Planning Commission
MEETING AGENDA

Thursday, February 20, 2025 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

1. **Call to Order**

2. **Approval of Minutes**

   a. Approval of the Draft Decision Summary from the December 19, 2024 meeting.

3. **Old Business**

4. **New Business**

   a.

Applicant:	2025 - 1372
Owner:	Talbot County, Maryland
Location:	10028 Ocean Gateway (Talbot County Community Center) Tax Map 0017, Grid 0018, Parcel 0038
Zoning District:	GI
Nature of Request:	Approval for the relocation of the existing monument sign of the Talbot County Community Center in connection with the reconfiguration of the TCCC entrance.

   b.

Application Number:	2025 - 1370
Applicant:	Easton Crossing, LLC
Location:	505 Brookletts Avenue (Easton Crossing) Tax Map 0104, Grid 00EA, Parcels 1823, 1826 & 1833
Zoning District:	BC with a PRD Overlay
Request:	Sketch site plan approval for the construction of mixed commercial and residential buildings, parking lots, parks/open space with associated stormwater management facilities. The Applicant is also seeking a supplemental waiver from the landscaping and bufferyard requirements of Chapter 28-

1014.7.E.3(a) & (b)1 and Chapter 28-1014.7.E.5.(a) through (c) of the Zoning Code.

c.

Application Number:	2025 - 1371
Applicant:	Town of Easton
Location:	801 Port Street (Easton Point Park) Tax Map 0034, Parcel 0171
Zoning District:	MXW
Request:	Sketch site approval of a proposed public boat ramp with associated site improvements including parking, sidewalk, stormwater management facilities and restroom facilities on the existing Town of Easton Point Park.

5. Election of Officers

a. Election of 2025 Officers.

6. Discussion Item

a. Design review and approval of the graphics and mechanical equipment screening on a previously approved kitchen facility on the existing property located at 625 Dover Road (Rise Up Coffee Roasters), also known as Tax Map 0103, Parcel 0090.

b. Pattern Books and Design Guidelines: A discussion with Jay Corvan on developing and incorporating a pattern book for development.

c. Planned Redevelopment Overlay District (PRD) revisions.

7. Adjournment

Town of Easton Planning Commission
Draft Decision Summary
Thursday, December 19, 2024 at 1:00 p.m.
Town Hall Chamber 2
14 S. Harrison Street, Easton, Maryland

Archived video of the meeting is available at:
Town of Easton Agendas and Minutes (eastonmd.gov)

Attendance:

Commission Members:
Philip Toussaint, Chairperson
Michael Ports, Vice Chairperson
Victoria McAndrews
William Ryall

Staff:
Lynn B. Thomas AICP, Town Planner
Joseph Mayer, Plan Reviewer
Nicholas Johnson AICP, Planner
Sharon Van Emburgh, Esq. Town Attorney
Rick Van Emburgh, Town Engineer
Samantha Smith, Administrative Specialist

Absent:

Commission Members:
Tom Klein

Staff:
Miguel Salinas, Planning and Zoning Director

1. **Call to Order** — Chairperson Toussaint called the meeting to order at 1:00 pm.

2. **Decision Summary Review** —

   a. November 21, 2024 - The Commission noted the following correction to the draft decision summary:

      i. Line 89 and 90: Name correction.
      ii. Line 158 - 165: Revise motion for clarity.
      iii. Line 291: Revise for clarity.

Vice Chairperson Ports moved to approve the November 21, 2024 Decision Summary with amendments. Commissioner Ryall seconded the motion.

Vote 4 - 0 - 1

FOR: 4 - Toussaint, Ports, McAndrews, Ryall
AGAINST: 0
ABSTAIN: 0
ABSENT: 1 - Klein

3. New Business

a. File No.: 2024 - 1349
Applicant: Torchio Architects
Location: 412 S. Harrison Street, Easton, MD 21601
(Easton Church of the Brethren)
Tax Map 0105, Grid 00EA, Parcel 2315
Zoning: R-10A
Request: The Applicant is requesting a Supplemental Waiver from Section 28-1001.3.C of the Town of Easton Zoning Ordinance. The Applicant is seeking a waiver of twelve (12) parking spaces from the minimum number of twenty six (26) parking spaces required for a house of worship.

Staff recommends the following conditions:

1. Staff supports that the waiver be modified to request thirteen (13) parking spaces from the minimum number of twenty six (26) parking spaces required for a house of worship.

2. Submit a Site Plan with slope information for the ADA van space, ramps, access aisles and landing areas, including cross-slopes. Show all ADA related spot elevations and obtain approval from the Building Inspection Department for all ADA references prior to Site Plan approval. The Site Plan should have all applicable details for ADA signs and bollards.

3. In the event that the Limit of Disturbance exceeds 5,000 square feet during construction, the Applicant will need to address stormwater management practices.

Staff Presentation:
Joseph Mayer, Plan Reviewer
Sharon Van Emburgh, Esq. Town Attorney

Applicant Presentation:
Jo Anne Baker-Gebelein, Vice President at Torchio Architects Inc.

Public Comment — None
Public Comment Written — None

The Applicant amended the supplemental waiver to request a total of thirteen (13) parking spaces.

Commissioner McAndrews moved to approve the amended supplemental waiver request subject to the following conditions:

1. **The Applicant shall submit a Site Plan with slope information for the ADA van space, ramps, access aisles and landing areas, including cross-slopes. The Site Plan should show all ADA related spot elevations, and should have all applicable details for ADA signs and bollards. The Site Plan shall be approved by the Building Inspection Department for all ADA references.**

2. **In the event that the Limit of Disturbance exceeds 5,000 square feet during construction, the Applicant shall address all stormwater management practices.**

Commissioner Ryall seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Toussaint, Ports, McAndrews, Ryall
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - Klein

b. File No.: 2024 - 1199
Applicant: Rauch Inc.
Location: 1180 S. Washington Street Easton, MD 21601
(YMCA of the Chesapeake)
Tax Map 0108, Grid 0000, Parcel 2677
Zoning: R-7A
Request: The Applicant is seeking Sketch Site Plan approval for the construction of a two-story addition on the south side of the existing building, and for the renovation of the entrance to the building with associated site improvements including the expansion of the parking facilities, a stormwater management facility, and landscaping. The Applicant is also seeking a Supplemental Waiver from the Bufferard requirements of Section 28-1014.7.E.4 & 5, and the landscaping requirements of Section 28-1001.3.L of the Zoning Code.

Staff recommends the following condition:

1. The Applicant is to address all remaining Easton Staff Development Review (ESDR) comments.

2. Please obtain approval from the State Highway Administration prior to Development Site Plan approval for the removal of existing pine trees

within the public right-of-way along South Washington Street and a portion of the proposed parking within the public right-of-way.

3. Per Section 28-1001.2 K from the Town's Zoning Ordinance, no part of any parking or maneuvering space shall be closer than ten (10) feet to any street line, sidewalk or property line for commercial or industrial uses. Remove the parking spaces that are within South Washington Street and maintain a ten (10') distance from the property line or obtain a Variance from the Board of Zoning Appeals.

Staff Presentation:
Joseph Mayer, Plan Reviewer
Lynn B. Thomas AICP, Town Planner
Sharon Van Emburgh, Esq. Town Attorney
Rick Van Emburgh, Town Engineer

Applicant Presentation:
Zachary A. Smith, *Esq.* Armistead, Lee, Rust & Wright. P.A.
Benjamin VanNest, Rauch Inc.
Brian Fitzgerald, Rauch Inc.
Robbie Gill, YMCA of Chesapeake CEO

Public Comment:
Tom Ledvina, 7585 Polys Hill Lane

Public Comment Written — None

Vice Chairperson Ports moved to approve the Sketch Site Plan subject to the following conditions:

1. **The Applicant shall address all outstanding Easton Staff Development Review (ESDR) comments.**

2. **The Applicant shall obtain approval from the State Highway Administration prior to Development Site Plan approval for the removal of existing pine trees within the public right-of-way along South Washington Street and a portion of the proposed parking being within the public right-of-way.**

3. **The Applicant shall maintain a ten (10') foot distance from the property line. The Applicant may remove the parking spaces that are within the South Washington Street frontage, or may obtain a Variance pursuant to Section 28-1001.2.K from the Town of Easton Board of Zoning Appeals.**

4. **The Applicant shall establish an agreement with the State Highway Administration on the designation of the shared sidewalk along South Washington Street.**

Following discussion amongst Commission members, Vice Chairperson Ports withdrew the motion.

Vice Chairperson Ports moved to approve the Sketch Site Plan subject to the following conditions:

1. **The Applicant shall address all outstanding Easton Staff Development Review (ESDR) comments.**

2. **The Applicant shall obtain approval from the State Highway Administration prior to Development Site Plan approval for the removal of existing pine trees within the public right-of-way along South Washington Street and a portion of the proposed parking being within the public right-of-way.**

3. **The Applicant shall maintain a ten (10') foot distance from the property line. The Applicant may remove the parking spaces that are within the South Washington Street frontage, or may obtain a Variance pursuant to Section 28-1001.2.K from the Town of Easton Board of Zoning Appeals.**

Chairperson Toussaint seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Toussaint, Ports, McAndrews, Ryall
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - Klein

4. Old Business

a. File No.: 2021 - 0473
Applicant: Armistead, Lee, Rust & Wright, P.A.
% Zachary A. Smith, Esq.

Location: 29659 Matthewstown Road, Easton, MD 21601
Tax Map 0026, Grid 0020, Parcel 0045
Zoning: PUD with a base zoning district of A-1
Request: The Applicant is seeking architectural approval for six (6) proposed house models with various architectural elevations pursuant to a previously approved Planned Unit Development (PUD) site plan for the development of the Gannon Range Community (Ordinance No. 773). This application was tabled by the Commission at their October 17, 2024 meeting pending the submission of additional architectural products that provide a greater variety in the home design including side-load garages, driveway options, and an enhanced variation of architectural styles.

Background: On February 21, 2022, the Town Council approved Ordinance No. 773, granting the application for a PUD under the provisions of the Easton Zoning Ordinance, effective March 13, 2022. Condition No. 7 in Section E of the Finding of Fact stipulates that the Applicant should provide a greater variation of architectural styles than what was provided in the PUD application to which shall be subject to the approval of the Easton Planning and Zoning Commission.

On February 5, 2024, the Town Council approved Ordinance No. 803, revising the language of Chapter 28 which governs that a PUD approval shall now lapse at three (3) years if no action is taken by the owner or developer to start or cease construction between phases. On February 15, 2024, the Town of Easton Planning Commission reviewed an extension request for the previously approved PUD for the development of a mixed-use subdivision pursuant to Ordinance No. 773. The Commission voted unanimously to grant the PUD extension through December 31, 2024.

Staff Presentation:
Joseph Mayer, Plan Reviewer
Lynn B. Thomas AICP, Town Planner
Sharon Van Emburgh, Esq. Town Attorney
Rick Van Emburgh, Town Engineer

Applicant Presentation:
Zachary A. Smith, *Esq.* Armistead, Lee, Rust & Wright. P.A.

Public Comment — None
Public Comment Written — None

Vice Chairperson Ports moved to approve the additional architectural models subject to the following condition:

1. **In order to ensure a variety of house designs and styles along all streets, models shall not be constructed on lots directly next to one another, including corner lots sharing a side or back property line. In addition, the same model cannot be constructed on lots directly across the street.**

Chairperson Toussaint seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Toussaint, Ports, McAndrews, Ryall
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - Klein

5. **Discussion Items** —

   a. Follow up from the December 12, 2024 Comprehensive Plan Workshop — The Commission reflected on the outcome of the workshop, which focused on the draft Municipal Growth Chapter. In anticipation of reviewing the draft Sustainability Chapter, the Commission expressed interest in the inclusion of design guidelines that incorporate bird strike mitigation features, and a native plantings and insect list.

   A subsequent workshop has been scheduled for Thursday, January 23, 2025 at 1 p.m. for the purpose of reviewing the remaining five (5) new Draft Chapters of the Plan including: Historic Preservation, Sensitive Areas, Water Resources, Parks, Rec & Open Space, and Sustainability.

6. **Adjournment** — Chairperson Toussaint moved to adjourn. Commissioner Ryall seconded the motion. The meeting was adjourned at 2:26 p.m.

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

Date of Meeting: February 20, 2025

4a

PLANNING COMMISSION
SUPPLEMENTAL ITEM

SUBJECT: **Talbot County Community Center**

ELECTION WARD: Ward 1

CRITICAL ACTION DATE: At the pleasure of the Commission

STAFF CONTACTS: Joseph Mayer, Plan Reviewer
Miguel Salinas, Director of Planning and Zoning

DOCUMENT CREATED ON: February 7, 2025

PURPOSE: The applicant is seeking approval from the Planning Commission for the relocation of the existing monument sign of the Talbot County Community Center in connection with the reconfiguration of the TCCC entrance.

RECOMMENDATION:

Staff: Staff recommends that the Planning Commission obtain a clear explanation from the applicant in regards to why this existing sign needs to remain nonconforming after being removed from its existing site and relocated. That particular item should be addressed prior to approval of the proposed General Signage Plan.

28 – 1101.7(D) DEVELOPMENT STANDARDS

1. No more than one (1) free standing sign or bulletin board identifying a school, place of worship, library, museum, civic, social or fraternal club or society, which sign shall not exceed thirty-two (32) square feet in area, six (6) feet in height and shall be located upon the premises of such institutions. These signs may also contain other information customarily incidental to said places or organizations. This provision is in place of, rather than in addition to, the standards for freestanding signs outlined in Section 28 – 1101.6 B above.

2.No more than one (1) building sign or bulletin board identifying a school, place of worship, library, museum, civic, social or fraternal club or society, which sign shall not exceed thirty-two (32) square feet in area and shall be located upon the premises of such institutions. These signs may also contain other information customarily incidental to said places or organizations. This

provision is in place of, rather than in addition to, the standards for freestanding signs outlined in Section 28-1101.6 A above.

3. Signage in excess (either in number or size) of the standards outlined in subsections (1) and (2) above, may be considered and can be approved by the Planning and Zoning Commission. Applicants seeking such additional signage shall prepare and submit a Comprehensive Signage Plan to the Planning Department depicting the location, size, materials, etc., for all signs desired on the property. In their review, the Commission shall consider the request in the context of the site (i.e. is the property in a commercial area or a residential neighborhood), the compatibility and consistency of the signs with themselves and with respect to the building they are identifying, safety/visibility concerns, lighting issues, and other neighborhood compatibility issues.

Analysis - Subsection (3) grants the Planning Commission the authority to modify the number or size limitations established by Subsections (1) and (2). The number or quantity limitation is one sign per facility. The size limitations are the area and height. Although Subsection (3) could have limited the Planning Commission's authority to the signage "area," to the exclusion of height, it did not. It authorizes modifications to the sign size; therefore, both area and height are size limitations that the Planning Commission may modify. While there are sections of the signage Code where the word "size" clearly refers to the area of the sign, in this instance, the staff is comfortable with the interpretation that it refers to both area and height.

ISSUES: There are no outstanding issues.

RECOMMENDATION:

Staff does recognize that the Planning Commission has the authority to modify the area and height of the sign. However, there needs to be a clear explanation from the applicant in regards to why this existing sign needs to remain nonconforming after being removed from its existing site and relocated. That particular item should be addressed prior to approval of the General Signage Plan.

DRAFT MOTIONS:

1. I move that the Planning Commission approve the proposed General Signage Plan for the relocation of the existing monument sign.

OR

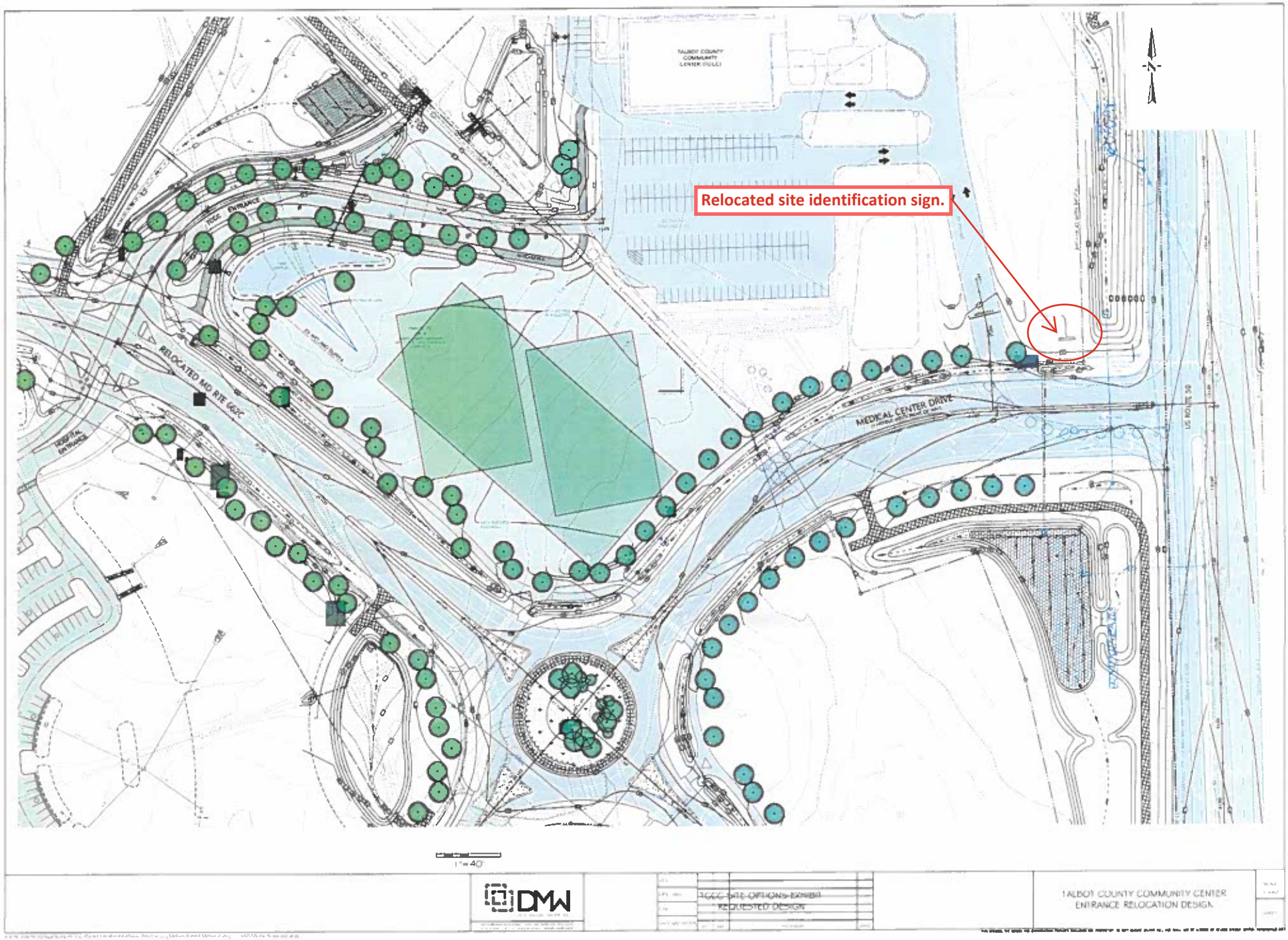
2. I move that the Planning Commission forward the application to the March 20th Commission meeting for further discussion.

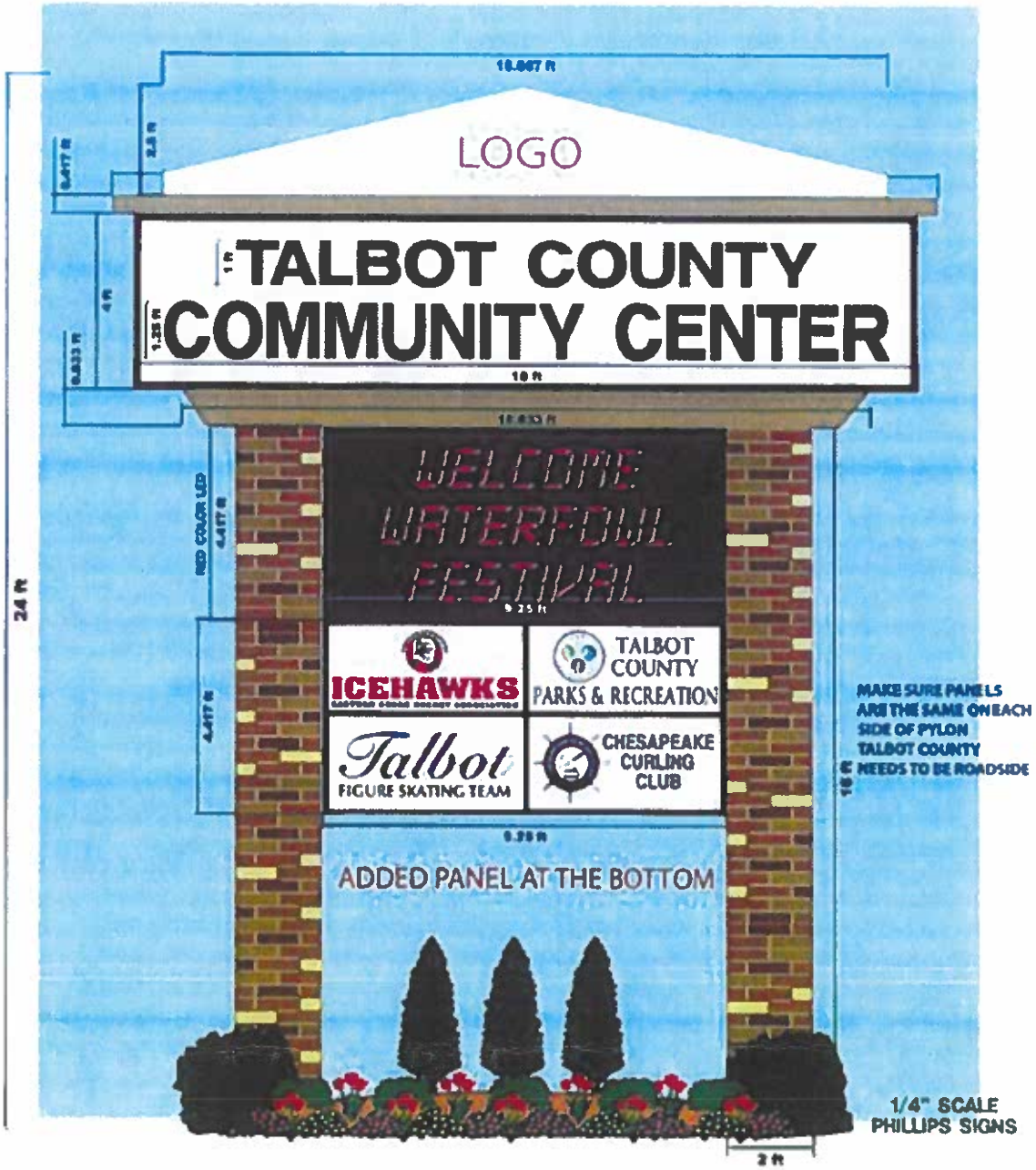
OR

3. I move an alternate motion.

ATTACHMENTS:

1. 2025.01.02 Signage BLDG Permit Application, paper copy & PDF
2. 2025.01.02 TCCC Signage Detail, paper copy & PDF
3. 2025.01.02 Transmittal Letter, paper copy & PDF
4. 2025-1372 TOE PC Proof of Payment, paper copy & PDF
5. 2025.01.02 Sign Relocation Map, paper copy & PDF


Relocated site identification sign.
TALBOT COUNTY COMMUNITY CENTER (TCCC)
TCCC ENTRANCE
RELOCATED MD RTE 662C
HOSPITAL ENTRANCE
MEDICAL CENTER DRIVE
US ROUTE 50
1"=40'
DMW
TCCC SITE OPTIONS EXHIBIT
REQUESTED DESIGN
TALBOT COUNTY COMMUNITY CENTER
ENTRANCE RELOCATION DESIGN


LOGO
TALBOT COUNTY
COMMUNITY CENTER
WELCOME WATERFOWL FESTIVAL
ICEHAWKS
TALBOT COUNTY PARKS & RECREATION
Talbot FIGURE SKATING TEAM
CHESAPEAKE CURLING CLUB
ADDED PANEL AT THE BOTTOM
MAKE SURE PANELS ARE THE SAME ON EACH SIDE OF PYLON TALBOT COUNTY NEEDS TO BE ROADSIDE
1/4" SCALE
PHILLIPS SIGNS


TALBOT COUNTY
COMMUNITY CENTER
WELCOME
WATERFOWL
FESTIVAL
TALBOT
COUNTY
PARKS & RECREATION
Talbot
ADD ON
IN COOPERATION WITH:
MARYLAND DNR PROGRAM OPEN SPACE

Certificate of Occupancy Update & Signage Application for Commercial and Industrial Buildings

Town of Easton
Building Inspection Division
14 South Harrison Street
Easton, Maryland 21601
Telephone 410-822-2526
Fax 410-822-8738

APPLICANT INSTRUCTIONS: Complete all parts of this application, the Building Inspection Division can answer questions, regarding the completion of this application. This application is for the update of a Certificate of Occupancy only when no change occurs in the classification of the occupancy or the use within that classification. Additional Applications are required for construction activity. This application may need to be accompanied by a code analysis prepared by a registered design professional.

Signage Application should be accompanied by two sets of the signage construction documents prepared or detailing information provided within the application.

Office Use Only
Received Date _____ / _____ / _____
Building Permit Number _____
Total Permit Fees $ _____

Part 1: Property Information

11/18/2024	Update Application Date	17	Tax Map
		18	Grid
10028 Ocean Gateway	Project's Address	38	Parcel
	Project's Subdivision (if any)		Lot
Easton, Maryland 21601	Project's City, State and Zipcode	RH	Zoning

Part 2: Owner - Tenant Information

Owner

Talbot County, Maryland	Name
11 North Washington Street	Address
Easton, Maryland 21601	City, State and Zip Code
pthomas@mlg-lawyers.com 410-770-8092	E-Mail Address and Telephone Number

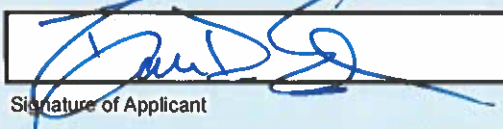
Tenant Information
For a Multiple Occupancy Building Provide Tenants information by attaching additional sheets

	Name
	Address
	City, State and Zip Code
	E-Mail Address and Telephone Number
	Occupied Square Footage

Part 3: Certification

The applicant hereby certifies by completing this application as follows; (1) "I am the owner of record of the named property, or that the proposed update is authorized by the owner of record and that I have been authorized by the owner to make this application as their agent.", (2) "That the information contained in the application is a full disclosure of the update to the Certificate of Occupancy." and (3) "That the information contained in the application is in compliance with all applicable covenants and or deed restrictions.".

The applicant further certifies; (1) "That I will comply with all codes of the Town of Easton and the State of Maryland which are applicable thereto.", (2) "That I will perform no work on the above property without making the appropriate applications and acquiring the required permits." and (3) "That the Town Officials shall have the authority to enter areas covered by this application prior to issuance of the updated Certificate of Occupancy".



Signature of Applicant

Ryan Showalter
Printed Name of Applicant

410-820-0259	rshowalter@mdswlaw.com	Counsel for Shore Health System, Inc.
Telephone Number	E-Mail Address	Connection with Application

100 North West Street, Easton, Maryland 21601
Mailing Address of Applicant

Revised Dec. 2021

Part 4: Former Tenant Information

	Name
	Address
	City, State and Zip Code
	E-Mail and Telephone
Occupancy and Use Type	Occupied Square Footage

Part 5: Building Information

Occupancy Design
- ◯ Single Occupancy
- ◯ Multiple Occupancies

Occupancy Separation
- ◯ Single Occupancy
- ◯ Non-Separated
- ◯ Separated

Fire Protection
- ◯ No Sprinklers
- ◯ Partially Sprinklered
- ◯ Fully Sprinklered

Number of Fire Areas
- ◯ Single Fire Area
- ◯ _____ Fire Areas

Parking Spaces Available
- ◯ Total _____
- ◯ ADA _____

Part 6: Square Footages by Floor for Occupancy Classification

Occupancy Classification	Basement	First	Second	Third	Fourth
Assembly					
Business					
Educational					
Factory and Industrial					
High Hazard					
Institutional					
Mercantile					
Residential					
Storage					
Utility and Miscellaneous					
Total Building Floor	_____	_____	_____	_____	_____

Part 7: Fire Resistance Rating for Building Elements

Complete Information for One Construction Type Only

Construction Type	Structural Frame	Bearing Walls Exterior/Interior	Non Bearing Walls Exterior/Interior	Floor Construction	Roof Construction
		/	/		

Part 8: Description of Proposed Change of Occupancy

N/A

Part 9: Change of Tenant Information

_____ / _____ / _____ Former Tenant Vacating Date	_____ / _____ / _____ Tenant Anticipated Occupancy Date	

Part 10: Signage Information & Grid

Sign Application Type: Relocation

☐ Check if Application is for the replacement, restoration or re-facing of an existing sign.

☐ Sidewalk ☒ Freestanding ☐ Wall ☐ Roof ☐ Freestanding ☐ Projecting/Suspending ☐ Master Sign Plan

☐ Marquee ☐ Institutional ☐ Awning or Canopy ☐ Directory ☐ Multiple Tenancy ☐ Other

☒ Check if signage selected above is to feature electronic or digital enhancements

Signage Contractor Information

TBD	Name
	Contact
	Address
	City, State and Zip Code
	Telephone Number
	E-Mail Address

Sign Information

1. Length of façade sign serves		1a. Square Footage	
2. Location Zoning Classification	RH		
3. Location Zoning Classification	RH		
4. Historic District? ☐ Yes ☒ No			
5. Temporary Signage? ☐ Yes ☒ No			
5a. Display Date		5b. Consecutive Days	
6. Signage Installation Completion Date			
7. Cost of Sign			

Summary of Request *(consider proposed signage special approvals, location, height, width, area, illumination, material(s) and color(s), lettering, number of faces, footer detail, total height from surface of road, nearest dimension from walking surface below, visibility triangle, reader-board, method of construction or attachment, clearance from objects, landscaping, electronic/digital display, etc.)*

Request to relocate sign for the Talbot County Community Center to comply with Easton Zoning Code. See attached dimensioned drawing of proposed sign for sign schematics. Note added panel at bottom of sign stating, "In Coordination With: Maryland DNR Program Open Space."

Additional Information Required

1. **Attach site plan(s) and other details as necessary or required.**
2. **Attach dimmensioned drawing of the proposed sign or use grid below to sketch.**
3. **Include any relevant approvals/details.**
4. **If the applicant is other than the owner, include a letter of certification from the owner.**

Office Use Only

Building Inspection Division
- General Information: Received Date ___/___/___; Permit Number ___; Permit Fee $ ___
- Approval: Date ___/___/___; BID Initials ___

Planning and Zoning
- General Information: Not Applicable; County Receipt Received
- Approval: Date ___/___/___; Town Impact $ ___; P&Z Initials ___

Planning Commission
- Application: Not Applicable; Yes - In Review; Yes - Approved
- Approval: Date ___/___/___; PC Initials ___

Historic District Commission
- Application: Not Applicable; Yes - In Review; Yes - Approved
- Approval: Date ___/___/___; HDC Initials ___

Revised Dec 2021

3/3

TOWN OF EASTON

14 South Harrison Street
Easton, Maryland 21601

February 5, 2025

Dear Resident,

The Easton Planning Commission (Commission) will hold a public meeting on **Thursday, February 20, 2025 at 1:00 p.m**. in the Easton Town Council Chambers located on the second floor of 14 South Harrison Street. The Town of Easton Zoning Ordinance requires that owners of property located within 400 feet of a parcel on which certain types of applications are pending be given notice of upcoming meetings or hearings. If you are a tenant in or an owner of a multi-unit building, please distribute or post this notice in a visible location for all other tenants or owners to view. If you are a tenant of a rental property, please notify the property owner that this notice letter has been distributed to their property. Notice has also been sent to the Star Democrat, a sign has been posted at the subject property and the hearing agenda has been posted on the Town of Easton website: http://eastonmd.gov/.

This letter is sent to inform you that application 2025 - 1372 has been filed on behalf of Talbot County, Maryland to request approval for the relocation of the existing monument sign for the Talbot County Community Center (TCCC). In conjunction with the reconfiguration of the TCCC entrance, the proposed relocation of the signage shall provide intersection and access improvements for the community center entrance and the incoming UM Shore Regional Health Hospital. The property is located at 10028 Ocean Gateway, also known as Tax Map 0017, Grid 0018, Parcel 0038.

Copies of the proposed application are on file and available for public review in the Town's Planning Office at 14 South Harrison Street between the hours of 8:30 a.m. and 4:00 p.m., Monday through Friday. **In addition, digital copies will be available for review one week prior to the scheduled meeting via the Town's website at** https://www.eastonmd.gov/129/Agendas-Minutes. If you have any questions regarding this application, please contact the Planning Office at (410) 822-1943 or via email at ssmith@eastonMD.gov.

Samantha N. Smith

Samantha N. Smith, Administrative Specialist
Planning & Zoning Department
410-822-1943 ssmith@eastonMD.gov



Subject property posting pursuant to Section 28-901.2.H.2 of the Town of Easton Zoning Code - February 5, 2025

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

Date of Hearing: February 20, 2025

4b

PLANNING COMMISSION
PUBLIC HEARING
STAFF REPORT

SUBJECT: **Sketch Site Plan Review for 505 Brookletts Avenue**

ELECTION WARD: Ward 4

CRITICAL ACTION DATE: At the pleasure of the Commission

STAFF CONTACTS: Joseph Mayer, Plan Reviewer
Miguel Salinas, Director of Planning and Zoning

APPLICANT: Easton Crossing, LLC % Gavin Daniels

DOCUMENT CREATED ON: February 3, 2025

PURPOSE: Easton Crossing, LLC (Applicant), is seeking sketch site plan approval for the construction of mixed commercial and residential buildings consisting of 123 multi-family units with associated parking, stormwater management and landscaping. Associated site improvements include the demolition of existing abandoned silos, storage buildings and a gravel road on the property. In addition, the applicant is seeking a landscape and buffering waiver from Chapter 28-1014.6.B.1(c), Chapter 28-1014.6.E.2(d), Chapter 28-1014.7.E.3(a) & (b) and Chapter 28-1014.7.E.5(a),(b) & (c) of the Zoning Code.

RECOMMENDATION: Should the Planning Commission (Commission) approve the sketch site plan, staff recommends approval with conditions (see below).

APPLICATION INFORMATION:	
APPLICANT: Easton Crossing, LLC % Gavin Daniels	**REPRESENTATIVE:** Rauch Inc.: Brian Fitzgerald, Casey Rauch, Chris Schoenster

PARCELS/ACREAGE:

Parcel Information	Acreage
Map 104, Grid 00EA, Parcels 1823,1826 & 1833	6.92

ACCEPTANCE DATE: January 27, 2025	**LOCATION:** 505 Brookletts Avenue
EXISTING ZONING BC PUD Infill Boundary PR Boundary	**EXISTING LAND USE:** Commercial
HISTORIC DISTRICT: Not Applicable	**FUTURE LAND USE MAP:** Redevelopment Area

CONTEXT:

Location/Site Access – The subject property is located between Brookletts Avenue and South Street. The site's entrance will be accessed via Brookletts Avenue, Kemp Lane, South Higgins Street and South Street.

Existing Conditions – The subject property is vacant and can generally be described as approximately 6.92 acres consisting of abandoned silos and storage buildings.

Surrounding Properties

- Parcel 2206, 400 & 402 Brookletts Avenue - BC
- Parcel 1812, 312, 313, 507 & 510 Brookletts Avenue - R-7A
- 38 & 41 Kelly Gibson Street - R-7A
- 125 Kemp Lane - BC
- 410 South Street - R-7A
- 500 & 503 South Street - BC
- 104 & 116 South Higgins Street - R-7A
- 113 South Park Street - R-7A
- 300 Talbot Street - CG
- 308 Talbot Street - R-7A

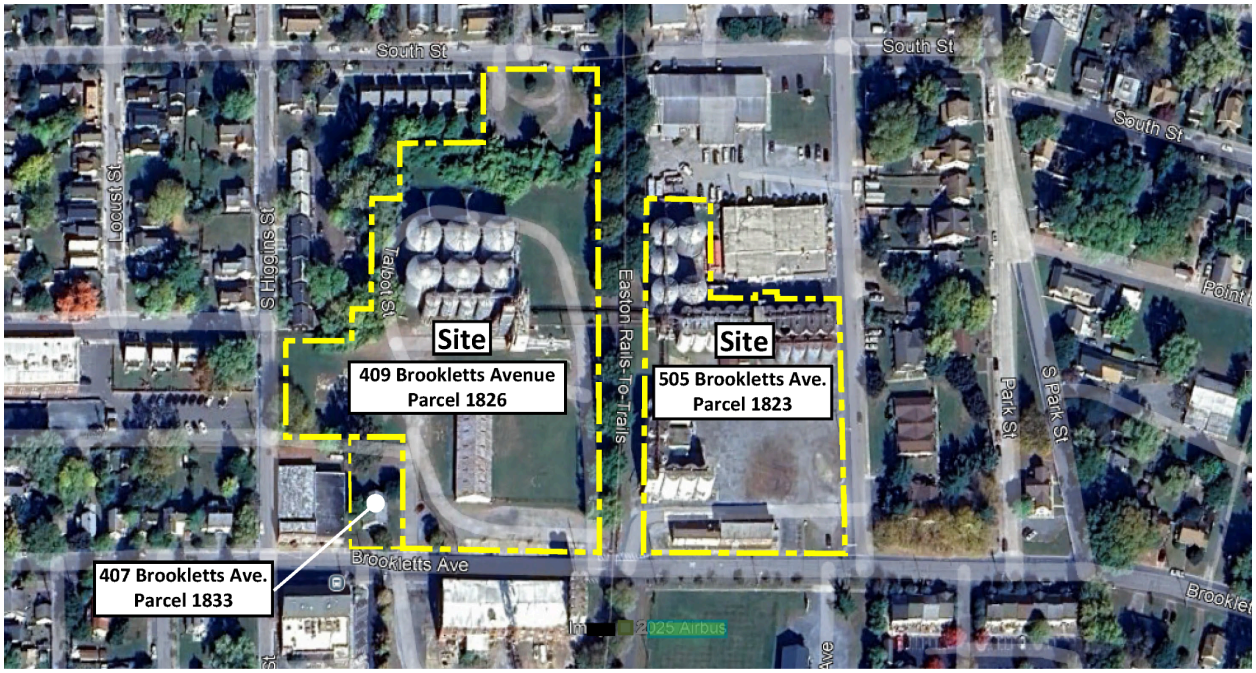


***Figure 1**: Vicinity Map*

PROPOSAL: The applicant is proposing to construct two (2) 4-story mixed commercial and residential buildings, one (1) 2-story building for restaurant-sit down use, one (1) 5-story mixed commercial and residential building, one (1) 5-story multifamily residential building along with associated parking, stormwater management and landscaping. The existing two-story building #407 will be utilized as an office and has 3,586 square feet (SF) of gross floor area (GFA).

- Proposed building #409 is a five-story building with a mixed use of commercial/residential space with 96,206 square feet (SF) of gross floor area (GFA). All commercial use is on the ground floor with 1,871 square foot commercial retail space and a 6,107 square foot fitness club. There's also fifty-six (56) dwelling units with 22 one-bedroom apartments, 28 two-bedroom apartments and 6 three-bedroom apartments.
- Building #411 is a proposed four-story building that's a mixed use of commercial/residential space with 47,920 square feet (SF) of gross floor area (GFA). The entire ground floor consists of 10,018 square foot commercial retail space. There's also twenty-six (26) dwelling units with 26 two-bedroom apartments.
- Building #505 is a proposed four-story building consisting of a mixed use of commercial/residential space with 47,920 square feet (SF) of gross floor area (GFA). The entire ground floor consists of 10,018 square foot commercial retail space. The building has twenty-six (26) dwelling units that are two-bedroom apartments.
- Building #509 is a five-story building that proposes 23,513 square feet (SF) of gross floor area (GFA). This multi-family building has a total of fifteen (15) dwellings with 4 one-bedroom apartments, 8 two-bedroom apartments and 3 three-bedroom apartments.

- Building #507 is a 10,936 square foot two-story building for restaurant-sit down use.

The overall multifamily use within the development consists of twenty-nine (29) affordable apartments and ninety-four (94) market rate apartments. The site is the former Purdue Agri-Business and is zoned Business Commercial (BC). The maximum density allowed on the property, based on the Planned Redevelopment Overlay District, is 40 dwelling units per acre which equals a maximum density of 276.8 dwelling units based on the property's size (6.92 acres). The total proposed density is 17.90 dwelling units per acre.

The applicant is also seeking a landscape and buffer waiver from Chapter 28-1014.6.B.1(c), Chapter 28-1014.6.E.2(d), Chapter 28-1014.7.E.3(a) & (b) and Chapter 28-1014.7.E.5(a),(b) & (c) of the Zoning Code. The application proposes the installation of trees and shrubs within the park area along Brookletts Avenue and a modified bufferyard along Kemp Lane in lieu of a shrub hedge. Building facade plantings for buildings #411 and #505 are reduced to bring the streetscape closer to the edge of pavement along Brookletts Avenue with planting beds.The applicant intends to utilize the Bufferyard "C" option calling for a reduction of the required width along South Street and Kemp Lane. In addition, the applicant requested a plant quantity reduction within the buffer along Kemp Lane. Bufferyard "E" along South Street and Kemp Lane will be modified to a reduced width requirement and the plant quantity will be less along Kemp Lane. The property line from Kemp Lane to the "Rails-to-Trails" path system will have a decorative screen fence without plantings. The property line on Parcel 1826 and Parcel 1823 from the "Rails-to-Trails" path system will have a reduced buffer width and plant quantity. Shrubs will be placed inside verses outside of the decorative screened fencing.

BACKGROUND: The applicant submitted an application to the Easton Staff Development Review Committee (ESDR) on January 22, 2025 (please see attached ESDR Determination Letter).

OUTSTANDING ISSUES:

The applicant needs to address the overall scale and consistency of the five-story Building #409 and its parking facility by providing alternate designs in relationship to the existing neighborhoods.

ZONING ANALYSIS:

A. Purpose

Section 28-501.A (Town Code).

> ***The purpose of the Planned Redevelopment Overlay District (PR) is to provide a mechanism for the redevelopment, rehabilitation, and general improvement of certain older areas within the Town of Easton that have fallen into a somewhat neglected or dilapidated state or have***

simply been used for a purpose that no longer serves the health, safety or general welfare of the neighborhood. PR applications may be submitted only if the project is located within the Planned Redevelopment Overlay District. However, this mechanism is optional and shall not be required of all projects located within this zone. Projects not being developed in accordance with PR District standards shall be developed in accordance with the development standards of the underlying base zoning district.

The nature, size, scale or intensity of a proposed use may cause a particular site not to be suitable for a specific PR proposal. Therefore, there is no general presumption that an application for such a use at a particular location is valid, inures to the general benefit of the Town, is compatible with surrounding uses, or is in compliance with the Town's Comprehensive Plan. Instead, each application will be evaluated according to its particular location and the degree to which the developer is willing or able to propose a development plan which ameliorates possible adverse impacts and furthers the goals and objectives of this Section and the Ordinance generally

Analysis - The current process of the Town of Easton Zoning Ordinance is for the Planning and Zoning Commission to review the material submitted as described in § 28-501.C of the Town Code and shall represent the initial step in the PR review process. Successful applications shall subsequently follow the appropriate steps for the type of project submitted and the applicant shall prepare and submit for a development and a final site plan in accordance with the site plan requirements specified in § 28 – 901.3.B and C of the Town Code and the requirements of the Town of Easton Subdivision Regulations, if applicable.

B. Off-Street Parking

28-1001.3 Parking Requirements

	Use/Activity	Minimum Vehicle Spaces	Maximum Vehicle Spaces	Minimum Bicycle Spaces	Notes
	Residential Buildings				
4	Multifamily	1 per du	2 per du	0.5 per du	
	Commercial Buildings				
15	Office or Bank without Drive-Thru	1 per 250 sf GFA	1 per 140 sf GFA	1 per 10 vehicle spaces	
16	Standalone Retail Store	1 per 300 sf GFA	1 per 200 sf GFA	1 per 10 vehicle spaces	
29	Restaurant, Sit-Down	1 space per 100 sf GFA	1 space per 50 sf GFA	1 per 10 vehicle spaces	
	Public Assembly Structures				
46	Fitness, recreational sports, gym, or athletic club	1.5 per 1,000 sf GFA	10 per 1,000 sf GFA	1 per 10 vehicle spaces	

Total Site Parking Required (when not proposed as a PR application):

Multifamily:	1 Space per dwelling unit required-Minimum
	123 units x 1 = 123 spaces required-Minimum
	2 Spaces per dwelling unit required-Maximum
	123 units x 2 = 246 spaces required-Maximum
Bicycle Spaces:	0.5 per dwelling unit required
	123 units x 0.5 = 62 required bicycle spaces
Office:	1 Space /250 SF GFA-Minimum
	3,586/250 = 15 spaces required-Minimum
	1 Space /140 SF GFA-Maximum
	3,586/140 = 26 spaces required-Maximum
Bicycle Spaces:	1 per 10 vehicle spaces required
	15 spaces/10 = 2 bicycle space-Minimum
	26 spaces/10 = 3 bicycle space-Maximum
Shopping Center:	1 Space per 300 SF GFA-Minimum
	21,907/300 = 73 spaces required-Minimum
	1 Space per 200 SF GFA-Maximum
	21,907/200 = 110 spaces required-Maximum
Bicycle Spaces:	1 per 10 vehicle spaces required
	73 spaces/10 = 8 bicycle spaces-Minimum
	110 spaces/10 = 11 bicycle spaces-Maximum
Restaurant, sit down:	1 Space per 100 SF GFA-Minimum
	10,936/100 = 109 spaces required-Minimum
	1 Space per 50 SF GFA-Maximum
	10,936/50 = 218 spaces required-Maximum
Bicycle Spaces:	1 per 10 vehicle spaces required
	110 spaces/10 = 11 bicycle spaces-Minimum
	219 spaces/10 = 22 bicycle spaces-Maximum
Fitness Club:	1.5 Spaces per 1000 SF GFA-Minimum
	6,107/1000x1.5 = 10 spaces required-Minimum
	10 Spaces per 1000 SF GFA-Maximum
	6,107/1000x10 = 62 spaces required-Maximum
Bicycle Spaces:	1 per 10 vehicle spaces required
	11 spaces/10 = 1 bicycle spaces-Minimum
	72 spaces/10 = 7 bicycle spaces-Maximum

Total Minimum required parking spaces (non PRD application) = 331
Total Maximum required parking spaces (non PRD application) = 663

Total parking spaces provided: 313 (217 off-street parking spaces and 96 on-street parking)

Total Minimum required bicycle spaces (non PRD application) = 84
Total Maximum required bicycle spaces (non PRD application) = 105
Total bicycle spaces provided: 72

Analysis- There are no minimum off-street parking spaces required within the PR Overlay Zoning District, although the adequacy of parking may be a consideration of site plan review. The Applicant is proposing 217 off-street parking spaces and 96 on-street parking spaces along South Street, Brookletts Avenue, South Higgins Street and Kemp Lane. The overall proposed parking spaces are 0.05% under the minimum required parking spaces for projects not developed under the PR Overlay Zoning District.

Note that if the fitness club is intended for residents only, the parking requirement can be removed from the calculations.

The Applicant believes the proposed parking is adequate to support the daily operation of the site. Easton Crossing, LLC submitted a Parking Exhibit demonstrating that they can provide parking spaces within the minimum requirements established in § 28-1001.3.A of the Town Code by the use of off-street and on-street parking spaces. The Applicant's Traffic Impact Study prepared by Lenhart Traffic Consulting, Inc. concluded that the proposed redevelopment meets the adequacy requirements of the Town of Easton and has minimal impact on the surrounding road network. Lenhart Traffic Consulting, Inc.recommended that the proposed development be approved. Though the Traffic Impact Study defines their response to adequacy, it's worth noting that 30.6% of the proposed parking spaces will be on-street parking within the adjacent neighborhoods.

C. Business Commercial District Development Standards

Section 28-501.B.6, Development Standards under the Planned Redevelopment Overlay District states that for new infill projects, the setback, lot size, lot coverage, height, and yard requirements shall be established for each individual project by the Planning Commission. In establishing these requirements, the Commission considers such factors as the intensity of the project and the existing character of the neighborhood. Table 1 below provides the applicant's proposed dimensional standards.

Table 1. Development Standards

BC Zoning District	Standard	Proposed (Planned Redevelopment Overlay)
Setbacks	Front = 40 feet Side = 10 feet Rear – 30 feet	Front = 5 feet Side = 5 feet Rear – N/A
Lot Size (min.)	40,000 square feet	301,435 square feet
Lot Frontage (min.)	100 feet	159, 150, 244, 278 & 310 feet

Building Envelope (min.)	30 feet x 80 feet	295 x 615 feet (P.1826) & 270 x 300 feet (P.1823)
Lot Coverage (max.)	50% (Lot Area)	71%
Height (max.)	35 feet	64 feet +/-

§ 308.2 of the Zoning Ordinance states that development within the Business Commercial District shall also meet these additional requirements:

- ***There shall be no open storage on any lot or open areas, nor shall any products be displayed in open areas. All outside storage shall be adequately screened and landscaped in accordance with provisions of Section 28 – 1014 of this Ordinance.***
- ***All on-site lighting unless approved otherwise by the Planning and Zoning Commission shall be low cut-off shielded luminaries at 18' height and light shall not shine off-site at levels greater than 1-foot candle.***
- ***All off-street loading and unloading areas shall be screened from view by permanent decorative screens or natural planting, either of which shall be a minimum of eight (8) feet in height, in accordance with the provisions of Section 28 – 1014 of this Ordinance***
- ***All areas not devoted to buildings or parking areas shall be landscaped and maintained in a suitable manner, in accordance with the provisions of Section 28 – 1014 of this Ordinance.***

Analysis - The site falls under the BC - Business Commercial District Area and meets the § 28-308.2 Development Standards.

D. DEVELOPMENT STANDARDS

Section 28-501.B.
Development within the Planned Redevelopment Overlay District shall meet the following requirements:

(1) The area proposed for a planned redevelopment shall be in one (1) ownership, or, if in several ownerships, the proposal shall be filed jointly by all the owners of the property included in the development plan.

Analysis - The Property is owned by a single entity.

(2) The site shall be of a configuration suitable for the development proposed.

Analysis - The Property abuts single-family homes to the north, east and west and commercial properties to the northeast and south. The Rails to Trails bifurcates the project between parcels 1823 and 1826. The proposed layout and site design provides a functional commercial and residential community. The configuration does enhance the street view along Brookletts Avenue while complementing the existing Brookletts Building adjacent to the site across the street.

Though the interior design does not incorporate the town's existing grid system, there's a connection between South Street and Brookletts Avenue. There is also access through the property from Higgins Street to and through Rails to Trails. In addition, extending Talbot Street east through the property would require either an offset intersection at Higgins and Talbot Streets, or eliminating one or two homes on the east side of Higgins. Extending Kelley Gibbons Street to the south through the property would require the reopening of the existing Kelley Gibbons. Staff notes that the total block perimeter of the project site generally bounded by South Street to the north, Brooklets Avenue to the south, Higgins Street to the west, and Rails to Trails to the east (which can be considered to act as a public right of way for travel, is approximately 2,100 feet. This total perimeter length is slightly above staff's recommendation of a maximum 1,800 linear feet for the purpose of walkability within the block, connectivity, and street vibrancy.

The overall scale of proposed Building #409 may be a concern when being close to the existing neighborhoods, such as the adjacent historic Hill community. Although the site has existing, vacated structures of a considerable height, the Commission may want to consider whether there is adequate buffering from the building to the adjacent homes.

(3) Public water and sewerage shall be available.

Analysis - There's adequate existing water and sewer services to serve the proposed Project. The Applicant will provide the utility extensions that are necessary to connect the Project to Town services and will work with Easton Utilities to ensure that all permits and approvals are granted.

(4) The site shall be located adjacent to adequate transportation facilities capable of serving existing traffic and that are expected to be generated by the proposed development.

Analysis - Project will be accessed from Brookletts Avenue, South Higgins Street, South Street and Kemp Lane.

(5) The overall residential density of a Planned Redevelopment project shall not exceed forty (40) units per gross residential acre. For the purposes of this subsection, the gross residential area shall include all land within the area intended to be used for residences, residential parking space, and reservation for community recreation and education facilities. Any land mapped as floodway by the Federal Emergency Management Agency, and non-residential uses shall be excluded in computing the gross area. The Planning and Zoning Commission may require a lower density if review of the proposed development indicates that the maximum allowable density is excessive for the surrounding area.

Analysis - The Applicant is proposing 123 total units, which is 154 units or 44.4% under the maximum density of 277 units permitted on the Property under the Planned Redevelopment Overlay District.

(6) For new infill development projects, the setback, lot size, lot coverage, height, and yard requirements shall be established for each individual project by the Planning and Zoning Commission. In establishing these requirements, the Planning and Zoning Commission shall consider such factors as the proposed intensity of the project and the existing character of the neighborhood.

Analysis - As stated above, the Planning Commission can apply, in its discretion, bulk standards such as setbacks and maximum height on a project-by-project basis.

(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.

Analysis - The Code does not require any parking for the Project; the Applicant is proposing a total of 313 parking spaces to serve the Project. There are 217 designated parking spaces on the property and 96 existing on-street parking spaces along Brookletts Avenue, South Higgins Street, South Street and Kemp Lane. The Traffic Impact Study prepared by Lenhart Traffic Consulting, Inc. concluded that the proposed redevelopment meets the adequacy requirements of the Town of Easton and has minimal impact on the surrounding road network. It is recommended that the proposed development is approved. Lenhart Traffic Consulting, Inc. also stated that the Traffic Impact Study shows all intersections continuing to operate at good levels of service. Further, as discussed within the memorandum dated January 29, 2025 by Lenhart Traffic Consulting, Inc., the proposed use will result in an increase in trips generated by this property. However, the elimination of large truck traffic at this location will make the neighborhood safer and the proposal is more in line with the current character of the neighborhood (recognizing that the land adjacent to the Rails to Trails were once predominantly industrial related to the former railroad line) and nearby trip generating characteristics. The Traffic Impact Study determined the adequacy of the parking. However, it is important to note that almost a third of the proposed parking spaces (30.6%) will be located on the street in the surrounding neighborhoods.

(8) Sidewalks shall be constructed along any public right-of-way (except for alleys) adjacent to the site along the entire frontage(s) of the property. To the extent practicable, walkways shall be constructed on the site to tie building entrances and/or pedestrian pathway systems into existing or proposed public sidewalk systems.

Analysis - The Project design addresses this requirement by proposing sidewalks along the property frontage of Brookletts Avenue, South Higgins Street, South Street and Kemp Lane. Sidewalks on the Property are proposed to ensure ease of access to roadways, commercial and residential buildings, parks/open space, and the Rails to Trails project.

E. Forest Conservation

Easton Forest Conservation Ordinance #718, Article III, § 31-3.2 Exemptions

O. An activity on a previously developed area covered by impervious surface and located in the priority funding area.

Analysis - The site is within the priority funding area and is an existing developed area covered by impervious surface; abandoned silos, storage buildings, gravel road and utilities. The overall site area is 6.92 acres with 123 proposed multifamily units, 31,800 square feet (SF) shopping center, and a 10,000 square foot (SF) restaurant with associated parking, stormwater management and landscaping. Required Forest Conservation would be 1.038 acres or 45,215 square feet. The intent of the project is to maximize density within the infill area and provide adequate facilities to accommodate the site. The applicant has provided a landscape plan with one hundred and seven (107) +/- deciduous-shade/canopy trees and twenty-one (21) +/- understory trees that is greater than the required forest conservation area. Based on the existing conditions and priority funding area, the staff determined that the project is exempt under *Ordinance #718, Article III, § 31-3.2 Exemption, "O", an activity on a previously developed area covered by impervious surface and located in the priority funding area.*

F. Traffic Impact Analysis

The Traffic Impact Analysis (TIA) was submitted by the applicant on December 4, 2024. The documents prepared by Lenhart Traffic Consulting, Inc. described that access is via multiple driveways that provide access to the various buildings within the development. It should be noted that the Easton Rails-To-Trails shared use path cuts through the middle of the site.

This TIA has been prepared in accordance with the scoping correspondence submitted to the Town of Easton. The Highway Capacity Manual (HCM) and Critical Lane Volume (CLV) methodologies were utilized to evaluate the study intersections per Town of Easton requirements. Study intersections included:

- East Dover Street & South Higgins Street.
- Dover Road & Kemp Lane.
- South Washington Street & Brookletts Avenue.
- Brookletts Avenue & South Higgins Street.
- Brookletts Avenue & Tred Avon Avenue.
- South Higgins & Site Access.
- Brookletts Avenue & Site Access.
- Brookletts Avenue & Site Access.
- Kemp Lane & Site Access.

A 1.5% growth rate was confirmed for use in the scoping coordination for this report. However, in order to account for any additional traffic at the study intersections due to approved but unbuilt developments, a more conservative 2% growth rate was applied to the study intersections for three years. Background developments were included based on input from the Town of Easton and include Silo Square and 350 N Washington. The trip generation and assignment for the background developments is included in Appendix C.

The site is proposed to be developed with 123 multifamily apartments and a 3,000 square foot fast casual restaurant. Trip generation rates were obtained from the ITE Trip Generation Manual, 11th Edition. This results in a total proposed development of 123 multifamily units, 29,090 square feet of retail space, and the 10,000 square foot restaurant.

Projected Level of Service

The total peak hour traffic volumes were evaluated using the CLV and HCM methodologies. The results of the CLV analyses are shown on Exhibit 9 of the Traffic Impact Study (TIS) and indicate that all intersections operate at LOS A under total conditions. The results of the HCM analyses are shown on Exhibit 10 of the TIS and indicate that each study intersection operates with LOS A, and each stop-controlled approach operates with LOS C or better. The results of the CLV and HCM analyses show that the proposed redevelopment will have negligible impact on the operation of the study intersections. The trip assignment on Exhibits 7a-7d of the TIS shows how much vehicular traffic the proposed redevelopment will add on each roadway and intersection in the study area.

As shown, the maximum increase in vehicular traffic at any of the study intersections is 92 vehicles, which occurs at Study Intersection 2 during the Saturday peak hour. For context, 92 additional vehicles per hour averages to approximately 1.5 additional vehicles every minute during the peak hour. The majority of the other intersections are anticipated to see an increase of ~ 45-65 vehicles which averages to approximately .75 – 1 additional vehicle every minute during the peak hours.

Based on the results of the level of service analyses shown on Exhibits 9 and 10, and the minimal increases in traffic volume expected with the redevelopment of the site, the proposed redevelopment will have minimal impact on the surrounding roadway and will not degrade the level of service at the study intersections. The traffic from the proposed development is consistent with the design of the local roads and the proposed use is not expected to generate heavy vehicle trips. In comparison, the existing use included multiple grain storage silos or similar uses and generated heavy trucks that are oversized compared to the design vehicle of the local roadways within the Town of Easton. The widths of the existing roadways combined with the presence of parked vehicles on one or both sides of the roadway resulted in significant difficulty for these heavy vehicles to maneuver.

Pedestrian Consideration and Rails-to-Trails Connection

There are sidewalk improvements along the site frontage and internal to the site that will provide connections to the Trail. These sidewalk improvements will improve connections to the Trail for all users within the proposed site and provide an improved path to the Trail for users from other locations within the Town of Easton.

Results of Analyses

This Traffic Impact Analysis (TIA) has been prepared for the proposed The Arc –Easton Crossing development. The subject site is located in Easton, Maryland, and is proposed to be accessed via multiple driveways that provide access to the various buildings within the development. It should be noted that the Easton Rails-To-Trails shared use path cuts through the middle of the site. A concept plan is provided in Appendix A of the report. Exhibit 1 shows the location of the site. The site is proposed to be developed with the following:

- Building 409 – 56 multifamily units and 9,892 sq. ft. of retail space
- Building 411 - 26 multifamily units and 9,599 sq. ft. of retail space
- Building 505 - 26 multifamily units and 9,599 sq. ft. of retail space
- Building 509 - 15 multifamily units Building 507 – 10,000 sq. ft. restaurant

This results in a total proposed development of 123 multifamily units, 29,090 square feet of retail space, and the 10,000 square foot restaurant. Based on the analyses contained in this report:

- All study intersections operate at LOS A under existing, background, and total conditions using the CLV methodology.
- All study intersections operate at LOS A and each stop-controlled approach operates with LOS C or better under existing, background, and total conditions using the HCM methodology.
- As demonstrated, the proposed redevelopment does not degrade the level of service at the study intersections, and therefore meets the Town of Easton requirements.
- The proposed redevelopment will not significantly increase traffic volume on any road segment or intersection within the study area and will reduce the number of heavy vehicles on the local roadways compared to the existing use on the site.
- The proposed development will improve access to the Easton Rails-to-Trails path which will benefit both the residents of the proposed site as well as users from the Town of Easton.

In the conclusion of the findings contained in the report, it is recommended by Lenhart Traffic Consulting, Inc. that the proposed redevelopment meets the adequacy requirements of the Town of Easton and has minimal impact on the surrounding road network. It is recommended that the proposed development is approved.

On January 29, 2025, Lenhart Traffic Consulting, Inc. provided a supplemental analysis to compare the trips generated by this proposal to the trips generated by the pre-existing uses.

The property was previously used as a grain storage facility with multiple silos. According to SDAT, the site also contains a 5,888 sq ft warehouse and two office buildings totaling 8,382 sq ft (1,728 sq ft and 6,654 sq ft). It should be noted that there are 11 larger grain silos along with numerous smaller silos. These silos are not included in the square footage of the buildings and would have additional trip generation characteristics that are separate from the office and warehouse buildings. ITE Trip Generation Manual does not have trip generation data for grain silos therefore we are not able to account for trips associated with those pre-existing structures. However, it is reasonable to assume that the trips generated by these structures are 100% larger trucks.

According to news articles written in The Star, in June 2022 when nearby grain storage facilities were closing, many heavy trucks had difficulty bringing grain to the site due to roads that were not designed to accommodate large trucks. This is predominantly a residential neighborhood therefore the elimination of the heavy truck traffic and replacement of those trips with a mixed use residential and commercial uses is in more alignment with the existing neighborhood and traffic impacts.

The property is proposed to be redeveloped with 123 dwelling units plus 39,090 square feet of commercial space. The attached Exhibit 1 provides a trip generation comparison of the proposed versus the pre-existing uses. The exhibit would indicate that the proposed use will generate an increase of 120 AM peak hour trips (45 in and 75 out) and an increase of 152 trips (100 in and 52 out) as compared to the previous grain silo uses. However, this does not account for trips that would have been generated by the grain silo structures as noted above. It is also important to note that the previous use generated substantial truck traffic which has a greater impact on the roads than regular automobiles that would be generated by the proposed use.

Lenhart Traffic Consulting, Inc. concluded that the Traffic Impact Study shows all intersections continuing to operate at good levels of service. Further, as discussed above, the proposed use will result in an increase in trips generated by this property, however, the elimination of large truck traffic at this location will make the neighborhood safer and the proposal is more in line with the character of the neighborhood and nearby trip generating characteristics.

POLICY ANALYSIS:

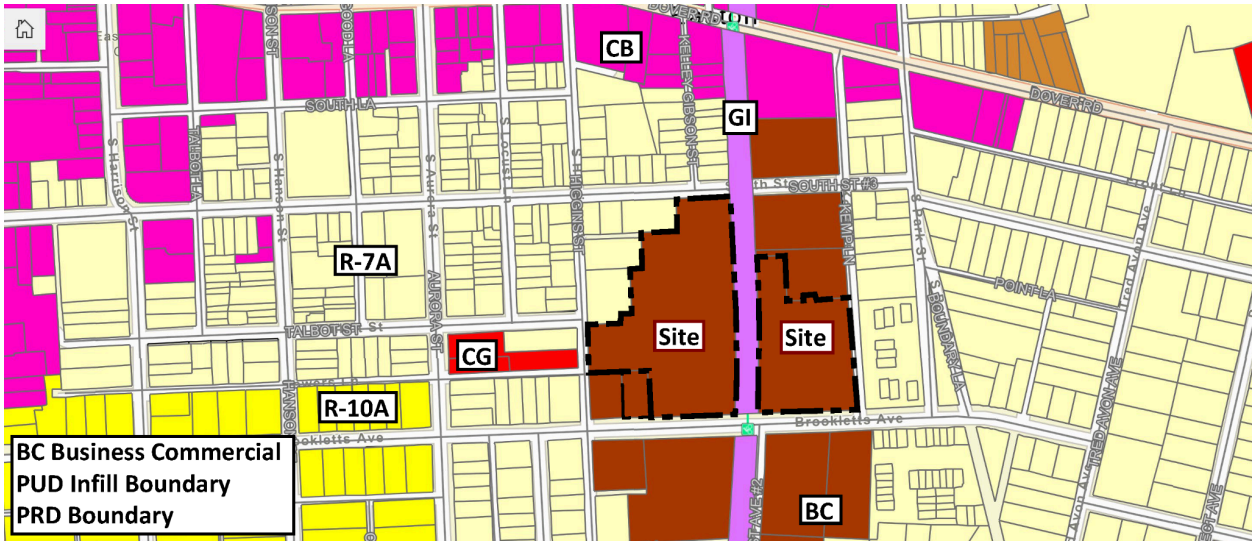


Figure 2: Zoning Map

Section 28-901.2.G of the Town Code states that the submission of a site plan for a proposed use or development activity shall not be approved unless it meets the factors below:

1. The site plan meets the design principles and standards and required improvements set forth in this Ordinance, the Town Comprehensive Plan, the Town of Easton Subdivision Regulations, and other ordinances, regulations, and policies established by the Town of Easton.

Analysis -

Town of Easton 2010 Comprehensive Plan Design Principles (Principle #1) Integrated uses are desirable- Applicant's response: *The project consists of residential, open space, stormwater management, and parks. This project will have a total of 120 dwelling units addressing the need for housing as stated in the comprehensive plan to increase the number and types of housing available in the area.*

Staff notes that this is an appropriate location for a walkable residential complex. In addition, the proposed development is under the PR Overlay Zoning District, which includes properties adjacent to Rails-to-Trails to provide a mechanism for the redevelopment, rehabilitation, and general improvement of certain older areas within the Town of Easton, including properties that have fallen into a somewhat neglected or dilapidated state.

(Principle #2) Natural features should determine design – Applicant's response: *The site is developed to maintain existing natural contours and drainage paths. There are few natural*

features on the existing site as the original site was mostly impervious including grain tanks. More green/open space is incorporated into the proposed site plan.

Staff notes that there are no compelling natural features on site.

(Principle #3) Automobiles should not determine design – Applicant's response: *Automobiles were not the priority focus for the design but sufficient parking is provided, which includes ample landscaping and green space.*

The Applicant's proposed Project includes 313 parking spaces, despite parking not being a code requirement. The parking will consist of 217 designated spaces on the property and 96 existing on-street spaces. A Traffic Impact Study by Lenhart Traffic Consulting, Inc. concluded that the redevelopment meets Town of Easton adequacy requirements and will have minimal impact on the surrounding road network. The Study also showed all intersections continuing to operate at good levels of service. As the January 29, 2025 memorandum by Lenhart Traffic Consulting, Inc. noted, while the proposed use will increase trip generation, the elimination of large truck traffic will improve neighborhood safety and bring the area more in line with the character of the neighborhood and its existing traffic patterns. Based on these findings, Lenhart Traffic Consulting, Inc. recommended approval of the proposed development. The Traffic Impact Study determined the adequacy of the parking. However, it is important to note that almost a third of the proposed parking spaces (30.6%) will be located on the street in the surrounding neighborhoods.

(Principle #4) Ample Open Space should be provided within & around neighborhoods – Applicant's response: *This project provides open park areas and green spaces throughout the parcel. The site also connects pedestrians to the rails to trails path.*

(Principle #5) Architecture should respect Easton's Historical Development – Applicant's response: *This project is not within the Historic District but the architecture is motivated by the original grain tanks from the existing site.*

(Principle #6) Signs should inform but not dominate – Applicant's response: *There will be minimal signage on this property. Each unit will have a street/building number that will indicate the unit and address for the public and fire/rescue services. Free standing signs at each entrance will not dominate the road frontage.*

Staff notes that any proposed monument sign will require a Signage Application to be submitted prior to installation. Signs should inform but not dominate the area.

(Principle #7) Neighborhoods should contain a diversity of housing types – *Applicant's response: This project has several different structure styles which differ in the number of stories and residential and commercial units. This offers a diversity of price ranges for the homes in the project. The structure design styles are in addition to the clients overall residential portfolio in*

and around the town of Easton. The client's portfolio has a diverse housing type within the town of Easton.

Staff notes that the multi-family complex offers a diverse housing type. The plan supports a diversity of housing types to enable people from a broad spectrum of economic levels to live within the same neighborhood.

(Principle #8) Residential neighborhoods should be interesting places – *Applicant's response: The project embraces the existing agriculture business that originated the parcel. incorporating the agriculture business within the motivation of the residential architecture, the park gazebo, and the connection to the rails to trails. Paths make this a very interesting project and place.*

(Principle #9) Neighborhoods should connect – *Applicant's response: Pedestrians can traverse between South Street and Brookletts Avenue as well as South Higgins Street and Kemp Lane. Connection points for pedestrians to rails to trails are also provided.*

The Comprehensive Plan notes that older historic areas in Easton have a wide variety of lot sizes, configurations, and housing types, unlike the more uniform subdivisions built in the last 30 years. The plan also emphasizes that connected neighborhoods are a key feature of older Easton areas and should be replicated in new developments for several reasons:

- ***Multiple travel options***
- ***Increased community and social interaction***
- ***Safer streets and lower vehicular speeds***
- ***More sustainable, compact, vibrant, mixed-use neighborhoods where residents can walk or bike to shops and services***

The Comprehensive Plan's Community Character chapter, related to the role of infill development in Easton's growth strategy, states that infill development can accommodate growth without annexing land. Infill and redevelopment means:

- ***decreased demand for new, undeveloped greenfields***
- ***mobility for those who do not or cannot drive***
- ***it's less expensive to provide services to infill sites versus greenfield sites***
- ***An increased supply of smaller‐sized housing units can offer more affordable and lower maintenance housing choices for smaller households***
- ***new opportunities and improved quality of life for in‐Town residents,***
- ***savings on energy and the environment,***
- ***development that is consistent with State Smart Growth Policies***

The plan specifies that any infill or redevelopment project must consider compatibility and neighborhood impact. It offers points for consideration to address these issues, including ensuring housing types are compatible with existing ones, employing suitable traffic calming measures, and maintaining a continuous pedestrian network.

2. The site plan avoids or minimizes adverse impacts upon features (whether on-site or off-site) of historical, cultural or ecological significance.

Analysis - The site is not within the Historic District or Critical Area. This project would provide a commercial/residential complex with associated parking, stormwater management facilities and landscaping.

3. The proposed use or development activity will not substantially increase traffic hazards due to traffic generated by the proposed use, the location of curb cuts or the layout of internal traffic circulation.

Analysis - The traffic study states that the proposed use and activity will not increase traffic hazards in the surrounding area. Though the code does not require any parking for the Project, the Applicant has provided a Parking Exhibit proposing a total of 313 parking spaces to serve the Project. There are 217 designated parking spaces on the property and 96 existing on-street parking spaces along Brookletts Avenue, South Higgins Street, South Street and Kemp Lane. 30.67% of the proposed parking is existing on-street parking. The Traffic Impact Study prepared by Lenhart Traffic Consulting, Inc. concluded that the proposed redevelopment meets the adequacy requirements of the Town of Easton and has minimal impact on the surrounding road network. It is recommended that the proposed development is approved.

Lenhart Traffic Consulting, Inc. also stated that the Traffic Impact Study shows all intersections continuing to operate at good levels of service. Further, as discussed within the memorandum dated January 29, 2025 byLenhart Traffic Consulting, Inc., the proposed use will result in an increase in trips generated by this property. However, the elimination of large truck traffic at this location will make the neighborhood safer and the proposal is more in line with the character of the neighborhood and nearby trip generating characteristics.

4. The site plan and the proposed use or uses do not cause any adverse impact upon the health or safety of persons residing or working in the area surrounding the site or upon the character of the neighborhood surrounding the site; and

Analysis - There would be no adverse impacts. The existing property is located within a Business Commercial zoned district. The proposed development would provide a commercial/residential complex with associated parking, stormwater management facilities and landscaping.

5. ***The site plan improves the water quality of the Chesapeake Bay or its tributaries.***

Analysis - The proposed site would meet required design practices for stormwater management.

G. Supplemental Waiver Request: Landscaping & Buffering

28-1014.6.B.1(c) LANDSCAPE IMPROVEMENTS

All parking lots shall be landscaped with an evergreen shrub hedge which will grow to a minimum forty-two inch (42") height within five (5) years along all sides excluding the building or facility access side(s). Shrubs shall be spaced to form a continuous hedge within five (5) years. Required Bufferyards may replace all or part of this requirement when the applicant can demonstrate that effective screening will be achieved.

28-1014.6.E.2(d) LANDSCAPE IMPROVEMENTS

Building Facade Plantings- the landscape improvement plan shall incorporate tree, shrub, groundcover and accent plantings around entrance points, along the entrance face(s) of building(s) and/or within the adjacent pedestrian paving areas. ***See Figure 10-8.*** *These landscape planting areas (excluding turf) shall be comprised as follows:*

i. one (1) tree per 50' of front building facade or portion thereof

ii. landscape beds containing understory trees, shrubs, groundcovers that cover 25% of the front building facade. Minimum bed dimension shall be five feet (5'). A building with a sixty foot front facade would meet these requirements with two trees located in two shrub beds 7.5' by 5' on either side of the entrance door. Required shade/canopy trees can be located within these beds where the bed size equals or exceeds 64 sq. ft. Plant type and form shall reflect the adjacent building form and mass. Large or tall buildings shall incorporate larger plantings and more trees.

28 – 1014.7.E.3(a -c)1-3 BUFFERYARD STANDARDS

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.

a. 20' width
b. Plant unit:
1 shade/canopy tree, 2 evergreen trees & 5 large shrubs
Note: when this bufferyard is located between a parking lot and street r/w, delete the shrub requiremet.
c. Options:
1. Substitute 1 evergreen tree for 5 shrubs

28 – 1014.7.E.5(c)1-3 BUFFERYARD STANDARDS

Bufferyard 'E' (along non-street, exterior property lines adjoining more or less intense zoning or land use) The Planning and Zoning Commission may require additional buffering above the minimum standards listed below when the proposed or adjoining land uses are substantially incompatible.

a. 10' width
b. Plant unit: 1 shade/canopy and 3 evergreen trees
c. Option:

1. *2 shade/canopy trees and 8 large evergreen shrubs*
2. *4 evergreen trees*
3. *wall/fence with 3 large evergreen shrubs*

Analysis - The applicant has requested a landscape and buffering waiver from Chapter 28-1014.6.B.1(c), Chapter 28-1014.6.E.2(d), Chapter 28-1014.7.E.3(a) & (b) and Chapter 28-1014.7.E.5(a),(b) & (c) of the Zoning Code. The application proposes the installation of trees and shrubs within the park area along Brookletts Avenue and a modified bufferyard along Kemp Lane in lieu of a shrub hedge. Building facade plantings for building #411 and #505 are reduced to bring the street scape closer to the edge of pavement along Brookletts Avenue with planting beds.The applicant intends to utilize the Bufferyard "C" option calling for a reduction of the required width along South Street and Kemp Lane. In addition, the applicant requested a plant quantity reduction within the buffer along Kemp Lane. Bufferyard "E" along South Street and Kemp Lane will be modified to a reduced width requirement and the plant quantity will be less along Kemp Lane. The property line from Kemp Lane to the "Rails-to-Trails" path system will have a decorative screen fence without plantings. The property line on Parcel 1826 and Parcel 1823 from the "Rails-to-Trails" path system will have a reduced buffer width and plant quantity. Shrubs will be placed inside verses outside of the decorative screened fencing.

The staff supports the waiver request of the modified shrub hedge, reduced building facade plantings, and the adjusted Bufferyards "C" and "E". The modified design accents the open space and establishes a more predominant streetscape along Brookletts Avenue, capturing the spirit and intent of the required plantings. It also highlights the "Rails-to-Trails" amenity and promotes connectivity between neighborhoods and subdivisions.

RECOMMENDED CONDITIONS:

Staff recommends the Planning Commission approve the request with the following conditions:

The applicant is to address all remaining ESDR review comments.

Please obtain approval from the Maryland Department of Transportation, Office of Rail & Intermodal Freight prior to Development Site Plan approval. The following conditions below are relevant to the railroad corridor:

1. Presently, TOE has the ability to make improvements to the railroad corridor for trail development, but any final design for improvements on the corridor property are subject to MTA engineering review under the MDOT trail use agreement.
    i. The applicant avoid the installation of permanent surface structures on the corridor*
    ii. Features should be confined to one property or the other, and the applicant shall not place any physical features or structures which sit on the property line itself, IE, a sidewalk which is partially on each property. The use of surfaces and lines for sidewalks specifically could be used to achieve this purpose, as long as its clear which segments are on which parcel.
2. The installation of utility crossings of the corridor require a property agreement

with the MTA and will be subject to the terms of that agreement**

3. The use of the overhead gantry on the site requires the assignment of the existing property agreement to the applicant under terms provided by MTA, the creation of a new agreement, or the removal of the structure.

* "Permanent" meaning structures which would cause practical issues to surrounding infrastructure if they were to be removed to facilitate the return of railroad operations, IE utility access, buildings, or emergency access to buildings.
** To be determined between MDOT and the Town whether the utility agreements will be with the town, or the applicant.

DRAFT MOTIONS:

1. I move that the Planning Commission approve the request subject to staff's Conditions of Approval.

OR

2. I move that the Planning Commission forward the application to the March 20th Commission meeting for further discussion.

OR

3. I move an alternate motion.

ATTACHMENTS:
1. 2025.01.02 ESDR Application, paper copy & PDF
2. 2025.01.21 Public Comment_M.Schlesinger, paper copy & PDF
3. 2025.01.22 ESDR Determination Letter 505 Brookletts Avenue, paper copy & PDF
4. 2025.01.27 Architectural & Landscaping, paper copy & PDF
5. 2025.01.27 Planning Commission Concept Use and Design, paper copy & PDF
6. 2025.01.27 Prelim Construction Plans, paper copy & PDF
7. 2025.01.27 Prelim Plant List, paper copy & PDF
8. 2025.01.27 SWM Report - Existing Vs. Developed, PDF
9. 2025.01.27 Traffic Impact Study, PDF
10. 2025.01.27 Trip Generation Statement, paper copy & PDF
11. 2025.01.27 Waiver Request signed, paper copy & PDF
12. 2025.01.28 Parking Exhibit, paper copy & PDF
13. 2025.01.29 Easton Commons Trip Comparison, paper copy & PDF
14. 2025.02.13 Public Comment - Easton Crossing Project, paper copy & PDF
15. EASTON CROSSING - CONCEPT ANIMATION - 2025-01-27 -- REVISION 1.mp4
16. PC 400' Notice Letter - 505 Brookletts Avenue (Easton Crossing), paper copy & PDF
17. 505 Brookletts Avenue- Subject Property Notice 2025.02.05, paper copy & PDF

February 18, 2025

Sent Via Email to JMayer@EastonMD.gov & MSalinas@Easton.gov

Town of Easton
Planning Commission
14 S Harrison St, Easton, MD 21601

Subject: Easton Crossing Site Plan before Planning Commission

Dear Commission,

The Maryland Transit Administration is the owner of the railroad corridor in the Town of Easton which has been converted to an interim rail-trail by Easton under a lease agreement. The Maryland Department of Transportation – The Secretaries Office (TSO) manages some policymaking affairs for MTA rail corridors on MTA's behalf and is also the designated "Trail Sponsor" under a parallel agreement with the MTA, which enables this railroad corridor to be "Rail-Banked" under the United States Surface Transportation Board authority.

Supporting local partnerships for the creation and development of rail-trail infrastructure is a critical part of the overall management strategy for the many state-owned railroad corridors under MTA ownership. Easton's example has shown other communities what is possible and the benefits of rail-trail conversions. However, it's of upmost importance to both MDOT and MTA that the functionality of these railroad corridors, even those which are inactive, and especially those which are rail-banked, are protected. To this end, we employ a design review process to ensure that any changes to the corridor do not unreasonably limit its future use as a railroad.

MDOT Rail and Intermodal Freight staff have been working with Easton staff in reviewing the proposed site plan for the Easton Crossing Project, which proposes redeveloping the former Perdue property on the east and west side of the railroad corridor and includes changes to the railroad corridor itself. MDOT and MTA have no opinion on the proposed project itself, but instead recognize Easton's decision making and review processes for these proposals. However, we would like to reserve and insist upon any rights the MTA may have under Easton town ordinances regarding setbacks from transportation corridors. We believe that because the railroad corridor continues to be a critical transportation corridor, and subject to the return of railroad service, we want to ensure any setback requirements which may apply to this project are implemented.

In addition, for a number of reasons, we believe the Planning Commission's approval authority does not apply to the corridor itself, where final approval for any proposed changes to that property must be done by MTA and MDOT. We expect to eventually perform a final design review of this project when those documents are submitted to us. In the meantime, MTA has performed a preliminary, proactive design review of the site plan provided, and has provided the following feedback for future consideration prior to the next round of design review.

MTA and MDOT will not approve any design for changes to the corridor which propose installation of any permanent structures which cannot be later removed to enable the return of railroad service. These structures could include any required egress or ingress routes to buildings. Therefore, we recommend confirming that each building has adequate access in the absence of the railroad corridor itself and does not rely on space afforded to it by the corridor.

MDOT and MTA will not approve any design which causes additional drainage onto the corridor, and any new drainage features must comply with MDOT standards, which typically emulate American Railroad Engineering & Maintenance Association standards.

MDOT and MTA will consider new underground utility installations as necessary, please indicate which utilities are proposed when that is known. Utility installations must adhere to MDOT and AREMA standards. Any necessary entry pits for jack and bore type utility installations should be located off the corridor property.

MDOT and MTA will not approve any design which requires the installation on the corridor of any foundations or ground stabilizations relating to the proposed buildings. When available, we would like to review the dimensioned cross sections of Buildings 411, 507 and 511 indicating foundations with respect to MTA right of way.

MDOT and MTA will not approve any design for rail corridor improvements which erase, disregard, or otherwise make the identification of the corridor property boundary difficult or imperceivable.

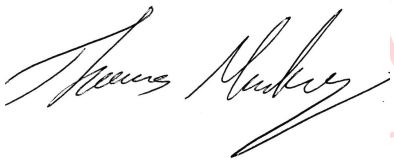
MDOT and MTA will not approve any design relating to the existing overhead gantry way until assignment of the responsibilities for the gantry way is made to the property owner. At this time, MTA believes this issue will be resolved imminently and an agreement will be reached.

Lastly, to enable a third party to undertake improvements to the railroad corridor itself as proposed, MDOT recommends formalization of the relationship between MDOT and the Town of Easton regarding the rail trail. Such an agreement will include typical provisions for the division of responsibilities, insurance requirements, indemnification, use of contractors and third parties, and design review processes. These requirements would apply to third parties by extension, such as the applicant in this case if Easton will be enlisting them to maintain the improvements which are made. MDOT should be able to provide a proposal for this by the end of February.

Please advise me if there are any residual questions or concerns regarding the Easton Crossing proposal and its interaction with the railroad corridor. MDOT looks forward to a successful project which meets the needs of all parties involved.

Over

Sincerely,



Digitally signed by Thomas Mackay
Date: 2025.02.18 19:51:59 -05'00'

Thomas Mackay
Rail Program & Policy Manager
Office of Rail & Intermodal Freight Section
MDOT Planning, Programming, and Project Delivery
Cell: (443) 867-0565
TMackay@mdot.maryland.gov

CC: Brian Fitzgerald, Rauch Engineering
Geoff Anderson, Chief, MDOT OPPPD
John Thomas, Assistant Director, MDOT, Office of Planning & Capital Programming
Julie Sweeney, Principal Counsel, MTA
Matt Lattin, Director of Office of Real Estate, MTA
Rod Ulrich, MTA Real Estate Specialist
Winston Bain, MTA Engineering Specialist

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

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TOWN OF EASTON

Planning Commission Concept, Use, and Design Application

Site Information

Structure's Floor Area	69,618		Structure's Square Feet	243,480	
Area of Disturbance	7.08 AC		Number of Dwelling Units	123	
Property Size	Acres	6.92	Square Feet	301,435.2	
Address	505 Brookletts Avenue, Easton, MD 21601				
Tax Map	0104	Grid 000EA	Parcel 1823, 1826, 1833	Lot	
Zoning District	BC	Historic District Y ☐ N ☒		PRD Y ☒ N ☐	
Other Information					
Existing Use	Commercial/Industrial				

Owner

Name	Easton Crossing, LLC
Mailing Address	999 Corporate Drive, Linthicum, MD 21090
Telephone No.	410-384-4022 Email gdaniels@ccdmaryland.org

Applicant / Agent

Name	Same as above
Mailing Address	
Telephone No.	Email

General Information:

The project is for the construction of mixed commercial and residential buildings, parking lots, parks/open space, utilities, and stormwater management features.

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

Gavin Daniels
C=US, E=gdaniels@ccdmaryland.org, O=Chesapeake Community Development, CN=Gavin Daniels
2025.01.02 08:44:49-05'00'

Date

Printed Name of Applicant or Agent: Gavin Daniels

For Office Use Only

Planned Commission Meeting Date	02/20/2025
Review Fee Amount	$250.00
Review Fee Paid Date	
ESDR Y / N Date	01/22/2025

2025 - 1370 / ESDR 25 - 02

Revised 02-2019

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

2025 - 1370 / W 25 - 01

Supplemental Waiver Request Application

Waiver Request Type

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

Project Information

Address	505 Brookletts Avenue, Easton, MD 21601						
Tax Map	0104	Grid	000EA	Parcel	1823, 1826, 1833	Lot	
Zoning District	BC - PRD	PC Meeting Date	2/20/2025	Historic District	Yes ☐	No ☒	
Owner or Agent	Easton Crossing, LLC						
Mailing Address	999 Corporate Drive, Linthicum, MD 21090						
Telephone No.	410-384-4022	Email	gdaniels@ccdmaryland.org				

Request Details

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

Waiver Requests: (SEE PAGE 2 OF THIS APPLICATION)

Justification: Project is in PRD district with 40 units/ac density and Town aims to have diverse housing types with more apartment units. In order to develop this site and achieve higher density, there needs to be larger building footprints and more parking areas. While the PRD does not require parking, the project proposes 1 parking space per dwelling unit which is within the town + 1 parking space per 340 gsf of commercial. These are similar to established town guidelines. Building facades create a street front and the building facades are in similar plane with adjacent commercial buildings. The 29% of green/open space has been distributed throughout the project in a more thoughtful, efficient manner.

☐ Ordinance Section Supporting Waiver Request.

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

Gavin Daniels
C=US, E=gdaniels@ccdmaryland.org,
O=Chesapeake Community Development,
CN=Gavin Daniels
2025.01.02 08:45:41-05'00'

Date

Printed Name of Applicant or Agent

LANDSCAPE IMPROVEMENTS - §§28-1014.6

OVERALL TREES REQUIRED:
FINAL QUANTITY TO BE DETERMINED BY THE LANDSCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

STREET TREES PROVIDED:
FINAL QUANTITY TO BE DETERMINED BY THE LANDSCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

PARKING LOT TREES PROVIDED:
FINAL QUANTITY TO BE DETERMINED BY THE LANDSCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

PARKING LOT SCREENING:
SITE SHALL MEET REQUIREMENT EXCEPT FOR THE WAIVERS REQUIRED:
- FOR BUILDING 411 PARKING LOT FRONTAGE TO BROOKLETTS AVENUE
- FOR BUILDING 505 PARKING LOT FRONTAGE KEMP LANE

BUILDING FACADE PLANTINGS:
SITE SHALL MEET REQUIREMENT EXCEPT FOR THE WAIVERS REQUIRED:
- FOR BUILDING 411 ENTRANCE
- FOR BUILDING 505 ENTRANCE

SERVICE/LOADING AREAS:
SERVICE/LOADING AREAS SHALL BE SCREENED AS REQUIRED IN THIS SECTION

SHRUB AND GROUNDCOVER PLANTINGS:
SHRUBS AND GROUNDCOVERS SHALL BE INTEGRATED INTO THE FINAL SITE AND FINAL LANDSCAPE PLAN AS REQUIRED IN THIS SECTION

BUFFERYARD STANDARDS - §§28-1014.7

PROPERTY LINE FRONTING SOUTH STREET:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH ONLY

PROPERTY LINE WEST SIDE FROM SOUTH STREET TO HIGGINS STREET:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE FRONTING HIGGINS STREET:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE FROM HIGGINS STREET TO BROOKLETTS AVENUE:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE PARCEL(S) 1833 AND 1826 FRONTING BROOKLETTS AVENUE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO, NOT REQUIRED AS PRIMARY ROAD FRONTAGE

PROPERTY LINE PARCEL 1823 FRONTING BROOKLETTS AVENUE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO, NOT REQUIRED AS PRIMARY ROAD FRONTAGE

PROPERTY LINE FRONTING KEMP LANE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH AND PLANT QUANTITY

PROPERTY LINE FROM KEMP LANE TO RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL FOR WIDTH & LARGE SHRUBS

PROPERTY LINE PARCEL 1826 FRONTING RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH, SHRUBS PLACED INSIDE VS OUTSIDE OF FENCING, AND FOR PLANT QUANTITY

PROPERTY LINE PARCEL 1823 FRONTING RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH, SHRUBS PLACED INSIDE VS OUTSIDE OF FENCING, AND FOR PLANT QUANTITY

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

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Easton Staff Development Review

Property Information

Address	505 Brookletts Avenue, Easton, MD 21601						
Tax Map	0104 000	Grid	EA	Parcel	1823, 1826, 1833	Lot	
Deed Refernce:	Liber	03025, 03025, 03114		Folio	00066, 00066, 00180		
Plat Reference:	Liber			Folio			
Base Zoning District	BC	Historic District Y ☐ N ☒		Planning Redevelopment Y ☒ N ☐			

Purpose of Application / Description of Work:

The project is for the construction of mixed commercial and residential buildings, parking lots, parks/open space, utilities, and stormwater management features.

Owner

Name	Easton Crossing, LLC		
Mailing Address	999 Corporate Drive, Linthicum, MD 21090		
Telephone No.	410-384-4022	Email	gdaniels@ccdmaryland.org

Applicant / Agent

Name	Same as above		
Mailing Address			
Telephone No.		Email	

Surveyor / Engineer

Name	Robert Rauch	License No.	11024	Expiration Date	7/24/2026
Mailing Address	106 N. Harrison St, Easton, MD, 21601				
Telephone No.	410-770-9081	Email	robert@raucheng.com; brian@raucheng.com		

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



Gavin Daniels
C=US, E=gdaniels@ccdmaryland.org,
O=Chesapeake Community Development,
CN=Gavin Daniels
2025.01.02 08:44:14-05'00'

Date

Printed Name of Applicant or Agent: Gavin Daniels

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Easton Staff Development Review Meeting Required Y [X] N [ ]

Easton Staff Development Review Meeting Date **01/22/2025**

Completeness Check Date **01/02/2025**

2025 - 1370 / ESDR 25 - 02

Revisions/Resubmissions Required Y [ ] N [ ] **TBD**

Resubmission Date

Documents Received Y [ ] N [ ]

Staff Determination

Scheduled for January 22, 2025 Easton Staff Development Review.

Planning Commission Requir Y [ ] N [ ] **TBD**

BOZA Required Y [ ] N [ ] **TBD**

Historic District Commission Required Y [ ] N [X]

Resubmission for ESDR Required Y [ ] N [ ] **TBD**

Staff Signature *Samantha N. Smith* Date **01/02/2025**

Revised 02-2019

TOWN OF
EASTON
Project Status

Date: 1/23/2025
Project Name: Arc – Easton Crossing
Project Address: 505 Brookletts Avenue
Description of Project: Redevelopment of site to propose mixed used commercial and residential buildings, parking lots, parks/open space, utility and ROW improvements and SWM.

Applicant: Ross Benincasa
Applicant Email:
rbenincasa@ccdmaryland.org
Applicant Phone Number:
4434523354

Engineer: Brian Fitzgerald
Engineering Firm: Rauch Engineering
Contact:
Brian@rauchinc.com

Owner of Property: Gavin Daniels - Easton Crossings LLC
Owner Email:
gdaniels@ccmaryland.org
Owner Phone Number:
4103844022

Submission History:
- 8/30/2024 Informal information on Demolition – Comments returned 11/19/2024
- 12/31/2024 Grading Permit Application for Demolition – Anticipated return 1/31/2025
- 1/13/2025 407 Brookletts Grading Permit issued & Demolition request approved
- 1/22/2025 ESDR Submission – Determination and Comments returned

Approval Status:

Grading & Building Demolition Permits – In Progress
ESDR – Approved for Planning Commission with Required items
Planning Commission
Fees
Site Development Review
Plat Review – May be required
Soil Conservation Approval required
MTA/MDOT Approval required
Easement Exhibits Provided Prior to Final Site Plan Approval
Site Plan Approval
Legal Documents Recorded
Sureties Posted
Plat Recorded

Review Fees Required:
- Site Plan Review $2,700
- SWM Plan Review $3,000
- As-Built Review & Inspections - $300
- PRD Review $500
- Traffic Impact Study $500
- Waiver Request $50
- Capital Charges – Contact EU

Sureties Required
SWM $TBD

ROW $TBD

Legal Documents Required

Declaration of Covenants
Public Works Agreement
Sidewalk Easement
Utility Easement
Conditions and Restrictions for Stormwater
SWM Easement
Pending Determination on MDOT/MTA/TOE requirements

Notes from Town Staff:

1. Please refer to the ESDR Determination letter and comments regarding required items to be submitted prior to proceeding to Planning Commission
2. Please note that the Town has offered to facilitate meetings to discuss design progress and undergrounding utilities options.
3. Future discussions will need to be had regarding MDOT/MTA/TOE coordination and requirements.
4. Sketch plan approval is valid for 2 years but can be approved for a longer term at the Planning Commission approval. Final site plan approval is valid for 3 years. Work will span beyond 5 years, the Town will continue discussion on validating approval for the site and active construction.

Attached please find:

- P&Z review comments
- TOE Engineering Comments
- EUC Review Comments
- Building Department Review Letter
- MDOT Review Comments
- EVFD Review Comments

TOWN OF EASTON
Planning & Zoning Department
14 South Harrison Street
P.O. Box 520
Easton, Maryland 21601

Easton Staff Development Review Worksheet

Date: January 22, 2025
Project: 505 Brookletts Avenue
To: Brian Fitzgerald, Rauch Inc.
CC: Jonathon Rondeau - % Easton Crossing, LLC (Owner)
CC: Casey Rauch, Rauch Inc.
CC: Chris Schoenster, Rauch Inc.

The Easton Staff Development Review (ESDR) Committee meeting was held on January 22nd at 11:00 am. Staff reviewed the proposed Planned Redevelopment Development (Infill) application. The site includes the construction of mixed commercial and residential buildings, parking lots, parks/open space, utilities and SWM features on the property located at 505 Brookletts Avenue, also known as Tax Map 104, Parcels 1823, 1826 & 1833.

The Committee determined that the project will need to address all agency comments as specified in the attached review letters and at ESDR. It was determined by the Committee that the application may be scheduled for Planning Commission review. Please submit all revised documents.

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

The next Planning Commission meeting is scheduled for **Thursday, February 20, 2025 at 1:00 pm.** Submit all documentation to the Planning and Zoning Department no later than Monday, January 27th at 1:00 pm. All files for presentation at the Planning Commission, as described under ***§****Section 28-901.3.A.(1 through 13) of the Town's Zoning Ordinance,* need to be provided on a flash drive. In addition, provide a digital submittal (via email) of all supporting documents necessary for the Planning Commissions review, including **six paper copies**.

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
410-822-1943
www.EastonMD.gov

DATE: **January 22, 2025**
TO: **Robert Rauch & Brian Fitzgerald –** Rauch, Inc. (Agent)
Jonathon Rondeau - % Easton Crossing, LLC (Owner)
Cc: **Miguel Salinas –** Director of Planning & Zoning Department
Rick VanEmburgh – Town Engineer

FROM: **Joseph A. Mayer -** Plan Reviewer, Planning & Zoning Department
SUBJECT: **505 Brooklett's Avenue - Easton Crossing**

We reviewed the **January 2, 2025** Sketch Plan Submittal for the Subject Project and have the following comments:

PLANNING & ZONING COMMENTS

Sketch Site Plan Review #1

1. Per Appendix B, Sketch Plan Submittal Checklist, *show the location of all pedestrian walkways and sidewalks.* Show and label all existing sidewalks along South Street, South Higgins Street, Kemp Lane and Brookletts Avenue.

2. Add ADA crosswalks to promote connectivity along the drive aisle connecting Brookletts Avenue and South Street. In addition, the sidewalk along town roads will require a crosswalk at the site's entrance to continue the pedestrian pathway.

3. Provide sidewalk access to ingress and egress doors at Building #509. **See attached markup below.**

4. Consider centering ADA parking space at the southern end of Building #409 to be closer to the proximity of that entrance. **See attached markup below.**

5. The elevation for "*Bldg. 409 - West (S. Higgins St. Parking Lot)"* does not have a door located on the right side of the elevation. The Site Plan shows an entrance. Please revise. **See attached markup below.**

6. Address *"Bird Strike"* design options for the proposed buildings.

7. Provide a North and East Elevation of Building #509.

8. Show the existing sidewalk at Building #407 and how it connects to the proposed

sidewalk.

9. There's a discrepancy between the square footage of the shopping center listed within the Site Data on sheet G-100 and the Traffic Impact Study. Please verify and revise documents.

10. The E.V. Charging Station Stalls need to have one available stall for ADA access within each parking facility. Relocate the E.V. stations to adjacent ADA spaces and provide access aisles.

11. Indicate within the Site Data the overall proposed parking spaces, including the minimum and **maximum** parking space requirements for designated uses; multifamily units, retail space, office and restaurant. Also, include the minimum number of bicycles for each use.

12. Check the total number of parking spaces within the Site Data on sheet G-100.

13. Is parking provided for existing Building #407 on-site? Please include parking space requirements within the Site Data.

14. Elaborate your response to the parking note within the parking calculations on sheet G-100. Verify, in a statement, that the proposed parking on-site is adequate to support the proposed residential, restaurant, office and commercial uses. Provide data that supports the correlation between the parking demand and the square foot area of the proposed buildings.

15. Is there sidewalk connectivity along Kemp Lane?

16. Label the total number of units for each building and its phase of construction on all plan views.

17. Per § Section 28-501 B(1) through (8) from the Town's Zoning Ordinance, respond to the development requirements and add statements onto sheet G-100.

18. Per Appendix B, Sketch Plan Submittal Checklist requires, *general location and description (r.e. Intended function, proposed species. etc.) of proposed landscaping.* List the proposed native species on a plan view and a Landscape Legend. Include proposed landscaping within the Sketch Site Plan. In addition, provide a basic list of native plant species.

19. Revise the description of the Supplemental Waiver Request Application. The request details should only reference the specific items from the Zoning Ordinance; § Section 28-1014.7 E.3. a through b(1) and § Section 28-1014.7 E.5. a through c.

20. Provide dimensions between the building units.

21. Dimension the existing road widths on all applicable plan views.

22. Include adjacent owner information for parcels 1837 and 1874 along South Higgins Street on sheet V-101.

23. Verify the distance between the proposed 20’ wide access lane and adjacent property line. parcel 1822. It appears to be less than 3’ from the property line. Per § Section 28-501.B.6 from the Town’s Zoning Ordinance, *for new infill development projects, the **setback**, lot size, lot coverage, height, and yard requirements shall be established for each individual project by the Planning and Zoning Commission. In establishing these requirements the Planning and Zoning Commission shall consider such factors as the proposed intensity of the project and the existing character of the neighborhood.*

24. Complete a Site Plan Application prior to submitting documents to the Planning Commission.

25. Per Appendix B, Sketch Plan Submittal Checklist, show *the location of any easements, rights-of-way or any other encumbrances which pertain to the property subject to the site plan review.* **Address this comment during Development Site Plan review.**

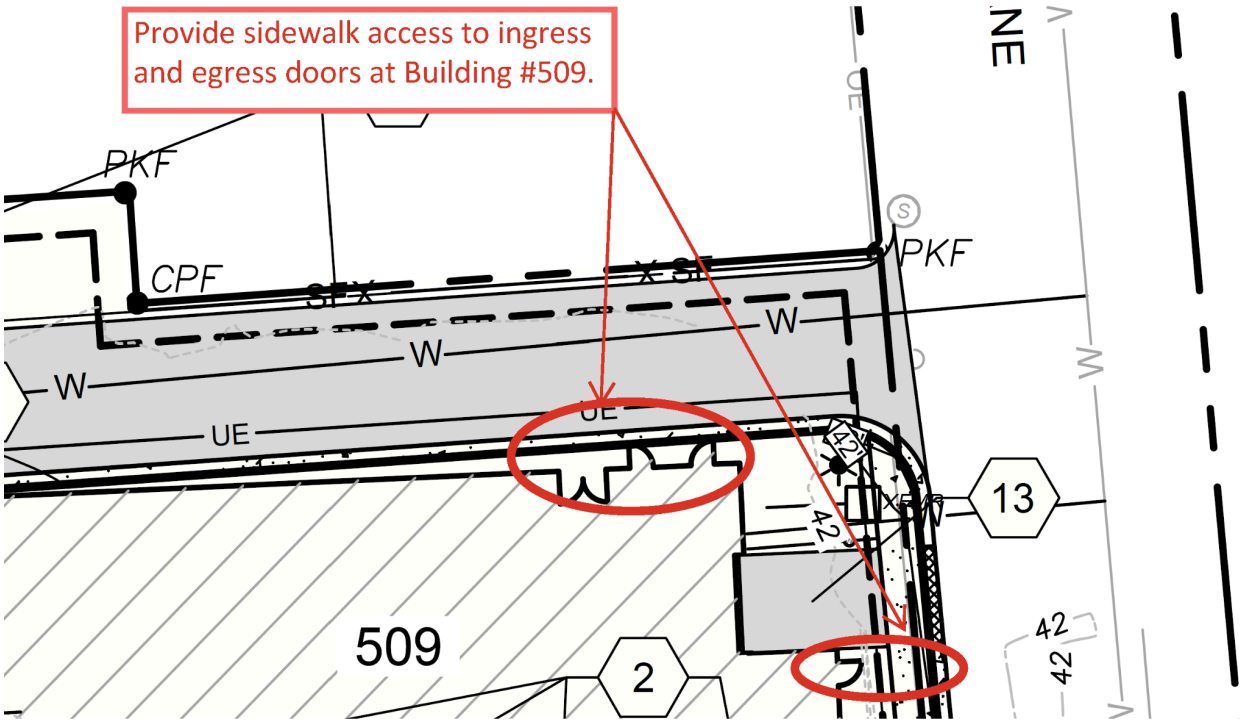
26. Revise the existing sidewalk ramp at the intersection of Brookletts Avenue and Kemp Lane to current standards. **Address this comment during Development Site Plan review.**

27. Add lamp post detail to sheet C-305 . **Address this comment during Development Site Plan review.**

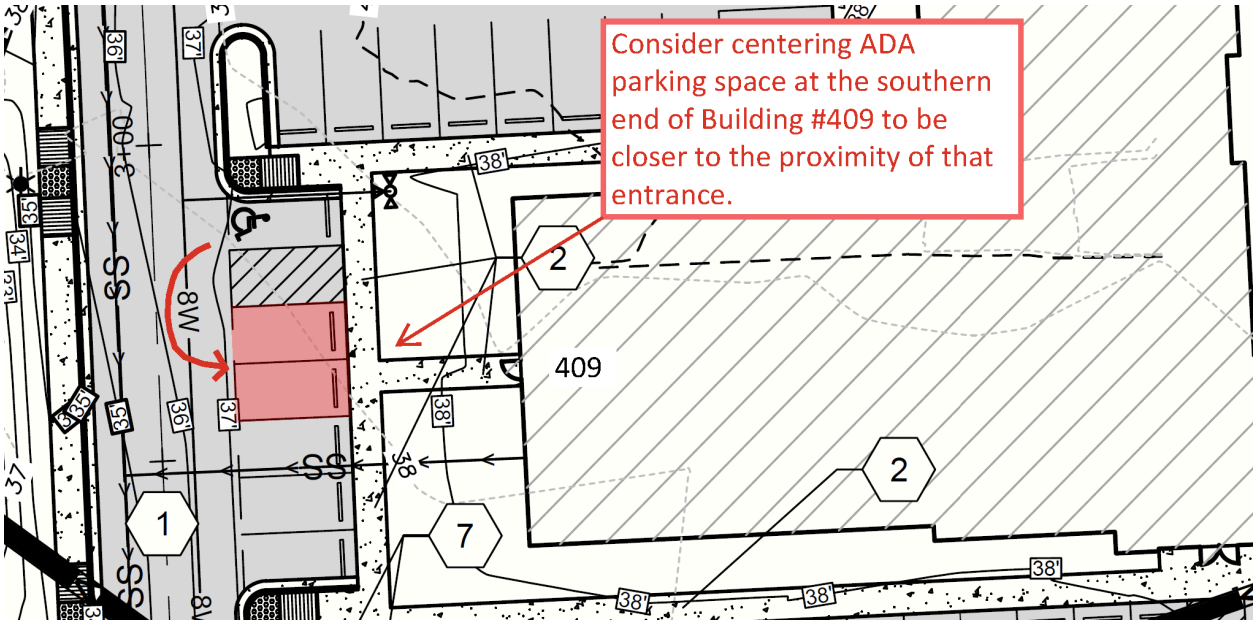
28. **Prior to Development Site Plan approval,** verify and add slope information for all ADA spaces, ramps, access aisles and landing areas. Check all ADA related spot elevations and obtain approval from the Building Inspection Department.

29. **Prior to Development Site Plan approval,** provide Van Accessible ADA Parking Sign Detail to include the sign "*No Parking in Access Aisle*" with an arrow pointing to the access aisle, place bollards at ADA aisles adjacent to the buildings with details and dimension between the bollards to verify ADA access.

Review Comment #3

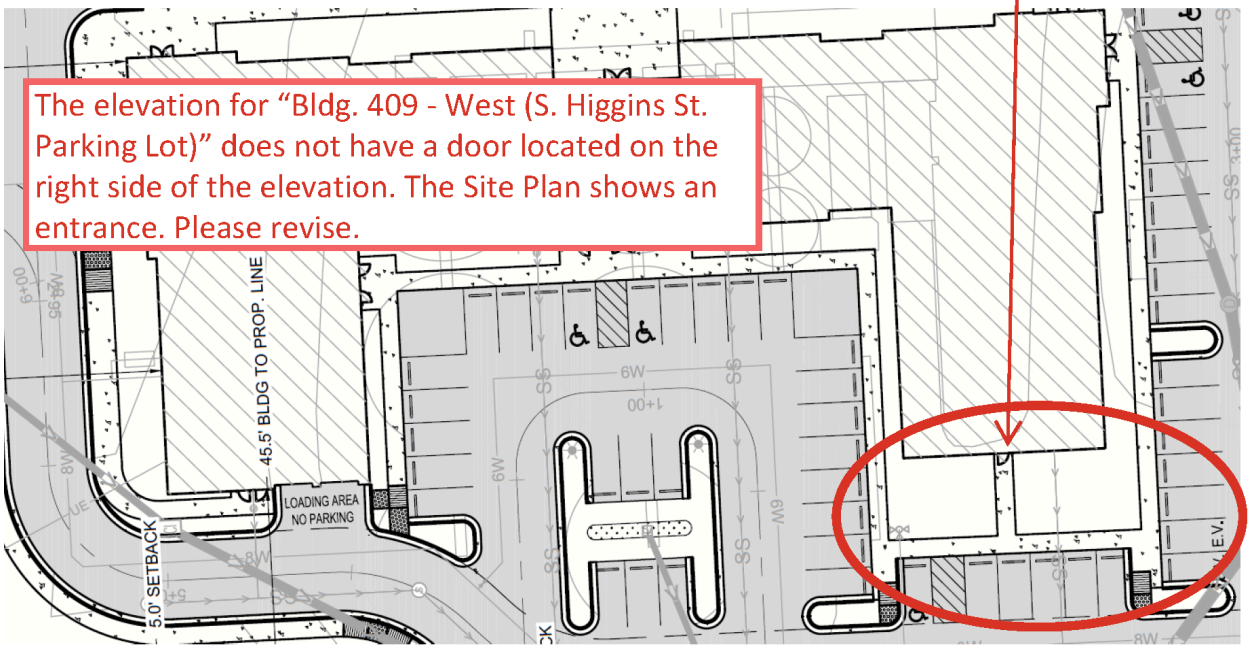


Review Comment #4



Review Comment #5





Plan Review Status

Sketch Site Plan Review			Comments
Plans Approved	☐Y	☒ N	Please review the comments above. Revise and resubmit.
Forest Stand Delineation & Forest Conservation Plan			
☐ Required ☐ Submitted ☐ Approved ☒ **Exempt**			***Exempt from Forest Conservation per Article III, § 31-3.2 O. The proposed activity is on a previously developed area covered by impervious surface and is located within the priority funding area.*** **Analysis -** The site is within the priority funding area and is an existing developed area covered by impervious surface; abandoned silos, storage buildings, gravel road and utilities. The overall site area is 6.92 acres with 123 proposed multifamily units, 31,800 square feet (SF) shopping center, and a 10,000 square foot (SF) restaurant with associated parking, stormwater management and landscaping. Required Forest Conservation would be 1.038 acres or 45,215 square feet. The intent of the project is to maximize density within the infill area and provide adequate facilities to accommodate the site. The applicant has provided a landscape plan with one hundred and seven (107) +/- deciduous-shade/canopy trees and twenty-one (21) +/- understory trees that is greater than the required forest conservation area. Based on the existing conditions and priority funding area, **the staff determined that the project is exempt under *Ordinance #718, Article III, § 31-3.2 Exemption, "O", an activity on a previously developed area covered by impervious surface and located in the priority funding area.*** .
Other			
☒ **Required** ☐ Submitted ☐ Approved			**IMPACT FEES** **Please note, there will be a required Impact Fee for the 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.** **Talbot County Impact Fees are due prior to obtaining your Building Permit. Please provide receipt of payment to the Town's Building Inspection Division.** **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 construed as vested and until submission of the building application.*"** **Supplemental Waiver Request Application** **The applicant for 505 Brookletts Avenue has requested a landscape and buffering waiver from Chapter 28-1014.7.E.3.(a)&(b)1 & Chapter 28-1014.7.E.5.(a) through (c) of the Zoning Code. The application proposes to reduce the width requirements for Bufferyard "C" along South Street and a reduction in width and plant quantity for Bufferyard "C" along Kemp Lane. The applicant also intends to utilize Bufferyard "E" option calling for "wall/fence with three (3) evergreen shrubs", as noted in the code by installing a decorative screen fence without plantings as an alternate design from Kemp Lane to**

	Rails-to-Trails. Additionally, to utilize Bufferyard "E" from the property line of Parcels 1823 & 1826 facing Rails-to-Trails, there's a partial request to waive the width, shrubs to be placed inside the proposed fencing and for reduced plant quantity. **Analysis -** The staff supports the waiver request of the modified Bufferyard "C" and "E" along the properties designated locations The proposed design captures the spirit and intent of the Bufferyard by utilizing the proposed methods along the perimeter of the property . The applicant's modified design highlights the amenity of the "Rails-to-Trails" and promotes the connectivity of neighborhoods and subdivisions. **Demolition Permit Application** **To be submitted to the Building Inspection Division for review.** **Fence Permit Application** **To be submitted to the Building Inspection Division for review.** **Sign Permit Application** **To be submitted to the Building Inspection Division for review.**

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

TOWN OF
EASTON
ENGINEERING DEPARTMENT

DATE: **January 22, 2025**

TO: **Brian Fitzgerald - Rauch**

cc: **Sierra Clem - Town of Easton**

FROM: **Rick Van Emburgh, P.E. – Town Engineer**

SUBJECT: **Easton Crossing**
Sketch Site Plan &
Sketch Stormwater Management Plan

I reviewed the Application for the Subject project received on 1/02/2025.

The **Sketch Site Plan and Sketch Stormwater Management Plan should be revised to address the following before Planning Commission:**

1. Provide ESD SUMMARY CHART (TOE-SWM-7.01) on plans.
2. Provide SWM QUANTITY SUMMARY CHART (TOE-SWM-7.02) on plans.
3. Provide sidewalk along all road frontage including Kemp Lane. Modify proposed entrances as needed on Kemp Lane to accommodate proposed sidewalk.
4. **TRAFFIC IMPACT ANALYSIS** - Provide comparison between existing use and proposed use. Are there any recommendations to make modifications to the existing street network? Has the possible conversion of Higgins Street from a 1-way to a 2-way street been considered, would the street need to be widened to accommodate 2-way traffic, and where might the conversion occur?
5. Provide Visibility Triangles at each entrance. It appears the North Entrance may be too close to the adjacent property line.

The **Sketch Site Plan and Sketch Stormwater Management Plan** should be revised to address the following before Preliminary Site Plan and Preliminary Stormwater Management Plan submittal:

6. A Stormdrain Easement may be required for the portion of stormdrain crossing Rails To Trails ROW. The edges of the easement should be delineated with a marker or some other method for future maintenance.
7. **SHEET G-100 - GENERAL NOTES & SEQUENCE OF CONSTRUCTION** - Change TOWN OF EASTON DPW to TOWN OF EASTON ENGINEERING at 410-820-8822.

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

8. Provide anticipated phasing schedule.

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

END OF DOCUMENT

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: January 14, 2025

Project; Easton Crossing, LLC 505 Brookletts Ave

A Town of Easton Building Permit is required for all new construction.

Please contact this Department and verify current Building Codes including the Town of Easton's modifications prior to preparation of Building plans. Currently the Town has adopted the 2021 I-Codes

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

- Construction Documents (3 sets) for any new construction will be required. Documents must be prepared by a registered Maryland Registered Architect, with original plans signed and sealed. A code analysis completed by a Registered Maryland Architect including, classification (use group), construction type, and occupant loads must be completed and included with the application materials.
- The Town of Easton, may in accordance with the International Building Code Chapter 17, establishes a building inspections procedure that utilizes qualified, third-party professionals in addition to the Town's Building Inspectors. The purpose of this document is to establish the policy and guidelines for the construction process in accordance with the Building Code requirements and to:
- Items that must be addressed by the construction documents will be structural strength, means of egress, 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 be submitted and 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.
- 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: Wednesday, January 22, 2025
To: Sierra Clem, Nancy Pinkney
From: Kia Gibbs on behalf of Aaron Goller, PE **No. of Pages:** 3
Regarding: Easton Crossing LLC (505 Brookletts Ave)
Phase: Sketch Site Plan **SUBM:** 1 **Status:** Approved as Noted

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.

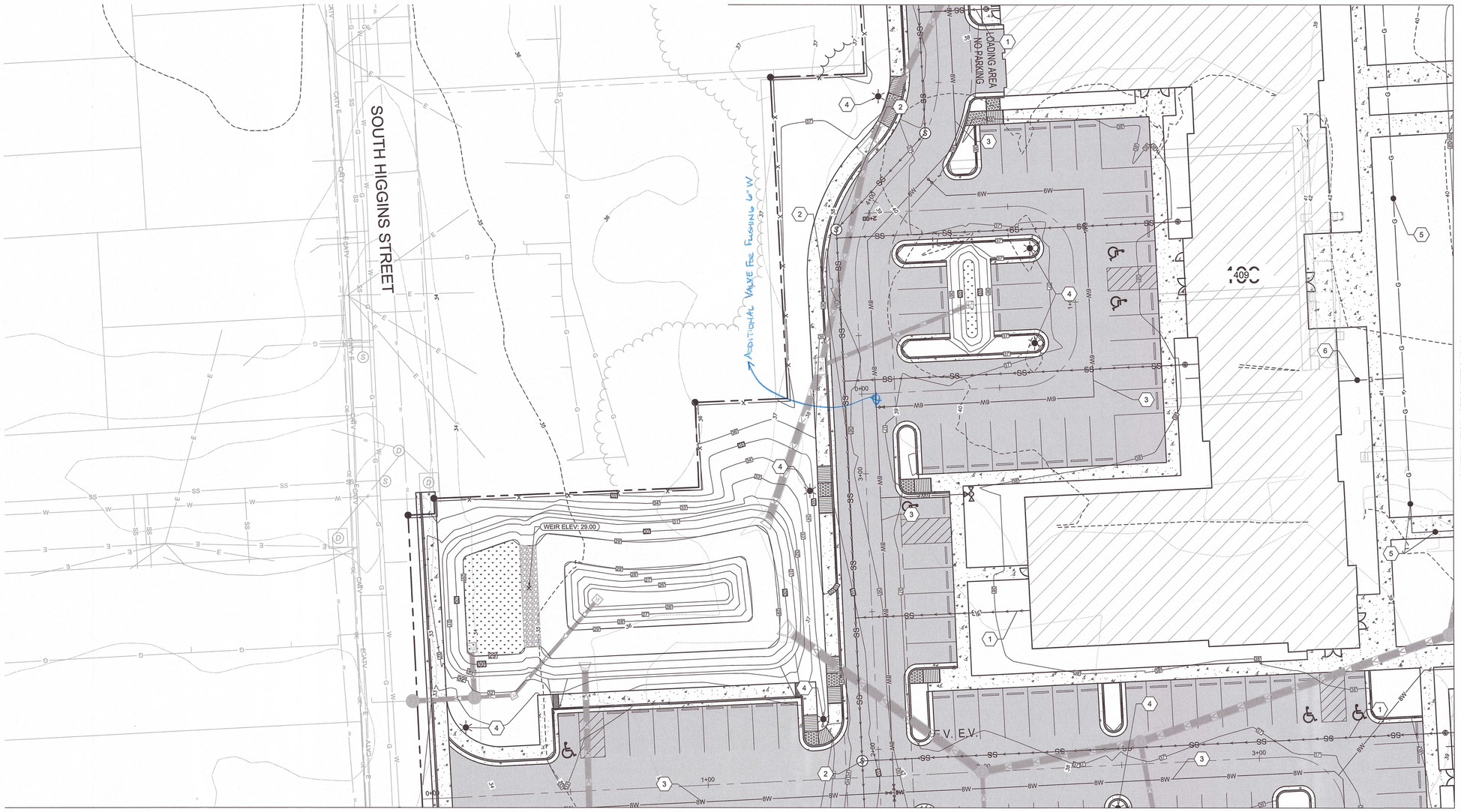
ITEM:	DRAWING / PAGE	COMMENTS:
1	C-401	Have contractor contact Gas Dept for Estimate
2		Electric Design not approved by Easton Utilities. Current design exceeds service length requirement, contact Easton Utilities for approved Electric Design. 60% drawings will need to be EUC approved Electric Design.
3		All EUC Owned utilities to be in easement per standard detail G100.3
4	C-401.02	Additional valve needed for flushing 6" water

UTILITY FEATURES

1. 6" SEWER LATERAL AND CLEANOUT PER DETAIL ON C-405
2. 8" SEWER MAIN AND 48" DIA. SANITARY MANHOLE PER DETAIL ON C-405
3. 8" WATER MAIN PER DETAIL ON C-405
4. STYLE POLE MOUNTED LAMP PER DETAIL ON C-405
5. 2" GAS BRANCH LINE
6. 2" GAS SERVICE TO BUILDING
7.
8.
9.
10.
11.
12.

NAD 83

0 20' 40'



UTILITY PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

RAUCH INC
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: 410.770.3667

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. 11024
Expiration Date: July 24, 2026

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	12/26/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-401.02

FOR REVIEW

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

UTILITY FEATURES

1. 6" SEWER LATERAL AND CLEANOUT PER DETAIL ON C-405
2. 8" SEWER MAIN AND 48" DIA. SANITARY MANHOLE PER DETAIL ON C-405
3. 8" WATER MAIN PER DETAIL ON C-405
4. 6" WATER LATERAL. BRANCH TO PROVIDE 6" FIRE SUPPRESSION SERVICE AND 2" DOMESTIC WATER SERVICE TO BUILDING.
5. 2" DOMESTIC WATER METER PIT PER DETAIL ON C-405
6. ELECTRICAL PULL BOX AS REQUIRED FOR CONDUIT INSTALLATION PER DETAIL ON C-405
7. 2-4" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS UTILITIES. SEE UTILITY TRENCH DETAIL ON C-405
8. 500 kVA 208/120V 3-PH TRANSFORMER PER DETAIL ON C-405
9. STYLE POLE MOUNTED LAMP PER DETAIL ON C-405
10. CONNECT NEW WATER MAIN TO EXISTING MAIN IN KEMP LANE.
11. GREASE TRAP PER DETAIL ON C-405
12. 2" GAS BRANCH LINE
13. 2" GAS SERVICE TO BUILDING

NAD 83

0 20' 40'

CONTINUATION - SEE SHEET C-401.01



CONTINUATION - SEE SHEET C-401.02

CONTINUATION - SEE SHEET C-401.05

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

UTILITY PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

RAUCH inc.
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 9051 | Fax: 410 770 3657

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. 11024
Expiration Date: July 24, 2026

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA 811

DATE:	12/26/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-401.04

FOR REVIEW

Joe Mayer <jmayer@eastonmd.gov>

Re: Quick Update: 505 Brookletts Avenue (Easton Crossing) - January ESDR

1 message

Samantha Smith <ssmith@eastonmd.gov> Tue, Jan 21, 2025 at 8:19 AM
To: Daryl Caldwell <1st.lieutenant@eastonvfd.org>
Cc: Joe Mayer <jmayer@eastonmd.gov>

Received. Thank you for your comments, Daryl!

Samantha

Samantha N. Smith
Administrative Specialist
Planning & Zoning Department
Town of Easton, MD
410-822-1943

On Sat, Jan 18, 2025 at 11:02 AM Daryl Caldwell <1st.lieutenant@eastonvfd.org> wrote:

> Good Morning
>
> I am (Assist Chief Daryl Caldwell) of the Easton Vol. Fire Department. I would express our concerns about the location. The department is NOT oppose to the project. We do have some concerns for this location. Below will be the following concerns:
>
> 1.) Please sprinkler every building and also standpipe system.
>
> 2.) Make sure the Sprinkler/Standpipe connection is visible and marked by law.
>
> 3.) Make sure every building has its own indepentpent alarm system.
>
> 4.) Make sure every building has its own Knox Box and make it visible.
>
> 5.) Make sure the roads are wide enough for our apparatus.
>
> 6.) Make sure there is a sign to make sure that the NO ONE Parks in front of the sprinkler/standpipe connection.
>
> 7.) Make sure it is visible for the Sprinkler/Standpipe room on each building.
>
> 8.) If there is a elevator in either building please make sure the elevator room is marked and elevator keys in that room.
>
> 9.) Make sure the elevator is big enough for an ambulance stretcher.
>
> 10.) Make sure the electrical rooms in each building is marked and is visible.
>
> Thank you
>
> Assist Chief Daryl Caldwell

Easton Vol. Fire Department.

---- On Thu, 02 Jan 2025 14:50:34 -0500 **Samantha Smith via Smartsheet <user@app.smartsheet.com>** wrote ---

Good afternoon,

Please find the submission items for "505 Brookletts Avenue - Easton Crossing LLC" for January ESDR review. All comments are due by January 20th. Paper copies will be provided for EUC and TCHD.

Thanks,

Sam

Easton Crossing LLC - Brookletts Avenue

Row 16

Primary Column	Application and Plans
Date Received	01/02/25
Date Due	
Date Completed	
Item Status	
Item Complete	☐

Attachments

- 2024.12.26 Sketch Infrastructure Improvement Plans.pdf (99M) (Row 16)
- 2025.01.02 Elevations, Landscaping, & Renderings.pdf (32M) (Row 16)
- 2025.01.02 ESDR Application.pdf (285k) (Row 16)
- 2025.01.02 ESDR Checklist-Sketch Plan.pdf (698k) (Row 16)
- 2025.01.02 ESDR Checklist-Sketch SWM Plan.pdf (105k) (Row 16)
- 2025.01.02 PC Application.pdf (120k) (Row 16)
- 2025.01.02 Waiver Application.pdf (128k) (Row 16)
- December 2024 Traffic Impact Study.pdf (15M) (Row 16)

November 2024 SWM Report - Existing Vs. Developed.pdf (4M) (Row 16)

View in Smartsheet

Sent using Smartsheet - the leading work execution platform that empowers teams and organizations to move their ideas to impact - fast.
Sent by ssmith@eastonmd.gov
File links in this email will be active until February 1, 2025
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Joe Mayer <jmayer@eastonmd.gov>

Easton Crossing Development Planning Comission Consideration (Oxford Rail Corridor)

1 message

Thomas Mackay <TMackay@mdot.maryland.gov> Wed, Jan 22, 2025 at 5:44 PM
To: Miguel Salinas <msalinas@eastonmd.gov>, "jmayer@eastonmd.gov" <jmayer@eastonmd.gov>
Cc: "John \"JT\" Thomas" <jthomas33@mdot.maryland.gov>, Julie Sweeney <JSweeney@mdot.maryland.gov>, Rodney Ulrich <RUlrich@mdot.maryland.gov>

Hello Miguel and Joe

Thanks for having me at the Easton Staff Development Review meeting to discuss the Easton Crossing project, which is a very exciting project.

As a follow up to our discussion, I would ask the Planning Commission to consider approval for the site plan with the following conditions on the applicant relevant to the railroad corridor:

1. Presently, TOE has the ability to make improvements to the railroad corridor for trail development, but any final design for improvements on the corridor property are subject to MTA engineering review under the MDOT trail use agreement (MDOT can help facilitate).
    a. The MTA does not give specific design guidance on trail features, however, we suggest the applicant avoid the installation of permanent surface structures on the corridor*
    b. Featured should be confined to one property or the other, and we will ask the applicant to not place any physical features or structures which sit on the property line itself, IE, a sidewalk which is partially on each property. As proposed in the meeting, the use of surfaces and lines for sidewalks specifically could be used to achieve this purpose, as long as its clear which segments are on which parcel.
2. The installation of utility crossings of the corridor require a property agreement with the MTA and will be subject to the terms of that agreement**
3. The use of the overhead gantry on the site requires the assignment of the existing property agreement to the applicant under terms provided by MTA, the creation of a new agreement, or the removal of the structure.

* “Permanent” meaning structures which would cause practical issues to surrounding infrastructure if they were to be removed to facilitate the return of railroad operations, IE utility access, buildings, or emergency access to buildings.

** To be determined between MDOT and Town whether the utility agreements will be with the town, or the applicant, it sounded like the preference was for town ownership of the utilities.

As an aside to the planning staff only, I make the following recommendations about handling use of the corridor in general and not specific to this project:

1. I suggest we work together to establish an MOA between MDOT (the trial sponsor) and TOE to formalize our processes for projects like these, and to provide for TOE to have ability to manage the care of the corridor in a way that works for all parties (such as leveraging a developer under an agreement with TOE)
2. I suggest we coordinate to establish (or update) agreements necessary to formalize all of TOE’s utility (and roadway) crossings of the corridor, so both MTA and Easton Utilities have more certainty on the expectations

for those infrastructure crossings.

3. I suggest applicants for future projects that include the corridor be reminded that the corridor is subject to the return of railroad operations and service, and although that potential is vanishingly small, it should still be considered. As I mentioned to the staff, I hope to have a policy document which speaks to this available in the coming weeks which could be leveraged for this purpose.

I may have forgotten something or messed something up- Please advise if you have any other suggestions.

Best Regards,

MARYLAND DEPARTMENT OF TRANSPORTATION
Taking you places!

mdot.maryland.gov

Thomas Mackay
Rail Program & Policy Manager

Office of Rail & Intermodal Freight

Planning, Programming, & Project Delivery, The Secretary's Office

443-867-0565 **office / mobile**
Tmackay@mdot.maryland.gov

Maryland Department of Transportation
7201 Corporate Center Drive, Hanover, MD 21076



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January 21, 2025

Miguel Salinas
Director of Planning and Zoning
Town of Easton

Dear Mr. Salinas,

I notice that the Easton Crossing project has been submitted for preliminary approval and will be discussed at the upcoming Staff Development Review meeting. I have attended the public meetings hosted by Chesapeake Community Development (“CCD”) and I’ve shared my observations with the developer. Although the public does not have a role in the SDR meeting, I hope my experience as an architect, urbanist, and campus planner, as well as a nearby resident, can provide valuable insights during your review.

The project is set to bring much-needed rental housing to the heart of town. CCD commendably includes subsidized "workforce housing" units in its plan; a benefit to the community of having a non-profit developer on the job.

The two buildings along Brookletts Avenue will enhance the streetscape and the Rails to Trails, which they flank. Their design mirrors the massing of the Brookletts Building and continues the street wall established by it and the Senior Center to its west. The architecture reflects the industrial aesthetic of the Brookletts Building. The northern wings of the new buildings embrace Rails to Trails, creating an "entry" to the path. By stepping down to three stories, they avoid creating a "canyon," instead they shelter those passing by on the trail. All these are examples of good design.

The developer’s intention of having retail facing the trail is an excellent idea, but CCD’s plan for 18,000 square feet of retail space in the two buildings raises concerns about its viability in today’s retailing environment. Has CCD consulted retailing experts to ensure market demand for this space? And might these additional stores draw businesses and customers away from downtown and the existing retail corridor on Dover Street? CCD has stated they’ll seek local entrepreneurs; do they have a plan to incentivize or support new businesses to fill these storefronts? Empty display windows could significantly detract from the project. Also, adequate lighting of the trail from Brookletts to Dover is needed to assure a safe environment during late afternoons and evenings in winter. Will the developer fund that, or will it fall upon the town to address safety issues after the project is occupied?

Moving northward, the concept of a unique restaurant east of the trail, retaining or recreating one of the grain bins (“silos”) is another positive idea—though parking adequacy is a question.

The landscaping is thoughtfully designed, and considers pedestrian movement across and within the site. The idea of making a landscape feature of the large stormwater management facility on Higgins Street is a plus. However, can CCD obtain regulatory permissions to combine stormwater management from parcels on either side of the trail?

The central “Great Lawn” is a fantastic open space addition to this part of town, offering a valuable community amenity adjacent to the Rails to Trails.

However, Building 409 is problematic. In summary:

- Too big and too tall.
- Out of context with the adjacent Hill District.
- More of the same types of residential units as the other buildings.
- Lacks sufficient parking.

To expand on this criticism - while the other four buildings successfully illustrate good contextual urban design, Building 409 ignores the adjacent historic Hill District. It appears jarringly massive, out of place

next to the low-rise residential neighborhood on the north and west of the site. At four stories and 56 units, it could be the largest residential building in town. Like the existing grain storage bins, it would tower over the small duplexes on Higgins and South Streets. While the developers may say it's no bigger than what's there now, those "silos" are an industrial relic – picturesque to some - not a chunky residential structure. And with no street frontage and insufficient parking, it's difficult to see what kind of retail could occupy the first floor of this building. Its not appropriate for its location.

The site plan, like many a suburban apartment block, surrounds Building 409 with parking. A parking lot on South Street, which is otherwise lined with small homes, again ignores the low-rise residential context. The project overall provides just one parking space per unit, which may meet minimum standards, but is likely insufficient in practice, pushing residents' second vehicles and visitors onto nearby narrow streets which are already crowded with parked vehicles.

It's unfortunate that CCD didn't consider less-dense housing types for the northern portion of the site. Townhouses or duplexes would better fit-in with the Hill District and would ease density and parking concerns. It's also regrettable that CCD chose to make this a private enclave. Had Kelly Gibson Street and Talbot Street been extended into the site the project could have been integrated into the town's grid, with homes lining those new blocks (see attached sketch).

That said, I understand that PRD regulations might limit the town's leverage with the developers. Nevertheless, rethinking Building 409 and the northern part of the site could elevate this project into a great example of sensitive contextual redevelopment.

Finally, a few words about traffic and pedestrian safety. The traffic consultant's study claims the existing streets and intersections can handle the additional load, but many of us who drive Brookletts to Rt. 50 know that traffic on Tred Avon and Hill Streets is already significant, making intersections challenging; especially during arrival and dismissal time at St. Peter and Paul's School. Additional traffic controls, improved signage and lane markings are needed to avoid collisions.

Also, the eastern portion of Brookletts and all of Tred Avon Avenue lack sidewalks, which are essential for encouraging neighbors to walk to the project and for pedestrian safety along these routes. Additionally, Kemp Lane will experience increased traffic. Sightlines to the west at the intersection of Kemp Lane and Dover Road are difficult, and Kemp lacks sidewalks. Shouldn't CCD help the town fund the sidewalks and essential traffic improvements required because of this new project?

Overall, this is a good project, but with a bit more effort, it could be a great project of which Easton could be proud.

Best regards,

Maury Schlesinger, R.A.
304 Winton Ave.

Cc: Mayor Cook
Town Council
Planning Commission
Ross Bennicasa, CCD

This sketch illustrates how extending Kelly Gibson Street and Talbot Street would break up the large parcel into smaller blocks.

This scheme shows 16 three-story townhouses. Each could consist of a two-story three-bedroom unit over a “flat” resulting in 32 units. These could be designed with two fronts where the upper floor unit enters from one side, and the ground floor flat from the other.

This scheme would reduce density and parking demand, and would better fit the neighborhood context. It would also provide a variety of housing types which might appeal to a broader market. It would also reduce the overall amount of retail.

Extending Talbot Street east of Higgins Street would require the purchase or taking by eminent domain of the structure at 130/132 Higgins Street.





EASTON PLANNING COMMISSION
JANUARY 27, 2025

















EASTON'S RAILS-TO-TRAILS

LANDSCAPE BUFFER ALONG COMMERCIAL AREA

LAWN GAMES AREA

CIRCULAR FLEX SEATING AREAS

EXPANDED BUILDING OUTDOOR LIVING SPACE

OPEN LAWN AREA

CIRULAR PERFORMANCE AREA

EXISTING CONVEYOR BELT STRUCTURE ABOVE PERFORMANCE SPACE

PLAY AREA OBSERVATION SEATING

PLAY AREA WITH ROLLING BERMS

VEHICULAR DROP-OFF AREA

8'-10' WIDE COMMERICAL FRONTAGE WALKS

8'-10' WIDE CONNECTING WALKWAYS

10' SQUARE FLEXIBLE PADS FOR SPECIAL EVENTS AND TEMPORARY SEATING

OUTDOOR SEATING ALONG COMMERICAL AREAS

SERPENTINE BRIDGE

SHUTTLE SHELTER WAITING AREA

WATERSIDE DECK

ILLUSTRATIVE SITE PLAN

This Illustrative Site Plan is for illustration purposes only, and is to be used for design intent only. Location of all hardscape and planting elements shown may be modified during final constrution documentation to avoid conflicts with utilities and other site conditions.

CHESAPEAKE COMMUNITY DEVELOPMENT
An Arc Central Chesapeake Region Company

N W E S

0 50 100 150

EASTON Crossing

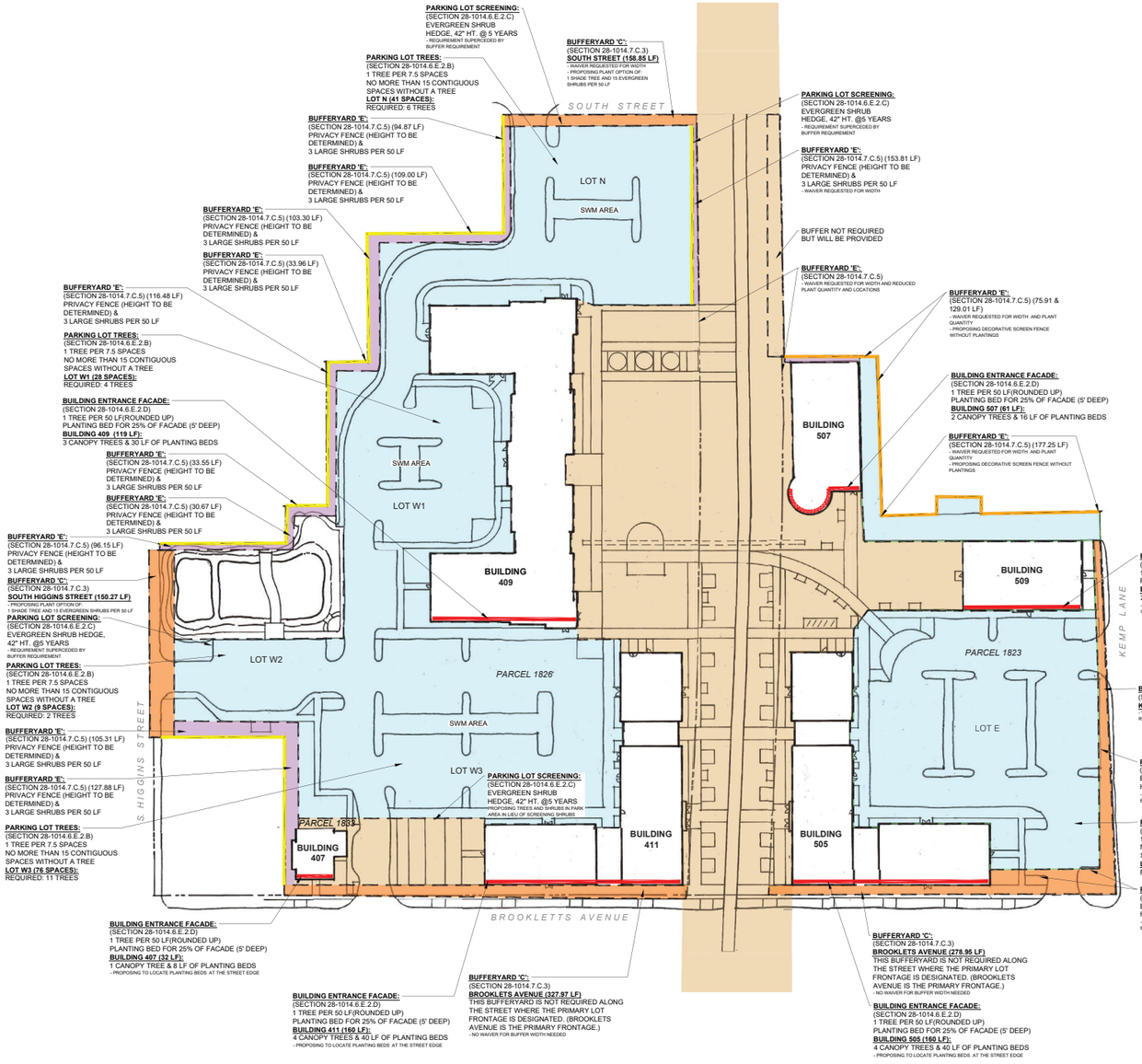
LD7 Studio

ANNAPOLIS LANDSCAPE ARCHITECTS

Easton Crossing

Easton, MD

RAUCH inc.
Engineering | Survey | Architecture | Environmental



LEGEND

PARKING AREAS
- CHESAPEAKE BAY NATIVE PLANTS
- POLLINATOR MEADOW EDGES FOR COLOR
- GRASSES
- PARKING LOT SCREENING

BUFFERYARD 'C'
OPTIONS (PER 50' SECTION):
- 1 SHADE TREE, 2 EVERGREEN TREES AND 5 SHRUBS
- 1 SHADE TREE AND 3 EVERGREEN TREES
- 1 SHADE TREE AND 15 EVERGREEN SHRUBS

BUFFERYARD 'E'
OPTIONS (PER 50' SECTION):
- 1 SHADE TREE AND 3 EVERGREEN TREES
- 2 SHADE TREES AND 8 LARGE EVERGREEN SHRUBS
- 4 EVERGREEN TREES
- WALL/FENCE AND 3 LARGE EVERGREEN SHRUBS

BUILDING ENTRANCE FACADE
- 1 TREE PER 50 LF(ROUNDED UP) & PLANTING BED FOR 25% OF FACADE (5' DEEP)

SECTION 28-1014.6 LANDSCAPE IMPROVEMENTS SECTION E., E. SERVICE / LOADING AREAS, "IN LIEU OF 50% PLANTING REQUIREMENT, WALL OR FENCE SHALL BE A DECORATIVE ARCHITECTURAL STATEMENT COMPATIBLE WITH THE ARCHITECTURAL DESIGN OF THE ADJOINING STRUCTURE"

LANDSCAPE IMPROVEMENTS - §§28-1014.6

OVERALL TREES REQUIRED:
FINAL QUANTITY TO BE DETERMINED BY THE LAND SCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

STREET TREES PROVIDED:
FINAL QUANTITY TO BE DETERMINED BY THE LAND SCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

PARKING LOT TREES PROVIDED:
FINAL QUANTITY TO BE DETERMINED BY THE LAND SCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

PARKING LOT SCREENING:
SITE SHALL MEET REQUIREMENT EXCEPT FOR THE WAIVERS REQUIRED:
- FOR BUILDING 411 PARKING LOT FRONTAGE TO BROOKLETTS AVENUE
- FOR BUILDING 505 PARKING LOT FRONTAGE KEMP LANE

BUILDING FACADE PLANTINGS:
SITE SHALL MEET REQUIREMENT EXCEPT FOR THE WAIVERS REQUIRED:
- FOR BUILDING 411 ENTRANCE
- FOR BUILDING 505 ENTRANCE

SERVICE/LOADING AREAS:
SERVICE/LOADING AREAS SHALL BE SCREENED AS REQUIRED IN THIS SECTION

SHRUB AND GROUNDCOVER PLANTINGS:
SHRUBS AND GROUNDCOVERS SHALL BE INTEGRATED INTO THE FINAL SITE AND FINAL LANDSCAPE PLAN AS REQUIRED IN THIS SECTION

BUFFERYARD STANDARDS - §§28-1014.7

PROPERTY LINE FRONTING SOUTH STREET:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH ONLY

PROPERTY LINE WEST SIDE FROM SOUTH STREET TO HIGGINS STREET:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE FRONTING HIGGINS STREET:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE FROM HIGGINS STREET TO BROOKLETTS AVENUE:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE PARCEL(S) 1833 AND 1826 FRONTING BROOKLETTS AVENUE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO, NOT REQUIRED AS PRIMARY ROAD FRONTAGE

PROPERTY LINE PARCEL 1823 FRONTING BROOKLETTS AVENUE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO, NOT REQUIRED AS PRIMARY ROAD FRONTAGE

PROPERTY LINE FRONTING KEMP LANE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH AND PLANT QUANTITY

PROPERTY LINE FROM KEMP LANE TO RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL FOR WIDTH & LARGE SHRUBS

PROPERTY LINE PARCEL 1826 FRONTING RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH, SHRUBS PLACED INSIDE VS OUTSIDE OF FENCING, AND FOR PLANT QUANTITY

PROPERTY LINE PARCEL 1823 FRONTING RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH, SHRUBS PLACED INSIDE VS OUTSIDE OF FENCING, AND FOR PLANT QUANTITY

ZONING (BC) BUSINESS COMMERCIAL
(PRD) PLANNED REDEVELOPMENT DISTRICT

CODE-MINIMUM LANDSCAPE REQUIREMENTS

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N W E S

0 50 100 150

EASTON Crossing

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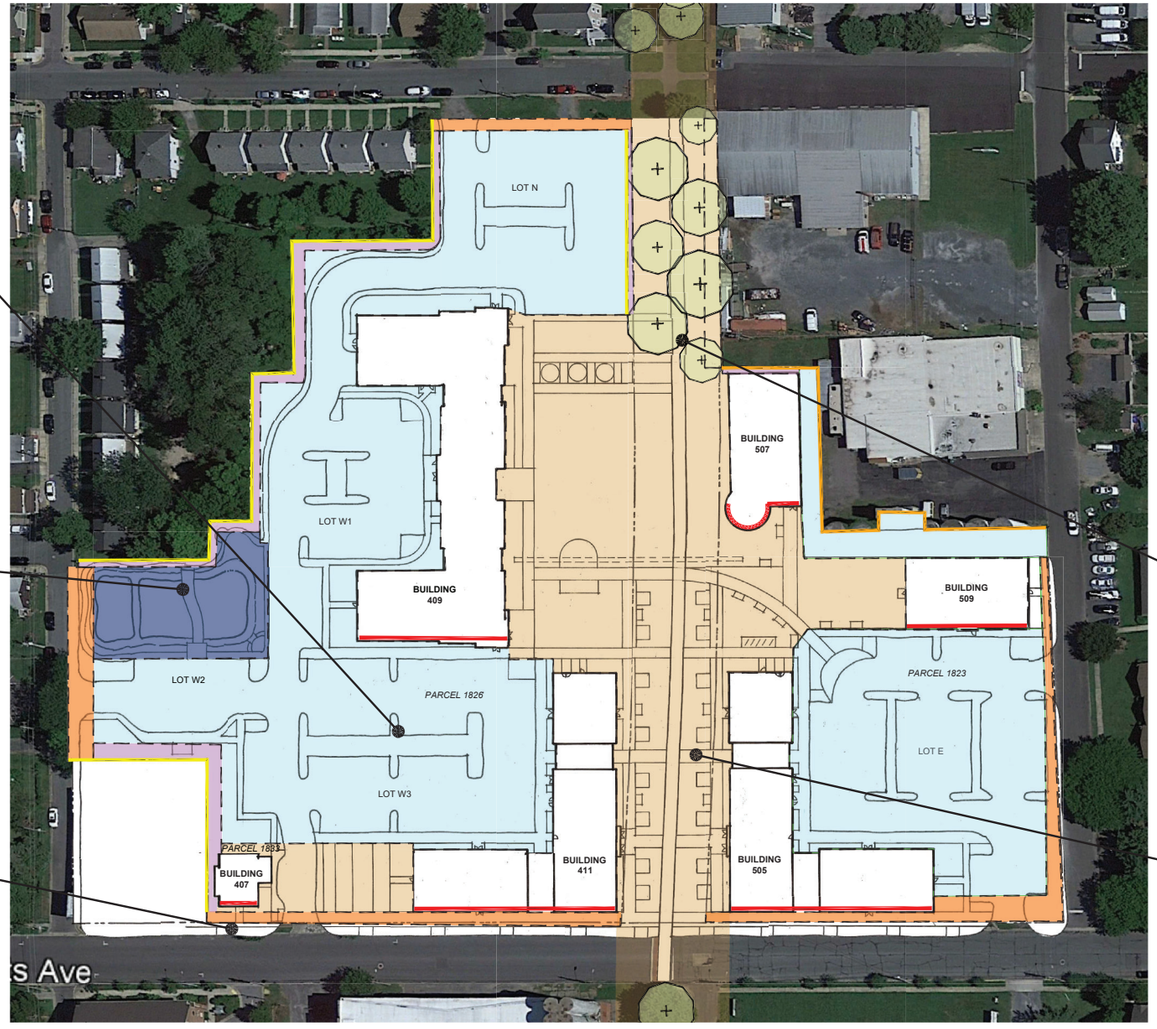
PARKING LOT STORMWATER AREA
BALD CYPRESS & NORTHERN SEA OATS



POND EDGE



STREETSCAPE
AMERICAN ELM & GROUNDCOVER



LEGEND

- EXISTING TREE
- PROGRAMMED SPACE / GREENWAY
- PARKING AREAS
  - CHESAPEAKE BAY NATIVE PLANTS
  - POLLINATOR MEADOW EDGES FOR COLOR
  - GRASSES
  - PARKING LOT SCREENING
- STORMWATER MANAGEMENT POND
- BUFFERYARD 'C'
- BUFFERYARD 'E'
  - BUFFERYARD 'E' OPTION WITH SCREEN FENCE AND SHRUBS
- BUILDING ENTRANCE FACADE



NORTH GREENWAY - EXISTING WILLOW OAKS



SOUTH GREENWAY
CAT MINT & SWITCHGRASS

PLANTING ZONE STUDY

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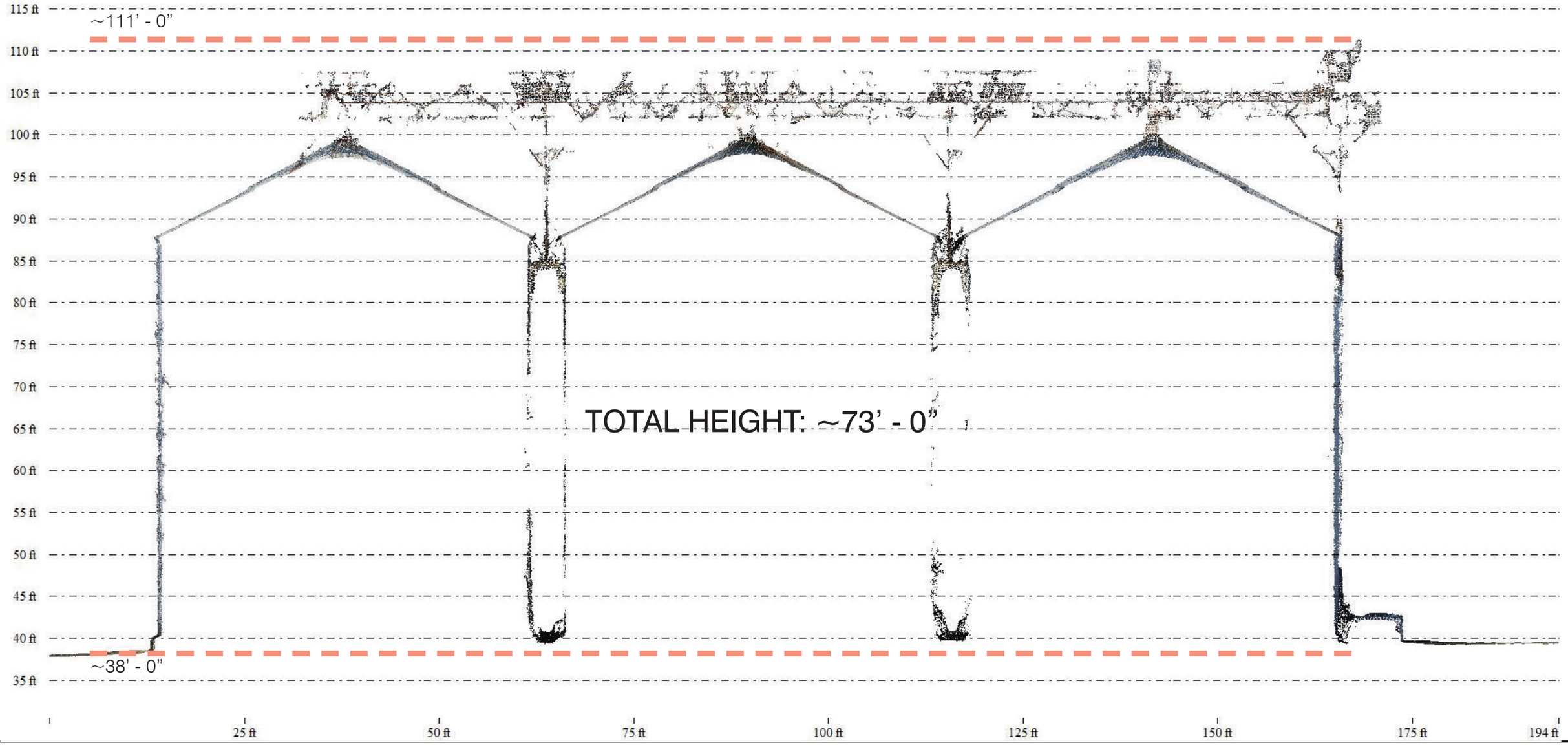
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EXISTING SILO HEIGHTS



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BROOKLETTS BUILDING



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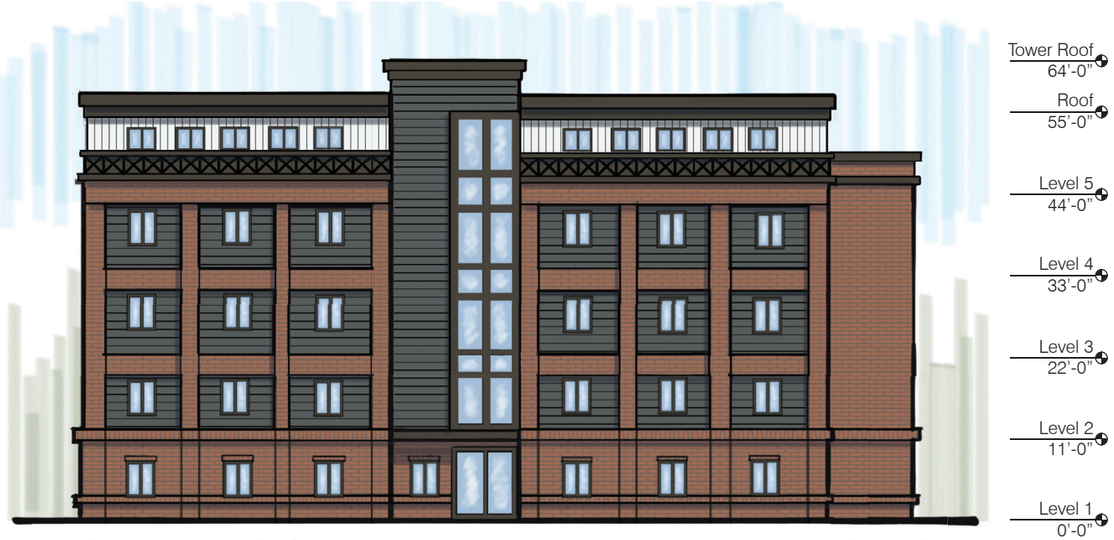
ELEVATIONS
PHASE 1

MATERIALS

ALUCOBOND CLADDING
BONE WHITE

JAMES HARDIE SIDING
IRON GRAY

GLEN-GERY BRICK
ROSE FULL RANGE



BLDG 509 - SOUTH (KEMP LN. PARKING LOT)



BLDG 509 - WEST (RAILS TO TRAILS)

BLDG 509



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BLDG 509





BLDG 509 - NORTH (KEMP LN. PARKING LOT)



BLDG 509 - EAST (KEMP LN.)

BLDG 505





BLDG 505 - SOUTH (BROOKLETTS AVE.)



BLDG 505 - WEST (RAILS TO TRAILS)

BLDG 505





BLDG 505 - NORTH (KEMP LN. PARKING LOT)



BLDG 505 - EAST (KEMP LN. PARKING LOT)

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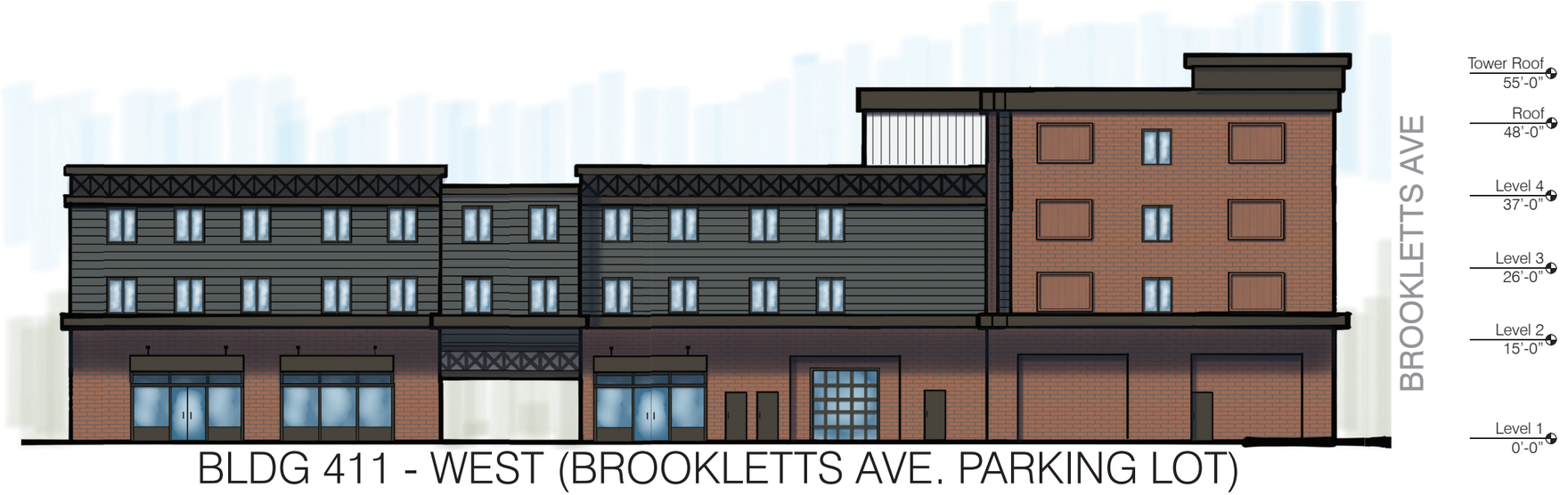
ELEVATIONS
PHASE 2

BLDG 411 (MIRRORED 505)





BLDG 411 - NORTH (BROOKLETTS AVE. PARKING LOT)



BLDG 411 - WEST (BROOKLETTS AVE. PARKING LOT)

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BLDG 411 (MIRRORED 505)





BLDG 411 - SOUTH (BROOKLETTS AVE.)



BLDG 411 - EAST (RAILS TO TRAILS)

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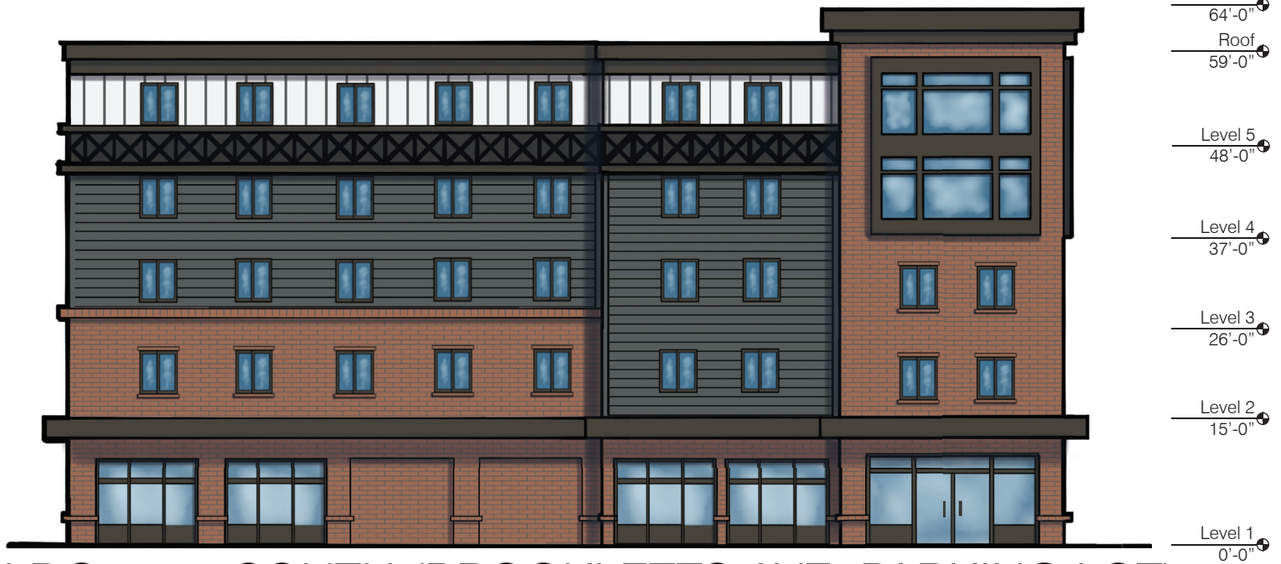
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BLDG 409





BLDG 409 - SOUTH (BROOKLETTS AVE. PARKING LOT)



BLDG 409 - EAST (RAILS TO TRAILS)

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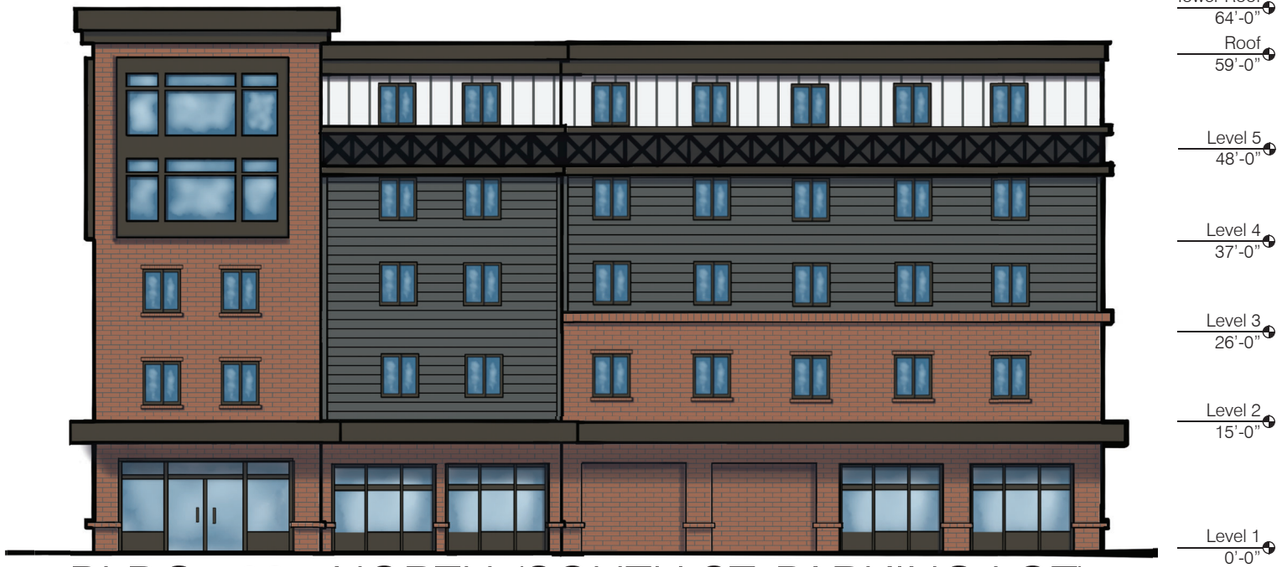
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BLDG 409





BLDG 409 - NORTH (SOUTH ST. PARKING LOT)



BLDG 409 - WEST (S. HIGGINS ST. PARKING LOT)

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EASTON Crossing

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ANNAPOLIS LANDSCAPE ARCHITECTS

Easton Crossing

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Easton Crossing - Preliminary Plant List

PUBLIC STREET FRONTAGE

TYPE	BOTANTICAL / COMMON NAME	NATIVE
Canopy Trees	Acer rubrum / Red Maple	native
	Carpinus caroliniana / American Hornbeam	native
	Ginkgo biloba 'Princeton Sentry' / Maidenhair	no
	Platanus occidentalis / American Sycamore	native
	Quercus phellos / Willow Oak	native
	Ulmus americana 'Princeton' / American Elm	native
Ornamental Trees	Cercis canadensis / Redbud	native
	Chionanthus virginicus / Fringe Tree	native
	Cornus florida / Flowering Dogwood	native
	Lagerstroemia indica / Crape Myrtle	no
Shrubs	Cephalotaxus harringonia 'Prostrata' / Prostate Japanese Plum Yew	no
	Clethra alnifolia / Summersweet	native
	Deutzia gracilis / Slender Deutzia	no
	Hydrangea arborescens / Smooth Hydrangea	native
	Hypericum calycinum / St. John/s Wort	no
	Ilex glabra / Inkberry Holly	native
Perennials/ Grasses & Groundcovers	Achillea millefolium / Yarrow	native
	Aster novae-angliae / New England Aster	native
	Calamagrostis x acutiflora / Feather Reed Grass	no
	Coreopsis verticillata / Tickseed	native
	Echinacea purpurea / Coneflower	native
	Ferns - various	varies
	Gaura lindheimeri / Wind Flower	no
	Geranium maculatum / Wild Geranium	native
	Hakonechloa macra / Japanese Forest Grass	no
	Helleborus x hybridus / Hellebore	no
	Hemerocallis / Daylily	no
	Heuchera villosa / Coral Bells	native
	Liriope muscari / Lily Turf	no
	Liriope spicata / Creeping Lily Turf	no
	Nepeta x faassenii `Walkers Low` / Walkers Low Catmint	no
	Panicum virgatum / Switch Grass	native
	Phlox subulata / Creeping Phlox	native
	Rudbeckia hirta / Black-eyed Susan	native
	Rudbeckia lanciniata / Cutleaf Coneflower	native
	Solidago rugosa / Goldenrod	native
	Verbena canadensis / Verbena	native

Easton Crossing - Preliminary Plant List

PROGRAMMED SPACE

TYPE	BOTANTICAL / COMMON NAME	NATIVE
Canopy Trees	Quercus phellos / Willow Oak	native
	Acer rubrum / Red Maple	native
	Platanus x acerfolia / London Plane Tree	no
Ornamental Trees	Amelanchier canadensis / Serviceberry	native
	Cercis canadensis / Redbud	native
	Chionanthus virginicus / Fringe Tree	native
	Cornus florida / Flowering Dogwood	native
	Cornus kousa / Kousa Dogwood	no
	Lagerstroemia indica / Crape Myrtle	no
	Magnolia virginiana / Sweet Bay	native
Shrubs	Camellia sasanqua / Camellia	no
	Cephalotaxus harringonia 'Fastigiata' / Fastigiate Japanese Plum Yew	no
	Cephalotaxus harringonia 'Prostrata' / Prostate Japanese Plum Yew	no
	Hydrangea - various	varies
	Jasminum nudiflorum / Winter Jasmine	no
	Leucothoe fontanesiana / Drooping Leucothoe	native
	Vaccinium angustifolium / Lowbush Blueberry	native
	Viburnum dentatum `Blue Muffin` / Southern Arrowwood	native
	Viburnum rhytidophyllum / Leatherleaf Viburnum	no
Perennials/ Grasses & Groundcovers	Achillea millefolium / Yarrow	native
	Aster novae-angliae / New England Aster	native
	Agastache x 'Kudos Coral'	no
	Calamagrostis x acutiflora / Feather Reed Grass	no
	Coreopsis verticillata / Tickseed	native
	Echinacea purpurea / Coneflower	native
	Ferns - various	varies
	Gaura lindheimeri / Wind Flower	no
	Geranium maculatum / Wild Geranium	native
	Hakonechloa macra / Japanese Forest Grass	no
	Helleborus x hybridus / Hellebore	no
	Hemerocallis / Daylily	no
	Heuchera villosa / Coral Bells	native
	Liriope muscari / Lily Turf	no
	Nepeta x faassenii `Walkers Low` / Walkers Low Catmint	no
	Panicum virgatum / Switch Grass	native
	Phlox subulata / Creeping Phlox	native
	Rudbeckia hirta / Black-eyed Susan	native
	Rudbeckia lanciniata / Cutleaf Coneflower	native
	Solidago rugosa / Goldenrod	native
	Verbena canadensis / Verbena	native

Easton Crossing - Preliminary Plant List

PARKING AREAS

TYPE	BOTANTICAL / COMMON NAME	NATIVE
Canopy Trees	Carpinus caroliniana / American Hornbeam	native
	Ostrya virginiana / American Hophornbeam	native
	Quercus coccinea / Scarlett Oak	native
	Taxodium distichum / Bald Cypress (wet islands)	native
Shrubs	Abelia grandiflora / Abelia	no
Screening	Ilex crenata / Chinese Holly	no
	Ilex glabra / Inkberry Holly	native
	Ilex japonica / Japanese Holly	no
	Ilex x meserveae / Meserve Holly	no
	Juniperus communus / Common Juniper	native
	Prunus laurocerasus `Otto Luyken` / Luykens Laurel	no
Shrubs	Aronia arbutifolia / Red Chockeberry	native
	Clethra alnifolia / Summersweet	native
	Ilex verticillata / Winterberry	native
	Itea virginica / Sweetspire	native
	Rhus aromatica `Gro-Low` / Gro-Low Fragrant Sumac	native
Perennials/	Aronia melanocarpa / Black Chokeberry	native
Grasses &	Asclepias tuberosa / Butterfly Milkweed	native
Groundcovers	Chasmanthium latifolium / Northern Sea Oats	native
	Echinacea purpurea / Coneflower	native
	Hypericum calycinum / St. John/s Wort	no
	Hypericum kalmianum / Kalm St. Johnswort	native
	Iris versicolor / Blue Flag	native
	Juniperus horizontalis / Creeping Juniper	native
	Microbiota decussata / Siberian Carpet Cypress	no
	Panicum virgatum / Switch Grass	native

GREENWAY

TYPE	BOTANTICAL / COMMON NAME	NATIVE
Canopy Trees	Quercus phellos / Willow Oak	native
Ornamental Trees	Magnolia virginiana / Sweet Bay	native
Evergreen	Cryptomeria japonica `Yoshino` / Yoshino Cryptomeria	no
Tree/Shrub	Ilex x `Nellie R. Stevens` / Nellie R. Stevens Holly	no
	Prunus laurocerasus 'Schipkaensis' / Schip Laurel	no
	Thuja occidentalis `Emerald Green` / Emerald Green American Arborvitae	native

Easton Crossing - Preliminary Plant List

STORMWATER MANAGEMENT AREAS (all native)

TYPE	BOTANTICAL / COMMON NAME	NATIVE
Canopy Trees	Betula nigra / River Birch	native
	Diospyros virginiana / Persimmon	native
	Magnolia virginiana / Sweet Bay	native
	Nyssa sylvatica / Tupelo	native
	Taxodium distichum / Bald Cypress (wet islands)	native
Shrubs	Clethra alnifolia / Summersweet	native
	Gaylussacia baccata / Black Huckleberry	native
	Ilex glabra / Inkberry Holly	native
	Ilex verciillata / Winterberry Holly	native
	Myrica pennsylvanica / Northern Bayberry	native
Perennials/	Asclepias incarnata / Swamp Milkweed	native
Grasses &	Carex stricta / Tussock Sedge	native
Groundcovers	Echinacea purpurea / Coneflower	native
	Eupatorium dubium / Joe-Pye Weed	native
	Helianthus angustifolius / Swamp Sunflower	native
	Iris versicolor / Blue Flag	native
	Juncus effusus / Common Rush	native
	Lobelia cardinalis / Cardinal Flower	native
	Packera aurea / Golden Ragwort	native
	Panicum virgatum / Switch Grass	native
	Penstemon digitalis / Foxglove Beardtongue	native

BUFFERS (all native)

TYPE	BOTANTICAL / COMMON NAME	NATIVE
Evergreen	Juniperus virginiana / Eastern Redcedar	native
Trees	Magnolia grandiflora `Bracken's Brown Beauty` / Bracken`s Southern Magnolia	native
	Thuja occidentalis `Emerald Green` / Emerald Green American Arborvitae	native
Ornamental	Cercis canadensis / Redbud	native
Trees	Chionanthus virginicus / Fringe Tree	native
	Cornus florida / Flowering Dogwood	native
Shrubs	Ilex glabra / Inkberry Holly	native
	Ilex glabra / Inkberry Holly	native
	Ilex verciillata / Winterberry Holly	native
	Myrica pennsylvanica / Northern Bayberry	native
	Rhododendron periclymenoides / Pink Azalea	native

EASTON CROSSING

INFRASTRUCTURE IMPROVEMENT SKETCH PLAN

FOR

EASTON CROSSING, LLC

EASTON, TALBOT COUNTY, MARYLAND 21601

SITE DATA:

PROPERTY ADDRESS: 505 BROOKLETTS AVENUE, EASTON, MD 21601

LATITUDE: 38° 46' 16.7" N
LONGITUDE: -76° 04' 03.5" W

PRESENT ZONING CLASSIFICATION: BUSINESS COMMERCIAL DISTRICT; PRD BOUNDARY; PUD INFILL BOUNDARY

PRESENT USE: BUSINESS COMMERCIAL
FUTURE USE: MIXED USE - COMMERCIAL AND RESIDENTIAL

TAX MAPS: 0104, *0104*, 0104
GRIDS: 00EA, *00EA*, 00EA
PARCELS: 1823, *1826*, 1833
DEED REFERENCE: 03025/00066, *03025/00066*, 03114/00180

PROPERTY AREA: 6.92 ACRES
LIMITS OF DISTURBANCE: 7.08 ACRES
CUT: 12,933 CY
FILL: 640 CY
NET CUT/FILL: 12,293 CY (CUT)
EXISTING IMPERVIOUS: 69%
PROPOSED IMPERVIOUS: 71%

FEMA FLOOD MAP: PANEL 24041C0179E
WATERSHED: LOWER CHOPTANK

NO PORTION OF THIS PROJECT SITE IS LOCATED WITHIN THE 100-YR FLOOD PLAIN

NO PORTION OF THIS PROJECT SITE IS LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA

DENSITY REQUIRED: LESS THAN 40 UNITS PER ACRE
DENSITY PROVIDED: 17.9 UNITS PER ACRE

PRD SETBACKS: FRONT: 5 FT FROM PROPERTY LINE; SIDE: 5 FT FROM PROPERTY LINE; REAR: NONE PRESENT

LOT SIZE: N/A - NO INTENT TO SUBDIVIDE

EXISITNG LOT COVERAGE: 69%
REQUIRED LOT COVERAGE: NOT TO EXCEED 75%
ACTUAL PR. LOT COVERAGE: 71%

REQUIRED MAX BUILDING HEIGHT: 75'
MAX. EXISTING STRUCTURE HEIGHT: 73
MAX PROPOSED BUILDING HEIGHT: 64'

FOREST CONSERVATION: EXEMPT PER SECTION 31-3.2 FROM THE TOWN OF EASTON FOREST CONSERVATION ORDINANCE #718

PARKING SPACES REQUIRED: N/A AS THIS IS IN THE PRD BOUNDARY
PARKING SPACES PROVIDED:
OFFSTREET PARKING: 217 PARKING SPACES; INCLUDES 6 EV CHARGING STATION; INCLUDES 14 ADA SPACES WITH AISLE

SURVEY DATUM
HORIZONTAL: NAD83
VERTICAL: NAVD88
DATE OF SURVEY: 10/10/2024

NOTE: ALL ON-SITE LIGHTING UNLESS APPROVED OTHERWISE BY PLANNING AND ZONING COMMISSION SHALL BE LOW CUT-OFF SHIELDED LUMINARIES AT 18' HEIGHT AND LIGHT SHALL NOT SHINE OFF-SITE AT LEVEL GREATER THAN 1-FOOT CANDLE.

CONTACT INFORMATION

OWNER/DEVELOPER: EASTON CROSSING, LLC
999 CORPORATE DRIVE,
LINTHICUM, MD 21090
(410) 384-4022

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

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. STEEP SLOPES ARE NOT PRESENT ON SITE
4. NON TIDAL WETLANDS ARE NOT PRESENT ON THIS PORTION OF THE PROJECT

HYDROLOGY NOTES:

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

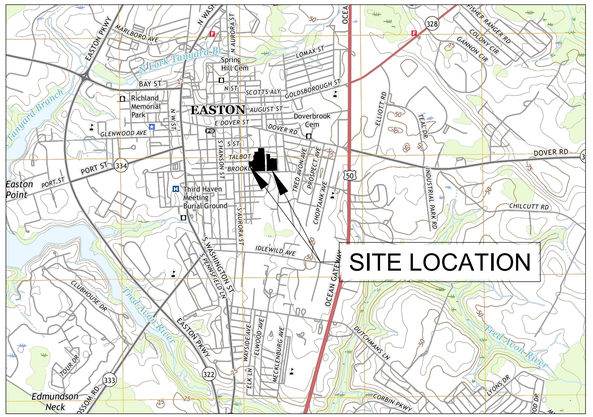
STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIATION 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 DISURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING

DRAWING LIST

DRAWING NUMBER	DRAWING TITLE
G-100	TITLE SHEET
V-101	EXISTING CONDITIONS PLAN
C-100.01	OVERALL SITE PLAN
C-100.02	SETBACK PLAN
C-100.03	KEY SHEET
C-201.01-.05	ESC & STORMWATER MANAGEMENT PLAN
C-203	STORMWATER MANAGEMENT PROFILES
C-205.01-.02	EROSION & SEDIMENT CONTROL DETAILS
C-205.03	STORMWATER MANAGEMANT DETAILS
C-301.01-.05	SITE AND GRADING PLAN
C-303	GRADING PROFILES
C-305	SITE AND GRADING DETAILS
C-401.01-.05	UTILITY PLAN
C-403.01-.03	UTILITY PROFILES
C-405	UTILITY DETAILS
C-501	FIRE MARSHAL PLAN AND DETAILS



VICINITY MAP
SCALE: 1" = 2000'

WATER QUANTITY

STUDY POINT	STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
STUDY POINT 1	EXISTING	11.19	19.35	35.59
	PROPOSED	9.95	18.70	33.72
CHANGE	CHANGE	-1.24	-0.65	-1.87
STUDY POINT 2	EXISTING	3.21	5.10	8.89
	PROPOSED	0.49	0.85	1.57
CHANGE	CHANGE	-2.72	-4.25	-7.32

SITE REQUIRED ESDv

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 NORTHING	MARYLAND GRID COORDINATE NAD 83 EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESDv (FT^3)	ACTUAL ESDv (FT^3)
1	MBR-1	BIORETENTION 1	ON-SITE	95	404001.0280'	1577860.4733'	0.458	0.421	0.006	1.23	0.49	1796	716
2	MBR-2	BIORETENTION 2	ON-SITE	91	403787.4477'	1577724.3975'	0.442	0.363	0.003	1.23	0.31	1556	391
3	MBR-3	BIORETENTION 3	ON-SITE	87	403580.5404'	1577730.4142'	0.427	0.297	0.006	1.23	0.66	1296	700
4	MBR-4	BIORETENTION 4	ON-SITE	93	403583.8545'	1577794.9402'	0.445	0.380	0.005	1.23	0.31	2455	618
5	SGW-1	SUBMERGED GRAVEL WETLAND	ON-SITE	87	403682.2326'	1577610.0030'	4.904	3.547	0.112	1.23	0.37	5402	9330
TOTAL/ AVERAGE							6.680	5.010	0.130	6.15	2.14	10050	11755

LANDSCAPE IMPROVEMENTS - §§28-1014.6

OVERALL TREES REQUIRED:
FINAL QUANTITY TO BE DETERMINED BY THE LANDSCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

STREET TREES PROVIDED:
FINAL QUANTITY TO BE DETERMINED BY THE LANDSCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

PARKING LOT TREES PROVIDED:
FINAL QUANTITY TO BE DETERMINED BY THE LANDSCAPE ARCHITECT; NO LESS THAN THE REQUIRED AMOUNT WILL BE PROVIDED

PARKING LOT SCREENING:
SITE SHALL MEET REQUIREMENT EXCEPT FOR THE WAIVERS REQUIRED:
- FOR BUILDING 411 PARKING LOT FRONTAGE TO BROOKLETTS AVENUE
- FOR BUILDING 505 PARKING LOT FRONTAGE KEMP LANE

BUILDING FACADE PLANTINGS:
SITE SHALL MEET REQUIREMENT EXCEPT FOR THE WAIVERS REQUIRED:
- FOR BUILDING 411 ENTRANCE
- FOR BUILDING 505 ENTRANCE

SERVICE/LOADING AREAS:
SERVICE/LOADING AREAS SHALL BE SCREENED AS REQUIRED IN THIS SECTION

SHRUB AND GROUNDCOVER PLANTINGS:
SHRUBS AND GROUNDCOVERS SHALL BE INTEGRATED INTO THE FINAL SITE AND FINAL LANDSCAPE PLAN AS REQUIRED IN THIS SECTION

BUFFERYARD STANDARDS - §§28-1014.7

PROPERTY LINE FRONTING SOUTH STREET:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH ONLY

PROPERTY LINE WEST SIDE FROM SOUTH STREET TO HIGGINS STREET:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE FRONTING HIGGINS STREET:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE FRONTING HIGGINS STREET TO BROOKLETTS AVENUE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO

PROPERTY LINE PARCEL(S) 1833 AND 1826 FRONTING BROOKLETTS AVENUE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO, NOT REQUIRED AS PRIMARY ROAD FRONTAGE

PROPERTY LINE PARCEL 1823 FRONTING BROOKLETTS AVENUE:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - NO, NOT REQUIRED AS PRIMARY ROAD FRONTAGE

PROPERTY LINE FROM KEMP LANE TO RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL FOR WIDTH & LARGE SHRUBS

PROPERTY LINE FROM KEMP LANE TO RAILS-TO-TRAILS:
BUFFERYARD "C" - *20' WIDTH - 1 SHADE/CANOPY TREE, 2 EVERGREEN TREES & 5 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH AND PLANT QUANTITY

PROPERTY LINE FROM KEMP LANE TO RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL FOR WIDTH & LARGE SHRUBS

PROPERTY LINE PARCEL 1826 FRONTING RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH, SHRUBS PLACED INSIDE VS OUTSIDE OF FENCING, AND FOR PLANT QUANTITY

PROPERTY LINE PARCEL 1823 FRONTING RAILS-TO-TRAILS:
BUFFERYARD "E" - *10' WIDTH - PRIVACY FENCE & 3 LARGE SHRUBS PER 50 LF*
WAIVER REQUIRED - YES, PARTIAL WAIVER FOR WIDTH, SHRUBS PLACED INSIDE VS OUTSIDE OF FENCING, AND FOR PLANT QUANTITY

LINETYPES

	PROPOSED	EXISTING
TOPOGRAPHY		
MAJOR CONTOURS	45	45
MINOR CONTOURS	44	44
TOP OF SLOPE BREAKLINE		
BOTTOM OF SLOPE BREAKLINE		
TOPOGRAPHY BREAKLINE		
CATCHMENT AREA		
Tc FLOW PATH		
PARCEL BOUNDARY		
PARCEL SETBACK/EASEMENT		
FENCELINE WOOD		
FENCELINE STEEL		X
TREELINE/VEGETATION		
ROADWAY CENTERLINE		
HIGHWAY BARRIER		
UTILITIES		
OVERHEAD ELECTRIC	OE	OE
UNDERGROUND ELECTRIC	UE	UE
TELEPHONE LINE	T	T
GAS PIPE LINE	G	G
COMMUNICATIONS (FIBER, ETC)	C	CTV
WATER PIPE	W	W
STORMWATER PIPE		
UNDERDRAIN		
SANITARY SEWER	SS	SS
FORCE MAIN SEWER	FM	FM
ENVIRONMENTAL		
WETLAND LINE		Ψ
FLOOD PLANE 100/500 YR		FP 100
MEAN HIGH WATER		MHW
MEAN LOW WATER		MLW
CRITICAL AREA BOUNDARY		CAB
BUFFER 25'/100'		25'
SOILS BOUNDARY		
EROSION AND SEDIMENT CONTROL		
SILT FENCE	SF	
SUPER SILT FENCE	SSF	
SILT FENCE ON PAVEMENT	SFOP	
LIMITS OF DISTURBANCE	LOD	
STANDARD INLET PROTECTION	SIP	
AT-GRADE INLET PROTECTION	AGIP	
CURB INLET PROTECTION	CIP	
SWM EASEMENT 5'/10'		

SYMBOLS

	PROPOSED	EXISTING
FLARED END SECTION		
YARD INLET	YI	YI
CURB INLET	CI	CI
CUSTOM INLET	CuI	CuI
NYLOPLAST INLET	N	N
STORM DRAIN MANHOLE	D	D
SANITARY SEWER MANHOLE	S	S
CLEANOUT	C	C
GATE VALVE	GV	GV
STUB		
SIGN		
WATER METER	WM	WM
FIRE HYDRANT		
WELL	W	W
BOLLARD		
ELECTRIC TRANSFORMER	ELEC	ELEC
TELEPHONE PEDESTAL	T	T
UTILITY POLE		
GUY WIRE		
CONIFEROUS TREE		
DECIDUOUS TREE		
SPOT ELEVATION	39.01	39.00
LAND SLOPE	0.41%	0.41%
BENCHMARK	ELEV: 123	
BOREHOLE/MONITORING WELL		

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
CuI	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	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
W/	WITH

DESIGN PRINCIPLES FOR EASTON

(COMPREHENSIVE PLAN, PG. 29-31)

1. **INTEGRATED USES ARE DESIRABLE** - THE PROJECT CONSISTS OF RESIDENTIAL, OPEN SPACE, STORMWATER MANAGEMENT, AND PARKS. THIS PROJECT WILL HAVE A TOTAL OF 120 DWELLING UNITS ADDRESSING THE NEED FOR HOUSING AS STATED IN THE COMPREHENSIVE PLAN TO INCREASE THE NUMBER AND TYPES OF HOUSING AVAILABLE IN THE AREA.
2. **NATURAL FEATURES SHOULD DETERMINE DESIGN** - THE SITE IS DEVELOPED TO MAINTAIN EXISTING NATURAL CONTOURS AND DRAINAGE PATHS. THERE ARE FEW NATURAL FEATURES ON THE EXISTING SITE AS THE ORIGINAL SITE WAS MOSTLY IMPERVIOUS INCLUDING GRAIN TANKS. MORE GREEN/OPEN SPACE IS INCORPORATED INTO THE PROPOSED SITE PLAN.
3. **AUTOMOBILES SHOULD NOT DETERMINE DESIGN** - AUTOMOBILES WERE NOT THE PRIORITY FOCUS FOR THE DESIGN BUT SUFFICIENT PARKING IS PROVIDED, WHICH INCLUDES AMPLE LANDSCAPING AND GREEN SPACE.
4. **AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN AND AROUND NEIGHBORHOODS** - THIS PROJECT PROVIDES OPEN PARK AREAS AND GREEN SPACES THROUGHOUT THE PARCEL. THE SITE ALSO CONNECTS PEDESTRIANS TO THE RAILS TO TRAILS PATH.
5. **ARCHITECTURE SHOULD RESPECT EASTON'S HISTORIC DISTRICT** - THIS PROJECT IS NOT WITHIN THE HISTORIC DISTRICT BUT THE ARCHITECTURE IS MOTIVATED BY THE ORIGINAL GRAIN TANKS FROM THE EXISTING SITE.
6. **SIGNS SHOULD INFORM BUT NOT DOMINATE** - THERE WILL BE MINIMAL SIGNAGE ON THIS PROPERTY. EACH UNIT WILL HAVE A STREET/BUILDING NUMBER THAT WILL INDICATE THE UNIT AND ADDRESS FOR THE PUBLIC AND FIRE/RESCUE SERVICES. FREE STANDING SIGNS AT EACH ENTRANCE WILL NOT DOMINATE THE ROAD FRONTAGE.
7. **NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES** - THIS PROJECT HAS SEVERAL DIFFERENT STRUCTURE STYLES WHICH DIFFER IN THE NUMBER OF STORIES AND RESIDENTIAL AND COMMERCIAL UNITS. THIS OFFERS A DIVERSITY OF PRICE RANGES FOR THE HOMES IN THE PROJECT. THE STRUCTURE DESIGN STYLES ARE IN ADDITION TO THE CLIENT'S OVERALL RESIDENTIAL PORTFOLIO IN AND AROUND THE TOWN OF EASTON. THE CLIENT'S PORTFOLIO HAS A DIVERSE HOUSING TYPE WITHIN THE TOWN OF EASTON.
8. **RESIDENTIAL DEVELOPMENTS SHOULD BE INTERESTING PLACES** - THE PROJECT EMBRACES THE EXISTING AGRICULTURE BUSINESS THAT ORIGINATED THE PARCEL. INCORPORATING THE AGRICULTURE BUSINESS WITHIN THE MOTIVATION OF THE RESIDENTIAL ARCHITECTURE, THE PARK GAZEBO, AND THE CONNECTION TO THE RAILS TO TRAILS. PATH MAKE THIS A VERY INTERESTING PROJECT AND PLACE.
9. **NEIGHBORHOODS SHOULD CONNECT** - PEDESTRIANS CAN TRAVERSE BETWEEN SOUTH STREET AND BROOKLETTS AVENUE AS WELL AS SOUTH HIGGINS STREET AND KEMP LANE. CONNECTION POINTS FOR PEDESTRIANS TO RAILS TO TRAILS ARE ALSO PROVIDED.

SEQUENCE OF CONSTRUCTION

1. NOTIFY MDE AT (410) 901-4020
   TALBOT COUNTY SOIL CONSERVATION DISTRICT AT (410) 822-1583
   TOWN OF EASTON DPW AT (410) 822-0513
2. PRE-CONSTRUCTION MEETING.
4. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES PER PLANS.
5. CUT EXISTING SEWER PIPE. PLUG AND CAP WEST SECTION AND APPLY FLOWABLE FILL TO THE EAST PART OF THE SEWER PIPE TO BE ABANDONED.
6. DEMO PER PLAN.
7. INSTALL STORMWATER MANAGEMENT NETWORK.
8. INSTALL UTILITIES.
9. START SITE GRADING.
10. START CONSTRUCTION.
11. CONSTRUCT SUBMERGED GRAVEL WETLAND AREA. DO NOT FINALIZE CONSTRUCTION OF THIS UNTIL EARTH DISTURBANCE IS COMPLETE.
12. CONSTRUCT CURBS AND SIDEWALKS AS INDICATED ON THE PLANS.
13. INSTALL BASE PAVEMENT
14. PERMANENTLY STABILIZE REMAINING AREAS.
15. MAINTAIN ALL PERIMETER CONTROLS AND SEDIMENT CONTROL DEVICES UNTIL FINAL STABILIZATION HAS BEEN COMPLETELY ESTABLISHED.
16. REMOVE PERIMETER CONTROLS UPON APPROVAL BY THE MDE SEDIMENT CONTROL INSPECTOR.

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

1. 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.
2. 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.

GENERAL NOTES

PROJECT SHALL BE CONSTRUCTED TO COMPLY WITH THE TOWN OF EASTON DESIGN AND CONSTRUCTION STANDARDS.

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_____410-822-0513
TALBOT COUNTY SCD_____410-822-1583
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.

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

TITLE SHEET

EASTON CROSSING
FOR
EASTON CROSSING, LLC
TAX MAP 0104, GRIDS 00EA/0000, PARCELS 1823, 1826, 1833
EASTON, TALBOT COUNTY, MARYLAND
PREPARED FOR: EASTON CROSSING, LLC

RAUCH Inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 9081 | Fax: 410 770 3867

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. 11024 Expiration Date: July 24, 2026
12/26/2024

REVISIONS

REV. #	DATE	DESCRIPTION

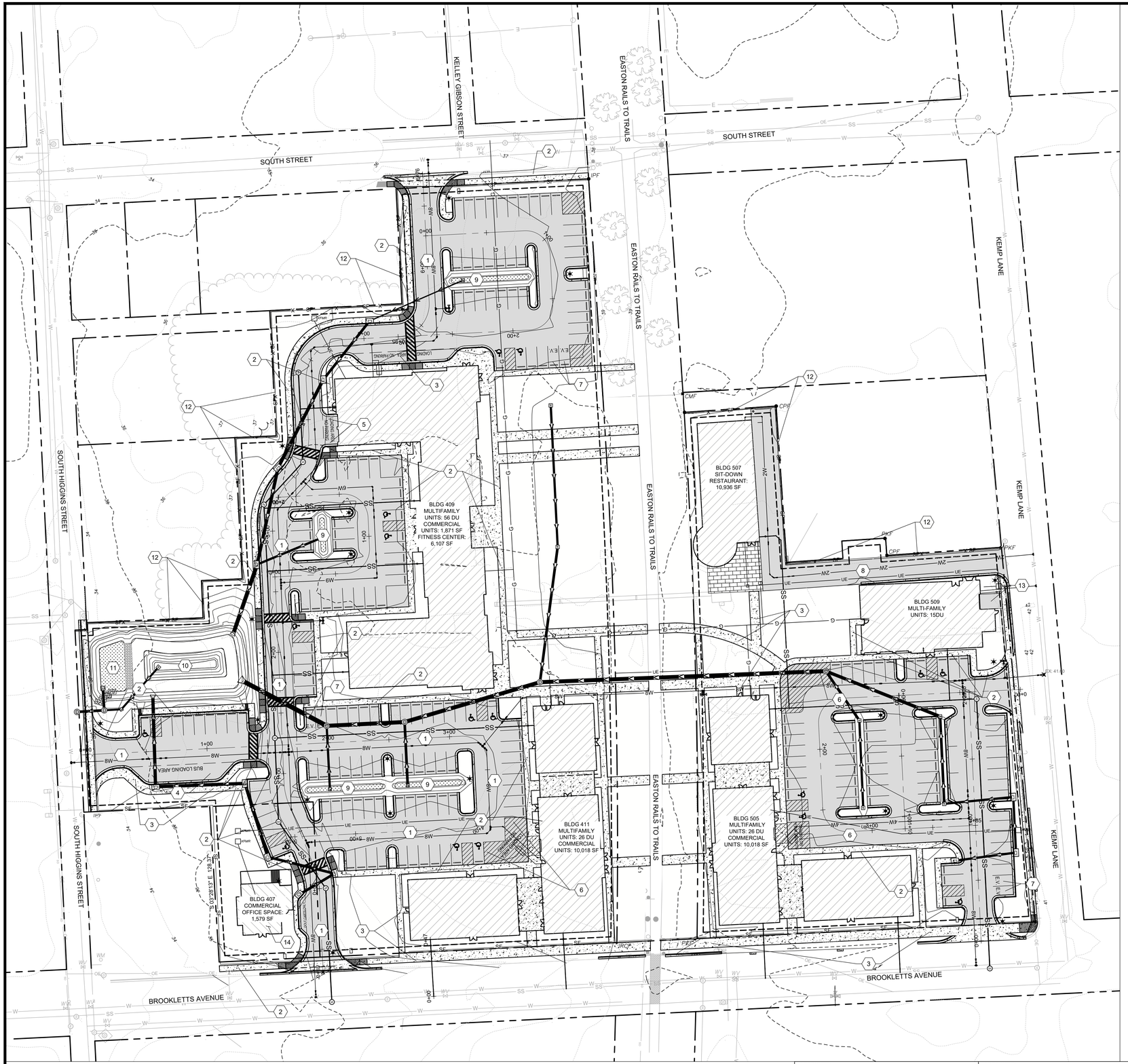
MISS UTILITY OF DELMARVA — DIAL 811 BEFORE YOU DIG

DATE:	12/26/2024
SCALE:	AS SHOWN
DRAWN BY:	BO
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: G-100

FOR REVIEW


SOUTH STREET
KELLEY GIBSON STREET
EASTON RAILS TO TRAILS
KEMP LANE
SOUTH HIGGINS STREET
BROOKLETTS AVENUE
MAP LANE
II
JJ
HH
KK
GG
FF
LL
MM
EE
DD
CC
AA
BB
NN
QQ
PP
OO
RR
409
507
509
505
407
41
WEIR ELEV: 29.00
IPF
CMF
CPF
PKF
IRCF
N 86°59'11" E 109.00'
N 87°36'11" E 33.96'
N 87°29'11" E 33.55'
N 02°24'49" W 30.67'
N 87°35'11" E 96.15'
N 86°04'39" E 75.91'
N 03°36'15" W 46.14'
N 86°12'22" E 46.41'
N 85°56'09" E 46.33'
S 87°57'49" W 5.65'
S 87°59'11" E 8.66'
S 87°57'49" W 103.80'
S 87°57'49" W 85.26'
S 87°57'49" W 89.20'
S 87°57'49" W 30.06'
S 87°57'49" W 30.06'
N 01°24'49" W 433.72'
S 01°28'21" E 450.89'
S 05°10'18" E 310.08'
N 02°24'49" W 400.35'
S 02°24'49" E 120.00'
N 87°57'49" E 120.00'
N 87°57'49" E 178.68'
N 87°57'49" E 178.68'
N 87°57'49" E 178.68



PROPOSED FEATURES

1. 24' WIDE THRU-WAY
2. 5' WIDE CONCRETE SIDEWALK
3. 8' WIDE CONCRETE SIDEWALK
4. 15' WIDE x 60' LONG BUS PULL-OFF/LOADING AREA
5. 9.5' WIDE x 26' LONG GARAGE ACCESS/LOADING AREA
6. DROP-OFF/LOADING AREA
7. E.V. CHARGING STATION STALL
8. 20' WIDE ACCESS LANE
9. BIO-RETENTION STRUCTURE FOR STORMWATER MANAGEMENT. TOP OF BANK VARIES
10. SUBMERGED GRAVEL WETLAND AND FOREBAY
    FOREBAY TOP OF BANK ELEV: 31.50', FOREBAY FLOOR ELEV: 25.00'
11. SUBMERGED GRAVEL WETLAND AND FOREBAY
    SGW TOP OF BANK ELEV: 31.50', SGW FLOOR ELEV: 29.00
12. PROPOSED PRIVACY FENCE. HEIGHT AND TYPE TO BE DETERMINED
13. TRASH ROOM EXTERIOR ACCESS
14. BUILDING 407 RENOVATED UNDER PREVIOUS PLAN

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

OVERALL SITE PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

RAUCH inc.
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 3867

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License No. 11024
Expiration Date: July 24, 2026

12/26/2024

REVISIONS		
REV. #	DATE	DESCRIPTION

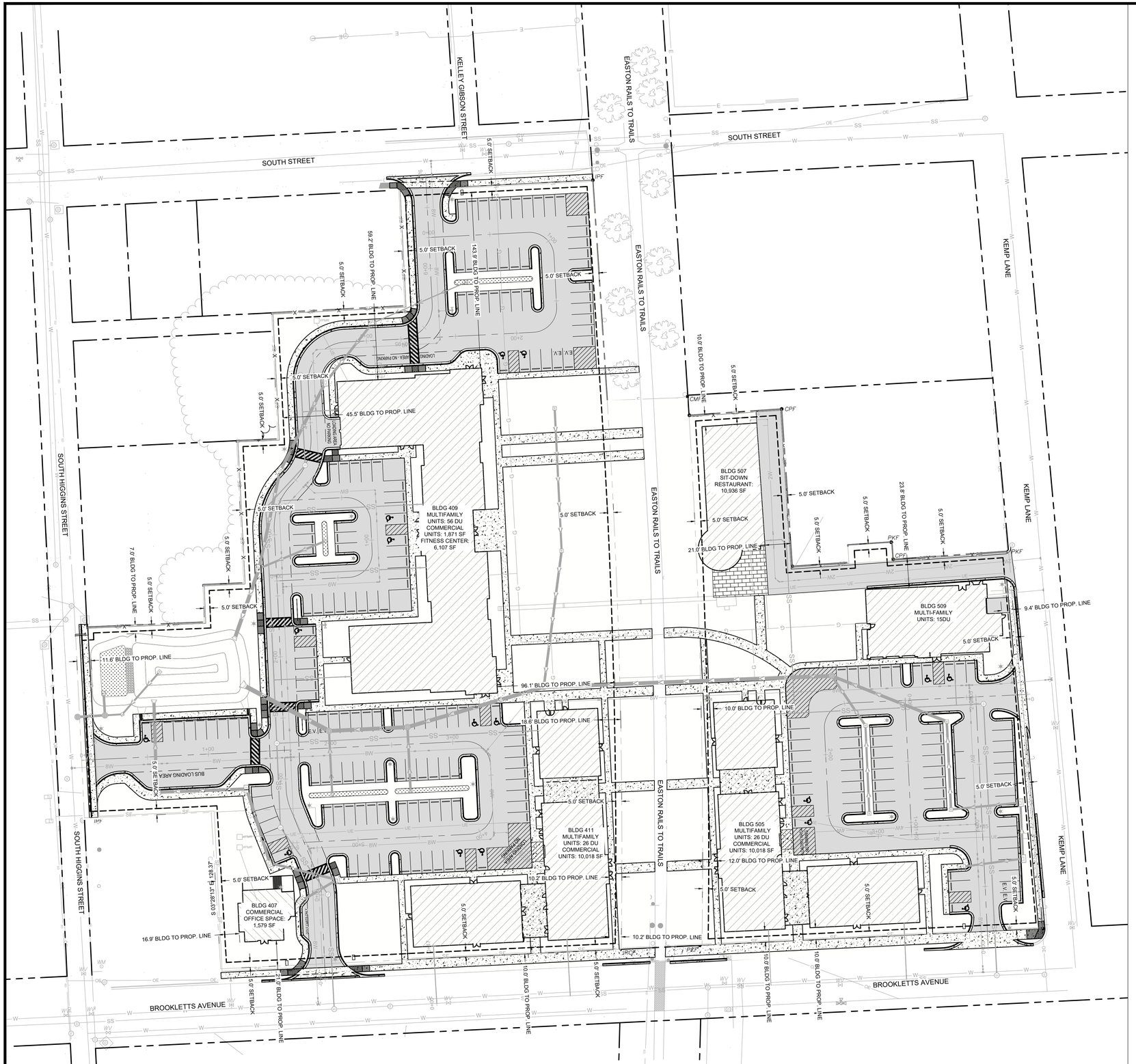
MISS UTILITY OF DELMARVA — ONE CALL DOES IT ALL!

