Management Plans

Summary, Conclusions and Recommendations

Attachments - None

Introduction

A. Statutory Requirements: The Talbot County Code and Town of Easton, Critical Area requires several factors be considered in the planning for land development or subdivision activities in the Chesapeake Bay Critical Area. The purpose of this Environmental Assessment is:

- 1.) To summarize an inventory of the Natural Resources that affect or may be impacted by this subdivision; and*
- 2.) To propose design and resource management techniques that avoid, protect, minimize, enhance, manage or otherwise mitigate impacts to these Natural Resources.*

This Assessment includes those portions of the site both within the Critical Area and non-Critical Areas lands. The parcels contain Critical Area acreage of 3.505 (IDA) Lot 16 and 8.348 acres (RCA) for a total of 11.853 acres. Out of the Critical Area remaining lands equal 3.050 acres. This assessment is designed for compliance with the protection and management of the Natural Resource and Land Use factors and issues found in the Easton and Talbot County Code.

B. Project Summary: This project represents a revision of the Critical Area Designation from RCA on Lot 20 to IDA as a growth allocation. The northern boundary of Lot 20 is located 700' +/- from the tidal waters of Glebe Creek. The purpose of this project is to obtain approval for an addition to one of the existing office buildings and construction of 4 new office buildings, 2 in the BC zoning and 2 in the A1 zoning district.

C. Project Location: The project is located at 28580 Marys Court Easton, Maryland 201601 The site is designated as Tax Map 0025 Parcel 0046, Lots 16 and 20.

D. Project Site Description: The site is located at the end of Marys Court in the Talbot Commerce Park, in the Town of Easton. The site consists of 2 existing lots (16 and 20) that are to be combined into one new lot. The site is zoned -A1 (Agricultural District) and BC (Business Commercial) The A1 zone is located entirely within the Critical Area and designated as RCA (Resource Conservation). Existing Lot 20 is vacant and has the regional stormwater management pond located on site. Lot 16 is the current location of 2 existing office buildings and associated parking.

Natural Resources Inventory:

A. Soils: There are several soil types mapped on the project site. Those soils having a “K” factor greater than 0.35, indicating potential for erosion are marked with a (*) in the table below. Mapped hydric soils on the site are marked as (**). There is no evidence of “farmed wetland” indicators on the site. The soils inventory is summarized on the table below. *No highly erodible soils with slopes greater than 15% are located within the proposed lots. **Highly***

Erodible Soils are defined as soils with slopes greater than 15% or soils with a “K”value greater than 0.35 and slopes greater than 5%. No slopes greater than 15% are located on soils listed or “K” values and slopes greater than 5% are located on the sites. Soils on open ground listed as highly erodible by the USDA Soils Conservation Service Talbot County are present within the remaining acres but the slopes do not exceed 5% therefore the criteria for highly erodible soils is not met for those soils.

(*) “K” factor greater than 0.35

CsA Crosiadore silt loam, 0 to 2 percent slopes

MtcA Mattapex silt loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

MtcB Mattapex silt loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain

WocA Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

WocB Woodstown loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain

**Zk Zekiah silt loam, frequently flooded 0.7 4.6%

Totals for Area of Interest 14.9 100.0%

(**) Hydric soils

B. Tidal Wetlands: No Tidal Wetlands exist on the site.

C. Non-tidal Wetlands: Non-tidal wetlands exist only near the edges of the stream course and are buffered by existing protected forest cover. No nontidal wetland impacts are resulting from the proposed development activities. (Lot 16 = 0.228 acres Lot 20 = 0.225 acres.)

D. Tributary Streams: The site has two mapped streams. An intermittent drainage area is located on the east side of the site located within the wooded area along the property line. The channel is comprised of a flat nontidal wetland and originates within the woodland drainage to the north. The second stream is a perennial flowing from the north to the channel and is well defined by several meandering and changing flats leading to the out fall into Glebe Creek. Woodland Stream Buffers comprise 1.133 acres of the site.

E. Forest: (4.25 acres) The forested portions of the site are comprised of a mix of mature hardwoods and planted loblolly pine, red bud and eastern red cedars. Mature red oaks, yellow poplar, sweet gums, red maples and holly comprise the interior of the forested areas and black locust, black cherry, black walnut, sassafras and persimmons dominate the outer edges.

F. Plant and Wildlife Habitat: A search of the DNR Heritage Data Base determined that no Threatened, Endangered or Species of State or Federal concern are known to occur near the site.

Environmental Factors Management Plans

In accordance with the Talbot County Code, Article VI, Sections §190-133 thru §190-145, the creation of the new lots avoid, protects, enhances, manages and/or otherwise mitigates impacts to environmental and land use factors as follows:

§190-133 Agricultural Uses- No agricultural lands exist on the site.

§190-134 Forest Activities- Forest and tree removal or harvest activities are currently limited to the salvage of downed trees which fall into the open acres of the site.. Tree removals are restricted in Critical Areas, individual trees may be removed with a Forest Preservation and Buffer Management Plan any removals will be mitigated for at prescribed ratios. Additional forest plantings have been established past for the requirements of the Forest Conservation Plan. No tree removals are proposed or required for this site development. The site is currently 28.5% forested.

§190-135 Stormwater- The proposed lots will be developed in accordance with the “2000 Maryland Stormwater Design Manual”, Environmentally Sensitive Development Criteria (Chapter 5 – Stormwater Credits for Innovative Site Planning). Deviation from these criteria shall require approval from the Talbot County Department of Public works prior to any development activities.

§190-136 Lot Coverage- Total lot coverage Zone A-1 = 4.5% (0.372 acres) Zone BC = 18.4% (1.207 acres)

§190-137 Tributary Stream Management- Perennial tributary streams are located within the proposed lot is too remain protected by existing forest buffers.

§190-138 Habitat Protection Areas, Habitat Protection Plans-

A review of the available information regarding the presence of rare, threatened and endangered species, historic sites, and critical habitats (DNR Merlin). Indicate no official State or Federal records for listed plant or animal species within the delineated area. This site adjoins and area that may contain habitat for Forest Interior Nesting Birds (FIDS). Current design criteria do consider this habitat and the guidelines for protection. No forest clearing or disturbances are proposed.

§190-139 Shoreline Development Buffer- No shoreline exists on this site.

§190-140 Nontidal Wetlands- Nontidal wetlands are associated with the forest edge of the drainage outlets on the site. These wetlands are protected with a minimum 25’ buffer. No nontidal wetlands are located within the existing development activities.

§190-141 Threatened and Endangered Species; Species in Need of Conservation- The Department of Natural Resources website identified no Threatened and Endangered Species on the Lots. The proposed development activities do not occur within the forested portions of the site.

§190-142 Plant and Wildlife Habitat Areas- Glebe Creek is mapped as historic waterfowl staging areas. There are no mapped or observed colonial water bird nesting sites on this property or adjoining the farms. There are not currently mapped or active bald eagle nests observed on or near the farm. Except for the forested Buffer fringe, there is no riparian forest and no forest areas used for breeding area by Forest Interior Dwelling Birds (FIDS). The size and composition of the forest on this site does not provide adequate habitat for FIDS. The site does adjoin though disconnected by roads larger blocks of forest lands. There are no mapped or

observed Natural Heritage Areas on the farm. Except for the non-tidal wetland protection proposals discussed previously, there is no other known plant or wildlife habitat area on the farm. There are no mapped Natural Heritage Areas.

§190-143 Anadromous Fish Propagation Waters- There are no Anadromous Fish Propagation Waters associated with the parcel. Glebe Creek is not mapped as an Anadromous Fish Propagation Water. Regardless, this project is limited to lots with ample buffering of development impacts to the waters of the State.

§190-144 Shoreline Stabilization Measures- No shoreline stabilization measures are proposed or needed.

§190-145 Erosion and Sediment Control- All development activities for individual lot improvements will require separate Erosion and Sediment Control plans approved by the Talbot County Soil Conservation District with related NPDES-NOI approvals as required. Talbot Public Works approval of Storm water Plans will be coordinated with these approvals for overall water quality. The disturbance of the site will be limited to the installation office space, parking and driveways. The final actual area of the limits of disturbance will be on the individual required Erosion and Sediment Control plans.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The revisions to this property, combining and revising lines of division, and changing the zoning designation will have no significant habitat protection issues. When the buffers and protective setback measures shown on the plat are adhered to, and if best management practices for sediment control and storm water management are utilized and enforced, development activities related to the future development of these lots with related driveways and potential buildings as proposed should not cause undue impact to sensitive areas.

ATTACHMENTS

none



October 6, 2022

Davis, Moore, Shearon & Associates, LLC

Easton Dept. of Planning & Zoning
c/o Lynn Thomas, Town Planner
14 South Harrison Street
Easton, Maryland 21601

**RE: REVISED LETTER RELATED TO GROWTH ALLOCATION REQUEST FOR
PROPOSED COMMERCIAL DEVELOPMENT ON THE LANDS OF LOT 16,
LLC AND MR. THOMAS COHEE**

Dear Mr. Thomas:

As permitted by the Town of Easton and Talbot County Chesapeake Bay Critical Area Ordinances and on behalf of our clients, Lot 16, LLC and Thomas R. Cohee, we wish to apply for growth allocation of 8.348 acres of land located in the Town of Easton. Lots 16 & 20 of Tax Map 25 are within the commercial subdivision known generally as Talbot Commerce Park and totals 14.904 acres. Portions of the lots are located within the Critical Area. All Critical Area on Lot 16 is designated as Intensely Development Areas (IDA) and the Critical Area on Lot 20 is designated as Resource Conservation Area (RCA). The request for Growth Allocation involves a portion of the RCA designated lands with the request for growth allocation of 8.348 acres to be changed to IDA to allow for expanded commercial development similar to what currently exists on the site and in Talbot Commerce Park as wells as road improvements to Goldsborough Neck Road.

In compliance with the growth allocation submittal requirements of COMAR 27.01.02.05-1, the Applicant offers the following:

A.

1. In conjunction with the petition to be filed with the Town of Easton Council and the Talbot County Commissioners by McAllister, DeTar, Showalter & Walker LLC, agent for the Property owner, and information to be contained with the petition, we are asking your department to confirm that this project meets the standards listed in Natural Resources Article 8-1808.1(c) (1), Annotated Code of Maryland.
2. In conjunction with the petition and information contained with the petition we are asking your department to provide information and documentation to the Critical Area Commission addressing environmental, planning and economic factors for their consideration and consultation with the Natural Resources Article Section 8-1808.1(c) (3), Annotated Code of Maryland.

3. As part of the plans in support of this project we have provided a conceptual site design plan (see Sheets C-1 through C-7) for the project. This plan has been submitted to the planning department with the request to schedule the project for review before the Town and County Joint Planning Commission meeting.
4. An Environmental Features Plan has been submitted with the growth allocation petition. (See Sheet C-2).
5. We have prepared an environmental assessment for the project. In conjunction with the submitted plans, the report addresses issues related to development, impervious coverage and water quality/pollutant reduction requirements. We have prepared a stormwater management report for the entire project. The report contains calculations that address the 10% pollutant reduction requirements for the requested intensely developed area designation. This report has been submitted to the Critical Areas Commission and the Town of Easton Public Works as part of the conceptual plan review process.
6. As part of the concept plan review process we have submitted plans for review to the Department of the Environment, Department of Natural Resources and the Corps of Engineers. In conjunction with the growth allocation, petition letters and other information from these agencies is contained herein.
7. As part of our plans we have provided a plan showing the area of the requested growth allocation. (See Sheet C-3).
8. We have calculated the area requested for growth allocation. The acreage shown on the plan (see Sheet C-3) is consistent with the acreage contained in the petition.

B. The following information is provided on the conceptual site development plan in accordance with Section 27.01.02.05-1.A(3) and (4):

1. The project name and the street addresses of each parcel can be found on sheet C-1.
2. Tax map information including the map number, block and parcel numbers are provided on sheet C-1 and throughout the entire plan set within each sheet's title block.
3. The concept site development plan is drawn at a scale of 1" = 50'.
4. The plan sheets are provided with a north arrow so that the orientation of the site and the development proposed can be determined.
5. A vicinity map is included on Sheet C-1 of the plans.
6. The existing lot lines which also happen to be the parcel's boundaries are presented on sheets C-2 through C-7.

7. The project includes Lots 16 and 20 of the Talbot Commerce Park and are accessed from the cul de sac at the end of Mary's Court. The site bounded on the south & west by other commercially developed lots within the business park, on the east by Goldsborough Neck Road and on the north by the Lands of Alison Bird Freeland Gelb, et al. The lots are owned by Thomas Cohee & Lot 16, LLC. It is anticipated that the lots would be combined into one resulting lot of record.
8. The limit of disturbance is shown on sheet C-5, of the Conceptual Site Development Plan.
9. The development envelope is primarily confined to open areas of the site currently maintained as lawn and meadow. See Sheet C-5 for the concept for the development.
10. The Critical Boundary extends into the site from the tidal waters of Glebe Creek. The subject parcel is partially located within the Critical Areas. The land classification and zones are displayed on sheets C-2 through C-5.
11. The 100-year flood plain boundary exists beyond the limits of the areas shown on the plans. The area of proposed development is not located within 100-year flood plain boundary as determined from Flood Insurance Rate Maps.
12. The topography shown is an excerpt from a larger grid of topography acquired from the Talbot County Department of Public Works.
13. Vegetation cover information is included on Sheets C-2 thru C-5 and can be considered nothing more than residential landscaping. There are no woodlands, streams, wetlands, critical area buffers or endangered habitats on the portion of site to be developed.
14. Existing soils on site are Othello silt loam (Ot) and Mattapapex-Butlertown silt loam (MtA) and are shown on Sheet C-2. Hydric soils are also identified on Sheet C-2. There are no highly erodible soils existing on this site.
15. There are no perennial or intermittent streams on site however there exists a perennial stream located on adjacent properties on the north and east boundaries of the site. The 100' stream buffer has been graphically depicted from the top of the bank of the stream.
16. The 300-foot Critical Area buffer does not occur on or near the site.
17. There are no steep slopes, no highly erodible soils nor nontidal/tidal wetlands on-site and the 300-foot Critical Area buffer does not occur near the site. No expanded buffer is required.

18. The 300-foot buffer requirement does not apply as the site is located beyond the 300-foot buffer, yet within the 1000' Critical Area.
19. Consultation with NTW Maps and site investigations concluded the existence of no nontidal wetlands within the proposed development envelope. See letter from the MDE dated 9-22-22.
20. There are no tidal wetlands located on this property.
21. Based on the review from the Department of Natural Resources and letters from various agencies there are no protected plant or wildlife habitat areas on this site.
22. Based on the review from the Department of Natural Resources and letters from various agencies there are no habitat areas related to threatened or endangered species on this site.
23. The site is not immediately adjacent to any waters inhabited by anadromous fish.
24. The existing areas of lot coverage are shown on sheet C-2 and the size of each parcel's area is listed in the Site Statistics on Sheet C-1. Proposed areas of lot coverage have been displayed on sheet C-5 and their areas tallied and compiled on sheet C-1 also.
25. Detailed construction plans dealing with the storm water, utility, septic and water plans prepared during the detailed site plan review process and will be supplied to your office during that process. Conceptual stormwater management, drainage, and utilities are graphically shown on the enclosed plan
26. No additional paths or walkways are proposed other than what is shown on sheet C-5.
27. No existing areas of mitigation occur on-site and no required mitigation areas are anticipated as no protected resources are proposed to be disturbed.
- 28a. No agricultural areas, surface mines, natural parks, dredging activity or dredged material disposal areas exist on this property.
- 28b. The only easements we are aware of those to Verizon and DP&L which are shown on the plans.

COMAR Regulation 27.01.02.05-1A(5) requires an Environmental Report to accompany an application for Growth Allocation. The following information is provided on the Environmental Report required under Regulation Section 27.01.02.05-2A:

A.

1. The environmental report contains a description of the proposed development.
2. To our knowledge the properties have not been subdivided since their creation as part of the Talbot Commerce Park development.
3. The project is currently a mix of commercial uses such as an existing contractor's office and storage yard and a commercial office building. The proposed buildings consists of two office buildings and a mixed office warehouse buildings area. Parking lots and a travel way link all proposed redevelopment. Growth Allocation is requested to change a portion of the site's Critical Area designation from RCA to IDA. The zoning of the site permits this type of development.
4. The gross area of the site is 14.4904 acres with a portion of the site located within the Critical Area. Growth Allocation is requested for the 8.348 acres to be changed from RCA to IDA.
5. The vegetative cover is provided on the Environmental Features Plan (sheet C-2) and as graphically depicted, there are no areas qualifying as forest or developed woodland within the development envelope. A scattering of trees and mowed lawn/meadow areas dominate the proposed development envelope.
6. The stormwater management systems are shown on the conceptual stormwater management plan. Detailed plans and reports will be provided under separate cover to the Town of Easton Dept. of Public Works and Talbot County Soil Conservation Service during the formal site plan review process once growth allocation approval has been obtained.
7. The 10% pollutant worksheets are contained in the Stormwater Management Report. This report with Conceptual Stormwater Management Plan drawings has been submitted directly to the Critical Areas Commission and the Town of Easton Department of Public Works as part of the concept plan review process.
8. Soil erosion and sediment control measures will be defined on construction drawings during the site plan review process.
9. The requested land use designation is from limited development area (RCA) to intensely developed area (IDA). Proposed and existing lot coverage areas have been calculated and can be found on sheet C-1.
10. No forest exists within the area of proposed development, no clearing of forest is requested, and therefore, no mitigation is required.

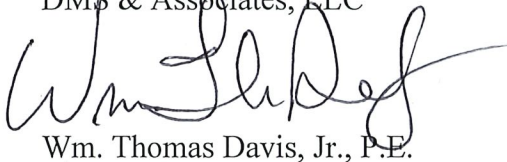
11. No area of afforestation is required.
 12. The zoning of the site is designated on the plan and in the report as BC-Business Commercial.
 13. There are no streams or Critical Area Buffers within the development envelope and no Buffer Management Plans area required. The 100' stream buffer from a perennial stream located on adjacent properties has been designated.
 14. There are no habitat protection areas within the proposed development envelope therefore no habitat protection plan is warranted.
- B.** Section 27.01.02.05-2A(13) does not apply as stream or critical area buffers do not exist within the site development envelope. Items (1) through (7) are not applicable to the site.
- C.** This project does not require a habitat protection plan. There are no forests within the proposed development envelope. Based upon correspondence from various agencies, there are no forest interior dwelling birds, no natural heritage areas, no habitat for colonial water birds, no submerged aquatic vegetation, no adjacent streams or other bodies of water providing aquatic species nor any tidal or nontidal wetlands.

We ask that you please review this letter in conjunction with the petition, plans, environmental report and other supplemental information.

If you should have questions or need additional information please don't hesitate to call me at (443) 262-9130.

Sincerely,

DMS & Associates, LLC



Wm. Thomas Davis, Jr., P.E.

Enclosures



Maryland

Department of the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Horacio Tablada, Secretary
Suzanne E. Dorsey, Deputy Secretary

September 22, 2022

Stark McLaughlin
Fink, Whitten, & Associates
113 E Dover Street
Easton, MD 21601

RE: Talbot Commerce Park, Lots 16 and 20

Mr. McLaughlin,

A site visit was conducted at Lots 16 and 20 in the Talbot Commerce Park on Mary's Court in Easton on August 19, 2022. The purpose of the site visit was to confirm the extent of Waters of the State in an area proposed for development. I concur with delineation of wetland resources indicated on the Conceptual Site Plan prepared by Davis, Moore, Shearon, and Associates, dated December 2019. No authorization is required from the MDE Wetlands and Waterways Divisions to construct the project as proposed. Please contact me at (443) 717-0951 or mieko.camp@maryland.gov with any questions.

Sincerely,

Mieko Camp

Mieko Camp
Natural Resources Planner
Nontidal Wetlands Division



MCALLISTER
DETAR
SHOWALTER
& WALKER

Brendan S. Mullaney
bmullaney@mdswlaw.com
(410) 820-0250 (Direct)

October 17, 2022

VIA ELECTRONIC MAIL (nick.kelly@maryland.gov)

Critical Area Commission
c/o Nick Kelly, Regional Program Chief

Re: Mary's Court Site Plan
Growth Allocation (TM 25, P 46, Lots 16 & 20)

Mr. Kelly:

This letter is in response to your August 25, 2022 comments received by Thomas Cohee and Lot 16, LLC ("Applicant") on September 23, 2022. The Applicant is requesting Growth Allocation from the Town of Easton and Talbot County to reclassify 8.348 acres of Resource Conservation Area to Intensely Developed Area.

1. Prior to Critical Area Commission review and approval, the growth allocation proposal must go through the supplemental growth allocation process which includes local approval from both the Town of Easton and Talbot County.

Understood. The Growth Allocation application is currently under review by both the Town and County.

2. The project must meet the standards and address the factors found in Natural Resources Article 8-1808.1 and COMAR 27.01.02.06. This information is required to be submitted by the Town of Easton as part of the application for growth allocation to the Critical Area Commission, per COMAR 27.01.02.06-1 and COMAR 27.01.02.06-2.

Based on preliminary review of the submitted materials by Commission staff, it appears that the growth allocation request can meet the adjacency and IDA size standards (1), (2), (5), and (6) found in the Town's Zoning Ordinance (§228-401.8.E). However, additional information is required to ensure that the location standards found in (3), (4), and (7) are met.

Applicant has submitted all materials and responses required by COMAR 27.01.02.06-1 (Growth Allocation Submittal Requirements) and COMAR 27.01.02.06-2 (Environmental Report)



to the Town of Easton and Talbot County. Attached hereto is also a response narrative addressing the criteria found in §28-401.8.E.

3. Please have the applicant provide information on how the growth allocation factors outlined in §228-401.8.F are addressed.

A response narrative addressing the criteria in §28-401.8.F is attached.

4. The project has a 100-foot Buffer on the site from a perennial stream. It appears that a portion of the 100-foot Buffer is not currently established in a native vegetation. The applicant will be required to submit a Buffer Management Plan that provides full establishment of the 100-foot Buffer.

Received and acknowledged. After field delineation, it was confirmed that the entire 100-foot Buffer is currently established in native vegetation. Therefore, a Buffer Management Plan is not required and no additional Buffer establishment is proposed. The Growth Allocation plan has been updated to show the field-located top of bank and corresponding Buffer.

5. The site plan denotes the Buffer as a "100-foot nontidal wetland buffer". It appears that the Buffer has been drawn from the edge of nontidal wetlands and not from the edge of each bank of the tributary stream, as required per COMAR 27.01.09.01. Please have the applicant revise the Buffer delineation accordingly.

Applicant has revised the site plan accordingly.

6. The applicant proposes to treat stormwater for the project using environmental site design (ESD) features. However, the 10% worksheets and stormwater plans were not provided to this office as part of the application. Please have the applicant forward these plans to this office for review and comment.

Applicant has provided the necessary stormwater management narrative and calculations and demonstration regarding the 10% requirement to the Town, County, and Critical Area Commission.

7. It is our understanding from previous conversations with the applicant's attorney that a portion of Lot 16 along Goldsborough Neck Road is to be transferred to Talbot County prior to the request for growth allocation. Please have the applicant provide information verifying whether this has been completed. If this has not been executed, then additional growth allocation acreage will be required for this portion of the lot.

A portion of the property is likely to be conveyed to the County for a planned widening of Goldsborough Neck Road. That conveyance is expected to take place prior to final, unappealable



approval of the Growth Allocation sought by this Application but remains uncertain. Therefore, the entirety of the RCA on the property has already been included in the application as depicted by the Growth Allocation plan.

8. Please have the applicant provide information explaining why Forest Protection Areas A and B are required to be modified. In addition, please have the applicant provide information to this office regarding the easements for both forest protection areas and the stormwater management areas for review.

Forest Protection Areas A and B must be modified because portions of them are within the "Area to be Dedicated to Talbot County Road Department" depicted by Sheet C-4 of the Growth Allocation Plan. The area to be dedicated must be replaced on the property, so applicant is proposing the "New Forest Protection Area" (0.219 ac.) as shown on Sheet C-4. Information related to the easements for both forest protection areas and the stormwater management area has been submitted with this letter.

9. We note that in several places within the application letter and environmental report that the growth allocation request is for conversion of LDA to IDA instead of RCA to IDA. Please have the applicant correct these discrepancies.

These discrepancies have been corrected throughout.

Sincerely,

A handwritten signature in blue ink, which appears to read "Brendan S. Mullaney", is written over the word "Sincerely,". The signature is stylized with a large, sweeping loop.

Brendan S. Mullaney

Supplemental Growth Allocation Standards
Town of Easton, Maryland
§28-401.8.E

E. Standards

- (1) A new IDA shall only be located in a LDA or adjacent to an existing IDA.

The proposed IDA will be located adjacent to an existing IDA.

- (2) A new LDA shall only be located adjacent to an existing LDA or an IDA.

Not applicable.

- (3) A new LDA or IDA shall be located in a manner that minimizes impacts to HPA as defined herein and in COMAR 27.01.09 and in an area and manner that optimizes benefits to water quality.

The proposed IDA is located in a manner that minimizes impacts to Habitat Protection Areas (HPA) because it is a considerable distance from the Shoreline Development Buffer (closest point is approximately 425' from tidal wetlands or tidal waters). No clearing is proposed in conjunction with the development of the site to be reclassified to IDA and significant forested areas and stormwater management facilities exist on the property to ensure that water flowing from the new IDA is filtered and held on site before entering Glebe Creek, to the west. There are no rare or endangered species within the area to be reclassified to IDA and no tidal or nontidal wetlands will be impacted.

- (4) A new IDA shall only be located where it minimizes impacts to the defined land uses of the RCA.

The new IDA is part of a commercial subdivision known generally as Talbot Commerce Park (the "Subdivision") which was originally subdivided for commercial and light industrial uses, as permitted by the Easton Zoning Ordinance. The subject property is separated from other RCA to the north and northwest by Goldsborough Neck Road and is buffered by existing, mature forested areas along the property boundaries to the north and northwest, where RCA will remain following approval of the Growth Allocation sought by this application. Because of its proximity to the Subdivision and existing commercial and light industrial uses, and because the new IDA is buffered by Goldsborough Neck Road and existing forested areas, the new IDA is located to minimize impacts to the defined land uses of the RCA.

- (5) New IDAs shall be at least 20 acres in size unless: (a) they are contiguous to an existing IDA or located in an LDA; (b) they are grandfathered commercial or industrial use, which existed as of June 26, 1988. The amount of growth allocation deducted shall be equivalent to the

area of the entire parcel or parcels subject to the growth allocation request; or (c) they are (or will be) served by public sewer, the growth allocation is consistent with the goals and objectives of the Town's Comprehensive Plan, and the project has an overall economic benefit to the community.

The new IDA is located adjacent to an existing IDA.

(6) A new IDA or LDA in a RCA shall be located at least 300 feet beyond the landward edge of tidal wetlands or tidal waters.

The proposed IDA is located approximately 425 feet from the landward edge of tidal wetlands or tidal waters at its closest point.

(7) New IDA or LDA to be located in RCA shall conform to all criteria of the Town of Easton for such areas, shall be so designated on the Town of Easton Critical Area Maps and shall constitute an amendment to the Zoning Chapter subject to review and approval by the Town of Easton Planning and Zoning Commission, the Mayor and Council, and the Critical Area Commission as provided for by the Zoning Chapter.

The new IDA conforms to all requirements and criteria of the Town of Easton. Following approval of Growth Allocation to reclassify the area IDA, the Town of Easton Critical Area Map will be revised to reflect the new IDA. The proposal is subject to review and approval by the Town Planning Commission, the Mayor and Town Council, and the Critical Area Commission.

Supplemental Growth Allocation Standards
Town of Easton, Maryland
§28-401.8.F

F. Additional Factors – In reviewing map amendments or refinements involving the use of Growth Allocation, the Town of Easton shall consider the following factors:

(1) Consistency with the Town of Easton’s adopted comprehensive plan and whether the Growth Allocation would implement the goals and objectives of the adopted plan.

The Easton Comprehensive Plan (the “Plan”) emphasizes the need for business growth and retention of existing businesses. Commercial and industrial growth is to be located in areas planned for such uses. The proposed Growth Allocation would allow reasonable commercial development of a lot that was created through subdivision of a commercial and industrial park known as Talbot Commerce Park. Lot 20 is planned for industrial land uses. (Easton Comprehensive Plan, Future Land Use Map (2010)). Approval of the Growth Allocation sought would allow the property to be developed to bring new and expanded businesses to the Town of Easton and would implement the goals and objectives of the Plan.

(2) For a map amendment or refinement involving a new LDA, whether the development is:

- a. To be served by a public wastewater system or septic system that uses the best available nitrogen removal technology;
- b. A completion of an existing subdivision;
- c. An expansion of an existing business; or
- d. To be clustered.

Not applicable.

(3) For a map amendment or refinement involving a new IDA, whether the development is:

- a. To be served by a public wastewater system;
- b. If greater than 20 acres, to be located in a designated Priority Funding Area; and
- c. To have a demonstrable economic benefit.

Public sewer will serve the proposed IDA. Lot 20 is less than twenty acres. Approval of the Growth Allocation sought to redesignate Lot 20 to IDA would have a demonstrable economic benefit to the Town and area because it would allow new businesses and development to occur within an existing commercial and industrial business park.

(4) The use of existing public infrastructure, where practical.

The area proposed for redesignation to IDA is located within the Talbot Commerce Park, where public infrastructure already exists.

(5) Consistency with State and regional environmental protection policies concerning the protection of threatened and endangered species and species in need of conservation that may be located on or off site.

The proposed IDA is located in a manner that minimizes impacts to Habitat Protection Areas (HPA) because it is a considerable distance from the Shoreline Development Buffer (closest point is approximately 425' from tidal wetlands or tidal waters). No clearing is proposed in conjunction with the development of the site to be reclassified to IDA and significant forested areas and stormwater management facilities exist on the property to ensure that water flowing from the new IDA is filtered and held on site before entering Glebe Creek, to the west. There are no rare or endangered species within the area to be reclassified to IDA and no tidal or nontidal wetlands will be impacted. The proposal is consistent with State and regional environmental protection policies for threatened and endangered species.

(6) Impacts on priority preservation areas.

Not applicable.

(7) Environmental impacts associated with wastewater and stormwater management practices and wastewater and stormwater discharges to tidal waters, tidal wetlands, and tributary streams.

A conceptual stormwater management plan was submitted with the Growth Allocation Plan (Sheet C6) depicting the location of several micro-bioretenion areas on consolidated Lots 16 and 20. The proposed lots will be developed in accordance with the 2000 Maryland Stormwater Design Manual's environmentally sensitive development criteria. A stormwater management report was submitted to the Critical Area Commission for the entire project and contains calculations that address the 10% pollution reduction requirements for the IDA. The project exceeds the required pollution reduction requirements. The proposed IDA is a considerable distance from the Shoreline Development Buffer (closest point is approximately 425' from tidal wetlands or tidal waters). No clearing is proposed in conjunction with the development of the site to be reclassified to IDA and significant forested areas and stormwater management facilities exist on the property to ensure that water flowing from the new IDA is filtered and held on site before entering Glebe Creek, to the west.

(8) Environmental impacts associated with location in a coastal hazard area or an increased risk of severe flooding attributable to the proposed development.

Lot 20 is not located within a special flood hazard area.



Joe Mayer <jmayer@eastonmd.gov>

FW: Cohee Growth Allocation Response

3 messages

Brendan Mullaney <bmullaney@mdswlaw.com>

Mon, Oct 17, 2022 at 4:30 PM

To: Joe Mayer <jmayer@eastonmd.gov>, "Lynn B. Thomas" <LThomas@eastonmd.gov>

Cc: Rick Van Emburgh <rvanemburgh@eastonmd.gov>, "msalinas@eastonmd.gov" <msalinas@eastonmd.gov>

All:

The attached materials were submitted to the Critical Area Commission today. Please confirm receipt and let me know if the Town needs anything else prior to the Planning Commission meeting this week. Rick, your review and comment on the SWM materials is going to be critical to move past the Planning Commission. Let me know if you need anything else on that front.

Thanks,

Brendan

Brendan Mullaney

McAllister, DeTar, Showalter & Walker LLC

[100 N. West Street](#)

[Easton, Maryland 21601](#)

Direct – (410) 820-0250

Cell – (410) 443-3698

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From: Brendan Mullaney

Sent: Monday, October 17, 2022 4:28 PM

To: Nick Kelly -DNR- (nick.kelly@maryland.gov) <nick.kelly@maryland.gov>

Subject: Cohee Growth Allocation Response

Nick:

Hope all is well with you. A response and related materials on behalf of Mr. Tom Cohee are attached for your review. Please let me know if you have any additional comments. As you may know, We are going before the Easton Planning Commission on Thursday and the Talbot County Planning Commission on November 2. If there is anything I can do expedite your review of the attached documents please let me know. Both Planning Commissions want to ensure that your office's comments are adequately addressed.

Sincerely,

Brendan

Brendan Mullaney

McAllister, DeTar, Showalter & Walker LLC

100 N. West Street

Easton, Maryland 21601

Direct – (410) 820-0250

Cell – (410) 443-3698

Any federal tax advice provided in this communication is not intended or written by the author to be used, and cannot be used by the recipient, for the purpose of avoiding penalties which may be imposed on the recipient by the IRS. Please contact the author if you would like to receive written advice in a format which complies with IRS rules and may be relied upon to avoid penalties.

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6 attachments



Cohee GA CAC Response 10.17.22.pdf
1132K



Cohee property concurrence.pdf
170K



cohee revised application cover letter.pdf
4097K

revised Lot 16 LLC narrative and computations report for GA.pdf



1628K

**Cohee Revised Environmental Report.pdf**

60K

**Growth Allocation Plan - Cohee - 10.22.pdf**

6150K

Nick Kelly -DNR- <nick.kelly@maryland.gov>

Mon, Oct 17, 2022 at 4:39 PM

To: Brendan Mullaney <bullaney@mdswlaw.com>

Cc: Ann Sekerak -DNR- <ann.sekerak@maryland.gov>, Joe Mayer <jmayer@eastonmd.gov>

Thanks, Brendan. I have not heard anything about review before Talbot County on the 2nd, but I did send revised comments to the Town last week. They are attached and address some of the previous questions we had. I will take a look at this package and provide feedback to the Town/County, although I will not be able to before Thursday.

Thank you,
Nick Kelly

dnr.maryland.gov/criticalarea

Nick Kelly, Ph.D
Regional Program Chief
Critical Area Commission for the
Chesapeake & Atlantic Coastal Bays
1804 West Street, Suite 100
Annapolis, MD 21401
410-260-3483 (office)
nick.kelly@maryland.gov

[Click here](#) to complete a three question customer experience survey.

[Quoted text hidden]

**22-10-7 CACComments_MarysCourtGrowthAllocation_EA 280-22.pdf**

137K

Miguel Salinas <msalinas@eastonmd.gov>

Tue, Oct 18, 2022 at 11:28 AM

To: Brendan Mullaney <bullaney@mdswlaw.com>

Cc: Joe Mayer <jmayer@eastonmd.gov>, "Lynn B. Thomas" <LThomas@eastonmd.gov>, Rick Van Emburgh <rvanemburgh@eastonmd.gov>

Brendan,

You're not on the October PC agenda. We hoped to get you on the November agenda once the the Engineers Office reviewed the SWM plan.

Miguel

[Quoted text hidden]

CONCEPTUAL SITE PLAN FOR LOT 16 AND LOT 20 IN

TALBOT COMMERCE PARK

FIRST ELECTION DISTRICT, TALBOT COUNTY, MD.

PREPARED FOR : THOMAS R. COHEE

SITE STATISTICS

LOT 16 (EXISTING)

ZONED – BC
CURRENT USE – INDUSTRIAL
PROPOSED USE – INDUSTRIAL/COMMERCIAL

GROSS AREA = 6.556 ac.± (285,570 sq. ft.±)
CRITICAL AREA (IDA) = 3.505 ac.± (152,695 sq. ft.±)
NON-CRITICAL AREA = 3.050 ac.± (132,875 sq. ft.±)
AREA WITHIN 100 Yr. FLOOD PLAIN = 0.000 ac.±
AREA WITHIN RESOURCE PROTECTION = 1.165 ac.±
NONTIDAL WETLANDS = 0.003 ac.±
STREAM BUFFER = 0.316 ac.±
WOODLANDS (excludes wetlands & stream buffer) = 0.846 ac.±

LOT 20 (EXISTING)

ZONED – A-1
CURRENT USE – COMMERCIAL
PROPOSED USE – COMMERCIAL

GROSS AREA = 8.348 ac.± (363,652 sq. ft.±)
CRITICAL AREA (RCA) = 8.348 ac.± (363,652 sq. ft.±)
NON-CRITICAL AREA = 0.000 ac.± (0.000 sq. ft.±)
AREA WITHIN 100 Yr. FLOOD PLAIN = 0.000 ac.±
AREA WITHIN RESOURCE PROTECTION = 3.200 ac.±
NONTIDAL WETLANDS = 0.225 ac.±
STREAM BUFFER = 0.817 ac.±
WOODLANDS (excludes wetlands & stream buffer) = 2.158 ac.±

LOT 16 (AFTER LOT LINE ADJUSTMENT, ROAD DEDICATION AND GROWTH ALLOCATION)
CURRENT USE – INDUSTRIAL
PROPOSED USE – INDUSTRIAL/COMMERCIAL

GROSS AREA = 14.066 ac.± (612,711 sq. ft.±)
CRITICAL AREA (IDA) = 11.016 ac.± (479,836 sq. ft.±)
NON-CRITICAL AREA = 3.050 ac.± (132,875 sq. ft.±)
ZONE A-1 = 7.501 ac.± (327,141 sq. ft.±)
ZONE BC = 6.556 ac.± (285,570 sq. ft.±)
AREA WITHIN 100 Yr. FLOOD PLAIN = 0.000 ac.±
AREA WITHIN RESOURCE PROTECTION = 3.762 ac.±
NONTIDAL WETLANDS = 0.226 ac.±
STREAM BUFFER = 0.866 ac.±
WOODLANDS (excludes wetlands & stream buffer) = 2.670 ac.±

ZONE A-1
MAXIMUM LOT COVERAGE (ALLOWED) (10%) = 0.742 ac.± (32,343 sq. ft.±)
LOT COVERAGE (EXISTING) (0.0%) = 0.000 ac.± (0.000 sq. ft.±)
LOT COVERAGE TO BE REMOVED (EXISTING) = 0.000 ac.± (0.000 sq. ft.±)
LOT COVERAGE (PROPOSED) = 0.372 ac.± (16,200 sq. ft.±)
LOT COVERAGE (TOTAL) (5.0%) = 0.372 ac.± (16,200 sq. ft.±)
ZONE BC
MAXIMUM LOT COVERAGE (ALLOWED) (50%) = 3.278 ac.± (142,785 sq. ft.±)
LOT COVERAGE (EXISTING) (9.2%) = 0.600 ac.± (26,136 sq. ft.±)
LOT COVERAGE TO BE REMOVED (EXISTING) = 0.000 ac.± (0.000 sq. ft.±)
LOT COVERAGE (PROPOSED) = 0.607 ac.± (26,439 sq. ft.±)
LOT COVERAGE (TOTAL) (18.4%) = 1.207 ac.± (52,575 sq. ft.±)

PARKING REQUIREMENTS

REQUIRED PARKING PER SECTION 28-1001.3(36)(46):

EXISTING – BUILDING "A"

1 space/250 sq. ft. of FLOOR AREA (OFFICE) X 12,000 sq. ft. = 48 SPACES

PARKING (REQUIRED) = 48 SPACES

EXISTING – BUILDING "B"

1 space/250 sq. ft. of FLOOR AREA (OFFICE) X 1,536 sq. ft. = 6 SPACES

1 space/300 sq. ft. of FLOOR AREA (REPAIR) X 3,000 sq. ft. = 10 SPACES

PARKING (REQUIRED) = 16 SPACES

EXISTING – BUILDING "C"

1 space/2000 sq. ft. of FLOOR AREA (STORAGE) X 9,600 sq. ft. = 4 SPACES

PARKING (REQUIRED) = 5 SPACES

TOTAL PARKING (REQUIRED) = 69 SPACES (3 HANDICAP ACCESSIBLE)

TOTAL PARKING (PROVIDED) = 60 SPACES (2 HANDICAP ACCESSIBLE)

PROPOSED – BUILDING "A" ADDITION

1 space/250 sq. ft. of FLOOR AREA (OFFICE) X 6,414 sq. ft. = 25.7 SPACES

PARKING (REQUIRED) = 25.7 SPACES

PROPOSED – BUILDING "D"

1 space/250 sq. ft. of FLOOR AREA (OFFICE) X 4,025 sq. ft. = 16.1 SPACES

PARKING (REQUIRED) = 16.1 SPACES

PROPOSED – BUILDING "E"

1 space/250 sq. ft. of FLOOR AREA (OFFICE) X 3,200 sq. ft. = 12.8 SPACES

1 space/2000 sq. ft. of FLOOR AREA (WAREHOUSE) X 12,800 sq. ft. = 6.4 SPACES

PARKING (REQUIRED) = 19.2 SPACES

PROPOSED – BUILDING "F"

1 space/250 sq. ft. of FLOOR AREA (OFFICE) X 8,100 sq. ft. = 32.4 SPACES

PARKING (REQUIRED) = 33.4 SPACES

PROPOSED – BUILDING "G"

1 space/250 sq. ft. of FLOOR AREA (OFFICE) X 8,100 sq. ft. = 32.4 SPACES

PARKING (REQUIRED) = 33.4 SPACES

TOTAL PARKING (REQUIRED) = 126 SPACES (5 HANDICAP ACCESSIBLE)

TOTAL PARKING (PROVIDED) = 109 SPACES (6 HANDICAP ACCESSIBLE)

OFF-STREET LOADING REQUIREMENTS

REQUIRED LOADING PER SECTION 28-1002.1 – PROPOSED BUILDING "E"

1 space/4000 sq. ft. + 1 additional space for each 10,000 sq. ft. of FLOOR AREA

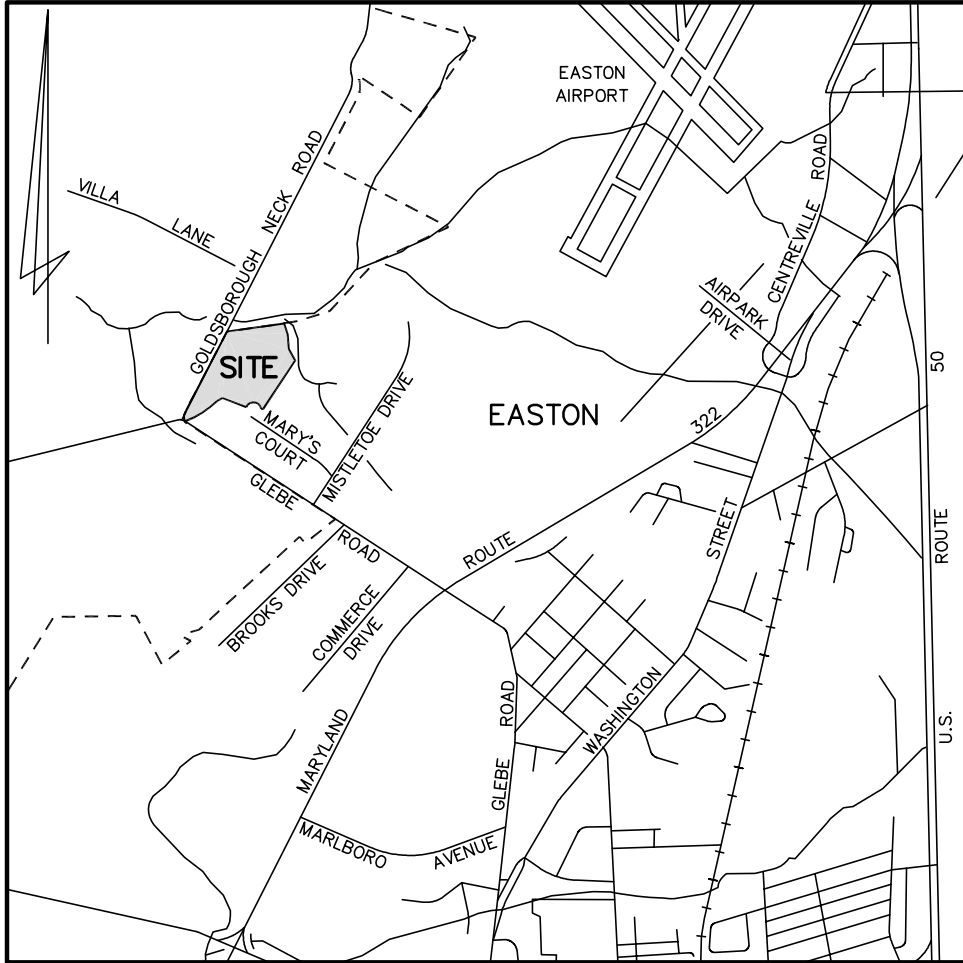
or major fraction thereof FLOOR AREA (WAREHOUSE) X 12,800 sq. ft. = 2 SPACES

PARKING (REQUIRED) = 2 SPACES

PARKING (PROVIDED) = 2 SPACES

NOTES

- PROPERTY SITE ADDRESS FOR BOTH LOTS:
28580 MARYS COURT
EASTON, MARYLAND 21601
- PROPERTY LINE INFORMATION SHOWN HEREON FOR LOT 16 IS TAKEN FROM A PLAT ENTITLED "REVISION PLAT, LOT 20, OF THE LANDS OF THOMAS R. COHEE" PREPARED BY FINK, WHITTEN & ASSOCIATES, LLC IN JUNE, 2011 AND RECORDED IN PLAT CABINET 83/190. PROPERTY LINE INFORMATION SHOWN HEREON FOR LOT 20 IS TAKEN FROM A PLAT ENTITLED "FINAL PLAT FOR TALBOT COMMERCE PARK" PREPARED BY LANE ENGINEERING, INC. IN SEPTEMBER, 1997 AND PRECORDED IN PLAT CABINET 4/35G.
- FOR DEED REFERENCE, SEE LIBER 1486, FOLIO 221 (LOT 16) AND LIBER 1384, FOLIO 218 (LOT 20).
- CURRENT ZONING CLASSIFICATION FOR LOT 16 IS "BC" BUSINESS COMMERCIAL DISTRICT AND FOR LOT 20 "A-1" AGRICULTURAL DISTRICT.
- THE CHESAPEAKE BAY CRITICAL AREA IS TAKEN FROM THE WEBSITE: <http://www.esrgc.org>. LOT 16 IS PARTIALLY LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA DESIGNATION – IDA. LOT 20 IS ENTIRELY LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA DESIGNATION – RCA. GROWTH ALLOCATION FOR LOT 20 IS BEING REQUESTED TO IDA. THE NORTHERN BOUNDARY OF LOT 20 IS LOCATED 700'± FROM THE TIDAL WATERS OF GLEBE CREEK.
- SITE IS NOT LOCATED WITHIN 100 YEAR FLOOD PLAIN AS SCALED FROM FLOOD INSURANCE RATE MAP COMMUNITY No. 24041C0187D. (ZONE "X") (UNSHADED) EFFECTIVE, JULY 20, 2016.
- SOILS SHOWN ON SITE ARE SCALED FROM MAPS LOCATED AT THE FOLLOWING WEBSITE, <http://websoilsurvey.nrcs.usda.gov> FOR TALBOT COUNTY SOILS ONSITE CONSIST OF: "Csa" CROSIADORE LOAM, "MtcA & MtcB" MATTAPEX SILT LOAM, "WocA & WocB" WOODSTOWN SANDY LOAM AND "Zk" ZEKIAH SILT LOAM. "Zk" IS A HYDRIC SOIL.
- EXISTING IMPROVEMENTS SHOWN HEREON ARE THE RESULT OF A FIELD SURVEY BY FINK, WHITTEN & ASSOCIATES, LLC IN NOVEMBER, 2019. HORIZONTAL DATUM IS BASED ON NAVD 83/91.
- PUBLIC SEWER WILL BE UTILIZED FOR SEWAGE DISPOSAL AND PUBLIC WATER WILL BE UTILIZED FOR POTABLE WATER SUPPLY. THE SITE IS SERVED BY THE TOWN OF EASTON SANITARY DISTRICT SUBDISTRICT " " LOCATED IN THE TOWN OF EASTON. ALL EXISTING WELLS MUST BE PROPERLY ABANDONED AND SEALED BY A LICENSED WELL DRILLER PRIOR TO ANY GRADING OR DEMOLITION ACTIVITIES.
- NONTIDAL WETLANDS, PERENNIAL STREAM AND WOODLANDS SHOWN HEREON ARE TAKEN FROM THE BEST AVAILABLE INFORMATION. NO OTHER NATURAL RESOURCE (ie...STEEP SLOPES, EROSION HAZARD AREAS, ENDANGERED SPECIES OR HABITAT, etc..) EXIST ON THE SITE.
- NO HISTORIC STRUCTURES EXISTING ON THE PROPERTIES.
- THE EXISTING CONTOURS SHOWN HEREON ARE TAKEN FROM AERIAL TOPOGRAPHY FLOWN IN THE FALL OF 201... VERTICAL DAUM IS NAVD 1988.
- NO NONCONFORMITIES ARE BEING CREATED AS PART OF THIS CONCEPT PLAN.
- THE SITE'S WATER QUALITY IS PROPOSED TO BE ADDRESS BY APPLYING ENVIRONMENTAL SITE DESIGN (ESD) CREDITS TO THE MAXIMUM EXTENT POSSIBLE (MEP). SEE ACCOMPANYING CONCEPTUAL STORMWATER MANAGEMENT REPORT.
- SITE PROPOSED SETBACKS:
A-1 ZONE DEVELOPMENT STANDARDS [SECTION 28-101.2(D)(F)]:
FRONT = 50'
REAR = 8'
SIDE = 8'
MAXIMUM BUILDING HEIGHT:
PRINCIPAL = 35' (ALLOWED)
PRINCIPAL = >35' (PROPOSED)
BC ZONE DEVELOPMENT STANDARDS [SECTION 28-408.2(D)(F)]:
FRONT = 40'
REAR = 30'
SIDE = 10'
MAXIMUM BUILDING HEIGHT:
PRINCIPAL = 35' (ALLOWED)
PRINCIPAL = >35' (PROPOSED)



VICINITY MAP

SCALE 1" = 2000'

TABLE OF CONTENTS

SHEET	C-1	–	TITLE SHEET
SHEET	C-2	–	EXISTING CONDITIONS AND ENVIRONMENTAL FEATURES PLAN
SHEET	C-3	–	EXISTING CONDITIONS AND DEMOLITION PLAN
SHEET	C-4	–	GROWTH ALLOCATION PLAN
SHEET	C-5	–	CONCEPTUAL SITE DEVELOPMENT PLAN
SHEET	C-6	–	CONCEPTUAL STORMWATER MANAGEMENT PLAN
SHEET	C-7	–	CONCEPTUAL LANDSCAPE PLAN

LEGEND

	PROPERTY LINE
	ZONING LINE
	EXISTING CONTOUR
	SOILS LINE AND TYPE
	EXISTING EDGE OF WOODLANDS
	EXISTING TREE
	EXISTING TREE TO BE REMOVED
	EXISTING FENCE
	EXISTING UTILITY POLE WITH OVERHEAD UTILITY LINE
	EXISTING LIGHT POLE
	EXISTING WELL
	EXISTING GAS LINE
	EXISTING HANDICAP ACCESSIBLE PARKING SPACE
	PROPOSED HANDICAP ACCESSIBLE PARKING SPACE

OWNER (LOT 16)

LOT 16, LLC
c/o THOMAS R. COHEE
28580 MARYS COURT
EASTON, MARYLAND 21601
PHONE No. 1-443-496-0804

OWNER (LOT 20)

THOMAS R. COHEE
28580 MARYS COURT
EASTON, MARYLAND 21601
PHONE No. 1-443-496-0804

ENGINEER

DMS & ASSOCIATES, LLC
c/o WILLIAM THOMAS DAVIS, Jr.
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE No. 1-443-262-9130

SURVEYOR:

FINK, WHITTEN & ASSOCIATES, LLC
c/o STEVE WHITTEN
108 DORCHESTER AVENUE
CAMBRIDGE, MARYLAND 21613
PHONE No. 1-410-228-8885

STATEMENT OF PURPOSE AND INTENT

THIS SITE IS LOCATED AT THE END OF MARY'S COURT IN THE TALBOT COMMERCE PARK, IN THE TOWN OF EASTON. THE SITE CONSIST OF 2 EXISTING LOTS (16 AND 20) THAT WILL BE COMBINED INTO 1 NEW LOT. THE SITE IS ZONED – A1 (AGRICULTURAL DISTRICT) AND BC (BUSINESS COMMERCIAL). THE A1 ZONE IS LOCATED ENTIRELY WITHIN THE CHESAPEAKE BAY CRITICAL AREA DESIGNATED – RCA (RESOURCE CONSERVATION AREA). EXISTING LOT 20 IS VACANT AND HAS THE REGIONAL STORMWATER MANAGEMENT POND LOCATED ON SITE. LOT 16 IS THE CURRENT LOCATION OF 2 EXISTING OFFICE BUILDINGS AND THEIR ASSOCIATED PARKING AREAS. THE PURPOSE OF THIS CONCEPT PLAN IS TO OBTAIN APPROVAL FOR AN ADDITION TO ONE OF THE EXISTING OFFICE BUILDINGS AND THE CONSTRUCTION OF 4 NEW OFFICE BUILDINGS, 2 IN THE BC ZONING DISTRICT AND 2 IN THE A1 ZONING DISTRICT.

THE PURPOSE OF THIS CONCEPT PLAN IS TO OBTAIN APPROVAL FROM THE CRITICAL AREAS COMMISSION FOR GROWTH ALLOCATION OF THE CRITICAL AREA DESIGNATION FROM RCA TO IDA AND THE TOWN OF EASTON PLANNING COMMISSION FOR THE PROPOSED DEVELOPMENT OF THIS SITE.

REVIEWED FOR THE TALBOT SOIL AND WATER CONSERVATION DISTRICT AND MEET TECHNICAL REQUIREMENTS	
APPROVED:	
TALBOT SOIL AND WATER CONSERVATION DISTRICT	DATE
NOTE: TALBOT SOIL AND WATER CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT ADDITIONAL PROTECTION BECOMES NECESSARY.	
DEVELOPERS CERTIFICATION	
I (WE) CERTIFY THAT:	
1. ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT, OR ALL OF THESE, WILL BE DONE PURSUANT TO THIS PLAN. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION FROM THIS PLAN. ANY CHANGES MADE ON THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.	
2. ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.	
THOMAS R. COHEE SIGNATURE	DATE
28580 MARYS COURT, EASTON, MARYLAND 21601 ADDRESS	
1-410-822- PHONE NO.	

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TOWN OF EASTON ENGINEER	TALBOT COUNTY DEPARTMENT OF PUBLIC WORKS
TOWN OF EASTON	TALBOT SOIL CONSERVATION DISTRICT

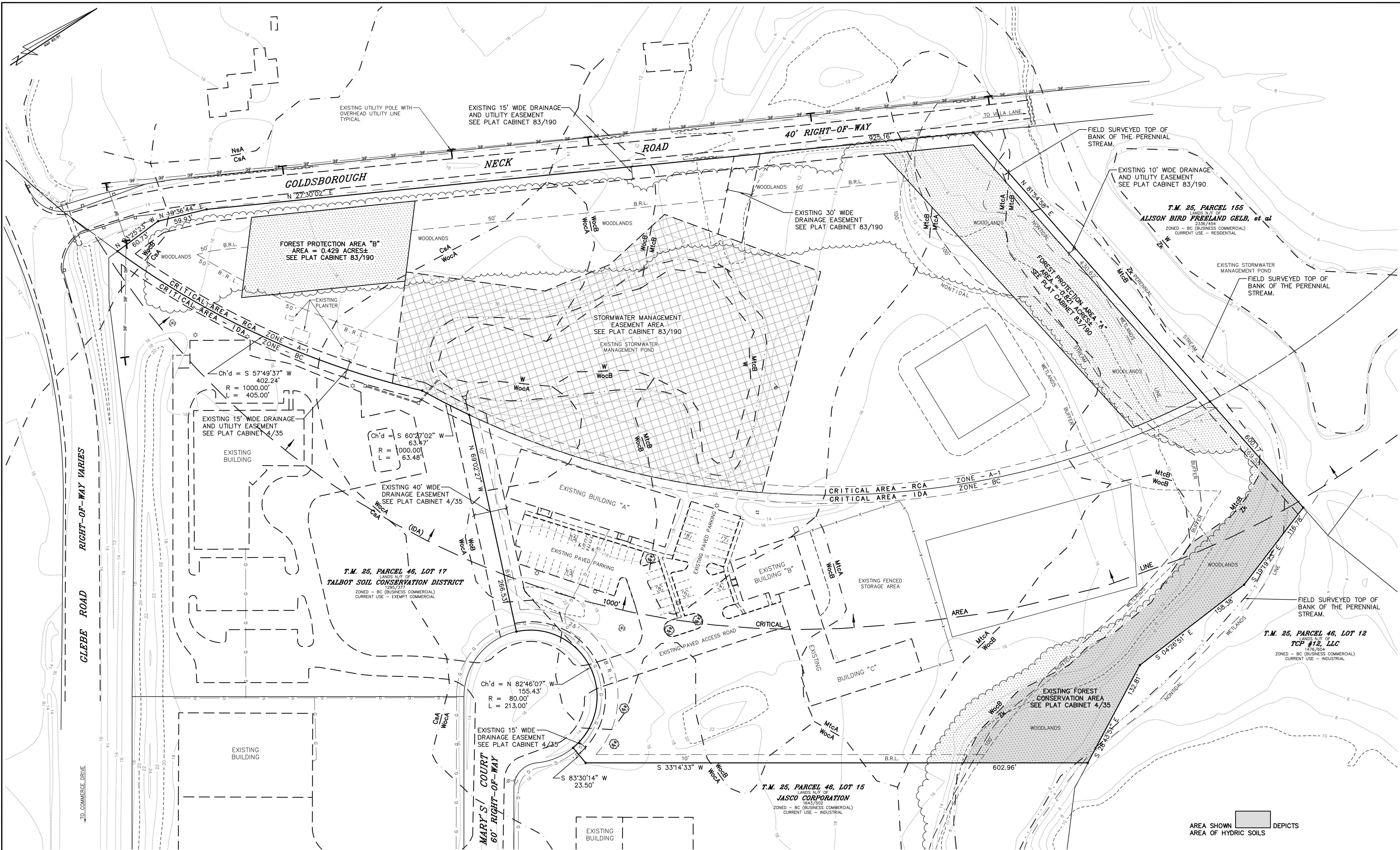
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3-22-22 DATE	SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC	
ENGINEERING, DRAFTING/DESIGN, ENVIRONMENTAL SERVICES & SURVEYING	
P.O. BOX 80 CENTREVILLE, MARYLAND 21617 PHONE : 1-443-262-9130 FAX : 1-443-262-9148	

DATE	REVISION
6-22-20	PER COMMENTS
3-22-22	REVISED DEDICATION AREA
10-6-22	REVISED STREAM BUFFER

TITLE SHEET	
ON LOTS 16 AND 20 IN	
TALBOT COMMERCE PARK	
IN THE TOWN OF EASTON	
TAX MAP – 25, GRID – 22, PARCEL – 46, LOTS – 16 & 20	
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND	
PREPARED FOR : LOT 16 LLC	

DATE DECEMBER '19	SCALE AS SHOWN
JOB No. 2017052	DRAWN BY WJM
FOLDER Ref. 25-2017052	DESIGNED BY WTD, Jr.
SHEET No. – C-1	
CADD FILE – 17052-G1	



GRAPHIC SCALE

1 inch = 50 ft.