811

DATE:	12/26/2024
SCALE:	1" = 40'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-100.01

FOR REVIEW



NAD 83

0 40' 80'

PROPOSED FEATURES

1. 24' WIDE THRU-WAY
2. 5' WIDE CONCRETE SIDEWALK
3. 8' WIDE CONCRETE SIDEWALK
4. 15' WIDE x 60' LONG BUS PULL-OFF/LOADING AREA
5. 9.5' WIDE x 26' LONG GARAGE ACCESS/LOADING AREA
6. DROP-OFF/LOADING AREA
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12. PROPOSED PRIVACY FENCE. HEIGHT AND TYPE TO BE DETERMINED
13. TRASH ROOM EXTERIOR ACCESS

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

SETBACK PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

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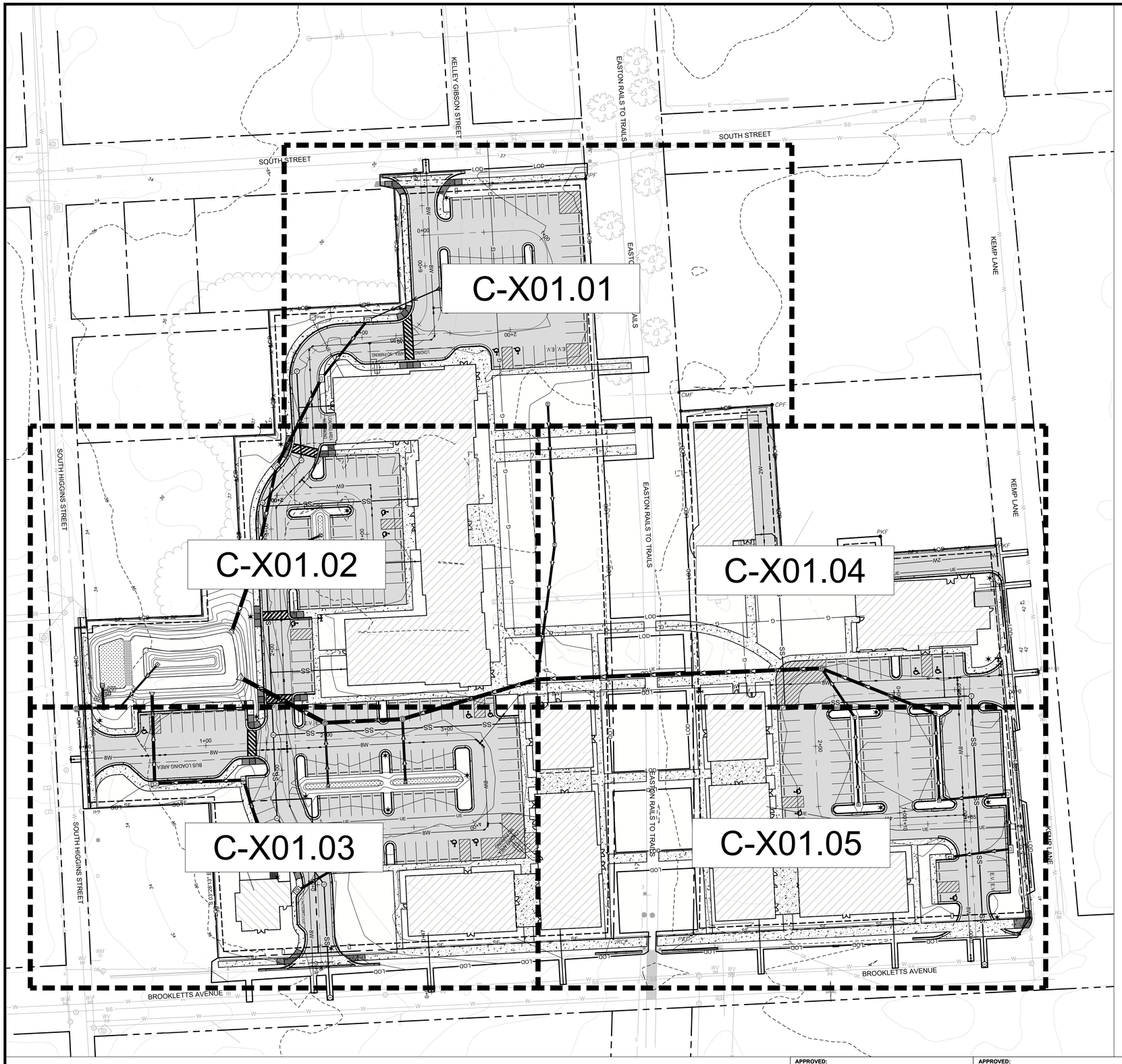
REVISIONS		
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	12/26/2024
SCALE:	1" = 40'
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DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-100.02

FOR REVIEW



KEY SHEET

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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REVISIONS

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MISS UTILITY OF DELMARVA — DIG SAFE. IT'S THE LAW. — 811

DATE:	12/26/2024
SCALE:	1" = 40'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-100.03

FOR REVIEW

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

EROSION & SEDIMENT CONTROL FEATURES

A AT-GRADE INLET PROTECTION PER DETAIL ON C-205.01

B CURB INLET PROTECTION PER DETAIL ON C-205.01

C SILT FENCE PER DETAIL ON C-205.01

STORMWATER MANAGEMENT FEATURES

1 BIO-RETENTION #1
TOP OF BANK ELEV: 35.35
FLOOR ELEV: 33.35

2 2' WIDE CURB CUT
ELEV: 37.85

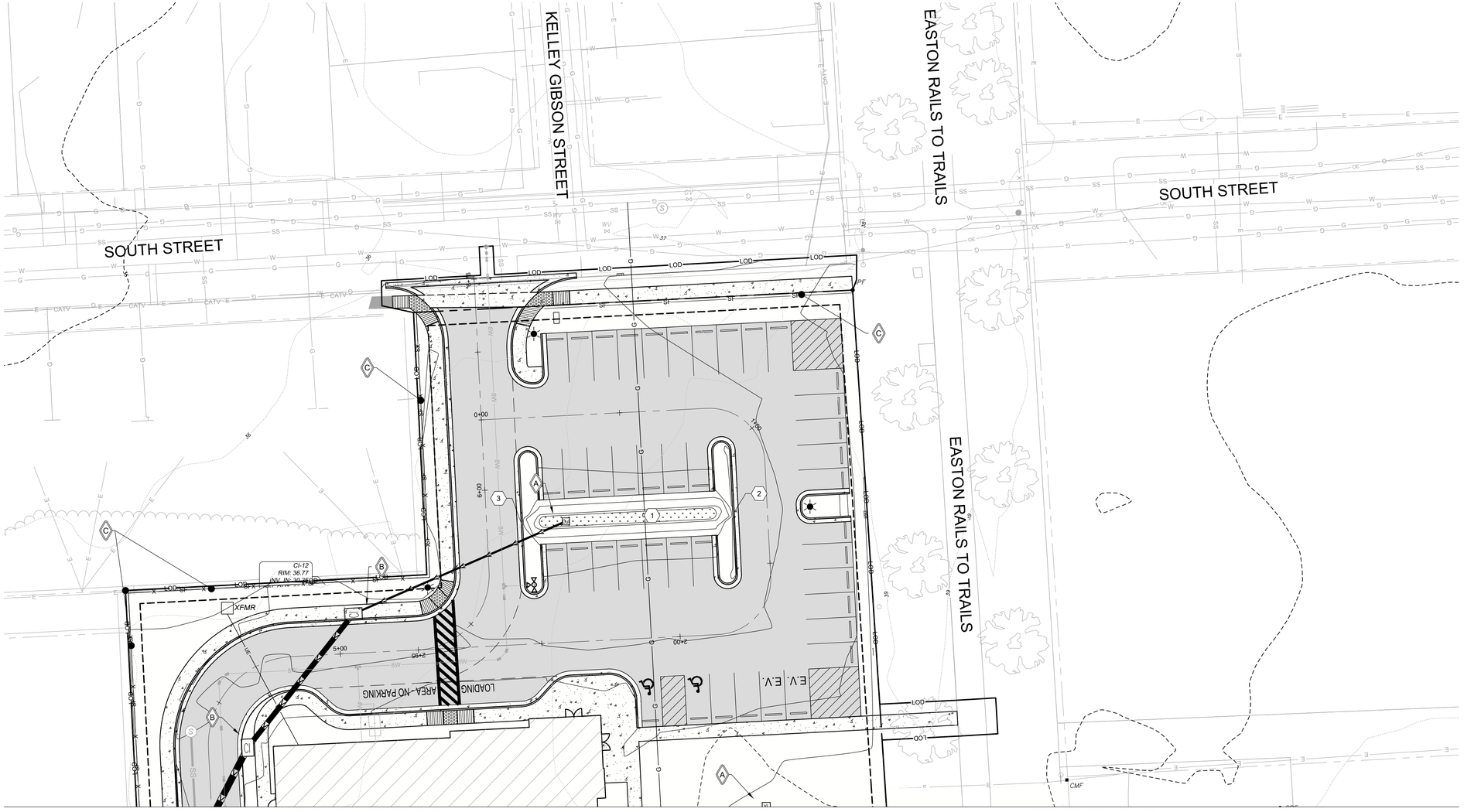
3 2' WIDE CURB CUT
ELEV: 36.29

SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	B	0.32	No
UoB	Udorthents, loamy, 0 to 5 percent slopes	C	0.37	No

NAD 83

0 20' 40'



APPROVED: TOWN OF EASTON - TOWN ENGINEER DATE

APPROVED: TOWN OF EASTON PLANNING AND ZONING DATE

APPROVED: EASTON UTILITIES - ENGINEER DATE

APPROVED: TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

ESC AND SWM PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	12/26/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-201.01

FOR REVIEW

EROSION & SEDIMENT CONTROL FEATURES

A AT-GRADE INLET PROTECTION PER DETAIL ON C-205.01

B CURB INLET PROTECTION PER DETAIL ON C-205.01

C SILT FENCE PER DETAIL ON C-205.01

STORMWATER MANAGEMENT FEATURES

1 BIO-RETENTION #2
TOP OF BANK ELEV: 36.46
FLOOR ELEV: 34.46

2 FOREBAY #1
TOP OF BANK ELEV: 31.50
FLOOR ELEV: 25.00

3 SUBMERGED GRAVEL WETLAND #1
TOP OF BANK ELEV: 31.50
FLOOR ELEV: 29.00

4 2' WIDE CURB CUT
ELEV: 32.73

5 2' WIDE CURB CUT
ELEV: 32.95

6 2' WIDE SIDEWALK OPENING W/ GRATE COVERING

7 2' WIDE CURB CUT
ELEV: 36.78

8 2' WIDE CURB CUT
ELEV: 36.80

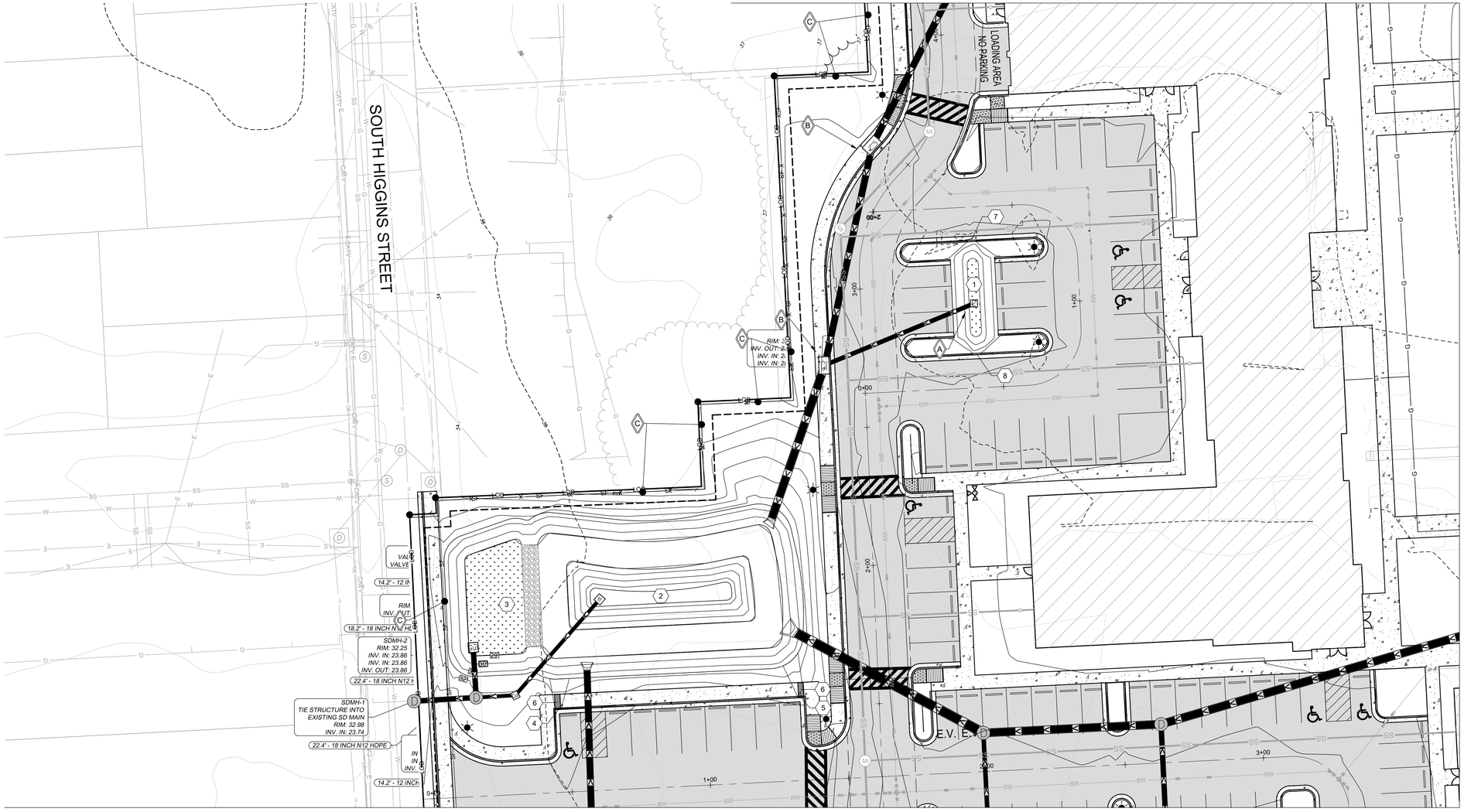
SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	B	0.32	No
UoB	Udorthents, loamy, 0 to 5 percent slopes	C	0.37	No

NAD 83

0 20' 40'

CONTINUATION - SEE SHEET C-201.01



CONTINUATION - SEE SHEET C-201.03

CONTINUATION - SEE SHEET C-201.04

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

ESC AND SWM PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

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Expiration Date: July 24, 2026

12/26/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	12/26/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-201.02

FOR REVIEW

EROSION & SEDIMENT CONTROL FEATURES

A AT-GRADE INLET PROTECTION PER DETAIL ON C-205.01

B CURB INLET PROTECTION PER DETAIL ON C-205.01

C SILT FENCE PER DETAIL ON C-205.01

STORMWATER MANAGEMENT FEATURES

1 BIO-RETENTION #3
TOP OF BANK ELEV: 35.71
FLOOR ELEV: 33.71

2 BIO-RETENTION #4
TOP OF BANK ELEV: 35.71
FLOOR ELEV: 33.71

3 2' WIDE CURB CUT
ELEV: 35.99

4 2' WIDE CURB CUT
ELEV: 36.22

5 NOTE

6 NOTE

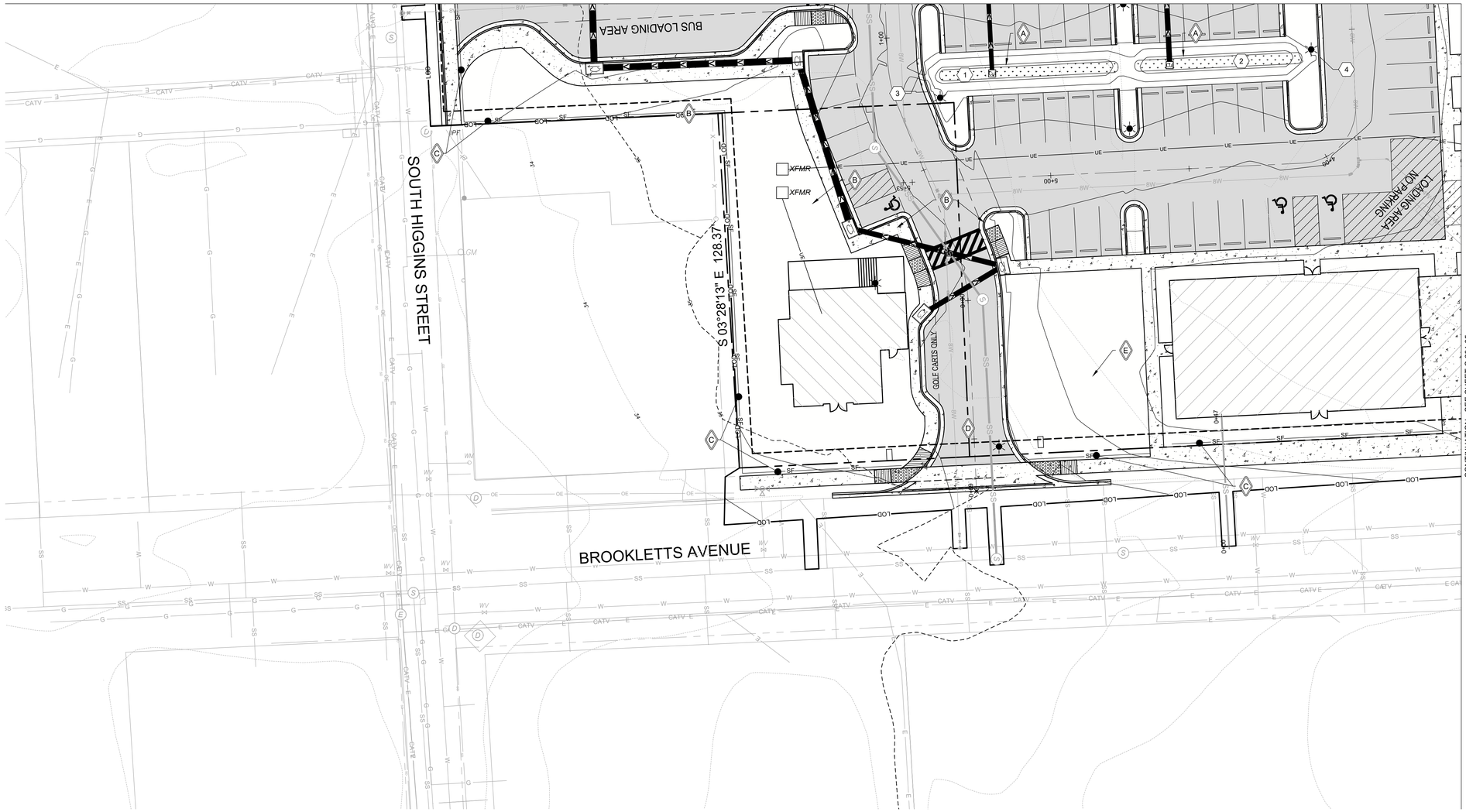
SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	B	0.32	No
UoB	Udorthents, loamy, 0 to 5 percent slopes	C	0.37	No

NAD 83

0 20' 40'

CONTINUATION - SEE SHEET C-201.02



APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

ESC AND SWM PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

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REVISIONS

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MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	12/26/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-201.03

FOR REVIEW

EROSION & SEDIMENT CONTROL FEATURES

- (A) AT-GRADE INLET PROTECTION PER DETAIL ON C-205.01
- (B) SILT FENCE PER DETAIL ON C-205.01

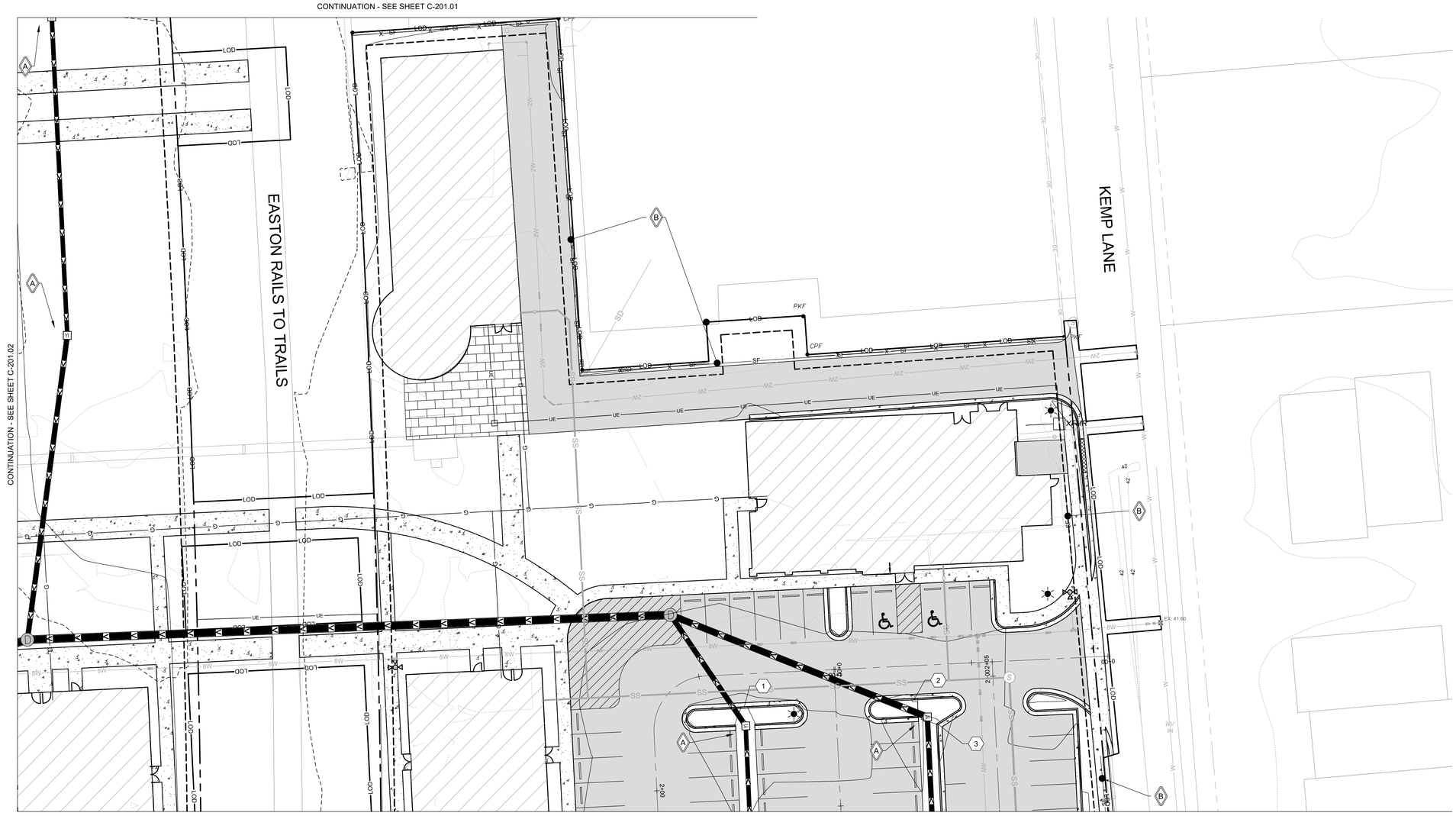
STORMWATER MANAGEMENT FEATURES

1. 2' WIDE CURB CUT ELEV: 39.85
2. 2' WIDE CURB CUT ELEV: 39.95
3. 2' WIDE CURB CUT ELEV: 39.94
4. NOTE
5. NOTE

SOIL DATA				
Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
UoB	Udorthents, loamy, 0 to 5 percent slopes	C	0.37	No

NAD 83

0 20' 40'


CONTINUATION - SEE SHEET C-201.01
EASTON RAILS TO TRAILS
KEMP LANE
CONTINUATION - SEE SHEET C-201.02
CONTINUATION - SEE SHEET C-201.05
LOD
LOB
SF
CPF
PKF
UE
SS
SD
W
G
MZ
8W
EX: 41.60
2.00%
2.00%
2.00%

EROSION & SEDIMENT CONTROL FEATURES

- (A) AT-GRADE INLET PROTECTION PER DETAIL ON C-205.01
- (B) CURB INLET PROTECTION PER DETAIL ON C-205.01
- (C) SILT FENCE PER DETAIL ON C-205.01
- (D) STABILIZED CONSTRUCTION ENTRANCE PER DETAIL ON C-205.01
- (E) ON-SITE CONCRETE WASHOUT STRUCTURE PER DETAIL ON C-205.01

STORMWATER MANAGEMENT FEATURES

- (1) 2' CURB CUT ELEV: 39.85
- (2) 2' CURB CUT ELEV: 39.95
- (3) 2' CURB CUT ELEV: 39.94

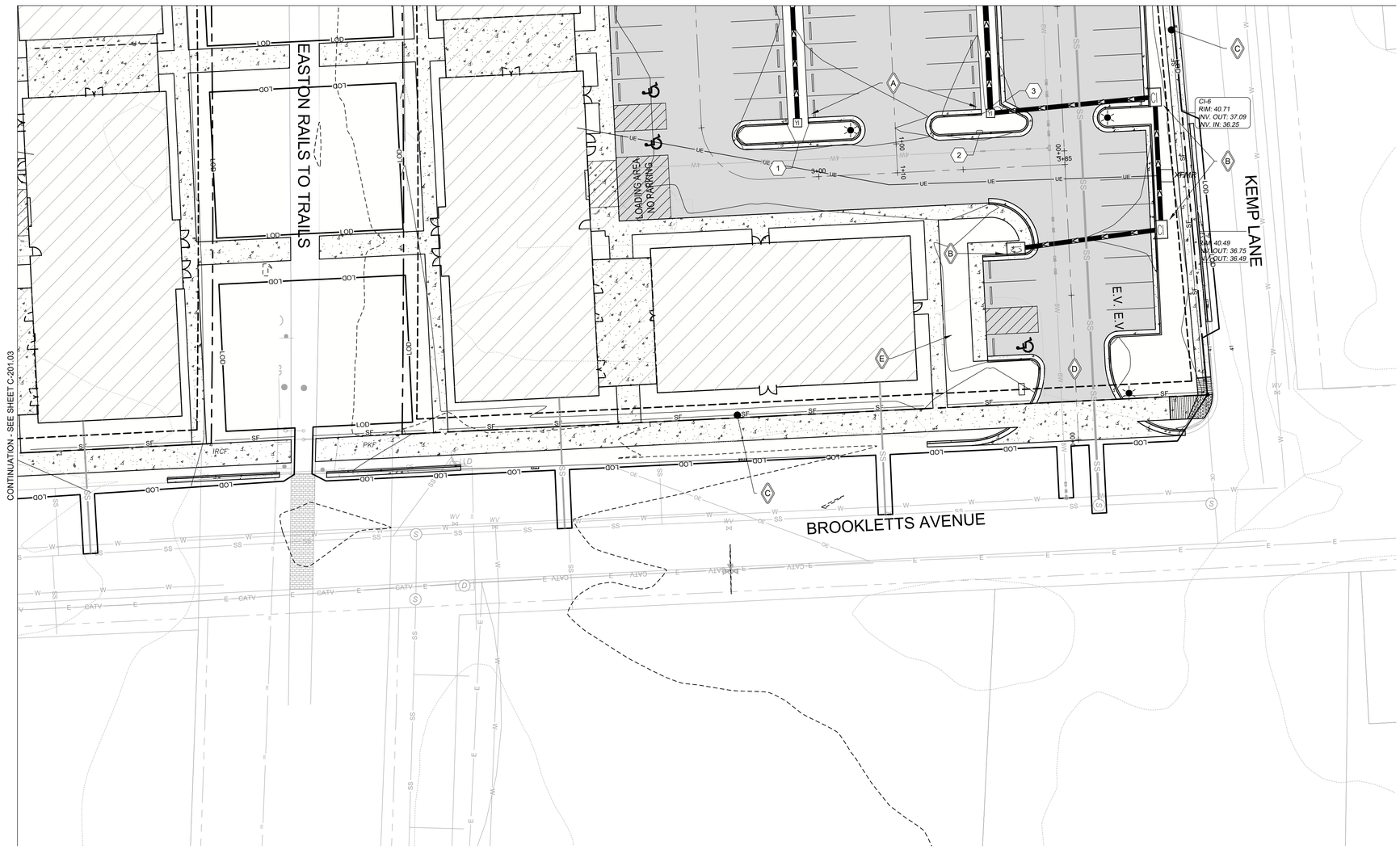
SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
UoB	Udorthents, loamy, 0 to 5 percent slopes	C	0.37	No

NAD 83

0 20' 40'

CONTINUATION - SEE SHEET C-201.04



CONTINUATION - SEE SHEET C-201.03

APPROVED: TOWN OF EASTON - TOWN ENGINEER DATE

APPROVED: TOWN OF EASTON PLANNING AND ZONING DATE

APPROVED: EASTON UTILITIES - ENGINEER DATE

APPROVED: TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

ESC AND SWM PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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REVISIONS

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MISS UTILITY OF DELMARVA — 811

DATE:	12/26/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-201.05

FOR REVIEW

RESERVED FOR SWM PROFILES

STORMWATER MANAGEMENT PROFILES

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA
CALL BEFORE YOU DIG

811

DATE: 1/27/2025
SCALE: AS SHOWN
DRAWN BY: AF
DESIGNED BY:
APPROVED BY:

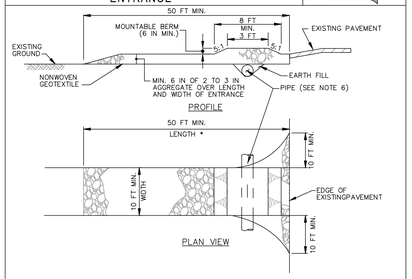
SHEET NO.:
C-203

FOR REVIEW

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

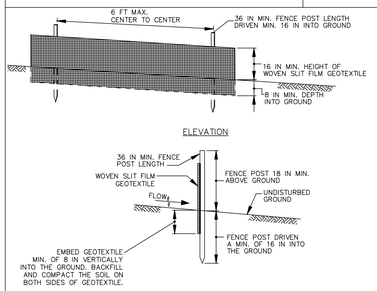
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*)30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

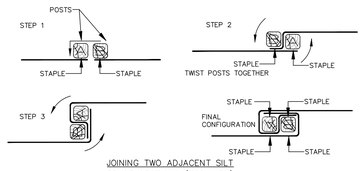
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF





1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1⅜ X 1⅜ ± ⅜ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

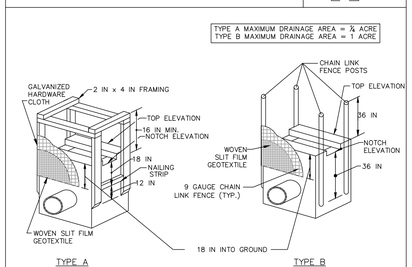
2 OF 2

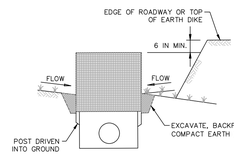
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP





1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH ½ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
5. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

2 OF 2

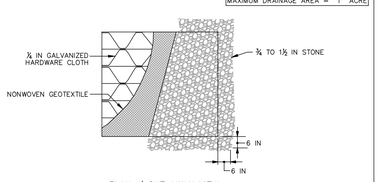
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

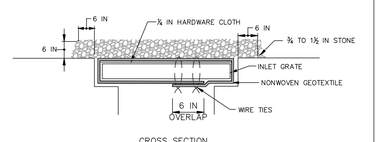
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE





CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

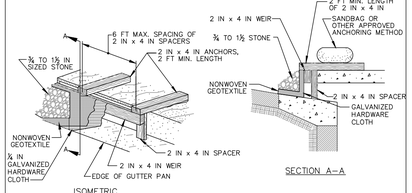
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

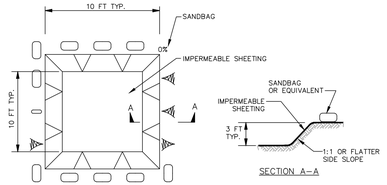
1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¾ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

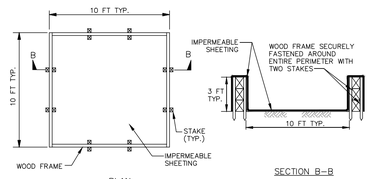
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL: CWS





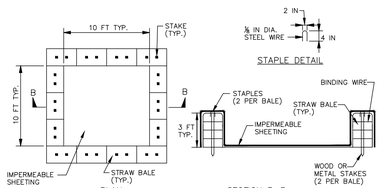
1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL: CWS



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER, PRIOR TO FORECASTED RAINSTORMS. REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED:		APPROVED:		APPROVED:		APPROVED:	
TOWN OF EASTON - TOWN ENGINEER	DATE	TOWN OF EASTON PLANNING AND ZONING	DATE	EASTON UTILITIES - ENGINEER	DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER	DATE

EROSION & SEDIMENT CONTROL DETAILS

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

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. 11024
Expiration Date: July 24, 2026

12/26/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL TOLL FREE 811 — 811

DATE:	12/26/2024
SCALE:	N/A
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-205.01

FOR REVIEW

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.

2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.

3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.

4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

1. 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.
2. 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.
3. Clearing and grubbing shall include all trees, brush, debris, root mat and organic materials to be removed.
4. Temporary seeding shall be accomplished between February 15th through April 30th, or August 15th through November 30th. During other times, temporary mulching shall be provided.
5. 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 disking 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 Hardiness Zone 7a) (From Table B.1)					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
	ANNUAL RYEGRASS	50#	2/15 - 4/30 8/15 - 11/30	½"		
	BARLEY	96#	2/15 - 4/30 / 8/15 - 11/30	1"	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 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	½"		
	PEARL MILLET	20#	5/1 - 8/14	½"		

6. Mulching shall be unchopped, unrotted, 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.
7. Permanent seeding shall be accomplished between March 1st through May 15th, or August 15th through October 15th. 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 disking or other suitable means. Mulching shall be accomplished as discussed in item #6 of these specifications.

Seed Mixture (For Hardiness 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 FESCE KENTUCKY BLUEGRASS	60# 15#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"				
8	TALL FESCUE	100#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"	45 lb/ac 1lb/ 1000 sf	90 lb/ac 2lb/ 1000 sf	90 lb/ac 2lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sq
9	TALL FESCUE KENTUCKY BLUEGRASS PERRENIAL RYEGRASS	60# 40# 20#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"				

8. Any spoil or borrow will be placed at a site approved by the Soil Conservation District.
9. 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.
10. 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.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation
   1. Temporary Stabilization
      a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
   2. Permanent Stabilization
      a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      i. Soil pH between 6.0 and 7.0.
      ii. Soluble salts less than 500 parts per million (ppm).
      iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: If lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      iv. Soil contains 1.5 percent minimum organic matter by weight.
      v. Soil contains sufficient pore space to permit adequate root penetration.
      b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
      c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
      d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
      e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

CONTINUED IN NEXT COLUMN

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

CONTINUED FROM PREVIOUS COLUMN

B. Topsoiling
   1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
   2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
   3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
      a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
      b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
      c. The original soil to be vegetated contains material toxic to plant growth.
      d. The soil is so acidic that treatment with limestone is not feasible.
   4. Areas having slopes steeper than 2:1 require special consideration and design.
   5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
      a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
      b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
      c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
   6. Topsoil Application
      a. Erosion and sediment control practices must be maintained when applying topsoil.
      b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
      c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)
   1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
   3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
   4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
   5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

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
   1. Specifications
      a. 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.
      b. 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.
      c. 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 phyto-toxic materials.
   2. Application
      a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      i. 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.
      ii. 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.
      b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      i. 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.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
      c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      i. 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.
      i. 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.
      iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching
   1. Mulch Materials (in order of preference)
      a. 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.
      b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      i. 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.
      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      iii. 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.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
      v. 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.
   2. Application
      a. Apply mulch to all seeded areas immediately after seeding.
      b. 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.
      c. 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.
   3. Anchoring
      a. 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:
      i. 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.
      ii. 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.
      iii. 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.
      iv. 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.

The following items have been addressed to meet the requirements of the GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY (NPDES NUMBER MDR10, STATE DISCHARGE PERMIT NUMBER 09GP).

1) Utilization of environmental site design
2) Maintenance of limits of disturbance to protect natural areas
3) Control of construction equipment and vehicles
4) Evaluation and appropriate limitation of site clearing
5) Evaluation and designation of site area for phasing or sequencing
6) Identification of soils at high risk for erosion and advanced stabilization techniques to be used
7) Identification of steep slopes and designation of limitations on clearing them
8) Evaluation and designation of stabilization requirements and time limits and protection measures for discharges to the Chesapeake Bay, impaired waters or waters with an established Total Maximum Daily Load (TMDL)

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

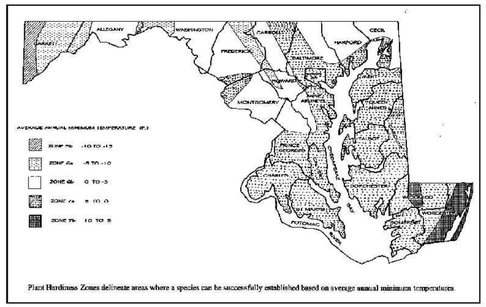
1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. 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

Seed Mixture (For Hardiness Zone 7a) (From Table B.1)					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
	ANNUAL RYEGRASS	50#	2/15 - 4/30 8/15 - 11/30	½"		
	BARLEY	96#	2/15 - 4/30, 8/15 – 11/30	1"	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 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	½"		
	PEARL MILLET	20#	5/1 – 8/14	½"		



Plant Hardiness Zones delineate areas where a species can be successfully established based on average annual minimum temperatures.

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 ft²		5b and 6a	6b	7a and 7b	
Cool-Season Grasses							
Annual Ryegrass (*Lolium perenne* ssp. *multiflorum*)	40	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 (*Hordeum vulgare*)	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 (*Avena sativa*)	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 (*Triticum aestivum*)	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 (*Secale cereale*)	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 (*Setaria italica*)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14	
Pearl Millet (*Pennisetum glaucum*)	20	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 mixtures listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. 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 adjustment to reflect local conditions, especially near the boundaries of the zone.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures
   1. General Use
      a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seedin Summary. The Summary is to be placed on the plan.
      b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
      c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
      d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .
   2. Turfgrass Mixtures
      a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
      b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass Lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

      Notes:
      Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

      Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

      c. Ideal Times of Seeding for Turf Grass Mixtures

      Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

      Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

      Southern MD: Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

      d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
      e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Seed Mixture (For Hardiness 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	¼"-½"	45 lb/ac 1 lb/ 1000 sf	90 lb/ac 2 lb/ 1000 sf	90 lb/ac 2 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf
8	TALL FESCUE	100#	2/15-4/30 8/15-10/31	¼"-½"				
9	TALL FESCUE KENTUCKY BLUEGRASS PERENIAL RYEGERASS	60# 40# 20#	2/15-4/30 8/15-10/31	¼"-½"				

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
   1. General Specifications
      a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
      b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
      c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
      d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
      e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
   2. Sod Installation
      a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
      b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
      c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
      d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
   3. Sod Maintenance
      a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
      b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
      c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

APPROVED:		APPROVED:		APPROVED:		APPROVED:	
TOWN OF EASTON - TOWN ENGINEER	DATE	TOWN OF EASTON PLANNING AND ZONING	DATE	EASTON UTILITIES - ENGINEER	DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER	DATE

EROSION & SEDIMENT CONTROL DETAILS

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

RAUCH inc.
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. #	DATE	DESCRIPTION

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. 11024
Expiration Date: July 24, 2026

12/26/2024

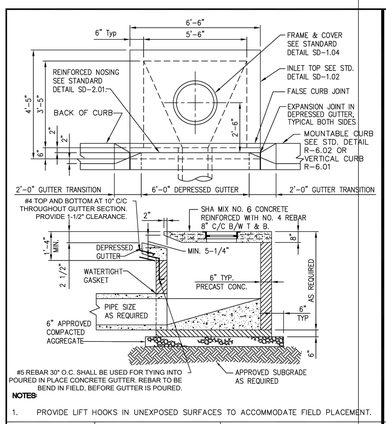
MISS UTILITY OF DELMARVA
811

DATE: 12/26/2024
SCALE: N/A
DRAWN BY: AF
DESIGNED BY:
APPROVED BY:

SHEET NO.: C-205.02

FOR REVIEW

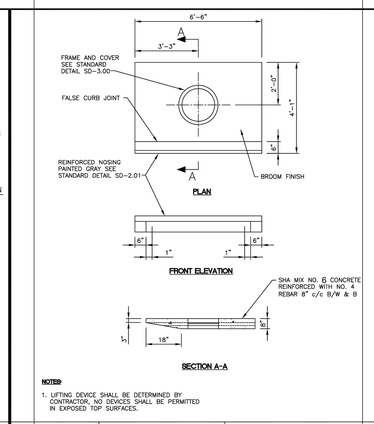
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DETAIL SD-1.01



NOTES

1. PROVIDE LIFT HOOKS IN UNEXPOSED SURFACES TO ACCOMMODATE FIELD PLACEMENT.

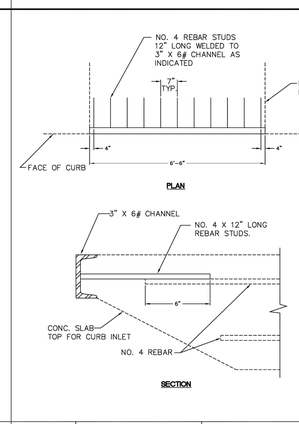
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Rick Van Engel TOWN ENGINEER 1/2020 DATE	CURB INLET	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.01



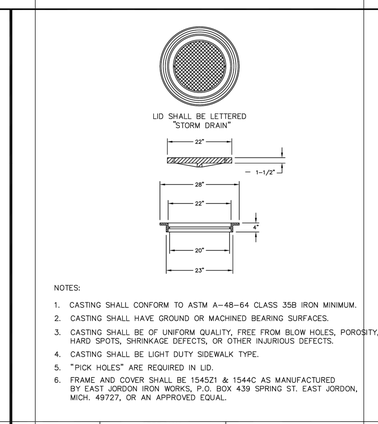
NOTES

1. LIFTING DEVICE SHALL BE DETERMINED BY CONTRACTOR, NO DEVICES SHALL BE PERMITTED IN EXPOSED TOP SURFACES.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
Rick Van Engel TOWN ENGINEER 1/2020 DATE	INLET TOP	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.02



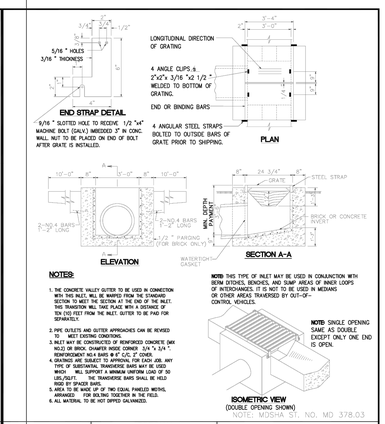
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Rick Van Engel TOWN ENGINEER 1/2020 DATE	REINFORCED NOSING	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.03



NOTES:

1. CASTING SHALL CONFORM TO ASTM A-48-64 CLASS 35B IRON MINIMUM.
2. CASTING SHALL HAVE GROUND OR MACHINED BEARING SURFACES.
3. CASTING SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DEFECTS, OR OTHER INJURIOUS DEFECTS.
4. CASTING SHALL BE LIGHT DUTY SIDEWALK TYPE.
5. "PICK HOLES" ARE REQUIRED IN LID.
6. FRAME AND COVER SHALL BE 1545ZI & 1544C AS MANUFACTURED BY EAST JORDON IRON WORKS, P.O. BOX 439 SPRING ST. EAST JORDON, MICH. 49727, OR AN APPROVED EQUAL.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
Rick Van Engel TOWN ENGINEER 1/2020 DATE	INLET FRAME AND COVER	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.04



NOTES:

1. THE CONCRETE VALLEY GUTTER TO BE USED IN CONNECTION WITH THIS INLET, WILL BE INSPECTED FROM THE STANDARD CURB AND GUTTER TO THE INLET AND FROM THE INLET. THIS TRANSITION WILL TAKE PLACE WITH A DISTANCE OF TEN (10) FEET FROM THE INLET. GUTTER TO BE PAID FOR SEPARATELY.
2. PIPE OUTLETS AND GUTTER APPROACHES CAN BE REVISED TO MEET EXISTING CONDITIONS.
3. INLET MAY BE CONSTRUCTED OF REINFORCED CONCRETE (MIX NO.3) OR BRICK CHAMFER INSIDE CORNER 3/4 "x 3/4 " REINFORCEMENT NO.4 BARS @ 6" C/C, 2" COVER.
4. DEVIATIONS ARE SUBJECT TO APPROVAL FOR EACH JOB. ANY TYPE OF SUBSTANTIAL TRANSVERSE BARS MAY BE USED SPECIFICALLY, TO SUPPORT A MINIMUM UNIFORM LOAD OF 50 LBS./SQ.FT. TRANSVERSE BARS SHALL BE HELD ONLY BY SPACER BAR.
5. AREA TO BE MADE UP OF TEN EQUAL PARCELS MEDIAL ARRANGED FOR BOLTING TOGETHER IN THE FIELD.
6. ALL MATERIAL TO BE HOT DIPPED GALVANIZED.

NOTE: THIS TYPE OF INLET MAY BE USED IN CONJUNCTION WITH BERM DITCHES, BENCHES, AND SUMP AREAS OF INNER LOOPS OF INTERCHANGES. IT IS NOT TO BE USED IN MEDIANS OR OTHER AREAS TRAVERSED BY OUT-OF-CONTROL VEHICLES.

NOTE: SINGLE OPENING SAME AS DOUBLE EXCEPT ONLY ONE END IS OPEN.

ISOMETRIC VIEW (DOUBLE OPENING SHOWN)

NOTE: MOSHA ST. NO. MD 378.03

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
Rick Van Engel TOWN ENGINEER 1/2020 DATE	INLET FRAME AND COVER	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.05

GENERAL NOTES

1. CONCRETE TO BE MIX 4500 PSI.
2. REINFORCING-2 LAYERS OF 4x4-W4.0x W4.0 WELDED WIRE FABRIC.
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. FRAME AND GRATE TO BE NEENAH #R-3348 HEAVY DUTY CONCAVE GUTTER INLET FRAME AND GRATE OR APPROVED EQUAL.
5. GRADE AND SLOPE ADJUSTMENTS TO BE COMPLETED IN THE FIELD USING CONCRETE OR BRICK AND MORTAR. MIN. ONE LAYER OF BRICK OR 3" OF CONCRETE.
6. PIPE OPENINGS TO BE PROVIDE AS REQUIRED, FOR SIZE, LOCATION AND INVERT ELEVATIONS.
7. MINIMUM DEPTH PAYMENT PER "EACH" INLET INCLUDES DEPTHS UP TO 3'-6" MEASURED FROM THE PIPE INVERT TO THE TOP OF THE GRATE, VERTICAL DEPTH PAYMENT PER LINEAR FOOT FOR DEPTHS IN EXCESS OF 3'-6".
8. INVERT TO BE CONCRETE OR BRICK AND SHALL SLOPE 2" PER FOOT TOWARD OUTLET OR AS DIRECTED BY THE ENGINEER.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
Rick Van Engel TOWN ENGINEER 1/2020 DATE	TRAFFIC BEARING YARD INLET	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.06

GENERAL NOTES

1. CONCRETE TO BE MIX 4500 PSI.
2. REINFORCING-2 LAYERS OF 4x4-W4.0x W4.0 WELDED WIRE FABRIC.
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. GRATING SHALL BE STEEL "RIVING X-BAR TYPE AA" OR APPROVED EQUIVALENT. ALL MATERIAL TO BE HOT DIPPED GALV.
5. GRADE AND SLOPE ADJUSTMENTS TO BE COMPLETED IN THE FIELD USING CONCRETE OR BRICK AND MORTAR. MIN. ONE LAYER OF BRICK OR 3" OF CONCRETE.
6. PIPE OPENINGS TO BE PROVIDE AS REQUIRED, FOR SIZE, LOCATION AND INVERT ELEVATIONS.
7. MINIMUM DEPTH PAYMENT PER "EACH" INLET INCLUDES DEPTHS UP TO 3'-6" MEASURED FROM THE PIPE INVERT TO THE TOP OF THE GRATE, VERTICAL DEPTH PAYMENT PER LINEAR FOOT FOR DEPTHS IN EXCESS OF 3'-6".
8. INVERT TO BE CONCRETE OR BRICK AND SHALL SLOPE 2" PER FOOT TOWARD OUTLET OR AS DIRECTED BY THE ENGINEER.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
Rick Van Engel TOWN ENGINEER 1/2020 DATE	NON-TRAFFIC BEARING YARD INLET	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.07

GENERAL NOTES

1. CONCRETE TO BE MIX 4500 PSI.
2. PIPE OPENINGS PER SITE REQUIREMENTS.
3. INVERT TO BE FIELD INSTALLED BY OTHERS.
4. STOPS ARE NOT INSTALLED IN LAWN INLETS.
5. REINFORCEMENT TO BE 4"X4", W4 X W4(W0.5)x#2(0.5) WELDED WIRE.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
Rick Van Engel TOWN ENGINEER 1/2020 DATE	LAWN INLET BOX W/ LAWN BASIC FRAME AND GRATE	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.08

NOTES:

1. PRECAST MANHOLE SHALL CONFORM TO ASTM C-478-78A AS MANUFACTURED BY: YORK CONCRETE SEPTIC TANKS INC. YORK PA. OR AN APPROVED EQUAL.
2. BENCH AND CHANNEL SHALL BE BRICK OR HAND FORMED CONCRETE. MIN. THICKNESS OF 4", BENCH SHALL SLOPE TO TOP OF PIPE 1/2" FALL PER FOOT.
3. MORTAR SHALL BE "TYPE S".
4. MANHOLE STEPS REQUIRED OVER THE EFFLUENT SIDE AS SHOWN.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
Rick Van Engel TOWN ENGINEER 1/2020 DATE	PRECAST CONCRETE MANHOLE	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-2.01

NOTES:

1. CASTING SHALL CONFORM TO ASTM A-48-64 CLASS 35B IRON MINIMUM.
2. CASTING SHALL HAVE GROUND OR MACHINED BEARING SURFACES.
3. CASTING SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DEFECTS, OR OTHER INJURIOUS DEFECTS.
4. CASTING SHALL BE HEAVY DUTY ROADWAY TYPE.
5. PICK HOLES" ARE REQUIRED IN COVER. "
6. FRAME & COVER SHALL BE AS INDICATED AND AS MANUFACTURED BY E.A. QUIRIN FOUNDRY, BOX 98 ST. CLAIR, PA 17970, OR AN APPROVED EQUAL.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
Rick Van Engel TOWN ENGINEER 1/2020 DATE	MANHOLE FRAME AND COVER	
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-D-2.02

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

STORMWATER MANAGEMENT DETAILS

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

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

Professional Certification.
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License No. 11024
Expiration Date: July 24, 2026

12/26/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — ONE CALL DOES IT ALL — 811

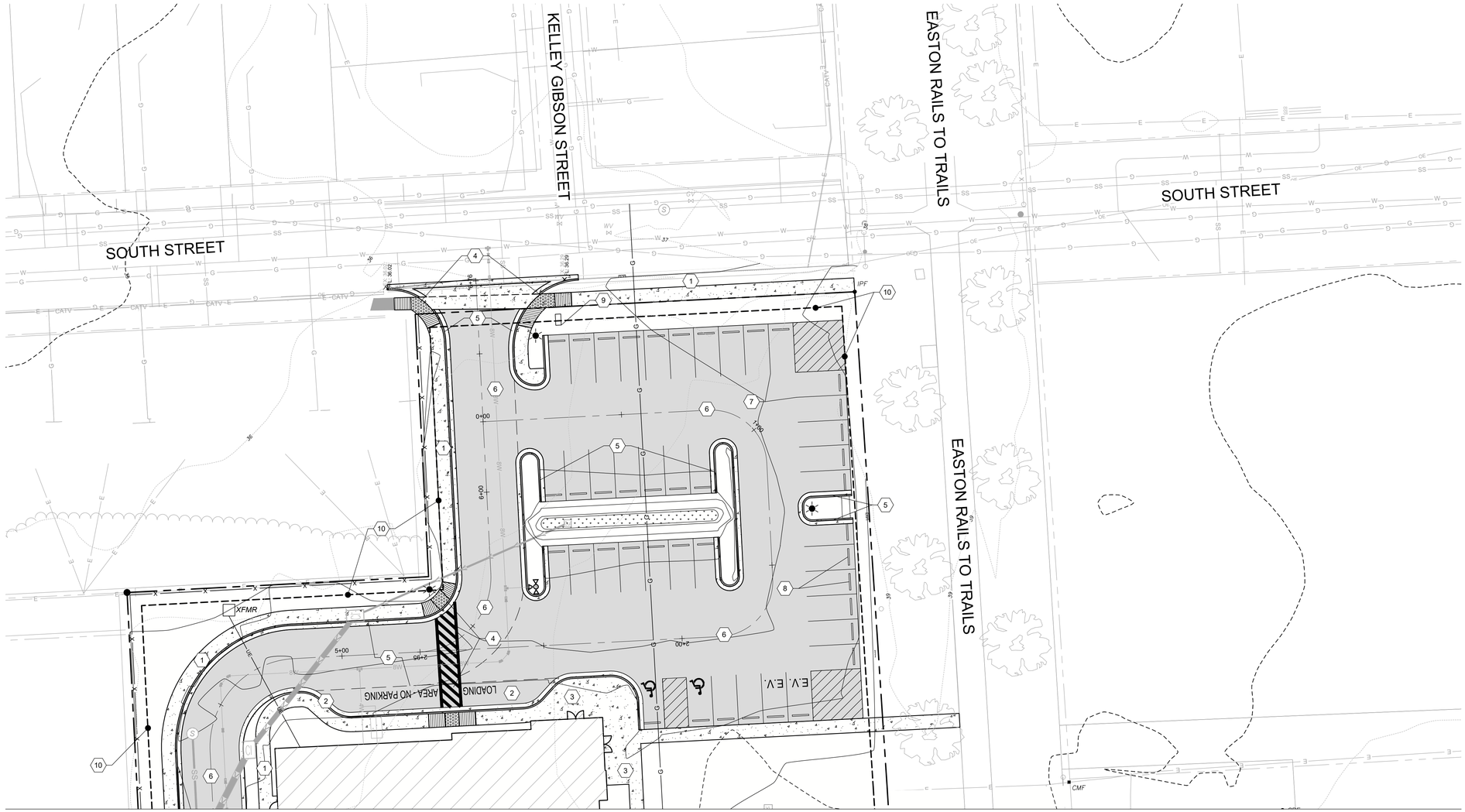
DATE:	12/26/2024
SCALE:	N/A
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-205.03

FOR REVIEW

SITE AND GRADING FEATURES

1. 5' SIDEWALK PER DETAIL ON C-305
2. 8' SIDEWALK PER DETAIL ON C-305
3. CONCRETE PATIO. INSTALL CONCRETE PER SIDEWALK DETAIL ON C-305
4. CURB RAMP WITH DETECTABLE WARNING SURFACES PER DETAILS ON C-305
5. STANDARD CURB PER DETAIL ON C-305
6. ASPHALT PAVEMENT PER DETAIL ON C-305
7. PARKING STALL STRIPING (TYP) PER DETAIL ON C-305
8. 6' WIDE WHEEL STOP (TYP) PER DETAIL ON C-305
9. MONUMENT SIGN PER DETAIL ON C-305
10. SETBACK LINE



CONTINUATION - SEE SHEET C-301.02

CONTINUATION - SEE SHEET C-301.04

NAD 83

0 20' 40'

APPROVED:	APPROVED:	APPROVED:	APPROVED:
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SITE AND GRADING PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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APPROVED BY:	

SHEET NO.: C-301.01

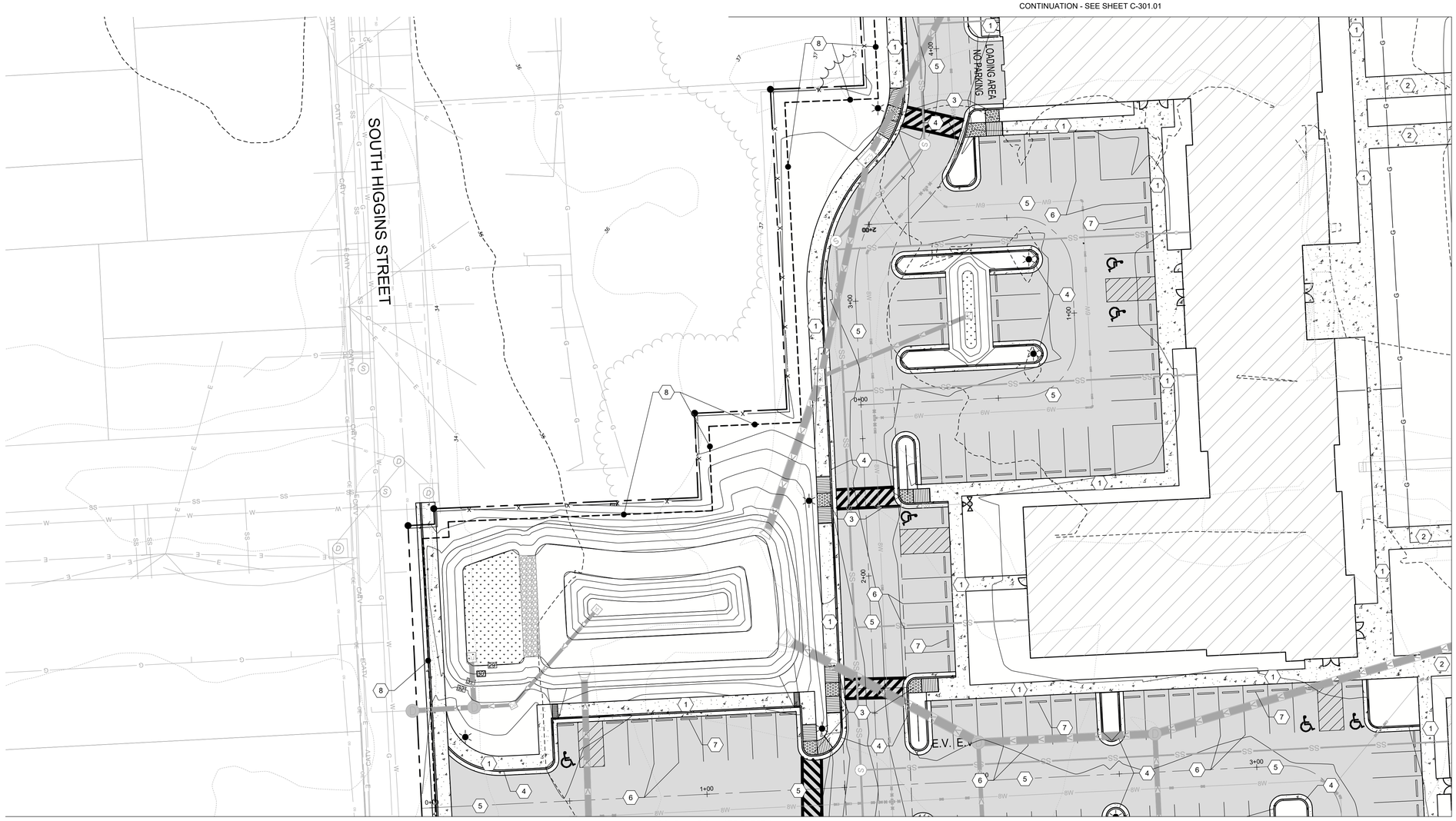
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8. SETBACK LINE

NAD 83

0 20' 40'



APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

SITE AND GRADING PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

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APPROVED BY:	

SHEET NO.: C-301.02

FOR REVIEW

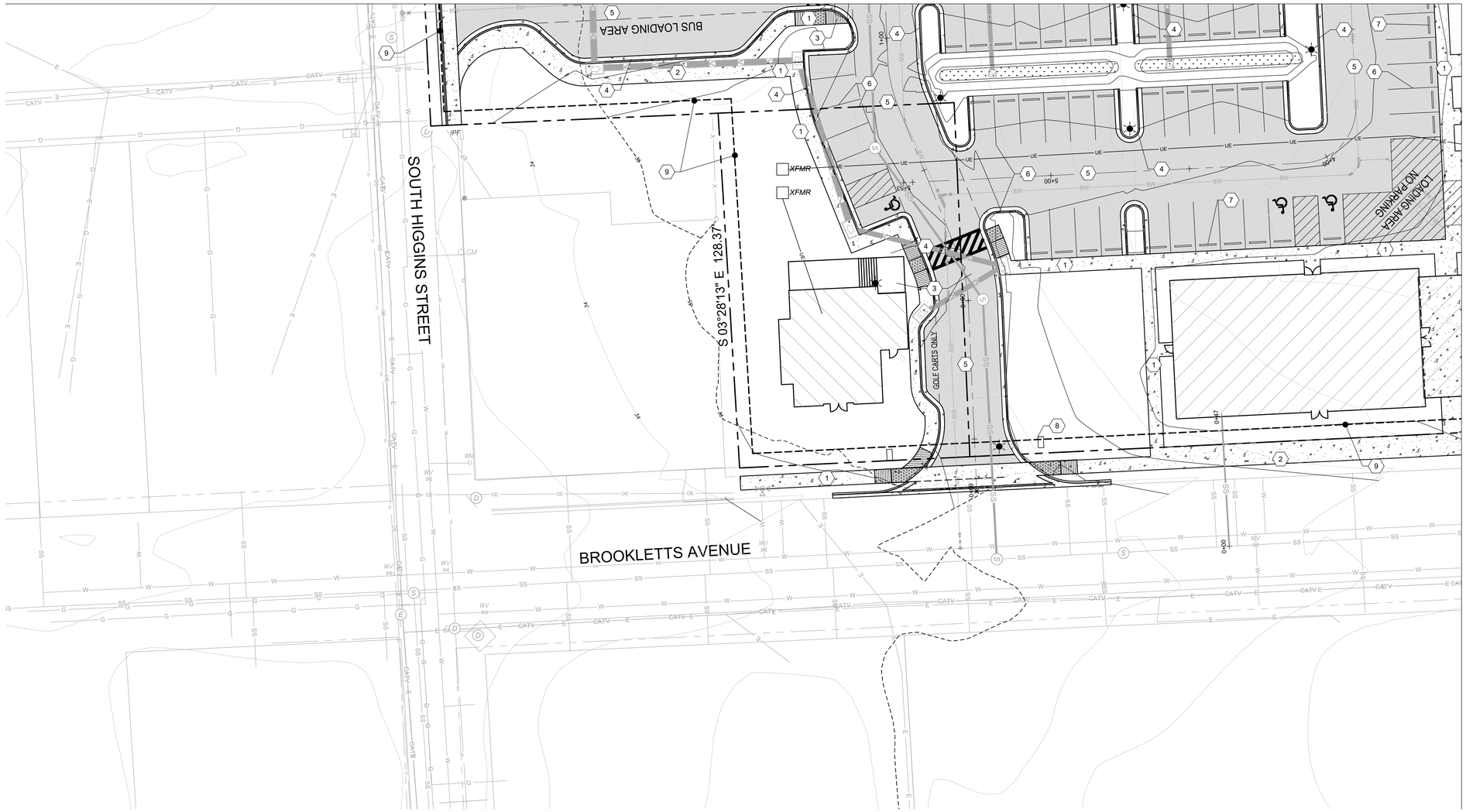
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9. SETBACK LINE

NAD 83

0 20' 40'

CONTINUATION - SEE SHEET C-301.02



APPROVED:	APPROVED:	APPROVED:	APPROVED:
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SITE AND GRADING PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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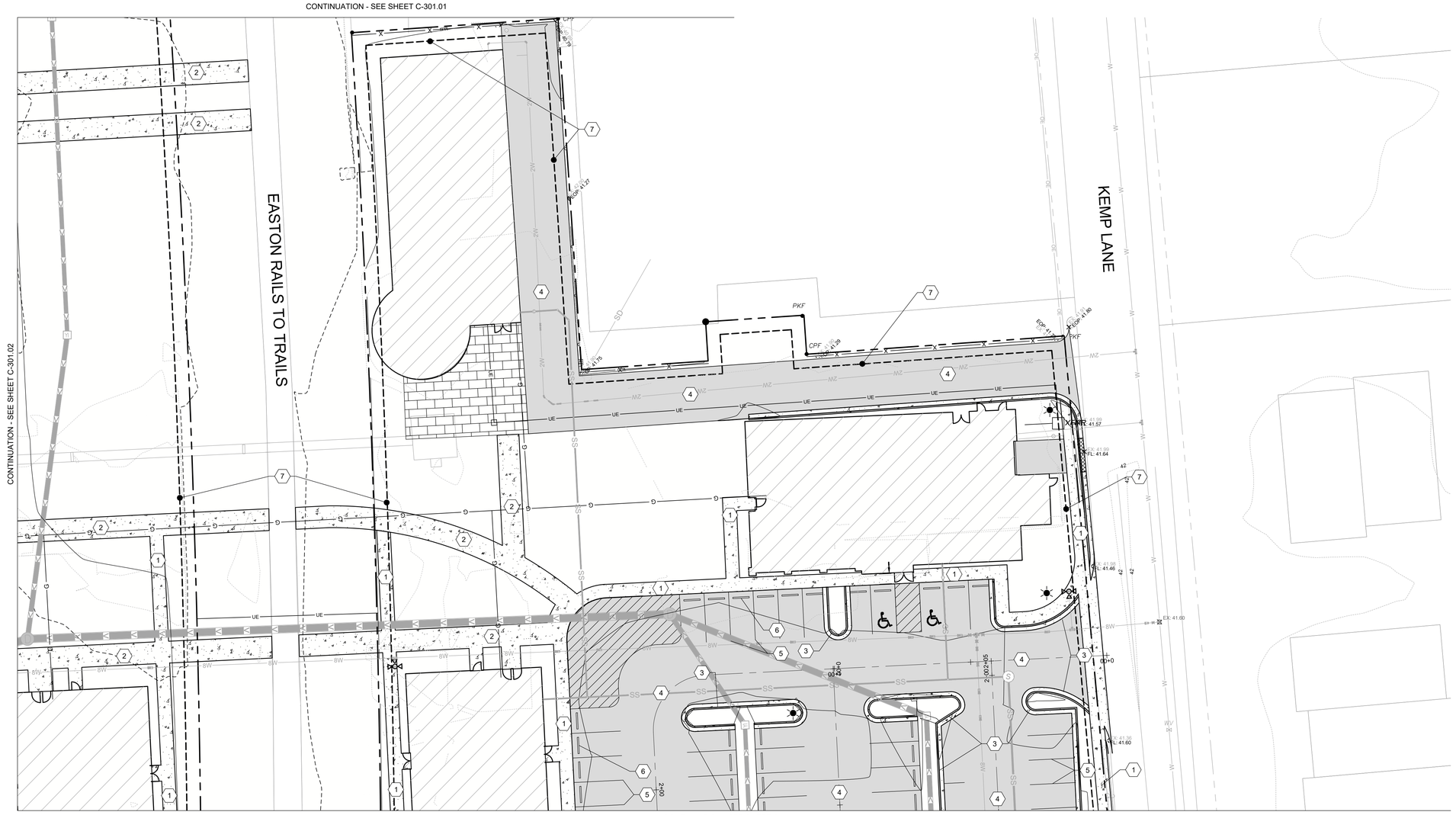
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7. SETBACK LINE

NAD 83

0 20' 40'



APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

SITE AND GRADING PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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REVISIONS

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MISS UTILITY OF DELMARVA — 811

DATE:	12/26/2024
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APPROVED BY:	

SHEET NO.: C-301.04

FOR REVIEW

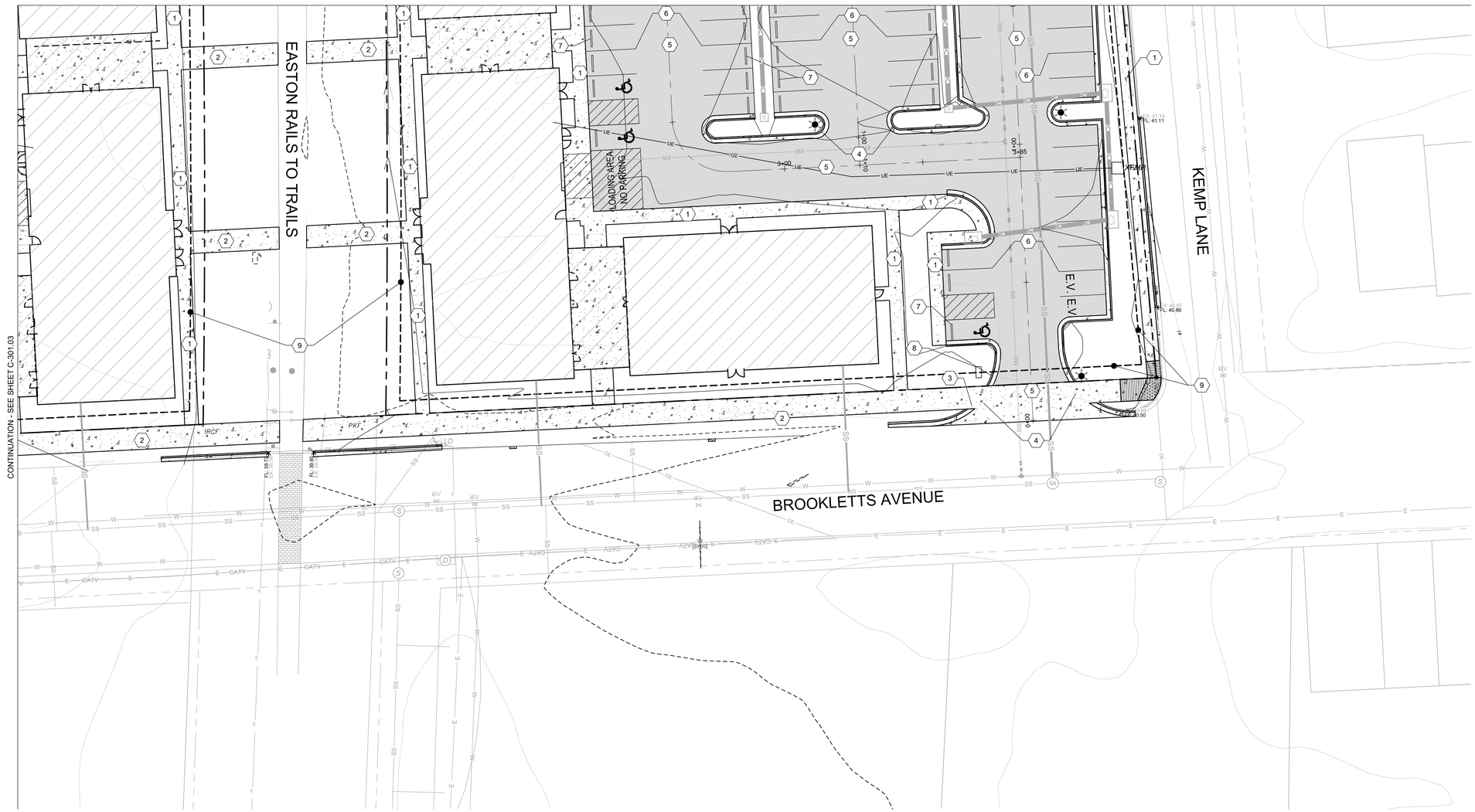
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8. MONUMENT SIGN PER DETAIL ON C-305
9. SETBACK LINE

NAD 83

0 20' 40'

CONTINUATION - SEE SHEET C-301.04



APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

SITE AND GRADING PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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12/26/2024

REVISIONS

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SHEET NO.: C-301.05

FOR REVIEW

RESERVED FOR
GRADING PROFILES

APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE

APPROVED:
TOWN OF EASTON PLANNING AND ZONING DATE

APPROVED:
EASTON UTILITIES - ENGINEER DATE

APPROVED:
TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

SITE AND GRADING PROFILES

FOR
EASTON CROSSING
EASTON CROSSING, LLC
TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833
EASTON, TALBOT COUNTY, MARYLAND
PREPARED FOR: EASTON CROSSING, LLC

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Main Office: 106 N Harrison St - Easton, MD 21601
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REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA
811

DATE: 12/26/2024
SCALE: N/A
DRAWN BY: AF
DESIGNED BY:
APPROVED BY:

SHEET NO.:
C-303

FOR REVIEW

RESERVED FOR

GRADING DETAILS

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

SITE AND GRADING DETAILS

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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REVISIONS

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MISS UTILITY OF DELMARVA
CALL BEFORE YOU DIG
811

DATE: 12/26/2024
SCALE: N/A
DRAWN BY: AF
DESIGNED BY:
APPROVED BY:

SHEET NO.:
C-305

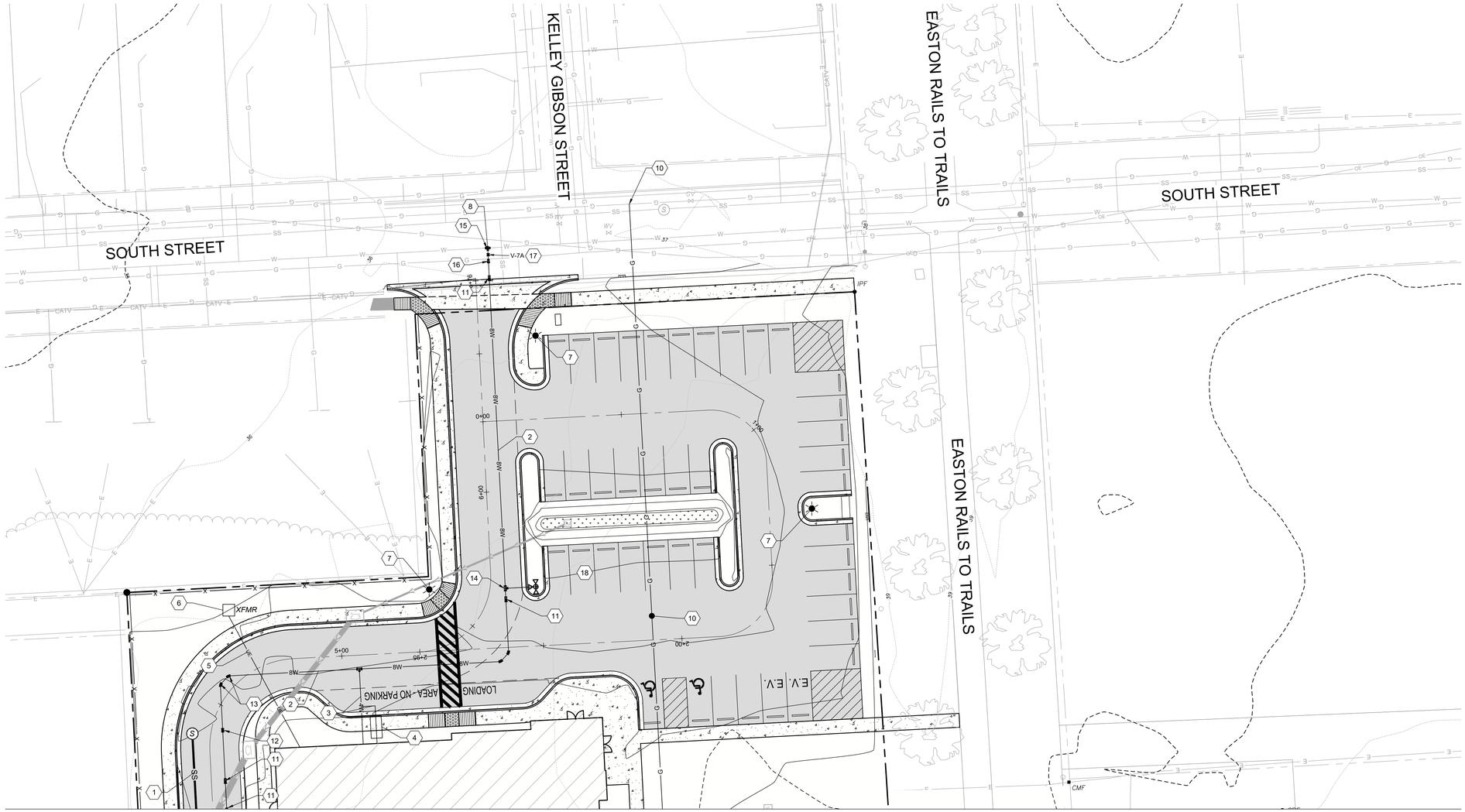
FOR REVIEW

UTILITY FEATURES

1. 8" SEWER MAIN AND 48" DIA. SANITARY MANHOLE PER DETAIL ON C-405
2. 8" WATER MAIN PER DETAIL ON C-405
3. 6" WATER LATERAL. BRANCH TO PROVIDE 6" FIRE SUPPRESSION SERVICE AND 4" DOMESTIC WATER SERVICE TO BUILDING.
4. 4" DOMESTIC WATER METER PIT PER DETAIL ON C-405
5. 6-4" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS UTILITIES. SEE UTILITY TRENCH DETAIL ON C-405
6. X kVA TRANSFORMER PER DETAIL ON C-405
7. STYLE POLE MOUNTED LAMP PER DETAIL ON C-405
8. CONNECT NEW WATER MAIN TO EXISTING MAIN IN SOUTH STREET.
9. TAP INTO EXISTING 6" GAS MAIN IN SOUTH STREET WITH A 2" BRANCH LINE TO SERVICE PROPERTY
10. 2" GAS BRANCH LINE
11. 8" 11.25-DEG BEND
12. 8" 22.5-DEG BEND
13. 8" 45-DEG BEND
14. 8"x6" HYDRANT TEE
15. 8"x6" SERVICE TEE
15. 6"x6" TEE
16. 8"x6" REDUCER
17. 6" GATE VALVE
18. FIRE HYDRANT PER EUC STANDARD DETAIL W-102.01

NAD 83

0 20' 40'



CONTINUATION - SEE SHEET C-401.02

CONTINUATION - SEE SHEET C-401.04

APPROVED:	APPROVED:	APPROVED:	APPROVED:
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UTILITY PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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APPROVED BY:	

SHEET NO.: C-401.01

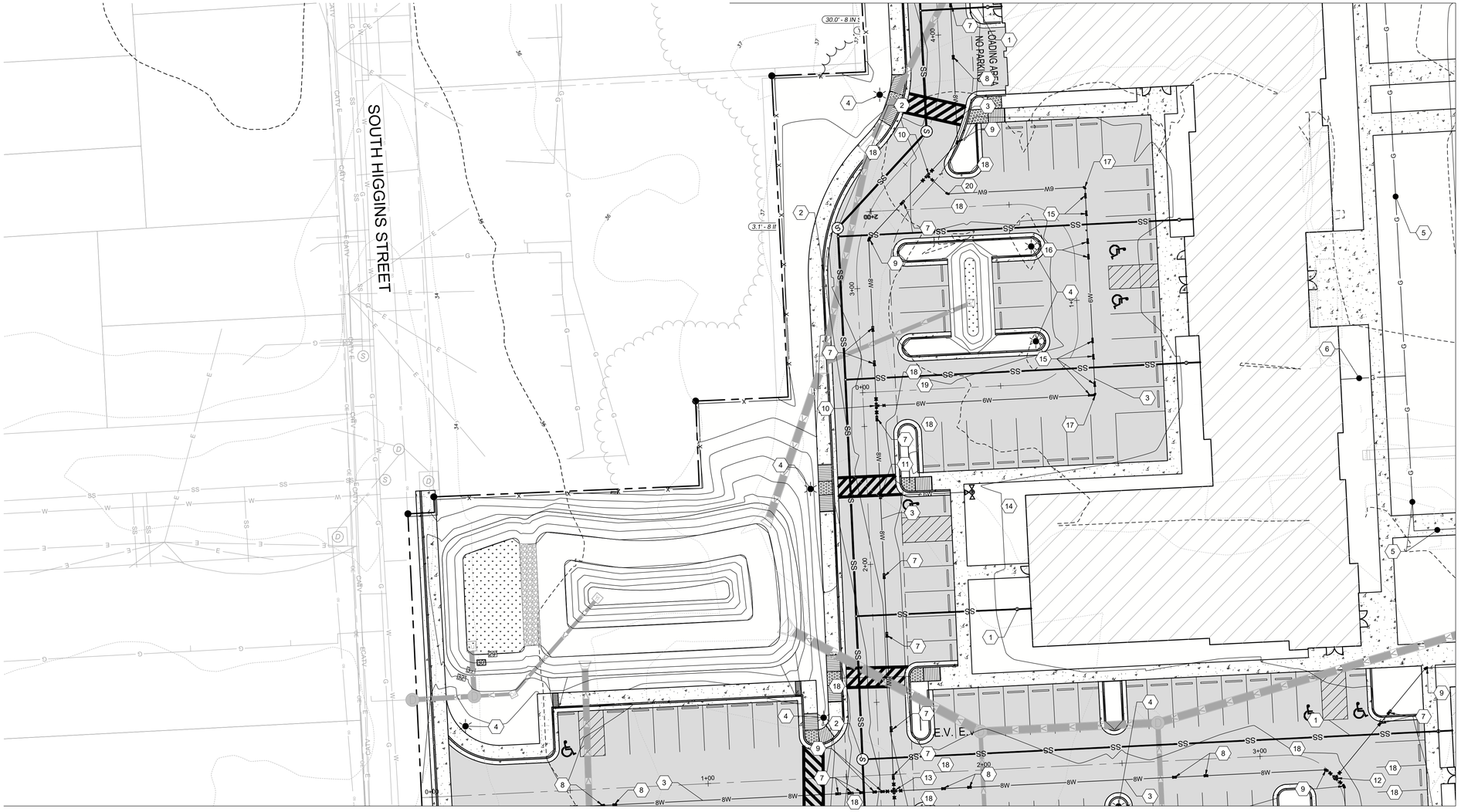
FOR REVIEW

UTILITY FEATURES

1. 6" SEWER LATERAL AND CLEANOUT PER DETAIL ON C-405
2. 8" SEWER MAIN AND 48" DIA. SANITARY MANHOLE PER DETAIL ON C-405
3. 8" WATER MAIN PER DETAIL ON C-405
4. STYLE POLE MOUNTED LAMP PER DETAIL ON C-405
5. 2" GAS BRANCH LINE
6. 2" GAS SERVICE TO BUILDING
7. 8" 11.25-DEG BEND
8. 8" 22.5-DEG BEND
9. 8" 45-DEG BEND
10. 8"x6" TEE
11. 8"x6" HYDRANT TEE
12. 8"x8" TEE
13. 8"x8"x8"x8" CROSS
14. FIRE HYDRANT PER EUC STANDARD DETAIL W-102.1
15. 6" 11.25-DEG BEND
16. 6" 22.5-DEG BEND
17. 6" 90-DEG BEND
18. 8" GATE VALVE
19. 6" GATE VALVE
20. 6" 45-DEG BEND

NAD 83

0 20' 40'



APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

UTILITY PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

RAUCH Inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

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. 11024
Expiration Date: July 24, 2026

12/26/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA
811

DATE:	12/26/2024
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SHEET NO.: C-401.02

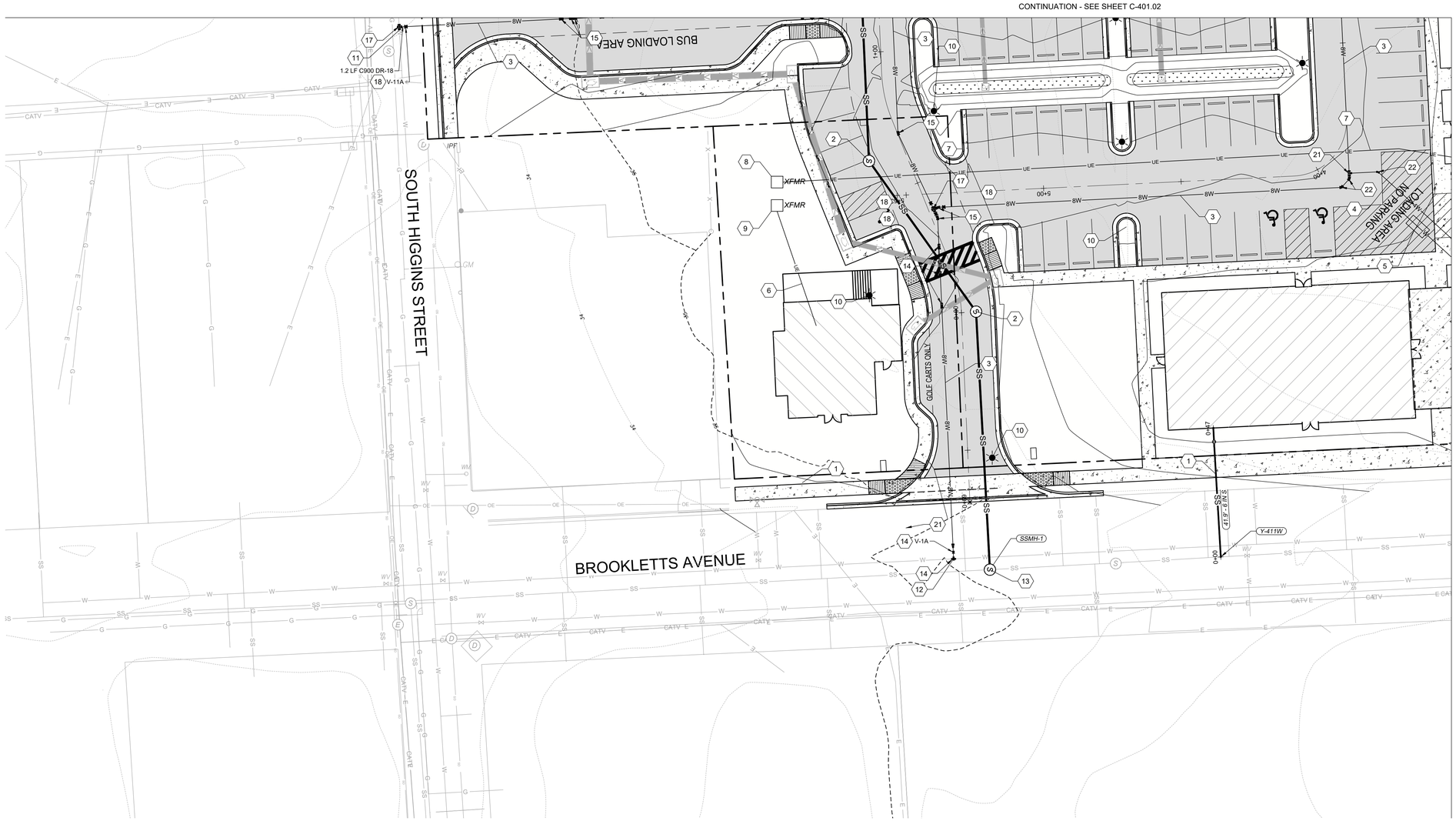
FOR REVIEW

UTILITY FEATURES

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2. 8" SEWER MAIN AND 48" DIA. SANITARY MANHOLE PER DETAIL ON C-405
3. 8" WATER MAIN PER DETAIL ON C-405
4. 6" WATER LATERAL. BRANCH TO PROVIDE 6" FIRE SUPPRESSION SERVICE AND 4" DOMESTIC WATER SERVICE TO BUILDING.
5. 4" DOMESTIC WATER METER PIT PER DETAIL ON C-405
6. 2-2" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS UTILITIES. SEE UTILITY TRENCH DETAIL ON C-405
7. 3-4" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS UTILITIES. SEE UTILITY TRENCH DETAIL ON C-405
8. 1500 kVA 208/120 V 3-PH TRANSFORMER PER DETAIL ON C-405
9. 75 kVA 208/120V 3-PH TRANSFORMER PER DETAIL ON C-405
10. STYLE POLE MOUNTED LAMP PER DETAIL ON C-405
11. CONNECT NEW WATER MAIN TO EXISTING MAIN IN HIGGINS STREET.
12. CONNECT NEW WATER MAIN TO EXISTING MAIN IN BROOKLETTS AVENUE.
13. 48" DIA. DOGHOUSE SANITARY MANHOLE PER DETAIL ON C-405
14. 8" 11.25-DEG BEND
15. 8" 22.5-DEG BEND
16. 8" 45-DEG BEND
17. 8"x8" TEE
18. 8" GATE VALVE
19. 8"x4" REDUCER
20. 4"x4" TEE
21. 8"x4" SERVICE TEE
22. 4" 45-DEG BEND
23. 4" GATE VALVE

NAD 83

0 20' 40'



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TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

UTILITY PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

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REVISIONS

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MISS UTILITY OF DELMARVA — 811

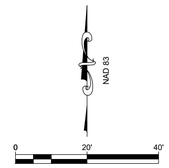
DATE:	12/26/2024
SCALE:	1" = 20'
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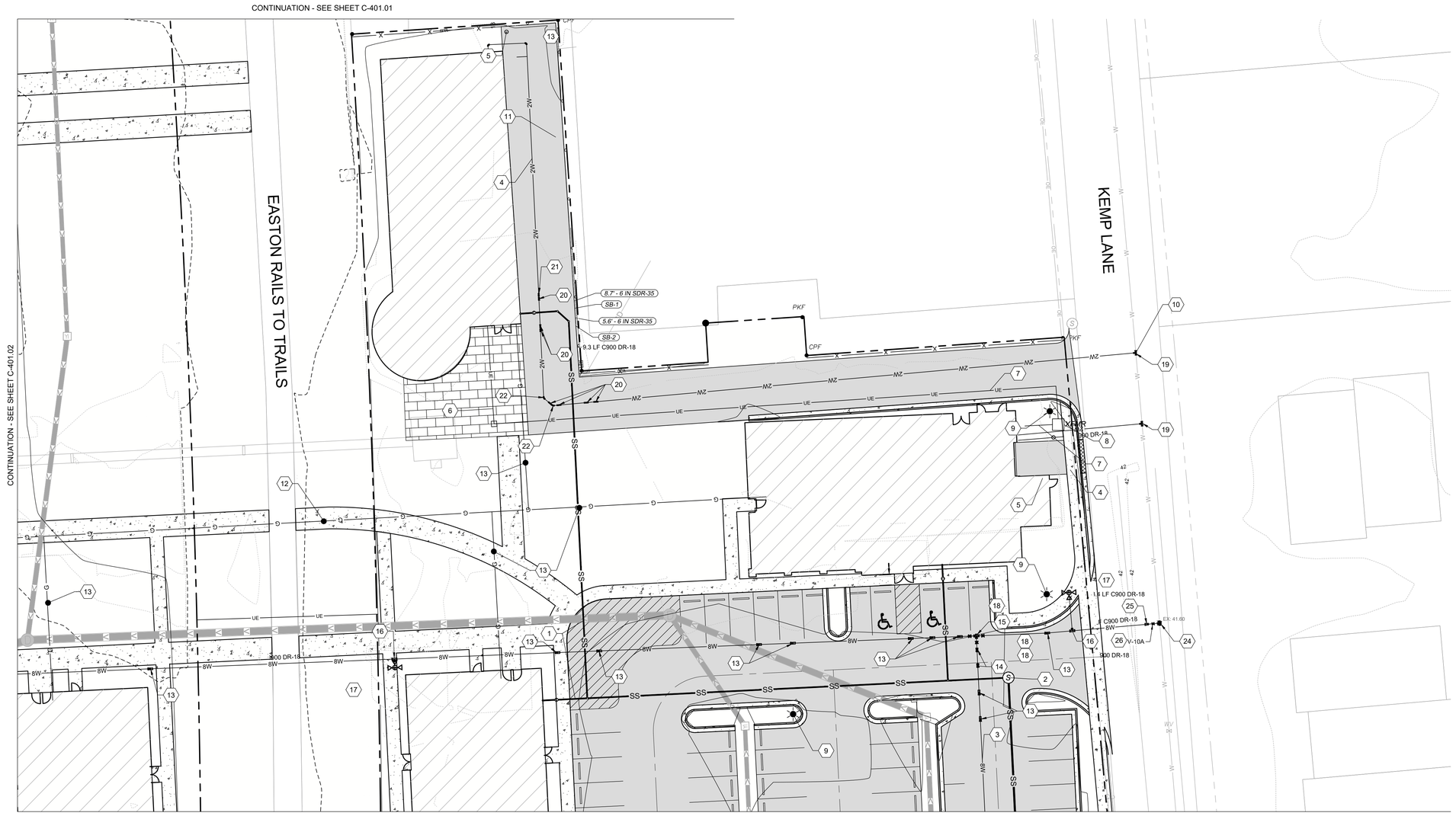
SHEET NO.: C-401.03

FOR REVIEW

UTILITY FEATURES

1. 6" SEWER LATERAL AND CLEANOUT PER DETAIL ON C-405
2. 8" SEWER MAIN AND 48" DIA. SANITARY MANHOLE PER DETAIL ON C-405
3. 8" WATER MAIN PER DETAIL ON C-405
4. 6" WATER LATERAL. BRANCH TO PROVIDE 6" FIRE SUPPRESSION SERVICE AND 2" DOMESTIC WATER SERVICE TO BUILDING.
5. 2" DOMESTIC WATER METER PIT PER DETAIL ON C-405
6. ELECTRICAL PULL BOX AS REQUIRED FOR CONDUIT INSTALLATION PER DETAIL ON C-405
7. 2-4" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS UTILITIES. SEE UTILITY TRENCH DETAIL ON C-405
8. 500 kVA 208/120V 3-PH TRANSFORMER PER DETAIL ON C-405
9. STYLE POLE MOUNTED LAMP PER DETAIL ON C-405
10. CONNECT NEW WATER MAIN TO EXISTING MAIN IN KEMP LANE.
11. GREASE TRAP PER DETAIL ON C-405
12. 2" GAS BRANCH LINE
13. 8" 11.25-DEG BEND
14. 8" 22.5-DEG BEND
15. 8"x8" TEE
16. 8"x6" HYDRANT TEE
17. FIRE HYDRANT PER EUC STANDARD DETAIL W-102.1
18. 8" GATE VALVE
19. 6"x2" SERVICE TEE
20. 2" 11.25-DEG BEND
21. 2" 22.5-DEG BEND
22. 2" 45-DEG BEND
23. 2" 90-DEG BEND
24. 6"x6" TEE
25. 8"x6" REDUCER
26. 6" GATE VALVE





UTILITY PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

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MISS UTILITY OF DELMARVA — 811

DATE:	12/26/2024
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SHEET NO.: C-401.04

FOR REVIEW

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TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

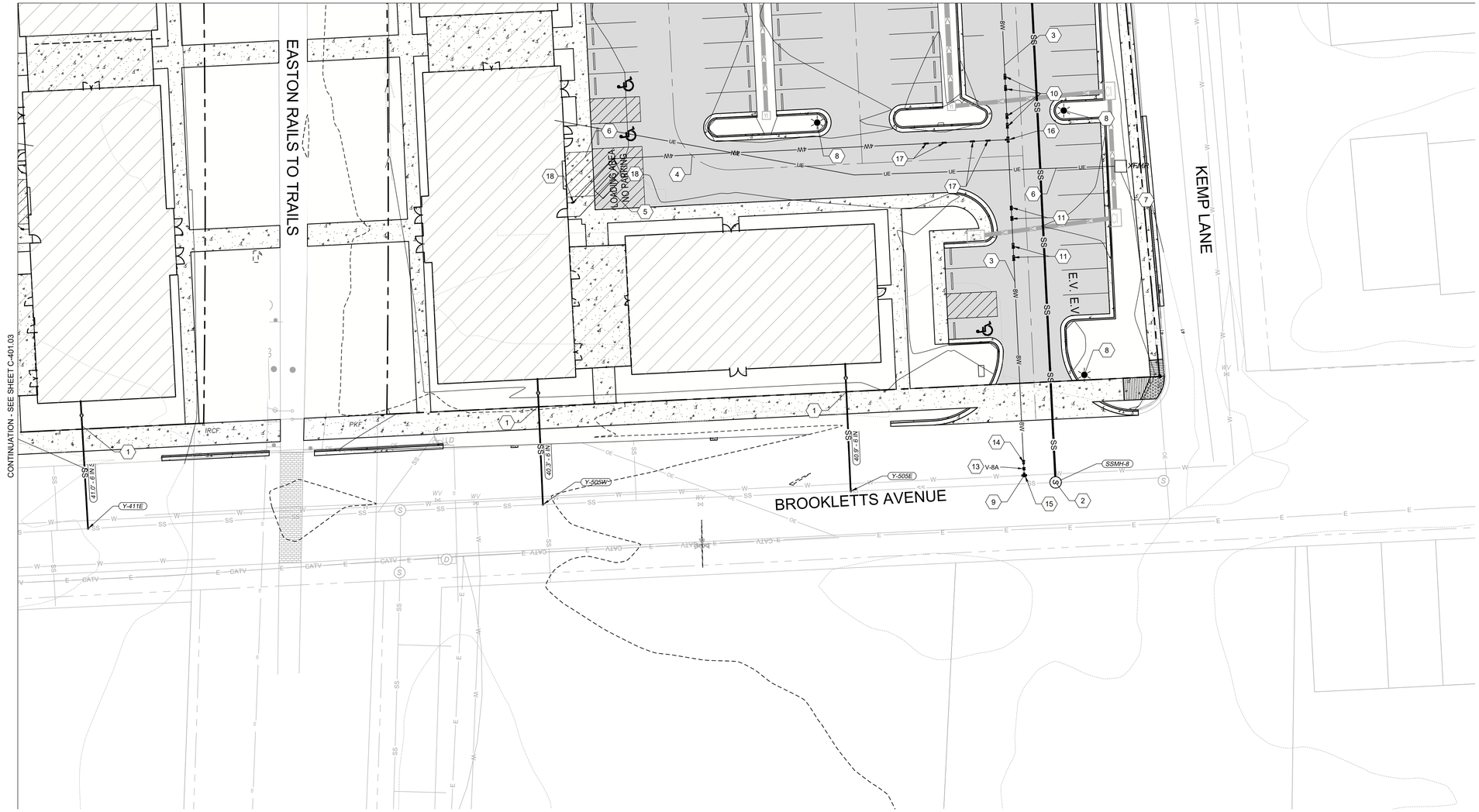
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14. 8"x6" REDUCER
15. 6"x6" TEE
16. 8"x4" SERVICE TEE
17. 4" 11.25-DEG BEND
18. 4" 45-DEG BEND

NAD 83

0 20' 40'

CONTINUATION - SEE SHEET C-401.04



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TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

UTILITY PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

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SHEET NO.: C-401.05

FOR REVIEW

RESERVED FOR
UTILITY PROFILES

APPROVED:

TOWN OF EASTON - TOWN ENGINEER DATE

APPROVED:

TOWN OF EASTON PLANNING AND ZONING DATE

APPROVED:

EASTON UTILITIES - ENGINEER DATE

APPROVED:

TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

UTILITY PROFILES

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

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REV. #	DATE	DESCRIPTION

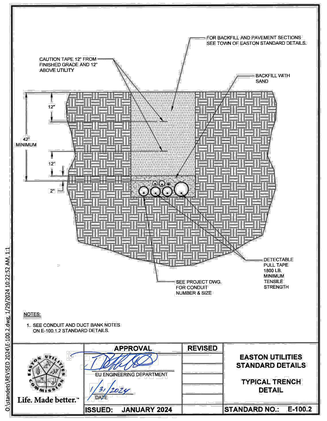
MISS UTILITY OF DELMARVA
CALL BEFORE YOU DIG

811

DATE: 12/26/2024
SCALE: AS SHOWN
DRAWN BY: AF
DESIGNED BY:
APPROVED BY:

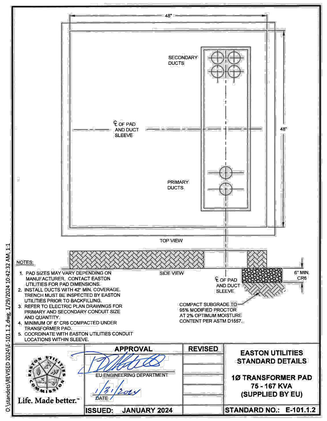
SHEET NO.:
C-403

FOR REVIEW



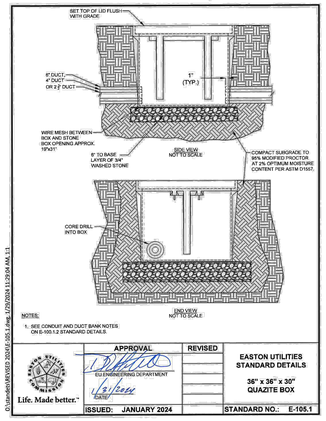
NOTES:
1. SEE CONDUIT AND DUCT BANK NOTES ON E-100.3 STANDARD DETAILS

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		TYPICAL TRENCH DETAIL
ISSUED: JANUARY 2024		STANDARD NO.: E-100.2



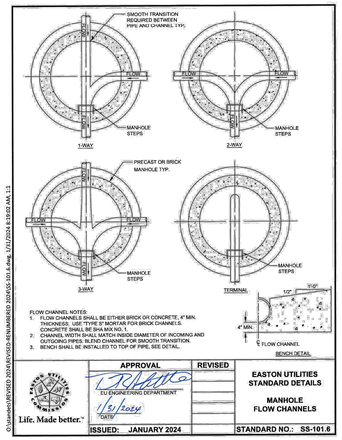
NOTES:
1. PAD SIZES MAY VARY DEPENDING ON MANUFACTURER. CONTACT EASTON UTILITIES FOR PAD DIMENSIONS.
2. INSTALL DUCTS WITH 3" MIN. COVERAGE.
3. INSTALL CONDUIT AND DUCTS BY EASTON UTILITIES PRIOR TO BACKFILLING.
4. REFER TO ELECTRIC PLAN DRAWINGS FOR PRIMARY AND SECONDARY CONDUIT SIZE AND QUANTITY.
5. MINIMUM 3" 6 CONC COMPACTED UNDER TRANSFORMER PAD.
6. COORDINATE WITH EASTON UTILITIES CONDUIT LOCATIONS WITH SLEEVE.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		1Ø TRANSFORMER PAD 75 - 167 KVA (SUPPLIED BY EU)
ISSUED: JANUARY 2024		STANDARD NO.: E-101.1.2



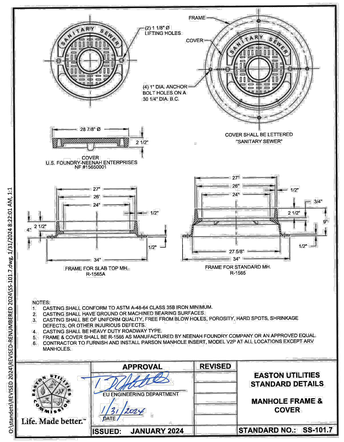
NOTES:
1. SEE CONDUIT AND DUCT BANK NOTES ON E-100.3 STANDARD DETAILS

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		36" x 36" x 30" QUAZITE BOX
ISSUED: JANUARY 2024		STANDARD NO.: E-105.1



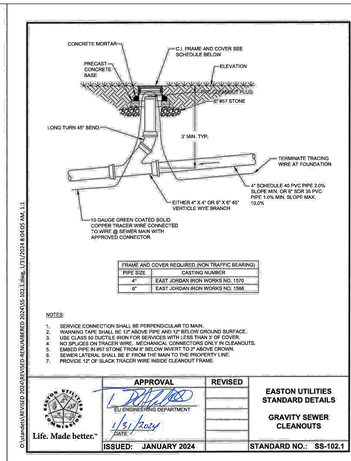
FLOW CHANNEL NOTES:
1. FLOW CHANNELS SHALL BE EITHER BRICK OR CONCRETE, 4" MIN. THICKNESS. USE "TYPE S" MORTAR FOR BRICK CHANNELS. CONCRETE SHALL BE 5M/A MIX NO. 1.
2. CHANNEL WIDTH SHALL MATCH INSIDE DIAMETER OF INCOMING AND OUTGOING PIPES. BLEND CHANNEL FOR SMOOTH TRANSITION.
3. BENCH SHALL BE INSTALLED TO TOP OF PIPE, SEE DETAIL.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		MANHOLE FLOW CHANNELS
ISSUED: JANUARY 2024		STANDARD NO.: SS-101.6



NOTES:
1. CASTING SHALL CONFORM TO ASTM A48-64 CLASS 35B IRON MINIMUM.
2. CASTING SHALL BE MACHINED TO PROVIDE BEARING SURFACES.
3. CASTING SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DEFECTS, OR OTHER INJURIOUS DEFECTS.
4. CASTING SHALL BE HEAVY DUTY ROADWAY TYPE.
5. FRAME & COVER SHALL BE R-1565 AS MANUFACTURED BY NEENAH FOUNDRY COMPANY OR AN APPROVED EQUAL.
6. CONTRACTOR TO FURNISH AND INSTALL PARSON MANHOLE INSERT, MODEL 109" AT ALL LOCATIONS EXCEPT ARV MANHOLES.

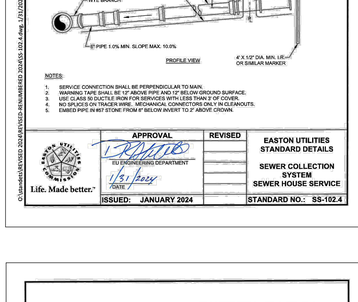
APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		MANHOLE FRAME & COVER
ISSUED: JANUARY 2024		STANDARD NO.: SS-101.7



FRAME AND COVER REQUIRED (NON TRAFFIC BEARING)	
PIPE SIZE	CASTING NUMBER
4"	EAST JORDAN IRON WORKS NO. 1570
6"	EAST JORDAN IRON WORKS NO. 1568

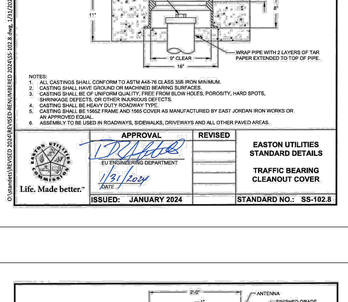
NOTES:
1. SERVICE CONNECTION SHALL BE PERPENDICULAR TO MAIN.
2. WARNING TAPE SHALL BE 12" ABOVE PIPE AND 12" BELOW GROUND SURFACE.
3. USE CLASS 50 DUCTILE IRON FOR SEWERS WITH LESS THAN 3' OF COVER.
4. SEWER LATERAL SHALL BE INSTALLED AT 1.0% SLOPE MINIMUM ONLY IN CLEANOUTS.
5. EMBED PIPE IN #57 STONE FROM 6" BELOW INVERT TO 2" ABOVE CROWN.
6. SEWER LATERAL SHALL BE 8" FROM THE MAIN TO THE PROPERTY LINE.
7. PROVIDE 12" OF SLACK TRACER WIRE INSIDE CLEANOUT FRAME.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		GRAVITY SEWER CLEANOUTS
ISSUED: JANUARY 2024		STANDARD NO.: SS-102.1



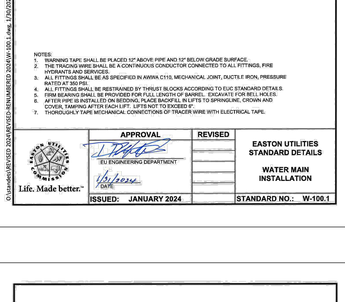
NOTES:
1. SERVICE CONNECTION SHALL BE PERPENDICULAR TO MAIN.
2. WARNING TAPE SHALL BE 12" ABOVE PIPE AND 12" BELOW GROUND SURFACE.
3. USE CLASS 50 DUCTILE IRON FOR SEWERS WITH LESS THAN 3' OF COVER.
4. NO SPLICES ON TRACER WIRE. MECHANICAL CONNECTORS ONLY IN CLEANOUTS.
5. EMBED PIPE IN #57 STONE FROM 6" BELOW INVERT TO 2" ABOVE CROWN.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		SEWER COLLECTION SYSTEM SEWER HOUSE SERVICE
ISSUED: JANUARY 2024		STANDARD NO.: SS-102.4



NOTES:
1. ALL CASTINGS SHALL CONFORM TO ASTM A48-76 CLASS 35B IRON MINIMUM.
2. CASTING SHALL HAVE DIRECTIONAL MACHINED BEARING SURFACES.
3. CASTING SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DEFECTS, OR OTHER INJURIOUS DEFECTS.
4. CASTING SHALL BE HEAVY DUTY ROADWAY TYPE.
5. CASTING SHALL BE 1882 FRAME AND 1960 COVER AS MANUFACTURED BY EAST JORDAN IRON WORKS OR AN APPROVED EQUAL.
6. ASSEMBLY TO BE USED IN ROADWAYS, SIDEWALKS, DRIVEWAYS AND ALL OTHER PAVED AREAS.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		TRAFFIC BEARING CLEANOUT COVER
ISSUED: JANUARY 2024		STANDARD NO.: SS-102.8

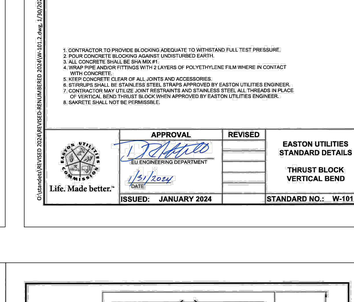


NOTES:
1. TAMPING TAPE SHALL BE PLACED 12" ABOVE PIPE AND 12" BELOW GRADE SURFACE.
2. THE TRACING WIRE SHALL BE A CONTINUOUS CONDUCTOR CONNECTED TO ALL FITTINGS, FIRE HYDRANTS AND SERVICES.
3. ALL FITTINGS SHALL BE AS SPECIFIED IN AWWA C110, MECHANICAL JOINT, DUCTILE IRON, PRESSURE RATED AT 350 PSI.
4. ALL FITTINGS SHALL BE RESTRAINED BY THRUST BLOCKS ACCORDING TO EUC STANDARD DETAILS.
5. ALL PIPE SHALL BE CEMENT LINED DUCTILE IRON PIPE CLASS 52 AWWA C151/A21.51.
6. AFTER PIPE IS INSTALLED ON BEDDING, PLACE BACKFILL IN LIFTS TO SPRINGLINE, CROWN AND COVER, TAMPING AFTER EACH LIFT. LIFTS NOT TO EXCEED 8".
7. THOROUGHLY TAPE MECHANICAL CONNECTIONS OF TRACER WIRE WITH ELECTRICAL TAPE.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		WATER MAIN INSTALLATION
ISSUED: JANUARY 2024		STANDARD NO.: W-100.1

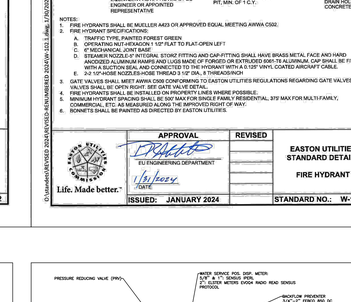
DIMENSION TABLE							
PIPE DIA. IN.	TABLE PRESSURE PSI	BEND ANGLE (DEG.)	CONCRETE VOLUME (CY)	CUBE SIZE (FT.)	STIRRUP DIA. (IN.)	STIRRUP EMBEDMENT (IN.)	STIRRUP BAR #
4"	250	11.25	0.21	1.8			
		22.5	0.43	2.3	5/8	17	5
		45	0.77	2.8			
6"	250	11.25	0.48	2.4			
		22.5	0.95	3.0	5/8	17	5
		45	1.79	3.6			
8"	250	11.25	0.86	2.6			
		22.5	1.65	3.5	5/8	17	5
		45	3.22	4.4			
10"	250	11.25	1.39	3.3			
		22.5	2.62	4.1	5/8	17	5
		45	4.97	4.1			
12"	250	11.25	1.94	3.7			
		22.5	3.91	4.7	5/8	17	5
		45	6.89	5.7	7/8	24	7
14"	250	11.25	2.62	4.1	5/8	17	5
		22.5	5.26	5.2	3/4	20	6
		45	9.70	6.4	1	27	8
16"	250	11.25	3.44	4.5	5/8	17	5
		22.5	6.69	5.7	7/8	24	7
		45	12.63	7.0	1 1/8	30	9

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
ED ENGINEERING DEPARTMENT DATE: 1/31/2024		THRUST BLOCK VERTICAL BEND DIMENSION TABLE
ISSUED: JANUARY 2024		STANDARD NO.: W-101.2.1



1. CONTRACTOR TO PROVIDE BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE.
2. POUR CONCRETE BLOCKING AGAINST UNDISTURBED EARTH.
3. ALL CONCRETE SHALL BE SHA MIX #1.
4. WRAP PIPE AND/OR FITTINGS WITH 2 LAYERS OF POLYETHYLENE FILM WHERE IN CONTACT WITH CONCRETE.
5. KEEP CONCRETE CLEAR OF ALL JOINTS AND ACCESSORIES.
6. STIRRUPS SHALL BE STAINLESS STEEL, STRAPS APPROVED BY EASTON UTILITIES ENGINEER.
7. CONTRACTOR MAY UTILIZE JOINT RESTRAINTS AND STAINLESS STEEL ALL THREADS IN PLACE OF VERTICAL BEND THRUST BLOCK WHEN APPROVED BY EASTON UTILITIES ENGINEER.
8. BARRETE SHALL NOT BE PERMISSIBLE.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		THRUST BLOCK VERTICAL BEND
ISSUED: JANUARY 2024		STANDARD NO.: W-101.2



NOTES:
1. FIRE HYDRANTS SHALL BE MUELLER A423 OR APPROVED EQUAL MEETING AWWA C502.
2. FIRE HYDRANT SPECIFICATIONS:
   A. TRAFFIC TYPE, PAINTED FOREST GREEN.
   B. OPERATING NUT-HEXAGON 1 1/2" FLAT TO FLAT-OPEN LEFT
   C. 6" MECHANICAL JOINT BASE
   D. STEAMER NOZZLE 4" INTEGRAL STORZ FITTING AND CAP-FITTING SHALL HAVE BRASS METAL FACE AND HAND ANODIZED ALUMINUM RAMPS AND LUGS MADE OF FORGED OR EXTRUDED 6061-T6 ALURMUM, CAP SHALL BE FITTED WITH A SUCTION SEAL AND CONNECTED TO THE HYDRANT WITH A 6-1/2" VINYL COATED AIRCRAFT CABLE.
   E. 2-1/2" HOSE NOZZLES 4-1/2 THREADS PER INCH.
3. GATE VALVES SHALL MEET OR EXCEED AWWA C509, TO EASTON UTILITIES REGULATIONS REGARDING GATE VALVES.
4. FIRE HYDRANTS SHALL BE INSTALLED ON PROPERTY LINES WHERE POSSIBLE.
5. MINIMUM HYDRANT SPACING SHALL BE 500' MAX FOR SINGLE FAMILY RESIDENTIAL; 370' MAX FOR MULTI FAMILY, COMMERCIAL, ETC. AS MEASURED ALONG THE IMPROVED RIGHT OF WAY.
6. BONNETS SHALL BE PAINTED AS DIRECTED BY EASTON UTILITIES.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		FIRE HYDRANT
ISSUED: JANUARY 2024		STANDARD NO.: W-102.1

NOTES:
1. ALL REINFORCEMENT SHALL BE #4 REBAR UNLESS OTHERWISE NOTED.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		GATE VALVE BOX ASSEMBLY
ISSUED: JANUARY 2024		STANDARD NO.: W-102.2

NOTES:
1. TUBING TO BE LAID LEVEL WITH TOP OF MAIN UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. CORPORATION COCK TO BE LEFT OPEN, METER ANGLE VALVE LEFT CLOSED.
3. METER BOX MUELLER NO. 330853/329/BWM OR AN APPROVED EQUAL FURNISHED AND INSTALLED BY EASTON UTILITIES. BOX SHALL BE TRUMBALL NO. 1400-12 WITH LID NO. 1400-12 WATER LOGO AND 387-6460 FOR TRAFFIC BEARING AREAS. PROVIDE ANY METER VALID TYPE C OR APPROVED EQUAL. A 2" DIA. HOLE SHALL BE DRILLED IN THE CENTER OF ALL LIDS FOR EXTERNAL ANTENNA INSTALLATION.
4. SURFACE RESTORATION SHALL BE PER TOWN OF EASTON STANDARDS.
5. PIPE SHALL BE TAPPED WITH A HOLE CUTTER THAT WILL RETAIN THE COUPON IN ACCORDANCE WITH UNI-BELL PLASTIC PIPE ASSOCIATION UNI-B-3.
6. THOROUGHLY TAPE MECHANICAL CONNECTIONS WITH ELECTRICAL TAPE.
7. METER SHALL BE FURNISHED BY EASTON UTILITIES.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		1" WATER SERVICE
ISSUED: JANUARY 2024		STANDARD NO.: W-103.1

NOTE:
VALVE BOX SHALL BE A 6" PLASTIC VALVE BOX; MODEL P4B BY BINGHAM AND TAYLOR OR AN APPROVED EQUAL.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		CURB STOP AND BOX
ISSUED: JANUARY 2024		STANDARD NO.: W-103.3

NOTES:
1. 10 GAUGE SOLID COPPER TRACER WIRE, BLUE JACKET.
2. THOROUGHLY TAPE MECHANICAL CONNECTIONS ON TRACER WIRE WITH ELECTRICAL TAPE.
3. INSTALLATION OF WATER SERVICE INTO FOUNDATION PER TOWN OF EASTON APPROVED PLUMBING CODE.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		WATER SERVICE CONNECTION
ISSUED: JANUARY 2024		STANDARD NO.: W-103.4

NOTES:
1. CONTRACTOR SHALL CONTACT EASTON UTILITIES PRIOR TO THE WATER METER PIT INSTALLATION
2. SHA ALL TRAFFIC BEARING INSTALLATIONS
2. PORTLAND CEMENT MIXTURE SHALL MEET OR EXCEED SHA MIX #2.
3. ALL REINFORCEMENT SHALL BE #4 REBAR UNLESS OTHERWISE NOTED.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		WATER METER PIT INSTALLATION-TRAFFIC BEARING
ISSUED: JANUARY 2024		STANDARD NO.: W-103.6

SIZE	A	B	C
4"	48	44	112
6"	48	44	124
8"	48	44	136
10"	48	44	148

DIMENSIONS IN INCHES
* FIRE LINE SIZE

METER SIZE	LINE
⅝"	¾"
1"	1"
1-1/2"	2"
2"	2-1/2"
3"	3"

NOTES:
1. GATE VALVE REQUIRED AT MAINLINE TAP
2. ALL BOLTS, # NUTS TO BE S.S.
3. BUILDING SHALL MEET OSHA TO BUILDING AND INSIDE BUILDING SHALL MEET CECIL COUNTY REQUIREMENTS
4. LADDER SHALL BE MODINA ALUMINUM LADDER WITH SAFETY EXTENSION BAR AGAINST OUTSIDE BAR OF LADDER
5. FLANGE SUPPORTS SHALL BE STANDON MODEL 589.

WATER METER VAULT DETAIL
NO SCALE

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

UTILITY DETAILS

FOR
EASTON CROSSING
EASTON CROSSING, LLC
TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833
EASTON, TALBOT COUNTY, MARYLAND
PREPARED FOR: EASTON CROSSING, LLC

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

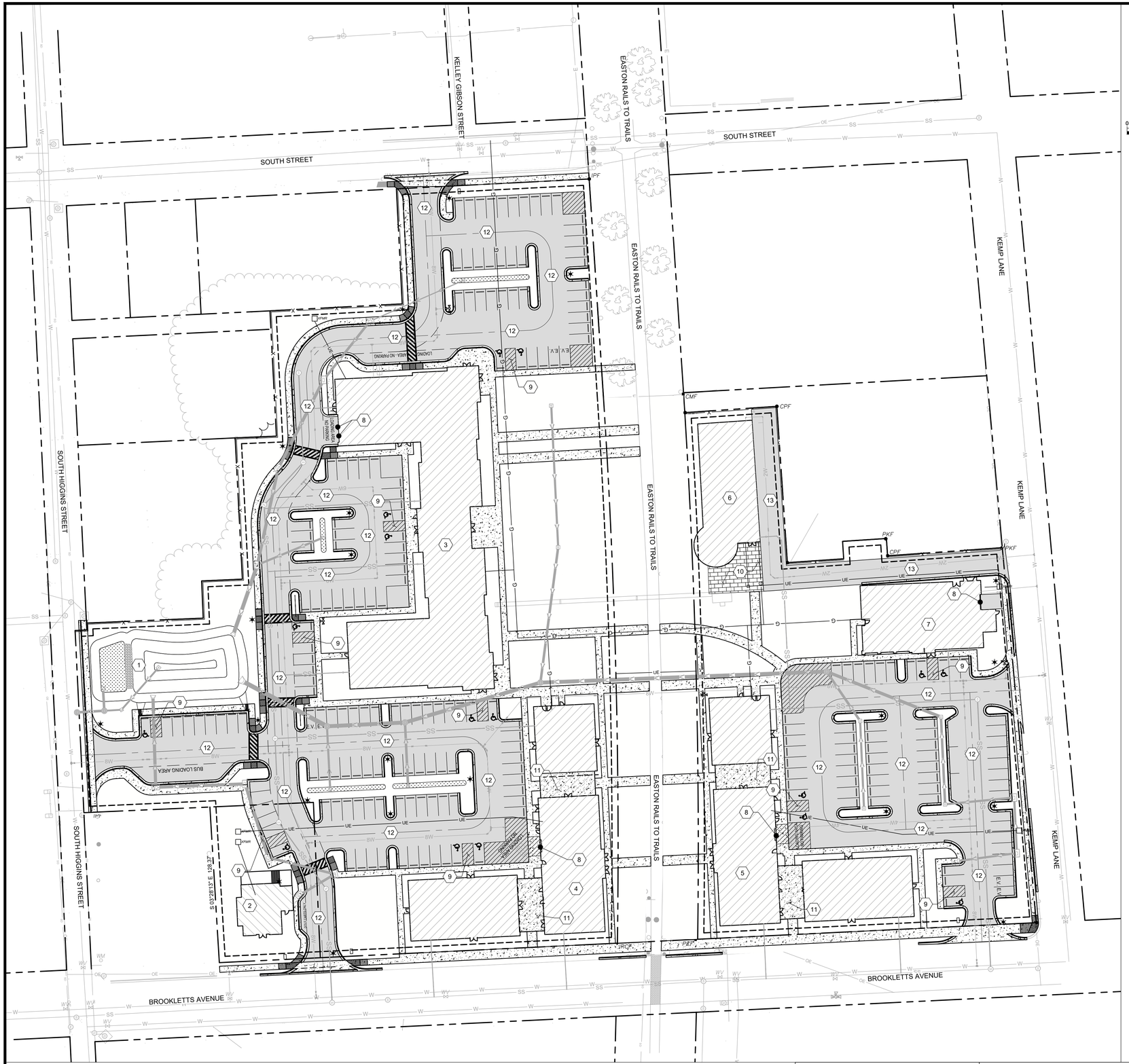
Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 11024
Expiration Date: July 24, 2026
12/26/2024

REVISIONS		
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA
811
DATE: 12/26/2024
SCALE: N/A
DRAWN BY: AF
DESIGNED BY:
APPROVED BY:

SHEET NO.: C-405

FOR REVIEW



PROPOSED FEATURES

1. **SUBMERGED GRAVEL WETLAND WITH FOREBAY**
2. **BUILDING 407 - COMMERCIAL OFFICE SPACE**
3. **BUILDING 409 - MIXED RETAIL/RESIDENTIAL**
4. **BUILDING 411 - MIXED RETAIL/RESIDENTIAL**
5. **BUILDING 505 - MIXED RETAIL/RESIDENTIAL**
6. **BUILDING 507 - FUTURE RESTAURANT**
7. **BUILDING 509 - GROUP RESIDENCE**
8. **INTERIOR REFUSE/RECYCLING CONTAINER ROOM ACCESS POINT**
9. **ADA ACESS:** PROVIDE ADA ACCESSIBLE PATH FROM PARKING LOT TO FRONT ENTRANCE OF BUILDING. ADA PATH SHALL MEET ALL ADA REQUIREMENTS.
10. **AT-GRADE PAVEMENT:** PROVIDE AESTHETIC PAVEMENT AT-GRADE TO ALLOW FOR DELIVERY/FIRE TRUCK TURNING MOVEMENTS
11. **BREEZEWAY:** PASS-THROUGH TO ALLOW FOOT TRAFFIC ACCESS TO BUILDING AND WALKING TRAIL. RESIDENTIAL UNITS LOCATED ABOVE
12. **FIRE LANE:** MINIMUM 24' WIDE FIRE LANE
13. **FIRE LANE:** MINIMUM 20' WIDE FIRE LANE

NAD 83

0 40' 80'

24' FIRE DEPT. ACCESS LANE

MAIN EXTERIOR DOORS

BUILDING EGRESS

FIRE HYDRANT

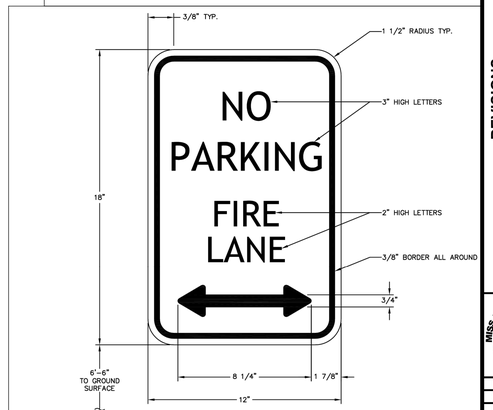
FDC CONNECTION

FDC CONNECTION SIGN

NO PARKING - FIRE LANE SIGN

FIRE DEPARTMENT CONNECTION

1. THE SIGN SHALL BE METAL, 12"X18" WHITE SCOTCHLITE BACKGROUND WITH RED LETTERS
2. ALL LETTERING SHALL BE MINIMUM 3" IN HEIGHT CENTERED JUSTIFIED READING "FIRE DEPARTMENT CONNECTION" IN ALL CAPS WITH EACH WORD ON IT'S OWN LINE.
3. THE SIGNS SHALL BE LOCATED BY THE FIRE DEPARTMENT CONNECTION AND BE CLEARLY VISIBLE FROM THE FIRE LANE.



NOTES:

1. ALL LETTERS, ARROW AND BORDER SHALL BE PAINTED RED ON A WHITE BACKGROUND.
2. ALL LETTERS AND ARROW SHALL BE CENTERED BOTH VERTICALLY AND HORIZONTALLY.
3. THE DISTANCE BETWEEN ANY 2 FIRE SIGNS IS 40'.

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

FIRE MARSHAL PLAN

FOR

EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

RAUCH Inc.
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 3867

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. 11024
Expiration Date: July 24, 2026

12/26/2024

REVISIONS

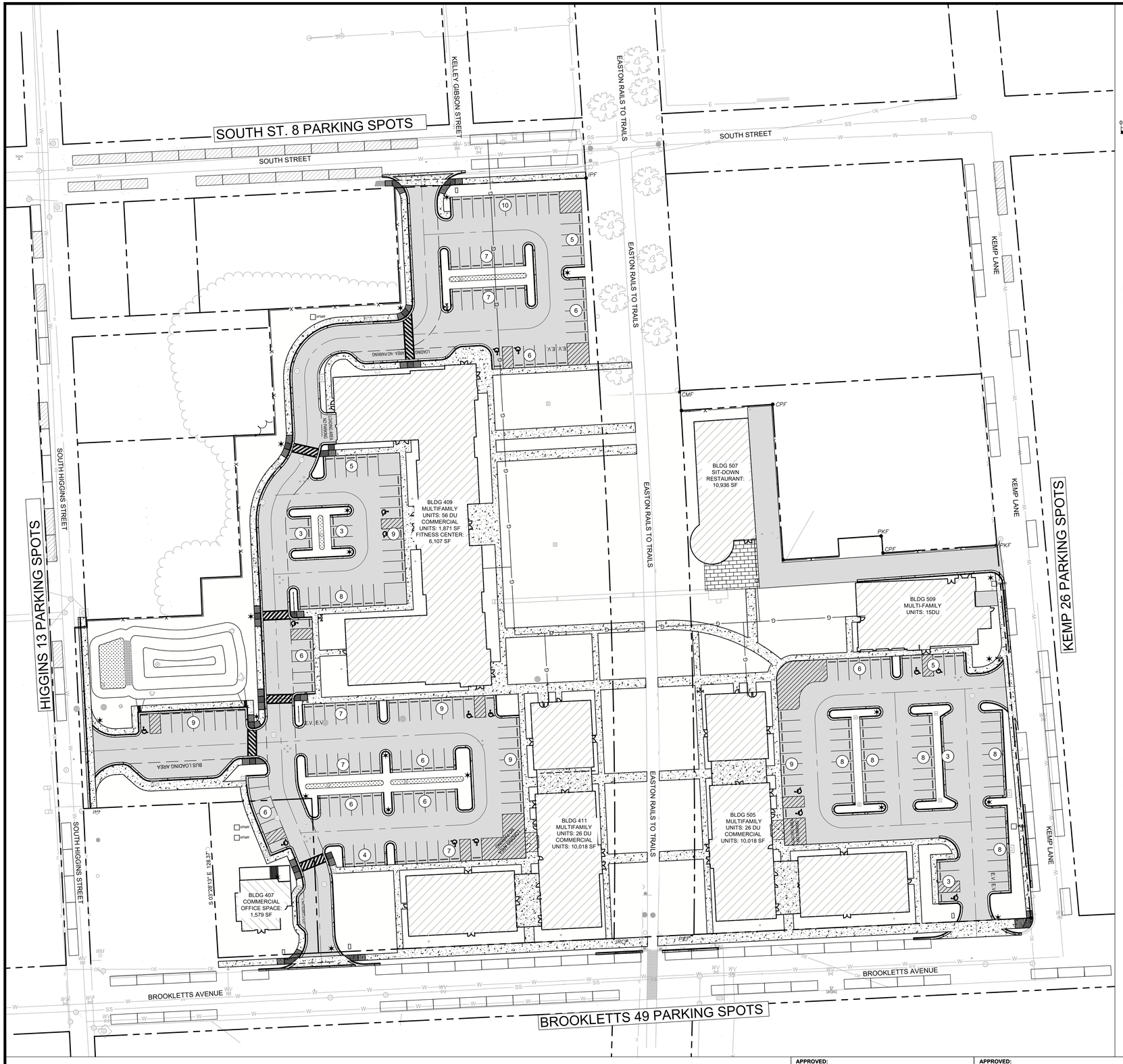
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811 — CALL BEFORE YOU DIG

DATE:	12/26/2024
SCALE:	1" = 40'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: C-501

FOR REVIEW



PLANNED REDEVELOPMENT DISTRICT - NO PARKING REQUIREMENTS PER TOWN ORDINANCE

TOTAL PARKING AVAILABLE
217 PROVIDED OFF-STREET PARKING
INCLUDES 14 VAN-ACCESSIBLE HANDICAP SPACES
INCLUDES 6 E.V. CHARGING STATIONS
96 EXISTING ON-STREET PARKING
313 TOTAL VEHICLE SPACES
72 BICYCLE PARKING SPACES

NON-PRD PARKING PER 28-1001.3 PARKING REQUIREMENTS OF 2021 EDITION TOWN OF EASTON ZONING ORDINANCE

MULTIFAMILY RESIDENTIAL
MIN - 1 PER DU = 123
MAX - 2 PER DU = 246
BIKE - 0.5 PER DU = 62

FITNESS CLUB
MIN - 1.5 PER 1000 SF GFA = 10
MAX - 10 PER 1000 SF GFA = 62
BIKE - 1 PER 10 VEHICLE SPACES - 1 TO 7

COMMERCIAL OFFICE
MIN - 1 PER 250SF GFA = 15
MAX - 1 PER 140 SF GFA = 26
BIKE - 1 PER 10 VEHICLE SPACES - 2 TO 3

COMMERCIAL RETAIL
MIN - 1 PER 300 SF GFA = 73
MAX - 1 PER 200 SF GFA = 110
BIKE - 1 PER 10 VEHICLE SPACES - 8 TO 11

RESTAURANT - SIT-DOWN
MIN - 1 PER 100 SF GFA = 110
MAX - 1 PER 50 SF GFA = 219
BIKE - 1 PER 10 VEHICLE SPACES - 11 TO 22

TOTAL NON-PRD MINIMUM PARKING - 331
TOTAL NON-PRD MAXIMUM PARKING - 663
TOTAL NON-PRD BICYCLE PARKING - 84 TO 105

LEGEND

96 AVAILABLE ON-STREET PARKING SPACE

32 SPACES UTILIZED FOR ADJACENT RESIDENT PARKING

APPROVED:	APPROVED:	APPROVED:	APPROVED:
TOWN OF EASTON - TOWN ENGINEER DATE	TOWN OF EASTON PLANNING AND ZONING DATE	EASTON UTILITIES - ENGINEER DATE	TALBOT SOIL CONSERVATION DISTRICT MANAGER DATE

PARKING EXHIBIT

FOR
EASTON CROSSING
EASTON CROSSING, LLC

TAX MAP 0104, GRIDS 000EA/0000, PARCELS 1823, 1826, 1833

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

RAUCH inc.
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REVISIONS		
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA 811

DATE:	12/26/2024
SCALE:	1" = 40'
DRAWN BY:	AF
DESIGNED BY:	
APPROVED BY:	

SHEET NO.:
PARKING EXHIBIT

FOR REVIEW

Lenhart Traffic Consulting, Inc.

Transportation Planning & Traffic Engineering

Memorandum: ***Date:*** **January 27, 2025**

TO: Rick Van Emburgh, P.E.
Town Engineer
Town of Easton

FROM: Mike Lenhart

RE: Easton Crossing – The Arc – Trip Generation Statement

Rick,

The purpose of this memorandum is to provide a supplemental analysis to the Traffic Impact Study for this project dated 12/4/24. As you know, the December traffic study found that the majority of the intersections and movements would operate at a Level of Service "A" or "B" with only two movements operating at a Level of Service "C".

The design of this project has been refined somewhat as the entitlement has been pursued and this memorandum provides confirmation that the refinement has no substantial impact on the content and findings of the 12/4/24 traffic study.

Trip generation worksheets are provided with this memo. **Exhibit 1** reflects the trip generation that was utilized in the previous submission of the TIS referenced above. **Exhibit 2** reflects the trip generation for the current proposed development and shows the comparison calculations for the new versus previously studied uses.

As shown on Exhibit 2, the trip generation of the current proposal would generate no more than a total of 5 additional inbound or outbound trips during the peak periods as compared to the December traffic study. This equates to roughly one additional trip every 12 minutes inbound or outbound which would have a negligible impact on the results and findings of the December traffic study.

In conclusion, the refinements of the land uses that have occurred will result in a negligible impact on the traffic findings.

If you have any questions regarding this matter, please do not hesitate to contact me at the number below.

Thanks,
Mike

Lenhart Traffic Consulting, Inc.
645 B&A Blvd, Suite 214
Severna Park, MD 21146

Phone (410) 216-3333
email: mlenhart@lenharttraffic.com

Lenhart Traffic Consulting, Inc.
645 B&A Blvd, Suite 214
Severna Park, MD 21146

Phone (410) 216-3333

email: mlenhart@lenharttraffic.com

Trip Generation Rates

		Trip Distribution (In/Out)
Multifamily Housing, Mid-Rise (ITE-221, Units) [Not Close to Rail Transit]		
	Morning Trips = 0.44 x Units - 11.61	23/77
	Evening Trips = 0.39 x Units + 0.34	61/39
	Ln(Midday Sat. Trips) = 1.00 x Ln(Units) - 0.91	51/49
Strip Retail Plaza (<40k) (ksf, ITE-822)		
	Ln(Morning Trips) = 0.66 x Ln(ksf) + 1.84	60/40
	Ln(Evening Trips) = 0.71 x Ln(ksf) + 2.72	50/50
	Midday Sat. Trips = 6.57 x ksf	51/49
High Turnover (Sit-Down) Rest. (ksf, ITE-932)		
	Morning Trips = 9.57 x ksf	55/45
	Evening Trips = 9.05 x ksf	61/39
	Midday Sat. Trips = 11.19 x ksf	51/49

Trip Generation Totals

			AM Peak			PM Peak			Sat. Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
Building 409	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	56 units	6	14	20	13	9	22	12	11	23
	Strip Retail Plaza (<40k) (ksf, ITE-822)	9,892 sq.ft.	12	8	20	28	28	56	33	32	65
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-11	-11	-22	-10	-10	-20
Building 411	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	26 units	2	7	9	6	4	10	5	6	11
	Strip Retail Plaza (<40k) (ksf, ITE-822)	9,599 sq.ft.	11	8	19	27	28	55	32	31	63
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-11	-11	-22	-10	-10	-20
Building 505	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	26 units	2	7	9	6	4	10	5	6	11
	Strip Retail Plaza (<40k) (ksf, ITE-822)	9,599 sq.ft.	11	8	19	28	27	55	32	31	63
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-11	-11	-22	-10	-9	-19
Building 509	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	15 units	1	4	5	4	2	6	3	2	5
Building 507	High Turnover (Sit-Down) Rest. (ksf, ITE-932)	10,000 sq.ft.	53	43	96	56	35	91	57	55	112
	Passby Rates: AM Peak Hour = 21.5%, PM Peak Hour = 43%, Sat. Mid-Day Peak Hour = 43%		-11	-10	-21	-24	-15	-39	-25	-23	-48
	Total Trips:		**98**	**99**	**197**	**168**	**137**	**305**	**179**	**174**	**353**
	Primary Trips:		**81**	**83**	**164**	**111**	**89**	**200**	**124**	**122**	**246**
	Passby Trips:		**17**	**16**	**33**	**57**	**48**	**105**	**55**	**52**	**107**

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition

Trip Generation Rates

		Trip Distribution (In/Out)
Multifamily Housing, Mid-Rise (ITE-221, Units) [Not Close to Rail Transit]		
	Morning Trips = 0.44 x Units - 11.61	23/77
	Evening Trips = 0.39 x Units + 0.34	61/39
	Ln(Midday Sat. Trips) = 1.00 x Ln(Units) - 0.91	51/49
Strip Retail Plaza (<40k) (ksf, ITE-822)		
	Ln(Morning Trips) = 0.66 x Ln(ksf) + 1.84	60/40
	Ln(Evening Trips) = 0.71 x Ln(ksf) + 2.72	50/50
	Midday Sat. Trips = 6.57 x ksf	51/49
High Turnover (Sit-Down) Rest. (ksf, ITE-932)		
	Morning Trips = 9.57 x ksf	55/45
	Evening Trips = 9.05 x ksf	61/39
	Midday Sat. Trips = 11.19 x ksf	51/49

Trip Generation Totals

			AM Peak			PM Peak			Sat. Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
Buildings 407 & 409	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	56 units	6	14	20	13	9	22	12	11	23
	Strip Retail Plaza (<40k) (ksf, ITE-822)	9,557 sq.ft.	11	8	19	27	27	54	32	31	63
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-11	-11	-22	-10	-10	-20
Building 411	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	26 units	2	7	9	6	4	10	5	6	11
	Strip Retail Plaza (<40k) (ksf, ITE-822)	10,018 sq.ft.	12	8	20	28	29	57	34	32	66
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-11	-12	-23	-11	-9	-20
Building 505	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	26 units	2	7	9	6	4	10	5	6	11
	Strip Retail Plaza (<40k) (ksf, ITE-822)	10,018 sq.ft.	12	8	20	29	28	57	33	32	65
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-12	-11	-23	-10	-10	-20
Building 509	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	15 units	1	4	5	4	2	6	3	2	5
Building 507	High Turnover (Sit-Down) Rest. (ksf, ITE-932)	10,936 sq.ft.	58	47	105	60	39	99	62	60	122
	Passby Rates: AM Peak Hour = 21.5%, PM Peak Hour = 43%, Sat. Mid-Day Peak Hour = 43%		-12	-11	-23	-26	-17	-43	-27	-25	-52
	Total Trips:		**104**	**103**	**207**	**173**	**142**	**315**	**186**	**180**	**366**
	Primary Trips:		**86**	**86**	**172**	**113**	**91**	**204**	**128**	**126**	**254**
	Passby Trips:		**18**	**17**	**35**	**60**	**51**	**111**	**58**	**54**	**112**

		AM Peak			PM Peak			Sat. Mid-day Peak		
		In	Out	Total	In	Out	Total	In	Out	Total
Net Difference between Proposed Use and Previous TIS Submission: (Exhibit 2 Minus Exhibit 1)	**Net Total Trips:**	**6**	**4**	**10**	**5**	**5**	**10**	**7**	**6**	**13**
	Net Primary Trips:	**5**	**3**	**8**	**2**	**2**	**4**	**4**	**4**	**8**
	Net Pass-by Trips:	**1**	**1**	**2**	**3**	**3**	**6**	**3**	**2**	**5**

NOTE:

1. **Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition**
2. **The uses for Buildings 407 and 409 shown on this sheet combined the square footage of office space, retail space, and planned fitness center into retail space in order to provide a conservative analysis given that it is anticipated that the office space and fitness center will be ancillary to the site and would generate minimal off-site traffic.**

Traffic Impact Analysis

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Trip Generation for
Updated Site and Trip Comparison

Exhibit 2

Lenhart Traffic Consulting, Inc.

Transportation Planning & Traffic Engineering

Memorandum: ***Date:*** **January 29, 2025**

TO: Rick Van Emburgh, P.E.
Town Engineer
Town of Easton

FROM: Mike Lenhart

RE: Easton Crossing – The Arc – Trip Generation Comparison to Pre-existing Uses

Rick,

The purpose of this memorandum is to provide a supplemental analysis to compare the trips generated by this proposal to the trips generated by the pre-existing uses.

The property was previously used as a grain storage facility with multiple silos. According to SDAT, the site also contains a 5,888 sq ft warehouse and two office buildings totaling 8,382 sq ft (1,728 sq ft and 6,654 sq ft). It should be noted that there are 11 larger grain silos along with numerous smaller silos. These silos are not included in the square footage of the buildings and would have additional trip generation characteristics that are separate from the office and warehouse buildings. ITE Trip Generation Manual does not have trip generation data for grain silos therefore we are not able to account for trips associated with those pre-existing structures. However, it is reasonable to assume that the trips generated by these structures are 100% larger trucks.

According to news articles written in The Star, in June 2022 when nearby grain storage facilities were closing, many heavy trucks had difficulty bringing grain to the site due to roads that were not designed to accommodate large trucks. This is predominantly a residential neighborhood therefore the elimination of the heavy truck traffic and replacement of those trips with a mixed use residential and commercial uses is in more alignment with the existing neighborhood and traffic impacts.

The property is proposed to be redeveloped with 123 dwelling units plus 39,090 square feet of commercial space. The attached Exhibit 1 provides a trip generation comparison of the proposed versus the pre-existing uses. The exhibit would indicate that the proposed use will generate an increase of 120 AM peak hour trips (45 in and 75 out) and an increase of 152 trips (100 in and 52 out) as compared to the previous grain silo uses. However, this does not account for trips that would have been generated by the grain silo structures as noted above. It is also important to note that the previous use generated substantial truck traffic which has a greater impact on the roads than regular automobiles that would be generated by the proposed use.

In conclusion, the Traffic Impact Study shows all intersections will continue to operate at good levels of service. Further, as discussed above, the proposed use will result in an increase in trips generated by this property, however, the elimination of large truck traffic at this location will make the neighborhood safer and the proposal is more in line with the character of the neighborhood and nearby trip generating characteristics.

If you have any questions regarding this matter, please do not hesitate to contact me at the number below.

Thanks,
Mike

Lenhart Traffic Consulting, Inc.
645 B&A Blvd, Suite 214
Severna Park, MD 21146

Phone (410) 216-3333
email: mlenhart@lenharttraffic.com

Trip Generation Rates

	Trip Distribution (In/Out)
General Office (ksf, ITE-710)	
Ln(Morning Trips) = 0.86 x Ln(ksf) + 1.16	88/12
Ln(Evening Trips) = 0.83 x Ln(ksf) + 1.29	17/83
Midday Sat. Trips = 0.52 x ksf	54/46
Warehousing (ksf, ITE-150)	
Morning Trips = 0.12 x ksf + 23.62	77/23
Evening Trips = 0.12 x ksf + 26.48	28/72
Midday Sat. Trips = 0.05 x ksf	64/36

Trip Generation Totals

			AM Peak			PM Peak			Sat. Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
Proposed	Primary Trips as Obtained from TIA (123 DU's + 39,090 sq ft commercial)		81	83	164	111	89	200	124	122	246
Pre-existing	Warehousing (ksf, ITE-150) [Grain Storage Facility]	5,888 sq.ft.	18	6	24	7	20	27	No Data		
Pre-existing	General Office (ksf, ITE-710)	8,382 sq.ft.	18	2	20	4	17	21	2		
		Total Pre-Existing:	**36**	**8**	**44**	**11**	**37**	**48**	**No Data**		

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition

Traffic Impact Analysis	Trip Generation for Site	**Exhibit 1**
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TRAFFIC IMPACT ANALYSIS

FOR

THE ARC – EASTON CROSSING

Prepared by:

LENHART TRAFFIC CONSULTING, INC.

TRAFFIC ENGINEERING & TRANSPORTATION PLANNING



December 4, 2024

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Section 1 Introduction

1.1 Project Description

This Traffic Impact Analysis (TIA) has been prepared for the proposed The Arc – Easton Crossing development. The subject site is located in Easton, Maryland, and is proposed to be accessed via multiple driveways that provide access to the various buildings within the development. It should be noted that the Easton Rails-To-Trails shared use path cuts through the middle of the site. A concept plan is provided in Appendix A of the report. **Exhibit 1** shows the location of the site.

The site is proposed to be developed with the following:

- Building 409 – 56 multifamily units and 9,892 sq. ft. of retail space
- Building 411 - 26 multifamily units and 9,599 sq. ft. of retail space
- Building 505 - 26 multifamily units and 9,599 sq. ft. of retail space
- Building 509 - 15 multifamily units
- Building 507 – 10,000 sq. ft. restaurant

This results in a total proposed development of 123 multifamily units, 29,090 square feet of retail space, and the 10,000 square foot restaurant.

1.2 Scope of Study

This TIA has been prepared in accordance with the scoping correspondence submitted to the Town of Easton. The Highway Capacity Manual (HCM) and Critical Lane Volume (CLV) methodologies were utilized to evaluate the study intersections per Town of Easton requirements.



Traffic Impact Analysis	Site Location Map	**Exhibit 1**
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Section 2 Existing Conditions

2.1 Description of Road Network

The key roads in the study area are:

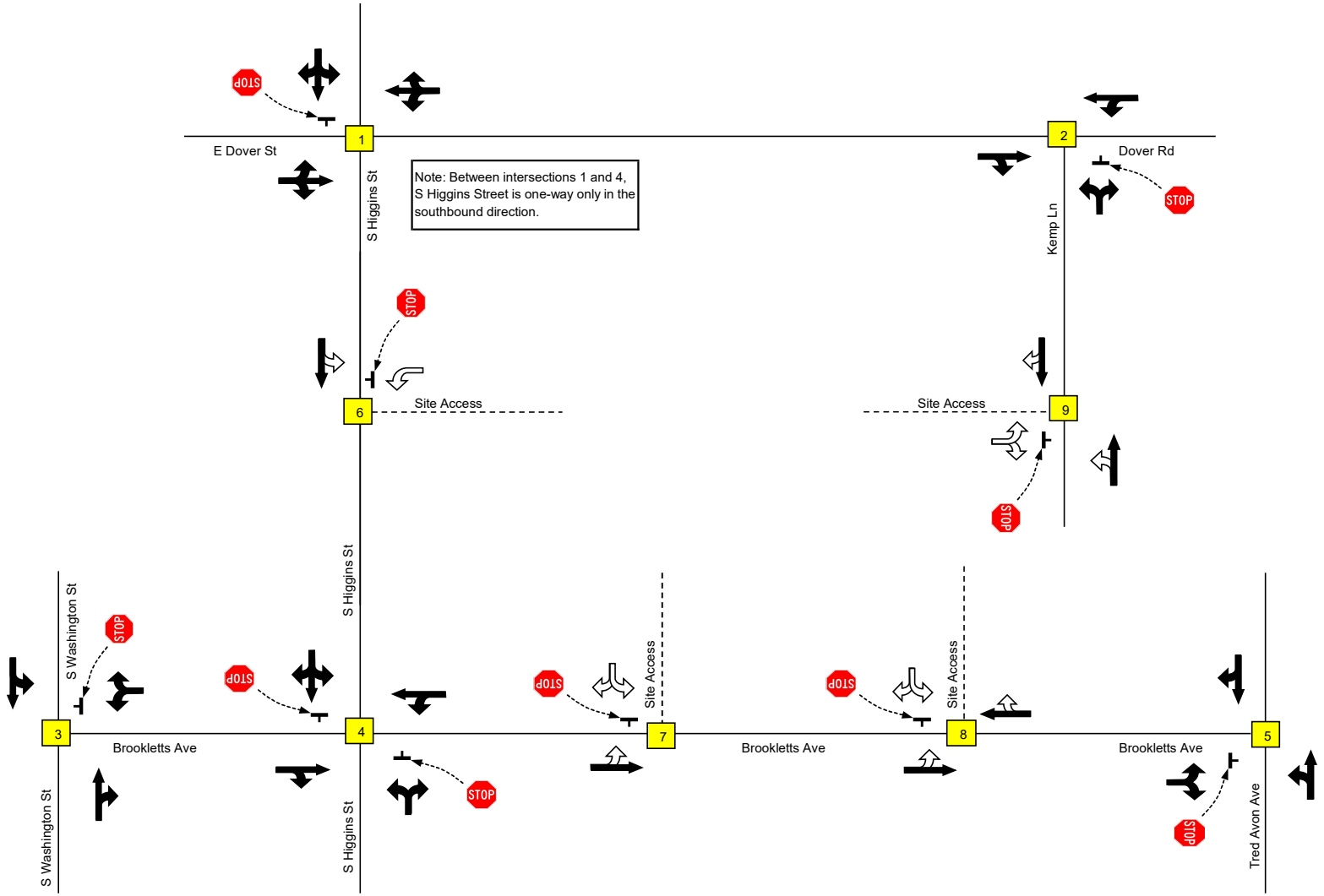
- Dover Road – a two-lane roadway with a posted speed limit of 25 MPH.
- Higgins Street – a two-lane roadway with a posted speed limit of 25 MPH.
- Brookletts Avenue – a two-lane roadway with a posted speed limit of 25 MPH.
- Washington Street – a two-lane roadway with a posted speed limit of 25 MPH.

2.2 Existing Lane Configurations

The Lane Use & Traffic Control Devices are shown on **Exhibit 2**.

2.3 Existing Traffic Counts

Peak hour turning movement counts were conducted and are shown on **Exhibit 3.**



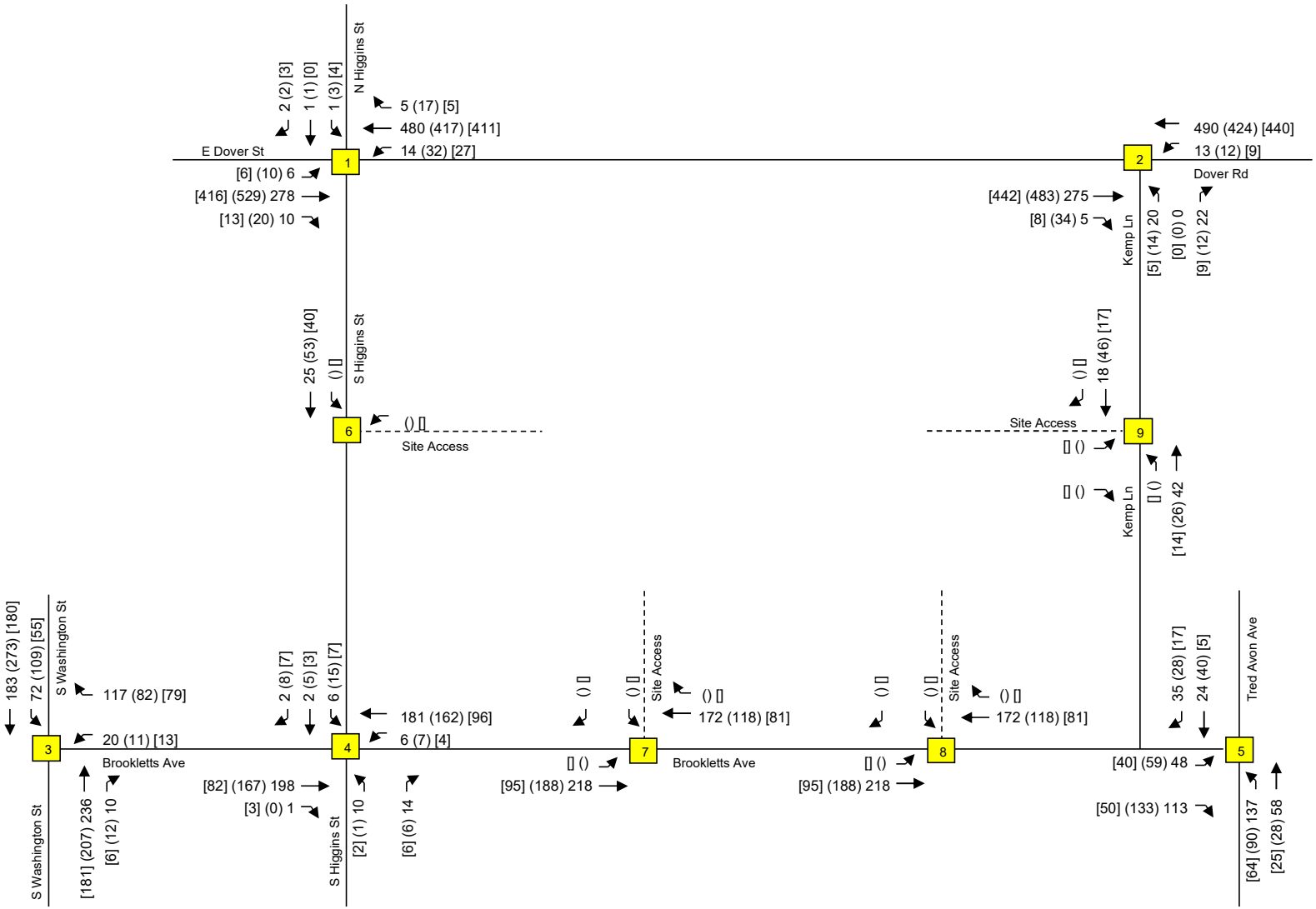
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Lane Use & Traffic Control Devices

- Existing
- Proposed

Exhibit 2



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Existing
Peak Hour Volumes

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit 3

Section 3 Background Conditions

3.1 Annual Growth

A 1.5% growth rate was confirmed for use in the scoping coordination for this report. However, in order to account for any additional traffic at the study intersections due to approved but unbuilt developments, a more conservative 2% growth rate was applied to the study intersections for three years. The resulting base peak hour volumes are shown on **Exhibit 4a.**

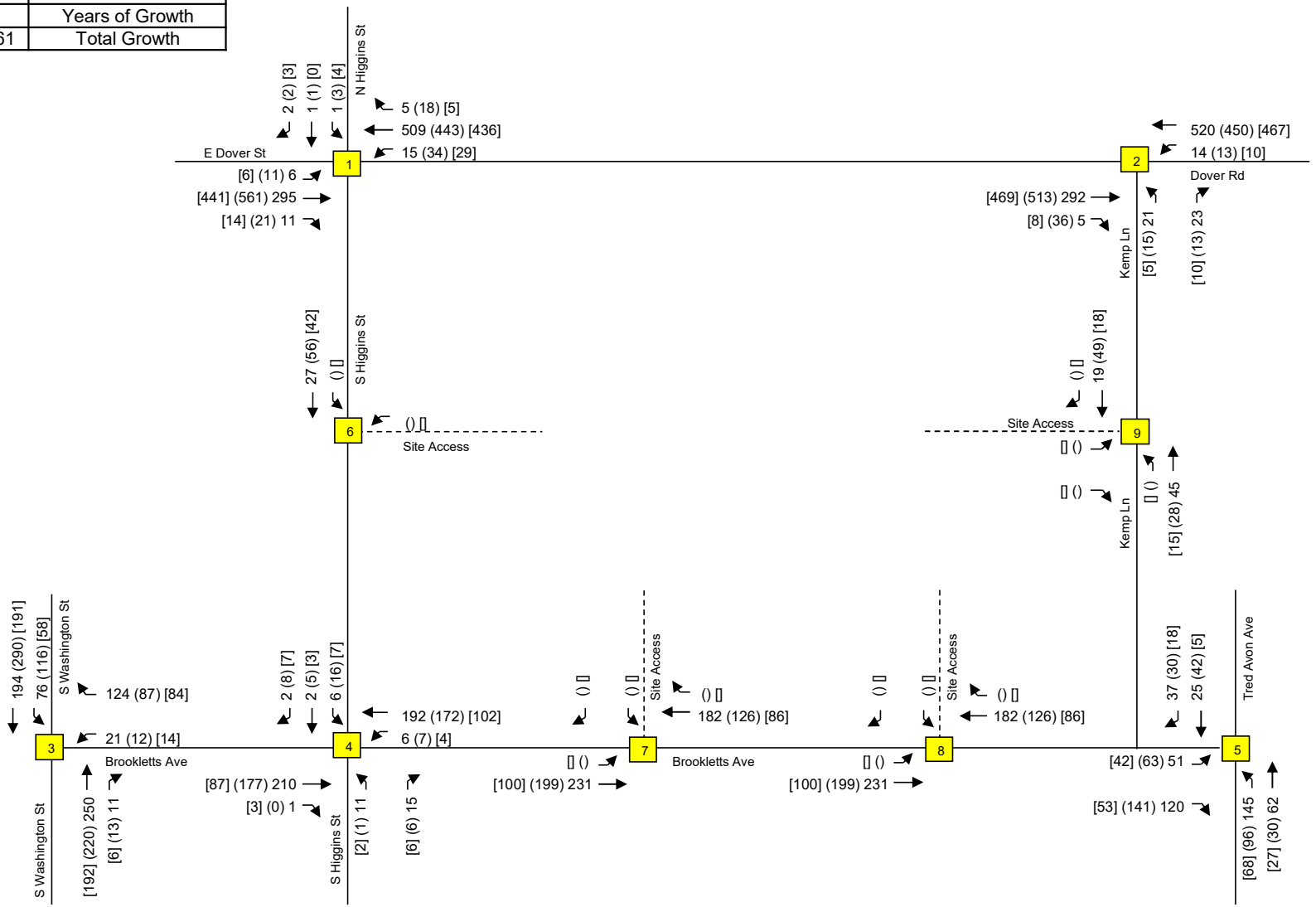
3.2 Background Developments

Background developments were included based on input from the Town of Easton and include Silo Square and 350 N Washington. The trip generation and assignment for the background developments is included in Appendix C.

3.3 Background Peak Hour Volumes

Exhibit 5 shows the background peak hour volumes which combine the base peak hour volumes and the trips associated with the background developments. Results of the LOS analyses for the background peak hour volumes are shown on Exhibits 9 and 10.

2%	Growth Rate
3	Years of Growth
1.061	Total Growth



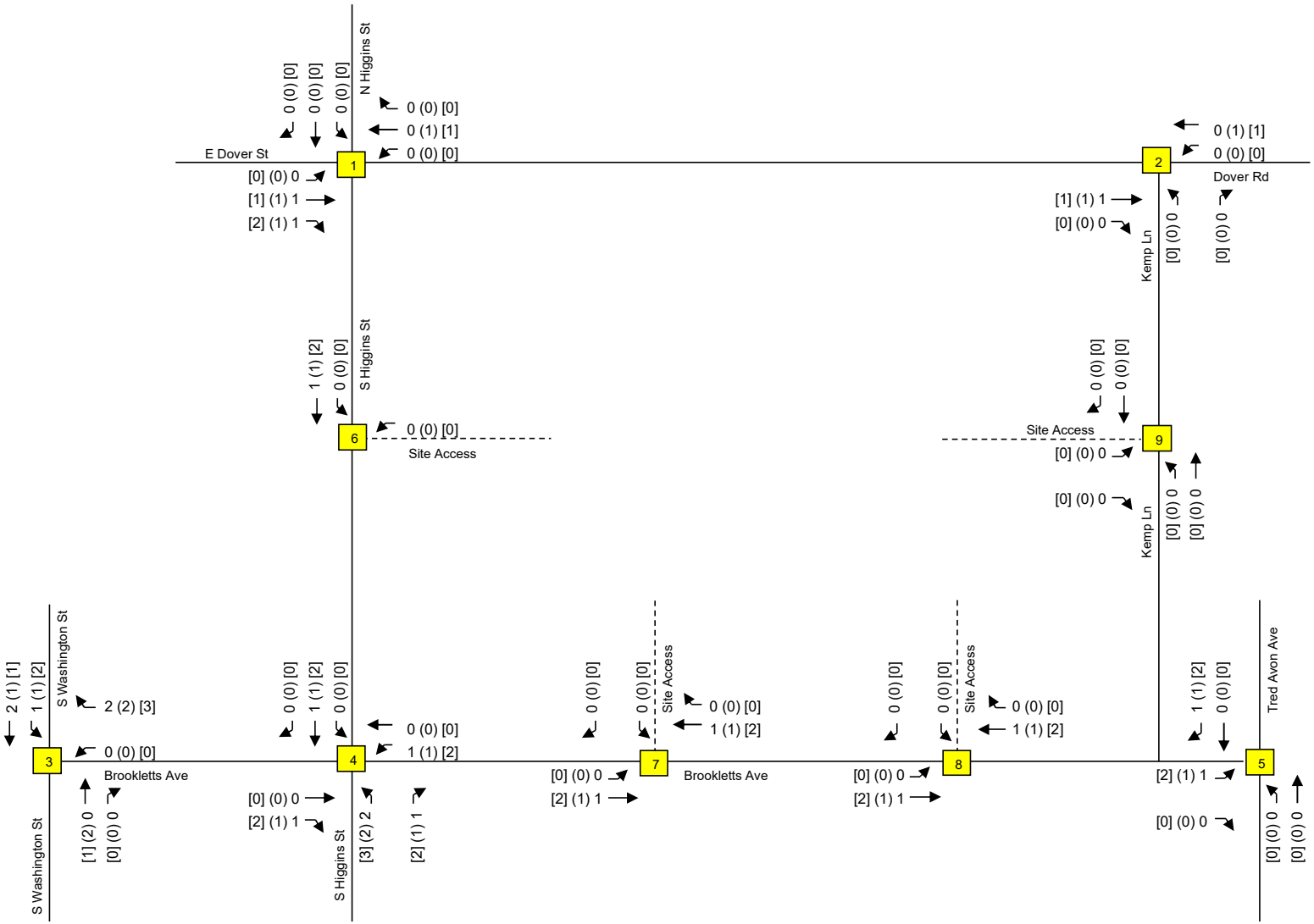
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Base
Peak Hour Volumes

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit 4a



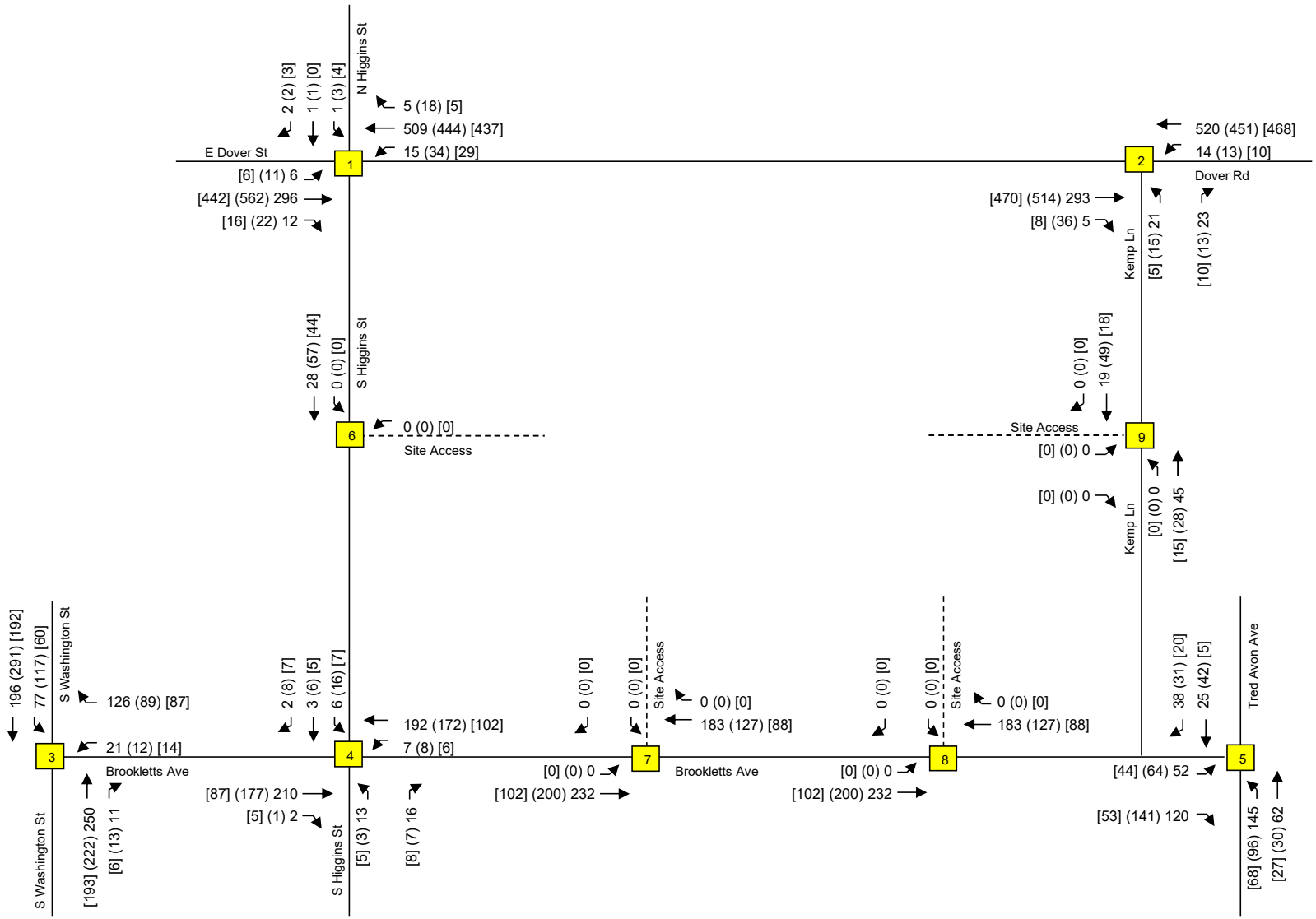
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Combined Trips from Background Developments

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit 4b



Traffic Impact Analysis

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Background Peak Hour Volumes

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit 5

Section 4 Projected Conditions with Site

4.1 Site Trip Generation

The site is proposed to be developed with 123 multifamily apartments and a 3,000 square foot fast casual restaurant. The trip generation for the proposed development is detailed on **Exhibit 6a**. Trip generation rates were obtained from the ITE Trip Generation Manual, 11th Edition.

For reference, **Exhibit 6b** details the layout of the site with the building numbers identified. The site is proposed to be developed with the following:

- Building 409 – 56 multifamily units and 9,892 sq. ft. of retail space
- Building 411 - 26 multifamily units and 9,599 sq. ft. of retail space
- Building 505 - 26 multifamily units and 9,599 sq. ft. of retail space
- Building 509 - 15 multifamily units
- Building 507 – 10,000 sq. ft. restaurant

This results in a total proposed development of 123 multifamily units, 29,090 square feet of retail space, and the 10,000 square foot restaurant.

4.2 Site Trip Distribution & Trip Assignment

The trip distribution and assignment for the various buildings and the pass-by trips associated with the site are shown on **Exhibits 7a – 7d**.

4.3 Total Traffic Volumes

The Total Peak Hour Volumes are shown on **Exhibit 8**.

4.4 Project Level of Service

The total peak hour traffic volumes shown on Exhibit 8 were evaluated using the CLV and HCM methodologies. The results of the CLV analyses are shown on **Exhibit 9** and indicate that all intersections operate at LOS A under total conditions. The results of the HCM analyses are shown on **Exhibit 10** and indicate that each study intersection operates with LOS A, and each stop-controlled approach operates with LOS C or better. The results of the CLV and HCM analyses show that the proposed redevelopment will have negligible impact on the operation of the study intersections.

The trip assignment on Exhibits 7a-7d shows how much vehicular traffic the proposed redevelopment will add on each roadway and intersection in the study area.

The table below shows the total number of vehicles passing through each study intersection during the background (without the proposed development) and total (with the proposed development) conditions, along with the net increase in volume at each intersection due to the redevelopment.

Intersection		Peak Hour		
		AM	PM	Sat
Int 1	Total	875	1136	990
	Background	847	1097	942
	Net	**28**	**39**	**48**
Int 2	Total	943	1119	1063
	Background	876	1042	971
	Net	**67**	**77**	**92**
Int 3	Total	724	794	615
	Background	681	744	552
	Net	**43**	**50**	**63**
Int 4	Total	508	462	311
	Background	451	398	232
	Net	**57**	**64**	**79**
Int 5	Total	468	439	261
	Background	442	404	217
	Net	**26**	**35**	**44**

As shown, the maximum increase in vehicular traffic at any of the study intersections is 92 vehicles, which occurs at Study Intersection 2 during the Saturday peak hour. For context, 92 additional vehicles per hour averages to approximately 1.5 additional vehicle every minute during the peak hour. The majority of the other intersections are anticipated to see an increase of ~ 45-65 vehicles which averages to approximately .75 – 1 additional vehicle every minute during the peak hours.

Based on the results of the level of service analyses shown on Exhibits 9 and 10, and the minimal increases in traffic volume expected with the redevelopment of the site, the proposed redevelopment will have minimal impact on the surrounding roadway and will not degrade the level of service at the study intersections. The traffic from the proposed development is consistent with the design of the local roads and the proposed use is not expected to generate heavy vehicle trips. In comparison, the existing use includes multiple grain storage silos or similar use and

generated heavy trucks that are oversized compared to the design vehicle of the local roadways within the Town of Easton. The widths of the existing roadways combined with the presence of parked vehicles on one or both sides of the roadway resulted in significant difficulty in these heavy vehicles to maneuver.

4.5 Pedestrian Consideration and Rails-to-Trails Connection

Exhibit 11 details the proposed concept plan and details the connections to the Rails-to-Trails from the site. As shown, there are sidewalk improvements along the site frontage and internal to the site that will provide connections to the Trail. These sidewalk improvements will improve connections to the Trail for all users within the proposed site and provide an improved path to the Trail for users from other locations within the Town of Easton.

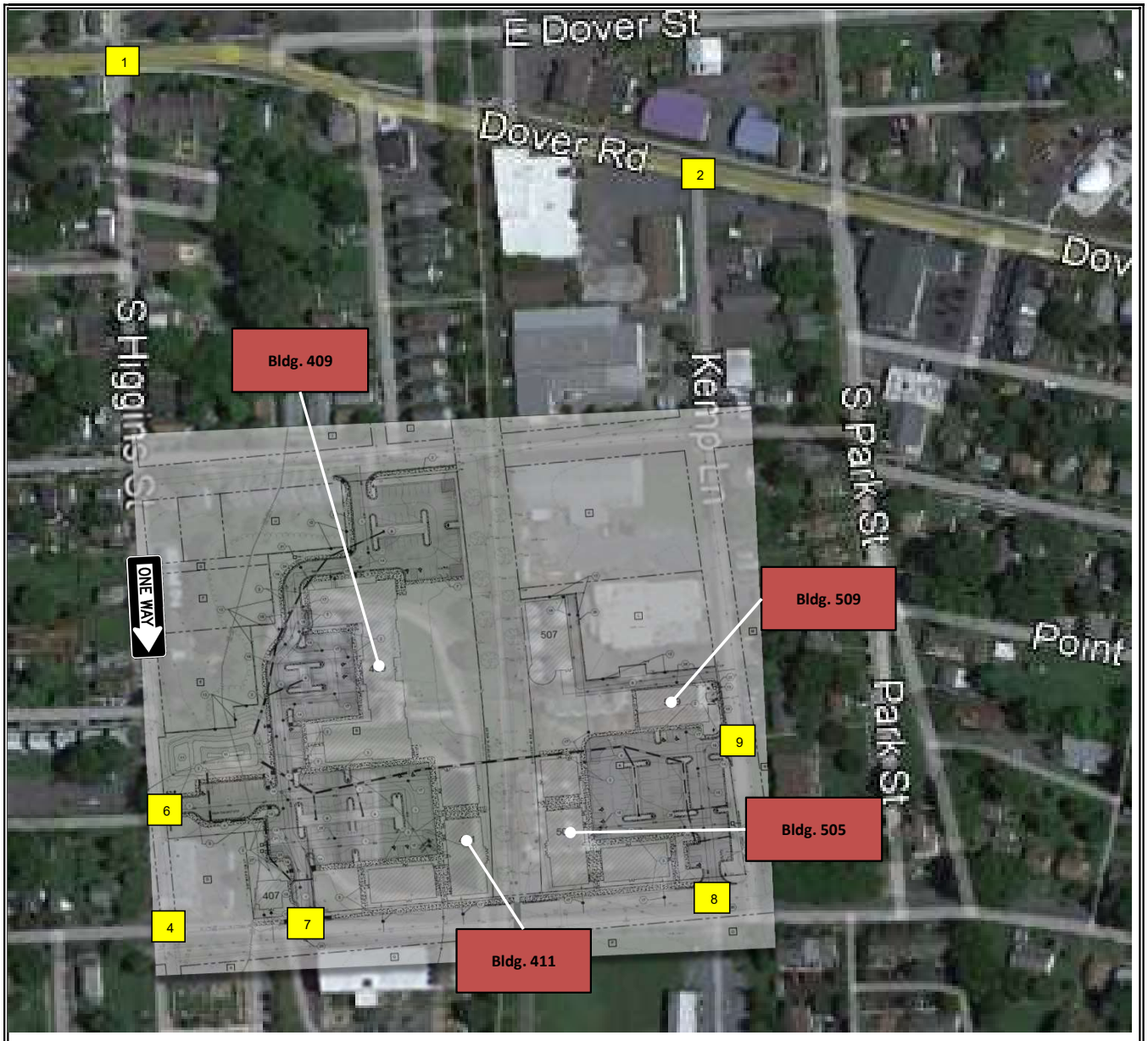
Trip Generation Rates

	Trip Distribution (In/Out)
Multifamily Housing, Mid-Rise (ITE-221, Units) [Not Close to Rail Transit]	
Morning Trips = 0.44 x Units - 11.61	23/77
Evening Trips = 0.39 x Units + 0.34	61/39
Ln(Midday Sat. Trips) = 1.00 x Ln(Units) - 0.91	51/49
Strip Retail Plaza (<40k) (ksf, ITE-822)	
Ln(Morning Trips) = 0.66 x Ln(ksf) + 1.84	60/40
Ln(Evening Trips) = 0.71 x Ln(ksf) + 2.72	50/50
Midday Sat. Trips = 6.57 x ksf	51/49
High Turnover (Sit-Down) Rest. (ksf, ITE-932)	
Morning Trips = 9.57 x ksf	55/45
Evening Trips = 9.05 x ksf	61/39
Midday Sat. Trips = 11.19 x ksf	51/49

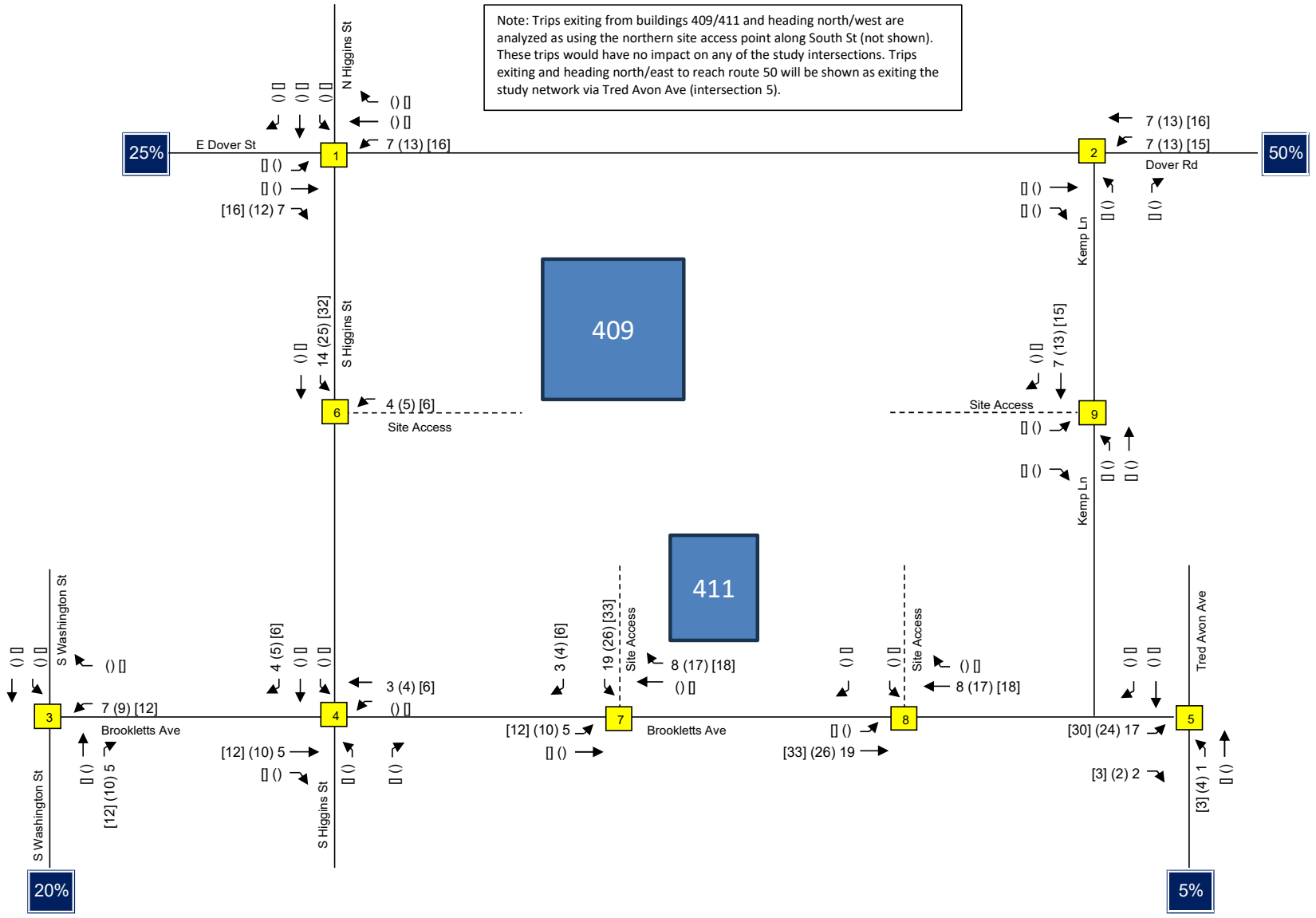
Trip Generation Totals

			AM Peak			PM Peak			Sat. Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
Building 409	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	56 units	6	14	20	13	9	22	12	11	23
	Strip Retail Plaza (<40k) (ksf, ITE-822)	9,892 sq.ft.	12	8	20	28	28	56	33	32	65
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-11	-11	-22	-10	-10	-20
Building 411	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	26 units	2	7	9	6	4	10	5	6	11
	Strip Retail Plaza (<40k) (ksf, ITE-822)	9,599 sq.ft.	11	8	19	27	28	55	32	31	63
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-11	-11	-22	-10	-10	-20
Building 505	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	26 units	2	7	9	6	4	10	5	6	11
	Strip Retail Plaza (<40k) (ksf, ITE-822)	9,599 sq.ft.	11	8	19	28	27	55	32	31	63
	Passby Rates: AM Peak Hour = 20%, PM Peak Hour = 40%, Sat. Mid-Day Peak Hour = 31%		-2	-2	-4	-11	-11	-22	-10	-9	-19
Building 509	Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units) [Not Close to Rail Transit]	15 units	1	4	5	4	2	6	3	2	5
Building 507	High Turnover (Sit-Down) Rest. (ksf, ITE-932)	10,000 sq.ft.	53	43	96	56	35	91	57	55	112
	Passby Rates: AM Peak Hour = 21.5%, PM Peak Hour = 43%, Sat. Mid-Day Peak Hour = 43%		-11	-10	-21	-24	-15	-39	-25	-23	-48
	Total Trips:		**98**	**99**	**197**	**168**	**137**	**305**	**179**	**174**	**353**
	Primary Trips:		**81**	**83**	**164**	**111**	**89**	**200**	**124**	**122**	**246**
	Passby Trips:		**17**	**16**	**33**	**57**	**48**	**105**	**55**	**52**	**107**

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition



Traffic Impact Analysis	Site Layout	**Exhibit 6b**
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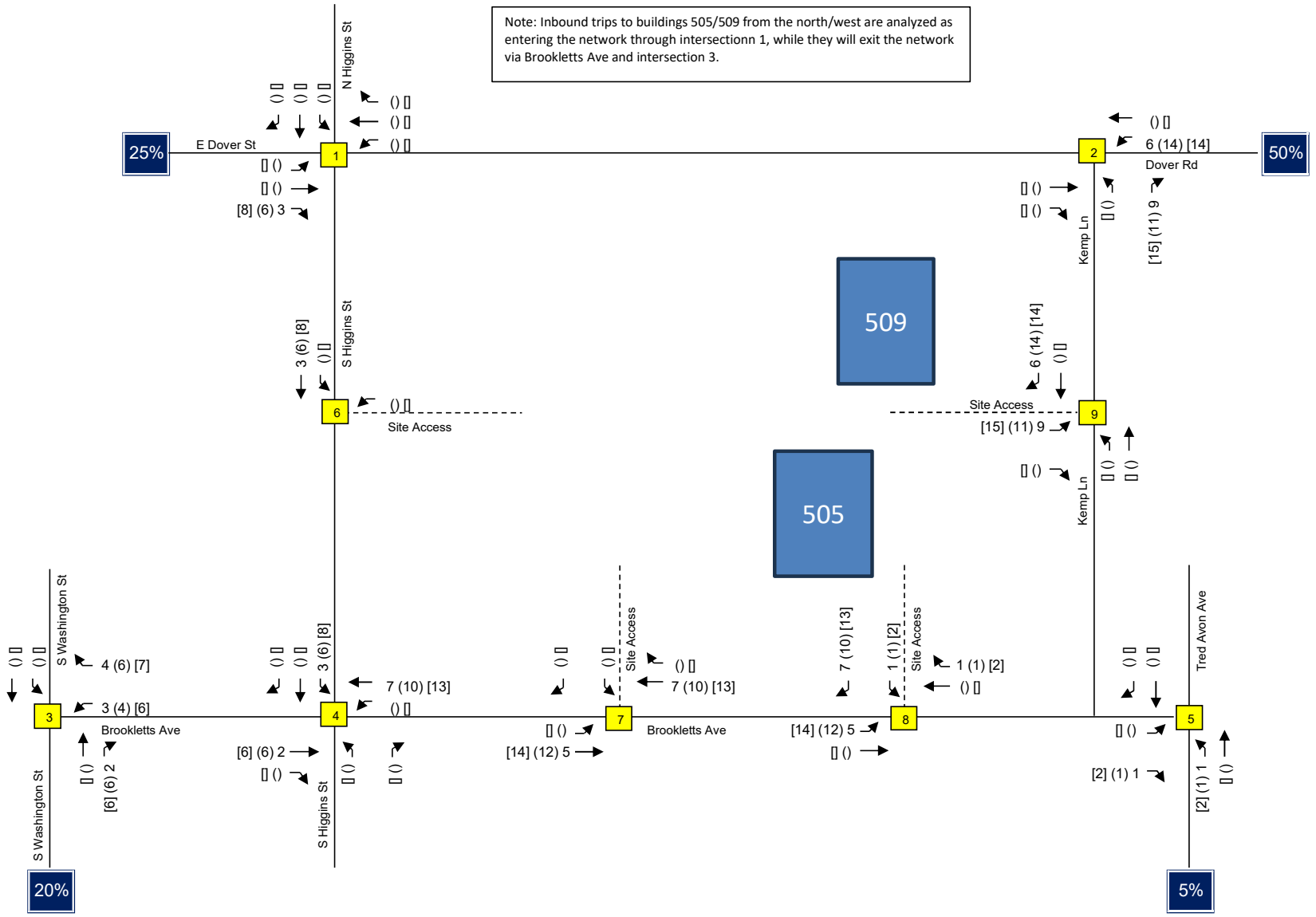
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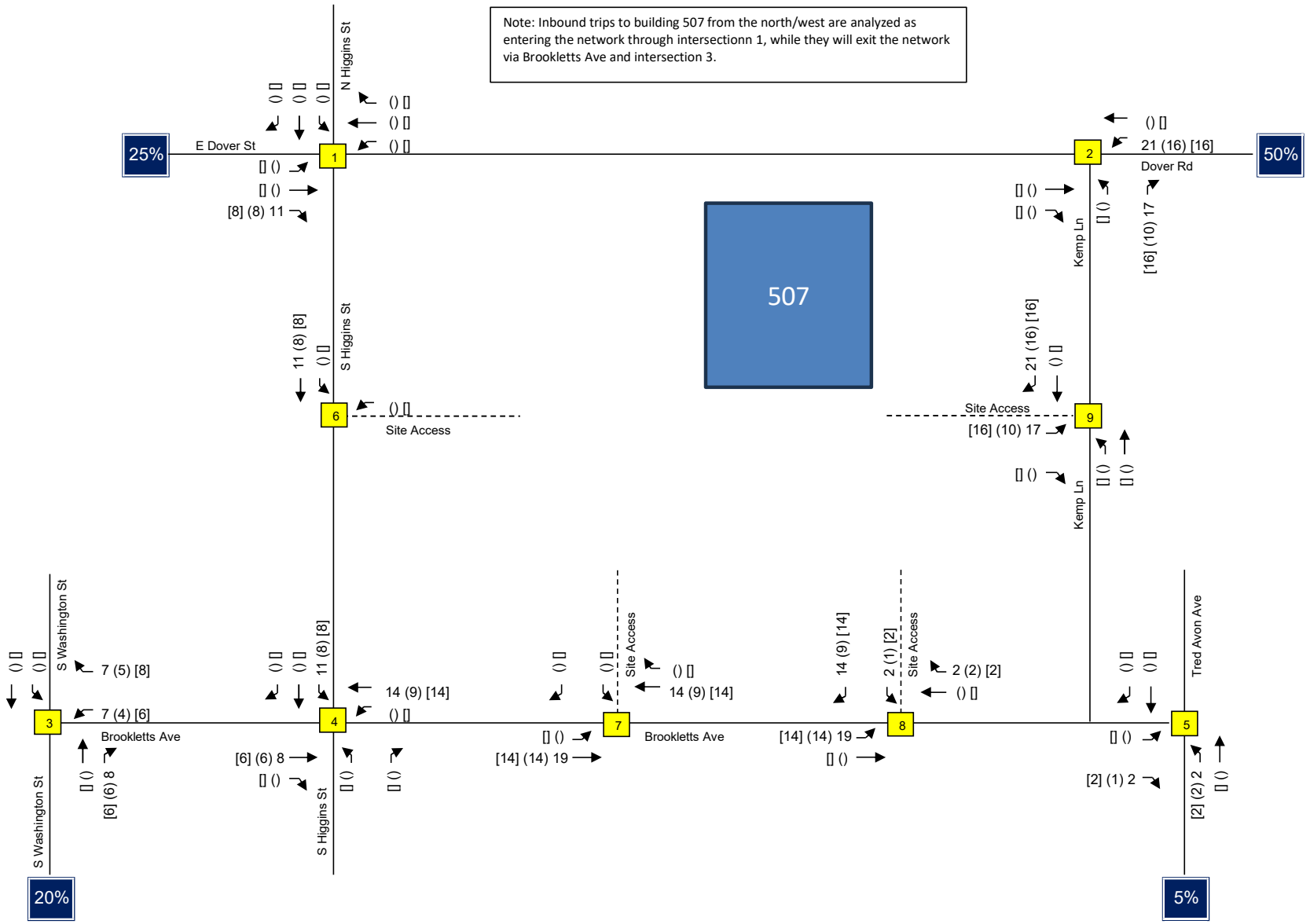
Trip Assignment for Buildings 409 & 411

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit 7a



Traffic Impact Analysis	Trip Assignment for Buildings 505 & 509	**Exhibit 7b**
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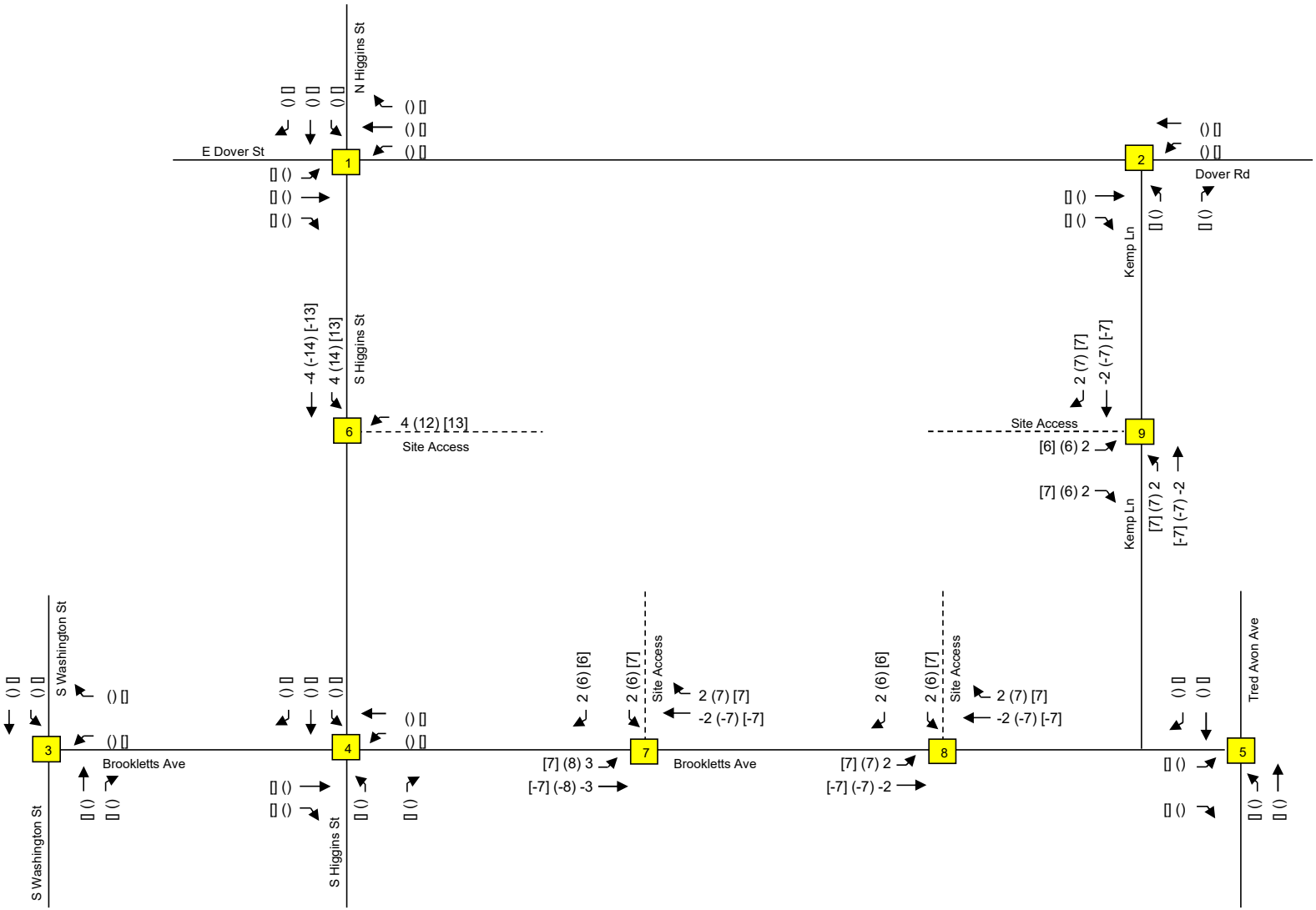
Traffic Impact Analysis

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Trip Assignment for Building 507

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit 7c



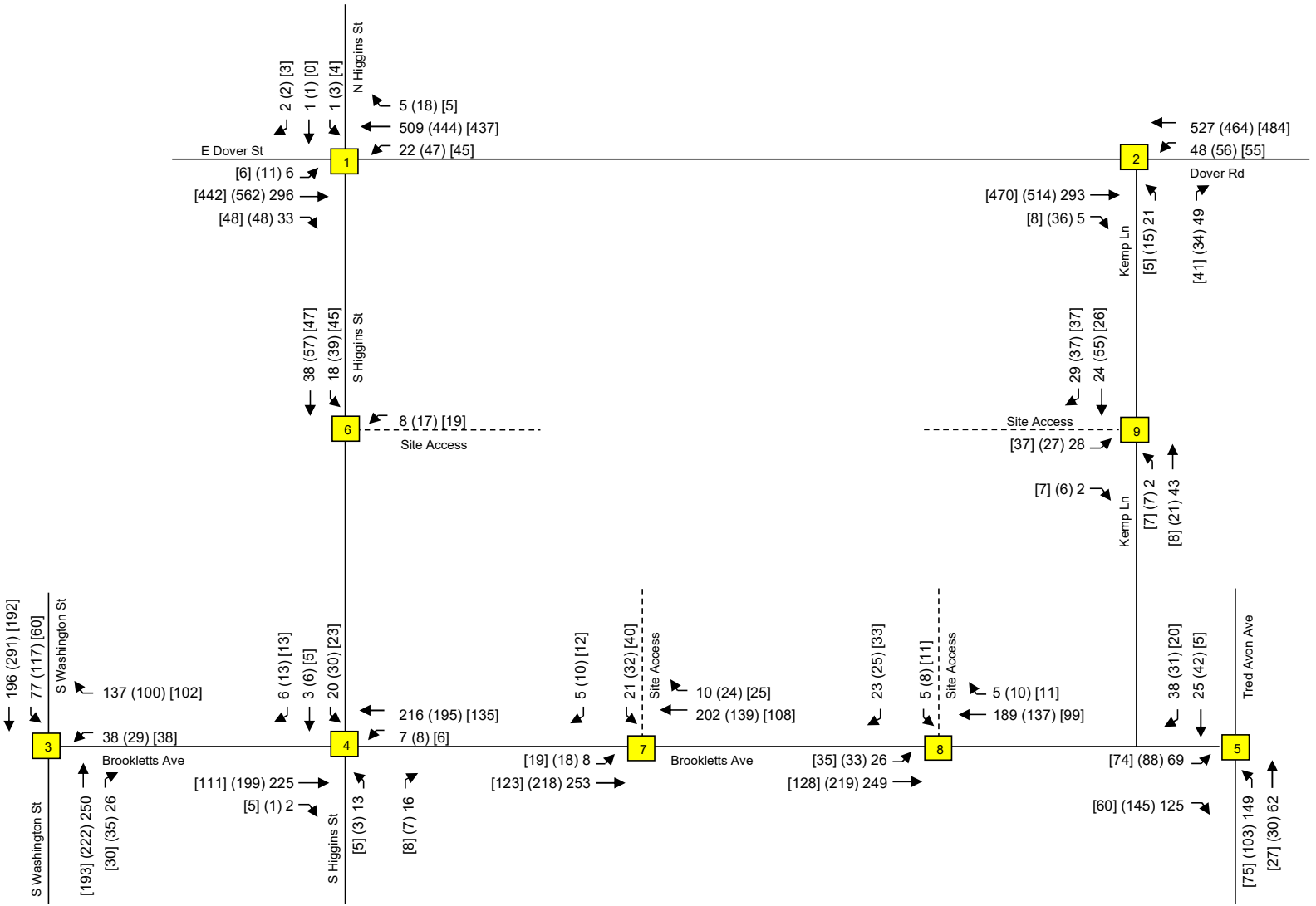
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Trip Assignment for Pass-by Trips

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit 7d



Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Total Peak Hour Volumes Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's	**Exhibit 8**

Critical Lane Volume (CLV) Level-of-Service Results

Morning Peak Hour	Existing CLV	Background CLV	Total CLV	LOS D or better?
1). E Dover Street & S Higgins Street	A / 523	A / 554	A / 568	Y
2). E Dover Street & Kemp Lane	A / 558	A / 592	A / 693	Y
3). S Washington Street & Brookletts Avenue	A / 464	A / 497	A / 528	Y
4). Brookletts Avenue & S Higgins Street	A / 216	A / 231	A / 265	Y
5). Brookletts Avenue & Tred Avon Avenue	A / 370	A / 394	A / 420	Y
6). S Higgins Street & Site Access	n/a	n/a	A / 64	Y
7). Brookletts Avenue & Site Access	n/a	n/a	A / 287	Y
8). Brookletts Avenue & Site Access	n/a	n/a	A / 303	Y
9). Kemp Lane & Site Access	n/a	n/a	A / 85	Y

Evening Peak Hour	Existing CLV	Background CLV	Total CLV	LOS D or better?
1). E Dover Street & S Higgins Street	A / 607	A / 646	A / 685	Y
2). E Dover Street & Kemp Lane	A / 555	A / 591	A / 655	Y
3). S Washington Street & Brookletts Avenue	A / 584	A / 626	A / 654	Y
4). Brookletts Avenue & S Higgins Street	A / 204	A / 218	A / 263	Y
5). Brookletts Avenue & Tred Avon Avenue	A / 350	A / 374	A / 409	Y
6). S Higgins Street & Site Access	n/a	n/a	A / 113	Y
7). Brookletts Avenue & Site Access	n/a	n/a	A / 278	Y
8). Brookletts Avenue & Site Access	n/a	n/a	A / 285	Y
9). Kemp Lane & Site Access	n/a	n/a	A / 132	Y

Midday Saturday Peak Hour	Existing CLV	Background CLV	Total CLV	LOS D or better?
1). E Dover Street & S Higgins Street	A / 483	A / 513	A / 554	Y
2). E Dover Street & Kemp Lane	A / 473	A / 503	A / 640	Y
3). S Washington Street & Brookletts Avenue	A / 334	A / 413	A / 452	Y
4). Brookletts Avenue & S Higgins Street	A / 118	A / 129	A / 185	Y
5). Brookletts Avenue & Tred Avon Avenue	A / 185	A / 199	A / 244	Y
6). S Higgins Street & Site Access	n/a	n/a	A / 111	Y
7). Brookletts Avenue & Site Access	n/a	n/a	A / 204	Y
8). Brookletts Avenue & Site Access	n/a	n/a	A / 207	Y
9). Kemp Lane & Site Access	n/a	n/a	A / 114	Y

Highway Capacity Manual (HCM) Level-of-Service Results

Morning Peak Hour	Existing Delay	Background Delay	Total Delay	LOS D or better?
1). E Dover Street & S Higgins Street	A / 0.4	A / 0.4	A / 0.5	Y
Southbound Approach	B / 15.0	C / 15.7	C / 16.1	Y
2). E Dover Street & Kemp Lane	A / 0.9	A / 0.9	A / 1.7	Y
Northbound Approach	B / 13.8	B / 14.4	B / 14.2	Y
3). S Washington Street & Brookletts Avenue	A / 3.5	A / 3.7	A / 4.2	Y
Westbound Approach	B / 11.6	B / 12.0	B / 13.2	Y
4). Brookletts Avenue & S Higgins Street	A / 1.0	A / 1.1	A / 1.5	Y
Northbound Approach	B / 10.6	B / 10.9	B / 11.3	Y
Southbound Approach	B / 11.6	B / 12.0	B / 12.6	Y
5). Brookletts Avenue & Tred Avon Avenue	A / 6.7	A / 6.9	A / 7.4	Y
Eastbound Approach	B / 10.7	B / 11.0	B / 11.6	Y
6). S Higgins Street & Site Access	n/a	n/a	A / 3.3	Y
Westbound Approach	n/a	n/a	A / 9.0	Y
7). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 0.8	Y
Southbound Approach	n/a	n/a	B / 11.9	Y
8). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 1.1	Y
Southbound Approach	n/a	n/a	A / 10.0	Y
9). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 2.2	Y
Eastbound Approach	n/a	n/a	A / 9.1	Y

Evening Peak Hour	Existing Delay	Background Delay	Total Delay	LOS D or better?
1). E Dover Street & S Higgins Street	A / 0.7	A / 0.8	A / 1	Y
Southbound Approach	C / 21.1	C / 23.0	C / 24.4	Y
2). E Dover Street & Kemp Lane	A / 0.6	A / 0.7	A / 1.5	Y
Northbound Approach	C / 16.6	C / 17.7	C / 17.5	Y
3). S Washington Street & Brookletts Avenue	A / 3.1	A / 3.2	A / 3.7	Y
Westbound Approach	B / 11.1	B / 11.4	B / 13.2	Y
4). Brookletts Avenue & S Higgins Street	A / 1.2	A / 1.3	A / 1.7	Y
Northbound Approach	A / 9.5	A / 10.0	B / 10.3	Y
Southbound Approach	B / 11.0	B / 11.3	B / 12.1	Y
5). Brookletts Avenue & Tred Avon Avenue	A / 7.2	A / 7.3	A / 7.9	Y
Eastbound Approach	B / 10.5	B / 10.7	B / 11.4	Y
6). S Higgins Street & Site Access	n/a	n/a	A / 4.0	Y
Westbound Approach	n/a	n/a	A / 9.5	Y
7). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 1.5	Y
Southbound Approach	n/a	n/a	B / 11.3	Y
8). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 1.5	Y
Southbound Approach	n/a	n/a	A / 9.9	Y
9). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 2.3	Y
Eastbound Approach	n/a	n/a	A / 9.2	Y

Midday Saturday Peak Hour	Existing Delay	Background Delay	Total Delay	LOS D or better?
1). E Dover Street & S Higgins Street	A / 0.6	A / 0.7	A / 0.9	Y
Southbound Approach	C / 17.0	C / 18.2	C / 19.2	Y
2). E Dover Street & Kemp Lane	A / 0.3	A / 0.4	A / 1.4	Y
Northbound Approach	B / 13.8	A / 14.3	B / 13.4	Y
3). S Washington Street & Brookletts Avenue	A / 2.8	A / 2.9	A / 3.6	Y
Westbound Approach	B / 10.4	B / 10.6	B / 11.9	Y
4). Brookletts Avenue & S Higgins Street	A / 1.3	A / 1.5	A / 1.9	Y
Northbound Approach	A / 9.0	A / 9.3	A / 9.6	Y
Southbound Approach	A / 9.6	A / 9.8	B / 10.4	Y
5). Brookletts Avenue & Tred Avon Avenue	A / 6.6	A / 6.6	A / 7.3	Y
Eastbound Approach	A / 9.4	A / 9.5	B / 10.1	Y
6). S Higgins Street & Site Access	n/a	n/a	A / 4.7	Y
Westbound Approach	n/a	n/a	A / 9.5	Y
7). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 2.1	Y
Southbound Approach	n/a	n/a	B / 10.4	Y
8). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 2.2	Y
Southbound Approach	n/a	n/a	A / 9.5	Y
9). Brookletts Avenue & Tred Avon Avenue	n/a	n/a	A / 3.7	Y
Eastbound Approach	n/a	n/a	A / 9.0	Y



Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Pedestrian Considerations and Rails-to-Trails Connection

Exhibit 11

Section 5 Conclusions / Recommendations

5.1 Results of Analyses

This Traffic Impact Analysis (TIA) has been prepared for the proposed The Arc – Easton Crossing development. The subject site is located in Easton, Maryland, and is proposed to be accessed via multiple driveways that provide access to the various buildings within the development. It should be noted that the Easton Rails-To-Trails shared use path cuts through the middle of the site. A concept plan is provided in Appendix A of the report. **Exhibit 1** shows the location of the site.

The site is proposed to be developed with the following:

- Building 409 – 56 multifamily units and 9,892 sq. ft. of retail space
- Building 411 - 26 multifamily units and 9,599 sq. ft. of retail space
- Building 505 - 26 multifamily units and 9,599 sq. ft. of retail space
- Building 509 - 15 multifamily units
- Building 507 – 10,000 sq. ft. restaurant

This results in a total proposed development of 123 multifamily units, 29,090 square feet of retail space, and the 10,000 square foot restaurant.

Based on the analyses contained in this report:

- All study intersections operate at LOS A under existing, background, and total conditions using the CLV methodology.
- All study intersections operate at LOS A and each stop-controlled approach operates with LOS C or better under existing, background, and total conditions using the HCM methodology.
- As demonstrated, the proposed redevelopment does not degrade the level of service at the study intersections, and therefore meets the Town of Easton requirements.
- The proposed redevelopment will not significantly increase traffic volume on any road segment or intersection within the study area and will reduce the number of heavy vehicles on the local roadways compared to the existing use on the site.
- The proposed development will improve access to the Easton Rails-to-Trails path which will benefit both the residents of the proposed site as well as users from the Town of Easton.

In light of the findings contained in this report, the proposed redevelopment meets the adequacy requirements of the Town of Easton and has minimal impact on the surrounding road network. It is recommended that the proposed development is approved.

Appendix A

Supplemental Information
Turning Movement Counts

From: mlenhart
To: Rick VanEmburgh
Cc: Virginia Richardson; Paul Rogers; Casey Rauch; Brian Fitzgerald; mlenhart; Nick Driban
Subject: The Arc - Easton Crossing - Traffic Impact Study scoping confirmation
Date: Tuesday, October 22, 2024 11:00:14 AM
Attachments: image001.png
image002.png

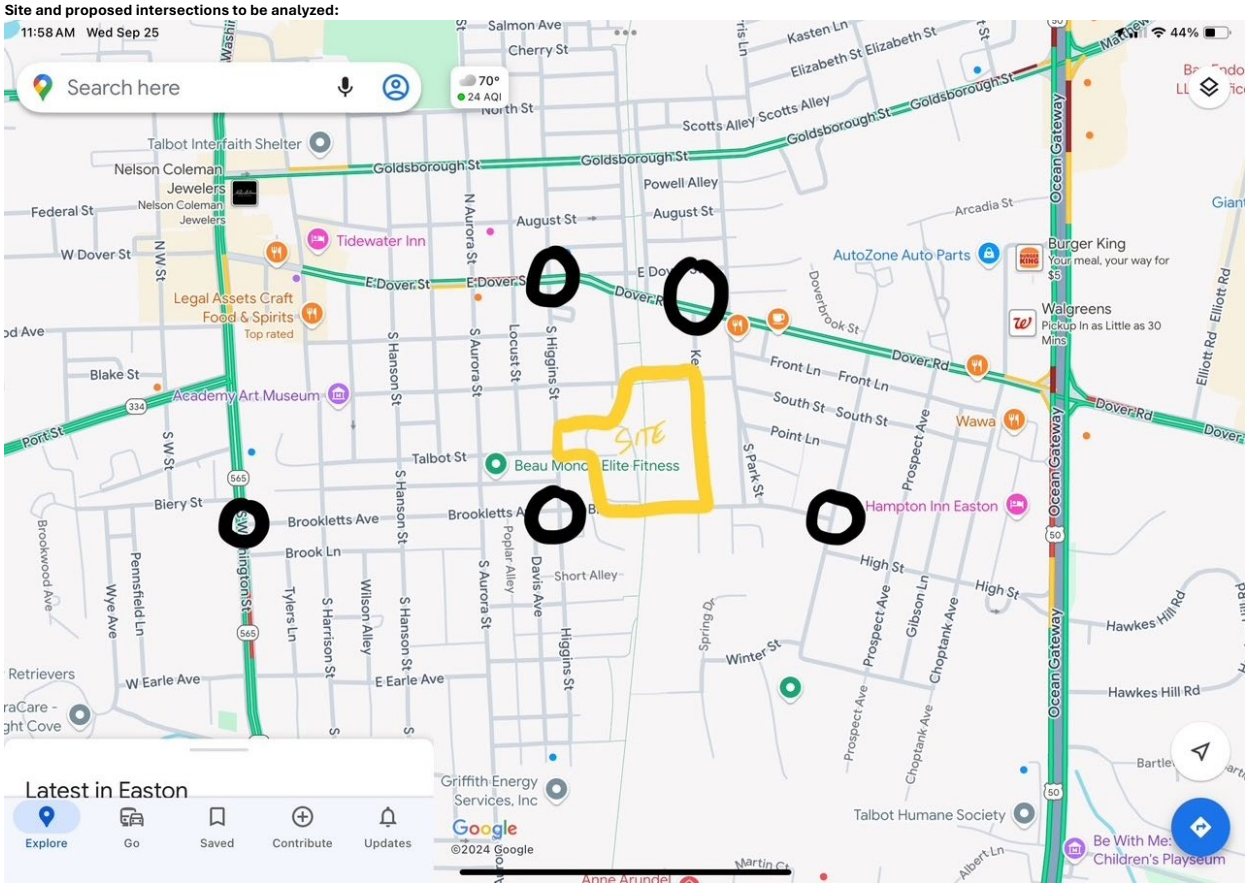
Hi Rick,

We are under contract to prepare the Traffic Impact Study for this project and are providing this email as the confirmation of the scope of work.

1. Anticipated traffic flows for mixed use (general commercial & 130 rental residential apartment) during the school year.
    a. Bldg 407 - 2400sf leasing office
    b. Bldg 5 Restaurant
    c. Currently we show 206 off street parking
2. The former use was industrial poultry grain silos. We will include traffic comparisons of the prior use compared to the proposed use.
3. Identify any traffic safety concerns and recommendations
4. Identify pedestrians along South & Brookletts Streets to Rails To Trails form this project and surrounding neighbors
5. Separate (addendum) to the main report would be to identify actual parking usage throughout the area to include day, business hours and weekend
6. Include Silo Square as an approved background development in this report

We will conduct traffic counts during a normal school day and on a Saturday.

Site and proposed intersections to be analyzed:



Thanks,
Mike

Mike Lenhart, P.E., PTOE
President

Office: (410) 216-3333 (Ext. 1)
Mobile: (410) 980-2367

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BOULEVARD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

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PROPERTY DATA

A	EASTON CROSSING LLC M/G/P: 0104/00EA/1823 - B/P: 03117/00288	E	MARVEL PROPERTIES L L C M/G/P: 0104/000EA/1831 - B/P: 00782/00168	I	BEVERLY LEWIS M/G/P: 0104/0000/1622 - B/P: 00890/00787	M	MICHAEL J SPARACINO M/G/P: 0104/000EA/1814 - B/P: 00780/00334	Q	SHAW KENNETH L, SHAW BARBARA H M/G/P: 0105/000EA/2205 - B/P: 02656/00470
B	EASTON CROSSING LLC M/G/P: 0104/00ea/1826 - B/P: 03117/00288	F	MARVEL PROPERTIES L L C M/G/P: 0104/000EA/1830 - B/P: 00782/00168	J	MICHAEL STUART, MEGHAN STUART M/G/P: 0104/0000/1618 - B/P: 02899/00298	N	BROOKLETT COMMONS HOMEOWNERS ASSOCIATION INC M/G/P: 0104/0000/1812 - B/P: 00829/00629	R	TALBOT COUNTY MARYLAND M/G/P: 0105/000EA/2204 - B/P: 00613/00105
C	EASTON CROSSING LLC M/G/P: 0104/00EA/1833 - B/P: 03114/00180	G	ROW M/G/P: -/-/- - B/P: -/-	K	HELEN M PRITCHETT M/G/P: 0104/00EA/1821 - B/P: 02609/00464	O	411 NEEDWOOD LLC M/G/P: 0105/00EA/1824 - B/P: 03091/00291		
D	401 BROOKLETTS LLC M/G/P: 0104/00EA/1834 - B/P: 02325/00109	H	G M RENTALS L L C M/G/P: 0104/000EA/1827 - B/P: 00786/00443	L	125 KEMP LLC M/G/P: 0104/000EA/1822 - B/P: 02734/00473	P	DONALD D FOSTER INC M/G/P: 0105/00EA/2206 - B/P: 00499/00522		

SOIL DATA

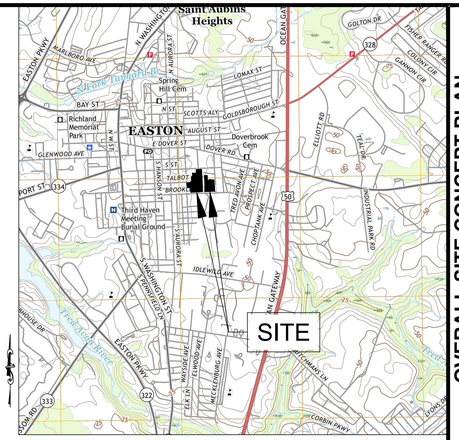
Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	B	0.32	No
UoB	Udorthents, loamy, 0 to 5 percent slopes	C	0.37	No



CONTACT INFORMATION

OWNER/DEVELOPER: EASTON CROSSING, LLC
999 CORPORATE DRIVE,
LINTHICUM, MD 21090
(410) 384-4022

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


Saint Aubins Heights
EASTON
SITE
Spring Hill Cem
Richland Memorial Park
Third Haven Meeting House&Ground
Doverbrook Cem
Peachblossom Creek
Peachblossom Creek
BAY ST
N ST
S ST
E DOVER ST
GLENWOOD AVE
IDLEWILD AVE
EASTON PKWY
N WASHINGTON ST
S WASHINGTON ST
N CAROLINE ST
N WASHINGTON ST
N WASHINGTON ST
N CAROLINE ST
N MAPLE AVE
N ALDER ST
N ALDER ST
N CAMPBELL ST
N CAMPBELL ST
N CAMPBELL

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	S Higgins St Northbound					S Higgins St Southbound					E Dover St Eastbound					E Dover St 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
6:30-6:45	0	0	0	0	0	0	1	0	0	1	0	0	46	2	0	0	2	60	1	0	112
6:45-7:00	0	0	0	0	5	0	0	0	0	1	0	0	50	1	1	0	1	85	0	0	137
7:00-7:15	0	0	0	0	2	0	0	0	0	2	0	0	36	1	0	0	1	71	0	2	109
7:15-7:30	0	0	0	0	2	0	0	0	0	0	0	0	63	2	1	0	3	88	2	0	158
7:30-7:45	0	0	0	0	4	0	1	1	1	1	0	0	61	1	0	0	5	113	0	0	183
7:45-8:00	0	0	0	0	0	0	0	0	0	1	0	4	72	1	3	0	3	147	3	0	230
8:00-8:15	0	0	0	0	3	0	0	0	1	9	0	0	68	1	2	0	1	102	2	0	175
8:15-8:30	0	0	0	0	7	0	1	1	1	0	0	0	70	3	0	0	6	104	0	0	186
8:30-8:45	0	0	0	0	2	0	0	0	0	2	0	2	68	5	0	0	4	127	0	0	206
8:45-9:00	0	0	0	0	3	0	0	0	1	1	0	1	84	0	1	0	2	101	0	1	189
9:00-9:15	0	0	0	0	3	0	0	1	0	4	0	0	69	0	0	0	4	81	0	0	155
9:15-9:30	0	0	0	0	4	0	0	1	1	1	0	0	80	1	1	0	8	87	1	0	179
Hourly Totals																					
6:30-7:30	0	0	0	0	9	0	1	0	0	4	0	0	195	6	2	0	7	304	3	2	533
6:45-7:45	0	0	0	0	13	0	1	1	1	4	0	0	210	5	2	0	10	357	2	2	608
7:00-8:00	0	0	0	0	8	0	1	1	1	4	0	4	232	5	4	0	12	419	5	2	698
7:15-8:15	0	0	0	0	9	0	1	1	2	11	0	4	264	5	6	0	12	450	7	0	772
7:30-8:30	0	0	0	0	14	0	2	2	3	11	0	4	271	6	5	0	15	466	5	0	804
7:45-8:45	0	0	0	0	12	0	1	1	2	12	0	6	278	10	5	0	14	480	5	0	826
8:00-9:00	0	0	0	0	15	0	1	1	3	12	0	3	290	9	3	0	13	434	2	1	787
8:15-9:15	0	0	0	0	15	0	1	2	2	7	0	3	291	8	1	0	16	413	0	1	760
8:30-9:30	0	0	0	0	12	0	0	2	2	8	0	3	301	6	2	0	18	396	1	1	752
AM	**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**
7:45-8:45	**0**	**0**	**0**	**0**	**12**	**0**	**1**	**1**	**2**	**12**	**0**	**6**	**278**	**10**	**5**	**0**	**14**	**480**	**5**	**0**	**826**

Weekday Evening Peak Hour (4 pm - 7 pm)

	S Higgins St Northbound					S Higgins St Southbound					E Dover St Eastbound					E Dover St 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	0	0	0	1	0	0	0	1	1	0	3	143	6	0	0	13	104	4	0	274
4:15-4:30	0	0	0	0	0	0	0	0	0	3	0	4	115	1	2	0	6	94	4	2	224
4:30-4:45	0	0	0	0	1	0	1	0	0	4	0	2	143	5	3	0	6	103	4	0	264
4:45-5:00	0	0	0	0	12	0	2	1	1	1	0	1	128	8	2	0	7	116	5	0	269
5:00-5:15	0	0	0	0	3	0	1	2	3	3	0	0	114	5	2	0	8	105	1	0	239
5:15-5:30	0	0	0	0	1	0	0	1	1	2	0	2	115	5	1	0	10	94	2	0	230
5:30-5:45	0	0	0	0	1	0	1	1	2	0	0	0	91	2	0	0	9	83	0	0	189
5:45-6:00	0	0	0	0	4	0	0	0	3	0	0	2	107	6	2	0	9	83	6	1	216
6:00-6:15	0	0	0	0	4	0	0	1	0	6	0	2	98	3	1	0	9	68	0	0	181
6:15-6:30	0	0	0	0	4	0	0	1	0	3	0	2	110	7	0	0	7	79	2	1	208
6:30-6:45	0	0	0	0	3	0	0	0	2	4	0	1	89	3	2	0	13	80	4	0	192
6:45-7:00	0	0	0	0	8	0	0	0	0	4	0	2	108	7	1	0	5	76	3	3	201
Hourly Totals																					
4:00-5:00	0	0	0	0	14	0	3	1	2	9	0	10	529	20	7	0	32	417	17	2	1063
4:15-5:15	0	0	0	0	16	0	4	3	4	11	0	7	500	19	9	0	27	418	14	2	1034
4:30-5:30	0	0	0	0	17	0	4	4	5	10	0	5	500	23	8	0	31	418	12	0	1037
4:45-5:45	0	0	0	0	17	0	4	5	7	6	0	3	448	20	5	0	34	398	8	0	955
5:00-6:00	0	0	0	0	9	0	2	4	9	5	0	4	427	18	5	0	36	365	9	1	894
5:15-6:15	0	0	0	0	10	0	1	3	6	8	0	6	411	16	4	0	37	328	8	1	839
5:30-6:30	0	0	0	0	13	0	1	3	5	9	0	6	406	18	3	0	34	313	8	2	821
5:45-6:45	0	0	0	0	15	0	0	2	5	13	0	7	404	19	5	0	38	310	12	2	832
6:00-7:00	0	0	0	0	19	0	0	2	2	17	0	7	405	20	4	0	34	303	9	4	826
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**
4:00-5:00	**0**	**0**	**0**	**0**	**14**	**0**	**3**	**1**	**2**	**9**	**0**	**10**	**529**	**20**	**7**	**0**	**32**	**417**	**17**	**2**	**1063**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: S Higgins St & E Dover St
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Friday, October 25, 2024
Jurisdiction: Talbot County

Weekend Peak Hour (10:00 am - 2:00 pm)

	S Higgins St Northbound					S Higgins St Southbound					E Dover St Eastbound					E Dover St 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	0	0	0	5	0	0	0	1	9	0	0	81	2	1	0	6	99	3	0	192
10:15-10:30	0	0	0	0	7	0	1	0	0	6	0	1	89	1	0	0	7	81	2	0	182
10:30-10:45	0	0	0	0	9	0	0	1	0	1	0	1	98	5	0	0	8	87	1	0	201
10:45-11:00	0	0	0	0	2	0	1	0	0	4	0	0	103	6	1	0	5	99	3	0	217
11:00-11:15	0	0	0	0	10	0	0	0	0	1	0	3	118	3	1	0	3	96	2	0	225
11:15-11:30	0	0	0	0	3	0	0	0	0	2	0	0	103	2	3	0	3	100	1	0	209
11:30-11:45	0	0	0	0	3	0	1	0	0	5	0	5	100	2	3	0	5	119	1	0	233
11:45-12:00	0	0	0	0	3	0	2	0	1	5	0	1	105	2	1	0	8	102	1	0	222
12:00-12:15	0	0	0	0	17	0	1	0	1	5	0	0	103	1	0	0	6	93	2	0	207
12:15-12:30	0	0	0	0	7	0	0	0	1	9	0	0	108	8	1	0	8	97	1	0	223
12:30-12:45	0	0	0	0	6	0	0	1	0	6	0	0	86	1	1	0	3	105	5	0	201
12:45-1:00	0	0	0	0	1	0	0	0	2	0	0	1	89	3	1	0	4	85	2	0	186
1:00-1:15	0	0	0	0	6	0	1	0	0	8	0	0	99	1	4	0	5	91	1	0	198
1:15-1:30	0	0	0	0	6	0	0	2	2	6	0	1	106	3	1	0	5	102	5	0	226
1:30-1:45	0	0	0	0	7	0	0	0	1	10	0	0	86	4	6	0	7	80	2	2	180
1:45-2:00	0	0	0	0	4	0	0	0	0	3	0	1	81	1	3	0	10	82	7	0	182

Hourly Totals																					
10:00-11:00	0	0	0	0	23	0	2	1	1	20	0	2	371	14	2	0	26	366	9	0	837
10:15-11:15	0	0	0	0	28	0	2	1	0	12	0	5	408	15	2	0	23	363	8	0	867
10:30-11:30	0	0	0	0	24	0	1	1	0	8	0	4	422	16	5	0	19	382	7	0	889
10:45-11:45	0	0	0	0	18	0	2	0	0	12	0	8	424	13	8	0	16	414	7	0	922
11:00-12:00	0	0	0	0	19	0	3	0	1	13	0	9	426	9	8	0	19	417	5	0	929
11:15-12:15	0	0	0	0	26	0	4	0	2	17	0	6	411	7	7	0	22	414	5	0	921
11:30-12:30	0	0	0	0	30	0	4	0	3	24	0	6	416	13	5	0	27	411	5	0	944
11:45-12:45	0	0	0	0	33	0	3	1	3	25	0	1	402	12	3	0	25	397	9	0	914
12:00-1:00	0	0	0	0	31	0	1	1	4	20	0	1	386	13	3	0	21	380	10	0	871
12:15-1:15	0	0	0	0	20	0	1	1	3	23	0	1	382	13	7	0	20	378	9	0	858
12:30-1:30	0	0	0	0	19	0	1	3	4	20	0	2	380	8	7	0	17	383	13	0	857
12:45-1:45	0	0	0	0	20	0	1	2	5	24	0	2	380	11	12	0	21	358	10	2	848
1:00-2:00	0	0	0	0	23	0	1	2	3	27	0	2	372	9	14	0	27	355	15	2	852

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**
11:30-12:30	**0**	**0**	**0**	**0**	**30**	**0**	**4**	**0**	**3**	**24**	**0**	**6**	**416**	**13**	**5**	**0**	**27**	**411**	**5**	**0**	**944**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: S Higgins St & E Dover St
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Saturday, October 26, 2024
County: Talbot County

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	Kemp Ln Northbound					N/A Southbound					E Dover St Eastbound					E Dover St 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
6:30-6:45	0	3	0	1	0	0	0	0	0	0	0	0	49	0	0	0	10	62	0	0	125
6:45-7:00	0	2	0	3	1	0	0	0	0	0	0	0	52	2	0	0	14	86	0	0	159
7:00-7:15	0	0	0	3	3	0	0	0	0	0	0	0	41	2	0	0	8	72	0	1	126
7:15-7:30	0	8	0	8	3	0	0	0	0	0	0	0	63	1	0	0	3	85	0	0	168
7:30-7:45	0	3	0	4	1	0	0	0	0	0	0	0	67	1	0	0	2	100	0	0	177
7:45-8:00	0	7	0	7	0	0	0	0	0	0	0	0	69	3	0	0	3	153	0	0	242
8:00-8:15	0	5	0	8	7	0	0	0	0	0	0	0	64	1	0	0	1	105	0	0	184
8:15-8:30	0	6	0	4	0	0	0	0	0	0	0	0	81	0	0	0	6	106	0	0	203
8:30-8:45	0	2	0	3	0	0	0	0	0	0	0	0	61	1	0	0	3	126	0	0	196
8:45-9:00	0	3	0	4	2	0	0	0	0	0	0	0	80	3	0	0	1	94	0	0	185
9:00-9:15	0	5	0	7	10	0	0	0	0	0	0	0	64	3	0	0	2	86	0	0	167
9:15-9:30	0	1	0	2	2	0	0	0	0	0	0	0	81	1	0	0	3	92	0	0	180
Hourly Totals																					
6:30-7:30	0	13	0	15	7	0	0	0	0	0	0	0	205	5	0	0	35	305	0	1	586
6:45-7:45	0	13	0	18	8	0	0	0	0	0	0	0	223	6	0	0	27	343	0	1	639
7:00-8:00	0	18	0	22	7	0	0	0	0	0	0	0	240	7	0	0	16	410	0	1	721
7:15-8:15	0	23	0	27	11	0	0	0	0	0	0	0	263	6	0	0	9	443	0	0	782
7:30-8:30	0	21	0	23	8	0	0	0	0	0	0	0	281	5	0	0	12	464	0	0	814
7:45-8:45	0	20	0	22	7	0	0	0	0	0	0	0	275	5	0	0	13	490	0	0	832
8:00-9:00	0	16	0	19	9	0	0	0	0	0	0	0	286	5	0	0	11	431	0	0	777
8:15-9:15	0	16	0	18	12	0	0	0	0	0	0	0	286	7	0	0	12	412	0	0	763
8:30-9:30	0	11	0	16	14	0	0	0	0	0	0	0	286	8	0	0	9	398	0	0	742
AM Peak Hour	**Northbound**					**Southbound**					**Eastbound**					**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**	**Total**
7:45-8:45	**0**	**20**	**0**	**22**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**275**	**5**	**0**	**0**	**13**	**490**	**0**	**0**	**832**

Weekday Evening Peak Hour (4 pm - 7 pm)

	Kemp Ln Northbound					N/A Southbound					E Dover St Eastbound					E Dover St 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	0	5	1	0	0	0	0	0	0	0	140	10	0	0	4	119	0	0	280
4:15-4:30	0	6	0	3	1	0	0	0	0	0	0	0	107	8	0	0	3	97	0	0	224
4:30-4:45	0	4	0	2	3	0	0	0	0	0	0	0	130	7	0	0	3	100	0	0	246
4:45-5:00	0	2	0	2	0	0	0	0	0	0	0	0	106	9	0	0	2	108	0	0	229
5:00-5:15	0	0	0	4	3	0	0	0	0	0	0	0	110	3	0	0	1	104	0	1	222
5:15-5:30	0	1	0	1	0	0	0	0	0	0	0	0	107	2	0	0	1	103	0	0	215
5:30-5:45	0	3	0	2	4	0	0	0	0	0	0	0	97	1	0	0	3	86	0	0	192
5:45-6:00	0	2	0	3	0	0	0	0	0	0	0	0	104	2	0	0	1	80	0	0	192
6:00-6:15	0	0	0	4	2	0	0	0	0	0	0	0	96	4	0	0	1	79	0	0	184
6:15-6:30	0	3	0	4	3	0	0	0	0	0	0	0	114	3	0	0	0	80	0	0	204
6:30-6:45	0	6	0	0	1	0	0	0	0	0	0	0	89	2	0	0	0	88	0	0	185
6:45-7:00	0	4	0	1	3	0	0	0	0	0	0	0	99	1	0	0	3	84	0	0	192
Hourly Totals																					
4:00-5:00	0	14	0	12	5	0	0	0	0	0	0	0	483	34	0	0	12	424	0	0	984
4:15-5:15	0	12	0	11	7	0	0	0	0	0	0	0	453	27	0	0	9	409	0	1	929
4:30-5:30	0	7	0	9	6	0	0	0	0	0	0	0	453	21	0	0	7	415	0	1	919
4:45-5:45	0	6	0	9	7	0	0	0	0	0	0	0	420	15	0	0	7	401	0	1	866
5:00-6:00	0	6	0	10	7	0	0	0	0	0	0	0	418	8	0	0	6	373	0	1	829
5:15-6:15	0	6	0	10	6	0	0	0	0	0	0	0	404	9	0	0	6	348	0	0	789
5:30-6:30	0	8	0	13	9	0	0	0	0	0	0	0	411	10	0	0	5	325	0	0	781
5:45-6:45	0	11	0	11	6	0	0	0	0	0	0	0	403	11	0	0	2	327	0	0	771
6:00-7:00	0	13	0	9	9	0	0	0	0	0	0	0	398	10	0	0	4	331	0	0	774
PM Peak Hour	**Northbound**					**Southbound**					**Eastbound**					**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**	**Total**
4:00-5:00	**0**	**14**	**0**	**12**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**483**	**34**	**0**	**0**	**12**	**424**	**0**	**0**	**984**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: Kemp Ln & E Dover St
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Friday, October 25, 2024
Jurisdiction: Talbot County

Weekend Peak Hour (10:00 am - 2:00 pm)

	Kemp Ln Northbound					N/A Southbound					E Dover St Eastbound					E Dover St 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	4	0	1	3	0	0	0	0	0	0	0	78	3	0	0	2	99	0	0	187
10:15-10:30	0	1	0	1	4	0	0	0	0	0	0	0	85	2	0	0	0	105	0	0	194
10:30-10:45	0	2	0	4	18	0	0	0	0	0	0	0	96	3	0	0	1	98	0	0	204
10:45-11:00	0	4	0	1	2	0	0	0	0	0	0	0	109	1	0	0	4	95	0	0	214
11:00-11:15	0	1	0	1	0	0	0	0	0	0	0	0	125	3	0	0	1	101	0	0	232
11:15-11:30	0	0	0	4	3	0	0	0	0	0	0	0	116	3	0	0	4	103	0	0	230
11:30-11:45	0	3	0	2	2	0	0	0	0	0	0	0	91	1	0	0	0	125	0	0	222
11:45-12:00	0	1	0	2	3	0	0	0	0	0	0	0	110	1	0	0	4	111	0	3	229
12:00-12:15	0	2	0	3	3	0	0	0	0	0	0	0	99	4	0	0	3	96	0	0	207
12:15-12:30	0	2	0	5	8	0	0	0	0	0	0	0	107	3	0	0	3	119	0	0	239
12:30-12:45	0	1	0	4	2	0	0	0	0	0	0	0	90	1	0	0	2	104	0	0	202
12:45-1:00	0	1	0	4	0	0	0	0	0	0	0	0	95	4	0	0	1	100	0	0	205
1:00-1:15	0	4	0	3	6	0	0	0	0	0	0	0	101	2	0	0	1	90	0	0	201
1:15-1:30	0	2	0	0	8	0	0	0	0	0	0	0	103	2	0	0	1	114	0	0	222
1:30-1:45	0	5	0	3	2	0	0	0	0	0	0	0	97	1	0	0	1	77	0	0	184
1:45-2:00	0	2	0	1	0	0	0	0	0	0	0	0	76	1	0	0	0	95	0	0	175

Hourly Totals																					
10:00-11:00	0	11	0	7	27	0	0	0	0	0	0	0	368	9	0	0	7	397	0	0	826
10:15-11:15	0	8	0	7	24	0	0	0	0	0	0	0	415	9	0	0	6	399	0	0	868
10:30-11:30	0	7	0	10	23	0	0	0	0	0	0	0	446	10	0	0	10	397	0	0	903
10:45-11:45	0	8	0	8	7	0	0	0	0	0	0	0	441	8	0	0	9	424	0	0	905
11:00-12:00	0	5	0	9	8	0	0	0	0	0	0	0	442	8	0	0	9	440	0	3	924
11:15-12:15	0	6	0	11	11	0	0	0	0	0	0	0	416	9	0	0	11	435	0	3	902
11:30-12:30	0	8	0	12	16	0	0	0	0	0	0	0	407	9	0	0	10	451	0	3	916
11:45-12:45	0	6	0	14	16	0	0	0	0	0	0	0	406	9	0	0	12	430	0	3	896
12:00-1:00	0	6	0	16	13	0	0	0	0	0	0	0	391	12	0	0	9	419	0	0	866
12:15-1:15	0	8	0	16	16	0	0	0	0	0	0	0	393	10	0	0	7	413	0	0	863
12:30-1:30	0	8	0	11	16	0	0	0	0	0	0	0	389	9	0	0	5	408	0	0	846
12:45-1:45	0	12	0	10	16	0	0	0	0	0	0	0	396	9	0	0	4	381	0	0	828
1:00-2:00	0	13	0	7	16	0	0	0	0	0	0	0	377	6	0	0	3	376	0	0	798

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**
11:00-12:00	**0**	**5**	**0**	**9**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**442**	**8**	**0**	**0**	**9**	**440**	**0**	**3**	**924**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: Kemp Ln & E Dover St
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Saturday, October 26, 2024
County: Talbot County

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	S Washington St Northbound					S Washington St Southbound					N/A Eastbound					Brookletts Ave 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
6:30-6:45	0	0	28	1	0	0	3	20	0	0	0	0	0	0	0	0	2	0	15	0	69
6:45-7:00	0	0	33	2	0	0	10	30	0	0	0	0	0	0	0	0	5	0	33	2	113
7:00-7:15	0	0	28	5	0	0	9	28	0	0	0	0	0	0	0	0	2	0	19	1	91
7:15-7:30	0	0	36	1	0	0	12	36	0	0	0	0	0	0	0	0	6	0	23	0	114
7:30-7:45	0	0	42	3	1	0	24	48	0	0	0	0	0	0	0	0	3	0	25	1	145
7:45-8:00	0	0	73	1	0	0	22	49	0	0	0	0	0	0	0	0	3	0	35	0	183
8:00-8:15	0	0	60	3	0	0	20	41	0	0	0	0	0	0	0	0	4	0	37	0	165
8:15-8:30	0	0	41	5	0	0	17	34	0	0	0	0	0	0	0	0	5	0	22	0	124
8:30-8:45	0	0	62	1	0	0	13	59	0	1	0	0	0	0	0	0	8	0	23	0	166
8:45-9:00	0	0	55	0	0	0	16	65	0	0	0	0	0	0	0	0	3	0	21	3	160
9:00-9:15	0	0	57	2	0	0	8	34	0	0	0	0	0	0	0	0	1	0	15	2	117
9:15-9:30	0	0	55	2	0	0	6	42	0	0	0	0	0	0	0	0	5	0	6	0	116
Hourly Totals																					
6:30-7:30	0	0	125	9	0	0	34	114	0	0	0	0	0	0	0	0	15	0	90	3	390
6:45-7:45	0	0	139	11	1	0	55	142	0	0	0	0	0	0	0	0	16	0	100	4	468
7:00-8:00	0	0	179	10	1	0	67	161	0	0	0	0	0	0	0	0	14	0	102	2	536
7:15-8:15	0	0	211	8	1	0	78	174	0	0	0	0	0	0	0	0	16	0	120	1	609
7:30-8:30	0	0	216	12	1	0	83	172	0	0	0	0	0	0	0	0	15	0	119	1	619
7:45-8:45	0	0	236	10	0	0	72	183	0	1	0	0	0	0	0	0	20	0	117	0	639
8:00-9:00	0	0	218	9	0	0	66	199	0	1	0	0	0	0	0	0	20	0	103	3	619
8:15-9:15	0	0	215	8	0	0	54	192	0	1	0	0	0	0	0	0	17	0	81	5	573
8:30-9:30	0	0	229	5	0	0	43	200	0	1	0	0	0	0	0	0	17	0	65	5	565
AM Peak Hour	**Northbound**					**Southbound**					**Eastbound**					**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**	**Total**
7:45-8:45	**0**	**0**	**236**	**10**	**0**	**0**	**72**	**183**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**117**	**0**	**639**

Weekday Evening Peak Hour (4 pm - 7 pm)

	S Washington St Northbound					S Washington St Southbound					N/A Eastbound					Brookletts Ave 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	0	52	3	1	0	33	78	0	0	0	0	0	0	0	0	0	0	15	1	181
4:15-4:30	0	0	45	2	0	0	25	69	0	0	0	0	0	0	0	0	3	0	19	0	163
4:30-4:45	0	0	53	1	0	1	26	71	0	0	0	0	0	0	0	0	4	0	18	1	174
4:45-5:00	0	0	57	6	0	0	24	55	0	0	0	0	0	0	0	0	4	0	30	1	176
5:00-5:15	0	0	42	2	0	0	25	67	0	0	0	0	0	0	0	0	3	0	26	0	165
5:15-5:30	0	0	47	3	0	0	9	58	0	0	0	0	0	0	0	0	2	0	28	0	147
5:30-5:45	0	0	51	3	0	1	30	57	0	0	0	0	0	0	0	0	0	0	17	0	159
5:45-6:00	0	0	48	1	0	0	19	53	0	0	0	0	0	0	0	0	2	0	17	0	140
6:00-6:15	0	0	44	3	0	0	26	60	0	0	0	0	0	0	0	0	3	0	15	0	151
6:15-6:30	0	0	45	0	0	0	15	42	0	0	0	0	0	0	0	0	5	0	14	2	121
6:30-6:45	0	0	39	2	0	0	13	44	0	0	0	0	0	0	0	0	2	0	27	0	127
6:45-7:00	0	0	40	2	0	0	23	44	0	0	0	0	0	0	0	0	5	0	20	0	134
Hourly Totals																					
4:00-5:00	0	0	207	12	1	1	108	273	0	0	0	0	0	0	0	0	11	0	82	3	698
4:15-5:15	0	0	197	11	0	1	100	262	0	0	0	0	0	0	0	0	14	0	93	2	680
4:30-5:30	0	0	199	12	0	1	84	251	0	0	0	0	0	0	0	0	13	0	102	2	664
4:45-5:45	0	0	197	14	0	1	88	237	0	0	0	0	0	0	0	0	9	0	101	1	648
5:00-6:00	0	0	188	9	0	1	83	235	0	0	0	0	0	0	0	0	7	0	88	0	611
5:15-6:15	0	0	190	10	0	1	84	228	0	0	0	0	0	0	0	0	7	0	77	0	597
5:30-6:30	0	0	188	7	0	1	90	212	0	0	0	0	0	0	0	0	10	0	63	2	573
5:45-6:45	0	0	176	6	0	0	73	199	0	0	0	0	0	0	0	0	12	0	73	2	541
6:00-7:00	0	0	168	7	0	0	77	190	0	0	0	0	0	0	0	0	15	0	76	2	535
PM Peak Hour	**Northbound**					**Southbound**					**Eastbound**					**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**	**Total**
4:00-5:00	**0**	**0**	**207**	**12**	**1**	**1**	**108**	**273**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**82**	**3**	**698**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: S Washington St & Brookletts Ave
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Friday, October 25, 2024
Jurisdiction: Talbot County

Weekend Peak Hour (10:00 am - 2:00 pm)

	S Washington St Northbound					S Washington St Southbound					N/A Eastbound					Brookletts Ave 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	0	51	1	0	0	7	28	0	0	0	0	0	0	0	0	4	0	10	0	101
10:15-10:30	0	0	48	4	0	0	14	47	0	0	0	0	0	0	0	0	3	0	14	0	130
10:30-10:45	0	0	42	1	0	0	26	32	0	0	0	0	0	0	0	0	1	0	16	0	118
10:45-11:00	0	0	56	3	0	0	17	34	0	0	0	0	0	0	0	0	2	0	27	3	139
11:00-11:15	0	0	44	2	0	0	15	37	0	0	0	0	0	0	0	0	2	0	15	0	115
11:15-11:30	0	0	38	0	0	1	15	39	0	0	0	0	0	0	0	0	1	0	21	0	115
11:30-11:45	0	0	43	3	0	0	20	42	0	0	0	0	0	0	0	0	0	0	24	0	132
11:45-12:00	0	0	44	1	0	0	15	40	0	1	0	0	0	0	0	0	2	0	25	1	127
12:00-12:15	0	0	43	3	0	0	17	46	0	0	0	0	0	0	0	0	6	0	18	0	133
12:15-12:30	0	0	49	1	0	0	7	48	0	0	0	0	0	0	0	0	4	0	15	0	124
12:30-12:45	0	0	45	1	0	0	16	46	0	0	0	0	0	0	0	0	1	0	21	5	130
12:45-1:00	0	0	39	5	0	0	11	38	0	0	0	0	0	0	0	0	4	0	18	0	115
1:00-1:15	0	0	28	1	0	0	13	42	0	0	0	0	0	0	0	0	2	0	17	0	103
1:15-1:30	0	0	31	2	0	0	15	37	0	0	0	0	0	0	0	0	3	0	19	1	107
1:30-1:45	0	0	37	6	0	0	13	33	0	0	0	0	0	0	0	0	1	0	19	0	109
1:45-2:00	0	0	30	1	0	0	13	41	0	0	0	0	0	0	0	0	2	0	20	0	107

Hourly Totals																					
10:00-11:00	0	0	197	9	0	0	64	141	0	0	0	0	0	0	0	0	10	0	67	3	491
10:15-11:15	0	0	190	10	0	0	72	150	0	0	0	0	0	0	0	0	8	0	72	3	505
10:30-11:30	0	0	180	6	0	1	73	142	0	0	0	0	0	0	0	0	6	0	79	3	490
10:45-11:45	0	0	181	8	0	1	67	152	0	0	0	0	0	0	0	0	5	0	87	3	504
11:00-12:00	0	0	169	6	0	1	65	158	0	1	0	0	0	0	0	0	5	0	85	1	491
11:15-12:15	0	0	168	7	0	1	67	167	0	1	0	0	0	0	0	0	9	0	88	1	509
11:30-12:30	0	0	179	8	0	0	59	176	0	1	0	0	0	0	0	0	12	0	82	1	518
11:45-12:45	0	0	181	6	0	0	55	180	0	1	0	0	0	0	0	0	13	0	79	6	521
12:00-1:00	0	0	176	10	0	0	51	178	0	0	0	0	0	0	0	0	15	0	72	5	507
12:15-1:15	0	0	161	8	0	0	47	174	0	0	0	0	0	0	0	0	11	0	71	5	477
12:30-1:30	0	0	143	9	0	0	55	163	0	0	0	0	0	0	0	0	10	0	75	6	461
12:45-1:45	0	0	135	14	0	0	52	150	0	0	0	0	0	0	0	0	10	0	73	1	435
1:00-2:00	0	0	126	10	0	0	54	153	0	0	0	0	0	0	0	0	8	0	75	1	427

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**
11:45-12:45	**0**	**0**	**181**	**6**	**0**	**0**	**55**	**180**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**79**	**6**	**521**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: S Washington St & N/A
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Saturday, October 26, 2024
County: Talbot County

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	S Higgins St Northbound					S Higgins St Southbound					Brookletts Ave Eastbound					Brookletts Ave 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
6:30-6:45	0	1	0	0	0	0	2	1	2	0	0	0	9	0	0	0	1	21	0	0	37
6:45-7:00	0	0	0	2	0	0	2	0	1	0	0	0	16	0	0	0	0	38	0	0	59
7:00-7:15	0	0	0	0	2	0	0	2	0	0	0	0	19	0	0	0	1	30	0	0	52
7:15-7:30	0	0	0	4	0	0	4	1	4	0	1	0	20	0	1	0	0	47	0	1	81
7:30-7:45	0	1	0	3	1	0	1	0	1	0	0	0	31	0	0	0	1	48	0	0	86
7:45-8:00	0	4	0	4	1	0	4	2	1	0	0	0	48	0	0	0	0	32	0	0	95
8:00-8:15	0	2	0	3	0	0	0	0	0	0	0	0	54	1	0	0	2	57	0	0	119
8:15-8:30	0	3	0	4	0	0	1	0	0	0	0	0	65	0	5	0	3	44	0	0	120
8:30-8:45	0	1	0	3	1	0	2	0	1	0	0	0	30	0	0	0	0	48	0	0	85
8:45-9:00	0	2	0	4	1	0	2	0	1	0	0	0	21	0	0	0	3	34	0	0	67
9:00-9:15	0	4	0	3	0	0	1	0	1	0	0	0	21	1	0	0	0	28	0	0	59
9:15-9:30	0	2	0	2	0	0	2	0	1	1	0	0	12	0	0	0	0	12	0	0	31
Hourly Totals																					
6:30-7:30	0	1	0	6	2	0	8	4	7	0	1	0	64	0	1	0	2	136	0	1	233
6:45-7:45	0	1	0	9	3	0	7	3	6	0	1	0	86	0	1	0	2	163	0	1	283
7:00-8:00	0	5	0	11	4	0	9	5	6	0	1	0	118	0	1	0	2	157	0	1	320
7:15-8:15	0	7	0	14	2	0	9	3	6	0	1	0	153	1	1	0	3	184	0	1	385
7:30-8:30	0	10	0	14	2	0	6	2	2	0	0	0	198	1	5	0	6	181	0	0	427
7:45-8:45	0	10	0	14	2	0	7	2	2	0	0	0	197	1	5	0	5	181	0	0	426
8:00-9:00	0	8	0	14	2	0	5	0	2	0	0	0	170	1	5	0	8	183	0	0	398
8:15-9:15	0	10	0	14	2	0	6	0	3	0	0	0	137	1	5	0	6	154	0	0	338
8:30-9:30	0	9	0	12	2	0	7	0	4	1	0	0	84	1	0	0	3	122	0	0	245

AM	**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**
7:30-8:30	**0**	**10**	**0**	**14**	**2**	**0**	**6**	**2**	**2**	**0**	**0**	**0**	**198**	**1**	**5**	**0**	**6**	**181**	**0**	**0**	**427**

Weekday Evening Peak Hour (4 pm - 7 pm)

	S Higgins St Northbound					S Higgins St Southbound					Brookletts Ave Eastbound					Brookletts Ave 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	0	0	1	0	0	7	1	3	0	0	0	52	0	0	0	2	48	0	0	114
4:15-4:30	0	0	0	2	1	0	2	1	2	0	0	0	34	0	0	0	0	33	0	0	74
4:30-4:45	0	1	0	3	1	0	1	1	1	1	0	0	40	0	0	0	1	38	0	2	86
4:45-5:00	0	0	0	0	0	0	5	2	2	0	0	0	41	0	0	0	4	43	0	0	97
5:00-5:15	0	0	0	3	0	0	1	1	6	0	0	0	25	0	1	0	2	38	0	2	76
5:15-5:30	0	0	0	0	1	0	2	1	4	0	0	0	17	0	0	0	2	39	0	0	65
5:30-5:45	0	1	0	0	0	0	3	1	5	0	0	0	32	0	1	0	0	26	0	0	68
5:45-6:00	0	0	0	2	9	0	2	0	2	0	0	0	17	0	0	0	2	27	0	0	52
6:00-6:15	0	1	0	1	0	0	2	2	2	0	0	0	34	1	0	0	2	18	0	0	63
6:15-6:30	0	0	0	0	0	0	1	0	4	0	0	0	30	0	0	0	1	32	0	0	68
6:30-6:45	0	0	0	3	0	0	2	1	0	1	0	0	21	0	0	0	0	31	0	0	58
6:45-7:00	0	0	0	0	0	0	3	0	3	0	0	0	22	1	0	0	0	26	0	0	55
Hourly Totals																					
4:00-5:00	0	1	0	6	2	0	15	5	8	1	0	0	167	0	0	0	7	162	0	2	376
4:15-5:15	0	1	0	8	2	0	9	5	11	1	0	0	140	0	1	0	7	152	0	4	341
4:30-5:30	0	1	0	6	2	0	9	5	13	1	0	0	123	0	1	0	9	158	0	4	332
4:45-5:45	0	1	0	3	1	0	11	5	17	0	0	0	115	0	2	0	8	146	0	2	311
5:00-6:00	0	1	0	5	10	0	8	3	17	0	0	0	91	0	2	0	6	130	0	2	275
5:15-6:15	0	2	0	3	10	0	9	4	13	0	0	0	100	1	1	0	6	110	0	0	259
5:30-6:30	0	2	0	3	9	0	8	3	13	0	0	0	113	1	1	0	5	103	0	0	261
5:45-6:45	0	1	0	6	9	0	7	3	8	1	0	0	102	1	0	0	5	108	0	0	251
6:00-7:00	0	1	0	4	0	0	8	3	9	1	0	0	107	2	0	0	3	107	0	0	245

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**
4:00-5:00	**0**	**1**	**0**	**6**	**2**	**0**	**15**	**5**	**8**	**1**	**0**	**0**	**167**	**0**	**0**	**0**	**7**	**162**	**0**	**2**	**376**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: S Higgins St & Brookletts Ave
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Friday, October 25, 2024
Jurisdiction: Talbot County

Weekend Peak Hour (10:00 am - 2:00 pm)

	S Higgins St Northbound					S Higgins St Southbound					Brookletts Ave Eastbound					Brookletts Ave 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	0	0	2	2	0	4	0	3	0	0	0	12	0	0	0	1	20	0	0	42
10:15-10:30	0	0	0	1	1	0	0	0	1	0	0	0	22	0	0	0	1	28	0	0	53
10:30-10:45	0	2	0	2	0	0	2	3	3	0	0	0	19	1	0	0	1	23	0	0	56
10:45-11:00	0	0	0	2	0	0	2	0	2	2	0	0	24	1	0	0	1	24	0	2	56
11:00-11:15	0	0	0	1	1	0	2	0	1	0	0	0	15	1	0	0	1	21	0	0	42
11:15-11:30	0	0	0	1	0	0	1	0	1	1	0	0	24	0	0	0	1	28	0	0	56
11:30-11:45	0	0	0	0	3	0	1	0	0	0	0	0	16	0	0	0	1	18	0	0	36
11:45-12:00	0	0	0	0	0	0	3	1	2	0	0	0	22	0	0	0	0	17	0	0	45
12:00-12:15	0	0	0	1	3	0	0	0	0	0	0	0	12	0	0	0	0	20	0	0	33
12:15-12:30	0	0	0	2	0	0	2	1	4	0	0	0	28	0	0	0	2	24	0	0	63
12:30-12:45	0	0	0	0	1	0	3	0	0	2	0	0	19	0	0	0	0	17	0	1	39
12:45-1:00	0	0	0	0	0	0	0	0	2	0	0	0	18	0	0	0	0	22	0	0	42
1:00-1:15	0	0	0	0	0	0	3	1	2	0	0	0	12	0	0	0	0	25	0	0	43
1:15-1:30	0	0	0	0	0	0	3	1	2	0	0	0	22	0	0	0	0	25	0	0	53
1:30-1:45	0	0	0	1	1	0	2	1	3	0	0	0	14	0	0	0	0	12	0	2	33
1:45-2:00	0	0	0	1	1	0	2	0	1	0	0	0	0	0	0	0	1	17	0	0	22

Hourly Totals																					
10:00-11:00	0	2	0	7	3	0	8	3	9	2	0	0	77	2	0	0	4	95	0	2	214
10:15-11:15	0	2	0	6	2	0	6	3	7	2	0	0	80	3	0	0	4	96	0	2	213
10:30-11:30	0	2	0	6	1	0	7	3	7	3	0	0	82	3	0	0	4	96	0	2	216
10:45-11:45	0	0	0	4	4	0	6	0	4	3	0	0	79	2	0	0	4	91	0	2	199
11:00-12:00	0	0	0	2	4	0	7	1	4	1	0	0	77	1	0	0	3	84	0	0	184
11:15-12:15	0	0	0	2	6	0	5	1	3	1	0	0	74	0	0	0	2	83	0	0	177
11:30-12:30	0	0	0	3	6	0	6	2	6	0	0	0	78	0	0	0	3	79	0	0	183
11:45-12:45	0	0	0	3	4	0	8	2	6	2	0	0	81	0	0	0	2	78	0	1	187
12:00-1:00	0	0	0	3	4	0	5	1	6	2	0	0	77	0	0	0	2	83	0	1	184
12:15-1:15	0	0	0	2	1	0	8	2	8	2	0	0	77	0	0	0	2	88	0	1	191
12:30-1:30	0	0	0	0	1	0	9	2	6	2	0	0	71	0	0	0	0	89	0	1	181
12:45-1:45	0	0	0	1	1	0	8	3	9	0	0	0	66	0	0	0	0	84	0	2	174
1:00-2:00	0	0	0	2	2	0	10	3	8	0	0	0	48	0	0	0	1	79	0	2	155

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**
10:30-11:30	**0**	**2**	**0**	**6**	**1**	**0**	**7**	**3**	**7**	**3**	**0**	**0**	**82**	**3**	**0**	**0**	**4**	**96**	**0**	**2**	**216**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: S Higgins St & Brookletts Ave
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Saturday, October 26, 2024
County: Talbot County

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	Tred Avon Ave Northbound					Tred Avon Ave Southbound					Brookletts Ave Eastbound					N/A 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
6:30-6:45	0	12	3	0	0	0	0	1	8	0	0	4	0	5	0	0	0	0	0	0	33
6:45-7:00	0	20	4	0	0	0	0	0	19	0	0	11	0	9	0	0	0	0	0	0	63
7:00-7:15	0	25	12	0	0	0	0	3	5	0	0	11	0	10	0	0	0	0	0	0	66
7:15-7:30	0	21	5	0	0	0	0	1	7	0	0	10	0	13	0	0	0	0	0	0	57
7:30-7:45	0	20	10	0	0	0	0	1	12	0	0	10	0	16	0	0	0	0	0	0	69
7:45-8:00	0	19	14	0	0	0	0	4	9	0	0	12	0	25	0	0	0	0	0	0	83
8:00-8:15	0	35	15	0	0	0	0	11	13	0	0	11	0	34	0	0	0	0	0	0	119
8:15-8:30	0	45	16	0	0	0	0	6	7	0	0	15	0	40	0	0	0	0	0	0	129
8:30-8:45	0	38	13	0	0	0	0	3	6	0	0	10	0	14	0	0	0	0	0	0	84
8:45-9:00	0	29	7	0	0	0	0	2	11	0	0	6	0	9	0	0	0	0	0	0	64
9:00-9:15	0	16	4	0	0	0	0	2	6	0	1	5	0	6	0	0	0	0	0	0	40
9:15-9:30	0	9	4	0	0	0	0	1	2	0	0	6	0	4	0	0	0	0	0	0	26
Hourly Totals																					
6:30-7:30	0	78	24	0	0	0	0	5	39	0	0	36	0	37	0	0	0	0	0	0	219
6:45-7:45	0	86	31	0	0	0	0	5	43	0	0	42	0	48	0	0	0	0	0	0	255
7:00-8:00	0	85	41	0	0	0	0	9	33	0	0	43	0	64	0	0	0	0	0	0	275
7:15-8:15	0	95	44	0	0	0	0	17	41	0	0	43	0	88	0	0	0	0	0	0	328
7:30-8:30	0	119	55	0	0	0	0	22	41	0	0	48	0	115	0	0	0	0	0	0	400
7:45-8:45	0	137	58	0	0	0	0	24	35	0	0	48	0	113	0	0	0	0	0	0	415
8:00-9:00	0	147	51	0	0	0	0	22	37	0	0	42	0	97	0	0	0	0	0	0	396
8:15-9:15	0	128	40	0	0	0	0	13	30	0	1	36	0	69	0	0	0	0	0	0	317
8:30-9:30	0	92	28	0	0	0	0	8	25	0	1	27	0	33	0	0	0	0	0	0	214

AM	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**
7:45-8:45	**0**	**137**	**58**	**0**	**0**	**0**	**0**	**24**	**35**	**0**	**0**	**48**	**0**	**113**	**0**	**0**	**0**	**0**	**0**	**0**	**415**

Weekday Evening Peak Hour (4 pm - 7 pm)

	Tred Avon Ave Northbound					Tred Avon Ave Southbound					Brookletts Ave Eastbound					N/A 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	27	7	0	0	0	0	9	5	0	0	17	0	38	0	0	0	0	0	0	103
4:15-4:30	0	17	6	0	0	0	0	9	8	0	0	12	0	34	0	0	0	0	0	0	86
4:30-4:45	0	14	8	0	0	0	0	15	11	0	0	11	0	27	0	0	0	0	0	0	86
4:45-5:00	0	32	7	0	0	0	0	7	4	0	0	19	0	34	0	0	0	0	0	0	103
5:00-5:15	0	22	7	0	0	0	0	8	10	0	0	9	0	25	0	0	0	0	0	0	81
5:15-5:30	1	32	2	0	0	0	0	10	2	0	0	5	0	13	1	0	0	0	0	0	65
5:30-5:45	0	9	10	0	0	0	0	6	7	0	0	13	0	19	0	0	0	0	0	0	64
5:45-6:00	0	19	6	0	0	0	0	3	4	0	0	8	0	10	0	0	0	0	0	0	50
6:00-6:15	0	13	4	0	0	0	0	2	5	0	0	8	0	22	0	0	0	0	0	0	54
6:15-6:30	0	17	9	0	0	0	0	4	6	0	0	10	0	19	1	0	0	0	0	0	65
6:30-6:45	0	22	9	0	0	0	0	3	10	0	0	8	0	13	0	0	0	0	0	0	65
6:45-7:00	0	14	7	0	0	0	0	2	9	0	0	2	0	16	0	0	0	0	0	0	50
Hourly Totals																					
4:00-5:00	0	90	28	0	0	0	0	40	28	0	0	59	0	133	0	0	0	0	0	0	378
4:15-5:15	0	85	28	0	0	0	0	39	33	0	0	51	0	120	0	0	0	0	0	0	356
4:30-5:30	1	100	24	0	0	0	0	40	27	0	0	44	0	99	1	0	0	0	0	0	336
4:45-5:45	1	95	26	0	0	0	0	31	23	0	0	46	0	91	1	0	0	0	0	0	314
5:00-6:00	1	82	25	0	0	0	0	27	23	0	0	35	0	67	1	0	0	0	0	0	261
5:15-6:15	1	73	22	0	0	0	0	21	18	0	0	34	0	64	1	0	0	0	0	0	234
5:30-6:30	0	58	29	0	0	0	0	15	22	0	0	39	0	70	1	0	0	0	0	0	234
5:45-6:45	0	71	28	0	0	0	0	12	25	0	0	34	0	64	1	0	0	0	0	0	235
6:00-7:00	0	66	29	0	0	0	0	11	30	0	0	28	0	70	1	0	0	0	0	0	235

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**
4:00-5:00	**0**	**90**	**28**	**0**	**0**	**0**	**0**	**40**	**28**	**0**	**0**	**59**	**0**	**133**	**0**	**0**	**0**	**0**	**0**	**0**	**378**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: Tred Avon Ave & Brookletts Ave
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Friday, October 25, 2024
Jurisdiction: Talbot County

Weekend Peak Hour (10:00 am - 2:00 pm)

	Tred Avon Ave Northbound					Tred Avon Ave Southbound					Brookletts Ave Eastbound					N/A 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	16	9	0	0	0	0	4	3	0	0	9	0	6	0	0	0	0	0	0	47
10:15-10:30	0	16	3	0	0	0	0	0	6	0	0	17	0	8	0	0	0	0	0	0	50
10:30-10:45	0	16	7	0	0	0	0	0	2	0	0	8	0	14	0	0	0	0	0	0	47
10:45-11:00	0	18	9	0	0	0	0	2	6	0	0	7	0	14	0	0	0	0	0	0	56
11:00-11:15	0	14	6	0	0	0	0	3	3	0	0	8	0	14	0	0	0	0	0	0	48
11:15-11:30	0	15	4	0	0	0	0	3	6	0	0	8	0	10	0	0	0	0	0	0	46
11:30-11:45	0	12	8	0	0	0	0	4	3	0	0	9	0	13	0	0	0	0	0	0	49
11:45-12:00	0	6	6	0	0	0	0	1	5	0	0	8	0	8	0	0	0	0	0	0	34
12:00-12:15	0	16	5	0	0	0	0	3	6	0	0	4	0	15	0	0	0	0	0	0	49
12:15-12:30	0	18	9	0	0	0	0	1	3	0	0	6	0	9	0	0	0	0	0	0	46
12:30-12:45	0	8	3	0	0	0	0	0	2	0	0	9	0	11	0	0	0	0	0	0	33
12:45-1:00	0	13	6	0	4	0	0	1	6	0	0	10	0	7	0	0	0	0	0	0	43
1:00-1:15	0	13	2	0	0	0	0	2	6	0	0	5	0	10	0	0	0	0	0	0	38
1:15-1:30	0	17	6	0	0	0	0	4	6	0	0	9	0	5	0	0	0	0	0	0	47
1:30-1:45	0	8	4	0	0	0	0	1	1	0	0	11	0	8	0	0	0	0	0	0	33
1:45-2:00	0	11	7	0	0	0	0	3	7	1	0	5	0	9	1	0	0	0	0	0	42

Hourly Totals																					
10:00-11:00	0	66	28	0	0	0	0	6	17	0	0	41	0	42	0	0	0	0	0	0	200
10:15-11:15	0	64	25	0	0	0	0	5	17	0	0	40	0	50	0	0	0	0	0	0	201
10:30-11:30	0	63	26	0	0	0	0	8	17	0	0	31	0	52	0	0	0	0	0	0	197
10:45-11:45	0	59	27	0	0	0	0	12	18	0	0	32	0	51	0	0	0	0	0	0	199
11:00-12:00	0	47	24	0	0	0	0	11	17	0	0	33	0	45	0	0	0	0	0	0	177
11:15-12:15	0	49	23	0	0	0	0	11	20	0	0	29	0	46	0	0	0	0	0	0	178
11:30-12:30	0	52	28	0	0	0	0	9	17	0	0	27	0	45	0	0	0	0	0	0	178
11:45-12:45	0	48	23	0	0	0	0	5	16	0	0	27	0	43	0	0	0	0	0	0	162
12:00-1:00	0	55	23	0	4	0	0	5	17	0	0	29	0	42	0	0	0	0	0	0	175
12:15-1:15	0	52	20	0	4	0	0	4	17	0	0	30	0	37	0	0	0	0	0	0	164
12:30-1:30	0	51	17	0	4	0	0	7	20	0	0	33	0	33	0	0	0	0	0	0	165
12:45-1:45	0	51	18	0	4	0	0	8	19	0	0	35	0	30	0	0	0	0	0	0	165
1:00-2:00	0	49	19	0	0	0	0	10	20	1	0	30	0	32	1	0	0	0	0	0	162

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**
10:15-11:15	**0**	**64**	**25**	**0**	**0**	**0**	**0**	**5**	**17**	**0**	**0**	**40**	**0**	**50**	**0**	**0**	**0**	**0**	**0**	**0**	**201**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: Tred Avon Ave & Brookletts Ave
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Saturday, October 26, 2024
County: Talbot County

Appendix B

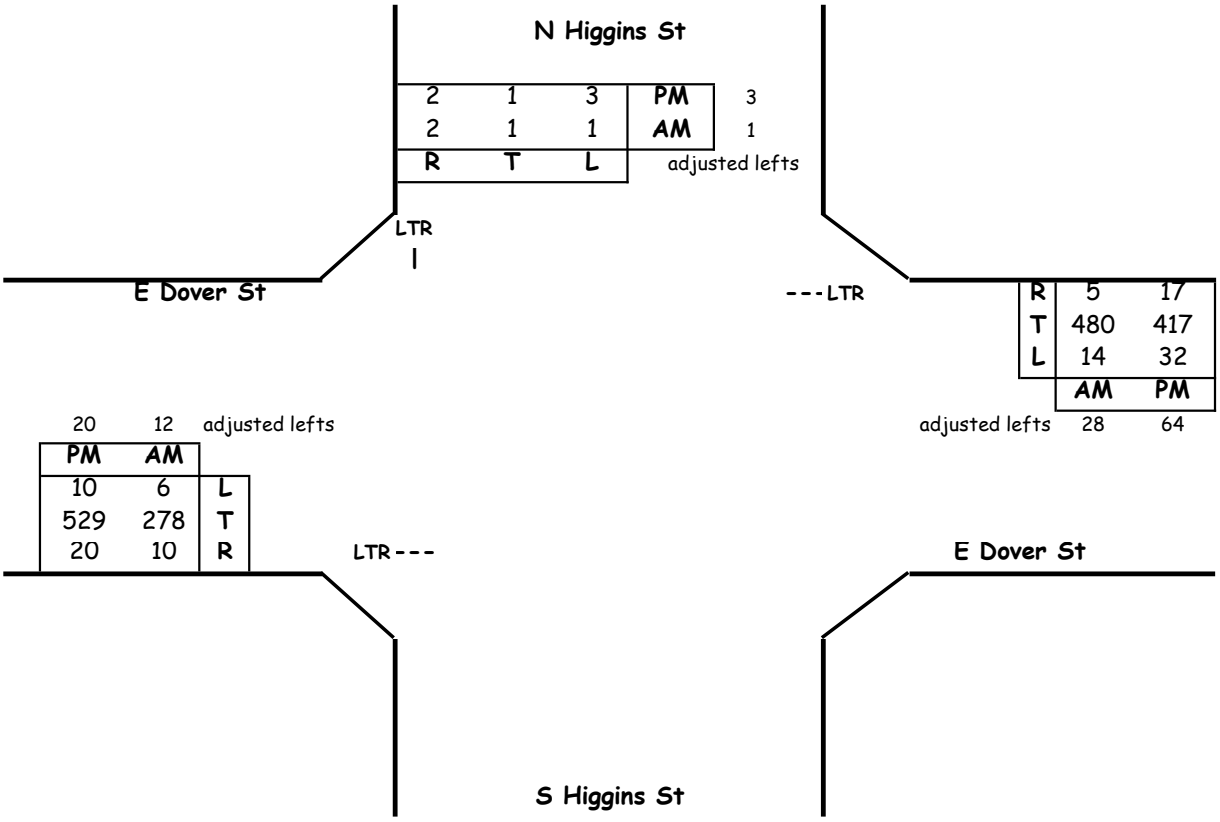
Level of Service (LOS) Worksheets

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: E Dover St
Minor Street: S Higgins St
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	0	0.00	0	1	1	1	4
SB	4	1.00	4	0	0	0	
EB	300	1	300	14	1	14	519
WB	513	1	513	6	1	6	
						CLV TOTAL=	**523**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	0	0.00	0	3	1	3	6
SB	6	1.00	6	0	0	0	
EB	569	1	569	32	1	32	601
WB	498	1	498	10	1	10	
						CLV TOTAL=	**607**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

E Dover St &
S Higgins St
(Existing Traffic)

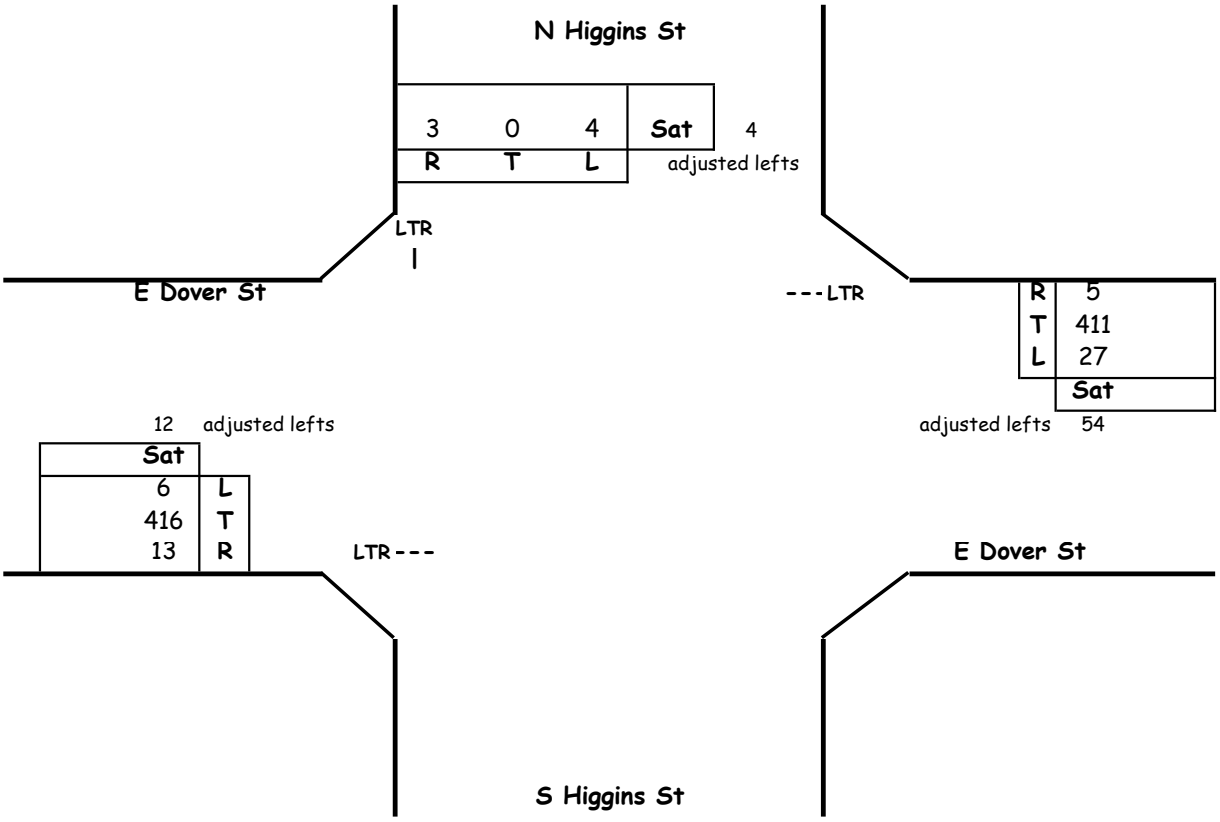
Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: E Dover St
Minor Street: S Higgins St
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	0	0.00	0	4	1	4	7
SB	7	1.00	7	0	0	0	
EB	441	1	441	27	1	27	476
WB	470	1	470	6	1	6	
						CLV TOTAL=	**483**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

E Dover St &
S Higgins St
(Existing Traffic)

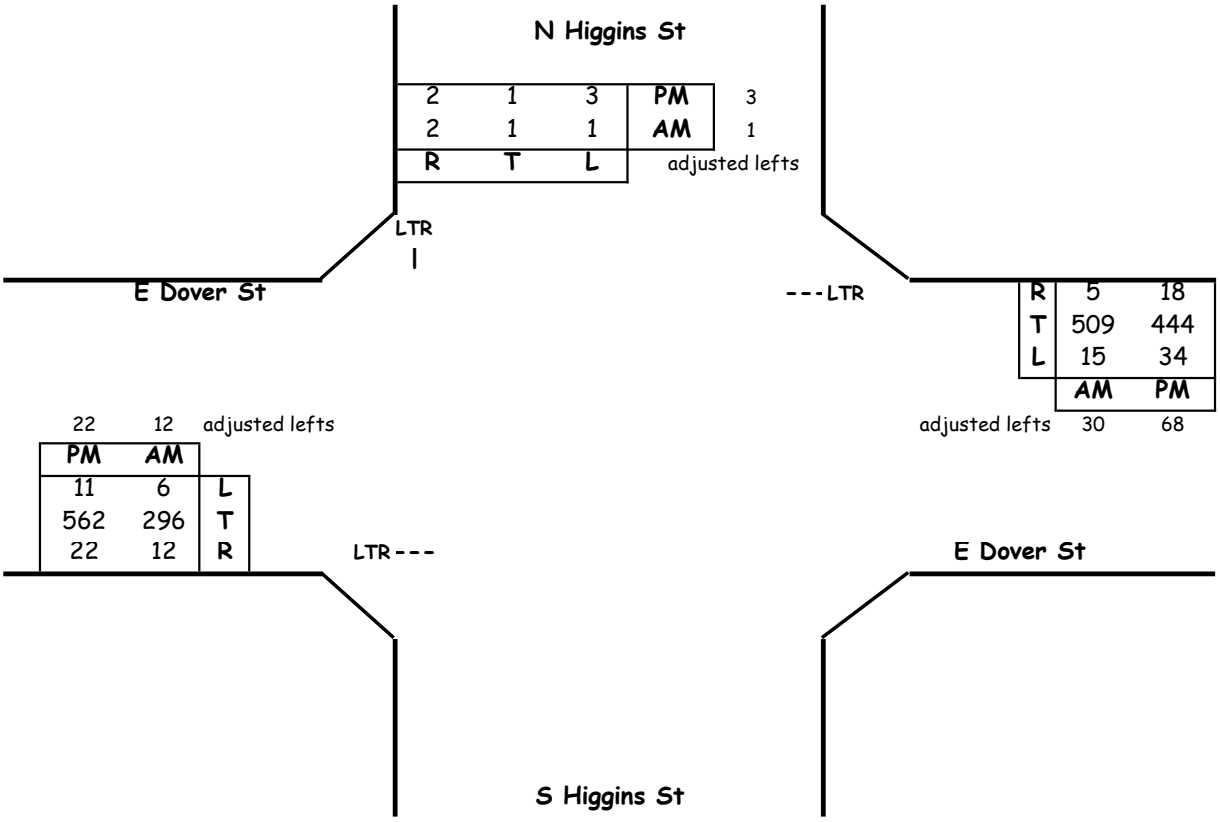
Intersection
1-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: E Dover St
Minor Street: S Higgins St
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	0	0.00	0	1	1	1	4
SB	4	1.00	4	0	0	0	
EB	320	1	320	15	1	15	550
WB	544	1	544	6	1	6	

CLV TOTAL= **554**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	0	0.00	0	3	1	3	6
SB	6	1.00	6	0	0	0	
EB	606	1	606	34	1	34	640
WB	530	1	530	11	1	11	

CLV TOTAL= **646**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

E Dover St &
S Higgins St
(Background Traffic)

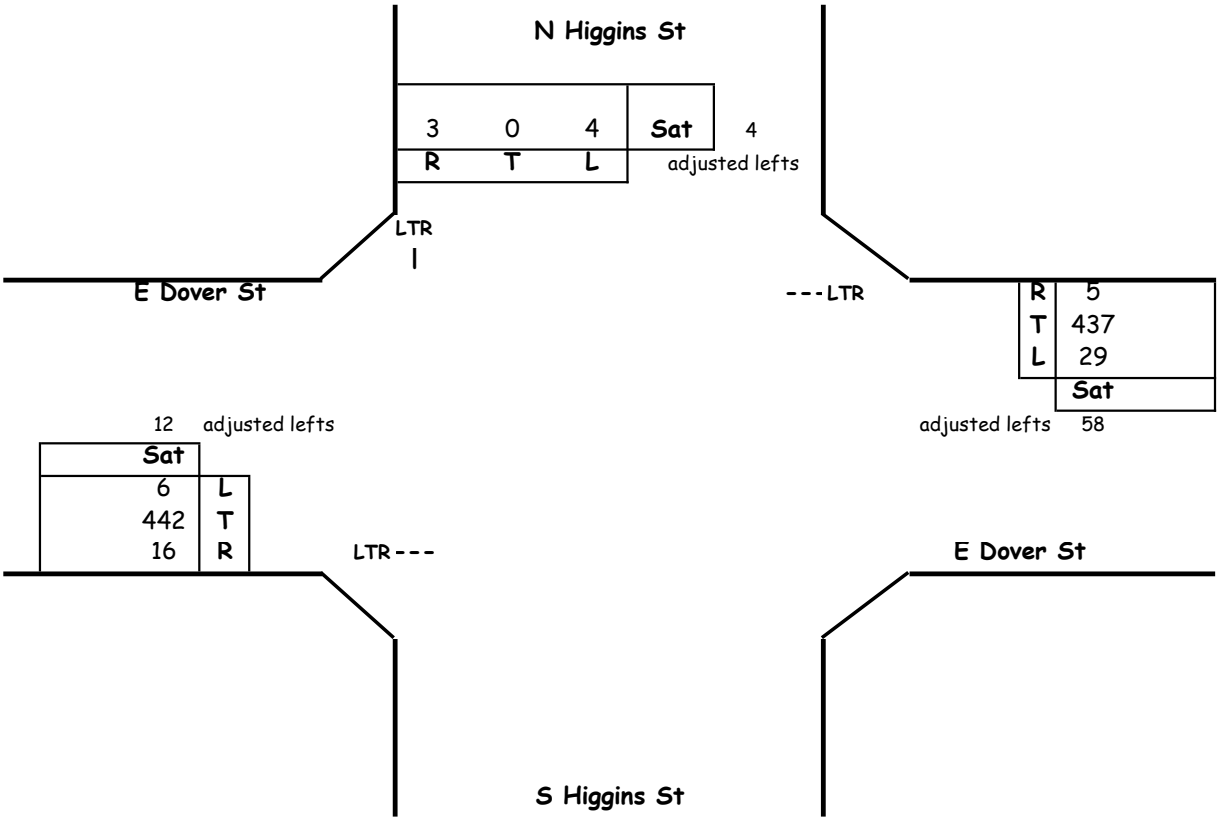
Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: E Dover St
Minor Street: S Higgins St
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	0	0.00	0	4	1	4	7
SB	7	1.00	7	0	0	0	
EB	470	1	470	29	1	29	506
WB	500	1	500	6	1	6	
						CLV TOTAL=	**513**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

E Dover St &
S Higgins St
(Background Traffic)

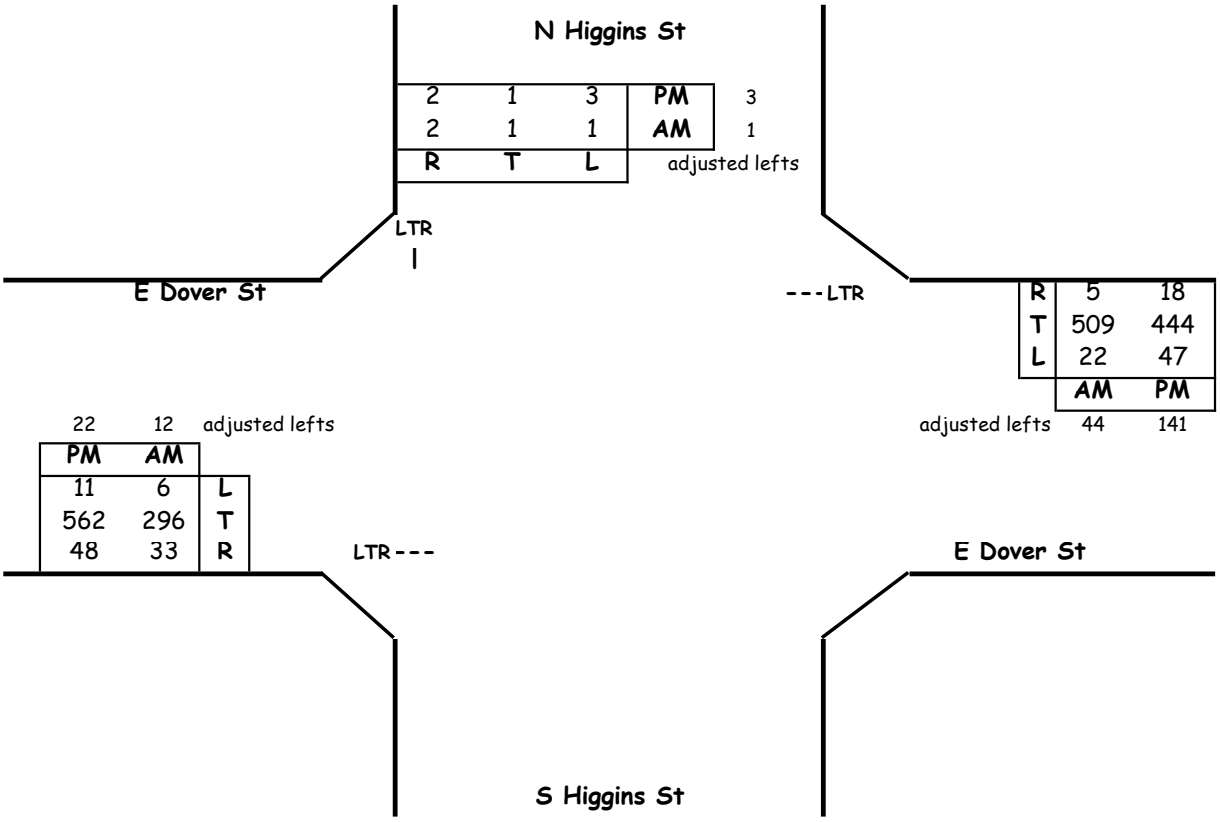
Intersection
1-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: E Dover St
Minor Street: S Higgins St
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	0	0.00	0	1	1	1	4
SB	4	1.00	4	0	0	0	
EB	341	1	341	22	1	22	564
WB	558	1	558	6	1	6	

CLV TOTAL= **568**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	0	0.00	0	3	1	3	6
SB	6	1.00	6	0	0	0	
EB	632	1	632	47	1	47	679
WB	603	1	603	11	1	11	

CLV TOTAL= **685**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

E Dover St &
S Higgins St
(Total Traffic)

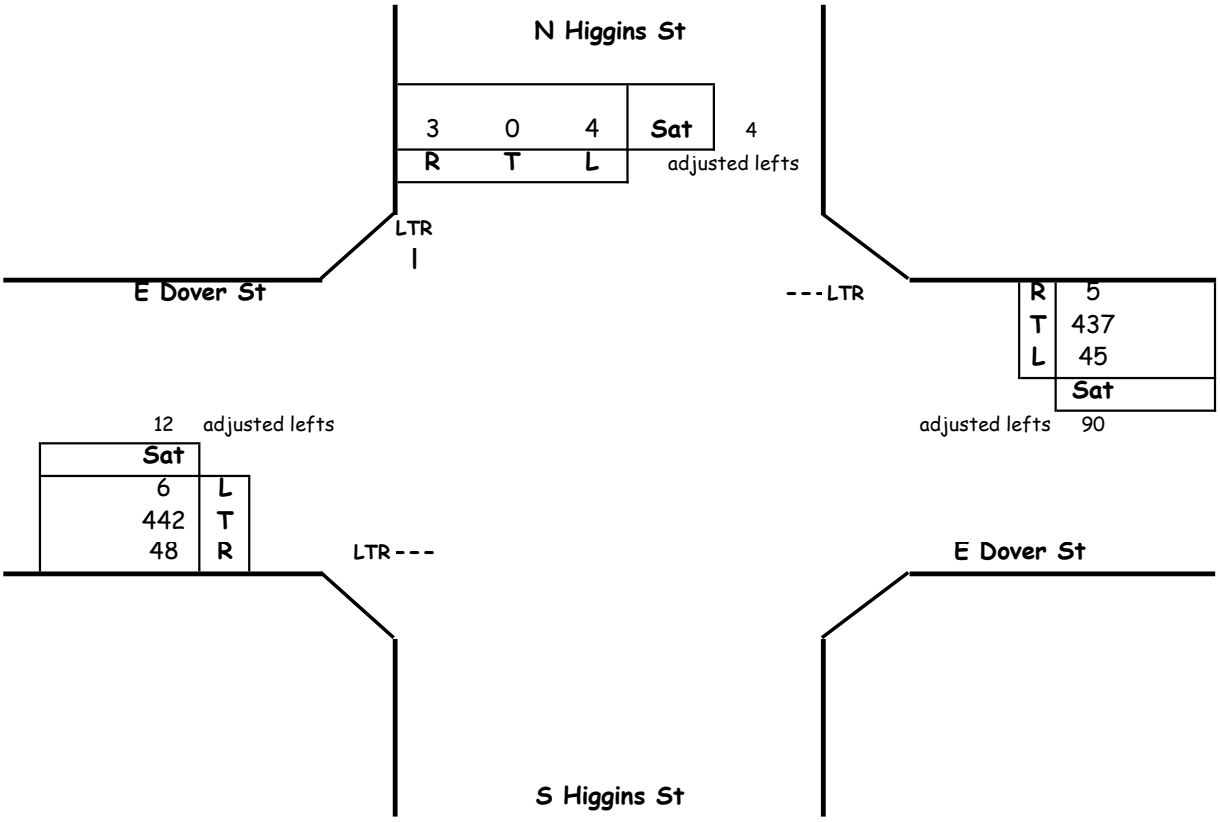
Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: E Dover St
Minor Street: S Higgins St
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	0	0.00	0	4	1	4	7
SB	7	1.00	7	0	0	0	
EB	502	1	502	45	1	45	547
WB	532	1	532	6	1	6	
						CLV TOTAL=	554
						Level of Service (LOS)=	A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

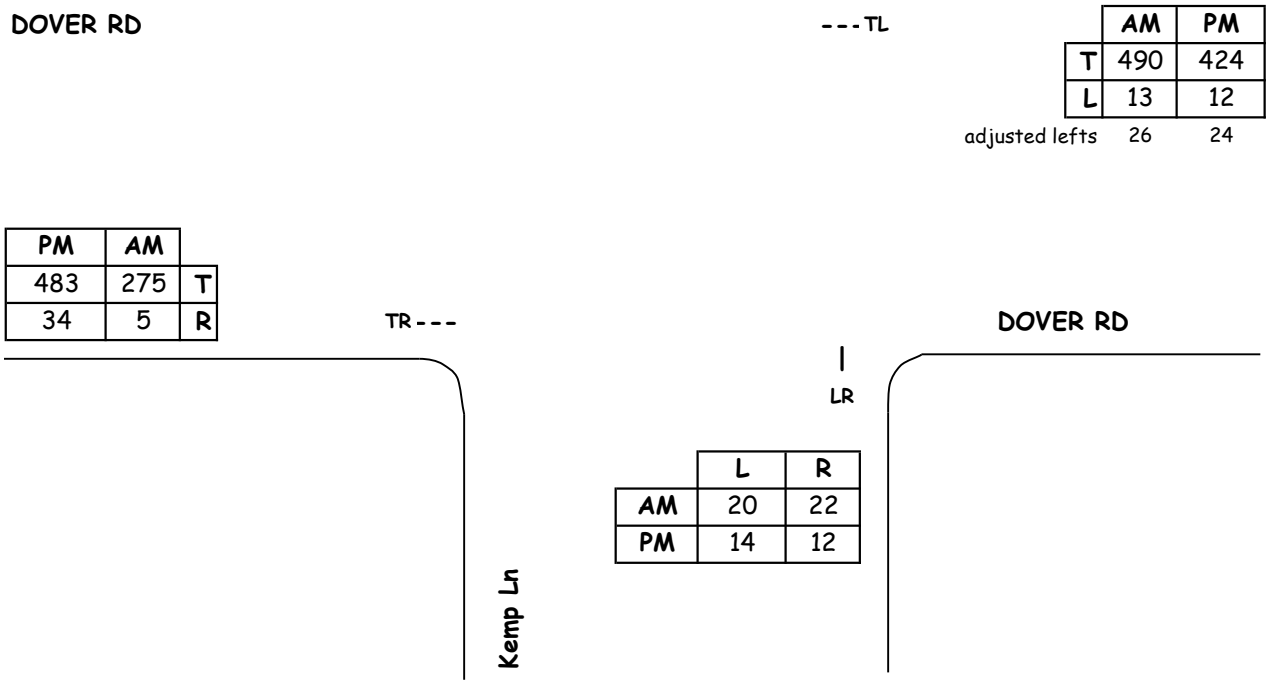
E Dover St &
S Higgins St
(Total Traffic)

Intersection
1-Sat

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Dover Rd
Minor Street: Kemp Ln
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	42	1.00	42				42
EB	280	1.00	280	13	1.00	13	516
WB	516	1.00	516				
						CLV TOTAL=	558
						Level of Service (LOS)=	A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	26	1.00	26				26
EB	517	1.00	517	12	1.00	12	529
WB	448	1.00	448				
						CLV TOTAL=	555
						Level of Service (LOS)=	A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

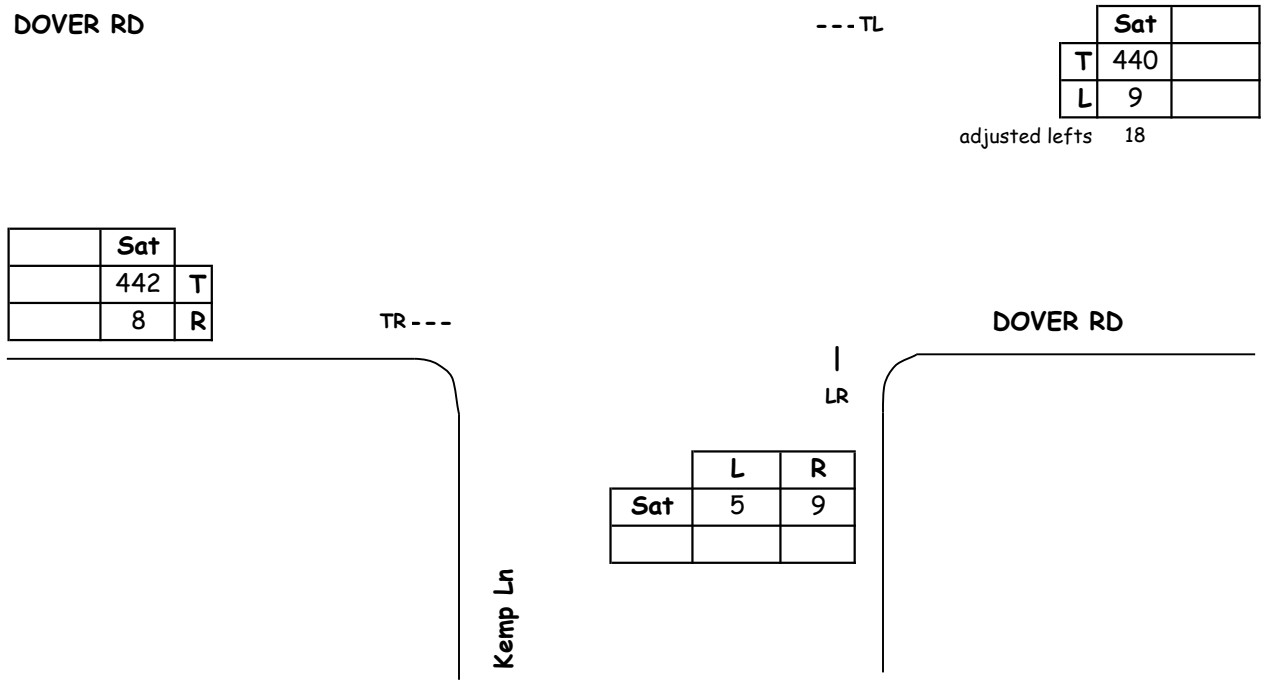
Dover Rd &
Kemp Ln
(Existing Traffic)

Intersection
2

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Dover Rd
Minor Street: Kemp Ln
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	14	1.00	14				14
EB	450	1.00	450	9	1.00	9	459
WB	458	1.00	458				
					CLV TOTAL=		**473**
					Level of Service (LOS)=		**A**

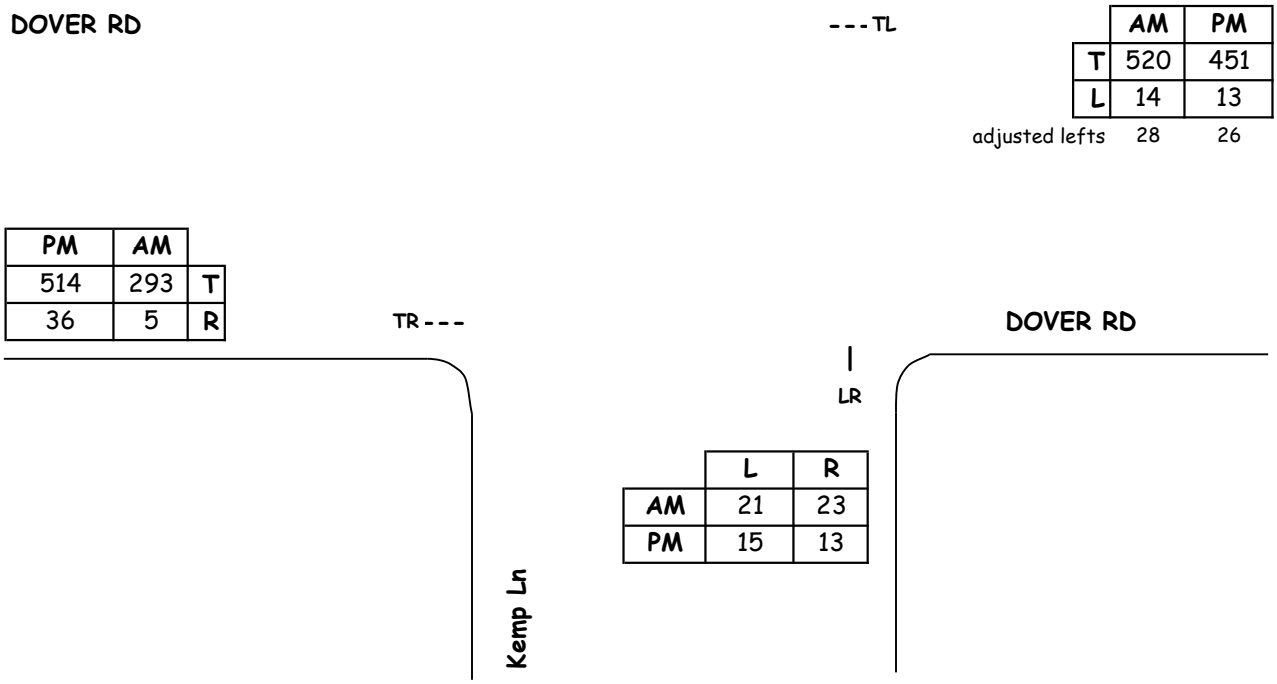
Critical Lane Volume Analysis		Dover Rd & Kemp Ln (Existing Traffic)	**Intersection 2-Sat**

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www.lenharttraffic.com

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Dover Rd
Minor Street: Kemp Ln
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	44	1.00	44				44
EB	298	1.00	298	14	1.00	14	548
WB	548	1.00	548				
						CLV TOTAL=	**592**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	28	1.00	28				28
EB	550	1.00	550	13	1.00	13	563
WB	477	1.00	477				
						CLV TOTAL=	**591**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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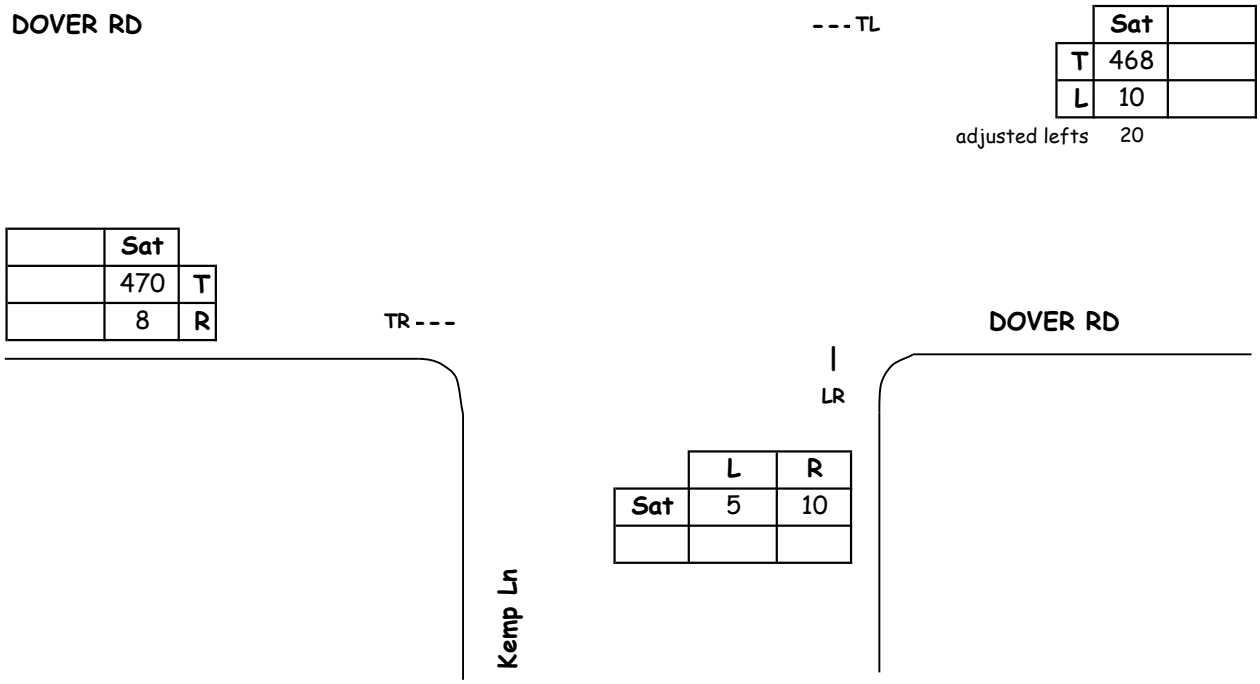
Dover Rd &
Kemp Ln
(Background Traffic)

Intersection
2

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Dover Rd
Minor Street: Kemp Ln
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	15	1.00	15				15
EB	478	1.00	478	10	1.00	10	488
WB	488	1.00	488				
					CLV TOTAL=		503
					Level of Service (LOS)=		A

Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		Dover Rd & Kemp Ln (Background Traffic)	Intersection **2-Sat**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Dover Rd
Minor Street: Kemp Ln
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

DOVER RD ---TL

	AM	PM
T	527	464
L	48	56
adjusted lefts	96	112

PM	AM	
514	293	T
36	5	R

TR---

DOVER RD

LR

	L	R
AM	21	49
PM	15	34

Kemp Ln

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	70	1.00	70				70
EB	298	1.00	298	48	1.00	48	623
WB	623	1.00	623				
					CLV TOTAL=		**693**
					Level of Service (LOS)=		**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	49	1.00	49				49
EB	550	1.00	550	56	1.00	56	606
WB	576	1.00	576				
					CLV TOTAL=		**655**
					Level of Service (LOS)=		**A**

Critical Lane Volume Analysis

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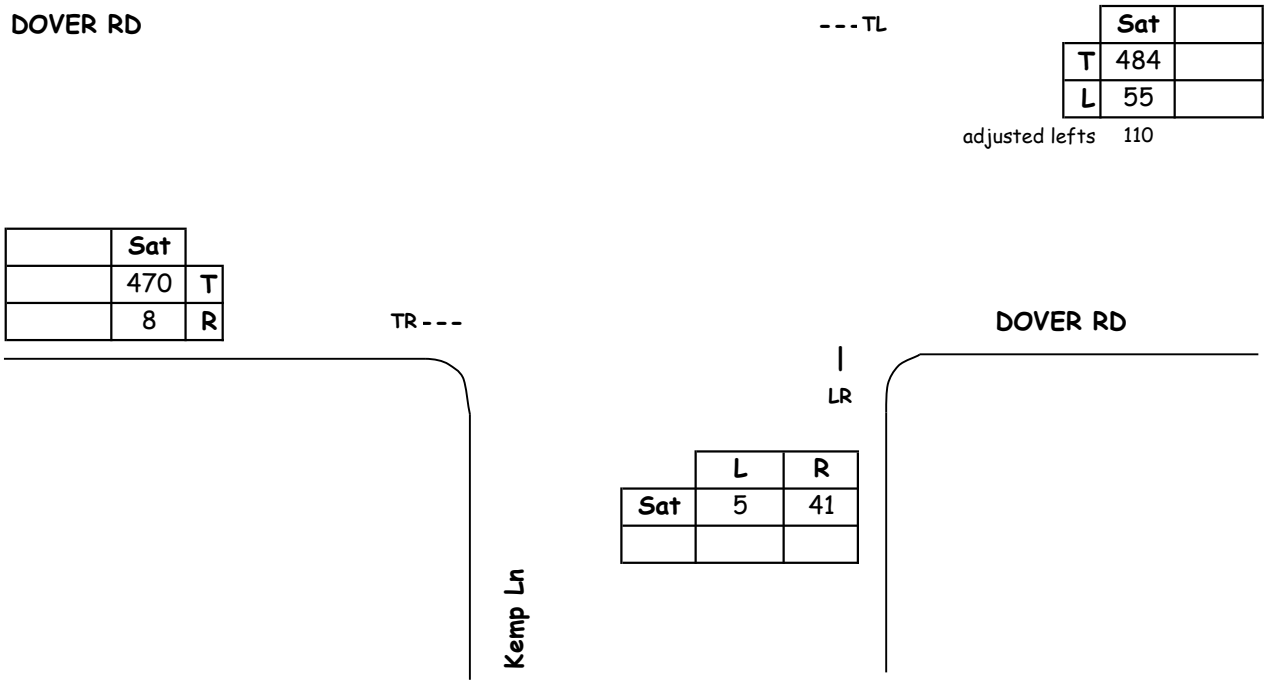
Dover Rd &
Kemp Ln
(Total Traffic)

Intersection
2

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Dover Rd
Minor Street: Kemp Ln
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting



Critical Lane Volume Analysis

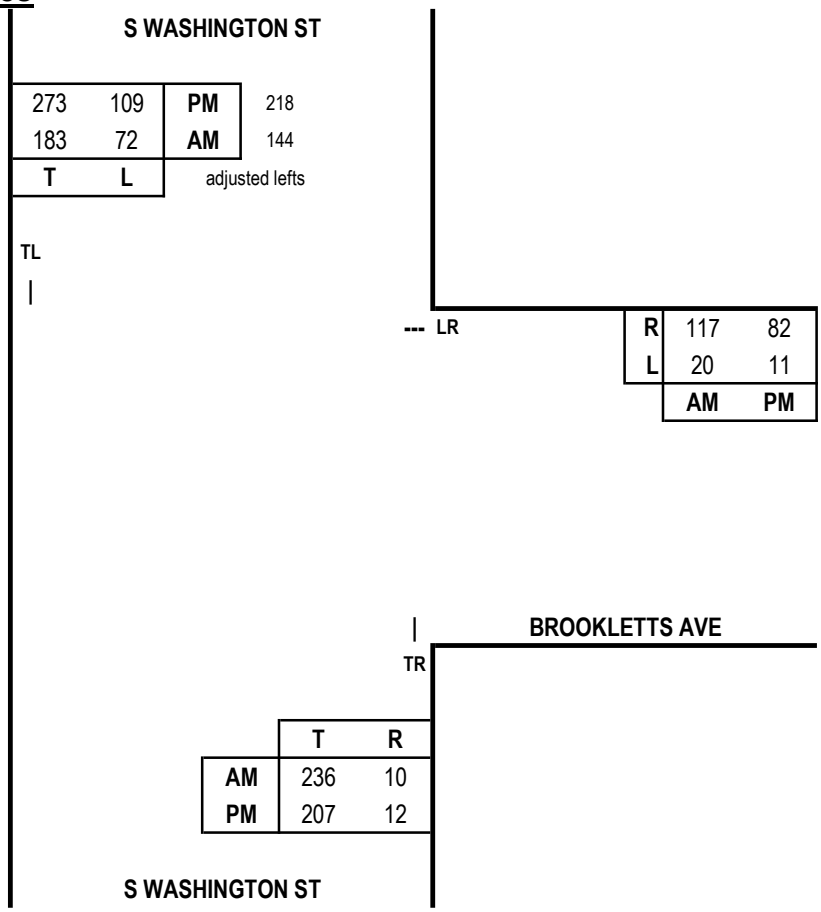
Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	46	1.00	46				46
EB	478	1.00	478	55	1.00	55	594
WB	594	1.00	594				
						CLV TOTAL=	640
						Level of Service (LOS)=	A

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: S Washington St
and: Brookletts Ave
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	137	1.00	137				137
NB	246	1.00	246	72	1.00	72	327
SB	327	1.00	327				

CLV TOTAL= **464**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	93	1.00	93				93
NB	219	1.00	219	109	1.00	109	491
SB	491	1.00	491				

CLV TOTAL= **584**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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N

S Washington St &
Brookletts Ave
(Existing Traffic)

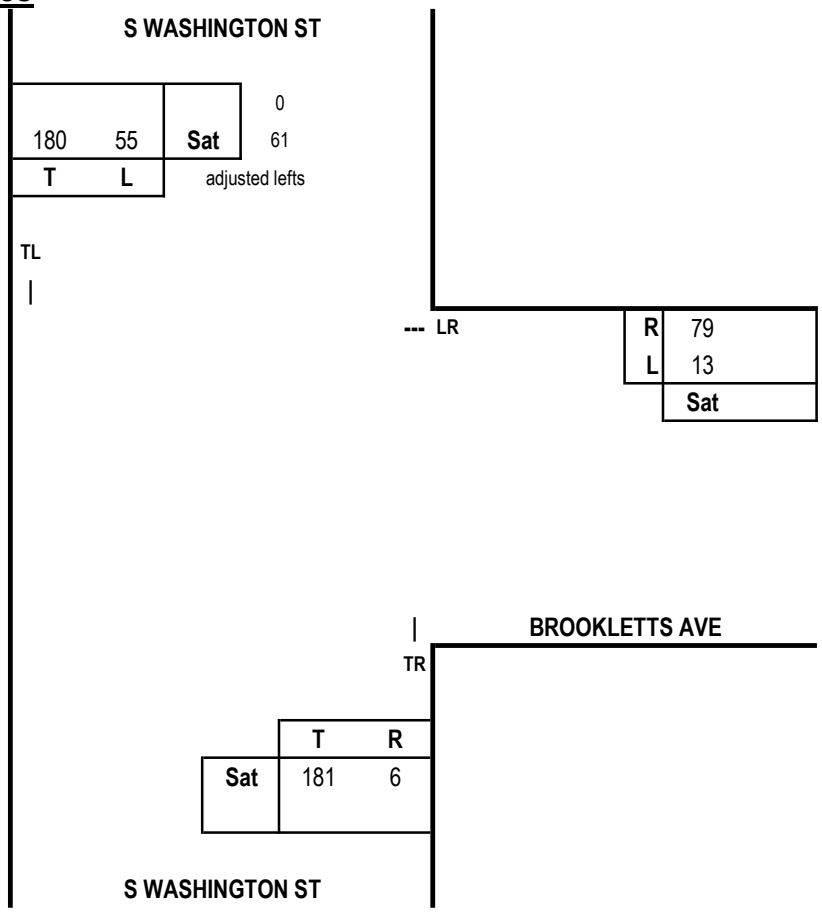
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: S Washington St
and: Brookletts Ave
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
WB	92	1.00	92				92
NB	187	1.00	187	55	1.00	55	242
SB	241	1.00	241				
						CLV TOTAL=	334
						Level of Service (LOS)=	A

Critical Lane Volume Analysis

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N

S Washington St &
Brookletts Ave
(Existing Traffic)

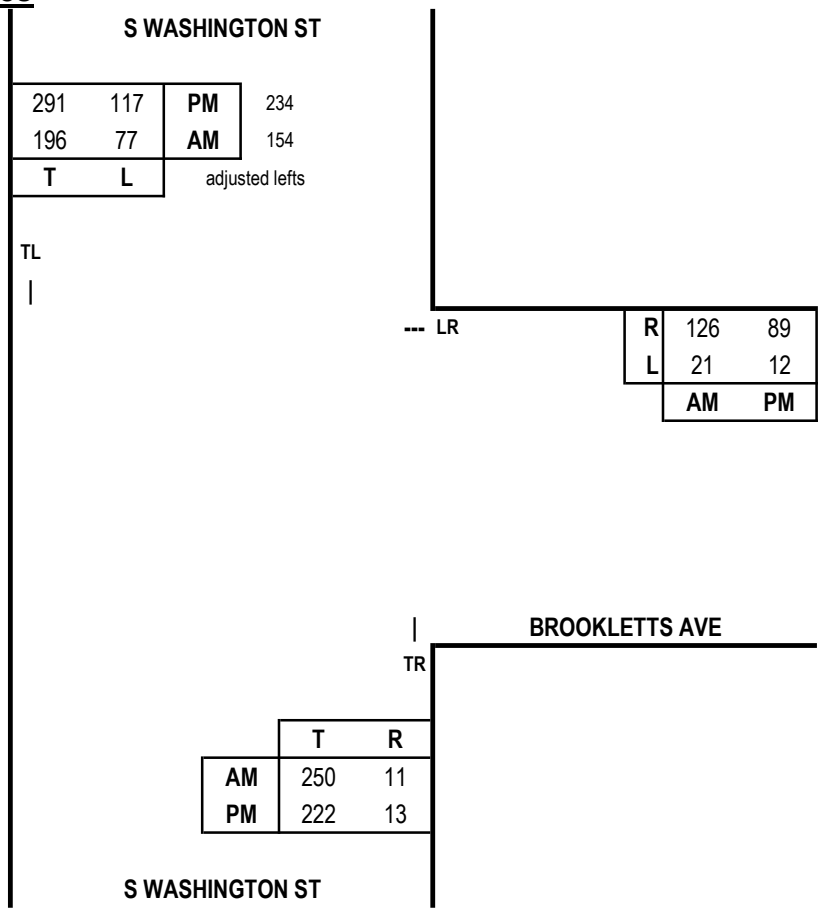
Intersection
3-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: S Washington St
and: Brookletts Ave
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	147	1.00	147				147
NB	261	1.00	261	77	1.00	77	350
SB	350	1.00	350				

CLV TOTAL= **497**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	101	1.00	101				101
NB	235	1.00	235	117	1.00	117	525
SB	525	1.00	525				

CLV TOTAL= **626**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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S Washington St &
Brookletts Ave
(Background Traffic)

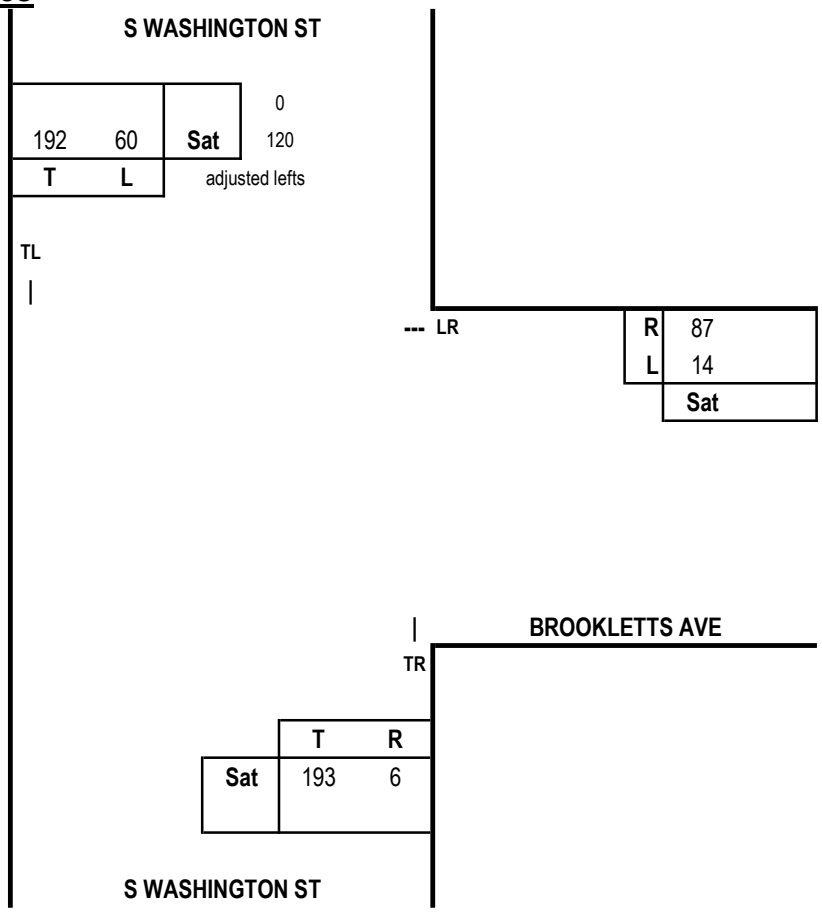
Intersection 3

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: S Washington St
and: Brookletts Ave
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
WB	101	1.00	101				101
NB	199	1.00	199	60	1.00	60	312
SB	312	1.00	312				
						CLV TOTAL=	413
						Level of Service (LOS)=	A

Critical Lane Volume Analysis

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N

S Washington St &
Brookletts Ave
(Background Traffic)

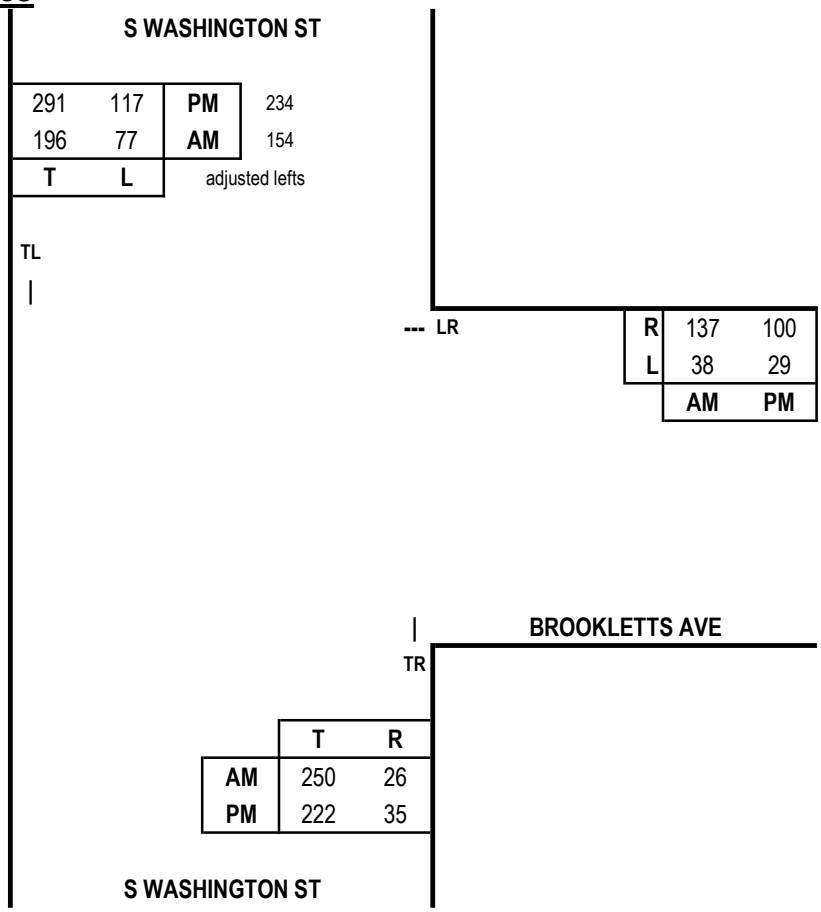
Intersection
3-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: S Washington St
and: Brookletts Ave
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	175	1.00	175				175
NB	276	1.00	276	77	1.00	77	353
SB	350	1.00	350				

CLV TOTAL= **528**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	129	1.00	129				129
NB	257	1.00	257	117	1.00	117	525
SB	525	1.00	525				

CLV TOTAL= **654**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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N

S Washington St &
Brookletts Ave
(Total Traffic)

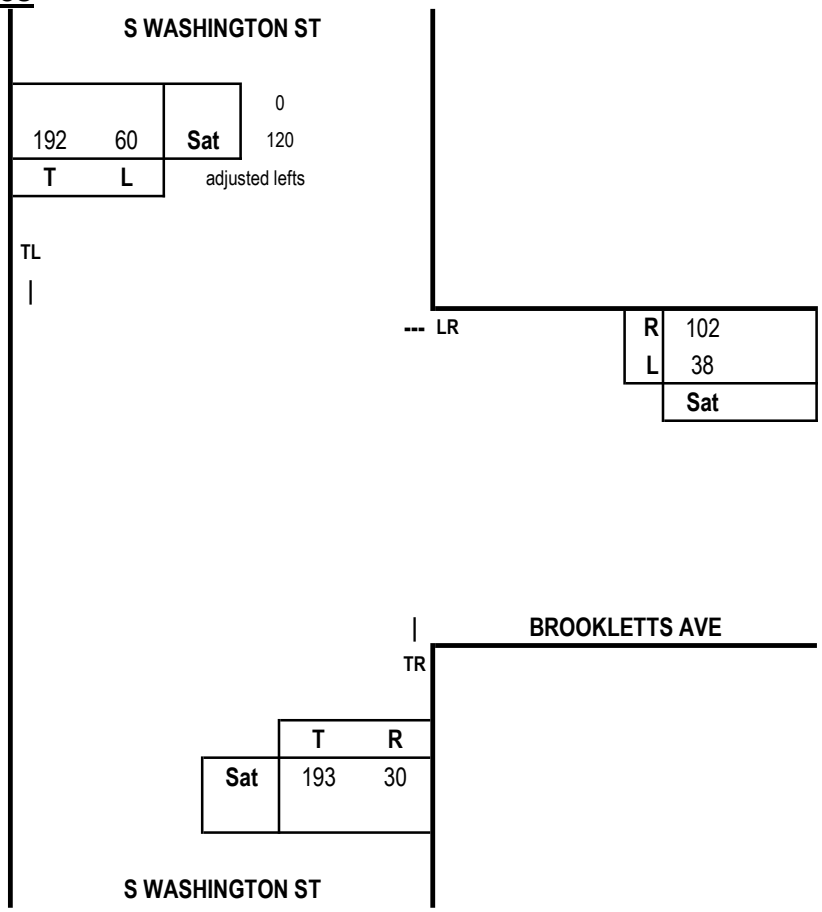
Intersection 3

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: S Washington St
and: Brookletts Ave
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
WB	140	1.00	140				140
NB	223	1.00	223	60	1.00	60	312
SB	312	1.00	312				
						CLV TOTAL=	452
						Level of Service (LOS)=	A

Critical Lane Volume Analysis

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N

S Washington St &
Brookletts Ave
(Total Traffic)

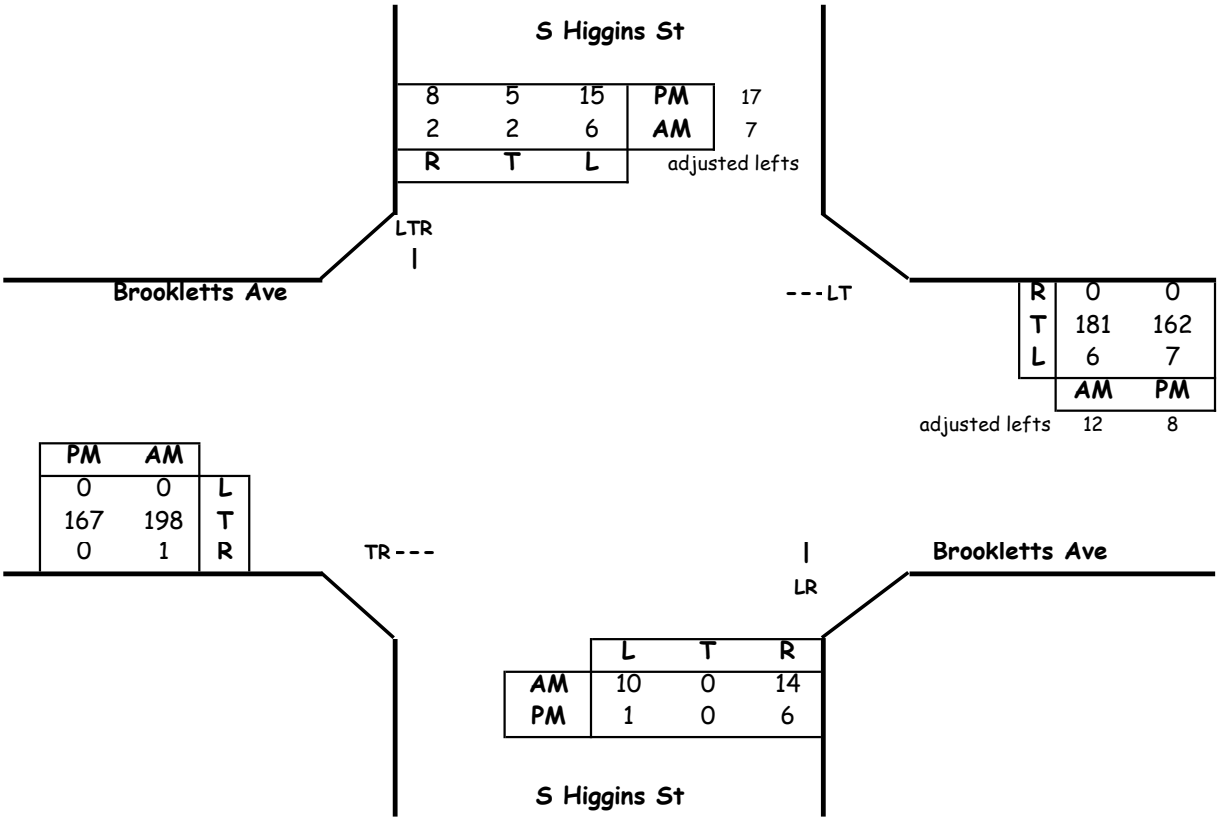
Intersection
3-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: Brookletts Ave
Minor Street: S Higgins St
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	0	0.00	0	6	1	6	11
SB	11	1.00	11	10	0	0	
EB	199	1	199	6	1	6	205
WB	193	1	193	0	0	0	

CLV TOTAL= **216**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	0	0.00	0	15	1	15	30
SB	30	1.00	30	1	0	0	
EB	167	1	167	7	1	7	174
WB	170	1	170	0	0	0	

CLV TOTAL= **204**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Brookletts Ave &
S Higgins St
(Existing Traffic)

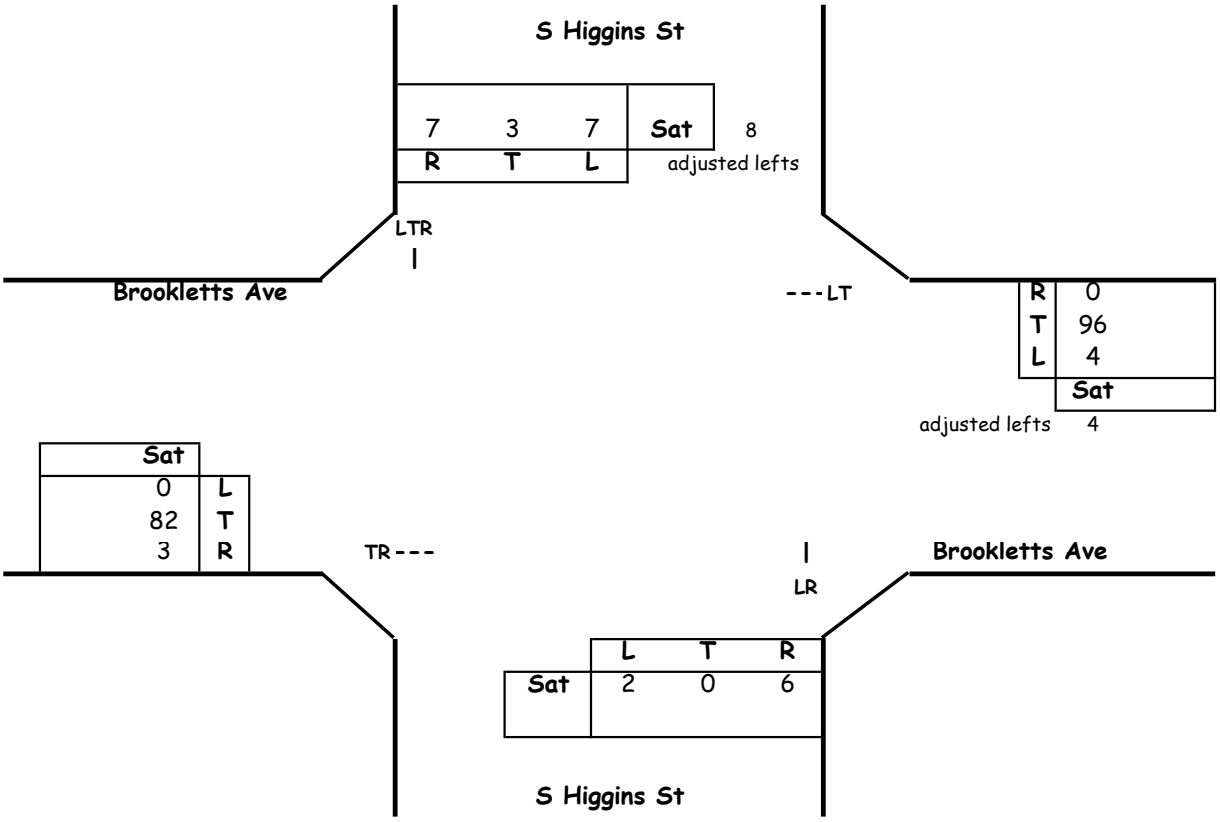
Intersection
4

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: Brookletts Ave
Minor Street: S Higgins St
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	0	0.00	0	7	1	7	18
SB	18	1.00	18	2	0	0	
EB	85	1	85	4	1	4	100
WB	100	1	100	0	0	0	
						CLV TOTAL=	**118**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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Brookletts Ave &
S Higgins St
(Existing Traffic)

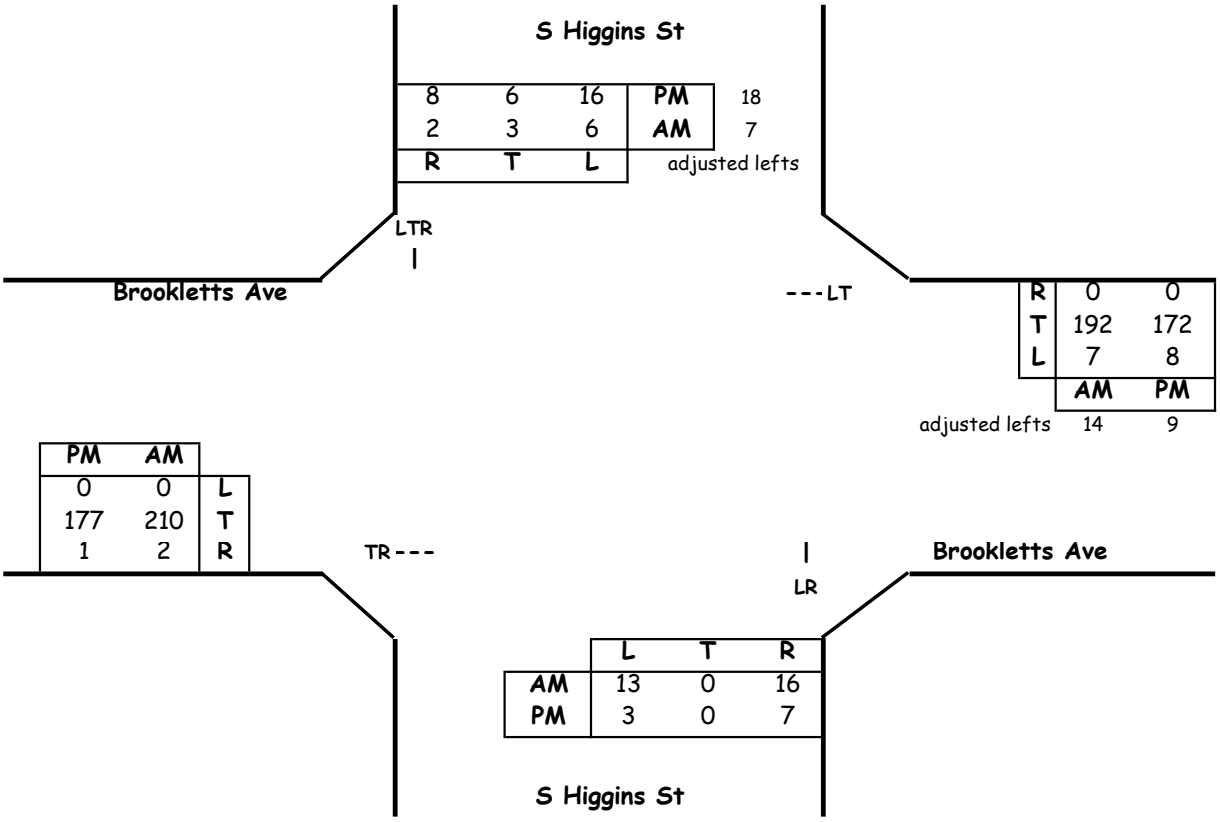
Intersection
4-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: Brookletts Ave
Minor Street: S Higgins St
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	0	0.00	0	6	1	6	12
SB	12	1.00	12	13	0	0	
EB	212	1	212	7	1	7	219
WB	206	1	206	0	0	0	

CLV TOTAL= **231**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	0	0.00	0	16	1	16	32
SB	32	1.00	32	3	0	0	
EB	178	1	178	8	1	8	186
WB	181	1	181	0	0	0	

CLV TOTAL= **218**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Brookletts Ave &
S Higgins St
(Background Traffic)

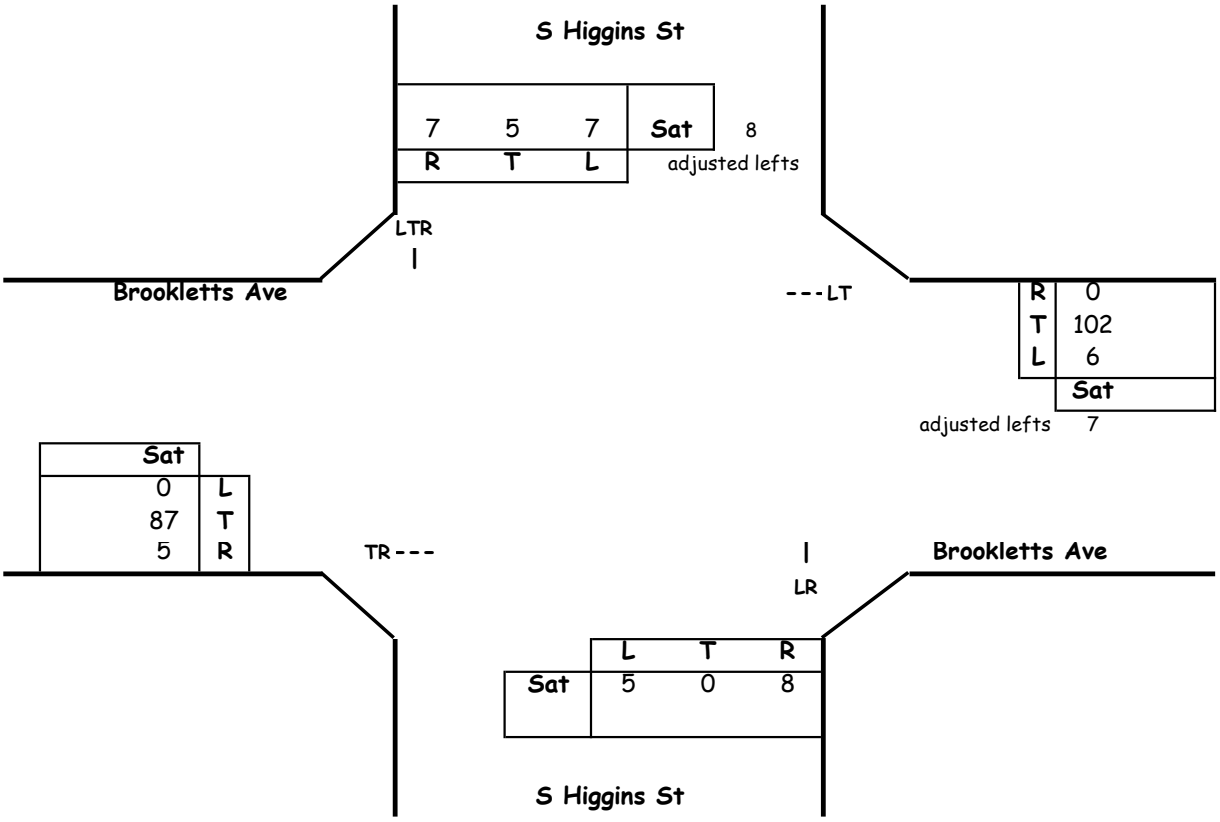
Intersection
4

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: Brookletts Ave
Minor Street: S Higgins St
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	0	0.00	0	7	1	7	20
SB	20	1.00	20	5	0	0	
EB	92	1	92	6	1	6	109
WB	109	1	109	0	0	0	
						CLV TOTAL=	**129**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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Brookletts Ave &
S Higgins St
(Background Traffic)

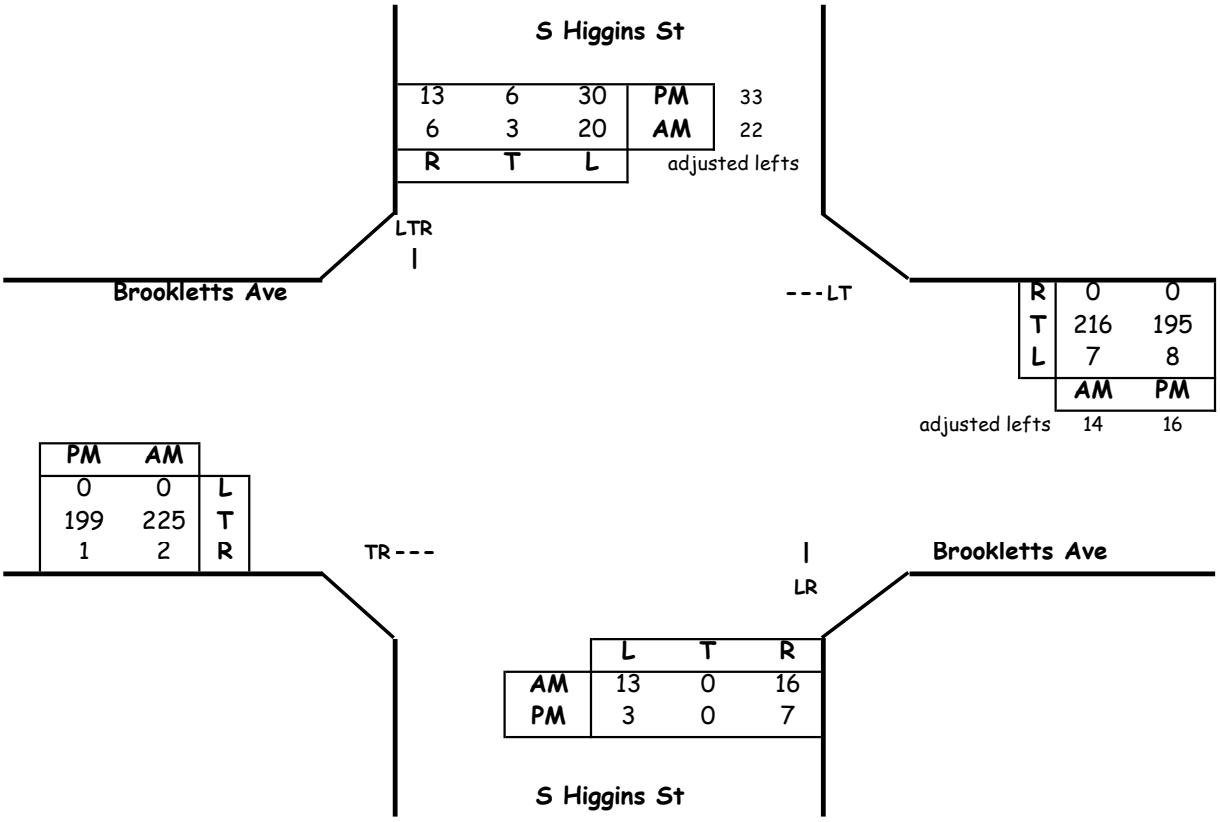
Intersection
4-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: Brookletts Ave
Minor Street: S Higgins St
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	0	0.00	0	20	1	20	31
SB	31	1.00	31	13	0	0	
EB	227	1	227	7	1	7	234
WB	230	1	230	0	0	0	

CLV TOTAL= **265**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	0	0.00	0	30	1	30	52
SB	52	1.00	52	3	0	0	
EB	200	1	200	8	1	8	211
WB	211	1	211	0	0	0	

CLV TOTAL= **263**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Brookletts Ave &
S Higgins St
(Total Traffic)

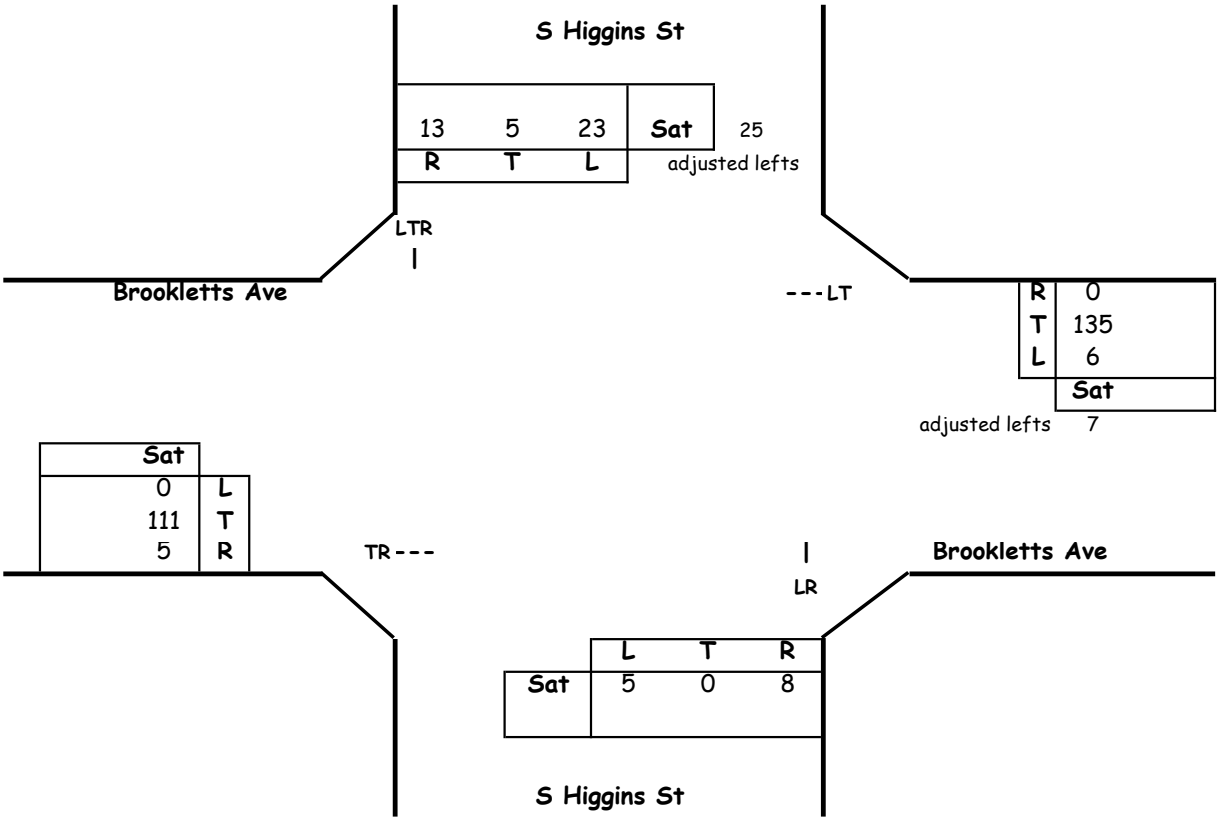
Intersection
4

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: Brookletts Ave
Minor Street: S Higgins St
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			Sat
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	0	0.00	0	23	1	23	43
SB	43	1.00	43	5	0	0	
EB	116	1	116	6	1	6	142
WB	142	1	142	0	0	0	
						CLV TOTAL=	**185**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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SEVERNA PARK, MD 21146
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Brookletts Ave &
S Higgins St
(Total Traffic)

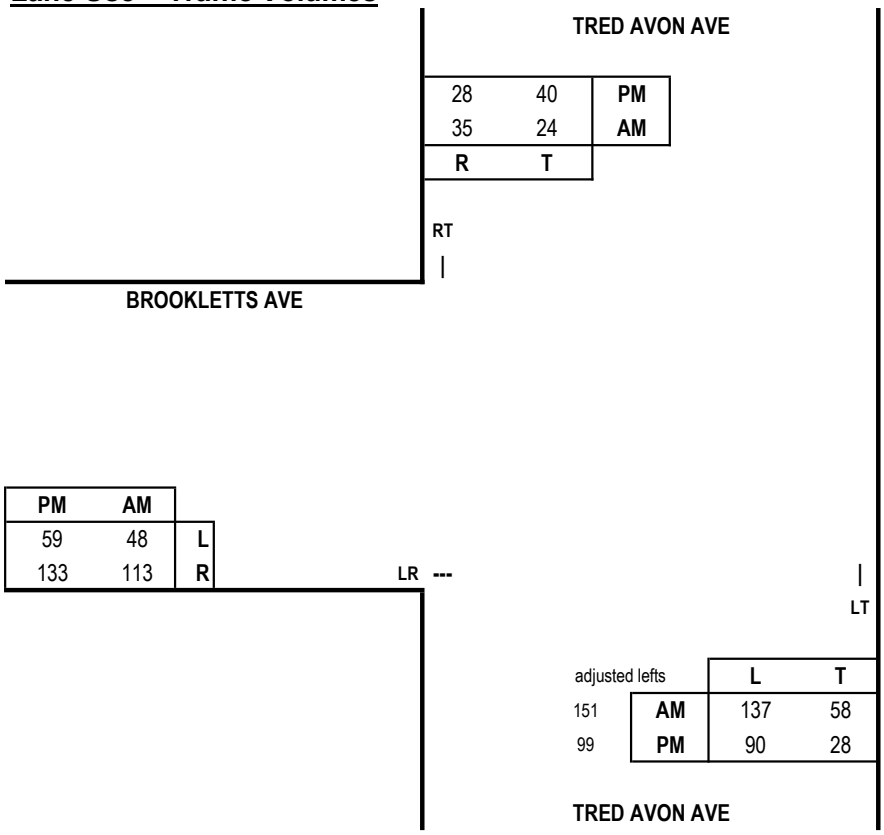
Intersection
4-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Brookletts Ave
and: Tred Avon Ave
Conditions: Existing Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	161	1.00	161				161
NB	209	1.00	209				209
SB	59	1.00	59	137	1.00	137	

CLV TOTAL= **370**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	192	1.00	192				192
NB	127	1.00	127				158
SB	68	1.00	68	90	1.00	90	

CLV TOTAL= **350**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Brookletts Ave &
Tred Avon Ave
(Existing Traffic)

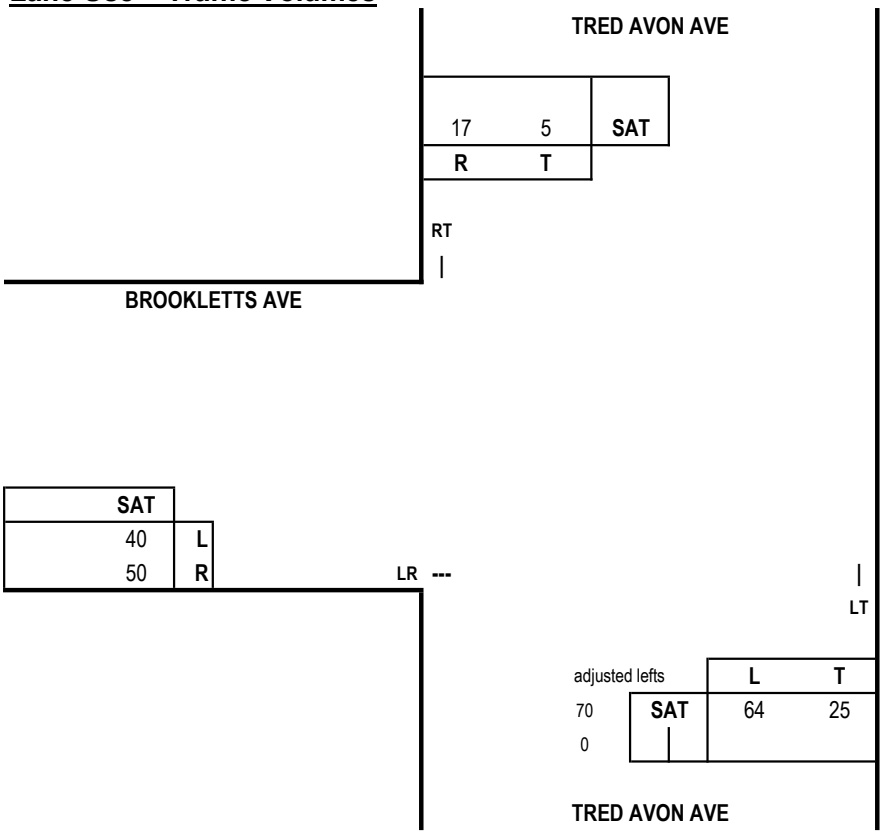
Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Brookletts Ave
and: Tred Avon Ave
Conditions: Existing Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
EB	90	1.00	90				90
NB	95	1.00	95				95
SB	22	1.00	22	64	1.00	64	
					CLV TOTAL=		185
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

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Brookletts Ave &
Tred Avon Ave
(Existing Traffic)

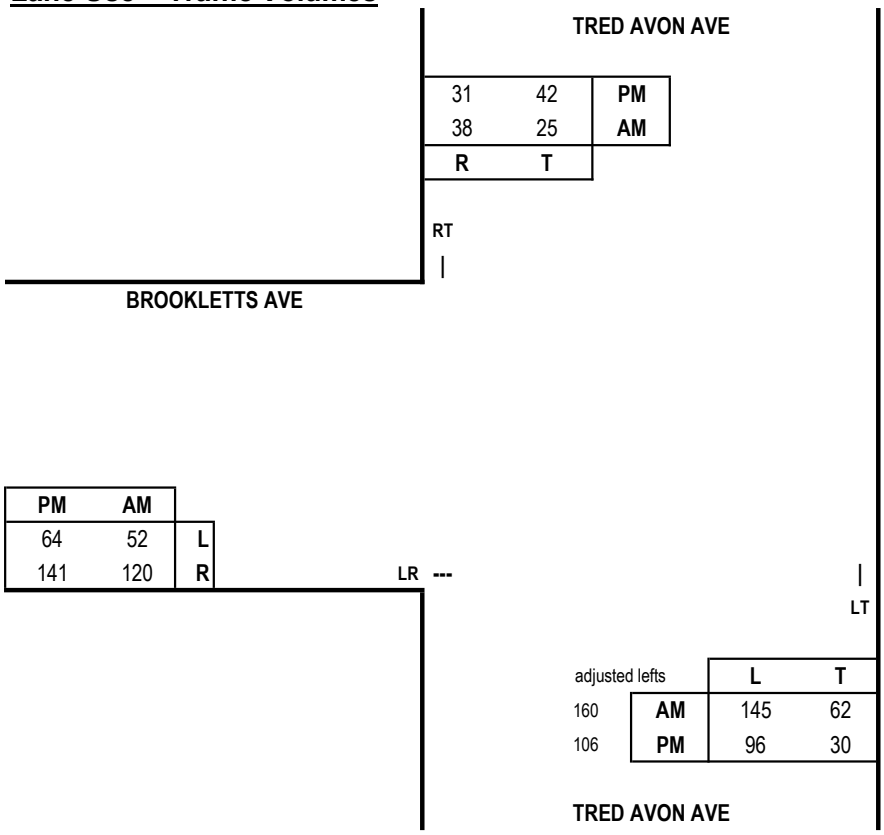
Intersection
5-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Brookletts Ave
and: Tred Avon Ave
Conditions: Background Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	172	1.00	172				172
NB	222	1.00	222				222
SB	63	1.00	63	145	1.00	145	

CLV TOTAL= **394**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	205	1.00	205				205
NB	136	1.00	136				169
SB	73	1.00	73	96	1.00	96	

CLV TOTAL= **374**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Brookletts Ave &
Tred Avon Ave
(Background Traffic)

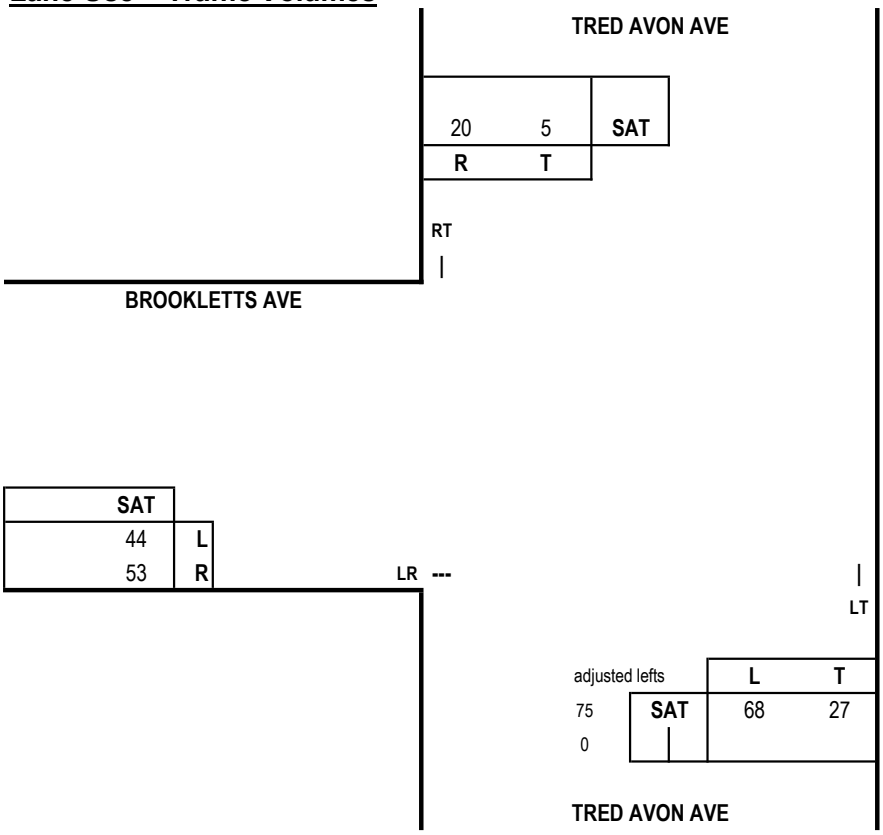
Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Brookletts Ave
and: Tred Avon Ave
Conditions: Background Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
EB	97	1.00	97				97
NB	102	1.00	102				102
SB	25	1.00	25	68	1.00	68	
						CLV TOTAL=	199
						Level of Service (LOS)=	A

Critical Lane Volume Analysis

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Brookletts Ave &
Tred Avon Ave
(Background Traffic)

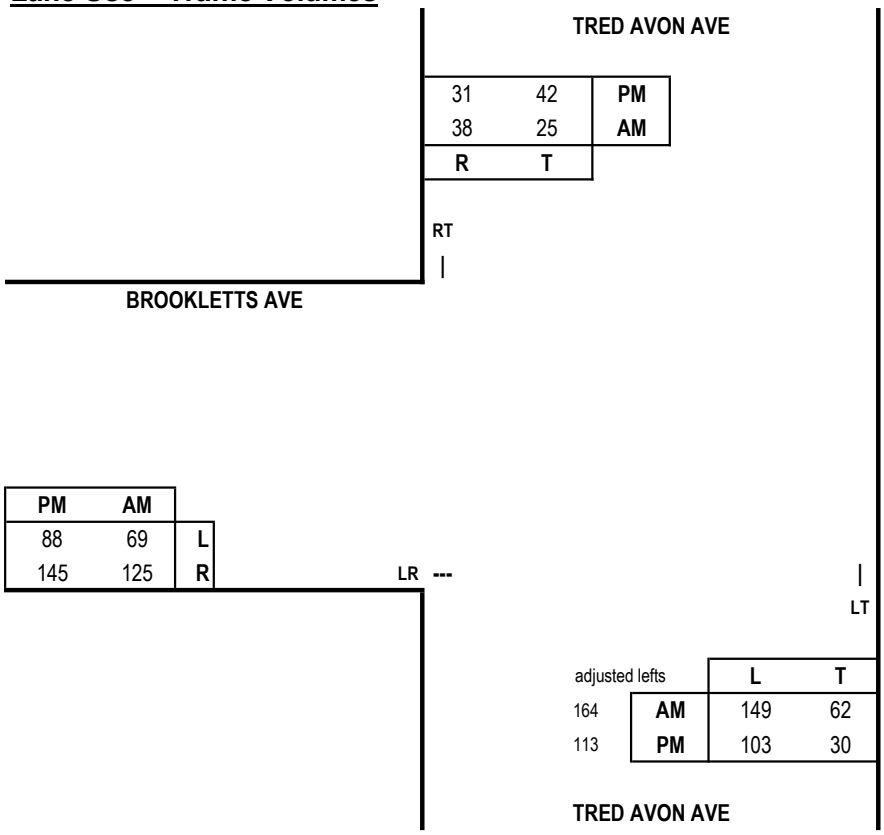
Intersection
5-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Brookletts Ave
and: Tred Avon Ave
Conditions: Total Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	194	1.00	194				194
NB	226	1.00	226				226
SB	63	1.00	63	149	1.00	149	

CLV TOTAL= **420**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	233	1.00	233				233
NB	143	1.00	143				176
SB	73	1.00	73	103	1.00	103	

CLV TOTAL= **409**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Brookletts Ave &
Tred Avon Ave
(Total Traffic)

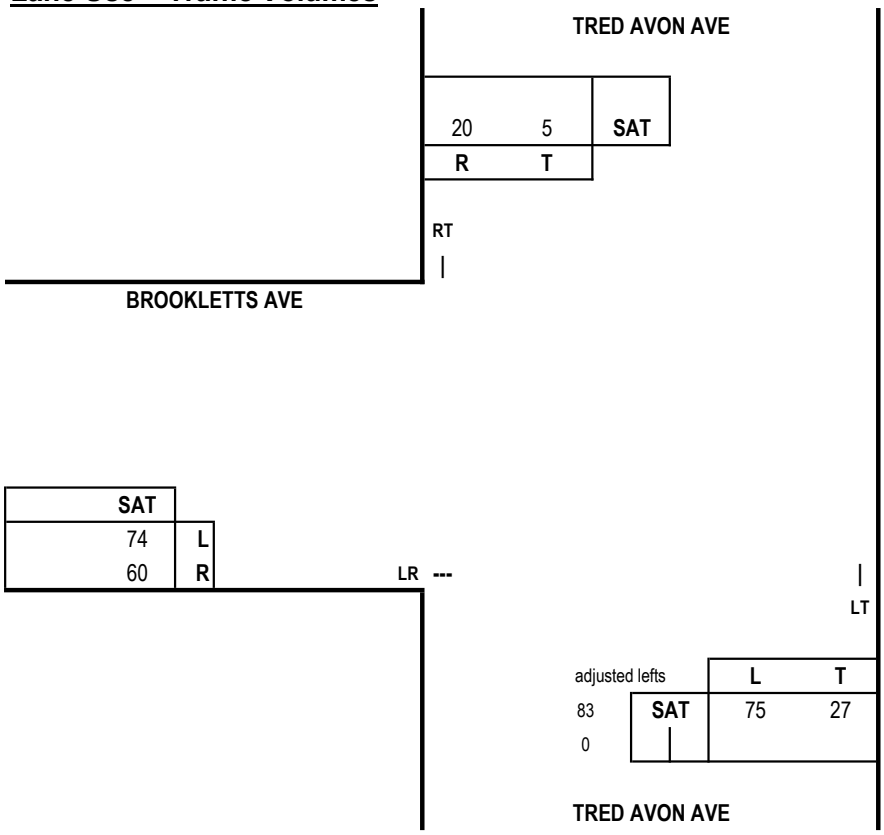
Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Brookletts Ave
and: Tred Avon Ave
Conditions: Total Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
EB	134	1.00	134				134
NB	110	1.00	110				110
SB	25	1.00	25	75	1.00	75	

CLV TOTAL=	**244**
Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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Brookletts Ave &
Tred Avon Ave
(Total Traffic)

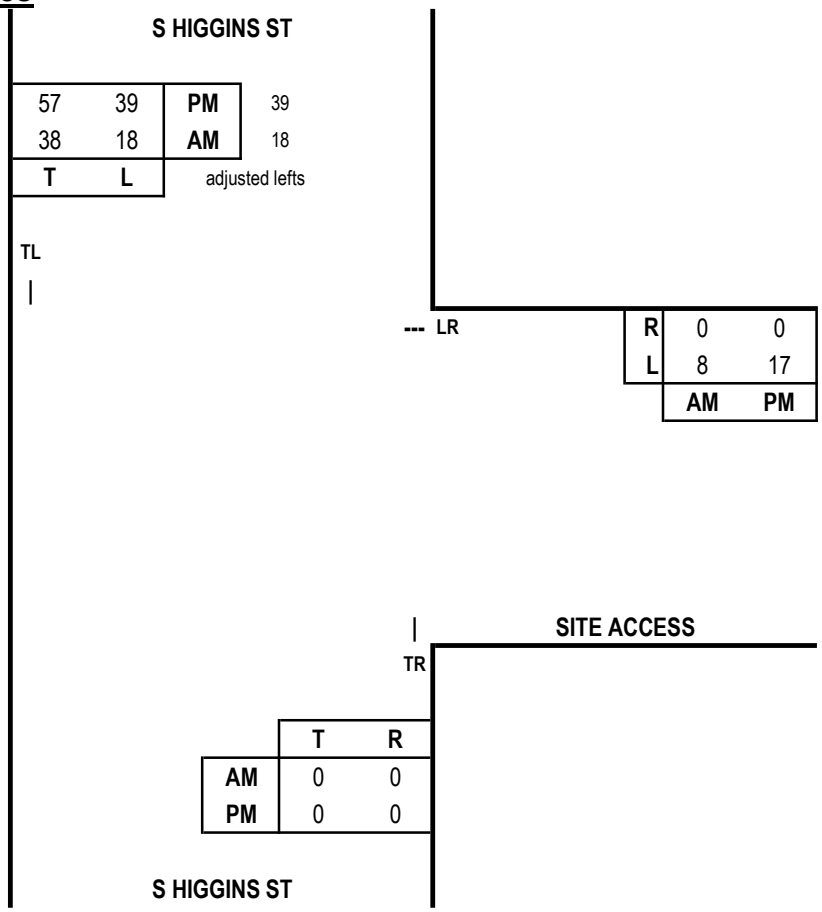
Intersection
5-Sat

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: S Higgins St
and: Site Access
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	8	1.00	8				8
NB	0	1.00	0	18	1.00	18	56
SB	56	1.00	56				

CLV TOTAL= **64**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	17	1.00	17				17
NB	0	1.00	0	39	1.00	39	96
SB	96	1.00	96				

CLV TOTAL= **113**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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S Higgins St &
Site Access
(Total Traffic)

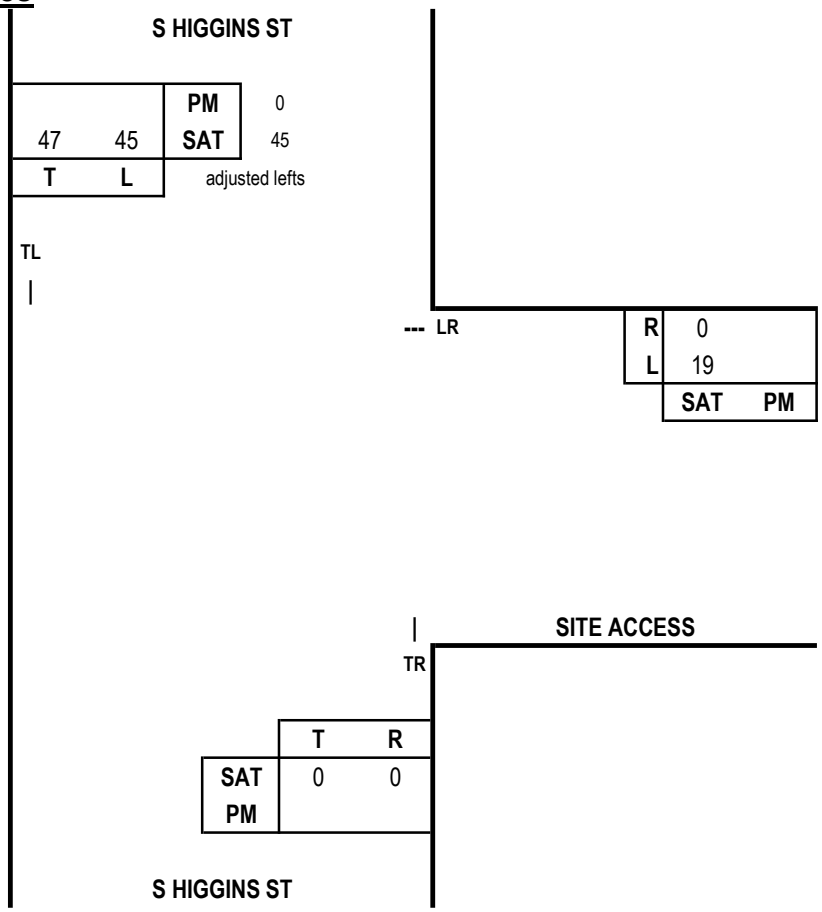
Intersection 6

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: S Higgins St
and: Site Access
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
WB	19	1.00	19				19
NB	0	1.00	0	45	1.00	45	92
SB	92	1.00	92				
					CLV TOTAL=		111
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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N

S Higgins St &
Site Access
(Total Traffic)

Intersection
6-SAT

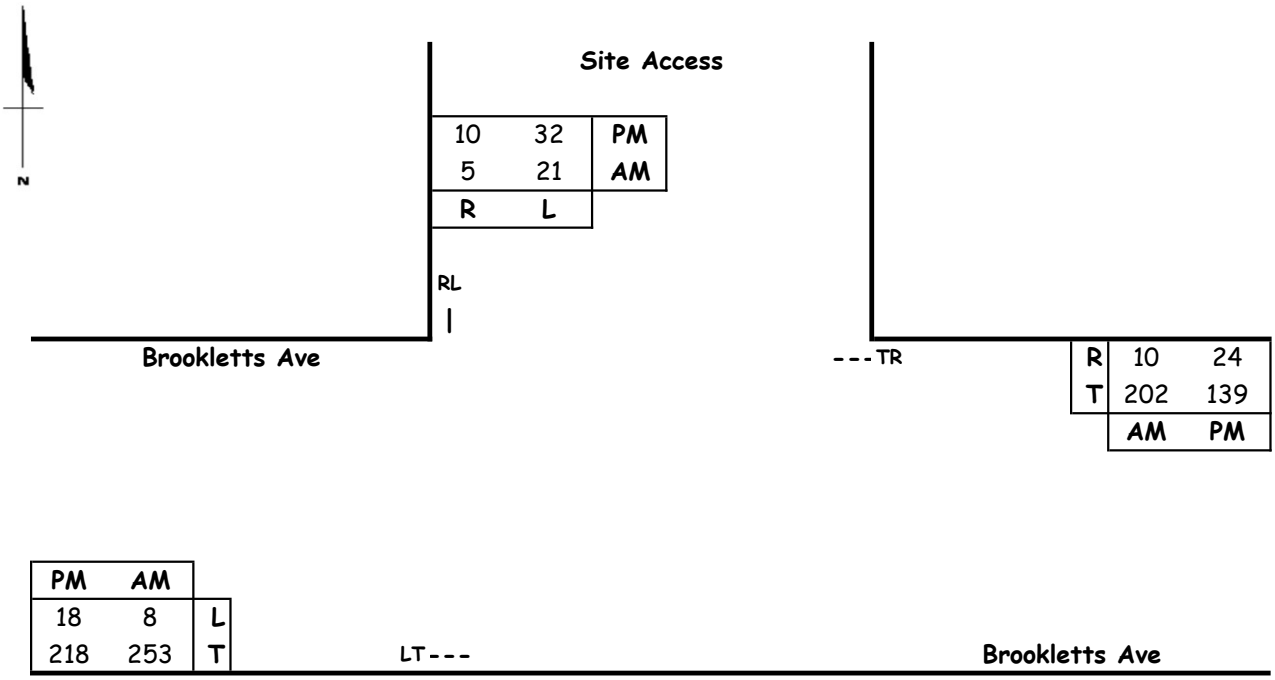
CRITICAL LANE VOLUME (CLV) METHODOLOGY

Choose your methodologies

Intersection of: Site Access
and: Brookletts Ave
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	26	1.00	26				26
EB	261	1.00	261				261
WB	212	1.00	212	8	1.00	8	

CLV TOTAL= **287**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	42	1.00	42				42
EB	236	1.00	236				236
WB	163	1.00	163	18	1.00	18	

CLV TOTAL= **278**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Brookletts Ave &
Site Access
(Total Traffic)

Intersection
7

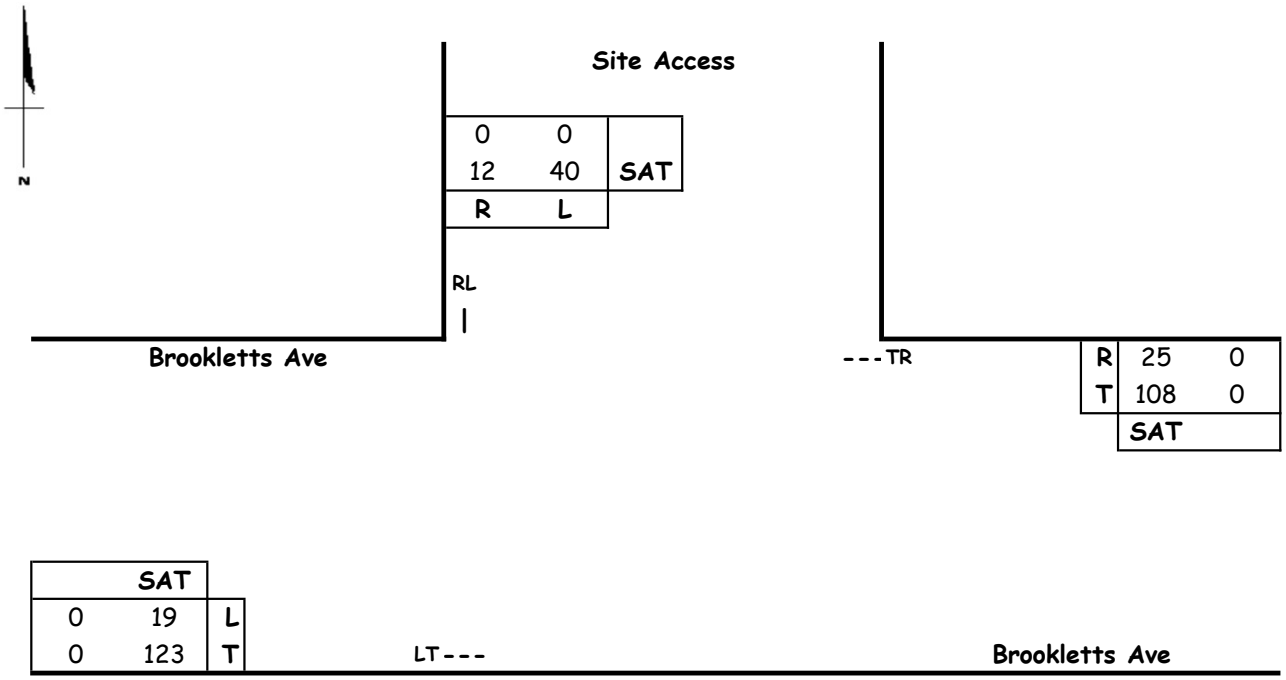
CRITICAL LANE VOLUME (CLV) METHODOLOGY

Choose your methodologies

Intersection of: Site Access
and: Brookletts Ave
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
SB	52	1.00	52				52
EB	142	1.00	142				152
WB	133	1.00	133	19	1.00	19	
						CLV TOTAL=	204
						Level of Service (LOS)=	A

Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		Brookletts Ave & Site Access (Total Traffic)	Intersection 7-SAT

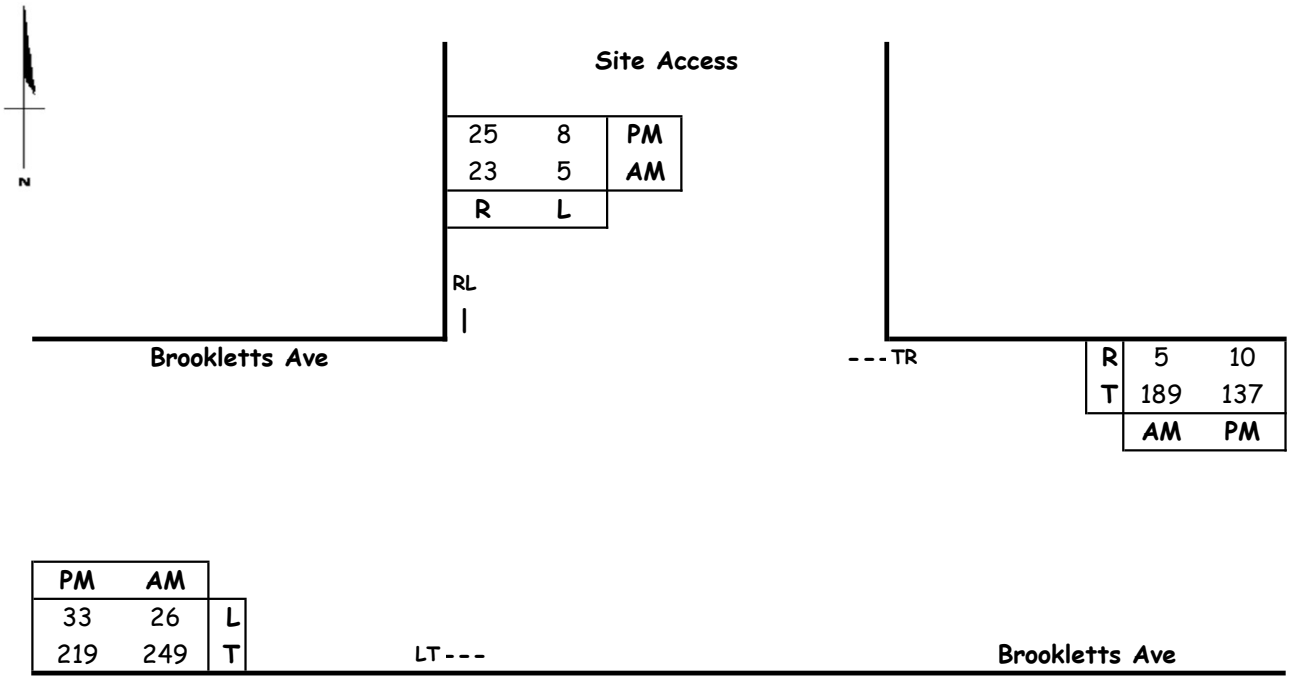
CRITICAL LANE VOLUME (CLV) METHODOLOGY

Choose your methodologies

Intersection of: Site Access
and: Brookletts Ave
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	28	1.00	28				28
EB	275	1.00	275				275
WB	194	1.00	194	26	1.00	26	

CLV TOTAL= **303**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	33	1.00	33				33
EB	252	1.00	252				252
WB	147	1.00	147	33	1.00	33	

CLV TOTAL= **285**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Brookletts Ave &
Site Access
(Total Traffic)

Intersection
8

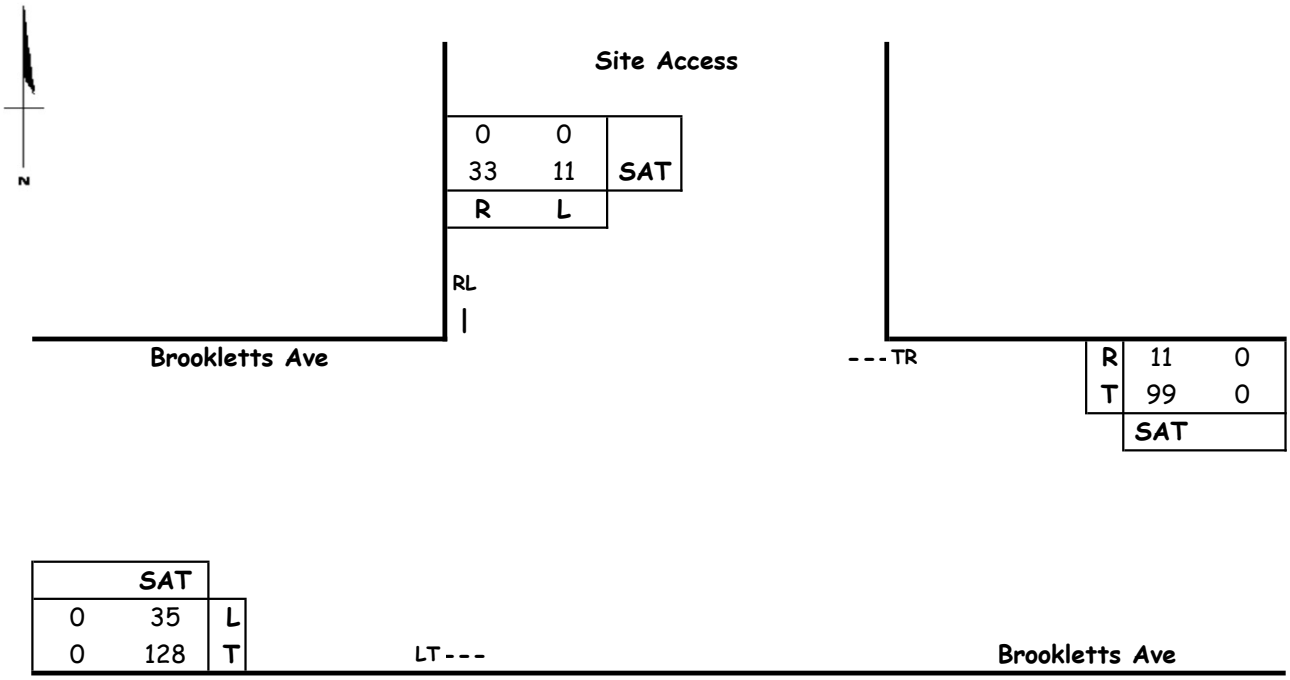
CRITICAL LANE VOLUME (CLV) METHODOLOGY

Choose your methodologies

Intersection of: Site Access
and: Brookletts Ave
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
SB	44	1.00	44				44
EB	163	1.00	163				163
WB	110	1.00	110	35	1.00	35	
						CLV TOTAL=	207
						Level of Service (LOS)=	A

Critical Lane Volume Analysis

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Brookletts Ave &
Site Access
(Total Traffic)

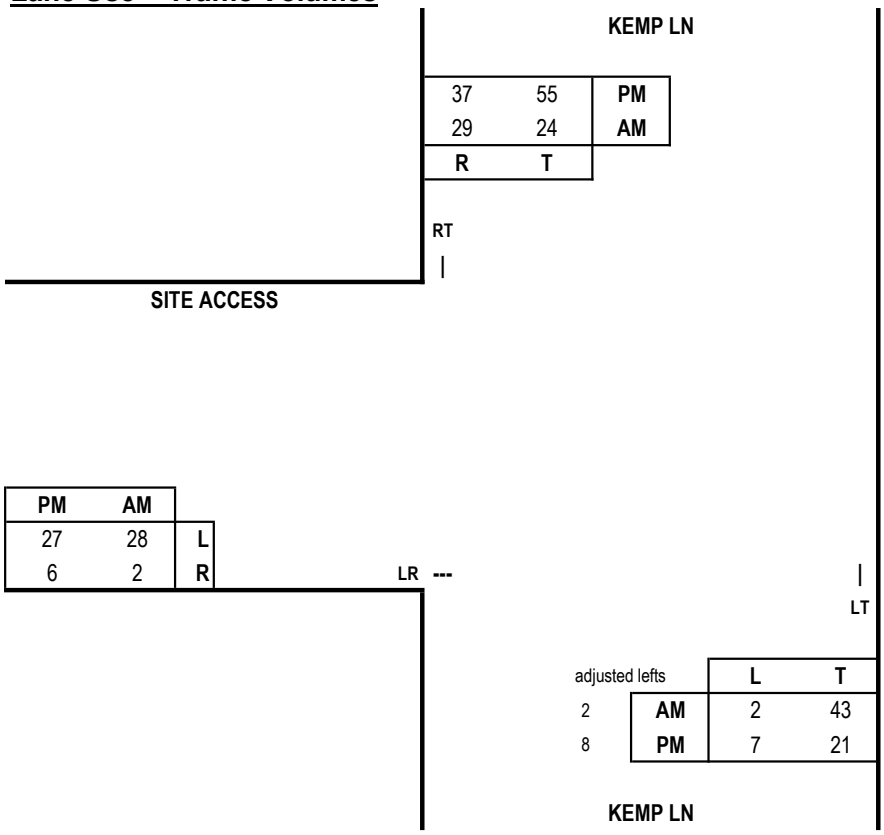
Intersection
8-SAT

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Site Access
and: Kemp Ln
Conditions: Total Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	30	1.00	30				30
NB	45	1.00	45				55
SB	53	1.00	53	2	1.00	2	

CLV TOTAL= **85**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	33	1.00	33				33
NB	29	1.00	29				99
SB	92	1.00	92	7	1.00	7	

CLV TOTAL= **132**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Kemp Ln &
Site Access
(Total Traffic)

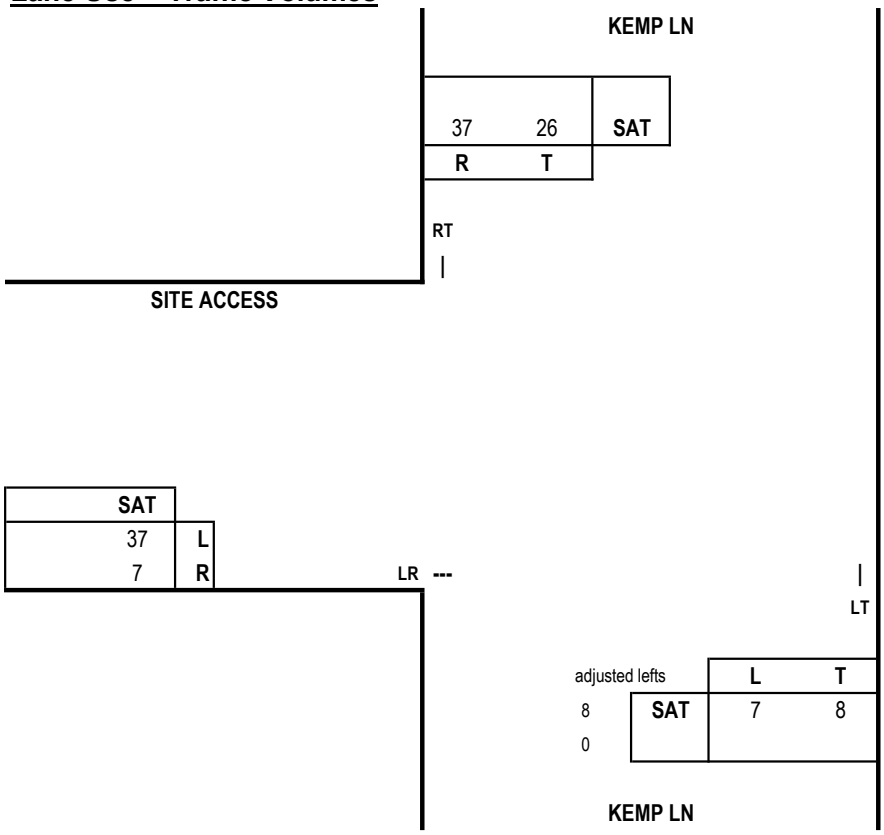
Intersection
9

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Site Access
and: Kemp Ln
Conditions: Total Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour

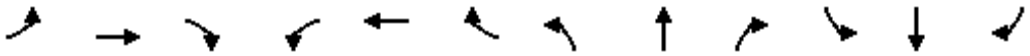
Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	SAT CLV
EB	44	1.00	44				44
NB	16	1.00	16				70
SB	63	1.00	63	7	1.00	7	
					CLV TOTAL=		**114**
					Level of Service (LOS)=		**A**

Critical Lane Volume Analysis

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Kemp Ln &
Site Access
(Total Traffic)

Intersection
9-SAT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	278	10	14	480	5	0	0	0	1	1	2
Future Volume (Veh/h)	6	278	10	14	480	5	0	0	0	1	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	302	11	15	522	5	0	0	0	1	1	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	527			313			878	878	308	876	882	524
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	527			313			878	878	308	876	882	524
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			100	100	100	100	100	100
cM capacity (veh/h)	1040			1247			263	281	732	265	280	553

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	320	542	4
Volume Left	7	15	1
Volume Right	11	5	2
cSH	1040	1247	365
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (ft)	1	1	1
Control Delay (s)	0.3	0.4	15.0
Lane LOS	A	A	B
Approach Delay (s)	0.3	0.4	15.0
Approach LOS			B

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	275	5	13	490	20	22
Future Volume (Veh/h)	275	5	13	490	20	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	299	5	14	533	22	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			304		862	302
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			304		862	302
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	97
cM capacity (veh/h)			1257		322	738

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	304	547	46
Volume Left	0	14	22
Volume Right	5	0	24
cSH	1700	1257	456
Volume to Capacity	0.18	0.01	0.10
Queue Length 95th (ft)	0	1	8
Control Delay (s)	0.0	0.3	13.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	13.8
Approach LOS			B

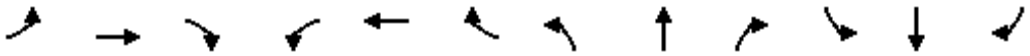
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	117	236	10	72	183
Future Volume (Veh/h)	20	117	236	10	72	183
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	127	257	11	78	199
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	618	262			268	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	618	262			268	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	84			94	
cM capacity (veh/h)	426	776			1296	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	149	268	277
Volume Left	22	0	78
Volume Right	127	11	0
cSH	692	1700	1296
Volume to Capacity	0.22	0.16	0.06
Queue Length 95th (ft)	20	0	5
Control Delay (s)	11.6	0.0	2.6
Lane LOS	B		A
Approach Delay (s)	11.6	0.0	2.6
Approach LOS	B		

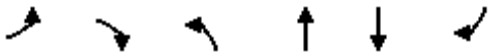
Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	198	1	6	181	0	10	0	14	6	2	2
Future Volume (Veh/h)	0	198	1	6	181	0	10	0	14	6	2	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	215	1	7	197	0	11	0	15	7	2	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	197			216			430	426	216	442	427	197
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	197			216			430	426	216	442	427	197
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	98	99	100	100
cM capacity (veh/h)	1376			1354			531	517	824	515	517	844

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	216	204	26	11
Volume Left	0	7	11	7
Volume Right	1	0	15	2
cSH	1700	1354	668	554
Volume to Capacity	0.13	0.01	0.04	0.02
Queue Length 95th (ft)	0	0	3	2
Control Delay (s)	0.0	0.3	10.6	11.6
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.3	10.6	11.6
Approach LOS			B	B

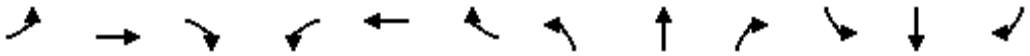
Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	24.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	113	137	58	24	35
Future Volume (Veh/h)	48	113	137	58	24	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	123	149	63	26	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	406	45	64			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	406	45	64			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	88	90			
cM capacity (veh/h)	543	1025	1538			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	175	212	64
Volume Left	52	149	0
Volume Right	123	0	38
cSH	811	1538	1700
Volume to Capacity	0.22	0.10	0.04
Queue Length 95th (ft)	20	8	0
Control Delay (s)	10.7	5.6	0.0
Lane LOS	B	A	
Approach Delay (s)	10.7	5.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	296	12	15	509	5	0	0	0	1	1	2
Future Volume (Veh/h)	6	296	12	15	509	5	0	0	0	1	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	322	13	16	553	5	0	0	0	1	1	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	558			335			932	932	328	930	936	556
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	558			335			932	932	328	930	936	556
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			100	100	100	100	100	100
cM capacity (veh/h)	1013			1224			241	261	713	244	260	531

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	342	574	4
Volume Left	7	16	1
Volume Right	13	5	2
cSH	1013	1224	341
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (ft)	1	1	1
Control Delay (s)	0.2	0.4	15.7
Lane LOS	A	A	C
Approach Delay (s)	0.2	0.4	15.7
Approach LOS			C

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	44.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	293	5	14	520	21	23
Future Volume (Veh/h)	293	5	14	520	21	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	318	5	15	565	23	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			323		916	320
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			323		916	320
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		92	97
cM capacity (veh/h)			1237		299	720

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	323	580	48
Volume Left	0	15	23
Volume Right	5	0	25
cSH	1700	1237	430
Volume to Capacity	0.19	0.01	0.11
Queue Length 95th (ft)	0	1	9
Control Delay (s)	0.0	0.3	14.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	14.4
Approach LOS			B

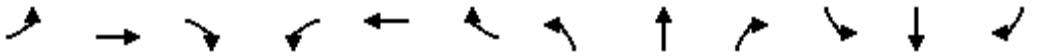
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	126	250	11	77	196
Future Volume (Veh/h)	21	126	250	11	77	196
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	137	272	12	84	213
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	659	278			284	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	659	278			284	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	82			93	
cM capacity (veh/h)	400	761			1278	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	160	284	297
Volume Left	23	0	84
Volume Right	137	12	0
cSH	674	1700	1278
Volume to Capacity	0.24	0.17	0.07
Queue Length 95th (ft)	23	0	5
Control Delay (s)	12.0	0.0	2.7
Lane LOS	B		A
Approach Delay (s)	12.0	0.0	2.7
Approach LOS	B		

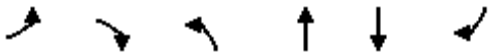
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	210	2	7	192	0	13	0	16	6	3	2
Future Volume (Veh/h)	0	210	2	7	192	0	13	0	16	6	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	228	2	8	209	0	14	0	17	7	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	209			230			458	454	229	471	455	209
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	209			230			458	454	229	471	455	209
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			97	100	98	99	99	100
cM capacity (veh/h)	1362			1338			508	499	810	490	498	831

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	230	217	31	12
Volume Left	0	8	14	7
Volume Right	2	0	17	2
cSH	1700	1338	638	528
Volume to Capacity	0.14	0.01	0.05	0.02
Queue Length 95th (ft)	0	0	4	2
Control Delay (s)	0.0	0.3	10.9	12.0
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.3	10.9	12.0
Approach LOS			B	B

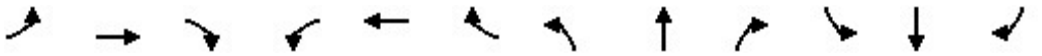
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	25.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	52	120	145	62	25	38
Future Volume (Veh/h)	52	120	145	62	25	38
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	57	130	158	67	27	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	430	48	68			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	430	48	68			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	87	90			
cM capacity (veh/h)	522	1022	1533			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	187	225	68
Volume Left	57	158	0
Volume Right	130	0	41
cSH	791	1533	1700
Volume to Capacity	0.24	0.10	0.04
Queue Length 95th (ft)	23	9	0
Control Delay (s)	11.0	5.6	0.0
Lane LOS	B	A	
Approach Delay (s)	11.0	5.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	296	33	22	509	5	0	0	0	1	1	2
Future Volume (Veh/h)	6	296	33	22	509	5	0	0	0	1	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	322	36	24	553	5	0	0	0	1	1	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	558			358			960	960	340	958	976	556
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	558			358			960	960	340	958	976	556
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			100	100	100	100	100	100
cM capacity (veh/h)	1013			1201			230	250	702	232	245	531

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	365	582	4
Volume Left	7	24	1
Volume Right	36	5	2
cSH	1013	1201	329
Volume to Capacity	0.01	0.02	0.01
Queue Length 95th (ft)	1	2	1
Control Delay (s)	0.2	0.6	16.1
Lane LOS	A	A	C
Approach Delay (s)	0.2	0.6	16.1
Approach LOS			C

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	48.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	293	5	48	527	21	49
Future Volume (Veh/h)	293	5	48	527	21	49
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	318	5	52	573	23	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			323		998	320
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			323		998	320
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		91	93
cM capacity (veh/h)			1237		259	720

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	323	625	76
Volume Left	0	52	23
Volume Right	5	0	53
cSH	1700	1237	468
Volume to Capacity	0.19	0.04	0.16
Queue Length 95th (ft)	0	3	14
Control Delay (s)	0.0	1.1	14.2
Lane LOS		A	B
Approach Delay (s)	0.0	1.1	14.2
Approach LOS			B

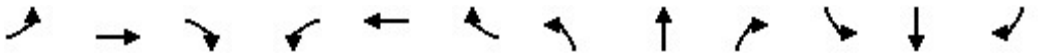
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	137	250	26	77	196
Future Volume (Veh/h)	38	137	250	26	77	196
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	149	272	28	84	213
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	667	286			300	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	667	286			300	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	80			93	
cM capacity (veh/h)	396	753			1261	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	190	300	297
Volume Left	41	0	84
Volume Right	149	28	0
cSH	630	1700	1261
Volume to Capacity	0.30	0.18	0.07
Queue Length 95th (ft)	32	0	5
Control Delay (s)	13.2	0.0	2.7
Lane LOS	B		A
Approach Delay (s)	13.2	0.0	2.7
Approach LOS	B		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	225	2	7	216	0	13	0	16	20	3	6
Future Volume (Veh/h)	0	225	2	7	216	0	13	0	16	20	3	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	245	2	8	235	0	14	0	17	22	3	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	235			247			506	497	246	514	498	235
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	235			247			506	497	246	514	498	235
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			97	100	98	95	99	99
cM capacity (veh/h)	1332			1319			469	472	793	459	471	804

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	247	243	31	32
Volume Left	0	8	14	22
Volume Right	2	0	17	7
cSH	1700	1319	604	508
Volume to Capacity	0.15	0.01	0.05	0.06
Queue Length 95th (ft)	0	0	4	5
Control Delay (s)	0.0	0.3	11.3	12.6
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.3	11.3	12.6
Approach LOS			B	B

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	27.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	125	149	62	25	38
Future Volume (Veh/h)	69	125	149	62	25	38
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	136	162	67	27	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	438	48	68			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	438	48	68			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	87	89			
cM capacity (veh/h)	515	1022	1533			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	211	229	68
Volume Left	75	162	0
Volume Right	136	0	41
cSH	757	1533	1700
Volume to Capacity	0.28	0.11	0.04
Queue Length 95th (ft)	29	9	0
Control Delay (s)	11.6	5.6	0.0
Lane LOS	B	A	
Approach Delay (s)	11.6	5.6	0.0
Approach LOS	B		

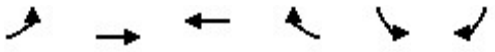
Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	0	0	0	18	38
Future Volume (Veh/h)	8	0	0	0	18	38
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	0	0	20	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	81	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	81	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			99	
cM capacity (veh/h)	910	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	9	61
Volume Left	9	20
Volume Right	0	0
cSH	910	1623
Volume to Capacity	0.01	0.01
Queue Length 95th (ft)	1	1
Control Delay (s)	9.0	2.4
Lane LOS	A	A
Approach Delay (s)	9.0	2.4
Approach LOS	A	

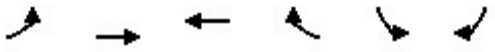
Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	253	202	10	21	5
Future Volume (Veh/h)	8	253	202	10	21	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	275	220	11	23	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	231				518	226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	231				518	226
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	1337				514	814

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	284	231	28
Volume Left	9	0	23
Volume Right	0	11	5
cSH	1337	1700	550
Volume to Capacity	0.01	0.14	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.3	0.0	11.9
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	249	189	5	5	23
Future Volume (Veh/h)	26	249	189	5	5	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	271	205	5	5	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	210				534	208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	210				534	208
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	97
cM capacity (veh/h)	1361				496	833

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	299	210	30
Volume Left	28	0	5
Volume Right	0	5	25
cSH	1361	1700	748
Volume to Capacity	0.02	0.12	0.04
Queue Length 95th (ft)	2	0	3
Control Delay (s)	0.9	0.0	10.0
Lane LOS	A		B
Approach Delay (s)	0.9	0.0	10.0
Approach LOS			B

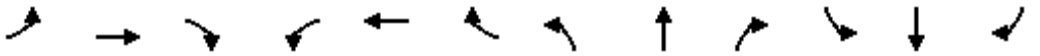
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	2	2	43	24	29
Future Volume (Veh/h)	28	2	2	43	24	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	2	2	47	26	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	93	42	58			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	93	42	58			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	906	1029	1546			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	32	49	58
Volume Left	30	2	0
Volume Right	2	0	32
cSH	913	1546	1700
Volume to Capacity	0.04	0.00	0.03
Queue Length 95th (ft)	3	0	0
Control Delay (s)	9.1	0.3	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	0.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	13.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	529	20	32	417	17	0	0	0	3	1	2
Future Volume (Veh/h)	10	529	20	32	417	17	0	0	0	3	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	575	22	35	453	18	0	0	0	3	1	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	471			597			1142	1149	586	1140	1151	462
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	471			597			1142	1149	586	1140	1151	462
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			100	100	100	98	99	100
cM capacity (veh/h)	1091			980			170	189	510	172	189	600

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	608	506	6
Volume Left	11	35	3
Volume Right	22	18	2
cSH	1091	980	230
Volume to Capacity	0.01	0.04	0.03
Queue Length 95th (ft)	1	3	2
Control Delay (s)	0.3	1.0	21.1
Lane LOS	A	A	C
Approach Delay (s)	0.3	1.0	21.1
Approach LOS			C

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	50.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	483	34	12	424	14	12
Future Volume (Veh/h)	483	34	12	424	14	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	525	37	13	461	15	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			562		1030	544
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			562		1030	544
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		94	98
cM capacity (veh/h)			1009		255	539

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	562	474	28
Volume Left	0	13	15
Volume Right	37	0	13
cSH	1700	1009	338
Volume to Capacity	0.33	0.01	0.08
Queue Length 95th (ft)	0	1	7
Control Delay (s)	0.0	0.4	16.6
Lane LOS		A	C
Approach Delay (s)	0.0	0.4	16.6
Approach LOS			C

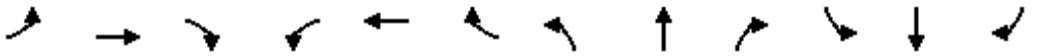
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	82	207	12	109	273
Future Volume (Veh/h)	11	82	207	12	109	273
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	89	225	13	118	297
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	764	232			238	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	764	232			238	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	89			91	
cM capacity (veh/h)	339	808			1329	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	101	238	415
Volume Left	12	0	118
Volume Right	89	13	0
cSH	694	1700	1329
Volume to Capacity	0.15	0.14	0.09
Queue Length 95th (ft)	13	0	7
Control Delay (s)	11.1	0.0	2.9
Lane LOS	B		A
Approach Delay (s)	11.1	0.0	2.9
Approach LOS	B		

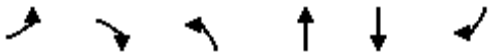
Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	167	0	7	162	0	1	0	6	15	5	8
Future Volume (Veh/h)	0	167	0	7	162	0	1	0	6	15	5	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	182	0	8	176	0	1	0	7	16	5	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	176			182			386	374	182	381	374	176
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176			182			386	374	182	381	374	176
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	99	97	99	99
cM capacity (veh/h)	1400			1393			561	553	861	570	553	867

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	182	184	8	30
Volume Left	0	8	1	16
Volume Right	0	0	7	9
cSH	1700	1393	807	632
Volume to Capacity	0.11	0.01	0.01	0.05
Queue Length 95th (ft)	0	0	1	4
Control Delay (s)	0.0	0.4	9.5	11.0
Lane LOS		A	A	B
Approach Delay (s)	0.0	0.4	9.5	11.0
Approach LOS			A	B

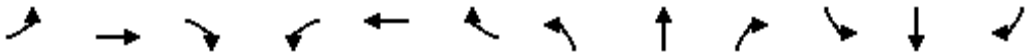
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	25.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	133	90	28	40	28
Future Volume (Veh/h)	59	133	90	28	40	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	145	98	30	43	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	284	58	73			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	284	58	73			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	86	94			
cM capacity (veh/h)	661	1008	1527			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	209	128	73
Volume Left	64	98	0
Volume Right	145	0	30
cSH	868	1527	1700
Volume to Capacity	0.24	0.06	0.04
Queue Length 95th (ft)	24	5	0
Control Delay (s)	10.5	5.9	0.0
Lane LOS	B	A	
Approach Delay (s)	10.5	5.9	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	562	22	34	444	18	0	0	0	3	1	2
Future Volume (Veh/h)	11	562	22	34	444	18	0	0	0	3	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	611	24	37	483	20	0	0	0	3	1	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	503			635			1216	1224	623	1214	1226	493
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	503			635			1216	1224	623	1214	1226	493
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			100	100	100	98	99	100
cM capacity (veh/h)	1061			948			151	170	486	152	170	576

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	647	540	6
Volume Left	12	37	3
Volume Right	24	20	2
cSH	1061	948	206
Volume to Capacity	0.01	0.04	0.03
Queue Length 95th (ft)	1	3	2
Control Delay (s)	0.3	1.1	23.0
Lane LOS	A	A	C
Approach Delay (s)	0.3	1.1	23.0
Approach LOS			C

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	53.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	514	36	13	451	15	13
Future Volume (Veh/h)	514	36	13	451	15	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	559	39	14	490	16	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			598		1096	578
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			598		1096	578
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	97
cM capacity (veh/h)			979		233	515

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	598	504	30
Volume Left	0	14	16
Volume Right	39	0	14
cSH	1700	979	313
Volume to Capacity	0.35	0.01	0.10
Queue Length 95th (ft)	0	1	8
Control Delay (s)	0.0	0.4	17.7
Lane LOS		A	C
Approach Delay (s)	0.0	0.4	17.7
Approach LOS			C

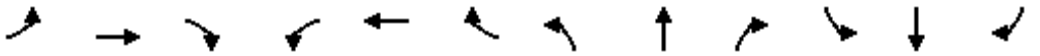
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	89	222	13	117	291
Future Volume (Veh/h)	12	89	222	13	117	291
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	97	241	14	127	316
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	818	248			255	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	818	248			255	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	88			90	
cM capacity (veh/h)	312	791			1310	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	110	255	443
Volume Left	13	0	127
Volume Right	97	14	0
cSH	669	1700	1310
Volume to Capacity	0.16	0.15	0.10
Queue Length 95th (ft)	15	0	8
Control Delay (s)	11.4	0.0	3.0
Lane LOS	B		A
Approach Delay (s)	11.4	0.0	3.0
Approach LOS	B		

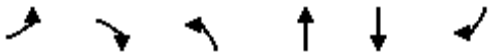
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	177	1	8	172	0	3	0	7	16	6	8
Future Volume (Veh/h)	0	177	1	8	172	0	3	0	7	16	6	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	192	1	9	187	0	3	0	8	17	7	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	187			193			410	398	192	406	398	187
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	187			193			410	398	192	406	398	187
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	99	97	99	99
cM capacity (veh/h)	1387			1380			538	537	849	548	536	855

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	193	196	11	33
Volume Left	0	9	3	17
Volume Right	1	0	8	9
cSH	1700	1380	733	604
Volume to Capacity	0.11	0.01	0.01	0.05
Queue Length 95th (ft)	0	0	1	4
Control Delay (s)	0.0	0.4	10.0	11.3
Lane LOS		A	A	B
Approach Delay (s)	0.0	0.4	10.0	11.3
Approach LOS			A	B

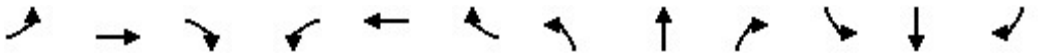
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	64	141	96	30	42	31
Future Volume (Veh/h)	64	141	96	30	42	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	153	104	33	46	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	304	63	80			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	304	63	80			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	85	93			
cM capacity (veh/h)	641	1002	1518			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	223	137	80
Volume Left	70	104	0
Volume Right	153	0	34
cSH	851	1518	1700
Volume to Capacity	0.26	0.07	0.05
Queue Length 95th (ft)	26	6	0
Control Delay (s)	10.7	5.9	0.0
Lane LOS	B	A	
Approach Delay (s)	10.7	5.9	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	562	48	47	444	18	0	0	0	3	1	2
Future Volume (Veh/h)	11	562	48	47	444	18	0	0	0	3	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	611	52	51	483	20	0	0	0	3	1	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	503			663			1258	1266	637	1256	1282	493
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	503			663			1258	1266	637	1256	1282	493
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			100	100	100	98	99	100
cM capacity (veh/h)	1061			926			139	158	477	141	154	576

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	675	554	6
Volume Left	12	51	3
Volume Right	52	20	2
cSH	1061	926	192
Volume to Capacity	0.01	0.06	0.03
Queue Length 95th (ft)	1	4	2
Control Delay (s)	0.3	1.5	24.4
Lane LOS	A	A	C
Approach Delay (s)	0.3	1.5	24.4
Approach LOS			C

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	60.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	514	36	56	464	15	34
Future Volume (Veh/h)	514	36	56	464	15	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	559	39	61	504	16	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			598		1204	578
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			598		1204	578
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		92	93
cM capacity (veh/h)			979		191	515

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	598	565	53
Volume Left	0	61	16
Volume Right	39	0	37
cSH	1700	979	340
Volume to Capacity	0.35	0.06	0.16
Queue Length 95th (ft)	0	5	14
Control Delay (s)	0.0	1.7	17.5
Lane LOS		A	C
Approach Delay (s)	0.0	1.7	17.5
Approach LOS			C

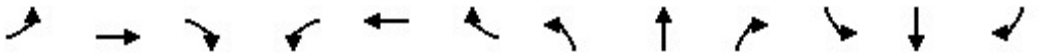
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	100	222	34	117	291
Future Volume (Veh/h)	29	100	222	34	117	291
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	109	241	37	127	316
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	830	260			278	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	830	260			278	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	86			90	
cM capacity (veh/h)	307	779			1285	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	141	278	443
Volume Left	32	0	127
Volume Right	109	37	0
cSH	577	1700	1285
Volume to Capacity	0.24	0.16	0.10
Queue Length 95th (ft)	24	0	8
Control Delay (s)	13.2	0.0	3.0
Lane LOS	B		A
Approach Delay (s)	13.2	0.0	3.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	199	1	8	195	0	3	0	7	30	6	13
Future Volume (Veh/h)	0	199	1	8	195	0	3	0	7	30	6	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	216	1	9	212	0	3	0	8	33	7	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	212			217			464	446	216	454	447	212
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	212			217			464	446	216	454	447	212
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	99	94	99	98
cM capacity (veh/h)	1358			1353			492	503	823	508	503	828

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	217	221	11	54
Volume Left	0	9	3	33
Volume Right	1	0	8	14
cSH	1700	1353	696	564
Volume to Capacity	0.13	0.01	0.02	0.10
Queue Length 95th (ft)	0	1	1	8
Control Delay (s)	0.0	0.4	10.3	12.1
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.4	10.3	12.1
Approach LOS			B	B

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	28.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	145	103	30	42	31
Future Volume (Veh/h)	88	145	103	30	42	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	96	158	112	33	46	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	320	63	80			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	320	63	80			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	84	93			
cM capacity (veh/h)	624	1002	1518			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	254	145	80
Volume Left	96	112	0
Volume Right	158	0	34
cSH	815	1518	1700
Volume to Capacity	0.31	0.07	0.05
Queue Length 95th (ft)	33	6	0
Control Delay (s)	11.4	6.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.4	6.0	0.0
Approach LOS	B		

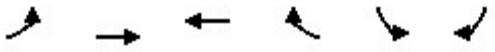
Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	0	0	0	39	57
Future Volume (Veh/h)	17	0	0	0	39	57
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	0	0	42	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	146	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	146	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			97	
cM capacity (veh/h)	824	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	18	104
Volume Left	18	42
Volume Right	0	0
cSH	824	1623
Volume to Capacity	0.02	0.03
Queue Length 95th (ft)	2	2
Control Delay (s)	9.5	3.1
Lane LOS	A	A
Approach Delay (s)	9.5	3.1
Approach LOS	A	

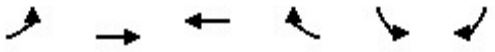
Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	218	139	24	32	10
Future Volume (Veh/h)	18	218	139	24	32	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	237	151	26	35	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	177				441	164
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	177				441	164
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				94	99
cM capacity (veh/h)	1399				565	881

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	257	177	46
Volume Left	20	0	35
Volume Right	0	26	11
cSH	1399	1700	618
Volume to Capacity	0.01	0.10	0.07
Queue Length 95th (ft)	1	0	6
Control Delay (s)	0.7	0.0	11.3
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	11.3
Approach LOS			B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	219	137	10	8	25
Future Volume (Veh/h)	33	219	137	10	8	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	238	149	11	9	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	160				464	154
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160				464	154
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				98	97
cM capacity (veh/h)	1419				542	891

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	274	160	36
Volume Left	36	0	9
Volume Right	0	11	27
cSH	1419	1700	768
Volume to Capacity	0.03	0.09	0.05
Queue Length 95th (ft)	2	0	4
Control Delay (s)	1.2	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	1.2	0.0	9.9
Approach LOS			A

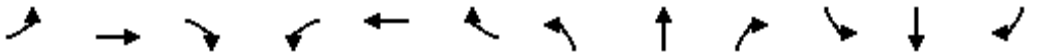
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	6	7	21	55	37
Future Volume (Veh/h)	27	6	7	21	55	37
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	7	8	23	60	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	119	80	100			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	119	80	100			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	872	980	1493			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	36	31	100
Volume Left	29	8	0
Volume Right	7	0	40
cSH	891	1493	1700
Volume to Capacity	0.04	0.01	0.06
Queue Length 95th (ft)	3	0	0
Control Delay (s)	9.2	1.9	0.0
Lane LOS	A	A	
Approach Delay (s)	9.2	1.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	416	13	27	411	5	0	0	0	4	0	3
Future Volume (Veh/h)	6	416	13	27	411	5	0	0	0	4	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	452	14	29	447	5	0	0	0	4	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	452			466			984	983	459	980	988	450
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	452			466			984	983	459	980	988	450
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			100	100	100	98	100	100
cM capacity (veh/h)	1109			1095			221	241	602	223	239	610

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	473	481	7
Volume Left	7	29	4
Volume Right	14	5	3
cSH	1109	1095	306
Volume to Capacity	0.01	0.03	0.02
Queue Length 95th (ft)	0	2	2
Control Delay (s)	0.2	0.8	17.0
Lane LOS	A	A	C
Approach Delay (s)	0.2	0.8	17.0
Approach LOS			C

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	442	8	9	440	5	9
Future Volume (Veh/h)	442	8	9	440	5	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	480	9	10	478	5	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			489		982	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			489		982	484
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	98
cM capacity (veh/h)			1074		273	582

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	489	488	15
Volume Left	0	10	5
Volume Right	9	0	10
cSH	1700	1074	423
Volume to Capacity	0.29	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.3	13.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	13.8
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	79	181	6	55	180
Future Volume (Veh/h)	13	79	181	6	55	180
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	86	197	7	60	196
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	516	200			204	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	516	200			204	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	90			96	
cM capacity (veh/h)	496	840			1368	

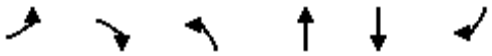
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	100	204	256
Volume Left	14	0	60
Volume Right	86	7	0
cSH	766	1700	1368
Volume to Capacity	0.13	0.12	0.04
Queue Length 95th (ft)	11	0	3
Control Delay (s)	10.4	0.0	2.1
Lane LOS	B		A
Approach Delay (s)	10.4	0.0	2.1
Approach LOS	B		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	82	3	4	96	0	2	0	6	7	3	7
Future Volume (Veh/h)	0	82	3	4	96	0	2	0	6	7	3	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	89	3	4	104	0	2	0	7	8	3	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	104			92			212	202	90	210	204	104
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	104			92			212	202	90	210	204	104
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	99	100	99
cM capacity (veh/h)	1488			1503			735	692	967	741	691	951

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	92	108	9	19
Volume Left	0	4	2	8
Volume Right	3	0	7	8
cSH	1700	1503	904	807
Volume to Capacity	0.05	0.00	0.01	0.02
Queue Length 95th (ft)	0	0	1	2
Control Delay (s)	0.0	0.3	9.0	9.6
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.3	9.0	9.6
Approach LOS			A	A

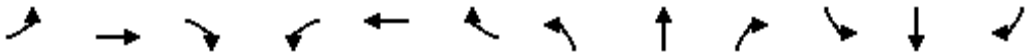
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	50	64	25	5	17
Future Volume (Veh/h)	40	50	64	25	5	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	54	70	27	5	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	181	14	23			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181	14	23			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	95	96			
cM capacity (veh/h)	773	1066	1592			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	97	97	23
Volume Left	43	70	0
Volume Right	54	0	18
cSH	913	1592	1700
Volume to Capacity	0.11	0.04	0.01
Queue Length 95th (ft)	9	3	0
Control Delay (s)	9.4	5.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	5.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	442	16	29	437	5	0	0	0	4	0	3
Future Volume (Veh/h)	6	442	16	29	437	5	0	0	0	4	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	480	17	32	475	5	0	0	0	4	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	480			497			1047	1046	488	1044	1052	478
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480			497			1047	1046	488	1044	1052	478
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			100	100	100	98	100	99
cM capacity (veh/h)	1082			1067			199	220	579	201	218	588

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	504	512	7
Volume Left	7	32	4
Volume Right	17	5	3
cSH	1082	1067	280
Volume to Capacity	0.01	0.03	0.02
Queue Length 95th (ft)	0	2	2
Control Delay (s)	0.2	0.9	18.2
Lane LOS	A	A	C
Approach Delay (s)	0.2	0.9	18.2
Approach LOS			C

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	50.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	470	8	10	468	5	10
Future Volume (Veh/h)	470	8	10	468	5	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	511	9	11	509	5	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			520		1046	516
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			520		1046	516
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	98
cM capacity (veh/h)			1046		250	559

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	520	520	16
Volume Left	0	11	5
Volume Right	9	0	11
cSH	1700	1046	404
Volume to Capacity	0.31	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.3	14.3
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	14.3
Approach LOS			B

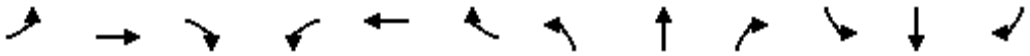
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	87	193	6	60	192
Future Volume (Veh/h)	14	87	193	6	60	192
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	95	210	7	65	209
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	552	214			217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	552	214			217	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	89			95	
cM capacity (veh/h)	471	827			1353	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	110	217	274
Volume Left	15	0	65
Volume Right	95	7	0
cSH	749	1700	1353
Volume to Capacity	0.15	0.13	0.05
Queue Length 95th (ft)	13	0	4
Control Delay (s)	10.6	0.0	2.2
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	2.2
Approach LOS	B		

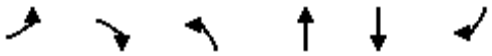
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	87	5	6	102	0	5	0	8	7	5	7
Future Volume (Veh/h)	0	87	5	6	102	0	5	0	8	7	5	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	95	5	7	111	0	5	0	9	8	5	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	111			100			233	222	98	232	225	111
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	111			100			233	222	98	232	225	111
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	99	99	99	99
cM capacity (veh/h)	1479			1493			709	673	959	714	671	942

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	100	118	14	21
Volume Left	0	7	5	8
Volume Right	5	0	9	8
cSH	1700	1493	852	774
Volume to Capacity	0.06	0.00	0.02	0.03
Queue Length 95th (ft)	0	0	1	2
Control Delay (s)	0.0	0.5	9.3	9.8
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.5	9.3	9.8
Approach LOS			A	A

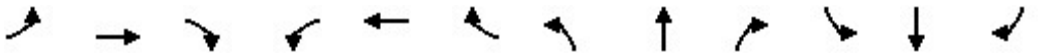
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	20.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	53	68	27	5	20
Future Volume (Veh/h)	44	53	68	27	5	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	58	74	29	5	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	193	16	27			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	193	16	27			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	95	95			
cM capacity (veh/h)	759	1063	1587			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	106	103	27
Volume Left	48	74	0
Volume Right	58	0	22
cSH	900	1587	1700
Volume to Capacity	0.12	0.05	0.02
Queue Length 95th (ft)	10	4	0
Control Delay (s)	9.5	5.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.5	5.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	442	48	45	437	5	0	0	0	4	0	3
Future Volume (Veh/h)	6	442	48	45	437	5	0	0	0	4	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	480	52	49	475	5	0	0	0	4	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	480			532			1098	1098	506	1096	1122	478
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480			532			1098	1098	506	1096	1122	478
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			100	100	100	98	100	99
cM capacity (veh/h)	1082			1036			181	201	566	183	195	588

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	539	529	7
Volume Left	7	49	4
Volume Right	52	5	3
cSH	1082	1036	260
Volume to Capacity	0.01	0.05	0.03
Queue Length 95th (ft)	0	4	2
Control Delay (s)	0.2	1.3	19.2
Lane LOS	A	A	C
Approach Delay (s)	0.2	1.3	19.2
Approach LOS			C

Intersection Summary					
Average Delay	0.9				
Intersection Capacity Utilization	61.5%	ICU Level of Service		B	
Analysis Period (min)	15				



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	470	8	55	484	5	41
Future Volume (Veh/h)	470	8	55	484	5	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	511	9	60	526	5	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			520		1162	516
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			520		1162	516
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		98	92
cM capacity (veh/h)			1046		203	559

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	520	586	50
Volume Left	0	60	5
Volume Right	9	0	45
cSH	1700	1046	476
Volume to Capacity	0.31	0.06	0.11
Queue Length 95th (ft)	0	5	9
Control Delay (s)	0.0	1.5	13.4
Lane LOS		A	B
Approach Delay (s)	0.0	1.5	13.4
Approach LOS			B

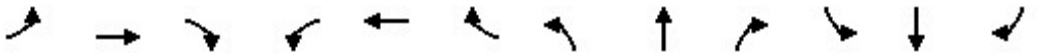
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	102	193	30	60	192
Future Volume (Veh/h)	38	102	193	30	60	192
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	111	210	33	65	209
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	566	226			243	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	566	226			243	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	86			95	
cM capacity (veh/h)	462	813			1323	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	152	243	274
Volume Left	41	0	65
Volume Right	111	33	0
cSH	675	1700	1323
Volume to Capacity	0.23	0.14	0.05
Queue Length 95th (ft)	22	0	4
Control Delay (s)	11.9	0.0	2.2
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	2.2
Approach LOS	B		

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	111	5	6	135	0	5	0	8	23	5	13
Future Volume (Veh/h)	0	111	5	6	135	0	5	0	8	23	5	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	121	5	7	147	0	5	0	9	25	5	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	147			126			301	284	124	294	287	147
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	147			126			301	284	124	294	287	147
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	99	96	99	98
cM capacity (veh/h)	1435			1460			635	622	927	650	620	900

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	126	154	14	44
Volume Left	0	7	5	25
Volume Right	5	0	9	14
cSH	1700	1460	796	709
Volume to Capacity	0.07	0.00	0.02	0.06
Queue Length 95th (ft)	0	0	1	5
Control Delay (s)	0.0	0.4	9.6	10.4
Lane LOS		A	A	B
Approach Delay (s)	0.0	0.4	9.6	10.4
Approach LOS			A	B

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	22.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	74	60	75	27	5	20
Future Volume (Veh/h)	74	60	75	27	5	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	65	82	29	5	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	209	16	27			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209	16	27			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	94	95			
cM capacity (veh/h)	739	1063	1587			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	145	111	27
Volume Left	80	82	0
Volume Right	65	0	22
cSH	856	1587	1700
Volume to Capacity	0.17	0.05	0.02
Queue Length 95th (ft)	15	4	0
Control Delay (s)	10.1	5.6	0.0
Lane LOS	B	A	
Approach Delay (s)	10.1	5.6	0.0
Approach LOS	B		

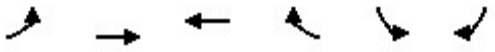
Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	0	0	0	45	47
Future Volume (Veh/h)	19	0	0	0	45	47
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	0	0	0	49	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	149	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			97	
cM capacity (veh/h)	818	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	21	100
Volume Left	21	49
Volume Right	0	0
cSH	818	1623
Volume to Capacity	0.03	0.03
Queue Length 95th (ft)	2	2
Control Delay (s)	9.5	3.7
Lane LOS	A	A
Approach Delay (s)	9.5	3.7
Approach LOS	A	

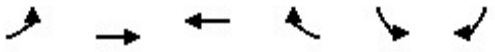
Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	15.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	123	108	25	40	12
Future Volume (Veh/h)	19	123	108	25	40	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	134	117	27	43	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	144				306	130
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	144				306	130
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				94	99
cM capacity (veh/h)	1438				676	919

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	155	144	56
Volume Left	21	0	43
Volume Right	0	27	13
cSH	1438	1700	720
Volume to Capacity	0.01	0.08	0.08
Queue Length 95th (ft)	1	0	6
Control Delay (s)	1.1	0.0	10.4
Lane LOS	A		B
Approach Delay (s)	1.1	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	128	99	11	11	33
Future Volume (Veh/h)	35	128	99	11	11	33
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	139	108	12	12	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	120				329	114
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	120				329	114
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				98	96
cM capacity (veh/h)	1468				648	939

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	177	120	48
Volume Left	38	0	12
Volume Right	0	12	36
cSH	1468	1700	844
Volume to Capacity	0.03	0.07	0.06
Queue Length 95th (ft)	2	0	5
Control Delay (s)	1.8	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	1.8	0.0	9.5
Approach LOS			A

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		



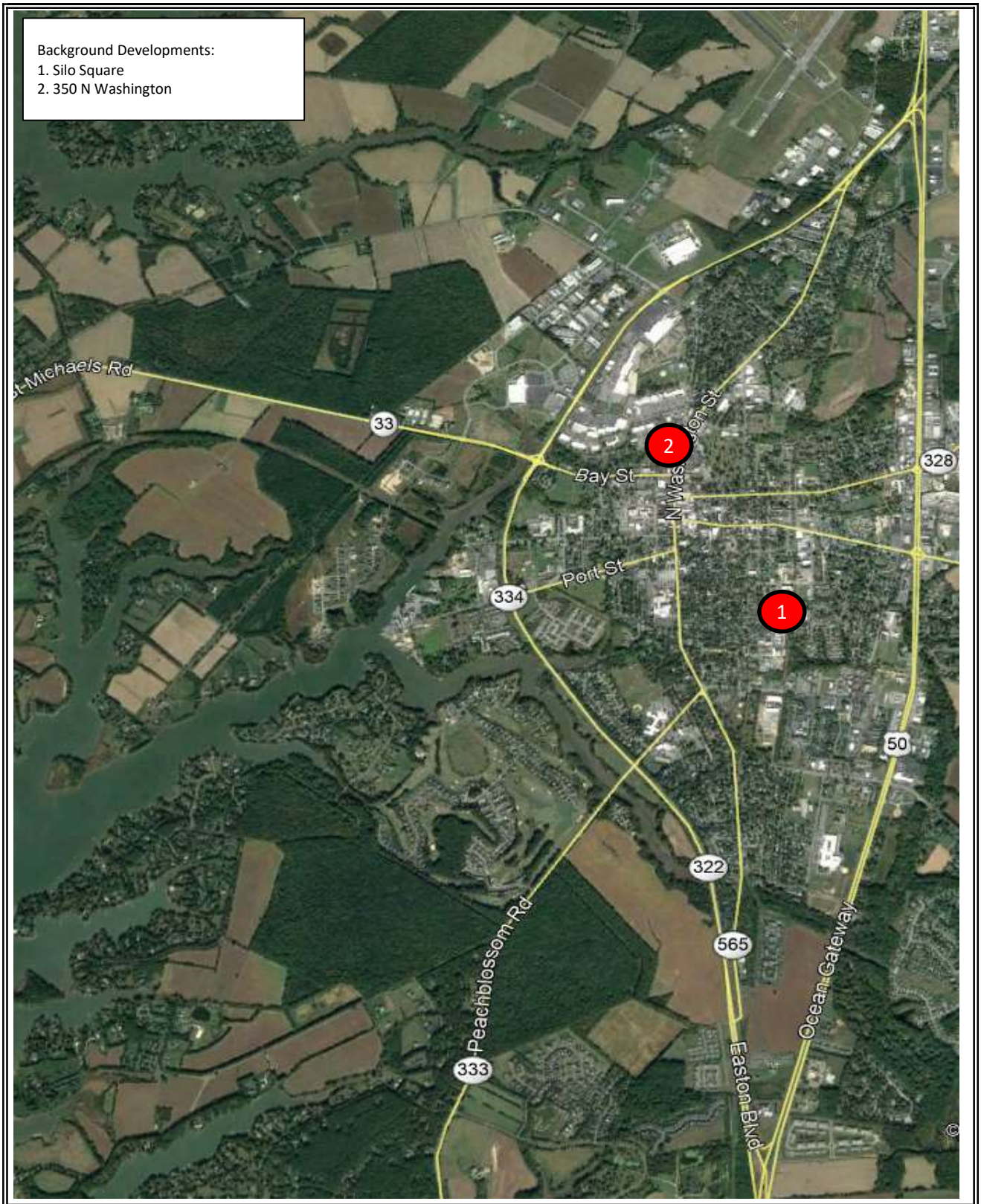
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	7	7	8	26	37
Future Volume (Veh/h)	37	7	7	8	26	37
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	8	8	9	28	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	73	48	68			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	73	48	68			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	99	99			
cM capacity (veh/h)	926	1021	1533			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	48	17	68
Volume Left	40	8	0
Volume Right	8	0	40
cSH	941	1533	1700
Volume to Capacity	0.05	0.01	0.04
Queue Length 95th (ft)	4	0	0
Control Delay (s)	9.0	3.5	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	3.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	16.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix C

Background Developments



Traffic Impact Analysis	Location of Background Devs.	**Exhibit C1**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

Trip Generation for Background Developments

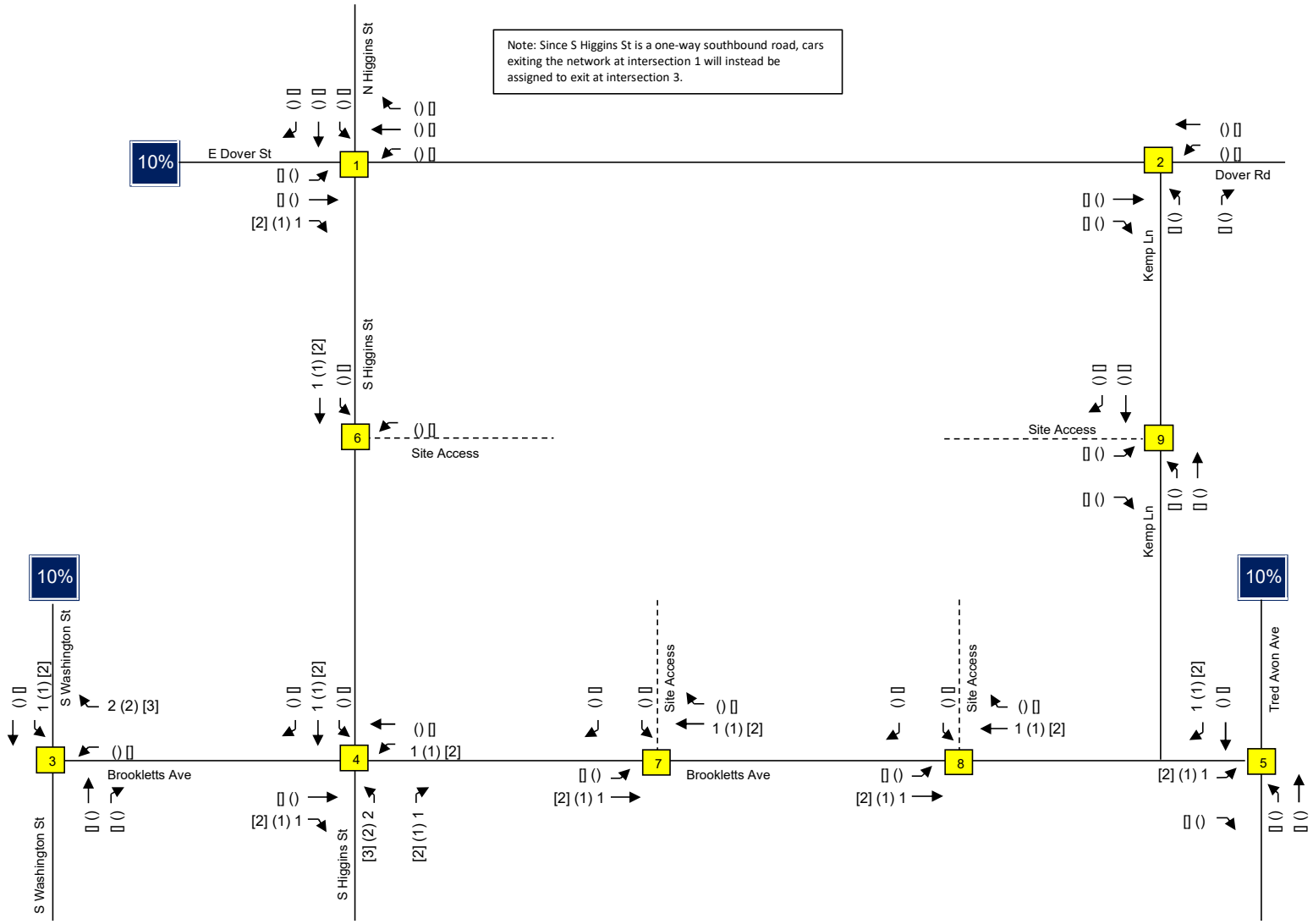
			AM Peak			PM Peak			Sat Mid-day Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
1. Silo Square	Single-Family Attached Housing (ITE-215, Units)	28 units	3	6	9	7	6	13	12	12	24
2. 350 N Washington	Multifamily Housing, Low-Rise (ITE-220, Units)	16 units	1	5	6	5	3	8	3	4	7
	Total Primary Trips for All Background Developments:		4	11	15	12	9	21	15	16	31

Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Trip Generation for
Background Developments

Exhibit C2



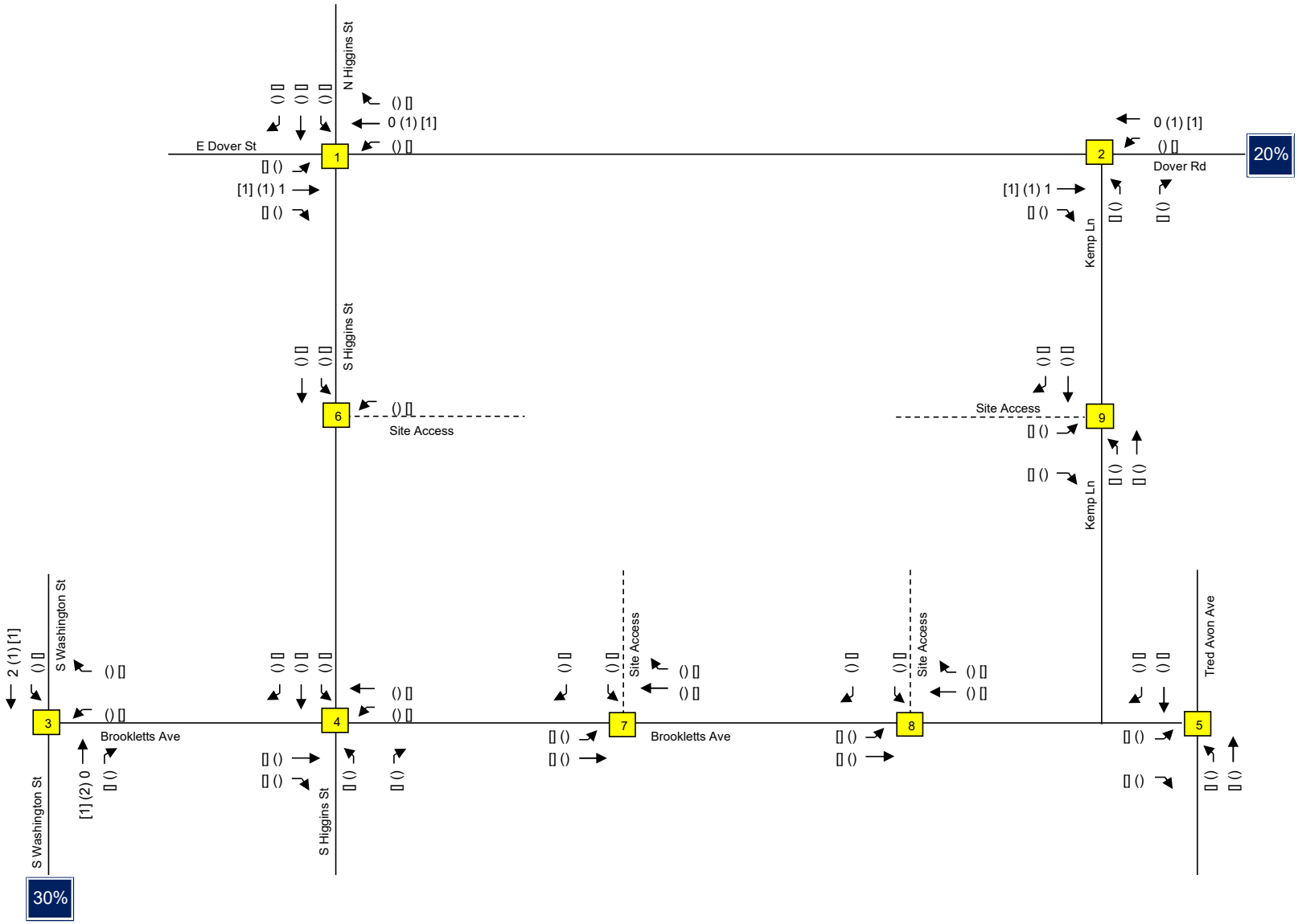
Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Trip Assignment for Silo Square

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit C3



Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Trip Assignment for 350 N Washington

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's [xx] = Sat. Mid-day Peak Vol's

Exhibit C4

RAUCH inc.
engineering design & development services

STORMWATER MANAGEMENT ANALYSIS

FOR

EASTON CROSSING

PREPARED FOR

CHESAPEAKE NEIGHBORS, LLC

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

26th of November 2024



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

ROBERT D. RAUCH, LICENCE NO. 11024 — 11/26/2024 DATE
EXPIRATION DATE 7/24/2026

106 N. Harrison Street - Easton, MD 21601
office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com

Stormwater Management Narrative

STORMWATER MANAGEMENT ANALYSIS – NARRATIVE

EXISTING CONDITIONS

The project site under analysis is located in the town of Easton, Maryland, in Talbot County. It is bordered by Brookletts Avenue, South Street, South Higgins Street, and Kemp Lane, and is bisected by the Easton Rails-to-Trails.