SITE STATISTICS

GROSS AREA	= 14,904 ac.± (649,222 sq. ft.±)
CRITICAL AREA (IDA)	= 11,854 ac.± (516,347 sq. ft.±)
NON-CRITICAL AREA	= 3,050 ac.± (132,875 sq. ft.±)
ZONE A-1	= 8,348 ac.± (363,652 sq. ft.±)
ZONE BC	= 6,556 ac.± (285,570 sq. ft.±)
AREA WITHIN 100 Yr. FLOOD PLAIN	= 0.000 ac.±
AREA WITHIN RESOURCE PROTECTION	= 4.365 ac.±
NONTIDAL WETLANDS	= 0.228 ac.±
STREAM BUFFER	= 1.133 ac.±
WOODLANDS (excludes wetlands & stream buffer)	= 3.004 ac.±

TOWN OF EASTON ENGINEER	TALBOT COUNTY DEPARTMENT OF PUBLIC WORKS
TOWN OF EASTON	TALBOT SOIL CONSERVATION DISTRICT

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STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER
Wm. Thomas Duff
3-22-22
DATE SEAL

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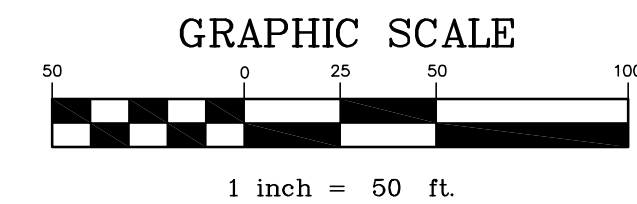
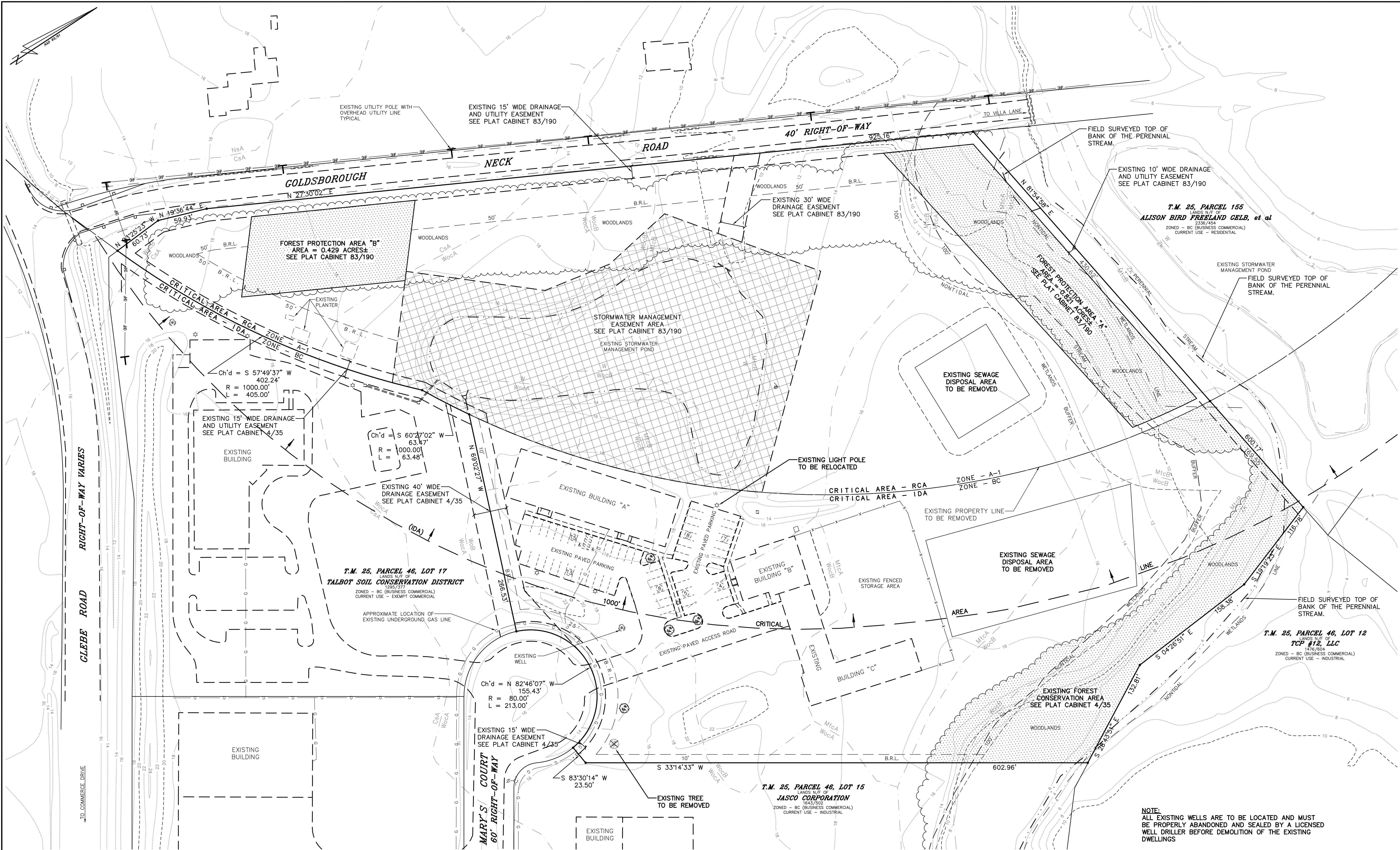
DATE	REVISION
6-22-20	PER COMMENTS
3-22-22	REVISED DEDICATION AREA
10-6-22	REVISED STREAM BUFFER

EXISTING CONDITIONS AND ENVIRONMENTAL FEATURES PLAN

ON LOTS 16 AND 20 IN
TALBOT COMMERCE PARK
IN THE TOWN OF EASTON

TAX MAP - 25, GRID - 22, PARCEL - 46, LOTS - 16 & 20
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR : LOT 16 LLC

DATE	SCALE
DECEMBER '19	1" = 50'
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No. 17660

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REGISTERED PROFESSIONAL ENGINEER
17660
Wm. Thomas Duff
3-22-22
DATE SEAL

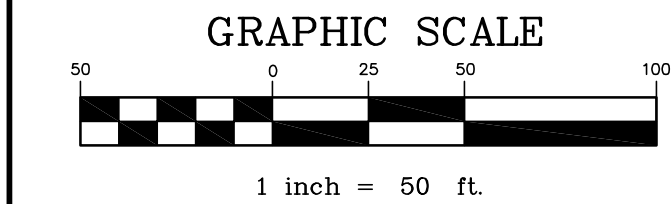
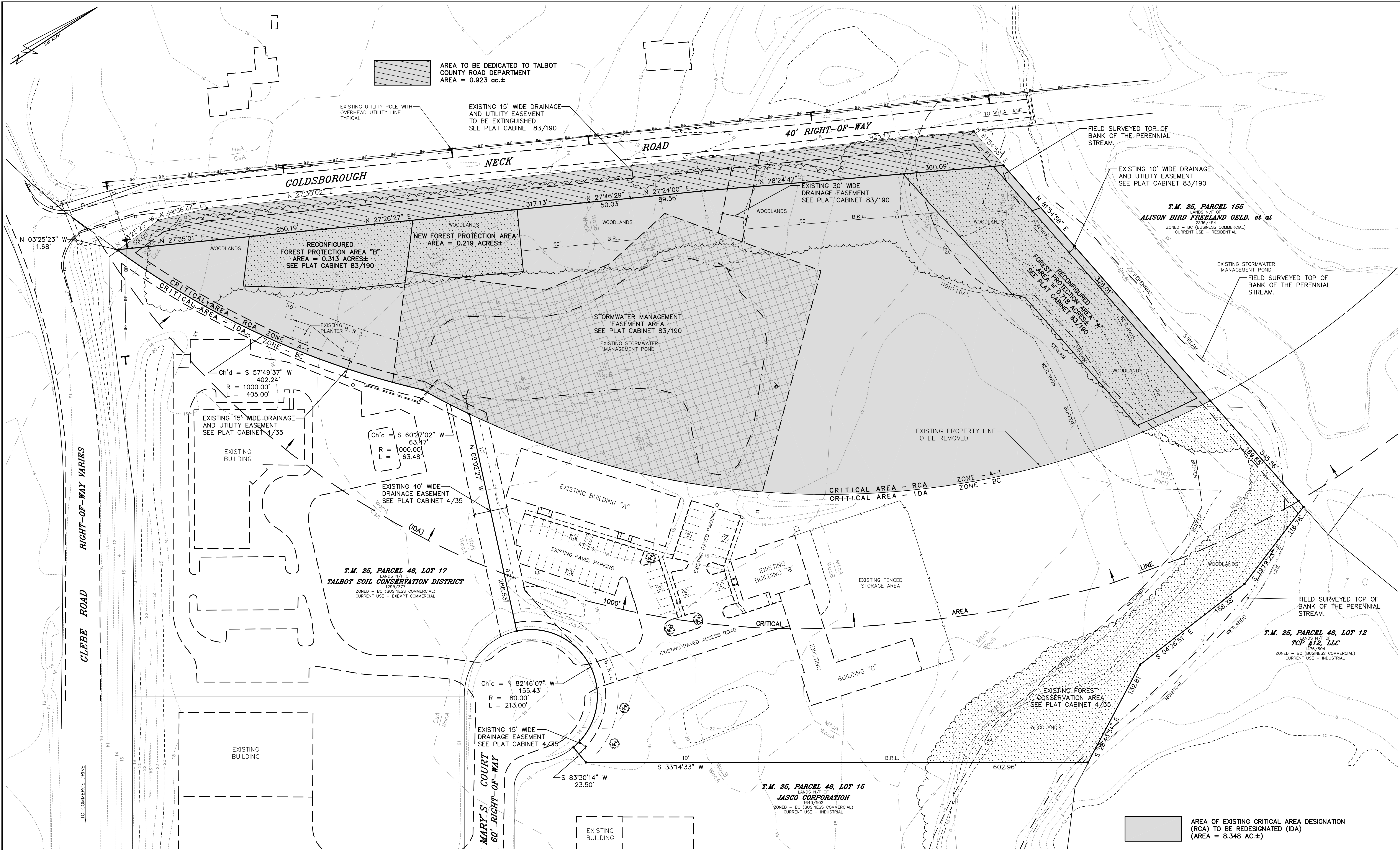
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FAX : 1-443-262-9148

DATE	REVISION
6-22-20	PER COMMENTS
6-22-20	REVISED DEDICATION AREA
10-6-22	REVISED STREAM BUFFER

EXISTING CONDITIONS AND DEMOLITION PLAN
ON LOTS 16 AND 20 IN
TALBOT COMMERCE PARK
IN THE TOWN OF EASTON
TAX MAP - 25, GRID - 22, PARCEL - 46, LOTS - 16 & 20
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR : LOT 16 LLC

DATE DECEMBER '19	SCALE 1" = 50'
JOB No. 2017052	DRAWN BY WJM
FOLDER Ref. 25-2017052	DESIGNED BY WTD, Jr.
SHEET No. - C-3	
CADD FILE - 17052-G3	

NOTE:
ALL EXISTING WELLS ARE TO BE LOCATED AND MUST
BE PROPERLY ABANDONED AND SEALED BY A LICENSED
WELL DRILLER BEFORE DEMOLITION OF THE EXISTING
DWELLINGS



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TOWN OF EASTON	TALBOT SOIL CONSERVATION DISTRICT

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NO. 17660

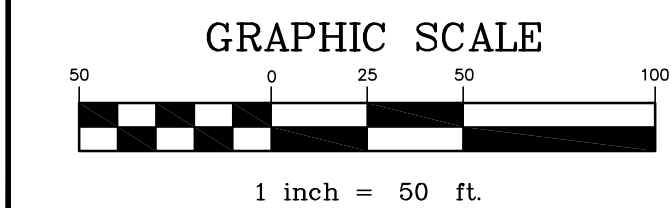
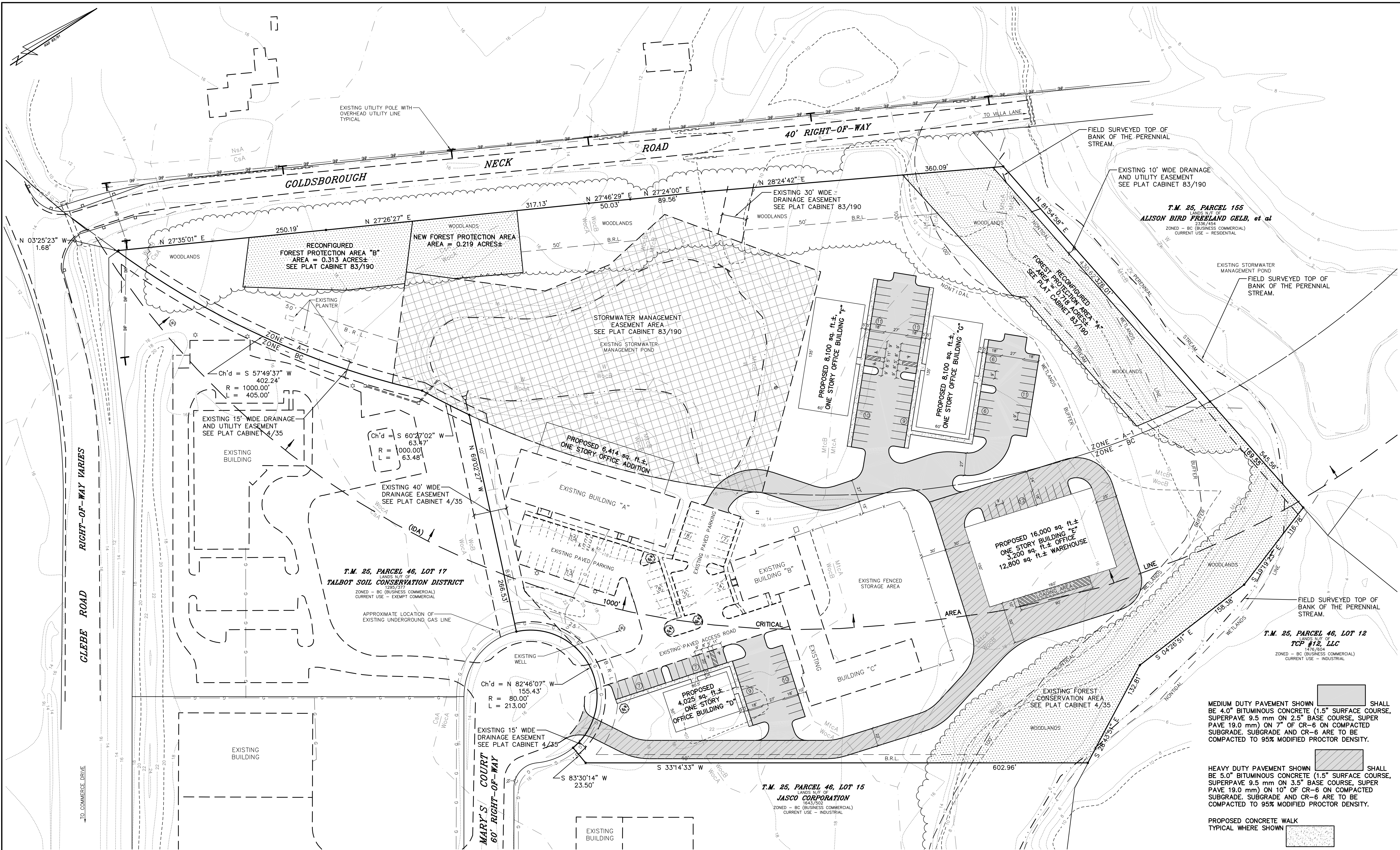
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Wm. Thomas Dwyer
3-22-22
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DATE	REVISION
6-22-20	PER COMMENTS
3-22-22	REVISED DEDICATION AREA
4-26-22	REVISED GROWTH ALLOCATION
10-6-22	REVISED STREAM BUFFER

GROWTH ALLOCATION PLAN
ON LOTS 16 AND 20 IN
TALBOT COMMERCE PARK
IN THE TOWN OF EASTON
TAX MAP - 25, GRID - 22, PARCEL - 46, LOTS - 16 & 20
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR : LOT 16 LLC

DATE	SCALE
DECEMBER '19	1" = 50'
JOB No.	DRAWN BY
2017052	WJM
FOLDER Ref.	DESIGNED BY
25-2017052	WTD, Jr.
SHEET No. - C-4	
CADD FILE - 17052-G4	



L.O.D. -- DENOTES LIMITS OF DISTURBANCE

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TOWN OF EASTON	TALBOT SOIL CONSERVATION DISTRICT

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No. 17660

STATE OF MARYLAND
JANUARY 17, 1789
REGISTERED
PROFESSIONAL ENGINEER

Wm. James Duff
3-22-22
DATE SEAL

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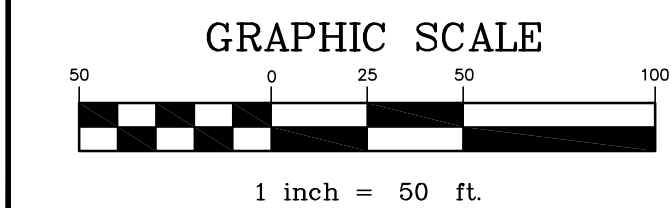
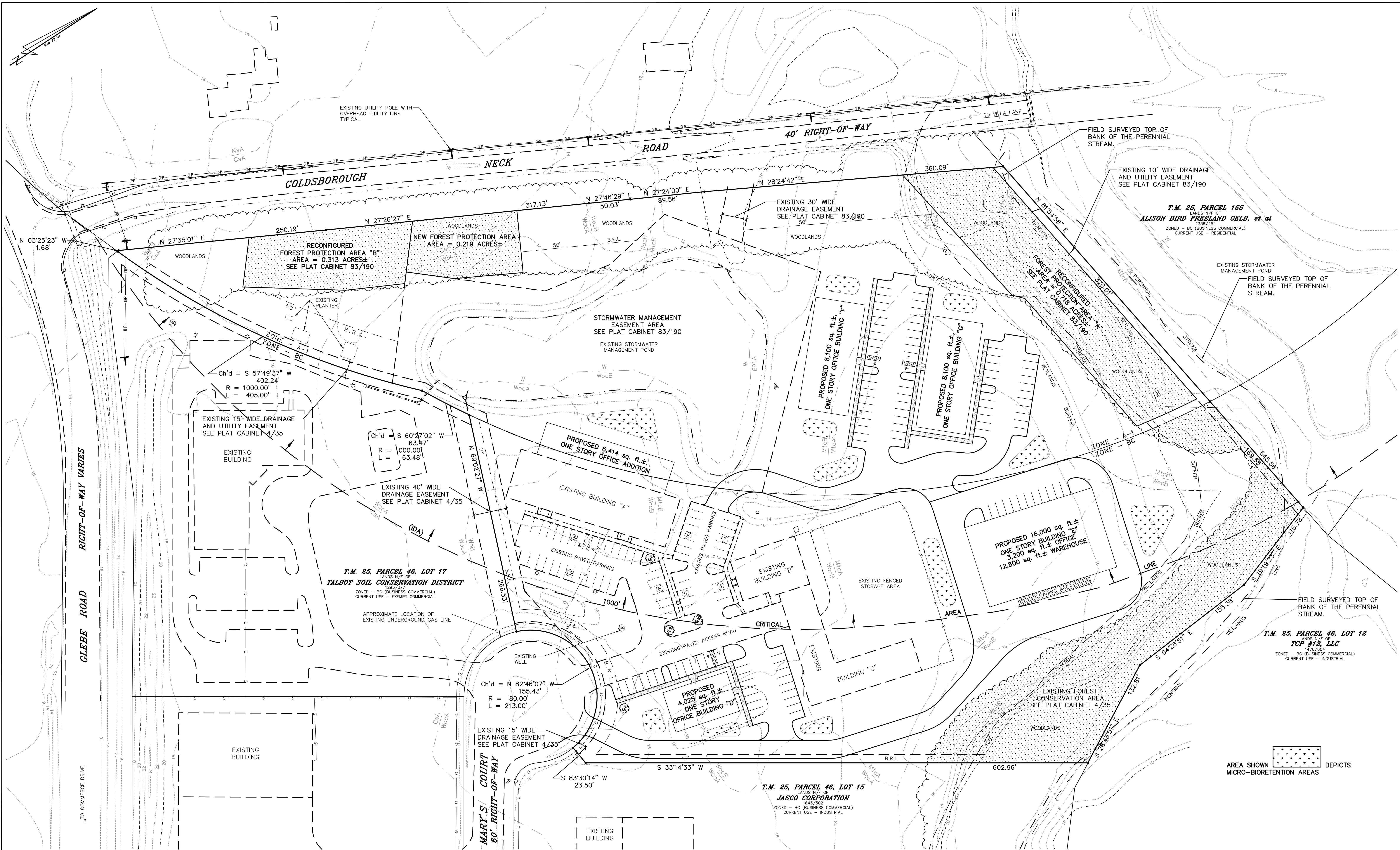
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FAX: 1-443-262-9148

DATE	REVISION
6-22-20	PER COMMENTS
3-22-22	REVISED DEDICATION AREA
10-6-22	REVISED STREAM BUFFER

CONCEPTUAL SITE DEVELOPMENT PLAN
ON LOTS 16 AND 20 IN
TALBOT COMMERCE PARK
IN THE TOWN OF EASTON
TAX MAP -- 25, GRID -- 22, PARCEL -- 46, LOTS -- 16 & 20
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR : LOT 16 LLC

DATE DECEMBER '19	SCALE 1" = 50'
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CADD FILE -- 17052-G5	



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TOWN OF EASTON	TALBOT SOIL CONSERVATION DISTRICT

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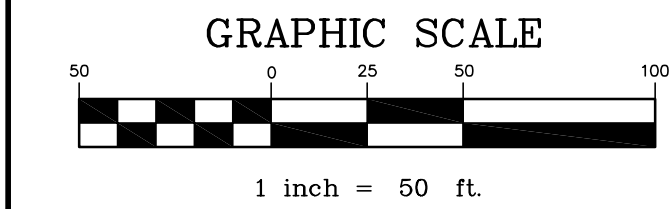
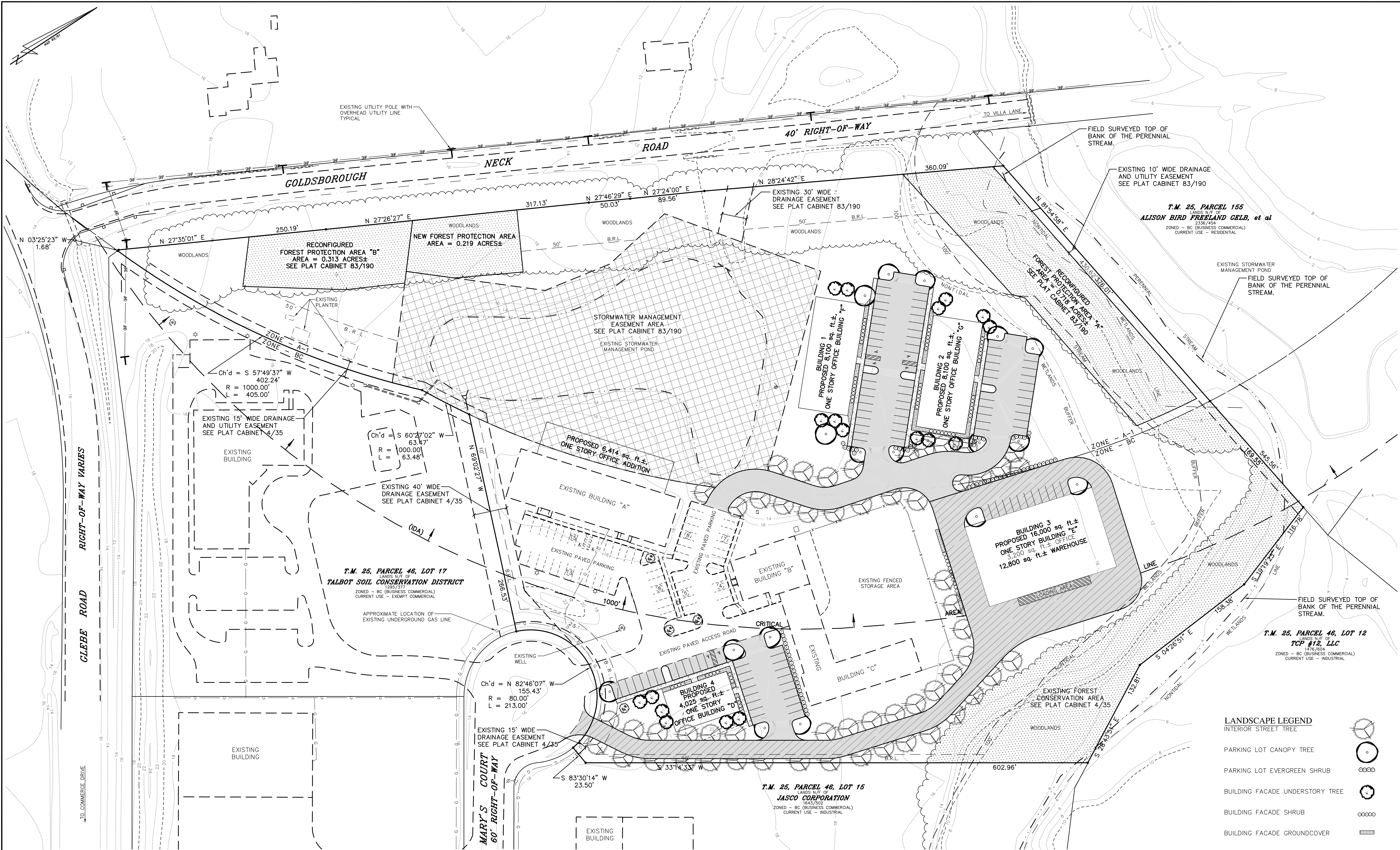
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REGISTERED PROFESSIONAL ENGINEER
17660
Wm. James Duff
3-22-22
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FAX: 1-443-262-9148

DATE	REVISION
6-22-20	PER COMMENTS
3-22-22	REVISED DEDICATION AREA
10-6-22	REVISED STREAM BUFFER

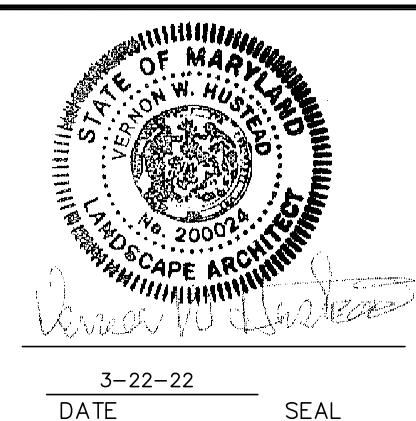
CONCEPTUAL STORMWATER MANAGEMENT PLAN
ON LOTS 16 AND 20 IN
TALBOT COMMERCE PARK
IN THE TOWN OF EASTON
TAX MAP - 25, GRID - 22, PARCEL - 46, LOTS - 16 & 20
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR : LOT 16 LLC

DATE	SCALE
DECEMBER '19	1" = 50'
JOB No.	DRAWN BY
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FOLDER Ref.	DESIGNED BY
25-2017052	WTD, Jr.
SHEET No. - C-6	
CADD FILE - 17052-G6	



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TOWN OF EASTON	TALBOT SOIL CONSERVATION DISTRICT



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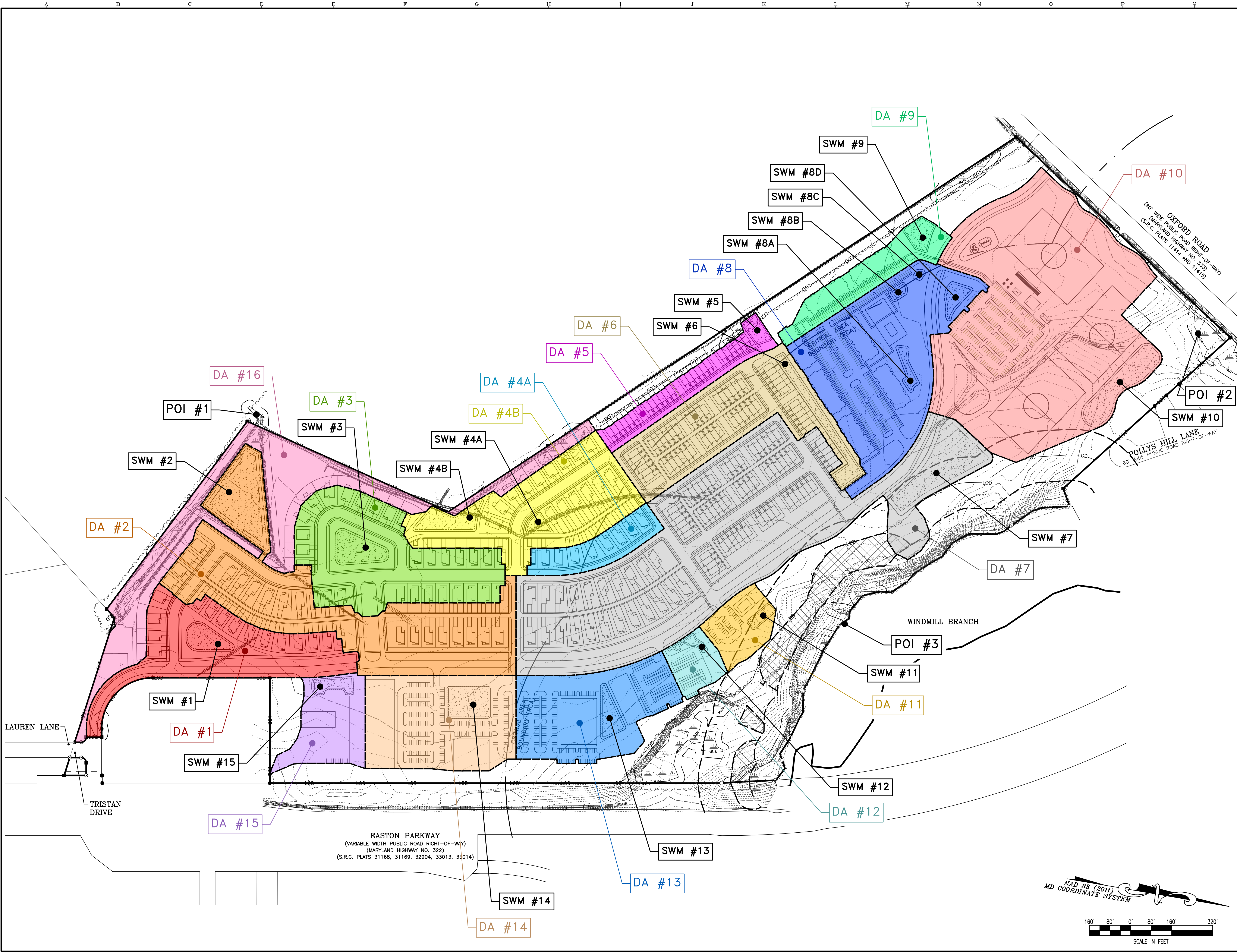
HUSTEAD Landscape Architecture, LLC
120 Bay Meadows Lane Stevensville, MD. 21666
Phone : 443.988.2294
E-mail: Vhustead@Husteadla.com Web: www.Husteadla.com

DATE	REVISION
6-22-20	PER COMMENTS
3-22-22	REVISED DEDICATION AREA
10-6-22	REVISED STREAM BUFFER

CONCEPTUAL LANDSCAPE PLAN
ON LOTS 16 AND 20 IN
TALBOT COMMERCE PARK
IN THE TOWN OF EASTON
TAX MAP - 25, GRID - 22, PARCEL - 46, LOTS - 16 & 20
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR : LOT 16 LLC

DATE	SCALE
DECEMBER '19	1" = 50'
JOB No.	DRAWN BY
2017052	WJM
FOLDER Ref.	DESIGNED BY
25-2017052	WTD, Jr.
SHEET No. - C-7	
CADD FILE - 17052-G7	

Date: 10/31/2022 - 3:54pm User: jibeyer Project Manager: BCE
Drawing Path: J:\2022\0100\220155\Draw\Plots\ODA-PLTS-220155.dwg APP E
XREF File(s): VLD-BASE-200574-220155\VF-BASE-220155\VF-BASE-2436-220155\CSK-CRW-BASE-220155\CSK-BASE-220155\ODA-BASE-220155



PLANS ARE
ISSUED FOR
REVIEW ONLY

PLANS ARE NOT
APPROVED FOR
CONSTRUCTION

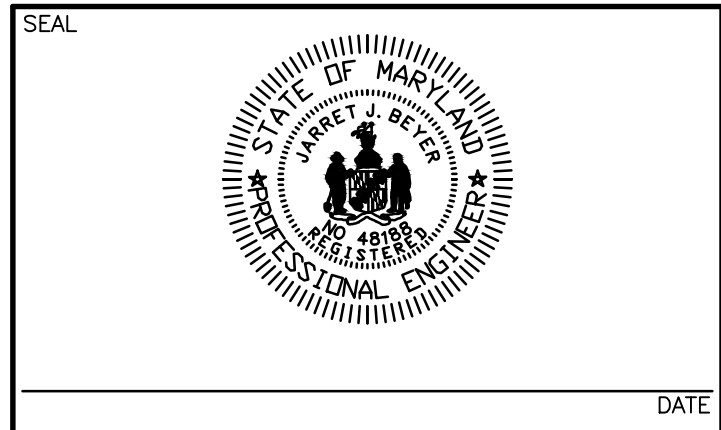
REVISIONS TO APPROVED PLANS			
No.	DATE	DESCRIPTION	BY

WARNING!!
THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.
THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF ANY WORK ON-SITE. THE CONTRACTOR SHALL NOTIFY DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK ON-SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.



Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@laneinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Centerville, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centerville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 45188 - Expiration Date: 12/28/2023



PROPOSED CONDITIONS
DRAINAGE AREA MAP

POPLAR HILL
PUD PLAN
IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 42 GRID 4 PARCEL 57

ISSUED/REVISED FOR: DATE: BY:

SHEET No. **APPENDIX E**
SCALE: **AS NOTED**
JOB No. 220155
FILE No. 1324

Calculation Summary

Critical Area 15% Calculations

Removal Requirement, RR (lbs P / yr)	54.77
after non-structural and micro-scale BMPs (Steps 5 and 6)	
Total Load Reduction (lbs P / year)	75.31
Total Load Reduction Remaining (lbs P / yr)	0.00
after structural practices (Step 9)	
Total Load Reduction (lbs P / year)	75.31
Total Load Reduction Remaining (lbs P / yr)	0.00

MDE's ESD to the MEP Calculations

ESD Runoff Volume, ESDv (cf)	263464.00
Total Treatment Volume (cf)	263464.00
WQv or ESDv Treated (cf)	372489.33
PE achieved (inches)	2.54
Entire ESDv Treated Through Environmental Site Design?	YES
ESDv Remaining? (cf)	0.00
If ESDV is not fully treated, is ESD to MEP achieved?	0.00
Redevelopment WQv Requirements Met Through Environmental Site Design?	N/A
WQv Remaining? (cf)	0.00
New Development WQv Requirements Met Through Environmental Site Design?	YES
WQv Remaining? (cf)	0.00

		Contributin g Drainage Area (sf)	% Impervious Cover	ESDv Received by Practice	ESDv from Up- Gradient Practices	Practice Specific Parameter(s)			WQv or ESDv credit (cf)	Runoff Volume Remainin g (cf)	Down- Gradient Practice
Micro-Scale Practices	P _E Credit Description										
SWM #1	ESDv credit is based on design storage volume	210,281	41%	19,876	0	Surface Area (sf)	ading Depth	dia Depth	19,876	0	
						11,885	1	3			
SWM #2	ESDv credit is based on design storage volume	405,742	39%	36,769	0	Surface Area (sf)	ading Depth	dia Depth	36,769	0	
						49,862	1	3			
SWM #3	ESDv credit is based on design storage volume	258,095	50%	29,124	0	Surface Area (sf)	ading Depth	dia Depth	29,124	0	
						16,961	1	3			
SWM #4A	ESDv credit is based on design storage volume	62,363	52%	7,326	0	Surface Area (sf)	ading Depth	dia Depth	7,326	0	
						3,692	1	3			
SWM #4B	ESDv credit is based on design storage volume	233,002	44%	23,527	0	Surface Area (sf)	ading Depth	dia Depth	23,527	0	
						14,777	1	3			
SWM #5	ESDv credit is based on design storage volume	76,080	65%	10,847	0	Surface Area (sf)	ading Depth	dia Depth	10,847	0	
						6,038	1	3			
SWM #6	ESDv credit is based on design storage volume	232,674	53%	27,796	0	Surface Area (sf)	ading Depth	dia Depth	27,796	0	
						15,353	1	3			
SWM #7	ESDv credit is based on design storage volume	750,267	45%	76,322	0	Surface Area (sf)	ading Depth	dia Depth	76,322	0	
						45,723	1	3			
SWM #8A, 8B, 8C, 8D	ESDv credit is based on design storage volume	331,820	53%	39,274	0	Surface Area (sf)	ading Depth	dia Depth	27,401	11,873	
						12,455	1	3			
SWM #9	ESDv credit is based on design storage volume	86,772	57%	10,912	0	Surface Area (sf)	ading Depth	dia Depth	10,912	0	
						8,828	1	3			
SWM #10	ESDv credit is based on design storage volume	677,943	16%	29,215	0	Surface Area (sf)	ading Depth	dia Depth	29,215	0	
						29,822	1	3			
SWM #11	ESDv credit is based on design storage volume	57,439	35%	4,687	0	Surface Area (sf)	ading Depth	dia Depth	4,687	0	
						3,711	1	3			
SWM #12	ESDv credit is based on design storage volume	40,772	49%	4,498	0	Surface Area (sf)	ading Depth	dia Depth	3,729	769	
						1,695	1	3			
SWM #13	ESDv credit is based on design storage volume	194,438	61%	26,157	0	Surface Area (sf)	ading Depth	dia Depth	26,157	0	
						14,301	1	3			
SWM #14	ESDv credit is based on design storage volume	213,229	63%	29,795	0	Surface Area (sf)	ading Depth	dia Depth	27,960	1,835	
						12,709	1	3			
SWM #15	ESDv credit is based on design storage volume	93,273	56%	11,578	0	Surface Area (sf)	ading Depth	dia Depth	10,839	738	
						4,927	1	3			
Total		3,924,190		387,705	0				372,489	15,216	

Phosphorous Removal Efficiency	Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
60%	79%	4.96	3.90	1.06
60%	79%	9.18	7.22	1.96
60%	79%	7.27	5.72	1.56
60%	79%	1.83	1.44	0.39
60%	79%	5.88	4.62	1.26
60%	79%	2.71	2.13	0.58
60%	79%	6.94	5.46	1.48
60%	79%	19.06	14.99	4.08
60%	72%	9.81	7.05	2.76
60%	79%	2.73	2.14	0.58
60%	79%	7.30	5.74	1.56
60%	79%	1.17	0.92	0.25
60%	75%	1.12	0.84	0.28
60%	79%	6.53	5.14	1.40
60%	77%	7.44	5.76	1.68
60%	77%	2.89	2.24	0.65
60%	78%	96.84	75.31	21.53

Maryland Environmental Site Design (ESD) Computations

Project Poplar Hill By JJB
 Location Oxford Road/Easton Bypass Date 11/1/2022

Determine Target ESDv

Initial Site Assessment (Site Data):

Existing Conditions

Total LOD Area: 4,503,638 sf
 Soil Types:

HSG	A	B	C	D
Area			4,503,638	
Percent			100.0	

Proposed Layout

Impervious Cover: 1,701,384 sf
 Percent Impervious (I) 38 %

Determine RCNs for Wooded Conditions:

HSG	A	B	C	D
Area			4,503,638	
Percent			100.0	
RCN	38	55	70	77

Weighted RCN: 70

Determine ESD Targets:

= 0.39

From Table 5.3 and
 %I = 38

HSG	A	B	C	D
Area			4,503,638	
Target P _E			2.00	

Composite Target P_E (in.): 2.00

$$\text{ESDv} = \frac{(P_E)(R_v)(A)}{12}$$

= 292,738 cf

Drainage Area 1

Total Area	210,281 sf	Target ESDv = $\frac{(P_e)(R_v)(A)}{12}$
Impervious Area	86,472 sf	
Percent Impervious (I)	41 %	= 11,779 cf
Rv = 0.05 + 0.009(I)	0.42	75% of target = 8,834 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 20,612 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 12,823 \text{ cf} \end{aligned}$$

Surface Area=	11,885 sf	Media Depth=	3 ft
Ponding Area=	13,760 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **12,823 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 2

Total Area	405,742 sf	Target ESDv = $\frac{(P_e)(R_v)(A)}{12}$
Impervious Area	159,036 sf	
Percent Impervious (I)	39 %	= 21,789 cf
Rv = 0.05 + 0.009(I)	0.40	75% of target = 16,342 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 38,131 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 51,872 \text{ cf} \end{aligned}$$

Surface Area=	49,862 sf	Media Depth=	3 ft
Ponding Area=	53,881 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **38,131 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 3

Total Area	258,095 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	129,485 sf	
Percent Impervious (I)	50 %	= 17,259 cf
Rv = 0.05 + 0.009(I)	0.50	75% of target= 12,944 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 30,203 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 18,076 \text{ cf} \end{aligned}$$

Surface Area=	16,961 sf	Media Depth=	3 ft
Ponding Area=	19,190 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **18,076 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 4A

Total Area	62,363 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	32,714 sf	
Percent Impervious (I)	52 %	= 4,341 cf
Rv = 0.05 + 0.009(I)	0.52	75% of target = 3,256 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 7,598 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 4,217 \text{ cf} \end{aligned}$$

Surface Area=	3,692 sf	Media Depth=	3 ft
Ponding Area=	4,742 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **4,217 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 4B

Total Area	233,002 sf	Target ESDv = $\frac{(P_e)(R_v)(A)}{12}$
Impervious Area	103,239 sf	
Percent Impervious (I)	44 %	= 13,942 cf
Rv = 0.05 + 0.009(I)	0.45	75% of target = 10,457 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 24,399 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 16,151 \text{ cf} \end{aligned}$$

Surface Area=	14,777 sf	Media Depth=	3 ft
Ponding Area=	17,525 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **16,151 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 5

Total Area	76,080 sf	Target ESDv = $\frac{(P_e)(R_v)(A)}{12}$
Impervious Area	49,340 sf	
Percent Impervious (I)	65 %	= 6,428 cf
Rv = 0.05 + 0.009(I)	0.63	75% of target= 4,821 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 11,249 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 6,702 \text{ cf} \end{aligned}$$

Surface Area=	6,038 sf	Media Depth=	3 ft
Ponding Area=	7,366 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **6,702 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 6

Total Area	232,674 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	124,340 sf	
Percent Impervious (I)	53 %	= 16,472 cf
Rv = 0.05 + 0.009(I)	0.53	75% of target= 12,354 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 28,826 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 17,975 \text{ cf} \end{aligned}$$

Surface Area=	15,353 sf	Media Depth=	3 ft
Ponding Area=	20,596 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **17,975 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 7

Total Area	750,267 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	335,217 sf	
Percent Impervious (I)	45 %	= 45,228 cf
Rv = 0.05 + 0.009(I)	0.45	75% of target= 33,921 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 79,149 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 47,865 \text{ cf} \end{aligned}$$

Surface Area=	45,723 sf	Media Depth=	3 ft
Ponding Area=	50,007 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **47,865 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 8

Total Area	331,820 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	175,511 sf	
Percent Impervious (I)	53 %	= 23,273 cf
Rv = 0.05 + 0.009(I)	0.53	75% of target= 17,455 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 40,729 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 23,868 \text{ cf} \end{aligned}$$

Surface Area=	12,539 sf	Media Depth=	3 ft
Ponding Area=	19,285 sf		
Ponding depth=	1.5 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **23,868 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 9

Total Area	86,772 sf	Target ESDv = $\frac{(P_e)(R_v)(A)}{12}$
Impervious Area	49,067 sf	
Percent Impervious (I)	57 %	= 6,467 cf
Rv = $0.05 + 0.009(I)$	0.56	75% of target= 4,850 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 11,316 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 9,593 \text{ cf} \end{aligned}$$

Surface Area=	8,828 sf	Media Depth=	3 ft
Ponding Area=	10,358 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **9,593 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 10

Total Area	677,943 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	106,609 sf	
Percent Impervious (I)	16 %	= 17,313 cf
Rv = 0.05 + 0.009(I)	0.19	75% of target= 12,985 cf

Site Development Design:

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 30,297 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 31,645 \text{ cf} \end{aligned}$$

Surface Area=	29,822 sf	Media Depth=	3 ft
Ponding Area=	33,467 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **30,297 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 11

Total Area	57,439 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	19,953 sf	
Percent Impervious (I)	35 %	= 2,777 cf
Rv = 0.05 + 0.009(I)	0.36	75% of target = 2,083 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 4,860 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 4,292 \text{ cf} \end{aligned}$$

Surface Area=	3,711 sf	Media Depth=	3 ft
Ponding Area=	4,873 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **4,292 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 12

Total Area	40,772 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	19,949 sf	
Percent Impervious (I)	49 %	= 2,666 cf
Rv = $0.05 + 0.009(I)$	0.49	75% of target = 1,999 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 4,665 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 2,709 \text{ cf} \end{aligned}$$

Surface Area=	1,969 sf	Media Depth=	3 ft
Ponding Area=	3,449 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **2,709 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 13

Total Area	194,438 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	118,369 sf	
Percent Impervious (I)	61 %	= 15,501 cf
Rv = 0.05 + 0.009(I)	0.60	75% of target= 11,625 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 27,126 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 15,843 \text{ cf} \end{aligned}$$

Surface Area=	9,066 sf	Media Depth=	3 ft
Ponding Area=	12,058 sf		
Ponding depth=	1.5 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **15,843 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 14

Total Area	213,229 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	135,291 sf	
Percent Impervious (I)	63 %	= 17,656 cf
Rv = 0.05 + 0.009(I)	0.62	75% of target= 13,242 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 30,899 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 18,908 \text{ cf} \end{aligned}$$

Surface Area=	17,813 sf	Media Depth=	3 ft
Ponding Area=	20,002 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **18,908 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Drainage Area 15

Total Area	93,273 sf	Target ESDv = $\frac{(P_E)(R_v)(A)}{12}$
Impervious Area	51,992 sf	
Percent Impervious (I)	56 %	= 6,861 cf
Rv = 0.05 + 0.009(I)	0.55	75% of target= 5,146 cf

Site Development Design - Submerged Gravel Wetland (M-2):

Based on the Cpv storm (2.8 in.): Max allowable ESDv that can be used:

$$V = \frac{(P)(R_v)(A)}{12} = 12,007 \text{ cf}$$

The computed ESDv provided is:

$$\begin{aligned} \text{ESDv} &= (\text{Ponding storage ONLY}) \\ &= 7,077 \text{ cf} \end{aligned}$$

Surface Area=	6,231 sf	Media Depth=	3 ft
Ponding Area=	7,922 sf		
Ponding depth=	1 ft	Porosity=	0.4

Therefore, when assessing compliance with the MEP standard, the volume of runoff treated by this submerged gravel wetland practice is **7,077 cf.**

Now check for compliance with design criteria:

Submerged Gravel Wetland Design Criteria:	Provided
Runoff shall enter, flowthrough, and exit in safe and non-erosive manner	✓
Drainage area to practice is large to maintain submerged flow	✓
Appropriate soils and/or high groundwater is present	✓
Section dimensions of soil media layers greater than minimum	✓
Distribution and collection piping / underdrains provided	✓
Flow paths through gravel greater than 15 ft	✓
Riser pipes provided and spaced at 15 ft or less apart	✓
Cleanouts provided	✓

Non-Rooftop Disconnection Areas

House Patios

Impervious Area	4,800 sf	Target ESDv = $(P_E)(R_v)(A)/12$
Percent Impervious (I)	1.8 %	= 26 cf
$R_v = 0.05 + 0.009(I)$	0.07	
Pe	1 in	
Disconnection Length		12 feet minimum
Contributing Length		12 feet
Ratio of Disconnection Length to Contributing Length		1:1
Pe		1.0 in

$$\begin{aligned} \text{ESDv} &= (PE)(R_v)(A)/12 \\ &= \mathbf{380 \text{ cf}} \end{aligned}$$

Check for compliance with design criteria:

Non-Rooftop Disconnect Design Criteria:	Provided
Vegetated flowpath available downstream of impervious area	✓
Topography is 5% or less along disconnected flowpaths	✓
Site is not a hot spot	✓
Maximum contributing flowpath is less than 75 feet	✓
Runoff will drain in a safe and non-erosive manner	✓
Sizing factor/length ratio supports Pe value used	✓
Disconnections are > 10 ft from impervious surfaces	✓
Receiving areas are vegetated and discharge to no-disturbance buffer areas	✓
Erosion and sediment control practices are not located in receiving areas	✓

CONCEPT STORMWATER MANAGEMENT REPORT

For

**Poplar Hill
PUD**

Developer

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Design Professional

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Date Prepared

July 6, 2022
Revised November 1, 2022

Prepared by

Jarret J. Beyer, P.E.

PROFESSIONAL CERTIFICATION: I hereby certify that this document was prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 48188, Expiration Date: 12/28/2023.

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Poplar Hill PUD

STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

This report addresses the stormwater management requirements of the *2000 Maryland Stormwater Design Manual Volumes I and II* (Manual) as currently updated. Development projects are required to be reviewed during the concept, preliminary site development, and final design stages. This narrative addresses the requirements pertaining to the concept design stage and meets the intent of the guidelines and methodologies presented in the MDE document *Environmental Site Design (ESD) Process & Computations* dated July 2010.

2. GENERAL SITE INFORMATION

The site is a 120.5 acre parcel located along Oxford Road across from Easton Club, and partially fronting the Easton Bypass. The site is currently in agricultural use. Surrounding lands consist of residential development, forest, and Temple B’Nai Israel.

The parcel discharges to three main points, two of which discharge to tidal waters. Geo-Technology Associates, Inc. have done soils borings. Soils on the south end of the site are mixtures of sand and silty sand to about 5 feet, with clay/silty clay/clayey silt below 5 feet. Moving north on the site towards the middle, silty sand/silt/silty clay extend to depths of about 3 to 4 feet. Below this elevation soils become sand and silty sand for a few feet before becoming silty clay/clayey silt. Groundwater elevations are generally high on the south half of the site and drop down at the central part of the site. Additional borings will be necessary on the north end of the site and for proposed stormwater features. USDA soil maps classify site soils as B and C soils.

3. PROPOSED PROJECT

The proposed Planned Unit Development (PUD) will consist of mixed use residential, commercial sites, and a community park with ball fields. The residential portion will be a mix of single-family homes, townhomes, and apartments. Roads, parking, and sidewalks will be constructed to serve the improvements. In addition, a community pools and clubhouses will serve the residential portion. Surrounding the buildings and amenities will be forest conservation area and open spaces. Stormwater management features are proposed throughout the entire site.

4. STORMWATER MANAGEMENT

Stormwater management is conceptual at this point and has been analyzed to meet quality, quantity, and Critical Area Commission requirements. Since this is a concept level analysis, treatment volumes are calculated by ponding volume only. We believe this is a conservative approach giving us a good starting point for discussion and refinement. Additional soils testing and discussion with the Town Engineer will lead to placement of an assortment of features.

4.1 STORMWATER QUANTITY MANAGEMENT

The 2-year and 10-year storm events are required to be managed onsite, with the 100-year storm event safely conveyed for discharge at the southwest and northeast corners of the site (POI-1 and POI-2.) An additional point of discharge along the east property line of the site is to Windmill Branch, routed to tidal waters (POI-3.) This discharge point is not required to be managed to the 2 and 10-year storm events. Additional analysis will be needed at POI-3 as the commercial parcels develop further.

STORMWATER DISCHARGE (cfs)						
	Pre 2-yr	Post 2-yr	Pre 10-yr	Post 10-yr	Pre 100-yr	Post 100-yr
POI-1	28.95	9.99	69.81	38.18	125.31	79.13
POI-2	18.47	5.86	44.38	36.29	79.43	93.29
POI-3	3.68	6.57	14.68	19.79	32.10	40.83

The existing site is currently an open farm field. The stormwater discharge to the surrounding ditches is significantly reduced with this development. And, as a component of the PUD project a significant portion of the site perimeter will be planted with forest conservation shrubbery. Given time and appropriate maintenance, these areas will develop into woods in good condition. The Runoff Curve Number in these areas will be converted from 86 – 88 for row crops in C soils to 70 for woods in good condition. This change in runoff characteristics will further reduce the overall quantity of water leaving the site.

4.2 STORMWATER QUALITY MANAGEMENT

This project is classified as new development. ESD requirements must be addressed for the project's entire limits of disturbance (LOD.) For a conservative approach, all soils are assumed as group C soils, resulting in a higher Pe. All proposed stormwater features adequately address ESD requirements. Drainage area 16 will be treated via non-rooftop disconnect. Adequate pervious area is available and contributing impervious area is minimal or non-existent.

ESD_v SUMMARY						
Drainage Area	Type of ESD Practice	Name of ESD Practice	Drainage Area (sq. feet)	Impervious Area (sq. feet)	Target ESD _v (cu. feet)	ESD _v Provided (cu. Feet)
1	SGW	SWM #1	210,281	86,472	11,779	12,823
2	SGW	SWM #2	405,742	159,036	21,789	38,131
3	SGW	SWM #3	258,095	129,485	17,259	18,076
4A	SGW	SWM #4A	62,363	32,714	4,341	4,217
4B	SGW	SWM #4B	233,002	103,239	13,942	16,151
5	SGW	SWM #5	76,080	49,340	6,428	6,702
6	SGW	SWM #6	232,674	124,340	16,472	17,975
7	SGW	SWM #7	750,267	335,217	45,228	47,865
8	SGW	SWM #8	331,820	175,511	23,273	23,868
9	SGW	SWM #9	86,772	49,067	6,467	9,593
10	SGW	SWM #10	677,943	106,609	17,313	30,297
11	SGW	SWM #11	57,439	19,953	2,777	4,292
12	SGW	SWM #12	40,772	19,949	2,666	2,709
13	SGW	SWM #13	194,438	118,369	15,501	15,843
14	SGW	SWM #14	213,229	135,291	17,656	18,908
15	SGW	SWM #15	93,273	51,992	6,861	7,077
16	Non-rooftop Disconnect	-	272,963	4,800	26	380

4.3 CRITICAL AREA PHOSPHORUS REMOVAL

This project must meet Critical Area Commission phosphorus removal requirements. As part of the Growth Allocation process, the Commission has requested additional treatment, if possible. We have thus increased the phosphorus removal to 15% from the typically required 10%. All proposed stormwater features adequately address, and significantly exceed, the 15% removal target.

5. CONCLUSION

This stormwater management analysis indicates that the proposed design will successfully meet, and exceed, stormwater quality, quantity, and phosphorus removal requirements. The ESD volume provided is greater than the ESD volume required for all drainage areas, proposed site runoff is significantly less than existing conditions, and phosphorus removal has been exceeded at a higher percentage than required. Planning and design analysis indicates that stormwater quality and quantity management can be accomplished as described. Please see the attached appendices for detailed calculations and drainage area maps.

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354 Pennsylvania Avenue
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November 3, 2022

Joe Mayer
Plan Reviewer
Town of Easton
14 South Harrison Street
Easton, MD 21601

Subject: Revised Sketch PUD & Growth Allocation – Poplar Hill
Oxford Rd, Easton, MD; Map 42, Parcel 57

Dear Mr. Mayer,

We have reviewed the Town's ESDR comments on the PUD application for Poplar Hill Farm submitted to the Town on October 5, 2022. The PUD application came before ESDR on October 26, 2022. Please accept this submittal for a discussion item at the November 17, 2022, Planning Commission meeting. Our responses are in order with your letter as follows:

Planning & Zoning

1. Per the updated and enclosed traffic impact study (TIS), it has been determined that the current Rt. 333 access is acceptable with no modifications needed due to background data.
2. Understood.
3. We met with the Rick Stacey, President of EVFD on 9/19/22 to review the desired site layout and building size. Based on that meeting, we enlarged the building and updated the layout, which is consistent with the current plan provided. He has confirmed that Town representatives can contact him anytime to confirm our meeting and the subsequent plan updates.

Legal Agreements

1. Acknowledged.

Impact Fees

1. Acknowledged.

Critical Area Commission Comments

1. Acknowledged.

Building Inspection and Permit Department Comments

1. Acknowledged.



www.leinc.com
general@leinc.com

Easton Utilities Comments

1. Acknowledged.

Department of Engineering Comments

Plan Review

1. Based on correspondence and the updated TIS, it has been confirmed that the inclusion of MHC is not needed for background since the project is not approved or vested. The TIS does include Easton Club as an active golf course in the analysis, even though the course is not in operation or functional.
2. Cobra head street light added as requested.
10. The residential sub-collector detail updated with specific dimensions per plan.
12. The alley detail is updated per the Town's new standards.
13. A label was added at the proposed firehouse parcel intersection with the new collector road that states, "proposed traffic signal (if required)". This will be determined during detail design and does not affect the site layout at this sketch review stage.

Stormwater Management

4. This table has been added to the report narrative. I know it ends up on the plan sheets, but I would assume that you're not asking for that now and having it in the report narrative will suffice. The ESD calculations (Appendix A) are included with this submittal. Please note that the required ESD volume for each drainage area is located at the top right-hand corner of each drainage area worksheet:

Drainage Area 1

Total Area	210,281 sf
Impervious Area	86,472 sf
Percent Impervious (I)	41 %
Rv = 0.05 + 0.009(I)	0.42

$$\begin{aligned}\text{Target ESDv} &= (P_E)(R_v)(A) \\ &= 12 \\ &= 11,779 \text{ cf} \\ 75\% \text{ of target} &= 8,834 \text{ cf}\end{aligned}$$

Site Development Design - Submerged Gravel Wetland (M-2):

5. Per our earlier phone call, we will discuss this format further at a later date. What you see in Appendix C are pages from the Critical Area worksheet (we provide the Excel file to them at submittal.) However, you can see the phosphorous load to each drainage area, its proposed load reduction, and the load remaining. Note that each drainage area treats about 75% of the contributing phosphorous load. The lowest treatment is 72% for Drainage Area #8.

Micro-Scale Practices	P _E Credit Description	Contributing Drainage Area (sf)	% Impervious Cover	ESDv Received by Practice	ESDv from Up-Gradient Practices	Practice Specific Parameter(s)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice
SGW #1	ESDv credit is based on design storage volume	210,281	41%	19,876	0	Surface Area (sf) 11,885 Inlet Depth (ft) 1 Inlet Depth (ft) 3	19,876	0	
SGW #2	ESDv credit is based on design storage volume	405,742	39%	36,769	0	Surface Area (sf) 49,862 Inlet Depth (ft) 1 Inlet Depth (ft) 3	36,769	0	
	ESDv credit is based on					Surface			

Phosphorous Removal Efficiency	Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
60%	79%	4.96	3.90	1.06
60%	79%	9.18	7.22	1.96

6. Drainage Area #18 is now Drainage Area #16. There is only 4,800 square feet of impervious area (<2%) in this drainage area. This impervious area is proposed patios of houses in drainage areas 1, 2, 3, and 4B, which can be treated by non-rooftop disconnect. This drainage area is included in the added table in the narrative. It has also been added to the ESD calculations (Appendix A), included with this submittal.
7. This appears to be an old comment. SWM #10 was moved, prior to submittal, to the northeast corner of the site. It was changed to a micro-bioretenention feature at the request of the town. It is

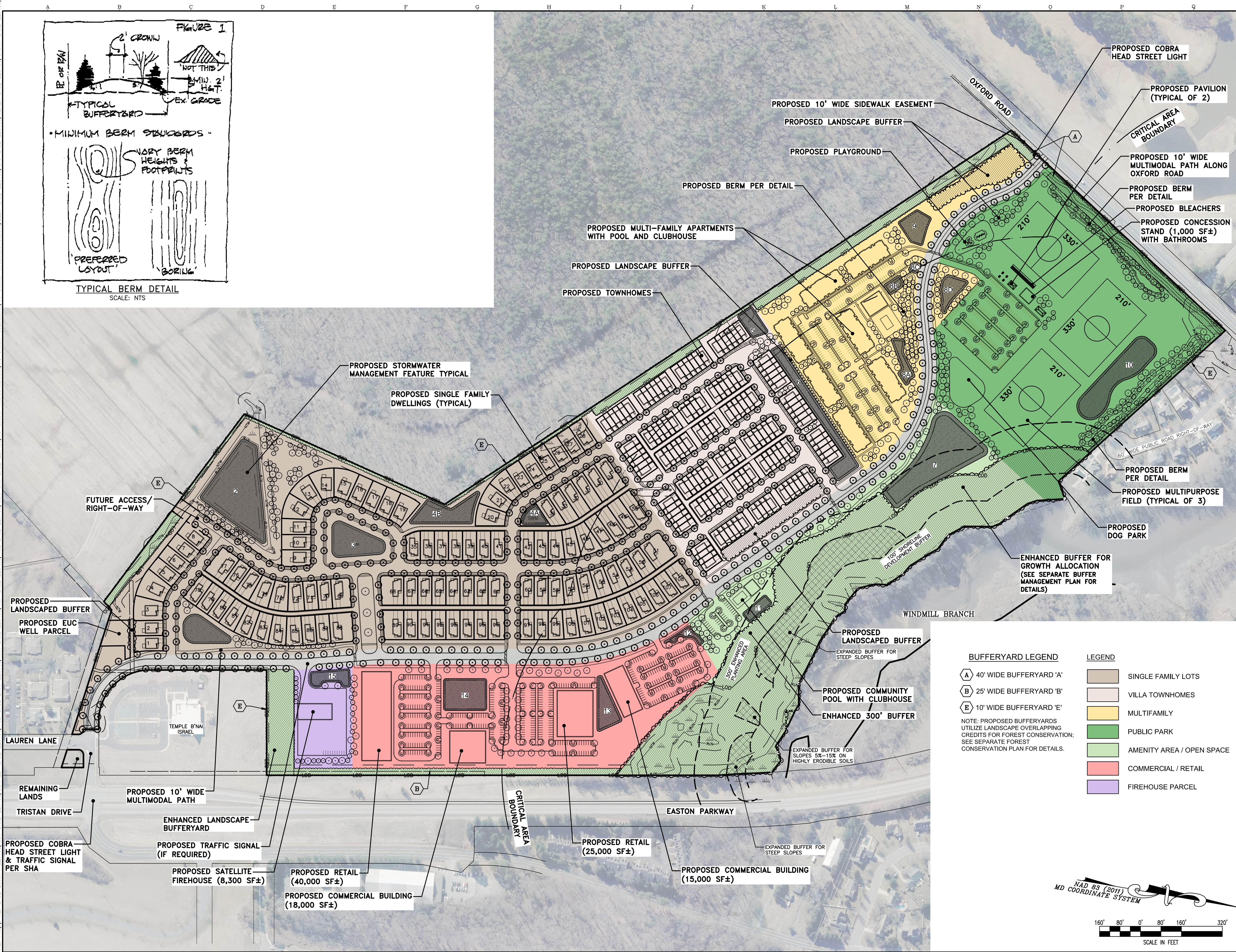
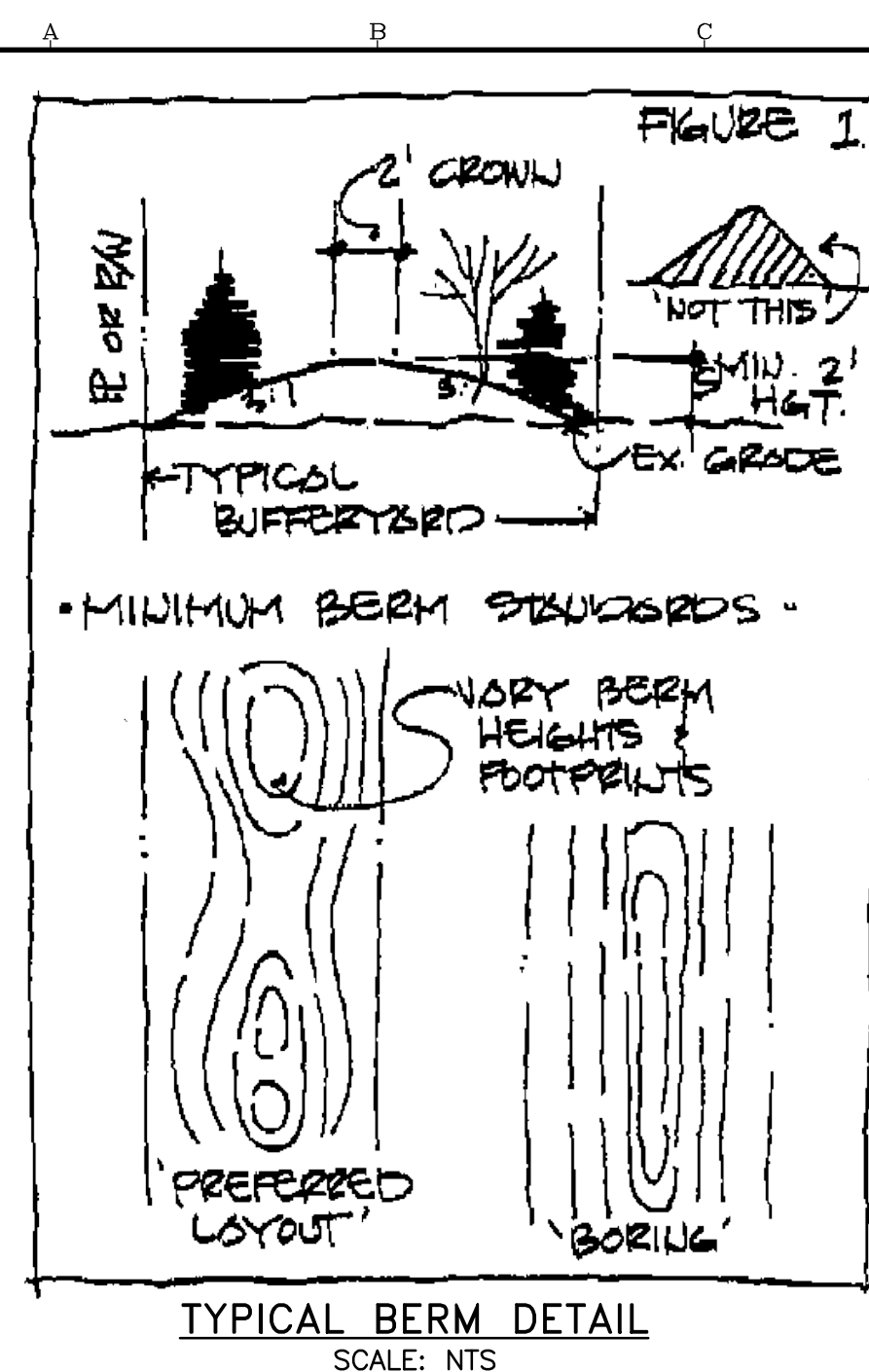
simply shown as a stormwater feature on the plan and drainage area map (Appendix E), as are all the others, because our intent is to determine the exact type of stormwater feature once we get into detailed design and site plan preparation. At this time, all the features have been evaluated strictly by the amount of ponding volume they provide. This is a conservative approach, and likely most of the features will be downsized during the detailed design process. Further comment on this feature at the ESDR meeting and ensuing phone call was that the contributing drainage area exceeds the allowable amount for a micro-bioretenention. We have revised this feature to be a submerged gravel wetland, to be maintained by the HOA.

8. This appears to be an old comment. SWM #10 is no longer in the referenced location. The feature currently in that location is part of the system of features for Drainage Area #8. It has been labeled as SWM #8D with this revision. With the changes to the road alignment and addition of berming between the apartments and the road, part of the stormwater treatment for Drainage Area #8 needs to be across the road. The area of SWM #8D will be removed from the Town park parcel and become part of the amenity/open space parcel to eliminate Town maintenance.
9. This has been addressed with the latest concept plan. Please see sheet 3 of 5 which shows the public park as a darker shade of green. SWM #7 is outside this area. The exact parcels will be further defined during the detailed design phase of the project.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Brett C. Ewing', with a long horizontal flourish extending to the right.

Brett C. Ewing, AICP
Principal



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REVIEW ONLY

PLANS ARE NOT
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CONSTRUCTION

[illegible]

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THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THIS VERIFICATION SHOULD SHOW THE LOCATION AND DEPTH OF INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF ANY WORK. IF THE CONTRACTOR SHALL FIND ANY DEPT. PUBLIC WORKS OF ANY POSSIBLY EXISTING AND REQUEST THE RELOCATION OF THE CONFLICTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.



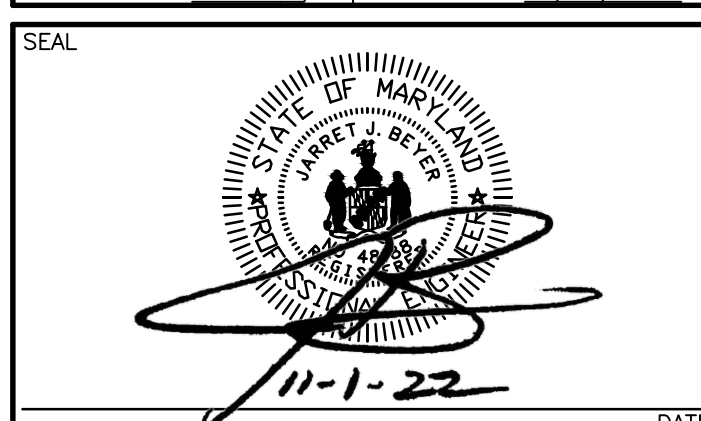
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PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 48188 , Expiration Date: 12/28/2023.