The site's existing conditions vary between its two sections. The western portion includes ten silos, truck scales, and two buildings, while the eastern portion contains twenty-seven silos and two buildings. The soil composition is predominantly poorly drained HSG C, with the western section situated on better-draining HSG B soil.

Water drainage patterns differ between the two portions. The western section drains via a combination of sheet flow and shallow concentrated flow, eventually reaching South Higgins Street. There, the water enters the street gutter as channeled flow and continues to Study Point 1, a curb inlet on South Higgins Street. The eastern section drains southward along the Easton Rails-to-Trails, flowing toward Brookletts Avenue and ultimately reaching Study Point 2, another curb inlet.

PROPOSED CONDITIONS

Easton Crossing involves the construction of 10 mixed used buildings, a center meadow with a gazebo, 220 parking spaces (including ADA-compliant spaces), driving aisles, four Bioretention areas, and stormwater management facilities.

The proposed impervious will be treated for quality management by four Bioretention areas and a submerged gravel wetland with a forebay. The ponding in the bioretention areas, forebay and submerged gravel wetland will also be used as quantity management.

Proposed conditions during the 2-, 10-, and 100-year storm events have been analyzed and show postconstruction peak flows are less than preconstruction peak flows at the Study Point.

The maps included with this report detail all drainage areas with times of concentration.

WATER QUALITY – ESDv/WQv

The summary of the calculations is shown below:

SITE REQUIRED ESDv (SEE ATTACHMENTS FOR SPECIFIC CALCULATIONS):
ESDv REQUIRED: 10,050 CF

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTIVE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NURVE (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 NORTHING	MARYLAND GRID COORDINATE NAD 83 EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESDv ($FT.^3$)	ACTUAL ESDv ($FT.^3$)
1	MBR-1	BIORETENTION 1	ON-SITE	95	404001.0280'	1577860.4733'	0.458	0.421	0.006	1.23	0.49	1796	716
2	MBR-2	BIORETENTION 2	ON-SITE	91	403787.4477'	1577724.3978'	0.442	0.363	0.003	1.23	0.31	1556	391
3	MBR-3	BIORETENTION 3	ON-SITE	87	403580.5404'	1577730.4142'	0.427	0.297	0.006	1.23	0.66	1296	700
4	MBR-4	BIORETENTION 4	ON-SITE	93	403583.8545'	1577794.9402'	0.445	0.380	0.005	1.23	0.31	2455	618
5	SGW-1	SUBMERGED GRAVEL WETLAND	ON-SITE	87	403682.2326'	1577610.0030'	4.904	3.547	0.112	1.23	0.37	5402	9330
TOTAL/ AVERAGE							6.676	5.008	0.131	6.15	2.14	10050	11755

STORMWATER QUALITY NOTES:

The above quality stormwater management practices meet the Environmental Site Design Volume required for the site.

WATER QUANTITY

Volume control is provided within the submerged gravel wetland, bioretention areas, and by managing/maintaining existing times of concentrations within existing and reshaped drainage areas.
The eastern portion of the site drains entirely into a forebay via a series of yard and curb inlets. From there, the flow moves to the submerged gravel wetland. The western portion of the site includes four micro-bioretention areas, which also discharge into the submerged gravel wetland. Finally, the flow is directed into the town's storm pipe system, ultimately reaching the study point on South Higgins Street.

Below is a summary of the proposed peak runoffs flows from the 2, 10, and 100-year storms compared to existing peak runoff flows from the same events.

STUDY POINT	STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
STUDY POINT 1	EXISTING	11.19	19.35	35.59
	PROPOSED	9.95	18.7	33.72
CHANGE	CHANGE	-1.24	-0.65	-1.87
STUDY POINT 2	EXISTING	3.21	5.1	8.89
	PROPOSED	0.49	0.85	1.57
CHANGE	CHANGE	-2.72	-4.25	-7.32

NATURAL AREA PRESERVATION

The stormwater management facilities for this project have been designed to preserve natural areas such as existing treelines as best as possible.

CONCLUSION

This report shows that all requirements of the MDE stormwater design manual have been met for this site and natural areas have been preserved in meeting these guidelines.

ESD Calculations

	VERSION	**4.2**									
Maryland ESD Calculations and 10% Phosphorus Removal							**Last Update:**	1/6/2019	Rauch Inc.		
Project Name:	**Easton Crossing**										
Date:	**26-Nov-24**										
	data input cells										
	calculation cells										
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 PlantingWas Used at the Site to Convert Turf Areas into Forest			*YES*								
Step 2: Calculate Site Imperviousness and Water Quality Volume, WQv (for redevelopment)											
New development/redevelopment category is based on the the TOTAL SITE AREA whereas the ESD and WQ volume are based on the LOD AREA. The term "SITE" is 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 develoment is to be perfomed 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							**Step 3: Calculate Phosphorous Removal Requirement, RR for Critical Area Sites**				
Total SITE Area, A (acres or sq-ft)	*314968*										
Existing SITE Impervious Area (acres or sq-ft)	*216569*										
SITE percent impervious	69%										
Development Category (for ESD)	**Redevelopment**						**Development Category (for 10%)**			**Redevelopment**	
LOD Area, A (acres)	7.23										
Existing LOD Impervious Surface Area (acres)	4.97						*New Development*				
Proposed LOD Impervious Surface Area (acres)	5.14						Average Annual Predevelopment Load, Lpre (lbs P / yr)				3.62
Rainfall Depth, P (in)	1.0										
							Redevelopment:				
Existing LOD Imperviousness, I_{pre}	69%						Predevelopment Runoff Coefficient, Rv_{pre}				0.67
Proposed LOD Imperviousness, I_{post}	71%						Phosphorous Mean Concentration, C (mg/L)				0.3
							Average Annual Predevelopment Load, L_{pre} (lbs P / yr)				11.84
Water Quality Calculation for Redevelopment Only											
Required Treatment Area (acres)	2.486						Post-Development Runoff Coefficient, Rv_{post}				0.69
Runoff Coefficient, Rv	0.95						Average Annual Post-Development Load, L_{post} (lbs P / yr)				12.21
Water Quality Volume, WQv (cf)	**8,573**						**Removal Requirement, RR (lbs P / yr)**				**1.55**
Step 4: Calculate Environmental Site Design (ESD) Rainfall Target, P_E											
% Soil Type A	0%		RCN Soil Type A	80.85							
% Soil Type B	94%		RCN Soil Type B	87.42							
% Soil Type C	6%		RCN Soil Type C	91.21							
% Soil Type D	0%		RCN Soil Type D	93.21							
Target Pre-Developed Condition, RCN_{woods}	55.87861	Post-Developed Condition, RCN		87.65							
Soil Type A ESD Rainfall Target, P_E (in)	0.00										
Soil Type B ESD Rainfall Target, P_E (in)	2.60										
Soil Type C ESD Rainfall Target, P_E (in)	2.20										
Soil Type D ESD Rainfall Target, P_E (in)	0.00		Runnoff depths for H and H analysis								
	1yr		2yr	10yr	100yr						
Maximum P_E (in)	2.7		*3.4*	*5.3*	*7.6*						
Site ESD Rainfall Target, P_E (in)	2.58										
ESD Runoff Depth, Q_E (in)	2.45										
ESD Runoff Volume, ESDv (cf)	**1,477**										
Site Rainfall Target, P_E (in)	**1.23**										
Total Treatment Volume (cf)	**10,050**										

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)
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	230,241	33,828	53763	9,330	78,261
Micro-Bioretention 1	ESDv credit is based on design storage volume	87,202	15,592	15592	2,425	13,166

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

Drainage Area Treated (sf)	317,443	**WQv or ESDv Treated (cf) using ESD practices**	11,756
		P_E achieved (inches)	1.44
		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?	**YES**
		WQv Remaining? (cf)	**0**

New Development Water Quality Volume Requirements	
Required Treatment Area (acres)	0.17
Runoff Coefficient, Rv	0.95
Water Quality Volume, WQv (cf)	**0**

New Development WQv Requirements Met Through ESD Practices?	**N/A**
WQv Remaining? (cf)	**0**

Entire ESDv Treated Through Environmental Site Design? YES

Total Treatment Volume: 10,050

Volume Treated: 11,756

VOID RATI 0.4

M-2

	Direct drainage				Indirect drainage															
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)	Area of upstream catchment (sf)	WQv or ESDv from Up-Gradient Practices (cf)	Total catchment area ----- Total ESDv to practice	Practice Specific Parameter(s)				WQV or ESDv provided (cf)	Runoff Volume Remaining (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)	Remaining Load (lbs/yr)
		67%	1.23				317,443	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)			Submerged Gravel Wetlands						
Forebay	230,241	0.653	15411	33,828	87202	13166	46995	3,662	4,869	1.5		6,398	40,596	2	C/D	60%	41.24%	11.74	4.84	6.90
			1.00				317,443	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)									
Submerged Gravel Wetlands		0.05	0	0	317443	40596	40596	804	1,392	1.5	4	2,932	37,664		C/D	60%	29.35%	10.14	2.98	7.16
Total	230,241			33,828		53,763						9,330	78,261			59%	35.73%	21.88	7.82	14.06

Entire ESDv Treated Through Environm YES

Total Treatment Volume: 10,050
Volume Treated: 11,756

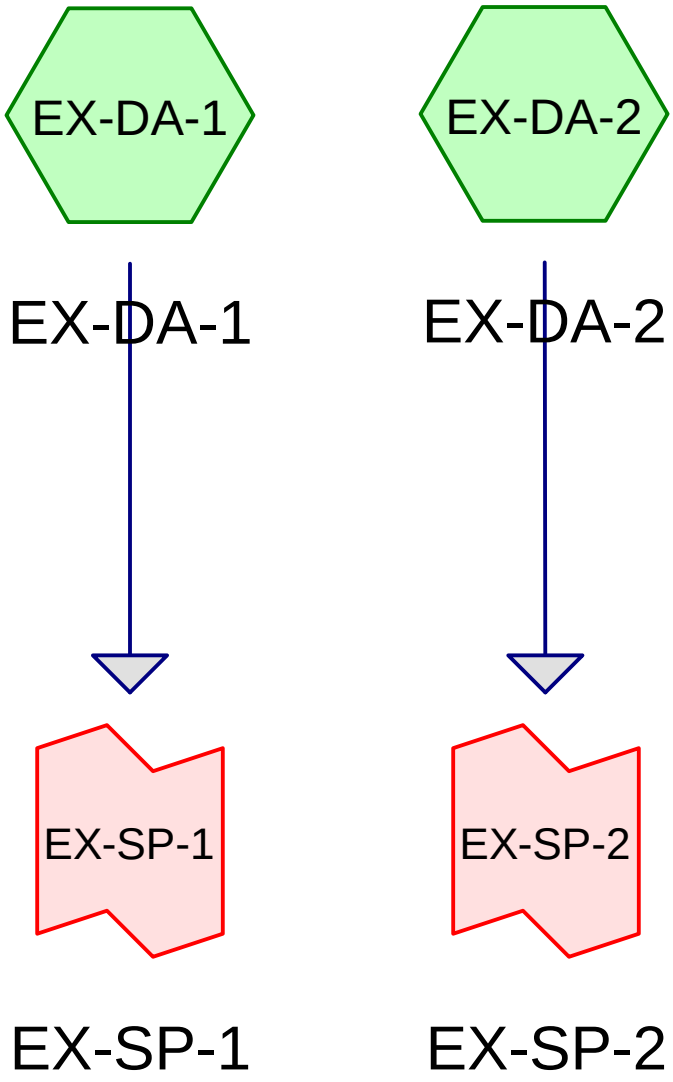
VOID RATI 0.4

M-6

	Direct drainage				Indirect drainage																		
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)	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 catchement area	WQV or ESDv provided (cf)	Runoff Volume Remaining (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)	Remaining Load (lbs/yr)
		92%	1.23				19,960	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)				Submerged Gravel Wetlands						
Micro-Bioretention 1	19,960	0.878	1796	3,943	0	0	3943	265	709	1	2.17	1.3%	716	3,227	1	A/B	75%	58.30%	0.98	0.57	0.41
		82%	1.23				19,263	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)				Submerged Gravel Wetlands						
Micro-Bioretention 2	19,263	0.788	1556	3,415	0	0	3415	122	352	1	3.15	0.6%	391	3,024	1	A/B	75%	47.49%	0.85	0.41	0.45
		70%	1.23				18,594	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)				Submerged Gravel Wetlands						
Micro-Bioretention 3	18,594	0.68	1296	2,845	0	0	2845	249	669	1	2.43	1.3%	700	2,144	1	A/B	75%	65.43%	0.71	0.46	0.25
		85%	1.23				29,385	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)				Submerged Gravel Wetlands						
Micro-Bioretention 4	29,385	0.815	2455	5,388	0	0	5388	212	578	1	2.62	0.7%	618	4,771	1	A/B	75%	47.51%	1.35	0.64	0.71
Total	87,202			15,592		0							2,425	13,166			73%	53.51%	3.89	2.08	1.81

Analysis of Existing Conditions

EXISTING



Subcat Reach Pond Link

Routing Diagram for Arc - Easton Crossing - Existing vs Proposed
Prepared by Rauch Inc, Printed 12/2/2024
HydroCAD® 10.20-3g s/n 02413 © 2023 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: EX-DA-1 Runoff Area=213,631 sf 56.44% Impervious Runoff Depth=2.29"
Flow Length=1,205' Tc=13.0 min CN=90 Runoff=11.19 cfs 0.936 af

Subcatchment EX-DA-2: EX-DA-2 Runoff Area=101,338 sf 94.73% Impervious Runoff Depth=2.99"
Flow Length=589' Tc=54.4 min CN=97 Runoff=3.21 cfs 0.579 af

Link EX-SP-1: EX-SP-1 Inflow=11.19 cfs 0.936 af
Primary=11.19 cfs 0.936 af

Link EX-SP-2: EX-SP-2 Inflow=3.21 cfs 0.579 af
Primary=3.21 cfs 0.579 af

Total Runoff Area = 7.231 ac Runoff Volume = 1.514 af Average Runoff Depth = 2.51"
31.24% Pervious = 2.259 ac 68.76% Impervious = 4.972 ac

Summary for Subcatchment EX-DA-1: EX-DA-1

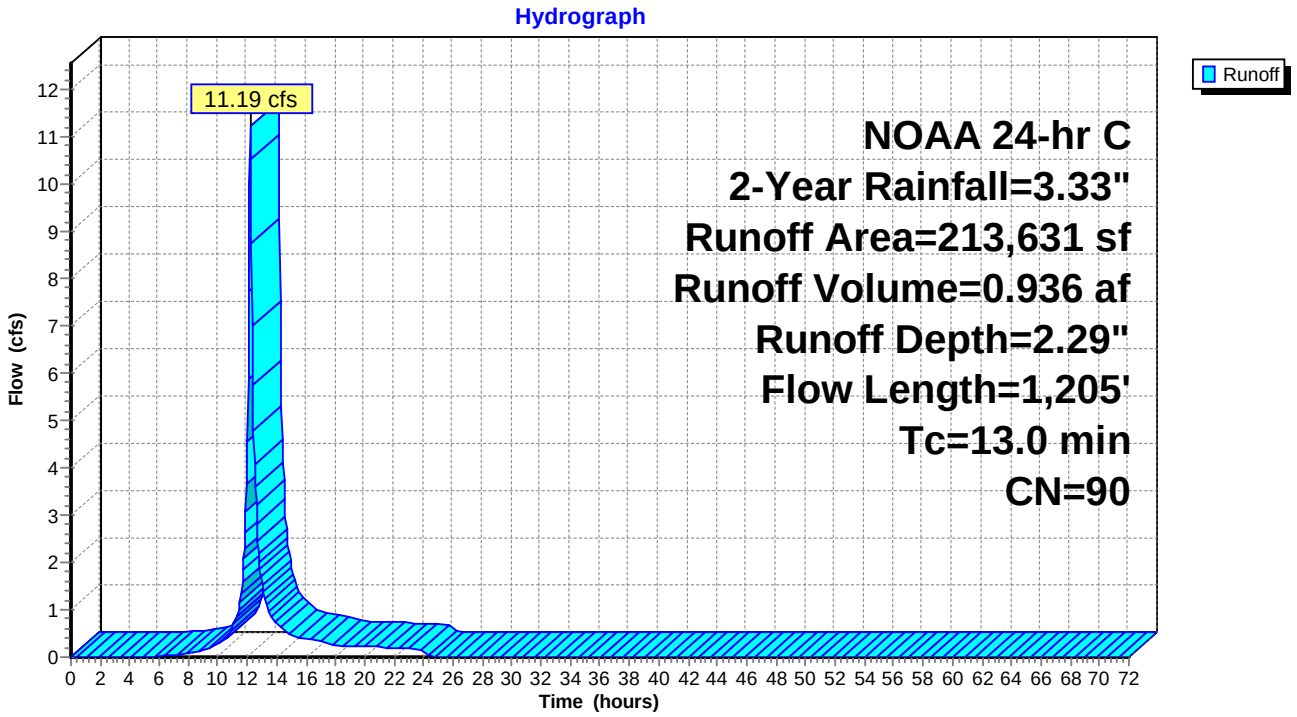
Runoff = 11.19 cfs @ 12.21 hrs, Volume= 0.936 af, Depth= 2.29"
Routed to Link EX-SP-1 : EX-SP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.33"

Area (sf)	CN	Description
90,997	79	<50% Grass cover, Poor, HSG B
104,185	98	Paved parking, HSG B
2,064	86	<50% Grass cover, Poor, HSG C
16,385	98	Paved parking, HSG C
213,631	90	Weighted Average
93,061		43.56% Pervious Area
120,570		56.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	82	0.0346	0.87		**Sheet Flow, GRAVELED SHEET FLOW** n= 0.025 P2= 3.33"
3.8	18	0.0066	0.08		**Sheet Flow, GRASSED SHEET FLOW** Grass: Short n= 0.150 P2= 3.33"
4.1	419	0.0111	1.70		**Shallow Concentrated Flow, GRASSED SHALLOW CONCENTRATED** Unpaved Kv= 16.1 fps
0.6	80	0.0137	2.38		**Shallow Concentrated Flow, GRAVELED SCF** Paved Kv= 20.3 fps
0.1	6	0.0014	0.76		**Shallow Concentrated Flow, CONCRETED SCF** Paved Kv= 20.3 fps
2.2	233	0.0092	1.73	0.17	**Channel Flow, CONCRETED CHANNEL FLOW** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.0	13	0.0150	6.57	5.16	**Pipe Channel, PIPED FLOW** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.6	354	0.0051	9.40	82.01	**Pipe Channel, PIPED FLOW** 40.0" Round Area= 8.7 sf Perim= 10.5' r= 0.83' n= 0.010 PVC, smooth interior
13.0	1,205	Total			

Subcatchment EX-DA-1: EX-DA-1



Summary for Subcatchment EX-DA-2: EX-DA-2

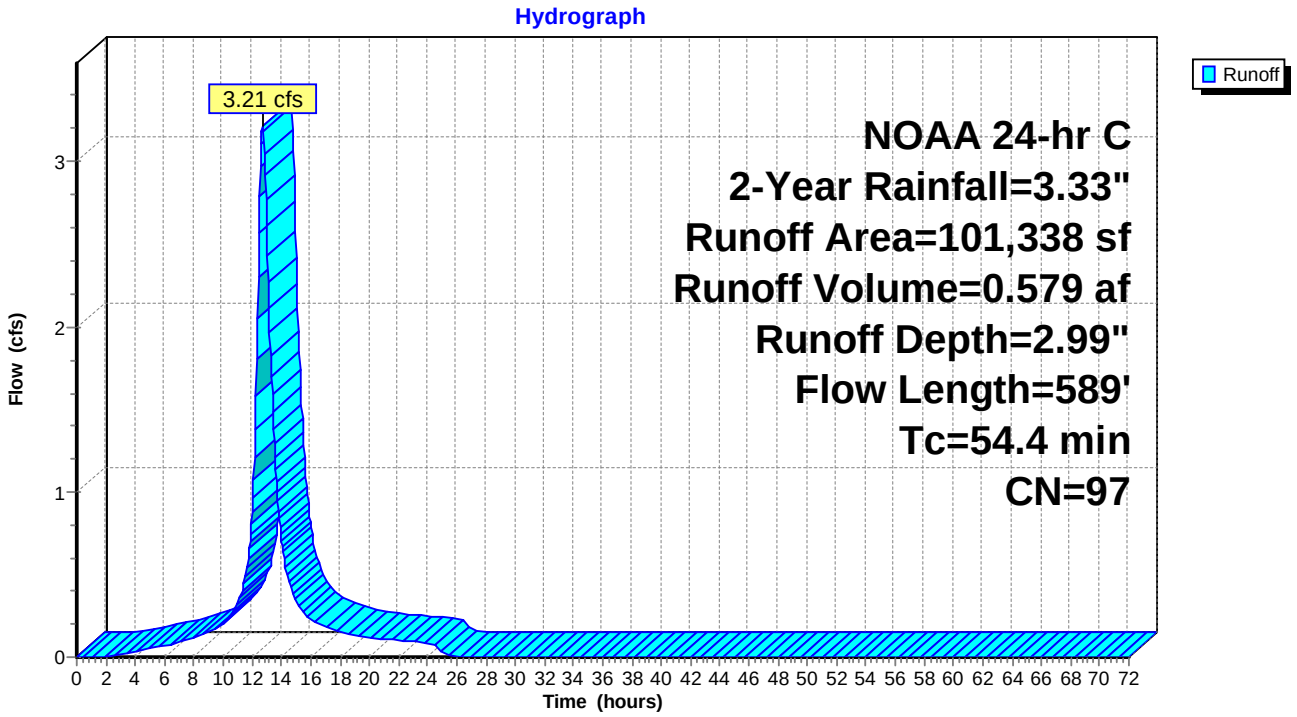
Runoff = 3.21 cfs @ 12.71 hrs, Volume= 0.579 af, Depth= 2.99"
Routed to Link EX-SP-2 : EX-SP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.33"

Area (sf)	CN	Description
5,339	79	<50% Grass cover, Poor, HSG B
95,999	98	Paved parking, HSG C
101,338	97	Weighted Average
5,339		5.27% Pervious Area
95,999		94.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	45	0.0221	1.24		**Sheet Flow, CONCRETED SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.33"
5.0	55	0.0303	0.18		**Sheet Flow, GRASSED SHEET FLOW** Grass: Short n= 0.150 P2= 3.33"
48.3	435	0.0001	0.15		**Shallow Concentrated Flow, GRASSED SHALLOW CONCENTRATED** Grassed Waterway Kv= 15.0 fps
0.1	8	0.0075	1.76		**Shallow Concentrated Flow, CONCRETED SHALLOW CONCENTRATI** Paved Kv= 20.3 fps
0.4	46	0.0144	2.16	0.22	**Channel Flow, CONCRETED CHANNELED FLOW** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
54.4	589	Total			

Subcatchment EX-DA-2: EX-DA-2

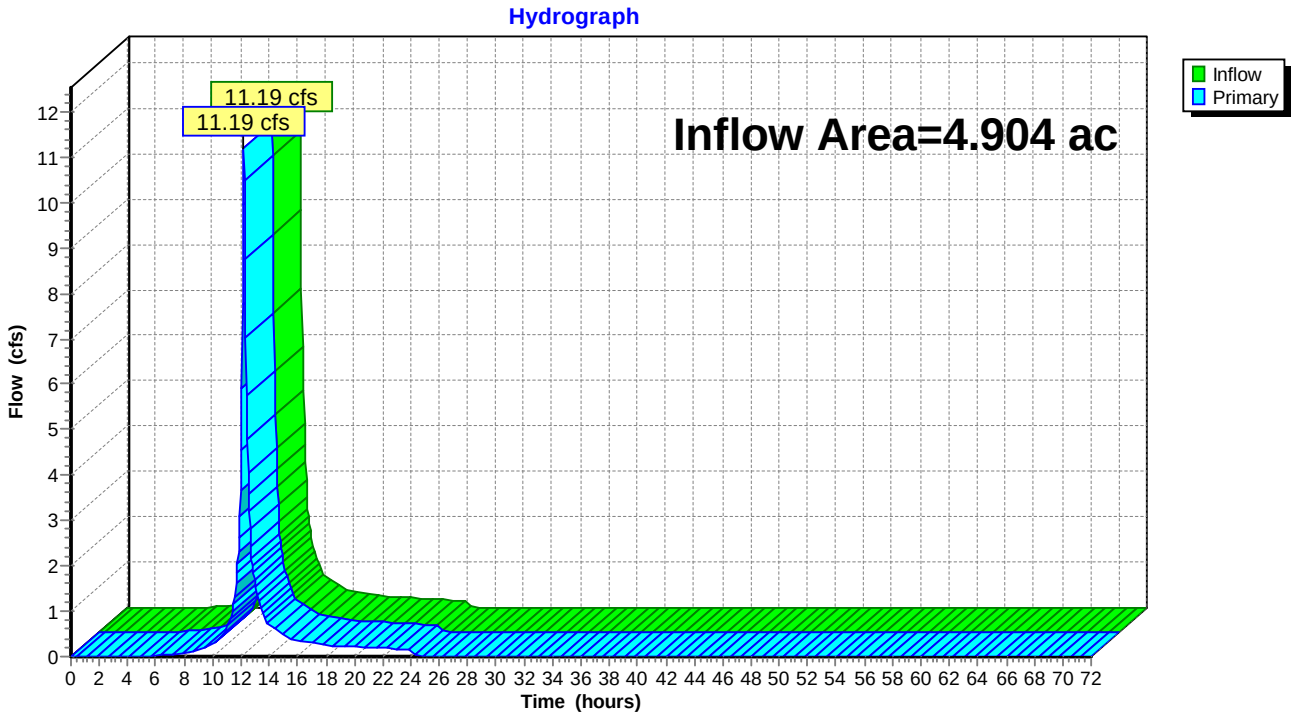


Summary for Link EX-SP-1: EX-SP-1

Inflow Area = 4.904 ac, 56.44% Impervious, Inflow Depth = 2.29" for 2-Year event
Inflow = 11.19 cfs @ 12.21 hrs, Volume= 0.936 af
Primary = 11.19 cfs @ 12.21 hrs, Volume= 0.936 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link EX-SP-1: EX-SP-1

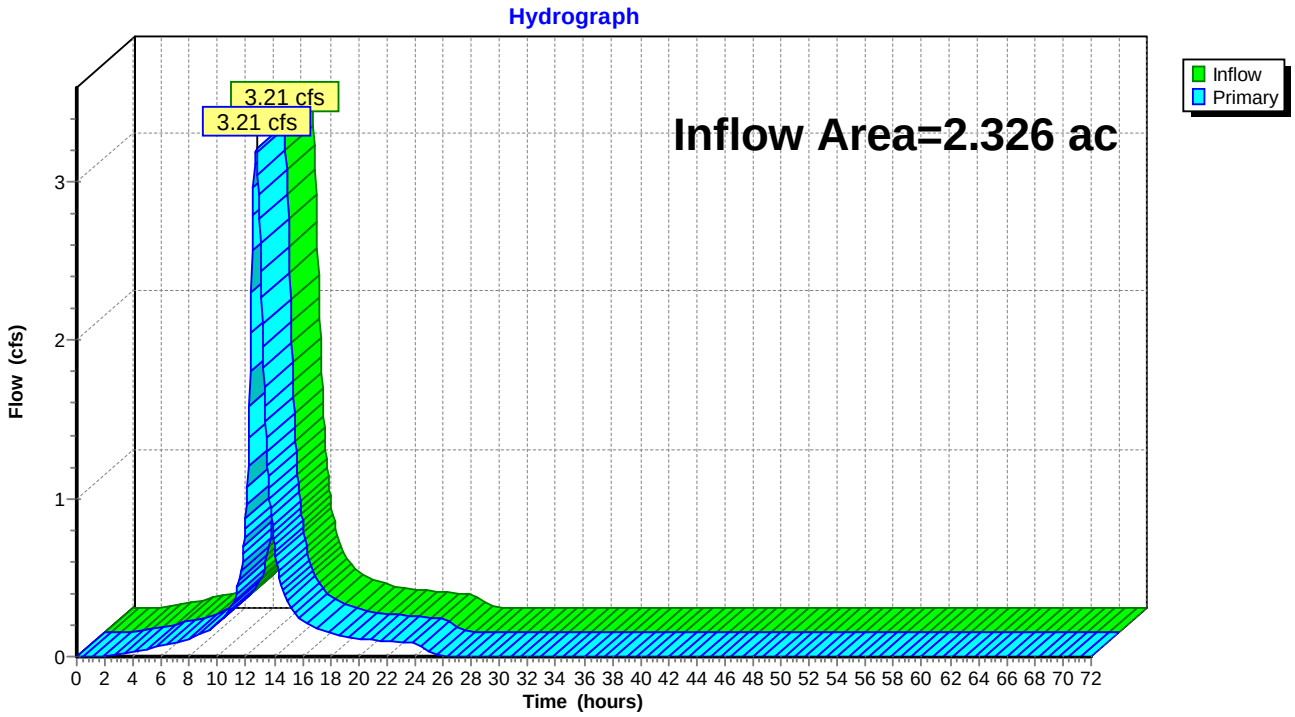


Summary for Link EX-SP-2: EX-SP-2

Inflow Area = 2.326 ac, 94.73% Impervious, Inflow Depth = 2.99" for 2-Year event
Inflow = 3.21 cfs @ 12.71 hrs, Volume= 0.579 af
Primary = 3.21 cfs @ 12.71 hrs, Volume= 0.579 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link EX-SP-2: EX-SP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: EX-DA-1 Runoff Area=213,631 sf 56.44% Impervious Runoff Depth=4.07"
Flow Length=1,205' Tc=13.0 min CN=90 Runoff=19.35 cfs 1.663 af

Subcatchment EX-DA-2: EX-DA-2 Runoff Area=101,338 sf 94.73% Impervious Runoff Depth=4.85"
Flow Length=589' Tc=54.4 min CN=97 Runoff=5.10 cfs 0.940 af

Link EX-SP-1: EX-SP-1 Inflow=19.35 cfs 1.663 af
Primary=19.35 cfs 1.663 af

Link EX-SP-2: EX-SP-2 Inflow=5.10 cfs 0.940 af
Primary=5.10 cfs 0.940 af

Total Runoff Area = 7.231 ac Runoff Volume = 2.603 af Average Runoff Depth = 4.32"
31.24% Pervious = 2.259 ac 68.76% Impervious = 4.972 ac

Summary for Subcatchment EX-DA-1: EX-DA-1

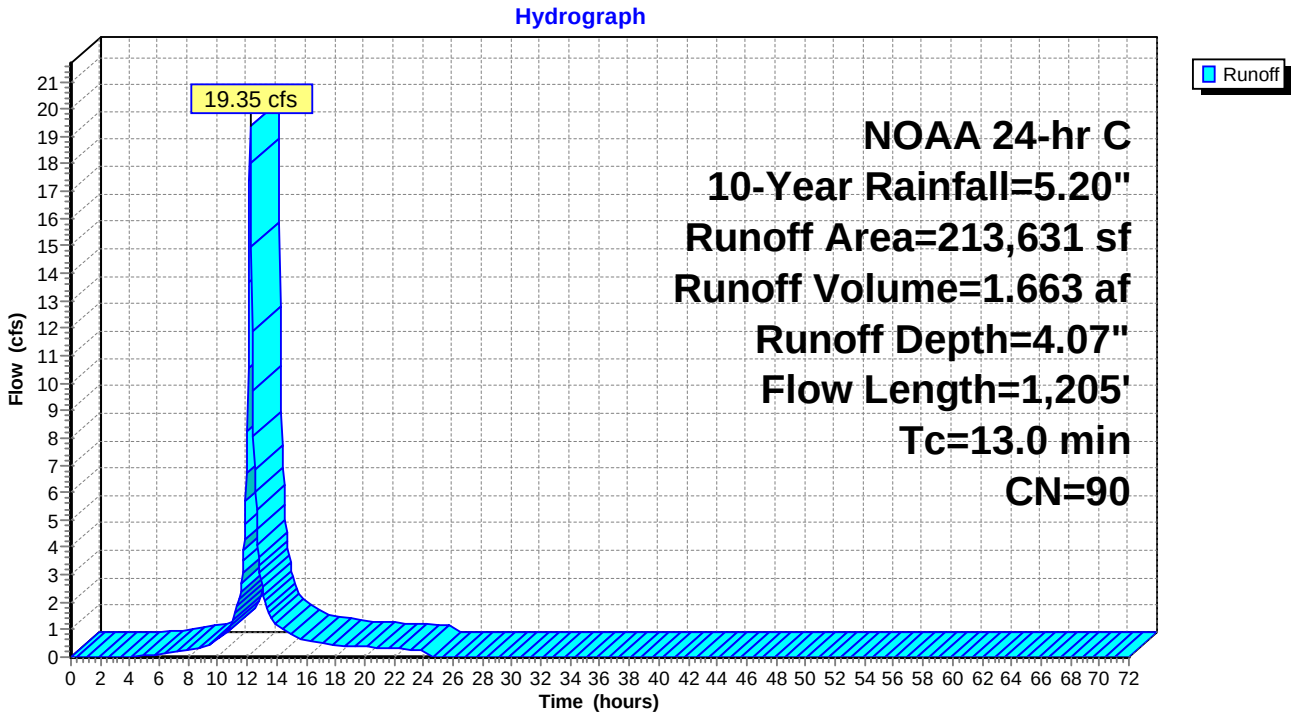
Runoff = 19.35 cfs @ 12.21 hrs, Volume= 1.663 af, Depth= 4.07"
Routed to Link EX-SP-1 : EX-SP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.20"

Area (sf)	CN	Description
90,997	79	<50% Grass cover, Poor, HSG B
104,185	98	Paved parking, HSG B
2,064	86	<50% Grass cover, Poor, HSG C
16,385	98	Paved parking, HSG C
213,631	90	Weighted Average
93,061		43.56% Pervious Area
120,570		56.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	82	0.0346	0.87		**Sheet Flow, GRAVELED SHEET FLOW** n= 0.025 P2= 3.33"
3.8	18	0.0066	0.08		**Sheet Flow, GRASSED SHEET FLOW** Grass: Short n= 0.150 P2= 3.33"
4.1	419	0.0111	1.70		**Shallow Concentrated Flow, GRASSED SHALLOW CONCENTRATED** Unpaved Kv= 16.1 fps
0.6	80	0.0137	2.38		**Shallow Concentrated Flow, GRAVELED SCF** Paved Kv= 20.3 fps
0.1	6	0.0014	0.76		**Shallow Concentrated Flow, CONCRETED SCF** Paved Kv= 20.3 fps
2.2	233	0.0092	1.73	0.17	**Channel Flow, CONCRETED CHANNEL FLOW** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.0	13	0.0150	6.57	5.16	**Pipe Channel, PIPED FLOW** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.6	354	0.0051	9.40	82.01	**Pipe Channel, PIPED FLOW** 40.0" Round Area= 8.7 sf Perim= 10.5' r= 0.83' n= 0.010 PVC, smooth interior
13.0	1,205	Total			

Subcatchment EX-DA-1: EX-DA-1



Summary for Subcatchment EX-DA-2: EX-DA-2

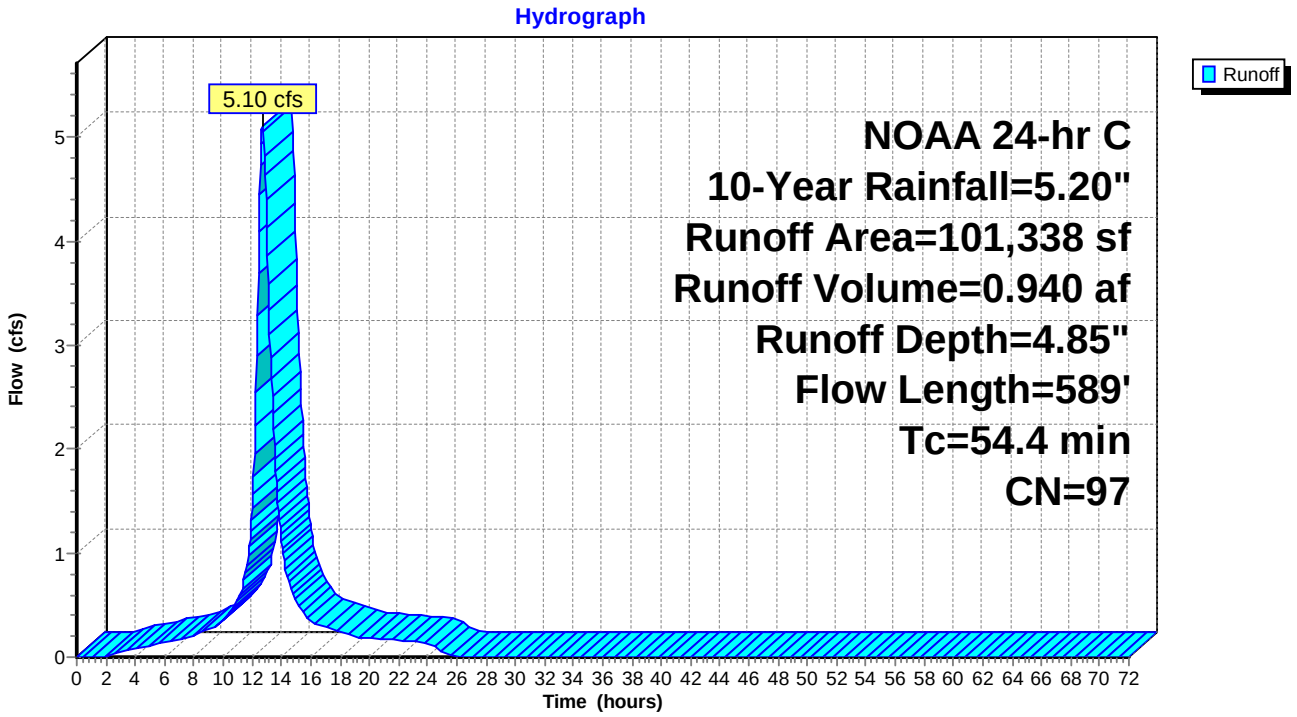
Runoff = 5.10 cfs @ 12.71 hrs, Volume= 0.940 af, Depth= 4.85"
Routed to Link EX-SP-2 : EX-SP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.20"

Area (sf)	CN	Description
5,339	79	<50% Grass cover, Poor, HSG B
95,999	98	Paved parking, HSG C
101,338	97	Weighted Average
5,339		5.27% Pervious Area
95,999		94.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	45	0.0221	1.24		**Sheet Flow, CONCRETED SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.33"
5.0	55	0.0303	0.18		**Sheet Flow, GRASSED SHEET FLOW** Grass: Short n= 0.150 P2= 3.33"
48.3	435	0.0001	0.15		**Shallow Concentrated Flow, GRASSED SHALLOW CONCENTRATED** Grassed Waterway Kv= 15.0 fps
0.1	8	0.0075	1.76		**Shallow Concentrated Flow, CONCRETED SHALLOW CONCENTRAT** Paved Kv= 20.3 fps
0.4	46	0.0144	2.16	0.22	**Channel Flow, CONCRETED CHANNELED FLOW** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
54.4	589	Total			

Subcatchment EX-DA-2: EX-DA-2

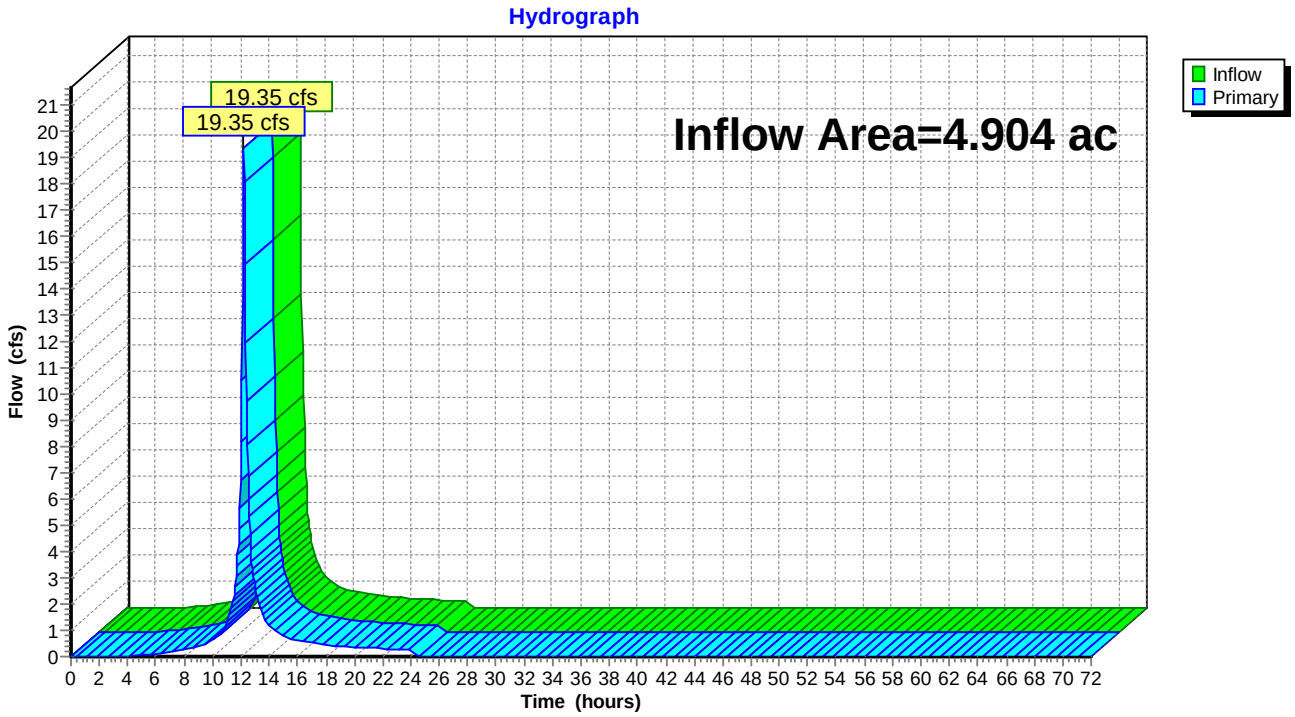


Summary for Link EX-SP-1: EX-SP-1

Inflow Area = 4.904 ac, 56.44% Impervious, Inflow Depth = 4.07" for 10-Year event
Inflow = 19.35 cfs @ 12.21 hrs, Volume= 1.663 af
Primary = 19.35 cfs @ 12.21 hrs, Volume= 1.663 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link EX-SP-1: EX-SP-1

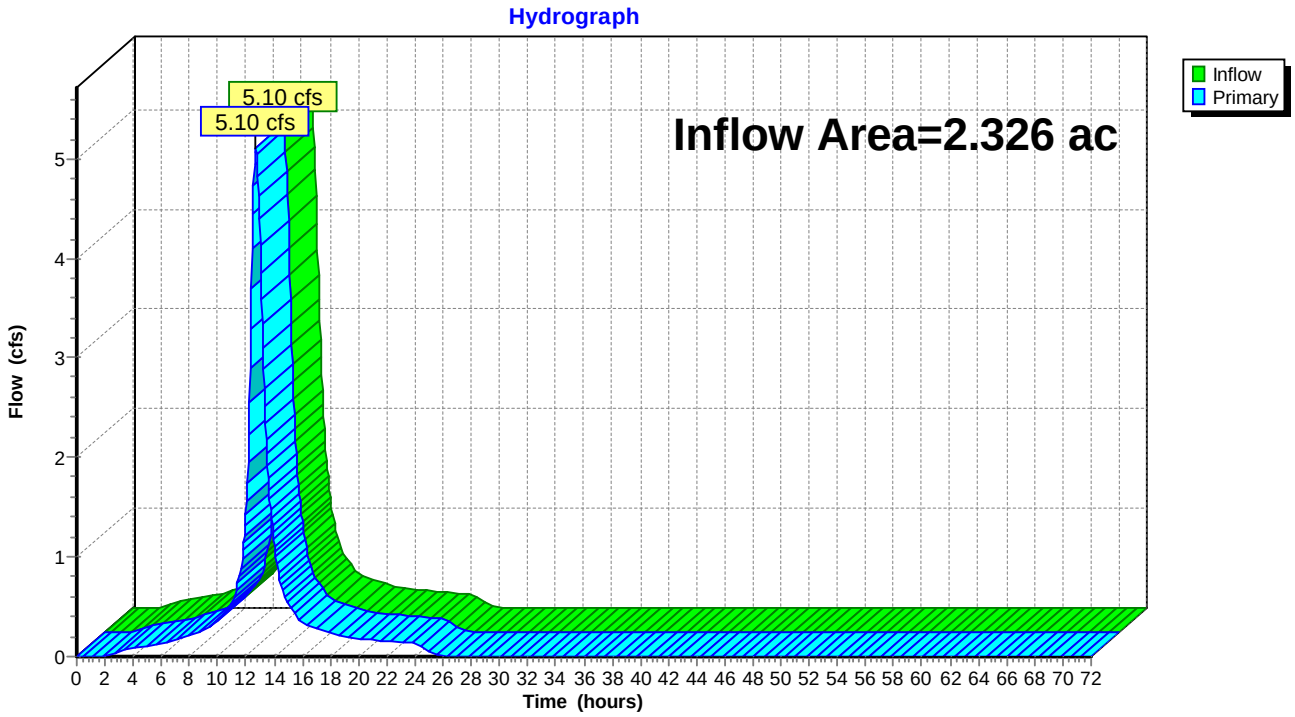


Summary for Link EX-SP-2: EX-SP-2

Inflow Area = 2.326 ac, 94.73% Impervious, Inflow Depth = 4.85" for 10-Year event
Inflow = 5.10 cfs @ 12.71 hrs, Volume= 0.940 af
Primary = 5.10 cfs @ 12.71 hrs, Volume= 0.940 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link EX-SP-2: EX-SP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-DA-1: EX-DA-1 Runoff Area=213,631 sf 56.44% Impervious Runoff Depth=7.77"
Flow Length=1,205' Tc=13.0 min CN=90 Runoff=35.59 cfs 3.176 af

Subcatchment EX-DA-2: EX-DA-2 Runoff Area=101,338 sf 94.73% Impervious Runoff Depth=8.62"
Flow Length=589' Tc=54.4 min CN=97 Runoff=8.89 cfs 1.671 af

Link EX-SP-1: EX-SP-1 Inflow=35.59 cfs 3.176 af
Primary=35.59 cfs 3.176 af

Link EX-SP-2: EX-SP-2 Inflow=8.89 cfs 1.671 af
Primary=8.89 cfs 1.671 af

Total Runoff Area = 7.231 ac Runoff Volume = 4.847 af Average Runoff Depth = 8.04"
31.24% Pervious = 2.259 ac 68.76% Impervious = 4.972 ac

Summary for Subcatchment EX-DA-1: EX-DA-1

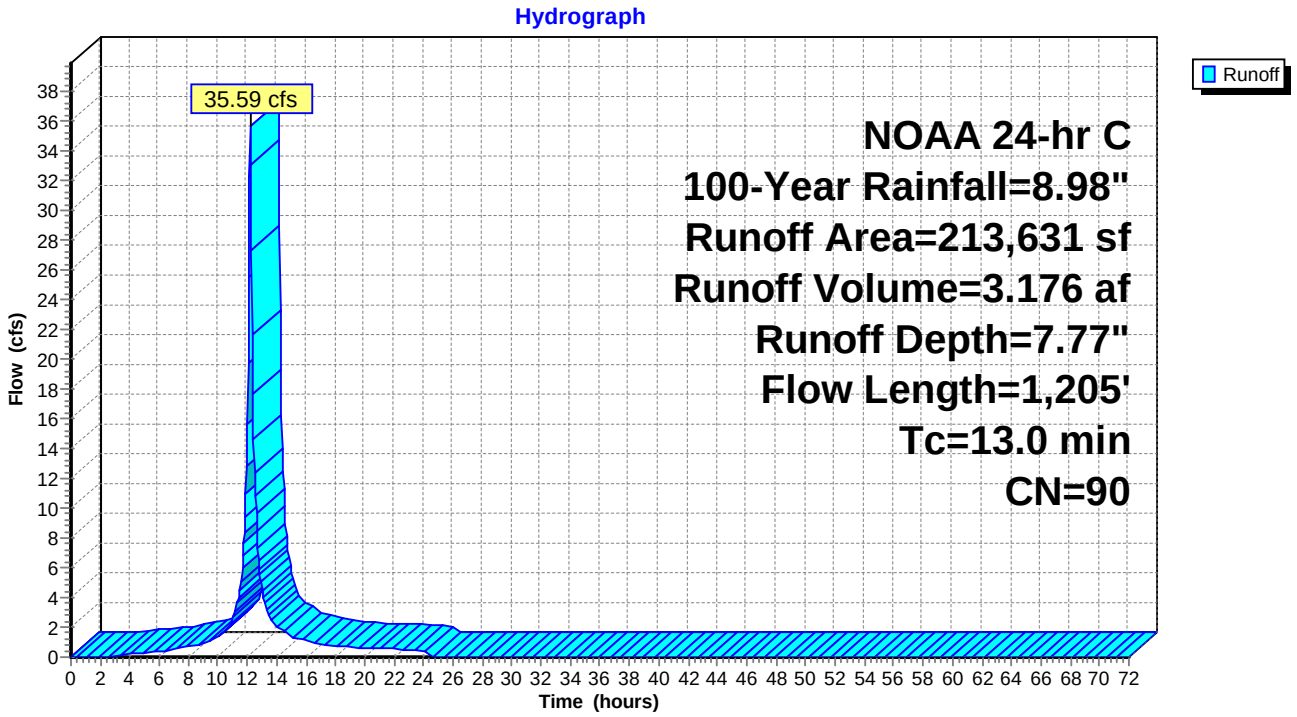
Runoff = 35.59 cfs @ 12.20 hrs, Volume= 3.176 af, Depth= 7.77"
Routed to Link EX-SP-1 : EX-SP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.98"

Area (sf)	CN	Description
90,997	79	<50% Grass cover, Poor, HSG B
104,185	98	Paved parking, HSG B
2,064	86	<50% Grass cover, Poor, HSG C
16,385	98	Paved parking, HSG C
213,631	90	Weighted Average
93,061		43.56% Pervious Area
120,570		56.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	82	0.0346	0.87		**Sheet Flow, GRAVELED SHEET FLOW** n= 0.025 P2= 3.33"
3.8	18	0.0066	0.08		**Sheet Flow, GRASSED SHEET FLOW** Grass: Short n= 0.150 P2= 3.33"
4.1	419	0.0111	1.70		**Shallow Concentrated Flow, GRASSED SHALLOW CONCENTRATED** Unpaved Kv= 16.1 fps
0.6	80	0.0137	2.38		**Shallow Concentrated Flow, GRAVELED SCF** Paved Kv= 20.3 fps
0.1	6	0.0014	0.76		**Shallow Concentrated Flow, CONCRETED SCF** Paved Kv= 20.3 fps
2.2	233	0.0092	1.73	0.17	**Channel Flow, CONCRETED CHANNEL FLOW** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.0	13	0.0150	6.57	5.16	**Pipe Channel, PIPED FLOW** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.6	354	0.0051	9.40	82.01	**Pipe Channel, PIPED FLOW** 40.0" Round Area= 8.7 sf Perim= 10.5' r= 0.83' n= 0.010 PVC, smooth interior
13.0	1,205	Total			

Subcatchment EX-DA-1: EX-DA-1



Summary for Subcatchment EX-DA-2: EX-DA-2

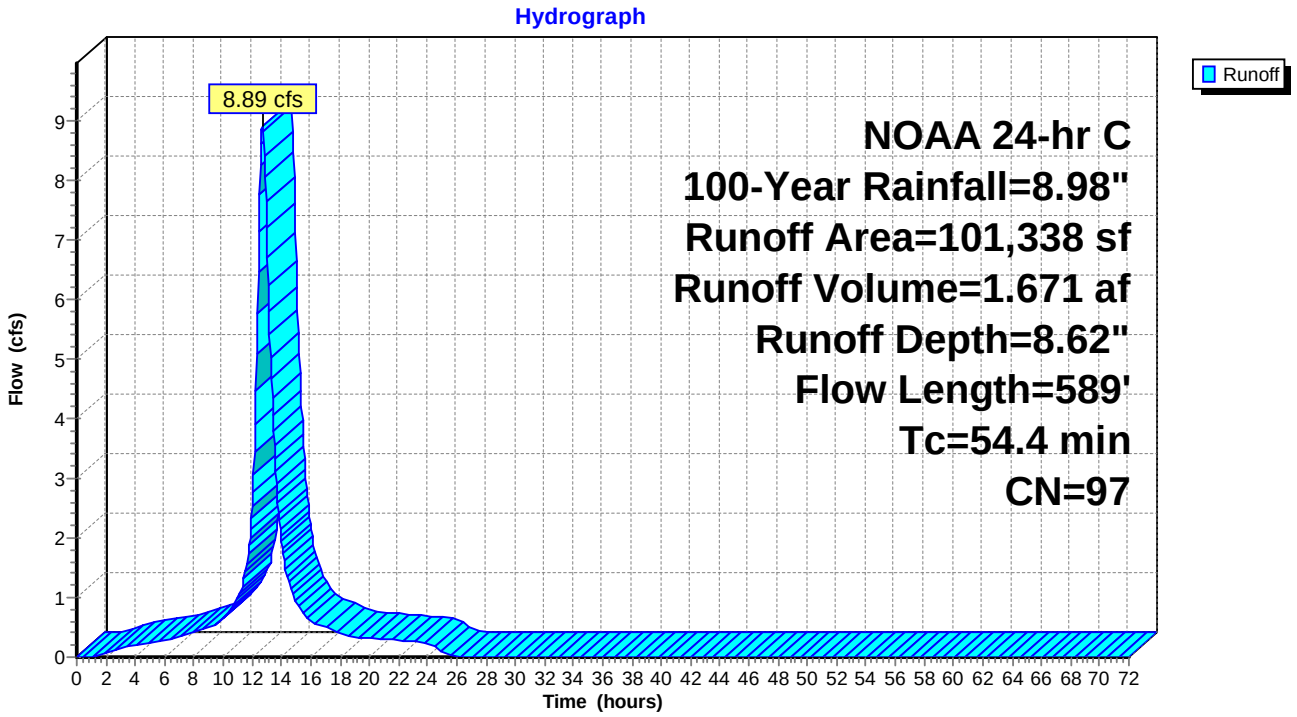
Runoff = 8.89 cfs @ 12.71 hrs, Volume= 1.671 af, Depth= 8.62"
Routed to Link EX-SP-2 : EX-SP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.98"

Area (sf)	CN	Description
5,339	79	<50% Grass cover, Poor, HSG B
95,999	98	Paved parking, HSG C
101,338	97	Weighted Average
5,339		5.27% Pervious Area
95,999		94.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	45	0.0221	1.24		**Sheet Flow, CONCRETED SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.33"
5.0	55	0.0303	0.18		**Sheet Flow, GRASSED SHEET FLOW** Grass: Short n= 0.150 P2= 3.33"
48.3	435	0.0001	0.15		**Shallow Concentrated Flow, GRASSED SHALLOW CONCENTRATED** Grassed Waterway Kv= 15.0 fps
0.1	8	0.0075	1.76		**Shallow Concentrated Flow, CONCRETED SHALLOW CONCENTRAT** Paved Kv= 20.3 fps
0.4	46	0.0144	2.16	0.22	**Channel Flow, CONCRETED CHANNELED FLOW** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
54.4	589	Total			

Subcatchment EX-DA-2: EX-DA-2

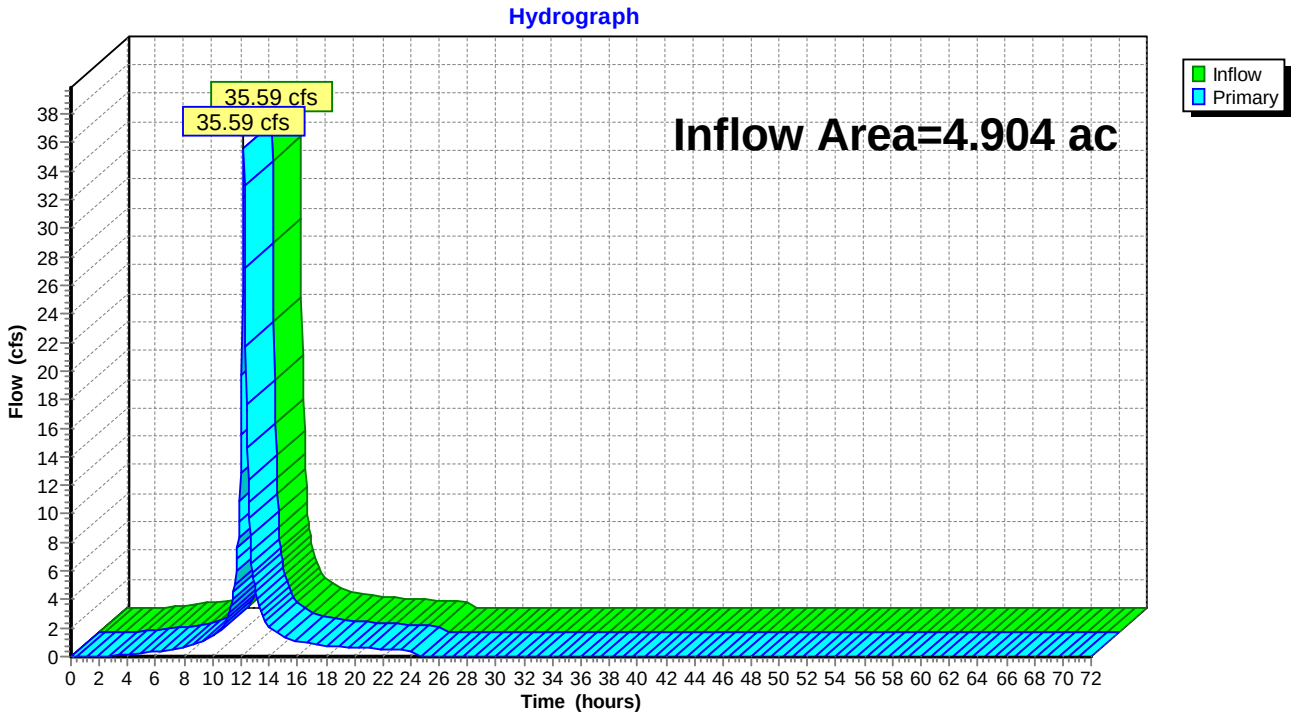


Summary for Link EX-SP-1: EX-SP-1

Inflow Area = 4.904 ac, 56.44% Impervious, Inflow Depth = 7.77" for 100-Year event
Inflow = 35.59 cfs @ 12.20 hrs, Volume= 3.176 af
Primary = 35.59 cfs @ 12.20 hrs, Volume= 3.176 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link EX-SP-1: EX-SP-1

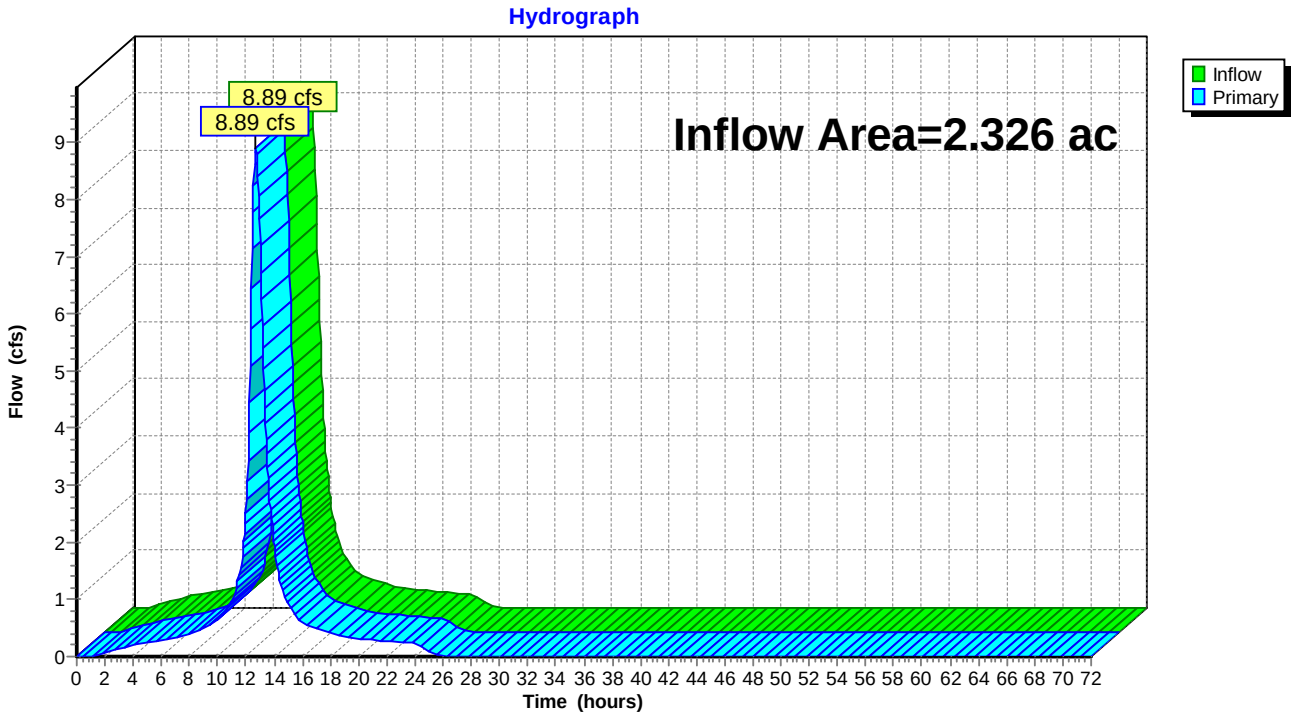


Summary for Link EX-SP-2: EX-SP-2

Inflow Area = 2.326 ac, 94.73% Impervious, Inflow Depth = 8.62" for 100-Year event
Inflow = 8.89 cfs @ 12.71 hrs, Volume= 1.671 af
Primary = 8.89 cfs @ 12.71 hrs, Volume= 1.671 af, Atten= 0%, Lag= 0.0 min

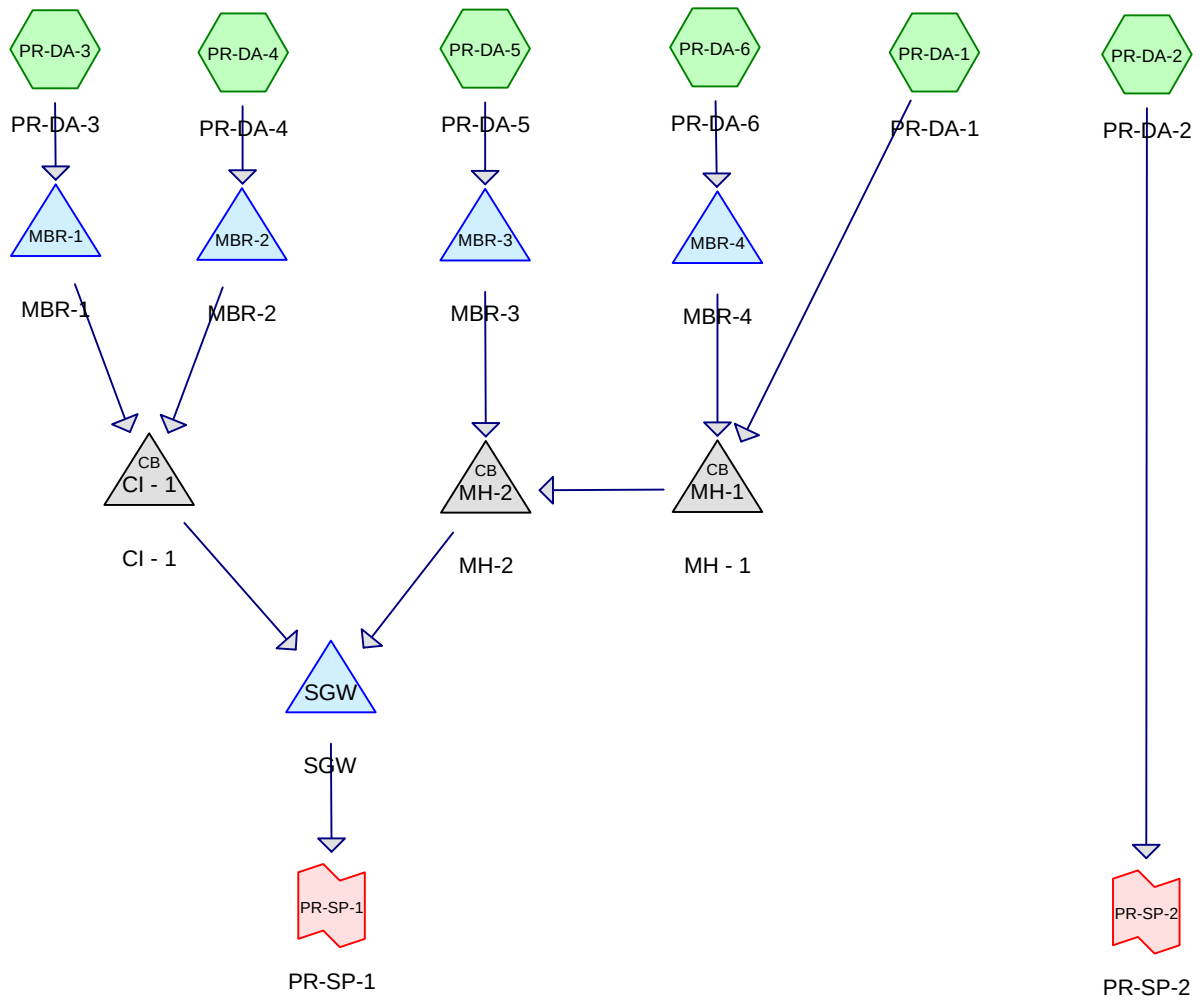
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link EX-SP-2: EX-SP-2



Analysis of Proposed Conditions

PROPOSED



Subcat Reach Pond Link

Routing Diagram for Arc - Easton Crossing - Existing vs Proposed
Prepared by Rauch Inc, Printed 12/2/2024
HydroCAD® 10.20-3g s/n 02413 © 2023 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-DA-1: PR-DA-1 Runoff Area=230,241 sf 67.12% Impervious Runoff Depth=1.95"
Flow Length=347' Tc=26.1 min CN=86 Runoff=7.64 cfs 0.858 af

Subcatchment PR-DA-2: PR-DA-2 Runoff Area=7,525 sf 75.24% Impervious Runoff Depth=2.20"
Flow Length=258' Tc=5.1 min CN=89 Runoff=0.49 cfs 0.032 af

Subcatchment PR-DA-3: PR-DA-3 Runoff Area=19,951 sf 91.92% Impervious Runoff Depth=2.77"
Flow Length=150' Tc=1.9 min CN=95 Runoff=1.72 cfs 0.106 af

Subcatchment PR-DA-4: PR-DA-4 Runoff Area=19,263 sf 82.03% Impervious Runoff Depth=2.38"
Flow Length=112' Tc=12.2 min CN=91 Runoff=1.06 cfs 0.088 af

Subcatchment PR-DA-5: PR-DA-5 Runoff Area=18,594 sf 69.57% Impervious Runoff Depth=2.03"
Flow Length=154' Tc=11.2 min CN=87 Runoff=0.92 cfs 0.072 af

Subcatchment PR-DA-6: PR-DA-6 Runoff Area=19,385 sf 85.36% Impervious Runoff Depth=2.57"
Flow Length=110' Tc=12.1 min CN=93 Runoff=1.15 cfs 0.095 af

Pond CI - 1: CI - 1 Peak Elev=30.75' Inflow=2.00 cfs 0.193 af
30.0" Round Culvert n=0.013 L=60.0' S=0.0030 '/' Outflow=1.99 cfs 0.193 af

Pond MBR-1: MBR-1 Peak Elev=33.91' Storage=414 cf Inflow=1.72 cfs 0.106 af
Outflow=1.07 cfs 0.106 af

Pond MBR-2: MBR-2 Peak Elev=35.07' Storage=306 cf Inflow=1.06 cfs 0.088 af
Outflow=1.09 cfs 0.088 af

Pond MBR-3: MBR-3 Peak Elev=34.41' Storage=593 cf Inflow=0.92 cfs 0.072 af
Outflow=0.90 cfs 0.061 af

Pond MBR-4: MBR-4 Peak Elev=33.62' Storage=286 cf Inflow=1.15 cfs 0.095 af
Outflow=0.94 cfs 0.095 af

Pond MH-1: MH - 1 Peak Elev=31.65' Inflow=8.43 cfs 0.953 af
30.0" Round Culvert n=0.010 L=58.4' S=0.0259 '/' Outflow=8.43 cfs 0.953 af

Pond MH-2: MH-2 Peak Elev=30.94' Inflow=8.98 cfs 1.014 af
36.0" Round Culvert n=0.010 L=87.0' S=0.0049 '/' Outflow=8.98 cfs 1.014 af

Pond SGW: SGW Peak Elev=30.75' Storage=9,590 cf Inflow=10.34 cfs 1.208 af
Outflow=9.95 cfs 1.208 af

Link PR-SP-1: PR-SP-1 Inflow=9.95 cfs 1.208 af
Primary=9.95 cfs 1.208 af

Link PR-SP-2: PR-SP-2 Inflow=0.49 cfs 0.032 af
Primary=0.49 cfs 0.032 af

Total Runoff Area = 7.230 ac Runoff Volume = 1.251 af Average Runoff Depth = 2.08"
28.94% Pervious = 2.092 ac 71.06% Impervious = 5.138 ac

Summary for Subcatchment PR-DA-1: PR-DA-1

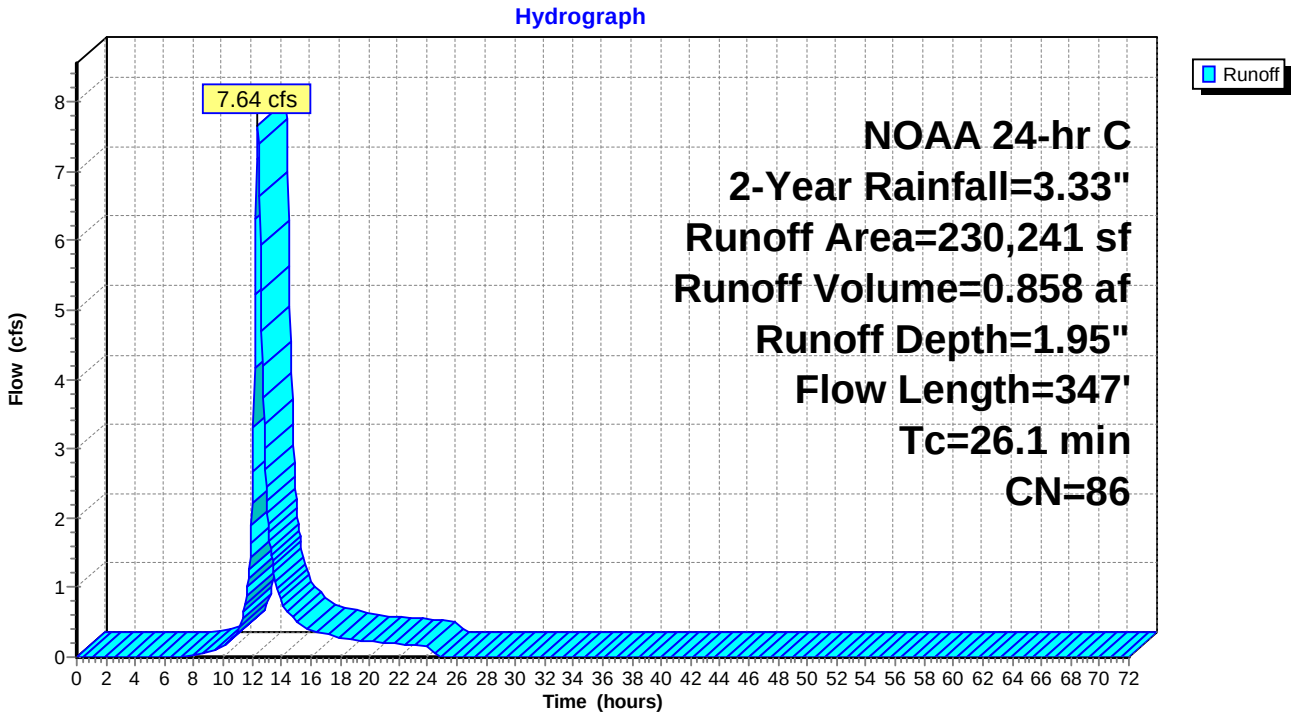
Runoff = 7.64 cfs @ 12.37 hrs, Volume= 0.858 af, Depth= 1.95"
Routed to Pond MH-1 : MH - 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.33"

Area (sf)	CN	Description
65,361	61	>75% Grass cover, Good, HSG B
146,431	98	Unconnected pavement, HSG B
10,353	74	>75% Grass cover, Good, HSG C
8,096	98	Unconnected pavement, HSG C
230,241	86	Weighted Average
75,714		32.88% Pervious Area
154,527		67.12% Impervious Area
154,527		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	35	0.0163	0.13		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
3.5	8	0.0042	0.04		**Sheet Flow, Concreted Sheet Flow** Grass: Dense n= 0.240 P2= 3.33"
17.3	57	0.0015	0.06		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.4	14	0.0015	0.58		**Shallow Concentrated Flow, Grassed SCF** Grassed Waterway Kv= 15.0 fps
0.3	114	0.0050	5.46	9.66	**Pipe Channel, 18" Piped Flow** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
0.1	119	0.0206	15.59	76.53	**Pipe Channel, 30" Piped Flow** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010 PVC, smooth interior
26.1	347	Total			

Subcatchment PR-DA-1: PR-DA-1



Summary for Subcatchment PR-DA-2: PR-DA-2

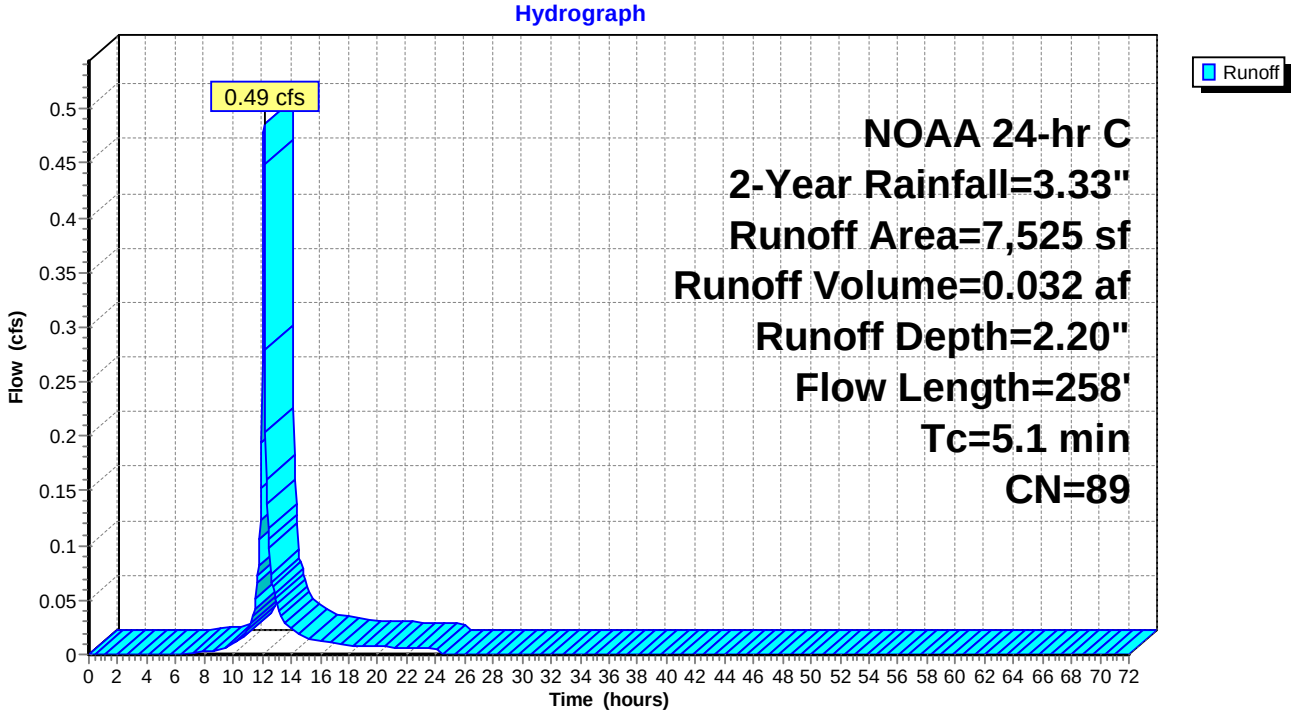
Runoff = 0.49 cfs @ 12.12 hrs, Volume= 0.032 af, Depth= 2.20"
Routed to Link PR-SP-2 : PR-SP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.33"

Area (sf)	CN	Description
1,863	61	>75% Grass cover, Good, HSG B
5,662	98	Unconnected pavement, HSG B
7,525	89	Weighted Average
1,863		24.76% Pervious Area
5,662		75.24% Impervious Area
5,662		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0375	1.20		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
4.9	245	0.0021	0.82	0.08	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
5.1	258	Total			

Subcatchment PR-DA-2: PR-DA-2



Summary for Subcatchment PR-DA-3: PR-DA-3

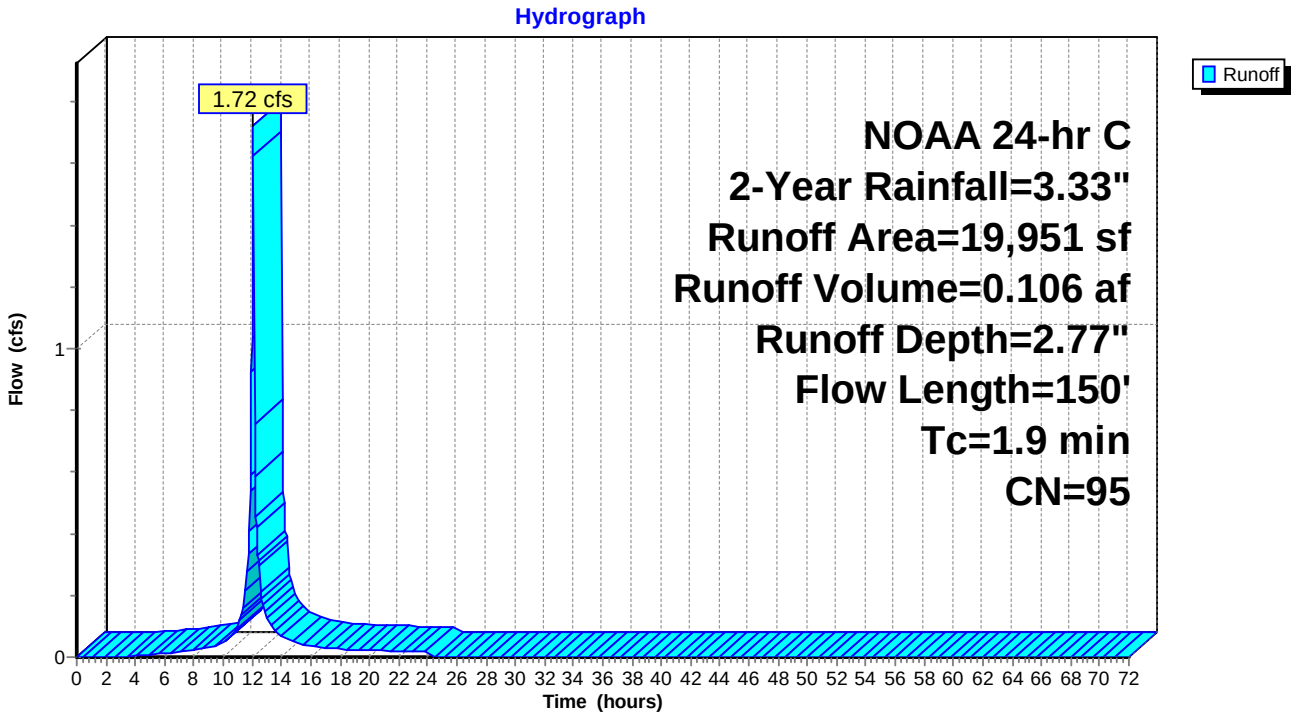
Runoff = 1.72 cfs @ 12.08 hrs, Volume= 0.106 af, Depth= 2.77"
Routed to Pond MBR-1 : MBR-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.33"

Area (sf)	CN	Description
1,612	61	>75% Grass cover, Good, HSG B
18,339	98	Unconnected pavement, HSG B
19,951	95	Weighted Average
1,612		8.08% Pervious Area
18,339		91.92% Impervious Area
18,339		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	80	0.0079	0.93		**Sheet Flow, Paved Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.1	17	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.3	36	0.0101	2.04		**Shallow Concentrated Flow, Paved SCF** Paved Kv= 20.3 fps
0.1	17	0.0336	3.30	0.33	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
1.9	150	Total			

Subcatchment PR-DA-3: PR-DA-3



Summary for Subcatchment PR-DA-4: PR-DA-4

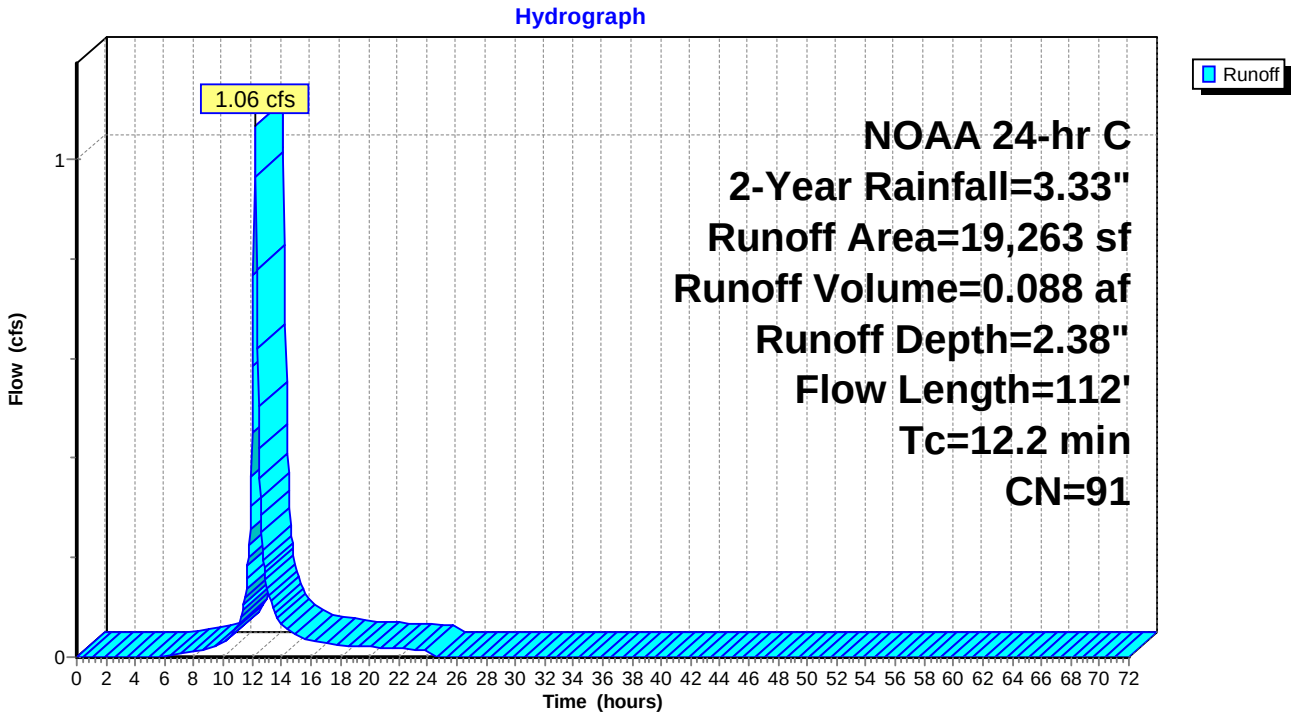
Runoff = 1.06 cfs @ 12.20 hrs, Volume= 0.088 af, Depth= 2.38"
Routed to Pond MBR-2 : MBR-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.33"

Area (sf)	CN	Description
3,462	61	>75% Grass cover, Good, HSG B
15,801	98	Unconnected pavement, HSG B
19,263	91	Weighted Average
3,462		17.97% Pervious Area
15,801		82.03% Impervious Area
15,801		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	31	0.0013	0.05		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.1	5	0.0289	0.89		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.7	49	0.0154	1.10		**Sheet Flow, Paved Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.2	27	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
12.2	112	Total			

Subcatchment PR-DA-4: PR-DA-4



Summary for Subcatchment PR-DA-5: PR-DA-5

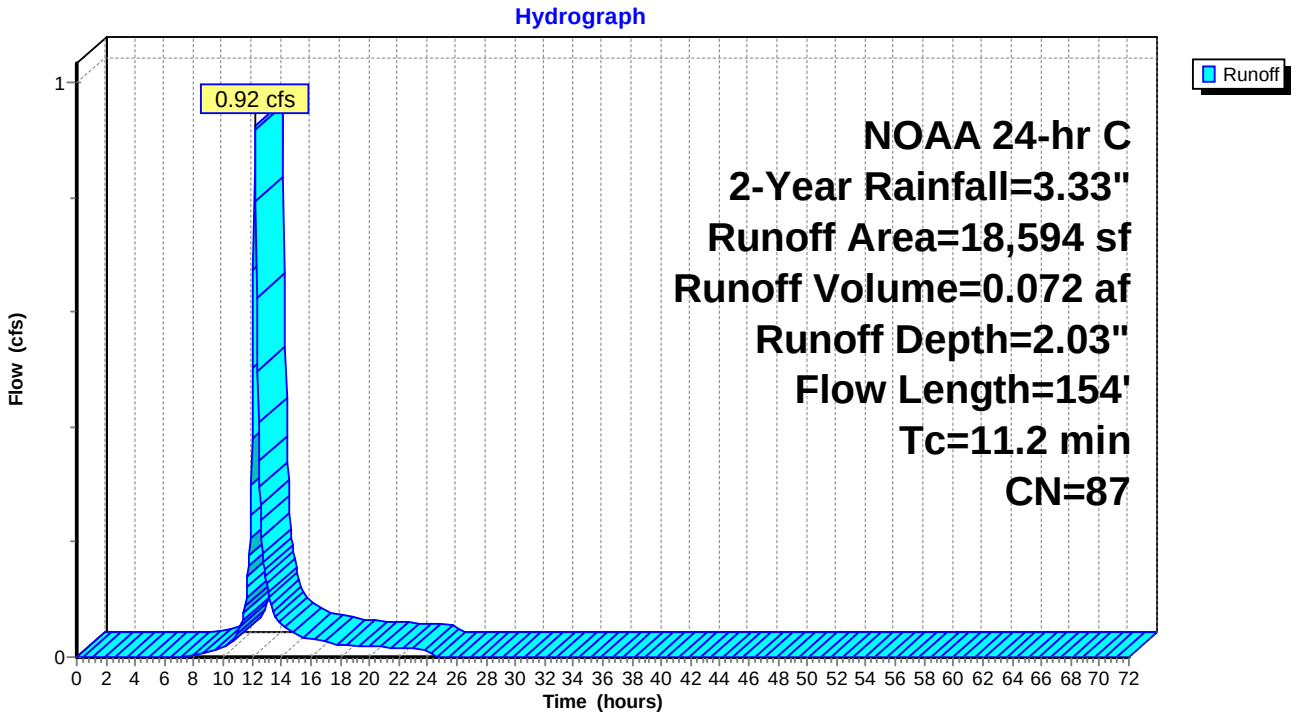
Runoff = 0.92 cfs @ 12.19 hrs, Volume= 0.072 af, Depth= 2.03"
Routed to Pond MBR-3 : MBR-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.33"

Area (sf)	CN	Description
5,659	61	>75% Grass cover, Good, HSG B
12,935	98	Unconnected pavement, HSG B
18,594	87	Weighted Average
5,659		30.43% Pervious Area
12,935		69.57% Impervious Area
12,935		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	60	0.0063	0.10		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.8	33	0.0062	0.70		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.1	19	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.2	42	0.0279	3.39		**Shallow Concentrated Flow, Paved SCF** Paved Kv= 20.3 fps
11.2	154	Total			

Subcatchment PR-DA-5: PR-DA-5



Summary for Subcatchment PR-DA-6: PR-DA-6

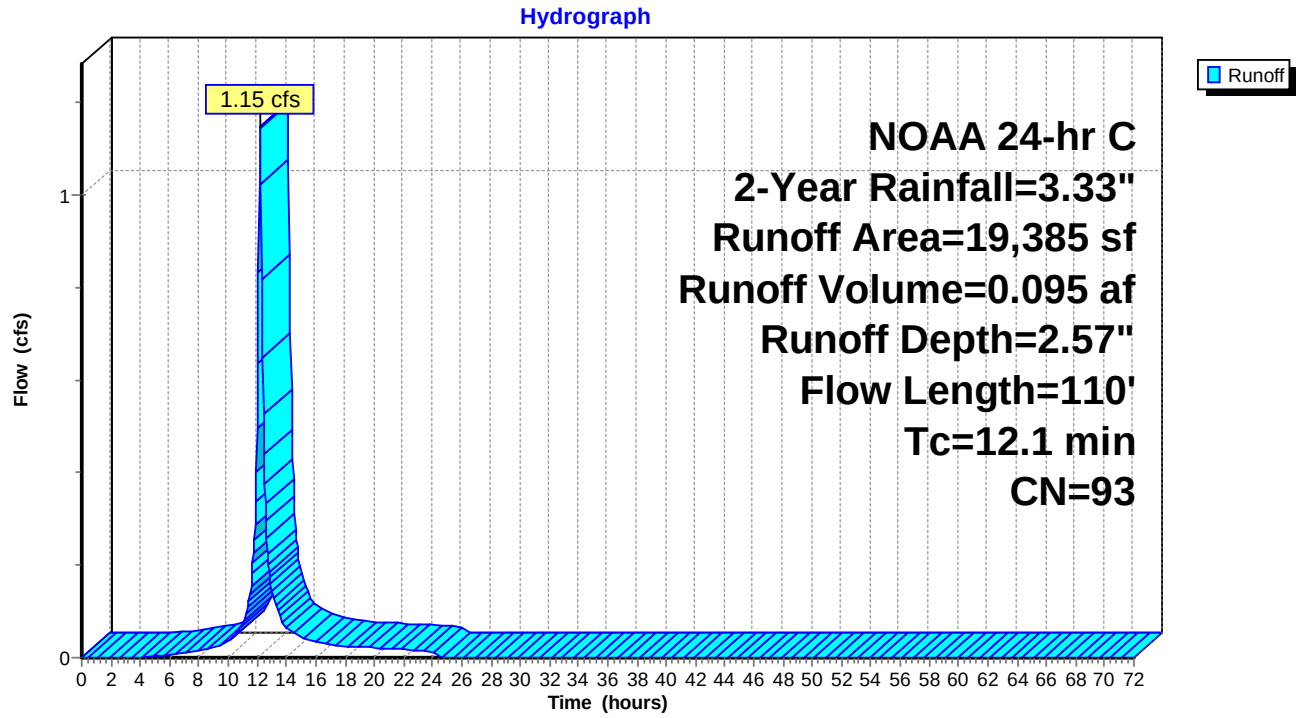
Runoff = 1.15 cfs @ 12.20 hrs, Volume= 0.095 af, Depth= 2.57"
Routed to Pond MBR-4 : MBR-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.33"

Area (sf)	CN	Description
2,837	61	>75% Grass cover, Good, HSG B
16,548	98	Unconnected pavement, HSG B
19,385	93	Weighted Average
2,837		14.64% Pervious Area
16,548		85.36% Impervious Area
16,548		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	8	0.0073	0.07		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
10.0	75	0.0262	0.13		**Sheet Flow, Paved Sheet Flow** Grass: Dense n= 0.240 P2= 3.33"
0.2	27	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
12.1	110	Total			

Subcatchment PR-DA-6: PR-DA-6



Summary for Pond CI - 1: CI - 1

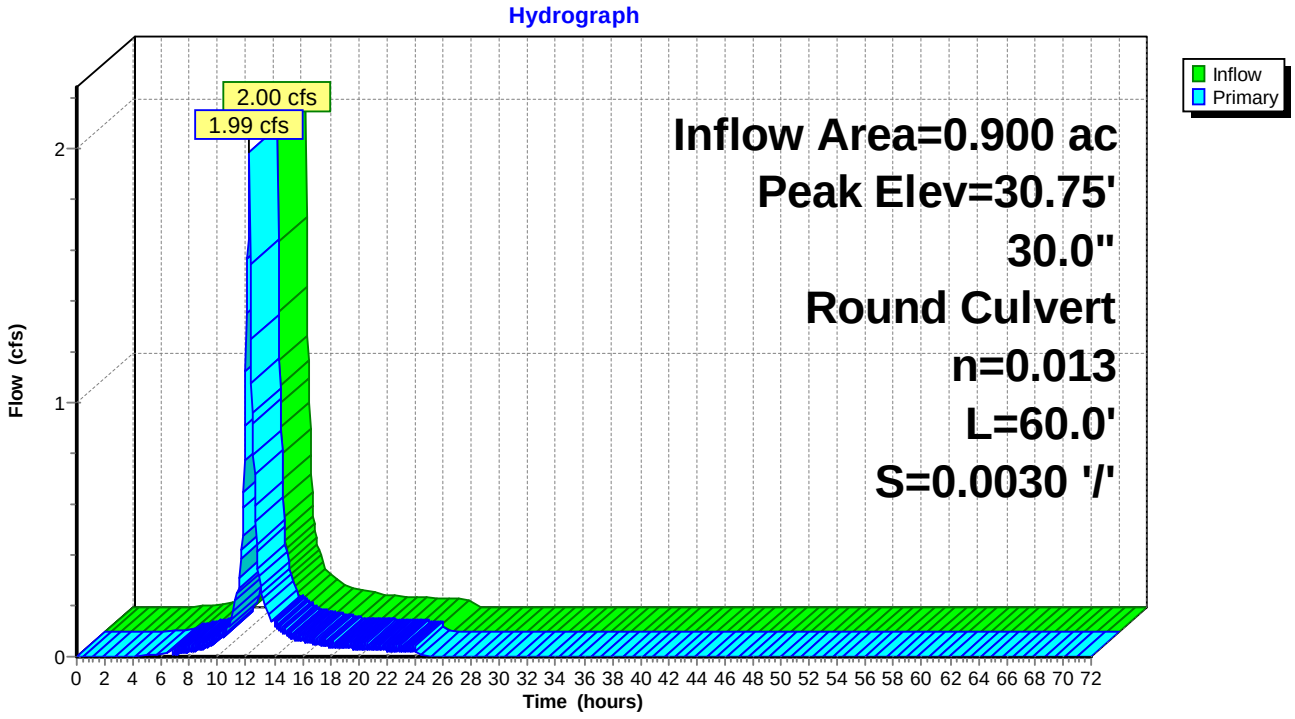
Inflow Area = 0.900 ac, 87.06% Impervious, Inflow Depth = 2.58" for 2-Year event
Inflow = 2.00 cfs @ 12.25 hrs, Volume= 0.193 af
Outflow = 1.99 cfs @ 12.25 hrs, Volume= 0.193 af, Atten= 1%, Lag= 0.0 min
Primary = 1.99 cfs @ 12.25 hrs, Volume= 0.193 af
Routed to Pond SGW : SGW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.75' @ 12.40 hrs

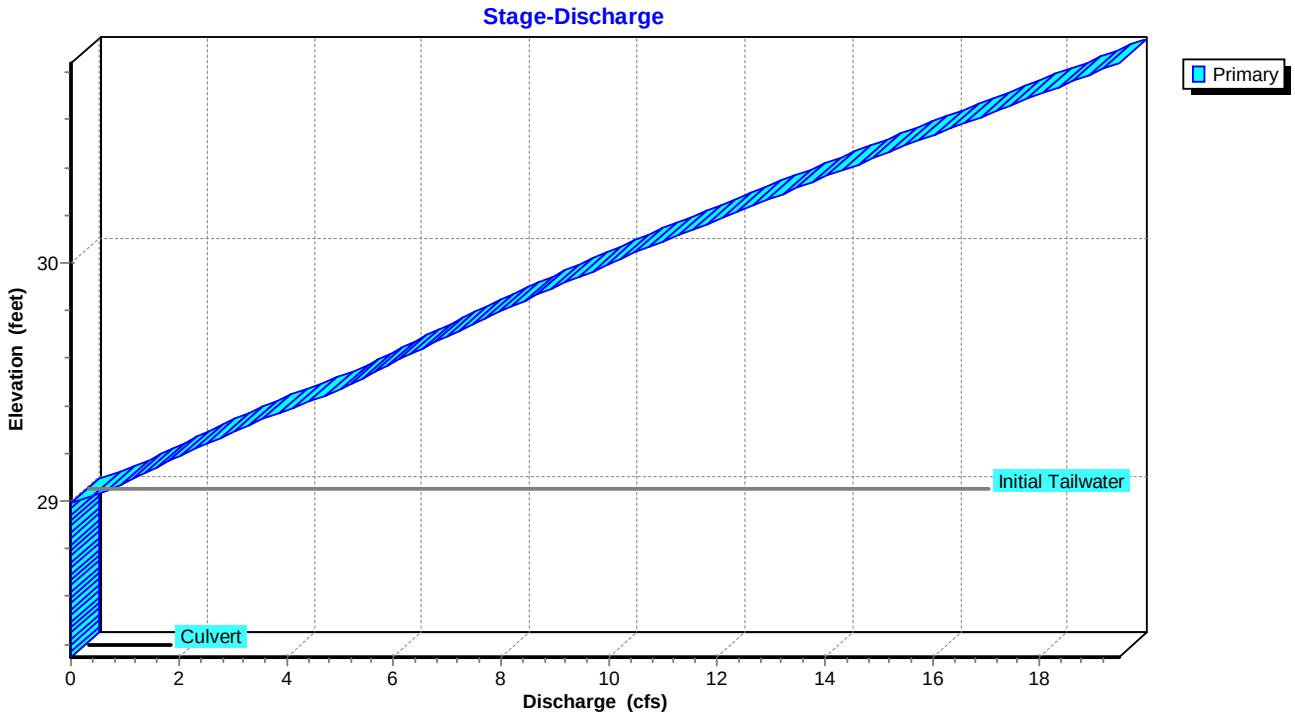
Device	Routing	Invert	Outlet Devices
#1	Primary	28.34'	**30.0" Round Culvert** L= 60.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 28.34' / 28.16' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete, trowel finish, Flow Area= 4.91 sf

Primary OutFlow Max=1.98 cfs @ 12.25 hrs HW=30.51' TW=30.50' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.98 cfs @ 0.59 fps)

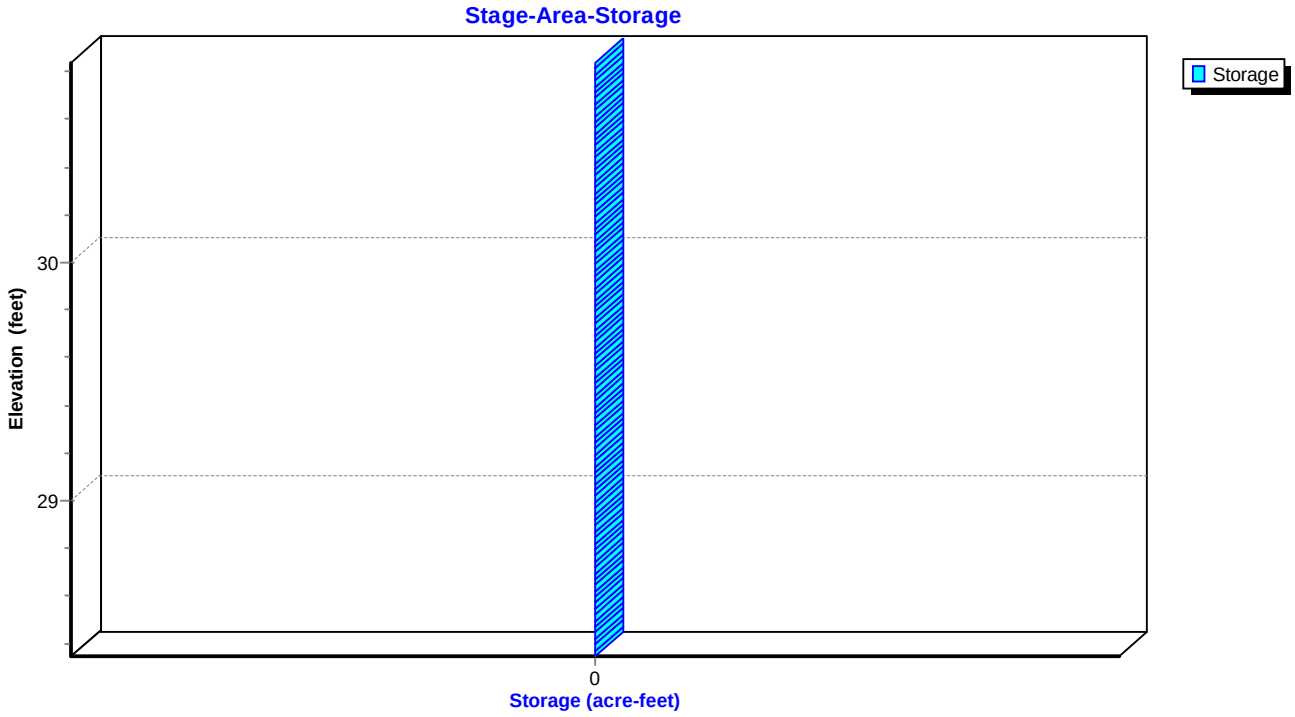
Pond CI - 1: CI - 1



Pond CI - 1: CI - 1



Pond CI - 1: CI - 1



Summary for Pond MBR-1: MBR-1

Inflow Area = 0.458 ac, 91.92% Impervious, Inflow Depth = 2.77" for 2-Year event
Inflow = 1.72 cfs @ 12.08 hrs, Volume= 0.106 af
Outflow = 1.07 cfs @ 12.14 hrs, Volume= 0.106 af, Atten= 38%, Lag= 3.6 min
Primary = 1.07 cfs @ 12.14 hrs, Volume= 0.106 af
Routed to Pond CI - 1 : CI - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 33.91' @ 12.14 hrs Surf.Area= 330 sf Storage= 414 cf

Plug-Flow detention time= 8.8 min calculated for 0.106 af (100% of inflow)
Center-of-Mass det. time= 7.9 min (785.9 - 778.0)

Volume	Invert	Avail.Storage	Storage Description
#1	30.76'	2,356 cf	**Custom Stage Data (Irregular)** Listed below

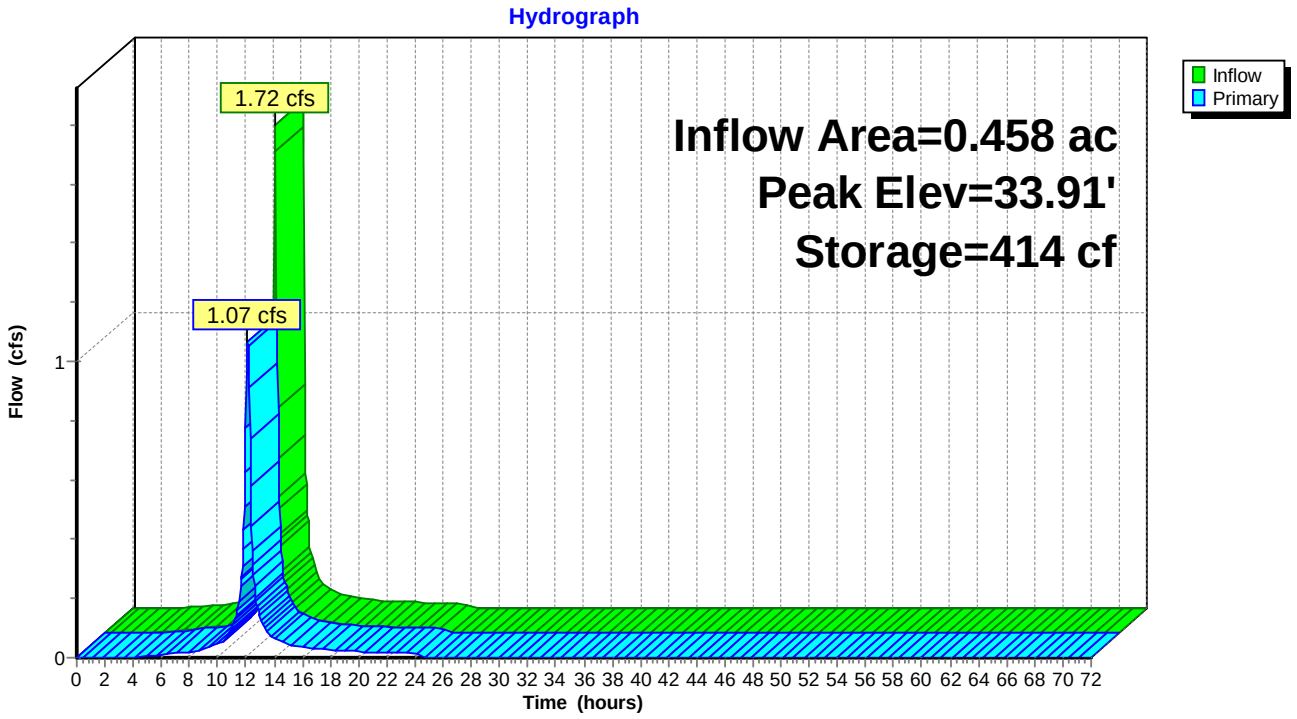
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.76	265	168.6	0.0	0	0	265
30.77	265	168.6	40.0	1	1	267
33.76	265	168.6	40.0	317	318	771
33.77	265	168.6	100.0	3	321	772
35.77	1,209	176.3	100.0	1,360	1,681	1,177
36.00	2,270	206.1	100.0	394	2,074	2,085
36.10	3,399	287.6	100.0	282	2,356	5,287

Device	Routing	Invert	Outlet Devices
#1	Device 2	34.02'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	30.77'	**6.0" Round 6" Piped Flow** L= 83.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.77' / 30.35' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 4	30.10'	**18.0" Round 18" Piped Flow** L= 61.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.10' / 29.79' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#4	Device 5	29.28'	**24.0" Round 24" Piped Flow** L= 82.1' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 29.28' / 28.87' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#5	Device 6	28.87'	**24.0" Round 24" Piped Flow** L= 81.2' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 28.87' / 28.34' S= 0.0065 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#6	Primary	28.34'	**30.0" Round 30" Piped Flow** L= 60.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.34' / 28.16' S= 0.0030 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 4.91 sf
#7	Device 2	30.77'	**6.0" Round Underdrain**

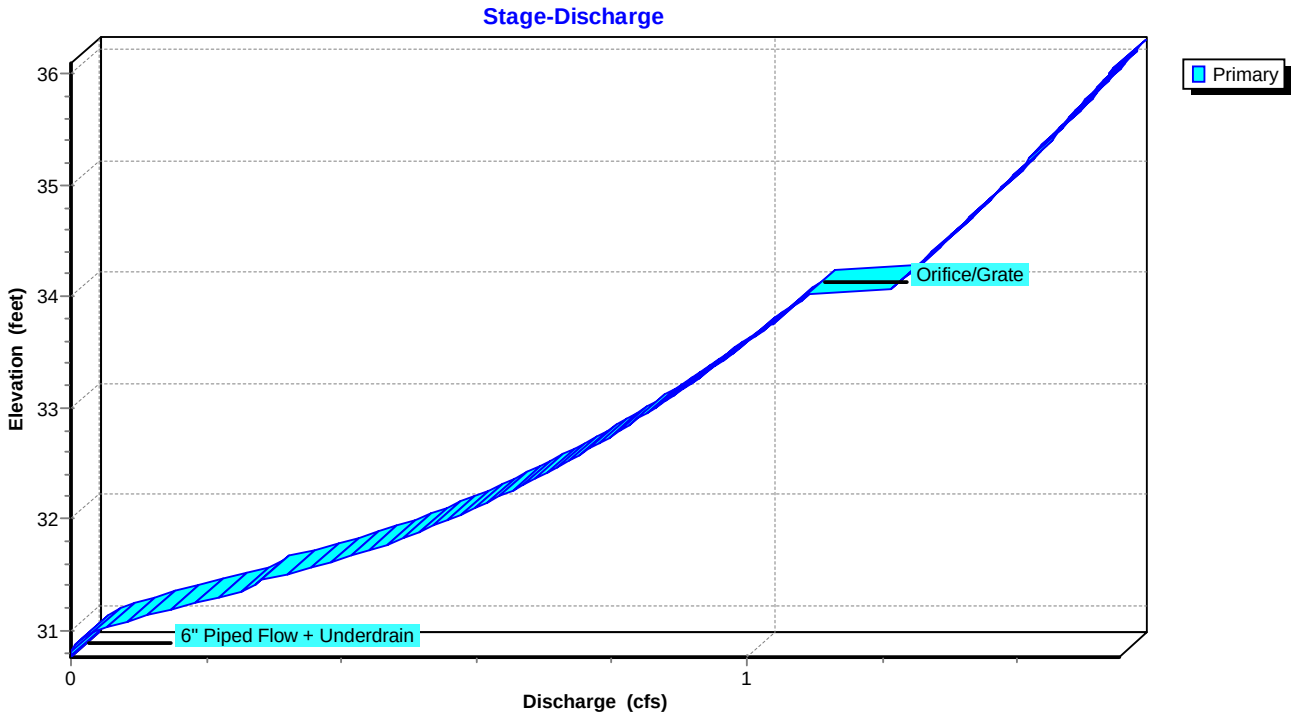
L= 63.0' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 30.77' / 30.77' S= 0.0000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.06 cfs @ 12.14 hrs HW=33.89' TW=30.07' (Dynamic Tailwater)
- **6=30" Piped Flow** (Passes 1.06 cfs of 40.80 cfs potential flow)
  - **5=24" Piped Flow** (Passes 1.06 cfs of 29.59 cfs potential flow)
    - **4=24" Piped Flow** (Passes 1.06 cfs of 28.76 cfs potential flow)
      - **3=18" Piped Flow** (Passes 1.06 cfs of 14.85 cfs potential flow)
        - **2=6" Piped Flow** (Passes 1.06 cfs of 1.18 cfs potential flow)
          - **1=Orifice/Grate** (Controls 0.00 cfs)
          - **7=Underdrain** (Barrel Controls 1.06 cfs @ 5.42 fps)

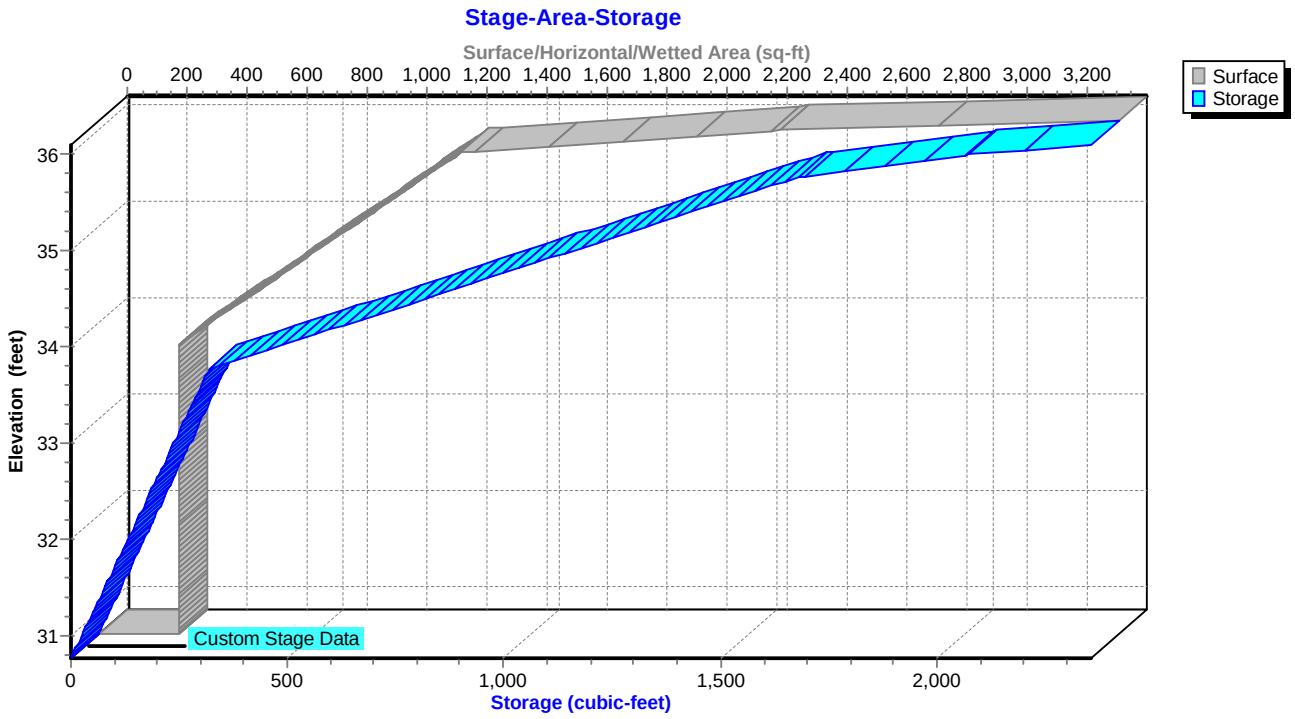
Pond MBR-1: MBR-1



Pond MBR-1: MBR-1



Pond MBR-1: MBR-1



Summary for Pond MBR-2: MBR-2

Inflow Area = 0.442 ac, 82.03% Impervious, Inflow Depth = 2.38" for 2-Year event
Inflow = 1.06 cfs @ 12.20 hrs, Volume= 0.088 af
Outflow = 1.09 cfs @ 12.26 hrs, Volume= 0.088 af, Atten= 0%, Lag= 3.4 min
Primary = 1.09 cfs @ 12.26 hrs, Volume= 0.088 af
Routed to Pond CI - 1 : CI - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 35.07' @ 12.26 hrs Surf.Area= 248 sf Storage= 306 cf

Plug-Flow detention time= 6.2 min calculated for 0.088 af (100% of inflow)
Center-of-Mass det. time= 5.1 min (814.7 - 809.5)

Volume	Invert	Avail.Storage	Storage Description
#1	30.47'	1,326 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

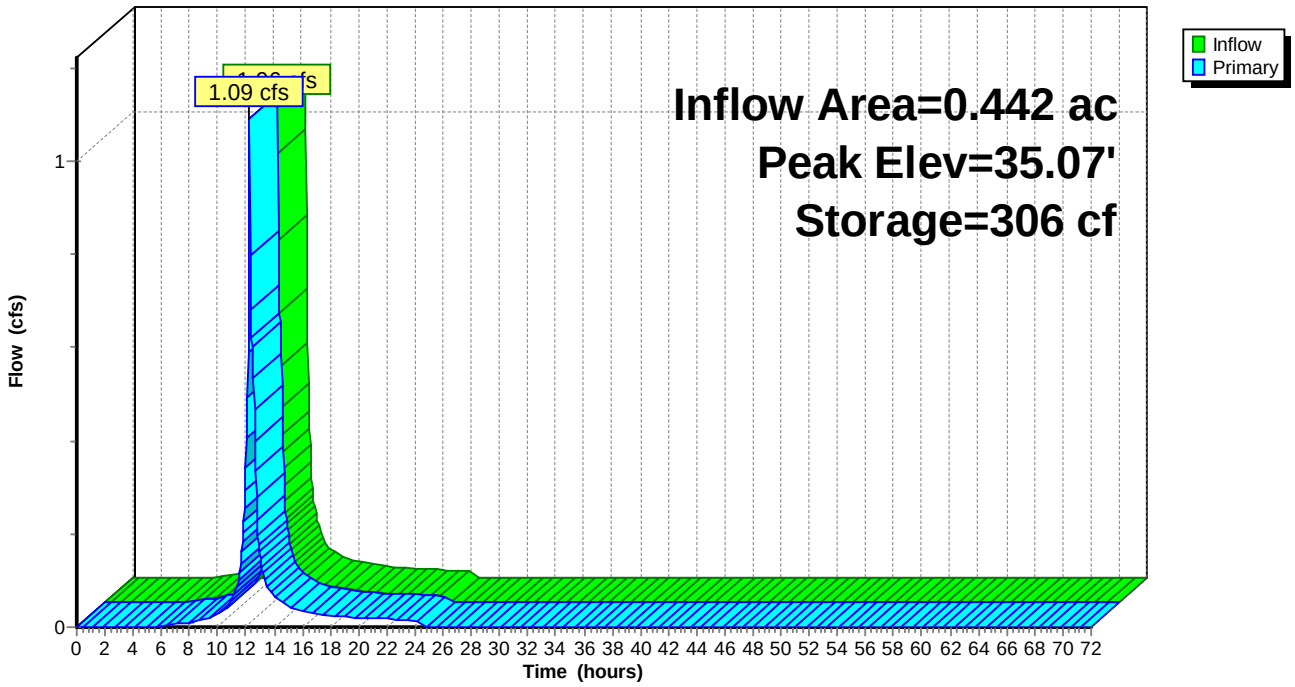
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.47	122	67.3	0.0	0	0	122
30.48	122	67.3	40.0	0	0	123
34.45	122	67.3	40.0	194	194	390
34.46	122	67.3	100.0	1	195	391
35.46	352	86.2	100.0	227	423	634
36.46	983	123.9	100.0	641	1,064	1,273
36.66	1,157	138.0	100.0	214	1,277	1,568
36.70	1,262	145.2	100.0	48	1,326	1,730

Device	Routing	Invert	Outlet Devices
#1	Device 2	34.96'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	30.48'	**15.0" Round Culvert** L= 58.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.48' / 28.34' S= 0.0366 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	30.47'	**4.0" Round Underdrain** L= 27.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.47' / 30.47' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=1.05 cfs @ 12.26 hrs HW=35.06' TW=30.55' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.05 cfs of 11.75 cfs potential flow)
  ├**1=Orifice/Grate** (Weir Controls 0.42 cfs @ 1.04 fps)
  └**3=Underdrain** (Barrel Controls 0.63 cfs @ 7.25 fps)

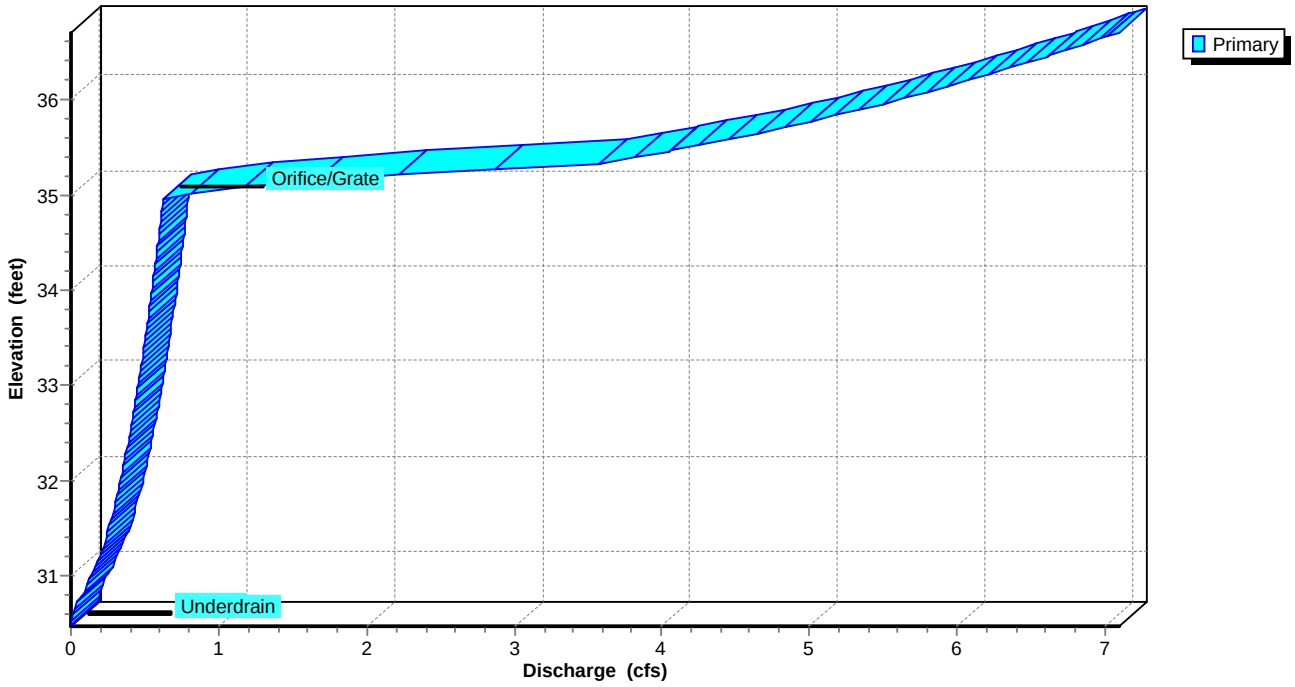
Pond MBR-2: MBR-2

Hydrograph

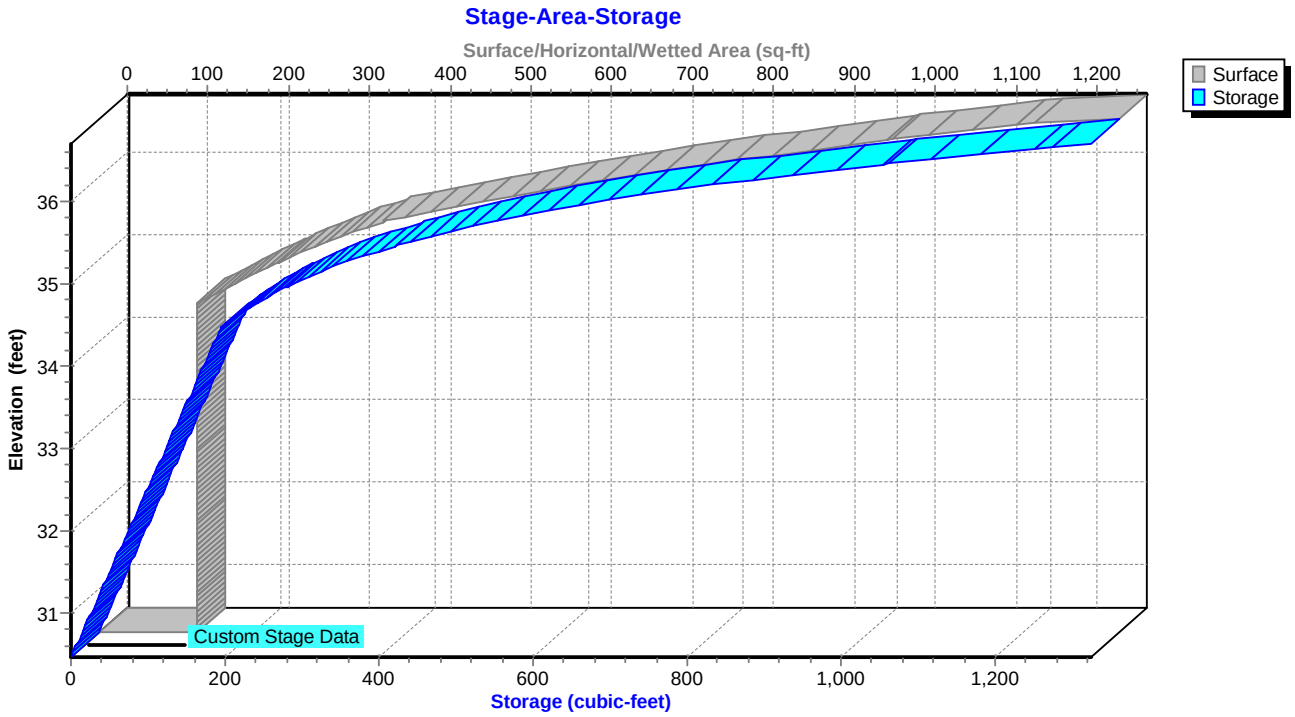


Pond MBR-2: MBR-2

Stage-Discharge



Pond MBR-2: MBR-2



Summary for Pond MBR-3: MBR-3

Inflow Area = 0.427 ac, 69.57% Impervious, Inflow Depth = 2.03" for 2-Year event
Inflow = 0.92 cfs @ 12.19 hrs, Volume= 0.072 af
Outflow = 0.90 cfs @ 12.21 hrs, Volume= 0.061 af, Atten= 2%, Lag= 1.3 min
Primary = 0.90 cfs @ 12.21 hrs, Volume= 0.061 af
Routed to Pond MH-2 : MH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 34.41' @ 12.21 hrs Surf.Area= 523 sf Storage= 593 cf

Plug-Flow detention time= 104.0 min calculated for 0.061 af (84% of inflow)
Center-of-Mass det. time= 33.9 min (859.1 - 825.1)

Volume	Invert	Avail.Storage	Storage Description
#1	30.44'	1,981 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

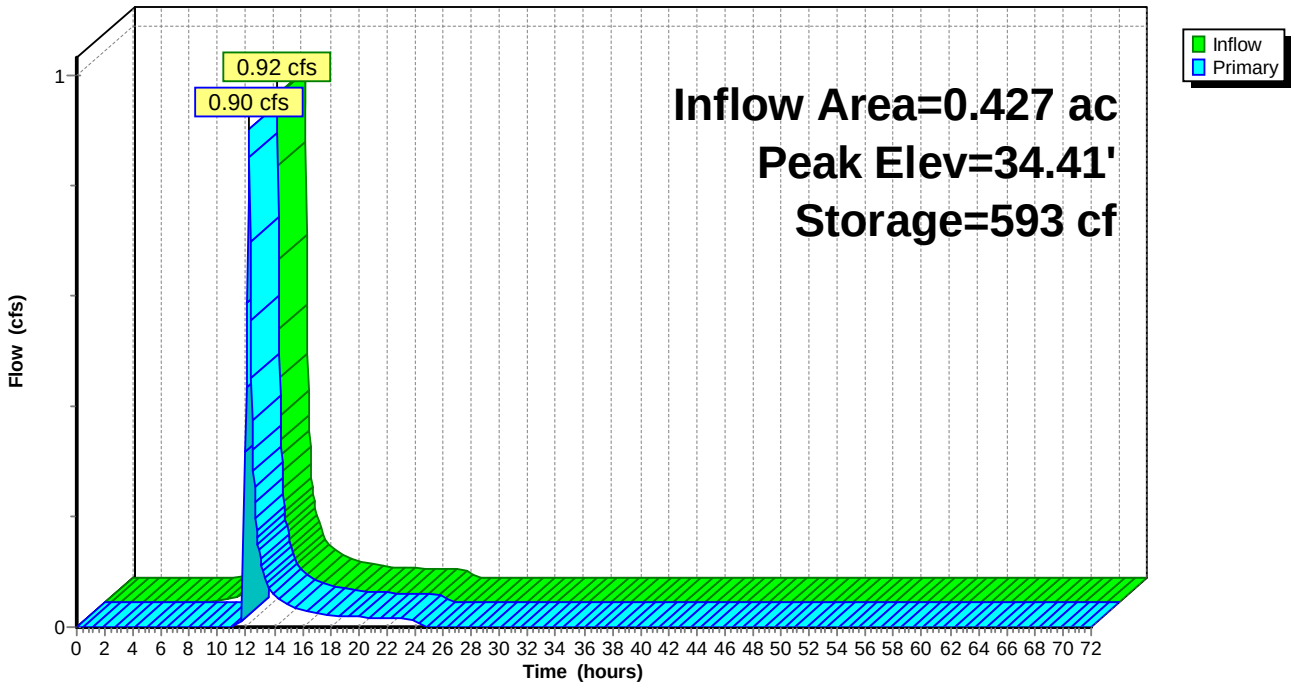
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.44	249	130.6	0.0	0	0	249
30.45	249	130.6	40.0	1	1	250
33.70	249	130.6	40.0	324	325	675
33.71	249	130.6	100.0	2	327	676
34.71	669	149.5	100.0	442	769	1,120
35.71	1,145	168.3	100.0	896	1,666	1,621
35.90	2,235	222.1	100.0	315	1,981	3,293

Device	Routing	Invert	Outlet Devices
#1	Device 3	34.21'	**9.0" x 9.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	29.13'	**15.0" Round Culvert** L= 38.2' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 29.13' / 28.93' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	29.13'	**6.0" Round Underdrain** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 29.13' / 29.13' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.89 cfs @ 12.21 hrs HW=34.41' TW=30.57' (Dynamic Tailwater)
↑—**2=Culvert** (Passes 0.89 cfs of 11.59 cfs potential flow)
↑—**3=Underdrain** (Passes 0.89 cfs of 1.24 cfs potential flow)
↑—**1=Orifice/Grate** (Weir Controls 0.89 cfs @ 1.47 fps)

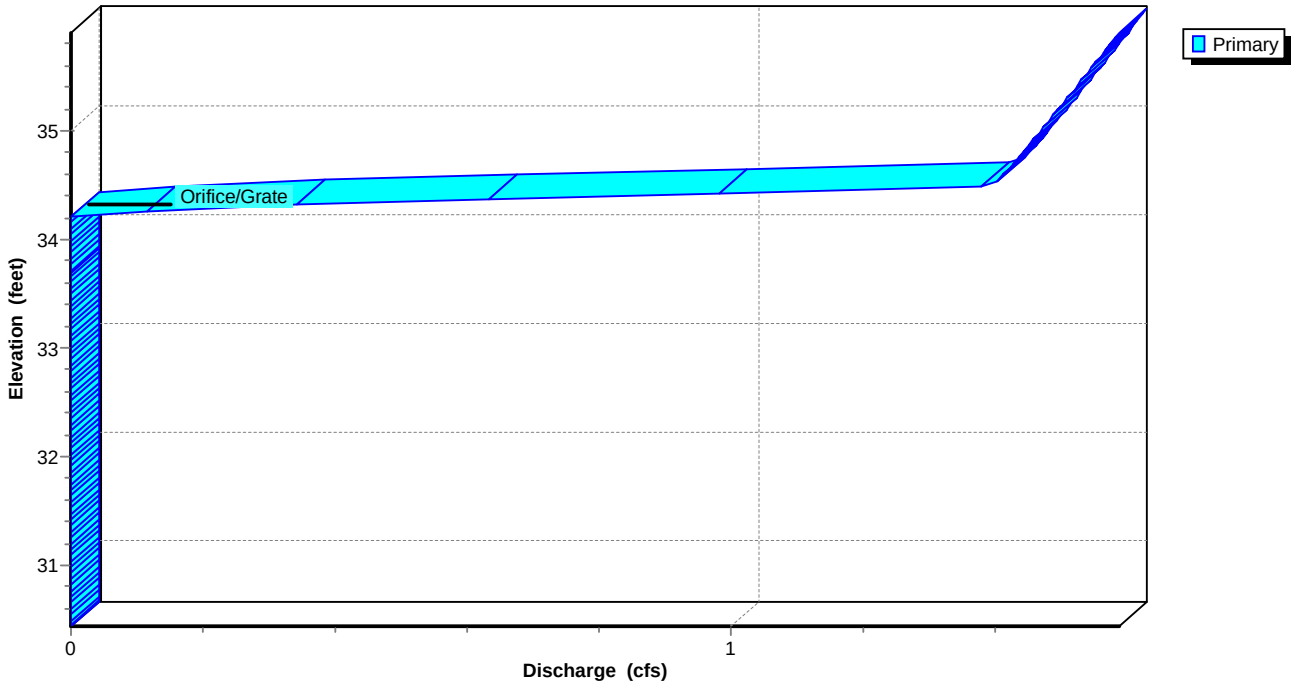
Pond MBR-3: MBR-3

Hydrograph

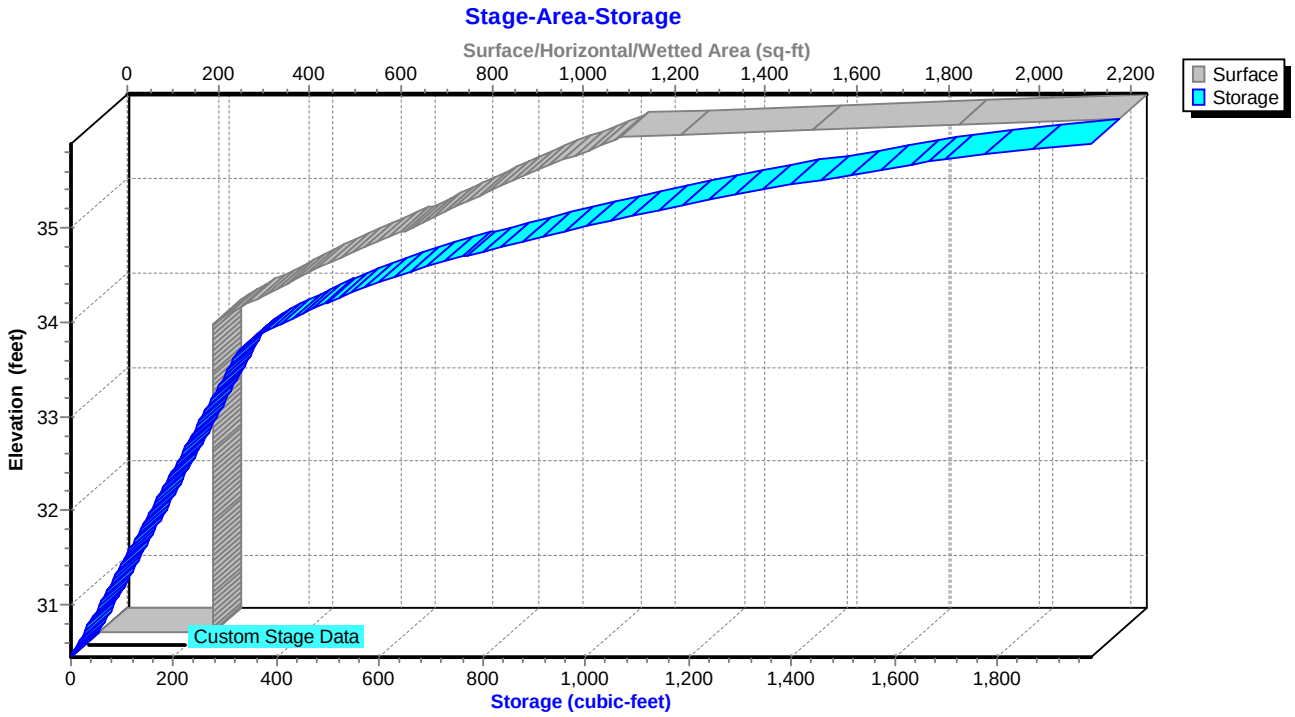


Pond MBR-3: MBR-3

Stage-Discharge



Pond MBR-3: MBR-3



Summary for Pond MBR-4: MBR-4

Inflow Area = 0.445 ac, 85.36% Impervious, Inflow Depth = 2.57" for 2-Year event
Inflow = 1.15 cfs @ 12.20 hrs, Volume= 0.095 af
Outflow = 0.94 cfs @ 12.26 hrs, Volume= 0.095 af, Atten= 18%, Lag= 3.9 min
Primary = 0.94 cfs @ 12.26 hrs, Volume= 0.095 af
Routed to Pond MH-1 : MH - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 33.62' @ 12.27 hrs Surf.Area= 212 sf Storage= 286 cf

Plug-Flow detention time= 10.1 min calculated for 0.095 af (100% of inflow)
Center-of-Mass det. time= 8.2 min (807.7 - 799.4)

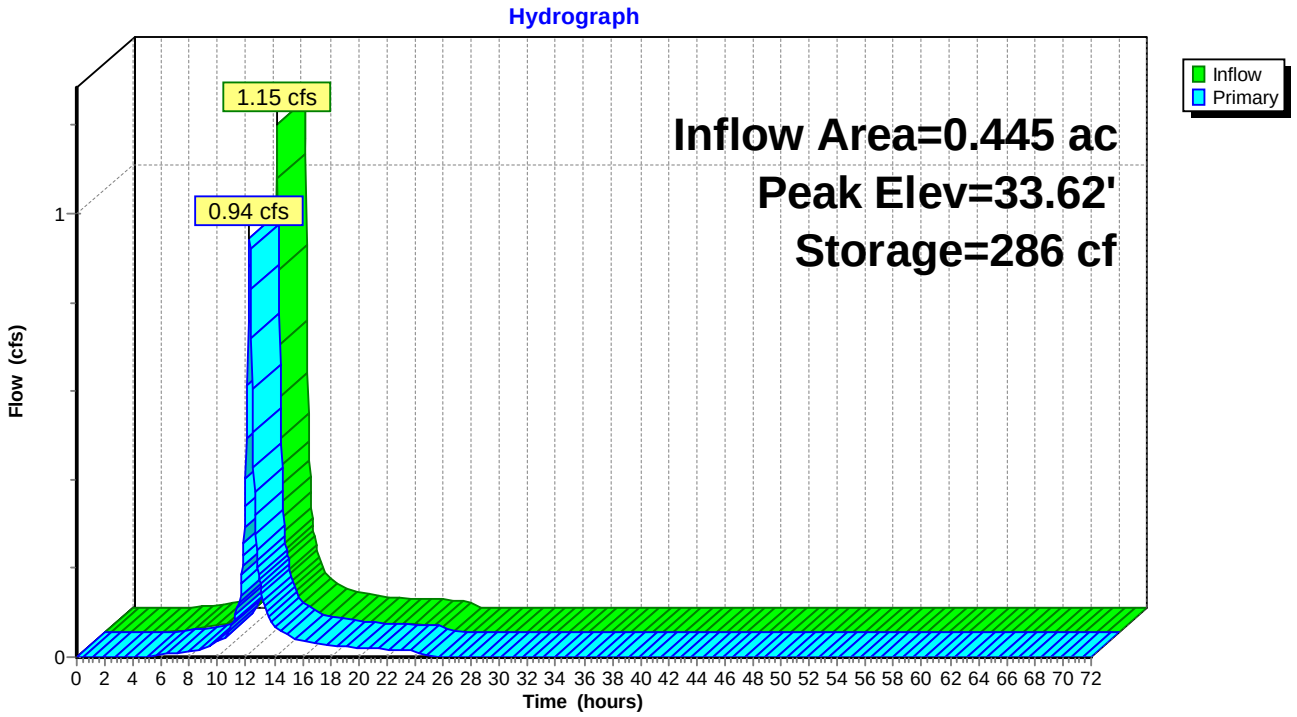
Volume	Invert	Avail.Storage	Storage Description
#1	30.25'	1,725 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.25	212	112.4	0.0	0	0	212
30.26	212	112.4	40.0	1	1	213
33.70	212	112.4	40.0	292	293	600
33.71	212	112.4	100.0	2	295	601
34.71	578	131.3	100.0	380	675	987
35.71	1,000	150.1	100.0	779	1,454	1,431
35.90	1,899	200.3	100.0	271	1,725	2,831

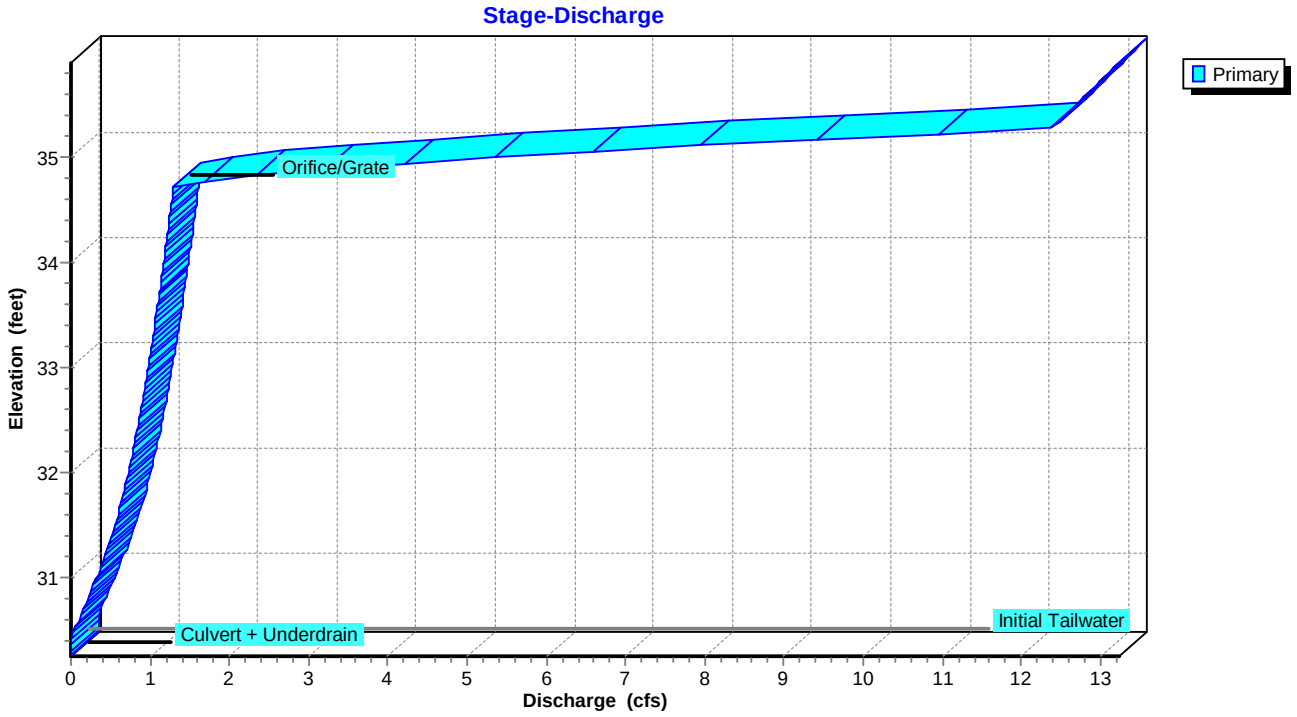
Device	Routing	Invert	Outlet Devices
#1	Device 2	34.71'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	30.26'	**15.0" Round Culvert** L= 46.8' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.26' / 29.89' S= 0.0079 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	30.26'	**6.0" Round Underdrain** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.26' / 30.26' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.94 cfs @ 12.26 hrs HW=33.58' TW=31.51' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.94 cfs of 8.51 cfs potential flow)
  ├**1=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Underdrain** (Outlet Controls 0.94 cfs @ 4.77 fps)

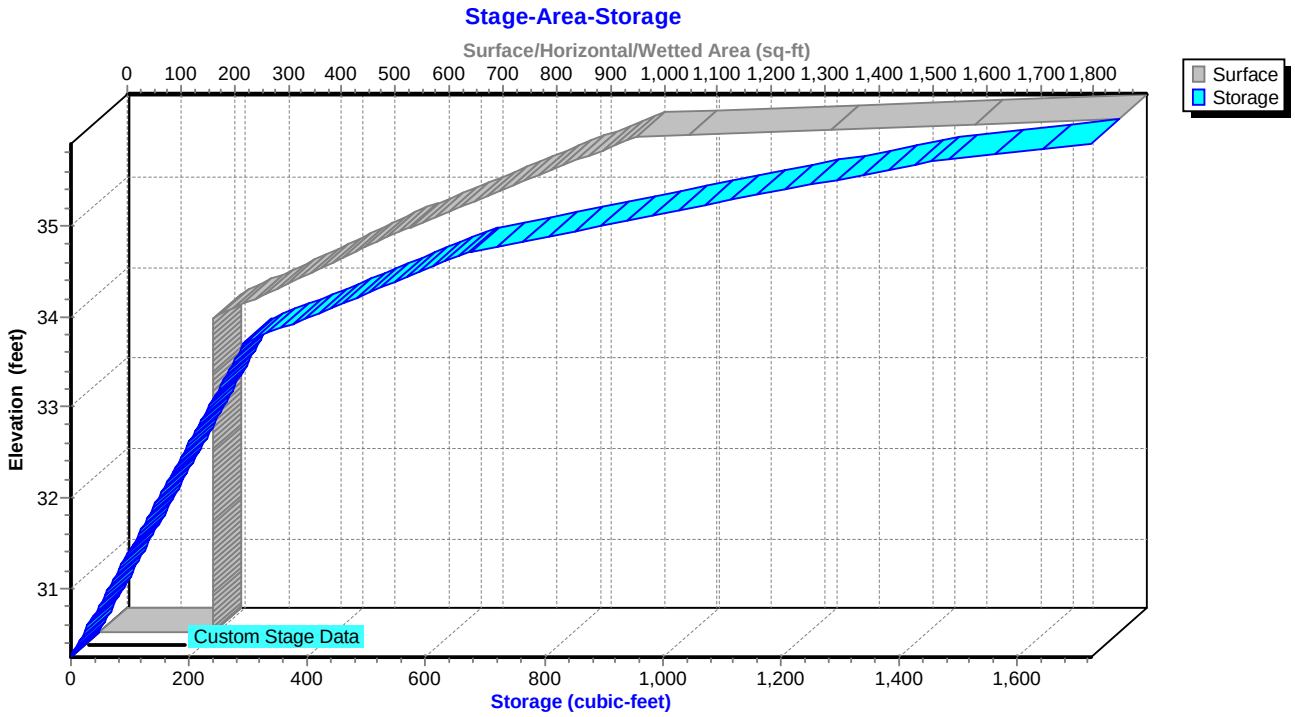
Pond MBR-4: MBR-4



Pond MBR-4: MBR-4



Pond MBR-4: MBR-4



Summary for Pond MH-1: MH - 1

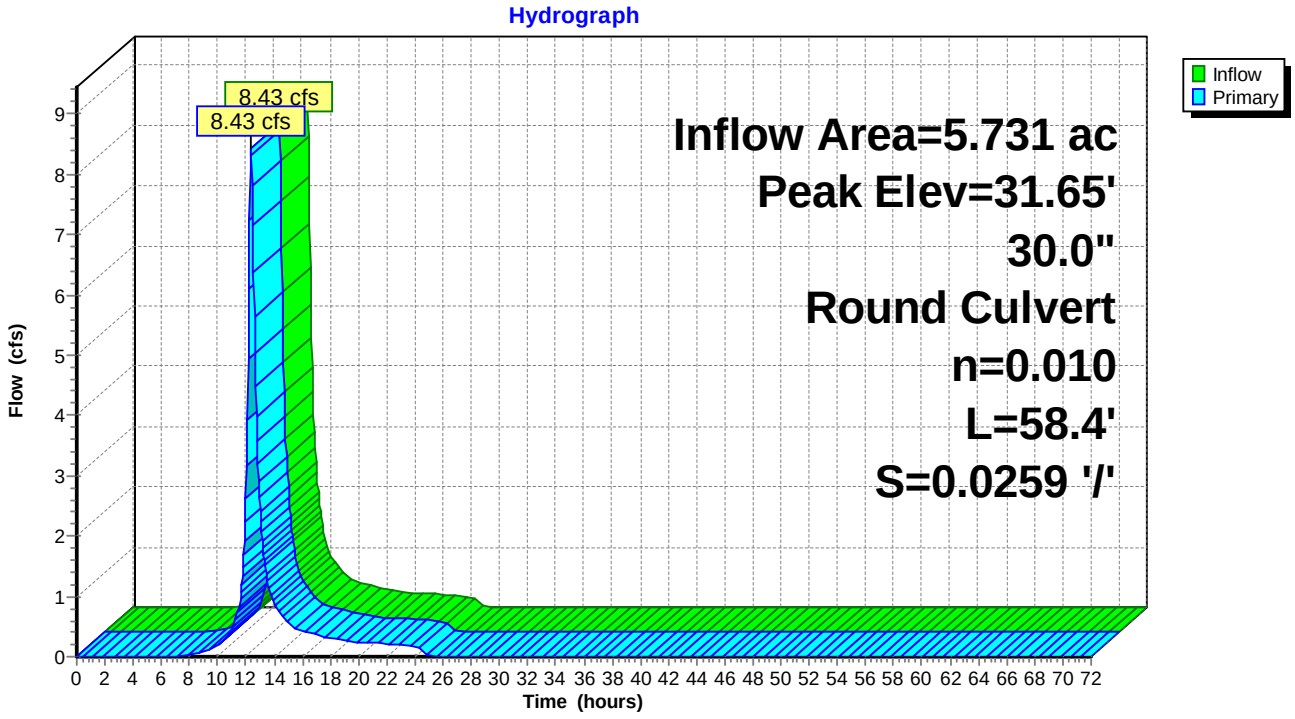
Inflow Area = 5.731 ac, 68.53% Impervious, Inflow Depth = 2.00" for 2-Year event
Inflow = 8.43 cfs @ 12.36 hrs, Volume= 0.953 af
Outflow = 8.43 cfs @ 12.36 hrs, Volume= 0.953 af, Atten= 0%, Lag= 0.0 min
Primary = 8.43 cfs @ 12.36 hrs, Volume= 0.953 af
Routed to Pond MH-2 : MH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 31.65' @ 12.38 hrs

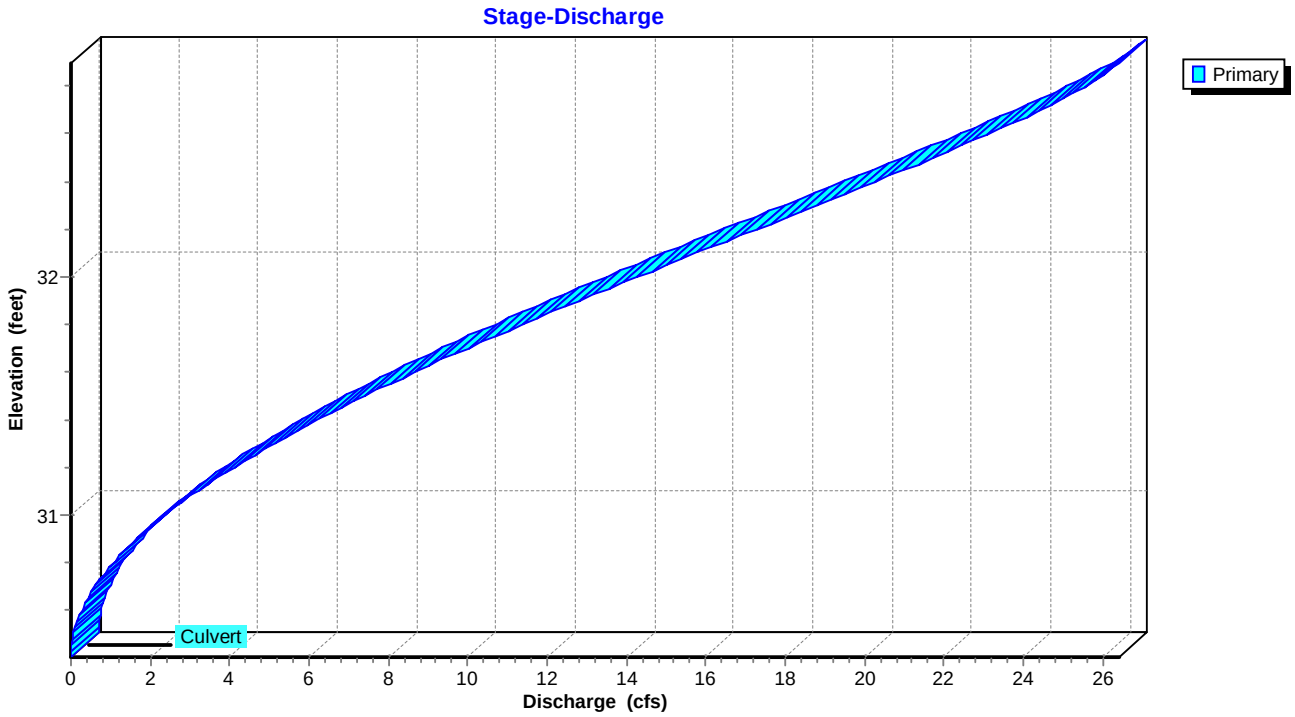
Device	Routing	Invert	Outlet Devices
#1	Primary	30.40'	**30.0" Round Culvert** L= 58.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.40' / 28.89' S= 0.0259 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=8.20 cfs @ 12.36 hrs HW=31.65' TW=30.93' (Dynamic Tailwater)
1=Culvert (Outlet Controls 8.20 cfs @ 4.89 fps)

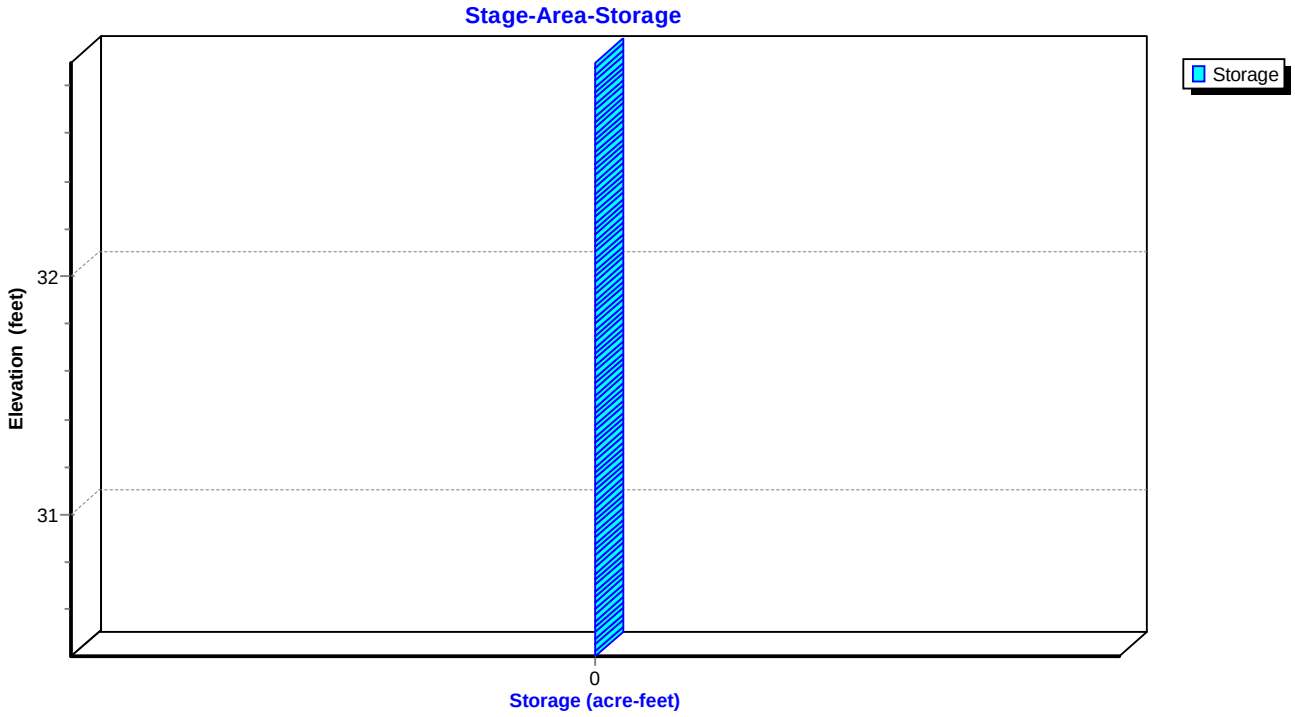
Pond MH-1: MH - 1



Pond MH-1: MH - 1



Pond MH-1: MH - 1



Summary for Pond MH-2: MH-2

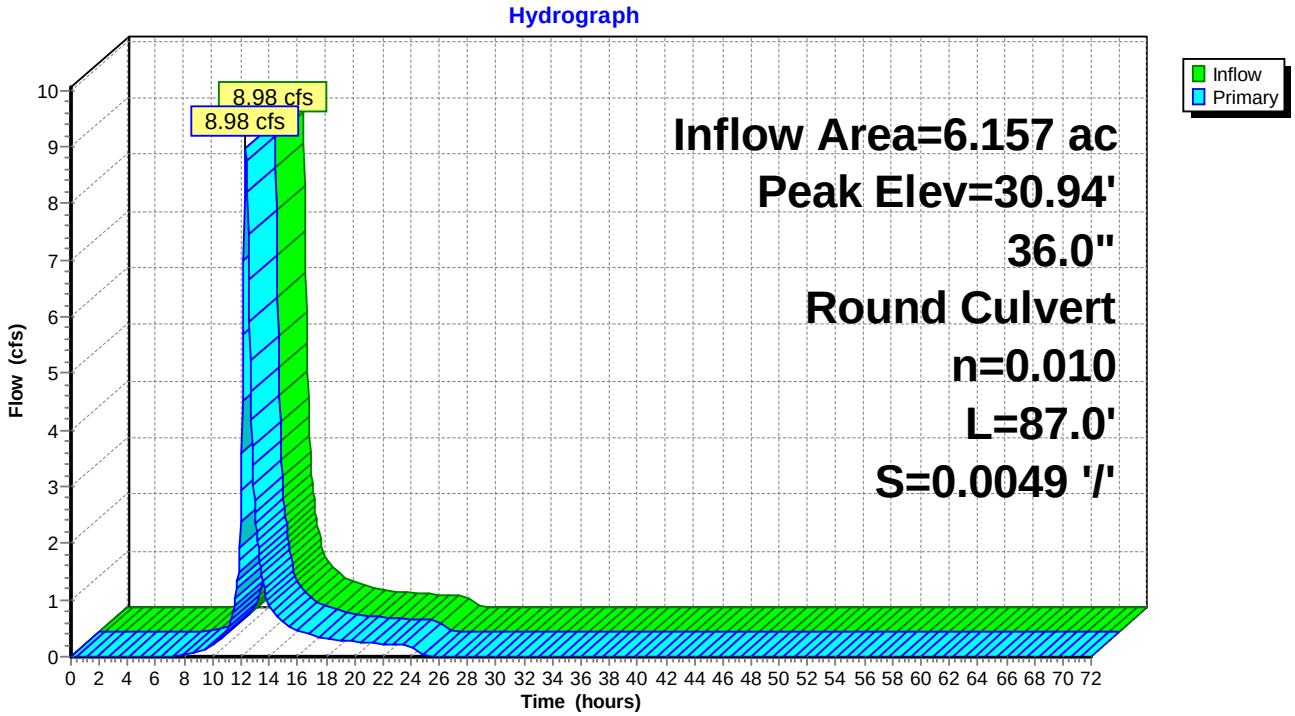
Inflow Area = 6.157 ac, 68.60% Impervious, Inflow Depth = 1.98" for 2-Year event
Inflow = 8.98 cfs @ 12.35 hrs, Volume= 1.014 af
Outflow = 8.98 cfs @ 12.35 hrs, Volume= 1.014 af, Atten= 0%, Lag= 0.0 min
Primary = 8.98 cfs @ 12.35 hrs, Volume= 1.014 af
Routed to Pond SGW : SGW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.94' @ 12.37 hrs

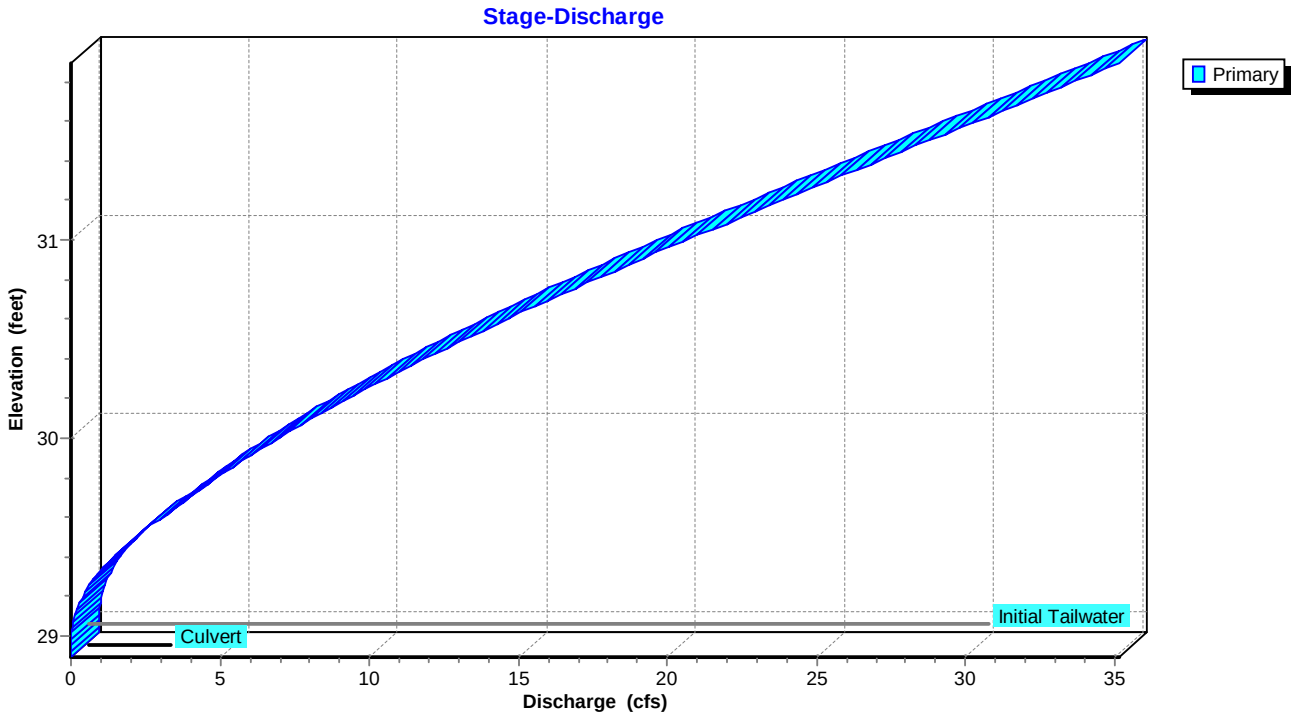
Device	Routing	Invert	Outlet Devices
#1	Primary	28.89'	**36.0" Round Culvert** L= 87.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 28.89' / 28.46' S= 0.0049 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=8.97 cfs @ 12.35 hrs HW=30.93' TW=30.74' (Dynamic Tailwater)
1=Culvert (Outlet Controls 8.97 cfs @ 2.47 fps)

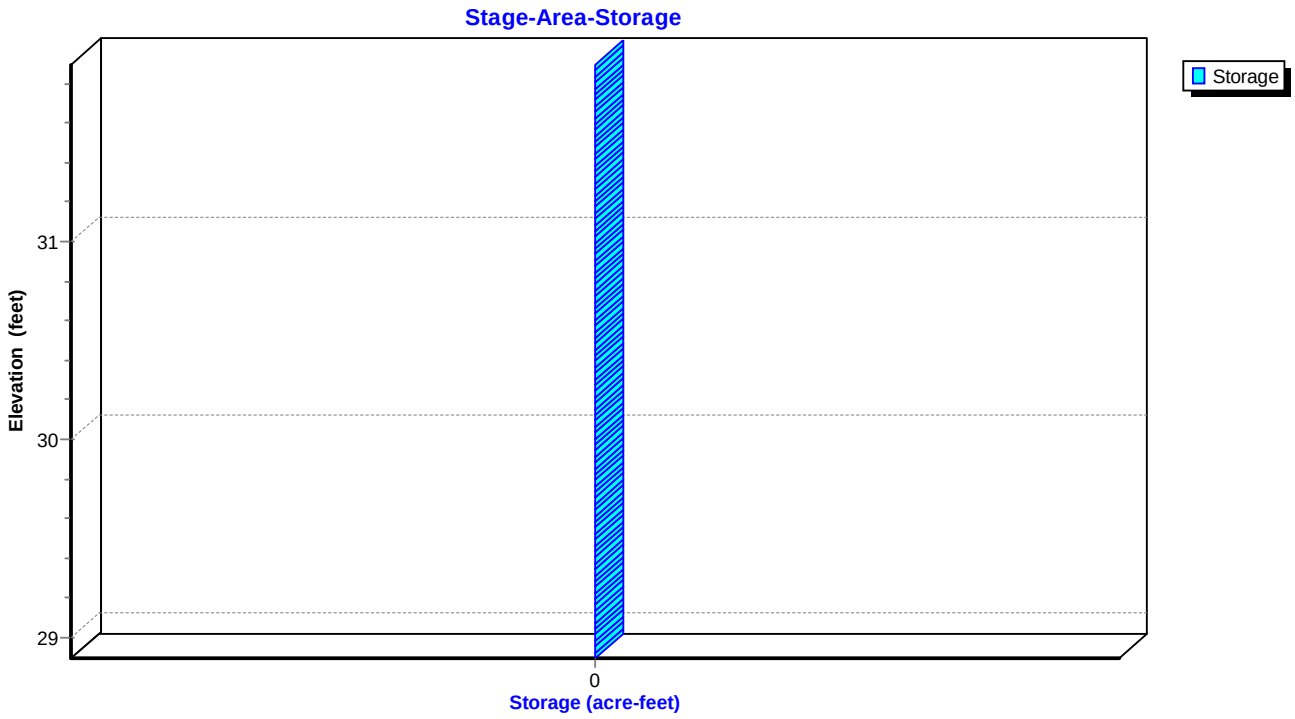
Pond MH-2: MH-2



Pond MH-2: MH-2



Pond MH-2: MH-2



Summary for Pond SGW: SGW

Inflow Area = 7.058 ac, 70.96% Impervious, Inflow Depth = 2.05" for 2-Year event
Inflow = 10.34 cfs @ 12.31 hrs, Volume= 1.208 af
Outflow = 9.95 cfs @ 12.40 hrs, Volume= 1.208 af, Atten= 4%, Lag= 5.3 min
Primary = 9.95 cfs @ 12.40 hrs, Volume= 1.208 af
Routed to Link PR-SP-1 : PR-SP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Starting Elev= 28.67' Storage= 0 cf
Peak Elev= 30.75' @ 12.40 hrs Surf.Area= 6,336 sf Storage= 9,590 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 36.1 min (869.9 - 833.7)

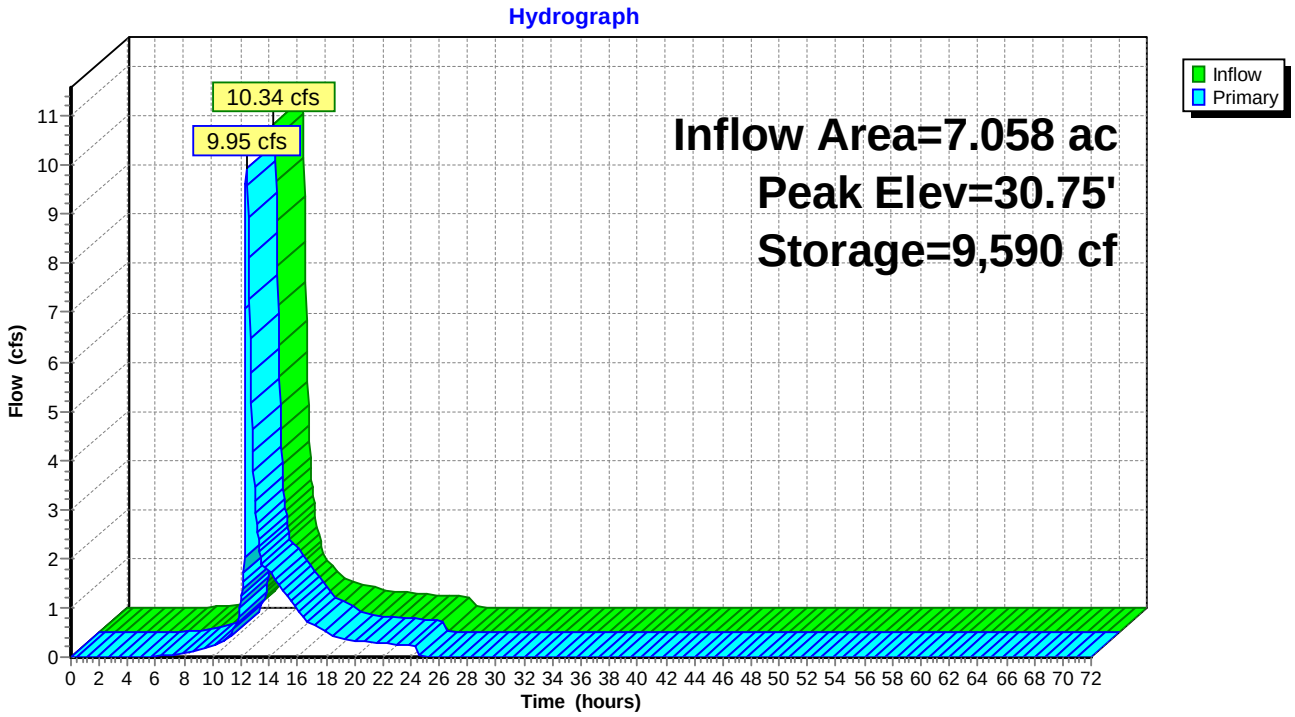
Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	18,455 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.00	4,692	305.3	0	0	4,692
29.50	5,135	313.7	2,456	2,456	5,134
30.00	5,608	322.3	2,685	5,141	5,597
30.50	6,095	330.8	2,925	8,066	6,068
31.00	6,592	339.4	3,171	11,237	6,556
31.50	7,157	350.0	3,436	14,673	7,163
32.00	7,979	388.0	3,782	18,455	9,402

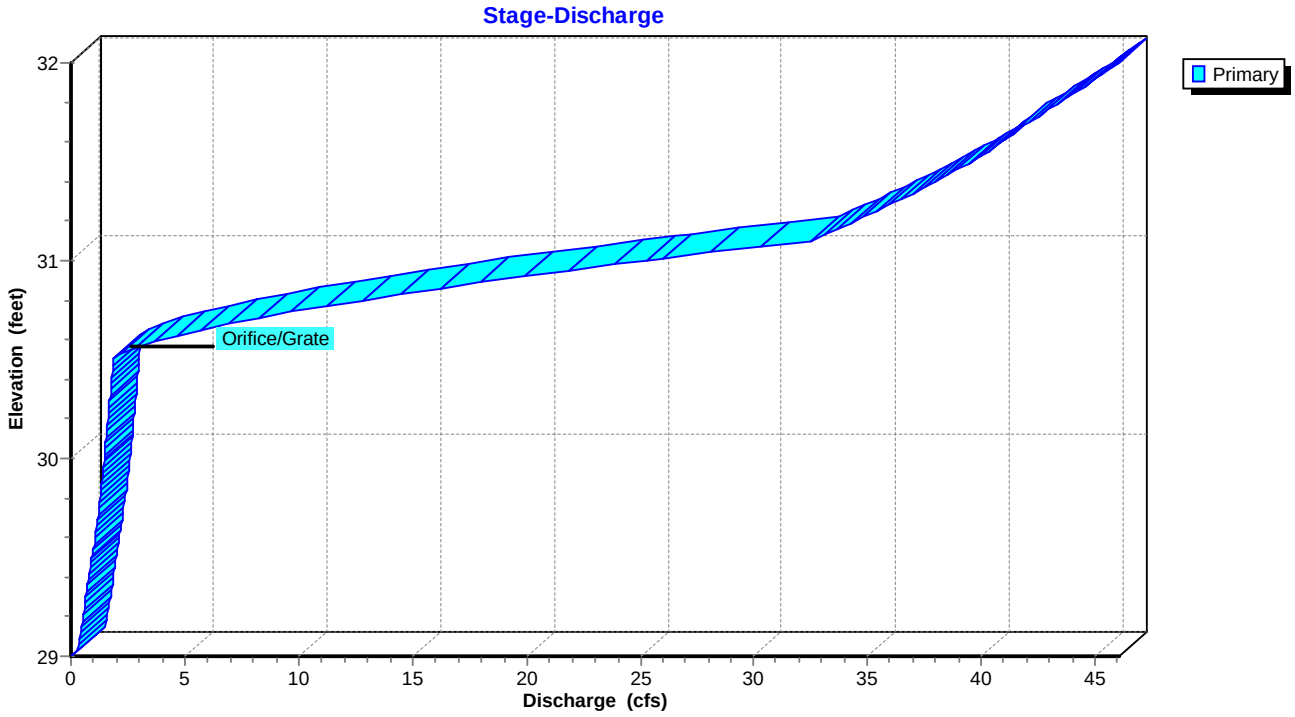
Device	Routing	Invert	Outlet Devices
#1	Device 2	30.50'	**60.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	28.67'	**36.0" Round Culvert** L= 42.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 28.67' / 24.02' S= 0.1084 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#3	Device 2	28.67'	**6.0" Round Collection Pipe X 2.00** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 28.67' / 28.67' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=9.95 cfs @ 12.40 hrs HW=30.75' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 9.95 cfs of 25.58 cfs potential flow)
  ├**1=Orifice/Grate** (Weir Controls 7.93 cfs @ 1.62 fps)
  └**3=Collection Pipe** (Barrel Controls 2.01 cfs @ 5.13 fps)

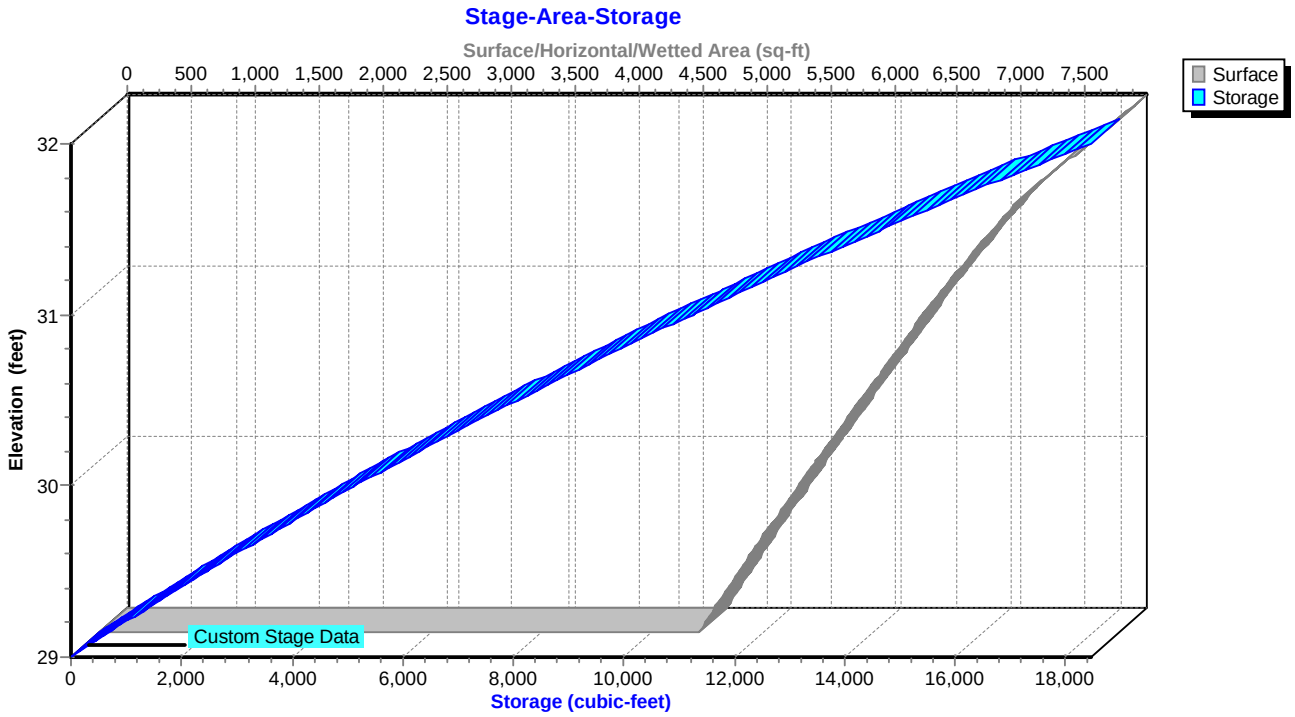
Pond SGW: SGW



Pond SGW: SGW



Pond SGW: SGW

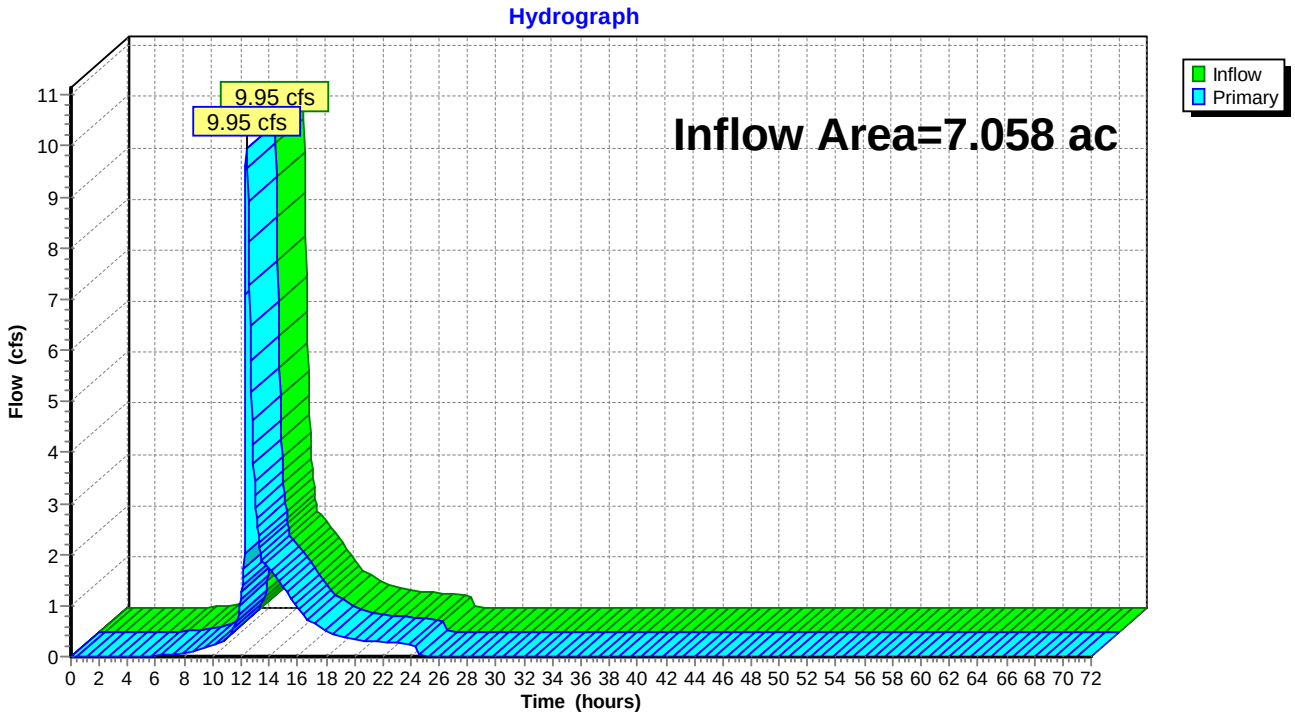

Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500 7,000 7,500
Surface
Storage
32
31
30
29
Elevation (feet)
Custom Stage Data
0 2,000 4,000 6,000 8,000 10,000 12,000 14,000 16,000 18,000
Storage (cubic-feet)

Summary for Link PR-SP-1: PR-SP-1

Inflow Area = 7.058 ac, 70.96% Impervious, Inflow Depth = 2.05" for 2-Year event
Inflow = 9.95 cfs @ 12.40 hrs, Volume= 1.208 af
Primary = 9.95 cfs @ 12.40 hrs, Volume= 1.208 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link PR-SP-1: PR-SP-1

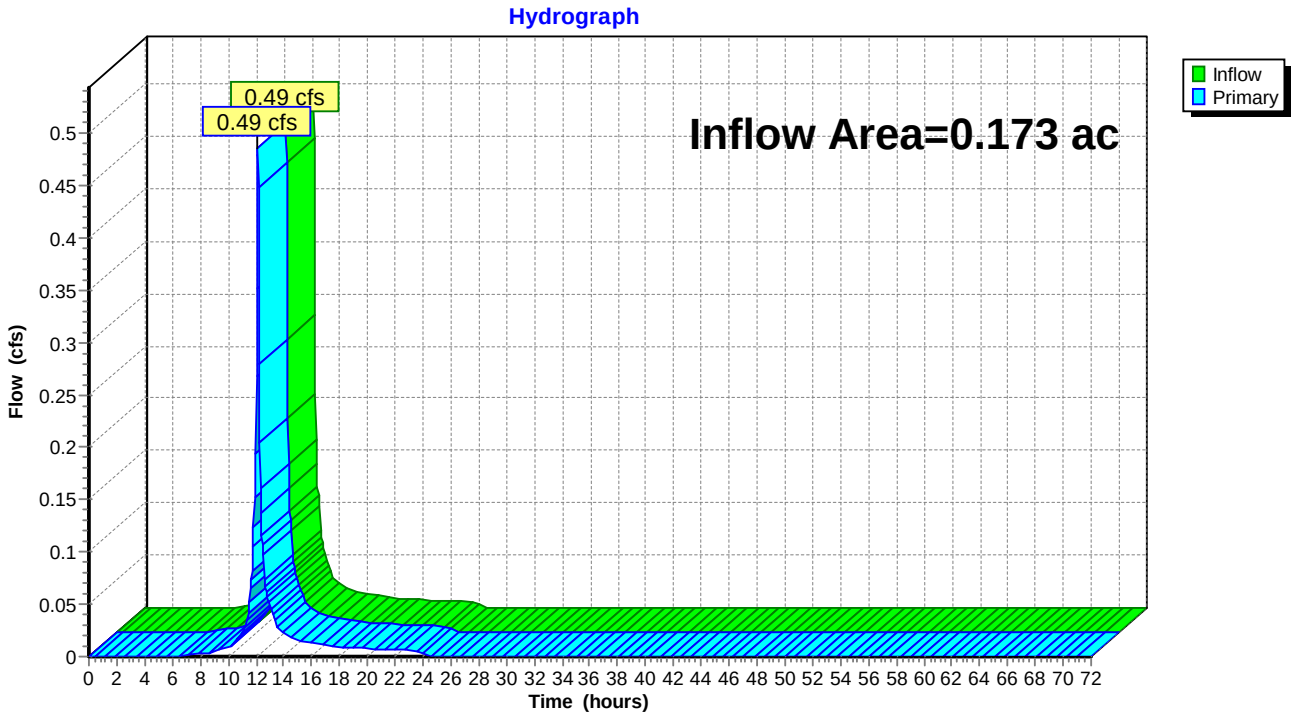


Summary for Link PR-SP-2: PR-SP-2

Inflow Area = 0.173 ac, 75.24% Impervious, Inflow Depth = 2.20" for 2-Year event
Inflow = 0.49 cfs @ 12.12 hrs, Volume= 0.032 af
Primary = 0.49 cfs @ 12.12 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link PR-SP-2: PR-SP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-DA-1: PR-DA-1 Runoff Area=230,241 sf 67.12% Impervious Runoff Depth=3.65"
Flow Length=347' Tc=26.1 min CN=86 Runoff=14.14 cfs 1.609 af

Subcatchment PR-DA-2: PR-DA-2 Runoff Area=7,525 sf 75.24% Impervious Runoff Depth=3.96"
Flow Length=258' Tc=5.1 min CN=89 Runoff=0.85 cfs 0.057 af

Subcatchment PR-DA-3: PR-DA-3 Runoff Area=19,951 sf 91.92% Impervious Runoff Depth=4.62"
Flow Length=150' Tc=1.9 min CN=95 Runoff=2.77 cfs 0.176 af

Subcatchment PR-DA-4: PR-DA-4 Runoff Area=19,263 sf 82.03% Impervious Runoff Depth=4.18"
Flow Length=112' Tc=12.2 min CN=91 Runoff=1.81 cfs 0.154 af

Subcatchment PR-DA-5: PR-DA-5 Runoff Area=18,594 sf 69.57% Impervious Runoff Depth=3.76"
Flow Length=154' Tc=11.2 min CN=87 Runoff=1.67 cfs 0.134 af

Subcatchment PR-DA-6: PR-DA-6 Runoff Area=19,385 sf 85.36% Impervious Runoff Depth=4.39"
Flow Length=110' Tc=12.1 min CN=93 Runoff=1.90 cfs 0.163 af