CONCEPT PLAN

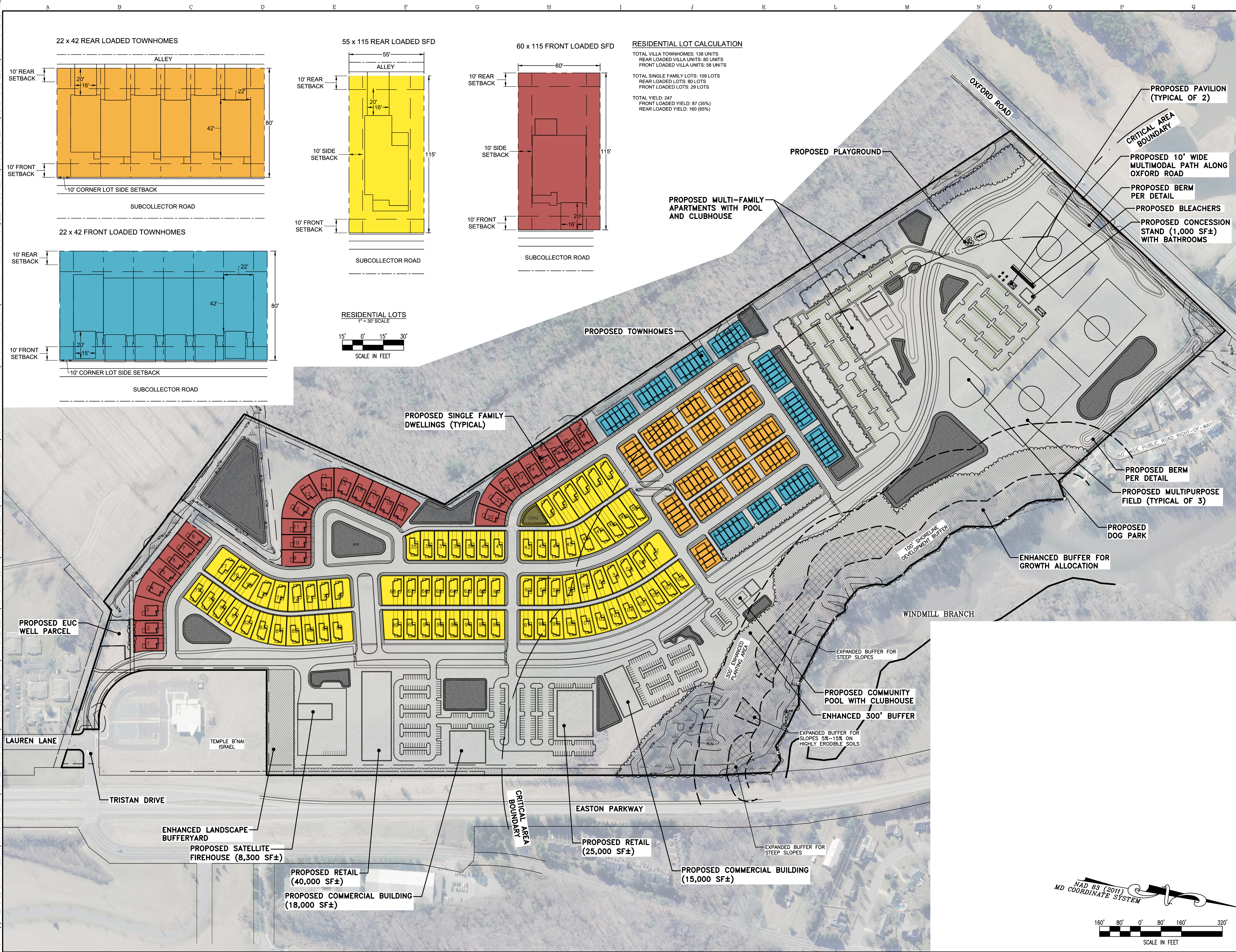
POPLAR HILL
PUD SKETCH PLAN

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 42 GRID 4 TAX PARCEL 57

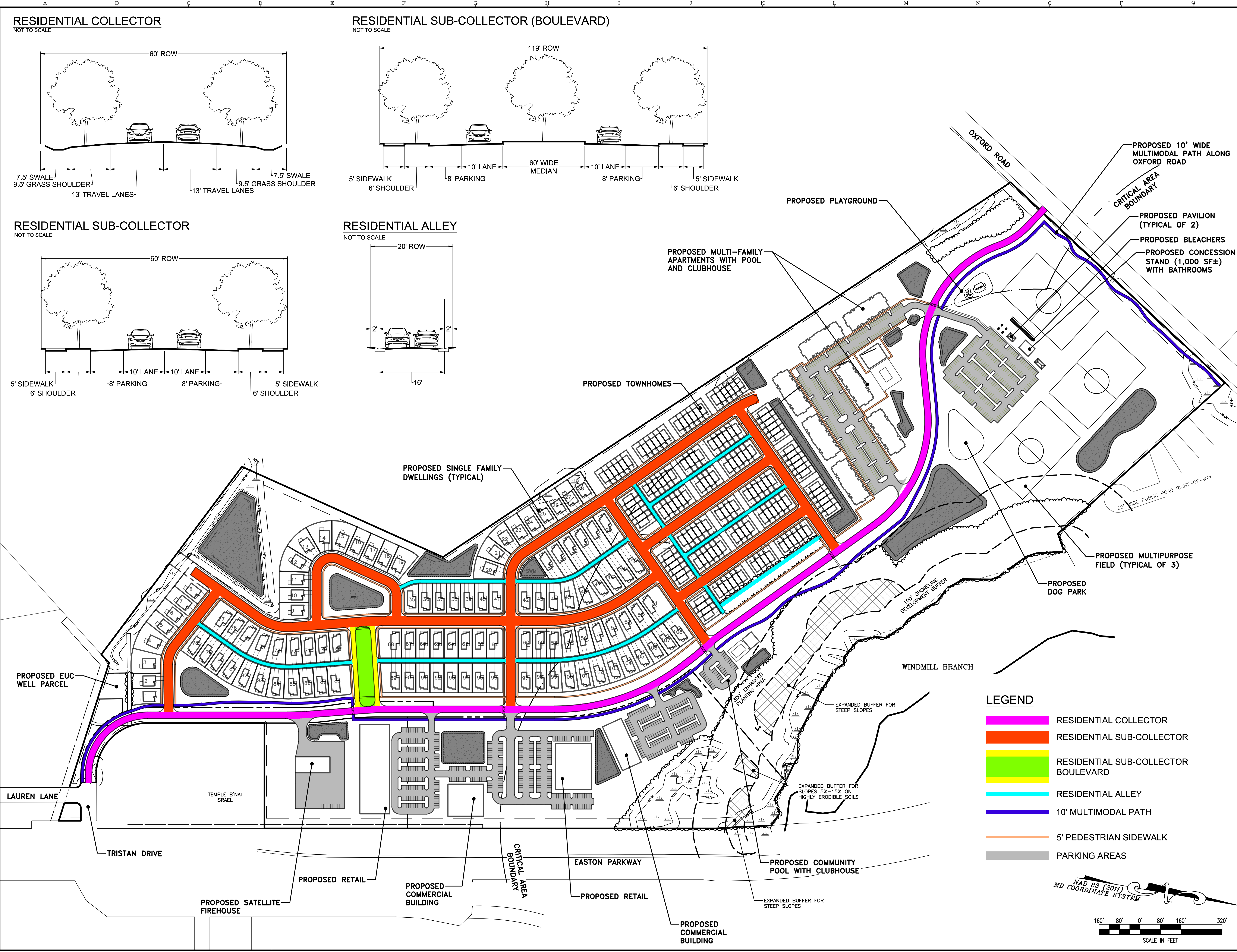
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AGENCY REVIEW	8/03/22	BCB
AGENCY REVIEW	10/05/22	BCB
AGENCY REVIEW	11/01/22	BCB

SHEET No.	7/06/22
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3 OF 5
SCALE: _____
JOB No. 220155



Date: 11/01/2022 - 3:55pm User: wbornhart Project Manager: BCE
Drawing Path: J:\2022\0100\220155\Draw\Plans\CSK-220155-PUD-PTS-220155.dwg | 5 - TRANSPORTATION
XREF File(s): VLD-BASE-200574-220155\CSK-BASE-220155\PAR-BASE-220155\ASF-BASE-220155\HSL-BASE-220155\HSL-BASE-220155\CSK-CRW-BASE-220155\TC-Sheet6-ResidentialClass/TC-Sheet4-USOutlines/TC-Sheet5-RoadClassifications/ELEC-BASE-220155\GAS-BASE-220155\SEWER-BASE-220155\STORM-BASE-220155\



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REVISIONS TO APPROVED PLANS			
No.	DATE	DESCRIPTION	BY

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PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 45188, Expiration Date: 12/28/2023.

SEAL

STATE OF MARYLAND
ENGINEER
11-1-22

DATE

TRANSPORTATION EXHIBIT

POPLAR HILL PUD SKETCH PLAN

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 42 GRID 4 TAX PARCEL 57

ISSUED/REVISED FOR:	DATE:	BY:
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AGENCY REVIEW	8/03/22 BCE	
AGENCY REVIEW	10/05/22 BCE	
AGENCY REVIEW	11/01/22 BCE	

SHEET No.	7/06/22
5 OF 5	
SCALE:	JOB No. 220155
AS NOTED	FILE No. 1324

Joe Mayer

From: Jarret Beyer
Sent: Monday, October 31, 2022 1:58 PM
To: Rick Van Emburgh
Cc: Brett Ewing
Subject: Poplar Hill SWM
Attachments: APP A-ESD Comps-220155.pdf; APP C-CA 15% Comps-220155.pdf; DA 16-HydroCAD Report-220155.pdf; APP E-Proposed Conds DAM-220155.pdf

Hey Rick,

I just wanted to follow up ahead of a formal submittal. It is probably worthwhile to have a phone call to discuss stormwater comments and concerns. For the sake of discussion, I'm going to address the Stormwater Management comments in the October 21 letter:

- # 4 – I can add this table to the report narrative. I know it ends up on the plan sheets, but I would assume that you're not asking for that now and having it in the report narrative will suffice. I have included the ESD calculations with this email, which is Appendix A of the stormwater management report. Please note that the required ESD volume for each drainage area is located at the top right hand corner of each drainage area worksheet:

Drainage Area 1

Total Area	210,281 sf
Impervious Area	86,472 sf
Percent Impervious (I)	41 %
Rv = 0.05 + 0.009(I)	0.42

Target ESDv = $(P_E)(R_v)(A)$
12
= 11,779 cf
75% of target = 8,834 cf

Site Development Design - Submerged Gravel Wetland (M-2):

- # 5 – This is not common for each drainage area. This would be a considerable amount of extra documentation, and Critical Area does not require it. What you see in Appendix C is pages from the Critical Area worksheet (we provide the Excel file to them at submittal.) However you can see the phosphorous load to each drainage area, its proposed load reduction, and the load remaining. Can we further discuss this comment?

Micro-Scale Practices	P _E Credit Description	Contributing Drainage Area (sf)	% Impervious Cover	ESDv Received by Practice	ESDv from Up-Gradient Practices	Practice Specific Parameter(s)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)	C G P
SGW #1	ESDv credit is based on design storage volume	210,281	41%	19,876	0	Surface Area (sf) 11,885 Siding Depth 1 Media Depth 3	19,876	0	
SGW #2	ESDv credit is based on design storage volume	405,742	39%	36,769	0	Surface Area (sf) 49,862 Siding Depth 1 Media Depth 3	36,769	0	
	ESDv credit is based					Surface			

- # 6 – I addressed this in the ESDR meeting, but please let me know if any further explanation is necessary. Drainage Area #18 is now Drainage Area #16. There is only 4,800 square feet of impervious area (<2%) in this drainage area. I have attached the updated stormwater report page for your reference. It is also pages 21, 76, and 131 (2, 10, 100-year events) of Appendix B of the stormwater report. The impervious area referenced is proposed patios of houses in drainage areas 1, 2, 3, and 4B. That impervious area can be treated by non-rooftop disconnect.

- # 7 – The feature in question was moved, prior to submittal, to the northeast corner of the site. It was changed to a micro-bioretenion feature at the request of the town. It is simply shown as a stormwater feature, as are all the others, because our intent is to determine the exact type of stormwater feature once we get into detailed design and site plan preparation. At this time, all of the features have been evaluated strictly by the amount of ponding volume they provide. This is a conservative approach, and likely most of the features will be downsized during the detailed design process. Further comment on this feature was that the contributing drainage area exceeds the allowable amount for a micro-bioretenion. We would like to explore making this feature a bioretention facility. At this time, we will revise the note to bioretention. The removal efficiency for micro-bioretenion and bioretention is the same, per Critical Area. There is not a tab in the Excel file for bioretention. I believe this can be addressed with the submittal of the Excel file to CA.

Environmental Site Design in the Maryland Critical Area

Part 4 Enhanced Design Criteria for ESD Practices in the Critical Area

This section documents the phosphorus removal rates for various design levels for stormwater practices installed within the Critical Area (Table 6).

ESD Practices	TP Removal Rates (%)		Where is entered on the spreadsheet
	A & B Soils	C & D Soils	
Impervious Cover Conversion	Varies	Varies	Row 31 B2
Simple Rooftop Disconnection	50	25	Rows 80 to 83
Non-Rooftop Disconnection	50	25 *	Rows 84 to 87
Sheet-flow to Conservation Area	50	25 *	Rows 88 to 91
Reforestation/Soil Restoration	Varies	Varies	Rows 76 to 79
Green Roof	Level 1: 45	Level 2: 60	Rows 96 to 99
Permeable Pavements	80	60	Rows 100 to 103
Rainwater Harvesting		45	Rows 104 to 105
Submerged Gravel Wetlands		60	Rows 106 to 107
Landscape Infiltration	75	NA	Rows 118 to 119
Micro-infiltration (Dry Well)	65	NA	Rows 108 to 109
Infiltration	90	60	Rows 165 to 166
Rain Gardens	50	25	Rows 110 to 113
Micro and Regular Bioretention	75	50	Rows 114 to 117

- # 8 – SWM #10 is no longer in the referenced location. The feature currently in that location is part of the system of features for Drainage Area #8. It will likely receive the designation of 8D with the next round of revisions. With the changes to the road alignment and addition of berming between the apartments and the road, part of this stormwater treatment system needs to be across the road. The area of this feature “8D” will be removed from the Town park parcel and become part of the amenity/open space parcel to eliminate Town maintenance.
- #9 – This has been addressed with the latest concept plan. Please see sheet 3 of 5 which shows the public park as a darker shade of green. SWM #7 is outside this area. The exact parcels will be further defined during the detailed design phase of the project.

I am currently working on the above referenced changes to the report and plan sheets. Please let me know when it is convenient for us to discuss this further.

Thanks,

Jarret J. Beyer, P.E.

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Easton, MD 21601

Phone: 410-822-8003 (Ext 107)

Fax: 410-822-2024

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TRAFFIC IMPACT ANALYSIS

FOR

POPLAR HILL FARM

Prepared for:

**Mid Atlantic Real Estate Investments
9161 Liberia Avenue
Manassas, VA 20110**

Prepared by:

LENHART TRAFFIC CONSULTING, INC.
TRAFFIC ENGINEERING & TRANSPORTATION PLANNING

September 15, 2021

Revised: May 26, 2022

Revised: November 3, 2022



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Appendices

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- B Internal Capture Calculations
- C Background Developments
- D CLV Worksheets
- E Queuing Analysis
- F Analysis of Oxford Road at Pollys Hill Lane
- G Analysis of Oxford Road at Clubhouse Drive
- H Analysis of Oxford Road at Tour Drive

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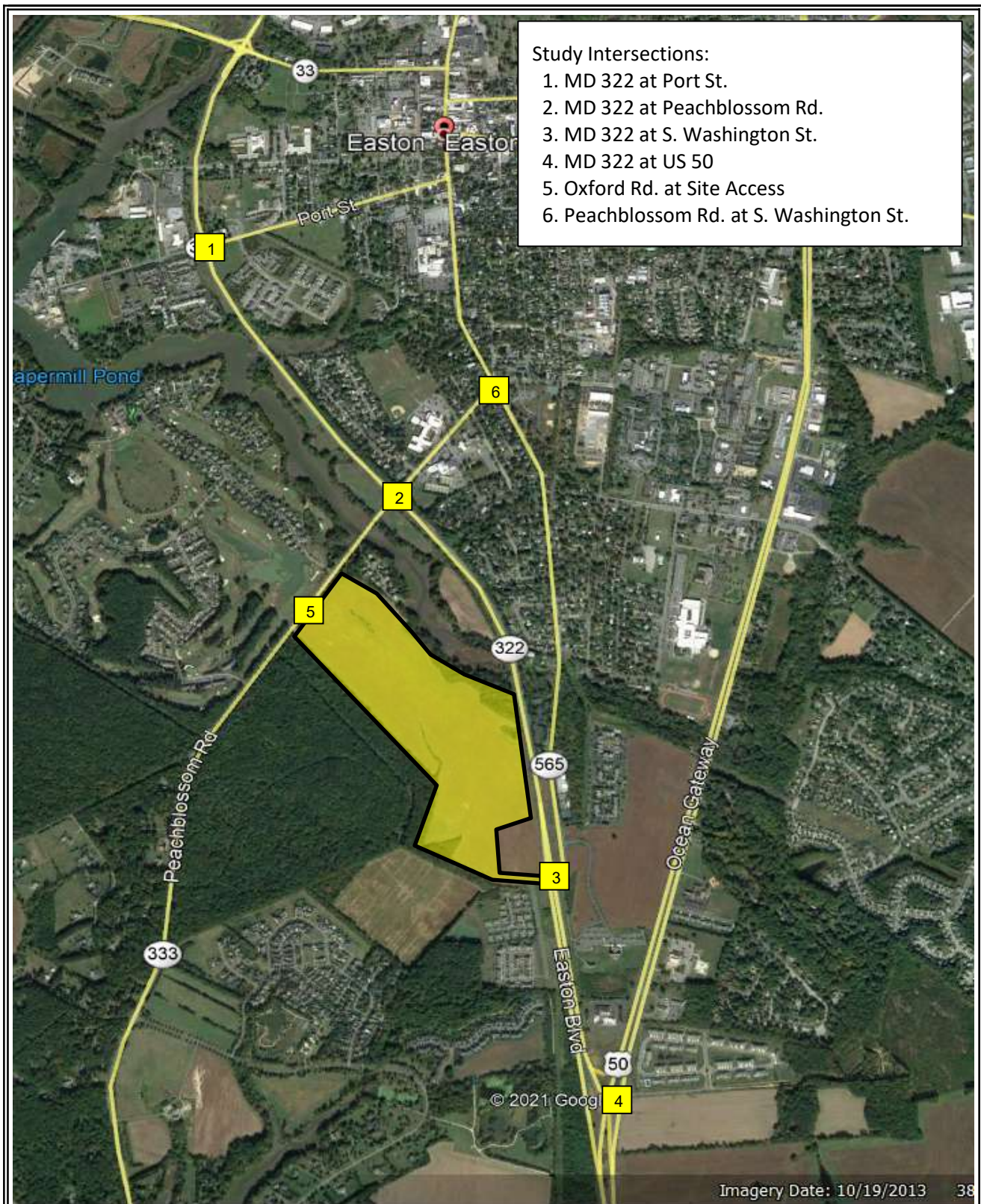
Section 1 Introduction

1.1 Project Description

This Traffic Impact Analysis (TIA) has been prepared for the proposed Poplar Hill Farm development located along the west side of MD 322 just south of MD 333 (Oxford Road) as shown on **Exhibit 1**. The site is proposed to be developed with 109 single-family estates, 138 villa townhomes, 210 units of workforce housing, 40,000 square feet of general commercial/retail, 58,000 square feet of general office, a 5,700 square foot satellite firehouse, and a 3-field sports complex. The site will have access via Tristan Drive and MD 333 (Oxford Road).

1.2 Scope of Study

This TIA has been prepared in accordance with a scoping agreement coordinated with the Maryland Department of Transportation State Highway Administration (MDOT SHA) and the Town of Easton. Note that per MDOT SHA's Access Permits Manual, all study intersections were evaluated using the Critical Lane Volume (CLV) methodology and must maintain Level-of-Service (LOS) D or better to be considered adequate.



Traffic Impact Analysis	Site Location Map	Exhibit 1
 LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

Section 2 Existing Conditions

2.1 Description of Road Network

The key roads in the study area are:

- US 50 – A four-lane principal arterial with a posted speed limit of 55 MPH.
- MD 322 – A two to four-lane principal arterial with a posted speed limit of 50 MPH in the vicinity of the site.
- MD 333 (Oxford Road) – A two-lane major collector with a posted speed limit of 40 MPH in the vicinity of the site.
- MD 565 (S. Washington Street) – A two-lane local roadway with a posted speed limit of 40 MPH.

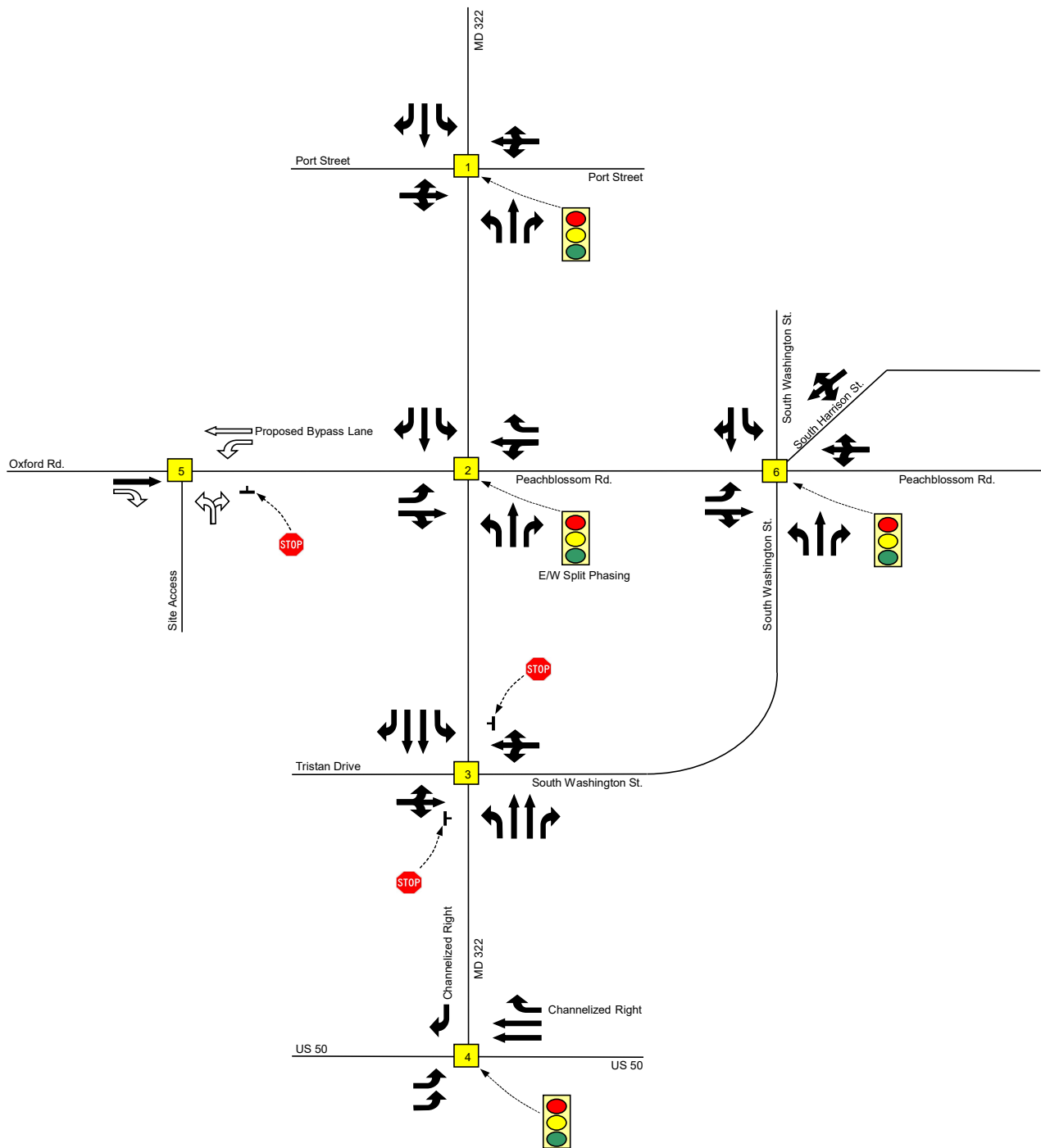
2.2 Existing Lane Configurations

The Lane Use & Traffic Control Devices are shown on **Exhibit 2**.

2.3 Existing Traffic Counts

Turning movement counts were conducted on Thursday, May 13, 2021, and Saturday, May 15, 2021. It should be noted that the weekday counts were conducted on a Thursday given that nearby Easton High School was open to students on this day. Additionally, the count conducted at MD 322 & MD 565 on May 13, 2021 was compared to a count conducted by MDOT SHA at the same location on March 11, 2020 prior to the closure of schools and the governors “Stay at Home” order. The results of this comparison indicate that the counts are comparable and therefore, the weekday traffic counts conducted as part of this study are representative of typical traffic conditions. The traffic count worksheets for each study intersection can be found in Appendix A.

The existing peak hour traffic volumes are shown on **Exhibit 3** and were evaluated using the CLV methodology per MDOT SHA Guidelines. The results of the CLV analyses are shown on Exhibit 10 and indicate that all intersections operate at LOS D or better under existing conditions.



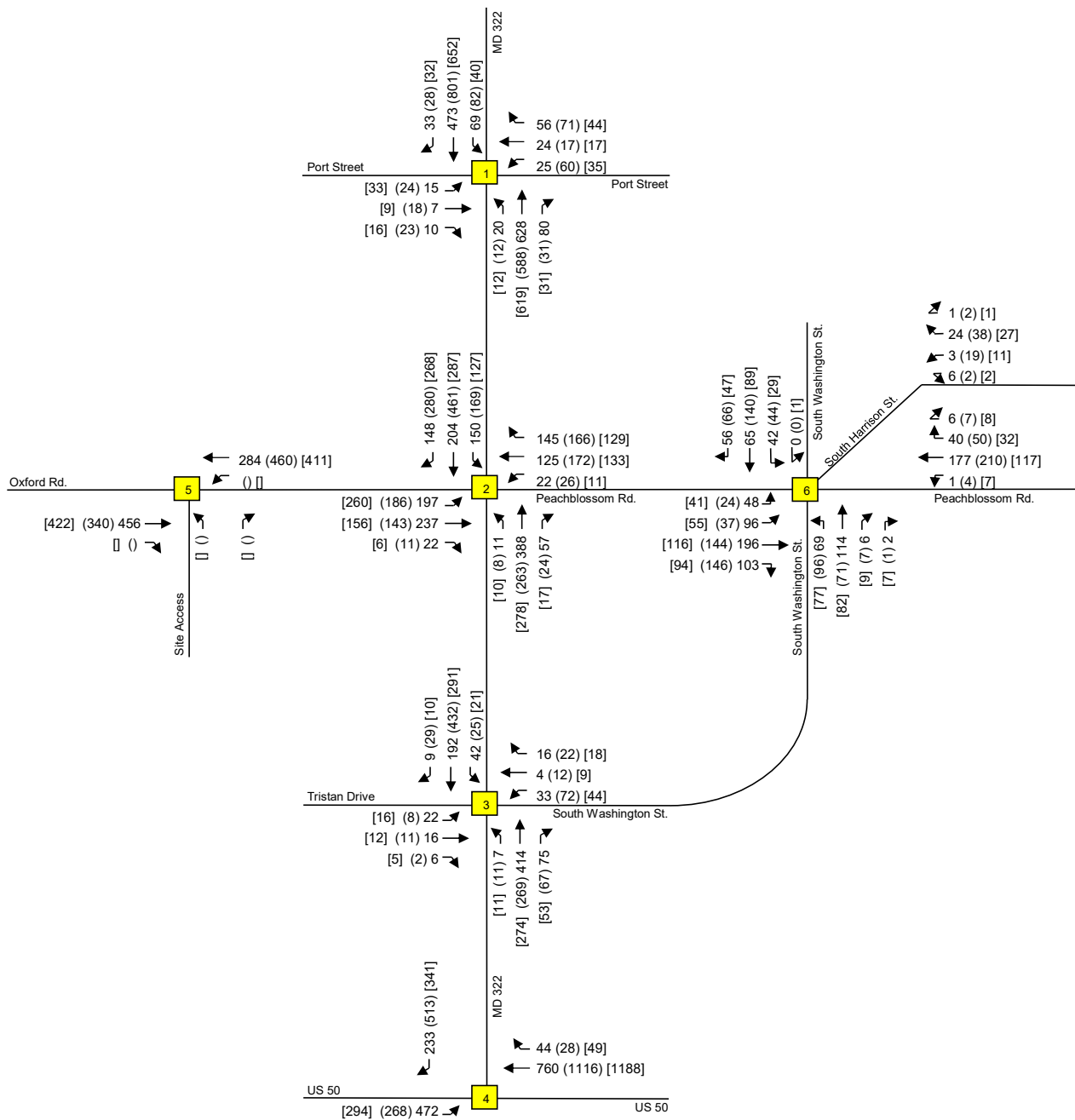
Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Lane Use & Traffic Control Devices

→ - Existing Lane Use → - Proposed Lane Use

**Exhibit
2**



Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
 SEVERNA PARK, MD 21146
 www.lenharttraffic.com

**Existing
Peak Hour Volumes**

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's

**Exhibit
3**

Section 3 Background Conditions

3.1 Annual Growth

The Maryland Department of Transportation State Highway Administration's Average Daily Traffic Volumes (ADT's) have been reviewed for the past ten years and it was determined that average yearly growth in the area is approximately 1.5%. Therefore, the regional traffic growth has been applied at 1.5% per year for a six-year study period. The base peak hour volumes are shown on **Exhibit 4**.

3.2 Approved Background Developments

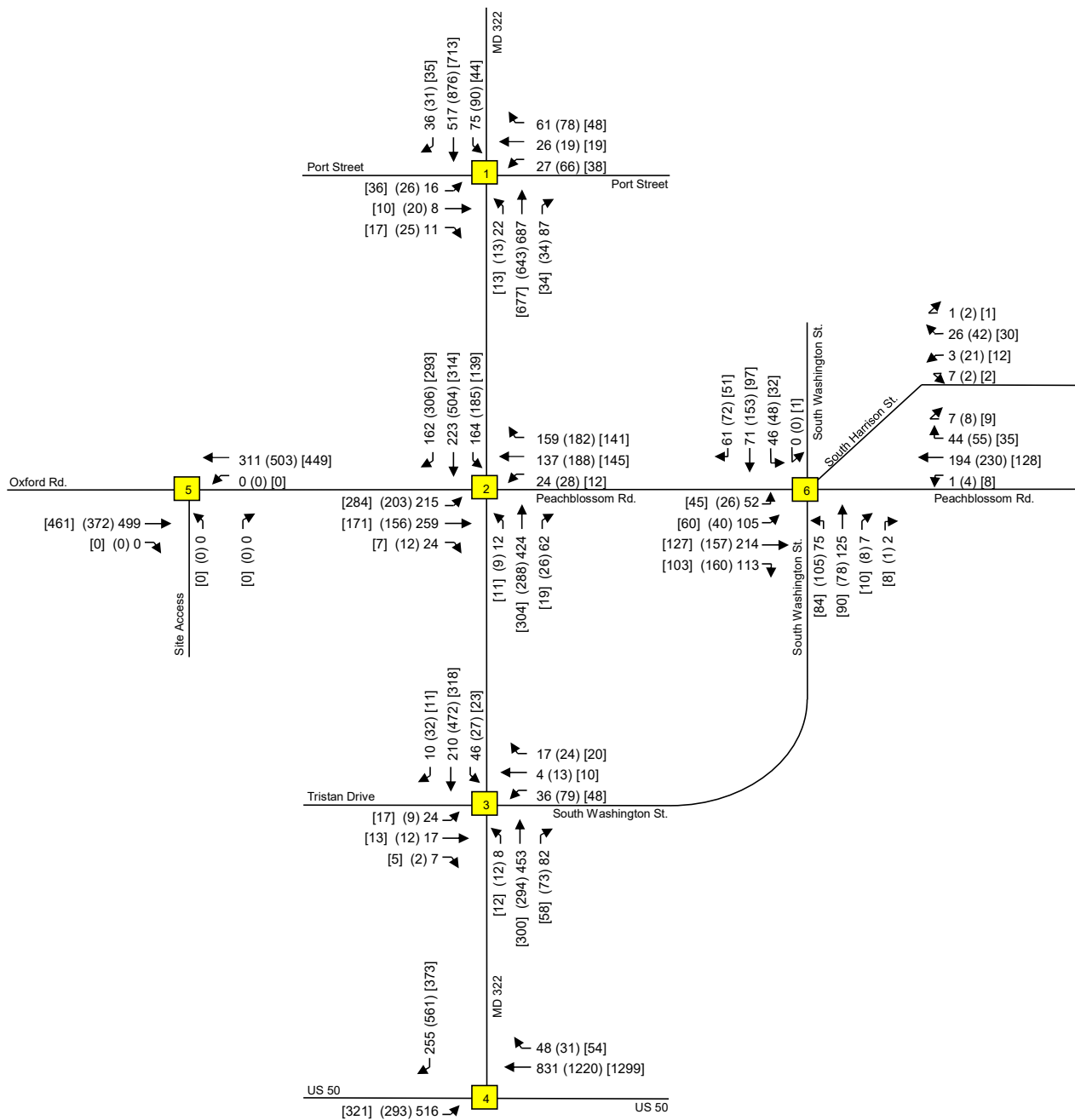
The following background developments were considered as part of this study:

- | | |
|-----------------------|---------------------------------|
| 1. Easton Village | 7. Londonberry |
| 2. Cookes Hope | 8. Douglas Landing |
| 3. The Lakelands | 9. Ratcliffe Farm |
| 4. Waterside Village | 10. Shore Health Systems Campus |
| 5. Ashbury Commons | 11. St. Peters and Paul |
| 6. Easton Marketplace | 12. Easton Club Golf Course |

The trip generation and assignment for all background developments is shown in Appendix C and the combined trips generated by all background developments are shown in **Exhibit 5**. It should be noted that the Easton Club Golf Course is existing but is not currently operational. Given this is an existing approved use, the golf course has been included as a background development to account for vested trips.

3.3 Background Traffic Volumes

Exhibit 6 shows the background peak hour traffic volumes, including the anticipated growth discussed in Section 3.1 and the background development volumes shown on Exhibit 5. The background peak hour traffic volumes were evaluated using the CLV methodology per MDOT SHA Guidelines. The results of the CLV analyses are shown on Exhibit 10 and indicate that all intersections operate at LOS D or better under background conditions.



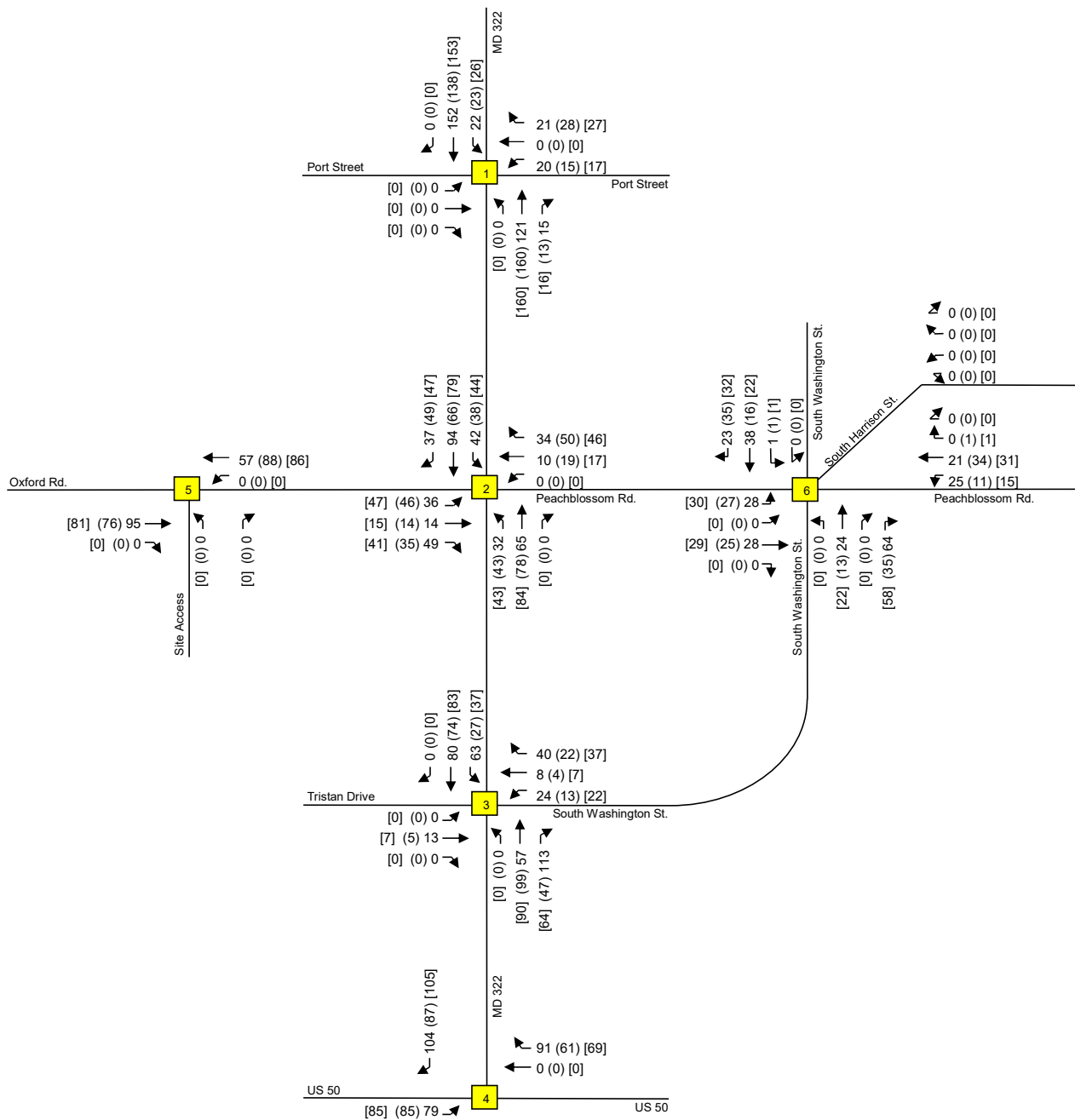
Traffic Impact Analysis

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 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
 SEVERNA PARK, MD 21146
 www.lenharttraffic.com

Base
Peak Hour Volumes

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's

Exhibit
4



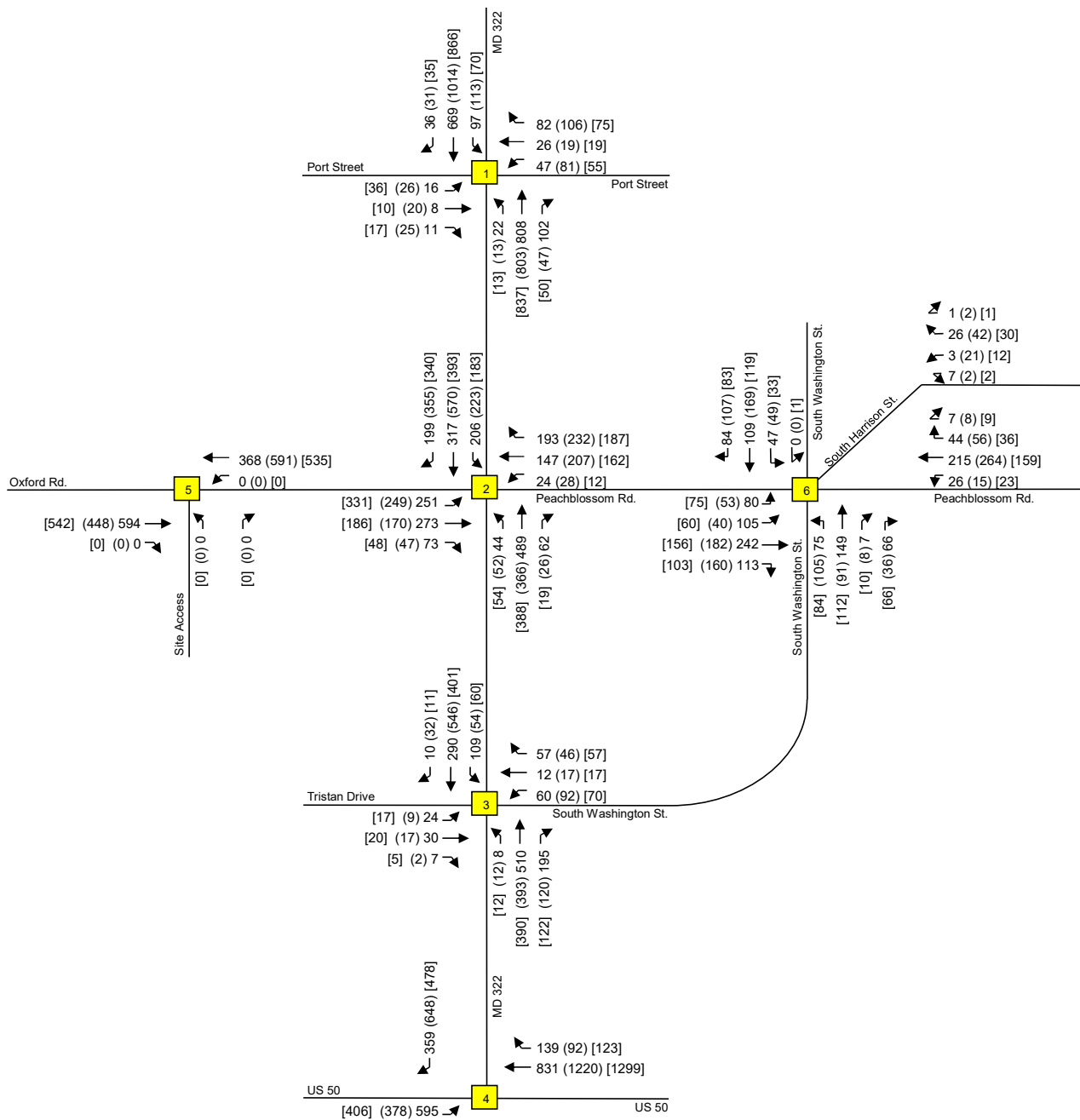
Traffic Impact Analysis

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 SEVERNA PARK, MD 21146
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Combined Trips Generated by Background Developments

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's

Exhibit 5



Traffic Impact Analysis

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645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Background Peak Hour Volumes

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's

Exhibit 6

Section 4 Projected Conditions with Site

4.1 Site Trip Generation

The site is proposed to be developed with 109 single-family estates, 138 villa townhomes, 210 units of workforce housing, 40,000 square feet of general commercial/retail, 58,000 square feet of general office, a 5,700 square foot satellite firehouse, and a 3-field sports complex.

The trip generation for the proposed development is detailed on **Exhibit 7**. Trip generation rates were obtained from the ITE Trip Generation Manual, 10th Edition. Note that for the purposes of the analyses and to be conservative, trips generated by the 5,700 square foot satellite firehouse were estimated using trip generation rates for office.

It should also be noted that since the proposed site is mixed use, internal capture has been calculated for the retail and residential uses. The internal capture worksheets are contained in Appendix B.

4.2 Site Trip Distribution & Trip Assignment

The trip assignment for the proposed development is shown on **Exhibits 8a-j**.

4.3 Total Traffic Volumes

The Total Peak Hour Volumes are shown on **Exhibit 9**.

4.4 Projected Level of Service

The total peak hour traffic volumes shown on Exhibit 9 were evaluated using the CLV methodology per MDOT SHA Guidelines. The results of the CLV analyses are shown on **Exhibit 10** and indicate that all intersections operate at LOS D or better under total conditions.

In addition to the CLV analysis, a left-turn queuing analysis was also conducted for total traffic conditions. The analysis utilized MDOT SHA's Queuing Formula and the results indicate that left-turn queues do not exceed available storage, resulting in the blockage of through traffic. It should be noted that available left-turn storage length was noted at locations with dedicated left-turn lanes that are either unsignalized, or signalized and operate under exclusive and/or permissive phasing. At locations where left-turns operate under split phasing, the available storage was not reported given that all movements operate concurrently along split phased approaches and therefore, left-turn queues will not block through movements for any extended period of time.

Trip Generation Rates

Single-Family Detached (ITE-210, Units)		Trip Distribution (In/Out)
Morning Trips = $0.71 \times (\text{Units}) + 4.80$		25/75
$\text{Ln}(\text{Evening Trips}) = 0.96 \times \text{Ln}(\text{Units}) + 0.20$		63/37
Midday Sat. Trips = $0.84 \times \text{Units} + 17.99$		54/46
Villas ... Multifamily Housing, Low-Rise (ITE-220, Units)		Trip Distribution (In/Out)
$\text{Ln}(\text{Morning Trips}) = 0.95 \times \text{Ln}(\text{Units}) - 0.51$		23/77
$\text{Ln}(\text{Evening Trips}) = 0.89 \times \text{Ln}(\text{Units}) - 0.02$		63/37
Midday Sat. Trips = $1.08 \times \text{Units} - 33.24$		50/50
Multifamily Housing, Mid-Rise (ITE-221 Urban/Suburban, Units)		Trip Distribution (In/Out)
$\text{Ln}(\text{Morning Trips}) = 0.98 \times \text{Ln}(\text{Units}) - 0.98$		26/74
$\text{Ln}(\text{Evening Trips}) = 0.96 \times \text{Ln}(\text{Units}) - 0.63$		61/39
Midday Sat. Trips = $0.42 \times \text{Units} + 6.73$		49/51
General Commercial / Retail (General Urban/Suburban, ksf, ITE-820)		Trip Distribution (In/Out)
Morning Trips = $0.5 \times \text{ksf} + 151.78$		62/38
$\text{Ln}(\text{Evening Trips}) = 0.74 \times \text{Ln}(\text{ksf}) + 2.89$		48/52
$\text{Ln}(\text{Midday Sat. Trips}) = 0.79 \times \text{Ln}(\text{ksf}) + 2.79$		52/48
General Office Building (General Urban/Suburban, ksf, ITE-710)		Trip Distribution (In/Out)
Morning Trips = $0.94 \times \text{ksf} + 26.49$		86/14
$\text{Ln}(\text{Evening Trips}) = 0.95 \times \text{Ln}(\text{ksf}) + 0.36$		16/84
Midday Sat. Trips = $0.53 \times \text{ksf}$		54/46
Soccer Complex (fields, ITE-488)		Trip Distribution (In/Out)
Morning Trips = $0.99 \times \text{fields}$		61/39
Evening Trips = $16.43 \times \text{fields}$		66/34
Midday Sat. Trips = $40.10 \times \text{fields}$		48/52

Trip Generation for Proposed Residential Uses

			AM Peak			PM Peak			Sat Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
Single Family Estates	Single-Family Detached (ITE-210, Units)	109 units	20	62	82	69	41	110	59	51	110
Villa Townhomes	Multifamily Housing, Low-Rise (ITE-220, Units)	138 units	15	50	65	50	29	79	58	58	116
Workforce Housing	Multifamily Housing, Mid-Rise (ITE-221 Urban/Suburban, Units)	210 units	18	53	71	55	35	90	47	48	95
Internal Trips for Residential Uses:			-1	-4	-5	-32	-13	-45	-31	-16	-47
Primary Residential Trips:			52	161	213	142	92	234	133	141	274

Trip Generation for Proposed Commercial / Retail Uses

			AM Peak			PM Peak			Sat Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
Commercial / Retail Area	General Commercial / Retail (General Urban/Suburban, ksf, ITE-820)	40,000 sq.ft.	107	65	172	132	144	276	156	144	300
Internal Trips for Commercial / Retail Uses:			-5	-4	-9	-17	-34	-51	-13	-34	-47
External Commercial / Retail Trips:			102	61	163	115	110	225	143	110	253
Pass-by Trips for Commercial / Retail Uses (0% AM / 34% PM / 34% Sat.):			0	0	0	-39	-37	-76	-49	-37	-86
Primary Commercial / Retail Trips:			102	61	163	76	73	149	94	73	167

Trip Generation for Proposed Office Uses

			AM Peak			PM Peak			Sat Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
General Office	General Office Building (General Urban/Suburban, ksf, ITE-710)	63,700 sq.ft.	74	12	86	12	62	74	18	16	34
Internal Trips for General Office Uses:			-5	-3	-8	-7	-9	-16	-9	-3	-12
External General Office Trips:			69	9	78	5	53	58	9	13	22
Primary General Office Trips:			69	9	78	5	53	58	9	13	22

Trip Generation for Proposed Town Park

			AM Peak			PM Peak			Sat Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
Town Park	Soccer Complex (fields, ITE-488)	3 Fields	2	1	3	32	17	49	58	62	120
Primary Park Trips:			2	1	3	32	17	49	58	62	120

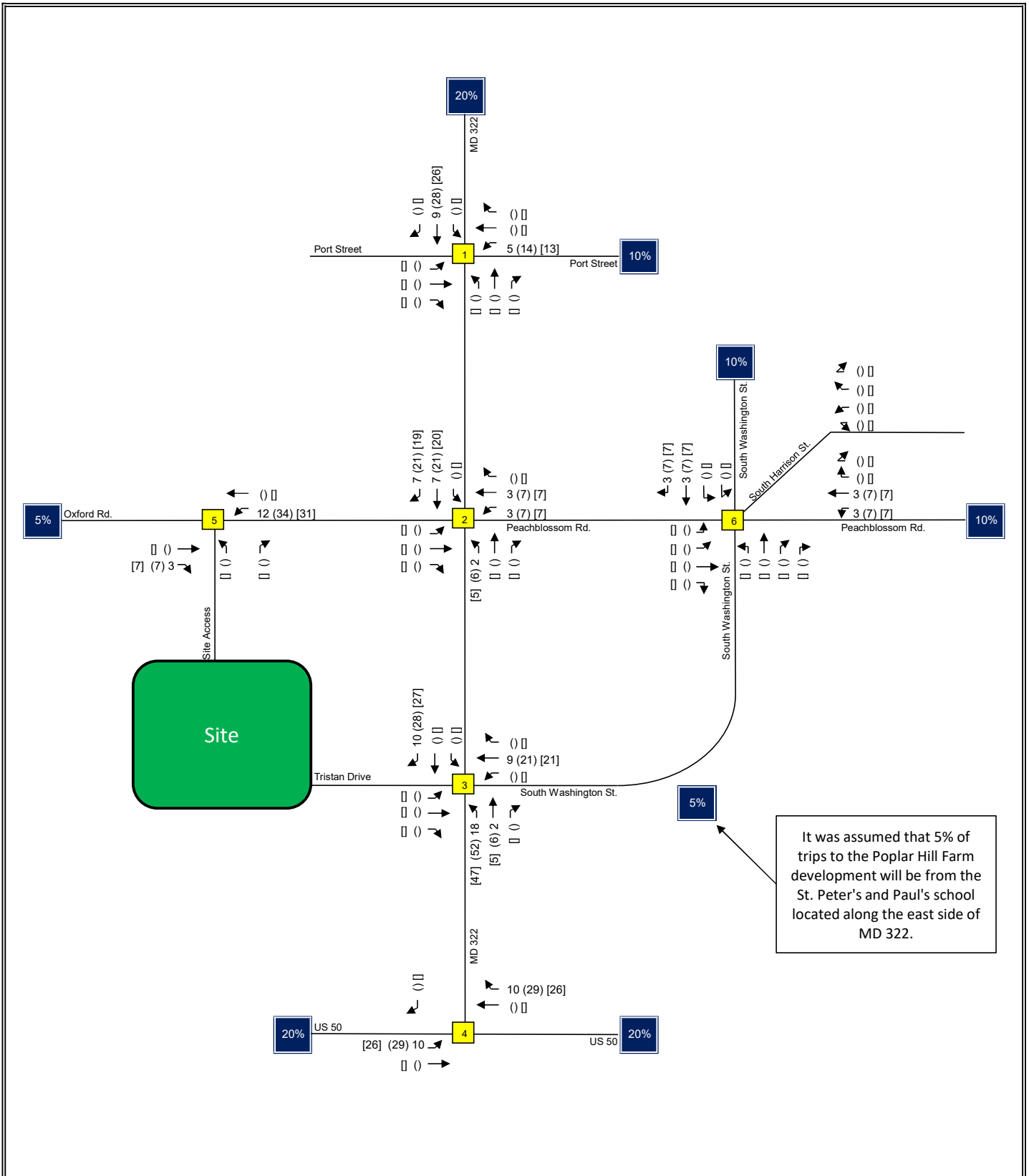
Total Primary Trips Generated by Proposed Site

			AM Peak			PM Peak			Sat Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
Total Primary Trips Generated by Proposed Site:			225	232	457	255	235	490	294	289	583

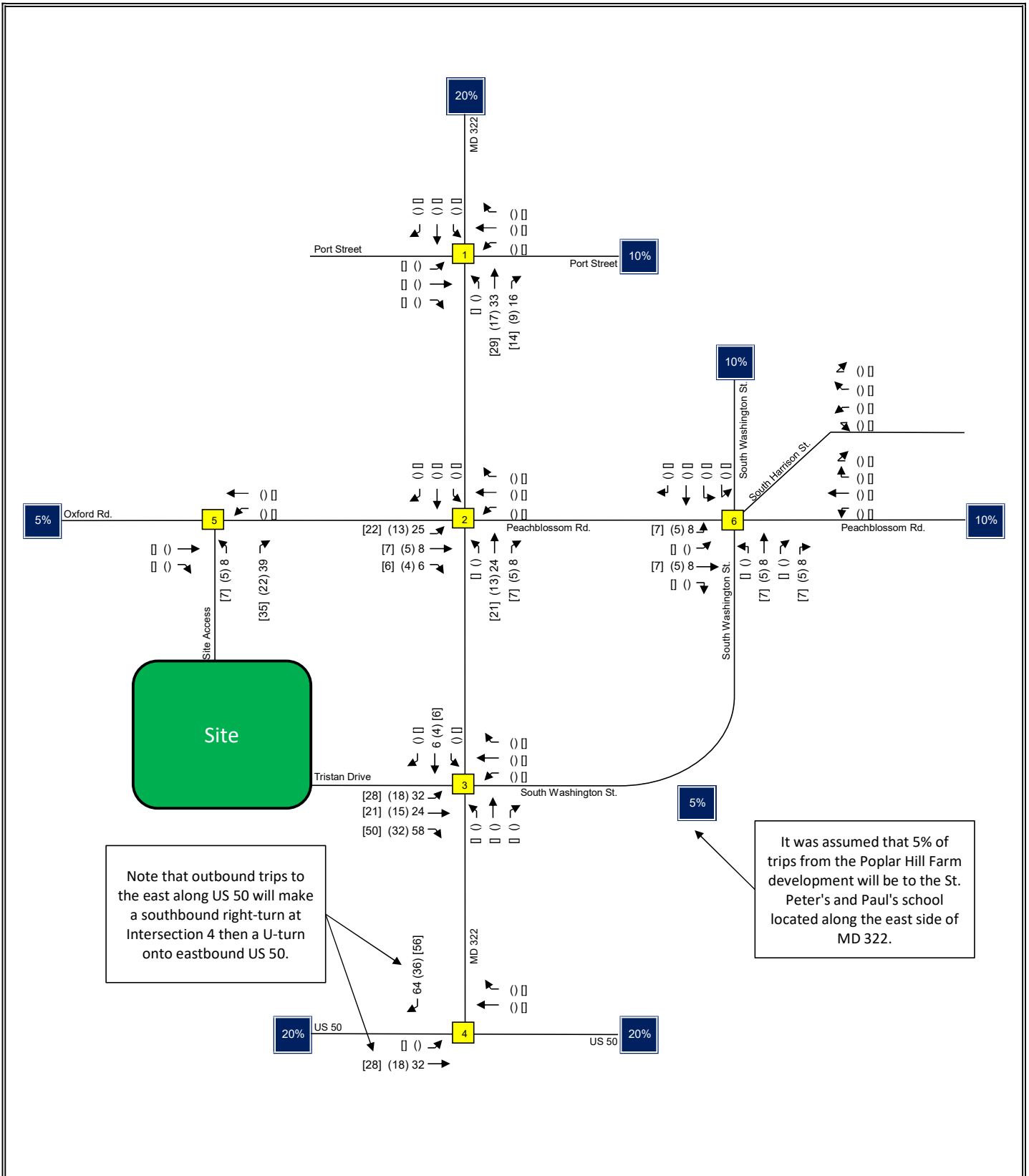
NOTES:

1. Trip Generation Rates obtained from the ITE Trip Generation Manual, 10th Edition.
2. Internal capture has been calculated for retail and residential uses only. The detailed calculations are shown in Appendix B.