Pond CI - 1: CI - 1 Peak Elev=30.91' Inflow=3.06 cfs 0.330 af
30.0" Round Culvert n=0.013 L=60.0' S=0.0030 '/' Outflow=3.06 cfs 0.330 af

Pond MBR-1: MBR-1 Peak Elev=34.64' Storage=910 cf Inflow=2.77 cfs 0.176 af
Outflow=1.32 cfs 0.176 af

Pond MBR-2: MBR-2 Peak Elev=35.15' Storage=328 cf Inflow=1.81 cfs 0.154 af
Outflow=1.75 cfs 0.154 af

Pond MBR-3: MBR-3 Peak Elev=34.77' Storage=807 cf Inflow=1.67 cfs 0.134 af
Outflow=1.20 cfs 0.122 af

Pond MBR-4: MBR-4 Peak Elev=34.77' Storage=723 cf Inflow=1.90 cfs 0.163 af
Outflow=1.46 cfs 0.163 af

Pond MH-1: MH - 1 Peak Elev=32.20' Inflow=15.29 cfs 1.772 af
30.0" Round Culvert n=0.010 L=58.4' S=0.0259 '/' Outflow=15.29 cfs 1.772 af

Pond MH-2: MH-2 Peak Elev=31.32' Inflow=16.46 cfs 1.894 af
36.0" Round Culvert n=0.010 L=87.0' S=0.0049 '/' Outflow=16.46 cfs 1.894 af

Pond SGW: SGW Peak Elev=30.90' Storage=10,587 cf Inflow=18.82 cfs 2.225 af
Outflow=18.70 cfs 2.225 af

Link PR-SP-1: PR-SP-1 Inflow=18.70 cfs 2.225 af
Primary=18.70 cfs 2.225 af

Link PR-SP-2: PR-SP-2 Inflow=0.85 cfs 0.057 af
Primary=0.85 cfs 0.057 af

Total Runoff Area = 7.230 ac Runoff Volume = 2.293 af Average Runoff Depth = 3.81"
28.94% Pervious = 2.092 ac 71.06% Impervious = 5.138 ac

Summary for Subcatchment PR-DA-1: PR-DA-1

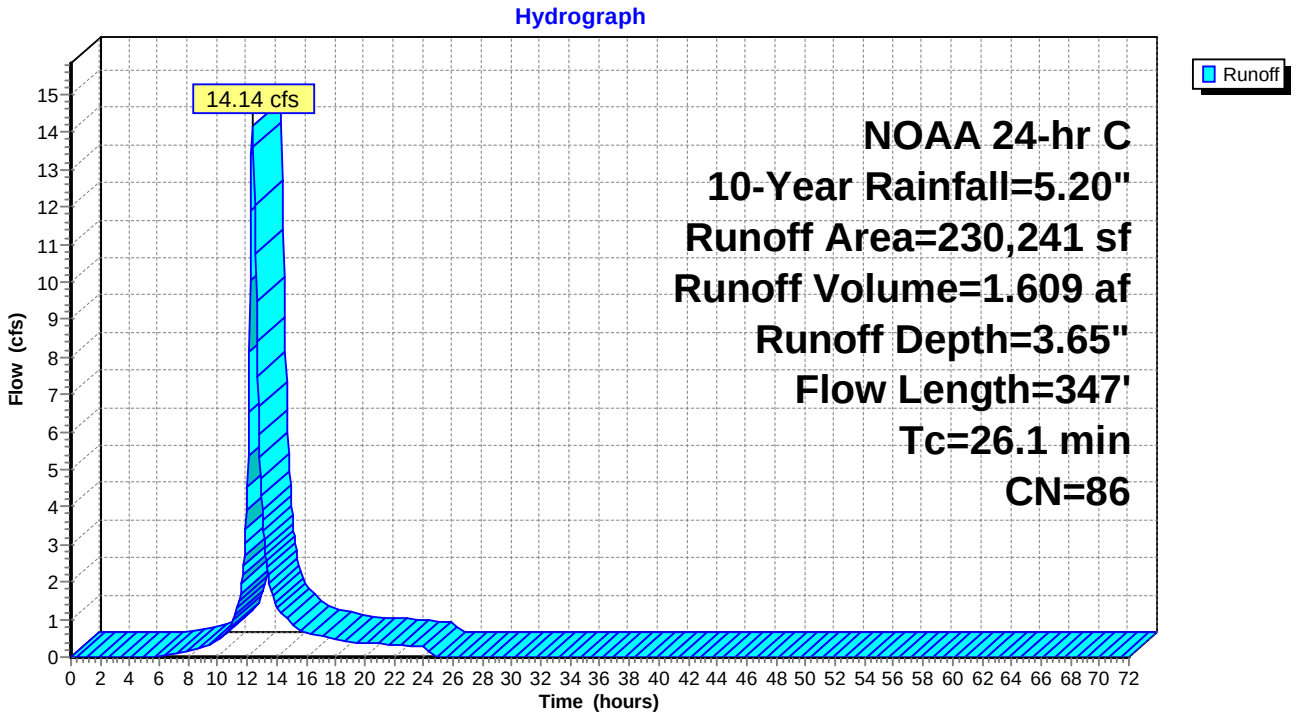
Runoff = 14.14 cfs @ 12.37 hrs, Volume= 1.609 af, Depth= 3.65"
Routed to Pond MH-1 : MH - 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.20"

Area (sf)	CN	Description
65,361	61	>75% Grass cover, Good, HSG B
146,431	98	Unconnected pavement, HSG B
10,353	74	>75% Grass cover, Good, HSG C
8,096	98	Unconnected pavement, HSG C
230,241	86	Weighted Average
75,714		32.88% Pervious Area
154,527		67.12% Impervious Area
154,527		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	35	0.0163	0.13		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
3.5	8	0.0042	0.04		**Sheet Flow, Concreted Sheet Flow** Grass: Dense n= 0.240 P2= 3.33"
17.3	57	0.0015	0.06		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.4	14	0.0015	0.58		**Shallow Concentrated Flow, Grassed SCF** Grassed Waterway Kv= 15.0 fps
0.3	114	0.0050	5.46	9.66	**Pipe Channel, 18" Piped Flow** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
0.1	119	0.0206	15.59	76.53	**Pipe Channel, 30" Piped Flow** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010 PVC, smooth interior
26.1	347	Total			

Subcatchment PR-DA-1: PR-DA-1



Summary for Subcatchment PR-DA-2: PR-DA-2

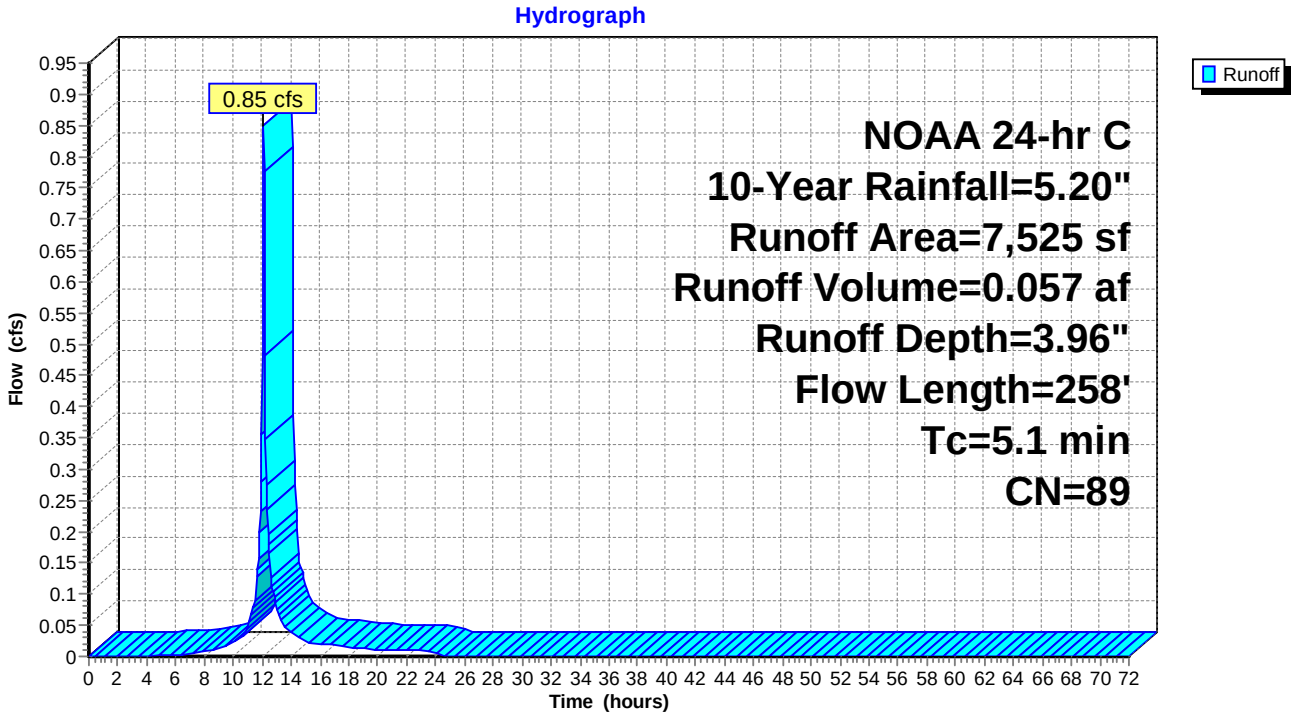
Runoff = 0.85 cfs @ 12.11 hrs, Volume= 0.057 af, Depth= 3.96"
Routed to Link PR-SP-2 : PR-SP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.20"

Area (sf)	CN	Description
1,863	61	>75% Grass cover, Good, HSG B
5,662	98	Unconnected pavement, HSG B
7,525	89	Weighted Average
1,863		24.76% Pervious Area
5,662		75.24% Impervious Area
5,662		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0375	1.20		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
4.9	245	0.0021	0.82	0.08	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
5.1	258	Total			

Subcatchment PR-DA-2: PR-DA-2



Summary for Subcatchment PR-DA-3: PR-DA-3

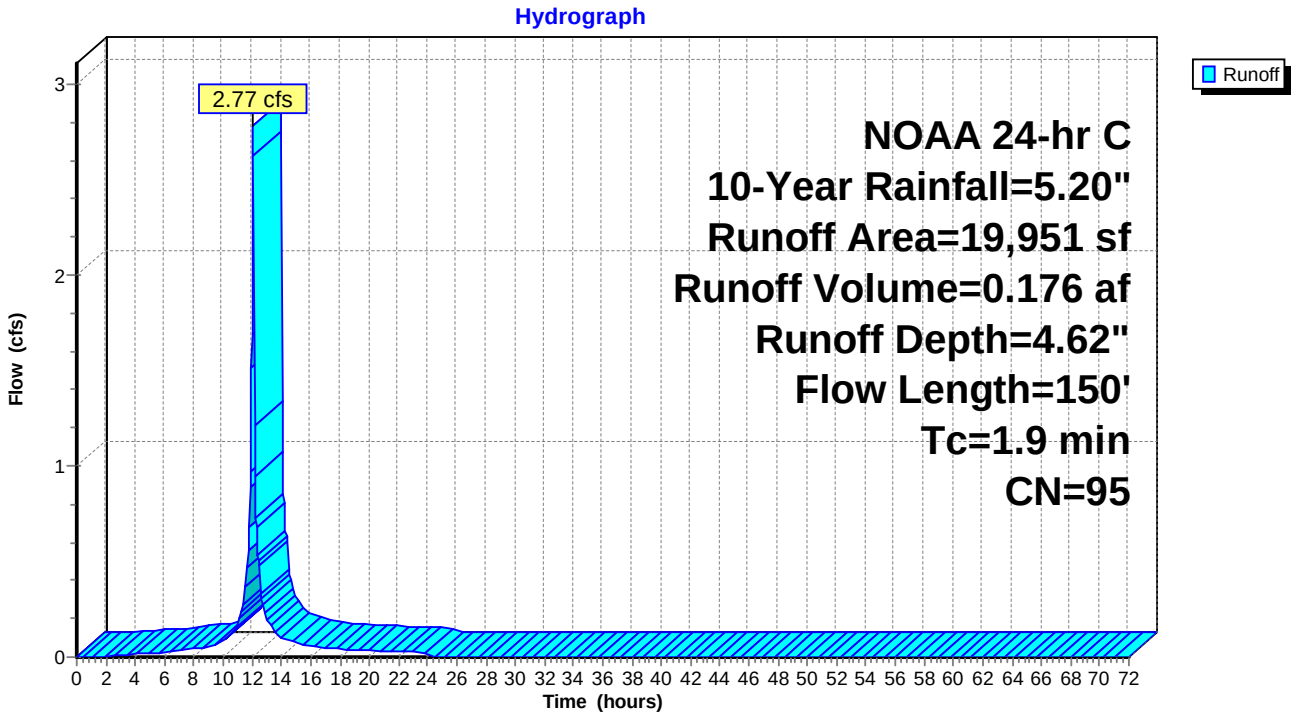
Runoff = 2.77 cfs @ 12.08 hrs, Volume= 0.176 af, Depth= 4.62"
Routed to Pond MBR-1 : MBR-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.20"

Area (sf)	CN	Description
1,612	61	>75% Grass cover, Good, HSG B
18,339	98	Unconnected pavement, HSG B
19,951	95	Weighted Average
1,612		8.08% Pervious Area
18,339		91.92% Impervious Area
18,339		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	80	0.0079	0.93		**Sheet Flow, Paved Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.1	17	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.3	36	0.0101	2.04		**Shallow Concentrated Flow, Paved SCF** Paved Kv= 20.3 fps
0.1	17	0.0336	3.30	0.33	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
1.9	150	Total			

Subcatchment PR-DA-3: PR-DA-3



Summary for Subcatchment PR-DA-4: PR-DA-4

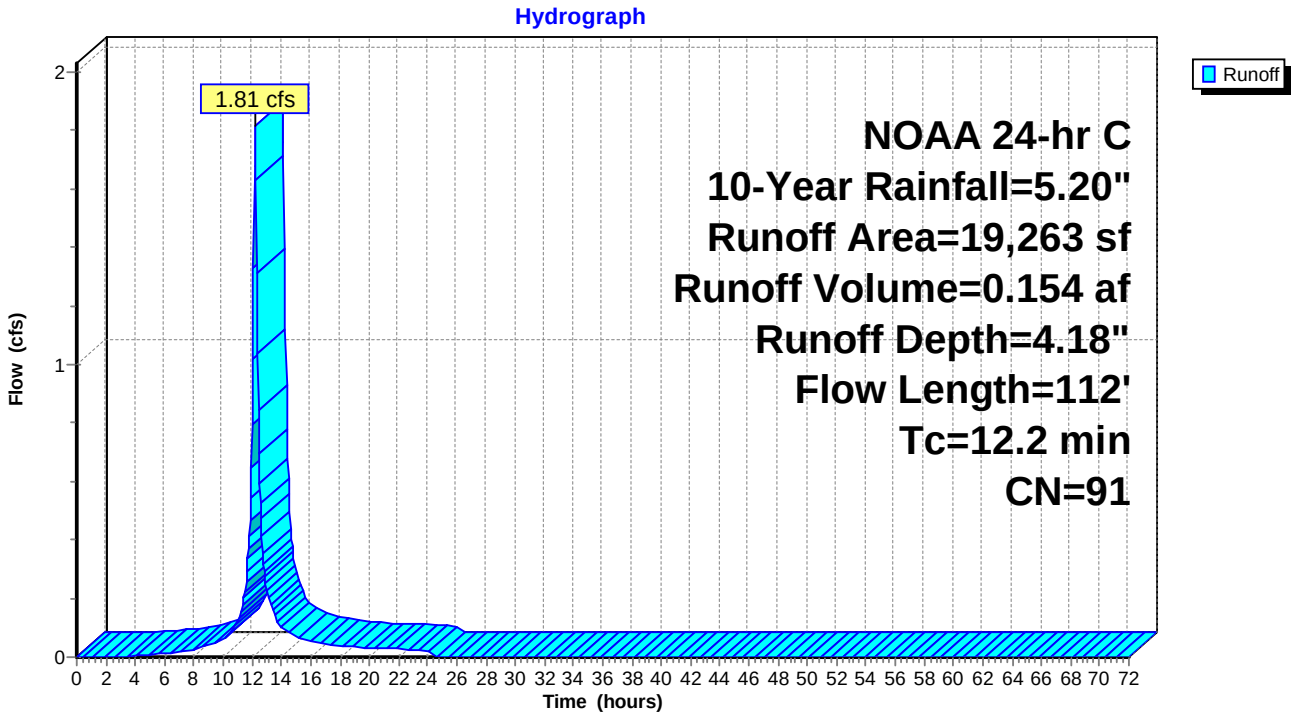
Runoff = 1.81 cfs @ 12.20 hrs, Volume= 0.154 af, Depth= 4.18"
Routed to Pond MBR-2 : MBR-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.20"

Area (sf)	CN	Description
3,462	61	>75% Grass cover, Good, HSG B
15,801	98	Unconnected pavement, HSG B
19,263	91	Weighted Average
3,462		17.97% Pervious Area
15,801		82.03% Impervious Area
15,801		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	31	0.0013	0.05		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.1	5	0.0289	0.89		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.7	49	0.0154	1.10		**Sheet Flow, Paved Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.2	27	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
12.2	112	Total			

Subcatchment PR-DA-4: PR-DA-4



Summary for Subcatchment PR-DA-5: PR-DA-5

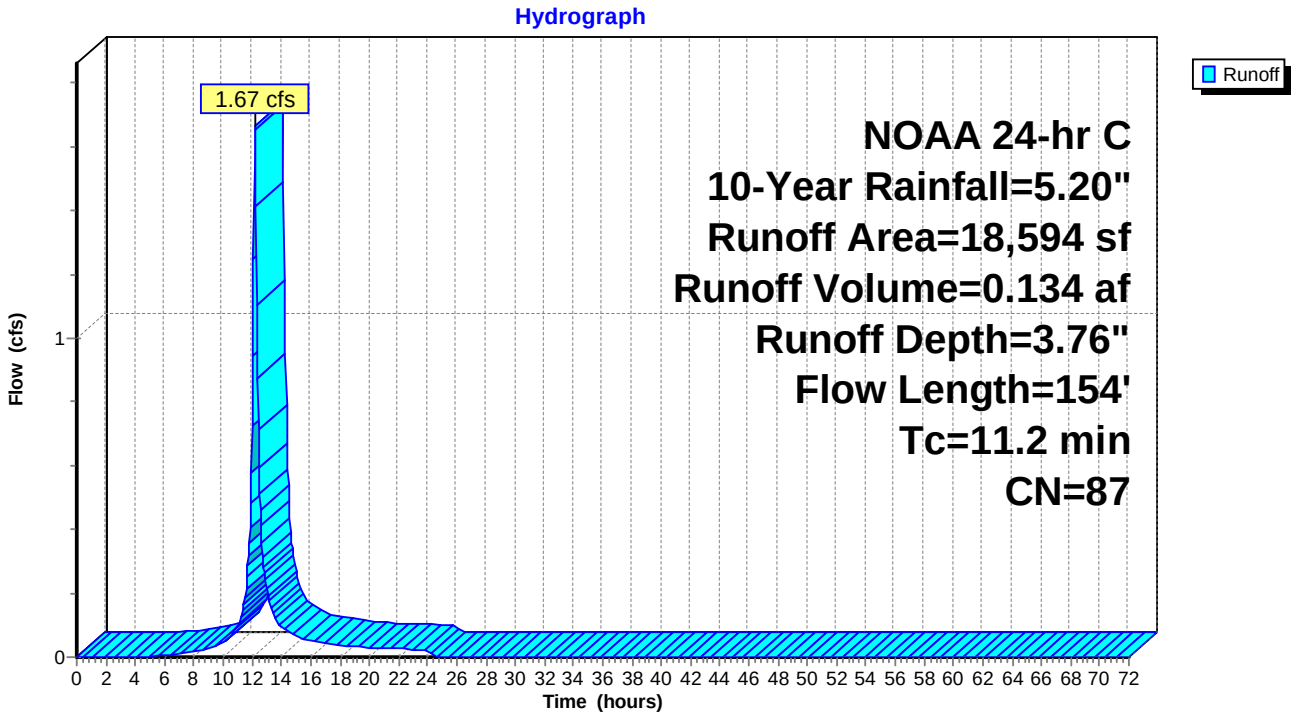
Runoff = 1.67 cfs @ 12.19 hrs, Volume= 0.134 af, Depth= 3.76"
Routed to Pond MBR-3 : MBR-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.20"

Area (sf)	CN	Description
5,659	61	>75% Grass cover, Good, HSG B
12,935	98	Unconnected pavement, HSG B
18,594	87	Weighted Average
5,659		30.43% Pervious Area
12,935		69.57% Impervious Area
12,935		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	60	0.0063	0.10		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.8	33	0.0062	0.70		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.1	19	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.2	42	0.0279	3.39		**Shallow Concentrated Flow, Paved SCF** Paved Kv= 20.3 fps
11.2	154	Total			

Subcatchment PR-DA-5: PR-DA-5



Summary for Subcatchment PR-DA-6: PR-DA-6

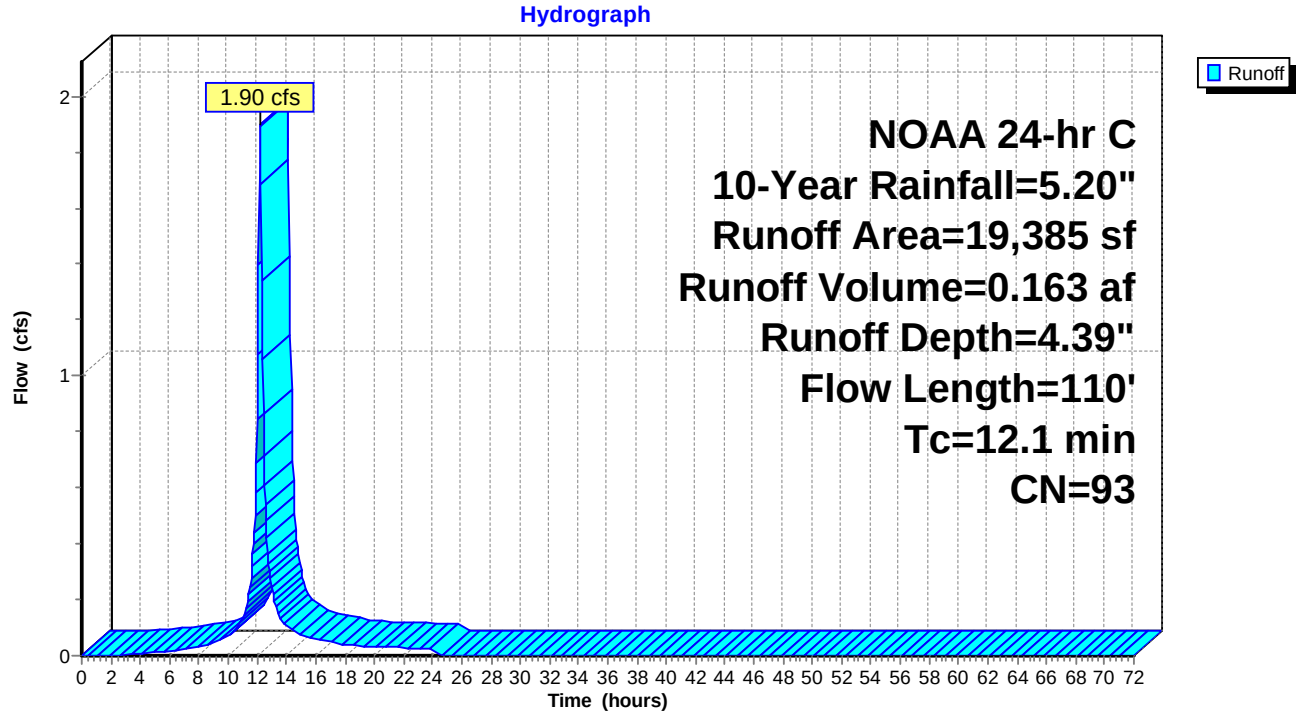
Runoff = 1.90 cfs @ 12.19 hrs, Volume= 0.163 af, Depth= 4.39"
Routed to Pond MBR-4 : MBR-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.20"

Area (sf)	CN	Description
2,837	61	>75% Grass cover, Good, HSG B
16,548	98	Unconnected pavement, HSG B
19,385	93	Weighted Average
2,837		14.64% Pervious Area
16,548		85.36% Impervious Area
16,548		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	8	0.0073	0.07		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
10.0	75	0.0262	0.13		**Sheet Flow, Paved Sheet Flow** Grass: Dense n= 0.240 P2= 3.33"
0.2	27	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
12.1	110	Total			

Subcatchment PR-DA-6: PR-DA-6



Summary for Pond CI - 1: CI - 1

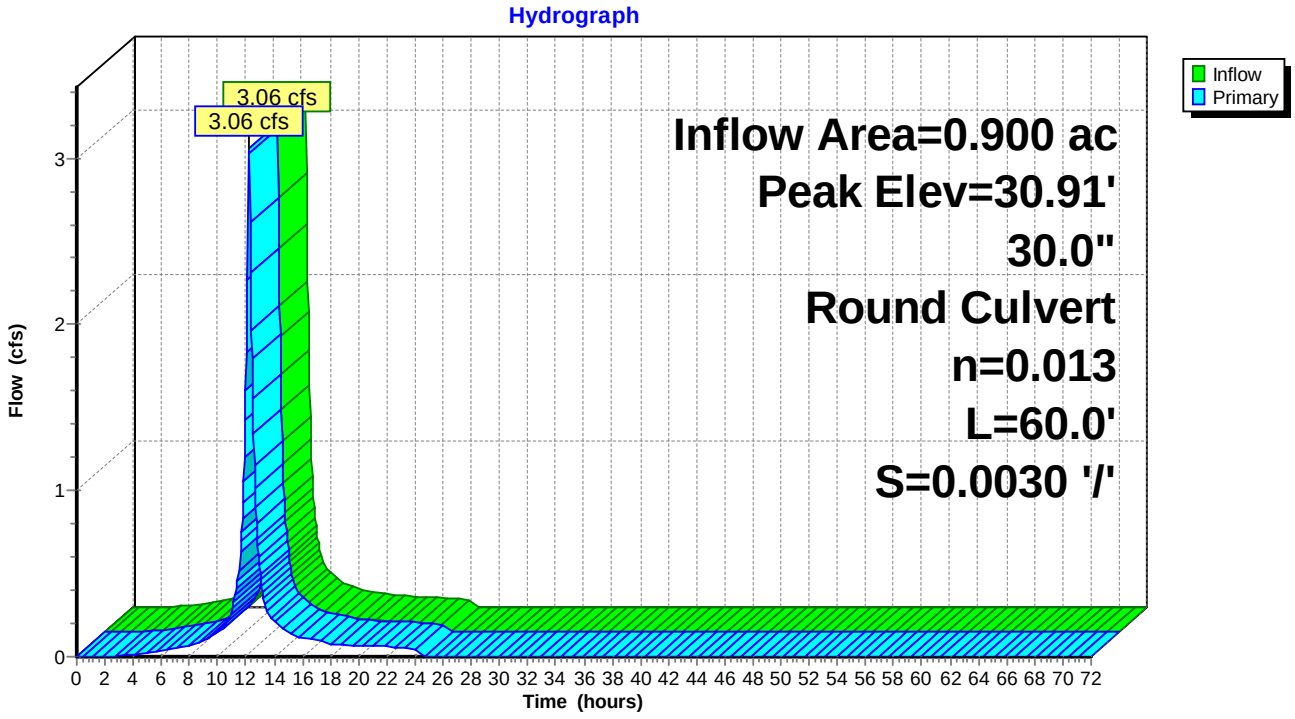
Inflow Area = 0.900 ac, 87.06% Impervious, Inflow Depth = 4.40" for 10-Year event
Inflow = 3.06 cfs @ 12.18 hrs, Volume= 0.330 af
Outflow = 3.06 cfs @ 12.18 hrs, Volume= 0.330 af, Atten= 0%, Lag= 0.0 min
Primary = 3.06 cfs @ 12.18 hrs, Volume= 0.330 af
Routed to Pond SGW : SGW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.91' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	28.34'	**30.0" Round Culvert** L= 60.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 28.34' / 28.16' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete, trowel finish, Flow Area= 4.91 sf

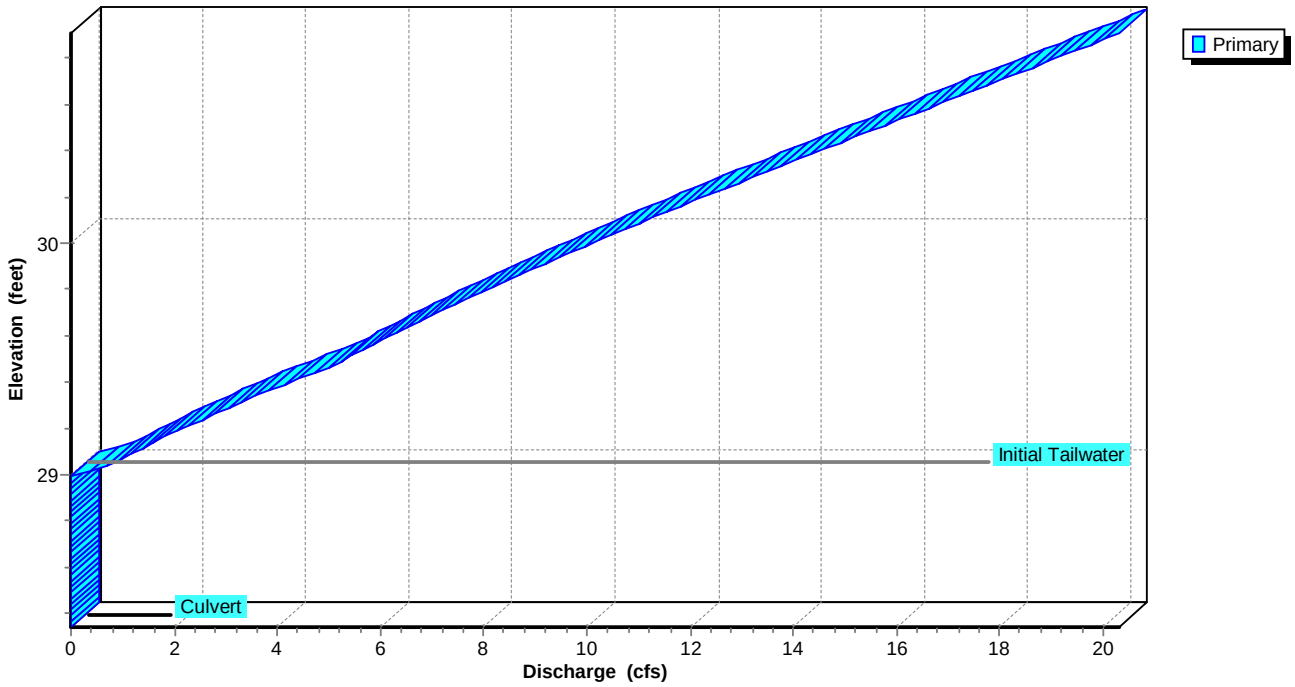
Primary OutFlow Max=3.07 cfs @ 12.18 hrs HW=30.82' TW=30.80' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.07 cfs @ 0.63 fps)

Pond CI - 1: CI - 1



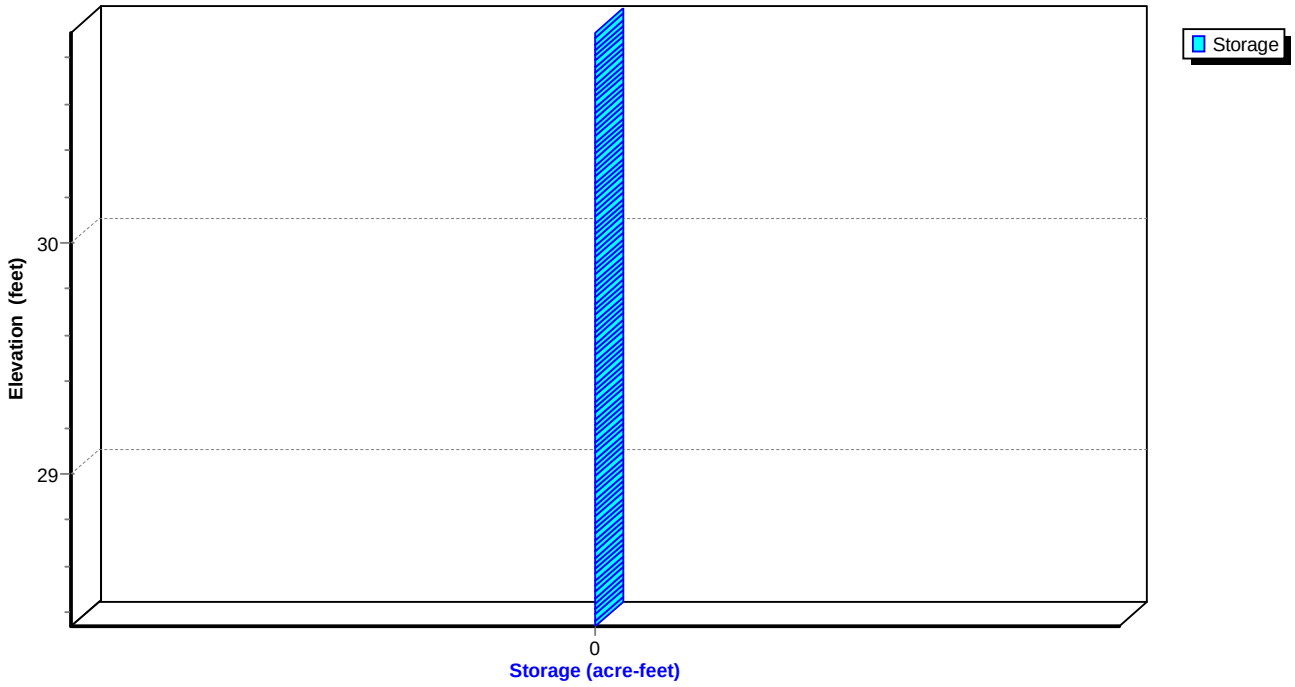
Pond CI - 1: CI - 1

Stage-Discharge



Pond CI - 1: CI - 1

Stage-Area-Storage



Summary for Pond MBR-1: MBR-1

Inflow Area = 0.458 ac, 91.92% Impervious, Inflow Depth = 4.62" for 10-Year event
Inflow = 2.77 cfs @ 12.08 hrs, Volume= 0.176 af
Outflow = 1.32 cfs @ 12.16 hrs, Volume= 0.176 af, Atten= 53%, Lag= 5.1 min
Primary = 1.32 cfs @ 12.16 hrs, Volume= 0.176 af
Routed to Pond CI - 1 : CI - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 34.64' @ 12.16 hrs Surf.Area= 674 sf Storage= 910 cf

Plug-Flow detention time= 8.6 min calculated for 0.176 af (100% of inflow)
Center-of-Mass det. time= 7.7 min (772.7 - 765.0)

Volume	Invert	Avail.Storage	Storage Description
#1	30.76'	2,356 cf	**Custom Stage Data (Irregular)** Listed below

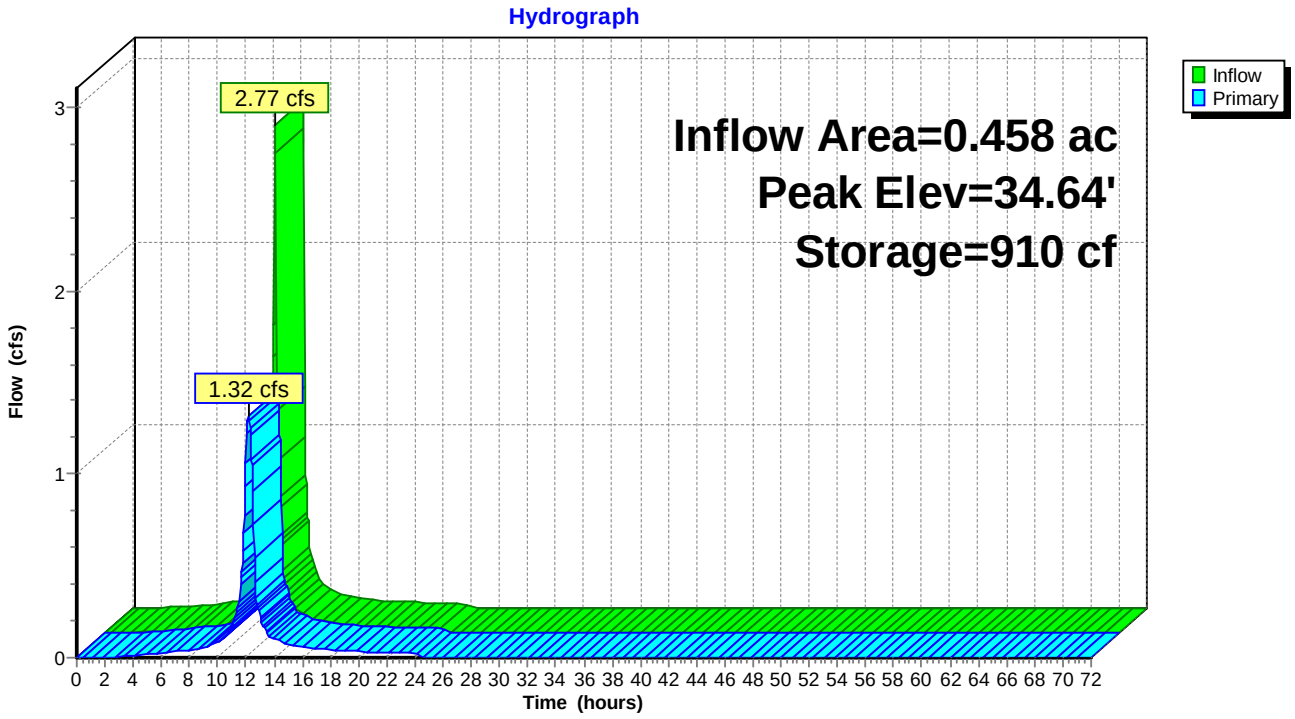
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.76	265	168.6	0.0	0	0	265
30.77	265	168.6	40.0	1	1	267
33.76	265	168.6	40.0	317	318	771
33.77	265	168.6	100.0	3	321	772
35.77	1,209	176.3	100.0	1,360	1,681	1,177
36.00	2,270	206.1	100.0	394	2,074	2,085
36.10	3,399	287.6	100.0	282	2,356	5,287

Device	Routing	Invert	Outlet Devices
#1	Device 2	34.02'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	30.77'	**6.0" Round 6" Piped Flow** L= 83.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.77' / 30.35' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 4	30.10'	**18.0" Round 18" Piped Flow** L= 61.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.10' / 29.79' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#4	Device 5	29.28'	**24.0" Round 24" Piped Flow** L= 82.1' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 29.28' / 28.87' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#5	Device 6	28.87'	**24.0" Round 24" Piped Flow** L= 81.2' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 28.87' / 28.34' S= 0.0065 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#6	Primary	28.34'	**30.0" Round 30" Piped Flow** L= 60.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.34' / 28.16' S= 0.0030 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 4.91 sf
#7	Device 2	30.77'	**6.0" Round Underdrain**

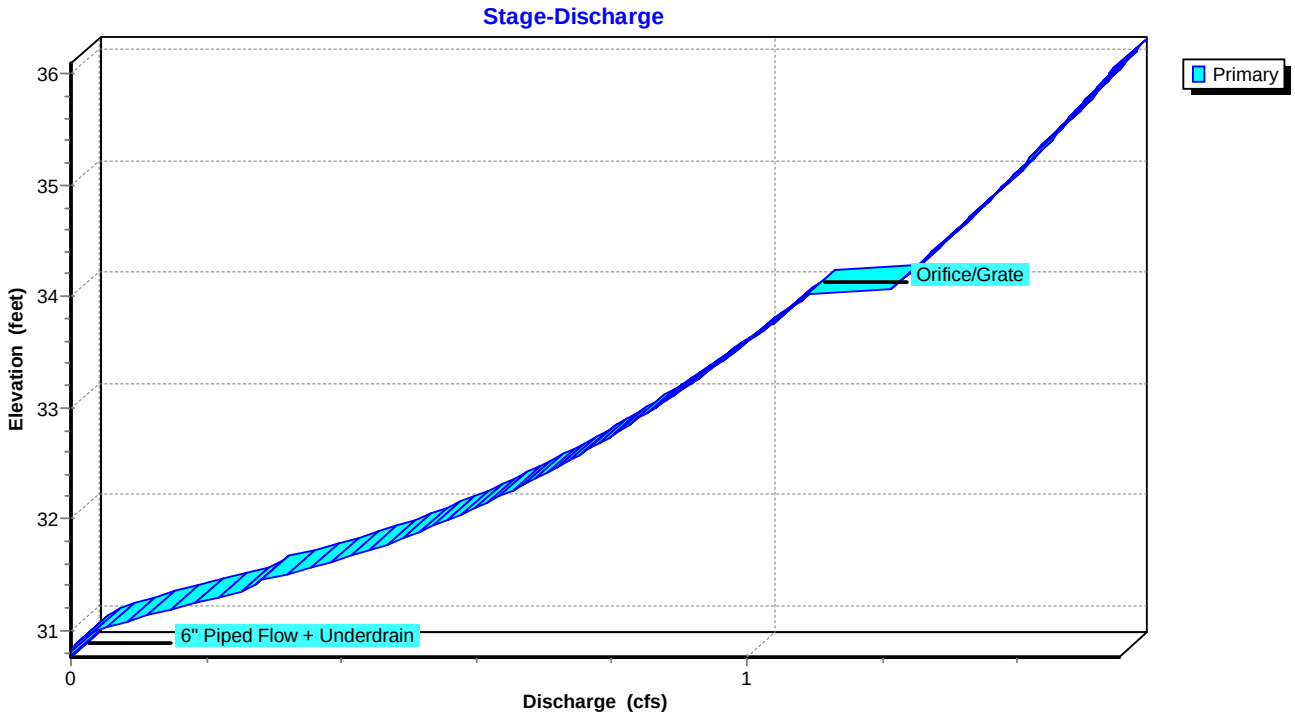
L= 63.0' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 30.77' / 30.77' S= 0.0000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.31 cfs @ 12.16 hrs HW=34.62' TW=30.81' (Dynamic Tailwater)
- **6=30" Piped Flow** (Passes 1.31 cfs of 40.70 cfs potential flow)
  - **5=24" Piped Flow** (Passes 1.31 cfs of 29.52 cfs potential flow)
    - **4=24" Piped Flow** (Passes 1.31 cfs of 29.52 cfs potential flow)
      - **3=18" Piped Flow** (Passes 1.31 cfs of 16.52 cfs potential flow)
        - **2=6" Piped Flow** (Barrel Controls 1.31 cfs @ 6.69 fps)
          - **1=Orifice/Grate** (Passes < 12.08 cfs potential flow)
          - **7=Underdrain** (Passes < 1.20 cfs potential flow)

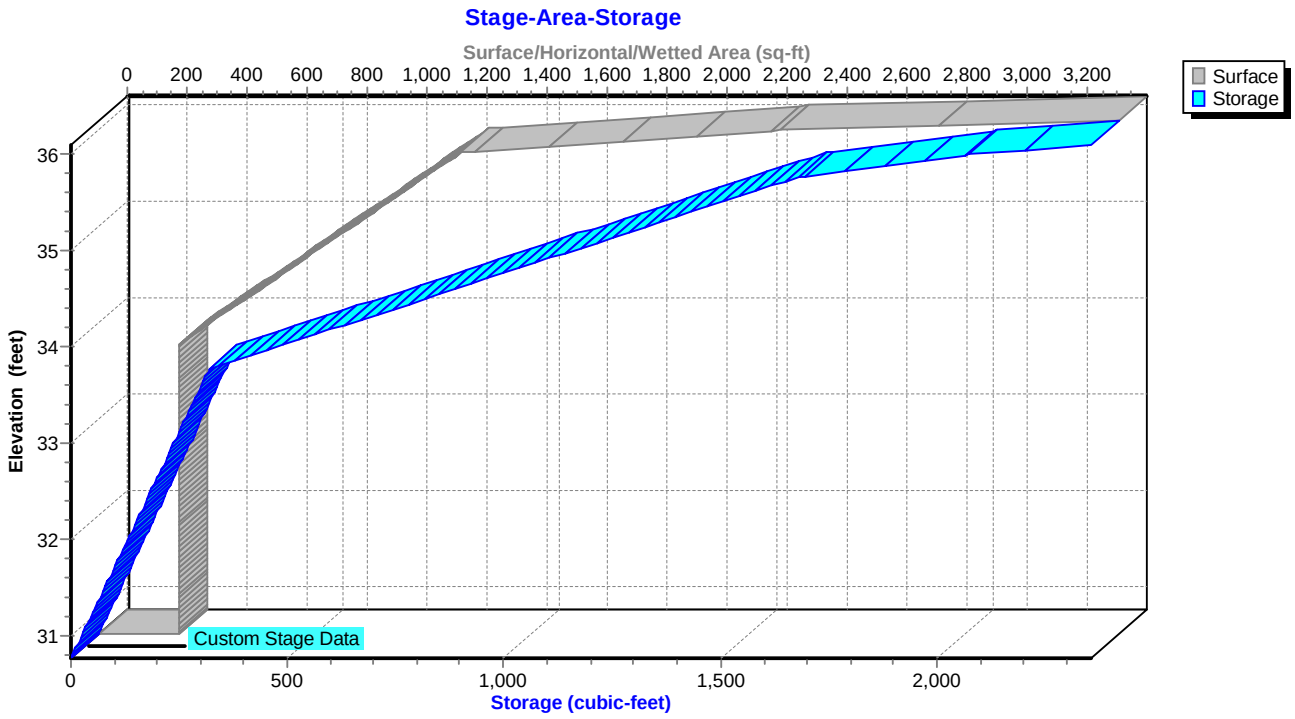
Pond MBR-1: MBR-1



Pond MBR-1: MBR-1



Pond MBR-1: MBR-1



Summary for Pond MBR-2: MBR-2

Inflow Area = 0.442 ac, 82.03% Impervious, Inflow Depth = 4.18" for 10-Year event
Inflow = 1.81 cfs @ 12.20 hrs, Volume= 0.154 af
Outflow = 1.75 cfs @ 12.19 hrs, Volume= 0.154 af, Atten= 3%, Lag= 0.0 min
Primary = 1.75 cfs @ 12.19 hrs, Volume= 0.154 af
Routed to Pond CI - 1 : CI - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 35.15' @ 12.19 hrs Surf.Area= 269 sf Storage= 328 cf

Plug-Flow detention time= 4.4 min calculated for 0.154 af (100% of inflow)
Center-of-Mass det. time= 4.4 min (798.0 - 793.6)

Volume	Invert	Avail.Storage	Storage Description
#1	30.47'	1,326 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

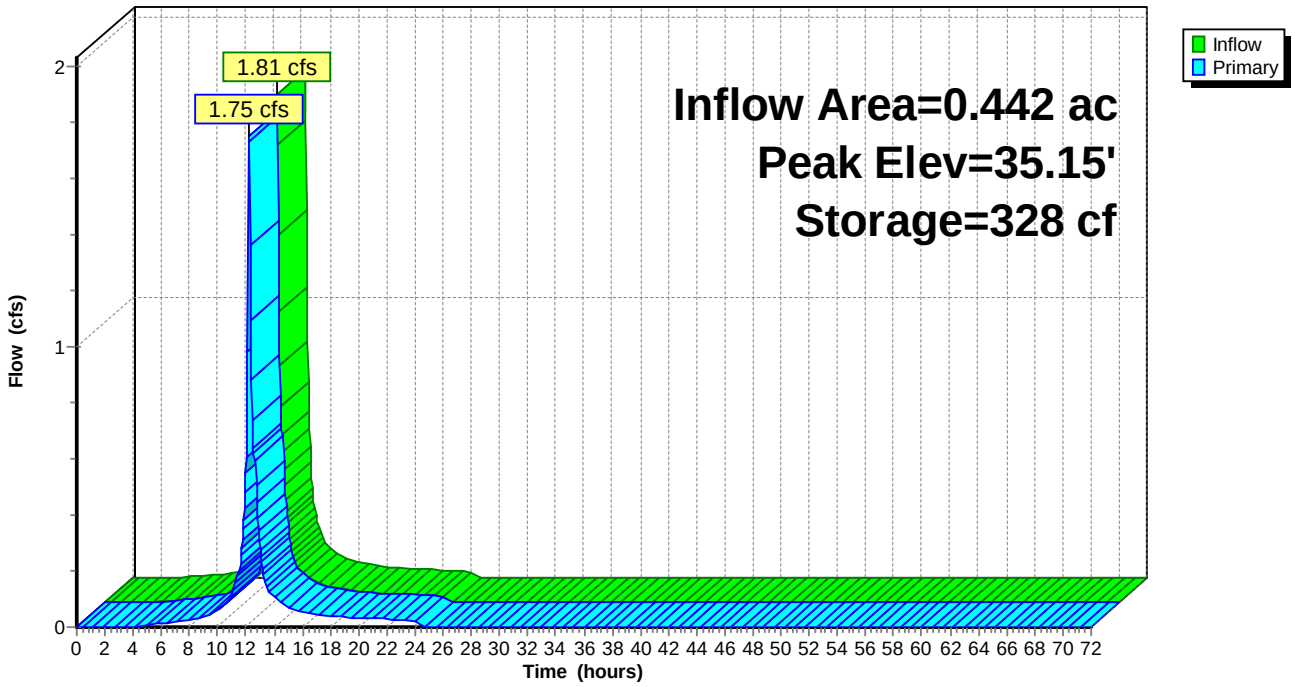
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.47	122	67.3	0.0	0	0	122
30.48	122	67.3	40.0	0	0	123
34.45	122	67.3	40.0	194	194	390
34.46	122	67.3	100.0	1	195	391
35.46	352	86.2	100.0	227	423	634
36.46	983	123.9	100.0	641	1,064	1,273
36.66	1,157	138.0	100.0	214	1,277	1,568
36.70	1,262	145.2	100.0	48	1,326	1,730

Device	Routing	Invert	Outlet Devices
#1	Device 2	34.96'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	30.48'	**15.0" Round Culvert** L= 58.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.48' / 28.34' S= 0.0366 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	30.47'	**4.0" Round Underdrain** L= 27.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.47' / 30.47' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=1.74 cfs @ 12.19 hrs HW=35.15' TW=30.83' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.74 cfs of 11.89 cfs potential flow)
  ├**1=Orifice/Grate** (Weir Controls 1.11 cfs @ 1.44 fps)
  └**3=Underdrain** (Outlet Controls 0.64 cfs @ 7.30 fps)

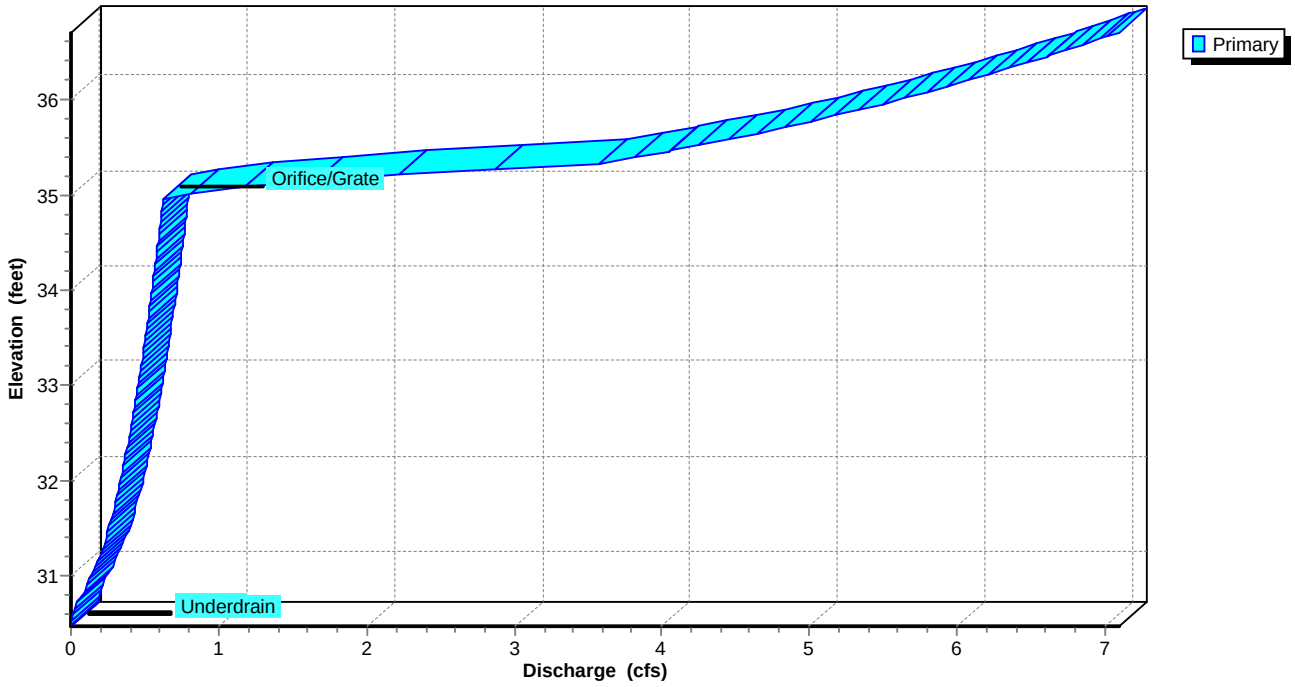
Pond MBR-2: MBR-2

Hydrograph

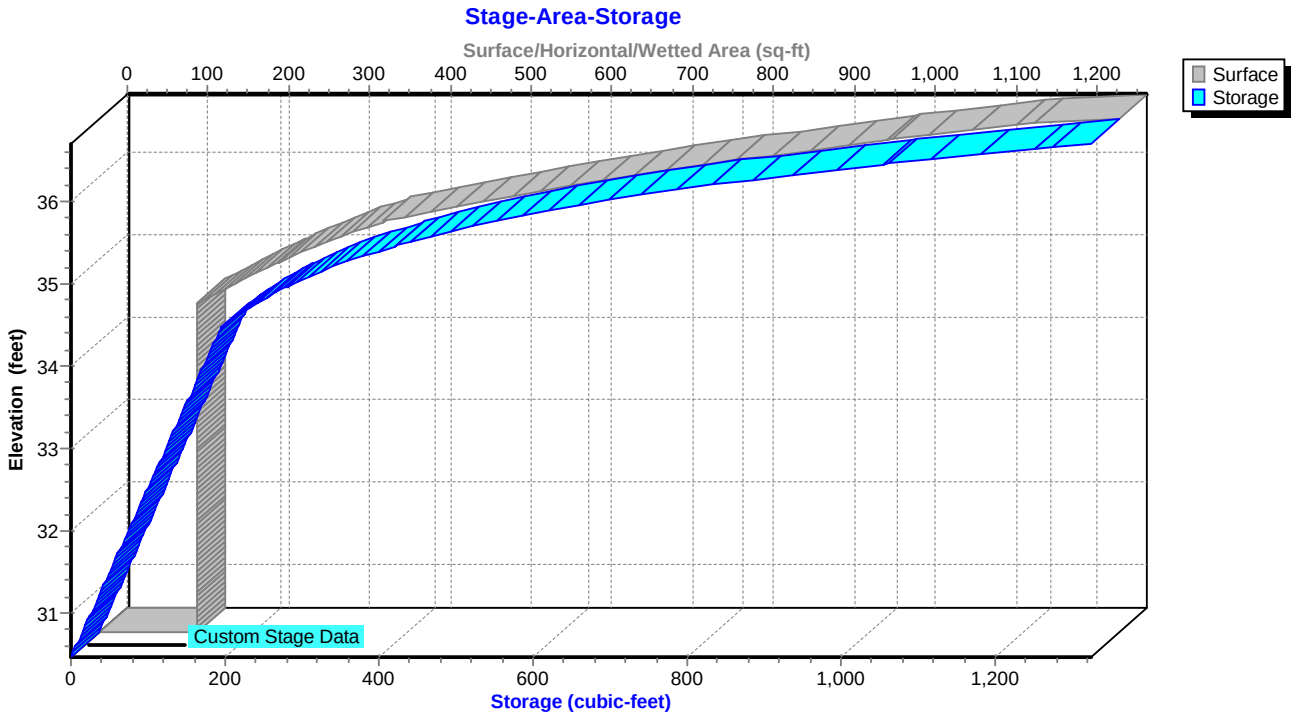


Pond MBR-2: MBR-2

Stage-Discharge



Pond MBR-2: MBR-2



Summary for Pond MBR-3: MBR-3

Inflow Area = 0.427 ac, 69.57% Impervious, Inflow Depth = 3.76" for 10-Year event
Inflow = 1.67 cfs @ 12.19 hrs, Volume= 0.134 af
Outflow = 1.20 cfs @ 12.20 hrs, Volume= 0.122 af, Atten= 28%, Lag= 1.1 min
Primary = 1.20 cfs @ 12.20 hrs, Volume= 0.122 af
Routed to Pond MH-2 : MH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 34.77' @ 12.29 hrs Surf.Area= 692 sf Storage= 807 cf

Plug-Flow detention time= 70.5 min calculated for 0.122 af (91% of inflow)
Center-of-Mass det. time= 25.7 min (833.1 - 807.3)

Volume	Invert	Avail.Storage	Storage Description
#1	30.44'	1,981 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

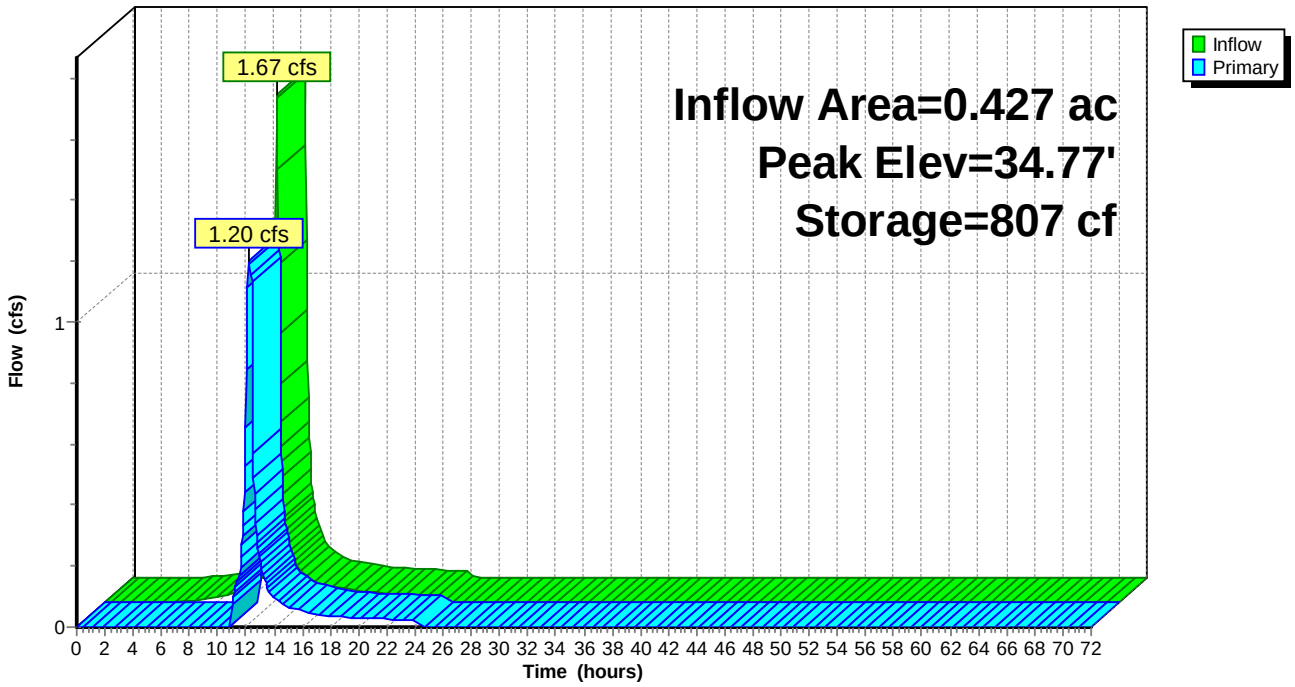
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.44	249	130.6	0.0	0	0	249
30.45	249	130.6	40.0	1	1	250
33.70	249	130.6	40.0	324	325	675
33.71	249	130.6	100.0	2	327	676
34.71	669	149.5	100.0	442	769	1,120
35.71	1,145	168.3	100.0	896	1,666	1,621
35.90	2,235	222.1	100.0	315	1,981	3,293

Device	Routing	Invert	Outlet Devices
#1	Device 3	34.21'	**9.0" x 9.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	29.13'	**15.0" Round Culvert** L= 38.2' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 29.13' / 28.93' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	29.13'	**6.0" Round Underdrain** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 29.13' / 29.13' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.19 cfs @ 12.20 hrs HW=34.66' TW=31.12' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.19 cfs of 11.12 cfs potential flow)
└**3=Underdrain** (Outlet Controls 1.19 cfs @ 6.08 fps)
└**1=Orifice/Grate** (Passes 1.19 cfs of 1.82 cfs potential flow)

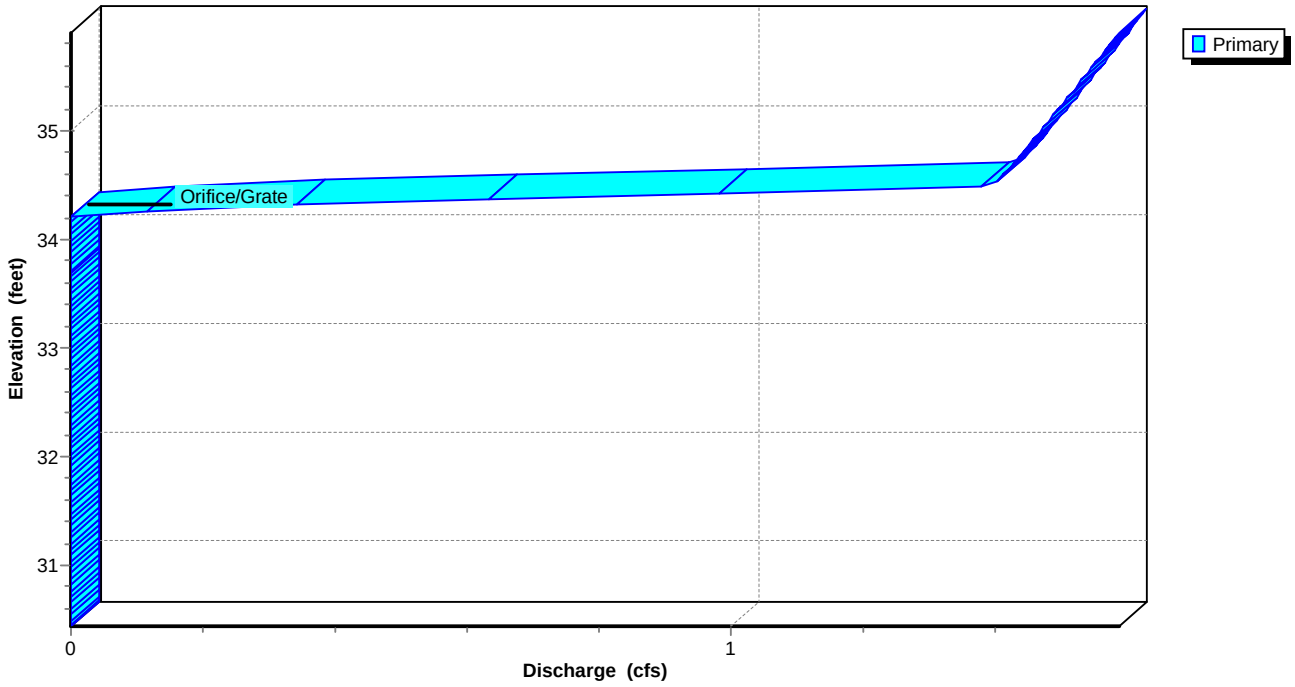
Pond MBR-3: MBR-3

Hydrograph

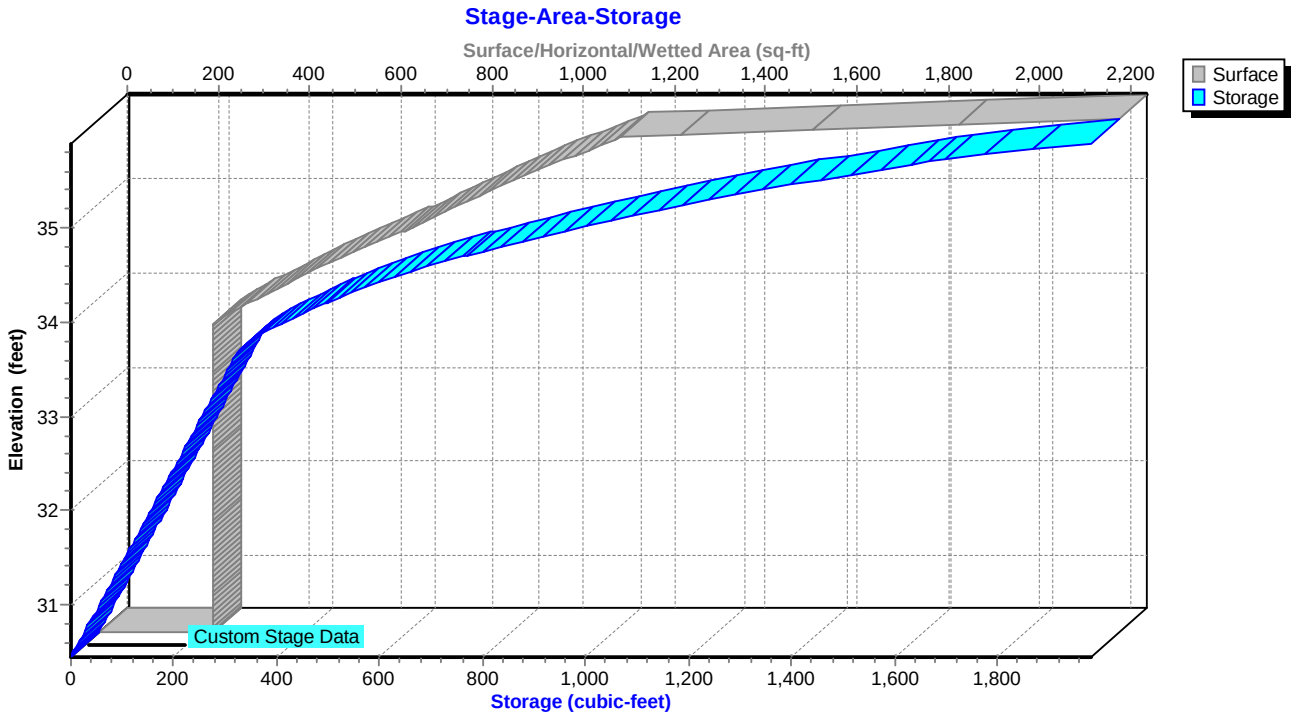


Pond MBR-3: MBR-3

Stage-Discharge



Pond MBR-3: MBR-3



Summary for Pond MBR-4: MBR-4

Inflow Area = 0.445 ac, 85.36% Impervious, Inflow Depth = 4.39" for 10-Year event
Inflow = 1.90 cfs @ 12.19 hrs, Volume= 0.163 af
Outflow = 1.46 cfs @ 12.30 hrs, Volume= 0.163 af, Atten= 23%, Lag= 6.6 min
Primary = 1.46 cfs @ 12.30 hrs, Volume= 0.163 af
Routed to Pond MH-1 : MH - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 34.77' @ 12.31 hrs Surf.Area= 604 sf Storage= 723 cf

Plug-Flow detention time= 9.4 min calculated for 0.163 af (100% of inflow)
Center-of-Mass det. time= 8.2 min (793.0 - 784.8)

Volume	Invert	Avail.Storage	Storage Description
#1	30.25'	1,725 cf	**Custom Stage Data (Irregular)** Listed below

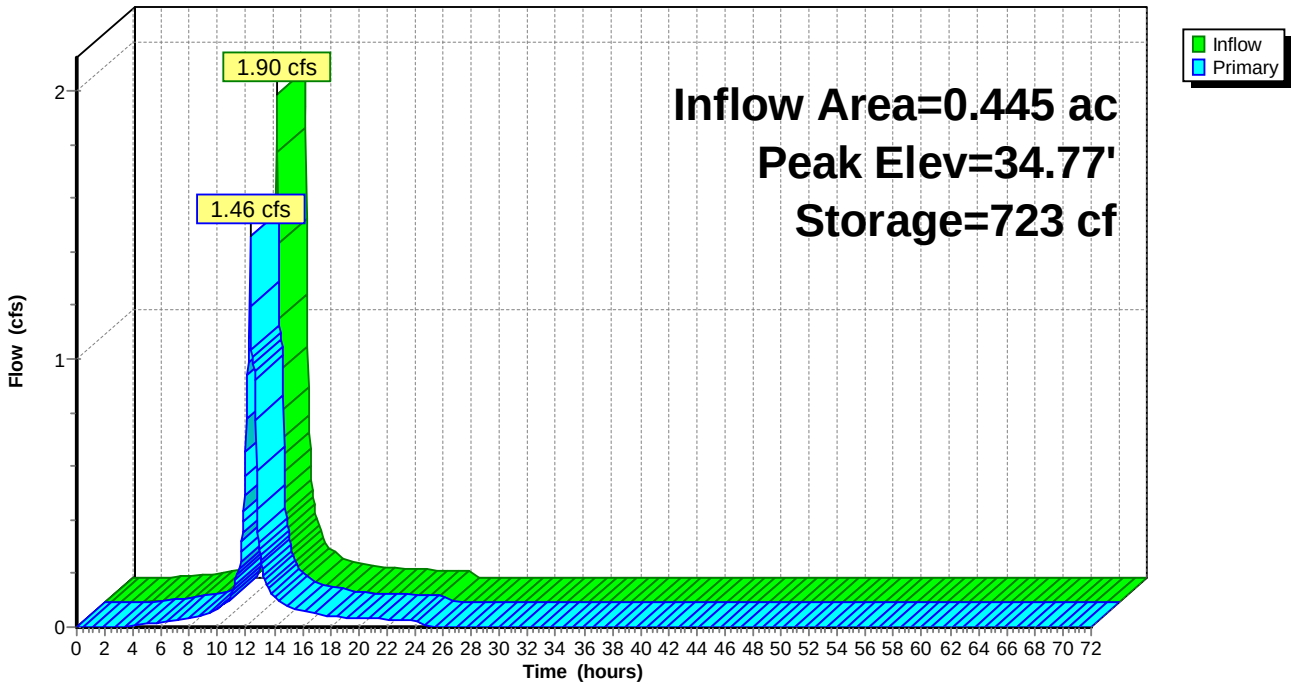
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.25	212	112.4	0.0	0	0	212
30.26	212	112.4	40.0	1	1	213
33.70	212	112.4	40.0	292	293	600
33.71	212	112.4	100.0	2	295	601
34.71	578	131.3	100.0	380	675	987
35.71	1,000	150.1	100.0	779	1,454	1,431
35.90	1,899	200.3	100.0	271	1,725	2,831

Device	Routing	Invert	Outlet Devices
#1	Device 2	34.71'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	30.26'	**15.0" Round Culvert** L= 46.8' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.26' / 29.89' S= 0.0079 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	30.26'	**6.0" Round Underdrain** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.26' / 30.26' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.42 cfs @ 12.30 hrs HW=34.77' TW=32.17' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.42 cfs of 9.53 cfs potential flow)
  ├**1=Orifice/Grate** (Weir Controls 0.37 cfs @ 0.79 fps)
  └**3=Underdrain** (Outlet Controls 1.05 cfs @ 5.35 fps)

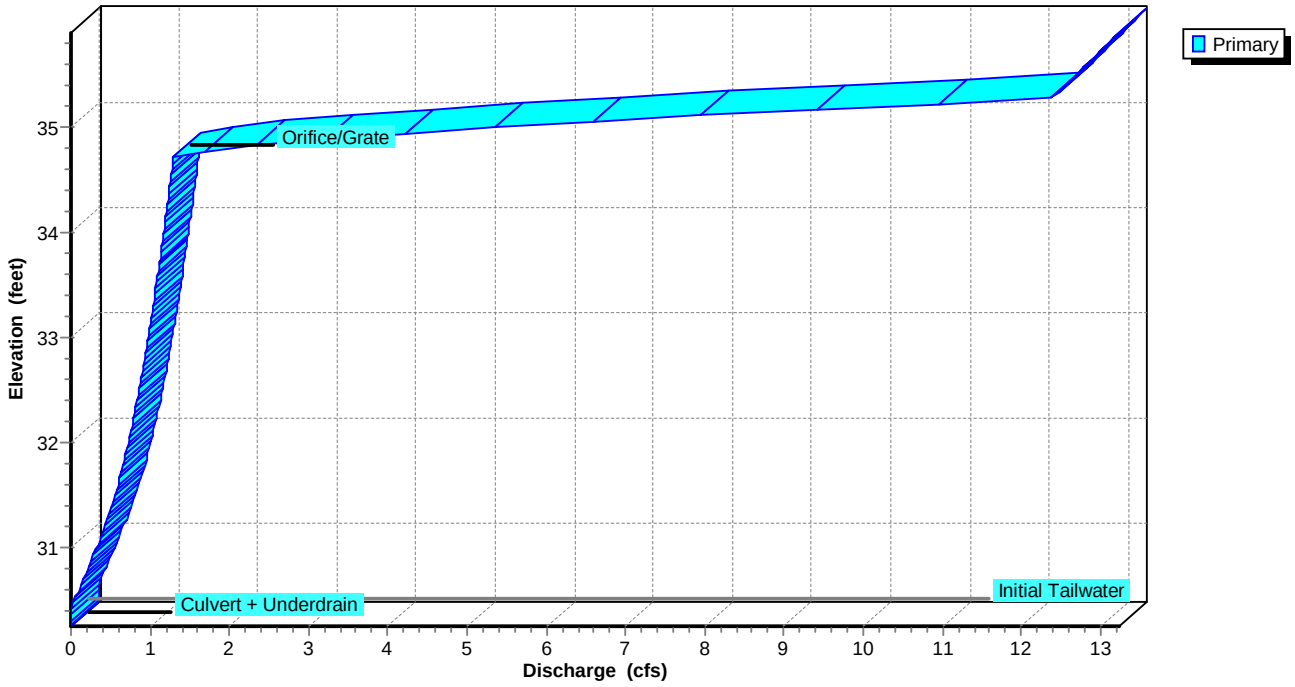
Pond MBR-4: MBR-4

Hydrograph

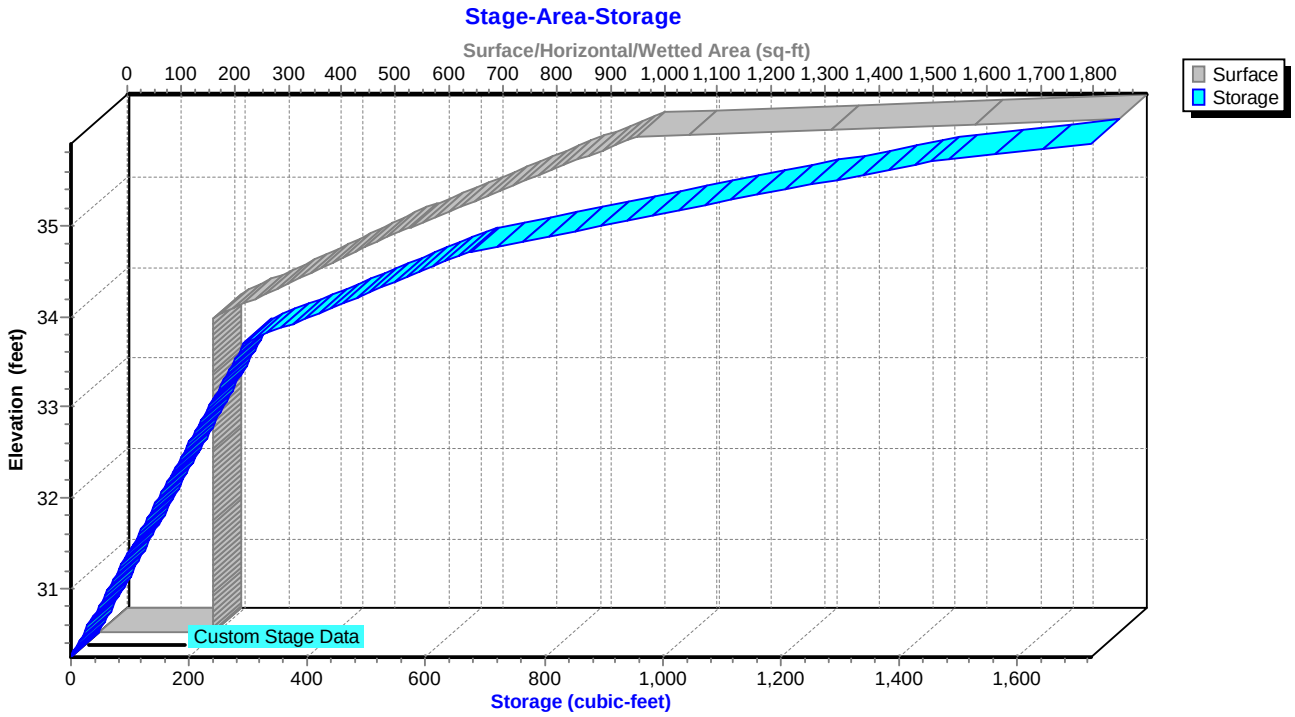


Pond MBR-4: MBR-4

Stage-Discharge



Pond MBR-4: MBR-4



Summary for Pond MH-1: MH - 1

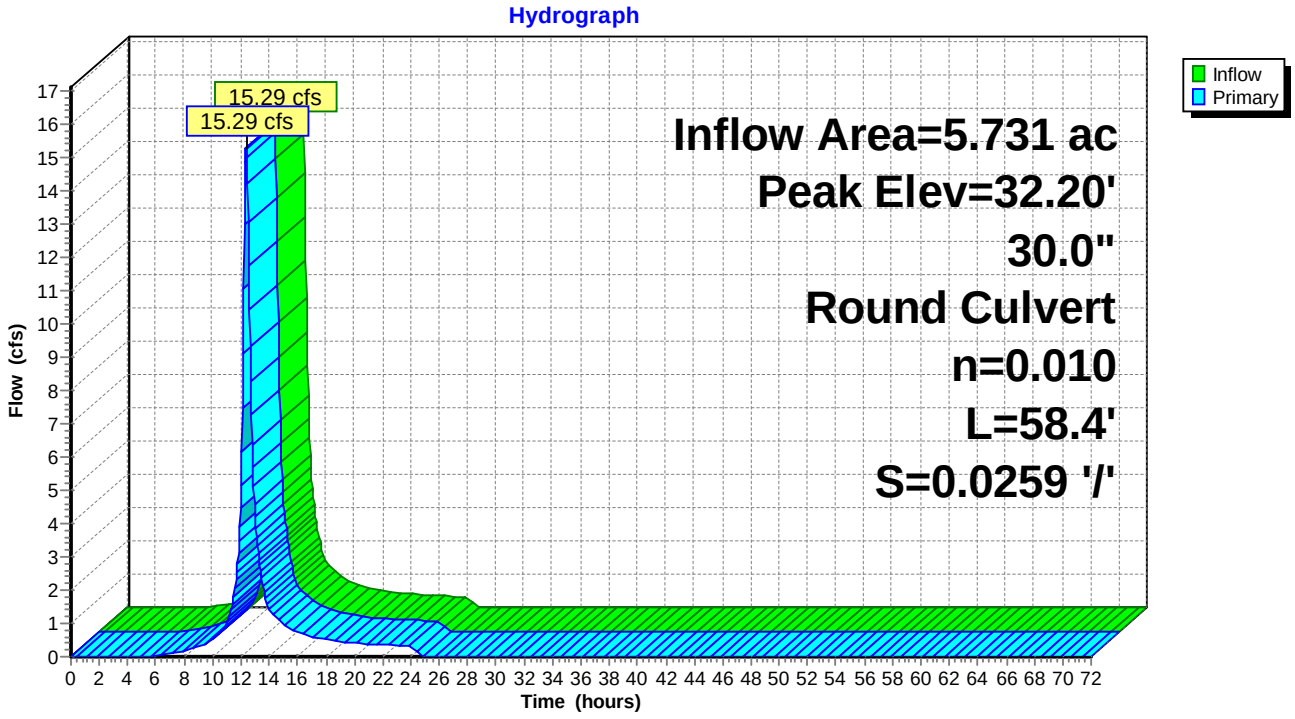
Inflow Area = 5.731 ac, 68.53% Impervious, Inflow Depth = 3.71" for 10-Year event
Inflow = 15.29 cfs @ 12.36 hrs, Volume= 1.772 af
Outflow = 15.29 cfs @ 12.36 hrs, Volume= 1.772 af, Atten= 0%, Lag= 0.0 min
Primary = 15.29 cfs @ 12.36 hrs, Volume= 1.772 af
Routed to Pond MH-2 : MH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 32.20' @ 12.36 hrs

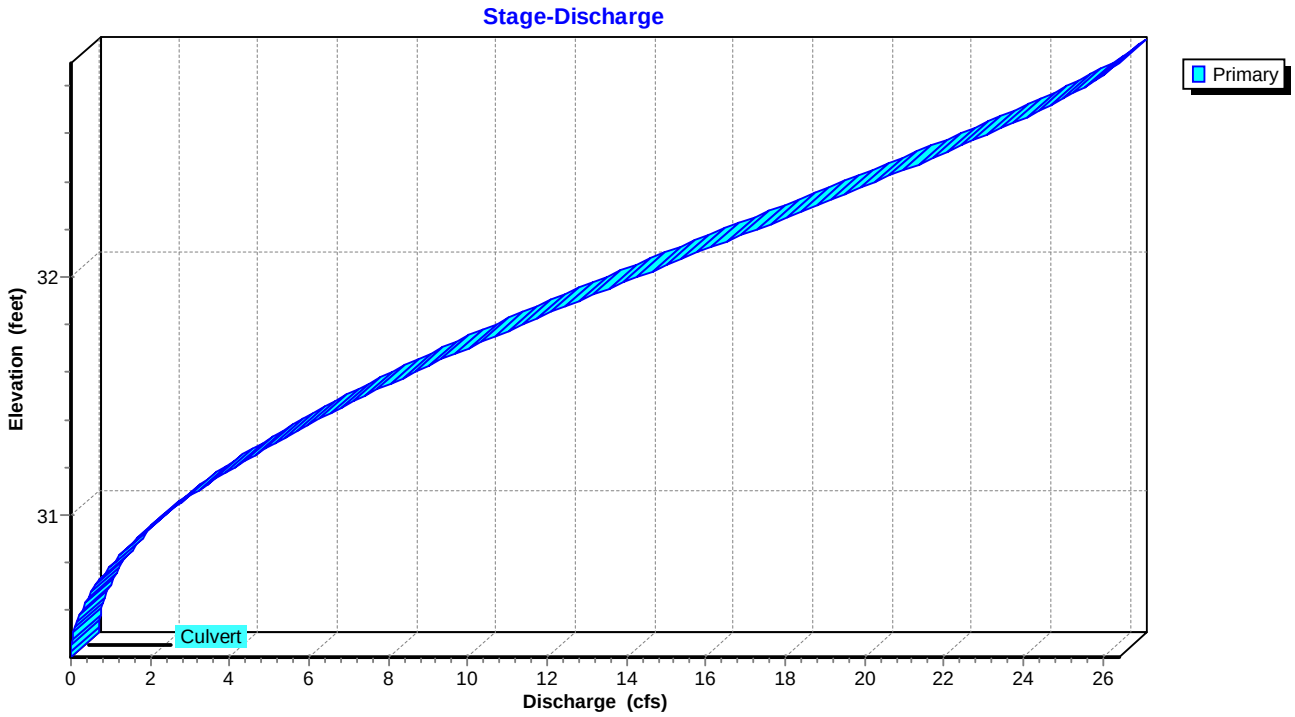
Device	Routing	Invert	Outlet Devices
#1	Primary	30.40'	**30.0" Round Culvert** L= 58.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.40' / 28.89' S= 0.0259 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=15.18 cfs @ 12.36 hrs HW=32.20' TW=31.32' (Dynamic Tailwater)
1=Culvert (Outlet Controls 15.18 cfs @ 5.61 fps)

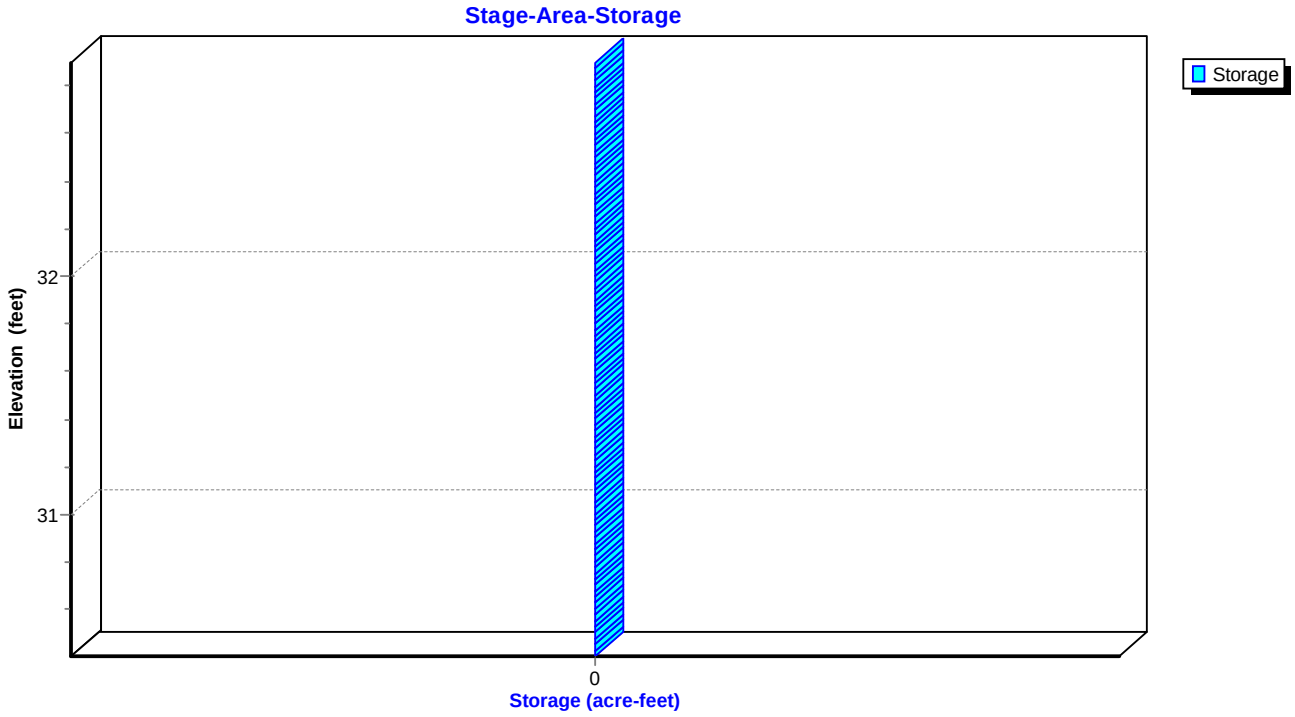
Pond MH-1: MH - 1



Pond MH-1: MH - 1



Pond MH-1: MH - 1



Summary for Pond MH-2: MH-2

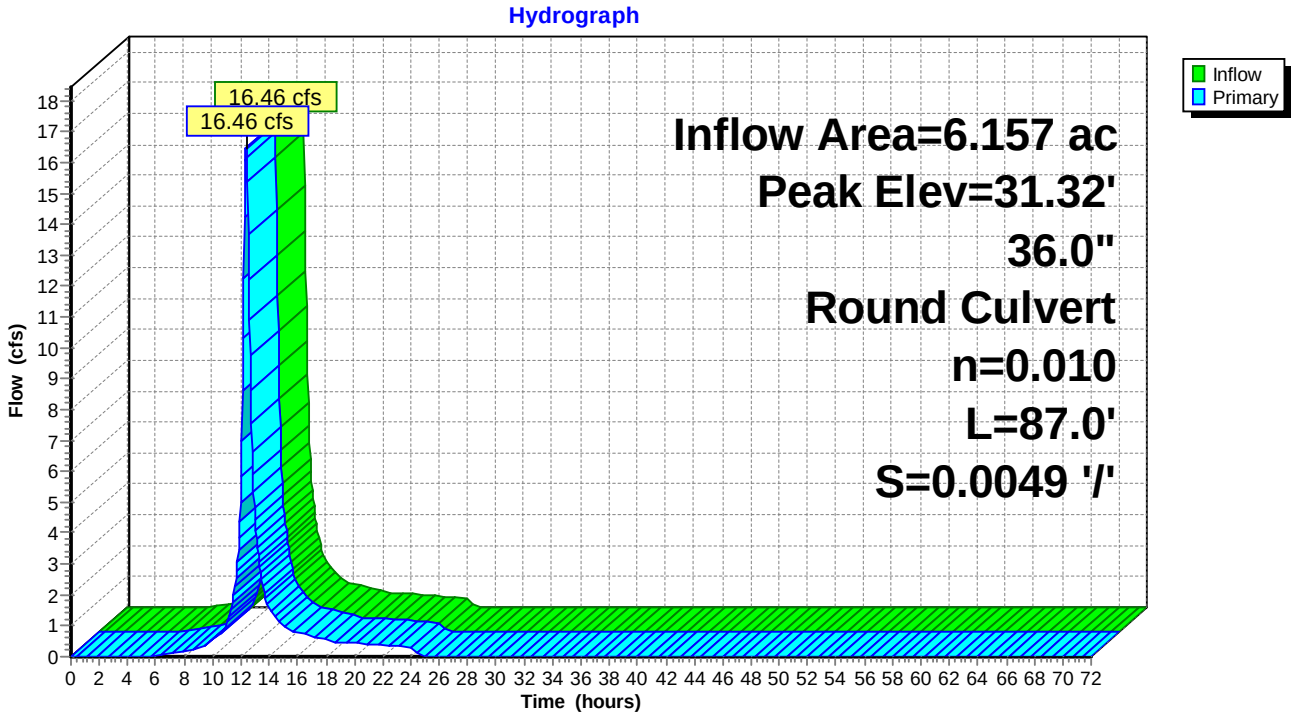
Inflow Area = 6.157 ac, 68.60% Impervious, Inflow Depth = 3.69" for 10-Year event
Inflow = 16.46 cfs @ 12.35 hrs, Volume= 1.894 af
Outflow = 16.46 cfs @ 12.35 hrs, Volume= 1.894 af, Atten= 0%, Lag= 0.0 min
Primary = 16.46 cfs @ 12.35 hrs, Volume= 1.894 af
Routed to Pond SGW : SGW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 31.32' @ 12.36 hrs

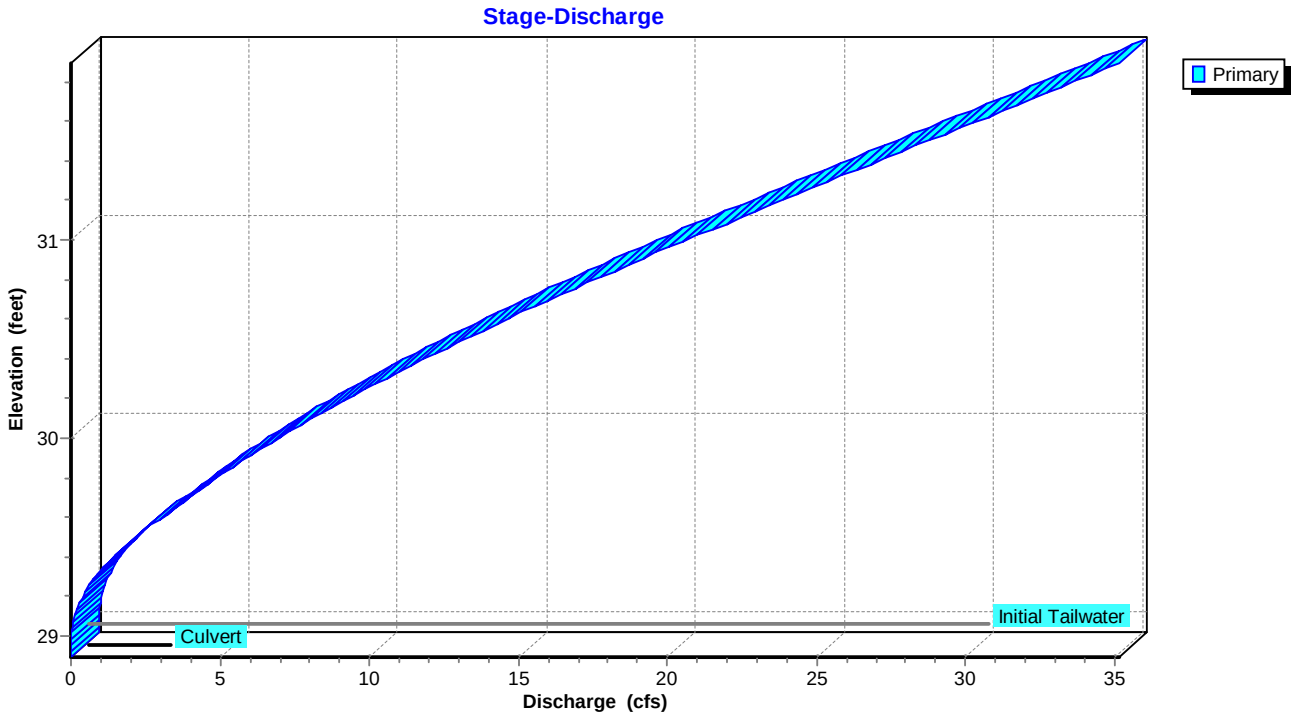
Device	Routing	Invert	Outlet Devices
#1	Primary	28.89'	**36.0" Round Culvert** L= 87.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 28.89' / 28.46' S= 0.0049 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=16.43 cfs @ 12.35 hrs HW=31.32' TW=30.90' (Dynamic Tailwater)
1=Culvert (Outlet Controls 16.43 cfs @ 3.66 fps)

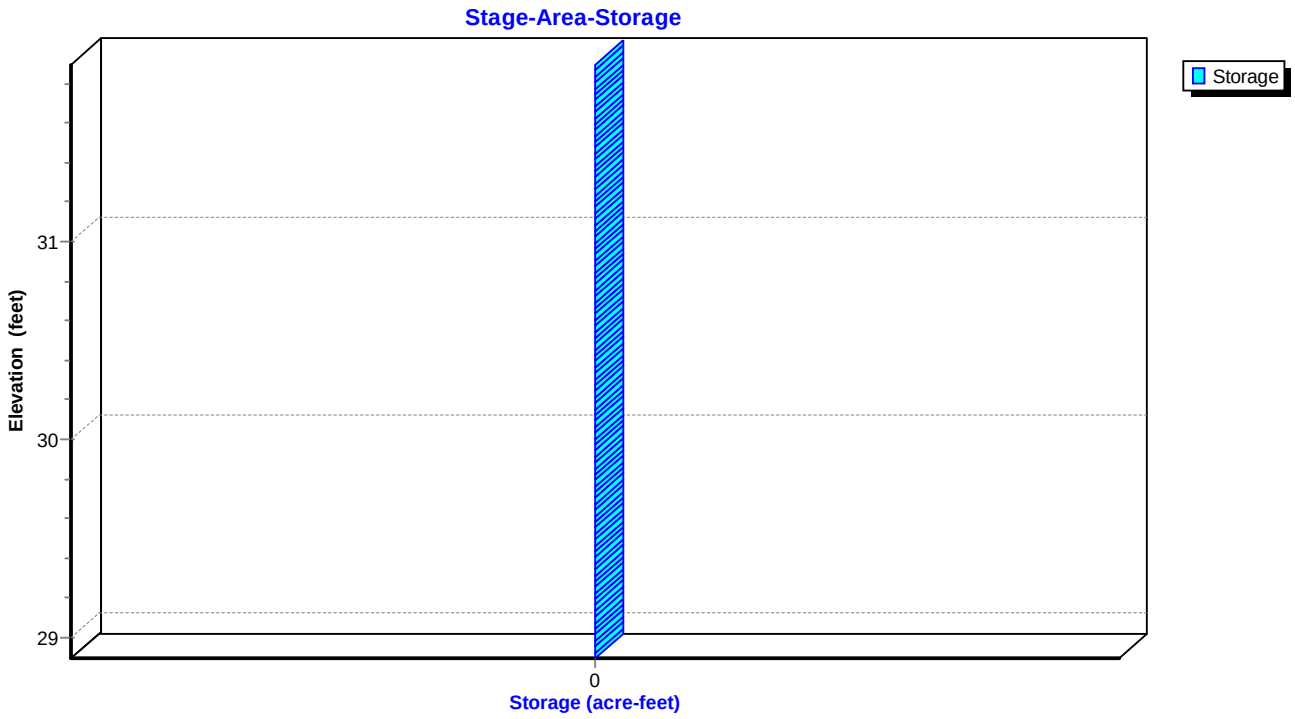
Pond MH-2: MH-2



Pond MH-2: MH-2



Pond MH-2: MH-2



Summary for Pond SGW: SGW

Inflow Area = 7.058 ac, 70.96% Impervious, Inflow Depth = 3.78" for 10-Year event
Inflow = 18.82 cfs @ 12.33 hrs, Volume= 2.225 af
Outflow = 18.70 cfs @ 12.37 hrs, Volume= 2.225 af, Atten= 1%, Lag= 2.0 min
Primary = 18.70 cfs @ 12.37 hrs, Volume= 2.225 af
Routed to Link PR-SP-1 : PR-SP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Starting Elev= 28.67' Storage= 0 cf
Peak Elev= 30.90' @ 12.37 hrs Surf.Area= 6,492 sf Storage= 10,587 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 31.4 min (848.1 - 816.7)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	18,455 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

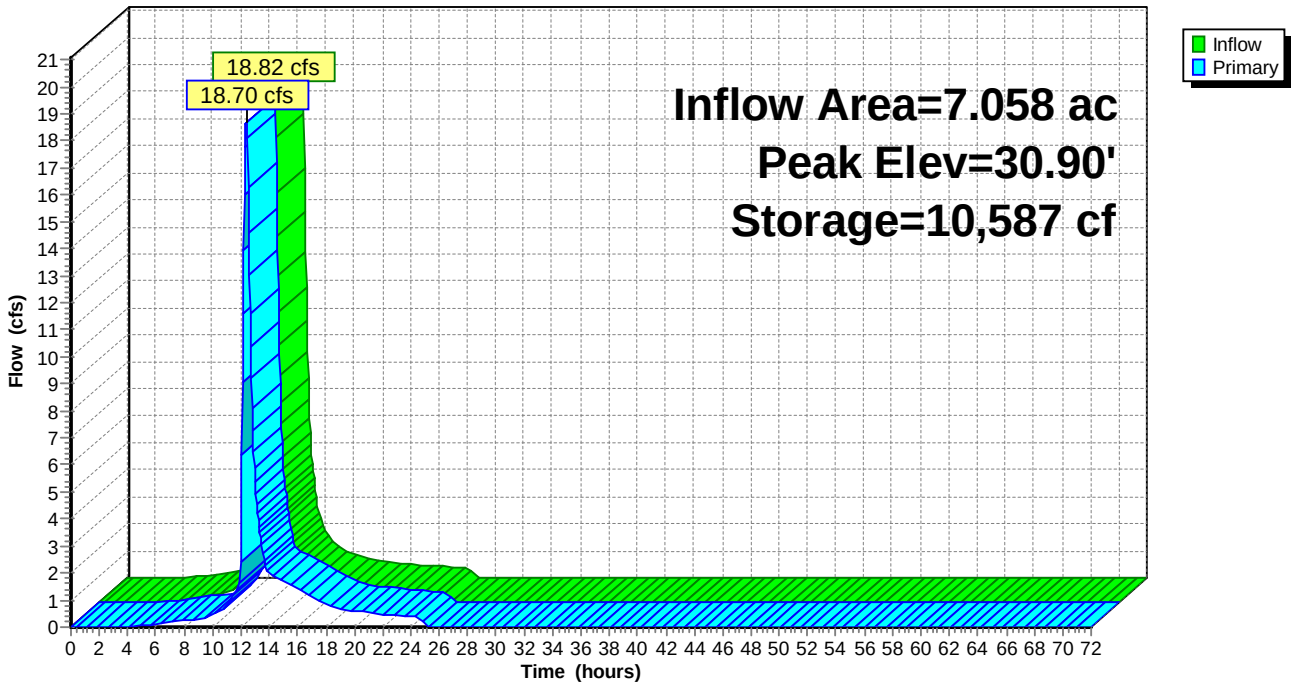
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.00	4,692	305.3	0	0	4,692
29.50	5,135	313.7	2,456	2,456	5,134
30.00	5,608	322.3	2,685	5,141	5,597
30.50	6,095	330.8	2,925	8,066	6,068
31.00	6,592	339.4	3,171	11,237	6,556
31.50	7,157	350.0	3,436	14,673	7,163
32.00	7,979	388.0	3,782	18,455	9,402

Device	Routing	Invert	Outlet Devices
#1	Device 2	30.50'	**60.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	28.67'	**36.0" Round Culvert** L= 42.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 28.67' / 24.02' S= 0.1084 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#3	Device 2	28.67'	**6.0" Round Collection Pipe X 2.00** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 28.67' / 28.67' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=18.58 cfs @ 12.37 hrs HW=30.90' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 18.58 cfs of 28.62 cfs potential flow)
  ├**1=Orifice/Grate** (Weir Controls 16.47 cfs @ 2.06 fps)
  └**3=Collection Pipe** (Barrel Controls 2.11 cfs @ 5.37 fps)

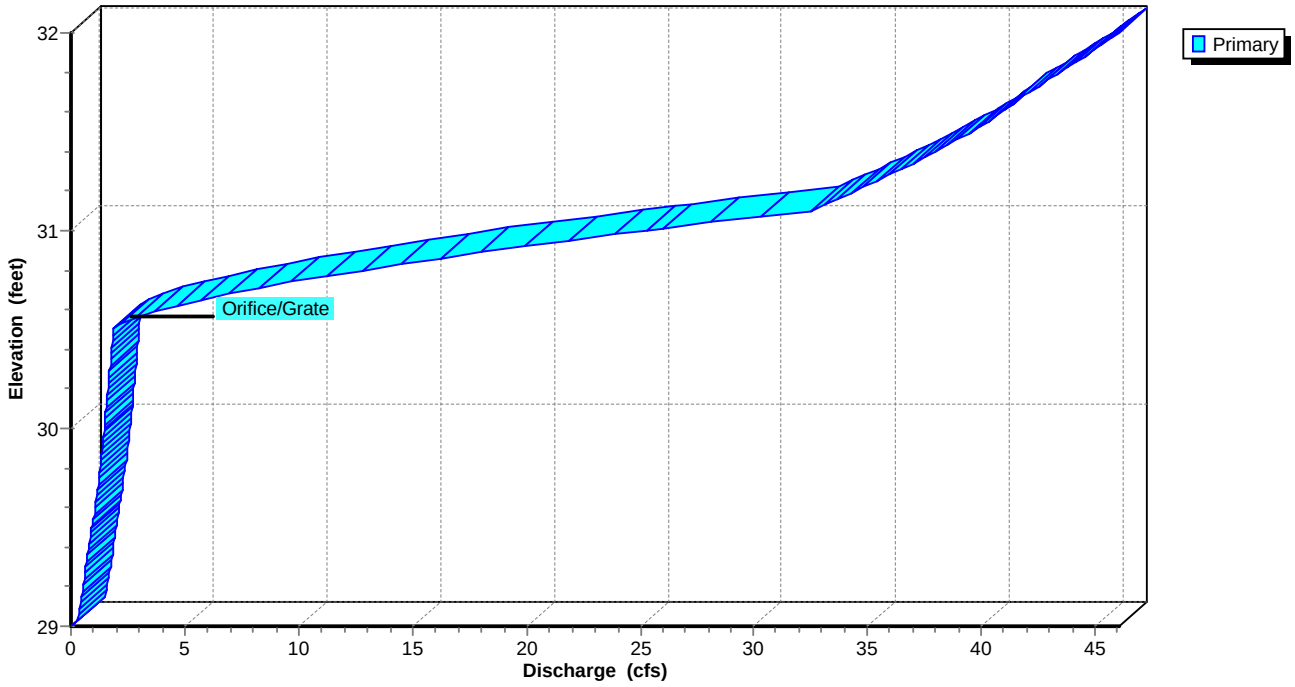
Pond SGW: SGW

Hydrograph

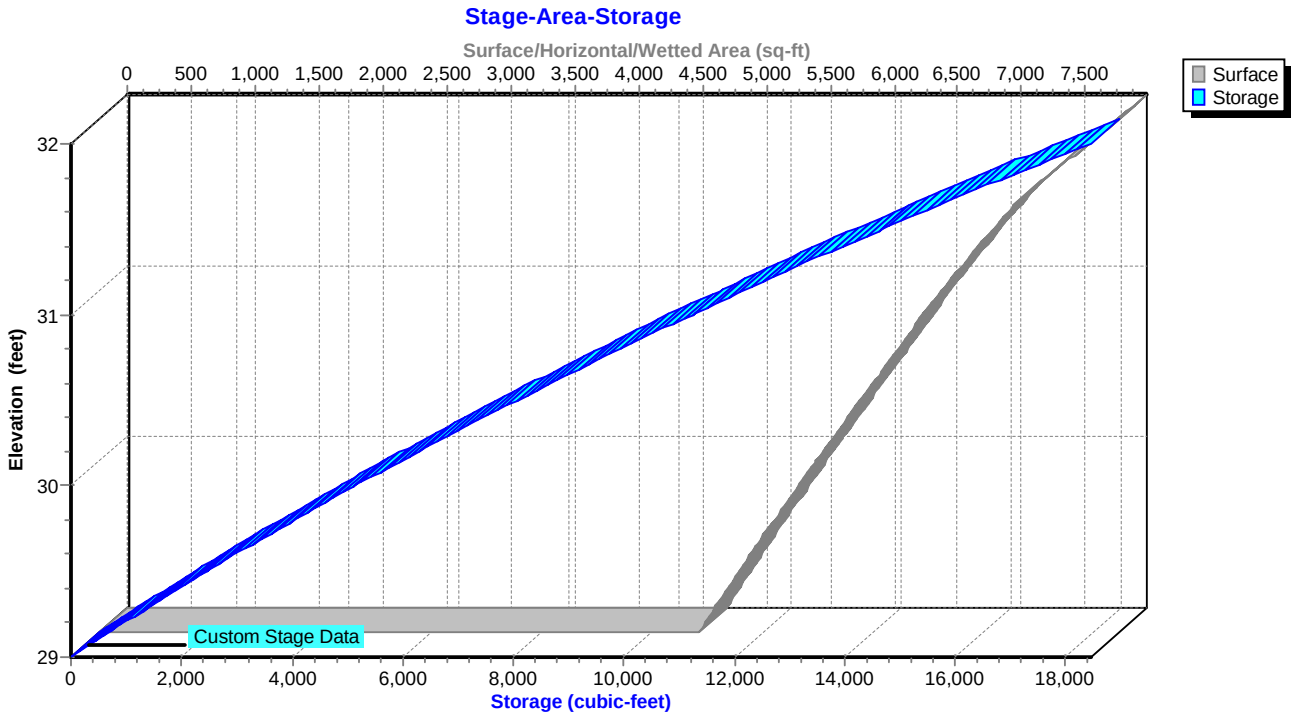


Pond SGW: SGW

Stage-Discharge



Pond SGW: SGW

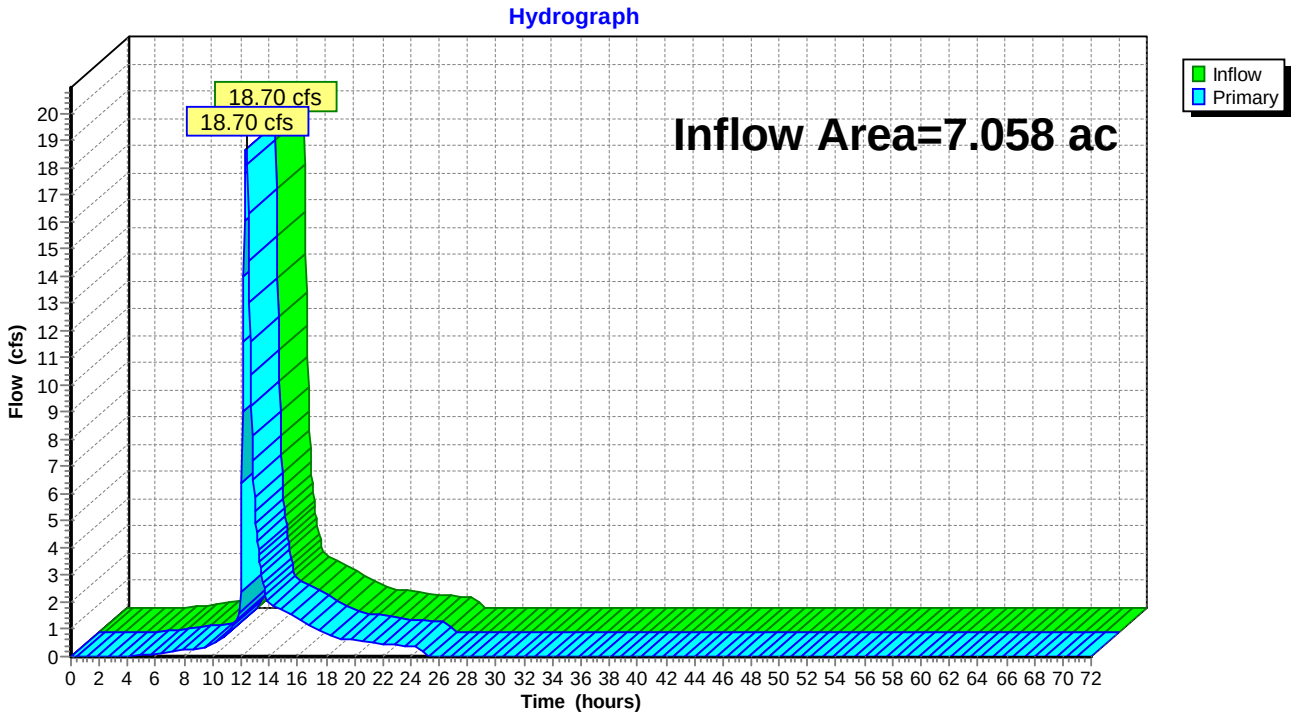

Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500 7,000 7,500
Surface
Storage
Elevation (feet)
32
31
30
29
Custom Stage Data
0 2,000 4,000 6,000 8,000 10,000 12,000 14,000 16,000 18,000
Storage (cubic-feet)

Summary for Link PR-SP-1: PR-SP-1

Inflow Area = 7.058 ac, 70.96% Impervious, Inflow Depth = 3.78" for 10-Year event
Inflow = 18.70 cfs @ 12.37 hrs, Volume= 2.225 af
Primary = 18.70 cfs @ 12.37 hrs, Volume= 2.225 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link PR-SP-1: PR-SP-1

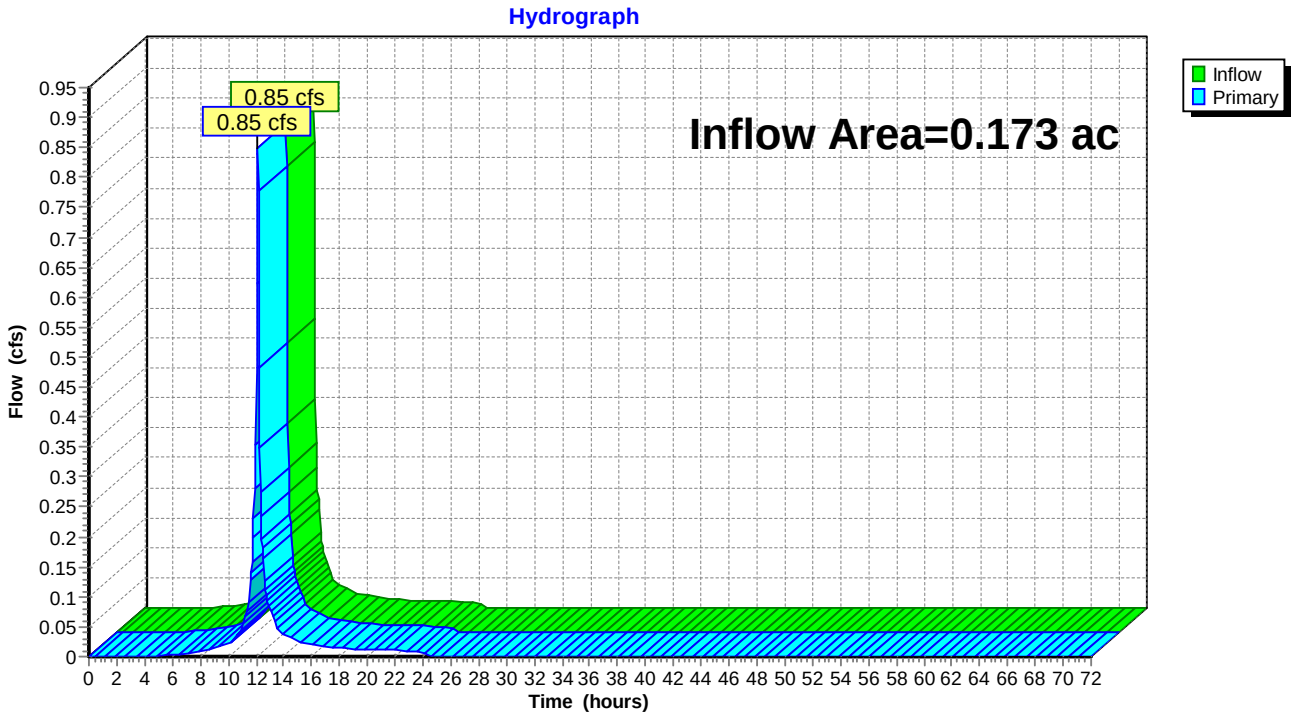


Summary for Link PR-SP-2: PR-SP-2

Inflow Area = 0.173 ac, 75.24% Impervious, Inflow Depth = 3.96" for 10-Year event
Inflow = 0.85 cfs @ 12.11 hrs, Volume= 0.057 af
Primary = 0.85 cfs @ 12.11 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link PR-SP-2: PR-SP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-DA-1: PR-DA-1 Runoff Area=230,241 sf 67.12% Impervious Runoff Depth=7.28"
Flow Length=347' Tc=26.1 min CN=86 Runoff=27.32 cfs 3.208 af

Subcatchment PR-DA-2: PR-DA-2 Runoff Area=7,525 sf 75.24% Impervious Runoff Depth=7.65"
Flow Length=258' Tc=5.1 min CN=89 Runoff=1.57 cfs 0.110 af

Subcatchment PR-DA-3: PR-DA-3 Runoff Area=19,951 sf 91.92% Impervious Runoff Depth=8.38"
Flow Length=150' Tc=1.9 min CN=95 Runoff=4.87 cfs 0.320 af

Subcatchment PR-DA-4: PR-DA-4 Runoff Area=19,263 sf 82.03% Impervious Runoff Depth=7.89"
Flow Length=112' Tc=12.2 min CN=91 Runoff=3.30 cfs 0.291 af

Subcatchment PR-DA-5: PR-DA-5 Runoff Area=18,594 sf 69.57% Impervious Runoff Depth=7.41"
Flow Length=154' Tc=11.2 min CN=87 Runoff=3.17 cfs 0.263 af

Subcatchment PR-DA-6: PR-DA-6 Runoff Area=19,385 sf 85.36% Impervious Runoff Depth=8.14"
Flow Length=110' Tc=12.1 min CN=93 Runoff=3.39 cfs 0.302 af

Pond CI - 1: CI - 1 Peak Elev=31.18' Inflow=4.82 cfs 0.611 af
30.0" Round Culvert n=0.013 L=60.0' S=0.0030 '/' Outflow=4.82 cfs 0.611 af

Pond MBR-1: MBR-1 Peak Elev=36.08' Storage=2,305 cf Inflow=4.87 cfs 0.320 af
Outflow=1.53 cfs 0.320 af

Pond MBR-2: MBR-2 Peak Elev=35.31' Storage=372 cf Inflow=3.30 cfs 0.291 af
Outflow=3.29 cfs 0.291 af

Pond MBR-3: MBR-3 Peak Elev=46.12' Storage=1,981 cf Inflow=3.17 cfs 0.263 af
Outflow=2.37 cfs 0.252 af

Pond MBR-4: MBR-4 Peak Elev=34.91' Storage=830 cf Inflow=3.39 cfs 0.302 af
Outflow=3.30 cfs 0.301 af

Pond MH-1: MH - 1 Peak Elev=33.76' Inflow=29.28 cfs 3.510 af
30.0" Round Culvert n=0.010 L=58.4' S=0.0259 '/' Outflow=29.28 cfs 3.510 af

Pond MH-2: MH-2 Peak Elev=32.26' Inflow=31.64 cfs 3.762 af
36.0" Round Culvert n=0.010 L=87.0' S=0.0049 '/' Outflow=31.64 cfs 3.762 af

Pond SGW: SGW Peak Elev=31.16' Storage=12,313 cf Inflow=35.12 cfs 4.373 af
Outflow=33.72 cfs 4.373 af

Link PR-SP-1: PR-SP-1 Inflow=33.72 cfs 4.373 af
Primary=33.72 cfs 4.373 af

Link PR-SP-2: PR-SP-2 Inflow=1.57 cfs 0.110 af
Primary=1.57 cfs 0.110 af

Total Runoff Area = 7.230 ac Runoff Volume = 4.494 af Average Runoff Depth = 7.46"
28.94% Pervious = 2.092 ac 71.06% Impervious = 5.138 ac

Summary for Subcatchment PR-DA-1: PR-DA-1

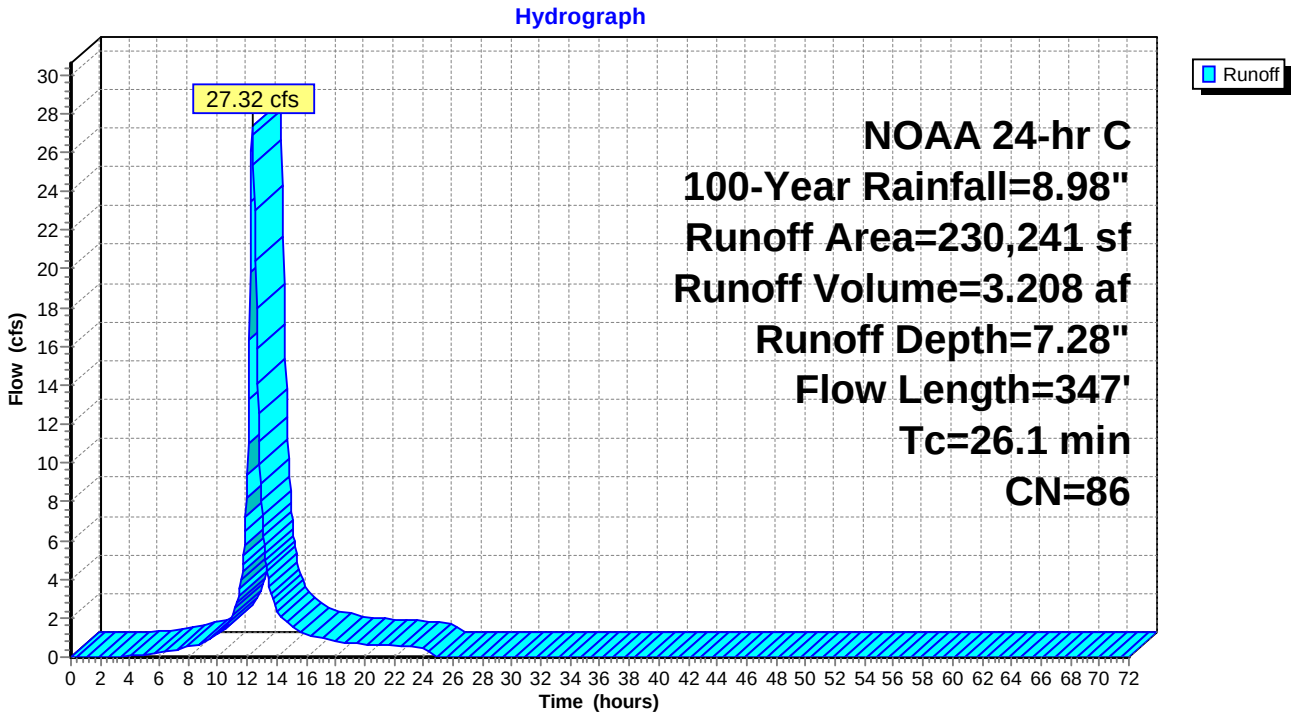
Runoff = 27.32 cfs @ 12.36 hrs, Volume= 3.208 af, Depth= 7.28"
Routed to Pond MH-1 : MH - 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.98"

Area (sf)	CN	Description
65,361	61	>75% Grass cover, Good, HSG B
146,431	98	Unconnected pavement, HSG B
10,353	74	>75% Grass cover, Good, HSG C
8,096	98	Unconnected pavement, HSG C
230,241	86	Weighted Average
75,714		32.88% Pervious Area
154,527		67.12% Impervious Area
154,527		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	35	0.0163	0.13		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
3.5	8	0.0042	0.04		**Sheet Flow, Concreted Sheet Flow** Grass: Dense n= 0.240 P2= 3.33"
17.3	57	0.0015	0.06		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.4	14	0.0015	0.58		**Shallow Concentrated Flow, Grassed SCF** Grassed Waterway Kv= 15.0 fps
0.3	114	0.0050	5.46	9.66	**Pipe Channel, 18" Piped Flow** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
0.1	119	0.0206	15.59	76.53	**Pipe Channel, 30" Piped Flow** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010 PVC, smooth interior
26.1	347	Total			

Subcatchment PR-DA-1: PR-DA-1



Summary for Subcatchment PR-DA-2: PR-DA-2

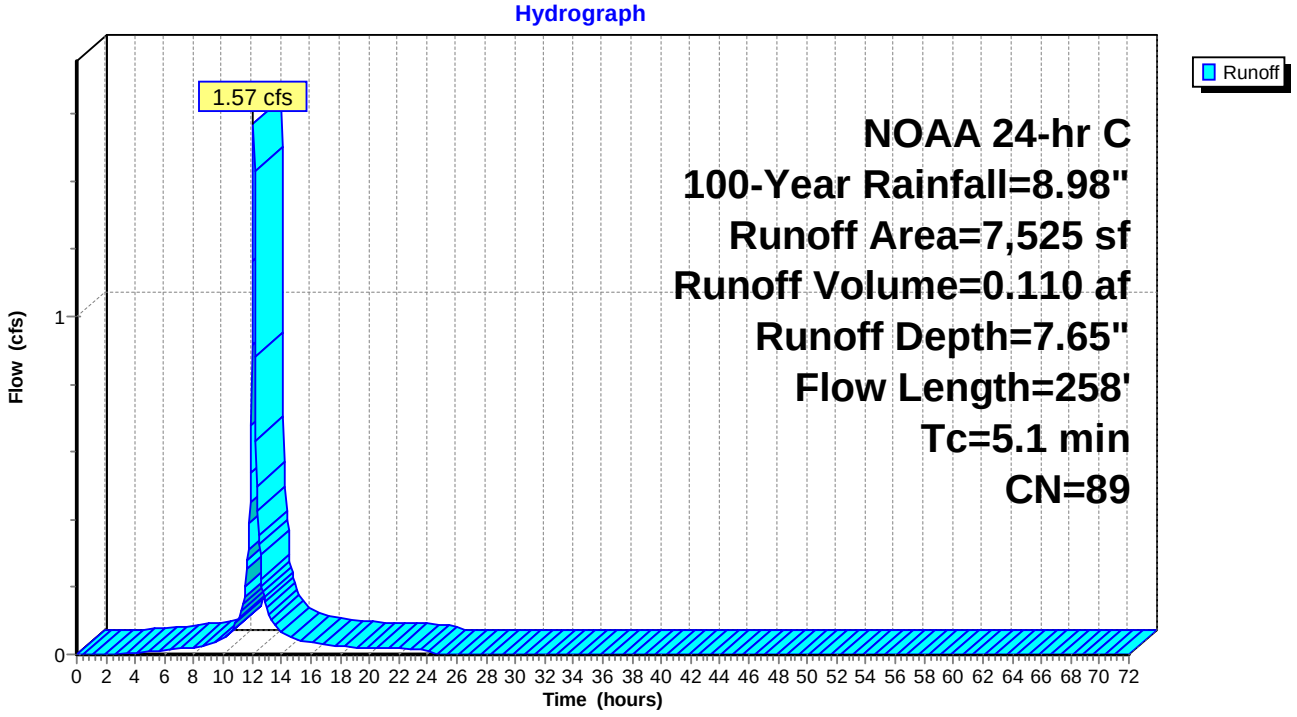
Runoff = 1.57 cfs @ 12.11 hrs, Volume= 0.110 af, Depth= 7.65"
Routed to Link PR-SP-2 : PR-SP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.98"

Area (sf)	CN	Description
1,863	61	>75% Grass cover, Good, HSG B
5,662	98	Unconnected pavement, HSG B
7,525	89	Weighted Average
1,863		24.76% Pervious Area
5,662		75.24% Impervious Area
5,662		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0375	1.20		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
4.9	245	0.0021	0.82	0.08	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
5.1	258	Total			

Subcatchment PR-DA-2: PR-DA-2



Summary for Subcatchment PR-DA-3: PR-DA-3

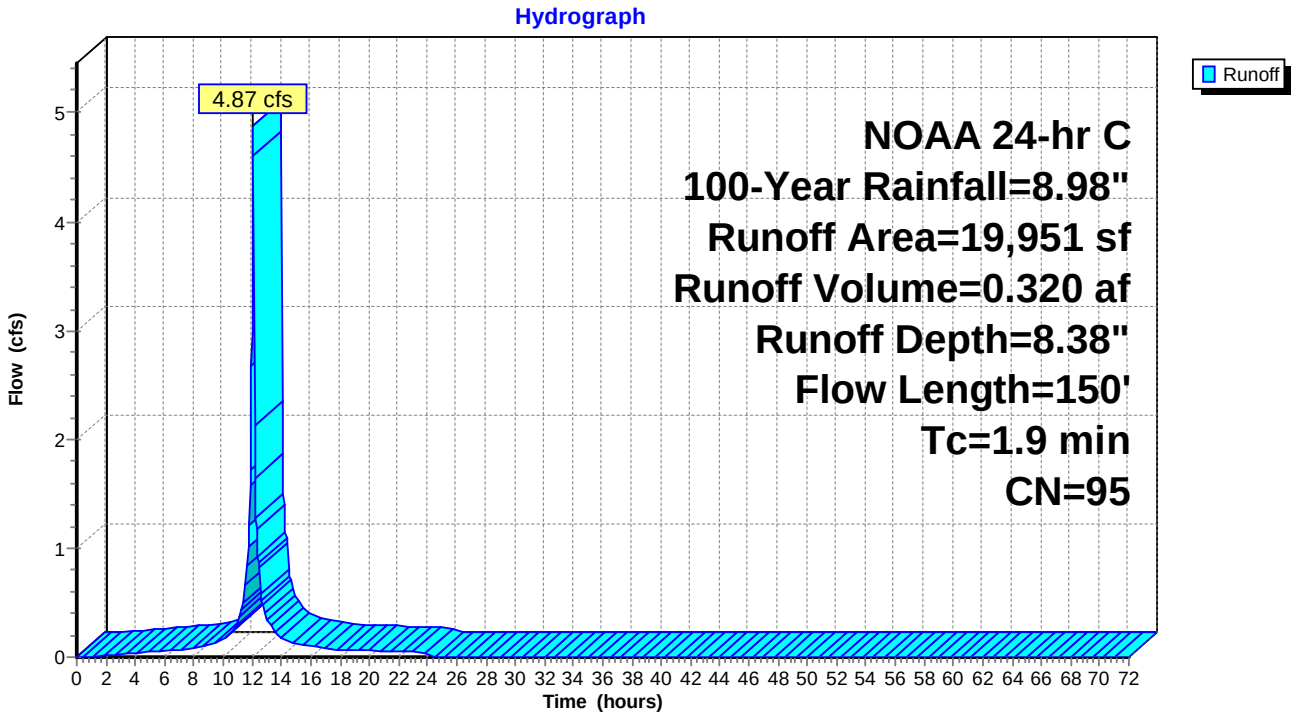
Runoff = 4.87 cfs @ 12.08 hrs, Volume= 0.320 af, Depth= 8.38"
Routed to Pond MBR-1 : MBR-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.98"

Area (sf)	CN	Description
1,612	61	>75% Grass cover, Good, HSG B
18,339	98	Unconnected pavement, HSG B
19,951	95	Weighted Average
1,612		8.08% Pervious Area
18,339		91.92% Impervious Area
18,339		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	80	0.0079	0.93		**Sheet Flow, Paved Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.1	17	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.3	36	0.0101	2.04		**Shallow Concentrated Flow, Paved SCF** Paved Kv= 20.3 fps
0.1	17	0.0336	3.30	0.33	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
1.9	150	Total			

Subcatchment PR-DA-3: PR-DA-3



Summary for Subcatchment PR-DA-4: PR-DA-4

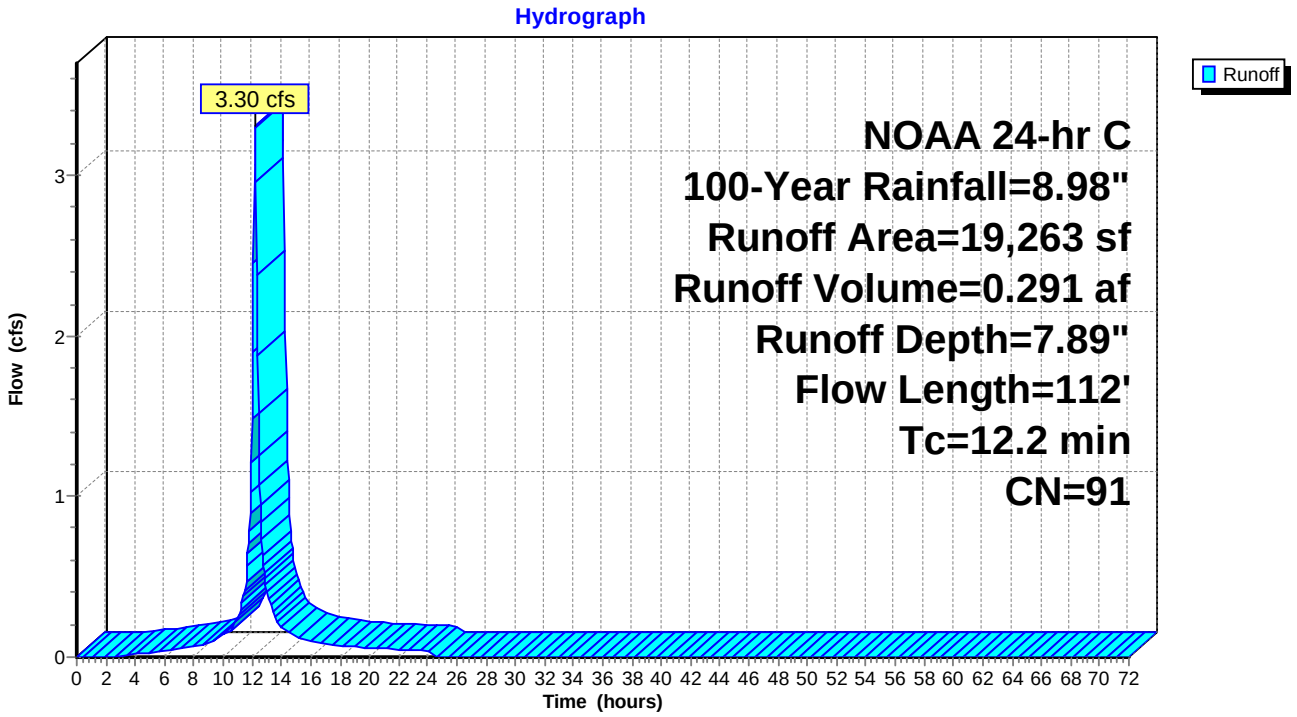
Runoff = 3.30 cfs @ 12.20 hrs, Volume= 0.291 af, Depth= 7.89"
Routed to Pond MBR-2 : MBR-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.98"

Area (sf)	CN	Description
3,462	61	>75% Grass cover, Good, HSG B
15,801	98	Unconnected pavement, HSG B
19,263	91	Weighted Average
3,462		17.97% Pervious Area
15,801		82.03% Impervious Area
15,801		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	31	0.0013	0.05		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.1	5	0.0289	0.89		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.7	49	0.0154	1.10		**Sheet Flow, Paved Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.2	27	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
12.2	112	Total			

Subcatchment PR-DA-4: PR-DA-4



Summary for Subcatchment PR-DA-5: PR-DA-5

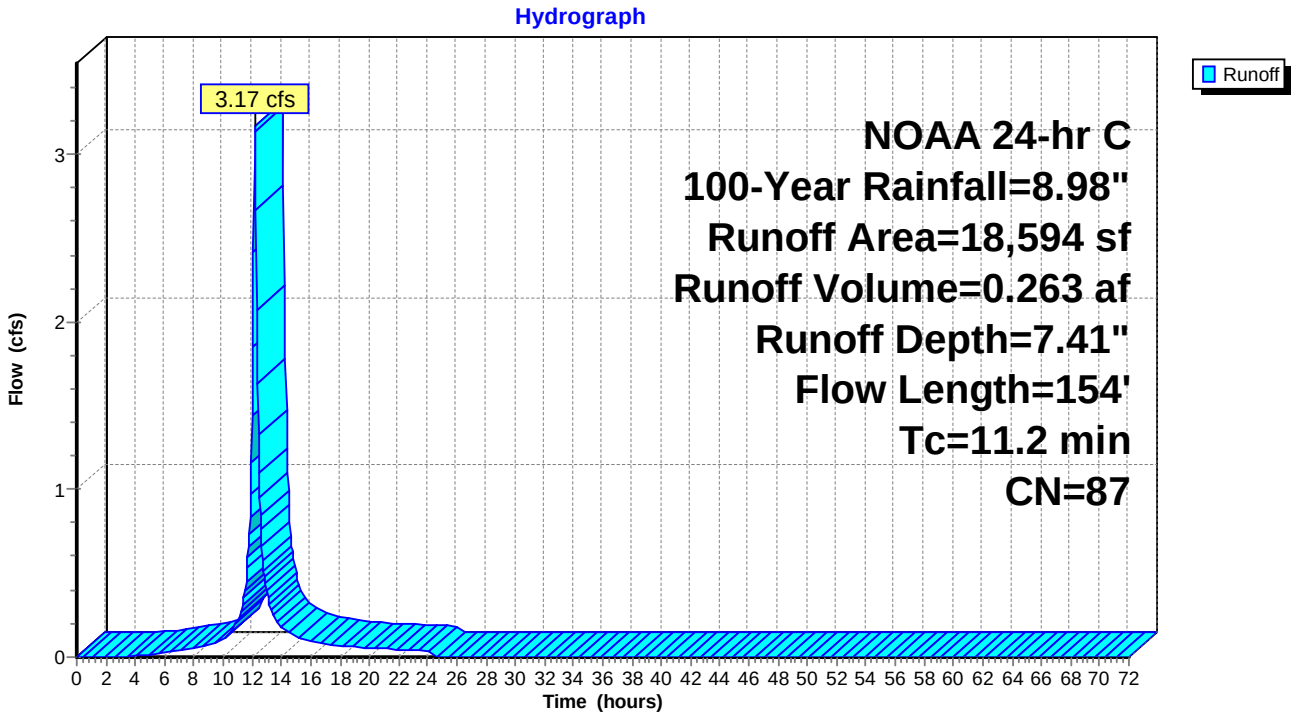
Runoff = 3.17 cfs @ 12.19 hrs, Volume= 0.263 af, Depth= 7.41"
Routed to Pond MBR-3 : MBR-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.98"

Area (sf)	CN	Description
5,659	61	>75% Grass cover, Good, HSG B
12,935	98	Unconnected pavement, HSG B
18,594	87	Weighted Average
5,659		30.43% Pervious Area
12,935		69.57% Impervious Area
12,935		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	60	0.0063	0.10		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
0.8	33	0.0062	0.70		**Sheet Flow, Concreted Sheet Flow** Smooth surfaces n= 0.011 P2= 3.33"
0.1	19	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
0.2	42	0.0279	3.39		**Shallow Concentrated Flow, Paved SCF** Paved Kv= 20.3 fps
11.2	154	Total			

Subcatchment PR-DA-5: PR-DA-5



Summary for Subcatchment PR-DA-6: PR-DA-6

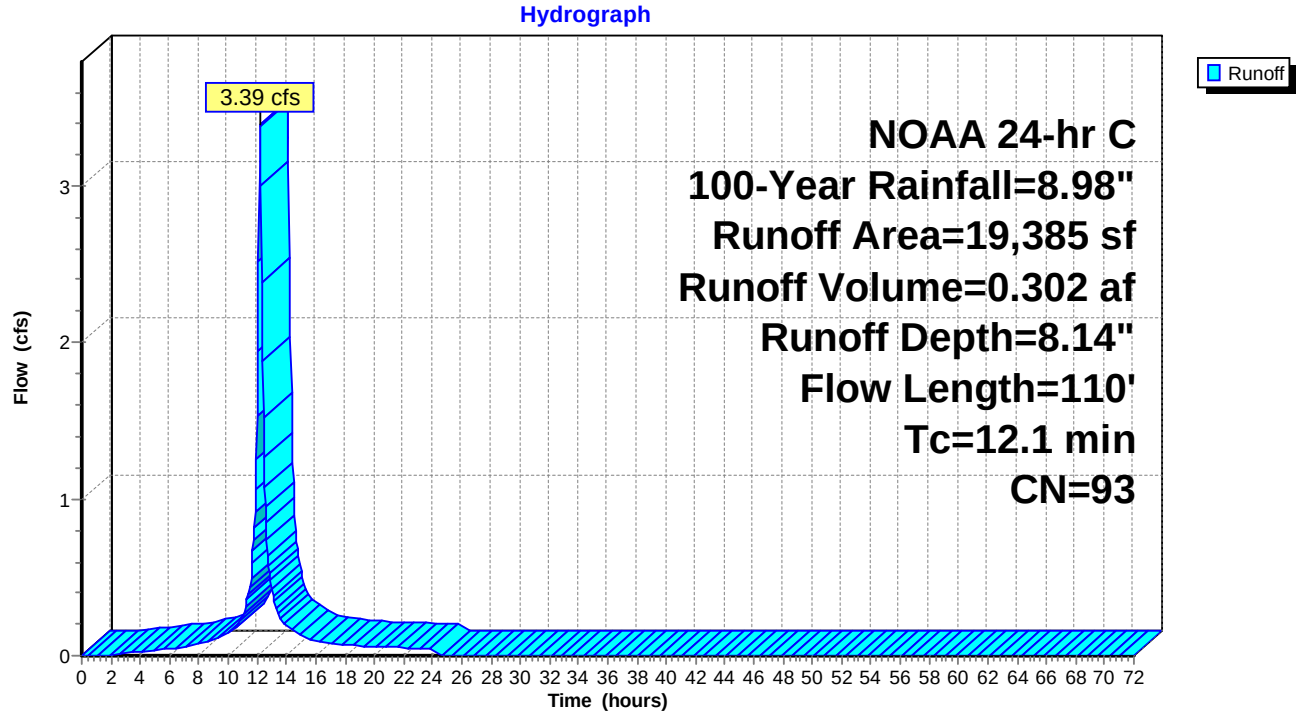
Runoff = 3.39 cfs @ 12.19 hrs, Volume= 0.302 af, Depth= 8.14"
Routed to Pond MBR-4 : MBR-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.98"

Area (sf)	CN	Description
2,837	61	>75% Grass cover, Good, HSG B
16,548	98	Unconnected pavement, HSG B
19,385	93	Weighted Average
2,837		14.64% Pervious Area
16,548		85.36% Impervious Area
16,548		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	8	0.0073	0.07		**Sheet Flow, Grassed Sheet Flow** Grass: Short n= 0.150 P2= 3.33"
10.0	75	0.0262	0.13		**Sheet Flow, Paved Sheet Flow** Grass: Dense n= 0.240 P2= 3.33"
0.2	27	0.0200	2.55	0.25	**Channel Flow, Concreted Channeled Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
12.1	110	Total			

Subcatchment PR-DA-6: PR-DA-6



Summary for Pond CI - 1: CI - 1

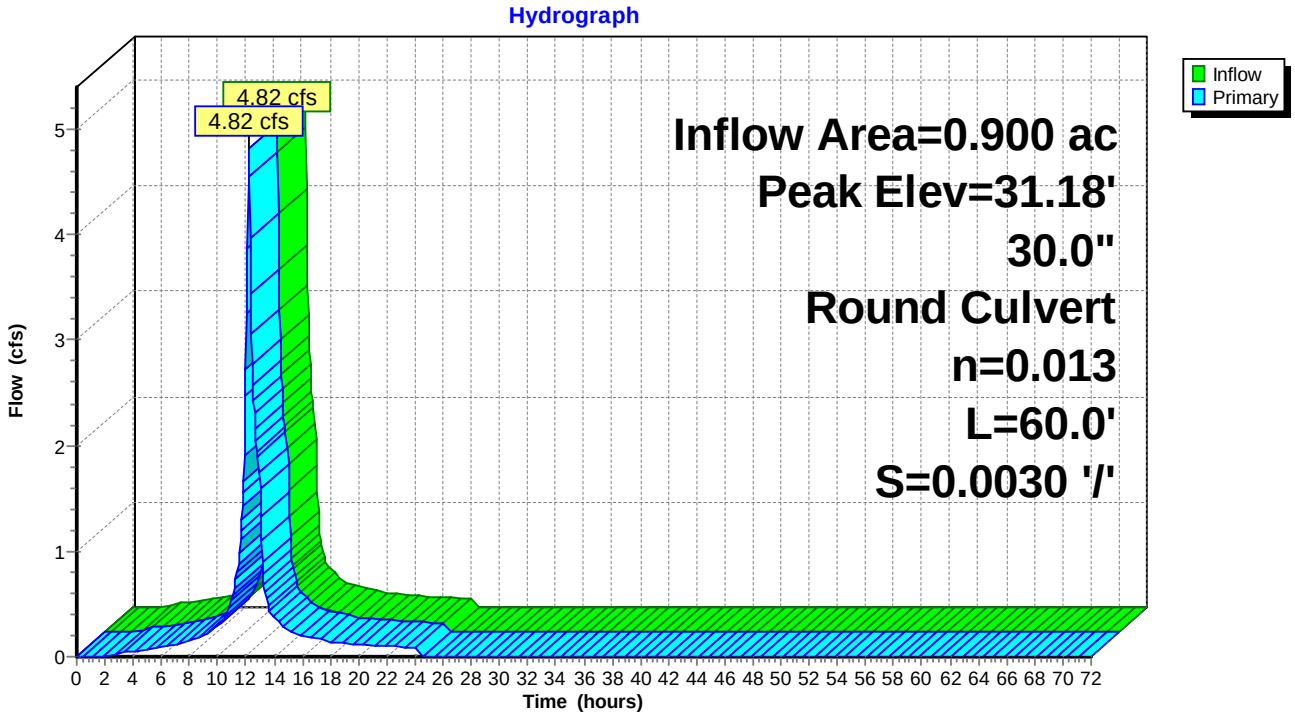
Inflow Area = 0.900 ac, 87.06% Impervious, Inflow Depth = 8.14" for 100-Year event
Inflow = 4.82 cfs @ 12.20 hrs, Volume= 0.611 af
Outflow = 4.82 cfs @ 12.20 hrs, Volume= 0.611 af, Atten= 0%, Lag= 0.0 min
Primary = 4.82 cfs @ 12.20 hrs, Volume= 0.611 af
Routed to Pond SGW : SGW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 31.18' @ 12.38 hrs

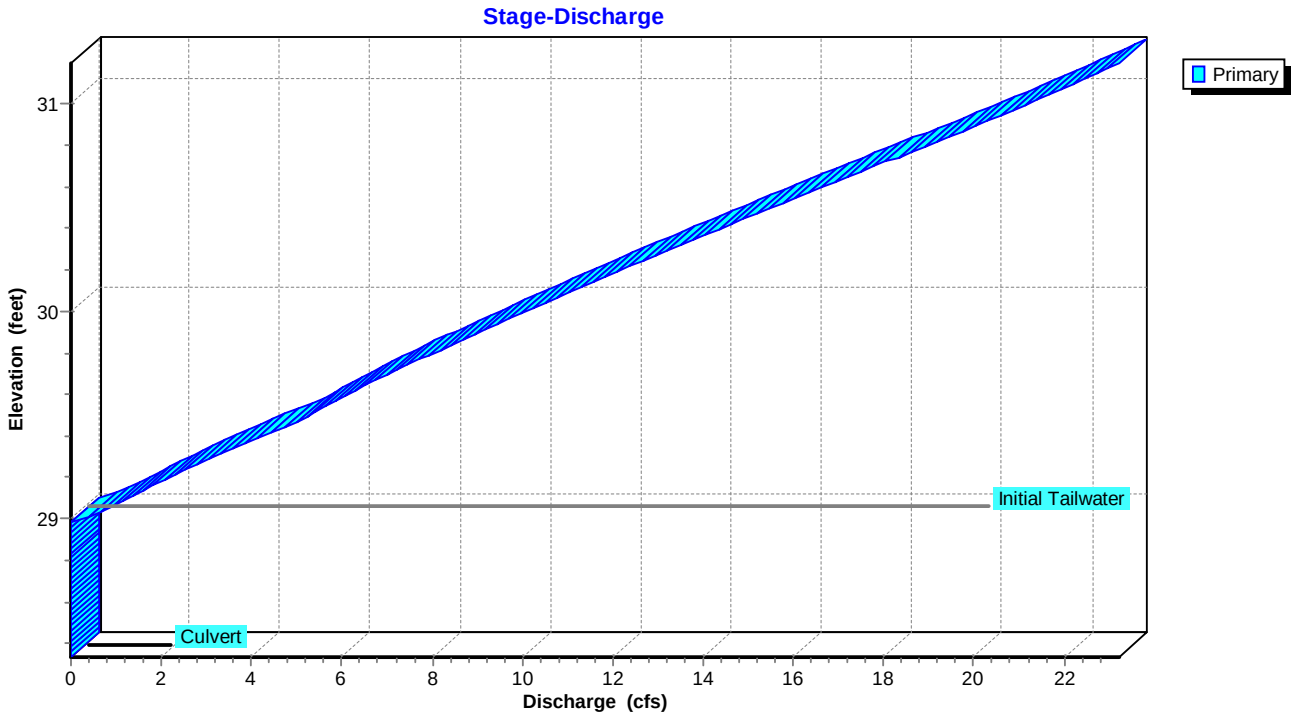
Device	Routing	Invert	Outlet Devices
#1	Primary	28.34'	**30.0" Round Culvert** L= 60.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 28.34' / 28.16' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete, trowel finish, Flow Area= 4.91 sf

Primary OutFlow Max=4.82 cfs @ 12.20 hrs HW=31.08' TW=31.03' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.82 cfs @ 0.98 fps)

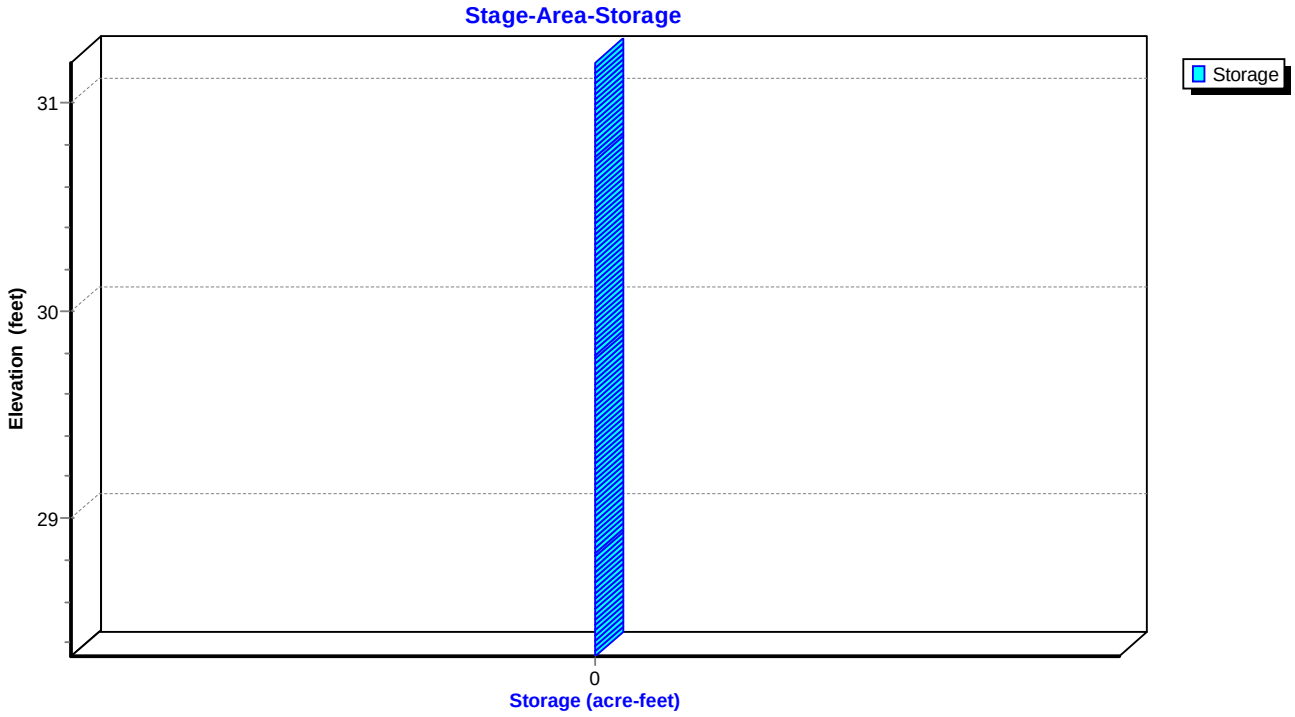
Pond CI - 1: CI - 1



Pond CI - 1: CI - 1



Pond CI - 1: CI - 1



Summary for Pond MBR-1: MBR-1

Inflow Area = 0.458 ac, 91.92% Impervious, Inflow Depth = 8.38" for 100-Year event
Inflow = 4.87 cfs @ 12.08 hrs, Volume= 0.320 af
Outflow = 1.53 cfs @ 12.16 hrs, Volume= 0.320 af, Atten= 69%, Lag= 4.9 min
Primary = 1.53 cfs @ 12.16 hrs, Volume= 0.320 af
Routed to Pond CI - 1 : CI - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 36.08' @ 12.22 hrs Surf.Area= 3,193 sf Storage= 2,305 cf

Plug-Flow detention time= 10.5 min calculated for 0.320 af (100% of inflow)
Center-of-Mass det. time= 10.6 min (762.5 - 751.9)

Volume	Invert	Avail.Storage	Storage Description
#1	30.76'	2,356 cf	**Custom Stage Data (Irregular)** Listed below

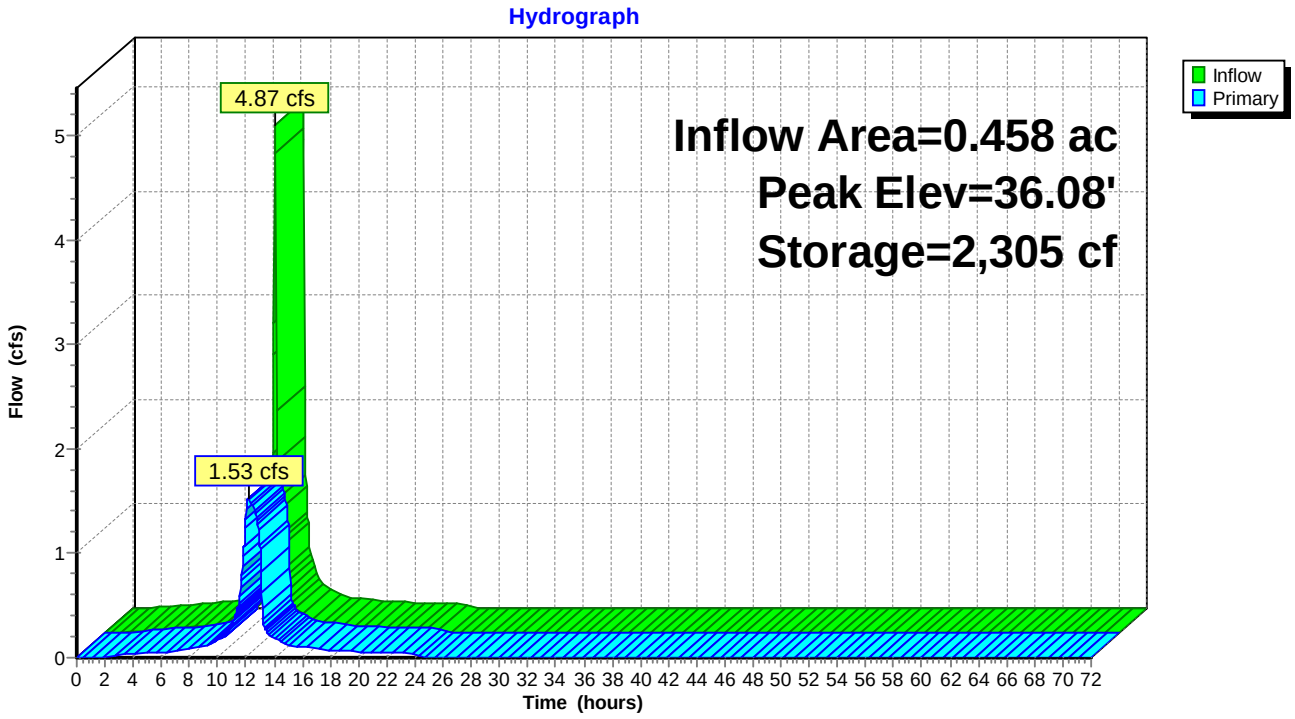
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.76	265	168.6	0.0	0	0	265
30.77	265	168.6	40.0	1	1	267
33.76	265	168.6	40.0	317	318	771
33.77	265	168.6	100.0	3	321	772
35.77	1,209	176.3	100.0	1,360	1,681	1,177
36.00	2,270	206.1	100.0	394	2,074	2,085
36.10	3,399	287.6	100.0	282	2,356	5,287

Device	Routing	Invert	Outlet Devices
#1	Device 2	34.02'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	30.77'	**6.0" Round 6" Piped Flow** L= 83.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.77' / 30.35' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 4	30.10'	**18.0" Round 18" Piped Flow** L= 61.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.10' / 29.79' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#4	Device 5	29.28'	**24.0" Round 24" Piped Flow** L= 82.1' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 29.28' / 28.87' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#5	Device 6	28.87'	**24.0" Round 24" Piped Flow** L= 81.2' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 28.87' / 28.34' S= 0.0065 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#6	Primary	28.34'	**30.0" Round 30" Piped Flow** L= 60.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.34' / 28.16' S= 0.0030 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 4.91 sf
#7	Device 2	30.77'	**6.0" Round Underdrain**

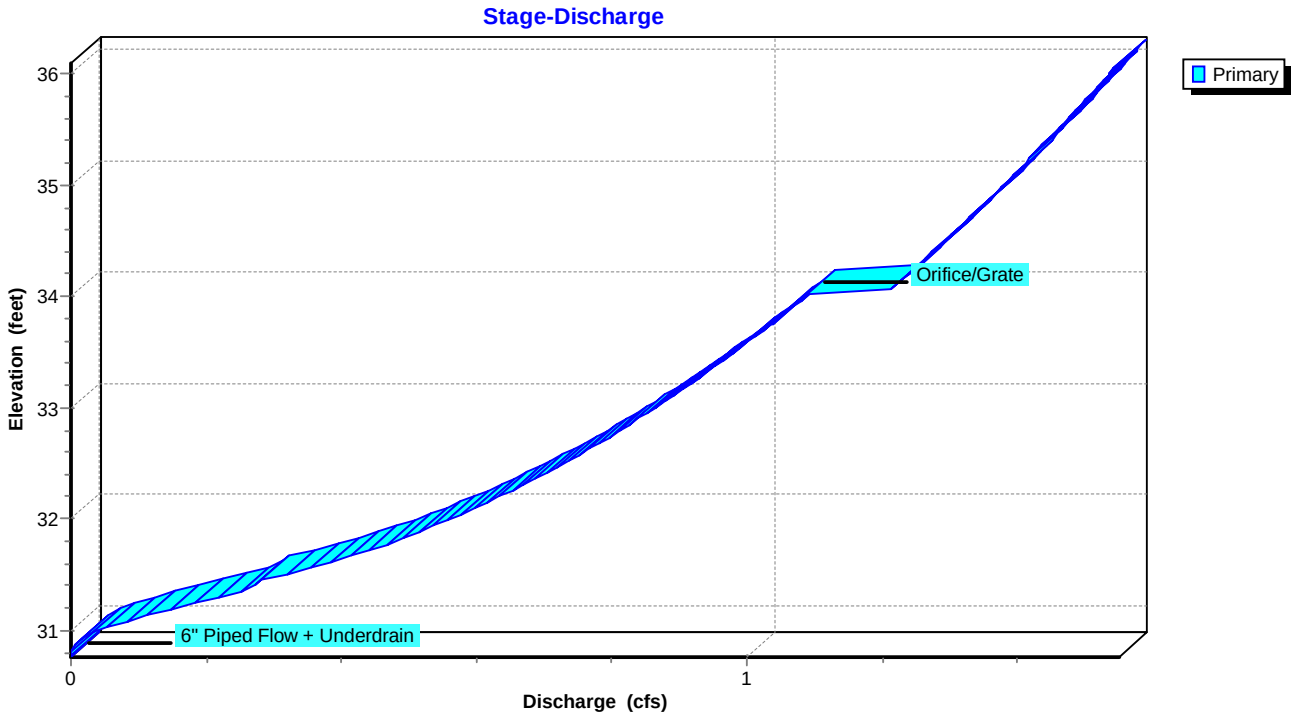
L= 63.0' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 30.77' / 30.77' S= 0.0000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.52 cfs @ 12.16 hrs HW=36.06' TW=31.01' (Dynamic Tailwater)
- **6=30" Piped Flow** (Passes 1.52 cfs of 46.85 cfs potential flow)
  - **5=24" Piped Flow** (Passes 1.52 cfs of 33.98 cfs potential flow)
    - **4=24" Piped Flow** (Passes 1.52 cfs of 33.98 cfs potential flow)
      - **3=18" Piped Flow** (Passes 1.52 cfs of 19.12 cfs potential flow)
        - **2=6" Piped Flow** (Outlet Controls 1.52 cfs @ 7.74 fps)
          - **1=Orifice/Grate** (Passes < 27.51 cfs potential flow)
          - **7=Underdrain** (Passes < 1.44 cfs potential flow)

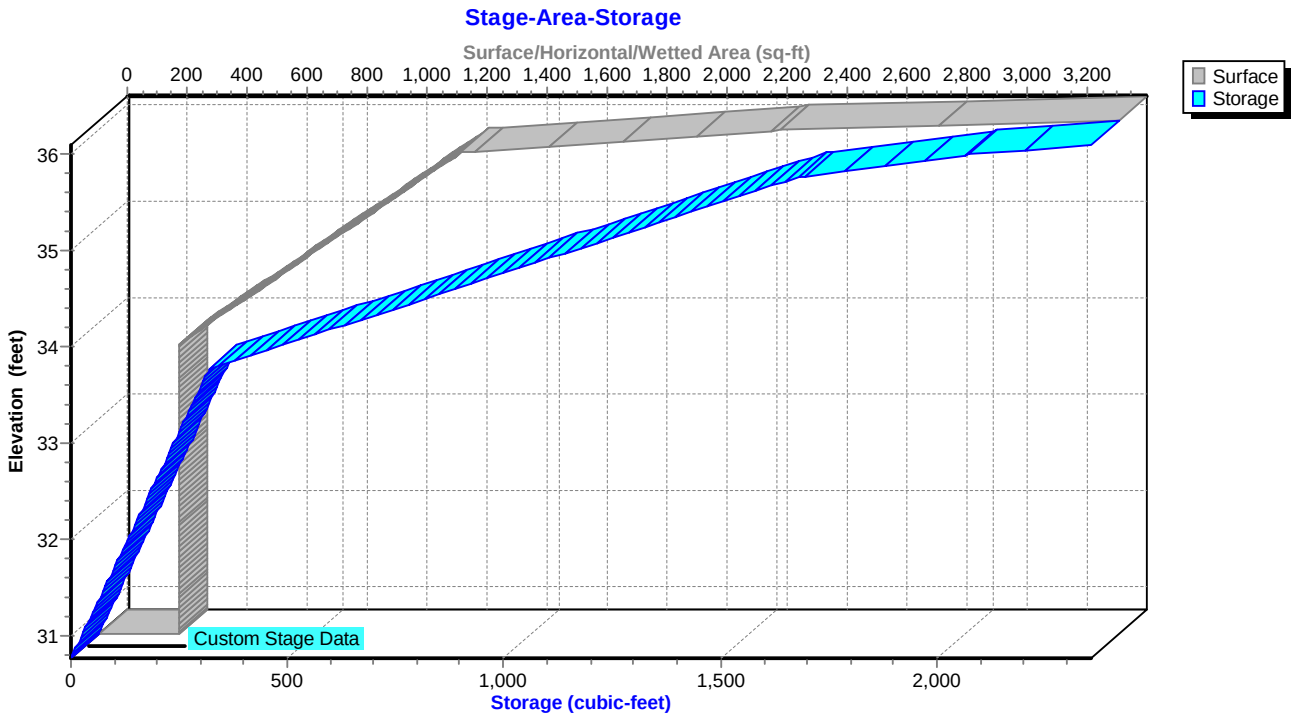
Pond MBR-1: MBR-1



Pond MBR-1: MBR-1



Pond MBR-1: MBR-1



Summary for Pond MBR-2: MBR-2

Inflow Area = 0.442 ac, 82.03% Impervious, Inflow Depth = 7.89" for 100-Year event
Inflow = 3.30 cfs @ 12.20 hrs, Volume= 0.291 af
Outflow = 3.29 cfs @ 12.20 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.4 min
Primary = 3.29 cfs @ 12.20 hrs, Volume= 0.291 af
Routed to Pond CI - 1 : CI - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 35.31' @ 12.20 hrs Surf.Area= 309 sf Storage= 372 cf

Plug-Flow detention time= 3.7 min calculated for 0.291 af (100% of inflow)
Center-of-Mass det. time= 3.7 min (780.6 - 776.9)

Volume	Invert	Avail.Storage	Storage Description
#1	30.47'	1,326 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

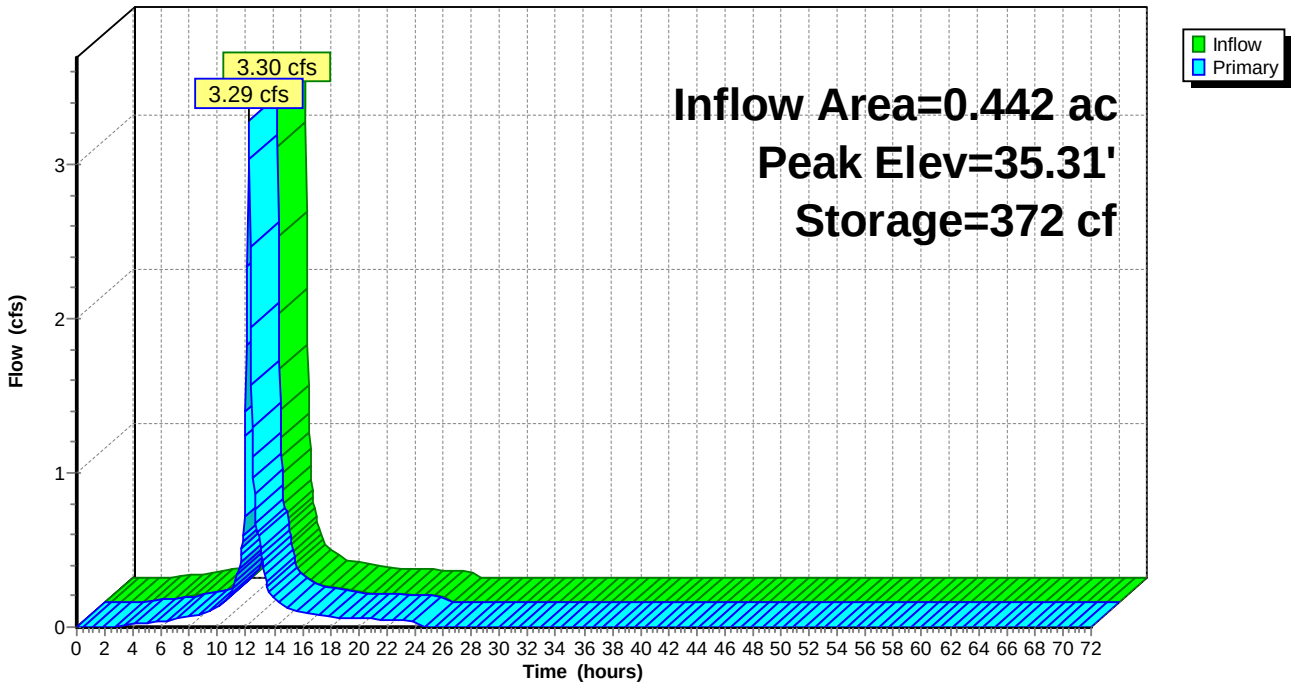
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.47	122	67.3	0.0	0	0	122
30.48	122	67.3	40.0	0	0	123
34.45	122	67.3	40.0	194	194	390
34.46	122	67.3	100.0	1	195	391
35.46	352	86.2	100.0	227	423	634
36.46	983	123.9	100.0	641	1,064	1,273
36.66	1,157	138.0	100.0	214	1,277	1,568
36.70	1,262	145.2	100.0	48	1,326	1,730

Device	Routing	Invert	Outlet Devices
#1	Device 2	34.96'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	30.48'	**15.0" Round Culvert** L= 58.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.48' / 28.34' S= 0.0366 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	30.47'	**4.0" Round Underdrain** L= 27.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.47' / 30.47' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=3.27 cfs @ 12.20 hrs HW=35.30' TW=31.08' (Dynamic Tailwater)
└**2=Culvert** (Passes 3.27 cfs of 12.11 cfs potential flow)
  ├**1=Orifice/Grate** (Weir Controls 2.64 cfs @ 1.92 fps)
  └**3=Underdrain** (Outlet Controls 0.63 cfs @ 7.22 fps)

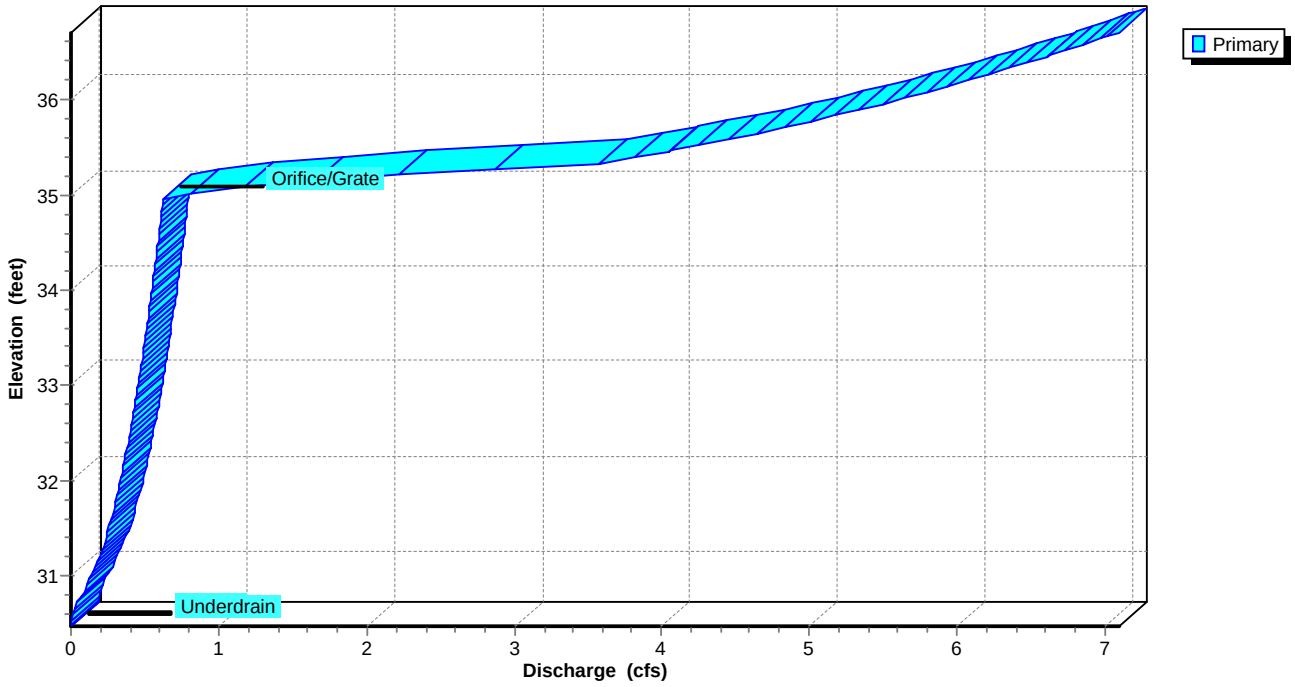
Pond MBR-2: MBR-2

Hydrograph

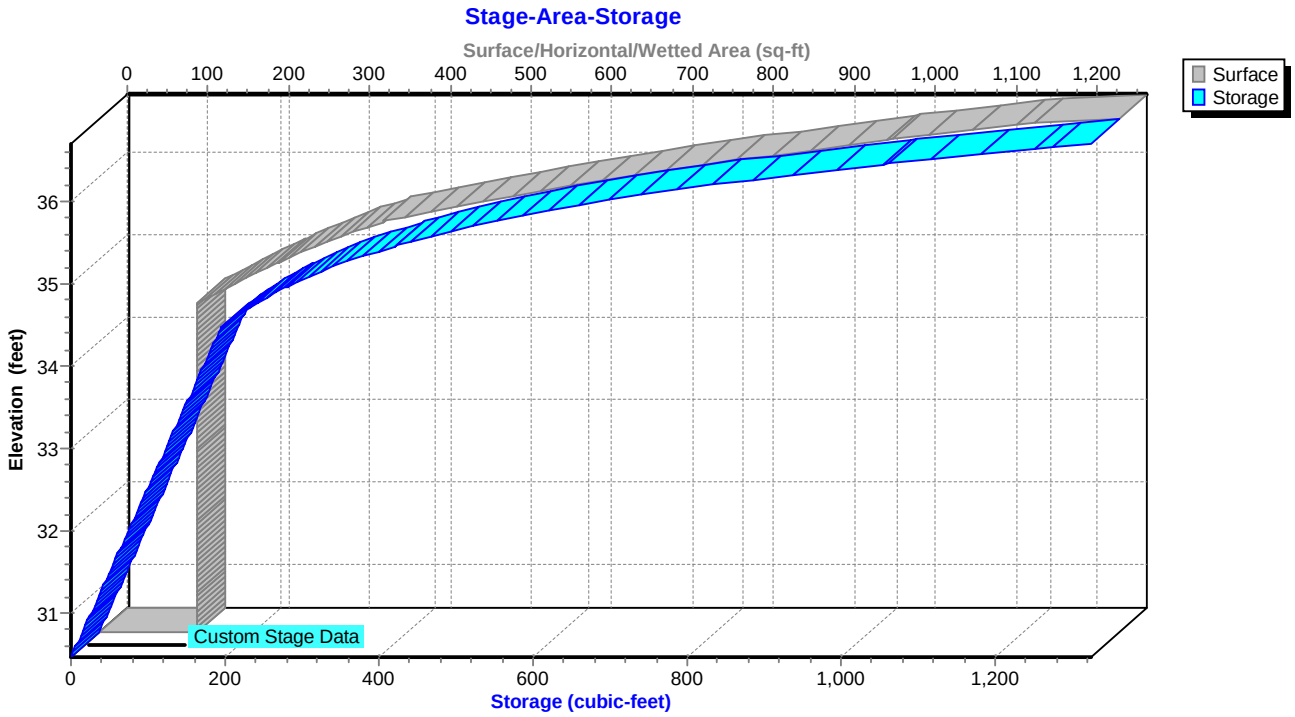


Pond MBR-2: MBR-2

Stage-Discharge



Pond MBR-2: MBR-2



Summary for Pond MBR-3: MBR-3

Inflow Area = 0.427 ac, 69.57% Impervious, Inflow Depth = 7.41" for 100-Year event
Inflow = 3.17 cfs @ 12.19 hrs, Volume= 0.263 af
Outflow = 2.37 cfs @ 12.35 hrs, Volume= 0.252 af, Atten= 25%, Lag= 9.8 min
Primary = 2.37 cfs @ 12.35 hrs, Volume= 0.252 af
Routed to Pond MH-2 : MH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 46.12' @ 12.35 hrs Surf.Area= 2,235 sf Storage= 1,981 cf

Plug-Flow detention time= 49.4 min calculated for 0.252 af (96% of inflow)
Center-of-Mass det. time= 23.8 min (812.1 - 788.3)

Volume	Invert	Avail.Storage	Storage Description
#1	30.44'	1,981 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

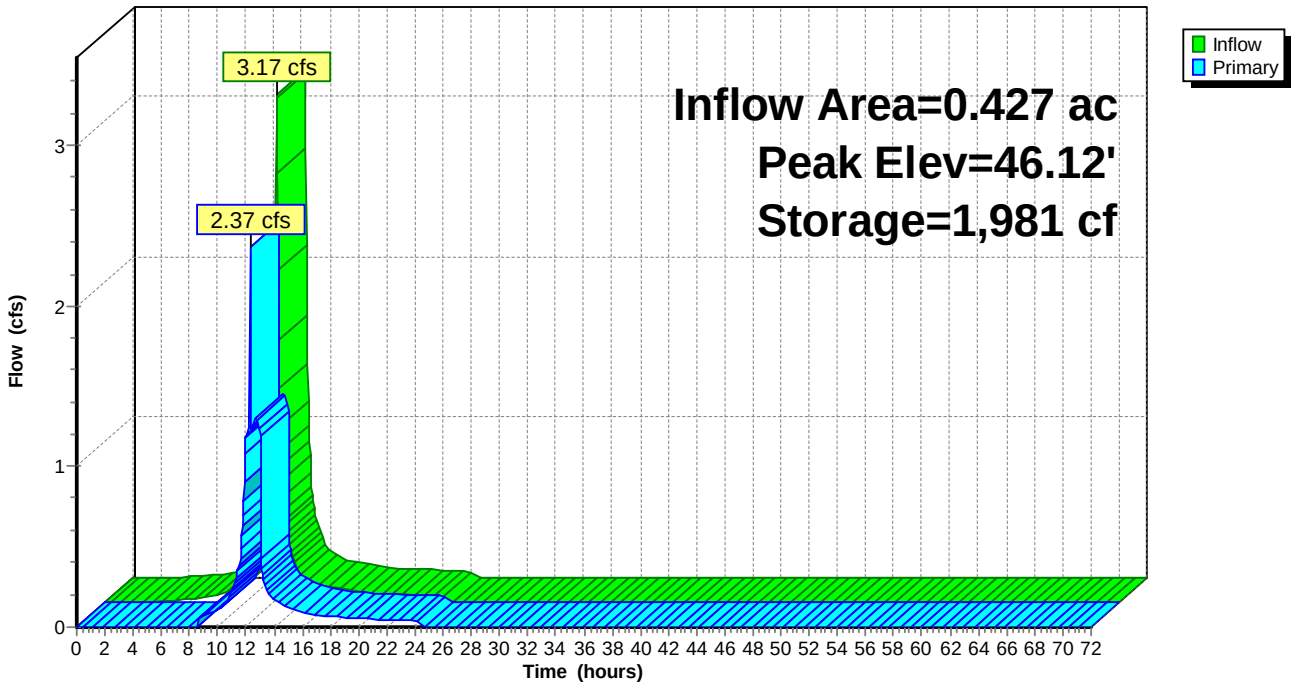
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.44	249	130.6	0.0	0	0	249
30.45	249	130.6	40.0	1	1	250
33.70	249	130.6	40.0	324	325	675
33.71	249	130.6	100.0	2	327	676
34.71	669	149.5	100.0	442	769	1,120
35.71	1,145	168.3	100.0	896	1,666	1,621
35.90	2,235	222.1	100.0	315	1,981	3,293

Device	Routing	Invert	Outlet Devices
#1	Device 3	34.21'	**9.0" x 9.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	29.13'	**15.0" Round Culvert** L= 38.2' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 29.13' / 28.93' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	29.13'	**6.0" Round Underdrain** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 29.13' / 29.13' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=2.34 cfs @ 12.35 hrs HW=45.86' TW=32.26' (Dynamic Tailwater)
└**2=Culvert** (Passes 2.34 cfs of 21.79 cfs potential flow)
└**3=Underdrain** (Outlet Controls 2.34 cfs @ 11.92 fps)
└**1=Orifice/Grate** (Passes 2.34 cfs of 9.24 cfs potential flow)

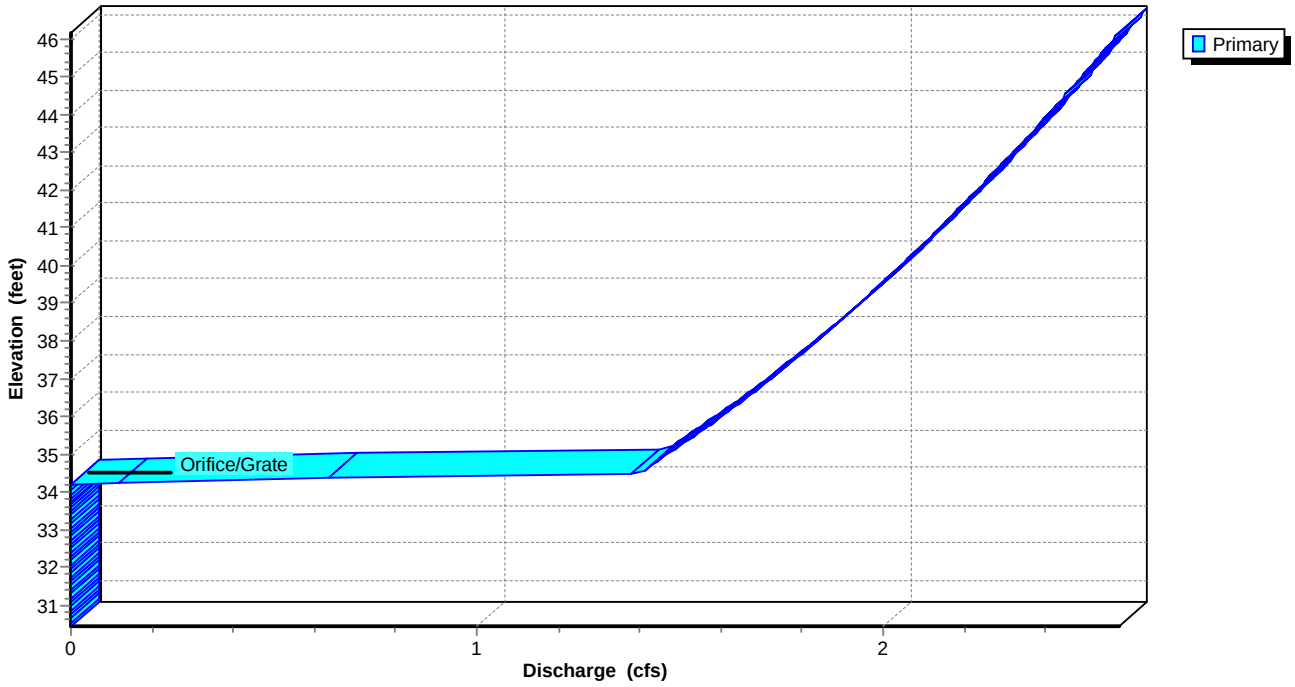
Pond MBR-3: MBR-3

Hydrograph

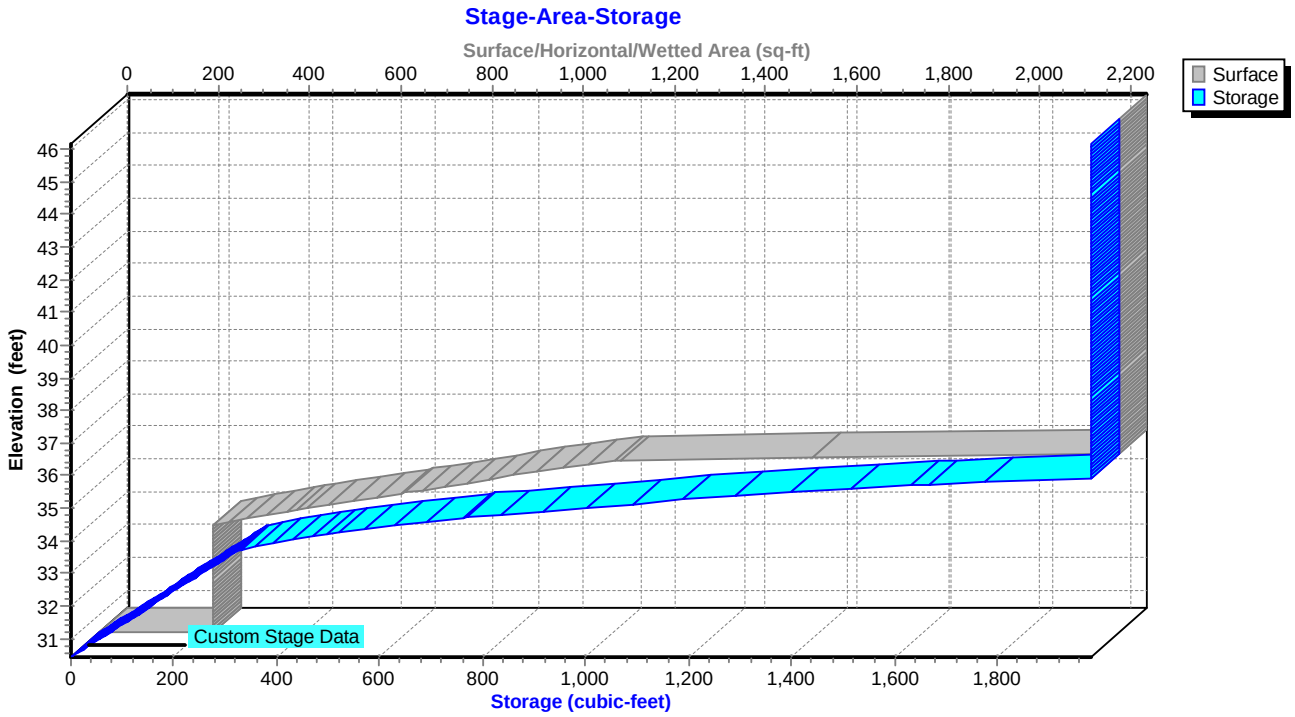


Pond MBR-3: MBR-3

Stage-Discharge



Pond MBR-3: MBR-3



Summary for Pond MBR-4: MBR-4

Inflow Area = 0.445 ac, 85.36% Impervious, Inflow Depth = 8.14" for 100-Year event
Inflow = 3.39 cfs @ 12.19 hrs, Volume= 0.302 af
Outflow = 3.30 cfs @ 12.20 hrs, Volume= 0.301 af, Atten= 3%, Lag= 0.4 min
Primary = 3.30 cfs @ 12.20 hrs, Volume= 0.301 af
Routed to Pond MH-1 : MH - 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 34.91' @ 12.21 hrs Surf.Area= 662 sf Storage= 830 cf

Plug-Flow detention time= 7.6 min calculated for 0.301 af (100% of inflow)
Center-of-Mass det. time= 7.0 min (776.5 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	30.25'	1,725 cf	**Custom Stage Data (Irregular)** Listed below

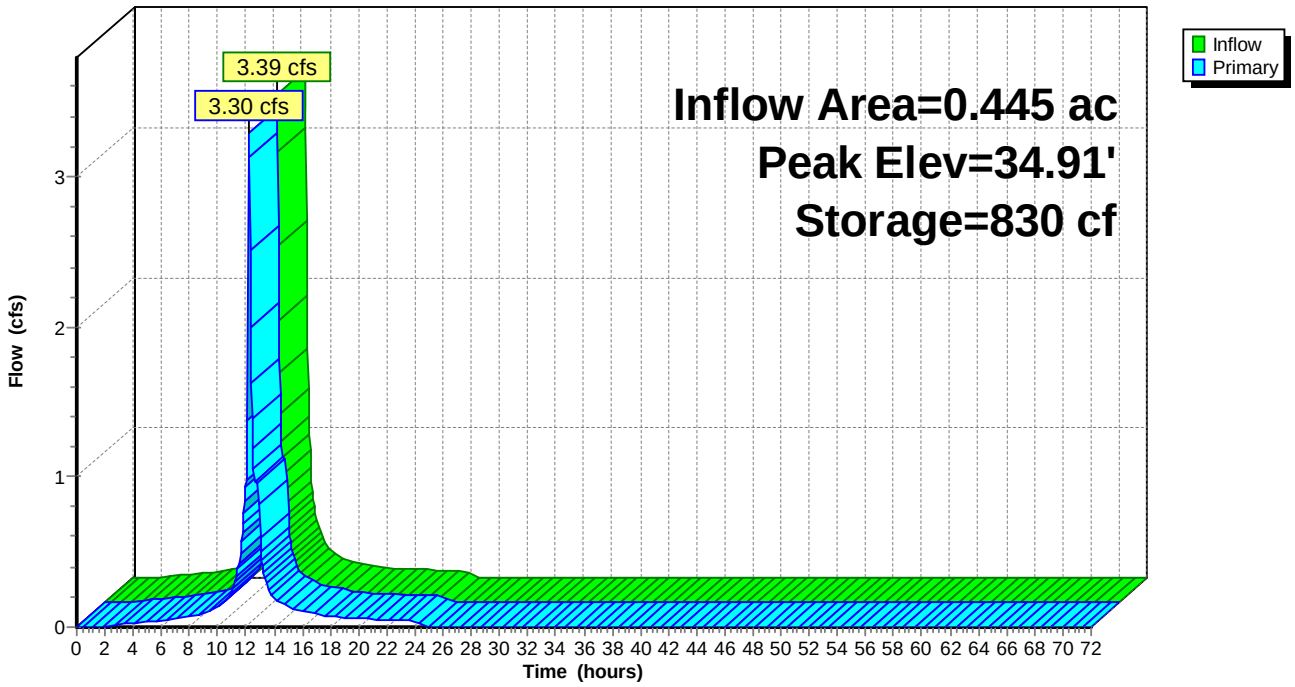
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.25	212	112.4	0.0	0	0	212
30.26	212	112.4	40.0	1	1	213
33.70	212	112.4	40.0	292	293	600
33.71	212	112.4	100.0	2	295	601
34.71	578	131.3	100.0	380	675	987
35.71	1,000	150.1	100.0	779	1,454	1,431
35.90	1,899	200.3	100.0	271	1,725	2,831

Device	Routing	Invert	Outlet Devices
#1	Device 2	34.71'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	30.26'	**15.0" Round Culvert** L= 46.8' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.26' / 29.89' S= 0.0079 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#3	Device 2	30.26'	**6.0" Round Underdrain** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.26' / 30.26' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=3.28 cfs @ 12.20 hrs HW=34.91' TW=32.74' (Dynamic Tailwater)
└**2=Culvert** (Passes 3.28 cfs of 8.70 cfs potential flow)
  ├**1=Orifice/Grate** (Weir Controls 2.32 cfs @ 1.46 fps)
  └**3=Underdrain** (Outlet Controls 0.96 cfs @ 4.88 fps)

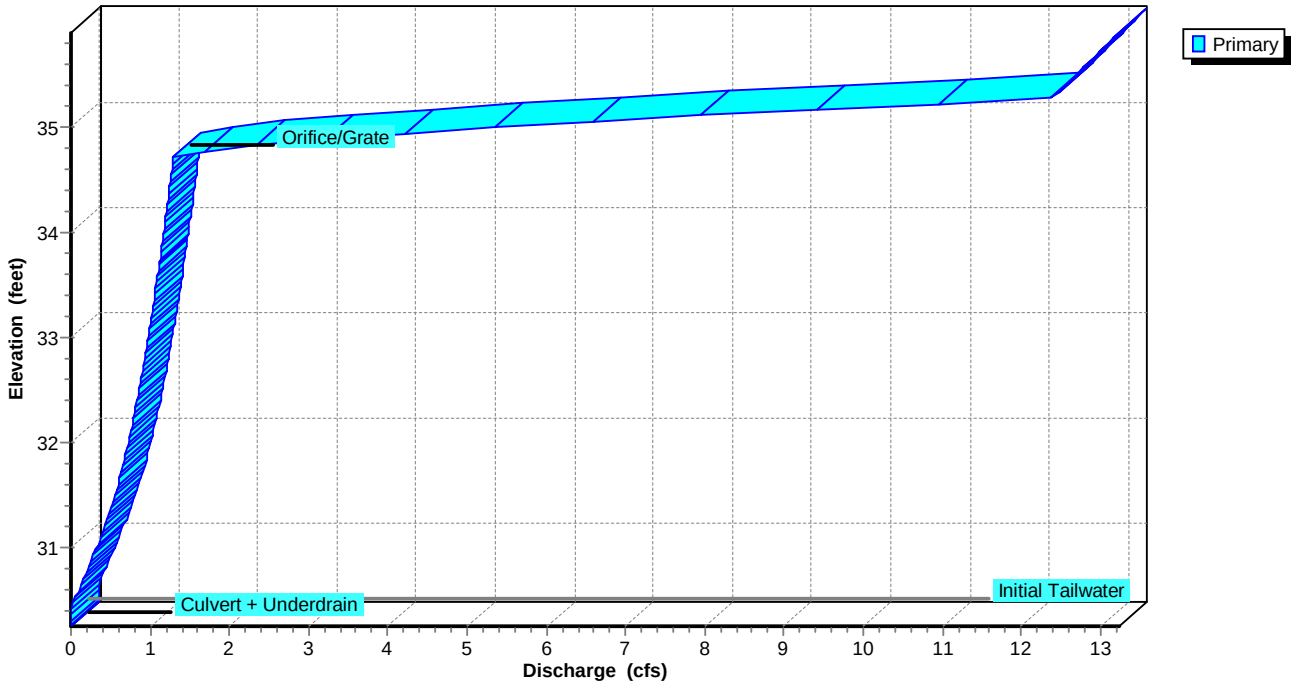
Pond MBR-4: MBR-4

Hydrograph

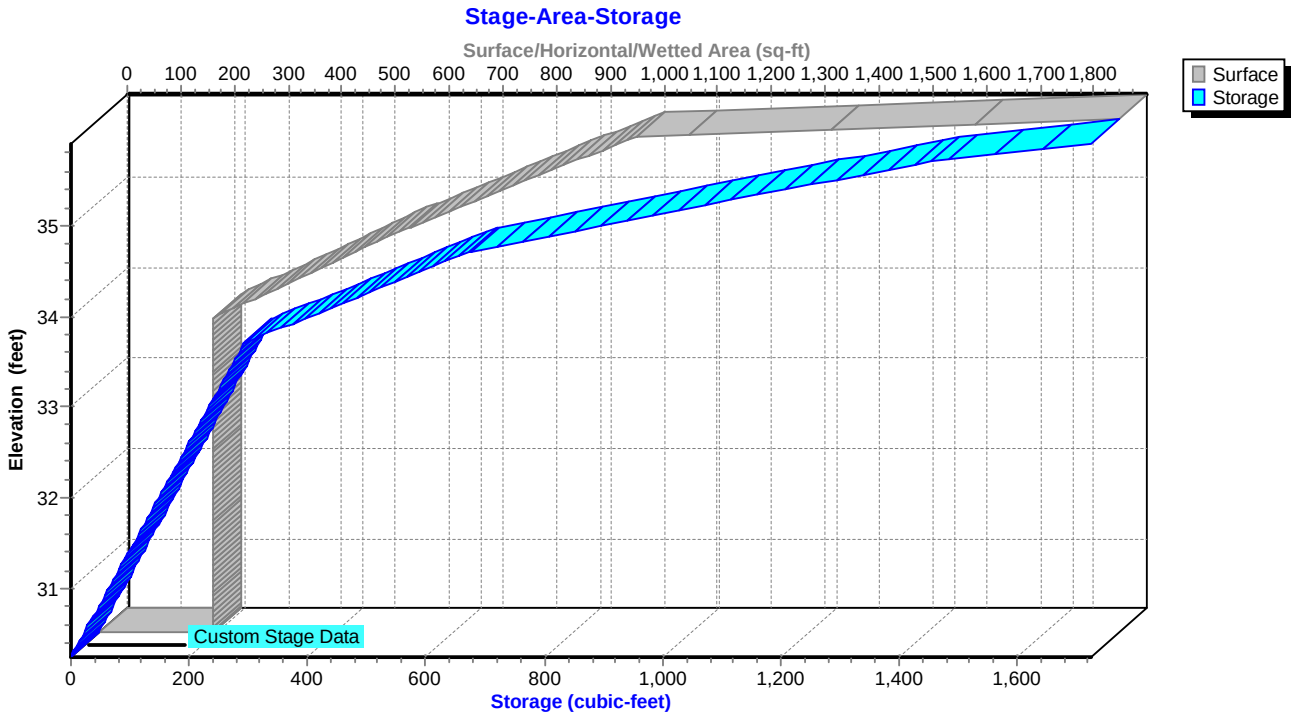


Pond MBR-4: MBR-4

Stage-Discharge



Pond MBR-4: MBR-4



Summary for Pond MH-1: MH - 1

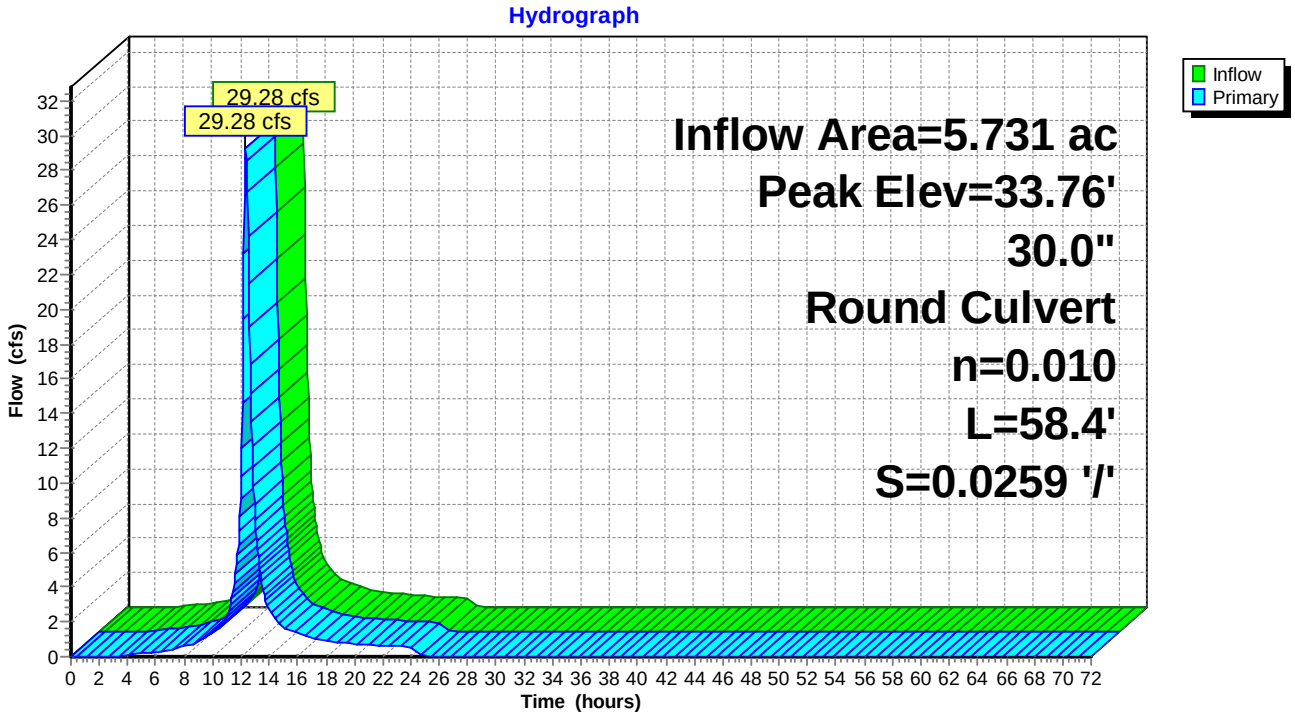
Inflow Area = 5.731 ac, 68.53% Impervious, Inflow Depth = 7.35" for 100-Year event
Inflow = 29.28 cfs @ 12.35 hrs, Volume= 3.510 af
Outflow = 29.28 cfs @ 12.35 hrs, Volume= 3.510 af, Atten= 0%, Lag= 0.0 min
Primary = 29.28 cfs @ 12.35 hrs, Volume= 3.510 af
Routed to Pond MH-2 : MH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 33.76' @ 12.35 hrs

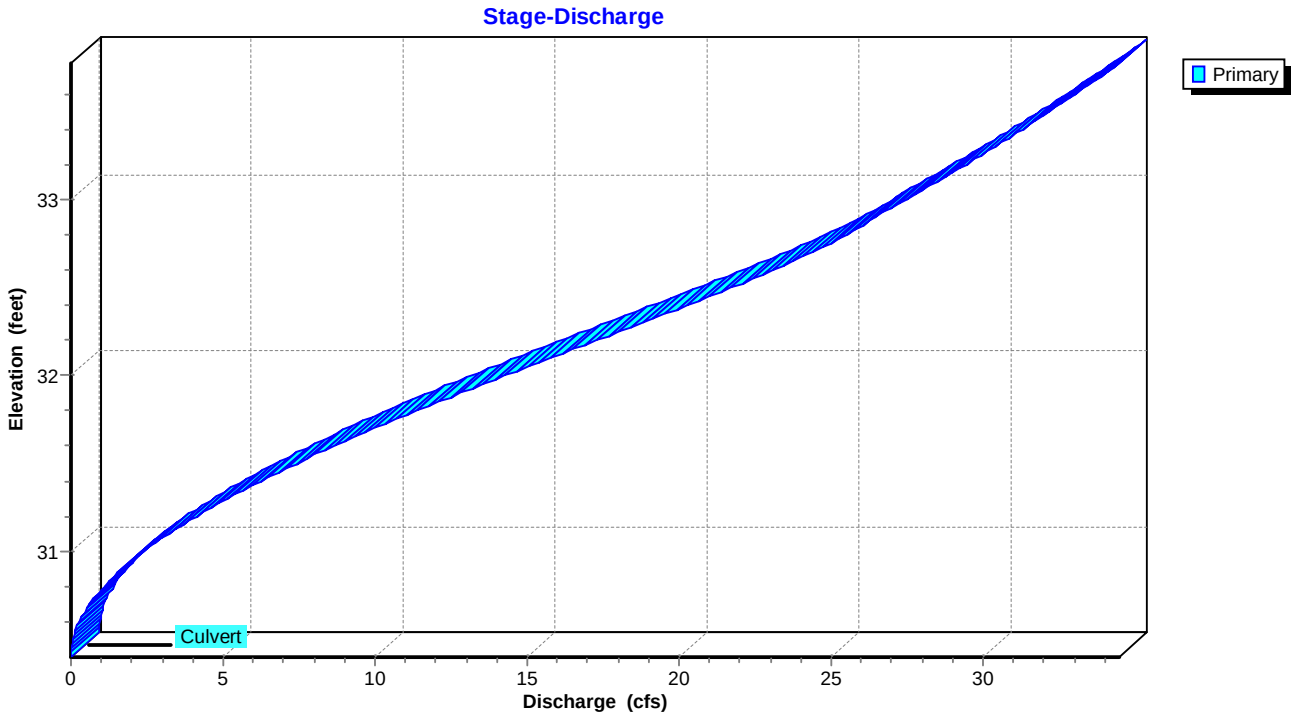
Device	Routing	Invert	Outlet Devices
#1	Primary	30.40'	**30.0" Round Culvert** L= 58.4' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.40' / 28.89' S= 0.0259 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=28.91 cfs @ 12.35 hrs HW=33.75' TW=32.25' (Dynamic Tailwater)
1=Culvert (Inlet Controls 28.91 cfs @ 5.89 fps)