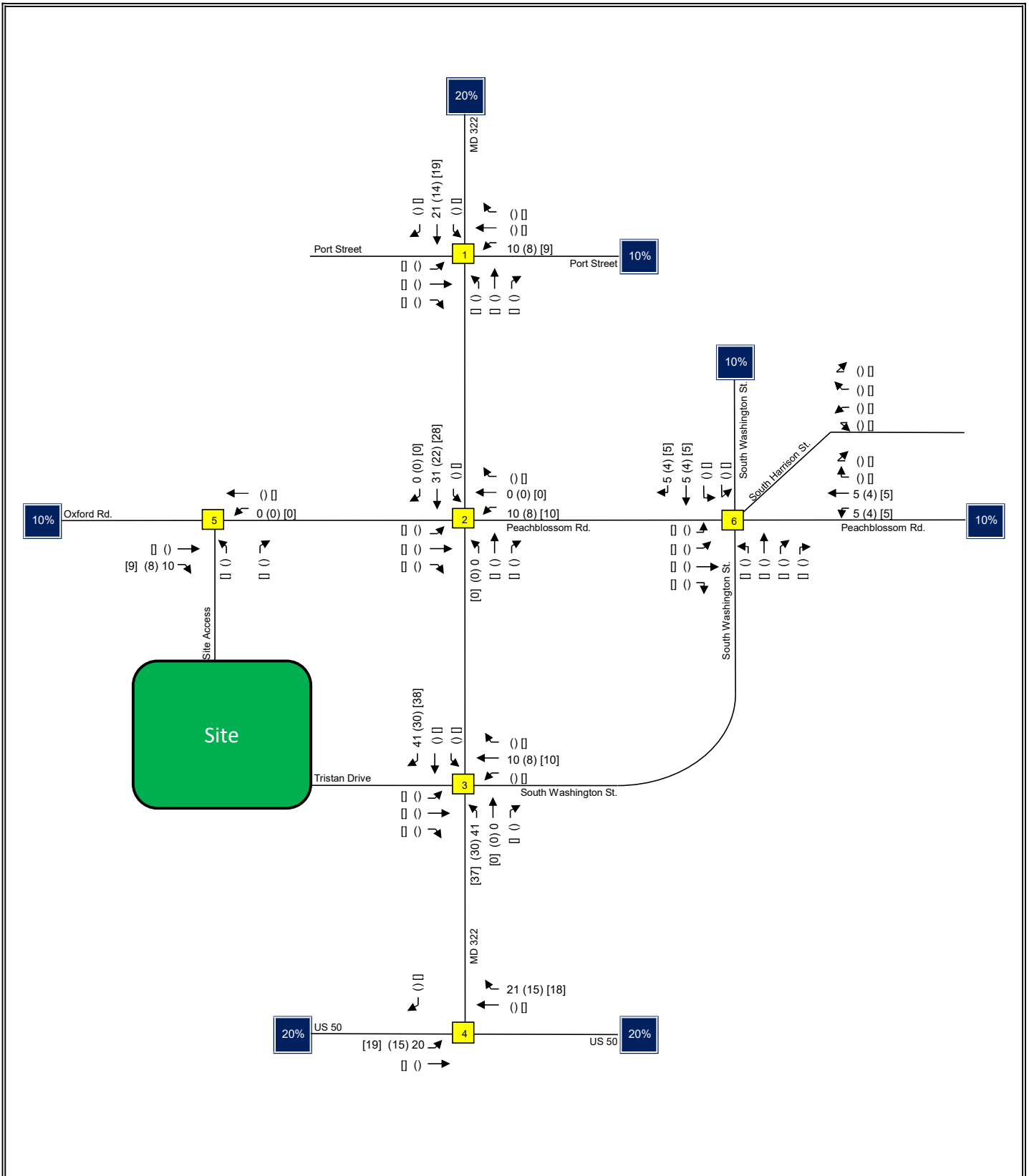
Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Trip Generation for Site	Exhibit 7



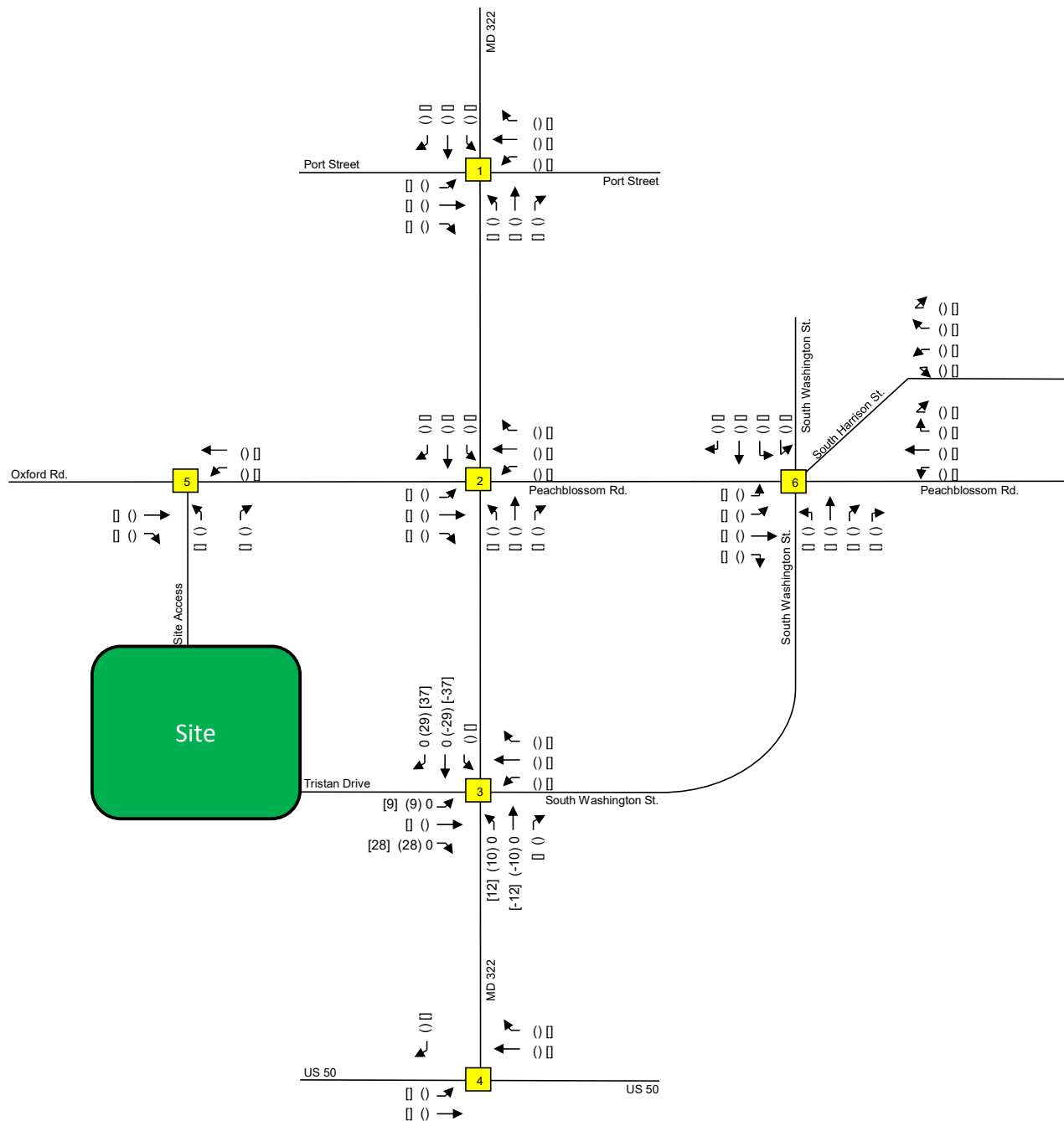
Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Inbound Trip Assignment for Residential Uses Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit 8a
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Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Outbound Trip Assignment for Residential Uses Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit 8b
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Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Inbound Trip Assignment for Retail Uses Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit 8c
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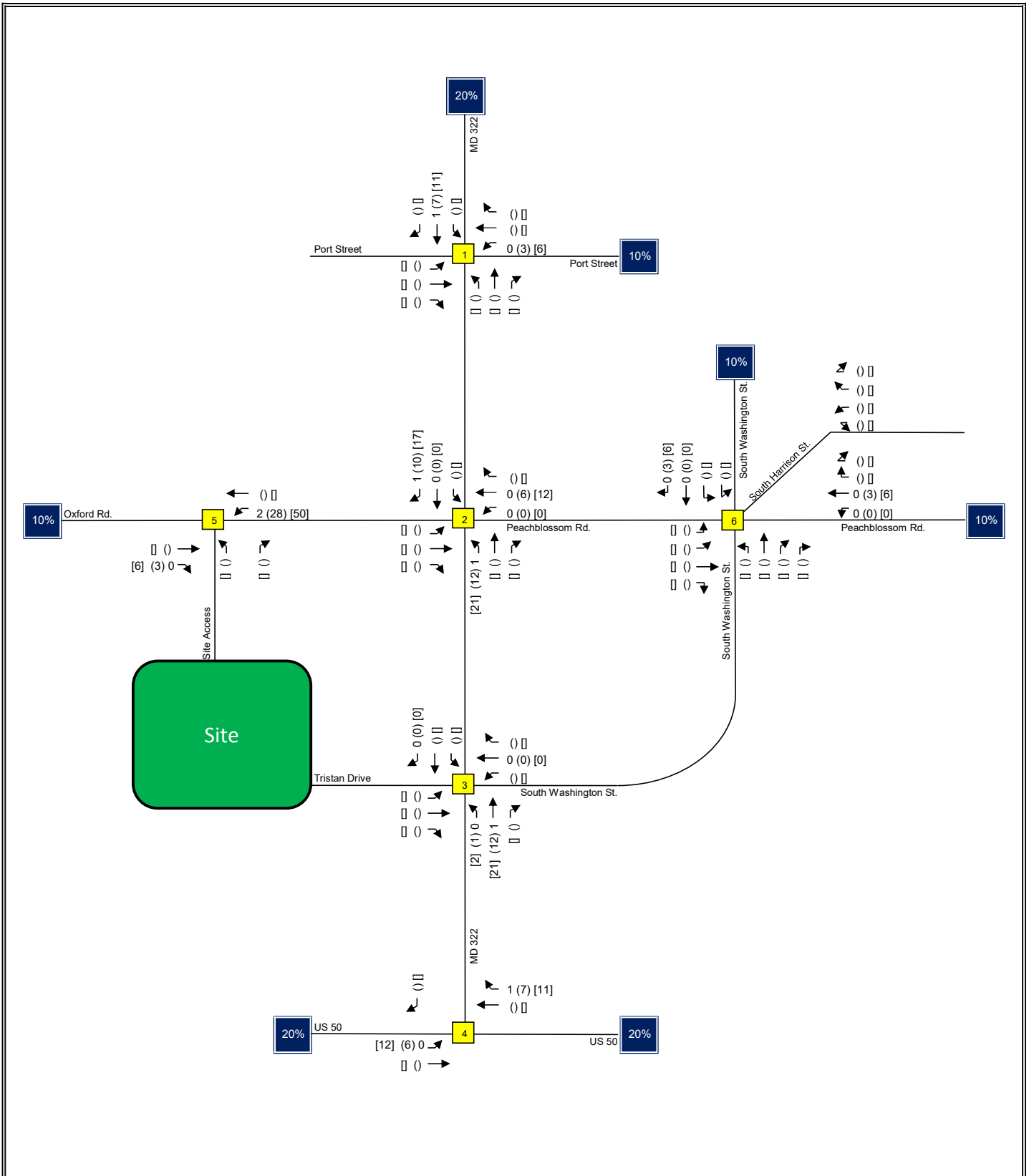
Traffic Impact Analysis

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 SEVERNA PARK, MD 21146
 www.lenharttraffic.com

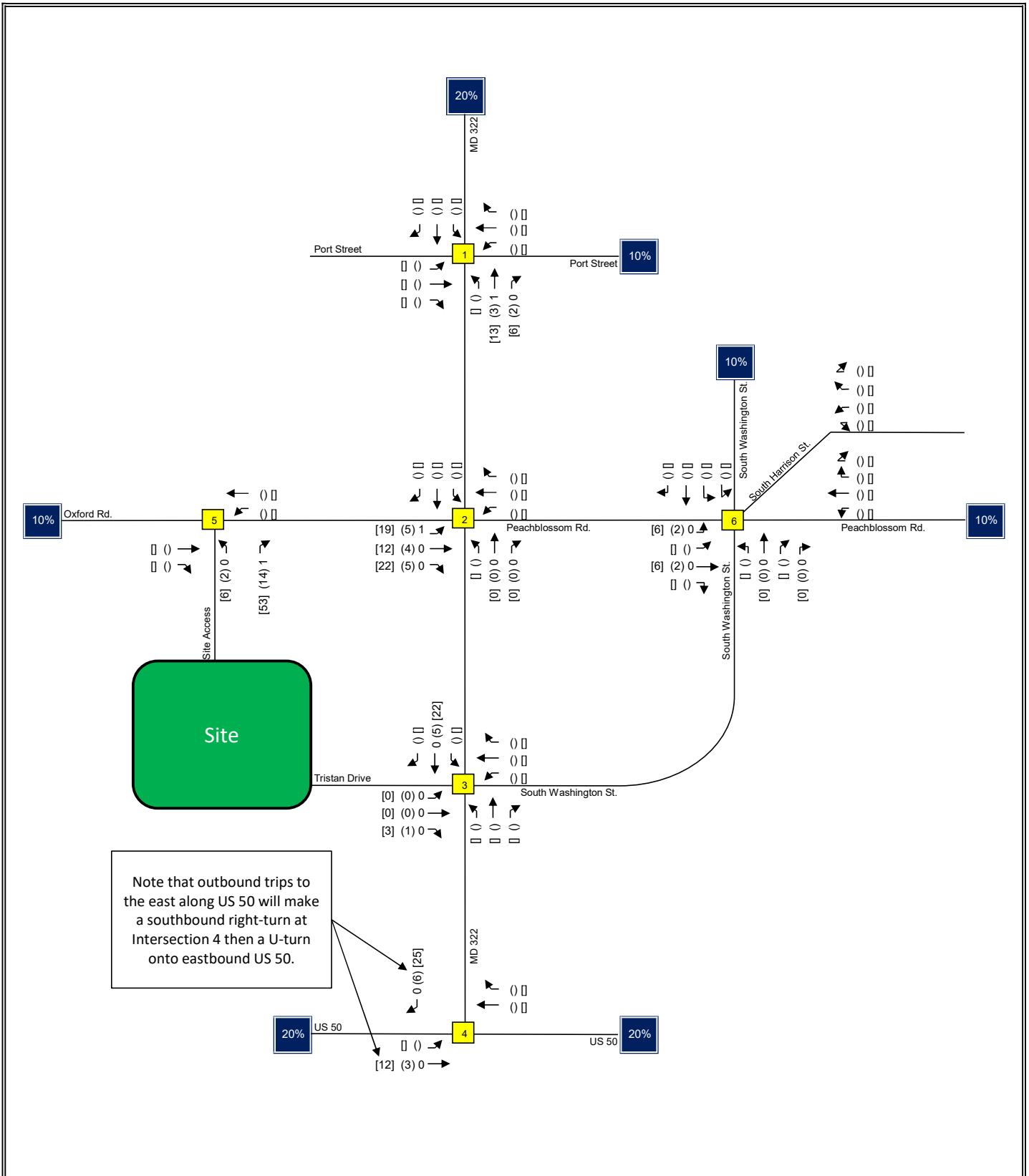
Pass-by Trip Assignment for
 Retail Uses

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's

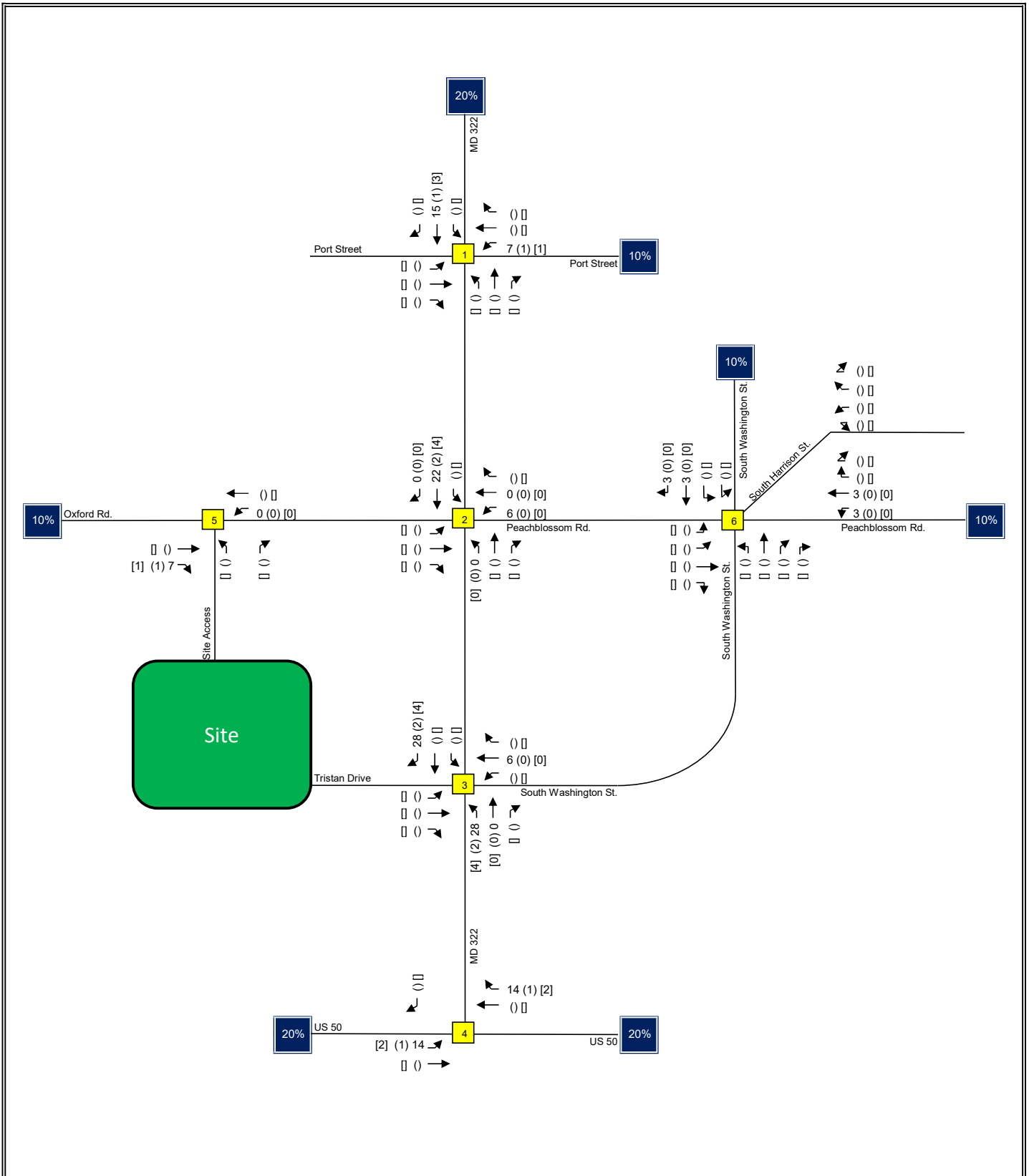
**Exhibit
 8e**



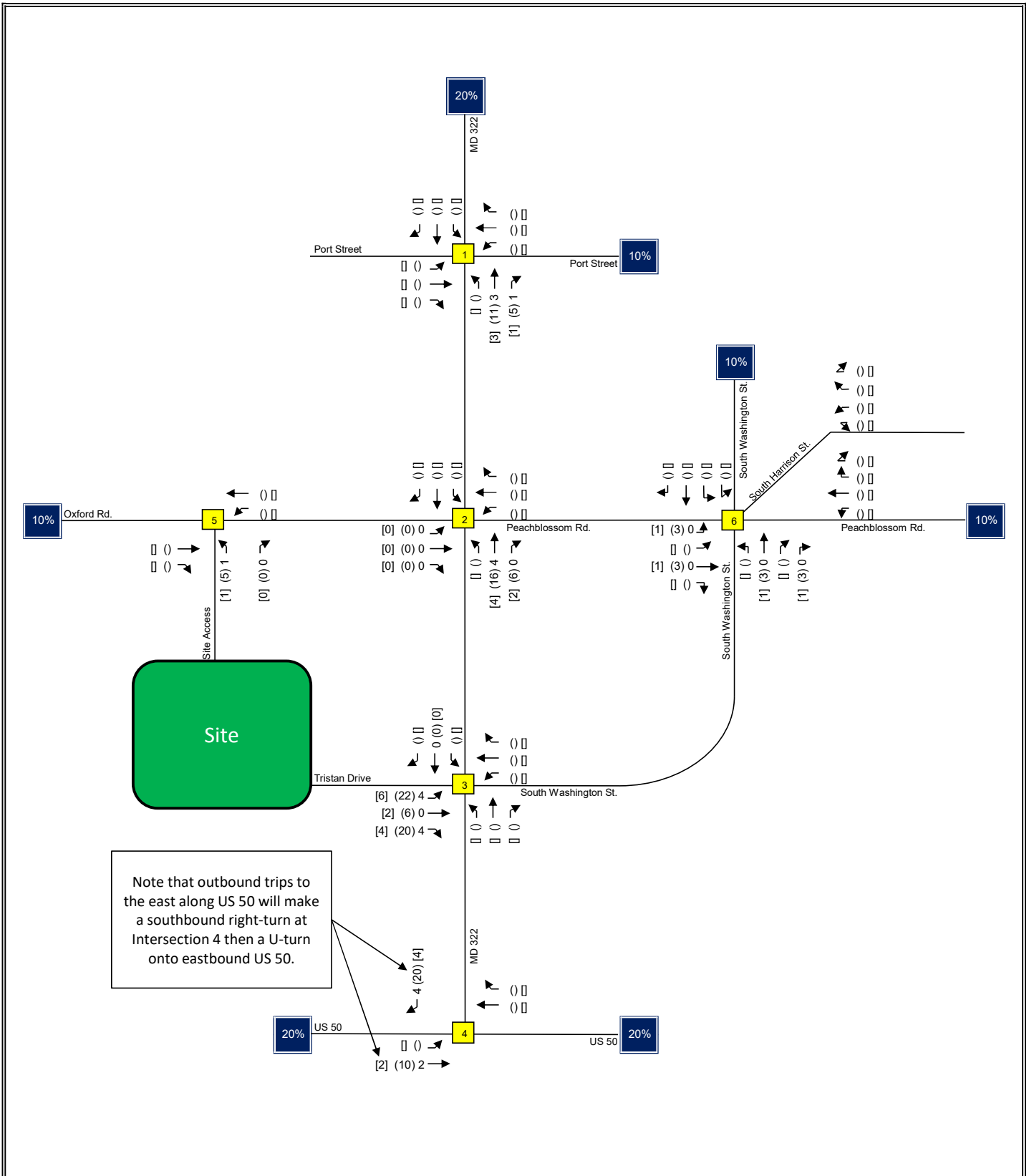
Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Inbound Trip Assignment for Town Park Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit 8f
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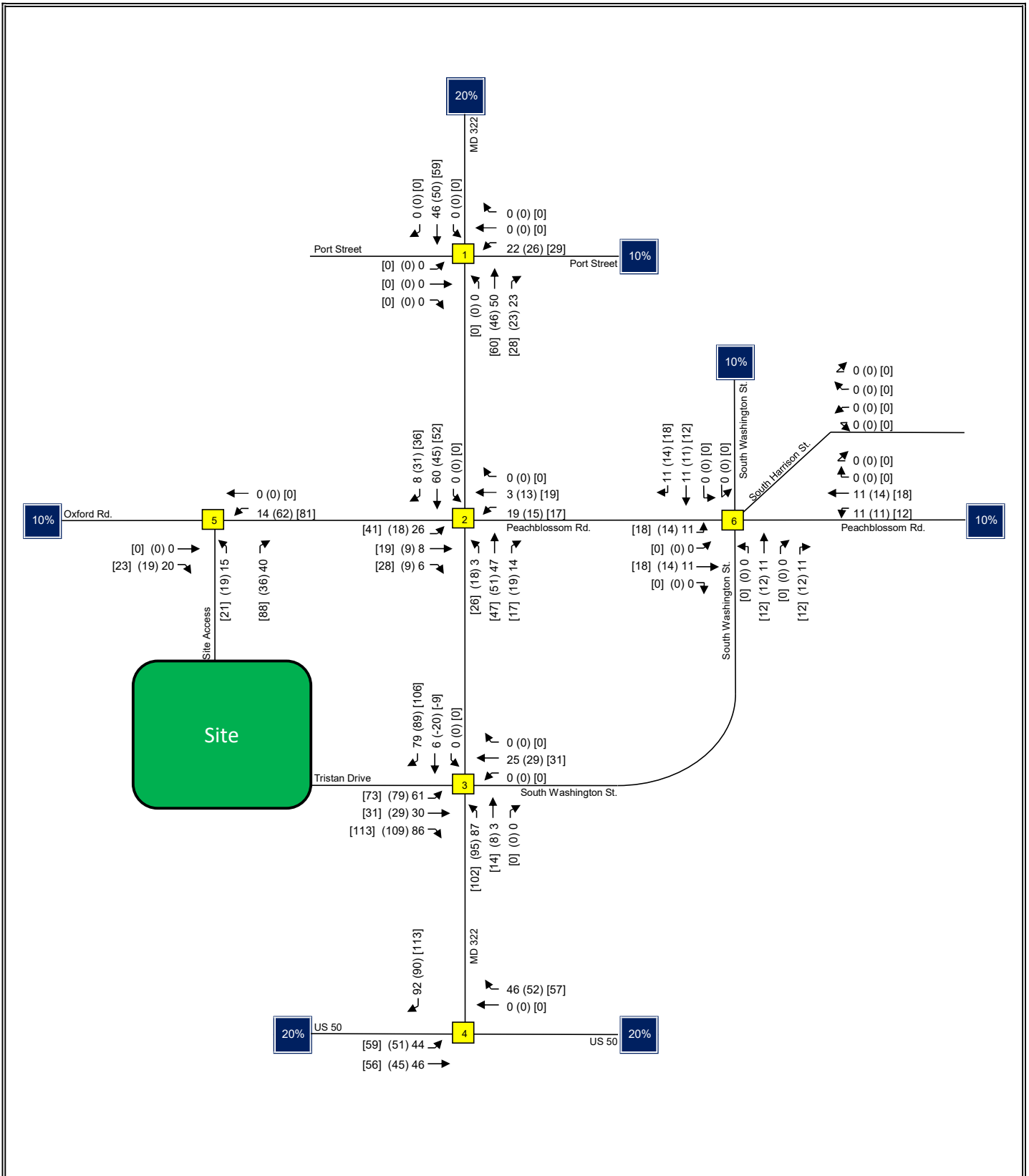
Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Outbound Trip Assignment for Town Park Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit 8g
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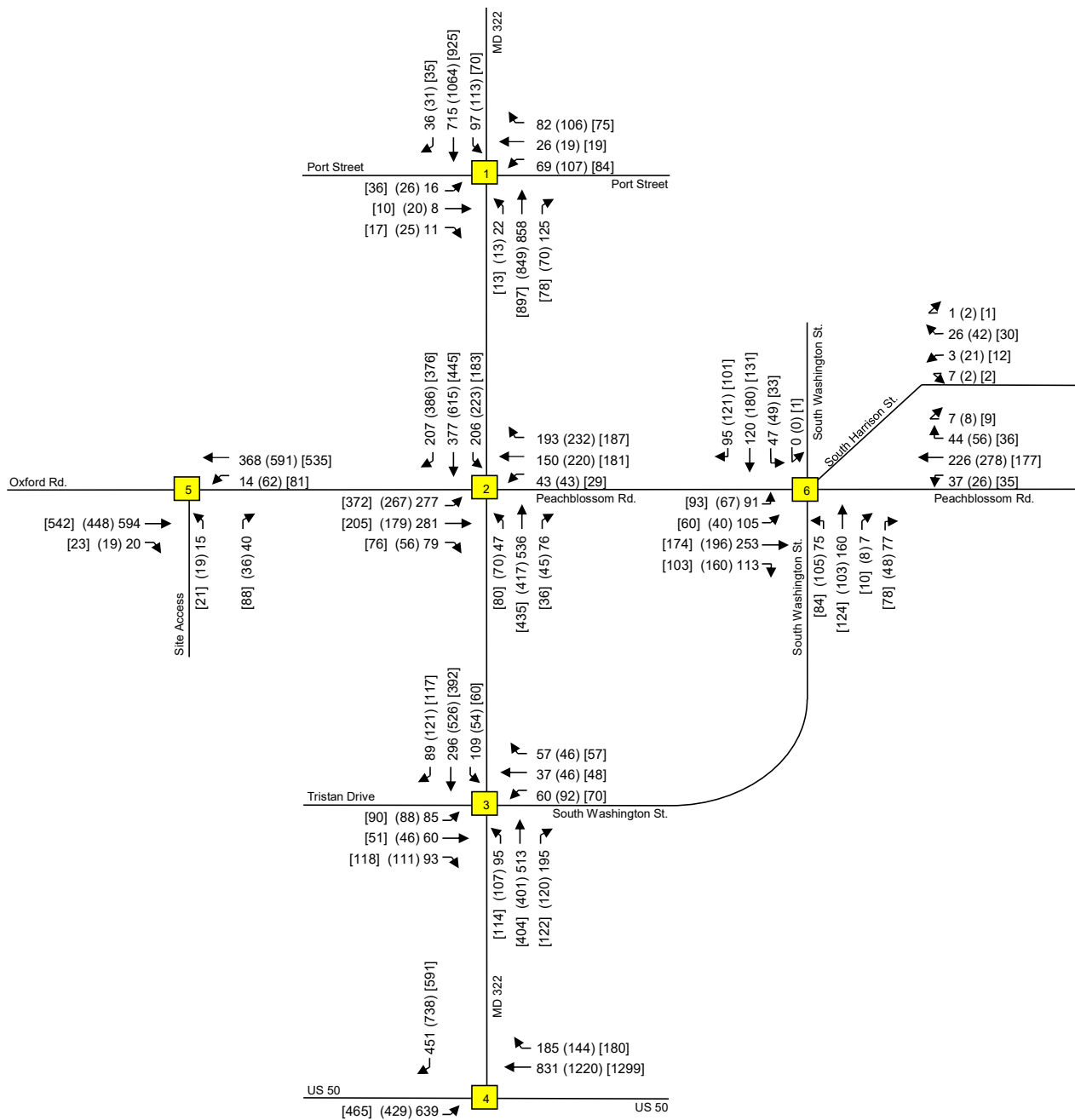
Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Inbound Trip Assignment for Office Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit 8h
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Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Outbound Trip Assignment for Office Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit 8i
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Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Combined Trip Assignment for Site Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit 8j
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Traffic Impact Analysis

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645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
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Total Peak Hour Volumes

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's

Exhibit 9

Level-of-Service Results

Morning Peak Hour	Existing CLV	Background CLV	Total CLV	LOS D or better?
1). MD 322 at Port Street	A / 820	B / 1081	C / 1155	Y
2). MD 322 at Peachblossom Road	A / 944	C / 1212	C / 1295	Y
3). MD 322 at S. Washington Street	A / 349	A / 549	A / 698	Y
4). MD 322 at US 50	A / 701	A / 814	A / 840	Y
5). Oxford Road at Site Access	--	--	A / 663	Y
6). Peachblossom Road at S. Washington Street	A / 747	A / 952	B / 1007	Y
Evening Peak Hour	Existing CLV	Background CLV	Total CLV	LOS D or better?
1). MD 322 at Port Street	A / 991	C / 1267	D / 1346	Y
2). MD 322 at Peachblossom Road	A / 853	B / 1106	C / 1215	Y
3). MD 322 at S. Washington Street	A / 370	A / 485	A / 742	Y
4). MD 322 at US 50	A / 775	A / 898	A / 928	Y
5). Oxford Road at Site Access	--	--	A / 646	Y
6). Peachblossom Road at S. Washington Street	A / 924	B / 1133	C / 1197	Y
Saturday Midday Peak Hour	Existing CLV	Background CLV	Total CLV	LOS D or better?
1). MD 322 at Port Street	A / 797	B / 1098	C / 1189	Y
2). MD 322 at Peachblossom Road	A / 809	B / 1076	C / 1200	Y
3). MD 322 at S. Washington Street	A / 263	A / 443	A / 668	Y
4). MD 322 at US 50	A / 829	A / 958	A / 993	Y
5). Oxford Road at Site Access	--	--	A / 732	Y
6). Peachblossom Road at S. Washington Street	A / 628	A / 817	A / 895	Y

NOTES:

1. All intersections satisfy MD SHA Guidelines of LOS "D" or better.

Traffic Impact Analysis	Results of CLV Level-of-Service Analyses	Exhibit 10
 LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

Section 5 Conclusions / Recommendations

5.1 Results of Analyses

This Traffic Impact Analysis (TIA) has been prepared for the proposed Poplar Hill Farm development located along the west side of MD 322 just south of MD 333 (Oxford Road) as shown on Exhibit 1. The site is proposed to be developed with 109 single-family estates, 138 villa townhomes, 210 units of workforce housing, 40,000 square feet of general commercial/retail, 58,000 square feet of general office, a 5,700 square foot satellite firehouse, and a 3-field sports complex. The site will have access via Tristan Drive and MD 333 (Oxford Road).

Based on the analyses contained in this report:

- All study intersections operate at LOS D or better under existing, background, and total conditions. Per MDOT SHA Guidelines, all study intersections must operate at LOS D or better to be considered adequate.
- At the proposed intersection of MD 333 and Site Access (Intersection 5), the following frontage improvements are recommended:
 - Construct a bypass lane along westbound MD 333. The posted speed limit at the beginning of the bypass lane is 40 MPH and the speed limit transitions to 50 MPH along the proposed bypass lane. Therefore, it is recommended that the approach taper be designed for 40 MPH and the remainder of the bypass lane be designed for 50 MPH. Per MDOT SHA's Access Permits Manual, it is recommended that the approach taper be 200', the approach lane be 200', the departure lane be 200', and the departure taper be 300'. This results in a total bypass lane length of 900'.
 - Construct a deceleration (right-turn) lane along eastbound MD 333. MD 333 transitions from a posted eastbound speed of 50 MPH to 40 MPH in the vicinity of the proposed site and it is likely that eastbound vehicles will be traveling at 50 MPH in the vicinity of the site access. Per MDOT SHA's Access Permits Manual, it is recommended that the partial deceleration lane be 350' (100' taper + 250' of full width lane).
 - Construct a partial acceleration lane along eastbound MD 333. Note that vehicles making a northbound right-turn will be immediately enter into a 40 MPH posted zone. Per MDOT SHA's Access Permits Manual, it is recommended that the partial acceleration lane be 250' (100' full width lane + 150' taper length).
 - It should be noted that with the recommendations above, the proposed site access along MD 333 (Oxford) meets all MDOT SHA requirements. Specifically, acceleration/deceleration lanes will be provided as detailed above, and the proposed intersection is located

approximately 800' from Clubhouse Drive which exceeds the minimum intersection spacing of 750' recommended in MDOT SHA Guidelines.

- In addition to the intersections included as part of the study, nearby residents have expressed concern over operations at other nearby intersections along MD 333 (Oxford Road). These intersections included MD 333 at Polly's Hill Lane, MD 333 at Clubhouse Drive, and MD 333 at Tour Drive. Note that these intersections were not included in the project scope which has been approved by both MDOT SHA and the Town of Easton. However, additional analysis has been conducted to determine Level-of-Service (LOS) at these intersections to address citizen concerns. Given that traffic counts were not conducted at these intersections, trips to/from the side streets were projected using the ITE Trip Generation Manual, 11th Edition. See below for the results of this additional analysis:
 - MD 333 at Polly's Hill Lane – Polly's Hill Lane provides access to 12 single-family detached units. Total traffic was projected at this intersection which included existing traffic, regional growth, traffic associated with nearby background developments, and traffic associated with the Poplar Hill development. The total traffic volumes at this location were evaluated using the Critical Lane Volume methodology per MDOT SHA Guidelines, and the results indicate that the intersection operates at LOS A during all peak hours based on projected volumes to/from Polly's Hill Lane. Detailed analysis of this intersection is contained in Appendix F.
 - MD 333 at Clubhouse Drive – Clubhouse Drive provides access to 88 single-family detached units. Total traffic was projected at this intersection which included existing traffic, regional growth, traffic associated with nearby background developments, and traffic associated with the Poplar Hill development. The total traffic volumes at this location were evaluated using the Critical Lane Volume methodology per MDOT SHA Guidelines, and the results indicate that the intersection operates at LOS A during all peak hours based on projected volumes to/from Clubhouse Drive. Detailed analysis of this intersection is contained in Appendix G.
 - MD 333 at Tour Drive – Tour Drive provides access to 9 single-family detached units and 186 single-family attached units. Total traffic was projected at this intersection which included existing traffic, regional growth, traffic associated with nearby

background developments, and traffic associated with the Poplar Hill development. The total traffic volumes at this location were evaluated using the Critical Lane Volume methodology per MDOT SHA Guidelines, and the results indicate that the intersection operates at LOS A during all peak hours based on projected volumes to/from Tour Drive. Detailed analysis of this intersection is contained in Appendix H.

With the above recommendations, all intersections will operate at acceptable Levels-of-Service.

Appendix A

Supplemental Information
Turning Movement Counts

PLANS ARE NOT
APPROVED FOR
CONSTRUCTION

[illegible]

WARNING: THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THE PLAN ARE APPROPRIATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES RESULTING FROM HIS OWN NEGLIGENCE OR FROM HIS OWN CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES RESULTING FROM HIS OWN NEGLIGENCE OR FROM HIS OWN CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES RESULTING FROM HIS OWN NEGLIGENCE OR FROM HIS OWN CONSTRUCTION.



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15 Melrose St. Seattle, WA 98103 (206) 461-0846
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PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or dictated by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 48100. Expiration Date: 12/31/2023.



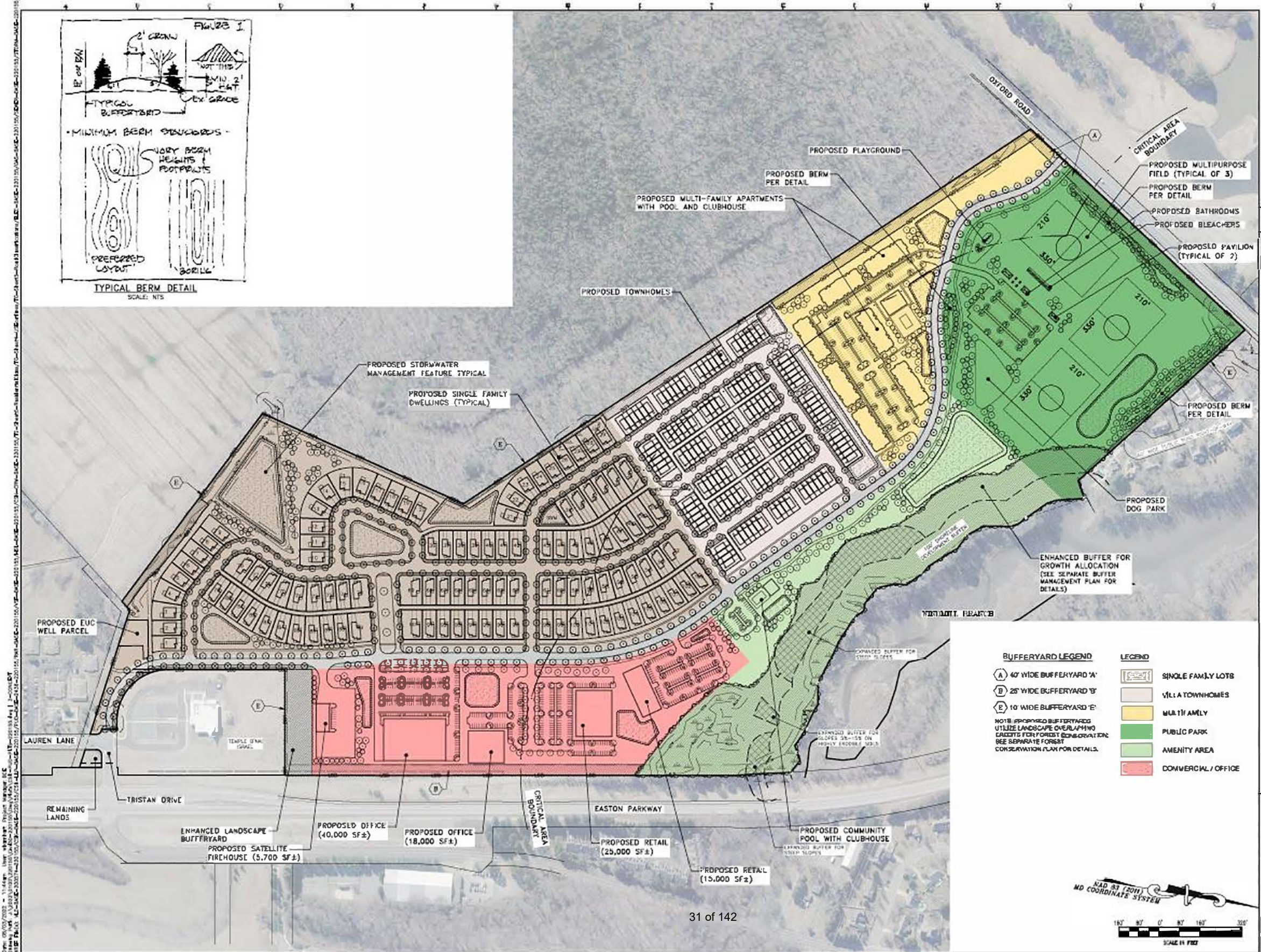
POPLAR HILL
PUD SKETCH PLAN

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 42 GRID 4 TAX PARCEL 51

ISSUED/REVISED FOR	DATE
AGENCY REVIEW	7/26/22
AGENCY REVIEW	8/03/22

7/05/77

Page 392 of 508



Ryan Wingate

To: mlenhart
Subject: RE: TIA Scoping Request: Poplar Hill Farm

From: mlenhart <mlenhart@LENHARTTRAFFIC.COM>
Sent: Thursday, April 22, 2021 12:23 PM
To: Henry Dierker <HDierker@mdot.maryland.gov>; Rick Van Emburgh <rvanemburgh@EastonMD.gov>;
RBaker@mdot.maryland.gov
Cc: Nick Driban <ndriban@LENHARTTRAFFIC.COM>; mlenhart <mlenhart@LENHARTTRAFFIC.COM>
Subject: TIA Scoping Request: Poplar Hill Farm

Hi Rick, Rich, and Henry,

I have been contracted to prepare a Traffic Impact Study for the Poplar Hill Farm, and am submitting this scoping email for your review and feedback/approval.

The applicant is working on the concept plan, but the current proposal includes 84 single family dwelling units, 120 residential villas, and 120 multi-family dwelling units.

I called and spoke to the Easton High School to get information regarding the current COVID school schedule. They are only open to students on four days a week. Monday-Tuesday, and Thursday-Friday. They are currently in a hybrid situation where some kids come two days and are virtual two days, but they said that more kids are actually now attending in person for four days a week. Furthermore, buses and teachers are running all four of those days, so if we were to count on a Tuesday or Thursday it should provide a fairly good estimate of things returning somewhat to normal. Please let us know if this sounds ok to you.

1. The attached "Site Location Map and Study Intersections" provides the six (6) intersections that we are proposing for this TIA along with the estimated trip assignments. Please confirm that this scope is acceptable.
2. I've attached a trip generation worksheet showing that the proposal will generate 162 AM trips, 208 PM trips, and 242 Saturday mid-day trips.
3. Based on the discussion above, we will conduct counts on a Tuesday or Thursday from 7-9 AM and 4-6 PM. Please advise if you will require Saturday counts and analyses as well.
4. Finally, please advise if there are any background developments to be included in the TIA and any information related to those developments.

Thanks,
Mike

Mike Lenhart, P.E., PTOE
President

PLEASE NOTE NEW PHONE AND ADDRESS

Office: [\(410\) 216-3333](tel:(410)216-3333) (Ext. 1)
Mobile: [\(410\) 980-2367](tel:(410)980-2367)
Fax: [\(443\) 782-2288](tel:(443)782-2288)



LENHART TRAFFIC CONSULTING, INC.

645 BALTIMORE ANNAPOLIS BLVD, SUITE 214

SEVERNA PARK, MD 21146

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PROJECT NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD			

EXISTING SIGN

20, 21, 22
NO TURN ON RED
R10-11B
24" X 24"

PROPOSED SIGNS

15
Oxford Rd.
Harrison St.
32" X VARIABLE

17
Idlewild Ave.
Oxford Rd.
32" X VARIABLE

18
Harrison St.
Washington St.
32" X VARIABLE

19
Washington St.

16
LEFT TURN YIELD ON GREEN
R 10-12
36" X 42"

PROPOSED SIGNALS

1 12" R
2 12" Y
3 12" G

5 12" R
6 12" Y
7 12" G

2, 3, 4 6, 9, 10 12" R
5 12" Y
6 12" G

8, 12 12" R
9 12" Y
10 12" G

7, 11 12" R
8 12" Y
9 12" G

OPTICALLY PROGRAMED

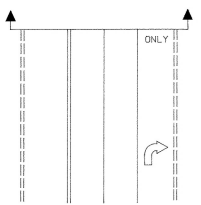
NEMA PHASING

Ø1 Ø2 Ø3 Ø4 Ø5 Ø6 Ø7

Ø4 ALT

PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY
RING 11 SEQUENTIAL

- UTILITY LEGEND
- G — GAS MAIN
 - W — WATER MAIN
 - S — SEWER MAIN
 - E — ELECTRIC CABLES
 - A — AERIAL CABLES
 - T — TELEPHONE CABLES



REVISIONS	APPROVALS	REVISIONS	MARYLAND DOT - STATE HIGHWAY ADMINISTRATION Office of Traffic & Safety TRAFFIC ENGINEERING DESIGN DIVISION MD 333 AND MD 565A (WASHINGTON STREET) DRAWN BY: D. DICKERSON CHECK BY: [Signature] SCALE: 1" = 20' F.A.P. NO. _____ S.H.A. NO. _____ COUNTY _____ PLAN SHEET NO. 15-3452 SHEET NO. _____ OF _____
	CHIEF, DESIGN SECTION ASST. DISTRICT ENGINEER, TRAFFIC CHIEF, TRAFFIC ENGINEERING DESIGN SECTION DIRECTOR, TRAFFIC & SAFETY		

TRAFFIC GROWTH PROJECTION

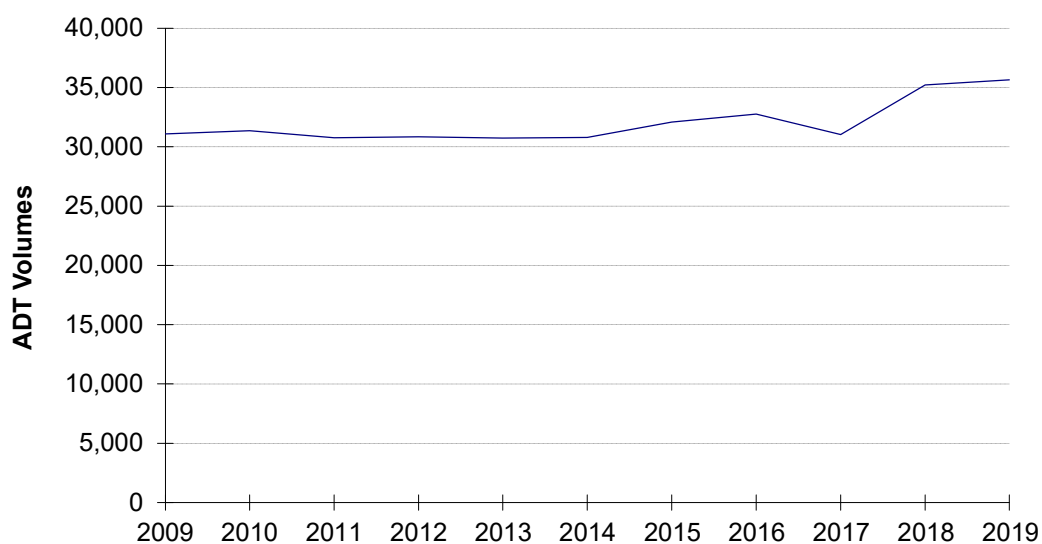
LOCATION: US 50 South of MD 322

REPORT DATE: 21-May-21

AVERAGE GROWTH: 1.48%

MATHEMATICAL GROWTH: 1.38%

Year	ADT Volume	Vol. increase	% increase	Average %
2009	31,091			
2010	31,342	251	0.81%	0.81%
2011	30,753	-589	-1.88%	-0.54%
2012	30,854	101	0.33%	-0.25%
2013	30,735	-119	-0.39%	-0.28%
2014	30,800	65	0.21%	-0.18%
2015	32,091	1,291	4.19%	0.55%
2016	32,772	681	2.12%	0.77%
2017	31,020	-1,752	-5.35%	0.01%
2018	35,220	4,200	13.54%	1.51%
2019	35,641	421	1.20%	1.48%



TRAFFIC GROWTH
US 50 South of MD 322

	Weekday Morning Peak Hour (7 am - 9 am)																				
	MD 322 Northbound					MD 322 Southbound					Port Street Eastbound					Port Street Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
7:00-7:15	0	1	108	1	0	0	15	84	11	0	0	1	3	5	0	0	2	2	17	0	250
7:15-7:30	0	1	133	11	0	0	13	78	2	0	0	3	5	3	0	0	7	3	10	0	269
7:30-7:45	0	5	177	25	0	0	19	131	8	0	0	3	0	1	0	0	9	10	20	0	408
7:45-8:00	0	10	172	22	0	0	17	110	6	0	0	6	3	3	0	0	8	7	14	0	378
8:00-8:15	0	2	127	16	0	0	16	120	8	0	0	4	1	4	0	0	2	2	10	0	312
8:15-8:30	0	3	152	17	0	0	17	112	11	0	0	2	3	2	0	0	6	5	12	0	342
8:30-8:45	0	9	141	11	0	0	9	108	7	0	0	8	2	5	0	0	12	5	16	0	333
8:45-9:00	0	11	149	14	0	0	13	96	12	0	0	8	4	5	0	0	10	3	9	0	334

Hourly Totals																					
7:00-8:00	0	17	590	59	0	0	64	403	27	0	0	13	11	12	0	0	26	22	61	0	1305
7:15-8:15	0	18	609	74	0	0	65	439	24	0	0	16	9	11	0	0	26	22	54	0	1367
7:30-8:30	0	20	628	80	0	0	69	473	33	0	0	15	7	10	0	0	25	24	56	0	1440
7:45-8:45	0	24	592	66	0	0	59	450	32	0	0	20	9	14	0	0	28	19	52	0	1365
8:00-9:00	0	25	569	58	0	0	55	436	38	0	0	22	10	16	0	0	30	15	47	0	1321
AM	Northbound					Southbound					Eastbound					Westbound					Total
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
7:30-8:30	0	20	628	80	0	0	69	473	33	0	0	15	7	10	0	0	25	24	56	0	

	Weekday Evening Peak Hour (4 pm - 6 pm)																				
	MD 322 Northbound					MD 322 Southbound					Port Street Eastbound					Port Street Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	2	135	13	0	0	26	227	10	0	0	11	7	6	0	0	20	5	17	0	479
4:15-4:30	0	5	155	6	0	0	17	196	6	0	0	8	5	7	0	0	14	7	16	0	442
4:30-4:45	0	2	154	4	0	0	19	176	8	0	0	3	3	5	0	0	11	3	16	0	404
4:45-5:00	0	3	144	8	0	0	20	202	4	0	0	2	3	5	0	0	15	2	22	0	430
5:00-5:15	0	3	146	5	0	0	15	221	6	0	0	17	3	5	0	0	15	2	10	0	448
5:15-5:30	0	1	136	9	0	0	15	239	5	0	0	8	2	3	1	0	24	1	16	0	459
5:30-5:45	0	6	107	8	0	0	13	156	5	0	0	6	2	1	0	0	9	4	20	0	337
5:45-6:00	0	4	103	2	0	0	17	154	6	0	0	4	4	5	0	0	14	2	12	0	327

Hourly Totals																					
4:00-5:00	0	12	588	31	0	0	82	801	28	0	0	24	18	23	0	0	60	17	71	0	1755
4:15-5:15	0	13	599	23	0	0	71	795	24	0	0	30	14	22	0	0	55	14	64	0	1724
4:30-5:30	0	9	580	26	0	0	69	838	23	0	0	30	11	18	1	0	65	8	64	0	1741
4:45-5:45	0	13	533	30	0	0	63	818	20	0	0	33	10	14	1	0	63	9	68	0	1674
5:00-6:00	0	14	492	24	0	0	60	770	22	0	0	35	11	14	1	0	62	9	58	0	1571
PM	Northbound					Southbound					Eastbound					Westbound					Total
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-5:00	0	12	588	31	0	0	82	801	28	0	0	24	18	23	0	0	60	17	71	0	1755

Peak Hour
Turning Movement Count



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 322 @ Port Street
Weather: Clear
Count by: DSS
Count Day/Date: Thursday, May 13, 2021
County: Talbot

	Saturday Peak Hour (10:00 am - 2:00 pm)																				
	MD 322 Northbound					MD 322 Southbound					Port Street Eastbound					Port Street Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
10:00-10:15	0	3	154	7	0	0	9	142	14	0	0	4	3	3	0	0	3	6	15	0	363
10:15-10:30	0	4	151	9	0	0	9	140	7	0	0	8	4	5	0	0	5	4	5	0	351
10:30-10:45	0	4	142	7	0	0	12	128	8	0	0	10	7	5	0	0	3	5	12	0	343
10:45-11:00	0	4	157	5	1	0	11	146	7	1	0	7	2	8	0	0	8	0	11	2	366
11:00-11:15	0	4	153	10	0	0	13	154	6	0	0	6	3	1	4	0	9	5	13	1	377
11:15-11:30	0	3	170	12	0	0	10	162	12	0	0	7	3	4	0	0	10	7	7	0	407
11:30-11:45	0	1	139	4	0	0	6	190	7	0	0	13	1	3	2	0	8	5	13	0	390
11:45-12:00	0	1	130	5	1	0	12	151	13	0	0	6	7	4	0	0	9	1	9	0	348
12:00-12:15	0	2	165	7	0	0	13	162	11	0	0	6	7	5	1	0	7	6	10	0	401
12:15-12:30	0	1	150	4	0	0	8	164	10	1	0	5	1	5	1	0	4	5	11	0	368
12:30-12:45	1	3	130	5	0	0	12	170	5	0	0	8	1	0	0	0	9	1	12	1	357
12:45-1:00	0	5	110	5	0	0	11	162	7	0	0	14	3	5	0	0	15	6	14	1	357
1:00-1:15	0	4	122	10	0	0	13	185	11	0	0	8	4	3	0	0	5	3	6	0	374
1:15-1:30	0	5	148	4	0	0	10	151	8	0	0	7	2	2	0	0	7	2	15	0	361
1:30-1:45	0	5	119	6	1	0	14	171	14	0	0	5	6	4	0	0	3	4	8	0	359
1:45-2:00	0	1	119	6	0	0	14	140	7	0	0	8	2	5	0	0	12	6	20	2	340

Hourly Totals																					
10:00-11:00	0	15	604	28	1	0	41	556	36	1	0	29	16	21	0	0	19	15	43	2	1427
10:15-11:15	0	16	603	31	1	0	45	568	28	1	0	31	16	19	4	0	25	14	41	3	1446
10:30-11:30	0	15	622	34	1	0	46	590	33	1	0	30	15	18	4	0	30	17	43	3	1502
10:45-11:45	0	12	619	31	1	0	40	652	32	1	0	33	9	16	6	0	35	17	44	3	1551
11:00-12:00	0	9	592	31	1	0	41	657	38	0	0	32	14	12	6	0	36	18	42	1	1530
11:15-12:15	0	7	604	28	1	0	41	665	43	0	0	32	18	16	3	0	34	19	39	0	1550
11:30-12:30	0	5	584	20	1	0	39	667	41	1	0	30	16	17	4	0	28	17	43	0	1513
11:45-12:45	1	7	575	21	1	0	45	647	39	1	0	25	16	14	2	0	29	13	42	1	1479
12:00-1:00	1	11	555	21	0	0	44	658	33	1	0	33	12	15	2	0	35	18	47	2	1488
12:15-1:15	1	13	512	24	0	0	44	681	33	1	0	35	9	13	1	0	33	15	43	2	1460
12:30-1:30	1	17	510	24	0	0	46	668	31	0	0	37	10	10	0	0	36	12	47	2	1451
12:45-1:45	0	19	499	25	1	0	48	669	40	0	0	34	15	14	0	0	30	15	43	1	1453
1:00-2:00	0	15	508	26	1	0	51	647	40	0	0	28	14	14	0	0	27	15	49	2	1437

Sat.	Northbound					Southbound					Eastbound					Westbound					Total
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
10:45-11:45	0	12	619	31	1	0	40	652	32	1	0	33	9	16	6	0	35	17	44	1	1551

Peak Hour
Turning Movement Count



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 322 at Port Street

Weather: Clear

Count by: DSS

Count Day/Date: 5/15/2021

County: Talbot County

	Weekday Morning Peak Hour (7 am - 9 am)																				
	MD 322 Northbound					MD 322 Southbound					Oxford Road Eastbound					Peachblossom Road Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
7:00-7:15	0	1	60	11	0	0	24	35	25	0	0	30	20	3	0	0	0	14	19	0	242
7:15-7:30	0	2	100	22	0	0	30	46	22	0	0	36	36	2	0	0	3	18	26	0	343
7:30-7:45	0	4	96	22	0	0	39	44	38	0	0	42	60	2	0	0	6	25	57	0	435
7:45-8:00	0	3	129	16	0	0	43	41	38	0	0	55	54	6	0	0	10	32	27	0	454
8:00-8:15	0	2	61	11	0	0	34	49	35	0	0	51	71	3	0	0	3	39	30	0	389
8:15-8:30	0	2	102	8	0	0	34	70	37	0	0	49	52	11	0	0	3	29	31	0	428
8:30-8:45	0	2	76	7	0	0	28	50	40	0	0	47	43	4	0	0	2	38	26	0	363
8:45-9:00	0	2	97	9	0	0	25	37	50	0	0	52	34	2	0	0	2	34	34	0	378

Hourly Totals																					
7:00-8:00	0	10	385	71	0	0	136	166	123	0	0	163	170	13	0	0	19	89	129	0	1474
7:15-8:15	0	11	386	71	0	0	146	180	133	0	0	184	221	13	0	0	22	114	140	0	1621
7:30-8:30	0	11	388	57	0	0	150	204	148	0	0	197	237	22	0	0	22	125	145	0	1706
7:45-8:45	0	9	368	42	0	0	139	210	150	0	0	202	220	24	0	0	18	138	114	0	1634
8:00-9:00	0	8	336	35	0	0	121	206	162	0	0	199	200	20	0	0	10	140	121	0	1558
AM	Northbound					Southbound					Eastbound					Westbound					Total
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
7:30-8:30	0	11	388	57	0	0	150	204	148	0	0	197	237	22	0	0	22	125	145	0	1706

	Weekday Evening Peak Hour (4 pm - 6 pm)																				
	MD 322 Northbound					MD 322 Southbound					Oxford Road Eastbound					Peachblossom Road Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	2	54	6	0	0	48	117	66	0	0	56	41	3	0	0	7	34	46	0	480
4:15-4:30	0	1	54	3	0	0	52	120	64	0	0	58	46	8	0	0	5	39	50	0	500
4:30-4:45	0	0	60	3	0	0	28	100	54	0	0	57	40	2	0	0	6	51	45	0	446
4:45-5:00	0	2	68	2	0	0	42	110	80	0	0	44	35	3	0	0	5	48	42	0	481
5:00-5:15	0	4	64	7	0	0	39	119	72	0	0	43	32	2	0	0	7	40	46	0	475
5:15-5:30	0	2	71	12	0	0	60	132	74	0	0	42	36	4	0	0	8	33	33	0	507
5:30-5:45	0	0	48	10	0	0	29	87	43	0	0	32	24	3	0	0	7	48	37	0	368
5:45-6:00	0	2	37	4	0	0	32	92	56	0	0	37	37	1	0	0	4	26	39	0	367

Hourly Totals																					
4:00-5:00	0	5	236	14	0	0	170	447	264	0	0	215	162	16	0	0	23	172	183	0	1907
4:15-5:15	0	7	246	15	0	0	161	449	270	0	0	202	153	15	0	0	23	178	183	0	1902
4:30-5:30	0	8	263	24	0	0	169	461	280	0	0	186	143	11	0	0	26	172	166	0	1909
4:45-5:45	0	8	251	31	0	0	170	448	269	0	0	161	127	12	0	0	27	169	158	0	1831
5:00-6:00	0	8	220	33	0	0	160	430	245	0	0	154	129	10	0	0	26	147	155	0	1717
PM	Northbound					Southbound					Eastbound					Westbound					Total
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
4:30-5:30	0	8	263	24	0	0	169	461	280	0	0	186	143	11	0	0	26	172	166	0	1909

Peak Hour Turning Movement Count		Intersection:	MD 322 @ Peachblossom Road
		Weather:	Clear
		Count by:	DSS
		Count Day/Date:	Thursday, May 13, 2021
		County:	Talbot



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

		Saturday Peak Hour (10:00 am - 2:00 pm)																		Total	
		MD 322 Northbound					MD 322 Southbound					Oxford Road Eastbound				Peachblossom Road Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
10:00-10:15	0	2	76	5	0	0	33	52	65	0	0	57	31	2	0	0	4	31	36	0	394
10:15-10:30	0	2	75	6	0	0	24	65	56	0	0	53	33	3	0	0	2	17	24	0	360
10:30-10:45	0	4	69	2	0	0	25	59	55	0	0	62	23	3	0	0	4	33	23	0	362
10:45-11:00	0	6	68	3	0	0	29	59	61	0	0	67	48	1	0	0	1	25	32	0	400
11:00-11:15	0	1	80	4	0	0	36	61	67	0	0	62	35	5	0	0	5	34	37	0	427
11:15-11:30	0	0	73	3	0	0	24	87	69	0	0	70	42	0	0	0	3	35	31	0	437
11:30-11:45	0	3	57	7	1	0	38	80	71	0	0	61	31	0	3	0	2	39	29	0	418
11:45-12:00	0	3	64	5	0	0	25	71	73	0	0	46	39	4	0	0	3	33	27	0	393
12:00-12:15	0	5	59	4	0	0	30	74	78	0	0	56	39	2	0	0	2	40	38	0	427
12:15-12:30	0	6	71	7	0	0	26	73	68	0	0	59	34	9	0	0	2	46	31	0	432
12:30-12:45	0	4	53	3	0	0	28	71	82	0	0	53	34	0	0	0	2	37	26	0	393
12:45-1:00	0	3	48	5	0	0	34	81	75	0	0	59	33	5	0	0	4	34	18	0	399
1:00-1:15	0	5	56	4	0	0	33	81	75	0	0	54	28	2	0	0	3	32	28	0	401
1:15-1:30	0	2	69	5	0	0	25	78	66	0	0	58	39	5	0	0	2	34	36	0	419
1:30-1:45	0	1	49	2	0	0	19	79	68	0	0	49	23	4	0	0	3	36	22	0	355
1:45-2:00	0	2	64	5	0	0	25	65	79	0	0	46	27	2	0	0	1	28	20	0	364

Peak Hour	Turning Movement Count
07:00-08:00	120
08:00-09:00	150
09:00-10:00	180
10:00-11:00	200
11:00-12:00	220
12:00-13:00	250
13:00-14:00	280
14:00-15:00	300
15:00-16:00	320
16:00-17:00	350
17:00-18:00	380
18:00-19:00	400
19:00-20:00	420
20:00-21:00	450
21:00-22:00	480
22:00-23:00	500
23:00-00:00	520
00:00-01:00	550
01:00-02:00	580
02:00-03:00	600
03:00-04:00	620
04:00-05:00	650
05:00-06:00	680
06:00-07:00	700
07:00-08:00	720
08:00-09:00	750
09:00-10:00	780
10:00-11:00	800
11:00-12:00	820
12:00-13:00	850
13:00-14:00	880
14:00-15:00	900
15:00-16:00	920
16:00-17:00	950
17:00-18:00	980
18:00-19:00	1000
19:00-20:00	1020
20:00-21:00	1050
21:00-22:00	1080
22:00-23:00	1100
23:00-00:00	1120
00:00-01:00	1150
01:00-02:00	1180
02:00-03:00	1200
03:00-04:00	1220
04:00-05:00	1250
05:00-06:00	1280
06:00-07:00	1300
07:00-08:00	1320
08:00-09:00	1350
09:00-10:00	1380
10:00-11:00	1400
11:00-12:00	1420
12:00-13:00	1450
13:00-14:00	1480
14:00-15:00	1500
15:00-16:00	1520
16:00-17:00	1550
17:00-18:00	1580
18:00-19:00	1600
19:00-20:00	1620
20:00-21:00	1650
21:00-22:00	1680
22:00-23:00	1700
23:00-00:00	1720
00:00-01:00	1750
01:00-02:00	1780
02:00-03:00	1800
03:00-04:00	1820
04:00-05:00	1850
05:00-06:00	1880
06:00-07:00	1900
07:00-08:00	1920
08:00-09:00	1950
09:00-10:00	1980
10:00-11:00	2000
11:00-12:00	2020
12:00-13:00	2050
13:00-14:00	2080
14:00-15:00	2100
15:00-16:00	2120
16:00-17:00	2150
17:00-18:00	2180
18:00-19:00	2200
19:00-20:00	2220
20:00-21:00	2250
21:00-22:00	2280
22:00-23:00	2300
23:00-00:00	2320
00:00-01:00	2350
01:00-02:00	2380
02:00-03:00	2400
03:00-04:00	2420
04:00-05:00	2450
05:00-06:00	2480
06:00-07:00	2500
07:00-08:00	2520
08:00-09:00	2550
09:00-10:00	2580
10:00-11:00	2600
11:00-12:00	2620
12:00-13:00	2650
13:00-14:00	2680
14:00-15:00	2700
15:00-16:00	2720
16:00-17:00	2750
17:00-18:00	2780
18:00-19:00	2800
19:00-20:00	2820
20:00-21:00	2850
21:00-22:00	2880
22:00-23:00	2900
23:00-00:00	2920
00:00-01:00	2950
01:00-02:00	2980
02:00-03:00	3000
03:00-04:00	3020
04:00-05:00	3050
05:00-06:00	3080
06:00-07:00	3100
07:00-	



	Weekday Morning Peak Hour (7 am - 9 am)																				
	MD 322 Northbound					MD 322 Southbound					Tristan Drive Eastbound					S. Washington Street Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
7:00-7:15	0	0	73	16	0	0	1	30	3	0	0	4	1	1	0	0	5	2	3	0	139
7:15-7:30	0	2	116	22	0	0	3	42	0	0	0	6	5	1	0	0	10	0	4	0	211
7:30-7:45	1	2	112	22	0	0	4	54	1	0	0	6	0	1	0	0	10	0	6	0	219
7:45-8:00	0	1	121	22	0	0	8	46	1	0	0	6	6	2	0	0	8	1	8	0	230
8:00-8:15	0	2	74	10	0	0	6	46	2	0	0	5	6	2	0	0	10	1	1	0	165
8:15-8:30	0	1	107	21	0	0	24	46	5	0	1	4	4	1	0	0	5	2	1	0	222
8:30-8:45	2	0	80	11	0	0	4	53	4	0	0	9	3	0	0	0	11	2	0	0	179
8:45-9:00	0	1	90	11	0	0	2	27	2	0	0	5	5	3	0	0	8	2	7	0	163

Hourly Totals																					
7:00-8:00	1	5	422	82	0	0	16	172	5	0	0	22	12	5	0	0	33	3	21	0	799
7:15-8:15	1	7	423	76	0	0	21	188	4	0	0	23	17	6	0	0	38	2	19	0	825
7:30-8:30	1	6	414	75	0	0	42	192	9	0	1	21	16	6	0	0	33	4	16	0	836
7:45-8:45	2	4	382	64	0	0	42	191	12	0	1	24	19	5	0	0	34	6	10	0	796
8:00-9:00	2	4	351	53	0	0	36	172	13	0	1	23	18	6	0	0	34	7	9	0	729
AM	Northbound					Southbound					Eastbound					Westbound					Total
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
7:30-8:30	1	6	414	75	0	0	42	192	9	0	1	21	16	6	0	0	33	4	16	0	

		Weekday Evening Peak Hour (4 pm - 6 pm)																			Total
		MD 322 Northbound					MD 322 Southbound					Tristan Drive Eastbound					S. Washington Street Westbound				
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
4:00-4:15	0	3	58	11	0	0	2	123	2	0	0	4	2	2	0	0	23	6	4	0	
4:15-4:30	0	1	52	13	0	0	8	104	10	0	0	3	4	4	0	0	24	3	4	0	
4:30-4:45	0	3	60	10	0	0	3	103	9	0	0	4	5	0	0	0	23	5	5	0	
4:45-5:00	0	2	61	16	0	0	5	94	8	0	0	2	2	0	1	0	13	0	5	0	
5:00-5:15	0	2	74	19	0	2	4	119	6	0	0	1	1	1	0	0	19	4	4	0	
5:15-5:30	0	4	74	22	0	0	11	116	6	0	0	1	3	1	0	0	17	3	8	0	
5:30-5:45	0	0	51	12	0	2	2	95	4	1	0	3	2	0	0	0	18	2	1	0	
5:45-6:00	0	1	32	8	0	2	4	82	5	0	0	1	4	0	0	0	18	3	3	0	

Hourly Totals																					
4:00-5:00	0	9	231	50	0	0	18	424	29	0	0	13	13	6	1	0	83	14	18	0	908
4:15-5:15	0	8	247	58	0	2	20	420	33	0	0	10	12	5	1	0	79	12	18	0	924
4:30-5:30	0	11	269	67	0	2	23	432	29	0	0	8	11	2	1	0	72	12	22	0	960
4:45-5:45	0	8	260	69	0	4	22	424	24	1	0	7	8	2	1	0	67	9	18	0	922
5:00-6:00	0	7	231	61	0	6	21	412	21	1	0	6	10	2	0	0	72	12	16	0	877
PM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:30-5:30	0	11	269	67	0	2	23	432	29	0	0	8	11	2	1	0	72	12	22	0	960

Peak Hour Turning Movement Count		Intersection:	MD 322 @ S Washington Street
		Weather:	Clear
		Count by:	DSS
		Count Day/Date:	Thursday, May 13, 2021
		County:	Talbot



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Time:	Saturday Peak Hour (10:00 am - 2:00 pm)																				Total
	MD 322 Northbound					MD 322 Southbound					Tristan Drive Eastbound					S. Washington Road Westbound					
	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
10:00-10:15	0	0	76	8	0	0	6	53	1	0	0	1	4	1	0	0	9	0	5	0	164
10:15-10:30	0	1	75	10	0	0	2	66	0	0	0	4	1	0	0	0	7	0	6	0	172
10:30-10:45	1	0	65	11	0	1	4	59	2	0	0	2	7	3	0	0	3	1	3	0	162
10:45-11:00	0	2	62	10	0	1	2	56	2	0	0	3	4	1	1	0	6	6	6	0	161
11:00-11:15	1	0	76	10	0	0	2	70	0	0	0	4	2	1	0	0	10	4	16	0	196
11:15-11:30	0	1	59	12	0	0	3	70	8	0	0	4	4	1	0	0	4	2	6	0	174
11:30-11:45	1	2	67	14	0	0	8	81	1	0	0	4	2	2	0	1	10	1	2	0	196
11:45-12:00	0	3	70	14	0	0	3	74	1	0	0	2	5	1	0	0	9	1	6	0	189
12:00-12:15	1	3	63	13	0	0	5	62	4	0	0	4	4	0	0	0	11	6	5	0	181
12:15-12:30	0	1	74	12	0	1	4	74	4	0	0	6	1	2	0	0	13	1	5	0	198
12:30-12:45	1	2	46	5	0	0	4	64	5	1	0	5	3	2	1	0	9	4	4	0	154
12:45-1:00	0	3	51	16	0	0	5	68	6	0	0	3	5	1	0	0	10	6	3	0	177
1:00-1:15	0	1	61	10	0	0	9	79	3	0	0	2	1	0	0	0	9	3	5	0	183
1:15-1:30	0	4	60	10	0	0	4	78	3	0	0	2	8	2	0	0	9	1	5	0	186
1:30-1:45	0	1	50	7	0	0	4	78	3	0	0	3	0	0	0	0	12	3	3	0	164
1:45-2:00	0	4	67	11	0	0	1	64	1	0	0	2	2	1	0	0	11	0	3	0	167

Hourly Totals																					
10:00-11:00	1	3	278	39	0	2	14	234	5	0	0	10	16	5	1	0	25	7	20	0	660
10:15-11:15	2	3	278	41	0	2	10	251	4	0	0	13	14	5	1	0	26	11	31	0	692
10:30-11:30	2	3	262	43	0	2	11	255	12	0	0	13	17	6	1	0	23	13	31	0	694
10:45-11:45	2	5	264	46	0	1	15	277	11	0	0	15	12	5	1	1	30	13	30	0	728
11:00-12:00	2	6	272	50	0	0	16	295	10	0	0	14	13	5	0	1	33	8	30	0	755
11:15-12:15	2	9	259	53	0	0	19	287	14	0	0	14	15	4	0	1	34	10	19	0	740
11:30-12:30	2	9	274	53	0	1	20	291	10	0	0	16	12	5	0	1	43	9	18	0	764
11:45-12:45	2	9	253	44	0	1	16	274	14	1	0	17	13	5	1	0	42	12	20	0	724
12:00-1:00	2	9	234	46	0	1	18	268	19	1	0	18	13	5	1	0	43	17	17	0	712
12:15-1:15	1	7	232	43	0	1	22	285	18	1	0	16	10	5	1	0	41	14	17	0	714
12:30-1:30	1	10	218	41	0	0	22	289	17	1	0	12	17	5	1	0	37	14	17	0	702
12:45-1:45	0	9	222	43	0	0	22	303	15	0	0	10	14	3	0	0	40	13	16	0	710
1:00-2:00	0	10	238	38	0	0	18	299	10	0	0	9	11	3	0	0	41	7	16	0	700
Sat. Peak Hour	Northbound					Southbound					Eastbound					Westbound					Total
11:30-12:30	2	9	274	53	0	1	20	291	10	0	0	16	12	5	0	1	43	9	18	0	764

Peak Hour
Turning Movement Count



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 322 at S. Washington Street

Weather: Clear

Count by: DSS

Count Day/Date: 5/15/2021

County: Talbot County

	Weekday Morning Peak Hour (7 am - 9 am)																				
	N/A Northbound					MD 322 Southbound					US 50 Eastbound					US 50 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
7:00-7:15									36	0	0	87			0			147	8	0	278
7:15-7:30									53	0	0	128			0			182	11	0	374
7:30-7:45									66	0	0	125			0			188	7	0	386
7:45-8:00									56	0	0	132			0			192	14	0	394
8:00-8:15									58	0	0	87			0			198	12	0	355
8:15-8:30									52	0	0	109			0			177	9	0	347
8:30-8:45									66	0	0	90			0			189	11	0	356
8:45-9:00									38	0	0	105			0			179	6	0	328

Hourly Totals																					Total
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
7:00-8:00									211	0	0	472			0			709	40	0	1432
7:15-8:15									233	0	0	472			0			760	44	0	1509
7:30-8:30									232	0	0	453			0			755	42	0	1482
7:45-8:45									232	0	0	418			0			756	46	0	1452
8:00-9:00									214	0	0	391			0			743	38	0	1386
AM Peak Hour	Northbound					Southbound					Eastbound					Westbound					Total
7:15-8:15	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	1509
									233	0	0	472			0			760	44	0	

	Weekday Evening Peak Hour (4 pm - 6 pm)																			Total
	N/A Northbound					MD 322 Southbound				US 50 Eastbound					US 50 Westbound					
	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	
Time:																				
4:00-4:15									148	0	0	71			0			289	10	0
4:15-4:30									132	0	0	59			0			276	4	0
4:30-4:45									126	0	0	66			0			271	6	0
4:45-5:00									107	0	0	72			0			280	8	0
5:00-5:15									139	0	0	84			0			281	8	0
5:15-5:30									134	0	0	80			0			215	11	0
5:30-5:45									113	0	0	54			0			270	16	0
5:45-6:00									100	0	0	44			0			271	6	0

Hourly Totals																					Total
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
4:00-5:00									513	0	0	268			0			1116	28	0	1925
4:15-5:15									504	0	0	281			0			1108	26	0	1919
4:30-5:30									506	0	0	302			0			1047	33	0	1888
4:45-5:45									493	0	0	290			0			1046	43	0	1872
5:00-6:00									486	0	0	262			0			1037	41	0	1826
PM Peak Hour	Northbound					Southbound					Eastbound					Westbound					Total
4:00-5:00	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	1925
									513	0	0	268			0			1116	28	0	

Peak Hour Turning Movement Count		Intersection:	MD 322 @ US 50
		Weather:	Clear
		Count by:	DSS
		Count Day/Date:	Thursday, May 13, 2021
		County:	Talbot



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

	Saturday Peak Hour (10:00 am - 2:00 pm)																				
	N/A Northbound					MD 322 Southbound					US 50 Eastbound					US 50 Westbound					Total
	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	
Time:																					
10:00-10:15									63	0	0	72						260	12	0	407
10:15-10:30									73	0	0	81						263	5	0	422
10:30-10:45									66	0	0	70						273	7	0	416
10:45-11:00									63	0	0	74						294	9	0	440
11:00-11:15									82	0	0	68						258	19	0	427
11:15-11:30									75	0	0	64						329	8	0	476
11:30-11:45									94	0	0	78						260	6	0	438
11:45-12:00									84	0	0	78						314	14	0	490
12:00-12:15									74	0	0	62						309	18	0	463
12:15-12:30									89	0	0	76						305	11	0	481
12:30-12:45									76	0	0	53						257	7	0	393
12:45-1:00									79	0	0	60						267	10	0	416
1:00-1:15									88	0	0	67						268	5	0	428
1:15-1:30									89	0	0	64						272	10	0	435
1:30-1:45									90	0	0	50						268	8	0	416
1:45-2:00									76	0	0	72						223	10	0	381

Hourly Totals																					
10:00-11:00						265	0	0	297						1090	33	0	1685			
10:15-11:15						284	0	0	293						1088	40	0	1705			
10:30-11:30						286	0	0	276						1154	43	0	1759			
10:45-11:45						314	0	0	284						1141	42	0	1781			
11:00-12:00						335	0	0	288						1161	47	0	1831			
11:15-12:15						327	0	0	282						1212	46	0	1867			
11:30-12:30						341	0	0	294						1188	49	0	1872			
11:45-12:45						323	0	0	269						1185	50	0	1827			
12:00-1:00						318	0	0	251						1138	46	0	1753			
12:15-1:15						332	0	0	256						1097	33	0	1718			
12:30-1:30						332	0	0	244						1064	32	0	1672			
12:45-1:45						346	0	0	241						1075	33	0	1695			
1:00-2:00						343	0	0	253						1031	33	0	1660			
Sat.	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
11:30-12:30									341	0	0	294	0	0	0	0	0	1188	49	0	1872

Peak Hour
Turning Movement Count



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 322 at US 50

Weather: Clear

Count by: DSS

Count Day/Date: 5/15/2021

County: Talbot County

Weekday Morning Peak Hour (7 am - 9 am)																													
South Washington Street Northbound						South Washington Street Southbound Street #1						South Harrison Street Southbound Street #2						Peachblossom Road Eastbound Street						Idlewild Avenue Westbound					
Time:	Left to PB	Thru to S. Wash.	Right to S. Harrison	Right to Idlewild	Peds	Left to S. Harrison	Left to Idlewild	Thru to S. Wash.	Right to PB	Peds	Left to Idlewild	Left to S. Wash.	Right to PB	Right to S. Wash.	Peds	Left to S. Wash.	Left to S. Harrison	Thru to Idlewild	Right to S. Wash.	Peds	Left to S. Wash.	Thru to PB	Right to S. Wash.	Right to S. Harrison	Peds	Total			
7:00-7:15	13	16	0	2	1	0	6	12	1	0	0	1	4	0	0	2	7	25	5	0	0	31	6	1	1	132			
7:15-7:30	14	15	4	0	0	0	8	13	15	9	0	2	8	0	9	15	11	34	17	0	0	37	5	0	0	198			
7:30-7:45	22	21	2	0	0	0	14	19	18	2	1	0	6	1	2	13	13	38	46	0	1	48	9	2	0	274			
7:45-8:00	14	39	0	2	1	0	8	20	16	1	3	1	8	0	4	12	29	49	27	0	0	40	5	1	0	274			
8:00-8:15	16	29	2	0	0	0	9	14	14	0	2	2	5	0	0	12	30	54	14	0	0	54	14	2	1	273			
8:15-8:30	17	25	2	0	0	0	11	12	8	1	0	0	5	0	1	11	24	55	16	0	0	35	12	1	0	234			
8:30-8:45	13	34	1	0	0	0	7	22	9	2	2	1	4	0	0	15	9	39	16	0	0	41	15	2	0	230			
8:45-9:00	18	24	5	2	0	0	8	19	9	1	1	1	6	0	0	9	11	36	9	0	0	47	10	0	0	215			
Hourly Totals																													
7:00-8:00	63	91	6	4	2	0	36	64	50	12	4	4	26	1	15	42	60	146	95	0	1	156	25	4	1	878			
7:15-8:15	66	104	8	2	1	0	39	66	63	12	6	5	27	1	15	52	83	175	104	0	1	179	33	5	1	1019			
7:30-8:30	69	114	6	2	1	0	42	65	56	4	6	3	24	1	7	48	96	196	103	0	1	177	40	6	1	1055			
7:45-8:45	60	127	5	2	1	0	35	68	47	4	7	4	22	0	5	50	92	197	73	0	0	170	46	6	1	1011			
8:00-9:00	64	112	10	2	0	0	35	67	40	4	5	4	20	0	1	47	74	184	55	0	0	177	51	5	1	952			
AM Peak Hour	Left to PB	Thru to S. Wash.	Right to S. Harrison	Right to Idlewild	Peds	Left to S. Harrison	Left to Idlewild	Thru to S. Wash.	Right to PB	Peds	Left to Idlewild	Left to S. Wash.	Right to PB	Right to S. Wash.	Peds	Left to S. Wash.	Left to S. Harrison	Thru to Idlewild	Right to S. Wash.	Peds	Left to S. Wash.	Thru to PB	Right to S. Wash.	Right to S. Harrison	Peds	Total			
7:30-8:30	69	114	6	2	1	0	42	65	56	4	6	3	24	1	7	48	96	196	103	0	1	177	40	6	1	1055			

Weekday Evening Peak Hour (4 pm - 6 pm)																													
South Washington Street Northbound						South Washington Street Southbound Street #1						South Harrison Street Southbound Street #2						Peachblossom Road Eastbound Street						Idlewild Avenue Westbound					
Time:	Left to PB	Thru to S. Wash.	Right to S. Harrison	Right to Idlewild	Peds	Left to S. Harrison	Left to Idlewild	Thru to S. Wash.	Right to PB	Peds	Left to Idlewild	Left to S. Wash.	Right to PB	Right to S. Wash.	Peds	Left to S. Wash.	Left to S. Harrison	Thru to Idlewild	Right to S. Wash.	Peds	Left to S. Wash.	Thru to PB	Right to S. Wash.	Right to S. Harrison	Peds	Total			
4:00-4:15	28	18	2	0	1	0	12	37	17	0	0	6	5	2	3	7	9	41	48	0	1	50	16	1	0	300			
4:15-4:30	17	17	3	1	2	0	13	32	13	1	1	4	11	0	1	5	10	31	34	0	0	57	9	1	1	259			
4:30-4:45	27	22	0	0	0	0	12	45	17	0	0	7	9	0	2	5	14	42	28	2	2	49	15	1	0	295			
4:45-5:00	24	14	2	0	0	0	7	26	19	1	1	2	13	0	0	7	4	30	36	0	1	54	10	4	0	254			
5:00-5:15	32	23	1	2	0	0	10	45	24	0	2	2	6	1	0	8	3	21	25	0	2	54	8	0	3	269			
5:15-5:30	14	19	0	1	1	0	4	33	14	0	1	2	6	1	0	16	9	34	55	1	0	46	7	0	0	262			
5:30-5:45	26	16	4	1	2	0	6	29	17	2	1	3	6	0	1	5	13	15	25	1	1	59	15	2	2	244			
5:45-6:00	35	14	3	2	0	0	7	25	11	2	1	1	7	0	2	9	9	23	25	0	0	32	5	2	2	211			
Hourly Totals																													
4:00-5:00	96	71	7	1	3	0	44	140	66	2	2	19	38	2	6	24	37	144	146	2	4	210	50	7	1	1108			
4:15-5:15	100	76	6	3	2	0	42	148	73	2	4	15	39	1	3	25	31	124	123	2	5	214	42	6	4	1077			
4:30-5:30	97	78	3	3	1	0	33	149	74	1	4	13	34	2	2	36	30	127	144	3	5	203	40	5	3	1080			
4:45-5:45	96	72	7	4	3	0	27	133	74	3	5	9	31	2	1	36	29	100	141	2	4	213	40	6	5	1029			
5:00-6:00	107	72	8	6	3	0	27	132	66	4	5	8	25	2	3	38	34	93	130	2	3	191	35	4	7	986			
PM Peak Hour	Left to PB	Thru to S. Wash.	Right to S. Harrison	Right to Idlewild	Peds	Left to S. Harrison	Left to Idlewild	Thru to S. Wash.	Right to PB	Peds	Left to Idlewild	Left to S. Wash.	Right to PB	Right to S. Wash.	Peds	Left to S. Wash.	Left to S. Harrison	Thru to Idlewild	Right to S. Wash.	Peds	Left to S. Wash.	Thru to PB	Right to S. Wash.	Right to S. Harrison	Peds	Total			
4:00-5:00	96	71	7	1	3	0	44	140	66	2	2	19	38	2	6	24	37	144	146	2	4	210	50	7	1	1108			

Peak Hour		Intersection: Peachblossom Road at SWashington Street
Turning Movement Count		Weather: Clear
		Count by: DSS
		Count Day/Date: Thursday, May 13, 2021
		County: Talbot

Peak Hour
Turning Movement Count



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: Peachblossom Road at S Washington Street
Weather: Clear
Count by: DSS
Count Day/Date: Thursday, May 13, 2021
County: Talbot

Weekend Peak Hour (10:00 am - 2:00 PM)																											
Time:	South Washington Street Northbound					South Washington Street Southbound Street #1					South Harrison Street Southbound Street #2					Peachblossom Road Eastbound Street					Idlewild Avenue Westbound						Total
	Left to PB	Thru to S. Wash.	Right to S. Harrison	Right to Idlewild	Peds	Left to S. Harrison	Left to Idlewild	Thru to S. Wash.	Right to PB	Peds	Left to Idlewild	Left to S. Wash.	Right to PB	Right to S. Wash.	Peds	Left to S. Wash.	Left to S. Harrison	Thru to Idlewild	Right to S. Wash.	Peds	Left to S. Wash.	Thru to PB	Right to S. Wash.	Right to S. Harrison	Peds		
10:00-10:15	25	19	4	2	0	0	6	25	16	2	3	4	8	1	1	6	10	27	20	0	0	35	11	3	1	225	
10:15-10:30	18	19	3	4	0	0	5	17	7	0	1	2	2	0	0	8	10	24	25	0	2	19	8	0	0	174	
10:30-10:45	14	27	5	1	3	0	5	26	13	0	1	4	4	0	1	6	11	23	12	2	3	25	7	2	1	189	
10:45-11:00	18	23	2	1	1	0	4	28	11	1	1	4	10	1	1	16	15	31	26	2	2	27	11	1	1	232	
11:00-11:15	23	15	1	1	0	0	6	15	6	1	1	0	6	0	2	8	15	27	35	0	2	28	8	4	2	201	
11:15-11:30	19	17	4	3	0	1	10	26	13	0	0	2	6	0	0	5	14	27	14	0	1	29	7	1	0	199	
11:30-11:45	17	27	2	2	0	0	9	20	17	1	0	5	5	0	1	12	11	31	19	2	2	33	6	2	2	220	
11:45-12:00	16	28	5	1	1	0	4	21	10	1	1	3	5	0	1	12	21	20	18	0	1	30	11	0	0	207	
12:00-12:15	19	19	3	3	0	0	6	25	13	0	2	3	11	1	0	5	13	26	21	0	2	29	7	2	0	210	
12:15-12:30	22	8	3	2	0	0	2	13	12	0	3	2	5	1	0	13	13	29	26	1	2	28	4	1	0	189	
12:30-12:45	18	20	2	2	3	0	7	25	16	1	1	2	4	1	0	12	9	30	22	0	3	31	6	2	3	213	
12:45-1:00	16	17	5	5	0	1	5	16	8	0	1	2	13	0	0	7	11	30	21	0	2	25	5	4	0	194	
1:00-1:15	22	11	0	2	1	1	5	32	20	0	5	2	7	0	0	11	7	24	14	0	3	25	7	1	0	199	
1:15-1:30	24	13	2	6	0	0	7	24	7	2	0	5	2	0	0	7	7	28	15	0	3	33	4	1	2	188	
1:30-1:45	13	16	3	1	0	0	5	23	13	0	0	2	6	0	0	8	10	18	18	2	1	27	3	3	1	170	
1:45-2:00	9	15	0	0	1	0	6	25	5	1	1	3	6	0	2	10	9	21	17	0	3	25	5	0	0	160	
Hourly Totals																											
10:00-11:00	75	88	14	8	4	0	20	96	47	3	6	14	24	2	3	36	46	105	83	4	7	106	37	6	3	820	
10:15-11:15	73	84	11	7	4	0	20	86	37	2	4	10	22	1	4	38	51	105	98	4	9	99	34	7	4	796	
10:30-11:30	74	82	12	6	4	1	25	95	43	2	3	10	26	1	4	35	55	108	87	4	8	109	33	8	4	821	
10:45-11:45	77	82	9	7	1	1	29	89	47	3	2	11	27	1	4	41	55	116	94	4	7	117	32	8	5	852	
11:00-12:00	75	87	12	7	1	1	29	82	46	3	2	10	22	0	4	37	61	105	86	2	6	120	32	7	4	827	
11:15-12:15	71	91	14	9	1	1	29	92	53	2	3	13	27	1	2	34	59	104	72	2	6	121	31	5	2	836	
11:30-12:30	74	82	13	8	1	0	21	79	52	2	6	13	26	2	2	42	58	106	84	3	7	120	28	5	2	826	
11:45-12:45	75	75	13	8	4	0	19	84	51	2	7	10	25	3	1	42	56	105	87	1	8	118	28	5	3	819	
12:00-1:00	75	64	13	12	3	1	20	79	49	1	7	9	33	3	0	37	46	115	90	1	9	113	22	9	3	806	
12:15-1:15	78	56	10	11	4	2	19	86	56	1	10	8	29	2	0	43	40	113	83	1	10	109	22	8	3	795	
12:30-1:30	80	61	9	15	4	2	24	97	51	3	7	11	26	1	0	37	34	112	72	0	11	114	22	8	5	794	
12:45-1:45	75	57	10	14	1	2	22	95	48	2	6	11	28	0	0	33	35	100	68	2	9	110	19	9	3	751	
1:00-2:00	68	55	5	9	2	1	23	104	45	3	6	12	21	0	2	36	33	91	64	2	10	110	19	5	3	717	
Sat. Peak Hour 10:45-11:45	Northbound					Peds	Southbound Street #1				Peds	Southbound Street #2				Peds	Eastbound				Peds	Westbound				Total	
	Left to PB	Thru to S. Wash.	Right to S. Harrison	Right to Idlewild	Left to S. Harrison		Left to Idlewild	Thru to S. Wash.	Right to PB	Left to Idlewild		Left to S. Wash.	Right to PB	Right to S. Wash.	Left to S. Wash.		Left to S. Harrison	Thru to Idlewild	Right to S. Wash.	Left to S. Wash.		Thru to PB	Right to S. Wash.	Right to S. Harrison			
	77	82	9	7	1	1	29	89	47	3	2	11	27	1	4	41	55	116	94	4	7	117	32	8	5	852	

Peak Hour

Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: Peachblossom Road at S Washington Street

Weather: Clear

Count by: DSS

Count Day/Date: Saturday, May 15, 2021

County: Talbot

Appendix B

Internal Capture Calculations

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Poplar Hill			Organization:	Lenhart Traffic Consulting
Project Location:	Easton, MD			Performed By:	RMW
Scenario Description:				Date:	13-Oct-22
Analysis Year:	2027			Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	ITE-710	63,700		86	74	12
Retail	ITE-820	40,000		172	107	65
Restaurant				0		
Cinema/Entertainment				0		
Residential	Various		457	218	53	165
Hotel				0		
All Other Land Uses ²				0		
Total				476	234	242

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment						
Residential	1.00	0%	0%	1.00	0%	0%
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	0	0	0	0
Retail	3		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	2	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	476	234	242
Internal Capture Percentage	5%	5%	5%
External Vehicle-Trips ³	454	223	231
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	7%	25%
Retail	5%	6%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Informational Report</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
³ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
⁴ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Poplar Hill
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	74	74	1.00	12	12
Retail	1.00	107	107	1.00	65	65
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	53	53	1.00	165	165
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	8	0	0	0
Retail	19		8	0	9	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	2	33	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		34	0	0	0	0
Retail	3		0	0	1	0
Restaurant	10	9		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	18	0	0		0
Hotel	2	4	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	5	69	74	69	0	0
Retail	5	102	107	102	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	52	53	52	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	3	9	12	9	0	0
Retail	4	61	65	61	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	161	165	161	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Poplar Hill			Organization:	Lenhart Traffic Consulting
Project Location:	Easton, MD			Performed By:	RMW
Scenario Description:				Date:	10/13/2022
Analysis Year:	2027			Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	ITE-710	63,700		74	12	62
Retail	ITE-820	40,000		276	132	144
Restaurant				0		
Cinema/Entertainment				0		
Residential	Various		457	279	174	105
Hotel				0		
All Other Land Uses ²				0		
Total				629	318	311

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment						
Residential	1.00	0%	0%	1.00	0%	0%
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		925			1800	
Retail					1300	
Restaurant						
Cinema/Entertainment						
Residential		1300				
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	0	0	1	0
Retail	3		0	0	31	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	9	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	629	318	311
Internal Capture Percentage	18%	18%	18%
External Vehicle-Trips ³	517	262	255
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	58%	15%
Retail	13%	24%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	18%	12%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Poplar Hill
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	12	12	1.00	62	62
Retail	1.00	132	132	1.00	144	144
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	174	174	1.00	105	105
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		10	2	0	1	0
Retail	3		42	6	31	7
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	30	22	0		3
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	0	0	7	0
Retail	4		0	0	80	0
Restaurant	4	66		0	28	0
Cinema/Entertainment	1	5	0		7	0
Residential	7	9	0	0		0
Hotel	0	3	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	7	5	12	5	0	0
Retail	17	115	132	115	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	32	142	174	142	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	9	53	62	53	0	0
Retail	34	110	144	110	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	13	92	105	92	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Poplar Hill			Organization:	Lenhart Traffic Consulting
Project Location:	Easton, MD			Performed By:	RMW
Scenario Description:				Date:	10/13/2022
Analysis Year:	2027			Checked By:	
Analysis Period:	Saturday Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	ITE-710	63,700		34	18	16
Retail	ITE-820	40,000		300	156	144
Restaurant				0		
Cinema/Entertainment				0		
Residential	Various		457	321	164	157
Hotel				0		
All Other Land Uses ²				0		
Total				655	338	317

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment						
Residential	1.00	0%	0%	1.00	0%	0%
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		925			1800	
Retail					1300	
Restaurant						
Cinema/Entertainment						
Residential		1300				
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	0	0	0	0
Retail	3		0	0	31	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	6	10	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	655	338	317
Internal Capture Percentage	16%	16%	17%
External Vehicle-Trips ³	549	285	264
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	50%	19%
Retail	8%	24%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	19%	10%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Poplar Hill
Analysis Period:	Saturday Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	18	18	1.00	16	16
Retail	1.00	156	156	1.00	144	144
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	164	164	1.00	157	157
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	1	0	0	0
Retail	3		42	6	31	7
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	6	44	33	0		5
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		10	0	0	7	0
Retail	6		0	0	75	0
Restaurant	5	78		0	26	0
Cinema/Entertainment	1	6	0		7	0
Residential	10	10	0	0		0
Hotel	0	3	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	9	9	18	9	0	0
Retail	13	143	156	143	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	31	133	164	133	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	3	13	16	13	0	0
Retail	34	110	144	110	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	16	141	157	141	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Table 7.1a Adjusted Internal Trip Capture Rates for Trip Origins within a Multi-Use Development			
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Office	0.0%	0.0%
	To Retail	28.0%	15.7%
	To Restaurant	63.0%	4.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	1.0%	1.4%
	To Hotel	0.0%	0.0%
From RETAIL	To Office	29.0%	2.0%
	To Retail	0.0%	0.0%
	To Restaurant	13.0%	29.0%
	To Cinema/Entertainment	0.0%	4.0%
	To Residential	14.0%	21.8%
	To Hotel	0.0%	5.0%
From RESTAURANT	To Office	31.0%	3.0%
	To Retail	14.0%	41.0%
	To Restaurant	0.0%	0.0%
	To Cinema/Entertainment	0.0%	8.0%
	To Residential	4.0%	18.0%
	To Hotel	3.0%	7.0%
From CINEMA/ENTERTAINMENT	To Office	0.0%	2.0%
	To Retail	0.0%	21.0%
	To Restaurant	0.0%	31.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	8.0%
	To Hotel	0.0%	2.0%
From RESIDENTIAL	To Office	2.0%	4.0%
	To Retail	1.0%	28.1%
	To Restaurant	20.0%	21.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	0.0%
	To Hotel	0.0%	3.0%
From HOTEL	To Office	75.0%	0.0%
	To Retail	14.0%	16.0%
	To Restaurant	9.0%	68.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	2.0%
	To Hotel	0.0%	0.0%

Table 7.2a Adjusted Internal Trip Capture Rates for Trip Destinations within a Multi-Use Development

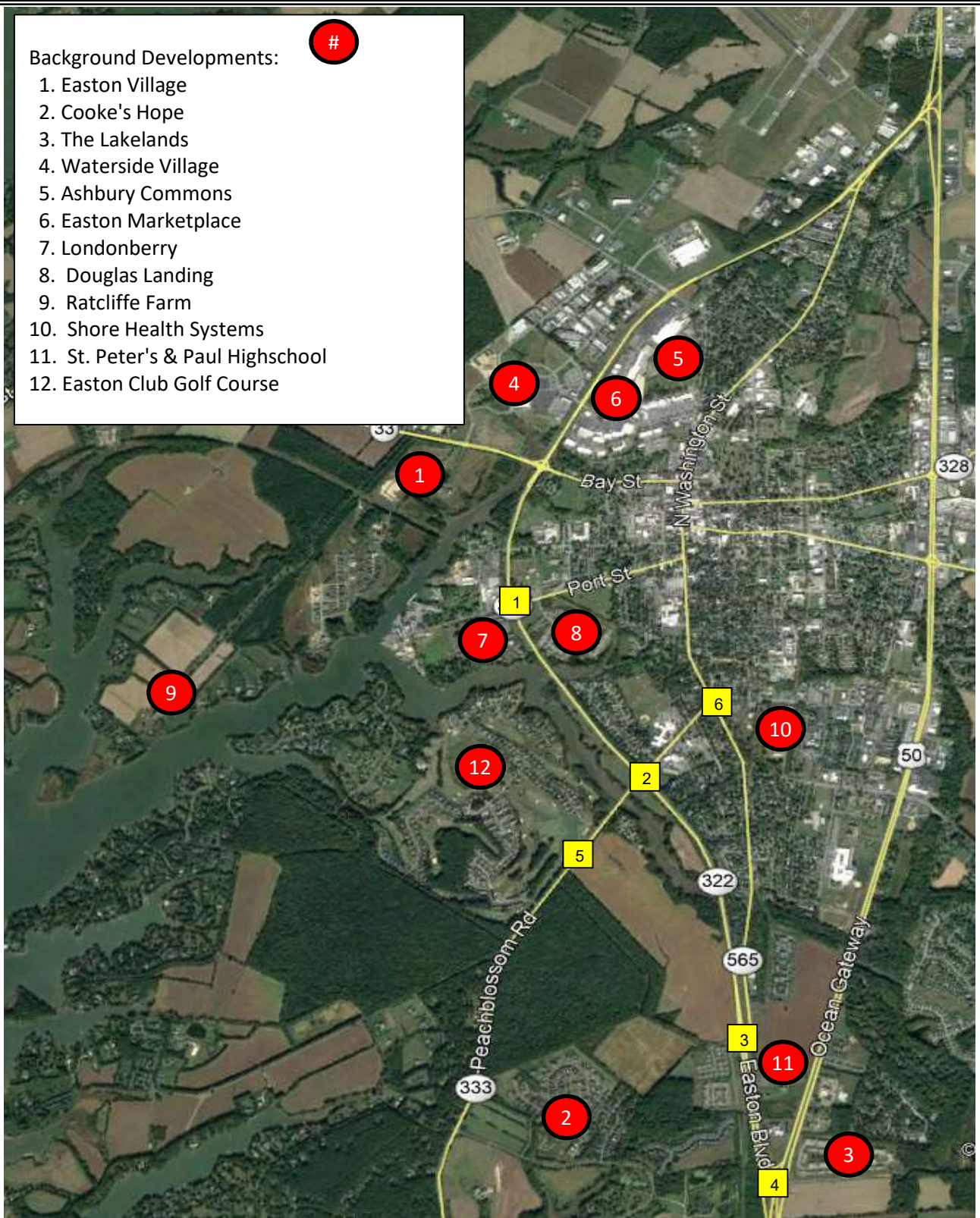
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Office	0.0%	0.0%
	From Retail	4.0%	31.0%
	From Restaurant	14.0%	30.0%
	From Cinema/Entertainment	0.0%	6.0%
	From Residential	3.0%	57.0%
	From Hotel	3.0%	0.0%
To RETAIL	From Office	32.0%	6.3%
	From Retail	0.0%	0.0%
	From Restaurant	8.0%	50.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	17.0%	6.7%
	From Hotel	4.0%	2.0%
To RESTAURANT	From Office	23.0%	2.0%
	From Retail	50.0%	29.0%
	From Restaurant	0.0%	0.0%
	From Cinema/Entertainment	0.0%	3.0%
	From Residential	20.0%	14.0%
	From Hotel	6.0%	5.0%
To CINEMA/ENTERTAINMENT	From Office	0.0%	1.0%
	From Retail	0.0%	26.0%
	From Restaurant	0.0%	32.0%
	From Cinema/Entertainment	0.0%	0.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To RESIDENTIAL	From Office	0.0%	4.0%
	From Retail	2.0%	46.0%
	From Restaurant	5.0%	16.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To HOTEL	From Office	0.0%	0.0%
	From Retail	0.0%	17.0%
	From Restaurant	4.0%	71.0%
	From Cinema/Entertainment	0.0%	1.0%
	From Residential	0.0%	12.0%
	From Hotel	0.0%	0.0%

Appendix C

Background Developments

Background Developments:

1. Easton Village
2. Cooke's Hope
3. The Lakelands
4. Waterside Village
5. Ashbury Commons
6. Easton Marketplace
7. Londonberry
8. Douglas Landing
9. Ratcliffe Farm
10. Shore Health Systems
11. St. Peter's & Paul Highschool
12. Easton Club Golf Course



Traffic Impact Analysis

Location of
Background Devs.

**Exhibit
C1**



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Trip Generation Rates

Single-Family Detached (ITE-210, Units)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 0.74 x Units	25/75
	Evening Trips = 0.99 x Units	63/37
	Midday Sat. Trips = 0.93 x Units	54/46
High Turnover (Sit-Down) Rest. (ksf, ITE-932)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 9.94 x ksf	55/45
	Evening Trips = 9.77 x ksf	62/38
	Midday Sat. Trips = 11.19 x ksf	51/49
Multifamily Housing, Mid-Rise (ITE-221 Urban/Suburban, Units)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 0.36 x Units	26/74
	Evening Trips = 0.44 x Units	61/39
	Midday Sat. Trips = 0.44 x Units	49/51
Shopping Center (General Urban/Suburban, ksf, ITE-820)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 0.94 x ksf	62/38
	Evening Trips = 3.81 x ksf	48/52
	Midday Sat. Trips = 4.50 x ksf	52/48
Multifamily Housing, Low-Rise (ITE-220, Units)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 0.46 x Units	23/77
	Evening Trips = 0.56 x Units	63/37
	Midday Sat. Trips = 0.70 x Units	50/50
Pharmacy/Drugstore w/Drive Thru (ksf, ITE-881)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 3.84 x ksf	52/48
	Evening Trips = 10.29 x ksf	50/50
	Midday Sat. Trips = 8.75 x ksf	49/51
Private School (K-12) (Students, ITE-536)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 0.80 x Students	61/39
	Evening Trips = 0.17 x Students	43/57
	Midday Sat. Trips - Not Applicable	--
Soccer Complex (fields, ITE-488)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 0.99 x fields	61/39
	Evening Trips = 16.43 x fields	66/34
	Midday Sat. Trips = 40.10 x fields	48/52
Church (ksf, ITE-560)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 0.33 x ksf	60/40
	Evening Trips = 0.49 x ksf	45/55
	Midday Sat. Trips = 2.78 x ksf	59/41
General Office (ksf, ITE-710)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 0.94 x (ksf) + 26.49	86/14
	Ln(Evening Trips) = 0.95 x Ln(ksf) + 0.36	16/84
	Midday Sat. Trips = 0.53 x ksf	54/46
Golf Course (holes, ITE-430)		<u>Trip Distribution (In/Out)</u>
	Morning Trips = 1.76 x holes	79/21
	Evening Trips = 2.91 x holes	53/47
	Midday Sat. Trips = 3.03 x holes	49/51

Traffic Impact Analysis

ITE Formulas Utilized
for Background Developments

**Exhibit
C2**

Trip Generation for Background Developments

			AM Peak			PM Peak			Sat Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
1 - Easton Village	250 Single-Family Units Less 107 Built	143 units remaining	26	80	106	89	53	142	72	61	133
2 - Cookes Hope	288 Single-Family Units Less 185 Built	103 units remaining	19	57	76	64	38	102	52	44	96
3 - The Lakelands	158 Townhouse Units (All Built)	0 units remaining	Built								
4. Waterside Village	Phase 1 - 203,878 SF of Retail (All Built)	0 square feet remaining	Built								
	Phase 1 - 38,157 SF of Office (All Built)	0 square feet remaining	Built								
	Phase 1 - 24,901 SF of Restaurant (Approx. 50% Built)	12,451 square feet remaining	68	56	124	76	46	122	71	68	139
	Pass-by Trips for Phase 1 Restaurant (0% AM, 49% PM, 49% Saturday):		0	0	0	-37	-23	-60	-35	-33	-68
	Primary Off-Site Trips for Phase 1 Restaurant:		68	56	124	39	23	62	36	35	71
	Phase 1 - 3,651 SF of Bank (All Built)	0 square feet remaining	Built								
	Phase 2A - 40,000 SF of Retail (All Built)	0 square feet remaining	Built								
	Phase 2B - 60 Mid-rise Multifamily Units (Not Built)	60 units	6	16	22	16	10	26	13	13	26
	Phase 2C - 37,500 SF of Retail (Not Built)	37,500 square feet	22	13	35	69	74	143	88	81	169
	Pass-by Trips for Phase 2C Retail (0% AM, 34% PM, 34% Saturday):		0	0	0	-23	-25	-48	-30	-28	-58
	Primary Off-Site Trips for Phase 2 Retail:		22	13	35	46	49	95	58	53	111
	Phase 2D - 81,500 SF of Retail Less 76,500 SF Built	5,000 square feet remaining	3	2	5	9	10	19	12	11	23
	Pass-by Trips for Phase 2D Retail (0% AM, 34% PM, 34% Saturday):		0	0	0	-3	-3	-6	-4	-4	-8
	Primary Off-Site Trips for Phase 2D Retail:		3	2	5	6	7	13	8	7	15
5. Ashbury Commons	64 Townhouse Units Less 40 Built	24 units remaining	3	8	11	8	5	13	8	9	17
	26 Single-Family Units Less 13 built	13 units remaining	2	8	10	8	5	13	6	6	12
6. Easton Marketplace	15,000 SF Pharmacy (Not Built)	15,000 square feet	31	27	58	77	77	154	64	67	131
	Pass-by Trips for Pharmacy (0% AM, 53% PM, 53% Saturday):		0	0	0	-41	-41	-82	-34	-36	-70
	Primary Off-Site Trips for Pharmacy:		31	27	58	36	36	72	30	31	61
7. Londonberry	41 Single-Family Units Less 38 Built	3 units remaining	0	2	2	2	1	3	2	1	3
8. Douglas Landing	91 Townhouse Units Less 64 Built	27 units remaining	3	9	12	9	6	15	9	10	19
	48 Single-Family Units Less 43 built	5 units remaining	1	3	4	3	2	5	3	2	5
9 - Ratcliffe Farm	15 Single-Family Units (All Built)	0 units remaining	Built								
10 - Shore Health Systems Medical Campus	352,000 SF of Hospital (All Built)	0 square feet remaining	Built								
	500 Student Private School	500 students	244	156	400	37	48	85	0	0	0
11. St. Peters and Paul	6 Field Soccer Complex	6 fields	4	2	6	65	34	99	116	125	241
	18,000 SF Family Life Center	18,000 square feet	4	2	6	4	5	9	29	21	50
12. Easton Club Golf Course	18 Hole Golf Course	18 holes	25	7	32	28	24	52	27	28	55
Total Primary Trips for All Background Developments:			516	457	973	468	386	854	480	456	936

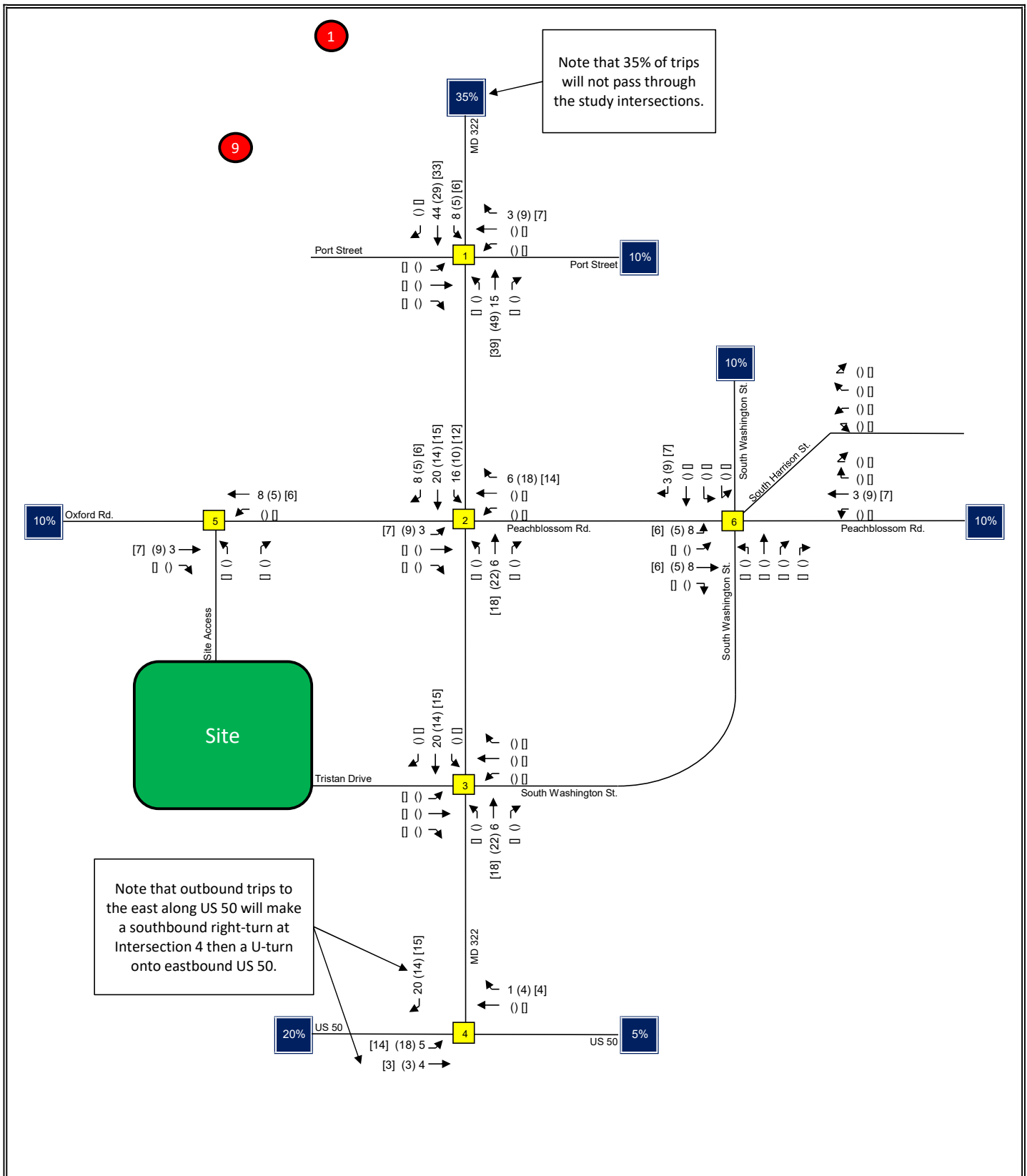
NOTES:

Trip Generation for Background Developments

**Exhibit
C3**

Traffic Impact Analysis

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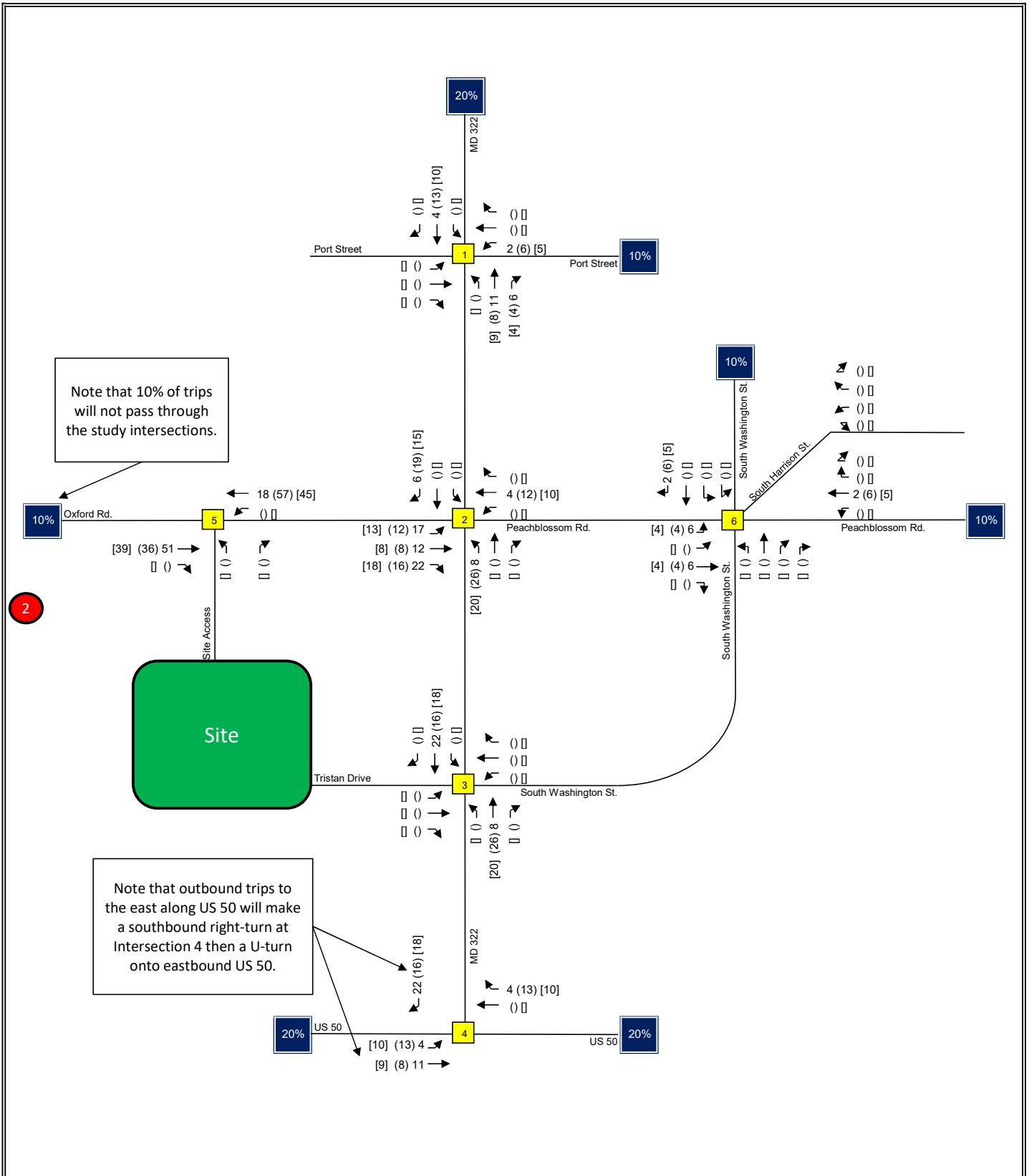
Traffic Impact Analysis

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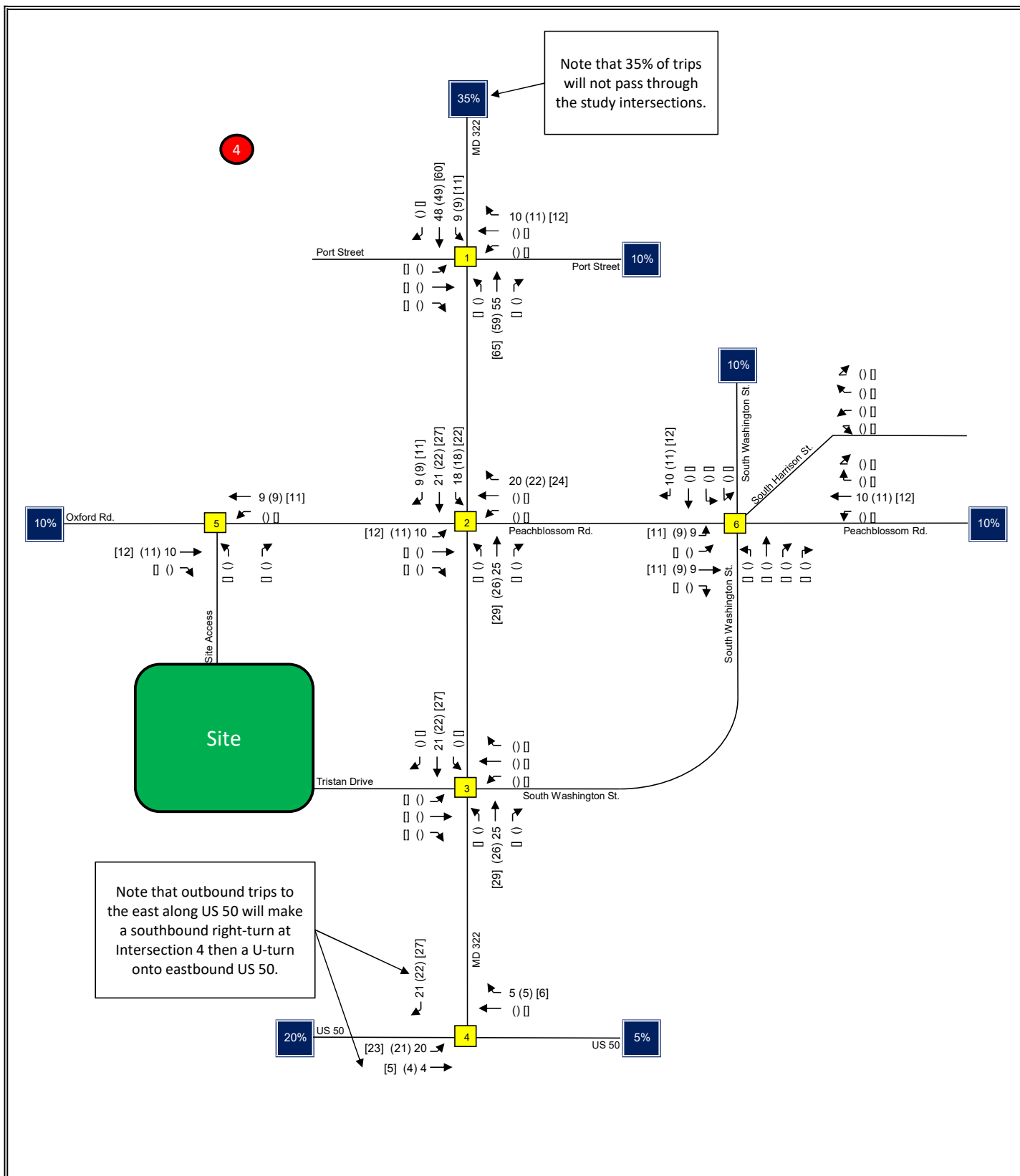
Trip Assignment for Background Developments 1 and 9

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's

Exhibit C4



Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Trip Assignment for Background Development 2 Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit C5
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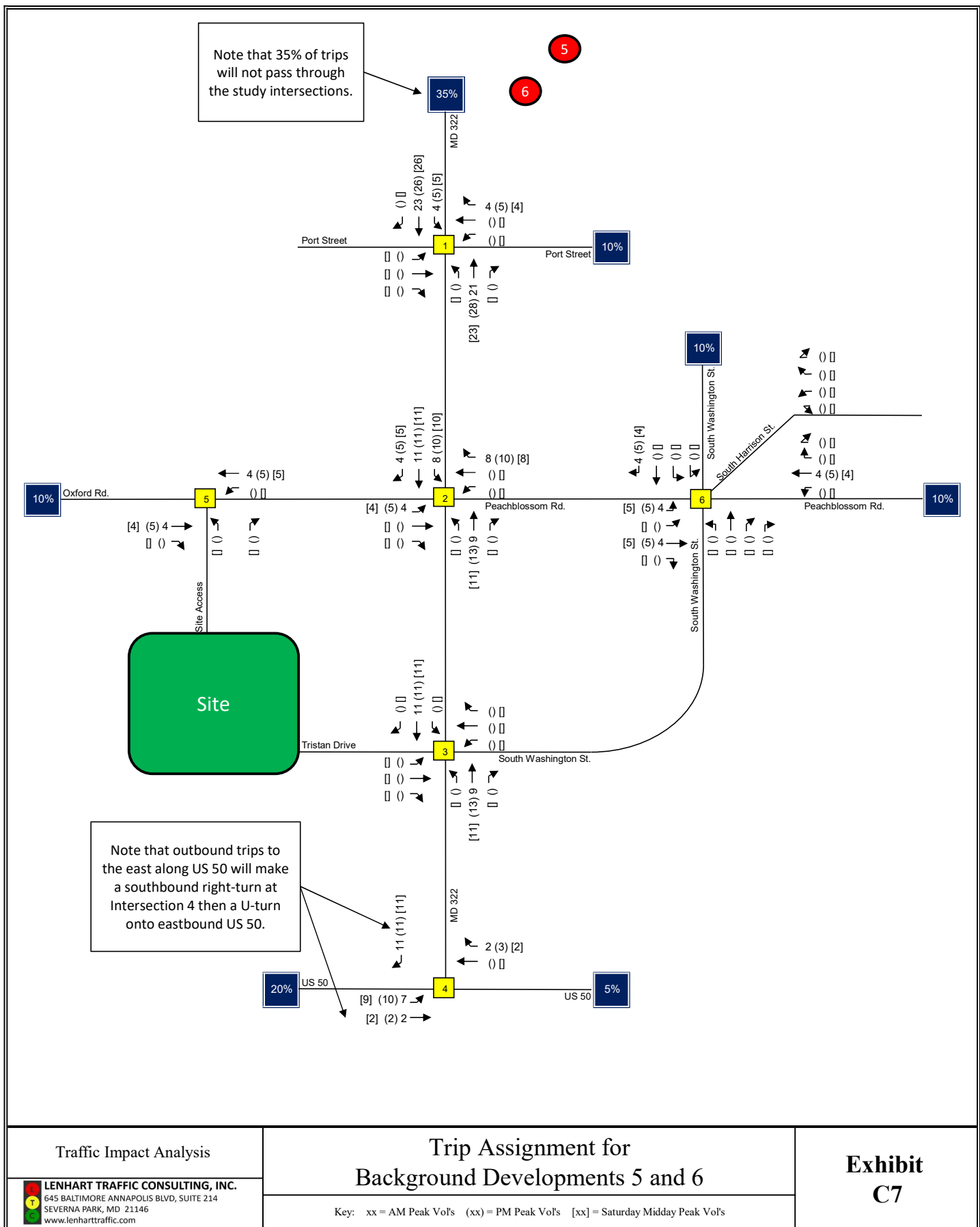
Traffic Impact Analysis

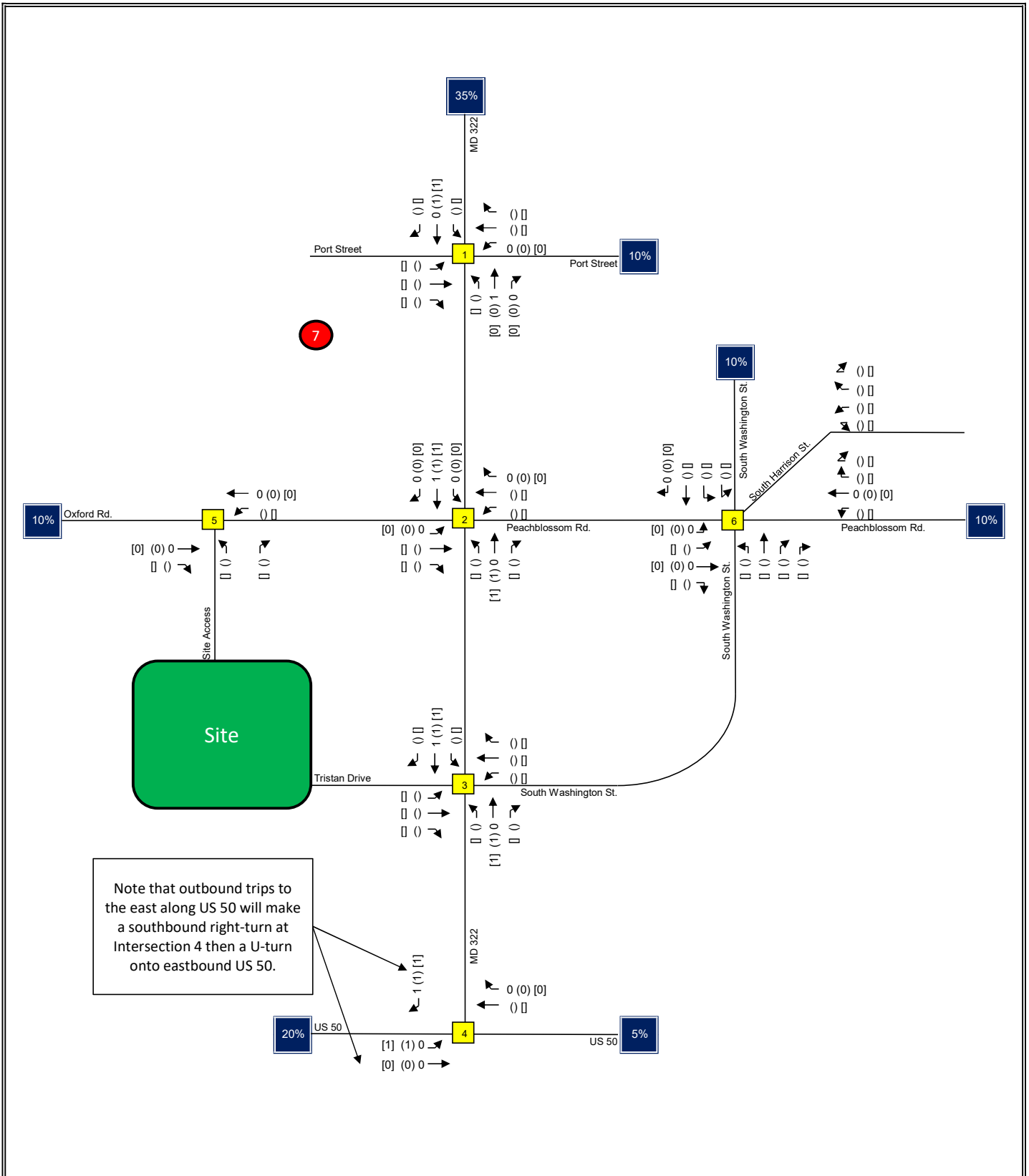
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Trip Assignment for Background Development 4

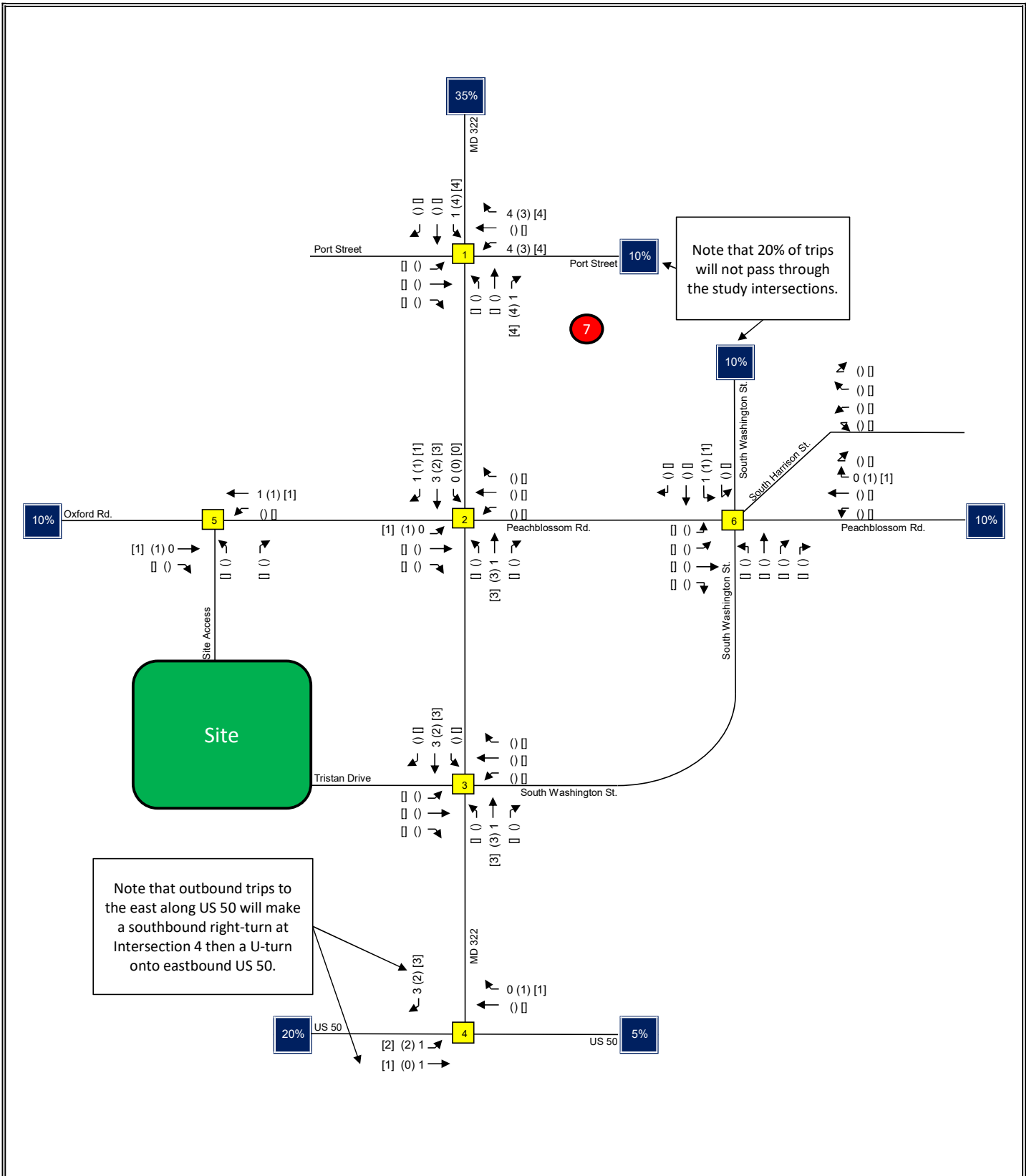
Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's