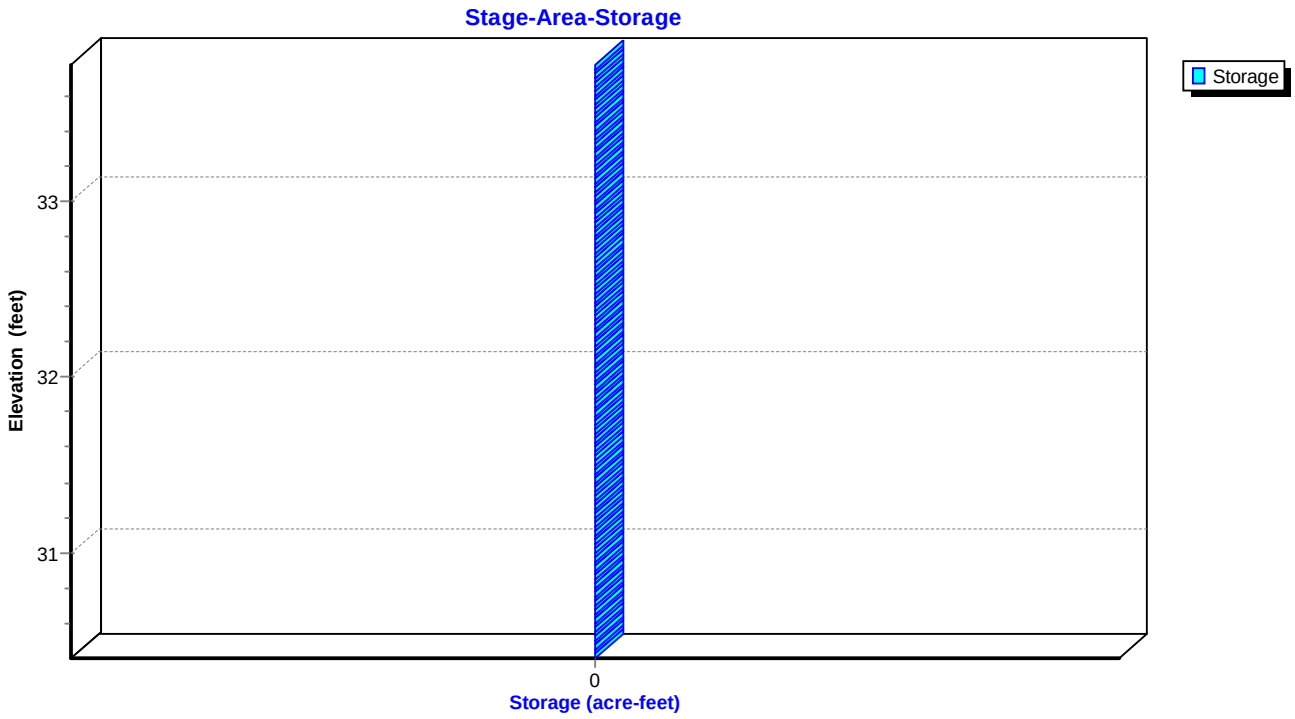
Pond MH-1: MH - 1



Pond MH-1: MH - 1



Pond MH-1: MH - 1



Summary for Pond MH-2: MH-2

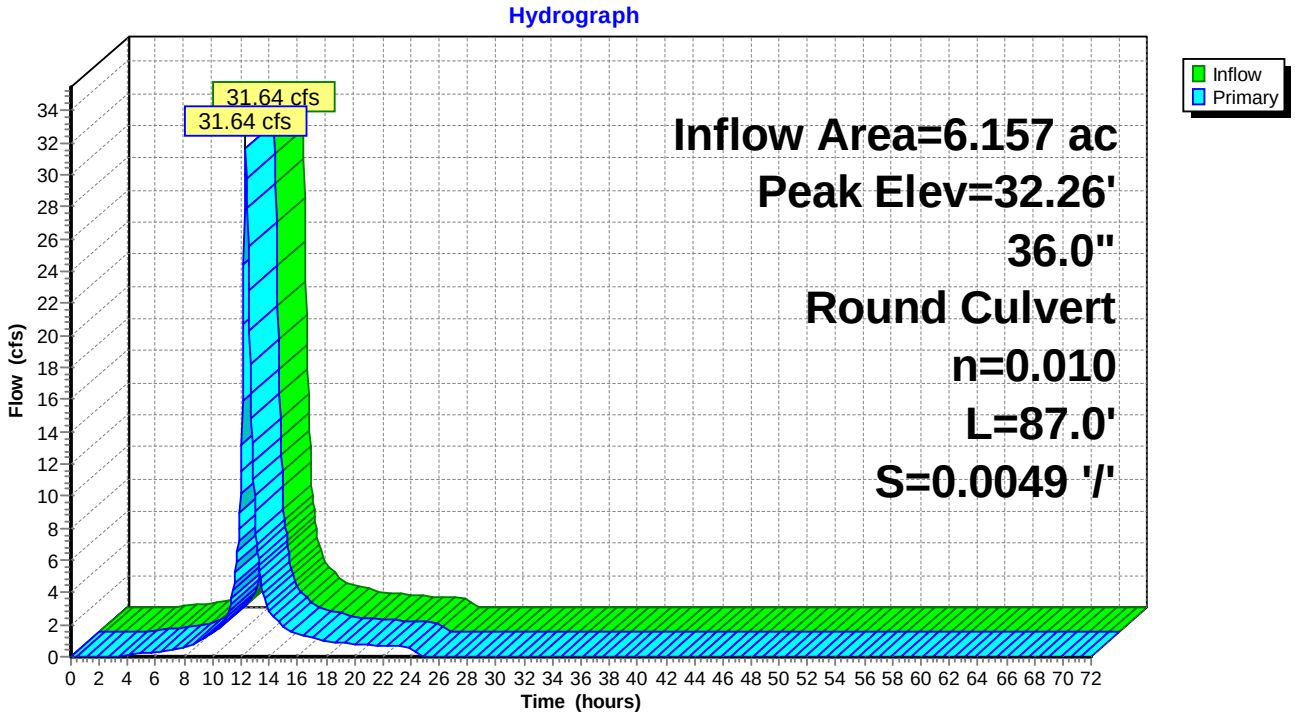
Inflow Area = 6.157 ac, 68.60% Impervious, Inflow Depth = 7.33" for 100-Year event
Inflow = 31.64 cfs @ 12.35 hrs, Volume= 3.762 af
Outflow = 31.64 cfs @ 12.35 hrs, Volume= 3.762 af, Atten= 0%, Lag= 0.0 min
Primary = 31.64 cfs @ 12.35 hrs, Volume= 3.762 af
Routed to Pond SGW : SGW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 32.26' @ 12.35 hrs

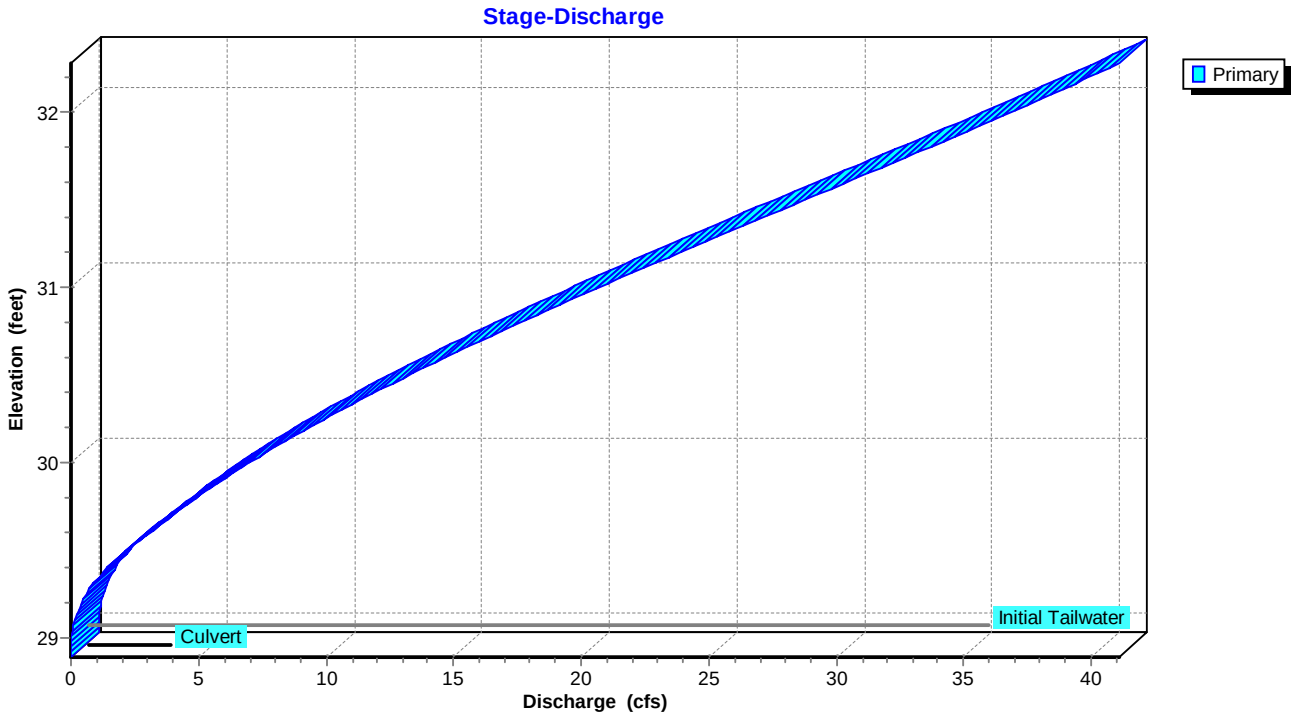
Device	Routing	Invert	Outlet Devices
#1	Primary	28.89'	**36.0" Round Culvert** L= 87.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 28.89' / 28.46' S= 0.0049 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=31.59 cfs @ 12.35 hrs HW=32.25' TW=31.15' (Dynamic Tailwater)
1=Culvert (Inlet Controls 31.59 cfs @ 4.47 fps)

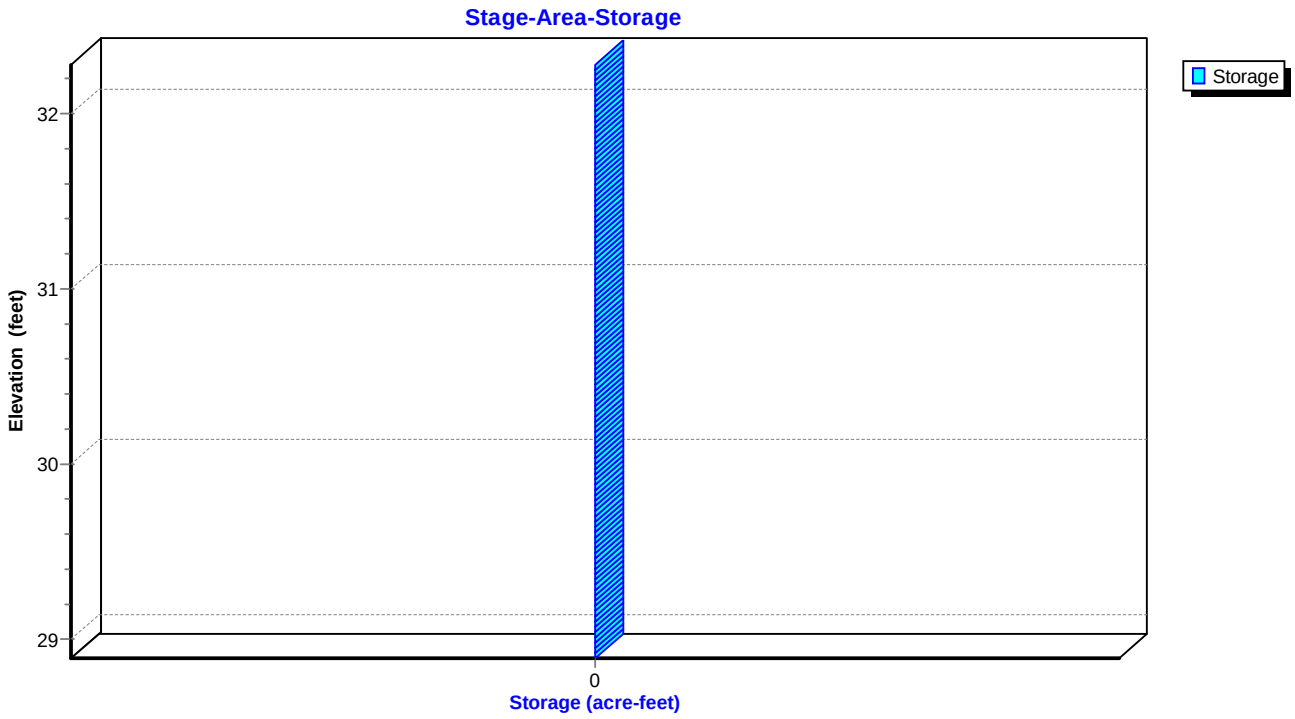
Pond MH-2: MH-2



Pond MH-2: MH-2



Pond MH-2: MH-2



Summary for Pond SGW: SGW

Inflow Area = 7.058 ac, 70.96% Impervious, Inflow Depth = 7.43" for 100-Year event
Inflow = 35.12 cfs @ 12.34 hrs, Volume= 4.373 af
Outflow = 33.72 cfs @ 12.38 hrs, Volume= 4.373 af, Atten= 4%, Lag= 2.6 min
Primary = 33.72 cfs @ 12.38 hrs, Volume= 4.373 af
Routed to Link PR-SP-1 : PR-SP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Starting Elev= 28.67' Storage= 0 cf
Peak Elev= 31.16' @ 12.38 hrs Surf.Area= 6,772 sf Storage= 12,313 cf

Plug-Flow detention time= 27.6 min calculated for 4.370 af (100% of inflow)
Center-of-Mass det. time= 27.6 min (826.3 - 798.6)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	18,455 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

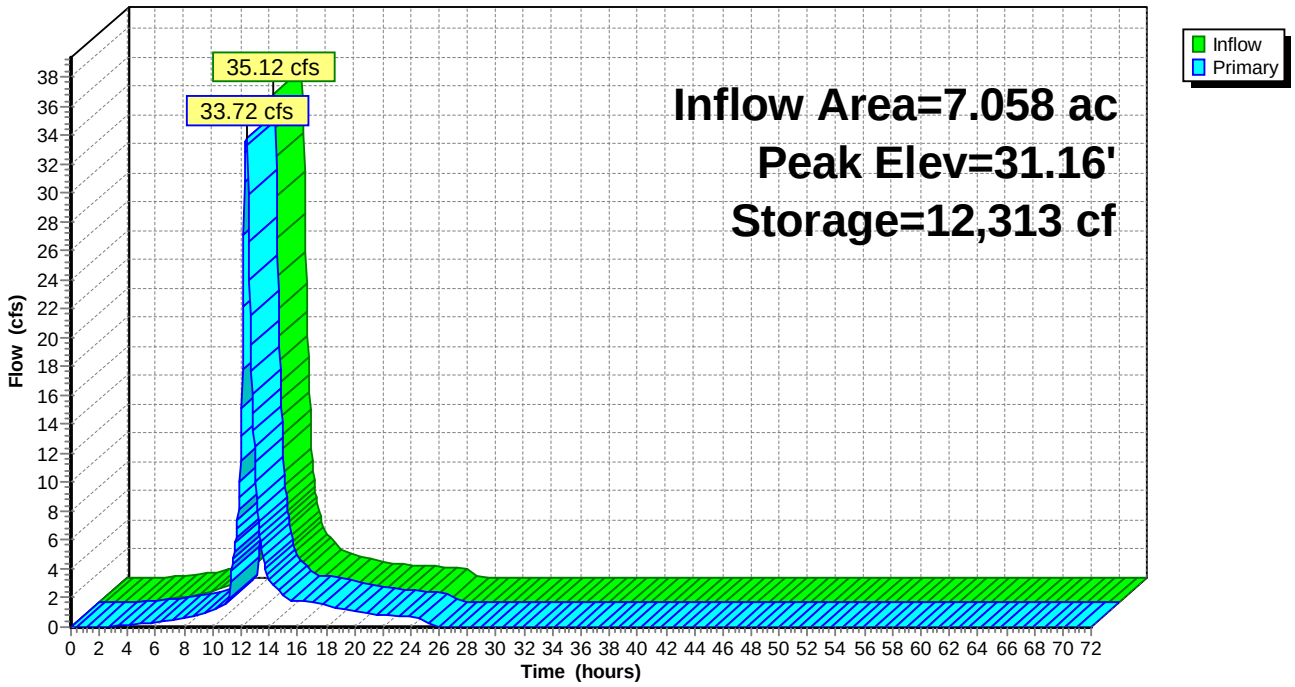
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.00	4,692	305.3	0	0	4,692
29.50	5,135	313.7	2,456	2,456	5,134
30.00	5,608	322.3	2,685	5,141	5,597
30.50	6,095	330.8	2,925	8,066	6,068
31.00	6,592	339.4	3,171	11,237	6,556
31.50	7,157	350.0	3,436	14,673	7,163
32.00	7,979	388.0	3,782	18,455	9,402

Device	Routing	Invert	Outlet Devices
#1	Device 2	30.50'	**60.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	28.67'	**36.0" Round Culvert** L= 42.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 28.67' / 24.02' S= 0.1084 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf
#3	Device 2	28.67'	**6.0" Round Collection Pipe X 2.00** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 28.67' / 28.67' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=33.62 cfs @ 12.38 hrs HW=31.16' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 33.62 cfs @ 5.37 fps)
  ├**1=Orifice/Grate** (Passes < 34.73 cfs potential flow)
  └**3=Collection Pipe** (Passes < 2.26 cfs potential flow)

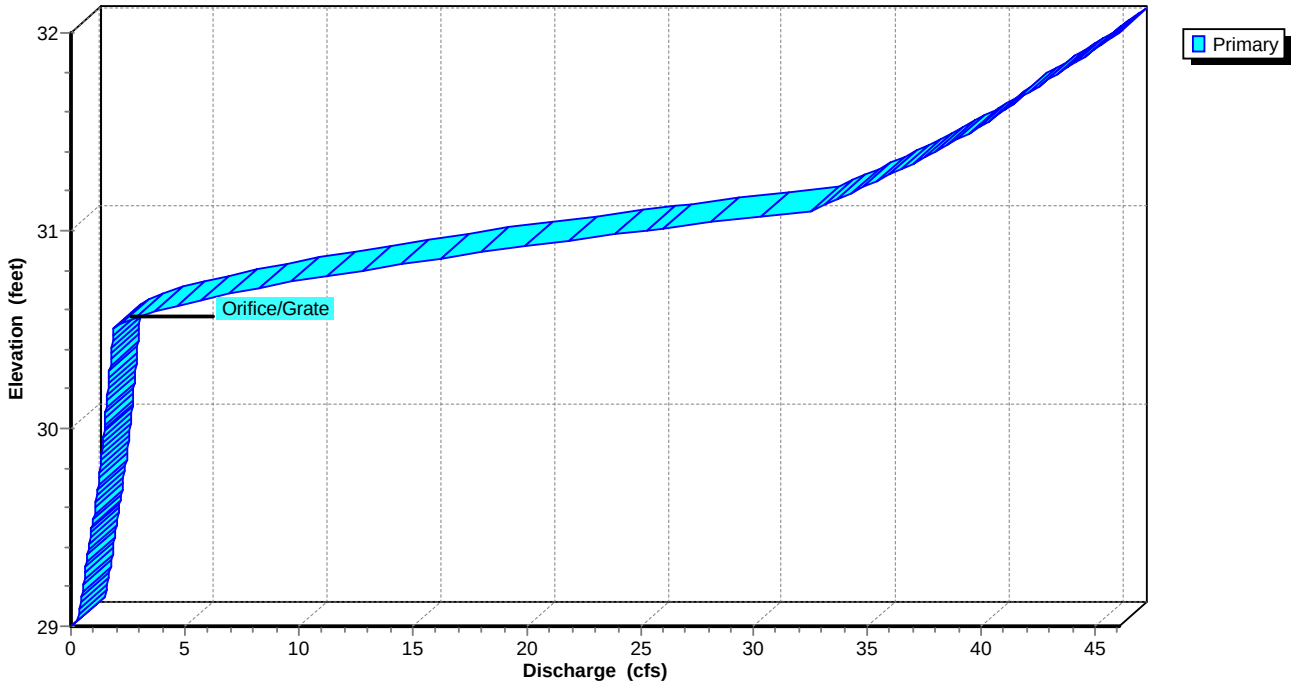
Pond SGW: SGW

Hydrograph

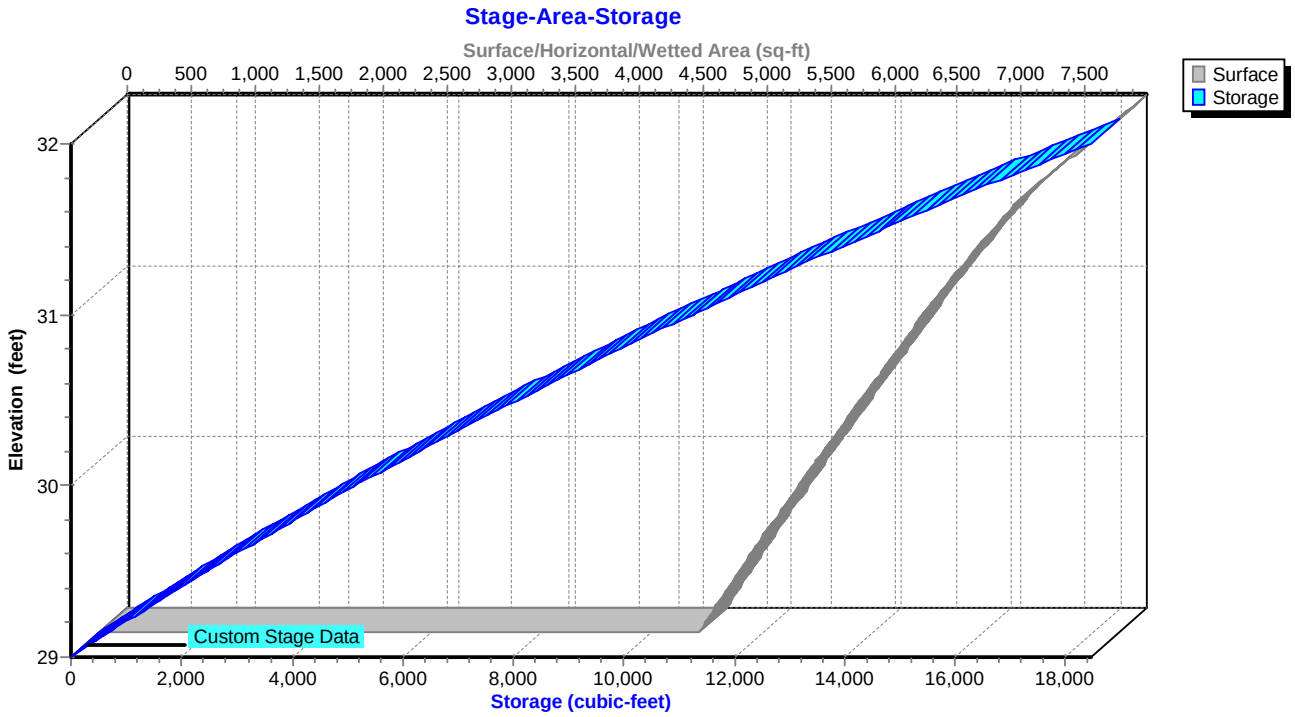


Pond SGW: SGW

Stage-Discharge



Pond SGW: SGW

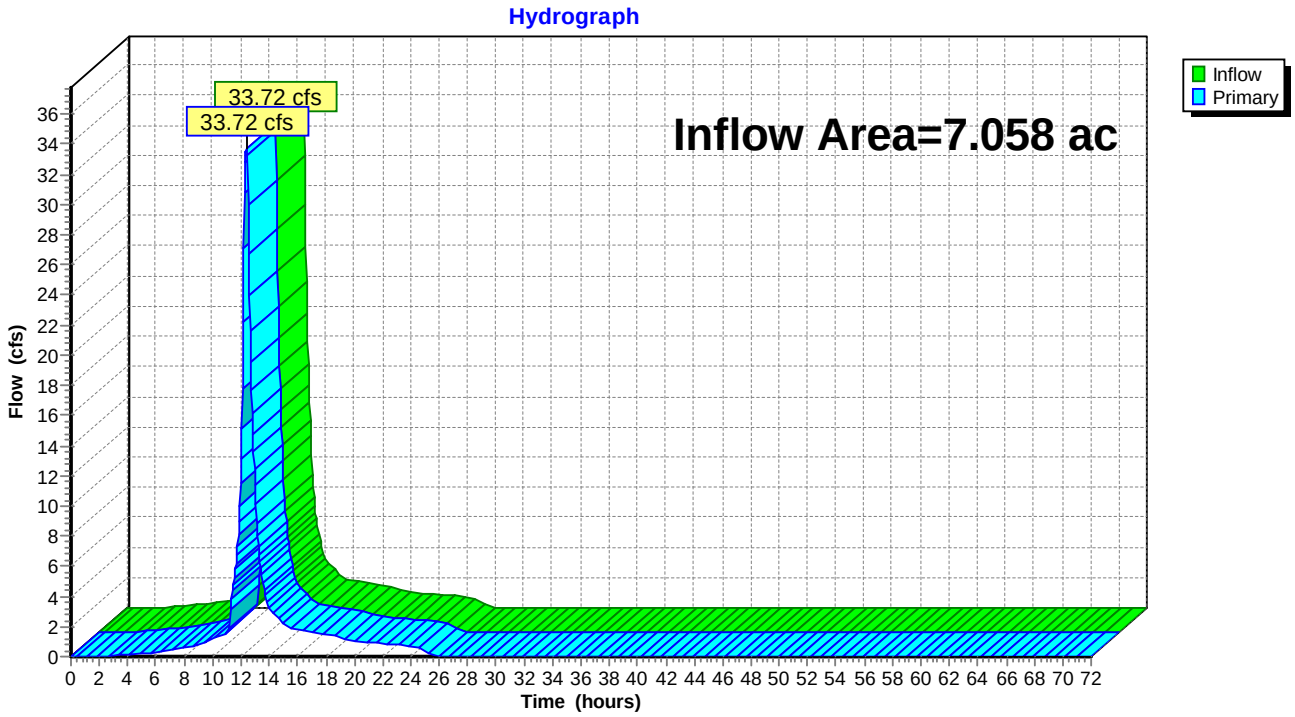

Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500 7,000 7,500
Surface
Storage
32
31
30
29
Elevation (feet)
Custom Stage Data
0 2,000 4,000 6,000 8,000 10,000 12,000 14,000 16,000 18,000
Storage (cubic-feet)

Summary for Link PR-SP-1: PR-SP-1

Inflow Area = 7.058 ac, 70.96% Impervious, Inflow Depth = 7.43" for 100-Year event
Inflow = 33.72 cfs @ 12.38 hrs, Volume= 4.373 af
Primary = 33.72 cfs @ 12.38 hrs, Volume= 4.373 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link PR-SP-1: PR-SP-1

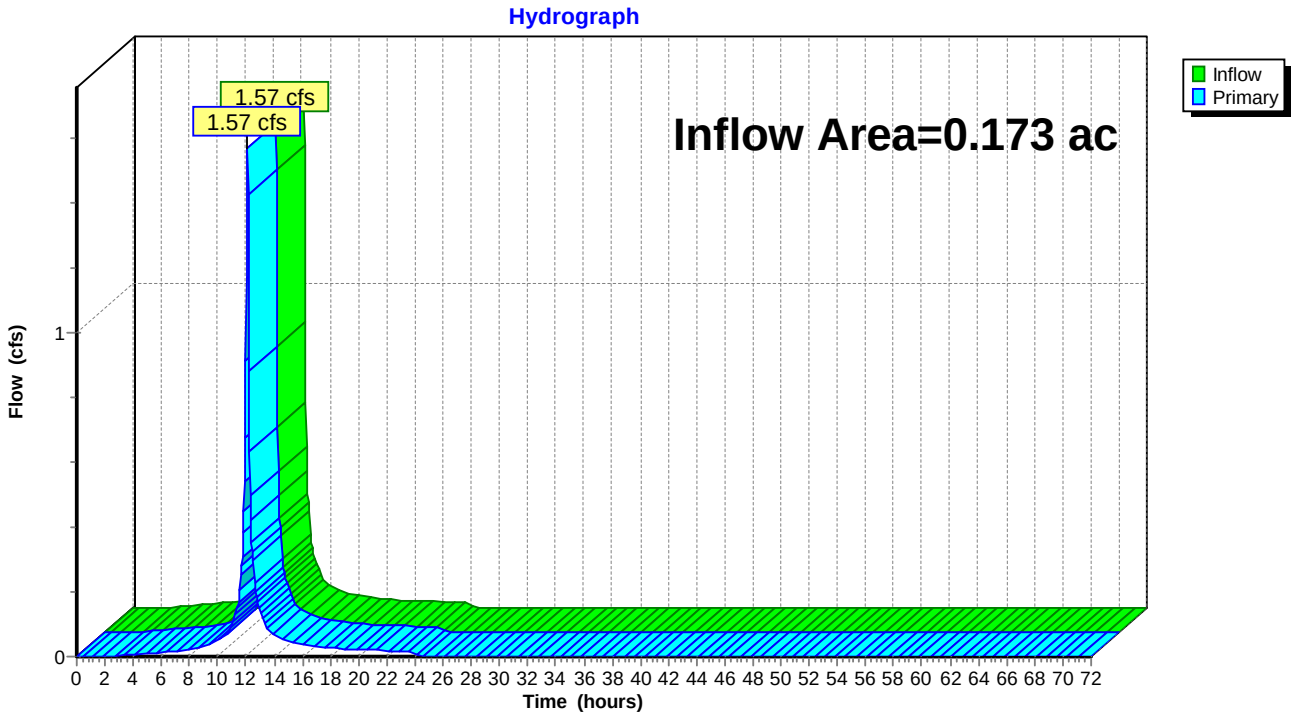


Summary for Link PR-SP-2: PR-SP-2

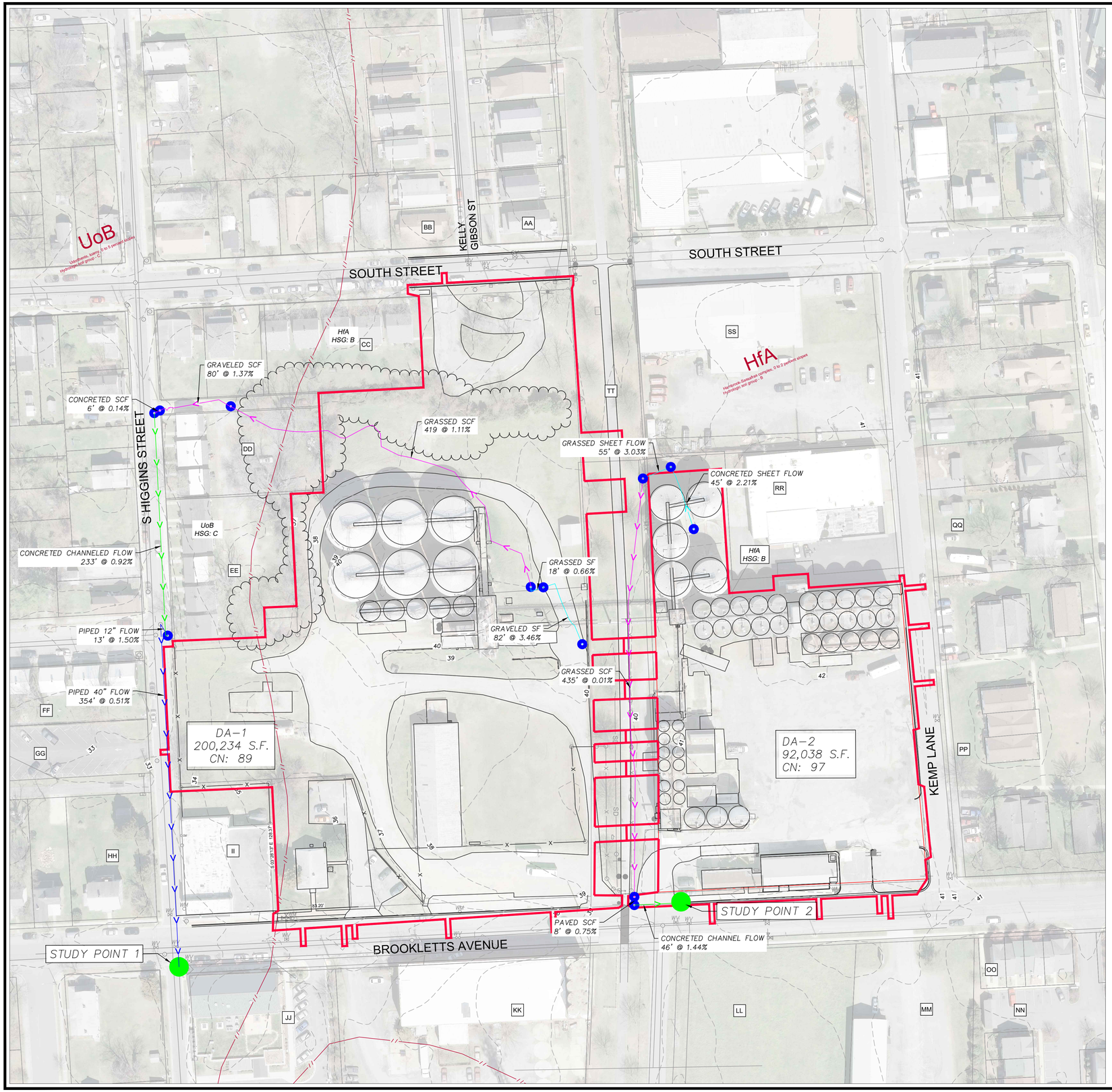
Inflow Area = 0.173 ac, 75.24% Impervious, Inflow Depth = 7.65" for 100-Year event
Inflow = 1.57 cfs @ 12.11 hrs, Volume= 0.110 af
Primary = 1.57 cfs @ 12.11 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min

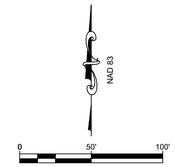
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link PR-SP-2: PR-SP-2



Stormwater Drainage Area Maps





LEGEND

- FLOWPATH
- DRAINAGE AREA
- SOILS BOUNDARY
- STUDY POINT

PROPERTY DATA

AA	125 KEMP LLC M/G/P: 0104/000EA/1822- B/P: 02734/00473
BB	PRITCHETT HELEN M M/G/P: 0104/00EA/1821 - B/P: 02609/00464
CC	TOWN OF EASTON M/G/P: 0105/000EA/2211 - B/P: 01595/00214
DD	STUART MICHAEL, STUART MEGHAN M/G/P: 0104/0000/1618 - B/P: 02899/00298
EE	LEWIS BEVERLY M/G/P: 0104/0000/1622 - B/P: 00890/00787
FF	G M RENTALS L L C M/G/P: 0104/00EA/1827 - B/P: 00786/00443
GG	MARVEL PROPERTIES L L C M/G/P: 0104/00EA/1830 - B/P: 00782/00168
HH	MARVEL PROPERTIES L L C M/G/P: 0104/00EA/1831 - B/P: 00782/00168
II	MARVEL PROPERTIES LLC M/G/P: 0104/00EA/1837 - B/P: 00786/00042
JJ	FOR ALL SEASONS INC M/G/P: 0104/000EA/1874 - B/P: 01511/00250
KK	401 BROOKLETTS LLC M/G/P: 0104/00EA/1834 - B/P: 02325/00109
LL	TALBOT COUNTY MARYLAND M/G/P: 0105/00EA/2204 - B/P: 00613/00105
MM	SHAW KENNETH L, SHAW BARBARA H M/G/P: 0105/000EA/2205 - B/P: 02656/00470
NN	DONALD D FOSTER INC M/G/P: 0105/000EA/2206 - B/P: 00499/00522
OO	EASTON CROSSING LLC M/G/P: 0104/000EA/1823- B/P: 03117/00288
PP	EASTON CROSSING LLC M/G/P: 0104/000EA/1833 - B/P: 03114/00180
QQ	EASTON CROSSING LLC M/G/P: 0104/000EA/1816 - B/P: 03117/00288
RR	125 KEMP LLC M/G/P: 0104/000EA/1822- B/P: 02734/00473
SS	PRITCHETT HELEN M M/G/P: 0104/000EA/1821 - B/P: 02609/00464
TT	TOWN OF EASTON M/G/P: 0105/000EA/2211 - B/P: 01595/00214

SITE SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	B	0.32	No
UoB	Udorthents, loamy, 0 to 5 percent slopes	C	0.37	No

EXISTING CONDITIONS - QUANTITY ANALYSIS MAP

OF THE LANDS OF

EASTON CROSSING

TAX MAP 0104, GRID 000EA/000 , PARCEL 1823,1826

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

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

REVISIONS

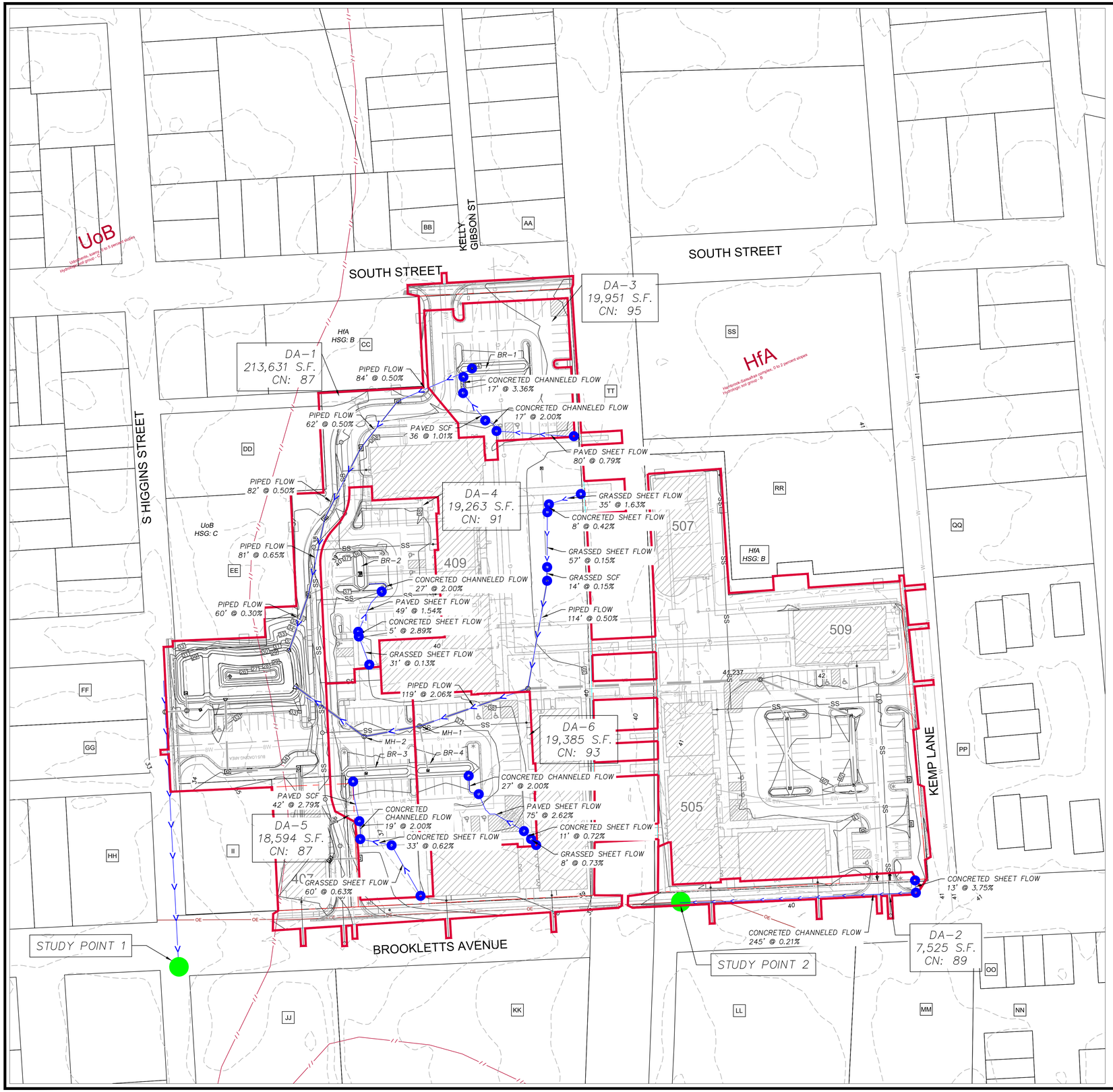
REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — DIAL 811 BEFORE YOU DIG — 811

DATE:	11/27/2024
SCALE:	1" = 50'
DRAWN BY:	BAOC
DESIGNED BY:	BAOC
APPROVED BY:	

SHEET NO.: SWM-101

FOR REVIEW



NAD 83

0 50' 100'

LEGEND

- FLOWPATH
- DRAINAGE AREA
- SOILS BOUNDARY
- STUDY POINT

PROPERTY DATA

AA	MIDSHOREHOMES, LLC. M/G/P: 0104/000EA/1618- B/P: 03144/00403	KK	SHAW KENNETH L, SHAW BARBARA H M/G/P: 0105/00EA/2205 - B/P: 02656/00470
BB	LEWIS BEVERLY M/G/P: 0104/0000/1622 - B/P: 00890/00787	LL	DONALD D FOSTER INC M/G/P: 0105/000EA/2206 - B/P: 00499/00522
CC	G M RENTALS L L C M/G/P: 0104/00EA/1827 - B/P: 00786/00443	MM	411 NEEDWOOD LLC M/G/P: 0105/00EA/1824 - B/P: 03091/00291
DD	MARVEL PROPERTIES L L C M/G/P: 0104/00EA/1830 - B/P: 00782/00168	NN	TREEHAVEN HOMEOWNERS ASSOCIATION INC M/G/P: 0105/0000/2212A - B/P: 01306/00755
EE	MARVEL PROPERTIES L L C M/G/P: 0104/00EA/1831 - B/P: 00782/00168	OO	MAZARIEGOS JOSE V, MAZARIEGOS MARIA G M/G/P: 0105/0000/2212A - B/P: 01259/00865
FF	MARVEL PROPERTIES LLC M/G/P: 0104/00EA/1837 - B/P: 00786/00042	PP	BROOKLETT COMMONS HOMEOWNERS ASSOCIATION INC M/G/P: 0104/0000/1812 - B/P: 00829/00629
GG	FOR ALL SEASONS INC M/G/P: 0104/000EA/1874 - B/P: 01511/00250	QQ	SPARACINO MICHAEL J M/G/P: 0104/000EA/1814 - B/P: 00780/00334
HH	MLYNARSKI ANDREW M/G/P: 0104/000EA/1835 - B/P: 02761/00429	RR	125 KEMP LLC M/G/P: 0104/000EA/1822- B/P: 02734/00473
II	401 BROOKLETTS LLC M/G/P: 0104/00EA/1834 - B/P: 02325/00109	SS	PRITCHETT HELEN M M/G/P: 0104/000EA/1821 - B/P: 02609/00464
JJ	TALBOT COUNTY MARYLAND M/G/P: 0105/00EA/2204 - B/P: 00613/00105	TT	TOWN OF EASTON M/G/P: 0105/000EA/2211 - B/P: 01595/00214

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NURVE (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 NORTHING	MARYLAND GRID COORDINATE NAD 83 EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESDV (FT.^{3})	ACTUAL ESDV (FT.^{3})
1	MBR-1	BIORETENTION 1	ON-SITE	95	404001.0297	1577860.4737	0.458	0.421	0.009	1.23	0.49	1795	716
2	MBR-2	BIORETENTION 2	ON-SITE	91	403787.4477	1577724.3978	0.442	0.363	0.003	1.23	0.31	1506	391
3	MBR-3	BIORETENTION 3	ON-SITE	87	403680.5404	1577730.4142	0.427	0.267	0.006	1.23	0.66	1296	700
4	MBR-4	BIORETENTION 4	ON-SITE	93	403663.8545	1577794.9402	0.445	0.380	0.005	1.23	0.31	2455	618
5	SCM-1	SUBMERGED GRAVEL WETLAND	ON-SITE	87	403682.2326	1577810.0030	4.904	3.547	0.112	1.23	0.37	5402	9330
TOTAL/ AVERAGE							6.676	5.008	0.131	6.15	2.14	10050	11755

SITE SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	B	0.32	No
UoB	Udorthents, loamy, 0 to 5 percent slopes	C	0.37	No

STUDY POINT	STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
STUDY POINT 1	EXISTING	11.19	19.35	35.59
	PROPOSED	9.95	18.7	33.72
CHANGE	CHANGE	-1.24	-0.65	-1.87
STUDY POINT 2	EXISTING	3.21	5.1	8.89
	PROPOSED	0.49	0.85	1.57
CHANGE	CHANGE	-2.72	-4.25	-7.32

DEVELOPED - QUANTITY ANALYSIS MAP

OF THE LANDS OF

EASTON CROSSING

TAX MAP 0104, GRID 000EA/000 , PARCEL 1823,1826

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: EASTON CROSSING, LLC

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Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

REVISIONS

REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — 811

DATE:	11/27/2024
SCALE:	1" = 50'
DRAWN BY:	BAOC
DESIGNED BY:	BAOC
APPROVED BY:	

SHEET NO.: SWM-102

FOR REVIEW

Soils Report

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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Soil Map.....9
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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

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.


76° 4' 14" W
76° 3' 58" W
407000
407040
407080
407120
407160
407200
407240
407280
407320
407360
38° 46' 21" N
38° 46' 13" N
4292080
4292040
4292000
4291960
4291920
4291880
UoB
UoB
UoB
HfA
S Higgins St
Kemp Ln
Brookletts Ave
Soil Map may not be valid at this scale.
Map Scale: 1:1,700 if printed on A landscape (11" x 8.5") sheet.
N
0 25 50 100 150 Meters
0 50 100 200 300 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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 21, Sep 6, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 30, 2022—Jul 4, 2022

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
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	7.5	94.1%
UoB	Udorthents, loamy, 0 to 5 percent slopes	0.5	5.9%
Totals for Area of Interest		**8.0**	**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

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: Depressions, flats, fluviomarine terraces
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear

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)
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
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, flats, fluviomarine terraces, knolls
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
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 10 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (three-dimensional): Dip
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Talf
Ecological site: F153DY160NJ - Well Drained Coarse-Loamy Upland
Hydric soil rating: No

UoB—Udorthents, loamy, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh0v
Elevation: 0 to 300 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: Not prime farmland

Map Unit Composition

Udorthents, loamy, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Loamy

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fluviomarine deposits

Typical profile

AC - 0 to 2 inches: loam
C - 2 to 72 inches: gravelly loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.01 to 19.98 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Urban land

Percent of map unit: 10 percent
Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

TOWN OF EASTON

14 South Harrison Street
Easton, Maryland 21601

February 5, 2025

Dear Resident,

The Easton Planning Commission (Commission) will hold a public meeting on **Thursday, February 20, 2025 at 1:00 p.m**. in the Easton Town Council Chambers located on the second floor of 14 South Harrison Street. The Town of Easton Zoning Ordinance requires that owners of property located within 400 feet of a parcel on which certain types of applications are pending be given notice of upcoming meetings or hearings. If you are a tenant in or an owner of a multi-unit building, please distribute or post this notice in a visible location for all other tenants or owners to view. If you are a tenant of a rental property, please notify the property owner that this notice letter has been distributed to their property. Notice has also been sent to the Star Democrat, a sign has been posted at the subject property and the hearing agenda has been posted on the Town of Easton website: http://eastonmd.gov/.

This letter is sent to inform you that Easton Crossing, LLC (Applicant) has filed application 2025-1370 to request Sketch Site Plan approval for the construction of mixed commercial and residential buildings with additional parking lots, parks/open space, and associated utilities and stormwater management features. The Applicant is also seeking a supplemental waiver from the landscaping and bufferyard requirements of Chapter 28-1014.7.E.3(a) & (b)1 and Chapter 28-1014.7.E.5.(a) through (c) of the Zoning Code. The property is located within the Planned Redevelopment Overlay District (PR) and has been submitted for review pursuant to that process. The property's address is 505 Brookletts Avenue, also known as Tax Map 0104, Grid 00EA, Parcels 1823, 1826 and 1833.

Copies of the proposed application are on file and available for public review in the Town's Planning Office at 14 South Harrison Street between the hours of 8:30 a.m. and 4:00 p.m., Monday through Friday. **In addition, digital copies will be available for review one week prior to the scheduled meeting via the Town's website at** https://www.eastonmd.gov/129/Agendas-Minutes. If you have any questions regarding this application, please contact the Planning Office at (410) 822-1943 or via email at ssmith@eastonMD.gov.

Samantha N. Smith

Samantha N. Smith, Administrative Specialist
Planning & Zoning Department
410-822-1943 ssmith@eastonMD.gov



Subject property posting pursuant to Section 28-901.2.H.2 of the Town of Easton Zoning Code - February 5, 2025

January 21, 2025

Miguel Salinas
Director of Planning and Zoning
Town of Easton

Dear Mr. Salinas,

I notice that the Easton Crossing project has been submitted for preliminary approval and will be discussed at the upcoming Staff Development Review meeting. I have attended the public meetings hosted by Chesapeake Community Development (“CCD”) and I’ve shared my observations with the developer. Although the public does not have a role in the SDR meeting, I hope my experience as an architect, urbanist, and campus planner, as well as a nearby resident, can provide valuable insights during your review.

The project is set to bring much-needed rental housing to the heart of town. CCD commendably includes subsidized "workforce housing" units in its plan; a benefit to the community of having a non-profit developer on the job.

The two buildings along Brookletts Avenue will enhance the streetscape and the Rails to Trails, which they flank. Their design mirrors the massing of the Brookletts Building and continues the street wall established by it and the Senior Center to its west. The architecture reflects the industrial aesthetic of the Brookletts Building. The northern wings of the new buildings embrace Rails to Trails, creating an "entry" to the path. By stepping down to three stories, they avoid creating a "canyon," instead they shelter those passing by on the trail. All these are examples of good design.

The developer’s intention of having retail facing the trail is an excellent idea, but CCD’s plan for 18,000 square feet of retail space in the two buildings raises concerns about its viability in today’s retailing environment. Has CCD consulted retailing experts to ensure market demand for this space? And might these additional stores draw businesses and customers away from downtown and the existing retail corridor on Dover Street? CCD has stated they’ll seek local entrepreneurs; do they have a plan to incentivize or support new businesses to fill these storefronts? Empty display windows could significantly detract from the project. Also, adequate lighting of the trail from Brookletts to Dover is needed to assure a safe environment during late afternoons and evenings in winter. Will the developer fund that, or will it fall upon the town to address safety issues after the project is occupied?

Moving northward, the concept of a unique restaurant east of the trail, retaining or recreating one of the grain bins (“silos”) is another positive idea—though parking adequacy is a question.

The landscaping is thoughtfully designed, and considers pedestrian movement across and within the site. The idea of making a landscape feature of the large stormwater management facility on Higgins Street is a plus. However, can CCD obtain regulatory permissions to combine stormwater management from parcels on either side of the trail?

The central “Great Lawn” is a fantastic open space addition to this part of town, offering a valuable community amenity adjacent to the Rails to Trails.

However, Building 409 is problematic. In summary:

- Too big and too tall.
- Out of context with the adjacent Hill District.
- More of the same types of residential units as the other buildings.
- Lacks sufficient parking.

To expand on this criticism - while the other four buildings successfully illustrate good contextual urban design, Building 409 ignores the adjacent historic Hill District. It appears jarringly massive, out of place

next to the low-rise residential neighborhood on the north and west of the site. At four stories and 56 units, it could be the largest residential building in town. Like the existing grain storage bins, it would tower over the small duplexes on Higgins and South Streets. While the developers may say it's no bigger than what's there now, those "silos" are an industrial relic – picturesque to some - not a chunky residential structure. And with no street frontage and insufficient parking, it's difficult to see what kind of retail could occupy the first floor of this building. Its not appropriate for its location.

The site plan, like many a suburban apartment block, surrounds Building 409 with parking. A parking lot on South Street, which is otherwise lined with small homes, again ignores the low-rise residential context. The project overall provides just one parking space per unit, which may meet minimum standards, but is likely insufficient in practice, pushing residents' second vehicles and visitors onto nearby narrow streets which are already crowded with parked vehicles.

It's unfortunate that CCD didn't consider less-dense housing types for the northern portion of the site. Townhouses or duplexes would better fit-in with the Hill District and would ease density and parking concerns. It's also regrettable that CCD chose to make this a private enclave. Had Kelly Gibson Street and Talbot Street been extended into the site the project could have been integrated into the town's grid, with homes lining those new blocks (see attached sketch).

That said, I understand that PRD regulations might limit the town's leverage with the developers. Nevertheless, rethinking Building 409 and the northern part of the site could elevate this project into a great example of sensitive contextual redevelopment.

Finally, a few words about traffic and pedestrian safety. The traffic consultant's study claims the existing streets and intersections can handle the additional load, but many of us who drive Brookletts to Rt. 50 know that traffic on Tred Avon and Hill Streets is already significant, making intersections challenging; especially during arrival and dismissal time at St. Peter and Paul's School. Additional traffic controls, improved signage and lane markings are needed to avoid collisions.

Also, the eastern portion of Brookletts and all of Tred Avon Avenue lack sidewalks, which are essential for encouraging neighbors to walk to the project and for pedestrian safety along these routes. Additionally, Kemp Lane will experience increased traffic. Sightlines to the west at the intersection of Kemp Lane and Dover Road are difficult, and Kemp lacks sidewalks. Shouldn't CCD help the town fund the sidewalks and essential traffic improvements required because of this new project?

Overall, this is a good project, but with a bit more effort, it could be a great project of which Easton could be proud.

Best regards,

Maury Schlesinger, R.A.
304 Winton Ave.

Cc: Mayor Cook
Town Council
Planning Commission
Ross Bennicasa, CCD

This sketch illustrates how extending Kelly Gibson Street and Talbot Street would break up the large parcel into smaller blocks.

This scheme shows 16 three-story townhouses. Each could consist of a two-story three-bedroom unit over a “flat” resulting in 32 units. These could be designed with two fronts where the upper floor unit enters from one side, and the ground floor flat from the other.

This scheme would reduce density and parking demand, and would better fit the neighborhood context. It would also provide a variety of housing types which might appeal to a broader market. It would also reduce the overall amount of retail.

Extending Talbot Street east of Higgins Street would require the purchase or taking by eminent domain of the structure at 130/132 Higgins Street.



Samantha Smith <ssmith@eastonmd.gov>

Easton Crossing Project

Maury Schlesinger Wed, Feb 12, 2025 at 2:38 PM
To: "mayorandcouncil@EastonMD.gov" <mayorandcouncil@eastonmd.gov>, "PlanningCommission@eastonmd.gov" <PlanningCommission@eastonmd.gov>
Cc: Miguel Salinas <msalinas@eastonmd.gov>

I have submitted the letter below to the Star Democrat and the Talbot Spy. It expresses concerns about the project to be considered next week at the Planning Commission meeting.

February 12, 2025

Dear Editor:

The Easton Planning Commission will consider the Easton Crossing project for site plan approval at its meeting on February 20th.

The Easton Crossing project will bring big changes to a central part of Easton. It has many positive attributes: removing the derelict Perdue grain bins, creating many new rental apartments - including subsidized “workforce” units, retail space for local shops, and landscaping which will enhance the Rails to Trails. But the four-story apartment building planned for the interior of the site (“Building 409”) is inappropriate. As presented at the Staff Development Review meeting on January 22nd, it is too big and out of context with the adjacent two-story duplexes which line Higgins and South Streets. Also, the site plan fails to integrate the project into the historic Hill District. The Planning Commission should seek changes to those parts of the project.

Furthermore, because the project is in the Planned Redevelopment Overlay district, the Planning Commission has the sole authority to issue approval. However, due to this project’s significant impact on the Hill District, the Rails to Trails, and the character of the East End, the unelected Planning Commission should defer its authority and refer the project to the Town Council for final approval.

Maury Schlesinger
304 Winton Ave.

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

Date of Hearing: February 20, 2025

4c

PLANNING COMMISSION
PUBLIC HEARING
STAFF REPORT

SUBJECT: **Sketch Site Plan Review for 801 Port Street**

ELECTION WARD: Ward 4

CRITICAL ACTION DATE: At the pleasure of the Commission

STAFF CONTACTS: Joseph Mayer, Plan Reviewer
Miguel Salinas, Director of Planning and Zoning

APPLICANT: Town of Easton % Rick Van Emburgh

DOCUMENT CREATED ON: February 3, 2025

PURPOSE: Town of Easton (Applicant), is seeking sketch site plan approval for the construction of a new boat ramp and a public restroom with associated parking, stormwater management and landscaping on the property. A new road will be constructed across parcels 170 and 171 providing access to the boat ramp from Flood Avenue. In addition, the applicant is seeking a landscape and buffering waiver from § Section 28-1001.3 L of the Zoning Code and a setback waiver for any portion of a parking lot or access drive shall be 3' for residential uses and 10' for non-residential uses, measured from the property line from § Section 28-312.5 (E) from the Town's Zoning Ordinance.

RECOMMENDATION: Should the Planning Commission (Commission) approve the sketch site plan, staff recommends approval with a condition (see below).

APPLICATION INFORMATION:	
APPLICANT: Town of Easton % Rick Van Emburgh	**REPRESENTATIVE:** Town of Easton % Rick Van Emburgh, Sierra Clem

PARCELS/ACREAGE:

Parcel Information	Acreage
Map 34, Grid 009,00EA, Parcels 158, 170, 171 & 215	13.346

ACCEPTANCE DATE: January 27, 2025	**LOCATION:** 801 Port Street
EXISTING ZONING MXW Sub-District: Water's Edge & Water View	**EXISTING LAND USE:** Industrial/Municipal Operations
HISTORIC DISTRICT: Not Applicable	**FUTURE LAND USE MAP:** Redevelopment Area

CONTEXT:
Location/Site Access – The subject property is located between Flood Avenue and the Tred Avon River. The site's entrance will be accessed via Flood Avenue and Port Street.

Existing Conditions – The subject properties can generally be described as approximately 13.346 acres consisting of a storage building on Parcel 170. The overall parcels are within the existing Town of Easton public park - Easton Point Park. Historically the parcels have been utilized for industrial and municipal operations, specifically for Southern States and the Town of Easton/Easton Utilities Commission Public Works Facility.

Surrounding Properties
- Parcel 73, Wayman Avenue - MXW
- Parcel 45, West Glenwood Avenue - MXW
- Parcel 99, West Glenwood Avenue - MXW
- 605 Port Street - GI
- Parcel 192 Brickyard Lane - Talbot County
- 879 Port Street - Talbot County

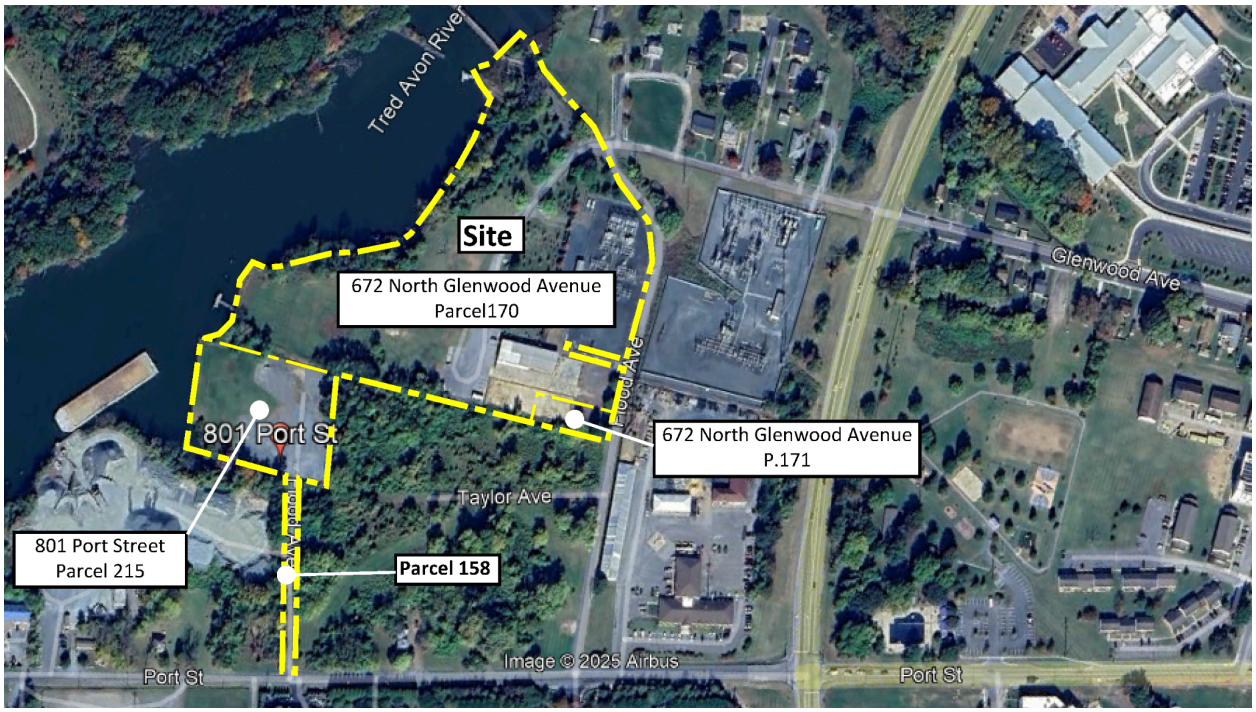


***Figure 1**: Vicinity Map*

PROPOSAL: The applicant is proposing to construct a new boat ramp and a public restroom facility that's a one-story building and has 285 square feet (SF) of gross floor area (GFA) with associated parking, sidewalk/pedestrian path, stormwater management and landscaping on the property. A new road will be constructed across parcels 170 and 171 providing access to the boat ramp from Flood Avenue. The applicant is also seeking a landscape and buffering waiver from § Section 28-1001.3 L of the Zoning Code and a setback waiver from § Section 28-312.5 (E) from the Town's Zoning Ordinance, which requires that any portion of a parking lot or access drive shall be 3' for residential uses and 10' for non-residential uses, measured from the property line

BACKGROUND: The applicant submitted an application to the Easton Staff Development Review Committee (ESDR) on January 22, 2025 (please see attached ESDR Determination Letter).

OUTSTANDING ISSUES:

There are no outstanding issues.

ZONING ANALYSIS:

A. Purpose

28-312.2.1 Table 312 A

TABLE 312 A					
	MXW Sub-Districts				Notes
	Water's Edge	Water View	Inland	Port Street	
Recreational - Entertainment Uses					
Parks and Recreation Areas	P	P	P	P	

Analysis – The proposed land use was determined by staff to be within the confines of "***parks and recreation****"; any public or private land available for recreational, educational, cultural, or aesthetic use.* The proposed use is outright permitted within Table 312 A of Permissible Uses.

Section 28-312.1 (Town Code).

(A) The purpose of this district is to advance the vision of the Town of Easton for Easton Point as expressed in the Town's Comprehensive Plan, as amended, which includes the Port Street Small Area Plan (collectively, the "Plan"). In accordance with the spirit and intent of that Plan, Easton Point is envisioned as an area appropriate for infill development and redevelopment of a mixed-use nature, with a wide variety of uses possible, including residential, commercial, institutional and open space. The intent IS NOT to require an exact duplicate of the uses as depicted on the Plan, but rather to encourage such development or redevelopment that is consistent with the Plan from a use and character perspective.

(B) Permitted uses will enable the creation of a neighborhood/destination that caters to new residents, provides sources of employment, serves as a tourist destination, and provides public open spaces and Waterfront access. Particular attention shall be given to impacts on the Tred Avon River, the headwaters of which this zoning district borders.

(C) In recognition that different parts of the Zoning District have different design and development goals and objectives, four Zoning Sub-Districts are established for the purpose of differentiating various development standards applicable in these areas. If a parcel of land is divided by a sub district boundary line at the time of enactment of this code or by subsequent amendments thereto, the appropriate standards and uses for each sub district shall apply on the portion of the parcel covered by that sub district. Notwithstanding the above, where a parcel is divided between the Water View and Inland sub-districts, the Planning and Zoning Commission may consider the entire parcel to be within the Inland sub-district. The sub-districts are depicted on Map 28-312.1[1] and their purposes are as follows:

a. Water's Edge Sub-District – This sub-district is applied to the land located adjacent to and within 100' (or more in certain circumstances) of the edge

[1] Map 28-312.1 depicts the entirety of Easton Point, however it should be noted that some parcels are not within the Town of Easton's jurisdiction at the time of enactment of this Ordinance. While it is envisioned that should they eventually Annex into the Town they would be zoned in accordance with this Map, they cannot be until such time as that action occurs. Additionally, some parcels that are already under the Town's jurisdiction and improved, may not ultimately be zoned MXW. of the Tred Avon River. The purpose of the regulations applying to this sub-district is to:

1. ***Encourage and sustain the development of water-dependent and water-related land uses and those supporting commercial uses which are designed in such a way as to enliven the district;***
2. ***Preserve the open and relaxed pattern of building in which the placement of buildings affords views throughout the waterfront area as opposed to the more formal pattern of building evident in urban or town centers;***
3. ***Ensure the preservation of the broad view sheds out over the water especially from Port Street at the approach to the waterfront;***
4. ***Create a destination where the public has space to gather for recreation, special events, and to readily walk through common areas to and between commercial activities, including along a waterfront public boardwalk;***
5. ***Generally prohibit residential development, with the only exception being as second story use in a mixed-use building; and***
6. ***Promote the emergence of naturalized open spaces and systems for the management of storm and flood waters.***

b. Water View Sub-District – This sub-district is applied to land adjacent to the Water's Edge Sub-District and extending landward to encompass lands within 500' of the Tred Avon River. The purpose of the regulations applicable to this sub-district is to:

1. ***Serve as a visual transition area between the lower density Water's Edge and the higher density Inland and Port Street Sub- Districts;***
2. ***Encourage the development of intermediate density mixed-uses to include residential development and certain non-residential uses that are compatible with and supportive of residential development; and***
3. ***Promote a unified open space and green landscape pattern that affords ready public access to trails, the shoreline, sidewalks, and green open spaces.***

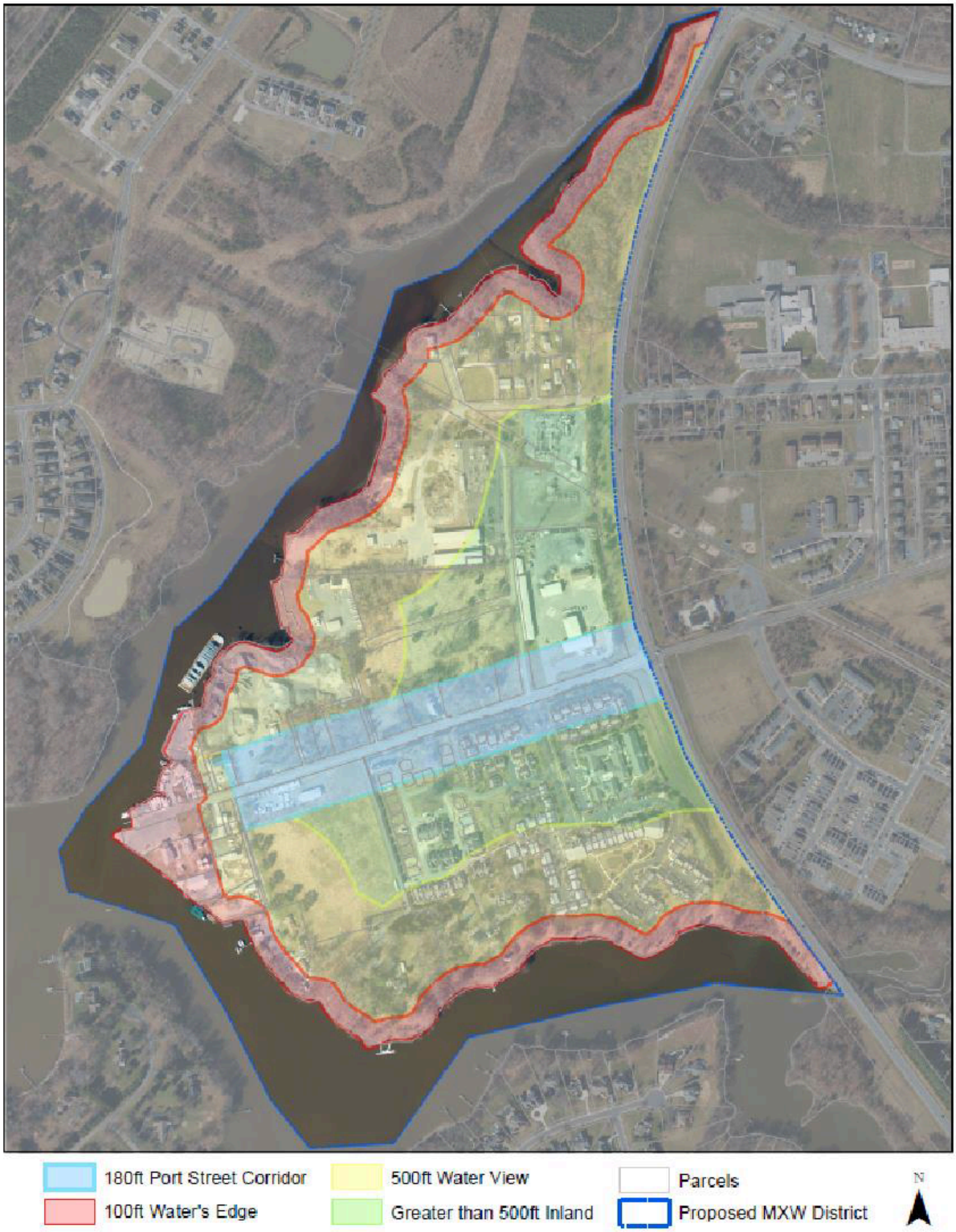
c. Inland Sub-District – This sub-district is applied to land located greater than 500' from the edge of the Tred Avon River. The purpose of this sub- district is to:

1. ***Encourage the development of high-density residential, mixed uses, and non-residential uses that are compatible with and supportive of residential development; and***
2. ***Provide developers with the maximum flexibility available in the MXW to encourage suitable infill, redevelopment and new development projects.***

d. Port Street Corridor Sub-District – This sub-district is applied to lands within 180' parallel to and on either side of Port Street. The purpose of this sub-district is to:

1. Create an urban-scale streetscape;
2. Promote an urban design that will ultimately serve to visually connect or link the waterfront to Easton's Downtown; and
3. Allow for mixed uses with an emphasis on multi-family, live- work units and small commercial uses.

Proposed MXW District - Easton, MD 2017



Analysis - The current process of the Town of Easton Zoning Ordinance is for the Planning and Zoning Commission to review the material submitted as described in § 28-312.1 of the Town Code and shall represent the initial step in the MXW review process. Successful applications shall subsequently follow the appropriate steps for the type of project submitted and the applicant shall prepare and submit for a development and a final site plan in accordance with the site plan requirements specified in § 28 – 901.3.B and C of the Town Code and the requirements of the Town of Easton Subdivision Regulations, if applicable.

B. Off-Street Parking

28-1001.3.BParking Requirements
For any use 2 not specifically listed in subsection A above, the parking requirement will be determined by the Town Planner. In such instances, the applicant shall provide adequate information by which the proposal can be reviewed, which includes but may not necessarily be limited to the following:

(1) Type of uses;
(2) Number of employees;
(3) Building design capacity;
(4) Square feet of sales area and service area:
(5) Parking spaces proposed onsite;
(6) Parking spaces provided elsewhere; and
(7) Hours of operation.

28-312.3.4 Vehicular and Pedestrian Connectivity Standards

"[A] Lots shall be interconnected to all adjoining lots by providing the means to extend – connect on-site; sidewalks, pedestrian paths, service-access roads."

28-312.3.5 Off-Street Parking Standards
(A) *Off-street parking shall be required for uses within the Zoning District, in accordance with the provisions of 28-1001 of the Town Code. Furthermore, given the proximity to the headwaters of the Tred Avon River, all pavement used for parking areas shall be pervious. Alternately such parking areas shall be designed so as to achieve equivalent sediment runoff reduction as would be achieved with the use of previous pavement, as determined by the Town Engineer. Any previous pavement shall comply with maintenance and inspection requirements of the Town.*
(B) *Shared off-street parking amongst multiple users, is encouraged in the Zoning District. To that end, any portion of off-street parking requirements may be satisfied off-site on land within 500 feet of the subject property. In such cases, evidence of the right to utilize such off-off-street parking spaces shall be provided at the time of site plan review.*
(C) *Parking for Residences, Employee and Business vehicles shall be designated and shall be located in a manner to not compete with patron and visitor parking.*

(D) *Off-street parking may not be located between the water's edge and the waterfront façade of any principal building, nor between the front property line and the front building façade, nor in any side yard. If the Planning and Zoning Commission determines that there are no practicable alternatives, in the Water's Edge sub-district, parking in side yards may be permitted. Notwithstanding the foregoing, parking may be permitted in side yards on any corner lot.*
(E) *Setbacks for any portion of a parking lot or access drive shall be 3' for residential uses and 10' for non-residential uses, measured from the property line. Mixed-use projects shall adhere to the non-residential setback standard. The Planning and Zoning Commission may waive or modify these setback requirements when doing so may promote connectivity and the efficient utilization of space.*

Total Site Parking Proposed:

Total vehicle parking provided: 43 total spaces provided (14 passenger spaces & 29 boat trailer spaces)

Bicycle Spaces:	1 per 20 vehicle spaces required
	43 spaces/20 = 3 bicycle space-Minimum
	6 bicycle spaces provided.

Analysis- The proposed parking facility is designated for twenty-nine (29) boat trailers and fourteen (14) automobile parking spaces to accommodate the proposed boat ramp and restroom facilities at the Town of Easton's public park - Easton Point Park. There are no permanent employees on-site during hours of operation. The restroom has 285 square feet (SF) of gross floor area (GFA). Hours of operation are from dawn till dusk. The current site plan shows the installation of a sidewalk along the proposed access road that connects the parking facility and restrooms. All parking spaces are designed to have permeable pavers. The Applicant believes the proposed parking is adequate to support the daily operation of the site. The staff supports the proposed number of parking spaces.

C. Mixed-Use Waterfront District Development Standards

Section 28-312.2

(A) Development shall require site plan approval by the Easton Planning and Zoning Commission in accordance with the standards of Section 28-301 of the Town Code (notwithstanding the threshold staff-Planning and Zoning Commission division as all site plans in the MXW Zoning District are subject to Planning and Zoning Commission review). In addition to the standards required in 28-301, the Planning and Zoning Commission shall consider the following in their review of site plans:

a. Whether or not the proposed project is consistent with the Plan, and to the extent that it varies from said Plan, whether or not the proposed project is consistent with the vision, spirit and intent expressed in that document. Projects deemed to be inconsistent with the Plan shall be denied unless and until said Plan is amended in

such a way as to make the proposed project consistent with the Plan. Consistency shall refer to both the proposed use, as well as architectural or design considerations.

b. *Whether or not the proposed use is likely to generate potentially adverse impacts to neighboring or nearby properties in the form of undue noise, smoke, odors, traffic, inadequate or excessive drainage, etc., and if finding that such potential exists, whether or not such impacts are determined to be sufficiently ameliorated as part of the proposed project.*

Section 28-312.3(A)

Sub District Development Standards – The following development standards may vary by sub district as indicated in Table 1 below, subject to the provisions of Section 28-312.3.2 of this Code. All other development standards specified shall apply throughout the MXW District. Those standards listed under columns labelled "Base" represent by-right entitlements. Any and all development in excess of the Base Standards, up to the limits under the columns labelled "Max" shall only be permitted in accordance with the Bonus Provisions per Section 28.312.3.2.

In establishing these requirements, the Commission considers such factors as the intensity of the project and the existing character of the neighborhood. **Table 1** below provides the applicant's proposed dimensional standards.

Table 1. Sub-District Development Standards

MXW Zoning District	Standard (Subdistrict)	Proposed
Setbacks	Front**** = 5 feet (min.), 15 feet (max.) Side = 5 feet (Water's Edge) Side = N/A (Water's View) Water's Edge*** = 25 feet (Water's Edge) Water's Edge*** = N/A (Water's View)	Front = 5 feet Side = 5 feet MHW – 25 feet
Lot Size (min.)*	21,780 SF (Water's Edge) 10,890 SF (Water's View)	581,351 square feet
Maximum Stories**	1.5 Stories, Base Water's Edge 2.0 Stories, Max Water's Edge 2.5 Stories, Base Water's Edge 4.0 Stories, Max Water's Edge	1 story proposed.
Lot Coverage (max.)	30% (Water's Edge) 45% (Water's View)	4.9%
Height (max.)**	30 feet Water's Edge 50 feet Water's View	14.5 feet +/-

* ***For subdivisions of 10 or more lots, the minimum lot size may be replaced by an average lot size of the specified dimension.***

** ***Height and stories in the Zoning District shall be measured from Base elevation.***

*** ***The Water's Edge setbacks are measured from the line of mean high tide, and are subject to Critical Area Regulations per 28-401.***

******* Measured from property line.***
********For parcels that are (or will become) subject to an easement for the Easton Rail Trail, the maximum front setback from Port Street shall be 10' from the southern edge of the easement.***

§ 312.3(A) of the Zoning Ordinance states that development within the Mixed-Use Waterfront District shall also meet these additional requirements:

- Minimum lot dimensions - All lots hereafter established shall have a depth of at least sixty (60) feet.
- Lot frontage - All lots hereafter established shall have a minimum frontage on a public street or way of at least 24 feet.
- Base Elevation – The base elevation for structures in the Zoning District shall be a minimum of the base flood elevation plus 24 inches. The base flood elevation (BFE) must be determined for each project by a Civil Engineer, based on current Maryland DFIRM maps and the Town of Easton's Floodplain Management Code.
- On corner lots, all sides of the lot which face a street must comply with the applicable front setback.

Analysis - The site falls under the MXW - Mixed-Use Waterfront District Area and meets the § 28-312.2 and § 28-312.3 Development Standards.

§ 312.4(B) Architectural Standards
The Planning and Zoning Commission shall have the authority to approve proposed architecture as compliant with the standards of this subsection, during their site plan review process. In so doing, the Planning and Zoning Commission shall focus their review on the more general architectural issues such as the appropriateness of the theme or style proposed, the general massing, shape, size, form and orientation of the buildings. The appropriateness of more detailed issues, such as materials and product specifications, shall be verified by Town staff (with the advice of a professional consulting architect, as needed).

Analysis - While there is a long list of architectural standards outlined in this chapter, the Planning Commission only needs to look at the project for its general architectural appropriateness. The specific materials will be reviewed during development site plan review to ensure that they comply with the requirements. The proposed one-story restroom facility aligns with architectural requirements, its front façade angled for optimal visibility from the water, sidewalk, and parking lot. While modest in scale and design, the brick structure with no windows complements Easton's traditional architecture. The rear façade, distinguished by detailed brickwork, directly faces the Tred Avon River. The design intent mirrors other Town of Easton public park restroom facilities, particularly the one in the Dog Park.

D. Forest Conservation

Easton Forest Conservation Ordinance #718, Article III, § 31-3.2 Exemptions

B. The proposed activity is governed by the Chesapeake Bay Critical Area Protection Law, Natural Resources Article, §§8- 1801—8-1817, Annotated Code of Maryland, including those areas into which Critical Area forest protection measures have been extended under Natural Resources Article, §5-1602(c), Annotated Code of Maryland.

Analysis - The site is entirely within the Chesapeake Bay Critical Area. The overall site area is 13.346 acres with associated parking, stormwater management and landscaping. Required Forest Conservation would be 2.00 acres or 87,120 square feet. The intent of the project is to maximize use within the infill area and provide adequate facilities to accommodate the site. Based on the existing conditions and being entirely located within the Chesapeake Bay Critical Area, the staff supports the exemption.

POLICY ANALYSIS:

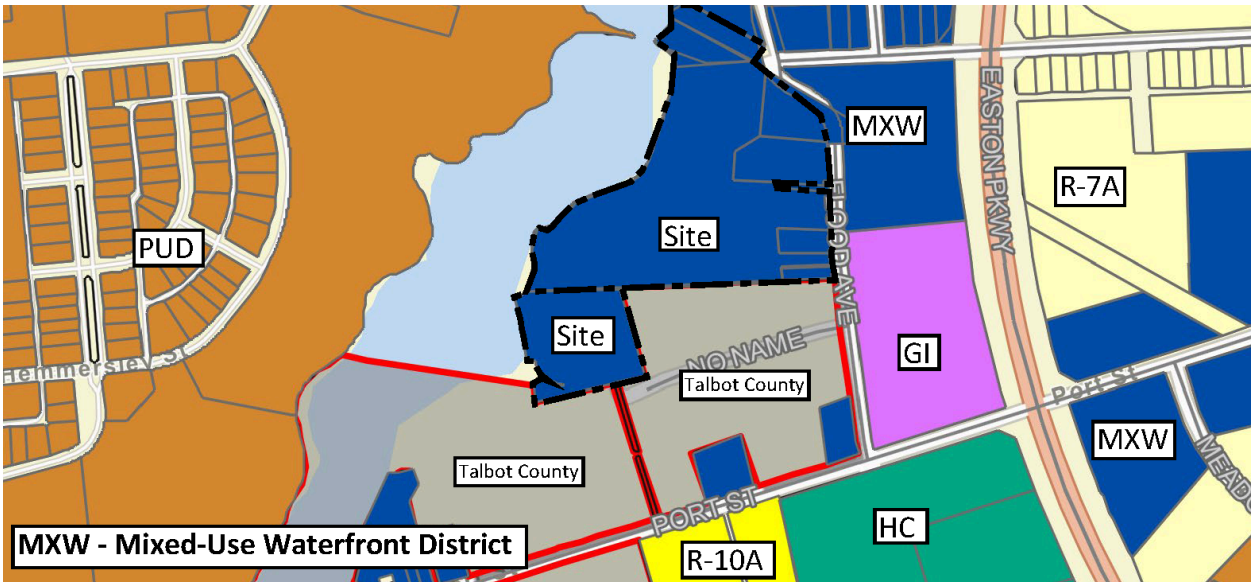


Figure 2: Zoning Map

Section 28-901.2.G of the Town Code states that the submission of a site plan for a proposed use or development activity shall not be approved unless it meets the factors below:

1. The site plan meets the design principles and standards and required improvements set forth in this Ordinance, the Town Comprehensive Plan, the Town of Easton Subdivision

Regulations, and other ordinances, regulations, and policies established by the Town of Easton.

Analysis -

Town of Easton 2010 Comprehensive Plan Design Principles (Principle #1) Integrated uses are desirable- Applicant's response: *The project proposes redevelopment of a historically industrial site, providing a new recreational use that is consistent with the MXW Zoning District and the Water's Edge and Waters's View sub-districts.*

(Principle #2) Natural features should determine design – Applicant's response: *Site design centers around preserving the Red Avon River corridor and existing green space on-site. Parking and maneuvering areas are proposed within the existing impervious footprint.*

Staff notes that the site is within the designated Critical Area Overlay District; Intensely Developed Area (IDA).

(Principle #3) Automobiles should not determine design – Applicant's response: *Site design was determined by the existing impervious footprint and the water dependent use.*

Staff notes that automobiles were not the priority focus for the design but sufficient parking is provided; twenty-nine (29) boat trailers and fourteen (14) parking spaces to accommodate the proposed boat ramp and restroom facility.

(Principle #4) Ample Open Space should be provided within & around neighborhoods – Applicant's response: *Easton Point Park will provide ample open space for public gathering and recreation.*

(Principle #5) Architecture should respect Easton's Historical Development – Applicant's response: *The architecture of the proposed bathroom will be compatible with the Town of Easton's Architectural palette and consistent with other buildings in the MXW Zoning District.*

(Principle #6) Signs should inform but not dominate – Applicant's response: *Signage will be simple and compliant with Town Standards.*

Staff notes that any proposed monument sign will require a Signage Application to be submitted prior to installation. Signs should inform but not dominate the area.

(Principle #7) Neighborhoods should contain a diversity of housing types – *Applicant's response: Not applicable to this application.*

(Principle #8) Residential neighborhoods should be interesting places – *Applicant's response: Easton Point Park and the proposed boat ramp will serve surrounding communities, providing public open space for recreation and gathering, and waterfront access to the Tred Avon River.*

(Principle #9) Neighborhoods should connect – *Applicant's response: Easton Point Park will be connected to surrounding neighborhoods via Rails-to-Trails.*

2. The site plan avoids or minimizes adverse impacts upon features (whether on-site or off-site) of historical, cultural or ecological significance.

Analysis - The site is not within the Historic District. However, it is within the designated Critical Area Overlay District; Intensely Developed Area (IDA). This project would provide a public open space for recreation and gathering, and waterfront access to the Tred Avon River. with associated parking, stormwater management facilities and landscaping.

3. The proposed use or development activity will not substantially increase traffic hazards due to traffic generated by the proposed use, the location of curb cuts or the layout of internal traffic circulation.

Analysis - The proposed use and activity will not increase traffic hazards in the surrounding area. The parking facility at Easton Point Park will accommodate 29 boat trailers and 14 cars to support the boat ramp and restroom facilities. The restroom has 285 square feet of gross floor area and will be open from dawn to dusk. The site plan includes a sidewalk along the access road that connects the parking facility and restrooms. All parking spaces will be permeable pavers. No permanent employees will be on-site. The proposed parking adequately supports the site's daily operation.

4. The site plan and the proposed use or uses do not cause any adverse impact upon the health or safety of persons residing or working in the area surrounding the site or upon the character of the neighborhood surrounding the site; and

Analysis - There would be no adverse impacts. The existing property is located within a Mixed-Use Waterfront zoned district. The development proposal includes a public open space with waterfront access to the Tred Avon River, as well as parking, stormwater management facilities, and landscaping. The open space will be used for recreation and gathering.

5. ***The site plan improves the water quality of the Chesapeake Bay or its tributaries.***

Analysis - The proposed site would meet required design practices for stormwater management.Per§ Section 28-401.4 F from the Town's Zoning Ordinance, *an applicant that is required to plant the Buffer to meet establishment or mitigation requirements shall submit a Buffer Management Plan in accordance with COMAR 27.01.09.01-3. The provisions of this Part do not apply to maintaining an existing grass lawn or an existing garden in the Buffer.* The applicant will submit a Buffer Management Plan prior to Development Site Plan approval.

E. Compatibility with the Port Street Small Area Plan:

1. ***Create a desirable destination at the water's edge.***

Analysis - The development proposal for this waterfront site includes a public open space with access to the Tred Avon River, as well as parking, stormwater management facilities, and landscaping. The open space will be used for recreation and gathering.

2. ***Link Easton's Downtown to Easton Point through sound re-development strategies.***

Analysis - This project proposes a redevelopment of a historically industrial site, providing a new recreational use that is consistent with the MXW Zoning District and the Water's Edge and Waters's View sub-districts. The redevelopment does help to link Easton Point to Downtown by adding a public amenity within the district that will be used for recreation and gathering.

3. ***Establish Port Street and Easton Parkway as an important gateway.***

Analysis - The addition of a new recreational area helps to establish Port Street as a place where people can walk and bike to reach downtown.

4. ***Enhance the streetscape along Port Street.***

Analysis - The main entrance will be accessed along Flood Avenue with an access road connecting along Port Street. The addition of a new recreational area will help draw attention along Port Street.

5. ***Promote mixed income housing and affordable housing along Port Street.***

Analysis - This is not applicable to this application.

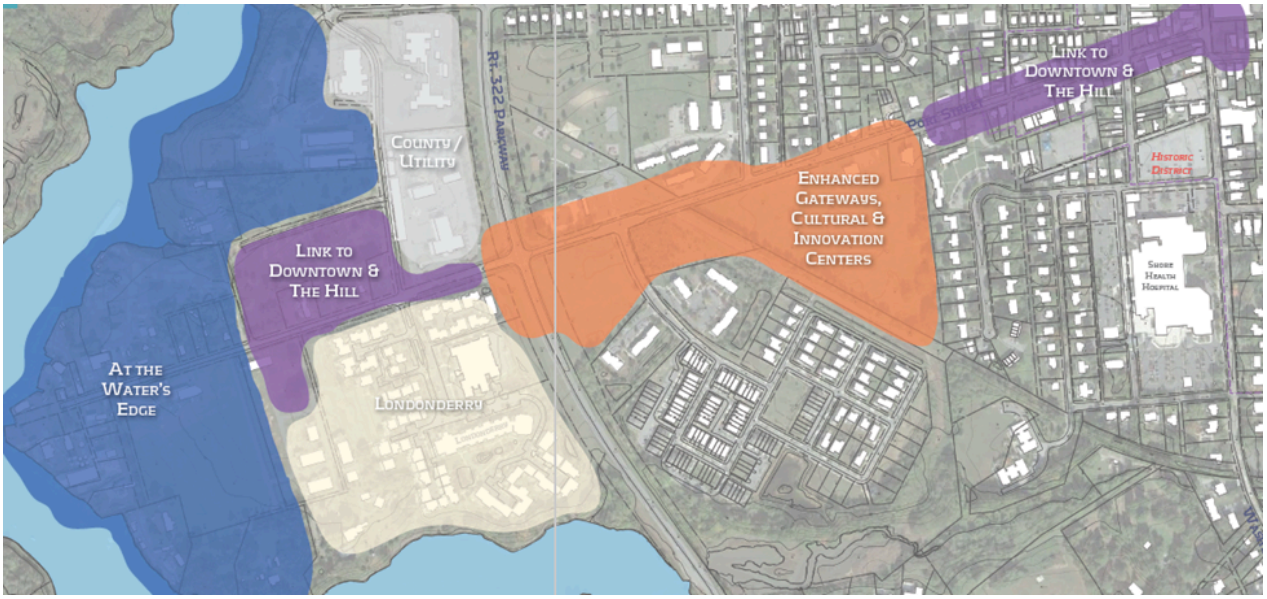


Figure 3: Future Land Used Map

Analysis - This parcel is envisioned as part of the "At the Water's Edge" area. The proposed project will redevelop a historically industrial site into a new recreational area. This redevelopment aligns with the MXW Zoning District, as well as the Water's Edge and Waters's View sub-districts. Additionally, by adding a public amenity for recreation and gathering, the project will help connect Easton Point to Downtown.

F. Supplemental Waiver Request: Landscaping & Buffering and Parking/Aisle Dimensions

28-1001.3 L PARKING REQUIREMENTS

Parking spaces designed to abut other parking spaces in the front shall be separated by a landscaping area. Such landscaping areas shall be a minimum of six (6) feet wide and shall be planted with native landscaping material.

28-312.5 (E) Parking/Aisle Dimensions

Per § Section 28-312.5 (E) from the Town's Zoning Ordinance, *setbacks for any portion of a parking lot or access drive shall be 3' for residential uses and 10' for non-residential uses, measured from the property line. Mixed-use projects shall adhere to the non-residential setback standard. The Planning and Zoning Commission may waive or modify these setback requirements when doing so may promote connectivity and the efficient utilization of space.*

Analysis - The applicant for 801 Port Street has requested a landscape and buffering waiver from § Section 28-1001.3 L The landscaped area, with a minimum width of six feet, situated between adjacent parking spaces, was designed for standard parking stalls and is not suitable for the 29 boat trailer spaces due to the size of the parking facilities. Since these stalls are intended for vehicles with trailers, the landscape area would disrupt the flow of traffic and hinder the intended use of driving through the stall. Additionally, the applicant is requesting a waiver from § Section 28-312.5 (E) from the Town's Zoning Ordinance. The parking standards within the MXW require that the parking lot or access drives shall be 10' off of a property line. Given the existing conditions and unique layout of the property, the Town finds the most efficient layout for the transition from the access road to the internal circulation would be within 10'. Due to the existing conditions and proposed use, staff supports the waiver requests.

RECOMMENDED CONDITIONS:

Staff recommends the Planning Commission approve the request with the following condition:

- The applicant will coordinate with the Town of Easton and the Critical Area Commission to submit a Buffer Management Plan prior to Development Site Plan approval.

DRAFT MOTIONS:

1. I move that the Planning Commission approve the request subject to staff's Condition of Approval.

OR

2. I move that the Planning Commission forward the application to the March 20th Commission meeting for further discussion.

OR

3. I move an alternate motion.

ATTACHMENTS:
1. 2024-12-30 Meeting Notes - EPP Architectural Review, paper copy & PDF
2. 2025-01-22 ESDR Determination Letter 801 Port Street, paper copy & PDF
3. 2025-01-24 ResponseLetterESDR, paper copy & PDF
4. 2025-01-24 Site Plan - Illustrative, paper copy & PDF
5. 2025-01-24 SitePlan, paper copy & PDF
6. 2025-01-27 Application - Site Plan, paper copy & PDF
7. 2025-01-27 Floor Plan, paper copy & PDF
8. 2025-01-27 PC Submission Cover Letter, paper copy & PDF
9. 2025-01-27 Waiver - Landscape Parking, paper copy & PDF
10. 2025-01-27 Waiver - Landscape Parking, paper copy & PDF

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

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☐ Amendment ☐ Health Care (HC) ☐ Site Plan ☒

Subdivision Information

Name	Easton Point Park - Boat Ramp				
Original Property Size	Acres		Square Feet		
Telephone No.	410-820-8822	Email	sclem@eastonmd.gov		

Site Plan Information

Property Size	Acres	13.346ac	Square Feet	581,351 SF	
Structure's Floor Area	284SF		Structure's Square Feet		
Area of Disturbance	TBD		Number of Dwelling Units	0	

Property Information

Address	801 Port Street						
Tax Map	34	Grid		Parcel	171	Lot	
Deed Refernce:	Liber	933	Folio	698			
Plat Reference:	Liber	89	Folio	127			
Base Zoning District	MXW	Historic	Y ☐	N ☒	Planned Redevelopment	Y ☐	N ☒
Source of Electricity	Easton Utilities						

Owner

Name	Town of Easton - Rick Van Emburgh		
Mailing Address	14 S Harrison St Easton MD 21601		
Telephone No.	410-820-8822	Email	rvanemburgh@eastonmd.gov

Applicant or Agent

Name	Rick Van Emburgh / Sierra Clem		
Mailing Address	14 S Harrison St Easton MD 21601		
Telephone No.	410-820-8822	Email	rvanemburgh@eastonmd.gov / sclem@eastonmd.gov

Surveyor / Engineer

Name	Tim Glass - Lane Eng	License No.	23152	Expiration Date	7/5/2025
Mailing Address	117 Bay Street Easton MD 21601				
Telephone No.	410-822-8003	Email	tglass@leinc.com		

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Development Standards and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent	Sierra Clem
Date	1/27/2025
Printed Name of Applicant or Agent	Sierra Clem

For Office Use Only

Planning Commission Required	Y ☒ N ☐		
Planning Commission Meeting Date	**02/20/2025**		
Sketch Approval Date		Project No.	**ESDR 25 - 03**
Prelim/Dev. Approval Date		Application No.	**2025 - 1371**
Final Approval Date		Sketch Fee Paid	-
Recordation Date		Develop. Fee Paid	

Revised 02-2019

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	801 Port Street					
Tax Map	34	Grid		Parcel	171	Lot	
Zoning District	MXW	PC Meeting Date	2/20/2025	Historic District	Yes ☐	No ☒
Owner or Agent	Town of Easton - Engineering Dept					
Mailing Address	14 S Harrison St Easton MD 21601					
Telephone No.	4108208822	Email	rvanemburgh@eastonmd.gov / sclem@eastonmd.gov			

Request Details

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

This section of the Zoning Ordinance - Parking requirements states that parking spaces designed to abut other parking spaces in the front shall be separated by a landscape area. This regulation is intended to apply to the standard size parking stall. As these parking stalls are designed for vehicles towing trailers, the practical use of the stall is to drive through. Therefore a landscape area would disrupt the anticipated parking circulation on site and is requested to be waived.

☐ Ordinance Section Supporting Waiver Request. 28-1001.3L

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: *Sierra Clem*

Date: 1/27/2025

Printed Name of Applicant or Agent: Sierra Clem

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

2025 - 1371 / W 25 - 04

Supplemental Waiver Request Application

Waiver Request Type

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

Project Information

Address	801 Port Street					
Tax Map	34	Grid		Parcel	171	Lot
Zoning District	MXW	PC Meeting Date	2/20/2025	Historic District	Yes ☐	No ☒
Owner or Agent	Town of Easton - Engineering Dept					
Mailing Address	14 S Harrison St Easton MD 21601					
Telephone No.	4108208822	Email	rvanemburgh@eastonmd.gov / sclem@eastonmd.gov			

Request Details

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

This section of the Zoning Ordinance - Parking Standards within the MXW requires that parking lot or access drives shall be 10' off of a property line. Given the existing conditions and unique layout of the property, the Town finds the most efficient layout for the transition from the access road to the internal circulation would be within 10' and requests this standard be waived as shown.

☐ Ordinance Section Supporting Waiver Request. 28-312.3E

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: *Sierra Clem*

Date: 1/27/2025

Printed Name of Applicant or Agent: Sierra Clem

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

Easton Staff Development Review

Property Information

Address	801 Port Street Easton, MD 21601						
Tax Map	34	Grid		Parcel	171	Lot	
Deed Refernce:	Liber	933	Folio	698			
Plat Reference:	Liber		Folio				
Base Zoning District	MXW	Historic District Y ☐ N ☒		Planning Redevelopment Y ☐ N ☒			

Purpose of Application / Description of Work:

Proposed public boat ramp with associated site improvements including parking, sidewalk/pedestrian path, SWM, and bathroom facilities on existing Town of Easton public park - Easton Point Park.

Owner

Name	Town of Easton - Rick Van Emburgh		
Mailing Address	14 S Harrison St Easton MD 21601		
Telephone No.	410-820-8822	Email	rvanemburgh@eastonmd.gov

Applicant / Agent

Name	Rick Van Emburgh / Sierra Clem		
Mailing Address	14 S Harrison St Easton MD 21601		
Telephone No.	410-820-8822	Email	rvanemburgh@eastonmd.gov / sclem@eastonmd.gov

Surveyor / Engineer

Name	Tim Glass - Lane Engineering	License No.	23152	Expiration Date	7/5/2025
Mailing Address	117 Bay Street Easton MD 21601				
Telephone No.	410-822-8003	Email	tglass@leinc.com		

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	Sierra Clem
Date	1/2/2025
Printed Name of Applicant or Agent	Sierra Clem

For Office Use Only

Easton Staff Development Review Meeting Required Y [X] N [ ]

Easton Staff Development Review Meeting Date **01/22/2025**

Completeness Check Date **01/02/2025** **2025 - 1371 / ESDR 25 - 03**

Revisions/Resubmissions Required Y [ ] N [ ]

Resubmission Date [ ] Documents Received Y [ ] N [ ]

Staff Determination

Scheduled for January 22, 2025 Easton Staff Development Review discussion.

Scheduled for February 20, 2025 Planning Commission.

Planning Commission Requir(Y [X] N [ ]

BOZA Required Y [ ] N [X]

Historic District Commission Required Y [ ] N [X]

Resubmission for ESDR Required Y [ ] N [ ] **TBD**

Staff Signature Samantha N. Smith Date **02/05/2025**

Revised 02-2019

TOWN OF EASTON
Planning & Zoning Department
14 South Harrison Street
P.O. Box 520
Easton, Maryland 21601

Easton Staff Development Review Worksheet

Date: January 22, 2025
Project: 801 Port Street
To: Dani Racine, Lane Engineering, LLC.
CC: Timothy Glass, Lane Engineering, LLC.
CC: Town of Easton % Rick VanEmburgh, Town Engineer (Agent)

The Easton Staff Development Review (ESDR) Committee meeting was held on January 22nd at 11:00 am. Staff reviewed the proposed Site Sketch Plan for a proposed public boat ramp with associated site improvements including parking, sidewalk/pedestrian path, SWM, and bathroom facilities on existing Town of Easton public park - Easton Point Park, located at 801 Port Street, also known as Tax Map 034, Parcels 158, 170, 171 & 215.

The Committee determined that the project will need to address all agency comments as specified in the attached review letters and at ESDR. It was determined by the Committee that the application may be scheduled for Planning Commission review. Please submit all revised documents.

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

The next Planning Commission meeting is scheduled for **Thursday, February 20, 2025 at 1:00 pm.** Submit all documentation to the Planning and Zoning Department no later than Monday, January 27th at 1:00 pm. All files for presentation at the Planning Commission, as described under ***§****Section 28-901.3.A.(1 through 13) of the Town's Zoning Ordinance,* need to be provided on a flash drive. In addition, provide a digital submittal (via email) of all supporting documents necessary for the Planning Commissions review, including **six paper copies**.

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
410-822-1943
www.EastonMD.gov

DATE: **January 22, 2025**
TO: **Timothy Glass –** Lane Engineering, LLC. (Engineer)
Town of Easton - % Rick VanEmburgh, Town Engineer (Agent)
Cc: **Miguel Salinas –** Director of Planning & Zoning Department
Kody Cario – Department of Engineering

FROM: **Joseph A. Mayer -** Plan Reviewer, Planning & Zoning Department
SUBJECT: **Easton Point Boat Ramp - 801 Port Street, Parcel 158**

We reviewed the **January 2, 2025** Concept Plan Submittal for the Subject Project and have the following comments:

PLANNING & ZONING COMMENTS

Concept Plan Review #1

1. Per § Section 28-1001.3 L from the Town's Zoning Ordinance, *Parking spaces designed to abut other parking spaces in the front shall be separated by a landscaping area. Such landscaping areas shall be a minimum of six (6) feet wide and shall be planted with native landscaping material.* The applicant may choose to incorporate this item into the landscape plan or obtain a Supplemental Waiver Request Application for Landscaping & Buffering from the Planning Commission.

2. Per § Section 28-312.5 (E) from the Town's Zoning Ordinance, *setbacks for any portion of a parking lot or access drive shall be 3' for residential uses and 10' for non-residential uses, measured from the property line. Mixed-use projects shall adhere to the non-residential setback standard. The Planning and Zoning Commission may waive or modify these setback requirements when doing so may promote connectivity and the efficient utilization of space.* Please include this item with the Supplemental Waiver Request Application for Parking/Aisle Dimension from the Planning Commission. **See attached markup below.**

3. Per§ Section 28-312.3.8(A) from the Town's Zoning Ordinance, *all on-site lighting shall be low cut-off shielded luminaries at a maximum 15' height and light shall not shine off-site at levels greater than 1 foot candle. All on-site lighting shall be decorative lamps consistent with the design elements of the area.* Include this information with the *Site Lighting Note* found within the *Project Data* on sheet 1 of 4 from the Site Plan.

4. A Special Exception is not required for the installation of the piers. Please revise references found within the *Project Data* on sheet 1 of 4 from the Site Plan.

5. Identify any proposed curb & gutter on all plan views.

6. Provide a Landscape Plan upon Development Site Plan submission.

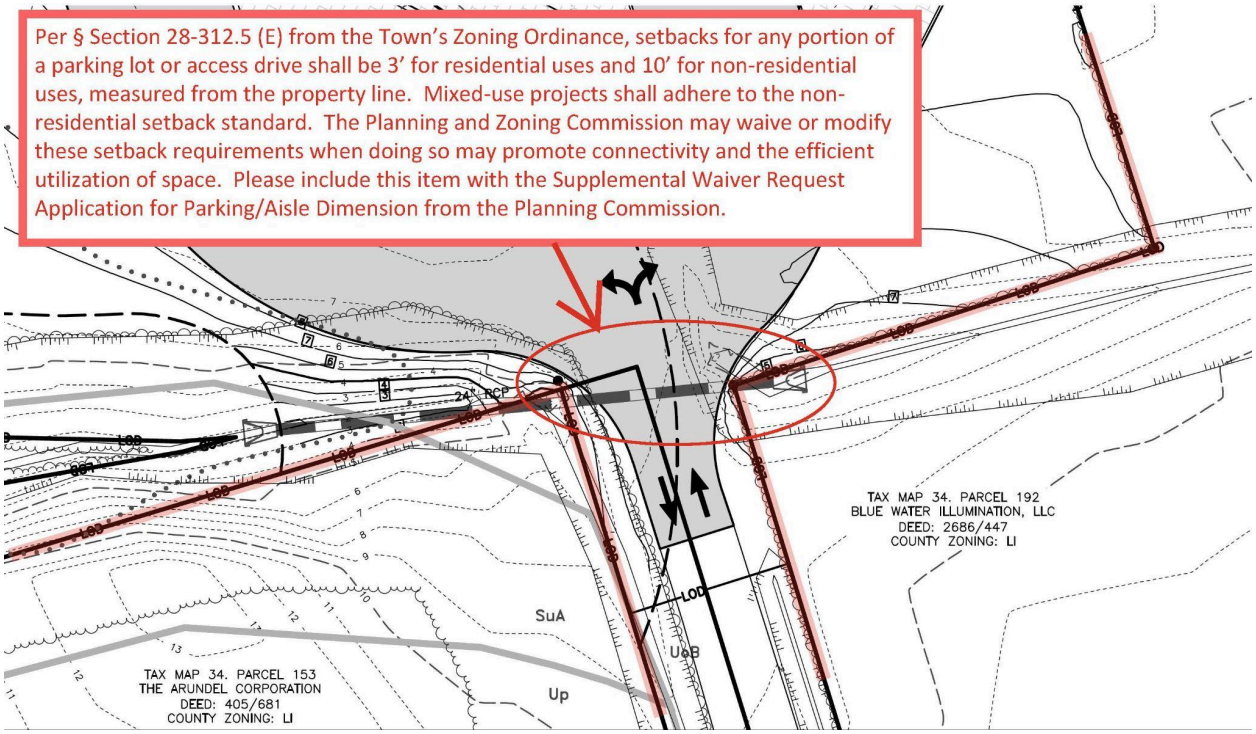
7. Prior to Development Site Plan approval, verify and add slope information for all ADA spaces, ramps, access aisles and landing areas. Check all ADA related spot elevations and obtain approval from the Building Inspection Department.

8. Prior to Development Site Plan approval, provide Van Accessible ADA Parking Sign Detail to include the sign "*No Parking in Access Aisle*" with an arrow pointing to the access aisle.

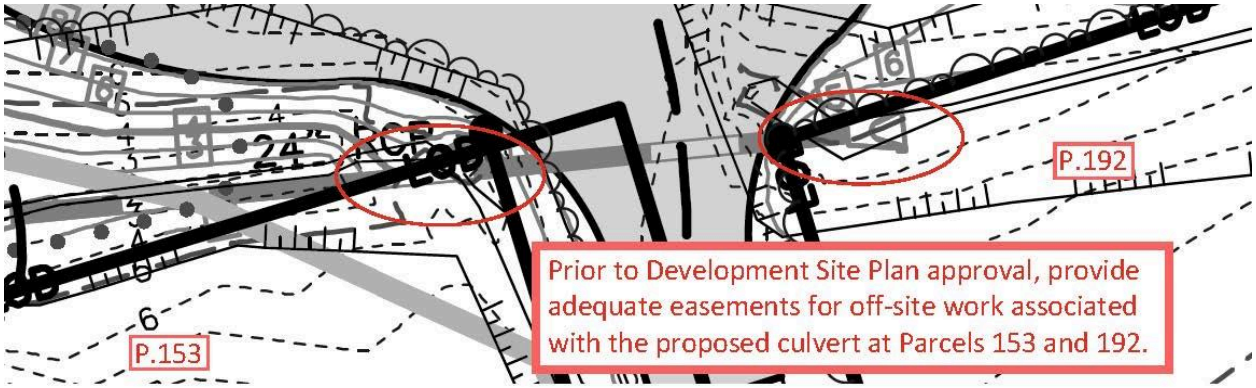
9. Per§ Section 28-40.4 F from the Town's Zoning Ordinance, *an applicant that is required to plant the Buffer to meet establishment or mitigation requirements shall submit a Buffer Management Plan in accordance with COMAR 27.01.09.01-3. The provisions of this Part do not apply to maintaining an existing grass lawn or an existing garden in the Buffer.* Please submit a Buffer Management Plan prior to Development Site Plan approval.

10. Prior to Development Site Plan approval, provide adequate easements for off-site work associated with the proposed culvert at Parcels 153 and 192. **See attached markup below.**

Review Comment #2



Review Comment #10



Plan Review Status

Sketch Site Plan Review			Comments
Plans Approved	☐Y	☒ N	Please review the comments above. Revise and resubmit.
Forest Stand Delineation & Forest Conservation Plan			
☐ Required ☐ Submitted ☐ Approved ☒ **Exempt**			**Exempt from Forest Conservation per Article III, § 31-3.2 B. The proposed activity is governed by the Chesapeake Bay Critical Area Protection Law, Natural Resources Article, §§8- 1801—8-1817, Annotated Code of Maryland, including those areas into which Critical Area forest protection measures have been extended under Natural Resources Article, §5-1602(c), Annotated Code of Maryland;** **Analysis -** The site is entirely within the Chesapeake Bay Critical Area. The overall site area is 13.346 acres with associated parking, stormwater management and landscaping. Required Forest Conservation would be 2.00 acres or 87,120 square feet. The intent of the project is to maximize use within the infill area and provide adequate facilities to accommodate the site. Based on the existing conditions and being entirely located within the Chesapeake Bay Critical Area, the staff supports the exemption.
Critical Area Commission			
☒ **Required** ☐ Submitted ☐ Approved ☐ Not Required			**On February 12, 2024, the Critical Area Commission confirmed that the MBA designation, like the IDA designation, stays with the property upon annexation and the Town's MBA provisions apply. Further, the Buffer is not expanded in the MBA, so the project will just need to meet the application setback requirements. Any design updates will be forwarded to the Critical Area Commission via the Town's Engineering Department.**
Other			
☐ Required ☐ Submitted ☐ Approved ☒ **Not Required**			**IMPACT FEES** **The town project will not require Impact Fees.**

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

EASTON UTILITIES

Life. Made better.™

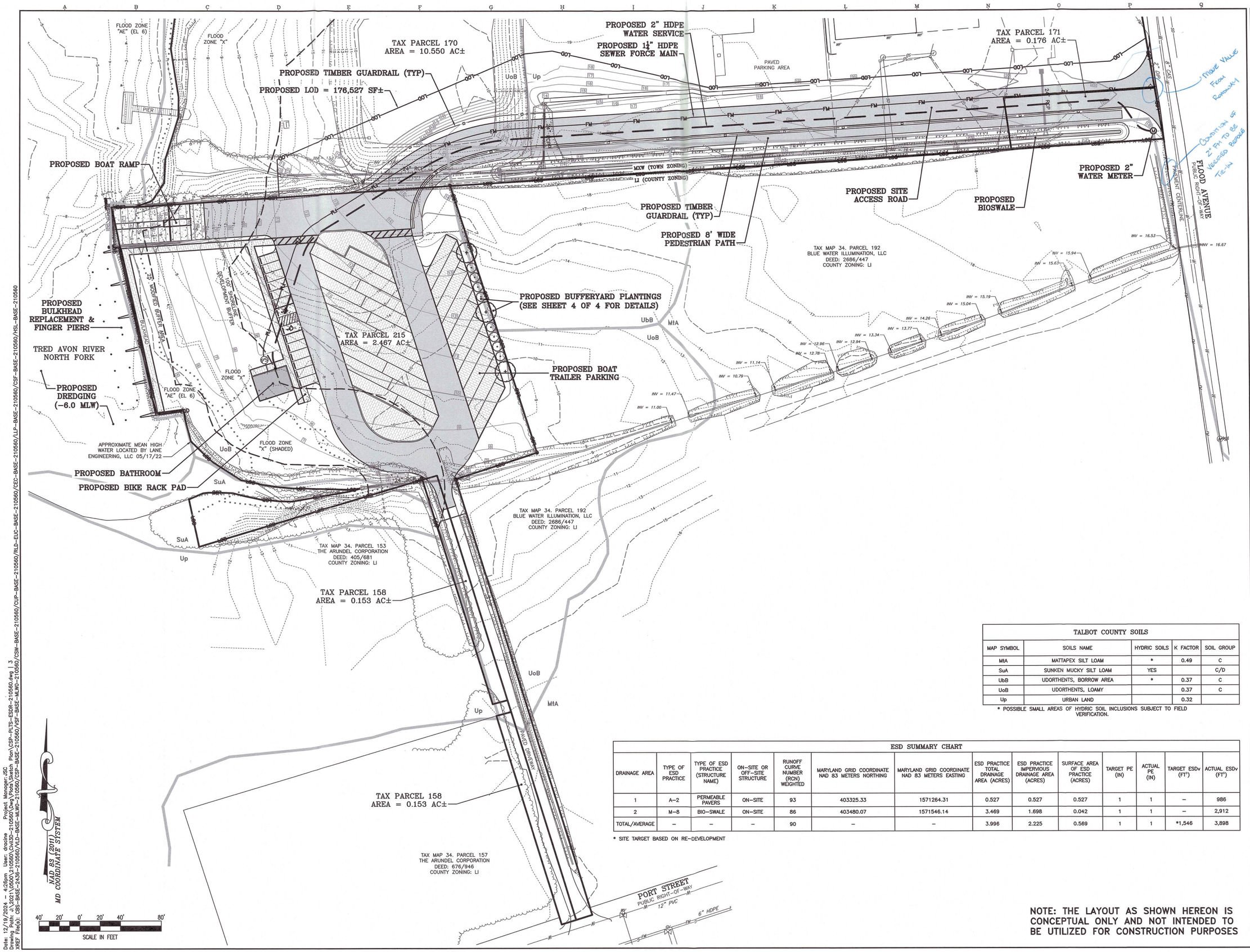
Easton Utilities Commission

Plan Review Comments

Date: Thursday, January 16, 2025
To: Sierra Clem, Nancy Pinkney
From: Kia Gibbs on behalf of Aaron Goller, PE **No. of Pages:** 2
Regarding: Easton Point Park
Phase: Sketch Site Plan **SUBM:** 2 **Status:** Approved as Noted

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	General	Contact EUC for electric (including to bathroom and streetlight needs)
2	3	Move valve from roadway
3	3	Condition of 2" forcemain to be field verified before tie-in.



Move Valve From Parking Lot

Condition of 2" FM to be Verified Before Tie-In

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.

MISS UTILITY
DIG WITH CARE
MARYLAND 811
BEFORE YOU DIG CALL
1-800-441-8355 OR 811
PROTECT YOURSELF, GIVE
TWO WORKING DAYS NOTICE

TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
MtA	MATTAPEX SILT LOAM	*	0.49	C
SuA	SUNKEN MUCKY SILT LOAM	YES		C/D
UbB	UDORTHENTS, BORROW AREA	*	0.37	C
UoB	UDORTHENTS, LOAMY		0.37	C
Up	URBAN LAND		0.32	

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

ESD SUMMARY CHART												
DRAINAGE AREA	TYPE OF ESD PRACTICE	TYPE OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN)	ACTUAL PE (IN)	TARGET ESDv (FT³)	ACTUAL ESDv (FT³)
1	A-2	PERMEABLE PAVERS	ON-SITE	93	403325.33	1571264.31	0.527	0.527	0.527	1	1	–	986
2	M-8	BIO-SWALE	ON-SITE	86	403480.07	1571546.14	3.469	1.698	0.042	1	1	–	2,912
TOTAL/AVERAGE	–	–	–	90	–	–	3.996	2.225	0.569	1	1	*1,546	3,898

* SITE TARGET BASED ON RE-DEVELOPMENT

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR CONSTRUCTION PURPOSES

Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@leinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, 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. 23152 , Expiration Date: 7/5/2025.

SEAL

STATE OF MARYLAND — TIMOTHY V. WILKEN — 23152 — REGISTERED PROFESSIONAL ENGINEER

12.20.24

DATE

OVERALL CONTEXT SITE PLAN

EASTON POINT PARK BOAT RAMP

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, PARCELS 158, 170, 171 & 21

ISSUED/REVISED FOR:	DATE:	BY
ESDR SUBMITTAL	12/19/24	JS

SHEET No. 3 OF 4

SCALE: AS NOTED

JOB No. 210560

FILE No. 5962

Date: 12/19/2024 - 4:26pm User: droche Project Manager: JSC
Drawing Path: J:\2021\0500\210560\Civil3D-210560\Dwg\Plots\Sketch Plan\CSP-PLTS-ESDR-210560.dwg | 3
XREF File(s): CBS-BASE-2435-210560/XLD-BASE-MLW0-210560/CSP-BASE-210560/VSF-BASE-MLW0-210560/CSW-BASE-210560/CUP-BASE-210560/RLD-EUC-BASE-210560/CEC-BASE-210560/CSP-BASE-210560/VLD-BASE-MLW0-210560/CSP-BASE-210560/LLP-BASE-210560/CSP-BASE-210560/HSL-BASE-210560

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: January 14, 2025

Project; Town of Easton Public Boat Ramp 801 Port Street

A Town of Easton Building Permit is required for all new Building construction.
The following lists items required on the construction drawings in order to apply for a Building Permit.

- Construction Documents (3 sets) for any new construction will be required.
- Items that must be addressed by the construction documents will be structural strength, facilities, stability, sanitation, light and ventilation, energy conservation.
- 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.
- An appointment may be set up with this department to review your permit application materials prior to permit application submission.

Joe Mayer <jmayer@eastonmd.gov>

Easton Point Boat Ramp - 801 Port Street

1 message

Joe Mayer <jmayer@eastonmd.gov> Thu, Jan 9, 2025 at 10:53 AM
To: Ann Sekerak -DNR- <ann.sekerak@maryland.gov>, Nick Kelly -DNR- <nick.kelly@maryland.gov>, Miguel Salinas <msalinas@eastonmd.gov>, Nicholas Johnson <njohnson@eastonmd.gov>, "Lynn B. Thomas" <lthomas@eastonmd.gov>, Rick Van Emburgh <rvanemburgh@eastonmd.gov>, Sierra Clem <sclem@eastonmd.gov>, Aaron Goller <agoller@eucmail.com>, Samantha Smith <ssmith@eastonmd.gov>, "Timothy W. Glass" <tglass@leinc.com>, Dani Racine <dracine@leinc.com>, Julie Carroll <jcarroll@eastonmd.gov>, Kody Cario <kcario@eastonmd.gov>

Hi Annie,

Per your request, please find the attached documents for the Easton Point Boat Ramp - 801 Port Street. Upon Development Site Plan review, a formal submission will be made. Please contact me if you have any questions or concerns.

Regards,
Joe

Joseph A. Mayer
Plan Reviewer
Town of Easton
14 South Harrison Street
Easton, MD 21601
410-822-1943

11 attachments

- **00-CAC-projectnotificationform.pdf**
  1502K
- **00-CAC-Transmittal.pdf**
  130K
- **2024-12-20 Boat Ramp Submission Email.pdf**
  208K
- **2024-12-20 Checklist Sketch Site Plan.pdf**
  55K
- **2024-12-20 Checklist SWM.pdf**
  112K
- **2024-12-20 Illustrative Plan EPP Boat Ramp.pdf**
  1131K
- **2024-12-20 Site Plan EPP Boat Ramp .pdf**
  3373K
- **2024-12-20 SWM-Report EPP Boat Ramp .pdf**
  5100K
- **2024-12-23 Response Letter Boat Ramp.pdf**
  124K
- **2025-01-02 Application Boat Ramp ESDR.pdf**
  221K

Dog Park Architectural Set Bid.pdf
2751K

Lane Engineering, LLC

Established 1986

Civil Engineering • Land Planning • Land Surveyors • Environmental • Marine

15 Washington Street
Cambridge, Maryland 21613
Tel 410-221-0818
Fax 410-476-9942

117 Bay Street
P.O. Box 1767
Easton, Maryland 21601
Tel 410-822-8003
Fax 410-822-2024

354 Pennsylvania Avenue
Centreville, Maryland 21617
Tel 410-758-2095
Fax 410-758-4422

January 23, 2025

Town of Easton
Planning & Zoning Department
c/o Joseph Mayer
14 South Harrison Street
P.O. Box 520
Easton, MD 21601

RE: Easton Point Park Boat Ramp
Response to ESDR Comments Received January 23, 2025

Town of Easton Planning & Zoning Department

1. Town of Easton Engineering Department will include the Supplemental Waiver Application with the Planning Commission submittal.
2. Town of Easton Engineering Department will include the Supplemental Waiver Application with the Planning Commission submittal.
3. The site lighting note has been updated as requested.
4. The special exception requirement has been removed from the notes.
5. Curb and gutter will be identified on the Site Construction Plans upon Development Site Plan submission.
6. A Landscape Plan was included with the ESDR submittal. A Landscape Plan will also be included with the Development Site Plan submission.
7. ADA design information will be included on the Site Construction Plans upon Development Site Plan submission.
8. The ADA parking details will be included on the Site Construction Plans upon Development Site Plan submission.
9. A Buffer Management Plan will be included with the Development Site Plan submittal.
10. Easements for off-site work will be provided as needed prior to Development Site Plan approval.

Easton Utilities Commission

1. Lane and/or Town of Easton Engineering Department will coordinate with EUC for electric needs.
2. Lane will coordinate with EUC regarding the location of the valve prior to Development Site Plan submittal.
3. Noted.

Office of Building Inspection

1. Noted.
2. Noted.
3. Noted.
4. Noted.

Thank you,

Dani Racine

Dani Racine

TOWN OF
EASTON
Engineering Department

DATE:	**January 24th, 2025**
TO:	**Town of Easton Planning Commission**
Cc:	**Miguel Salinas - Planning and Zoning**
	Rick Van Emburgh – Town Engineer
FROM:	**Sierra Clem – Engineering Department**
SUBJECT:	**Easton Point Park Boat Ramp – Restroom Facility**
	MXW Architectural Review

The Town of Easton Engineering Department is coordinating the proposed Easton Point Park Boat Ramp project which includes interior circulation, sidewalk and a two stall bathroom facility. While the nature of the bathroom facility does not fall under the typical architectural requirements otherwise intended for commercial, residential or mixed use facilities within the MXW zoning district, we have addressed the architectural standards in the Zoning Ordinance below as:

28-312.4 Architectural Standards:

A. Building design and construction shall meet the minimum requirements of the International Code Council's International Green Construction Code or be US Green Building Council (USGBC) LEED rated, Bronze standard, or a generally accepted equivalent standard, provided, however that formal LEED certification shall not be required.

The proposed bathroom facility does not meet the minimum size requirement for LEED certification. However aspects towards LEED goals were considered.

28-312.4.1 Building, Massing (Shape, Form and Size)

A. ~~For buildings with ground level commercial or mixed use, floor-to-ceiling height shall be a minimum of 14 feet at ground level and 10 feet for upper stories.~~ For buildings with ground level non-commercial use, floor-to-ceiling height shall be a minimum of 10 feet for the ground floor and 9 feet for upper stories.

Not Applicable - does not apply for proposed use.

B. Massing and scale of larger buildings shall generally be broken down into smaller and varied volumes or wrapped linearly in a series of smaller pedestrian-scaled buildings with doors and windows.

The building is a smaller scale pedestrian building.

~~C. Buildings exceeding two stories shall incorporate a base, middle, and cap described as follows:~~

Not Applicable - The facility will not be two stories

D. Regulating lines and rhythms shall be included to create a pedestrian-scaled environment, including horizontal lines, transoms, cornices, eaves, recesses, courts and arcades that provide human scale to façades.

The restroom facility building is intended to be a small scale pedestrian oriented.

~~*E. A clear pattern of building openings shall be provided. Windows, balconies, and bays should unify a building's street wall and add considerably to a façade's three-dimensional quality.*~~

Not Applicable - The facility will not be fronting a street.

F. Major architectural expressions in the façade such as; corner massing, oversized windows-entrances, towers, chimneys, roof form and dormers, shall be employed to demarcate gateways, intersections and anchor key locations.

The building is designed in respect to traditional Easton architecture while also being a modest restroom facility.

~~*G. Window sills, moldings, and cornices shall align with those of adjacent buildings. The bottom and top line defining the edge of the windows (the "windowsill alignment") shall vary not more than two feet from the alignment of surrounding buildings. If the adjoining buildings have windowsill alignments that vary by more than two feet from one another, the proposed building shall align with one of the adjoining buildings.*~~

Not Applicable - No windows are proposed in the restroom facility.

28-312.4.2 Ground-Floor Design

A. All buildings in the Zoning District shall have their principal entrance opening to a street, square, plaza, or sidewalk. <u>The principal entrance shall not open to a parking lot.</u> Pedestrian access from the public sidewalk, street right-of-way, or driveway to the principal structure shall be provided through an improved surface. ~~*Easements shall be provided to facilitate pedestrian access between parking lots and street frontages.*~~

The primary entrance is provided on an improved surface that fronts both the sidewalk and the parking lot.

~~B. The ground floor of the entryway shall align with the sidewalk elevation. Sunken terraces or stairways to a basement shall not constitute entryways for purposes of this section. It is not the intent of this section to preclude the use of below-grade entryways, provided that such entryways shall not constitute a principal entryway.~~

Not applicable - a basement is not proposed

28-312.4.3 Façade Design

A. Any façade which is oriented to the water's edge or Boardwalk/promenade, shall be treated as a front façade.

The only front façade angled to be best visible towards the water, sidewalk and parking lot.

B. Building design shall be done in a manner to not have an apparent rear façade. Façades facing a rear property line shall be designed to be a secondary front and or side façade.

The building does have a distinct rear façade which fronts the waters edge.

C. Solid walls shall not exceed 20 feet in length.

Design of the building includes detail along the rear solid wall.

D. All building façades should be responsive to the context of the surrounding environment and neighboring buildings.

There are no buildings of significance to compare to. The intent of this design is to compare it to the other Town of Easton public park restroom facilities – identical to the Dog Park.

E. Exterior materials shall consist of materials that are traditional, durable and environmentally sustainable. The following list of materials is intended to serve as examples for the desired design aesthetic. Additional materials may be proposed, subject to review and approval by the Planning and Zoning Commission:

a. Roofing

1. Sawn shingles or composition shingles; standing seam metal; slate; or cedar shakes

b. Soffits

1. Composition board with smooth finish, tongue-and-groove wood boards, or fibercement panels

c. Gutters and Downspouts

1. Half-round or ogee profile gutters with round or rectangular downspouts in copper, painted or pre-finished metal

d. Cladding

1. Smooth-finish wood or fiber cement lap siding, 6- to 8-inch exposure or random width cut shingles

2. Sand-molded or smooth-finish brick in Common, English or Flemish Bond patterns

3. Civic uses may look to incorporate more contemporary materials, such as steel and/ or curtain-wall glazing

e. Windows

Not Applicable – Not Proposed

f. Doors

1. Wood, fiberglass, or steel with traditional stile-and-rail proportions and raised panel profiles, painted or stained

g. Shutters

Not Applicable – Not Proposed

h. Columns

Not Applicable – Not Proposed

i. Railings

Not Applicable – Not Proposed

28-312.4.4 Windows and Entryways

~~*A. Windows above the ground floor shall have a ratio of height to width of at least 2:1.*~~

Not Applicable - No windows proposed.

~~*B. The uses on the ground floor shall be visible from and/or accessible to the street through the use of windows and doors on at least 50% of the length of the first floor street frontage. At least 60% or more than 90% of the total surface area of the front elevation shall be in public entrances and windows (including retail display windows). Where windows are used, they shall be clear, non-reflective glass*~~

Not applicable – Not visible from the street.

~~*C. Ribbon windows and extensive use of mirrored glass are prohibited.*~~

Not Applicable - No windows proposed.

~~*D. All street-level retail uses with sidewalk frontage shall be furnished with an individual entrance and direct access to the sidewalk in addition to any other access that may be provided.*~~

Not applicable – not retail use.

~~*E. Doors shall be recessed into the face of the building to provide a sense of entry and to add variety to the streetscape. An entryway shall not be less than one square foot for each 1,000 square feet of floor area, and in all cases shall not be less than 15 square feet.*~~

Not applicable – not a streetscape orientation.

~~*F. Canopies, awnings, and similar appurtenances may be constructed at the entrance to any building and may encroach into any required front setback. Any such feature shall have a minimum depth of 5 feet, and shall have a minimum clearance height above the sidewalk of 8 feet and a maximum clearance height above the sidewalk of 13 feet 6 inches.*~~

Not applicable - canopies, awnings or similar are not proposed.

~~28-312.4.5 Porches~~

Not applicable – Porches not proposed

28-312.4.6 Color Selections

A. The color palette for projects in the Zoning District shall generally be designated as follows:

a. *Façade surface colors shall recall natural materials, and avoid bright, artificial or metallic colors*.

Brick proposed.

b. Accent colors shall be muted blues, greens, yellows, browns, and shades of white, beige, and gray

Accent color proposed is white.

c. Masonry materials, such as brick should typically be left unpainted.

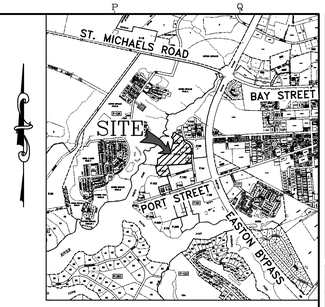
Brick is proposed and not intended to be painted.

d. Façades should contain no more than three colors.

Only brick, white accent and the color of the door are proposed.

B. The Planning and Zoning Commission shall have the authority to approve proposed architecture as compliant with the standards of this subsection, during their site plan review process. In so doing, the **Planning and Zoning Commission shall focus their review on the more general architectural issues such as the appropriateness of the theme or style proposed, the general massing, shape, size, form and orientation of the buildings.** The appropriateness of more detailed issues, such as materials and product specifications, shall be verified by Town staff (with the advice of a professional consulting architect, as needed).

SKETCH SITE PLAN
FOR
EASTON POINT PARK BOAT RAMP
IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND



LOCATION MAP
SCALE: 1" = 2,000'

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

PROJECT DATA

PROPERTY: TAX MAP 34, PARCEL 158
PORT STREET
EASTON, MD 21601

TAX MAP 34, PARCEL 170
672 W GLENWOOD AVE
EASTON, MD 21601

TAX MAP 34, PARCEL 171
672 W GLENWOOD AVE
EASTON, MD 21601

TAX MAP 34, PARCEL 215
801 PORT STREET
EASTON, MARYLAND 21601

OWNER/DEVELOPER: TOWN OF EASTON
C/O RICK VANEMBURGH
9030 MISTLETOE DRIVE
EASTON, MARYLAND 21601
(410) 820-8822

DEED REFERENCE: 2879/488 (PARCELS 158 & 215)
569/639 (PARCEL 170)
933/698 (PARCEL 171)

PLAT REFERENCE: 89/127 (PARCEL 215)

SITE AREA: 0.153 ACRES± (PARCEL 158)
10.550 ACRES± PER SDAT (PARCEL 170)
0.176 ACRES± PER SDAT (PARCEL 171)
2.467 ACRES± (PARCEL 215)

ZONING CLASSIFICATION: MXW (MIXED-USE WATERFRONT DISTRICT)
SUB-DISTRICT AREAS: WATER'S EDGE & WATER VIEW

		WATER'S EDGE	WATER VIEW
BUILDING SETBACKS:	FRONT:	5' MINIMUM 15' MAXIMUM	5' MINIMUM 15' MAXIMUM
	SIDE:	5'	N/A
	MHW:	25'	N/A
MINIMUM LOT SIZE:		1/2 ACRE	1/4 ACRE
MAXIMUM BUILDING HEIGHT:		30' (1.5 STORY)	40' (2.5 STORY)
MAXIMUM LOT COVERAGE:		30%	45%

EXISTING CONDITIONS: THE SUBJECT LANDS HAVE HISTORICALLY BEEN UTILIZED FOR INDUSTRIAL AND MUNICIPAL OPERATIONS, SPECIFICALLY FOR SOUTHERN STATES AND THE TOWN OF EASTON/EASTON UTILITIES COMMISSION PUBLIC WORKS FACILITY.

PROPOSED DEVELOPMENT: THIS PROJECT PROPOSES TO CONSTRUCT A NEW PUBLIC BOAT RAMP WITH ASSOCIATED SITE IMPROVEMENTS ON PARCEL 215. A NEW ROAD WILL BE CONSTRUCTED ACROSS PARCELS 170 AND 171 PROVIDING ACCESS TO THE BOAT RAMP FROM FLOOD AVENUE.

STORMWATER MANAGEMENT: WATER QUALITY REQUIREMENTS ADDRESSED BY UTILIZING ALTERNATIVE SURFACES (PERVIOUS PAVERS) AND BIOWSWALE. QUANTITY MANAGEMENT IS EXEMPT DUE TO THE SITE HAVING DIRECT OUTFALL TO TIDAL WATERS.

FOREST CONSERVATION: SUBJECT PROPERTY IS LOCATED ENTIRELY WITHIN THE CHESAPEAKE BAY CRITICAL AREA. FOREST CONSERVATION REGULATIONS DO NOT APPLY.

SPECIAL EXCEPTIONS/VARIANCES/WAIVERS: THE APPLICANT IS SEEKING A WAIVER FROM THE LANDSCAPING REQUIREMENTS SET FORTH IN §28-1001.3.L AND FROM THE PARKING LOT/ACCESS DRIVE SETBACK REQUIREMENTS SET FORTH IN §28-312.3.B(A).

REFUSE/TRASH: TRASH CANS TO BE PROVIDED, SERVICED, AND MAINTAINED BY TOWN OF EASTON DPW.

SITE LIGHTING: PROVIDED FOR SITE CONVENIENCE AND SAFETY. ALL ON-SITE LIGHTING SHALL BE LOW CUT-OFF SHIELDED LUMINARIES AT A MAXIMUM OF 15 FT HEIGHT AND LIGHT SHALL NOT SHINE OFF-SITE AT LEVELS GREATER THAN 1 FOOT CANDLE. ALL ON-SITE LIGHTING SHALL BE DECORATIVE LAMPS CONSISTENT WITH THE DESIGN ELEMENTS OF THE AREA. DESIGN BY EASTON UTILITIES COMMISSION.

PUBLIC SIDEWALKS: PROVIDED ON-SITE AS REQUIRED FOR PEDESTRIAN MOBILITY. THE SITE DOES NOT HAVE PUBLIC RIGHT-OF-WAY FRONTAGE WHEREBY THE CONSTRUCTION OF PUBLIC SIDEWALKS IS APPLICABLE.

LOT COVERAGE CALCULATIONS

NOTE: PER TOWN OF EASTON ZONING, LOT COVERAGE CALCULATIONS ONLY INCLUDE BUILDINGS & STRUCTURES.

PARCEL 158
EXISTING (ENTIRE PARCEL) = 0 SF± (0%)
PROPOSED (ENTIRE PARCEL) = 0 SF± (0%)

PARCEL 170
EXISTING (WITHIN LOD) = 7,216 SF±
PROPOSED (WITHIN LOD) = 0 SF±

PARCEL 171
EXISTING (WITHIN LOD) = 0 SF±
PROPOSED (WITHIN (LOD) = 0 SF±

PARCEL 215
EXISTING (ENTIRE PARCEL) = 4,984 SF± (4.6%)
PROPOSED (ENTIRE PARCEL) = 292 SF± (0.3%)

PARKING CALCULATIONS

TOTAL VEHICLE PARKING REQUIRED: PARKING REQUIREMENTS TO BE DETERMINED BY TOWN PLANNER
TOTAL VEHICLE PARKING PROVIDED: 43 TOTAL SPACES PROVIDED
(14 PASSENGER SPACES & 29 BOAT TRAILER SPACES)

ADA ACCESSIBLE PARKING SPACES REQUIRED: 1 STANDARD & 1 VAN
ADA ACCESSIBLE PARKING SPACES PROPOSED: 1 STANDARD & 1 VAN

TOTAL BICYCLE PARKING SPACES REQUIRED: 3
TOTAL BICYCLE PARKING SPACES PROVIDED: 6

SIGNAGE

ALL PROPOSED SIGNAGE SHALL BE APPROVED AND PERMITTED BEFORE INSTALLATION VIA A SEPARATE SIGN PERMIT. SIGN LIGHTING TO BE DETERMINED.

PROJECT NOTES

THE PROPERTY SHOWN HEREON LIES IN BUFFER MANAGEMENT AREA NUMBER 17.

THE PROPERTY SHOWN HEREON LIES ENTIRELY WITHIN THE CHESAPEAKE BAY CRITICAL AREA AND IS MAPPED IDA (INTENSELY DEVELOPED AREAS).

MEAN HIGH WATER WAS NOT ESTABLISHED BY THIS SURVEY. MEAN HIGH WATER IS DEFINED BY ELEVATION REFERENCED TO A TIDAL BENCH MARK. THE SHORELINE WAS LOCATED TO THE EDGE OF TIDAL VEGETATION AND BULKHEAD. THE BOUNDARY IS SUBJECT TO CHANGE DUE TO NATURAL CAUSES AND IT MAY NOT REPRESENT THE ACTUAL LOCATION OF THE TIDAL LIMIT OF TIDE.

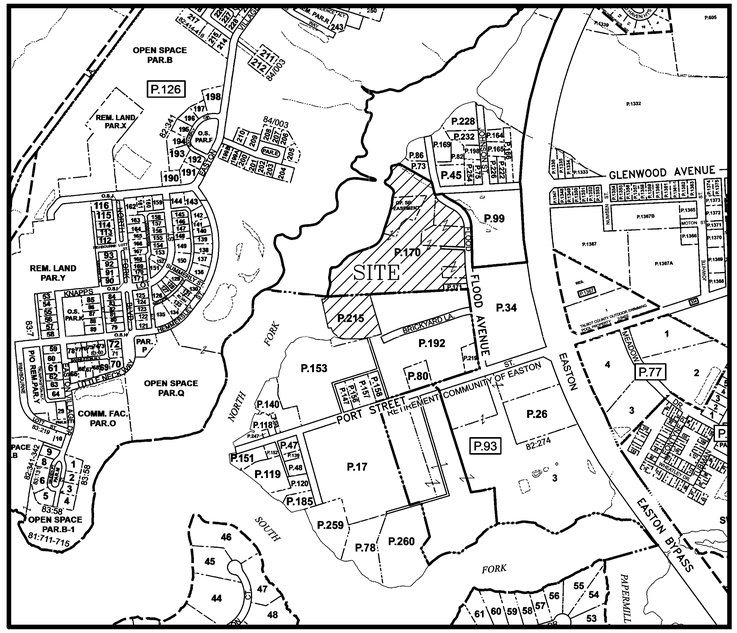
THE IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON 05-17-22.

THE DIMENSIONS OF BUILDINGS, STRUCTURES AND SETBACKS WERE MEASURED TO THE NEAREST 0.1 FOOT.

THE ELEVATIONS SHOWN HEREON WERE CONVERTED TO MLW=0 DATUM USING TIDAL BENCH MARK CAMBRIDGE (STATION ID: 8571892).

THE COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND COORDINATE SYSTEM NAD83 (2011), AS ESTABLISHED BY GPS METHODOLOGY TO CORS STATIONS MDNM (NGS CERTIFICATE PENDING) AND LOYF (PID DK7414) COMBINED FACTOR: 0.99995360. THE DISTANCES SHOWN HEREON ARE GROUND BASED.

NO ABSTRACT OF TITLE, TITLE COMMITMENT, NOR RESULTS OF A TITLE SEARCH HAVE BEEN FURNISHED TO LANE ENGINEERING, LLC. THE BUILDING RESTRICTION LINES AS SHOWN HEREON ARE BASED SOLELY ON THE CURRENT TOWN OF EASTON ZONING ORDINANCE APPLICABLE TO THE PROPERTY SHOWN HEREON AND ARE SUBJECT TO CHANGE WITH THE REVISION OF ZONING LAWS. OTHER DOCUMENTS OF RECORD MAY EXIST THAT MAY AFFECT THE SURVEYED PROPERTY REFLECTED HEREON, INCLUDING BUT NOT LIMITED TO EASEMENTS, ENCUMBRANCES, RESTRICTIVE COVENANTS, PLAT RESTRICTIONS OR ANY OTHER FACTS THAT AN ACCURATE, COMPLETE AND CURRENT TITLE SEARCH MAY DISCLOSE.



VICINITY MAP

500' 250' 0' 250' 500' 1,000'
SCALE IN FEET

SHEET No.	TITLE
1	TITLE SHEET
2	LEGEND & ABBREVIATIONS
3	OVERALL CONTEXT SITE PLAN
4	PARTIAL SITE PLAN & LANDSCAPE PLAN

FLOOD DATA

A PORTION OF THE PROPERTY SHOWN HEREON IS LOCATED IN THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SPECIAL FLOOD HAZARD AREA (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. THE PROPERTY IS MAPPED IN THE "AE" (EL 6), "X" (SHADED) AND "X" FLOOD ZONES AS SHOWN ON THE FEDERAL INSURANCE RATE MAPS FOR COMMUNITY NO. 240067, MAP NO. 24041C0189D FOR TOWN OF EASTON, MARYLAND. THE 1% ANNUAL CHANCE FLOOD (100-YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SFHA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. THE SFHA INCLUDES ZONES A, AE, AH, AO, AR, A99, V & VE. THE BASE FLOOD ELEVATION (BFE) IS THE WATER SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD. FLOOD INSURANCE MAY BE REQUIRED FOR STRUCTURES LOCATED IN THE SPECIAL FLOOD HAZARD AREA.

FLOOD ZONE LEGEND
ZONES A, AE, AH, AO, AR, A99, V & VE – 1% ANNUAL CHANCE FLOOD
ZONE X (SHADED) – 0.2% ANNUAL CHANCE FLOOD
ZONE X – AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD

THE FLOOD DATA SHOWN HEREON IS BASED ON AVAILABLE MAPPED AND/OR DIGITAL INFORMATION AND IS DEPICTED AS DIRECTED AND REQUIRED BY FEDERAL, STATE AND LOCAL REGULATIONS. IT IS SUBJECT TO DATA INACCURACIES AND REGULATORY CHANGE AND SHOULD BE VERIFIED PRIOR TO FINALIZING DEVELOPMENT OR IMPROVEMENT PLANS FOR THE SUBJECT LANDS.

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1 – INTEGRATED USES ARE DESIRABLE
THE PROJECT PROPOSES REDEVELOPMENT OF A HISTORICALLY INDUSTRIAL SITE, PROVIDING A NEW RECREATIONAL USE THAT IS CONSISTENT WITH THE MXW ZONING DISTRICT AND THE WATER'S EDGE AND WATER'S VIEW SUB-DISTRICTS.

PRINCIPLE #2 – NATURAL FEATURES SHOULD DETERMINE DESIGN
SITE DESIGN CENTERS AROUND PRESERVING THE TRED AVON RIVER VIEW CORRIDOR AND EXISTING GREEN SPACE ON-SITE. PARKING AND MANEUVERING AREAS ARE PROPOSED WITHIN THE EXISTING IMPERVIOUS FOOTPRINT.

PRINCIPLE #3 – AUTOMOBILES SHOULD NOT DETERMINE DESIGN
SITE DESIGN WAS DETERMINED BY THE EXISTING IMPERVIOUS FOOTPRINT AND WATER DEPENDENT USE.

PRINCIPLE #4 – AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN & AROUND NEIGHBORHOODS
EASTON POINT PARK WILL PROVIDE AMPLE OPEN SPACE FOR PUBLIC GATHERING AND RECREATION.

PRINCIPLE #5 – ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT
THE ARCHITECTURE OF THE PROPOSED BATHROOM WILL BE COMPATIBLE WITH THE TOWN OF EASTON'S ARCHITECTURAL PALETTE AND CONSISTENT WITH OTHER BUILDINGS IN THE MXW ZONING DISTRICT.

PRINCIPLE #6 – SIGNS SHOULD INFORM BUT NOT DOMINATE
SIGNAGE WILL BE SIMPLE AND COMPLIANT WITH TOWN STANDARDS.

PRINCIPLE #7 – NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES
NOT APPLICABLE TO THIS APPLICATION.

PRINCIPLE #8 – RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES
EASTON POINT PARK AND THE PROPOSED BOAT RAMP WILL SERVE SURROUNDING COMMUNITIES, PROVIDING PUBLIC OPEN SPACE FOR RECREATION AND GATHERING, AND WATERFRONT ACCESS TO THE TRED AVON RIVER.

PRINCIPLE #9 – NEIGHBORHOODS SHOULD CONNECT
EASTON POINT PARK WILL BE CONNECTED TO SURROUNDING NEIGHBORHOODS VIA RAILS-TO-TRAILS.

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SEAL

STATE OF MARYLAND
ROBERT WILLIAM GLASS, JR.
23152
REGISTERED PROFESSIONAL ENGINEER

1.23.25
DATE

TITLE SHEET

EASTON POINT PARK
BOAT RAMP

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, PARCELS 158, 170, 171 & 215

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	12/19/24	JSC
PLANNING COMMISSION SUBMITTAL	01/23/25	JSC

SHEET No. 1 OF 4
SCALE: AS NOTED
JOB No. 210560
FILE No. 5962

SITE ADDRESS

PARCELS 170 & 171
672 W GLENWOOD AVE
EASTON, MARYLAND 21601

PARCEL 215
801 PORT STREET
EASTON, MARYLAND 21601

OWNER/DEVELOPER

TOWN OF EASTON
C/O RICK VANEMBURGH
9030 MISTLETOE DRIVE
EASTON, MARYLAND 21601
(410) 820-8822

CIVIL ENGINEER

LANE ENGINEERING, LLC
C/O TIMOTHY W. GLASS, P.E.
117 BAY STREET
EASTON, MD 21601
(410) 822-8003

Date: 01/23/2025 - 4:13pm User: drocine Project Manager: JSC
Drawing Path: J:\2021\0500\210560\Civil3D-210560\Dwg\Plots\Sketch Plan\GCS-PLTS-ESDR-210560.dwg | 1
XREF File(s): CBS-BASE-2438-210560/RAR-BASE-210560

	EXISTING	PROPOSED
SURVEY MONUMENTATION		
IRON ROD		
CONCRETE MONUMENT		
STONE		
COMPUTED POINT		
GPS MONUMENT	GPS	
BENCH MARK	BM	
NGS MONUMENT	NGS	
USGS MONUMENT	USGS	
PROPERTY LINE		
CABLE TV		
CABLE TV PEDESTAL	CTV	CTV
OVERHEAD CABLE TV	CTV	CTV
UNDERGROUND CABLE TV	UCTV	UCTV
ELECTRICAL		
CIRCUIT BREAKER PANEL		
OUTLET		
CABINET	EC	EC
TRANSFORMER BOX	E	E
METER		
HANDHOLE		
TRANSFORMER TOWER		
ELECTRIC OVERHEAD	E	E
ELECTRIC UNDERGROUND	UE	UE
GAS		
UNDERGROUND GAS TANK	GT	GT
VENT	VT	VT
BLOW OFF	BO	BO
FILLER PIPE	R	R
METER		G
STOP BOX	SB	
SHUTOFF VALVE		
GAS MAIN	G	G
OVER HEAD UTILITIES		
GUY WIRE ANCHOR	GA	GA
LAMP POLE		
BOLLARD/SPOT LIGHTING		
SINGLE OVERHANG LIGHT POST		
DOUBLE OVERHANG LIGHT POST		
UTILITY POLE		
OVER HEAD UTILITY LINES	OHU	OHU
SANITARY SEWER		
CLEAN OUT		C
PUMPSTATION MANHOLE	PS	PS
SANITARY SEWER MANHOLE	S	S
SEWER VENT	SV	SV
SEWER VALVE		
SEPTIC TANK		
SANITARY SEWER	SS	
FORCE MAIN	FM	FM
VACUUM SEWER	VS	VS
ACCESS POINT	AP	AP
VALVE PIT	VP	VP
STORMDRAIN		
ROUND CATCH BASIN	CB	CB
SQUARE CATCH BASIN	CB	CB
CURB INLET		
CISTERN	CI	CI
CULVERT END SECTION		
ROUND INLET	I	I
SQUARE INLET		
STORMDRAIN MANHOLE	D	D
STORMDRAIN CLEANOUT	CO	CO
DOWNSPOUT	DS	DS
STORMDRAIN	SD	
TELEPHONE		
TELEPHONE MANHOLE	T	T
TELEPHONE PEDESTAL	TP	TP
PHONE BOOTH		
TELEPHONE	T	T
UNDERGROUND TELEPHONE	UT	UT

	EXISTING	PROPOSED
UNDERGROUND UTILITIES		
UTILITY MANHOLE		U
WATER		
FIRE HYDRANT		
REDUCER		
WELL	W	W
WATER METER	W	M
VALVE		
CAP		
CROSS		
TEE		
90DEG ELBOW		
45DEG ELBOW		
22DEG ELBOW		
11DEG ELBOW		
THRUST BLOCK		
BLOW OFF		
SPRINKLER HEAD	SH	
WATER SPIGOT	WF	
WATER MAIN	W	
SERVICE LEAD		
TOPOGRAPHIC FEATURES		
UNDERGROUND PROPANE TANK		
FLAG POLE	FP	FP
HVAC UNIT		
PARKING METER	PM	
ROUND POST	P	
SQUARE POST	P	
RAILROAD SIGNAL		
SATELLITE DISH		
TRAFFIC SIGNAL		
SINGLE POST SIGN		
DOUBLE POST SIGN		
UNSPECIFIED FENCE	X X X	X X X
BARBED WIRE FENCE	X	X
CHAIN LINK FENCE		
WOOD FENCE		
DITCH TOP OF BANK		
DEPRESSION		
MAJOR CONTOUR	25	25
MINOR CONTOUR	24	24
VEGETATION		
STUMP		
TREE LINE		
ENVIRONMENTAL		
MONITORING WELL	MW	
PIEZOMETER	P	
APPROXIMATE SOIL BORING LOCATION	B	
NON-TIDAL WETLAND		
TIDAL WETLAND		
NON-TIDAL WETLAND LIMIT	NTW	
TIDAL WETLAND LIMIT	TW	
FLOOD PLAIN		
SOIL BOUNDARY		
CRITICAL AREA BOUNDARY		
SOIL EROSION CONTROL		
SILT FENCE		SF
SUPER SILT FENCE		SSF
FILTER LOG		FL
LIMITS OF DISTURBED AREA (LOD)		LOD
LOD AND SILT FENCE		LOD/SF
LOD AND SUPER SILT FENCE		LOD/SSF
LOD AND FILTER LOG		LOD/FL
PAVEMENT		
DRAINAGE FLOW INDICATOR		
HANDICAP PARKING		
GUARDRAIL		
HEAVY DUTY PAVEMENT		
REGULAR DUTY PAVEMENT		
CONCRETE		
MISCELLANEOUS		
EXISTING IMPROVEMENTS TO BE DEMOLISHED		
PERVIOUS PAVERS		

ABBREVIATIONS

ADA	AMERICANS WITH DISABILITIES ACT
AGIP	AT GRADE INLET PROTECTION
BC	BACK OF CURB
BM	BENCHMARK
BRL	BUILDING RESTRICTION LINE
CES	CONCRETE END SECTION
℄	CENTERLINE
CHRD	CHORD
CIP	CURB INLET PROTECTION
CMP	CORRUGATED METAL PIPE
CY	CUBIC YARD
DI	DUCTILE IRON
DIMJ	DUCTILE IRON MECHANICAL JOINT
E	EAST
EL/ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EX	EXISTING
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FES	FLARED END SECTION
FL	FLOWLINE
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
I	INLET
INV	INVERT
KV	KILOVOLTS
L	ARC LENGTH
LF	LINEAR FEET
LOD	LIMITS OF DISTURBED AREA
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
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
PT	POINT OF TANGENCY
PROP	PROPOSED
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
Q	DISCHARGE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
RT	RIGHT
S	SOUTH
SCE	STABILIZED CONSTRUCTION ENTRANCE
SDCO	STORMDRAIN CLEANOUT
SDMH	STORMDRAIN MANHOLE
SSMH	SANITARY SEWER MANHOLE
SF	SILT FENCE
Sf	FRICTION SLOPE
SHA	STATE HIGHWAY ADMINISTRATION
SIP	STANDARD INLET PROTECTION
SL	STREET LIGHT
SSF	SUPER SILT FENCE
STA	STATION
STD	STANDARD
SWM	STORMWATER MANAGEMENT
TAN	TANGENT
TB	THRUST BLOCK
TBR	TO BE REMOVED
TC	TOP OF CURB
TCP	TERRACOTTA PIPE
TYP	TYPICAL
UE	UNDERGROUND ELECTRIC
UL	UNDERGROUND LIGHT CABLE
UT	UNDERGROUND TELEPHONE
V	VELOCITY
VCP	VITRIFIED CLAY PIPE
W	WEST
W/	WITH

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SEAL

STATE OF MARYLAND
JOSEPH S. CLARKE
23152
PROFESSIONAL ENGINEER

1.23.25

DATE

LEGEND & ABBREVIATIONS

EASTON POINT PARK BOAT RAMP

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, PARCELS 158, 170, 171 & 215

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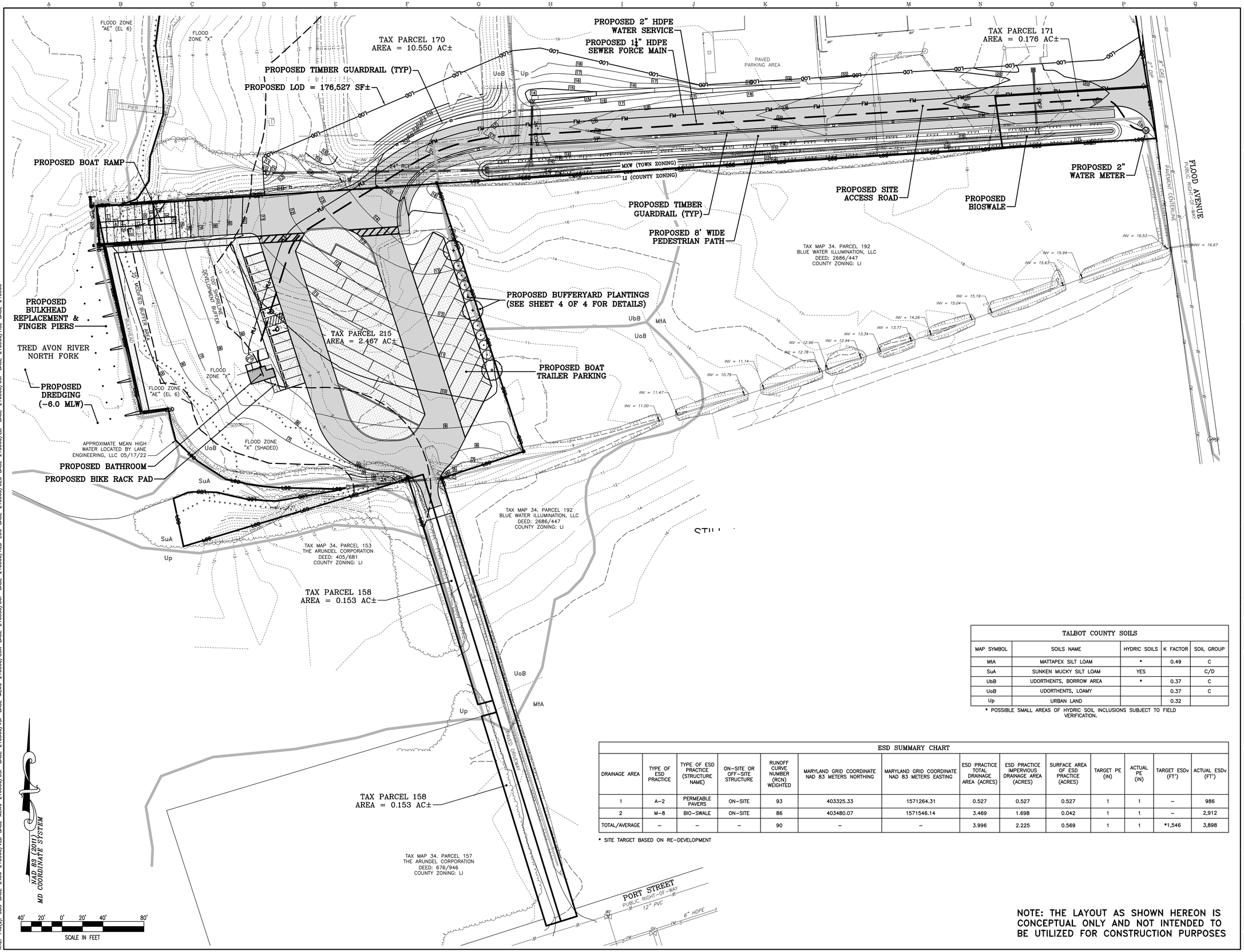
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JOB No. 210560

FILE No. 5962

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TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
MtA	MATTAPEX SILT LOAM	*	0.49	C
SuA	SUNKEN MUCKY SILT LOAM	YES		C/D
UbB	UDORTHENTS, BORROW AREA	*	0.37	C
UoB	UDORTHENTS, LOAMY		0.37	C
Up	URBAN LAND		0.32	

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

ESD SUMMARY CHART												
DRAINAGE AREA	TYPE OF ESD PRACTICE	TYPE OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN)	ACTUAL PE (IN)	TARGET ESDv (FT³)	ACTUAL ESDv (FT³)
1	A-2	PERMEABLE PAVERS	ON-SITE	93	403325.33	1571264.31	0.527	0.527	0.527	1	1	–	986
2	M-8	BIO-SWALE	ON-SITE	86	403480.07	1571546.14	3.469	1.698	0.042	1	1	–	2,912
TOTAL/AVERAGE	–	–	–	90	–	–	3.996	2.225	0.569	1	1	*1,546	3,898

* SITE TARGET BASED ON RE-DEVELOPMENT

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OVERALL CONTEXT SITE PLAN

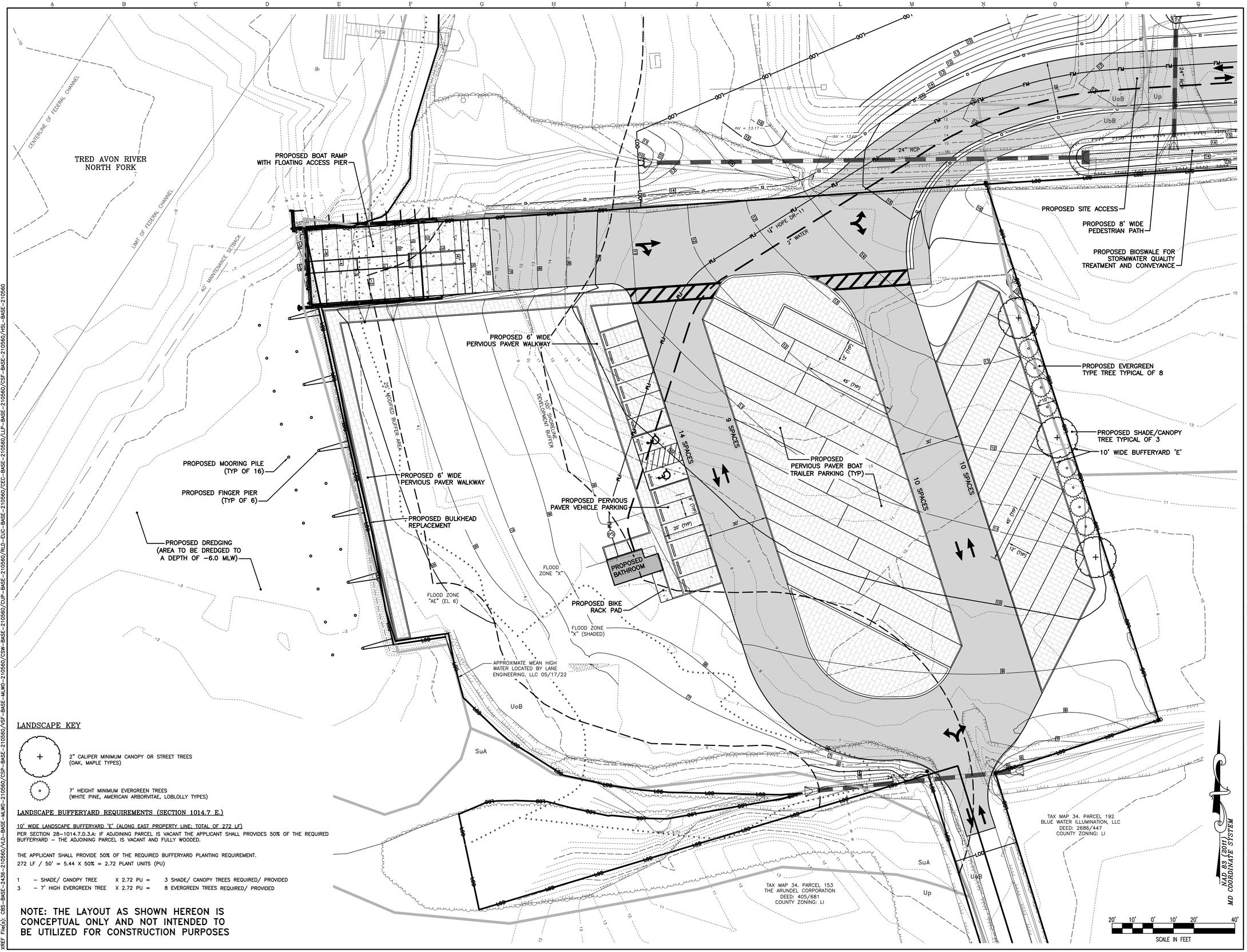
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IN THE TOWN OF EASTON
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TAX MAP 34, PARCELS 158, 170, 171 & 215

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LANDSCAPE KEY

+ 2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)

7' HEIGHT MINIMUM EVERGREEN TREES (WHITE PINE, AMERICAN ARBORVITAE, LOBLOLLY TYPES)

LANDSCAPE BUFFERYARD REQUIREMENTS (SECTION 1014.7 E.)

10' WIDE LANDSCAPE BUFFERYARD 'E' (ALONG EAST PROPERTY LINE; TOTAL OF 272 LF)

PER SECTION 28-1014.7.D.3.A: IF ADJOINING PARCEL IS VACANT THE APPLICANT SHALL PROVIDES 50% OF THE REQUIRED BUFFERYARD - THE ADJOINING PARCEL IS VACANT AND FULLY WOODED.

THE APPLICANT SHALL PROVIDE 50% OF THE REQUIRED BUFFERYARD PLANTING REQUIREMENT.
272 LF / 50' = 5.44 X 50% = 2.72 PLANT UNITS (PU)

1	- SHADE/ CANOPY TREE	X 2.72 PU =	3 SHADE/ CANOPY TREES REQUIRED/ PROVIDED
3	- 7' HIGH EVERGREEN TREE	X 2.72 PU =	8 EVERGREEN TREES REQUIRED/ PROVIDED

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TIMOTHY W. WALKER
23152
ENGINEER
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DATE

PARTIAL SITE PLAN & LANDSCAPE PLAN

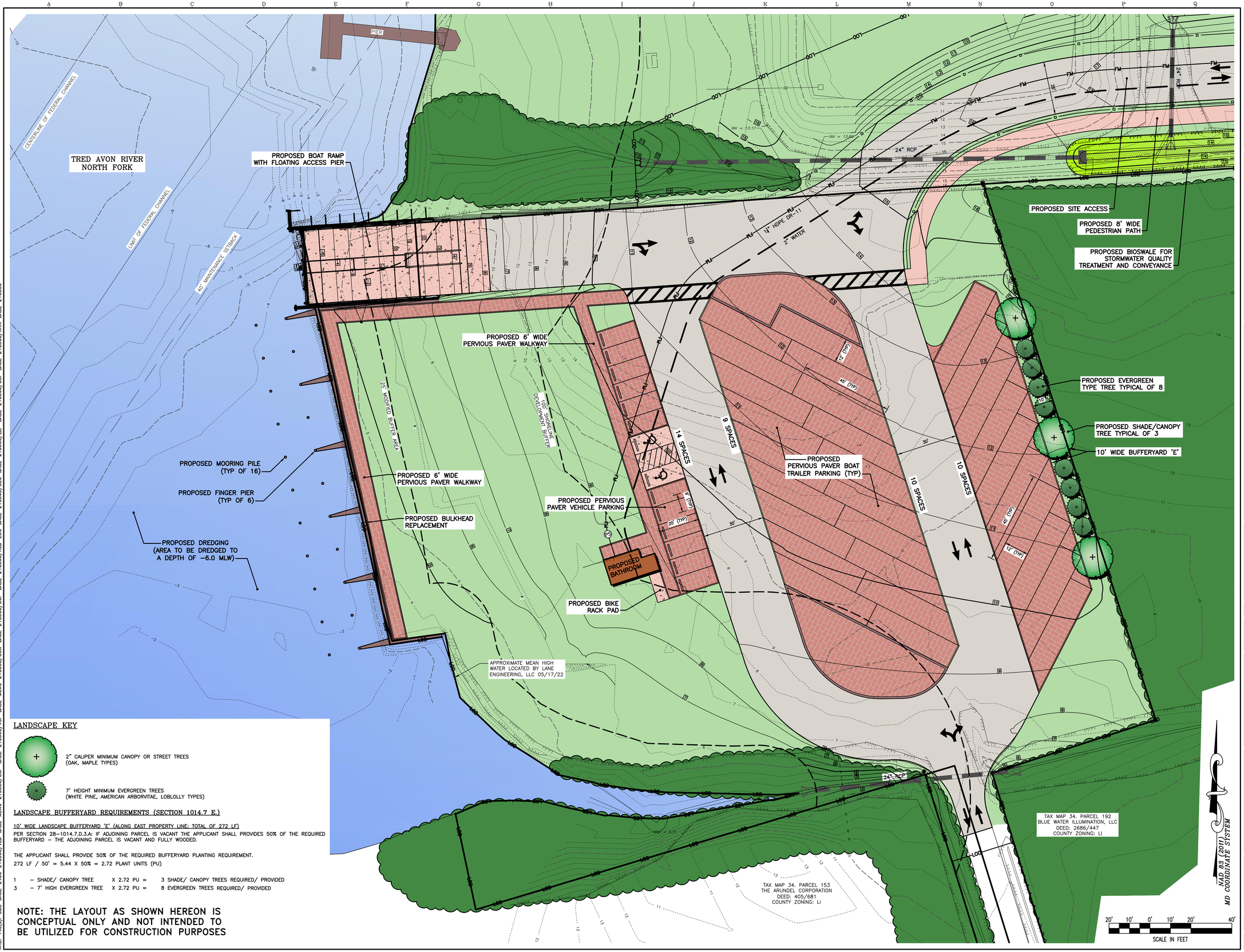
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7' HEIGHT MINIMUM EVERGREEN TREES
(WHITE PINE, AMERICAN ARBORVITAE, LOBLOLLY TYPES)

LANDSCAPE BUFFERYARD REQUIREMENTS (SECTION 1014.7 E.)

10' WIDE LANDSCAPE BUFFERYARD 'E' (ALONG EAST PROPERTY LINE; TOTAL OF 272 LF)

PER SECTION 28-1014.7.D.3.A: IF ADJOINING PARCEL IS VACANT THE APPLICANT SHALL PROVIDES 50% OF THE REQUIRED BUFFERYARD - THE ADJOINING PARCEL IS VACANT AND FULLY WOODED.

THE APPLICANT SHALL PROVIDE 50% OF THE REQUIRED BUFFERYARD PLANTING REQUIREMENT.
272 LF / 50' = 5.44 X 50% = 2.72 PLANT UNITS (PU)

1	- SHADE/ CANOPY TREE	X 2.72 PU =	3	SHADE/ CANOPY TREES REQUIRED/ PROVIDED
3	- 7' HIGH EVERGREEN TREE	X 2.72 PU =	8	EVERGREEN TREES REQUIRED/ PROVIDED

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR CONSTRUCTION PURPOSES

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.

MISS UTILITY
DIG WITH CARE
CALL BEFORE YOU DIG
EASTON MARYLAND 21601
BEFORE YOU DIG CALL
1-800-441-8355 OR 811
PROTECT YOURSELF, GIVE
TWO WORKING DAYS NOTICE

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SEAL

DATE

ILLUSTRATIVE PLAN

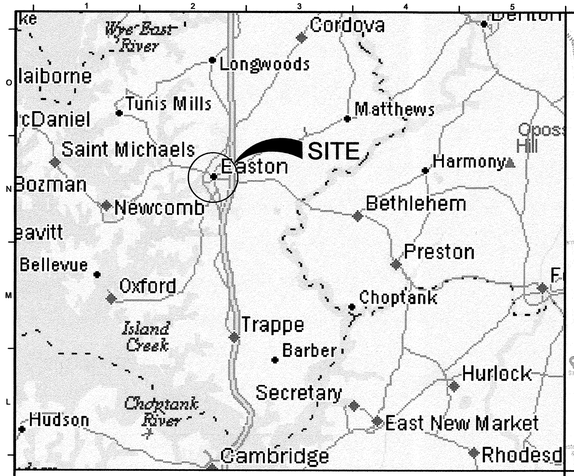
EASTON POINT PARK
BOAT RAMP

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, PARCELS 158, 170, 171 & 215

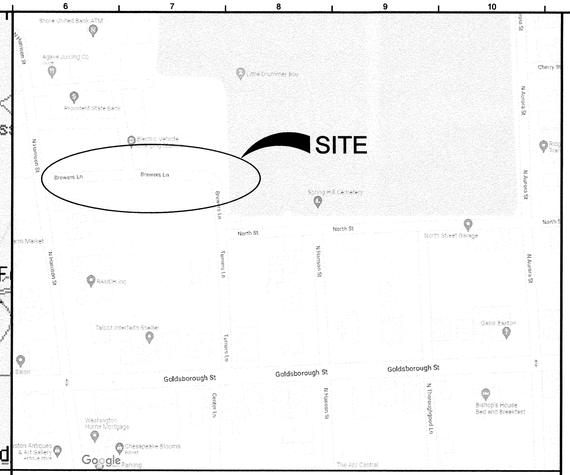
ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	12/19/24	JSC
PLANNING COMMISSION SUBMITTAL	01/23/25	JSC

SHEET No. 1 OF 1
SCALE: AS NOTED
JOB No. 210560
FILE No. 5962

Date: 01/24/2025 - 10:18am User: dracine Project Manager: JSC
Drawing Path: J:\2021\0500\210560\Civil\3D-210560\Dwg\Plots\Sketch Plan\XRN-PLTS-ESDR-210560.dwg | 4
XREF File(s): C8S-BASE-2438-210560/XLD-BASE-MLWD-210560/CSP-BASE-210560/VSF-BASE-MLWD-210560/CSW-BASE-210560/CUP-BASE-210560/RLD-EUC-BASE-210560/CEC-BASE-210560/LIP-BASE-210560/CSF-BASE-210560/XRN-BASE-210560



VICINITY MAP



LOCATION MAP

BREWER'S LANE COMFORT STATION

BID SET

EASTON, MARYLAND

DBF # 1495A143.001

ARCHITECTURAL REGISTRATION
GEORGE EDWARD WHEELETON
STATE OF MARYLAND

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Architect in the laws of the State of Maryland. License No. 11115 Expiration Date: 09-08-24.

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS · ENGINEERS · SURVEYORS
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MATERIAL LEGEND

- NEW MASONRY WALL
- NEW METAL STUD WALL
- NEW WOOD STUD WALL
- BRICK IN ELEVATION
- ROOF SHINGLES IN ELEVATIONS
- CONCRETE IN PLAN OR DRYWALL IN SECTION
- CONCRETE IN SECTION
- EARTH IN SECTION
- POROUS FILL IN SECTION
- WOOD (FINISH) IN SECTION
- WOOD (ROUGH) IN SECTION
- BRICK IN SECTION
- CONCRETE MASONRY UNIT IN SECTION
- BATT INSULATION IN SECTION
- RIGID INSULATION IN SECTION
- PLYWOOD IN SECTION

GRAPHIC SYMBOL LEGEND

- EXISTING WALL AND DOOR TO BE REMOVED
- EXISTING WALL AND DOOR TO REMAIN
- PROPERTY LINE
- CENTER LINE
- HIDDEN LINE
- DEMOLITION
- COLUMN LINE
- REVISION: WINDOW, & ROOM SYMBOLS
- LINTEL NUMBER: AND EQUIPMENT NUMBER
- POINT ELEV. EXIST., POINT ELEV. NEW
- CONTOURS EXIST. NEW, (NOTED HIGH SIDE)
- LEVEL LINE
- DETAIL SECTION OR EXTERIOR ELEV.
- WALL SECTION CUT
- NORTH ARROW

ARCHITECTURAL WORKING DRAWING ABBREVIATIONS

SYMBOLS used as abbreviations

∠	angle
℄	centerline
¢	penny
⊥	perpendicular
▱	plate
℅	round

ABBREVIATIONS

AB	anchor bolt
ABV	above
AC	air conditioning
ACC	access
ACFL	access floor
ACT	acoustical tile
AD	area drain
ADD	addendum
ADH	adhesive
ADJ	adjacent, adjustable
ADJT	adjustable
AFF	above finish floor
AGG	aggregate
AL	aluminum
ALT	alternate
ANC	anchor, anchorage
AND	anodized
ANG	angle
AP	access panel
APX	approximate
ARCH	architect (ural)
ASB	asbestos
ASPH	asphalt
AUTO	automatic
BBD	bulletin board
BD	board
BEL	below
BET	between
BIT	bituminous
BLDG	building
BKHD	bulkhead
BLK	block
BLKG	blocking
BM	beam
BOT	bottom
BP	back plaster (ed)
BRG	bearing plate
BRGS	bearing
BRK	brick
BRZ	bronze
BS	both sides
BSMT	basement
BUR	built up roofing
BVL	beveled
BW	both ways
CAB	cabinet
CB	catch basin
CEM	cement
CER	ceramic
CF	cold-formed
CFL	counterflashing
CFT	cubic feet
CHAM	chamfer
CHBD	chalkboard
CHT	ceiling height
CIPC	cast-in-place-concrete
CIR	circle
CIRC	circumference
CJT	control joint
CK	caulking
CLL	contract limit line
CLG	ceiling
CLR	clear or clearance
CMT	ceramic mosaic tile
CMU	concrete masonry unit
COL	column
COMB	combination
CONC	concrete
CONST	construction
CONT	continuous or continue
CONTR	contract (or)
CORR	corrugated
CPR	copper
CPT	carpet
CR	cold-rolled
CRS	course (s)
CSMT	casement
CT	ceramic tile
CTER	counter
CTR	center
CTSK	countersunk
CY	cubic yard
D	dryer
DA	double acting
DEM	demolish, demolition
DF	drinking fountain
DH	double hung
DIA	diameter
DIAG	diagonal
DL	dead load
DP	damp proofing
DPR	damper
DR	door
DRN	drain
DS	downspout
DT	drain tile
DTL	detail
DWR	drawer
DWG	drawing
EB	expansion bolt
EF	each face
EIFS	exterior insulated finish system
EJT	expansion joint
EL	elevation
ELEV	elevator
EMER	emergency
ENC	enclose
EP	electrical panelboard
EQ	equal
EQP	equipment
EST	estimate
EWC	electric water cooler
EXCA	excavate
EXG	existing
EXH	exhaust
EXP	exposed
EXT	exterior
FA	fire alarm
FAS	fasten, fastener
FB	face brick
FBD	fiberboard
FBO	furnished by others
FD	floor drain
FE	fire extinguisher
FEC	fire extinguisher cabinet
FF	factory finish
FFE	finished floor elevation
FFL	finished floor line
FGL	fiberglass
FIN	finish (ed)
FLCO	floor cleanout
FLG	flashing
FLPL	floor plate
FLR	floor (ing)
FLUR	flourescent
FN	fence
FND	foundation
FOC	face of concrete
FOF	face of finish
FOM	face of masonry
FOS	face of studs
FPL	fireplace
FR	frame (d) (ing)
FRP	fiberglass reinforced plastic
FTG	footing
FUR	furred (ing)
FUT	future
GA	gage, gauge
GB	grab bar
GC	general contract (or)
GD	grade, grading
GL	glass, glazing
GLB	glass block
GPDW	gypsum drywall
GT	grout
GALV	galvanized
GVL	gravel
HB	hose bib
HBD	hardboard
HC	hollow core
HD	heavy duty
HDPE	high-density polyethelene
HDW	hardware
HDR	header
HM	hollow metal
HOR	horizontal
HP	handicapped
HT	height
HTG	heating
HVAC	heating/ventilation/air conditioning
HWD	hardwood
HWH	hot water heater
ID	inside diameter
INCL	include (d) (ing)
INS	insulate (d) (ion)
INT	interior
INV	invert
JAN	janitor's closet
JST	joist
JT	joint
KIT	kitchen
KO	knockout
KPL	kickplate
L	length
LAD	ladder
LAM	laminate
LAV	lavatory
LB	lag bolt
LBL	label
LH	left hand
LL	live load
LT	light
LTL	lintel
LVR	louver
MAS	masonry
MAX	maximum
MBR	member
MC	medicine cabinet
MECH	mechanic (al)
MET	metal
MFD	metal floor decking
MFR	manufacture (er)
MH	manhole
MIN	minimum
MIR	mirror
MISC	miscellaneous
MLD	molding, moulding
MMB	membrane
MO	masonry opening
MOD	modular
MOV	movable
MR	moisture resistant
MRD	metal roof decking
MT	mount (ed) (ing)
MTFR	metal furring
MTHR	metal threshold
MTL	material (s)
MUL	mullion
MWK	millwork
NAT	natural
NIC	not in contract
NOM	nominal
NTS	not to scale
OA	overall
OBS	obscure
OC	on center (s)
OD	outside diameter
OH	overhead
OP	opaque
OPG	opening
OPH	opposite hand
OPP	opposite
OWJ	open-web joist
PAR	parallel
PB	panic bar
PBD	particle board
PCC	pre-cast concrete
PCF	pounds per cubic foot
PCPL (portland)	cement plaster
PERF	perforate
PERI	perimeter
PFB	prefabricated
PFN	prefinished
PG	plate glass
PK	parking
PL	property line
PLAM	plastic laminate
PLAS	plaster
PLF	pounds per lineal foot
PLT	plate
PNL	panel
PNT	paint (ed)
PRF	preformed
PRTR	pressure treated wood
PSF	pounds per square foot
PSI	pounds per square inch
PSL	parallel strand lumber
PT	point
PTD	paper towel dispenser
PTN	partition
PTR	paper towel receptor
PV	pave (d) (ing)
PVC	polyvinyl chloride
PVMT	pavement
QTY/QTD	quantity
R	riser
RA	return air
RB	rubber base
RBT	rabbet, rebate
RCP	reflected ceiling plan
RD	roof drain
REINF	reinforce (d) (ing)
REF	reference
REFR	refrigerator
REG	register
REM	remove
REQD	required
RES	resilient
RET	return
REV	revision (s), revised
RFG	roofing
RFH	roof hatch
RFL	reflect (ed) (ive)
RH	right hand
RL	rail (ing)
RM	room
RO	rough opening
ROW	right of way
RS	reverse (side)
RTU	roof top unit
RWC	rain water collector
SC	solid core
SCH	schedule
SCN	screen
SD	storm drain
SEC	section
SG	sheet glass
SH	shelf, shelving
SHO	shore (d) (ing)
SHT	sheet
SHTH	sheathing
SIM	similar
SKL	skylight
SL	sleeve
SNT	sealant
SPC	spacer
SPEC	specification (s)
SPL	special
SPR	single-ply roof(ing)
SQ	square
STA	station
STL	steel
STO	storage
STR	structural
SSK	service sink
SST	stainless steel
SUSP	suspended
SYM	symmetry (ical)
SYNTH	synthetic
T	tread
TB	towel bar
TEL	telephone
T&G	tongue and groove
TGL	tempered glass
THK	thick (ness)
THR	threshold
TKBD	tackboard
TKS	tackstrip
TOF	top of footing
TOL	tolerance
TOM	top of masonry
TOW	top of wall
TRTD	treated
TPTN	toilet partition
TPD	toilet paper dispenser
TSL	top of slab
TST	top of steel
TR	transom
TRANS	transverse
TV	television
TYP	typical
TZ	terrazzo
UC	undercut
UNF	unfinished
UNO	unless noted otherwise
UR	urinal
VAT	vinyl asbestos tile
VB	vapor barrier
VB	vinyl base
VCT	vinyl composition tile
VERT	vertical
VG	vertical grain
VIN	vinyl
VNR	veneer
VRCR	vermiculite
VT	vinyl tile
VTR	vent thru roof
W	washing machine
W/	with
WB	wood base
WC	water closet
WCV	wallcovering
WD	wood
WG	wired glass
WH	wall hung
WHB	wheel bumper
WIN	window
WM	wire mesh
W/O	without
WP	waterproofing
WPT	working point
WS	waterstop
WSCT	wainscot
WTH	wide, width
WWF	welded wire fabric

INDEX OF DRAWINGS

G-001 TITLE SHEET

ARCHITECTURAL

A-101 FLOOR PLAN, ELEVATIONS & SCHEDULE
A-102 PLANS, WALL SECTION, & DETAILS
S-101 CEILING FRAMING PLAN & STRUCTURAL NOTES

MECHANICAL/ ELECTRICAL

MP-001 MECHANICAL & PLUMBING SCHEDULES & NOTES
E-001 ELECTRICAL SCHEDULES & NOTES

GENERAL NOTES:

1. THESE DRAWINGS ARE PROVIDED FOR THE EXCLUSIVE USE OF THE OWNER. OWNER/ARCHITECT SERVICES AGREEMENT IS FOR ARCHITECTURAL DRAWINGS REQUIRED FOR PERMIT & APPROVAL FOR BUILDING RENOVATIONS. EXTENSIVE DRAWINGS AND SPECIFICATIONS ARE NOT PART OF THE OWNER/ARCHITECT AGREEMENT.
2. IT IS AGREED THAT THE PROFESSIONAL SERVICES OF THE ARCHITECT DO NOT EXTEND TO OR INCLUDE THE REVIEW OR OBSERVATION OF THE CONTRACTOR'S WORK OR PERFORMANCE.
3. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS AND DIMENSIONS BEFORE CONSTRUCTION. ANY VARIATIONS OR DISCREPANCIES SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION PRIOR TO CONSTRUCTION.
4. ANY ITEMS NOT SPECIFICALLY SHOWN ON THE DRAWINGS, BUT WHICH ARE REASONABLY INCIDENTAL TO AND NECESSARY FOR THE SATISFACTORY COMPLETION OF THE PROJECT IN ACCORDANCE WITH INDUSTRY STANDARDS, ARE INCLUDED WITHIN THE INTENT OF THESE DRAWINGS.
5. BUILDING CODE COMPLIANCE. CONSTRUCTION DETAILING, AND COORDINATION RESULTING FROM THE USE OF THESE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. INTERIOR FINISHES SHALL BE IN COMPLIANCE WITH THE LIFE SAFETY CODE, GOVERNING EDITION.
7. ALL EGRESS DOORS SHALL BE READILY OPERABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT. NO BOLTS, HOOKS, OR SIMILAR DEVICES SHALL BE USED. INSTALLATION WILL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, GOVERNING EDITION.
8. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS ESTABLISHED BY THE AMERICANS WITH DISABILITIES ACT, (ADA).
9. FIRE EXTINGUISHERS, EMERGENCY LIGHTING & EXIT SIGNS SHALL BE PROVIDED IN ACCORDANCE WITH THE LIFE SAFETY CODE, GOVERNING EDITION.
10. ALL DIMENSIONS NOTED ARE TO FACE OF STUD OR FACE OF EXISTING CONSTRUCTION.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY SHORING AND BRACING FOR NEW CONSTRUCTION.

CODE DATA:

APPLICABLE CODES:
- INTERNATIONAL BUILDING CODE (IBC) 2018
- NFPA 101 LIFE SAFETY CODE 2018
- CURRENT ADA STANDARDS FOR ACCESSIBILITY
- STATE OF MARYLAND FIRE PREVENTION CODE
- INTERNATIONAL ENERGY CONSERVATION CODE(IECC)2018

USE GROUP: UTILITY GROUP U
GROSS AREA: 284 SF

CONSTRUCTION TYPE: TYPE V-B, NOT SPRINKLERED
- ALLOWABLE AREA PER FLR 5,500 SF, 1 STORIES (40')

FIRE RESISTIVE RATING FOR BUILDING ELEMENTS

STRUCTURAL FRAME:	0HR
BEARING WALLS:	0HR
NON BEARING WALLS:	0HR
FLOOR/ROOF CONSTRUCTION:	0HR
CORRIDOR:	0HR

INTERIOR FINISHES: NO RESTRICTION
FIRE EXTINGUISHERS: NOT REQUIRED
FIRE ALARM: NOT REQUIRED
PANIC HARDWARE: NOT REQUIRED
EXIT SIGNS: NOT REQUIRED
EMERGENCY LIGHTS: NOT REQUIRED
DEAD END: 20' MAX

EXITS: TOILET ROOM 1:	1 REQUIRED, 1 PROVIDED
TOILET ROOM 2:	1 REQUIRED, 1 PROVIDED
JANITOR'S CLOSET:	1 REQUIRED, 1 PROVIDED

THE ABOVE CODE REVIEW SUMMARY IS NOT INTENDED TO BE ALL-INCLUSIVE, BUT RATHER AN OVERVIEW OF MAJOR CODE CRITERIA.

BREWER'S LANE COMFORT STATION
BID SET
EASTON, MARYLAND

DATE	COMMENTS

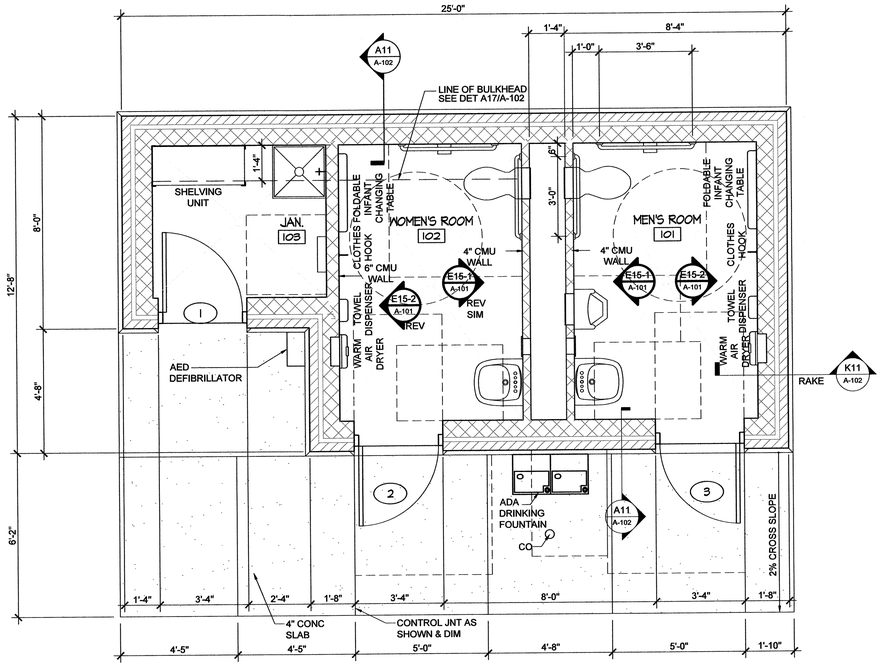
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Proj.No.: 1495A14.001

TITLE SHEET

Dwg.No.: G-001

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H1 FLOOR PLAN

3/8"=1'-0"

DOOR SCHEDULE

No	Door Size	Door Type	Door Mat	Door Glaz	Frame Type	Frame Mat	Frame Head	Frame Jamb	Frame Sill	Notes
1	3'-0" x 7'-0" x 1 3/4"	A	HM	–	1	HM	1	2 & 2A	–	1
2	3'-0" x 7'-0" x 1 3/4"	A	HM	–	1	HM	1	2 & 2A	–	1
3	3'-0" x 7'-0" x 1 3/4"	A	HM	–	1	HM	1	2 & 2A	–	1

1. SEE E17/A-102 FOR DOOR DETAILS NOTED

ROOM FINISH SCHEDULE

NO.	Name	FLR	Base	Walls N	Walls S	Walls E	Walls W	Clg	HT	NOTES
101	MEN'S ROOM	EPX	EPX	CMU-PNT	CMU-PNT	CMU-PNT	CMU-PNT	GYP. BD.-P	10'-2"	1
102	WOMEN'S ROOM	EPX	EPX	CMU-PNT	CMU-PNT	CMU-PNT	CMU-PNT	GYP BD-P	10'-2"	1
103	JAN.	EPX	EPX	CMU-PNT	CMU-PNT	CMU-PNT	CMU-PNT	GYP BD-P	10'-2"	1

1. BASE TO BE 6" HIGH.

DOOR HARDWARE SCHEDULE

DOOR 1

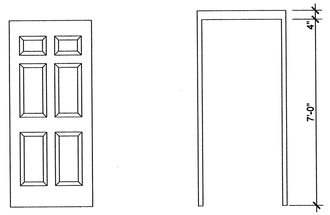
1 1/2 PAIR HINGES	SEE SPECIFICATION SECTION 087100
LEVER HANDLE LOCKESET	SCHLAGE ND80PD, ATHENS, 626
DEAD BOLT W/ THUMB TURN	SCHLAGE B-700 SERIES, 626
WEATHER STRIP	PEMKO 2892AV
DOOR BOTTOM	PEMKO 313AN
KICK PLATE	(2) ROCKWOOD K2125-.125" THK

DOORS 2 & 3

1 1/2 PAIR HINGES	SEE SPECIFICATION SECTION 087100
ELECTRIC STRIKE	SEE SPECIFICATION SECTION 087100
DEAD BOLT W/ THUMB TURN	SCHLAGE B-700 SERIES, 626
PULL	ROCKWOOD T8F110 8" CTC, US32D
PUSH PLATE	73RCA, TORX, US32D
WEATHER STRIP	PEMKO 2892AV
DOOR BOTTOM	PEMKO 313AN
CLOSER	STANLEY D-4551AVB H-EDA×SRIxSEC
KICK PLATE	(2) ROCKWOOD K2125-.125" THK

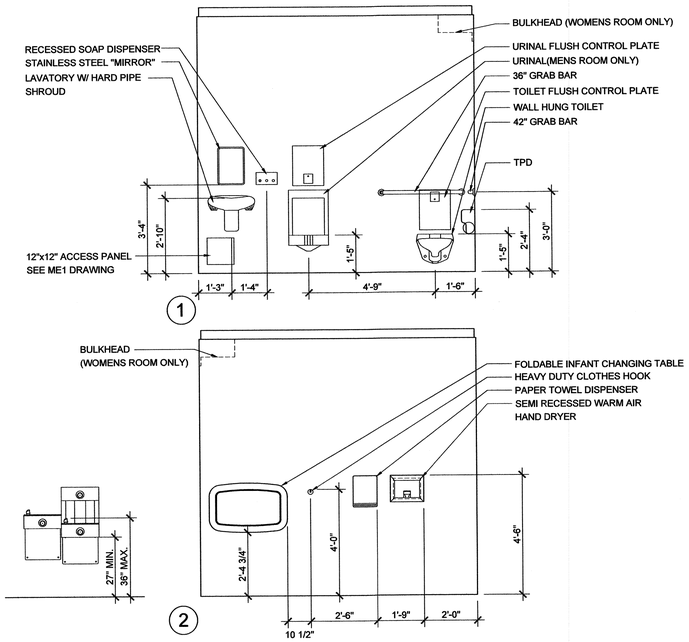
L11 SCHEDULES

3/8"=1'-0"



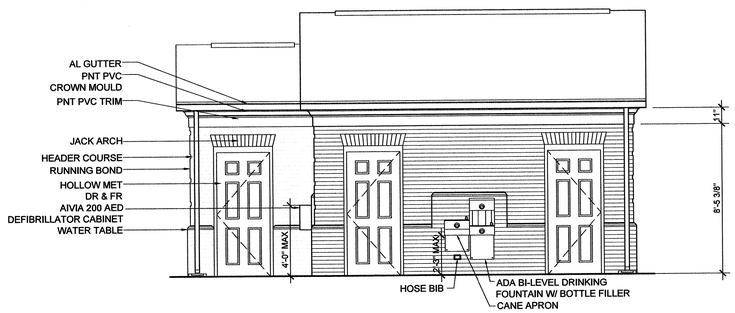
H11 DOOR & FRAME TYPES

3/8"=1'-0"



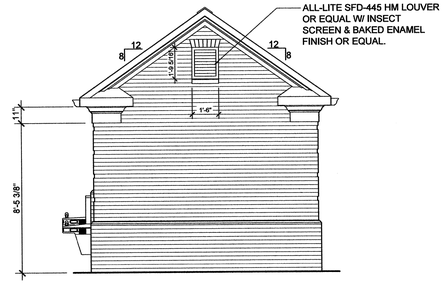
E1 FRONT ELEVATION

1/4"=1'-0"



E9 RIGHT SIDE ELEVATION

1/4"=1'-0"

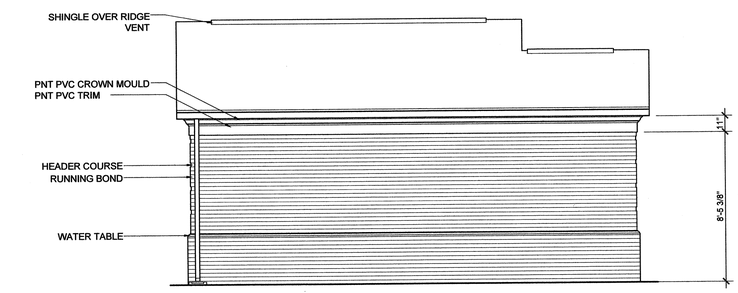


E15 INTERIOR ELEVATIONS

3/8"=1'-0"

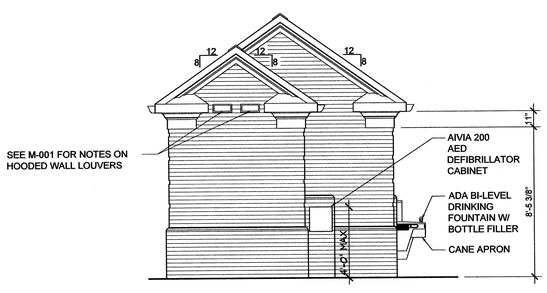
A1 REAR ELEVATION

1/4"=1'-0"



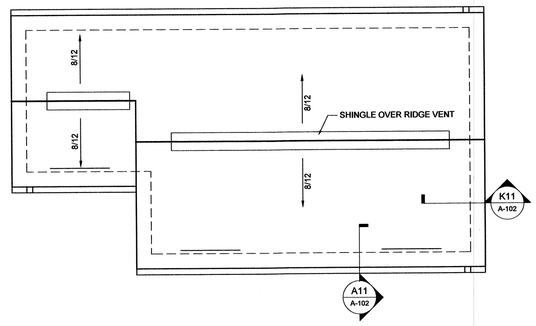
A9 LEFT SIDE ELEVATION

1/4"=1'-0"



A15 ROOF PLAN

1/4"=1'-0"



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11115
MICHAEL EDWARD WHEDDLETON
STATE OF MARYLAND
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Architect in the laws of the State of Maryland, License No. 11115, Expiration Date: 09-08-24.

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EASTON, MARYLAND 410.770.4744
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BREWER'S LANE COMFORT STATION
BID SET
EASTON, MARYLAND

DATE	COMMENTS

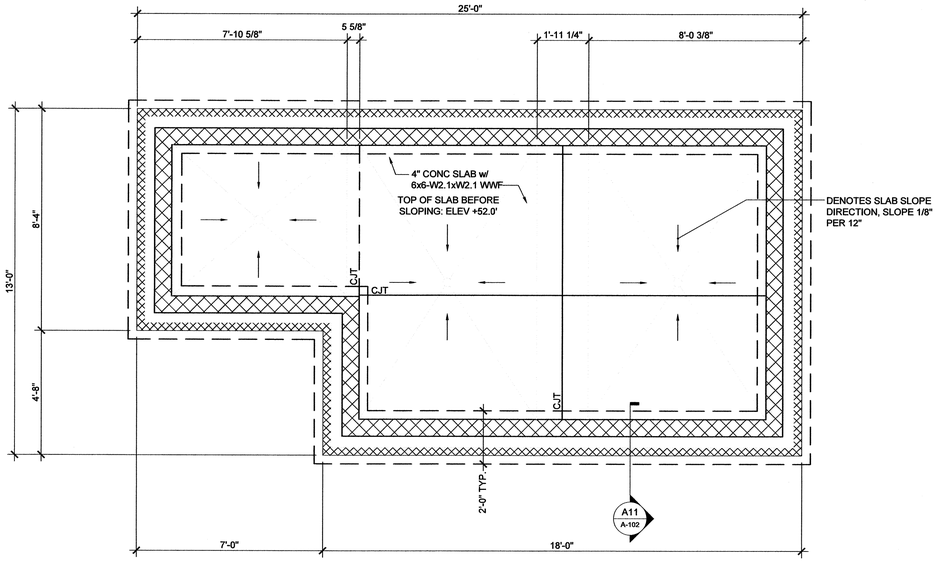
Date: 05/24/2023
Scale: AS NOTED
Dwn.By: HJS
Proj.No.: 1495A143.001

PLANS, ELEVATIONS & SCHEDULES

Dwg.No.: **A-101**

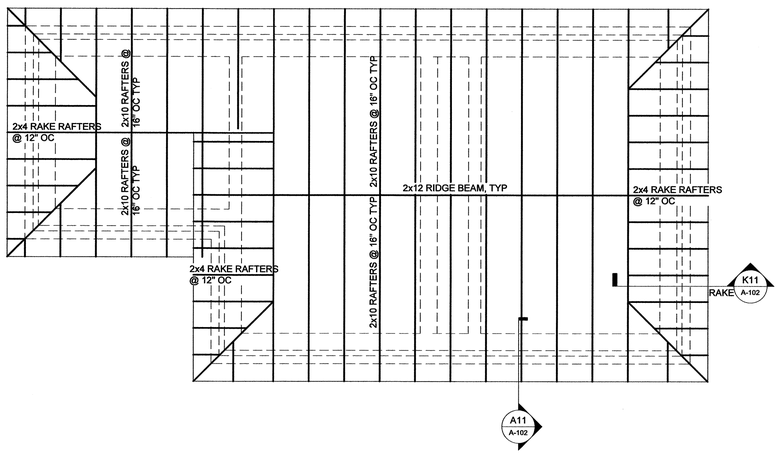
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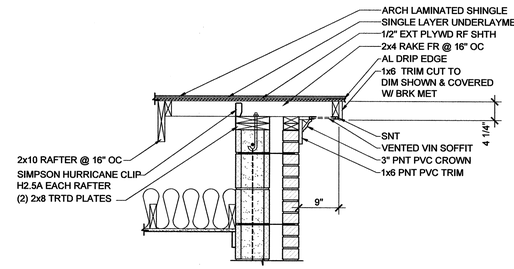
H1 FOUNDATION PLAN

3/8"=1'-0"



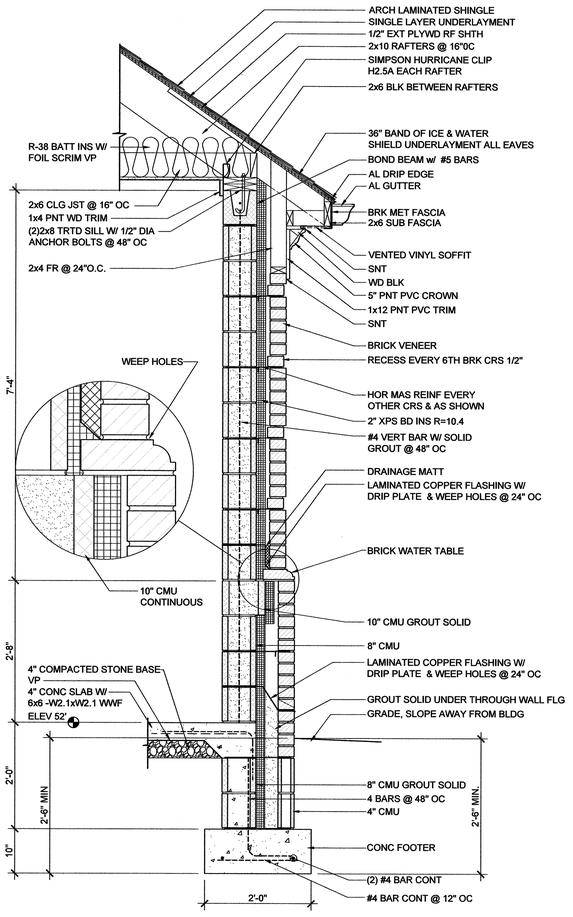
A1 ROOF FRAMING PLAN

3/8"=1'-0"



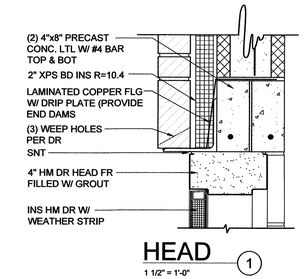
K11 DETAIL

3/4"=1'-0"



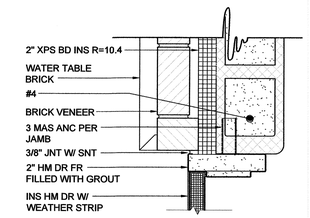
A11 WALL SECTION

3/4"=1'-0"



HEAD 1

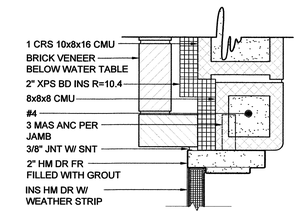
1 1/2" = 1'-0"



JAMB 2

1 1/2" = 1'-0"

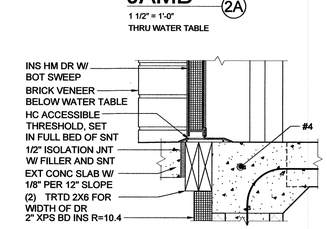
ABOVE WATER TABLE



JAMB 2A

1 1/2" = 1'-0"

THRU WATER TABLE

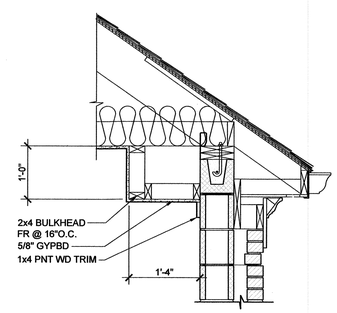


SILL 3

1 1/2" = 1'-0"

E17 DOOR DETAILS

1 1/2"=1'-0"



A17 BULKHEAD DETAIL

3/4"=1'-0"

ARCHITECTURAL REGISTRATION BOARD
11115
MICHAEL EDWARD WHEELETON
STATE OF MARYLAND

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ARCHITECTS - ENGINEERS - SURVEYORS
EASTON, MARYLAND 410.770.4744
MILFORD, DELAWARE 302.424.1441
SALISBURY, MARYLAND 410.543.7091

BREWER'S LANE COMFORT STATION
BID SET
EASTON, MARYLAND

DATE
COMMENTS

Date: 05/23/2023
Scale: AS NOTED
Dwn.By: HJS
Proj.No.: 1495A143.001

PLANS, WALL SECTION, & DETAILS

Dwg.No.: **A-102**

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STRUCTURAL NOTES

1. Design Loads

Roof Dead Load	(Top Chord)	7 PSF
	(Bottom Chord)	10 PSF
Roof Live Load		20 PSF
Snow	(Snow Load)	30 PSF
	(Exposure Factor)	1.0
	(Thermal Factor)	1.0
	(Importance Factor)	1.0
Wind	(Basic Wind Speed)	115 MPH (3-second gust)
	(Importance Factor)	1.0
	(Exposure Category)	C
Seismic	(Spectral Response Accel., SS)	0.13g
	(Spectral Response Accel., S1)	0.05g
	(Spectral Response Coeff., SDS)	0.16g
	(Spectral Response Coeff., SD1)	0.096g
	(Response Modification Factor, R)	1.5
	(Seismic Importance factor, I)	1.0
	(Seismic Design Category)	B
	(Seismic Use Group)	I
	(Site Class)	D
	(Basic Structural System)	Bearing Wall Systems
	(Seismic Resisting System)	Shear Walls
	(Analysis Procedure)	Equiv. Lateral Force

2. General
The building, construction materials, structural components, fasteners, and connectors shall be in accordance with the International Building Code, 2018 edition, these plans and specifications, and all applicable State and local regulations. The Contractor shall coordinate the construction of all building trades and subcontractors plus all inspections and testing. The Contractor shall provide and coordinate all depressions, openings, pockets, recesses and sleeves for the installation of plumbing, mechanical, and electrical equipment. Do not cut or alter structural framing components without approval of the structural engineer.

3. Backfill and Compaction
On site materials used for structural fill shall be free of deleterious matter and classified as GW, GP, GM, SM, SW, and SP per ASTM D-2487. Prior to the placement of fill, the site shall be stripped of topsoil, debris, vegetation and organic materials. The exposed subgrade of any excavated area shall be compacted in place to a density of 95% of the Modified Proctor Maximum Dry Density.

Fill material shall be placed in 8" maximum loose lifts and compacted by mechanical equipment to a density of 95% of the Modified Proctor Maximum Dry Density. The contractor shall provide means of free drainage of the site and shall maintain necessary sediment controls. Placement of fill with a moisture content too high for proper compaction is not acceptable. Placement of fill in standing water or on frozen material is not acceptable.

4. Foundations
All spread footings have been designed for a soil bearing capacity of 2,000 PSF. Soil bearing capacity shall be verified by a Geotechnical Engineer paid by the Contractor. If material of at least this capacity is not encountered at the elevations tested, the footing size shall be increased or foundation lowered as directed by the Engineer. The bottom of all exterior footings shall be a minimum of 2' - 6" below grade.

5. Poured-In-Place Concrete
All work done shall be done in accordance with the ACI Building Code Requirements for Reinforced Concrete (ACI-318), latest edition with latest revisions and commentary, and such requirements shall be binding as if specified directly herein. Samples shall be made and laboratory cured in accordance with ASTM C31 and tested in accordance with ASTM C39. Twenty-eight day compressive strength shall be:

CMU Fill Grout	2,500 PSI
Spread Footings	3,000 PSI
Slabs Supported on Grade	3,500 PSI

The Contractor shall supply concrete of the specified strength, and the responsibility for obtaining this strength shall rest solely upon the Contractor. Use ACI 211.1 Table 5.3.1 for recommended slumps for various types of construction, not to exceed 4 inches. Maximum water to cement ratio shall be 0.50 unless noted otherwise.