**Exhibit
C6**

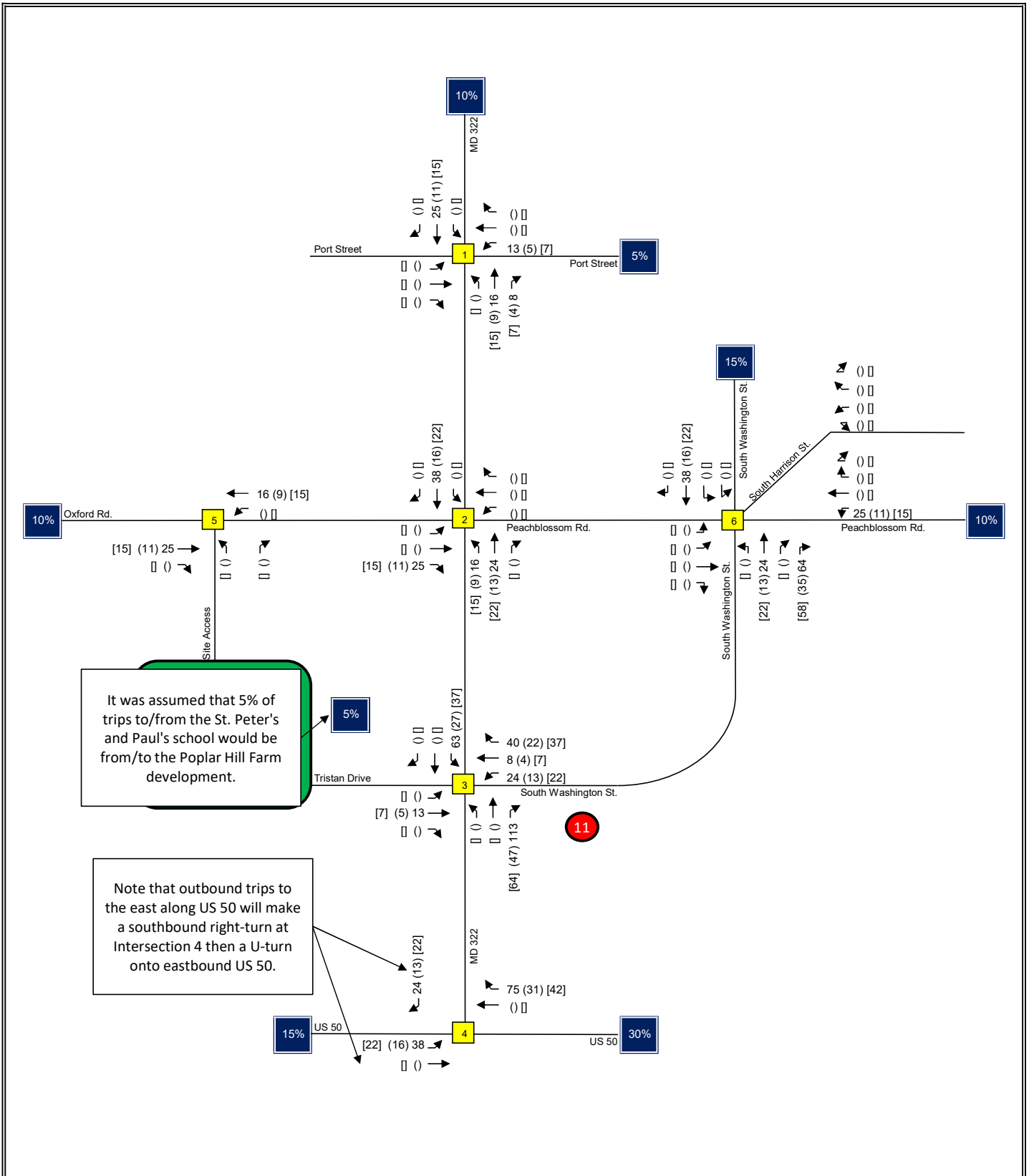




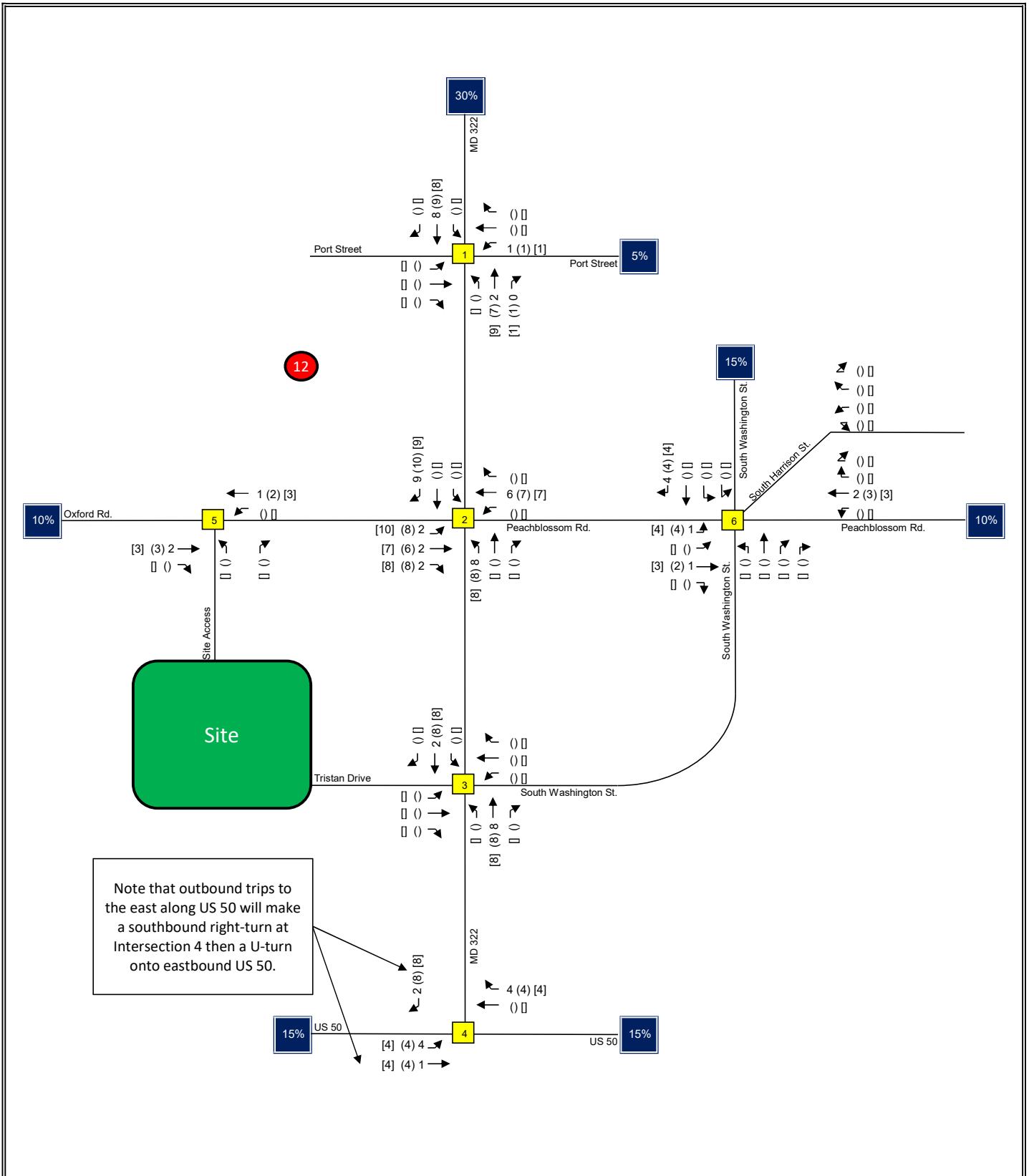
Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Trip Assignment for Background Development 7 Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Saturday Midday Peak Vol's	Exhibit C8
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Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Trip Assignment for Background Development 12	Exhibit C11
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Appendix D

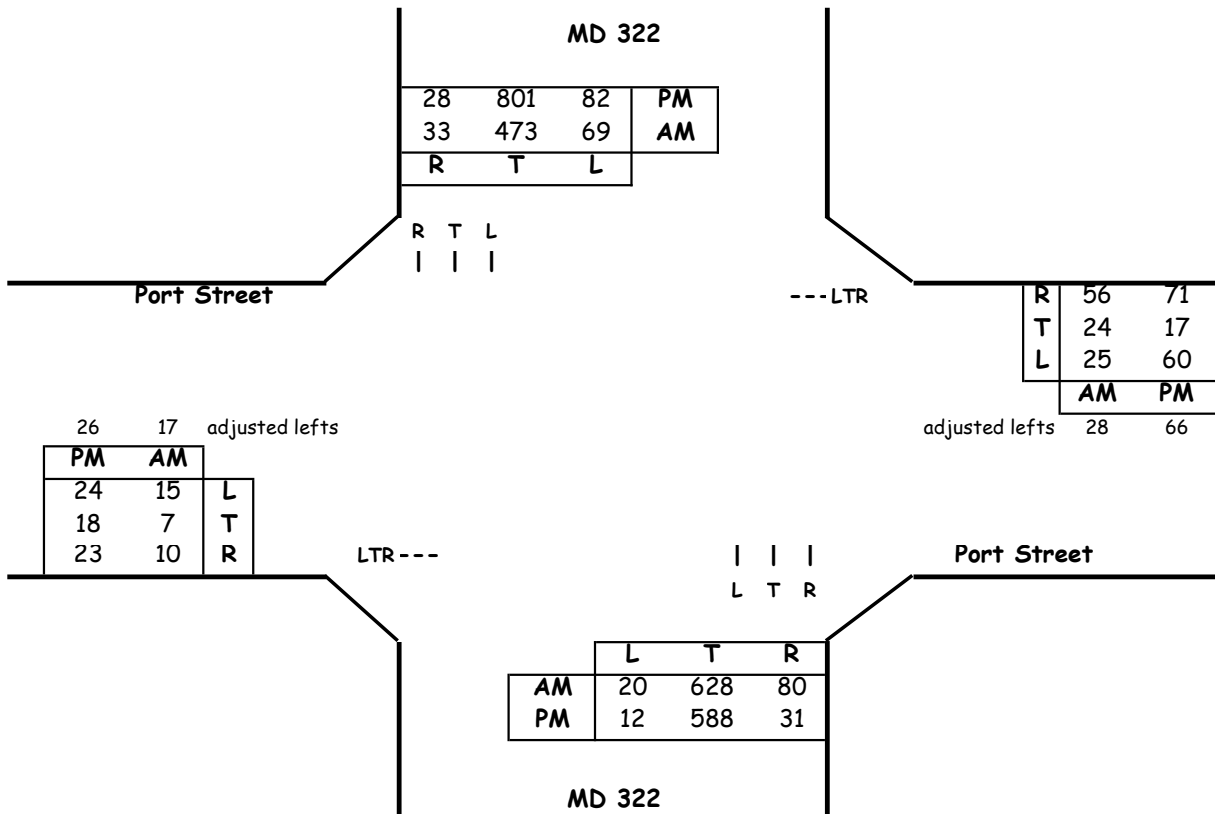
CLV Worksheets

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: Port Street
Study Period: EXISTING TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	628	1.00	628	69	1	69
SB	473	1.00	473	20	1	20
EB	34	1	34	25	1	25
WB	108	1	108	15	1	15
CLV TOTAL=						820
Level of Service (LOS) =						A

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	588	1.00	588	82	1	82
SB	801	1.00	801	12	1	12
EB	67	1	67	60	1	60
WB	154	1	154	24	1	24
CLV TOTAL=						991
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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MD 322 &
Port Street
(EXISTING TRAFFIC)

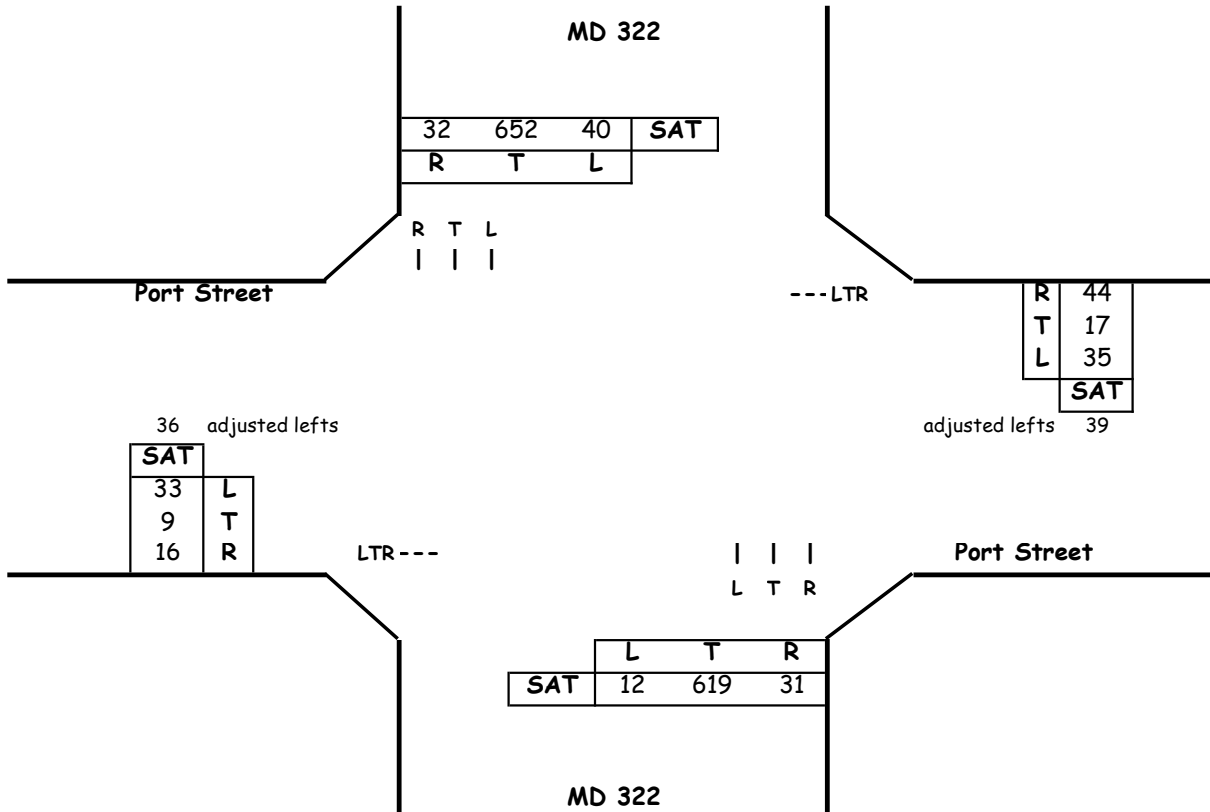
Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: Port Street
Study Period: EXISTING TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	619	1.00	619	40	1	40
SB	652	1.00	652	12	1	12
EB	61	1	61	35	1	35
WB	100	1	100	33	1	33
CLV TOTAL=						797
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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**MD 322 &
Port Street**
(EXISTING TRAFFIC)

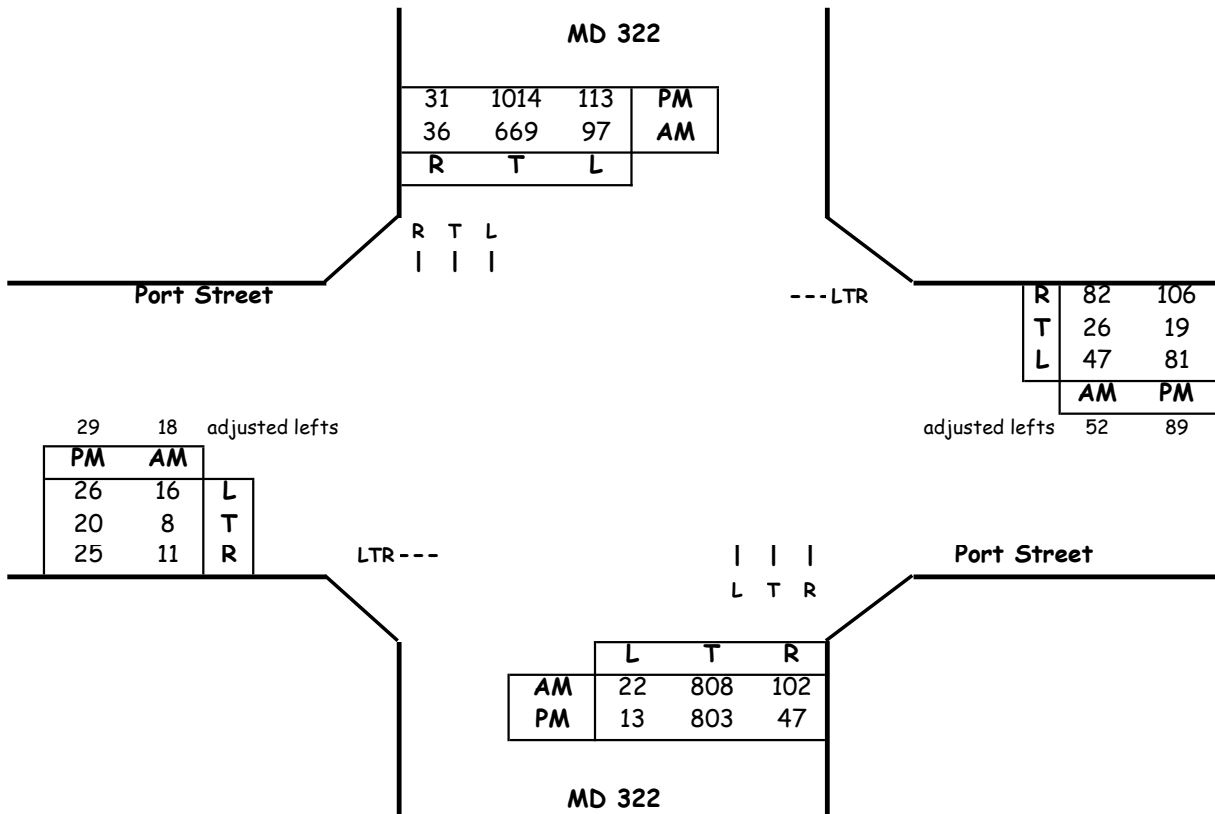
**Intersection
1**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: Port Street
Study Period: BACKGROUND TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			AM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	808	1.00	808	97	1	97	905
SB	669	1.00	669	22	1	22	
EB	37	1	37	47	1	47	176
WB	160	1	160	16	1	16	
CLV TOTAL=							1081
Level of Service (LOS) =							B

Evening Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			PM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	803	1.00	803	113	1	113	1027
SB	1014	1.00	1014	13	1	13	
EB	74	1	74	81	1	81	240
WB	214	1	214	26	1	26	
CLV TOTAL=							1267
Level of Service (LOS) =							C

Critical Lane Volume Analysis



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MD 322 &
Port Street
(BACKGROUND TRAFFIC)

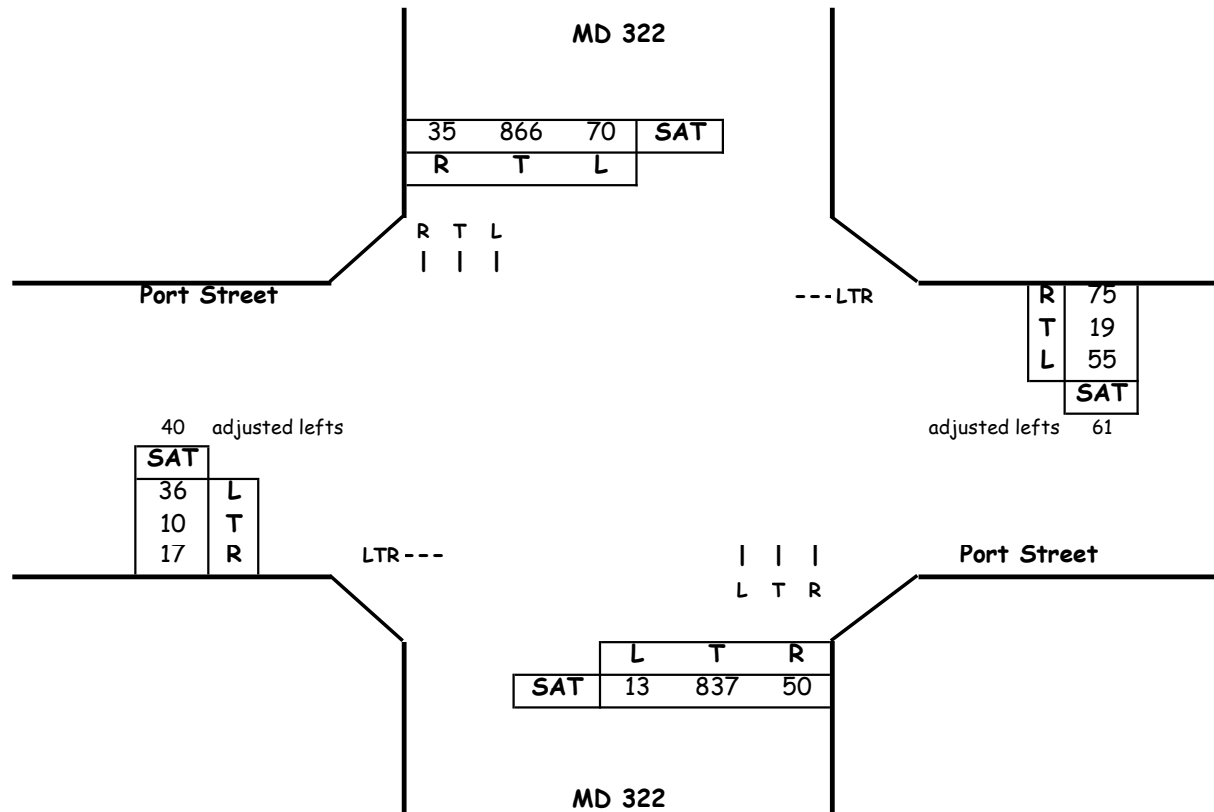
Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: Port Street
Study Period: BACKGROUND TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	837	1.00	837	70	1	70
SB	866	1.00	866	13	1	13
EB	67	1	67	55	1	55
WB	155	1	155	36	1	36
CLV TOTAL=						1098
Level of Service (LOS) =						B

Critical Lane Volume Analysis



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MD 322 &
Port Street
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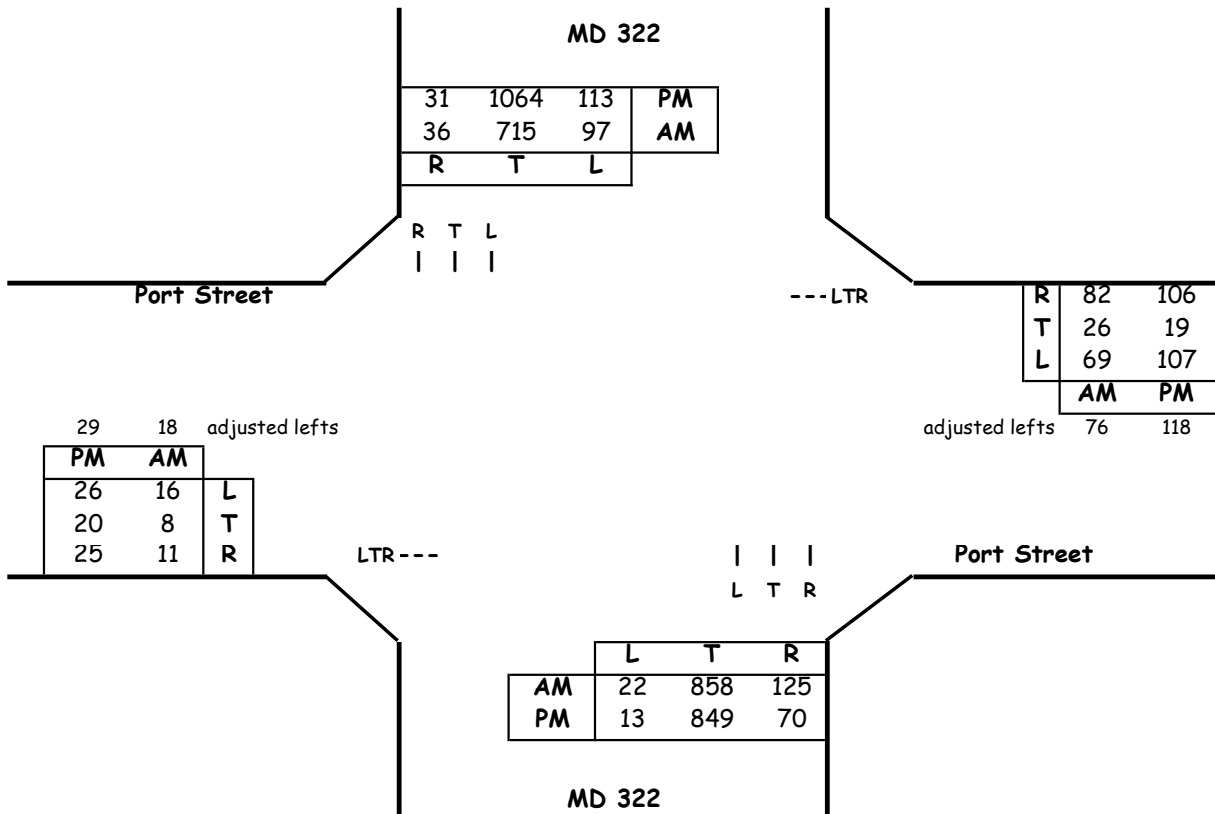
Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: Port Street
Study Period: TOTAL TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour									
Dir	Thru Volumes			+ Opposing Lefts			AM		
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV		
NB	858	1.00	858	97	1	97	955		
SB	715	1.00	715	22	1	22			
EB	37	1	37	69	1	69	200		
WB	184	1	184	16	1	16			
CLV TOTAL=							1155		
Level of Service (LOS) =							C		

Evening Peak Hour									
Dir	Thru Volumes			+ Opposing Lefts			PM		
	VOL	x LUF = Total		VOL	x LUF = Total		CLV		
NB	849	1.00	849	113	1	113	1077		
SB	1064	1.00	1064	13	1	13			
EB	74	1	74	107	1	107	269		
WB	243	1	243	26	1	26			
CLV TOTAL=							1346		
Level of Service (LOS) =							D		

Critical Lane Volume Analysis



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**MD 322 &
 Port Street
 (TOTAL TRAFFIC)**

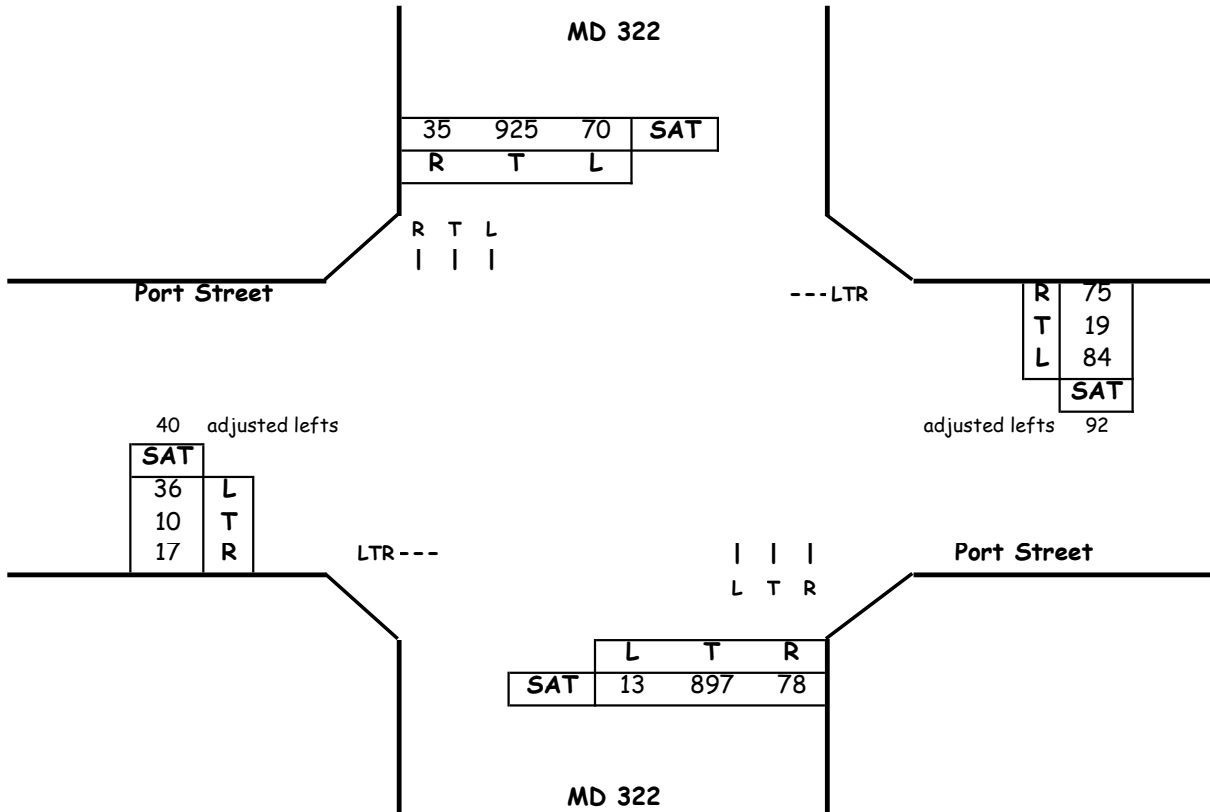
**Intersection
 1**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: Port Street
Study Period: TOTAL TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	897	1.00	897	70	1	70
SB	925	1.00	925	13	1	13
EB	67	1	67	84	1	84
WB	186	1	186	36	1	36
CLV TOTAL=						1189
Level of Service (LOS) =						C

Critical Lane Volume Analysis



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MD 322 &
Port Street
(TOTAL TRAFFIC)

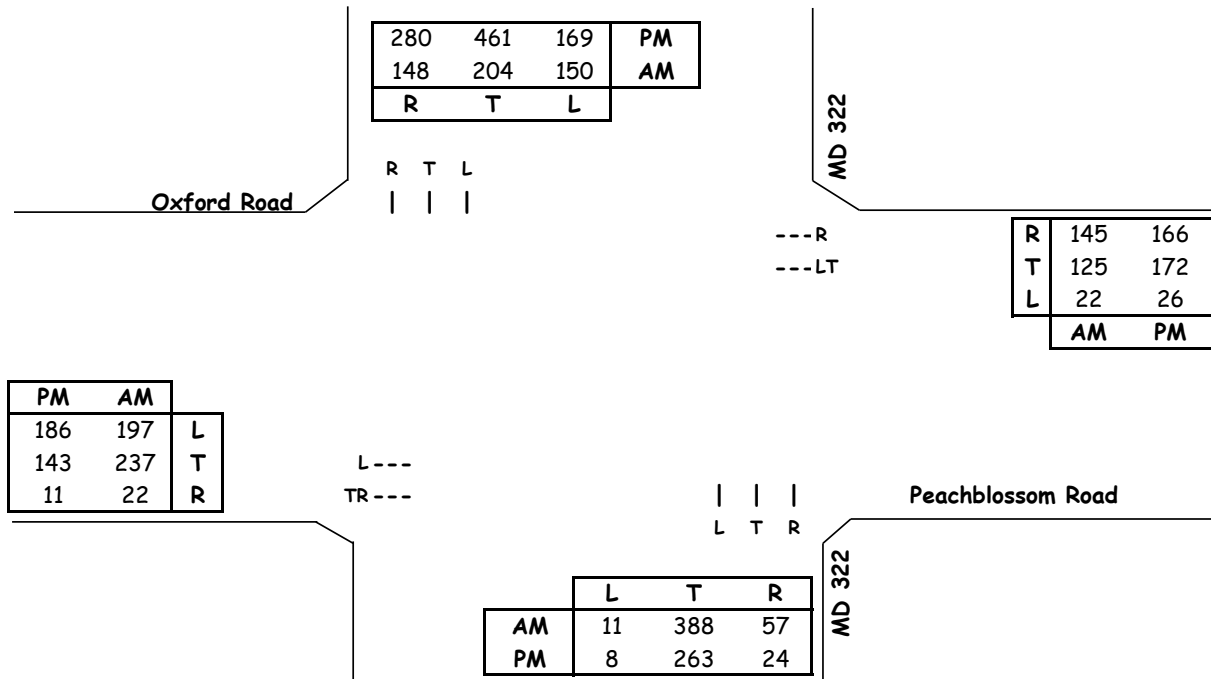
Intersection
1

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: MD 322
Minor Street: Peachblossom Road
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Traffic Signal Phasing includes East/West Split Phase

AM Peak Hour						
Dir	Through Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
EB	259	1.00	259			
WB	147	1.00	147			
NB	388	1.00	388	150	1.00	150
SB	204	1.00	204	11	1.00	11
CLV TOTAL=						944
Level of Service (LOS)=						A

PM Peak Hour						
Dir	Through Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
EB	186	1.00	186			
WB	198	1.00	198			
NB	263	1.00	263	169	1.00	169
SB	461	1.00	461	8	1.00	8
CLV TOTAL=						853
Level of Service (LOS)=						A

Critical Lane Volume Analysis



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**MD 322 &
 Peachblossom Road**
 (Existing Traffic)

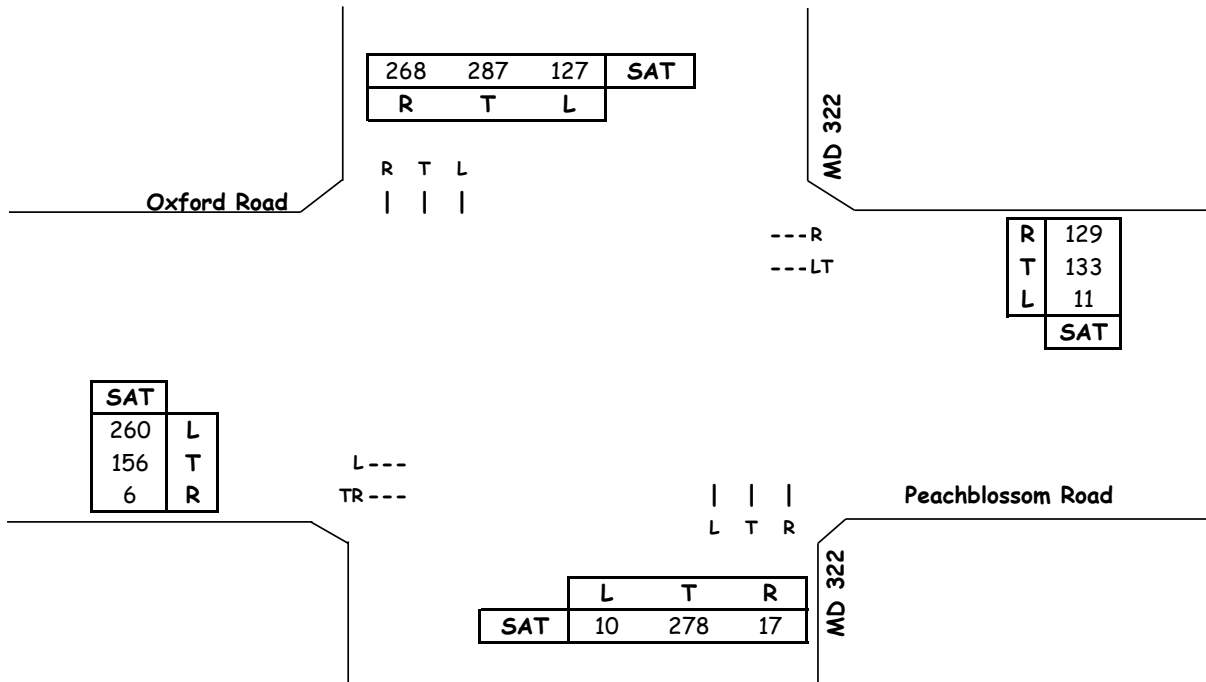
**Intersection
 2**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: MD 322
Minor Street: Peachblossom Road
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Traffic Signal Phasing includes East/West Split Phase

Sat. Midday Peak Hour						
Dir	Through Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
EB	260	1.00	260			
WB	144	1.00	144			
NB	278	1.00	278	127	1.00	127
SB	287	1.00	287	10	1.00	10
CLV TOTAL=						809
Level of Service (LOS)=						A

Critical Lane Volume Analysis



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**MD 322 &
 Peachblossom Road**
 (Existing Traffic)

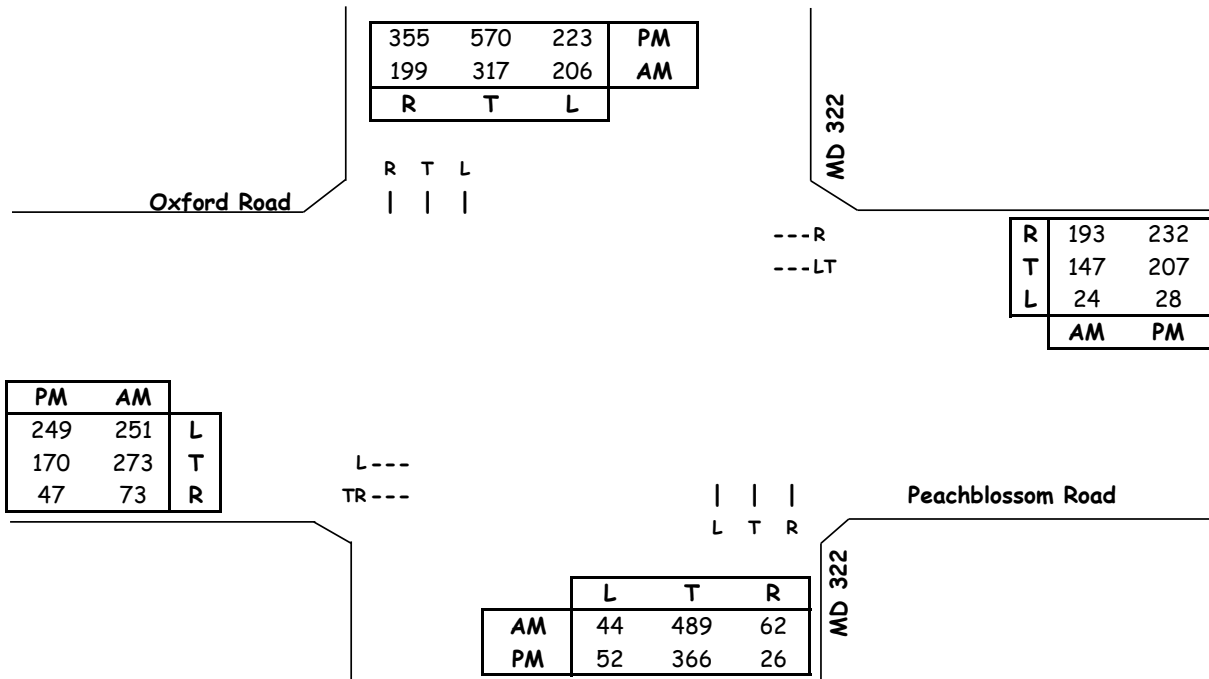
**Intersection
 2**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: MD 322
Minor Street: Peachblossom Road
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Traffic Signal Phasing includes East/West Split Phase

AM Peak Hour						
Dir	Through Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
EB	346	1.00	346			
WB	171	1.00	171			
NB	489	1.00	489	206	1.00	206
SB	317	1.00	317	44	1.00	44
CLV TOTAL=						1212
Level of Service (LOS)=						C

PM Peak Hour						
Dir	Through Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
EB	249	1.00	249			
WB	235	1.00	235			
NB	366	1.00	366	223	1.00	223
SB	570	1.00	570	52	1.00	52
CLV TOTAL=						1106
Level of Service (LOS)=						B

Critical Lane Volume Analysis



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**MD 322 &
 Peachblossom Road**
 (Background Traffic)

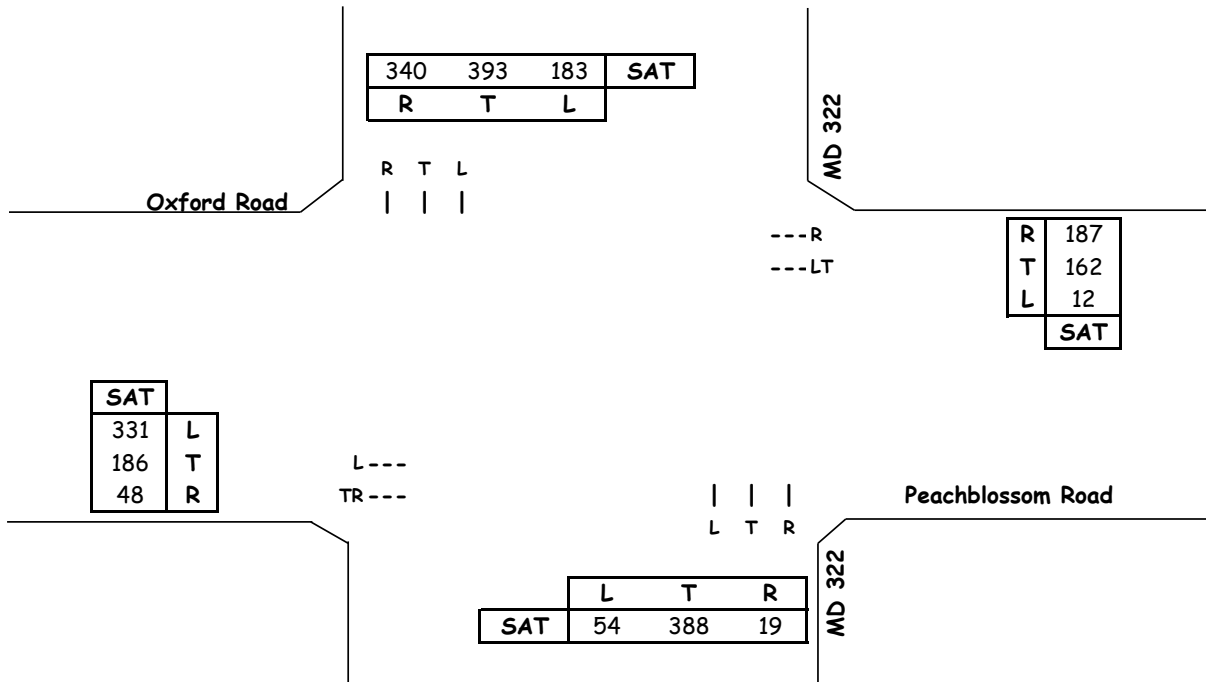
**Intersection
 2**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: MD 322
Minor Street: Peachblossom Road
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Traffic Signal Phasing includes East/West Split Phase

Sat. Midday Peak Hour							
Dir	Through Volumes			+ Opposing Lefts			SAT CLV
	VOL	x LUF	= Total	VOL	x LUF	= Total	
EB	331	1.00	331				331
WB	174	1.00	174				174
NB	388	1.00	388	183	1.00	183	571
SB	393	1.00	393	54	1.00	54	
CLV TOTAL=							1076
Level of Service (LOS)=							B

Critical Lane Volume Analysis



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**MD 322 &
 Peachblossom Road**
 (Background Traffic)

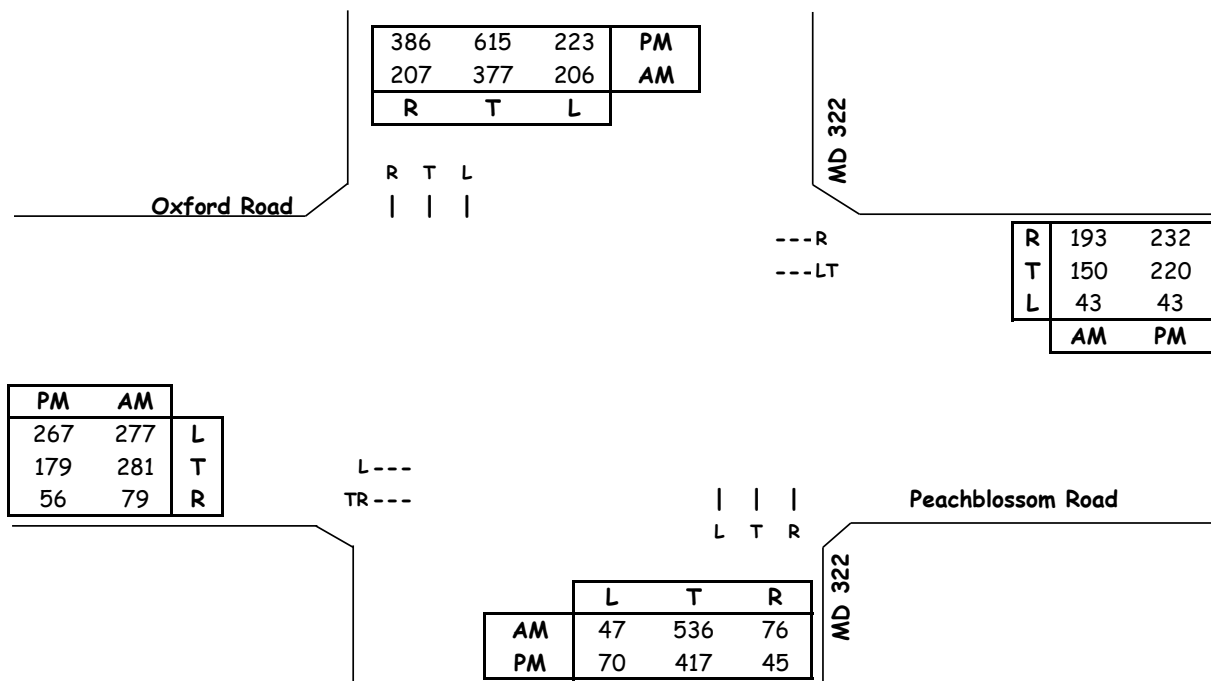
**Intersection
 2**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: MD 322
Minor Street: Peachblossom Road
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Traffic Signal Phasing includes East/West Split Phase

AM Peak Hour						
Dir	Through Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
EB	360	1.00	360			
WB	193	1.00	193			
NB	536	1.00	536	206	1.00	206
SB	377	1.00	377	47	1.00	47
CLV TOTAL=						1295
Level of Service (LOS)=						C

PM Peak Hour						
Dir	Through Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
EB	267	1.00	267			
WB	263	1.00	263			
NB	417	1.00	417	223	1.00	223
SB	615	1.00	615	70	1.00	70
CLV TOTAL=						1215
Level of Service (LOS)=						C

Critical Lane Volume Analysis



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**MD 322 &
 Peachblossom Road**
 (Total Traffic)

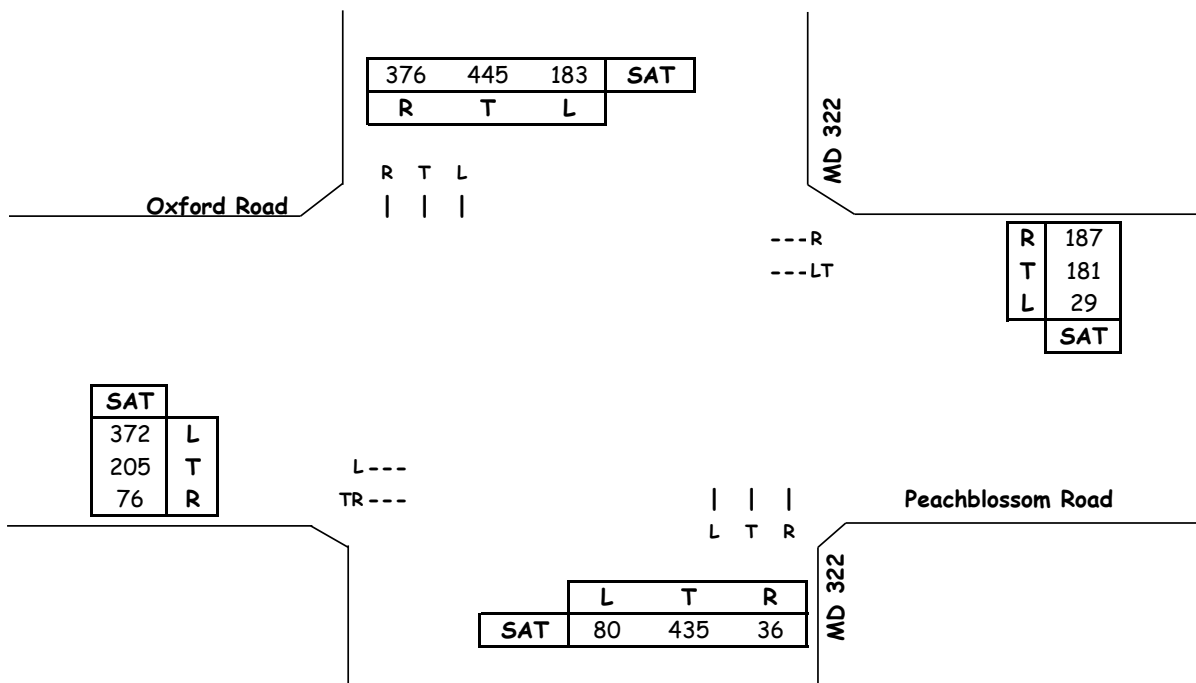
**Intersection
 2**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: MD 322
Minor Street: Peachblossom Road
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Traffic Signal Phasing includes East/West Split Phase

Sat. Midday Peak Hour							
Dir	Through Volumes			+ Opposing Lefts			SAT CLV
	VOL	x LUF	= Total	VOL	x LUF	= Total	
EB	372	1.00	372				372
WB	210	1.00	210				210
NB	435	1.00	435	183	1.00	183	618
SB	445	1.00	445	80	1.00	80	
CLV TOTAL=							1200
Level of Service (LOS)=							C

Critical Lane Volume Analysis



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**MD 322 &
 Peachblossom Road**
 (Total Traffic)

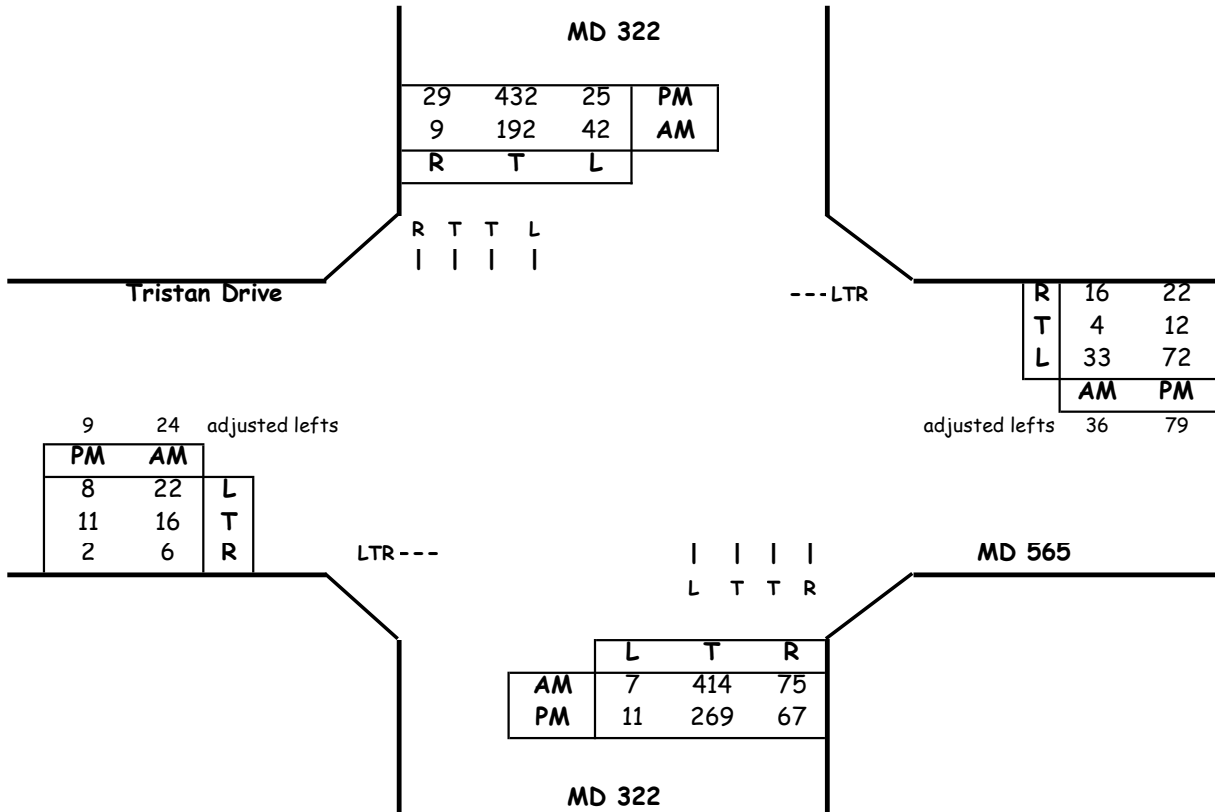
**Intersection
 2**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: MD 565
Study Period: EXISTING TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	414	0.55	228	42	1	42
SB	192	0.55	106	7	1	7
EB	46	1	46	33	1	33
WB	56	1	56	22	1	22
CLV TOTAL=						349
Level of Service (LOS) =						A

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	269	0.55	148	25	1	25
SB	432	0.55	238	11	1	11
EB	22	1	22	72	1	72
WB	113	1	113	8	1	8
CLV TOTAL=						370
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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**MD 322 &
MD 565**
(EXISTING TRAFFIC)

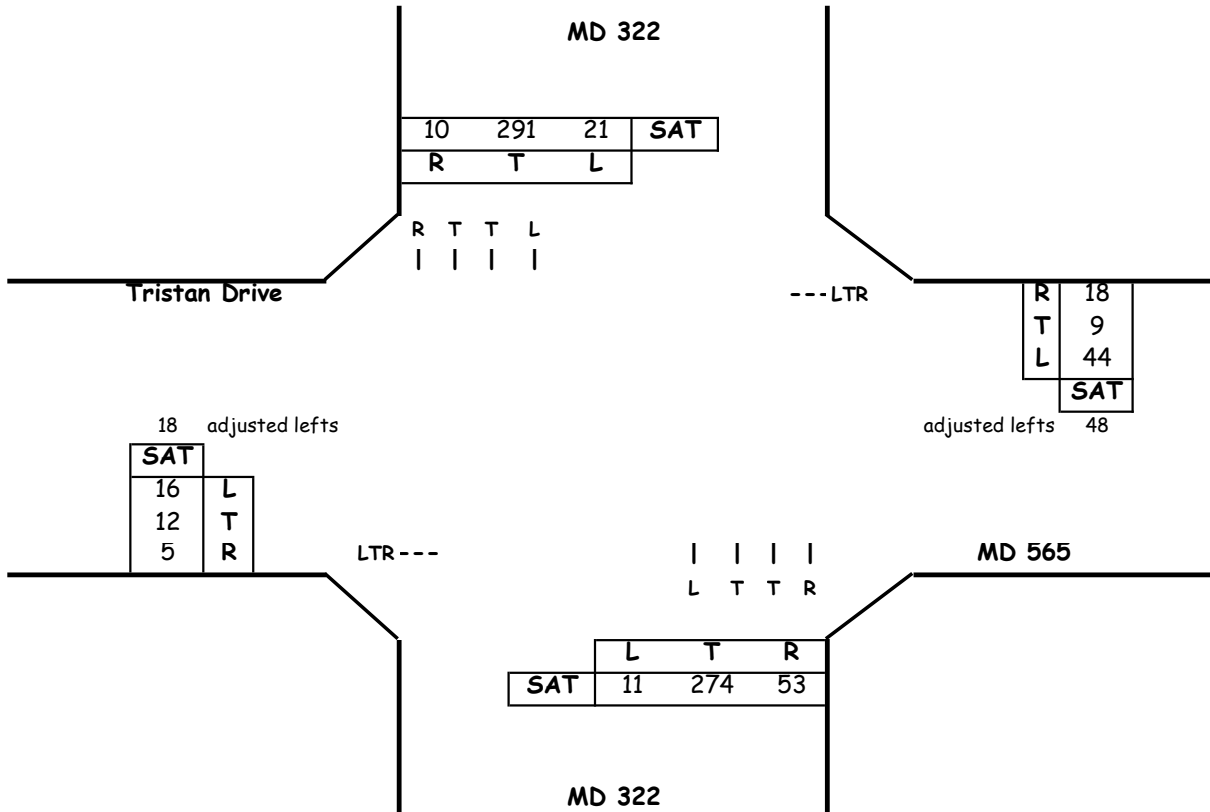
**Intersection
3**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: MD 565
Study Period: EXISTING TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			SAT
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	274	0.55	151	21	1	21	172
SB	291	0.55	160	11	1	11	
EB	35	1	35	44	1	44	91
WB	75	1	75	16	1	16	
CLV TOTAL=							263
Level of Service (LOS) =							A

Critical Lane Volume Analysis



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**MD 322 &
 MD 565
 (EXISTING TRAFFIC)**

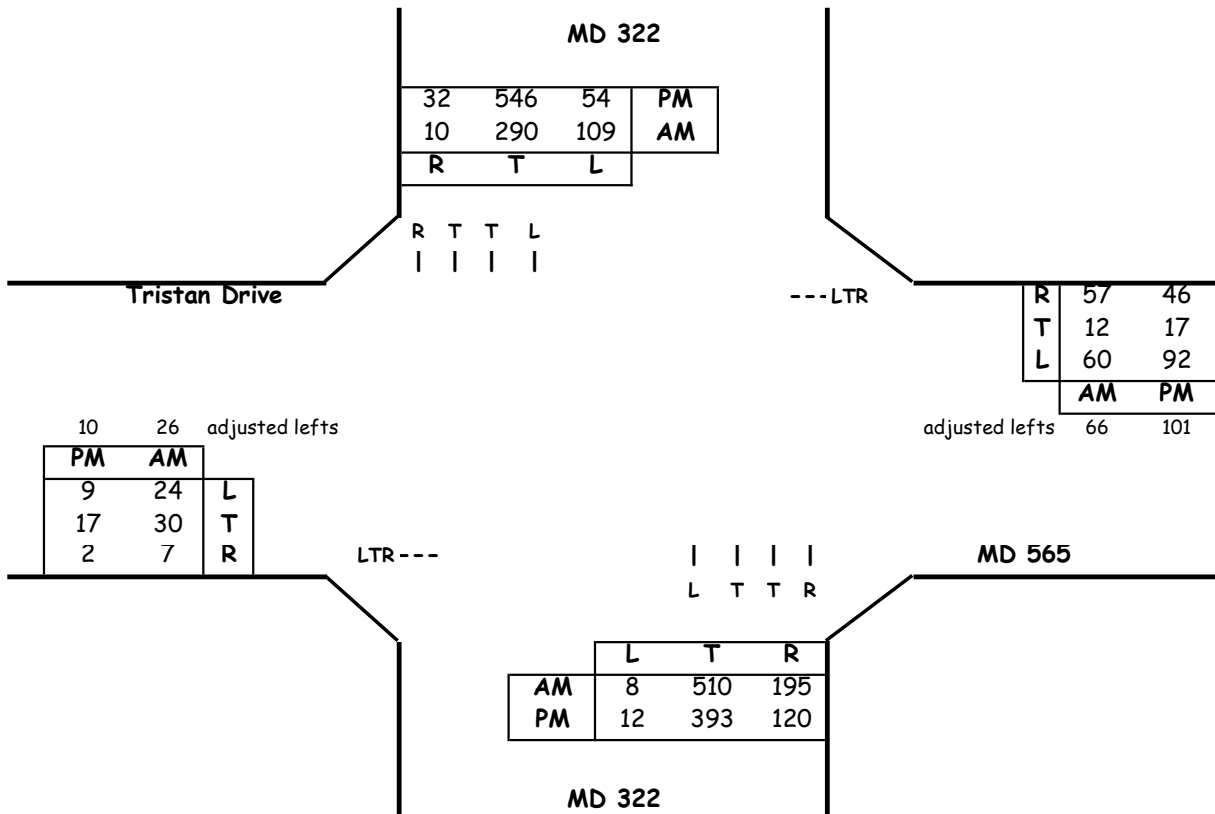
**Intersection
 3**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: MD 565
Study Period: BACKGROUND TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			AM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	510	0.55	281	109	1	109	390
SB	290	0.55	160	8	1	8	
EB	63	1	63	60	1	60	159
WB	135	1	135	24	1	24	
CLV TOTAL=							549
Level of Service (LOS) =							A

Evening Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			PM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	393	0.55	216	54	1	54	312
SB	546	0.55	300	12	1	12	
EB	29	1	29	92	1	92	173
WB	164	1	164	9	1	9	
CLV TOTAL=							485
Level of Service (LOS) =							A

Critical Lane Volume Analysis



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**MD 322 &
MD 565**
(BACKGROUND TRAFFIC)

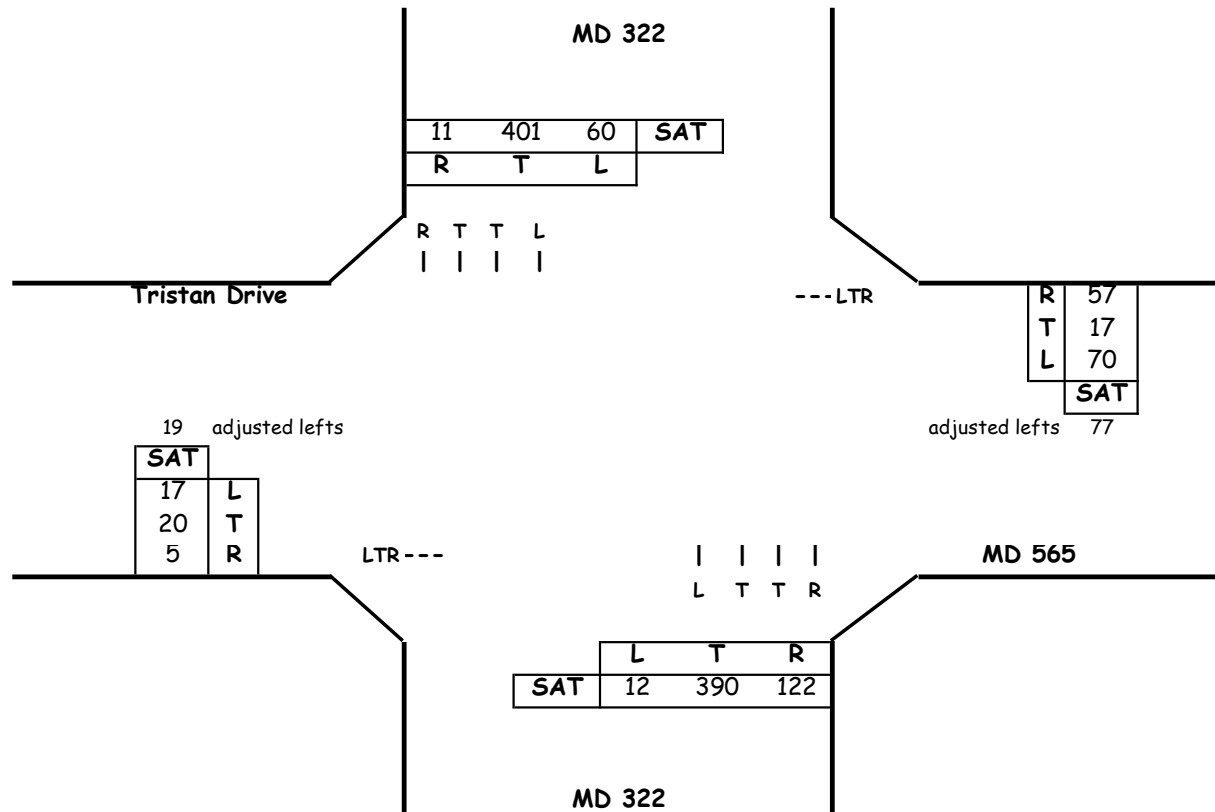
**Intersection
3**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: MD 565
Study Period: BACKGROUND TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	390	0.55	215	60	1	60
SB	401	0.55	221	12	1	12
EB	44	1	44	70	1	70
WB	151	1	151	17	1	17
CLV TOTAL=						443
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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MD 322 &
MD 565
(BACKGROUND TRAFFIC)

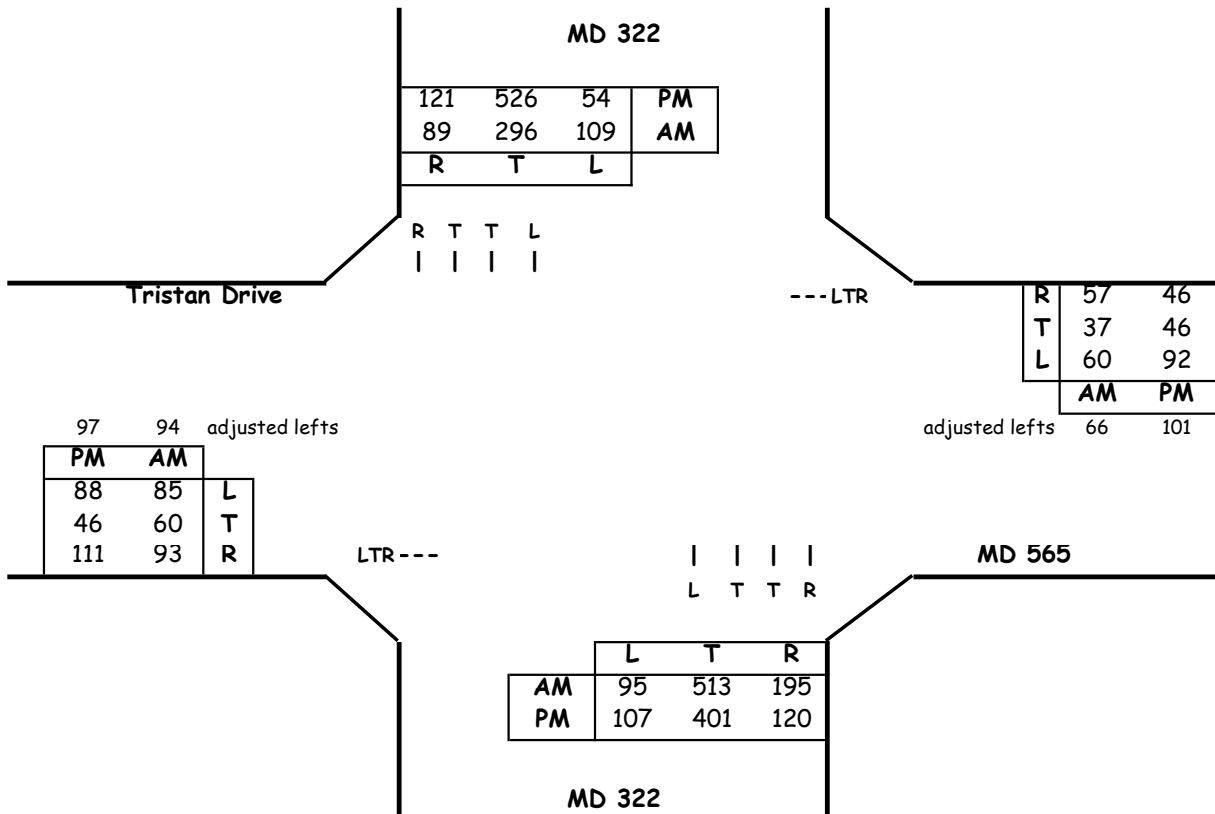
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: MD 565
Study Period: TOTAL TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			AM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	513	0.55	282	109	1	109	391
SB	296	0.55	163	95	1	95	
EB	247	1	247	60	1	60	307
WB	160	1	160	85	1	85	
CLV TOTAL=							698
Level of Service (LOS) =							A

Evening Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			PM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	401	0.55	221	54	1	54	396
SB	526	0.55	289	107	1	107	
EB	254	1	254	92	1	92	346
WB	193	1	193	88	1	88	
CLV TOTAL=							742
Level of Service (LOS) =							A

Critical Lane Volume Analysis



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**MD 322 &
 MD 565
 (TOTAL TRAFFIC)**

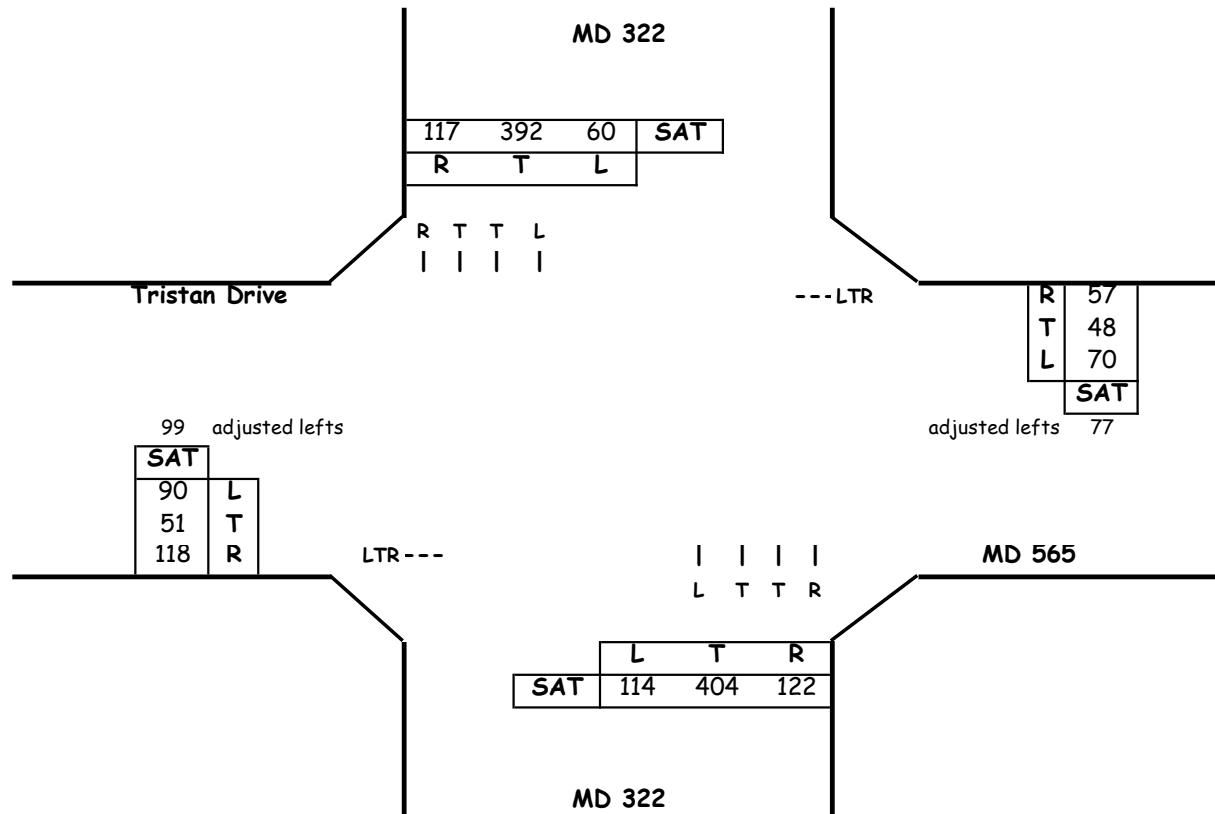
**Intersection
 3**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 322
Minor Street: MD 565
Study Period: TOTAL TRAFFIC

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	404	0.55	222	60	1	60
SB	392	0.55	216	114	1	114
EB	268	1	268	70	1	70
WB	182	1	182	90	1	90
CLV TOTAL=						668
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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MD 322 &
MD 565
(TOTAL TRAFFIC)

Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

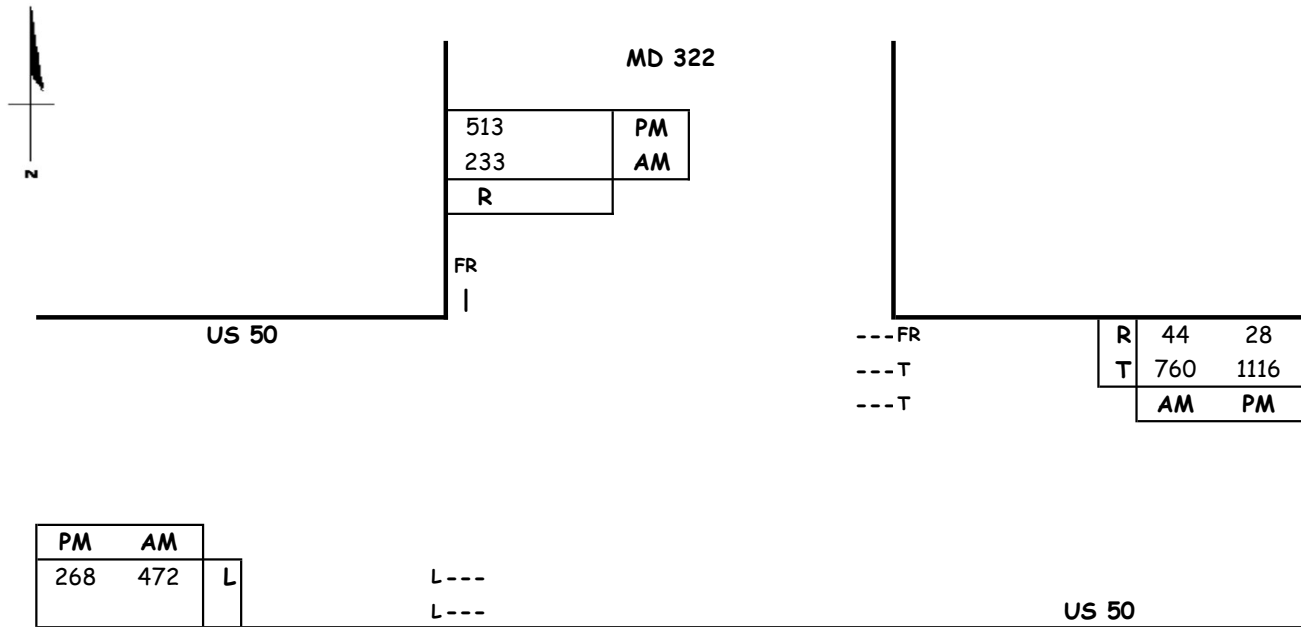
Intersection of: US 50

and: MD 322

Conditions: Existing Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
SB						
EB						
WB	760	0.55	418	472	0.60	283
CLV TOTAL=						701
Level of Service (LOS)=						A

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
SB						
EB						
WB	1116	0.55	614	268	0.60	161
CLV TOTAL=						775
Level of Service (LOS)=						A

Critical Lane Volume Analysis



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US 50 &
MD 322
(Existing Traffic)

**Intersection
4**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

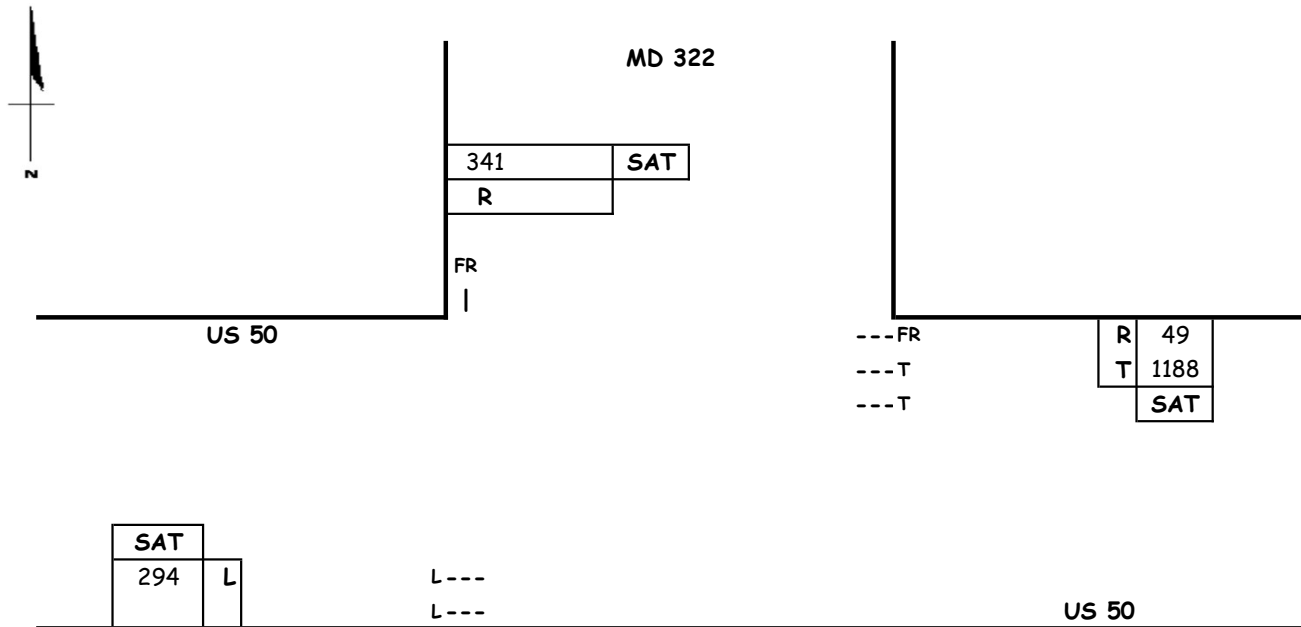
Intersection of: US 50

and: MD 322

Analyst: Lenhart Traffic

Conditions: Existing Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour

Dir	Thru Volumes			+ Opposing Lefts			SAT
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
SB							
EB							829
WB	1188	0.55	653	294	0.60	176	
CLV TOTAL=							829
Level of Service (LOS)=							A

Critical Lane Volume Analysis



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US 50 &
MD 322
(Existing Traffic)

**Intersection
4**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

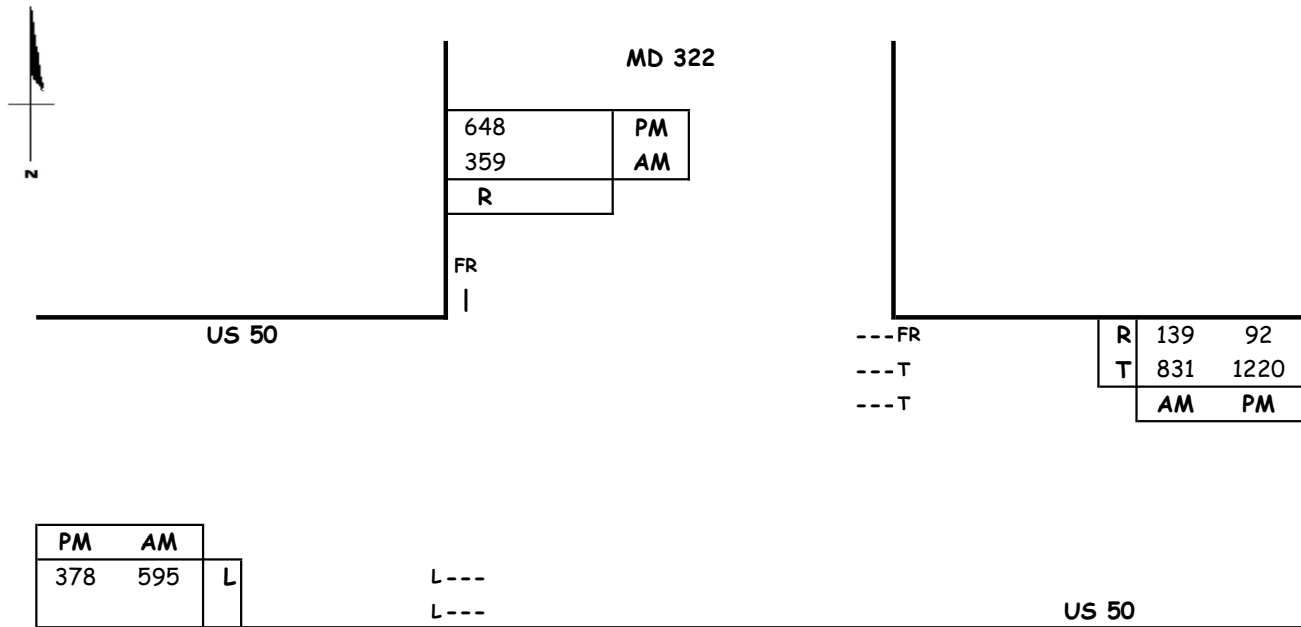
Intersection of: US 50

and: MD 322

Analyst: Lenhart Traffic

Conditions: Background Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			AM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
SB							
EB							814
WB	831	0.55	457	595	0.60	357	
CLV TOTAL=							814
Level of Service (LOS)=							A

Evening Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			PM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
SB							
EB							898
WB	1220	0.55	671	378	0.60	227	
CLV TOTAL=							898
Level of Service (LOS)=							A

Critical Lane Volume Analysis



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US 50 &
MD 322
(Background Traffic)

**Intersection
4**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

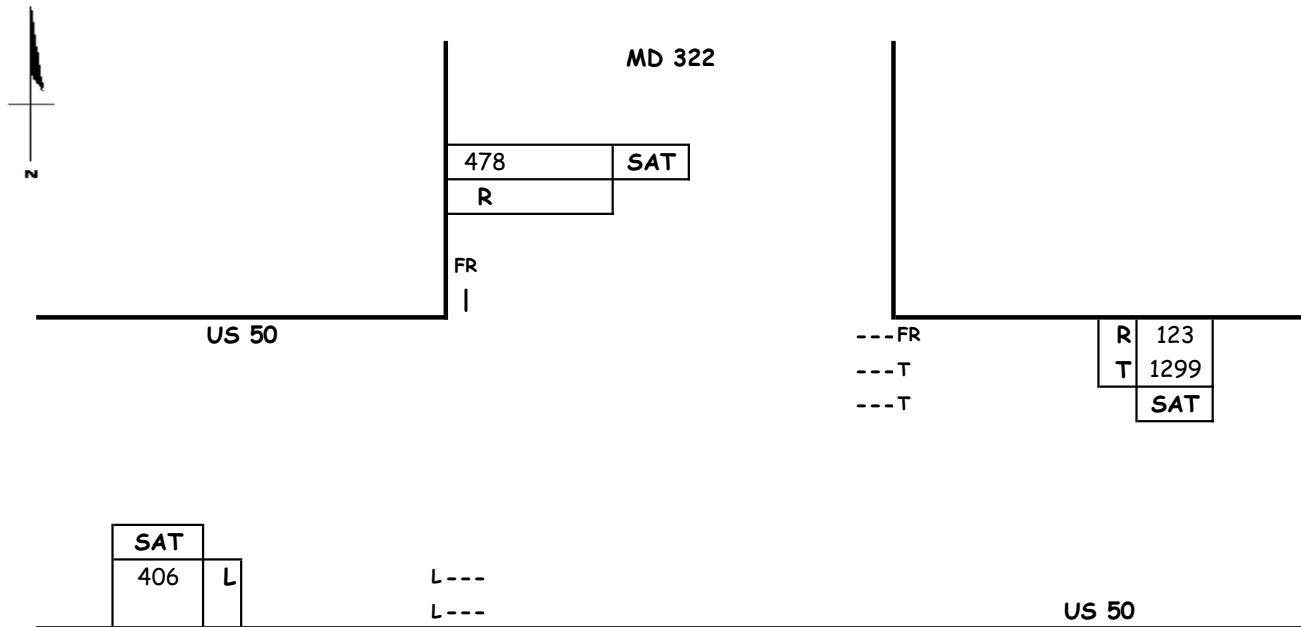
Intersection of: US 50

and: MD 322

Analyst: Lenhart Traffic

Conditions: Background Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour

Dir	Thru Volumes			+ Opposing Lefts			SAT CLV
	VOL	x LUF	= Total	VOL	x LUF	= Total	
SB							
EB							958
WB	1299	0.55	714	406	0.60	244	
CLV TOTAL=							958
Level of Service (LOS)=							A

Critical Lane Volume Analysis



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**Intersection
4**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

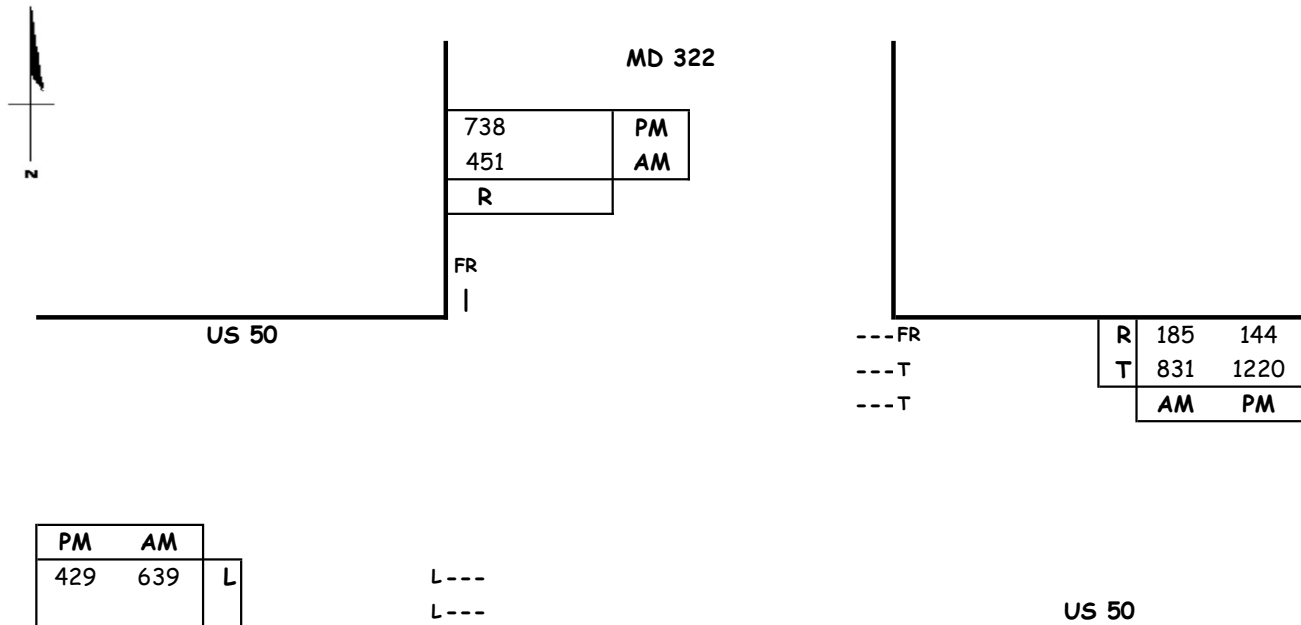
Intersection of: US 50

and: MD 322

Conditions: Total Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			AM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
SB							
EB							840
WB	831	0.55	457	639	0.60	383	
CLV TOTAL=							840
Level of Service (LOS)=							A

Evening Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			PM
	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
SB							
EB							928
WB	1220	0.55	671	429	0.60	257	
CLV TOTAL=							928
Level of Service (LOS)=							A

Critical Lane Volume Analysis



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US 50 &
MD 322
(Total Traffic)

**Intersection
4**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

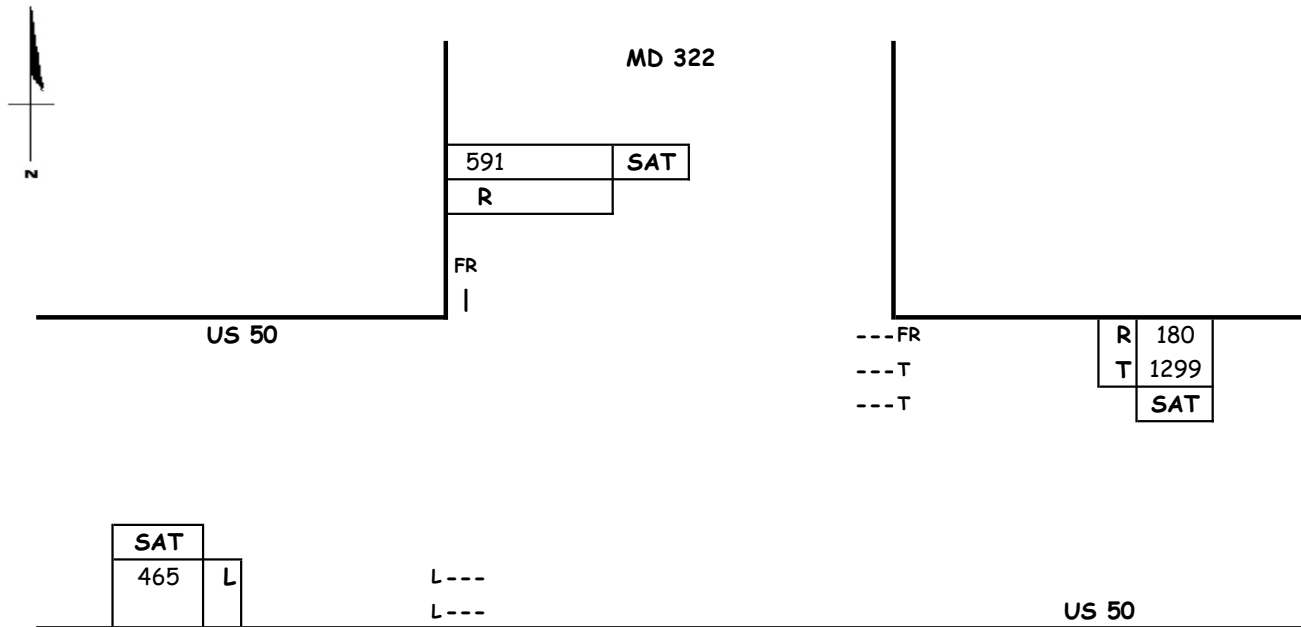
Intersection of: US 50

and: MD 322

Analyst: Lenhart Traffic

Conditions: Total Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour

Dir	Thru Volumes			+ Opposing Lefts			SAT
	VOL	x LUF	= Total	VOL	x LUF	= Total	
SB							
EB							993
WB	1299	0.55	714	465	0.60	279	
CLV TOTAL=							993
Level of Service (LOS)=							A

Critical Lane Volume Analysis



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US 50 &
MD 322
(Total Traffic)

**Intersection
4**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Oxford Road
Minor Street: Proposed Site Access
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

OXFORD ROAD

--- T
 --- L

Proposed Bypass Lane

	AM	PM
T	368	591
L	14	62

PM	AM	
448	594	T
19	20	R

T ---
 R ---

Proposed Site Access

OXFORD ROAD

I
 LR

	L	R
AM	15	40
PM	19	36

Critical Lane Volume Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	55	1.00	55			
EB	594	1.00	594	14	1.00	14
WB	368	1.00	368			
CLV TOTAL=						663
Level of Service (LOS) =						A

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	55	1.00	55			
EB	448	1.00	448	62	1.00	62
WB	591	1.00	591			
CLV TOTAL=						646
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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Oxford Road &
 Proposed Site Access
 (Total Traffic)

Intersection
5

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Oxford Road
Minor Street: Proposed Site Access
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

OXFORD ROAD

---	T		SAT
---	L		
Proposed Bypass Lane			
	T		535
	L		81

SAT	
542	T
23	R

T ---
 R ---

OXFORD ROAD

|
 LR

	L	R
SAT	21	88

Proposed Site Access

Critical Lane Volume Analysis

Sat. Midday Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			SAT CLV
	VOL	x LUF	= Total	VOL	x LUF	= Total	
NB	109	1.00	109				109
EB	542	1.00	542	81	1.00	81	623
WB	535	1.00	535				
CLV TOTAL=							732
Level of Service (LOS) =							A

Critical Lane Volume Analysis



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Oxford Road &
 Proposed Site Access
 (Total Traffic)

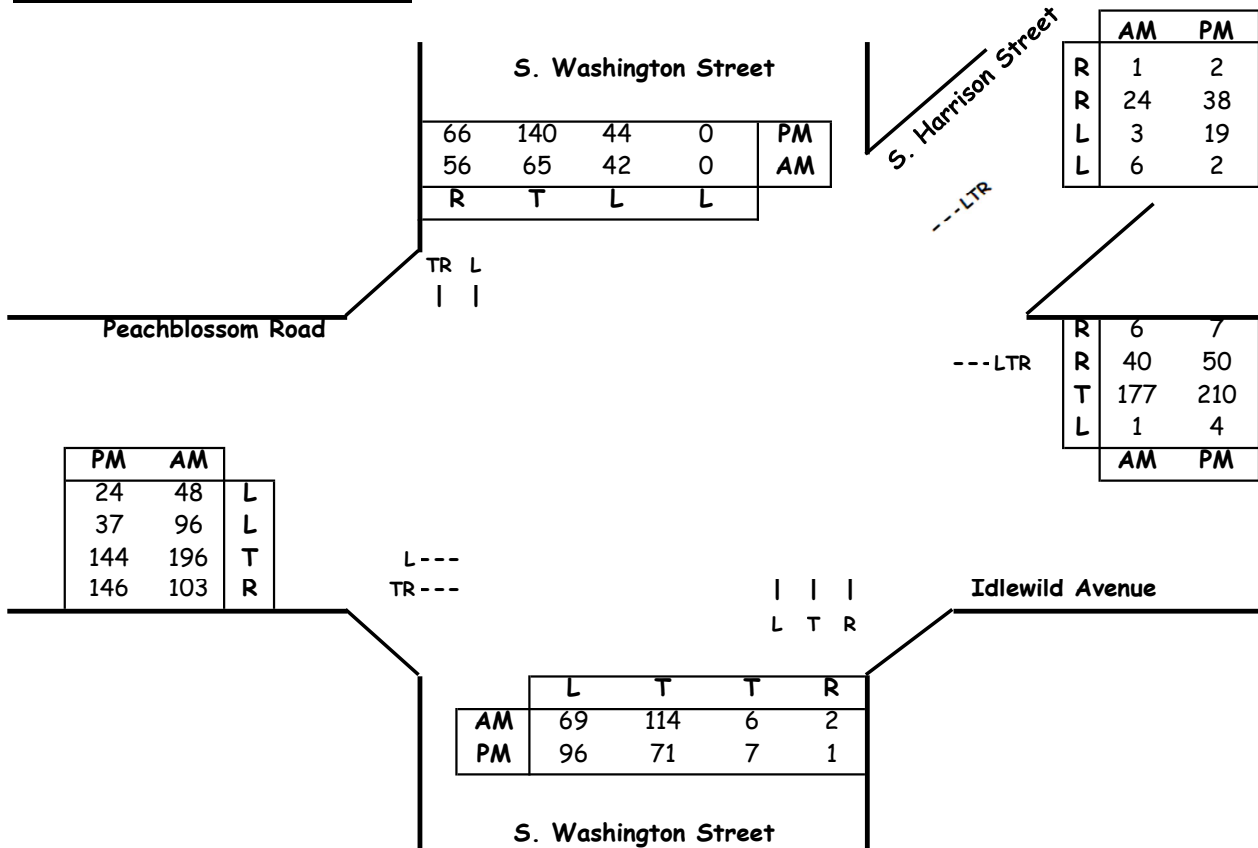
Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: S. Washington Street
Minor Street: Peachblossom Road
Study Period: EXISTING TRAFFIC

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	120	1	120	42	1	42
SB	121	1	121	69	1	69
EB	299	1	299			
WB	224	1	224			
SWB	34	1	34			
CLV TOTAL=						747
Level of Service (LOS) =						A

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	78	1	78	44	1	44
SB	206	1	206	96	1	96
EB	290	1	290			
WB	271	1	271			
SWB	61	1	61			
CLV TOTAL=						924
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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**S. Washington Street &
 Peachblossom Road
 (EXISTING TRAFFIC)**

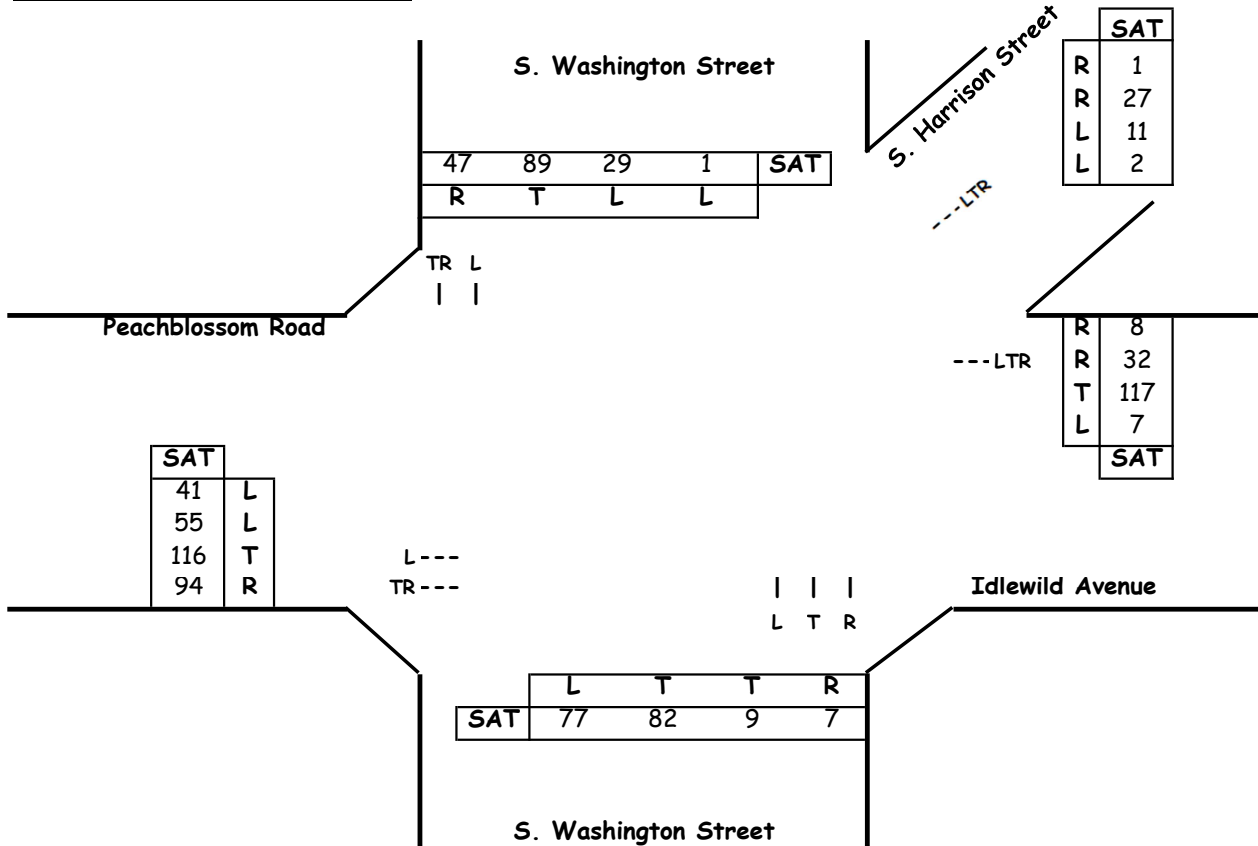
**Intersection
 6**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: S. Washington Street
Minor Street: Idlewild Avenue
Study Period: EXISTING TRAFFIC

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			SAT CLV
	VOL	x LUF	= Total	VOL	x LUF	= Total	
NB	91	1	91	30	1	30	213
SB	136	1	136	77	1	77	
EB	210	1	210				210
WB	164	1	164				164
SWB	41	1	41				41
CLV TOTAL=							628
Level of Service (LOS) =							A

Critical Lane Volume Analysis



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**S. Washington Street &
 Idlewild Avenue
 (EXISTING TRAFFIC)**

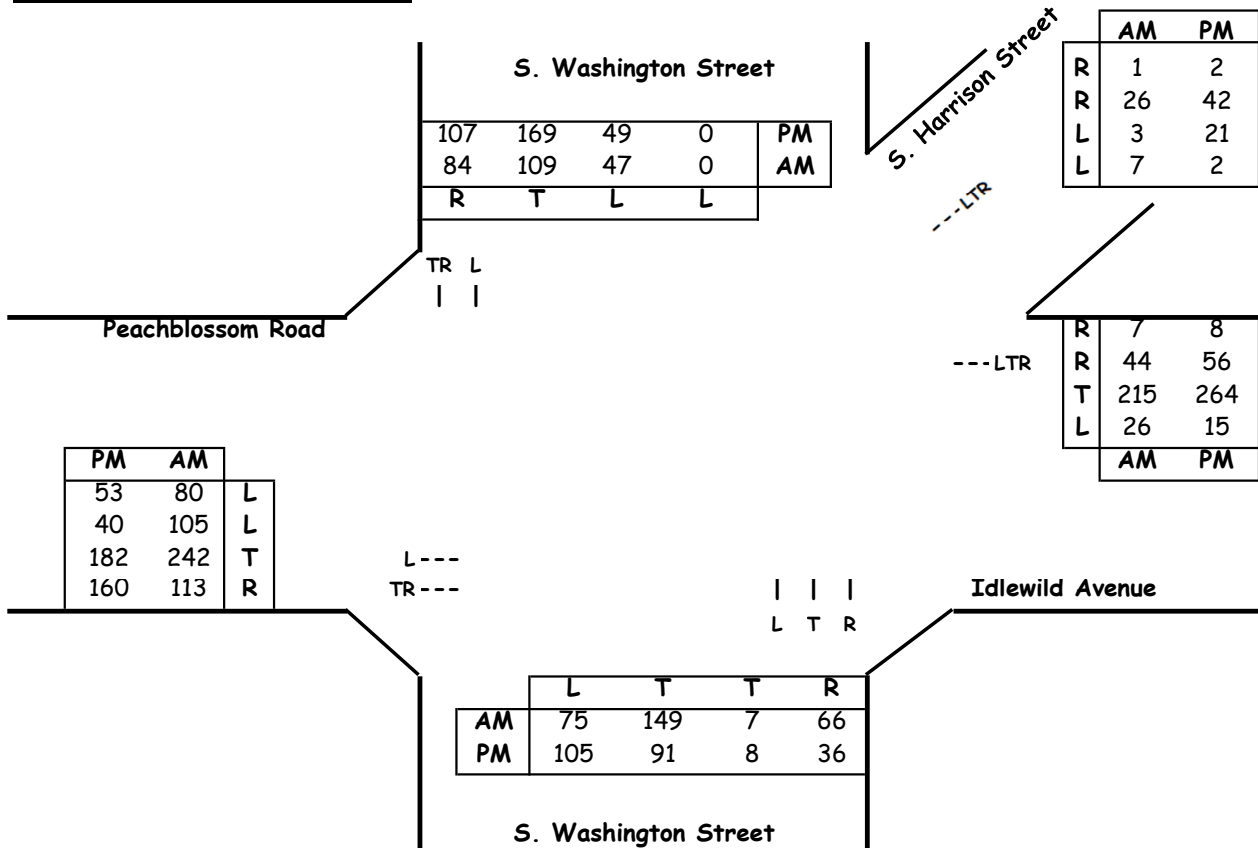
**Intersection
 6**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: S. Washington Street
Minor Street: Idlewild Avenue
Study Period: BACKGROUND TRAFFIC

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	156	1	156	47	1	47
SB	193	1	193	75	1	75
EB	355	1	355			
WB	292	1	292			
SWB	37	1	37			
CLV TOTAL=						952
Level of Service (LOS) =						A

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	99	1	99	49	1	49
SB	276	1	276	105	1	105
EB	342	1	342			
WB	343	1	343			
SWB	67	1	67			
CLV TOTAL=						1133
Level of Service (LOS) =						B

Critical Lane Volume Analysis



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**S. Washington Street &
 Idlewild Avenue
 (BACKGROUND TRAFFIC)**

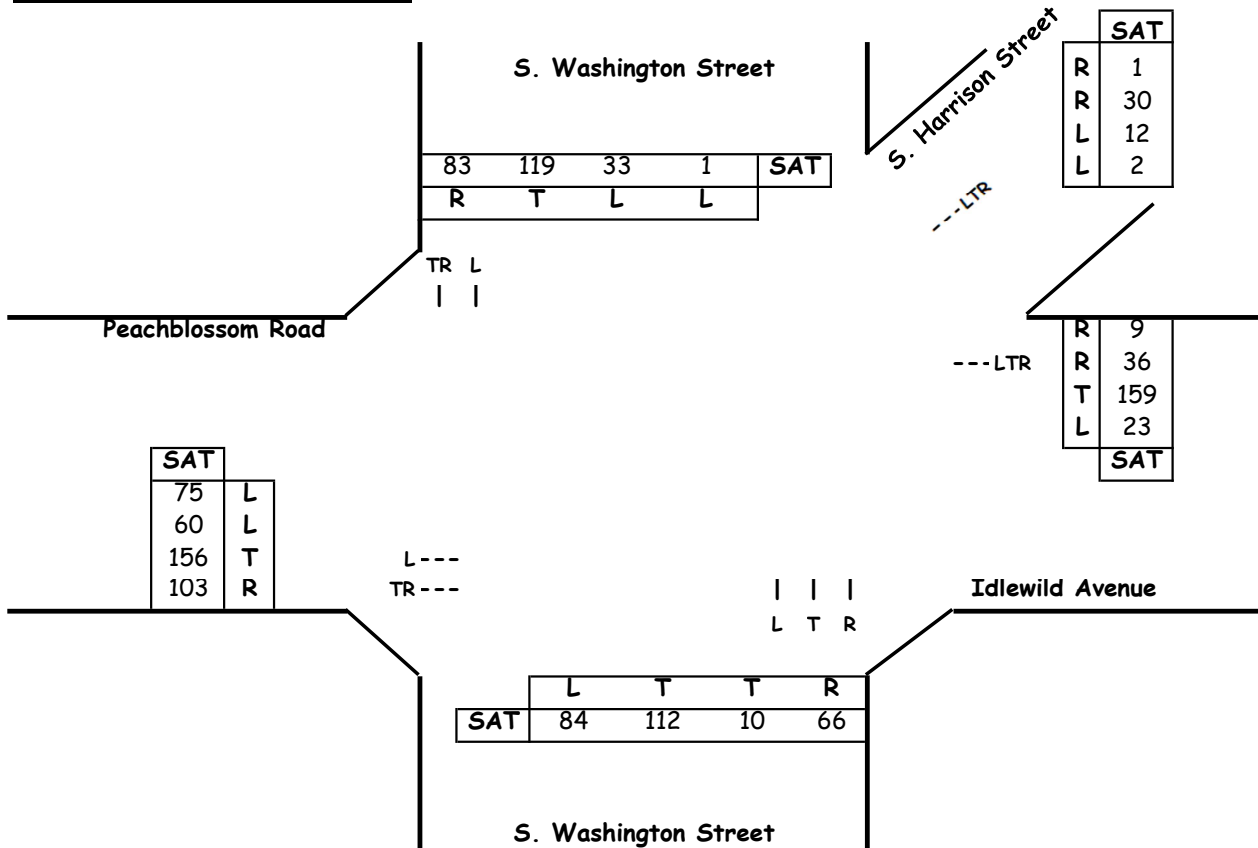
**Intersection
 6**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: S. Washington Street
Minor Street: Idlewild Avenue
Study Period: BACKGROUND TRAFFIC

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			SAT CLV
	VOL	x LUF	= Total	VOL	x LUF	= Total	
NB	122	1	122	34	1	34	286
SB	202	1	202	84	1	84	
EB	259	1	259				259
WB	227	1	227				227
SWB	45	1	45				45
CLV TOTAL=							817
Level of Service (LOS) =							A

Critical Lane Volume Analysis



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**S. Washington Street &
 Idlewild Avenue**
 (BACKGROUND TRAFFIC)

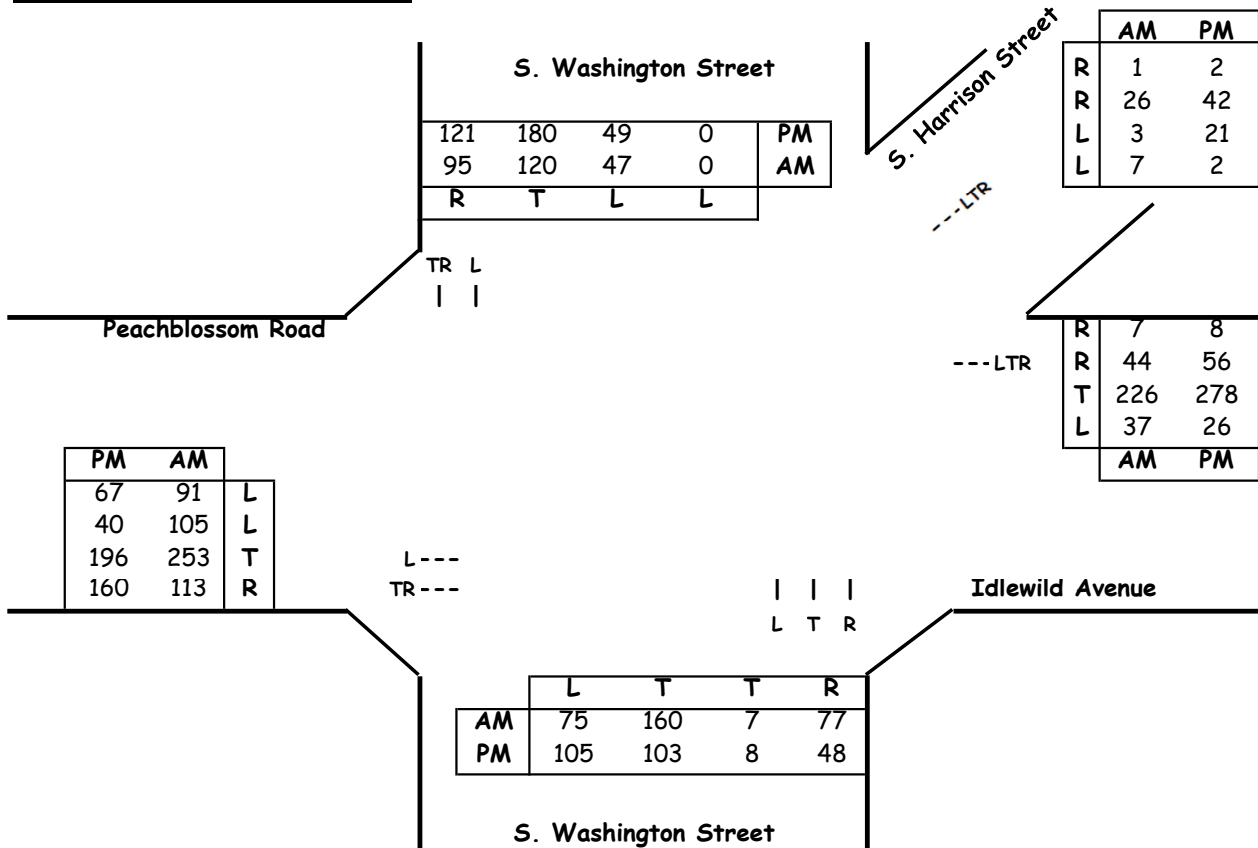
**Intersection
 6**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: S. Washington Street
Minor Street: Idlewild Avenue
Study Period: TOTAL TRAFFIC

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	167	1	167	47	1	47
SB	215	1	215	75	1	75
EB	366	1	366			
WB	314	1	314			
SWB	37	1	37			
CLV TOTAL=						1007
Level of Service (LOS) =						B

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	111	1	111	49	1	49
SB	301	1	301	105	1	105
EB	356	1	356			
WB	368	1	368			
SWB	67	1	67			
CLV TOTAL=						1197
Level of Service (LOS) =						C

Critical Lane Volume Analysis



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**S. Washington Street &
 Idlewild Avenue**
 (TOTAL TRAFFIC)

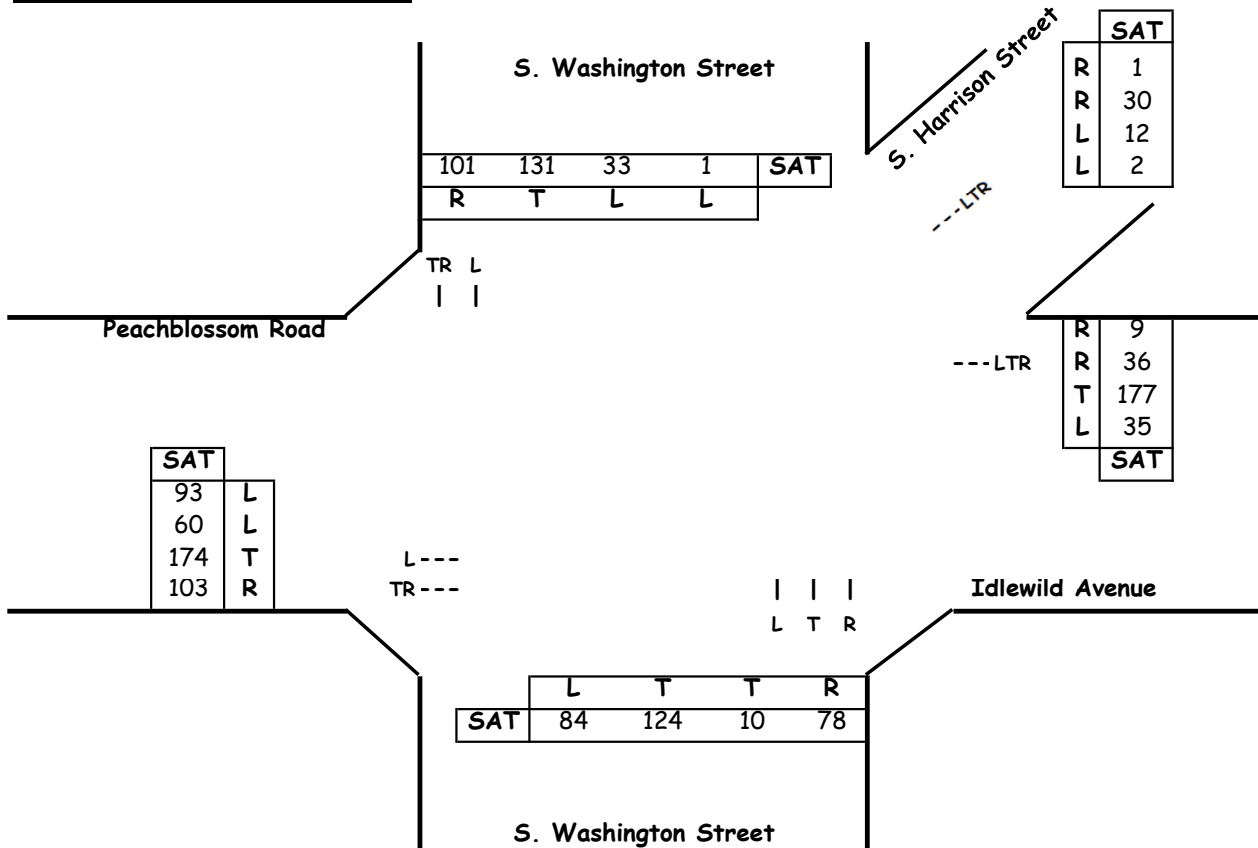
**Intersection
 6**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: S. Washington Street
Minor Street: Idlewild Avenue
Study Period: TOTAL TRAFFIC

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
Dir	Thru Volumes			+ Opposing Lefts			SAT CLV
	VOL	x LUF	= Total	VOL	x LUF	= Total	
NB	134	1	134	34	1	34	316
SB	232	1	232	84	1	84	
EB	277	1	277				277
WB	257	1	257				257
SWB	45	1	45				45
CLV TOTAL=							895
Level of Service (LOS) =							A

Critical Lane Volume Analysis



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**S. Washington Street &
Idlewild Avenue
(TOTAL TRAFFIC)**

**Intersection
6**

Appendix E

Queuing Analysis

MDOT State Highway Administration Queuing Analysis Formula for Signalized Intersections (Total - AM Peak Hour)

<u>Int 1: MD 322 at Port Street</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)⁴</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Port Street Left/Thru/Right	Total	N/A	41	35	1	120	3600	25	1.4
Westbound Port Street Left/Thru/Right	Total	N/A	207	177	1	120	3600	25	1.4
Northbound MD 322 Left-Turn	Total	225'	26	22	1	120	3600	25	1.4
Southbound MD MD 322 Left-Turn	Total	225'	113	97	1	120	3600	25	1.4
<u>Int 2: MD 322 at Peachblossom Road</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)⁴</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Oxford Road Left-Turn	Total	SPLIT	323	277	1	120	3600	25	1.4
Westbound Peachblossom Rd. Thru/Left	Total	N/A	225	193	1	120	3600	25	1.4
Northbound MD 322 Left-Turn	Total	325'	55	47	1	120	3600	25	1.4
Southbound MD MD 322 Left-Turn	Total	325'	240	206	1	120	3600	25	1.4
<u>Int 4: US 50 at MD 322</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)⁴</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound US 50 Left-Turn	Total	825'	335	639	0.6	90	3600	25	1.4
<u>Int 6: Peachblossom Road at S. Washington Street</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)⁴</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Peachblossom Rd. Left-Turn	Total	SPLIT	191	196	1	100	3600	25	1.4
Westbound Peachblossom St. Left/Thru/Right	Total	N/A	305	314	1	100	3600	25	1.4
Southwest S. Harrison St. Left/Thru/Right	Total	N/A	36	37	1	100	3600	25	1.4
Northbound S. Washington St. Left-Turn	Total	300'	73	75	1	100	3600	25	1.4
Southbound S. Washington St. Left-Turn	Total	75'	46	47	1	100	3600	25	1.4

Notes:

1. Lane Use Factor applied as follows: 1 indicates single turn lane, 0.6 indicates a double left turn lane.
2. Available queues were field measured.
3. Maximum Queue (Ft) =
$$\frac{\text{Turning Volume (veh per hour)} \times \text{Lane Use Factor} \times \text{Cycle Length (Seconds)}}{3600 \text{ (Seconds per hour)}} \times 25 \text{ Feet/Vehicle} \times 1.4 \text{ Surge Factor}$$
4. Cycle length was assumed based on CLV analyses and MDOT SHA's recommended maximum cycle lengths.
5. Available queue not reported along approaches with split phasing given all movements along the approach operate simultaneously.



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MDOT SHA 95th Percentile Queues
For Signalized Intersections

EXHIBIT
E1a

MDOT State Highway Administration Queuing Analysis Formula (Total - AM Peak Hour)

Intersection	Available Queue (Ft)	Maximum Queue (Ft)	Basic Critical Gap	Opposing Volume	Average Gap Opposing Vehicle	Avg Gap > Critical Gap?	Maximum Queue (ft)	Max Veh / Hour	Lane Use Factor	Cycle Length (seconds)*	Seconds / Hour	Feet / Vehicle	Surge Factor
Int 3: MD 322 at S. Washington Street													
Eastbound Tristan Dr. Left/Thru/Right	TBD	231	8.5	1362	2.64	No	231	238	1	100	3600	25	1.4
Westbound S. Washington St.. Left/Thru/Right	N/A	150	8.5	1340	2.69	No	150	154	1	100	3600	25	1.4
Northbound MD 322 Left-Turn	325'	9	5.5	385	9.35	Yes	9	95	1	9.5	3600	25	1.4
Southbound MD 322 Left-Turn	325'	10	5.5	608	5.92	Yes	10	109	1	9.5	3600	25	1.4
Intersection	Available Queue (Ft)	Maximum Queue (Ft)	Basic Critical Gap	Opposing Volume	Average Gap Opposing Vehicle	Avg Gap > Critical Gap?	Maximum Queue (ft)	Max Veh / Hour	Lane Use Factor	Cycle Length (seconds)*	Seconds / Hour	Feet / Vehicle	Surge Factor
Int 5: Oxford Rd. at Site Access													
Westbound Oxford Rd. Left/Thru	N/A	1	5.0	614	5.86	Yes	1	14	1	9	3600	25	1.4
Northbound Site Access Left/Right	TBD	48	6.5	976	3.69	No	48	55	1	90	3600	25	1.4

- NOTES: 1. MDOT SHA Queuing Methodology above obtained from Appendix E-1 (for Unsignalized Intersections) of the MDOT SHA Access Permits Manual.
2. Available queues were field measured.
3. Maximum Queue (Ft) =
$$\frac{\text{Turning Volume (veh per hour)} \times \text{Lane Use Factor} \times \text{Cycle Length (Seconds)}}{3600 \text{ (Seconds per hour)}} \times 25 \text{ Feet/Vehicle} \times 1.4 \text{ Surge Factor}$$
4. If the Avg Gap is greater than the Critical Gap, then the cycle length is the Critical Gap plus 4 seconds. If the Avg Gap is less than Critical Gap, then analyze as if a signal were in place.



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MDOT SHA 95th Percentile Queues
 For Unsignalized Intersections

EXHIBIT
 E1b

MDOT State Highway Administration Queuing Analysis Formula for Signalized Intersections (Total - PM Peak Hour)

<u>Int 1: MD 322 at Port Street</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)*</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Port Street Left/Thru/Right	Total	N/A	93	71	1	135	3600	25	1.4
Westbound Port Street Left/Thru/Right	Total	N/A	305	232	1	135	3600	25	1.4
Northbound MD 322 Left-Turn	Total	225'	17	13	1	135	3600	25	1.4
Southbound MD MD 322 Left-Turn	Total	225'	148	113	1	135	3600	25	1.4
<u>Int 2: MD 322 at Peachblossom Road</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)*</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Oxford Road Left-Turn	Total	SPLIT	312	267	1	120	3600	25	1.4
Westbound Peachblossom Rd. Thru/Left	Total	N/A	307	263	1	120	3600	25	1.4
Northbound MD 322 Left-Turn	Total	325'	82	70	1	120	3600	25	1.4
Southbound MD MD 322 Left-Turn	Total	325'	260	223	1	120	3600	25	1.4
<u>Int 4: US 50 at MD 322</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)*</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound US 50 Left-Turn	Total	825'	225	429	0.6	90	3600	25	1.4
<u>Int 6: Peachblossom Road at S. Washington Street</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)*</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Peachblossom Rd. Left-Turn	Total	SPLIT	125	107	1	120	3600	25	1.4
Westbound Peachblossom St. Left/Thru/Right	Total	N/A	429	368	1	120	3600	25	1.4
Southwest S. Harrison St. Left/Thru/Right	Total	N/A	78	67	1	120	3600	25	1.4
Northbound S. Washington St. Left-Turn	Total	300'	123	105	1	120	3600	25	1.4
Southbound S. Washington St. Left-Turn	Total	75'	57	49	1	120	3600	25	1.4

Notes:

1. Lane Use Factor applied as follows: 1 indicates single turn lane, 0.6 indicates a double left turn lane.
2. Available queues were field measured.
3. Maximum Queue (Ft) =
$$\frac{\text{Turning Volume (veh per hour)} \times \text{Lane Use Factor} \times \text{Cycle Length (Seconds)}}{3600 \text{ (Seconds per hour)}} \times 25 \text{ Feet/Vehicle} \times 1.4 \text{ Surge Factor}$$
4. Cycle length was assumed based on CLV analyses and MDOT SHA's recommended maximum cycle lengths.
5. Available queue not reported along approaches with split phasing given all movements along the approach operate simultaneously.



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MDOT SHA 95th Percentile Queues
For Signalized Intersections

EXHIBIT
E2a

MDOT State Highway Administration Queuing Analysis Formula (Total - PM Peak Hour)

Intersection	Available Queue (Ft)	Maximum Queue (Ft)	Basic Critical Gap	Opposing Volume	Average Gap Opposing Vehicle	Avg Gap > Critical Gap?	Maximum Queue (ft)	Max Veh / Hour	Lane Use Factor	Cycle Length (seconds)*	Seconds / Hour	Feet / Vehicle	Surge Factor
Int 3: MD 322 at S. Washington Street													
Eastbound Tristan Dr. Left/Thru/Right	TBD	238	8.5	1392	2.59	No	238	245	1	100	3600	25	1.4
Westbound S. Washington St.. Left/Thru/Right	N/A	179	8.5	1454	2.48	No	179	184	1	100	3600	25	1.4
Northbound MD 322 Left - Turn	325'	10	5.5	647	5.56	Yes	10	107	1	9.5	3600	25	1.4
Southbound MD 322 Left - Turn	325'	5	5.5	508	7.09	Yes	5	54	1	9.5	3600	25	1.4
Intersection	Available Queue (Ft)	Maximum Queue (Ft)	Basic Critical Gap	Opposing Volume	Average Gap Opposing Vehicle	Avg Gap > Critical Gap?	Maximum Queue (ft)	Max Veh / Hour	Lane Use Factor	Cycle Length (seconds)*	Seconds / Hour	Feet / Vehicle	Surge Factor
Int 5: Oxford Rd. at Site Access													
Westbound Oxford Rd. Left/Thru	N/A	5	5.0	467	7.71	Yes	5	62	1	9	3600	25	1.4
Northbound Site Access Left/Right	TBD	48	6.5	1101	3.27	No	48	55	1	90	3600	25	1.4

- NOTES: 1. MDOT SHA Queuing Methodology above obtained from Appendix E-1 (for Unsignalized Intersections) of the MDOT SHA Access Permits Manual.
2. Available queues were field measured.
3. Maximum Queue (Ft) =
$$\frac{\text{Turning Volume (veh per hour)} \times \text{Lane Use Factor} \times \text{Cycle Length (Seconds)}}{3600 \text{ (Seconds per hour)}} \times 25 \text{ Feet/Vehicle} \times 1.4 \text{ Surge Factor}$$
4. If the Avg Gap is greater than the Critical Gap, then the cycle length is the Critical Gap plus 4 seconds. If the Avg Gap is less than Critical Gap, then analyze as if a signal were in place.



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MDOT SHA 95th Percentile Queues
 For Unsignalized Intersections

EXHIBIT
 E1b

MDOT State Highway Administration Queuing Analysis Formula for Signalized Intersections (Total - Sat Midday Peak Hour)

<u>Int 1: MD 322 at Port Street</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)*</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Port Street Left/Thru/Right	Total	N/A	74	63	1	120	3600	25	1.4
Westbound Port Street Left/Thru/Right	Total	N/A	208	178	1	120	3600	25	1.4
Northbound MD 322 Left-Turn	Total	225'	15	13	1	120	3600	25	1.4
Southbound MD MD 322 Left-Turn	Total	225'	82	70	1	120	3600	25	1.4
<u>Int 2: MD 322 at Peachblossom Road</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)*</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Oxford Road Left-Turn	Total	SPLIT	434	372	1	120	3600	25	1.4
Westbound Peachblossom Rd. Thru/Left	Total	N/A	245	210	1	120	3600	25	1.4
Northbound MD 322 Left-Turn	Total	325'	93	80	1	120	3600	25	1.4
Southbound MD MD 322 Left-Turn	Total	325'	214	183	1	120	3600	25	1.4
<u>Int 4: US 50 at MD 322</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)*</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound US 50 Left-Turn	Total	825'	244	465	0.6	90	3600	25	1.4
<u>Int 6: Peachblossom Road at S. Washington Street</u>		<u>Available Queue</u>	<u>Maximum Queue (ft)</u>	<u>Veh / Hour</u>	<u>Lane Use Factor</u>	<u>Cycle Length (seconds)*</u>	<u>Seconds / Hour</u>	<u>Feet / Vehicle</u>	<u>Surge Factor</u>
Eastbound Peachblossom Rd. Left-Turn	Total	SPLIT	149	153	1	100	3600	25	1.4
Westbound Peachblossom St. Left/Thru/Right	Total	N/A	250	257	1	100	3600	25	1.4
Southwest S. Harrison St. Left/Thru/Right	Total	N/A	44	45	1	100	3600	25	1.4
Northbound S. Washington St. Left-Turn	Total	300'	82	84	1	100	3600	25	1.4
Southbound S. Washington St. Left-Turn	Total	75'	33	34	1	100	3600	25	1.4

Notes:

- Lane Use Factor applied as follows: 1 indicates single turn lane, 0.6 indicates a double left turn lane.
- Available queues were field measured.
- Maximum Queue (Ft) =
$$\frac{\text{Turning Volume (veh per hour)} \times \text{Lane Use Factor} \times \text{Cycle Length (Seconds)}}{3600 \text{ (Seconds per hour)}} \times 25 \text{ Feet/Vehicle} \times 1.4 \text{ Surge Factor}$$
- Cycle length was assumed based on CLV analyses and MDOT SHA's recommended maximum cycle lengths.
- Available queue not reported along approaches with split phasing given all movements along the approach operate simultaneously.



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MDOT SHA 95th Percentile Queues
For Signalized Intersections

EXHIBIT
E3a

MDOT State Highway Administration Queuing Analysis Formula (Total - Saturday Midday Peak Hour)

Intersection	Available Queue (Ft)	Maximum Queue (Ft)	Basic Critical Gap	Opposing Volume	Average Gap Opposing Vehicle	Avg Gap > Critical Gap?	Maximum Queue (ft)	Max Veh / Hour	Lane Use Factor	Cycle Length (seconds)*	Seconds / Hour	Feet / Vehicle	Surge Factor
Int 3: MD 322 at S. Washington Street													
Eastbound Tristan Dr. Left/Thru/Right	TBD	252	8.5	1267	2.84	No	252	259	1	100	3600	25	1.4
Westbound S. Washington St.. Left/Thru/Right	N/A	170	8.5	1346	2.67	No	170	175	1	100	3600	25	1.4
Northbound MD 322 Left-Turn	325'	11	5.5	509	7.07	Yes	11	114	1	9.5	3600	25	1.4
Southbound MD 322 Left-Turn	325'	6	5.5	518	6.95	Yes	6	60	1	9.5	3600	25	1.4
Intersection	Available Queue (Ft)	Maximum Queue (Ft)	Basic Critical Gap	Opposing Volume	Average Gap Opposing Vehicle	Avg Gap > Critical Gap?	Maximum Queue (ft)	Max Veh / Hour	Lane Use Factor	Cycle Length (seconds)*	Seconds / Hour	Feet / Vehicle	Surge Factor
Int 5: Oxford Rd. at Site Access													
Westbound Oxford Rd. Left/Thru	N/A	7	5.0	565	6.37	Yes	7	81	1	9	3600	25	1.4
Northbound Site Access Left/Right	TBD	95	6.5	1158	3.11	No	95	109	1	90	3600	25	1.4

- NOTES: 1. MDOT SHA Queuing Methodology above obtained from Appendix E-1 (for Unsignalized Intersections) of the MDOT SHA Access Permits Manual.
2. Available queues were field measured.
3. Maximum Queue (Ft) =
$$\frac{\text{Turning Volume (veh per hour)} \times \text{Lane Use Factor} \times \text{Cycle Length (Seconds)}}{3600 \text{ (Seconds per hour)}} \times 25 \text{ Feet/Vehicle} \times 1.4 \text{ Surge Factor}$$
4. If the Avg Gap is greater than the Critical Gap, then the cycle length is the Critical Gap plus 4 seconds. If the Avg Gap is less than Critical Gap, then analyze as if a signal were in place.



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MDOT SHA 95th Percentile Queues
 For Unsignalized Intersections

EXHIBIT
 E3b

Appendix F

Analysis of
Oxford Road at Pollys Hill Lane



12 Single-Family Units are
Located along Pollys Hill Lane

Traffic Impact Analysis		Pollys Hill Lane Location Map	Exhibit F1
	LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

Trip Generation Rates

Single Family Detached Housing (ITE-210)

Morning Trips = 0.70 x Units

Evening Trips = 0.94 x Units

Saturday Midday Trips = 0.92 x Units

Trip Distribution (In/Out)

26/74

63/37

54/46

Trip Generation Totals

		AM Peak			PM Peak			Saturday Peak		
		In	Out	Total	In	Out	Total	In	Out	Total
Single Family Detached Housing (ITE-210)	12 units	2	6	8	7	4	11	6	5	11
Total:		2	6	8	7	4	11	6	5	11

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition.

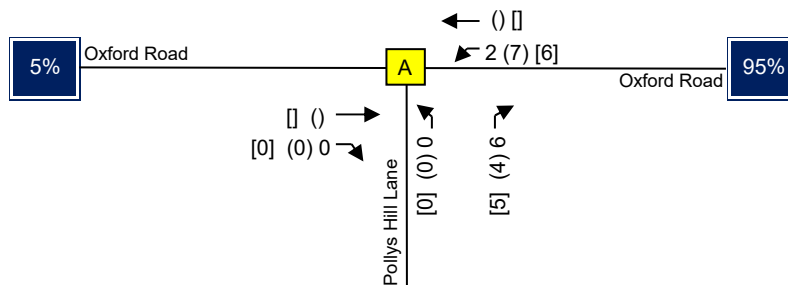
Traffic Impact Analysis



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Trip Generation for
Pollys Hill Lane

**Exhibit
F2**



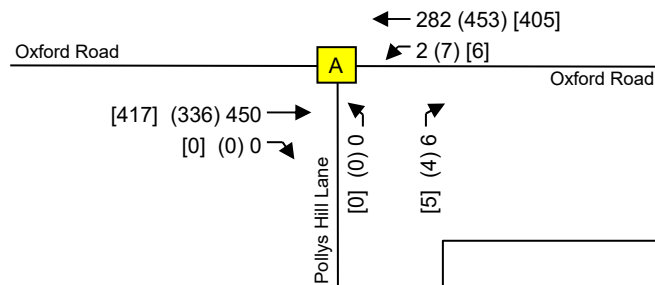
Traffic Impact Analysis



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**Trip Assignment for
 Pollys Hill Lane**

**Exhibit
 F3**



Note: In order to establish existing volumes, volumes were flowed from the intersection of MD 322 at Oxford Road.