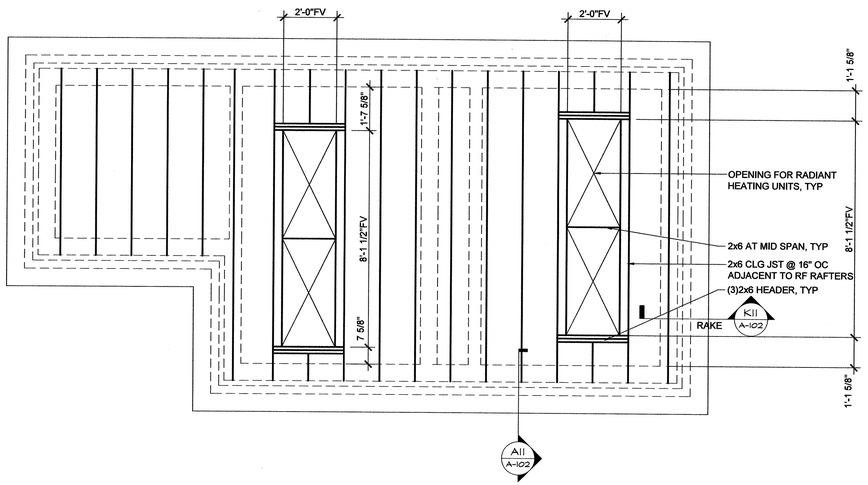
Cement shall be Portland and shall conform to ASTM Designation C 150, Type I or II. All exterior concrete exposed to freezing and thawing conditions shall be air entrained to 4 to 6 percent. Reinforcing steel shall be new deformed billet stock conforming to ASTM A-615, Grade 60. Welded Wire Fabric shall be in accord with ASTM A185.

Vapor retarder shall be placed under all concrete slabs in contact with the ground, and shall have a minimum thickness of 10 mils. Expansion joints shall be placed where slabs meet walls, steps or other rigid objects. Control joints shall be located at column centerlines and as indicated. Control joints shall be cut as soon as the fresh concrete will support sawing equipment. Cut every other wire of welded wire fabric at control joints.

6. Masonry
Masonry material and workmanship shall comply with the recommendations of National Concrete Masonry Association (NCMA), and the American Concrete Institute ACI 530/ASCE 5/TMS 402. Concrete masonry units shall be lightweight units, Type II, in accordance with ASTM C-90. Mortar shall be Type M or S, below grade application, and Type N, for other uses unless noted otherwise, in accordance with ASTM C-270. Concrete Masonry Units shall have a minimum average net area compressive strength of 1900 PSI.

Provide truss-type, 9-gauge, galvanized steel, horizontal reinforcing at 16 inches on center. Provide vertical reinforcing as indicated on the drawings. Bond beams and cores with vertical rebars shall be completely filled with grout conforming to ASTM C-476. Reinforcing shall be ASTM A-615, Grade 60. Lap bars 48 bar diameters.

7. Structural Lumber
Wood members shall be No. 2 Spruce-Pine-Fir, unless noted otherwise with a maximum moisture content of 19%. All wood exposed to weather, in contact with earth, concrete, masonry, or steel, shall be pressure preservative treated, Alkaline Copper Quaternary, (ACQ), to 0.40 PCF, in accordance with AWPA standards. All steel fasteners and connectors in contact with treated lumber shall be hot-dipped galvanized or galvanized with a minimum of 2.0 oz of zinc per square foot.



A8 CEILING FRAMING PLAN
3/8"=1'-0"

A17 STRUCTURAL NOTES
NA

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DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS · ENGINEERS · SURVEYORS
EASTON, MARYLAND 410.770.5744
ANNAPOLIS, MARYLAND 410.841.3441
BALTIMORE, MARYLAND 410.849.5977

BREWER'S LANE COMFORT STATION
BID SET
EASTON, MARYLAND

COMMENTS | DATE

Date: 05/23/2023
Scale: AS NOTED
Dwn.By: HJS
Proj.No.: 1495A143.001

CEILING FRAMING PLAN & STRUCTURAL NOTES

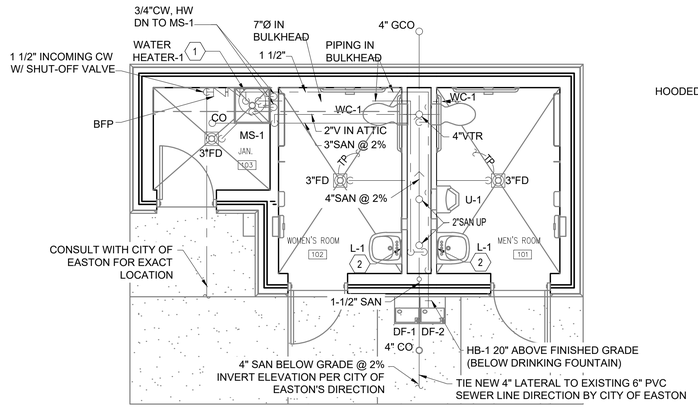
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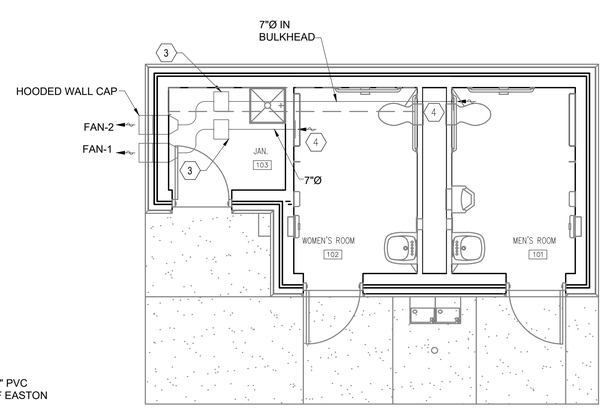
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PLUMBING FIXTURE SCHEDULE

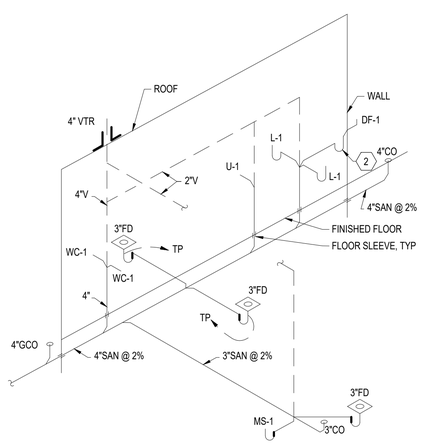
ITEM	DESCRIPTION	CW	HW	SOIL WASTE	TRAP	SPECIFICATIONS/REMARKS
WC-1A	WATER CLOSET ADA	1-1/4"	---	3"	---	ZURN "Z5615-BWL-AM, 1.6 GALLON FLUSH , VITREOUS CHINA, ELONGATED BOWL (15 INCH MOUNTING HEIGHT) ZURN Z5955SS-AM-STS SEAT. ZURN ZEMS6000-WS1-W1,P6000-MJ MINI JUNCTION BOX,P6000-HW6 HARDWIRE POWER CONVERTER, ZURN 1201 CARRIER AS REQUIRED
UR-1	URINAL ADA	1"	---	2"	---	ZURN Z5755-U, VITREOUS CHINA, WASHOUT FLUSHING ACTION, ZURN ZEMS6003AV-WS1.0016, P6000-MJ JUNCTION BOX, P6000-HW6 POWER CONVERTER, 1.0 GALLON FLUSH, ZURN Z1222 WALL URINAL SUPPORT SYSTEM.
L-1	LAVATORY ADA	1/2"	1/2"	1-1/2"	1-1/2"	ZURN 5344,3 HOLE,4-INCH CENTERS, VITREOUS CHINA, WALL HUNG LAVATORY, Z8743-PC CAST GRID DRAIN, 1-1/4" TAIL PIECE, P-TRAP, FLEXIBLE SUPPLIES WITH WALL FLANGES AND LOOSE KEY STOPS. ZURN Z1231-EZ-WL-CARRIER, ZURN Z6956-XL-CV-F-CP4 BATTERY OPERATED SENSOR FAUCET, 4" COVER, 0.5 GPM FLOW RESTRICTOR.BELOW DECK THERMOSTATIC MIXING VALVE, ZURN P6900-TMV-1, INSULATION KIT, ZURN Z8946-1-NT.
TV-1	TEMPERING VALVE	1/2"	1/2"	---	---	SLOAN MIX-70-A MULTIPLE FAUCET THERMOSTATIC MIXING VALVE, 110°F LIMIT WITH CHECK STOPS.
MS-1	MOP SINK	3/4"	3/4"	3"	---	FIAT, MSB2424, 830-AA SERVICE FAUCET. MSG2424 S/S WALL GUARDS
HB-1	HOSE BIB	1"	---	---	---	ZURN Z-1300, ENCASED, NON-FREEZE, ANTI-SIPHON, AUTOMATIC DRAINING, BRONZE BOX & HINGED COVER W/ OPERATING KEY LOCK.
DF-1	DRINKING FOUNTAIN	1/2"	---	---	---	ACORN AQUACONTOUR, BARRIER FREE, 14GA SS WALL MOUNTED DRINKING FOUNTAIN MODEL A151400B-FG, POLISHED STAINLESS STEEL, CSC CONCEALED SUPPORT, FRA1 FREEZE RESISTANT VALVE. MOUNT AT ADA HEIGHT.
DF-2	DRINKING FOUNTAIN	1/2"	---	---	---	ACORN AQUACONTOUR, BARRIER FREE, 14GA SS WALL MOUNTED DRINKING FOUNTAIN MODEL A151400B-FG, POLISHED STAINLESS STEEL, CSC CONCEALED SUPPORT, FRA1 FREEZE RESISTANT VALVE. MOUNT AT STANDARD HEIGHT.
FD	FLOOR DRAIN	---	---	---	---	JAY R SMITH 2005 A CAST IRON BODY, ROUND TOP, NICKEL BRONZE STRAINER, VANDAL PROOF SCREWS, TRAP PRIMER TAP. 1/2" BELOW FLOOR. SLOPE FLOOR TO DRAIN.
CO	CLEAN OUT	---	---	---	---	ZURN Z1400, SCORIATED NICKLE BRONZE TOP
GCO	GRADE CLEAN OUT	---	---	4"	---	ZURN Z1402, FLUSH WITH GRADE.
BFP	BACKFLOW PREVENTER	1-1/2"	---	---	---	WATTS, 009 REDUCED PRESSURE BACKFLOW PREVENTER. PROVIDE A STRAINER AHEAD OF THE BFP. PROVIDE FUNNEL & DRAIN PIPING TO NEAREST F.D.



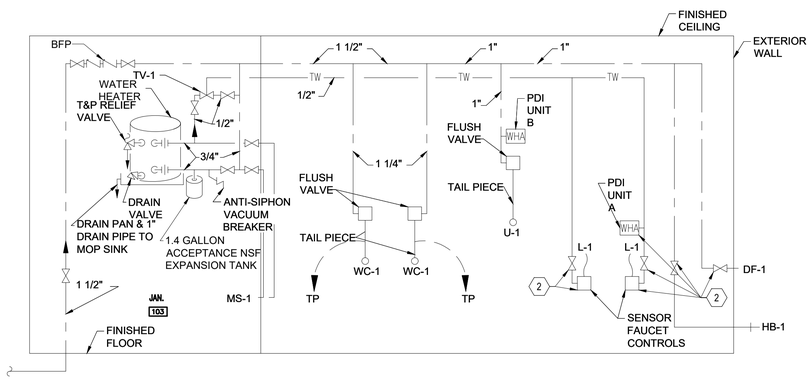
PLUMBING FLOOR PLAN
SCALE: 1/4"=1'-0"



MECHANICAL FLOOR PLAN
SCALE: 1/4"=1'-0"



SANITARY RISER DIAGRAM
SCALE: NO SCALE



DOMESTIC WATER RISER DIAGRAM
SCALE: NO SCALE

MECHANICAL/PLUMBING LEGEND

SYMBOL	ABBREV.	DEFINITION
	CW	COLD WATER
	HW	HOT WATER
TW	TW	TEMPERED WATER
	V	VENT
	SAN	SANITARY, SOIL OR WASTE
		SHUTOFF VALVE
		PIPE DOWN
		PIPE UP
		UNION
		CAPPED PIPE
		RELIEF VALVE
	FCO,GCO	FLOOR CLEANOUT, GRADE CLEANOUT
TP	TP	TRAP PRIMER FROM WATER CLOSET
T		THERMOSTAT
	CFM	CUBIC FEET PER MINUTE
	GPH	GALLONS PER HOUR
	MBH	THOUSAND BTU PER HOUR
	RPM	REVOLUTIONS PER MINUTE
	HP	HORSEPOWER
	°F	DEGREES FAHRENHEIT
	S.P.	STATIC PRESSURE
	W.G.	WATER GAUGE
TFV		24 VOLT TRANSFORMER, 50 VA SERVING FIVE FLUSH VALVES, SLOAN MODEL EL-154, MH 4'-0" AFF.
WHA		WATER HAMMER ARRESTER.

SPECIAL NOTES (APPLY TO THIS DRAWING ONLY)

1. WATER HEATER-1: EQUAL OF STATE SELECT MODEL ES6 20 SOMS. 120V, 1 PH, 19 GALLON, 1650 WATT ELEMENT, 8 GPH RECOVERY @ 90°F RISE. SUPPORT OVERHEAD, ABOVE MS-1 AT CEILING.
2. ACCESSIBLE FOR SERVICE FROM ACCESS PANEL BELOW LAVATORY. PROVIDE 12x12 WALL BOX AND FLUSH STAINLESS STEEL PANEL FOR ACCESS TO LAVATORY AND DRINKING FOUNTAIN VALVES AND CONTROLS.
3. FAN-1 100 CFM, @ 0.2" S.P., 1100 RPM, 0.62 AMPS, 52.5 WATTS, 120V, 1 PH, GREENHECK CSP-A125. FAN-2 150 CFM @ 0.2" S.P., 1400 RPM, 1.1 AMPS. 100 WATTS, 120V, GREENHECK CSP-A190. SUPPORT AT CEILING WITH VIBRATION ISOLATORS. PROVIDE HOODED WALL CAP MODEL WC-10x3. PROVIDE ALUMINUM PERFORATED WALL GRILLE WITH WHITE ENAMEL FINISH, EQUAL OF PRICE 8x8/10A/F/A/B12.
4. EXHAUST GRILLE- TUTTLE & BAILEY MODEL A70, 8X8.

GENERAL PLUMBING NOTES

GENERAL

1. CODES: ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL PLUMBING CODE,LOCAL, STATE AND FEDERAL CODES AND REGULATIONS, AND IS SUBJECT TO INSPECTION.
2. MATERIALS AND EQUIPMENT SUBSTITUTIONS: THE BID PRICE SHALL BE BASED ON DRAWINGS.
3. CUTTING AND PATCHING: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CHANNELING, CHASING OR DRILLING AT FLOORS AS NECESSARY FOR PROPER INSTALLATION OR SUPPORT OF DUCTS, PIPING, OR OTHER MECHANICAL OR PLUMBING EQUIPMENT. WORK SHOULD BE COORDINATED WITH ARCHITECT. ANY DAMAGE TO BUILDING, PIPING, EQUIPMENT, PLASTER, WOODWORK OR METAL WORK SHALL BE REPLACED BY SKILLED MECHANICS OF TRADES INVOLVED AT NO EXTRA COST TO THE OWNER.

PLUMBING SYSTEM

1. THE WORK INCLUDES INSTALLATION OF THE PLUMBING SYSTEM AND PROVIDING NEW MATERIALS, FITTINGS AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. THE WORK ALSO INCLUDES ROUGH-IN AND FINAL CONNECTIONS TO EQUIPMENT FURNISHED BY OTHERS. HOOK-UPS, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE PART OF THIS SECTION.
2. THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.
3. COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.
4. PIPING SYSTEMS - GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING, PROVIDE AN ISOLATING DIALECTIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.
5. PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED.
6. PROVIDE WATER SUPPLIES AND WASTE TRAPS AS NEEDED.
7. SEWER AND WASTE PIPING: WASTE DRAINAGE PIPING SHALL BE STANDARD WEIGHT PVC UNLESS OTHERWISE NOTED. ALL DRAINAGE PIPING 2-1/2" OR LESS SHALL BE UNIFORMLY PITCHED AT 1/4" PER FOOT UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON THE DRAWINGS. ALL DRAINAGE PIPING 3" TO 6" SHALL BE UNIFORMLY PITCHED AT 1/8" PER FOOT UNLESS REQUIRED BY EXISTING CONDITIONS OR INDICATED ON THE DRAWINGS. 8" AND LARGER SHALL BE PITCHED AT 1/16" PER FOOT.
8. VENTS: PROVIDE A COMPLETE VENT RISER SYSTEM OF STANDARD WEIGHT PVC PLASTIC AS APPLICABLE. THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.
9. CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZE AS THE PIPES THEY SERVE. CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBSCURE FROM VIEW. ALL FLOOR CLEANOUTS SHALL BE FLUSH WITH FLOOR.
10. WATER DISTRIBUTION PIPING: HOT AND COLD WATER PIPING SHALL BE 1/2" MIN. TYPE L COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SWEAT OR PRESSED CONNECTIONS, EXCEPT WHERE SPECIFICALLY STATED OTHERWISE. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS). USE LEAD FREE (EQUAL TO OR LESS THAN 0.2% LEAD) SOLDER CONFORMING TO ASTM B 32 TIN-ANTIMONY SOLDER, 95/5 FOR ALL SWEAT FITTINGS OF COPPER PIPING.SYSTEM.
11. PIPE INSULATION: PROVIDE (FOR HOT & COLD) 1/2" (COLD) 1" (HOT) SELF-ADHESIVE UNICELLULAR FOAM PIPE INSULATION WITH PRE-FORMED PVC FITTING COVERS - EQUAL TO SELF-ADHESIVE ARMSTRONG 2000 WITH K FACTOR OF 0.27 AT 100 DEGREES MEAN TEMPERATURE.
12. SHUTOFF VALVES, SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE OR OTHER EQUIPMENT ITEM, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. VALVES SHALL BE BALL TYPE, CHROME-FINISHED BRONZE, TEFLON SEATS AND PACKING, 400 LB. W.O.G.,
13. ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES ETC. ARE CONCEALED WITHIN WALLS. WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE. COORDINATE LOCATION WITH OWNER .
14. SUPPLIES AND TRAPS: PROVIDE BARRIER-TYPE TRAP SEALS UNLESS OTHERWISE SPECIFIED AND/OR SUPPLIES INSTALLED AS CLOSE AS POSSIBLE TO ALL PLUMBING FIXTURES, DRAINS AND EQUIPMENT FURNISHED BY OTHERS, HAVING A WASTE CONNECTION, OR REQUIRING WATER SERVICE. EXPOSED TRAPS AND SUPPLIES IN EXPOSED AREAS (INCLUDING CABINET INTERIORS) SHALL BE CHROMIUM PLATED BRASS, WITH CHROME PLATED ESCUTCHEON PLATES. REMOVE ALL MARKING FROM ALL PIPING WHEN INSTALLATION IS COMPLETE.
15. INSTALLATION: THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS TO EXCLUDE DIRT UNTIL FIXTURES ARE INSTALLED AND FINAL CONNECTIONS HAVE BEEN MADE. PROCEED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET FIXTURES LEVEL AND IN PROPER ALIGNMENT. INSTALL SUPPLIES IN PROPER ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN FIXTURES AND ADJACENT MATERIAL, FOR SANITARY JOINT, AND OMIT ESCUTCHEON.
16. TEST WATER SYSTEM UNDER 150 PSIG HYDROSTATIC PRESSURE, FOR FOUR (4) HOURS MINIMUM, OR AS REQUIRED BY CODE. WHEN TESTING INDICATES MATERIALS OR WORKMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.



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ARCHITECTS · ENGINEERS · SURVEYORS
EASTON, MARYLAND 410.770.4744
MILFORD, DELAWARE 302.424.1441
SALISBURY, MARYLAND 410.543.9091

BREWER'S LANE COMFORT STATION
BID SET
EASTON, MARYLAND

DATE	COMMENTS

Date: 05/23/2023
Scale: AS NOTED
Dwn.By: EAU
Proj.No.: 1495A143.001

MECHANICAL & PLUMBING SCHEDULES & NOTES

Dwg.No.: **MP-001**

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GENERAL ELECTRICAL NOTES:

1. CODES: ALL ELECTRICAL WORK SHALL CONFORM TO THE CURRENT NATIONAL ELECTRICAL CODE, UNDERWRITERS LABORATORIES, NATIONAL BOARD OF UNDERWRITERS, NFPA, AND ANY STATE, COUNTY, OR MUNICIPAL LAWS OR REGULATIONS HAVING JURISDICTION. ALL MATERIAL AND EQUIPMENT SHALL BE APPROVED FOR THE INTENDED USE. THIS IS IN ADDITION TO COMPLYING WITH OTHER SPECIFIC DIRECTION PROVIDED IN THESE DOCUMENTS. NO EXTRAS WILL BE APPROVED TO COMPLY WITH THE APPLICABLE CODES.

2. INSPECTIONS: THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR THE COMPLETION OF HIS WORK. THE ELECTRICAL CONTRACTOR SHALL ARRANGE AND PAY FOR ALL INSPECTIONS AND TESTS REQUIRED BY THE ABOVE AGENCIES. HE SHALL FURNISH REQUIRED CERTIFICATES OF INSPECTION TO THE OWNER, INCLUDING THE ELECTRICAL CERTIFICATE FROM FIRST STATE INSPECTION AGENCY.

3. CONTRACTOR'S RESPONSIBILITY: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL LABOR, TOOLS, MATERIALS, AND SUPERVISION TO COMPLETE ALL THE ELECTRICAL WORK AS SHOWN AND DESCRIBED ON THE DRAWINGS. ALL INCIDENTAL MATERIALS NORMALLY REQUIRED FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM, ALTHOUGH NOT SPECIFICALLY IDENTIFIED ON THESE DRAWINGS, ARE UNDERSTOOD TO BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ALL WORK INCLUDING MATERIALS IS SUBJECT TO APPROVAL OF THE OWNER. ANY QUESTIONS PERTAINING TO THESE NOTES OR LOCATIONS OF EQUIPMENT AND DEVICES, OR CONFLICTS IN DOCUMENTS, MUST BE RESOLVED BY THE ENGINEER.

4. WORKMANSHIP: ALL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER IN CONFORMANCE WITH THE N.E.C. BY SKILLED MECHANICS, USING THE BEST METHODS KNOWN TO THE TRADE, AND SHALL PRESENT A NEAT AND PROFESSIONAL APPEARANCE WHEN COMPLETED. FINAL LOCATIONS OF ALL EXPOSED DEVICES ARE SUBJECT TO THE APPROVAL OF THE OWNER. ALL ELECTRICAL DEVICES MUST BE ACCESIBLE AND CONFORM TO MOUNTING HEIGHTS AND CLEARANCES REQUIRED BY THE N.E.C. AND ADA.MATERIALS NOT INSTALLED TO THE SATISFACTION OF THE OWNER MUST BE REARRANGED AT NO ADDITIONAL COST TO THE OWNER.

5. OWNER'S RIGHTS: THE OWNER RESERVES THE RIGHT TO CHANGE, WITHOUT ADDITIONAL COST, THE LOCATION OF ANY OUTLET, LIGHT FIXTURE, OR APPARATUS SPECIFIED OR SHOWN ON THE DRAWINGS, PROVIDED SUCH CHANGE DOES NOT ADD MORE THAN 10'-0" TO THE CONDUIT AND/OR CIRCUIT, AND CHANGE IS ORDERED BEFORE THE INSTALLATION FOR SAID WORK HAS COMMENCED.

6. GUARANTEE: THE CONTRACTOR SHALL SUBMIT A GUARANTEE IN WRITING TO THE OWNER THAT WARRANTS THE INSTALLATION IS FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR AFTER ALL WORK IS COMPLETED, ACCEPTED BY THE OWNER, AND THE OWNER OCCUPIES THE SPACE.

7. COORDINATION: PROGRESS OF THE ELECTRICAL WORK SHALL BE COORDINATED WITH THE OWNERS REPRESENTATIVE & OTHER TRADES SO THAT ALL WORK WILL BE FULLY COMPLETED ON SCHEDULE. THE CONTRACTOR SHALL WORK IN HARMONY WITH OTHER TRADES. EXECUTION AND COORDINATION OF THE WORK SHALL BE PERFORMED IN AN INTELLIGENT MANNER, INCLUDING ALLOWANCE FOR FUTURE EXPANSION

8. SAFETY: THE CONTRACTOR SHALL PERFORM HIS WORK IN A CLEAN AND SAFE MANNER. HE SHALL, AT ALL TIMES, TAKE WHATEVER MEASURES ARE NECESSARY TO ASSURE THE SAFETY OF ALL PERSONNEL AND COMPLY WITH ALL OSHA REQUIREMENTS & RECOMMENDATIONS. THE CONTRACTOR SHALL CLEAN UP AFTER EACH WORKING DAY AND SECURE INCOMPLETE WORK IN A SAFE AND ORDERLY CONDITION. ALL DEBRIS SHALL BE REMOVED FROM THE SITE IN A TIMELY MANNER.

9. EQUIPMENT TESTING: THE ELECTRICAL CONTRACTOR SHALL TEST ALL EQUIPMENT AND DEVICES INSTALLED TO THE SATISFACTION OF THE OWNER. RESPONSIBILITY AS TO THE OPERATION OF ALL EQUIPMENT SHALL APPLY ONLY TO THOSE ITEMS FURNISHED BY THE ELECTRICAL CONTRACTOR, BUT THE ELECTRICAL CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR ACCURATE WORK. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR AND TEST INSTRUMENTS REQUIRED FOR TESTING THIS ELECTRICAL WORK, INCLUDING INFRARED IMAGES.

10. UPON COMPLETION OF THE WORK, THE ELECTRICAL CONTRACTOR SHALL DEMONSTRATE THAT THE INSTALLATIONS ARE COMPLETE AND IN PERFECT OPERATING ORDER WITH WIRING FREE FROM GROUNDS OR SHORTS AND WITH EQUIPMENT AND RACEWAYS PROPERLY GROUNDED.

11. O & M MANUAL: THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH TWO (2) O & M MANUALS THAT PROVIDES BASIC DATA RELATING TO THE DESIGN AND MAINTENANCE OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM. THE MANUAL SHALL INCLUDE A TABLE OF CONTENTS, TABS, ELECTRONIC AND HARD COPY OF RECORD DOCUMENTS, AND MANUFACTURERS OPERATIONAL AND MAINTENANCE INFORMATION FOR ELECTRICAL EQUIPMENT

12. SITE VISIT: THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE TO REVIEW AND EVALUATE THE EXISTING ELECTRICAL SYSTEMS PRIOR TO BIDDING. OBSERVATIONS AND DETERMINATIONS SHALL BE MADE AS THE CAPACITY OF THE EXISTING PROPOSED CONSTRUCTION. ANY COSTS OF MODIFICATIONS OR UPGRADES DETERMINED TO BE NECESSARY SHALL BE INCLUDED IN THE ELECTRICAL CONTRACTORS BID. FAILURE TO ADEQUATELY INVESTIGATE THE SITE CONDITIONS PRIOR TO BIDDING SHALL NOT BE GROUNDS FOR AN EXTRA COST TO THE OWNER.

13. QUALITY OF MATERIALS: ALL MATERIALS SHALL BE NEW AND SHALL BEAR THE U.L. LABEL OR BE U.L. LISTED, WHERE APPLICABLE, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE N.E.C. AND NEMA STANDARDS. THE MATERIALS DESCRIBED ARE INTENDED TO SET A HIGH STANDARD OF COMMERCIAL QUALITY.

14. SPECIFIED ITEMS: WHERE MATERIALS OR EQUIPMENT ARE SPECIFIED BY MANUFACTURER OR BRAND NAME AND CATALOG NUMBER, SUCH DESIGNATION IS TO ESTABLISH STANDARDS OF QUALITY AND STYLE. THE CONTRACTOR ASSUMES THE RISK IF AN ITEM IS SUBSTITUTED FOR BID PURPOSES WITHOUT APPROVAL. MATERIALS SO SPECIFIED, OR APPROVED EQUALS, SHALL BE FURNISHED UNDER THE CONTRACT UNLESS CHANGED BY WRITTEN AGREEMENT. SUBSTITUTIONS MAY BE ACCEPTED ALONG WITH APPROPRIATE DEDUCTS TO THE BID PRICE.

15. RECORD DRAWINGS: THE CONTRACTORS SHALL KEEP AT THE JOB SITE A CLEAN SET OF DRAWINGS FOR HIS USE AND RECORD THEREON ANY AND ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DRAWINGS. THIS SET OF DRAWINGS SHALL BE KEPT UP-TO-DATE AND SHALL BE TURNED OVER TO THE ENGINEER AT THE COMPLETION OF THE JOB. THE ENGINEER HAS THE RIGHT TO REVIEW THE SET OF AS-BUILTS AT ANYTIME.

16. OUTLET, SWITCH & JUNCTION BOXES: ALL OUTLET BOXES SHALL BE SQUARE AND PLUMB WITH THE SURFACE AND LABELED ON THE COVER PLATE WITH THE CIRCUIT NUMBER AND PANEL FROM WHICH THE CIRCUIT ORIGINATES. OUTLET BOXES SHALL BE METAL, NON-GANG ABLE KNOCKOUT TYPE. MINIMUM SIZE SHALL BE 4"X2". PROVIDED PLASTER RINGS OF DEPTH REQUIRED TO REACH FINISHED SURFACES

17. WIRE ROUTING: THE ELECTRICAL SYSTEM AND WIRE ROUTING SHALL BE DETERMINED BY THE ELECTRICAL CONTRACTOR. ALL ROUTING MUST BE CONFIRMED BY THE CONTRACTOR AFTER VERIFYING ALL DIMENSIONS AND CONDITIONS FOR POSSIBLE INTERFERENCES WITH MECHANICAL EQUIPMENT, PLUMBING, DUCTWORK, STRUCTURAL SUPPORTS, ETC. AND RECIEVING APPROVAL FROM THE PROJECT MANAGER. ALL MODIFICATIONS ARE UNDERSTOOD TO BE AT NO COST TO THE OWNER. THE CONTRACTOR MAY MODIFY ROUTING WITH THE ABOVE LIMITATIONS.

18. FIXTURES: THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL REQUIRED SUPPORTS FOR FIXTURES AND EQUIPMENT. LIGHTING FIXTURES, FANS, ETC., SHALL BE SECURELY MOUNTED TO OUTLET BOXES AND BUILDING CONSTRUCTION. PROVIDE LAMPS FOR ALL FIXTURES.

19. PANEL SCHEDULE: CONTRACTOR SHALL ADHERE TO THE PANEL SCHEDULE(S) AS SPECIFIED AND PROVIDE REVISED CIRCUIT DIRECTORY CARD(S). DIRECTORY CARD(S) SHALL BE NEATLY AND ACCURATELY TYPED, HAVE A TRANSPARENT COVER(S), AND CONTAIN ALL INFORMATION FROM THE DRAWING PANEL SCHEDULE.

20. NEUTRALS: ALL CIRCUITS SHALL HAVE DEDICATED NEUTRALS AND GROUND WIRES. NEUTRALS SHALL NOT BE SHARED BY MORE THAN ONE PHASE CONDUCTOR OR CIRCUIT.

21. GROUNDING: PROVIDE ALL WIRING, GROUNDING CONDUCTORS, AND GROUNDING DEVICES REQUIRED TO COMPLY WITH ARTICLE 250 OF THE N.E.C. EVERY CIRCUIT SHALL HAVE A GROUND WIRE.

22. RECEPTACLES: INSTALL G.F.C.I. RECEPTACLES AS PER N.E.C. MOUNT RECEPTACLES 8" ABOVE COUNTERTOPS OR SINKS WHERE INDICATED. MOUNT SWITCH OUTLETS 50"A.F.F. TO CENTER OF DEVICE A.F.F. AND RECEPTACLES 18" A.F.F. UNLESS OTHERWISE NOTED. MATCH EXISTING AS APPROPRIATE.

23. COVER-PLATES: COVER-PLATES FOR WIRING DEVICES SHALL BE SMOOTH, UNBREAKABLE NYLON,WHITE COLOR. COVER-PLATES FOR WEATHER PROOF DEVICES SHALL BE GASKETED LEXAN, SELF-CLOSING TYPE AND PERMIT THE RECEPTACLE TO BE ACTIVE WHILE MAINTAINING RATING (BUBBLE COVER). HUBBELL STAINLESS STEEL COVERS TO BE USED IN KITCHEN.

24. EXPOSED CONDUIT: NO EXPOSED CONDUIT, FLEX, OR MC CABLE SHALL BE INSTALLED ON THE EXTERIOR SURFACES OF THE BUILDING, OR IN FINISHED AREAS ON THE INTERIOR OF THE BUILDING..

25. CONDUIT SUPPORT: ELECTRICAL CONTRACTOR TO PROVIDE SUPPORT FROM STRUCTURE FOR CONDUITS, RUNNING THROUGH CEILING SPACE. ALL CONDUIT SHALL BE INSTALLED PARALELL WITH BUILDING LINES.

26. CONDUIT DROPS: THE ELECTRICAL CONTRACTOR SHALL PROVIDE 1" DIAMETER THIN WALL CONDUIT DROPS WITH PLASTER RING TO EACH DATA OR PHONE JACK. CONDUITS SHALL TERMINATE HORIZONTALLY WITH A BUSHING APPROXIMATELY 10" ABOVE THE CEILING OR TOP PLATE OF WALL.

27. WIRE AND CABLE: INSTALL WIRE AND CABLE OF SIZE, TYPE, AND QUALITY INDICATED ON DRAWINGS OR AS REQUIRED BY THE N.E.C. ALLOW SUFFICIENT SLACKS AT BOXES TO PERMIT PROPER TERMINATION AT DEVICE WITHOUT SPLICES. MINIMUM SIZE #12.

28. MC: METALLIC CLAD CABLE, MINIMUM SIZE #12 AWG SHALL BE USED FOR ALL INTERIOR WIRING NOT IN CONDUIT.

29. WIRE IDENTIFICATION: ALL POWER WIRING SHALL BE PROPERLY COLOR CODED IN CONFORMANCE WITH THE N.E.C. APPROVED WIRE MARKERS SHALL BE USED AT EACH JUNCTION BOX AND TERMINATION TO IDENTIFY THE WIRE WITH ITS PANEL AND CIRCUIT NUMBERS.

30. INSULATION TAPE SHALL BE VINYL PLASTIC ELECTRICAL TAPE, MINIMUM 7 MIL THICK, SCOTCH #33 OR APPROVED EQUAL.

31. SPLICES: SPLICES OF #10 WIRE AND SMALLER SHALL BE MADE WITH APPROVED TYPE PRESSURE CONNECTORS AND INSULATING CAPS (WIRE NUTS). SPLICES IN #8 WIRE AND LARGER SHALL BE MADE WITH APPROVED TYPE SLEEVE CONNECTORS AND INSULATED TO SAME THICKNESS AS THE ORIGINAL INSULATION, WITH AN APPROVED TAPE HAVING HIGH DIELECTRIC STRENGTH. ELIMINATE ALL UNNECESSARY SPLICES. POLARIS TYPE FACTORY INSULATED MECHANICAL CONNECTION LUGS SHALL ALSO BE PERMITTED.

32. CONDUCTORS: ALL CONDUCTORS SHALL BE COPPER, MINIMUM SIZE #12

33. PVC: SCHEDULE 40, MINIMUM SIZE ½" POLYVINYL CHLORIDE (RIGID NON-METALLIC TUBING) SHALL BE USED FOR ALL EXTERIOR AND BELOW GRADE WIRING. ALL UNDERGROUND CONDUIT SHALL BE BURIED 24" TO 30" BELOW GRADE AND SHALL BE MARKED 8" TO 10" ABOVE CONDUIT WITH 6" WIDE POLYETHYLENE RED MARKING TAPE WITH TRACEABLE FOIL BACKING WHICH READS "CAUTION - ELECTRIC LINE BELOW." (PANDUIT CAT. #HTDURR-E) STANDARD RADIUS ELLS SHALL BE USED.

SPECIAL NOTES (APPLY TO THIS DRAWING ONLY)

1. WATER HEATER-1: EQUAL OF STATE SELECT MODEL ES6 20 SOMS. 120V, 1 PH, 19 GALLON, 1650 WATT ELEMENT, 8 GPH RECOVERY @ 90°F RISE. SUPPORT OVERHEAD, ABOVE MS-1 AT CEILING.
2. FAN-1 100 CFM, @ 0.2" S.P., 1100 RPM, 0.62 AMPS, 52.5 WATTS, 120V, 1 PH, GREENHECK CSP-A125. FAN-2 150 CFM @ 0.2" S.P., 1400 RPM, 1.1 AMPS. 100 WATTS, 120V, GREENHECK CSP-A190. SUPPORT AT CEILING WITH VIBRATION ISOLATORS. PROVIDE HOODED WALL CAP MODEL WC-10x3. PROVIDE ALUMINUM PERFORATED WALL GRILLE WITH WHITE ENAMEL FINISH, EQUAL OF PRICE 8x8/10A/F/A/B12.
3. ELECTRIC HEATER-1: EQUAL OF REDD-I ELECTRIC PUMP HOUSE HEATER, MODELRPH1-5A, 20" LENGTH, 120V, 1 PH, 500 WATTS, 1706 BTU. WALL MOUNT 18"AFF, WITH AUTOMATIC TEMPERATURE CONTROL THERMOSTAT.
4. RADIANT HEATER-1: EQUAL OF REDD-I MODEL RCP127. 24"x48" RECESSED CEILING PANEL, 120V, 1 PH, 750 WATTS, 2560 BTU's. PROVIDE HONEYWELL ELECTRONIC PROGRAMMABLE LINE VOLTAGE THERMOSTAT SPST, MODEL T4700A1016 WITH METAL LOCKABLE THERMOSTAT GUARD.
5. ACCESSIBLE FOR SERVICE FROM ACCESS PANEL BELOW LAVATORY. PROVIDE 12x12 WALL BOX AND FLUSH STAINLESS STEEL PANEL FOR ACCESS TO LAVATORY AND DRINKING FOUNTAIN VALVES AND CONTROLS.
6. PROVIDE 2 #18 PLUS GROUND LOW VOLTAGE WIRING IN CHASE AND CONNECT TO PLUMBING FIXTURE VALVE CONTROLS. PROVIDE TRANSFORMER IN JANITOR 103.
7. PROVIDE (2) #1 + #1N + #6 GND IN 1-1/2" CONDUIT TO EXISTING UTILITY TRANSFORMER/METER.
8. PROVIDE JUNCTION BOX IN ATTIC AND 3/4" CONDUITS TO DOOR MAGNETIC LOCKS AND TRANSFORMER. PROVIDE LOW VOLTAGE WIRING PER DOOR LOCK MANUFACTURER'S INSTALLATION INSTRUCTIONS.
9. AED DEVICE. FED FROM 24V POWER SUPPLY LOCATED IN JAN 103. PROVIDE 120V FEED TO POWER SUPPLY AND 3/4" CONDUIT AND WIRING TO AED DEVICE. (AIVIA 200) PROVIDE POWER SUPPLY ENCLOSURE.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION AND/OR SPECIFICATION
J	JUNCTION BOX
○ ⊔	PIPE UP, PIPE CAP
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
AFF	ABOVE FINISHED FLOOR
MH	MOUNTING HEIGHT
WP	WEATHER PROOF
EUC	EASTON UTILITIES COMMISSION
EM	ELECTRIC METER
	RECEPTACLE - 20A., 125V. DUPLEX, GROUND FAULT INTERRUPTER TYPE (GFI), EQUAL TO PASS & SEYMOUR 2095I, MH 1'-6" AFF, UON.
LV	WIRING - ABOVE CEILING OR IN WALLS; IN OR UNDER FLOOR OR BELOW GRADE. NUMBER OF CROSSLINES INDICATES NUMBER OF COPPER CONDUCTORS PLUS GROUND CONDUCTOR (NOT SHOWN). 2#12 CONDUCTORS PLUS 1#12 GROUND UON. ARROW DENOTES HOMERUN BACK TO PANEL. LV DENOTES LOW VOLTAGE.
S	SWITCH - SINGLE, 120V, 20A, MH 4'-0".
OS	OCCUPANCY SENSOR - 120V LINE VOLTAGE, SINGLE POLE, RECESSED CEILING MOUNT, DUAL TECHNOLOGY. LITHONIA MODEL RMR PDT 9
MS	MOTION SENSOR - 120V LINE VOLTAGE, SINGLE POLE, ADJUSTABLE DELAY OFF 20 SECONDS TO 15 MINUTES, RECESSED CEILING MOUNT, LEVITON MODEL ODCOSI1W
BZ	BUZZER ALARM - 120V, 90 DB ALARM, RECESSED CEILING MOUNT, EDWARDS SIGNALING MODEL 869N5
TC	TIME CLOCK - 7 DAY PROGRAMMABLE, 120V, BATTERY BACK-UP, INTERMATIC MODEL . MH 4'-0".
TDI	LOW VOLTAGE TRANSFORMER FOR DOOR ELECTRO-MAGNETIC LOCKS, FURNISHED WITH DOOR ELECTRO-MAGNETIC LOCKS. MH 5'-0".
TV	24 VOLT TRANSFORMER, 50 VA SERVING FIVE FLUSH VALVES, SLOAN MODEL EL-154, MH 4'-0" AFF.

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN SERIES	BALLAST/DRIVER QTY	BALLAST/DRIVER TYPE	SOURCE TYPE	SOURCE LUMENS	SOURCE TEMP (K)	INPUT VOLTAGE	WATTAGE	MOUNTING	COMMENTS
A	ENVIROSEAL "ES3 SERIES" ,ONE PIECE, SEAM WELDED 20 GAUGE CRS, BRUSHED STAINLESS STEEL	ENVIROSEAL	ES3	1	LED	LED	4000	4000	MVOLT	49	SURFACE	ES3-48-1-29L40K-DCC-1-DV-SH-PP-WW
B	4' LED WRAP AROUND	LITHONIA	SBL4	1	LED	LED	4000	4000	MVOLT	32.4	SURFACE	SBL4-4000LM-80CRI-40K-MIN10-MVOLT
C	MILLENIUM OVAL	MILLENIUM	M013	1	LED	LED	4000	4000	MVOLT	8	SURFACE	M013EL-PP-DB-8L40K-120-LEL-SA-BPC-SA
D	HERCULUX HIGH ABUSE	HERCULUX	H99	1	LED	LED	4000	4000	MVOLT	20	SURFACE	H99EL-PP-DB-16L40K-DV--SA

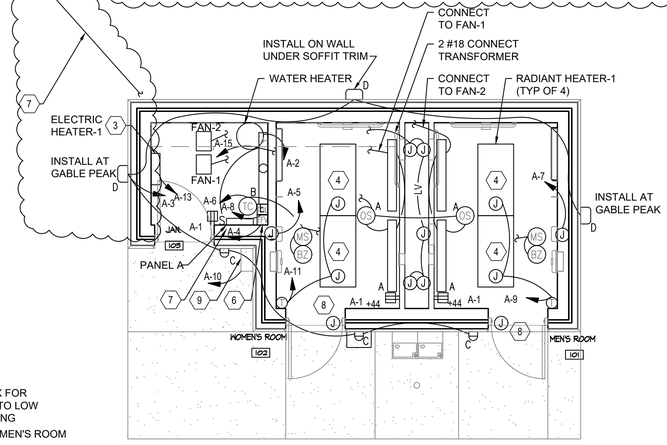
NOTES:

PANELBOARD: PP-A

VOLTS: 208/120 — MOUNTING: SURFACE — A.I.C. RATING: 10K
PHASE/WIRE: 1 PHASE, 3 WIRE — ENCLOSURE: TYPE 1 — MAINS TYPE: MAIN CIRCUIT BREAKER (MCB)
SERVED BY: UTILITY TRANSFORMER — EQUIPMENT: EQUIP. GND BAR — MAINS RATING: 100A
MCB RATING: 100A
ROOM DESIGNATION: UTILITY ROOM
LOCATION:

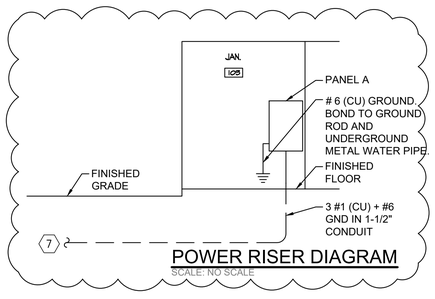
CKT NO.	CKT. BKR. P	CKT. BKR. TRIP	CIRCUIT DESCRIPTION	KVA PER PHASE A	KVA PER PHASE B	CIRCUIT DESCRIPTION	CKT. BKR. TRIP	CKT. BKR. P	CKT NO.
1	1	20A	RECPTACLES - TOILETS / MECH RM.	0.60 1.70		WATER HEATER	20A	1	2
3	1	20A	EXTERIOR LIGHTS		0.40 0.20	PLUMBING FIXTURE CONTROLS	20A	1	4
5	1	20A	WOMENS HAND DRYER	1.50 ---		INTRUDER ALARM	20A	1	6
7	1	20A	MENS HAND DRYER		1.50 0.10	DOOR MAGNETIC LOCKS	20A	1	8
9	1	20A	MENS ROOM HEATER	1.50 0.10		AED	20A	1	10
11	1	20A	WOMENS ROOM HEATER		1.50 ---		---	---	12
13	1	20A	ELEC. HEATER - JANITOR RM 103	0.50 ---			---	---	14
15	1	20A	LIGHTS AND EXHAUST FANS		0.40 ---		---	---	16
17	---	---		--- ---			---	---	18
19	---	---			--- ---		---	---	20
			TOTAL KVA PER PHASE:	5.9	4.1				
			TOTAL KVA		10.0				
			TOTAL AMPS PER PHASE:	49.2	34.2				
			TOTAL AMPS:		48.1				

NOTES:



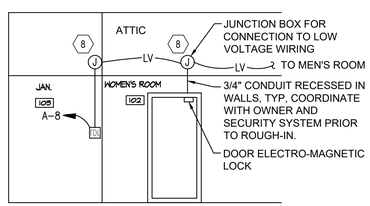
ELECTRICAL FLOOR PLAN

SCALE: 1/4"=1'-0"



POWER RISER DIAGRAM

SCALE: NO SCALE



DOOR LOCK WIRING DETAIL

SCALE: NO SCALE

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS - ENGINEERS - SURVEYORS
SALISBURY, MARYLAND 410.543.9091
MILFORD, DELAWARE 302.424.1441
EASTON, MARYLAND 410.770.4744

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer in the laws of the State of Maryland License No. 52832 Expiration Date: 06-13-2024

BREWER'S LANE COMFORT STATION

BID SET

EASTON, MARYLAND

DATE	COMMENTS
09/16/2023	ELECTRIC SERVICE VOLTAGE REVISION

Date: 05/23/2023
Scale: AS NOTED
Dwn.By: EAU
Proj.No.: 1495A143.001

ELECTRICAL SCHEDULES & NOTES

Dwg.No.: **E-001**

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Mechanical | Electrical | Systems Engineering
P.O Box 498, Smyrna, DE 19977 302-659-9090

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CONCEPT STORMWATER MANAGEMENT REPORT

For

Easton Point Park Boat Ramp
801 Port Street Easton, MD and
672 W Glenwood Avenue Easton, MD

Developer

Town of Easton
C/O Rick Van Emburgh P.E.
14 S Harrison Street
Easton, Maryland 21601

Design Professional

Lane Engineering, LLC.
117 Bay Street
Easton, Maryland 21601
410-822-8003

Date Prepared

December 5, 2024

Prepared by

Matt Rajacich, E.I.T.
Civil Engineer

Reviewed by

Timothy W. Glass, P.E.
Civil Engineer



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. 23152; Expiration Date: 07/05/2025.

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EASTON POINT PARK BOAT RAMP
CONCEPT STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

The following narrative addresses stormwater management quality and quantity requirements for the site as described in the current Town of Easton Stormwater Management Ordinance. The 2000 Maryland Stormwater Design Manual Volumes I and II (Manual), as amended in 2009, is referenced in meeting these requirements.

2. GENERAL SITE AND PROJECT INFORMATION

801 Port Street is currently improved with existing buildings and parking areas on-site. The Owner has previously removed the buildings and retaining wall on-site in preparation of the proposed boat ramp project. For the purposes on stormwater management, the footprints of these building are incorporated in the existing impervious area on-site. The site was previously owned by Southern States Cooperative Inc. and was utilized as an industrial site for fuel storage/transport and material storage. It is fully developed with a parking lot, office buildings, and fuel tanks. There are no existing stormwater facilities on-site.

The proposed development at 801 Port Street will consist of removing all of the existing improvements on-site and constructing a public boat ramp with a new parking lot and bathroom.

672 W Glenwood Avenue is currently being used as a public park. It previously was used an industrial site and then was owned and operated by the Town of Easton Department of Public Works. The site previously was developed with multiple buildings, parking, and at one time, contained a large fuel storage tank. There are no existing stormwater facilities on-site. The Town has been removing impervious area over the last few years as the site is converted from an industrial site to a public park.

The proposed development for 672 W Glenwood Avenue is to remove a portion of the existing parking area and construct an access road to the proposed boat ramp as well as an 8’ wide walking path that will be incorporated into the Easton Rails-To-Trails.

3. STORMWATER MANAGEMENT

3.1 EXISTING SOILS CONDITIONS

Both sites were once industrial sites for fuel and material storage. The existing soils that are mapped for 801 Port Street are predominately have UoB soils which are categorized as HSG “C” soils. The area of interest for 672 W Glenwood Avenue is mapped as Up or Urban Land which is considered to be a HSG “D” soil. A geotechnical analysis is currently being performed and will be incorporated into this report at the preliminary stage.

3.2 EXISTING DRAINAGE CONDITIONS

The sites both drain to the Tred Avon River either by direct sheetflow, or through existing swales that border the property. Since the sites discharge directly to tidal waters, they are exempt from quantity management.

3.3 ENVIRONMENTAL SITE DESIGN (ESD) PRACTICES - QUALITY

The Limits of Disturbance associated with the proposed is 176,527 SF and there is an existing impervious area on-site of 74,418 SF (42% of the site is impervious). Due to the existing impervious area on-site, the project qualifies for redevelopment. Sites that qualify for redevelopment are required to either treat or remove 50% of the existing impervious on-site to a Pe of 1", and any increase in impervious area shall be treated to the full Pe requirement.

Local zoning requirements state that all pavement used for parking areas located within the Mixed-Use Waterfront District (MXW) shall be pervious. By utilizing Permeable Pavers, the proposed development will reduce the impervious area by 17,679 SF leaving 19,530 SF of impervious area to be treated. This area results in an ESD target of **1,546 cf**.

Permeable Pavers not only reduce the impervious area on-site, but also provide treatment, the proposed paver areas on-site will provide **986 cf** of treatment. The remainder of the required ESD volume will be captured by a proposed bio-swale. There is an existing swale along this southern property line that drains a portion of the 672 W Glenwood Avenue parcel. This swale will be converted to a bio-swale to provide ESD treatment for the proposed development. The proposed bioswale will provide **2,912 cf** of treatment (refer to Appendix A for detailed ESD calculations). A portion of 672 W Glenwood Avenue outside of the proposed LOD drains to the existing swale/proposed bioswale along the southern property line. A HydroCAD analysis was conducted to ensure that the proposed bio-swale can safely convey the 100-year storm (see Appendix C for drainage area maps and Appendix D for HydroCAD report). The total ESD volume provided by the two proposed features is **3,898 cf**. this is **2,352 cf** more ESD volume than required for redevelopment on this project, this additional ESD volume can be applied to future projects if needed.

3.3.1 10% PHOSPHOROUS REDUCTION CALCULATIONS

Regulations require a 10% phosphorous reduction for projects within the Critical Area that are zoned as Intensely Developed Areas (IDA). By reducing the overall impervious area on-site at 801 Port Street, we have implicitly met this reduction requirement. The proposed permeable pavers offer additional phosphorous removal. For 872 W Glenwood Avenue, the proposed bio-swale provides the necessary phosphorous reduction needed to meet the state regulations. Refer to Appendix B for phosphorous removal calculations.

3.4 QUANTITY MANAGEMENT

The site discharges directly to tidal waters and is therefore exempt from quantity management. Post redevelopment, the site will continue to drain to the Tred Avon River as it did pre-redevelopment.

4. CONCLUSION

The project design meets the intent of the Town of Easton's Stormwater Management Ordinance for both water quality treatment and water quantity control.

As demonstrated, the project design has incorporated planning and development strategies and has evaluated ESD practices for application and compatibility with the existing site conditions, project design objectives and required ESD design parameters. ESD has been met to the MEP for this commercial site.

It is respectfully requested that the stormwater analysis and report and project design be approved as presented.

APPENDIX A

- ESD CALCULATIONS

ESD Target for Site Development (Total Site)

Earthen Disturbance (LOD) = 4.05 acres = 176,527 sf (excluding offsite utility work & sidewalk improvements)

Existing Coverage within LOD = 74,418 sf (42%)

Project qualifies for redevelopment: R_v = 0.95; P_E = 1.0"

Treat and/or remove half of existing impervious coverage: ½ x 74,418 = 37,209 sf

Project will remove 17,679 sf of unused asphalt & concrete pavement

37,209 – 17,679 = 19,530 sf to be treated

$ESD_V = \frac{(Pe)(Rv)(A)}{12} = \frac{(1.0)(0.95)(19{,}530)}{12}$ = **1,546 cf**

Permeable Pavers (A-2)

$ESD_{Provided}$ = Total Paver Area X ESDv Per SF for HSG C with 6" base = 22,939 X 0.043 = **986 cf**

Refer to Environmental Site Design (ESD) Process and Computations July 2010 for details on ESDv credits

Micro-Bioretention (M-8)

$ESD_{Ponding}$ = 1.5' of ponding equivalates to **1,442 cf** or treatment (Refer to HydroCad Report for staging volumes)

ESD_{Media} = $\text{Porosity of Media} \times \text{Media depth} \times \text{Floor Area} = 0.4 \times 1{,}837 \times 2.0 = \mathbf{1{,}470\ cf}$

$ESD_{Provided}$ = $ESD_{Ponding}$ + ESD_{Media} = 1,442 + 1,470 = **2,912 cf**

ESD_V (provided PR -1) > ESD_V (target redevelopment)

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESDv ($FT.^3$)	ACTUAL ESDv ($ft.^3$)
1	A-2	PERMEABLE PAVERS	ON-SITE	93	403325.33	1571264.31	0.527	0.527	0.527	1	1	-	986
2	M-8	BIO-SWALE	ON-SITE	86	403480.07	1571546.14	3.469	1.698	0.042	1	1	-	2,912
TOTAL/ AVERAGE				90			3.996	2.225	.569	1	1	*1,546	3,898

* Site Target based on re-development

TOWN OF EASTON MARYLAND · FOUNDED 1710 ·

APPROVAL

TOWN ENGINEER

1/2020
DATE

TOWN OF EASTON
STANDARD DETAILS

ESD SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO.: TOE-SWM-7.01

APPENDIX B

- 10% PHOSPHOROUS REDUCTION CALCULATIONS

VERSION 4.0

Maryland ESD Calculations and 10% Phosphorus Removal

Last Update: 12/3/2013

Project Name:	**Easton Point Park Boat Ramp**
Date:	**19-Dec-24**
	data input cells
	calculation cells

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	*N/A*
Erosion and Sediment Control Practices and Post Construction Stormwater Management Practices Were Integrated into a Comprehensive Plan	*YES*
Tree PlantingWas 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)	4.05
Existing Impervious Surface Area (acres)	1.71
Proposed Impervious Surface Area (acres)	1.30
Rainfall Depth, P (in)	1.0
Existing Imperviousness, I_{pre}	42.2%
Proposed Imperviousness, I_{post}	32.1%
Water Quality Calculation for Redevelopment Only	
Required Treatment Area (acres)	0.45
Runoff Coefficient, Rv	0.95
Water Quality Volume, WQv (cf)	**1,546**

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

Development Category (for ESD)	**Redevelopment**	
% Soil Type A	0%	
% Soil Type B	0%	
% Soil Type C	50%	
% Soil Type D	50%	
Pre-Developed Condition, RCN_{woods}	73.5	
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)	0.00	
Maximum P_E (in)	2.7	
Site ESD Rainfall Target, P_E (in)		0.00
ESD Runoff Depth, Q_E (in)		0.00
ESD Runoff Volume, ESDv (cf)		**0**
Total Treatment Volume (cf)		**1,546**

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

Development Category (for 10%)	**Redevelopment**
New Development	
Average Annual Predevelopment Load, Lpre (lbs P / yr)	2.03
Redevelopment:	
Predevelopment Runoff Coefficient, Rv_{pre}	0.43
Phosphorous Mean Concentration, C (mg/L)	0.3
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)	4.26
Post-Development Runoff Coefficient, Rv_{post}	0.34
Average Annual Post-Development Load, L_{post} (lbs P / yr)	3.37
Removal Requirement, RR (lbs P / yr)	**-0.47**

Calculation Summary	0.5 acre site
	.25 acres to .38 acres
Critical Area 10% Calculations	50% to 75%
Removal Requirement, RR (lbs P / yr)	**-0.47**
after non-structural and micro-scale BMPs (Steps 5 and 6)	
Total Load Reduction (lbs P / year)	2.82
Total Load Reduction Remaining (lbs P / yr)	**0.00**
after structural practices (Step 9)	
Total Load Reduction (lbs P / year)	100861.30
Total Load Reduction Remaining (lbs P / yr)	**0.00**
MDE's ESD to the MEP Calculations	
ESD Runoff Volume, ESDv (cf)	0.00
Total Treatment Volume (cf)	1546.13
WQv or ESDv Treated (cf)	3898.38
PE achieved (inches)	N/A
Entire ESDv Treated Through Environmental Site Design?	YES
ESDv Remaining? (cf)	0.00
If ESDV is not fully treated, is ESD to MEP achieved?	YES
Redevelopment WQv Requirements Met Through Environmental Site Design?	YES
WQv Remaining? (cf)	0.00
New Development WQv Requirements Met Through Environmental Site Design?	N/A
WQv Remaining? (cf)	0.00

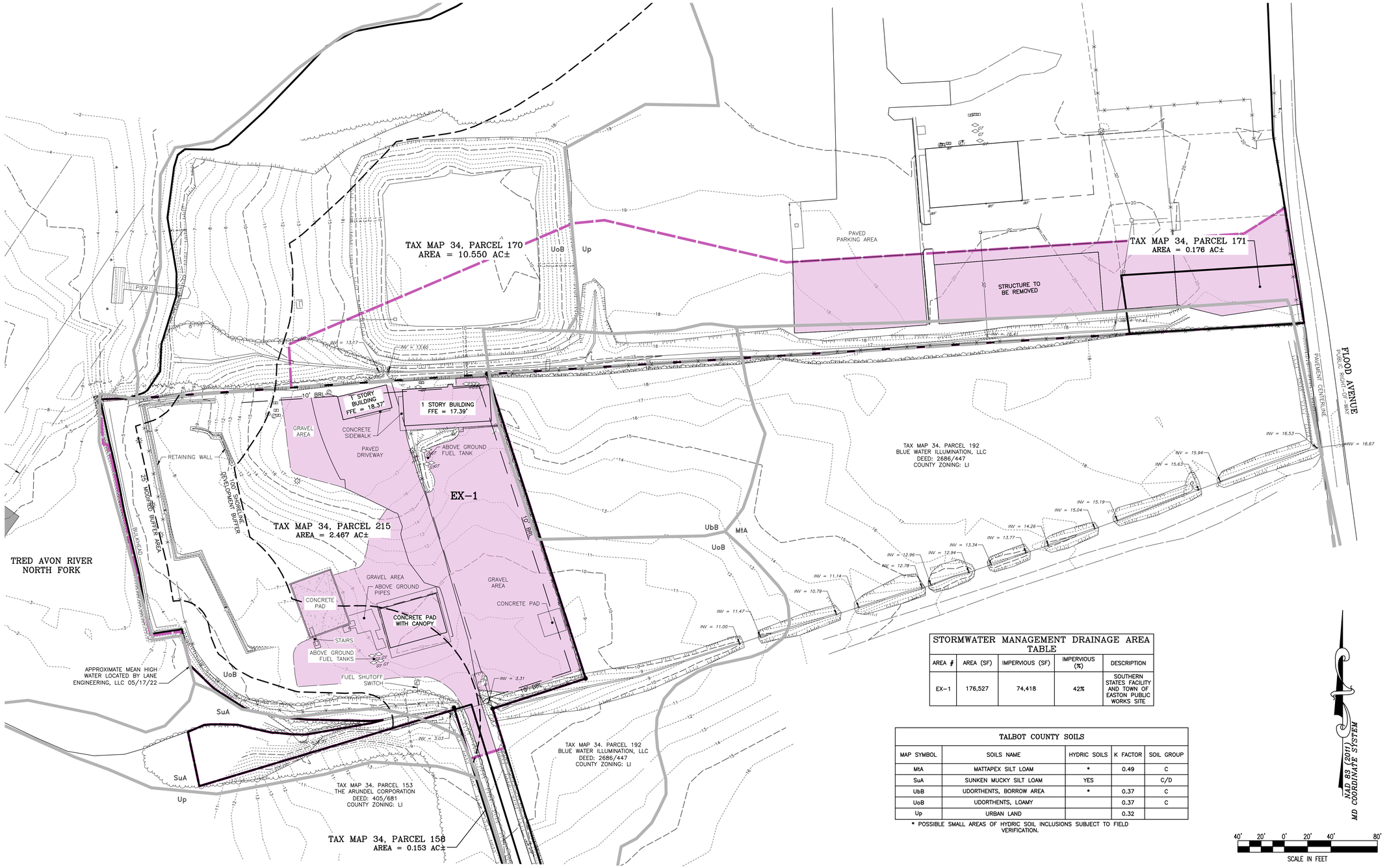
Micro-Scale Practices	P_E Credit Description	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	Practice Specific Parameter(s)			WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice		Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness	22,939	100%	4,903	N/A	Subbase Thickness (in) 6			986	3,917	Stormwater Ponds (Level 1)		40%	100%	1.22	1.22	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness		100%	0	N/A	Subbase Thickness (in)			0	0			40%		0.00	0.00	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness		100%	0	N/A	Subbase Thickness (in)			0	0			40%		0.00	0.00	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness		100%	0	N/A	Subbase Thickness (in)			0	0			40%		0.00	0.00	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness		100%	0	N/A	Subbase Thickness (in)			0	0			40%		0.00	0.00	0.00
Total		22,939		4,903	0				986	3,917			40%	100%	1.22	1.22	0.00

Micro-Scale Practices	P_E Credit Description	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	Practice Specific Parameter (s)			WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice		Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
						Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)									
Bio-swales (C/D Soils)	ESDv credit is based on design storage volume	151,098	49%	16,693	0	1,837	1.5	2	2,912	13,781			50%	38%	4.17	1.59	2.58
						Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)									
Bio-swales (C/D Soils)	ESDv credit is based on design storage volume			0	0				0	0			50%		0.00	0.00	0.00
						Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)									
Bio-swales (C/D Soils)	ESDv credit is based on design storage volume			0	0				0	0			50%		0.00	0.00	0.00
						Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)									
Bio-swales (C/D Soils)	ESDv credit is based on design storage volume			0	0				0	0			50%		0.00	0.00	0.00
						Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)									
Bio-swales (C/D Soils)	ESDv credit is based on design storage volume			0	0				0	0			50%		0.00	0.00	0.00
Total		151,098		16,693	0				2,912	13,781			50%	38%	4.17	1.59	2.58

APPENDIX C

- DRAINAGE AREA MAPS

Date: 12/20/2024 - 2:07pm User: mrojasich Project Manager: JSC
Drawing Path: J:\2021\0500\210560\Civil3D-210560\Dwg\Plats\CDA-PLTS-210560.dwg | Pre
XREF File(s): CBS-BASE-24JS-210560/VLD-BASE-MLW0-210560/CSP-BASE-MLW0-210560/VSP-BASE-MLW0-210560/RLD-EUC-BASE-210560/CSM-BASE-210560/Quantity-CDA-BASE-210560/YDA-BASE-210560



STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	IMPERVIOUS (SF)	IMPERVIOUS (%)	DESCRIPTION
EX-1	176,527	74,418	42%	SOUTHERN STATES FACILITY AND TOWN OF EASTON PUBLIC WORKS SITE

TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
MtA	MATTAPEX SILT LOAM	*	0.49	C
SuA	SUNKEN MUCKY SILT LOAM	YES		C/D
UbB	UDORTHENTS, BORROW AREA	*	0.37	C
UoB	UDORTHENTS, LOAMY		0.37	C
Up	URBAN LAND		0.32	

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

40' 20' 0' 20' 40' 80'
SCALE IN FEET

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

REVISIONS TO APPROVED PLANS			
No.	DATE	DESCRIPTION	BY

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E-mail: general@lanei.com
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15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, 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. 23152 , Expiration Date: 7/5/2025.

SEAL
STATE OF MARYLAND
JOSEPH C. STEVENS, IV
12.20.24
DATE

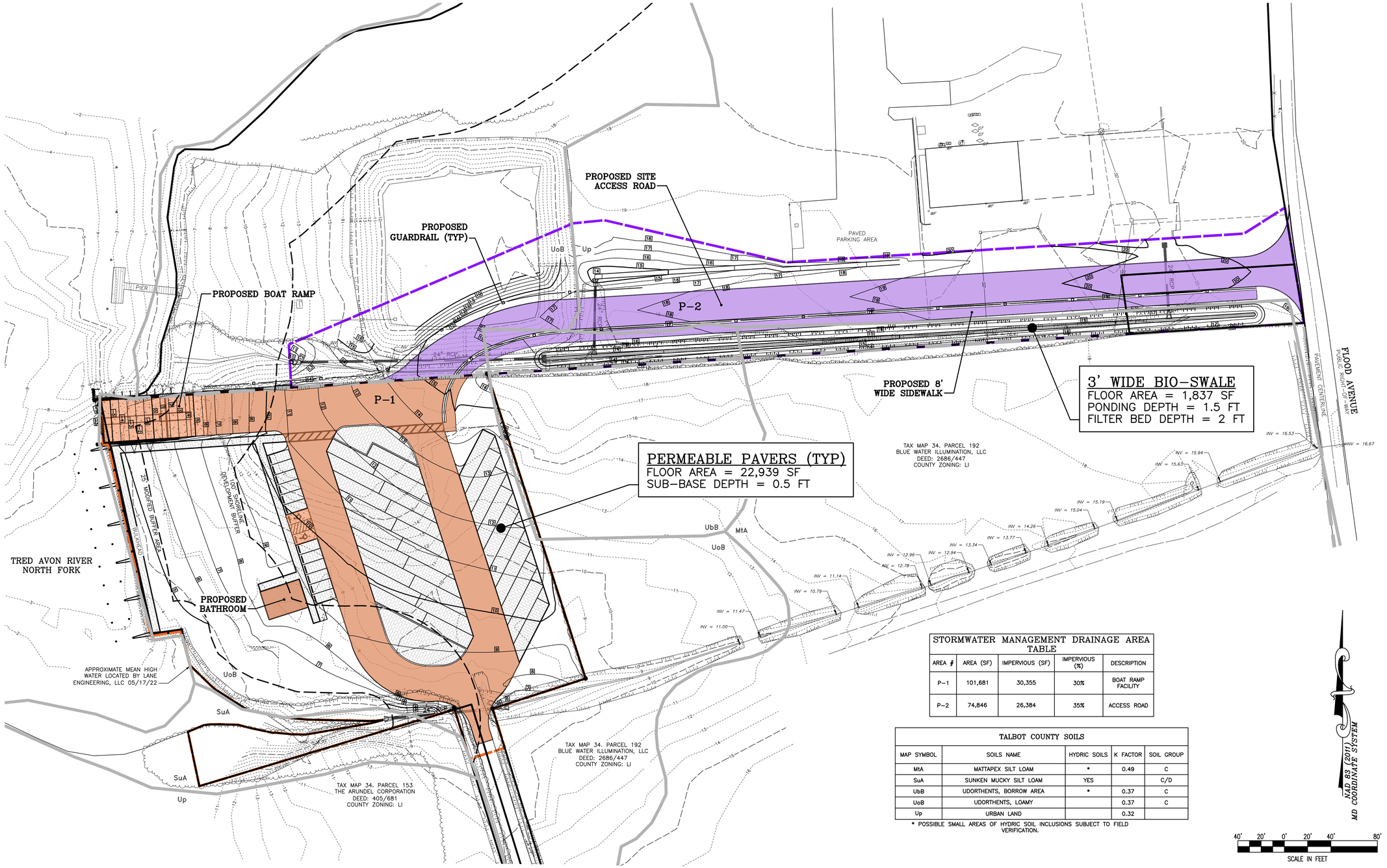
PRE-DEVELOPMENT WATER QUALITY EXHIBIT

EASTON POINT PARK BOAT RAMP

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, PARCELS 158, 170, 171 & 215

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	12/19/24	JSC

SHEET No. 1 OF 3
SCALE: AS NOTED
JOB No. 210560
FILE No. 5962



STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	IMPERVIOUS (SF)	IMPERVIOUS (%)	DESCRIPTION
P-1	101,681	30,355	30%	BOAT RAMP FACILITY
P-2	74,846	26,384	35%	ACCESS ROAD

TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
MtA	MATTAPEX SILT LOAM	*	0.49	C
SuA	SUNKEN MUCKY SILT LOAM	YES		C/D
UbB	UDORTHENTS, BORROW AREA	*	0.37	C
UoB	UDORTHENTS, LOAMY		0.37	C
Up	URBAN LAND		0.32	

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

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354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

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SEAL

STATE OF MARYLAND — JOSEPH S. CASEY — 23152 — REGISTERED PROFESSIONAL ENGINEER

12.20.24
DATE

POST-DEVELOPMENT WATER QUALITY EXHIBIT

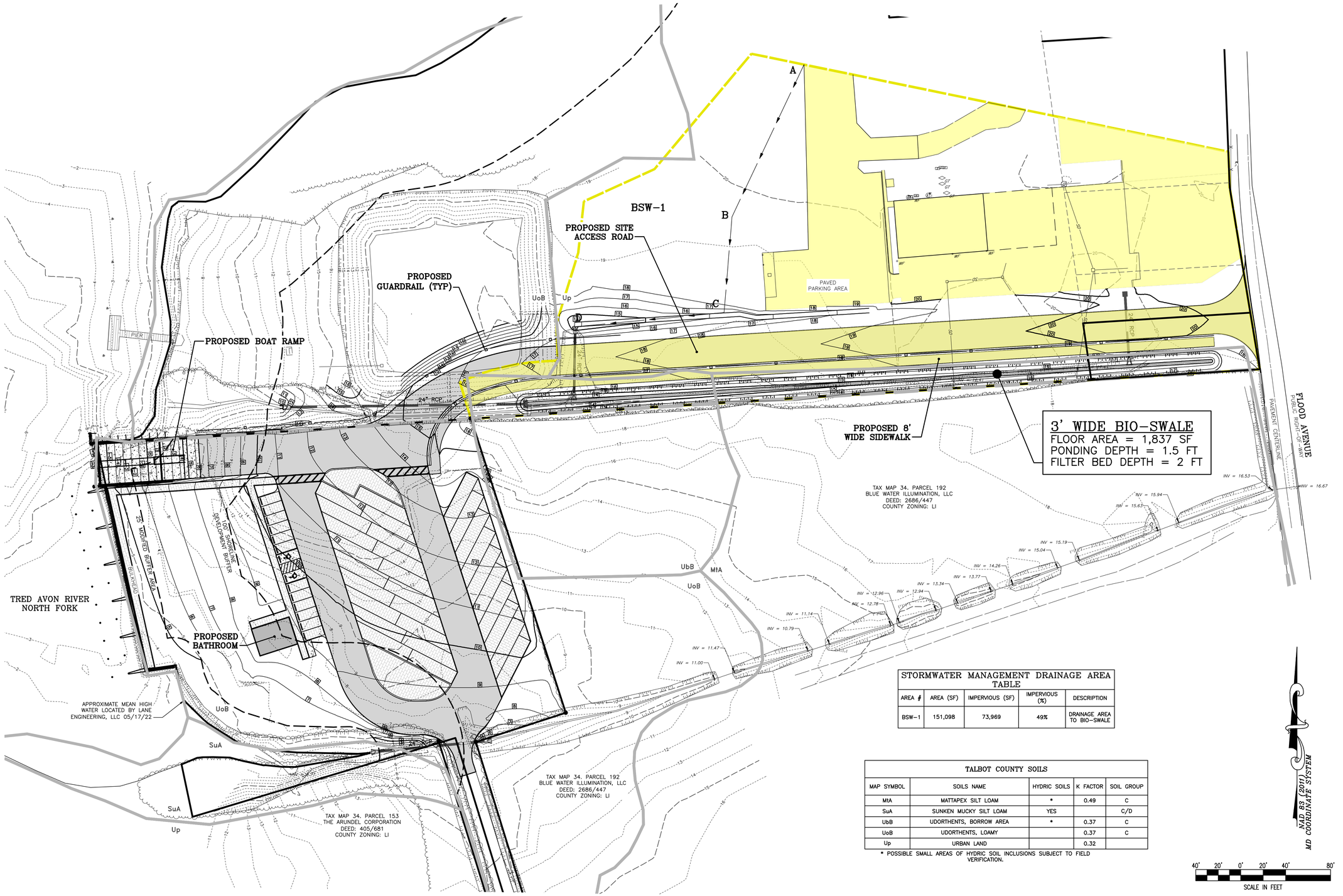
EASTON POINT PARK BOAT RAMP

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, PARCELS 158, 170, 171 & 215

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	12/19/24	JSC

SHEET No: 2 OF 3
JOB No. 210560
SCALE: AS NOTED
FILE No. 5962

Date: 12/20/2024 - 2:07pm User: mrojacich Project Manager: JSC
Drawing Path: J:\2021\0500\2105\0560\Civil\3D-210560\Dwg\Plots\CDA-PLTS-210560.dwg | Post
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3' WIDE BIO-SWALE
FLOOR AREA = 1,837 SF
PONDING DEPTH = 1.5 FT
FILTER BED DEPTH = 2 FT

NAD 83 (2011)
MD COORDINATE SYSTEM

40' 20' 0' 20' 40' 80'
SCALE IN FEET

STORMWATER MANAGEMENT DRAINAGE AREA TABLE

AREA #	AREA (SF)	IMPERVIOUS (SF)	IMPERVIOUS (%)	DESCRIPTION
BSW-1	151,098	73,969	49%	DRAINAGE AREA TO BIO-SWALE

TALBOT COUNTY SOILS

MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
MtA	MATTAPEX SILT LOAM	*	0.49	C
SuA	SUNKEN MUCKY SILT LOAM	YES		C/D
UbB	UDORTHENTS, BORROW AREA	*	0.37	C
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Up	URBAN LAND		0.32	

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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. 23152, Expiration Date: 7/8/2025.

SEAL

STATE OF MARYLAND
TIMOTHY C. KEMP
23152
ENGINEER

12.20.24
DATE

POST-DEVELOPMENT QUANTITY EXHIBIT

EASTON POINT PARK BOAT RAMP

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, PARCELS 158, 170, 171 & 215

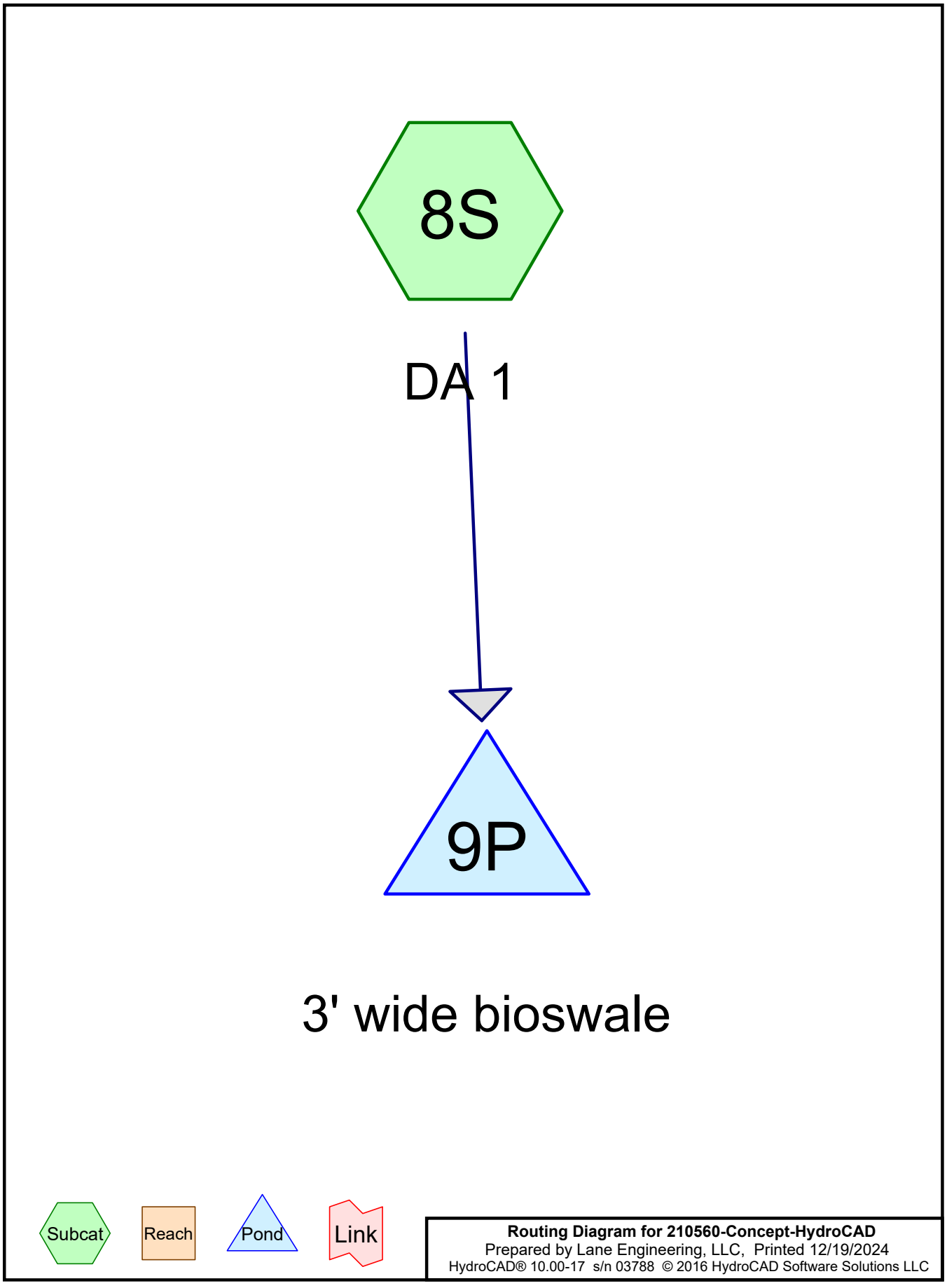
ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	12/19/24	JSC

SHEET No. 3 OF 3
SCALE: AS NOTED
JOB No. 210560
FILE No. 5962

Date: 12/20/2024 - 2:08pm User: mrojcich Project Manager: JSC
Drawing Path: J:\2021\0500\210560\Civil3D-210560\Dwg\Plats\CDA-PLTS-210560.dwg | Post Quantity
XREF File(s): CBS-BASE-24JS-210560/VUD-BASE-MLW0-210560/CSP-BASE-210560/VSF-BASE-MLW0-210560/RLD-EUC-BASE-210560/CDA-BASE-210560/Quantity-CDA-BASE-210560

APPENDIX D

- HYDROCAD REPORT


8S
DA 1
9P
3' wide bioswale
Subcat
Reach
Pond
Link
Routing Diagram for 210560-Concept-HydroCAD
Prepared by Lane Engineering, LLC, Printed 12/19/2024
HydroCAD® 10.00-17 s/n 03788 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 8S: DA 1

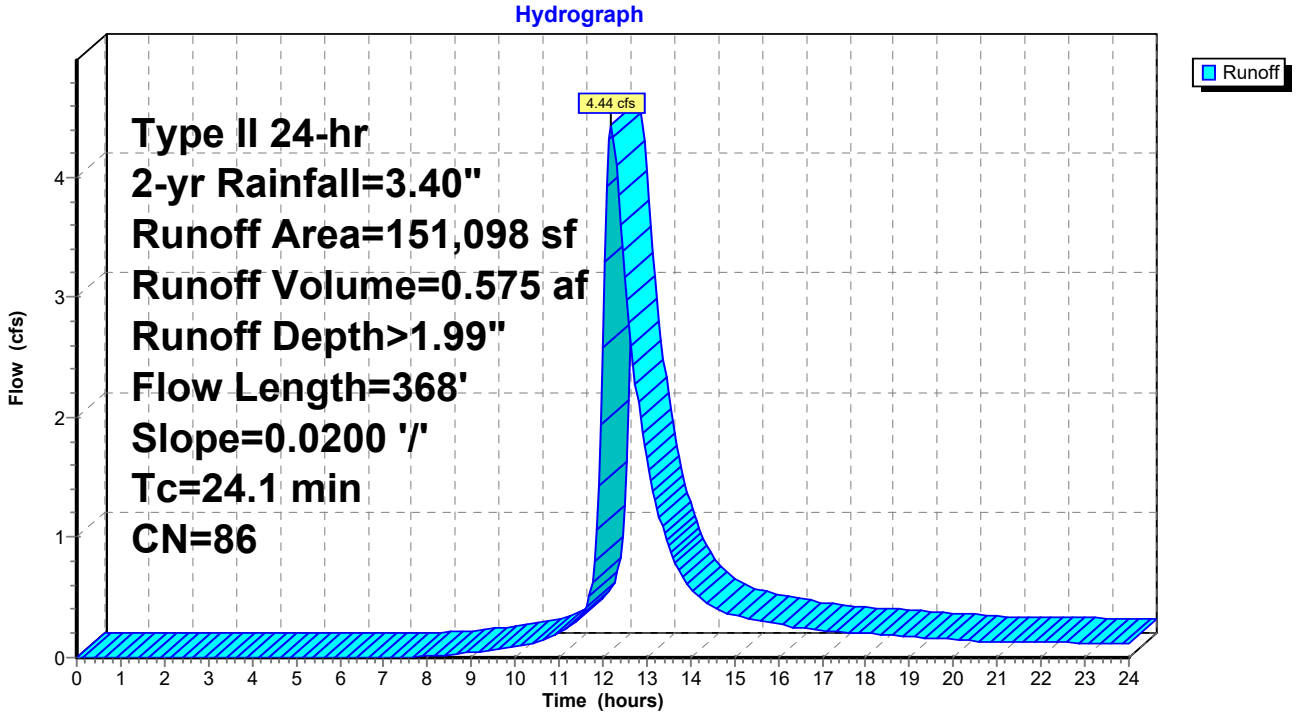
Runoff = 4.44 cfs @ 12.20 hrs, Volume= 0.575 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
73,969	98	Paved parking, HSG C
77,129	74	>75% Grass cover, Good, HSG C
151,098	86	Weighted Average
77,129		51.05% Pervious Area
73,969		48.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	150	0.0200	0.13		**Sheet Flow, a-b** Grass: Dense n= 0.240 P2= 3.40"
0.6	85	0.0200	2.28		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
4.4	133	0.0200	0.50	3.00	**Channel Flow, c-d** Area= 6.0 sf Perim= 500.0' r= 0.01' n= 0.022 Earth, clean & straight
24.1	368	Total			

Subcatchment 8S: DA 1



Summary for Pond 9P: 3' wide bioswale

Inflow Area = 3.469 ac, 48.95% Impervious, Inflow Depth > 1.99" for 2-yr event
Inflow = 4.44 cfs @ 12.20 hrs, Volume= 0.575 af
Outflow = 4.39 cfs @ 12.24 hrs, Volume= 0.541 af, Atten= 1%, Lag= 2.2 min
Primary = 4.39 cfs @ 12.24 hrs, Volume= 0.541 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.25' @ 12.24 hrs Surf.Area= 3,097 sf Storage= 2,130 cf

Plug-Flow detention time= 46.8 min calculated for 0.541 af (94% of inflow)
Center-of-Mass det. time= 15.4 min (857.6 - 842.1)

Volume	Invert	Avail.Storage	Storage Description
#1	13.50'	5,360 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

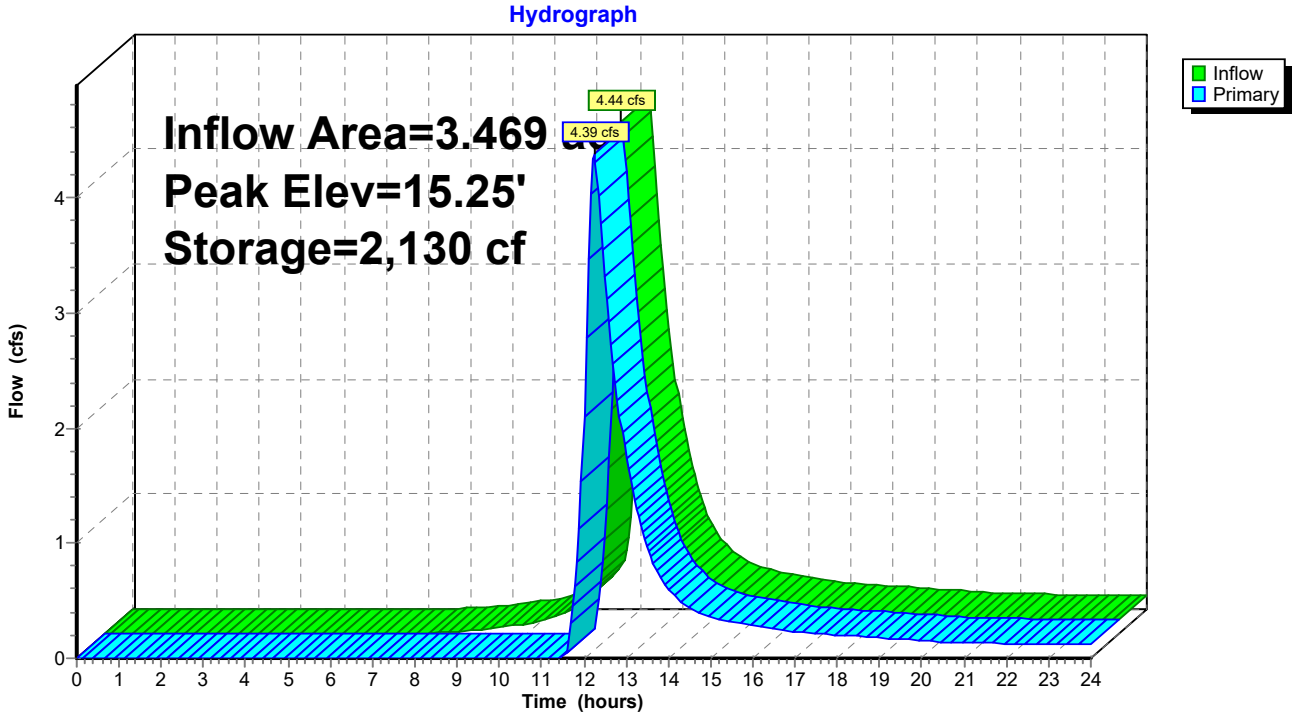
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
13.50	4	5.0	0	0	4
13.60	73	46.0	3	3	170
13.70	155	88.0	11	14	618
13.80	250	130.0	20	34	1,347
13.90	358	171.0	30	65	2,329
14.00	479	213.0	42	106	3,613
14.10	613	255.0	54	161	5,177
14.20	761	296.0	69	229	6,975
14.30	921	338.0	84	313	9,094
14.40	1,095	380.0	101	414	11,494
14.50	1,281	421.0	119	533	14,108
14.60	1,481	463.0	138	671	17,063
14.70	1,693	505.0	159	829	20,299
14.80	1,919	546.0	180	1,010	23,728
14.90	2,158	588.0	204	1,213	27,519
15.00	2,409	630.0	228	1,442	31,590
15.10	2,674	671.0	254	1,696	35,835
15.20	2,952	713.0	281	1,977	40,461
15.30	3,243	755.0	310	2,287	45,368
15.40	3,547	796.0	339	2,626	50,429
15.50	3,864	838.0	370	2,996	55,891
15.60	4,194	880.0	403	3,399	61,634
15.70	4,538	921.0	436	3,836	67,511
15.80	4,894	963.0	471	4,307	73,808
15.90	5,263	1,005.0	508	4,815	80,386
16.00	5,646	1,046.0	545	5,360	87,079

Device	Routing	Invert	Outlet Devices
#1	Primary	11.50'	**24.0" Round Culvert** L= 215.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 11.50' / 10.00' S= 0.0070 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2 Device 1 15.00' **10.7' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=4.37 cfs @ 12.24 hrs HW=15.25' (Free Discharge)
└**1=Culvert** (Passes 4.37 cfs of 22.13 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 4.37 cfs @ 1.63 fps)

Pond 9P: 3' wide bioswale



Stage-Area-Storage for Pond 9P: 3' wide bioswale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
13.50	4	0
13.55	28	1
13.60	73	3
13.65	110	8
13.70	155	14
13.75	200	23
13.80	250	34
13.85	302	48
13.90	358	65
13.95	416	84
14.00	479	106
14.05	544	132
14.10	613	161
14.15	685	193
14.20	761	229
14.25	839	269
14.30	921	313
14.35	1,006	361
14.40	1,095	414
14.45	1,186	471
14.50	1,281	533
14.55	1,379	599
14.60	1,481	671
14.65	1,585	747
14.70	1,693	829
14.75	1,804	917
14.80	1,919	1,010
14.85	2,037	1,109
14.90	2,158	1,213
14.95	2,282	1,324
15.00	2,409	1,442
15.05	2,540	1,565
15.10	2,674	1,696
15.15	2,811	1,833
15.20	2,952	1,977
15.25	3,096	2,128
15.30	3,243	2,287
15.35	3,393	2,452
15.40	3,547	2,626
15.45	3,704	2,807
15.50	3,864	2,996
15.55	4,027	3,194
15.60	4,194	3,399
15.65	4,364	3,613
15.70	4,538	3,836
15.75	4,714	4,067
15.80	4,894	4,307
15.85	5,077	4,556
15.90	5,263	4,815
15.95	5,453	5,083
16.00	**5,646**	**5,360**

Summary for Subcatchment 8S: DA 1

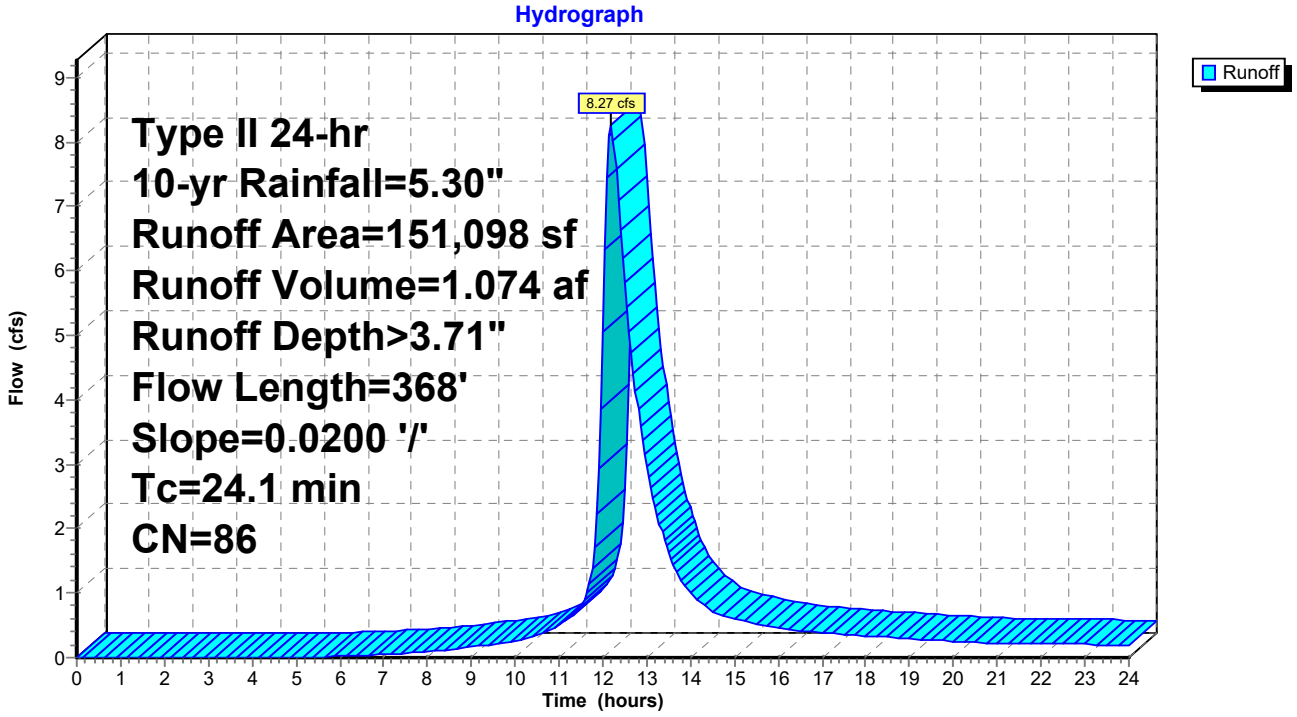
Runoff = 8.27 cfs @ 12.19 hrs, Volume= 1.074 af, Depth> 3.71"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
73,969	98	Paved parking, HSG C
77,129	74	>75% Grass cover, Good, HSG C
151,098	86	Weighted Average
77,129		51.05% Pervious Area
73,969		48.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	150	0.0200	0.13		**Sheet Flow, a-b** Grass: Dense n= 0.240 P2= 3.40"
0.6	85	0.0200	2.28		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
4.4	133	0.0200	0.50	3.00	**Channel Flow, c-d** Area= 6.0 sf Perim= 500.0' r= 0.01' n= 0.022 Earth, clean & straight
24.1	368	Total			

Subcatchment 8S: DA 1



Summary for Pond 9P: 3' wide bioswale

Inflow Area = 3.469 ac, 48.95% Impervious, Inflow Depth > 3.71" for 10-yr event
Inflow = 8.27 cfs @ 12.19 hrs, Volume= 1.074 af
Outflow = 8.18 cfs @ 12.23 hrs, Volume= 1.039 af, Atten= 1%, Lag= 1.9 min
Primary = 8.18 cfs @ 12.23 hrs, Volume= 1.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.38' @ 12.23 hrs Surf.Area= 3,484 sf Storage= 2,554 cf

Plug-Flow detention time= 30.7 min calculated for 1.037 af (97% of inflow)
Center-of-Mass det. time= 12.5 min (837.4 - 824.9)

Volume	Invert	Avail.Storage	Storage Description
#1	13.50'	5,360 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

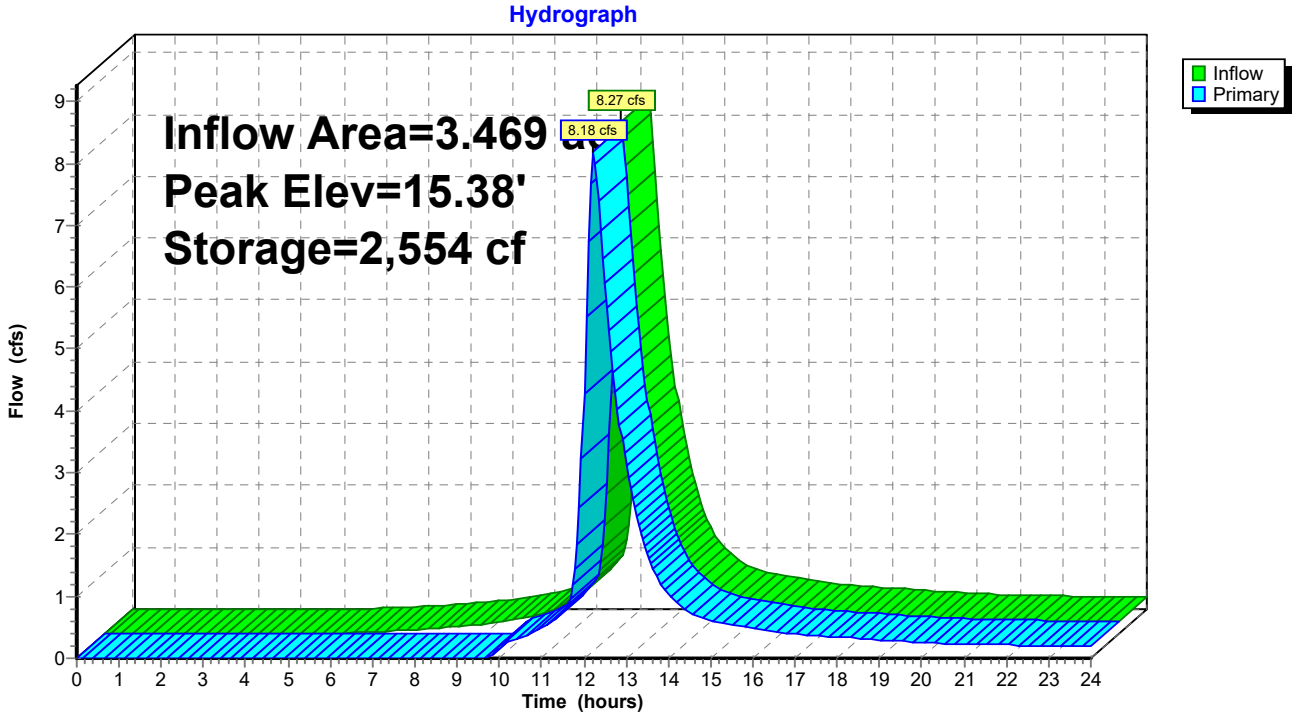
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
13.50	4	5.0	0	0	4
13.60	73	46.0	3	3	170
13.70	155	88.0	11	14	618
13.80	250	130.0	20	34	1,347
13.90	358	171.0	30	65	2,329
14.00	479	213.0	42	106	3,613
14.10	613	255.0	54	161	5,177
14.20	761	296.0	69	229	6,975
14.30	921	338.0	84	313	9,094
14.40	1,095	380.0	101	414	11,494
14.50	1,281	421.0	119	533	14,108
14.60	1,481	463.0	138	671	17,063
14.70	1,693	505.0	159	829	20,299
14.80	1,919	546.0	180	1,010	23,728
14.90	2,158	588.0	204	1,213	27,519
15.00	2,409	630.0	228	1,442	31,590
15.10	2,674	671.0	254	1,696	35,835
15.20	2,952	713.0	281	1,977	40,461
15.30	3,243	755.0	310	2,287	45,368
15.40	3,547	796.0	339	2,626	50,429
15.50	3,864	838.0	370	2,996	55,891
15.60	4,194	880.0	403	3,399	61,634
15.70	4,538	921.0	436	3,836	67,511
15.80	4,894	963.0	471	4,307	73,808
15.90	5,263	1,005.0	508	4,815	80,386
16.00	5,646	1,046.0	545	5,360	87,079

Device	Routing	Invert	Outlet Devices
#1	Primary	11.50'	**24.0" Round Culvert** L= 215.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 11.50' / 10.00' S= 0.0070 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2 Device 1 15.00' **10.7' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=8.14 cfs @ 12.23 hrs HW=15.38' (Free Discharge)
└**1=Culvert** (Passes 8.14 cfs of 22.64 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 8.14 cfs @ 2.01 fps)

Pond 9P: 3' wide bioswale



Stage-Area-Storage for Pond 9P: 3' wide bioswale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
13.50	4	0
13.55	28	1
13.60	73	3
13.65	110	8
13.70	155	14
13.75	200	23
13.80	250	34
13.85	302	48
13.90	358	65
13.95	416	84
14.00	479	106
14.05	544	132
14.10	613	161
14.15	685	193
14.20	761	229
14.25	839	269
14.30	921	313
14.35	1,006	361
14.40	1,095	414
14.45	1,186	471
14.50	1,281	533
14.55	1,379	599
14.60	1,481	671
14.65	1,585	747
14.70	1,693	829
14.75	1,804	917
14.80	1,919	1,010
14.85	2,037	1,109
14.90	2,158	1,213
14.95	2,282	1,324
15.00	2,409	1,442
15.05	2,540	1,565
15.10	2,674	1,696
15.15	2,811	1,833
15.20	2,952	1,977
15.25	3,096	2,128
15.30	3,243	2,287
15.35	3,393	2,452
15.40	3,547	2,626
15.45	3,704	2,807
15.50	3,864	2,996
15.55	4,027	3,194
15.60	4,194	3,399
15.65	4,364	3,613
15.70	4,538	3,836
15.75	4,714	4,067
15.80	4,894	4,307
15.85	5,077	4,556
15.90	5,263	4,815
15.95	5,453	5,083
16.00	**5,646**	**5,360**

Summary for Subcatchment 8S: DA 1

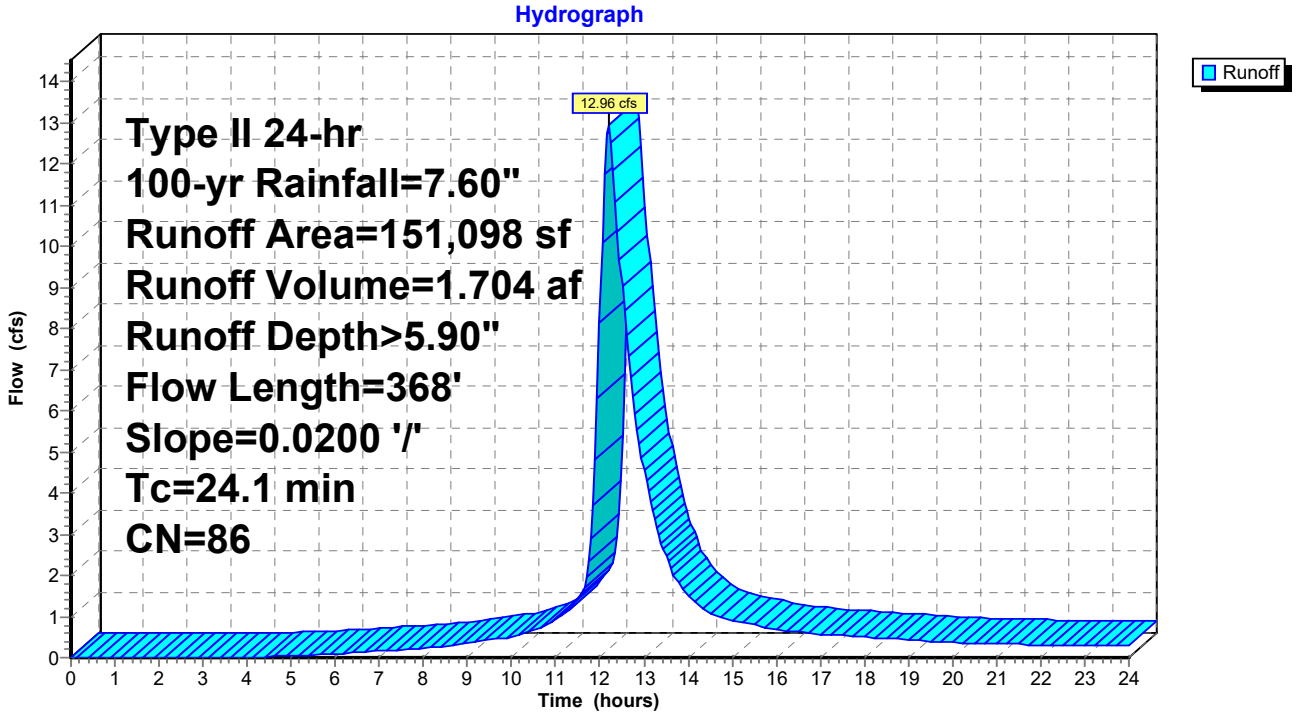
Runoff = 12.96 cfs @ 12.19 hrs, Volume= 1.704 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
73,969	98	Paved parking, HSG C
77,129	74	>75% Grass cover, Good, HSG C
151,098	86	Weighted Average
77,129		51.05% Pervious Area
73,969		48.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	150	0.0200	0.13		**Sheet Flow, a-b** Grass: Dense n= 0.240 P2= 3.40"
0.6	85	0.0200	2.28		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
4.4	133	0.0200	0.50	3.00	**Channel Flow, c-d** Area= 6.0 sf Perim= 500.0' r= 0.01' n= 0.022 Earth, clean & straight
24.1	368	Total			

Subcatchment 8S: DA 1



Summary for Pond 9P: 3' wide bioswale

Inflow Area = 3.469 ac, 48.95% Impervious, Inflow Depth > 5.90" for 100-yr event
Inflow = 12.96 cfs @ 12.19 hrs, Volume= 1.704 af
Outflow = 12.86 cfs @ 12.22 hrs, Volume= 1.669 af, Atten= 1%, Lag= 1.8 min
Primary = 12.86 cfs @ 12.22 hrs, Volume= 1.669 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.51' @ 12.22 hrs Surf.Area= 3,906 sf Storage= 3,047 cf

Plug-Flow detention time= 22.5 min calculated for 1.665 af (98% of inflow)
Center-of-Mass det. time= 10.4 min (822.7 - 812.3)

Volume	Invert	Avail.Storage	Storage Description
#1	13.50'	5,360 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

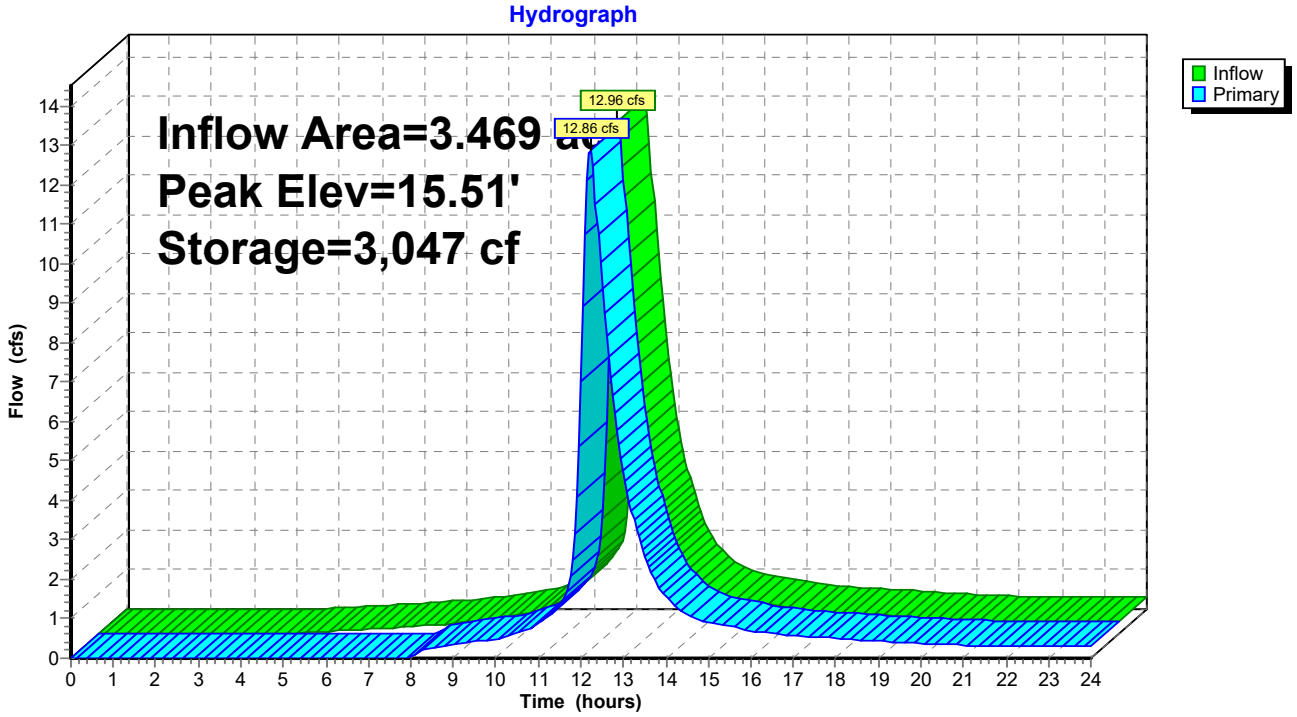
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
13.50	4	5.0	0	0	4
13.60	73	46.0	3	3	170
13.70	155	88.0	11	14	618
13.80	250	130.0	20	34	1,347
13.90	358	171.0	30	65	2,329
14.00	479	213.0	42	106	3,613
14.10	613	255.0	54	161	5,177
14.20	761	296.0	69	229	6,975
14.30	921	338.0	84	313	9,094
14.40	1,095	380.0	101	414	11,494
14.50	1,281	421.0	119	533	14,108
14.60	1,481	463.0	138	671	17,063
14.70	1,693	505.0	159	829	20,299
14.80	1,919	546.0	180	1,010	23,728
14.90	2,158	588.0	204	1,213	27,519
15.00	2,409	630.0	228	1,442	31,590
15.10	2,674	671.0	254	1,696	35,835
15.20	2,952	713.0	281	1,977	40,461
15.30	3,243	755.0	310	2,287	45,368
15.40	3,547	796.0	339	2,626	50,429
15.50	3,864	838.0	370	2,996	55,891
15.60	4,194	880.0	403	3,399	61,634
15.70	4,538	921.0	436	3,836	67,511
15.80	4,894	963.0	471	4,307	73,808
15.90	5,263	1,005.0	508	4,815	80,386
16.00	5,646	1,046.0	545	5,360	87,079

Device	Routing	Invert	Outlet Devices
#1	Primary	11.50'	**24.0" Round Culvert** L= 215.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 11.50' / 10.00' S= 0.0070 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2 Device 1 15.00' **10.7' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=12.77 cfs @ 12.22 hrs HW=15.51' (Free Discharge)
└**1=Culvert** (Passes 12.77 cfs of 23.16 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 12.77 cfs @ 2.34 fps)

Pond 9P: 3' wide bioswale



Stage-Area-Storage for Pond 9P: 3' wide bioswale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
13.50	4	0
13.55	28	1
13.60	73	3
13.65	110	8
13.70	155	14
13.75	200	23
13.80	250	34
13.85	302	48
13.90	358	65
13.95	416	84
14.00	479	106
14.05	544	132
14.10	613	161
14.15	685	193
14.20	761	229
14.25	839	269
14.30	921	313
14.35	1,006	361
14.40	1,095	414
14.45	1,186	471
14.50	1,281	533
14.55	1,379	599
14.60	1,481	671
14.65	1,585	747
14.70	1,693	829
14.75	1,804	917
14.80	1,919	1,010
14.85	2,037	1,109
14.90	2,158	1,213
14.95	2,282	1,324
15.00	2,409	1,442
15.05	2,540	1,565
15.10	2,674	1,696
15.15	2,811	1,833
15.20	2,952	1,977
15.25	3,096	2,128
15.30	3,243	2,287
15.35	3,393	2,452
15.40	3,547	2,626
15.45	3,704	2,807
15.50	3,864	2,996
15.55	4,027	3,194
15.60	4,194	3,399
15.65	4,364	3,613
15.70	4,538	3,836
15.75	4,714	4,067
15.80	4,894	4,307
15.85	5,077	4,556
15.90	5,263	4,815
15.95	5,453	5,083
16.00	**5,646**	**5,360**



Subject property posting pursuant to Section 28-901.2.H.2 of the Town of Easton Zoning Code - February 5, 2025

TOWN OF EASTON

14 South Harrison Street
Easton, Maryland 21601

February 5, 2025

Dear Resident,

The Easton Planning Commission (Commission) will hold a public meeting on **Thursday, February 20, 2025 at 1:00 p.m**. in the Easton Town Council Chambers located on the second floor of 14 South Harrison Street. The Town of Easton Zoning Ordinance requires that owners of property located within 400 feet of a parcel on which certain types of applications are pending be given notice of upcoming meetings or hearings. If you are a tenant in or an owner of a multi-unit building, please distribute or post this notice in a visible location for all other tenants or owners to view. If you are a tenant of a rental property, please notify the property owner that this notice letter has been distributed to their property. Notice has also been sent to the Star Democrat, a sign has been posted at the subject property and the hearing agenda has been posted on the Town of Easton website: http://eastonmd.gov/.

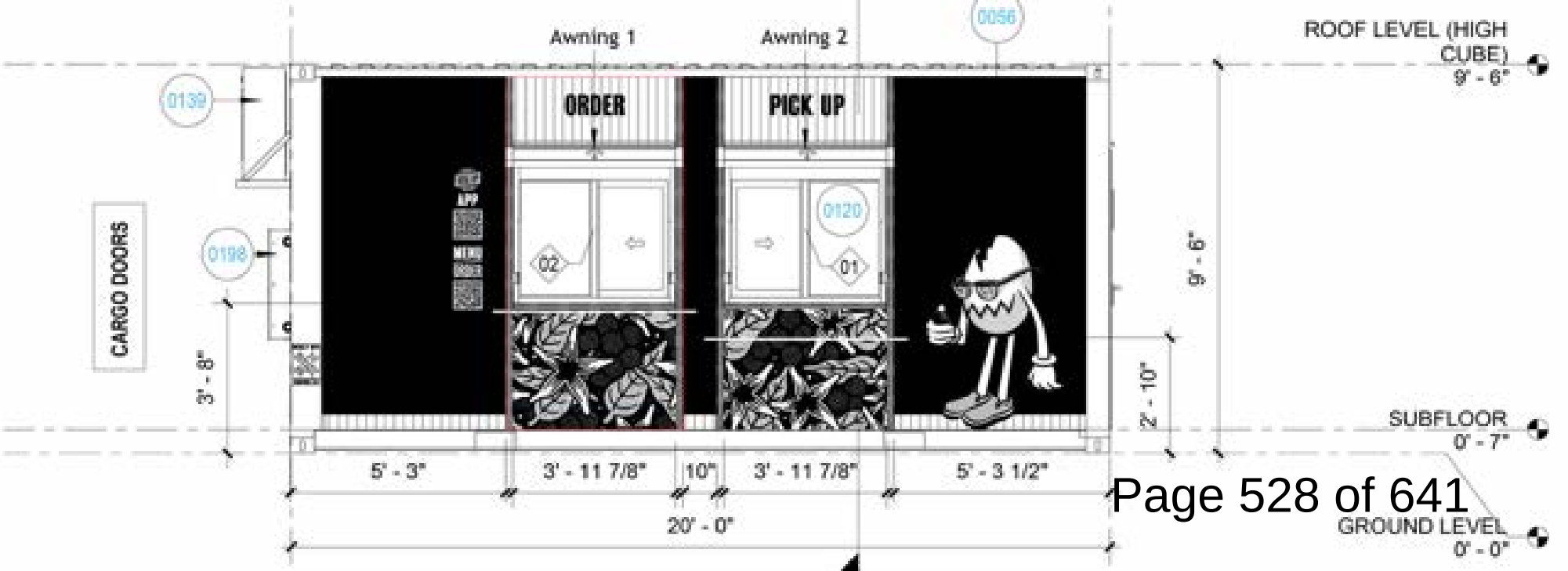
This letter is sent to inform you that application 2025-1371 has been filed on behalf of the Town of Easton to request Sketch Site Plan approval for the construction of a proposed public boat ramp with associated site improvements including parking, sidewalk, stormwater management facilities and restroom facilities on the existing Town of Easton Point Park. The property is located within the Mixed-Use Waterfront District (MXW) at 801 Port Street (Easton Point Park), also known as Tax Map 0034, Grid 0000, Parcel 0171.

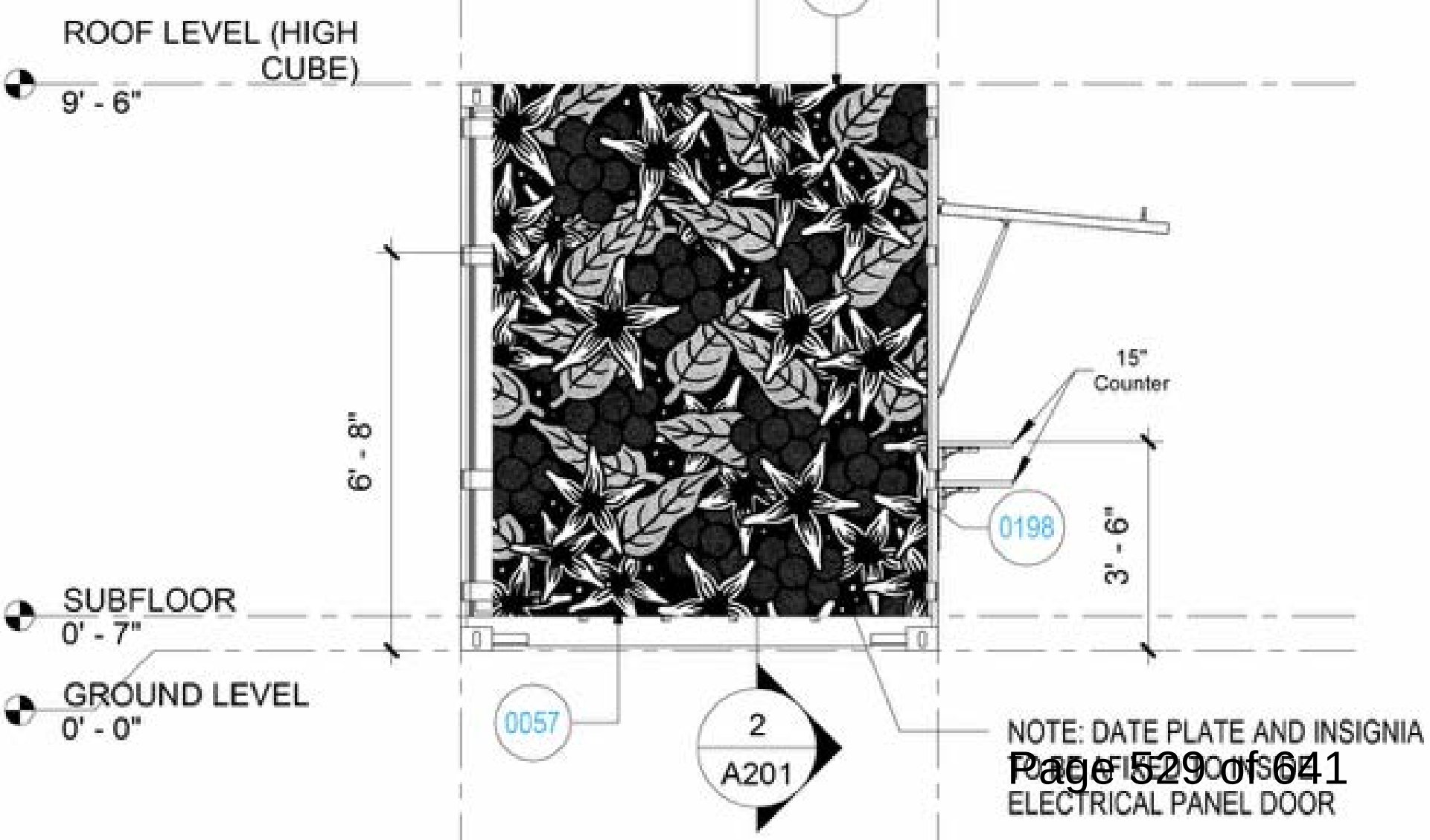
Copies of the proposed application are on file and available for public review in the Town's Planning Office at 14 South Harrison Street between the hours of 8:30 a.m. and 4:00 p.m., Monday through Friday. **In addition, digital copies will be available for review one week prior to the scheduled meeting via the Town's website at** https://www.eastonmd.gov/129/Agendas-Minutes. If you have any questions regarding this application, please contact the Planning Office at (410) 822-1943 or via email at ssmith@eastonMD.gov.

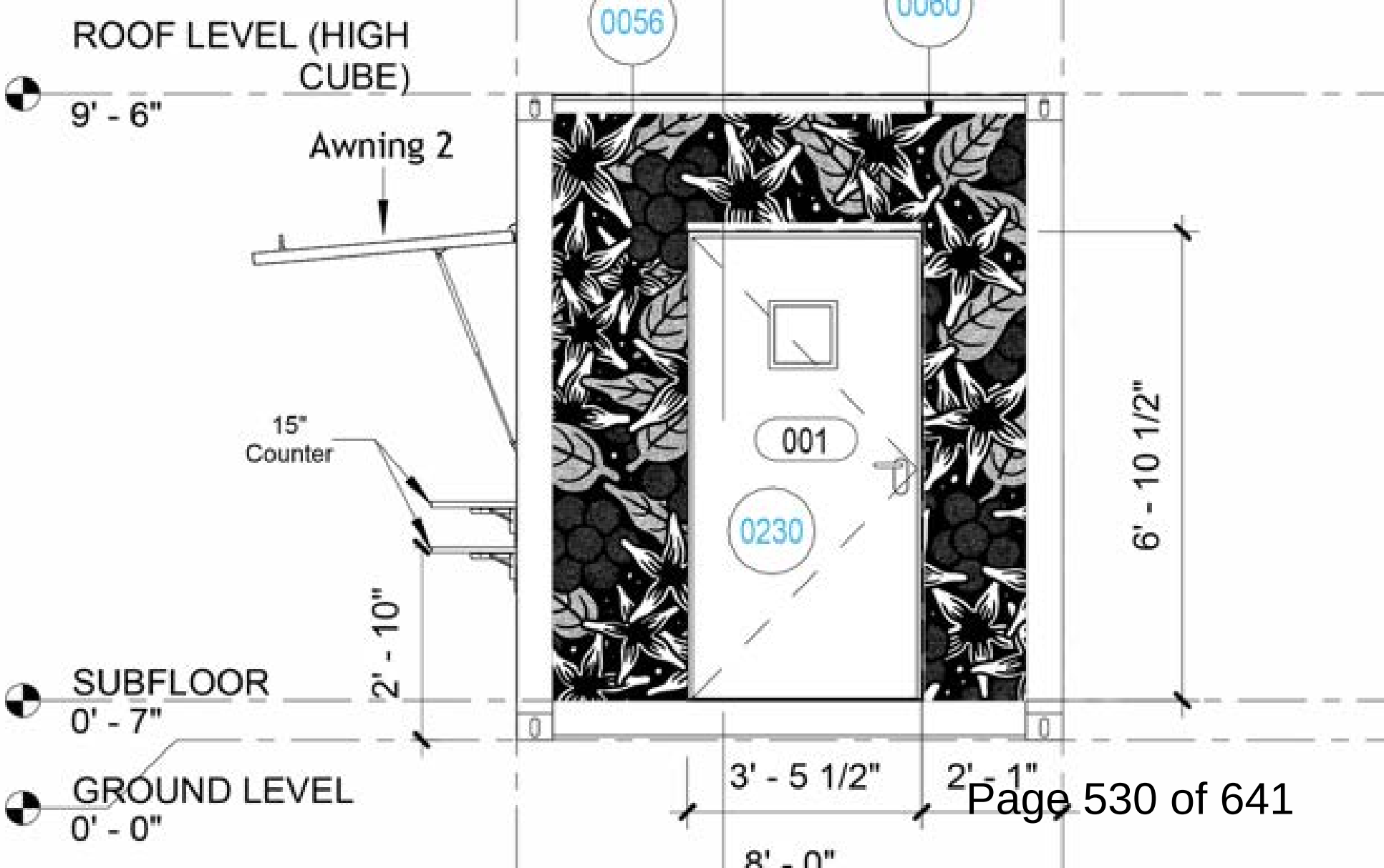
Samantha N. Smith

Samantha N. Smith, Administrative Specialist
Planning & Zoning Department
410-822-1943 ssmith@eastonMD.gov


0056
COFFEE
RISE UP
ROASTERS
EST
2005
ROOF LEVEL (HIGH CUBE)
9' - 6"
0139
CARGO DOORS
6' - 8"
0198
SUBFLOOR
0' - 7"
GROUND LEVEL
0' - 0"
1


Awning 1
Awning 2
0056
ROOF LEVEL (HIGH CUBE)
9' - 6"
0132
ORDER
PICK UP
APP
MENU
0198
02
0120
01
CARGO DOORS
9' - 6"
3' - 8"
2' - 10"
SUBFLOOR
0' - 7"
5' - 3"
3' - 11 7/8"
10"
3' - 11 7/8"
5' - 3 1/2"
20' - 0"
GROUND LEVEL
0' - 0"


ROOF LEVEL (HIGH CUBE)
9' - 6"
6' - 8"
15" Counter
0198
3' - 6"
SUBFLOOR
0' - 7"
GROUND LEVEL
0' - 0"
0057
2
A201
NOTE: DATE PLATE AND INSIGNIA
ELECTRICAL PANEL DOOR


ROOF LEVEL (HIGH CUBE)
9' - 6"
0056
0060
Awning 2
15" Counter
001
0230
6' - 10 1/2"
2' - 10"
SUBFLOOR
0' - 7"
GROUND LEVEL
0' - 0"
3' - 5 1/2"
2' - 1"
8' - 0"


MAD EGGS
SCAN FOR MENU OR TO ORDER AHEAD
ACCUREX

Easton Planning and Zoning

Meeting to discuss form based zoning ideas

AGENDA FOPR FEB 20, 2025

MEETING with
Jay Corvan Architect and Easton Planning and Zoning Commissioners

Jay Corvan Architect , 2/11/25

Why I'm Here

I'm here to help explain to Pz Commissioners that I think there is a new set of planning tools that could help Easton PZ, that has helped many historic communities like Easton .

These new tools that planners and designers have at their disposal , could really help the application process in Easton, and improve the quality community interaction, and make the final products look like they fit the community character we are proud of.

Problems with old zoning
With large tract development

This is a short presentation of what I hope to talk about and give you an idea of where I might be headed .

But you commissioners are the ones that will guide where and how the dialogue goes . I wanted to give a basic presentation of how I think “form based “ design tools can help the city address its mlosgt pressing problems

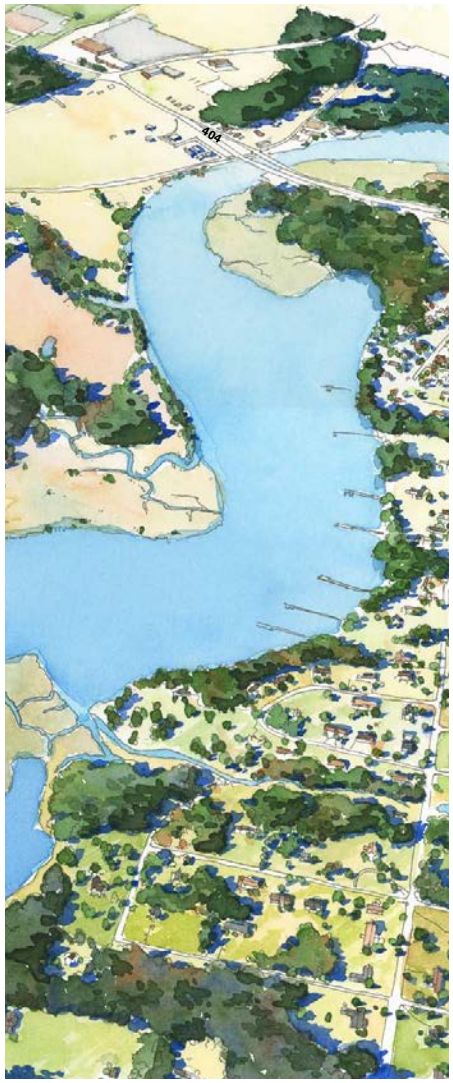
But I will wait to have you tell me what these problems are next week.

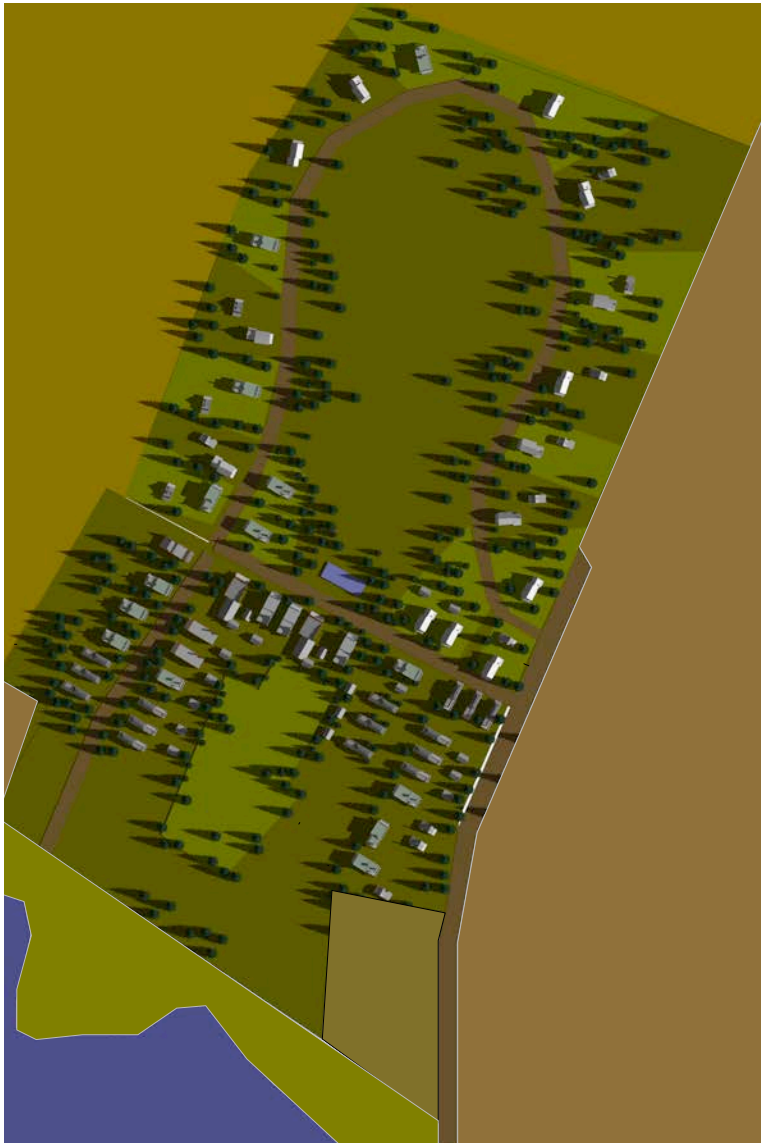
What pattern books are and what they can do..

It is possible that a better system of regulation than the comp plan and PZ (Tag team) approval could insure that better developments contain better community character of the area, and cause less public discontent with the sometimes embattled zoning process

Much of the problem is based on the lack of descriptive graphic 3D detail of what is expected, and what can be understood by the public. Most people don't want to get involved in the process and don't understand the terminology .

The process needs to be simplified.



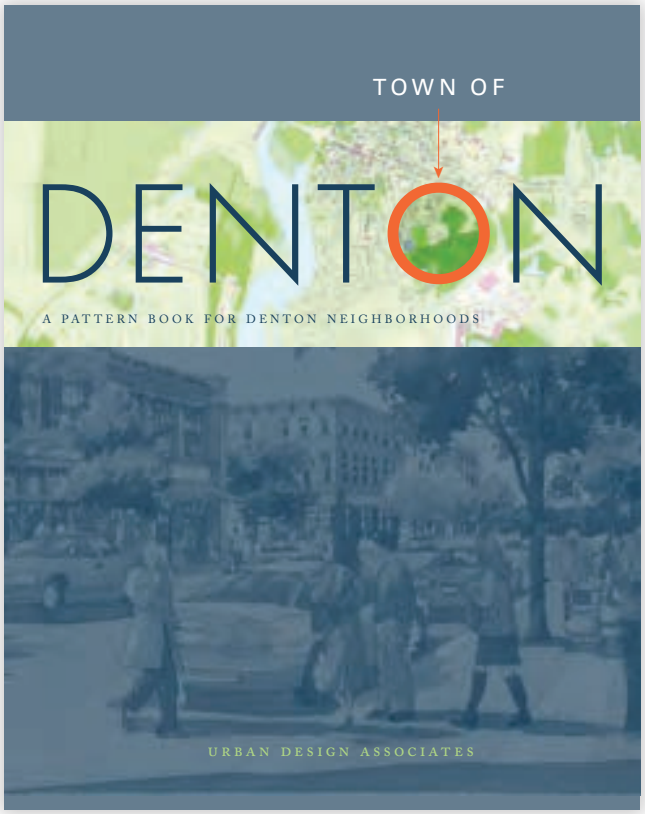


We need is a system that preserves:

. Encourage strategically placed infill developments that are easily enforceable, and a system that responsive , compliant developers can get fast approvals for good projects right away, avoiding litigation and costly pre-construction costs.

. Community character with a rigorous set of standards that are easy to use and enforceable , implemented as building code , not “squishy” guidelines. Quality Buildings and places that the public have demonstrated they truly seek.

. Install a new form based zoning code should be easy to use, clear in its intent , and easy to implement and get approvals, and quick to enforce the design intentions.



Like many communities along Maryland's Eastern Shore, Denton is experiencing intense growth pressure, both infill and on many acres of rural land at the town's edges. Denton invited UDA to prepare a Pattern Book that augments the requirements defined in zoning and other development-related regulations to better control the quality of new development and renovations and help the town properly plan for growth. The Denton Pattern Book describes the town's unique character and the essential characteristics that citizens know and cherish. It adapts the public vision for perpetuating those historic characteristics to work with new development projects.

Clear Problem areas :

1. Large tract development
2. Creating GreaterDensity
3. Community character
4. Affordable Housing Models
5. Building by Transects
6. How to Accomplish It



1. Large tract development

The City can set preconditions for development where these new\ codes could be adopted into the existing City ordinances as another layer of compliance without scrapping the existing system in place.

This can help avoid costly litigation and public displeasure with the planning and zoning process

The new standards can follow the standards set out in The Denton Pattern book as a start and then amend and update the standards (as they do with all zoning up dates) as the model process evolves.



Streets





Landscape: Streetscape, Public Open Space and Natural Areas



Lot requirements





3. Community character



Over the past decade, form-based codes and pattern books have been added to the conventional zoning tools to have greater clarity and definition of the desired better outcomes for new development.

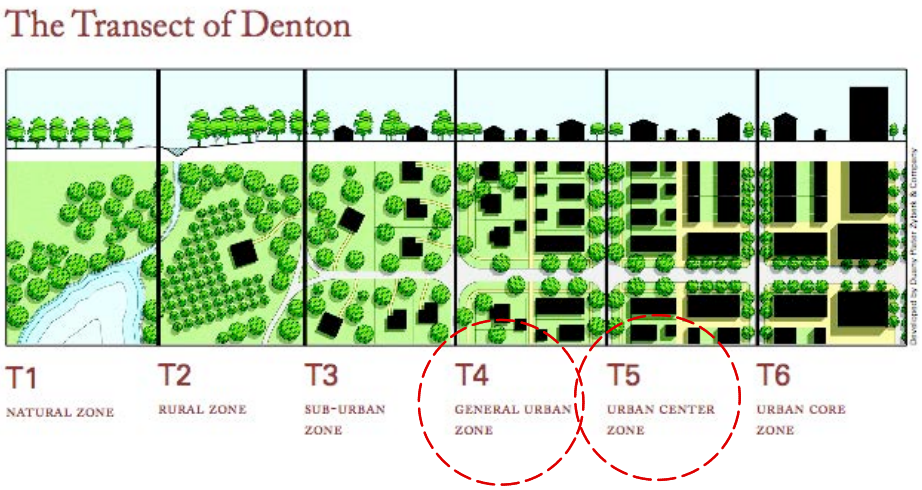
4. Affordable Housing Models



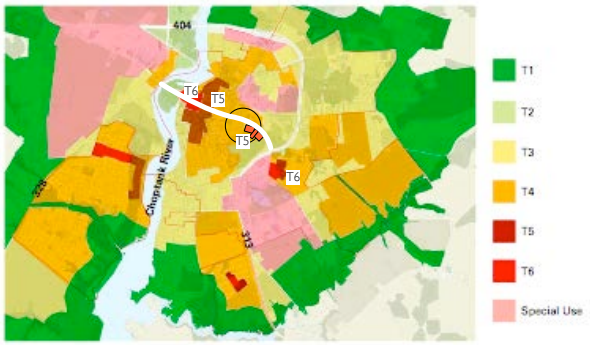

Site Axonometric Drawing of Mansion Apartment Placement on Lot

5. Building by Transects

A way to design new projects that fit into existing Easton neighborhoods that help describe and build community character



URBAN INFILL PROJECT: Study of "the Denton Pattern Book " and how to apply patterns to Propsed Franklin Street project



This map of Denton's Transect Zones reflects both existing and planned land use characteristics.

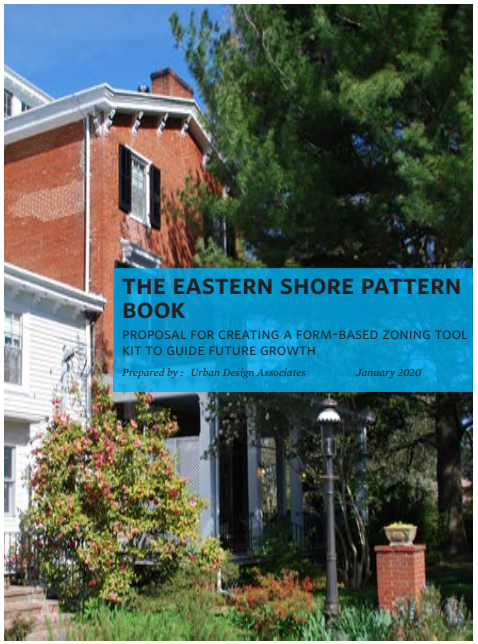
6. How to Accomplish It

Urban Design Associates (UDA) was founded with the belief that planners, architects, engineers, economists, elected officials, developers, investors, and citizens are all associates in urban design.

Not all has to change to accommodate this new system :

Dual requirement "in place" zoning in Denton where the Pattern Book is required and existing zoning is required.

See conditions below where pattern book compliance is required



6. How to Accomplish It

a)All Building design in infill areas

b) Community Appearance and Design General conditions

c)All Multi Family Housing and apartments

d) All Townhouses

e)All Planned PRD , Planned Unit Developments

(1) Architectural style is not restricted, and shall meet the standards set forth in the Denton Pattern Book, prepared by Urban Design Associates, which is attached to the Zoning Ordinance and copies of which are maintained in the Town Office.

A new village on the eastern shore

EASTON VILLAGE







Start with Listening

I have always said that if you don't listen you are never going to please anyone , least of all yourself.

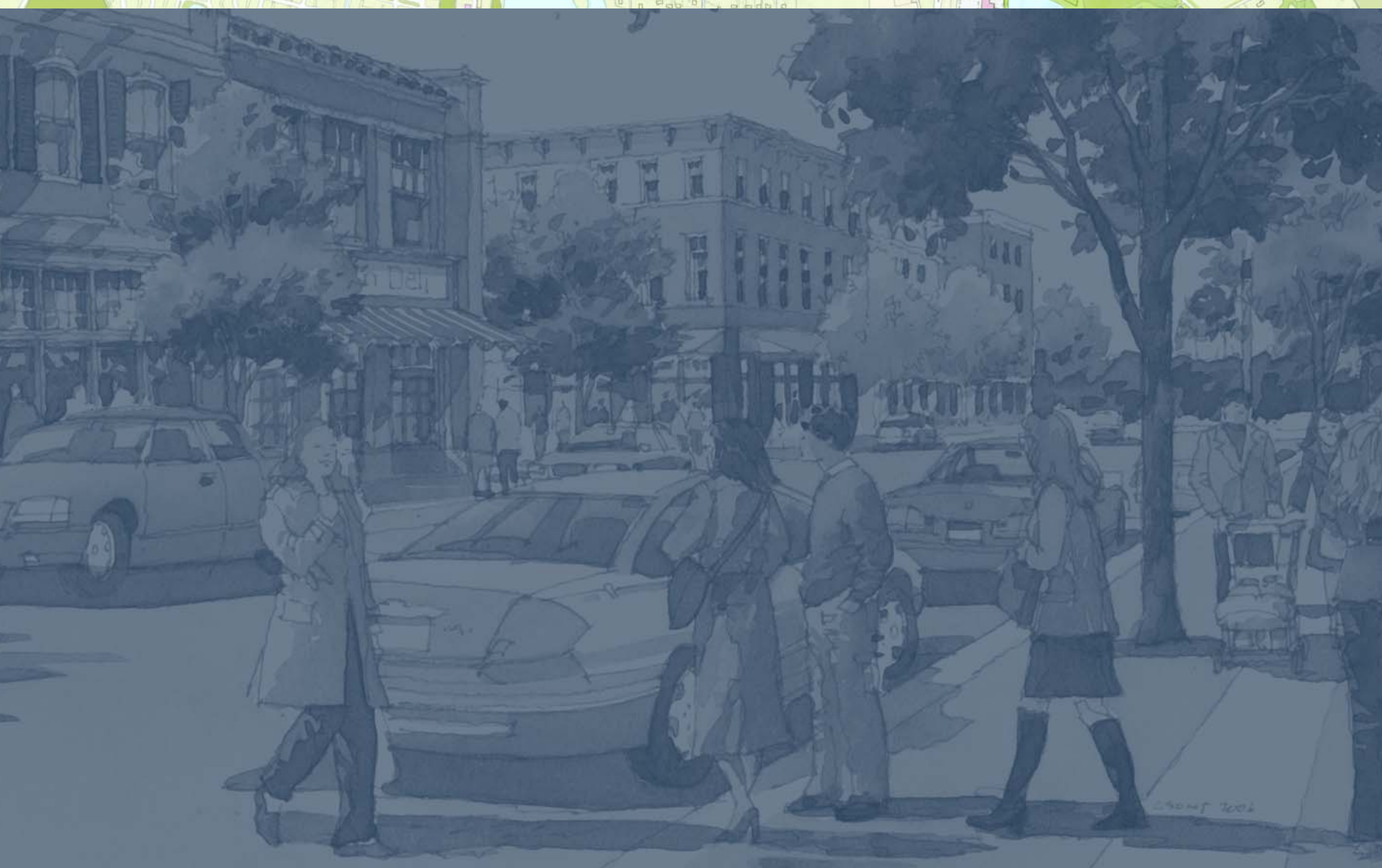
Any project that any planner or designer takes on should always begin with listening carefully to the problems . Designers , Architects, and planners are by nature problem solvers.

Problems can't be solved unless they are described and understood. All this requires patience.

TOWN OF

DENTON

A PATTERN BOOK FOR DENTON NEIGHBORHOODS



URBAN DESIGN ASSOCIATES

DENTON TOWN COUNCIL

John A. Foster, *Mayor*

Conway Gregory, *Vice Mayor*

Lester L. Branson, *Council Member*

Robert L. Clendaniel, *Council Member*

Dennis D. Porter, *Council Member*

Special thanks to former Council Members: Carol D. Stockley and J. Bradford Horsey

DENTON PLANNING COMMISSION

Doris Walls, *Chairperson*

Frank Fluharty, *Vice-Chair*

David Gray

Jake Holmes

Valerie Miller

HISTORIC ARCHITECTURAL REVIEW COMMITTEE

Kathy Mackel, *Chairperson*

Sarah Golas, *Vice-Chair*

Irving Bowie Hall, Jr.

Richard S. Peterson

Melissa Jones

CONSULTANT TEAM

Urban Design Associates

Redman/Johnston Associates, Ltd.

CONTRIBUTORS

Maryland Department of Natural Resources

Sonny Callahan

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Purpose and Aspirations

The best qualities of historic towns are those that provide connections between the elements most meaningful to both past and future, whether those are connections between people and a sense of community, between places and buildings, or between heritage and growth. The Denton Pattern Book describes the town's unique character and the essential characteristics of Denton's built form that citizens know and cherish. The Pattern Book also presents the public vision for perpetuating those characteristics along with strategies, applicable to both revitalization and new development projects, for achieving that goal.

Denton's citizens participated actively in a public planning process to create the vision embodied in this Pattern Book. What emerged clearly from the process is that citizens want development to be harmonious with the town's historic traditions and future buildings and spaces to reflect the cherished characteristics of the region's existing buildings and streets. By defining the feel of Denton as a community, in tandem with the mechanics by which the town will evolve, the Pattern Book demonstrates how to create a future for Denton in keeping with its citizens' aspirations.

Because Denton is at an important crossroads in its evolution, the Pattern Book is particularly timely. Like many communities along Maryland's Eastern Shore, Denton is experiencing intense growth pressure, both infill and on many acres of rural land at the town's edges. The Pattern Book illustrates how to properly plan and design for that growth. The qualitative design measures contained in the Pattern Book augment the requirements defined in zoning and other development-related requirements. Compliance with the Pattern Book is strictly voluntary for detached single family homes (see ordinance for applicability).

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Public Process

A number of well-attended meetings were held throughout the development and completion of the Denton Pattern Book. The idea of connections to geography, place, as well as local culture, architecture and building traditions was voiced by nearly every resident who participated in the process. The desire to retain Denton's rich architectural heritage in both infill and new development was a common theme. This document responds to those desires by defining the essential positive qualities which Denton's citizens want to maintain and build upon well into the future.

Residents were asked to voice their opinions on the existing strengths of Denton. Those most frequently cited were a sense of community and history; long-term, dedicated residents; the form of the downtown and its neighborhoods with their front porch life; the town's presence as Caroline County's seat; Courthouse Square and other community institutions, such as a strong town government; Denton's geographic location and natural setting along the Choptank River; its parks, such as Martinak State Park; and the events, gatherings, and connections between people and local history and culture.

Public input also identified these weaknesses: poorly-maintained streets and a lack of pedestrian connectivity, particularly between the existing town and new development; a lack of character, quality, and sense of place in recent development; a lack of pride in ownership, absentee landlords, and inadequate upkeep of buildings; a lack of shopping, businesses, and restaurants in the downtown; and a lack of a strategy for managed, positive growth.

In addition to identifying existing strengths and weaknesses, residents were asked about the most important qualities to preserve. They cited individuality and character in architectural and town design; village character with natural edges, a defined center, and connected, walkable neighborhoods; connections to the Choptank River, nature, and agricultural lands; small-town charm; and a sense of place as a destination.





Overview

The Pattern Book begins with this Introduction, in which the collective aspirations of the town are presented as a foundation on which the Pattern Book was developed. Following that is a brief explanation of how to use the Pattern Book effectively.

The Essential Qualities of Denton Today are described in Section B. The section introduces the concept of the Transect as a tool for guiding appropriate development. Section B also presents information about Denton's Existing Development and identifies five types of neighborhood patterns useful to both developers and home owners in the conceptual design of projects.

Section C presents urban patterns, strategies, and a kit of parts for infill and new development projects to assist developers in understanding all of the parts required to create desirable, whole places.

Section D focuses on Building Types appropriate for Denton – those which have historic precedents in the region which respond well to marketplace needs and desires.

The Architectural Styles section describes three styles prevalent in Denton from its architectural history: Victorian, Colonial Revival, and Craftsman. These styles are detailed in terms of site and building characteristics that will help developers and home owners to plan, design, and construct buildings that retain stylistic integrity using today's building materials and techniques. The section includes Architectural Resources and a discussion of Materials and Methods.

The next section, Green Building Guidelines, presents strategies and techniques for building and maintaining healthier, more energy efficient and environmentally-friendly buildings and houses. A companion to this, the Environmentally Responsible Landscape Design section provides strategies and techniques for stewardship of our natural environment. The strategies contained in both of these sections directly relate to the Town's green building objectives which can be found on the Town's website. A Plant Palette as well as Landscape Resources are included at the end of the Landscape Design section.

The Home Owner's Guide provides guidance for individuals contemplating renovations, additions, or transformations of their houses. This section provides ideas for designing and implementing individual projects so the results may be in character with the house type and neighborhood and contribute to long-term value of the property.

At the back of the book you'll find a Glossary of terms used in the Pattern Book and Reference articles.





How to Use the Denton Pattern Book

The following steps offer direction on how to use the Denton Pattern Book. This document offers strategies to both existing residents of Denton who are looking to change aspects of their house, as well as to private developers and builders who aspire to build communities of lasting value in Denton. Denton is an historic town that is growing. This Pattern Book describes ways to create places that connect with its best intrinsic qualities.

Step 1

IDENTIFY YOUR LOCATION: Refer to Section B to identify the Transect Zone that pertains to your site, project or house. By using the Transect, you will be better able to understand the scale and character of the different areas that make up Denton, as well as the appropriate way that new communities should be developed. The Transect also evaluates the type and scale of existing places in town so that you understand the characteristics of your specific environment. The illustrations provide guidance in helping you identify the Transect Zone(s) that relate to your area, as well as depict the general feel and rules for development.



Step 2

IDENTIFY YOUR NEIGHBORHOOD: Different parts of Denton's urban fabric have developed in different ways. You'll find a description of five neighborhood patterns beginning on page 12 in Section B. The description of each of these types provides an overview of its unique, defining qualities. By analyzing both the essential characteristics of the various parts of town, one can understand the defining elements of the sub-area in which they live or for which their project is proposed.

If you already own a house, find the neighborhood area where you live. Read through the essential elements of that neighborhood in order to learn more about the building and landscape characteristics that define your locale. The characteristics described, such as the typical front yard depth, streetscape character, house spacing, and landscape treatments, are meant for your use in fitting into and strengthening the neighborhood.



If you are developing a new community, consider your adjacency to the existing town and see to it that the new development relates to that existing character. If you are developing within the existing core, figure out the classified sub-area your parcel is located in and coordinate development with those guidelines.

Step 3

IDENTIFY YOUR BUILDING TYPE AND STYLE: A traditional town such as Denton is composed of a variety of uses housed in building types of varying scales. The choice of an appropriate building type is relevant whether you own a house, want to do infill development, or are building a new neighborhood or community. Find the Building Types appropriate for your Transect Zone and scale of development in the matrices on page 35.

Beyond mere building type, Denton has an existing architectural character by which it defines itself. There are three main architectural styles in town: Victorian, Colonial Revival, and Craftsman. These styles should be studied and used for both infill and new development.

Step 4

FOR RENOVATIONS OF EXISTING HOUSING: Throughout towns developed in the nineteenth century, such as Denton, there is often a desire to expand houses to increase living space, to better fit one's house into an historic style and add value, or to bring one's property into a style family, better tied into the architectural traditions of the town. Investment in existing housing stock is encouraged as a way to develop in a cohesive, sustainable manner.

For information on the appropriate means of modifying your house to add space or enhance its style, refer to the Renovations, Additions, and Transformations pages in Section G, the Home Owner's Guide. Green building guidelines are provided as strategies for energy efficiency (in Section F) and environmentally responsible landscape treatments (in Section H).

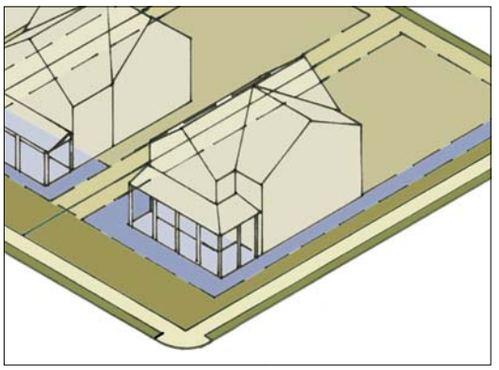
Step 5

FOR NEW CONSTRUCTION: If you are planning on constructing a new house, refer to the Building a Denton House spread in Section G, the Home Owner's Guide. This series of diagrams outlines the step-by-step process of composing a house with its individual kit of parts and pieces.



For ways to place your house on a lot, refer to the typical lot diagrams shown for each neighborhood in Section B (pages 12 through 21) or the general dimensions appropriate for new construction by building type (pages 37 through 39). The diagrams describe the typical zones of a house lot, such as front yard, front facade, side yard, and

private zone, all of which vary depending on the location of the lot within town. Placement by building type is also handled for all new development. Environmental design options that can be used to improve the site design are also included.



Step 6

REVIEW THE ARCHITECTURAL STYLE SECTIONS: Three architectural styles are documented for Denton: Victorian, Colonial Revival, and Craftsman. While other vocabularies are scattered throughout town, these three predominant styles largely create its character.

HISTORY AND CHARACTER

Each style begins with a brief description of the style and its history. Photos of relevant examples found in Denton are shown along with the essential qualities of each style. Use these materials to find your particular style family.

MASSING AND COMPOSITION

This page describes the basic massing types or shapes of houses found in Denton for each architectural style. Each massing type is shown as a three-dimensional image with a corresponding elevation diagram of the main body of the house. Identify the diagram that most closely resembles your house.

WINDOWS AND DOORS

Windows and doors relate to the style of a house. Typical compositions are illustrated for each style. Often, missing windows or awkward compositions are the primary elements that stand in the way of identifying your house style. In terms of details, typical proportions, trim, and special elements are illustrated to outline a menu of choices when replacing these elements.

PORCHES AND CHIMNEYS

Porches are essential elements of the character of many Denton neighborhoods. They provide comfortable outdoor space where neighbors spend time and create a pleasant community life. The location and design details of porches are covered on this page. The massing of the front porch is distinct within a particular style. Good porch proportions make for a well-scaled house facade.

MATERIALS AND APPLICATIONS

This page includes a list of preferred materials and their application. Also included are a few facade possibilities composed using elements described on the previous pages to illustrate the end result that can be achieved if one follows the guidelines in the Pattern Book.

Step 7

REVIEW THE ENVIRONMENTALLY RESPONSIBLE LANDSCAPE DESIGN STRATEGIES: These landscape strategies will provide you with specific techniques for responsible environmental stewardship of your property and its effect on the natural environment of our area.



Step 8

REVIEW THE MATERIAL MANUFACTURERS AND RESOURCES LISTS: A list of material manufacturers for items such as doors, windows, columns, and moldings is located at the end of Section E: Architectural Styles. This list is meant to serve as a resource when searching for the appropriate building supplies for work on your house, or for use by developers and builders in finding material suppliers for large infill or new development efforts.



SECTION B

ESSENTIAL QUALITIES OF DENTON TODAY

Denton has distinct community and neighborhood patterns that reflect the historic development of the town. Understanding these patterns aids in identifying the way new and infill development should relate to what already exists as well as the role that individual buildings can play in creating new places in keeping with local and regional traditions. This section begins with a brief description of sustainability as a key principle for historic preservation, adaptive reuse, infill development, and new mixed-income development.

Denton, an historic Eastern Shore town with a mixed-use core and neighborhoods connected to that core by an interconnected network of streets, has achieved its current state of development using development patterns and principles that provided sustainability somewhat inherently. To ensure long-term sustainability of the town and its surrounds, we must consciously respect and support these successful patterns and principles as precedents and models for all future development.

The Transect, a method for guiding development that is coherent, human-scale, pedestrian-friendly, and in harmony with the natural environment, is one of the best large-scale tools for traditional town planning and the development of sustainable communities. This section describes the Transect as a concept then applies it to Denton, identifying development zones based on the scale, density and types of development appropriate for each Transect zone from the most natural zone to the urban core.

The section continues with a map of the existing development and proposals in and around Denton. Because Denton faces pressure to grow within the existing fabric of the town, largely within the I-404 loop, and without, across the Choptank River and beyond, it is important for developers to understand and emulate the best qualities of the five sub-areas of the town: Courthouse Square and Downtown Market Street, the In-Town Neighborhoods, Fifth Avenue, South Second Street, and the Edge of Town Neighborhoods.

Building Green at the Community Scale

The town of Denton has historically and is continuing to pursue a community growth pattern intrinsically related to sustainable development. Historically a population center for the region, Denton continues to fulfill this role in the context of County and State growth management strategies. With its multi-use center and associated residential neighborhoods, Denton adheres to the first principle for building green communities: to build within existing areas. To continue its place as a locus of planned growth into the foreseeable future, Denton has identified areas appropriate for development within the historic town and its environs as well as the place-making principles that underlie its current character, namely that new development be compact, mixed-use, pedestrian-friendly, and that the activities of daily life be accomplished with limited use of a car.

Historic Preservation/Adaptive Reuse

The National Trust for Historic Preservation estimates that the energy equivalent of one gallon of gasoline is wasted for every eight bricks destroyed and replaced. In addition, construction and demolition debris accounts for 24 percent of America's landfill volume.

Reusing and rehabilitating damaged or outdated structures is, by definition, a green building practice which saves more resources compared to what is required for new construction. Through building rehabilitation, society retains the initial energy and resources that were required to make materials such as bricks, mortar, steel, or timber and also establishes a sense of historical and community continuity. Historic buildings are an important link to tradition and offer important educational opportunities. Denton has implemented policies and regulations to encourage and facilitate infill and redevelopment and preserve significant historic structures.



Location and Use of Existing Infrastructure

Another important factor in building and repairing healthy communities is the choice of location. Wherever possible, projects should be located on infill sites with access to existing roads, water, sewer, and other infrastructure. Locating projects in this manner offers the greatest savings, helps conserve land, prevents the spread of stormwater runoff to new watersheds, and reduces travel distances and pollution from vehicular exhaust. When developing in planned growth areas, provision must be made for adequate public facilities.

Sustainable development practices, involving infill and redevelopment or 'greenfield' development, should begin with proper site selection which avoids development of inappropriate areas and damage to fragile and/or scarce environmental resources. Development should not be located on wetlands, steep slopes, parkland, or other ecologically-sensitive areas. Development should not be located on prime farm land in the County, but instead should be directed to planned growth areas within existing communities where adequate public facilities and services can be provided in the most cost-efficient manner.

Diverse, Mixed-Income Communities

Building diverse, mixed-income communities provides an opportunity for people of all ages, races, and income groups to thrive. Neighborhoods should provide a diversity of unit types to accommodate different needs and uses. The integration of affordable and market-rate housing into a medium-density, mixed-income, mixed-use environment helps create long-lasting, healthy communities.

In order to reinforce and enhance the Town's commitment to environmental design and preservation, a series of sustainable growth objectives have been developed. A summary of these objectives are included at right. Further details regarding these techniques and practices are available in Section H: Environmentally Responsible Landscape Design in this Pattern Book and from the Town Office.

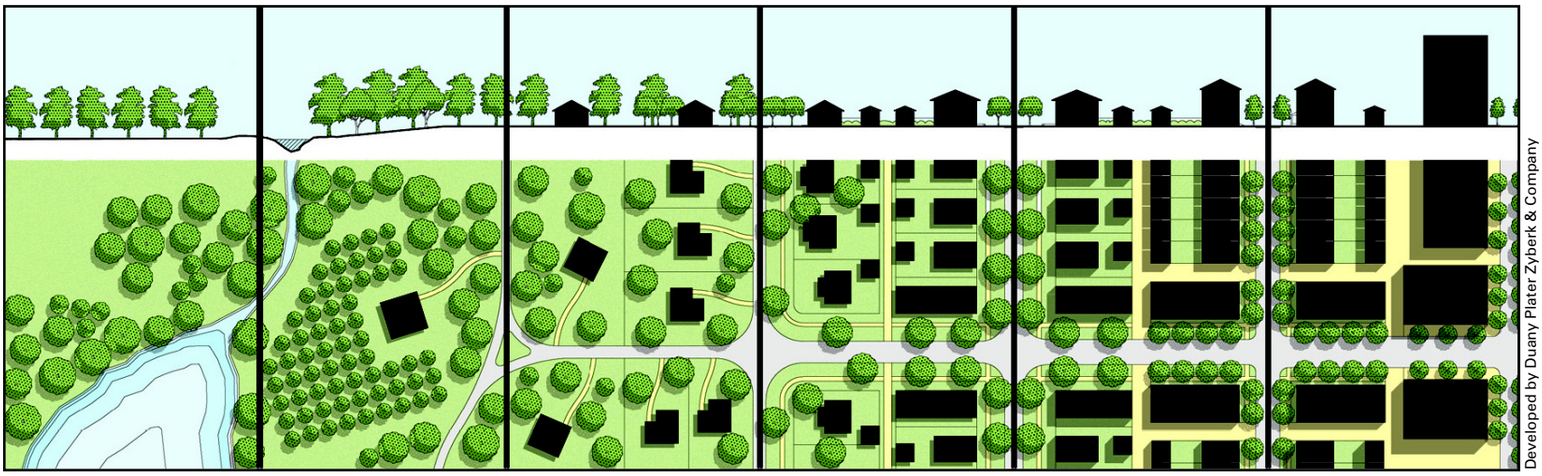




Green Building Objectives

- >> Land Stewardship
  - Site selection
  - Infrastructure
  - Site stewardship
- >> Community and Neighborhood Character
  - Neighborhood layout
  - Compact development
  - Community resources
  - Home owner education
- >> Environmental Design
  - Landscape and shading
  - Water management, reuse, and irrigation
  - Pest control
- >> Green Building Design
  - House size
  - Construction techniques
  - Indoor environment
  - Appliances
  - Waste management

The Transect of Denton



Developed by Duany Plater Zyberk & Company

T1 NATURAL ZONE

T2 RURAL ZONE

T3 SUB-URBAN ZONE

T4 GENERAL URBAN ZONE

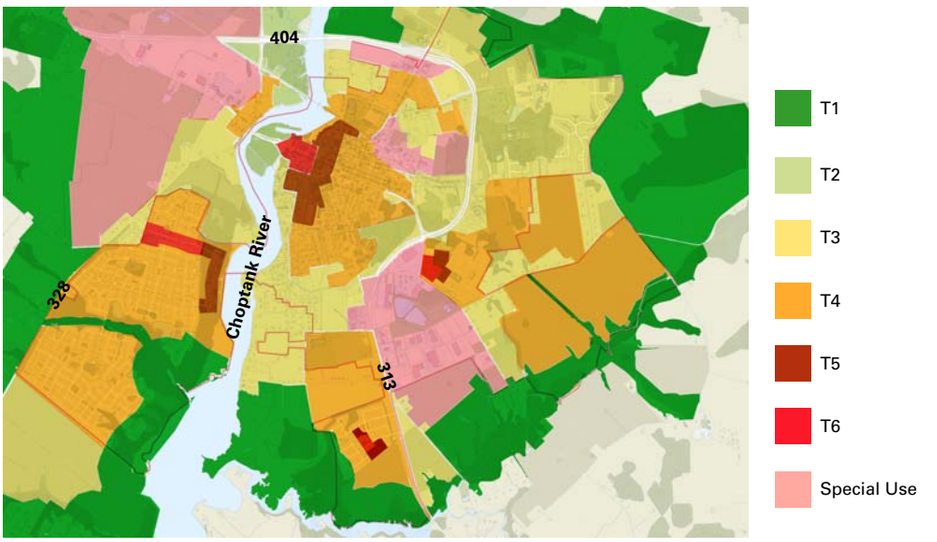
T5 URBAN CENTER ZONE

T6 URBAN CORE ZONE

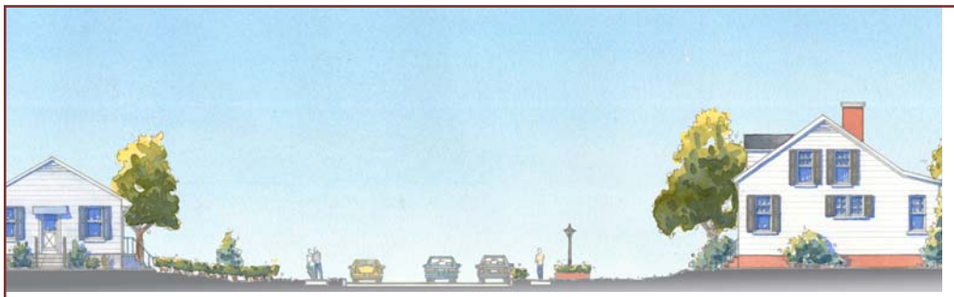
Developed by Duany Plater Zyberk & Company, the Transect is a tool which defines the hierarchy of development by the scale and location of different settlement types. As the illustration above shows, the Transect includes six zones which range from the most natural undeveloped areas, to rural landscapes, to small hamlets and villages, then larger towns, administrative centers, up to larger urban centers. The Transect is applicable to any place where community visions include the desire to build appropriate and fitting compact, mixed-use development as a way to reduce sprawl and uncoordinated development. Within each Transect zone (T-Zone), all development should be consistent with the scale of development for that zone within the existing town.

Denton fits into Zones T3 through T6. While these zones do not always align linearly, following strict numerical order, from the outer edges of the town into its core, the zones do describe the general scale of different areas of the town's development. The mixed-use center of Market Street near Courthouse Square, the most dense area of Denton, is T6, the urban core zone. The urban neighborhoods closest to Denton's downtown are T5, the urban center zone. The less dense neighborhoods (such as the Fifth Avenue area) are T4, the general urban zone. This area and its adjacent blocks tend to have greater setbacks and distances between houses. Portions of the T4 through T6 zones in Denton will be transformed into new neighborhoods, either as a result of large-scale, planned communities or infill and redevelopment projects, all of which will use the Pattern Book to identify the appropriate Transect Zone for the proposed development. The sub-urban (T3) and rural (T2) zones of Denton include areas that are planned to remain as 'greenbelt' and natural resource protection areas. The planned greenbelt, which will reinforce the Town's urban growth boundary, will be located along the outer perimeter of Denton's growth areas and will consist of properties the Town would like to see remain essentially undeveloped: forest, open space, agricultural land, and very low density rural residential development.

The Transect map of Denton (shown below) defines the town's Transect zones.



This map of Denton's Transect Zones reflects both existing and planned land use characteristics.





T3 SUB-URBAN ZONE



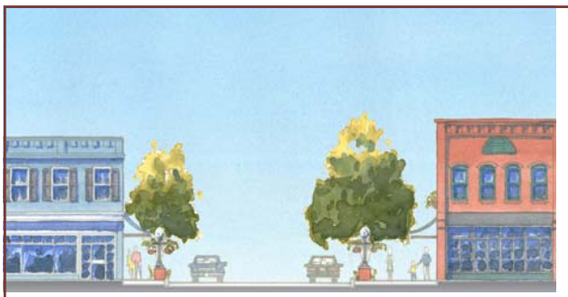


T4 GENERAL URBAN ZONE





T5 URBAN CENTER ZONE





T6 URBAN CORE ZONE

Community Character

Denton's four Transect zones can be illustrated in general ways which apply to both infill and new development. The illustrations on these facing pages depict four different scales of streets and public space, demonstrating how the elements in the Pattern Book can be applied to create appropriate design for each of the Transect zones present in the town



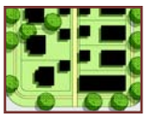
T3

SUB-URBAN ZONE

A neighborhood street in the T3 zone includes small-to medium-sized houses on larger lots set back from a more rural, informal street. A wide, planted verge separates the street from the sidewalk. Parking is handled in garages set back behind the facade line of the houses, but serviced from narrow, informal driveways leading from the street.







T4

GENERAL URBAN ZONE

Varying house types line the streets of the T4 zone. These house types range from large single-family houses to attached types in the form of one large house. The neighborhood street is relatively narrow, and the streetspace is defined by small front yards and gardens with landscape elements. Generally, driveways lead from the street to garages with carriage units above. Corner lots are often serviced from side streets to help maintain the denser neighborhood character.





While these illustrations are idealized images, they do present the essential qualities of different public spaces and neighborhoods in Denton and its environs, as captured in photographic analysis of the existing town and as described by residents during the planning process.





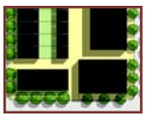
T5

URBAN CENTER ZONE

In the T5 zone, houses have very shallow front yards and a minimal planted verge. Houses may have attached units, as in the T4 zone, but in more urban building types. Streets are of a slightly more formal scale. The neighborhoods are much more dense in character, a condition made possible by the presence of alleyways to service houses from the rear. Front porches dominate the residential landscape.







T6

URBAN CORE ZONE

Streets in the T6 zone, are larger in scale and accommodate on-street parking to service the mix of uses along their length. These streets support many building types and have the densest associated housing, such as live/work units and residential uses above retail stores. Short-term parking is on-street. Other parking is provided in concealed areas mid-block in order to maintain a consistent street wall. Sidewalks are wide, paved areas that support greater foot traffic and outdoor uses.



Town of Denton: Existing Development and Proposals





Introduction

Denton is a tapestry of varying environments, each with its place in the creation of the overall community. It is also a relatively compact community with many new development opportunities on the horizon. The map of existing conditions shown here enables the community to see itself holistically and understand its geographical proximities and boundaries. By applying the analysis of Denton's existing development patterns shown in this map in combination with the information about Denton's five distinct sub-areas, the town can continue to organize future development in the sustainable and responsible manner it is currently pursuing.

History and Culture

The towns and villages of the Eastern Shore and Caroline County are laid out along the historic trade routes of the area. Denton is the county seat. It was settled along the Choptank River at an area once named Pig's Point, part of a tract of land called Mount Andrew. Urbanization occurred in Denton during two main periods of prosperity, first during the Grain Boom from 1790 to 1819. Almost all building at that time was frame construction and most was destroyed in a fire in 1865.

In 1890, a second boom, the Canning Boom began. Most of the surviving historic architecture in Denton – all late Victorian interpretations – was built during that era by local builders using pattern catalogs. As trade shifted from the river to the railroads, Denton lost its identity as a river city and turned increasingly inland in focus as the downtown core was established on the high ground overlooking the Choptank River.

Beginning with a depression in 1919, little construction occurred in Denton until after World War II. In the 1960s, a flurry of commercial and public rebuilding took place, primarily in the Colonial Revival style, and many of the existing historical buildings in Denton were covered with Colonial Revival facades. But, from the 1970s to the 1990s, little growth occurred in Denton. What growth did take place was outlying with little or no reference to the rich history and architectural styles of Denton or its community and neighborhood patterns.

Neighborhood Patterns

The historic development of Denton has given rise to a pattern of neighborhoods, each with their own distinct character. For example, the In-Town neighborhoods, meaning the residential development around the core of Market Street where houses are close together and sidewalks are relatively formal, differ in character from the streets that follow the Choptank River south along Second Street, where houses are spread farther apart and the landscape remains lush and rural. These distinctions are among those that provide Denton with its rich variety of places.

Denton's neighborhood patterns are important for two reasons. First, they allow home owners or potential home buyers to understand the place in which they are buying, what is important about the neighborhood, and how to make future investments in their home appropriate for the character of the neighborhood in which it is located. Also, these neighborhood patterns allow the developers of new, adjacent areas within the town to understand the variety of neighborhood types in the existing town, and to pattern their developments after these building traditions so that future parts of Denton relate to its character, history, and sense of place. You'll find more information about Denton's five primary neighborhood patterns on the remaining pages of this section.

Courthouse Square and Downtown Market Street (T6)

Essential Elements

- >> Grid of streets with on-street parking for visitors
- >> A main, public green within Courthouse Square
- >> Wide sidewalks along Market Street and sizable, formal sidewalks elsewhere
- >> Granite curbs, street lights, banners, and other forms of downtown streetscape elements
- >> Mature trees, especially along the west, north, and east sides of the Square
- >> Large houses, many converted to offices, businesses, and museums
- >> Houses in traditional architectural styles (high-style examples)
- >> Very large lots with large buildings either attached or spaced closely together
- >> All buildings, whether shopfronts or offices in houses, relate to the street with awnings and large porches
- >> Shallow, well-landscaped front yards and gracious sidewalks along Market Street

Constructed when the town of Denton was founded, Courthouse Square and Downtown Market Street provide the town with its sense of place. The seat of Caroline County, Denton's Courthouse Square is home to a variety of public buildings and uses that serve the county's populace, many in the stately houses that surround Courthouse Square. Downtown Market Street is Denton's mixed-use core and its variety of uses – shopping, dining, banking – attract people to this part of town. Together, the two areas define the heart of the existing town. Not necessarily a neighborhood in the traditional sense (as the area is predominantly institutional and commercial), residences above the shopfronts are an historic and encouraged feature in the downtown.

Streets

Market Street as it rises from the crossing of the Choptank River provides a picturesque sense of arrival into Denton. Downtown Market Street supports its mix of uses with an appropriate cross-section, usually 34 to 46 feet in width, with parallel, on-street parking along its sides, and head-in parking along Courthouse Square itself. Large, old trees shade the streets in this area, and all converge and wrap around the Caroline County Courthouse, a venerable structure in the heart of Denton.

Curbs

Curbs are formal, from 6 to 8 inches tall, and may be constructed of granite or concrete.

Verges and Street Trees

Verges, or tree lawns, are not typical, although trees are located in 3- to 5-foot square grates in the downtown. Street trees are generally spaced 25 to 30 feet on-center and are normally located along the edge of the street.

Sidewalks

Sidewalks are generally brick along Market Street or, less frequently, concrete. The formality of the brick reinforces the sense of a town core. Sidewalks are relatively gracious at 8 to 23 feet in width. Along the non-commercial uses, a 4-foot sidewalk is typical.

Lighting

Street lamps are short and of the decorative variety, in scale with the size of downtown Market Street. Street lamps are metal, and occur every 20 to 25 feet. Downtown street lamps support hanging baskets of flowers and banners celebrating downtown Denton.

Planting

Denton's downtown streets are relatively green due not only to the mature trees that line the street, but also to the hanging baskets and other planters spread throughout the area. Foundation planting is also present in front of the non-commercial structures that ring Courthouse Square.



















THIRD STREET





MARKET STREET AT COURTHOUSE SQUARE





In-Town Neighborhoods (T5)

Essential Elements

- Consistent network of concrete streets
- Flagstone or concrete or brick sidewalks
- Concrete curbs
- Most houses served by alleys, informal parking areas, or sparing informal driveways
- Mature street trees, either in verges or front yards, oriented to the streets
- Landscaped front and side yards, with walls, fences, and hedges
- Houses in traditional architectural styles, with wider side yards at corners
- Moderately-sized front yards





Denton's most urban neighborhoods developed immediately adjacent to the town's mixed-use core. Though differing in their states of repair, loosely, the area between Third Street and Fifth Avenue, High Street and Franklin Street, and extending for a distance along Market Street, comprise Denton's first neighborhoods. Lots are spaced more closely and these areas represent the most urban living in Denton. These neighborhoods, which developed quickly during the booms that built the town, exemplify the Victorian style in both its ornate and simple forms.

Lot Sizes

Most lots are between 45 to 55 feet wide and about 100 to 120 feet deep. Corner lots are typically ten feet wider than in-line lots. These houses often feature wrapping porches and bay windows that address the street.

Front Yard Setback

The main bodies of the houses are set back 15 to 35 feet from the front property line. Porches typically extend 8 to 10 feet into the front yard.

Side Yard Setback

Side yard setbacks total no less than 5 feet to the property line. Slip driveways sometimes occur in the side yards, although most houses have on-street parking and/or are alley-loaded.

Garages and Ancillary Structures

Garages, if present, are located at the rear of the lot, typically serviced by an alley. Some yards feature other ancillary structures such as sheds. Driveways only occur on corner lots, if at all. Garages are infrequent and no carriage houses are present.

Streets

Typically, the street rights-of-way range from 36 to 40 feet. The paving, or cartway, is usually 23 to 27 feet wide in an urban, tight condition with two-way movement and parallel, on-street parking on both sides. Often known as 'yield streets,' these narrow cartways force cars to slow down to pass each other. A few streets have parking on only one side with two-way movement.

Verges and Street Trees

Verges or tree lawns range from 2 to 3 feet in width. Street trees are generally spaced 25 to 30 feet on-center, located either in the verge or the front yard along the sidewalk.

Sidewalks

Sidewalks in these neighborhoods are concrete, although Market Street – the most formal street in the area – features brick sidewalks in many places. Sidewalks are generally 4 to 5 feet wide.

Lighting

Lighting in these areas is typically handled with overhead lights, or 'cobra heads' (undesirable), high above the sidewalks, on power poles.

Fencing and Garden Walls

Fences and walls provide delineation between public and private space and are typically located on corner lots and as privacy measures to separate the dense backyards. Wrought-iron fences and decorative brick walls are sometimes present. Gardens are often fenced with white pickets, and are related to the style and character of the individual house. The use of chain link fence, and fencing taller than four feet is discouraged.

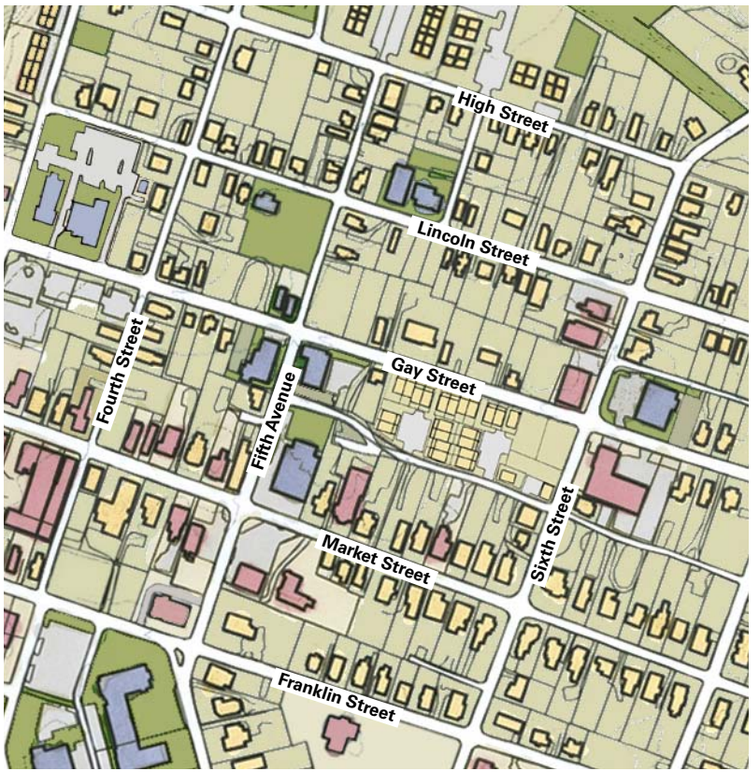
Planting

Foundation planting is the most minimal planting present in this area. Shrubbery, hedges, and small flowering trees are found in the yards in relatively informal patterns. Some large trees are also present in backyards.



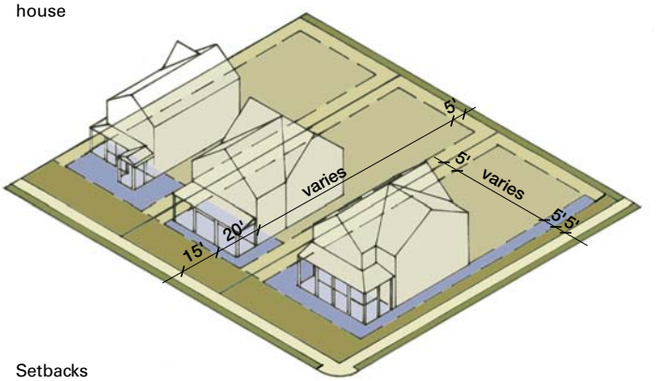




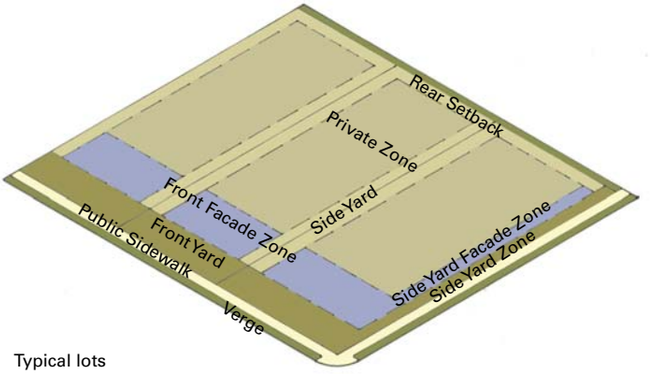




An in-town house

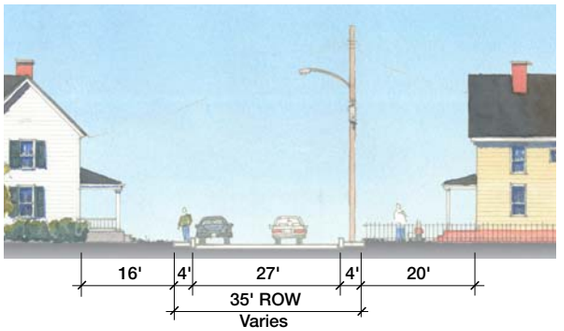


Setbacks

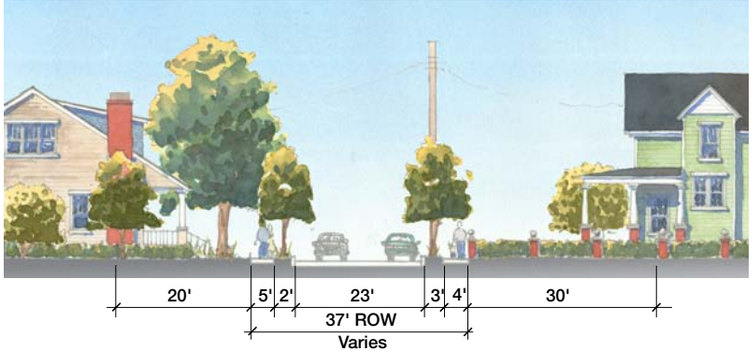


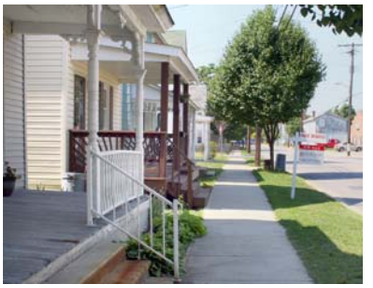
Typical lots

LINCOLN STREET



MARKET STREET







Fifth Avenue (T4)

Essential Elements

- Streets splay out from the grid of the urban In-Town Neighborhoods
- Wide concrete sidewalks
- Granite curbs and historic street lights
- Mature street trees in verges as well as auxiliary planting in verges
- Some houses maintain a step up into the front yard from the sidewalk
- Large, high-style houses in traditional architectural styles
- Wide lots with gracious setbacks to large, ornate front porches
- Well-planted front yards that relate to the style of the house





Fifth Avenue boasts Denton's most stately houses, the edge-of-town mansions from its early eras of development. Large, gracious trees and a wider street provide clues to the area's specialness as an address. The Fifth Avenue area also includes the blocks to the east, where the houses exhibit that same character. These houses are examples of Denton's most preserved, pure architectural styles.

Lot Sizes

Most lots are around 70 feet wide and 100 to 120 feet deep. Corner lots may be 10 to 15 feet wider in keeping with the grand scale of this area of Denton.

Front Yard Setback

Houses along Fifth Avenue and its adjoining blocks tend to have gracious front yard setbacks, in the range of 25 feet in depth. Buildings are set back relative to each other with only minor fluctuations. Porches may extend up to 12 feet into the front yard, but are typically 8 feet in width when present and appropriate for the architectural style. Bay windows may also extend into the front yard.

Side Yard Setback

Side yard setbacks typically total no less than 10 feet to the property line. Driveways are minimal and understated, if present at all. Typically corner lots and other wider lots support driveways to ancillary structures at the rear of the lot.

Side Street Setback

Houses on corner lots usually conform to the front yard setbacks, or if not, are a minimum of 15 feet. This setback reinforces the fronts of these houses.

Garages and Ancillary Structures

Garages are located at the rear of the lot with a narrow 8- to 12-foot-wide driveway leading from the street. Garages often have carriage units or 'granny flats,' living space above the garage proper. Most of the time, these structures are built in concert with and in the same architectural style as the house itself.

Streets

Fifth Avenue and its partner street to the east have wide rights-of-way, of approximately 50 feet. The width of the cartway, however, is usually much smaller, around 20 to 30 feet, and most adjacent public rights-of-way are well planted and lush. Parallel parking is not typical on these streets, and though it could be accommodated, two-way travel movement is common.

Curbs

Curbs are 6 to 8 inches tall and are typically constructed of concrete.

Verges and Street Trees

Verges or tree lawns are typically 5 feet in width and are planted both with grass as well as other flowering plants and bushes to create a very green and lush public realm. Mature, large street trees are generally spaced 25 to 30 feet on-center and are located in both the wide verge strip, as well as the front yards. This doubling of trees provides a wonderful shaded canopy over the public sidewalks, often up to the front porch, depending on the trees themselves.

Sidewalks

Sidewalks are made of poured concrete and are generally 4 to 6 feet wide throughout this area of Denton.

Lighting

Overhead lighting, often linked to power poles, is used throughout this area as well as most of the residential areas of Denton. Individual houses use auxiliary lighting on porches and facades to light the way from the public sidewalk to the individual houses.

Fencing and Garden Walls

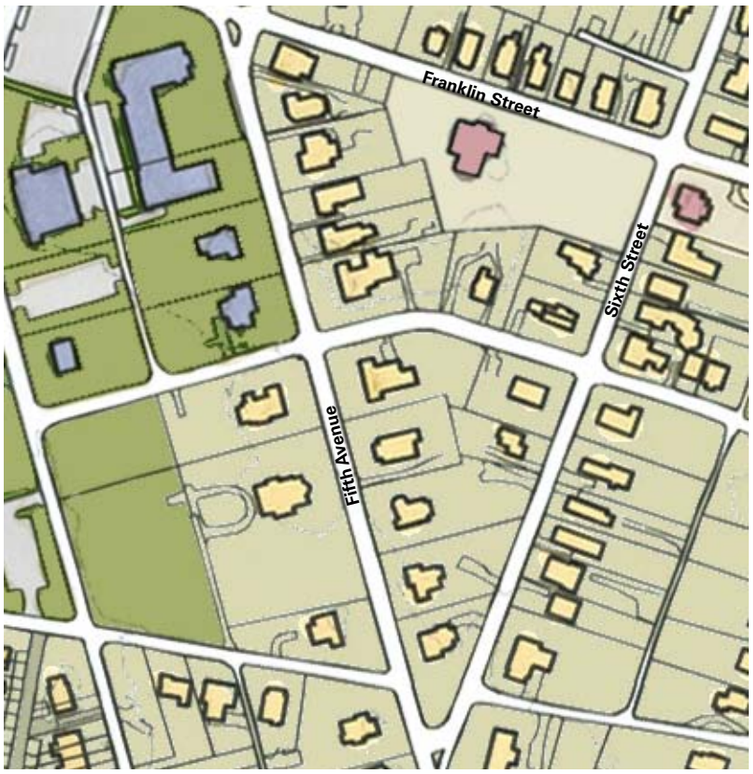
Generally there is little fencing in this area. Often delineation of space occurs with low planting of various types instead. Lush planting takes the place of fencing and similar structures.

Retaining Walls and Steps

Few retaining walls are present, although the approach to some houses is up a mounded front yard that lifts the house up to overlook the street. When this occurs, typically the yard is raised no more than three steps.

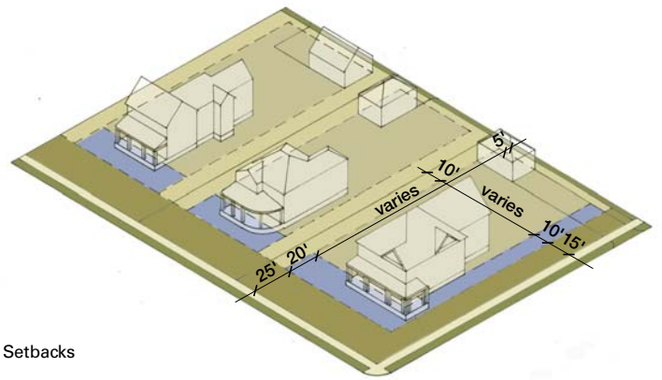
Planting

Enormous old trees grace the street and add greatly to its classic character. Ornamental trees, flower beds, bushes and hedges are all present. Yards and landscaping are very well-maintained. Planting is very thoughtful, and works with the overall composition of the house.



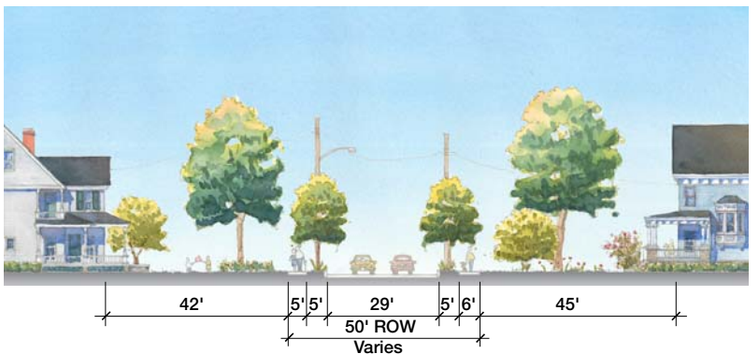


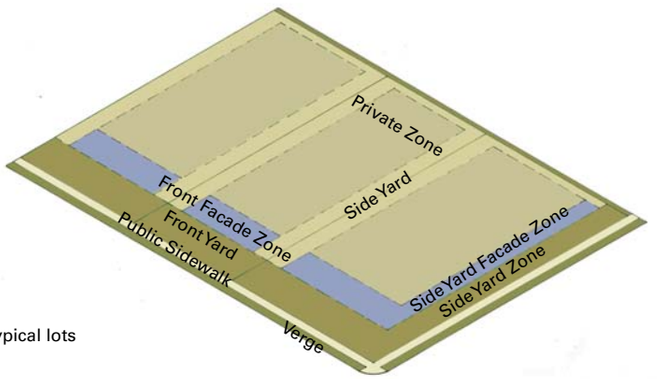
A Fifth Avenue house



Setbacks

FIFTH AVENUE





Typical lots









South Second Street (T4/T3)

Essential Elements

- Informal streets, often without curbs
- Long, rural sections of street with an informal street pattern
- Informal streetscape with few sidewalks
- Large trees along the street, as well as in an informal array around the lots
- Natural planting and landscape growth, in concert with the wooded surrounds
- A variety of traditional house styles, as well as later house designs
- Wide, more shallow lots, often wooded or influenced by the natural lands along the Choptank River





South Second Street and the blocks in its vicinity were developed in a loose, rural fashion due to their natural relationship to the Choptank River and the wooded areas south of the center of town. By the informal way that streets meet yards, and the general feel of connection to the natural environment in this area, the neighborhood fabric relates not only to the river, but its open spaces and nearby Martinak State Park to its south. Houses and the way streetscapes are handled generally defer to the natural setting around them.

Lot Sizes

Lots are very wide in this area, sometimes wider than they are deep. Widths tend to be between 80 and 90 feet wide and 70 to 100 feet deep. Corner lots may be wider by about ten feet, and on these lots, houses tend to look as though placed at the middle of the lot.

Front Yard Setback

The main bodies of the houses are set back 25 to 45 feet from the front property line. Porches, whenever present, are a usable depth.

Side Yard Setback

Side yard setbacks typically total no less than 10 feet to the property line. Slip drives may require an additional 10 to 12 feet on one side of the house.

Side Street Setback

Side street setbacks tend to be gracious like the front yard setbacks.

Garages and Ancillary Structures

Garages are typically located at the rear of lots, accessed from the side yard on corner lots and from driveways leading from the street on in-line lots. On occasion, even less formal gravel drives loop in front of the houses.

Streets

Streets typically have a 32-foot right-of-way, with a narrow cartway, particularly in those sections of the neighborhood that are rural in character and do not have formal curbs. Parking is allowed on one or both sides, and varies throughout this area.

Curbs

When curbs are present, six-inch concrete curbs are typical. For those houses along South Second Street itself, front yards often meet the street informally without any curb, just a change in material.

Verges and Street Trees

Verges are not characteristic of this area, though the area is relatively lush. Formal street trees are also not present, though there are many trees in less formal arrangements scattered around the lots, particularly as one moves south along the Choptank River.

Sidewalks

Sidewalks are not typical in this area, and due to its less regular street pattern, pedestrians are often seen walking in the cartway of the street, due to low volumes of through-traffic.

Lighting

Street lighting is not a common sight in these areas, with the exception of cobra head lighting attached to power poles. Houses often have lights in the front yard or on porches.

Fencing and Garden Walls

Very few formal domestic landscape elements are present in this area.

Planting

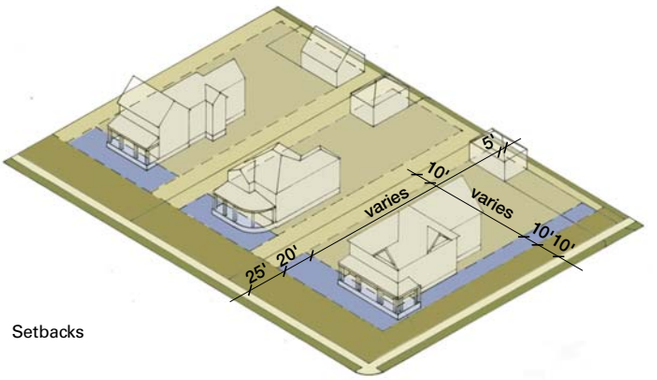
Foundation is typically the most formal planting found in this area of Denton. Ornamental trees, shrubbery, hedges, and flowerbeds are more prevalent. However, many lots are relatively wooded as one approaches Martinak State Park and the Choptank River.





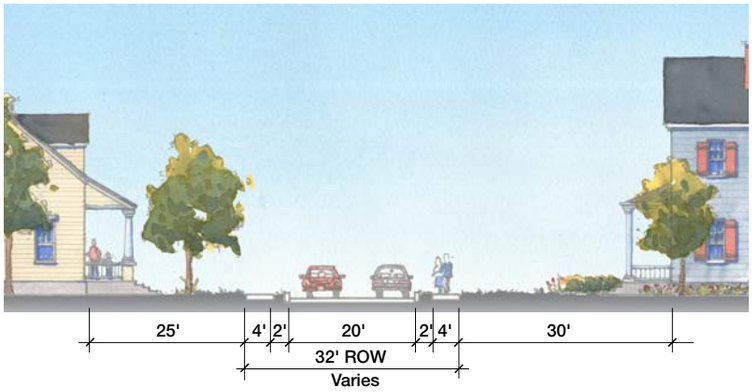


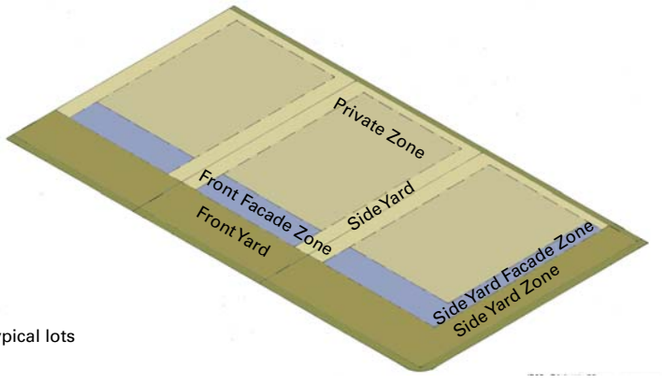
A South Second Street house



Setbacks

SOUTH SECOND STREET





Typical lots









Edge of Town Neighborhoods (T4/T3)

Essential Elements

- Broad streets without curbs, characterized as the farm roads they used to be
- Widely-spaced houses, early suburban in character
- A lack of curbs and formality in the streetscape
- No verges, often smaller trees are located in the yard
- Tall, widely spaced cobra-head-style street lighting
- Minimal and sparse front yard planting
- Simplified architectural forms and details on smaller one- and one-and-one-half-story houses
- Relatively wide lots, deep front yards and wide side yards with front-loaded lots





As the neighborhoods slowly feather out from the core and the Fifth Avenue area, houses are spread farther apart and yards are a bit less formal, reminiscent of the loose quality of their farmstead era. The houses in the vicinity of Sixth Street and Camp Road, as well as those areas east of the Fifth Avenue area, exemplify a more rural pattern and feel. Historically, it is likely that the larger houses set back from the road were farmhouses, while the current, neighboring houses are later, infill lots.

Lot Sizes

Most lots are between 55 and 65 feet wide and range in depth, though mostly 100 feet deep. Corner lots are generally wider, though in general the housing patterns are linear, along the rural roads that once led out of town.

Front Yard Setback

Front Yard setbacks to the main bodies of houses are typically around 20 to 40 feet. Porches are found on many houses, and are usually at least 6 feet deep.

Side Yard Setback

Side yard setbacks typically total no less than 5 feet to the property line. Lots are often front-loaded, with driveways pulling in from the street, requiring at least an additional 10 to 12 feet on one side of the house.

Side Street Setback

A 5- to 10-foot setback is typical from the side street property line to the house.

Garages and Ancillary Structures

Garages are usually set behind the house facade or at least equal to but not in front of it. Driveways are typically paved in concrete and there are no carriage houses, though other small ancillary structures might be present, such as backyard sheds.

Streets

Streets in the Edge of Town neighborhood areas have 40- to 45-foot rights-of-way. The paved cartways are wide in comparison to the neighborhoods nearer to Denton's center, typically around 30 feet. Streets have two-way movement and parking is found on both sides of almost all streets.

Curbs

Curbs are not typical in this area, and front yards meet the paving of the street in a rather informal way.

Verges and Street Trees

Verges and street trees are not present, although there are often a few trees in individual yards.

Sidewalks

Rural in streetscape character, sidewalks are not typical.

Lighting

Street lights are cobra heads and attached to power poles (not recommended).

Fencing and Garden Walls

Fencing and walls are rarely found in this area of Denton.

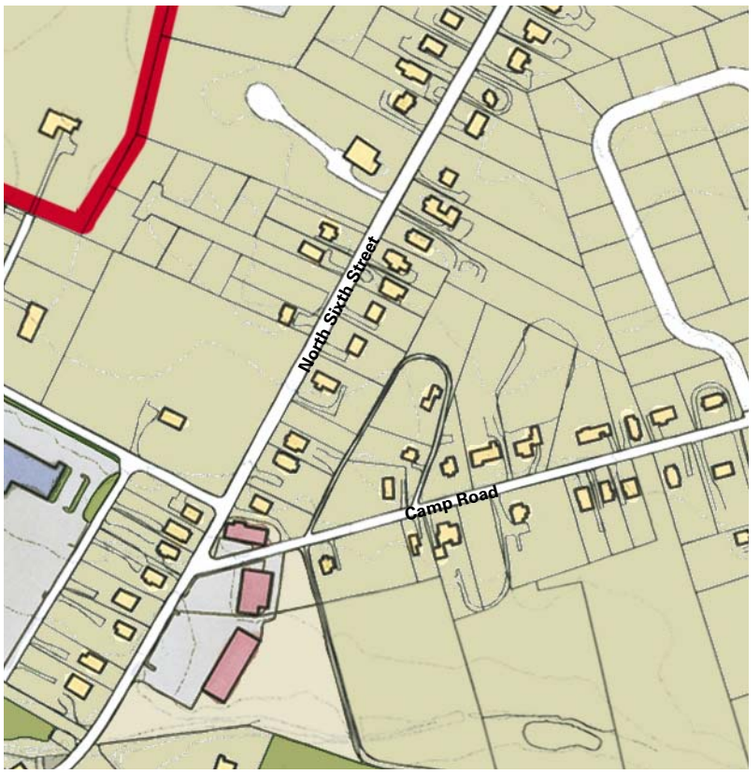
Planting

Front yards are large expanses of grass, interrupted by the occasional tree. Planting around the house is simple and straightforward with flowering shrubs and bushes.



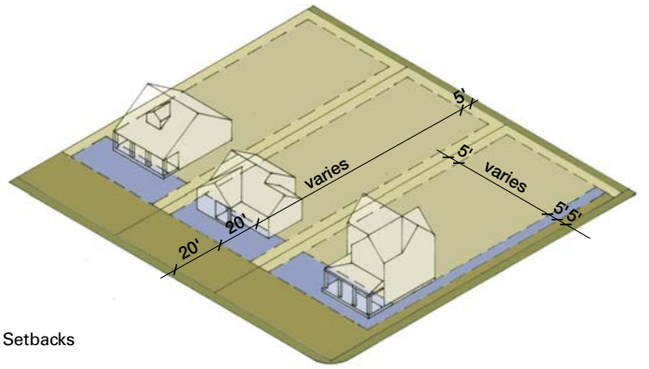








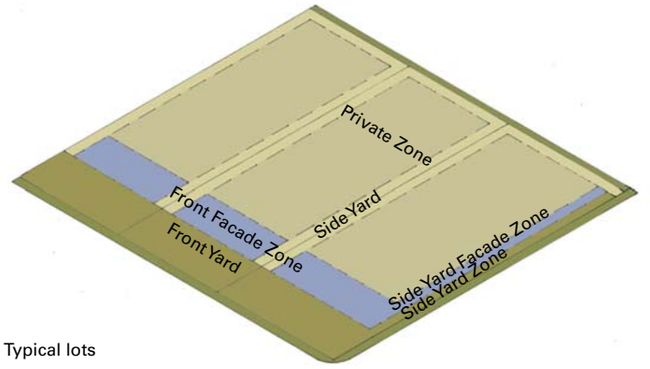
An edge of
town house



Setbacks

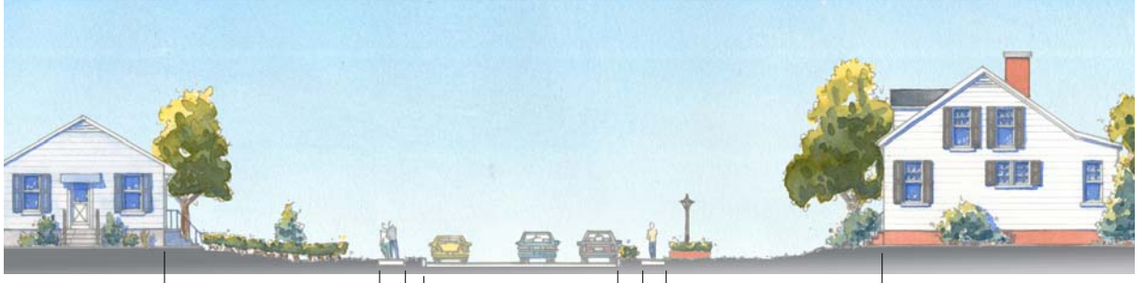






Typical lots

SIXTH STREET





Existing Civic Spaces



Crouse Park



Fourth Street Park



Wheeler Park

Denton has a number of fine civic spaces, among them Courthouse Square. These civic spaces range from squares to natural public parks, such as Martinak State Park, to formal streetscapes at the core of town.

Formal Squares and Plazas

Courthouse Square is Denton's signature public space. As the seat of Caroline County, it houses the Courthouse in a formal green that also serves as a park for the downtown. Formal gathering spaces are important for any town, and they are appropriate in any number of shapes, sizes, and characters.

Parks

Denton has a few parks that are generally co-located with schools and other institutions. Fourth Street Park is adjacent to St. Luke's Church, and near the Denton Child Development Center. In addition, Wheeler Park is located near the middle school, and has some active recreation elements. Crouse Park is located on Denton's riverfront and is being developed to better connect the town to the Choptank River. Martinak State Park, south of the core of town, contains both parks and playgrounds, as well as natural landscapes for passive recreation and connection to the natural environment of the region.

Institutional Spaces

The schools throughout Denton have associated playspaces and fields for the use of school children, as well as the greater community. Institutions, such as the town's churches, also have associated greenspaces, which tend to be formal gathering areas and gardens. Adjacent to the Caroline County Courthouse, the green surrounding the facility boasts large trees and areas for passive recreation.

Streetscapes

The downtown streetscape respects the formal nature of this area. Use of brick pavers, formal and coordinated street lighting, planters, hanging baskets, and banners all bring this area together. Other elements such as benches, trash receptacles, parking meters, and other special elements in the public realm further refine the formality of the downtown.

Wetlands

Crouse Park and the natural areas at the entry into Denton from the west, as well as the riverfront wetland areas in Martinak State Park are wonderful examples of Denton's unique environs along the Choptank River and within the Chesapeake Bay watershed. Continued stewardship and appreciation of these areas is important as they tie the town with its natural identity.



Visitors Center at Courthouse Square



Courthouse Square



Market Street south of Courthouse Square



Martinak State Park



Crouse Park



Martinak State Park

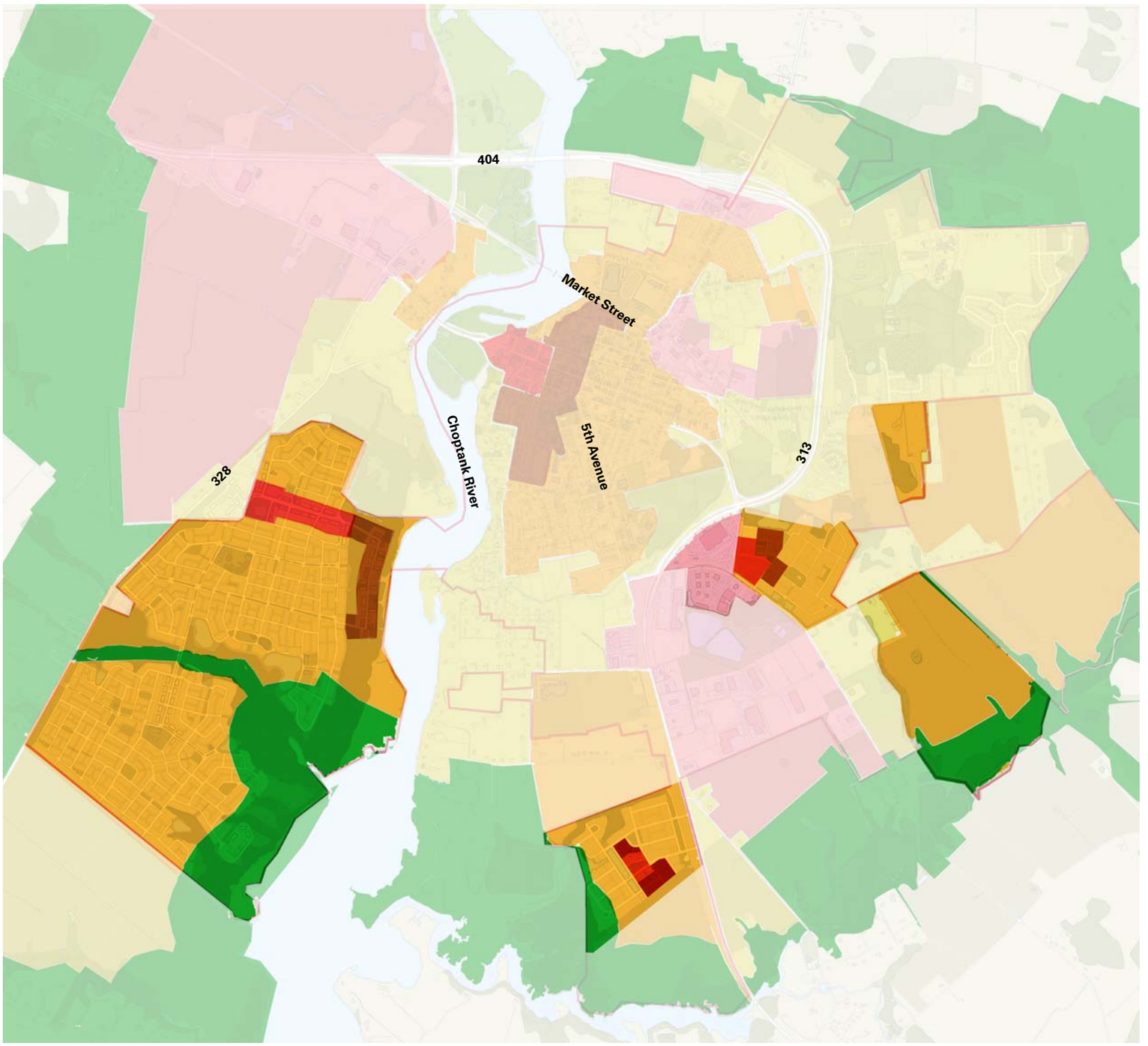
SECTION C

STRATEGIES FOR NEW DEVELOPMENT

As growth continues in and around Denton, sound development strategies are essential to ensuring that the qualities of the community that are most prized – its sense of scale, its historic character, and its relationship to its treasured natural environment – are maintained and supported by both infill and new development projects.

This section of the Pattern Book contains development strategies which can help property owners and developers achieve that important goal by understanding the frameworks in which development occurs vis-à-vis the Transect Zones and the existing neighborhood patterns just described in Section B: Essential Qualities of Denton Today.

The section begins with a look at Urban Patterns for Infill which are then elaborated on in the Urban Infill Kit of Parts. After presenting development guidelines as they apply to infill projects, the section continues with Urban Patterns for New Development and the elaboration of those ideas in the guidelines recommended in the New Development Kit of Parts.

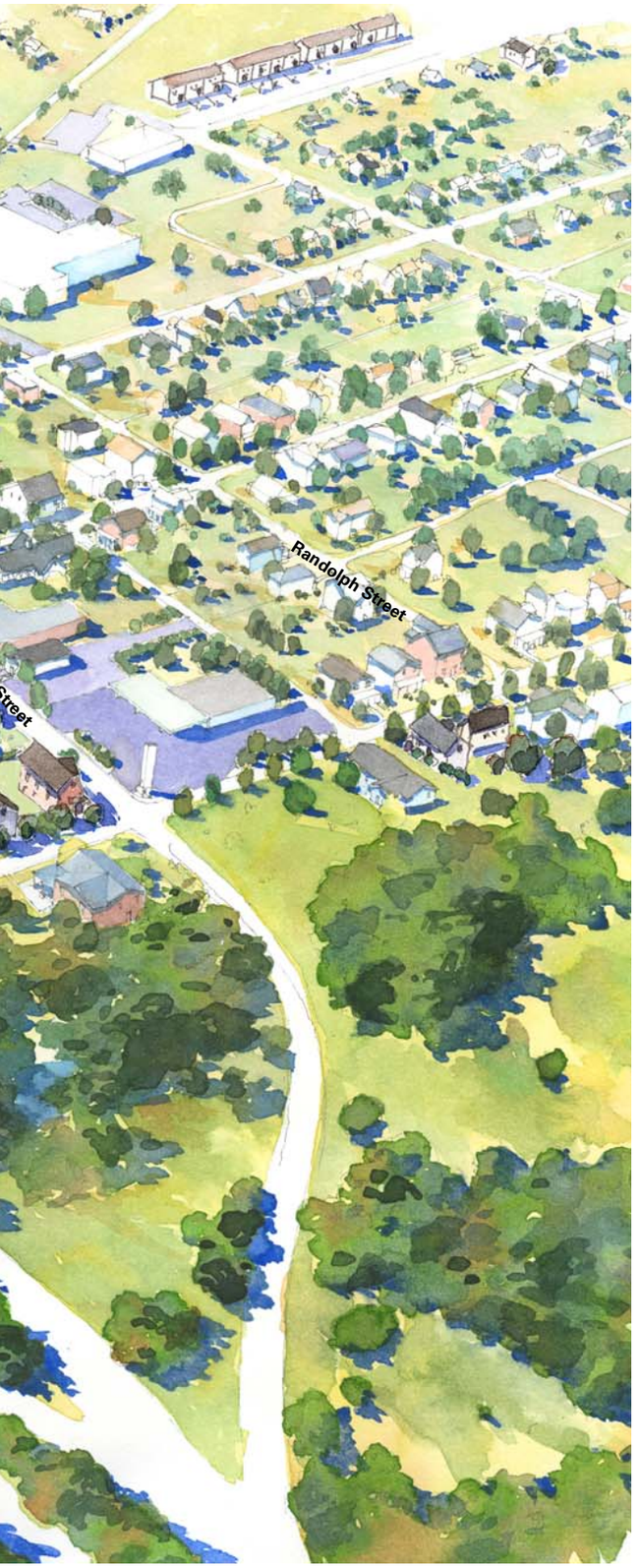


This map of Denton's Transect Zones highlights Planned Neighborhood (PN) projects, generally of a large scale, that will have areas that reflect most if not all of the transect zones within their borders. By using the principles of the Transect and the ideas contained in this Pattern Book, developers can ensure that their projects remain neighborly to adjacent uses both in scale and character.

Urban Patterns for Infill



Note: This drawing illustrates the Pattern Book design principles applied to the existing fabric of Denton. Areas of the town are depicted in a somewhat idealized state to illustrate possible infill scenarios consistent with the ideas presented in the Pattern Book. The possibilities shown in the drawing do not necessarily correlate with specific development initiatives proposed or underway.



Introduction

Neighborhoods and towns are complex systems consisting of many different elements. The most appealing and remarkable spaces in towns are those in which harmony exists among all of the elements which create these spaces, including: the scale of the street, the widths of sidewalks, the placement and height of buildings, the architectural character, and the landscape details that add layers of richness and color. However, creating this harmony is a challenge because the responsibility for the design and development of these diverse elements often lies in the hands of different people with different scales of focus.

The existing fabric of Denton – especially that which is near the urban core – serves as a wonderful example of a complex place that is beloved by residents and visitors alike because of the way it makes them feel. This response to place is a result of the many systems of the town coming together to create an even better whole. The drawing at left of the downtown core and its closest in-town neighborhoods illustrates the important relationship among the town's varying systems. The Urban Infill Kit of Parts which appears on the next page examines each of the elements identified above to illustrate how they are all necessary and must also work together to form a strong, positive sense of place.

Existing Site and Town

The aerial view you see here looks southeast across the banks of the Choptank River. Downtown Denton and the Caroline County Courthouse are in the foreground. It's easy to recognize the densest blocks of the town between Gay and Franklin Streets, from the river to Fourth Street. In all directions, the in-town neighborhoods feather outward to the less dense neighborhoods beyond. This view makes it easy to see the neighborhoods, or areas, of Denton which are alike in character and scale. Through this ability to break down the scale of the town into discrete parts, we can better understand the way in which they are put together.











Urban Infill Kit of Parts

Introduction

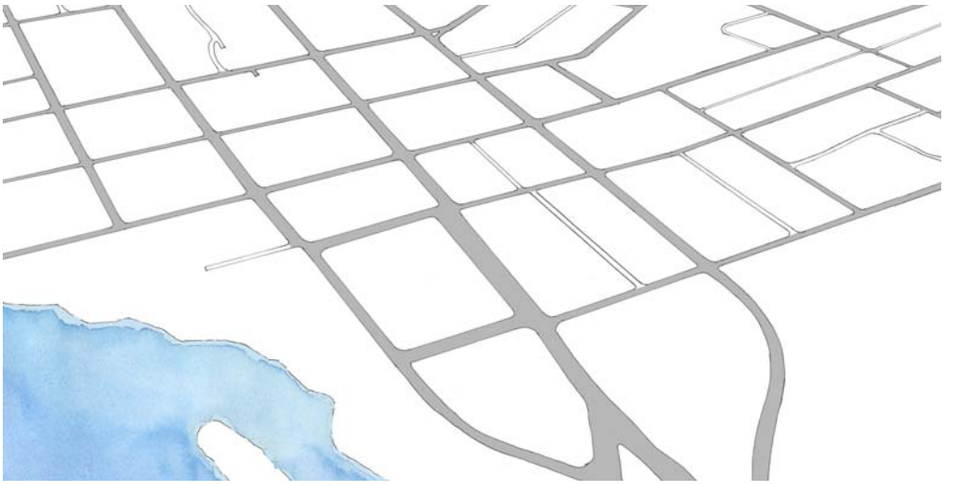
The diagrams on these two pages examine the systems that make up Denton's existing fabric. By understanding the various parts and the relationships among them, we can abstract the rules by which new infill development can fit into, connect to, and improve the fabric of the town surrounding it. As a town, Denton is formed by a collection of streets, parks, houses, and mixed-use buildings that fit within the following frameworks.

Streets

Denton has a number of different street types. These range from larger arterials, such as Gay and Franklin Streets which carry more through-traffic, to the urban, downtown section of Market Street, to the urban neighborhood street network, to the informal, sub-urban or rural sections in the north. There are also alleyways in some blocks. For each street type, there is an appropriate cross-section that includes the width of paving, streetscape and sidewalks, lighting, and the like.

Landscape – Streetscape and Public Open Space

Parks, playgrounds, and civic and institutional building grounds constitute public open spaces within the town. Public rights-of-way, in the form of streets, connect these amenities. The streets themselves should be developed with sidewalks, appropriate street trees, tree lawns, lighting, and other furnishings, particularly on streets with a mix of uses along them, such as Market Street near Courthouse Square. The banks of the Choptank River should also be developed with publicly accessible trails and gathering areas.



Streets



Landscape: Streetscape, Public Open Space and Natural Areas

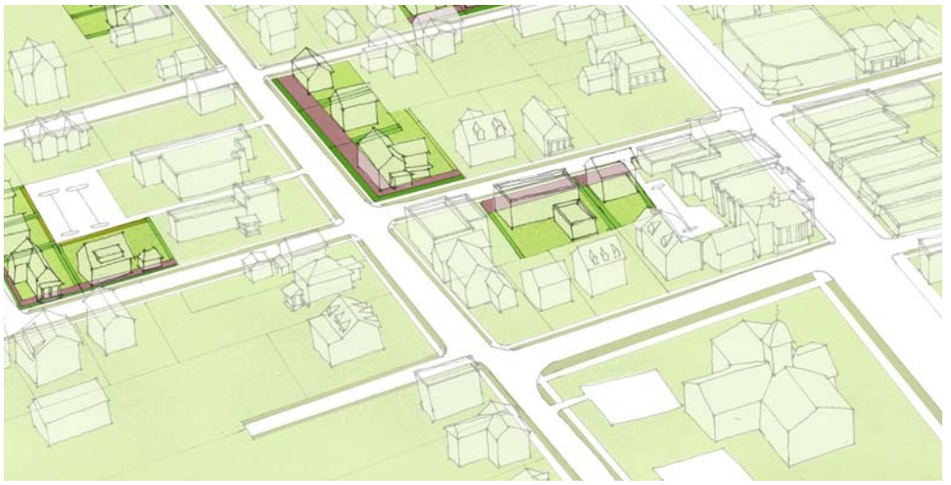


Blocks by lot type

Residential Lots

Mixed Use Lots

Civic, Institutional and Park Land

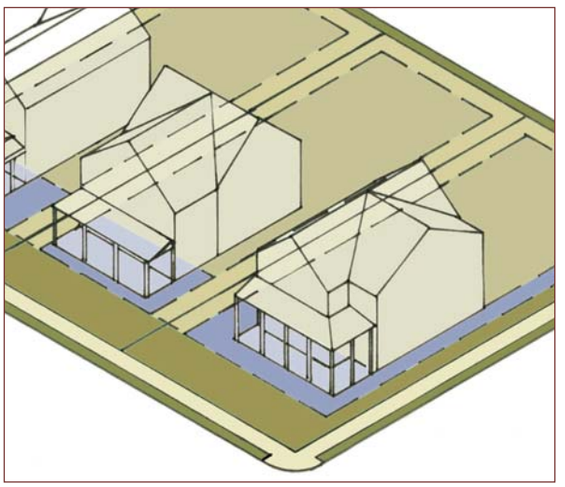


Lot Requirements: Facade zones for infill lots



Buildings placed on lots





Buildings

Blocks with Infill Lots

Blocks are parcels of land defined by the public streets that surround them. Blocks are subdivided into individual lots where houses sit. Infill lots are those lots where buildings do not currently sit, but which are available for development. Infill development should respect and correspond to its neighbors in character, scale, and building type, per the appropriate Transect zone.

Lot Requirements

Buildings work best in concert along a street when they respect and coordinate with each other. Such environments are cohesive, and encourage safe, pedestrian connectivity. Neighborhoods are organized by typical setbacks and facade zones for parcels along a block face. Such lot requirements set the location of buildings and establish the character of the public realm by the relationship of buildings to one another based on these setbacks and facade zones.

Buildings Placed on Lots

Placement of buildings on lots creates the relationship between mass and voids. The prevailing pattern along the block face and in the neighborhood significantly influences the neighborhood character. Extreme deviations from prevailing patterns disrupt these existing relationships.

Urban Patterns for New Development



Note: This drawing illustrates the Pattern Book design principles within a Planned Neighborhood Zone. Areas are depicted in a somewhat idealized state to illustrate ideas presented in the Pattern Book and do not necessarily correlate with specific initiatives for the development of West Denton.



Introduction

As noted previously, neighborhoods and towns are complex systems consisting of many different elements. Providing for cohesion and a healthy relationship among these systems in the design and construction of new places is essential to their success. Creating harmony among the varying elements of a new development, particularly large-scale developments, can be challenging, but is essential to tie the place together, as well as connect it back to the associated town.

Although new large-scale development in growth areas will occur largely outside historic Denton, such developments are still inextricably linked to the town. To complement Denton's historic character, new development must feel as though it has been coordinated and developed over time, even though actual development time may be relatively short.

The feeling of community will only emerge if the many systems making up the development come together synergistically. You'll find the supportive systems which must be coordinated for new development to work successfully elaborated on the next two pages.

Prototypical Development

This aerial view looks northwest across the banks of the Choptank River toward the West Denton development. Presented here simply as a prototypical example, the plan is overwhelmingly residential in character and defined by the natural systems which frame it, yet it also contains a core of denser residential and mixed-use building types, as well as commercial development. Diagrams on the next two pages break the development plan into its coordinated systems to identify the areas that developers and builders will need to think about in order to create rich new built environments.

Building Types

To satisfy today's marketplace needs – which are different in social and cultural context than those in place when the historic town of Denton was developed – several new building types are being introduced in this Pattern Book. These types are detailed in Section D: Building Types. In all cases, building types must be selected based on their appropriateness to the Transect zones embodied in the development and also must adhere to the architectural styles prevalent in Denton and the surrounding historic towns of the Maryland Eastern Shore.







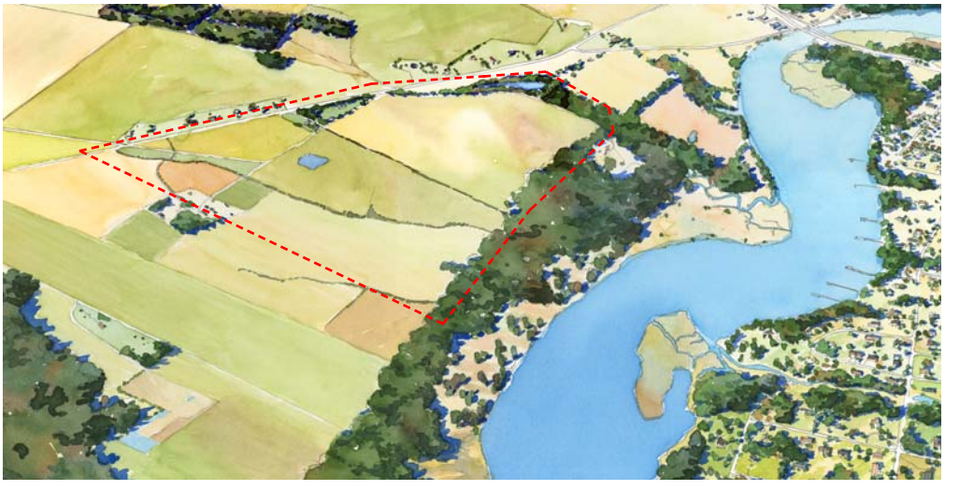




New Development Kit of Parts

Existing Site

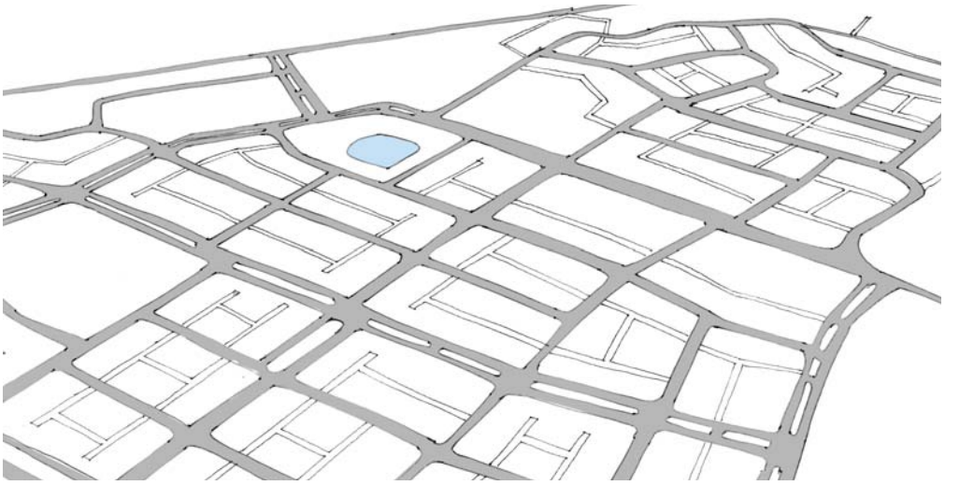
Denton and its immediate surrounds feature a number of waterways and wetlands that reach in from the Choptank River. These natural features define the buildable areas in which new development can occur and also provide wonderful natural amenities and addresses for development that can capitalize on the presence of the nearby river. One example is the West Denton development, just west of the existing historic town and connected to it by the main bridge into town which leads to Market Street.



Existing site and town

Open Space and Connectivity

Using the open space network as a framework for development provides opportunities for environmentally-sensitive design that works in concert with the natural elements that define the area. The riverfront should be maintained primarily for public access to the Choptank, while streams reaching inward can provide unique neighborhood development addresses. Development blocks are defined and connected by tree-lined streets. Institutional lands and park spaces are interwoven and accessible to residents of the new development via the sidewalks and pedestrian connections throughout the plan. Parks should be scaled to serve their placement in the neighborhood, and a general diversity of parks and civic spaces should be incorporated into new places.



Open space system with green infrastructure, street, and pedestrian connectivity

Neighborhoods

As with any large greenfield development, a series of neighborhoods must be established to lend character to the development and create a human scale that is pedestrian friendly. These neighborhoods form residential subsets of the larger community through a series of interconnected blocks that are generally consistent in character.



Neighborhoods



Blocks with Lot Types

High-Density Residential Lots
Medium-Density Residential Lots
Civic, Institutional, and Park Land
Mixed-Use Lots



Lot requirements



Buildings placed on lots

Blocks and Lots

A variety of block and lot sizes are needed to accommodate the wide variety of building types that add richness and broad-based marketplace attractiveness to large-scale new developments. House lots, for both single-family and attached products such as duplexes and triplexes, generally radiate from the core of such developments, which typically consist of higher density residential buildings, live/work units, and mixed-use and commercial buildings. Blocks are subdivided into lots appropriate for their Transect zone and location in the plan and within the particular block.

Lot Requirements

Standard setbacks and facade zones are enforced to create a cohesive environment across a block face. Though the same requirements are implemented on all blocks, the menu of setbacks vary across a plan to create a variety of consistent environments with understandable and replicable character.

Buildings Placed on Lots

Building types are scaled to fit on appropriately-sized and located lots. Buildings should be in the style and character of Denton although some types may not be found within historic Denton. Appropriate precedents may be sought from nearby Eastern Shore towns for variations and types not included in the fabric of historic Denton.

SECTION D

BUILDING TYPES

With the growth and new development that Denton is experiencing and will continue to experience, both within and at its current edges, a discussion of appropriate building types and their applications is essential to channeling new growth in a way that is fitting for the fabric of the town. Building types are not just based on use, but also on the scale and massing of their forms. They are also always changing to meet new market demands. New building types, such as large multi-family apartment buildings, multi-unit condominium buildings, and large-scale commercial buildings, have become the standard for current development patterns.

In this section, a number of different building types will be discussed in terms of their appropriate siting and key elements within the existing town or new developments. Suggestions are also presented for addressing site planning criteria and building form issues relating the various building types to their surroundings.

Building Types and the Transect

As described previously in Section B: Essential Qualities of Denton Today, the Transect of Denton provides a useful framework in which to discuss where to place different building types to ensure that they are appropriate to the character of the neighborhood or district in which they are placed. For example, mixed-use buildings are not appropriate for all of Denton's neighborhoods; however, their development in the T5 and T6 zones works well near the existing core of town.

The tables on this page map out the Transect Zones, characterizing the various parts of Denton by their corresponding T-zone, and also identify the appropriate Transect zones for each of the building types. By cross-referencing these two tables, one can understand the appropriate places and relationships between buildings of differing form and massing.

T3	T4	T5	T6	Neighborhood
		■	■	Courthouse Square and Downtown Market Street
	■	■		In-Town Neighborhoods
	■			Fifth Avenue
■				South Second Street
■				Edge of Town Neighborhoods
T3	T4	T5	T6	Neighborhood

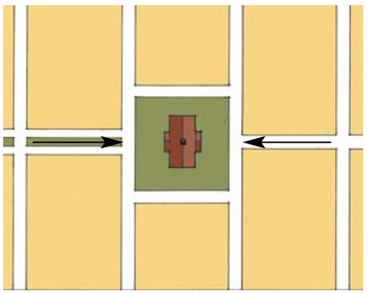
T3	T4	T5	T6		
				Civic Buildings	
				Large-Scale Commercial	
				Mixed-Use & Multi-family	
				Townhouses & Live/Work	
				Attached Housing	
				Single Family	
				Carriage Houses	
T3	T4	T5	T6		

Civic Buildings

Civic buildings house the services and institutional uses that bring people together. Municipal structures, cultural facilities, libraries, churches, schools, community centers, visitor centers, and membership organizations constitute civic buildings.

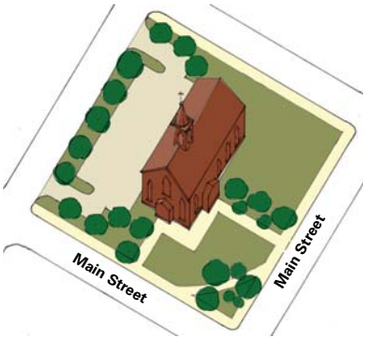
PLACEMENT IN TOWN

- Place on prominent, visible, accessible sites of importance
- Locate civic buildings to terminate vistas and along major axes
- Make structures central to as many residential neighborhoods as possible



SITE PLANNING

- Orient building fronts to major axes, vistas, and approaches
- Integrate with neighboring land uses
- Clearly define approach and access to buildings
- Create useful outdoor space or garden rooms that can be used for associated functions
- Site useable or celebratory outdoor areas in obvious locations
- Plan for parking and loading at the backs or sides of buildings, and screen these areas with low walls and landscape elements



BUILDING ELEMENTS

- Provide civic stature through the use of architectural elements and solid, appropriate materials
- Allow the forms and massing of the architecture to blend in with Denton's architectural character and human scale
- Make entries easily accessible and obvious
- Animate the facades of the building with windows, doors, or architectural elements as appropriate for its use so that it is a good neighbor to the scale of nearby houses and has a human scale





Civic Spaces

Civic spaces range in scale and type. These civic gathering spaces should be designed in shapes and sizes appropriate to their place in town, neighboring uses, and the needs and desires of residents. Historic Denton includes a variety of good examples

Community Park

PLACEMENT IN TOWN

- On the edges, not centers, of neighborhoods
- Often co-located with schools, institutions, and large open spaces, such as natural areas

SITE PLANNING GUIDELINES

- Include active recreation fields
- Edges should be defined by streets and faced by houses
- Typically one or two per town



A Community Park

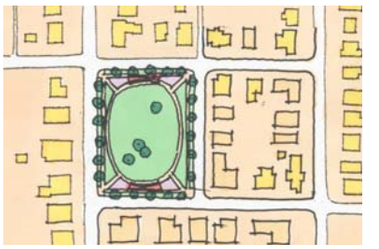
Neighborhood Parks

PLACEMENT IN TOWN

- Typically one per neighborhood
- More intimate, residential scale

SITE PLANNING GUIDELINES

- Edges defined by streets and faced by houses
- Generally passive areas
- Small, active recreation uses could include small playgrounds



A Neighborhood Park

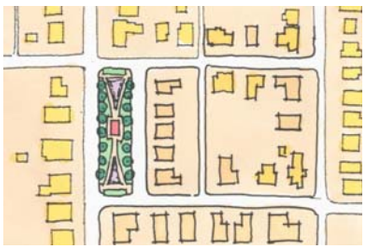
Pocket Parks

PLACEMENT IN TOWN

- In the center of neighborhoods
- Very intimate scale

SITE PLANNING GUIDELINES

- Edges defined by streets or sidewalks, and faced by houses
- Create unique addresses within residential neighborhoods
- Generally passive recreation areas, including seating, fountains, or community gardens



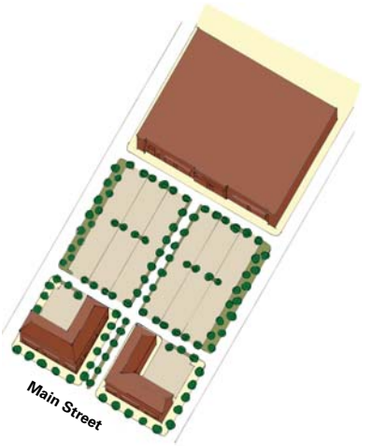
A Pocket Park

Large-Scale Commercial Buildings

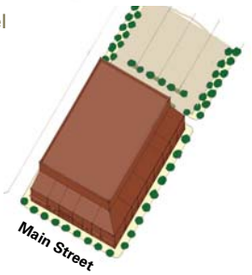
The large scale of chain stores raises many challenges for integrating them into new places, particularly in urban fabric. Typical corporate plan layouts and architecture often do not lend themselves to sensitive siting and place-specific architecture.

PLACEMENT IN TOWN

- Locate in Transect Zones T3 and T4, or single-use, special purpose districts, with an emphasis on form and massing
- Preferred location is in T4 where the urban fabric is robust and can incorporate larger-scale structures.
- Buildings should back up against like uses whenever possible to eliminate the presence of loading docks and blank facades on streets



T3 model



T4 preferred model

SITE PLANNING

- Encourage 'liner' uses along the expanse of the large building facades.
- Stormwater management should be integrated into site design, rather than the creating ponds
- Parking should not dominate the approach and should be screened
- Arrange associated buildings to create nodes versus strips of development
- Trails, sidewalks, and bicycle connections should be clear and safe

BUILDING ELEMENTS

- Main entries should be obvious yet not overbearing in architectural expression
- Active uses and non-associated storefronts should line the sides of the box with active uses
- Signage and lighting should be understated and human-scaled
- Architectural elements should break down the scale of the facade, particularly in a bay rhythm related to the scale of adjacent buildings



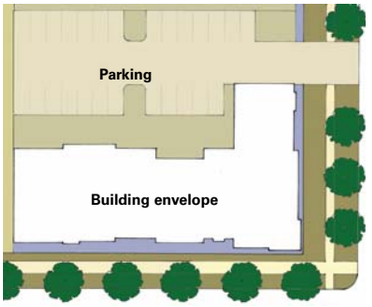


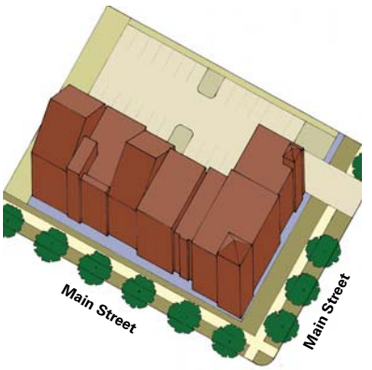
Mixed-Use and Multi-family Buildings

Mixed-use buildings anchor downtown areas while relating to adjacent residential neighborhoods through their smaller size and proportioning. The mix of uses may include retail, commercial, office, institutional, and residential – often vertically integrated. Multi-family buildings provide a transition in size and use between downtown areas and residential neighborhoods. In Denton, a diversity of building size is critical to maintaining scale.

PLACEMENT IN TOWN

- Locate in Transect Zones T6 and T5, respectively
- Develop greatest density at the core of the existing town, or at the cores of new developments and planned neighborhoods
- Arrange these buildings to face across a street, or cluster to provide local synergies
- Create a diversity of building scales, particularly for multi-family buildings





SITE PLANNING

- Building height should not exceed two and a half tall stories, as characterized in downtown Denton
- Multi-family buildings should be of varying sizes – 6, 12, and 24-unit buildings, and should be mixed on the street face
- Buildings should address the street
- Accommodate parking and loading at mid-block or at the rear of buildings; on tight sites, delivery from the street via hand-truck should be used
- On-street parking should be provided for short-term use

BUILDING ELEMENTS

- Large buildings should be broken down into bays reflecting the existing building rhythms along Market Street in downtown Denton
- Large expanses of glass – shopfronts, doors, and windows – should address the street as the primary public realm.
- Building elements, such as awnings, lighting, and signage, can be used to create a human building scale that invites activity



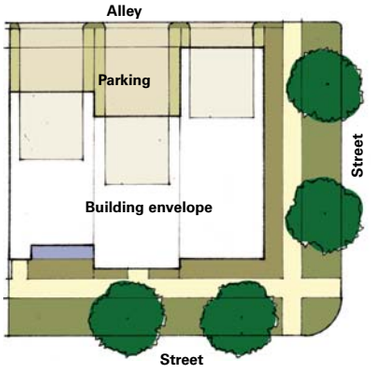


Townhouses and Live/Work Buildings

Though relatively common in other Eastern Shore towns of a larger scale, such as Cambridge and Easton, Denton does not currently possess townhouses or live/work units in the traditional, attached forms. Therefore, much care should be taken with the development of scale and architecture. Precedents from the surrounding towns should be studied.

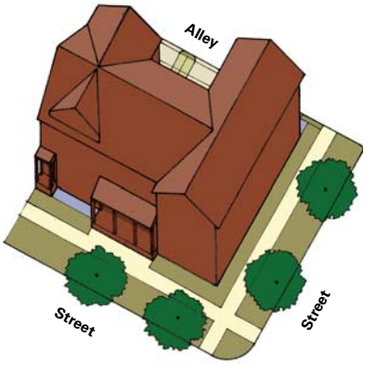
PLACEMENT IN TOWN

- Locate in Transect Zones T4, T5, and T6 because of their density
- Create specific, individualized areas or addresses in scripted, arranged clusters
- Design two-story townhouses when placing in or near existing fabric to match building heights



SITE PLANNING

- The height should not exceed two tall stories; when three stories are desired, these should relate to other buildings of the same or greater scale
- Lengths of more than four running units are discouraged
- Buildings should face all streets and be built close to if not at zero-setbacks; they may have small gardens or lawns in front
- Parking should occur in the rear of the lot in separate garages or parking pads, or tucked under the units and accessed from alleys
- Consistent rows of street trees and sidewalks should ring residential blocks providing pedestrian connectivity





BUILDING ELEMENTS

- Develop bay rhythms similar to Denton mixed-use buildings and housing
- Provide porches in order to fit in with the character of Denton
- To provide variety along the street, use architectural elements (porches, bay windows, roof elements) that fit into one of the specified architectural styles

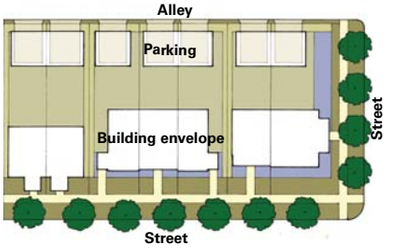


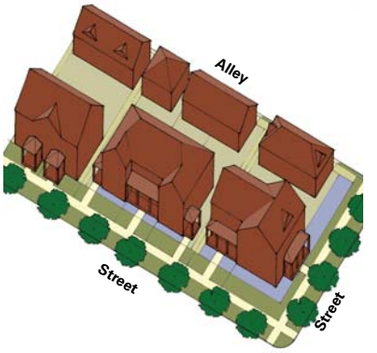
Attached Housing

Attached housing is found throughout Denton. Typically such houses are designed to look like larger single-family homes, and fit easily into the character of a neighborhood street. Duplexes and triplexes are the most common forms of attached housing.

PLACEMENT IN TOWN

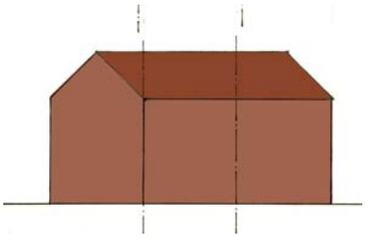
- Locate in Transect Zones T4, T5, and T6
- Locate attached housing on infill sites in residential neighborhoods to emulate single-family house placement
- Locate attached housing on infill sites in the core of Denton to increase density in a form complementary to the housing nearby





SITE PLANNING

- The scale should not exceed two and one half stories, and floor-to-floor heights should be similar to those in the surrounding houses
- Long lengths of block faces with similarly-scaled units are not acceptable; attached housing should be scattered throughout the neighborhoods
- Buildings facades and front doors should face all streets
- Parking should occur in garages or on parking pads at the rear of the lot; units should be serviced from alleys
- Consistent rows of street trees and sidewalks should ring residential blocks providing pedestrian connectivity



BUILDING ELEMENTS

- Attached housing should be developed in the form of a large house, to maintain a residential character
- Where possible, attached units should have individual entrances separated by porches or wings
- To provide variety along the street, use architectural elements (porches, bay windows, roof elements) that fit into one of the specified architectural styles

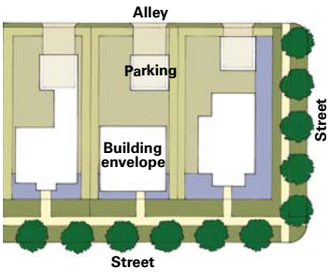


Single-Family Houses

The single-family house is the predominant building type in Denton, and is one of the smallest units of residential development. Single-family houses can be developed at varying scales in all of the appropriate styles and architectural vocabularies.

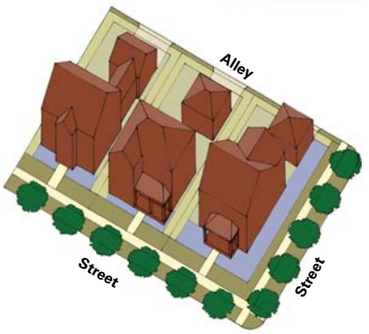
PLACEMENT IN TOWN

- Locate in Transect Zones T3, T4, and T5 at different block densities
- Single-family houses occupy lots of 35 to 80 feet in width, at a variety of depths



SITE PLANNING

- The scale should not exceed two stories, and floor-to-floor heights should match those of surrounding houses
- Building facades and front doors should face streets
- Parking should occur in garages or on parking pads at the rear of the lot; units should be serviced from alleys
- If site conditions require front-loaded access, garages should be detached to the rear of the lot with a narrow, inconspicuous driveway along one side of the house
- Consistent rows of street trees and sidewalks should ring residential blocks providing pedestrian connectivity





BUILDING ELEMENTS

- Attached housing should be developed in the form of a large house, to maintain a residential character
- All units in a building should have porches, fitting with the character of Denton
- Architectural elements (porches, bay windows, roof forms) should be used to provide variety from the street
- All building architecture should fit into one of the specified architectural styles

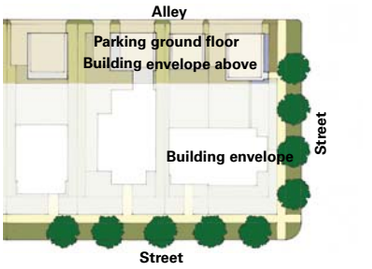


Carriage Houses

Carriage houses, or granny flats, provide small, flexible living in separate, units adjacent to the main house. Carriage houses provide rental housing opportunities for home owners.

PLACEMENT IN TOWN

- Locate in Transect Zones T3, T4, and T5, in association with a single-family house
- Place carriage units behind or beside the main house on the residential lot



SITE PLANNING

- The scale of the buildings should not exceed two stories, parking on the ground level with living space above, connected by a stair
- Units may face either the alley or the backyard of the main house in their orientation
- Parking, by definition, occurs under the residential unit
- Carriage units may be approached by a front-loaded driveway or from a rear alley





BUILDING ELEMENTS

- Carriage units should have high ceilings to give a larger sense of scale to the unit
- Carriage units should utilize numerous windows to naturally light and ventilate the unit
- Units must have ground access by an internal and/or external stair
- The architectural style should be developed in association with the style of the main house on the lot
- New carriage houses should be designed with residentially-scaled elements and the specified architectural styles



SECTION E

ARCHITECTURAL PATTERNS

This section of the Pattern Book is intended to help developers, builders, and home owners understand the key elements that contribute to the character of a Denton house. The section contains guidelines for the detailing of new housing, as well as strategies for renovating existing houses in a manner that ensures that these houses will be appropriate for Denton and harmonious with neighboring structures.

The section begins with the overview on the facing page of the three predominant, traditional architectural styles found in Denton – Victorian, Colonial Revival, and Craftsman. These three styles make up nearly all of the current building stock in Denton. The Victorian style is the most prevalent; however, many fine examples of the other styles exist in the area and all three are appropriate vernaculars in which to build in the town.

Historically, Denton possesses a limited variety of building types. Additional types are being introduced through current and planned future development. Particular attention must be given to the architectural detailing of these new types in order to integrate them successfully into the fabric of the community.

Following the overview, each of the three architectural styles is described in more detail in both written and graphic form. Information is presented about the massing and composition and typical wall sections and eaves appropriate for each style, as well as the types and arrangement of windows, doors, porches, and materials that are in character with the individual styles.

The architectural details offered are meant to be used to compose elevations of new buildings and also to serve as a menu of appropriate elements for existing house renovations in the form of additions and broader transformations. For older, traditional Denton houses, or for home owners wishing to address their houses' exteriors, the renovation pages in Section G: Home Owner's Guide, contain basic rules that can help preserve and enhance the original character of the houses. If you are building a new house within one of the traditional Denton neighborhoods, new house plans can be adapted to reflect one of these traditional styles.

This section concludes with Architectural Resources – list of national Material Manufacturers who may be useful to you in sourcing materials – and also a brief discussion of Materials and Methods.

Denton Architectural Styles Overview

Just as neighborhood character and building types contribute to creating distinct neighborhoods in Denton, so do the three most frequently used architectural styles: Victorian, Colonial Revival, and Craftsman. These styles and variations on these styles can be found in almost every Denton neighborhood.

Post-war houses, built for the many young GIs returning after the Second World War, often incorporated simplified details from these styles. As a result, many post-war houses lack a distinctive style all their own. Through transformation, however, these houses can adopt a house style by applying the detailing found on the upcoming pages to renovation, addition, or transformation projects. If you are contemplating this type of project for your house, you'll want to combine the information contained in this section of the Pattern Book with that presented in Section G: Home Owner's Guide.

DENTON VICTORIAN



Victorian Possibility



Fifth Avenue



Market Street

DENTON COLONIAL REVIVAL



Colonial Revival Possibility



Courthouse Square



North Second Avenue

DENTON CRAFTSMAN



Craftsman Possibility



Market Street



North Second Avenue



Essential Elements of the Denton Victorian

- Simple house massings with symmetrical, balanced facade compositions
- Steeply pitched, front-facing gable roofs
- Cut wood ornament to more simple, 'farmhouse' details
- Wood siding painted in a variety of related colors
- Narrower, vertically proportioned windows and doors
- Porches with delicate, spindle-like columns and narrow balusters, when present
- Architectural expressions like bay windows and occasional turrets

DENTON
VICTORIAN



The Victorian was the predominant house style at the height of Denton's development and was most popular during Denton's building booms. This style builds on the simpler, farmhouse forms found throughout the agricultural lands and farmsteads which dot the country roads between Eastern Shore towns. Denton's examples range from large, ornate family houses to those based on designs in Pattern Books published by Andrew Jackson Downing. All of the local examples reflect the same root architecture and design elements typical of Victorian houses throughout Maryland's Eastern Shore. These earlier pattern books made it easier for the builders to replicate the high-style of the era and populate whole towns with predominant architectural vocabularies. Denton is, unmistakably, a Victorian town in which there are many fine examples with subtle variations in massing and more creative porch details, special moldings, and ornament in some areas. Though the ornament is more restrained than that often referred to as 'gingerbread,' the town uses a rich palette of paint and trim colors that further express its Victorian character.















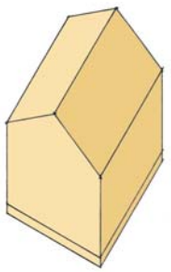


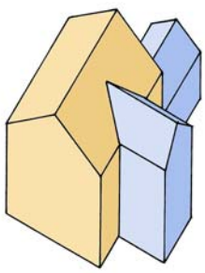


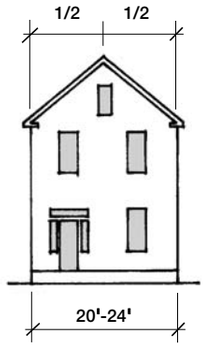
Massing and Composition

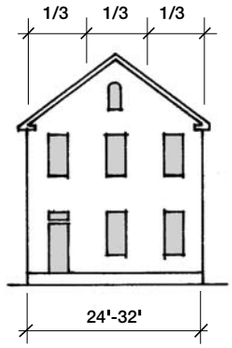
Narrow Front

- Rectangular volume with a roof pitch ranging from 8 to 12 in 12 for the main body. Porches are typically added on the front as either full front porches or wraparound porches.
- Compositions are generally symmetrical and consist of two, three, and five bays; the two and three bay types are the most common.



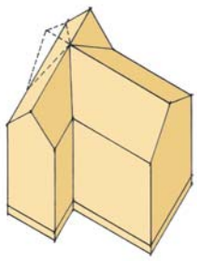


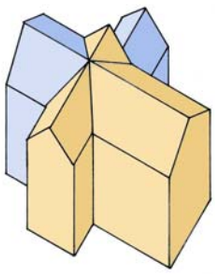


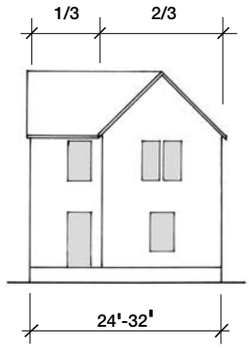


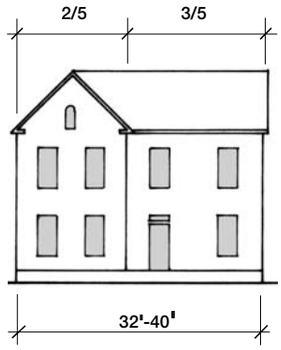
L-Shaped

- Houses with a narrow, gable-end wing with an 8 to 14 in 12 gable facing the street. The width of the gable facing the street is typically one-third to two-thirds that of the main body.
- Massing typically accommodates a one-story continuous porch that follows the plane changes in the facade, with a shed or hipped roof.



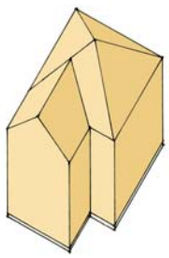


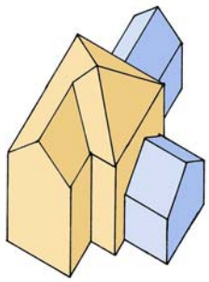


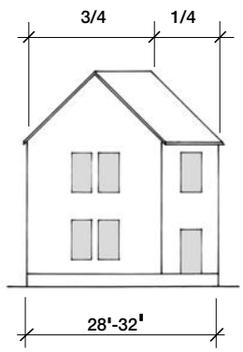


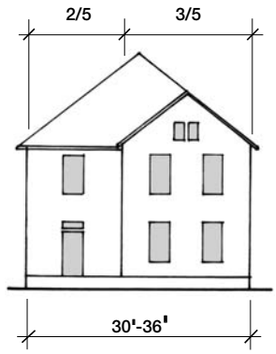
Gable L/Pyramidal

- Square volume with an often pyramidal, hipped roof from which a front-facing gabled wing extends. Roof pitches range from 8 in 12 to 12 in 12. Front porches extend the full width of the facade and often wrap the side(s).
- The width of the street-facing gable typically dominates the facade width.



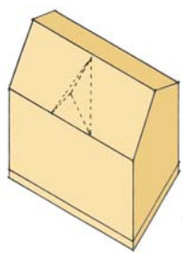


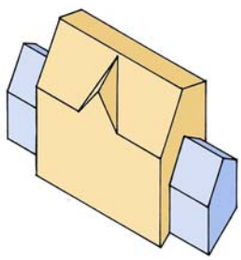


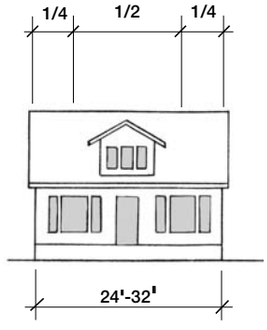


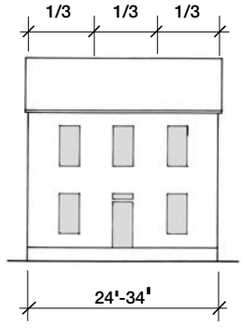
Side Gable

- Rectangular volumes with roof pitches ranging from 8 in 12 to 10 in 12. One-story shed porches are often placed symmetrically on the front facade.
- One-story side wings often occur.
- Massing typically accommodates a one-story continuous porch with a shed or hipped roof.
- The least common massing for Denton, though some examples occur.









Typical Wall Sections and Eaves

Roof

>> The roof pitch on most Denton Victorian houses varies from 8 to 14 in 12.

Eaves

>> Two eave types are typical: boxed eaves with frieze and boxed eaves with sloped soffit.

>> Boxed eaves have a 12- to 16-inch frieze board either touching or at least 8 inches above the window head trim. Eave returns should have metal flashing back to the wall at a maximum slope of 2 in 12.

>> Boxed eaves with sloped soffit, often hipped, at gables feature an overhang with simple decorative vergeboard.

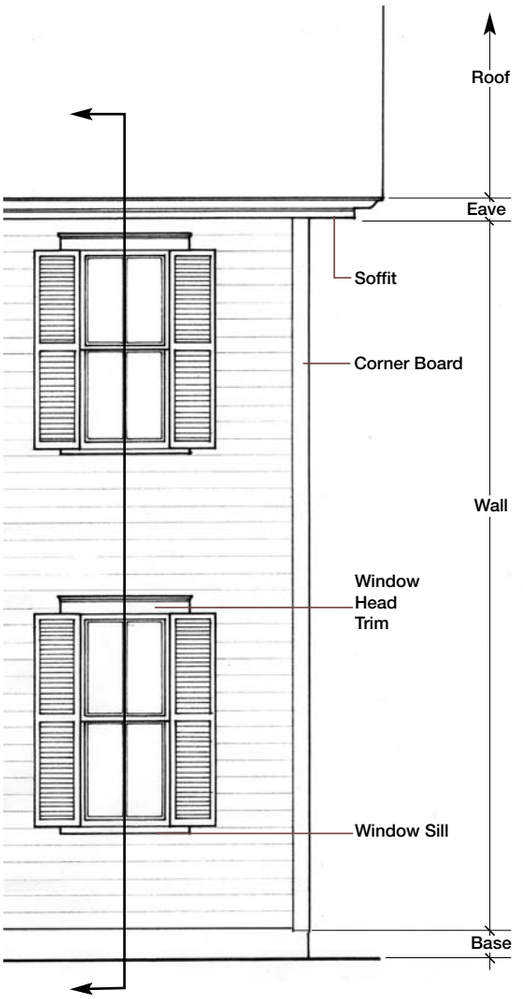
Wall Section

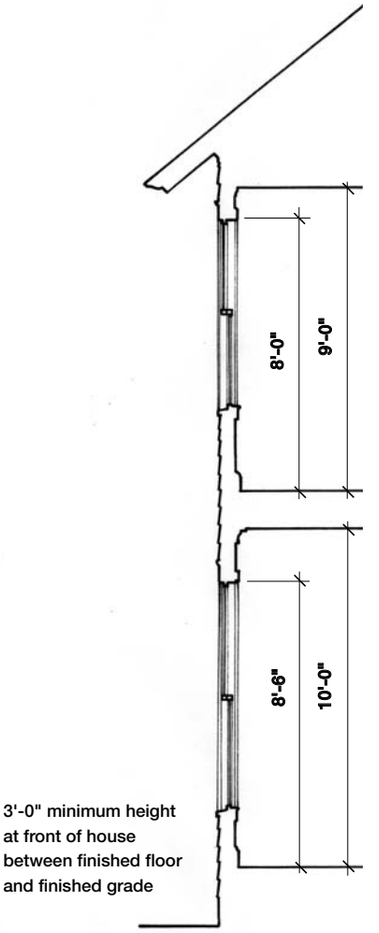
>> For one-story houses, the floor-to-ceiling height should be 9 to 10 feet. For two-story houses, the minimum floor-to-ceiling height is 10 feet for the first floor and 9 feet for the second floor.

>> Window head heights should be 8½ feet above the floor for first floor windows and 8 feet for second floor windows.

Base

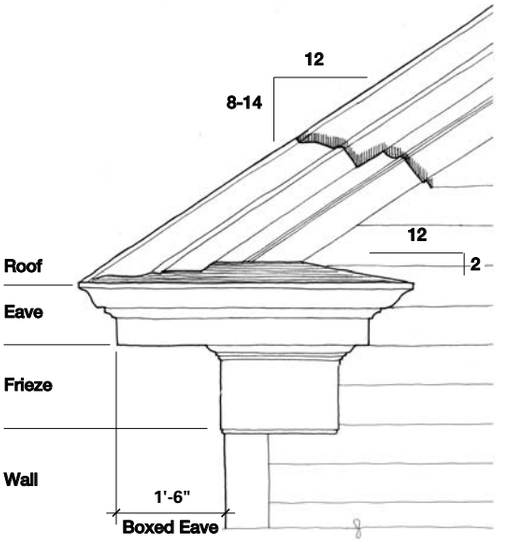
>> The first floor of the Denton Victorian house is set three feet above finished grade. Houses occasionally have an 8-inch skirt board. When foundation vents are used, they should be centered under windows.

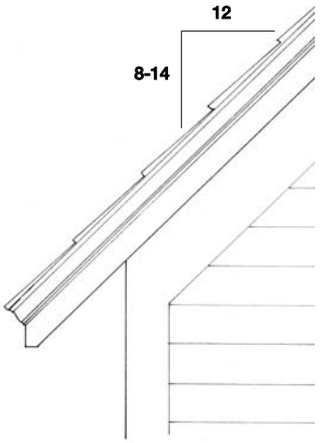












Windows and Doors

Standard Windows

- Windows are vertical in proportion and have a 2 over 2 or 1 over 1 muntin pattern; 2 over 2 is the most prevalent, and is preferred.
- Panes are always taller than they are wide. Standard windows are double hung.

Special Windows

- Some Denton Victorian houses feature round-top windows, box and angled bay windows, and shaped louvers in attics. Bay windows must project a minimum of 8 inches from the main structure and have a continuous base to the ground; two-story bays are common.

Shutters

- Shutters should be operable and in proportion with the windows they serve.
- Shutters bring accent colors to the facades.

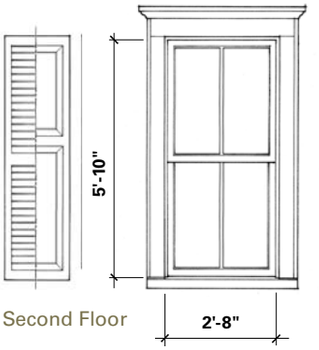
Doors

- Four-panel and six-panel patterns are common, two-panel patterns with glazing in the upper panel are also common.
- Often transoms appear above doors and lend themselves to the narrow Victorian proportions.

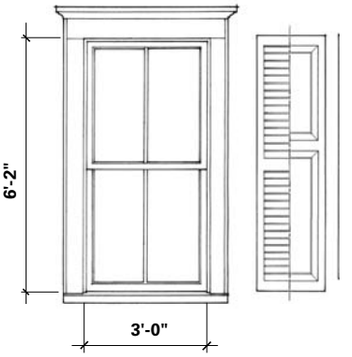
Trim

- 4- to 6-inch trim is typical with simple or limited numbers of profiles or a simple backband profile.
- Window and door trim carries a decorative crown and cap above.

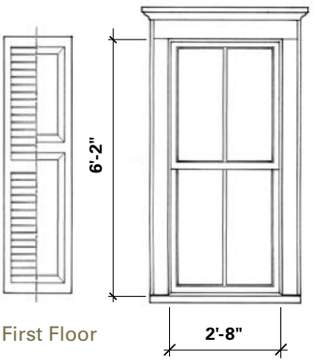
WINDOWS



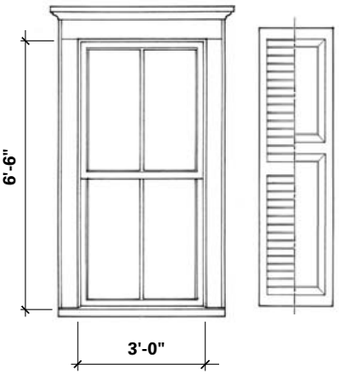
Second Floor





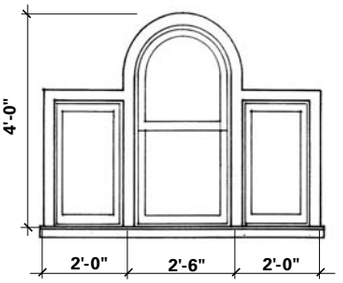


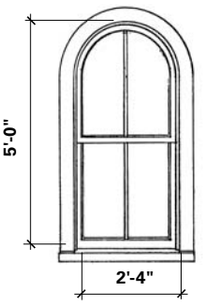
First Floor



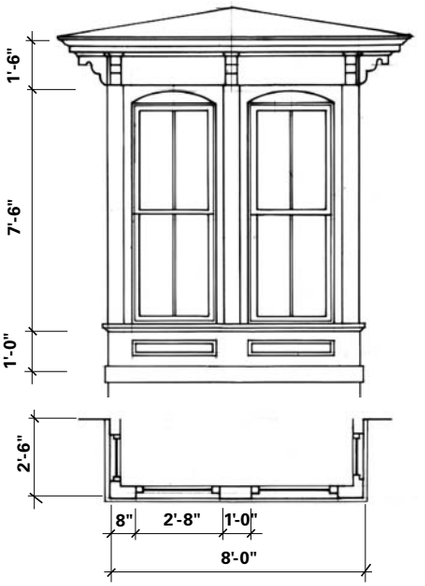


SPECIAL WINDOWS



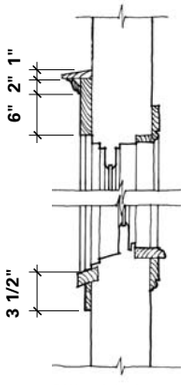


Accent Windows

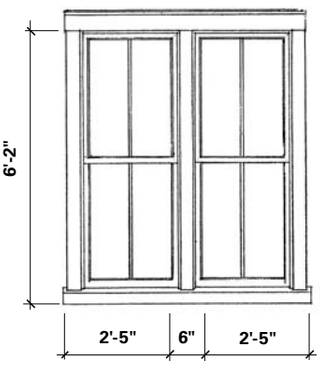


Box Bay Window

TYPICAL WINDOW DETAILS

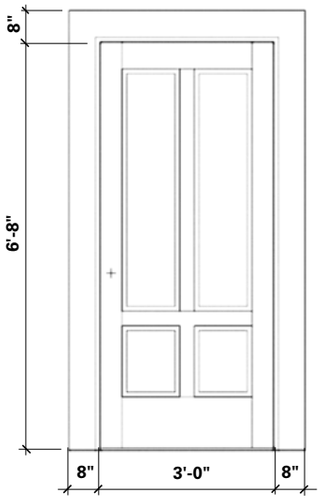


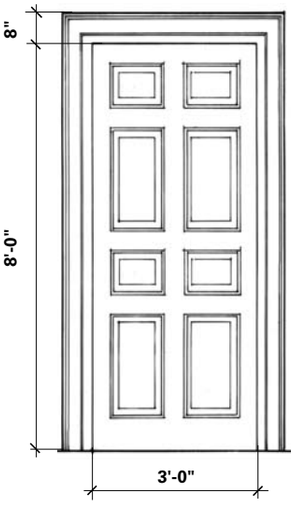
Sill with Apron



Double Window

SIMPLE DOORS

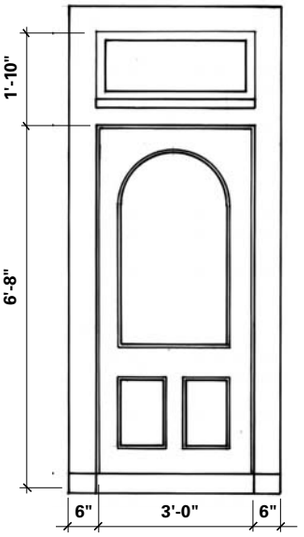


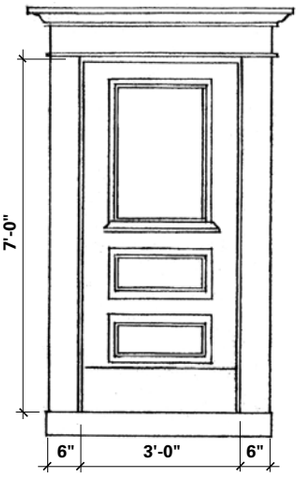






COMMON DOORS

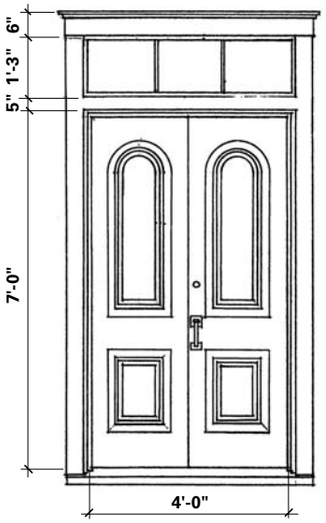


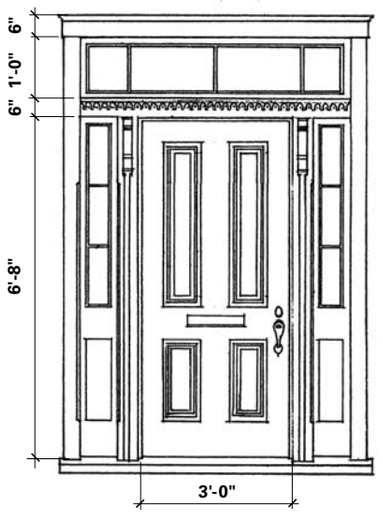






ELABORATE DOORS









Porches

Porch Location and Massing

- Full front porches are encouraged.
- Porches can be used to wrap the corner of a house, or fill in the void created by an L-shaped plan.
- Porches are typically one-story masses.
- Minimum recommended porch depth is 6 feet, although 8 feet is preferred.

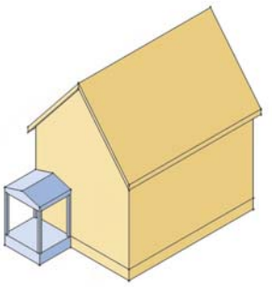
Porch Roofs and Eaves

- Porches can be one or two stories tall with flat, shed, or shallow hipped roofs (two-story porches are less common).
- Full porches may be integrated under the house's main roof.
- Shed or hip porches have a 3 in 12 to 4 in 12 pitch. Exposed 2 x 8 rafter tails typically occur every 14 to 16 inches on center.

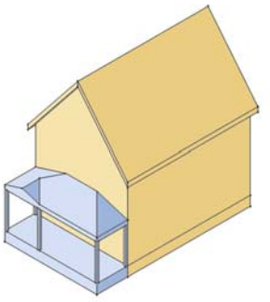
Columns and Railings

- Column types include 6-inch-square posts and 6- to 8-inch-diameter posts and carved spindles.
- First-floor columns are 9- to 10-feet tall, while second-floor columns are 8- to 9-feet tall.
- Turned or square balusters are spaced no more than 4 inches apart. Flat-cut ornamental balusters are also used with square columns.
- Square pattern lattice is used as infill between piers at the foundation.

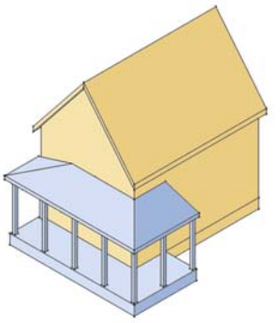
PORCH LOCATION



Front gable with single-bay porch at entry

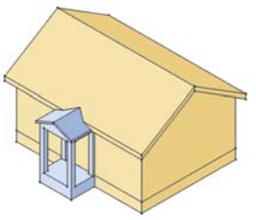


Front gable with full-front hipped-roof porch and gable signifying entry



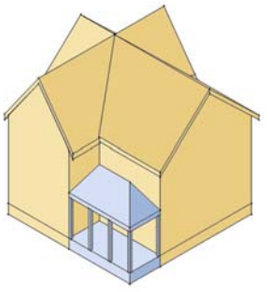
Front gable with full-front hipped-roof porch which returns two bays at corner

Simple



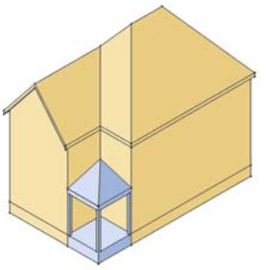
Single-story broad front with single-bay porch at entry centered on street-facing elevation

Common

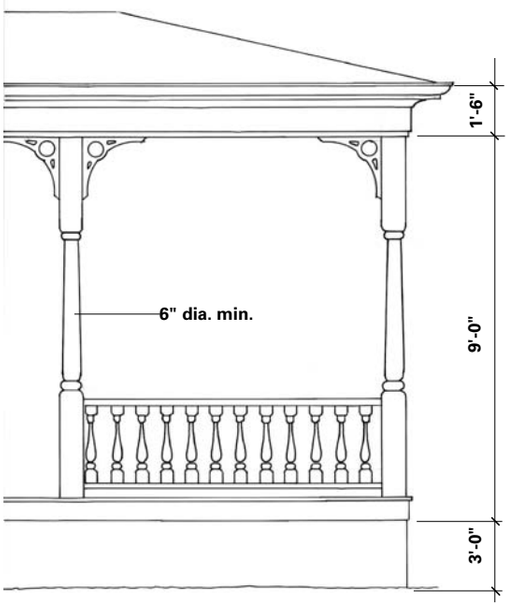


Gable-front L hipped-roof porch at entry

Elaborate



Gable L/Pyramidal with a hipped-roof porch at entry



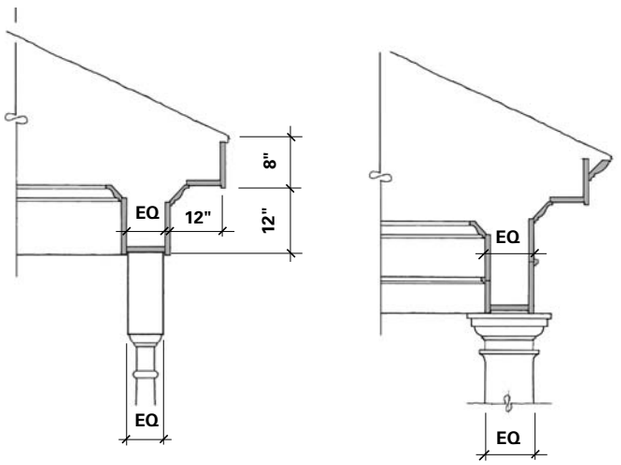




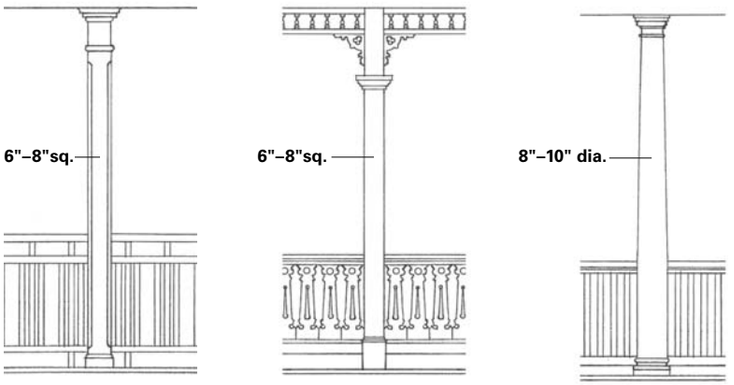


Materials and Applications

PORCH SECTIONS

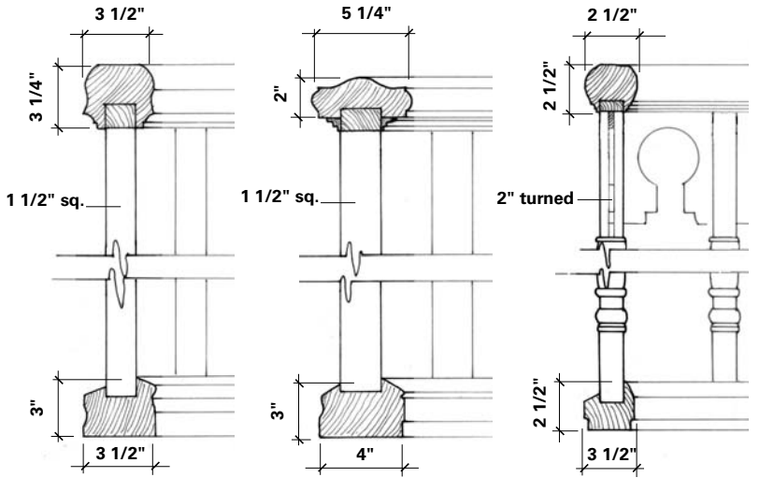


COLUMN TYPES



Chamfered Square | Square | Slender Doric

RAIL DETAILS



Roofing

- Sawn, laminated asphalt or composition shingles with a slate pattern, or painted metal standing seam or 5-V crimp panels

Soffits

- Smooth-finish composition board, tongue-and-groove wood boards, or fiber-cement panels

Gutters and Downspouts

- Half-round or ogee profile gutters with round or rectangular downspouts in copper, painted, or prefinished metal

Cladding

- Smooth-finish wood or fiber-cement lap siding, 4 to 6 inch exposure
- Smooth-finish brick, common bond
- Decorative cut wood or fiber-cement shingles in fishscale, diamond, and staggered patterns
- Vinyl siding approved by the Vinyl Siding Institute

Trim

- Wood, polyurethane, or composit millwork
- Manufacturer's vinyl profiles with integral concealed j-channel, engineered lumber rabbeted or over blocking to conceal the j-channel; exposed j-channel trim is not permitted

Foundations and Chimneys

- Brick veneer, smooth stucco, or cement parging finish

Windows

- Painted wood or composite, or clad wood or vinyl; true divided light or simulated divided light (SDL) sash with traditional exterior muntin profile (⅞ inch wide)

Doors

- Wood, fiberglass or steel with traditional stile-and-rail proportions and raised panel profiles, painted or stained

Shutters

- Wood or composite, sized to match window sash and mounted with hardware to either be or appear to be operable

Columns

- Square box column with chamfered corners in built-up wood, fiberglass or composite material
- Turned posts (minimum 6-inch stock) in wood, fiberglass or composite material

Railings

- Milled wood or composite top and bottom rails with square, turned or scroll-cut board balusters

Porch Ceilings

- Plaster, tongue-and-groove wood or composite boards, or beaded-profile plywood

Front yard Fences

- Wood picket or composite material to be rendered indistinguishable from wood, or metal with ornamental posts; low brick walls

Lighting

- Porch pendant, porch fanlight, or wall-mounted lantern





Essential Elements of the Denton Colonial Revival

- Simple, straightforward volumes with side wings and porches added to make more complex shapes
- Orderly, symmetrical relationship between windows, doors and building mass
- Simplified versions of Classical details and columns, occasionally with Classical orders used at the entry
- Multi-pane windows

DENTON

COLONIAL REVIVAL



Next to the Victorian, the Colonial Revival is the most prevalent architectural style found in Denton.This version of the style is typical for the Eastern Shore of Maryland and is based upon the Colonial Revival styles that were prevalent throughout the country in the late nineteenth and early twentieth centuries. During this era, elements from Classical and Georgian houses were combined and modified to produce a new vocabulary. This mixing of influences produced a wide variety of expression and form in the Colonial Revival house.

Denton's Colonial Revival houses often have tall, shuttered windows, entry porticos, and the occasional formal cornice treatment. The Colonial Revival style features the formal entry portico in place of the porch that is typically found on other architectural styles. However, to support the connection between the house and the public realm, elaborately paved front walks and formal landscaping are utilized. Formal rules of composition apply to the Denton Colonial Revival, distinguishing it from the Victorian. Windows are rarely paired, but placed on the facade in clear, symmetrical rhythms to reinforce the formality of composition. The Colonial Revival style is stately and remains close to Denton's colonial roots.










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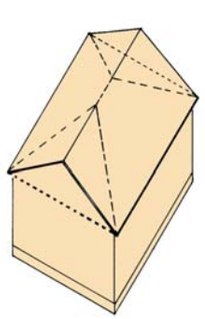


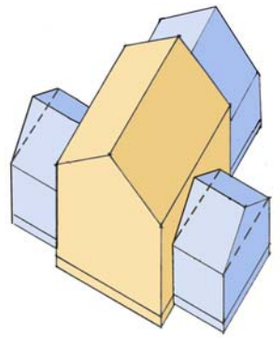


Massing and Composition

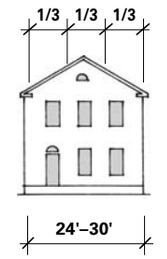
NARROW FRONT

- Front-gable box with roof pitches ranging from 7 in 12 to 12 in 12
- Two and three bay compositions are common
- Full front porches and side wings are common



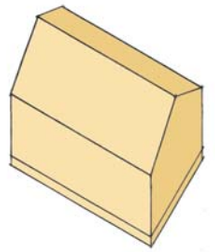


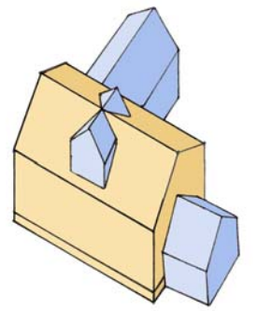




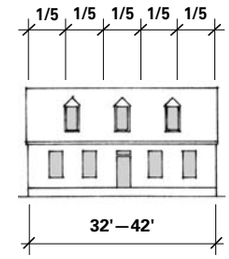
ONE-STORY BROAD FRONT

- Side gable rectangular volume with roof pitches ranging from 7 in 12 to 12 in 12
- Symmetrical compositions of doors and windows
- Porticos are one-third or one-fifth the length of the main body
- Porches, when present, are three-fifths or the entire length of the front facade
- One-story side wings often occur



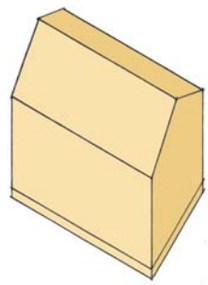


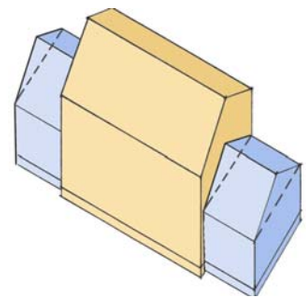




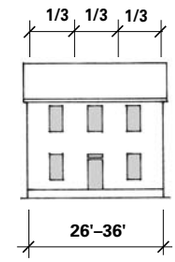
TWO-STORY BROAD FRONT

- Side gable rectangular volume with roof pitches ranging from 7 in 12 to 12 in 12
- Symmetrical compositions of doors and windows
- Porticos are one-third or one-fifth the length of the main body
- Porches, when present, are three-fifths or the entire length of the front facade
- One-story side wings often occur



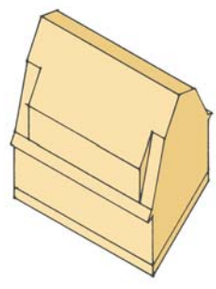


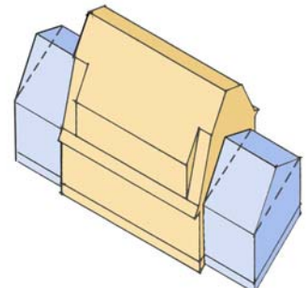


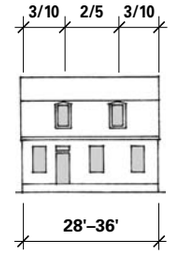


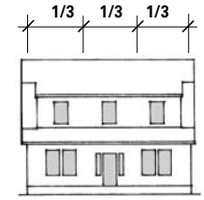
ONE-AND-ONE-HALF-STORY BROAD FRONT GAMBREL

- Rectangular volume with a gambrel roof containing a second story
- Symmetrical compositions of doors and windows are most typical, though there are more exceptions with this massing type
- Gambrel roofs have two roof pitches, 20 in 12 to 36 in 12 at the eave, and 6 in 12 to 10 in 12 above the pitch break
- Shed dormers are common to provide more living space









Typical Wall and Window Sections

Roof

>> The roof pitch on most houses varies from 7 to 8 in 12.

Eaves

>> The typical eave types include a simple boxed eave and more formal types with a frieze below the soffit and small profiled molding and dentils.

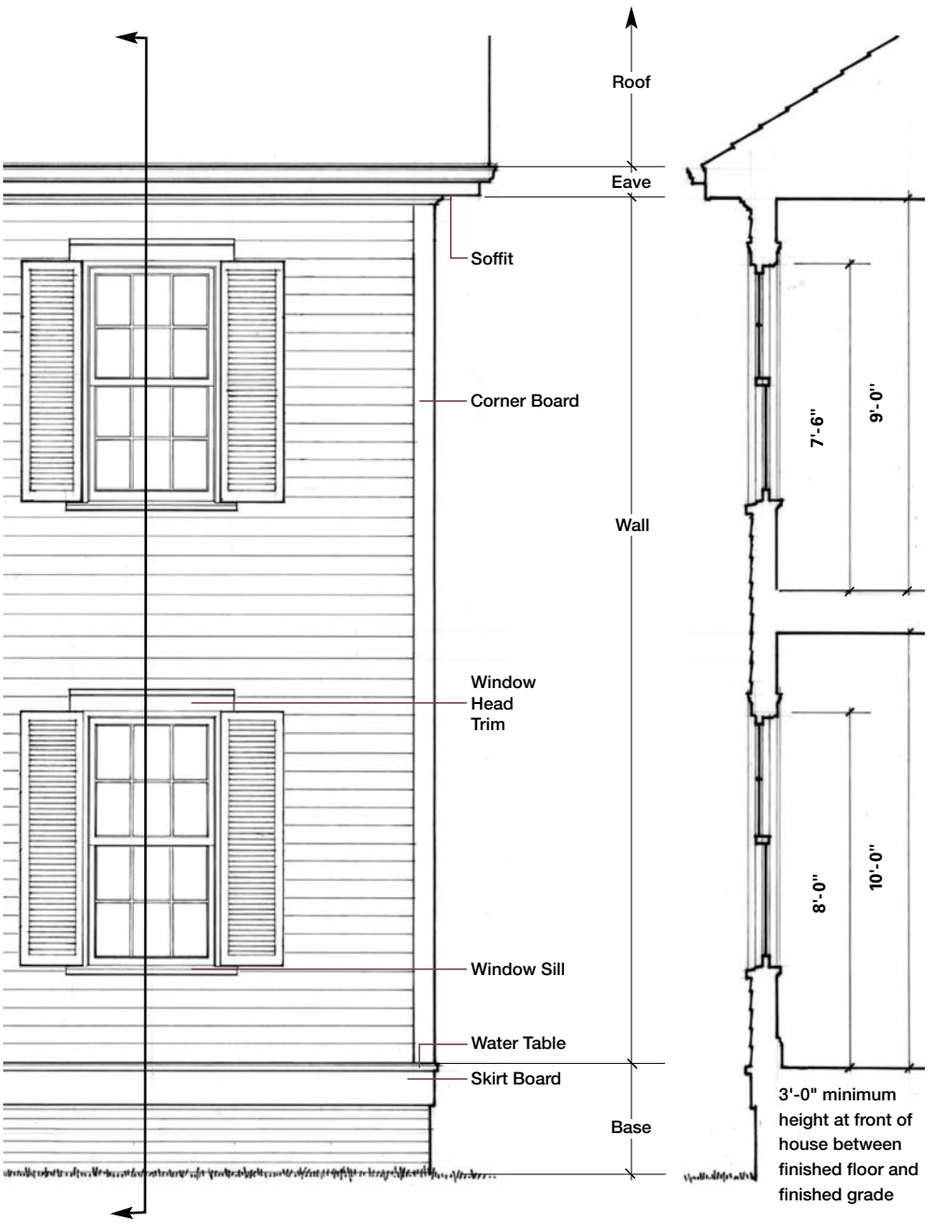
Walls

>> For one-story buildings, the minimum floor to ceiling height is 10 feet. For two-story buildings, the minimum floor-to-ceiling height is 10 feet for the first floor and 9 feet for the second floor. Windows head heights should be 8 feet 6 inches for the first floor and 7 feet 6 inches or 8 feet for the second floor for these heights. Corner boards for clapboard siding should be no less than nominal 5/4 by 6 inches.

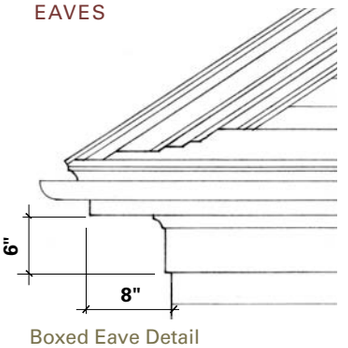
Base

>> The first floor of the house is typically set three feet above the finished grade. Houses occasionally have an 8-inch skirt board. When foundation vents are used, they should be centered under first floor windows.

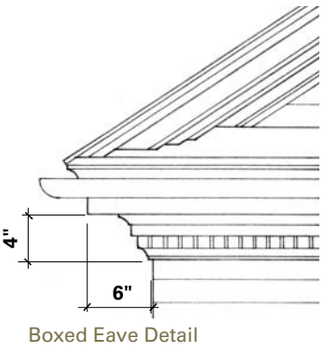




EAVES



Boxed Eave Detail



Boxed Eave Detail

Windows and Doors

Standard Windows

>> Windows have vertical proportions.

>> Muntin patterns are typically 6 over 1, 6 over 6, or 9 over 9 on both floors.

>> Standard windows are double hung.

Special Windows

>> Special windows include angled bay windows, triple windows, and dormers with a pediment.

>> Bay windows must extend to the ground.

>> Small rectangular or fan light windows are often used as an accent in gable ends or on the second floor above the entrance.

Shutters

>> Operable shutters are encouraged.

>> If shutters are inoperable, they should be sized and mounted as if operable.

Doors

>> Doors typically have six panels.

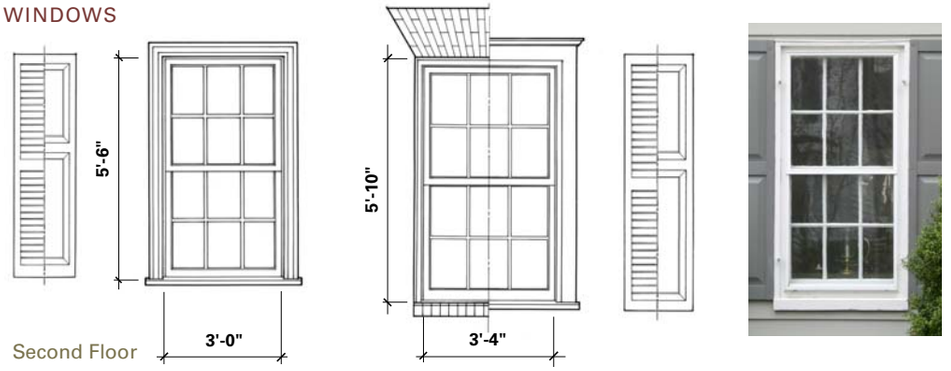
>> Door surrounds frequently incorporate sidelights and transoms.

Trim

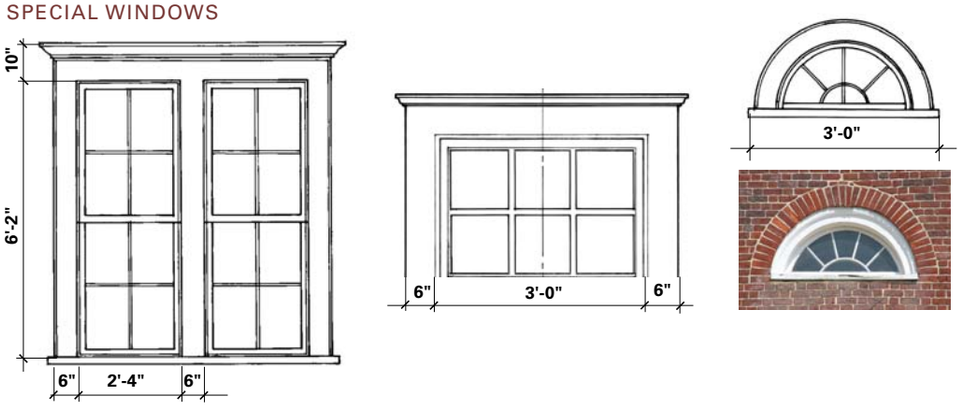
>> Windows and doors typically have a 6-inch-wide flat trim with or without a cap molding, or a 6-inch backband trim.

>> Brick buildings feature 2-inch brickmold.

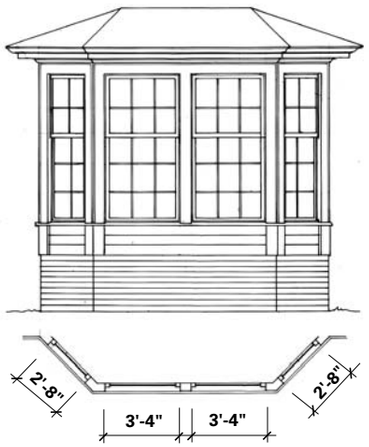
WINDOWS



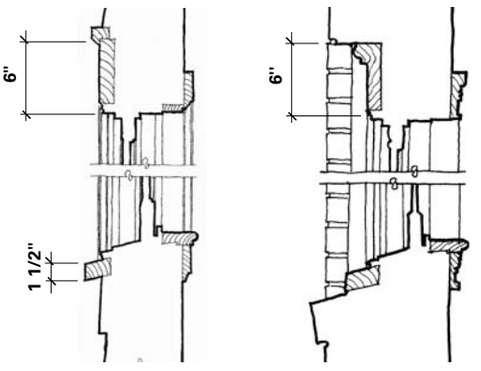
SPECIAL WINDOWS



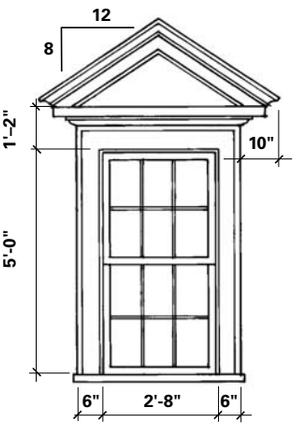
BAY WINDOW



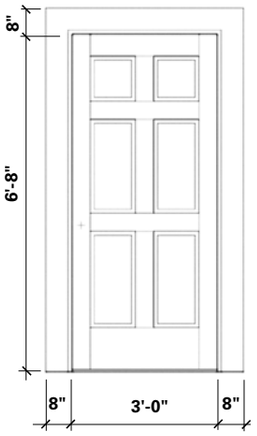
WINDOW SECTIONS

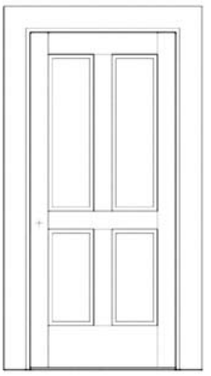


DORMER



SIMPLE DOORS



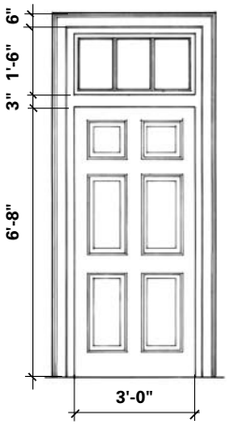


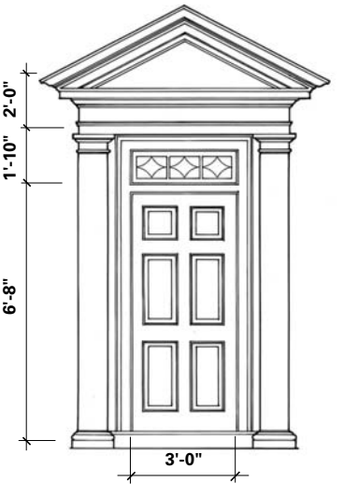
Four-panel alternative





COMMON DOORS

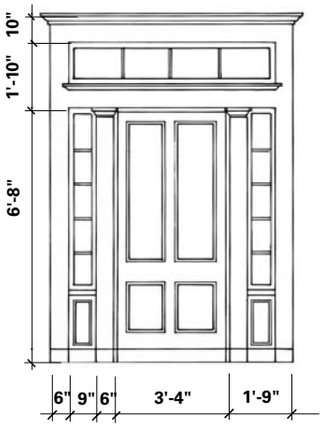


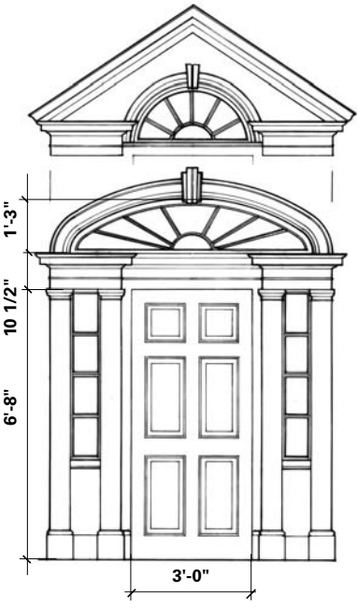






ELABORATE DOOR









Porches

Porch Location and Massing

>> Porches and porticos should be centered on the composition.

>> Minimum porch depth is 6 feet, 8 feet is desirable.

>> For wood deck porches, the gaps between brick piers are infilled with lattice panels. Solid porches should be faced in brick.

Roofs and Eaves

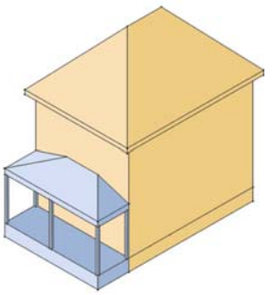
>> Porches are one story tall with either flat, shed, or shallow hipped-roofs. Shed or hip porches typically have a 3 in 12 to 4 in 12 pitch.

Columns and Railings

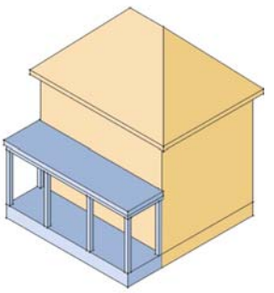
>> Columns include 10- and 12-inch round Doric and Ionic columns, pedestal-mounted 8-inch round, and 8- to 10-inch full-height tapered box columns.

>> Single-story porches have 9- to 10-foot-tall columns, and columns on two-story porches are 9- to 10-foot-tall on the ground floor and 8- to 9-foot-tall on the second floor.

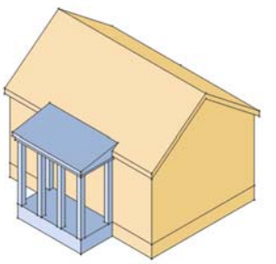
>> Porch column bays should be more narrow than wide. Balusters should be turned or square, and spaced no more than 4 inches on center.



Narrow front hipped roof with full front porch

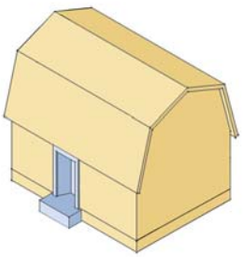


Broad front hipped roof with full front porch

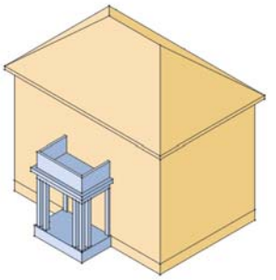


Broad front side gable with add-on porch

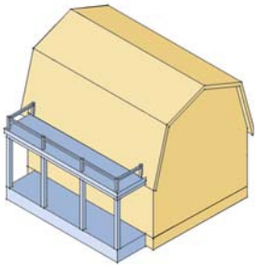
Simple | Common | Elaborate



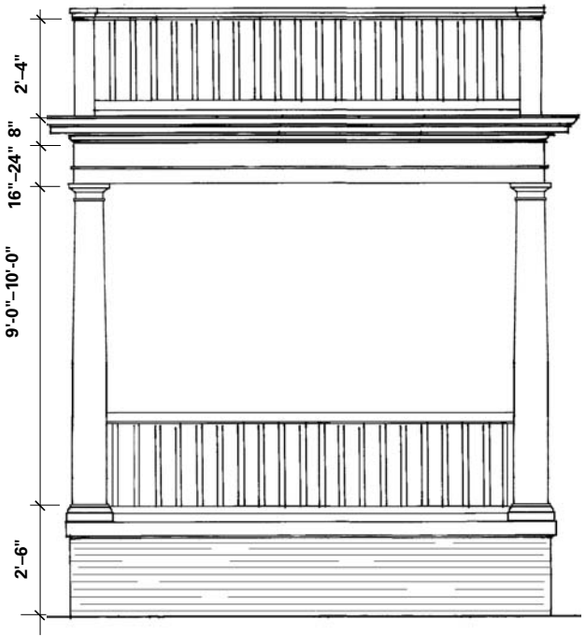
Broad front gambrel with inset entrance porch



Broad front hipped roof with front entrance porch



Broad front gambrel with full front porch



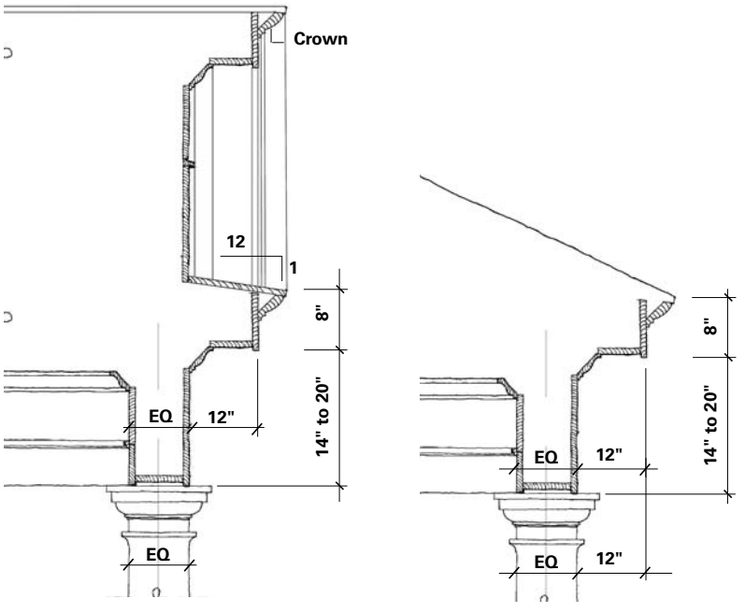




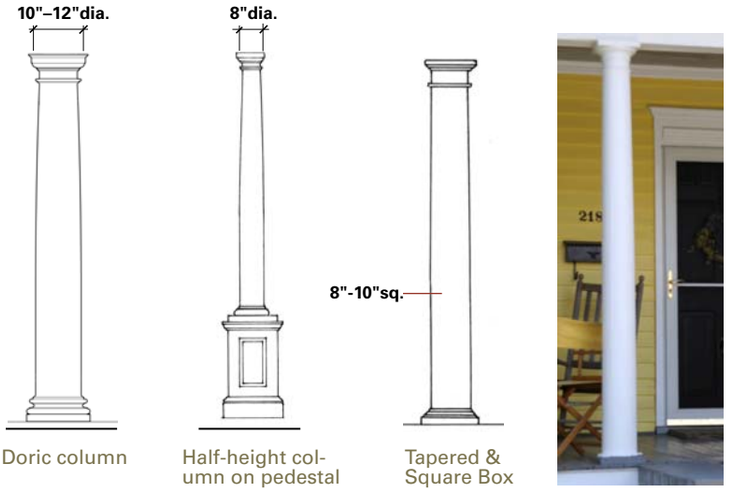


Materials and Applications

PORCH SECTIONS



COLUMN TYPES

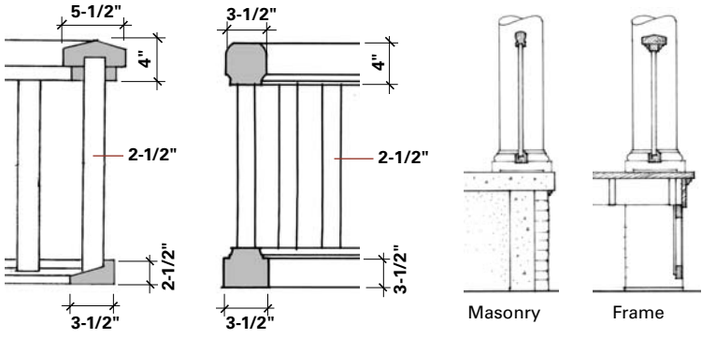


Doric column

Half-height column on pedestal

Tapered & Square Box

RAIL DETAILS



Masonry

Frame

Roofing

>> Sawn shingles, laminated asphalt or composition shingles

Soffits

>> Composition board with smooth finish, tongue-and-groove wood boards, or fiber-cement panels

Gutters and Downspouts

>> Half-round or ogee profile gutters with round or rectangular downspouts in copper, painted or prefinished metal

Cladding

>> Smooth-finish wood or fiber-cement lap siding, 6- to 8-inch exposure, or random-width cut shingles

>> Sand-molded or smooth-finish brick in Common, English or Flemish bond patterns

>> Vinyl siding approved by the Vinyl Siding Institute.

Trim

>> Wood, polyurethane, or composit millwork

>> Manufacturer's vinyl profiles with integral concealed j-channel, engineered lumber rabbeted or over blocking to conceal the j-channel; exposed j-channel trim is not permitted

Foundations and Chimneys

>> Brick veneer, smooth stucco, or cement parging finish

Windows

>> Painted wood or composite, or clad wood or vinyl; true divided light or simulated divided light (SDL) sash with traditional exterior muntin profile (⅞ inch wide)

Doors

>> Wood, fiberglass, or steel with traditional stile-and-rail proportions and raised panel profiles, painted or stained

Shutters

>> Wood or composite, sized to match window sash and mounted with hardware to either be or appear to be operable.

Columns

>> Architecturally-correct Classical proportions and details in wood, fiberglass, or composite material

>> More informal square wooden box columns

Railings

>> Milled wood or composite top and bottom rails with square or turned balusters

>> Wrought iron or solid bar stock square metal picket

Porch Ceilings

>> Plaster, tongue-and-groove wood or composite boards, or beaded-profile plywood

Front Yard Fences

>> Wood picket or composite material to be rendered indistinguishable from wood, or metal with ornamental posts; low brick walls

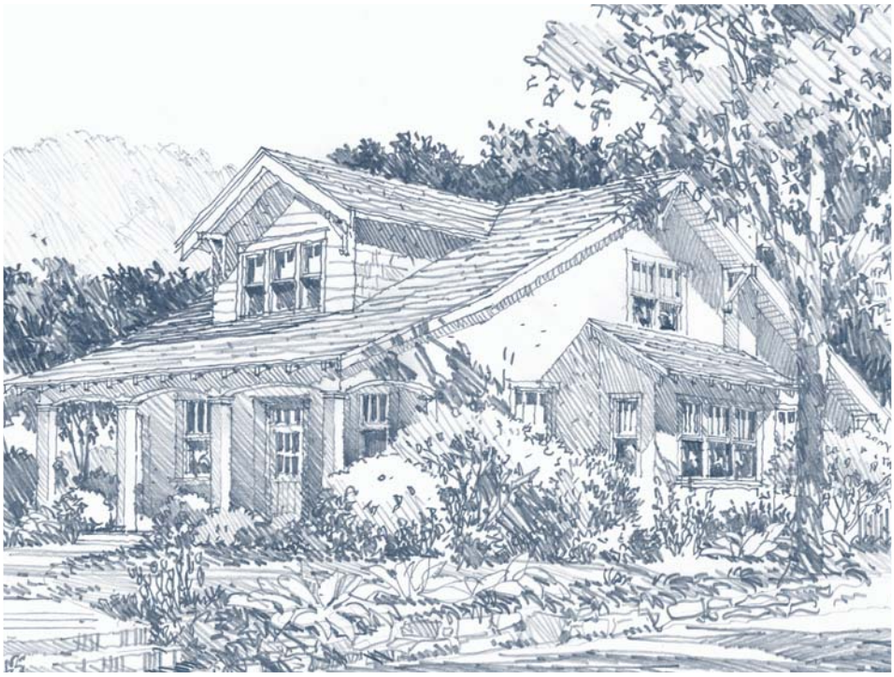
Lighting

>> Porch pendant, porch fanlight, or wall-mounted lantern



Essential Elements of the Denton Craftsman

- Shallow-pitched roofs with deep overhangs
- Deep, broad, horizontal porch elements with expressive structural components
- Expressive structural elements such as rafters, brackets, and columns
- Predominately crafted with siding
- Asymmetrical window and door compositions on two-story houses and symmetry in bungalows



DENTON

CRAFTSMAN



The Denton Craftsman style emerges from two different stylistic movements. First, the two-story examples evolved from Craftsman elements and details applied to largely Victorian two-story houses. These houses are less distinguished in style than the bungalows and cottages, yet they are distinctly Craftsman in their rugged, expressive detailing. The bungalow forms in the one- and one-and-a-half-story houses are often a product of local builders' use of elements from house plan publications and mail order sources. The Arts & Crafts movement espoused a simple decorative expression of structural elements and built-in furniture that builders found suitable for cottage houses. Building during this movement was prolific since bungalows suited well the residential needs of the time.

The Denton Craftsman style is characterized by broad, open porches, roofs with deep overhangs, and exposed rafter tails or decorative brackets; asymmetric compositions, though bungalows are more regular; grouped windows with a variety of upper muntin patterns; expressive trim; and porches with brackets. Columns on Craftsman houses are very diverse in both form and material, and are much less formal than in the other architectural styles represented in this Pattern Book.









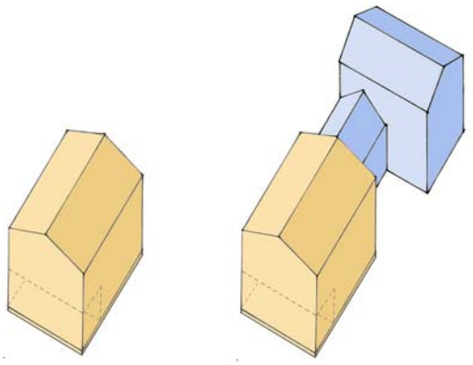


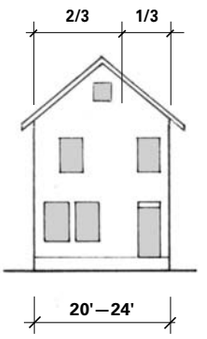


Massing and Composition

Narrow Front

- Rectangular volume with a 6 in 12 to 8 in 12 roof pitch and gable facing the street
- Symmetrically or asymmetrically placed front and /or shed roofed porches are common; either one- or two-story.
- An inset one-story porch may also run the full width of the house.

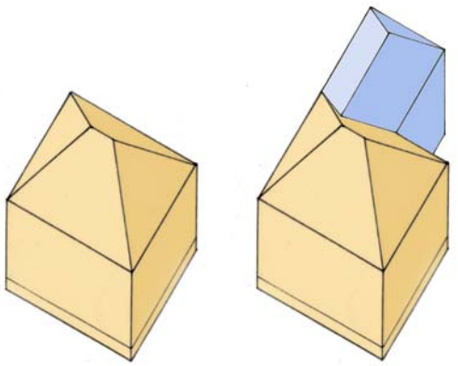




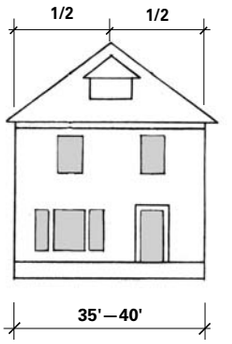


Hipped

- Rectangular or square volume with a 6 in 12 to 8 in 12 roof pitch; the ridge line, if any, runs parallel with the front of the house.
- Front gabled and/or shed roofed porches with a 3 in 12 to 5 in 12 pitch are placed symmetrically or asymmetrically on the front facade or as full-facade elements.
- Porches are typically one story.

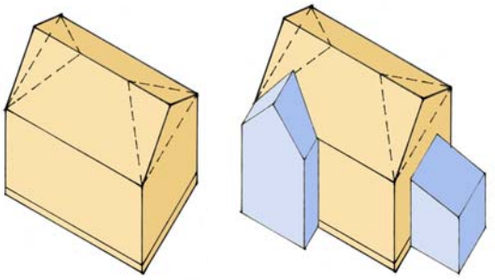


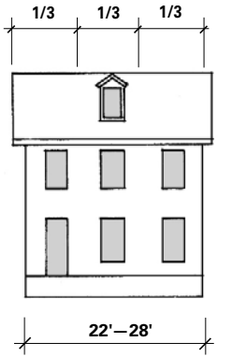


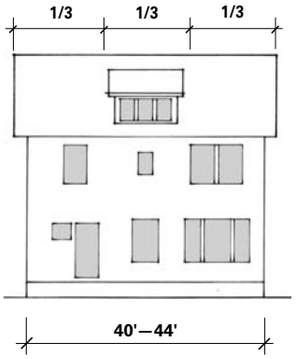


Broad Front

- Rectangular volume with a 6 in 12 to 8 in 12 roof pitch
- Asymmetrically placed gabled and/or shed roofed porches are common.
- Porches are typically one story.

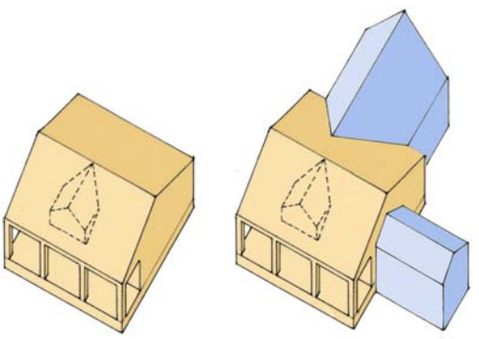


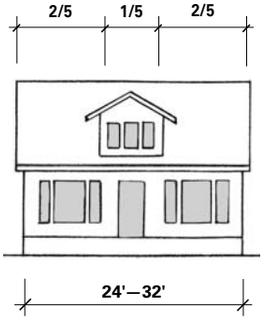


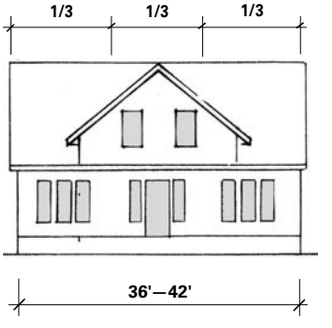


Broad front/Integral Porch

- Rectangular one-and-one-half-story volume with a 6 in 12 to 8 in 12 roof pitch.
- The integral porch is set under occupiable interior space, made possible by a dormer and high knee wall on the second floor.
- Integral front porches range from half to the full length of the front facade.
- Symmetrically placed gabled or shed dormers have a 3 in 12 roof pitch.







Typical Wall Sections and Eaves

ROOFS

>> The roof pitch on most houses varies from 6 to 8 in 12.

WALL

>> For one-story houses, the minimum floor-to-ceiling height is 9 feet. For two-story houses, the minimum floor-to-ceiling height is 9 feet for the first floor and 8 feet for the second floor. Window head heights should be 8 feet above the floor for first-floor windows and 7 to 8 feet for second-floor windows.

>> Cladding should be consistent on all facades of primary mass. Exceptions include: gables, dormers, and garages.

EAVES

>> Deep eaves are a dominant characteristic.

>> Open eaves typically have a 2 x 6 or 2 x 8 shaped rafter tail 16 to 24 inches on center. Gables feature deeper rake boards.

>> Boxed eaves often have profiled outriggers or brackets at 24 inches on center.

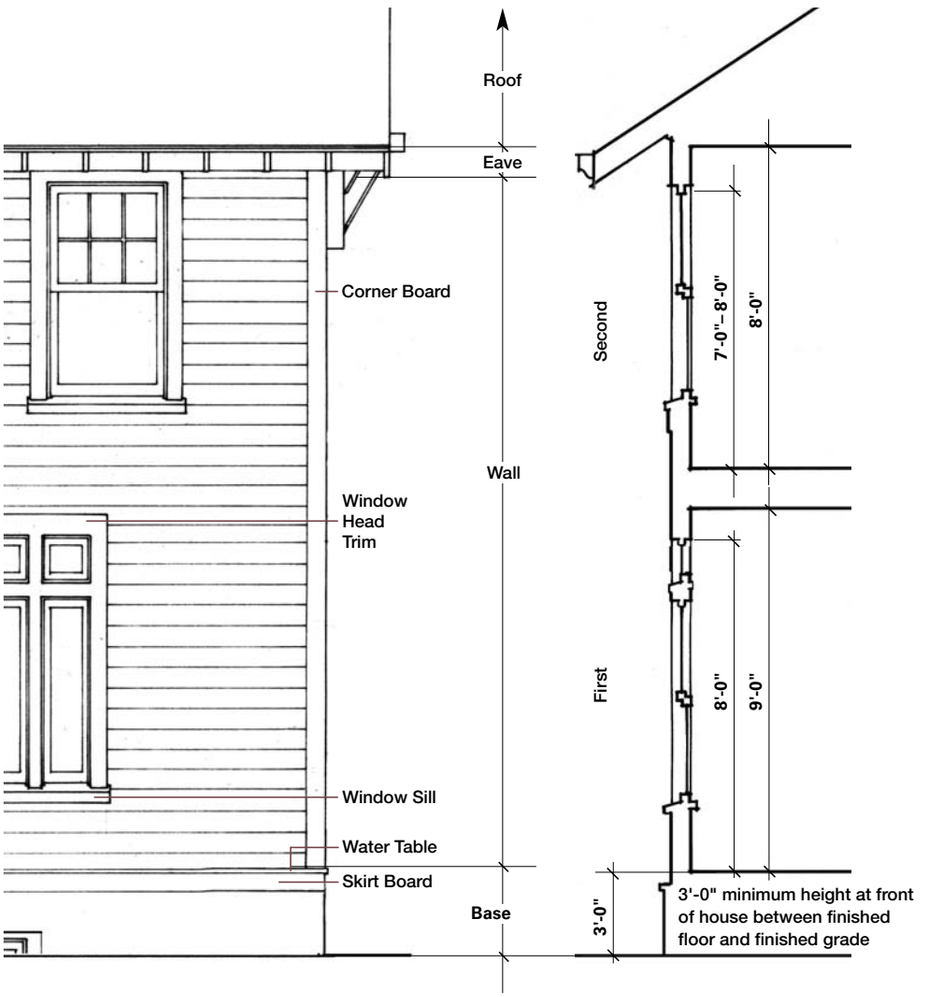
>> Frieze board, if used, is 8 to 12 inch either touching/co-planar with, or no more than 8 inches above the window head trim.

BASE

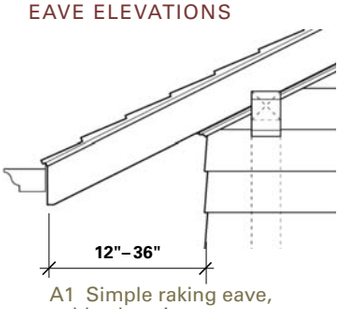
>> The first floor is typically set three feet above the finished grade. Wood clad houses have 8 to 10 inch wide skirt boards. When window wells are used, center under windows.



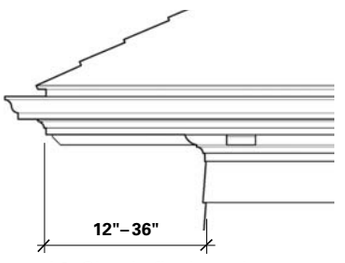




EAVE ELEVATIONS

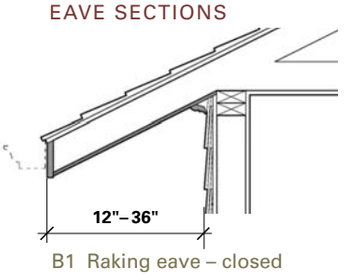


A1 Simple raking eave, gable elevation

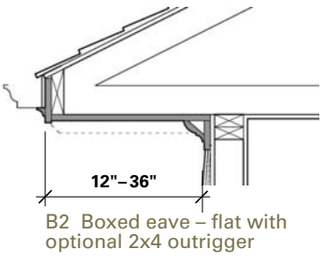


A2 Simple flat boxed eave, hip elevation

EAVE SECTIONS



B1 Raking eave – closed



B2 Boxed eave – flat with optional 2x4 outrigger

Windows and Doors

STANDARD WINDOWS

- Windows are typically vertical in proportion and have a 3 over 1, 6 over 1, or 9 over 1 muntin pattern.
- Standard windows are double hung.

SPECIAL WINDOWS

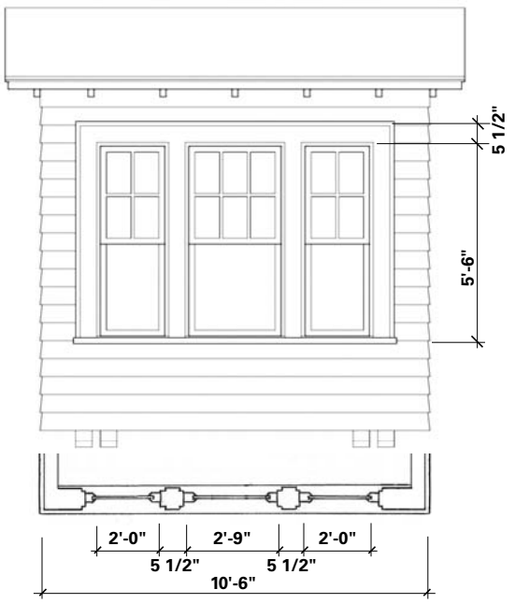
- Special windows include paired or triple windows, small square accent windows, and box bay windows supported on wood brackets.
- Broad, horizontal windows divided into several vertical panes occur in dormers and gables. Other dormer windows are ganged together in wide gabled or shed dormers.

DOORS

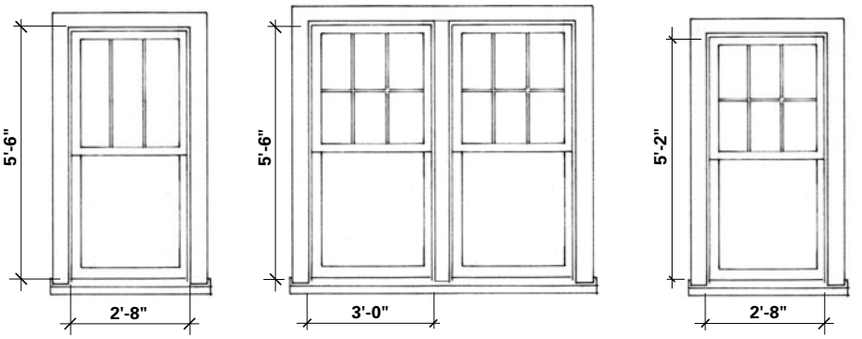
- Doors are often stained wood with either wood plank design or a panel door with the top half glazed.
- Doors may have sidelights or transoms

TRIM

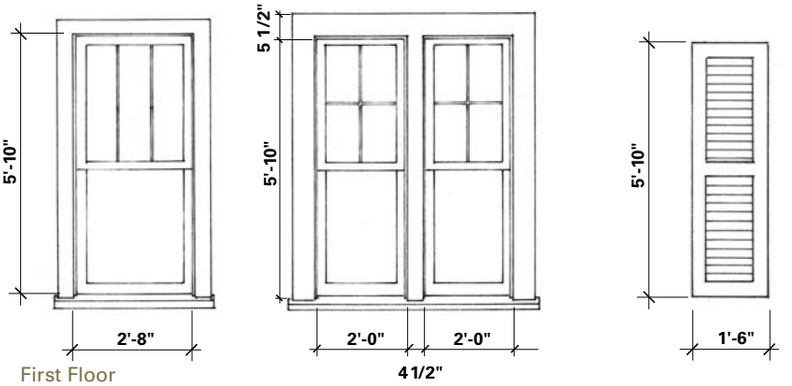
- Windows and doors have 6-inch straight or tapered flat trim.
- Window and door trim carries a simple molding and cap above.



WINDOWS

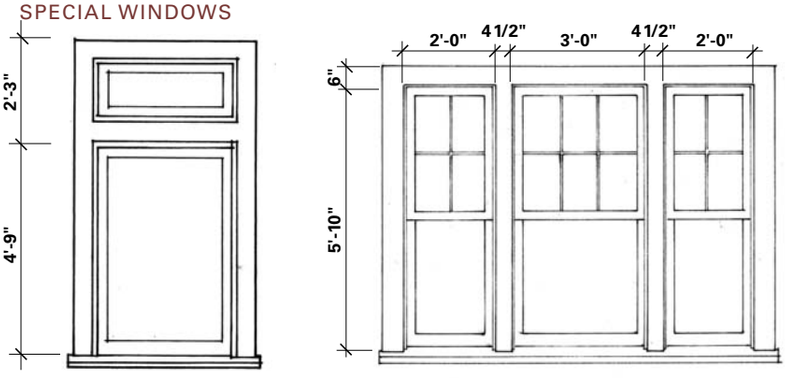


Second Floor

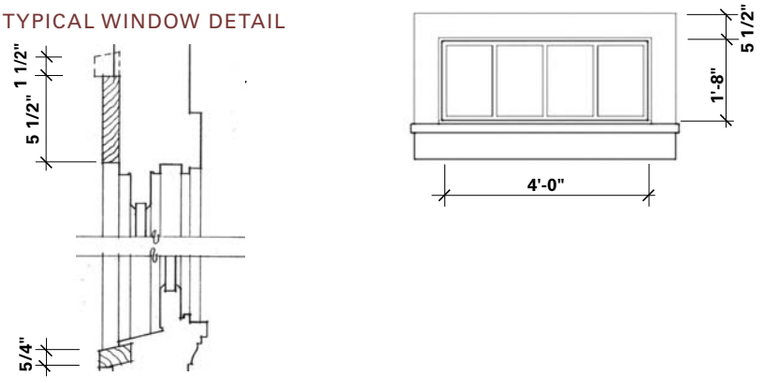


First Floor

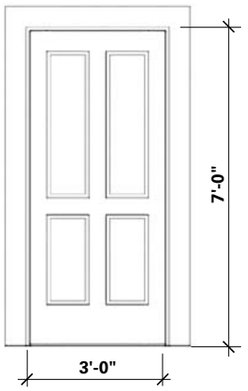
SPECIAL WINDOWS

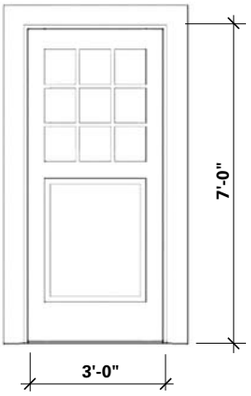


TYPICAL WINDOW DETAIL



SIMPLE DOORS

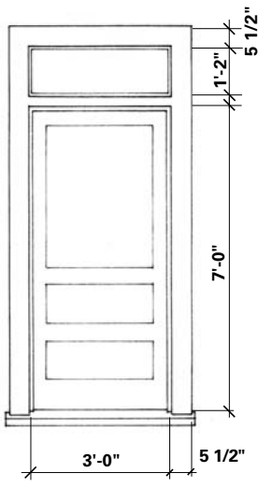


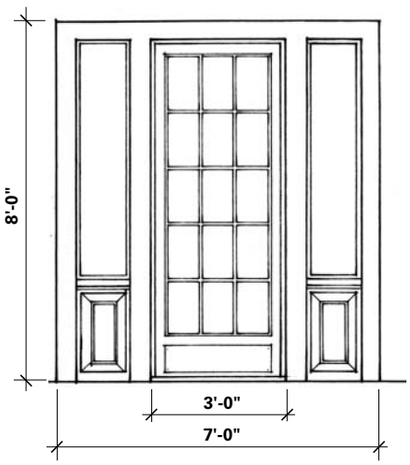






COMMON DOORS

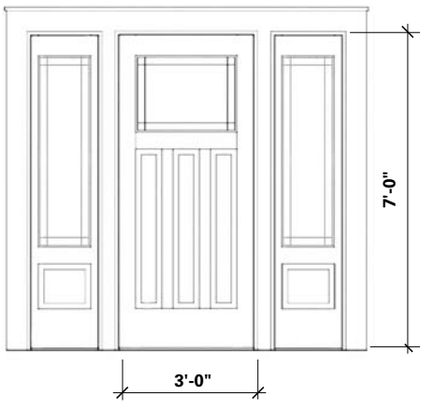


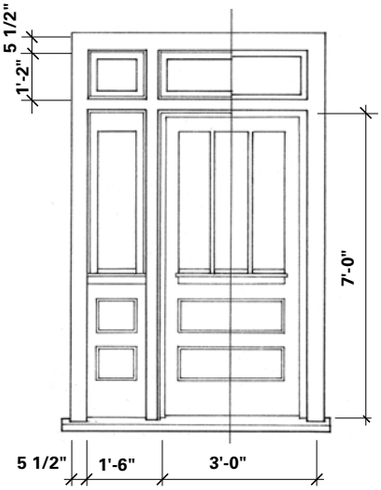






ELABORATE DOORS









Porches

PORCH LOCATION AND MASSING

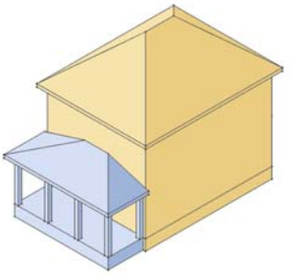
- Porches are broad and low when present, and can wrap the house or fill in the void created by an L-shaped house plan.
- Full front porches are encouraged. Minimum porch depth is 6 feet, but 8 feet is recommended.
- For wood deck porches, the gaps between brick piers are infilled with lattice panels. Solid porches should be faced in brick.

COLUMNS AND RAILINGS

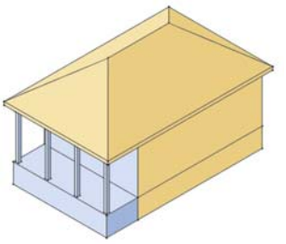
- Bungalows have Classically-styled columns set on square piers or solid porch balustrades. These porches are usually matched with bracketed box eaves.
- Columns include full-height tapered box, half-height paneled box, and three-quarter-height paired box columns.

PORCH ROOFS AND EAVES

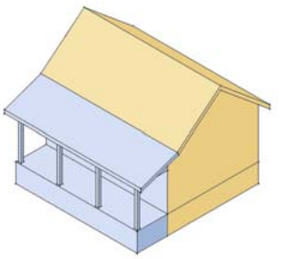
- Porches can have gable-ends, shed roofs or combinations of the two forms.
- Gable-end porches are designed to express structural elements. Shed and hip porches typically have a 3 in 12 to 4 in 12 pitch.
- Porches have deep eaves often repeating the same rafter or eave treatment as the main house body.
- Exposed rafter tails are either shaped or cut plumb.



Hipped roof double-story, with full front hipped porch



Hipped roof single-story, with full front inset porch

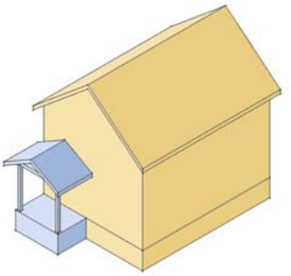


Side gable double-story, full front entry porch of shallower roof pitch

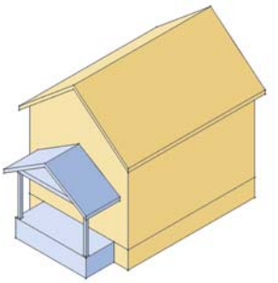
Simple

Common

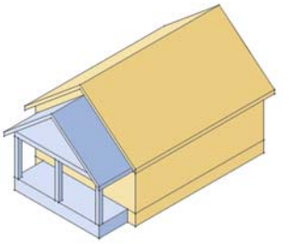
Elaborate



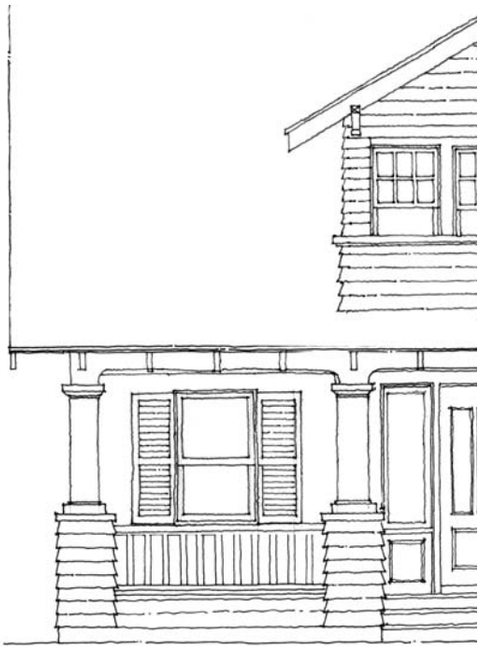
Front gable two-story, with single-bay porch at entry

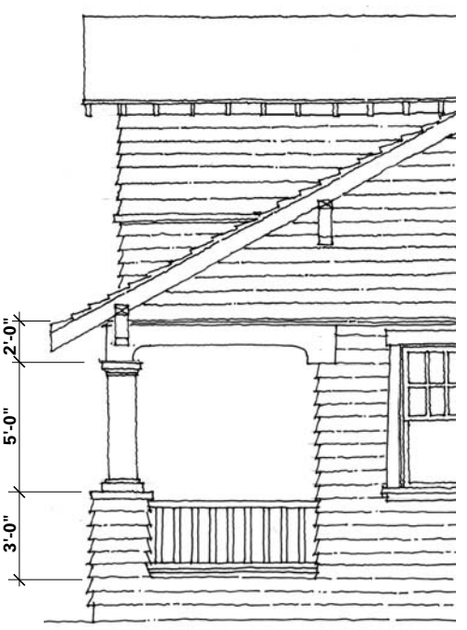


Front gable double-story, with centered two-bay porch at entry



Front gable single-story, with nested gable full front porch



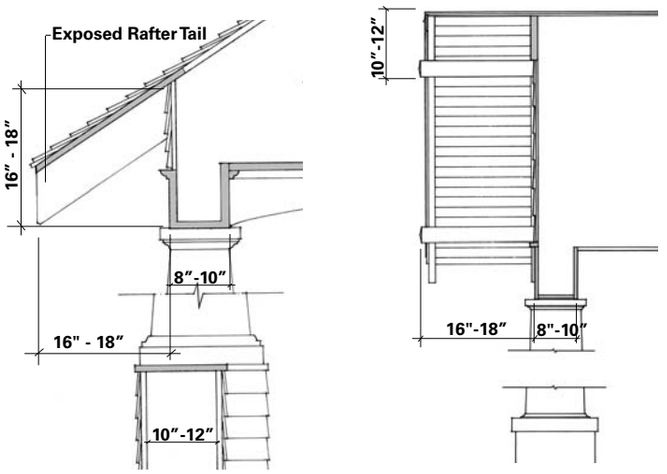




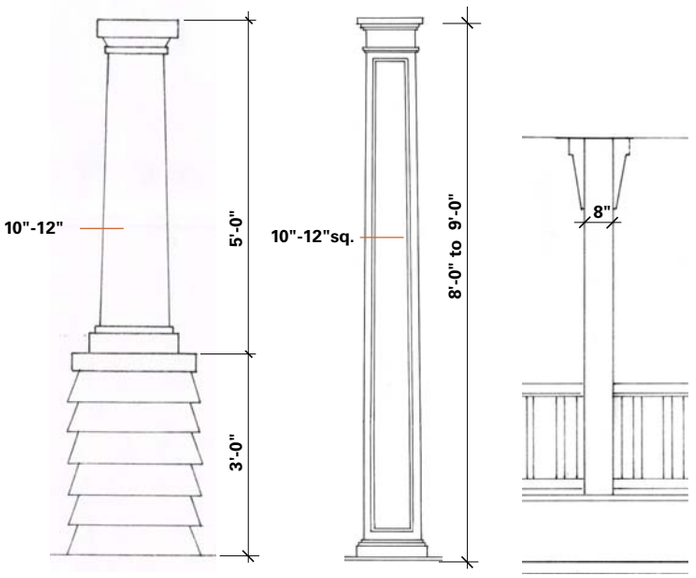


Materials and Applications

PORCH SECTIONS

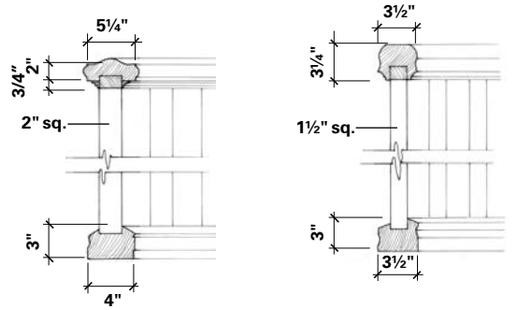


COLUMN TYPES



Column on Pedestal | Tapered Box | Single Post

RAIL DETAILS



Roofing

>> Cedar shakes, sawn shingles, laminated asphalt or composition shingles

Soffits

>> Composition board with smooth finish, tongue-and-groove wood boards, or fiber-cement panels

Gutters and Downspouts

>> Half-round or ogee profile gutters with round or rectangular down spouts in copper, painted or prefinished metal

Cladding

>> Smooth-finish wood or fiber-cement lap siding, 4 to 8 inches exposure, with mitered corners or ¾ x 6-inch corner board trim

>> Random-width cut wood or fiber-cement shingles with mitered corners or ¾ x 6-inch corner board trim

>> Smooth-finish brick in common bond pattern

>> Vinyl siding as approved by the Vinyl Siding Institute

Foundations, Piers and Chimneys

>> Brick veneer, smooth stucco, or cement parging finish

Trim

>> Wood, polyurethane, or composit millwork

>> Manufacturer's vinyl profiles with integral concealed j-channel, engineered lumber rabbeted or over blocking to conceal the j-channel; exposed j-channel trim is not permitted

Shutters

>> Wood or composite, sized to match window sash and mounted with hardware to either be or appear to be operable.

Windows

>> Painted wood or composite, or clad wood or vinyl; true divided light or simulated divided light (SDL) sash with traditional exterior muntin profile (⅞ inch wide)

Doors

>> Wood, fiberglass or steel with traditional stile-and-rail proportions and panel profiles, painted or stained

Columns

>> Wood, fiberglass, or composite material

Railings

>> Wood or composite top and bottom rails with square balusters

>> Solid rails clad in siding, shingles, brick or stone veneer

Brackets

>> Wood or fibercement

Porch Ceilings

>> Plaster, tongue-and-groove wood or composite boards, or beaded-profile plywood

Front Yard Fences

>> Wood picket or composite material to be rendered indistinguishable from wood, or metal with ornamental posts; low brick walls

Lighting

>> Porch pendant, porch fanlight, or wall-mounted lantern



Materials and Methods (For All Styles)

Material Usage

The use and placement of materials are very important in constructing a house of lasting value that fits in with its environment. Because of its durability, brick is an important building material. Three options are shown for brick placement, all of which respect the historic usage patterns of brick as well as prevent poor detailing in transitioning between brick and other facade materials.

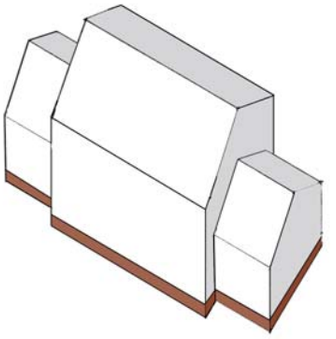
Window and Door Placement

Windows and doors should be placed to provide natural light to all rooms in a house. Do not neglect the side facades, where windows and doors can be used to animate those building faces as well as provide as much natural light as possible to the interior of the house. Side windows are particularly important on houses on corners and those that wrap along curving streets and spaces.

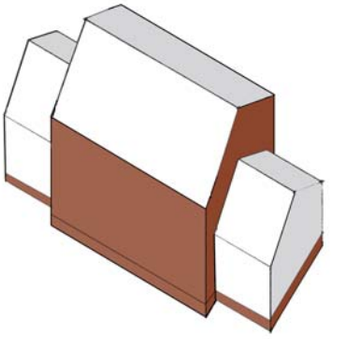
Main Body Massing

The desire for large houses often results in houses that look oversized for their lots. A common problem, this issue can be dealt with by maintaining a main body size or mass that is no larger than 44 feet wide. In studies of historic houses in Denton and across the United States, wings and additions that are of a different scale are used to add floor area, not an extrusion of the main body of the house. Wings should be set back from the main body facade a minimum of 4 feet to provide visual definition. If a wing is a garage, it should be set back at least 8 feet to hide the parking of an adjacent automobile.

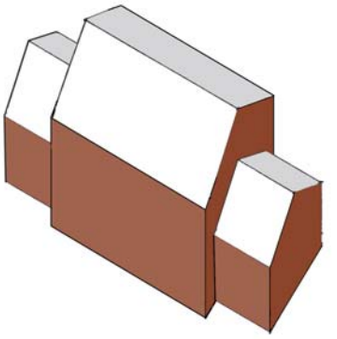
MATERIALS: USE OF BRICK



1 Wrap the entire foundation of the house with brick.



2 Use brick on the entire foundation and all sides of the main body, with wings of other materials.



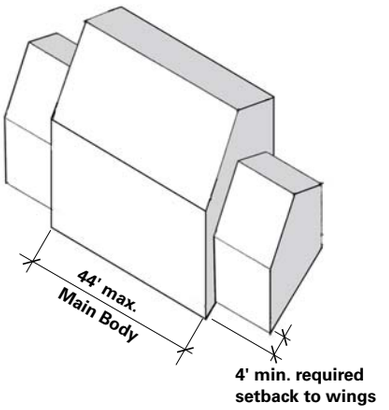
3 Use brick on all sides of the main body and wings.

WINDOW AND DOOR PLACEMENT



Houses need windows on all sides. Windows must occur on the side of the main body and wings.

SCALE OF HOUSE AND WINGS



Architectural Resources

The following partial list of national manufacturers of building products, developed by Urban Design Associates, provides a starting point for home owners searching for appropriate home improvement materials. These products have been selected due to their appropriateness for the architectural styles outlined in the Pattern Book.

Windows

Marvin (http://www.marvin.com)
- >> Wood double-hung and casement
- >> Clad double-hung and casement with aluminum trim accessories
- >> Replacement sash with profiled aluminum panning
- >> Wood or clad simulated divided lights (SDL)
- >> French doors

Caradco (http://www.jeld-wen.com/windows/wood/caradco)
- >> Wood double-hung and casement
- >> Clad double-hung and casement with aluminum trim accessories
- >> Wood or clad simulated divided lights (SDL)
- >> French doors

Windsor (http://www.windsorwindows.com)
- >> Wood double-hung and casement
- >> Cellular PVC Legend Series double-hung and casement
- >> Wood or PVC simulated divided light (SDL)
- >> Direct set transoms and sidelights

Entry Doors

Simpson (http://www.simpsondoor.com)
- >> Wood doors: Appropriate for all styles; hard to find Arts & Crafts door (#1662) is less than $400; several hard-to-find 2-over-3-light Victorian doors; European Romantic doors

Nord (http://jeld-wen.com/windows/wood/norco)
- >> Wood doors: Classical and Colonial Revival styles, some Victorian and European Romantic doors

ThermaTru (http://www.thermatru.com)
- >> Fiberglass and Premium Steel Series
- >> Steel Doors: Classical, Colonial Revival and Victorian styles; acceptable European Romantic and Arts & Crafts doors

Stanley (http://www.stanleyworks.com)
- >> Fiberglass and steel doors: Classical, Colonial Revival and Victorian styles; acceptable European Romantic doors

Peachtree (http://www.peach99.com)
- >> Fiberglass and steel doors: Classical, Colonial Revival and Victorian styles; acceptable European Romantic doors

Screen and Storm Doors

Paul Argoe Screens, Inc.

J&L Shutters (http://www.jlshutters.com)
- >> Stephen Fuller Signature Series (composite shutters, Permex)

Columns

Turncraft (http://www.turncraft.com)
- >> Architecturally correct round and square composite and wood columns; Arts & Crafts tapered square *Polybox*; composite columns

Column and Post (http://www.columnpost.com)
- >> Architecturally correct round and square composite columns

Somerset (http://www.somersetcolumns.com)
- >> Architecturally correct round and square wood columns and pilasters

HB&G (http://www.hbgcolumns.com)
- >> PermaPorch system: Cellular pvc; 2x2 square or turned balusters with 'Savannah' top rail

Shutters

Southern Shutter Company (http://www.southernshutter.com)

Paul Argoe Screens, Inc.

Exterior Siding (synthetic options)

James Hardie (http://www.jameshardie.com)
- >> Hardiplank (fiber cement)lap siding, shingle, panel, and soffit products

Georgia-Pacific (http://www.gp.com)
- >> Fiber cement cladding board

Vinyl Siding Institute (http://www.vinylsiding.org)
- >> Approved vinyl siding

Exterior Molding, Trim and Brackets (synthetic options)

Chemcrest (http://www.chemcrest.com)
- >> Classic Moulding and Door: Crown, bed, casing, and brackets in polyurethane

Azek (http://www.azek.com)
- >> Cellular PVC flat sheet (4 x 8, 4 x 10 and 4 x 12 feet) for gables, soffits, etc. ¾"-thick trim boards, ⅝"-thick trim boards (4" and 6" widths), tongue-and-groove paneling

Royal Wood (http://www.royalwood.com)
- >> Composite 1x trim boards, brickmold and T&G paneling for porch ceilings

Fypon or Duraflex (http://www.fypon.com)

Porch Ceilings

Georgia-Pacific (http://www.gp.com)
- >> *PlyBead Classic* or T&G beaded paneling

Fencing (synthetic options)

Kroy (http://www.kroybp.com)
- >> Classic Manor Collection: Vinyl fences in traditional designs and profiles

Garage Doors

Designer Door (http://www.designerdoors.com)

Clopay Doors (http://www.clopay.com)

Roof Shingles and Tiles (synthetic options)

Majestic Skylines (http://www.majesticskylines.com)
- >> Synthetic slate

Owens Corning (http://www.miravistaroof.com)
- >> MiraVista specialty roofing: synthetic shakes, slate, copper, and metal
- >> Berkshire Collection: composite shingles

SECTION F

GREEN BUILDING GUIDELINES

Whether the term used is green building, sustainable design, or high performance buildings, all refer to the planning, design, construction, and maintenance of buildings that are energy-efficient, healthy, and environmentally friendly. The Denton Pattern Book presents an unprecedented opportunity to help developers and home owners incorporate green building strategies and systems into existing houses, infill and redevelopment, as well as new construction.

Although traditional and older architecture in Denton uses climatically responsive design strategies that enhance human comfort without the use of electricity such as porches, tall ceilings, large windows, and roof overhangs, newer houses generally have relied almost exclusively on fossil-fuel-dependent mechanical systems for heating and cooling. Whether the energy source is electricity, gas, oil, wind, or solar, increasing the efficiency of a house reduces energy bills and lessens the negative effect on the environment. Using 30% less energy translates directly into financial savings. Moreover, the small increase in up-front construction costs attributable to energy efficiency measures will be returned in longer-term savings to the home owner or renter. Green building strategies are important, therefore, not only because of their environmental and human benefits, but for the cost savings and increased affordability they provide.

A systems approach is essential to successful green building and every well-designed, energy-efficient building incorporates an interrelated roster of active and passive elements that control, move, circulate, or retain energy, air, and water to achieve human comfort, functionality, and safety. For example, climate and solar orientation should be factored into to decisions about the location and number of windows. Insulation choices, tightness of the building envelope, and foundation choices all contribute to the size of the heating-ventilation-air conditioning (HVAC) system. Buildings that are designed to interrelate these elements achieve greater energy efficiency, comfort, safety, and affordability for their owners and occupants.

Strategies

Active Energy–Efficient Strategies

Energy-efficient houses provide significant benefits including reductions in energy demand, utility costs, and pollution, as well as enhanced human comfort, health, durability, quality, and control. One way to achieve energy efficiency in new construction is to follow the Energy Star Program, a national, voluntary program sponsored by the U.S. Environmental Protection Agency (EPA) to reduce greenhouse gas emissions and protect the environment. Energy Star houses are 15-30% more energy efficient than houses built to national or state energy codes. Program requirements are typically met through a combination of building-envelope upgrades, high-performance windows, controlled air infiltration, upgraded heating and air conditioning systems, and tight duct systems. These features contribute to improved house quality and home owner comfort, lower energy demand, lower utility bills, and reduced air pollution. The program is clear and easy to use, affordable, and is monitored to ensure high quality and efficient construction.

MECHANICAL HEATING, COOLING, AND DEHUMIDIFICATION

To achieve the highest energy efficiency, mechanical units must be sized properly for a given house or building. Under- or oversized systems do not achieve the desired balance of heating, cooling, and dehumidification for human comfort. The hot, humid climate along the Eastern Shore for more than half the year necessitates a high-efficiency, central air-conditioning unit to provide comfort, significant energy reductions, and substantial cost savings. An optional, dedicated, whole-house dehumidifier will help to further control indoor humidity and increase comfort.

APPLIANCES AND LIGHTING

Appliances and lighting account for 40% of home energy usage with refrigerators typically being the single biggest energy-consuming home appliance. Energy Star appliances meet specific energy criteria set by the EPA and use an average of 10-15% less energy than non-certified products, thereby reducing energy costs and pollution.

WATER HEATERS

Water heating is typically the second largest household energy expense. Greater efficiency can be achieved simply and affordably by using less hot water, setting the heater temperature at 115°F, and wrapping the heater and pipes with insulation. Tankless (on-demand) hot water heaters typically cost less and are more efficient because they do not store hot water if there is no demand. Solar hot water heaters use the sun to heat water or a heat-transfer fluid in collectors, reducing the need for conventional water heating by about two-thirds.

Passive Design Strategies

Passive design strategies refer to non-mechanical systems or architectural features that use the sun's natural energy to heat living spaces during the colder seasons and minimize heat gain in the warmer ones. Solar energy is a renewable, non-polluting natural energy source. Passive design features do not generate greenhouse gases, deplete fossil fuels, or rely upon costly, and at times unreliable, energy sources. The architectural features described on the next two pages are all examples of effective passive design elements suitable for use in all the traditional Denton architectural styles. Passive systems should be considered early in the design process, and used in conjunction with a well-built, well-insulated house that has an efficient mechanical HVAC system.











ROOFS

Roofs are the greatest source of potential heat gain in the warmest months of the year when the midday sun is directly overhead. A light-colored, reflective roof surface is most effective in minimizing heat gain.

OVERHANGS

Roof overhangs on the south side of the house can be sized to provide shade in the summer (when the sun is high in the sky), yet allow sunlight and warmth into the house in winter (when the sun is at a lower altitude). Overhangs also prevent water from draining directly onto the house and its foundation.

PORCHES

Porches provide shade and outdoor living space with the south side of the house the most critical to shade. Screened porches provide breezy outdoor space while keeping out insects.

SHUTTERS

Aesthetically pleasing, operable exterior shutters keep the hot sun out while allowing cooling breezes to ventilate the house. They also provide an effective window insulation system, enhanced weather protection, and household security.

CEILING HEIGHT

Traditional architectural styles often use 12-foot ceilings, rather than the 8-foot baseline typical of new development. Higher ceilings, even 9 or 10 feet, provide more space for hot air to rise, increasing human comfort in warm weather. Coupled with large windows, higher ceilings also provide more effective ventilation.

CEILING FANS

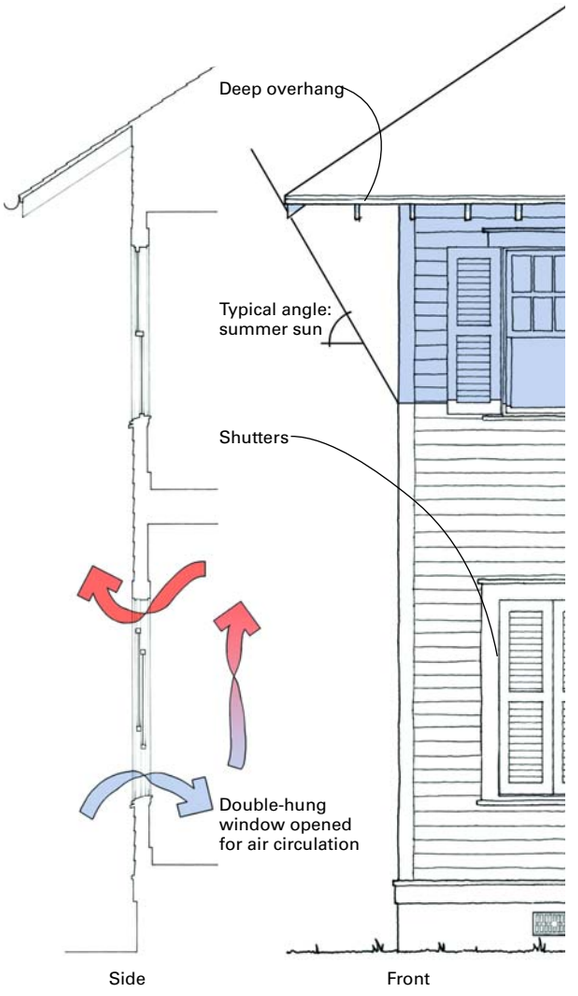
Ceiling fans increase comfort by providing air movement that aids the body's evaporative cooling system, rather than by regulating temperature. Fans also increase ventilation on outdoor porches and help keep away insects. Fans should be turned off when the room is not occupied.

WINDOWS

Size, number, type, and placement of windows affect the comfort and energy efficiency of any house. Reduce the size and number of windows on the heat-intensive west side. Use larger windows for greater ventilation and day lighting on the north and east sides. Choose double-pane, insulated, and Low-E coated windows that hinder radiant heat flow through glass layers and allow in light and air. Double-hung windows are ideal for ventilation: cooler air enters through the raised bottom sash; hot air escapes through the lowered upper sash. All windows and doors should be sealed, flashed, and properly installed to reduce air and moisture infiltration.

VEGETATED SHADING

Shade is a valuable and affordable resource that can be created by planting deciduous trees and shrubs on the west, east, southwest, and southeast sides of the house shades. This protects against solar heat gain in the summer and lets in sunlight in the winter. Small shrubs and groundcover used to shade pavement around the house, also keep the house and outdoor spaces cooler by reducing reflected heat.



Correctly-proportioned overhangs and shutters provide shade, decreasing heat gain. Double-hung windows allow cooler air to enter through the raised bottom sash, while hot air escapes through the lowered upper sash. High ceilings allow hot air to rise above the occupied areas, increasing human comfort.





WALL SECTION

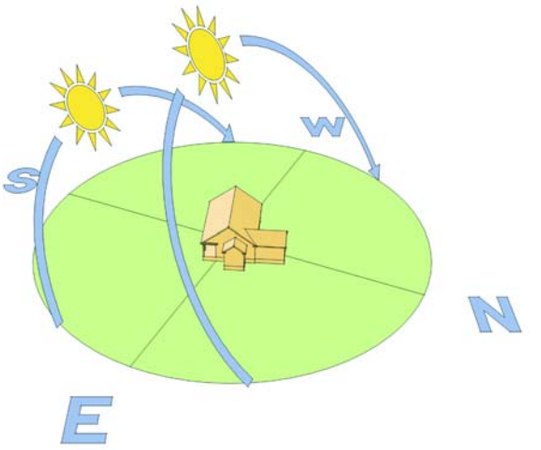
A well-insulated, properly constructed exterior wall can increase the comfort, efficiency, and health of a house. Traditional wood framing is likely to remain the most common and accessible building system available. Framed houses, 2x6 Optimum Value Engineered (OVE) with structural sheathing, generally cost about the same as standard framed houses but have added benefits. OVE reduces framing time, lowers construction costs, conserves resources, and reduces annual energy costs. OVE also reduces the amount of lumber used in the exterior wall while increasing the insulation.

INSULATION

Insulation is critical in building energy-efficient, comfortable houses. Insulation should exceed the required minimums to save on overall energy costs and make the house more comfortable. Use recycled wet-blown cellulose for better insulation and insect control.

FOUNDATION SYSTEMS

Foundation systems should be carefully designed according to site characteristics. The well-built, well-insulated foundation can add greatly to the comfort and energy efficiency of a house.



Keeping in mind the arc of the sun when orienting a house on a lot provides passive solar energy and can contribute to the overall energy efficiency of the house.

Materials and Indoor Air Quality

Initial decisions in the construction of a house can have a significant impact on maintenance and replacement costs over time. Consider selecting roof materials with extended warranties and using a cementitious fiberboard for siding. Selecting high quality materials and assemblies may add to upfront costs, but will likely provide long-term savings through greater durability, strength, and reduced replacement costs.

Because people spend an average of 65% of their time indoors, indoor air quality is critical to the health of residents, especially more vulnerable groups such as children, seniors, and individuals with existing respiratory problems and compromised immune systems. Toxic materials have associated negative human health effects including cancer, allergies, and 'sick building syndrome.' Sources of indoor air pollution include:

- Building materials and furnishings, such as insulation, carpeting, and cabinetry, that may contain phthalates, arsenic, and formaldehyde
- Polyvinyl chloride, commonly called PVC or vinyl is a hazard (approximately 75% of all PVC manufactured is used in construction materials)
- Adhesives that release formaldehyde
- Cleaning and maintenance products containing toxic chemicals
- Interior paints, primers, and removers that release volatile organic compounds

Materials should be selected with low or zero volatile organic compounds (VOCs), PVC, formaldehyde, arsenic, chromium, and other toxic chemicals. There are many alternative construction materials that can be used in place of vinyl including composite materials, fiber-cement board siding, metal roofing, natural linoleum, tile, wood flooring, sustainably-harvested wood, fiberglass, and aluminum windows and doors.



SECTION G

HOME OWNER'S GUIDE

This section of the Pattern Book is intended to assist Denton's home owners and those undertaking infill housing projects to build or renovate their houses. Following the more general information that appears on the opposite page about the basic components and form of a house, the section provides basic guidelines for making appropriate renovations, additions, and transformations to houses in Denton.

You'll want to use the information in this section in combination with that presented in the Architectural Styles section of the Pattern Book. There you'll find information about the three primary architectural styles in Denton (Victorian, Colonial Revival, and Craftsman), their characteristics, and the materials appropriate for each. At the end of that section, you'll also find a list of nationally respected Material Manufacturers that may be useful to you in selecting materials for your home improvement projects.

Building the Denton House

Most traditional houses consist of a **Main Body** that is always the most important portion of the house's form. Additional space is treated as secondary additions to this Main Body.

The first step in designing your house is to determine the Main Body Massing Type. This will guide the development of your house plan or the modifications to your existing house.

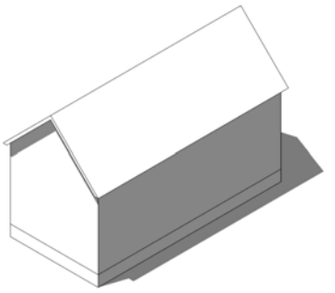
In general, additions should be treated as **Wings**. Side wings can be either one, or one-and-one-half stories, set back from the front facade of the Main Body. Two-story additions can be added to two-story Main Bodies, but should be set back from the front facade and limited in width to a maximum of one-third the width of the Main Body. Side wings and rear wings can be added in many combinations.

Once the massing and the floor-to-floor heights have been determined, various **Window and Door Compositions** can be explored. Most traditional house styles have very definite patterns. These were used to create balanced or picturesque compositions that produce a harmonious and pleasing image. Window proportions, location, and spacing are all important and were well understood by early house builders.

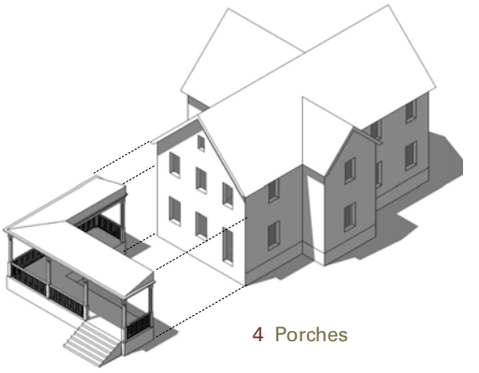
Porches are important elements in the history and culture of Denton. These major elements are found in every architectural style or vocabulary. Setting the appropriate column types, porch cornices, railings, and balustrades are important to establishing the character of the house.

While **Windows and Doors** are available today from a wide range of manufacturers and come in almost any shape and size, selecting correctly proportioned and detailed Windows and Doors is key to creating or preserving the stylistic integrity of the design of your house. The Pattern Book illustrates standard window and door types used for each architectural style and special windows and doors used as accents.

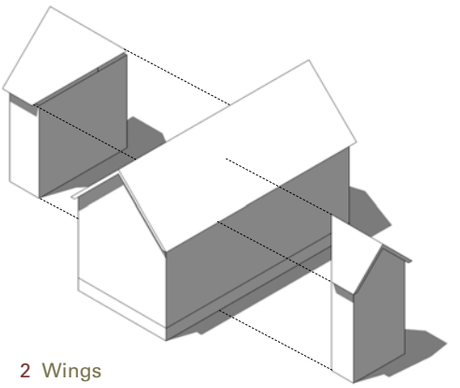
The **Final Assembly** of the various components should produce a house of recognized character and quality, no matter what the size. Within the Architectural Styles Section, a series of three possibilities are provided for each style demonstrating the effective application of the Pattern Book guidelines.



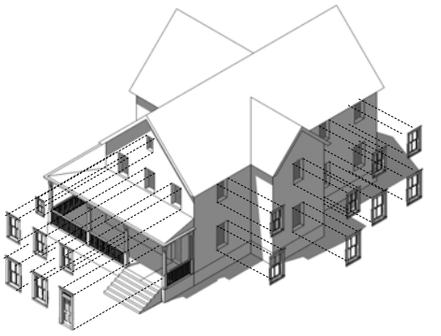
1 Main Body



4 Porches



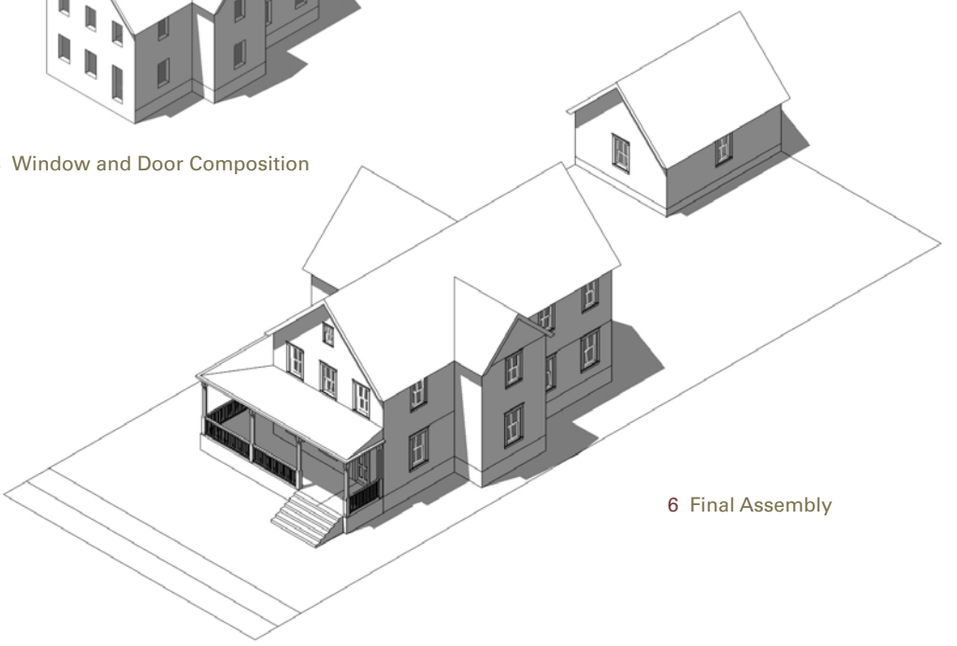
2 Wings



5 Windows and Doors



3 Window and Door Composition



6 Final Assembly

Renovations





House renovations vary from applying a new coat of paint or replacing windows to adding an upper floor or a wing to a house. These options provide more living space while enhancing the quality and value of your house. A poorly executed renovation can turn even the most beautiful house into an eyesore regardless of the nature, extent, or major expenditure involved. Similarly, an inexpensive, but well-detailed modification to an existing house could add significant value.

The key to effective renovating lies in understanding the appropriate design elements, massing, and materials which create the architecture of your house.

Scope

Before starting, it's important to determine the scope of your project. Is it cosmetic to help you add character and value? Or based on a need, such as additional living or parking space? Or is your purpose to repair old or damaged elements? By answering some simple questions about the scope of your project, the age of your house and its architectural style, you'll be better able to determine whether your project is a weekend project for you or a major building project requiring a professional and a building permit.

Renovations may include window replacement, a new front door, front porch restoration, roof and gutter replacement, brick repointing and repair, new paint, new siding, or the replacement of aged or damaged siding. Larger renovations may include adding box and bay windows, dormers, and porches.



Additions are generally larger than renovations and may consist of major changes in terms of the massing of the house. Additions may include the construction of a wing – typically on the side or rear, the addition of a second habitable level, or the construction of an ancillary structure, such as a garage or carriage unit. In general, additions should reflect the architectural style of the main house body.

Transformations, on the other hand, are more drastic changes that allow the home owner to build value into an existing house by fitting it into one of the recognizable styles prevalent among the building traditions of Denton. Transformations are encouraged as they often result in a rise in property value and also further the contribution these structures make to the overall quality of the neighborhood.

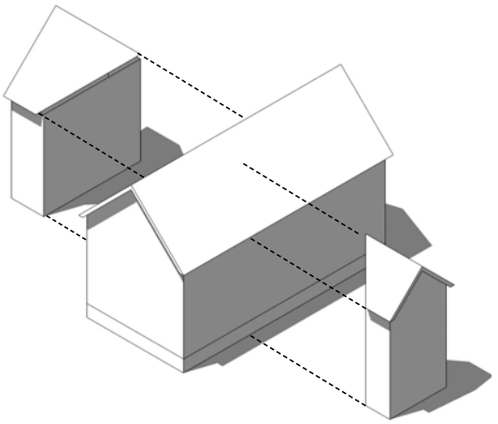
Age

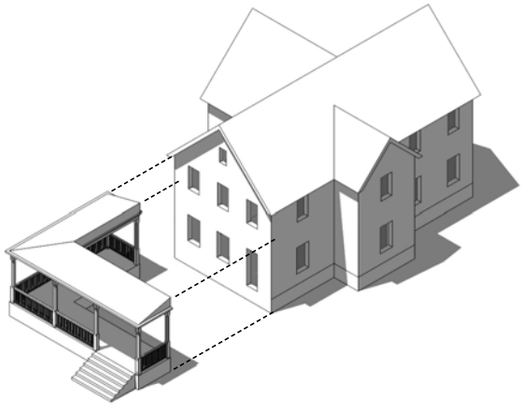
After you have a sense of the size of your project, determine the age of your house. The age of your neighborhood may be a starting point. The Museum of Rural Life, as well as historic maps and governmental property data are all sources for finding the age and era of your house. Knowing the age of your house not only helps you understand the status of the building's structure, it also helps you decide whether the investments you're contemplating are worthwhile.

Style

Finally, identify the architectural style of your house.

1. Determine its Massing Form by comparing the shape of your house to the massing possibilities of the significant Denton architectural styles.
2. Determine the Roof Pitch by measuring the vertical rise for the roof for every 12 inches of run. A 10 in 12 pitch means that the rafter rises 10 inches vertically for every 12 inches of horizontal distance. If you cannot measure your roof pitch, then visually approximate it to help assign a family style to it.
3. Refer to the Denton Architectural Style pages to find an appropriate style for your house. There you will find information on details and materials appropriate for each style and photographic examples of Denton houses to help you identify the style of your house and to serve as precedent examples for your project.








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Additions





Additions are a common house investment, often driven by the growth of families or the changes in living patterns compared to historic architectural development. To protect and enhance the value of your house, it is important to pay careful attention to the way you add onto it, ensuring that the house remains contextual in manner and that the addition reinforces the original facade composition.

Additions are generally larger than renovations and may consist of major changes to the massing of the house. Additions may include the construction of a wing typically on the side or rear, the addition of a second habitable level, or the construction of an ancillary structure (for example, a garage or carriage unit). In general, additions should reflect the architectural style of the main house body.

Successful additions add both beauty and value to the house while making the house more inhabitable to its residents. The facing page illustrates some of the design principles (presented below) applied to two possible additions, using existing houses in Denton as models. For each example, a photograph and two drawings present a comparative study of the house before and after the proposed addition. The massing composition diagram helps you visualize the effect of the addition on the overall lot layout.

The first step in determining what type of addition is appropriate is to understand the dimensions and massing of your existing house and lot so that an appropriately sized addition can be designed relative to the size of the main body.

Side Wings

Particularly prevalent in the Colonial Revival and Victorian styles, side wings should step back no less than 2 feet from the front facade of the main body to ensure that the addition is subordinate in scale to the greater house.

Generally, the height of the main body governs the scale of any addition in terms of height and mass. No addition should be taller or more massive than the house to which it will be attached since to do otherwise would cause the addition and the house in its totality to look unnatural. Many examples of both good and poorly conceived additions can be found throughout Denton.

One-story wings should never exceed half the width of the Main Body of the house. Two-story wings should not exceed one-third of the house width. Wings may be built off either side of a house, however, particularly with the Colonial Revival style, two balanced wings are traditional. You can also balance a house wing with a garage or carriage porch/carport.

Setbacks

Setbacks from the front facade are necessary to provide visual relief and hierarchy to the overall house. Garage or porch wings should be set back a distance equal to the width of the wing.





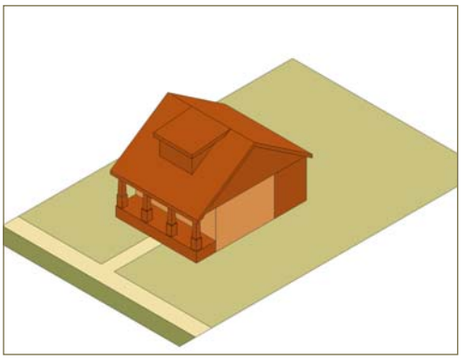
Addition No.1

This house is typical of the many bungalows, loosely designed in the Colonial Revival style, throughout Denton. A rather common addition to a one-story house is the introduction of an additional bedroom or home office. Since many bungalows occupy similarly tight lots, and because many home owners do not wish to reduce outdoor space, such as the backyard, building living space into the roof is very common for this massing type.

In this particular example, multiple issues are resolved or improved by the addition of another half-story. Window and porch column rebuilding or refacing allows the bungalow to migrate into the Craftsman style, more typical for houses of this type. The porch columns recenter the entry and make for a balanced composition. The same Craftsman windows are used in the dormer, and the typical ganged set of windows allows much light into this second-story living space. The gable dormer is a type found frequently throughout Denton.



Existing House



Massing Composition



Before Addition



After Addition

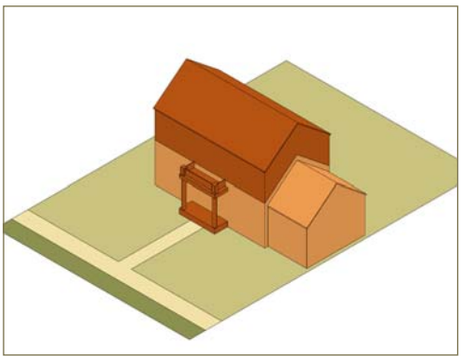
Addition No.2

This house is another example of a building that is likely to be too small for most family types or residents. In order to address the issue of lack of living space, a two-story pop-up, or addition out the roof is illustrated. It provides a much larger house in the identical building footprint, creating additional interior square footage without consuming valuable yard space

The house suffers from a lack of architectural character, though less so than a house in need of transformation. Properly-sized, shuttered windows arranged in a symmetrical manner create a traditional two-story Colonial Revival house, characteristic of those found throughout Denton. A portico is added to shield visitors and residents from the elements when entering the house. With this type of addition, much more substantial than the one shown above, this house is doubled in size, yet feels appropriate on its lot (as opposed to the extension of the main body mass itself).



Existing House



Massing Composition



Before Addition



After Addition

Transformations







Many of Denton's blocks and streets, particularly those that reach out farthest from the core of town, were developed in later eras, long after the town's historic Victorian era development. Like most cities, this later influx brought with it myriad house types that often did not respect the pre-existing residential fabric surrounding them. In consequence, these houses look like the later insertions they were and often have nothing to do with the architectural heritage of their neighbors.

Sadly, much production building nowadays possesses the same telltale signs of placelessness resulting from a single-minded focus on mass production and efficiency over craftsmanship and character. Although the large homebuilding industry is firmly established in America, its effect and its potential erosion of the character of existing places need not continue as it is possible to build in a manner that is contextual and gets the details right for any house. Investing in the proper design of the transformation at the beginning of a building project goes a long way to eliminating the common problems of 'anywhere' houses – particularly complicated massing that attempts to make up for cheap materials and shoddy detailing.

The transformation examples are some of the most important in the Pattern Book because the guidelines speak to both renovation of existing structures, as well as developers' builder sets that can be tweaked in design to produce houses relating to Denton's existing fabric and enduring traditions. The two transformations presented on the facing page provide direction for appropriately enlarging a house while also enhancing its existing architectural style references. Where no distinct style is apparent, refer to the Architectural Style pages to help you select an appropriate, distinctly Denton style and character based on the massing and proportions of your house.

Common transformation methods include the pop-up, nose, wing, and porch since these are most often the missing parts that traditional architectural vocabularies used to animate and create residential architecture. **Pop-ups** add living space by building a partial or full second floor on the house, or a half-story dormer. **Noses** are wings that face front and project into the front yard. These elements are not more than half the width of the house and must be at least 8 feet in width to be a usable interior space, usually as annexes to living and dining rooms. **Wings** project from the side and rear, and follow the proportional rules set out in the previous pages on additions. **Porches** are typically the most cost-effective addition, and often the introduction of a simple, well-scaled porch can do much to minimize the undesirable effects of poorly scaled or proportioned architectural elements that remain, such as windows, doors, and the like. In Denton, as in many other small towns throughout the region, front porch life provides more than outdoor living space, it also contributes to the sense of hometown feel.





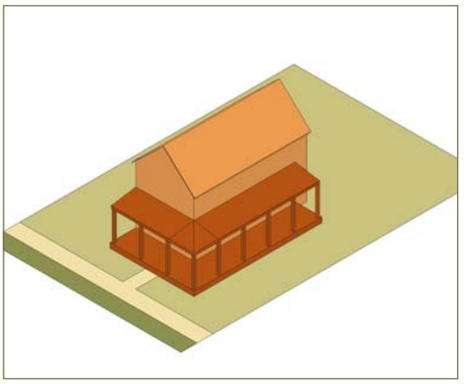
Transformation No.1

Beneath the siding of this Denton house likely lies other framed openings, and possibly another sheathing material altogether. Transforming it back into a consistent architectural style is a worthy goal, and will add a great deal of value to the house once it is seen as part of the overall community through the use of more direct architectural forms. In addition to the value added by style, more natural light and ventilation can be achieved by introducing additional second-story windows and a typical, wraparound porch which augments the amount of livable space without enveloping much of the lot.

Through transformation, the house shown here which was devoid of any style, can be identified as a Victorian house, in keeping with Denton's architectural heritage and traditions.



Existing House



Massing Composition



Before Transformation



After Transformation

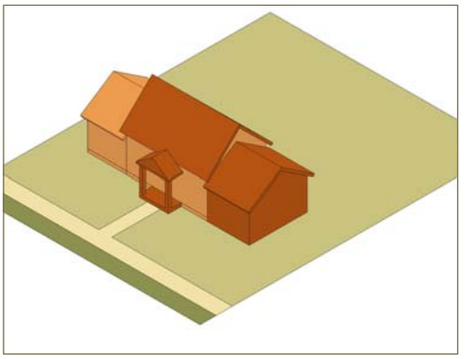
Transformation No.2

This relatively small house can take full advantage of its wider, shallower lot through the addition of a wing and new roof with dormers for extra upstairs living space. In this case, the wing is shown as a garage since the current house lacks an indoor parking space and that form of storage.

In terms of the active living space, much of the investment is applied to gaining more natural light in the form of larger, operable, well-proportioned windows. Operable windows in the three dormers on the second story also provide new opportunities for upstairs rooms, such as bedrooms or a second bath. With the addition of second-story living space, the roof pitches which were formerly shallow, can take on the appropriate pitch for a Colonial Revival house, a style which this house can now rightfully claim.



Existing House



Massing Composition



Before Transformation



After Transformation

Garages, Driveways, and Yards







The landscape elements in front yards, particularly garages and driveways greatly affect the overall character of the lot. These elements strike the balance between the landscaping of the individual house and its contribution to the overall character of the street. Wide variations in these elements exist among the five neighborhood types described in Section B of this Pattern Book. There are also elements which unite them all.

Garages

The principal issues with garages are the size, location, and detailing for the doors, as well as garage additions that often overwhelm the scale and character of the house.

For houses on corner lots, the garage should be located in the rear yard, turned to face the side street, and set back to match the house setback. It is preferable to locate the garage so that the parking area in front of the garage is at least 18 feet inboard of the side street property line to prevent parked cars from encroaching into the public sidewalk. Corner lots are also good places for two- or three-car carriage houses incorporating small apartments above. Single-width garage doors up to 8 feet wide are recommended. Large double-width doors are not in keeping with the scale of houses. Paneled door styles appropriate to the style of the house should be used.

In many cases, there may be enough room to build up to a three-car garage in the rear yard of a relatively narrow lot. Access to the garage is typically from a narrow driveway, usually 8 to 9 feet wide, that slips along one side of the house.

A carriage porch, or carport, is often used to provide a drop-off at the house, as well as screen the back yard from the street. It is recommended that the garage be placed in the rear of the lot to provide turnaround space between the house and the garage.

If an attached garage is preferred, a one-car garage is recommended. This garage must be placed behind a line established at the intersection of a 45-degree line (cast on the ground plane from the front corner of the house) and the side setback or driveway line. This proportion creates garages that do not overburden the main body of the house. Attached two-car garage additions often appear wider than the house, which is not recommended.

Attached one-car garages should be treated as wing additions in terms of setback from the front of the house (45 degree rule noted above). Their architectural character should match that of the house.

Driveways

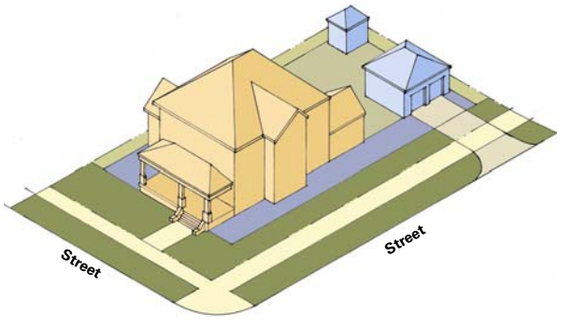
Driveways should be seen as landscape elements within the yard that enhance the beauty and setting of the house and garage, if present. As such, driveways should not be dominant elements on house lots. Whenever possible, porous, natural materials or special materials (stone, brick, crushed stone, or pebbles), should be used to blend in driveways with the surrounding yard or garden space. In particular, using large expanses of cement as a driveway material tends to detract from the character of the house. If cement is used, it should only be poured for the tire tracks, or for a single driveway that slips past the house as unnoticeably as possible.

Yards

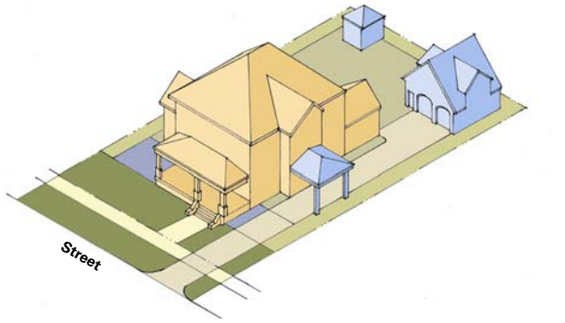
The gallery of photos illustrate some of the best practices in planting yards to make them inviting extensions of the private realm into the public realm and design of the streets and neighborhoods. For more information about appropriate plant materials and environmentally responsible landscape design, refer to the final section of this Pattern Book, Environmentally Responsible Landscape Design, which follows immediately.



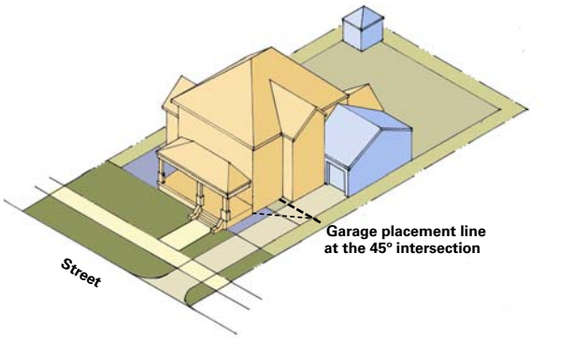




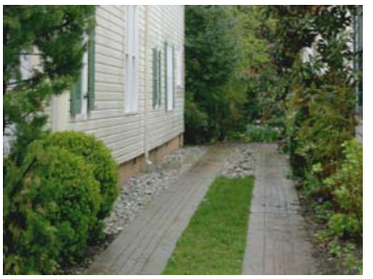
Ancillary structures include storage sheds and detached garages on a corner lot



A carriage porch or carport and a carriage house shown on a mid-block lot



An attached garage and a storage shed on a mid-block lot

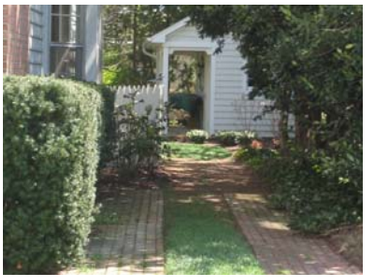








Garage and carriage house types



Driveway types





SECTION H

ENVIRONMENTALLY RESPONSIBLE LANDSCAPE DESIGN

The Eastern Shore of Maryland has wonderful watersheds, marshes, and wetlands, as well as agricultural lands between its various towns and villages. Denton's location along the Choptank River and within the Chesapeake Bay watershed of Maryland's Eastern Shore contributes strongly to the town's character and sense of place. How we as citizens relate to and interact with these resources – which are of economic value to our community – is critical in protecting and preserving them as assets of our town.

This section of the Pattern Book presents specific techniques for environmentally responsible landscape design. Overall, these techniques are intended to conserve water, reduce energy consumption, and lessen the impact on our streams, rivers and the Bay. In many cases, the techniques will also improve habitat and save the property owner time, energy and money in ongoing maintenance.

By applying these techniques to any new development, redevelopment, or redesign of existing residential landscape in Denton, we can each do our part to be responsible stewards of our precious resources. On the pages which follow, home owners, builders, developers, and landscape architects will find a series of readily implementable techniques from which to choose. We encourage you to use as many of these as possible for your particular project.

To further assist you in making environmentally responsible landscape design decisions, we've included a Plant Palette which identifies plant materials appropriate for use in Denton. Non-native and exotic plant materials are strongly discouraged as they typically require frequent watering, considerable maintenance, and have the potential to become invasive, crowding out native plant species and upsetting the ecological balance of the region. The section concludes with a Landscape Resources list to help you obtain additional information and assistance in adopting the techniques presented.

Strategies and Techniques

As a compact, mixed-use town, Denton, by its very nature, does its part to strike a balance between the man-made and natural environments. Denton is committed to promoting the widespread use of environmentally responsible, sustainable, landscape design practices in our community.

In the chart on this page, you'll find a number of specific techniques you can use to practice environmentally responsible landscape design around your home or for your development project. The techniques presented are by no means an exhaustive list of the possibilities. Rather, they are some of the most common and most easily implemented. Home owners, builders and developers are encouraged to incorporate as many of these techniques as possible in their particular realm.

Builders, developers and landscape architects should note that the State of Maryland requires that certain visionary elements be incorporated into all local plans. The information presented in this section responds to these three visionary elements contained in the State Comprehensive Planning Requirements:

- Sensitive areas are protected.
- Stewardship of the Chesapeake Bay and the land is a universal ethic.
- Conservation of resources, including a reduction in resource consumption, is practiced.

In addition, local and State development regulations and building codes establish minimum performance standards for land development and construction. The environmental design techniques presented in this section will assist you in achieving some of the goals and objectives set forth in the Denton Comprehensive Plan. The techniques also supplement the development and design standards in the Denton Zoning Ordinance and Subdivision Regulations.

SOME ENVIRONMENTALLY RESPONSIBLE LANDSCAPE DESIGN TECHNIQUES

Technique	Domestic Initiatives	Infill/ Redevelopment	Large-Scale Development
Use Native Plants and Materials	X	X	
Install a Rain Barrel	X	X	X
Establish a Rain Garden	X		
Make House More Energy Efficient	X	X	X
Reduce Impervious Surfaces		X	X
Environmentally Treat Stormwater		X	X
Utilize Surrounding Environment		X	
Plan Neighborhood Design			X
Design for Pedestrians			X

A Few Key Principles

Land Stewardship

Avoid environmentally sensitive sites and lands located in designated greenbelt areas.

Encourage selection of infill sites already served by existing infrastructure.

Design and construct buildings with minimal impact on the building lot.

Community and Neighborhood Character

Promote environmentally and socially responsible land development.

Minimize dependence on automobiles by encouraging patterns that allow for alternative means of transportation, such as walking, biking, and transit.

Encourage compact development patterns in order to use land efficiently and conserve natural lands.

Environmental Design

Install landscapes that minimize water demand.

Minimize erosion and run-off from sites.

Avoid use of poisons for insect and disease control.

Reduce local heat island effects by use of shading.











Use Native Plants, Grasses and Materials

Use plants, grasses and materials native to the region. When shopping for plant materials at a nursery, be sure to let them know you prefer to use native plants. They're naturally suited for this environment, reduce the need for chemical pesticides and herbicides, help control unwanted pests, can provide wildlife habitat, and typically save you time and money in the upkeep of your garden.

> Deep rooted plants, such as most trees, shrubs, and perennials make better use of rain water than typical lawn grasses, and so require less watering once established. These plants are also better at trapping and removing nitrogen and pollutants from rain water so that they are not released into nearby bodies of water.

Install a Rain Barrel

Relatively simple and inexpensive to construct, a rain barrel can sit conveniently under any residential gutter downspout, collecting and storing water from your roof for use when you need it most – during periods of drought – to water plants, wash your car, or top off a swimming pool.

Rain barrels help protect the environment and save money and energy by decreasing the demand for treated tap water. They provide home owners with an ample supply of free 'soft water' containing no chlorine, lime or calcium, making the water ideal for gardens, flower pots, and car and window washing. They also divert water from storm drains, decreasing the impact of runoff to streams and the Chesapeake Bay. A rain barrel is an easy way for you to 'Save the Bay' and have a consistent supply of clean, fresh water for outdoor use.

If the rain barrel is hooked to a drip irrigation system or used regularly, there should be little maintenance required. During drier months or with little use, the barrel may require seasonal cleaning.

> Installing a rain barrel will save most home owners about 1,300 gallons of water during peak summer months.

Establish a Rain Garden

A rain garden is a specifically designed landscaped area that allows rainwater to naturally collect and soak into the ground. Water can be directed to these gardens straight from rooftop downspouts, driveways and other paved areas. Rain gardens slow the rush of water from these hard surfaces, hold the water for a short period of time, and allow it to naturally infiltrate into the ground.

Rain gardens help filter runoff pollution, recharge local groundwater, conserve water, reduce the potential of house flooding, and create habitat for birds and butterflies. While they will need less maintenance than more manicured gardens, rain gardens are not completely maintenance-free. They will need to be weeded, cleaned-up, and re-mulched in the early spring and fall.

> Simple rain gardens are 3- to 6-inch-deep, saucer-shaped depressions. While rain garden dimensions vary, remember, any size rain garden is better than no rain garden at all.

Make Your House More Energy Efficient

Reduce your energy bills – and be kind to the environment at the same time – by making your house more energy efficient. There are many ways to save money and use less energy in your home. Some techniques need to be installed during the construction of the house, but many can be added at any time. Techniques include: selecting only those heating and cooling systems, insulation, windows, doors, and appliances that have high energy efficiency ratings; using solar panels and compact fluorescent light bulbs instead of traditional incandescent bulbs; making it a habit to turn off lights and computers when not in use; and applying water conservation methods.

While some of these techniques may cost a bit more upfront, they typically recoup that additional cost quickly as well as provide subsequent cost savings. For example, while compact fluorescent light bulbs cost more than traditional bulbs, they last for years and use a fraction of the energy. ENERGY STAR appliances also cost more upfront, but they enable home owners to quickly recoup that additional cost through higher energy efficiency and then provide the home owner with ongoing savings over the life of the appliances.

> If every household in the U.S. replaced one light bulb with an ENERGY STAR qualified compact fluorescent lamp (CFL), it would prevent enough pollution to equal removing one million cars from the road.
>
> Home owners can enjoy up to 40% energy savings from shade trees in the summer and pine trees in the winter that block cold winds.

Reduce Impervious Surfaces

Minimizing the amount of impervious surface will reduce peak discharge, total volume and the amount of stormwater that needs to be treated, help increase groundwater

recharge, lessen the disruption of the water cycle, improve site appearance, and may also save money by installing less pavement. To reduce impervious surfaces, make streets narrower, design for shared parking, incorporate compact car spaces and grassy sections in parking areas, and use surfaces for parking that allow water to infiltrate back to the ground before it would run off.

Although accommodating emergency vehicle width on the site is an important consideration for developers, many roads can be reduced from conventional standards and still allow for buses and emergency vehicles to travel safely. Permeable paving is not appropriate in soils with low permeability or high shrink-swell potential (for example, tight clay). Also, systems such as reinforced grass paving can only be used for low traffic volume areas.

Allowing rainwater to locally infiltrate through a permeable paving system can decrease the amount of runoff leaving the site by up to 90%, facilitate pollutant removal, help to control streambed and riverbank erosion, provide for ground water recharge, and create a more aesthetically pleasing landscape.

Environmentally Treat Stormwater

Incorporating non-structural techniques for treating rainwater from the site before it reaches the local stormwater system is a highly environmentally responsible method for removing pollutants and allowing water to infiltrate back into the ground instead of directing the water off-site to a stormwater drain. A variety of techniques – ranging from the very simple to more technical – can be used to accomplish this. Among them are landscaped bioretention areas with locally adapted plants, grass filter strips, and vegetated swales. Whatever techniques are employed, the goal is to design the project so that rainwater is directed into the natural treatment systems by the slope of the parking area, curb cuts, or downspouts. Conventional stormwater systems can still be used as a backup for large storm events, but should follow the non-structural treatments.

Utilize the Surrounding Environment

Taking advantage of existing building structures as well as community resources such as adjacent neighborhoods, parks, open space, sidewalks, and parking areas will enhance the environmental responsiveness and sensitivity of any project's design. This technique creates wonderful opportunities to repair past or avoid future environmental damage, stop pollutant loading and improve water quality, restore or preserve wildlife habitat and natural spaces and corridors, save money, utilize existing buildings, and provide community connections which make infill, redevelopment, or new development projects feel like an integral part of the community.

Carefully Plan the Neighborhood Design

When designing a new neighborhood, it's important to minimize its footprint, design for pedestrian movement throughout the community, and incorporate energy efficiency into the construction of all new buildings in order to minimize the impact of the new development on the environment. Concentrating houses and other structures on a smaller portion of land will allow most of the land to remain in its natural condition. This reduces clearing costs, creates more efficient street and utility patterns, maintains habitat and green infrastructure, maintains more pre-development hydrology conditions, and improves the overall appearance of the developed project. As open space is set aside, a clear plan for management and ownership of the land should be established (County, Land Trust or Homeowners Association).

When new residential or commercial development is grouped the result can minimize visual impact, preserve workable farmland, connect neighborhoods and other recreation areas through trails, and can provide vegetated buffers to reduce runoff and maintain water quality.

Design for Pedestrians

Designing for pedestrians means incorporating alternative transportation modes into the neighborhood, including bike and pedestrian pathways. It also requires that destinations such as schools, libraries and commercial areas be located within walking distance from residential areas. Some of the environmental benefits derived from making neighborhoods pedestrian-friendly include reduced vehicle emissions, improved air quality, health benefits to community residents, and a range of transportation choices. Pedestrian pathways must allow for the safe movement of pedestrians through an area including personal safety (lighting, access) in addition to safety from vehicular traffic (grass strips or parking lane between walkways and roads).

More Marylanders die each year from cardiovascular disease than from all forms of cancer, AIDS, suicide, and traffic injuries combined. According to the Centers for Disease Control and Prevention, moderate physical activity such as walking and bicycling offers substantial health benefits.











Plant Palette

General Class	Scientific name	Common Name	Soil Moisture	Sunlight	Height	Color	Bloom
Fern	Botrychium virginianum	rattlesnake fern	M/D	PS/SH	1.5 ft		
Fern	Osmunda regalis	royal fern	W/M	S/PS/SH	2–3 ft		
Grass	Carex pensylvanica	sedge	D	PS/SH	0.5–1.5 ft	R/W	May–Jun
Grass	Panicum virgatum	Virginia switchgrass	W/M	S	3–6 ft		Jul–Oct
Grass	Schizachyrium scoparium	little bluestem	D	S/PS	4 ft		Aug–Oct
Groundcover	Chrysogonum virginianum	green-and-gold	M/D	PS	1 ft	Y	Mar–Jun
Groundcover	Sedum ternatum	mountain stonecrop	M	PS/SH	1 ft	G/W	Apr
Herbaceous	Asclepias syriaca	common milk weed	D	S	6 ft	Pu	Jun–Aug
Herbaceous	Aster novae-angliae	New England aster	M/D	S/PS	6 ft	Pu	Sept–Oct
Herbaceous	Caltha palustris	marsh marigold	W/M	S/PS	1–2 ft	Y	Apr–Juny
Herbaceous	Chrysogonum virginianum	green-and-gold	M/D	PS	1 ft	Y	Mar–Jun
Herbaceous	Eupatorium dubium	Joe-Pye weed	W/M	S/PS	4–7 ft	Pu	Jul–Sep
Herbaceous	Eupatorium fistulosum	Joe-Pye weed	M/D	S/PS	1.5–6 ft	P	Jul–Sep
Herbaceous	Liatris spicata	*gayfreather, blazingstar*	W/M	S	3 ft	Pu	Aug–Oct
Herbaceous	Lobelia cardinalis	cardinal flower	W/M	S/PS	3 ft	R	Jul–Sep
Herbaceous	Polygonatum biflorum	Solomon's seal	M/D	PS/SH	0.5-2 ft	W	May–Jun
Herbaceous	Rudbeckia hirta	black-eyed Susan	M/D	S/PS	2 ft	Y	Jun–Oct
Herbaceous	Tradescantia virginiana	Virginia spiderwort	M	S/PS/SH	2–3 ft	Bl/Pu	Apr–Jun
Herbaceous	Trillium grandiflorum	white trillium	M	SH	1 ft	W	Apr–Jun
Tree small/medium	Asimina triloba	paw paw	M	S	39 ft	Y/R	Mar–Apr
Tree small/medium	Cornus florida	flowering dogwood	M/D	PS/SH	35–50 ft	W	Apr–May
Tree small/medium	Ilex opaca	American holly	M	S/PS	65 ft	W	May–Jun
Tree small/medium	Juniperus virginiana	eastern red cedar	M/D	S/PS	50 ft		Mar–Apr
Tree small/medium	Pyrus (Malus) coronaria	sweet crabapple	M	S	20–26 ft	P	Apr–May
Tree Tall (canopy)	Acer rubrum	red maple	W/M	S/PS	40–60 ft		
Tree Tall (canopy)	Betula nigra	river birch	W/M	S/PS	30–50 ft		
Tree Tall (canopy)	Fagus grandifolia	American beech	M	S/PS	50–100 ft		
Tree Tall (canopy)	Pinus taeda	loblolly pine	W/M	S	70–90 ft		
Tree Tall (canopy)	Pinus virginiana	Virginia pine	M/D	S	50–80 ft		
Tree Tall (canopy)	Quercus marilandica	blackjack oak	D	PS	50 ft		
Tree Tall (canopy)	Ulmus americana	American elm	M	S	100 ft		



Joe-Pye weed (Eupatorium dubium)



Green and gold groundcover
(Chrysogonum virginianum)



Black-eyed Susan (Rudbeckia hirta)



Virginia switchgrass (Panicum virgatum)



Sedg (Carex pensylvanica)



Little bluestem (Cchizachyrium scoparium)



American holly (Ilex opaca)



American beech
(Fagus grandifolia)



American elm
(Ulmus americana)



Eastern red cedar
(Juniperus virginiana)

Landscape Resources

The following partial list of landscape resources (developed by the Maryland Department of Natural Resources) provides a starting point for home owners in identifying appropriate strategies for landscaping and green building in their home improvement efforts. These resources augment the information provided in this Pattern Book and can assist you in implementing the techniques presented.

Use Native Plants

For information:
- Maryland Department of Natural Resources [www.dnr.maryland.gov/ed/landscape.html]
- US Fish and Wildlife's BayScaping Program [www.fws.gov/chesapeakebay/Bayscapes.htm]
- Alliance for the Chesapeake Bay's BayScaping Program [www.alliancechesbay.org/bayscapes.cfm]
- Maryland Native Plant Society [www.mdflora.org]

To purchase native species:
- Adkins Arboretum: Ridgely, MD [www.adkinsarboretum.org]
- Environmental Concern, Inc. : St. Michael's, MD [www.wetland.org]
- Eastern Shore Nurseries, Easton, MD [410/822-1320]
- Water's Edge Nursery: Federalsburg, MD [410/479-9037]
- Ed Collins' Greenhouses: Preston, MD [410/673-7361]
- John S. Ayton State Tree Nursery [www.dnr.state.md.us/forests/nursery]

Install A Rain Barrel

For information:
- Maryland Department of Natural Resources [http://www.dnr.state.md.us/ed/rainbarrel.html]
- Arlington Echo Outdoor Education Center [www.arlingtonecho.net/rainbarrel.htm]

To purchase a rainbarrel:
- Arlington Echo Outdoor Environmental Center [www.arlingtonecho.net/rainbarrel.htm]

How to make your own rain barrel:
- Maryland Department of Natural Resources [www.dnr.state.md.us/ed/rainbarrel.html]
- [www.rainbarrelsandmore.com]
- [www.composters.com]

Establish A Rain Garden

For information:
- The Rain Garden Network [www.raingardennetwork.com]
- Maryland Department of Natural Resources [www.dnr.state.md.us/ed/editorials/RainGarden-Final.pdf]
- Prince George's County Maryland [www.goprincegeorgescounty.com/pgcounty/government/agencyindex/der/ppd/lid/bioretention.asp]
- Weems Creek Conservancy [www.weemscreek.org/proj-mine-raingarden.html]

Make Your House More Energy Efficient

For information:
- Maryland Department of Natural Resources [www.dnr.state.md.us /ed]
- Maryland Energy Administration [www.energy.state.md.us]
- Energy Star [www.energystar.gov]

To purchase energy efficient materials:
- Most materials are available at your local hardware store or on the web

Reduce Imperivous Surfaces

For information on roadway and parking lot design:
- Boston Metropolitan Area Planning Council [www.mapc.org/regional_planning/LID/roadways_parking_lots.html]
- US Environmental Protection Agency [www.epa.gov/owow/nps/lid]

For information on permeable paving:
- Low Impact Development Center [www.lowimpactdevelopment.org/epa03/pavespec.htm] [www.lid-stormwater.net/permeable_pavers/permpavers_benefits.htm]
- Cahill Associates [www.thcahill.com/pub.html]
- Most permeable paving materials can be found at local suppliers using specs from the above mentioned websites.

Environmentally Treat Stormwater

For more general environmental design information:
- Maryland Department of the Environment [www.mde.state.md.us/assets/document/chapter5.pdf]
- Maryland Department of Natural Resources [www.dnr.state.md.us/ed]
- Boston Metropolitan Area Planning Council [www.mapc.org/LID.html]
- Low Impact Development Center [www.lowimpactdevelopment.org]
- Center for Watershed Protection [www.cwp.org]
- Most commerical design and construction firms are versed in these techniques.

For more information on bioretention areas:
- Boston Metropolitan Area Planning Council [www.mapc.org/LID.html]
- US Environmental Protection Agency [www.cwp.org/Downloads/ELC_PWP110.pdf]
- Low Impact Development Center [www.lowimpactdevelopment.org/epa03/biospec.htm]
- Federal Highway Agency [www.fhwa.dot.gov/environment.ultraurb/3fs3.htm]

For more information on grass filter strips:
- Boston Metropolitan Area Planning Council [www.mapc.org/regional_planning/LID/grass_strip_filters.html]
- Stormwater Managers Resource Center, operated by the Center for Watershed Protection [www.stormwatercenter.net (select Fact Sheets; Stormwater Management; scroll down to Stormwater Management Practices; select Grassed Filter Strip from pulldown menu)]
- The Maryland Stormwater Design Manual www.mde.state.md.us/assets/document/chapter5.pdf

For more information on vegetated swales:
- Environmental Protection Agency [www.epa.gov/owmitnet/mbt/vegswale.pdf]
- Boston Metropolitan Area Planning Council [www.mapc.org/regional_planning/LID/swales.html]
- Low Impact Development Center [www.lowimpactdevelopment.org/epa03/LIDrans/L07_Swales.pdf]

Utilize Surrounding Environment

For information:
- Maryland Department of Planning [www.mdp.state.md.us]
- Urban Land Institute [www.uli.org]

Design for Pedestrians

For more information:
- The International City/County Management Association [www.icma.org/main/topic.asp?tpid=31&hsid=1]
- Fact Sheet on Design for Biking and Walking [www.icma.org/upload/library/2004-04/{1E040E8A-4A45-4BC0-B560-07D8BD2CE6D1}.pdf]
- Walkable Communities, Inc. [www.walkable.org]
- Healthy U of Delmarva [www.healthyudelmarva.org]

Glossary of Terms

Architectural Vocabulary A collection of related architectural elements, materials or stylistic conventions used to describe a building or structure.

Architrave The lowest part of an entablature, sometimes used by itself.

Backband A rabbeted molding applied to the outside perimeter of window and door casing to create a thicker appearance.

Balustrade An entire railing system including a top rail, balusters, and often a bottom rail.

Bioretention A water quality practice that utilizes landscaping and soils to treat stormwater runoff by collecting it before filtering through a fabricated planting soil media.

Boxed Eave (boxed cornice) A hollow eave enclosed by the roofing, the soffit and the building wall.

Brickmold Window or door trim, typically 2 inches wide.

Carriage Porch A roofed structure over a driveway at the door to a building, protecting those entering or leaving a vehicle from the weather.

Cartway That part of a road or street that is reserved for unimpeded vehicular travel.

Casement A window sash which swings open along its entire length; usually on hinges fixed to the sides.

Colonial Revival In the U.S. in the late nineteenth and early twentieth centuries, style utilizing American Georgian and colonial design.

Common Bond Brick masonry bond pattern of one course of headers to every three to five stretcher-courses.

Corner Board A board which is used as trim on the external corner of a wood-frame structure.

Cornice An ornamental molding at the meeting of the roof and walls; usually consists of bed molding, soffit, fascia, and crown molding.

Dentil One of a band of small, square, tooth-like blocks forming part of the characteristic ornamentation of some classical orders.

Encroachments Permitted intrusion into required setbacks.

Entablature In classical architecture, the elaborated beam member carried by the columns, horizontally divided into architrave, frieze, and cornice.

Facade Zone Designated area for the principal front and/or side face of a structure.

Fascia Generally, the vertical band or member that terminates a roof at the eave.

Filter Strips A vegetated area that treats ground water flow by removing sediment and other pollutants.

Frieze The middle horizontal member of a classical entablature, above the architrave and below the cornice.

Front Yard Setback Minimum distance between the front property line and the Front Facade Zone.

Gable The vertical triangular portion of the end of a building having a double-sloping roof, from the level of the cornice or eaves to the ridge of the roof.

Gable L Describes the massing of a house having a hipped roof with a projecting gable form at the front, typically two-thirds the width of the facade.

Gable Roof A roof having a gable at one or both ends.

Gambrel Roof A ridged roof with two slopes on each side, the lower slope having the steeper pitch.

Georgian Colonial The Classically-inspired architecture of the British colonies in North America; monumental, symmetrical, and richly decorated.

Hipped Roof A roof that slopes upward from all four sides of a building, requiring a hip rafter at each corner.

Impervious/Impermeable Material which prevents the infiltration or passage of liquid through it; any surface in the urban landscape that cannot effectively absorb or infiltrate rainfall.

Ionic Order The classical order of architecture characterized by its capital with large volutes, a fasciated entablature, continuous frieze, usually dentils in the cornice, and by its elegant detailing.

Knee wall Short, vertical partition wall that closes off the low space created by a sloping ceiling and the floor.

Light A pane of glass, a window or a subdivision of a window.

Lintel A horizontal structural member (such as a beam) over an opening which carries the weight of the wall above it.

Louver An assembly of sloping, overlapping blades or slats designed to admit air and/or light and exclude rain and snow.

Mullion and Muntin The vertical and horizontal members separating (and often supporting) windows, doors, or panels set in series.

Ogee Curve A double curve resembling an S-shape.

Pediment In classical architecture, the triangular gable end of the roof above the horizontal cornice. Also, a surface used ornamentally over doors or windows.

Pilaster An engaged pier or pillar, often with capital and base.

Porte cochère Large doorway that permits wheeled vehicles to enter from the street; also a carriage porch.

Portico A porch or covered walk consisting of a roof supported by columns; a colonnaded porch.

Private Zone Designated area of the lot between the Facade Zone(s) and Setbacks.

Rafter Tails A rafter, bracket, or joist which projects beyond the side of a building and supports an overhanging portion of the roof.

Rain Barrel A barrel that has been outfitted as a temporary storage container, connected to a roof downspout, typically including a hose attachment to allow for reuse of rooftop runoff.

RearYard Setback Minimum distance between the rear property line and the Private Zone.

Retention The amount of precipitation on a drainage area that does not escape as runoff. It is the difference between total precipitation and total runoff.

Roof Pitch The slope of a roof expressed as a ratio of its vertical rise to its horizontal span.

Sash Any framework of a window. May be movable or fixed; may slide in a vertical plane or pivoted.

Shed Dormer A dormer window whose eave line is parallel to the eave line of the main roof instead of being gabled.

Shed Roof A roof shape having only one sloping plane.

Side Gable Describes the massing of a house having the gable end (or roof ridgeline) perpendicular to the street.

Side Street Setback Minimum distance between the side street property line and the Side Yard Facade Zone.

SideYard Setback Minimum distance between the side yard property line and the buildable area.

Simulated Divided Light Refers to a light in a window sash that is visually subdivided by applied muntins that simulates a true divided sash.

Skirt Board A board set horizontally at the bottom of wall cladding.

Soffit The exposed undersurface of any overhead component of a building, such as a beam, cornice, lintel, or vault.

Stile-and-rail Type of door construction that utilizes a framework of vertical and horizontal members infilled with panels.

Swale An open drainage channel or depression, frequently covered with vegetation, designed to detain and promote the filtration of stormwater runoff.

Tongue-and-groove Method of joining materials, usually wood, where a tongue or projection in one board fits the groove of its neighbor.

Transom A horizontal bar of wood or stone across a window. Also the window or opening above the transom bar.

Verge The edge projecting over the gable of a roof. Also, the area of planting, lawn or pavement between the sidewalk and the curb on a street.

Vergeboard An ornamental board hanging from the rake, or verge, of a gable roof; also barge board.

Vernacular Architecture A mode of building based on indigenous forms and materials.

Vocabulary (also Architectural Vocabulary) A collection of related architectural elements, materials or stylistic conventions used to describe a building or structure.

Watershed The topographic boundary within which water drains into a particular river, stream, wetland, or body of water.

Wing a subsidiary part of a building extending out from the main portion or body.

References

Classical Architecture. Adam, Robert. Penguin, 1991

A Pattern Language. Alexander, Christopher. Oxford, 1976

American House Styles. Baker, John. Norton, 2002

Identifying American Architecture. Blumenson, John. Rowman & Littlefield, 1995

The Visual Dictionary of American Domestic Architecture. Carley, Rachel. Henry Holt, 1997

The Grammar of Architecture. Cole, Emily. Bullfinch, 2002

Clues to American Architecture. Klein, Marilyn W. and David P. Fogle. Starrhill Press, 1986

Architecture of the Old South. Lane, Mills. Abbeville Press, 1993

A Field Guide to American Houses. McAlester, V. & L. Random House, 1984

What Style Is It? Poppeliers, John. John Wiley & Sons, 1977

Traditional Details for Rehabilitation and Reconstruction. Ramsey, C. & Sleeper, H. John Wiley & Sons, 1998

A Concise History of American Architecture. Roth, Leland. Westview Press, 1980

American Homes, An Illustrated Encyclopedia of Domestic Architecture. Walker, Lester. Black Dog & Leventhal, 1996

The American Vignola. Ware, William R. Dover, 1994

American Architecture Since 1780. Whiffen, Marcus. MIT Press, 1988

A Pattern Book History

All across this country, in small towns, large cities, villages and hamlets, you will find remarkably beautiful traditional neighborhoods. Denton is no exception. These collections of houses were designed and grouped together to create a series of neighborhood streets and spaces of remarkable charm and character. Much though we admire the variety and individuality of these houses, we are most struck by the way in which each individual house and public building relates to its neighbors and the consistently high design standards followed by all. There is never a discordant or incorrect house.

Initially, houses and towns were built on the frontier of the wilderness, often far removed from civilization. The rapid growth of our country resulted in a series of building booms, in which thousands of houses were built each decade in each community. And yet, the results of this mass production were carefully crafted houses in a variety of architectural styles, all with superb proportions and ornament. Windows, doors, roof forms, and porches followed complex and sophisticated design principles and patterns.

How was such a sophisticated level of design maintained across so wide a geographic area and for nearly 150 years? There were certainly not enough architects to design each of the houses. Architects did, however, contribute designs and principles to the building industry in a series of builders' handbooks known as Pattern Books. These books contained the principles and key details for a variety of architectural styles. They were the direct descendants of books created since Roman times, the means by which architects have passed along their knowledge of design to builders in remote places. From Vitruvius, to Palladio, to Asher Benjamin, to William Ware, architects provided helpful guides for the building industry.

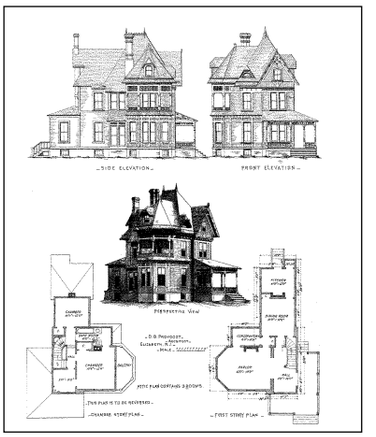
In the second half of the nineteenth century, Pattern Books became part of builders' marketing programs. These attractively designed books were easy to understand. Their pages combined realistic drawings of houses along with floor plans and important details. There were many choices of floor plans and arrangements of architectural elements, but all used the details and proportions of the style.

Pattern Books set the rules, but each builder found ways of interpreting them, elaborating them, or even bending them. The result is the much-admired balance between individual expression and unity found in traditional neighborhoods. The patterns and elements of style were expressed differently in each region and often elements were 'cross-bred' across different styles. They represented a consensus among architects, builders, realtors, and home buyers on the way to design buildings and communities. Later on in the early and mid portions of the twentieth century, mail order houses were enormously popular. Companies such as Sears, Alladin, Standard Homes Company, and others, created volumes of varied house designs available directly to consumers.

A PATTERN BOOK REVIVAL

Our goal in reviving the Pattern Book tradition is to help builders, home owners and architects understand the elements and principles of design that help create the distinct character and image of each distinct tradition.

Urban Design Associates (UDA) Pattern Books are designed as a 'kit of parts,' with a great deal of flexibility for the designers and builders who use them.



This example of Pattern Book pages originally published by William T. Comstock in 1881 is typical of the books used by American builders through the early part of the twentieth century.

Key construction and proportioning details were illustrated and described in a popular nineteenth-century builder's reference entitled *The Builder's Companion,* by Asher Benjamin (example below).