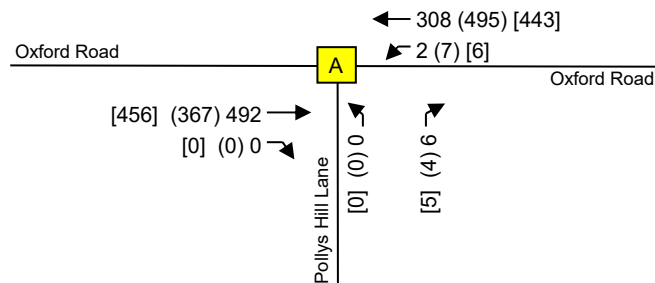
Traffic Impact Analysis



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Existing
 Peak Hour Volumes

**Exhibit
 F4**



1.5%	Annual Growth
6	Year Build-out
1.09	Growth Factor

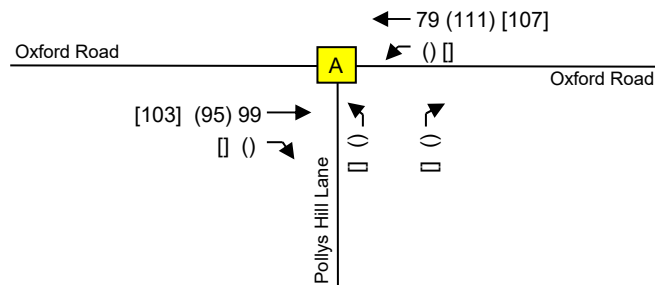
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Base Peak Hour Volumes

Exhibit F5



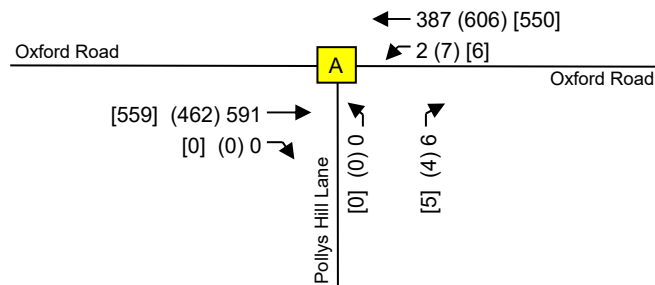
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Combined Trips Generated by Background Developments

Exhibit F6



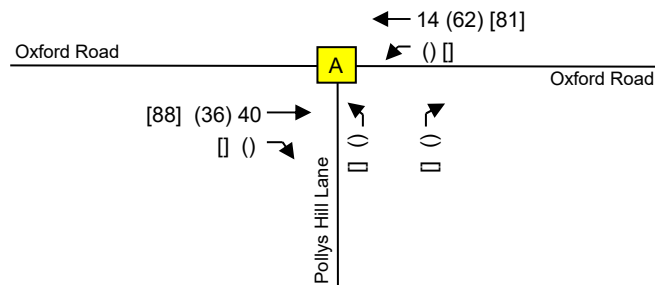
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Background
 Peak Hour Volumes

**Exhibit
 F7**



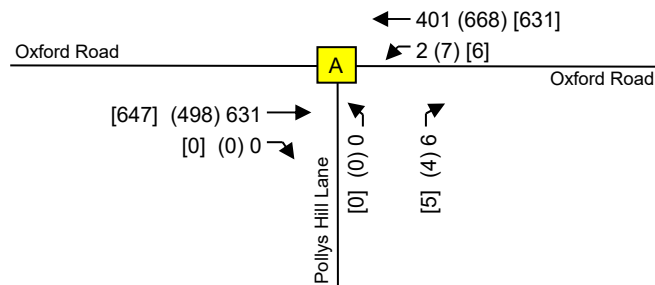
Traffic Impact Analysis



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Combined Trips Generated by
Poplar Hill Development

**Exhibit
F8**



Traffic Impact Analysis



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Total
Peak Hour Volumes

**Exhibit
F9**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Oxford Road
Minor Street: Pollys Hill Lane
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

OXFORD ROAD

---TL

	AM	PM
T	401	668
L	2	7

adjusted lefts 6 14

PM	AM	
498	631	T
0	0	R

TR---

Pollys Hill Lane

|
LR

OXFORD ROAD

	L	R
AM	0	6
PM	0	4

Critical Lane Volume Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	6	1.00	6			
EB	631	1.00	631	2	1.00	2
WB	407	1.00	407			
CLV TOTAL=						639
Level of Service (LOS) =						A

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	4	1.00	4			
EB	498	1.00	498	7	1.00	7
WB	682	1.00	682			
CLV TOTAL=						686
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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**Oxford Road &
 Pollys Hill Lane**
 (Total Traffic)

**Intersection
 A**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Oxford Road
Minor Street: Pollys Hill Lane
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

OXFORD ROAD

---TL

	SAT	
T	631	
L	6	

adjusted lefts 18

	SAT	
	647	T
	0	R

TR---

OXFORD ROAD

|
LR

Pollys Hill Lane

	L	R
SAT	0	5

Critical Lane Volume Analysis

Sat. Midday Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		
	VOL	x LUF	= Total	VOL	x LUF	= Total
NB	5	1.00	5			
EB	647	1.00	647	6	1.00	6
WB	649	1.00	649			
CLV TOTAL=						658
Level of Service (LOS) =						A

Critical Lane Volume Analysis



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Oxford Road &
 Pollys Hill Lane
 (Total Traffic)

Intersection
A

Appendix G

Analysis of Oxford Road at Clubhouse Drive



Traffic Impact Analysis

Clubhouse Drive Location Map

**Exhibit
G1**



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Trip Generation Rates

Single Family Detached Housing (ITE-210)

Morning Trips = 0.70 x Units
 Evening Trips = 0.94 x Units
 Saturday Midday Trips = 0.92 x Units

Trip Distribution (In/Out)

26/74
 63/37
 54/46

Trip Generation Totals

		AM Peak			PM Peak			Saturday Peak		
		In	Out	Total	In	Out	Total	In	Out	Total
Single Family Detached Housing (ITE-210)	88 units	16	46	62	52	31	83	44	37	81
Total:		16	46	62	52	31	83	44	37	81

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition.

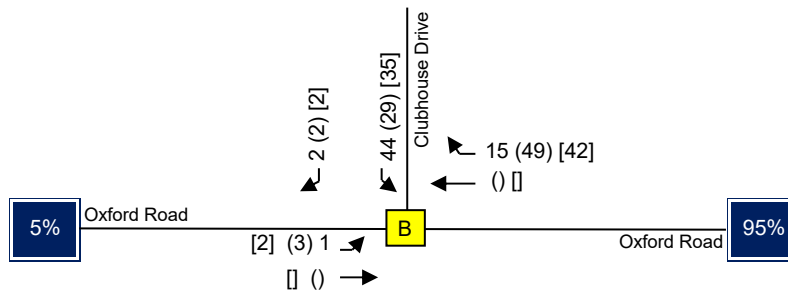
Traffic Impact Analysis

Trip Generation for
Clubhouse Drive

**Exhibit
G2**



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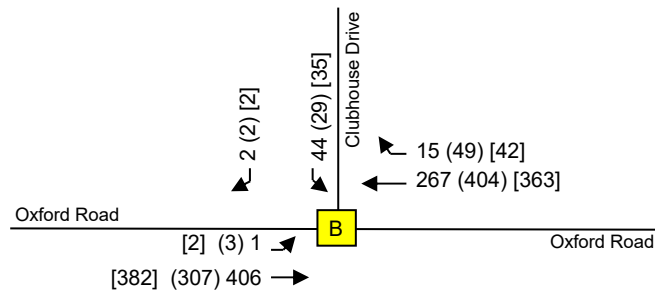
Traffic Impact Analysis



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Trip Assignment for
Clubhouse Drive

**Exhibit
G3**



Note: In order to establish existing volumes, volumes were flowed from the intersection of Oxford Road at Pollys Hill Lane.

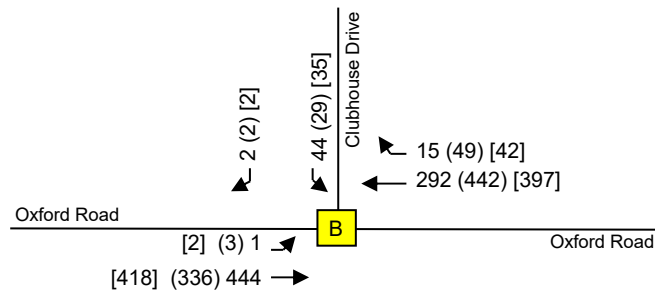
Traffic Impact Analysis



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Existing
Peak Hour Volumes

**Exhibit
G4**



1.5%	Annual Growth
6	Year Build-out
1.09	Growth Factor

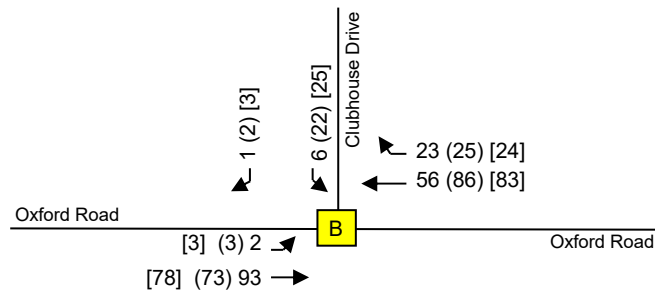
Traffic Impact Analysis



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Base
Peak Hour Volumes

**Exhibit
G5**



Note: At the time traffic counts were conducted, the Easton Club Golf Course was not operational. Given this is an approved use, the golf course was included under background conditions to account for "vested" trips.

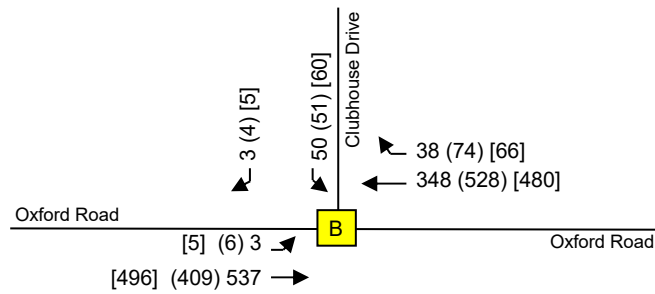
Traffic Impact Analysis



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Combined Trips Generated by Background Developments

Exhibit G6



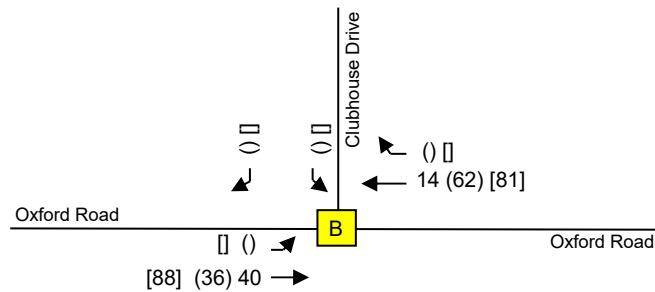
Traffic Impact Analysis



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Background
Peak Hour Volumes

**Exhibit
G7**



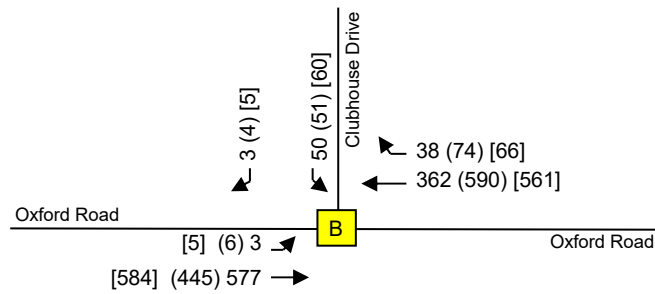
Traffic Impact Analysis



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Combined Trips Generated by
Poplar Hill Development

**Exhibit
G8**



Traffic Impact Analysis



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Total
Peak Hour Volumes

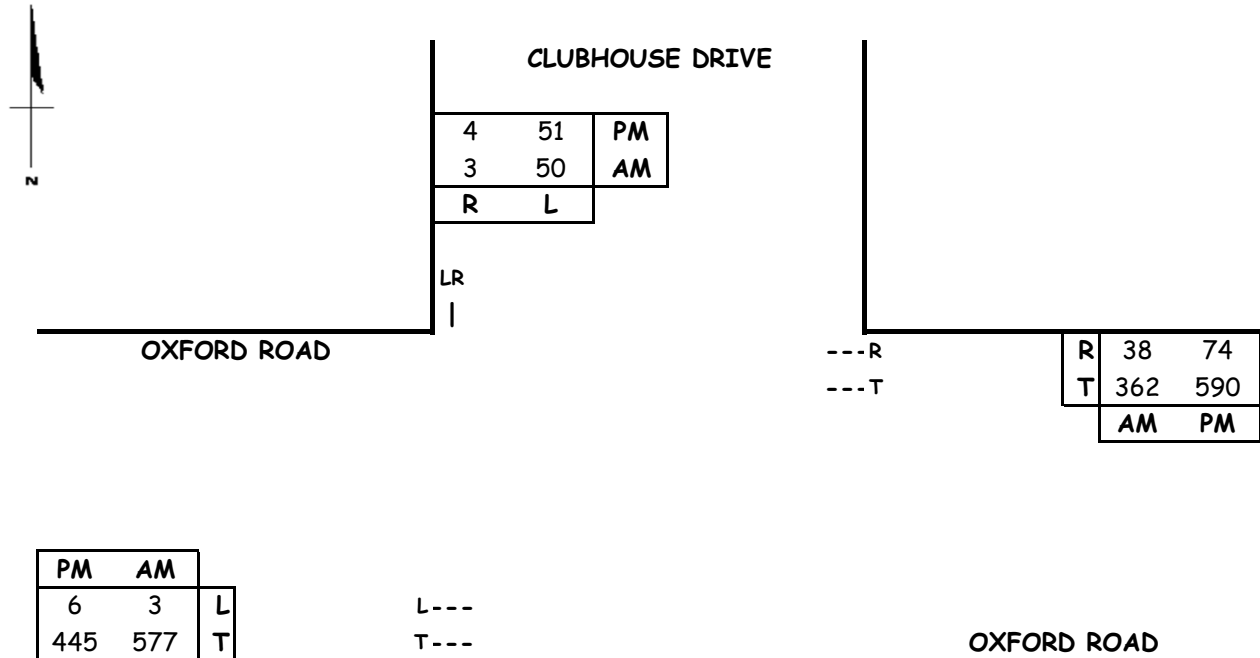
**Exhibit
G9**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Intersection of: Oxford Road
and: Clubhouse Drive
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour				
Dir	Thru Volumes			AM CLV
	VOL	x LUF	= Total	
SB	53	1.00	53	53
EB	577	1.00	577	577
WB	362	1.00	362	362
CLV TOTAL=				630
Level of Service (LOS) =				A

Evening Peak Hour				
Dir	Thru Volumes			PM CLV
	VOL	x LUF	= Total	
SB	55	1.00	55	55
EB	445	1.00	445	445
WB	590	1.00	590	590
CLV TOTAL=				651
Level of Service (LOS) =				A

Critical Lane Volume Analysis



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Oxford Road &
Clubhouse Drive
(Total Traffic)

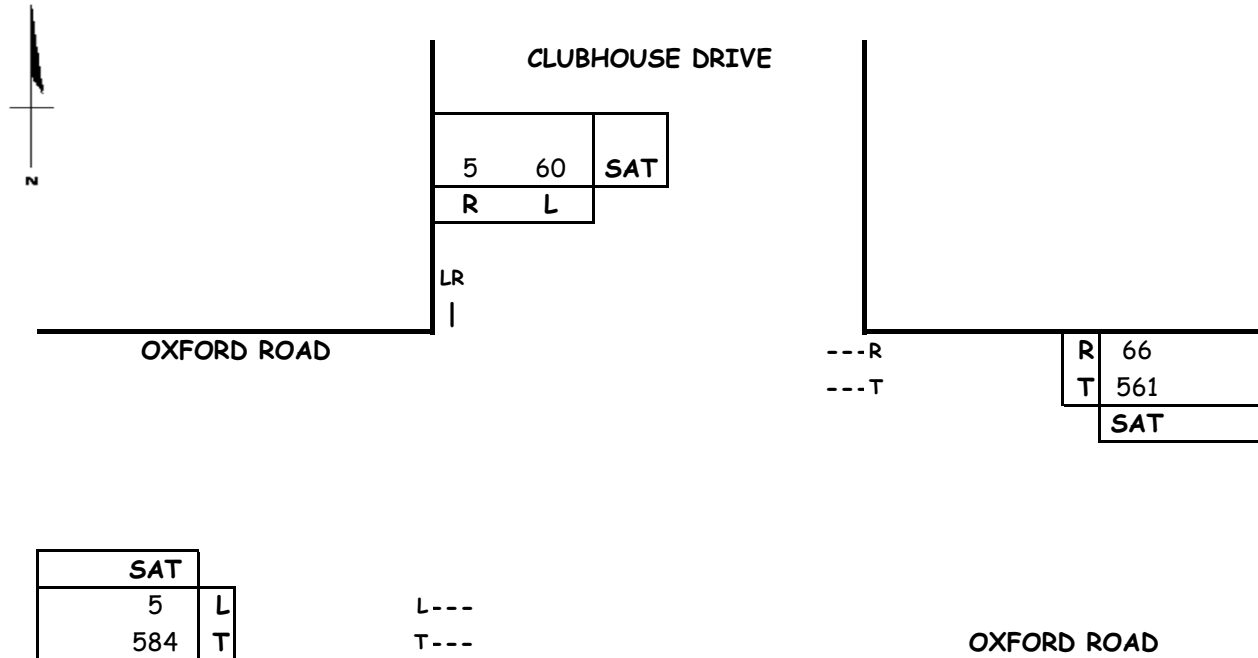
**Intersection
B**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Intersection of: Oxford Road
and: Clubhouse Drive
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Saturday Midday Peak Hour				
Dir	Thru Volumes			SAT CLV
	VOL	x LUF	= Total	
SB	65	1.00	65	65
EB	584	1.00	584	584
WB	561	1.00	561	5
CLV TOTAL=				649
Level of Service (LOS) =				A

Critical Lane Volume Analysis

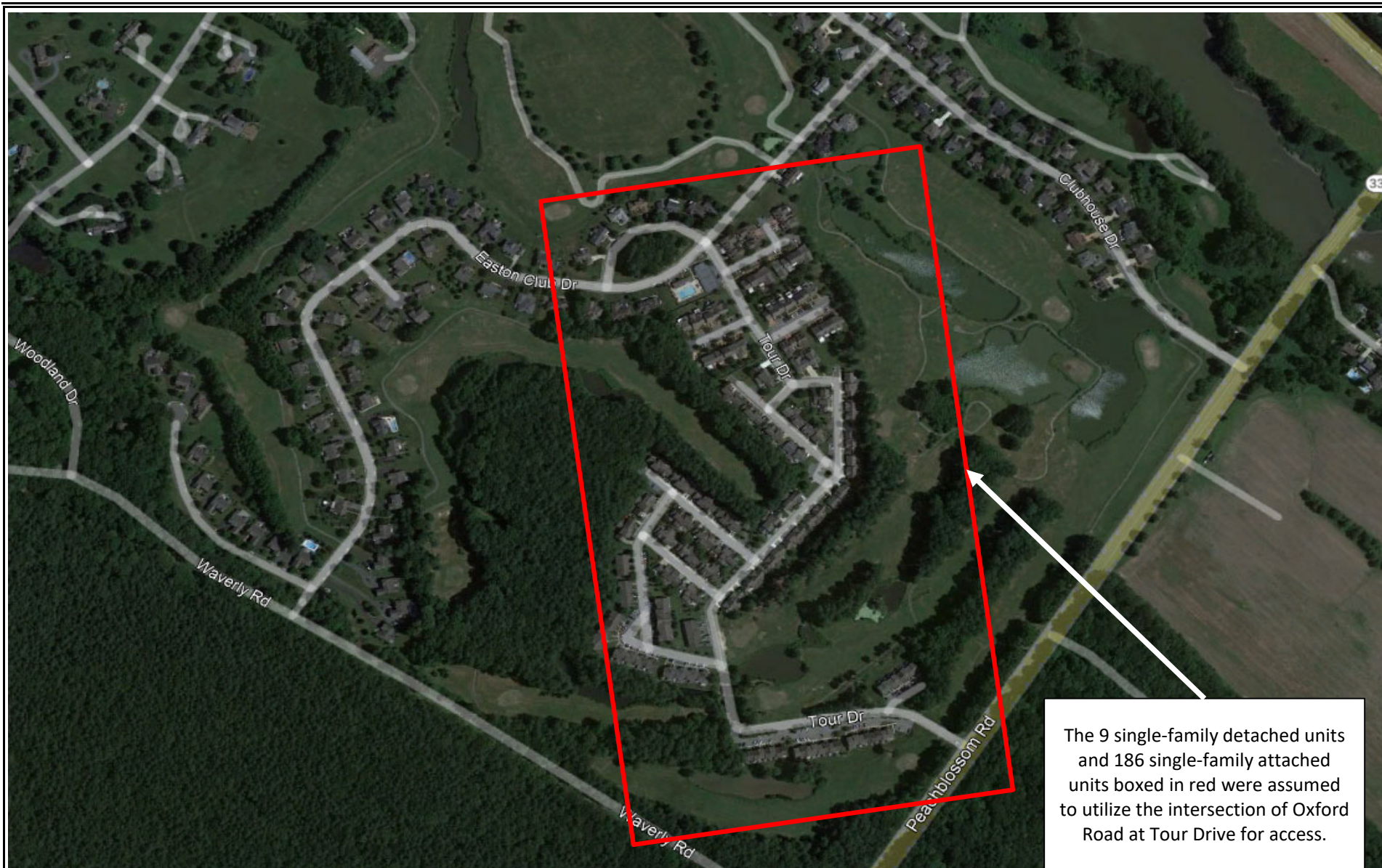


Oxford Road &
Clubhouse Drive
(Total Traffic)

**Intersection
B**

Appendix H

Analysis of
Oxford Road at Tour Drive



The 9 single-family detached units and 186 single-family attached units boxed in red were assumed to utilize the intersection of Oxford Road at Tour Drive for access.

Traffic Impact Analysis	
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Tour Drive Location Map

Exhibit H1

Trip Generation Rates

Single Family Attached Housing (ITE-215)

Morning Trips = 0.48 x Units

Evening Trips = 0.57 x Units

Saturday Midday Trips = 0.57 x Units

Trip Distribution (In/Out)

31/69

57/43

48/52

Single Family Detached Housing (ITE-210)

Morning Trips = 0.70 x Units

Evening Trips = 0.94 x Units

Saturday Midday Trips = 0.92 x Units

Trip Distribution (In/Out)

26/74

63/37

54/46

Trip Generation Totals

		AM Peak			PM Peak			Saturday Peak		
		In	Out	Total	In	Out	Total	In	Out	Total
Single Family Attached Housing (ITE-215)	186 units	28	61	89	60	46	106	51	55	106
Single Family Detached Housing (ITE-210)	9 units	2	4	6	5	3	8	4	4	8
Total:		30	65	95	65	49	114	55	59	114

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition.

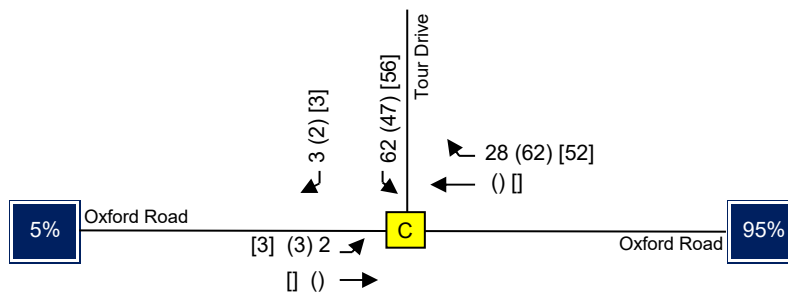
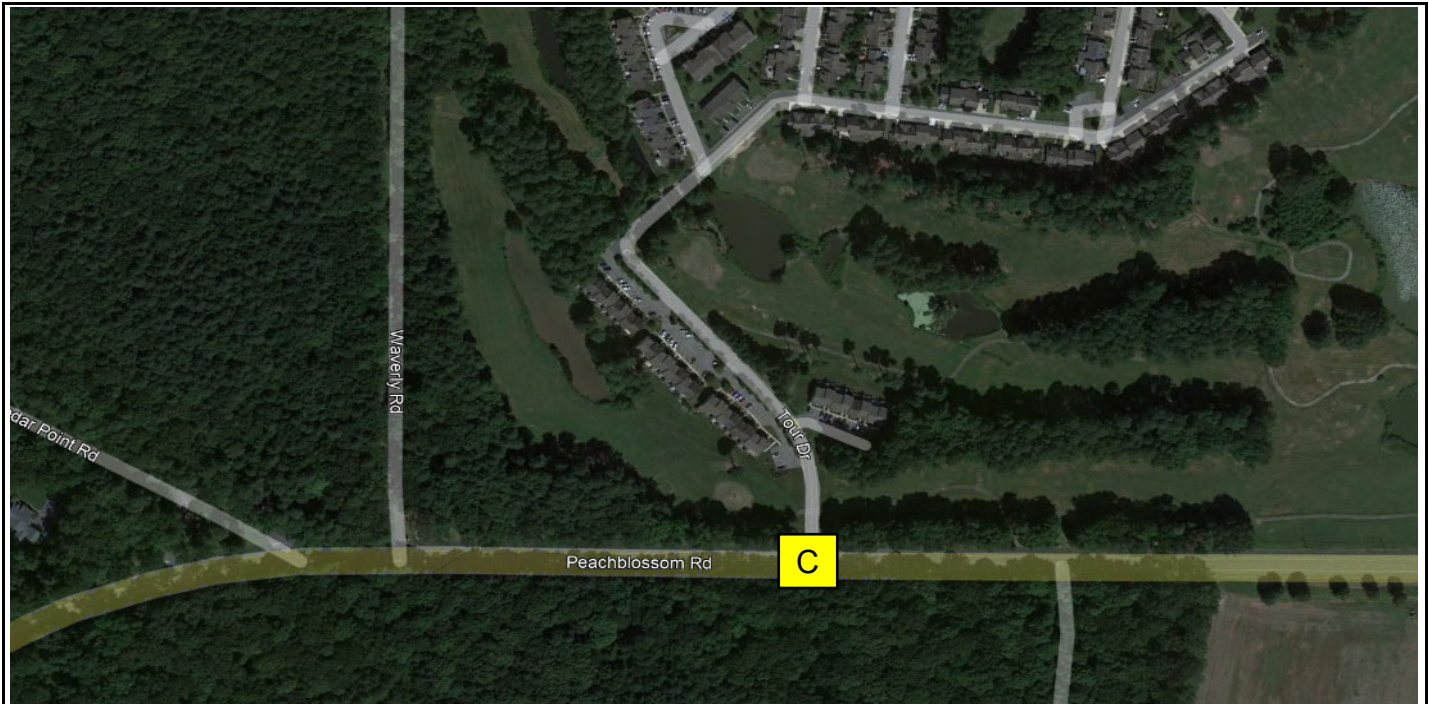
Traffic Impact Analysis



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Trip Generation for
Tour Drive

**Exhibit
H2**



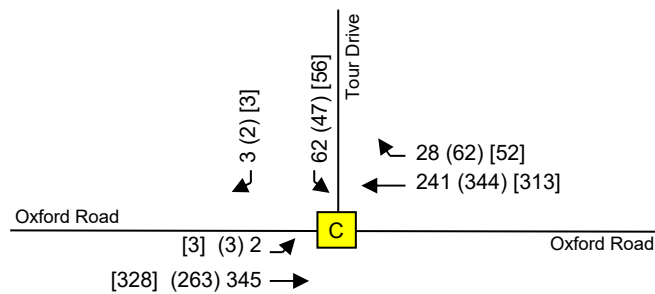
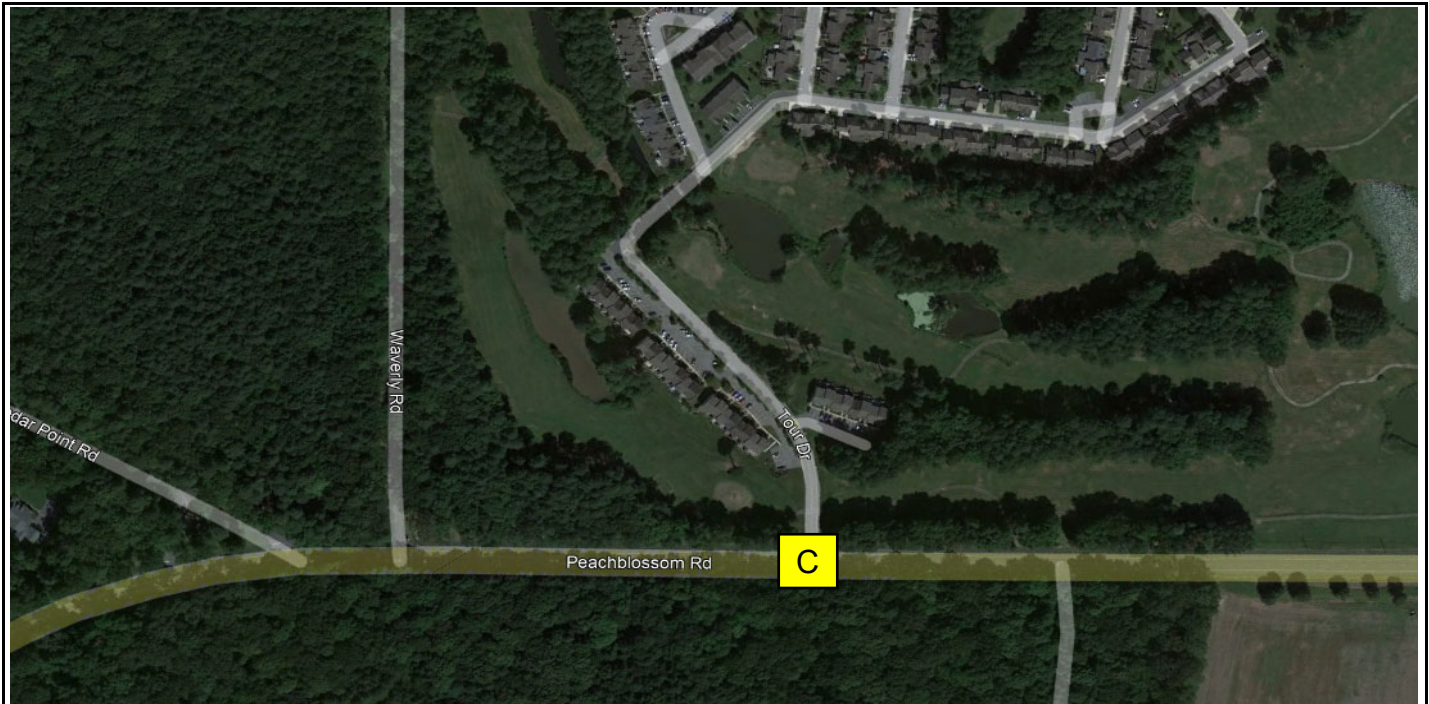
Traffic Impact Analysis



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Trip Assignment for Tour Drive

Exhibit H3



Note: In order to establish existing volumes, volumes were flowed from the intersection of Oxford Road at Clubhouse Drive.

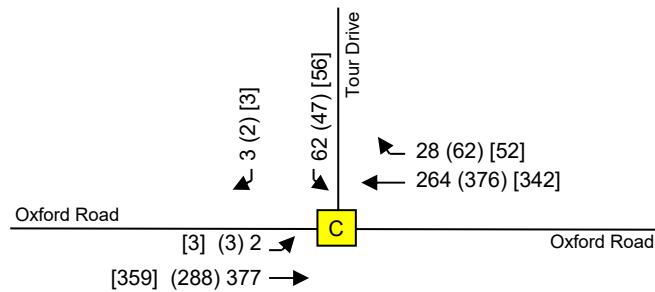
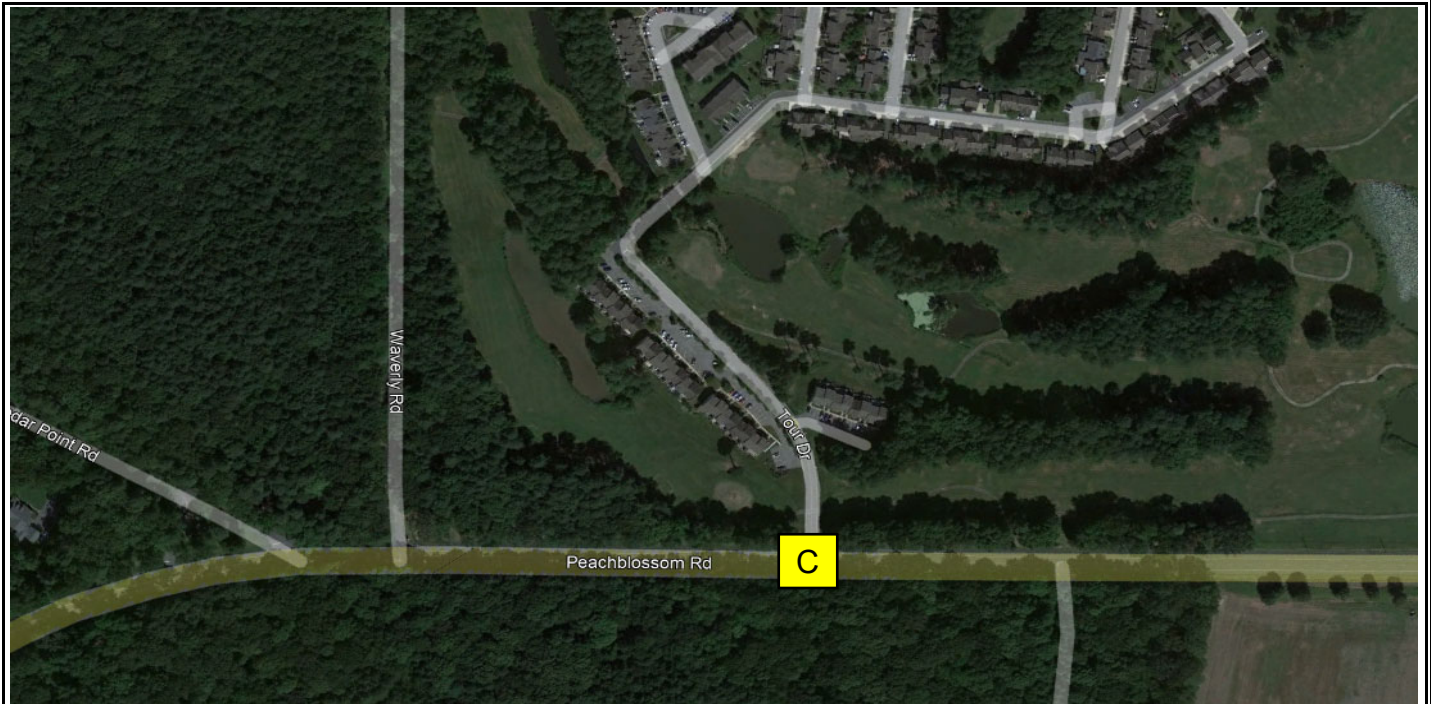
Traffic Impact Analysis



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www.lenharttraffic.com

Existing Peak Hour Volumes

Exhibit H4



1.5%	Annual Growth
6	Year Build-out
1.09	Growth Factor

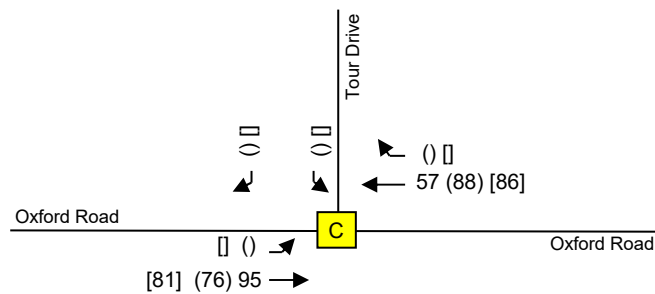
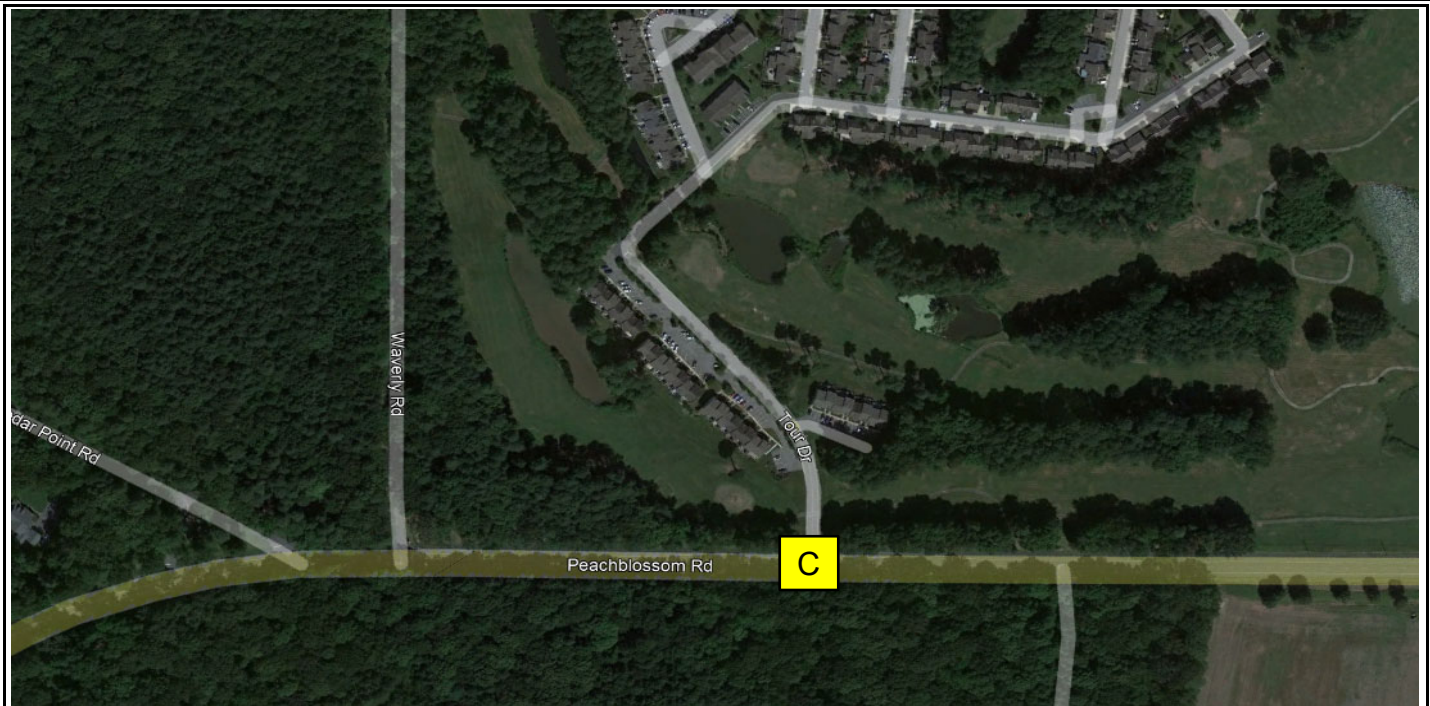
Traffic Impact Analysis



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Base
Peak Hour Volumes

**Exhibit
H5**



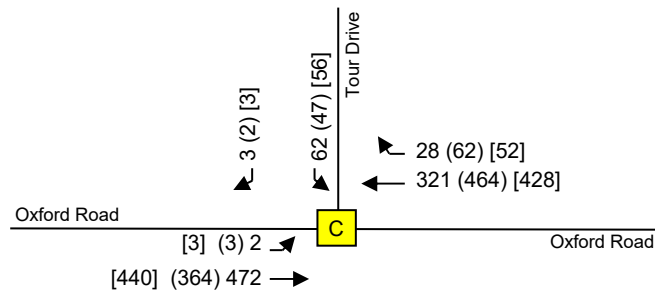
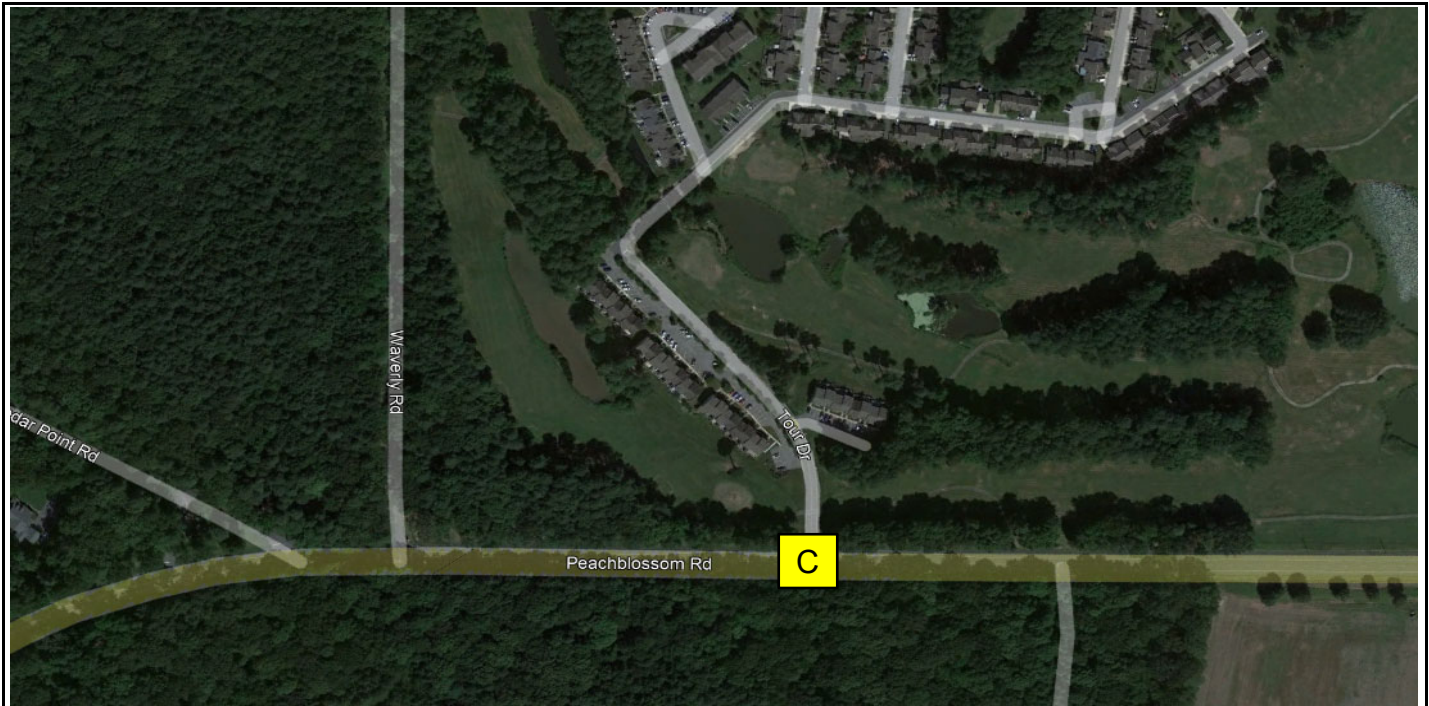
Traffic Impact Analysis



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Combined Trips Generated by Background Developments

Exhibit H6



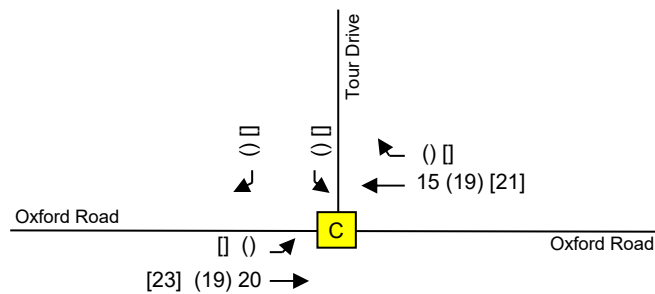
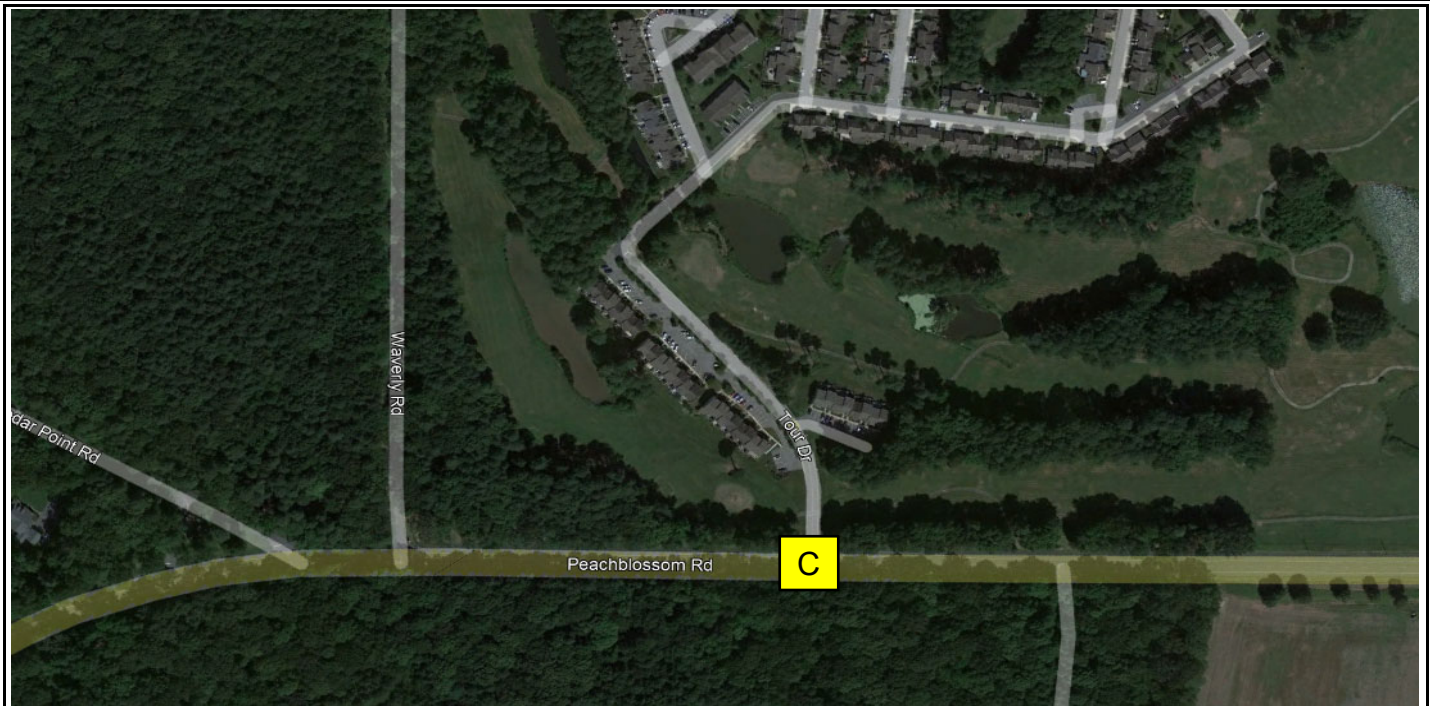
Traffic Impact Analysis



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Background Peak Hour Volumes

Exhibit H7



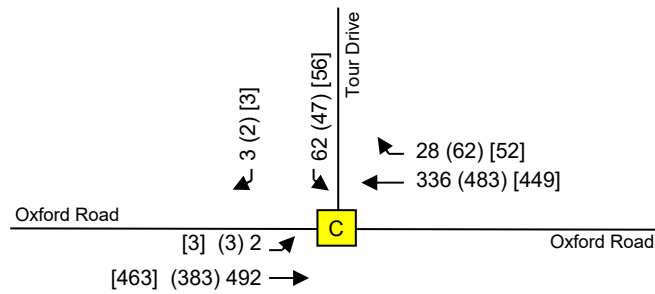
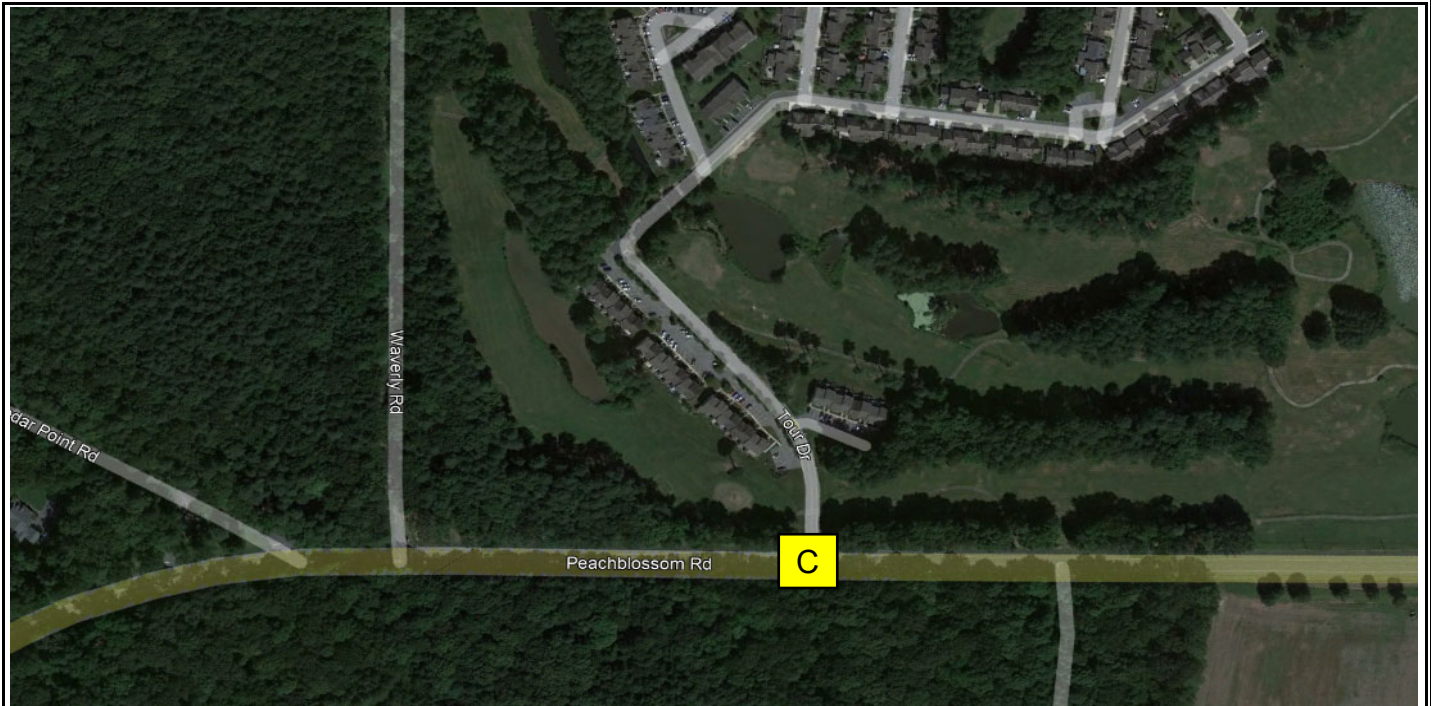
Traffic Impact Analysis



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Combined Trips Generated by
Poplar Hill Development

**Exhibit
H8**



Traffic Impact Analysis



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Total
Peak Hour Volumes

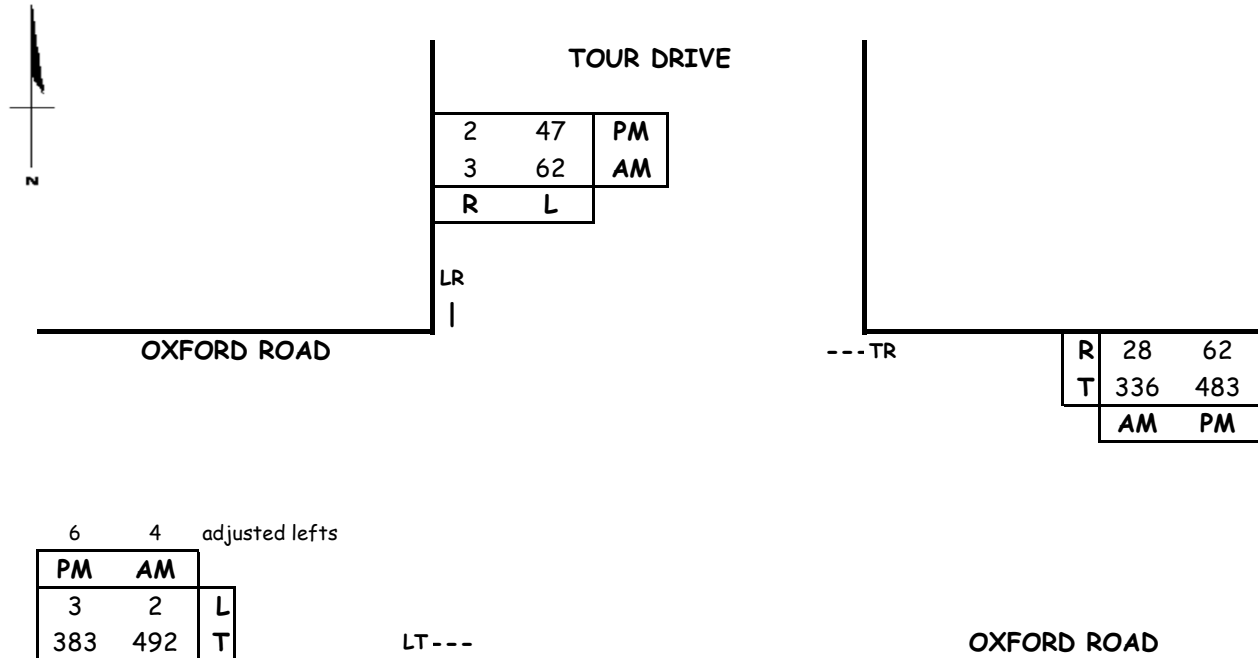
**Exhibit
H9**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Intersection of: Oxford Road
and: Tour Drive
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour				
Dir	Thru Volumes			AM
	VOL	x LUF	= Total	
SB	65	1.00	65	65
EB	496	1.00	496	496
WB	364	1.00	364	2
CLV TOTAL=				561
Level of Service (LOS) =				A

Evening Peak Hour				
Dir	Thru Volumes			PM
	VOL	x LUF	= Total	
SB	49	1.00	49	49
EB	389	1.00	389	548
WB	545	1.00	545	3
CLV TOTAL=				597
Level of Service (LOS) =				A

Critical Lane Volume Analysis



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Oxford Road &
Tour Drive
(Total Traffic)

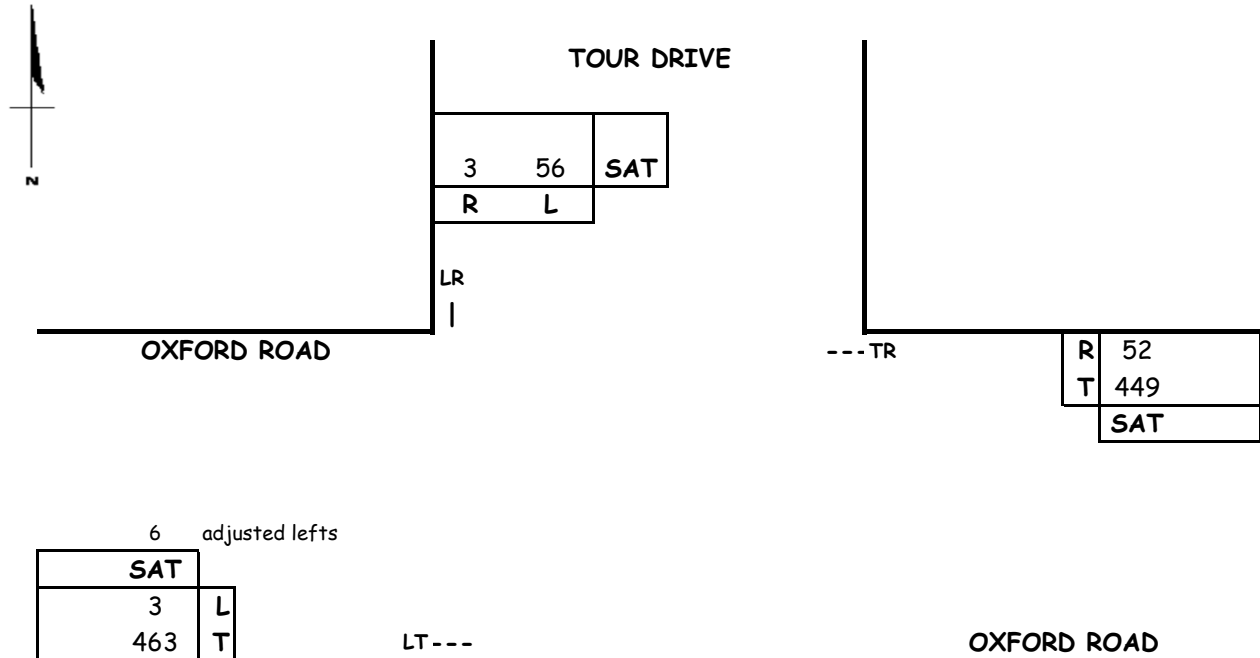
Intersection
C

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Intersection of: Oxford Road
and: Tour Drive
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Saturday Midday Peak Hour				
Dir	Thru Volumes			SAT CLV
	VOL	x LUF	= Total	
SB	59	1.00	59	59
EB	469	1.00	469	504
WB	501	1.00	501	
CLV TOTAL=				563
Level of Service (LOS) =				A

Critical Lane Volume Analysis

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SEVERNA PARK, MD 21146
www.lenharttraffic.com

Oxford Road &
Tour Drive
(Total Traffic)

Intersection
C



EASTON POINT PARK

SITE IMPROVEMENTS



DATE	MAR 2022
DRAWN BY	KXC
ISSUED FOR REVIEW	
SCALE	AS SHOWN
SHEET	S1



DATE	MAR 2022
DRAWN BY	KXC
ISSUED FOR REVIEW	
SCALE	AS SHOWN
SHEET	S2

EASTON POINT PARK

SITE IMPROVEMENTS

- LEGEND
- TO BE REMOVED
 - SEATING AREA
 - WATER FOUNTAIN
 - TRASH CAN
 - MULCH WALKING PATH
 - BOARDWALK

NOTES:



NOTES: 20' vehicle with 23' trailer has 52' outside turning radius, and a 35' inside turning radius
65 passenger school bus has 40' outside turning radius, and a 24' inside turning radius
WB-50 has a 46' outside turning radius, 18' inside turning radius

LEGEND

TBR

TO BE REMOVED

MULCH WALKING PATH

SEATING AREA

WATER FOUNTAIN

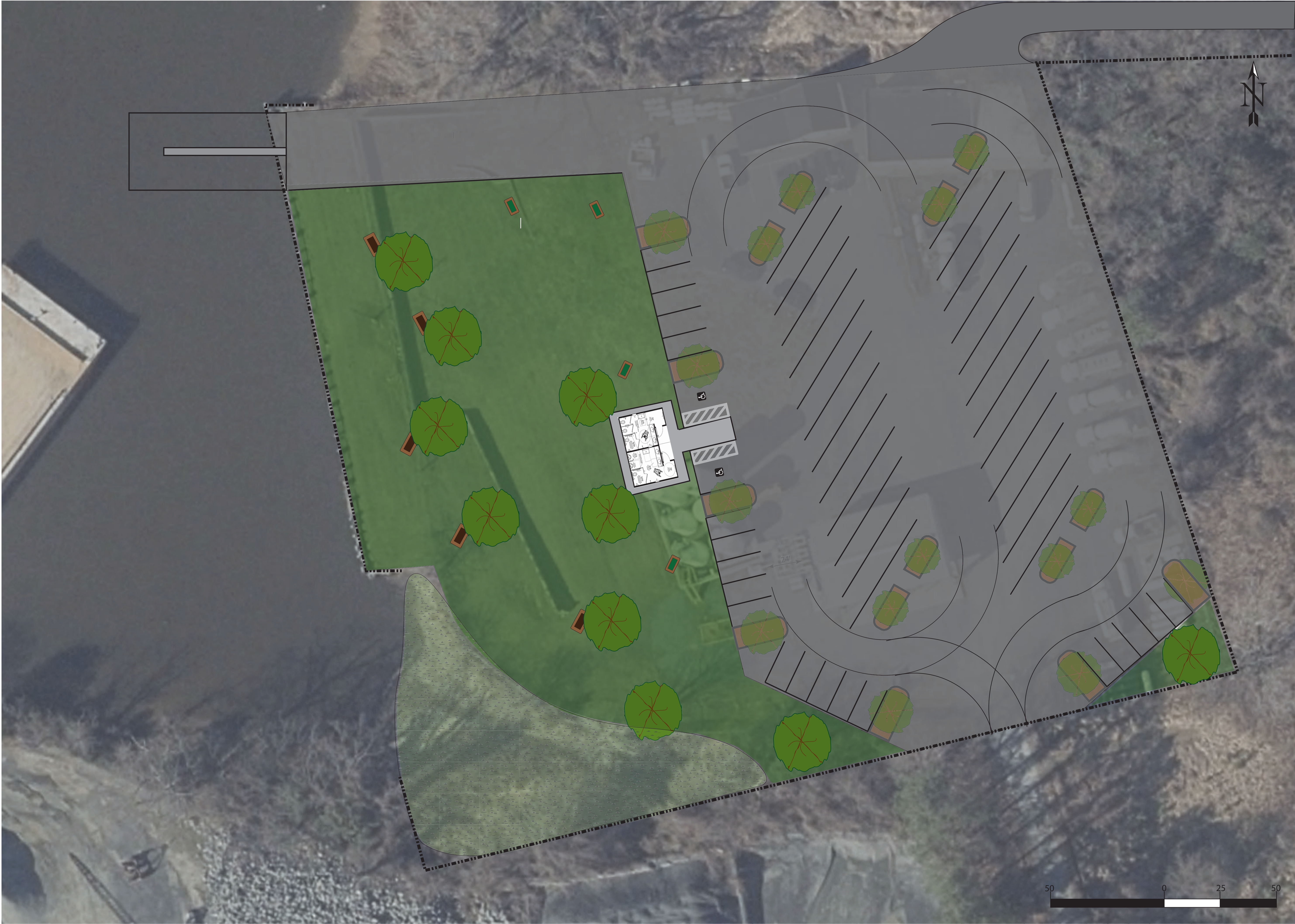
TRASH CAN

EASTON POINT PARK

SITE IMPROVEMENTS

DATE	MAR 2022
DRAWN BY	KXC
ISSUED FOR REVIEW	
SCALE	AS SHOWN
SHEET	S3

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NOTES: 20' vehicle with 23' trailer has 52' outside turning radius, and a 35' inside turning radius
65' passenger school bus has 40' outside turning radius, and a 24' inside turning radius
WB-50 has a 46' outside turning radius, 18' inside turning radius

0.54in=1



DATE	MAR 2022
DRAWN BY	KXC
ISSUED FOR REVIEW	
SCALE	AS SHOWN
SHEET	S4

EASTON POINT PARK

SITE IMPROVEMENTS

LEGEND

	TO BE REMOVED		MULCH WALKING PATH
	SEATING AREA		PICNIC TABLES
	WATER FOUNTAIN		
	TRASH CAN		



EXISTING CONDITIONS



PROPOSED CONDITIONS



LEGEND	
	TO BE REMOVED
	SEATING AREA
	WATER FOUNTAIN
	TRASH CAN
	MULCH WALKING PATH
	BOARDWALK

EASTON POINT PARK
SITE IMPROVEMENTS



DATE	JUL 2022
DRAWN BY	KXC
ISSUED FOR REVIEW	
SCALE	AS SHOWN
SHEET	S5

NOTES: