Planning Commission
MEETING AGENDA

Thursday, October 19, 2023 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Call to Order

2. Approval of Minutes.

a. Approval of the Decision Summary from the September 21, 2023 meeting.

3. Old Business

a.

Applicant:	Lane Engineering, LLC
File No.:	2023-916
Location:	9196 Mistletoe Drive Lot 1 Tax Map 25, Grid 16, Parcel 0138, Lot 1
Zoning District:	I
Nature of Request:	Architectural approval of a proposed warehouse building and a one-story office building with associated stormwater management, parking and landscaping.

b.

Applicant:	Rise Up Dover Road LLC
File No.:	2023-870
Location:	625 Dover Road Tax Map 103, Grid 0EA, Parcel 0990
Zoning District:	R-7A
Nature of Request:	Amendment to a previously approved Planned Unit Development (PUD) for the addition of an 8' x 12' walk-in cooler to the existing kitchen unit, and the addition of a 12' x 24' storage shed to the existing property located at 625 Dover Road, also known as Tax Map 103, Parcel 0990.

4. New Business

a.

Applicant:	Phillips Signs Inc.
File No.:	2023 - 1048

	Location:	499 Idlewild Avenue Tax Map 105, Grid 000, Parcel 2366
	Zoning District:	BC
	Nature of Request:	Signage permit approval where two (2) or more businesses occupy one (1) building with a common entrance.
b.	**Applicant:**	Lane Engineering
	File No.:	2023 - 1028
	Location:	29315 Dover Road - East Coast Vets Tax Map 105, Grid 000, Parcel 2844, Lot 3
	Zoning District:	CG
	Nature of Request:	Sketch Site Plan and Architectural approval for a proposed two-story addition and parking lot expansion to an existing single-story veterinarian clinic.
c.	**Applicant:**	Shore Health System / University of Maryland Medical System
	File No.:	2023 - 1027
	Location:	Longwoods Road, Parcel 0129 Tax Map 017, Grid 023, Parcel 0129, Lot 3/5
	Zoning District:	RH
	Nature of Request:	Sketch Site Plan approval for a proposed medical center with associated stormwater management facilities, parking and utilities. In addition, the applicant is requesting a Supplemental Waiver for landscaping and buffering requirements.

5. Discussion Item

a. Zoning Requirements for Adult-Use Cannabis Dispensaries.

b. Continue discussion of the Comprehensive Plan Update.

c. Continue discussion of Amendments to Zoning Ordinance.

6. Adjournment.

Town of Easton Planning Commission
Draft Decision Summary
Thursday, September 21, 2023 at 1:00 p.m.
Town Hall Chamber 2
14 S. Harrison Street, Easton

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

Attendance:

Commission Members:
Jennifer Dindinger, Chairperson
Philip Toussaint, Vice Chairperson
William Ryall
Paul Weber

Absent:
Commission Members:
Victoria McAndrews
Tom Klein, Alternate

Staff:
Miguel Salinas, Planning and Zoning Director
Lynn B. Thomas, Town Planner - Long Range
Joseph Mayer, Plan Reviewer
Nicholas Johnson, Town Planner - Current
Sharon Van Emburgh Esq, Town Attorney
Rick Van Emburgh, Town Engineer
Samantha Smith, Administrative Specialist

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

2. **Decision Summary Review** —

   a. August 17, 2023 - The Commission noted the following correction to the draft decision summary:

      i. Item 3b.: Addition of the Zoning District.
      ii. Item 4.a. : Grammatical corrections.

Commissioner Weber moved to approve the August 18, 2023 Decision Summary with amendments. Commissioner Ryall seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Dindinger, Toussaint, Ryall, Weber
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - McAndrews

3. **Old Business —** None

4. **New Business**

a. **Applicant:** **Phillips Signs**
File No.: **2023 - 1020**
Location: 8133 Elliott Road, Easton, MD 21601
Tax Map 109, Grid 000, Parcel 4582, Lot 1
Zoning: CG
Request: The applicant is seeking signage permit approval where two (2) or more businesses occupy one (1) building with a common entrance.

Staff recommends the following condition:

1. The applicant shall obtain building permit approval for the installation of the signs.

Staff Presentation:
Joseph Mayer, Plan Reviewer
Miguel Salinas, Director of Planning and Zoning

Applicant Presentation:
Matthew Phillips

Public Comment — None

Commissioner Weber moved to approve the application as submitted.
Commissioner Ryall seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Dindinger, Toussaint, Ryall, Weber
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - McAndrews

b. **Applicant:** **Far Eastern Shore Winery**
File No.: **2023 - 989**
Location: 8370 & 8374 Ocean Gateway, Easton, MD 21601
Tax Map 103, Grid 0EA, Parcel 2952
Zoning: CG
Request: The applicant is seeking approval of a master signage plan and to allow a 19' tall non-conforming freestanding sign with a 156" x 46.15" sign and a 108" x 18" rearboard sign to be installed within the same footprint of the previous sign. An additional wall sign will occupy the front of the building, above the first floor windows.

Due to the complexity of the existing sign placement and close proximity to Ocean Gateway's right-of-way, staff recommended the applicant to consider an alternate design such as additional wall mounted signs and/or a roof mounted sign.

Staff Presentation:
Joseph Mayer, Plan Reviewer
Lynn B. Thomas, Town Planner
Miguel Salinas, Director of Planning and Zoning
Sharon Van Emburgh Esq, Town Attorney
Rick Van Emburgh, Town Engineer

Applicant Presentation:
Tien Seng-Chiu, Rejoice LLC
Tara Seng-Chiu

Public Comment:
Carol Prettyman, Owner

Commissioner Ryall moved to approve the Master Signage Plan with the condition that the applicant shall obtain the appropriate building permits for the installation of the signs. Commissioner Weber seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Dindinger, Toussaint, Ryall, Weber
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - McAndrews

c. Applicant: **8685 Commerce Drive, LLC**
File No.: **2023 - 937**
Agent: Elizabeth "Ebie" Fink, Fink, Whitten & Associates, LLC
Location: 8685 Commerce Drive, Easton, MD 21601
Tax Map 101, Grid 002, Parcel 0004, Lot 28
Zoning: BC
Request: The applicant is seeking sketch site plan approval to construct a 3,920 square foot pole building to be used as a contractor's warehouse/storage. Staff recommends the following condition:

1. Add planting to the interior parking lot: one (1) tree per 10 spaces.

Staff Presentation:
Joseph Mayer, Plan Reviewer
Miguel Salinas, Director of Planning and Zoning
Rick Van Emburgh, Town Engineer

Applicant Presentation:
Elizabeth "Ebie" Fink
Brandon Davis, DMS & Associates, LLC

Public Comment — None

Commissioner Weber moved to approve the Sketch Site Plan with the following conditions:

1. **The applicant shall obtain design approval for the access to the stormwater maintenance feature as deemed appropriate by staff.**

2. **The submission of the Development Site Plan shall include the same architectural elevations of the proposed building as presented.**

Commissioner Ryall seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Dindinger, Toussaint, Ryall, Weber
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - McAndrews

d. Applicant: **DMS & Associates, LLC**
File No.: **2023 - 959**
Location: Elliott Road Parcel 2849, Easton, MD 21601
Tax Map 109, Grid 0000, Parcel 2849, Lot 4
Zoning: CG
Request: The applicant is seeking sketch site plan approval for two (2) proposed climate-controlled self-storage buildings. Building #1 is 26,244 square feet, and Building #2 is 11,000 square feet.

Staff recommends the following condition:

1. The applicant is required to provide additional landscape buffering behind Building #1 on the northwest side of the building with a native plant species that is best suited to be adjacent to the Stormwater Management Facility.

Staff Presentation:
Joseph Mayer, Plan Reviewer
Miguel Salinas, Director of Planning and Zoning
Rick Van Emburgh, Town Engineer

Applicant Presentation:
Brandon Davis, DMS & Associates, LLC

Jay Friel, Owner
Stan Friel, Owner

Public Comment — None

Commissioner Ryall moved to approve the Sketch Site Plan with the condition that the applicant provide additional landscape buffering behind Building #1 on the northwest side of the building with a native plant species that is best suited to be adjacent to the Stormwater Management Facility. Commissioner Weber seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Dindinger, Toussaint, Ryall, Weber
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - McAndrews

e. **Applicant:** **Robert S. Collison, P.A.**
File No.: **2023 - 963**
Location: 9719 Ocean Gateway, Easton, MD 21601
Tax Map 0025, Grid 0006, Parcel 0113
Current County Zoning: GC
Requested Town Zoning: CG
Request: The applicant is seeking Annexation of 3.25 acres of property located at 9719 Ocean Gateway, Easton Maryland with a formal recommendation to the Town Council on the annexation and the appropriate zoning classification.

Staff recommends that the Commission recommends approval of the Annexation, finds the proposed annexation request consistent with the Comprehensive Plan, and recommends the assignment of the General Commercial (CG) Zoning Classification to the Property.

Staff Presentation:
Lynn Thomas, Town Planner
Miguel Salinas, Director of Planning and Zoning
Sharon Van Emburgh Esq, Town Attorney
Rick Van Emburgh, Town Engineer

Applicant Presentation:
Robert S. Collison, P.A.
Kier Singh, Basi Brothers, LLC

Public Comment — None

Commissioner Weber moved to forward a positive recommendation to the Town Council for their approval with the following determinations:

1. **The proposed Annexation request is consistent with the Town's Comprehensive Plan.**

2. **The Commission recommends the assignment of the General Commercial (CG) Zoning classification to the annexed parcels.**

Commissioner Ryall seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Dindinger, Toussaint, Ryall, Weber
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - McAndrews

f. Applicant: **St. Vincent de Paul**
File No.: **2023 - 998**
Agent: Brett Ewing, Lane Engineering LLC
Location: 29533 Canvasback Drive, Easton, MD 21601
Tax Map 109, Grid 000, Parcel 4582, Lot 32
Zoning: BC
Request: The applicant is seeking sketch site plan approval to construct a 2,400 square foot building expansion to be utilized for administrative space. The applicant is also seeking to expand the parking lot with the addition of ten (10) parking spaces, to add a drive aisle and other associated improvements. Three (3) existing parking spaces are required to be removed to necessitate the construction of the drive aisle.

Staff Presentation:
Joseph Mayer, Plan Reviewer
Lynn Thomas, Town Planner
Miguel Salinas, Director of Planning and Zoning
Rick Van Emburgh, Town Engineer

Applicant Presentation:
Brett Ewing

Public Comment — None

Commissioner Ryall moved to approve the Sketch Site Plan as submitted. Commissioner Weber seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Dindinger, Toussaint, Ryall, Weber
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - McAndrews

g. Applicant: **McAllister, DeTar, Showalter & Walker LLC**
File No.: **2023 - 997**
Location: Corner of Elliott Road & MD RT 328 (Matthewstown Road), Easton, MD 21601
Tax Map 109, Grid 000, Parcel 2866, Lot 9
Zoning: PUD (CG Base Zoning District)
Request: The applicant is seeking

Staff Presentation:
Joseph Mayer, Plan Reviewer
Miguel Salinas, Director of Planning and Zoning
Sharon Van Emburgh Esq, Town Attorney

Applicant Presentation:
Brendan Mullaney, Esq., MDSW LLC
Brett Ewing, Lane Engineering
Victoria Hauffman
Jim Didinato

Public Comment — None

Commissioner Weber moved to approve the sketch site plan and to forward a positive recommendation to the Town Council regarding the proposed PUD Amendment with the following conditions:

1. **The applicant shall monitor parking usage, and shall designate additional parking spaces to satisfy additional demand, if needed.**

2. **The applicant shall monitor the demand for electric charging stations, and shall provide any necessary infrastructure to fulfill the demand.**

Commissioner Ryall seconded the motion.

Vote	4 - 0 - 1
FOR:	4 - Dindinger, Toussaint, Ryall, Weber
AGAINST:	0
ABSTAIN:	0
ABSENT:	1 - McAndrews

h. Applicant: **5001 SHR, L.C.**
File No.: **2023 - 1024**
Agent: Ryan Showalter, Esq.
Location: Oxford Road - Poplar Hill, Easton, MD 21601
Tax Map 042, Grid 0004, Parcel 0057
Zoning: R-10A
Request: The applicant is seeking sketch plat subdivision approval to construct 119 single-family residential units. The applicant is also seeking a waiver to allow an alley length of 616'.

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

Applicant Presentation:
Ryan Showalter, Esq., MDSW LLC
Brett Ewing, Lane Engineering
Jarret Beyer, Lane Engineering

Public Comment:
Tom Ledvina, Papermill Crossing HOA

Chairperson Dindinger moved to approve the sketch subdivision plat and the supplemental waiver request with the following conditions:

1. **The applicant shall address all ESDR review comments and the Engineering Department response letter dated August 29, 2023, in conjunction with the submission of a Preliminary Subdivision Plat.**

2. **The Maryland State Highway Administration and Town's Engineering Department shall coordinate to decide on the right-in/right-out at the intersection.**

Commissioner Weber seconded the motion.

Vote	3 - 0 - 1 - 1
FOR:	3 - Dindinger, Toussaint, Weber
AGAINST:	0
ABSTAIN:	1 - Ryall
ABSENT:	1 - McAndrews

5. **Discussion Items**

   a. The East End Small Area Project — The Planning and Zoning Department will hold a public kick-off meeting and workshop on Thursday, October 5, 2023 at 6:30 p.m. at the Waterfowl Building to start the process of developing the East End Small Area Plan. This project is to update the existing East End Housing and Neighborhood Revitalization Plan (approved in September, 1997) to reflect the area's current needs.

6. **Adjournment** — Chairperson Dindinger moved to adjourn. Commissioner Ryall seconded the motion. The meeting was adjourned at 3:53 p.m.

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

Date of Hearing: October 19, 2023

3a

PLANNING COMMISSION
PUBLIC HEARING
STAFF REPORT

SUBJECT:	**9196 Mistletoe Drive – Total Home Performance**
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
APPLICANT:	Pro Wellness Group LLC

DOCUMENT CREATED ON: October 10, 2023

PURPOSE: The applicant is seeking architectural approval from the Planning Commission.

RECOMMENDATION: Staff supports Planning Commission approval of the proposed architecture subject to conditions (see below).

APPLICATION INFORMATION:	
APPLICANT: Pro Wellness Group LLC	**REPRESENTATIVE:** Lane Engineering, LLC.: Brett Ewing Pro Wellness Group LLC: Matt Hargrove
PARCELS/ACREAGE:	

Parcel Information	Acreage
Map 025, Grid 0016, Parcel 0138	10.049

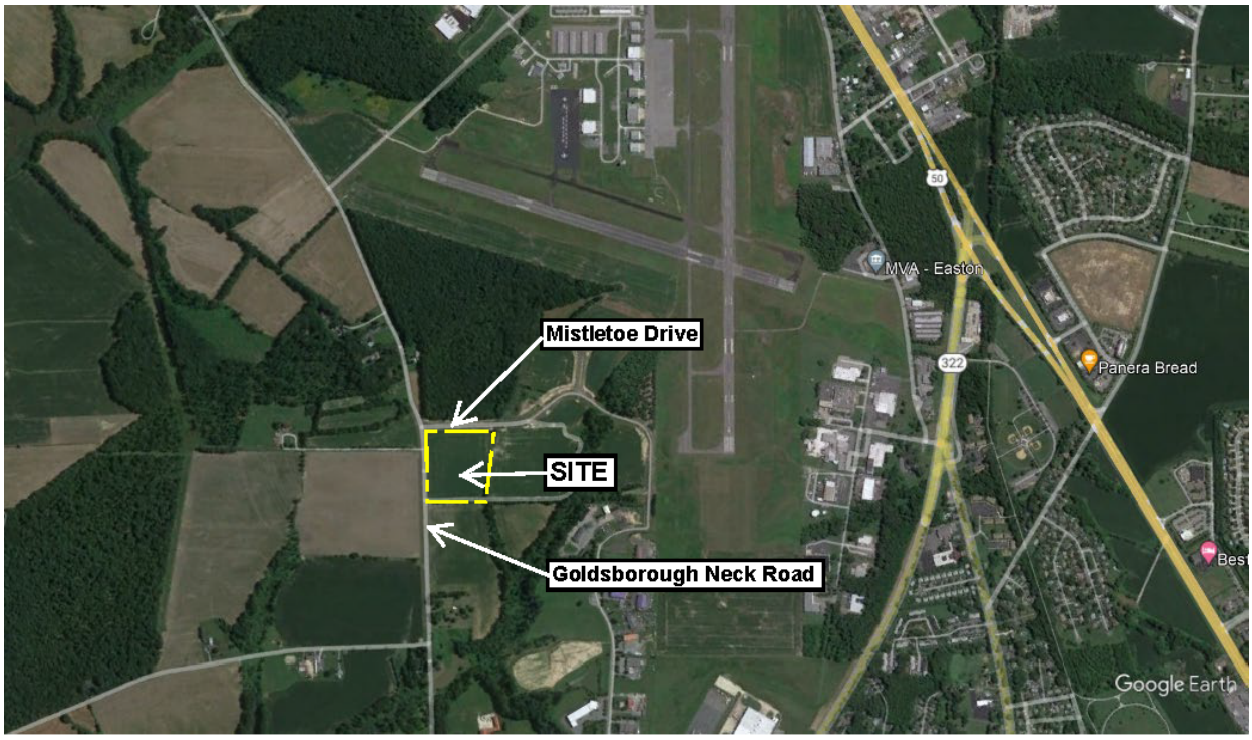
ACCEPTANCE DATE: October 2, 2023	**LOCATION:** 9196 Mistletoe Drive
EXISTING ZONING I	**EXISTING LAND USE:** Vacant parcel within the Mistletoe Hall Commerce Business Park.
HISTORIC DISTRICT: Not Applicable	**FUTURE LAND USE MAP:** Industrial

CONTEXT:
Location/Site Access – The subject property is located within the "Mistletoe Hall Commerce Business Park" on the Southeast corner of Goldsborough Neck Road and Mistletoe Drive, fronting on the south side of Mistletoe Drive.

Existing Conditions – The subject property is currently unimproved.

Surrounding Properties
- Parcel 158, Goldsborough Neck Road – Talbot County, MD
- 9155 Mistletoe Drive – I
- 9170 Mistletoe Drive – I
- Parcel 100, Goldsborough Neck Road – Talbot County, MD
- Parcel 129, Goldsborough Neck Road – Talbot County, MD
- Parcel 139, Goldsborough Neck Road – Talbot County, MD
- 9293 Goldsborough Neck Road – Talbot County, MD

Figure 1: **Vicinity Map**



PROPOSAL: The applicant is proposing to construct an office building and warehouse with associated parking, stormwater management facilities and landscaping.

BACKGROUND: The applicant submitted an application to the Easton Staff Development Review Committee on April 26, 2023. Then , on May 18, 2023, the Town of Easton Planning Commission reviewed a Site Plan application for Site Plan and Architectural approval of the proposed 16,000 square foot warehouse building and a 10,000 square foot one-story office building with associated stormwater management, parking and landscaping. The Commission voted 5-0 to approve the Site Plan subject to the condition that the applicant shall return with improved architectural renderings that is consistent with the overall look of Mistletoe Hall Commerce Park.

ZONING ANALYSIS:

A. Permissible Land Uses

28-201 table 2.1 (1) 103.7 **I**

505	Contractor's Office w/ no outside storage	--	--	--	--	P	P	P	P	P		

Analysis –The proposed project is presented and described by the Applicant as a one-story office building with an associated warehouse for a construction related business. The project is categorized as a *"Contractor's Office with no outside storage"*. The proposed use is outright permitted within Table 2.1 Table of Permissible Uses. For the purpose of parking calculations, the use is considered a "Construction-related business."

B. Off-Street Parking

28-1001.3 Parking Requirements

	Use/Activity	Minimum Vehicle Spaces	Maximum Vehicle Spaces	Minimum Bicycle Spaces	Notes
	Industrial Buildings				
38	Construction-related businesses	1 per 1,000 sf GFA	1 space per 200 sf GFA	--	

Total Site Parking Required:
Construction-related businesses: 1 Space /1,000 SF GFA; 26 Spaces Required- Minimum
1 Space /200 SF GFA; 130 Spaces Required- Maximum
Total spaces provided: 49

Analysis- The applicant has provided forty-nine (49) off-street parking spaces. If there was a demand for more parking spaces in the future, there's ample space to expand on the East side of the site.

C. Industrial District Development Standards

Table 1. Development Standards		
I Zoning District	**Standard**	**Proposed**
Setbacks	Front = 25 feet Side = 10 feet Side = 25 feet if adjacent to residentially zoned properties. Rear = 25 feet	Front = 40 feet Side = 10 feet Side – Not applicable. Rear = 50 feet
Lot Size (min.)	40,000 square feet	437,734 square feet
Lot Frontage (min.)	100 feet	675.16 feet
Building Envelope (min.)	30 feet x 80 feet	615 feet X 625 feet

Lot Coverage (max.)	50% (Lot Area)	6% (Lot Area)
Height (max.)	40 feet	33.17 feet
Bufferyard	Per the provisions of Section 28-1014 of the Zoning Ordinance.	Bufferyard 'B' provided.

Development within the Industrial District shall also meet these additional requirements:

- ***Off-street parking shall be provided in accordance with the provisions of Section 28 – 1001.***

- ***All storage areas 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.***

- ***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 site falls under the I - Industrial District Area and meets the 28-309 Development Standards. In addition to the Development Standards, the Applicant is required to adhere to the November 5, 2021 Declaration of Covenants for Mistletoe Hall Commerce-Business Park-Book: 2916, Page: 104. Compliance with these covenants is summarized and analyzed below.

Any comments or concerns from the ESDR review letters will be addressed during the Development Site Plan review.

C. Forest Conservation

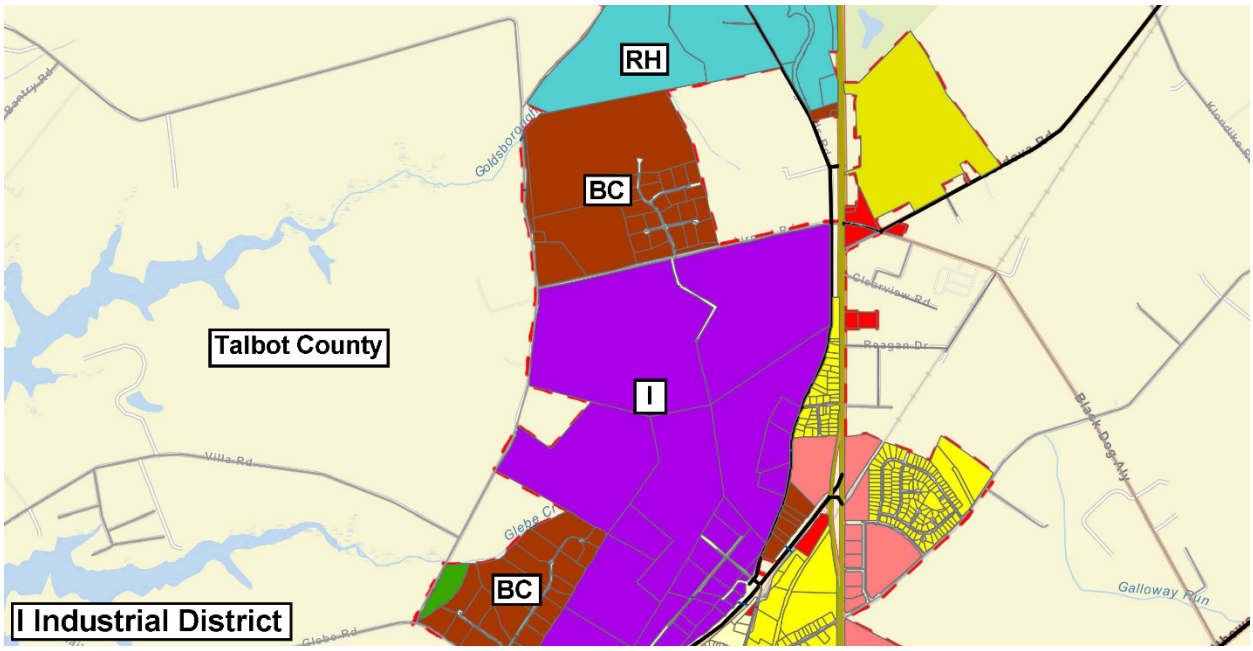
Easton Forest Conservation Ordinance #718, Article III, **§ 31-3.1** ***Relevance***

A. Any person making an application for a subdivision, project plan, grading, or sediment and erosion control approval on units of land 40,000 square feet or greater after the effective date of this Ordinance.

Analysis - The site is located within the Mistletoe Hall Commerce-Business Park. Forest Conservation was approved at the original Subdivision Plat (Plat KMD 87/124).

POLICY ANALYSIS:

Figure 2: Zoning Map



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: *This development proposal provides additional office and associated construction business related warehouses in this mixed business park.*

Staff notes that the proposed development fits within the industrial nature of this business park.

(Principle #2) Natural features should determine design – *Applicant's response: No compelling natural features; site layout oriented to take advantage of natural drainage patterns and to orient "office" buildings front to street warehouse to the rear.*

Staff notes that there are no compelling natural features on site. Forest Conservation was approved at the original Subdivision Plat (Plat KMD 87/124).

(Principle #3) Automobiles should not determine design – *Applicant's response: Parking for office users and customers provided for convenience with bulk of the parking to the front or side of the facility.*

Staff notes that the applicant has provided adequate off-street parking.

(Principle #4) Ample Open Space should be provided within & around neighborhoods – *Applicant's response: Usable open space not applicable here.*

Staff notes that open space is provided within the business park and was approved at the original Subdivision Plat (Plat KMD 87/124).

(Principle #5) Architecture should respect Easton's Historical Development – *Applicant's response: This application proposes architecture compatible with Easton and the Mistletoe Hall Commerce-Business Park's architectural Palette.*

(Principle #6) Signs should inform but not dominate – *Applicant's response: Signage, simple and per code.*

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) Neighbors 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: Not applicable to this application.*

(Principle #9) Neighborhoods should connect – *Applicant's response: Not specifically applicable to this application.*

Staff notes that although this Principle generally applies to residential subdivisions, Mistletoe Hall does connect to the adjacent Talbot Commerce PArk and provides two means of access.

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 proposed site is not within the Historic District or the Critical Area. This project would provide an office and a construction related warehouse with improved amenities; adequate 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. Adequate off-street parking is provided.

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 an industrial zoned commerce park. Proposed use would provide an office building with an associated warehouse, adequate parking, landscaping features and stormwater management facilities.

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.

DECLARATION OF COVENANTS FOR MISTLETOE HALL COMMERCE-BUSINESS PARK ANALYSIS:

MISTLETOE HALL COMMERCE-BUSINESS PARK
COVENANTS

Checklist of Submission Requirements - October 10, 2023

Project Name: Total Home, Lot 1

Allowable Uses	As permitted in the Zoning Code	☑	Contractor's Office without no Outside Storage are permitted by-right in the I zoning district
Prohibited Uses	**Prohibited Uses**		

	Uses and the manufacturing, processing, and storage of materials and products which cause an undue fire or health hazard to adjoining lots, or which constitute a nuisance or cause an emission of noxious odors, gases or smoke	☑	
	Prohibited Operation or Use		
	No operation or uses which causes or produces the following effects outside any lot or portion of lots subject to the covenants: ● Smoke ● Noxious, toxic, or corrosive fumes or gases ● Obnoxious odors ● Dust, dirt, or fly ash ● Unusual fire or explosive hazard ● Intense glare or heat ● Intense vibration ● Excavation, with the exception of excavation for the construction of improvements with proper protection of adjacent lots and, upon completion, shall be backfilled and disturbed ground shall be graded and stabilized	☑	
Development Standards	**Site Design**		
	Massing, scale, color, and circulation relates to adjacent buildings and to the total development	☑	

	Architectural Standards		
	Massing and scale of larger buildings are broke down into smaller and varied volumes	☑	

	Buildings exceeding 20 feet in height: ● Base capped with a molding or reveal placed between 2 ft. and 4 ft. in height with a depth of at least 2 inches and a height of at least 4 inches ● Middle may include multiple stories, windows, doors, and balconies capped with a molding or reveal which shall have a depth of at least 2 inches and a height of at least 4 inches ● Cap includes the area from the middle to the roof and includes a cornice, eave, parapet, or overhang	☑	Base consists of 4' high contrasting black wainscot. The base is capped with a 2" deep by 4" trim. Middle consists of windows set in off-white steel siding as well as doors (including storage doors). Cap feature is a 4" high header metal trim from the middle of the building to the roof.
	Major architectural expressions employed such as corner massing, oversized windows-entrances and roof form to demarcate and anchor key locations	☑	Elevations are broken up by 10' x 24' +/- facade returns spaced 55' creating a change in the exterior plane.The east elevation also includes evenly spaced garage doors.
	Solid walls to not exceed 60 feet in length without a minimum 10-foot facade return, offset, or change in plane	☑	Elevations are broken up by 10' x 24' +/- facade returns spaced 55' creating a change in the exterior plane. The east elevation also includes evenly spaced garage doors.
	Exterior Materials		
	Building finish applied to all publicly-visible sides and neighboring lots and streets	☑	Use of gray steel panels with 4-foot-high wainscot of contrasting black panels.
	Traditional, durable, and environmentally sustainable materials. Examples include: ● Brick or or tile burned clay with color and texture to be approved	☑	Use of gray steel panels with 4-foot-high wainscot of contrasting black panels with sufficient return.

	• Concrete masonry units with no plain concrete block on the front of any building, no exposed gray concrete block on any elevation, and gray cement color to be coated • Poured in place or tilt-up concrete walls with a finish of stone, a texture or coating • Coated precast concrete units which are not uniform in color • Concrete finishes for front elevations shall have a wainscot treatment with returns at least 4 feet on the adjacent side elevation • Concrete textured finishes • Cementitious-type or an epoxy-type concrete coating with a life expectancy of a minimum 10 years • Steel panels with a wainscot using dissimilar approved materials at least 4 feet in height when used for a front building elevation and a 4-foot return on adjacent side walls • Wood or wood products • Vinyl • Glass or glass block		
	Roofs		
	Minimum pitch of 5:12 unless 4:12 pitch or less and surrounded by a parapet wall	☑	
	Roof mounted equipment screened by a parapet wall integrated into the architecture	☑	
	Colors		
	Shall be approved by the Town Mayor	☐	***TBD***
	Temporary Improvements		
	Temporary buildings and other temporary improvements are prohibited	☑	
Automobile Parking	**Off-Site Parking**		

	Number of spaces in accordance with the ZO without overbuilding	☑	

	Employee and company vehicles designated in the side and back of the property and located as to not compete with patron parking	☑	Designate location of company vehicles noted on Site Plan.
	Patron parking generally located in the front of the property	☑	
	Off-Site Parking		
	No parking within the street ROW within the property	☑	
	Parking Area Standards		
	Paved with asphalt, concrete, or pervious pavers	☑	
	Front ends of parking spaces shall consist of concrete curbs or curb stops	☑	Vertical curb noted on plan.
	Concrete curbing provided at the radius of all parking access entries off public roads	☑	Vertical curb noted on plan.
	Exposed edge of all curbs, parking areas, or walkways installed with grass, ground cover, or mulch	☑	
	Special paving materials may be used to accent special entrance areas or walkways	☑	
	No more than 7 consecutive, single-loaded spaces provided without a landscaped island measuring at least 6 feet in width	☑	
	Parking spaces lined or striped in accordance with the Town's required parking space size	☑	
	Screening		
	Parking screened from view as much as possible by depressing grades, landscaping, and/or berms	☑	

Truck Loading and Parking	Loading docks located in the rear and side of buildings	☑	
	Loading docks screened from view so that trucks using docks are not readily visible from public streets	☑	

	Loading docks screened from view by the building, landscaping, walls, or decorative fencing	☑	
	No overnight parking of trucks and commercial vehicles parked outside the building overnight except in the rear or in suitably screened areas	☑	
	Loading areas shall not encroach into setback areas unless approved by the Declarant in writing	☑	
	Loading areas located in side yards shall be set back and screened to minimize the effect from the street and from neighboring lots	☑	
	Loading doors and docks shall not be closer than 100 feet to the street.property line, unless specifically approved by the Declarant in writing	☑	
	Loading areas are prohibited on the front of any building	☑	
Storage	No materials, supplies, or equipment stored for more than 24 hours in any area except inside a closed building or behind a visual barrier completely screened from view of adjoining lots or public streets (if screened from view by landscaping, buffer must be opaque within 5 years of installation)	☑	
	Garbage and refuse containers completely concealed from view by a screening wall constructed of material compatible with the building, landscaping materials or decorative fencing with screening located in a side or rear yards of the lot	☑	

Outdoor Work Areas	No work areas permitted on any lot except inside a closed building or behind a visual barrier completely screened from view of adjoining lots and public streets	☑	
Storage Tanks	Prohibited unless approved by the Declarant in writing	☑	
Trailers	Except for a temporary period during construction, prohibited when used for storage purposes	☑	

Landscaping	All open areas not occupied by buildings and paved areas **and** open areas between each lot's property boundaries and the edge of paving along the street frontage shall be suitably graded and drained and landscaped with lawns, trees, shrubs, and flower beds	☑	
	Each lot - landscaped areas no less than 12.5%	☑	
	Natural vegetation retained to the greatest extent possible	☑	
	Copy of the landscape plan showing preservation of natural areas; planting of trees, shrubs, flower beds, grass; and installation of earth berms, screens, and underground sprinkling systems (if applicable) submitted to the Declarant for approval in conjunction with the site plan	☑	
	Landscape plan showing components reflecting seasonal changes in the plans	☑	
	Plant material in conformance with the American Standard for Nursery Stock, latest edition	☑	
	Landscape Plan prepared by a registered landscape architect, certified by the State of Maryland	☑	
	Landscaping installed within the next planting season of occupancy or within 6 months of substantial completion (date on which the exterior walls and roofs have been installed) of any Building, whichever occurs first, provided that an extension may be granted by the Declarant	☑	

Tree Removal	No healthy tree with a diameter exceeding 4 inches may be approved without written approval from the Declarant unless removal is necessary in connection with the location of a building, loading area, driveway or other improvement	☑	
Exterior Lighting	Compatible and harmonious throughout the property	☐	No site lighting proposed, only security wall pact.

	Lighting sources screened from view or directed downward and shielded	☐	No site lighting proposed, only security wall pact.
	Automobile and truck parking areas, if illuminated, shall be directed downward and screened to reduce visible glare from the street	☐	No site lighting proposed, only security wall pact.
Signs	Permanent signs for identification only and may not be an advertising device	☑	Any proposed signage must conform.
	Text limited to company name or logo	☑	Any proposed signage must conform.
	No permanent, painted signs permitted	☑	Any proposed signage must conform.
Fencing	Natural areas are preferred for enclosing and screening	☑	
	Black or dark brown vinyl clad chain link fencing, CMU, concrete, brick, and stone walls permitted	☑	

RECOMMENDED CONDITION:

- Staff recommends the Planning Commission approve the sketch site plan with the following condition:
  - The Applicant is required to adhere to the November 5, 2021 Declaration of Covenants for Mistletoe Hall Commerce-Business Park-Book: 2916, Page: 104.

DRAFT MOTIONS:

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

OR

2. I move that the Planning Commission table the application to the November 16th Commission meeting for further discussion.

OR

3. I move an alternate motion.

ATTACHMENTS:
1. 2023.10.02 Sketch Site Plan, paper copy & PDF
2. 2023.10.02 Total Home - Revised Building Elevations, paper copy & PDF
3. 2023.10.02 Total Home - Revised Floor Plan, paper copy & PDF
4. 2023.10.02 Total Home - Revised Roof Plan, paper copy & PDF
5. 2023.10.11 THP - R-100 - Rendering_TREES, paper copy & PDF
6. 2023.10.11 THP - R-100 - Rendering (1), paper copy & PDF

DEVELOPMENT DATA

PROPERTY: TAX MAP 25, PARCEL 138 – LOT 2 (ELECTION WARD 1)

CONTRACT PURCHASER/ DEVELOPER: PRO WELLNESS GROUP, LLC
C/O: MATT HARGROVE
8625 BROOKS DRIVE
EASTON, MD 21601

OWNER: TOWN OF EASTON
P.O. 520
EASTON, MD 21601

DEED: 743/703, 2916/104 (MISTLETOE HALL DECLARATION OF COVENANTS)
PLAT: 87/124

CURRENT ZONING: I (INDUSTRIAL)

BUILDING SETBACKS:

		PROPOSED	
FRONT–	40'	FRONT–	122'±
SIDE–	30'	SIDE–	87'±/443'±
REAR–	10'	REAR–	297'±
NON–TIDAL WETLANDS–	25'		

PROPOSED DEVELOPMENT: CONSTRUCTION RELATED BUSINESS – 26,936 SF± TOTAL

BUILDING HEIGHT: 40' MAXIMUM ALLOWED / PROPOSED

TOTAL LOT COVERAGE: 50% PERMITTED (BUILDINGS & STRUCTURES ONLY)
CONSTRUCTION RELATED BUSINESS: 1–STORY OFFICE/WAREHOUSE BUILDING: 26,000 SF; (6%)

PARKING REQUIRED: CONSTRUCTION RELATED BUSINESS @ 1/1000 GFA: 26,936 SF/1000 = 27 SPACES MINUMUM
CONSTRUCTION RELATED BUSINESS @ 1/200 GFA: 26,936 SF/200 = 135 SPACES MAXIMUM
TOTAL SPACES REQUIRED = 27 SPACES (MINIMUM)

PARKING PROVIDED: 49 SPACES PROVIDED

BIKE RACK REQUIRED: 1 BIKE SPACE/10 VEHICLE SPACES; 5 BIKE SPACES/ BIKE RACK REQUIRED

DECLARATION OF COVENANTS FOR MISTLETOE HALL COMMERCE–BUSINESS PARK

ARTICLE 4 DEVELOPMENT STANDARDS

ARTICLE 4.03.(1): BUILDINGS EXCEEDING 20 FEET IN HEIGHT SHALL INCORPORATE A BASE, MIDDLE AND CAP

ARTICLE 4.04.(A): ON–SITE PARKING REQUIRED: IN ACCORDANCE WITH TOWN OF EASTON ZONING CODE WITHOUT OVERBUILDING PARKING, EMPLOYEE & COMPANY VEHICLES SHALL BE DESIGNATED GENERALLY IN THE SIDE AND OR BACK OF THE PROPERTY.

ARTICLE 4.04.(B): OFF–SITE PARKING: NO PARKING SHALL BE PERMITTED WITHIN THE STREET RIGHT–OF–WAY OF ANY STREETS WITHIN THE PROPERTY.

ARTICLE 4.04.(C): PARKING AREA STANDARDS: IN FRONT AND ON THE SIDE OF THE BUILDINGS, PAVED PARKING AREAS SHALL HAVE LANDSCAPED ISLANDS. NO MORE THAN SEVEN (7) CONSECUTIVE, SINGLE LOADED PARKING SPACES (14 SPACES IF TWO SEVEN–SPACE GROUPINGS OF PARKING SPACES (SHALL BE PROVIDED WITH A LANDSCAPED ISLAND MEASURING AT LEAST SIX (6) FEET IN WIDTH.

ARTICLE 4.04.(D): SCREENING: ALL PARKING SHALL BE SCREENED FROM VIEW AS MUCH AS POSSIBLE BY DEPRESSING GRADES, THE USE OF LANDSCAPE AND/OR BY EARTH BERMS.

ARTICLE 4.05: TRUCK LOADING & PARKING: ALL LOADING DOCKS SHALL BE LOCATED IN THE REAR OR SIDE OF THE BUILDINGS AND SCREENED FROM VIEW.

ARTICLE 4.06.(A): MATERIAL & EQUIPMENT STORAGE: NO MATERIALS, SUPPLIES OR EQUIPMENT (INCLUDING BOATS, RECREATIONAL VEHICLES, TRAILERS, OR COMPANY OWNED OR OPERATED VEHICLES) SHALL BE STORED FOR NO MORE OF TWENTY–FOUR (24) HOURS IN ANY AREA ON A LOT EXCEPT INSIDE A CLOSED BUILDING , OR BEHIND A VISUAL BARRIER COMPLETELY SCREENED FROM VIEW OF OF ADJOINING LOTS OR PUBLIC STREETS.

ARTICLE 4.06.(B): SCREENING OF REFUSE CONTAINERS: SHALL BE COMPLETELY CONCEALED FROM VIEW BY MEANS OF A SCREENING WALL CONSTRUCTED OF MATERIAL SIMILAR AND COMPATIBLE WITH THE BUILDING OR LANDSCAPE.

ARTICLE 4.09: EXTERIOR LIGHTING:LIGHTING SOURCES, EXCEPT FOR STREET LIGHTS SHALL BE SCREENED FROM VIEW OR DIRECTED DOWNWARD AND SHIELDED.

ARTICLE 4.11: FENCING: NATURAL BARRIERS ARE PREFERRED. BLACK OR DARK BROWN VINYL CLAD CHAIN FENCING, CMU, CONCRETE, BRICK AND STONE WALLS RE ALLOWED. GALVANIZED CHAIN LINK FENCE IS DISCOURAGED.

STORMWATER: STORMWATER QUALITY AND QUANTITY WILL BE ADDRESSED THROUGH ESD FEATURES AS REQUIRED AND AS SHOWN HEREON APPROXIMATELY.

LANDSCAPE AREAS: TOTAL PROPOSED LANDSCAPE AREAS = 337,732 SF; (77%)
(INCLUDES LANDSCAPE, STORMWATER MANAGEMENT, TURF AND FALLOW FIELD AREA)

LIGHTING: SHALL BE SHIELDED WALLPACKS AND DIRECTED DOWNWARD, NO SITE LIGHTING PROPOSED.

FOREST CONSERVATION: N/A– PREVIOUSLY SATISFIED UNDER ORIGINAL SUBDIVISION APPROVAL

LANDSCAPE NOTE: LANDSCAPE PLANT MATERIAL SHALL CONFORM WITH THE AMERICAN STANDARD FOR NURSERY STOCK. LANDSCAPING SHALL BE INSTALLED WITHIN THE NEXT PLANTING SEASON OF OCCUPANCY OR WITHIN 6 MONTHS OF SUBSTANTIAL COMPLETION.

PROJECT NOTES

THE CONTOURS SHOWN HEREON WERE TAKEN FROM TOPOGRAPHY PROVIDED BY TALBOT COUNTY AND ARE APPROXIMATE ONLY.

THE SITE IS LOCATED ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA.

THERE ARE NO KNOWN HISTORIC STRUCTURES OR ARCHEOLOGICALLY SIGNIFICANT RESOURCES, STEEP SLOPES APPROACHING 15%, STREAMS, TIDAL WETLANDS/NON–TIDAL WETLANDS OR KNOWN HABITAT PROTECTION AREAS IN PROXIMITY TO THE PROPOSED SITE IMPROVEMENTS.

PUBLIC WATER AND SEWER SERVICES ARE PROVIDED BY THE TOWN OF EASTON.

FAA DETERMINATION OF NO HAZARD TO AIR NAVIGATION SHALL BE REQUIRED.

LANDSCAPE REQUIREMENTS § 1014.6.C. (STREET TREES)

1. 1 TREE PER 70' STREET FRONTAGE = 675'± LESS 50' UTILITY EASEMENT & 15' BUFFERYARD (65'), LESS ENTRANCE ACCESS (90') (ALONG MISTLETOE DRIVE) EQUALS 520/70' = 7 TREES REQUIRED

LANDSCAPE REQUIREMENTS § 1014.6.F. (ON–SITE)

1. OVERALL TREES– 1 TREE/3000 SF OF DISTURBED AREA– 163,668 SF±/3000 SF = 55 TREES REQUIRED AND SHALL BE PROVIDED.

2A. INTERIOR PARKING LOT PLANTINGS– 1 TREE PER 10 SPACES;
49 SPACES/ 10 = 5 TREES REQUIRED/ PROVIDED

2B. PARKING HEDGE– SHALL BE PROVIDED.

2C. BUILDING FAÇADE PLANTINGS– 1 TREE/20' OF AFFECTED FAÇADE = PHASE ONE: 209'/20 = 10 TREES REQUIRED AND SHALL BE PROVIDED.

2D. SERVICE/ LOADING AREAS– TOWN COMPLIANT ENCLOSURE, SCREENED AS SHOWN HEREON.

2F. BUFFERYARDS: 25' WIDE BUFFERYARD 'B' REQUIRED ALONG GOLDSBOROUGH NECK ROAD (PER PLAT).

LANDSCAPE BUFFERYARD REQUIREMENTS (SECTION 1014.7 E.)

25' WIDE LANDSCAPE BUFFERYARD 'B' (ALONG GOLDSBOROUGH NECK ROAD)
715' LF LESS 50' SOUTHERN UTILITY EASEMENT (50 LF), LESS 50' NORTHERN UTILITY EASEMENT (50 LF) EQUALS 615 LF / 50' = 12.3 PLANT UNITS (PU)

2	SHADE/ CANOPY TREE	X 12.3 PU	= 24 SHADE/ CANOPY TREES REQUIRED
1	EVERGREEN TREES	X 12.3 PU	= 12 EVERGREEN TREES REQUIRED

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1– INTEGRATED USES ARE DESIRABLE– THIS DEVELOPMENT PROPOSAL PROVIDES ADDITIONAL OFFICE AND ASSOCIATED CONSTRUCTION BUSINESS RELATED WAREHOUSE IN THIS MIXED BUSINESS PARK.

PRINCIPLE #2– NATURAL FEATURES SHOULD DETERMINE DESIGN– NO COMPELLING NATURAL FEATURES; SITE LAYOUT ORIENTED TO TAKE ADVANTAGE OF NATURAL DRAINAGE PATTERNS AND TO ORIENT "OFFICE" BUILDINGS FRONT TO STREET WAREHOUSE TO THE REAR.

PRINCIPLE #3– AUTOMOBILES SHOULD NOT DETERMINE DESIGN– PARKING FOR OFFICE USERS AND CUSTOMERS PROVIDED FOR CONVENIENCE WITH BULK OF THE PARKING TO FRONT OR SIDE OF FACILITY.

PRINCIPLE #4– AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN & AROUND NEIGHBORHOODS– USABLE OPEN SPACE NOT APPLICABLE HERE.

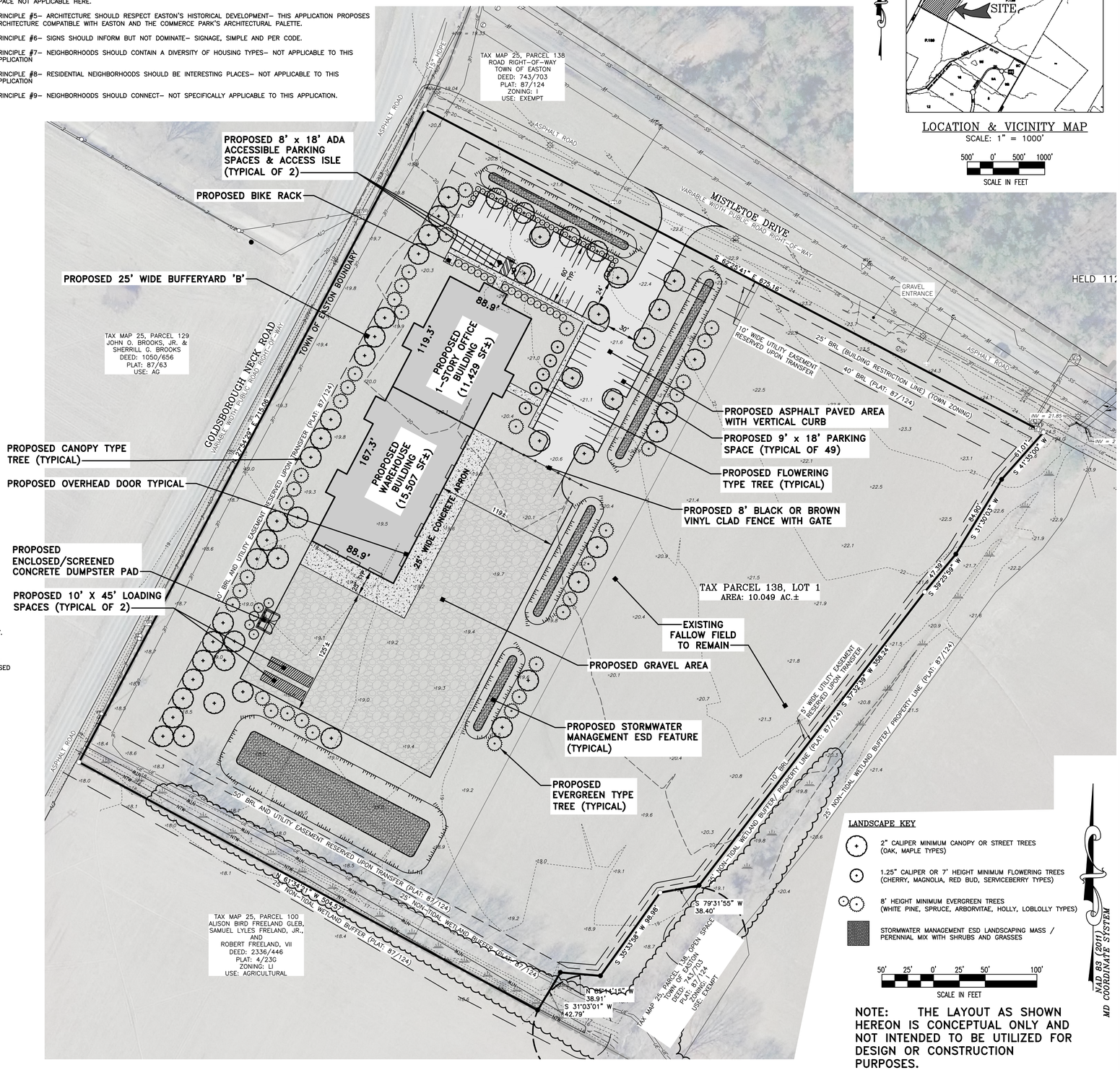
PRINCIPLE #5– ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT– THIS APPLICATION PROPOSES ARCHITECTURE COMPATIBLE WITH EASTON AND THE COMMERCE PARK'S ARCHITECTURAL PALETTE.

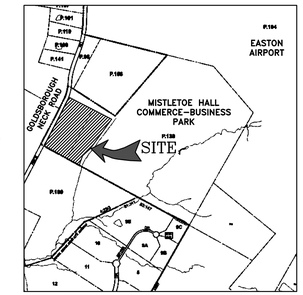
PRINCIPLE #6– SIGNS SHOULD INFORM BUT NOT DOMINATE– SIGNAGE, SIMPLE AND PER CODE.

PRINCIPLE #7– NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES– NOT APPLICABLE TO THIS APPLICATION

PRINCIPLE #8– RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES– NOT APPLICABLE TO THIS APPLICATION

PRINCIPLE #9– NEIGHBORHOODS SHOULD CONNECT– NOT SPECIFICALLY APPLICABLE TO THIS APPLICATION.





LOCATION & VICINITY MAP
SCALE: 1" = 1000'
500' 0' 500' 1000'
SCALE IN FEET

LANDSCAPE KEY

- 2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)
- 1.25" CALIPER OR 7' HEIGHT MINIMUM FLOWERING TREES (CHERRY, MAGNOLIA, RED BUD, SERVICEBERRY TYPES)
- 8' HEIGHT MINIMUM EVERGREEN TREES (WHITE PINE, SPRUCE, ARBORVITAE, HOLLY, LOBLOLLY TYPES)
- STORMWATER MANAGEMENT ESD LANDSCAPING MASS / PERENNIAL MIX WITH SHRUBS AND GRASSES

50' 25' 0' 25' 50' 100'
SCALE IN FEET

MD COORDINATE SYSTEM NAD 83 (2011)

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.

REVISIONS

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
BEFORE YOU DIG CALL 1–800–441–8355 OR 811 PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

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 Landscape Architect under the laws of the State of Maryland, License No. 4187, Expiration Date: 01/13/2025.

SEAL
STATE OF MARYLAND MICHAEL NATHAN TAYLOR 4187 LANDSCAPE ARCHITECT
M. Taylor
10. 2. 2023
DATE

SKETCH SITE PLAN

FOR
LOT 1 – MISTLETOE HALL COMMERCE–BUSINESS PARK

IN THE FIRST ELECTION DISTRICT
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 16, PARCEL 138 LOT 1

ISSUED FOR:	DATE:	BY:
AGENCY REVIEW	4/5/23	BCE
AGENCY REVIEW	4/28/23	BCE
AGENCY REVIEW	10/2/23	BCE

SHEET No. 1 OF 1	DATE: 4/5/23
SCALE: AS NOTED	JOB No. 230019
	FILE No. A037

© LANE ENGINEERING, LLC

Date: 10/02/2023 – 11:15am User: wbarnhart Project Manager: BCE
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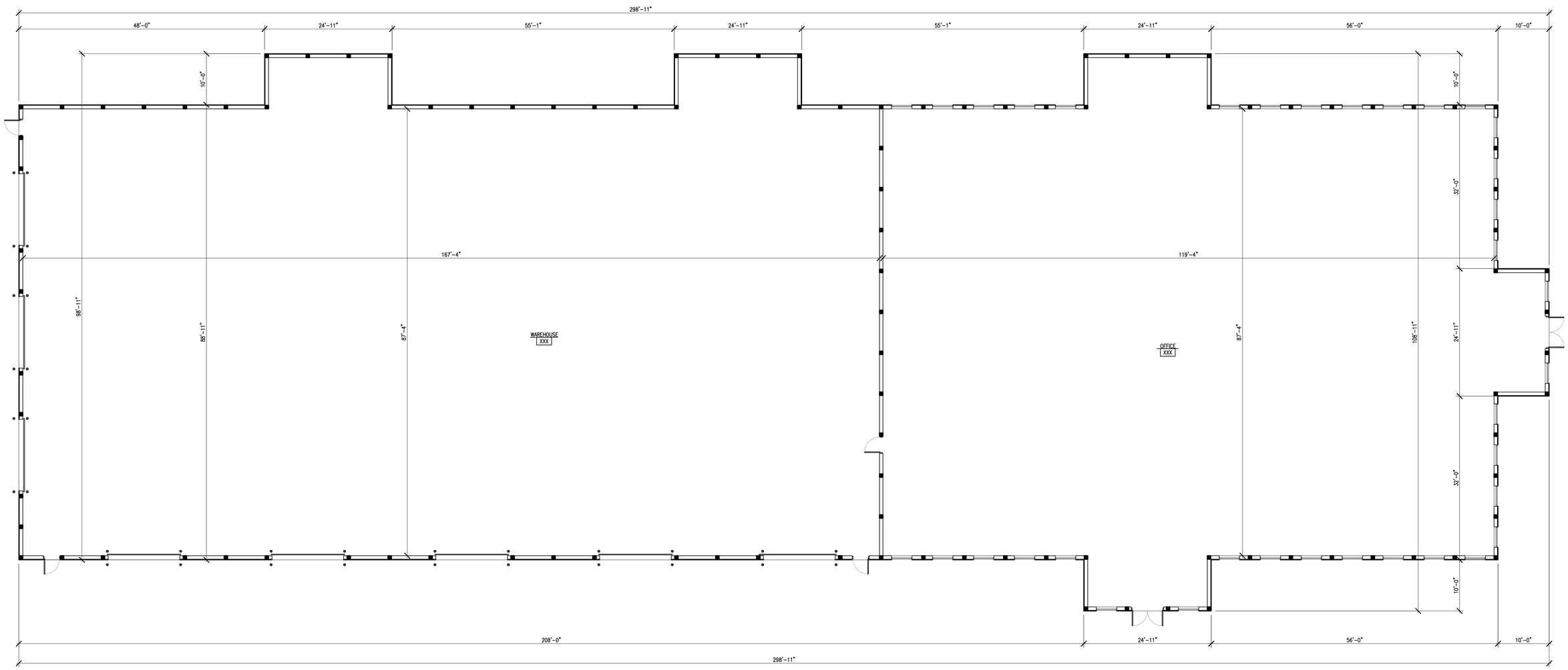
XREF File(s): RSK–BASE–230019/GBS–BASE–2438–230019/RAR–BASE–230019/VSF–BASE–230019/WLD–BASE–230019/RLD–EUC–BASE–230019/LLP–BASE–230019/XRN–BASE–230019



FLOOR PLAN

SCALE: 1/8"=1'-0"

PROJECT SUMMARY

PROJECT SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE REQUIREMENTS OF ALL GOVERNING CODES, STANDARDS, REGULATIONS, AND LOCAL AUTHORITIES, INCLUDING BUT NOT LIMITED TO THE 2018 INTERNATIONAL BUILDING CODE, 2010 ADAAG, AND NFPA 101.

CONSTRUCTION CLASSIFICATION: TYPE V-B (§602.5) / TYPE V-000 (NFPA 220)

OCCUPANCY CLASSIFICATIONS:
- GROUP B – BUSINESS (§304.1)
- GROUP S-1 – MODERATE HAZARD STORAGE (§311.2)
- NON-SEPARATED, MIXED USE (IBC §508.3 / NFPA 101 §6.1.14.3)

SPRINKLER SYSTEM: FULLY SPRINKLERED SYSTEM COMPLYING WITH NFPA 13

BUILDING AREA: 11,429 SQ.FT. (BUSINESS)
15,507 SQ.FT. (WAREHOUSE)
26,936 SQ.FT. (TOTAL)

BUILDING HEIGHT: 33'-2" – 1 STORY

ALLOWABLE AREA: 36,000 SQ.FT./STORY (T506.2)

ALLOWABLE HEIGHT: 60'-0" – 2 STORIES (T504.3 & T504.4)

THE INFORMATION PRESENTED ON THIS PLAN IS PRELIMINARY IN NATURE AND SHOULD NOT BE RELIED UPON FOR FINAL PRICING OR CONSTRUCTION. THE USER MUST RECOGNIZE THAT THE INFORMATION PRESENTED ON THIS DRAWING MAY CHANGE AS THE FINAL CONSTRUCTION PLANS ARE DEVELOPED. INCREASED PROJECT COSTS OR DELAYS IN EXECUTION OF THIS PROJECT DUE TO FUTURE DESIGN CHANGES ARE NOT THE RESPONSIBILITY OF AWB ENGINEERS OR ITS SUB-CONTRACTORS.

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DATE	BY	DESCRIPTION	REV
02 OCT 23	EMC	PLANNING COMMISSION REVIEW	

PROJECT NORTH

ENGINEERS/ARCHITECTS
1943 NORTHWOOD DRIVE, SALISBURY, MARYLAND 21801-7824
PH. (410) 742-7299 FAX. (410) 742-0273
AWB ENGINEERS

TOTAL home PERFORMANCE

FLOOR PLAN

TOTAL HOME PERFORMANCE

MISTLETOE HALL, EASTON, MARYLAND

SCALE	1/8"=1'-0"
DRAWN	EMC
PROJ.MGR.	EMC
JOB	220418
SHEET	A-103

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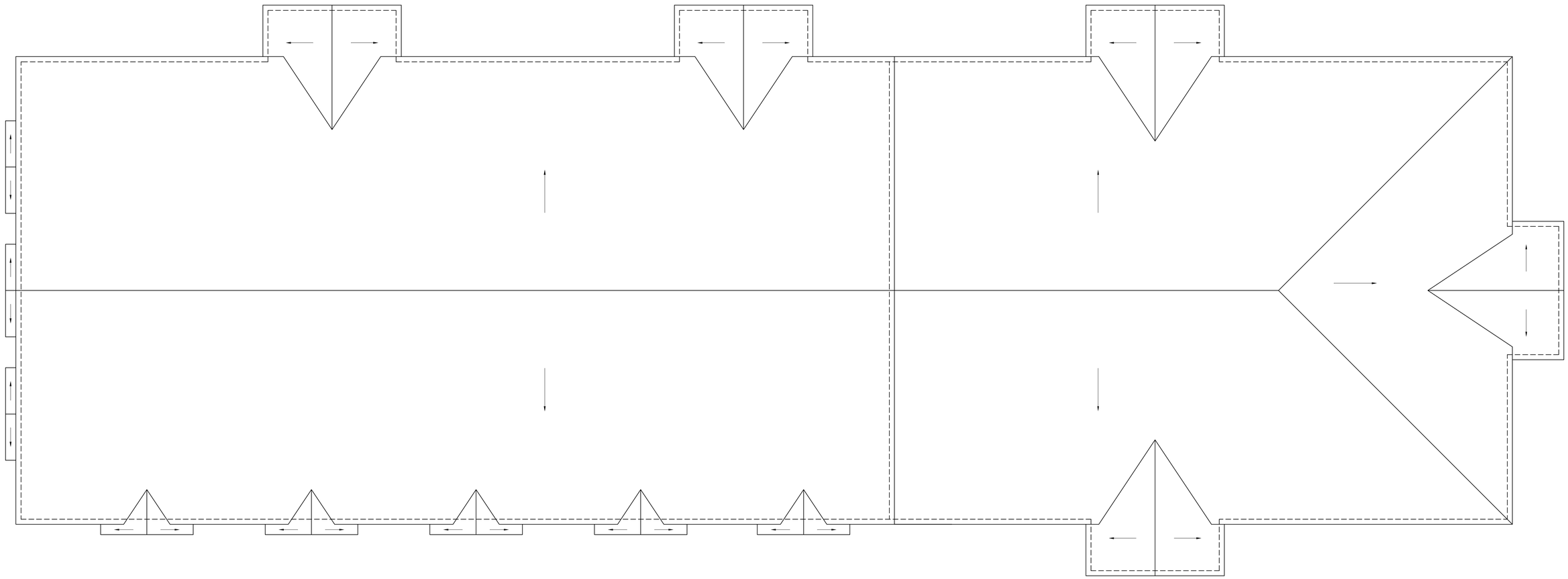

ROOF PLAN
SCALE: 1/8"=1'-0"

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DATE	BY	DESCRIPTION	REV
02 OCT 23	EMC	PLANNING COMMISSION REVIEW	

PROJECT NORTH

ENGINEERS/ARCHITECTS
1943 NORTHWOOD DRIVE, SALISBURY, MARYLAND 21801-7824
PH. (410) 742-7299 FAX. (410) 742-6273
AWB ENGINEERS

TOTAL home PERFORMANCE

ROOF PLAN

TOTAL HOME PERFORMANCE
MISTLETOE HALL, EASTON, MARYLAND

SCALE	1/8"=1'-0"
DRAWN	EMC
PROJ.MGR.	EMC
JOB	220418
SHEET	A-104

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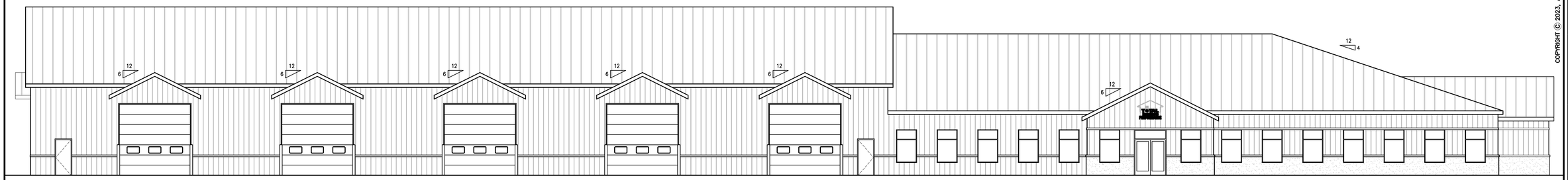
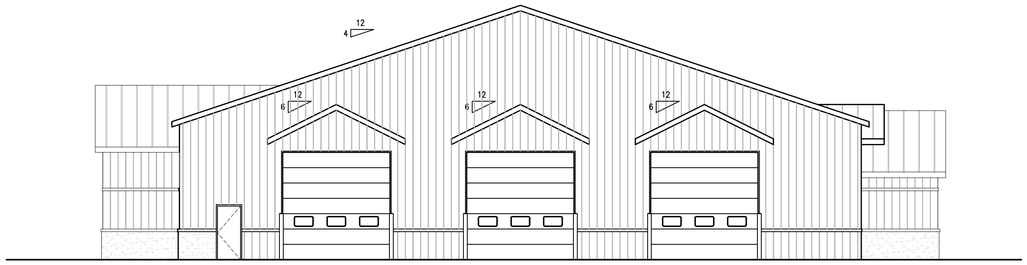
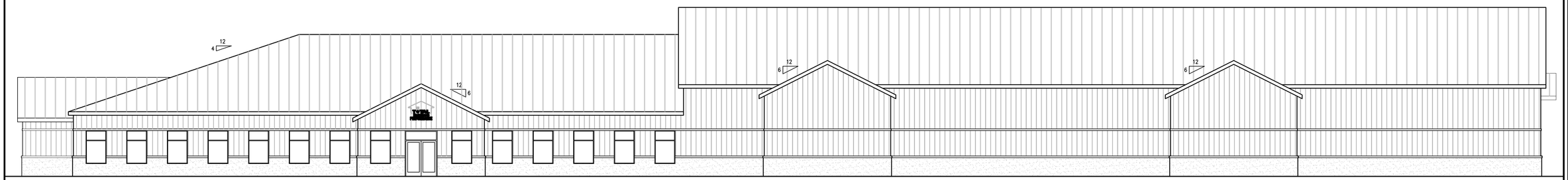


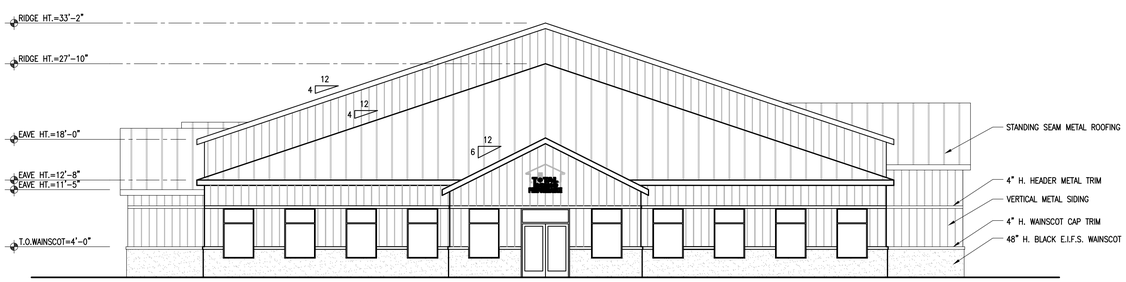
EAST ELEVATION
SCALE: 1/8"=1'-0"



SOUTH ELEVATION
SCALE: 1/8"=1'-0"



WEST ELEVATION
SCALE: 1/8"=1'-0"



NORTH ELEVATION
SCALE: 1/8"=1'-0"

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REV	DESCRIPTION	BY	DATE
	PLANNING COMMISSION REVIEW	EMC	02 OCT 23

PROJECT NORTH

ENGINEERS/ARCHITECTS
1943 NORTHWOOD DRIVE, SALISBURY, MARYLAND 21801-7824
PH. (410) 742-7299 FAX. (410) 742-6273
AWB ENGINEERS

TOTAL home PERFORMANCE

BUILDING ELEVATIONS

TOTAL HOME PERFORMANCE

MISTLETOE HALL, EASTON, MARYLAND

SCALE	1/8"=1'-0"
DRAWN	EMC
PROJ.MGR.	EMC
JOB	220418
SHEET	A-105

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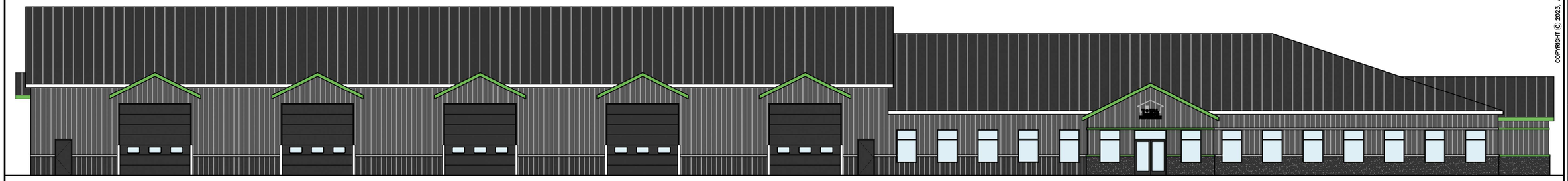

EAST ELEVATION
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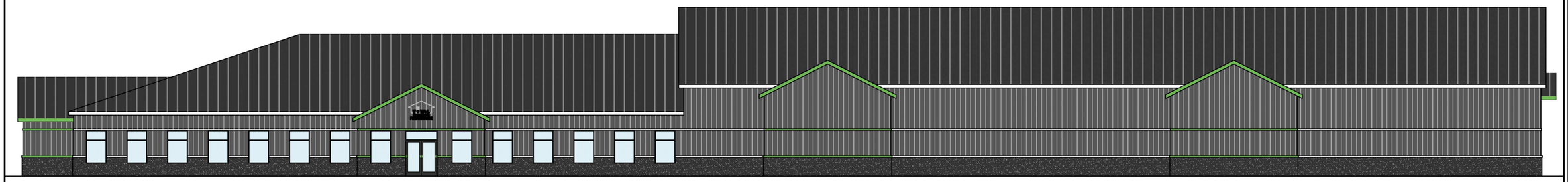
SOUTH ELEVATION
SCALE: 1/8"=1'-0"



WEST ELEVATION
SCALE: 1/8"=1'-0"

NORTH ELEVATION
SCALE: 1/8"=1'-0"

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REV	DESCRIPTION	BY	DATE
	PLANNING COMMISSION REVIEW	EMC	02 OCT 23

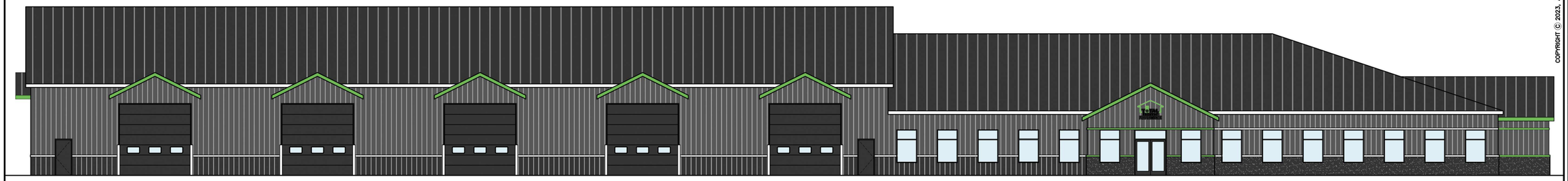
ENGINEERS/ARCHITECTS
1842 NORTHWOOD DRIVE, SALISBURY, MD 21801-7824
PH: (410) 742-7296 FAX: (410) 742-5273
AWB ENGINEERS

TOTAL home PERFORMANCE

BUILDING ELEVATIONS RENDERING

TOTAL HOME PERFORMANCE
MISTLETOE HALL, EASTON, MARYLAND

SCALE	1/8"=1'-0"
DRAWN	EMC
PROJ.MGR.	EMC
JOB	220418
SHEET	R-100



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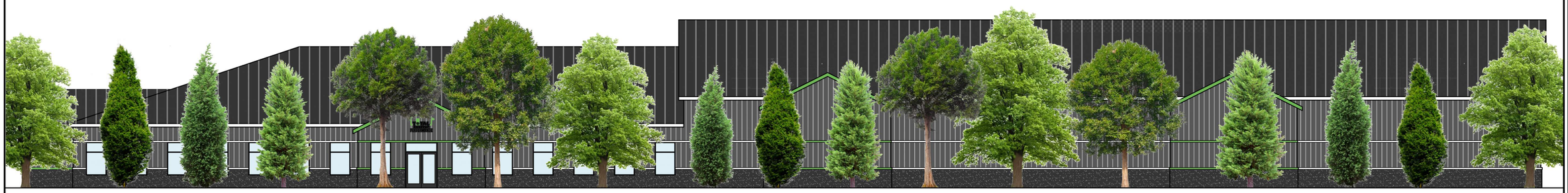

WEST ELEVATION
SCALE: 1/8"=1'-0"

NORTH ELEVATION
SCALE: 1/8"=1'-0"

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TOWN OF EASTON

14 South Harrison Street
Easton, Maryland 21601

October 4, 2023

Dear Resident,

The Easton Planning Commission will hold a public meeting on **Thursday, October 19, 2023 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 2023 - 933 has been filed on behalf of Pro Wellness Group LLC at 9196 Mistletoe Drive Lot 1 to request architectural approval for a proposed warehouse building and a one-story office building with associated stormwater management, parking and landscaping.

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

APG Media of Chesapeake, LLC **10/02/23**
29088 Airpark Drive
Easton, MD 21601

Phone: Fax:
http://www.chespub.com

Cust. AcctID:	Creation Date: **10/02/23**
	Ad Date: **10/04/23**
	Class:
Name: **Joanne Drummer**	Ad ID:
Company: **TOWN OF EASTON (L)**	Ad Taker:
Address: **PO Box 520**	Sales Person:
EASTON, MD 21601	Words:
	Lines:
	Agate Lines:
Telephone: **(410) 822-2525**	Depth:
Email:	Inserts:
Description: **Planning Comm Meeting**	Blind Box:

Other Charges:		Total:	
Discount:			
Surcharge:		Paid Amount:	
Credits:			
Bill Depth:		Amount Due:	

CREDIT CARD DETAILS

PT	CT	CN	Number	Exp.	Amnt.

Publication	Start	Stop	Inserts	Cost
The Star Democrat	10/04/23	10/04/23		

Ad Note:

Planning Commission
MEETING AGENDA
Thursday, October 19, 2023 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

Please continue to check our website at:
https://eastonmd.gov/129/Agendas-Minutes
for agenda updates

1. Call to Order

2. Approval of Minutes.

a. Approval of the Decision Summary from the September 21, 2023 meeting.

3. Old Business

a. **Applicant:** Lane Engineering, LLC
File No.: 2023-933
Location: Mistletoe Hall Commerce- Business Park Lot 1
Tax Map 25, Grid 16, Parcel 0138, Lot 1
Zoning District: I
Nature of Request: Architectural approval of a proposed warehouse building and a one-story office building with associated stormwater management, parking and landscaping.

b. **Applicant:** Rise Up Dover Road LLC
File No.: 2023-870
Location: 625 Dover Road
Tax Map 103, Grid 0EA, Parcel 0990
Zoning District: R-7A
Nature of Request: Amendment to a previously approved Planned Unit Development (PUD) for the addition of an 8' x 12' walk-in cooler to the existing kitchen unit, and the addition of a 12' x 24' storage shed to the existing property located at 625 Dover Road, also known as Tax Map 103, Parcel 0990.

4. New Business

a. **Applicant:** Phillips Signs Inc.
File No.: 2023 - 1048
Location: 499 Idlewild Avenue
Tax Map 105, Grid 000, Parcel 2366
Zoning District: BC
Nature of Request: Signage permit approval where two (2) or more businesses occupy one (1) building with a common entrance.

b. **Applicant:** Lane Engineering
File No.: 2023 - 1028
Location: 29315 Dover Road - East Coast Vets
Tax Map 105, Grid 000, Parcel 2844,
Lot 3
Zoning District: CG
Nature of Request: Sketch Site Plan and Architectural approval for a proposed two-story addition to an existing single-story veterinarian clinic and parking lot expansion.

c. **Applicant:** Shore Health System / University of Maryland Medical System
File No.: 2023 - 1027
Location: Longwoods Road, Parcel 0129
Tax Map 017, Grid 023, Parcel 0129, Lot 3/5
Zoning District: RH
Nature of Request: Sketch Site Plan approval for a proposed medical center with associated stormwater management facilities, parking and utilities. In addition, the applicant is requesting a Supplemental Waiver for landscaping and buffering requirements.

5. Discussion Item

a. Zoning Requirements for Adult-Use Cannabis Dispensaries.

6. Adjournment.

3035939 SD 10/4/2023

Sign posted on October 4, 2023

Customer Note:

We Appreciate Your Business!
Thank You Joanne Drummer!

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

Date of Hearing: October 19, 2023

3b

PLANNING COMMISSION
PUBLIC HEARING
STAFF REPORT

SUBJECT: **PUD Amendment to include a Walk-in Cooler, Storage Shed, Tent, Kitchen Facility and Walk-Up Cafe' and provide a recommendation to the Town Council**

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: Rise Up Coffee Roasters % Ozzie Jimenez

DOCUMENT CREATED ON: October 2, 2023

PURPOSE: Rise Up Coffee is returning to you for the request to amend their PUD for further revisions. They are now proposing to also include a walk-in cooler and storage shed and to have these new additions reflected in your recommendation to the Town Council. The Council is expected to hold a public hearing on the PUD amendment at their November 6, 2023 meeting.

RECOMMENDATION: Should the Planning Commission approve the additional walk-in cooler and storage shed as well as make a positive recommendation to the Town Council, staff recommends proposed conditions (see below).

APPLICATION INFORMATION:	
APPLICANT: Armistead, Lee, Rust & Wright, P.A. % Zach Smith Rise Up Coffee Roasters % Ozzie Jimenez	**REPRESENTATIVE:** ALRW, P.A.: Zack Smith Rise Up Coffee Roasters: Ozzie Jimenez

PARCELS/ACREAGE:

Parcel Information	Acreage
Map 103, Grid 0000, Parcels 0990	1.089

ACCEPTANCE DATE: September 28, 2023	**LOCATION:** 625 Dover Road
EXISTING ZONING PUD	**EXISTING LAND USE:** Commercial
HISTORIC DISTRICT: Not Applicable	**FUTURE LAND USE MAP:** Residential

CONTEXT:
Location/Site Access – The subject property is located on the north side of Dover Road.

Existing Conditions – The subject property is used for commercial purposes.

Surrounding Properties
- 705 Dover Road - R-7A
- 630 Dover Road - R-7A
- 628 Dover Road - R-7A
- 626 Dover Road - R-7A
- 624 Dover Road - R-7A
- 622 Dover Road - CB
- 618 Dover Road - CB
- 600 Dover Road - CB
- 615 Dover Road - R-7A
- Oswald Aley, Parcel 976 - R-7A
- 612 E. Dover Street - R-7A
- 614 E. Dover Street - R-7A

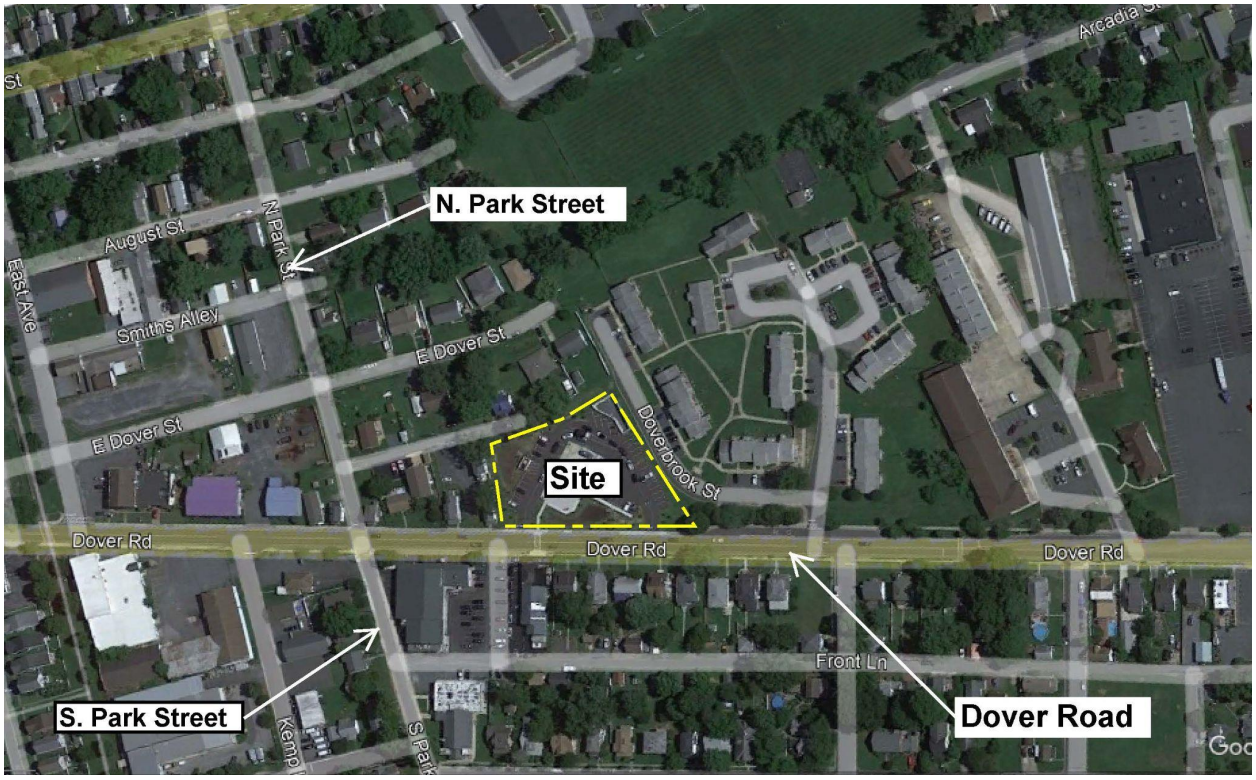


***Figure 1**: Vicinity Map*

PROPOSAL: The applicant was required by the Talbot County Health Department to install a small walk-in cooler unit at 625 Dover Road to provide additional refrigeration for the Mad Eggs kitchen unit and the existing coffee kiosk. The walk-in will be approximately 8' x 12'. Additionally, Rise Up needs to add a small storage shed to the property, to store dry goods that are required for on-site operations. The storage shed will be approximately 12' x 24'. Rise Up Coffee's request is to amend their PUD to also include the walk-in cooler and storage shed and provide a recommendation to the Town Council.

BACKGROUND: Rise Up Coffee (Applicant) obtained a Temporary Use approval from the Town of Easton Planning Commission on March 16, 2023 for the request to re-erect a tent and authorization for the tent to remain until November 30, 2023. The Applicant returned to the Planning Commission on April 20, 2023. They were granted temporary approval by the Planning Commission for the addition of the "Mad Eggs" kitchen facility and to remain until November 30, 2023.

The Applicant subsequently submitted a Zoning Certificate for a Temporary Use-Special Events on September 22, 2023 for a request to amend the previously approved Temporary Use to permit a walk-in cooler and storage shed and to also remain until November 30, 2023 (see attached document). Those improvements are accessory to the "Mad Eggs" kitchen facility that had already been approved for a temporary use on April 20, 2023. The request was conditioned upon obtaining all required building permits. The request was approved by the Planning and Zoning Department on September 22, 2023.

Separately from their temporary use approvals, the Planning Commission, at their August 17, 2023 meeting, recommended to the Town Council approval for an amendment to Rise Up Coffee's existing

PUD (Zoning Ordinance No. 715) to grant a permanent approval for the shade structure (tent), the "Mad Eggs" kitchen facility, and the walk-up cafe with the following recommended conditions:

1. The shade structure shall be erected seasonally during the period of March 1st through November 30th, and shall be taken down and stored offsite on November 30th.

2. Upon disassembling, all tripping hazards shall be removed as deemed necessary by the Building Inspection Division.

3. Music or other amplified sounds from the loudspeakers shall not play prior to 8 a.m. or after 7 p.m.

4. The restroom, tables and chairs may all remain in place and ready for use.

5. The applicant shall obtain a building permit for the Mad-Eggs facility and walk-up cafe, and shall obtain additional approval from the Fire Marshal, Talbot County Health Department, and Easton Utilities Commission.

6. The applicant shall submit As-builts for review with the Town's Engineering Department to close out the grading permit.

7. Upon installation of the "Mad Eggs" kitchen facility, the Town Planner may determine that mechanical equipment screening at the top of the structure is necessary and shall retain the right to seek approval/denial from the Planning Commission.

8. The applicant shall return to the Planning Commission after November 30th (December 21, 2023 Planning Commission meeting) to review and/or determine if a redesign of the graphics and/or additional screening of mechanical components is necessary.

OUTSTANDING ISSUES:

There are no outstanding issues.

ZONING ANALYSIS:

A. Purpose and Intent

Section 28-701 A.

The purpose of a PUD District is to provide for carefully planned residential, mixed use and certain commercial developments at appropriate locations within the Town of Easton. It is the intent of this Section to allow all aspects of a PUD District to be subject to public review and control by the Town with specific provisions to be made on a case-by-case basis for adequate open space, architectural appearance, the height, bulk and location of buildings, required public facilities, and a variety of housing types, densities, and/or compatible commercial or industrial uses as a part of a detailed development plan.

Not all locations in the Town are suitable for PUD development and the nature, size, scale or intensity of proposed uses may cause a particular site not to be suitable for a specific PUD 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 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 furthers the goals and objectives of this Section and the Ordinance generally.

B. Location

Section 28-701 B. The PUD is a floating zone. That means that while provisions and regulations are made to govern development within any PUD District, no such District will be pre-mapped on the Zoning Map. A PUD District may be established in any parent zoning district provided the requirements outlined in this subsection are met.

Analysis - According to § 28-701.I of the Zoning Ordinance, any proposed change which alters a condition of the PUD approval to an approved PUD is a material amendment, which is subject to review by the Planning Commission and Town Council according to the procedures set forth in § 28-701. The process for reviewing a material amendment to a PUD Amendment is similar to that for a site plan except that it requires approval of the Town Council. The plan that you review basically serves as the sketch-level submission.

The current process of the Town of Easton Zoning Ordinance is for the Planning and Zoning Commission to review the material submitted and forward a recommendation to the Mayor and Town Council. The Commission may include recommended changes to the PUD sketch plan or recommended conditions of approval that the Commission deems necessary to better insure compliance with the Comprehensive Plan. In reaching its conclusion, the Commission shall make recommendations addressing the factors in § 28-701.H(2) (see below).

C. Off-Street Parking

Analysis- The site has a maximum required thirty-five (35) parking spaces. The existing site currently has forty-three (43) parking spaces available due to the higher parking needs of the former proposed restaurant, sit-down/carry-out and office land use.

D. DEVELOPMENT STANDARDS

Section 28-701.G.
Applications for any type of Planned Unit Development shall meet the following requirements:

(1) The area proposed for a planned unit development 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 site includes 1.089 acres and has direct access onto Dover Road. The planned layout and site design proposed provide for a functionally designed commercial site.

(3) Public water and sewerage shall be available, although it may be made available in conjunction with the development of the PUD.

Analysis - There's adequate water and sewer service on-site 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 expected to be generated by the proposed development. Private roads may only be approved in commercial and multifamily projects or portions of projects. Such roads shall be internal to the development. Private roads shall comply with any standards developed and adopted for such roads by the Town Council. The Town shall bear no responsibility for construction or maintenance of private roads. Development on private roads may not be entitled to all Town services.

Analysis - The Project has two existing access points from Dover Road, a Town-owned street.

(5) The owners or developers must indicate that they plan to begin construction of the development within two (2) years after final approval. If there is no action on the part of the applicant at any point in the process for a period of two (2) years, the zoning of the site shall revert to its previous classification unless a time extension is requested by the developer and granted by the Planning and Zoning Commission. For projects constructed in parts or phases, the PUD approval applicable to any portion not improved in accordance with said PUD approval, shall expire if no development activity occurs for a period of five years.

Analysis - The Applicant intends to commence construction upon approval from the Town Council, in light of the time incurred in obtaining all necessary building permits.

(6) The setback, lot size, lot coverage, height, minimum frontage, minimum open space, and yard requirements shall be established for each individual project by the Town Council in the ordinance granting the application. The Planning and Zoning Commission shall make recommendations to the Town Council with regard to these requirements. The Town recognizes that it is necessary and encourages such uniquely established standards.

Analysis - The minimum bulk requirements for the Project will remain consistent with the previously approved Rise Up Coffee's existing PUD (Zoning Ordinance No. 715).

(7) Off-street parking shall be provided for each individual use in the planned unit development in accordance with the requirements of Section 1001. Mixed-use PUD's that integrate coordinated pedestrian and bicycle circulation systems throughout the development, shall be permitted to reduce the required off-street parking by 20% of the required standard without the need for a parking variance, waiver, or deferral.

Analysis - The existing parking lot is designed to accommodate the approved December 1, 2020 Phase 1 Site Plan. The current design on-site has a maximum required thirty-five (35) parking spaces. Though the existing parking spaces exceed the maximum requirement by eight (8) parking spaces, staff recommends the existing spaces remain for the potential construction of the originally proposed building.

(8) No more than 50% of the off-street parking area for the entire property of a major retail or shopping center use, shall be located between the front façade of the principal building(s) and the primary abutting street.

Analysis - Not Applicable.

In addition, some development standards will vary according to the type of PUD in accordance with the following Table:

Standard	**PUD Sub District**	
	PUD- Infill	**Rise Up Coffee**
Minimum Size*	**N/A**	1.089 acres
Maximum Size	**5 acres**	N/A
Maximum Residential Density (per gross residential acre)**	**60 du/acre********	N/A
Minimum Open Space Requirement***	**Open space shall be that which is deemed adequate by the Town Council. In addition, landscaping shall be provided to enhance the project and advance the degree to which the infill project blends in with surrounding properties.**	Required: 30% of total gross area = 0.327 acres. Proposed: 38.62% of total gross area = 0.42 acres.
Applicability	**Lands within the area indicated on Map 7-1**	Land qualifies as Infill

****Smaller sites may be permitted when it is found that the proposed PUD is compatible with existing development in the area and does not disrupt the orderly expansion of the transportation system of the Town.***

Analysis - Not Applicable.

*****The Town Council may consider projects with a density of up to 25% more than the maximum stated in this table upon a finding that such increased density is in keeping with the existing or intended character of the neighborhood (as expressed in the Comprehensive Plan or, if applicable, any adopted Small Area Plans) and that any potential detrimental impacts from such increased density are ameliorated to the satisfaction of the Council. Additionally, if residential use is part of a vertically-mixed use project (i.e., non-residential uses are present on the ground floor with residential units on non-ground floors), there shall be no limit on the residential density.***

Analysis - Not Applicable.

******The Town Council may consider projects with less than the minimum open space required as specified in this Table, upon a finding that unique circumstances or conditions exist which warrant such a reduction and further provide that the applicant addresses the open space requirement in another acceptable means.***

Analysis - Applicant has designed the Project to provide significant open space. The Project will provide 0.42 acres of open space (38.62%, not including incidental parking lot areas).

*******In the PUD General sub district, for any residential units proposed in excess of the maximum residential density permitted in base residential zoning districts (3.5 du/ac), at least 25% must be devoted to affordable housing, or the developer may contribute a fee-in-lieu to an entity to be determined by the Town.***

Analysis - Not Applicable.

E. Forest Conservation

The Easton Forest Conservation Requirements of the Town Code, Article III, § 31-3.1, **Forest Conservation Ordinance,** ***Relevance, states that the requirements are applicable to any person making application for a subdivision, project plan, grading, or sediment and erosion control approval on units of land 40,000 square feet or greater after the effective date of the Ordinance.***

Analysis - The Forest Conservation plan was approved on June 3, 2020. Required Afforestation was achieved on site for 0.17 acres or 7,405.2 square feet of credited landscape plantings and protection of two specimen trees.

POLICY ANALYSIS:

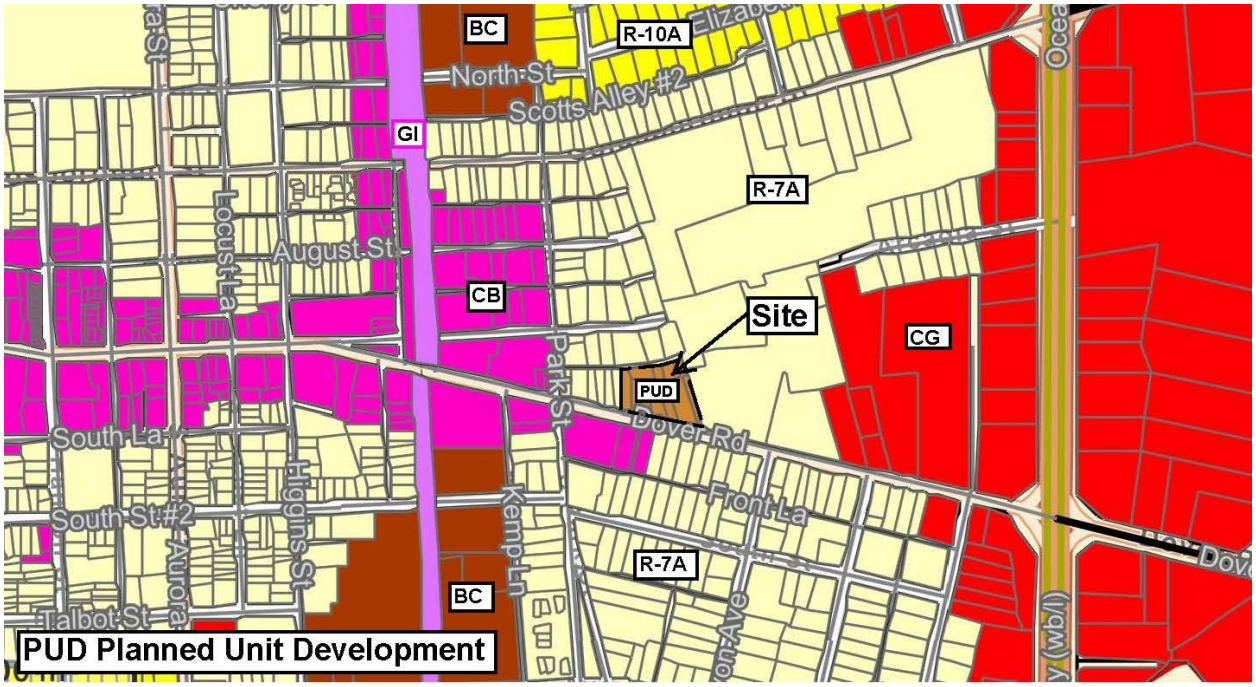


Figure 2: Zoning Map

Section 28-701.H.2
The Planning and Zoning Commission shall review the material submitted and following the presentation from the applicant, shall forward a recommendation to the Mayor and Town Council. The Planning and Zoning Commission's transmittal to the Town Council may include recommended changes to the PUD Sketch Plan or recommended conditions of approval that the Commission deems necessary to better insure compliance with the Comprehensive Plan. In reaching its conclusion as to the merits of the project, the Commission shall make recommendations addressing the following:

a. Whether the proposed PUD development conforms to the Town of Easton Comprehensive Plan;

Analysis - The proposed PUD revisions conform to the Town's Comprehensive Plan.

b. Whether the proposed PUD development conforms with all provisions of the Town of Easton Zoning Code which are not proposed for modification subject to the request;

Analysis - This PUD development conforms with all provisions of the Town of Easton Zoning Code which are not proposed for modification subject to the request.

c. Whether the proposed PUD development complies with all Town engineering and design regulations and standards;

Analysis - The overall development conforms with Town engineering and design regulations and standards.

d. Whether the proposed PUD development complies with any other applicable Town, County, State, or Federal regulations, policies or plans, except those standards proposed for modification. If the standards of any jurisdiction other than the Town of Easton are proposed for modification, any PUD project approval, should it subsequently be granted by the Town Council, shall be subject to the applicant successfully obtaining approval of said modification and demonstrating proof of such approval to the Town's satisfaction.

Analysis - Currently, this PUD development complies with the standards of any jurisdiction other than the Town of Easton.

e. Whether the proposed PUD will be superior to or more innovative than conventional development and how it will provide greater public benefit without additional probable significant adverse impacts to public health, safety or the environment, than would be available through the use of conventional zoning and/or development standards.

Analysis - The development's proximity to multiple use properties will provide greater public benefit without additional probable significant adverse impacts to public health, safety or the environment. The development provides a walkable design to support a pedestrian-oriented community, parking, landscaping, stormwater management and forest conservation.

RECOMMENDED CONDITIONS:

Staff believes the proposed PUD Amendment is consistent with the Town's Comprehensive Plan and recommends that you indicate such to the Town Council. In terms of suggestions relative to the revised site plan itself, Staff suggests the following:

- The shade structure shall be erected seasonally during the period of March 1st through November 30th, and shall be taken down and stored offsite on November 30th.
- Upon disassembling, all tripping hazards shall be removed as deemed necessary by the Building Inspection Division.
- Music or other amplified sounds from the loudspeakers shall not play prior to 8 a.m. or after 7 p.m.
- The restroom, tables and chairs may all remain in place and ready for use.
- The applicant shall obtain a building permit for the Mad-Eggs facility and walk-up cafe, walk-in cooler and storage shed and shall obtain additional approval from the Fire Marshal, Talbot County Health Department, and Easton Utilities Commission.
- The applicant shall submit As-builts for review with the Town's Engineering Department to close out the grading permit.

- Upon installation of the "Mad Eggs" kitchen facility, the Town Planner may determine that mechanical equipment screening at the top of the structure is necessary and shall retain the right to seek approval/denial from the Planning Commission.

- The applicant shall return to the Planning Commission after November 30th (December 21, 2023 Planning Commission meeting) to review and/or determine if a redesign of the graphics and/or additional screening of mechanical components is necessary.

DRAFT MOTIONS:

1. I move that the Planning Commission approve the sketch site plan and forward a positive recommendation of the PUD Amendment to the Town Council, subject to staff's Conditions of Approval.

OR

2. I move that the Planning Commission forward the application to the November 16th Commission meeting for further discussion.

OR

3. I move an alternate motion.

ATTACHMENTS:
1. 2023.09.22 Rise Up - Transmittal Letter, paper copy & PDF
2. 2023.09.22 Rise Up - Updated Site Plan, paper copy & PDF
3. Smith Ltr re Exhibits for Shed & Walk-in (10-10-23) & Exhibits, paper copy & PDF

ARMISTEAD, LEE, RUST & WRIGHT, P.A.
ATTORNEYS AT LAW

114 Bay STREET, BUILDING C
EASTON, MARYLAND 21601

TELEPHONE: (410) 819-8989
FACSIMILE: (410) 822-4787

EMAIL ADDRESS
ZACHSMITH@ALRWLAW.COM

September 21, 2023

Planning and Zoning
Town of Easton
Attn: Miguel Salinas, Director
14 S. Harrison Street
Easton Maryland 21601

Re: Minor Amendment to Temporary Approval - Rise Up Coffee Roasters
625 Dover Road Easton, Maryland

Dear Miguel:

As discussed previously, Rise Up intends to install a small walk-in cooler unit and a small storage shed at 625 Dover Road to provide additional refrigeration and storage for the Mad Eggs kitchen unit and the existing coffee kiosk. The walk-in will be approximately 8' x 12', and will be identical to the walk-in that was recently installed at La Bodega. The storage shed will be approximately 12' x 24', and will also be similar to what exists at La Bodega. Enclosed please find a copy of the updated site plan for the Rise Up site showing the locations of both the proposed walk-in and proposed storage shed.

Because the walk-in and storage shed are ancillary to and required for the Mad Eggs unit that has been approved as a temporary use, you have indicated that the addition of these improvements to the current temporary approval can be processed administratively. Please confirm that Rise Up may proceed at this time with the installation of the walk-in and storage shed, subject to obtaining any required permits from the Building Inspection Department.

Rise Up understands that the inclusion of the walk-in and storage shed with the current temporary approval will only permit the improvements to remain through November 30th of this year. As discussed, we have added the walk-in and storage shed to the site plan for the PUD

amendment that is currently under review by the Town, and it is our hope that the PUD amendment will be approved prior to November 30th, allowing the walk-in and storage shed to remain along with the Mad Eggs kitchen unit.

Please let me know if any additional information or discussion may be needed to facilitate this request. Thank you for your continued support of Rise Up!

Sincerely,

Zach A. Smith

RECEIVED
SEP 22 2023
TOWN OF EASTON

ARMISTEAD, LEE, RUST & WRIGHT, P.A.
ATTORNEYS AT LAW

114 Bay STREET, BUILDING C
EASTON, MARYLAND 21601

TELEPHONE: (410) 819-8989
FACSIMILE: (410) 822-4787

EMAIL ADDRESS
ZACHSMITH@ALRWLAW.COM

September 21, 2023

Planning and Zoning
Town of Easton
Attn: Joe Mayer
14 S. Harrison Street
Easton Maryland 21601

Re: Updated Site Plan - PUD Amendment for Rise Up Coffee Roasters
625 Dover Road Easton, Maryland

Dear Joe:

As discussed, the Talbot County Health Department will require Rise Up to install a small walk-in cooler unit at 625 Dover Road to provide additional refrigeration for the Mad Eggs kitchen unit and the existing coffee kiosk. The walk-in will be approximately 8' x 12', and will be identical to the walk-in that was recently installed at La Bodega. Additionally, Rise Up needs to add a small storage shed to the property, to store dry goods that are required for on-site operations. The storage shed will be approximately 12' x 24', and is similar to the storage shed at La Bodega.

Per your direction, we have updated the PUD site plan that is currently under review by the Town to show the proposed locations for both the walk-in and the storage shed. Enclosed please find ten (10) copies of the updated site plan. Please substitute the site plan in our original submittal (labeled "Exhibit A") with the updated plan that is enclosed. Please let me know if any additional information or material may be needed to facilitate this request.

Thank you for your continued support of Rise Up!

Sincerely,

Zach A. Smith

RECEIVED
SEP 22 2023
TOWN OF EASTON

RECEIVED
JUL 26 2023
TOWN OF EASTC

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	N/A			
Original Property Size	Acres		Square Feet	
Telephone No.		Email		

Site Plan Information

Property Size	Acres	1.089 AC	Square Feet	
Structure's Floor Area			Structure's Square Feet	(See Attached)
Area of Disturbance			Number of Dwelling Units	

Property Information

Address	625 Dover Road, Easton, Maryland 21601						
Tax Map	103	Grid		Parcel	990	Lot	
Deed Refernce:	Liber	2774	Folio	440			
Plat Reference:	Liber	87	Folio	44			
Base Zoning District	PUD	Historic Y ☐ N ☒		Planned Redevelopment Y ☒ N ☐			
Source of Electricity	Easton Utilities						

Owner

Name	Rise Up Dover Road LLC		
Mailing Address	618 Dover Road, Easton, Maryland 21601		
Telephone No.		Email	

Applicant or Agent

Name	Rise Up Coffee Roasters c/o Zach Smith		
Mailing Address	114 Bay Street, Building C, Easton Maryland 21601		
Telephone No.	410-819-8989	Email	zachsmith@alrwlaw.com

Surveyor / Engineer

Name	N/A	License No.		Expiration Date	
Mailing Address					
Telephone No.		Email			

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	
Date	7/26/23
Printed Name of Applicant or Agent	Zachary A. Smith

For Office Use Only

Planning Commission Required	Y ☒ N ☐		
Planning Commission Meeting Date	08/17/2023		
Sketch Approval Date		Project No.	PUD 23-01
Prelim/Dev. Approval Date		Application No.	2023-870
Final Approval Date		Sketch Fee Paid	
Recordation Date		Develop. Fee Paid	

Revised 02-2019

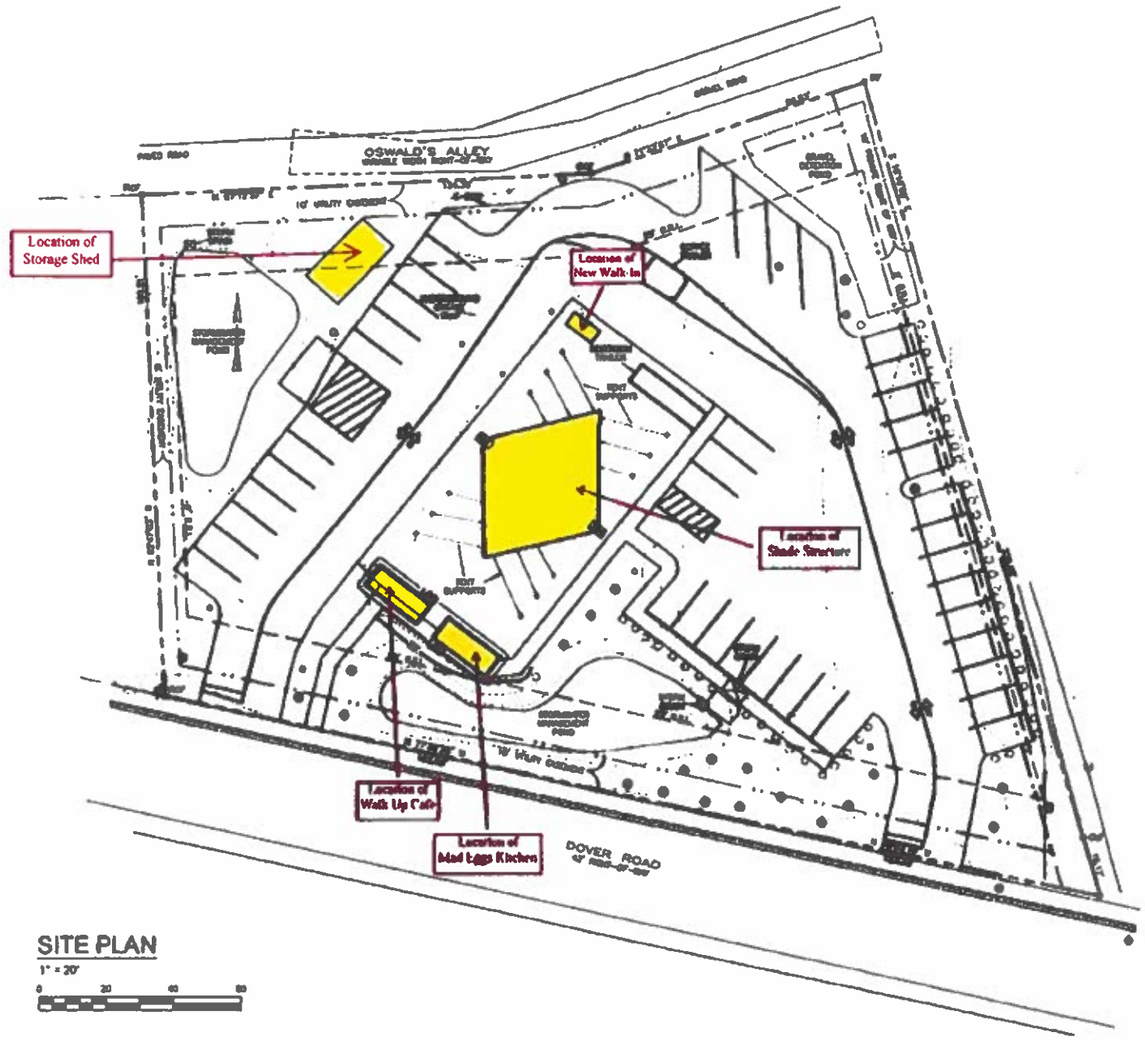
PURPOSE OF APPLICATION

Rise Up Coffee Roasters ("Rise Up") seeks to amend the PUD zoning for 625 Dover Road ("Property"). The Property is improved with an outdoor seating area, drive-up coffee kiosk, restroom facility, commercial parking lot/maneuvering area, landscaping and stormwater management features. Over the last several years Rise Up has sought and obtained temporary approvals from the Planning Commission to seasonally cover the outdoor seating area with a shade structure. The covered outdoor seating area has been highly utilized and very well received by the community. Accordingly, Rise Up desires to continue with this set up for the foreseeable future. Also, to better serve its customers, Rise Up intends to add a "Mad Eggs" kitchen facility on the Property this year, and to then add a separate similarly sized facility for a walk-up café in the near future. The Mad Eggs kitchen facility has also received a temporary approval from the Planning Commission for this year, running concurrent with the temporary approval for the shade structure. The walk-up café has not yet been manufactured and therefore is not included in the temporary approval.

To avoid having to continue seeking temporary approvals each year for the above-described facilities, Rise Up seeks an amendment to the PUD that will grant a permanent approval for: (i) the shade structure, (ii) the Mad Eggs kitchen facility, and (iii) the walk-up café.

The above-described facilities are shown and labeled on the site plan attached hereto as **Exhibit A**. A photograph of the shade structure is included as **Exhibit B**. Interior and exterior elevations for the Mad Eggs kitchen facility are shown on **Exhibit C**. The exterior graphics for the Mad Eggs kitchen facility are included as **Exhibit D**. Specific plans for the walk-up café have not yet been finalized, but the size and configuration of the walk-up café unit will be very similar to the Mad Eggs unit.

Exhibit A



SITE PLAN

1" = 20'

0 20 40 80

LEGEND

EXISTING | PROPOSED

PROPERTY LINE
B.R.L. AND BUFFERS
EASEMENT
PARKING LINES
OVERHEAD UTILITY LINES
FENCE
EXISTING ELEVATION CONTOUR
STRUCTURE
TELECOM PEDESTAL
LIGHT POLE
WATER METER
MANHOLE
SEWER MANHOLE
SEWER VALVE
UTILITY POLE
SIGN
TREE
PAVED AREA
GRAVEL AREA
LANDSCAPING
CONCRETE AREA
STORMWATER POND
BUILDING

CMF DENOTES CONCRETE MONUMENT FOUND
IRF DENOTES IRON ROD FOUND
BCF DENOTES INCH ROD WITH CAP FOUND

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS · ENGINEERS · SURVEYORS

General Notes

Revision

Project
RISE UP COFFEE ROASTERS
618 DOVER ROAD
EASTON, MARYLAND 21601

Sheet Title
SITE PLAN

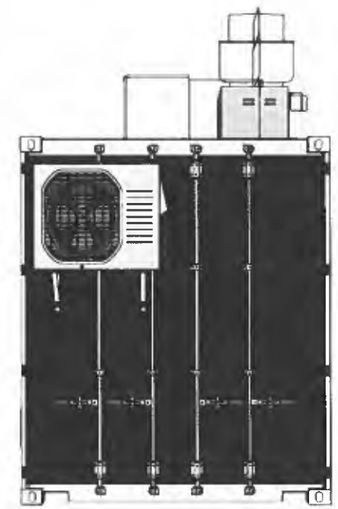
Drawn by CAH/BS
Scale AS NOTED
Date 04/25/22

C1

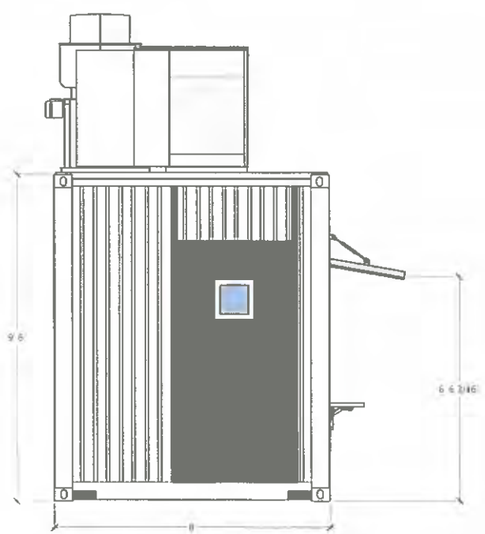
Exhibit B

Exhibit C

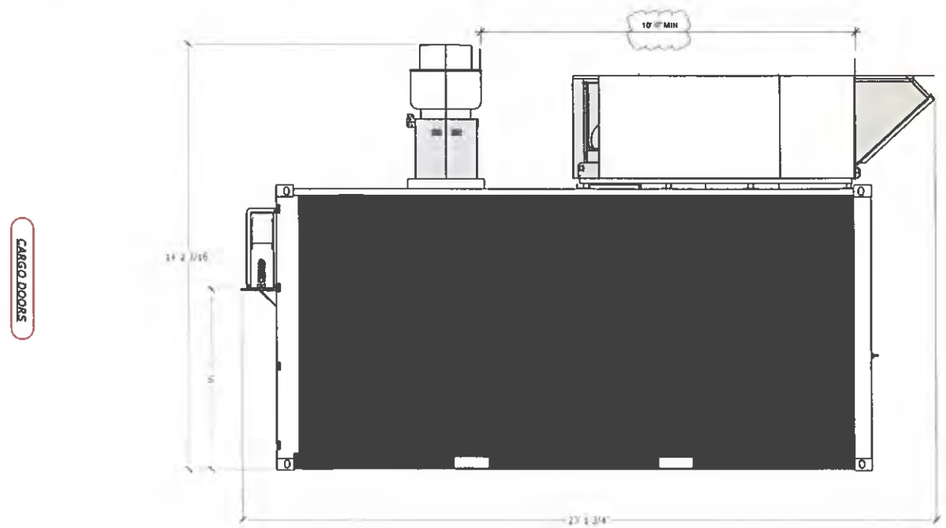
1 FRONT



2 CARGO DOOR END



3 MAN DOOR END



4 BACK

NOTE DESIGN PER PERMANUFACTURED CONTAINER PROVIDED BY ROXBOX

ROXBOX
ROXBOX
4721 Ironton St. Suite A
Denver, CO 80239

RISE UP / MADD EGGS
20' HC KITCHEN

OVERVIEW

THIS DRAWING HAS NOT BEEN PUBLISHED BUT RATHER HAS BEEN PREPARED BY ROXBOX CONTAINERS FOR USE BY THE CLIENT NAMED IN THE TITLE BLOCK SOLELY IN RESPECT OF THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THE FACILITY NAMED IN THE TITLE BLOCK AND SHALL NOT BE USED FOR ANY OTHER PURPOSES OR FURNISHED TO ANY OTHER PARTY WITHOUT THE EXPRESS CONCENT OF ROXBOX CONTAINERS

DRAWN BY SB
DESIGNED BY SB
DATE 1/27/2022

REVISIONS

REV 2 2

PROJECT NUMBER 1163

S 02

Design Consultant

ARCHITECTURE
INNOVATION & DESIGN in ARCHITECTURE, Inc.
115 PINE AVE, SUITE 250
Long Beach, CA 90802
www.idearchitecture.com

Architect

GEOFFREY B. LIM
AIA, NCARB, LEED AP

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Engineering Consultant

Stamp

04/15/22

NEW CONSTRUCTION
ROXBOX
4721 IRONTON ST. SUITE A
DENVER, CO 80239

Project Address
MADD EGGS
625 DOVER ROAD
EASTON, MD 21601

Issue For
PERMIT

Issue Date
04/15/2022

Revisions

NO.	REASON	DATE
1	PLAN CHECK CORRECTIONS	JUNE 30 2022

Principal In Charge
JK

Project Manager
GB

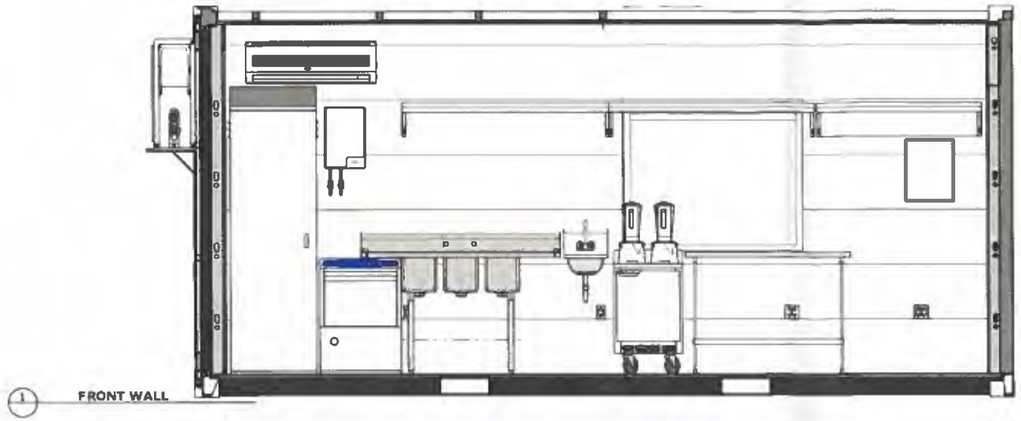
Drawn By.

Project Number
199-001-22

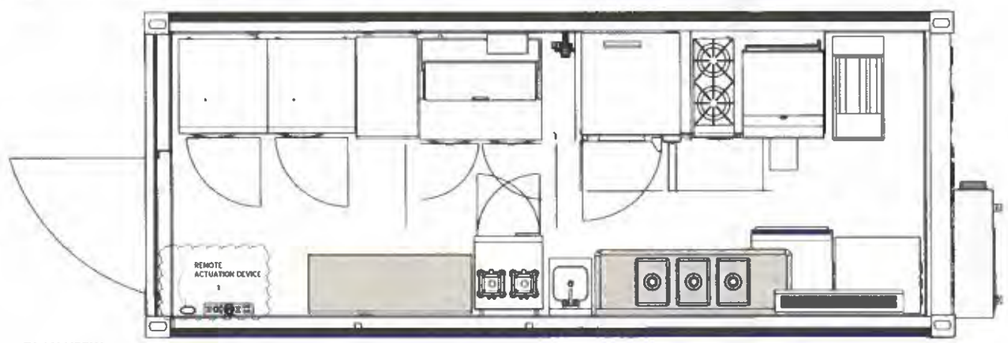
Sheet Title
OVERVIEW

APPROVED
RADCO
Aug 04, 2022
APPROVED

Sheet Number
S 02



1 FRONT WALL



2 PLAN VIEW

3 BACK WALL

NOTE DESIGN PER PERMANUFACTURED CONTAINER PROVIDED BY ROXBOX

ROXBOX
ROXBOX
4721 Ironton St. Suite A
Denver, CO 80239

RISE UP / MADD EGGS
20' HC KITCHEN

SECTION PLANES

THIS DRAWING HAS NOT BEEN PUBLISHED BUT RATHER, HAS BEEN PREPARED BY ROXBOX CONTAINERS FOR USE BY THE CLIENT NAMED IN THE TITLE BLOCK SOLELY IN RESPECT OF THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THE FACILITY NAMED IN THE TITLE BLOCK AND SHALL NOT BE USED FOR ANY OTHER PURPOSES OR FURNISHED TO ANY OTHER PARTY WITHOUT THE EXPRESS CONCENT OF ROXBOX CONTAINERS

DRAWN BY: SB
DESIGNED BY: SB
DATE: 1/27/2022

REVISIONS

REV
22

PROJECT NUMBER
1163

S 03

Design Consultant

INNOVATION & DESIGN IN ARCHITECTURE, Inc
185 PINE AVE. SUITE 250
Long Beach, CA 90802
www.ideaexperience.com

Architect

GEOFFREY B. LIM
AIA, NCARB, LEED AP

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Copyright Protected

Engineering Consultant

Stamp

STATE OF MARYLAND
GEOFFREY B. LIM
No. 18-0
ARCHITECT

04/15/22

NEW CONSTRUCTION

ROXBOX
4721 IRONTON ST SUITE A
DENVER CO 80239

Project Address
MAD EGGS

625 DOVER ROAD
EASTON MD 21601

Issue For
PERMIT

Issue Date
04/15/2022

Revisions

NO.	REASON	DATE
1	PLAN CHECK CORRECTIONS	JUNE 30 2022

Principal in Charge
JC

Project Manager
DB

Drawn By

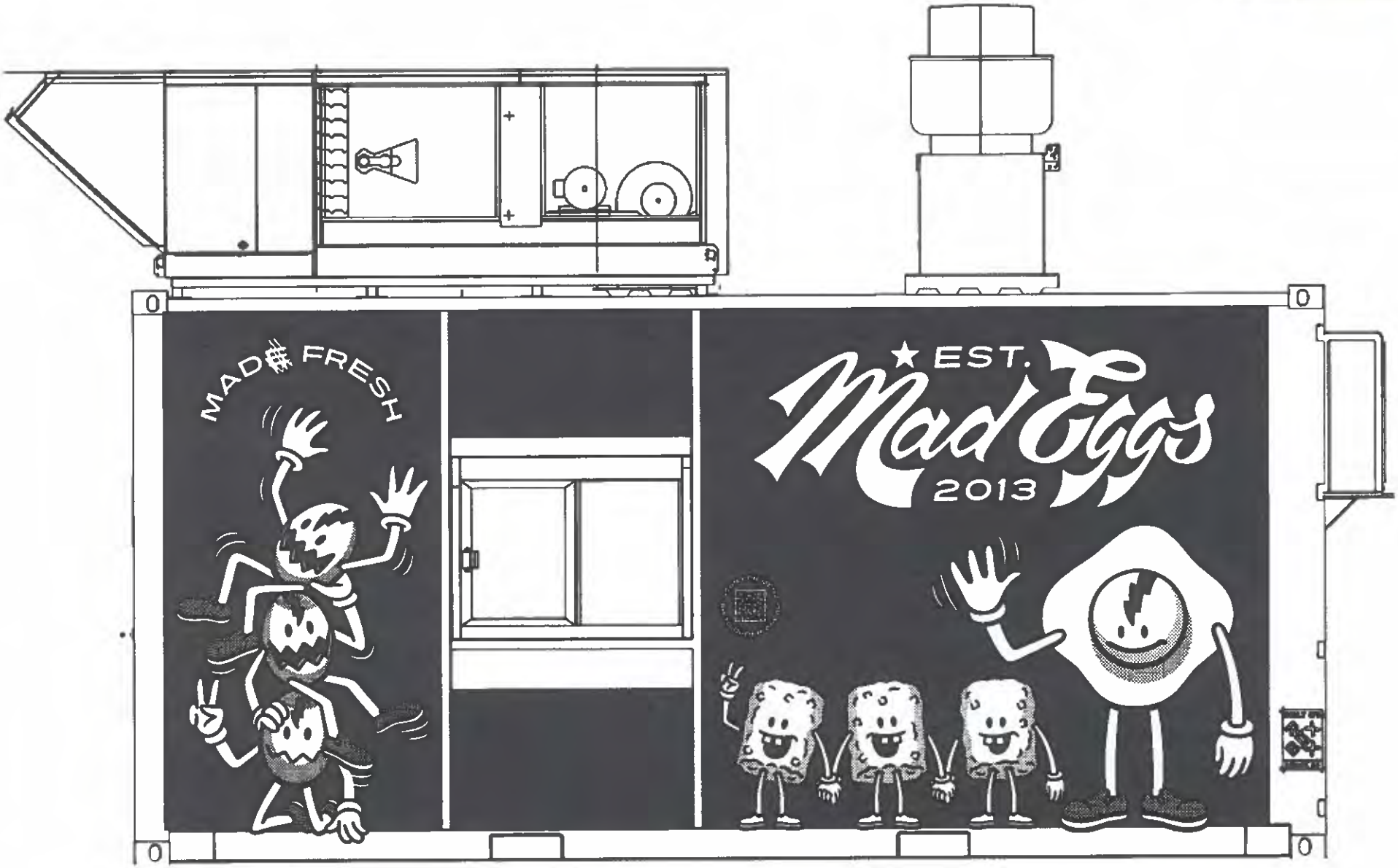
Project Number
199-001-22

Sheet Title
SECTION PLANS

APPROVED
RADCO
Aug 04, 2022
APPROVED

Sheet Number
S 03

Exhibit D



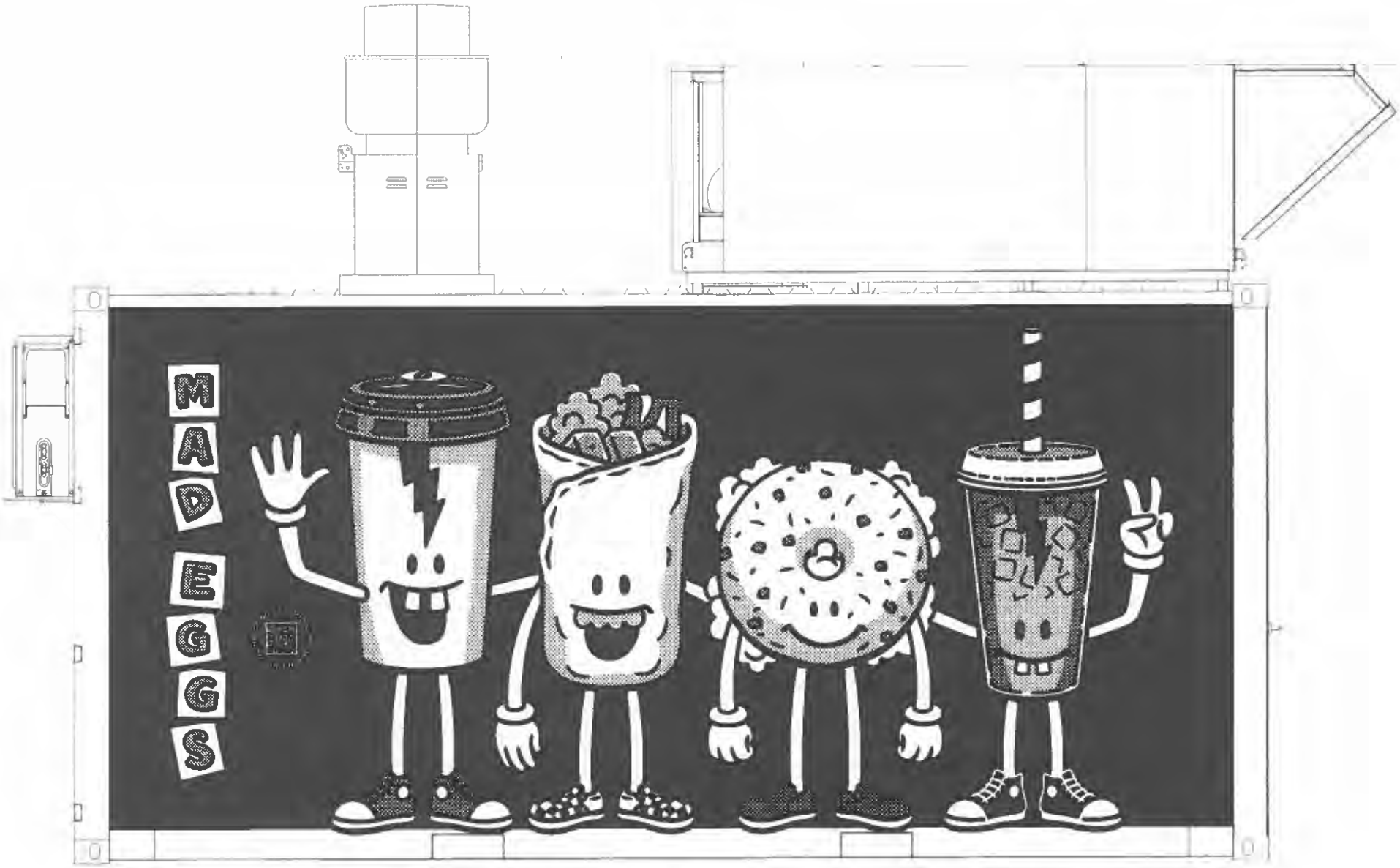
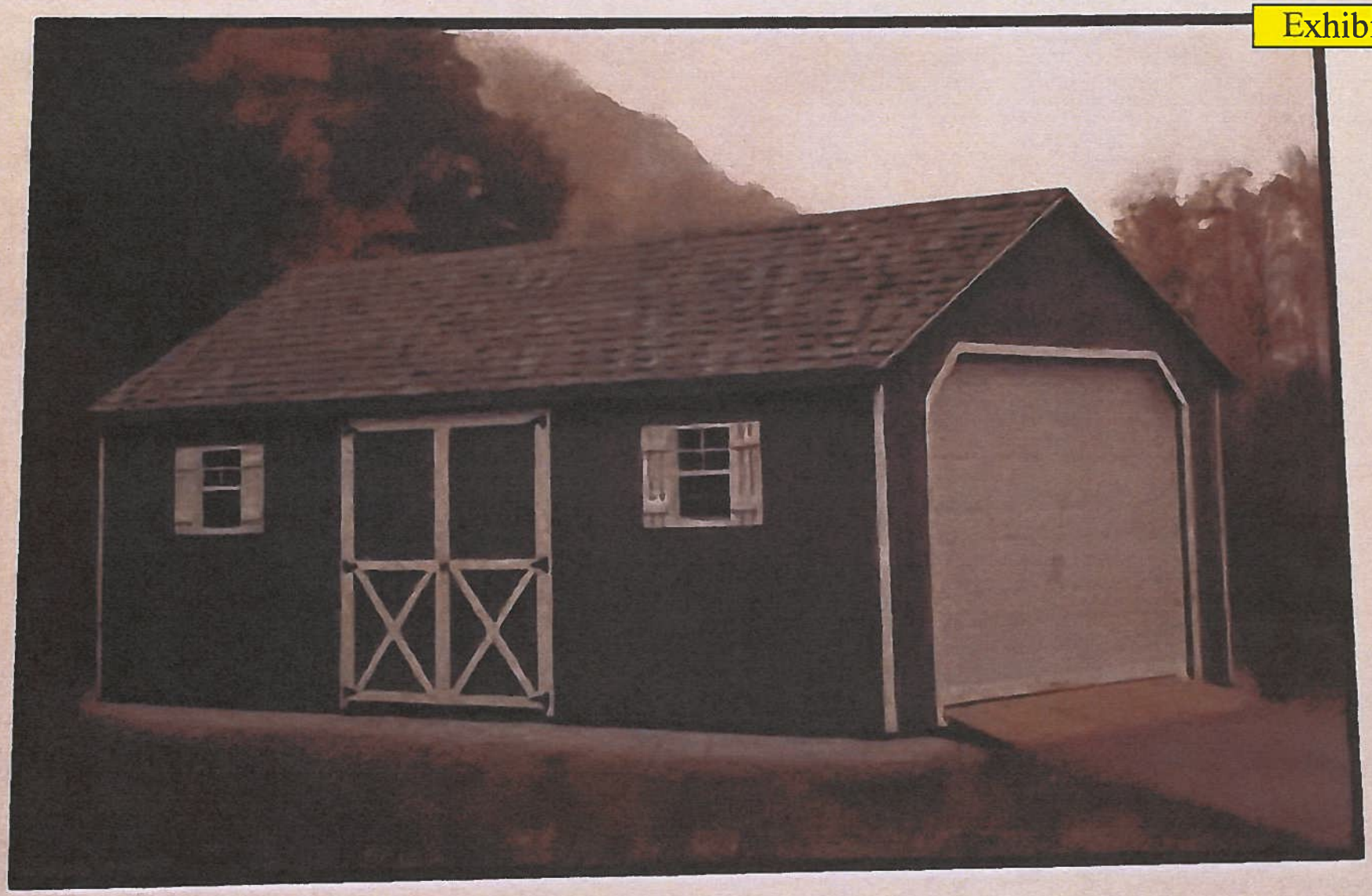

MAD EGGS

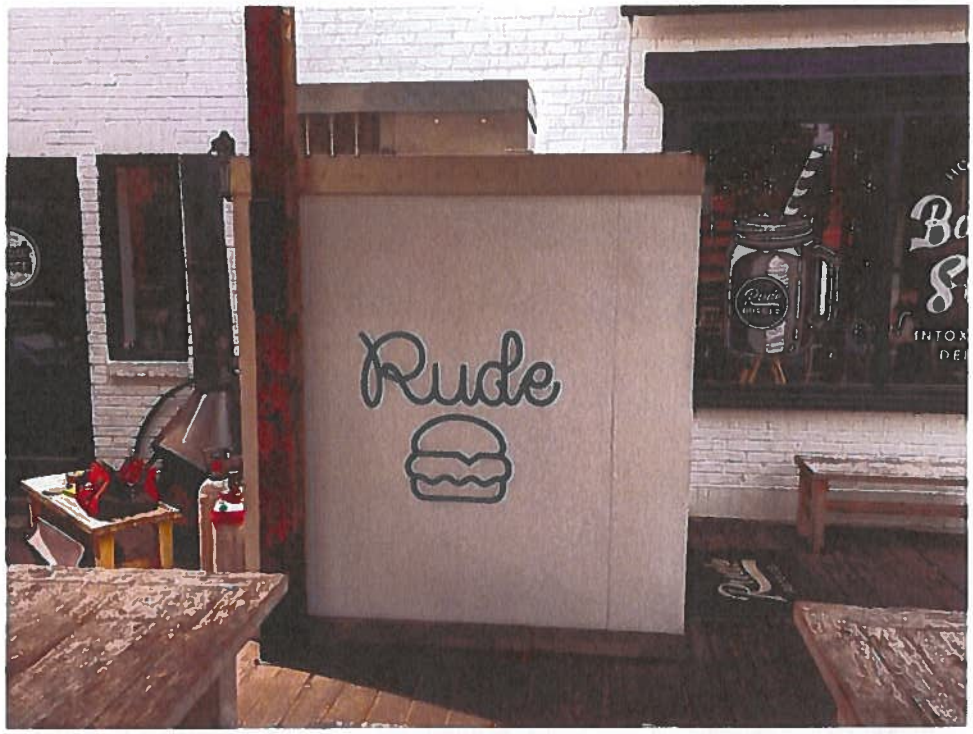
Exhibit E



Backyard A-Frame: 12" x 24'. Light Gray T-111. Dual Gray Shingles. White Trim. White Shutters

Options Shown: 9' x 6' 9" Overhead Door. 9' Heavy Duty Ramp. 8" x 16" Vents

Exhibit F



ORDINANCE NO. 715

AN ORDINANCE OF THE TOWN OF EASTON GRANTING THE APPLICATION OF RISE UP DOVER ROAD LLC FOR A PLANNED UNIT DEVELOPMENT UNDER THE PROVISIONS OF THE EASTON ZONING ORDINANCE

INTRODUCED BY Mr. Silverstein

WHEREAS, the Town of Easton is authorized by the Land Use Article of the Maryland Annotated Code (the "Code") to enact and administer a zoning ordinance, which ordinance is Chapter 28 of the Easton Town Code; and

WHEREAS, the Town is authorized by Section 4-201 *et seq.* of the Land Use Article of the Code to divide land within the municipal boundaries into zoning districts in a manner it deems best suited to execute the purposes of the Land Use Article; and

WHEREAS, Section 28-801 of the Easton Zoning Ordinance authorizes the Easton Town Council to approve, deny and amend Planned Unit Development ("PUD") zoning districts in order to encourage the development of land in certain areas of the Town according to a total development concept incorporating a detailed development plan; and

WHEREAS, Rise Up Dover Road LLC submitted an application to establish a PUD as described in the Town Council's findings of fact supporting this Ordinance and shown in detail on the plans referenced and attached hereto as Exhibit "A" (collectively, the "PUD Plan"). The PUD Plan is attached hereto as Exhibit "A" and the Findings of Fact are attached hereto as Exhibit "B"; both are incorporated herein.

WHEREAS, the Easton Town Council held a duly noticed public hearing regarding the PUD application and this Ordinance on September 5, 2017; and

WHEREAS, for the reasons expressed in the findings of fact of the Town Council, which are attached to this Ordinance as Exhibit "B", the Town Council concludes that the request for the PUD should be granted.

NOW, THEREFORE, the Town of Easton hereby ordains:

Section 1. The Findings of Fact attached hereto as Exhibit "B" are hereby incorporated into this Ordinance by reference.

Section 2. The application of Rise Up Dover Road LLC to establish a new PUD as depicted by Exhibit "A" and described by Exhibit B is hereby approved subject to the conditions set forth in Exhibit "B".

Section 3. Severability. The Easton Town Council intends that, if a court of competent jurisdiction issues a final decision holding that any part of this ordinance is invalid, the remaining provisions hereof remain in full force and effect.

Section 4. In accordance with Article II, Section 9 of the Easton Town Charter, this ordinance shall become effective twenty (20) calendar days after approval by the Mayor or passage of this ordinance by the Council over the Mayor's veto.

Silverstein	-	Yea
Lesher	-	Yea
Engle	-	Yea
Cook	-	Yea
Ford		Yea

I hereby certify that the above Ordinance was passed by a yea and nay vote of the Council this second day of October, 2017.

John Ford

John F. Ford, Town Council President

Delivered to the Mayor by me this third day of October, 2017.

Kathy M. Ruf

Kathy M. Ruf, Town Clerk

APPROVED: October 3, 2017

Date: October 3, 2017

Robert C. Willey

Robert C. Willey, Mayor

EFFECTIVE DATE: October 23, 2017.

EXHIBIT "A"

The following materials are referred to collectively as the "PUD Plan":

1. PUD Sketch Plan entitled "**PUD SKETCH PLAN OF RISE UP COFFEE ROASTERS TAX MAP 0103, GRID 000EA, PARCELS 986, 987, 988, 989, 990, 991, 992, & 993 FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND PREPARED FOR RISE UP DOVER ROAD LLC"** prepared by Rauch Inc. originally dated July 17, 2017 and revised through July 21, 2017; and

2. Architecture and floor plan drawings (4 pages total) untitled and undated.

COPIES ARE ON FILE AT THE TOWN OFFICE

EXHIBIT "B" TO ORDINANCE NO. 715

IN THE MATTER OF	:	BEFORE THE
	:	
THE APPLICATION OF	:	EASTON TOWN COUNCIL
	:	
RISE UP DOVER ROAD LLC	:	

FINDINGS OF FACT

During a meeting of the Easton Town Council held on September 5, 2017, a public hearing was held on the application of Rise Up Dover Road LLC[1] (the "Applicant") to create a new planned unit development ("PUD") in the Town of Easton to authorize the construction of an 8,000 square foot building to include a café, offices, and community meeting space for Rise Up Coffee. The subject property consists of eight parcels of land which are Parcels 986, 987, 988, 989, 990, 991, 992, and 993 on Talbot County Tax Map 103 (collectively, the "Property"). The Property is owned by Rise Up Dover Road LLC and is located across from the existing Rise Up Coffee establishment.

A. The PUD Amendment Application and the Public Hearing.

The Property is 1.09 acres more or less and is currently zoned R-7A Residential under the Easton Zoning Ordinance. The Property is located on Dover Road east of its intersection with Park Street. The Property is bounded on the north and west by residential properties and on the east by the Doverbrook Apartments. Across Dover Road and to the South is the existing Rise Up Coffee establishment and Park Place, a multi-use business building with a variety of businesses such as a pizzeria, the Department of Juvenile Services, a website design company, etc. Further to the southeast are additional residential properties. The Applicant is proposing to build an 8,000 square foot building to include a café, offices, and community meeting space. Roasting functions will remain at the existing location. The sketch plan was reviewed by the Planning Commission, which approved the sketch plan with some conditions, found the proposed PUD to be consistent with the Comprehensive Plan and unanimously recommended approval of the PUD to the Town Council. At the Town Council public hearing, the sketch plan shown had been changed to incorporate some of the Planning Commission's conditions and comments. The PUD sketch plan, along with the floor plan drawings, are Exhibit "A" to the ordinance to which these findings relate (the "PUD Plan"). The details of the PUD and the Council's reasons for supporting the PUD are set forth below.

[1] Technically, the application listed Rauch, Inc. as the Applicant, but they are the agent for Rise Up Dover Road LLC.

The Applicant was represented by Timothy Cureton, part of the Owner entity, Casey Rauch of Rauch Inc., who presented both testimonial and documentary evidence in support of the application. Following the close of the public hearing, during its regularly scheduled meeting on September 18, 2017, the Town Council developed a consensus concerning the application. The Council instructed the Town Attorney to prepare findings of fact reflecting these opinions and comments. In so doing, the Town Attorney has reviewed the evidence presented to the Council solely in the context of this application in order to set out the basis for the Council's decision.

B. Legal Background.

The Town of Easton Zoning Ordinance (the "Ordinance"), which is Chapter 28 of the Easton Town Code, establishes the Planned Unit Development (PUD) Zoning District for "carefully planned residential, mixed use and certain commercial developments at appropriate locations" in Easton.

The standards and regulations for PUD districts are found in Article VIII of the Ordinance. Section 28-801.A of the Ordinance explains that the PUD regulations are intended:

> . . . to allow all aspects of a PUD District to be subject to public review and control by the Town with specific provisions to be made on a case-by-case basis for adequate open space, architectural appearance, the height, bulk and location of buildings, required public facilities, and a variety of housing types, densities, and/or compatible commercial or industrial uses as a part of a detailed development plan.

Section 28-801 sets out various development standards and procedures and, finally, establishes the standards by which PUD applications are reviewed by the Town Council. Section 28-801.C sets forth the uses that are permitted in a PUD District. Specifically, Section 28-801.C(2) provides that commercial uses are permitted in a PUD District, but they should be "oriented to benefit the residents of the neighborhood." Section 28-801.G articulates ten specific development standards, and authorizes the Town Council to modify the standards upon a showing by the applicant that the standard would place an undue burden upon the applicant and that compensation is provided by another means in the proposed project.

The PUD application procedure is described by Section 28-801.H. Upon receipt of a written recommendation by the Planning and Zoning Commission, the Council shall conduct a public hearing on the application. The Council shall consider, but is not bound by, the recommendation of the Commission. The Ordinance establishes seven standards that must be met as precondition to granting an application. If the Council affirmatively

finds that all preconditions have been met, the Council is then authorized but not required to grant the application. In making its decision, the Council:

> "may consider, in addition to the factors outlined above [i.e., the criteria set out in Section 28-801.H(3)B], other factors it deems appropriate including but not limited to the degree to which the proposed development:
>
> 1. helps accomplish the coordinated, adjusted, and harmonious development of the Town and its environs in accordance with present and future needs;
>
> 2. promotes health, safety, morals, order, convenience, prosperity, and general welfare; including among other things, adequate provisions for traffic, the promotion of public safety, adequate provisions for light and air, conservation of natural resources, the prevention of environmental pollution, the promotion of the healthful and convenient distribution of population;
>
> 3. exemplifies good civic design and arrangement and the stewardship of the Chesapeake Bay and the land as a universal ethic;
>
> 4. encourages the conservation of resources, including a reduction in resource consumption;
>
> 5. is located in a location suitable for it given existing and reasonably foreseeable development; and
>
> 6. encourages appropriate and sustainable economic growth."

These six enumerated standards are paraphrases of the statement of intent of the Ordinance found in Section 28-103. In short, the Ordinance sets out a two-step decision-making process: first, the Council must determine whether or not an application satisfies certain minimum criteria and, if it does, then the Council considers whether to grant or deny the application based upon relevant factors including the degree to which the application satisfies the standards enunciated by the General Assembly as goals for land use planning in this State.

C. Does the Proposed Development Meet the Minimum Criteria Set Out in the Easton Zoning Ordinance for PUD Development?

As required by Section 28-801.H(3)A of the Ordinance, the Town Council makes the following findings of fact with regard to the application:

1. The Town Council finds that the Property was properly posted and that adequate legal notice of the public hearing was published in the Easton Star-Democrat.

2. The Town Council finds that the proposed development conforms to applicable standards set forth in this Zoning Ordinance for planned unit developments. In particular, the Town Council finds that the development standards set forth in Section 28-801.G of the Ordinance are satisfied as follows:

(1) The land comprising the Property is in one ownership. Specifically, the Property is owned by Rise Up Dover Road LLC.

(2) The Property is of a configuration suitable for the development proposed. The size and configuration of the Property and the proposed site plan are suitable to accommodate the 8,000 proposed building in a manner consistent with applicable Town design guidelines and requirements.

(3) Public water and sewer systems are available to the Property for service of the PUD.

(4) The Property is adjacent to adequate transportation facilities capable of serving existing traffic and that expected to be generated by the proposed development. The PUD site has frontage on Dover Road. The Property is walkable to the downtown, and is very close to the Town's Rail-Trail network for pedestrian and bicycle access.

(5) The Applicant confirmed that it intends to begin construction of the development within one (1) year after final approval of the PUD.

(6) The Property has an area of 1.09 acres, which is below the 5 acre requirement. However, the Zoning Ordinance allows smaller sites if the PUD is compatible with existing development in the area and does not disrupt the orderly expansion of the transportation system of the Town. The PUD is compatible with the existing development in the area including the residential properties immediately surrounding it. It is merely an expansion of the existing use across the street. The PUD will not cause disruption of the orderly expansion of the transportation system.

(7) No residential units are proposed, so the maximum permitted residential density is not applicable.

(8) The proposed project does satisfy the 30% common open space requirement with a proposed common open space of 41.87%. The Applicant, or its successors in interest, will be responsible for the continued maintenance of the open space areas.

(9) Bulk standards (setback, lot size, lot coverage, and yard requirements), are hereby established as depicted on the PUD Plan and are as follows:

The minimum front and rear setback shall be 25 feet. The minimum side setback shall be 8 feet. The maximum height shall be 40 feet. The parking setback shall be 8 feet.

(10) Pursuant to Section 28-1001 of the Ordinance, 53 parking spaces are required. The Planning Commission granted a waiver for 3 spaces, so the sketch plan includes 50 parking spaces.

(11) There is an existing sidewalk along Dover Road.

In summary, as is more specifically set forth above, the Town Council finds that the proposed PUD complies with applicable Development Standards in the Ordinance.

3. On July 20, 2017, the Easton Planning and Zoning Commission voted unanimously to approve the sketch site plan and to issue a favorable recommendation regarding the PUD Plan's consistency with the Town's 2010 Comprehensive Plan (the "Plan"). The Planning Commission's recommendation is reported by an August 2, 2017 letter to Mayor Willey and the Easton Town Council. Based upon the recommendation of the Planning Commission and information contained within the record, the Council finds that the proposed PUD amendment conforms to the Town's Comprehensive Plan.

The Plan is intended to serve as the guide for land use decisions of the Town and articulates many broad policy issues and objectives intended to apply on a town-scale. As is the case in many instances, there are statements that support the PUD Plan and also statements that do not. The Future Land Use Map recommends a residential use for this property. However, this area has the potential to establish a high design standard for what is a major gateway into Easton's Downtown and the Hill with a use that is compatible with and oriented to benefit the residents of the neighborhood. The Comprehensive Plan encourages "convenient, appropriately scaled commercial services to support neighborhood needs." (Plan p. 120) This is also infill and redevelopment, which is preferred and one of the fundamental tenants in the Comprehensive Plan over new "greenfield" development.

For these reasons, the Town Council finds that even though there are statements to the contrary, in general, this application is consistent with and supported by the Comprehensive Plan.

4. The proposed PUD, in conjunction with existing and reasonably anticipated development in the neighborhood surrounding the site for the proposed PUD, will not interfere with the adequate and orderly provision of public services to the area. Public utility systems already exist and serve the Property. Nothing proposed will interfere with the continued provisions for public services in the area.

5. The Town Council finds that the proposed PUD will not cause unacceptable traffic congestion or hazards either in or near the site for the proposed PUD development or elsewhere in the Town or Talbot County. The Property adjoins Dover Road. Many of the cars that will frequent the new Rise Up Coffee facility, are currently customers that frequent the existing facility across the street. While the capacity will be increased in the new facility, the additional traffic will not cause unacceptable congestion or hazards. The Property is also walkable to the downtown and other amenities, and is in close proximity to the Town's Rail-Trail.

6. The record contains no indication that there are any features of ecological, historical, or cultural significance on the Property, and the Council so finds. Ecologically, stormwater management techniques and practices that comply with State and local regulations and protect sensitive, downstream resources are proposed.

7. The Town Council finds that the proposed PUD is compatible with existing development in the surrounding neighborhood and with development reasonably anticipated to occur in the neighborhood in terms of size, scale, design, and appearance. While the proposed structure is larger than some of the surrounding houses, with the proposed PUD Plan and the conditions imposed, there will be sufficient buffering and distance between them to soften the impact. In addition, the size and scale is consistent with the commercial uses located across the street in the Park Place building.

8. The proposed PUD will not adversely affect the value of property in the neighborhood surrounding the site. The redevelopment of the existing Rise Up Coffee facility has been a positive boost to the neighborhood. It is expected that the new facility will continue that trend. The Council finds that the proposed PUD will not adversely affect, and may enhance, the values of other parcels in neighborhood surrounding the Property.

D. Should the Town Council Exercise Its Legislative Discretion To Grant The Application?

The Council finds that the Applicant has met the minimum criteria for granting a PUD application. The Council has further concluded that it is appropriate for it to exercise its legislative discretion to grant the application.

The Council finds that the proposed PUD helps accomplish the coordinated, adjusted, and harmonious development of the Town and its environs in accordance with present and future needs and is located in a location suitable for its given existing and reasonably foreseeable development. This PUD provides infill development that adjoins an established street and infrastructure network. It provides the Town with a high quality design at a major gateway to the downtown. Based on the foregoing, the Town Council finds approval of the PUD to be in the public interest, subject to the conditions set forth below.

E. Conditions.

The following conditions are binding on the Applicant and any successor developer(s) of the land located within this PUD district:

1. The Applicant shall provide a visual buffer between the rooftop deck on the southern façade of the proposed building and the existing single family residence located at 615 Dover Road. The specific concern to be addressed is the potential impact on privacy in the adjacent residence from occupants of the roof top deck. Required buffering can be accomplished by either: (i) planting evergreen trees (min. 8' tall at installation) along the portion of the property line adjacent to the residence, or (ii) by constructing a vertical wall (6' min) on the western edge of the proposed rooftop deck.

2. The Town Council incorporates the conditions imposed by the Planning Commission. The compliance with these conditions shall be at the discretion of the Planning Commission, and the Planning Commission shall have the authority to approve minor amendments to these conditions should they determine it is reasonable to do so. The conditions are as follows:

   (a) The dumpster is to be relocated to the interior of the Property.
   (b) The Applicant shall install a "green barrier" along the rear of the Property to minimize visual impacts of the parking area upon adjacent properties.
   (c) The micro-bio-retention area shall incorporate landscaping.

VOTING TO GRANT THE APPLICATION:

Alan I. Silverstein

Pete Lesher

Ron E. Engle

Megan M. Cook

John Ford

John F. Ford, President

TOWN OF EASTON

14 South Harrison Street
Easton, Maryland 21601

October 4, 2023

Dear Resident,

The Easton Planning Commission will hold a public meeting on **Thursday, October 19, 2023 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 an Amendment to a previously approved Planned Unit Development (PUD) has been filed on behalf of Rise Up Dover Road LLC for the addition of a kitchen facility with an 8' x 12' walk-in cooler, a walk-up café, and the addition of a 12' x 24' storage shed to the existing property located at 625 Dover Road, also known as Tax Map 103, Parcel 0990. The Amendment also includes a request for approval that will allow a shade structure to remain standing on a seasonal basis without having to apply each year for a temporary use permit approval.

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

APG Media of Chesapeake, LLC **10/02/23**
29088 Airpark Drive
Easton, MD 21601

Phone: Fax:
http://www.chespub.com

Cust. AcctID:	Creation Date: **10/02/23**
	Ad Date: **10/04/23**
	Class:
Name: **Joanne Drummer**	Ad ID:
Company: **TOWN OF EASTON (L)**	Ad Taker:
Address: **PO Box 520**	Sales Person:
EASTON, MD 21601	Words:
	Lines:
	Agate Lines:
Telephone: **(410) 822-2525**	Depth:
Email:	Inserts:
Description: **Planning Comm Meeting**	Blind Box:

Other Charges:		Total:	
Discount:			
Surcharge:		Paid Amount:	
Credits:			
Bill Depth:		Amount Due:	

CREDIT CARD DETAILS

PT	CT	CN	Number	Exp.	Amnt.

Publication	Start	Stop	Inserts	Cost
The Star Democrat	10/04/23	10/04/23		

Ad Note:

Planning Commission
MEETING AGENDA
Thursday, October 19, 2023 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

Please continue to check our website at:
https://eastonmd.gov/129/Agendas-Minutes
for agenda updates

1. **Call to Order**
2. **Approval of Minutes.**
   a. Approval of the Decision Summary from the September 21, 2023 meeting.
3. **Old Business**
   a. **Applicant:** Lane Engineering, LLC
      File No.: 2023-933
      Location: Mistletoe Hall Commerce- Business Park Lot 1
      Tax Map 25, Grid 16, Parcel 0138, Lot 1
      Zoning District: I
      Nature of Request: Architectural approval of a proposed warehouse building and a one-story office building with associated stormwater management, parking and landscaping.
   b. **Applicant:** Rise Up Dover Road LLC
      File No.: 2023-870
      Location: 625 Dover Road
      Tax Map 103, Grid 0EA, Parcel 0990
      Zoning District: R-7A
      Nature of Request: Amendment to a previously approved Planned Unit Development (PUD) for the addition of an 8' x 12' walk-in cooler to the existing kitchen unit, and the addition of a 12' x 24' storage shed to the existing property located at 625 Dover Road, also known as Tax Map 103, Parcel 0990.
4. **New Business**
   a. **Applicant:** Phillips Signs Inc.
      File No.: 2023 - 1048
      Location: 499 Idlewild Avenue
      Tax Map 105, Grid 000, Parcel 2366
      Zoning District: BC
      Nature of Request: Signage permit approval where two (2) or more businesses occupy one (1) building with a common entrance.
   b. **Applicant:** Lane Engineering
      File No.: 2023 - 1028
      Location: 29315 Dover Road - East Coast Vets
      Tax Map 105, Grid 000, Parcel 2844,
      Lot 3
      Zoning District: CG
      Nature of Request: Sketch Site Plan and Architectural approval for a proposed two-story addition to an existing single-story veterinarian clinic and parking lot expansion.
   c. **Applicant:** Shore Health System / University of Maryland Medical System
      File No.: 2023 - 1027
      Location: Longwoods Road, Parcel 0129
      Tax Map 017, Grid 023, Parcel 0129, Lot 3/5
      Zoning District: RH
      Nature of Request: Sketch Site Plan approval for a proposed medical center with associated stormwater management facilities, parking and utilities. In addition, the applicant is requesting a Supplemental Waiver for landscaping and buffering requirements.
5. **Discussion Item**
   a. Zoning Requirements for Adult-Use Cannabis Dispensaries.
6. **Adjournment.**

3035939 SD 10/4/2023

Sign posted on October 4, 2023

Customer Note:

We Appreciate Your Business!
Thank You Joanne Drummer!

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

Date of Hearing: October 19, 2023

4a

PLANNING COMMISSION
PUBLIC HEARING
STAFF REPORT

SUBJECT: **499 Idlewood 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: Phillips Signs, Inc.

DOCUMENT CREATED ON: October 9, 2023

PURPOSE: The applicant is seeking approval to allow two or more business wall signs to occupy a building with a common entrance.

RECOMMENDATION: Staff supports a Planning Commission approval with a condition (see below).

APPLICATION INFORMATION:	
APPLICANT: Phillips Signs, Inc.: Matt Phillips	**REPRESENTATIVE:** Phillips Signs Inc.: Matt Phillips
PARCELS/ACREAGE:	

Parcel Information	Acreage
Map 105, Grid 00EA, Parcel 2366, Lot 2	2.197

ACCEPTANCE DATE: September 25, 2023	**LOCATION:** 499 Idlewild Avenue, Lot 2
EXISTING ZONING BC	**EXISTING LAND USE:** Office Building.
HISTORIC DISTRICT: Not Applicable	**FUTURE LAND USE MAP:** Redevelopment Area

CONTEXT:
Location/Site Access – The subject property is located on the Northside of Idlewood Avenue.

Existing Conditions – The subject property is currently an office building located adjacent to the Rails to Trails.

Surrounding Properties
- 501 Idlewild Avenue –CG
- 5 Caulk Lane – CG
- 400 South Aurora Street – BC
- 412 South Aurora Street – R10A
- 416 South Aurora Street – R10A
- 418 South Aurora Street – R10A
- 420 South Aurora Street – R10A
- 500 Cadmus Lane – BC

***Figure 1**: Vicinity Map*

PROPOSAL: The applicant is proposing a 2'x 8' sign at the top right side of the entrance. There's also an existing 25 square foot wall sign at the top left side of the entrance. The applicant is seeking approval to allow two or more wall signs to be occupied on a building with a common entrance.

BACKGROUND: On March 16, 2023, the Town of Easton Planning Commission reviewed a Concept, Use and Design Application for 499 Idlewild Avenue requesting approval for a signage permit to allow two or more business wall signs to occupy a building with a common entrance for Phoenix Physical Therapy. The commission voted 4-0-1 to approve the application with the condition that the applicant shall obtain the appropriate building permit. Shore Legal Access is the adjacent building unit to the previously approved March 16, 2023 application. Philip Signs Inc. (the applicant) has submitted a Signage Application #23-18617 for Shore Legal Access to the Easton Building Inspection Division on September 11, 2023 for review. Approval is pending the outcome of the Planning Commission Meeting.

OUTSTANDING ISSUES: None

ZONING ANALYSIS: The Sign Regulations chapter of the Zoning Code was one of the most extensively revised chapters in the new Code adopted in November 2021. Most of those changes

addressed issues associated with assuring that our regulations aligned with recent Supreme Court Decisions, particularly with regards to temporary signs.

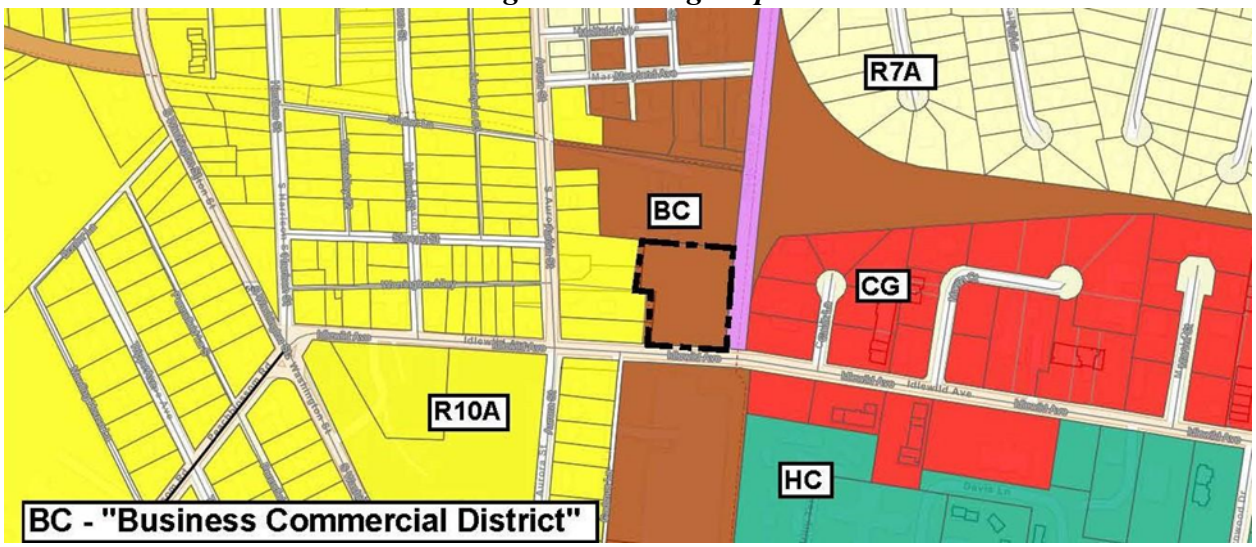
One change to the Sign Regulations that did not involve questions of constitutionality is one which applies to this application. The regulation of signage for buildings with multiple tenants has been a moving target of sorts for some time now. This has culminated (for now at least) with the provision copied below, which requires such signs to be approved by the Planning Commission. This benefits the applicant by allowing them flexibility in the design and placement of signs for this scenario while maintaining a safeguard as to the appropriateness of the signs by requiring Planning Commission approval. The applicable standard is:

28-1101.7 (A).1.e DEVELOPMENT STANDARDS
When two (2) or more businesses occupy one (1) building with common entrances (i.e. without separate entrances) the permitted wall signage shall be approved by the Planning and Zoning Commission during the site plan review process, or as an item from staff by the Planning and Zoning Commission if site plan approval is not required.

Analysis- Per the Section of the Zoning Code cited above, the Commission is charged with reviewing and approving signs in this scenario of multiple businesses with common entrances. This is a new revision to the Code that we added due to the fact that it has historically proven difficult to prescribe standards for this scenario. Thus, in recognition of the fact that the Commission will almost always be reviewing a site plan, at least for new buildings, we added this as the process for review and consideration of such signage, giving the Commission the discretion to approve anything that you deem appropriate, consistent with the design of the building, or whatever reasonable criteria you want to employ. For existing buildings, we will simply have to bring the sign request to you as a standalone item.

POLICY ANALYSIS:

Figure 2: Zoning Map



RECOMMENDED CONDITION:

Staff recommends the applicant obtain building permit approval for the installation of the signs.

DRAFT MOTIONS:

1. I move that the Planning Commission approve the sign request and the applicant complete the building permit process for the installation of the sign.

OR

2. I move that the Planning Commission table the application to the November 16th Commission meeting for further discussion.

OR

3. I move an alternate motion.

ATTACHMENTS:
1. 499 Idlewild - Scope of Work, paper copy & PDF
2. 499 Idlewild - SDAT Information, paper copy & PDF
3. 499 Idlewild - PC Application, paper copy & PDF
4. 499 Idlewild - Owner Letter, paper copy & PDF
5. 2023-1048 PC Sign Permit Receipt, paper copy & PDF

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

RECEIVED
SEP 25 2023
TOWN OF EASTON

Planning Commission Concept, Use, and Design Application

Site Information

Structure's Floor Area		Structure's Square Feet	20,600
Area of Disturbance		Number of Dwelling Units	
Property Size	Acres 2.19	Square Feet	
Address	499 IDLEWILD AVE		
Tax Map	0105	Grid	Parcel 2364	Lot
Zoning District	IND	Historic District Y☐ N☒	PRD Y☐ N☐
Other Information			
Existing Use	MEDICAL OFFICE BUILDING		

Owner

Name	ACHIEVEMENT PARK LLC		
Mailing Address	PO BOX 4322 SALISBURY, MD 21801		
Telephone No.	410-749-4821	Email	pgills@GGIBuilds.com

Applicant / Agent

Name	PHILLIPS SIGNS INC.		
Mailing Address	20874 SUSSEX HWY SEAFORD, DE 19973		
Telephone No.	302 629 3550	Email	matt@phillipssigns.biz

General Information:

INSTALL 2' TALL x 8' WIDE NON ILLUMINATED SAND BLASTED SIGN

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

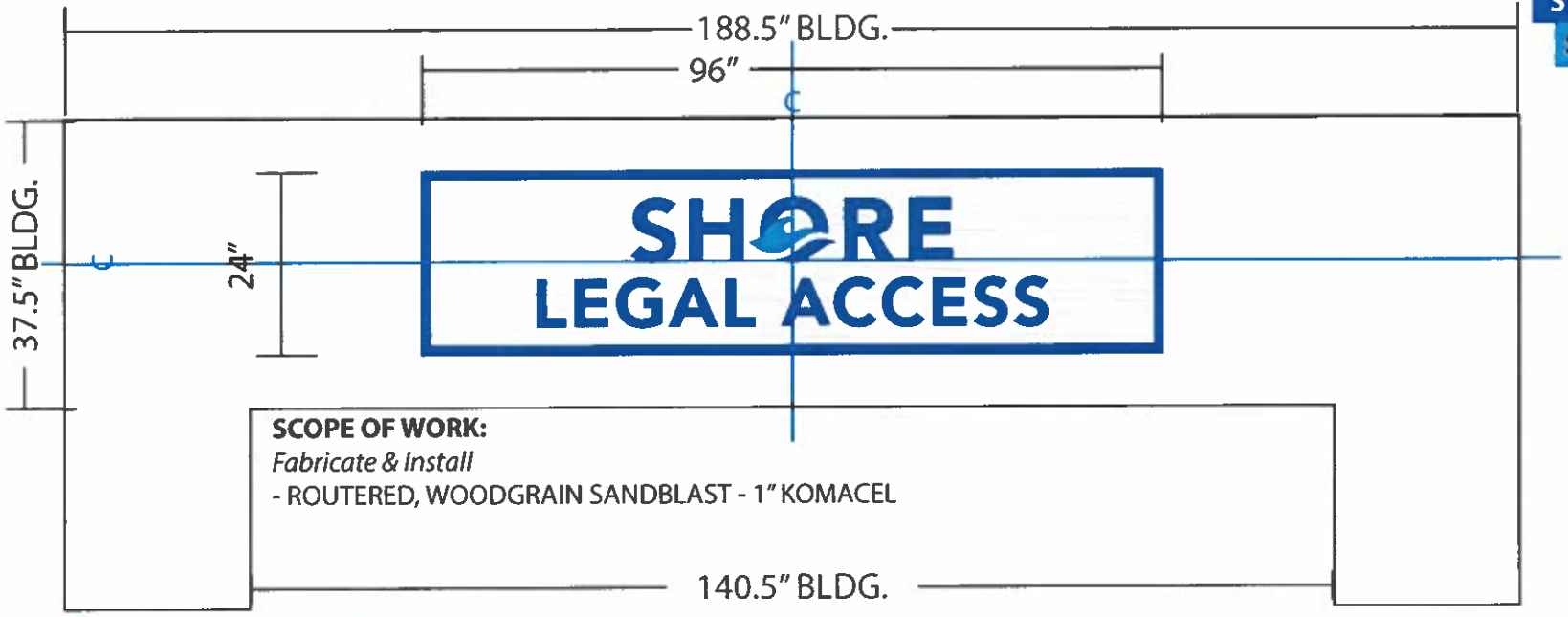
Signature of Applicant or Agent
Date 9/25/23
Printed Name of Applicant or Agent MATTHEW S. PHILLIPS

For Office Use Only

Planned Commission Meeting Date	10/19/2023	**2023-1048**
Review Fee Amount	$250.00	
Review Fee Paid Date	09/25/2023	
ESDR Y / N Date		

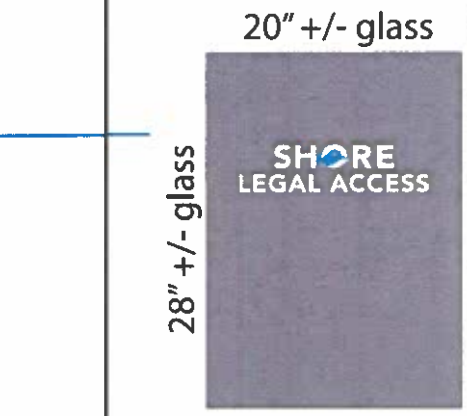
Revised 02-2019

SHORE LEGAL ACCESS
SAND BLASTED SIGN



SCOPE OF WORK:
Fabricate & Install
- ROUTERED, WOODGRAIN SANDBLAST - 1" KOMACEL

140.5" BLDG.



Pantone 7684C	Pantone 637C
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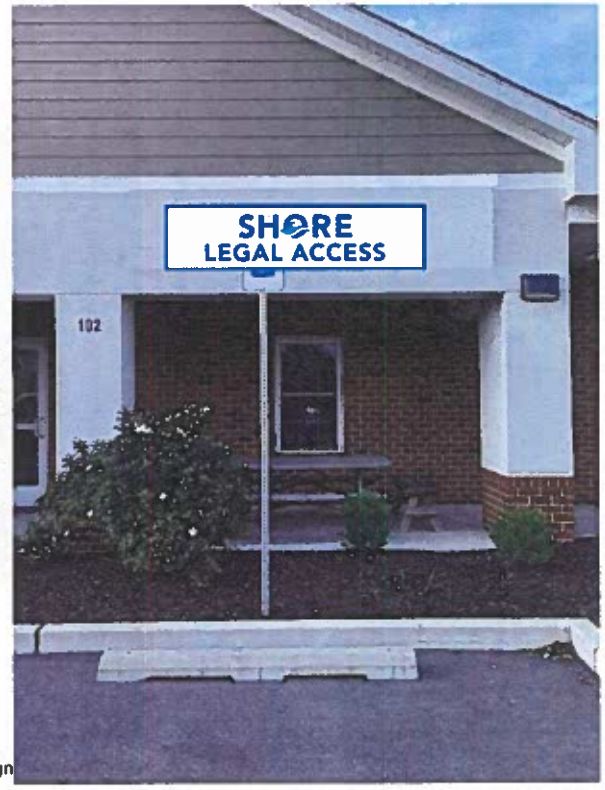
HTML: #1a6ab0	HTML: #49c5e0
RGB: 26 106 176	RGB: 73 197 224



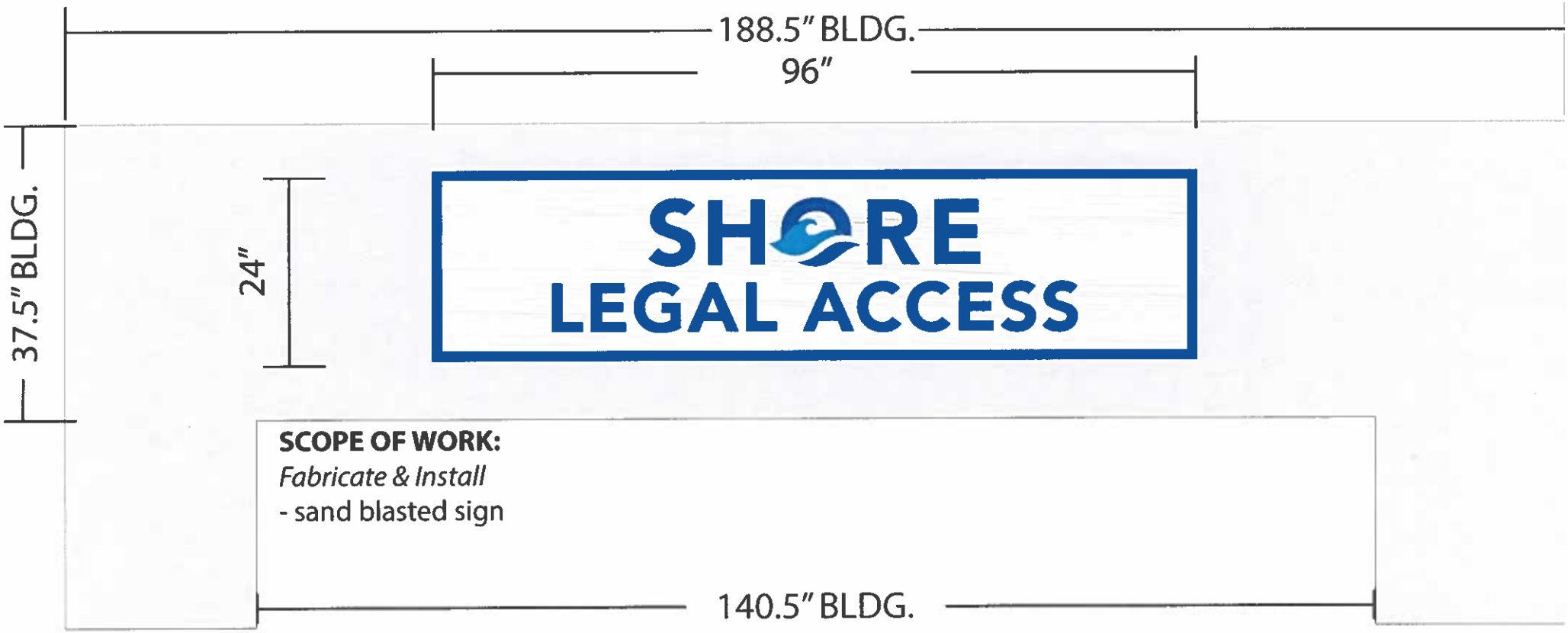
PHILLIPS SIGNS
THIS DESIGN IS COPYRIGHTED AND IS THE EXCLUSIVE PROPERTY OF PHILLIPS SIGNS, INC. ALL RIGHTS TO IT'S USE OR REPRODUCTION ARE RESERVED BY PHILLIPS SIGNS, INC. COPIES OR REPRODUCTIONS OF THIS DESIGN CAN NOT BE MADE WITHOUT THE PERMISSION OF PHILLIPS SIGNS, INC., SEAFORD, DE (302) 629-3550/FAX (302) 628-9082 ©
PHILLIPS SIGNS, INC., SEAFORD, DE (302) 629-3550/FAX (302) 628-9082

IF APPLICABLE, THIS SIGN IS INTENDED TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 600 OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER APPLICABLE LOCAL CODES. THIS INCLUDES PROPER GROUNDING AND BONDING OF THE SIGN

CUSTOMER INFORMATION

Customer: Shore Legal Access
Address: 499 Idlewild Ave. Suite 102 Easton, MD
Date: 9-1-2023
Sales: Ben Phillips

9-11-23 change to SMALL sandblasted sign
9-8-23 change to sand blasted sign



ROUTED, WOODGRAIN SANDBLAST - 1" KOMACEL - $2,100

GUESS AT DOOR GLASS

Pantone 7684C
CMYK: 90 59 1 0
HTML: #1a6ab0
RGB: 26 106 176

Pantone 637C
CMYK: 62 0 9 0
HTML: #49c5e0
RGB: 73 197 224

Real Property Data Search ( )
Search Result for TALBOT COUNTY

View Map | View GroundRent Redemption | View GroundRent Registration

Special Tax Recapture: None

Account Identifier: District - 01 Account Number - 027654

Owner Information

Owner Name:	ACHIEVEMENT PARK LLC	**Use:**	INDUSTRIAL
		Principal Residence:	NO
Mailing Address:	PO BOX 4322 SALISBURY MD 21801-0000	**Deed Reference:**	/02644/ 00201

Location & Structure Information

Premises Address:	499 IDLEWILD AVE EASTON 21601-0000	**Legal Description:**	LOT 2.197 AC E/S AURORA ST EASTON, PC 4/116HH

Map:	Grid:	Parcel:	Neighborhood:	Subdivision:	Section:	Block:	Lot:	Assessment Year:	Plat No:
0105	0000	2366	14000.21	0000				2022	Plat Ref:

Town: EASTON

Primary Structure Built	Above Grade Living Area	Finished Basement Area	Property Land Area	County Use
2021	20,600 SF		2.1900 AC	

Stories	Basement	Type	Exterior	Quality	Full/Half Bath	Garage	Last Notice of Major Improvements
		MEDICAL OFFICE BUILDING	FACE BRICK/	C4			

Value Information

	Base Value	Value As of 01/01/2022	Phase-in Assessments As of 07/01/2023	As of 07/01/2024
Land:	481,800	541,100		
Improvements	2,494,200	2,611,000		
Total:	2,976,000	3,152,100	3,093,400	3,152,100
Preferential Land:	0	0		

Transfer Information

Seller: ACHIEVEMENT PARK LLC	**Date:** 09/26/2019	**Price:** $0
Type: NON-ARMS LENGTH OTHER	**Deed1:** /02644/ 00201	**Deed2:**
Seller: CADMUS JOURNAL SERVICES INC	**Date:** 06/23/2011	**Price:** $3,000,000
Type: ARMS LENGTH MULTIPLE	**Deed1:** /01902/ 00011	**Deed2:**
Seller: WAVERLY PRESS	**Date:** 12/29/1995	**Price:** $1
Type: NON-ARMS LENGTH OTHER	**Deed1:** /00818/ 00914	**Deed2:**

Exemption Information

Partial Exempt Assessments:	Class	07/01/2023	07/01/2024
County:	000	0.00	
State:	000	0.00	
Municipal:	000	0.00|0.00	0.00|0.00

Special Tax Recapture: None

Homestead Application Information

Homestead Application Status: No Application

Homeowners' Tax Credit Application Information

Homeowners' Tax Credit Application Status: No Application **Date:**

Matt Phillips

From: Mike Truitt <mtruitt@GGIBuilds.com>
Sent: Monday, September 11, 2023 11:09 AM
To: matt@phillipssigns.biz
Subject: FW: 499 Idlewild

FYI

GILLIS GILKERSON

MIKE TRUITT
PROJECT MANAGER

150 W MARKET ST | STE 200 | SALISBURY MD 21801
(O) 410.749.4821 (C) 410.251.9265
WWW.GILLISGILKERSON.COM

From: Palmer Gillis <pgillis@GGIBuilds.com>
Sent: Monday, September 11, 2023 11:07 AM
To: Mike Truitt <mtruitt@GGIBuilds.com>; Tony Gilkerson <tgilkerson@GGIBuilds.com>
Subject: RE: 499 Idlewild

This sign Is approved

GILLIS GILKERSON

PALMER GILLIS
FOUNDER

PUBLIC HEALTH=ECONOMIC HEALTH

150 W MARKET ST | STE 200 | SALISBURY MD 21801

(O) 410.749.4821 (F) 410.749.7934

WWW.GILLISGILKERSON.COM

From: Mike Truitt <mtruitt@GGIBuilds.com>
Sent: Monday, September 11, 2023 11:06 AM
To: Palmer Gillis <pgillis@GGIBuilds.com>; Tony Gilkerson <tgilkerson@GGIBuilds.com>
Subject: FW: 499 Idlewild

Palmer & Tony,
Phillips Signs needs a letter from you giving permission to install a sign for Pro-Bono in Easton.
Thanks,

GILLIS GILKERSON

MIKE TRUITT
PROJECT MANAGER

150 W MARKET ST | STE 200 | SALISBURY MD 21801
(O) 410.749.4821 (C) 410.251.9265
WWW.GILLISGILKERSON.COM

From: Matt Phillips <matt@phillipssigns.biz>
Sent: Monday, September 11, 2023 10:51 AM
To: Mike Truitt <mtruitt@GGIBuilds.com>
Subject: 499 Idlewild

Mike,

Good morning....as per our conversation I need a letter of permission from owner granting permission for Phillips Signs to manufacture and install the attached sign on Unit 102. Please let me know of any questions.

Matt

Matt Phillips

Phillips Signs Inc.
20874 Sussex Highway
Seaford, DE 19973
302-629-3550
www.phillipssigns.biz

TOWN OF EASTON

14 South Harrison Street
Easton, Maryland 21601

October 4, 2023

Dear Resident,

The Easton Planning Commission will hold a public meeting on **Thursday, October 19, 2023 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 2023-1048 has been filed on behalf of Achievement Park LLC at 499 Idlewild Avenue to request signage permit approval for a Building Sign where two (2) or more businesses occupy one (1) building with a common entrance.

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

APG Media of Chesapeake, LLC **10/02/23**
29088 Airpark Drive
Easton, MD 21601

Phone: Fax:
http://www.chespub.com

Cust. AcctID:	Creation Date: **10/02/23**
	Ad Date: **10/04/23**
	Class:
Name: **Joanne Drummer**	Ad ID:
Company: **TOWN OF EASTON (L)**	Ad Taker:
Address: **PO Box 520**	Sales Person:
EASTON, MD 21601	Words:
	Lines:
	Agate Lines:
Telephone: **(410) 822-2525**	Depth:
Email:	Inserts:
Description: **Planning Comm Meeting**	Blind Box:

Other Charges:		Total:	
Discount:			
Surcharge:		Paid Amount:	
Credits:			
Bill Depth:		Amount Due:	

CREDIT CARD DETAILS

PT	CT	CN	Number	Exp.	Amnt.

Publication	Start	Stop	Inserts	Cost
The Star Democrat	10/04/23	10/04/23		

Ad Note:

Planning Commission
MEETING AGENDA
Thursday, October 19, 2023 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

Please continue to check our website at:
https://eastonmd.gov/129/Agendas-Minutes
for agenda updates

1. **Call to Order**
2. **Approval of Minutes.**
   a. Approval of the Decision Summary from the September 21, 2023 meeting.
3. **Old Business**
   a. **Applicant:** Lane Engineering, LLC
      File No.: 2023-933
      Location: Mistletoe Hall Commerce- Business Park Lot 1
      Tax Map 25, Grid 16, Parcel 0138, Lot 1
      Zoning District: I
      Nature of Request: Architectural approval of a proposed warehouse building and a one-story office building with associated stormwater management, parking and landscaping.
   b. **Applicant:** Rise Up Dover Road LLC
      File No.: 2023-870
      Location: 625 Dover Road
      Tax Map 103, Grid 0EA, Parcel 0990
      Zoning District: R-7A
      Nature of Request: Amendment to a previously approved Planned Unit Development (PUD) for the addition of an 8' x 12' walk-in cooler to the existing kitchen unit, and the addition of a 12' x 24' storage shed to the existing property located at 625 Dover Road, also known as Tax Map 103, Parcel 0990.
4. **New Business**
   a. **Applicant:** Phillips Signs Inc.
      File No.: 2023 - 1048
      Location: 499 Idlewild Avenue
      Tax Map 105, Grid 000, Parcel 2366
      Zoning District: BC
      Nature of Request: Signage permit approval where two (2) or more businesses occupy one (1) building with a common entrance.
   b. **Applicant:** Lane Engineering
      File No.: 2023 - 1028
      Location: 29315 Dover Road - East Coast Vets
      Tax Map 105, Grid 000, Parcel 2844,
      Lot 3
      Zoning District: CG
      Nature of Request: Sketch Site Plan and Architectural approval for a proposed two-story addition to an existing single-story veterinarian clinic and parking lot expansion.
   c. **Applicant:** Shore Health System / University of Maryland Medical System
      File No.: 2023 - 1027
      Location: Longwoods Road, Parcel 0129
      Tax Map 017, Grid 023, Parcel 0129, Lot 3/5
      Zoning District: RH
      Nature of Request: Sketch Site Plan approval for a proposed medical center with associated stormwater management facilities, parking and utilities. In addition, the applicant is requesting a Supplemental Waiver for landscaping and buffering requirements.
5. **Discussion Item**
   a. Zoning Requirements for Adult-Use Cannabis Dispensaries.
6. **Adjournment.**

3035939 SD 10/4/2023

Sign posted on October 4, 2023

Customer Note:

We Appreciate Your Business!
Thank You Joanne Drummer!

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

Date of Hearing: October 19, 2023

4b

PLANNING COMMISSION
PUBLIC HEARING
STAFF REPORT

SUBJECT:	**29315 Dover Road - Veterinary Clinic**
ELECTION WARD:	Ward 2
CRITICAL ACTION DATE:	At the pleasure of the Commission
STAFF CONTACTS:	Joseph Mayer, Plan Reviewer Miguel Salinas, Director of Planning and Zoning
APPLICANT:	East Coast Vets, LLC

DOCUMENT CREATED ON: October 9, 2023

PURPOSE: The applicant is seeking site plan approval from the Planning Commission.

RECOMMENDATION: Staff supports Planning Commission approval of the proposed site plan subject to staff's recommended condition (see below).

APPLICATION INFORMATION:	
APPLICANT: Lane Engineering, LLC.: Brittany Wallace	**REPRESENTATIVE:** Lane Engineering, LLC.: Brittany Wallace East Coast Vets LLC.: Patrick Allen.

PARCELS/ACREAGE:

Parcel Information	Acreage
Map 105, Grid 0000, Parcel 2844, Lot 3	0.522

ACCEPTANCE DATE: October 2, 2023	**LOCATION:** 29315 Dover Road
EXISTING ZONING CG	**EXISTING LAND USE:** Veterinary Clinic.
HISTORIC DISTRICT: Not Applicable	**FUTURE LAND USE MAP:** Commercial

CONTEXT:

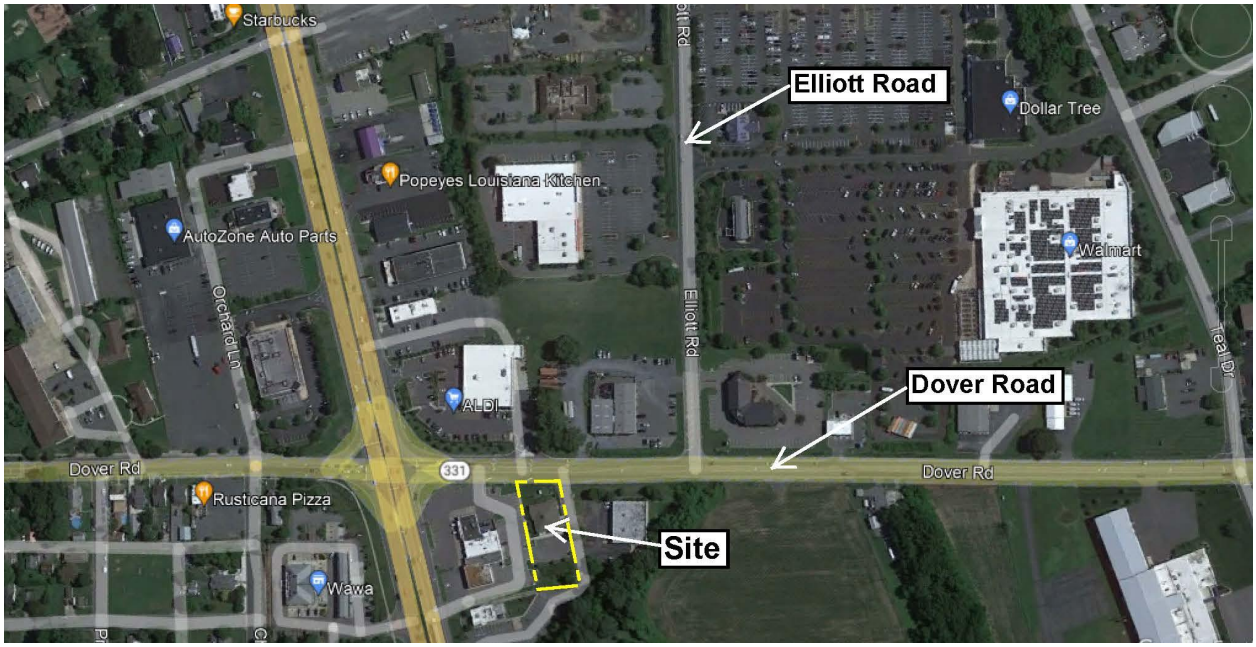
Location/Site Access – The subject property is located along Dover Road, fronting on the South side of the road.

Existing Conditions – The subject property is currently a veterinary clinic.

Surrounding Properties

- 29344 Dover Road - CG
- 8091 Ocean Gateway - CG
- 8103 Ocean Gateway - CG
- 8117 Ocean Gateway - CG
- 8147 Ocean Gateway - CG
- 29328 Dover Road - CG
- 8132 Dover Road - CG

***Figure 1**: Vicinity Map*



PROPOSAL: The applicant is proposing to construct a two-story 1,285 square foot addition to the veterinary clinic with improved amenities; adequate parking and landscaping.

BACKGROUND: The applicant submitted an application to the Easton Staff Development Review Committee on September 27, 2023.

ZONING ANALYSIS:

A. Permissible Land Uses

28-201 Table 2.1							**CG**					
232	Animal Hospital or Veterinary Clinic*	--	--	--	--	--	SE	SE	P	--		

Analysis –The proposed project is presented and described by the Applicant as an addition to the veterinary clinic. The project is categorized as a *"Animal Hospital or Veterinary Clinic"*. The proposed use is permitted by Special Exception within Table 2.1 Table of Permissible Uses.

B. Off-Street Parking

For the purposes of off-street parking calculations, the use is considered "*Medical Clinic*" and has the following requirements:

28-1001.3 Parking Requirements

	Use/Activity	Minimum Vehicle Spaces	Maximum Vehicle Spaces	Minimum Bicycle Spaces	Notes
	Institutional or Community Facilities				
52	Medical Clinic	1 per 400 sf GFA	1 per 100 sf GFA	1 per 20 vehicle spaces	

Total Site Parking Required:

Medical Clinic: 1 per 400 sf GFA required-Minimum
5,485 sf/400 = 14 spaces required-Minimum
1 per 100 sf GFA required-Maximum
5,485 sf/100 = 55 spaces required-Maximum

Total spaces provided: 15

Analysis- The applicant has provided fifteen (15) off-street parking spaces. There are ten (10) existing parking spaces on Lot 3 and five (5) proposed spaces to be located on adjacent Parcel 2840. Authorization for this off-site use is provided in a previously recorded 'Declaration of Shared Use Easement Area", Liber 2363, Folio 115. The owner does not foresee a demand for more parking spaces in the future, due to the nature of their business operations.

C. Commercial General District Development Standards

Table 1. Development Standards		
CG Zoning District	**Standard**	**Proposed**
Setbacks	Front = 25 feet Side = 10 feet Rear = 15 feet	Front = 25 feet Side = 10 feet Rear – 15 feet
Lot Size (min.)	20,000 square feet	22,771 square feet
Lot Frontage (min.)	60 feet	104 feet
Building Envelope (min.)	20 feet x 30 feet	84 feet X 182 feet
Lot Coverage (max.)	50% (Lot Area)	44.61% (Lot Area)
Height (max.)	50 feet	23.33 feet
Bufferyard	Per the provisions of Section 28-1014 of the Zoning Ordinance.	To be provided along Dover Road.

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

- ***Off-Street Parking shall be provided for all uses in accordance with the standards of Section 28 – 1001.***
- ***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.***
- ***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 CG - Commercial General District Area and meets the 28-306 Development Standards. Any comments or concerns from the ESDR review letters will be addressed during the Development Site Plan review.

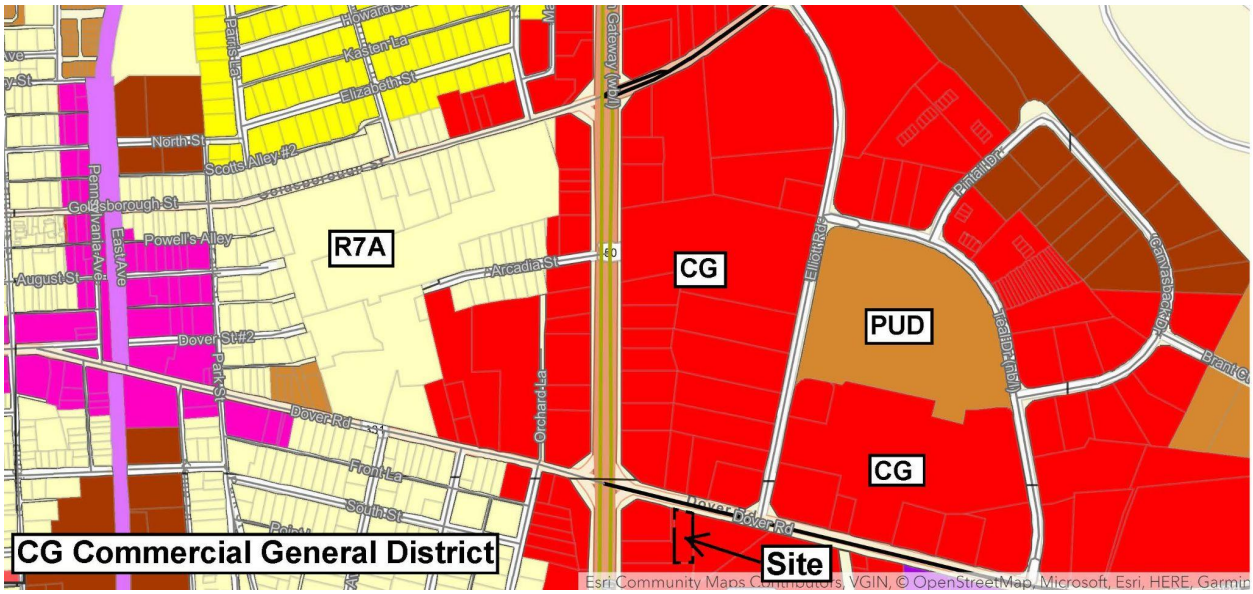
D. Forest Conservation

The Easton Forest Conservation Requirements of the Town Code, Article III,* § 31-3.1 *Relevance, states that the requirements are applicable to any person making application for a subdivision, project plan, grading, or sediment and erosion control approval on units of land 40,000 square feet or greater after the effective date of the Ordinance.

Analysis - This site is within a priority funding area and is an existing veterinary clinic between two established businesses. The overall site area is 22,771 square feet and is under the required 40,000 square foot minimum. Therefore, Forest Conservation is not required.

POLICY ANALYSIS:

Figure 2: Zoning Map



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.

Town of Easton 2010 Comprehensive Plan Design Principles (Principle #1) Integrated uses are desirable- Applicant's response: *The proposed land use is deemed desirable for the proximity and location to existing business.*

Staff notes that the proposed development fits within the general commercial nature of Dover Road.

(Principle #2) Natural features should determine design – *Applicant's response: No compelling natural features; site layout oriented to take advantage of existing drainage patterns.*

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

(Principle #3) Automobiles should not determine design – *Applicant's response: Proposed parking for this development will utilize an existing adjacent parking lot.*

Staff notes that the applicant has provided 15 off-street parking spaces.

(Principle #4) Ample Open Space should be provided within & around neighborhoods – *Applicant's response: Useable open space not applicable here.*

Staff notes that open space is not applicable.

(Principle #5) Architecture should respect Easton's Historical Development – *Applicant's response: The proposed development shall utilize architectural materials that match the existing building, which are comparable and consistent to the architecture in the Town of Easton and along the US Route 50 corridor.*

(Principle #6) Signs should inform but not dominate – *Applicant's response: Existing signage is per code; additional signage is not proposed.*

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: Not applicable to this application.*

(Principle #9) Neighborhoods should connect – *Applicant's response: Not applicable to this application.*

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 proposed site is not within the Historic District or the Critical Area. This project would provide a two-story 1,285 square foot addition to the veterinary clinic with improved amenities; adequate parking 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. Adequate off-street parking is provided.

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 commercial general zoned business park. Proposed use provides a two-story 1,285 square foot addition to the veterinary clinic with adequate parking and landscaping features.

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.

RECOMMENDED CONDITION:

Staff recommends the Planning Commission approve the sketch site plan with the following condition:

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

DRAFT MOTIONS:

1. I move that the Planning Commission approve the sketch site plan subject to staff's Condition of Approval.

OR

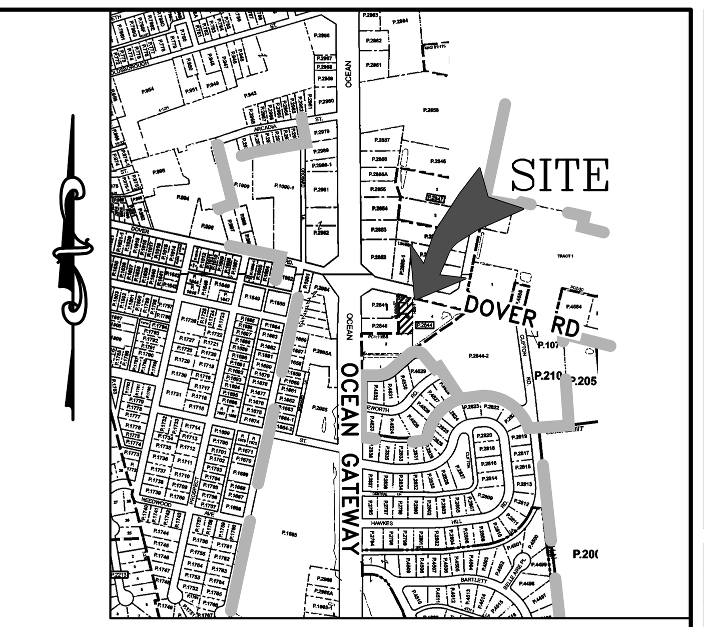
2. I move that the Planning Commission table the application to the November 16th Commission meeting for further discussion.

OR

3. I move an alternate motion.

ATTACHMENTS:
1. 2023.09.06 East Coast Vets ESDR Application, paper copy & PDF
2. 2023.09.27 ESDR Determination Letter 29315 Dover Road, paper copy & PDF
3. 2023.10.03 BUILDING PERMIT SITE PLANS, paper copy & PDF
4. 2023.10.03 comment response letter signed, paper copy & PDF
5. 2023.10.06 Architectural Plans, paper copy & PDF

BUILDING PERMIT SITE PLAN
FOR
EAST COAST VET, LLC
IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND



VICINITY MAP
SCALE: 1" = 1,000'

APPROVAL	
APPROVED:	PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER	DATE
APPROVED:	
TOWN OF EASTON – TOWN ENGINEER	DATE
APPROVED:	PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON UTILITIES – ENGINEER	DATE

REVISIONS

No.	DATE	DESCRIPTION	BY

PROJECT DATA

PROPERTY: TAX MAP 105, PARCEL 2844, LOT 3
29315 DOVER ROAD
EASTON, MARYLAND 21601

OWNER: GEORGE H HOCKER, JR., TRUSTEE
HARRIET G. HOCKER, TRUSTEE
3616 CLEAR DRIVE CT
GLENWOOD, MD 21738

DEVELOPER: EAST COAST VETS, LLC
C/O PATRICK ALLEN
29315 DOVER ROAD
EASTON, MARYLAND 21601
(410) 463–6451

DEED REFERENCE: 2048/320

ZONING CLASSIFICATION: CG (COMMERCIAL GENERAL)

SITE AREA: 0.523 ACRES±

BUILDING SETBACKS: FRONT – 25'
REAR – 15'
SIDE – 10'
STATE HIGHWAY (MD RT 50) – 25'

MAXIMUM BUILDING HEIGHT PERMITTED: 50'
BUILDING HEIGHT PROPOSED: LESS THAN 50'

MAXIMUM LOT COVERAGE PERMITTED: 50%
EXISTING LOT COVERAGE: 44.61% (10,157.5 SF)
PROPOSED LOT COVERAGE: 44.61% (10,157.6 SF)

EXISTING CONDITIONS: 4,200 SF VETERINARY CLINIC AND ASSOCIATED PARKING LOT AND STORMWATER MANAGEMENT FACILITY

PROPOSED DEVELOPMENT: PROPOSED BUILDING ADDITION (1,285 SF) AND ASSOCIATED SITE IMPROVEMENTS

STORMWATER MANAGEMENT: REQUIREMENTS MET FROM PREVIOUS DEVELOPMENT, PROPOSED IMPROVEMENTS LESS THAN 5,000 SF, THEREFORE PROPOSED IMPROVEMENTS EXEMPT FROM STORMWATER MANAGEMENT REQUIREMENTS.

FOREST CONSERVATION: SUBJECT PROJECT IS EXEMPT FROM REQUIREMENTS

SPECIAL EXCEPTIONS/VARIANCES: 9/15/20 – APPROVAL OF SPECIAL EXCEPTION #SE–808 FOR THE USE OF AN ANIMAL HOSPITAL/VETERINARY CLINIC (PER CHAPTER 28–1303.5.B.8.A.II OF THE ZONING ORDINANCE, THE PROPOSED WORK HAS BEEN DEEMED AS A SIGNIFICANT MODIFICATION TO THE SPECIAL EXCEPTION AND REQUIRES ADDITIONAL APPROVAL)

REFUSE/TRASH: EXISTING ON–SITE DUMPSTER ENCLOSURE TO BE USED

SITE LIGHTING: NO CHANGES TO EXISTING SITE LIGHTING; EXISTING LIGHTS SHALL NOT SHINE OFF–SITE AT LEVELS GREATER THAN 1–FOOT CANDLE UNLESS OTHERWISE APPROVED BY PLANNING COMMISSION

PARKING CALCULATIONS

TOTAL SITE PARKING REQUIRED: MINIMUM 1 SPACE/400 GFA; 14 SPACES
MAXIMUM 1 SPACE/100 GFA; 55 SPACES

TOTAL SITE PARKING PROVIDED: 15 SPACES (10 EXISTING SPACES ON LOT 3, AND 5 PROPOSED SPACES TO BE LOCATED ON PARCEL 2840. AUTHORIZATION FOR THIS OFF–SITE USE IS PROVIDED IN A PREVIOUSLY RECORDED "DECLARATION OF SHARED USE EASEMENT AREA", LIBER 2363, FOLIO 115)

ADA ACCESSIBLE PARKING SPACES REQUIRED: 1 VAN
ADA ACCESSIBLE PARKING SPACES PROVIDED: 2 SPACES, INCLUDING 1 VAN ACCESSIBLE

PROJECT NOTES

1. PROPERTY BOUNDARY AND EXISTING CONDITIONS SURVEYED BY LANE ENGINEERING, LLC IN JULY 2014 AND JUNE 2017.
2. SITE TOPOGRAPHY AS SHOWN HEREIN WAS DERIVED FROM A FIELD SURVEY BY LANE ENGINEERING, LLC DATED JULY 2014 AND JUNE 2017.
3. THE UNDERGROUND UTILITIES (SEWER, WATER, ELECTRIC, CABLE TV, COMMUNICATIONS, FIBER OPTICS, ETC.) SHOWN HEREON WERE TAKEN FROM A SHAPE FILE (GIS) PROVIDED BY EASTON UTILITIES COMMISSION.
4. THE ELEVATIONS SHOWN HEREON ARE NAVD 1988 DATUM.
5. THE COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM NAD83 (2011).
6. THE SITE IS LOCATED ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA.
7. THE PROPERTY SHOWN HEREON IS NOT 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 'X' FLOOD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAPS FOR COMMUNITY NO. 240067, MAP NO. 24041C0193C FOR TALBOT COUNTY, 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.

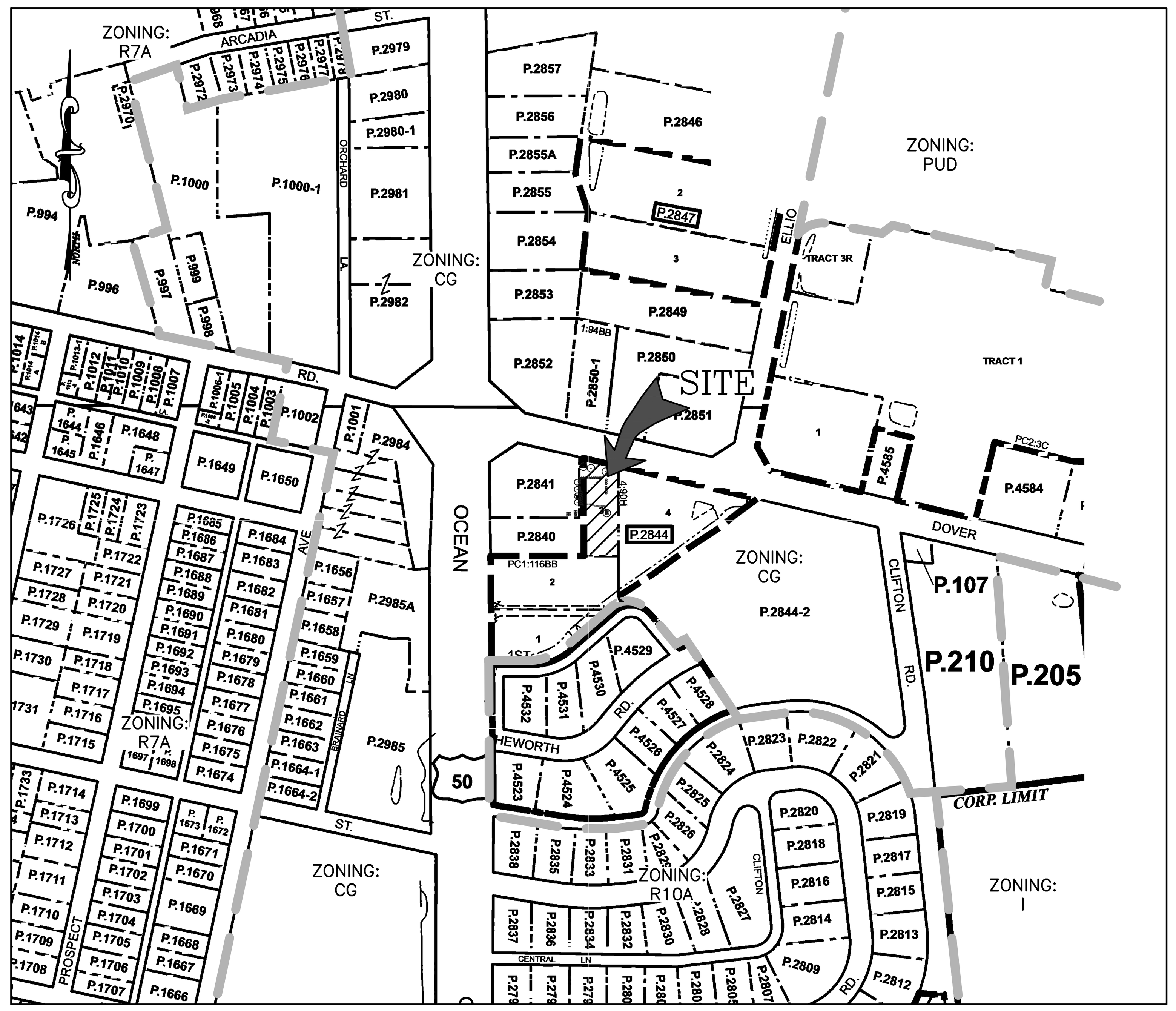
8. PUBLIC WATER AND SEWER SERVICES ARE PROVIDED BY THE TOWN OF EASTON.

STORMWATER MANAGEMENT COMPLIANCE

THE PROPOSED CONSTRUCTION DISTURBANCE (4,991 SF), IS LESS THAN 5,000 SF.; THEREFORE, THE DEVELOPMENT ACTIVITY IS EXEMPT FROM STORMWATER MANAGEMENT COMPLIANCE.

SEDIMENT AND EROSION CONTROL COMPLIANCE

THE PROPOSED CONSTRUCTION DISTURBANCE (4,991 SF), IS LESS THAN 5,000 SF.; THEREFORE, THE DEVELOPMENT ACTIVITY IS EXEMPT FROM SEDIMENT AND EROSION CONTROL COMPLIANCE.



VICINITY MAP

300' 150' 0' 150' 300' 600'
SCALE IN FEET

INDEX OF SHEETS

PDF SHEET	SHEET No.	TITLE
1	1 OF 5	TITLE SHEET
2	2 OF 5	EXISTING CONDITIONS & DEMOLITION PLAN
3	3 OF 5	BUILDING PERMIT SITE PLAN
4	4 OF 5	SITE DETAILS
5	5 OF 5	LANDSCAPE PLANTING PLAN

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1– INTEGRATED USES ARE DESIRABLE– THE PROPOSED LAND USE IS DEEMED DESIRABLE FOR THE PROXIMITY AND LOCATION TO EXISTING BUSINESS.

PRINCIPLE #2– NATURAL FEATURES SHOULD DETERMINE DESIGN– NO COMPELLING NATURAL FEATURES; SITE LAYOUT ORIENTED TO TAKE ADVANTAGE OF EXISTING DRAINAGE PATTERNS.

PRINCIPLE #3– AUTOMOBILES SHOULD NOT DETERMINE DESIGN– PROPOSED PARKING FOR THIS DEVELOPMENT WILL UTILIZE AN EXISTING ADJACENT PARKING LOT.

PRINCIPLE #4– AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN & AROUND NEIGHBORHOODS– USEABLE OPEN SPACE NOT APPLICABLE HERE.

PRINCIPLE #5– ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT– THE PROPOSED DEVELOPMENT SHALL UTILIZE ARCHITECTURAL MATERIALS THAT MATCH THE EXISTING BUILDING, WHICH ARE COMPARABLE AND CONSISTENT TO THE ARCHITECTURE IN THE TOWN OF EASTON AND ALONG THE US ROUTE 50 CORRIDOR.

PRINCIPLE #6– SIGNS SHOULD INFORM BUT NOT DOMINATE–EXISTING SIGNAGE IS PER CODE; ADDITIONAL SIGNAGE IS NOT PROPOSED.

PRINCIPLE #7– NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES– NOT APPLICABLE TO THIS APPLICATION.

PRINCIPLE #8 RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES– NOT APPLICABLE TO THIS APPLICATION.

PRINCIPLE #9– NEIGHBORHOODS SHOULD CONNECT– NOT APPLICABLE TO THIS APPLICATION.

STATEMENT OF PURPOSE & INTENT

THE PURPOSE OF THESE PLANS IS TO OBTAIN SITE PLAN APPROVAL AND PROVIDE NECESSARY CONSTRUCTION INFORMATION TO CONSTRUCT A TWO–STORY, 1,292 GROSS SFA BUILDING ADDITION TO THE EXISTING SINGLE–STORY BUILDING, MAINTAIN THE EXISTING UTILITIES, AND SHIFT THE EXISTING DESIGNATED PARKING SPACES TO THE NEIGHBORING PARCEL WITHIN AN ESTABLISHED SHARED–USE AGREEMENT.

SITE ADDRESS

29315 DOVER ROAD
EASTON, MARYLAND 21601

OWNER

GEORGE H HOCKER, JR., TRUSTEE
HARRIET G. HOCKER, TRUSTEE
3616 CLEAR DRIVE CT
GLENWOOD, MD 21738

DEVELOPER

EAST COAST VETS, LLC
C/O PATRICK ALLEN
29315 DOVER ROAD
EASTON, MARYLAND 21601
(410) 463–6451

CIVIL ENGINEER

LANE ENGINEERING, LLC
C/O TIMOTHY W. GLASS, P.E.
117 BAY STREET
EASTON, MD 21601
(410) 822–8003

ARCHITECT

BRIDGEWORKS CONSTRUCTION
C/O BOB KEYSER
7524 MAIN ST
SUITE 201
SYKESVILLE, MD 21784
(877) 497–2256

CONTRACTOR

TO BE DETERMINED

UTILITY CONTACTS

DRAINAGE/STORMWATER MANAGEMENT
TOWN OF EASTON
14 S. HARRISON STREET
EASTON, MD 21601
(410) 820–8822

ALL ELECTRIC, NATURAL GAS, WATER, CABLE, SANITARY SEWER
EASTON UTILITIES COMMISSION
201 N. WASHINGTON STREET
EASTON, MD 21601
(410) 822–6110

TELEPHONE
VERIZON
1401 MOUNT HERMAN ROAD
SALISBURY, MD 21804
(410) 860–8029

PERMITTING AGENCIES

TOWN OF EASTON
ENGINEERING DEPARTMENT
14 S. HARRISON STREET
EASTON, MD 21601
(410) 820–8822

TALBOT COUNTY SOIL
CONSERVATION DISTRICT
28577 MARY'S COURT, SUITE 3
EASTON, MD 21601
(410) 822–1577

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 MISS UTILITY – KEEP MARYLAND SAFE
BEFORE YOU DIG CALL
1–800–441–8355 OR 811
PROTECT YOURSELF, GIVE
TWO WORKING DAYS NOTICE

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

WARD DISTRICT 2

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. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND – BRITTANY M. WALLACE – 60891 – PROFESSIONAL ENGINEER
10-2-23
DATE

TITLE SHEET

EAST COAST VETS, LLC
29315 DOVER ROAD

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, PARCEL 2844, LOT 3

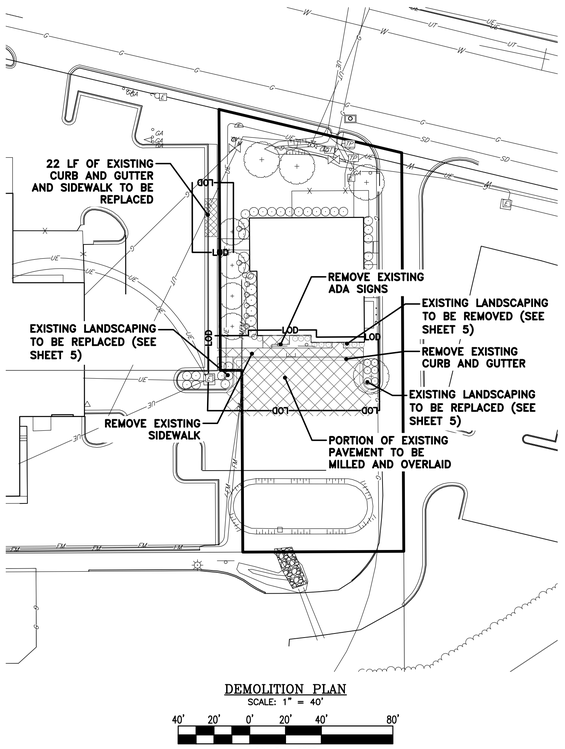
ISSUED FOR:	DATE:	BY:
AGENCY SUBMITTAL 01	08/28/23	BMW
AGENCY SUBMITTAL 02	10/02/23	BMW

SHEET No. 1 OF 5	DATE: 10/02/23
	JOB No. 230108
SCALE: AS NOTED	FILE No. 1347

© LANE ENGINEERING, LLC

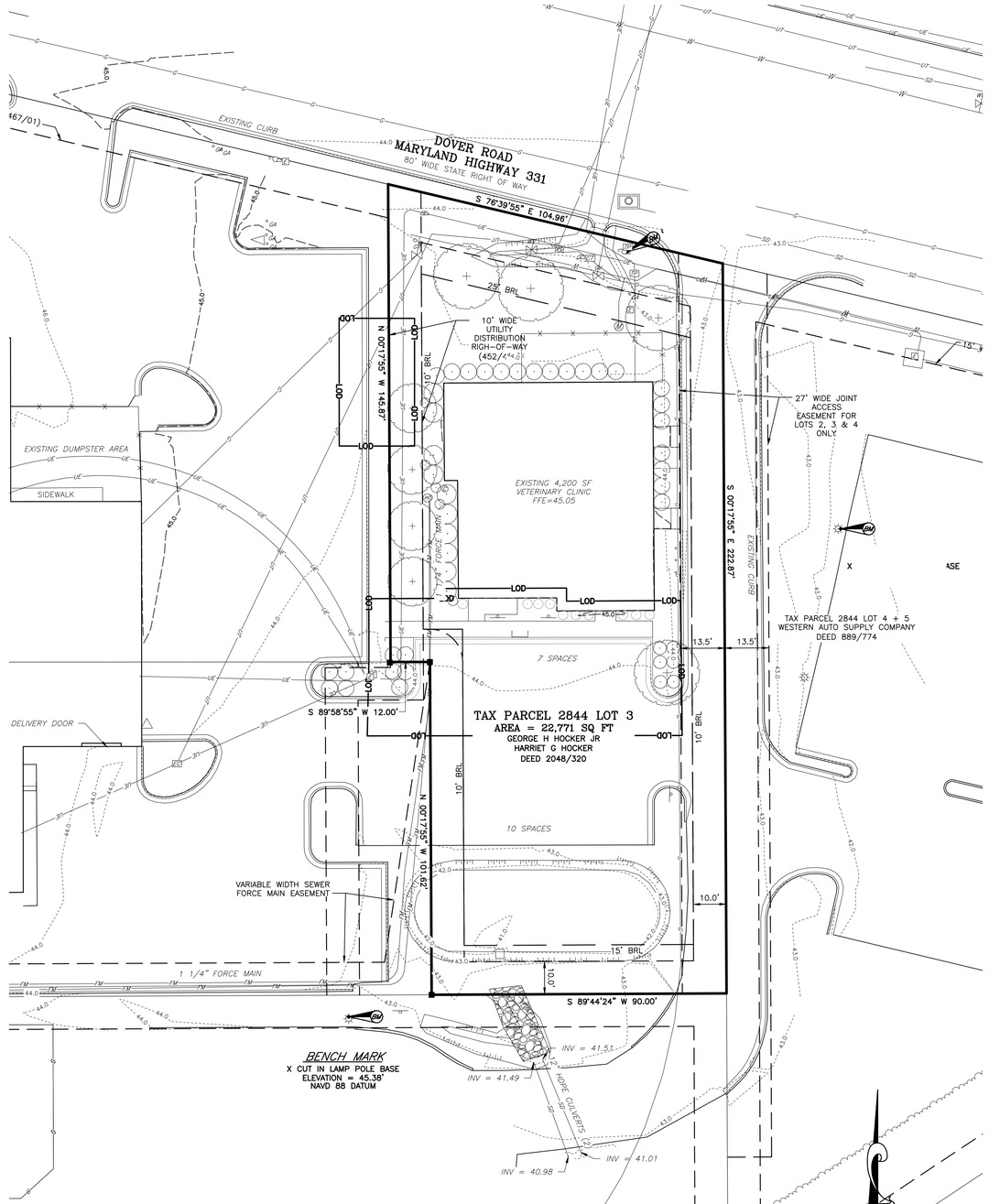
Date: 10/02/2023 – 4:45pm User: bwallace Project Manager: TWG
Drawing Path: J:\2023\0100\230108\Civil3D–230108\Dwg\Plots\CSP–PLTS–230108.dwg | 1 OF
XREF File(s): VLD–BASE–230108 (AB – CSP–PLTS–130251)/HATCH–BASE–230108/CSP–BASE–230108/CBS–BASE–2436–230108/VSF–BASE–230108 (FROM 130251)/RAR–BASE–230108/CEC–BASE–230108/R–UTIL–EUC–230108

	EXISTING	PROPOSED
SURVEY MONUMENTATION		
CONCRETE MONUMENT		
STONE		
COMPUTED POINT		
BENCH MARK	BM	
PROPERTY LINE		
CABLE TV		
CABLE TV PEDESTAL	CT	CT
ELECTRICAL		
CABINET	EC	EC
TRANSFORMER BOX	E	E
HANDHOLE		
ELECTRIC UNDERGROUND	UE	UE
GAS		
SHUTOFF VALVE	GV	
OVER HEAD UTILITIES		
GUY WIRE ANCHOR	GA	GA
LAMP POLE		
UTILITY POLE		
SANITARY SEWER		
CLEAN OUT	C	C
PUMPSTATION MANHOLE	PS	PS
FORCE MAIN	FM	FM
STORMDRAIN		
DOWNSPOUT	SDS	SDS
STORMDRAIN	SD	
TELEPHONE		
TELEPHONE PEDESTAL	TP	TP
WATER		
FIRE HYDRANT		
WATER METER	W	W
VALVE		
WATER MAIN	W	
SERVICE LEAD		
TOPOGRAPHIC FEATURES		
SINGLE POST SIGN		
ADA HANDRAIL		
DITCH TOP OF BANK		
DEPRESSION		
MAJOR CONTOUR	25	25
MINOR CONTOUR	24	24
VEGETATION		
TREE LINE		
SOIL EROSION CONTROL		
SILT FENCE		SF
LIMITS OF DISTURBED AREA (LOD)		LOD
LOD AND SILT FENCE		LOD/SF
PAVEMENT		
DRAINAGE FLOW INDICATOR		
HANDICAP PARKING		
HEAVY DUTY PAVEMENT		
REGULAR DUTY PAVEMENT		
CONCRETE		
MISCELLANEOUS		
EXISTING IMPROVEMENTS TO BE DEMOLISHED		



DEMOLITION PLAN
SCALE: 1" = 40'

40' 20' 0' 20' 40' 80'
SCALE IN FEET



EXISTING CONDITIONS PLAN
SCALE: 1" = 40'

APPROVED: PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE

APPROVED: PLANS ARE NOT APPROVED FOR CONSTRUCTION
TOWN OF EASTON – TOWN ENGINEER DATE

REVISIONS			
No.	DATE	DESCRIPTION	BY

WARNING!!
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MISS UTILITY
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Lane Engineering, LLC
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Civil Engineers • Land Planning • Land Surveyors
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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

WARD DISTRICT 2

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. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND BRIAN M. WALLACE 60891 PROFESSIONAL ENGINEER
10-2-23
DATE

EXISTING CONDITIONS & DEMOLITION PLAN

EAST COAST VETS, LLC
29315 DOVER ROAD

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, PARCEL 2844, LOT 3

ISSUED FOR:	DATE:	BY:
AGENCY SUBMITTAL 01	08/28/23	BMW
AGENCY SUBMITTAL 02	10/02/23	BMW

SHEET No. 2 OF 5	DATE: 10/02/23
SCALE: AS NOTED	JOB No. 230108
	FILE No. 1347

Date: 10/02/2023 – 4:45pm User: bwallace Project Manager: TWG
Drawing Path: J:\2023\0100\230108\Civil3D-230108\Dwg\Plats\CSP-PLTS-230108.dwg | 2 OF
XREF File(s): VLD-BASE-230108 (AB – CSP-PLTS-13025I)/MATCH-BASE-230108/CSP-BASE-230108/CBS-BASE-2438-230108/VSF-BASE-230108 (FROM 13025I)/RAR-BASE-230108

© Lane Engineering, LLC

SITE NOTES

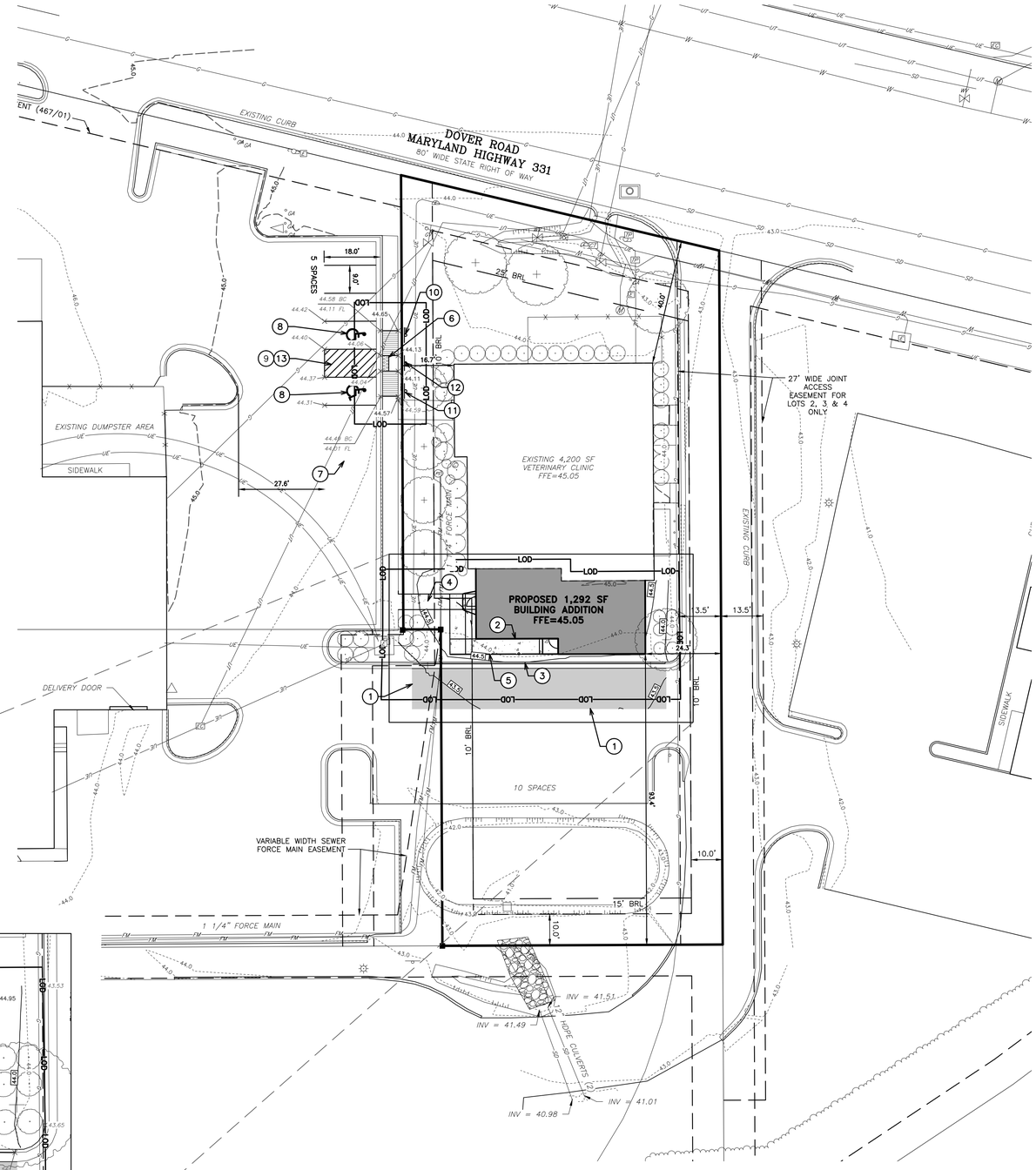
1. BUILDING OUTLINES SHOWN BASED ON ARCHITECTURAL FLOOR PLAN PROVIDED BY OWNER. CONTRACTOR SHALL VERIFY WITH OWNER/ARCHITECT/ENGINEER EXACT DIMENSIONS OF FOUNDATION. STAKE OUT SHALL BE PER FOUNDATION PLAN PROVIDED BY OWNER AND NOT BASED ON DIMENSIONS SHOWN OR SCALED HERE ON.
2. COORDINATE WITH ARCHITECTURAL PLANS FOR EXACT LOCATION OF WATER AND SEWER AND OTHER UTILITY CONNECTIONS.
3. COORDINATE LOCATION OF LEADWALK WITH DOOR LOCATIONS PER ARCHITECTURAL PLANS.
4. ALL DIMENSIONS AND RADII REFER TO FLOWLINE OF CURB OR EDGE OF PAVEMENT.
5. COORDINATE WITH UTILITY SERVICE PROVIDERS FOR THE RELOCATION OF EXISTING UTILITIES, IF REQUIRED, AND FOR THE INSTALLATION OF PROPOSED UTILITIES.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS/SPECIFICATIONS FOR ASPHALT MIX, CR-6, IMPORTED STRUCTURAL FILL TO ENGINEER FOR REVIEW AND APPROVAL.
7. A MINIMUM CLEARANCE OF 2 FEET SHALL BE MAINTAINED BETWEEN THE FACE OF CURB AND ANY PART OF A TRAFFIC SIGN OR LIGHT POLE.
8. ADJUST ALL EXISTING VALVE BOXES, CLEANOUTS, AND STRUCTURE RIMS TO PROPOSED GRADE AS REQUIRED.

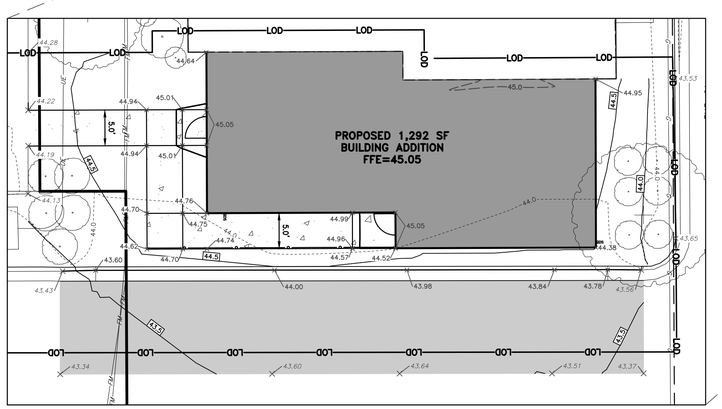
GRADING NOTES

1. USE EROSION CONTROL MATTING FOR ALL SIDE SLOPES 3:1 OR STEEPER.
2. STOCKPILE STRIPPED TOPSOIL AT AN OFFSITE LOCATION WITH AN APPROVED SEDIMENT CONTROL PLAN AS REQUIRED.
3. SPOT ELEVATIONS REFER TO EDGE OF PAVEMENT, FLOWLINE OF CURB OR GROUND SURFACE.
4. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING CONSTRUCTION.
5. PROVIDE A SMOOTH GRADING TRANSITION BETWEEN ALL DISTURBED AND EXISTING AREAS.
6. SIDEWALKS SHALL HAVE MAX CROSS SLOPE OF 2.0% AND MAX LONGITUDINAL SLOPE OF 5.0%.
7. LANDING PAD AT DOOR ENTRANCES SHALL HAVE 2.0% MAX SLOPE. SIZE OF LANDING PAD PER PLAN AND CODE REQUIREMENTS.
8. IMPORTED STRUCTURAL FILL SHALL BE TESTED PER ASTM D-1557 FOR MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT. ALL STRUCTURAL SOILS SHALL BE PLACED IN 8" LIFTS AND COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
9. PROPOSED PARKING LOT BASE SHALL BE PROOF ROLLED AND APPROVED BY ENGINEER PRIOR TO ASPHALT PLACEMENT.
10. DURING BACKFILLING AND FINISH GRADING AROUND BUILDING PERIMETER, CONTRACTOR SHALL PROVIDE 6" MINIMUM FALL IN THE FIRST 10' (5% SLOPE MIN) AWAY FROM BUILDING PERIMETER UNLESS SHOWN OTHERWISE WITH REGARDS TO LEAD WALKS, SIDEWALKS, PATIOS AND LANDINGS.

SITE & UTILITY KEY NOTES

1. MILL EXISTING PAVEMENT AND TIE TO EXISTING PAVEMENT W/ SMOOTH TRANSITION
2. INSTALL FULL DEPTH EXPANSION MATERIAL WHERE CONCRETE ABUTS RIGID STRUCTURES AND/OR CURBING (TYP)
3. REVERSE CURB AND GUTTER, TRANSITION TO FLUSH. MATCH EXISTING CURB PROFILE
4. 5' CONCRETE SIDEWALK PER DETAIL (TYP)
5. HANDRAIL PER DETAIL
6. PARALLEL SIDEWALK ADA RAMP PER TOWN OF EASTON DETAIL TOE-R-7.04
7. 4" WIDE WHITE WATER BASED PAVEMENT MARKINGS (TYP)
8. ADA PAVEMENT MARKING SYMBOL PER DETAIL (TYP)
9. ACCESS AISLE STRIPING PER DETAIL (TYP)
10. ADA PARKING SIGN PER DETAIL
11. VAN ACCESSIBLE ADA PARKING SIGN PER DETAIL
12. NO PARKING IN ACCESS AISLE SIGN PER DETAIL
13. HANDICAP PARKING SPACES AND ACCESS AISLES SHALL HAVE 2% MAXIMUM GRADE (TYP)





DETAILED SPOT GRADING INSET
SCALE: 1" = 10'
SCALE IN FEET

APPROVED:
PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE

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REVISIONS

No.	DATE	DESCRIPTION	BY

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354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

WARD DISTRICT 2

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. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND — BRIAN M. WALLACE — 60891 — PROFESSIONAL ENGINEER
10·2·23
DATE

BUILDING PERMIT SITE PLAN

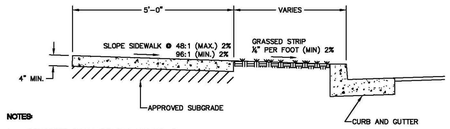
EAST COAST VETS, LLC
29315 DOVER ROAD

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, PARCEL 2844, LOT 3

ISSUED FOR:	DATE:	BY:
AGENCY SUBMITTAL 01	08/28/23	BMW
AGENCY SUBMITTAL 02	10/02/23	BMW

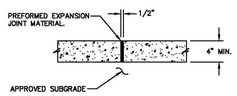
SHEET No. 3 OF 5	DATE: 10/02/23
SCALE: AS NOTED	JOB No. 230108
	FILE No. 1347

Date: 10/02/2023 – 4:45pm User: bwallace Project Manager: TWG
Drawing Path: J:\2023\0100\230108\Civil3D-230108\Dwg\Plats\CSP-PLTS-230108.dwg | 3 OF
XREF File(s): VLD-BASE-230108 (AB – CSP-PLTS-130251)/MATCH-BASE-230108/CSP-BASE-230108/CBS-BASE-2436-230108/VSF-BASE-230108 (FROM 130251)/PAR-BASE-230108/CEC-BASE-230108/CEC-UTIL-EUC-230108



NOTES:

1. CONCRETE SHALL BE SHA MIX NO. 3.
2. CONTRACTION JOINTS SHALL BE TOOLED AT 5'-0" INTERVALS. (4' INTERVALS FOR 4' WIDE SIDEWALK)
3. EXPANSION JOINTS AT INTERVALS NOT GREATER THAN 20'-0".
4. ALL UNPAVED AREAS WITHIN STREET SIDELINES SHALL BE SEEDED OR SODDED PER SPECIFICATIONS.
5. SIDEWALKS AT DRIVEWAY LOCATIONS TO BE 8" THICK.
6. WHERE CONTINUOUS WIDTH OF TRAVEL IS LESS THAN 5'-0", PROVIDE PASSING ZONES AT AN INTERVAL NOT TO EXCEED 200' CENTER TO CENTER. ENTRANCES SHALL BE ACCEPTABLE PASSING ZONES PROVIDED PAVING WIDTH OF 5'-0" IS MAINTAINED AT 48:1 SLOPE.
7. GRASS STRIPS SHALL BE SLOPED AS TO PROVIDE POSITIVE DRAINAGE TOWARD STORMWATER FEATURES.
8. WHERE REVERSE SLOPES OF GRASS STRIPS AND SIDEWALKS ARE REQUIRED TO PROVIDE POSITIVE DRAINAGE TOWARDS A STORMWATER FEATURE, SPOT ELEVATIONS SHALL BE PROVIDED ON FRONT AND BACK OF SIDEWALK. (REVERSE SLOPES MUST BE APPROVED BY THE TOWN PRIOR TO CONSTRUCTION)
9. MAXIMUM SLOPE IN THE DIRECTION OF TRAVEL SHALL BE 5% IN LOCATIONS WITHOUT HANDICAPPED RAMPS.
10. SIDEWALKS SHALL COMPLY WITH ADA REQUIREMENTS PER THE MOST UP TO DATE DEPARTMENT OF JUSTICE REGULATION 28CFR PART 36.



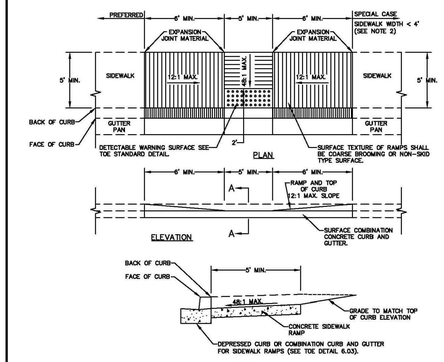
EXPANSION JOINT DETAIL

APPROVAL
TOWN ENGINEER
1/2020
DATE

TOWN OF EASTON STANDARD DETAILS

CONCRETE SIDEWALK

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-7.01



NOTES:

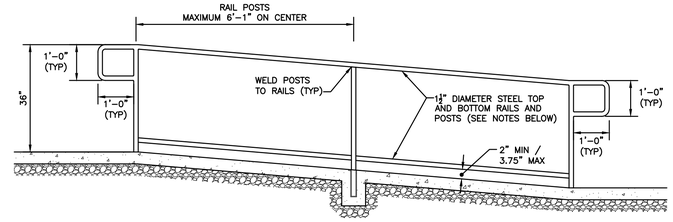
1. TO BE USED WHERE SIDEWALK IS ADJACENT TO THE CURB. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. WHERE 60" SIDEWALK CAN NOT BE PROVIDED. A DESIGN WAIVER MUST BE REQUESTED.
3. NO TRAVERSABLE SLOPE ON THE RAMP OR SIDEWALK SHALL EXCEED 12:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL OR 48:1 PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL. THE CROSS SLOPE OF THE LANDING AREA CAN NOT EXCEED GRADE OF ROADWAY.
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH TOE STANDARD DETAIL.
5. SIDEWALK RAMPS TO BE SHOWN ON PLANS SYMBOLICALLY AND REFERENCED WITH THE CENTER OF THE RAMP ALIGNED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL BE SHOWN WHERE PROPOSED RAMP VARIES FROM STANDARD CASES.
6. TRANSITION PANELS TO TIE INTO EXISTING SIDEWALK MIST BE A MINIMUM OF 5' IN LENGTH.

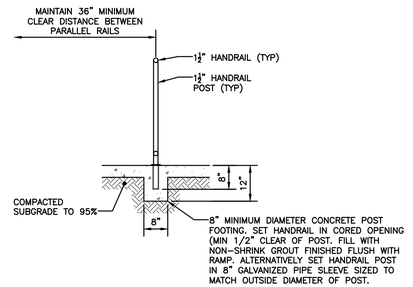
APPROVAL
TOWN ENGINEER
1/2020
DATE

TOWN OF EASTON STANDARD DETAILS

SIDEWALK RAMPS PARALLEL

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-7.04

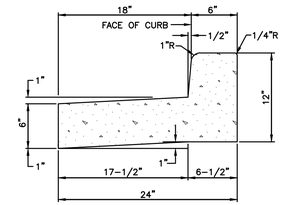




NOTES:

1. POSTS SHALL BE SET IN POST FOOTERS AS SHOWN.
2. REFER TO PLAN FOR RAMP DIMENSIONS AND SLOPES.
3. ALL DIMENSIONS AND MATERIALS FOR HANDRAILS SHALL COMPLY WITH CURRENT ADA STANDARDS FOR ACCESSIBLE DESIGN.
4. UNLESS OTHERWISE SPECIFIED, ALL RAMP POSTS, HANDRAILS, RAILINGS AND RETURNS SHALL BE SCHEDULE 40 STEEL PIPE, CLEANED, PRIMED AND PAINTED BLACK WITH 2 COATS OF GLOSSY, EPOXY BASED PAINT.
5. ALL WELDS TO BE GROUND SMOOTH.

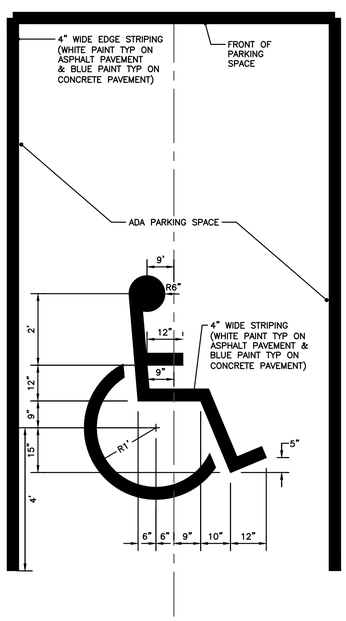
HANDRAIL DETAIL
NOT TO SCALE



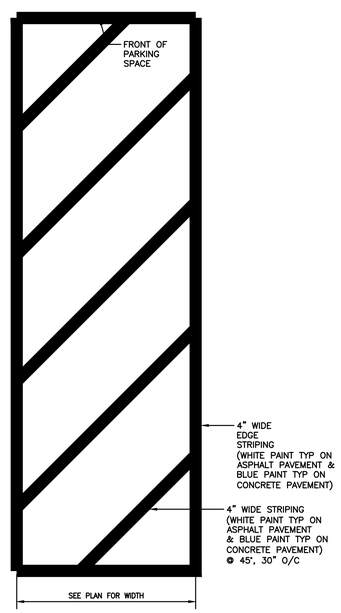
NOTES:

1. ALL CURB & GUTTER CONCRETE SHALL BE SHA MIX NO. 3.
2. CURB & GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 40'-0". EXTRUDED CONCRETE CURB & GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 100'-0".
3. AT HANDICAP RAMPS, CURB PAN MAXIMUM SLOPE SHALL BE 20:1 (5%) (7/8" RISE)

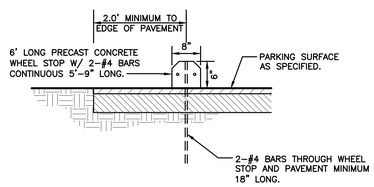
REVERSE CURB AND GUTTER DETAIL
NOT TO SCALE



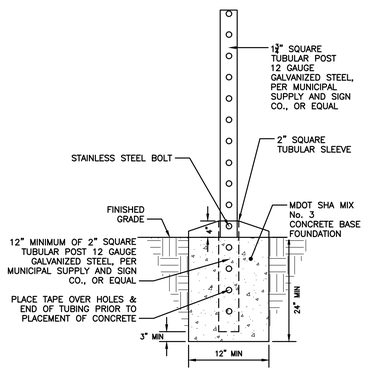
STANDARD ADA PAVEMENT MARKING SYMBOL DETAIL
NOT TO SCALE



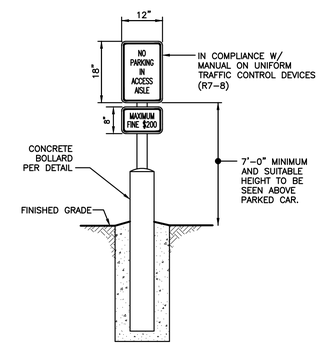
STANDARD ACCESS AISLE STRIPING DETAIL
NOT TO SCALE



CONCRETE WHEEL STOP DETAIL
NOT TO SCALE



SIGN POST DETAIL
NOT TO SCALE



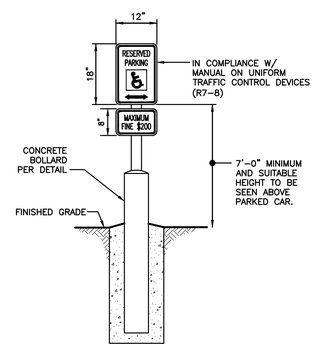
NO PARKING IN ACCESS AISLE SIGN DETAIL
NOT TO SCALE

THERMOPLASTIC PAVEMENT MARKINGS NOTES:

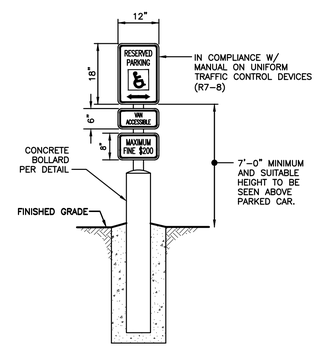
1. MARKING SHALL BE CONSTRUCTED UTILIZING A DURABLE PAVEMENT MARKING TAPE.
2. NOMINAL THICKNESS OF PAVEMENT MARKING TAPE SHALL BE 0.065".
3. PAVEMENT MARKING TAPE SHALL BE ABRASION RESISTANT.
4. THE AVERAGE SKID RESISTANCE SHALL BE 45BPN WHEN MEASURED IN ACCORDANCE WITH ASTM E303.
5. PAVEMENT MARKING TAPE SHALL NOT BE APPLIED EXCEPT BETWEEN MAY 15 AND SEPTEMBER 15. OUT OF SEASON, WHEN THE ROAD SURFACE TEMPERATURES AND AMBIENT AIR TEMPERATURES ARE ABOVE 40°F, THE LOCAL JURISDICTION MAY APPROVE APPLICATION IF ADDITIONAL ADHESIVES ARE UTILIZED.
6. THE PAVEMENT SURFACE SHALL BE CLEANED WITH A BROOM AND HIGH PRESSURED BLOWER BEFORE APPLYING TAPE.
7. PAVEMENT MARKING TAPE SHALL NOT BE APPLIED TO WET SURFACES.
8. APPLICATION OF MARKING TAPE SHALL BE AS APPROVED BY THE MANUFACTURER. PROCEDURE FOR APPLICATION SHALL BE SUBMITTED TO THE LOCAL JURISDICTION FOR REVIEW.

PAINT PAVEMENT MARKINGS NOTES:

1. IMMEDIATELY BEFORE APPLYING THE PAVEMENT MARKING PAINT TO THE PAVEMENT, THE CONTRACTOR SHALL INSURE THE SURFACE IS DRY AN ENTIRELY FREE FROM DIRT, SAND, GREASE, OIL, OR OTHER MATTER WHICH WOULD PREVENT EFFECTIVE ADHESION OF THE PAINT TO THE PAVEMENT.
2. THE SURFACE TEMPERATURE OF THE PAVEMENT SHALL BE A MINIMUM OF 5°C (40°F).
3. WHEN PAINT MUST BE APPLIED BETWEEN THE DATES OF OCTOBER 15 THROUGH APRIL 15 INCLUSIVE OR ON PAVEMENT WITH A SURFACE TEMPERATURE BELOW 5°C (40°F), COLD WEATHER PAINT CAN BE USED WHICH DOES NOT EXCEED EPA'S FEDERAL REGISTER/RULES AND REGULATIONS (40 CFR PART 59 [AD-FRL-6149-7] RIN 2060-AE55), AS AMENDED, FOR VOC CONTENT LIMIT AND SHALL MEET THE AASHTO M248 F AND REQUIREMENTS NOTED BELOW. THESE PRODUCTS SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.
4. THE COLD WEATHER PAINT SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
   a. PROPERTY TEST METHOD REQUIREMENT
   b. DRY OPACITY (CONTRAST RATIO) ASTM D2244 – WITH A WET FILM THICKNESS OF 18 ± 1 MILS
   c. VOC ASTM D3960 150 G/L (1.25 LB/GAL) MAX
   d. DRYING TIME ASTM D7111 WITH WET FILM THICKNESS OF 15 MILS 15 MINUTES MAX @ 25° C (77°F).
5. PAINTED LANE LINES, EDGE LINES, AND CENTERLINES SHALL HAVE A MINIMUM RETROREFLECTIVITY OF 250 MILLICANDELAS.
6. PAINT SHALL BE MARYLAND FAST DRY WATERBORNE TRAFFIC PAINT, LEAD FREE BY SHERMAN WILLIAMS OR APPROVED EQUAL. (FEDERAL STANDARD 595-38907 YELLOW OR 37925 WHITE).
7. PAVEMENT MARKINGS SHALL BE WARRANTED FOR A MINIMUM OF TWO YEARS.



ADA PARKING SIGN DETAIL
NOT TO SCALE



VAN ACCESSIBLE ADA PARKING SIGN DETAIL
NOT TO SCALE

APPROVED: PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN ENGINEER DATE

APPROVED: PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON DIRECTOR – TOWN ENGINEER DATE

REVISIONS

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.

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BEFORE YOU DIG CALL 1-800-441-8355 OR 811 PROTECT YOURSELF, ONE TWO WORKING DAYS NOTICE

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

WARD DISTRICT 2

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. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND
BRIAN M. WALTERS
60891
PROFESSIONAL ENGINEER
10-2-23
DATE

SITE DETAILS

EAST COAST VETS, LLC
29315 DOVER ROAD

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, PARCEL 2844, LOT 3

ISSUED FOR:	DATE:	BY:
AGENCY SUBMITTAL 01	08/28/23	BMW
AGENCY SUBMITTAL 02	10/02/23	BMW

SHEET No. 4 OF 5	DATE: 10/02/23
SCALE: AS NOTED	JOB No. 230108
	FILE No. 1347

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Date: 10/02/2023 – 4:45pm User: bwallace Project Manager:TWG
Drawing Path: J:\2023\0100\230108\Civil3D-230108\Dwg\Plots\CSP-PLTS-230108.dwg | 4 OF
XREF File(s): VLD-BASE-230108 (AB – CSP-PLTS-130251)/MATCH-BASE-230108/CSP-BASE-230108/CBS-BASE-2436-230108/VSF-BASE-230108 (FROM 130251)/RAR-BASE-230108

TOWN OF EASTON REGULATORY REQUIREMENTS (SECTION 1014.6.E)

2.c. PARKING HEDGE: REQUIRED AS SHOWN ALONG DOVER ROAD.

2.a. BLDG FAÇADE PLANTINGS:

ADDITIONAL PLANTING PROVIDED ALTHOUGH NOT SPECIFICALLY APPLICABLE TO THE PROPOSED BUILDING ADDITION.

2.f. SHRUB/GROUNDCOVER PLANTINGS: PROVIDED ACROSS SITE AS SHOWN HEREON.

FOREST CONSERVATION REQUIREMENTS

ARTICLE 3 §31–3.2 O. FOREST CONSERVATION REQUIREMENTS ARE EXEMPT FOR ANY ACTIVITY ON A PREVIOUSLY DEVELOPED AREA COVERED BY IMPERVIOUS SURFACE AND LOCATED IN THE PRIORITY FUNDING AREA.

GENERAL REQUIREMENTS

COMPLIANCE WITH THE TERMS OF THIS LANDSCAPE PLAN, INCLUDING ALL MAINTENANCE AND WARRANTY REQUIREMENTS PRESCRIBED HEREON IS THE RESPONSIBILITY OF THE OWNER/DEVELOPER. MAINTENANCE AND WARRANTY TERMS AND RESPONSIBILITIES OF THE CONTRACTOR SHALL BE AS NEGOTIATED BETWEEN OWNER/DEVELOPER AND CONTRACTOR.

THE CONTRACTOR SHALL DILIGENTLY ATTEMPT TO LOCATE THE SPECIFIED PLANT MATERIAL. IF SPECIFIED PLANT MATERIALS CANNOT BE LOCATED, ALTERNATIVES MAY BE CONSIDERED AND APPROVED, IN ADVANCE, BY THE LANDSCAPE ARCHITECT.

PRIOR TO LANDSCAPE INSTALLATION, THE CONTRACTOR SHALL COORDINATE A SITE MEETING WITH THE LANDSCAPE ARCHITECT TO REVIEW THE PLAN, SITE AND DRAINAGE CONDITIONS AND TO DETERMINE ANY FIELD ADJUSTMENTS NECESSARY.

THE LANDSCAPE ARCHITECT SHALL REJECT ANY AND ALL PLANT MATERIAL THAT DOES NOT MEET SPEC, IS DISEASED OR IS OTHERWISE UNHEALTHY.

AS-BUILT CONSTRUCTION CERTIFICATION

THE TOWN OF EASTON REQUIRES THAT THE DESIGN PROFESSIONAL PREPARING THIS LANDSCAPE PLAN CERTIFY THE LANDSCAPE INSTALLATION IS IN COMPLIANCE WITH THE APPROVED PLAN. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY RECOMMENDED OR REQUIRED CHANGES PRIOR TO IMPLEMENTATION SO THEY CAN BE APPROVED AND DOCUMENTED PRIOR TO INSTALLATION. THE OWNER/DEVELOPER SHALL WARRANT THE FINAL AS-BUILT CERTIFICATION.

LANDSCAPE PLANT MATERIAL AND INSTALLATION SPECIFICATIONS

GENERAL: ALL LANDSCAPE INSTALLATION SHALL BE ACCOMPLISHED WITH QUALIFIED PERSONNEL, UTILIZING INDUSTRY STANDARD PRACTICES AND TECHNIQUES.

THE CONTRACTOR (CONTRACTOR) IS RESPONSIBLE FOR THE COMPLETE INSTALLATION OF ALL LANDSCAPING SHOWN OR IMPLIED ON THIS PLAN. PLANT QUANTITIES ARE SHOWN FOR CONVENIENCE ONLY. PRIOR TO INSTALLATION THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IF PROPOSED SPECIES AND/OR SITE PLANTING CONDITIONS WARRANT RE-DESIGN CONSIDERATIONS.

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

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

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK. COORDINATE WITH OTHER CONTRACTORS ON SITE AND MISS UTILITY TO VERIFY UTILITY LOCATIONS. ANY REPAIRS TO EXISTING UNDERGROUND UTILITIES REQUIRED AS A RESULT OF ACTIONS OF THE CONTRACTOR AND/OR HIS ASSIGNS SHALL BE BORNE BY CONTRACTOR.

CONTRACTOR SHALL VERIFY THAT FINAL ROUGH GRADES HAVE BEEN ESTABLISHED AND THAT THE SITE IS READY FOR LANDSCAPE INSTALLATION. THE CONTRACTOR SHALL INSURE THAT PLANTINGS WILL HAVE THAT ADEQUATE DRAINAGE. THE CONTRACTOR SHALL INSTALL PLANT MATERIAL FACTORING IN ANY "FINAL" GRADING WORK TO BE COMPLETED AFTER LANDSCAPE INSTALLATION.

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

- BALL & BURLAP STOCK – OCTOBER 15 THRU APRIL 15
- CONTAINER STOCK – YEAR – ROUND WITH ADEQUATE WATER
- BARE – ROOT TREES/SHRUBS – NOVEMBER 15 THRU APRIL 15
- TURF – SEED AUGUST 15 THRU NOVEMBER 1, MARCH 1 THRU APRIL 15.
- TURF – SOD INSTALLATION OCTOBER 15 THRU MARCH 15, BALANCE OF YEAR WITH ADEQUATE IRRIGATION.

PLANTING BED/PIT PREPARATION: CONTRACTOR SHALL LAYOUT BEDS AND POSITION PLANTS FOR APPROVAL BY LANDSCAPE ARCHITECT. REVIEW ANY SIGNIFICANT FIELD ADJUSTMENTS PRIOR TO INSTALLATION. ALL BED AREAS SHALL BE TREATED WITH HERBICIDE TO KILL WEED OR GRASS VEGETATION.

ALL TREE PITS AND INDIVIDUAL SHRUB PLANTING PITS SHALL BE EXCAVATED TO A DEPTH SO THAT THE PLANT ROOT FLARE SHALL LIE AT THE FINISHED GRADE SURROUNDING THE PLANT OR PLANTINGS. REMOVE SOIL THAT MAY HAVE BEEN PLACED ON TOP OF ROOT BALL OR SETTLED AROUND TRUNK OR ROOT FLARE DURING TRANSPORT TO ADEQUATELY EXPOSE ROOT FLARE SO PROPER PLANTING DEPTH CAN BE ESTABLISHED. THE ROOT BALL SHALL REST ON UNDISTURBED OR STABILIZED SOIL. **THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IF THIS PLANTING DEPTH SPECIFICATION CANNOT BE IMPLEMENTED.** TREE PLANTING PITS SHALL BE EXCAVATED TO A WIDTH EQUALING TWICE THE ROOT BALL DIAMETER. TREE PITS ON SLOPED AREAS SHALL BE EXCAVATED TO THE PROPER DEPTH BASED ON THE UPHILL SIDE OF THE SLOPE. SHRUB/PERENNIAL AND MASS PLANTING BEDS SHALL BE WORKED OR EXCAVATED TO THE DEPTH OF THE ROOT BALL PROVIDING FOR THE ROOT BALL TO REST ON UNDISTURBED SOIL. EXCAVATED SOILS NOT PREVIOUSLY COMPACTED OR OTHERWISE DEGRADED SHALL BE RE- USED FOR PLANTING PIT BACKFILL. EXCAVATED SOILS UNSUITED FOR BACKFILL SHALL BE AMENDED WITH FRIABLE TOPSOIL TO CREATE A SUITABLE PLANTING SOIL AS APPROVED BY THE LANDSCAPE ARCHITECT. EXCAVATED SOILS THAT CANNOT BE RESTORED TO A REASONABLE PLANTING SOIL SHALL BE REMOVED AND REPLACED WITH A FRIABLE, TOPSOIL/SUB SOIL PLANTING MIX TYPICAL OF THE REGION. **NOTE- FOR BIDDING PURPOSES OR UNLESS OTHERWISE SPECIFIED HEREON, THE CONTRACTOR SHALL ASSUME EXCAVATED SOILS ARE SUITABLE FOR PLANTING BACKFILL.**

PLANTING BEDS FOR AZALEAS, RHODODENDRONS, YEWS AND OTHER MOISTURE SENSITIVE PLANT MATERIAL SHALL BE MOUNDED AND AMENDED WITH SAND, PEAT OR COMPOST AS NECESSARY TO SUITABLE PLANTING SOIL AND DRAINAGE.

UNLESS SPECIFICALLY DESIGNED FOR STORM WATER MANAGEMENT PURPOSES, ALL PLANTING BEDS ADJACENT TO PAVED AREAS SHALL BE MOUNDED SO THAT PAVING RUNOFF DOES NOT DIRECTLY DUMP OR SHEET FLOW INTO PLANTING AREAS. PROVIDE BREAKS IN THE MULCH WHERE CONTINUOUS PLANTING BEDS MAY IMPEDE DRAINAGE PATTERNS.

TURF AREAS SHALL RECEIVE 4" MINIMUM TOPSOIL STOCKPILED FROM SITE, OR IF UNAVAILABLE, SUPPLIED FROM LOCAL SOURCES WITH SIMILAR CHARACTERISTICS TO THE NATIVE TOPSOIL OF THE SITE. ALL LAWN AREAS SHALL BE WORKED TO A DEPTH OF 4".

PLANT INSTALLATION: REMOVE BURLAP AND OTHER ROOT BALL COVERING TO THE EXTENT POSSIBLE- AT A MINIMUM THE UPPER 1/2 OF ROOT BALL WRAP SHALL BE REMOVED. CUT AND REMOVE AT LEAST THE TOP 1/3 OF WIRE BASKETS AND ALL ROOT BALL BINDINGS, STRING TIES, STRAPPING, LABELS, ETC. FROM THE PLANT MATERIAL. CUT OR SCARIFY THE SIDES OF CONTAINER GROWN STOCK TO ELIMINATE BOUND ROOTS AND PROMOTE HEALTHY ROOT GROWTH.

PLANTS SHALL BE INSTALLED VERTICALLY AND PLUMB. PLANT PITS SHALL BE BACKFILLED AND COMPACTED. ALL PLANTS SHALL BE WATERED DURING PLANTING TO MINIMIZE AIR POCKETS AND TO INSURE SOIL CONTACT WITH ROOTS. LET PLANT PITS SETTLE, AND ADD SOIL TO FILL VOIDS PRIOR TO MULCHING. WHERE PLANTINGS ARE NOT IRRIGATED, UTILIZE EXCAVATED SOIL TO FORM A WATERING COLLAR AROUND THE TREE OR SHRUB AT THE PERIMETER OF THE ROOT BALL. FEATHER SOIL GRADES AROUND PLANTINGS TO BLEND WITH SURROUNDING LANDSCAPE OR TURF AREAS. EXCESS EXCAVATED SOIL SHALL BE REMOVED FROM JOB SITE.

DECIDUOUS TREES OVER 2" CALIPER AND EVERGREEN TREES OVER 7' HEIGHT (UNLESS OTHERWISE WAIVED BY THE LANDSCAPE ARCHITECT), SHALL BE STAKED AND GUYED WITH MINIMUM 2- 2" X 2" X 6' HARDWOOD STAKES PLACED IN STABLE SOILS. GUY TREES TO STAKES WITH PROTECTIVE MATERIALS TYPICALLY UTILIZED IN THE INDUSTRY.

ALL PLANTING BEDS AND PITS NOT OTHERWISE CONTAINED WITH HARD EDGING SHALL BE EDGED WITH A 3" DEEP "V" TRENCH. ALL PLANTS AND BEDS, UNLESS OTHERWISE NOTED HEREON SHALL BE MULCHED TO A 2" DEPTH WITH DOUBLE SHREDDED, HARDWOOD BARK MULCH. MULCH SHALL GENERALLY EXTEND TO THE EDGE OF PAVING OR BUILDINGS, OR BACK OF CURB. IN OPEN AREAS ADJACENT TO TURF OR NATURALIZED AREAS, MULCH SHALL EXTEND A MINIMUM OF 2.5' BEYOND THE TRUNK FOR TREES AND 1.0' BEYOND THE EDGE OF SHRUB FOLIAGE. UNLESS OTHERWISE SPECIFICALLY DIRECTED HEREON, SHAPE THE MULCH-BED EDGE CONDUCIVE TO EASE OF MOWING OR MAINTENANCE OF THE ADJOINING AREA. DO NOT PLACE OR MOUND MULCH AGAINST THE TRUNK OR FOLIAGE OF PLANTS.

THE CONTRACTOR SHALL MAINTAIN A CLEAN JOB SITE AND REMOVE ALL PLANTING AND SUPPLY DEBRIS DAILY DURING THE COURSE OF IMPLEMENTATION.

TREE-WATERING DEVICES: TREE GATOR BAGS REQUIRED ON ALL TREES UNLESS IRRIGATION OTHERWISE PROVIDED.

MAINTENANCE

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

DURING WARRANTY PERIOD: THE CONTRACTOR SHALL VISIT THE SITE PERIODICALLY TO ADVISE OWNER OF ANY DEFICIENT CONDITIONS AFFECTING PLANT SURVIVABILITY. ADJUST STAKING AND GUYING PERIODICALLY AND REMOVE AFTER FIRST FULL GROWING SEASON, OR SOONER IF PLANT IS STABLE. REPLACE DEAD OR DYING PLANT MATERIAL.

LANDSCAPE WARRANTIES

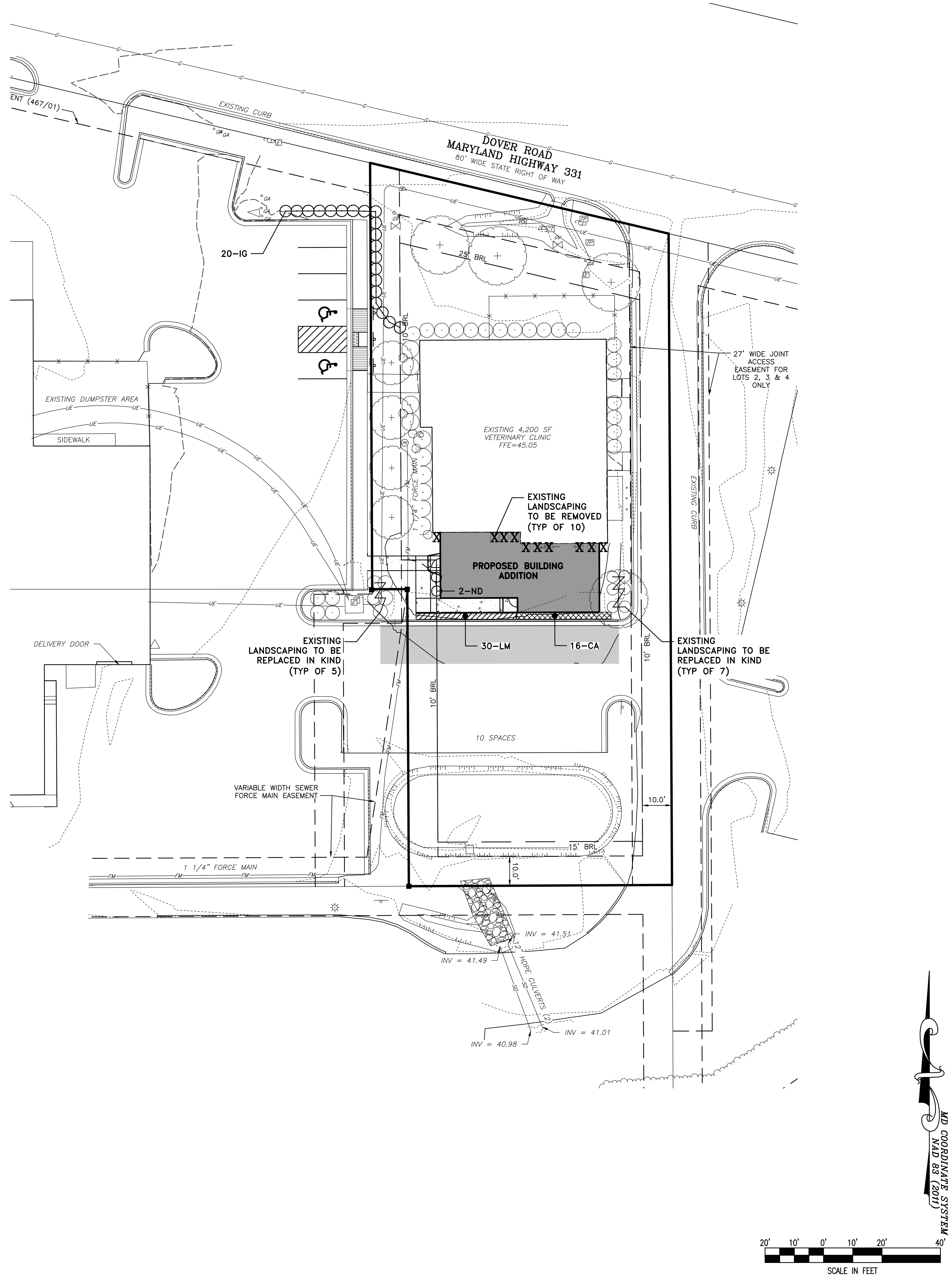
THE OWNER/DEVELOPER SHALL WARRANT ALL LANDSCAPE INSTALLATIONS TWO (2) YEARS FROM DATE OF NOTICE OF SUBSTANTIAL COMPLETION. **UNLESS OTHERWISE SPECIFIED IN AN AGREEMENT WITH THE OWNER, THE CONTRACTOR SHALL WARRANTY ALL INSTALLATION FOR ONE (1) YEAR FROM THE DATE OF NOTICE OF SUBSTANTIAL COMPLETION.** DURING THE WARRANTY PERIOD, DEFICIENT PLANT MATERIALS SHALL BE REPLACED AS SOON AS POSSIBLE AND WARRANTED THROUGH THE REMAINDER OF THE WARRANTY PERIOD. THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR WARRANTING THE WORK AGAINST LACK OF OWNER MAINTENANCE AFTER CONTRACTORS MAINTENANCE RESPONSIBILITIES END, OR FROM VANDALISM, EXTREME HURRICANE/FLOODING EVENTS OR OTHER EXTREME EVENTS BEYOND THE NORMAL, PRACTICAL AND REASONABLE CONTROL OF THE CONTRACTOR. THE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR A ONE (1) TIME REPLACEMENT OF DEAD OR DEFICIENT PLANT MATERIAL.

OVERALL PLANT LIST

SYM	QUAN	SCIENTIFIC NAME	COMMON NAME	SPECIFICATION
SHRUBS				
IG	20	ILEX GLABRA 'COMPACTA'	INKBERRY HOLLY	24" HGT, MIN, 4' O/C
ND	2	NANDINA DOMESTICA 'COMPACTA'	DWARF HEAVENLY BAMBOO	24" HGT, MIN, 3' O/C
HERBACEOUS PERENNIALS				
CA	16	CALAMAGROSTIS ARUNDINACEA 'KARL FOERSTER'	FEATHER REED GRASS	#1 CONT., 24" O/C
LM	30	LIRIOPE MUSCARI 'BIG BLUE'	BIG BLUE LIRIOPE	QUART, 18"' O/C

TURF

ALL AREAS NOT OTHERWISE DEVELOPED; LANDSCAPED OR MULCHED SHALL BE GRASSED. THESE AREAS SHALL BE LIMED AT 1000#/ACRE, AND SEEDED (8#/1000) OR SODDED WITH A TURF TYPE FESCUE BLEND CONTAINING 10% PERENNIAL RYE GRASS. FERTILIZE ALL PLANTED AREAS WITH A "TURF STARTER" FERTILIZER IN ACCORDANCE WITH STATE OF MARYLAND AND LOCAL REQUIREMENTS REGULATING FERTILIZER APPLICATIONS. ALL AREAS SHOWN TO BE "SOD" SHALL BE SODDED; OTHER AREAS NOT SPECIFICALLY SPECIFIED SHALL BE BID AS "SEEDED" WITH AN ADD-ALTERNATE UNIT PRICE FOR SOD INCLUDED IN THE BID.



APPROVED:
TOWN OF EASTON – TOWN PLANNER DATE
APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE
APPROVED:
EASTON UTILITIES – ENGINEER DATE

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

REVISIONS			
No.	DATE	DESCRIPTION	BY

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DIG WITH CARE – CALL MISS UTILITY – KEEP MARYLAND SAFE
BEFORE YOU DIG CALL 1-800-441-8355 OR 811
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

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15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

WARD DISTRICT 2

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. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND – PROFESSIONAL ENGINEER – 60891
10.2.2023
DATE

LANDSCAPE PLANTING PLAN

EAST COAST VETS, LLC
29315 DOVER ROAD

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, PARCEL 2844, LOT 3

ISSUED FOR:	DATE:	BY:
AGENCY SUBMITTAL 01	08/28/23	BMW
AGENCY SUBMITTAL 02	10/02/23	BMW

SHEET No. 5 OF 5 | DATE: 10/02/23
JOB No. 230108
SCALE: AS NOTED | FILE No. 1347

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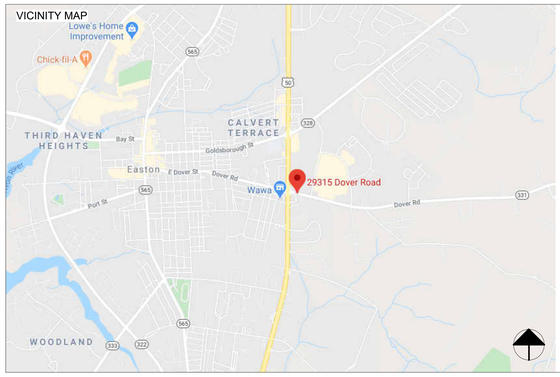
Date: 10/02/2023 – 3:21pm User: bwallace Project Manager: TWG
Drawing Path: J:\2023\0100\230108\Civil3D-230108\Dwg\Plots\LLP-PLTS-230108.dwg | 5 OF 5
XREF File(s): VLD-BASE-230108 (AB – CSP-PLTS-130251)/HATCH-BASE-230108/CSP-BASE-230108/CBS-BASE-2436-230108/VSF-BASE-230108 (FROM 130251)/RAR-BASE-230108/CEC-BASE-230108/LLP-BASE-230108

VICINITY MAP



East Coast Vets Family Pet Health Center

29315 Dover Rd
Easton, MD 21601

Town of Easton, Talbot County, Maryland
Tax Map: 105
Tax Parcel: 2844
Lot No.: 3
Lot Area: 22,771 sf
Deed: 2048/320

Owner/Developer:

George Hocker
1101 Cowpens Ave.
Baltimore, MD
410-398-2955

Patrick Allen, DVM

BRIDGEWORKS CONSTRUCTION
DENTAL • VETERINARY • MEDICAL

7520 MAIN STREET, SUITE 101
SYKESVILLE, MARYLAND 21784
877-497-2256

bridgeworkscorp.com

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ARCHITECT:

MEP ENGINEER:

STRUCTURAL ENGINEER:

CIVIL ENGINEER:

INTERIOR DESIGNER:

SPECIALTY EQUIPMENT:

ABBREVIATIONS

A	
ABV	ABOVE
A/C	AIR CONDITIONING
ACT	ACOUSTICAL CEILING TILE
AFF	ABOVE FINISHED FLOOR
ADJ	ADJUSTABLE, ADJACENT
ALT	ALTERNATE
ANOD	ANODIZED
ARCH	ARCHITECT, ARCHITECTURAL
AUTO	AUTOMATIC
B	
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BRZ	BRONZE
C	
CAB	CABINET
CI	CAST IRON
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CLO	CLOSET
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONF	CONFERENCE, CONFIGURATION
CPT	CARPET
CT	CERAMIC TILE
D	
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
DWR	DRAWER
E	
(E)	EXISTING
EA	EACH
ELEC	ELECTRIC, ELECTRICAL
ELEV	ELEVATION, ELEVATOR
EMER	EMERGENCY
EQ	EQUAL
EXH	EXHAUST
EXP	EXPOSURE
EXT	EXTERIOR
F	
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FHC	FIRE HOSE CABINET
FLR	FLOOR
FLUOR	FLUORESCENT
FT	FEET
FUT	FUTURE
G	
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GL	GLASS/GLAZING
GLA	GROSS LEASABLE AREA
GYP BD	GYPSUM BOARD
H	
H	HIGH, HEIGHT
HC	HOLLOW CORE
HDW	HARDWARE
HMF	HOLLOW METAL FRAME
HORZ	HORIZONTAL
HR	HOUR
HGT	HEIGHT
HTR	HEATER
HVAC	HEATING VENTILATION AND AIR CONDITIONING
I	
INCAD	INCANDESCENT
INCL	INCLUDE, INCLUDED
INSUL	INSULATE, INSULATION
INT	INTERIOR
J	
JAN	JANITOR
JT	JOINT
K	
KT	KITCHEN
L	
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LVR	LOUVER
LVP	LUXURY VINYL PLANK
LVT	LUXURY VINYL TILE
M	
MAS	MASONRY
MAX	MAXIMUM
MDF	MEDIUM DENSITY FIBERBOARD
MED	MEDIUM
MFR	MANUFACTURER
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MSG	MANUFACTURER'S STANDARD GAUGE
MTL	METAL
N	
NAT	NATURAL
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O	
O/C	ON CENTER
OPG	OPENING
P	
PART	PARTITION
PLAM	PLASTIC LAMINATE
PLAS	PLASTIC
PLY	PLY, PLYWOOD
PNL	PANEL
PR	PAIR, PAIRED
PT	PAINT, PRESSURE TREATED
PTD	PAINTED
Q	
QT	QUARRY TILE
QUAL	QUALITY
QTY	QUANTITY
R	
(R)	EXISTING TO BE REMOVED
R	RADIUS
RCP	REFLECTED CEILING PLAN
RECEP	RECEPTACLE
REF	REFERENCE, REFRIGERATOR
REQD	REQUIRED
REV	REVISION
RM	ROOM
S	
SC	SOLID CORE
SCHD	SCHEDULE
SECT	SECTION
SF	SQUARE FEET
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL, SOLID SURFACE
ST	STONE
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURE, STRUCTURAL
SUSP	SUSPENDED
T	
T/D	TELEPHONE/DATA
TEL	TELEPHONE
TEMP	TEMPORARY
THK	THICK, THICKNESS
THR	THRESHOLD
TV	TELEVISION
TYP	TYPICAL
U	
UC	UNDERCUT
UL	UNDERWRITERS LABORATORY
UNO	UNLESS OTHERWISE NOTED
USF	USABLE SQUARE FEET
V	
VCT	VINYL COMPOSITE TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VNR	VENEER
W	
W	WIDTH
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
X	
XFMR	TRANSFORMER
XS	EXTRA STRONG (STEEL)
Y	
YD	YARD
YR	YEAR

SYMBOLS LEGEND

	NORTH ARROW
0	GRID BUBBLE
Name / Elevation	ELEVATION LABEL
1 / A101 (DETAIL / SHEET)	SECTION HEAD
1 / 4 / A101 / 2 / 3 (DETAIL / SHEET)	INTERIOR ELEVATION
	SPOT ELEVATION
1 / A101 (DETAIL / SHEET)	CALLOUT TAG
1 View Name / 1/8" = 1'-0"	VIEW TITLE TAG
Room / 101 / XX (NAME / NUMBER / AREA (SF) FLOOR FINISH CEILING FINISH)	ROOM TAG
101	DOOR TAG
1	WINDOW TAG
1	WALL TYPE TAG
1	REVISION TAG
1	KEY NOTE
	MAP POINT

REFERENCED STANDARDS

ACI	AMERICAN CONCRETE INSTITUTE
ADA	AMERICAN DISABILITIES ACT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASSE	AMERICAN SOCIETY OF SAFETY ENGINEERS
ASTM	AMERICAN STANDARD FOR TESTING AND MATERIALS
CISCA	CEILINGS & INTERIOR SYSTEMS CONSTRUCTION ASSOCIATION
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
GA	GYPSUM ASSOCIATION
ICC	INTERNATIONAL CODE COUNCIL
ISO	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
NFPA	NATIONAL FIRE PROTECTION AGENCY
PCI	PRECAST PRESTRESSED CONCRETE INSTITUTE
PTI	POST-TENSIONING INSTITUTE
SDI	STEEL DECK INSTITUTE
SJI	STEEL JOIST INSTITUTE
UL	UNDERWRITERS LABORATORY
WDMA	WINDOW AND DOOR MANUFACTURERS ASSOCIATION

APPLICABLE CODES

International Building Code / 2018
National Electrical Code / 2017
International Fuel Gas Code / 2018
International Mechanical Code / 2018
International Plumbing Code / 2018
International Fire Code / 2018
International Energy Conservation Code / 2018
International Green Construction Code / 2018

https://eastonmd.gov/547/Article-II-Building-Code-forBuildings
Verified 05/17/23

Project shall be fully compliant with COMAR 0.9.12.53 and 2010 ADAAG for accessibility

CODE ANALYSIS

PROJECT DESCRIPTION

Two-story addition to and existing single-story, standalone building, and tenant fit out for business use as a Veterinary Clinic:

- New construction of a two-story addition including foundation, slab, bearing wall and roof framing.
- New exterior finishes to match existing.
- New construction of HVAC, plumbing and electrical system(s); interior non-bearing partitioning; interior flooring and finishes; ceiling tile and grid; and installation of veterinary-specific equipment.

A separate building permit shall be obtained for the following disciplines attached to this contract:

- Automatic Fire Sprinkler
- Monitored Fire Alarm

OCCUPANT LOAD - MEANS OF EGRESS

SHEET INDEX

Number	Name	08/23/23 Schematic Design	Developed Design	MPE Design	L1 Review	For Permit	Revision 1	Revision 2	Revision 3	Revision 4	Revision 5	As-Built
General												
A0.0	Cover	X										
Framing												
A2.1	Lower Level Framing Plan - Phase 2	X										
A2.2	Upper Level Framing Plan Phase 2	X										
A2.3	Upper Level Roof Plan - Phase 2	X										
A2.4	Lower Level Reflected Ceiling Plan - Phase 2	X										
A2.5	Upper Level Reflected Ceiling Plan - Phase 2	X										
Elevations												
A3.1	Exterior Elevations	X										
A3.2	Exterior Elevations	X										
A3.3	Exterior Rendering	X										
Finishes												
A4.2	Lower Level Finish Plan - Phase 2	X										
A4.3	Upper Level Finish Plan - Phase 2	X										

PRELIMINARY PLAN SET

STATE OF MARYLAND
PATRICK TIMOTHY ALLEN
No. 27-0
ARCHITECT

Revisions

No.	Description	Date

PRILIMARY

East Coast Vets Family Pet Health Center

29315 Dover Rd
Easton, MD 21601

Patrick Allen, DVM

Cover

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A0.0

Scale

10/4/2023 16:17:50

1 Lower Level Framing Plan Phase 2
1/4" = 1'-0"

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DENTAL • VETERINARY • MEDICAL

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Revisions

No.	Description	Date

PRILIMARY

East Coast Vets Family Pet Health Center

29315 Dover Rd
Easton, MD 21601

Patrick Allen, DVM

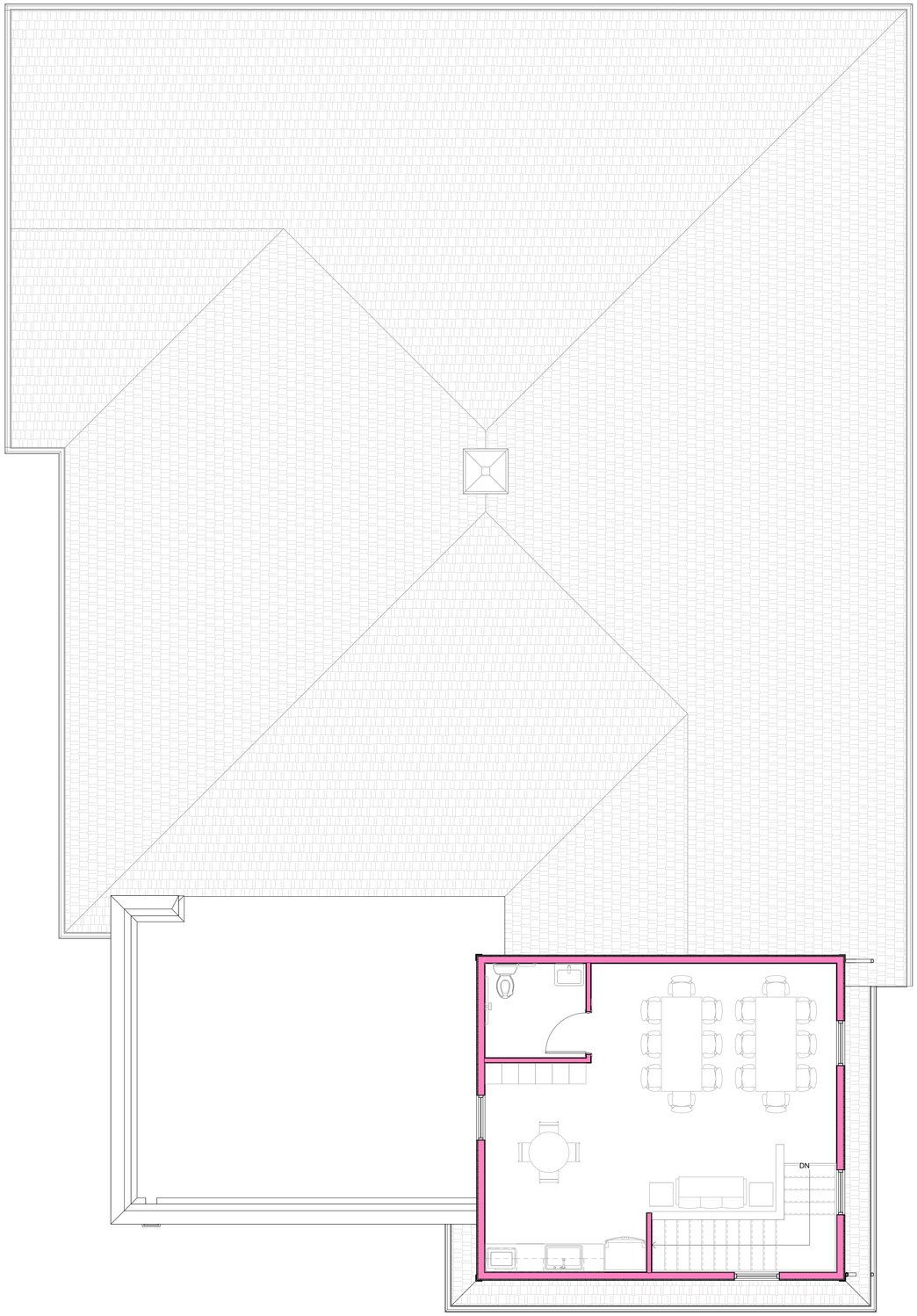
Lower Level Framing Plan - Phase 2

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A2.1

Scale 1/4" = 1'-0"

10/4/2023 16:17:52



1 Upper Level Framing Plan - Phase 2
1/4" = 1'-0"

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Easton, MD 21601

Patrick Allen, DVM

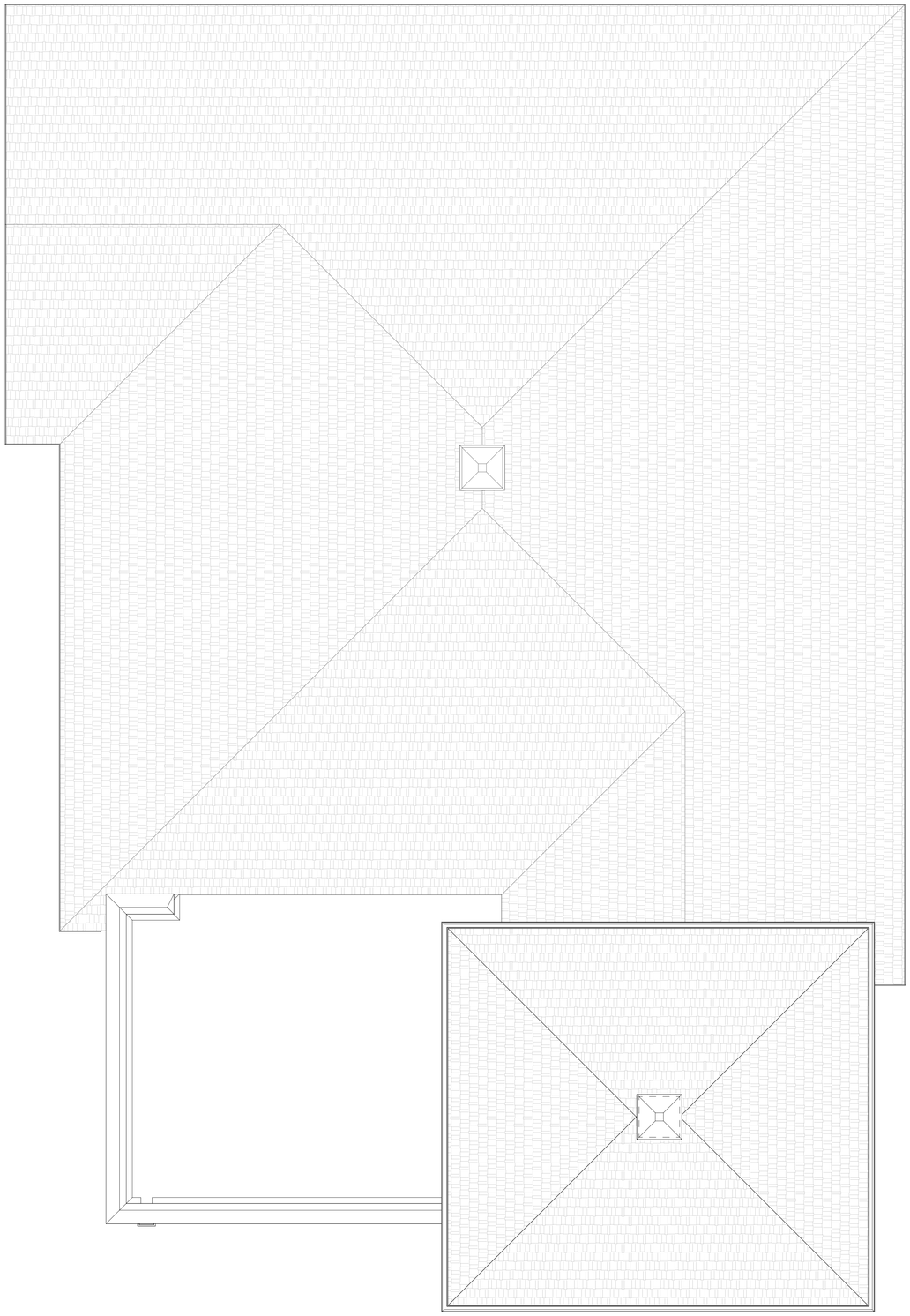
Upper Level Framing Plan Phase 2

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A2.2

Scale	1/4" = 1'-0"

10/4/2023 16:17:53



1 Upper Level Roof Plan - Phase 2
1/4" = 1'-0"

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STATE OF MARYLAND
STEPHEN T. LEMMON
No. 16
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Revisions

No.	Description	Date

PRILIMARY

East Coast Vets Family Pet Health Center

29315 Dover Rd
Easton, MD 21601

Patrick Allen, DVM

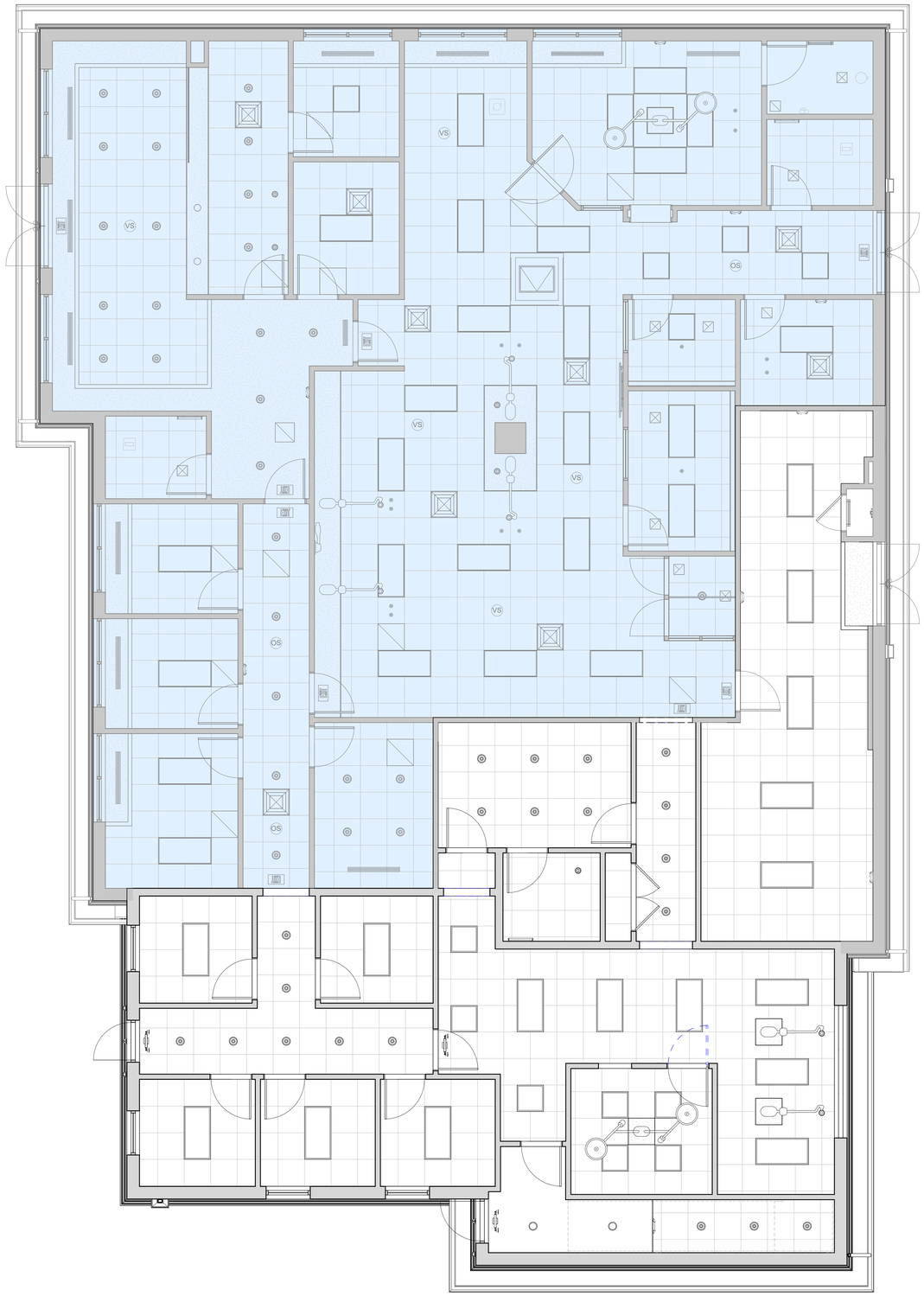
Upper Level Roof Plan - Phase 2

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A2.3

Scale 1/4" = 1'-0"

10/4/2023 16:17:53



1 Lower Level Reflected Ceiling Plan - Phase 2
1/4" = 1'-0"

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PRILIMARY

East Coast Vets Family Pet Health Center

29315 Dover Rd
Easton, MD 21601

Patrick Allen, DVM

Lower Level Reflected Ceiling Plan - Phase 2

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A2.4

Scale 1/4" = 1'-0"

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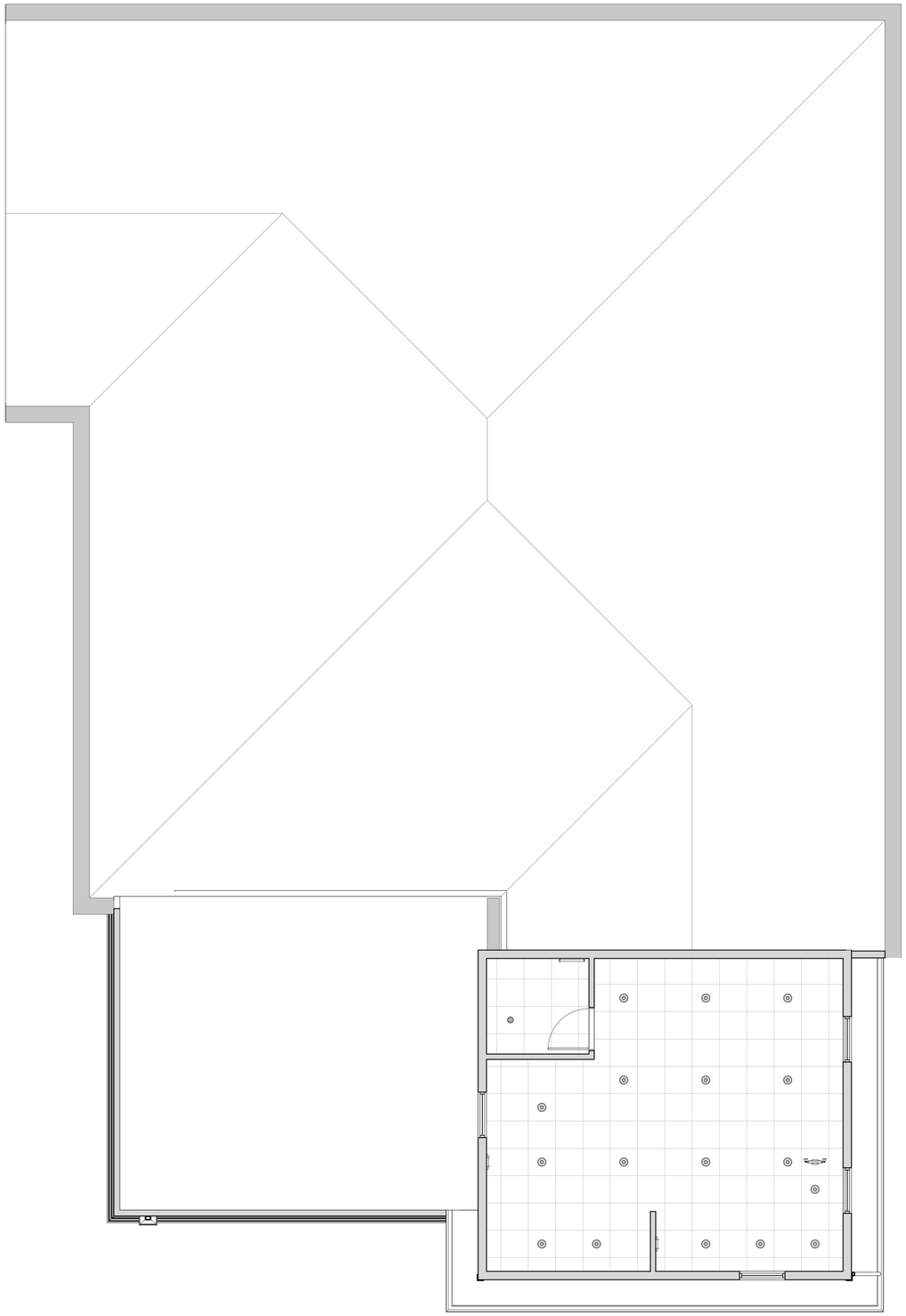

1 Upper Level Reflected Ceiling Plan - Phase 2
1/4" = 1'-0"

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No.	Description	Date

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East Coast Vets Family Pet Health Center

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Patrick Allen, DVM

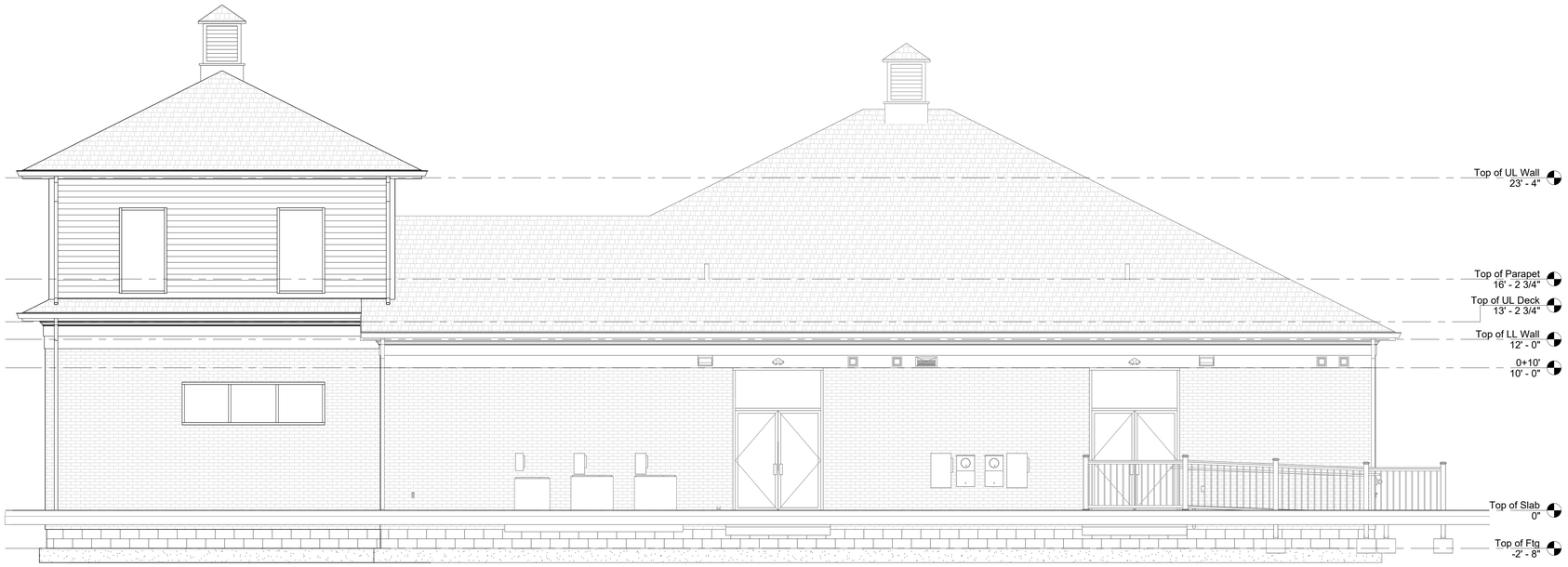
Upper Level Reflected Ceiling Plan - Phase 2

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

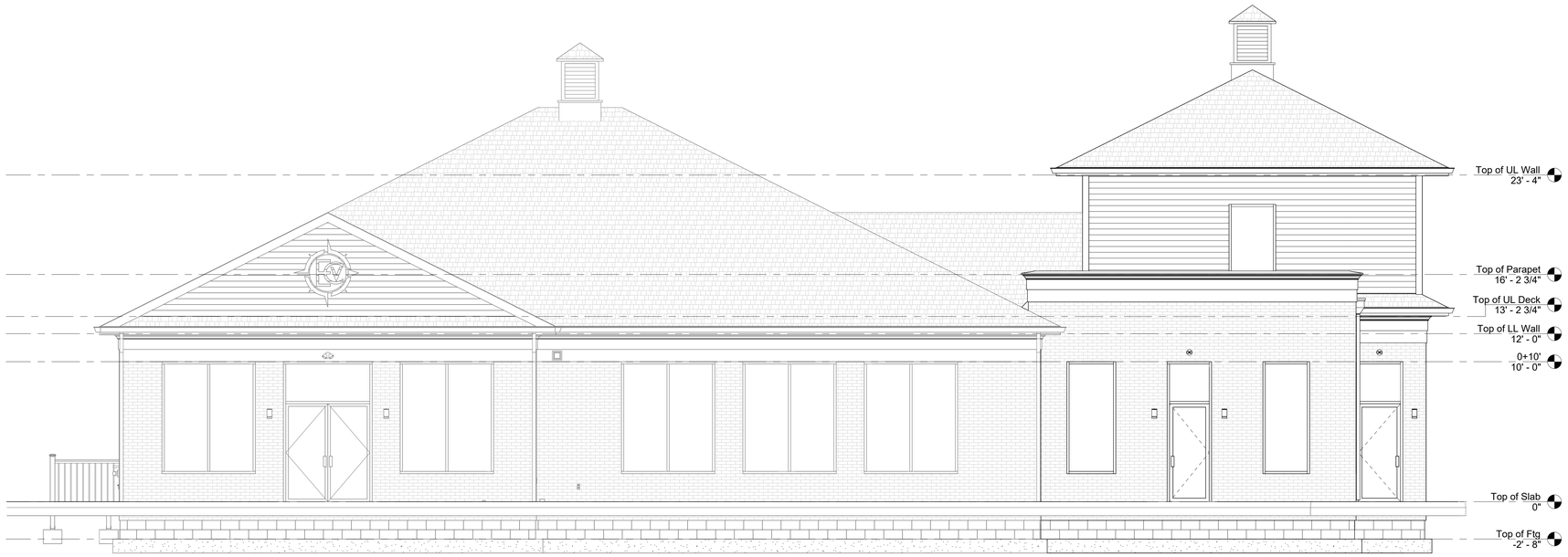
A2.5

Scale 1/4" = 1'-0"

10/4/2023 16:18:00



2 Rear Elevation
1/4" = 1'-0"



1 Front Elevation
1/4" = 1'-0"

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No.	Description	Date

PRILIMARY

East Coast Vets Family Pet Health Center

29315 Dover Rd
Easton, MD 21601

Patrick Allen, DVM

Exterior Elevations

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A3.1

Scale	1/4" = 1'-0"

10/4/2023 16:18:12

2 Left Side Elevation
1/4" = 1'-0"

1 Right Side Elevation
1/4" = 1'-0"

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East Coast Vets Family Pet Health Center

29315 Dover Rd
Easton, MD 21601

Patrick Allen, DVM

Exterior Elevations

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A3.2

Scale 1/4" = 1'-0"

10/4/2023 16:18:27

1 Exterior Rendering

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ROSS T. LEMLEY
No. 30000
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Revisions

No.	Description	Date

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East Coast Vets Family Pet Health Center

29315 Dover Rd
Easton, MD 21601

Patrick Allen, DVM

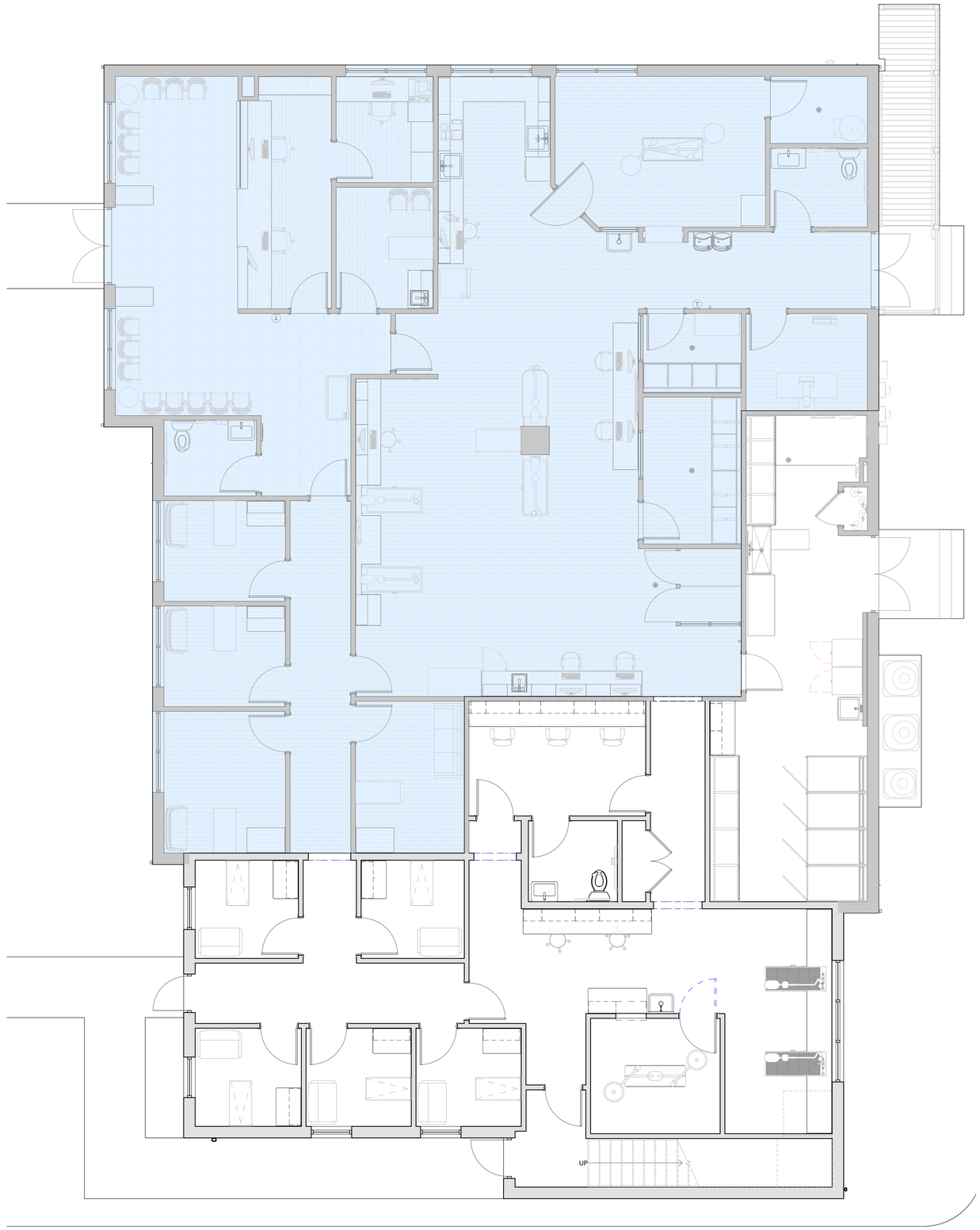
Exterior Rendering

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A3.3

Scale

10/4/2023 16:19:21



1 Lower Level Finish Plan - Phase 2
1/4" = 1'-0"

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29315 Dover Rd
Easton, MD 21601

Patrick Allen, DVM

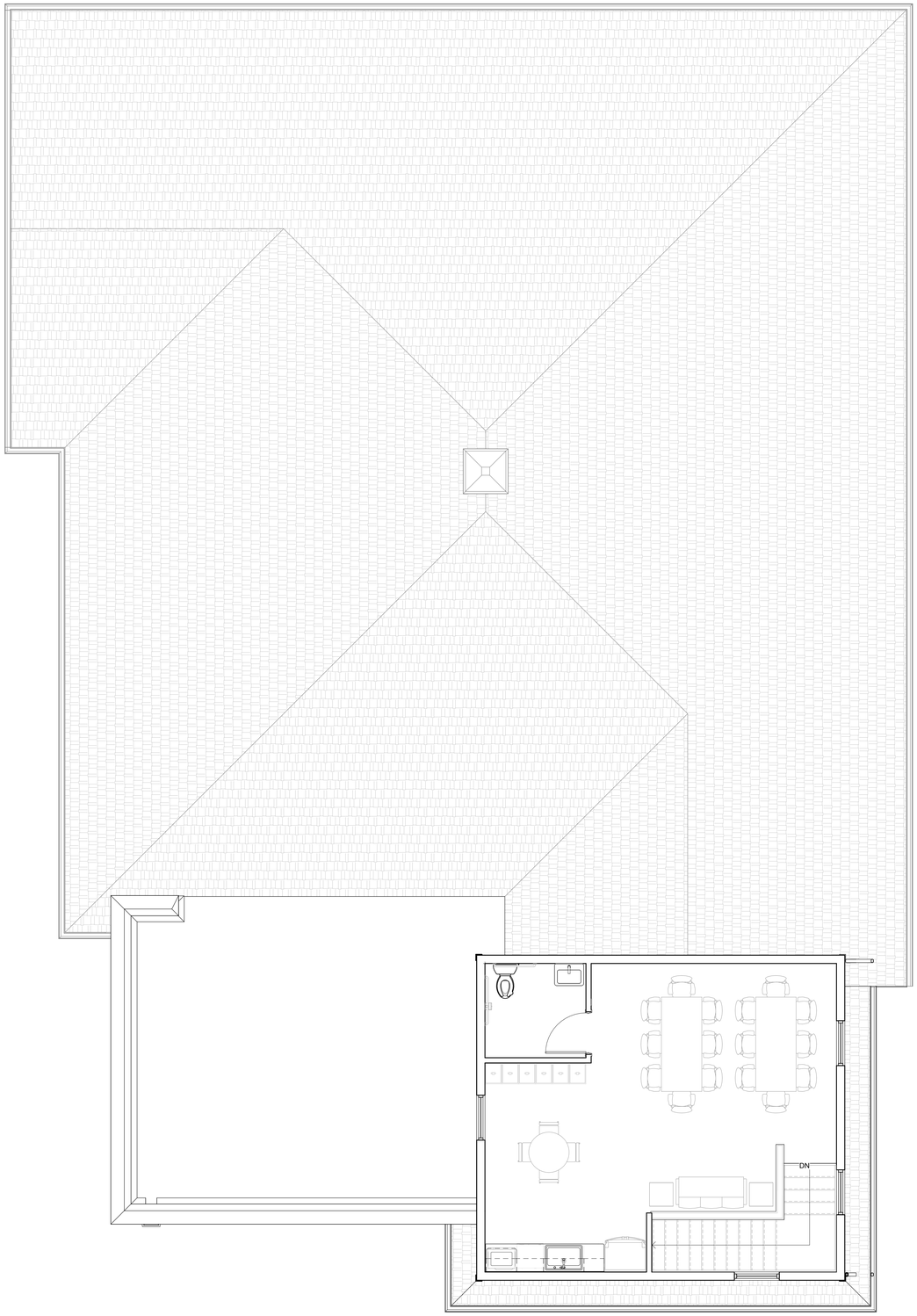
Lower Level Finish Plan - Phase 2

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A4.2

Scale	1/4" = 1'-0"

10/4/2023 16:19:28



1 Upper Level Finish Plan - Phase 2
1/4" = 1'-0"

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RICHARD TEMPLETON
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Revisions

No.	Description	Date

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East Coast Vets Family Pet Health Center

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Easton, MD 21601

Patrick Allen, DVM

Upper Level Finish Plan - Phase 2

Project number	20-V002
Date	211004
Drawn by	rtk
Checked by	rtk

A4.3

Scale 1/4" = 1'-0"

10/4/2023 16:19:29

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

Easton Staff Development Review

Property Information

Address	29315 Dover Road, Easton, MD 21601						
Tax Map	105	Grid	-	Parcel	2844	Lot	3
Deed Refernce:	Liber	2048	Folio	320			
Plat Reference:	Liber		Folio				
Base Zoning District		CG	Historic District	Y ☐ N ☑	Planning Redevelopment	Y ☐ N ☑	

Purpose of Application / Description of Work:

Construction of a two-story addition to an existing single-story, standalone building that is currently used as a veterinarian clinic, and shifting the existing designated parking spaces to the parking lot on the neighboring parcel (within the existing shared-use agreement).

Owner

Name	East Coast Vets, LLC c/o Patrick Allen		
Mailing Address	29315 Dover Road, Easton, MD 21601		
Telephone No.	410-463-6451	Email	pallen@eastcoastvet.com

Applicant / Agent

Name	Lane Engineering, LLC c/o Brittany Wallace		
Mailing Address	117 Bay St, Easton, MD 21601		
Telephone No.	410-822-8003	Email	bwallace@leinc.com

Surveyor / Engineer

Name	Brittany Wallace	License No.	60891	Expiration Date	4/13/25
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	bwallace@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: BMWallace

Date: 8/28/23

Printed Name of Applicant or Agent: Brittany M. Wallace

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date **09/27/2023** **ESDR 23-20 / 2023-1028**

Completeness Check Date

Revisions/Resubmissions Required Y ☒ N ☐

Resubmission Date 10/02/2023 Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Requir Y ☒ N ☐ Planning Commission Meeting Date: 10/19/2023

BOZA Required Y ☐ N ☐

Historic District Commission Required Y ☐ N ☐

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature Date

Revised 02-2019

RECEIVED
SEP 0 6 2023
TOWN OF EASTON

Lane Engineering, LLC

Established 1986

Civil Engineering • Land Planning • Land Surveyors

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

October 2, 2023

Mr. Joe Mayer
Plan Reviewer
Town of Easton
14 South Harrison Street
Easton, MD 21601

Subject: 29315 Dover Road – East Coast Vets
Lane Project No. 230108
Lane File No. 1347

Dear Mr. Mayer:

The following is a point-by-point response to the comment letters dated September 27, 2023 for the above referenced Building Permit Site Plan. On behalf of our client, we are pleased to provide the Town with our detailed responses to comments which correspond to our re-submission of revised building permit site plans and other miscellaneous attachments.

For ease of reference, the Town's comments have been reiterated below with our detailed responses included in *italics*.

ENGINEERING DEPT COMMENTS:

1. Expand the LOD to the industry standard to be 20' offset from the proposed building addition and 10' off other site work.

   LOD has been updated per guidelines given during ESDR meeting.

2. Verify if the intended mill and overlay will disturb soil. If it will not, it does not need to be included in the LOD calculations.

   We have confirmed that the mill and overlay will not disturb soil, and it has been removed from the LOD. The proposed LOD is now offset from the proposed gutter pan.

3. Please verify if the ADA spaces will be mill and overlay, or if there will be disturbance.

   The ADA spaces will not require any mill and overlay; the existing grades are ADA compliant (this has been labeled/shown via spot elevation labels on sheet 3) and will only require pavement markings.

4. The Town performed a Triennial Inspection on 2021/04/23 which passed with maintenance required. Please continue maintenance and verify functionality of the existing SWM feature.

   Acknowledged.

PLANNING & ZONING DEPT COMMENTS:

Sketch Site Plan Review:

1. Please add the statement describing the extent to which the application complies with the nine Recommended Design Principles for Easton set forth on page 29-31 of the Comprehensive Plan.

   Recommended Design Principles for Easton have been added to sheet 1 of 4.

2. Include the liber and folio number for the previously recorded "Declaration of Shared Use Easement Area" within the Project Notes on sheet 1 of 4.

   Liber and Folio has been added as requested.

3. Revise Project Data on sheet 1 of 4 to include percentage of lot coverage by all buildings and structures and demonstrate that it complies with the 50% maximum.

   Added as requested; because our proposed design replaces existing asphalt with proposed building, the proposed lot coverage is extremely similar to the existing lot coverage.

4. Add the September 15, 2020 Board of Zoning Appeals approval of Special Exception #SE-808 for the use of an Animal Hospital/Veterinary Clinic. Per Chapter 28-1303.5.B.8.a.ii of the Zoning Ordinance, the proposed work has been deemed as a significant modification to the Special Exception and requires the applicant to return to the Board of Zoning Appeals for approval.

   Added as requested.

5. Per Chapter 28-1014.6.E.2.c of the Zoning Ordinance, all parking lots shall be landscaped with an evergreen shrub hedge which will grow to a minimum 42" height within 5 years along all street or alley frontages and along all, or portions of sides visible from streets or alleys, excluding the building or facility access side(s). Shrubs shall be spaced to form a continuous hedge within 5 years. Required Bufferyards may replace all or part of this requirement when the applicant can demonstrate that effective screening will be achieved. The adjacent parking lot on the west side has two proposed ADA parking spaces visible from Dover Road. Provide adequate screening. See markup below.

   Proposed landscaping can now be seen on newly added sheet 5 of 5.

6. Provide a dimension of the main access aisle west of the building.

   Dimension has been added to sheet 3 of 4.

7. Revise parking calculations to include minimum and maximum vehicle spaces for a medical clinic. The minimum is 1 per 400 sf GFA and the maximum is 1 per 100 sf GFA. Include the allocated parking spaces from the "Declaration of Shared Use Easement Area" with the total proposed spaces. If applicable, add the required minimum bicycle spaces.

   Parking totals and calculations have been updated accordingly.

8. Show existing landscaping and any existing plantings to be removed. Provide adequate building facade plantings. Include general location and description of all proposed landscaping.

   Existing landscaping is now shown on all plan views. Sheet 5 of 5 has been added to detail proposed landscaping.

9. Add Ward District in the Title Block to all sheets.

   "Ward District 2" has been added to title block.

10. Show zoning district boundaries on the Vicinity Map.

Added and labeled on sheet 1.

11. Indicate that the existing lights shall not shine off-sight at levels greater than 1-foot candle unless approved otherwise by the Planning Commission. Please add information to the Project Data on sheet 1 of 4.

    Note added to Project Data.

12. Verify that the proposed ADA parking spaces will be within the required cross slopes for the landing area, ramp run and overall parking space. Please note that any modifications to provide a compliant ADA space, in regards to modifying the slope, would increase the limit of disturbance.

    Spot labels have been added to sheet 3.

BUILDING INSPECTION AND PERMIT DEPT COMMENTS:

1. Contact this Department to verify current Building Codes including the Town of Easton's modifications prior to preparation of Building plans.

   Acknowledged.

2. Construction Documents (3 sets) for 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. Items that must be addressed by the construction documents will be structural strength, means of egress (include travel distance), facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment, Accessibility, and other safety requirements for public access.

   Sealed architectural plans will be forwarded.

3. 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.

   Acknowledged.

4. Pursuant to Town of Easton Ordinance 477, Chapter 9 Fire Protection, Article VII Security Key Lock Boxes, a lockbox shall be provided on the exterior of the building and shall be located as required by the chief of the Easton Volunteer Fire Department, Inc. (410-822-4848).

   A lockbox is already provided on the existing building.

5. An appointment may be set up with this department to review your permit application materials prior to permit application submission.

   Acknowledged.

EASTON UTILITIES COMMISSION COMMENTS:

1. General: Gas is available.

   Acknowledged; gas connections will not be needed for this project.

2. General: Capital charges required for building addition.

Capital Charges in the amount of $11,209.50 will be provided.

3. Sheet 3 of 4: Show utilities.

   Existing water and gas has been shown per provided plan markups.

Should you have any questions, please feel free to contact me at (410) 822-8003.

Sincerely,
LANE ENGINEERING, LLC

Brittany Wallace, P.E.

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

Easton Staff Development Review Worksheet

Date: September 27, 2023
Project: 29315 Dover Road - East Coast Vets
To: Ms. Brittany Wallace - Lane Engineering, LLC.
Mr. Patrick Allen – East Coast Vets, LLC.

The Easton Staff Development Review (ESDR) Committee meeting was held on September 27th at 11:00 am. Staff reviewed the Site Sketch Plan for the proposed building addition on the property located at 29315 Dover Road, also known as Tax Map 105, Parcel 2844.

The project will need to address all agency comments as specified in the attached review letters and at ESDR. Specific areas discussed at the meeting included the applicant returning to the Board of Zoning Appeals for Special Exception in regards to the modification of the previously approved Site Plan. In addition, expand the LOD to the industry standard to be 20' offset from the proposed building addition and 10' off other site work.

The Committee determined that the application may be scheduled for Planning Commission review. Please address all comments and submit documents.

The next Planning Commission meeting is scheduled for **Thursday, October 19, 2023 at 1:00 pm.** Submit all documentation to the Planning and Zoning Department no later than Monday, **October 2nd**. Files for presentation at the Planning Commission need to be provided on a flash drive. In addition, provide a digital submittal (via email) of the Planning Commission Application and its supporting documents, including **eight paper copies**.

Based on the ESDR sketch plan submission, the Staff did identify constraints which require action by the Board of Zoning Appeals.

The next Board of Zoning Appeals meeting is scheduled for **Tuesday, November 21, 2023 at 9:00 am.** Submit all documentation to the Planning and Zoning Department no later than Tuesday, **October 17th**. Files for presentation at the Planning Commission need to be provided on a flash drive. In addition, provide a digital submittal (via email) of the Board of Zoning Appeals Application and its supporting documents, including **three paper copies**.

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

Sincerely,

Joseph A. Mayer
Plan Reviewer - Planning and Zoning

TOWN OF EASTON
PLANNING & ZONING DEPARTMENT
P.O. Box 520
Easton, Maryland 21601
410-822-1943
www.EastonMD.gov

DATE: **September 26, 2023**
TO: **Brittany Wallace & Tim Glass** – Lane Engineering, LLC
Patrick Allen - East Coast Vets, LLC.
Cc: **Miguel Salinas –** Director of Planning & Zoning Department
Rick Van Emburgh – Town Engineer, Department of Engineering
FROM: **Joseph A. Mayer -** Plan Reviewer, Planning & Zoning Department
SUBJECT: 29315 Dover Road – East Coast Vets

We reviewed the **September 6, 2023** Sketch Site Plan Submittal for the Subject Project and have the following comments:

PLANNING & ZONING COMMENTS

Sketch Site Plan Review #1

1. Please add the statement describing the extent to which the application complies with the nine Recommended Design Principles for Easton set forth on page 29-31 of the Comprehensive Plan.

2. Include the liber and folio number for the previously recorded "Declaration of Shared Use Easement Area" within the Project Notes on sheet 1 of 4.

3. Revise Project Data on sheet 1 of 4 to include percentage of lot coverage by all buildings and structures and demonstrate that it complies with the 50% maximum.

4. Add the September 15, 2020 Board of Zoning Appeals approval of Special Exception #SE-808 for the use of an Animal Hospital/Veterinary Clinic. Per Chapter 28-1303.5.B.8.a.ii of the Zoning Ordinance, the proposed work has been deemed as a significant modification to the Special Exception and requires the applicant to return to the Board of Zoning Appeals for approval.

5. Per Chapter 28-1014.6.E.2.c of the Zoning Ordinance, *all parking lots shall be landscaped with an evergreen shrub hedge which will grow to a minimum 42" height within 5 years along all street or alley frontages and along all, or portions of sides visible from streets or alleys, excluding the building or facility access side(s). Shrubs shall be spaced to form a continuous hedge within 5 years. Required Bufferyards may replace all or part of this requirement when the applicant can demonstrate that effective screening will be achieved.* The adjacent parking lot on the west side has two proposed

ADA parking spaces visible from Dover Road. Provide adequate screening. See markup below.

6. Provide a dimension of the main access aisle west of the building.

7. Revise parking calculations to include minimum and maximum vehicle spaces for a medical clinic. The minimum is 1 per 400 sf GFA and the maximum is 1 per 100 sf GFA. Include the allocated parking spaces from the"Declaration of Shared Use Easement Area" with the total proposed spaces. If applicable, add the required minimum bicycle spaces.

8. Show existing landscaping and any existing plantings to be removed. Provide adequate building facade plantings. Include general location and description of all proposed landscaping.

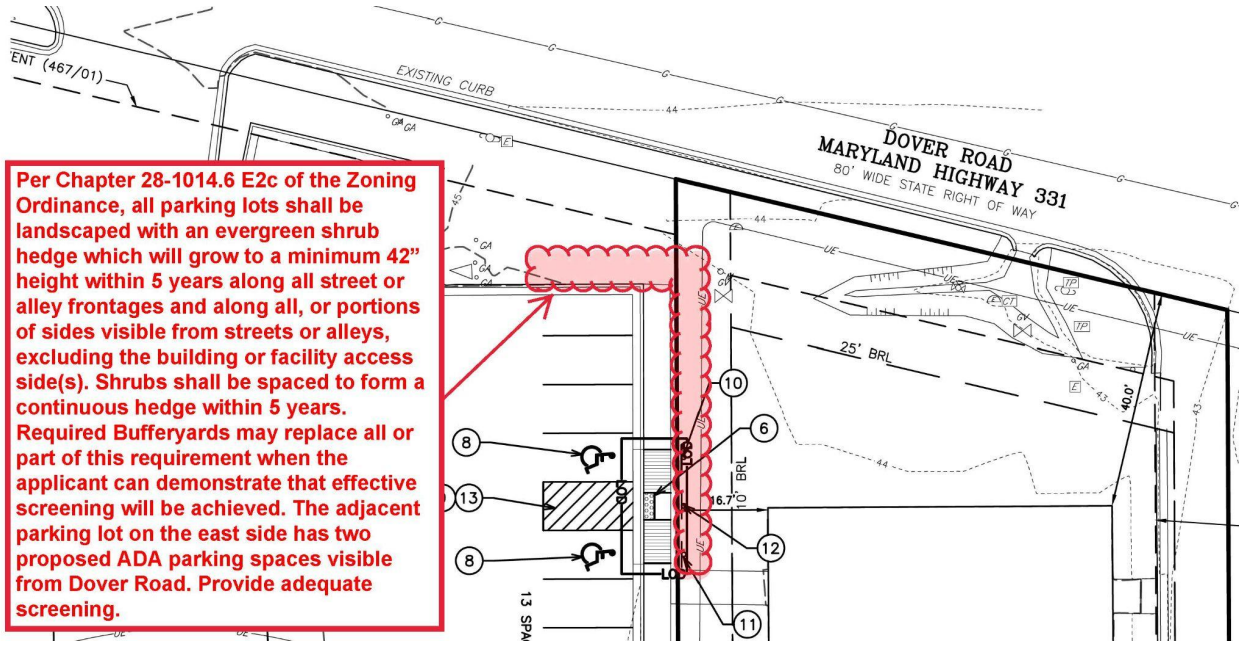
9. Add Ward District in the Title Block to all sheets.

10. Show zoning district boundaries on the Vicinity Map.

11. Indicate that the existing lights shall not shine off-sight at levels greater than 1-foot candle unless approved otherwise by the Planning Commission. Please add information to the Project Data on sheet 1 of 4.

12. Verify that the proposed ADA parking spaces will be within the required cross slopes for the landing area, ramp run and overall parking space. Please note that any modifications to provide a compliant ADA space, in regards to modifying the slope, would increase the limit of disturbance.

Review Comment #5



Plan Review Status

IMPROVEMENT PLAN REVIEW			Comments
Plans Approved	☐Y	☒ N	Please review the comments above. Revise and resubmit.

Forest Stand Delineation & Forest Conservation Plan	
☐ Required ☐ Submitted ☒Approved	**The overall site is 0.522 acres or 22,771 square feet. Per the *Easton Forest Conservation Ordinance #718, Article III*, § 31-3.1, the site is under 40,000 square feet and is exempt from applying for a Forest Conservation Application. In addition the site would also be categorized under *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.***
Other	
☒Required ☐ Submitted ☐ Approved	**IMPACT FEES** **Please note, there will be a required Impact Fee for all proposed units. 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 contact me if you have any questions. Thank you.

TOWN OF
EASTON
ENGINEERING DEPARTMENT

DATE: **September 27th, 2023**

TO: **Brett Ewing – Lane Engineering, LLC**
Cc: **Rick Van Emburgh – Town Engineer**
Miguel Salinas – Planning and Zoning Department
Aaron Goller – EUC
FROM: **Sierra Clem – Engineering Department**
SUBJECT: **East Coast Vets – ESDR Sketch Site Plan Review Comments**

The Town Engineers office has reviewed the subject application received 9/6/2023 and have the following comments:

1. Expand the LOD to the industry standard to be 20' offset from the proposed building addition and 10' off other site work.
2. Verify if the intended mill and overlay will disturb soil. If it will not, it does not need to be included in the LOD calculations.
3. Please verify if the ADA spaces will be mill and overlay, or if there will be disturbance .
4. The Town performed a Triennial Inspection on 2021/04/23 which passed with maintenance required. Please continue maintenance and verify functionality of the existing SWM feature.

Please address the comments above and submit a revised Sketch Site Plan. Please contact me if you have any questions. Thank you.

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

TOWN OF EASTON

PO Box 520
Easton, Maryland 21601
(410)-822-2526 Fax (410)-822-8738

ACCREDITED

Office of Building Inspection.

ESDR- Building Inspection and Permit Department Comments

Date: September 27, 2023

Project; East Coast Vets Addition/Alteration Level 2

Owner; East Coast Vets, LLC c/o Patrick Allen

A Town of Easton Building Permit is required for all new construction. The following lists items required on the construction drawings in order to apply for a Building Permit.

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

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

EASTON UTILITIES

Life. Made better.™

Easton Utilities Commission

Plan Review Comments

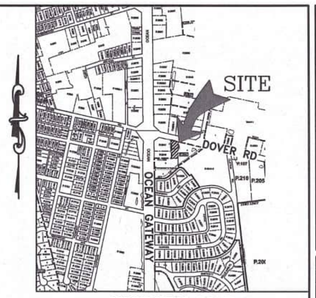
Date: Tuesday, September 19, 2023
To: Joe Mayer; Nicholas Johnson; Sierra Clem
From: Emily Cohoon on behalf of Aaron Goller, PE **No. of Pages:** 1
Regarding: East Coast Vets (29315 Dover Rd)
Phase: Sketch Site Plan **SUBM:** 1 **Status:** **Approved as Noted**

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		Gas is available
2	General	Capital charges required for building addition
3	3 of 4	Show Utilities

201 N. Washington Street | Easton, Maryland 21601
Telephone: 410-822-6110 | Fax: 410-822-0743 | eastonutilities.com

BUILDING PERMIT SITE PLAN
FOR
EAST COAST VET, LLC
IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND



VICINITY MAP
SCALE: 1" = 1,000'

PROJECT DATA

PROPERTY: TAX MAP 105, PARCEL 2844, LOT 3
29315 DOVER ROAD
EASTON, MARYLAND 21601

OWNER: GEORGE H HOCKER, JR., TRUSTEE
HARRIET G. HOCKER, TRUSTEE
3616 CLEAR DRIVE CT
GLENWOOD, MD 21738

DEVELOPER: EAST COAST VETS, LLC
C/O PATRICK ALLEN
29315 DOVER ROAD
EASTON, MARYLAND 21601
(410) 463-6451

DEED REFERENCE: 2048/320

ZONING CLASSIFICATION: CG (COMMERCIAL GENERAL)

SITE AREA: 0.523 ACRES±

BUILDING SETBACKS: FRONT – 25'
REAR – 15'
SIDE – 10'
STATE HIGHWAY (MD RT 50) – 25'

MAXIMUM BUILDING HEIGHT PERMITTED: 50'
BUILDING HEIGHT PROPOSED: LESS THAN 50'

EXISTING CONDITIONS: 4,200 SF VETERINARY CLINIC AND ASSOCIATED PARKING LOT AND STORMWATER MANAGEMENT FACILITY

PROPOSED DEVELOPMENT: PROPOSED BUILDING ADDITION (1,285 SF) AND ASSOCIATED SITE IMPROVEMENTS

STORMWATER MANAGEMENT: REQUIREMENTS MET FROM PREVIOUS DEVELOPMENT, PROPOSED IMPROVEMENTS LESS THAN 5,000 SF, THEREFORE PROPOSED IMPROVEMENTS EXEMPT FROM STORMWATER MANAGEMENT REQUIREMENTS.

FOREST CONSERVATION: SUBJECT PROJECT IS EXEMPT FROM REQUIREMENTS

SPECIAL EXCEPTIONS/VARIANCES: NONE

REFUSE/TRASH: EXISTING ON-SITE DUMPSTER ENCLOSURE TO BE USED

SITE LIGHTING: NO CHANGES TO EXISTING SITE LIGHTING

PARKING CALCULATIONS

TOTAL SITE PARKING REQUIRED: 1 SPACE/250 GFA; 22 SPACES
TOTAL SITE PARKING PROVIDED: 23 SPACES (THE PROPOSED PARKING IS LOCATED ON PARCEL 2840. AUTHORIZATION FOR THIS OFF-SITE USE IS PROVIDED IN A PREVIOUSLY RECORDED "DECLARATION OF SHARED USE EASEMENT AREA")

ADA ACCESSIBLE PARKING SPACES REQUIRED: 1 VAN
ADA ACCESSIBLE PARKING SPACES PROVIDED: 2 SPACES, INCLUDING 1 VAN ACCESSIBLE

PROJECT NOTES

1. PROPERTY BOUNDARY AND EXISTING CONDITIONS SURVEYED BY LANE ENGINEERING, LLC IN JULY 2014 AND JUNE 2017.
2. SITE TOPOGRAPHY AS SHOWN HEREIN WAS DERIVED FROM A FIELD SURVEY BY LANE ENGINEERING, LLC DATED JULY 2014 AND JUNE 2017.
3. THE UNDERGROUND UTILITIES (SEWER, WATER, ELECTRIC, CABLE TV, COMMUNICATIONS, FIBER OPTICS, ETC.) SHOWN HEREON WERE TAKEN FROM A SHAPE FILE (GIS) PROVIDED BY EASTON UTILITIES COMMISSION.
4. THE ELEVATIONS SHOWN HEREON ARE NAVD 1988 DATUM.
5. THE COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM NAD83 (2011).
6. THE SITE IS LOCATED ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA.
7. THE PROPERTY SHOWN HEREON IS NOT 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 "X" FLOOD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAPS FOR COMMUNITY NO. 240067, MAP NO. 24041C0193C FOR TALBOT COUNTY, 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

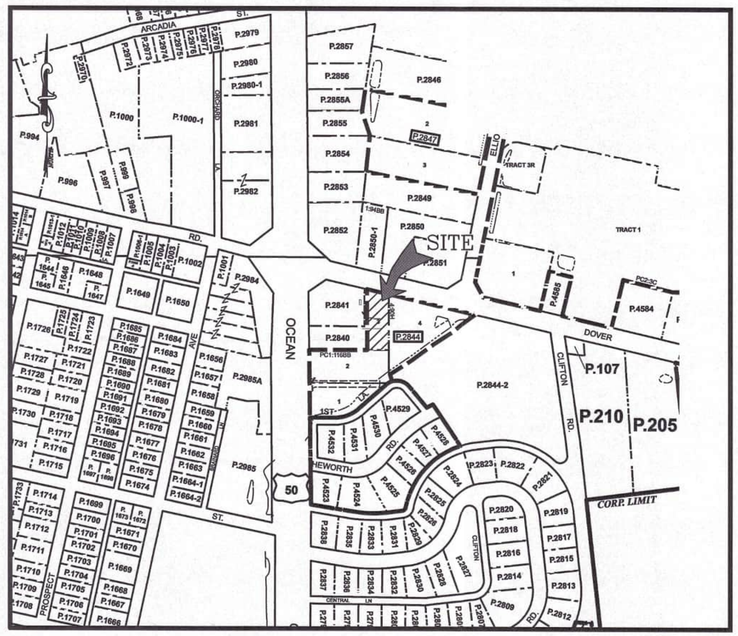
   THE FLOOD DATA SHOWN HEREON IS BASED ON AVAILABLE MAPPED AND/OR DIGITAL INFORMATION AND IS DEPICTED AS DIRECTED AND REQUIRED BY FEDERAL, STATE AND LOCAL REGULATIONS. IT IS SUBJECT TO DATA INACCURACIES AND REGULATORY CHANGE AND SHOULD BE VERIFIED PRIOR TO FINALIZING DEVELOPMENT OR IMPROVEMENT PLANS FOR THE SUBJECT LANDS.
8. PUBLIC WATER AND SEWER SERVICES ARE PROVIDED BY THE TOWN OF EASTON.

STORMWATER MANAGEMENT COMPLIANCE

THE PROPOSED CONSTRUCTION DISTURBANCE (4,537 SF), IS LESS THAN 5,000 SF.; THEREFORE, THE DEVELOPMENT ACTIVITY IS EXEMPT FROM STORMWATER MANAGEMENT COMPLIANCE.

SEDIMENT AND EROSION CONTROL COMPLIANCE

THE PROPOSED CONSTRUCTION DISTURBANCE (4,537 SF), IS LESS THAN 5,000 SF.; THEREFORE, THE DEVELOPMENT ACTIVITY IS EXEMPT FROM SEDIMENT AND EROSION CONTROL COMPLIANCE.



VICINITY MAP

300' 150' 0' 150' 300' 600'
SCALE IN FEET

Capital Charges
1285SF x 0.31 gpd/SF = 398.35 gpd
398.35 gpd ÷ 250 gpd/EDU = 1.59 EDU's
1.59 EDU x $7,050 = $11,209.50

INDEX OF SHEETS

PDF SHEET	SHEET No.	TITLE
1	1 OF 4	TITLE SHEET
2	2 OF 4	EXISTING CONDITIONS & DEMOLITION PLAN
3	3 OF 4	BUILDING PERMIT SITE PLAN
4	4 OF 4	SITE DETAILS

STATEMENT OF PURPOSE & INTENT

THE PURPOSE OF THESE PLANS IS TO OBTAIN SITE PLAN APPROVAL AND PROVIDE NECESSARY CONSTRUCTION INFORMATION TO CONSTRUCT A TWO-STORY, 1,292 GROSS SFA BUILDING ADDITION TO THE EXISTING SINGLE-STORY BUILDING, MAINTAIN THE EXISTING UTILITIES, AND SHIFT THE EXISTING DESIGNATED PARKING SPACES TO THE NEIGHBORING PARCEL WITHIN AN ESTABLISHED SHARED-USE AGREEMENT.

SITE ADDRESS

29315 DOVER ROAD
EASTON, MARYLAND 21601

OWNER

GEORGE H HOCKER, JR., TRUSTEE
HARRIET G. HOCKER, TRUSTEE
3616 CLEAR DRIVE CT
GLENWOOD, MD 21738

DEVELOPER

EAST COAST VETS, LLC
C/O PATRICK ALLEN
29315 DOVER ROAD
EASTON, MARYLAND 21601
(410) 463-6451

CIVIL ENGINEER

LANE ENGINEERING, LLC
C/O TIMOTHY W. GLASS, P.E.
117 BAY STREET
EASTON, MD 21601
(410) 822-8003

ARCHITECT

BRIDGEWORKS CONSTRUCTION
C/O BOB KEYSER
7524 MAIN ST
SUITE 201
SYKESVILLE, MD 21784
(877) 497-2256

CONTRACTOR

TO BE DETERMINED

UTILITY CONTACTS

DRAINAGE/STORMWATER MANAGEMENT
TOWN OF EASTON
14 S. HARRISON STREET
EASTON, MD 21601
(410) 820-8822

ALL ELECTRIC, NATURAL GAS, WATER, CABLE, SANITARY SEWER
EASTON UTILITIES COMMISSION
201 N. WASHINGTON STREET
EASTON, MD 21601
(410) 822-6110

TELEPHONE
VERIZON
1401 MOUNT HERMAN ROAD
SALISBURY, MD 21804
(410) 860-8029

PERMITTING AGENCIES

TOWN OF EASTON
ENGINEERING DEPARTMENT
14 S. HARRISON STREET
EASTON, MD 21601
(410) 820-8822

TALBOT COUNTY SOIL CONSERVATION DISTRICT
28577 MARY'S COURT, SUITE 3
EASTON, MD 21601
(410) 822-1577

APPROVED: PLANS ARE ~~ISSUED FOR~~ REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE
APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE
APPROVED: PLANS ARE NOT ~~APPROVED FOR~~ CONSTRUCTION
EASTON UTILITIES – ENGINEER DATE

REVISIONS

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 LAW
BEFORE YOU DIG CALL
1-800-441-8355 OR 811
PROTECT YOURSELF, GIVE
TWO WORKING DAYS NOTICE

Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@lelnc.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. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND
TIMOTHY W. GLASS
60891
LICENSED PROFESSIONAL ENGINEER
8/28/23
DATE

TITLE SHEET

EAST COAST VETS, LLC
29315 DOVER ROAD

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, PARCEL 2844, LOT 3

ISSUED FOR: AGENCY SUBMITTAL 01 — DATE: 8/28/23 BY: BMW

SHEET No. 1 OF 4 | DATE: 8/28/2023
SCALE: AS NOTED | JOB No. 230108 | FILE No. 1347

© LANE ENGINEERING, LLC

Date: 08/29/2023 – 1:28pm User: bwallace Project Manager: TWG
Drawing Path: C:\awga\Ac-Publish_25900\CSP-PLTS-230108.dwg | 1 OF
XREF File(s): VLD-BASE-230108 (AB – CSP-PLTS-130251)/HATCH-BASE-230108/CSP-BASE-230108/CBS-BASE-2436-230108/VSF-BASE-230108 (FROM 130251)/RAR-BASE-230108/CEC-BASE-230108

SITE NOTES

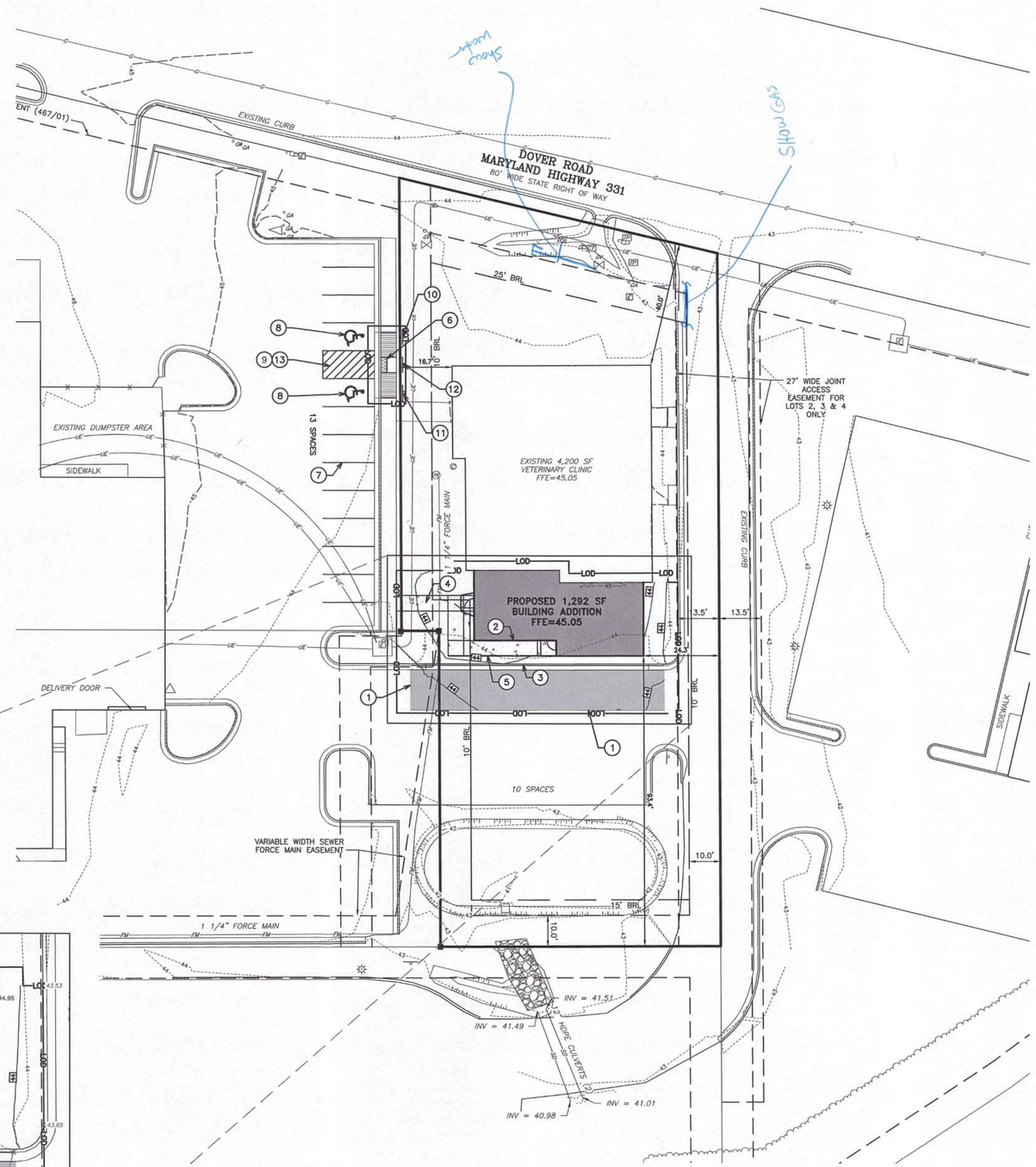
1. BUILDING OUTLINES SHOWN BASED ON ARCHITECTURAL FLOOR PLAN PROVIDED BY OWNER. CONTRACTOR SHALL VERIFY WITH OWNER/ARCHITECT/ENGINEER EXACT DIMENSIONS OF FOUNDATION. STAKE OUT SHALL BE PER FOUNDATION PLAN PROVIDED BY OWNER AND NOT BASED ON DIMENSIONS SHOWN OR SCALED HERE ON.
2. COORDINATE WITH ARCHITECTURAL PLANS FOR EXACT LOCATION OF WATER AND SEWER AND OTHER UTILITY CONNECTIONS.
3. COORDINATE LOCATION OF LEADWALK WITH DOOR LOCATIONS PER ARCHITECTURAL PLANS.
4. ALL DIMENSIONS AND RADII REFER TO FLOWLINE OF CURB OR EDGE OF PAVEMENT.
5. COORDINATE WITH UTILITY SERVICE PROVIDERS FOR THE RELOCATION OF EXISTING UTILITIES, IF REQUIRED, AND FOR THE INSTALLATION OF PROPOSED UTILITIES.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS/SPECIFICATIONS FOR ASPHALT MIX, CR-6, IMPORTED STRUCTURAL FILL TO ENGINEER FOR REVIEW AND APPROVAL.
7. A MINIMUM CLEARANCE OF 2 FEET SHALL BE MAINTAINED BETWEEN THE FACE OF CURB AND ANY PART OF A TRAFFIC SIGN OR LIGHT POLE.
8. ADJUST ALL EXISTING VALVE BOXES, CLEANOUTS, AND STRUCTURE RIMS TO PROPOSED GRADE AS REQUIRED.

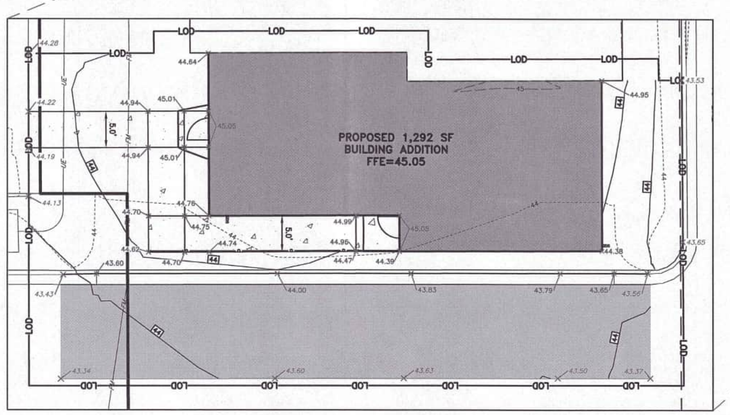
GRADING NOTES

1. USE EROSION CONTROL MATTING FOR ALL SIDE SLOPES 3:1 OR STEEPER.
2. STOCKPILE STRIPPED TOPSOIL AT AN OFFSITE LOCATION WITH AN APPROVED SEDIMENT CONTROL PLAN AS REQUIRED.
3. SPOT ELEVATIONS REFER TO EDGE OF PAVEMENT, FLOWLINE OF CURB OR GROUND SURFACE.
4. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING CONSTRUCTION.
5. PROVIDE A SMOOTH GRADING TRANSITION BETWEEN ALL DISTURBED AND EXISTING AREAS.
6. SIDEWALKS SHALL HAVE MAX CROSS SLOPE OF 2.0% AND MAX LONGITUDINAL SLOPE OF 5.0%.
7. LANDING PAD AT DOOR ENTRANCES SHALL HAVE 2.0% MAX SLOPE. SIZE OF LANDING PAD PER PLAN AND CODE REQUIREMENTS.
8. IMPORTED STRUCTURAL FILL SHALL BE TESTED PER ASTM D-1557 FOR MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT. ALL STRUCTURAL SOILS SHALL BE PLACED IN 8" LIFTS AND COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
9. PROPOSED PARKING LOT BASE SHALL BE PROOF ROLLED AND APPROVED BY ENGINEER PRIOR TO ASPHALT PLACEMENT.
10. DURING BACKFILLING AND FINISH GRADING AROUND BUILDING PERIMETER, CONTRACTOR SHALL PROVIDE 6" MINIMUM FALL IN THE FIRST 10' (5% SLOPE MIN) AWAY FROM BUILDING PERIMETER UNLESS SHOWN OTHERWISE WITH REGARDS TO LEAD WALKS, SIDEWALKS, PATIOS AND LANDINGS.

SITE & UTILITY KEY NOTES

1. MILL EXISTING PAVEMENT AND TIE TO EXISTING PAVEMENT W/ SMOOTH TRANSITION
2. INSTALL FULL DEPTH EXPANSION MATERIAL WHERE CONCRETE ABUTS RIGID STRUCTURES AND/OR CURBING (TYP)
3. REVERSE CURB AND GUTTER, TRANSITION TO FLUSH. MATCH EXISTING CURB PROFILE
4. 5' CONCRETE SIDEWALK PER DETAIL (TYP)
5. HANDRAIL PER DETAIL
6. PARALLEL SIDEWALK ADA RAMP PER TOWN OF EASTON DETAIL TOE-R-7.04
7. 4" WIDE WHITE WATER BASED PAVEMENT MARKINGS (TYP)
8. ADA PAVEMENT MARKING SYMBOL PER DETAIL (TYP)
9. ACCESS AISLE STRIPING PER DETAIL (TYP)
10. ADA PARKING SIGN PER DETAIL
11. VAN ACCESSIBLE ADA PARKING SIGN PER DETAIL
12. NO PARKING IN ACCESS AISLE SIGN PER DETAIL
13. HANDICAP PARKING SPACES AND ACCESS AISLES SHALL HAVE 2% MAXIMUM GRADE (TYP)





DETAILED SPOT GRADING INSET
SCALE: 1" = 10'

10' 5' 0' 5' 10' 20'
SCALE IN FEET

MD COORDINATE SYSTEM NAD 83 (2011)

20' 10' 0' 10' 20' 40'
SCALE IN FEET

APPROVED: PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE
APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE
APPROVED: PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON UTILITIES – ENGINEER DATE

REVISIONS			
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
BEFORE YOU DIG CALL 1-800-441-8355 OR 811 PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@lelinc.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. 50891, Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND
BRITTANY M. WILLIAMS
50891
PROFESSIONAL ENGINEER
8.29.23
DATE

BUILDING PERMIT SITE PLAN

EAST COAST VETS, LLC
29315 DOVER ROAD

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, PARCEL 2844, LOT 3

ISSUED FOR: AGENCY SUBMITTAL 01 — DATE: 8/28/23 — BY: BMW

SHEET No. 3 OF 4	DATE:	8/28/2023
	JOB No.	230108
SCALE: AS NOTED	FILE No.	1347

Date: 08/29/2023 – 1:28pm User: bwolloce Project Manager: TWG
Drawing Path: C:\wwp\ActPublish_25900\CSP-PLTS-230108.dwg T 3 OF
XREF File(s): XLD-BASE-230108 (AB – CSP-PLTS-130251)/XNTGH-BGSE-230108/CSP-BASE-230108/CBS-BASE-2436-230108/ASF-BASE-230108 (FROM 130251)/RAR-BASE-230108

TOWN OF EASTON

14 South Harrison Street
Easton, Maryland 21601

October 4, 2023

Dear Resident,

The Easton Planning Commission will hold a public meeting on **Thursday, October 19, 2023 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 2023-1028 has been filed on behalf of East Coast Vets at 29315 Dover Road to request Sketch Site Plan and Architectural approval for a proposed two-story addition and parking lot expansion to an existing single-story veterinarian clinic.

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

APG Media of Chesapeake, LLC **10/02/23**
29088 Airpark Drive
Easton, MD 21601

Phone: Fax:
http://www.chespub.com

Cust. AcctID:	Creation Date: **10/02/23**
	Ad Date: **10/04/23**
	Class:
Name: **Joanne Drummer**	Ad ID:
Company: **TOWN OF EASTON (L)**	Ad Taker:
Address: **PO Box 520**	Sales Person:
EASTON, MD 21601	Words:
	Lines:
	Agate Lines:
Telephone: **(410) 822-2525**	Depth:
Email:	Inserts:
Description: **Planning Comm Meeting**	Blind Box:

Other Charges:		Total:	
Discount:			
Surcharge:		Paid Amount:	
Credits:			
Bill Depth:		Amount Due:	

CREDIT CARD DETAILS

PT	CT	CN	Number	Exp.	Amnt.

Publication	Start	Stop	Inserts	Cost
The Star Democrat	10/04/23	10/04/23		

Planning Commission
MEETING AGENDA
Thursday, October 19, 2023 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

Please continue to check our website at:
https://eastonmd.gov/129/Agendas-Minutes
for agenda updates

1. **Call to Order**
2. **Approval of Minutes.**
   a. Approval of the Decision Summary from the September 21, 2023 meeting.
3. **Old Business**
   a. **Applicant:** Lane Engineering, LLC
      File No.: 2023-933
      Location: Mistletoe Hall Commerce- Business Park Lot 1
      Tax Map 25, Grid 16, Parcel 0138, Lot 1
      Zoning District: I
      Nature of Request: Architectural approval of a proposed warehouse building and a one-story office building with associated stormwater management, parking and landscaping.
   b. **Applicant:** Rise Up Dover Road LLC
      File No.: 2023-870
      Location: 625 Dover Road
      Tax Map 103, Grid 0EA, Parcel 0990
      Zoning District: R-7A
      Nature of Request: Amendment to a previously approved Planned Unit Development (PUD) for the addition of an 8' x 12' walk-in cooler to the existing kitchen unit, and the addition of a 12' x 24' storage shed to the existing property located at 625 Dover Road, also known as Tax Map 103, Parcel 0990.
4. **New Business**
   a. **Applicant:** Phillips Signs Inc.
      File No.: 2023 - 1048
      Location: 499 Idlewild Avenue
      Tax Map 105, Grid 000, Parcel 2366
      Zoning District: BC
      Nature of Request: Signage permit approval where two (2) or more businesses occupy one (1) building with a common entrance.
   b. **Applicant:** Lane Engineering
      File No.: 2023 - 1028
      Location: 29315 Dover Road - East Coast Vets
      Tax Map 105, Grid 000, Parcel 2844,
      Lot 3
      Zoning District: CG
      Nature of Request: Sketch Site Plan and Architectural approval for a proposed two-story addition to an existing single-story veterinarian clinic and parking lot expansion.
   c. **Applicant:** Shore Health System / University of Maryland Medical System
      File No.: 2023 - 1027
      Location: Longwoods Road, Parcel 0129
      Tax Map 017, Grid 023, Parcel 0129, Lot 3/5
      Zoning District: RH
      Nature of Request: Sketch Site Plan approval for a proposed medical center with associated stormwater management facilities, parking and utilities. In addition, the applicant is requesting a Supplemental Waiver for landscaping and buffering requirements.
5. **Discussion Item**
   a. Zoning Requirements for Adult-Use Cannabis Dispensaries.
6. **Adjournment.**

3035939 SD 10/4/2023

Ad Note:

Sign posted on October 4, 2023

Customer Note:

We Appreciate Your Business!
Thank You Joanne Drummer!

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

Date of Hearing: October 19, 2023

4c

PLANNING COMMISSION
PUBLIC HEARING
STAFF REPORT

SUBJECT: **Shore Health System/University of Maryland Medical System**

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

APPLICANT: Shore Health System, Inc.

DOCUMENT CREATED ON: October 12, 2023

PURPOSE: The applicant is seeking sketch plan approval from the Planning Commission to construct a hospital, medical offices and helipad with open space, associated parking, stormwater management facilities, and landscaping. The applicant is seeking a waiver of the parking lot hedge and vegetative buffer requirements, to permit a proper drainage flow towards the Stormwater Management Facilities located between the parking bays and to provide unimpeded sight visibility triangles at parking lot exits.

RECOMMENDATION: Should the Planning Commission approve the sketch plan as well as the waiver request, staff recommends proposed conditions (see below).

APPLICATION INFORMATION:	
APPLICANT: Shore Health System/University of Maryland Medical System % Laura Creason Kautz 219 S. Washington Street Easton, MD 21601	**REPRESENTATIVE:** Kristy Bischoff: Daft McCune Walker Laura Creason Kautz: UMMS

PARCELS/ACREAGE:

Parcel Information	Acreage
Map 017, Grid 023, Parcels 129	235

ACCEPTANCE DATE: October 2, 2023	**LOCATION:** Longwoods Road, Parcel 129
EXISTING ZONING RH	**EXISTING LAND USE:** Vacant
HISTORIC DISTRICT: Not Applicable	**FUTURE LAND USE MAP:** Institutional

CONTEXT:

Location/Site Access – The subject property is located adjacent to Longwoods Road (Route 662), Hailem School Road and Ocean Gateway (Route 50).

Existing Conditions – The subject property is vacant and can generally be described as an agricultural production field that's roughly 219 acres +/- with the remaining 15 acres +/- being forest cover, exclusive of the +/-5 acres of forested floodplain. There are nontidal wetlands dispersed along the subject property's northern boundary and a nontidal wetland located at the northwest corner of the subject property adjacent to the proposed Medical Center Parkway. The nontidal wetlands are associated with the streams and flood prone areas that drain into the Chester River Watershed, more specifically the tidal waters known as Goldsborough Creek . The stream that traverses the site from east to west drains into an unnamed tributary to Goldsborough Creek.

Surrounding Properties

9704 Longwoods Road - Talbot County
29110 Airport Road - Talbot County
9648 Technology Drive - BC
9811 Hailem School Road - Talbot County
9754 Goldsborough Neck Road - Talbot County
9866 Hailem School Road - Talbot County
10000 Hailem School Road - Talbot County
10024 Hailem School Road - Talbot County
10312 Longwoods Road - Talbot County
10043 Hailem School Road - Talbot County
Longwoods Road, Parcel 63 - Talbot County
10086 Longwoods Road - Talbot County
Longwoods Road, Parcel 52 - Talbot County
Hiners Lane, Parcel 68 - Talbot County
10118 Hiners Lane - Talbot County
10132 Hiners Lane - Talbot County
10028 Ocean Gateway - Talbot County
9898 Ocean Gateway - Talbot County
9818 Ocean Gateway - BC
10027 Ocean Gateway - Talbot County

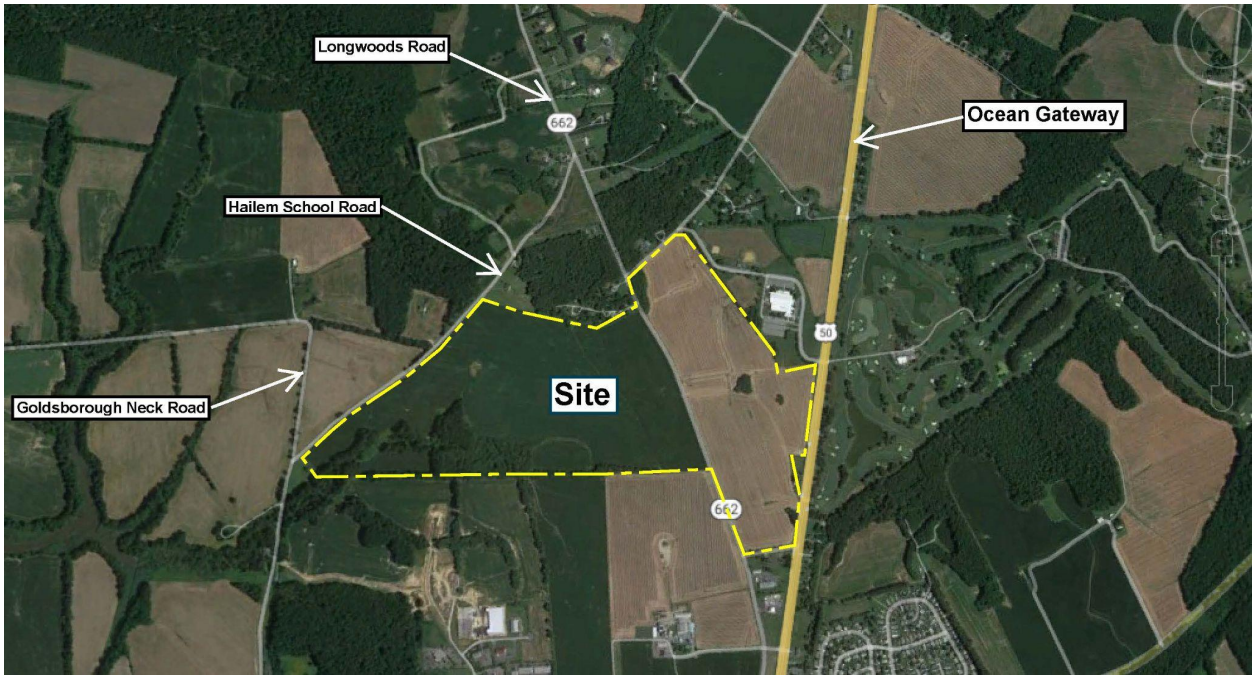


***Figure 1**: Vicinity Map*

PROPOSAL: Shore Health System/University of Maryland Medical System (applicant) is seeking a Sketch Plan approval from the Planning Commission to construct a hospital, medical offices and helipad with Medical Center Parkway (Private Road), open space, associated parking, stormwater management facilities, and landscaping. Also, geothermal energy will be utilized on site. In addition to the medical center improvements, the applicant proposes the relocation of MD Route 662C and modified entrances into the Talbot County Community Center. The site is zoned RH. Areas zoned RH allow for a regional hospital and related healthcare facilities in a campus setting. The site also proposes a 36.08 acre Open Space area that's provided within the Forest Conservation Easements and Healing Garden. The applicant is seeking a waiver of the parking lot landscape hedge and vegetative buffer requirements, to enable proper drainage flow towards the Stormwater Management Facilities located between the parking bays and to provide unimpeded sight visibility triangles at parking lot exits.

BACKGROUND: Shore Health System, Inc. (applicant) obtained Planning Commission approval on June 21, 2012 for sketch site plan, sketch subdivision and a waiver of the maximum pole height for parking lot lighting (permitted 25' poles) with the condition on the applicant returning to the Commission for review and approval of the proposed architecture. The applicant returned to the Planning Commission on November 15, 2012 and received approval of a revised sketch plan and architecture as submitted. The Development Rights and Responsibilities Agreement by and between the Town of Easton and Shore Health System, Inc. was recorded on October 15, 2014. The Development Site Plan was received by the Town in 2014. The applicant submitted an application to the Easton Staff Development Review Committee (ESDR) on September 27, 2023 (please see attached ESDR Determination Letter).

OUTSTANDING ISSUES:
There are no outstanding issues.

ZONING ANALYSIS:

A. Permissible Land Uses

§ Section 28-311.3 Permitted Uses

B. Commercial uses
9. Helipads (only for use by helicopters involved in emergency rescue operations or transporting critical patients, personnel or supplies)
14. Offices for: a. Healthcare related business or professionals;
b. Insurance or health maintenance organizations, and
c. Administrative offices for any use permitted in the RH District

C. Institutional uses
2. Hospitals

E. Industrial uses
1. Warehousing directly and primarily related to one or more permitted uses.

F. Miscellaneous uses
1. Energy centers (including boilers, chillers, emergency generators, co-generators, solar generation, etc.);

§ Section 28-311.5 Temporary Uses

1. Mobile medical facilities

Analysis – The proposed project is presented and described by the Applicant as a Regional Medical Center; a hospital with a helipad, offices, warehousing (pole barn for storage) and central utility plant, located in the RH Zoning District. The proposed use is permitted by-right in the RH zoning district within § Section 28-311.3 Permitted Uses and § Section 28-311.5 Temporary Uses..

B. Off-Street Parking

28-1001.3 Parking Requirements

	Use/Activity	Minimum Vehicle Spaces	Maximum Vehicle Spaces	Minimum Bicycle Spaces	Notes
	Institutional or Community Facilities				
51	Hospital	1 per 600 sf GFA	1 per 100 sf GFA	1 per 20 vehicle spaces	

	Institutional or Community Facilities				
52	Medical Clinic	1 per 400 sf GFA	1 per 100 sf GFA	1 per 20 vehicle spaces	

Total Site Parking Required:

Hospital (Phase 1): 1 per 600 sf GFA required-Minimum
340,890 sf/600 = 569 spaces required-Minimum
1 per 100 sf GFA required-Maximum
340,890 sf/100 = 3409 spaces required-Maximum

Medical Clinic (Phase 1): 1 per 400 sf GFA required-Minimum
58,300 sf/400 = 146 spaces required-Minimum
1 per 100 sf GFA required-Maximum
58,300 sf/100 = 583 spaces required-Maximum

Medical Clinic (Phase 2): 1 per 400 sf GFA required-Minimum
30,000 sf/400 = 75 spaces required-Minimum
1 per 100 sf GFA required-Maximum
30,000 sf/100 = 300 spaces required-Maximum

Total spaces provided: 1,162

Analysis- The total minimum spaces required for Phase 1 is 715 spaces and Phase 2 is 790. The site provides 1,162 spaces.

C. RH District Development Standards

Table 1. Development Standards		
RH Zoning District	**Standard**	**Proposed**
Setbacks	Front = 30 feet Side = 15 feet Rear = 15 feet	***See Section 28-311.2.C.4a&b listed below***
Lot Size (min.)	10,000 square feet	All of the lots are over the required 10,000 square foot base minimum size.
Lot Frontage (min.)	60 feet	1,300 feet +/-
Building Envelope (min.)	60 feet x 40 feet	1,300 feet X 1,200 feet

Development shall also meet these additional Development Standard requirements from Section 28-311.2:

C. Minimum Setback Requirements for All Lots and Uses (except as specifically provided below):

4. Additional setback requirements – Notwithstanding the foregoing, the following expanded setbacks shall apply to certain circumstances and locations in the RH District:

a. Where any building is erected or altered to exceed thirty-five (35) feet in height, the required thirty (30) foot front setback shall be increased one (1) foot for every foot of building height over thirty-five (35) feet, excluding roof structures and architectural features permitted above the height limit by Section 28 – 1003.

Analysis –The proposed building height is 93'-4". Therefore the overall building height of ninety-for (94) feet minus thirty-five (35) feet is fifty-nine (59) feet of additional setback, plus the thirty (30) foot minimum setback, totals up to an eighty-nine (89) foot front setback.

b. Where any building is erected or altered to exceed thirty-five (35) feet in height, the required fifteen (15) foot rear and side setbacks shall be increased one (1) foot for every foot of building height over thirty-five (35) feet, excluding roof structures and architectural features permitted above the height limit by Section 28 – 1003.

Analysis – The overall building height of ninety-for (94) feet minus thirty-five (35) feet is fifty-nine (59) feet of additional setback, plus the fifteen (15) foot minimum setback, totals up to an seventy-four (74) foot rear and side setback.

c. From property zoned other than RH and from Route 50:

i. All principal structures shall be setback at least one-hundred fifty (150) feet; and

ii. All parking areas and accessory structures shall be setback at least one-hundred (100) feet.

d. From public roads and highways (excluding Route 50) existing on the date of establishment of the RH District or their reconfigured alignment, if applicable (collectively, the "Existing Public Roads"):

i. All principal structures shall be setback at least seventy five (75) feet from Existing Public Roads; and

ii. All parking areas and accessory structures shall be setback at least twenty-five (25) feet from Existing Public Roads.

5. The setbacks established under (1) through (4) above shall not apply to storm water management or treatment facilities, swales, inlets, pipes and other conveyances, which shall be subject to a minimum setback of five (5) feet from any street line or property line. Notwithstanding the foregoing, storm water ponds and basins shall be subject to a minimum

setback of twenty-five (25) feet from any street line or property line, except County roads, which shall have a fifty (50) foot setback. Except as specifically required by subsection 4(d), no part of any parking and maneuvering space shall be closer than ten (10) feet to any street line or property line.

6. Adjustment of setbacks for hospital and medical services and covered walkways:

a. The setbacks required under (1) through (4) above shall not apply between a hospital and (i) any building(s) housing Medical Services or (ii) any parking garage structure that are constructed on separate lots of record and may connect, abut or be located closer than permitted by such setbacks.

b. The setbacks required under (1) through (4) above shall not apply to covered walkways connecting buildings located on separate lots of record.

C. The provisions of Sections 28 – 1005 and 28 – 1006 shall also apply to the RH District.

D. Height limitations:

1. A hospital building shall have a maximum of six (6) occupied stories and shall be limited to one hundred ten (110) feet in height. The height of a hospital building shall be measured as the average vertical distance between finished ground level at each corner of the front façade and the highest point of the structure excluding a rooftop helipad and related stairway/elevator tower and other roof structures and architectural features permitted above the height limit by Section 28 – 1003.

Analysis - The building height of the hospital is 93'-4".

2. All other structures and facilities shall be limited to sixty (60) feet in height, excluding roof structures and architectural features permitted above the height limit by Section 28 – 1003. Such heights shall be measured in accordance with the generally applicable definitions and provisions of the Zoning Code.

3. The maximum height of each building in the RH District shall be subject to Federal Aviation Administration restrictions and regulations.

E. Lot Coverage – Subject to the following exception, not more than 40% of the area of each lot shall be covered by buildings and structures (excluding surface parking). The Lot Coverage on any single lot within a RH District may exceed 40% of such lot provided such excess of Lot Coverage on such lot does not cause the total Lot Coverage on all lots within such RH District to exceed 40% of the area of the lots comprising the District. Any application for site plan approval shall determine and specify the cumulative area of Lot Coverage existing and/or approved within such RH District. The Board of Appeals may not modify the cumulative Lot Coverage limitation for any RH District by variance.

F. Open Space – Subject to the following exception, at least 15% of the area of each lot shall be Open Space. The Open Space area on any single lot within a RH District may be less than 15% of such lot, provided such reduction of Open Space on such lot does not cause the total Open Space for all lots within such RH District to fall below 15% of the area of the lots comprising the District. Any application for site plan approval shall determine and specify the cumulative area of Open Space existing, approved and remaining within such RH District. The Board of Appeals may not modify the cumulative Open Space requirement for any RH District by variance.

G. Intensity Limitation – Subject to the following exception, the Floor Area Ratio for all lots in each RH District shall not exceed 0.25. The Floor Area Ratio for any single lot within a RH District may be greater than 0.25, provided such excess floor area on such lot does not cause the total Floor Area Ratio for all lots within such RH District to exceed 0.25 of the total area comprising the District. Any application for site plan approval shall determine and specify the cumulative Gross Floor Area and Floor Area Ratio existing and/or approved within such RH District. The Board of Appeals may not modify the cumulative Floor Area Ratio limitation for any RH District by variance.

H. On-Site Lighting – All on-site lighting, unless approved by the Planning and Zoning Commission, shall be low cut-off luminaries at 18' height and light shall not shine off-site at levels greater than 1-foot candle. In areas where necessary, and specifically for the helipad, helipad walkway, and emergency room receiving area, lighting in excess of 4-foot candle power, as required by state and federal regulations, shall be permitted.

I. Off-Street Parking and Loading – Off-street parking and loading shall be provided for all uses in accordance with the standards of Section 28-1001, subject to the following:

1. Off-street parking and loading spaces shall be provided in accordance with the generally applicable standards and procedures of the Zoning Code regarding parking except as specifically modified by the Planning and Zoning Commission pursuant to Section 28 – 1001.3 (C).

2. Joint Use off-site parking shall be permitted in the RH District in accordance with Section 28 – 1001.4 of the Ordinance. During site plan review and approval, the Planning and Zoning Commission may approve off-site and/or shared parking arrangements for uses located adjacent to the RH District and zoned Governmental/Institutional.

J. Signage – Signage within an RH District shall be developed in accordance with a General Signage Plan approved and/or modified by the Planning and Zoning Commission for each RH District. The size, location, height and number of signs constructed within a RH District shall comply with the General Signage Plan applicable at the time of construction of such signs. In light of the master-planned, campus style development permitted by a RH District and the importance of providing for efficient direction and movement of patients and visitors throughout the campus, the General Signage Plan shall provide for the planning, design, and implementation of signs that are coordinated and compatible throughout a RH District. The

General Signage Plan shall comply with Section 28 – 1101 of the Zoning Code except as such provisions are modified by the Planning and Zoning Commission through approval of such General Signage Plan. The Planning and Zoning Commission may permit deviations from Section 28 – 1101 with respect to the number, type and/or size of signs, including up to the following:

1. One freestanding sign at each State road frontage, the area of which may not exceed 250 square feet and the height of which may not exceed 15';

2. Identification signs for the name of the regional medical campus on not more than three facades of a hospital, so long as the area of the signs does not exceed 12% of the area of each façade and the area of each sign does not exceed 400 square feet; and

3. Identification signs for the name(s) of a business or office complex or tenant(s) on not more than two facades of a structure two or more stories in height, so long as the area of each of the signs does not exceed the lesser of 10% of the façade or 300 square feet.

D. Forest Conservation

The Easton Forest Conservation Requirements of the Town Code, Article III, § 31-3.1, Forest Conservation Ordinance, Relevance, states that the requirements are applicable to any person making application for a subdivision, project plan, grading, or sediment and erosion control approval on units of land 40,000 square feet or greater after the effective date of the Ordinance.

Analysis - The applicant has provided a Forest Stand Delineation and Forest Conservation Plan. Afforestation Required shall be achieved utilizing the forest conservation overlapping requirements per § Section 28-1014.5 of the Town's Zoning Ordinance.

POLICY ANALYSIS:

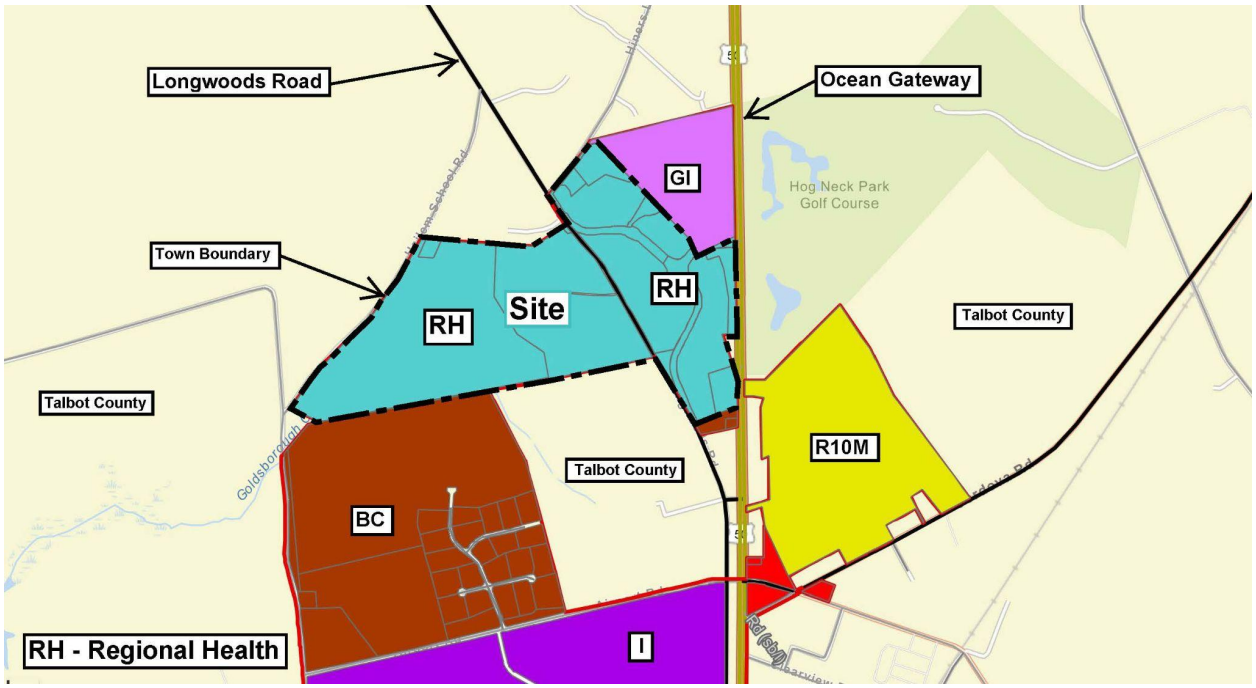


Figure 2: Zoning Map

Section 28-311.7

A. All uses within the RH District shall comply with applicable rules and regulations of the Maryland Department of Health.

Analysis - The proposed uses are within the rules and regulations of the Maryland Department of Health.

B. All projects shall be designed to ensure safety in the area surrounding each structure or facility, which may include road improvements and additional traffic control devices (e.g., signal lights, signs, pavement marking, etc.).

Analysis - There would be no adverse design impacts to compromise the safety in the surrounding areas.

C. For any lot in the RH District that receives site plan approval for development, all areas of such a lot shall be landscaped and maintained in accordance with Section 28 – 1014. All other areas of the RH District may remain in a natural condition subject to all other applicable Town rules and regulations regarding weed control, meadows and property maintenance.

Analysis - The majority of the proposed site has elements of landscaping and its maintenance per §Section 28-1014. The applicant is seeking a waiver of the parking lot landscape hedge and

vegetative buffer requirements (§Section 28-1014.6.E.2c), to enable proper drainage flow towards the Stormwater Management Facilities located between the parking bays and to provide unimpeded sight visibility triangles at parking lot exits.

D. Subdivisions and/or site plans for projects within the RH District shall comply with the Town's subdivision regulations and/or the site plan review and approval procedures and requirements of Article III.

Analysis - The applicant is required to comply with the Town's site plan review process.

F. Development within any RH District should be guided by the following design principles, which will be considered by the Town Planning and Zoning Commission during site plan review:

1. The colors, designs and materials used throughout any RH District should be complementary to establish and maintain a visually-coordinated campus appearance with a recognizable image as a distinct place while maintaining a design that is appropriate to the context of Easton. Intriguing design character should be encouraged through the creative use of materials and design details. Building elements should create focal points and establish hierarchy. Rooftop mechanical equipment should be screened or located so it is not visible. Design elements of large buildings should be varied and articulated to visually and dimensionally interrupt the bulk of the buildings. Color schemes should tie building elements together, relate separate buildings within an RH District to each other, and should be used to enhance the architectural form of a building. *Applicant's response: Site and building designs will reinforce a relationship with the natural environment by creating an organic series of forms along public areas that are not revealed in the single viewing of a large facade, but rather can be slowly explored as one circumnavigates the facility.*

The building materials, planned to consist primarily of masonry, glass and metal, will reinforce the hierarchy of the forms and help to tie the overall composition to the design concept. The overlay of a coordinated color scheme and details purported to the individual masses rather than the overall bulk of the structure, will recall the character of the pedestrian streetscape in Easton.

Analysis - The applicant has provided renderings and elevations for Planning Commission review and approval.

2. Accessory structures, service areas and mechanical equipment should be designed as integral components of the site. *Applicant's response: Accessory structures, service areas and mechanical equipment will be treated with the same design priority to aesthetically blend in with the surrounding architecture. Mechanical equipment on the rooftops will be screened in a complimentary fashion to the buildings and will provide visual hierarchical variation. Ground level equipment will be seamlessly integrated into the facade design, hidden from the most public views and integrated into landscaping to further its blending into the campus. All accessory structures will be clad in the same blend of materials as the main occupied structures.*

Analysis - All the accessory structures are integral components to the function of the campus.

3. Pedestrian access should be provided and incorporated into the site and building design. Landscaped, tree-lined walkways should be used as connections between buildings, buildings to streets or buildings to parking areas. Site design should incorporate recessed sitting areas into the walk or pathway system. *Applicant's response: The roadways and pedestrian walkways will be planned to take indirect paths as visitors approach the building, inviting an opportunity to explore the unique features of the site. The tree-lined streets and pedestrian pathways will create a canopy as the trees mature, further enhancing the gentle character of the internal streetscape on the campus.*

Along the pedestrian corridors that lead from the parking areas to the entrances, there will be hardscape sitting areas with benches and other site furniture.

Analysis - The applicant provides pedestrian access within the campus.

4. Landscaping should create and define street image, entrance ways, screen storage and loading areas, provide buffers adjacent to residential uses, shade parking lots and integrate the building design with the site design. *Applicant's response: A series of pedestrian trails and paths, weaving through bio-swales with native vegetation, will serve to provide visual relief from the screened parking lots, which will be planned in smaller modules, defined by zones of landscaping that will provide shade and strengthen the character of the site. Screening through the use of plant materials and berming will also be used to buffer the project from the adjacent residential development.*

Analysis - The overall landscaping provides a definitive use in relation to the buildings and site design. The applicant is seeking a waiver of the parking lot landscape hedge and vegetative buffer requirements (§Section 28-1014.6.E.2c), to enable proper drainage flow towards the Stormwater Management Facilities located between the parking bays and to provide unimpeded sight visibility triangles at parking lot exits.

5. Where appropriate, open space amenities should be included as part of the overall site plan by providing small areas for active or passive use by employees such as picnic tables, benches and other areas for sitting, eating or meeting. Spaces between a hospital and adjacent buildings constructed with reduced setbacks should include a courtyard or other pedestrian-oriented site feature. *Applicant's response: The hospital structure will be encircled by landscaped zones that will provide visual relief in the parking lots. Hardscaping materials for the walks and patio spaces will vary in color and texture and will further be defined by site furniture. These spaces will be designed to emulate the character often found around the Eastern Shore to celebrate the intersection of natural spaces with the built environment. The focal point of this landscaped zone will be a "healing garden"; a place of personal contemplation and group support that will be the physical embodiment of the notion that health is a holistic process that requires the replacement of not just the body, but also the mind and spirit.*

Analysis - Open space has been provided via Forest Conservation easements and Healing Garden.

6. Circulation and parking should reinforce safe and efficient pedestrian and vehicular movement. The main entrances should serve as the dominant ingress and egress points for the District. Curb cuts should be consolidated to the extent practicable.*Applicant's response: Circulation and parking patterns will be organized around functionally distinct entrances and parking zones. For example, visitors to the hospital facility will be separated from emergency and service traffic. To protect pedestrians safety, walking paths will be clearly identified within parking lots to separate pedestrians from vehicular traffic.*

Analysis - Safe pedestrian routes have been provided and will be fully detailed at Development Site Plan review.

7. Signage should serve as a focal point for information to identify the location and nature of uses within an RH District. Signage design should improve the visual continuity of the area; it should not serve as a distraction. The design and materials of a sign should complement and be similar to those used for the buildings. *Applicant's response: Identity and wayfinding signs are necessary on a regional healthcare campus to efficiently guide visitors to and from their specific destinations. The signage for the campus will be custom designed to add to the character of the landscape design, using similar materials such as low masonry walls in the hardscape areas and a color palette complementary to the hospital building.*

Analysis - 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.

8. A bus shelter (or shelters) shall be provided to afford bus riders the opportunity to wait for their bus in a structure that protects them from inclement weather. The location of such shelter(s) shall be shown on the site plan at the sketch plan level. *Applicant's response: The bus stop will be at the main entrance of the facility. The canopy at the main entrance will serve as the shelter to protect the bus riders from inclement weather.*

Analysis - The applicant has provided on the site plan..

Lighting fixtures should be designed to provide continuity with an RH District. Lighting levels should be appropriate for the use proposed. The illumination of buildings and site features (parking lots, walkways, entrances, etc.) should not exceed the needed level and should be appropriately sized for its purpose. *Applicant's response: An illumination beacon/tower element about the main entrance may be used to serve as a welcoming gesture from a distance and provide a unified wayfinding element for the entire campus. Site lighting will be designed using a cohesive variety of fixtures and lighting levels to minimize night sky illumination while highlighting architectural and site features and providing for the safety of the visitors and employees. Parking lot lighting will be hooded to reduce light pollution and pedestrian lights will be scaled appropriately and will be selected to fit the context of the overall design concept.*

Analysis - Shore Health System, Inc. (applicant) obtained Planning Commission approval on June 21, 2023 for a waiver of the maximum pole height for parking lot lighting (permitted 25' poles).

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.

Town of Easton 2010 Comprehensive Plan Design Principles (Principle #1) Integrated uses are desirable- Applicant's response: *The University of Maryland Shore Regional Medical Center is strategically located with convenient access off MD Route 662, the intersection of Medical Center Drive and MD Route 50. The development of the Medical Center will provide convenient access to the residents of Talbot County, Queen Anne's County, Caroline County, and the Easton Shore of Maryland and will provide comprehensive medical care and services for all residents. The Hospital adds to the diverse neighborhood surroundings and provides state of the art healthcare services in close proximity to the Talbot County Community Center, Easton Airport, Hog Neck Golf Course and Hyde Park Neighborhood while becoming an anchor for the growing business district which extends north along MD Route 50 from the Easton business district.*

Staff notes that the proposed development fits within the Regional Healthcare District.

(Principle #2) Natural features should determine design – *Applicant's response: The site of the new medical center is integrated into an agricultural site and positioned strategically to minimize impacts to the farmland and existing environmental conditions. The existing Goldsborough creek on the site will remain and the development will strive to maintain the existing tree canopy along the edges of the site. Multiple wetlands and prehistoric and historic archeological features exist and site development has been carefully designed in such a way as to avoid these areas. A focus on the existing features and creating a sustainable approach to the design involves the creation of multiple public, patient, staff and visitor healing gardens, landscape features, innovative stormwater management solutions and pedestrian accessible pathways to allow for the building to be integrated into the landscape and tread lightly on the existing natural landscape of the site. This approach includes the relocation of MD Route 662 to limit the impacts to the site's natural geographic features, historically significant archeological digs, and natural landscapes. The overall campus design approach strengthens the character of the site by utilizing plant materials and berms to screen the development from the surrounding residential development. This includes the use of native plant species, strategic placement of landscape buffers within the parking lots, and integration of shade trees along streets and pedestrian pathways.*

Staff notes that there are compelling natural features on site such as non-tidal wetlands and a forested floodplain.

(Principle #3) Automobiles should not determine design – *Applicant's response: While safe, convenient, and direct access to the various medical services and facilities for both pedestrians and vehicles is a critical component of the site design, automobiles do not solely drive the design of the site. Whether people arrive by mass transit, private vehicles, or bicycle, circulation is organized to clearly direct and welcome visitors to the main hospital entrance, employees to the employee entrance, service trucks and vendors to the service area entrance, and emergency vehicles to the emergency entrance area of the hospital. Vehicular and bicycle parking is conveniently located surrounding the hospital with safe and clear pedestrian access to the various entrances. The circulation paths and parking are spread out and integrated with the landscape that provide shade and strengthen the overall character of the site. The parking lots have been screened with landscaping throughout. Some of the parking lot spaces will be permeable pavement which provides stormwater management treatment.*

Staff notes that the applicant has provided 1,162 off-street parking spaces.

(Principle #4) Ample Open Space should be provided within & around neighborhoods – *Applicant's response: The Open Spaces surrounding the Hospital and site circulation systems are generous and provide relief to the extensive impervious parking and service areas. Ribbons of green space surround the hospital and enhance the views from hospital rooms and outdoor dining areas. The "healing garden" is the most prominent open space amenity. The garden invites patients, staff, and visitors to participate outdoors in healing the mind and spirit. The healing garden celebrates holistic health by creating a designated space for personal contemplation and group support.*

Staff notes that open space is sufficiently provided.

(Principle #5) Architecture should respect Easton's Historical Development – *Applicant's response: Patient towers clad in sweeping glass facades with patterning referencing the waters of the Chesapeake Bay are anchored by 2-story masonry facades inspired by the Federal Style architecture of Historic Easton. These inspired facades will employ the elements of scale, proportion, rhythm and material borrowed from Federal Style buildings, while not imitating them.*

A welcoming Entry Arcade will greet visitors with familiar proportions and masonry detailing. The scale and rhythm of openings in this brick façade element will be modeled from analysis of the arrival arcade of the historic Tidewater Inn at S Harrison St and E Dover St. Custom glazing displaying imagery reminiscent of marsh grass will be set within the openings, tying the arrival experience also to the patient towers above, and to the Bay itself.

The Medical Services Building is a 2-story structure that is to be shaped and clad in reference to a typical block within the existing fabric of Downtown Easton. The length of façade, which is similar in proportion to many whole blocks found in Easton, will be broken down in scale,

pattern, and rhythm as influenced by a study of a historic downtown fabric. Specifically, the east edge of the 00 block of N Washington Street was used for this study.

(Principle #6) Signs should inform but not dominate – *Applicant's response: Signage will be integrated into the site development of the medical campus in accordance with the Town of Easton Zoning Code. The overall site wayfinding signage will respond to the zoning ordinance while utilizing the University of Maryland Health (UMMS) branding standards for maintaining a systemwide regional health campus consistency. Additionally, entrance, emergency vehicle, and building signage will be developed to blend with the overall landscape character and building design while promoting efficient guidance to emergency, service and public entrances to the facility. These signs will be designed to complement the landscape, building and hardscape design and will utilize materials consistent with the overall campus aesthetic to enhance visual continuity of the area.*

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.*

(Principle #8) Residential neighborhoods should be interesting places – *Applicant's response: Not Applicable.*

(Principle #9) Neighborhoods should connect – *Applicant's response: The University of Maryland Shore Regional Medical Center will increase the local connectivity of pedestrian and vehicular access. The campus has multiple access points off relocated Route 662C via the Medical Center Parkway loop road. This will provide multiple access points for emergency and public access and allows for service traffic to access from multiple directions. Additionally, there is a direct access point from Route 50 via Medical Center Drive. The Talbot County Community Center will gain an additional entrance which further enhances the community. The Medical Center Parkway loop road promotes connectivity for any future development. The roundabout at Route 662C and Medical Center Drive allows for better flow and offers an additional travel route. Pedestrian walking paths are increased via sidewalks along the entire loop road and throughout the hospital site. A bike path is also proposed along Route 662C that connects to the Hospital and the Community Center.*

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 proposed site is not within the Historic District or the Critical Area. This project would provide a Regional Medical Center; a hospital with a helipad, offices, warehousing (pole barn for storage) and central utility plant with improved amenities; adequate parking 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. Adequate off-street parking, the relocation of MD Route 662C and modified entrances into the Talbot County Community Center will be proposed.

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 regional healthcare district. Proposed use provides a Regional Medical Center; a hospital with a helipad, offices, warehousing (pole barn for storage) and central utility plant with improved amenities; adequate parking 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.

RECOMMENDED CONDITIONS:

Staff recommends the Planning Commission approve the sketch site plan with the following condition:

- The Applicant is required to address any remaining ESDR review comments, in conjunction with submission of the Development Site Plan.

DRAFT MOTIONS:

1. I move that the Planning Commission approve the sketch site plan subject to staff's Condition of Approval.

OR

2. I move that the Planning Commission forward the application to the November 16th Commission meeting for further discussion.

OR

3. I move an alternate motion.

ATTACHMENTS:
1. 2023.09.05 Shore Health Regional Applications, paper copy & PDF
2. 2023.09.05 Shore Health Regional SWM Quantity Report, paper copy & PDF
3. 2023.09.05 Shore Health Regional SWM, paper copy & PDF
4. 2023.09.05 Shore Health Regional ESD Report, paper copy & PDF
5. 2023.09.27 ESDR Determination Letter Shore Health, paper copy & PDF
6. 2023.10.02 Shore Health Regional Architectural Plans, paper copy & PDF
7. 2023.10.02 Shore Health Regional Overlay Exhibit, paper copy & PDF
8. 2023.10.02 Shore Health Regional Rendered Landscape Plan, paper copy & PDF
9. 2023.10.02 Shore Health Regional Sketch Plan Set, PDF
10. 2023.10.09 PC Submittal Package Transmittal, paper copy & PDF
11. 2023.10.12 Shore Regional Medical Center- Design Principles, paper copy & PDF

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

Easton Staff Development Review Worksheet

Date: September 27, 2023
Project: Longwoods Road - Parcel 129, Lot 3/5
To: Ms. Laura Creason Kautz – Shore Health System/University of Maryland Medical System
Ms. Kristy Bischoff - Daft McCune Walker Inc.

The Easton Staff Development Review (ESDR) Committee meeting was held on September 27th at 11:00 am. Staff reviewed the Site Sketch Plan for the proposed Regional Medical Center on the property located at Longwoods Road, also known as Tax Map 17, Parcel 129.

The project will need to address all agency comments as specified in the attached review letters and at ESDR. Specific areas discussed at the meeting included:

- Submission of a Supplemental Waiver Request Application for Landscaping & Buffering.
- Provide conceptual building elevations and renderings illustrating the character, scale and materials of all proposed structures.
- Provide an additional site plan without contours for clarity.
- A general description of the proposed native plant species is required on the landscape plan.
- Provide a plan highlighting a comparison between the proposed revisions and the previously approved site plan.
- Submit a brief statement summarizing the possible use of the existing hospital.

The Committee determined that the application may be scheduled for Planning Commission review. Please address all comments and submit documents.

The next Planning Commission meeting is scheduled for **Thursday, October 19, 2023 at 1:00 pm.** Submit all documentation to the Planning and Zoning Department no later than Monday, **October 2nd**. Files for presentation at the Planning Commission need to be provided on a flash drive. In addition, provide a digital submittal (via email) of the Planning Commission Application and its supporting documents, including **eight paper copies**.

Based on the ESDR sketch plan submission, the Staff did not identify constraints which require action by the Board of Zoning Appeals.

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

Sincerely,

Joseph A. Mayer
Plan Reviewer - Planning and Zoning

TOWN OF EASTON
PLANNING & ZONING DEPARTMENT
P.O. Box 520
Easton, Maryland 21601
410-822-1943
www.EastonMD.gov

DATE: **September 15, 2023**
TO: **Laura Creason Kautz – Shore Health System/University of Maryland Medical System**
Cc: **Miguel Salinas –** Director of Planning & Zoning Department
Rick Van Emburgh – Town Engineer, Department of Engineering
FROM: **Joseph A. Mayer -** Plan Reviewer, Planning & Zoning Department
SUBJECT: Longwoods Road - Parcel 129, Lot 3/5

We reviewed the **September 5, 2023** Sketch Plan Submittal for the Subject Project and have the following comments:

PLANNING & ZONING COMMENTS

Completeness Check

1. Per *Section 28-311.7.D, Subdivisions and/or site plans for projects within the RH District shall comply with the Town's subdivision regulations and/or the site plan review and approval procedures and requirements of Article III.* Also, per Appendix B, Sketch Plan Submittal Checklist, *a statement describing the extent to which the application complies with the Recommended Design Principles for Easton set forth on pages 29-31 of the Comprehensive Plan.*

2. Please add an additional Site Plan without contours for clarity.

3. Revise the Landscape Requirements Summary on sheet 1 of 7 with the current zoning reference, *Chapter 28-1014.6.E*

4. 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 within the Landscape Legend on sheet 4 of 7.

5. Per *Chapter 28-1014.6.E.2.c* of the Zoning Code, *All parking lots shall be landscaped with an evergreen shrub hedge which will grow to a minimum 42" height within 5 years along all street or alley frontages and along all, or portions of sides visible from streets or alleys, excluding the building or facility access side(s). Shrubs shall be spaced to form a continuous hedge within 5 years. Required Bufferyards may replace all or part of this requirement when the applicant can demonstrate that effective screening will be achieved.* ***See Figure 10-7*** . Areas that cannot utilize the replacement of Bufferyards for required hedges can be addressed by applying for a Supplemental Waiver Request

Application for Landscaping & Buffering.

6. Per Chapter 28-1008.2 of the Zoning Code,*clear unobstructed visions at intersecting streets shall be limited to a height of not over three feet above the established elevation of the nearest curb, for a distance of forty (40) feet along both flowlines of curb, measured from the point of intersection of the projected flowline of curb of said intersecting flowlines. No natural plantings or construction shall be permitted at a height over three (3) feet within the isosceles triangle formed by connecting the ends of the respective forty (40) foot distances. The unobstructed view shall be maintained for all spaces between three (3) and ten (10) feet in height.* Relocate the canopy tree out the sight triangle at the proposed drive aisle and Medical Center Parkway. See attached markup below.

7. Per Chapter 28-1014.6.E.2.a of the Zoning Code, *Interior Parking Lot Plantings- 1 tree per 10 spaces to be planted within the interior of the parking lot, see* ***Figure 10-7.*** *Trees shall be located within the parking bays so that no more than 15 parking spaces form an uninterrupted row. Trees shall be planted within an area of previous space of at least 64 sq.ft. allocated per tree, with no dimension of any parking lot planting island less than 6'.* Revise the parking bay within Parking Lot E that has seventeen parking spaces within an uninterrupted row. Adding a landscape island at that location would be more appropriate.

8. Is there a proposed drop-off area along the drive aisle adjacent to Parking Lot C? See attached below.

9. Provide the designated number of bike racks at each location.

10. Revise the Site Data on sheet 1 of 7 to include the minimum and maximum parking requirements for the proposed Hospital and Medical Clinic (Office). Please check the required parking calculations for the Hospital Phase 1.

11. Add the required and proposed Open Space area within the Site Data.

12. Revise the proposed use callout within the Site Data to be consistent with Chapter 28-311.3 thru 311.5 of the Zoning Code.

13. Provide sidewalk connectivity between Parking Lot A and G. In addition, provide a safe walkable route from Parking Lot A towards the walk-in emergency entrance. See attached below.

14. Add striping at no parking area.

15. Provide dimensions between the proposed hospital and right-of-way along the relocated MD. Rte 662C and Medical Center Parkway.

16. List the project's history of Town Approvals within the Site Data on sheet 1 of 7.

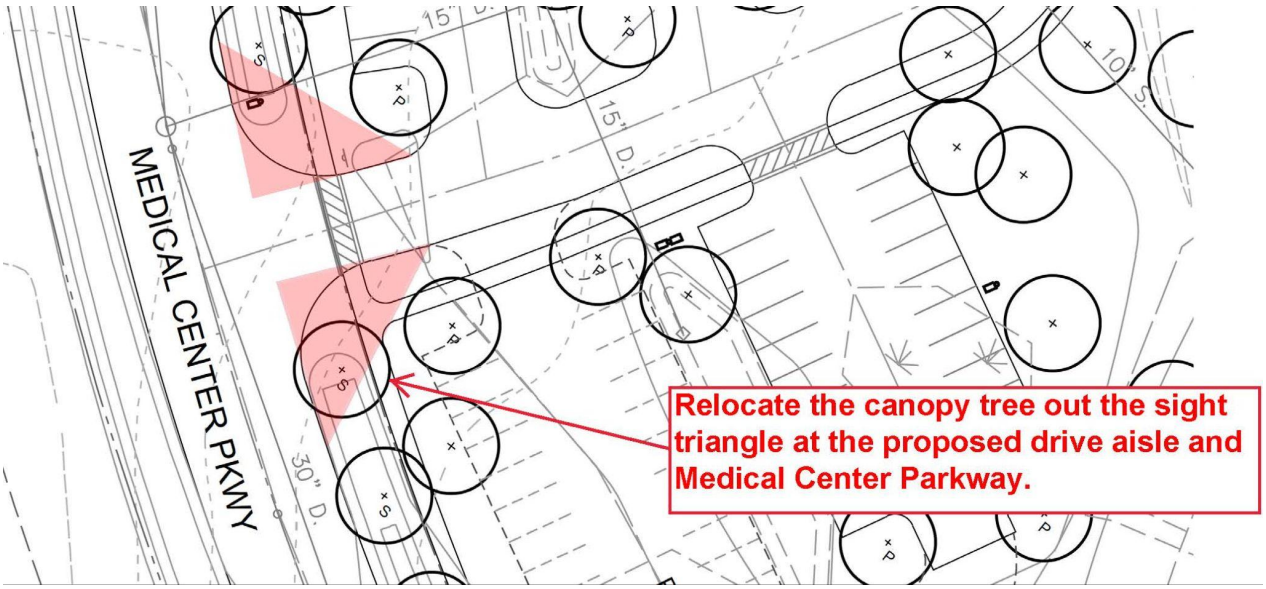
17. Determine applicable Bufferyards required for the site or apply for a Supplemental

Waiver Request Application for Landscaping & Buffering.

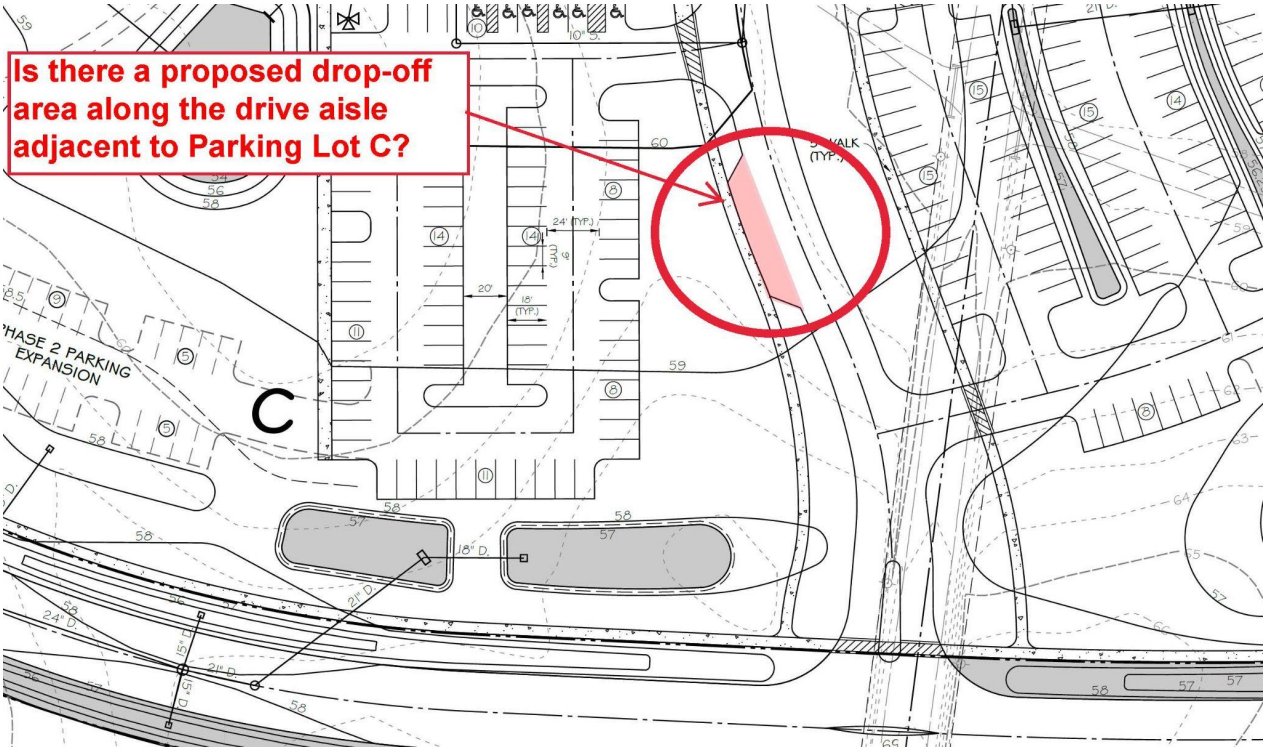
18. List the required additional setback requirements as described in Chapter 28-311.2C.4.a & b of the Zoning Code within the Site Data.

19. Revise the Forest Conservation Worksheet 2.2 on sheet 7 of 7. Revise Item D & E to include the threshold percentage rates.

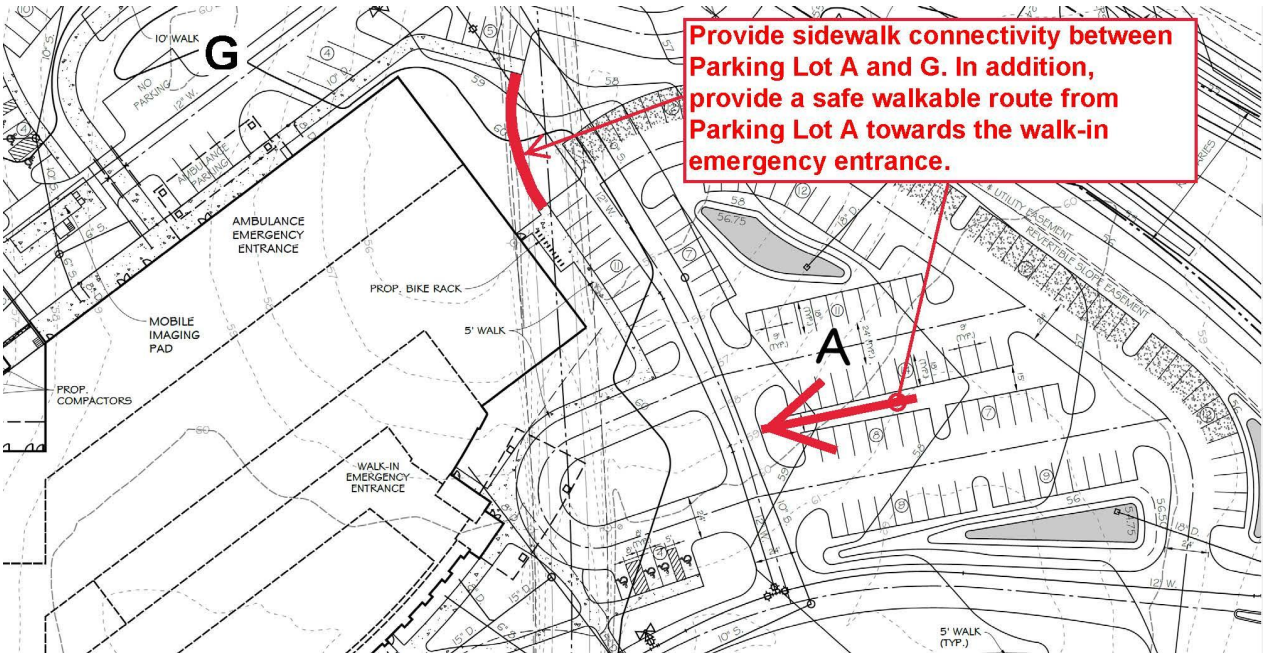
Review Comment #5



Review Comment #7



Review Comment #12



Plan Review Status

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

Forest Stand Delineation & Forest Conservation Plan	
☒ Required ☐ Submitted ☐Approved	**A Forest Stand Delineation and Forest Conservation Application was submitted on September 5, 2023. The overall net tract area of the site is 202.08 acres. There's 16.50 acres +/- of existing forest to be retained. The Afforestation threshold for the site is 30.27 acres. Therefore, the requirement for Afforestation is 13.77 acres.**
Other	
☒Required ☐ Submitted ☐ Approved	**MDE approval is required.** **The Applicant is to provide FAA Determination of no hazard to air and shall be required prior to site plan Approval.** **The Applicant is required to obtain an SHA Access Agreement.** **<u>IMPACT FEES</u>** **Please note, there will be a required Impact Fee for all proposed units. 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 impact fee use category 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 contact me if you have any questions. Thank you.

TOWN OF
EASTON
ENGINEERING DEPARTMENT

DATE: **September 27th, 2023**

TO: **Kristy Bischoff – DMW, INC**
Cc: **Rick Van Emburgh – Town Engineer**
Miguel Salinas – Planning and Zoning Department
Aaron Goller – EUC
FROM: **Sierra Clem – Engineering Department**
SUBJECT: **Shore Health Regional Hospital– ESDR Sketch Site Plan Review Comments**

The Town Engineers office has reviewed the subject application received 9/5/2023. The **Sketch Site Plan is Acceptable** and the **Sketch SWM Plan** is **Approved**. It is acknowledged that this proposal had received Town approval previously in 2014, which has since expired. In addition, our office has the following comments that may be addressed when plans are submitted for Preliminary Site Plan review.

1. Protective devices such as wheel stops, bollards or fencing will be required to be installed at the edge of parking stalls adjacent to SWM features.
2. Please label a visibility triangle at the entrance to the site and street intersections.
3. Road designs will be reviewed to comply with Town Standards and DRRA requirements.
4. Verify any changes to the previously approved DRRA
5. A photometric analysis will be required to be submitted to verify proposed streetlight placements.
6. Label road widths and ROW widths.
7. Please include standard detail reference numbers.
8. In addition to typical sections of SWM features, provide a cross section with scaled measurements.
9. Please include a note on the site plan that includes the total new impervious and LOD.
10. All proposed sidewalks should be a minimum of 5 feet wide.
11. In addition to the SWM summary charts provided, please add a row that calculates the total values per column.
12. Verify if SHA has reviewed the proposed improvements to State ROW.
13. Verify that the FAA has reviewed the proposed site plan.
14. Provide a phase outline for the proposed State and Private roads.
15. A grading permit for any phase of work, road or building construction, will be required for documentation towards the Town's MS4 program.

Please address the comments above and submit a revised Sketch Stormwater Management Plan. Please contact me if you have any questions. Thank you.

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

TOWN OF EASTON

PO Box 520
Easton, Maryland 21601
(410)-822-2526 Fax (410)-822-8738

ACCREDITED

Office of Building Inspection.

ESDR- Building Inspection and Permit Department Comments

Date: September 26, 2023

Project; Shore Health System / University of Maryland Medical System

A Town of Easton Building Permit is required for all new construction that involves alteration to an approved existing building.

- Mr. Christopher Arnold, AIA has made contact with this Department and is working with our department in connection with preparations of Construction Documents, Plan Review, Third party Inspections and Phasing of Construction.
- In addition to our Department Mr. Arnolds firm is or will be in touch with the State Fire, Easton Utilities and Department of Health.
- The Town of Easton, 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. A copy of Easton's Statement of Special Inspections can be found on the Towns Web Site

Check with the Department and verify current Building Codes including the Town of Easton's modifications. (2018 -I Codes, 2017 NFPA 70 National Electric Code, 2015 IEBC)

An appointment may be set up with any department to review your permit application materials prior to permit application submission.

EASTON UTILITIES

Life. Made better.™

Easton Utilities Commission

Plan Review Comments

Date: Tuesday, September 19, 2023
To: Joe Mayer; Nicholas Johnson; Sierra Clem
From: Emily Cohoon on behalf of Aaron Goller, PE No. of Pages: 1
Regarding: Shore Health Regional Medical Center (Ocean Gtwy Parcel 0129)
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		Gas is available at location

201 N. Washington Street | Easton, Maryland 21601
Telephone: 410-822-6110 | Fax: 410-822-0743 | eastonutilities.com

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

Easton Staff Development Review

Property Information

Address	Longwoods Rd. (Route 662C) South of Hiners Lane and West of Talbot County Community Center						
Tax Map	17	Grid	23	Parcel	129	Lot	3/5
Deed Refernce:	Liber	02304	Folio	00432			
Plat Reference:	Liber	83	Folio	458-464			
Base Zoning District	RH	Historic District Y ☐ N ☑			Planning Redevelopment Y ☐ N ☑		

Purpose of Application / Description of Work:

Shore Health University of Maryland Medical System (UMMS) - Regional Medical Center and appurtenant facilities, parking access roads, utility infrastructure, stormwater management, pedestrian accesses, helipad

Owner

Name	Shore Health System / University of Maryland Medical System		
Mailing Address	219 S. Washington Street, Easton, MD 21601		
Telephone No.	410-382-0654	Email	lkautz@umm.edu

Applicant / Agent

Name	same as Owner		
Mailing Address			
Telephone No.		Email	

Surveyor / Engineer

Name	Kristy Bischoff	License No.	28823	Expiration Date	01/07/2024
Mailing Address	Daft McCune Walker, 501 Fairmount Avenue, Suite 300, Towson, MD 21286				
Telephone No.	410-296-3333	Email	kbischoff@dmw.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	DocuSigned by: Laura Kautz 0A6D6505A8CF48F...	DocuSigned by: Richie Stover 97A8762E51904F5...
Date	9/1/2023	
Printed Name of Applicant or Agent	Laura Creason Kautz	

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Easton Staff Development Review Meeting Required Y ☒ N ☐ **ESDR 23 - 19 / 2023 - 1027**

Easton Staff Development Review Meeting Date **09/27/2023**

Completeness Check Date

Revisions/Resubmissions Required Y ☒ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Requir Y ☒ N ☐ Planning Commission Date: 10/19/2023

BOZA Required Y ☐ N ☐

Historic District Commission Required Y ☐ N ☐

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature

Date

Revised 02-2019

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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	N/A				
Original Property Size	Acres		Square Feet		
Telephone No.		Email			

Site Plan Information

Property Size	Acres 236.15 +/-	Square Feet	10,286,694+/-
Structure's Floor Area	3.62 +/-	Structure's Square Feet	157,863 +/-
Area of Disturbance	78.63 +/-	Number of Dwelling Units	N/A

Property Information

Address	Longwoods Rd. (Route 662) South of Hiners Lane and West of Talbot County Community Center						
Tax Map	17	Grid	23	Parcel	129	Lot	3
Deed Refernce:	Liber	02304	Folio	00432			
Plat Reference:	Liber	83	Folio	458-464			
Base Zoning District	RH	Historic Y ☐ N ☑		Planned Redevelopment Y ☐ N ☑			
Source of Electricity	SHA road improvements for Route 662C						

Owner

Name	Shore Health System / University of Maryland Medical System		
Mailing Address	219 S. Washington Street, Easton, MD 21601		
Telephone No.	410-382-0654	Email	lkautz@umm.edu

Applicant or Agent

Name	same as Owner		
Mailing Address			
Telephone No.		Email	

Surveyor / Engineer

Name	Kristy Bischoff	License No.	28823	Expiration Date	01/07/2024
Mailing Address	Daft McCune Walker, 501 Fairmount Avenue, Suite 300, Towson, MD 21286				
Telephone No.	410-296-3333	Email	kbischoff@dmw.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.

DocuSign Envelope ID: 26E7DE28-1674-4F3D-828A-EE6F4D4E6D91

Signature of Applicant or Agent	DocuSigned by: Laura Kautz	DocuSigned by: Nicole Steiner
Date	9/1/2023	
Printed Name of Applicant or Agent	Laura Creason Kautz	

For Office Use Only

Planning Commission Required	Y ☒ N ☐	ESDR Meeting Date: 09/27/2023	
Planning Commission Meeting Date	10/19/2023		
Sketch Approval Date		Project No.	ESDR 23-19
Prelim/Dev. Approval Date		Application No.	2023-1027
Final Approval Date		Sketch Fee Paid	$8,000.00 on 09/06
Recordation Date		Develop. Fee Paid	

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

Subdivision & Property Line Adjustment Application

Application Type

N/A | Subdivision ☐ | Minor Subdivision ☐ | Lot Line Revision ☐

Subdivision Information

Name	N/A			
Property Size	Acres	N/A	Square Feet	N/A
Number of Lots Proposed		N/A		

Property Information

Address	Longwoods Rd. (Route 662) South of Hiners Lane and West of TCCC						
Tax Map	17	Grid	23	Parcel	75/129	Lot	3/5
Deed Refernce:	Liber	02304	Folio	00432			
Plat Reference:	Liber	83	Folio	458-464			
Zoning District	RH	Planned Redevelopment Y ☐ N ☑		Historic District Y ☐ N ☑			
Source of Electricity	SHA road improvements for Route 662						

Owner

Name	Shore Health System / University of Maryland Medical System		
Mailing Address	219 S. Washington Street, Easton, MD 21601		
Telephone No.	410-382-0654	Email	lkautz@umm.edu

Surveyor / Engineer

Name	Kristy Bischoff	License No.	28823	Expiration Date	01/07/2024
Mailing Address	Daft McCune Walker, 501 Fairmount Avenue, Suite 300, Towson, MD 21286				
Telephone No.	410-296-3333	Email	kbischoff@dmw.com		

Applicant or Agent

Name	same as Owner		
Mailing Address			
Telephone No.		Email	

Additional Comments:

There is no proposed subdivision or lot line revisions for this project. Subdivision for the property has already occurred.

Minimum Lot Size	N/A	Minimum Lot Frontage	N/A
Minimum Lot Envelope	N/A	Existing Lot Coverage	N/A
		Proposed Lot Coverage	N/A

N/A ☐ ESDR Letter
N/A ☐ $200 Per Subdivided Lot Fee
N/A ☐ $500 Lot Line Revision Fee

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Subdivision Regulations Article 4, Procedures and Requirements and that submission of an incomplete application will be returned for correction prior to processing.

DocuSigned by: Laura Kautz 0A8D8505A8CF48F... DocuSigned by: Richie Stover 07A8762E51004F6...

Signature of Applicant or Agent

Date 9/1/2023

Printed Name of Applicant or Agent Laura Creason Kautz

For Office Use Only

Planning Commission Y ☒ N ☐			
Planning Commission Meeting Date		10/19/2023	
PC Approval Date		Subdivision No.	
Conditions? Y / N		Application No.	2023-1027
Recordation Date		Fee Amount	N/A
ESDR Y / N Date		Review Fee Paid	
			Revised 02-2019

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

Forest Conservation Application

Project Information

Project Name	Shore Health Systems Regional Medical Facility	Project Number	09035.N6
Project Location	Longwoods Rd (Rt. 662) South of Hiners Lane & West of Talbot County Community Center		
Project Description	Construct a Regional Medical Facility with appurtenant facilities, parking, access drives, utility infrastructure stormwater management, & pedestrian accesses. Rte. 662C will be relocated and a new entrance from Rte. 50 and to the Talbot County Community Center will be constructed.		

Watershed Information

Watershed Name	Miles River	Sub-watershed No.	2130502
County	Talbot County	Municipality	Easton

Property Information

National Spatial Reference System (NSRS)
Alignment of passive control with the latest realization of the North American Datum of 1983: NAD 83(2011), NAD 83(PA11), and NAD 83(MA11) Epoch 2010.00

Maryland Grid Coordinates centroid:	375,000			ft. North	1,062,500		ft. East
ADC Map: Year	2003	Page	11	Grid			
Tax Map:	17	Grid	23	Parcel	129	Block	
District / Account Number	01-113771/198769/198770/198771/198774/198777/198778					Lot	3
Liber	83/02304	Folio	458/00432				

Agent Information

Name	Eric J. Chodnicki	License No.	N/A	Expiration Date	N/A
Firm Name	Daft-McCune-Walker, Inc.				
Mailing Address	501 Fairmount Avenue, Towson, MD 21286				
Telephone No.	410-296-3333 Ext. 2043	Email	echodnicki@dmw.com		

Forest Stand Delineation Information

Details of Request (Acreage or portion thereof)

Total Tract Area	235.8	Ac.	*Net Tract Area*	202.1 Ac.
Area within 100-year Floodplain	4.8	Ac.	Area of Existing Forest	16.5 Ac.
Area Remaining in Agriculture	0.0	Ac.	Area of Existing NTW	0.0 Ac.
Other	0.0	Ac.	Sensitive Areas	0.0 Ac.

Forested Stream Buffers (minimum 50' wide):			✓ Yes	No
One Side		Both Sides	✓	
Buffer Area Forested	Ac.	Length	Ft.	
Steep Slopes	✓ Yes		No	
Threatened & Endangered Species	Yes		✓ No	
Dominant & Co-dominant Species	Yes		✓ No	

Forest Stand Delineation Prepared by:

Licensed Landscape Architect | Licensed Forester | Qualified Professional

Forest Conservation Plan Information

Details of Request (Acreage or portion thereof)

Existing Land Use (zone)	RH	Proposed Land Use (zone)	RH		
Afforestation Threshold	15%	Conservation Threshold	15%		
Proposed Area of Disturbance	140.0	in Sensitive Areas	0.0		
Proposed Forest Clearing	0.0	in Sensitive Areas	0.0	in NTW	0.0

Forest Retention:

Onsite	TBD	Offsite	0.0	in Long Term Protection	0.0
Forest Conservation Required			TBD	Forest Conservation Provided	TBD

Planting:

Onsite	TBD	Offsite	0.0	Sensitive Area Planting	TBD

Stream Buffer Established: Length TBD Width TBD

Other:

Offsite Location: ALL N/A

County		Municipality			
ADC Map:		Year		Page		Grid	
Tax Map:		Grid		Parcel		Block	
Maryland Grid:		North American Datum Year				Lot	
District / Account Number		Sub-watershed No.			
Planting Responsibility:		Contact #			
Maintenance Responsibility:		Contact #			
Long Term Protection		% in Sensitive Areas			
Long Term Protection Agreement Type					
Fee-in Lieu Amount		Acreage			
Forest Conservation Plan Prepared by					
Licensed Landscape Architect					
Licensed Forester					
Qualified Professional					

Subject to previous FCP? Y / N

If yes, please provide a copy of previous approved FCP. (SEE ATTACHED FCP)

Subject to ESDR? Y/ N

Required:

- ☑ Completed Form
- ☑ Written Statement
- ☑ Signature of Applicant
- ☑ Hardcopy of Drawings
- ☑ Digital Copy of Drawings
- ☑ Copies Hard / Digital of Any Previous FCP + Application
- ☑ Review Fee

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.

By signing below, the applicant certifies that he of she has the legal right to implement proposed planting, maintenance and or a long-term protection agreement. The applicant further certifies that the property, subject to a long-term protection agreement is not otherwise protected under Federal, State or local programs.

Signature of Applicant or Agent	DocuSigned by: Laura Kautz 6A6D6505A9CF40F...	DocuSigned by: Nicole Stover 97A3762E31904F3...
Date	9/1/2023	
Printed Name of Applicant or Agent	Laura Creason Kautz	

For Office Use Only

Planning Commission Meeting Date	10/19/2023	ESDR Meeting Date: 09/27/2023	
Sketch Approval Date		Project No.	ESDR 23-19
Prelim/Dev. Approval Date		Application No.	2023-1027
Final Approval Date		Sketch Fee Paid	$800.00 on 09/06/2023
Recordation Date		Develop. Fee Paid	
			Revised 02-2019

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

Forest Conservation Application

Project Information

Project Name	Talbot County Community Center	Project Number	09035.N6
Project Location	Talbot County Community Center Along Ocean Gateway (Rte. 50)		
Project Description	Property improvements that include a new entrance from Rte. 50 and a dedicated access from Rte. 662 associated with the Regional Medical Facility project.		

Watershed Information

Watershed Name	Miles River	Sub-watershed No.	2130502
County	Talbot County	Municipality	Easton

Property Information

National Spatial Reference System (NSRS)
Alignment of passive control with the latest realization of the North American Datum of 1983: NAD 83(2011), NAD 83(PA11), and NAD 83(MA11) Epoch 2010.00

Maryland Grid Coordinates centroid:	375,000			ft. North	1,062,500		ft. East
ADC Map: Year	2003	Page	11	Grid			
Tax Map:	17	Grid	18	Parcel	38	Block	
District / Account Number	036882					Lot	
Liber	1597/1402	Folio	510/339				

Agent Information

Name	Eric J. Chodnicki	License No.	N/A	Expiration Date	N/A
Firm Name	Daft-McCune-Walker, Inc.				
Mailing Address	501 Fairmount Avenue, Towson, MD 21286				
Telephone No.	410-296-3333 Ext. 2043	Email	echodnicki@dmw.com		

Forest Stand Delineation Information

Details of Request (Acreage or portion thereof)

Total Tract Area	43.7 Ac.	*Net Tract Area*	43.7 Ac.
Area within 100-year Floodplain	0.0 Ac.	Area of Existing Forest	0.5 Ac.
Area Remaining in Agriculture	0.0 Ac.	Area of Existing NTW	0.0 Ac.
Other	0.0 Ac.	Sensitive Areas	0.0 Ac.

Forested Stream Buffers (minimum 50' wide):			✓ Yes	No
One Side	✓	Both Sides		
Buffer Area Forested	0 Ac.	Length	0 Ft.	
Steep Slopes		Yes	✓ No	
Threatened & Endangered Species		Yes	✓ No	
Dominant & Co-dominant Species		Yes	✓ No	

Forest Stand Delineation Prepared by:

Licensed Landscape Architect | Licensed Forester | Qualified Professional

Forest Conservation Plan Information

Details of Request (Acreage or portion thereof)

Existing Land Use (zone)	GI	Proposed Land Use (zone)	GI		
Afforestation Threshold	15%	Conservation Threshold	20%		
Proposed Area of Disturbance	0.0	in Sensitive Areas	0.0		
Proposed Forest Clearing	0.0	in Sensitive Areas	0.0	in NTW	0.0

Forest Retention:

Onsite	0.5 AC	Offsite	0.0	in Long Term Protection	TBD
Forest Conservation Required			TBD	Forest Conservation Provided	TBD

Planting:

Onsite	TBD	Offsite	TBD	Sensitive Area Planting	N/A

Stream Buffer Established: Length _____ Width _____

Other: PROJECT WILL REQUIRE AN FCA VARIANCE

Offsite Location: ALL N/A

County		Municipality					
ADC Map:		Year		Page		Grid	
Tax Map:		Grid		Parcel		Block	
Maryland Grid:		North American Datum Year				Lot	
District / Account Number		Sub-watershed No.					
Planting Responsibility:		Contact #					
Maintenance Responsibility:		Contact #					
Long Term Protection		% in Sensitive Areas					
Long Term Protection Agreement Type							
Fee-in Lieu Amount		Acreage					
Forest Conservation Plan Prepared by							
Licensed Landscape Architect							
Licensed Forester							
Qualified Professional							

Subject to previous FCP? Y / N

If yes, please provide a copy of previous approved FCP. (SEE ATTACHED FCP)

Subject to ESDR? Y/ N

Required:

- ☑ Completed Form
- ☑ Written Statement
- ☑ Signature of Applicant
- ☑ Hardcopy of Drawings
- ☑ Digital Copy of Drawings
- ☑ Copies Hard / Digital of Any Previous FCP + Application
- ☑ Review Fee

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By signing below, the applicant certifies that he of she has the legal right to implement proposed planting, maintenance and or a long-term protection agreement. The applicant further certifies that the property, subject to a long-term protection agreement is not otherwise protected under Federal, State or local programs.

Signature of Applicant or Agent DocuSigned by: Laura Kautz 0A0D0505A0CF46F... DocuSigned by: Richie Stover 87A0762E01904F0...

Date 9/1/2023

Printed Name of Applicant or Agent Laura Creason Kautz

For Office Use Only

Planning Commission Meeting Date	10/19/2023	ESDR Meeting Date: 09/27/2023		
Sketch Approval Date		Project No.	ESDR 23-19	
Prelim/Dev. Approval Date		Application No.	2023-1027	
Final Approval Date		Sketch Fee Paid	$800.00 on 09/06/2023	
Recordation Date		Develop. Fee Paid		
			Revised 02-2019	

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

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Supplemental Waiver Request Application

Waiver Request Type

Sidewalk ☐ Parking Spaces ☐ Parking/Aisle Dimension ☐

Landscaping & Buffering ☒ Signage ☐ Other ☐

Project Information

Address	Longwoods Rd, near the intersection of Rte. 50						
Tax Map	17	Grid		Parcel	129	Lot	
Zoning District	RH District	PC Meeting Date	10/02/2023	Historic District	Yes ☐	No ☒	
Owner or Agent	Shore Health System Inc., University of Maryland Medical System						
Mailing Address	219 South Washington Street, Easton MD 21601						
Telephone No.	(410) 822-1000	Email					

Request Details

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

See attached for justification and proposed plant palette.

☐ 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

Date Oct. 2, 2023

Printed Name of Applicant or Agent Stephen Kelly

ESDR 23-19 / 2023-1027

Planning Commission Date: 10/19/2023

The landscape architect seeks an exemption from the parking lot hedge and vegetative buffer requirements. Due to the agrarian nature of the site, we are proposing instead to install a native buffer comprising tall ornamental grasses and perennials. The modified buffer will provide enhanced benefits for site access, public safety, and storm water performance. This mixed-planting buffer will allow for unimpeded sight lines to building entrances and sight visibility triangles at parking lot exits. In addition this modified buffer will not impede drainage into these adjacent roadway swales. Our minimum overall buffer will be 34' from the loop road to any parking lot. We will also have over a 10' buffer between the sidewalk and any parking at our narrowest buffer. We believe this will provide adequate screening and better mimic the adjacent agrarian landscapes. Additionally, there is an existing vegetative buffer between the parcels to the south and the project site, providing a sufficient degree of screening from the only parcels (where UMMS is not the landowner) that abut the project site. The grass and perennial buffer will form an attractive visual screen that differentiates the project site from surrounding areas while facilitating safe sight lines and ecological performance across the site.

See the following sheet for the general proposed plant palette, consisting primarily of native grasses and perennials. These species and cultivars are recommended for use on this site because of their hardiness, salt tolerance, maintenance requirements, and other factors.

PLANT SCHEDULE

GROUNDCOVERS, PERENNIALS, ORNAMENTAL GRASSES	BOTANICAL / COMMON NAME
AH	Amsonia hubrichtii Arkansas Bluestar
CB	Carex bicknellii Prairie Sedge
CK	Calamagrostis x acutiflora 'Karl Foerster' Karl Foerster Feather Reed Grass
CV	Coreopsis verticillata 'Moonbeam' Moonbeam Tickseed
DT	Deschampsia cespitosa Tufted Hair Grass
ED	Eupatorium dubium Joe Pye Weed
EP	Echinacea purpurea Coneflower
HW	Helenium x 'Wyndley' Wyndley Sneezeweed
IRV	Iris versicolor Blue Flag
JE	Juncus effusus Soft Rush
NW	Nepeta x 'Walker's Low' Walker's Low Catmint
PD	Penstemon digitalis Beardtongue
PH	Pennisetum alopecuroides 'Hameln' Hameln Fountain Grass
PR	Panicum virgatum 'Rotstrahlbusch' Rotstrahlbusch Red Switch Grass
PV	Panicum virgatum Switch Grass
RB	Rudbeckia fulgida Coneflower
SH	Sporobolus heterolepis Prairie Dropseed
SL	Schizachyrium scoparium Little Bluestem
SN	Symphyotrichum novae-angliae New England Aster
SON	Sorghastrum nutans Indian Grass
SP	Symphyotrichum novae-angliae 'Purple Dome' Purple Dome New England Aster
SR	Solidago rugosa 'Fireworks' Fireworks Wrinkleleaf Goldenrod
SS	Schizachyrium scoparium 'The Blues' The Blues Little Bluestem

Shore Regional Medical Center - Replacement Hospital

2009 Design Principles for Easton from the 2010 Comprehensive Plan

October 12, 2023

Principle #1 – Integrated Uses are Desirable

The University of Maryland Shore Regional Medical Center is strategically located with convenient access off MD Route 662, the intersection of Medical Center Drive and MD Route 50. The development of the Medical Center will provide convenient access to the residents of Talbot County, Queen Anne's County, Caroline County, and the Easton Shore of Maryland and will provide comprehensive medical care and services for all residents. The Hospital adds to the diverse neighborhood surroundings and provides state of the art healthcare services in close proximity to the Talbot County Community Center, Easton Airport, Hog Neck Golf Course and Hyde Park Neighborhood while becoming an anchor for the growing business district which extends north along MD Route 50 from the Easton business district.

Principle #2 – Natural Features Should Determine Design

The site of the new medical center is integrated into an agricultural site and positioned strategically to minimize impacts to the farmland and existing environmental conditions. The existing Goldsborough creek on the site will remain and the development will strive to maintain the existing tree canopy along the edges of the site. Multiple wetlands and prehistoric and historic archeological features exist and site development has been carefully designed in such a way as to avoid these areas. A focus on the existing features and creating a sustainable approach to the design involves the creation of multiple public, patient, staff and visitor healing gardens, landscape features, innovative stormwater management solutions and pedestrian accessible pathways to allow for the building to be integrated into the landscape and tread lightly on the existing natural landscape of the site. This approach includes the relocation of MD Route 662 to limit the impacts to the site's natural geographic features, historically significant archeological digs, and natural landscapes. The overall campus design approach strengthens the character of the site by utilizing plant materials and berms to screen the development from the surrounding residential development. This includes the use of native plant species, strategic placement of landscape buffers within the parking lots, and integration of shade trees along streets and pedestrian pathways.

Principle #3 - Automobiles should not Determine Design

While safe, convenient, and direct access to the various medical services and facilities for both pedestrians and vehicles is a critical component of the site design, automobiles do not solely drive the design of the site. Whether people arrive by mass transit, private vehicles, or bicycle, circulation is organized to clearly direct and welcome visitors to the main hospital entrance, employees to the employee entrance, service trucks and vendors to the service area entrance, and emergency vehicles to the emergency entrance area of the hospital. Vehicular and bicycle parking is conveniently located surrounding the hospital with safe and clear pedestrian access to the various entrances. The circulation

paths and parking are spread out and integrated with the landscape that provide shade and strengthen the overall character of the site. The parking lots have been screened with landscaping throughout. Some of the parking lot spaces will be permeable pavement which provides stormwater management treatment.

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

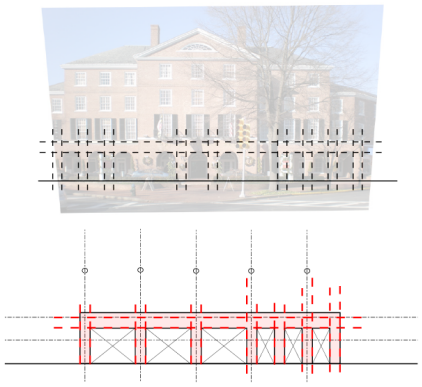
The Open Spaces surrounding the Hospital and site circulation systems are generous and provide relief to the extensive impervious parking and service areas. Ribbons of green space surround the hospital and enhance the views from hospital rooms and outdoor dining areas. The “healing garden” is the most prominent open space amenity. The garden invites patients, staff, and visitors to participate outdoors in healing the mind and spirit. The healing garden celebrates holistic health by creating a designated space for personal contemplation and group support.

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

Patient towers clad in sweeping glass facades with patterning referencing the waters of the Chesapeake Bay are anchored by 2-story masonry facades inspired by the Federal Style architecture of Historic Easton. These inspired facades will employ the elements of scale, proportion, rhythm and material borrowed from Federal Style buildings, while not imitating them.

A welcoming Entry Arcade will greet visitors with familiar proportions and masonry detailing. The scale and rhythm of openings in this brick façade element will be modeled from analysis of the arrival arcade of the historic Tidewater Inn at S Harrison St and E Dover St. Custom glazing displaying imagery reminiscent of marsh grass will be set within the openings, tying the arrival experience also to the patient towers above, and to the Bay itself.

The Medical Services Building is a 2-story structure that is to be shaped and clad in reference to a typical block within the existing fabric of Downtown Easton. The length of façade, which is similar in proportion to many whole blocks found in Easton, will be broken down in scale, pattern, and rhythm as influenced by a study of a historic downtown fabric. Specifically, the east edge of the 00 block of N Washington Street was used for this study.



Study of the arrival arcade at the Tidewater Inn

Study of N Washington St

Principle #6 - Signs should Inform but not Dominate

Signage will be integrated into the site development of the medical campus in accordance with the Town of Easton Zoning Code. The overall site wayfinding signage will respond to the zoning ordinance while utilizing the University of Maryland Health (UMMS) branding standards for maintaining a systemwide regional health campus consistency. Additionally, entrance, emergency vehicle, and building signage will be developed to blend with the overall landscape character and building design while promoting efficient guidance to emergency, service and public entrances to the facility. These signs will be designed to complement the landscape, building and hardscape design and will utilize materials consistent with the overall campus aesthetic to enhance visual continuity of the area.

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

Not Applicable.

Principle #8 - Residential Developments Should be Interesting Places

Not Applicable.

Principle #9 - Neighborhoods Should Connect

The University of Maryland Shore Regional Medical Center will increase the local connectivity of pedestrian and vehicular access. The campus has multiple access points off relocated Route 662C via the Medical Center Parkway loop road. This will provide multiple access points for emergency and public access and allows for service traffic to access from multiple directions. Additionally, there is a direct access point from Route 50 via Medical Center Drive. The Talbot County Community Center will gain an additional entrance which further enhances the community. The Medical Center Parkway loop road promotes connectivity for any future development. The roundabout at Route 662C and Medical Center Drive allows for better flow and offers an additional travel route. Pedestrian walking paths are increased via sidewalks along the entire loop road and throughout the hospital site. A bike path is also proposed along Route 662C that connects to the Hospital and the Community Center.

SITE DATA

OWNER/DEVELOPER:	SHORE HEALTH SYSTEM INC. UNIVERSITY OF MARYLAND MEDICAL SYSTEM 219 SOUTH WASHINGTON STREET EASTON, MD 21601
PROPERTY:	TAX MAP 17, PARCEL 129
TAX ACCOUNT:	113771, 198769, 198770, 198771, 198772, 198773, 198774, 198775, 198776, 198777, 198778
PLAT:	83/458
SITE AREA:	236.15 ACRES±
ZONING:	RH DISTRICT - REGIONAL HEALTHCARE DISTRICT
EXISTING USE:	AGRICULTURAL AND FOREST
PROPOSED USE:	HOSPITAL, MEDICAL OFFICES, HELIPAD
TOTAL BUILDING FOOTPRINT COVERAGE:	158,500 SF± = 4.7% ; 40% PERMITTED
BUILDING SETBACKS:	REQUIRED ADDITIONAL BUILDING SETBACKS: FRONT : 94' (BUILDING HEIGHT) - 35' = 59' (ADDITIONAL SETBACK) + 30' (MIN. SETBACK) = 89' TOTAL REQUIRED SETBACK SIDE AND REAR: 94' (BUILDING HEIGHT) - 35' = 59' (ADDITIONAL SETBACK) + 15' (MIN. SETBACK) = 74' TOTAL REQUIRED SETBACK
BUILDING HEIGHT:	93'-4" ; 110' PERMITTED
REQUIRED PARKING:	HOSPITAL: MINIMUM 1 PARKING SPACE PER 600 SF PHASE 1: 340,890 SF± / 600 = 569 MAXIMUM 1 PARKING SPACE PER 100 SF PHASE 1: 340,890 SF± / 100 = 3.409 MEDICAL OFFICE: MINIMUM 1 PARKING SPACE PER 250 SF PHASE 1: 58,300 SF± / 250 = 234 PHASE 2: 30,000 SF± / 250 = 120 MAXIMUM 1 PARKING SPACE PER 140 SF PHASE 1: 58,300 SF± / 140 = 417 PHASE 2: 30,000 SF± / 140 = 215 TOTAL REQUIRED: 923 SPACES TOTAL MAXIMUM ALLOWED: 4,041 SPACES NOTE: THE CENTRAL UTILITY PLANT (CUP) AREA IS NOT INCLUDED WITHIN THE REQUIRED PARKING COUNTS
PROPOSED PARKING:	1,162 SPACES PROVIDED (SEE PHASE / LOT BREAKDOWN ON SHEET 3)
REQUIRED BICYCLE PARKING:	HOSPITAL: 1 BIKE SPACE PER 20 PARKING SPACES PHASE 1: 612 SPACES / 20 SPACES = 31 PHASE 2: 317 SPACES / 20 SPACES = 16 MEDICAL OFFICE: 1 BIKE SPACE PER 10 PARKING SPACES PHASE 1: 234 SPACES / 10 SPACES = 24 TOTAL REQUIRED = 71 BIKE SPACES
PROPOSED BIKE PARKING:	80 BIKE SPACES
REFUSE/TRASH:	COMPACTOR AND DUMPSTER LOCATED IN REAR OF HOSPITAL WITHIN THE LOADING DOCK AREA
STORMWATER MANAGEMENT:	QUALITY MANAGEMENT IS PROVIDED IN MICRO-BIORETENTION FACILITIES, SUBMERGED GRAVEL WETLANDS, SWALES, AND PERVIOUS PAVING THROUGHOUT THE SITE. QUANTITY MANAGEMENT PROVIDED IN 5 EXTENDED DETENTION FACILITIES.
OPEN SPACE:	REQUIRED: 236.15 AC X 15% = 35.42 AC PROVIDED: 36.08 AC ± (PROVIDED IN FCE AREA AND HEALING GARDEN)

LANDSCAPE REQUIREMENTS SUMMARY: CHAPTER 28-1014.6 E:

1A. TREES REQUIRED BASED ON AREAS OF OVER 100,00 SF:1 TREE/ 2500 SF

TOTAL TREES REQUIRED
PHASE 1 SITE AREA: 1,573,064 SF / 2500 = 630 TREES
PHASE 2 SITE AREA: 167,321 SF / 2500 = 67 TREES
TOTAL TREES PROVIDED: 697 TREES

2A. STREET TREES - 1 SHADE/CANOPY TREE PER 35' OF CENTERLINE LENGTH

MEDICAL CENTER PARKWAY CENTERLINE LENGTH: 3420' / 35' = 98 TREES
STREET TREES PROVIDED: 98 TREES

2B. INTERIOR PARKING LOT PLANTINGS - 1 TREE PER 7.5 PARKING SPACES

PHASE 1 PARKING SPACES: 846 / 7.5 = 113 TREES
PHASE 2 PARKING SPACES: 317 / 7.5 = 43 TREES
PARKING LOT TREES PROVIDED: 156 TREES

2C. PARKING LOT HEDGE: REQUIRED ALONG PARKING AREAS FRONTING MEDICAL CENTER PARKWAY

SHRUBS SPACED TO FORM A CONTINUOUS 42" HIGH EVERGREEN HEDGE WITHIN 5 YEARS:
SHRUBS CANNOT BE PROVIDED IN THIS AREA SINCE SHRUB BEDS WILL IMPEDE DRAINAGE TO ADJACENT ROADWAY SWALES. WE WILL COORDINATE WITH THE TOWN OF EASTON AND SHS ON APPROPRIATE PREFERRED LANDSCAPE TREATMENTS OF BIOSWALES AND BIORETENTION AREAS THROUGHOUT THE SITE.

2D. BUILDING FAÇADE PLANTINGS - 1 TREE PER 50' OF FRONT BUILDING FAÇADE, LANDSCAPE BEDS COVERING 25% OF FAÇADE (5' MIN. WIDTH)

FAÇADE LENGTH: 740' / 50' = 15 TREES

TREES PROVIDED: AS REQUIRED. NOTE: DETAILED PLANTING PLAN INDICATING PROPOSED TREES, SHRUBS, AND GROUNDCOVERS WILL BE PREPARED FOR THE BUILDING PERIMETER AND SITE AMENITY AREAS DURING THE NEXT DESIGN PHASE.

2E. SERVICE/LOADING AREAS

PROVIDE MINIMUM 6' HIGH ARCHITECTURALLY COMPATIBLE WALL OR FENCE WITH 50% OF FACE PLANTED WITH EVERGREEN TREES OR SHRUBS.

A SOLID 6' HIGH FENCE AND EVERGREEN PLANTINGS WILL BE PROVIDED TO SCREEN ON-SITE SERVICE AREAS.

2F. SHRUB AND GROUNDCOVER PLANTINGS

SHRUB AND GROUNDCOVER PLANTINGS SHALL BE INCORPORATED INTO SITE IN BEDS FOR OVERALL LANDSCAPE APPEARANCE AS INDICATED UNDER 2D ABOVE.

2G. BUFFERYARDS REQUIRED PER 1015.7E

SHOULD NOT BE REQUIRED - TO BE CONFIRMED WITH TOWN OF EASTON.

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

1. "THE COLORS, DESIGNS AND MATERIAL USED THROUGHOUT ANY RH DISTRICT SHOULD BE COMPLEMENTARY TO ESTABLISH AND MAINTAIN A VISUALLY-COORDINATED CAMPUS APPEARANCE WITH A RECOGNIZABLE IMAGE AS A DISTINCT PLACE WHILE MAINTAINING A DESIGN THAT IS APPROPRIATE TO THE CONTEXT OF EASTON. INTRIGUING DESIGN CHARACTER SHOULD BE ENCOURAGED THROUGH THE CREATIVE USE OF MATERIALS AND DESIGN DETAILS. BUILDING ELEMENTS SHOULD CREATE FOCAL POINTS AND ESTABLISH HIERARCHY. ROOFTOP MECHANICAL EQUIPMENT SHOULD BE VARIED AND ARTICULATED TO VISUALLY AND DIMENSIONALLY INTERRUPT THE BULK OF THE BUILDINGS. COLOR SCHEMES SHOULD TIE BUILDING ELEMENTS TOGETHER, RELATE SEPARATE BUILDINGS WITHIN AN RH DISTRICT AND SHOULD BE USED TO ENHANCE THE ARCHITECTURAL FORM OF A BUILDING."

   SITE AND BUILDING DESIGNS WILL REINFORCE A RELATIONSHIP WITH THE NATURAL ENVIRONMENT BY CREATING AN ORGANIC SERIES OF FORMS ALONG PUBLIC AREAS THAT ARE NOT REVEALED IN THE SINGLE VIEWING OF A LARGE FACADE, BUT RATHER CAN BE SLOWLY EXPLORED AS ONE CIRCUMNAVIGATES THE FACILITY.

   THE BUILDING MATERIALS, PLANNED TO CONSIST PRIMARILY OF MASONRY, GLASS AND METAL, WILL REINFORCE THE HIERARCHY OF THE FORMS AND HELP TO TIE THE OVERALL COMPOSITION TO THE DESIGN CONCEPT. THE OVERLAY OF A COORDINATED COLOR SCHEME AND DETAILS PROPORTIONED TO THE INDIVIDUAL MASSES RATHER THAN THE OVERALL BULK OF THE STRUCTURE, WILL RECALL THE CHARACTER OF THE PEDESTRIAN STREETSCAPE IN EASTON.

2. "ACCESSORY STRUCTURES, SERVICE AREAS AND MECHANICAL EQUIPMENT SHOULD BE DESIGNED AS INTEGRAL COMPONENTS OF THE SITE."

   ACCESSORY STRUCTURES, SERVICE AREAS AND MECHANICAL EQUIPMENT WILL BE TREATED WITH THE SAME DESIGN PRIORITY TO AESTHETICALLY BLEND IN WITH THE SURROUNDING ARCHITECTURE. MECHANICAL EQUIPMENT ON THE ROOFTOPS WILL BE SCREENED IN A COMPLIMENTARY FASHION TO THE BUILDINGS AND WILL PROVIDE VISUAL HIERARCHICAL VARIATION. GROUND LEVEL EQUIPMENT WILL BE SEAMLESSLY INTEGRATED INTO THE FACADE DESIGN, HIDDEN FROM MOST PUBLIC VIEWS AND INTEGRATED INTO LANDSCAPING TO FURTHER ITS BLENDING INTO THE CAMPUS. ALL ACCESSORY STRUCTURES WILL BE CLAD IN THE SAME BLEND OF MATERIALS AS THE MAIN OCCUPIED STRUCTURES.

3. "PEDESTRIAN ACCESS SHOULD BE PROVIDED AND INCORPORATED INTO THE SITE AND BUILDING DESIGN. LANDSCAPED, TREE-LINED WALKWAYS SHOULD BE USED AS CONNECTIONS BETWEEN BUILDINGS, BUILDINGS TO STREETS AND BUILDINGS TO PARKING AREAS. SITE DESIGN SHOULD INCORPORATE RECESSED SITTING AREAS INTO THE WALK OR PATHWAY SYSTEM."

   THE ROADWAYS AND PEDESTRIAN WALKWAYS WILL BE PLANNED TO TAKE INDIRECT PATHS AS VISITORS APPROACH THE BUILDING, INVITING AN OPPORTUNITY TO EXPLORE THE UNIQUE FEATURES OF THE SITE. THE TREE-LINED STREETS AND PEDESTRIAN PATHWAYS WILL CREATE A CANOPY AS THE TREES MATURE, FURTHER ENHANCING THE GENTEEL CHARACTER OF THE INTERNAL STREETSCAPE ON THE CAMPUS.

   ALONG THE PEDESTRIAN CORRIDORS THAT LEAD FROM THE PARKING AREAS TO THE ENTRANCES, THERE WILL BE HARDSCAPED SITTING AREAS WITH BENCHES AND OTHER SITE FURNITURE.

4. "LANDSCAPING SHOULD CREATE AND DEFINE STREET IMAGE, ENTRANCEWAYS, SCREEN STORAGE AND LOADING AREAS, PROVIDE BUFFERS ADJACENT TO RESIDENTIAL USES, SHADE PARKING LOTS AND INTEGRATE THE BUILDING DESIGN WITH THE SITE DESIGN."

   A SERIES OF PEDESTRIAN TRAILS AND PATHS, WEAVING THROUGH BIO-SWALES WITH NATIVE VEGETATION, WILL SERVE TO PROVIDE VISUAL RELIEF FROM THE SCREENED PARKING LOTS, WHICH WILL BE PLANNED IN SMALLER MODULES, DEFINED BY ZONES OF LANDSCAPING THAT WILL PROVIDE SHADE AND STRENGTHEN THE CHARACTER OF THE SITE. SCREENING THROUGH THE USE OF PLANT MATERIALS AND BERMING WILL ALSO BE USED TO BUFFER THE PROJECT FROM THE ADJACENT RESIDENTIAL DEVELOPMENT.

5. "WHERE APPROPRIATE, OPEN SPACE AMENITIES SHOULD BE INCLUDED AS PART OF THE OVERALL SITE PLAN BY PROVIDING SMALL AREAS FOR ACTIVE OR PASSIVE USE BY EMPLOYEES SUCH AS PICNIC TABLES, BENCHES AND OTHER AREAS FOR SITTING, EATING OR MEETING. SPACES BETWEEN TO HOSPITAL AND ADJACENT BUILDINGS CONSTRUCTED WITH REDUCED SETBACKS SHOULD INCLUDE A COURTYARD OR OTHER PEDESTRIAN-ORIENTED SITE FEATURE."

   THE HOSPITAL STRUCTURE WILL BE ENCIRCLED BY LANDSCAPED ZONES THAT WILL PROVIDE VISUAL RELIEF IN THE PARKING LOTS. HARDSCAPING MATERIALS FOR THE WALKS AND PATIO SPACES WILL VARY IN COLOR AND TEXTURE AND WILL FURTHER BE DEFINED BY SITE FURNITURE. THESE SPACES WILL BE DESIGNED TO EMULATE THE CHARACTER OFTEN FOUND AROUND THE EASTERN SHORE TO CELEBRATE THE INTERSECTION OF NATURAL SPACES WITH THE BUILT ENVIRONMENT. THE FOCAL POINT OF THIS LANDSCAPED ZONE WILL BE A "HEALING GARDEN"; A PLACE OF PERSONAL CONTEMPLATION AND GROUP SUPPORT THAT WILL BE THE PHYSICAL EMBODIMENT OF THE NOTION HAT HEALTH IS A HOLISTIC PROCESS THAT REQUIRES THE REPLANISHMENT OF NOT JUST THE BODY, BUT ALSO THE MIND AND SPIRIT.

6. "CIRCULATION AND PARKING SHOULD REINFORCE SAFE AND EFFICIENT PEDESTRIAN AND VEHICULAR MOVEMENT. THE MAIN ENTRANCE SHOULD SERVE AS THE DOMINANT INGRESS AND EGRESS POINTS FOR THE DISTRICT. CURB CUTS SHOULD BE CONSOLIDATED TO THE EXTENT PRACTICABLE."

   CIRCULATION AND PARKING PATTERNS WILL BE ORGANIZED AROUND FUNCTIONALLY DISTINCT ENTRANCES AND PARKING ZONES. FOR EXAMPLE, VISITORS TO THE HOSPITAL FACILITY WILL BE SEPARATED FROM EMERGENCY AND SERVICE TRAFFIC. TO PROTECT PEDESTRIANS SAFETY, WALKING PATHS WILL BE CLEARLY IDENTIFIED WITHIN PARKING LOTS TO SEPARATE PEDESTRIANS FROM VEHICULAR TRAFFIC.

7. "SIGNAGE SHOULD SERVE AS A FOCAL POINT FOR INFORMATION TO IDENTIFY THE LOCATION AND NATURE OF USES WITHIN AN RH DISTRICT. SIGNAGE DESIGN SHOULD IMPROVE THE THE VISUAL CONTINUITY OF THE AREA; IT SHOULD NOT SERVE AS A DISTRACTION. THE DESIGN AND MATERIALS OF A SIGN SHOULD COMPLEMENT AND BE SIMILAR TO THOSE USED ON THE BUILDING."

   IDENTITY AND WAYFINDING SIGNS ARE NECESSARY ON A REGIONAL HEALTHCARE CAMPUS TO EFFICIENTLY GUIDE VISITORS TO AND FROM THEIR SPECIFIC DESTINATIONS. THE SIGNAGE FOR THE CAMPUS WILL CUSTOM DESIGNED TO ADD TO THE CHARACTER OF THE LANDSCAPE DESIGN, USING SIMILAR MATERIALS SUCH AS LOW MASONRY WALLS IN THE HARDSCAPED AREAS AND A COLOR PALATE COMPLIMENTARY TO THE HOSPITAL BUILDING.

8. "A BUS SHELTER (OR SHELTERS) SHALL BE PROVIDED TO AFFORD BUS RIDERS THE OPPORTUNITY TO WAIT FOR THEIR BUS IN A STRUCTURE THAT PROTECTS THEM FROM INCLEMENT WEATHER. THE LOCATION OF SUCH SHELTER(S) SHALL BE SHOWN ON THE SITE PLAN AT THE SKETCH PLAN LEVEL."

   THE BUS STOP WILL BE AT THE MAIN ENTRANCE OF THE FACILITY. THE CANOPY AT THE MAIN ENTRANCE WILL SERVE AS THE SHELTER TO PROTECT THE BUS RIDERS FROM INCLEMENT WEATHER.

9. "LIGHTING FIXTURES SHOULD BE DESIGNED TO PROVIDE CONTINUITY WITH AN RH DISTRICT. LIGHTING LEVELS SHOULD BE APPROPRIATE FOR THE USE PROPOSED. THE ILLUMINATION OF BUILDINGS AND SITE FEATURES (PARKING LOTS, WALKWAYS, ENTRANCES, ETC.) SHOULD NOT EXCEED THE NEEDED LEVEL AND SHOULD BE APPROPRIATELY SIZED FOR ITS PURPOSE."

   AN ILLUMINATION BEACON/TOWER ELEMENT ABOUT THE MAIN ENTRANCE MAY BE USED TO SERVE AS A WELCOMING GESTURE FROM A DISTANCE AND PROVIDE A UNIFIED WAYFINDING ELEMENT FOR THE ENTIRE CAMPUS. SITE LIGHTING WILL BE DESIGNED USING A COHESIVE VARIETY OF FIXTURES AND LIGHTING LEVELS TO MINIMIZE NIGHT SKY ILLUMINATION WHILE HIGHLIGHTING ARCHITECTURAL AND SITE FEATURES AND PROVIDING FOR THE SAFETY OF VISITORS AND EMPLOYEES. PARKING LOT LIGHTING WILL BE HOODED TO REDUCE LIGHT POLLUTION AND PEDESTRIAN LIGHTS WILL BE SCALED APPROPIATELY AND WILL BE SELECTED TO FIT THE CONTEXT OF THE OVERALL DESIGN CONCEPT.

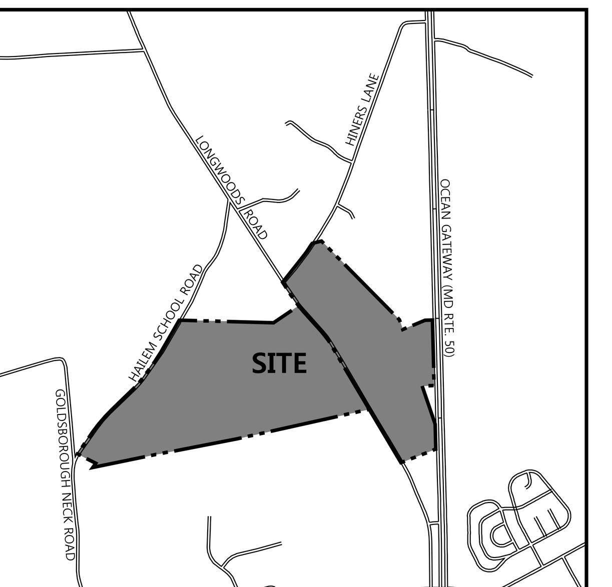
NOTES:

1. THIS SKETCH PLAN DETAILS PHASE 1 AND PHASE 2 OF THE MEDICAL CENTER IMPROVEMENTS, THE RELOCATION OF MD RTE 662C, AND THE MODIFIED ENTRANCES INTO THE TALBOT COUNTY COMMUNITY CENTER.
2. PHASE 2 OF THE HOSPITAL WILL POTENTIALLY BE 1-FLOOR ADDED TO THE MEDICAL OFFICE BUILDING FOOTPRINT.
3. DESIGN AND INSTALLATION OF LIGHTING, SIDEWALKS AND TREES ALONG THE OUTSIDE OF MEDICAL CENTER PARKWAY TO COINCIDE WITH FUTURE DEVELOPMENT OF THE PROPERTY.
4. MEDICAL CENTER PARKWAY SHALL BE A PRIVATE ROAD.
5. ALL SWM FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
6. SWM FACILITY 1B PROVIDES 2, 10, AND 100 YEAR MANAGEMENT. SWM FACILITIES 3 AND 6C PROVIDE 2 AND 10 YEAR MANAGEMENT.
7. SWM ESD PRACTICES ARE PROVIDED THROUGHOUT THE SITE.
8. ALL PARKING SPACES WILL HAVE A CONCRETE WHEEL STOP (SEE DETAIL ON SHEET 3).
9. COORDINATION WITH MDE AND THE CORP OF ENGINEERS IS UNDERWAY TO OBTAIN A PERMIT FOR WETLAND AND BUFFER IMPACTS.
10. GEOTHERMAL ENERGY WILL BE UTILIZED ON THIS PROJECT. WELL LOCATIONS WILL BE DETERMINED AT A LATER TIME, DURING DEVELOPMENT SITE PLAN REVIEW. WELL LOCATIONS WILL BE COORDINATED WITH THE PROPOSED UTILITIES AND SWM FEATURES.

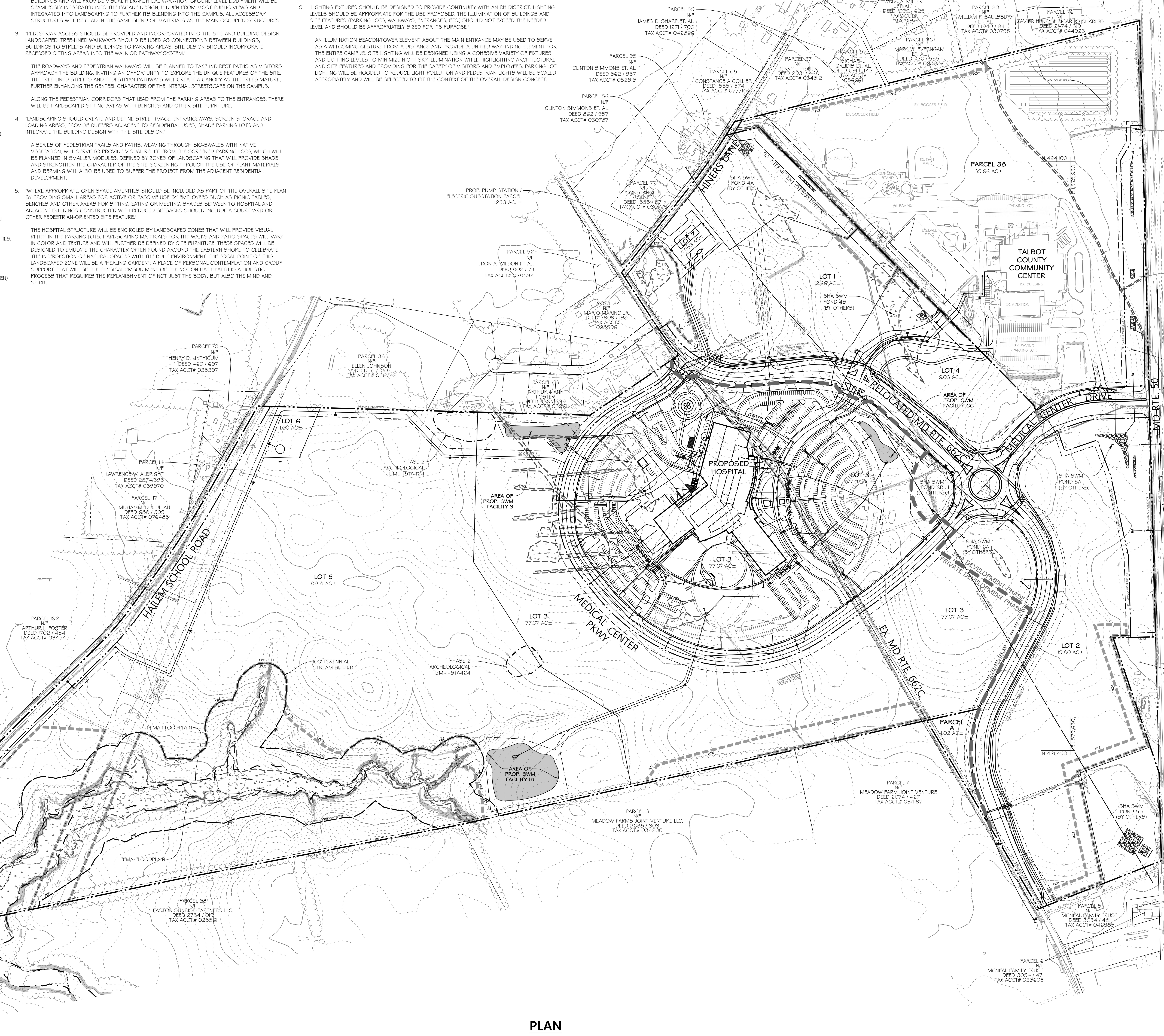
PREVIOUS APPROVALS:

A VERSION OF THIS SITE PROPOSAL WAS PREVIOUSLY DESIGNED AND APPROVED BY THE PLANNING COMMISSION, TOWN OF EASTON, TALBOT COUNTY, AND STATE HIGHWAY ADMINISTRATION.

OUR RECORDS INDICATE THE FOLLOWING:
- SKETCH PLAN APPROVAL WAS RECEIVED IN 2012
- DEVELOPMENT SITE PLAN "READY FOR APPROVAL" WAS RECEIVED IN 2014
- ENTRANCE RELOCATION FOR TALBOT COUNTY COMMUNITY CENTER APPROVAL WAS RECEIVED IN 2012
- STATE HIGHWAY ADMINISTRATION "READY FOR PERMIT" WAS RECEIVED IN 2015



VICINITY MAP
SCALE: 1" = 2,000'



PLAN

200 0 200 400
SCALE: 1" = 200'

LEGEND

- PROPERTY BOUNDARY
- ADJACENT LOT LINE
- RIGHT OF WAY
- EX. LOT LINE
- EX. CENTERLINE
- BUILDING SETBACK
- EX. EASEMENT
- EX. MAJOR CONTOUR (60)
- EX. MINOR CONTOUR (58)
- EX. BUILDING
- EX. ROAD
- EX. TREELINE
- FOREST BUFFER (FBE)
- FOREST CONSERVATION (FCE)
- STREAM CENTERLINE
- STREAM EDGE
- STREAM BUFFER
- FLOODPLAIN
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. RIGHT OF WAY
- PROP. CENTERLINE
- PROP. BUILDING
- PROP. ROAD
- PROP. CHAINLINK FENCE
- PROP. FLIGHT PATH
- PROP. STORM DRAIN (18" D.)
- PROP. SEWER (8" S.)
- PROP. WATER (8" W.)
- PROP. SWM POND
- DEVELOPMENT PHASE BOUNDARY

SHEET INDEX

NO.	SHEET NAME
1	OVERALL PROPERTY PLAN
2	OVERALL SITE PLAN
3	DETAILED SITE PLAN
4	SITE PLAN
5	LANDSCAPE AND LIGHTING PLAN
6	FOREST STAND DELINEATION PLAN
7	FOREST STAND DELINEATION PLAN
8	FOREST STAND DELINEATION PLAN

DATA SOURCE:

1. EXISTING TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON THE RESULTS OF FLOWN PHOTOGRAMMETRY PROVIDED BY AXIS GEOSPATIAL LLC, DATED MARCH 3, 2009. EXISTING TOPOGRAPHY SHOWN OUTSIDE THE PROPERTY IS BASED UPON MAPS PROVIDED BY THE TALBOT COUNTY OFFICE OF INFORMATION TECHNOLOGY GEOGRAPHIC INFORMATION SYSTEMS (GIS) DATED, 2006. EXISTING SOILS AND ZONING SHOWN HEREON IS BASED UPON MAPS PROVIDED BY THE TALBOT COUNTY OFFICE OF INFORMATION TECHNOLOGY GEOGRAPHIC INFORMATION SYSTEMS (GIS) DATED, 2006.
2. PROPERTY LINE(S) SHOWN HEREON ARE BASED UPON THE RESULTS OF A FIELD RUN SURVEY PERFORMED BY DMW, INC. ON 04/15/2009.
3. 100-YEAR FLOODPLAIN INFORMATION SHOWN HEREON IS PROVIDED BY FEMA FLOOD MAP SERVICE CENTER HTTP://MSC.FEMA.GOV ACCESSED 07/12/2023, CONSISTENT WITH FIRM NUMBER 24041C0180D, EFFECTIVE DATE SEPTEMBER 19, 2007.
4. THE LIMITS OF THE REGULATED RESOURCES (WATERS OF THE US, NATIONAL WETLANDS, AND FARMED WETLANDS) SHOWN HEREON ARE FIELD LOCATED AND APPROVED BY MDE AND THE USACE PER FIELD REVIEWS CONDUCTED IN OCTOBER 2009.

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NOT FOR CONSTRUCTION

PLOT DATE:
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MCS NAD83 (2011)

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. 28823 , EXPIRATION DATE: 01/07/2024 .

STATE OF MARYLAND KRISTY BISCHOFF NO. 28823 PROFESSIONAL ENGINEER
10/2/23

REVISION

NO.	DESCRIPTION	DATE

HKS PROJECT NUMBER | DMW PROJECT NUMBER
19782.012 | 09035.N6

DATE
02 OCTOBER, 2023

ISSUE
SKETCH PLAN

SHEET TITLE
OVERALL PROPERTY PLAN

SHEET NO.
1 OF 8

NOT FOR CONSTRUCTION

PLOT DATE:
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LICENSE NO. 28823, EXPIRATION DATE: 01/07/2024.

STATE OF MARYLAND — JEFFREY MICHAEL BOSCHOLO — No. 28823 — PROFESSIONAL ENGINEER
10/2/23

REVISION

NO.	DESCRIPTION	DATE

HKS PROJECT NUMBER | DMW PROJECT NUMBER
19782.012 | 09035.N6

DATE
02 OCTOBER, 2023

ISSUE
SKETCH PLAN

SHEET TITLE
OVERALL SITE PLAN

SHEET NO.
2 OF 8

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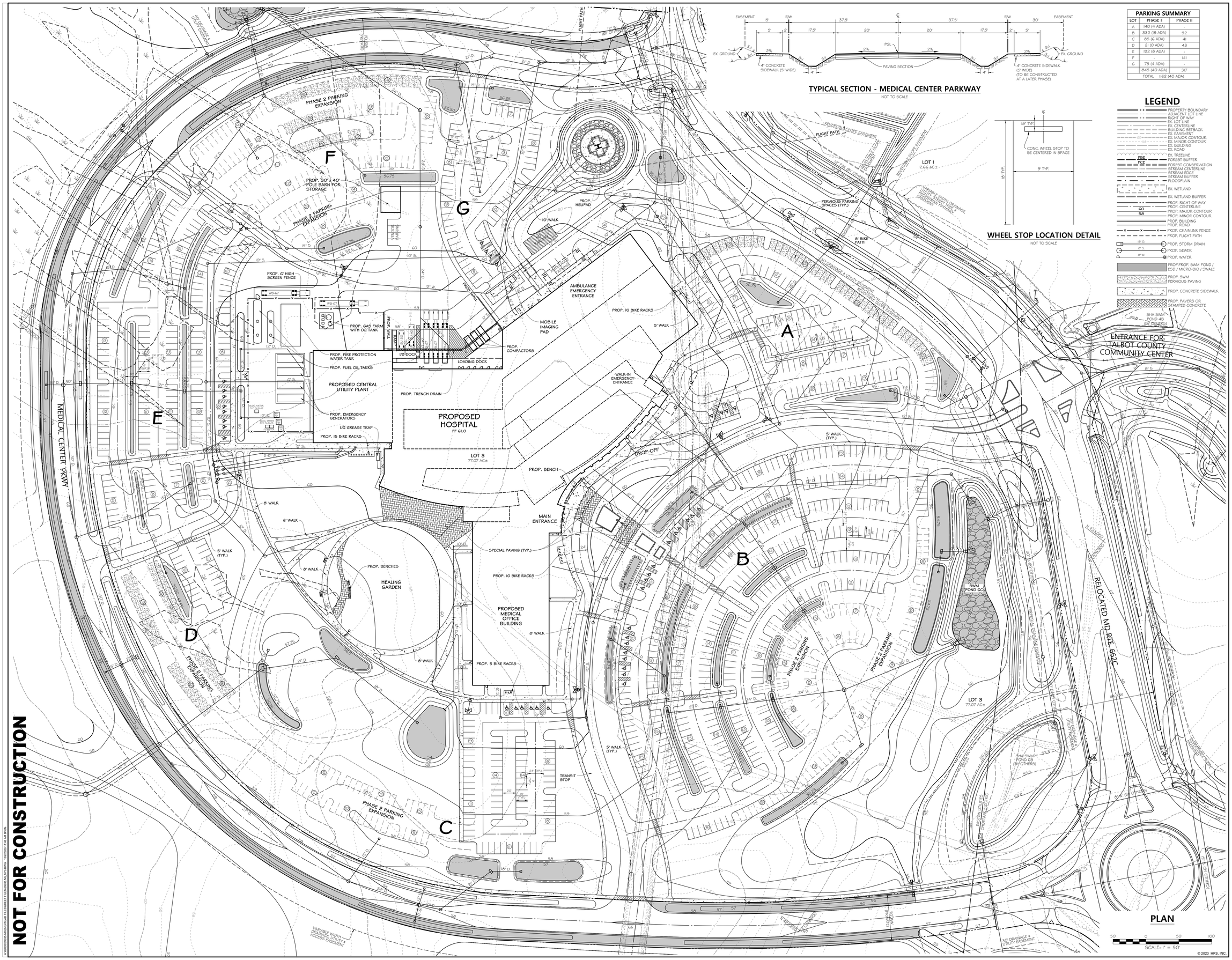

TYPICAL SECTION - MEDICAL CENTER PARKWAY

NOT TO SCALE

PARKING SUMMARY		
LOT	PHASE I	PHASE II
A	140 (4 ADA)	-
B	332 (8 ADA)	92
C	85 (6 ADA)	41
D	21 (0 ADA)	43
E	192 (8 ADA)	-
F	-	141
G	75 (4 ADA)	-
	845 (40 ADA)	317
TOTAL	1162 (40 ADA)	

WHEEL STOP LOCATION DETAIL

NOT TO SCALE

LEGEND

- PROPERTY BOUNDARY
- ADJACENT LOT LINE
- RIGHT OF WAY
- EX. LOT LINE
- EX. CENTERLINE
- BUILDING SETBACK
- EX. EASEMENT
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. BUILDING
- EX. ROAD
- EX. TREELINE
- FBE / FCE — FOREST BUFFER / FOREST CONSERVATION
- STREAM CENTERLINE
- STREAM EDGE
- STREAM BUFFER
- FLOODPLAIN
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. RIGHT OF WAY
- 60 — PROP. CENTERLINE
- 58 — PROP. MAJOR CONTOUR
- PROP. MINOR CONTOUR
- PROP. BUILDING
- PROP. ROAD
- PROP. CHAINLINK FENCE
- PROP. FLIGHT PATH
- 18" D — PROP. STORM DRAIN
- 8" S — PROP. SEWER
- 8" W — PROP. WATER
- PROP./PROP. SWM POND / ESD / MICRO-BIO / SWALE
- PROP. SWM PERVIOUS PAVING
- PROP. CONCRETE SIDEWALK
- PROP. PAVERS OR STAMPED CONCRETE

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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. 28823, EXPIRATION DATE: 01/07/2024.

STATE OF MARYLAND — JOHN WINCHESTER MCCUNE — REGISTERED PROFESSIONAL ENGINEER — 10/12/23

REVISION NO.	DESCRIPTION	DATE

HKS PROJECT NUMBER | DMW PROJECT NUMBER
19782.012 | 09035.N6

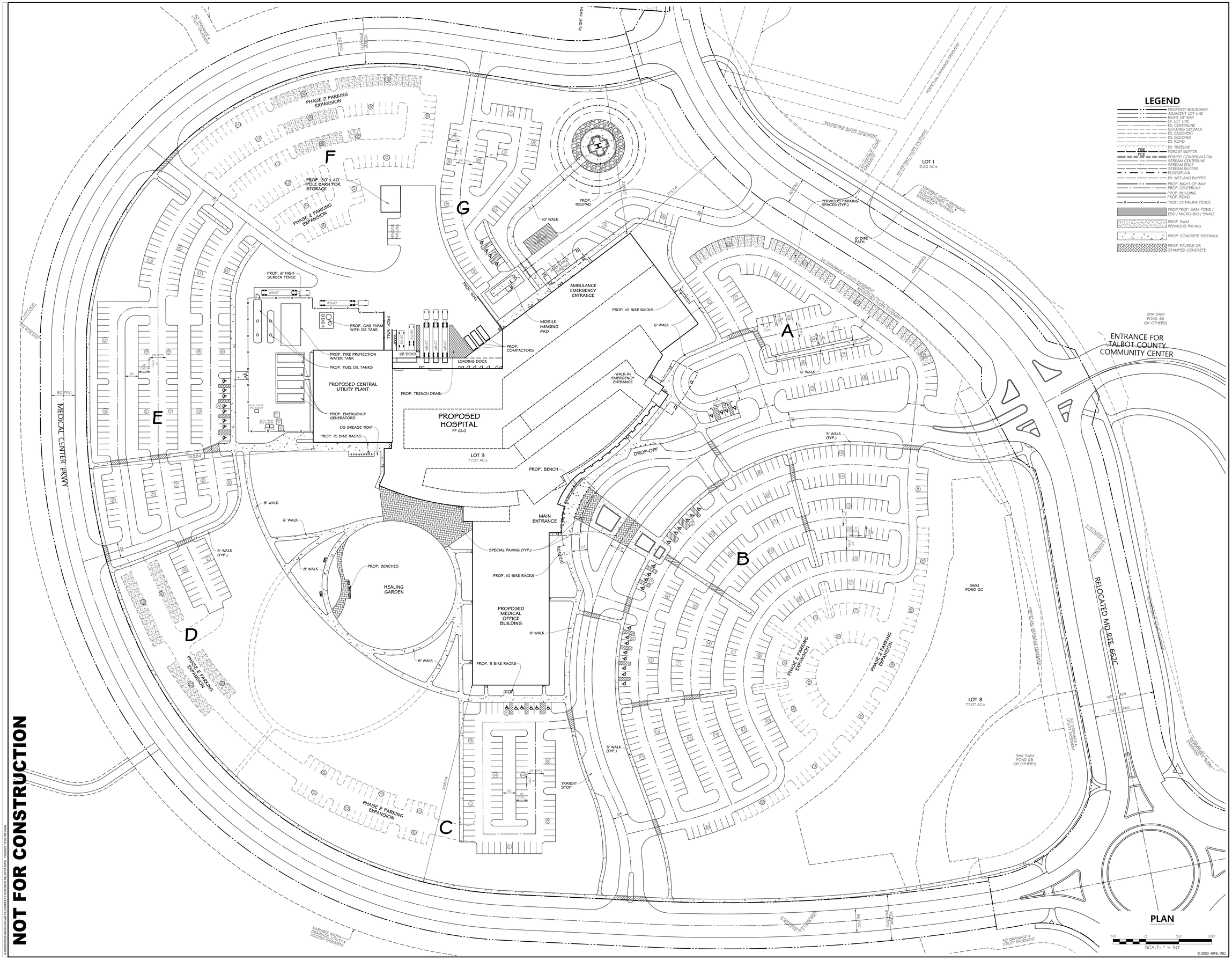
DATE
02 OCTOBER, 2023

ISSUE
SKETCH PLAN

SHEET TITLE
DETAILED SITE PLAN

SHEET NO.
3 OF 8

PLOT DATE:
X:\0019\09035.N6\DWG\A\D1 FIELD\SHEET FILE\SHEET N6_SP3.DWG 10/2/2023 11:42 AM Brock



HKS

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1250 Eye Street NW, Suite 600
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INTERIORS
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501 Fairmount Avenue, Suite 300
Towson, MD 21286

MEP
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102 Highland Avenue
Clarks Summit, PA 18411

STRUCTURAL
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701 Market Street
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Philadelphia, PA 19106

LANDSCAPE
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The Stueff Silver Building
800 Wyman Park Drive, Suite 100
Baltimore, MD 21211

FOODSERVICE DESIGN
VisionBuilders Design
1515 Shopton Rd, Suite 104
Charlotte, NC

LEGEND

- PROPERTY BOUNDARY
- ADJACENT LOT LINE
- RIGHT OF WAY
- EX. LOT LINE
- EX. CENTERLINE
- BUILDING SETBACK
- EX. EASEMENT
- EX. BUILDING
- EX. ROAD
- EX. TREELINE
- FDE — FOREST BUFFER
- FCE — FOREST CONSERVATION
- STREAM CENTERLINE
- STREAM EDGE
- STREAM BUFFER
- FLOODPLAIN
- EX. WETLAND BUFFER
- PROP. RIGHT OF WAY
- PROP. CENTERLINE
- PROP. BUILDING
- PROP. ROAD
- PROP. CHAINLINK FENCE
- PROP.PROP. SWM POND / ESD / MICRO-BIO / SWALE
- PROP. SWM PERVIOUS PAVING
- PROP. CONCRETE SIDEWALK
- PROP. PAVERS OR STAMPED CONCRETE

SHORE HEALTH
UNIVERSITY OF MARYLAND MEDICAL SYSTEM

Shore Regional Medical Center

OWNER
University of Maryland Health System
250 W. Pratt Street
Suite 2400
Baltimore, MD 21201

Shore Health System
219 S. Washington Street
Easton, MD 21601

OWNER'S CONSULTANT
FM Global
2100 Reston Parkway, Suite 600
Reston, VA 20191

NORTH
MAGNETIC NORTH

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. 28623, EXPIRATION DATE: 01/07/2024.

STATE OF MARYLAND
JAMES W. MCCUNE
No. 28623
PROFESSIONAL ENGINEER
10/2/23

REVISION NO.	DESCRIPTION	DATE

HKS PROJECT NUMBER | DMW PROJECT NUMBER
19782.012 | 09035.N6

DATE
02 OCTOBER, 2023

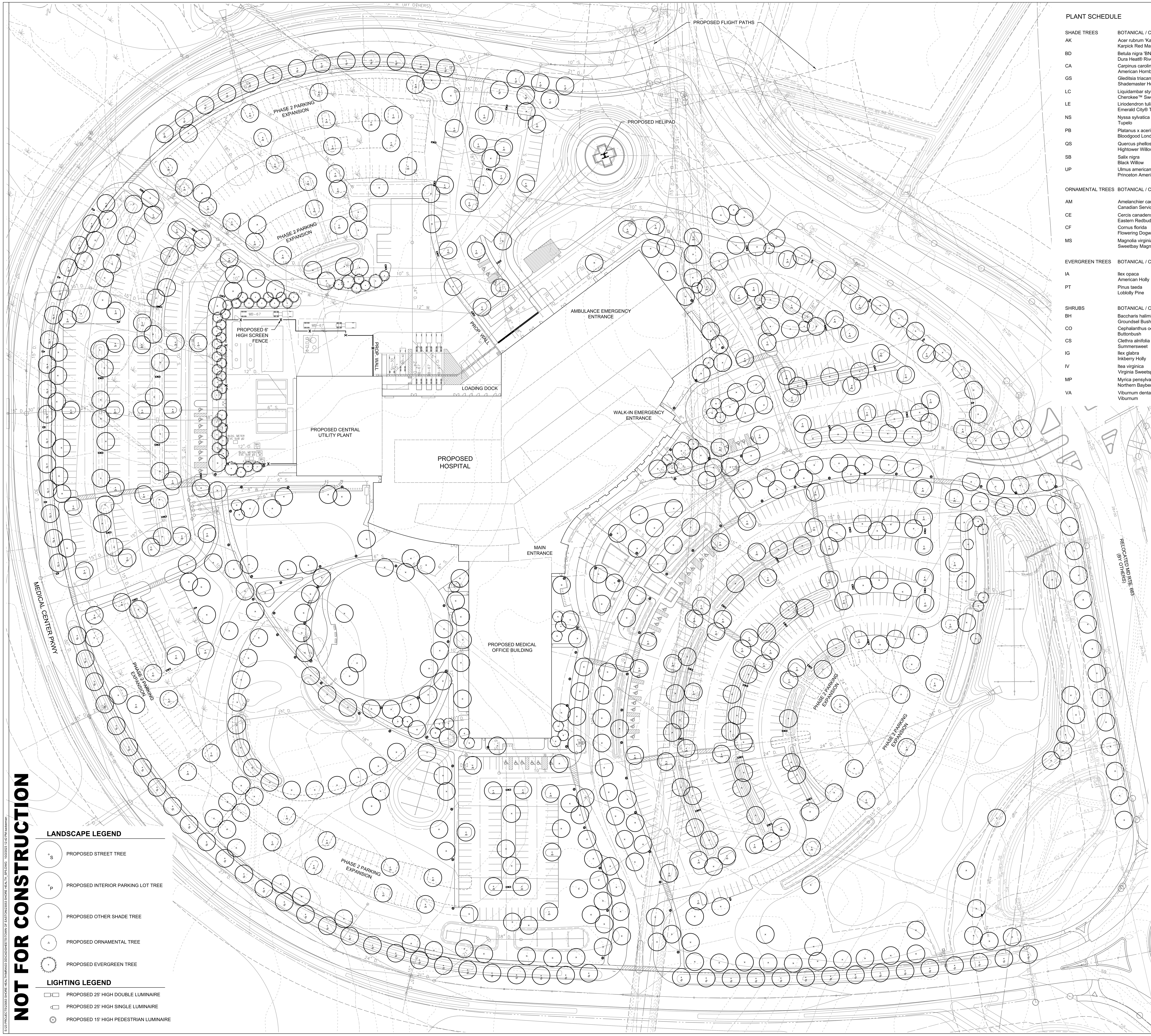
ISSUE
SKETCH PLAN

SHEET TITLE
SITE PLAN

SHEET NO.
4 OF 8

PLOT DATE:
S:\23 PROJECTS\23053 SHORE HEALTH\MRA\03 DD\CAD\SHEETS\TOWN OF EASTON\23053 SHORE HEALTH_SP5.DWG 10/2/2023 12:42 PM kackerman

NOT FOR CONSTRUCTION



LANDSCAPE LEGEND

- PROPOSED STREET TREE
- PROPOSED INTERIOR PARKING LOT TREE
- PROPOSED OTHER SHADE TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED EVERGREEN TREE

LIGHTING LEGEND

- PROPOSED 25' HIGH DOUBLE LUMINAIRE
- PROPOSED 25' HIGH SINGLE LUMINAIRE
- PROPOSED 15' HIGH PEDESTRIAN LUMINAIRE

PLANT SCHEDULE

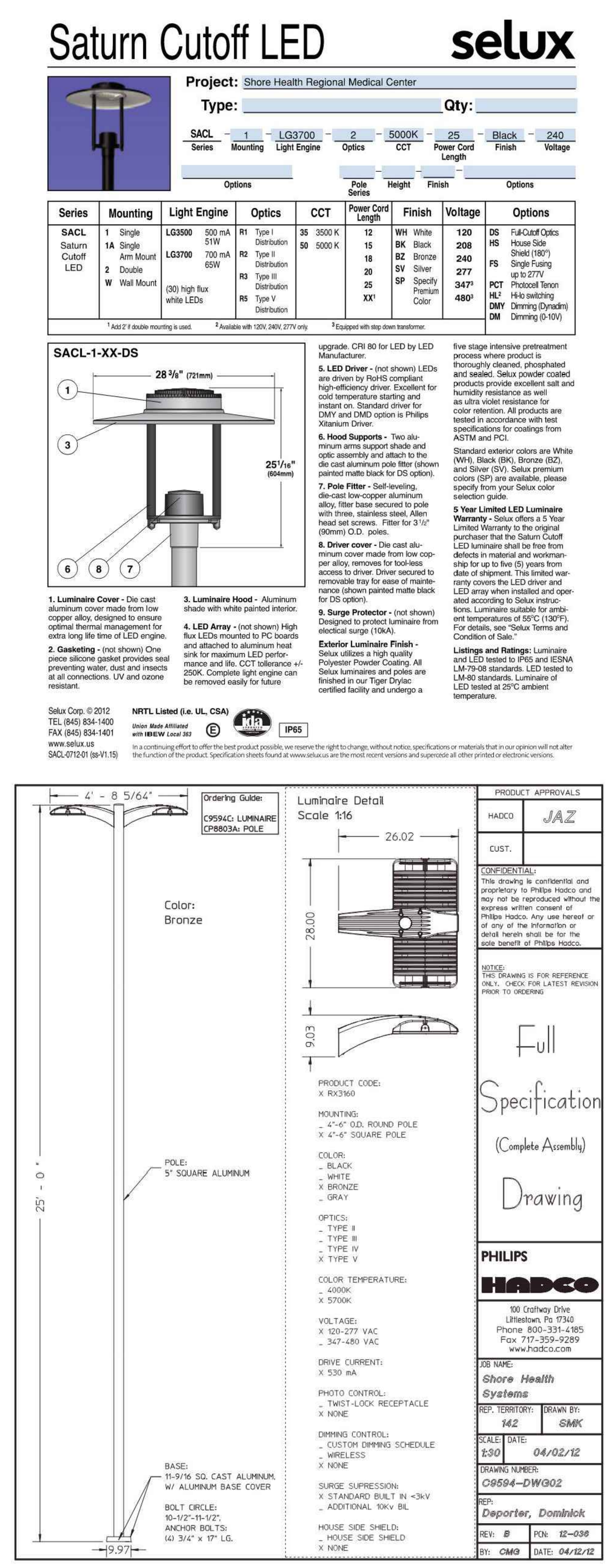
SHADE TREES	BOTANICAL / COMMON NAME	SIZE	ROOT	REMARKS
AK	Acer rubrum 'Karpick' Karpick Red Maple	2-1/2" Cal.	B&B	
BD	Betula nigra 'BNMTF' Dura Heat® River Birch	8-10` Ht.	B&B	
CA	Carpinus caroliniana American Hornbeam	2-1/2" Cal.	B&B	
GS	Gleditsia triacanthos inermis 'Shademaster' Shademaster Honey Locust	2-1/2" Cal.	B&B	
LC	Liquidambar styraciflua 'Ward' Cherokee™ Sweet Gum	2-1/2" Cal.	B&B	
LE	Liriodendron tulipifera 'JFS-Oz' Emerald City® Tulip Poplar	2-1/2" Cal.	B&B	
NS	Nyssa sylvatica Tupelo	2-1/2" Cal.	B&B	
PB	Platanus x acerifolia 'Bloodgood' Bloodgood London Plane Tree	2-1/2" Cal.	B&B	
QS	Quercus phellos 'Hightower' Hightower Willow Oak	2-1/2" Cal.	B&B	
SB	Salix nigra Black Willow	2-1/2" Cal.	B&B	
UP	Ulmus americana 'Princeton' Princeton American Elm	2-1/2" Cal.	B&B	

ORNAMENTAL TREES	BOTANICAL / COMMON NAME	SIZE	ROOT	REMARKS
AM	Amelanchier canadensis Canadian Serviceberry Multi-trunk	8` Ht.	B&B	
CE	Cercis canadensis Eastern Redbud Multi-trunk	8` Ht.	B&B	
CF	Cornus florida Flowering Dogwood	2-1/2" Cal.	B&B	
MS	Magnolia virginiana Sweetbay Magnolia	8` Ht.	B&B	

EVERGREEN TREES	BOTANICAL / COMMON NAME	SIZE	ROOT	REMARKS
IA	Ilex opaca American Holly	8` Ht.	B&B	
PT	Pinus taeda Loblolly Pine	8` Ht.	B&B	

SHRUBS	BOTANICAL / COMMON NAME	SIZE	ROOT	REMARKS
BH	Baccharis halimifolia Groundsel Bush	#3	Cont.	
CO	Cephalanthus occidentalis Buttonbush	#3	Cont.	
CS	Clethra alnifolia Summersweet	#3	Cont.	
IG	Ilex glabra Inkberry Holly	#3	Cont.	
IV	Itea virginica Virginia Sweetspire	#3	Cont.	
MP	Myrica pensylvanica Northern Bayberry	#3	Cont.	
VA	Viburnum dentatum Viburnum	#3	Cont.	

SITE LIGHTING



Series	Mounting	Light Engine	Optics	CCT	Power Cord Length	Finish	Voltage	Options
SACL Saturn Cutoff LED	1 Single 1A Single Arm Mount 2 Double W Wall Mount	LG3500 500 mA 51W LG3700 700 mA 65W (30) high flux white LEDs	R1 Type I Distribution R2 Type II Distribution R3 Type III Distribution R5 Type V Distribution	35 3500 K 50 5000 K	12 15 18 20 25 XX[1]	WH White BK Black BZ Bronze SV Silver SP Specify Premium Color	120 208 240 277 347[3] 480[3]	DS Full-Cutoff Optics HS House Side Shield (180°) FS Single Fusing up to 277V PCT Photocell Tenon HL[2] Hi-lo switching DMY Dimming (Dynadim) DM Dimming (0-10V)

[1] Add 2' if double mounting is used. [2] Available with 120V, 240V, 277V only. [3] Equipped with step down transformer.

NOTE:
SEE OVERALL SITE PLAN FOR LANDSCAPE REQUIREMENTS SUMMARY.

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Reston, VA 20191

REGISTRATION/STAMP

STATE OF MARYLAND — SCOTT JON RYKIEL — REGISTERED LANDSCAPE ARCHITECT — NO. 631

OCTOBER 02, 2023

PROFESSIONAL CERTIFICATION:
I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NUMBER: 631
EXPIRATION DATE: SEPTEMBER 21, 2025

TRUE NORTH

REVISION

NO.	DESCRIPTION	DATE

HKS PROJECT NUMBER | DMW PROJECT NUMBER
19782.012 | 09035.N6

DATE
02 OCTOBER, 2023

ISSUE
SKETCH PLAN

SHEET TITLE
LANDSCAPE AND LIGHTING PLAN

SHEET NO.
5 OF 8

SPECIMEN TREE INVENTORY

KEY	BOTANICAL NAME	COMMON NAME	SIZE (DBH)	CONDITION	COMMENTS
1	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	30"	FAIR	
2	QUERCUS FALCATA	SOUTHERN RED OAK	39"	POOR	TRIPLE/ TRUNK ROT
3	QUERCUS RUBRA	NORTHERN RED OAK	37"	POOR	
4	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	32"	FAIR	DOUBLE
5	ACER RUBRUM	RED MAPLE	30.5"	FAIR	
6	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	35"	FAIR	
7	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	31"	GOOD	
8	QUERCUS ALBA	WHITE OAK	35"	POOR	
9	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	31"	GOOD	
10	QUERCUS PHELLOS	WILLOW OAK	43"	FAIR	
11	QUERCUS RUBRA	NORTHERN RED OAK	43"	GOOD	
12	QUERCUS FALCATA	SOUTHERN RED OAK	56"	FAIR	
13	QUERCUS IMBRICARIA	BARREN, SCRUB OAK	42.5"	FAIR	
14	QUERCUS VELUTINA	BLACK OAK	41.5"	POOR	
15	QUERCUS ALBA	WHITE OAK	33.5"	GOOD	
16	FAGUS GRANDIFOLIA	AMERICAN BEECH	45.5"	GOOD	TWIN
17	PINUS TAEDA	LOBLOLLY PINE	32.5"	FAIR	
18	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36"	FAIR	
19	FAGUS GRANDIFOLIA	AMERICAN BEECH	31"	GOOD	
20	FAGUS GRANDIFOLIA	AMERICAN BEECH	35"	GOOD	
21	FAGUS GRANDIFOLIA	AMERICAN BEECH	40"	POOR	
22	QUERCUS VELUTINA	BLACK OAK	35.5"	GOOD	
23	ACER RUBRUM	RED MAPLE	33.5"	POOR	
24	LIRIODENDRON TULIPIFERA	TULIP POPLAR	33"	GOOD	
25	ACER RUBRUM	RED MAPLE	40"	POOR	
26	QUERCUS ALBA	WHITE OAK	32.5"	FAIR	
27	ACER RUBRUM	RED MAPLE	37"	POOR	
28	QUERCUS MICHAUXII	SWAMP CHESTNUT OAK	47.5"	GOOD	
29	QUERCUS ALBA	WHITE OAK	34"	GOOD	
30	FAGUS GRANDIFOLIA	AMERICAN BEECH	38"	GOOD	
31	FAGUS GRANDIFOLIA	AMERICAN BEECH	36"	GOOD	
32	QUERCUS ALBA	WHITE OAK	33"	GOOD	
33	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	32"	FAIR	
34	ACER RUBRUM	RED MAPLE	36.5"	GOOD	
35	QUERCUS VELUTINA	BLACK OAK	36"	GOOD	TWIN
36	QUERCUS VELUTINA	BLACK OAK	43"	POOR	
37	LIRIODENDRON TULIPIFERA	TULIP POPLAR	37.5"	GOOD	
38	LIRIODENDRON TULIPIFERA	RED MAPLE	31"	GOOD	
39	ACER RUBRUM	RED MAPLE	42"	GOOD	
40	LIRIODENDRON TULIPIFERA	TULIP POPLAR	37"	GOOD	
41	ACER RUBRUM	RED MAPLE	31.5"	GOOD	
42	ACER RUBRUM	RED MAPLE	31"	GOOD	
43	QUERCUS ALBA	WHITE OAK	34"	GOOD	
44	QUERCUS ALBA	WHITE OAK	35"	GOOD	
45	QUERCUS ALBA	WHITE OAK	32"	GOOD	
46	QUERCUS RUBRA	NORTHERN RED OAK	47"	GOOD	
47	QUERCUS ALBA	WHITE OAK	37"	GOOD	
48	QUERCUS ALBA	WHITE OAK	31"	GOOD	
49	FAGUS GRANDIFOLIA	AMERICAN BEECH	37"	FAIR	
50	FAGUS GRANDIFOLIA	AMERICAN BEECH	40"	GOOD	
51	QUERCUS VELUTINA	BLACK OAK	42"	GOOD	
52	QUERCUS VELUTINA	BLACK OAK	40"	GOOD	
53	QUERCUS IMBRICARIA	BARREN, SCRUB OAK	42.5"	GOOD	
54	FAGUS GRANDIFOLIA	AMERICAN BEECH	35"	GOOD	
55	QUERCUS ALBA	WHITE OAK	30"	GOOD	
56	FAGUS GRANDIFOLIA	AMERICAN BEECH	36"	GOOD	
57	FAGUS GRANDIFOLIA	AMERICAN BEECH	31"	GOOD	
58	FAGUS GRANDIFOLIA	AMERICAN BEECH	31"	GOOD	
59	FAGUS GRANDIFOLIA	AMERICAN BEECH	37"	GOOD	
60	FAGUS GRANDIFOLIA	AMERICAN BEECH	31"	GOOD	
61	FAGUS GRANDIFOLIA	AMERICAN BEECH	38"	GOOD	
62	QUERCUS ALBA	WHITE OAK	32.5"	GOOD	
63	QUERCUS PALUSTRIS	PIN OAK	33"	GOOD	
64	QUERCUS PALUSTRIS	PIN OAK	31"	GOOD	
65	PRUNUS SEROTINA	WILD BLACK CHERRY	35"	POOR	
66	PRUNUS SEROTINA	WILD BLACK CHERRY	37"	POOR	
67	QUERCUS FALCATA	SOUTHERN RED OAK	45"	GOOD	
68	LIRIODENDRON TULIPIFERA	TULIP POPLAR	31"	POOR	
69	LIRIODENDRON TULIPIFERA	TULIP POPLAR	31"	GOOD	
70	LIRIODENDRON TULIPIFERA	TULIP POPLAR	31"	FAIR	
71	QUERCUS VELUTINA	BLACK OAK	38"	FAIR	
72	JUGLANS NIGRA	BLACK WALNUT	52"	POOR	
73	FRAXINUS PENNSYLVANICA	GREEN ASH	31"	FAIR	
74	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32.5"	FAIR	
75	LIRIODENDRON TULIPIFERA	TULIP POPLAR	42"	FAIR	
76	QUERCUS VELUTINA	BLACK OAK	32"	FAIR	
77	LIRIODENDRON TULIPIFERA	TULIP POPLAR	33"	POOR	
78	LIRIODENDRON TULIPIFERA	TULIP POPLAR	31"	FAIR	
79	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36"	FAIR	
80	FAGUS GRANDIFOLIA	AMERICAN BEECH	30"	GOOD	
81	QUERCUS FALCATA	SOUTHERN RED OAK	55"	GOOD	
82	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36"	FAIR	
83	LIRIODENDRON TULIPIFERA	TULIP POPLAR	39"	FAIR	
84	LIRIODENDRON TULIPIFERA	TULIP POPLAR	51"	FAIR	
85	ACER RUBRUM	RED MAPLE	36"	POOR	
86	QUERCUS FALCATA	SOUTHERN RED OAK	55"	GOOD	
87	LIRIODENDRON TULIPIFERA	TULIP POPLAR	34"	GOOD	
88	QUERCUS FALCATA	SOUTHERN RED OAK	45"	GOOD	
89	LIRIODENDRON TULIPIFERA	TULIP POPLAR	39"	FAIR	
90	LIRIODENDRON TULIPIFERA	TULIP POPLAR	31"	FAIR	
91	LIRIODENDRON TULIPIFERA	TULIP POPLAR	31"	FAIR	
92	LIRIODENDRON TULIPIFERA	TULIP POPLAR	35"	FAIR	
93	LIRIODENDRON TULIPIFERA	TULIP POPLAR	39"	FAIR	
94	ACER RUBRUM	RED MAPLE	33"	FAIR	
95	LIRIODENDRON TULIPIFERA	TULIP POPLAR	37"	FAIR	
96	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36"	FAIR	
97	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32"	FAIR	
98	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32"	FAIR	
99	LIRIODENDRON TULIPIFERA	TULIP POPLAR	37"	FAIR	
100	QUERCUS PALUSTRIS	PIN OAK	40"	FAIR	
101	QUERCUS FALCATA	SOUTHERN RED OAK	30"	FAIR	
102	QUERCUS IMBRICARIA	BARREN, SCRUB OAK	32"	FAIR	
103	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36"	FAIR	
104	JUGLANS NIGRA	BLACK WALNUT	37"	FAIR	
105	QUERCUS VELUTINA	BLACK OAK	44.5"	FAIR	
106	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30.5"	POOR	
107	LIRIODENDRON TULIPIFERA	TULIP POPLAR	34"	POOR	
108	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32"	GOOD	
109	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32"	POOR	
110	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32"	GOOD	
111	ACER RUBRUM	RED MAPLE	33"	GOOD	
112	QUERCUS FALCATA	SOUTHERN RED OAK	37"	GOOD	TWIN

FOREST STAND SUMMARY TABLE

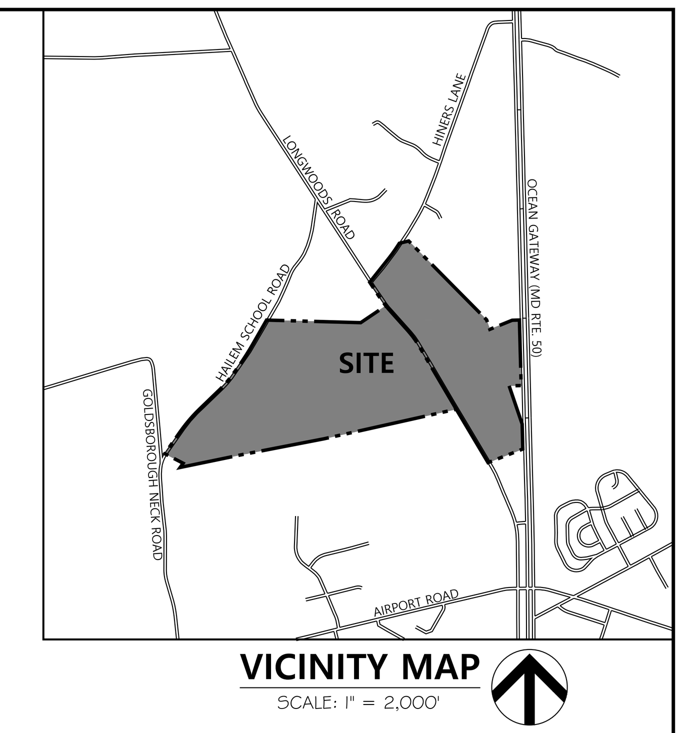
STAND	FOREST COVER TYPE	SIZE (±SF)	SIZE (±AC)	SERAL STAGE	CONDITION
A'	OAK/MAPLE/SWEETGUM/PINE	52,620	1.2	EARLY	FAIR
B'	CHERRY/KENTUCKY COFFEE/	17,490	0.4	EARLY	FAIR
C'	PINE/SWEETGUM/MAPLE/CHERRY	23,960	0.6	MID	FAIR
D'	BEECH/OAK/MAPLE/HICKORY	51,820	1.2	MID	GOOD
E'	BEECH/HICKORY/MAPLE	259,150	5.9	LATE	GOOD
F'	MAPLE/CHERRY/ELM/SWEETGUM	44,720	1.0	EARLY	FAIR
G'	SWEETGUM/MAPLE	21,930	0.5	EARLY	GOOD
H'	SWEETGUM/MAPLE	36,850	0.8	EARLY-MID	GOOD
J'	SWEETGUM/PINE/MAPLE/POPLAR	89,760	2.1	EARLY-MID	FAIR
K'	POPLAR/BEECH/CHERRY/OAK	34,090	0.8	MID	FAIR
L'	OAK/SWEETGUM/MAPLE	4,390	0.1	EARLY-MID	FAIR
M'	SWEETGUM/HICKORY	14,640	0.3	MID	GOOD
N'	MAPLE/SWEETGUM/OAK	19,990	0.5	MID	FAIR
O'	POPLAR/OAK	17,930	0.4	MID	GOOD
P'	SWEETGUM/CHERRY/OAK	47,150	1.1	EARLY-MID	FAIR
	TOTAL:	736,490	16.9		

LEGEND

- PROPERTY BOUNDARY
- ADJACENT LOT LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. BUILDING
- EX. ROAD
- 100-YR FLOODPLAIN
- STREAM BUFFER
- SOILS
- DELINEATED FOREST STANDS
- EX. TREE LINE
- EX. WETLAND
- STREAM CENTERLINE
- FOREST STAND BREAK
- SPECIMEN TREE
- ≥25% STEEP SLOPES

SOILS TABLE

SYMBOL	SOIL NAME	SLOPE	K FACTOR	HYDRIC	COMMENTS
CoA	CORSICA MUCKY LOAM	0-2%	---	YES	
EmA	ELKTON SILT LOAM	0-2%	---	YES	
FacA	FALLSINGTON SANDY LOAM	0-2%	---	YES	
FgcA	FALLSINGTON LOAM	0-2%	0.32	YES	
HfB	HAMBROOK-SASSAFRAS COMPLEX	2-5%	0.32	NO	
HfC	HAMBROOK-SASSAFRAS COMPLEX	5-10%	0.32	NO	
IgB	INGLESIDE SANDY LOAM	2-5%	0.15	NO	
LgA	LENNI LOAM	0-2%	---	YES	
MtcA	MATTAPEX SILT LOAM	0-2%	0.49	NO	2-10% OTHELLO INCLUSIONS
MtcB	MATTAPEX SILT LOAM	2-5%	0.49	NO	2-10% OTHELLO INCLUSIONS
NsB	NASSAWANGO SILT LOAM	2-5%	0.49	NO	
WdcA	WOODSTOWN SANDY LOAM	0-2%	0.24	NO	0-20% FALLSINGTON INCLUSIONS
WdcB	WOODSTOWN SANDY LOAM	2-5%	0.24	NO	0-20% FALLSINGTON INCLUSIONS
WocA	WOODSTOWN LOAM	0-2%	0.37	NO	0-20% FALLSINGTON INCLUSIONS
WocB	WOODSTOWN LOAM	2-5%	0.37	NO	0-20% FALLSINGTON INCLUSIONS
Zk	ZEKIAH SILT LOAM	---	0.37	YES	



VICINITY MAP

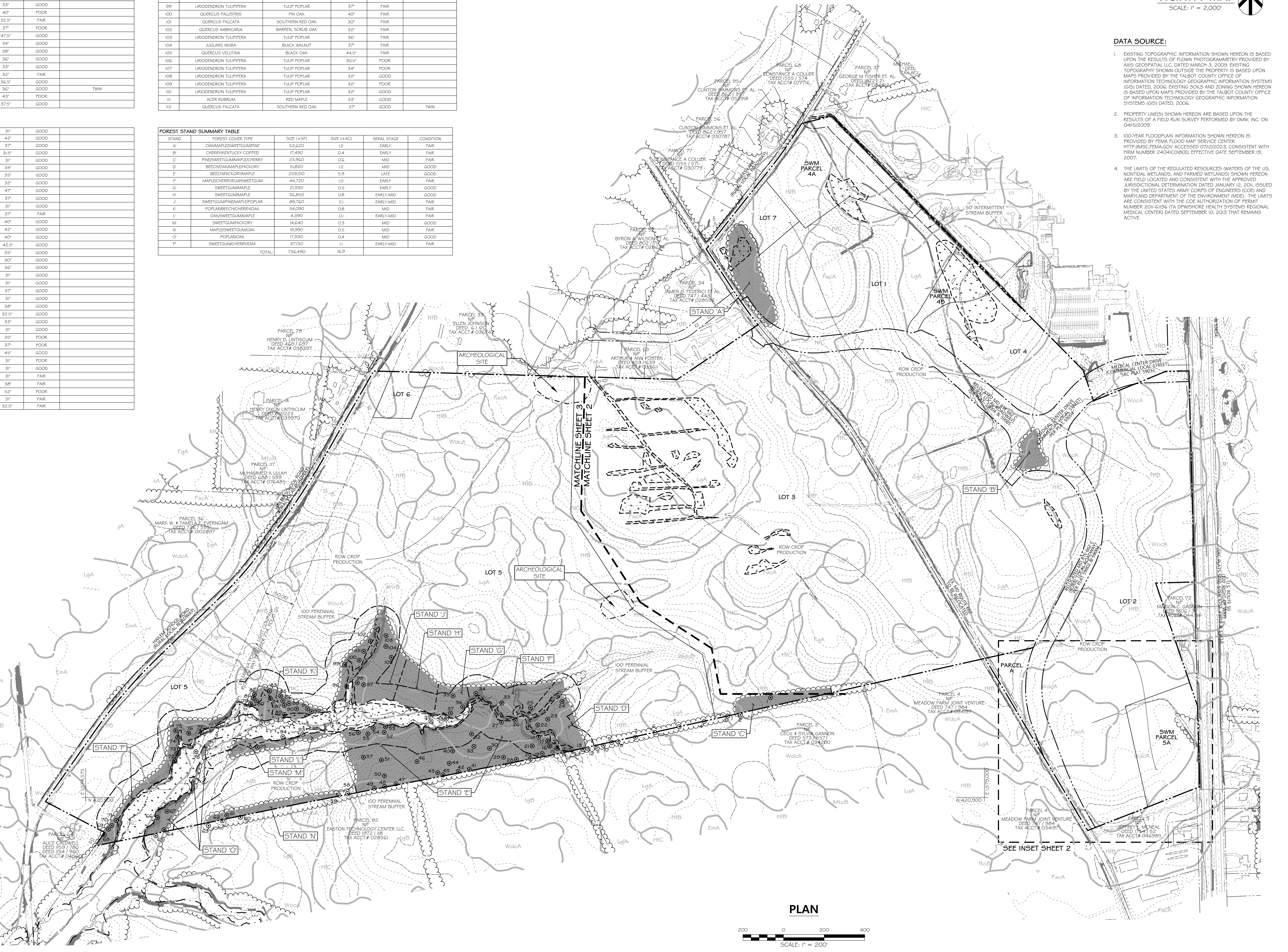
SCALE: 1" = 2,000'

DATA SOURCE:

1. EXISTING TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON THE RESULTS OF FLOWN PHOTOGRAMMETRY PROVIDED BY AXIS GEOSPATIAL LLC, DATED MARCH 3, 2009. EXISTING TOPOGRAPHY SHOWN OUTSIDE THE PROPERTY IS BASED UPON MAPS PROVIDED BY THE TALBOT COUNTY OFFICE OF INFORMATION TECHNOLOGY GEOGRAPHIC INFORMATION SYSTEMS (GIS) DATED, 2006. EXISTING SOILS AND ZONING SHOWN HEREON IS BASED UPON MAPS PROVIDED BY THE TALBOT COUNTY OFFICE OF INFORMATION TECHNOLOGY GEOGRAPHIC INFORMATION SYSTEMS (GIS) DATED, 2006.
2. PROPERTY LINE(S) SHOWN HEREON ARE BASED UPON THE RESULTS OF A FIELD RUN SURVEY PERFORMED BY DMW, INC. ON 04/15/2009.
3. 100-YEAR FLOODPLAIN INFORMATION SHOWN HEREON IS PROVIDED BY FEMA FLOOD MAP SERVICE CENTER HTTP://MSC.FEMA.GOV ACCESSED 07/12/2023, CONSISTENT WITH FIRM NUMBER 24041C0180D, EFFECTIVE DATE SEPTEMBER 19, 2007.
4. THE LIMITS OF THE REGULATED RESOURCES (WATERS OF THE US, NONTIDAL WETLANDS, AND FARMED WETLANDS) SHOWN HEREON ARE FIELD LOCATED AND CONSISTENT WITH THE APPROVED JURISDICTIONAL DETERMINATION DATED JANUARY 12, 2011, ISSUED BY THE UNITED STATES ARMY CORPS OF ENGINEERS (COE) AND MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE). THE LIMITS ARE CONSISTENT WITH THE COE AUTHORIZATION OF PERMIT NUMBER 2011-61196 (TA DPW/SHORE HEALTH SYSTEMS REGIONAL MEDICAL CENTER) DATED SEPTEMBER 10, 2013 THAT REMAINS ACTIVE.

PROPERTY DATA

PROPERTY OWNER:	SHORE HEALTH SYSTEM, INC. 219 S. WASHINGTON STREET EASTON, MD 21601
DEVELOPER/APPLICANT:	SHORE HEALTH SYSTEM, INC. UNIVERSITY OF MARYLAND MEDICAL SYSTEM 219 SOUTH WASHINGTON STREET EASTON, MD 21601
DESIGN CONSULTANT:	DAFT MCCUNE WALKER, INC. 501 FAIRMOUNT AVE. TOWSON, MD 21286 (410) 296-3333
TAX MAP/GRID:	17/23
TAX ACCT. NO:	01-113771, 198769, 198770, 198771, 198774, 198777, 198778
PARCEL:	129
ZONING:	RH - REGIONAL HEALTHCARE
ACREAGE:	±235.8 AC
EXISTING CONDITION:	UNDEVELOPED AGRICULTURAL



PLAN

200 0 200 400

SCALE: 1" = 200'

NOT FOR CONSTRUCTION

PLOT DATE:
A:\09035\09035.N6\ENGR\CAD FILES\SHEET FILES\09035.N6_FSD01.DWG 10/2/2023 11:43 AM echodnicki

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MCS NAD83 (2011)

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SIGNATURE

10/02/23

DATE

REVISION

NO.	DESCRIPTION	DATE

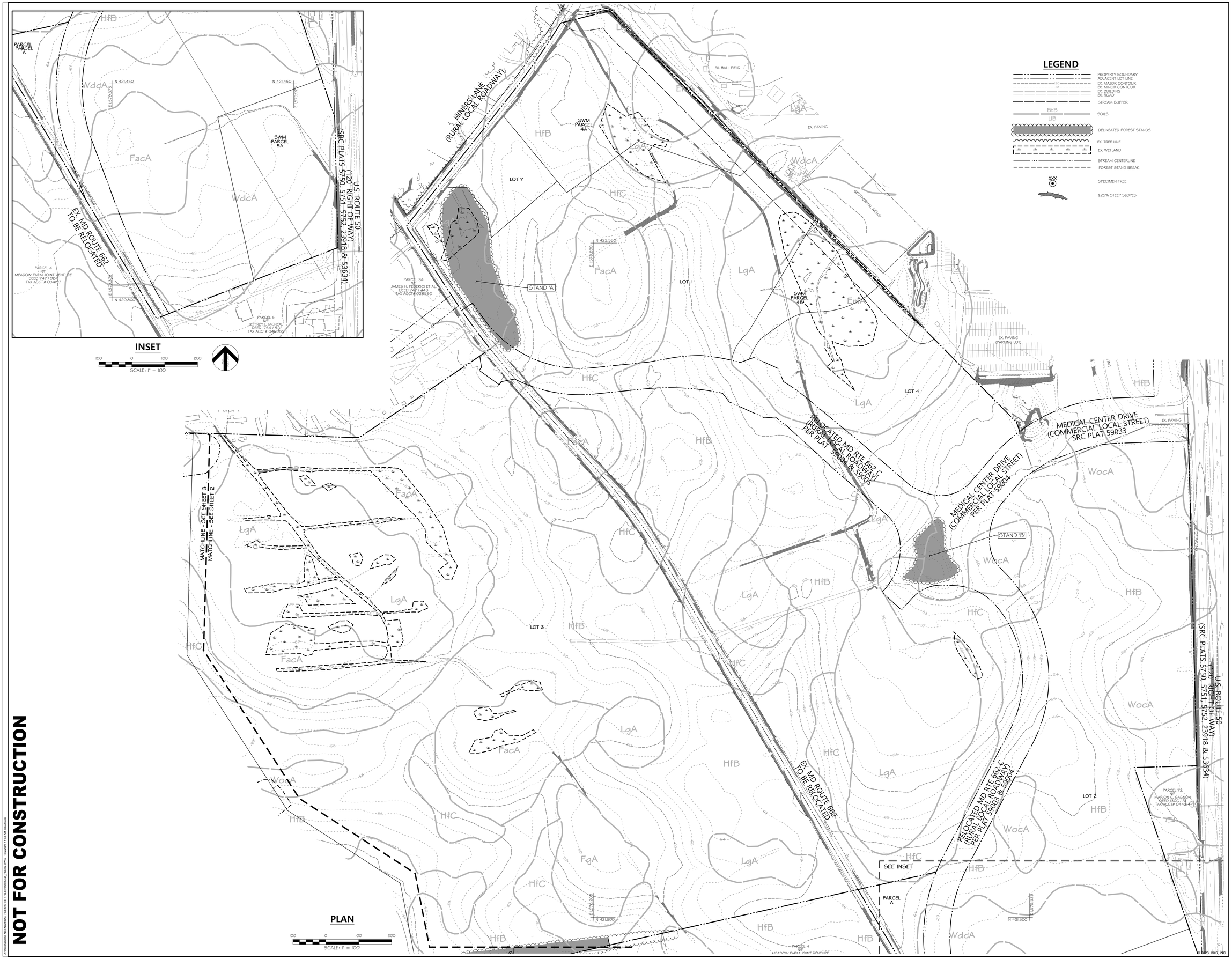
HKS PROJECT NUMBER | DMW PROJECT NUMBER
19782.012 | 09035.N6

DATE
02 OCTOBER, 2023

ISSUE
SKETCH PLAN

SHEET TITLE
FOREST STAND DELINEATION PLAN

SHEET NO.
6 OF 8



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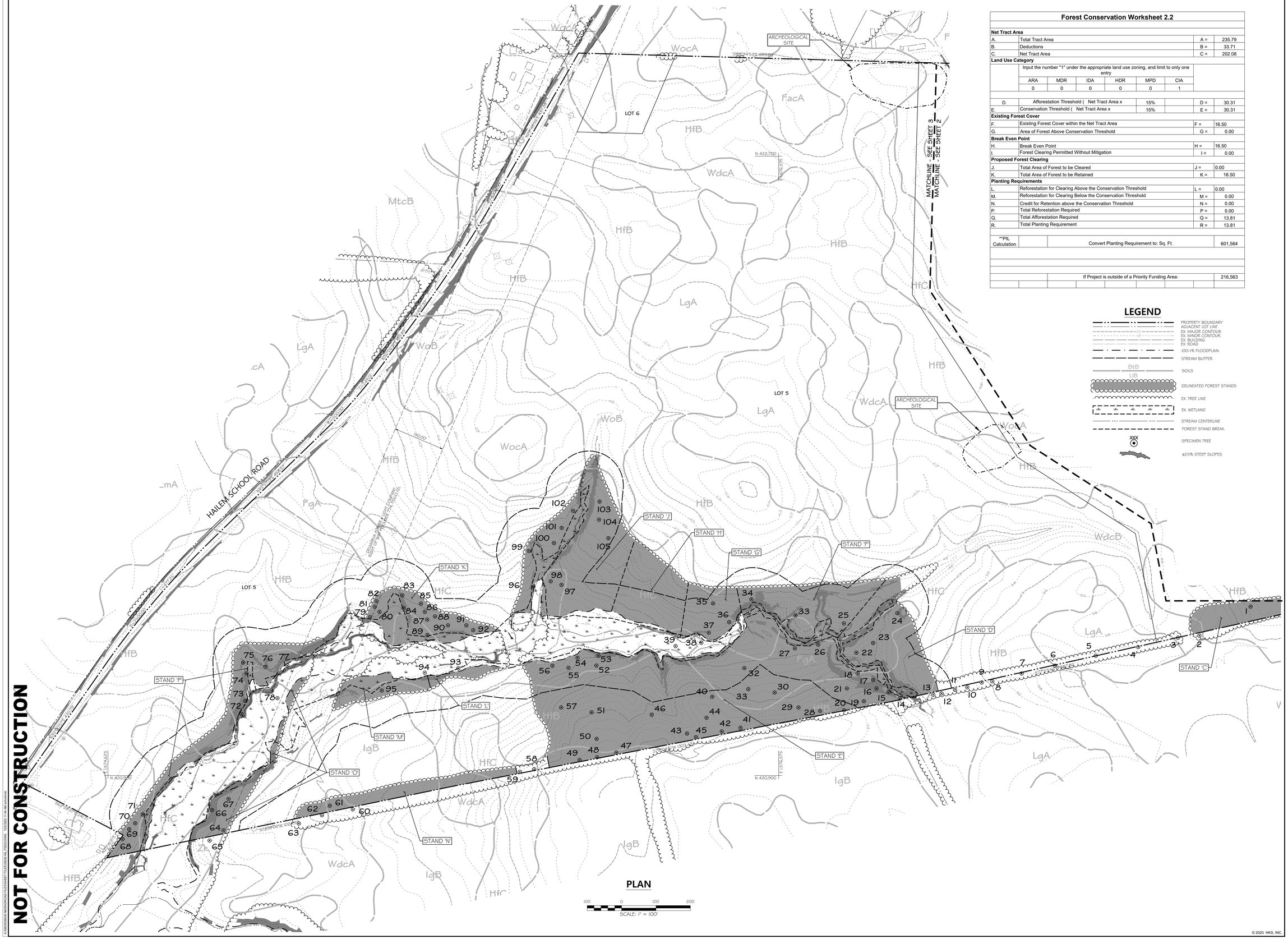
SKETCH PLAN

SHEET TITLE
FOREST STAND DELINEATION PLAN

SHEET NO.
7 OF 8



Forest Conservation Worksheet 2.2

Net Tract Area								
A.	Total Tract Area						A =	235.79
B.	Deductions						B =	33.71
C.	Net Tract Area						C =	202.08
Land Use Category								
	Input the number "1" under the appropriate land use zoning, and limit to only one entry							
	ARA	MDR	IDA	HDR	MPD	CIA		
	0	0	0	0	0	1		
D.	Afforestation Threshold (Net Tract Area x			15%			D =	30.31
E.	Conservation Threshold (Net Tract Area x			15%			E =	30.31
Existing Forest Cover								
F.	Existing Forest Cover within the Net Tract Area						F =	16.50
G.	Area of Forest Above Conservation Threshold						G =	0.00
Break Even Point								
H.	Break Even Point						H =	16.50
I.	Forest Clearing Permitted Without Mitigation						I =	0.00
Proposed Forest Clearing								
J.	Total Area of Forest to be Cleared						J =	0.00
K.	Total Area of Forest to be Retained						K =	16.50
Planting Requirements								
L.	Reforestation for Clearing Above the Conservation Threshold						L =	0.00
M.	Reforestation for Clearing Below the Conservation Threshold						M =	0.00
N.	Credit for Retention above the Conservation Threshold						N =	0.00
P.	Total Reforestation Required						P =	0.00
Q.	Total Afforestation Required						Q =	13.81
R.	Total Planting Requirement						R =	13.81
**PIL Calculation	Convert Planting Requirement to: Sq. Ft.							601,564
	If Project is outside of a Priority Funding Area:							216,563

LEGEND

- PROPERTY BOUNDARY
- ADJACENT LOT LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. BUILDING
- EX. ROAD
- 100-YR FLOODPLAIN
- STREAM BUFFER
- BtB LIB — SOILS
- DELINEATED FOREST STANDS
- EX. TREE LINE
- EX. WETLAND
- STREAM CENTERLINE
- FOREST STAND BREAK
- SPECIMEN TREE
- ≥25% STEEP SLOPES

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19782.012 | 09035.N6

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ISSUE
SKETCH PLAN

SHEET TITLE
FOREST STAND DELINEATION PLAN

SHEET NO.
8 OF 8

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SKETCH PLAN RENDERING

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EXPIRATION DATE: MARCH 01, 2024

REVISION
NO. DESCRIPTION DATE

HKS PROJECT NUMBER
19782.012 | 09035.N6

DATE
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ISSUE
PC SUBMITTAL

SHEET TITLE
RENDERING

SHEET NO.
1 OF 3

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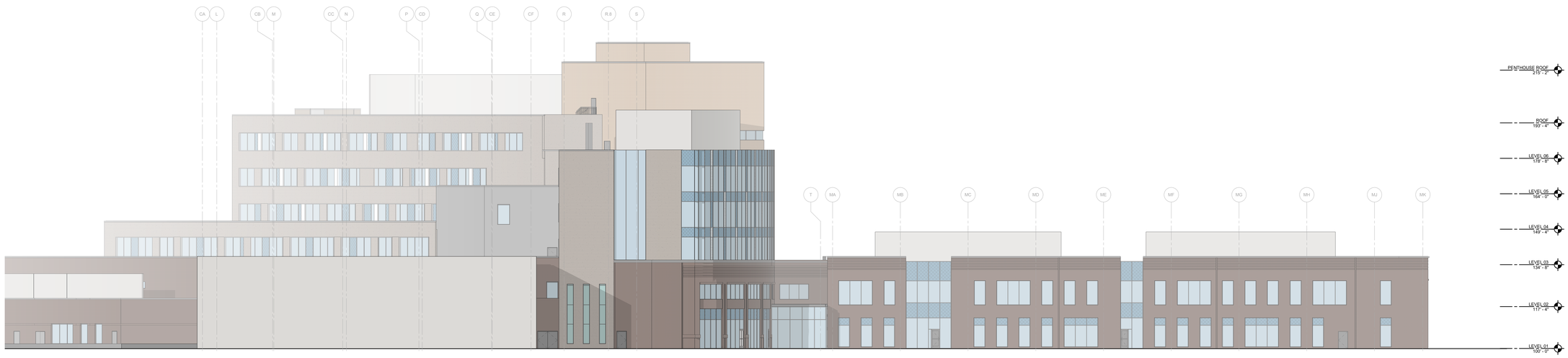
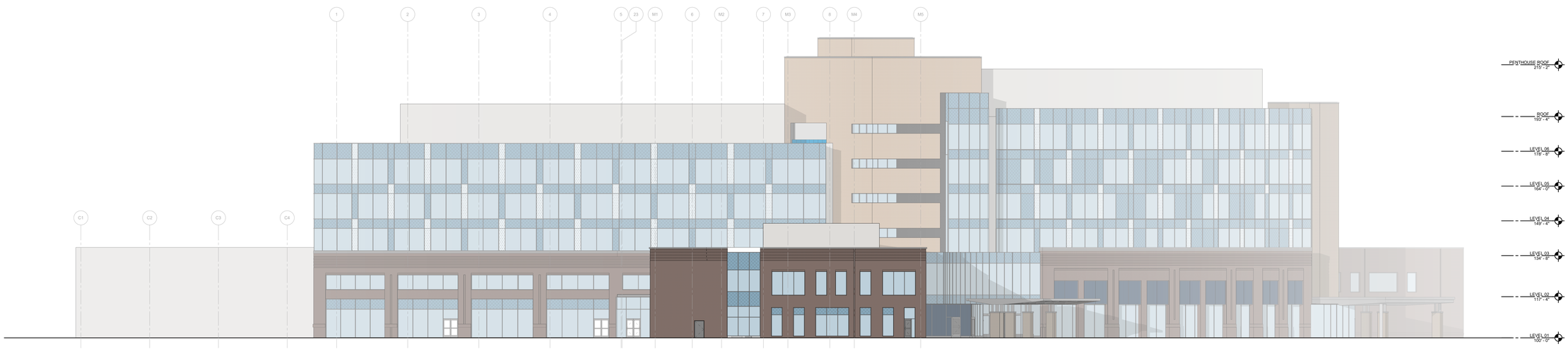
EXTERIOR MATERIALS LEGEND

- **BVWS-01** BRICK MASONRY VENEER
- **BVWS-05** BRICK MASONRY VENEER
- **BVWS-02** BRICK MASONRY VENEER
- **BVWS-06** BRICK MASONRY VENEER
- **BVWS-03** BRICK MASONRY VENEER
- **BVWS-07** BRICK MASONRY VENEER
- **BVWS-04** BRICK MASONRY VENEER
- **IMPS-01** INSULATED METAL PANEL SYSTEM
- **IMPS-02** INSULATED METAL PANEL SYSTEM
- **GAFS-01** • 1" INSULATED CLEAR VISION GLASS
- **GAFS-03** • 1" INSULATED SPANDREL GLASS (LIGHT)
- **GAFS-07** • 1" INSULATED SPANDREL GLASS (DARK)
- **GAFS-08** • 1" INSULATED SPANDREL GLASS (WITH MARCH - STYLE 1 BACK GRAPHIC)
- **GAFS-09** • 1" INSULATED SPANDREL GLASS (WITH MARCH - STYLE 2 BACK GRAPHIC)



02 COMPOSITE WEST ELEVATIONS
1/16" = 1'-0"



01 COMPOSITE SOUTH ELEVATION
1/16" = 1'-0"

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COMPOSITE EXTERIOR ELEVATIONS

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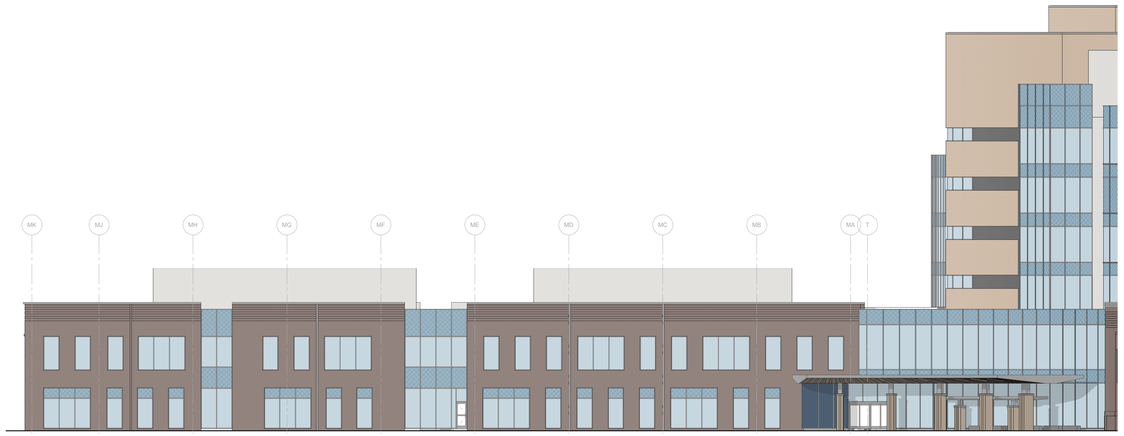
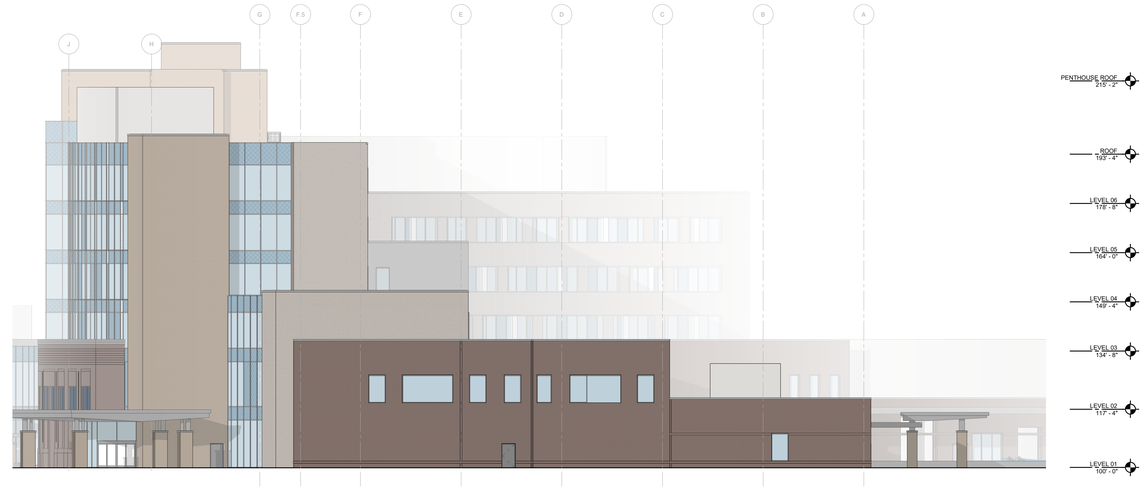
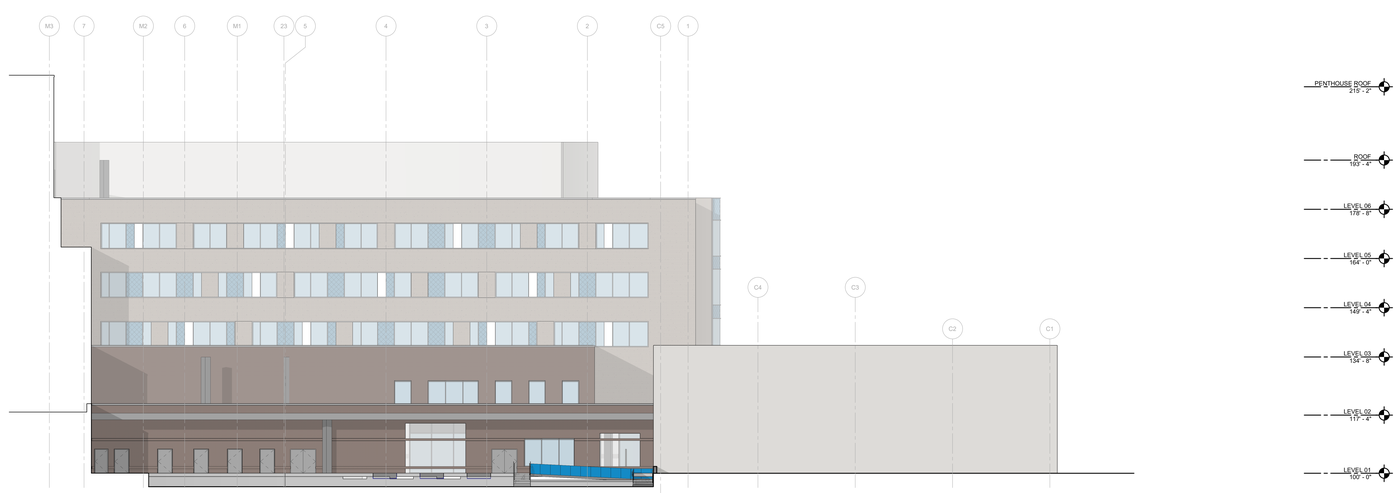


04 COMPOSITE EAST ELEVATION MOB
1/16" = 1'-0"



03 COMPOSITE EAST ELEVATION TOWER
1/16" = 1'-0"

02 COMPOSITE NORTH ELEVATIONS (EAST TOWER)
1/16" = 1'-0"



01 COMPOSITE NORTH ELEVATIONS (WEST TOWER)
1/16" = 1'-0"

EXTERIOR MATERIALS LEGEND

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COMPOSITE EXTERIOR ELEVATIONS

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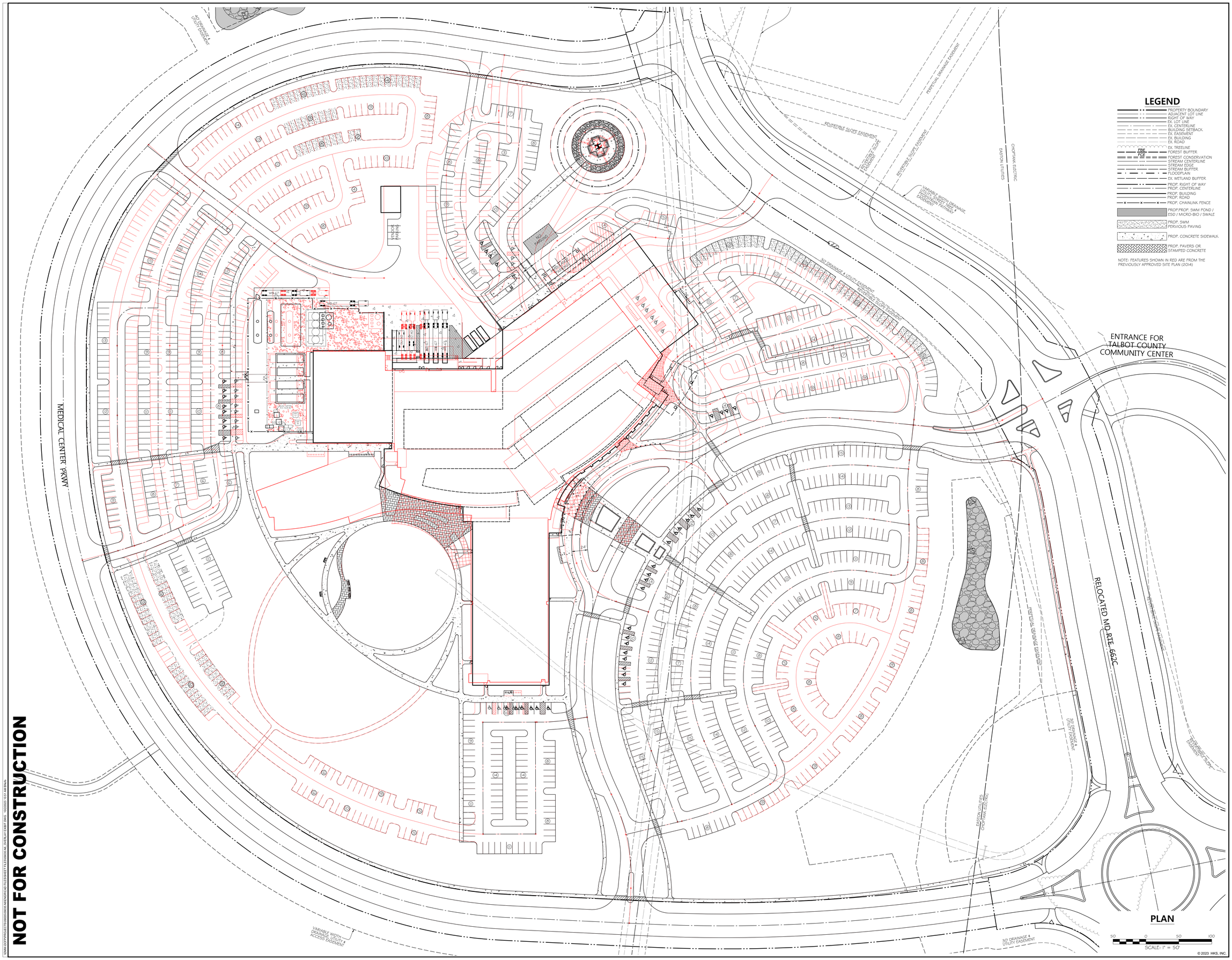

LEGEND

- PROPERTY BOUNDARY
- ADJACENT LOT LINE
- RIGHT OF WAY
- EX. LOT LINE
- EX. CENTERLINE
- BUILDING SETBACK
- EX. EASEMENT
- EX. BUILDING
- EX. ROAD
- EX. TREELINE
- FDE — FOREST BUFFER
- FCE — FOREST CONSERVATION
- STREAM CENTERLINE
- STREAM EDGE
- STREAM BUFFER
- FLOODPLAIN
- EX. WETLAND BUFFER
- PROP. RIGHT OF WAY
- PROP. CENTERLINE
- PROP. BUILDING
- PROP. ROAD
- PROP. CHAINLINK FENCE
- PROP.PROP. SWM POND / ESD / MICRO-BIO / SWALE
- PROP. SWM PERVIOUS PAVING
- PROP. CONCRETE SIDEWALK
- PROP. PAVERS OR STAMPED CONCRETE

NOTE: FEATURES SHOWN IN RED ARE FROM THE PREVIOUSLY APPROVED SITE PLAN (2014)

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PROFESSIONAL CERTIFICATION

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LICENSE NO. 28823, EXPIRATION DATE: 06/07/2024.

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SHEET TITLE
OVERLAY SITE PLAN

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1 OF 1

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PLANTING LEGEND

- Interior Parking Lot Tree
- Street Tree
- Shade Tree
- Evergreen Hedge
- Flowering Tree
- Shrubs and Perennials (incl. Building Facade Plantings)
- Meadow or Turf
- SWM

OVERALL LANDSCAPE PLAN

SHORE REGIONAL MEDICAL CENTER

MAHAN RYKIEL

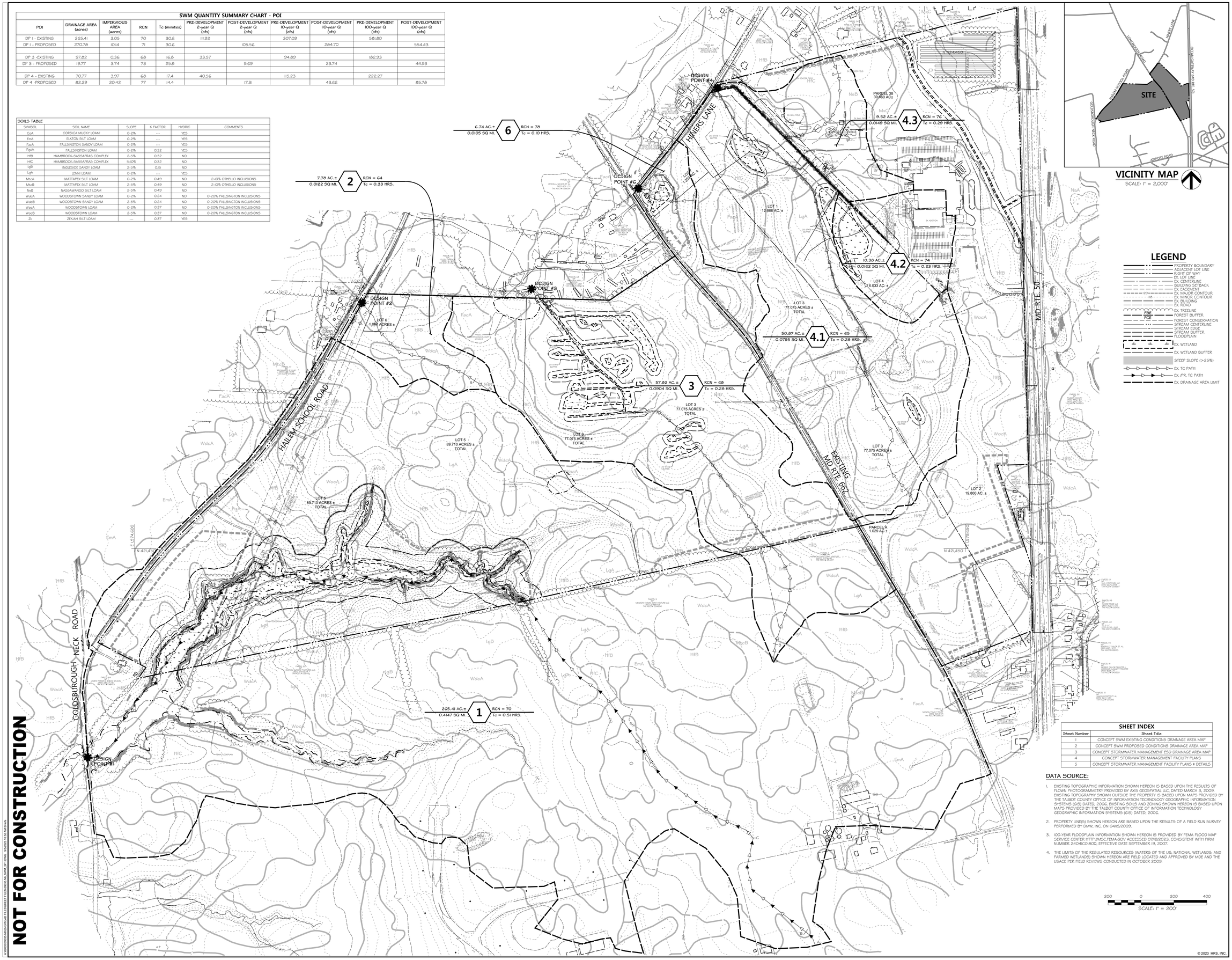
02 October, 2023

SWM QUANTITY SUMMARY CHART - POI

POI	DRAINAGE AREA (acres)	IMPERVIOUS AREA (acres)	RCN	Tc (minutes)	PRE-DEVELOPMENT 2-year Q (cfs)	POST-DEVELOPMENT 2-year Q (cfs)	PRE-DEVELOPMENT 10-year Q (cfs)	POST-DEVELOPMENT 10-year Q (cfs)	PRE-DEVELOPMENT 100-year Q (cfs)	POST-DEVELOPMENT 100-year Q (cfs)
DP 1 - EXISTING	265.41	3.05	70	30.6	111.92		307.09		561.80	
DP 1 - PROPOSED	270.78	10.14	71	30.6		105.56		284.70		554.43
DP 3 -EXISTING	57.82	0.36	68	16.8	33.57		94.89		182.93	
DP 3 - PROPOSED	19.77	3.74	73	25.8		9.69		23.74		44.93
DP 4 - EXISTING	70.77	3.97	68	17.4	40.56		115.23		222.27	
DP 4 -PROPOSED	82.29	20.42	77	14.4		17.31		43.66		85.78

SOILS TABLE

SYMBOL	SOIL NAME	SLOPE	K FACTOR	HYDRIC	COMMENTS
CoA	CORSICA MUCKY LOAM	0-2%	---	YES	
ErnA	ELKTON SILT LOAM	0-2%	---	YES	
FacA	FALLSINGTON SANDY LOAM	0-2%	---	YES	
FagA	FALLSINGTON LOAM	0-2%	0.32	YES	
HfB	HAMBROOK-SASSAFRAS COMPLEX	2-5%	0.32	NO	
HfC	HAMBROOK-SASSAFRAS COMPLEX	5-10%	0.32	NO	
IgB	INGLESIDE SANDY LOAM	2-5%	0.15	NO	
LgA	LENNI LOAM	0-2%	---	YES	
MtcA	MATTAPEX SILT LOAM	0-2%	0.49	NO	2-10% OTHELLO INCLUSIONS
MtcB	MATTAPEX SILT LOAM	2-5%	0.49	NO	2-10% OTHELLO INCLUSIONS
NsB	NASSAWANGO SILT LOAM	2-5%	0.49	NO	
WacA	WOODSTOWN SANDY LOAM	0-2%	0.24	NO	0-20% FALLSINGTON INCLUSIONS
WacB	WOODSTOWN SANDY LOAM	2-5%	0.24	NO	0-20% FALLSINGTON INCLUSIONS
WocA	WOODSTOWN LOAM	0-2%	0.37	NO	0-20% FALLSINGTON INCLUSIONS
WocB	WOODSTOWN LOAM	2-5%	0.37	NO	0-20% FALLSINGTON INCLUSIONS
Zk	ZEKIAH SILT LOAM	---	0.37	YES	



SHEET INDEX

Sheet Number	Sheet Title
1	CONCEPT SWM EXISTING CONDITIONS DRAINAGE AREA MAP
2	CONCEPT SWM PROPOSED CONDITIONS DRAINAGE AREA MAP
3	CONCEPT STORMWATER MANAGEMENT ESD DRAINAGE AREA MAP
4	CONCEPT STORMWATER MANAGEMENT FACILITY PLAND
5	CONCEPT STORMWATER MANAGEMENT FACILITY PLAND & DETAILS

DATA SOURCE:

1. EXISTING TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON THE RESULTS OF FLOWN PHOTOGRAMMETRY PROVIDED BY AXIS GEOSPATIAL LLC, DATED MARCH 3, 2009. EXISTING TOPOGRAPHY SHOWN OUTSIDE THE PROPERTY IS BASED UPON MAPS PROVIDED BY THE TALBOT COUNTY OFFICE OF INFORMATION TECHNOLOGY GEOGRAPHIC INFORMATION SYSTEMS (GIS) DATED, 2006. EXISTING SOILS AND ZONING SHOWN HEREON IS BASED UPON MAPS PROVIDED BY THE TALBOT COUNTY OFFICE OF INFORMATION TECHNOLOGY GEOGRAPHIC INFORMATION SYSTEMS (GIS) DATED, 2006.
2. PROPERTY LINE(S) SHOWN HEREON ARE BASED UPON THE RESULTS OF A FIELD RUN SURVEY PERFORMED BY DMW, INC. ON 04/15/2009.
3. 100-YEAR FLOODPLAIN INFORMATION SHOWN HEREON IS PROVIDED BY FEMA FLOOD MAP SERVICE CENTER HTTP://MSC.FEMA.GOV ACCESSED 07/3/2023, CONSISTENT WITH FIRM NUMBER 24041C0160D, EFFECTIVE DATE SEPTEMBER 19, 2007.
4. THE LIMITS OF THE REGULATED RESOURCES (WATERS OF THE US, NATIONAL WETLANDS, AND FARMED WETLANDS) SHOWN HEREON ARE FIELD LOCATED AND APPROVED BY MDE AND THE USACE PER FIELD REVIEWS CONDUCTED IN OCTOBER 2009.

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MAGNETIC NORTH

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LICENSE NO. 28823, EXPIRATION DATE: 01/07/2024

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PROFESSIONAL ENGINEER
9/5/23

REVISION NO.	DESCRIPTION	DATE

HKS PROJECT NUMBER | DMW PROJECT NUMBER
19782.012 | 09035.N6

DATE
05 SEPTEMBER, 2023

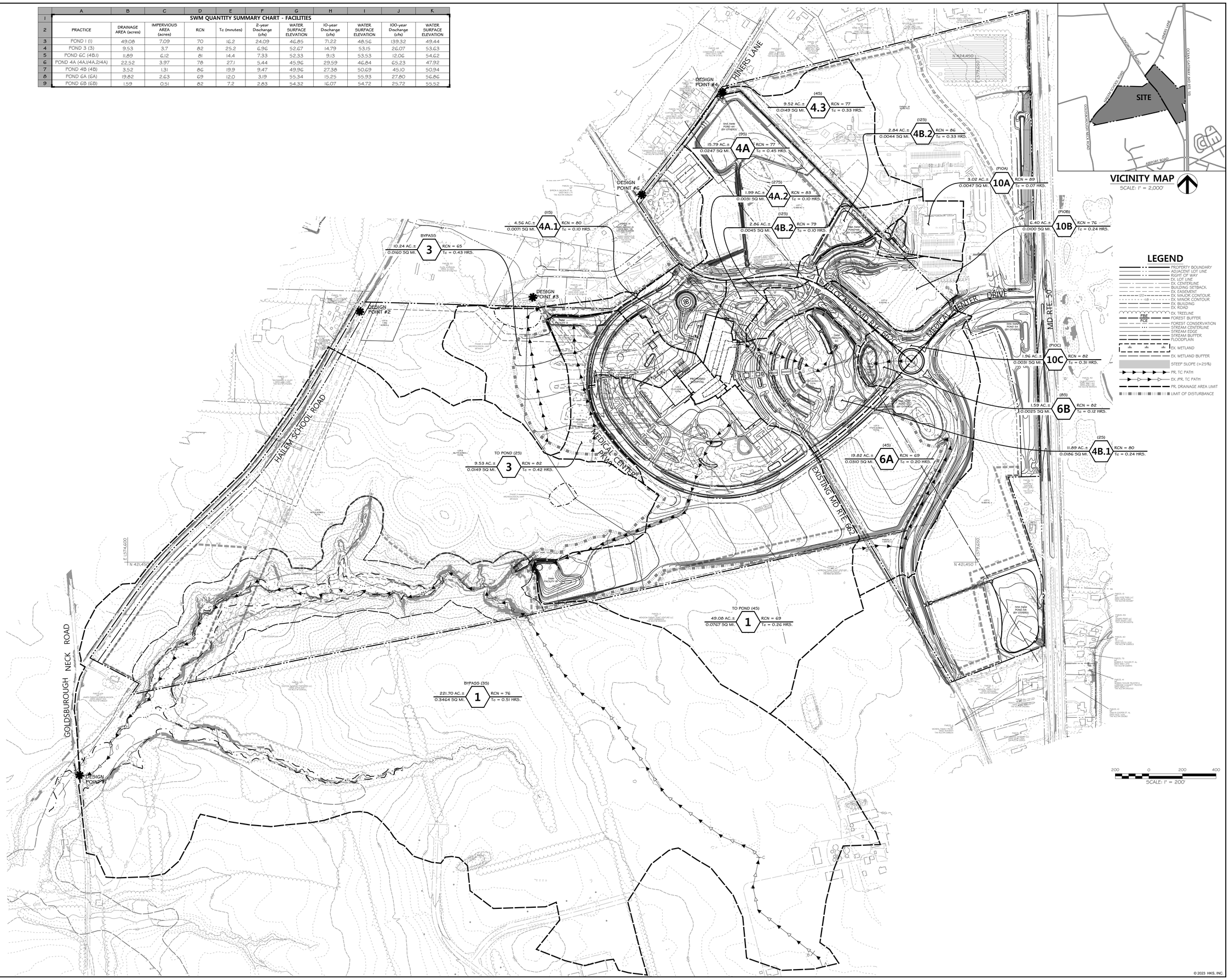
ISSUE
SKETCH PLAN

SHEET TITLE
CONCEPT SWM EXISTING CONDITIONS DRAINAGE AREA MAP

SHEET NO.
1 OF 5

PLOT DATE:
Z:\09035\09035.N6\DWG\CAD\TEB\EBONER\TB_SWM_MPT.DWG 9/5/2023 9:52:35 AM EBoner

	A	B	C	D	E	F	G	H	I	J	K
1	SWM QUANTITY SUMMARY CHART - FACILITIES										
2	PRACTICE	DRAINAGE AREA (acres)	IMPERVIOUS AREA (acres)	RCN	Tc (minutes)	2-year Discharge (cfs)	WATER SURFACE ELEVATION	10-year Discharge (cfs)	WATER SURFACE ELEVATION	100-year Discharge (cfs)	WATER SURFACE ELEVATION
3	POND I (I)	49.08	7.09	70	16.2	24.09	46.85	71.22	48.56	139.32	49.44
4	POND 3 (3)	9.53	3.7	82	25.2	6.96	52.67	14.79	53.15	26.07	53.63
5	POND 6C (4B.1)	11.89	6.12	81	14.4	7.33	52.33	9.13	53.53	12.06	54.62
6	POND 4A (4A1,4A.2/4A)	22.52	3.97	78	27.1	5.44	45.96	29.59	46.84	65.23	47.92
7	POND 4B (4B)	3.52	1.31	86	19.9	9.47	49.96	27.38	50.69	45.10	50.94
8	POND 6A (6A)	19.82	2.63	69	12.0	3.19	55.34	15.25	55.93	27.80	56.86
9	POND 6B (6B)	1.59	0.51	82	7.2	2.83	54.32	16.07	54.72	25.72	55.52



VICINITY MAP
SCALE: 1" = 2,000'

LEGEND

- PROPERTY BOUNDARY
- ADJACENT LOT LINE
- RIGHT OF WAY
- EX. LOT LINE
- EX. CENTERLINE
- BUILDING SETBACK
- EX. EASEMENT
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. BUILDING
- EX. ROAD
- EX. TREELINE
- FBE / FCE — FOREST BUFFER / FOREST CONSERVATION
- STREAM CENTERLINE
- STREAM EDGE
- STREAM BUFFER
- FLOODPLAIN
- EX. WETLAND
- EX. WETLAND BUFFER
- STEEP SLOPE (>25%)
- PR. TC PATH
- EX. /PR. TC PATH
- PR. DRAINAGE AREA LIMIT
- LIMIT OF DISTURBANCE

NOT FOR CONSTRUCTION

PLOT DATE:
A:\0000\0000\0000\0000\0000 FILES\NEET FILES\0000 NE_SWM_SPECIFIC_9\0000\0 9-5-23 AM Mark

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NORTH
HORIZ. 1" = 200'

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9/5/23

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ISSUE
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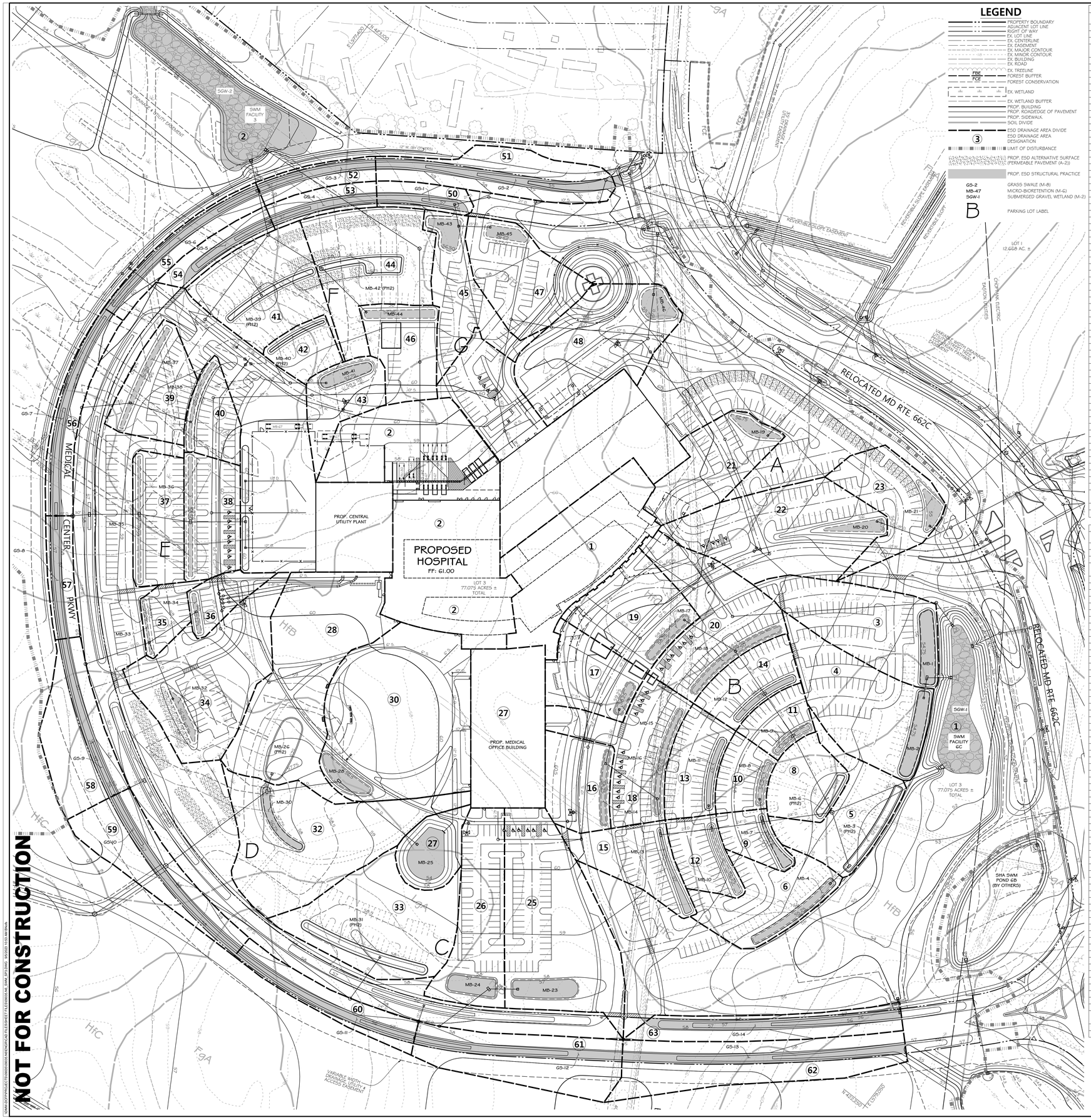
SHEET TITLE
CONCEPT SWM PROPOSED CONDITIONS DRAINAGE AREA MAP

SHEET NO.
2 OF 5



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- EX. MINOR CONTOUR
- EX. BUILDING
- EX. ROAD
- EX. TREELINE
- FBE — FOREST BUFFER
- FCE — FOREST CONSERVATION
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. BUILDING
- PROP. ROADEDGE OF PAVEMENT
- PROP. SIDEWALK
- SOIL DIVIDE
- ESD DRAINAGE AREA DIVIDE
- 3 — ESD DRAINAGE AREA DESIGNATION
- LIMIT OF DISTURBANCE
- PROP. ESD ALTERNATIVE SURFACE (PERMEABLE PAVEMENT (A-2))
- PROP. ESD STRUCTURAL PRACTICE
- GS-2 — GRASS SWALE (M-8)
- MB-47 — MICRO-BIORETENTION (M-6)
- SGW-1 — SUBMERGED GRAVEL WETLAND (M-2)
- B — PARKING LOT LABEL

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 NAD83 Meters Northing	Maryland Grid Coordinate NAD83 Meters Easting
Lot A (12 PS)	(A-2)	Phase 1-C	On-Site			
Lot A (31 PS)	(A-2)	Phase 1-B	On-Site			
Lot D (43 PS)	(A-2)	Phase 2-C	On-Site			
Lot F (43 PS)	(A-2)	Phase 2-C	On-Site			
1	(M-2)	1	On-Site			
2	(M-2)	2	On-Site			
3	(M-6)	1	On-Site			
4	(M-6)	2	On-Site			
5	(M-6)	3	On-Site			
6	(M-6)	4	On-Site			
8	(M-6)	6	On-Site			
9	(M-6)	7	On-Site			
10	(M-6)	8	On-Site			
11	(M-6)	9	On-Site			
12	(M-6)	10	On-Site			
13	(M-6)	11	On-Site			
14	(M-6)	12	On-Site			
15	(M-6)	13	On-Site			
16	(M-6)	14	On-Site			
17	(M-6)	15	On-Site			
18	(M-6)	16	On-Site			
19	(M-6)	17	On-Site			
20	(M-6)	18	On-Site			
21	(M-6)	19	On-Site			
22	(M-6)	20	On-Site			
23	(M-6)	21	On-Site			
25	(M-6)	23	On-Site			
26	(M-6)	24	On-Site			
27	(M-6)	25	On-Site			
28	(M-6)	26	On-Site			
30	(M-6)	28	On-Site			
32	(M-6)	30	On-Site			
33	(M-6)	31	On-Site			
34	(M-6)	32	On-Site			
35	(M-6)	33	On-Site			
36	(M-6)	34	On-Site			
37	(M-6)	35	On-Site			
38	(M-6)	36	On-Site			
39	(M-6)	37	On-Site			
40	(M-6)	38	On-Site			
41	(M-6)	39	On-Site			
42	(M-6)	40	On-Site			
43	(M-6)	41	On-Site			
44	(M-6)	42	On-Site			
45	(M-6)	43	On-Site			
46	(M-6)	44	On-Site			
47	(M-6)	45	On-Site			
48	(M-6)	46	On-Site			
50	(M-8)	1	On-Site			
51	(M-8)	2	On-Site			
52	(M-8)	3	On-Site			
53	(M-8)	4	On-Site			
54	(M-8)	5	On-Site			
55	(M-8)	6	On-Site			
56	(M-8)	7	On-Site			
57	(M-8)	8	On-Site			
58	(M-8)	9	On-Site			
59	(M-8)	10	On-Site			
60	(M-8)	11	On-Site			
61	(M-8)	12	On-Site			
62	(M-8)	13	On-Site			
63	(M-8)	14	On-Site			
TOTAL/ AVERAGE	-	-			-	-

Standard No.: TOE-SWM-7.01

ESD SUMMARY CHART CONTINUED

Drainage Area	ESD Practice Total Drainage Area (ac)	ESD Practice Impervious Drainage Area (ac)	Surface Area of ESD Practice (ac)	Target PE (in.)	Actual PE (in.)	Target ESDv (cf)	Actual ESDv (cf)
Lot A (12 PS)	0.04	0.04	0.04			N/A	311
Lot A (31 PS)	0.12	0.12	0.12			N/A	984
Lot D (43 PS)	0.16	0.16	0.16			N/A	1,115
Lot F (43 PS)	0.16	0.16	0.16			N/A	1,115
1	0.82	0.82	0.23			4,283	7,863
2	1.66	1.66	0.36			8,636	12,452
3	0.65	0.42	0.05			2,243	4,133
4	0.69	0.41	0.06			2,236	4,119
5	0.45	0.26	0.03			1,391	2,563
6	0.46	0.29	0.04			1,553	2,860
8	0.28	0.18	0.02			943	1,687
9	0.16	0.10	0.01			559	1,030
10	0.20	0.15	0.01			774	974
11	0.19	0.15	0.01			776	974
12	0.23	0.16	0.01			854	1,426
13	0.30	0.21	0.02			1,147	1,865
14	0.29	0.21	0.02			1,132	1,865
15	0.36	0.21	0.02			1,124	1,944
16	0.33	0.11	0.02			660	1,215
17	0.35	0.20	0.01			1,014	1,267
18	0.55	0.38	0.02			2,034	2,568
19	0.49	0.27	0.02			1,479	2,206
20	0.65	0.40	0.03			2,142	2,623
21	0.44	0.24	0.03			1,308	2,410
22	0.65	0.48	0.03			2,618	2,894
23	0.41	0.21	0.02			1,166	2,148
25	1.06	0.47	0.06			2,624	4,833
26	0.56	0.35	0.04			1,876	3,456
27	0.90	0.68	0.09			3,644	6,712
28	1.10	0.16	0.07			1,088	2,004
30	1.28	0.28	0.04			1,762	3,246
32	1.00	0.20	0.03			1,263	2,327
33	0.81	0.27	0.04			1,555	2,864
34	0.84	0.30	0.02			1,722	1,968
35	0.16	0.11	0.01			567	710
36	0.16	0.11	0.01			602	972
37	0.37	0.26	0.02			1,405	2,071
38	0.37	0.27	0.03			1,448	2,647
39	0.38	0.18	0.03			974	1,795
40	0.23	0.16	0.02			840	1,547
41	0.61	0.38	0.02			2,052	2,346
42	0.16	0.11	0.01			591	667
43	0.29	0.19	0.03			1,015	1,870
44	0.71	0.38	0.04			2,084	3,840
45	0.41	0.26	0.04			1,393	2,566
46	0.34	0.21	0.03			1,117	2,058
47	0.50	0.30	0.02			1,646	2,599
48	0.75	0.35	0.04			1,916	3,529
50	0.14	0.08	0.01			38	77
51	0.49	0.15	0.04			134	508
52	0.16	0.08	0.02			45	236
53	0.16	0.09	0.01			44	210
54	0.17	0.10	0.01			47	181
55	0.27	0.12	0.03			74	404
56	0.31	0.13	0.03			84	430
57	0.18	0.08	0.02			50	269
58	0.51	0.11	0.02			141	341
59	0.49	0.13	0.03			135	409
60	0.29	0.12	0.03			81	408
61	0.58	0.13	0.03			160	430
62	0.71	0.18	0.04			197	585
63	0.38	0.22	0.01			106	153
TOTAL/ AVERAGE	29.14	15.65	2.59			74,743	127,921

Standard No.: TOE-SWM-7.01

SCALE: 1" = 60'

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MAP NORTH

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STATE OF MARYLAND — STEVEN M. BRADFORD — PROFESSIONAL ENGINEER — 9/5/23

REVISION NO.	DESCRIPTION	DATE

HKS PROJECT NUMBER | DMV PROJECT NUMBER
19782.012 | 09035.N6

DATE
05 SEPTEMBER, 2023

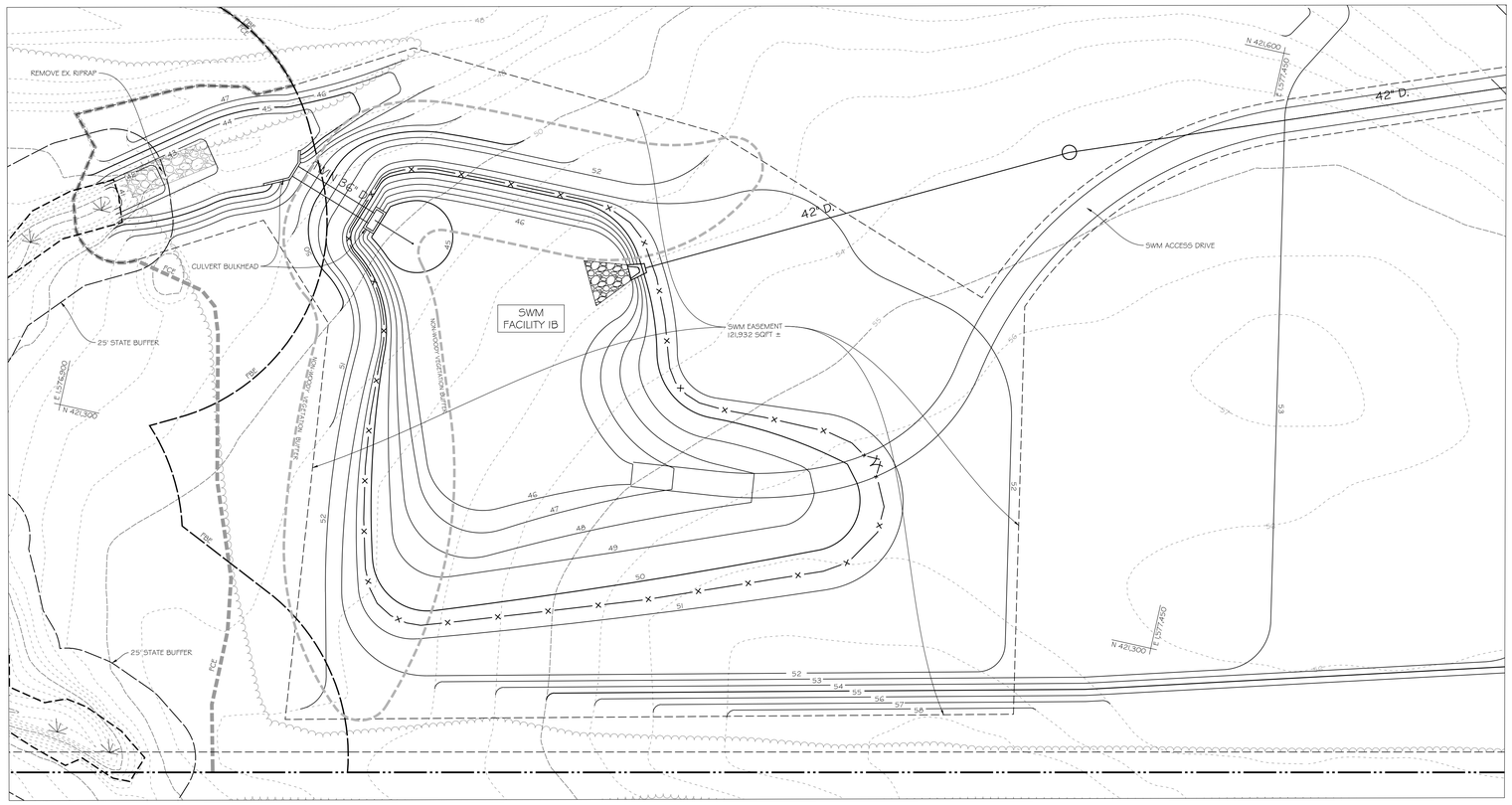
ISSUE
SKETCH PLAN

SHEET TITLE
CONCEPT STORMWATER MANAGEMENT ESD DRAINAGE AREA MAP

SHEET NO.
3 OF 5

PLOT DATE:
NAME:G:\PROJECTS\09000\09035.N6\CAD FILES\SHEET FILES\09035.N6_ESD_GP1.DWG 9/5/2023 10:53 AM Brina

SWM FACILITY 6C



SWM FACILITY 1B

NOT FOR CONSTRUCTION

PLOT DATE:

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ISSUE
SKETCH PLAN

SHEET TITLE
CONCEPT STORMWATER MANAGEMENT FACILITY PLANS

SHEET NO.
4 OF 5

30 0 30 60
SCALE: 1" = 30'

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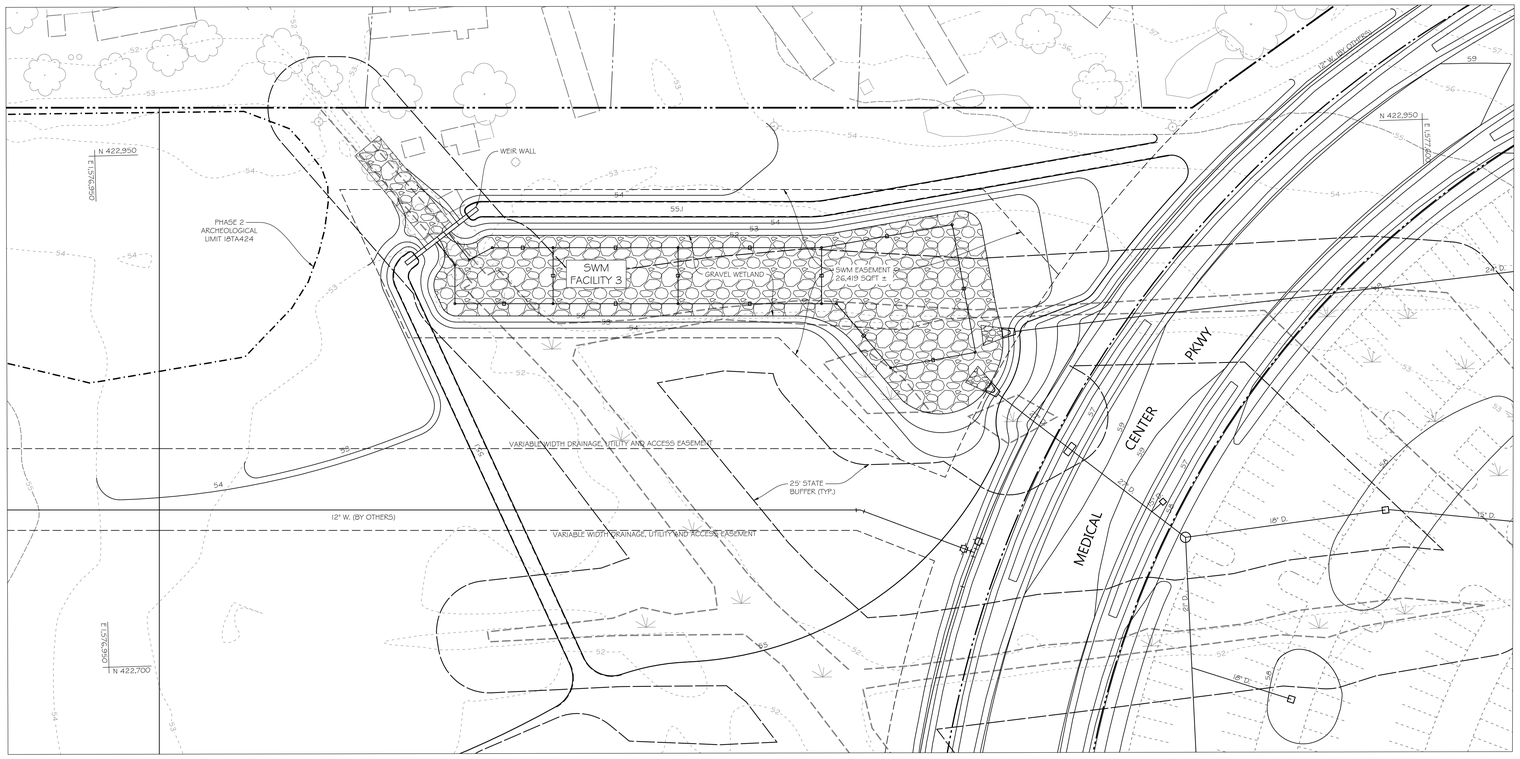
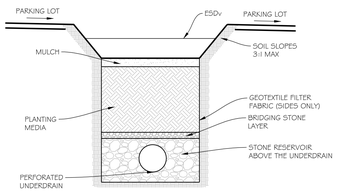


30 0 30 60
SCALE: 1" = 30'

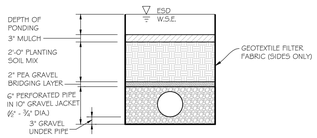
MATCH VARIES (SOUTH)

SWM FACILITY 3



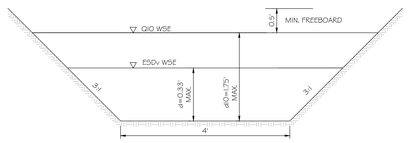
TYPICAL SECTION OF MICRO-BIORETENTION FACILITY

NOT TO SCALE



TYPICAL FILTER SECTION MICRO-BIORETENTION FACILITY

NOT TO SCALE

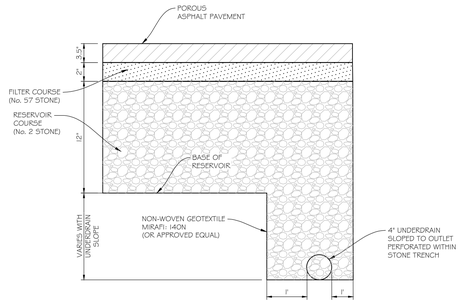


GRASS SWALE TYPICAL SECTION

NOT TO SCALE

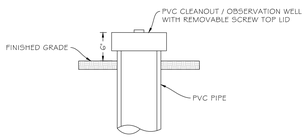
GRASS SWALE MAINTENANCE PLAN

1. FOR GRASSED SWALES, REGULAR MOWING (AT LEAST BI-ANNUALLY) IS CRITICAL IN ORDER TO REDUCE COMPETITION FROM WEEDS AND IRRIGATION MAY BE NEEDED DURING DRY WEATHER TO ESTABLISH VEGETATION. SPARSELY VEGETATED AREAS NEED TO BE RE-SEEDED TO MAINTAIN DENSE COVERAGE.
2. IF WATER DOES NOT DRAIN WITHIN 48 HOURS, THE BOTTOM SOIL SHOULD BE TILLED AND REVEGETATED.
3. INSPECTIONS SHOULD BE PERFORMED ONCE A YEAR TO ASSESS SLOPE INTEGRITY, VEGETATIVE HEALTH, SOIL STABILITY, COMPACTION, EROSION, PONDING, AND SEDIMENTATION. PERIODIC REMOVAL OF SEDIMENT, LITTER, OR OBSTRUCTIONS SHOULD BE DONE AS NEEDED. ERODED SIDE SLOPES AND THE SWALE BOTTOM SHOULD BE REPAIRED AND STABILIZED WHERE NEEDED.



TYPICAL SECTION OF POROUS ASPHALT PAVEMENT WITH UNDERDRAIN

N.T.S.

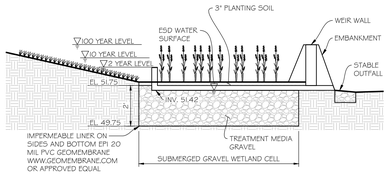


EACH CLEANOUT / OBSERVATION WELL SHALL INCLUDE THE FOLLOWING:

1. FOR AN UNDERGROUND FLUSH MOUNTED CLEANOUT / OBSERVATION WELL, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 OR EQUAL, AT LEAST 3-FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 4-INCHES.
2. THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA-VIOLET RAYS.

CLEANOUT / OBSERVATION WELL DETAIL

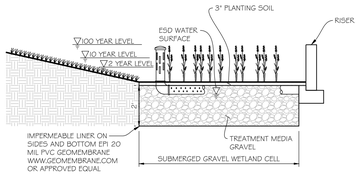
NOT TO SCALE



EXTENDED DETENTION DRY POND WITH SUBMERGED GRAVEL WETLAND CELL

TYPICAL SECTION OF SWM FACILITY #3

NOT TO SCALE



EXTENDED DETENTION DRY POND WITH SUBMERGED GRAVEL WETLAND CELL

TYPICAL SECTION OF SWM FACILITY #6C

NOT TO SCALE

NOT FOR CONSTRUCTION

PLOT DATE:
X:\0009\09035.N6\ENGRDWG\1 FILES\SHEET FILES\09035.N6_SWM_SP.DWG 9/5/2023 10:53 AM BNick

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SHORE HEALTH
UNIVERSITY OF MARYLAND MEDICAL SYSTEM

Shore Regional Medical Center

OWNER
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250 W. Pratt Street
Suite 2400
Baltimore, MD 21201

Shore Health System
219 S. Washington Street
Easton, MD 21601

OWNER'S CONSULTANT
FM Global
2100 Reston Parkway, Suite 600
Reston, VA 20191

MATCH VARIES (SOUTH)

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. 28823, EXPIRATION DATE: 01/07/2024

STATE OF MARYLAND · STEVEN B. BUCHANAN · No. 28823 · PROFESSIONAL ENGINEER

9/5/23

REVISION

NO.	DESCRIPTION	DATE

HKS PROJECT NUMBER | DMW PROJECT NUMBER
19782.012 | 09035.N6

DATE
05 SEPTEMBER, 2023

ISSUE
SKETCH PLAN

SHEET TITLE
CONCEPT STORMWATER MANAGEMENT FACILITY PLANS & DETAILS

SHEET NO.
5 OF 5

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Quantity Stormwater Management Computations

Concept (Sketch Plan)

Shore Health System / University of Maryland Medical System
Regional Medical Center
Easton, MD (Talbot County)

DMW Project No. 09035.N6

August 2023

Prepared for:

Shore Health System
University of Maryland Medical System
219 South Washington Street
Easton, MD 21601

Prepared by:

Daft-McCune-Walker, Inc.
501 Fairmount Ave., Suite 300
Towson, Maryland 21286
410-296-3333
Fax 410-296-4705
Design: MM Review: KMB
kbischoff@dmw.com

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. 28823 Exp. Date 1/7/2024

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SWM Narrative

Introduction:

The following report summarizes the proposed quantity stormwater management (SWM) design for the proposed hospital site development. The Environmental Site Design (ESD) is in a separate report. The SWM design for the relocation of Route 662C, US Route 50, and Medical Center Drive is also in a separate report that was previously reviewed and approved by both Talbot County and SHA. The design point and associated ponds that are affected by the hospital development are restudied within this report to ensure town and state requirements are met.

Project Location:

The subject property is located in Talbot County in the Town of Easton on a parcel of land roughly bordered by Route 50 to the east, Hiners Lane to the north, Hailem School Road to the west, and the Gannon Farm to the south. The project is approximately one mile north of the Easton Municipal Airport. The site is located on Tax Map 17, Grid 23 and includes parcel 129 and is comprised of 236.15 ac. +/-.

Existing Conditions:

The existing onsite conditions are primarily small grain row crops (conservatively modeled in the existing conditions analysis as meadow for onsite areas) with some areas of trees and impervious cover. There is a section of Route 662C that will be removed and relocated as a part of the overall development of the site. Offsite areas that drain onto the site are made up primarily of small grain row crops and woods. The existing site drains to eight different design points (DP). This study examines four points which are affected by the hospital improvements (DP1-4). Design Point One (DP1) is located at Goldsborough Neck Road at an existing 48-inch culvert. Design Point Two (DP2) is located at the northwest corner of the site and will not be disturbed; therefore, it is excluded from the remainder of this study. Design Point Three (DP3) is identified as the drainage to the north through Foster's Trailer Park. Design Point Four (DP4) is identified as the drainage to the northeast under Route 662C to an existing culvert at Hiners Lane. Flows to Design Point Four will pass through multiple ponds and culverts constructed during the relocation of Route 662C.

Proposed Improvements:

A portion of the site will be developed (30 acres +/- within the loop road and 76 acres +/- of total disturbance) to include a hospital building, medical office building, accessory structures, parking areas, the loop road, and SWM facilities. The remainder of the disturbance on the site will be graded and seeded.

Stormwater Management Practices:

The site has varying requirements for quantity control based upon the conditions of each DP. Each DP will be explored further later in this section. The site falls within a five-mile radius of an airport; therefore, the most stringent requirement between the Federal Aviation Administration (FAA) and the Maryland Aviation Administration (MAA) must be followed. Facilities with standing water that could attract waterfowl are not allowed within this radius. Quantity facilities must dewater the 1-year and 2-year storm within twenty-four hours and the 10-year storm within forty-eight hours.

Water quality facilities are required to dewater within twenty-four hours. All SWM facilities and ESD practices are required to be maintained to ensure that this criterion is met.

Floodplain Information:

A FEMA floodplain does exist on-site, below the stormwater outfall for proposed Pond 1. At this design point, 100-yr management is proposed and no impacts to the floodplain are anticipated.

Quantity Management:

Design Point 1 (DP1) – DP1 has been set at an existing 48-inch culvert crossing at Goldsborough Neck Road southeast of the property (see the drainage area maps). This culvert and roadway have a history of flooding problems that have been documented by the County. Flows for the 2-, 10-, and 100-year storm events have been reduced from existing conditions. Peak flows will be managed by Pond 1, a dry extended detention facility. DP1 has a significant area of bypass, most of which is outside of the LOD. Pond 1 will be a MD 378 pond and will be designed accordingly. Flows will be managed though a concrete riser. The 2-, 10-, and 100-yr storm events are required to be managed for this design point.

Design Point 3 (DP3) – DP3 is along the north side of the property and runoff flows primarily though Foster's Trailer Park (see the drainage area maps). Residents of the trailer park have commented on past flooding problems. As such, the drainage area and flows for all storm events have been greatly reduced from the existing condition. Flows for DP3 will be managed for the 2- and 10-year storm events and the pond has been designed to pass the 100-yr storm event. The pond is an extended detention dry pond (Pond 3) with a submerged gravel wetland base. Flows will be managed though a multistage concrete weir. Discharges from this pond were designed to not exceed the capacity of the existing earthen channel that runs through the trailer park and to stay below the locations of the existing trailers. Field run topographic information for the trailer park was obtained and entered into the HydroCAD model to ensure the existing channel was modeled correctly. The 2-yr and 10-yr storm events are required to be managed for this design point.

Design Point 4 (DP4) – DP4 is located northeast of the property at Hiners Lane (see the drainage area maps) at an existing 24" culvert. Management for this design point is provided during the relocation of RTE 662C and four ponds are proposed (4A, 4B, 6A, and 6B). To account for the additional impervious area proposed for the hospital construction, we propose one additional extended detention dry pond (6C). The 2-yr and 10-yr storm events are required to be managed for this design point and the pond has been designed to pass the 100-yr storm event.

The SWM plans and computations for the proposed conditions for the Route 662C relocation show eleven sub-areas for DP4 (4A, 4A.1, 4A.2, 4.3, 4B, 4B.1, 6A, 6B, and 10A, 10B, 10C). In this study, we have added one additional sub-area 4B.2, which is a bifurcation of the Route 662C sub-area 4B.1.

The proposed conditions drainage areas in this study are changed from the proposed conditions areas in the Route 662C study. This study will show the revised pond conditions for ponds 4, 4B, 6B, and 6A, but we proposed no change to the design of these facilities.

Table 1: Discharge Summary at Study Points

Design Point	Storm Event (Year)	Existing Condition (cfs)	Proposed Condition (cfs)
1	2	111.92	105.56
	10	307.09	284.70
	100	581.80	554.43
3	2	33.57	9.69
	10	94.89	23.74
	100	182.93	44.93
4	2	40.56	17.31
	10	115.23	43.66
	100	222.27	85.78

Table 2: Pond Maximum Water Surface Elevation (WSE)

Pond	2-year WSE	10-year WSE	100-year WSE	Top of Berm Elevation	Freeboard Provided for 100-year Storm
1	46.85	48.56	49.44	52.00	2.56'
3	52.67	53.15	53.63	55.10	1.47'
6C	52.33	53.53	54.62	57.00	2.38'
4A*	45.96	46.84	47.92	48.75	0.83'
4B*	49.96	50.69	50.94	51.75	0.81'
6A*	55.34	55.93	56.86	57.75	0.89'
6B*	54.32	54.72	55.52	57.00	1.48'

*These facilities will not be modified for this development

Table 3: Pond Peak Draw Down Summary

Pond	Storm	Draw Down Time (hr)
1	2-year 10-year	16 17
3	2-year 10-year	24 27
6C	2-year 10-year	23 26
4A*	2-year 10-year	26 34
4B*	2-year 10-year	22 28
6A*	2-year 10-year	16 20
6B*	2-year 10-year	18 24

*These facilities will not be modified for this development

Appendix I.

TR-55 Existing Conditions

Daft-McCune-Walker, Inc.
501 Fairmount Avenue, Suite 300, Towson, Maryland 21286

TR-55 DESIGN COMPUTATION

By: MM
Date: August 29, 2023
Check:
Date:
Sheet of

Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: Existing to DP No. 2
Existing: [X] Proposed [ ] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow	Good		30				
B	Meadow	Good		58			4.43	256.89
C	Meadow	Good		71			2.95	209.69
D	Meadow	Good		78			0.40	30.83
A	Woods	Good		30				
B	Woods	Good		55				
C	Woods	Good		70				
D	Woods	Good		77				
	Impervious			98				
			Total Square Miles:		0.0122	Total Acres:	7.78	497.41

Weighted RCN= 63.95 , Use 64

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Meadow	100	0.130			1.0		0.1864
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	X paved unpaved	858				0.7	1.70	0.1401
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
							7.00	
							0.00	
							0.00	
							Total	0.3266

Initial Abstraction Ia = 1.127 in. (Table 5-1) Use Tc= 0.33 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	1.127	1.127		1.127		1.127
Ia/P =	0.403	0.332		0.213		0.148
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.38	0.65		1.77		3.46
Peak Dischg. (CFS)=						

Daft-McCune-Walker, Inc.

501 Fairmount Avenue, Suite 300, Towson, Maryland 21286

TR-55 DESIGN COMPUTATION

By: MM
Date: August 29, 2023
Check:
Date:
Sheet of

Project: UMMS - Easton
Job Number: 09035.N6

Drainage Area: Existing
to DP No. 3

Existing: [X] Proposed [ ] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow	Good		30				
B	Meadow	Good		58			25.48	1477.81
C	Meadow	Good		71			14.38	1021.29
D	Meadow	Good		78			8.20	639.37
A	Woods	Good		30				
B	Woods	Good		55			0.11	6.26
C	Woods	Good		70				
D	Woods	Good		77				
	Impervious			98			0.36	35.33
A	Agricultural (Small Grain SR) OFFSITE	Good		63				
B	Agricultural (Small Grain SR) OFFSITE	Good		75			5.05	378.84
C	Agricultural (Small Grain SR) OFFSITE	Good		83			2.99	247.88
D	Agricultural (Small Grain SR) OFFSITE	Good		87			1.25	108.86
			Total Square Miles:		0.0903	Total Acres:	57.82	3915.62

Weighted RCN= 67.72 , Use 68

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Cultivated Soils (Residue <20%)	100	0.060			0.8		0.1098
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	X paved unpaved	492				0.7	1.70	0.0804
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
C-D	Stream	2,304					7.00	0.0914
							0.00	
							0.00	
							Total	0.2816

Initial Abstraction Ia = 0.954 in. (Table 5-1) Use Tc= 0.28 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.954	0.954		0.954		0.954
Ia/P =	0.341	0.280		0.180		0.125
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.52	0.83		2.07		3.87
Peak Dischg. (CFS)=						

Daft-McCune-Walker, Inc.

501 Fairmount Avenue, Suite 300, Towson, Maryland 21286

TR-55 DESIGN COMPUTATION

By: MM
Date: August 30, 2023
Check:
Date:
Sheet of

Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: Existing to DP No. 4.1
Existing: [X] Proposed [ ] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow	Good		30				
B	Meadow	Good		58			32.10	1861.80
C	Meadow	Good		71			4.62	328.00
D	Meadow	Good		78			13.10	1022.00
A	Woods	Good		30				
B	Woods	Good		55			0.27	15.01
C	Woods	Good		70				
D	Woods	Good		77			0.07	5.63
	Impervious			98			0.71	69.18
			Total Square Miles:		0.0795	Total Acres:	50.87	3301.63

Weighted RCN= 64.90 , Use 65

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Meadow	100	0.130			2.9		0.1218
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	X paved unpaved	559				1.4	2.43	0.0639
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
C-D	Stream	2,324					7.00	0.0922
							0.00	
							0.00	
							Total	0.2779

Initial Abstraction Ia = 1.082 in. (Table 5-1) Use Tc= 0.28 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	1.082	1.082		1.082		1.082
Ia/P =	0.386	0.318		0.204		0.142
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.41	0.70		1.85		3.56
Peak Dischg. (CFS)=						

Daft-McCune-Walker, Inc.

501 Fairmount Avenue, Suite 300, Towson, Maryland 21286

TR-55 DESIGN COMPUTATION

By: MM
Date: August 30, 2023
Check:
Date:
Sheet of

Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: Existing 4.2 to DP No. 4.2
Existing: [X] Proposed [ ] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow	Good		30				
B	Meadow	Good		58			2.61	151.11
C	Meadow	Good		71			2.67	189.23
D	Meadow	Good		78			2.43	189.34
A	Woods	Good		30				
B	Woods	Good		55				
C	Woods	Good		70				
D	Woods	Good		77				
	Impervious			98			2.05	200.79
B	Lawn	Good		61			0.63	38.48
			Total Square Miles:		0.0162	Total Acres:	10.38	768.95

Weighted RCN= 74.10 , Use 74

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Meadow	100	0.130			2.8		0.1235
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	X paved unpaved	592				0.8	1.82	0.0904
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
C-D	Stream	529					7.00	0.0210
							0.00	
							0.00	
							Total	0.2349

Initial Abstraction Ia = 0.699 in. (Table 5-1) Use Tc= 0.23 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.699	0.699		0.699		0.699
Ia/P =	0.250	0.206		0.132		0.092
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.79	1.18		2.61		4.58
Peak Dischg. (CFS)=						

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N
Drainage Area: Existing 4.3 to DP No. 4
Existing: [X] Proposed [ ] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Lawn	Good		39				
B	Lawn	Good		61			1.78	108.81
C	Lawn	Good		74			3.77	279.01
D	Lawn	Good		80			2.76	220.96
A	Woods	Good		30				
B	Woods	Good		55				
C	Woods	Good		70				
D	Woods	Good		77				
	Impervious			98			1.21	118.30
			Total Square Miles:		0.0149	Total Acres:	9.52	727.07

Weighted RCN= 76.35 , Use 76

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Grass: Dense	100	0.240			3.5		0.1845
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	X paved unpaved	594				0.9	1.92	0.0860
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
	Trap	544	0.0			0.5	7.00	0.0216
							0.00	
							0.00	
							Total	0.2921

Initial Abstraction Ia = 0.620 in. (Table 5-1) Use Tc= 0.29 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.620	0.620		0.620		0.620
Ia/P =	0.221	0.182		0.117		0.082
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.90	1.32		2.82		4.83
Peak Dischg. (CFS)=						

Appendix II.

TR-55 - Proposed Conditions

Daft-McCune-Walker, Inc.

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N6

Drainage Area: Proposed
to DP No. 1
Pond 1

Existing: [ ] Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow	Good		30				
B	Meadow	Good		58			18.23	1057.50
C	Meadow	Good		71			12.30	873.31
D	Meadow	Good		78			3.11	242.26
A	Woods	Good		30				
B	Woods	Good		55			0.73	40.08
C	Woods	Good		70			0.06	4.39
D	Woods	Good		77			0.18	14.01
	Impervious			98			7.09	694.52
B	Lawn(within ring road)	Good		61			3.88	236.97
C	Lawn(within ring road)	Good		74			2.30	169.91
D	Lawn(within ring road)	Good		80			1.20	95.78
			Total Square Miles:		0.0767	Total Acres:	49.08	3428.72

Weighted RCN= 69.86 , Use 70

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Lawn	100	0.150			1.2		0.1977
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	paved x unpaved	110				1.3	1.84	0.0166
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
C-D	Pipe	1,300					7.00	0.0516
							0.00	
							0.00	
							Total	0.2659

Initial Abstraction Ia = 0.863 in. (Table 5-1) Use Tc= 0.27

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.863	0.863		0.863		0.863
Ia/P =	0.308	0.254		0.163		0.114
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.60	0.94		2.25		4.11
Peak Dischg. (CFS)=						

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: Proposed
bypass to DP No. 1
Existing: [ ] Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow	Good		30				
B	Meadow	Good		58			44.02	2553.14
C	Meadow	Good		71			12.71	902.74
D	Meadow	Good		78			5.03	392.61
A	Woods	Good		30			1.64	49.06
B	Woods	Good		55			24.80	1364.18
C	Woods	Good		70			5.45	381.77
D	Woods	Good		77			8.53	656.81
	Impervious			98			3.05	298.50
A	Agricultural (Small Grain SR) OFFSITE	Good		63			1.25	78.88
B	Agricultural (Small Grain SR) OFFSITE	Good		75			58.30	4372.36
C	Agricultural (Small Grain SR) OFFSITE	Good		83			47.40	3934.18
D	Agricultural (Small Grain SR) OFFSITE	Good		87			9.51	827.56
			Total Square Miles:		0.3464	Total Acres:	221.70	15811.78

Weighted RCN= 71.32 , Use 71

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Cultivated Soils (Residue <20%)	100	0.060			1.0		0.1004
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	X paved unpaved	732				1.9	2.81	0.0723
C-D	X paved unpaved	2,026				2.0	2.86	0.1970
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
D-E	Stream	3,632					7.00	0.1441
							0.00	
							0.00	
							Total	0.5139

Initial Abstraction Ia = 0.804 in. (Table 5-1) Use Tc= 0.51 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.804	0.804		0.804		0.804
Ia/P =	0.287	0.237		0.152		0.106
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.66	1.02		2.37		4.27
Peak Dischg. (CFS)=						

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N
Drainage Area: Proposed to DP No. 2
Existing: [ ] Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow	Good		30				
B	Meadow	Good		58			4.44	257.24
C	Meadow	Good		71			2.97	210.68
D	Meadow	Good		78			0.40	30.83
A	Woods	Good		30				
B	Woods	Good		55				
C	Woods	Good		70				
D	Woods	Good		77				
	Impervious			98				
			Total Square Miles:		0.0122	Total Acres:	7.80	498.74

Weighted RCN= 63.96 , Use 64

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Meadow	100	0.130			1.0		0.1864
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	X paved unpaved	858				0.7	1.70	0.1401
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
							7.00	
							0.00	
							0.00	
							Total	0.3266

Initial Abstraction Ia = 1.127 in. (Table 5-1) Use Tc= 0.33 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	1.127	1.127		1.127		1.127
Ia/P =	0.402	0.331		0.213		0.148
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.38	0.65		1.78		3.46
Peak Dischg. (CFS)=						

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TR-55 DESIGN COMPUTATION

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Date: August 25, 2023
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Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: Proposed
to DP No. 3
BYPASS
Existing: Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow	Good		30				
B	Meadow	Good		58			5.21	302.23
C	Meadow	Good		71			3.58	254.09
D	Meadow	Good		78			1.41	109.88
	Impervious			98			0.04	4.07
B	Lawn	Good		61				
C	Lawn	Good		74				
D	Lawn	Good		80				
			Total Square Miles:		0.0160	Total Acres:	10.24	670.26

Weighted RCN= 65.46 , Use 65

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Lawn	100	0.150			0.8		0.2286
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	paved X unpaved	814				0.5	1.14	0.1982
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
							7.00	
							0.00	
							0.00	
							Total	0.4267

Initial Abstraction Ia = 1.055 in. (Table 5-1) Use Tc= 0.43 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	1.055	1.055		1.055		1.055
Ia/P =	0.377	0.310		0.199		0.139
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.43	0.72		1.89		3.62
Peak Dischg. (CFS)=						

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: Proposed
to DP No. 3
Pond 3
Existing: Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
A	Meadow (outside ring road)	Good		30				
B	Meadow (outside ring road)	Good		58			1.21	70.12
C	Meadow (outside ring road)	Good		71			1.53	108.73
D	Meadow (outside ring road)	Good		78			2.09	162.84
	Impervious			98			3.70	362.83
B	Lawn	Good		61			0.01	0.53
C	Lawn	Good		74			0.66	48.84
D	Lawn	Good		80			0.33	26.59
			Total Square Miles:		0.0149	Total Acres:	9.53	780.49

Weighted RCN= 81.88 , Use 82

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Lawn	100	0.150			0.6		0.2564
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	paved × unpaved	686				0.5	1.14	0.1670
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
							7.00	
							0.00	
							0.00	
							Total	0.4235

Initial Abstraction Ia = 0.442 in. (Table 5-1) Use Tc= 0.42 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.442	0.442		0.442		0.442
Ia/P =	0.158	0.130		0.083		0.058
Peak Qu (csm/in.) =						
Runoff Q (in) =	1.22	1.69		3.34		5.47
Peak Dischg. (CFS)=						

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: 4A.1 to DP No. 4
Existing: Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
B	Lawn	Good		61			2.08	126.69
C	Lawn	Good		74			0.23	16.85
D	Lawn	Good		80				
	Impervious			98			2.25	220.78
			Total Square Miles:		0.0071	Total Acres:	4.56	364.32

Weighted RCN= 79.94 , Use 80

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
						0.0		
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
	Stream						0.00	
							0.00	
							0.00	
						USE	MIN. Tc	0.1000
							Total	0.1000

Initial Abstraction Ia = 0.502 in. (Table 5-1) Use Tc= 0.10 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.502	0.502		0.502		0.502
Ia/P =	0.179	0.148		0.095		0.066
Peak Qu (csm/in.) =						
Runoff Q (in) =	1.10	1.55		3.15		5.24
Peak Dischg. (CFS)=						

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: 4A.2 to DP No. 4
Existing: Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
B	Lawn	Good		61			0.66	39.97
C	Lawn	Good		74			0.24	17.54
D	Lawn	Good		80				
	Impervious			98			1.10	107.97
			Total Square Miles:		0.0031	Total Acres:	1.99	165.47

Weighted RCN= 82.99 , Use 83

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
						0.0		
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
							0.00	
							0.00	
							0.00	
						USE	MIN. Tc	0.1000
							Total	0.1000

Initial Abstraction Ia = 0.410 in. (Table 5-1) Use Tc= 0.10 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.410	0.410		0.410		0.410
Ia/P =	0.146	0.121		0.077		0.054
Peak Qu (csm/in.) =						
Runoff Q (in) =	1.29	1.77		3.45		5.60
Peak Dischg. (CFS)=						

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: Proposed 4.B1
to DP No. 4
to Pond 6C
Existing: Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
B	Lawn	Good		61			5.21	317.90
C	Lawn	Good		74				
D	Lawn	Good		80			0.56	44.49
	Impervious			98			6.12	599.52
			Total Square Miles:		0.0186	Total Acres:	11.89	961.91

Weighted RCN= 80.93 , Use 81

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	lawn	100	0.150			1.1		0.2050
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	X paved unpaved	137				1.0	2.03	0.0187
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
C-D	pipe	489					7.00	0.0194
							0.00	
							0.00	
							Total	0.2431

Initial Abstraction Ia = 0.471 in. (Table 5-1) Use Tc= 0.24

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.471	0.471		0.471		0.471
Ia/P =	0.168	0.139		0.089		0.062
Peak Qu (csm/in.) =						
Runoff Q (in) =	1.16	1.62		3.25		5.36
Peak Dischg. (CFS)=						

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Project: UMMS - Easton
Job Number: 09035.N6

Drainage Area: Proposed 4B.2
to DP No. 4

Existing: Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
B	Lawn	Good		61			1.44	88.10
C	Lawn	Good		74				
D	Lawn	Good		80				
	Impervious			98			1.42	139.00
			Total Square Miles:		0.0045	Total Acres:	2.86	227.11

Weighted RCN= 79.33 , Use 79

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
						0.0		
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
	Stream						0.00	
							0.00	
							0.00	
						USE	MIN. Tc	0.1000
							Total	0.1000

Initial Abstraction Ia = 0.521 in. (Table 5-1) Use Tc= 0.10 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.521	0.521		0.521		0.521
Ia/P =	0.186	0.153		0.098		0.069
Peak Qu (csm/in.) =	975	980		1000		1000
Runoff Q (in) =	1.06	1.51		3.09		5.17
Peak Dischg. (CFS)=	4.64	6.63		13.83		23.15

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TR-55 DESIGN COMPUTATION

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Project: UMMS - Easton
Job Number: 09035.N6

Drainage Area: Proposed 6B
to DP No. 4
Pond 6B

Existing: Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
B	Lawn	Good		61			0.29	17.39
C	Lawn	Good		74				
D	Lawn	Good		80			0.79	63.50
	Impervious			98			0.51	49.90
			Total Square Miles:		0.0025	Total Acres:	1.59	130.79

Weighted RCN= 82.36 , Use 82

TIME OF CONCENTRATIONS

ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	lawn	65	0.150			2.3		0.1061
B-C	pavement	35	0.011			2.3		0.0080
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
C-D	paved X unpaved	111				3.4	2.98	0.0104
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
							7.00	
							0.00	
							0.00	
							Total	0.1245

Initial Abstraction Ia = 0.428 in. (Table 5-1) Use Tc= 0.12 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.428	0.428		0.428		0.428
Ia/P =	0.153	0.126		0.081		0.056
Peak Qu (csm/in.) =						
Runoff Q (in) =	1.25	1.73		3.38		5.52
Peak Dischg. (CFS)=						

Daft-McCune-Walker, Inc.
501 Fairmount Avenue, Suite 300, Towson, Maryland 21286

TR-55 DESIGN COMPUTATION

By: MM
Date: August 30, 2023
Check:
Date:
Sheet of

Project: UMMS - Easton
Job Number: 09035.N6
Drainage Area: Proposed 6A
to DP No. 4
to Pond 6A
Existing: Proposed [X] Ultimate [ ]

Soil Group	Land Use or Zoning	Hydrologic Condition	% Imperv.	RCN Table 2-2	RCN Figure 2-3	RCN Figure 2-4	Area (Acre)	RCN x Area
B	Lawn	Good		61			0.72	43.79
C	Lawn	Good		74			0.32	23.69
D	Lawn	Good		80				
	Impervious			98			2.63	257.56
B	Meadow	Good		58			10.43	604.94
C	Meadow	Good		71			0.66	47.12
D	Meadow	Good		78			5.06	394.44
			Total Square Miles:		0.0310	Total Acres:	19.82	1371.55

Weighted RCN= 69.21 , Use 69

TIME OF CONCENTRATIONS

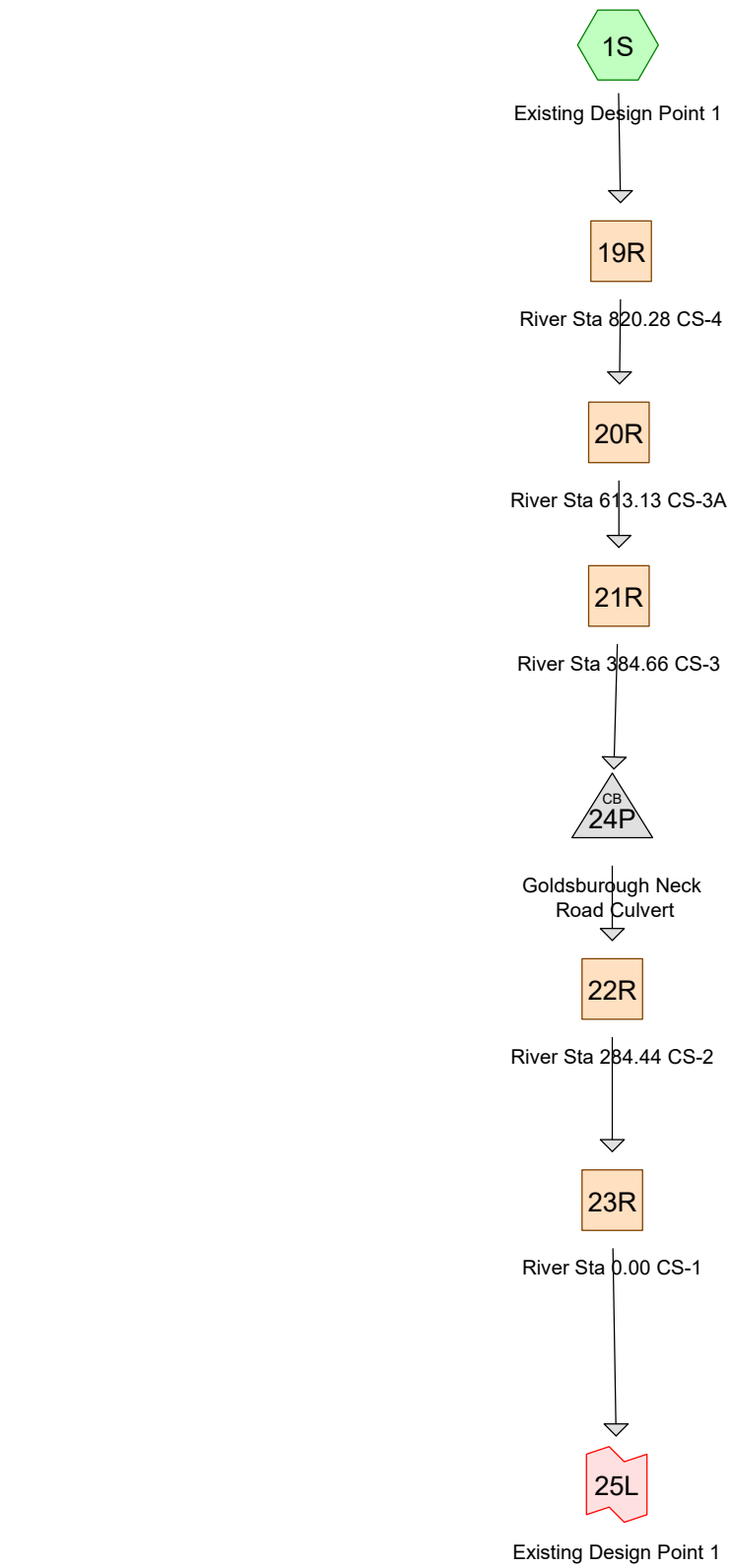
ID	Type of Flow	L(ft.)	n	A	WP	Slope (Percent)	Vel. (fps)	Time (Hours)
	Sheet Flow							
A-B	Cultivated Soils (Residue <20%)	100	0.060			0.6		0.1232
						0.0		
						0.0		
	Shallow Conc. Flow (fig. 3-1)							
B-C	paved x unpaved	273				0.9	1.53	0.0495
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	paved unpaved					0.0	0.00	
	Channel Flow							
C-D	swale	747					7.00	0.0296
D-E	pipe	54					7.00	0.0021
							0.00	
							Total	0.2045

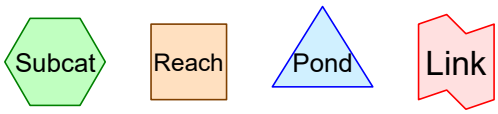
Initial Abstraction Ia = 0.890 in. (Table 5-1) Use Tc= 0.20 Tt=

Rainfall Freq. =	1 Year	2 Year		10 Years		100 Years
Rainfall, P =	2.8	3.4		5.3		7.6
Ia	0.890	0.890		0.890		0.890
Ia/P =	0.318	0.262		0.168		0.117
Peak Qu (csm/in.) =						
Runoff Q (in) =	0.57	0.91		2.20		4.04
Peak Dischg. (CFS)=						

Appendix III.A

HydroCAD – Study Point No. 1 – Existing Conditions





Routing Diagram for 09035 Study Point 1 riser
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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
265.410	70	Weighted CN from TR-55 (1S)
265.410	**70**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
265.410	Other	1S
265.410		**TOTAL AREA**

09035 Study Point 1 riser
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Page 4

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	265.410	265.410	Weighted CN from TR-55	1S
0.000	**0.000**	**0.000**	**0.000**	**265.410**	**265.410**	**TOTAL AREA**	

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: Existing Design Point 1 Runoff Area=265.410 ac 0.00% Impervious Runoff Depth=0.95"
Tc=30.6 min CN=70 Runoff=115.79 cfs 20.944 af

Reach 19R: River Sta 820.28 CS-4 Avg. Flow Depth=1.85' Max Vel=2.29 fps Inflow=115.79 cfs 20.944 af
L=276.3' S=0.0048 '/' Capacity=29,920.03 cfs Outflow=114.82 cfs 20.944 af

Reach 20R: River Sta 613.13 CS-3A Avg. Flow Depth=1.85' Max Vel=2.69 fps Inflow=114.82 cfs 20.944 af
L=207.1' S=0.0067 '/' Capacity=58,962.20 cfs Outflow=114.47 cfs 20.944 af

Reach 21R: River Sta 384.66 CS-3 Avg. Flow Depth=2.30' Max Vel=3.38 fps Inflow=114.47 cfs 20.944 af
L=228.5' S=0.0061 '/' Capacity=5,622.13 cfs Outflow=114.34 cfs 20.943 af

Reach 22R: River Sta 284.44 CS-2 Avg. Flow Depth=2.72' Max Vel=0.43 fps Inflow=114.34 cfs 20.943 af
L=100.2' S=0.0001 '/' Capacity=8,158.02 cfs Outflow=113.06 cfs 20.943 af

Reach 23R: River Sta 0.00 CS-1 Avg. Flow Depth=2.26' Max Vel=4.12 fps Inflow=113.06 cfs 20.943 af
L=284.4' S=0.0086 '/' Capacity=29,924.85 cfs Outflow=111.92 cfs 20.943 af

Pond 24P: Goldsburough Neck Road Culvert Peak Elev=10.62' Inflow=114.34 cfs 20.943 af
Outflow=114.34 cfs 20.943 af

Link 25L: Existing Design Point 1 Inflow=111.92 cfs 20.943 af
Primary=111.92 cfs 20.943 af

Total Runoff Area = 265.410 ac Runoff Volume = 20.944 af Average Runoff Depth = 0.95"
100.00% Pervious = 265.410 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Existing Design Point 1

Runoff = 115.79 cfs @ 12.31 hrs, Volume= 20.944 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	265.410	70	Weighted CN from TR-55
	265.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.6					**Direct Entry, TR-55 TC**

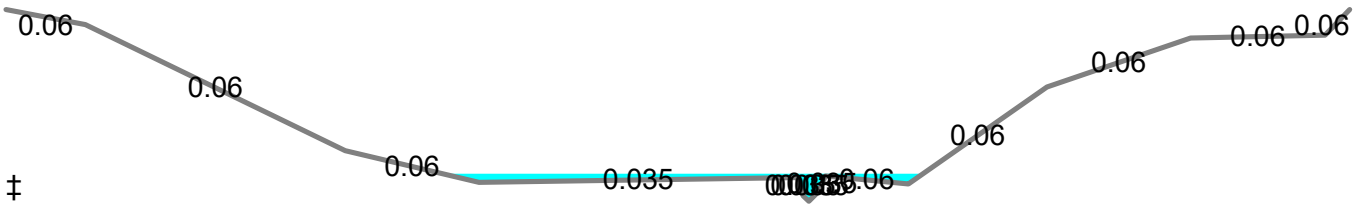
Summary for Reach 19R: River Sta 820.28 CS-4

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 115.79 cfs @ 12.31 hrs, Volume= 20.944 af
Outflow = 114.82 cfs @ 12.34 hrs, Volume= 20.944 af, Atten= 1%, Lag= 1.7 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.29 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 8.8 min

Peak Storage= 19,805 cf @ 12.34 hrs
Average Depth at Peak Storage= 1.85'
Bank-Full Depth= 12.88' Flow Area= 3,176.9 sf, Capacity= 29,920.03 cfs

Custom cross-section, Length= 276.3' Slope= 0.0048 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 11.19', Outlet Invert= 9.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.73	0.00		
26.01	21.72	1.01	0.060	
111.05	13.24	9.49	0.060	
154.92	11.12	11.61	0.060	
259.10	11.45	11.28	0.035	
261.07	10.22	12.51	0.035	
262.92	9.85	12.88	0.035	
266.04	10.49	12.24	0.035	
268.39	11.54	11.19	0.035	
295.48	11.01	11.72	0.060	
340.86	17.53	5.20	0.060	
387.97	20.82	1.91	0.060	
431.96	21.01	1.72	0.060	
440.00	22.73	0.00	0.060	

09035 Study Point 1 riser *Type II 24-hr 2yr Talbot Rainfall=3.40"*
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Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.37	0.7	3.7	187	0.64
0.64	1.9	5.6	525	2.74
1.16	5.2	7.8	1,445	11.80
1.27	6.4	14.7	1,773	14.61
1.60	32.8	146.4	9,060	32.90
1.69	46.2	153.7	12,773	56.79
3.39	346.2	200.8	95,651	1,331.30
7.68	1,360.3	274.2	375,852	10,019.94
10.97	2,389.7	354.6	660,271	21,401.97
11.16	2,461.1	400.5	680,004	21,624.03
11.87	2,748.0	411.1	759,268	25,001.84
12.88	3,176.9	441.9	877,767	29,920.03

Stage-Discharge for Reach 19R: River Sta 820.28 CS-4

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
11.19	0.00	0.00
11.34	0.51	0.07
11.49	0.82	0.39
11.64	1.11	1.14
11.79	1.38	2.37
11.94	1.64	4.17
12.09	1.89	6.50
12.24	2.11	9.38
12.39	2.26	12.82
12.54	1.27	11.15
12.69	0.93	19.65
12.84	1.13	45.91
12.99	1.49	94.10
13.14	1.80	157.01
13.29	2.08	232.46
13.44	2.34	319.55
13.59	2.58	417.81
13.74	2.80	526.86
13.89	3.01	646.43
14.04	3.21	777.27
14.19	3.39	918.50
14.34	3.57	1,069.68
14.49	3.75	1,230.72
14.64	3.91	1,402.07
14.79	4.08	1,584.69
14.94	4.24	1,777.28
15.09	4.39	1,979.49
15.24	4.54	2,190.87
15.39	4.69	2,411.33
15.54	4.84	2,640.80
15.69	4.98	2,879.21
15.84	5.11	3,127.17
15.99	5.25	3,384.36
16.14	5.38	3,650.32
16.29	5.50	3,925.01
16.44	5.63	4,208.38
16.59	5.75	4,500.42
16.74	5.87	4,801.68
16.89	5.99	5,112.02
17.04	6.10	5,430.95
17.19	6.22	5,758.45
17.34	6.33	6,094.49
17.49	6.44	6,439.08
17.64	6.55	6,792.70
17.79	6.65	7,155.39
17.94	6.76	7,526.60
18.09	6.86	7,906.32
18.24	6.96	8,294.54
18.39	7.06	8,691.28
18.54	7.16	9,096.93
18.69	7.25	9,511.73
18.84	7.35	9,934.57
18.99	7.43	10,355.43
19.14	7.51	10,781.99
19.29	7.59	11,217.75
19.44	7.67	11,663.08
19.59	7.75	12,118.42
19.74	7.83	12,583.00
19.89	7.91	13,056.86
20.04	7.98	13,540.02
20.19	8.06	14,032.49
20.34	8.13	14,534.60
20.49	8.20	15,046.97
20.64	8.27	15,568.75
20.79	8.35	16,099.97
20.94	8.42	16,640.66
21.09	8.48	17,190.85
21.24	8.55	17,750.78
21.39	8.62	18,321.27
21.54	8.69	18,901.37
21.69	8.75	19,491.11
21.84	8.82	20,090.54
21.99	8.88	20,699.68
22.14	8.95	21,318.63
22.29	8.83	21,525.41
22.44	8.83	22,039.53
22.59	8.89	22,739.40
22.74	8.96	23,450.00
22.89	9.02	24,171.32
23.04	9.09	24,903.34
23.19	9.14	25,601.72
23.34	9.19	26,306.03
23.49	9.23	27,023.42
23.64	9.28	27,753.83
23.79	9.33	28,497.19
23.94	9.38	29,253.46
24.09	**9.42**	**30,022.59**

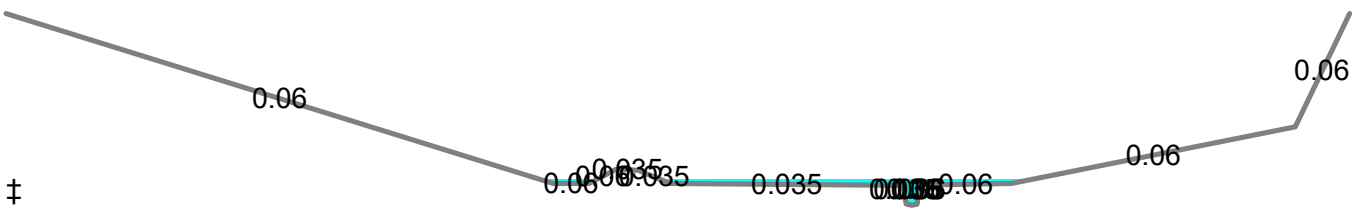
Summary for Reach 20R: River Sta 613.13 CS-3A

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 114.82 cfs @ 12.34 hrs, Volume= 20.944 af
Outflow = 114.47 cfs @ 12.37 hrs, Volume= 20.944 af, Atten= 0%, Lag= 1.7 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.69 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 14.7 min

Peak Storage= 15,265 cf @ 12.37 hrs
Average Depth at Peak Storage= 1.85'
Bank-Full Depth= 13.54' Flow Area= 5,281.7 sf, Capacity= 58,962.20 cfs

Custom cross-section, Length= 207.1' Slope= 0.0067 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 9.85', Outlet Invert= 8.46'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.00	0.00		
244.35	10.00	12.00	0.060	
260.39	10.00	12.00	0.060	
272.62	11.02	10.98	0.060	
282.37	10.93	11.07	0.035	
296.68	10.00	12.00	0.035	
400.59	9.87	12.13	0.035	
401.95	8.56	13.44	0.035	`
404.35	8.46	13.54	0.035	
406.75	8.53	13.47	0.060	
408.13	9.89	12.11	0.060	
448.91	10.00	12.00	0.060	
575.67	14.00	8.00	0.060	
600.00	22.00	0.00	0.060	

09035 Study Point 1 riser *Type II 24-hr 2yr Talbot Rainfall=3.40"*
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Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.07	0.1	4.1	30	0.04
0.10	0.3	4.8	57	0.11
1.41	8.4	8.6	1,733	22.56
1.43	8.7	24.6	1,797	14.13
1.54	18.3	169.4	3,799	12.89
2.47	209.2	243.3	43,322	555.67
2.56	231.7	258.9	47,980	625.78
5.54	1,230.6	414.1	254,858	7,194.30
13.54	5,281.7	602.8	1,093,837	58,962.20

Stage-Discharge for Reach 20R: River Sta 613.13 CS-3A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
9.85	0.00	0.00
10.00	0.58	0.33
10.15	1.03	1.37
10.30	1.37	2.92
10.45	1.65	4.92
10.60	1.89	7.32
10.75	2.10	10.13
10.90	2.29	13.32
11.05	2.47	16.90
11.20	2.63	20.86
11.35	0.72	9.71
11.50	1.05	40.65
11.65	1.44	95.50
11.80	1.78	169.07
11.95	2.06	260.19
12.10	2.32	368.27
12.25	2.55	492.99
12.40	2.70	617.99
12.55	2.92	784.01
12.70	3.14	970.09
12.85	3.35	1,174.20
13.00	3.55	1,395.32
13.15	3.74	1,633.29
13.30	3.92	1,888.03
13.45	4.09	2,159.48
13.60	4.25	2,447.60
13.75	4.41	2,752.37
13.90	4.56	3,073.81
14.05	4.71	3,412.19
14.20	4.85	3,768.50
14.35	4.99	4,141.57
14.50	5.12	4,531.46
14.65	5.25	4,938.23
14.80	5.38	5,361.94
14.95	5.50	5,802.67
15.10	5.62	6,260.50
15.25	5.74	6,735.50
15.40	5.86	7,229.54
15.55	5.99	7,768.09
15.70	6.12	8,323.84
15.85	6.25	8,896.64
16.00	6.38	9,486.37
16.15	6.51	10,092.95
16.30	6.63	10,716.30
16.45	6.75	11,356.36
16.60	6.88	12,013.06
16.75	6.99	12,686.34
16.90	7.11	13,377.06
17.05	7.23	14,084.79
17.20	7.34	14,808.95
17.35	7.46	15,549.50
17.50	7.57	16,306.39
17.65	7.68	17,079.61
17.80	7.79	17,869.12
17.95	7.90	18,674.90
18.10	8.01	19,496.92
18.25	8.11	20,335.67
18.40	8.22	21,191.56
18.55	8.32	22,063.64
18.70	8.42	22,951.89
18.85	8.52	23,856.32
19.00	8.62	24,776.91
19.15	8.72	25,713.65
19.30	8.82	26,666.54
19.45	8.92	27,635.58
19.60	9.01	28,620.88
19.75	9.11	29,623.64
19.90	9.20	30,642.56
20.05	9.29	31,677.63
20.20	9.39	32,728.85
20.35	9.48	33,796.24
20.50	9.57	34,879.79
20.65	9.66	35,979.53
20.80	9.75	37,095.45
20.95	9.83	38,227.57
21.10	9.92	39,377.06
21.25	10.01	40,543.05
21.40	10.09	41,725.27
21.55	10.18	42,923.75
21.70	10.26	44,138.48
21.85	10.35	45,369.50
22.00	10.43	46,616.81
22.15	10.51	47,880.43
22.30	10.59	49,160.38
22.45	10.67	50,457.46
22.60	10.75	51,771.58
22.75	10.83	53,102.09
22.90	10.91	54,449.00
23.05	10.99	55,812.35
23.20	11.07	57,192.14
23.35	**11.14**	**58,588.41**

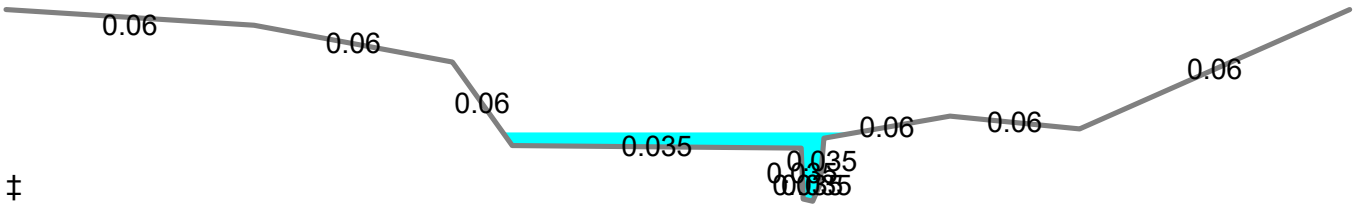
Summary for Reach 21R: River Sta 384.66 CS-3

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 114.47 cfs @ 12.37 hrs, Volume= 20.944 af
Outflow = 114.34 cfs @ 12.39 hrs, Volume= 20.943 af, Atten= 0%, Lag= 1.2 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.38 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.34 fps, Avg. Travel Time= 11.2 min

Peak Storage= 11,786 cf @ 12.39 hrs
Average Depth at Peak Storage= 2.30'
Bank-Full Depth= 6.42' Flow Area= 962.3 sf, Capacity= 5,622.13 cfs

Custom cross-section, Length= 228.5' Slope= 0.0061 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 8.46', Outlet Invert= 7.07'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	13.49	0.00		
68.73	12.97	0.52	0.060	
123.80	11.73	1.76	0.060	
140.31	8.94	4.55	0.060	
220.49	8.85	4.64	0.035	
221.04	7.15	6.34	0.035	
223.64	7.07	6.42	0.035	
225.71	7.64	5.85	0.035	
226.76	9.18	4.31	0.035	
261.72	9.92	3.57	0.060	
297.64	9.49	4.00	0.060	
372.53	13.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.9	26	0.04
0.57	2.0	5.3	459	3.49
1.78	8.6	8.0	1,962	29.80
1.87	12.7	88.3	2,911	11.61
2.11	33.6	90.0	7,687	58.00
2.42	63.4	106.5	14,494	156.37
2.85	122.7	173.4	28,031	365.90
4.66	472.9	218.2	108,051	2,298.31
5.90	789.0	296.5	180,280	4,479.71
6.42	962.3	375.0	219,882	5,622.13

Stage-Discharge for Reach 21R: River Sta 384.66 CS-3

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
8.46	0.00	0.00
8.56	0.49	0.09
8.66	0.90	0.44
8.76	1.18	1.01
8.86	1.42	1.77
8.96	1.61	2.72
9.06	1.81	3.90
9.16	2.02	5.34
9.26	2.20	6.94
9.36	2.38	8.69
9.46	2.53	10.59
9.56	2.68	12.62
9.66	2.82	14.79
9.76	2.94	17.09
9.86	3.07	19.50
9.96	3.18	22.05
10.06	3.29	24.71
10.16	3.39	27.50
10.26	1.69	14.99
10.36	1.03	16.01
10.46	1.38	33.37
10.56	1.69	55.63
10.66	1.97	82.47
10.76	2.21	113.53
10.86	2.42	148.89
10.96	2.60	188.24
11.06	2.74	232.64
11.16	2.85	281.76
11.26	2.94	336.70
11.36	3.03	397.98
11.46	3.13	465.99
11.56	3.24	539.25
11.66	3.35	617.58
11.76	3.47	701.11
11.86	3.58	789.23
11.96	3.69	882.58
12.06	3.80	980.30
12.16	3.91	1,083.04
12.26	4.01	1,190.18
12.36	4.12	1,302.02
12.46	4.22	1,418.39
12.56	4.32	1,539.18
12.66	4.42	1,664.66
12.76	4.52	1,794.28
12.86	4.62	1,928.76
12.96	4.71	2,067.31
13.06	4.81	2,210.54
13.16	4.89	2,354.99
13.26	4.96	2,501.04
13.36	5.04	2,653.44
13.46	5.11	2,811.46
13.56	5.18	2,975.31
13.66	5.25	3,144.17
13.76	5.32	3,318.95
13.86	5.38	3,498.67
13.96	5.45	3,684.09
14.06	5.51	3,874.75
14.16	5.57	4,070.92
14.26	5.62	4,272.69
14.36	5.68	4,479.71
14.46	5.72	4,682.11
14.56	5.75	4,892.50
14.66	5.78	5,112.02
14.76	5.81	5,339.03
14.86	**5.84**	**5,574.46**

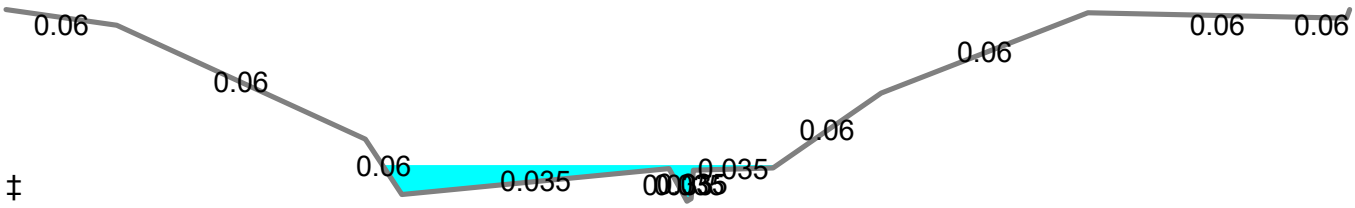
Summary for Reach 22R: River Sta 284.44 CS-2

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 114.34 cfs @ 12.40 hrs, Volume= 20.943 af
Outflow = 113.06 cfs @ 12.45 hrs, Volume= 20.943 af, Atten= 1%, Lag= 3.2 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.43 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 31.0 min

Peak Storage= 26,190 cf @ 12.45 hrs
Average Depth at Peak Storage= 2.72'
Bank-Full Depth= 14.39' Flow Area= 5,200.3 sf, Capacity= 8,158.02 cfs

Custom cross-section, Length= 100.2' Slope= 0.0001 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.11', Outlet Invert= 7.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	21.49	0.00		
68.92	20.32	1.17	0.060	
223.87	11.77	9.72	0.060	
246.65	7.60	13.89	0.060	
413.08	9.56	11.93	0.035	
424.20	7.10	14.39	0.035	
426.70	7.30	14.19	0.035	
428.26	9.42	12.07	0.035	
477.81	9.60	11.89	0.035	
545.13	15.21	6.28	0.060	
674.00	21.26	0.23	0.060	
835.04	20.84	0.65	0.060	
837.00	21.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.20	0.3	3.4	34	0.03
0.50	1.6	5.2	160	0.31
2.32	169.0	180.5	16,939	67.15
2.46	197.7	232.4	19,814	73.54
2.50	207.2	243.6	20,761	77.03
4.67	773.6	281.8	77,519	642.25
8.11	1,915.0	385.7	191,883	2,393.01
13.22	4,389.9	587.4	439,871	6,994.87
13.74	4,705.0	629.1	471,441	7,567.27
14.16	5,009.4	825.2	501,942	7,851.33
14.39	5,200.3	839.5	521,068	8,158.02

Stage-Discharge for Reach 22R: River Sta 284.44 CS-2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.11	0.00	0.00
7.26	0.07	0.01
7.41	0.13	0.10
7.56	0.18	0.25
7.71	0.14	0.37
7.86	0.14	0.89
8.01	0.17	1.97
8.16	0.20	3.78
8.31	0.22	6.48
8.46	0.25	10.19
8.61	0.27	15.07
8.76	0.30	21.22
8.91	0.32	28.76
9.06	0.34	37.83
9.21	0.37	48.51
9.36	0.39	60.93
9.51	0.38	70.65
9.66	0.39	84.77
9.81	0.43	109.45
9.96	0.47	136.52
10.11	0.50	166.00
10.26	0.54	197.83
10.41	0.57	231.94
10.56	0.60	268.28
10.71	0.63	306.84
10.86	0.66	347.59
11.01	0.69	390.44
11.16	0.72	435.36
11.31	0.75	482.33
11.46	0.78	531.31
11.61	0.80	582.29
11.76	0.83	635.08
11.91	0.85	689.34
12.06	0.87	745.40
12.21	0.90	803.53
12.36	0.92	863.72
12.51	0.94	925.94
12.66	0.96	990.17
12.81	0.98	1,056.41
12.96	1.00	1,124.65
13.11	1.02	1,194.88
13.26	1.04	1,267.09
13.41	1.06	1,341.29
13.56	1.07	1,417.46
13.71	1.09	1,495.61
13.86	1.11	1,575.74
14.01	1.13	1,657.85
14.16	1.14	1,741.94
14.31	1.16	1,828.07
14.46	1.17	1,916.19
14.61	1.19	2,006.30
14.76	1.20	2,098.39
14.91	1.22	2,192.47
15.06	1.23	2,288.53
15.21	1.25	2,386.42
15.36	1.26	2,485.51
15.51	1.28	2,586.44
15.66	1.29	2,689.47
15.81	1.30	2,794.61
15.96	1.31	2,901.87
16.11	1.33	3,011.25
16.26	1.34	3,122.76
16.41	1.35	3,236.40
16.56	1.36	3,352.19
16.71	1.37	3,470.13
16.86	1.38	3,590.23
17.01	1.39	3,712.50
17.16	1.40	3,836.94
17.31	1.41	3,963.58
17.46	1.42	4,092.41
17.61	1.43	4,223.45
17.76	1.44	4,356.72
17.91	1.45	4,492.28
18.06	1.46	4,630.08
18.21	1.47	4,770.12
18.36	1.48	4,912.42
18.51	1.49	5,056.98
18.66	1.50	5,203.81
18.81	1.51	5,352.93
18.96	1.52	5,504.34
19.11	1.53	5,658.06
19.26	1.54	5,814.09
19.41	1.54	5,972.44
19.56	1.55	6,133.12
19.71	1.56	6,296.15
19.86	1.57	6,461.53
20.01	1.58	6,629.28
20.16	1.58	6,799.40
20.31	1.59	6,971.80
20.46	1.60	7,134.27
20.61	1.60	7,298.07
20.76	**1.61**	7,465.38
20.91	**1.60**	7,589.61
21.06	1.58	7,677.49
21.21	1.57	7,797.10
21.36	1.57	7,970.24
21.51	1.57	**8,171.44**

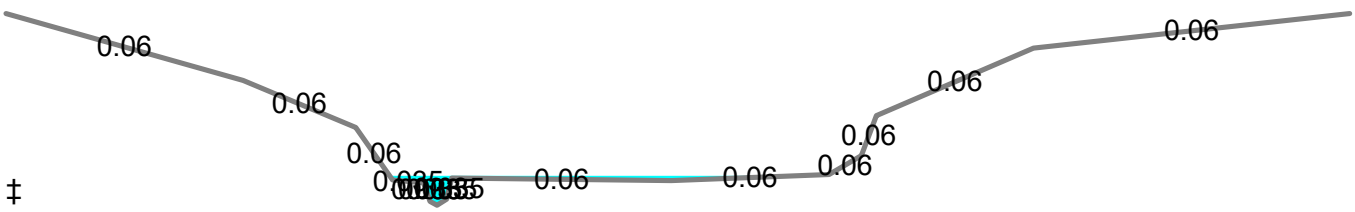
Summary for Reach 23R: River Sta 0.00 CS-1

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 113.06 cfs @ 12.45 hrs, Volume= 20.943 af
Outflow = 111.92 cfs @ 12.50 hrs, Volume= 20.943 af, Atten= 1%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.12 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 8.0 min

Peak Storage= 14,899 cf @ 12.50 hrs
Average Depth at Peak Storage= 2.26'
Bank-Full Depth= 14.64' Flow Area= 3,217.7 sf, Capacity= 29,924.85 cfs

Custom cross-section, Length= 284.4' Slope= 0.0086 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.10', Outlet Invert= 4.64'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	19.28	0.00		
84.01	14.16	5.12	0.060	
123.92	10.59	8.69	0.060	
136.93	6.56	12.72	0.060	
147.92	6.36	12.92	0.035	
150.29	4.93	14.35	0.035	
152.70	4.64	14.64	0.035	
156.15	5.11	14.17	0.035	
157.99	6.72	12.56	0.035	
235.71	6.52	12.76	0.060	
291.60	6.99	12.29	0.060	
303.10	8.43	10.85	0.060	
308.39	11.49	7.79	0.060	
364.05	16.63	2.65	0.060	
476.12	19.28	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.29	0.7	4.6	188	0.72
0.47	1.6	6.3	461	2.60
1.72	11.5	10.6	3,272	48.06
1.88	13.8	19.6	3,916	42.95
1.92	15.0	42.2	4,256	43.90
2.08	28.1	124.2	7,994	66.53
2.35	65.8	157.2	18,711	142.10
3.79	302.1	173.6	85,929	1,184.50
5.95	685.7	185.2	195,005	4,274.07
6.85	855.5	197.1	243,311	5,994.66
9.52	1,453.4	256.2	413,340	12,283.05
11.99	2,162.1	323.6	614,897	20,487.24
14.64	3,217.7	479.3	915,113	29,924.85

Stage-Discharge for Reach 23R: River Sta 0.00 CS-1

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.10	0.00	0.00
7.25	0.70	0.13
7.40	1.12	0.81
7.55	1.55	2.34
7.70	2.01	4.96
7.85	2.41	8.38
8.00	2.76	12.55
8.15	3.07	17.44
8.30	3.35	23.05
8.45	3.61	29.38
8.60	3.85	36.44
8.75	4.08	44.22
8.90	3.55	44.35
9.05	2.83	47.91
9.20	2.33	71.24
9.35	2.17	110.67
9.50	2.21	163.13
9.65	2.36	230.90
9.80	2.55	310.15
9.95	2.75	400.28
10.10	2.95	500.72
10.25	3.14	611.03
10.40	3.33	730.86
10.55	3.52	859.92
10.70	3.70	997.98
10.85	3.87	1,144.56
11.00	4.05	1,302.78
11.15	4.23	1,470.17
11.30	4.41	1,645.96
11.45	4.58	1,830.01
11.60	4.75	2,022.15
11.75	4.91	2,222.26
11.90	5.08	2,430.20
12.05	5.24	2,645.88
12.20	5.39	2,869.17
12.35	5.55	3,099.99
12.50	5.70	3,338.24
12.65	5.85	3,583.85
12.80	5.99	3,836.72
12.95	6.14	4,096.80
13.10	6.28	4,362.25
13.25	6.41	4,632.13
13.40	6.54	4,910.04
13.55	6.67	5,195.74
13.70	6.80	5,489.14
13.85	6.92	5,790.07
14.00	7.04	6,090.10
14.15	7.13	6,380.26
14.30	7.22	6,677.94
14.45	7.31	6,983.19
14.60	7.39	7,296.07
14.75	7.48	7,616.64
14.90	7.56	7,944.95
15.05	7.65	8,281.07
15.20	7.73	8,625.07
15.35	7.81	8,977.00
15.50	7.89	9,336.94
15.65	7.97	9,704.94
15.80	8.04	10,081.09
15.95	8.12	10,465.43
16.10	8.20	10,858.05
16.25	8.27	11,259.01
16.40	8.34	11,668.36
16.55	8.42	12,086.19
16.70	8.49	12,509.31
16.85	8.55	12,938.69
17.00	8.62	13,377.20
17.15	8.69	13,824.97
17.30	8.75	14,282.10
17.45	8.82	14,748.64
17.60	8.88	15,224.69
17.75	8.94	15,710.32
17.90	9.00	16,205.62
18.05	9.06	16,710.66
18.20	9.13	17,225.54
18.35	9.19	17,750.34
18.50	9.25	18,285.14
18.65	9.30	18,830.04
18.80	9.36	19,385.10
18.95	9.42	19,950.43
19.10	**9.47**	20,511.27
19.25	9.43	20,882.68
19.40	9.40	21,274.81
19.55	9.37	21,687.45
19.70	9.34	22,120.13
19.85	9.32	22,572.62
20.00	9.30	23,044.73
20.15	9.28	23,536.30
20.30	9.27	24,047.20
20.45	9.27	24,577.35
20.60	9.26	25,126.67
20.75	9.26	25,695.13
20.90	9.26	26,282.71
21.05	9.26	26,889.39
21.20	9.27	27,515.20
21.35	9.27	28,160.17
21.50	9.28	28,824.33
21.65	9.29	**29,507.75**

Summary for Pond 24P: Goldsburough Neck Road Culvert

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 114.34 cfs @ 12.39 hrs, Volume= 20.943 af
Outflow = 114.34 cfs @ 12.40 hrs, Volume= 20.943 af, Atten= 0%, Lag= 0.6 min
Primary = 114.34 cfs @ 12.40 hrs, Volume= 20.943 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 10.62' @ 12.41 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.44'	**48.0" Round CMP_Round 48"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.44' / 5.43' S= 0.0003 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 12.57 sf
#2	Primary	9.91'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 0.80 1.20 1.60 2.20 2.60 3.00 3.40 3.80 4.20 Width (feet) 0.00 56.60 73.40 90.20 107.00 123.80 156.20 183.80 211.40 239.00 266.50

Primary OutFlow Max=114.12 cfs @ 12.40 hrs HW=10.62' TW=9.82' (Dynamic Tailwater)
└─**1=CMP_Round 48"** (Inlet Controls 42.78 cfs @ 3.40 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 71.34 cfs @ 2.32 fps)

Stage-Discharge for Pond 24P: Goldsburough Neck Road Culvert

Elevation (feet)	Primary (cfs)
5.44	0.00
5.54	0.00
5.64	0.00
5.74	0.00
5.84	0.00
5.94	0.00
6.04	0.00
6.14	0.00
6.24	0.00
6.34	0.00
6.44	0.00
6.54	0.00
6.64	0.00
6.74	0.00
6.84	0.00
6.94	0.00
7.04	0.00
7.14	2.96
7.24	6.71
7.34	9.68
7.44	12.51
7.54	15.34
7.64	18.22
7.74	20.40
7.84	22.12
7.94	23.90
8.04	25.71
8.14	27.58
8.24	29.48
8.34	31.42
8.44	33.39
8.54	35.40
8.64	37.43
8.74	39.49
8.84	41.56
8.94	43.65
9.04	45.76
9.14	47.86
9.24	49.98
9.34	52.08
9.44	54.18
9.54	56.26
9.64	58.33
9.74	60.36
9.84	62.36
9.94	64.34
10.04	67.34
10.14	72.74
10.24	81.38
10.34	93.89
10.44	110.07
10.54	129.40
10.64	151.68
10.74	176.68
10.84	205.76
10.94	239.04
11.04	275.41
11.14	314.90
11.24	357.58
11.34	403.50
11.44	452.71
11.54	505.26
11.64	561.10
11.74	619.61
11.84	680.86
11.94	745.31
12.04	812.97
12.14	883.83
12.24	958.31
12.34	1,036.94
12.44	1,120.04
12.54	1,207.89
12.64	1,300.61
12.74	1,398.30
12.84	1,501.08
12.94	1,609.06
13.04	1,722.37
13.14	1,841.13
13.24	1,965.44
13.34	2,095.42
13.44	2,231.17
13.54	2,372.81
13.64	2,520.44
13.74	2,674.15
13.84	2,834.05
13.94	3,000.23
14.04	**3,172.78**

Summary for Link 25L: Existing Design Point 1

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 111.92 cfs @ 12.50 hrs, Volume= 20.943 af
Primary = 111.92 cfs @ 12.51 hrs, Volume= 20.943 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

37 Point manual elevation table, To= 5.00 hrs, dt= 1.00 hrs, feet =

7.10	7.26	7.42	7.57	7.73	8.04	8.34	9.12	9.90
9.60	9.29	9.13	8.96	8.73	8.51	8.42	8.33	8.30
8.27	8.21	8.14	8.08	8.01	7.95	7.88	7.82	7.75
7.69	7.63	7.56	7.50	7.43	7.37	7.30	7.24	7.17
7.11								

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: Existing Design Point 1 Runoff Area=265.410 ac 0.00% Impervious Runoff Depth=2.26"
Tc=30.6 min CN=70 Runoff=310.55 cfs 50.017 af

Reach 19R: River Sta 820.28 CS-4 Avg. Flow Depth=2.24' Max Vel=2.32 fps Inflow=310.55 cfs 50.017 af
L=276.3' S=0.0048 '/' Capacity=29,920.03 cfs Outflow=309.85 cfs 50.017 af

Reach 20R: River Sta 613.13 CS-3A Avg. Flow Depth=2.17' Max Vel=2.66 fps Inflow=309.85 cfs 50.017 af
L=207.1' S=0.0067 '/' Capacity=58,962.20 cfs Outflow=309.40 cfs 50.017 af

Reach 21R: River Sta 384.66 CS-3 Avg. Flow Depth=2.75' Max Vel=3.43 fps Inflow=309.40 cfs 50.017 af
L=228.5' S=0.0061 '/' Capacity=5,622.13 cfs Outflow=309.02 cfs 50.017 af

Reach 22R: River Sta 284.44 CS-2 Avg. Flow Depth=3.60' Max Vel=0.63 fps Inflow=309.02 cfs 50.016 af
L=100.2' S=0.0001 '/' Capacity=8,158.02 cfs Outflow=307.78 cfs 50.016 af

Reach 23R: River Sta 0.00 CS-1 Avg. Flow Depth=2.70' Max Vel=4.16 fps Inflow=307.78 cfs 50.016 af
L=284.4' S=0.0086 '/' Capacity=29,924.85 cfs Outflow=307.09 cfs 50.016 af

Pond 24P: Goldsburough Neck Road Culvert Peak Elev=11.31' Inflow=309.02 cfs 50.017 af
Outflow=309.02 cfs 50.016 af

Link 25L: Existing Design Point 1 Inflow=307.09 cfs 50.016 af
Primary=307.09 cfs 50.016 af

Total Runoff Area = 265.410 ac Runoff Volume = 50.017 af Average Runoff Depth = 2.26"
100.00% Pervious = 265.410 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Existing Design Point 1

Runoff = 310.55 cfs @ 12.31 hrs, Volume= 50.017 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	265.410	70	Weighted CN from TR-55
	265.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.6					**Direct Entry, TR-55 TC**

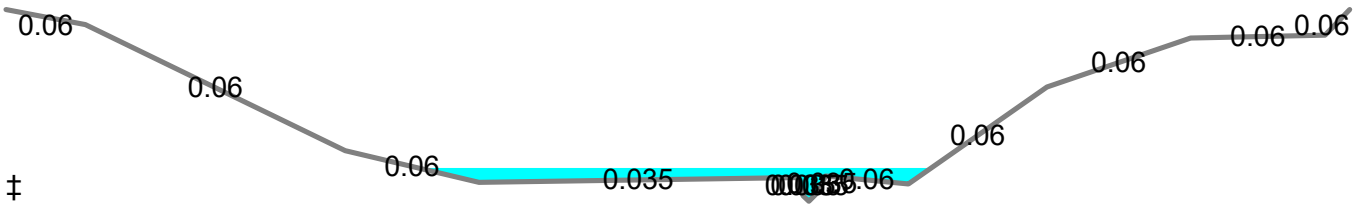
Summary for Reach 19R: River Sta 820.28 CS-4

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 310.55 cfs @ 12.31 hrs, Volume= 50.017 af
Outflow = 309.85 cfs @ 12.32 hrs, Volume= 50.017 af, Atten= 0%, Lag= 0.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.32 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.49 fps, Avg. Travel Time= 9.4 min

Peak Storage= 36,995 cf @ 12.32 hrs
Average Depth at Peak Storage= 2.24'
Bank-Full Depth= 12.88' Flow Area= 3,176.9 sf, Capacity= 29,920.03 cfs

Custom cross-section, Length= 276.3' Slope= 0.0048 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 11.19', Outlet Invert= 9.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.73	0.00		
26.01	21.72	1.01	0.060	
111.05	13.24	9.49	0.060	
154.92	11.12	11.61	0.060	
259.10	11.45	11.28	0.035	
261.07	10.22	12.51	0.035	
262.92	9.85	12.88	0.035	
266.04	10.49	12.24	0.035	
268.39	11.54	11.19	0.035	
295.48	11.01	11.72	0.060	
340.86	17.53	5.20	0.060	
387.97	20.82	1.91	0.060	
431.96	21.01	1.72	0.060	
440.00	22.73	0.00	0.060	

09035 Study Point 1 riser *Type II 24-hr 10yr Talbot Rainfall=5.30"*
Prepared by DP Solutions Printed 8/29/2023
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Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.37	0.7	3.7	187	0.64
0.64	1.9	5.6	525	2.74
1.16	5.2	7.8	1,445	11.80
1.27	6.4	14.7	1,773	14.61
1.60	32.8	146.4	9,060	32.90
1.69	46.2	153.7	12,773	56.79
3.39	346.2	200.8	95,651	1,331.30
7.68	1,360.3	274.2	375,852	10,019.94
10.97	2,389.7	354.6	660,271	21,401.97
11.16	2,461.1	400.5	680,004	21,624.03
11.87	2,748.0	411.1	759,268	25,001.84
12.88	3,176.9	441.9	877,767	29,920.03

Stage-Discharge for Reach 19R: River Sta 820.28 CS-4

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
11.19	0.00	0.00
11.34	0.51	0.07
11.49	0.82	0.39
11.64	1.11	1.14
11.79	1.38	2.37
11.94	1.64	4.17
12.09	1.89	6.50
12.24	2.11	9.38
12.39	2.26	12.82
12.54	1.27	11.15
12.69	0.93	19.65
12.84	1.13	45.91
12.99	1.49	94.10
13.14	1.80	157.01
13.29	2.08	232.46
13.44	2.34	319.55
13.59	2.58	417.81
13.74	2.80	526.86
13.89	3.01	646.43
14.04	3.21	777.27
14.19	3.39	918.50
14.34	3.57	1,069.68
14.49	3.75	1,230.72
14.64	3.91	1,402.07
14.79	4.08	1,584.69
14.94	4.24	1,777.28
15.09	4.39	1,979.49
15.24	4.54	2,190.87
15.39	4.69	2,411.33
15.54	4.84	2,640.80
15.69	4.98	2,879.21
15.84	5.11	3,127.17
15.99	5.25	3,384.36
16.14	5.38	3,650.32
16.29	5.50	3,925.01
16.44	5.63	4,208.38
16.59	5.75	4,500.42
16.74	5.87	4,801.68
16.89	5.99	5,112.02
17.04	6.10	5,430.95
17.19	6.22	5,758.45
17.34	6.33	6,094.49
17.49	6.44	6,439.08
17.64	6.55	6,792.70
17.79	6.65	7,155.39
17.94	6.76	7,526.60
18.09	6.86	7,906.32
18.24	6.96	8,294.54
18.39	7.06	8,691.28
18.54	7.16	9,096.93
18.69	7.25	9,511.73
18.84	7.35	9,934.57
18.99	7.43	10,355.43
19.14	7.51	10,781.99
19.29	7.59	11,217.75
19.44	7.67	11,663.08
19.59	7.75	12,118.42
19.74	7.83	12,583.00
19.89	7.91	13,056.86
20.04	7.98	13,540.02
20.19	8.06	14,032.49
20.34	8.13	14,534.60
20.49	8.20	15,046.97
20.64	8.27	15,568.75
20.79	8.35	16,099.97
20.94	8.42	16,640.66
21.09	8.48	17,190.85
21.24	8.55	17,750.78
21.39	8.62	18,321.27
21.54	8.69	18,901.37
21.69	8.75	19,491.11
21.84	8.82	20,090.54
21.99	8.88	20,699.68
22.14	8.95	21,318.63
22.29	8.83	21,525.41
22.44	8.83	22,039.53
22.59	8.89	22,739.40
22.74	8.96	23,450.00
22.89	9.02	24,171.32
23.04	9.09	24,903.34
23.19	9.14	25,601.72
23.34	9.19	26,306.03
23.49	9.23	27,023.42
23.64	9.28	27,753.83
23.79	9.33	28,497.19
23.94	9.38	29,253.46
24.09	**9.42**	**30,022.59**

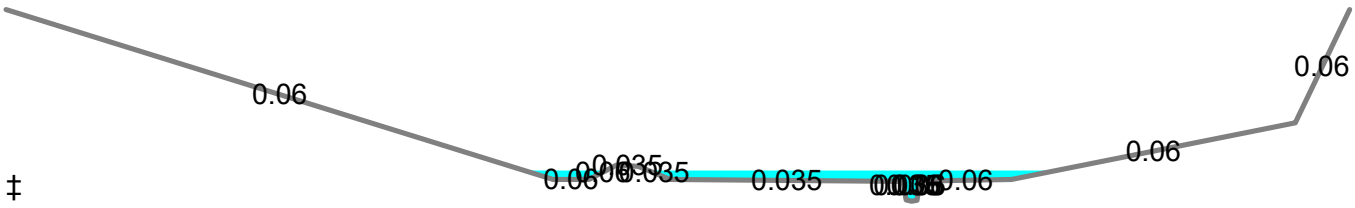
Summary for Reach 20R: River Sta 613.13 CS-3A

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 309.85 cfs @ 12.32 hrs, Volume= 50.017 af
Outflow = 309.40 cfs @ 12.33 hrs, Volume= 50.017 af, Atten= 0%, Lag= 0.9 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.66 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 15.1 min

Peak Storage= 29,187 cf @ 12.33 hrs
Average Depth at Peak Storage= 2.17'
Bank-Full Depth= 13.54' Flow Area= 5,281.7 sf, Capacity= 58,962.20 cfs

Custom cross-section, Length= 207.1' Slope= 0.0067 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 9.85', Outlet Invert= 8.46'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.00	0.00		
244.35	10.00	12.00	0.060	
260.39	10.00	12.00	0.060	
272.62	11.02	10.98	0.060	
282.37	10.93	11.07	0.035	
296.68	10.00	12.00	0.035	
400.59	9.87	12.13	0.035	
401.95	8.56	13.44	0.035	`
404.35	8.46	13.54	0.035	
406.75	8.53	13.47	0.060	
408.13	9.89	12.11	0.060	
448.91	10.00	12.00	0.060	
575.67	14.00	8.00	0.060	
600.00	22.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.07	0.1	4.1	30	0.04
0.10	0.3	4.8	57	0.11
1.41	8.4	8.6	1,733	22.56
1.43	8.7	24.6	1,797	14.13
1.54	18.3	169.4	3,799	12.89
2.47	209.2	243.3	43,322	555.67
2.56	231.7	258.9	47,980	625.78
5.54	1,230.6	414.1	254,858	7,194.30
13.54	5,281.7	602.8	1,093,837	58,962.20

Stage-Discharge for Reach 20R: River Sta 613.13 CS-3A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
9.85	0.00	0.00
10.00	0.58	0.33
10.15	1.03	1.37
10.30	1.37	2.92
10.45	1.65	4.92
10.60	1.89	7.32
10.75	2.10	10.13
10.90	2.29	13.32
11.05	2.47	16.90
11.20	2.63	20.86
11.35	0.72	9.71
11.50	1.05	40.65
11.65	1.44	95.50
11.80	1.78	169.07
11.95	2.06	260.19
12.10	2.32	368.27
12.25	2.55	492.99
12.40	2.70	617.99
12.55	2.92	784.01
12.70	3.14	970.09
12.85	3.35	1,174.20
13.00	3.55	1,395.32
13.15	3.74	1,633.29
13.30	3.92	1,888.03
13.45	4.09	2,159.48
13.60	4.25	2,447.60
13.75	4.41	2,752.37
13.90	4.56	3,073.81
14.05	4.71	3,412.19
14.20	4.85	3,768.50
14.35	4.99	4,141.57
14.50	5.12	4,531.46
14.65	5.25	4,938.23
14.80	5.38	5,361.94
14.95	5.50	5,802.67
15.10	5.62	6,260.50
15.25	5.74	6,735.50
15.40	5.86	7,229.54
15.55	5.99	7,768.09
15.70	6.12	8,323.84
15.85	6.25	8,896.64
16.00	6.38	9,486.37
16.15	6.51	10,092.95
16.30	6.63	10,716.30
16.45	6.75	11,356.36
16.60	6.88	12,013.06
16.75	6.99	12,686.34
16.90	7.11	13,377.06
17.05	7.23	14,084.79
17.20	7.34	14,808.95
17.35	7.46	15,549.50
17.50	7.57	16,306.39
17.65	7.68	17,079.61
17.80	7.79	17,869.12
17.95	7.90	18,674.90
18.10	8.01	19,496.92
18.25	8.11	20,335.67
18.40	8.22	21,191.56
18.55	8.32	22,063.64
18.70	8.42	22,951.89
18.85	8.52	23,856.32
19.00	8.62	24,776.91
19.15	8.72	25,713.65
19.30	8.82	26,666.54
19.45	8.92	27,635.58
19.60	9.01	28,620.88
19.75	9.11	29,623.64
19.90	9.20	30,642.56
20.05	9.29	31,677.63
20.20	9.39	32,728.85
20.35	9.48	33,796.24
20.50	9.57	34,879.79
20.65	9.66	35,979.53
20.80	9.75	37,095.45
20.95	9.83	38,227.57
21.10	9.92	39,377.06
21.25	10.01	40,543.05
21.40	10.09	41,725.27
21.55	10.18	42,923.75
21.70	10.26	44,138.48
21.85	10.35	45,369.50
22.00	10.43	46,616.81
22.15	10.51	47,880.43
22.30	10.59	49,160.38
22.45	10.67	50,457.46
22.60	10.75	51,771.58
22.75	10.83	53,102.09
22.90	10.91	54,449.00
23.05	10.99	55,812.35
23.20	11.07	57,192.14
23.35	**11.14**	**58,588.41**

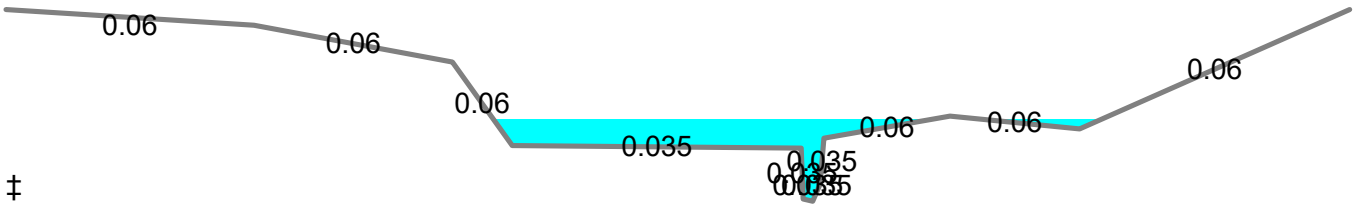
Summary for Reach 21R: River Sta 384.66 CS-3

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 309.40 cfs @ 12.33 hrs, Volume= 50.017 af
Outflow = 309.02 cfs @ 12.35 hrs, Volume= 50.017 af, Atten= 0%, Lag= 1.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.43 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 12.1 min

Peak Storage= 24,348 cf @ 12.35 hrs
Average Depth at Peak Storage= 2.75'
Bank-Full Depth= 6.42' Flow Area= 962.3 sf, Capacity= 5,622.13 cfs

Custom cross-section, Length= 228.5' Slope= 0.0061 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 8.46', Outlet Invert= 7.07'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	13.49	0.00		
68.73	12.97	0.52	0.060	
123.80	11.73	1.76	0.060	
140.31	8.94	4.55	0.060	
220.49	8.85	4.64	0.035	
221.04	7.15	6.34	0.035	
223.64	7.07	6.42	0.035	
225.71	7.64	5.85	0.035	
226.76	9.18	4.31	0.035	
261.72	9.92	3.57	0.060	
297.64	9.49	4.00	0.060	
372.53	13.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.9	26	0.04
0.57	2.0	5.3	459	3.49
1.78	8.6	8.0	1,962	29.80
1.87	12.7	88.3	2,911	11.61
2.11	33.6	90.0	7,687	58.00
2.42	63.4	106.5	14,494	156.37
2.85	122.7	173.4	28,031	365.90
4.66	472.9	218.2	108,051	2,298.31
5.90	789.0	296.5	180,280	4,479.71
6.42	962.3	375.0	219,882	5,622.13

Stage-Discharge for Reach 21R: River Sta 384.66 CS-3

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
8.46	0.00	0.00
8.56	0.49	0.09
8.66	0.90	0.44
8.76	1.18	1.01
8.86	1.42	1.77
8.96	1.61	2.72
9.06	1.81	3.90
9.16	2.02	5.34
9.26	2.20	6.94
9.36	2.38	8.69
9.46	2.53	10.59
9.56	2.68	12.62
9.66	2.82	14.79
9.76	2.94	17.09
9.86	3.07	19.50
9.96	3.18	22.05
10.06	3.29	24.71
10.16	3.39	27.50
10.26	1.69	14.99
10.36	1.03	16.01
10.46	1.38	33.37
10.56	1.69	55.63
10.66	1.97	82.47
10.76	2.21	113.53
10.86	2.42	148.89
10.96	2.60	188.24
11.06	2.74	232.64
11.16	2.85	281.76
11.26	2.94	336.70
11.36	3.03	397.98
11.46	3.13	465.99
11.56	3.24	539.25
11.66	3.35	617.58
11.76	3.47	701.11
11.86	3.58	789.23
11.96	3.69	882.58
12.06	3.80	980.30
12.16	3.91	1,083.04
12.26	4.01	1,190.18
12.36	4.12	1,302.02
12.46	4.22	1,418.39
12.56	4.32	1,539.18
12.66	4.42	1,664.66
12.76	4.52	1,794.28
12.86	4.62	1,928.76
12.96	4.71	2,067.31
13.06	4.81	2,210.54
13.16	4.89	2,354.99
13.26	4.96	2,501.04
13.36	5.04	2,653.44
13.46	5.11	2,811.46
13.56	5.18	2,975.31
13.66	5.25	3,144.17
13.76	5.32	3,318.95
13.86	5.38	3,498.67
13.96	5.45	3,684.09
14.06	5.51	3,874.75
14.16	5.57	4,070.92
14.26	5.62	4,272.69
14.36	5.68	4,479.71
14.46	5.72	4,682.11
14.56	5.75	4,892.50
14.66	5.78	5,112.02
14.76	5.81	5,339.03
14.86	**5.84**	**5,574.46**

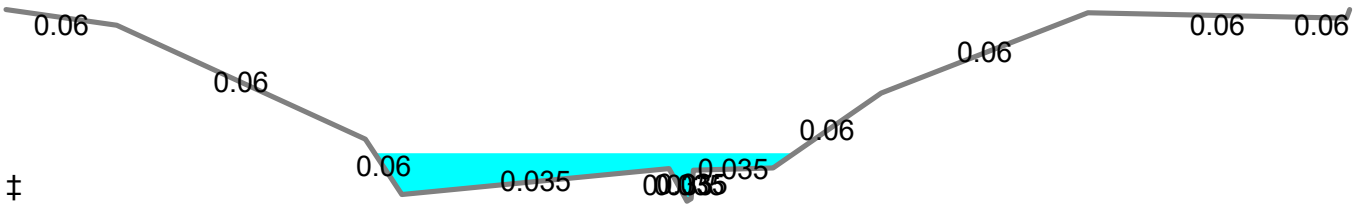
Summary for Reach 22R: River Sta 284.44 CS-2

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 309.02 cfs @ 12.36 hrs, Volume= 50.016 af
Outflow = 307.78 cfs @ 12.39 hrs, Volume= 50.016 af, Atten= 0%, Lag= 1.6 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.63 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 25.4 min

Peak Storage= 48,598 cf @ 12.39 hrs
Average Depth at Peak Storage= 3.60'
Bank-Full Depth= 14.39' Flow Area= 5,200.3 sf, Capacity= 8,158.02 cfs

Custom cross-section, Length= 100.2' Slope= 0.0001 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.11', Outlet Invert= 7.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	21.49	0.00		
68.92	20.32	1.17	0.060	
223.87	11.77	9.72	0.060	
246.65	7.60	13.89	0.060	
413.08	9.56	11.93	0.035	
424.20	7.10	14.39	0.035	
426.70	7.30	14.19	0.035	
428.26	9.42	12.07	0.035	
477.81	9.60	11.89	0.035	
545.13	15.21	6.28	0.060	
674.00	21.26	0.23	0.060	
835.04	20.84	0.65	0.060	
837.00	21.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.20	0.3	3.4	34	0.03
0.50	1.6	5.2	160	0.31
2.32	169.0	180.5	16,939	67.15
2.46	197.7	232.4	19,814	73.54
2.50	207.2	243.6	20,761	77.03
4.67	773.6	281.8	77,519	642.25
8.11	1,915.0	385.7	191,883	2,393.01
13.22	4,389.9	587.4	439,871	6,994.87
13.74	4,705.0	629.1	471,441	7,567.27
14.16	5,009.4	825.2	501,942	7,851.33
14.39	5,200.3	839.5	521,068	8,158.02

Stage-Discharge for Reach 22R: River Sta 284.44 CS-2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.11	0.00	0.00
7.26	0.07	0.01
7.41	0.13	0.10
7.56	0.18	0.25
7.71	0.14	0.37
7.86	0.14	0.89
8.01	0.17	1.97
8.16	0.20	3.78
8.31	0.22	6.48
8.46	0.25	10.19
8.61	0.27	15.07
8.76	0.30	21.22
8.91	0.32	28.76
9.06	0.34	37.83
9.21	0.37	48.51
9.36	0.39	60.93
9.51	0.38	70.65
9.66	0.39	84.77
9.81	0.43	109.45
9.96	0.47	136.52
10.11	0.50	166.00
10.26	0.54	197.83
10.41	0.57	231.94
10.56	0.60	268.28
10.71	0.63	306.84
10.86	0.66	347.59
11.01	0.69	390.44
11.16	0.72	435.36
11.31	0.75	482.33
11.46	0.78	531.31
11.61	0.80	582.29
11.76	0.83	635.08
11.91	0.85	689.34
12.06	0.87	745.40
12.21	0.90	803.53
12.36	0.92	863.72
12.51	0.94	925.94
12.66	0.96	990.17
12.81	0.98	1,056.41
12.96	1.00	1,124.65
13.11	1.02	1,194.88
13.26	1.04	1,267.09
13.41	1.06	1,341.29
13.56	1.07	1,417.46
13.71	1.09	1,495.61
13.86	1.11	1,575.74
14.01	1.13	1,657.85
14.16	1.14	1,741.94
14.31	1.16	1,828.07
14.46	1.17	1,916.19
14.61	1.19	2,006.30
14.76	1.20	2,098.39
14.91	1.22	2,192.47
15.06	1.23	2,288.53
15.21	1.25	2,386.42
15.36	1.26	2,485.51
15.51	1.28	2,586.44
15.66	1.29	2,689.47
15.81	1.30	2,794.61
15.96	1.31	2,901.87
16.11	1.33	3,011.25
16.26	1.34	3,122.76
16.41	1.35	3,236.40
16.56	1.36	3,352.19
16.71	1.37	3,470.13
16.86	1.38	3,590.23
17.01	1.39	3,712.50
17.16	1.40	3,836.94
17.31	1.41	3,963.58
17.46	1.42	4,092.41
17.61	1.43	4,223.45
17.76	1.44	4,356.72
17.91	1.45	4,492.28
18.06	1.46	4,630.08
18.21	1.47	4,770.12
18.36	1.48	4,912.42
18.51	1.49	5,056.98
18.66	1.50	5,203.81
18.81	1.51	5,352.93
18.96	1.52	5,504.34
19.11	1.53	5,658.06
19.26	1.54	5,814.09
19.41	1.54	5,972.44
19.56	1.55	6,133.12
19.71	1.56	6,296.15
19.86	1.57	6,461.53
20.01	1.58	6,629.28
20.16	1.58	6,799.40
20.31	1.59	6,971.80
20.46	1.60	7,134.27
20.61	1.60	7,298.07
20.76	**1.61**	7,465.38
20.91	**1.60**	7,589.61
21.06	1.58	7,677.49
21.21	1.57	7,797.10
21.36	1.57	7,970.24
21.51	1.57	**8,171.44**

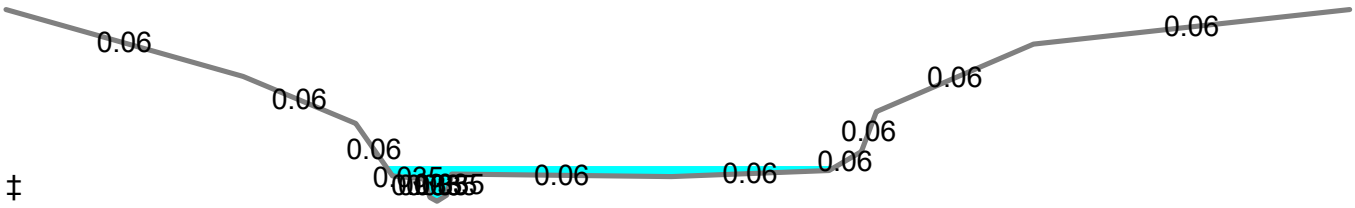
Summary for Reach 23R: River Sta 0.00 CS-1

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 307.78 cfs @ 12.39 hrs, Volume= 50.016 af
Outflow = 307.09 cfs @ 12.41 hrs, Volume= 50.016 af, Atten= 0%, Lag= 1.4 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.16 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.69 fps, Avg. Travel Time= 6.8 min

Peak Storage= 34,304 cf @ 12.41 hrs
Average Depth at Peak Storage= 2.70'
Bank-Full Depth= 14.64' Flow Area= 3,217.7 sf, Capacity= 29,924.85 cfs

Custom cross-section, Length= 284.4' Slope= 0.0086 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.10', Outlet Invert= 4.64'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	19.28	0.00		
84.01	14.16	5.12	0.060	
123.92	10.59	8.69	0.060	
136.93	6.56	12.72	0.060	
147.92	6.36	12.92	0.035	
150.29	4.93	14.35	0.035	
152.70	4.64	14.64	0.035	
156.15	5.11	14.17	0.035	
157.99	6.72	12.56	0.035	
235.71	6.52	12.76	0.060	
291.60	6.99	12.29	0.060	
303.10	8.43	10.85	0.060	
308.39	11.49	7.79	0.060	
364.05	16.63	2.65	0.060	
476.12	19.28	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.29	0.7	4.6	188	0.72
0.47	1.6	6.3	461	2.60
1.72	11.5	10.6	3,272	48.06
1.88	13.8	19.6	3,916	42.95
1.92	15.0	42.2	4,256	43.90
2.08	28.1	124.2	7,994	66.53
2.35	65.8	157.2	18,711	142.10
3.79	302.1	173.6	85,929	1,184.50
5.95	685.7	185.2	195,005	4,274.07
6.85	855.5	197.1	243,311	5,994.66
9.52	1,453.4	256.2	413,340	12,283.05
11.99	2,162.1	323.6	614,897	20,487.24
14.64	3,217.7	479.3	915,113	29,924.85

Stage-Discharge for Reach 23R: River Sta 0.00 CS-1

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.10	0.00	0.00
7.25	0.70	0.13
7.40	1.12	0.81
7.55	1.55	2.34
7.70	2.01	4.96
7.85	2.41	8.38
8.00	2.76	12.55
8.15	3.07	17.44
8.30	3.35	23.05
8.45	3.61	29.38
8.60	3.85	36.44
8.75	4.08	44.22
8.90	3.55	44.35
9.05	2.83	47.91
9.20	2.33	71.24
9.35	2.17	110.67
9.50	2.21	163.13
9.65	2.36	230.90
9.80	2.55	310.15
9.95	2.75	400.28
10.10	2.95	500.72
10.25	3.14	611.03
10.40	3.33	730.86
10.55	3.52	859.92
10.70	3.70	997.98
10.85	3.87	1,144.56
11.00	4.05	1,302.78
11.15	4.23	1,470.17
11.30	4.41	1,645.96
11.45	4.58	1,830.01
11.60	4.75	2,022.15
11.75	4.91	2,222.26
11.90	5.08	2,430.20
12.05	5.24	2,645.88
12.20	5.39	2,869.17
12.35	5.55	3,099.99
12.50	5.70	3,338.24
12.65	5.85	3,583.85
12.80	5.99	3,836.72
12.95	6.14	4,096.80
13.10	6.28	4,362.25
13.25	6.41	4,632.13
13.40	6.54	4,910.04
13.55	6.67	5,195.74
13.70	6.80	5,489.14
13.85	6.92	5,790.07
14.00	7.04	6,090.10
14.15	7.13	6,380.26
14.30	7.22	6,677.94
14.45	7.31	6,983.19
14.60	7.39	7,296.07
14.75	7.48	7,616.64
14.90	7.56	7,944.95
15.05	7.65	8,281.07
15.20	7.73	8,625.07
15.35	7.81	8,977.00
15.50	7.89	9,336.94
15.65	7.97	9,704.94
15.80	8.04	10,081.09
15.95	8.12	10,465.43
16.10	8.20	10,858.05
16.25	8.27	11,259.01
16.40	8.34	11,668.36
16.55	8.42	12,086.19
16.70	8.49	12,509.31
16.85	8.55	12,938.69
17.00	8.62	13,377.20
17.15	8.69	13,824.97
17.30	8.75	14,282.10
17.45	8.82	14,748.64
17.60	8.88	15,224.69
17.75	8.94	15,710.32
17.90	9.00	16,205.62
18.05	9.06	16,710.66
18.20	9.13	17,225.54
18.35	9.19	17,750.34
18.50	9.25	18,285.14
18.65	9.30	18,830.04
18.80	9.36	19,385.10
18.95	9.42	19,950.43
19.10	**9.47**	20,511.27
19.25	9.43	20,882.68
19.40	9.40	21,274.81
19.55	9.37	21,687.45
19.70	9.34	22,120.13
19.85	9.32	22,572.62
20.00	9.30	23,044.73
20.15	9.28	23,536.30
20.30	9.27	24,047.20
20.45	9.27	24,577.35
20.60	9.26	25,126.67
20.75	9.26	25,695.13
20.90	9.26	26,282.71
21.05	9.26	26,889.39
21.20	9.27	27,515.20
21.35	9.27	28,160.17
21.50	9.28	28,824.33
21.65	9.29	**29,507.75**

Summary for Pond 24P: Goldsburough Neck Road Culvert

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 309.02 cfs @ 12.35 hrs, Volume= 50.017 af
Outflow = 309.02 cfs @ 12.36 hrs, Volume= 50.016 af, Atten= 0%, Lag= 0.6 min
Primary = 309.02 cfs @ 12.36 hrs, Volume= 50.016 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 11.31' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.44'	**48.0" Round CMP_Round 48"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.44' / 5.43' S= 0.0003 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 12.57 sf
#2	Primary	9.91'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 0.80 1.20 1.60 2.20 2.60 3.00 3.40 3.80 4.20 Width (feet) 0.00 56.60 73.40 90.20 107.00 123.80 156.20 183.80 211.40 239.00 266.50

Primary OutFlow Max=308.10 cfs @ 12.36 hrs HW=11.31' TW=10.71' (Dynamic Tailwater)
└─**1=CMP_Round 48"** (Inlet Controls 37.20 cfs @ 2.96 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 270.89 cfs @ 3.04 fps)

Stage-Discharge for Pond 24P: Goldsburough Neck Road Culvert

Elevation (feet)	Primary (cfs)
5.44	0.00
5.54	0.00
5.64	0.00
5.74	0.00
5.84	0.00
5.94	0.00
6.04	0.00
6.14	0.00
6.24	0.00
6.34	0.00
6.44	0.00
6.54	0.00
6.64	0.00
6.74	0.00
6.84	0.00
6.94	0.00
7.04	0.00
7.14	2.96
7.24	6.71
7.34	9.68
7.44	12.51
7.54	15.34
7.64	18.22
7.74	20.40
7.84	22.12
7.94	23.90
8.04	25.71
8.14	27.58
8.24	29.48
8.34	31.42
8.44	33.39
8.54	35.40
8.64	37.43
8.74	39.49
8.84	41.56
8.94	43.65
9.04	45.76
9.14	47.86
9.24	49.98
9.34	52.08
9.44	54.18
9.54	56.26
9.64	58.33
9.74	60.36
9.84	62.36
9.94	64.34
10.04	67.34
10.14	72.74
10.24	81.38
10.34	93.89
10.44	110.07
10.54	129.40
10.64	151.68
10.74	176.68
10.84	205.76
10.94	239.04
11.04	275.41
11.14	314.90
11.24	357.58
11.34	403.50
11.44	452.71
11.54	505.26
11.64	561.10
11.74	619.61
11.84	680.86
11.94	745.31
12.04	812.97
12.14	883.83
12.24	958.31
12.34	1,036.94
12.44	1,120.04
12.54	1,207.89
12.64	1,300.61
12.74	1,398.30
12.84	1,501.08
12.94	1,609.06
13.04	1,722.37
13.14	1,841.13
13.24	1,965.44
13.34	2,095.42
13.44	2,231.17
13.54	2,372.81
13.64	2,520.44
13.74	2,674.15
13.84	2,834.05
13.94	3,000.23
14.04	**3,172.78**

Summary for Link 25L: Existing Design Point 1

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 307.09 cfs @ 12.41 hrs, Volume= 50.016 af
Primary = 307.09 cfs @ 12.42 hrs, Volume= 50.016 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

37 Point manual elevation table, To= 5.00 hrs, dt= 1.00 hrs, feet =

7.10	7.26	7.42	7.57	7.73	8.04	8.34	9.12	9.90
9.60	9.29	9.13	8.96	8.73	8.51	8.42	8.33	8.30
8.27	8.21	8.14	8.08	8.01	7.95	7.88	7.82	7.75
7.69	7.63	7.56	7.50	7.43	7.37	7.30	7.24	7.17
7.11								

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: Existing Design Point 1 Runoff Area=265.410 ac 0.00% Impervious Runoff Depth=4.12"
Tc=30.6 min CN=70 Runoff=584.31 cfs 91.181 af

Reach 19R: River Sta 820.28 CS-4 Avg. Flow Depth=2.62' Max Vel=2.90 fps Inflow=584.31 cfs 91.181 af
L=276.3' S=0.0048 '/' Capacity=29,920.03 cfs Outflow=583.97 cfs 91.181 af

Reach 20R: River Sta 613.13 CS-3A Avg. Flow Depth=2.51' Max Vel=2.69 fps Inflow=583.97 cfs 91.181 af
L=207.1' S=0.0067 '/' Capacity=58,962.20 cfs Outflow=583.65 cfs 91.181 af

Reach 21R: River Sta 384.66 CS-3 Avg. Flow Depth=3.16' Max Vel=3.47 fps Inflow=583.65 cfs 91.181 af
L=228.5' S=0.0061 '/' Capacity=5,622.13 cfs Outflow=583.39 cfs 91.181 af

Reach 22R: River Sta 284.44 CS-2 Avg. Flow Depth=4.50' Max Vel=0.80 fps Inflow=583.39 cfs 91.180 af
L=100.2' S=0.0001 '/' Capacity=8,158.02 cfs Outflow=582.34 cfs 91.180 af

Reach 23R: River Sta 0.00 CS-1 Avg. Flow Depth=3.11' Max Vel=4.16 fps Inflow=582.34 cfs 91.180 af
L=284.4' S=0.0086 '/' Capacity=29,924.85 cfs Outflow=581.80 cfs 91.180 af

Pond 24P: Goldsburough Neck Road Culvert Peak Elev=12.11' Inflow=583.39 cfs 91.181 af
Outflow=583.39 cfs 91.180 af

Link 25L: Existing Design Point 1 Inflow=581.80 cfs 91.180 af
Primary=581.80 cfs 91.180 af

Total Runoff Area = 265.410 ac Runoff Volume = 91.181 af Average Runoff Depth = 4.12"
100.00% Pervious = 265.410 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Existing Design Point 1

Runoff = 584.31 cfs @ 12.30 hrs, Volume= 91.181 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	265.410	70	Weighted CN from TR-55
	265.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.6					**Direct Entry, TR-55 TC**

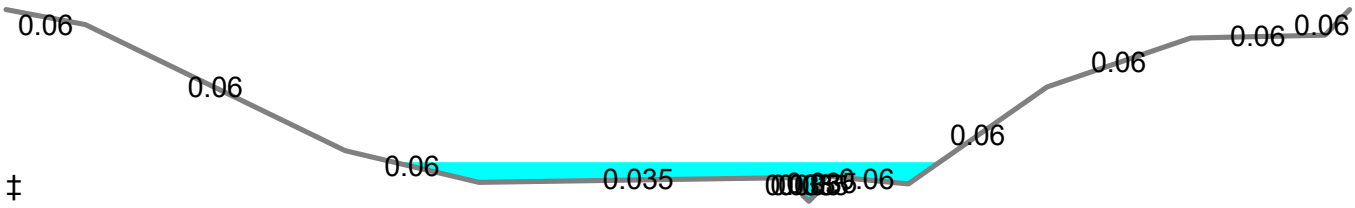
Summary for Reach 19R: River Sta 820.28 CS-4

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 584.31 cfs @ 12.30 hrs, Volume= 91.181 af
Outflow = 583.97 cfs @ 12.31 hrs, Volume= 91.181 af, Atten= 0%, Lag= 0.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.90 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 8.0 min

Peak Storage= 55,579 cf @ 12.31 hrs
Average Depth at Peak Storage= 2.62'
Bank-Full Depth= 12.88' Flow Area= 3,176.9 sf, Capacity= 29,920.03 cfs

Custom cross-section, Length= 276.3' Slope= 0.0048 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 11.19', Outlet Invert= 9.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.73	0.00		
26.01	21.72	1.01	0.060	
111.05	13.24	9.49	0.060	
154.92	11.12	11.61	0.060	
259.10	11.45	11.28	0.035	
261.07	10.22	12.51	0.035	
262.92	9.85	12.88	0.035	
266.04	10.49	12.24	0.035	
268.39	11.54	11.19	0.035	
295.48	11.01	11.72	0.060	
340.86	17.53	5.20	0.060	
387.97	20.82	1.91	0.060	
431.96	21.01	1.72	0.060	
440.00	22.73	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.37	0.7	3.7	187	0.64
0.64	1.9	5.6	525	2.74
1.16	5.2	7.8	1,445	11.80
1.27	6.4	14.7	1,773	14.61
1.60	32.8	146.4	9,060	32.90
1.69	46.2	153.7	12,773	56.79
3.39	346.2	200.8	95,651	1,331.30
7.68	1,360.3	274.2	375,852	10,019.94
10.97	2,389.7	354.6	660,271	21,401.97
11.16	2,461.1	400.5	680,004	21,624.03
11.87	2,748.0	411.1	759,268	25,001.84
12.88	3,176.9	441.9	877,767	29,920.03

Stage-Discharge for Reach 19R: River Sta 820.28 CS-4

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
11.19	0.00	0.00
11.34	0.51	0.07
11.49	0.82	0.39
11.64	1.11	1.14
11.79	1.38	2.37
11.94	1.64	4.17
12.09	1.89	6.50
12.24	2.11	9.38
12.39	2.26	12.82
12.54	1.27	11.15
12.69	0.93	19.65
12.84	1.13	45.91
12.99	1.49	94.10
13.14	1.80	157.01
13.29	2.08	232.46
13.44	2.34	319.55
13.59	2.58	417.81
13.74	2.80	526.86
13.89	3.01	646.43
14.04	3.21	777.27
14.19	3.39	918.50
14.34	3.57	1,069.68
14.49	3.75	1,230.72
14.64	3.91	1,402.07
14.79	4.08	1,584.69
14.94	4.24	1,777.28
15.09	4.39	1,979.49
15.24	4.54	2,190.87
15.39	4.69	2,411.33
15.54	4.84	2,640.80
15.69	4.98	2,879.21
15.84	5.11	3,127.17
15.99	5.25	3,384.36
16.14	5.38	3,650.32
16.29	5.50	3,925.01
16.44	5.63	4,208.38
16.59	5.75	4,500.42
16.74	5.87	4,801.68
16.89	5.99	5,112.02
17.04	6.10	5,430.95
17.19	6.22	5,758.45
17.34	6.33	6,094.49
17.49	6.44	6,439.08
17.64	6.55	6,792.70
17.79	6.65	7,155.39
17.94	6.76	7,526.60
18.09	6.86	7,906.32
18.24	6.96	8,294.54
18.39	7.06	8,691.28
18.54	7.16	9,096.93
18.69	7.25	9,511.73
18.84	7.35	9,934.57
18.99	7.43	10,355.43
19.14	7.51	10,781.99
19.29	7.59	11,217.75
19.44	7.67	11,663.08
19.59	7.75	12,118.42
19.74	7.83	12,583.00
19.89	7.91	13,056.86
20.04	7.98	13,540.02
20.19	8.06	14,032.49
20.34	8.13	14,534.60
20.49	8.20	15,046.97
20.64	8.27	15,568.75
20.79	8.35	16,099.97
20.94	8.42	16,640.66
21.09	8.48	17,190.85
21.24	8.55	17,750.78
21.39	8.62	18,321.27
21.54	8.69	18,901.37
21.69	8.75	19,491.11
21.84	8.82	20,090.54
21.99	8.88	20,699.68
22.14	8.95	21,318.63
22.29	8.83	21,525.41
22.44	8.83	22,039.53
22.59	8.89	22,739.40
22.74	8.96	23,450.00
22.89	9.02	24,171.32
23.04	9.09	24,903.34
23.19	9.14	25,601.72
23.34	9.19	26,306.03
23.49	9.23	27,023.42
23.64	9.28	27,753.83
23.79	9.33	28,497.19
23.94	9.38	29,253.46
24.09	**9.42**	**30,022.59**

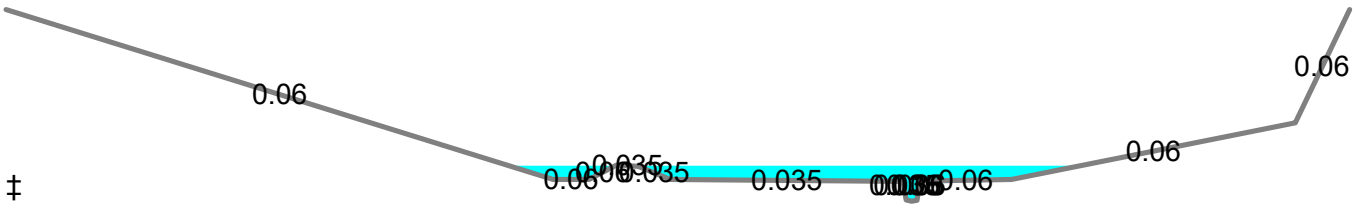
Summary for Reach 20R: River Sta 613.13 CS-3A

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 583.97 cfs @ 12.31 hrs, Volume= 91.181 af
Outflow = 583.65 cfs @ 12.33 hrs, Volume= 91.181 af, Atten= 0%, Lag= 0.9 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.69 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 12.2 min

Peak Storage= 45,241 cf @ 12.33 hrs
Average Depth at Peak Storage= 2.51'
Bank-Full Depth= 13.54' Flow Area= 5,281.7 sf, Capacity= 58,962.20 cfs

Custom cross-section, Length= 207.1' Slope= 0.0067 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 9.85', Outlet Invert= 8.46'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.00	0.00		
244.35	10.00	12.00	0.060	
260.39	10.00	12.00	0.060	
272.62	11.02	10.98	0.060	
282.37	10.93	11.07	0.035	
296.68	10.00	12.00	0.035	
400.59	9.87	12.13	0.035	
401.95	8.56	13.44	0.035	`
404.35	8.46	13.54	0.035	
406.75	8.53	13.47	0.060	
408.13	9.89	12.11	0.060	
448.91	10.00	12.00	0.060	
575.67	14.00	8.00	0.060	
600.00	22.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.07	0.1	4.1	30	0.04
0.10	0.3	4.8	57	0.11
1.41	8.4	8.6	1,733	22.56
1.43	8.7	24.6	1,797	14.13
1.54	18.3	169.4	3,799	12.89
2.47	209.2	243.3	43,322	555.67
2.56	231.7	258.9	47,980	625.78
5.54	1,230.6	414.1	254,858	7,194.30
13.54	5,281.7	602.8	1,093,837	58,962.20

Stage-Discharge for Reach 20R: River Sta 613.13 CS-3A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
9.85	0.00	0.00
10.00	0.58	0.33
10.15	1.03	1.37
10.30	1.37	2.92
10.45	1.65	4.92
10.60	1.89	7.32
10.75	2.10	10.13
10.90	2.29	13.32
11.05	2.47	16.90
11.20	2.63	20.86
11.35	0.72	9.71
11.50	1.05	40.65
11.65	1.44	95.50
11.80	1.78	169.07
11.95	2.06	260.19
12.10	2.32	368.27
12.25	2.55	492.99
12.40	2.70	617.99
12.55	2.92	784.01
12.70	3.14	970.09
12.85	3.35	1,174.20
13.00	3.55	1,395.32
13.15	3.74	1,633.29
13.30	3.92	1,888.03
13.45	4.09	2,159.48
13.60	4.25	2,447.60
13.75	4.41	2,752.37
13.90	4.56	3,073.81
14.05	4.71	3,412.19
14.20	4.85	3,768.50
14.35	4.99	4,141.57
14.50	5.12	4,531.46
14.65	5.25	4,938.23
14.80	5.38	5,361.94
14.95	5.50	5,802.67
15.10	5.62	6,260.50
15.25	5.74	6,735.50
15.40	5.86	7,229.54
15.55	5.99	7,768.09
15.70	6.12	8,323.84
15.85	6.25	8,896.64
16.00	6.38	9,486.37
16.15	6.51	10,092.95
16.30	6.63	10,716.30
16.45	6.75	11,356.36
16.60	6.88	12,013.06
16.75	6.99	12,686.34
16.90	7.11	13,377.06
17.05	7.23	14,084.79
17.20	7.34	14,808.95
17.35	7.46	15,549.50
17.50	7.57	16,306.39
17.65	7.68	17,079.61
17.80	7.79	17,869.12
17.95	7.90	18,674.90
18.10	8.01	19,496.92
18.25	8.11	20,335.67
18.40	8.22	21,191.56
18.55	8.32	22,063.64
18.70	8.42	22,951.89
18.85	8.52	23,856.32
19.00	8.62	24,776.91
19.15	8.72	25,713.65
19.30	8.82	26,666.54
19.45	8.92	27,635.58
19.60	9.01	28,620.88
19.75	9.11	29,623.64
19.90	9.20	30,642.56
20.05	9.29	31,677.63
20.20	9.39	32,728.85
20.35	9.48	33,796.24
20.50	9.57	34,879.79
20.65	9.66	35,979.53
20.80	9.75	37,095.45
20.95	9.83	38,227.57
21.10	9.92	39,377.06
21.25	10.01	40,543.05
21.40	10.09	41,725.27
21.55	10.18	42,923.75
21.70	10.26	44,138.48
21.85	10.35	45,369.50
22.00	10.43	46,616.81
22.15	10.51	47,880.43
22.30	10.59	49,160.38
22.45	10.67	50,457.46
22.60	10.75	51,771.58
22.75	10.83	53,102.09
22.90	10.91	54,449.00
23.05	10.99	55,812.35
23.20	11.07	57,192.14
23.35	**11.14**	**58,588.41**

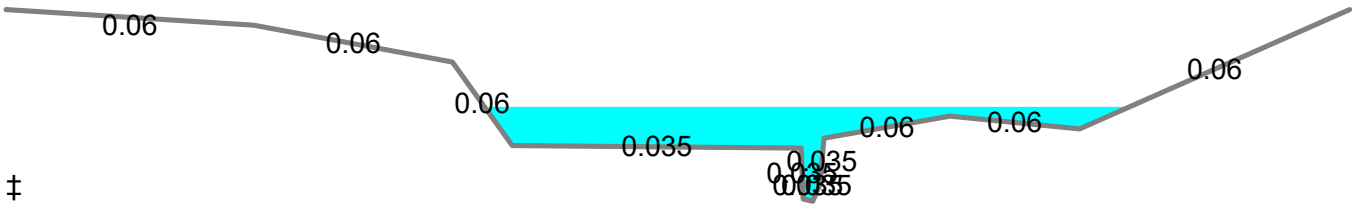
Summary for Reach 21R: River Sta 384.66 CS-3

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 583.65 cfs @ 12.33 hrs, Volume= 91.181 af
Outflow = 583.39 cfs @ 12.34 hrs, Volume= 91.181 af, Atten= 0%, Lag= 0.7 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.47 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.39 fps, Avg. Travel Time= 9.8 min

Peak Storage= 40,320 cf @ 12.34 hrs
Average Depth at Peak Storage= 3.16'
Bank-Full Depth= 6.42' Flow Area= 962.3 sf, Capacity= 5,622.13 cfs

Custom cross-section, Length= 228.5' Slope= 0.0061 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 8.46', Outlet Invert= 7.07'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	13.49	0.00		
68.73	12.97	0.52	0.060	
123.80	11.73	1.76	0.060	
140.31	8.94	4.55	0.060	
220.49	8.85	4.64	0.035	
221.04	7.15	6.34	0.035	
223.64	7.07	6.42	0.035	
225.71	7.64	5.85	0.035	
226.76	9.18	4.31	0.035	
261.72	9.92	3.57	0.060	
297.64	9.49	4.00	0.060	
372.53	13.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.9	26	0.04
0.57	2.0	5.3	459	3.49
1.78	8.6	8.0	1,962	29.80
1.87	12.7	88.3	2,911	11.61
2.11	33.6	90.0	7,687	58.00
2.42	63.4	106.5	14,494	156.37
2.85	122.7	173.4	28,031	365.90
4.66	472.9	218.2	108,051	2,298.31
5.90	789.0	296.5	180,280	4,479.71
6.42	962.3	375.0	219,882	5,622.13

Stage-Discharge for Reach 21R: River Sta 384.66 CS-3

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
8.46	0.00	0.00
8.56	0.49	0.09
8.66	0.90	0.44
8.76	1.18	1.01
8.86	1.42	1.77
8.96	1.61	2.72
9.06	1.81	3.90
9.16	2.02	5.34
9.26	2.20	6.94
9.36	2.38	8.69
9.46	2.53	10.59
9.56	2.68	12.62
9.66	2.82	14.79
9.76	2.94	17.09
9.86	3.07	19.50
9.96	3.18	22.05
10.06	3.29	24.71
10.16	3.39	27.50
10.26	1.69	14.99
10.36	1.03	16.01
10.46	1.38	33.37
10.56	1.69	55.63
10.66	1.97	82.47
10.76	2.21	113.53
10.86	2.42	148.89
10.96	2.60	188.24
11.06	2.74	232.64
11.16	2.85	281.76
11.26	2.94	336.70
11.36	3.03	397.98
11.46	3.13	465.99
11.56	3.24	539.25
11.66	3.35	617.58
11.76	3.47	701.11
11.86	3.58	789.23
11.96	3.69	882.58
12.06	3.80	980.30
12.16	3.91	1,083.04
12.26	4.01	1,190.18
12.36	4.12	1,302.02
12.46	4.22	1,418.39
12.56	4.32	1,539.18
12.66	4.42	1,664.66
12.76	4.52	1,794.28
12.86	4.62	1,928.76
12.96	4.71	2,067.31
13.06	4.81	2,210.54
13.16	4.89	2,354.99
13.26	4.96	2,501.04
13.36	5.04	2,653.44
13.46	5.11	2,811.46
13.56	5.18	2,975.31
13.66	5.25	3,144.17
13.76	5.32	3,318.95
13.86	5.38	3,498.67
13.96	5.45	3,684.09
14.06	5.51	3,874.75
14.16	5.57	4,070.92
14.26	5.62	4,272.69
14.36	5.68	4,479.71
14.46	5.72	4,682.11
14.56	5.75	4,892.50
14.66	5.78	5,112.02
14.76	5.81	5,339.03
14.86	**5.84**	**5,574.46**

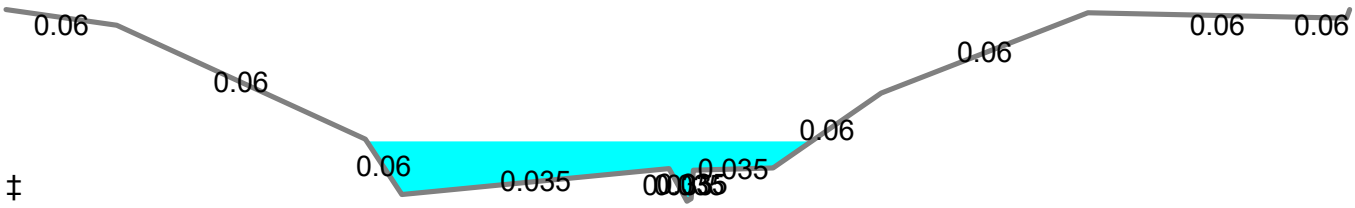
Summary for Reach 22R: River Sta 284.44 CS-2

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 583.39 cfs @ 12.35 hrs, Volume= 91.180 af
Outflow = 582.34 cfs @ 12.37 hrs, Volume= 91.180 af, Atten= 0%, Lag= 1.2 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.80 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 21.6 min

Peak Storage= 72,797 cf @ 12.37 hrs
Average Depth at Peak Storage= 4.50'
Bank-Full Depth= 14.39' Flow Area= 5,200.3 sf, Capacity= 8,158.02 cfs

Custom cross-section, Length= 100.2' Slope= 0.0001 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.11', Outlet Invert= 7.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	21.49	0.00		
68.92	20.32	1.17	0.060	
223.87	11.77	9.72	0.060	
246.65	7.60	13.89	0.060	
413.08	9.56	11.93	0.035	
424.20	7.10	14.39	0.035	
426.70	7.30	14.19	0.035	
428.26	9.42	12.07	0.035	
477.81	9.60	11.89	0.035	
545.13	15.21	6.28	0.060	
674.00	21.26	0.23	0.060	
835.04	20.84	0.65	0.060	
837.00	21.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.20	0.3	3.4	34	0.03
0.50	1.6	5.2	160	0.31
2.32	169.0	180.5	16,939	67.15
2.46	197.7	232.4	19,814	73.54
2.50	207.2	243.6	20,761	77.03
4.67	773.6	281.8	77,519	642.25
8.11	1,915.0	385.7	191,883	2,393.01
13.22	4,389.9	587.4	439,871	6,994.87
13.74	4,705.0	629.1	471,441	7,567.27
14.16	5,009.4	825.2	501,942	7,851.33
14.39	5,200.3	839.5	521,068	8,158.02

Stage-Discharge for Reach 22R: River Sta 284.44 CS-2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.11	0.00	0.00
7.26	0.07	0.01
7.41	0.13	0.10
7.56	0.18	0.25
7.71	0.14	0.37
7.86	0.14	0.89
8.01	0.17	1.97
8.16	0.20	3.78
8.31	0.22	6.48
8.46	0.25	10.19
8.61	0.27	15.07
8.76	0.30	21.22
8.91	0.32	28.76
9.06	0.34	37.83
9.21	0.37	48.51
9.36	0.39	60.93
9.51	0.38	70.65
9.66	0.39	84.77
9.81	0.43	109.45
9.96	0.47	136.52
10.11	0.50	166.00
10.26	0.54	197.83
10.41	0.57	231.94
10.56	0.60	268.28
10.71	0.63	306.84
10.86	0.66	347.59
11.01	0.69	390.44
11.16	0.72	435.36
11.31	0.75	482.33
11.46	0.78	531.31
11.61	0.80	582.29
11.76	0.83	635.08
11.91	0.85	689.34
12.06	0.87	745.40
12.21	0.90	803.53
12.36	0.92	863.72
12.51	0.94	925.94
12.66	0.96	990.17
12.81	0.98	1,056.41
12.96	1.00	1,124.65
13.11	1.02	1,194.88
13.26	1.04	1,267.09
13.41	1.06	1,341.29
13.56	1.07	1,417.46
13.71	1.09	1,495.61
13.86	1.11	1,575.74
14.01	1.13	1,657.85
14.16	1.14	1,741.94
14.31	1.16	1,828.07
14.46	1.17	1,916.19
14.61	1.19	2,006.30
14.76	1.20	2,098.39
14.91	1.22	2,192.47
15.06	1.23	2,288.53
15.21	1.25	2,386.42
15.36	1.26	2,485.51
15.51	1.28	2,586.44
15.66	1.29	2,689.47
15.81	1.30	2,794.61
15.96	1.31	2,901.87
16.11	1.33	3,011.25
16.26	1.34	3,122.76
16.41	1.35	3,236.40
16.56	1.36	3,352.19
16.71	1.37	3,470.13
16.86	1.38	3,590.23
17.01	1.39	3,712.50
17.16	1.40	3,836.94
17.31	1.41	3,963.58
17.46	1.42	4,092.41
17.61	1.43	4,223.45
17.76	1.44	4,356.72
17.91	1.45	4,492.28
18.06	1.46	4,630.08
18.21	1.47	4,770.12
18.36	1.48	4,912.42
18.51	1.49	5,056.98
18.66	1.50	5,203.81
18.81	1.51	5,352.93
18.96	1.52	5,504.34
19.11	1.53	5,658.06
19.26	1.54	5,814.09
19.41	1.54	5,972.44
19.56	1.55	6,133.12
19.71	1.56	6,296.15
19.86	1.57	6,461.53
20.01	1.58	6,629.28
20.16	1.58	6,799.40
20.31	1.59	6,971.80
20.46	1.60	7,134.27
20.61	1.60	7,298.07
20.76	**1.61**	7,465.38
20.91	**1.60**	7,589.61
21.06	1.58	7,677.49
21.21	1.57	7,797.10
21.36	1.57	7,970.24
21.51	1.57	**8,171.44**

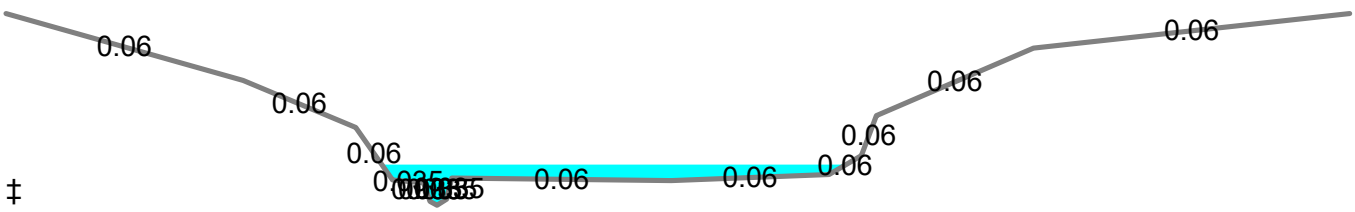
Summary for Reach 23R: River Sta 0.00 CS-1

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 582.34 cfs @ 12.37 hrs, Volume= 91.180 af
Outflow = 581.80 cfs @ 12.39 hrs, Volume= 91.180 af, Atten= 0%, Lag= 1.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.16 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.77 fps, Avg. Travel Time= 6.2 min

Peak Storage= 53,511 cf @ 12.39 hrs
Average Depth at Peak Storage= 3.11'
Bank-Full Depth= 14.64' Flow Area= 3,217.7 sf, Capacity= 29,924.85 cfs

Custom cross-section, Length= 284.4' Slope= 0.0086 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.10', Outlet Invert= 4.64'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	19.28	0.00		
84.01	14.16	5.12	0.060	
123.92	10.59	8.69	0.060	
136.93	6.56	12.72	0.060	
147.92	6.36	12.92	0.035	
150.29	4.93	14.35	0.035	
152.70	4.64	14.64	0.035	
156.15	5.11	14.17	0.035	
157.99	6.72	12.56	0.035	
235.71	6.52	12.76	0.060	
291.60	6.99	12.29	0.060	
303.10	8.43	10.85	0.060	
308.39	11.49	7.79	0.060	
364.05	16.63	2.65	0.060	
476.12	19.28	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.29	0.7	4.6	188	0.72
0.47	1.6	6.3	461	2.60
1.72	11.5	10.6	3,272	48.06
1.88	13.8	19.6	3,916	42.95
1.92	15.0	42.2	4,256	43.90
2.08	28.1	124.2	7,994	66.53
2.35	65.8	157.2	18,711	142.10
3.79	302.1	173.6	85,929	1,184.50
5.95	685.7	185.2	195,005	4,274.07
6.85	855.5	197.1	243,311	5,994.66
9.52	1,453.4	256.2	413,340	12,283.05
11.99	2,162.1	323.6	614,897	20,487.24
14.64	3,217.7	479.3	915,113	29,924.85

Stage-Discharge for Reach 23R: River Sta 0.00 CS-1

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.10	0.00	0.00
7.25	0.70	0.13
7.40	1.12	0.81
7.55	1.55	2.34
7.70	2.01	4.96
7.85	2.41	8.38
8.00	2.76	12.55
8.15	3.07	17.44
8.30	3.35	23.05
8.45	3.61	29.38
8.60	3.85	36.44
8.75	4.08	44.22
8.90	3.55	44.35
9.05	2.83	47.91
9.20	2.33	71.24
9.35	2.17	110.67
9.50	2.21	163.13
9.65	2.36	230.90
9.80	2.55	310.15
9.95	2.75	400.28
10.10	2.95	500.72
10.25	3.14	611.03
10.40	3.33	730.86
10.55	3.52	859.92
10.70	3.70	997.98
10.85	3.87	1,144.56
11.00	4.05	1,302.78
11.15	4.23	1,470.17
11.30	4.41	1,645.96
11.45	4.58	1,830.01
11.60	4.75	2,022.15
11.75	4.91	2,222.26
11.90	5.08	2,430.20
12.05	5.24	2,645.88
12.20	5.39	2,869.17
12.35	5.55	3,099.99
12.50	5.70	3,338.24
12.65	5.85	3,583.85
12.80	5.99	3,836.72
12.95	6.14	4,096.80
13.10	6.28	4,362.25
13.25	6.41	4,632.13
13.40	6.54	4,910.04
13.55	6.67	5,195.74
13.70	6.80	5,489.14
13.85	6.92	5,790.07
14.00	7.04	6,090.10
14.15	7.13	6,380.26
14.30	7.22	6,677.94
14.45	7.31	6,983.19
14.60	7.39	7,296.07
14.75	7.48	7,616.64
14.90	7.56	7,944.95
15.05	7.65	8,281.07
15.20	7.73	8,625.07
15.35	7.81	8,977.00
15.50	7.89	9,336.94
15.65	7.97	9,704.94
15.80	8.04	10,081.09
15.95	8.12	10,465.43
16.10	8.20	10,858.05
16.25	8.27	11,259.01
16.40	8.34	11,668.36
16.55	8.42	12,086.19
16.70	8.49	12,509.31
16.85	8.55	12,938.69
17.00	8.62	13,377.20
17.15	8.69	13,824.97
17.30	8.75	14,282.10
17.45	8.82	14,748.64
17.60	8.88	15,224.69
17.75	8.94	15,710.32
17.90	9.00	16,205.62
18.05	9.06	16,710.66
18.20	9.13	17,225.54
18.35	9.19	17,750.34
18.50	9.25	18,285.14
18.65	9.30	18,830.04
18.80	9.36	19,385.10
18.95	9.42	19,950.43
19.10	**9.47**	20,511.27
19.25	9.43	20,882.68
19.40	9.40	21,274.81
19.55	9.37	21,687.45
19.70	9.34	22,120.13
19.85	9.32	22,572.62
20.00	9.30	23,044.73
20.15	9.28	23,536.30
20.30	9.27	24,047.20
20.45	9.27	24,577.35
20.60	9.26	25,126.67
20.75	9.26	25,695.13
20.90	9.26	26,282.71
21.05	9.26	26,889.39
21.20	9.27	27,515.20
21.35	9.27	28,160.17
21.50	9.28	28,824.33
21.65	9.29	**29,507.75**

Summary for Pond 24P: Goldsburough Neck Road Culvert

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 583.39 cfs @ 12.34 hrs, Volume= 91.181 af
Outflow = 583.39 cfs @ 12.35 hrs, Volume= 91.180 af, Atten= 0%, Lag= 0.6 min
Primary = 583.39 cfs @ 12.35 hrs, Volume= 91.180 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 12.11' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.44'	**48.0" Round CMP_Round 48"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.44' / 5.43' S= 0.0003 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 12.57 sf
#2	Primary	9.91'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 0.80 1.20 1.60 2.20 2.60 3.00 3.40 3.80 4.20 Width (feet) 0.00 56.60 73.40 90.20 107.00 123.80 156.20 183.80 211.40 239.00 266.50

Primary OutFlow Max=581.06 cfs @ 12.35 hrs HW=12.10' TW=11.61' (Dynamic Tailwater)
└─**1=CMP_Round 48"** (Inlet Controls 33.68 cfs @ 2.68 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 547.38 cfs @ 3.08 fps)

Stage-Discharge for Pond 24P: Goldsburough Neck Road Culvert

Elevation (feet)	Primary (cfs)
5.44	0.00
5.54	0.00
5.64	0.00
5.74	0.00
5.84	0.00
5.94	0.00
6.04	0.00
6.14	0.00
6.24	0.00
6.34	0.00
6.44	0.00
6.54	0.00
6.64	0.00
6.74	0.00
6.84	0.00
6.94	0.00
7.04	0.00
7.14	2.96
7.24	6.71
7.34	9.68
7.44	12.51
7.54	15.34
7.64	18.22
7.74	20.40
7.84	22.12
7.94	23.90
8.04	25.71
8.14	27.58
8.24	29.48
8.34	31.42
8.44	33.39
8.54	35.40
8.64	37.43
8.74	39.49
8.84	41.56
8.94	43.65
9.04	45.76
9.14	47.86
9.24	49.98
9.34	52.08
9.44	54.18
9.54	56.26
9.64	58.33
9.74	60.36
9.84	62.36
9.94	64.34
10.04	67.34
10.14	72.74
10.24	81.38
10.34	93.89
10.44	110.07
10.54	129.40
10.64	151.68
10.74	176.68
10.84	205.76
10.94	239.04
11.04	275.41
11.14	314.90
11.24	357.58
11.34	403.50
11.44	452.71
11.54	505.26
11.64	561.10
11.74	619.61
11.84	680.86
11.94	745.31
12.04	812.97
12.14	883.83
12.24	958.31
12.34	1,036.94
12.44	1,120.04
12.54	1,207.89
12.64	1,300.61
12.74	1,398.30
12.84	1,501.08
12.94	1,609.06
13.04	1,722.37
13.14	1,841.13
13.24	1,965.44
13.34	2,095.42
13.44	2,231.17
13.54	2,372.81
13.64	2,520.44
13.74	2,674.15
13.84	2,834.05
13.94	3,000.23
14.04	**3,172.78**

Summary for Link 25L: Existing Design Point 1

Inflow Area = 265.410 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 581.80 cfs @ 12.39 hrs, Volume= 91.180 af
Primary = 581.80 cfs @ 12.40 hrs, Volume= 91.180 af, Atten= 0%, Lag= 0.6 min

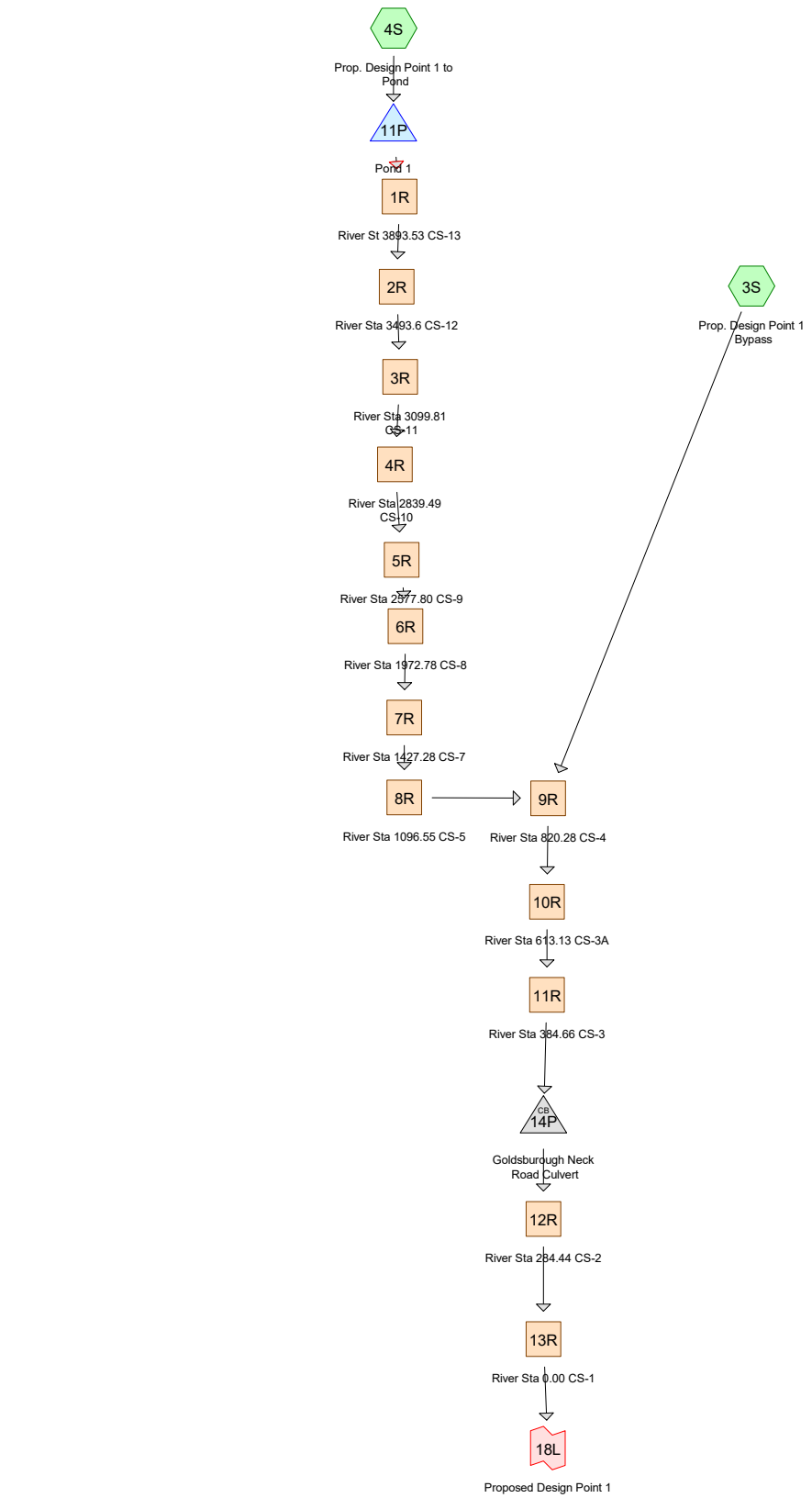
Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

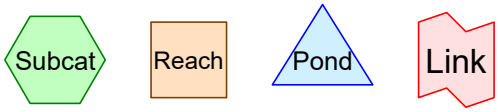
37 Point manual elevation table, To= 5.00 hrs, dt= 1.00 hrs, feet =

7.10	7.26	7.42	7.57	7.73	8.04	8.34	9.12	9.90
9.60	9.29	9.13	8.96	8.73	8.51	8.42	8.33	8.30
8.27	8.21	8.14	8.08	8.01	7.95	7.88	7.82	7.75
7.69	7.63	7.56	7.50	7.43	7.37	7.30	7.24	7.17
7.11								

Appendix III.B

HydroCAD – Study Point No. 1 – Proposed Conditions





Routing Diagram for 09035 Study Point 1 riser
Prepared by DP Solutions, Printed 8/29/2023
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09035 Study Point 1 riser
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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
221.700	71	Weighted CN from TR-55 (3S)
49.080	70	Weighted CN from TR-55 (4S)
270.780	**71**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
270.780	Other	3S, 4S
270.780		**TOTAL AREA**

09035 Study Point 1 riser
Prepared by DP Solutions
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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	270.780	270.780	Weighted CN from TR-55	3S, 4S
0.000	**0.000**	**0.000**	**0.000**	**270.780**	**270.780**	**TOTAL AREA**	

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 3S: Prop. Design Point 1 Runoff Area=221.700 ac 0.00% Impervious Runoff Depth=1.00"
Tc=30.6 min CN=71 Runoff=104.25 cfs 18.488 af

Subcatchment 4S: Prop. Design Point 1 to Runoff Area=49.080 ac 0.00% Impervious Runoff Depth=0.95"
Tc=16.2 min CN=70 Runoff=34.18 cfs 3.873 af

Reach 1R: River St 3893.53 CS-13 Avg. Flow Depth=1.46' Max Vel=3.62 fps Inflow=24.09 cfs 3.873 af
L=400.0' S=0.0089 '/' Capacity=30,715.83 cfs Outflow=24.07 cfs 3.873 af

Reach 2R: River Sta 3493.6 CS-12 Avg. Flow Depth=1.14' Max Vel=2.47 fps Inflow=24.07 cfs 3.873 af
L=393.8' S=0.0044 '/' Capacity=4,857.15 cfs Outflow=24.01 cfs 3.873 af

Reach 3R: River Sta 3099.81 CS-11 Avg. Flow Depth=0.82' Max Vel=1.46 fps Inflow=24.01 cfs 3.873 af
L=393.8' S=0.0044 '/' Capacity=4,820.08 cfs Outflow=23.74 cfs 3.873 af

Reach 4R: River Sta 2839.49 CS-10 Avg. Flow Depth=1.09' Max Vel=3.38 fps Inflow=23.74 cfs 3.873 af
L=260.3' S=0.0146 '/' Capacity=4,436.42 cfs Outflow=23.74 cfs 3.873 af

Reach 5R: River Sta 2577.80 CS-9 Avg. Flow Depth=1.66' Max Vel=1.58 fps Inflow=23.74 cfs 3.873 af
L=261.7' S=0.0037 '/' Capacity=3,809.00 cfs Outflow=23.27 cfs 3.873 af

Reach 6R: River Sta 1972.78 CS-8 Avg. Flow Depth=1.55' Max Vel=5.15 fps Inflow=23.27 cfs 3.873 af
L=605.0' S=0.0200 '/' Capacity=30,613.15 cfs Outflow=23.23 cfs 3.873 af

Reach 7R: River Sta 1427.28 CS-7 Avg. Flow Depth=1.11' Max Vel=0.79 fps Inflow=23.23 cfs 3.873 af
L=545.5' S=0.0023 '/' Capacity=5,579.78 cfs Outflow=21.19 cfs 3.873 af

Reach 8R: River Sta 1096.55 CS-5 Avg. Flow Depth=1.18' Max Vel=2.72 fps Inflow=21.19 cfs 3.873 af
L=330.7' S=0.0086 '/' Capacity=33,066.93 cfs Outflow=21.09 cfs 3.872 af

Reach 9R: River Sta 820.28 CS-4 Avg. Flow Depth=1.83' Max Vel=2.29 fps Inflow=107.17 cfs 22.361 af
L=276.3' S=0.0048 '/' Capacity=29,920.03 cfs Outflow=106.98 cfs 22.361 af

Reach 10R: River Sta 613.13 CS-3A Avg. Flow Depth=1.83' Max Vel=2.65 fps Inflow=106.98 cfs 22.361 af
L=207.1' S=0.0067 '/' Capacity=58,962.20 cfs Outflow=106.84 cfs 22.361 af

Reach 11R: River Sta 384.66 CS-3 Avg. Flow Depth=2.28' Max Vel=3.43 fps Inflow=106.84 cfs 22.361 af
L=228.5' S=0.0061 '/' Capacity=5,622.13 cfs Outflow=106.77 cfs 22.361 af

Reach 12R: River Sta 284.44 CS-2 Avg. Flow Depth=2.68' Max Vel=0.42 fps Inflow=106.77 cfs 22.357 af
L=100.2' S=0.0001 '/' Capacity=8,158.02 cfs Outflow=106.11 cfs 22.357 af

Reach 13R: River Sta 0.00 CS-1 Avg. Flow Depth=2.24' Max Vel=4.12 fps Inflow=106.11 cfs 22.357 af
L=284.4' S=0.0086 '/' Capacity=29,924.85 cfs Outflow=105.56 cfs 22.357 af

Pond 11P: Pond 1 Peak Elev=46.85' Storage=17,948 cf Inflow=34.18 cfs 3.873 af
Outflow=24.09 cfs 3.873 af

Pond 14P: Goldsburough Neck Road Culvert Peak Elev=10.58' Inflow=106.77 cfs 22.361 af
Outflow=106.77 cfs 22.357 af

Link 18L: Proposed Design Point 1 Inflow=105.56 cfs 22.357 af
Primary=105.56 cfs 22.357 af

Total Runoff Area = 270.780 ac Runoff Volume = 22.361 af Average Runoff Depth = 0.99"
100.00% Pervious = 270.780 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Prop. Design Point 1 Bypass

Runoff = 104.25 cfs @ 12.31 hrs, Volume= 18.488 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	221.700	71	Weighted CN from TR-55
	221.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.6					**Direct Entry, TC from TR-55**

Summary for Subcatchment 4S: Prop. Design Point 1 to Pond

Runoff = 34.18 cfs @ 12.13 hrs, Volume= 3.873 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	49.080	70	Weighted CN from TR-55
	49.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.2					**Direct Entry, From TR-55**

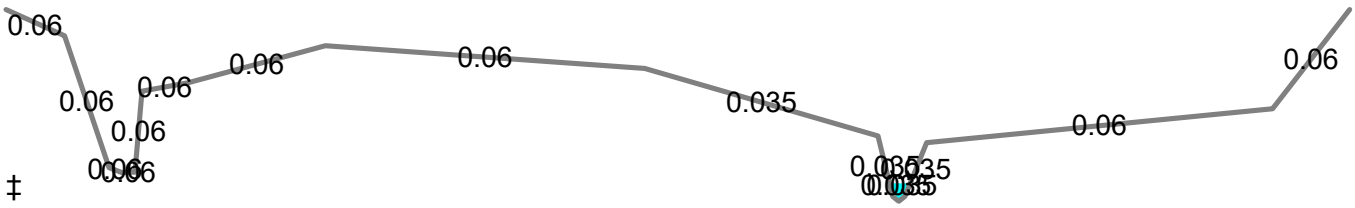
Summary for Reach 1R: River St 3893.53 CS-13

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 24.09 cfs @ 12.35 hrs, Volume= 3.873 af
Outflow = 24.07 cfs @ 12.38 hrs, Volume= 3.873 af, Atten= 0%, Lag= 1.4 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.62 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 11.8 min

Peak Storage= 2,664 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.46'
Bank-Full Depth= 15.50' Flow Area= 2,974.4 sf, Capacity= 30,715.83 cfs

Custom cross-section, Length= 400.0' Slope= 0.0089 '/' (111 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 37.41', Outlet Invert= 33.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.91	0.00		
19.65	50.80	2.11	0.060	
34.56	40.13	12.78	0.060	
38.64	39.75	13.16	0.060	
43.17	39.76	13.15	0.060	
45.57	46.31	6.60	0.060	
60.88	46.99	5.92	0.060	
106.99	49.99	2.92	0.060	
213.92	48.16	4.75	0.060	
292.01	42.68	10.23	0.035	
296.95	37.81	15.10	0.035	
299.01	37.41	15.50	0.035	
301.05	37.81	15.10	0.035	
308.35	42.15	10.76	0.035	
424.22	44.88	8.03	0.060	
450.00	52.91	0.00	0.060	

09035 Study Point 1 riser *Type II 24-hr 2yr Talbot Rainfall=3.40"*
Prepared by DP Solutions Printed 8/29/2023
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Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.40	0.8	4.2	328	1.11
2.34	13.8	10.7	5,539	65.72
2.35	14.0	15.4	5,586	66.32
2.72	20.1	21.0	8,035	93.27
4.74	67.8	33.5	27,109	386.86
5.27	89.0	58.2	35,609	520.79
7.47	345.1	189.2	138,024	1,641.80
8.90	623.1	218.4	249,237	3,633.81
9.58	774.2	246.9	309,687	4,807.44
10.75	1,074.1	287.6	429,650	7,561.94
12.58	1,711.1	432.0	684,458	14,019.18
13.39	2,052.7	436.1	821,092	18,072.48
15.50	2,974.4	463.0	1,189,741	30,715.83

Stage-Discharge for Reach 1R: River St 3893.53 CS-13

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
37.41	0.00	0.00
37.61	0.84	0.23
37.81	1.35	1.11
38.01	1.98	3.40
38.21	2.47	6.64
38.41	2.87	10.88
38.61	3.22	16.04
38.81	3.54	22.17
39.01	3.82	29.44
39.21	4.09	37.74
39.41	4.34	47.09
39.61	4.58	57.68
39.81	4.73	69.60
40.01	4.67	83.73
40.21	4.64	100.40
40.41	4.68	119.94
40.61	4.76	141.71
40.81	4.86	165.68
41.01	4.97	192.13
41.21	5.09	220.86
41.41	5.22	251.78
41.61	5.35	285.06
41.81	5.48	320.85
42.01	5.62	358.92
42.21	5.76	400.59
42.41	5.85	448.85
42.61	5.86	501.54
42.81	5.59	538.56
43.01	5.27	576.48
43.21	5.03	628.71
43.41	4.86	693.94
43.61	4.75	772.42
43.81	4.68	867.19
44.01	4.65	976.33
44.21	4.64	1,100.41
44.41	4.66	1,241.72
44.61	4.69	1,400.72
44.81	4.74	1,576.77
45.01	4.84	1,784.10
45.21	4.97	2,019.14
45.41	5.12	2,271.70
45.61	5.27	2,541.72
45.81	5.43	2,831.29
46.01	5.59	3,139.36
46.21	5.75	3,464.89
46.41	5.88	3,784.80
46.61	5.98	4,111.63
46.81	6.10	4,466.47
47.01	6.22	4,847.95
47.21	6.37	5,266.28
47.41	6.51	5,706.90
47.61	6.65	6,169.37
47.81	6.79	6,655.19
48.01	6.93	7,165.91
48.21	7.07	7,694.66
48.41	7.20	8,251.10
48.61	7.34	8,856.97
48.81	7.48	9,501.43
49.01	7.61	10,180.91
49.21	7.74	10,896.71
49.41	7.86	11,648.77
49.61	7.98	12,433.61
49.81	8.10	13,251.36
50.01	8.21	14,114.05
50.21	8.36	15,072.73
50.41	8.51	16,059.68
50.61	8.66	17,078.41
50.81	8.81	18,125.28
51.01	8.96	19,191.80
51.21	9.11	20,284.37
51.41	9.25	21,408.49
51.61	9.40	22,559.49
51.81	9.54	23,737.21
52.01	9.69	24,944.69
52.21	9.83	26,180.14
52.41	9.97	27,441.79
52.61	10.12	28,730.57
52.81	**10.26**	**30,048.98**

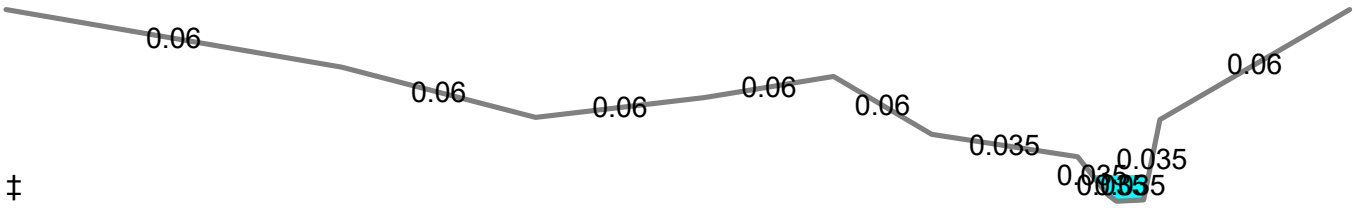
Summary for Reach 2R: River Sta 3493.6 CS-12

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 24.07 cfs @ 12.38 hrs, Volume= 3.873 af
Outflow = 24.01 cfs @ 12.41 hrs, Volume= 3.873 af, Atten= 0%, Lag= 2.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.47 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 30.3 min

Peak Storage= 3,831 cf @ 12.41 hrs
Average Depth at Peak Storage= 1.14'
Bank-Full Depth= 8.30' Flow Area= 915.0 sf, Capacity= 4,857.15 cfs

Custom cross-section, Length= 393.8' Slope= 0.0044 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 33.85', Outlet Invert= 32.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	42.15	0.00		
66.72	39.65	2.50	0.060	
105.27	37.48	4.67	0.060	
138.90	38.34	3.81	0.060	
164.52	39.25	2.90	0.060	
184.02	36.75	5.40	0.060	
213.06	35.77	6.38	0.035	
218.87	34.15	8.00	0.035	
220.76	33.85	8.30	0.035	
226.16	33.90	8.25	0.035	
229.39	37.38	4.77	0.035	
267.12	42.15	0.00	0.060	

09035 Study Point 1 riser *Type II 24-hr 2yr Talbot Rainfall=3.40"*
Prepared by DP Solutions Printed 8/29/2023
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Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.05	0.1	5.7	56	0.03
0.30	1.8	7.7	708	1.94
1.92	19.9	15.9	7,839	65.46
2.90	49.1	46.3	19,344	144.64
3.53	79.1	52.1	31,137	306.81
3.63	84.2	53.7	33,148	337.78
4.49	155.6	116.3	61,279	678.51
5.40	285.1	172.5	112,281	1,248.05
5.80	355.3	182.8	139,922	1,592.53
8.30	915.0	269.5	360,325	4,857.15

Stage-Discharge for Reach 2R: River Sta 3493.6 CS-12

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
33.85	0.00	0.00
33.95	0.48	0.24
34.05	0.82	0.92
34.15	1.08	1.94
34.25	1.31	3.39
34.35	1.51	5.14
34.45	1.69	7.24
34.55	1.86	9.64
34.65	2.01	12.36
34.75	2.16	15.38
34.85	2.29	18.72
34.95	2.42	22.41
35.05	2.54	26.43
35.15	2.65	30.76
35.25	2.77	35.43
35.35	2.87	40.45
35.45	2.98	45.84
35.55	3.08	51.58
35.65	3.17	57.68
35.75	3.27	64.13
35.85	3.11	66.02
35.95	2.97	68.62
36.05	2.89	72.93
36.15	2.84	78.78
36.25	2.82	86.06
36.35	2.82	94.86
36.45	2.83	105.15
36.55	2.86	116.85
36.65	2.90	130.01
36.75	2.94	144.64
36.85	3.11	167.04
36.95	3.27	190.73
37.05	3.42	215.66
37.15	3.57	241.84
37.25	3.71	269.24
37.35	3.84	297.98
37.45	3.97	328.41
37.55	4.09	359.95
37.65	4.18	393.06
37.75	4.25	428.01
37.85	4.29	465.13
37.95	4.32	504.29
38.05	4.34	545.57
38.15	4.36	589.09
38.25	4.36	634.97
38.35	4.36	683.60
38.45	4.36	735.22
38.55	4.36	789.34
38.65	4.36	846.09
38.75	4.36	905.60
38.85	4.36	968.22
38.95	4.36	1,033.67
39.05	4.37	1,102.04
39.15	4.37	1,173.38
39.25	4.38	1,248.05
39.35	4.40	1,329.60
39.45	4.42	1,414.31
39.55	4.45	1,502.00
39.65	4.48	1,592.53
39.75	4.51	1,684.87
39.85	4.54	1,780.31
39.95	4.57	1,878.73
40.05	4.60	1,980.15
40.15	4.63	2,084.57
40.25	4.66	2,192.24
40.35	4.70	2,303.17
40.45	4.73	2,417.17
40.55	4.76	2,534.24
40.65	4.80	2,654.42
40.75	4.83	2,778.01
40.85	4.87	2,904.91
40.95	4.90	3,034.96
41.05	4.93	3,168.21
41.15	4.97	3,304.65
41.25	5.00	3,444.69
41.35	5.04	3,588.08
41.45	5.07	3,734.74
41.55	5.10	3,884.69
41.65	5.14	4,037.96
41.75	5.17	4,194.99
41.85	5.21	4,355.44
41.95	5.24	4,519.27
42.05	5.27	4,686.50
42.15	**5.31**	**4,857.15**

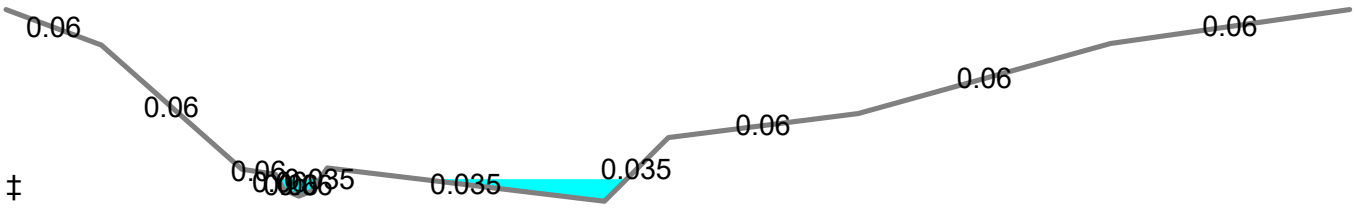
Summary for Reach 3R: River Sta 3099.81 CS-11

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 24.01 cfs @ 12.41 hrs, Volume= 3.873 af
Outflow = 23.74 cfs @ 12.48 hrs, Volume= 3.873 af, Atten= 1%, Lag= 4.1 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.46 fps, Min. Travel Time= 4.5 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 35.0 min

Peak Storage= 6,436 cf @ 12.48 hrs
Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 7.10' Flow Area= 776.4 sf, Capacity= 4,820.08 cfs

Custom cross-section, Length= 393.8' Slope= 0.0044 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 33.85', Outlet Invert= 32.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
116.06	39.20	0.00		
131.17	37.89	1.31	0.060	
153.42	33.28	5.92	0.060	
158.73	33.10	6.10	0.060	
160.06	32.53	6.67	0.060	
162.43	32.29	6.91	0.060	
164.53	32.48	6.72	0.060	
166.96	33.33	5.87	0.035	
210.85	32.10	7.10	0.035	
221.00	34.46	4.74	0.035	
251.08	35.35	3.85	0.060	
291.07	37.94	1.26	0.060	
328.96	39.20	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.19	0.7	7.6	284	0.42
0.38	3.3	19.2	1,286	2.82
0.43	4.3	21.9	1,691	4.00
1.00	24.1	47.9	9,474	40.19
1.18	33.8	61.0	13,306	61.32
1.23	36.9	63.4	14,522	68.88
2.36	113.9	74.0	44,835	402.36
3.25	194.4	108.4	76,540	850.90
5.79	533.2	160.3	209,963	3,125.68
5.84	541.2	161.6	213,110	3,183.12
7.10	776.4	214.1	305,742	4,820.08

Stage-Discharge for Reach 3R: River Sta 3099.81 CS-11

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
33.85	0.00	0.00
33.95	0.38	0.10
34.05	0.61	0.49
34.15	0.76	1.50
34.25	0.89	3.28
34.35	1.03	6.09
34.45	1.16	10.15
34.55	1.30	15.39
34.65	1.43	22.13
34.75	1.55	30.38
34.85	1.67	40.19
34.95	1.75	51.13
35.05	1.84	64.30
35.15	2.00	82.64
35.25	2.17	103.88
35.35	2.34	127.06
35.45	2.50	152.27
35.55	2.66	179.21
35.65	2.80	208.15
35.75	2.94	238.80
35.85	3.08	271.23
35.95	3.21	305.48
36.05	3.34	341.31
36.15	3.46	379.06
36.25	3.59	419.11
36.35	3.71	462.19
36.45	3.83	507.22
36.55	3.93	554.11
36.65	4.03	603.30
36.75	4.11	654.43
36.85	4.20	707.82
36.95	4.27	763.41
37.05	4.34	821.15
37.15	4.41	881.65
37.25	4.48	944.49
37.35	4.55	1,009.73
37.45	4.62	1,077.16
37.55	4.68	1,146.78
37.65	4.75	1,218.79
37.75	4.81	1,292.86
37.85	4.88	1,369.37
37.95	4.94	1,448.03
38.05	5.00	1,528.94
38.15	5.06	1,612.21
38.25	5.12	1,697.56
38.35	5.18	1,785.44
38.45	5.24	1,875.45
38.55	5.29	1,967.78
38.65	5.35	2,062.48
38.75	5.40	2,159.30
38.85	5.46	2,258.72
38.95	5.51	2,360.27
39.05	5.56	2,464.25
39.15	5.62	2,570.59
39.25	5.67	2,679.15
39.35	5.72	2,790.31
39.45	5.77	2,903.65
39.55	5.82	3,019.52
39.65	5.87	3,137.15
39.75	5.90	3,249.89
39.85	5.93	3,363.65
39.95	5.96	3,480.22
40.05	5.98	3,600.11
40.15	6.01	3,722.98
40.25	6.04	3,848.92
40.35	6.06	3,978.17
40.45	6.09	4,110.30
40.55	6.11	4,245.95
40.65	6.14	4,384.60
40.75	6.16	4,526.51
40.85	6.18	4,671.79
40.95	**6.21**	**4,820.08**

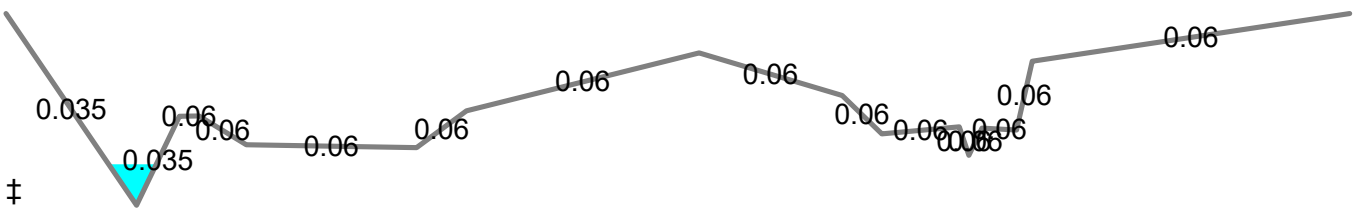
Summary for Reach 4R: River Sta 2839.49 CS-10

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 23.74 cfs @ 12.48 hrs, Volume= 3.873 af
Outflow = 23.74 cfs @ 12.50 hrs, Volume= 3.873 af, Atten= 0%, Lag= 1.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.38 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.42 fps, Avg. Travel Time= 10.5 min

Peak Storage= 1,831 cf @ 12.50 hrs
Average Depth at Peak Storage= 1.09'
Bank-Full Depth= 5.07' Flow Area= 775.1 sf, Capacity= 4,436.42 cfs

Custom cross-section, Length= 260.3' Slope= 0.0146 '/' (111 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 32.10', Outlet Invert= 28.31'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
132.58	33.38	0.00		
167.94	28.31	5.07	0.035	
179.60	30.66	2.72	0.035	
184.90	30.67	2.71	0.060	
197.68	29.91	3.47	0.060	
243.83	29.83	3.55	0.060	
257.41	30.81	2.57	0.060	
320.42	32.34	1.04	0.060	
359.18	31.21	2.17	0.060	
369.95	30.20	3.18	0.060	
390.93	30.38	3.00	0.060	
393.55	29.63	3.75	0.060	
397.11	30.35	3.03	0.060	
406.51	30.30	3.08	0.060	
410.77	32.12	1.26	0.060	
496.78	33.38	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.32	10.4	16.0	2,707	40.01
1.52	14.0	20.1	3,633	58.36
1.60	17.5	69.1	4,555	67.65
1.89	39.6	84.0	10,301	128.56
1.99	48.8	101.9	12,707	155.02
2.04	54.3	120.4	14,146	167.98
2.07	58.0	125.6	15,102	178.39
2.35	95.2	141.3	24,784	311.34
2.36	96.6	147.2	25,157	313.38
2.50	117.5	151.9	30,580	403.75
2.90	182.8	176.5	47,593	714.68
3.81	377.8	254.0	98,334	1,779.88
4.03	437.0	287.2	113,760	2,088.69
5.07	775.1	365.5	201,762	4,436.42

Stage-Discharge for Reach 4R: River Sta 2839.49 CS-10

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
32.10	0.00	0.00
32.14	0.35	0.01
32.18	0.59	0.03
32.22	0.77	0.07
32.26	0.94	0.15
32.30	1.09	0.26
32.34	1.23	0.43
32.38	1.37	0.65
32.42	1.49	0.93
32.46	1.62	1.26
32.50	1.74	1.66
32.54	1.85	2.15
32.58	1.96	2.71
32.62	2.07	3.35
32.66	2.17	4.07
32.70	2.27	4.90
32.74	2.37	5.82
32.78	2.47	6.84
32.82	2.57	7.96
32.86	2.66	9.18
32.90	2.75	10.54
32.94	2.85	12.01
32.98	2.94	13.59
33.02	3.02	15.29
33.06	3.11	17.12
33.10	3.20	19.10
33.14	3.28	21.21
33.18	3.37	23.45
33.22	3.45	25.82
33.26	3.53	28.36
33.30	3.61	31.05
33.34	3.69	33.89
33.38	3.77	36.88
33.42	3.85	40.01
33.46	3.92	43.34
33.50	3.99	46.84
33.54	4.06	50.51
33.58	4.12	54.35
33.62	4.18	58.36
33.66	4.08	62.75
33.70	3.87	67.65
33.74	3.65	73.91
33.78	3.49	80.75
33.82	3.38	88.37
33.86	3.32	96.81
33.90	3.28	105.88
33.94	3.26	115.58
33.98	3.25	125.87
34.02	3.22	135.99
34.06	3.20	146.67
34.10	3.16	157.55
34.14	3.09	167.98
34.18	3.08	182.37
34.22	3.09	198.89
34.26	3.11	216.33
34.30	3.14	234.63
34.34	3.17	253.80
34.38	3.20	273.87
34.42	3.24	295.06
34.46	3.24	313.38
34.50	3.30	338.18
34.54	3.35	363.68
34.58	3.41	390.19
34.62	3.46	417.14
34.66	3.51	444.56
34.70	3.56	472.78
34.74	3.60	501.86
34.78	3.65	532.03
34.82	3.70	563.19
34.86	3.75	595.23
34.90	3.79	628.15
34.94	3.84	661.97
34.98	3.89	696.98
35.02	3.93	732.05
35.06	3.96	767.37
35.10	4.00	803.58
35.14	4.04	840.83
35.18	4.07	879.35
35.22	4.11	918.87
35.26	4.15	959.40
35.30	4.18	1,000.94
35.34	4.22	1,043.68
35.38	4.25	1,087.67
35.42	4.29	1,132.71
35.46	4.32	1,178.81
35.50	4.36	1,225.97
35.54	4.39	1,274.50
35.58	4.43	1,324.24
35.62	4.46	1,375.08
35.66	4.50	1,427.04
35.70	4.53	1,480.11
35.74	4.57	1,534.72
35.78	4.60	1,590.49
35.82	4.64	1,647.42
35.86	4.67	1,705.51
35.90	4.70	1,764.87
35.94	4.72	1,819.18
35.98	4.73	1,872.89
36.02	4.74	1,928.13
36.06	4.76	1,984.96
36.10	4.77	2,043.66
36.14	4.79	2,106.67
36.18	4.83	2,179.40
36.22	4.87	2,253.25
36.26	4.90	2,328.40
36.30	4.94	2,405.20
36.34	4.98	2,483.44
36.38	5.02	2,562.99
36.42	5.05	2,643.88
36.46	5.09	2,726.10
36.50	5.13	2,810.14
36.54	5.16	2,895.53
36.58	5.20	2,982.28
36.62	5.24	3,070.38
36.66	5.27	3,160.00
36.70	5.31	3,251.36
36.74	5.35	3,344.10
36.78	5.38	3,438.24
36.82	5.42	3,533.77
36.86	5.45	3,630.99
36.90	5.49	3,729.86
36.94	5.52	3,830.15
36.98	5.56	3,931.87
37.02	5.59	4,035.02
37.06	5.63	4,140.05
37.10	5.66	4,246.63
37.14	5.70	4,354.66
37.18	**5.73**	**4,463.67**

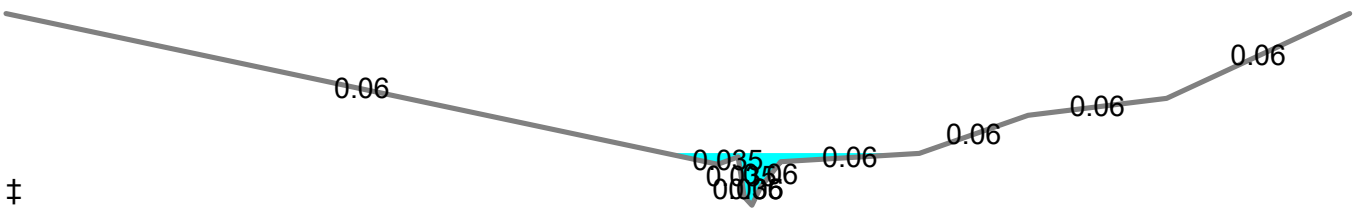
Summary for Reach 5R: River Sta 2577.80 CS-9

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 23.74 cfs @ 12.50 hrs, Volume= 3.873 af
Outflow = 23.27 cfs @ 12.58 hrs, Volume= 3.873 af, Atten= 2%, Lag= 5.3 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.58 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 19.7 min

Peak Storage= 6,434 cf @ 12.58 hrs
Average Depth at Peak Storage= 1.66'
Bank-Full Depth= 6.08' Flow Area= 1,195.3 sf, Capacity= 3,809.00 cfs

Custom cross-section, Length= 261.7' Slope= 0.0037 '/' (107 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 28.31', Outlet Invert= 27.33'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	32.11	0.00		
227.84	27.33	4.78	0.060	
234.43	27.56	4.55	0.035	
236.39	26.29	5.82	0.035	
238.78	26.03	6.08	0.035	
241.58	26.60	5.51	0.060	
248.02	27.41	4.70	0.060	
292.35	27.67	4.44	0.060	
327.25	28.88	3.23	0.060	
371.61	29.42	2.69	0.060	
430.19	32.11	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.26	0.5	3.7	125	0.27
0.57	1.9	5.8	503	2.05
1.30	8.6	13.0	2,248	13.57
1.38	9.9	19.9	2,584	13.66
1.53	15.6	57.2	4,079	14.38
1.64	23.1	81.2	6,060	21.63
2.85	176.8	173.8	46,274	311.44
3.39	289.3	243.9	75,716	550.66
6.08	1,195.3	430.8	312,808	3,809.00

Stage-Discharge for Reach 5R: River Sta 2577.80 CS-9

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
28.31	0.00	0.00
28.35	0.14	0.00
28.39	0.25	0.02
28.43	0.34	0.03
28.47	0.41	0.08
28.51	0.47	0.14
28.55	0.54	0.22
28.59	0.61	0.34
28.63	0.69	0.50
28.67	0.77	0.67
28.71	0.83	0.89
28.75	0.89	1.12
28.79	0.95	1.37
28.83	1.00	1.66
28.87	1.05	1.97
28.91	1.09	2.30
28.95	1.13	2.66
28.99	1.16	3.04
29.03	1.20	3.46
29.07	1.23	3.91
29.11	1.26	4.39
29.15	1.29	4.91
29.19	1.32	5.46
29.23	1.35	6.05
29.27	1.37	6.67
29.31	1.40	7.34
29.35	1.42	8.03
29.39	1.45	8.78
29.43	1.47	9.56
29.47	1.50	10.37
29.51	1.52	11.24
29.55	1.55	12.15
29.59	1.57	13.08
29.63	1.52	13.47
29.67	1.42	13.53
29.71	1.25	12.87
29.75	1.10	12.69
29.79	1.00	13.09
29.83	0.93	14.03
29.87	0.92	16.12
29.91	0.93	18.72
29.95	0.93	21.63
29.99	0.97	25.65
30.03	1.00	29.95
30.07	1.03	34.56
30.11	1.07	39.66
30.15	1.10	45.03
30.19	1.13	50.72
30.23	1.16	56.90
30.27	1.20	63.35
30.31	1.23	70.15
30.35	1.26	77.44
30.39	1.29	85.00
30.43	1.31	92.96
30.47	1.34	101.39
30.51	1.37	110.11
30.55	1.40	119.26
30.59	1.42	128.88
30.63	1.45	138.79
30.67	1.47	149.18
30.71	1.50	160.02
30.75	1.52	171.17
30.79	1.55	182.83
30.83	1.57	194.95
30.87	1.60	207.37
30.91	1.62	220.36
30.95	1.64	233.78
30.99	1.67	247.53
31.03	1.69	261.89
31.07	1.71	276.67
31.11	1.73	291.78
31.15	1.76	307.50
31.19	1.77	321.84
31.23	1.77	335.88
31.27	1.78	350.82
31.31	1.79	366.27
31.35	1.80	382.17
31.39	1.81	399.04
31.43	1.82	416.39
31.47	1.83	434.24
31.51	1.85	453.05
31.55	1.86	472.35
31.59	1.87	492.22
31.63	1.88	513.03
31.67	1.89	534.30
31.71	1.91	557.07
31.75	1.93	583.22
31.79	1.96	609.78
31.83	1.98	636.95
31.87	2.00	664.92
31.91	2.03	693.34
31.95	2.05	722.42
31.99	2.07	752.27
32.03	2.10	782.58
32.07	2.12	813.59
32.11	2.14	845.34
32.15	2.16	877.57
32.19	2.18	910.53
32.23	2.21	944.22
32.27	2.23	978.37
32.31	2.25	1,013.33
32.35	2.27	1,048.96
32.39	2.29	1,085.08
32.43	2.31	1,122.05
32.47	2.33	1,159.67
32.51	2.35	1,197.77
32.55	2.37	1,236.78
32.59	2.39	1,276.40
32.63	2.41	1,316.52
32.67	2.43	1,357.60
32.71	2.45	1,399.26
32.75	2.47	1,441.42
32.79	2.49	1,484.59
32.83	2.51	1,528.31
32.87	2.53	1,572.54
32.91	2.55	1,617.83
32.95	2.57	1,663.64
32.99	2.59	1,710.01
33.03	2.61	1,757.42
33.07	2.62	1,805.35
33.11	2.64	1,853.89
33.15	2.66	1,903.43
33.19	2.68	1,953.51
33.23	2.70	2,004.24
33.27	2.72	2,055.96
33.31	2.73	2,108.21
33.35	2.75	2,161.17
33.39	2.77	2,215.08
33.43	2.79	2,269.53
33.47	2.80	2,324.75
33.51	2.82	2,380.88
33.55	2.84	2,437.57
33.59	2.86	2,495.07
33.63	2.87	2,553.46
33.67	2.89	2,612.40
33.71	2.91	2,672.22
33.75	2.93	2,732.89
33.79	2.94	2,794.12
33.83	2.96	2,856.29
33.87	2.98	2,919.26
33.91	2.99	2,982.81
33.95	3.01	3,047.35
33.99	3.03	3,112.66
34.03	3.04	3,178.55
34.07	3.06	3,245.50
34.11	3.07	3,313.18
34.15	3.09	3,381.44
34.19	3.11	3,450.83
34.23	3.12	3,520.90
34.27	3.14	3,591.56
34.31	3.15	3,663.41
34.35	3.17	3,735.91
34.39	**3.19**	**3,809.00**

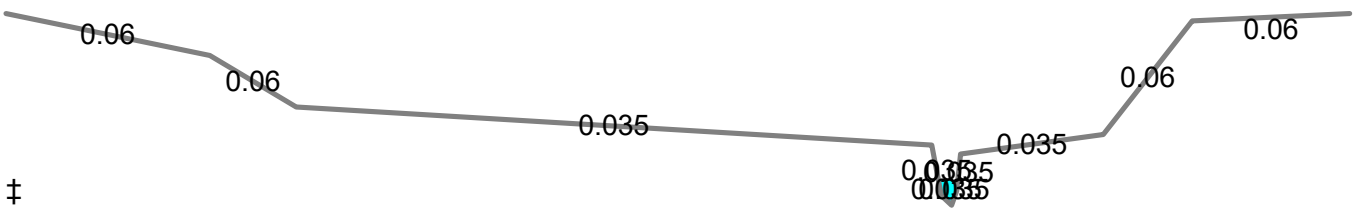
Summary for Reach 6R: River Sta 1972.78 CS-8

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 23.27 cfs @ 12.58 hrs, Volume= 3.873 af
Outflow = 23.23 cfs @ 12.61 hrs, Volume= 3.873 af, Atten= 0%, Lag= 1.5 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.15 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 17.3 min

Peak Storage= 2,730 cf @ 12.61 hrs
Average Depth at Peak Storage= 1.55'
Bank-Full Depth= 11.89' Flow Area= 1,546.5 sf, Capacity= 30,613.15 cfs

Custom cross-section, Length= 605.0' Slope= 0.0200 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 27.33', Outlet Invert= 15.26'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	27.15	0.00		
45.60	24.54	2.61	0.060	
64.91	21.36	5.79	0.060	
206.97	18.99	8.16	0.035	
209.13	15.86	11.29	0.035	
211.40	15.26	11.89	0.035	
212.59	16.16	10.99	0.035	
213.40	18.44	8.71	0.035	
245.31	19.64	7.51	0.035	
265.19	26.69	0.46	0.060	
300.42	27.15	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.60	0.9	3.3	556	2.33
0.90	1.9	4.2	1,167	6.88
3.18	13.0	9.4	7,869	96.89
3.73	20.5	24.7	12,379	108.23
4.38	52.4	81.0	31,718	235.32
6.10	278.2	189.2	168,324	2,155.48
9.28	912.3	218.3	551,928	14,423.80
11.43	1,418.3	262.4	858,047	27,530.87
11.89	1,546.5	305.6	935,633	30,613.15

Stage-Discharge for Reach 6R: River Sta 1972.78 CS-8

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
27.33	0.00	0.00
27.48	0.99	0.07
27.63	1.59	0.40
27.78	2.09	1.11
27.93	2.54	2.33
28.08	3.09	4.38
28.23	3.57	6.88
28.38	4.01	10.02
28.53	4.40	13.56
28.68	4.75	17.53
28.83	5.06	21.87
28.98	5.34	26.59
29.13	5.61	31.70
29.28	5.85	37.21
29.43	6.08	43.09
29.58	6.30	49.33
29.73	6.50	55.99
29.88	6.70	63.03
30.03	6.89	70.46
30.18	7.07	78.26
30.33	7.25	86.50
30.48	7.42	95.13
30.63	6.42	89.43
30.78	5.69	89.03
30.93	5.40	97.10
31.08	5.16	107.84
31.23	4.49	113.70
31.38	4.29	135.73
31.53	4.32	173.24
31.68	4.46	224.02
31.83	4.75	295.69
31.98	5.06	383.14
32.13	5.37	486.62
32.28	5.66	605.65
32.43	5.96	741.11
32.58	6.24	895.68
32.73	6.52	1,069.80
32.88	6.79	1,263.05
33.03	7.06	1,476.22
33.18	7.32	1,712.89
33.33	7.58	1,972.05
33.48	7.91	2,276.17
33.63	8.40	2,650.52
33.78	8.87	3,049.80
33.93	9.33	3,470.77
34.08	9.77	3,912.83
34.23	10.19	4,376.07
34.38	10.61	4,862.76
34.53	11.01	5,369.48
34.68	11.41	5,895.99
34.83	11.79	6,443.03
34.98	12.17	7,011.66
35.13	12.54	7,599.33
35.28	12.90	8,205.86
35.43	13.25	8,832.58
35.58	13.60	9,479.45
35.73	13.94	10,144.63
35.88	14.27	10,827.99
36.03	14.60	11,531.39
36.18	14.92	12,253.75
36.33	15.23	12,993.86
36.48	15.55	13,751.63
36.63	15.85	14,528.19
36.78	16.14	15,316.93
36.93	16.42	16,124.31
37.08	16.70	16,950.39
37.23	16.97	17,798.16
37.38	17.24	18,664.38
37.53	17.50	19,549.01
37.68	17.75	20,452.59
37.83	17.99	21,377.11
37.98	18.24	22,320.01
38.13	18.47	23,281.30
38.28	18.70	24,262.13
38.43	18.93	25,263.42
38.58	19.15	26,283.16
38.73	19.37	27,321.40
38.88	19.50	28,270.41
39.03	19.63	29,273.22
39.18	**19.76**	**30,327.52**

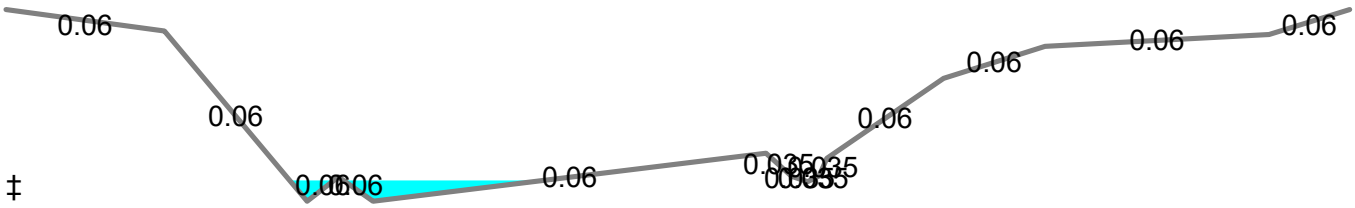
Summary for Reach 7R: River Sta 1427.28 CS-7

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 23.23 cfs @ 12.61 hrs, Volume= 3.873 af
Outflow = 21.19 cfs @ 12.80 hrs, Volume= 3.873 af, Atten= 9%, Lag= 11.7 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.79 fps, Min. Travel Time= 11.5 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 81.8 min

Peak Storage= 14,651 cf @ 12.80 hrs
Average Depth at Peak Storage= 1.11'
Bank-Full Depth= 10.23' Flow Area= 1,372.9 sf, Capacity= 5,579.78 cfs

Custom cross-section, Length= 545.5' Slope= 0.0023 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 15.26', Outlet Invert= 14.03'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
110.04	23.22	0.00		
141.25	22.07	1.15	0.060	
169.44	12.99	10.23	0.060	
175.62	14.28	8.94	0.060	
182.43	12.99	10.23	0.060	
259.88	15.56	7.66	0.060	
264.98	14.32	8.90	0.035	
268.12	14.03	9.19	0.035	
270.40	14.34	8.88	0.035	
271.88	15.28	7.94	0.035	
294.91	19.55	3.67	0.060	
314.93	21.26	1.96	0.060	
359.13	21.88	1.34	0.060	
375.00	23.22	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.04	23.4	45.4	12,777	17.71
1.29	36.6	60.9	19,968	31.74
1.33	39.1	63.0	21,309	34.70
1.35	40.3	63.9	21,995	36.25
2.29	117.1	101.0	63,870	159.21
2.57	146.7	113.1	80,052	217.42
6.56	661.0	148.0	360,571	2,315.97
8.27	932.0	173.7	508,421	3,789.48
8.89	1,052.4	219.9	574,111	4,358.78
9.08	1,094.0	222.8	596,779	4,578.02
10.23	1,372.9	267.7	748,934	5,579.78

Stage-Discharge for Reach 7R: River Sta 1427.28 CS-7

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
15.26	0.00	0.00
15.41	0.21	0.13
15.56	0.33	0.65
15.71	0.43	1.95
15.86	0.52	4.12
16.01	0.61	7.48
16.16	0.69	12.10
16.31	0.76	18.20
16.46	0.83	26.12
16.61	0.90	36.25
16.76	0.98	49.35
16.91	1.06	64.65
17.06	1.13	82.55
17.21	1.20	102.86
17.36	1.27	126.08
17.51	1.34	151.82
17.66	1.41	180.98
17.81	1.47	212.95
17.96	1.57	254.15
18.11	1.68	299.16
18.26	1.77	347.41
18.41	1.87	398.58
18.56	1.96	452.78
18.71	2.05	509.89
18.86	2.14	569.86
19.01	2.22	632.77
19.16	2.30	698.39
19.31	2.38	766.99
19.46	2.46	838.15
19.61	2.54	912.33
19.76	2.61	988.98
19.91	2.68	1,068.67
20.06	2.76	1,150.81
20.21	2.83	1,235.87
20.36	2.89	1,323.46
20.51	2.96	1,413.86
20.66	3.03	1,506.85
20.81	3.09	1,602.56
20.96	3.16	1,700.93
21.11	3.22	1,801.91
21.26	3.28	1,905.64
21.41	3.34	2,011.89
21.56	3.40	2,120.95
21.71	3.46	2,232.46
21.86	3.52	2,346.17
22.01	3.57	2,460.68
22.16	3.62	2,578.42
22.31	3.68	2,698.84
22.46	3.73	2,822.43
22.61	3.78	2,948.80
22.76	3.83	3,078.26
22.91	3.87	3,210.61
23.06	3.92	3,345.98
23.21	3.97	3,484.36
23.36	4.01	3,625.69
23.51	4.06	3,770.09
23.66	4.08	3,895.30
23.81	4.10	4,028.07
23.96	4.12	4,169.05
24.11	4.14	4,318.21
24.26	**4.17**	4,484.95
24.41	**4.17**	4,627.67
24.56	4.14	4,738.20
24.71	4.12	4,856.37
24.86	4.10	4,981.11
25.01	4.09	5,113.02
25.16	4.08	5,251.55
25.31	4.07	5,396.87
25.46	4.07	**5,548.90**

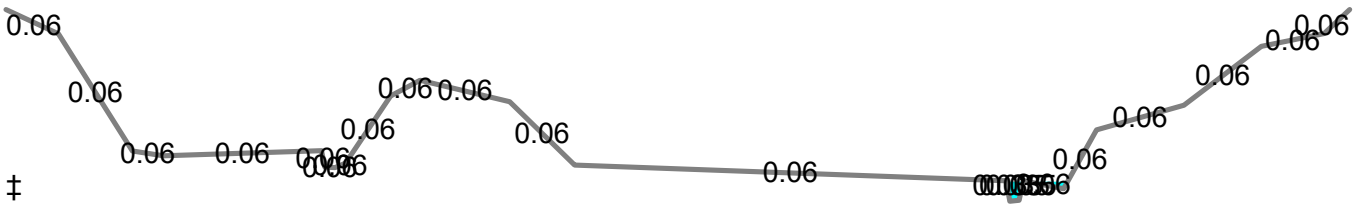
Summary for Reach 8R: River Sta 1096.55 CS-5

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 21.19 cfs @ 12.80 hrs, Volume= 3.873 af
Outflow = 21.09 cfs @ 12.85 hrs, Volume= 3.872 af, Atten= 0%, Lag= 2.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.72 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.36 fps, Avg. Travel Time= 15.3 min

Peak Storage= 2,839 cf @ 12.85 hrs
Average Depth at Peak Storage= 1.18'
Bank-Full Depth= 11.67' Flow Area= 3,698.5 sf, Capacity= 33,066.93 cfs

Custom cross-section, Length= 330.7' Slope= 0.0086 '/' (119 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 14.03', Outlet Invert= 11.19'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.86	0.00		
19.48	21.37	1.49	0.060	
46.99	14.25	8.61	0.060	
58.64	13.96	8.90	0.060	
117.45	14.26	8.60	0.060	
118.64	13.28	9.58	0.060	
122.39	13.23	9.63	0.060	
126.30	13.51	9.35	0.060	
143.11	17.60	5.26	0.060	
154.13	18.56	4.30	0.060	
187.43	17.24	5.62	0.060	
211.60	13.40	9.46	0.060	
372.09	12.43	10.43	0.060	
373.56	11.19	11.67	0.035	
376.99	11.25	11.61	0.035	
378.50	12.44	10.42	0.035	
393.57	11.95	10.91	0.060	
405.78	15.54	7.32	0.060	
438.28	17.03	5.83	0.060	
467.19	20.61	2.25	0.060	
490.49	21.39	1.47	0.060	
500.00	22.86	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.06	0.1	3.5	35	0.04
0.76	3.2	5.7	1,044	8.34
1.24	9.9	23.7	3,267	23.95
1.25	10.1	25.7	3,346	24.49
2.04	82.4	159.3	27,250	164.02
2.09	90.6	172.2	29,973	180.41
2.21	112.5	194.3	37,200	228.97
2.32	133.9	197.1	44,277	288.62
2.77	223.6	204.2	73,934	604.31
3.06	292.9	277.2	96,864	779.93
3.07	295.7	279.4	97,778	787.98
4.35	665.6	302.6	220,102	2,700.59
5.84	1,153.0	356.9	381,311	6,021.98
6.05	1,227.9	361.7	406,062	6,618.72
6.41	1,359.7	376.7	449,655	7,615.56
7.37	1,740.8	423.6	575,675	10,572.29
9.42	2,627.5	448.5	868,906	20,147.10
10.18	2,975.2	474.2	983,914	24,102.93
10.20	2,984.7	475.1	987,028	24,206.23
11.67	3,698.5	504.0	1,223,110	33,066.93

Stage-Discharge for Reach 8R: River Sta 1096.55 CS-5

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
14.03	0.00	0.00
14.18	0.90	0.44
14.33	1.50	1.57
14.48	1.94	3.25
14.63	2.31	5.45
14.78	2.62	8.15
14.93	2.69	11.54
15.08	2.57	15.95
15.23	2.45	22.08
15.38	2.33	31.75
15.53	2.13	46.10
15.68	2.00	67.24
15.83	1.96	97.00
15.98	1.97	136.02
16.13	1.99	184.14
16.28	2.08	250.51
16.43	2.25	337.75
16.58	2.43	437.13
16.73	2.62	548.60
16.88	2.68	645.97
17.03	2.66	738.12
17.18	2.76	877.36
17.33	2.93	1,057.31
17.48	3.11	1,251.23
17.63	3.27	1,458.68
17.78	3.44	1,680.45
17.93	3.60	1,916.37
18.08	3.76	2,164.94
18.23	3.91	2,425.95
18.38	4.06	2,700.59
18.53	4.18	2,970.28
18.68	4.30	3,253.91
18.83	4.42	3,553.13
18.98	4.54	3,867.71
19.13	4.66	4,196.01
19.28	4.77	4,537.86
19.43	4.89	4,895.47
19.58	5.01	5,266.50
19.73	5.12	5,650.82
19.88	5.23	6,050.11
20.03	5.35	6,475.02
20.18	5.45	6,888.75
20.33	5.54	7,302.85
20.48	5.62	7,727.87
20.63	5.70	8,155.01
20.78	5.77	8,595.64
20.93	5.84	9,050.99
21.08	5.92	9,521.54
21.23	5.99	10,006.04
21.38	6.06	10,504.65
21.53	6.18	11,101.07
21.68	6.31	11,724.05
21.83	6.43	12,360.84
21.98	6.55	13,012.42
22.13	6.67	13,679.04
22.28	6.79	14,359.23
22.43	6.90	15,052.92
22.58	7.02	15,762.31
22.73	7.13	16,485.24
22.88	7.25	17,221.48
23.03	7.36	17,972.00
23.18	7.47	18,737.10
23.33	7.58	19,515.36
23.48	7.68	20,294.50
23.63	7.77	21,043.43
23.78	7.86	21,809.79
23.93	7.94	22,593.17
24.08	8.03	23,394.60
24.23	8.11	24,206.23
24.38	8.20	25,050.11
24.53	8.28	25,906.18
24.68	8.37	26,777.64
24.83	8.46	27,662.53
24.98	8.54	28,560.64
25.13	8.63	29,472.94
25.28	8.71	30,399.91
25.43	8.79	31,340.13
25.58	**8.88**	**32,293.59**

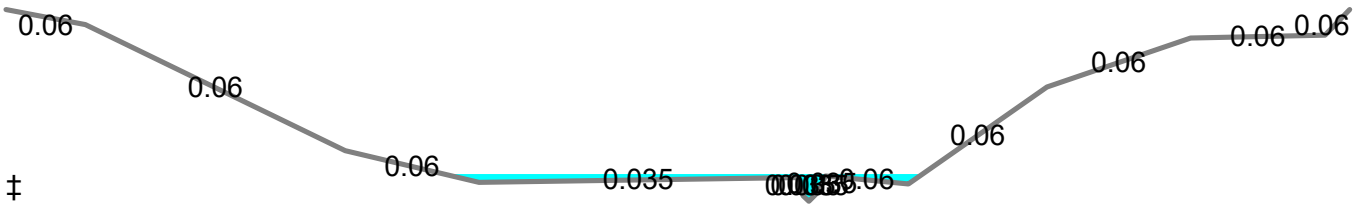
Summary for Reach 9R: River Sta 820.28 CS-4

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 0.99" for 2yr Talbot event
Inflow = 107.17 cfs @ 12.33 hrs, Volume= 22.361 af
Outflow = 106.98 cfs @ 12.39 hrs, Volume= 22.361 af, Atten= 0%, Lag= 3.4 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.29 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.34 fps, Avg. Travel Time= 13.6 min

Peak Storage= 18,948 cf @ 12.39 hrs
Average Depth at Peak Storage= 1.83'
Bank-Full Depth= 12.88' Flow Area= 3,176.9 sf, Capacity= 29,920.03 cfs

Custom cross-section, Length= 276.3' Slope= 0.0048 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 11.19', Outlet Invert= 9.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.73	0.00		
26.01	21.72	1.01	0.060	
111.05	13.24	9.49	0.060	
154.92	11.12	11.61	0.060	
259.10	11.45	11.28	0.035	
261.07	10.22	12.51	0.035	
262.92	9.85	12.88	0.035	
266.04	10.49	12.24	0.035	
268.39	11.54	11.19	0.035	
295.48	11.01	11.72	0.060	
340.86	17.53	5.20	0.060	
387.97	20.82	1.91	0.060	
431.96	21.01	1.72	0.060	
440.00	22.73	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.37	0.7	3.7	187	0.64
0.64	1.9	5.6	525	2.74
1.16	5.2	7.8	1,445	11.80
1.27	6.4	14.7	1,773	14.61
1.60	32.8	146.4	9,060	32.90
1.69	46.2	153.7	12,773	56.79
3.39	346.2	200.8	95,651	1,331.30
7.68	1,360.3	274.2	375,852	10,019.94
10.97	2,389.7	354.6	660,271	21,401.97
11.16	2,461.1	400.5	680,004	21,624.03
11.87	2,748.0	411.1	759,268	25,001.84
12.88	3,176.9	441.9	877,767	29,920.03

Stage-Discharge for Reach 9R: River Sta 820.28 CS-4

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
11.19	0.00	0.00
11.34	0.51	0.07
11.49	0.82	0.39
11.64	1.11	1.14
11.79	1.38	2.37
11.94	1.64	4.17
12.09	1.89	6.50
12.24	2.11	9.38
12.39	2.26	12.82
12.54	1.27	11.15
12.69	0.93	19.65
12.84	1.13	45.91
12.99	1.49	94.10
13.14	1.80	157.01
13.29	2.08	232.46
13.44	2.34	319.55
13.59	2.58	417.81
13.74	2.80	526.86
13.89	3.01	646.43
14.04	3.21	777.27
14.19	3.39	918.50
14.34	3.57	1,069.68
14.49	3.75	1,230.72
14.64	3.91	1,402.07
14.79	4.08	1,584.69
14.94	4.24	1,777.28
15.09	4.39	1,979.49
15.24	4.54	2,190.87
15.39	4.69	2,411.33
15.54	4.84	2,640.80
15.69	4.98	2,879.21
15.84	5.11	3,127.17
15.99	5.25	3,384.36
16.14	5.38	3,650.32
16.29	5.50	3,925.01
16.44	5.63	4,208.38
16.59	5.75	4,500.42
16.74	5.87	4,801.68
16.89	5.99	5,112.02
17.04	6.10	5,430.95
17.19	6.22	5,758.45
17.34	6.33	6,094.49
17.49	6.44	6,439.08
17.64	6.55	6,792.70
17.79	6.65	7,155.39
17.94	6.76	7,526.60
18.09	6.86	7,906.32
18.24	6.96	8,294.54
18.39	7.06	8,691.28
18.54	7.16	9,096.93
18.69	7.25	9,511.73
18.84	7.35	9,934.57
18.99	7.43	10,355.43
19.14	7.51	10,781.99
19.29	7.59	11,217.75
19.44	7.67	11,663.08
19.59	7.75	12,118.42
19.74	7.83	12,583.00
19.89	7.91	13,056.86
20.04	7.98	13,540.02
20.19	8.06	14,032.49
20.34	8.13	14,534.60
20.49	8.20	15,046.97
20.64	8.27	15,568.75
20.79	8.35	16,099.97
20.94	8.42	16,640.66
21.09	8.48	17,190.85
21.24	8.55	17,750.78
21.39	8.62	18,321.27
21.54	8.69	18,901.37
21.69	8.75	19,491.11
21.84	8.82	20,090.54
21.99	8.88	20,699.68
22.14	8.95	21,318.63
22.29	8.83	21,525.41
22.44	8.83	22,039.53
22.59	8.89	22,739.40
22.74	8.96	23,450.00
22.89	9.02	24,171.32
23.04	9.09	24,903.34
23.19	9.14	25,601.72
23.34	9.19	26,306.03
23.49	9.23	27,023.42
23.64	9.28	27,753.83
23.79	9.33	28,497.19
23.94	9.38	29,253.46
24.09	**9.42**	**30,022.59**

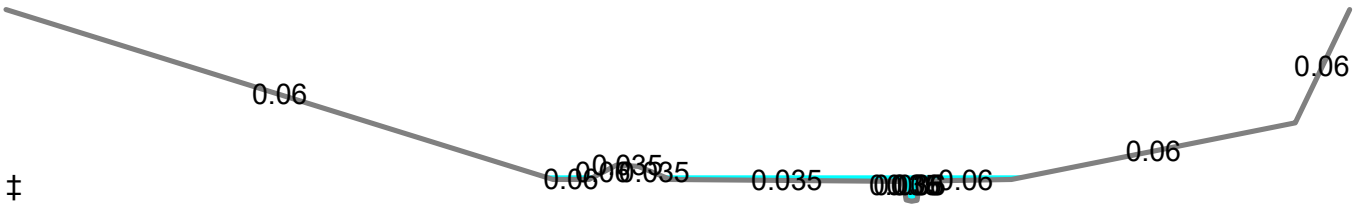
Summary for Reach 10R: River Sta 613.13 CS-3A

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 0.99" for 2yr Talbot event
Inflow = 106.98 cfs @ 12.39 hrs, Volume= 22.361 af
Outflow = 106.84 cfs @ 12.41 hrs, Volume= 22.361 af, Atten= 0%, Lag= 1.5 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.65 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 12.8 min

Peak Storage= 14,607 cf @ 12.41 hrs
Average Depth at Peak Storage= 1.83'
Bank-Full Depth= 13.54' Flow Area= 5,281.7 sf, Capacity= 58,962.20 cfs

Custom cross-section, Length= 207.1' Slope= 0.0067 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 9.85', Outlet Invert= 8.46'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.00	0.00		
244.35	10.00	12.00	0.060	
260.39	10.00	12.00	0.060	
272.62	11.02	10.98	0.060	
282.37	10.93	11.07	0.035	
296.68	10.00	12.00	0.035	
400.59	9.87	12.13	0.035	
401.95	8.56	13.44	0.035	`
404.35	8.46	13.54	0.035	
406.75	8.53	13.47	0.060	
408.13	9.89	12.11	0.060	
448.91	10.00	12.00	0.060	
575.67	14.00	8.00	0.060	
600.00	22.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.07	0.1	4.1	30	0.04
0.10	0.3	4.8	57	0.11
1.41	8.4	8.6	1,733	22.56
1.43	8.7	24.6	1,797	14.13
1.54	18.3	169.4	3,799	12.89
2.47	209.2	243.3	43,322	555.67
2.56	231.7	258.9	47,980	625.78
5.54	1,230.6	414.1	254,858	7,194.30
13.54	5,281.7	602.8	1,093,837	58,962.20

Stage-Discharge for Reach 10R: River Sta 613.13 CS-3A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
9.85	0.00	0.00
10.00	0.58	0.33
10.15	1.03	1.37
10.30	1.37	2.92
10.45	1.65	4.92
10.60	1.89	7.32
10.75	2.10	10.13
10.90	2.29	13.32
11.05	2.47	16.90
11.20	2.63	20.86
11.35	0.72	9.71
11.50	1.05	40.65
11.65	1.44	95.50
11.80	1.78	169.07
11.95	2.06	260.19
12.10	2.32	368.27
12.25	2.55	492.99
12.40	2.70	617.99
12.55	2.92	784.01
12.70	3.14	970.09
12.85	3.35	1,174.20
13.00	3.55	1,395.32
13.15	3.74	1,633.29
13.30	3.92	1,888.03
13.45	4.09	2,159.48
13.60	4.25	2,447.60
13.75	4.41	2,752.37
13.90	4.56	3,073.81
14.05	4.71	3,412.19
14.20	4.85	3,768.50
14.35	4.99	4,141.57
14.50	5.12	4,531.46
14.65	5.25	4,938.23
14.80	5.38	5,361.94
14.95	5.50	5,802.67
15.10	5.62	6,260.50
15.25	5.74	6,735.50
15.40	5.86	7,229.54
15.55	5.99	7,768.09
15.70	6.12	8,323.84
15.85	6.25	8,896.64
16.00	6.38	9,486.37
16.15	6.51	10,092.95
16.30	6.63	10,716.30
16.45	6.75	11,356.36
16.60	6.88	12,013.06
16.75	6.99	12,686.34
16.90	7.11	13,377.06
17.05	7.23	14,084.79
17.20	7.34	14,808.95
17.35	7.46	15,549.50
17.50	7.57	16,306.39
17.65	7.68	17,079.61
17.80	7.79	17,869.12
17.95	7.90	18,674.90
18.10	8.01	19,496.92
18.25	8.11	20,335.67
18.40	8.22	21,191.56
18.55	8.32	22,063.64
18.70	8.42	22,951.89
18.85	8.52	23,856.32
19.00	8.62	24,776.91
19.15	8.72	25,713.65
19.30	8.82	26,666.54
19.45	8.92	27,635.58
19.60	9.01	28,620.88
19.75	9.11	29,623.64
19.90	9.20	30,642.56
20.05	9.29	31,677.63
20.20	9.39	32,728.85
20.35	9.48	33,796.24
20.50	9.57	34,879.79
20.65	9.66	35,979.53
20.80	9.75	37,095.45
20.95	9.83	38,227.57
21.10	9.92	39,377.06
21.25	10.01	40,543.05
21.40	10.09	41,725.27
21.55	10.18	42,923.75
21.70	10.26	44,138.48
21.85	10.35	45,369.50
22.00	10.43	46,616.81
22.15	10.51	47,880.43
22.30	10.59	49,160.38
22.45	10.67	50,457.46
22.60	10.75	51,771.58
22.75	10.83	53,102.09
22.90	10.91	54,449.00
23.05	10.99	55,812.35
23.20	11.07	57,192.14
23.35	**11.14**	**58,588.41**

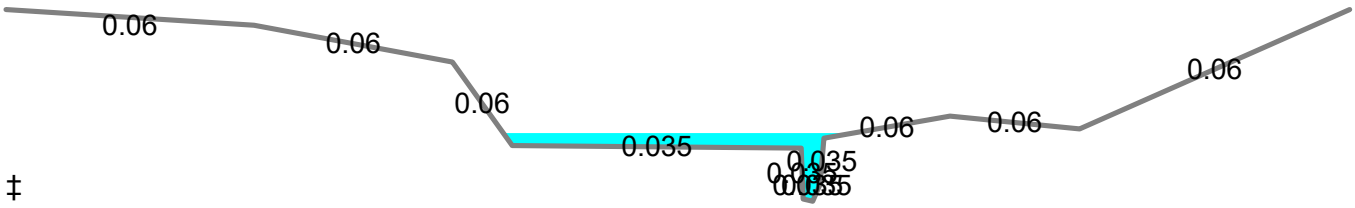
Summary for Reach 11R: River Sta 384.66 CS-3

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 0.99" for 2yr Talbot event
Inflow = 106.84 cfs @ 12.41 hrs, Volume= 22.361 af
Outflow = 106.77 cfs @ 12.43 hrs, Volume= 22.361 af, Atten= 0%, Lag= 1.2 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.43 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.38 fps, Avg. Travel Time= 9.9 min

Peak Storage= 11,277 cf @ 12.43 hrs
Average Depth at Peak Storage= 2.28'
Bank-Full Depth= 6.42' Flow Area= 962.3 sf, Capacity= 5,622.13 cfs

Custom cross-section, Length= 228.5' Slope= 0.0061 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 8.46', Outlet Invert= 7.07'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	13.49	0.00		
68.73	12.97	0.52	0.060	
123.80	11.73	1.76	0.060	
140.31	8.94	4.55	0.060	
220.49	8.85	4.64	0.035	
221.04	7.15	6.34	0.035	
223.64	7.07	6.42	0.035	
225.71	7.64	5.85	0.035	
226.76	9.18	4.31	0.035	
261.72	9.92	3.57	0.060	
297.64	9.49	4.00	0.060	
372.53	13.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.9	26	0.04
0.57	2.0	5.3	459	3.49
1.78	8.6	8.0	1,962	29.80
1.87	12.7	88.3	2,911	11.61
2.11	33.6	90.0	7,687	58.00
2.42	63.4	106.5	14,494	156.37
2.85	122.7	173.4	28,031	365.90
4.66	472.9	218.2	108,051	2,298.31
5.90	789.0	296.5	180,280	4,479.71
6.42	962.3	375.0	219,882	5,622.13

Stage-Discharge for Reach 11R: River Sta 384.66 CS-3

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
8.46	0.00	0.00
8.56	0.49	0.09
8.66	0.90	0.44
8.76	1.18	1.01
8.86	1.42	1.77
8.96	1.61	2.72
9.06	1.81	3.90
9.16	2.02	5.34
9.26	2.20	6.94
9.36	2.38	8.69
9.46	2.53	10.59
9.56	2.68	12.62
9.66	2.82	14.79
9.76	2.94	17.09
9.86	3.07	19.50
9.96	3.18	22.05
10.06	3.29	24.71
10.16	3.39	27.50
10.26	1.69	14.99
10.36	1.03	16.01
10.46	1.38	33.37
10.56	1.69	55.63
10.66	1.97	82.47
10.76	2.21	113.53
10.86	2.42	148.89
10.96	2.60	188.24
11.06	2.74	232.64
11.16	2.85	281.76
11.26	2.94	336.70
11.36	3.03	397.98
11.46	3.13	465.99
11.56	3.24	539.25
11.66	3.35	617.58
11.76	3.47	701.11
11.86	3.58	789.23
11.96	3.69	882.58
12.06	3.80	980.30
12.16	3.91	1,083.04
12.26	4.01	1,190.18
12.36	4.12	1,302.02
12.46	4.22	1,418.39
12.56	4.32	1,539.18
12.66	4.42	1,664.66
12.76	4.52	1,794.28
12.86	4.62	1,928.76
12.96	4.71	2,067.31
13.06	4.81	2,210.54
13.16	4.89	2,354.99
13.26	4.96	2,501.04
13.36	5.04	2,653.44
13.46	5.11	2,811.46
13.56	5.18	2,975.31
13.66	5.25	3,144.17
13.76	5.32	3,318.95
13.86	5.38	3,498.67
13.96	5.45	3,684.09
14.06	5.51	3,874.75
14.16	5.57	4,070.92
14.26	5.62	4,272.69
14.36	5.68	4,479.71
14.46	5.72	4,682.11
14.56	5.75	4,892.50
14.66	5.78	5,112.02
14.76	5.81	5,339.03
14.86	**5.84**	**5,574.46**

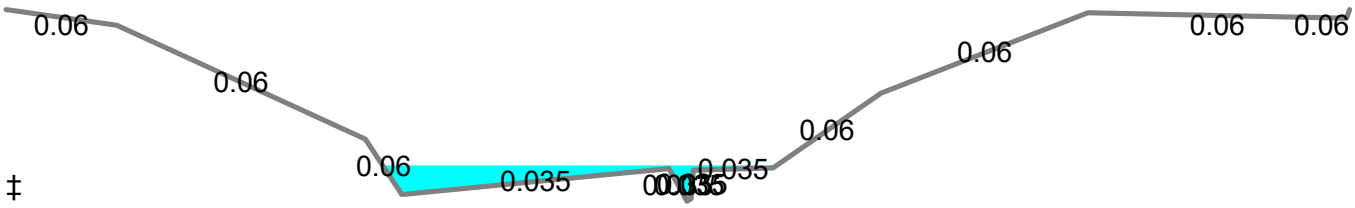
Summary for Reach 12R: River Sta 284.44 CS-2

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 0.99" for 2yr Talbot event
Inflow = 106.77 cfs @ 12.44 hrs, Volume= 22.357 af
Outflow = 106.11 cfs @ 12.50 hrs, Volume= 22.357 af, Atten= 1%, Lag= 3.6 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.42 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 28.1 min

Peak Storage= 25,202 cf @ 12.50 hrs
Average Depth at Peak Storage= 2.68'
Bank-Full Depth= 14.39' Flow Area= 5,200.3 sf, Capacity= 8,158.02 cfs

Custom cross-section, Length= 100.2' Slope= 0.0001 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.11', Outlet Invert= 7.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	21.49	0.00		
68.92	20.32	1.17	0.060	
223.87	11.77	9.72	0.060	
246.65	7.60	13.89	0.060	
413.08	9.56	11.93	0.035	
424.20	7.10	14.39	0.035	
426.70	7.30	14.19	0.035	
428.26	9.42	12.07	0.035	
477.81	9.60	11.89	0.035	
545.13	15.21	6.28	0.060	
674.00	21.26	0.23	0.060	
835.04	20.84	0.65	0.060	
837.00	21.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.20	0.3	3.4	34	0.03
0.50	1.6	5.2	160	0.31
2.32	169.0	180.5	16,939	67.15
2.46	197.7	232.4	19,814	73.54
2.50	207.2	243.6	20,761	77.03
4.67	773.6	281.8	77,519	642.25
8.11	1,915.0	385.7	191,883	2,393.01
13.22	4,389.9	587.4	439,871	6,994.87
13.74	4,705.0	629.1	471,441	7,567.27
14.16	5,009.4	825.2	501,942	7,851.33
14.39	5,200.3	839.5	521,068	8,158.02

Stage-Discharge for Reach 12R: River Sta 284.44 CS-2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.11	0.00	0.00
7.26	0.07	0.01
7.41	0.13	0.10
7.56	0.18	0.25
7.71	0.14	0.37
7.86	0.14	0.89
8.01	0.17	1.97
8.16	0.20	3.78
8.31	0.22	6.48
8.46	0.25	10.19
8.61	0.27	15.07
8.76	0.30	21.22
8.91	0.32	28.76
9.06	0.34	37.83
9.21	0.37	48.51
9.36	0.39	60.93
9.51	0.38	70.65
9.66	0.39	84.77
9.81	0.43	109.45
9.96	0.47	136.52
10.11	0.50	166.00
10.26	0.54	197.83
10.41	0.57	231.94
10.56	0.60	268.28
10.71	0.63	306.84
10.86	0.66	347.59
11.01	0.69	390.44
11.16	0.72	435.36
11.31	0.75	482.33
11.46	0.78	531.31
11.61	0.80	582.29
11.76	0.83	635.08
11.91	0.85	689.34
12.06	0.87	745.40
12.21	0.90	803.53
12.36	0.92	863.72
12.51	0.94	925.94
12.66	0.96	990.17
12.81	0.98	1,056.41
12.96	1.00	1,124.65
13.11	1.02	1,194.88
13.26	1.04	1,267.09
13.41	1.06	1,341.29
13.56	1.07	1,417.46
13.71	1.09	1,495.61
13.86	1.11	1,575.74
14.01	1.13	1,657.85
14.16	1.14	1,741.94
14.31	1.16	1,828.07
14.46	1.17	1,916.19
14.61	1.19	2,006.30
14.76	1.20	2,098.39
14.91	1.22	2,192.47
15.06	1.23	2,288.53
15.21	1.25	2,386.42
15.36	1.26	2,485.51
15.51	1.28	2,586.44
15.66	1.29	2,689.47
15.81	1.30	2,794.61
15.96	1.31	2,901.87
16.11	1.33	3,011.25
16.26	1.34	3,122.76
16.41	1.35	3,236.40
16.56	1.36	3,352.19
16.71	1.37	3,470.13
16.86	1.38	3,590.23
17.01	1.39	3,712.50
17.16	1.40	3,836.94
17.31	1.41	3,963.58
17.46	1.42	4,092.41
17.61	1.43	4,223.45
17.76	1.44	4,356.72
17.91	1.45	4,492.28
18.06	1.46	4,630.08
18.21	1.47	4,770.12
18.36	1.48	4,912.42
18.51	1.49	5,056.98
18.66	1.50	5,203.81
18.81	1.51	5,352.93
18.96	1.52	5,504.34
19.11	1.53	5,658.06
19.26	1.54	5,814.09
19.41	1.54	5,972.44
19.56	1.55	6,133.12
19.71	1.56	6,296.15
19.86	1.57	6,461.53
20.01	1.58	6,629.28
20.16	1.58	6,799.40
20.31	1.59	6,971.80
20.46	1.60	7,134.27
20.61	1.60	7,298.07
20.76	**1.61**	7,465.38
20.91	**1.60**	7,589.61
21.06	1.58	7,677.49
21.21	1.57	7,797.10
21.36	1.57	7,970.24
21.51	1.57	**8,171.44**

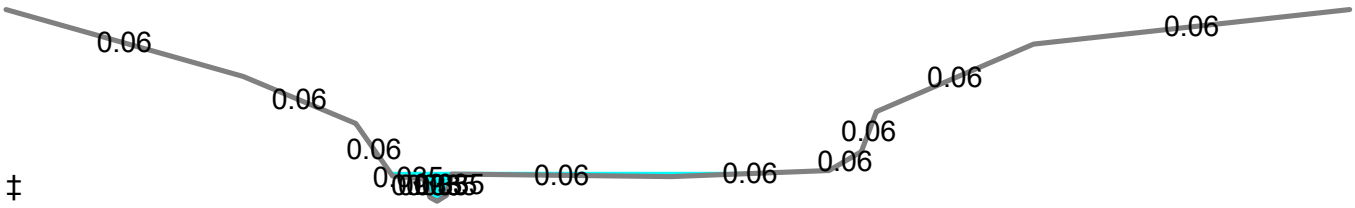
Summary for Reach 13R: River Sta 0.00 CS-1

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 0.99" for 2yr Talbot event
Inflow = 106.11 cfs @ 12.50 hrs, Volume= 22.357 af
Outflow = 105.56 cfs @ 12.56 hrs, Volume= 22.357 af, Atten= 1%, Lag= 3.4 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.12 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 9.4 min

Peak Storage= 14,014 cf @ 12.56 hrs
Average Depth at Peak Storage= 2.24'
Bank-Full Depth= 14.64' Flow Area= 3,217.7 sf, Capacity= 29,924.85 cfs

Custom cross-section, Length= 284.4' Slope= 0.0086 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.10', Outlet Invert= 4.64'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	19.28	0.00		
84.01	14.16	5.12	0.060	
123.92	10.59	8.69	0.060	
136.93	6.56	12.72	0.060	
147.92	6.36	12.92	0.035	
150.29	4.93	14.35	0.035	
152.70	4.64	14.64	0.035	
156.15	5.11	14.17	0.035	
157.99	6.72	12.56	0.035	
235.71	6.52	12.76	0.060	
291.60	6.99	12.29	0.060	
303.10	8.43	10.85	0.060	
308.39	11.49	7.79	0.060	
364.05	16.63	2.65	0.060	
476.12	19.28	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.29	0.7	4.6	188	0.72
0.47	1.6	6.3	461	2.60
1.72	11.5	10.6	3,272	48.06
1.88	13.8	19.6	3,916	42.95
1.92	15.0	42.2	4,256	43.90
2.08	28.1	124.2	7,994	66.53
2.35	65.8	157.2	18,711	142.10
3.79	302.1	173.6	85,929	1,184.50
5.95	685.7	185.2	195,005	4,274.07
6.85	855.5	197.1	243,311	5,994.66
9.52	1,453.4	256.2	413,340	12,283.05
11.99	2,162.1	323.6	614,897	20,487.24
14.64	3,217.7	479.3	915,113	29,924.85

Stage-Discharge for Reach 13R: River Sta 0.00 CS-1

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.10	0.00	0.00
7.25	0.70	0.13
7.40	1.12	0.81
7.55	1.55	2.34
7.70	2.01	4.96
7.85	2.41	8.38
8.00	2.76	12.55
8.15	3.07	17.44
8.30	3.35	23.05
8.45	3.61	29.38
8.60	3.85	36.44
8.75	4.08	44.22
8.90	3.55	44.35
9.05	2.83	47.91
9.20	2.33	71.24
9.35	2.17	110.67
9.50	2.21	163.13
9.65	2.36	230.90
9.80	2.55	310.15
9.95	2.75	400.28
10.10	2.95	500.72
10.25	3.14	611.03
10.40	3.33	730.86
10.55	3.52	859.92
10.70	3.70	997.98
10.85	3.87	1,144.56
11.00	4.05	1,302.78
11.15	4.23	1,470.17
11.30	4.41	1,645.96
11.45	4.58	1,830.01
11.60	4.75	2,022.15
11.75	4.91	2,222.26
11.90	5.08	2,430.20
12.05	5.24	2,645.88
12.20	5.39	2,869.17
12.35	5.55	3,099.99
12.50	5.70	3,338.24
12.65	5.85	3,583.85
12.80	5.99	3,836.72
12.95	6.14	4,096.80
13.10	6.28	4,362.25
13.25	6.41	4,632.13
13.40	6.54	4,910.04
13.55	6.67	5,195.74
13.70	6.80	5,489.14
13.85	6.92	5,790.07
14.00	7.04	6,090.10
14.15	7.13	6,380.26
14.30	7.22	6,677.94
14.45	7.31	6,983.19
14.60	7.39	7,296.07
14.75	7.48	7,616.64
14.90	7.56	7,944.95
15.05	7.65	8,281.07
15.20	7.73	8,625.07
15.35	7.81	8,977.00
15.50	7.89	9,336.94
15.65	7.97	9,704.94
15.80	8.04	10,081.09
15.95	8.12	10,465.43
16.10	8.20	10,858.05
16.25	8.27	11,259.01
16.40	8.34	11,668.36
16.55	8.42	12,086.19
16.70	8.49	12,509.31
16.85	8.55	12,938.69
17.00	8.62	13,377.20
17.15	8.69	13,824.97
17.30	8.75	14,282.10
17.45	8.82	14,748.64
17.60	8.88	15,224.69
17.75	8.94	15,710.32
17.90	9.00	16,205.62
18.05	9.06	16,710.66
18.20	9.13	17,225.54
18.35	9.19	17,750.34
18.50	9.25	18,285.14
18.65	9.30	18,830.04
18.80	9.36	19,385.10
18.95	9.42	19,950.43
19.10	**9.47**	20,511.27
19.25	9.43	20,882.68
19.40	9.40	21,274.81
19.55	9.37	21,687.45
19.70	9.34	22,120.13
19.85	9.32	22,572.62
20.00	9.30	23,044.73
20.15	9.28	23,536.30
20.30	9.27	24,047.20
20.45	9.27	24,577.35
20.60	9.26	25,126.67
20.75	9.26	25,695.13
20.90	9.26	26,282.71
21.05	9.26	26,889.39
21.20	9.27	27,515.20
21.35	9.27	28,160.17
21.50	9.28	28,824.33
21.65	9.29	**29,507.75**

Summary for Pond 11P: Pond 1

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 0.95" for 2yr Talbot event
Inflow = 34.18 cfs @ 12.13 hrs, Volume= 3.873 af
Outflow = 24.09 cfs @ 12.35 hrs, Volume= 3.873 af, Atten= 30%, Lag= 13.7 min
Primary = 24.09 cfs @ 12.35 hrs, Volume= 3.873 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 46.85' @ 12.35 hrs Surf.Area= 16,850 sf Storage= 17,948 cf

Plug-Flow detention time= 7.0 min calculated for 3.873 af (100% of inflow)
Center-of-Mass det. time= 7.0 min (894.4 - 887.4)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	189,394 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)
45.00	0	0.0	0	0	0
46.00	14,235	515.0	4,745	4,745	21,108
47.00	17,332	556.0	15,758	20,503	24,643
48.00	21,715	639.0	19,482	39,985	32,558
49.00	26,977	704.0	24,298	64,284	39,537
50.00	33,980	771.0	30,411	94,695	47,436
51.00	42,797	845.0	38,304	132,999	56,986
52.00	71,191	1,014.0	56,395	189,394	82,005

Device	Routing	Invert	Outlet Devices
#1	Primary	43.75'	**36.0" Round Culvert X 2.00** L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.75' / 43.25' S= 0.0111 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf
#2	Device 1	45.00'	**14.0" Vert. Orifice/Grate X 3.00** C= 0.600
#3	Device 1	46.00'	**12.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	48.10'	**28.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=24.09 cfs @ 12.35 hrs HW=46.85' TW=38.86' (Dynamic Tailwater)
└─**1=Culvert** (Passes 24.09 cfs of 81.36 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 17.38 cfs @ 5.42 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 6.70 cfs @ 3.14 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 11P: Pond 1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
45.00	0.00	47.08	27.53	49.16	134.60	51.24	166.60
45.04	0.02	47.12	28.08	49.20	135.29	51.28	167.15
45.08	0.09	47.16	28.61	49.24	135.97	51.32	167.71
45.12	0.21	47.20	29.13	49.28	136.65	51.36	168.26
45.16	0.36	47.24	29.63	49.32	137.33	51.40	168.81
45.20	0.56	47.28	30.13	49.36	138.00	51.44	169.36
45.24	0.79	47.32	30.62	49.40	138.67	51.48	169.90
45.28	1.07	47.36	31.10	49.44	139.34	51.52	170.45
45.32	1.38	47.40	31.58	49.48	140.00	51.56	170.99
45.36	1.72	47.44	32.04	49.52	140.66	51.60	171.53
45.40	2.09	47.48	32.50	49.56	141.32	51.64	172.07
45.44	2.50	47.52	32.95	49.60	141.97	51.68	172.61
45.48	2.93	47.56	33.39	49.64	142.62	51.72	173.14
45.52	3.39	47.60	33.83	49.68	143.27	51.76	173.68
45.56	3.88	47.64	34.26	49.72	143.92	51.80	174.21
45.60	4.38	47.68	34.68	49.76	144.56	51.84	174.74
45.64	4.91	47.72	35.10	49.80	145.20	51.88	175.27
45.68	5.45	47.76	35.52	49.84	145.84	51.92	175.80
45.72	6.00	47.80	35.93	49.88	146.47	51.96	176.33
45.76	6.57	47.84	36.33	49.92	147.10	52.00	**176.85**
45.80	7.14	47.88	36.73	49.96	147.73		
45.84	7.71	47.92	37.12	50.00	148.36		
45.88	8.29	47.96	37.51	50.04	148.98		
45.92	8.86	48.00	37.90	50.08	149.60		
45.96	9.42	48.04	38.28	50.12	150.22		
46.00	9.96	48.08	38.66	50.16	150.83		
46.04	10.50	48.12	39.29	50.20	151.45		
46.08	11.05	48.16	40.75	50.24	152.06		
46.12	11.59	48.20	42.67	50.28	152.67		
46.16	12.08	48.24	44.93	50.32	153.27		
46.20	12.64	48.28	47.49	50.36	153.87		
46.24	13.24	48.32	50.30	50.40	154.48		
46.28	13.86	48.36	53.34	50.44	155.07		
46.32	14.51	48.40	56.60	50.48	155.67		
46.36	15.17	48.44	60.05	50.52	156.27		
46.40	15.85	48.48	63.69	50.56	156.86		
46.44	16.55	48.52	67.51	50.60	157.45		
46.48	17.26	48.56	71.49	50.64	158.03		
46.52	17.98	48.60	75.63	50.68	158.62		
46.56	18.72	48.64	79.93	50.72	159.20		
46.60	19.46	48.68	84.37	50.76	159.78		
46.64	20.21	48.72	88.95	50.80	160.36		
46.68	20.96	48.76	93.67	50.84	160.94		
46.72	21.71	48.80	98.52	50.88	161.51		
46.76	22.45	48.84	103.51	50.92	162.09		
46.80	23.19	48.88	108.61	50.96	162.66		
46.84	23.90	48.92	113.84	51.00	163.23		
46.88	24.60	48.96	119.19	51.04	163.79		
46.92	25.26	49.00	124.66	51.08	164.36		
46.96	25.87	49.04	130.24	51.12	164.92		
47.00	26.40	49.08	133.22	51.16	165.48		
47.04	26.97	49.12	133.91	51.20	166.04		

Summary for Pond 14P: Goldsburough Neck Road Culvert

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 0.99" for 2yr Talbot event
Inflow = 106.77 cfs @ 12.43 hrs, Volume= 22.361 af
Outflow = 106.77 cfs @ 12.44 hrs, Volume= 22.357 af, Atten= 0%, Lag= 0.6 min
Primary = 106.77 cfs @ 12.44 hrs, Volume= 22.357 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 10.58' @ 12.46 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.44'	**48.0" Round CMP_Round 48"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.44' / 5.43' S= 0.0003 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 12.57 sf
#2	Primary	9.91'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 0.80 1.20 1.60 2.20 2.60 3.00 3.40 3.80 4.20 Width (feet) 0.00 56.60 73.40 90.20 107.00 123.80 156.20 183.80 211.40 239.00 266.50

Primary OutFlow Max=106.65 cfs @ 12.44 hrs HW=10.58' TW=9.78' (Dynamic Tailwater)
└─**1=CMP_Round 48"** (Inlet Controls 42.74 cfs @ 3.40 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 63.91 cfs @ 2.25 fps)

Stage-Discharge for Pond 14P: Goldsburough Neck Road Culvert

Elevation (feet)	Primary (cfs)
5.44	0.00
5.54	0.00
5.64	0.00
5.74	0.00
5.84	0.00
5.94	0.00
6.04	0.00
6.14	0.00
6.24	0.00
6.34	0.00
6.44	0.00
6.54	0.00
6.64	0.00
6.74	0.00
6.84	0.00
6.94	0.00
7.04	0.00
7.14	2.96
7.24	6.71
7.34	9.68
7.44	12.51
7.54	15.34
7.64	18.22
7.74	20.40
7.84	22.12
7.94	23.90
8.04	25.71
8.14	27.58
8.24	29.48
8.34	31.42
8.44	33.39
8.54	35.40
8.64	37.43
8.74	39.49
8.84	41.56
8.94	43.65
9.04	45.76
9.14	47.86
9.24	49.98
9.34	52.08
9.44	54.18
9.54	56.26
9.64	58.33
9.74	60.36
9.84	62.36
9.94	64.34
10.04	67.34
10.14	72.74
10.24	81.38
10.34	93.89
10.44	110.07
10.54	129.40
10.64	151.68
10.74	176.68
10.84	205.76
10.94	239.04
11.04	275.41
11.14	314.90
11.24	357.58
11.34	403.50
11.44	452.71
11.54	505.26
11.64	561.10
11.74	619.61
11.84	680.86
11.94	745.31
12.04	812.97
12.14	883.83
12.24	958.31
12.34	1,036.94
12.44	1,120.04
12.54	1,207.89
12.64	1,300.61
12.74	1,398.30
12.84	1,501.08
12.94	1,609.06
13.04	1,722.37
13.14	1,841.13
13.24	1,965.44
13.34	2,095.42
13.44	2,231.17
13.54	2,372.81
13.64	2,520.44
13.74	2,674.15
13.84	2,834.05
13.94	3,000.23
14.04	**3,172.78**

Summary for Link 18L: Proposed Design Point 1

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 0.99" for 2yr Talbot event
Inflow = 105.56 cfs @ 12.56 hrs, Volume= 22.357 af
Primary = 105.56 cfs @ 12.57 hrs, Volume= 22.357 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

37 Point manual elevation table, To= 5.00 hrs, dt= 1.00 hrs, feet =

7.10	7.26	7.42	7.57	7.73	8.04	8.34	9.12	9.90
9.60	9.29	9.13	8.96	8.73	8.51	8.42	8.33	8.30
8.27	8.21	8.14	8.08	8.01	7.95	7.88	7.82	7.75
7.69	7.63	7.56	7.50	7.43	7.37	7.30	7.24	7.17
7.11								

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 3S: Prop. Design Point 1 Runoff Area=221.700 ac 0.00% Impervious Runoff Depth=2.35"
Tc=30.6 min CN=71 Runoff=270.80 cfs 43.339 af

Subcatchment 4S: Prop. Design Point 1 to Runoff Area=49.080 ac 0.00% Impervious Runoff Depth=2.26"
Tc=16.2 min CN=70 Runoff=90.38 cfs 9.249 af

Reach 1R: River St 3893.53 CS-13 Avg. Flow Depth=2.42' Max Vel=4.75 fps Inflow=71.22 cfs 9.249 af
L=400.0' S=0.0089 '/' Capacity=30,715.83 cfs Outflow=70.76 cfs 9.249 af

Reach 2R: River Sta 3493.6 CS-12 Avg. Flow Depth=2.09' Max Vel=3.27 fps Inflow=70.76 cfs 9.249 af
L=393.8' S=0.0044 '/' Capacity=4,857.15 cfs Outflow=68.27 cfs 9.249 af

Reach 3R: River Sta 3099.81 CS-11 Avg. Flow Depth=1.22' Max Vel=1.86 fps Inflow=68.27 cfs 9.249 af
L=393.8' S=0.0044 '/' Capacity=4,820.08 cfs Outflow=67.36 cfs 9.249 af

Reach 4R: River Sta 2839.49 CS-10 Avg. Flow Depth=1.59' Max Vel=4.18 fps Inflow=67.36 cfs 9.249 af
L=260.3' S=0.0146 '/' Capacity=4,436.42 cfs Outflow=66.97 cfs 9.249 af

Reach 5R: River Sta 2577.80 CS-9 Avg. Flow Depth=1.98' Max Vel=1.57 fps Inflow=66.97 cfs 9.249 af
L=261.7' S=0.0037 '/' Capacity=3,809.00 cfs Outflow=66.23 cfs 9.249 af

Reach 6R: River Sta 1972.78 CS-8 Avg. Flow Depth=2.61' Max Vel=6.78 fps Inflow=66.23 cfs 9.249 af
L=605.0' S=0.0200 '/' Capacity=30,613.15 cfs Outflow=66.15 cfs 9.249 af

Reach 7R: River Sta 1427.28 CS-7 Avg. Flow Depth=1.61' Max Vel=1.04 fps Inflow=66.15 cfs 9.249 af
L=545.5' S=0.0023 '/' Capacity=5,579.78 cfs Outflow=60.28 cfs 9.249 af

Reach 8R: River Sta 1096.55 CS-5 Avg. Flow Depth=1.60' Max Vel=2.72 fps Inflow=60.28 cfs 9.249 af
L=330.7' S=0.0086 '/' Capacity=33,066.93 cfs Outflow=59.15 cfs 9.249 af

Reach 9R: River Sta 820.28 CS-4 Avg. Flow Depth=2.20' Max Vel=2.29 fps Inflow=286.66 cfs 52.588 af
L=276.3' S=0.0048 '/' Capacity=29,920.03 cfs Outflow=285.59 cfs 52.588 af

Reach 10R: River Sta 613.13 CS-3A Avg. Flow Depth=2.14' Max Vel=2.67 fps Inflow=285.59 cfs 52.588 af
L=207.1' S=0.0067 '/' Capacity=58,962.20 cfs Outflow=285.42 cfs 52.588 af

Reach 11R: River Sta 384.66 CS-3 Avg. Flow Depth=2.71' Max Vel=3.40 fps Inflow=285.42 cfs 52.588 af
L=228.5' S=0.0061 '/' Capacity=5,622.13 cfs Outflow=285.28 cfs 52.588 af

Reach 12R: River Sta 284.44 CS-2 Avg. Flow Depth=3.52' Max Vel=0.62 fps Inflow=285.28 cfs 52.585 af
L=100.2' S=0.0001 '/' Capacity=8,158.02 cfs Outflow=284.93 cfs 52.585 af

Reach 13R: River Sta 0.00 CS-1 Avg. Flow Depth=2.66' Max Vel=4.17 fps Inflow=284.93 cfs 52.585 af
L=284.4' S=0.0086 '/' Capacity=29,924.85 cfs Outflow=284.70 cfs 52.585 af

Pond 11P: Pond 1 Peak Elev=48.56' Storage=52,878 cf Inflow=90.38 cfs 9.249 af
Outflow=71.22 cfs 9.249 af

Pond 14P: Goldsburough Neck Road Culvert Peak Elev=11.24' Inflow=285.28 cfs 52.588 af
Outflow=285.28 cfs 52.585 af

Link 18L: Proposed Design Point 1 Inflow=284.70 cfs 52.585 af
Primary=284.70 cfs 52.585 af

Total Runoff Area = 270.780 ac Runoff Volume = 52.588 af Average Runoff Depth = 2.33"
100.00% Pervious = 270.780 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Prop. Design Point 1 Bypass

Runoff = 270.80 cfs @ 12.31 hrs, Volume= 43.339 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	221.700	71	Weighted CN from TR-55
	221.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.6					**Direct Entry, TC from TR-55**

Summary for Subcatchment 4S: Prop. Design Point 1 to Pond

Runoff = 90.38 cfs @ 12.10 hrs, Volume= 9.249 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	49.080	70	Weighted CN from TR-55
	49.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.2					**Direct Entry, From TR-55**

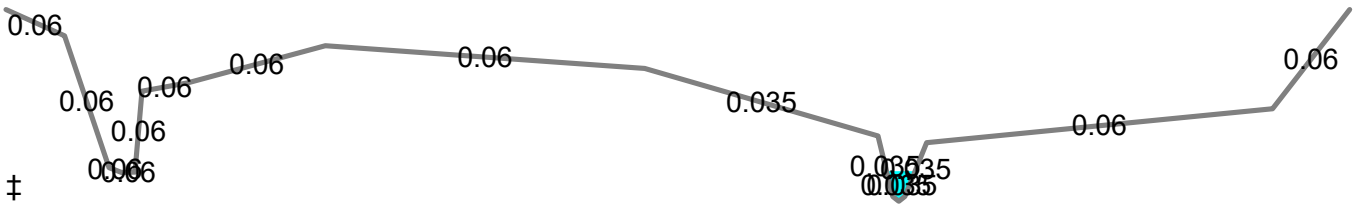
Summary for Reach 1R: River St 3893.53 CS-13

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 71.22 cfs @ 12.27 hrs, Volume= 9.249 af
Outflow = 70.76 cfs @ 12.29 hrs, Volume= 9.249 af, Atten= 1%, Lag= 1.6 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.75 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 9.2 min

Peak Storage= 6,002 cf @ 12.29 hrs
Average Depth at Peak Storage= 2.42'
Bank-Full Depth= 15.50' Flow Area= 2,974.4 sf, Capacity= 30,715.83 cfs

Custom cross-section, Length= 400.0' Slope= 0.0089 '/' (111 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 37.41', Outlet Invert= 33.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.91	0.00		
19.65	50.80	2.11	0.060	
34.56	40.13	12.78	0.060	
38.64	39.75	13.16	0.060	
43.17	39.76	13.15	0.060	
45.57	46.31	6.60	0.060	
60.88	46.99	5.92	0.060	
106.99	49.99	2.92	0.060	
213.92	48.16	4.75	0.060	
292.01	42.68	10.23	0.035	
296.95	37.81	15.10	0.035	
299.01	37.41	15.50	0.035	
301.05	37.81	15.10	0.035	
308.35	42.15	10.76	0.035	
424.22	44.88	8.03	0.060	
450.00	52.91	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.40	0.8	4.2	328	1.11
2.34	13.8	10.7	5,539	65.72
2.35	14.0	15.4	5,586	66.32
2.72	20.1	21.0	8,035	93.27
4.74	67.8	33.5	27,109	386.86
5.27	89.0	58.2	35,609	520.79
7.47	345.1	189.2	138,024	1,641.80
8.90	623.1	218.4	249,237	3,633.81
9.58	774.2	246.9	309,687	4,807.44
10.75	1,074.1	287.6	429,650	7,561.94
12.58	1,711.1	432.0	684,458	14,019.18
13.39	2,052.7	436.1	821,092	18,072.48
15.50	2,974.4	463.0	1,189,741	30,715.83

Stage-Discharge for Reach 1R: River St 3893.53 CS-13

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
37.41	0.00	0.00
37.61	0.84	0.23
37.81	1.35	1.11
38.01	1.98	3.40
38.21	2.47	6.64
38.41	2.87	10.88
38.61	3.22	16.04
38.81	3.54	22.17
39.01	3.82	29.44
39.21	4.09	37.74
39.41	4.34	47.09
39.61	4.58	57.68
39.81	4.73	69.60
40.01	4.67	83.73
40.21	4.64	100.40
40.41	4.68	119.94
40.61	4.76	141.71
40.81	4.86	165.68
41.01	4.97	192.13
41.21	5.09	220.86
41.41	5.22	251.78
41.61	5.35	285.06
41.81	5.48	320.85
42.01	5.62	358.92
42.21	5.76	400.59
42.41	5.85	448.85
42.61	5.86	501.54
42.81	5.59	538.56
43.01	5.27	576.48
43.21	5.03	628.71
43.41	4.86	693.94
43.61	4.75	772.42
43.81	4.68	867.19
44.01	4.65	976.33
44.21	4.64	1,100.41
44.41	4.66	1,241.72
44.61	4.69	1,400.72
44.81	4.74	1,576.77
45.01	4.84	1,784.10
45.21	4.97	2,019.14
45.41	5.12	2,271.70
45.61	5.27	2,541.72
45.81	5.43	2,831.29
46.01	5.59	3,139.36
46.21	5.75	3,464.89
46.41	5.88	3,784.80
46.61	5.98	4,111.63
46.81	6.10	4,466.47
47.01	6.22	4,847.95
47.21	6.37	5,266.28
47.41	6.51	5,706.90
47.61	6.65	6,169.37
47.81	6.79	6,655.19
48.01	6.93	7,165.91
48.21	7.07	7,694.66
48.41	7.20	8,251.10
48.61	7.34	8,856.97
48.81	7.48	9,501.43
49.01	7.61	10,180.91
49.21	7.74	10,896.71
49.41	7.86	11,648.77
49.61	7.98	12,433.61
49.81	8.10	13,251.36
50.01	8.21	14,114.05
50.21	8.36	15,072.73
50.41	8.51	16,059.68
50.61	8.66	17,078.41
50.81	8.81	18,125.28
51.01	8.96	19,191.80
51.21	9.11	20,284.37
51.41	9.25	21,408.49
51.61	9.40	22,559.49
51.81	9.54	23,737.21
52.01	9.69	24,944.69
52.21	9.83	26,180.14
52.41	9.97	27,441.79
52.61	10.12	28,730.57
52.81	**10.26**	**30,048.98**

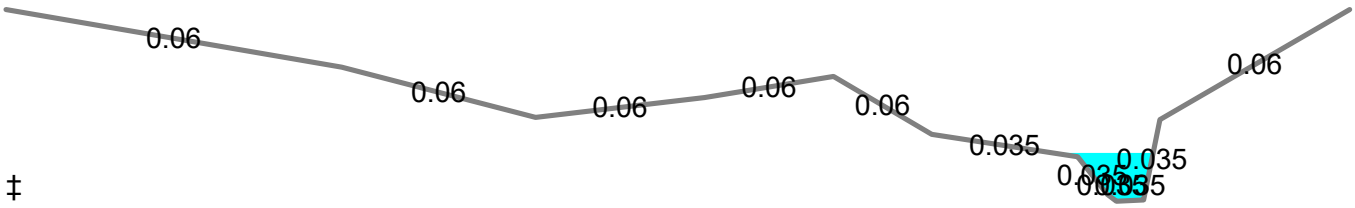
Summary for Reach 2R: River Sta 3493.6 CS-12

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 70.76 cfs @ 12.29 hrs, Volume= 9.249 af
Outflow = 68.27 cfs @ 12.36 hrs, Volume= 9.249 af, Atten= 4%, Lag= 3.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.27 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 23.5 min

Peak Storage= 9,040 cf @ 12.36 hrs
Average Depth at Peak Storage= 2.09'
Bank-Full Depth= 8.30' Flow Area= 915.0 sf, Capacity= 4,857.15 cfs

Custom cross-section, Length= 393.8' Slope= 0.0044 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 33.85', Outlet Invert= 32.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	42.15	0.00		
66.72	39.65	2.50	0.060	
105.27	37.48	4.67	0.060	
138.90	38.34	3.81	0.060	
164.52	39.25	2.90	0.060	
184.02	36.75	5.40	0.060	
213.06	35.77	6.38	0.035	
218.87	34.15	8.00	0.035	
220.76	33.85	8.30	0.035	
226.16	33.90	8.25	0.035	
229.39	37.38	4.77	0.035	
267.12	42.15	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.05	0.1	5.7	56	0.03
0.30	1.8	7.7	708	1.94
1.92	19.9	15.9	7,839	65.46
2.90	49.1	46.3	19,344	144.64
3.53	79.1	52.1	31,137	306.81
3.63	84.2	53.7	33,148	337.78
4.49	155.6	116.3	61,279	678.51
5.40	285.1	172.5	112,281	1,248.05
5.80	355.3	182.8	139,922	1,592.53
8.30	915.0	269.5	360,325	4,857.15

Stage-Discharge for Reach 2R: River Sta 3493.6 CS-12

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
33.85	0.00	0.00
33.95	0.48	0.24
34.05	0.82	0.92
34.15	1.08	1.94
34.25	1.31	3.39
34.35	1.51	5.14
34.45	1.69	7.24
34.55	1.86	9.64
34.65	2.01	12.36
34.75	2.16	15.38
34.85	2.29	18.72
34.95	2.42	22.41
35.05	2.54	26.43
35.15	2.65	30.76
35.25	2.77	35.43
35.35	2.87	40.45
35.45	2.98	45.84
35.55	3.08	51.58
35.65	3.17	57.68
35.75	3.27	64.13
35.85	3.11	66.02
35.95	2.97	68.62
36.05	2.89	72.93
36.15	2.84	78.78
36.25	2.82	86.06
36.35	2.82	94.86
36.45	2.83	105.15
36.55	2.86	116.85
36.65	2.90	130.01
36.75	2.94	144.64
36.85	3.11	167.04
36.95	3.27	190.73
37.05	3.42	215.66
37.15	3.57	241.84
37.25	3.71	269.24
37.35	3.84	297.98
37.45	3.97	328.41
37.55	4.09	359.95
37.65	4.18	393.06
37.75	4.25	428.01
37.85	4.29	465.13
37.95	4.32	504.29
38.05	4.34	545.57
38.15	4.36	589.09
38.25	4.36	634.97
38.35	4.36	683.60
38.45	4.36	735.22
38.55	4.36	789.34
38.65	4.36	846.09
38.75	4.36	905.60
38.85	4.36	968.22
38.95	4.36	1,033.67
39.05	4.37	1,102.04
39.15	4.37	1,173.38
39.25	4.38	1,248.05
39.35	4.40	1,329.60
39.45	4.42	1,414.31
39.55	4.45	1,502.00
39.65	4.48	1,592.53
39.75	4.51	1,684.87
39.85	4.54	1,780.31
39.95	4.57	1,878.73
40.05	4.60	1,980.15
40.15	4.63	2,084.57
40.25	4.66	2,192.24
40.35	4.70	2,303.17
40.45	4.73	2,417.17
40.55	4.76	2,534.24
40.65	4.80	2,654.42
40.75	4.83	2,778.01
40.85	4.87	2,904.91
40.95	4.90	3,034.96
41.05	4.93	3,168.21
41.15	4.97	3,304.65
41.25	5.00	3,444.69
41.35	5.04	3,588.08
41.45	5.07	3,734.74
41.55	5.10	3,884.69
41.65	5.14	4,037.96
41.75	5.17	4,194.99
41.85	5.21	4,355.44
41.95	5.24	4,519.27
42.05	5.27	4,686.50
42.15	**5.31**	**4,857.15**

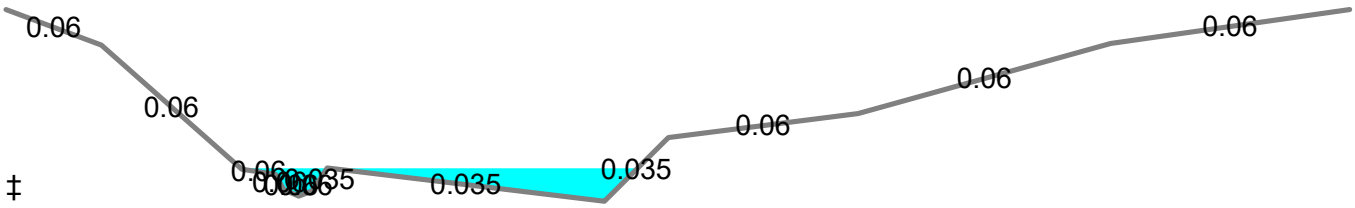
Summary for Reach 3R: River Sta 3099.81 CS-11

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 68.27 cfs @ 12.36 hrs, Volume= 9.249 af
Outflow = 67.36 cfs @ 12.40 hrs, Volume= 9.249 af, Atten= 1%, Lag= 2.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.86 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 29.9 min

Peak Storage= 14,282 cf @ 12.40 hrs
Average Depth at Peak Storage= 1.22'
Bank-Full Depth= 7.10' Flow Area= 776.4 sf, Capacity= 4,820.08 cfs

Custom cross-section, Length= 393.8' Slope= 0.0044 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 33.85', Outlet Invert= 32.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
116.06	39.20	0.00		
131.17	37.89	1.31	0.060	
153.42	33.28	5.92	0.060	
158.73	33.10	6.10	0.060	
160.06	32.53	6.67	0.060	
162.43	32.29	6.91	0.060	
164.53	32.48	6.72	0.060	
166.96	33.33	5.87	0.035	
210.85	32.10	7.10	0.035	
221.00	34.46	4.74	0.035	
251.08	35.35	3.85	0.060	
291.07	37.94	1.26	0.060	
328.96	39.20	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.19	0.7	7.6	284	0.42
0.38	3.3	19.2	1,286	2.82
0.43	4.3	21.9	1,691	4.00
1.00	24.1	47.9	9,474	40.19
1.18	33.8	61.0	13,306	61.32
1.23	36.9	63.4	14,522	68.88
2.36	113.9	74.0	44,835	402.36
3.25	194.4	108.4	76,540	850.90
5.79	533.2	160.3	209,963	3,125.68
5.84	541.2	161.6	213,110	3,183.12
7.10	776.4	214.1	305,742	4,820.08

Stage-Discharge for Reach 3R: River Sta 3099.81 CS-11

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
33.85	0.00	0.00
33.95	0.38	0.10
34.05	0.61	0.49
34.15	0.76	1.50
34.25	0.89	3.28
34.35	1.03	6.09
34.45	1.16	10.15
34.55	1.30	15.39
34.65	1.43	22.13
34.75	1.55	30.38
34.85	1.67	40.19
34.95	1.75	51.13
35.05	1.84	64.30
35.15	2.00	82.64
35.25	2.17	103.88
35.35	2.34	127.06
35.45	2.50	152.27
35.55	2.66	179.21
35.65	2.80	208.15
35.75	2.94	238.80
35.85	3.08	271.23
35.95	3.21	305.48
36.05	3.34	341.31
36.15	3.46	379.06
36.25	3.59	419.11
36.35	3.71	462.19
36.45	3.83	507.22
36.55	3.93	554.11
36.65	4.03	603.30
36.75	4.11	654.43
36.85	4.20	707.82
36.95	4.27	763.41
37.05	4.34	821.15
37.15	4.41	881.65
37.25	4.48	944.49
37.35	4.55	1,009.73
37.45	4.62	1,077.16
37.55	4.68	1,146.78
37.65	4.75	1,218.79
37.75	4.81	1,292.86
37.85	4.88	1,369.37
37.95	4.94	1,448.03
38.05	5.00	1,528.94
38.15	5.06	1,612.21
38.25	5.12	1,697.56
38.35	5.18	1,785.44
38.45	5.24	1,875.45
38.55	5.29	1,967.78
38.65	5.35	2,062.48
38.75	5.40	2,159.30
38.85	5.46	2,258.72
38.95	5.51	2,360.27
39.05	5.56	2,464.25
39.15	5.62	2,570.59
39.25	5.67	2,679.15
39.35	5.72	2,790.31
39.45	5.77	2,903.65
39.55	5.82	3,019.52
39.65	5.87	3,137.15
39.75	5.90	3,249.89
39.85	5.93	3,363.65
39.95	5.96	3,480.22
40.05	5.98	3,600.11
40.15	6.01	3,722.98
40.25	6.04	3,848.92
40.35	6.06	3,978.17
40.45	6.09	4,110.30
40.55	6.11	4,245.95
40.65	6.14	4,384.60
40.75	6.16	4,526.51
40.85	6.18	4,671.79
40.95	**6.21**	**4,820.08**

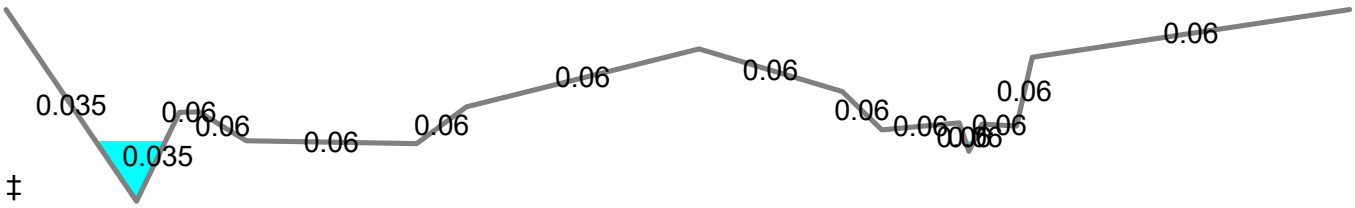
Summary for Reach 4R: River Sta 2839.49 CS-10

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 67.36 cfs @ 12.40 hrs, Volume= 9.249 af
Outflow = 66.97 cfs @ 12.44 hrs, Volume= 9.249 af, Atten= 1%, Lag= 2.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.18 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 0.49 fps, Avg. Travel Time= 8.8 min

Peak Storage= 4,476 cf @ 12.44 hrs
Average Depth at Peak Storage= 1.59'
Bank-Full Depth= 5.07' Flow Area= 775.1 sf, Capacity= 4,436.42 cfs

Custom cross-section, Length= 260.3' Slope= 0.0146 '/' (111 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 32.10', Outlet Invert= 28.31'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
132.58	33.38	0.00		
167.94	28.31	5.07	0.035	
179.60	30.66	2.72	0.035	
184.90	30.67	2.71	0.060	
197.68	29.91	3.47	0.060	
243.83	29.83	3.55	0.060	
257.41	30.81	2.57	0.060	
320.42	32.34	1.04	0.060	
359.18	31.21	2.17	0.060	
369.95	30.20	3.18	0.060	
390.93	30.38	3.00	0.060	
393.55	29.63	3.75	0.060	
397.11	30.35	3.03	0.060	
406.51	30.30	3.08	0.060	
410.77	32.12	1.26	0.060	
496.78	33.38	0.00	0.060	

09035 Study Point 1 riser *Type II 24-hr 10yr Talbot Rainfall=5.30"*
Prepared by DP Solutions Printed 8/29/2023
HydroCAD® 10.00-26 s/n 07537 © 2020 HydroCAD Software Solutions LLC

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.32	10.4	16.0	2,707	40.01
1.52	14.0	20.1	3,633	58.36
1.60	17.5	69.1	4,555	67.65
1.89	39.6	84.0	10,301	128.56
1.99	48.8	101.9	12,707	155.02
2.04	54.3	120.4	14,146	167.98
2.07	58.0	125.6	15,102	178.39
2.35	95.2	141.3	24,784	311.34
2.36	96.6	147.2	25,157	313.38
2.50	117.5	151.9	30,580	403.75
2.90	182.8	176.5	47,593	714.68
3.81	377.8	254.0	98,334	1,779.88
4.03	437.0	287.2	113,760	2,088.69
5.07	775.1	365.5	201,762	4,436.42

Stage-Discharge for Reach 4R: River Sta 2839.49 CS-10

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
32.10	0.00	0.00
32.14	0.35	0.01
32.18	0.59	0.03
32.22	0.77	0.07
32.26	0.94	0.15
32.30	1.09	0.26
32.34	1.23	0.43
32.38	1.37	0.65
32.42	1.49	0.93
32.46	1.62	1.26
32.50	1.74	1.66
32.54	1.85	2.15
32.58	1.96	2.71
32.62	2.07	3.35
32.66	2.17	4.07
32.70	2.27	4.90
32.74	2.37	5.82
32.78	2.47	6.84
32.82	2.57	7.96
32.86	2.66	9.18
32.90	2.75	10.54
32.94	2.85	12.01
32.98	2.94	13.59
33.02	3.02	15.29
33.06	3.11	17.12
33.10	3.20	19.10
33.14	3.28	21.21
33.18	3.37	23.45
33.22	3.45	25.82
33.26	3.53	28.36
33.30	3.61	31.05
33.34	3.69	33.89
33.38	3.77	36.88
33.42	3.85	40.01
33.46	3.92	43.34
33.50	3.99	46.84
33.54	4.06	50.51
33.58	4.12	54.35
33.62	4.18	58.36
33.66	4.08	62.75
33.70	3.87	67.65
33.74	3.65	73.91
33.78	3.49	80.75
33.82	3.38	88.37
33.86	3.32	96.81
33.90	3.28	105.88
33.94	3.26	115.58
33.98	3.25	125.87
34.02	3.22	135.99
34.06	3.20	146.67
34.10	3.16	157.55
34.14	3.09	167.98
34.18	3.08	182.37
34.22	3.09	198.89
34.26	3.11	216.33
34.30	3.14	234.63
34.34	3.17	253.80
34.38	3.20	273.87
34.42	3.24	295.06
34.46	3.24	313.38
34.50	3.30	338.18
34.54	3.35	363.68
34.58	3.41	390.19
34.62	3.46	417.14
34.66	3.51	444.56
34.70	3.56	472.78
34.74	3.60	501.86
34.78	3.65	532.03
34.82	3.70	563.19
34.86	3.75	595.23
34.90	3.79	628.15
34.94	3.84	661.97
34.98	3.89	696.98
35.02	3.93	732.05
35.06	3.96	767.37
35.10	4.00	803.58
35.14	4.04	840.83
35.18	4.07	879.35
35.22	4.11	918.87
35.26	4.15	959.40
35.30	4.18	1,000.94
35.34	4.22	1,043.68
35.38	4.25	1,087.67
35.42	4.29	1,132.71
35.46	4.32	1,178.81
35.50	4.36	1,225.97
35.54	4.39	1,274.50
35.58	4.43	1,324.24
35.62	4.46	1,375.08
35.66	4.50	1,427.04
35.70	4.53	1,480.11
35.74	4.57	1,534.72
35.78	4.60	1,590.49
35.82	4.64	1,647.42
35.86	4.67	1,705.51
35.90	4.70	1,764.87
35.94	4.72	1,819.18
35.98	4.73	1,872.89
36.02	4.74	1,928.13
36.06	4.76	1,984.96
36.10	4.77	2,043.66
36.14	4.79	2,106.67
36.18	4.83	2,179.40
36.22	4.87	2,253.25
36.26	4.90	2,328.40
36.30	4.94	2,405.20
36.34	4.98	2,483.44
36.38	5.02	2,562.99
36.42	5.05	2,643.88
36.46	5.09	2,726.10
36.50	5.13	2,810.14
36.54	5.16	2,895.53
36.58	5.20	2,982.28
36.62	5.24	3,070.38
36.66	5.27	3,160.00
36.70	5.31	3,251.36
36.74	5.35	3,344.10
36.78	5.38	3,438.24
36.82	5.42	3,533.77
36.86	5.45	3,630.99
36.90	5.49	3,729.86
36.94	5.52	3,830.15
36.98	5.56	3,931.87
37.02	5.59	4,035.02
37.06	5.63	4,140.05
37.10	5.66	4,246.63
37.14	5.70	4,354.66
37.18	**5.73**	**4,463.67**

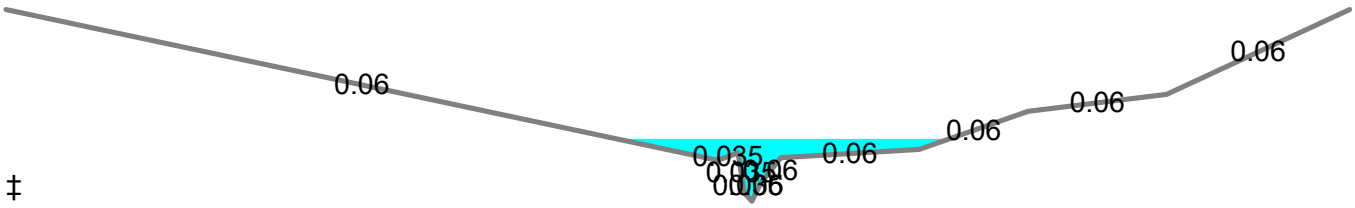
Summary for Reach 5R: River Sta 2577.80 CS-9

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 66.97 cfs @ 12.44 hrs, Volume= 9.249 af
Outflow = 66.23 cfs @ 12.49 hrs, Volume= 9.249 af, Atten= 1%, Lag= 3.1 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.57 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 17.1 min

Peak Storage= 14,338 cf @ 12.49 hrs
Average Depth at Peak Storage= 1.98'
Bank-Full Depth= 6.08' Flow Area= 1,195.3 sf, Capacity= 3,809.00 cfs

Custom cross-section, Length= 261.7' Slope= 0.0037 '/' (107 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 28.31', Outlet Invert= 27.33'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	32.11	0.00		
227.84	27.33	4.78	0.060	
234.43	27.56	4.55	0.035	
236.39	26.29	5.82	0.035	
238.78	26.03	6.08	0.035	
241.58	26.60	5.51	0.060	
248.02	27.41	4.70	0.060	
292.35	27.67	4.44	0.060	
327.25	28.88	3.23	0.060	
371.61	29.42	2.69	0.060	
430.19	32.11	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.26	0.5	3.7	125	0.27
0.57	1.9	5.8	503	2.05
1.30	8.6	13.0	2,248	13.57
1.38	9.9	19.9	2,584	13.66
1.53	15.6	57.2	4,079	14.38
1.64	23.1	81.2	6,060	21.63
2.85	176.8	173.8	46,274	311.44
3.39	289.3	243.9	75,716	550.66
6.08	1,195.3	430.8	312,808	3,809.00

Stage-Discharge for Reach 5R: River Sta 2577.80 CS-9

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
28.31	0.00	0.00
28.35	0.14	0.00
28.39	0.25	0.02
28.43	0.34	0.03
28.47	0.41	0.08
28.51	0.47	0.14
28.55	0.54	0.22
28.59	0.61	0.34
28.63	0.69	0.50
28.67	0.77	0.67
28.71	0.83	0.89
28.75	0.89	1.12
28.79	0.95	1.37
28.83	1.00	1.66
28.87	1.05	1.97
28.91	1.09	2.30
28.95	1.13	2.66
28.99	1.16	3.04
29.03	1.20	3.46
29.07	1.23	3.91
29.11	1.26	4.39
29.15	1.29	4.91
29.19	1.32	5.46
29.23	1.35	6.05
29.27	1.37	6.67
29.31	1.40	7.34
29.35	1.42	8.03
29.39	1.45	8.78
29.43	1.47	9.56
29.47	1.50	10.37
29.51	1.52	11.24
29.55	1.55	12.15
29.59	1.57	13.08
29.63	1.52	13.47
29.67	1.42	13.53
29.71	1.25	12.87
29.75	1.10	12.69
29.79	1.00	13.09
29.83	0.93	14.03
29.87	0.92	16.12
29.91	0.93	18.72
29.95	0.93	21.63
29.99	0.97	25.65
30.03	1.00	29.95
30.07	1.03	34.56
30.11	1.07	39.66
30.15	1.10	45.03
30.19	1.13	50.72
30.23	1.16	56.90
30.27	1.20	63.35
30.31	1.23	70.15
30.35	1.26	77.44
30.39	1.29	85.00
30.43	1.31	92.96
30.47	1.34	101.39
30.51	1.37	110.11
30.55	1.40	119.26
30.59	1.42	128.88
30.63	1.45	138.79
30.67	1.47	149.18
30.71	1.50	160.02
30.75	1.52	171.17
30.79	1.55	182.83
30.83	1.57	194.95
30.87	1.60	207.37
30.91	1.62	220.36
30.95	1.64	233.78
30.99	1.67	247.53
31.03	1.69	261.89
31.07	1.71	276.67
31.11	1.73	291.78
31.15	1.76	307.50
31.19	1.77	321.84
31.23	1.77	335.88
31.27	1.78	350.82
31.31	1.79	366.27
31.35	1.80	382.17
31.39	1.81	399.04
31.43	1.82	416.39
31.47	1.83	434.24
31.51	1.85	453.05
31.55	1.86	472.35
31.59	1.87	492.22
31.63	1.88	513.03
31.67	1.89	534.30
31.71	1.91	557.07
31.75	1.93	583.22
31.79	1.96	609.78
31.83	1.98	636.95
31.87	2.00	664.92
31.91	2.03	693.34
31.95	2.05	722.42
31.99	2.07	752.27
32.03	2.10	782.58
32.07	2.12	813.59
32.11	2.14	845.34
32.15	2.16	877.57
32.19	2.18	910.53
32.23	2.21	944.22
32.27	2.23	978.37
32.31	2.25	1,013.33
32.35	2.27	1,048.96
32.39	2.29	1,085.08
32.43	2.31	1,122.05
32.47	2.33	1,159.67
32.51	2.35	1,197.77
32.55	2.37	1,236.78
32.59	2.39	1,276.40
32.63	2.41	1,316.52
32.67	2.43	1,357.60
32.71	2.45	1,399.26
32.75	2.47	1,441.42
32.79	2.49	1,484.59
32.83	2.51	1,528.31
32.87	2.53	1,572.54
32.91	2.55	1,617.83
32.95	2.57	1,663.64
32.99	2.59	1,710.01
33.03	2.61	1,757.42
33.07	2.62	1,805.35
33.11	2.64	1,853.89
33.15	2.66	1,903.43
33.19	2.68	1,953.51
33.23	2.70	2,004.24
33.27	2.72	2,055.96
33.31	2.73	2,108.21
33.35	2.75	2,161.17
33.39	2.77	2,215.08
33.43	2.79	2,269.53
33.47	2.80	2,324.75
33.51	2.82	2,380.88
33.55	2.84	2,437.57
33.59	2.86	2,495.07
33.63	2.87	2,553.46
33.67	2.89	2,612.40
33.71	2.91	2,672.22
33.75	2.93	2,732.89
33.79	2.94	2,794.12
33.83	2.96	2,856.29
33.87	2.98	2,919.26
33.91	2.99	2,982.81
33.95	3.01	3,047.35
33.99	3.03	3,112.66
34.03	3.04	3,178.55
34.07	3.06	3,245.50
34.11	3.07	3,313.18
34.15	3.09	3,381.44
34.19	3.11	3,450.83
34.23	3.12	3,520.90
34.27	3.14	3,591.56
34.31	3.15	3,663.41
34.35	3.17	3,735.91
34.39	**3.19**	**3,809.00**

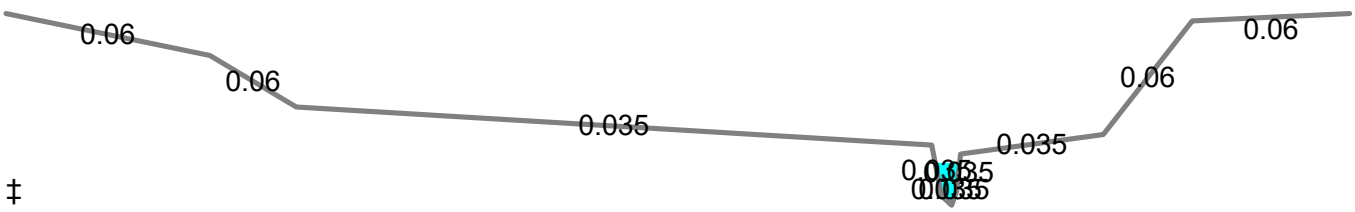
Summary for Reach 6R: River Sta 1972.78 CS-8

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 66.23 cfs @ 12.49 hrs, Volume= 9.249 af
Outflow = 66.15 cfs @ 12.51 hrs, Volume= 9.249 af, Atten= 0%, Lag= 1.1 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.78 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.71 fps, Avg. Travel Time= 14.3 min

Peak Storage= 5,900 cf @ 12.51 hrs
Average Depth at Peak Storage= 2.61'
Bank-Full Depth= 11.89' Flow Area= 1,546.5 sf, Capacity= 30,613.15 cfs

Custom cross-section, Length= 605.0' Slope= 0.0200 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 27.33', Outlet Invert= 15.26'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	27.15	0.00		
45.60	24.54	2.61	0.060	
64.91	21.36	5.79	0.060	
206.97	18.99	8.16	0.035	
209.13	15.86	11.29	0.035	
211.40	15.26	11.89	0.035	
212.59	16.16	10.99	0.035	
213.40	18.44	8.71	0.035	
245.31	19.64	7.51	0.035	
265.19	26.69	0.46	0.060	
300.42	27.15	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.60	0.9	3.3	556	2.33
0.90	1.9	4.2	1,167	6.88
3.18	13.0	9.4	7,869	96.89
3.73	20.5	24.7	12,379	108.23
4.38	52.4	81.0	31,718	235.32
6.10	278.2	189.2	168,324	2,155.48
9.28	912.3	218.3	551,928	14,423.80
11.43	1,418.3	262.4	858,047	27,530.87
11.89	1,546.5	305.6	935,633	30,613.15

Stage-Discharge for Reach 6R: River Sta 1972.78 CS-8

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
27.33	0.00	0.00
27.48	0.99	0.07
27.63	1.59	0.40
27.78	2.09	1.11
27.93	2.54	2.33
28.08	3.09	4.38
28.23	3.57	6.88
28.38	4.01	10.02
28.53	4.40	13.56
28.68	4.75	17.53
28.83	5.06	21.87
28.98	5.34	26.59
29.13	5.61	31.70
29.28	5.85	37.21
29.43	6.08	43.09
29.58	6.30	49.33
29.73	6.50	55.99
29.88	6.70	63.03
30.03	6.89	70.46
30.18	7.07	78.26
30.33	7.25	86.50
30.48	7.42	95.13
30.63	6.42	89.43
30.78	5.69	89.03
30.93	5.40	97.10
31.08	5.16	107.84
31.23	4.49	113.70
31.38	4.29	135.73
31.53	4.32	173.24
31.68	4.46	224.02
31.83	4.75	295.69
31.98	5.06	383.14
32.13	5.37	486.62
32.28	5.66	605.65
32.43	5.96	741.11
32.58	6.24	895.68
32.73	6.52	1,069.80
32.88	6.79	1,263.05
33.03	7.06	1,476.22
33.18	7.32	1,712.89
33.33	7.58	1,972.05
33.48	7.91	2,276.17
33.63	8.40	2,650.52
33.78	8.87	3,049.80
33.93	9.33	3,470.77
34.08	9.77	3,912.83
34.23	10.19	4,376.07
34.38	10.61	4,862.76
34.53	11.01	5,369.48
34.68	11.41	5,895.99
34.83	11.79	6,443.03
34.98	12.17	7,011.66
35.13	12.54	7,599.33
35.28	12.90	8,205.86
35.43	13.25	8,832.58
35.58	13.60	9,479.45
35.73	13.94	10,144.63
35.88	14.27	10,827.99
36.03	14.60	11,531.39
36.18	14.92	12,253.75
36.33	15.23	12,993.86
36.48	15.55	13,751.63
36.63	15.85	14,528.19
36.78	16.14	15,316.93
36.93	16.42	16,124.31
37.08	16.70	16,950.39
37.23	16.97	17,798.16
37.38	17.24	18,664.38
37.53	17.50	19,549.01
37.68	17.75	20,452.59
37.83	17.99	21,377.11
37.98	18.24	22,320.01
38.13	18.47	23,281.30
38.28	18.70	24,262.13
38.43	18.93	25,263.42
38.58	19.15	26,283.16
38.73	19.37	27,321.40
38.88	19.50	28,270.41
39.03	19.63	29,273.22
39.18	**19.76**	**30,327.52**

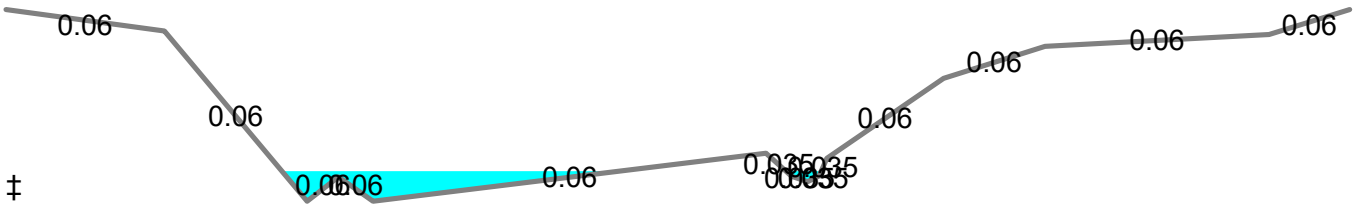
Summary for Reach 7R: River Sta 1427.28 CS-7

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 66.15 cfs @ 12.51 hrs, Volume= 9.249 af
Outflow = 60.28 cfs @ 12.61 hrs, Volume= 9.249 af, Atten= 9%, Lag= 6.2 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.04 fps, Min. Travel Time= 8.8 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 70.0 min

Peak Storage= 31,734 cf @ 12.61 hrs
Average Depth at Peak Storage= 1.61'
Bank-Full Depth= 10.23' Flow Area= 1,372.9 sf, Capacity= 5,579.78 cfs

Custom cross-section, Length= 545.5' Slope= 0.0023 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 15.26', Outlet Invert= 14.03'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
110.04	23.22	0.00		
141.25	22.07	1.15	0.060	
169.44	12.99	10.23	0.060	
175.62	14.28	8.94	0.060	
182.43	12.99	10.23	0.060	
259.88	15.56	7.66	0.060	
264.98	14.32	8.90	0.035	
268.12	14.03	9.19	0.035	
270.40	14.34	8.88	0.035	
271.88	15.28	7.94	0.035	
294.91	19.55	3.67	0.060	
314.93	21.26	1.96	0.060	
359.13	21.88	1.34	0.060	
375.00	23.22	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.04	23.4	45.4	12,777	17.71
1.29	36.6	60.9	19,968	31.74
1.33	39.1	63.0	21,309	34.70
1.35	40.3	63.9	21,995	36.25
2.29	117.1	101.0	63,870	159.21
2.57	146.7	113.1	80,052	217.42
6.56	661.0	148.0	360,571	2,315.97
8.27	932.0	173.7	508,421	3,789.48
8.89	1,052.4	219.9	574,111	4,358.78
9.08	1,094.0	222.8	596,779	4,578.02
10.23	1,372.9	267.7	748,934	5,579.78

Stage-Discharge for Reach 7R: River Sta 1427.28 CS-7

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
15.26	0.00	0.00
15.41	0.21	0.13
15.56	0.33	0.65
15.71	0.43	1.95
15.86	0.52	4.12
16.01	0.61	7.48
16.16	0.69	12.10
16.31	0.76	18.20
16.46	0.83	26.12
16.61	0.90	36.25
16.76	0.98	49.35
16.91	1.06	64.65
17.06	1.13	82.55
17.21	1.20	102.86
17.36	1.27	126.08
17.51	1.34	151.82
17.66	1.41	180.98
17.81	1.47	212.95
17.96	1.57	254.15
18.11	1.68	299.16
18.26	1.77	347.41
18.41	1.87	398.58
18.56	1.96	452.78
18.71	2.05	509.89
18.86	2.14	569.86
19.01	2.22	632.77
19.16	2.30	698.39
19.31	2.38	766.99
19.46	2.46	838.15
19.61	2.54	912.33
19.76	2.61	988.98
19.91	2.68	1,068.67
20.06	2.76	1,150.81
20.21	2.83	1,235.87
20.36	2.89	1,323.46
20.51	2.96	1,413.86
20.66	3.03	1,506.85
20.81	3.09	1,602.56
20.96	3.16	1,700.93
21.11	3.22	1,801.91
21.26	3.28	1,905.64
21.41	3.34	2,011.89
21.56	3.40	2,120.95
21.71	3.46	2,232.46
21.86	3.52	2,346.17
22.01	3.57	2,460.68
22.16	3.62	2,578.42
22.31	3.68	2,698.84
22.46	3.73	2,822.43
22.61	3.78	2,948.80
22.76	3.83	3,078.26
22.91	3.87	3,210.61
23.06	3.92	3,345.98
23.21	3.97	3,484.36
23.36	4.01	3,625.69
23.51	4.06	3,770.09
23.66	4.08	3,895.30
23.81	4.10	4,028.07
23.96	4.12	4,169.05
24.11	4.14	4,318.21
24.26	**4.17**	4,484.95
24.41	**4.17**	4,627.67
24.56	4.14	4,738.20
24.71	4.12	4,856.37
24.86	4.10	4,981.11
25.01	4.09	5,113.02
25.16	4.08	5,251.55
25.31	4.07	5,396.87
25.46	4.07	**5,548.90**

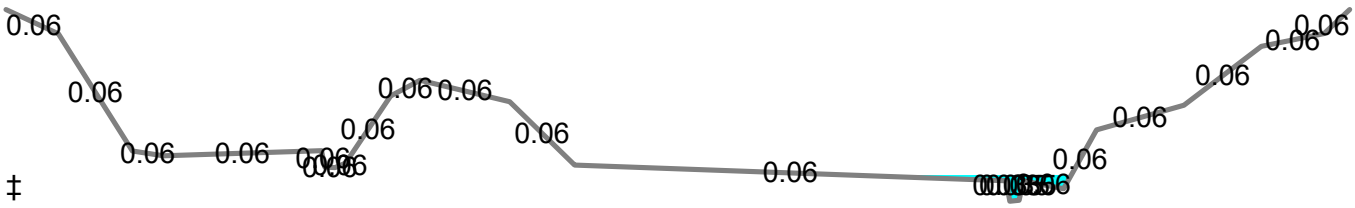
Summary for Reach 8R: River Sta 1096.55 CS-5

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 60.28 cfs @ 12.61 hrs, Volume= 9.249 af
Outflow = 59.15 cfs @ 12.66 hrs, Volume= 9.249 af, Atten= 2%, Lag= 3.4 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.72 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.42 fps, Avg. Travel Time= 13.0 min

Peak Storage= 9,730 cf @ 12.66 hrs
Average Depth at Peak Storage= 1.60'
Bank-Full Depth= 11.67' Flow Area= 3,698.5 sf, Capacity= 33,066.93 cfs

Custom cross-section, Length= 330.7' Slope= 0.0086 '/' (119 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 14.03', Outlet Invert= 11.19'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.86	0.00		
19.48	21.37	1.49	0.060	
46.99	14.25	8.61	0.060	
58.64	13.96	8.90	0.060	
117.45	14.26	8.60	0.060	
118.64	13.28	9.58	0.060	
122.39	13.23	9.63	0.060	
126.30	13.51	9.35	0.060	
143.11	17.60	5.26	0.060	
154.13	18.56	4.30	0.060	
187.43	17.24	5.62	0.060	
211.60	13.40	9.46	0.060	
372.09	12.43	10.43	0.060	
373.56	11.19	11.67	0.035	
376.99	11.25	11.61	0.035	
378.50	12.44	10.42	0.035	
393.57	11.95	10.91	0.060	
405.78	15.54	7.32	0.060	
438.28	17.03	5.83	0.060	
467.19	20.61	2.25	0.060	
490.49	21.39	1.47	0.060	
500.00	22.86	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.06	0.1	3.5	35	0.04
0.76	3.2	5.7	1,044	8.34
1.24	9.9	23.7	3,267	23.95
1.25	10.1	25.7	3,346	24.49
2.04	82.4	159.3	27,250	164.02
2.09	90.6	172.2	29,973	180.41
2.21	112.5	194.3	37,200	228.97
2.32	133.9	197.1	44,277	288.62
2.77	223.6	204.2	73,934	604.31
3.06	292.9	277.2	96,864	779.93
3.07	295.7	279.4	97,778	787.98
4.35	665.6	302.6	220,102	2,700.59
5.84	1,153.0	356.9	381,311	6,021.98
6.05	1,227.9	361.7	406,062	6,618.72
6.41	1,359.7	376.7	449,655	7,615.56
7.37	1,740.8	423.6	575,675	10,572.29
9.42	2,627.5	448.5	868,906	20,147.10
10.18	2,975.2	474.2	983,914	24,102.93
10.20	2,984.7	475.1	987,028	24,206.23
11.67	3,698.5	504.0	1,223,110	33,066.93

Stage-Discharge for Reach 8R: River Sta 1096.55 CS-5

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
14.03	0.00	0.00
14.18	0.90	0.44
14.33	1.50	1.57
14.48	1.94	3.25
14.63	2.31	5.45
14.78	2.62	8.15
14.93	2.69	11.54
15.08	2.57	15.95
15.23	2.45	22.08
15.38	2.33	31.75
15.53	2.13	46.10
15.68	2.00	67.24
15.83	1.96	97.00
15.98	1.97	136.02
16.13	1.99	184.14
16.28	2.08	250.51
16.43	2.25	337.75
16.58	2.43	437.13
16.73	2.62	548.60
16.88	2.68	645.97
17.03	2.66	738.12
17.18	2.76	877.36
17.33	2.93	1,057.31
17.48	3.11	1,251.23
17.63	3.27	1,458.68
17.78	3.44	1,680.45
17.93	3.60	1,916.37
18.08	3.76	2,164.94
18.23	3.91	2,425.95
18.38	4.06	2,700.59
18.53	4.18	2,970.28
18.68	4.30	3,253.91
18.83	4.42	3,553.13
18.98	4.54	3,867.71
19.13	4.66	4,196.01
19.28	4.77	4,537.86
19.43	4.89	4,895.47
19.58	5.01	5,266.50
19.73	5.12	5,650.82
19.88	5.23	6,050.11
20.03	5.35	6,475.02
20.18	5.45	6,888.75
20.33	5.54	7,302.85
20.48	5.62	7,727.87
20.63	5.70	8,155.01
20.78	5.77	8,595.64
20.93	5.84	9,050.99
21.08	5.92	9,521.54
21.23	5.99	10,006.04
21.38	6.06	10,504.65
21.53	6.18	11,101.07
21.68	6.31	11,724.05
21.83	6.43	12,360.84
21.98	6.55	13,012.42
22.13	6.67	13,679.04
22.28	6.79	14,359.23
22.43	6.90	15,052.92
22.58	7.02	15,762.31
22.73	7.13	16,485.24
22.88	7.25	17,221.48
23.03	7.36	17,972.00
23.18	7.47	18,737.10
23.33	7.58	19,515.36
23.48	7.68	20,294.50
23.63	7.77	21,043.43
23.78	7.86	21,809.79
23.93	7.94	22,593.17
24.08	8.03	23,394.60
24.23	8.11	24,206.23
24.38	8.20	25,050.11
24.53	8.28	25,906.18
24.68	8.37	26,777.64
24.83	8.46	27,662.53
24.98	8.54	28,560.64
25.13	8.63	29,472.94
25.28	8.71	30,399.91
25.43	8.79	31,340.13
25.58	**8.88**	**32,293.59**

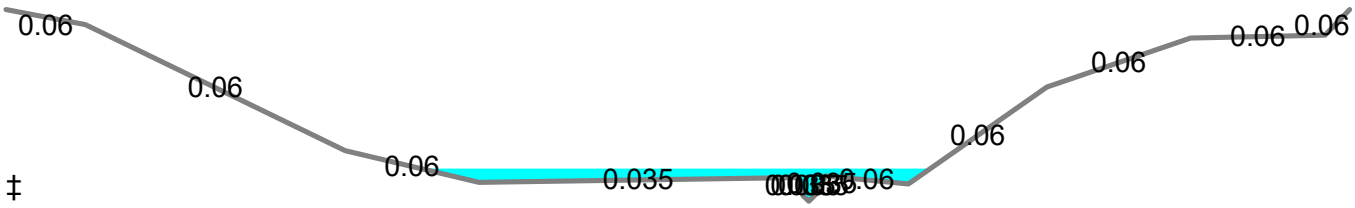
Summary for Reach 9R: River Sta 820.28 CS-4

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 2.33" for 10yr Talbot event
Inflow = 286.66 cfs @ 12.31 hrs, Volume= 52.588 af
Outflow = 285.59 cfs @ 12.34 hrs, Volume= 52.588 af, Atten= 0%, Lag= 1.6 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.29 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 13.9 min

Peak Storage= 35,115 cf @ 12.34 hrs
Average Depth at Peak Storage= 2.20'
Bank-Full Depth= 12.88' Flow Area= 3,176.9 sf, Capacity= 29,920.03 cfs

Custom cross-section, Length= 276.3' Slope= 0.0048 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 11.19', Outlet Invert= 9.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.73	0.00		
26.01	21.72	1.01	0.060	
111.05	13.24	9.49	0.060	
154.92	11.12	11.61	0.060	
259.10	11.45	11.28	0.035	
261.07	10.22	12.51	0.035	
262.92	9.85	12.88	0.035	
266.04	10.49	12.24	0.035	
268.39	11.54	11.19	0.035	
295.48	11.01	11.72	0.060	
340.86	17.53	5.20	0.060	
387.97	20.82	1.91	0.060	
431.96	21.01	1.72	0.060	
440.00	22.73	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.37	0.7	3.7	187	0.64
0.64	1.9	5.6	525	2.74
1.16	5.2	7.8	1,445	11.80
1.27	6.4	14.7	1,773	14.61
1.60	32.8	146.4	9,060	32.90
1.69	46.2	153.7	12,773	56.79
3.39	346.2	200.8	95,651	1,331.30
7.68	1,360.3	274.2	375,852	10,019.94
10.97	2,389.7	354.6	660,271	21,401.97
11.16	2,461.1	400.5	680,004	21,624.03
11.87	2,748.0	411.1	759,268	25,001.84
12.88	3,176.9	441.9	877,767	29,920.03

Stage-Discharge for Reach 9R: River Sta 820.28 CS-4

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
11.19	0.00	0.00
11.34	0.51	0.07
11.49	0.82	0.39
11.64	1.11	1.14
11.79	1.38	2.37
11.94	1.64	4.17
12.09	1.89	6.50
12.24	2.11	9.38
12.39	2.26	12.82
12.54	1.27	11.15
12.69	0.93	19.65
12.84	1.13	45.91
12.99	1.49	94.10
13.14	1.80	157.01
13.29	2.08	232.46
13.44	2.34	319.55
13.59	2.58	417.81
13.74	2.80	526.86
13.89	3.01	646.43
14.04	3.21	777.27
14.19	3.39	918.50
14.34	3.57	1,069.68
14.49	3.75	1,230.72
14.64	3.91	1,402.07
14.79	4.08	1,584.69
14.94	4.24	1,777.28
15.09	4.39	1,979.49
15.24	4.54	2,190.87
15.39	4.69	2,411.33
15.54	4.84	2,640.80
15.69	4.98	2,879.21
15.84	5.11	3,127.17
15.99	5.25	3,384.36
16.14	5.38	3,650.32
16.29	5.50	3,925.01
16.44	5.63	4,208.38
16.59	5.75	4,500.42
16.74	5.87	4,801.68
16.89	5.99	5,112.02
17.04	6.10	5,430.95
17.19	6.22	5,758.45
17.34	6.33	6,094.49
17.49	6.44	6,439.08
17.64	6.55	6,792.70
17.79	6.65	7,155.39
17.94	6.76	7,526.60
18.09	6.86	7,906.32
18.24	6.96	8,294.54
18.39	7.06	8,691.28
18.54	7.16	9,096.93
18.69	7.25	9,511.73
18.84	7.35	9,934.57
18.99	7.43	10,355.43
19.14	7.51	10,781.99
19.29	7.59	11,217.75
19.44	7.67	11,663.08
19.59	7.75	12,118.42
19.74	7.83	12,583.00
19.89	7.91	13,056.86
20.04	7.98	13,540.02
20.19	8.06	14,032.49
20.34	8.13	14,534.60
20.49	8.20	15,046.97
20.64	8.27	15,568.75
20.79	8.35	16,099.97
20.94	8.42	16,640.66
21.09	8.48	17,190.85
21.24	8.55	17,750.78
21.39	8.62	18,321.27
21.54	8.69	18,901.37
21.69	8.75	19,491.11
21.84	8.82	20,090.54
21.99	8.88	20,699.68
22.14	8.95	21,318.63
22.29	8.83	21,525.41
22.44	8.83	22,039.53
22.59	8.89	22,739.40
22.74	8.96	23,450.00
22.89	9.02	24,171.32
23.04	9.09	24,903.34
23.19	9.14	25,601.72
23.34	9.19	26,306.03
23.49	9.23	27,023.42
23.64	9.28	27,753.83
23.79	9.33	28,497.19
23.94	9.38	29,253.46
24.09	**9.42**	**30,022.59**

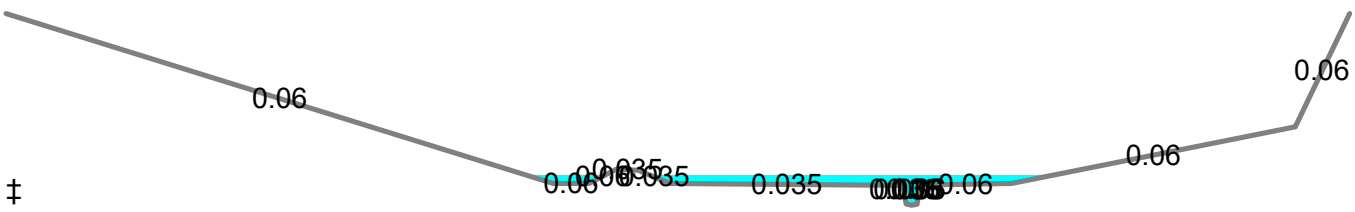
Summary for Reach 10R: River Sta 613.13 CS-3A

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 2.33" for 10yr Talbot event
Inflow = 285.59 cfs @ 12.34 hrs, Volume= 52.588 af
Outflow = 285.42 cfs @ 12.36 hrs, Volume= 52.588 af, Atten= 0%, Lag= 1.5 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.67 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 12.9 min

Peak Storage= 27,678 cf @ 12.36 hrs
Average Depth at Peak Storage= 2.14'
Bank-Full Depth= 13.54' Flow Area= 5,281.7 sf, Capacity= 58,962.20 cfs

Custom cross-section, Length= 207.1' Slope= 0.0067 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 9.85', Outlet Invert= 8.46'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.00	0.00		
244.35	10.00	12.00	0.060	
260.39	10.00	12.00	0.060	
272.62	11.02	10.98	0.060	
282.37	10.93	11.07	0.035	
296.68	10.00	12.00	0.035	
400.59	9.87	12.13	0.035	
401.95	8.56	13.44	0.035	`
404.35	8.46	13.54	0.035	
406.75	8.53	13.47	0.060	
408.13	9.89	12.11	0.060	
448.91	10.00	12.00	0.060	
575.67	14.00	8.00	0.060	
600.00	22.00	0.00	0.060	

09035 Study Point 1 riser *Type II 24-hr 10yr Talbot Rainfall=5.30"*
Prepared by DP Solutions Printed 8/29/2023
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Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.07	0.1	4.1	30	0.04
0.10	0.3	4.8	57	0.11
1.41	8.4	8.6	1,733	22.56
1.43	8.7	24.6	1,797	14.13
1.54	18.3	169.4	3,799	12.89
2.47	209.2	243.3	43,322	555.67
2.56	231.7	258.9	47,980	625.78
5.54	1,230.6	414.1	254,858	7,194.30
13.54	5,281.7	602.8	1,093,837	58,962.20

Stage-Discharge for Reach 10R: River Sta 613.13 CS-3A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
9.85	0.00	0.00
10.00	0.58	0.33
10.15	1.03	1.37
10.30	1.37	2.92
10.45	1.65	4.92
10.60	1.89	7.32
10.75	2.10	10.13
10.90	2.29	13.32
11.05	2.47	16.90
11.20	2.63	20.86
11.35	0.72	9.71
11.50	1.05	40.65
11.65	1.44	95.50
11.80	1.78	169.07
11.95	2.06	260.19
12.10	2.32	368.27
12.25	2.55	492.99
12.40	2.70	617.99
12.55	2.92	784.01
12.70	3.14	970.09
12.85	3.35	1,174.20
13.00	3.55	1,395.32
13.15	3.74	1,633.29
13.30	3.92	1,888.03
13.45	4.09	2,159.48
13.60	4.25	2,447.60
13.75	4.41	2,752.37
13.90	4.56	3,073.81
14.05	4.71	3,412.19
14.20	4.85	3,768.50
14.35	4.99	4,141.57
14.50	5.12	4,531.46
14.65	5.25	4,938.23
14.80	5.38	5,361.94
14.95	5.50	5,802.67
15.10	5.62	6,260.50
15.25	5.74	6,735.50
15.40	5.86	7,229.54
15.55	5.99	7,768.09
15.70	6.12	8,323.84
15.85	6.25	8,896.64
16.00	6.38	9,486.37
16.15	6.51	10,092.95
16.30	6.63	10,716.30
16.45	6.75	11,356.36
16.60	6.88	12,013.06
16.75	6.99	12,686.34
16.90	7.11	13,377.06
17.05	7.23	14,084.79
17.20	7.34	14,808.95
17.35	7.46	15,549.50
17.50	7.57	16,306.39
17.65	7.68	17,079.61
17.80	7.79	17,869.12
17.95	7.90	18,674.90
18.10	8.01	19,496.92
18.25	8.11	20,335.67
18.40	8.22	21,191.56
18.55	8.32	22,063.64
18.70	8.42	22,951.89
18.85	8.52	23,856.32
19.00	8.62	24,776.91
19.15	8.72	25,713.65
19.30	8.82	26,666.54
19.45	8.92	27,635.58
19.60	9.01	28,620.88
19.75	9.11	29,623.64
19.90	9.20	30,642.56
20.05	9.29	31,677.63
20.20	9.39	32,728.85
20.35	9.48	33,796.24
20.50	9.57	34,879.79
20.65	9.66	35,979.53
20.80	9.75	37,095.45
20.95	9.83	38,227.57
21.10	9.92	39,377.06
21.25	10.01	40,543.05
21.40	10.09	41,725.27
21.55	10.18	42,923.75
21.70	10.26	44,138.48
21.85	10.35	45,369.50
22.00	10.43	46,616.81
22.15	10.51	47,880.43
22.30	10.59	49,160.38
22.45	10.67	50,457.46
22.60	10.75	51,771.58
22.75	10.83	53,102.09
22.90	10.91	54,449.00
23.05	10.99	55,812.35
23.20	11.07	57,192.14
23.35	**11.14**	**58,588.41**

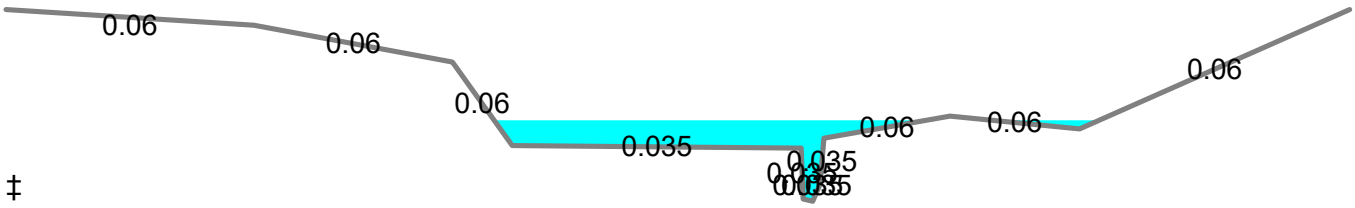
Summary for Reach 11R: River Sta 384.66 CS-3

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 2.33" for 10yr Talbot event
Inflow = 285.42 cfs @ 12.36 hrs, Volume= 52.588 af
Outflow = 285.28 cfs @ 12.39 hrs, Volume= 52.588 af, Atten= 0%, Lag= 1.7 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.40 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 10.4 min

Peak Storage= 22,805 cf @ 12.39 hrs
Average Depth at Peak Storage= 2.71'
Bank-Full Depth= 6.42' Flow Area= 962.3 sf, Capacity= 5,622.13 cfs

Custom cross-section, Length= 228.5' Slope= 0.0061 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 8.46', Outlet Invert= 7.07'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	13.49	0.00		
68.73	12.97	0.52	0.060	
123.80	11.73	1.76	0.060	
140.31	8.94	4.55	0.060	
220.49	8.85	4.64	0.035	
221.04	7.15	6.34	0.035	
223.64	7.07	6.42	0.035	
225.71	7.64	5.85	0.035	
226.76	9.18	4.31	0.035	
261.72	9.92	3.57	0.060	
297.64	9.49	4.00	0.060	
372.53	13.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.9	26	0.04
0.57	2.0	5.3	459	3.49
1.78	8.6	8.0	1,962	29.80
1.87	12.7	88.3	2,911	11.61
2.11	33.6	90.0	7,687	58.00
2.42	63.4	106.5	14,494	156.37
2.85	122.7	173.4	28,031	365.90
4.66	472.9	218.2	108,051	2,298.31
5.90	789.0	296.5	180,280	4,479.71
6.42	962.3	375.0	219,882	5,622.13

Stage-Discharge for Reach 11R: River Sta 384.66 CS-3

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
8.46	0.00	0.00
8.56	0.49	0.09
8.66	0.90	0.44
8.76	1.18	1.01
8.86	1.42	1.77
8.96	1.61	2.72
9.06	1.81	3.90
9.16	2.02	5.34
9.26	2.20	6.94
9.36	2.38	8.69
9.46	2.53	10.59
9.56	2.68	12.62
9.66	2.82	14.79
9.76	2.94	17.09
9.86	3.07	19.50
9.96	3.18	22.05
10.06	3.29	24.71
10.16	3.39	27.50
10.26	1.69	14.99
10.36	1.03	16.01
10.46	1.38	33.37
10.56	1.69	55.63
10.66	1.97	82.47
10.76	2.21	113.53
10.86	2.42	148.89
10.96	2.60	188.24
11.06	2.74	232.64
11.16	2.85	281.76
11.26	2.94	336.70
11.36	3.03	397.98
11.46	3.13	465.99
11.56	3.24	539.25
11.66	3.35	617.58
11.76	3.47	701.11
11.86	3.58	789.23
11.96	3.69	882.58
12.06	3.80	980.30
12.16	3.91	1,083.04
12.26	4.01	1,190.18
12.36	4.12	1,302.02
12.46	4.22	1,418.39
12.56	4.32	1,539.18
12.66	4.42	1,664.66
12.76	4.52	1,794.28
12.86	4.62	1,928.76
12.96	4.71	2,067.31
13.06	4.81	2,210.54
13.16	4.89	2,354.99
13.26	4.96	2,501.04
13.36	5.04	2,653.44
13.46	5.11	2,811.46
13.56	5.18	2,975.31
13.66	5.25	3,144.17
13.76	5.32	3,318.95
13.86	5.38	3,498.67
13.96	5.45	3,684.09
14.06	5.51	3,874.75
14.16	5.57	4,070.92
14.26	5.62	4,272.69
14.36	5.68	4,479.71
14.46	5.72	4,682.11
14.56	5.75	4,892.50
14.66	5.78	5,112.02
14.76	5.81	5,339.03
14.86	**5.84**	**5,574.46**

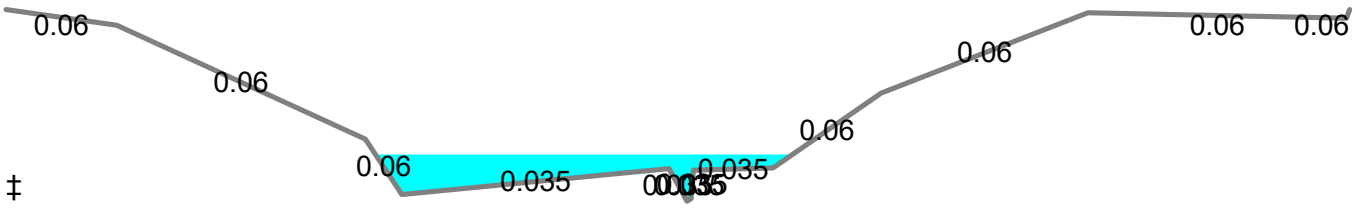
Summary for Reach 12R: River Sta 284.44 CS-2

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 2.33" for 10yr Talbot event
Inflow = 285.28 cfs @ 12.40 hrs, Volume= 52.585 af
Outflow = 284.93 cfs @ 12.44 hrs, Volume= 52.585 af, Atten= 0%, Lag= 2.3 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.62 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 23.4 min

Peak Storage= 46,311 cf @ 12.44 hrs
Average Depth at Peak Storage= 3.52'
Bank-Full Depth= 14.39' Flow Area= 5,200.3 sf, Capacity= 8,158.02 cfs

Custom cross-section, Length= 100.2' Slope= 0.0001 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.11', Outlet Invert= 7.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	21.49	0.00		
68.92	20.32	1.17	0.060	
223.87	11.77	9.72	0.060	
246.65	7.60	13.89	0.060	
413.08	9.56	11.93	0.035	
424.20	7.10	14.39	0.035	
426.70	7.30	14.19	0.035	
428.26	9.42	12.07	0.035	
477.81	9.60	11.89	0.035	
545.13	15.21	6.28	0.060	
674.00	21.26	0.23	0.060	
835.04	20.84	0.65	0.060	
837.00	21.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.20	0.3	3.4	34	0.03
0.50	1.6	5.2	160	0.31
2.32	169.0	180.5	16,939	67.15
2.46	197.7	232.4	19,814	73.54
2.50	207.2	243.6	20,761	77.03
4.67	773.6	281.8	77,519	642.25
8.11	1,915.0	385.7	191,883	2,393.01
13.22	4,389.9	587.4	439,871	6,994.87
13.74	4,705.0	629.1	471,441	7,567.27
14.16	5,009.4	825.2	501,942	7,851.33
14.39	5,200.3	839.5	521,068	8,158.02

Stage-Discharge for Reach 12R: River Sta 284.44 CS-2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.11	0.00	0.00
7.26	0.07	0.01
7.41	0.13	0.10
7.56	0.18	0.25
7.71	0.14	0.37
7.86	0.14	0.89
8.01	0.17	1.97
8.16	0.20	3.78
8.31	0.22	6.48
8.46	0.25	10.19
8.61	0.27	15.07
8.76	0.30	21.22
8.91	0.32	28.76
9.06	0.34	37.83
9.21	0.37	48.51
9.36	0.39	60.93
9.51	0.38	70.65
9.66	0.39	84.77
9.81	0.43	109.45
9.96	0.47	136.52
10.11	0.50	166.00
10.26	0.54	197.83
10.41	0.57	231.94
10.56	0.60	268.28
10.71	0.63	306.84
10.86	0.66	347.59
11.01	0.69	390.44
11.16	0.72	435.36
11.31	0.75	482.33
11.46	0.78	531.31
11.61	0.80	582.29
11.76	0.83	635.08
11.91	0.85	689.34
12.06	0.87	745.40
12.21	0.90	803.53
12.36	0.92	863.72
12.51	0.94	925.94
12.66	0.96	990.17
12.81	0.98	1,056.41
12.96	1.00	1,124.65
13.11	1.02	1,194.88
13.26	1.04	1,267.09
13.41	1.06	1,341.29
13.56	1.07	1,417.46
13.71	1.09	1,495.61
13.86	1.11	1,575.74
14.01	1.13	1,657.85
14.16	1.14	1,741.94
14.31	1.16	1,828.07
14.46	1.17	1,916.19
14.61	1.19	2,006.30
14.76	1.20	2,098.39
14.91	1.22	2,192.47
15.06	1.23	2,288.53
15.21	1.25	2,386.42
15.36	1.26	2,485.51
15.51	1.28	2,586.44
15.66	1.29	2,689.47
15.81	1.30	2,794.61
15.96	1.31	2,901.87
16.11	1.33	3,011.25
16.26	1.34	3,122.76
16.41	1.35	3,236.40
16.56	1.36	3,352.19
16.71	1.37	3,470.13
16.86	1.38	3,590.23
17.01	1.39	3,712.50
17.16	1.40	3,836.94
17.31	1.41	3,963.58
17.46	1.42	4,092.41
17.61	1.43	4,223.45
17.76	1.44	4,356.72
17.91	1.45	4,492.28
18.06	1.46	4,630.08
18.21	1.47	4,770.12
18.36	1.48	4,912.42
18.51	1.49	5,056.98
18.66	1.50	5,203.81
18.81	1.51	5,352.93
18.96	1.52	5,504.34
19.11	1.53	5,658.06
19.26	1.54	5,814.09
19.41	1.54	5,972.44
19.56	1.55	6,133.12
19.71	1.56	6,296.15
19.86	1.57	6,461.53
20.01	1.58	6,629.28
20.16	1.58	6,799.40
20.31	1.59	6,971.80
20.46	1.60	7,134.27
20.61	1.60	7,298.07
20.76	**1.61**	7,465.38
20.91	**1.60**	7,589.61
21.06	1.58	7,677.49
21.21	1.57	7,797.10
21.36	1.57	7,970.24
21.51	1.57	**8,171.44**

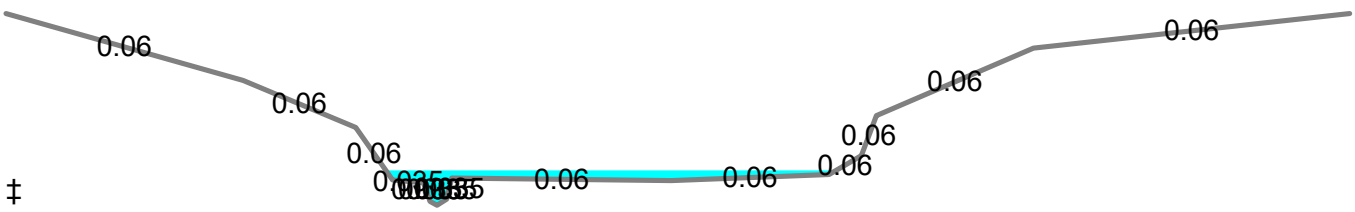
Summary for Reach 13R: River Sta 0.00 CS-1

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 2.33" for 10yr Talbot event
Inflow = 284.93 cfs @ 12.44 hrs, Volume= 52.585 af
Outflow = 284.70 cfs @ 12.47 hrs, Volume= 52.585 af, Atten= 0%, Lag= 1.5 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.17 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 8.0 min

Peak Storage= 32,466 cf @ 12.47 hrs
Average Depth at Peak Storage= 2.66'
Bank-Full Depth= 14.64' Flow Area= 3,217.7 sf, Capacity= 29,924.85 cfs

Custom cross-section, Length= 284.4' Slope= 0.0086 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.10', Outlet Invert= 4.64'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	19.28	0.00		
84.01	14.16	5.12	0.060	
123.92	10.59	8.69	0.060	
136.93	6.56	12.72	0.060	
147.92	6.36	12.92	0.035	
150.29	4.93	14.35	0.035	
152.70	4.64	14.64	0.035	
156.15	5.11	14.17	0.035	
157.99	6.72	12.56	0.035	
235.71	6.52	12.76	0.060	
291.60	6.99	12.29	0.060	
303.10	8.43	10.85	0.060	
308.39	11.49	7.79	0.060	
364.05	16.63	2.65	0.060	
476.12	19.28	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.29	0.7	4.6	188	0.72
0.47	1.6	6.3	461	2.60
1.72	11.5	10.6	3,272	48.06
1.88	13.8	19.6	3,916	42.95
1.92	15.0	42.2	4,256	43.90
2.08	28.1	124.2	7,994	66.53
2.35	65.8	157.2	18,711	142.10
3.79	302.1	173.6	85,929	1,184.50
5.95	685.7	185.2	195,005	4,274.07
6.85	855.5	197.1	243,311	5,994.66
9.52	1,453.4	256.2	413,340	12,283.05
11.99	2,162.1	323.6	614,897	20,487.24
14.64	3,217.7	479.3	915,113	29,924.85

Stage-Discharge for Reach 13R: River Sta 0.00 CS-1

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.10	0.00	0.00
7.25	0.70	0.13
7.40	1.12	0.81
7.55	1.55	2.34
7.70	2.01	4.96
7.85	2.41	8.38
8.00	2.76	12.55
8.15	3.07	17.44
8.30	3.35	23.05
8.45	3.61	29.38
8.60	3.85	36.44
8.75	4.08	44.22
8.90	3.55	44.35
9.05	2.83	47.91
9.20	2.33	71.24
9.35	2.17	110.67
9.50	2.21	163.13
9.65	2.36	230.90
9.80	2.55	310.15
9.95	2.75	400.28
10.10	2.95	500.72
10.25	3.14	611.03
10.40	3.33	730.86
10.55	3.52	859.92
10.70	3.70	997.98
10.85	3.87	1,144.56
11.00	4.05	1,302.78
11.15	4.23	1,470.17
11.30	4.41	1,645.96
11.45	4.58	1,830.01
11.60	4.75	2,022.15
11.75	4.91	2,222.26
11.90	5.08	2,430.20
12.05	5.24	2,645.88
12.20	5.39	2,869.17
12.35	5.55	3,099.99
12.50	5.70	3,338.24
12.65	5.85	3,583.85
12.80	5.99	3,836.72
12.95	6.14	4,096.80
13.10	6.28	4,362.25
13.25	6.41	4,632.13
13.40	6.54	4,910.04
13.55	6.67	5,195.74
13.70	6.80	5,489.14
13.85	6.92	5,790.07
14.00	7.04	6,090.10
14.15	7.13	6,380.26
14.30	7.22	6,677.94
14.45	7.31	6,983.19
14.60	7.39	7,296.07
14.75	7.48	7,616.64
14.90	7.56	7,944.95
15.05	7.65	8,281.07
15.20	7.73	8,625.07
15.35	7.81	8,977.00
15.50	7.89	9,336.94
15.65	7.97	9,704.94
15.80	8.04	10,081.09
15.95	8.12	10,465.43
16.10	8.20	10,858.05
16.25	8.27	11,259.01
16.40	8.34	11,668.36
16.55	8.42	12,086.19
16.70	8.49	12,509.31
16.85	8.55	12,938.69
17.00	8.62	13,377.20
17.15	8.69	13,824.97
17.30	8.75	14,282.10
17.45	8.82	14,748.64
17.60	8.88	15,224.69
17.75	8.94	15,710.32
17.90	9.00	16,205.62
18.05	9.06	16,710.66
18.20	9.13	17,225.54
18.35	9.19	17,750.34
18.50	9.25	18,285.14
18.65	9.30	18,830.04
18.80	9.36	19,385.10
18.95	9.42	19,950.43
19.10	**9.47**	20,511.27
19.25	9.43	20,882.68
19.40	9.40	21,274.81
19.55	9.37	21,687.45
19.70	9.34	22,120.13
19.85	9.32	22,572.62
20.00	9.30	23,044.73
20.15	9.28	23,536.30
20.30	9.27	24,047.20
20.45	9.27	24,577.35
20.60	9.26	25,126.67
20.75	9.26	25,695.13
20.90	9.26	26,282.71
21.05	9.26	26,889.39
21.20	9.27	27,515.20
21.35	9.27	28,160.17
21.50	9.28	28,824.33
21.65	9.29	**29,507.75**

Summary for Pond 11P: Pond 1

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 2.26" for 10yr Talbot event
Inflow = 90.38 cfs @ 12.10 hrs, Volume= 9.249 af
Outflow = 71.22 cfs @ 12.27 hrs, Volume= 9.249 af, Atten= 21%, Lag= 9.8 min
Primary = 71.22 cfs @ 12.27 hrs, Volume= 9.249 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 48.56' @ 12.27 hrs Surf.Area= 24,577 sf Storage= 52,878 cf

Plug-Flow detention time= 10.5 min calculated for 9.249 af (100% of inflow)
Center-of-Mass det. time= 10.3 min (870.8 - 860.6)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	189,394 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)
45.00	0	0.0	0	0	0
46.00	14,235	515.0	4,745	4,745	21,108
47.00	17,332	556.0	15,758	20,503	24,643
48.00	21,715	639.0	19,482	39,985	32,558
49.00	26,977	704.0	24,298	64,284	39,537
50.00	33,980	771.0	30,411	94,695	47,436
51.00	42,797	845.0	38,304	132,999	56,986
52.00	71,191	1,014.0	56,395	189,394	82,005

Device	Routing	Invert	Outlet Devices
#1	Primary	43.75'	**36.0" Round Culvert X 2.00** L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.75' / 43.25' S= 0.0111 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf
#2	Device 1	45.00'	**14.0" Vert. Orifice/Grate X 3.00** C= 0.600
#3	Device 1	46.00'	**12.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	48.10'	**28.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=71.20 cfs @ 12.27 hrs HW=48.56' TW=39.82' (Dynamic Tailwater)
└─**1=Culvert** (Passes 71.20 cfs of 123.79 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 26.63 cfs @ 8.30 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 16.27 cfs @ 6.91 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Weir Controls 28.30 cfs @ 2.21 fps)

Stage-Discharge for Pond 11P: Pond 1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
45.00	0.00	47.08	27.53	49.16	134.60	51.24	166.60
45.04	0.02	47.12	28.08	49.20	135.29	51.28	167.15
45.08	0.09	47.16	28.61	49.24	135.97	51.32	167.71
45.12	0.21	47.20	29.13	49.28	136.65	51.36	168.26
45.16	0.36	47.24	29.63	49.32	137.33	51.40	168.81
45.20	0.56	47.28	30.13	49.36	138.00	51.44	169.36
45.24	0.79	47.32	30.62	49.40	138.67	51.48	169.90
45.28	1.07	47.36	31.10	49.44	139.34	51.52	170.45
45.32	1.38	47.40	31.58	49.48	140.00	51.56	170.99
45.36	1.72	47.44	32.04	49.52	140.66	51.60	171.53
45.40	2.09	47.48	32.50	49.56	141.32	51.64	172.07
45.44	2.50	47.52	32.95	49.60	141.97	51.68	172.61
45.48	2.93	47.56	33.39	49.64	142.62	51.72	173.14
45.52	3.39	47.60	33.83	49.68	143.27	51.76	173.68
45.56	3.88	47.64	34.26	49.72	143.92	51.80	174.21
45.60	4.38	47.68	34.68	49.76	144.56	51.84	174.74
45.64	4.91	47.72	35.10	49.80	145.20	51.88	175.27
45.68	5.45	47.76	35.52	49.84	145.84	51.92	175.80
45.72	6.00	47.80	35.93	49.88	146.47	51.96	176.33
45.76	6.57	47.84	36.33	49.92	147.10	52.00	**176.85**
45.80	7.14	47.88	36.73	49.96	147.73		
45.84	7.71	47.92	37.12	50.00	148.36		
45.88	8.29	47.96	37.51	50.04	148.98		
45.92	8.86	48.00	37.90	50.08	149.60		
45.96	9.42	48.04	38.28	50.12	150.22		
46.00	9.96	48.08	38.66	50.16	150.83		
46.04	10.50	48.12	39.29	50.20	151.45		
46.08	11.05	48.16	40.75	50.24	152.06		
46.12	11.59	48.20	42.67	50.28	152.67		
46.16	12.08	48.24	44.93	50.32	153.27		
46.20	12.64	48.28	47.49	50.36	153.87		
46.24	13.24	48.32	50.30	50.40	154.48		
46.28	13.86	48.36	53.34	50.44	155.07		
46.32	14.51	48.40	56.60	50.48	155.67		
46.36	15.17	48.44	60.05	50.52	156.27		
46.40	15.85	48.48	63.69	50.56	156.86		
46.44	16.55	48.52	67.51	50.60	157.45		
46.48	17.26	48.56	71.49	50.64	158.03		
46.52	17.98	48.60	75.63	50.68	158.62		
46.56	18.72	48.64	79.93	50.72	159.20		
46.60	19.46	48.68	84.37	50.76	159.78		
46.64	20.21	48.72	88.95	50.80	160.36		
46.68	20.96	48.76	93.67	50.84	160.94		
46.72	21.71	48.80	98.52	50.88	161.51		
46.76	22.45	48.84	103.51	50.92	162.09		
46.80	23.19	48.88	108.61	50.96	162.66		
46.84	23.90	48.92	113.84	51.00	163.23		
46.88	24.60	48.96	119.19	51.04	163.79		
46.92	25.26	49.00	124.66	51.08	164.36		
46.96	25.87	49.04	130.24	51.12	164.92		
47.00	26.40	49.08	133.22	51.16	165.48		
47.04	26.97	49.12	133.91	51.20	166.04		

Summary for Pond 14P: Goldsburough Neck Road Culvert

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 2.33" for 10yr Talbot event
Inflow = 285.28 cfs @ 12.39 hrs, Volume= 52.588 af
Outflow = 285.28 cfs @ 12.40 hrs, Volume= 52.585 af, Atten= 0%, Lag= 0.6 min
Primary = 285.28 cfs @ 12.40 hrs, Volume= 52.585 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 11.24' @ 12.43 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.44'	**48.0" Round CMP_Round 48"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.44' / 5.43' S= 0.0003 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 12.57 sf
#2	Primary	9.91'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 0.80 1.20 1.60 2.20 2.60 3.00 3.40 3.80 4.20 Width (feet) 0.00 56.60 73.40 90.20 107.00 123.80 156.20 183.80 211.40 239.00 266.50

Primary OutFlow Max=284.92 cfs @ 12.40 hrs HW=11.24' TW=10.62' (Dynamic Tailwater)
└─**1=CMP_Round 48"** (Inlet Controls 37.56 cfs @ 2.99 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 247.36 cfs @ 3.01 fps)

Stage-Discharge for Pond 14P: Goldsburough Neck Road Culvert

Elevation (feet)	Primary (cfs)
5.44	0.00
5.54	0.00
5.64	0.00
5.74	0.00
5.84	0.00
5.94	0.00
6.04	0.00
6.14	0.00
6.24	0.00
6.34	0.00
6.44	0.00
6.54	0.00
6.64	0.00
6.74	0.00
6.84	0.00
6.94	0.00
7.04	0.00
7.14	2.96
7.24	6.71
7.34	9.68
7.44	12.51
7.54	15.34
7.64	18.22
7.74	20.40
7.84	22.12
7.94	23.90
8.04	25.71
8.14	27.58
8.24	29.48
8.34	31.42
8.44	33.39
8.54	35.40
8.64	37.43
8.74	39.49
8.84	41.56
8.94	43.65
9.04	45.76
9.14	47.86
9.24	49.98
9.34	52.08
9.44	54.18
9.54	56.26
9.64	58.33
9.74	60.36
9.84	62.36
9.94	64.34
10.04	67.34
10.14	72.74
10.24	81.38
10.34	93.89
10.44	110.07
10.54	129.40
10.64	151.68
10.74	176.68
10.84	205.76
10.94	239.04
11.04	275.41
11.14	314.90
11.24	357.58
11.34	403.50
11.44	452.71
11.54	505.26
11.64	561.10
11.74	619.61
11.84	680.86
11.94	745.31
12.04	812.97
12.14	883.83
12.24	958.31
12.34	1,036.94
12.44	1,120.04
12.54	1,207.89
12.64	1,300.61
12.74	1,398.30
12.84	1,501.08
12.94	1,609.06
13.04	1,722.37
13.14	1,841.13
13.24	1,965.44
13.34	2,095.42
13.44	2,231.17
13.54	2,372.81
13.64	2,520.44
13.74	2,674.15
13.84	2,834.05
13.94	3,000.23
14.04	**3,172.78**

Summary for Link 18L: Proposed Design Point 1

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 2.33" for 10yr Talbot event
Inflow = 284.70 cfs @ 12.47 hrs, Volume= 52.585 af
Primary = 284.70 cfs @ 12.48 hrs, Volume= 52.585 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

37 Point manual elevation table, To= 5.00 hrs, dt= 1.00 hrs, feet =

7.10	7.26	7.42	7.57	7.73	8.04	8.34	9.12	9.90
9.60	9.29	9.13	8.96	8.73	8.51	8.42	8.33	8.30
8.27	8.21	8.14	8.08	8.01	7.95	7.88	7.82	7.75
7.69	7.63	7.56	7.50	7.43	7.37	7.30	7.24	7.17
7.11								

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 3S: Prop. Design Point 1 Runoff Area=221.700 ac 0.00% Impervious Runoff Depth=4.23"
Tc=30.6 min CN=71 Runoff=502.32 cfs 78.218 af

Subcatchment 4S: Prop. Design Point 1 to Runoff Area=49.080 ac 0.00% Impervious Runoff Depth=4.12"
Tc=16.2 min CN=70 Runoff=168.96 cfs 16.861 af

Reach 1R: River St 3893.53 CS-13 Avg. Flow Depth=3.18' Max Vel=4.75 fps Inflow=139.32 cfs 16.861 af
L=400.0' S=0.0089 '/' Capacity=30,715.83 cfs Outflow=139.25 cfs 16.861 af

Reach 2R: River Sta 3493.6 CS-12 Avg. Flow Depth=2.86' Max Vel=3.28 fps Inflow=139.25 cfs 16.861 af
L=393.8' S=0.0044 '/' Capacity=4,857.15 cfs Outflow=138.97 cfs 16.861 af

Reach 3R: River Sta 3099.81 CS-11 Avg. Flow Depth=1.55' Max Vel=2.42 fps Inflow=138.97 cfs 16.861 af
L=393.8' S=0.0044 '/' Capacity=4,820.08 cfs Outflow=138.73 cfs 16.861 af

Reach 4R: River Sta 2839.49 CS-10 Avg. Flow Depth=1.93' Max Vel=4.18 fps Inflow=138.73 cfs 16.861 af
L=260.3' S=0.0146 '/' Capacity=4,436.42 cfs Outflow=138.54 cfs 16.861 af

Reach 5R: River Sta 2577.80 CS-9 Avg. Flow Depth=2.32' Max Vel=1.58 fps Inflow=138.54 cfs 16.861 af
L=261.7' S=0.0037 '/' Capacity=3,809.00 cfs Outflow=137.90 cfs 16.861 af

Reach 6R: River Sta 1972.78 CS-8 Avg. Flow Depth=4.06' Max Vel=7.44 fps Inflow=137.90 cfs 16.861 af
L=605.0' S=0.0200 '/' Capacity=30,613.15 cfs Outflow=136.67 cfs 16.861 af

Reach 7R: River Sta 1427.28 CS-7 Avg. Flow Depth=2.12' Max Vel=1.29 fps Inflow=136.67 cfs 16.861 af
L=545.5' S=0.0023 '/' Capacity=5,579.78 cfs Outflow=129.93 cfs 16.861 af

Reach 8R: River Sta 1096.55 CS-5 Avg. Flow Depth=1.93' Max Vel=2.72 fps Inflow=129.93 cfs 16.861 af
L=330.7' S=0.0086 '/' Capacity=33,066.93 cfs Outflow=128.13 cfs 16.861 af

Reach 9R: River Sta 820.28 CS-4 Avg. Flow Depth=2.59' Max Vel=2.85 fps Inflow=554.99 cfs 95.079 af
L=276.3' S=0.0048 '/' Capacity=29,920.03 cfs Outflow=554.88 cfs 95.079 af

Reach 10R: River Sta 613.13 CS-3A Avg. Flow Depth=2.47' Max Vel=2.70 fps Inflow=554.88 cfs 95.079 af
L=207.1' S=0.0067 '/' Capacity=58,962.20 cfs Outflow=554.82 cfs 95.079 af

Reach 11R: River Sta 384.66 CS-3 Avg. Flow Depth=3.12' Max Vel=3.47 fps Inflow=554.82 cfs 95.079 af
L=228.5' S=0.0061 '/' Capacity=5,622.13 cfs Outflow=554.76 cfs 95.079 af

Reach 12R: River Sta 284.44 CS-2 Avg. Flow Depth=4.42' Max Vel=0.79 fps Inflow=554.76 cfs 95.076 af
L=100.2' S=0.0001 '/' Capacity=8,158.02 cfs Outflow=554.55 cfs 95.076 af

Reach 13R: River Sta 0.00 CS-1 Avg. Flow Depth=3.08' Max Vel=4.16 fps Inflow=554.55 cfs 95.076 af
L=284.4' S=0.0086 '/' Capacity=29,924.85 cfs Outflow=554.43 cfs 95.076 af

Pond 11P: Pond 1 Peak Elev=49.44' Storage=76,774 cf Inflow=168.96 cfs 16.861 af
Outflow=139.32 cfs 16.861 af

Pond 14P: Goldsburough Neck Road Culvert Peak Elev=12.03' Inflow=554.76 cfs 95.079 af
Outflow=554.76 cfs 95.076 af

Link 18L: Proposed Design Point 1 Inflow=554.43 cfs 95.076 af
Primary=554.43 cfs 95.076 af

Total Runoff Area = 270.780 ac Runoff Volume = 95.079 af Average Runoff Depth = 4.21"
100.00% Pervious = 270.780 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Prop. Design Point 1 Bypass

Runoff = 502.32 cfs @ 12.30 hrs, Volume= 78.218 af, Depth= 4.23"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	221.700	71	Weighted CN from TR-55
	221.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.6					**Direct Entry, TC from TR-55**

Summary for Subcatchment 4S: Prop. Design Point 1 to Pond

Runoff = 168.96 cfs @ 12.10 hrs, Volume= 16.861 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	49.080	70	Weighted CN from TR-55
	49.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.2					**Direct Entry, From TR-55**

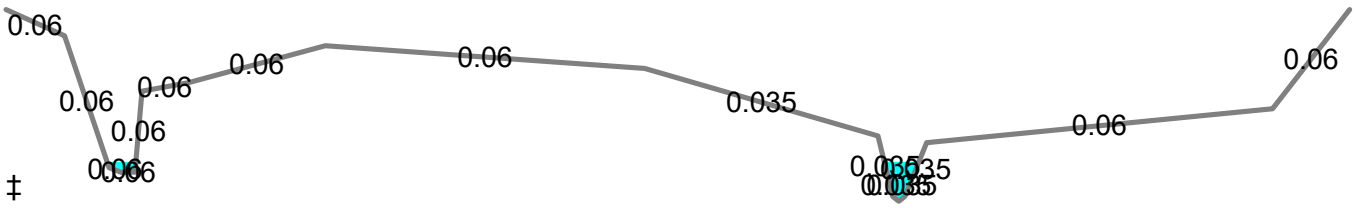
Summary for Reach 1R: River St 3893.53 CS-13

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 139.32 cfs @ 12.23 hrs, Volume= 16.861 af
Outflow = 139.25 cfs @ 12.26 hrs, Volume= 16.861 af, Atten= 0%, Lag= 1.3 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.75 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 7.8 min

Peak Storage= 11,743 cf @ 12.26 hrs
Average Depth at Peak Storage= 3.18'
Bank-Full Depth= 15.50' Flow Area= 2,974.4 sf, Capacity= 30,715.83 cfs

Custom cross-section, Length= 400.0' Slope= 0.0089 '/' (111 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 37.41', Outlet Invert= 33.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.91	0.00		
19.65	50.80	2.11	0.060	
34.56	40.13	12.78	0.060	
38.64	39.75	13.16	0.060	
43.17	39.76	13.15	0.060	
45.57	46.31	6.60	0.060	
60.88	46.99	5.92	0.060	
106.99	49.99	2.92	0.060	
213.92	48.16	4.75	0.060	
292.01	42.68	10.23	0.035	
296.95	37.81	15.10	0.035	
299.01	37.41	15.50	0.035	
301.05	37.81	15.10	0.035	
308.35	42.15	10.76	0.035	
424.22	44.88	8.03	0.060	
450.00	52.91	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.40	0.8	4.2	328	1.11
2.34	13.8	10.7	5,539	65.72
2.35	14.0	15.4	5,586	66.32
2.72	20.1	21.0	8,035	93.27
4.74	67.8	33.5	27,109	386.86
5.27	89.0	58.2	35,609	520.79
7.47	345.1	189.2	138,024	1,641.80
8.90	623.1	218.4	249,237	3,633.81
9.58	774.2	246.9	309,687	4,807.44
10.75	1,074.1	287.6	429,650	7,561.94
12.58	1,711.1	432.0	684,458	14,019.18
13.39	2,052.7	436.1	821,092	18,072.48
15.50	2,974.4	463.0	1,189,741	30,715.83

Stage-Discharge for Reach 1R: River St 3893.53 CS-13

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
37.41	0.00	0.00
37.61	0.84	0.23
37.81	1.35	1.11
38.01	1.98	3.40
38.21	2.47	6.64
38.41	2.87	10.88
38.61	3.22	16.04
38.81	3.54	22.17
39.01	3.82	29.44
39.21	4.09	37.74
39.41	4.34	47.09
39.61	4.58	57.68
39.81	4.73	69.60
40.01	4.67	83.73
40.21	4.64	100.40
40.41	4.68	119.94
40.61	4.76	141.71
40.81	4.86	165.68
41.01	4.97	192.13
41.21	5.09	220.86
41.41	5.22	251.78
41.61	5.35	285.06
41.81	5.48	320.85
42.01	5.62	358.92
42.21	5.76	400.59
42.41	5.85	448.85
42.61	5.86	501.54
42.81	5.59	538.56
43.01	5.27	576.48
43.21	5.03	628.71
43.41	4.86	693.94
43.61	4.75	772.42
43.81	4.68	867.19
44.01	4.65	976.33
44.21	4.64	1,100.41
44.41	4.66	1,241.72
44.61	4.69	1,400.72
44.81	4.74	1,576.77
45.01	4.84	1,784.10
45.21	4.97	2,019.14
45.41	5.12	2,271.70
45.61	5.27	2,541.72
45.81	5.43	2,831.29
46.01	5.59	3,139.36
46.21	5.75	3,464.89
46.41	5.88	3,784.80
46.61	5.98	4,111.63
46.81	6.10	4,466.47
47.01	6.22	4,847.95
47.21	6.37	5,266.28
47.41	6.51	5,706.90
47.61	6.65	6,169.37
47.81	6.79	6,655.19
48.01	6.93	7,165.91
48.21	7.07	7,694.66
48.41	7.20	8,251.10
48.61	7.34	8,856.97
48.81	7.48	9,501.43
49.01	7.61	10,180.91
49.21	7.74	10,896.71
49.41	7.86	11,648.77
49.61	7.98	12,433.61
49.81	8.10	13,251.36
50.01	8.21	14,114.05
50.21	8.36	15,072.73
50.41	8.51	16,059.68
50.61	8.66	17,078.41
50.81	8.81	18,125.28
51.01	8.96	19,191.80
51.21	9.11	20,284.37
51.41	9.25	21,408.49
51.61	9.40	22,559.49
51.81	9.54	23,737.21
52.01	9.69	24,944.69
52.21	9.83	26,180.14
52.41	9.97	27,441.79
52.61	10.12	28,730.57
52.81	**10.26**	**30,048.98**

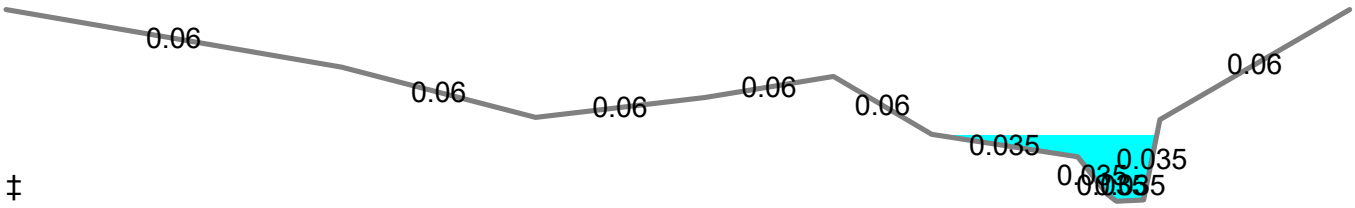
Summary for Reach 2R: River Sta 3493.6 CS-12

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 139.25 cfs @ 12.26 hrs, Volume= 16.861 af
Outflow = 138.97 cfs @ 12.29 hrs, Volume= 16.861 af, Atten= 0%, Lag= 2.3 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.28 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 19.7 min

Peak Storage= 18,704 cf @ 12.29 hrs
Average Depth at Peak Storage= 2.86'
Bank-Full Depth= 8.30' Flow Area= 915.0 sf, Capacity= 4,857.15 cfs

Custom cross-section, Length= 393.8' Slope= 0.0044 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 33.85', Outlet Invert= 32.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	42.15	0.00		
66.72	39.65	2.50	0.060	
105.27	37.48	4.67	0.060	
138.90	38.34	3.81	0.060	
164.52	39.25	2.90	0.060	
184.02	36.75	5.40	0.060	
213.06	35.77	6.38	0.035	
218.87	34.15	8.00	0.035	
220.76	33.85	8.30	0.035	
226.16	33.90	8.25	0.035	
229.39	37.38	4.77	0.035	
267.12	42.15	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.05	0.1	5.7	56	0.03
0.30	1.8	7.7	708	1.94
1.92	19.9	15.9	7,839	65.46
2.90	49.1	46.3	19,344	144.64
3.53	79.1	52.1	31,137	306.81
3.63	84.2	53.7	33,148	337.78
4.49	155.6	116.3	61,279	678.51
5.40	285.1	172.5	112,281	1,248.05
5.80	355.3	182.8	139,922	1,592.53
8.30	915.0	269.5	360,325	4,857.15

Stage-Discharge for Reach 2R: River Sta 3493.6 CS-12

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
33.85	0.00	0.00
33.95	0.48	0.24
34.05	0.82	0.92
34.15	1.08	1.94
34.25	1.31	3.39
34.35	1.51	5.14
34.45	1.69	7.24
34.55	1.86	9.64
34.65	2.01	12.36
34.75	2.16	15.38
34.85	2.29	18.72
34.95	2.42	22.41
35.05	2.54	26.43
35.15	2.65	30.76
35.25	2.77	35.43
35.35	2.87	40.45
35.45	2.98	45.84
35.55	3.08	51.58
35.65	3.17	57.68
35.75	3.27	64.13
35.85	3.11	66.02
35.95	2.97	68.62
36.05	2.89	72.93
36.15	2.84	78.78
36.25	2.82	86.06
36.35	2.82	94.86
36.45	2.83	105.15
36.55	2.86	116.85
36.65	2.90	130.01
36.75	2.94	144.64
36.85	3.11	167.04
36.95	3.27	190.73
37.05	3.42	215.66
37.15	3.57	241.84
37.25	3.71	269.24
37.35	3.84	297.98
37.45	3.97	328.41
37.55	4.09	359.95
37.65	4.18	393.06
37.75	4.25	428.01
37.85	4.29	465.13
37.95	4.32	504.29
38.05	4.34	545.57
38.15	4.36	589.09
38.25	4.36	634.97
38.35	4.36	683.60
38.45	4.36	735.22
38.55	4.36	789.34
38.65	4.36	846.09
38.75	4.36	905.60
38.85	4.36	968.22
38.95	4.36	1,033.67
39.05	4.37	1,102.04
39.15	4.37	1,173.38
39.25	4.38	1,248.05
39.35	4.40	1,329.60
39.45	4.42	1,414.31
39.55	4.45	1,502.00
39.65	4.48	1,592.53
39.75	4.51	1,684.87
39.85	4.54	1,780.31
39.95	4.57	1,878.73
40.05	4.60	1,980.15
40.15	4.63	2,084.57
40.25	4.66	2,192.24
40.35	4.70	2,303.17
40.45	4.73	2,417.17
40.55	4.76	2,534.24
40.65	4.80	2,654.42
40.75	4.83	2,778.01
40.85	4.87	2,904.91
40.95	4.90	3,034.96
41.05	4.93	3,168.21
41.15	4.97	3,304.65
41.25	5.00	3,444.69
41.35	5.04	3,588.08
41.45	5.07	3,734.74
41.55	5.10	3,884.69
41.65	5.14	4,037.96
41.75	5.17	4,194.99
41.85	5.21	4,355.44
41.95	5.24	4,519.27
42.05	5.27	4,686.50
42.15	**5.31**	**4,857.15**

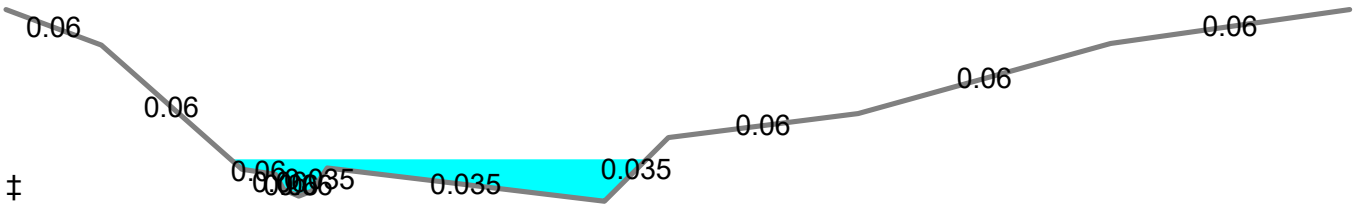
Summary for Reach 3R: River Sta 3099.81 CS-11

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 138.97 cfs @ 12.29 hrs, Volume= 16.861 af
Outflow = 138.73 cfs @ 12.33 hrs, Volume= 16.861 af, Atten= 0%, Lag= 2.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.42 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 26.0 min

Peak Storage= 22,578 cf @ 12.33 hrs
Average Depth at Peak Storage= 1.55'
Bank-Full Depth= 7.10' Flow Area= 776.4 sf, Capacity= 4,820.08 cfs

Custom cross-section, Length= 393.8' Slope= 0.0044 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 33.85', Outlet Invert= 32.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
116.06	39.20	0.00		
131.17	37.89	1.31	0.060	
153.42	33.28	5.92	0.060	
158.73	33.10	6.10	0.060	
160.06	32.53	6.67	0.060	
162.43	32.29	6.91	0.060	
164.53	32.48	6.72	0.060	
166.96	33.33	5.87	0.035	
210.85	32.10	7.10	0.035	
221.00	34.46	4.74	0.035	
251.08	35.35	3.85	0.060	
291.07	37.94	1.26	0.060	
328.96	39.20	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.19	0.7	7.6	284	0.42
0.38	3.3	19.2	1,286	2.82
0.43	4.3	21.9	1,691	4.00
1.00	24.1	47.9	9,474	40.19
1.18	33.8	61.0	13,306	61.32
1.23	36.9	63.4	14,522	68.88
2.36	113.9	74.0	44,835	402.36
3.25	194.4	108.4	76,540	850.90
5.79	533.2	160.3	209,963	3,125.68
5.84	541.2	161.6	213,110	3,183.12
7.10	776.4	214.1	305,742	4,820.08

Stage-Discharge for Reach 3R: River Sta 3099.81 CS-11

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
33.85	0.00	0.00
33.95	0.38	0.10
34.05	0.61	0.49
34.15	0.76	1.50
34.25	0.89	3.28
34.35	1.03	6.09
34.45	1.16	10.15
34.55	1.30	15.39
34.65	1.43	22.13
34.75	1.55	30.38
34.85	1.67	40.19
34.95	1.75	51.13
35.05	1.84	64.30
35.15	2.00	82.64
35.25	2.17	103.88
35.35	2.34	127.06
35.45	2.50	152.27
35.55	2.66	179.21
35.65	2.80	208.15
35.75	2.94	238.80
35.85	3.08	271.23
35.95	3.21	305.48
36.05	3.34	341.31
36.15	3.46	379.06
36.25	3.59	419.11
36.35	3.71	462.19
36.45	3.83	507.22
36.55	3.93	554.11
36.65	4.03	603.30
36.75	4.11	654.43
36.85	4.20	707.82
36.95	4.27	763.41
37.05	4.34	821.15
37.15	4.41	881.65
37.25	4.48	944.49
37.35	4.55	1,009.73
37.45	4.62	1,077.16
37.55	4.68	1,146.78
37.65	4.75	1,218.79
37.75	4.81	1,292.86
37.85	4.88	1,369.37
37.95	4.94	1,448.03
38.05	5.00	1,528.94
38.15	5.06	1,612.21
38.25	5.12	1,697.56
38.35	5.18	1,785.44
38.45	5.24	1,875.45
38.55	5.29	1,967.78
38.65	5.35	2,062.48
38.75	5.40	2,159.30
38.85	5.46	2,258.72
38.95	5.51	2,360.27
39.05	5.56	2,464.25
39.15	5.62	2,570.59
39.25	5.67	2,679.15
39.35	5.72	2,790.31
39.45	5.77	2,903.65
39.55	5.82	3,019.52
39.65	5.87	3,137.15
39.75	5.90	3,249.89
39.85	5.93	3,363.65
39.95	5.96	3,480.22
40.05	5.98	3,600.11
40.15	6.01	3,722.98
40.25	6.04	3,848.92
40.35	6.06	3,978.17
40.45	6.09	4,110.30
40.55	6.11	4,245.95
40.65	6.14	4,384.60
40.75	6.16	4,526.51
40.85	6.18	4,671.79
40.95	**6.21**	**4,820.08**

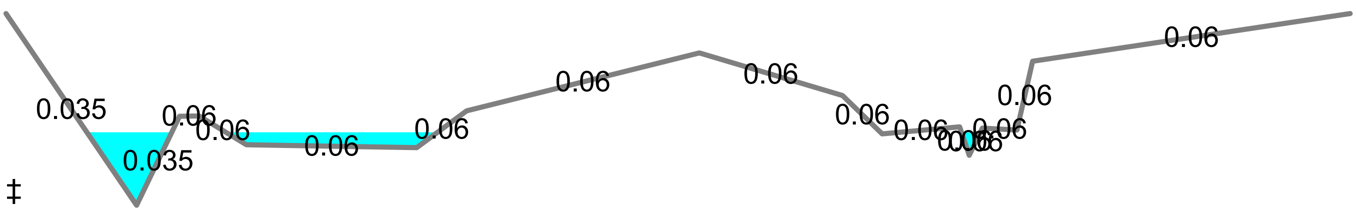
Summary for Reach 4R: River Sta 2839.49 CS-10

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 138.73 cfs @ 12.33 hrs, Volume= 16.861 af
Outflow = 138.54 cfs @ 12.36 hrs, Volume= 16.861 af, Atten= 0%, Lag= 1.7 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.18 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 7.7 min

Peak Storage= 11,215 cf @ 12.36 hrs
Average Depth at Peak Storage= 1.93'
Bank-Full Depth= 5.07' Flow Area= 775.1 sf, Capacity= 4,436.42 cfs

Custom cross-section, Length= 260.3' Slope= 0.0146 '/' (111 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 32.10', Outlet Invert= 28.31'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
132.58	33.38	0.00		
167.94	28.31	5.07	0.035	
179.60	30.66	2.72	0.035	
184.90	30.67	2.71	0.060	
197.68	29.91	3.47	0.060	
243.83	29.83	3.55	0.060	
257.41	30.81	2.57	0.060	
320.42	32.34	1.04	0.060	
359.18	31.21	2.17	0.060	
369.95	30.20	3.18	0.060	
390.93	30.38	3.00	0.060	
393.55	29.63	3.75	0.060	
397.11	30.35	3.03	0.060	
406.51	30.30	3.08	0.060	
410.77	32.12	1.26	0.060	
496.78	33.38	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.32	10.4	16.0	2,707	40.01
1.52	14.0	20.1	3,633	58.36
1.60	17.5	69.1	4,555	67.65
1.89	39.6	84.0	10,301	128.56
1.99	48.8	101.9	12,707	155.02
2.04	54.3	120.4	14,146	167.98
2.07	58.0	125.6	15,102	178.39
2.35	95.2	141.3	24,784	311.34
2.36	96.6	147.2	25,157	313.38
2.50	117.5	151.9	30,580	403.75
2.90	182.8	176.5	47,593	714.68
3.81	377.8	254.0	98,334	1,779.88
4.03	437.0	287.2	113,760	2,088.69
5.07	775.1	365.5	201,762	4,436.42

Stage-Discharge for Reach 4R: River Sta 2839.49 CS-10

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
32.10	0.00	0.00
32.14	0.35	0.01
32.18	0.59	0.03
32.22	0.77	0.07
32.26	0.94	0.15
32.30	1.09	0.26
32.34	1.23	0.43
32.38	1.37	0.65
32.42	1.49	0.93
32.46	1.62	1.26
32.50	1.74	1.66
32.54	1.85	2.15
32.58	1.96	2.71
32.62	2.07	3.35
32.66	2.17	4.07
32.70	2.27	4.90
32.74	2.37	5.82
32.78	2.47	6.84
32.82	2.57	7.96
32.86	2.66	9.18
32.90	2.75	10.54
32.94	2.85	12.01
32.98	2.94	13.59
33.02	3.02	15.29
33.06	3.11	17.12
33.10	3.20	19.10
33.14	3.28	21.21
33.18	3.37	23.45
33.22	3.45	25.82
33.26	3.53	28.36
33.30	3.61	31.05
33.34	3.69	33.89
33.38	3.77	36.88
33.42	3.85	40.01
33.46	3.92	43.34
33.50	3.99	46.84
33.54	4.06	50.51
33.58	4.12	54.35
33.62	4.18	58.36
33.66	4.08	62.75
33.70	3.87	67.65
33.74	3.65	73.91
33.78	3.49	80.75
33.82	3.38	88.37
33.86	3.32	96.81
33.90	3.28	105.88
33.94	3.26	115.58
33.98	3.25	125.87
34.02	3.22	135.99
34.06	3.20	146.67
34.10	3.16	157.55
34.14	3.09	167.98
34.18	3.08	182.37
34.22	3.09	198.89
34.26	3.11	216.33
34.30	3.14	234.63
34.34	3.17	253.80
34.38	3.20	273.87
34.42	3.24	295.06
34.46	3.24	313.38
34.50	3.30	338.18
34.54	3.35	363.68
34.58	3.41	390.19
34.62	3.46	417.14
34.66	3.51	444.56
34.70	3.56	472.78
34.74	3.60	501.86
34.78	3.65	532.03
34.82	3.70	563.19
34.86	3.75	595.23
34.90	3.79	628.15
34.94	3.84	661.97
34.98	3.89	696.98
35.02	3.93	732.05
35.06	3.96	767.37
35.10	4.00	803.58
35.14	4.04	840.83
35.18	4.07	879.35
35.22	4.11	918.87
35.26	4.15	959.40
35.30	4.18	1,000.94
35.34	4.22	1,043.68
35.38	4.25	1,087.67
35.42	4.29	1,132.71
35.46	4.32	1,178.81
35.50	4.36	1,225.97
35.54	4.39	1,274.50
35.58	4.43	1,324.24
35.62	4.46	1,375.08
35.66	4.50	1,427.04
35.70	4.53	1,480.11
35.74	4.57	1,534.72
35.78	4.60	1,590.49
35.82	4.64	1,647.42
35.86	4.67	1,705.51
35.90	4.70	1,764.87
35.94	4.72	1,819.18
35.98	4.73	1,872.89
36.02	4.74	1,928.13
36.06	4.76	1,984.96
36.10	4.77	2,043.66
36.14	4.79	2,106.67
36.18	4.83	2,179.40
36.22	4.87	2,253.25
36.26	4.90	2,328.40
36.30	4.94	2,405.20
36.34	4.98	2,483.44
36.38	5.02	2,562.99
36.42	5.05	2,643.88
36.46	5.09	2,726.10
36.50	5.13	2,810.14
36.54	5.16	2,895.53
36.58	5.20	2,982.28
36.62	5.24	3,070.38
36.66	5.27	3,160.00
36.70	5.31	3,251.36
36.74	5.35	3,344.10
36.78	5.38	3,438.24
36.82	5.42	3,533.77
36.86	5.45	3,630.99
36.90	5.49	3,729.86
36.94	5.52	3,830.15
36.98	5.56	3,931.87
37.02	5.59	4,035.02
37.06	5.63	4,140.05
37.10	5.66	4,246.63
37.14	5.70	4,354.66
37.18	**5.73**	**4,463.67**

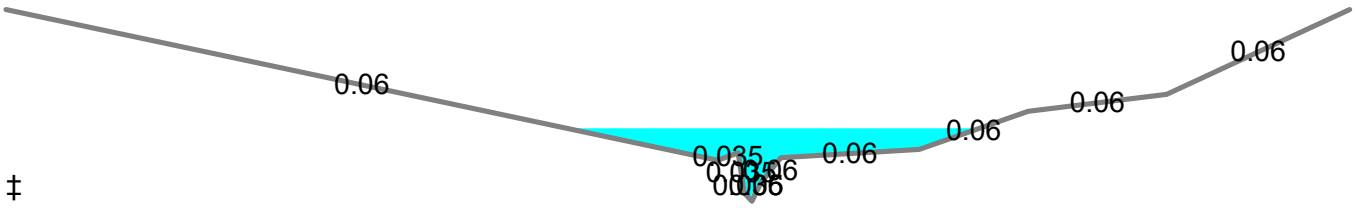
Summary for Reach 5R: River Sta 2577.80 CS-9

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 138.54 cfs @ 12.36 hrs, Volume= 16.861 af
Outflow = 137.90 cfs @ 12.41 hrs, Volume= 16.861 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.58 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 15.3 min

Peak Storage= 24,941 cf @ 12.41 hrs
Average Depth at Peak Storage= 2.32'
Bank-Full Depth= 6.08' Flow Area= 1,195.3 sf, Capacity= 3,809.00 cfs

Custom cross-section, Length= 261.7' Slope= 0.0037 '/' (107 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 28.31', Outlet Invert= 27.33'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	32.11	0.00		
227.84	27.33	4.78	0.060	
234.43	27.56	4.55	0.035	
236.39	26.29	5.82	0.035	
238.78	26.03	6.08	0.035	
241.58	26.60	5.51	0.060	
248.02	27.41	4.70	0.060	
292.35	27.67	4.44	0.060	
327.25	28.88	3.23	0.060	
371.61	29.42	2.69	0.060	
430.19	32.11	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.26	0.5	3.7	125	0.27
0.57	1.9	5.8	503	2.05
1.30	8.6	13.0	2,248	13.57
1.38	9.9	19.9	2,584	13.66
1.53	15.6	57.2	4,079	14.38
1.64	23.1	81.2	6,060	21.63
2.85	176.8	173.8	46,274	311.44
3.39	289.3	243.9	75,716	550.66
6.08	1,195.3	430.8	312,808	3,809.00

Stage-Discharge for Reach 5R: River Sta 2577.80 CS-9

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
28.31	0.00	0.00
28.35	0.14	0.00
28.39	0.25	0.02
28.43	0.34	0.03
28.47	0.41	0.08
28.51	0.47	0.14
28.55	0.54	0.22
28.59	0.61	0.34
28.63	0.69	0.50
28.67	0.77	0.67
28.71	0.83	0.89
28.75	0.89	1.12
28.79	0.95	1.37
28.83	1.00	1.66
28.87	1.05	1.97
28.91	1.09	2.30
28.95	1.13	2.66
28.99	1.16	3.04
29.03	1.20	3.46
29.07	1.23	3.91
29.11	1.26	4.39
29.15	1.29	4.91
29.19	1.32	5.46
29.23	1.35	6.05
29.27	1.37	6.67
29.31	1.40	7.34
29.35	1.42	8.03
29.39	1.45	8.78
29.43	1.47	9.56
29.47	1.50	10.37
29.51	1.52	11.24
29.55	1.55	12.15
29.59	1.57	13.08
29.63	1.52	13.47
29.67	1.42	13.53
29.71	1.25	12.87
29.75	1.10	12.69
29.79	1.00	13.09
29.83	0.93	14.03
29.87	0.92	16.12
29.91	0.93	18.72
29.95	0.93	21.63
29.99	0.97	25.65
30.03	1.00	29.95
30.07	1.03	34.56
30.11	1.07	39.66
30.15	1.10	45.03
30.19	1.13	50.72
30.23	1.16	56.90
30.27	1.20	63.35
30.31	1.23	70.15
30.35	1.26	77.44
30.39	1.29	85.00
30.43	1.31	92.96
30.47	1.34	101.39
30.51	1.37	110.11
30.55	1.40	119.26
30.59	1.42	128.88
30.63	1.45	138.79
30.67	1.47	149.18
30.71	1.50	160.02
30.75	1.52	171.17
30.79	1.55	182.83
30.83	1.57	194.95
30.87	1.60	207.37
30.91	1.62	220.36
30.95	1.64	233.78
30.99	1.67	247.53
31.03	1.69	261.89
31.07	1.71	276.67
31.11	1.73	291.78
31.15	1.76	307.50
31.19	1.77	321.84
31.23	1.77	335.88
31.27	1.78	350.82
31.31	1.79	366.27
31.35	1.80	382.17
31.39	1.81	399.04
31.43	1.82	416.39
31.47	1.83	434.24
31.51	1.85	453.05
31.55	1.86	472.35
31.59	1.87	492.22
31.63	1.88	513.03
31.67	1.89	534.30
31.71	1.91	557.07
31.75	1.93	583.22
31.79	1.96	609.78
31.83	1.98	636.95
31.87	2.00	664.92
31.91	2.03	693.34
31.95	2.05	722.42
31.99	2.07	752.27
32.03	2.10	782.58
32.07	2.12	813.59
32.11	2.14	845.34
32.15	2.16	877.57
32.19	2.18	910.53
32.23	2.21	944.22
32.27	2.23	978.37
32.31	2.25	1,013.33
32.35	2.27	1,048.96
32.39	2.29	1,085.08
32.43	2.31	1,122.05
32.47	2.33	1,159.67
32.51	2.35	1,197.77
32.55	2.37	1,236.78
32.59	2.39	1,276.40
32.63	2.41	1,316.52
32.67	2.43	1,357.60
32.71	2.45	1,399.26
32.75	2.47	1,441.42
32.79	2.49	1,484.59
32.83	2.51	1,528.31
32.87	2.53	1,572.54
32.91	2.55	1,617.83
32.95	2.57	1,663.64
32.99	2.59	1,710.01
33.03	2.61	1,757.42
33.07	2.62	1,805.35
33.11	2.64	1,853.89
33.15	2.66	1,903.43
33.19	2.68	1,953.51
33.23	2.70	2,004.24
33.27	2.72	2,055.96
33.31	2.73	2,108.21
33.35	2.75	2,161.17
33.39	2.77	2,215.08
33.43	2.79	2,269.53
33.47	2.80	2,324.75
33.51	2.82	2,380.88
33.55	2.84	2,437.57
33.59	2.86	2,495.07
33.63	2.87	2,553.46
33.67	2.89	2,612.40
33.71	2.91	2,672.22
33.75	2.93	2,732.89
33.79	2.94	2,794.12
33.83	2.96	2,856.29
33.87	2.98	2,919.26
33.91	2.99	2,982.81
33.95	3.01	3,047.35
33.99	3.03	3,112.66
34.03	3.04	3,178.55
34.07	3.06	3,245.50
34.11	3.07	3,313.18
34.15	3.09	3,381.44
34.19	3.11	3,450.83
34.23	3.12	3,520.90
34.27	3.14	3,591.56
34.31	3.15	3,663.41
34.35	3.17	3,735.91
34.39	**3.19**	**3,809.00**

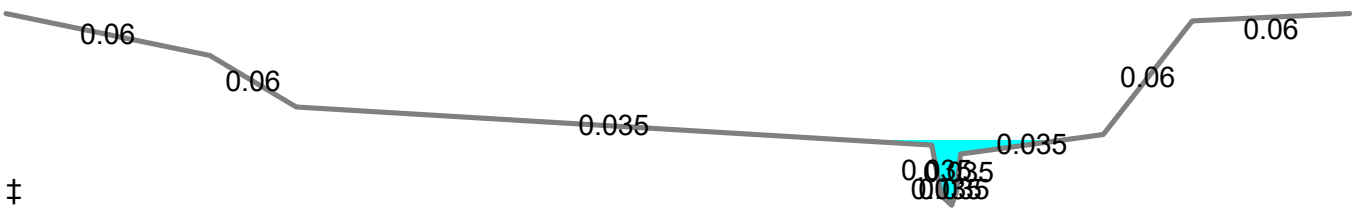
Summary for Reach 6R: River Sta 1972.78 CS-8

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 137.90 cfs @ 12.41 hrs, Volume= 16.861 af
Outflow = 136.67 cfs @ 12.47 hrs, Volume= 16.861 af, Atten= 1%, Lag= 3.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.44 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 12.4 min

Peak Storage= 19,348 cf @ 12.47 hrs
Average Depth at Peak Storage= 4.06'
Bank-Full Depth= 11.89' Flow Area= 1,546.5 sf, Capacity= 30,613.15 cfs

Custom cross-section, Length= 605.0' Slope= 0.0200 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 27.33', Outlet Invert= 15.26'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	27.15	0.00		
45.60	24.54	2.61	0.060	
64.91	21.36	5.79	0.060	
206.97	18.99	8.16	0.035	
209.13	15.86	11.29	0.035	
211.40	15.26	11.89	0.035	
212.59	16.16	10.99	0.035	
213.40	18.44	8.71	0.035	
245.31	19.64	7.51	0.035	
265.19	26.69	0.46	0.060	
300.42	27.15	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.60	0.9	3.3	556	2.33
0.90	1.9	4.2	1,167	6.88
3.18	13.0	9.4	7,869	96.89
3.73	20.5	24.7	12,379	108.23
4.38	52.4	81.0	31,718	235.32
6.10	278.2	189.2	168,324	2,155.48
9.28	912.3	218.3	551,928	14,423.80
11.43	1,418.3	262.4	858,047	27,530.87
11.89	1,546.5	305.6	935,633	30,613.15

Stage-Discharge for Reach 6R: River Sta 1972.78 CS-8

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
27.33	0.00	0.00
27.48	0.99	0.07
27.63	1.59	0.40
27.78	2.09	1.11
27.93	2.54	2.33
28.08	3.09	4.38
28.23	3.57	6.88
28.38	4.01	10.02
28.53	4.40	13.56
28.68	4.75	17.53
28.83	5.06	21.87
28.98	5.34	26.59
29.13	5.61	31.70
29.28	5.85	37.21
29.43	6.08	43.09
29.58	6.30	49.33
29.73	6.50	55.99
29.88	6.70	63.03
30.03	6.89	70.46
30.18	7.07	78.26
30.33	7.25	86.50
30.48	7.42	95.13
30.63	6.42	89.43
30.78	5.69	89.03
30.93	5.40	97.10
31.08	5.16	107.84
31.23	4.49	113.70
31.38	4.29	135.73
31.53	4.32	173.24
31.68	4.46	224.02
31.83	4.75	295.69
31.98	5.06	383.14
32.13	5.37	486.62
32.28	5.66	605.65
32.43	5.96	741.11
32.58	6.24	895.68
32.73	6.52	1,069.80
32.88	6.79	1,263.05
33.03	7.06	1,476.22
33.18	7.32	1,712.89
33.33	7.58	1,972.05
33.48	7.91	2,276.17
33.63	8.40	2,650.52
33.78	8.87	3,049.80
33.93	9.33	3,470.77
34.08	9.77	3,912.83
34.23	10.19	4,376.07
34.38	10.61	4,862.76
34.53	11.01	5,369.48
34.68	11.41	5,895.99
34.83	11.79	6,443.03
34.98	12.17	7,011.66
35.13	12.54	7,599.33
35.28	12.90	8,205.86
35.43	13.25	8,832.58
35.58	13.60	9,479.45
35.73	13.94	10,144.63
35.88	14.27	10,827.99
36.03	14.60	11,531.39
36.18	14.92	12,253.75
36.33	15.23	12,993.86
36.48	15.55	13,751.63
36.63	15.85	14,528.19
36.78	16.14	15,316.93
36.93	16.42	16,124.31
37.08	16.70	16,950.39
37.23	16.97	17,798.16
37.38	17.24	18,664.38
37.53	17.50	19,549.01
37.68	17.75	20,452.59
37.83	17.99	21,377.11
37.98	18.24	22,320.01
38.13	18.47	23,281.30
38.28	18.70	24,262.13
38.43	18.93	25,263.42
38.58	19.15	26,283.16
38.73	19.37	27,321.40
38.88	19.50	28,270.41
39.03	19.63	29,273.22
39.18	**19.76**	**30,327.52**

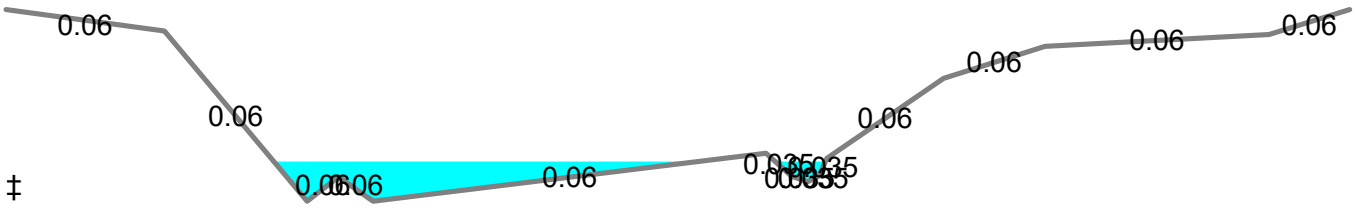
Summary for Reach 7R: River Sta 1427.28 CS-7

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 136.67 cfs @ 12.47 hrs, Volume= 16.861 af
Outflow = 129.93 cfs @ 12.56 hrs, Volume= 16.861 af, Atten= 5%, Lag= 5.3 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.29 fps, Min. Travel Time= 7.1 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 61.3 min

Peak Storage= 55,148 cf @ 12.56 hrs
Average Depth at Peak Storage= 2.12'
Bank-Full Depth= 10.23' Flow Area= 1,372.9 sf, Capacity= 5,579.78 cfs

Custom cross-section, Length= 545.5' Slope= 0.0023 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 15.26', Outlet Invert= 14.03'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
110.04	23.22	0.00		
141.25	22.07	1.15	0.060	
169.44	12.99	10.23	0.060	
175.62	14.28	8.94	0.060	
182.43	12.99	10.23	0.060	
259.88	15.56	7.66	0.060	
264.98	14.32	8.90	0.035	
268.12	14.03	9.19	0.035	
270.40	14.34	8.88	0.035	
271.88	15.28	7.94	0.035	
294.91	19.55	3.67	0.060	
314.93	21.26	1.96	0.060	
359.13	21.88	1.34	0.060	
375.00	23.22	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.04	23.4	45.4	12,777	17.71
1.29	36.6	60.9	19,968	31.74
1.33	39.1	63.0	21,309	34.70
1.35	40.3	63.9	21,995	36.25
2.29	117.1	101.0	63,870	159.21
2.57	146.7	113.1	80,052	217.42
6.56	661.0	148.0	360,571	2,315.97
8.27	932.0	173.7	508,421	3,789.48
8.89	1,052.4	219.9	574,111	4,358.78
9.08	1,094.0	222.8	596,779	4,578.02
10.23	1,372.9	267.7	748,934	5,579.78

Stage-Discharge for Reach 7R: River Sta 1427.28 CS-7

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
15.26	0.00	0.00
15.41	0.21	0.13
15.56	0.33	0.65
15.71	0.43	1.95
15.86	0.52	4.12
16.01	0.61	7.48
16.16	0.69	12.10
16.31	0.76	18.20
16.46	0.83	26.12
16.61	0.90	36.25
16.76	0.98	49.35
16.91	1.06	64.65
17.06	1.13	82.55
17.21	1.20	102.86
17.36	1.27	126.08
17.51	1.34	151.82
17.66	1.41	180.98
17.81	1.47	212.95
17.96	1.57	254.15
18.11	1.68	299.16
18.26	1.77	347.41
18.41	1.87	398.58
18.56	1.96	452.78
18.71	2.05	509.89
18.86	2.14	569.86
19.01	2.22	632.77
19.16	2.30	698.39
19.31	2.38	766.99
19.46	2.46	838.15
19.61	2.54	912.33
19.76	2.61	988.98
19.91	2.68	1,068.67
20.06	2.76	1,150.81
20.21	2.83	1,235.87
20.36	2.89	1,323.46
20.51	2.96	1,413.86
20.66	3.03	1,506.85
20.81	3.09	1,602.56
20.96	3.16	1,700.93
21.11	3.22	1,801.91
21.26	3.28	1,905.64
21.41	3.34	2,011.89
21.56	3.40	2,120.95
21.71	3.46	2,232.46
21.86	3.52	2,346.17
22.01	3.57	2,460.68
22.16	3.62	2,578.42
22.31	3.68	2,698.84
22.46	3.73	2,822.43
22.61	3.78	2,948.80
22.76	3.83	3,078.26
22.91	3.87	3,210.61
23.06	3.92	3,345.98
23.21	3.97	3,484.36
23.36	4.01	3,625.69
23.51	4.06	3,770.09
23.66	4.08	3,895.30
23.81	4.10	4,028.07
23.96	4.12	4,169.05
24.11	4.14	4,318.21
24.26	**4.17**	4,484.95
24.41	**4.17**	4,627.67
24.56	4.14	4,738.20
24.71	4.12	4,856.37
24.86	4.10	4,981.11
25.01	4.09	5,113.02
25.16	4.08	5,251.55
25.31	4.07	5,396.87
25.46	4.07	**5,548.90**

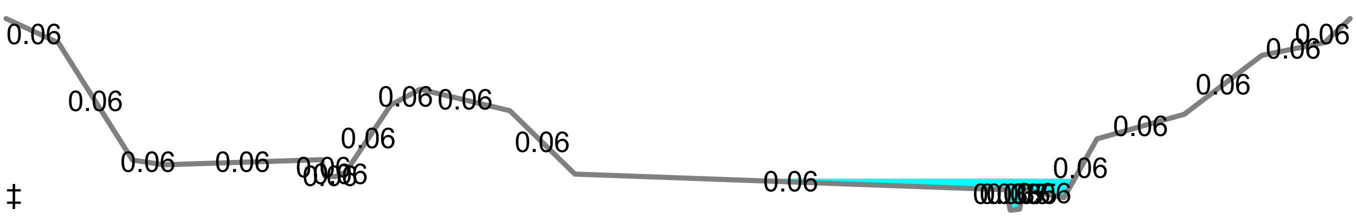
Summary for Reach 8R: River Sta 1096.55 CS-5

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 129.93 cfs @ 12.56 hrs, Volume= 16.861 af
Outflow = 128.13 cfs @ 12.60 hrs, Volume= 16.861 af, Atten= 1%, Lag= 2.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.72 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.49 fps, Avg. Travel Time= 11.4 min

Peak Storage= 21,704 cf @ 12.60 hrs
Average Depth at Peak Storage= 1.93'
Bank-Full Depth= 11.67' Flow Area= 3,698.5 sf, Capacity= 33,066.93 cfs

Custom cross-section, Length= 330.7' Slope= 0.0086 '/' (119 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 14.03', Outlet Invert= 11.19'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.86	0.00		
19.48	21.37	1.49	0.060	
46.99	14.25	8.61	0.060	
58.64	13.96	8.90	0.060	
117.45	14.26	8.60	0.060	
118.64	13.28	9.58	0.060	
122.39	13.23	9.63	0.060	
126.30	13.51	9.35	0.060	
143.11	17.60	5.26	0.060	
154.13	18.56	4.30	0.060	
187.43	17.24	5.62	0.060	
211.60	13.40	9.46	0.060	
372.09	12.43	10.43	0.060	
373.56	11.19	11.67	0.035	
376.99	11.25	11.61	0.035	
378.50	12.44	10.42	0.035	
393.57	11.95	10.91	0.060	
405.78	15.54	7.32	0.060	
438.28	17.03	5.83	0.060	
467.19	20.61	2.25	0.060	
490.49	21.39	1.47	0.060	
500.00	22.86	0.00	0.060	

09035 Study Point 1 riser *Type II 24-hr 100yr Talbot Rainfall=7.60"*
Prepared by DP Solutions Printed 8/29/2023
HydroCAD® 10.00-26 s/n 07537 © 2020 HydroCAD Software Solutions LLC

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.06	0.1	3.5	35	0.04
0.76	3.2	5.7	1,044	8.34
1.24	9.9	23.7	3,267	23.95
1.25	10.1	25.7	3,346	24.49
2.04	82.4	159.3	27,250	164.02
2.09	90.6	172.2	29,973	180.41
2.21	112.5	194.3	37,200	228.97
2.32	133.9	197.1	44,277	288.62
2.77	223.6	204.2	73,934	604.31
3.06	292.9	277.2	96,864	779.93
3.07	295.7	279.4	97,778	787.98
4.35	665.6	302.6	220,102	2,700.59
5.84	1,153.0	356.9	381,311	6,021.98
6.05	1,227.9	361.7	406,062	6,618.72
6.41	1,359.7	376.7	449,655	7,615.56
7.37	1,740.8	423.6	575,675	10,572.29
9.42	2,627.5	448.5	868,906	20,147.10
10.18	2,975.2	474.2	983,914	24,102.93
10.20	2,984.7	475.1	987,028	24,206.23
11.67	3,698.5	504.0	1,223,110	33,066.93

Stage-Discharge for Reach 8R: River Sta 1096.55 CS-5

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
14.03	0.00	0.00
14.18	0.90	0.44
14.33	1.50	1.57
14.48	1.94	3.25
14.63	2.31	5.45
14.78	2.62	8.15
14.93	2.69	11.54
15.08	2.57	15.95
15.23	2.45	22.08
15.38	2.33	31.75
15.53	2.13	46.10
15.68	2.00	67.24
15.83	1.96	97.00
15.98	1.97	136.02
16.13	1.99	184.14
16.28	2.08	250.51
16.43	2.25	337.75
16.58	2.43	437.13
16.73	2.62	548.60
16.88	2.68	645.97
17.03	2.66	738.12
17.18	2.76	877.36
17.33	2.93	1,057.31
17.48	3.11	1,251.23
17.63	3.27	1,458.68
17.78	3.44	1,680.45
17.93	3.60	1,916.37
18.08	3.76	2,164.94
18.23	3.91	2,425.95
18.38	4.06	2,700.59
18.53	4.18	2,970.28
18.68	4.30	3,253.91
18.83	4.42	3,553.13
18.98	4.54	3,867.71
19.13	4.66	4,196.01
19.28	4.77	4,537.86
19.43	4.89	4,895.47
19.58	5.01	5,266.50
19.73	5.12	5,650.82
19.88	5.23	6,050.11
20.03	5.35	6,475.02
20.18	5.45	6,888.75
20.33	5.54	7,302.85
20.48	5.62	7,727.87
20.63	5.70	8,155.01
20.78	5.77	8,595.64
20.93	5.84	9,050.99
21.08	5.92	9,521.54
21.23	5.99	10,006.04
21.38	6.06	10,504.65
21.53	6.18	11,101.07
21.68	6.31	11,724.05
21.83	6.43	12,360.84
21.98	6.55	13,012.42
22.13	6.67	13,679.04
22.28	6.79	14,359.23
22.43	6.90	15,052.92
22.58	7.02	15,762.31
22.73	7.13	16,485.24
22.88	7.25	17,221.48
23.03	7.36	17,972.00
23.18	7.47	18,737.10
23.33	7.58	19,515.36
23.48	7.68	20,294.50
23.63	7.77	21,043.43
23.78	7.86	21,809.79
23.93	7.94	22,593.17
24.08	8.03	23,394.60
24.23	8.11	24,206.23
24.38	8.20	25,050.11
24.53	8.28	25,906.18
24.68	8.37	26,777.64
24.83	8.46	27,662.53
24.98	8.54	28,560.64
25.13	8.63	29,472.94
25.28	8.71	30,399.91
25.43	8.79	31,340.13
25.58	**8.88**	**32,293.59**

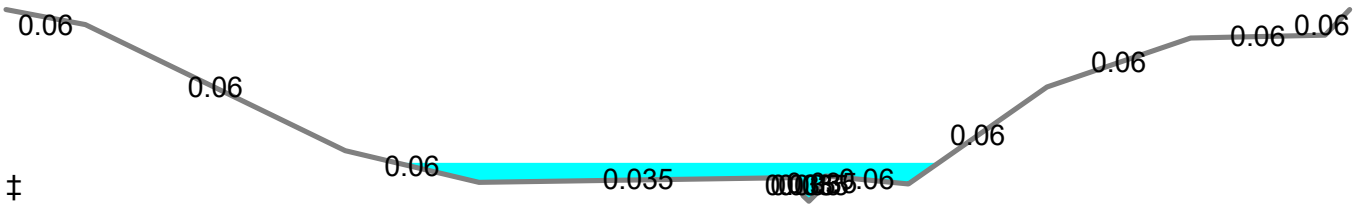
Summary for Reach 9R: River Sta 820.28 CS-4

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 4.21" for 100yr Talbot event
Inflow = 554.99 cfs @ 12.38 hrs, Volume= 95.079 af
Outflow = 554.88 cfs @ 12.39 hrs, Volume= 95.079 af, Atten= 0%, Lag= 0.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.85 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 12.3 min

Peak Storage= 53,759 cf @ 12.39 hrs
Average Depth at Peak Storage= 2.59'
Bank-Full Depth= 12.88' Flow Area= 3,176.9 sf, Capacity= 29,920.03 cfs

Custom cross-section, Length= 276.3' Slope= 0.0048 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 11.19', Outlet Invert= 9.85'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.73	0.00		
26.01	21.72	1.01	0.060	
111.05	13.24	9.49	0.060	
154.92	11.12	11.61	0.060	
259.10	11.45	11.28	0.035	
261.07	10.22	12.51	0.035	
262.92	9.85	12.88	0.035	
266.04	10.49	12.24	0.035	
268.39	11.54	11.19	0.035	
295.48	11.01	11.72	0.060	
340.86	17.53	5.20	0.060	
387.97	20.82	1.91	0.060	
431.96	21.01	1.72	0.060	
440.00	22.73	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.37	0.7	3.7	187	0.64
0.64	1.9	5.6	525	2.74
1.16	5.2	7.8	1,445	11.80
1.27	6.4	14.7	1,773	14.61
1.60	32.8	146.4	9,060	32.90
1.69	46.2	153.7	12,773	56.79
3.39	346.2	200.8	95,651	1,331.30
7.68	1,360.3	274.2	375,852	10,019.94
10.97	2,389.7	354.6	660,271	21,401.97
11.16	2,461.1	400.5	680,004	21,624.03
11.87	2,748.0	411.1	759,268	25,001.84
12.88	3,176.9	441.9	877,767	29,920.03

Stage-Discharge for Reach 9R: River Sta 820.28 CS-4

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
11.19	0.00	0.00
11.34	0.51	0.07
11.49	0.82	0.39
11.64	1.11	1.14
11.79	1.38	2.37
11.94	1.64	4.17
12.09	1.89	6.50
12.24	2.11	9.38
12.39	2.26	12.82
12.54	1.27	11.15
12.69	0.93	19.65
12.84	1.13	45.91
12.99	1.49	94.10
13.14	1.80	157.01
13.29	2.08	232.46
13.44	2.34	319.55
13.59	2.58	417.81
13.74	2.80	526.86
13.89	3.01	646.43
14.04	3.21	777.27
14.19	3.39	918.50
14.34	3.57	1,069.68
14.49	3.75	1,230.72
14.64	3.91	1,402.07
14.79	4.08	1,584.69
14.94	4.24	1,777.28
15.09	4.39	1,979.49
15.24	4.54	2,190.87
15.39	4.69	2,411.33
15.54	4.84	2,640.80
15.69	4.98	2,879.21
15.84	5.11	3,127.17
15.99	5.25	3,384.36
16.14	5.38	3,650.32
16.29	5.50	3,925.01
16.44	5.63	4,208.38
16.59	5.75	4,500.42
16.74	5.87	4,801.68
16.89	5.99	5,112.02
17.04	6.10	5,430.95
17.19	6.22	5,758.45
17.34	6.33	6,094.49
17.49	6.44	6,439.08
17.64	6.55	6,792.70
17.79	6.65	7,155.39
17.94	6.76	7,526.60
18.09	6.86	7,906.32
18.24	6.96	8,294.54
18.39	7.06	8,691.28
18.54	7.16	9,096.93
18.69	7.25	9,511.73
18.84	7.35	9,934.57
18.99	7.43	10,355.43
19.14	7.51	10,781.99
19.29	7.59	11,217.75
19.44	7.67	11,663.08
19.59	7.75	12,118.42
19.74	7.83	12,583.00
19.89	7.91	13,056.86
20.04	7.98	13,540.02
20.19	8.06	14,032.49
20.34	8.13	14,534.60
20.49	8.20	15,046.97
20.64	8.27	15,568.75
20.79	8.35	16,099.97
20.94	8.42	16,640.66
21.09	8.48	17,190.85
21.24	8.55	17,750.78
21.39	8.62	18,321.27
21.54	8.69	18,901.37
21.69	8.75	19,491.11
21.84	8.82	20,090.54
21.99	8.88	20,699.68
22.14	8.95	21,318.63
22.29	8.83	21,525.41
22.44	8.83	22,039.53
22.59	8.89	22,739.40
22.74	8.96	23,450.00
22.89	9.02	24,171.32
23.04	9.09	24,903.34
23.19	9.14	25,601.72
23.34	9.19	26,306.03
23.49	9.23	27,023.42
23.64	9.28	27,753.83
23.79	9.33	28,497.19
23.94	9.38	29,253.46
24.09	**9.42**	**30,022.59**

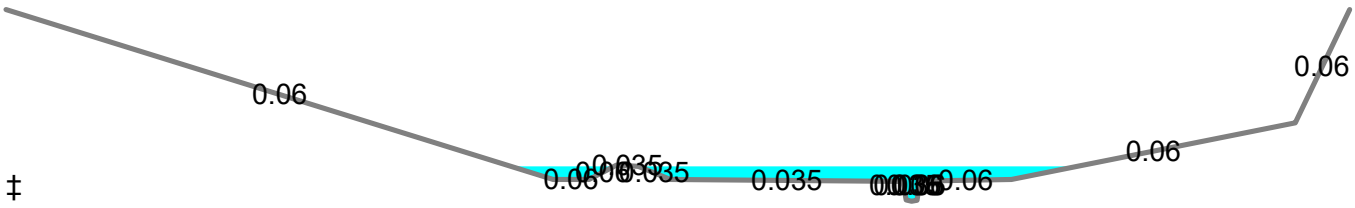
Summary for Reach 10R: River Sta 613.13 CS-3A

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 4.21" for 100yr Talbot event
Inflow = 554.88 cfs @ 12.39 hrs, Volume= 95.079 af
Outflow = 554.82 cfs @ 12.40 hrs, Volume= 95.079 af, Atten= 0%, Lag= 0.8 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.70 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 10.8 min

Peak Storage= 43,277 cf @ 12.40 hrs
Average Depth at Peak Storage= 2.47'
Bank-Full Depth= 13.54' Flow Area= 5,281.7 sf, Capacity= 58,962.20 cfs

Custom cross-section, Length= 207.1' Slope= 0.0067 '/' (108 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 9.85', Outlet Invert= 8.46'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	22.00	0.00		
244.35	10.00	12.00	0.060	
260.39	10.00	12.00	0.060	
272.62	11.02	10.98	0.060	
282.37	10.93	11.07	0.035	
296.68	10.00	12.00	0.035	
400.59	9.87	12.13	0.035	
401.95	8.56	13.44	0.035	`
404.35	8.46	13.54	0.035	
406.75	8.53	13.47	0.060	
408.13	9.89	12.11	0.060	
448.91	10.00	12.00	0.060	
575.67	14.00	8.00	0.060	
600.00	22.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.07	0.1	4.1	30	0.04
0.10	0.3	4.8	57	0.11
1.41	8.4	8.6	1,733	22.56
1.43	8.7	24.6	1,797	14.13
1.54	18.3	169.4	3,799	12.89
2.47	209.2	243.3	43,322	555.67
2.56	231.7	258.9	47,980	625.78
5.54	1,230.6	414.1	254,858	7,194.30
13.54	5,281.7	602.8	1,093,837	58,962.20

Stage-Discharge for Reach 10R: River Sta 613.13 CS-3A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
9.85	0.00	0.00
10.00	0.58	0.33
10.15	1.03	1.37
10.30	1.37	2.92
10.45	1.65	4.92
10.60	1.89	7.32
10.75	2.10	10.13
10.90	2.29	13.32
11.05	2.47	16.90
11.20	2.63	20.86
11.35	0.72	9.71
11.50	1.05	40.65
11.65	1.44	95.50
11.80	1.78	169.07
11.95	2.06	260.19
12.10	2.32	368.27
12.25	2.55	492.99
12.40	2.70	617.99
12.55	2.92	784.01
12.70	3.14	970.09
12.85	3.35	1,174.20
13.00	3.55	1,395.32
13.15	3.74	1,633.29
13.30	3.92	1,888.03
13.45	4.09	2,159.48
13.60	4.25	2,447.60
13.75	4.41	2,752.37
13.90	4.56	3,073.81
14.05	4.71	3,412.19
14.20	4.85	3,768.50
14.35	4.99	4,141.57
14.50	5.12	4,531.46
14.65	5.25	4,938.23
14.80	5.38	5,361.94
14.95	5.50	5,802.67
15.10	5.62	6,260.50
15.25	5.74	6,735.50
15.40	5.86	7,229.54
15.55	5.99	7,768.09
15.70	6.12	8,323.84
15.85	6.25	8,896.64
16.00	6.38	9,486.37
16.15	6.51	10,092.95
16.30	6.63	10,716.30
16.45	6.75	11,356.36
16.60	6.88	12,013.06
16.75	6.99	12,686.34
16.90	7.11	13,377.06
17.05	7.23	14,084.79
17.20	7.34	14,808.95
17.35	7.46	15,549.50
17.50	7.57	16,306.39
17.65	7.68	17,079.61
17.80	7.79	17,869.12
17.95	7.90	18,674.90
18.10	8.01	19,496.92
18.25	8.11	20,335.67
18.40	8.22	21,191.56
18.55	8.32	22,063.64
18.70	8.42	22,951.89
18.85	8.52	23,856.32
19.00	8.62	24,776.91
19.15	8.72	25,713.65
19.30	8.82	26,666.54
19.45	8.92	27,635.58
19.60	9.01	28,620.88
19.75	9.11	29,623.64
19.90	9.20	30,642.56
20.05	9.29	31,677.63
20.20	9.39	32,728.85
20.35	9.48	33,796.24
20.50	9.57	34,879.79
20.65	9.66	35,979.53
20.80	9.75	37,095.45
20.95	9.83	38,227.57
21.10	9.92	39,377.06
21.25	10.01	40,543.05
21.40	10.09	41,725.27
21.55	10.18	42,923.75
21.70	10.26	44,138.48
21.85	10.35	45,369.50
22.00	10.43	46,616.81
22.15	10.51	47,880.43
22.30	10.59	49,160.38
22.45	10.67	50,457.46
22.60	10.75	51,771.58
22.75	10.83	53,102.09
22.90	10.91	54,449.00
23.05	10.99	55,812.35
23.20	11.07	57,192.14
23.35	**11.14**	**58,588.41**

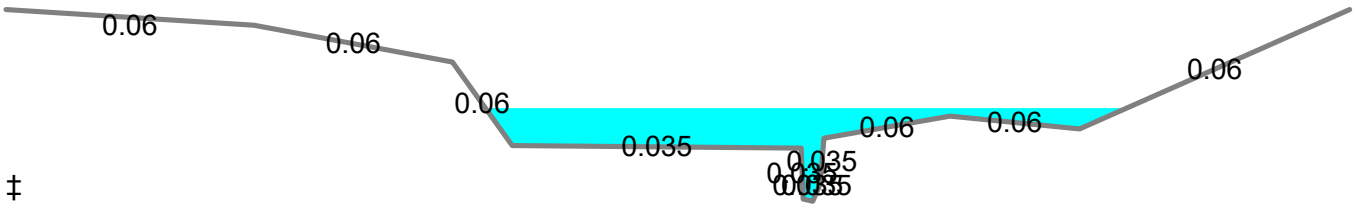
Summary for Reach 11R: River Sta 384.66 CS-3

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 4.21" for 100yr Talbot event
Inflow = 554.82 cfs @ 12.40 hrs, Volume= 95.079 af
Outflow = 554.76 cfs @ 12.42 hrs, Volume= 95.079 af, Atten= 0%, Lag= 0.9 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.47 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 8.7 min

Peak Storage= 38,823 cf @ 12.42 hrs
Average Depth at Peak Storage= 3.12'
Bank-Full Depth= 6.42' Flow Area= 962.3 sf, Capacity= 5,622.13 cfs

Custom cross-section, Length= 228.5' Slope= 0.0061 '/' (109 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 8.46', Outlet Invert= 7.07'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	13.49	0.00		
68.73	12.97	0.52	0.060	
123.80	11.73	1.76	0.060	
140.31	8.94	4.55	0.060	
220.49	8.85	4.64	0.035	
221.04	7.15	6.34	0.035	
223.64	7.07	6.42	0.035	
225.71	7.64	5.85	0.035	
226.76	9.18	4.31	0.035	
261.72	9.92	3.57	0.060	
297.64	9.49	4.00	0.060	
372.53	13.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.9	26	0.04
0.57	2.0	5.3	459	3.49
1.78	8.6	8.0	1,962	29.80
1.87	12.7	88.3	2,911	11.61
2.11	33.6	90.0	7,687	58.00
2.42	63.4	106.5	14,494	156.37
2.85	122.7	173.4	28,031	365.90
4.66	472.9	218.2	108,051	2,298.31
5.90	789.0	296.5	180,280	4,479.71
6.42	962.3	375.0	219,882	5,622.13

Stage-Discharge for Reach 11R: River Sta 384.66 CS-3

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
8.46	0.00	0.00
8.56	0.49	0.09
8.66	0.90	0.44
8.76	1.18	1.01
8.86	1.42	1.77
8.96	1.61	2.72
9.06	1.81	3.90
9.16	2.02	5.34
9.26	2.20	6.94
9.36	2.38	8.69
9.46	2.53	10.59
9.56	2.68	12.62
9.66	2.82	14.79
9.76	2.94	17.09
9.86	3.07	19.50
9.96	3.18	22.05
10.06	3.29	24.71
10.16	3.39	27.50
10.26	1.69	14.99
10.36	1.03	16.01
10.46	1.38	33.37
10.56	1.69	55.63
10.66	1.97	82.47
10.76	2.21	113.53
10.86	2.42	148.89
10.96	2.60	188.24
11.06	2.74	232.64
11.16	2.85	281.76
11.26	2.94	336.70
11.36	3.03	397.98
11.46	3.13	465.99
11.56	3.24	539.25
11.66	3.35	617.58
11.76	3.47	701.11
11.86	3.58	789.23
11.96	3.69	882.58
12.06	3.80	980.30
12.16	3.91	1,083.04
12.26	4.01	1,190.18
12.36	4.12	1,302.02
12.46	4.22	1,418.39
12.56	4.32	1,539.18
12.66	4.42	1,664.66
12.76	4.52	1,794.28
12.86	4.62	1,928.76
12.96	4.71	2,067.31
13.06	4.81	2,210.54
13.16	4.89	2,354.99
13.26	4.96	2,501.04
13.36	5.04	2,653.44
13.46	5.11	2,811.46
13.56	5.18	2,975.31
13.66	5.25	3,144.17
13.76	5.32	3,318.95
13.86	5.38	3,498.67
13.96	5.45	3,684.09
14.06	5.51	3,874.75
14.16	5.57	4,070.92
14.26	5.62	4,272.69
14.36	5.68	4,479.71
14.46	5.72	4,682.11
14.56	5.75	4,892.50
14.66	5.78	5,112.02
14.76	5.81	5,339.03
14.86	**5.84**	**5,574.46**

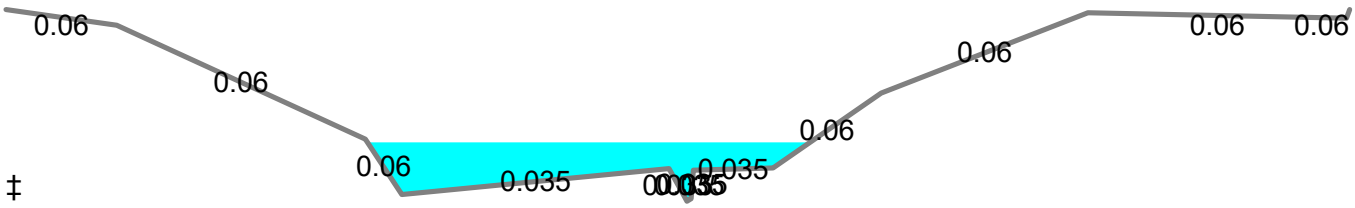
Summary for Reach 12R: River Sta 284.44 CS-2

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 4.21" for 100yr Talbot event
Inflow = 554.76 cfs @ 12.43 hrs, Volume= 95.076 af
Outflow = 554.55 cfs @ 12.45 hrs, Volume= 95.076 af, Atten= 0%, Lag= 1.3 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.79 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 20.2 min

Peak Storage= 70,553 cf @ 12.45 hrs
Average Depth at Peak Storage= 4.42'
Bank-Full Depth= 14.39' Flow Area= 5,200.3 sf, Capacity= 8,158.02 cfs

Custom cross-section, Length= 100.2' Slope= 0.0001 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.11', Outlet Invert= 7.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	21.49	0.00		
68.92	20.32	1.17	0.060	
223.87	11.77	9.72	0.060	
246.65	7.60	13.89	0.060	
413.08	9.56	11.93	0.035	
424.20	7.10	14.39	0.035	
426.70	7.30	14.19	0.035	
428.26	9.42	12.07	0.035	
477.81	9.60	11.89	0.035	
545.13	15.21	6.28	0.060	
674.00	21.26	0.23	0.060	
835.04	20.84	0.65	0.060	
837.00	21.49	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.20	0.3	3.4	34	0.03
0.50	1.6	5.2	160	0.31
2.32	169.0	180.5	16,939	67.15
2.46	197.7	232.4	19,814	73.54
2.50	207.2	243.6	20,761	77.03
4.67	773.6	281.8	77,519	642.25
8.11	1,915.0	385.7	191,883	2,393.01
13.22	4,389.9	587.4	439,871	6,994.87
13.74	4,705.0	629.1	471,441	7,567.27
14.16	5,009.4	825.2	501,942	7,851.33
14.39	5,200.3	839.5	521,068	8,158.02

Stage-Discharge for Reach 12R: River Sta 284.44 CS-2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.11	0.00	0.00
7.26	0.07	0.01
7.41	0.13	0.10
7.56	0.18	0.25
7.71	0.14	0.37
7.86	0.14	0.89
8.01	0.17	1.97
8.16	0.20	3.78
8.31	0.22	6.48
8.46	0.25	10.19
8.61	0.27	15.07
8.76	0.30	21.22
8.91	0.32	28.76
9.06	0.34	37.83
9.21	0.37	48.51
9.36	0.39	60.93
9.51	0.38	70.65
9.66	0.39	84.77
9.81	0.43	109.45
9.96	0.47	136.52
10.11	0.50	166.00
10.26	0.54	197.83
10.41	0.57	231.94
10.56	0.60	268.28
10.71	0.63	306.84
10.86	0.66	347.59
11.01	0.69	390.44
11.16	0.72	435.36
11.31	0.75	482.33
11.46	0.78	531.31
11.61	0.80	582.29
11.76	0.83	635.08
11.91	0.85	689.34
12.06	0.87	745.40
12.21	0.90	803.53
12.36	0.92	863.72
12.51	0.94	925.94
12.66	0.96	990.17
12.81	0.98	1,056.41
12.96	1.00	1,124.65
13.11	1.02	1,194.88
13.26	1.04	1,267.09
13.41	1.06	1,341.29
13.56	1.07	1,417.46
13.71	1.09	1,495.61
13.86	1.11	1,575.74
14.01	1.13	1,657.85
14.16	1.14	1,741.94
14.31	1.16	1,828.07
14.46	1.17	1,916.19
14.61	1.19	2,006.30
14.76	1.20	2,098.39
14.91	1.22	2,192.47
15.06	1.23	2,288.53
15.21	1.25	2,386.42
15.36	1.26	2,485.51
15.51	1.28	2,586.44
15.66	1.29	2,689.47
15.81	1.30	2,794.61
15.96	1.31	2,901.87
16.11	1.33	3,011.25
16.26	1.34	3,122.76
16.41	1.35	3,236.40
16.56	1.36	3,352.19
16.71	1.37	3,470.13
16.86	1.38	3,590.23
17.01	1.39	3,712.50
17.16	1.40	3,836.94
17.31	1.41	3,963.58
17.46	1.42	4,092.41
17.61	1.43	4,223.45
17.76	1.44	4,356.72
17.91	1.45	4,492.28
18.06	1.46	4,630.08
18.21	1.47	4,770.12
18.36	1.48	4,912.42
18.51	1.49	5,056.98
18.66	1.50	5,203.81
18.81	1.51	5,352.93
18.96	1.52	5,504.34
19.11	1.53	5,658.06
19.26	1.54	5,814.09
19.41	1.54	5,972.44
19.56	1.55	6,133.12
19.71	1.56	6,296.15
19.86	1.57	6,461.53
20.01	1.58	6,629.28
20.16	1.58	6,799.40
20.31	1.59	6,971.80
20.46	1.60	7,134.27
20.61	1.60	7,298.07
20.76	**1.61**	7,465.38
20.91	**1.60**	7,589.61
21.06	1.58	7,677.49
21.21	1.57	7,797.10
21.36	1.57	7,970.24
21.51	1.57	**8,171.44**

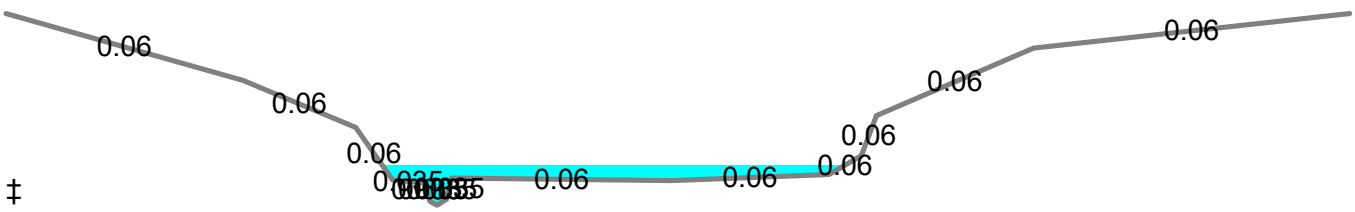
Summary for Reach 13R: River Sta 0.00 CS-1

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 4.21" for 100yr Talbot event
Inflow = 554.55 cfs @ 12.45 hrs, Volume= 95.076 af
Outflow = 554.43 cfs @ 12.47 hrs, Volume= 95.076 af, Atten= 0%, Lag= 1.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.16 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.66 fps, Avg. Travel Time= 7.2 min

Peak Storage= 51,785 cf @ 12.47 hrs
Average Depth at Peak Storage= 3.08'
Bank-Full Depth= 14.64' Flow Area= 3,217.7 sf, Capacity= 29,924.85 cfs

Custom cross-section, Length= 284.4' Slope= 0.0086 '/' (110 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 7.10', Outlet Invert= 4.64'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	19.28	0.00		
84.01	14.16	5.12	0.060	
123.92	10.59	8.69	0.060	
136.93	6.56	12.72	0.060	
147.92	6.36	12.92	0.035	
150.29	4.93	14.35	0.035	
152.70	4.64	14.64	0.035	
156.15	5.11	14.17	0.035	
157.99	6.72	12.56	0.035	
235.71	6.52	12.76	0.060	
291.60	6.99	12.29	0.060	
303.10	8.43	10.85	0.060	
308.39	11.49	7.79	0.060	
364.05	16.63	2.65	0.060	
476.12	19.28	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.29	0.7	4.6	188	0.72
0.47	1.6	6.3	461	2.60
1.72	11.5	10.6	3,272	48.06
1.88	13.8	19.6	3,916	42.95
1.92	15.0	42.2	4,256	43.90
2.08	28.1	124.2	7,994	66.53
2.35	65.8	157.2	18,711	142.10
3.79	302.1	173.6	85,929	1,184.50
5.95	685.7	185.2	195,005	4,274.07
6.85	855.5	197.1	243,311	5,994.66
9.52	1,453.4	256.2	413,340	12,283.05
11.99	2,162.1	323.6	614,897	20,487.24
14.64	3,217.7	479.3	915,113	29,924.85

Stage-Discharge for Reach 13R: River Sta 0.00 CS-1

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
7.10	0.00	0.00
7.25	0.70	0.13
7.40	1.12	0.81
7.55	1.55	2.34
7.70	2.01	4.96
7.85	2.41	8.38
8.00	2.76	12.55
8.15	3.07	17.44
8.30	3.35	23.05
8.45	3.61	29.38
8.60	3.85	36.44
8.75	4.08	44.22
8.90	3.55	44.35
9.05	2.83	47.91
9.20	2.33	71.24
9.35	2.17	110.67
9.50	2.21	163.13
9.65	2.36	230.90
9.80	2.55	310.15
9.95	2.75	400.28
10.10	2.95	500.72
10.25	3.14	611.03
10.40	3.33	730.86
10.55	3.52	859.92
10.70	3.70	997.98
10.85	3.87	1,144.56
11.00	4.05	1,302.78
11.15	4.23	1,470.17
11.30	4.41	1,645.96
11.45	4.58	1,830.01
11.60	4.75	2,022.15
11.75	4.91	2,222.26
11.90	5.08	2,430.20
12.05	5.24	2,645.88
12.20	5.39	2,869.17
12.35	5.55	3,099.99
12.50	5.70	3,338.24
12.65	5.85	3,583.85
12.80	5.99	3,836.72
12.95	6.14	4,096.80
13.10	6.28	4,362.25
13.25	6.41	4,632.13
13.40	6.54	4,910.04
13.55	6.67	5,195.74
13.70	6.80	5,489.14
13.85	6.92	5,790.07
14.00	7.04	6,090.10
14.15	7.13	6,380.26
14.30	7.22	6,677.94
14.45	7.31	6,983.19
14.60	7.39	7,296.07
14.75	7.48	7,616.64
14.90	7.56	7,944.95
15.05	7.65	8,281.07
15.20	7.73	8,625.07
15.35	7.81	8,977.00
15.50	7.89	9,336.94
15.65	7.97	9,704.94
15.80	8.04	10,081.09
15.95	8.12	10,465.43
16.10	8.20	10,858.05
16.25	8.27	11,259.01
16.40	8.34	11,668.36
16.55	8.42	12,086.19
16.70	8.49	12,509.31
16.85	8.55	12,938.69
17.00	8.62	13,377.20
17.15	8.69	13,824.97
17.30	8.75	14,282.10
17.45	8.82	14,748.64
17.60	8.88	15,224.69
17.75	8.94	15,710.32
17.90	9.00	16,205.62
18.05	9.06	16,710.66
18.20	9.13	17,225.54
18.35	9.19	17,750.34
18.50	9.25	18,285.14
18.65	9.30	18,830.04
18.80	9.36	19,385.10
18.95	9.42	19,950.43
19.10	**9.47**	20,511.27
19.25	9.43	20,882.68
19.40	9.40	21,274.81
19.55	9.37	21,687.45
19.70	9.34	22,120.13
19.85	9.32	22,572.62
20.00	9.30	23,044.73
20.15	9.28	23,536.30
20.30	9.27	24,047.20
20.45	9.27	24,577.35
20.60	9.26	25,126.67
20.75	9.26	25,695.13
20.90	9.26	26,282.71
21.05	9.26	26,889.39
21.20	9.27	27,515.20
21.35	9.27	28,160.17
21.50	9.28	28,824.33
21.65	9.29	**29,507.75**

Summary for Pond 11P: Pond 1

Inflow Area = 49.080 ac, 0.00% Impervious, Inflow Depth = 4.12" for 100yr Talbot event
Inflow = 168.96 cfs @ 12.10 hrs, Volume= 16.861 af
Outflow = 139.32 cfs @ 12.23 hrs, Volume= 16.861 af, Atten= 18%, Lag= 8.1 min
Primary = 139.32 cfs @ 12.23 hrs, Volume= 16.861 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 49.44' @ 12.23 hrs Surf.Area= 29,952 sf Storage= 76,774 cf

Plug-Flow detention time= 9.8 min calculated for 16.861 af (100% of inflow)
Center-of-Mass det. time= 9.6 min (852.9 - 843.3)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	189,394 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)
45.00	0	0.0	0	0	0
46.00	14,235	515.0	4,745	4,745	21,108
47.00	17,332	556.0	15,758	20,503	24,643
48.00	21,715	639.0	19,482	39,985	32,558
49.00	26,977	704.0	24,298	64,284	39,537
50.00	33,980	771.0	30,411	94,695	47,436
51.00	42,797	845.0	38,304	132,999	56,986
52.00	71,191	1,014.0	56,395	189,394	82,005

Device	Routing	Invert	Outlet Devices
#1	Primary	43.75'	**36.0" Round Culvert X 2.00** L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 43.75' / 43.25' S= 0.0111 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf
#2	Device 1	45.00'	**14.0" Vert. Orifice/Grate X 3.00** C= 0.600
#3	Device 1	46.00'	**12.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	48.10'	**28.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=139.31 cfs @ 12.23 hrs HW=49.44' TW=40.59' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 139.31 cfs @ 9.85 fps)
  ├─**2=Orifice/Grate** (Passes < 30.32 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 19.45 cfs potential flow)
  └─**4=Sharp-Crested Rectangular Weir** (Passes < 141.80 cfs potential flow)

Stage-Discharge for Pond 11P: Pond 1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
45.00	0.00	47.08	27.53	49.16	134.60	51.24	166.60
45.04	0.02	47.12	28.08	49.20	135.29	51.28	167.15
45.08	0.09	47.16	28.61	49.24	135.97	51.32	167.71
45.12	0.21	47.20	29.13	49.28	136.65	51.36	168.26
45.16	0.36	47.24	29.63	49.32	137.33	51.40	168.81
45.20	0.56	47.28	30.13	49.36	138.00	51.44	169.36
45.24	0.79	47.32	30.62	49.40	138.67	51.48	169.90
45.28	1.07	47.36	31.10	49.44	139.34	51.52	170.45
45.32	1.38	47.40	31.58	49.48	140.00	51.56	170.99
45.36	1.72	47.44	32.04	49.52	140.66	51.60	171.53
45.40	2.09	47.48	32.50	49.56	141.32	51.64	172.07
45.44	2.50	47.52	32.95	49.60	141.97	51.68	172.61
45.48	2.93	47.56	33.39	49.64	142.62	51.72	173.14
45.52	3.39	47.60	33.83	49.68	143.27	51.76	173.68
45.56	3.88	47.64	34.26	49.72	143.92	51.80	174.21
45.60	4.38	47.68	34.68	49.76	144.56	51.84	174.74
45.64	4.91	47.72	35.10	49.80	145.20	51.88	175.27
45.68	5.45	47.76	35.52	49.84	145.84	51.92	175.80
45.72	6.00	47.80	35.93	49.88	146.47	51.96	176.33
45.76	6.57	47.84	36.33	49.92	147.10	52.00	**176.85**
45.80	7.14	47.88	36.73	49.96	147.73		
45.84	7.71	47.92	37.12	50.00	148.36		
45.88	8.29	47.96	37.51	50.04	148.98		
45.92	8.86	48.00	37.90	50.08	149.60		
45.96	9.42	48.04	38.28	50.12	150.22		
46.00	9.96	48.08	38.66	50.16	150.83		
46.04	10.50	48.12	39.29	50.20	151.45		
46.08	11.05	48.16	40.75	50.24	152.06		
46.12	11.59	48.20	42.67	50.28	152.67		
46.16	12.08	48.24	44.93	50.32	153.27		
46.20	12.64	48.28	47.49	50.36	153.87		
46.24	13.24	48.32	50.30	50.40	154.48		
46.28	13.86	48.36	53.34	50.44	155.07		
46.32	14.51	48.40	56.60	50.48	155.67		
46.36	15.17	48.44	60.05	50.52	156.27		
46.40	15.85	48.48	63.69	50.56	156.86		
46.44	16.55	48.52	67.51	50.60	157.45		
46.48	17.26	48.56	71.49	50.64	158.03		
46.52	17.98	48.60	75.63	50.68	158.62		
46.56	18.72	48.64	79.93	50.72	159.20		
46.60	19.46	48.68	84.37	50.76	159.78		
46.64	20.21	48.72	88.95	50.80	160.36		
46.68	20.96	48.76	93.67	50.84	160.94		
46.72	21.71	48.80	98.52	50.88	161.51		
46.76	22.45	48.84	103.51	50.92	162.09		
46.80	23.19	48.88	108.61	50.96	162.66		
46.84	23.90	48.92	113.84	51.00	163.23		
46.88	24.60	48.96	119.19	51.04	163.79		
46.92	25.26	49.00	124.66	51.08	164.36		
46.96	25.87	49.04	130.24	51.12	164.92		
47.00	26.40	49.08	133.22	51.16	165.48		
47.04	26.97	49.12	133.91	51.20	166.04		

Summary for Pond 14P: Goldsburough Neck Road Culvert

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 4.21" for 100yr Talbot event
Inflow = 554.76 cfs @ 12.42 hrs, Volume= 95.079 af
Outflow = 554.76 cfs @ 12.43 hrs, Volume= 95.076 af, Atten= 0%, Lag= 0.6 min
Primary = 554.76 cfs @ 12.43 hrs, Volume= 95.076 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 12.03' @ 12.45 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.44'	**48.0" Round CMP_Round 48"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 5.44' / 5.43' S= 0.0003 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 12.57 sf
#2	Primary	9.91'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 0.80 1.20 1.60 2.20 2.60 3.00 3.40 3.80 4.20 Width (feet) 0.00 56.60 73.40 90.20 107.00 123.80 156.20 183.80 211.40 239.00 266.50

Primary OutFlow Max=554.20 cfs @ 12.43 hrs HW=12.03' TW=11.53' (Dynamic Tailwater)
└─**1=CMP_Round 48"** (Inlet Controls 33.87 cfs @ 2.70 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 520.33 cfs @ 3.08 fps)

Stage-Discharge for Pond 14P: Goldsburough Neck Road Culvert

Elevation (feet)	Primary (cfs)
5.44	0.00
5.54	0.00
5.64	0.00
5.74	0.00
5.84	0.00
5.94	0.00
6.04	0.00
6.14	0.00
6.24	0.00
6.34	0.00
6.44	0.00
6.54	0.00
6.64	0.00
6.74	0.00
6.84	0.00
6.94	0.00
7.04	0.00
7.14	2.96
7.24	6.71
7.34	9.68
7.44	12.51
7.54	15.34
7.64	18.22
7.74	20.40
7.84	22.12
7.94	23.90
8.04	25.71
8.14	27.58
8.24	29.48
8.34	31.42
8.44	33.39
8.54	35.40
8.64	37.43
8.74	39.49
8.84	41.56
8.94	43.65
9.04	45.76
9.14	47.86
9.24	49.98
9.34	52.08
9.44	54.18
9.54	56.26
9.64	58.33
9.74	60.36
9.84	62.36
9.94	64.34
10.04	67.34
10.14	72.74
10.24	81.38
10.34	93.89
10.44	110.07
10.54	129.40
10.64	151.68
10.74	176.68
10.84	205.76
10.94	239.04
11.04	275.41
11.14	314.90
11.24	357.58
11.34	403.50
11.44	452.71
11.54	505.26
11.64	561.10
11.74	619.61
11.84	680.86
11.94	745.31
12.04	812.97
12.14	883.83
12.24	958.31
12.34	1,036.94
12.44	1,120.04
12.54	1,207.89
12.64	1,300.61
12.74	1,398.30
12.84	1,501.08
12.94	1,609.06
13.04	1,722.37
13.14	1,841.13
13.24	1,965.44
13.34	2,095.42
13.44	2,231.17
13.54	2,372.81
13.64	2,520.44
13.74	2,674.15
13.84	2,834.05
13.94	3,000.23
14.04	**3,172.78**

Summary for Link 18L: Proposed Design Point 1

Inflow Area = 270.780 ac, 0.00% Impervious, Inflow Depth = 4.21" for 100yr Talbot event
Inflow = 554.43 cfs @ 12.47 hrs, Volume= 95.076 af
Primary = 554.43 cfs @ 12.48 hrs, Volume= 95.076 af, Atten= 0%, Lag= 0.6 min

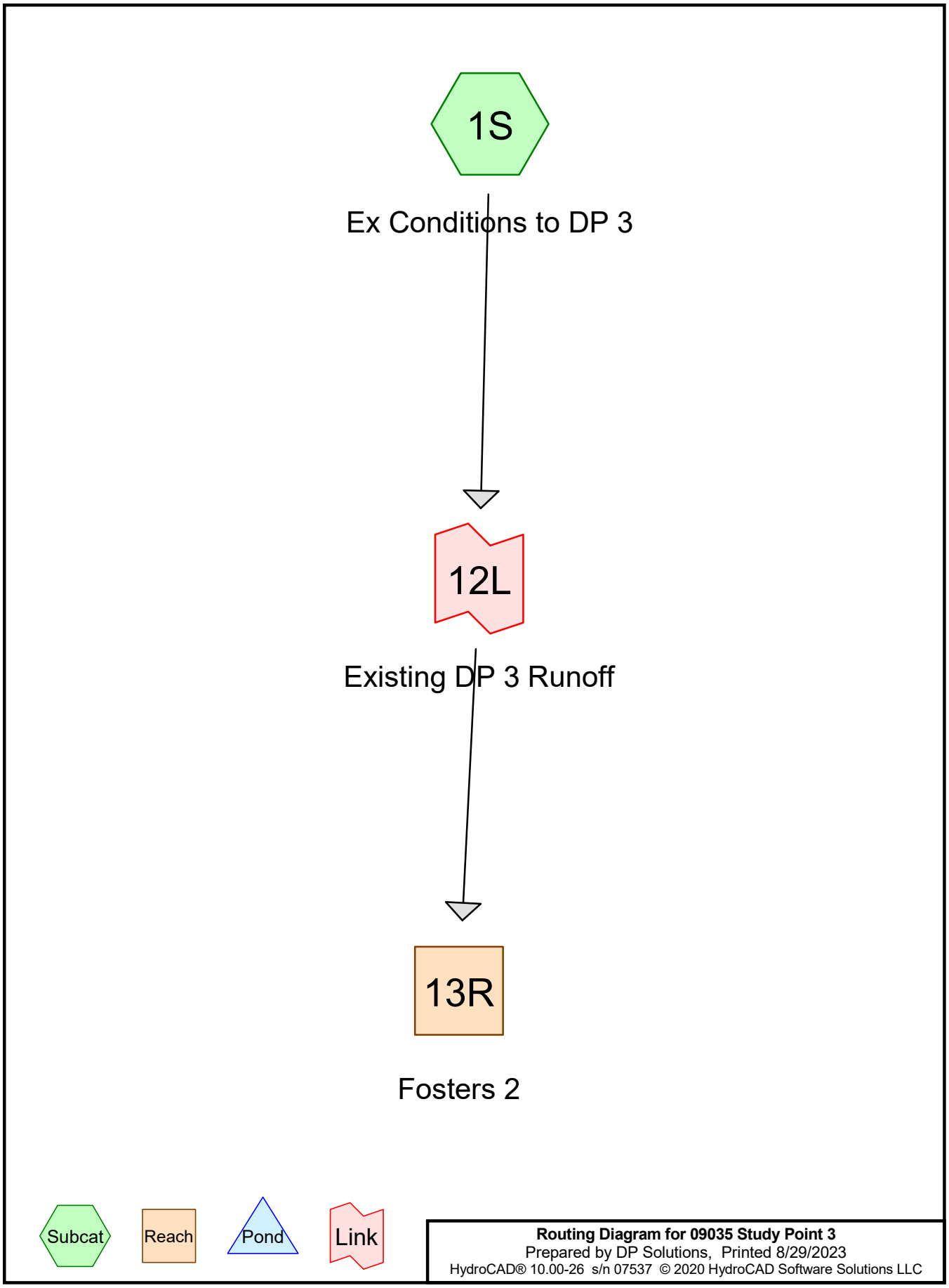
Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

37 Point manual elevation table, To= 5.00 hrs, dt= 1.00 hrs, feet =

7.10	7.26	7.42	7.57	7.73	8.04	8.34	9.12	9.90
9.60	9.29	9.13	8.96	8.73	8.51	8.42	8.33	8.30
8.27	8.21	8.14	8.08	8.01	7.95	7.88	7.82	7.75
7.69	7.63	7.56	7.50	7.43	7.37	7.30	7.24	7.17
7.11								

Appendix IV.A

HydroCAD – Study Point No. 3 – Existing Conditions


1S
Ex Conditions to DP 3
12L
Existing DP 3 Runoff
13R
Fosters 2
Subcat
Reach
Pond
Link
Routing Diagram for 09035 Study Point 3
Prepared by DP Solutions, Printed 8/29/2023
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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
57.820	68	From TR-55 (1S)
57.820	**68**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
57.820	Other	1S
57.820		**TOTAL AREA**

09035 Study Point 3
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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	57.820	57.820	From TR-55	1S
0.000	**0.000**	**0.000**	**0.000**	**57.820**	**57.820**	**TOTAL AREA**	

Time span=3.00-100.00 hrs, dt=0.01 hrs, 9701 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: Ex Conditions to DP 3 Runoff Area=57.820 ac 0.00% Impervious Runoff Depth=0.84"
Tc=16.8 min CN=68 Runoff=33.57 cfs 4.066 af

Reach 13R: Fosters 2 Avg. Flow Depth=1.01' Max Vel=5.03 fps Inflow=33.57 cfs 4.066 af
L=159.0' S=0.0138 '/' Capacity=236.92 cfs Outflow=33.62 cfs 4.066 af

Link 12L: Existing DP 3 Runoff Inflow=33.57 cfs 4.066 af
Primary=33.57 cfs 4.066 af

Total Runoff Area = 57.820 ac Runoff Volume = 4.066 af Average Runoff Depth = 0.84"
100.00% Pervious = 57.820 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Ex Conditions to DP 3

Runoff = 33.57 cfs @ 12.13 hrs, Volume= 4.066 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	57.820	68	From TR-55
	57.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, from TR-55**

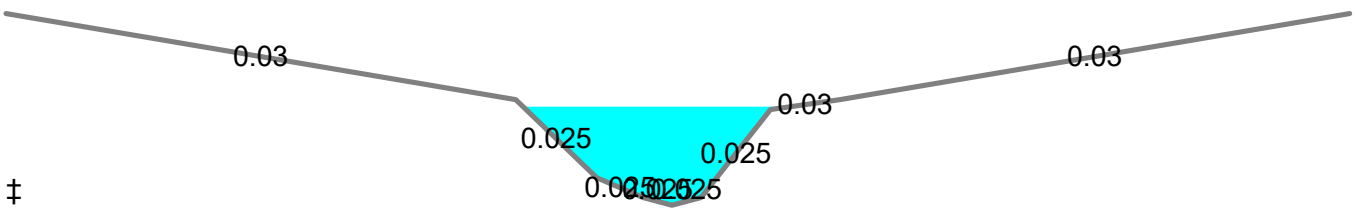
Summary for Reach 13R: Fosters 2

Inflow Area = 57.820 ac, 0.00% Impervious, Inflow Depth = 0.84" for 2yr Talbot event
Inflow = 33.57 cfs @ 12.14 hrs, Volume= 4.066 af
Outflow = 33.62 cfs @ 12.15 hrs, Volume= 4.066 af, Atten= 0%, Lag= 0.4 min

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.03 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.92 fps, Avg. Travel Time= 1.4 min

Peak Storage= 1,063 cf @ 12.15 hrs
Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 1.96' Flow Area= 39.3 sf, Capacity= 236.92 cfs

Custom cross-section, Length= 159.0' Slope= 0.0138 '/' (101 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 51.70', Outlet Invert= 49.50'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.88	0.00		
22.00	52.00	0.88	0.030	
25.50	51.20	1.68	0.025	
27.50	51.00	1.88	0.025	
28.75	50.92	1.96	0.025	
30.00	51.00	1.88	0.025	
33.00	51.90	0.98	0.025	
36.00	52.00	0.88	0.030	
58.00	52.88	0.00	0.030	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.5	16	0.08
0.28	0.9	5.2	138	1.83
0.98	6.4	10.8	1,013	31.36
1.08	7.6	14.2	1,209	39.74
1.96	39.3	58.3	6,246	236.92

Stage-Discharge for Reach 13R: Fosters 2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
51.70	0.00	0.00
51.72	0.32	0.00
51.74	0.51	0.01
51.76	0.67	0.04
51.78	0.82	0.08
51.80	1.01	0.16
51.82	1.18	0.25
51.84	1.33	0.36
51.86	1.46	0.50
51.88	1.59	0.66
51.90	1.70	0.85
51.92	1.81	1.05
51.94	1.92	1.29
51.96	2.02	1.55
51.98	2.11	1.83
52.00	2.24	2.18
52.02	2.35	2.54
52.04	2.46	2.94
52.06	2.57	3.36
52.08	2.67	3.81
52.10	2.77	4.28
52.12	2.87	4.79
52.14	2.97	5.32
52.16	3.06	5.88
52.18	3.15	6.47
52.20	3.23	7.08
52.22	3.32	7.73
52.24	3.40	8.41
52.26	3.48	9.11
52.28	3.56	9.85
52.30	3.64	10.61
52.32	3.72	11.41
52.34	3.79	12.23
52.36	3.87	13.09
52.38	3.94	13.98
52.40	4.01	14.91
52.42	4.08	15.86
52.44	4.15	16.85
52.46	4.22	17.87
52.48	4.29	18.92
52.50	4.35	20.01
52.52	4.42	21.13
52.54	4.48	22.28
52.56	4.55	23.47
52.58	4.61	24.70
52.60	4.68	25.96
52.62	4.74	27.26
52.64	4.80	28.59
52.66	4.86	29.96
52.68	4.92	31.36
52.70	5.00	32.94
52.72	5.07	34.56
52.74	5.13	36.23
52.76	5.18	37.95
52.78	5.23	39.74
52.80	5.29	41.77
52.82	5.35	43.89
52.84	5.40	46.07
52.86	5.44	48.33
52.88	5.48	50.67
52.90	5.51	53.10
52.92	5.53	55.61
52.94	5.55	58.21
52.96	5.57	60.91
52.98	5.59	63.71
53.00	5.60	66.60
53.02	5.61	69.61
53.04	5.62	72.72
53.06	5.63	75.94
53.08	5.64	79.27
53.10	5.65	82.72
53.12	5.66	86.29
53.14	5.67	89.98
53.16	5.67	93.79
53.18	5.68	97.74
53.20	5.69	101.81
53.22	5.70	106.01
53.24	5.71	110.35
53.26	5.72	114.83
53.28	5.73	119.45
53.30	5.74	124.21
53.32	5.75	129.11
53.34	5.76	134.16
53.36	5.77	139.36
53.38	5.79	144.72
53.40	5.80	150.23
53.42	5.82	155.89
53.44	5.83	161.72
53.46	5.85	167.70
53.48	5.86	173.85
53.50	5.88	180.17
53.52	5.90	186.65
53.54	5.91	193.30
53.56	5.93	200.13
53.58	5.95	207.13
53.60	5.97	214.31
53.62	5.99	221.66
53.64	6.01	229.20
53.66	**6.03**	**236.92**

Summary for Link 12L: Existing DP 3 Runoff

Inflow Area = 57.820 ac, 0.00% Impervious, Inflow Depth = 0.84" for 2yr Talbot event
Inflow = 33.57 cfs @ 12.13 hrs, Volume= 4.066 af
Primary = 33.57 cfs @ 12.14 hrs, Volume= 4.066 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs

Time span=3.00-100.00 hrs, dt=0.01 hrs, 9701 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: Ex Conditions to DP 3 Runoff Area=57.820 ac 0.00% Impervious Runoff Depth=2.10"
Tc=16.8 min CN=68 Runoff=94.89 cfs 10.099 af

Reach 13R: Fosters 2 Avg. Flow Depth=1.47' Max Vel=5.68 fps Inflow=94.89 cfs 10.099 af
L=159.0' S=0.0138 '/' Capacity=236.92 cfs Outflow=94.86 cfs 10.099 af

Link 12L: Existing DP 3 Runoff Inflow=94.89 cfs 10.099 af
Primary=94.89 cfs 10.099 af

Total Runoff Area = 57.820 ac Runoff Volume = 10.099 af Average Runoff Depth = 2.10"
100.00% Pervious = 57.820 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Ex Conditions to DP 3

Runoff = 94.89 cfs @ 12.13 hrs, Volume= 10.099 af, Depth= 2.10"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	57.820	68	From TR-55
	57.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, from TR-55**

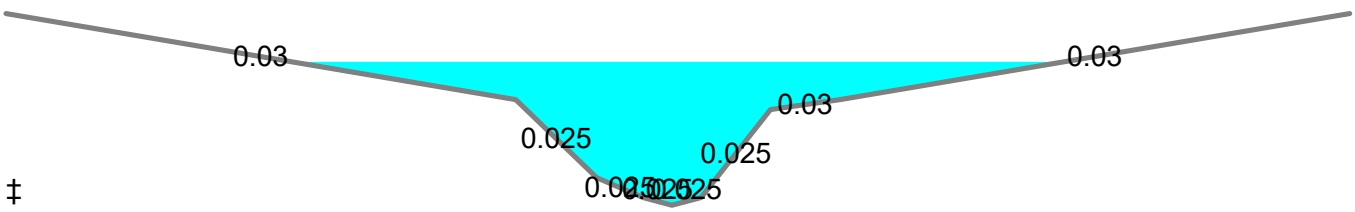
Summary for Reach 13R: Fosters 2

Inflow Area = 57.820 ac, 0.00% Impervious, Inflow Depth = 2.10" for 10yr Talbot event
Inflow = 94.89 cfs @ 12.14 hrs, Volume= 10.099 af
Outflow = 94.86 cfs @ 12.12 hrs, Volume= 10.099 af, Atten= 0%, Lag= 0.0 min

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.68 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.35 fps, Avg. Travel Time= 1.1 min

Peak Storage= 2,658 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.47'
Bank-Full Depth= 1.96' Flow Area= 39.3 sf, Capacity= 236.92 cfs

Custom cross-section, Length= 159.0' Slope= 0.0138 '/' (101 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 51.70', Outlet Invert= 49.50'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.88	0.00		
22.00	52.00	0.88	0.030	
25.50	51.20	1.68	0.025	
27.50	51.00	1.88	0.025	
28.75	50.92	1.96	0.025	
30.00	51.00	1.88	0.025	
33.00	51.90	0.98	0.025	
36.00	52.00	0.88	0.030	
58.00	52.88	0.00	0.030	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.5	16	0.08
0.28	0.9	5.2	138	1.83
0.98	6.4	10.8	1,013	31.36
1.08	7.6	14.2	1,209	39.74
1.96	39.3	58.3	6,246	236.92

Stage-Discharge for Reach 13R: Fosters 2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
51.70	0.00	0.00
51.72	0.32	0.00
51.74	0.51	0.01
51.76	0.67	0.04
51.78	0.82	0.08
51.80	1.01	0.16
51.82	1.18	0.25
51.84	1.33	0.36
51.86	1.46	0.50
51.88	1.59	0.66
51.90	1.70	0.85
51.92	1.81	1.05
51.94	1.92	1.29
51.96	2.02	1.55
51.98	2.11	1.83
52.00	2.24	2.18
52.02	2.35	2.54
52.04	2.46	2.94
52.06	2.57	3.36
52.08	2.67	3.81
52.10	2.77	4.28
52.12	2.87	4.79
52.14	2.97	5.32
52.16	3.06	5.88
52.18	3.15	6.47
52.20	3.23	7.08
52.22	3.32	7.73
52.24	3.40	8.41
52.26	3.48	9.11
52.28	3.56	9.85
52.30	3.64	10.61
52.32	3.72	11.41
52.34	3.79	12.23
52.36	3.87	13.09
52.38	3.94	13.98
52.40	4.01	14.91
52.42	4.08	15.86
52.44	4.15	16.85
52.46	4.22	17.87
52.48	4.29	18.92
52.50	4.35	20.01
52.52	4.42	21.13
52.54	4.48	22.28
52.56	4.55	23.47
52.58	4.61	24.70
52.60	4.68	25.96
52.62	4.74	27.26
52.64	4.80	28.59
52.66	4.86	29.96
52.68	4.92	31.36
52.70	5.00	32.94
52.72	5.07	34.56
52.74	5.13	36.23
52.76	5.18	37.95
52.78	5.23	39.74
52.80	5.29	41.77
52.82	5.35	43.89
52.84	5.40	46.07
52.86	5.44	48.33
52.88	5.48	50.67
52.90	5.51	53.10
52.92	5.53	55.61
52.94	5.55	58.21
52.96	5.57	60.91
52.98	5.59	63.71
53.00	5.60	66.60
53.02	5.61	69.61
53.04	5.62	72.72
53.06	5.63	75.94
53.08	5.64	79.27
53.10	5.65	82.72
53.12	5.66	86.29
53.14	5.67	89.98
53.16	5.67	93.79
53.18	5.68	97.74
53.20	5.69	101.81
53.22	5.70	106.01
53.24	5.71	110.35
53.26	5.72	114.83
53.28	5.73	119.45
53.30	5.74	124.21
53.32	5.75	129.11
53.34	5.76	134.16
53.36	5.77	139.36
53.38	5.79	144.72
53.40	5.80	150.23
53.42	5.82	155.89
53.44	5.83	161.72
53.46	5.85	167.70
53.48	5.86	173.85
53.50	5.88	180.17
53.52	5.90	186.65
53.54	5.91	193.30
53.56	5.93	200.13
53.58	5.95	207.13
53.60	5.97	214.31
53.62	5.99	221.66
53.64	6.01	229.20
53.66	**6.03**	**236.92**

Summary for Link 12L: Existing DP 3 Runoff

Inflow Area = 57.820 ac, 0.00% Impervious, Inflow Depth = 2.10" for 10yr Talbot event
Inflow = 94.89 cfs @ 12.13 hrs, Volume= 10.099 af
Primary = 94.89 cfs @ 12.14 hrs, Volume= 10.099 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs

Time span=3.00-100.00 hrs, dt=0.01 hrs, 9701 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: Ex Conditions to DP 3 Runoff Area=57.820 ac 0.00% Impervious Runoff Depth=3.90"
Tc=16.8 min CN=68 Runoff=182.93 cfs 18.799 af

Reach 13R: Fosters 2 Avg. Flow Depth=1.81' Max Vel=5.89 fps Inflow=182.93 cfs 18.799 af
L=159.0' S=0.0138 '/' Capacity=236.92 cfs Outflow=183.14 cfs 18.799 af

Link 12L: Existing DP 3 Runoff Inflow=182.93 cfs 18.799 af
Primary=182.93 cfs 18.799 af

Total Runoff Area = 57.820 ac Runoff Volume = 18.799 af Average Runoff Depth = 3.90"
100.00% Pervious = 57.820 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Ex Conditions to DP 3

Runoff = 182.93 cfs @ 12.10 hrs, Volume= 18.799 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	57.820	68	From TR-55
	57.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, from TR-55**

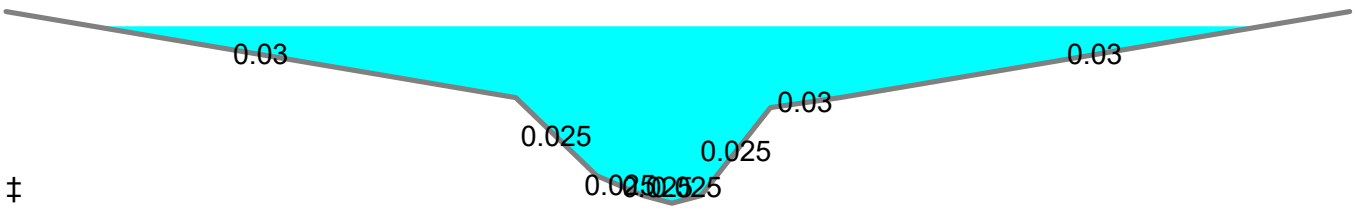
Summary for Reach 13R: Fosters 2

Inflow Area = 57.820 ac, 0.00% Impervious, Inflow Depth = 3.90" for 100yr Talbot event
Inflow = 182.93 cfs @ 12.11 hrs, Volume= 18.799 af
Outflow = 183.14 cfs @ 12.12 hrs, Volume= 18.799 af, Atten= 0%, Lag= 0.4 min

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.89 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.68 fps, Avg. Travel Time= 1.0 min

Peak Storage= 4,946 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.81'
Bank-Full Depth= 1.96' Flow Area= 39.3 sf, Capacity= 236.92 cfs

Custom cross-section, Length= 159.0' Slope= 0.0138 '/' (101 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 51.70', Outlet Invert= 49.50'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.88	0.00		
22.00	52.00	0.88	0.030	
25.50	51.20	1.68	0.025	
27.50	51.00	1.88	0.025	
28.75	50.92	1.96	0.025	
30.00	51.00	1.88	0.025	
33.00	51.90	0.98	0.025	
36.00	52.00	0.88	0.030	
58.00	52.88	0.00	0.030	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.5	16	0.08
0.28	0.9	5.2	138	1.83
0.98	6.4	10.8	1,013	31.36
1.08	7.6	14.2	1,209	39.74
1.96	39.3	58.3	6,246	236.92

Stage-Discharge for Reach 13R: Fosters 2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
51.70	0.00	0.00
51.72	0.32	0.00
51.74	0.51	0.01
51.76	0.67	0.04
51.78	0.82	0.08
51.80	1.01	0.16
51.82	1.18	0.25
51.84	1.33	0.36
51.86	1.46	0.50
51.88	1.59	0.66
51.90	1.70	0.85
51.92	1.81	1.05
51.94	1.92	1.29
51.96	2.02	1.55
51.98	2.11	1.83
52.00	2.24	2.18
52.02	2.35	2.54
52.04	2.46	2.94
52.06	2.57	3.36
52.08	2.67	3.81
52.10	2.77	4.28
52.12	2.87	4.79
52.14	2.97	5.32
52.16	3.06	5.88
52.18	3.15	6.47
52.20	3.23	7.08
52.22	3.32	7.73
52.24	3.40	8.41
52.26	3.48	9.11
52.28	3.56	9.85
52.30	3.64	10.61
52.32	3.72	11.41
52.34	3.79	12.23
52.36	3.87	13.09
52.38	3.94	13.98
52.40	4.01	14.91
52.42	4.08	15.86
52.44	4.15	16.85
52.46	4.22	17.87
52.48	4.29	18.92
52.50	4.35	20.01
52.52	4.42	21.13
52.54	4.48	22.28
52.56	4.55	23.47
52.58	4.61	24.70
52.60	4.68	25.96
52.62	4.74	27.26
52.64	4.80	28.59
52.66	4.86	29.96
52.68	4.92	31.36
52.70	5.00	32.94
52.72	5.07	34.56
52.74	5.13	36.23
52.76	5.18	37.95
52.78	5.23	39.74
52.80	5.29	41.77
52.82	5.35	43.89
52.84	5.40	46.07
52.86	5.44	48.33
52.88	5.48	50.67
52.90	5.51	53.10
52.92	5.53	55.61
52.94	5.55	58.21
52.96	5.57	60.91
52.98	5.59	63.71
53.00	5.60	66.60
53.02	5.61	69.61
53.04	5.62	72.72
53.06	5.63	75.94
53.08	5.64	79.27
53.10	5.65	82.72
53.12	5.66	86.29
53.14	5.67	89.98
53.16	5.67	93.79
53.18	5.68	97.74
53.20	5.69	101.81
53.22	5.70	106.01
53.24	5.71	110.35
53.26	5.72	114.83
53.28	5.73	119.45
53.30	5.74	124.21
53.32	5.75	129.11
53.34	5.76	134.16
53.36	5.77	139.36
53.38	5.79	144.72
53.40	5.80	150.23
53.42	5.82	155.89
53.44	5.83	161.72
53.46	5.85	167.70
53.48	5.86	173.85
53.50	5.88	180.17
53.52	5.90	186.65
53.54	5.91	193.30
53.56	5.93	200.13
53.58	5.95	207.13
53.60	5.97	214.31
53.62	5.99	221.66
53.64	6.01	229.20
53.66	**6.03**	**236.92**

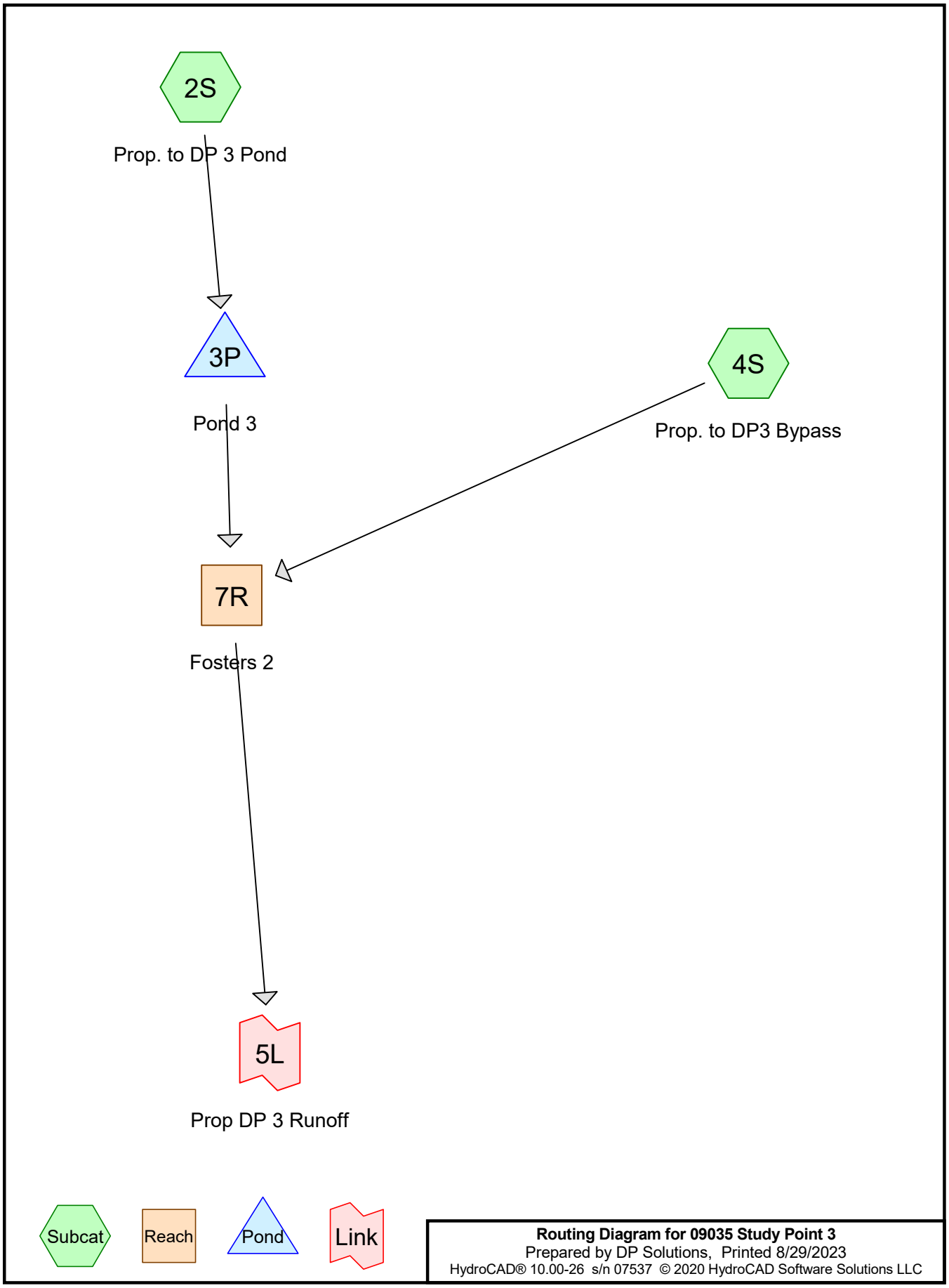
Summary for Link 12L: Existing DP 3 Runoff

Inflow Area = 57.820 ac, 0.00% Impervious, Inflow Depth = 3.90" for 100yr Talbot event
Inflow = 182.93 cfs @ 12.10 hrs, Volume= 18.799 af
Primary = 182.93 cfs @ 12.11 hrs, Volume= 18.799 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs

Appendix IV.B

HydroCAD – Study Point No. 3 – Proposed Conditions


2S
Prop. to DP 3 Pond
3P
Pond 3
4S
Prop. to DP3 Bypass
7R
Fosters 2
5L
Prop DP 3 Runoff
Subcat
Reach
Pond
Link
Routing Diagram for 09035 Study Point 3
Prepared by DP Solutions, Printed 8/29/2023
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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
9.530	82	From TR-55 (2S)
10.240	65	From TR-55 (4S)
19.770	**73**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
19.770	Other	2S, 4S
19.770		**TOTAL AREA**

09035 Study Point 3
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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	19.770	19.770	From TR-55	2S, 4S
0.000	**0.000**	**0.000**	**0.000**	**19.770**	**19.770**	**TOTAL AREA**	

Time span=3.00-100.00 hrs, dt=0.01 hrs, 9701 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 2S: Prop. to DP 3 Pond Runoff Area=9.530 ac 0.00% Impervious Runoff Depth=1.70"
Tc=25.2 min CN=82 Runoff=9.94 cfs 1.350 af

Subcatchment 4S: Prop. to DP3 Bypass Runoff Area=10.240 ac 0.00% Impervious Runoff Depth=0.70"
Tc=25.8 min CN=65 Runoff=3.29 cfs 0.597 af

Reach 7R: Fosters 2 Avg. Flow Depth=0.58' Max Vel=3.55 fps Inflow=9.69 cfs 1.948 af
L=159.0' S=0.0138 '/' Capacity=236.92 cfs Outflow=9.69 cfs 1.948 af

Pond 3P: Pond 3 Peak Elev=52.67' Storage=10,562 cf Inflow=9.94 cfs 1.350 af
Outflow=6.96 cfs 1.350 af

Link 5L: Prop DP 3 Runoff Inflow=9.69 cfs 1.948 af
Primary=9.69 cfs 1.948 af

Total Runoff Area = 19.770 ac Runoff Volume = 1.948 af Average Runoff Depth = 1.18"
100.00% Pervious = 19.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 2S: Prop. to DP 3 Pond

Runoff = 9.94 cfs @ 12.21 hrs, Volume= 1.350 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	9.530	82	From TR-55
	9.530		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2					**Direct Entry, From TR-55**

Summary for Subcatchment 4S: Prop. to DP3 Bypass

Runoff = 3.29 cfs @ 12.27 hrs, Volume= 0.597 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	10.240	65	From TR-55
	10.240		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.8					**Direct Entry, from TR-55**

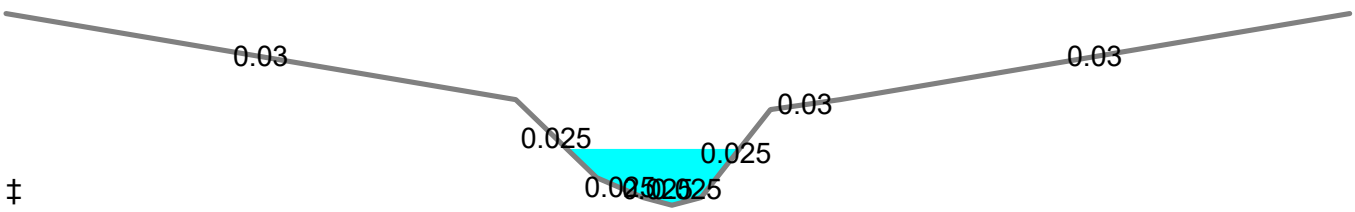
Summary for Reach 7R: Fosters 2

Inflow Area = 19.770 ac, 0.00% Impervious, Inflow Depth = 1.18" for 2yr Talbot event
Inflow = 9.69 cfs @ 12.50 hrs, Volume= 1.948 af
Outflow = 9.69 cfs @ 12.51 hrs, Volume= 1.948 af, Atten= 0%, Lag= 0.5 min

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.55 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 5.7 min

Peak Storage= 435 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 1.96' Flow Area= 39.3 sf, Capacity= 236.92 cfs

Custom cross-section, Length= 159.0' Slope= 0.0138 '/' (101 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 51.70', Outlet Invert= 49.50'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.88	0.00		
22.00	52.00	0.88	0.030	
25.50	51.20	1.68	0.025	
27.50	51.00	1.88	0.025	
28.75	50.92	1.96	0.025	
30.00	51.00	1.88	0.025	
33.00	51.90	0.98	0.025	
36.00	52.00	0.88	0.030	
58.00	52.88	0.00	0.030	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.5	16	0.08
0.28	0.9	5.2	138	1.83
0.98	6.4	10.8	1,013	31.36
1.08	7.6	14.2	1,209	39.74
1.96	39.3	58.3	6,246	236.92

Stage-Discharge for Reach 7R: Fosters 2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
51.70	0.00	0.00
51.72	0.32	0.00
51.74	0.51	0.01
51.76	0.67	0.04
51.78	0.82	0.08
51.80	1.01	0.16
51.82	1.18	0.25
51.84	1.33	0.36
51.86	1.46	0.50
51.88	1.59	0.66
51.90	1.70	0.85
51.92	1.81	1.05
51.94	1.92	1.29
51.96	2.02	1.55
51.98	2.11	1.83
52.00	2.24	2.18
52.02	2.35	2.54
52.04	2.46	2.94
52.06	2.57	3.36
52.08	2.67	3.81
52.10	2.77	4.28
52.12	2.87	4.79
52.14	2.97	5.32
52.16	3.06	5.88
52.18	3.15	6.47
52.20	3.23	7.08
52.22	3.32	7.73
52.24	3.40	8.41
52.26	3.48	9.11
52.28	3.56	9.85
52.30	3.64	10.61
52.32	3.72	11.41
52.34	3.79	12.23
52.36	3.87	13.09
52.38	3.94	13.98
52.40	4.01	14.91
52.42	4.08	15.86
52.44	4.15	16.85
52.46	4.22	17.87
52.48	4.29	18.92
52.50	4.35	20.01
52.52	4.42	21.13
52.54	4.48	22.28
52.56	4.55	23.47
52.58	4.61	24.70
52.60	4.68	25.96
52.62	4.74	27.26
52.64	4.80	28.59
52.66	4.86	29.96
52.68	4.92	31.36
52.70	5.00	32.94
52.72	5.07	34.56
52.74	5.13	36.23
52.76	5.18	37.95
52.78	5.23	39.74
52.80	5.29	41.77
52.82	5.35	43.89
52.84	5.40	46.07
52.86	5.44	48.33
52.88	5.48	50.67
52.90	5.51	53.10
52.92	5.53	55.61
52.94	5.55	58.21
52.96	5.57	60.91
52.98	5.59	63.71
53.00	5.60	66.60
53.02	5.61	69.61
53.04	5.62	72.72
53.06	5.63	75.94
53.08	5.64	79.27
53.10	5.65	82.72
53.12	5.66	86.29
53.14	5.67	89.98
53.16	5.67	93.79
53.18	5.68	97.74
53.20	5.69	101.81
53.22	5.70	106.01
53.24	5.71	110.35
53.26	5.72	114.83
53.28	5.73	119.45
53.30	5.74	124.21
53.32	5.75	129.11
53.34	5.76	134.16
53.36	5.77	139.36
53.38	5.79	144.72
53.40	5.80	150.23
53.42	5.82	155.89
53.44	5.83	161.72
53.46	5.85	167.70
53.48	5.86	173.85
53.50	5.88	180.17
53.52	5.90	186.65
53.54	5.91	193.30
53.56	5.93	200.13
53.58	5.95	207.13
53.60	5.97	214.31
53.62	5.99	221.66
53.64	6.01	229.20
53.66	**6.03**	**236.92**

Summary for Pond 3P: Pond 3

Inflow Area = 9.530 ac, 0.00% Impervious, Inflow Depth = 1.70" for 2yr Talbot event
Inflow = 9.94 cfs @ 12.21 hrs, Volume= 1.350 af
Outflow = 6.96 cfs @ 12.57 hrs, Volume= 1.350 af, Atten= 30%, Lag= 21.3 min
Primary = 6.96 cfs @ 12.57 hrs, Volume= 1.350 af

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 52.67' @ 12.56 hrs Surf.Area= 16,461 sf Storage= 10,562 cf

Plug-Flow detention time= 39.6 min calculated for 1.350 af (100% of inflow)
Center-of-Mass det. time= 39.8 min (903.1 - 863.3)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	78,568 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
52.00	13,877	681.0	0	0	13,877
53.00	17,734	747.0	15,766	15,766	21,411
54.00	21,920	824.0	19,790	35,556	31,069
55.00	55,553	1,034.0	37,456	73,012	62,133
55.10	55,554	1,045.0	5,555	78,568	63,955

Device	Routing	Invert	Outlet Devices
#1	Primary	52.00'	**4.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	53.50'	**15.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.96 cfs @ 12.57 hrs HW=52.67' TW=52.27' (Dynamic Tailwater)
└─**1=Sharp-Crested Rectangular Weir** (Weir Controls 6.96 cfs @ 2.38 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 3P: Pond 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
52.00	0.00	53.04	14.89	54.08	62.28
52.02	0.04	53.06	15.30	54.10	63.97
52.04	0.12	53.08	15.72	54.12	65.69
52.06	0.22	53.10	16.15	54.14	67.42
52.08	0.33	53.12	16.57	54.16	69.17
52.10	0.46	53.14	17.00	54.18	70.95
52.12	0.61	53.16	17.44	54.20	72.74
52.14	0.77	53.18	17.87	54.22	74.55
52.16	0.94	53.20	18.31	54.24	76.38
52.18	1.11	53.22	18.75	54.26	78.23
52.20	1.30	53.24	19.20	54.28	80.09
52.22	1.50	53.26	19.65	54.30	81.97
52.24	1.71	53.28	20.10	54.32	83.87
52.26	1.93	53.30	20.55	54.34	85.79
52.28	2.15	53.32	21.01	54.36	87.73
52.30	2.39	53.34	21.47	54.38	89.68
52.32	2.63	53.36	21.93	54.40	91.65
52.34	2.87	53.38	22.39	54.42	93.63
52.36	3.13	53.40	22.86	54.44	95.63
52.38	3.39	53.42	23.33	54.46	97.65
52.40	3.66	53.44	23.80	54.48	99.69
52.42	3.93	53.46	24.27	54.50	101.73
52.44	4.21	53.48	24.75	54.52	103.80
52.46	4.50	53.50	25.23	54.54	105.88
52.48	4.79	53.52	25.86	54.56	107.97
52.50	5.09	53.54	26.60	54.58	110.08
52.52	5.39	53.56	27.43	54.60	112.21
52.54	5.70	53.58	28.32	54.62	114.35
52.56	6.01	53.60	29.26	54.64	116.50
52.58	6.33	53.62	30.26	54.66	118.67
52.60	6.66	53.64	31.30	54.68	120.85
52.62	6.99	53.66	32.39	54.70	123.05
52.64	7.32	53.68	33.51	54.72	125.26
52.66	7.66	53.70	34.67	54.74	127.48
52.68	8.00	53.72	35.87	54.76	129.72
52.70	8.35	53.74	37.10	54.78	131.97
52.72	8.70	53.76	38.37	54.80	134.23
52.74	9.06	53.78	39.66	54.82	136.51
52.76	9.42	53.80	40.99	54.84	138.80
52.78	9.79	53.82	42.34	54.86	141.10
52.80	10.15	53.84	43.73	54.88	143.42
52.82	10.53	53.86	45.14	54.90	145.75
52.84	10.91	53.88	46.58	54.92	148.09
52.86	11.29	53.90	48.04	54.94	150.44
52.88	11.67	53.92	49.53	54.96	152.81
52.90	12.06	53.94	51.04	54.98	155.19
52.92	12.45	53.96	52.58	55.00	157.58
52.94	12.85	53.98	54.14	55.02	159.98
52.96	13.25	54.00	55.72	55.04	162.40
52.98	13.65	54.02	57.33	55.06	164.82
53.00	14.06	54.04	58.96	55.08	167.26
53.02	14.47	54.06	60.61	55.10	**169.71**

Summary for Link 5L: Prop DP 3 Runoff

Inflow Area = 19.770 ac, 0.00% Impervious, Inflow Depth = 1.18" for 2yr Talbot event
Inflow = 9.69 cfs @ 12.51 hrs, Volume= 1.948 af
Primary = 9.69 cfs @ 12.52 hrs, Volume= 1.948 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs

Time span=3.00-100.00 hrs, dt=0.01 hrs, 9701 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 2S: Prop. to DP 3 Pond Runoff Area=9.530 ac 0.00% Impervious Runoff Depth=3.35"
Tc=25.2 min CN=82 Runoff=19.88 cfs 2.659 af

Subcatchment 4S: Prop. to DP3 Bypass Runoff Area=10.240 ac 0.00% Impervious Runoff Depth=1.86"
Tc=25.8 min CN=65 Runoff=10.67 cfs 1.584 af

Reach 7R: Fosters 2 Avg. Flow Depth=0.86' Max Vel=4.56 fps Inflow=23.74 cfs 4.243 af
L=159.0' S=0.0138 '/' Capacity=236.92 cfs Outflow=23.74 cfs 4.243 af

Pond 3P: Pond 3 Peak Elev=53.15' Storage=18,829 cf Inflow=19.88 cfs 2.659 af
Outflow=14.79 cfs 2.659 af

Link 5L: Prop DP 3 Runoff Inflow=23.74 cfs 4.243 af
Primary=23.74 cfs 4.243 af

Total Runoff Area = 19.770 ac Runoff Volume = 4.243 af Average Runoff Depth = 2.58"
100.00% Pervious = 19.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 2S: Prop. to DP 3 Pond

Runoff = 19.88 cfs @ 12.21 hrs, Volume= 2.659 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	9.530	82	From TR-55
	9.530		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2					**Direct Entry, From TR-55**

Summary for Subcatchment 4S: Prop. to DP3 Bypass

Runoff = 10.67 cfs @ 12.22 hrs, Volume= 1.584 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	10.240	65	From TR-55
	10.240		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.8					**Direct Entry, from TR-55**

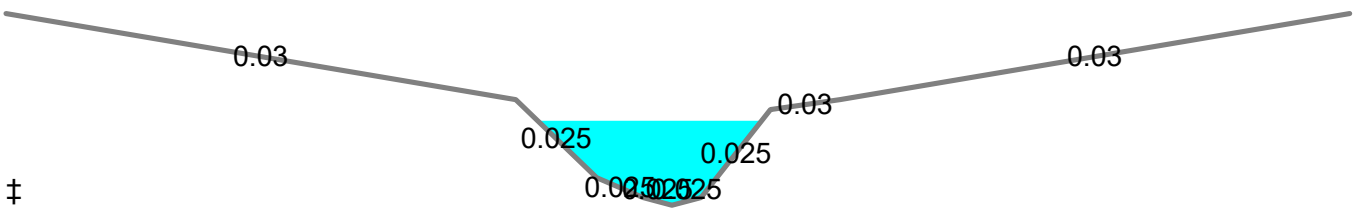
Summary for Reach 7R: Fosters 2

Inflow Area = 19.770 ac, 0.00% Impervious, Inflow Depth = 2.58" for 10yr Talbot event
Inflow = 23.74 cfs @ 12.39 hrs, Volume= 4.243 af
Outflow = 23.74 cfs @ 12.40 hrs, Volume= 4.243 af, Atten= 0%, Lag= 0.4 min

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.56 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 4.7 min

Peak Storage= 827 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.86'
Bank-Full Depth= 1.96' Flow Area= 39.3 sf, Capacity= 236.92 cfs

Custom cross-section, Length= 159.0' Slope= 0.0138 '/' (101 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 51.70', Outlet Invert= 49.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.88	0.00		
22.00	52.00	0.88	0.030	
25.50	51.20	1.68	0.025	
27.50	51.00	1.88	0.025	
28.75	50.92	1.96	0.025	
30.00	51.00	1.88	0.025	
33.00	51.90	0.98	0.025	
36.00	52.00	0.88	0.030	
58.00	52.88	0.00	0.030	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.5	16	0.08
0.28	0.9	5.2	138	1.83
0.98	6.4	10.8	1,013	31.36
1.08	7.6	14.2	1,209	39.74
1.96	39.3	58.3	6,246	236.92

Stage-Discharge for Reach 7R: Fosters 2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
51.70	0.00	0.00
51.72	0.32	0.00
51.74	0.51	0.01
51.76	0.67	0.04
51.78	0.82	0.08
51.80	1.01	0.16
51.82	1.18	0.25
51.84	1.33	0.36
51.86	1.46	0.50
51.88	1.59	0.66
51.90	1.70	0.85
51.92	1.81	1.05
51.94	1.92	1.29
51.96	2.02	1.55
51.98	2.11	1.83
52.00	2.24	2.18
52.02	2.35	2.54
52.04	2.46	2.94
52.06	2.57	3.36
52.08	2.67	3.81
52.10	2.77	4.28
52.12	2.87	4.79
52.14	2.97	5.32
52.16	3.06	5.88
52.18	3.15	6.47
52.20	3.23	7.08
52.22	3.32	7.73
52.24	3.40	8.41
52.26	3.48	9.11
52.28	3.56	9.85
52.30	3.64	10.61
52.32	3.72	11.41
52.34	3.79	12.23
52.36	3.87	13.09
52.38	3.94	13.98
52.40	4.01	14.91
52.42	4.08	15.86
52.44	4.15	16.85
52.46	4.22	17.87
52.48	4.29	18.92
52.50	4.35	20.01
52.52	4.42	21.13
52.54	4.48	22.28
52.56	4.55	23.47
52.58	4.61	24.70
52.60	4.68	25.96
52.62	4.74	27.26
52.64	4.80	28.59
52.66	4.86	29.96
52.68	4.92	31.36
52.70	5.00	32.94
52.72	5.07	34.56
52.74	5.13	36.23
52.76	5.18	37.95
52.78	5.23	39.74
52.80	5.29	41.77
52.82	5.35	43.89
52.84	5.40	46.07
52.86	5.44	48.33
52.88	5.48	50.67
52.90	5.51	53.10
52.92	5.53	55.61
52.94	5.55	58.21
52.96	5.57	60.91
52.98	5.59	63.71
53.00	5.60	66.60
53.02	5.61	69.61
53.04	5.62	72.72
53.06	5.63	75.94
53.08	5.64	79.27
53.10	5.65	82.72
53.12	5.66	86.29
53.14	5.67	89.98
53.16	5.67	93.79
53.18	5.68	97.74
53.20	5.69	101.81
53.22	5.70	106.01
53.24	5.71	110.35
53.26	5.72	114.83
53.28	5.73	119.45
53.30	5.74	124.21
53.32	5.75	129.11
53.34	5.76	134.16
53.36	5.77	139.36
53.38	5.79	144.72
53.40	5.80	150.23
53.42	5.82	155.89
53.44	5.83	161.72
53.46	5.85	167.70
53.48	5.86	173.85
53.50	5.88	180.17
53.52	5.90	186.65
53.54	5.91	193.30
53.56	5.93	200.13
53.58	5.95	207.13
53.60	5.97	214.31
53.62	5.99	221.66
53.64	6.01	229.20
53.66	**6.03**	**236.92**

Summary for Pond 3P: Pond 3

Inflow Area = 9.530 ac, 0.00% Impervious, Inflow Depth = 3.35" for 10yr Talbot event
Inflow = 19.88 cfs @ 12.21 hrs, Volume= 2.659 af
Outflow = 14.79 cfs @ 12.50 hrs, Volume= 2.659 af, Atten= 26%, Lag= 17.7 min
Primary = 14.79 cfs @ 12.50 hrs, Volume= 2.659 af

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 53.15' @ 12.49 hrs Surf.Area= 18,382 sf Storage= 18,829 cf

Plug-Flow detention time= 33.0 min calculated for 2.659 af (100% of inflow)
Center-of-Mass det. time= 32.9 min (876.8 - 844.0)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	78,568 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
52.00	13,877	681.0	0	0	13,877
53.00	17,734	747.0	15,766	15,766	21,411
54.00	21,920	824.0	19,790	35,556	31,069
55.00	55,553	1,034.0	37,456	73,012	62,133
55.10	55,554	1,045.0	5,555	78,568	63,955

Device	Routing	Invert	Outlet Devices
#1	Primary	52.00'	**4.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	53.50'	**15.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=14.80 cfs @ 12.50 hrs HW=53.15' TW=52.56' (Dynamic Tailwater)
└─**1=Sharp-Crested Rectangular Weir** (Weir Controls 14.80 cfs @ 3.00 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 3P: Pond 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
52.00	0.00	53.04	14.89	54.08	62.28
52.02	0.04	53.06	15.30	54.10	63.97
52.04	0.12	53.08	15.72	54.12	65.69
52.06	0.22	53.10	16.15	54.14	67.42
52.08	0.33	53.12	16.57	54.16	69.17
52.10	0.46	53.14	17.00	54.18	70.95
52.12	0.61	53.16	17.44	54.20	72.74
52.14	0.77	53.18	17.87	54.22	74.55
52.16	0.94	53.20	18.31	54.24	76.38
52.18	1.11	53.22	18.75	54.26	78.23
52.20	1.30	53.24	19.20	54.28	80.09
52.22	1.50	53.26	19.65	54.30	81.97
52.24	1.71	53.28	20.10	54.32	83.87
52.26	1.93	53.30	20.55	54.34	85.79
52.28	2.15	53.32	21.01	54.36	87.73
52.30	2.39	53.34	21.47	54.38	89.68
52.32	2.63	53.36	21.93	54.40	91.65
52.34	2.87	53.38	22.39	54.42	93.63
52.36	3.13	53.40	22.86	54.44	95.63
52.38	3.39	53.42	23.33	54.46	97.65
52.40	3.66	53.44	23.80	54.48	99.69
52.42	3.93	53.46	24.27	54.50	101.73
52.44	4.21	53.48	24.75	54.52	103.80
52.46	4.50	53.50	25.23	54.54	105.88
52.48	4.79	53.52	25.86	54.56	107.97
52.50	5.09	53.54	26.60	54.58	110.08
52.52	5.39	53.56	27.43	54.60	112.21
52.54	5.70	53.58	28.32	54.62	114.35
52.56	6.01	53.60	29.26	54.64	116.50
52.58	6.33	53.62	30.26	54.66	118.67
52.60	6.66	53.64	31.30	54.68	120.85
52.62	6.99	53.66	32.39	54.70	123.05
52.64	7.32	53.68	33.51	54.72	125.26
52.66	7.66	53.70	34.67	54.74	127.48
52.68	8.00	53.72	35.87	54.76	129.72
52.70	8.35	53.74	37.10	54.78	131.97
52.72	8.70	53.76	38.37	54.80	134.23
52.74	9.06	53.78	39.66	54.82	136.51
52.76	9.42	53.80	40.99	54.84	138.80
52.78	9.79	53.82	42.34	54.86	141.10
52.80	10.15	53.84	43.73	54.88	143.42
52.82	10.53	53.86	45.14	54.90	145.75
52.84	10.91	53.88	46.58	54.92	148.09
52.86	11.29	53.90	48.04	54.94	150.44
52.88	11.67	53.92	49.53	54.96	152.81
52.90	12.06	53.94	51.04	54.98	155.19
52.92	12.45	53.96	52.58	55.00	157.58
52.94	12.85	53.98	54.14	55.02	159.98
52.96	13.25	54.00	55.72	55.04	162.40
52.98	13.65	54.02	57.33	55.06	164.82
53.00	14.06	54.04	58.96	55.08	167.26
53.02	14.47	54.06	60.61	55.10	**169.71**

Summary for Link 5L: Prop DP 3 Runoff

Inflow Area = 19.770 ac, 0.00% Impervious, Inflow Depth = 2.58" for 10yr Talbot event
Inflow = 23.74 cfs @ 12.40 hrs, Volume= 4.243 af
Primary = 23.74 cfs @ 12.41 hrs, Volume= 4.243 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs

Time span=3.00-100.00 hrs, dt=0.01 hrs, 9701 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 2S: Prop. to DP 3 Pond Runoff Area=9.530 ac 0.00% Impervious Runoff Depth=5.48"
Tc=25.2 min CN=82 Runoff=32.39 cfs 4.353 af

Subcatchment 4S: Prop. to DP3 Bypass Runoff Area=10.240 ac 0.00% Impervious Runoff Depth=3.57"
Tc=25.8 min CN=65 Runoff=21.86 cfs 3.049 af

Reach 7R: Fosters 2 Avg. Flow Depth=1.13' Max Vel=5.38 fps Inflow=44.93 cfs 7.402 af
L=159.0' S=0.0138 '/' Capacity=236.92 cfs Outflow=44.93 cfs 7.402 af

Pond 3P: Pond 3 Peak Elev=53.63' Storage=28,160 cf Inflow=32.39 cfs 4.353 af
Outflow=26.07 cfs 4.353 af

Link 5L: Prop DP 3 Runoff Inflow=44.93 cfs 7.402 af
Primary=44.93 cfs 7.402 af

Total Runoff Area = 19.770 ac Runoff Volume = 7.402 af Average Runoff Depth = 4.49"
100.00% Pervious = 19.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 2S: Prop. to DP 3 Pond

Runoff = 32.39 cfs @ 12.21 hrs, Volume= 4.353 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	9.530	82	From TR-55
	9.530		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2					**Direct Entry, From TR-55**

Summary for Subcatchment 4S: Prop. to DP3 Bypass

Runoff = 21.86 cfs @ 12.21 hrs, Volume= 3.049 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	10.240	65	From TR-55
	10.240		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.8					**Direct Entry, from TR-55**

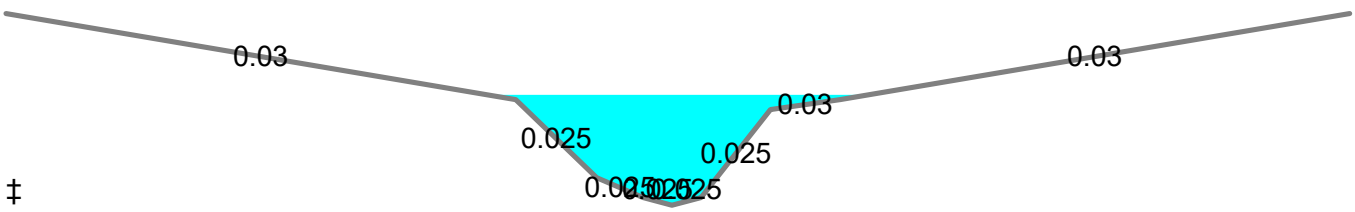
Summary for Reach 7R: Fosters 2

Inflow Area = 19.770 ac, 0.00% Impervious, Inflow Depth = 4.49" for 100yr Talbot event
Inflow = 44.93 cfs @ 12.37 hrs, Volume= 7.402 af
Outflow = 44.93 cfs @ 12.37 hrs, Volume= 7.402 af, Atten= 0%, Lag= 0.4 min

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.38 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 4.1 min

Peak Storage= 1,329 cf @ 12.37 hrs
Average Depth at Peak Storage= 1.13'
Bank-Full Depth= 1.96' Flow Area= 39.3 sf, Capacity= 236.92 cfs

Custom cross-section, Length= 159.0' Slope= 0.0138 '/' (101 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 51.70', Outlet Invert= 49.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	52.88	0.00		
22.00	52.00	0.88	0.030	
25.50	51.20	1.68	0.025	
27.50	51.00	1.88	0.025	
28.75	50.92	1.96	0.025	
30.00	51.00	1.88	0.025	
33.00	51.90	0.98	0.025	
36.00	52.00	0.88	0.030	
58.00	52.88	0.00	0.030	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.08	0.1	2.5	16	0.08
0.28	0.9	5.2	138	1.83
0.98	6.4	10.8	1,013	31.36
1.08	7.6	14.2	1,209	39.74
1.96	39.3	58.3	6,246	236.92

Stage-Discharge for Reach 7R: Fosters 2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
51.70	0.00	0.00
51.72	0.32	0.00
51.74	0.51	0.01
51.76	0.67	0.04
51.78	0.82	0.08
51.80	1.01	0.16
51.82	1.18	0.25
51.84	1.33	0.36
51.86	1.46	0.50
51.88	1.59	0.66
51.90	1.70	0.85
51.92	1.81	1.05
51.94	1.92	1.29
51.96	2.02	1.55
51.98	2.11	1.83
52.00	2.24	2.18
52.02	2.35	2.54
52.04	2.46	2.94
52.06	2.57	3.36
52.08	2.67	3.81
52.10	2.77	4.28
52.12	2.87	4.79
52.14	2.97	5.32
52.16	3.06	5.88
52.18	3.15	6.47
52.20	3.23	7.08
52.22	3.32	7.73
52.24	3.40	8.41
52.26	3.48	9.11
52.28	3.56	9.85
52.30	3.64	10.61
52.32	3.72	11.41
52.34	3.79	12.23
52.36	3.87	13.09
52.38	3.94	13.98
52.40	4.01	14.91
52.42	4.08	15.86
52.44	4.15	16.85
52.46	4.22	17.87
52.48	4.29	18.92
52.50	4.35	20.01
52.52	4.42	21.13
52.54	4.48	22.28
52.56	4.55	23.47
52.58	4.61	24.70
52.60	4.68	25.96
52.62	4.74	27.26
52.64	4.80	28.59
52.66	4.86	29.96
52.68	4.92	31.36
52.70	5.00	32.94
52.72	5.07	34.56
52.74	5.13	36.23
52.76	5.18	37.95
52.78	5.23	39.74
52.80	5.29	41.77
52.82	5.35	43.89
52.84	5.40	46.07
52.86	5.44	48.33
52.88	5.48	50.67
52.90	5.51	53.10
52.92	5.53	55.61
52.94	5.55	58.21
52.96	5.57	60.91
52.98	5.59	63.71
53.00	5.60	66.60
53.02	5.61	69.61
53.04	5.62	72.72
53.06	5.63	75.94
53.08	5.64	79.27
53.10	5.65	82.72
53.12	5.66	86.29
53.14	5.67	89.98
53.16	5.67	93.79
53.18	5.68	97.74
53.20	5.69	101.81
53.22	5.70	106.01
53.24	5.71	110.35
53.26	5.72	114.83
53.28	5.73	119.45
53.30	5.74	124.21
53.32	5.75	129.11
53.34	5.76	134.16
53.36	5.77	139.36
53.38	5.79	144.72
53.40	5.80	150.23
53.42	5.82	155.89
53.44	5.83	161.72
53.46	5.85	167.70
53.48	5.86	173.85
53.50	5.88	180.17
53.52	5.90	186.65
53.54	5.91	193.30
53.56	5.93	200.13
53.58	5.95	207.13
53.60	5.97	214.31
53.62	5.99	221.66
53.64	6.01	229.20
53.66	**6.03**	**236.92**

Summary for Pond 3P: Pond 3

Inflow Area = 9.530 ac, 0.00% Impervious, Inflow Depth = 5.48" for 100yr Talbot event
Inflow = 32.39 cfs @ 12.21 hrs, Volume= 4.353 af
Outflow = 26.07 cfs @ 12.42 hrs, Volume= 4.353 af, Atten= 19%, Lag= 12.9 min
Primary = 26.07 cfs @ 12.42 hrs, Volume= 4.353 af

Routing by Sim-Route method, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 53.63' @ 12.42 hrs Surf.Area= 20,356 sf Storage= 28,160 cf

Plug-Flow detention time= 29.2 min calculated for 4.353 af (100% of inflow)
Center-of-Mass det. time= 29.1 min (859.1 - 830.0)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	78,568 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
52.00	13,877	681.0	0	0	13,877
53.00	17,734	747.0	15,766	15,766	21,411
54.00	21,920	824.0	19,790	35,556	31,069
55.00	55,553	1,034.0	37,456	73,012	62,133
55.10	55,554	1,045.0	5,555	78,568	63,955

Device	Routing	Invert	Outlet Devices
#1	Primary	52.00'	**4.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	53.50'	**15.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=26.09 cfs @ 12.42 hrs HW=53.63' TW=52.83' (Dynamic Tailwater)
└─**1=Sharp-Crested Rectangular Weir** (Weir Controls 23.82 cfs @ 3.51 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 2.27 cfs @ 1.16 fps)

Stage-Discharge for Pond 3P: Pond 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
52.00	0.00	53.04	14.89	54.08	62.28
52.02	0.04	53.06	15.30	54.10	63.97
52.04	0.12	53.08	15.72	54.12	65.69
52.06	0.22	53.10	16.15	54.14	67.42
52.08	0.33	53.12	16.57	54.16	69.17
52.10	0.46	53.14	17.00	54.18	70.95
52.12	0.61	53.16	17.44	54.20	72.74
52.14	0.77	53.18	17.87	54.22	74.55
52.16	0.94	53.20	18.31	54.24	76.38
52.18	1.11	53.22	18.75	54.26	78.23
52.20	1.30	53.24	19.20	54.28	80.09
52.22	1.50	53.26	19.65	54.30	81.97
52.24	1.71	53.28	20.10	54.32	83.87
52.26	1.93	53.30	20.55	54.34	85.79
52.28	2.15	53.32	21.01	54.36	87.73
52.30	2.39	53.34	21.47	54.38	89.68
52.32	2.63	53.36	21.93	54.40	91.65
52.34	2.87	53.38	22.39	54.42	93.63
52.36	3.13	53.40	22.86	54.44	95.63
52.38	3.39	53.42	23.33	54.46	97.65
52.40	3.66	53.44	23.80	54.48	99.69
52.42	3.93	53.46	24.27	54.50	101.73
52.44	4.21	53.48	24.75	54.52	103.80
52.46	4.50	53.50	25.23	54.54	105.88
52.48	4.79	53.52	25.86	54.56	107.97
52.50	5.09	53.54	26.60	54.58	110.08
52.52	5.39	53.56	27.43	54.60	112.21
52.54	5.70	53.58	28.32	54.62	114.35
52.56	6.01	53.60	29.26	54.64	116.50
52.58	6.33	53.62	30.26	54.66	118.67
52.60	6.66	53.64	31.30	54.68	120.85
52.62	6.99	53.66	32.39	54.70	123.05
52.64	7.32	53.68	33.51	54.72	125.26
52.66	7.66	53.70	34.67	54.74	127.48
52.68	8.00	53.72	35.87	54.76	129.72
52.70	8.35	53.74	37.10	54.78	131.97
52.72	8.70	53.76	38.37	54.80	134.23
52.74	9.06	53.78	39.66	54.82	136.51
52.76	9.42	53.80	40.99	54.84	138.80
52.78	9.79	53.82	42.34	54.86	141.10
52.80	10.15	53.84	43.73	54.88	143.42
52.82	10.53	53.86	45.14	54.90	145.75
52.84	10.91	53.88	46.58	54.92	148.09
52.86	11.29	53.90	48.04	54.94	150.44
52.88	11.67	53.92	49.53	54.96	152.81
52.90	12.06	53.94	51.04	54.98	155.19
52.92	12.45	53.96	52.58	55.00	157.58
52.94	12.85	53.98	54.14	55.02	159.98
52.96	13.25	54.00	55.72	55.04	162.40
52.98	13.65	54.02	57.33	55.06	164.82
53.00	14.06	54.04	58.96	55.08	167.26
53.02	14.47	54.06	60.61	55.10	**169.71**

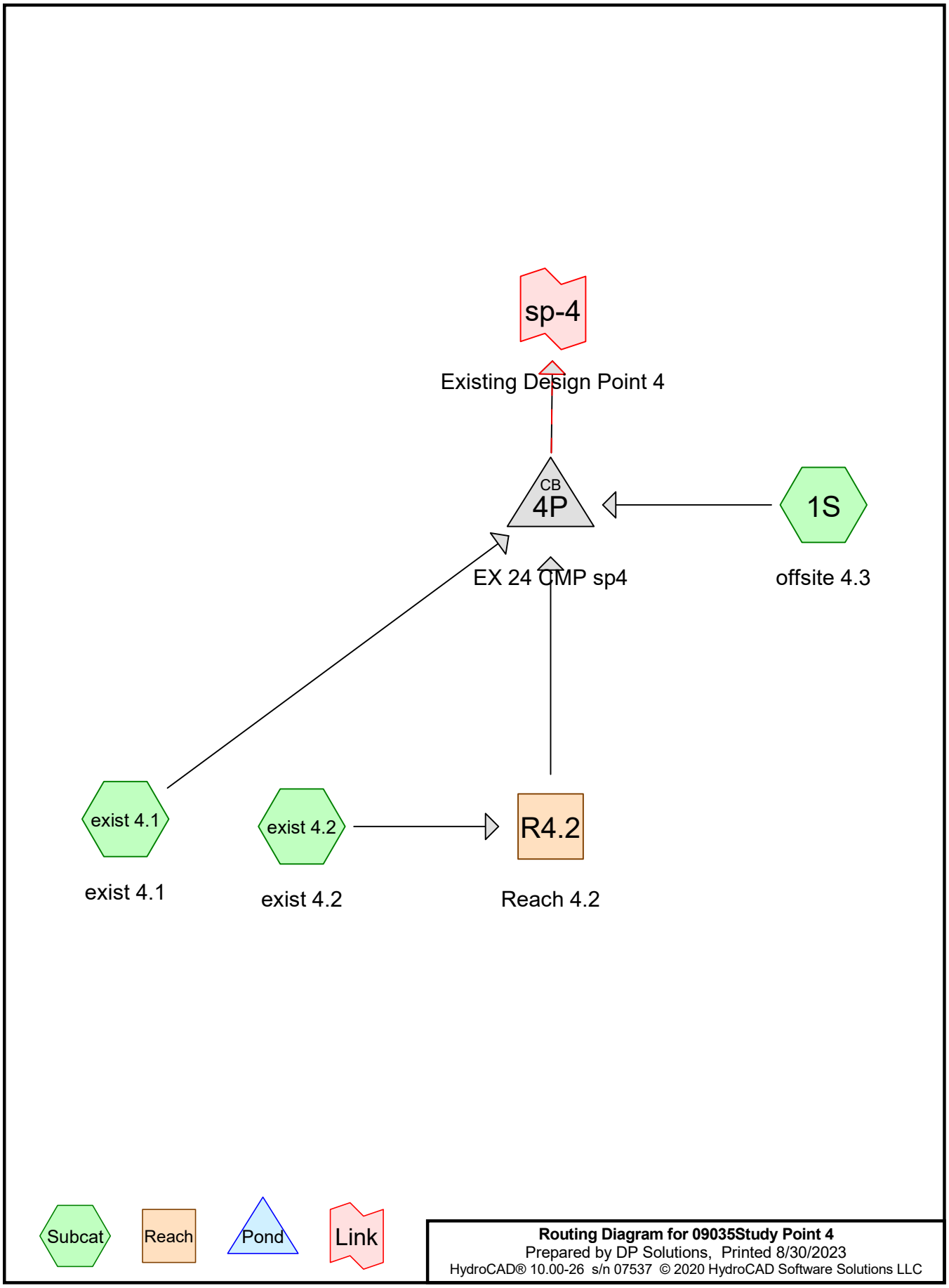
Summary for Link 5L: Prop DP 3 Runoff

Inflow Area = 19.770 ac, 0.00% Impervious, Inflow Depth = 4.49" for 100yr Talbot event
Inflow = 44.93 cfs @ 12.37 hrs, Volume= 7.402 af
Primary = 44.93 cfs @ 12.38 hrs, Volume= 7.402 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 3.00-100.00 hrs, dt= 0.01 hrs

Appendix V.A

HydroCAD – Study Point No. 4 – Existing Conditions


sp-4
Existing Design Point 4
CB
4P
EX 24 CMP sp4
1S
offsite 4.3
exist 4.1
exist 4.1
exist 4.2
exist 4.2
R4.2
Reach 4.2
Subcat
Reach
Pond
Link
Routing Diagram for 09035Study Point 4
Prepared by DP Solutions, Printed 8/30/2023
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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
9.520	76	(1S)
50.870	65	(exist 4.1)
10.380	74	(exist 4.2)
70.770	**68**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
70.770	Other	1S, exist 4.1, exist 4.2
70.770		**TOTAL AREA**

09035Study Point 4
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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	70.770	70.770		1S, exist 4.1, exist 4.2
0.000	**0.000**	**0.000**	**0.000**	**70.770**	**70.770**	**TOTAL AREA**	

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: offsite 4.3 Runoff Area=9.520 ac 0.00% Impervious Runoff Depth=1.29"
Tc=17.4 min CN=76 Runoff=9.34 cfs 1.026 af

Subcatchment exist 4.1: exist 4.1 Runoff Area=50.870 ac 0.00% Impervious Runoff Depth=0.70"
Tc=16.8 min CN=65 Runoff=22.54 cfs 2.968 af

Subcatchment exist 4.2: exist 4.2 Runoff Area=10.380 ac 0.00% Impervious Runoff Depth=1.17"
Tc=13.8 min CN=74 Runoff=10.60 cfs 1.013 af

Reach R4.2: Reach 4.2 Avg. Flow Depth=0.79' Max Vel=2.15 fps Inflow=10.60 cfs 1.013 af
n=0.030 L=1,000.0' S=0.0044 '/' Capacity=164.38 cfs Outflow=9.03 cfs 1.013 af

Pond 4P: EX 24 CMP sp4 Peak Elev=48.84' Inflow=40.56 cfs 5.007 af
Primary=22.54 cfs 4.543 af Secondary=18.02 cfs 0.464 af Outflow=40.56 cfs 5.007 af

Link sp-4: Existing Design Point 4 Inflow=40.56 cfs 5.007 af
Primary=40.56 cfs 5.007 af

Total Runoff Area = 70.770 ac Runoff Volume = 5.007 af Average Runoff Depth = 0.85"
100.00% Pervious = 70.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: offsite 4.3

Runoff = 9.34 cfs @ 12.14 hrs, Volume= 1.026 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	9.520	76	
	9.520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.4					**Direct Entry,**

Summary for Subcatchment exist 4.1: exist 4.1

Runoff = 22.54 cfs @ 12.13 hrs, Volume= 2.968 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	50.870	65	
	50.870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry,**

Summary for Subcatchment exist 4.2: exist 4.2

Runoff = 10.60 cfs @ 12.08 hrs, Volume= 1.013 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	10.380	74	
	10.380		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Reach R4.2: Reach 4.2

Inflow Area = 10.380 ac, 0.00% Impervious, Inflow Depth = 1.17" for 2yr Talbot event
Inflow = 10.60 cfs @ 12.08 hrs, Volume= 1.013 af
Outflow = 9.03 cfs @ 12.19 hrs, Volume= 1.013 af, Atten= 15%, Lag= 6.2 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.15 fps, Min. Travel Time= 7.8 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 102.5 min

Peak Storage= 4,208 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.79'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 164.38 cfs

3.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 1,000.0' Slope= 0.0044 '/'
Inlet Invert= 48.60', Outlet Invert= 44.20'

Stage-Discharge for Reach R4.2: Reach 4.2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
48.60	0.00	0.00
48.62	0.21	0.02
48.64	0.37	0.05
48.66	0.48	0.09
48.68	0.58	0.15
48.70	0.66	0.22
48.72	0.74	0.30
48.74	0.81	0.39
48.76	0.88	0.49
48.78	0.94	0.60
48.80	1.00	0.73
48.82	1.06	0.86
48.84	1.11	1.00
48.86	1.17	1.15
48.88	1.22	1.31
48.90	1.27	1.48
48.92	1.31	1.66
48.94	1.36	1.86
48.96	1.40	2.06
48.98	1.44	2.27
49.00	1.48	2.50
49.02	1.53	2.73
49.04	1.56	2.98
49.06	1.60	3.23
49.08	1.64	3.50
49.10	1.68	3.78
49.12	1.71	4.07
49.14	1.75	4.37
49.16	1.79	4.68
49.18	1.82	5.01
49.20	1.85	5.34
49.22	1.89	5.69
49.24	1.92	6.05
49.26	1.95	6.42
49.28	1.98	6.80
49.30	2.02	7.20
49.32	2.05	7.61
49.34	2.08	8.03
49.36	2.11	8.46
49.38	2.14	8.91
49.40	2.17	9.37
49.42	2.20	9.84
49.44	2.23	10.32
49.46	2.26	10.83
49.48	2.28	11.34
49.50	2.31	11.86
49.52	2.34	12.40
49.54	2.37	12.95
49.56	2.39	13.52
49.58	2.42	14.10
49.60	2.45	14.70
49.62	2.48	15.30
49.64	2.50	15.93
49.66	2.53	16.57
49.68	2.55	17.22
49.70	2.58	17.89
49.72	2.61	18.57
49.74	2.63	19.26
49.76	2.66	19.98
49.78	2.68	20.70
49.80	2.71	21.44
49.82	2.73	22.20
49.84	2.76	22.98
49.86	2.78	23.76
49.88	2.81	24.57
49.90	2.83	25.39
49.92	2.85	26.22
49.94	2.88	27.08
49.96	2.90	27.94
49.98	2.93	28.83
50.00	2.95	29.73
50.02	2.97	30.65
50.04	3.00	31.58
50.06	3.02	32.53
50.08	3.04	33.50
50.10	3.06	34.48
50.12	3.09	35.49
50.14	3.11	36.51
50.16	3.13	37.54
50.18	3.16	38.60
50.20	3.18	39.67
50.22	3.20	40.75
50.24	3.22	41.86
50.26	3.24	42.99
50.28	3.27	44.12
50.30	3.29	45.29
50.32	3.31	46.47
50.34	3.33	47.66
50.36	3.35	48.88
50.38	3.38	50.11
50.40	3.40	51.36
50.42	3.42	52.63
50.44	3.44	53.92
50.46	3.46	55.23
50.48	3.48	56.56
50.50	3.50	57.91
50.52	3.52	59.27
50.54	3.54	60.66
50.56	3.57	62.06
50.58	3.59	63.48
50.60	3.61	64.93
50.62	3.63	66.39
50.64	3.65	67.87
50.66	3.67	69.38
50.68	3.69	70.90
50.70	3.71	72.44
50.72	3.73	74.01
50.74	3.75	75.60
50.76	3.77	77.20
50.78	3.79	78.83
50.80	3.81	80.47
50.82	3.83	82.13
50.84	3.85	83.83
50.86	3.87	85.53
50.88	3.89	87.26
50.90	3.91	89.01
50.92	3.93	90.79
50.94	3.95	92.57
50.96	3.97	94.39
50.98	3.99	96.23
51.00	4.01	98.08
51.02	4.03	99.97
51.04	4.05	101.87
51.06	4.06	103.79
51.08	4.08	105.74
51.10	4.10	107.71
51.12	4.12	109.69
51.14	4.14	111.71
51.16	4.16	113.75
51.18	4.18	115.80
51.20	4.20	117.88
51.22	4.22	119.99
51.24	4.24	122.11
51.26	4.25	124.26
51.28	4.27	126.43
51.30	4.29	128.62
51.32	4.31	130.85
51.34	4.33	133.09
51.36	4.35	135.35
51.38	4.37	137.64
51.40	4.38	139.95
51.42	4.40	142.28
51.44	4.42	144.65
51.46	4.44	147.03
51.48	4.46	149.43
51.50	4.48	151.87
51.52	4.49	154.32
51.54	4.51	156.80
51.56	4.53	159.31
51.58	4.55	161.84
51.60	**4.57**	**164.38**

Summary for Pond 4P: EX 24 CMP sp4

Inflow Area =	70.770 ac,	0.00% Impervious,	Inflow Depth =	0.85"	for 2yr Talbot event
Inflow =	40.56 cfs @	12.14 hrs,	Volume=	5.007 af	
Outflow =	40.56 cfs @	12.15 hrs,	Volume=	5.007 af,	Atten= 0%, Lag= 0.6 min
Primary =	22.54 cfs @	12.15 hrs,	Volume=	4.543 af	
Secondary =	18.02 cfs @	12.15 hrs,	Volume=	0.464 af	

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 48.84' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	44.45'	**24.0" Round Culvert** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.45' / 44.05' S= 0.0100 '/' Cc= 0.900 n= 0.026, Flow Area= 3.14 sf
#2	Secondary	48.60'	**CL Heiners Lane as Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 1.40 2.40 2.90 Width (feet) 0.00 190.00 335.00 583.00 665.00

Primary OutFlow Max=22.54 cfs @ 12.15 hrs HW=48.84' TW=45.36' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 22.54 cfs @ 7.17 fps)

Secondary OutFlow Max=18.01 cfs @ 12.15 hrs HW=48.84' TW=45.36' (Dynamic Tailwater)
└─**2=CL Heiners Lane as Weir** (Weir Controls 18.01 cfs @ 1.29 fps)

Stage-Discharge for Pond 4P: EX 24 CMP sp4

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
44.45	0.00	0.00	0.00
44.55	0.03	0.03	0.00
44.65	0.13	0.13	0.00
44.75	0.31	0.31	0.00
44.85	0.56	0.56	0.00
44.95	0.88	0.88	0.00
45.05	1.28	1.28	0.00
45.15	1.73	1.73	0.00
45.25	2.25	2.25	0.00
45.35	2.82	2.82	0.00
45.45	3.43	3.43	0.00
45.55	4.09	4.09	0.00
45.65	4.79	4.79	0.00
45.75	5.52	5.52	0.00
45.85	6.28	6.28	0.00
45.95	7.06	7.06	0.00
46.05	7.86	7.86	0.00
46.15	8.66	8.66	0.00
46.25	9.45	9.45	0.00
46.35	10.24	10.24	0.00
46.45	11.01	11.01	0.00
46.55	11.75	11.75	0.00
46.65	12.45	12.45	0.00
46.75	13.08	13.08	0.00
46.85	13.62	13.62	0.00
46.95	14.04	14.04	0.00
47.05	14.24	14.24	0.00
47.15	14.15	14.15	0.00
47.25	14.77	14.77	0.00
47.35	15.38	15.38	0.00
47.45	15.96	15.96	0.00
47.55	16.52	16.52	0.00
47.65	17.06	17.06	0.00
47.75	17.59	17.59	0.00
47.85	18.10	18.10	0.00
47.95	18.59	18.59	0.00
48.05	19.07	19.07	0.00
48.15	19.55	19.55	0.00
48.25	20.00	20.00	0.00
48.35	20.45	20.45	0.00
48.45	20.89	20.89	0.00
48.55	21.33	21.33	0.00
48.65	22.10	21.75	0.35
48.75	27.58	22.16	5.42
48.85	42.01	22.57	19.45
48.95	68.06	22.97	45.10
49.05	107.65	23.36	84.29
49.15	159.58	23.75	135.83
49.25	222.57	24.13	198.45
49.35	296.29	24.50	271.79
49.45	380.63	24.87	355.76
49.55	475.61	25.23	450.38
49.65	581.31	25.59	555.72
49.75	697.84	25.94	671.90
49.85	825.36	26.29	799.07
49.95	964.01	26.64	937.38
50.05	1,114.05	26.97	1,087.07
50.15	1,276.59	27.31	1,249.28
50.25	1,452.74	27.64	1,425.10
50.35	1,643.25	27.97	1,615.29
50.45	1,848.78	28.29	1,820.49
50.55	2,069.92	28.61	2,041.31
50.65	2,307.20	28.93	2,278.28
50.75	2,561.15	29.24	2,531.91
50.85	2,832.24	29.55	2,802.69
50.95	3,120.94	29.86	3,091.08
51.05	3,427.64	30.16	3,397.48
51.15	3,752.00	30.46	3,721.54
51.25	4,093.69	30.76	4,062.93
51.35	4,452.65	31.05	4,421.60
51.45	**4,828.89**	**31.34**	**4,797.54**

Summary for Link sp-4: Existing Design Point 4

Inflow Area = 70.770 ac, 0.00% Impervious, Inflow Depth = 0.85" for 2yr Talbot event
Inflow = 40.56 cfs @ 12.15 hrs, Volume= 5.007 af
Primary = 40.56 cfs @ 12.16 hrs, Volume= 5.007 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

102 Point manual elevation table, To= 0.00 hrs, dt= 0.25 hrs, feet =

44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.08	44.17	44.25	44.75	45.75	45.90	45.50	45.00	44.88
44.75	44.63	44.50	44.46	44.42	44.38	44.33	44.29	44.25
44.24	44.24	44.23	44.22	44.22	44.21	44.20	44.20	44.19
44.18	44.18	44.17	44.16	44.16	44.15	44.14	44.14	44.13
44.13	44.12	44.11	44.11	44.10	44.09	44.09	44.08	44.07
44.07	44.06	44.05	44.05	44.04	44.03	44.03	44.02	44.01
44.01	44.00	44.00						

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: offsite 4.3 Runoff Area=9.520 ac 0.00% Impervious Runoff Depth=2.78"
Tc=17.4 min CN=76 Runoff=21.03 cfs 2.209 af

Subcatchment exist 4.1: exist 4.1 Runoff Area=50.870 ac 0.00% Impervious Runoff Depth=1.86"
Tc=16.8 min CN=65 Runoff=72.20 cfs 7.869 af

Subcatchment exist 4.2: exist 4.2 Runoff Area=10.380 ac 0.00% Impervious Runoff Depth=2.61"
Tc=13.8 min CN=74 Runoff=24.84 cfs 2.254 af

Reach R4.2: Reach 4.2 Avg. Flow Depth=1.22' Max Vel=2.74 fps Inflow=24.84 cfs 2.254 af
n=0.030 L=1,000.0' S=0.0044 '/' Capacity=164.38 cfs Outflow=22.36 cfs 2.254 af

Pond 4P: EX 24 CMP sp4 Peak Elev=49.07' Inflow=115.23 cfs 12.332 af
Primary=23.42 cfs 8.312 af Secondary=91.81 cfs 4.020 af Outflow=115.23 cfs 12.332 af

Link sp-4: Existing Design Point 4 Inflow=115.23 cfs 12.332 af
Primary=115.23 cfs 12.332 af

Total Runoff Area = 70.770 ac Runoff Volume = 12.332 af Average Runoff Depth = 2.09"
100.00% Pervious = 70.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: offsite 4.3

Runoff = 21.03 cfs @ 12.11 hrs, Volume= 2.209 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	9.520	76	
	9.520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.4					**Direct Entry,**

Summary for Subcatchment exist 4.1: exist 4.1

Runoff = 72.20 cfs @ 12.13 hrs, Volume= 7.869 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	50.870	65	
	50.870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry,**

Summary for Subcatchment exist 4.2: exist 4.2

Runoff = 24.84 cfs @ 12.08 hrs, Volume= 2.254 af, Depth= 2.61"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	10.380	74	
	10.380		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Reach R4.2: Reach 4.2

Inflow Area = 10.380 ac, 0.00% Impervious, Inflow Depth = 2.61" for 10yr Talbot event
Inflow = 24.84 cfs @ 12.08 hrs, Volume= 2.254 af
Outflow = 22.36 cfs @ 12.16 hrs, Volume= 2.254 af, Atten= 10%, Lag= 4.5 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.74 fps, Min. Travel Time= 6.1 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 79.3 min

Peak Storage= 8,168 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.22'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 164.38 cfs

3.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 1,000.0' Slope= 0.0044 '/'
Inlet Invert= 48.60', Outlet Invert= 44.20'

Stage-Discharge for Reach R4.2: Reach 4.2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
48.60	0.00	0.00
48.62	0.21	0.02
48.64	0.37	0.05
48.66	0.48	0.09
48.68	0.58	0.15
48.70	0.66	0.22
48.72	0.74	0.30
48.74	0.81	0.39
48.76	0.88	0.49
48.78	0.94	0.60
48.80	1.00	0.73
48.82	1.06	0.86
48.84	1.11	1.00
48.86	1.17	1.15
48.88	1.22	1.31
48.90	1.27	1.48
48.92	1.31	1.66
48.94	1.36	1.86
48.96	1.40	2.06
48.98	1.44	2.27
49.00	1.48	2.50
49.02	1.53	2.73
49.04	1.56	2.98
49.06	1.60	3.23
49.08	1.64	3.50
49.10	1.68	3.78
49.12	1.71	4.07
49.14	1.75	4.37
49.16	1.79	4.68
49.18	1.82	5.01
49.20	1.85	5.34
49.22	1.89	5.69
49.24	1.92	6.05
49.26	1.95	6.42
49.28	1.98	6.80
49.30	2.02	7.20
49.32	2.05	7.61
49.34	2.08	8.03
49.36	2.11	8.46
49.38	2.14	8.91
49.40	2.17	9.37
49.42	2.20	9.84
49.44	2.23	10.32
49.46	2.26	10.83
49.48	2.28	11.34
49.50	2.31	11.86
49.52	2.34	12.40
49.54	2.37	12.95
49.56	2.39	13.52
49.58	2.42	14.10
49.60	2.45	14.70
49.62	2.48	15.30
49.64	2.50	15.93
49.66	2.53	16.57
49.68	2.55	17.22
49.70	2.58	17.89
49.72	2.61	18.57
49.74	2.63	19.26
49.76	2.66	19.98
49.78	2.68	20.70
49.80	2.71	21.44
49.82	2.73	22.20
49.84	2.76	22.98
49.86	2.78	23.76
49.88	2.81	24.57
49.90	2.83	25.39
49.92	2.85	26.22
49.94	2.88	27.08
49.96	2.90	27.94
49.98	2.93	28.83
50.00	2.95	29.73
50.02	2.97	30.65
50.04	3.00	31.58
50.06	3.02	32.53
50.08	3.04	33.50
50.10	3.06	34.48
50.12	3.09	35.49
50.14	3.11	36.51
50.16	3.13	37.54
50.18	3.16	38.60
50.20	3.18	39.67
50.22	3.20	40.75
50.24	3.22	41.86
50.26	3.24	42.99
50.28	3.27	44.12
50.30	3.29	45.29
50.32	3.31	46.47
50.34	3.33	47.66
50.36	3.35	48.88
50.38	3.38	50.11
50.40	3.40	51.36
50.42	3.42	52.63
50.44	3.44	53.92
50.46	3.46	55.23
50.48	3.48	56.56
50.50	3.50	57.91
50.52	3.52	59.27
50.54	3.54	60.66
50.56	3.57	62.06
50.58	3.59	63.48
50.60	3.61	64.93
50.62	3.63	66.39
50.64	3.65	67.87
50.66	3.67	69.38
50.68	3.69	70.90
50.70	3.71	72.44
50.72	3.73	74.01
50.74	3.75	75.60
50.76	3.77	77.20
50.78	3.79	78.83
50.80	3.81	80.47
50.82	3.83	82.13
50.84	3.85	83.83
50.86	3.87	85.53
50.88	3.89	87.26
50.90	3.91	89.01
50.92	3.93	90.79
50.94	3.95	92.57
50.96	3.97	94.39
50.98	3.99	96.23
51.00	4.01	98.08
51.02	4.03	99.97
51.04	4.05	101.87
51.06	4.06	103.79
51.08	4.08	105.74
51.10	4.10	107.71
51.12	4.12	109.69
51.14	4.14	111.71
51.16	4.16	113.75
51.18	4.18	115.80
51.20	4.20	117.88
51.22	4.22	119.99
51.24	4.24	122.11
51.26	4.25	124.26
51.28	4.27	126.43
51.30	4.29	128.62
51.32	4.31	130.85
51.34	4.33	133.09
51.36	4.35	135.35
51.38	4.37	137.64
51.40	4.38	139.95
51.42	4.40	142.28
51.44	4.42	144.65
51.46	4.44	147.03
51.48	4.46	149.43
51.50	4.48	151.87
51.52	4.49	154.32
51.54	4.51	156.80
51.56	4.53	159.31
51.58	4.55	161.84
51.60	**4.57**	**164.38**

Summary for Pond 4P: EX 24 CMP sp4

Inflow Area =	70.770 ac,	0.00% Impervious,	Inflow Depth =	2.09"	for 10yr Talbot event
Inflow =	115.23 cfs @	12.13 hrs,	Volume=	12.332 af	
Outflow =	115.23 cfs @	12.14 hrs,	Volume=	12.332 af,	Atten= 0%, Lag= 0.6 min
Primary =	23.42 cfs @	12.14 hrs,	Volume=	8.312 af	
Secondary =	91.81 cfs @	12.14 hrs,	Volume=	4.020 af	

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 49.07' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	44.45'	**24.0" Round Culvert** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.45' / 44.05' S= 0.0100 '/' Cc= 0.900 n= 0.026, Flow Area= 3.14 sf
#2	Secondary	48.60'	**CL Heiners Lane as Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 1.40 2.40 2.90 Width (feet) 0.00 190.00 335.00 583.00 665.00

Primary OutFlow Max=23.42 cfs @ 12.14 hrs HW=49.07' TW=45.31' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 23.42 cfs @ 7.46 fps)

Secondary OutFlow Max=91.81 cfs @ 12.14 hrs HW=49.07' TW=45.31' (Dynamic Tailwater)
└─**2=CL Heiners Lane as Weir** (Weir Controls 91.81 cfs @ 1.80 fps)

Stage-Discharge for Pond 4P: EX 24 CMP sp4

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
44.45	0.00	0.00	0.00
44.55	0.03	0.03	0.00
44.65	0.13	0.13	0.00
44.75	0.31	0.31	0.00
44.85	0.56	0.56	0.00
44.95	0.88	0.88	0.00
45.05	1.28	1.28	0.00
45.15	1.73	1.73	0.00
45.25	2.25	2.25	0.00
45.35	2.82	2.82	0.00
45.45	3.43	3.43	0.00
45.55	4.09	4.09	0.00
45.65	4.79	4.79	0.00
45.75	5.52	5.52	0.00
45.85	6.28	6.28	0.00
45.95	7.06	7.06	0.00
46.05	7.86	7.86	0.00
46.15	8.66	8.66	0.00
46.25	9.45	9.45	0.00
46.35	10.24	10.24	0.00
46.45	11.01	11.01	0.00
46.55	11.75	11.75	0.00
46.65	12.45	12.45	0.00
46.75	13.08	13.08	0.00
46.85	13.62	13.62	0.00
46.95	14.04	14.04	0.00
47.05	14.24	14.24	0.00
47.15	14.15	14.15	0.00
47.25	14.77	14.77	0.00
47.35	15.38	15.38	0.00
47.45	15.96	15.96	0.00
47.55	16.52	16.52	0.00
47.65	17.06	17.06	0.00
47.75	17.59	17.59	0.00
47.85	18.10	18.10	0.00
47.95	18.59	18.59	0.00
48.05	19.07	19.07	0.00
48.15	19.55	19.55	0.00
48.25	20.00	20.00	0.00
48.35	20.45	20.45	0.00
48.45	20.89	20.89	0.00
48.55	21.33	21.33	0.00
48.65	22.10	21.75	0.35
48.75	27.58	22.16	5.42
48.85	42.01	22.57	19.45
48.95	68.06	22.97	45.10
49.05	107.65	23.36	84.29
49.15	159.58	23.75	135.83
49.25	222.57	24.13	198.45
49.35	296.29	24.50	271.79
49.45	380.63	24.87	355.76
49.55	475.61	25.23	450.38
49.65	581.31	25.59	555.72
49.75	697.84	25.94	671.90
49.85	825.36	26.29	799.07
49.95	964.01	26.64	937.38
50.05	1,114.05	26.97	1,087.07
50.15	1,276.59	27.31	1,249.28
50.25	1,452.74	27.64	1,425.10
50.35	1,643.25	27.97	1,615.29
50.45	1,848.78	28.29	1,820.49
50.55	2,069.92	28.61	2,041.31
50.65	2,307.20	28.93	2,278.28
50.75	2,561.15	29.24	2,531.91
50.85	2,832.24	29.55	2,802.69
50.95	3,120.94	29.86	3,091.08
51.05	3,427.64	30.16	3,397.48
51.15	3,752.00	30.46	3,721.54
51.25	4,093.69	30.76	4,062.93
51.35	4,452.65	31.05	4,421.60
51.45	**4,828.89**	**31.34**	**4,797.54**

Summary for Link sp-4: Existing Design Point 4

Inflow Area = 70.770 ac, 0.00% Impervious, Inflow Depth = 2.09" for 10yr Talbot event
Inflow = 115.23 cfs @ 12.14 hrs, Volume= 12.332 af
Primary = 115.23 cfs @ 12.15 hrs, Volume= 12.332 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

102 Point manual elevation table, To= 0.00 hrs, dt= 0.25 hrs, feet =

44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.08	44.17	44.25	44.75	45.75	45.90	45.50	45.00	44.88
44.75	44.63	44.50	44.46	44.42	44.38	44.33	44.29	44.25
44.24	44.24	44.23	44.22	44.22	44.21	44.20	44.20	44.19
44.18	44.18	44.17	44.16	44.16	44.15	44.14	44.14	44.13
44.13	44.12	44.11	44.11	44.10	44.09	44.09	44.08	44.07
44.07	44.06	44.05	44.05	44.04	44.03	44.03	44.02	44.01
44.01	44.00	44.00						

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1S: offsite 4.3 Runoff Area=9.520 ac 0.00% Impervious Runoff Depth=4.80"
Tc=17.4 min CN=76 Runoff=36.46 cfs 3.804 af

Subcatchment exist 4.1: exist 4.1 Runoff Area=50.870 ac 0.00% Impervious Runoff Depth=3.57"
Tc=16.8 min CN=65 Runoff=146.06 cfs 15.148 af

Subcatchment exist 4.2: exist 4.2 Runoff Area=10.380 ac 0.00% Impervious Runoff Depth=4.57"
Tc=13.8 min CN=74 Runoff=43.89 cfs 3.953 af

Reach R4.2: Reach 4.2 Avg. Flow Depth=1.62' Max Vel=3.20 fps Inflow=43.89 cfs 3.953 af
n=0.030 L=1,000.0' S=0.0044 '/' Capacity=164.38 cfs Outflow=40.56 cfs 3.953 af

Pond 4P: EX 24 CMP sp4 Peak Elev=49.25' Inflow=222.27 cfs 22.905 af
Primary=24.13 cfs 12.626 af Secondary=198.15 cfs 10.279 af Outflow=222.27 cfs 22.905 af

Link sp-4: Existing Design Point 4 Inflow=222.27 cfs 22.905 af
Primary=222.27 cfs 22.905 af

Total Runoff Area = 70.770 ac Runoff Volume = 22.905 af Average Runoff Depth = 3.88"
100.00% Pervious = 70.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: offsite 4.3

Runoff = 36.46 cfs @ 12.11 hrs, Volume= 3.804 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	9.520	76	
	9.520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.4					**Direct Entry,**

Summary for Subcatchment exist 4.1: exist 4.1

Runoff = 146.06 cfs @ 12.10 hrs, Volume= 15.148 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	50.870	65	
	50.870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry,**

Summary for Subcatchment exist 4.2: exist 4.2

Runoff = 43.89 cfs @ 12.08 hrs, Volume= 3.953 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	10.380	74	
	10.380		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Reach R4.2: Reach 4.2

Inflow Area = 10.380 ac, 0.00% Impervious, Inflow Depth = 4.57" for 100yr Talbot event
Inflow = 43.89 cfs @ 12.08 hrs, Volume= 3.953 af
Outflow = 40.56 cfs @ 12.14 hrs, Volume= 3.953 af, Atten= 8%, Lag= 3.7 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.20 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 65.4 min

Peak Storage= 12,688 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.62'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 164.38 cfs

3.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 1,000.0' Slope= 0.0044 '/'
Inlet Invert= 48.60', Outlet Invert= 44.20'

Stage-Discharge for Reach R4.2: Reach 4.2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
48.60	0.00	0.00
48.62	0.21	0.02
48.64	0.37	0.05
48.66	0.48	0.09
48.68	0.58	0.15
48.70	0.66	0.22
48.72	0.74	0.30
48.74	0.81	0.39
48.76	0.88	0.49
48.78	0.94	0.60
48.80	1.00	0.73
48.82	1.06	0.86
48.84	1.11	1.00
48.86	1.17	1.15
48.88	1.22	1.31
48.90	1.27	1.48
48.92	1.31	1.66
48.94	1.36	1.86
48.96	1.40	2.06
48.98	1.44	2.27
49.00	1.48	2.50
49.02	1.53	2.73
49.04	1.56	2.98
49.06	1.60	3.23
49.08	1.64	3.50
49.10	1.68	3.78
49.12	1.71	4.07
49.14	1.75	4.37
49.16	1.79	4.68
49.18	1.82	5.01
49.20	1.85	5.34
49.22	1.89	5.69
49.24	1.92	6.05
49.26	1.95	6.42
49.28	1.98	6.80
49.30	2.02	7.20
49.32	2.05	7.61
49.34	2.08	8.03
49.36	2.11	8.46
49.38	2.14	8.91
49.40	2.17	9.37
49.42	2.20	9.84
49.44	2.23	10.32
49.46	2.26	10.83
49.48	2.28	11.34
49.50	2.31	11.86
49.52	2.34	12.40
49.54	2.37	12.95
49.56	2.39	13.52
49.58	2.42	14.10
49.60	2.45	14.70
49.62	2.48	15.30
49.64	2.50	15.93
49.66	2.53	16.57
49.68	2.55	17.22
49.70	2.58	17.89
49.72	2.61	18.57
49.74	2.63	19.26
49.76	2.66	19.98
49.78	2.68	20.70
49.80	2.71	21.44
49.82	2.73	22.20
49.84	2.76	22.98
49.86	2.78	23.76
49.88	2.81	24.57
49.90	2.83	25.39
49.92	2.85	26.22
49.94	2.88	27.08
49.96	2.90	27.94
49.98	2.93	28.83
50.00	2.95	29.73
50.02	2.97	30.65
50.04	3.00	31.58
50.06	3.02	32.53
50.08	3.04	33.50
50.10	3.06	34.48
50.12	3.09	35.49
50.14	3.11	36.51
50.16	3.13	37.54
50.18	3.16	38.60
50.20	3.18	39.67
50.22	3.20	40.75
50.24	3.22	41.86
50.26	3.24	42.99
50.28	3.27	44.12
50.30	3.29	45.29
50.32	3.31	46.47
50.34	3.33	47.66
50.36	3.35	48.88
50.38	3.38	50.11
50.40	3.40	51.36
50.42	3.42	52.63
50.44	3.44	53.92
50.46	3.46	55.23
50.48	3.48	56.56
50.50	3.50	57.91
50.52	3.52	59.27
50.54	3.54	60.66
50.56	3.57	62.06
50.58	3.59	63.48
50.60	3.61	64.93
50.62	3.63	66.39
50.64	3.65	67.87
50.66	3.67	69.38
50.68	3.69	70.90
50.70	3.71	72.44
50.72	3.73	74.01
50.74	3.75	75.60
50.76	3.77	77.20
50.78	3.79	78.83
50.80	3.81	80.47
50.82	3.83	82.13
50.84	3.85	83.83
50.86	3.87	85.53
50.88	3.89	87.26
50.90	3.91	89.01
50.92	3.93	90.79
50.94	3.95	92.57
50.96	3.97	94.39
50.98	3.99	96.23
51.00	4.01	98.08
51.02	4.03	99.97
51.04	4.05	101.87
51.06	4.06	103.79
51.08	4.08	105.74
51.10	4.10	107.71
51.12	4.12	109.69
51.14	4.14	111.71
51.16	4.16	113.75
51.18	4.18	115.80
51.20	4.20	117.88
51.22	4.22	119.99
51.24	4.24	122.11
51.26	4.25	124.26
51.28	4.27	126.43
51.30	4.29	128.62
51.32	4.31	130.85
51.34	4.33	133.09
51.36	4.35	135.35
51.38	4.37	137.64
51.40	4.38	139.95
51.42	4.40	142.28
51.44	4.42	144.65
51.46	4.44	147.03
51.48	4.46	149.43
51.50	4.48	151.87
51.52	4.49	154.32
51.54	4.51	156.80
51.56	4.53	159.31
51.58	4.55	161.84
51.60	**4.57**	**164.38**

Summary for Pond 4P: EX 24 CMP sp4

Inflow Area =	70.770 ac,	0.00% Impervious,	Inflow Depth =	3.88"	for 100yr Talbot event
Inflow =	222.27 cfs @	12.12 hrs,	Volume=	22.905 af	
Outflow =	222.27 cfs @	12.13 hrs,	Volume=	22.905 af,	Atten= 0%, Lag= 0.6 min
Primary =	24.13 cfs @	12.13 hrs,	Volume=	12.626 af	
Secondary =	198.15 cfs @	12.13 hrs,	Volume=	10.279 af	

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 49.25' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	44.45'	**24.0" Round Culvert** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.45' / 44.05' S= 0.0100 '/' Cc= 0.900 n= 0.026, Flow Area= 3.14 sf
#2	Secondary	48.60'	**CL Heiners Lane as Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 1.40 2.40 2.90 Width (feet) 0.00 190.00 335.00 583.00 665.00

Primary OutFlow Max=24.13 cfs @ 12.13 hrs HW=49.25' TW=45.28' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 24.13 cfs @ 7.68 fps)

Secondary OutFlow Max=198.13 cfs @ 12.13 hrs HW=49.25' TW=45.28' (Dynamic Tailwater)
└─**2=CL Heiners Lane as Weir** (Weir Controls 198.13 cfs @ 2.20 fps)

Stage-Discharge for Pond 4P: EX 24 CMP sp4

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
44.45	0.00	0.00	0.00
44.55	0.03	0.03	0.00
44.65	0.13	0.13	0.00
44.75	0.31	0.31	0.00
44.85	0.56	0.56	0.00
44.95	0.88	0.88	0.00
45.05	1.28	1.28	0.00
45.15	1.73	1.73	0.00
45.25	2.25	2.25	0.00
45.35	2.82	2.82	0.00
45.45	3.43	3.43	0.00
45.55	4.09	4.09	0.00
45.65	4.79	4.79	0.00
45.75	5.52	5.52	0.00
45.85	6.28	6.28	0.00
45.95	7.06	7.06	0.00
46.05	7.86	7.86	0.00
46.15	8.66	8.66	0.00
46.25	9.45	9.45	0.00
46.35	10.24	10.24	0.00
46.45	11.01	11.01	0.00
46.55	11.75	11.75	0.00
46.65	12.45	12.45	0.00
46.75	13.08	13.08	0.00
46.85	13.62	13.62	0.00
46.95	14.04	14.04	0.00
47.05	14.24	14.24	0.00
47.15	14.15	14.15	0.00
47.25	14.77	14.77	0.00
47.35	15.38	15.38	0.00
47.45	15.96	15.96	0.00
47.55	16.52	16.52	0.00
47.65	17.06	17.06	0.00
47.75	17.59	17.59	0.00
47.85	18.10	18.10	0.00
47.95	18.59	18.59	0.00
48.05	19.07	19.07	0.00
48.15	19.55	19.55	0.00
48.25	20.00	20.00	0.00
48.35	20.45	20.45	0.00
48.45	20.89	20.89	0.00
48.55	21.33	21.33	0.00
48.65	22.10	21.75	0.35
48.75	27.58	22.16	5.42
48.85	42.01	22.57	19.45
48.95	68.06	22.97	45.10
49.05	107.65	23.36	84.29
49.15	159.58	23.75	135.83
49.25	222.57	24.13	198.45
49.35	296.29	24.50	271.79
49.45	380.63	24.87	355.76
49.55	475.61	25.23	450.38
49.65	581.31	25.59	555.72
49.75	697.84	25.94	671.90
49.85	825.36	26.29	799.07
49.95	964.01	26.64	937.38
50.05	1,114.05	26.97	1,087.07
50.15	1,276.59	27.31	1,249.28
50.25	1,452.74	27.64	1,425.10
50.35	1,643.25	27.97	1,615.29
50.45	1,848.78	28.29	1,820.49
50.55	2,069.92	28.61	2,041.31
50.65	2,307.20	28.93	2,278.28
50.75	2,561.15	29.24	2,531.91
50.85	2,832.24	29.55	2,802.69
50.95	3,120.94	29.86	3,091.08
51.05	3,427.64	30.16	3,397.48
51.15	3,752.00	30.46	3,721.54
51.25	4,093.69	30.76	4,062.93
51.35	4,452.65	31.05	4,421.60
51.45	**4,828.89**	**31.34**	**4,797.54**

Summary for Link sp-4: Existing Design Point 4

Inflow Area = 70.770 ac, 0.00% Impervious, Inflow Depth = 3.88" for 100yr Talbot event
Inflow = 222.27 cfs @ 12.13 hrs, Volume= 22.905 af
Primary = 222.27 cfs @ 12.14 hrs, Volume= 22.905 af, Atten= 0%, Lag= 0.6 min

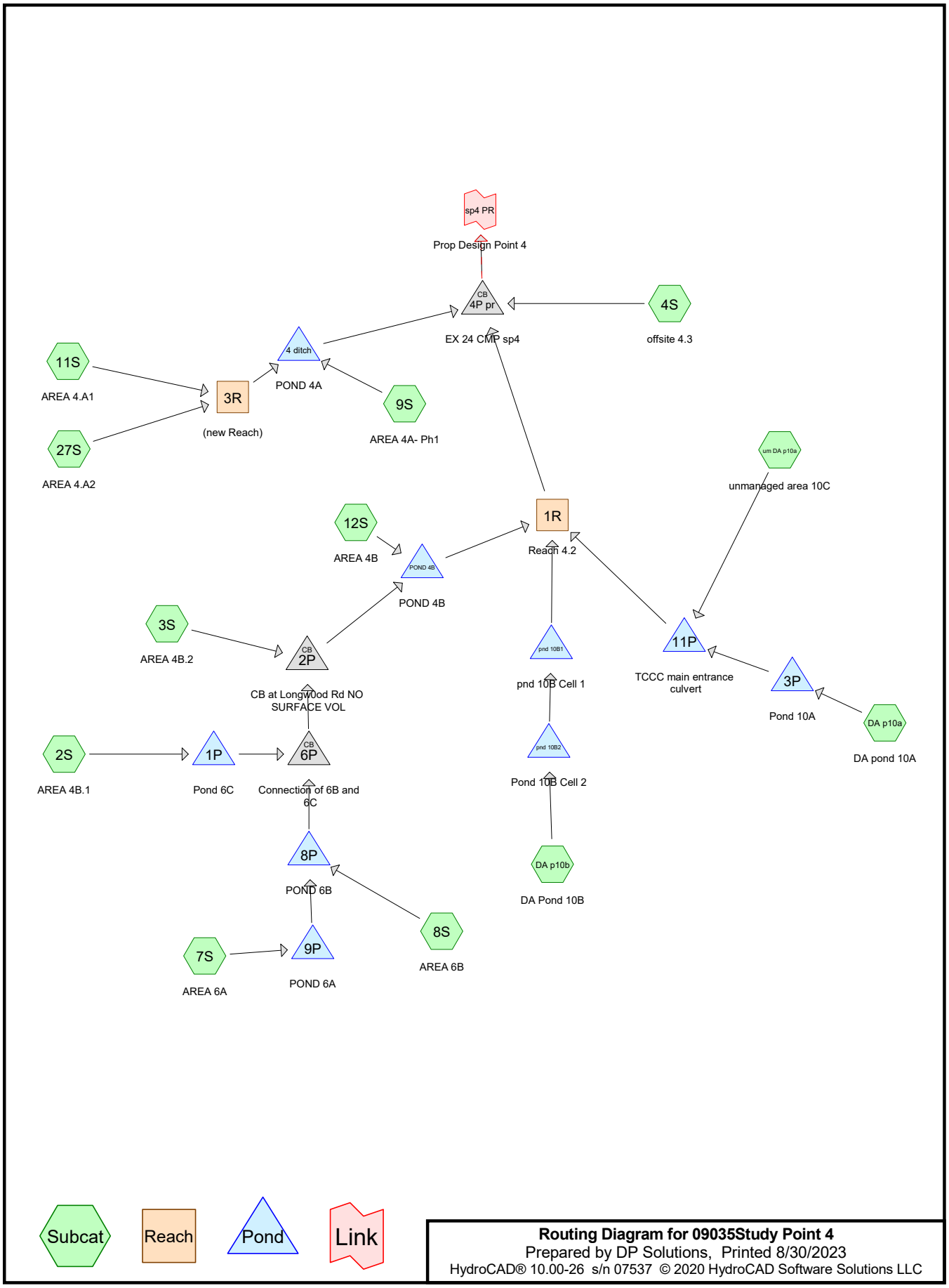
Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

102 Point manual elevation table, To= 0.00 hrs, dt= 0.25 hrs, feet =

44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.08	44.17	44.25	44.75	45.75	45.90	45.50	45.00	44.88
44.75	44.63	44.50	44.46	44.42	44.38	44.33	44.29	44.25
44.24	44.24	44.23	44.22	44.22	44.21	44.20	44.20	44.19
44.18	44.18	44.17	44.16	44.16	44.15	44.14	44.14	44.13
44.13	44.12	44.11	44.11	44.10	44.09	44.09	44.08	44.07
44.07	44.06	44.05	44.05	44.04	44.03	44.03	44.02	44.01
44.01	44.00	44.00						

Appendix V.B

HydroCAD – Study Point No. 4 – Proposed Conditions



Routing Diagram for 09035Study Point 4
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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.860	79	(3S)
19.820	69	(7S)
4.560	80	(11S)
1.990	83	(27S)
7.746	61	>75% Grass cover, Good, HSG B (4S, 9S, 12S, DA p10a, DA p10b)
3.687	74	>75% Grass cover, Good, HSG C (4S, DA p10b, um DA p10a)
21.751	80	>75% Grass cover, Good, HSG D (4S, 9S, 12S, DA p10a, DA p10b, um DA p10a)
11.890	81	From TR-55 (2S)
1.590	82	From TR-55 (8S)
1.927	98	Paved parking, (9S, 12S)
1.964	98	Paved parking, HSG B (DA p10a, DA p10b)
0.174	98	Paved parking, HSG C (DA p10b, um DA p10a)
2.326	98	Paved parking, HSG D (4S, DA p10a, DA p10b, um DA p10a)
82.285	**77**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
9.710	HSG B	4S, 9S, 12S, DA p10a, DA p10b
3.861	HSG C	4S, DA p10b, um DA p10a
24.077	HSG D	4S, 9S, 12S, DA p10a, DA p10b, um DA p10a
44.637	Other	2S, 3S, 7S, 8S, 9S, 11S, 12S, 27S
82.285		**TOTAL AREA**

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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	29.230	29.230		3S, 7S, 11S, 27S
0.000	7.746	3.687	21.751	0.000	33.183	>75% Grass cover, Good	4S, 9S, 12S, DA p10a, DA p10b, um DA p10a
0.000	0.000	0.000	0.000	13.480	13.480	From TR-55	2S, 8S
0.000	1.964	0.174	2.326	0.000	4.465	Paved parking	4S, DA p10a, DA p10b, um DA p10a
0.000	0.000	0.000	0.000	1.927	1.927	Paved parking,	9S, 12S
0.000	**9.710**	**3.861**	**24.077**	**44.637**	**82.285**	**TOTAL AREA**	

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 2S: AREA 4B.1 Runoff Area=11.890 ac 0.00% Impervious Runoff Depth=1.63"
Tc=14.4 min CN=81 Runoff=17.23 cfs 1.613 af

Subcatchment 3S: AREA 4B.2 Runoff Area=2.860 ac 0.00% Impervious Runoff Depth=1.49"
Tc=6.0 min CN=79 Runoff=5.99 cfs 0.355 af

Subcatchment 4S: offsite 4.3 Runoff Area=418,500 sf 12.64% Impervious Runoff Depth=1.36"
Flow Length=1,238' Tc=19.5 min CN=77 Runoff=9.23 cfs 1.086 af

Subcatchment 7S: AREA 6A Runoff Area=19.820 ac 0.00% Impervious Runoff Depth=0.89"
Tc=12.0 min CN=69 Runoff=15.68 cfs 1.478 af

Subcatchment 8S: AREA 6B Runoff Area=1.590 ac 0.00% Impervious Runoff Depth=1.70"
Tc=7.2 min CN=82 Runoff=3.53 cfs 0.225 af

Subcatchment 9S: AREA 4A- Ph1 Runoff Area=695,700 sf 3.90% Impervious Runoff Depth=1.36"
Flow Length=900' Tc=27.1 min CN=77 Runoff=12.11 cfs 1.806 af

Subcatchment 11S: AREA 4.A1 Runoff Area=4.560 ac 0.00% Impervious Runoff Depth=1.56"
Tc=6.0 min CN=80 Runoff=10.01 cfs 0.592 af

Subcatchment 12S: AREA 4B Runoff Area=153,250 sf 37.10% Impervious Runoff Depth=2.01"
Flow Length=900' Tc=19.9 min CN=86 Runoff=5.16 cfs 0.589 af

Subcatchment 27S: AREA 4.A2 Runoff Area=1.990 ac 0.00% Impervious Runoff Depth=1.77"
Tc=6.0 min CN=83 Runoff=4.98 cfs 0.294 af

Subcatchment DA p10a: DA pond 10A Runoff Area=132,672 sf 67.46% Impervious Runoff Depth=2.26"
Flow Length=380' Tc=5.0 min CN=89 Runoff=10.22 cfs 0.575 af

Subcatchment DA p10b: DA Pond 10B Runoff Area=269,381 sf 15.20% Impervious Runoff Depth=1.29"
Flow Length=515' Tc=15.1 min CN=76 Runoff=6.67 cfs 0.666 af

Subcatchment um DA p10a: unmanaged Runoff Area=54,385 sf 20.47% Impervious Runoff Depth=1.70"
Flow Length=240' Tc=18.3 min CN=82 Runoff=1.63 cfs 0.177 af

Reach 1R: Reach 4.2 Avg. Flow Depth=0.93' Max Vel=2.35 fps Inflow=12.97 cfs 6.770 af
n=0.030 L=1,000.0' S=0.0044 '/' Capacity=164.38 cfs Outflow=12.61 cfs 6.763 af

Reach 3R: (new Reach) Avg. Flow Depth=0.96' Max Vel=2.92 fps Inflow=14.99 cfs 0.886 af
n=0.030 L=700.0' S=0.0071 '/' Capacity=378.49 cfs Outflow=13.73 cfs 0.886 af

Pond 1P: Pond 6C Peak Elev=52.33' Storage=19,587 cf Inflow=17.23 cfs 1.613 af
Outflow=7.33 cfs 1.613 af

Pond 2P: CB at Longw0od Rd NO SURFACE VOL Peak Elev=51.56' Inflow=9.27 cfs 3.724 af
Outflow=9.27 cfs 3.724 af

Pond 3P: Pond 10A Peak Elev=50.68' Storage=8,674 cf Inflow=10.22 cfs 0.575 af
Outflow=4.03 cfs 0.606 af

Pond 4 ditch: POND 4A Peak Elev=45.96' Storage=86,194 cf Inflow=21.15 cfs 2.692 af
Outflow=5.44 cfs 2.692 af

Pond 4P pr: EX 24 CMP sp4 Peak Elev=47.70' Inflow=17.31 cfs 10.541 af
Primary=17.31 cfs 10.541 af Secondary=0.00 cfs 0.000 af Outflow=17.31 cfs 10.541 af

Pond 6P: Connection of 6B and 6C Peak Elev=51.88' Inflow=8.39 cfs 3.369 af
Outflow=8.39 cfs 3.369 af

Pond 8P: POND 6B Peak Elev=54.32' Storage=9,472 cf Inflow=4.40 cfs 1.704 af
Outflow=2.83 cfs 1.756 af

Pond 9P: POND 6A Peak Elev=55.34' Storage=23,920 cf Inflow=15.68 cfs 1.478 af
Outflow=3.19 cfs 1.479 af

Pond 11P: TCCC main entrance culvert Peak Elev=49.54' Storage=768 cf Inflow=5.64 cfs 0.783 af
Outflow=5.34 cfs 0.781 af

Pond pnd 10B1: pnd 10B Cell 1 Peak Elev=50.46' Storage=2,764 cf Inflow=3.30 cfs 0.666 af
Outflow=1.83 cfs 1.224 af

Pond pnd 10B2: Pond 10B Cell 2 Peak Elev=50.48' Storage=6,155 cf Inflow=6.67 cfs 0.666 af
Outflow=3.30 cfs 0.666 af

Pond POND 4B: POND 4B Peak Elev=49.96' Storage=28,429 cf Inflow=14.14 cfs 4.313 af
Outflow=9.47 cfs 4.765 af

Link sp4 PR: Prop Design Point 4 Inflow=17.31 cfs 10.541 af
Primary=17.31 cfs 10.541 af

Total Runoff Area = 82.285 ac Runoff Volume = 9.456 af Average Runoff Depth = 1.38"
92.23% Pervious = 75.893 ac 7.77% Impervious = 6.392 ac

Summary for Subcatchment 2S: AREA 4B.1

Runoff = 17.23 cfs @ 12.09 hrs, Volume= 1.613 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	11.890	81	From TR-55
	11.890		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry, From TR-55**

Summary for Subcatchment 3S: AREA 4B.2

Runoff = 5.99 cfs @ 11.99 hrs, Volume= 0.355 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	2.860	79	
	2.860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 4S: offsite 4.3

Runoff = 9.23 cfs @ 12.14 hrs, Volume= 1.086 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

Area (sf)	CN	Description
81,840	61	>75% Grass cover, Good, HSG B
139,500	74	>75% Grass cover, Good, HSG C
52,900	98	Paved parking, HSG D
144,260	80	>75% Grass cover, Good, HSG D
418,500	77	Weighted Average
365,600		87.36% Pervious Area
52,900		12.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0350	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.5	594	0.0089	1.52		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	544	0.0050	4.87	175.23	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=3.00' Z= 3.0 '/' Top.W=21.00' n= 0.030
19.5	1,238	Total			

Summary for Subcatchment 7S: AREA 6A

Runoff = 15.68 cfs @ 12.07 hrs, Volume= 1.478 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	19.820	69	
	19.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, From TR-55**

Summary for Subcatchment 8S: AREA 6B

Runoff = 3.53 cfs @ 12.00 hrs, Volume= 0.225 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	1.590	82	From TR-55
	1.590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2					**Direct Entry, From TR-55**

Summary for Subcatchment 9S: AREA 4A- Ph1

Runoff = 12.11 cfs @ 12.23 hrs, Volume= 1.806 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (sf)	CN	Description
	132,700	61	>75% Grass cover, Good, HSG B
	535,900	80	>75% Grass cover, Good, HSG D
*	27,100	98	Paved parking,
	695,700	77	Weighted Average
	668,600		96.10% Pervious Area
	27,100		3.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.3	100	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.8	800	0.0088	1.51		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
27.1	900	Total			

Summary for Subcatchment 11S: AREA 4.A1

Runoff = 10.01 cfs @ 11.99 hrs, Volume= 0.592 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	4.560	80	
	4.560		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, From TR-55**

Summary for Subcatchment 12S: AREA 4B

Runoff = 5.16 cfs @ 12.16 hrs, Volume= 0.589 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (sf)	CN	Description
	8,600	61	>75% Grass cover, Good, HSG B
	87,800	80	>75% Grass cover, Good, HSG D
*	56,850	98	Paved parking,
	153,250	86	Weighted Average
	96,400		62.90% Pervious Area
	56,850		37.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.9	800	0.0097	4.65	64.47	**Trap/Vee/Rect Channel Flow,** Bot.W=4.00' D=1.50' Z= 4.0 & 3.0 '/' Top.W=14.50' n= 0.030 Earth, grassed & winding
19.9	900	Total			

Summary for Subcatchment 27S: AREA 4.A2

Runoff = 4.98 cfs @ 11.99 hrs, Volume= 0.294 af, Depth= 1.77"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

	Area (ac)	CN	Description
*	1.990	83	
	1.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, From TR-55**

Summary for Subcatchment DA p10a: DA pond 10A

Runoff = 10.22 cfs @ 11.97 hrs, Volume= 0.575 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

Area (sf)	CN	Description
79,300	98	Paved parking, HSG B
10,200	98	Paved parking, HSG D
18,643	80	>75% Grass cover, Good, HSG D
24,529	61	>75% Grass cover, Good, HSG B
132,672	89	Weighted Average
43,172		32.54% Pervious Area
89,500		67.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0080	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
1.7	210	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	70	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	380	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment DA p10b: DA Pond 10B

Runoff = 6.67 cfs @ 12.10 hrs, Volume= 0.666 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

Area (sf)	CN	Description
89,750	61	>75% Grass cover, Good, HSG B
6,250	98	Paved parking, HSG B
4,240	74	>75% Grass cover, Good, HSG C
4,260	98	Paved parking, HSG C
134,451	80	>75% Grass cover, Good, HSG D
30,430	98	Paved parking, HSG D
269,381	76	Weighted Average
228,441		84.80% Pervious Area
40,940		15.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0280	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
3.0	415	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
15.1	515	Total			

Summary for Subcatchment um DA p10a: unmanaged area 10C

Runoff = 1.63 cfs @ 12.12 hrs, Volume= 0.177 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2yr Talbot Rainfall=3.40"

Area (sf)	CN	Description
16,850	74	>75% Grass cover, Good, HSG C
26,401	80	>75% Grass cover, Good, HSG D
3,330	98	Paved parking, HSG C
7,804	98	Paved parking, HSG D
54,385	82	Weighted Average
43,251		79.53% Pervious Area
11,134		20.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0140	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.3	140	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
18.3	240	Total			

Summary for Reach 1R: Reach 4.2

Inflow Area = 50.157 ac, 9.08% Impervious, Inflow Depth > 1.62" for 2yr Talbot event
Inflow = 12.97 cfs @ 13.35 hrs, Volume= 6.770 af
Outflow = 12.61 cfs @ 12.95 hrs, Volume= 6.763 af, Atten= 3%, Lag= 0.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 7.1 min
Avg. Velocity = 0.79 fps, Avg. Travel Time= 21.0 min

Peak Storage= 5,366 cf @ 12.95 hrs
Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 164.38 cfs

3.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 1,000.0' Slope= 0.0044 '/'
Inlet Invert= 48.60', Outlet Invert= 44.20'

Stage-Discharge for Reach 1R: Reach 4.2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
48.60	0.00	0.00
48.62	0.21	0.02
48.64	0.37	0.05
48.66	0.48	0.09
48.68	0.58	0.15
48.70	0.66	0.22
48.72	0.74	0.30
48.74	0.81	0.39
48.76	0.88	0.49
48.78	0.94	0.60
48.80	1.00	0.73
48.82	1.06	0.86
48.84	1.11	1.00
48.86	1.17	1.15
48.88	1.22	1.31
48.90	1.27	1.48
48.92	1.31	1.66
48.94	1.36	1.86
48.96	1.40	2.06
48.98	1.44	2.27
49.00	1.48	2.50
49.02	1.53	2.73
49.04	1.56	2.98
49.06	1.60	3.23
49.08	1.64	3.50
49.10	1.68	3.78
49.12	1.71	4.07
49.14	1.75	4.37
49.16	1.79	4.68
49.18	1.82	5.01
49.20	1.85	5.34
49.22	1.89	5.69
49.24	1.92	6.05
49.26	1.95	6.42
49.28	1.98	6.80
49.30	2.02	7.20
49.32	2.05	7.61
49.34	2.08	8.03
49.36	2.11	8.46
49.38	2.14	8.91
49.40	2.17	9.37
49.42	2.20	9.84
49.44	2.23	10.32
49.46	2.26	10.83
49.48	2.28	11.34
49.50	2.31	11.86
49.52	2.34	12.40
49.54	2.37	12.95
49.56	2.39	13.52
49.58	2.42	14.10
49.60	2.45	14.70
49.62	2.48	15.30
49.64	2.50	15.93
49.66	2.53	16.57
49.68	2.55	17.22
49.70	2.58	17.89
49.72	2.61	18.57
49.74	2.63	19.26
49.76	2.66	19.98
49.78	2.68	20.70
49.80	2.71	21.44
49.82	2.73	22.20
49.84	2.76	22.98
49.86	2.78	23.76
49.88	2.81	24.57
49.90	2.83	25.39
49.92	2.85	26.22
49.94	2.88	27.08
49.96	2.90	27.94
49.98	2.93	28.83
50.00	2.95	29.73
50.02	2.97	30.65
50.04	3.00	31.58
50.06	3.02	32.53
50.08	3.04	33.50
50.10	3.06	34.48
50.12	3.09	35.49
50.14	3.11	36.51
50.16	3.13	37.54
50.18	3.16	38.60
50.20	3.18	39.67
50.22	3.20	40.75
50.24	3.22	41.86
50.26	3.24	42.99
50.28	3.27	44.12
50.30	3.29	45.29
50.32	3.31	46.47
50.34	3.33	47.66
50.36	3.35	48.88
50.38	3.38	50.11
50.40	3.40	51.36
50.42	3.42	52.63
50.44	3.44	53.92
50.46	3.46	55.23
50.48	3.48	56.56
50.50	3.50	57.91
50.52	3.52	59.27
50.54	3.54	60.66
50.56	3.57	62.06
50.58	3.59	63.48
50.60	3.61	64.93
50.62	3.63	66.39
50.64	3.65	67.87
50.66	3.67	69.38
50.68	3.69	70.90
50.70	3.71	72.44
50.72	3.73	74.01
50.74	3.75	75.60
50.76	3.77	77.20
50.78	3.79	78.83
50.80	3.81	80.47
50.82	3.83	82.13
50.84	3.85	83.83
50.86	3.87	85.53
50.88	3.89	87.26
50.90	3.91	89.01
50.92	3.93	90.79
50.94	3.95	92.57
50.96	3.97	94.39
50.98	3.99	96.23
51.00	4.01	98.08
51.02	4.03	99.97
51.04	4.05	101.87
51.06	4.06	103.79
51.08	4.08	105.74
51.10	4.10	107.71
51.12	4.12	109.69
51.14	4.14	111.71
51.16	4.16	113.75
51.18	4.18	115.80
51.20	4.20	117.88
51.22	4.22	119.99
51.24	4.24	122.11
51.26	4.25	124.26
51.28	4.27	126.43
51.30	4.29	128.62
51.32	4.31	130.85
51.34	4.33	133.09
51.36	4.35	135.35
51.38	4.37	137.64
51.40	4.38	139.95
51.42	4.40	142.28
51.44	4.42	144.65
51.46	4.44	147.03
51.48	4.46	149.43
51.50	4.48	151.87
51.52	4.49	154.32
51.54	4.51	156.80
51.56	4.53	159.31
51.58	4.55	161.84
51.60	**4.57**	**164.38**

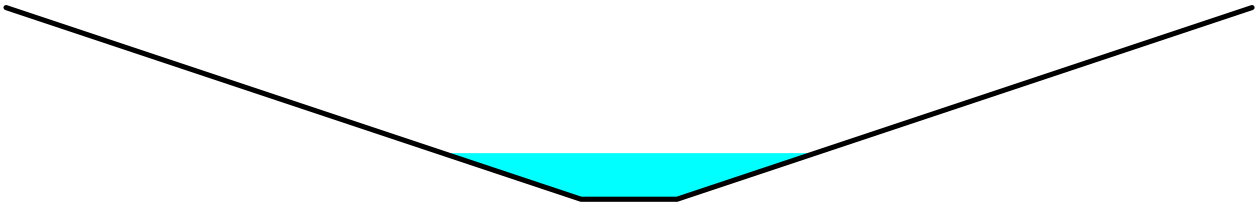
Summary for Reach 3R: (new Reach)

Inflow Area = 6.550 ac, 0.00% Impervious, Inflow Depth = 1.62" for 2yr Talbot event
Inflow = 14.99 cfs @ 11.99 hrs, Volume= 0.886 af
Outflow = 13.73 cfs @ 12.03 hrs, Volume= 0.886 af, Atten= 8%, Lag= 2.7 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.92 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 46.9 min

Peak Storage= 3,294 cf @ 12.03 hrs
Average Depth at Peak Storage= 0.96'
Bank-Full Depth= 4.00' Flow Area= 56.0 sf, Capacity= 378.49 cfs

2.00' x 4.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 26.00'
Length= 700.0' Slope= 0.0071 '/'
Inlet Invert= 52.00', Outlet Invert= 47.00'



Stage-Discharge for Reach 3R: (new Reach)

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
52.00	0.00	0.00
52.05	0.53	0.06
52.10	0.82	0.19
52.15	1.04	0.39
52.20	1.23	0.64
52.25	1.39	0.96
52.30	1.54	1.35
52.35	1.68	1.79
52.40	1.80	2.31
52.45	1.92	2.90
52.50	2.03	3.57
52.55	2.14	4.31
52.60	2.25	5.13
52.65	2.35	6.03
52.70	2.45	7.03
52.75	2.54	8.10
52.80	2.63	9.27
52.85	2.72	10.53
52.90	2.81	11.89
52.95	2.90	13.35
53.00	2.98	14.90
53.05	3.06	16.57
53.10	3.14	18.34
53.15	3.22	20.21
53.20	3.30	22.19
53.25	3.38	24.30
53.30	3.46	26.52
53.35	3.53	28.86
53.40	3.61	31.31
53.45	3.68	33.89
53.50	3.75	36.60
53.55	3.82	39.43
53.60	3.90	42.39
53.65	3.97	45.49
53.70	4.04	48.72
53.75	4.10	52.09
53.80	4.17	55.58
53.85	4.24	59.24
53.90	4.31	63.03
53.95	4.37	66.96
54.00	4.44	71.04
54.05	4.51	75.28
54.10	4.57	79.67
54.15	4.63	84.20
54.20	4.70	88.89
54.25	4.76	93.75
54.30	4.82	98.77
54.35	4.89	103.94
54.40	4.95	109.27
54.45	5.01	114.79
54.50	5.07	120.46
54.55	5.13	126.31
54.60	5.19	132.31
54.65	5.25	138.51
54.70	5.31	144.88
54.75	5.37	151.43
54.80	5.43	158.14
54.85	5.49	165.06
54.90	5.55	172.16
54.95	5.61	179.43
55.00	5.66	186.88
55.05	5.72	194.55
55.10	5.78	202.40
55.15	5.83	210.44
55.20	5.89	218.66
55.25	5.95	227.11
55.30	6.00	235.74
55.35	6.06	244.57
55.40	6.11	253.60
55.45	6.17	262.85
55.50	6.22	272.30
55.55	6.28	281.95
55.60	6.33	291.80
55.65	6.39	301.89
55.70	6.44	312.19
55.75	6.49	322.69
55.80	6.55	333.40
55.85	6.60	344.35
55.90	6.65	355.52
55.95	6.71	366.90
56.00	**6.76**	**378.49**

Summary for Pond 1P: Pond 6C

Inflow Area = 11.890 ac, 0.00% Impervious, Inflow Depth = 1.63" for 2yr Talbot event
Inflow = 17.23 cfs @ 12.09 hrs, Volume= 1.613 af
Outflow = 7.33 cfs @ 12.53 hrs, Volume= 1.613 af, Atten= 57%, Lag= 26.5 min
Primary = 7.33 cfs @ 12.53 hrs, Volume= 1.613 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 52.33' @ 12.52 hrs Surf.Area= 21,729 sf Storage= 19,587 cf

Plug-Flow detention time= 49.6 min calculated for 1.613 af (100% of inflow)
Center-of-Mass det. time= 49.9 min (899.7 - 849.9)

Volume	Invert	Avail.Storage	Storage Description
#1	51.10'	196,107 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)
51.10	9,830	540.0	0	0	9,830
52.00	19,068	765.0	12,777	12,777	33,203
53.00	27,550	1,028.0	23,179	35,956	70,739
54.00	42,813	1,255.0	34,902	70,858	111,996
55.00	61,819	1,649.0	52,026	122,884	203,058
56.00	85,254	2,232.0	73,223	196,107	383,122

Device	Routing	Invert	Outlet Devices
#1	Primary	50.50'	**24.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.50' / 50.35' S= 0.0033 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Device 1	51.10'	**28.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	52.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	55.50'	**48.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.33 cfs @ 12.53 hrs HW=52.33' TW=51.88' (Dynamic Tailwater)
└─**1=Culvert** (Passes 7.33 cfs of 9.05 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 7.33 cfs @ 3.14 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Stage-Discharge for Pond 1P: Pond 6C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
51.10	0.00	53.70	17.16
51.15	0.08	53.75	17.38
51.20	0.24	53.80	17.60
51.25	0.44	53.85	17.81
51.30	0.67	53.90	18.02
51.35	0.94	53.95	18.23
51.40	1.23	54.00	18.43
51.45	1.55	54.05	18.63
51.50	1.89	54.10	18.83
51.55	2.26	54.15	19.03
51.60	2.65	54.20	19.23
51.65	3.06	54.25	19.42
51.70	3.48	54.30	19.61
51.75	3.93	54.35	19.80
51.80	4.39	54.40	19.99
51.85	4.86	54.45	20.17
51.90	5.36	54.50	20.36
51.95	5.87	54.55	20.54
52.00	6.40	54.60	20.72
52.05	6.94	54.65	20.90
52.10	7.49	54.70	21.08
52.15	7.97	54.75	21.26
52.20	8.40	54.80	21.43
52.25	8.80	54.85	21.60
52.30	9.18	54.90	21.78
52.35	9.53	54.95	21.95
52.40	9.87	55.00	22.12
52.45	10.20	55.05	22.28
52.50	10.51	55.10	22.45
52.55	10.82	55.15	22.62
52.60	11.14	55.20	22.78
52.65	11.46	55.25	22.94
52.70	11.79	55.30	23.10
52.75	12.12	55.35	23.26
52.80	12.44	55.40	23.42
52.85	12.77	55.45	23.58
52.90	13.09	55.50	23.74
52.95	13.40	55.55	24.33
53.00	13.69	55.60	25.29
53.05	13.98	55.65	26.49
53.10	14.25	55.70	27.87
53.15	14.52	55.75	29.42
53.20	14.79	55.80	31.11
53.25	15.04	55.85	31.55
53.30	15.30	55.90	31.73
53.35	15.54	55.95	31.91
53.40	15.79	56.00	**32.09**
53.45	16.03		
53.50	16.26		
53.55	16.49		
53.60	16.72		
53.65	16.94		

Summary for Pond 2P: CB at Longw0od Rd NO SURFACE VOL

Inflow Area = 36.160 ac, 0.00% Impervious, Inflow Depth = 1.24" for 2yr Talbot event
Inflow = 9.27 cfs @ 12.34 hrs, Volume= 3.724 af
Outflow = 9.27 cfs @ 12.35 hrs, Volume= 3.724 af, Atten= 0%, Lag= 0.6 min
Primary = 9.27 cfs @ 12.35 hrs, Volume= 3.724 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 51.56' @ 12.35 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	50.05'	**42.0" Round Culvert** L= 214.9' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.05' / 49.85' S= 0.0009 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	54.50'	**36.0" x 42.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.10'	**42.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=9.27 cfs @ 12.35 hrs HW=51.56' TW=49.75' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 9.27 cfs @ 3.44 fps)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Passes 9.27 cfs of 15.62 cfs potential flow)

Stage-Discharge for Pond 2P: CB at Longw0od Rd NO SURFACE VOL

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
50.05	0.00	52.65	26.51
50.10	0.00	52.70	27.43
50.15	0.02	52.75	28.35
50.20	0.06	52.80	29.29
50.25	0.12	52.85	30.23
50.30	0.19	52.90	31.17
50.35	0.28	52.95	32.12
50.40	0.40	53.00	33.07
50.45	0.53	53.05	34.03
50.50	0.69	53.10	34.98
50.55	0.87	53.15	35.94
50.60	1.08	53.20	36.90
50.65	1.30	53.25	37.85
50.70	1.55	53.30	38.81
50.75	1.82	53.35	39.76
50.80	2.12	53.40	40.71
50.85	2.43	53.45	41.66
50.90	2.77	53.50	42.60
50.95	3.14	53.55	43.53
51.00	3.52	53.60	44.46
51.05	3.93	53.65	45.37
51.10	4.36	53.70	46.28
51.15	4.81	53.75	47.18
51.20	5.28	53.80	48.06
51.25	5.77	53.85	48.93
51.30	6.28	53.90	49.78
51.35	6.82	53.95	50.61
51.40	7.37	54.00	51.43
51.45	7.94	54.05	52.22
51.50	8.54	54.10	52.98
51.55	9.15	54.15	53.72
51.60	9.78	54.20	54.43
51.65	10.43	54.25	55.11
51.70	11.09	54.30	55.74
51.75	11.77	54.35	56.34
51.80	12.48	54.40	56.88
51.85	13.19	54.45	57.37
51.90	13.92	54.50	**57.78**
51.95	14.67		
52.00	15.44		
52.05	16.21		
52.10	17.01		
52.15	17.81		
52.20	18.63		
52.25	19.46		
52.30	20.31		
52.35	21.16		
52.40	22.03		
52.45	22.91		
52.50	23.79		
52.55	24.69		
52.60	25.59		

Summary for Pond 3P: Pond 10A

Inflow Area = 3.046 ac, 67.46% Impervious, Inflow Depth = 2.26" for 2yr Talbot event
Inflow = 10.22 cfs @ 11.97 hrs, Volume= 0.575 af
Outflow = 4.03 cfs @ 12.14 hrs, Volume= 0.606 af, Atten= 61%, Lag= 9.9 min
Primary = 4.03 cfs @ 12.14 hrs, Volume= 0.606 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 50.68' @ 12.14 hrs Surf.Area= 8,374 sf Storage= 8,674 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 80.1 min (887.9 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1	49.50'	23,257 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.50	6,556	0	0
50.00	7,153	3,427	3,427
51.00	8,960	8,057	11,484
52.00	14,586	11,773	23,257

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	50.25'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Primary	50.75'	**120.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.48 (C= 3.10)

Primary OutFlow Max=4.02 cfs @ 12.14 hrs HW=50.68' TW=49.43' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.47 cfs @ 5.37 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 3.56 cfs @ 2.13 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 3P: Pond 10A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.50	0.00	50.54	2.51	51.58	162.72
49.52	0.25	50.56	2.72	51.60	168.41
49.54	0.26	50.58	2.94	51.62	174.16
49.56	0.26	50.60	3.16	51.64	179.99
49.58	0.27	50.62	3.40	51.66	185.88
49.60	0.28	50.64	3.63	51.68	191.83
49.62	0.28	50.66	3.88	51.70	197.86
49.64	0.29	50.68	4.13	51.72	203.94
49.66	0.30	50.70	4.38	51.74	210.10
49.68	0.30	50.72	4.64	51.76	216.32
49.70	0.31	50.74	4.90	51.78	222.60
49.72	0.31	50.76	5.36	51.80	228.94
49.74	0.32	50.78	6.41	51.82	235.35
49.76	0.32	50.80	7.81	51.84	241.82
49.78	0.33	50.82	9.46	51.86	248.35
49.80	0.33	50.84	11.33	51.88	254.95
49.82	0.34	50.86	13.39	51.90	261.60
49.84	0.34	50.88	15.63	51.92	268.32
49.86	0.35	50.90	18.03	51.94	275.10
49.88	0.35	50.92	20.58	51.96	281.93
49.90	0.36	50.94	23.27	51.98	288.83
49.92	0.36	50.96	26.10	52.00	**295.79**
49.94	0.37	50.98	29.05		
49.96	0.37	51.00	32.13		
49.98	0.38	51.02	35.33		
50.00	0.38	51.04	38.64		
50.02	0.39	51.06	42.06		
50.04	0.39	51.08	45.59		
50.06	0.40	51.10	49.22		
50.08	0.40	51.12	52.96		
50.10	0.41	51.14	56.79		
50.12	0.41	51.16	60.72		
50.14	0.41	51.18	64.75		
50.16	0.42	51.20	68.87		
50.18	0.42	51.22	73.07		
50.20	0.43	51.24	77.37		
50.22	0.43	51.26	81.76		
50.24	0.44	51.28	86.23		
50.26	0.45	51.30	90.78		
50.28	0.51	51.32	95.42		
50.30	0.59	51.34	100.13		
50.32	0.69	51.36	104.93		
50.34	0.81	51.38	109.81		
50.36	0.93	51.40	114.77		
50.38	1.07	51.42	119.80		
50.40	1.22	51.44	124.91		
50.42	1.38	51.46	130.09		
50.44	1.55	51.48	135.35		
50.46	1.72	51.50	140.68		
50.48	1.91	51.52	146.09		
50.50	2.10	51.54	151.56		
50.52	2.30	51.56	157.11		

Summary for Pond 4 ditch: POND 4A

Inflow Area = 22.521 ac, 2.76% Impervious, Inflow Depth = 1.43" for 2yr Talbot event
Inflow = 21.15 cfs @ 12.07 hrs, Volume= 2.692 af
Outflow = 5.44 cfs @ 18.65 hrs, Volume= 2.692 af, Atten= 74%, Lag= 394.3 min
Primary = 5.44 cfs @ 18.65 hrs, Volume= 2.692 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 45.96' @ 15.64 hrs Surf.Area= 101,908 sf Storage= 86,194 cf

Plug-Flow detention time= 511.7 min calculated for 2.691 af (100% of inflow)
Center-of-Mass det. time= 511.7 min (1,381.3 - 869.6)

Volume	Invert	Avail.Storage	Storage Description
#1	44.75'	461,460 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.75	2,750	0	0
45.00	60,622	7,922	7,922
46.00	103,486	82,054	89,976
47.00	136,633	120,060	210,035
48.00	144,447	140,540	350,575
48.75	151,245	110,885	461,460

Device	Routing	Invert	Outlet Devices
#1	Primary	44.50'	**36.0" Round Culvert X 2.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.50' / 44.25' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	44.75'	**12.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.90'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	45.90'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Primary	47.90'	**200.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.13 cfs @ 18.65 hrs HW=45.85' TW=45.77' (Dynamic Tailwater)
- **1=Culvert** (Passes 2.13 cfs of 6.80 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 2.13 cfs @ 1.36 fps)
  - **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  - **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 4 ditch: POND 4A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
44.75	0.00	45.79	7.71	46.83	45.89	47.87	80.85
44.77	0.06	45.81	7.79	46.85	47.05	47.89	81.45
44.79	0.16	45.83	7.86	46.87	48.23	47.91	82.53
44.81	0.30	45.85	7.93	46.89	48.94	47.93	85.21
44.83	0.46	45.87	8.00	46.91	49.60	47.95	88.76
44.85	0.65	45.89	8.08	46.93	50.25	47.97	92.99
44.87	0.85	45.91	8.19	46.95	50.91	47.99	97.78
44.89	1.08	45.93	8.42	46.97	51.57	48.01	103.06
44.91	1.31	45.95	8.73	46.99	52.23	48.03	108.79
44.93	1.57	45.97	9.10	47.01	52.90	48.05	114.92
44.95	1.84	45.99	9.50	47.03	53.56	48.07	121.43
44.97	2.12	46.01	9.95	47.05	54.22	48.09	128.30
44.99	2.42	46.03	10.43	47.07	54.89	48.11	135.57
45.01	2.72	46.05	10.95	47.09	55.55	48.13	143.25
45.03	3.04	46.07	11.49	47.11	56.22	48.15	151.27
45.05	3.38	46.09	12.07	47.13	56.89	48.17	159.63
45.07	3.72	46.11	12.66	47.15	57.55	48.19	168.31
45.09	4.01	46.13	13.29	47.17	58.22	48.21	177.31
45.11	4.27	46.15	13.94	47.19	58.89	48.23	186.62
45.13	4.54	46.17	14.61	47.21	59.56	48.25	196.22
45.15	4.78	46.19	15.30	47.23	60.22	48.27	206.12
45.17	4.90	46.21	16.01	47.25	60.89	48.29	216.31
45.19	5.02	46.23	16.74	47.27	61.56	48.31	226.96
45.21	5.13	46.25	17.50	47.29	62.22	48.33	238.11
45.23	5.24	46.27	18.27	47.31	62.89	48.35	249.60
45.25	5.35	46.29	19.06	47.33	63.56	48.37	261.40
45.27	5.45	46.31	19.86	47.35	64.22	48.39	273.52
45.29	5.56	46.33	20.69	47.37	64.89	48.41	285.96
45.31	5.66	46.35	21.53	47.39	65.55	48.43	298.71
45.33	5.76	46.37	22.39	47.41	66.21	48.45	311.75
45.35	5.86	46.39	23.26	47.43	66.87	48.47	325.07
45.37	5.96	46.41	24.15	47.45	67.53	48.49	338.61
45.39	6.05	46.43	25.05	47.47	68.19	48.51	351.90
45.41	6.14	46.45	25.97	47.49	68.85	48.53	365.30
45.43	6.24	46.47	26.91	47.51	69.50	48.55	378.89
45.45	6.33	46.49	27.85	47.53	70.16	48.57	392.67
45.47	6.42	46.51	28.82	47.55	70.81	48.59	406.62
45.49	6.51	46.53	29.79	47.57	71.46	48.61	420.76
45.51	6.59	46.55	30.78	47.59	72.11	48.63	435.08
45.53	6.68	46.57	31.78	47.61	72.75	48.65	449.56
45.55	6.76	46.59	32.80	47.63	73.40	48.67	464.22
45.57	6.85	46.61	33.82	47.65	74.04	48.69	479.05
45.59	6.93	46.63	34.86	47.67	74.67	48.71	494.04
45.61	7.01	46.65	35.91	47.69	75.31	48.73	509.20
45.63	7.10	46.67	36.98	47.71	75.94	48.75	**524.52**
45.65	7.18	46.69	38.05	47.73	76.57		
45.67	7.25	46.71	39.14	47.75	77.19		
45.69	7.33	46.73	40.24	47.77	77.81		
45.71	7.41	46.75	41.34	47.79	78.43		
45.73	7.49	46.77	42.46	47.81	79.04		
45.75	7.56	46.79	43.60	47.83	79.65		
45.77	7.64	46.81	44.74	47.85	80.25		

Summary for Pond 4P pr: EX 24 CMP sp4

Inflow Area = 82.285 ac, 7.77% Impervious, Inflow Depth > 1.54" for 2yr Talbot event
Inflow = 17.31 cfs @ 12.36 hrs, Volume= 10.541 af
Outflow = 17.31 cfs @ 12.37 hrs, Volume= 10.541 af, Atten= 0%, Lag= 0.6 min
Primary = 17.31 cfs @ 12.37 hrs, Volume= 10.541 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 47.70' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	44.45'	**24.0" Round Culvert** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.45' / 44.05' S= 0.0100 '/' Cc= 0.900 n= 0.026, Flow Area= 3.14 sf
#2	Secondary	48.60'	**CL Hiners Lane as Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 1.40 2.40 2.90 Width (feet) 0.00 190.00 335.00 583.00 665.00

Primary OutFlow Max=17.31 cfs @ 12.37 hrs HW=47.70' TW=45.82' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 17.31 cfs @ 5.51 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=44.45' TW=44.00' (Dynamic Tailwater)
└**2=CL Hiners Lane as Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 4P pr: EX 24 CMP sp4

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
44.45	0.00	0.00	0.00
44.55	0.03	0.03	0.00
44.65	0.13	0.13	0.00
44.75	0.31	0.31	0.00
44.85	0.56	0.56	0.00
44.95	0.88	0.88	0.00
45.05	1.28	1.28	0.00
45.15	1.73	1.73	0.00
45.25	2.25	2.25	0.00
45.35	2.82	2.82	0.00
45.45	3.43	3.43	0.00
45.55	4.09	4.09	0.00
45.65	4.79	4.79	0.00
45.75	5.52	5.52	0.00
45.85	6.28	6.28	0.00
45.95	7.06	7.06	0.00
46.05	7.86	7.86	0.00
46.15	8.66	8.66	0.00
46.25	9.45	9.45	0.00
46.35	10.24	10.24	0.00
46.45	11.01	11.01	0.00
46.55	11.75	11.75	0.00
46.65	12.45	12.45	0.00
46.75	13.08	13.08	0.00
46.85	13.62	13.62	0.00
46.95	14.04	14.04	0.00
47.05	14.24	14.24	0.00
47.15	14.15	14.15	0.00
47.25	14.77	14.77	0.00
47.35	15.38	15.38	0.00
47.45	15.96	15.96	0.00
47.55	16.52	16.52	0.00
47.65	17.06	17.06	0.00
47.75	17.59	17.59	0.00
47.85	18.10	18.10	0.00
47.95	18.59	18.59	0.00
48.05	19.07	19.07	0.00
48.15	19.55	19.55	0.00
48.25	20.00	20.00	0.00
48.35	20.45	20.45	0.00
48.45	20.89	20.89	0.00
48.55	21.33	21.33	0.00
48.65	22.10	21.75	0.35
48.75	27.58	22.16	5.42
48.85	42.01	22.57	19.45
48.95	68.06	22.97	45.10
49.05	107.65	23.36	84.29
49.15	159.58	23.75	135.83
49.25	222.57	24.13	198.45
49.35	296.29	24.50	271.79
49.45	380.63	24.87	355.76
49.55	475.61	25.23	450.38
49.65	581.31	25.59	555.72
49.75	697.84	25.94	671.90
49.85	825.36	26.29	799.07
49.95	964.01	26.64	937.38
50.05	1,114.05	26.97	1,087.07
50.15	1,276.59	27.31	1,249.28
50.25	1,452.74	27.64	1,425.10
50.35	1,643.25	27.97	1,615.29
50.45	1,848.78	28.29	1,820.49
50.55	2,069.92	28.61	2,041.31
50.65	2,307.20	28.93	2,278.28
50.75	2,561.15	29.24	2,531.91
50.85	2,832.24	29.55	2,802.69
50.95	3,120.94	29.86	3,091.08
51.05	3,427.64	30.16	3,397.48
51.15	3,752.00	30.46	3,721.54
51.25	4,093.69	30.76	4,062.93
51.35	4,452.65	31.05	4,421.60
51.45	**4,828.89**	**31.34**	**4,797.54**

Summary for Pond 6P: Connection of 6B and 6C

Inflow Area = 33.300 ac, 0.00% Impervious, Inflow Depth = 1.21" for 2yr Talbot event
Inflow = 8.39 cfs @ 12.55 hrs, Volume= 3.369 af
Outflow = 8.39 cfs @ 12.56 hrs, Volume= 3.369 af, Atten= 0%, Lag= 0.6 min
Primary = 8.39 cfs @ 12.56 hrs, Volume= 3.369 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 51.88' @ 12.49 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	50.25'	**42.0" Round Culvert** L= 182.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.25' / 50.10' S= 0.0008 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	54.50'	**36.0" x 42.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.25'	**42.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=8.40 cfs @ 12.56 hrs HW=51.88' TW=51.55' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 8.40 cfs @ 2.81 fps)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Passes 8.40 cfs of 12.19 cfs potential flow)

Stage-Discharge for Pond 6P: Connection of 6B and 6C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
50.25	0.00	52.85	26.74
50.30	0.01	52.90	27.68
50.35	0.02	52.95	28.62
50.40	0.06	53.00	29.56
50.45	0.11	53.05	30.52
50.50	0.18	53.10	31.47
50.55	0.28	53.15	32.44
50.60	0.39	53.20	33.40
50.65	0.52	53.25	34.37
50.70	0.68	53.30	35.35
50.75	0.86	53.35	36.32
50.80	1.06	53.40	37.29
50.85	1.29	53.45	38.27
50.90	1.54	53.50	39.24
50.95	1.81	53.55	40.21
51.00	2.11	53.60	41.18
51.05	2.42	53.65	42.14
51.10	2.77	53.70	43.10
51.15	3.13	53.75	44.06
51.20	3.52	53.80	45.00
51.25	3.93	53.85	45.94
51.30	4.36	53.90	46.87
51.35	4.81	53.95	47.79
51.40	5.28	54.00	48.69
51.45	5.78	54.05	49.59
51.50	6.30	54.10	50.46
51.55	6.84	54.15	51.32
51.60	7.39	54.20	52.16
51.65	7.97	54.25	52.98
51.70	8.57	54.30	53.77
51.75	9.19	54.35	54.54
51.80	9.82	54.40	55.28
51.85	10.48	54.45	55.98
51.90	11.15	54.50	**56.65**
51.95	11.84		
52.00	12.55		
52.05	13.27		
52.10	14.01		
52.15	14.77		
52.20	15.54		
52.25	16.33		
52.30	17.13		
52.35	17.94		
52.40	18.77		
52.45	19.61		
52.50	20.47		
52.55	21.33		
52.60	22.21		
52.65	23.10		
52.70	23.99		
52.75	24.90		
52.80	25.82		

Summary for Pond 8P: POND 6B

Inflow Area = 21.410 ac, 0.00% Impervious, Inflow Depth = 0.96" for 2yr Talbot event
Inflow = 4.40 cfs @ 12.01 hrs, Volume= 1.704 af
Outflow = 2.83 cfs @ 13.38 hrs, Volume= 1.756 af, Atten= 36%, Lag= 82.2 min
Primary = 2.83 cfs @ 13.38 hrs, Volume= 1.756 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 54.32' @ 13.38 hrs Surf.Area= 14,286 sf Storage= 9,472 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 64.4 min (1,124.4 - 1,060.1)

Volume	Invert	Avail.Storage	Storage Description
#1	53.00'	61,963 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.00	38	0	0
53.30	1,415	218	218
53.50	4,629	604	822
53.80	8,567	1,979	2,802
54.00	13,635	2,220	5,022
55.00	15,678	14,657	19,678
56.00	17,821	16,750	36,428
57.00	33,250	25,536	61,963

Device	Routing	Invert	Outlet Devices
#1	Primary	50.75'	**30.0" Round Culvert** L= 336.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.75' / 50.35' S= 0.0012 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Device 1	52.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	54.20'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.83 cfs @ 13.38 hrs HW=54.32' TW=51.74' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.83 cfs of 24.33 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.18 cfs @ 6.03 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 1.64 cfs @ 1.13 fps)

Stage-Discharge for Pond 8P: POND 6B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
53.00	0.00	54.04	1.07	55.08	29.98	56.12	36.30
53.02	0.49	54.06	1.08	55.10	30.11	56.14	36.41
53.04	0.51	54.08	1.09	55.12	30.25	56.16	36.53
53.06	0.53	54.10	1.10	55.14	30.38	56.18	36.64
53.08	0.54	54.12	1.11	55.16	30.51	56.20	36.75
53.10	0.56	54.14	1.11	55.18	30.64	56.22	36.85
53.12	0.58	54.16	1.12	55.20	30.78	56.24	36.96
53.14	0.59	54.18	1.13	55.22	30.91	56.26	37.07
53.16	0.61	54.20	1.14	55.24	31.04	56.28	37.18
53.18	0.62	54.22	1.26	55.26	31.17	56.30	37.29
53.20	0.63	54.24	1.48	55.28	31.30	56.32	37.40
53.22	0.65	54.26	1.75	55.30	31.42	56.34	37.51
53.24	0.66	54.28	2.08	55.32	31.55	56.36	37.61
53.26	0.68	54.30	2.45	55.34	31.68	56.38	37.72
53.28	0.69	54.32	2.85	55.36	31.81	56.40	37.83
53.30	0.70	54.34	3.29	55.38	31.93	56.42	37.93
53.32	0.71	54.36	3.77	55.40	32.06	56.44	38.04
53.34	0.73	54.38	4.27	55.42	32.18	56.46	38.14
53.36	0.74	54.40	4.80	55.44	32.31	56.48	38.25
53.38	0.75	54.42	5.36	55.46	32.43	56.50	38.36
53.40	0.76	54.44	5.94	55.48	32.56	56.52	38.46
53.42	0.77	54.46	6.55	55.50	32.68	56.54	38.56
53.44	0.79	54.48	7.18	55.52	32.80	56.56	38.67
53.46	0.80	54.50	7.83	55.54	32.93	56.58	38.77
53.48	0.81	54.52	8.50	55.56	33.05	56.60	38.88
53.50	0.82	54.54	9.19	55.58	33.17	56.62	38.98
53.52	0.83	54.56	9.91	55.60	33.29	56.64	39.08
53.54	0.84	54.58	10.64	55.62	33.41	56.66	39.19
53.56	0.85	54.60	11.39	55.64	33.53	56.68	39.29
53.58	0.86	54.62	12.17	55.66	33.65	56.70	39.39
53.60	0.87	54.64	12.95	55.68	33.77	56.72	39.49
53.62	0.88	54.66	13.76	55.70	33.89	56.74	39.60
53.64	0.89	54.68	14.58	55.72	34.01	56.76	39.70
53.66	0.90	54.70	15.42	55.74	34.13	56.78	39.80
53.68	0.91	54.72	16.28	55.76	34.25	56.80	39.90
53.70	0.92	54.74	17.15	55.78	34.36	56.82	40.00
53.72	0.93	54.76	18.04	55.80	34.48	56.84	40.10
53.74	0.94	54.78	18.95	55.82	34.60	56.86	40.20
53.76	0.95	54.80	19.86	55.84	34.71	56.88	40.30
53.78	0.96	54.82	20.80	55.86	34.83	56.90	40.40
53.80	0.97	54.84	21.75	55.88	34.95	56.92	40.50
53.82	0.98	54.86	22.71	55.90	35.06	56.94	40.60
53.84	0.99	54.88	23.68	55.92	35.18	56.96	40.70
53.86	1.00	54.90	24.67	55.94	35.29	56.98	40.80
53.88	1.00	54.92	25.68	55.96	35.40	57.00	**40.90**
53.90	1.01	54.94	26.69	55.98	35.52		
53.92	1.02	54.96	27.72	56.00	35.63		
53.94	1.03	54.98	28.77	56.02	35.74		
53.96	1.04	55.00	29.44	56.04	35.86		
53.98	1.05	55.02	29.57	56.06	35.97		
54.00	1.06	55.04	29.71	56.08	36.08		
54.02	1.07	55.06	29.85	56.10	36.19		

Summary for Pond 9P: POND 6A

Inflow Area = 19.820 ac, 0.00% Impervious, Inflow Depth = 0.89" for 2yr Talbot event
Inflow = 15.68 cfs @ 12.07 hrs, Volume= 1.478 af
Outflow = 3.19 cfs @ 12.84 hrs, Volume= 1.479 af, Atten= 80%, Lag= 46.3 min
Primary = 3.19 cfs @ 12.84 hrs, Volume= 1.479 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 55.34' @ 12.87 hrs Surf.Area= 35,883 sf Storage= 23,920 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 209.8 min (1,094.3 - 884.5)

Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	142,126 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.00	0	0	0
54.25	5,534	692	692
54.50	11,263	2,100	2,791
54.75	19,530	3,849	6,641
55.00	29,317	6,106	12,746
56.00	48,475	38,896	51,642
57.00	52,149	50,312	101,954
57.75	54,976	40,172	142,126

Device	Routing	Invert	Outlet Devices
#1	Primary	53.75'	**36.0" Round Culvert** L= 185.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.75' / 53.65' S= 0.0005 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	53.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	55.20'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.18 cfs @ 12.84 hrs HW=55.34' TW=54.17' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.18 cfs of 8.36 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.02 cfs @ 5.21 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.16 cfs @ 1.23 fps)

Stage-Discharge for Pond 9P: POND 6A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
54.00	0.00	55.04	1.07	56.08	17.27	57.12	31.09
54.02	0.17	55.06	1.08	56.10	17.53	57.14	31.32
54.04	0.20	55.08	1.09	56.12	17.80	57.16	31.56
54.06	0.24	55.10	1.10	56.14	18.07	57.18	31.79
54.08	0.27	55.12	1.11	56.16	18.34	57.20	32.01
54.10	0.31	55.14	1.11	56.18	18.61	57.22	32.23
54.12	0.35	55.16	1.12	56.20	18.88	57.24	32.45
54.14	0.40	55.18	1.13	56.22	19.15	57.26	32.67
54.16	0.44	55.20	1.14	56.24	19.42	57.28	32.88
54.18	0.50	55.22	1.26	56.26	19.69	57.30	33.09
54.20	0.55	55.24	1.48	56.28	19.96	57.32	33.29
54.22	0.60	55.26	1.75	56.30	20.23	57.34	33.49
54.24	0.66	55.28	2.08	56.32	20.51	57.36	33.69
54.26	0.68	55.30	2.45	56.34	20.78	57.38	33.88
54.28	0.69	55.32	2.85	56.36	21.05	57.40	34.06
54.30	0.70	55.34	3.29	56.38	21.33	57.42	34.24
54.32	0.71	55.36	3.77	56.40	21.60	57.44	34.41
54.34	0.73	55.38	4.27	56.42	21.88	57.46	34.58
54.36	0.74	55.40	4.80	56.44	22.15	57.48	34.74
54.38	0.75	55.42	5.36	56.46	22.42	57.50	34.89
54.40	0.76	55.44	5.94	56.48	22.70	57.52	35.04
54.42	0.77	55.46	6.55	56.50	22.97	57.54	35.17
54.44	0.79	55.48	7.18	56.52	23.25	57.56	35.30
54.46	0.80	55.50	7.83	56.54	23.52	57.58	35.42
54.48	0.81	55.52	8.50	56.56	23.79	57.60	35.52
54.50	0.82	55.54	9.19	56.58	24.07	57.62	35.61
54.52	0.83	55.56	9.91	56.60	24.34	57.64	35.69
54.54	0.84	55.58	10.64	56.62	24.61	57.66	35.74
54.56	0.85	55.60	11.23	56.64	24.89	57.68	**35.78**
54.58	0.86	55.62	11.46	56.66	25.16	57.70	**35.78**
54.60	0.87	55.64	11.70	56.68	25.43	57.72	35.73
54.62	0.88	55.66	11.94	56.70	25.70	57.74	35.59
54.64	0.89	55.68	12.18	56.72	25.97		
54.66	0.90	55.70	12.42	56.74	26.24		
54.68	0.91	55.72	12.66	56.76	26.51		
54.70	0.92	55.74	12.91	56.78	26.77		
54.72	0.93	55.76	13.15	56.80	27.04		
54.74	0.94	55.78	13.40	56.82	27.30		
54.76	0.95	55.80	13.65	56.84	27.57		
54.78	0.96	55.82	13.90	56.86	27.83		
54.80	0.97	55.84	14.15	56.88	28.09		
54.82	0.98	55.86	14.41	56.90	28.35		
54.84	0.99	55.88	14.66	56.92	28.61		
54.86	1.00	55.90	14.92	56.94	28.87		
54.88	1.00	55.92	15.17	56.96	29.12		
54.90	1.01	55.94	15.43	56.98	29.37		
54.92	1.02	55.96	15.69	57.00	29.63		
54.94	1.03	55.98	15.95	57.02	29.87		
54.96	1.04	56.00	16.21	57.04	30.12		
54.98	1.05	56.02	16.47	57.06	30.37		
55.00	1.06	56.04	16.74	57.08	30.61		
55.02	1.07	56.06	17.00	57.10	30.85		

Summary for Pond 11P: TCCC main entrance culvert

Inflow Area = 4.294 ac, 53.80% Impervious, Inflow Depth = 2.19" for 2yr Talbot event
Inflow = 5.64 cfs @ 12.13 hrs, Volume= 0.783 af
Outflow = 5.34 cfs @ 12.16 hrs, Volume= 0.781 af, Atten= 5%, Lag= 1.3 min
Primary = 5.34 cfs @ 12.16 hrs, Volume= 0.781 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 49.54' @ 12.86 hrs Surf.Area= 1,088 sf Storage= 768 cf

Plug-Flow detention time= 11.3 min calculated for 0.781 af (100% of inflow)
Center-of-Mass det. time= 9.9 min (889.8 - 879.9)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	7,360 cf	**4.00'W x 100.00'L x 4.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	48.47'	**36.0" Round Culvert w/ 12.0" inside fill** L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.47' / 47.25' S= 0.0045 '/' Cc= 0.900 n= 0.013, Flow Area= 5.01 sf
#2	Primary	52.11'	**TCCC entrance road crown, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.10 0.90 1.50 Width (feet) 0.00 50.00 160.00 275.00

Primary OutFlow Max=5.14 cfs @ 12.16 hrs HW=49.45' TW=49.27' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 5.14 cfs @ 2.36 fps)
└─**2=TCCC entrance road crown** (Controls 0.00 cfs)

Stage-Discharge for Pond 11P: TCCC main entrance culvert

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
48.50	0.00	50.58	22.27	52.66	126.14
48.54	0.00	50.62	22.73	52.70	139.29
48.58	0.00	50.66	23.18	52.74	153.47
48.62	0.14	50.70	23.62	52.78	168.69
48.66	0.35	50.74	24.05	52.82	184.97
48.70	0.60	50.78	24.46	52.86	202.34
48.74	0.89	50.82	24.86	52.90	220.81
48.78	1.22	50.86	25.23	52.94	240.41
48.82	1.59	50.90	25.59	52.98	261.15
48.86	1.99	50.94	25.92	53.02	283.06
48.90	2.43	50.98	26.23	53.06	306.19
48.94	2.89	51.02	26.50	53.10	330.61
48.98	3.25	51.06	26.72	53.14	356.39
49.02	3.62	51.10	26.87	53.18	383.55
49.06	4.01	51.14	26.83	53.22	412.15
49.10	4.40	51.18	27.42	53.26	442.22
49.14	4.80	51.22	28.01	53.30	473.79
49.18	5.21	51.26	28.58	53.34	506.91
49.22	5.63	51.30	29.14	53.38	541.60
49.26	6.06	51.34	29.69	53.42	577.89
49.30	6.50	51.38	30.23	53.46	615.82
49.34	6.94	51.42	30.76	53.50	655.41
49.38	7.39	51.46	31.28	53.54	696.70
49.42	7.85	51.50	31.79	53.58	**739.71**
49.46	8.31	51.54	32.30		
49.50	8.78	51.58	32.80		
49.54	9.26	51.62	33.29		
49.58	9.74	51.66	33.77		
49.62	10.23	51.70	34.24		
49.66	10.72	51.74	34.71		
49.70	11.21	51.78	35.18		
49.74	11.71	51.82	35.63		
49.78	12.21	51.86	36.08		
49.82	12.72	51.90	36.53		
49.86	13.22	51.94	36.97		
49.90	13.73	51.98	37.40		
49.94	14.25	52.02	37.83		
49.98	14.76	52.06	38.26		
50.02	15.27	52.10	38.68		
50.06	15.79	52.14	39.20		
50.10	16.30	52.18	40.36		
50.14	16.81	52.22	42.54		
50.18	17.33	52.26	45.76		
50.22	17.84	52.30	49.87		
50.26	18.35	52.34	54.84		
50.30	18.85	52.38	60.66		
50.34	19.36	52.42	67.34		
50.38	19.86	52.46	74.91		
50.42	20.35	52.50	83.33		
50.46	20.84	52.54	92.60		
50.50	21.33	52.58	102.81		
50.54	21.80	52.62	113.99		

Summary for Pond pnd 10B1: pnd 10B Cell 1

Inflow Area = 6.184 ac, 15.20% Impervious, Inflow Depth = 1.29" for 2yr Talbot event
Inflow = 3.30 cfs @ 12.12 hrs, Volume= 0.666 af
Outflow = 1.83 cfs @ 12.76 hrs, Volume= 1.224 af, Atten= 45%, Lag= 38.3 min
Primary = 1.83 cfs @ 12.76 hrs, Volume= 1.224 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 50.46' @ 12.83 hrs Surf.Area= 2,749 sf Storage= 2,764 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,295.9 min (2,194.1 - 898.2)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	7,625 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	1,181	0	0
50.00	2,121	1,651	1,651
51.00	3,494	2,808	4,459
51.75	4,950	3,167	7,625

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**24.0" Round Culvert** L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0012 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	48.75'	**6.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.50'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.83 cfs @ 12.76 hrs HW=50.45' TW=49.52' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.83 cfs of 8.43 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.83 cfs @ 4.65 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond pnd 10B1: pnd 10B Cell 1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.00	0.00	50.04	2.15	51.08	13.45
49.02	0.21	50.06	2.16	51.10	13.59
49.04	0.25	50.08	2.18	51.12	13.73
49.06	0.29	50.10	2.20	51.14	13.86
49.08	0.33	50.12	2.21	51.16	13.99
49.10	0.37	50.14	2.23	51.18	14.12
49.12	0.42	50.16	2.25	51.20	14.24
49.14	0.47	50.18	2.26	51.22	14.36
49.16	0.52	50.20	2.28	51.24	14.47
49.18	0.58	50.22	2.29	51.26	14.58
49.20	0.63	50.24	2.31	51.28	14.68
49.22	0.69	50.26	2.32	51.30	14.77
49.24	0.76	50.28	2.34	51.32	14.86
49.26	0.82	50.30	2.35	51.34	14.94
49.28	0.89	50.32	2.37	51.36	15.00
49.30	0.96	50.34	2.38	51.38	15.05
49.32	1.04	50.36	2.40	51.40	15.08
49.34	1.12	50.38	2.41	51.42	15.04
49.36	1.19	50.40	2.43	51.44	15.25
49.38	1.28	50.42	2.44	51.46	15.45
49.40	1.36	50.44	2.46	51.48	15.65
49.42	1.45	50.46	2.47	51.50	15.85
49.44	1.54	50.48	2.49	51.52	16.05
49.46	1.59	50.50	2.50	51.54	16.24
49.48	1.62	50.52	2.63	51.56	16.44
49.50	1.64	50.54	2.85	51.58	16.63
49.52	1.66	50.56	3.13	51.60	16.81
49.54	1.68	50.58	3.47	51.62	17.00
49.56	1.70	50.60	3.84	51.64	17.18
49.58	1.72	50.62	4.25	51.66	17.37
49.60	1.74	50.64	4.70	51.68	17.55
49.62	1.76	50.66	5.18	51.70	17.72
49.64	1.78	50.68	5.69	51.72	17.90
49.66	1.80	50.70	6.23	51.74	**18.07**
49.68	1.82	50.72	6.79		
49.70	1.84	50.74	7.38		
49.72	1.86	50.76	7.99		
49.74	1.88	50.78	8.63		
49.76	1.90	50.80	9.28		
49.78	1.92	50.82	9.96		
49.80	1.94	50.84	10.66		
49.82	1.96	50.86	11.38		
49.84	1.97	50.88	11.94		
49.86	1.99	50.90	12.10		
49.88	2.01	50.92	12.26		
49.90	2.03	50.94	12.42		
49.92	2.05	50.96	12.57		
49.94	2.06	50.98	12.72		
49.96	2.08	51.00	12.87		
49.98	2.10	51.02	13.02		
50.00	2.11	51.04	13.17		
50.02	2.13	51.06	13.31		

Summary for Pond pnd 10B2: Pond 10B Cell 2

Inflow Area = 6.184 ac, 15.20% Impervious, Inflow Depth = 1.29" for 2yr Talbot event
Inflow = 6.67 cfs @ 12.10 hrs, Volume= 0.666 af
Outflow = 3.30 cfs @ 12.12 hrs, Volume= 0.666 af, Atten= 51%, Lag= 1.6 min
Primary = 3.30 cfs @ 12.12 hrs, Volume= 0.666 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 50.48' @ 12.82 hrs Surf.Area= 7,541 sf Storage= 6,155 cf

Plug-Flow detention time= 31.8 min calculated for 0.666 af (100% of inflow)
Center-of-Mass det. time= 31.8 min (898.2 - 866.4)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	31,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	793	0	0
50.00	5,314	3,054	3,054
51.00	9,929	7,622	10,675
52.00	15,165	12,547	23,222
52.50	18,000	8,291	31,513

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**24.0" Round Culvert** L= 78.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0006 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	49.00'	**6.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.75'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	49.00'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.02 cfs @ 12.12 hrs HW=49.95' TW=49.76' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 3.02 cfs @ 2.20 fps)
  ├─**2=Orifice/Grate** (Passes < 0.83 cfs potential flow)
  ├─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**4=Sharp-Crested Rectangular Weir** (Passes < 12.42 cfs potential flow)

Stage-Discharge for Pond pnd 10B2: Pond 10B Cell 2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.00	0.00	50.04	4.66	51.08	12.37	52.12	19.11
49.02	0.07	50.06	4.80	51.10	12.49	52.14	19.24
49.04	0.11	50.08	4.94	51.12	12.61	52.16	19.37
49.06	0.16	50.10	5.08	51.14	12.73	52.18	19.51
49.08	0.20	50.12	5.22	51.16	12.85	52.20	19.64
49.10	0.26	50.14	5.36	51.18	12.96	52.22	19.77
49.12	0.31	50.16	5.51	51.20	13.07	52.24	19.90
49.14	0.37	50.18	5.65	51.22	13.17	52.26	20.03
49.16	0.43	50.20	5.80	51.24	13.26	52.28	20.16
49.18	0.48	50.22	5.94	51.26	13.36	52.30	20.28
49.20	0.53	50.24	6.09	51.28	13.44	52.32	20.41
49.22	0.58	50.26	6.24	51.30	13.52	52.34	20.53
49.24	0.63	50.28	6.39	51.32	13.58	52.36	20.66
49.26	0.69	50.30	6.54	51.34	13.64	52.38	20.78
49.28	0.75	50.32	6.69	51.36	13.69	52.40	20.91
49.30	0.81	50.34	6.84	51.38	13.71	52.42	21.03
49.32	0.88	50.36	6.99	51.40	13.70	52.44	21.15
49.34	0.95	50.38	7.15	51.42	13.61	52.46	21.27
49.36	1.02	50.40	7.30	51.44	13.79	52.48	21.39
49.38	1.09	50.42	7.45	51.46	13.98	52.50	**21.51**
49.40	1.17	50.44	7.61	51.48	14.16		
49.42	1.24	50.46	7.76	51.50	14.34		
49.44	1.32	50.48	7.92	51.52	14.52		
49.46	1.40	50.50	8.07	51.54	14.70		
49.48	1.49	50.52	8.23	51.56	14.87		
49.50	1.58	50.54	8.39	51.58	15.04		
49.52	1.66	50.56	8.54	51.60	15.21		
49.54	1.76	50.58	8.70	51.62	15.38		
49.56	1.85	50.60	8.85	51.64	15.55		
49.58	1.94	50.62	9.01	51.66	15.71		
49.60	2.04	50.64	9.16	51.68	15.87		
49.62	2.14	50.66	9.32	51.70	16.03		
49.64	2.24	50.68	9.47	51.72	16.19		
49.66	2.35	50.70	9.63	51.74	16.35		
49.68	2.45	50.72	9.78	51.76	16.51		
49.70	2.56	50.74	9.94	51.78	16.66		
49.72	2.67	50.76	10.09	51.80	16.82		
49.74	2.78	50.78	10.24	51.82	16.97		
49.76	2.90	50.80	10.39	51.84	17.12		
49.78	3.01	50.82	10.54	51.86	17.27		
49.80	3.13	50.84	10.69	51.88	17.42		
49.82	3.25	50.86	10.84	51.90	17.57		
49.84	3.37	50.88	10.99	51.92	17.71		
49.86	3.49	50.90	11.13	51.94	17.86		
49.88	3.62	50.92	11.28	51.96	18.00		
49.90	3.74	50.94	11.42	51.98	18.14		
49.92	3.87	50.96	11.56	52.00	18.28		
49.94	4.00	50.98	11.70	52.02	18.42		
49.96	4.13	51.00	11.84	52.04	18.56		
49.98	4.26	51.02	11.98	52.06	18.70		
50.00	4.39	51.04	12.11	52.08	18.84		
50.02	4.53	51.06	12.24	52.10	18.97		

Summary for Pond POND 4B: POND 4B

Inflow Area = 39.678 ac, 3.29% Impervious, Inflow Depth = 1.30" for 2yr Talbot event
Inflow = 14.14 cfs @ 12.17 hrs, Volume= 4.313 af
Outflow = 9.47 cfs @ 13.14 hrs, Volume= 4.765 af, Atten= 33%, Lag= 58.0 min
Primary = 9.47 cfs @ 13.14 hrs, Volume= 4.765 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 49.96' @ 13.11 hrs Surf.Area= 36,654 sf Storage= 28,429 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 332.4 min (1,312.0 - 979.6)

Volume	Invert	Avail.Storage	Storage Description
#1	48.90'	106,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.90	2,378	0	0
49.00	12,688	753	753
49.25	24,390	4,635	5,388
49.50	32,399	7,099	12,487
49.75	34,894	8,412	20,898
50.00	36,984	8,985	29,883
51.00	40,925	38,955	68,838
51.75	58,241	37,187	106,025

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**30.0" Round Culvert X 2.00** L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0016 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf
#2	Device 1	48.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	48.75'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	49.40'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	50.60'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#6	Primary	50.60'	**160.0 deg x 30.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=9.48 cfs @ 13.14 hrs HW=49.96' TW=49.52' (Dynamic Tailwater)
- **1=Culvert** (Passes 9.48 cfs of 11.30 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.62 cfs @ 3.18 fps)
  - **3=Orifice/Grate** (Orifice Controls 1.11 cfs @ 3.18 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 7.74 cfs @ 2.35 fps)
  - **5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
- **6=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond POND 4B: POND 4B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
48.90	0.00	49.94	10.51	50.98	56.37
48.92	0.20	49.96	10.96	51.00	58.77
48.94	0.26	49.98	11.41	51.02	61.21
48.96	0.32	50.00	11.87	51.04	63.72
48.98	0.39	50.02	12.34	51.06	66.28
49.00	0.46	50.04	12.74	51.08	68.90
49.02	0.55	50.06	13.11	51.10	71.57
49.04	0.64	50.08	13.48	51.12	74.30
49.06	0.73	50.10	13.86	51.14	77.07
49.08	0.84	50.12	14.24	51.16	79.91
49.10	0.95	50.14	14.63	51.18	82.79
49.12	1.06	50.16	15.02	51.20	85.73
49.14	1.19	50.18	15.41	51.22	88.72
49.16	1.32	50.20	15.81	51.24	91.75
49.18	1.45	50.22	16.21	51.26	94.84
49.20	1.60	50.24	16.61	51.28	97.98
49.22	1.75	50.26	17.02	51.30	101.17
49.24	1.84	50.28	17.43	51.32	104.41
49.26	1.88	50.30	17.85	51.34	107.70
49.28	1.91	50.32	18.26	51.36	111.03
49.30	1.95	50.34	18.69	51.38	114.42
49.32	1.98	50.36	19.11	51.40	117.85
49.34	2.02	50.38	19.54	51.42	121.33
49.36	2.05	50.40	19.97	51.44	124.86
49.38	2.08	50.42	20.40	51.46	128.43
49.40	2.12	50.44	20.84	51.48	132.05
49.42	2.21	50.46	21.28	51.50	135.72
49.44	2.34	50.48	21.72	51.52	139.43
49.46	2.50	50.50	22.16	51.54	143.19
49.48	2.69	50.52	22.61	51.56	146.99
49.50	2.89	50.54	23.06	51.58	150.84
49.52	3.12	50.56	23.51	51.60	154.74
49.54	3.36	50.58	23.97	51.62	158.68
49.56	3.61	50.60	24.42	51.64	162.66
49.58	3.88	50.62	25.14	51.66	166.69
49.60	4.16	50.64	26.09	51.68	170.75
49.62	4.46	50.66	27.18	51.70	174.87
49.64	4.77	50.68	28.39	51.72	179.02
49.66	5.08	50.70	29.71	51.74	**183.22**
49.68	5.41	50.72	31.13		
49.70	5.75	50.74	32.63		
49.72	6.10	50.76	34.22		
49.74	6.46	50.78	35.89		
49.76	6.83	50.80	37.64		
49.78	7.20	50.82	39.45		
49.80	7.59	50.84	41.34		
49.82	7.98	50.86	43.30		
49.84	8.38	50.88	45.32		
49.86	8.79	50.90	47.41		
49.88	9.21	50.92	49.56		
49.90	9.64	50.94	51.77		
49.92	10.07	50.96	54.04		

Summary for Link sp4 PR: Prop Design Point 4

Inflow Area = 82.285 ac, 7.77% Impervious, Inflow Depth > 1.54" for 2yr Talbot event
Inflow = 17.31 cfs @ 12.37 hrs, Volume= 10.541 af
Primary = 17.31 cfs @ 12.38 hrs, Volume= 10.541 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

102 Point manual elevation table, To= 0.00 hrs, dt= 0.25 hrs, feet =

44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.08	44.17	44.25	44.75	45.75	45.90	45.50	45.00	44.88
44.75	44.63	44.50	44.46	44.42	44.38	44.33	44.29	44.25
44.24	44.24	44.23	44.22	44.22	44.21	44.20	44.20	44.19
44.18	44.18	44.17	44.16	44.16	44.15	44.14	44.14	44.13
44.13	44.12	44.11	44.11	44.10	44.09	44.09	44.08	44.07
44.07	44.06	44.05	44.05	44.04	44.03	44.03	44.02	44.01
44.01	44.00	44.00						

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 2S: AREA 4B.1 Runoff Area=11.890 ac 0.00% Impervious Runoff Depth=3.25"
Tc=14.4 min CN=81 Runoff=34.75 cfs 3.222 af

Subcatchment 3S: AREA 4B.2 Runoff Area=2.860 ac 0.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=79 Runoff=12.32 cfs 0.730 af

Subcatchment 4S: offsite 4.3 Runoff Area=418,500 sf 12.64% Impervious Runoff Depth=2.88"
Flow Length=1,238' Tc=19.5 min CN=77 Runoff=20.38 cfs 2.302 af

Subcatchment 7S: AREA 6A Runoff Area=19.820 ac 0.00% Impervious Runoff Depth=2.18"
Tc=12.0 min CN=69 Runoff=42.34 cfs 3.598 af

Subcatchment 8S: AREA 6B Runoff Area=1.590 ac 0.00% Impervious Runoff Depth=3.35"
Tc=7.2 min CN=82 Runoff=6.92 cfs 0.444 af

Subcatchment 9S: AREA 4A- Ph1 Runoff Area=695,700 sf 3.90% Impervious Runoff Depth=2.88"
Flow Length=900' Tc=27.1 min CN=77 Runoff=26.94 cfs 3.828 af

Subcatchment 11S: AREA 4.A1 Runoff Area=4.560 ac 0.00% Impervious Runoff Depth=3.16"
Tc=6.0 min CN=80 Runoff=20.21 cfs 1.199 af

Subcatchment 12S: AREA 4B Runoff Area=153,250 sf 37.10% Impervious Runoff Depth=3.75"
Flow Length=900' Tc=19.9 min CN=86 Runoff=9.56 cfs 1.099 af

Subcatchment 27S: AREA 4.A2 Runoff Area=1.990 ac 0.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=83 Runoff=9.56 cfs 0.572 af

Subcatchment DA p10a: DA pond 10A Runoff Area=132,672 sf 67.46% Impervious Runoff Depth>4.06"
Flow Length=380' Tc=5.0 min CN=89 Runoff=17.79 cfs 1.029 af

Subcatchment DA p10b: DA Pond 10B Runoff Area=269,381 sf 15.20% Impervious Runoff Depth=2.78"
Flow Length=515' Tc=15.1 min CN=76 Runoff=15.00 cfs 1.435 af

Subcatchment um DA p10a: unmanaged Runoff Area=54,385 sf 20.47% Impervious Runoff Depth=3.35"
Flow Length=240' Tc=18.3 min CN=82 Runoff=3.24 cfs 0.348 af

Reach 1R: Reach 4.2 Avg. Flow Depth=1.52' Max Vel=3.09 fps Inflow=35.69 cfs 12.969 af
n=0.030 L=1,000.0' S=0.0044 '/' Capacity=164.38 cfs Outflow=35.49 cfs 12.963 af

Reach 3R: (new Reach) Avg. Flow Depth=1.33' Max Vel=3.51 fps Inflow=29.77 cfs 1.771 af
n=0.030 L=700.0' S=0.0071 '/' Capacity=378.49 cfs Outflow=28.04 cfs 1.771 af

Pond 1P: Pond 6C Peak Elev=53.53' Storage=52,702 cf Inflow=34.75 cfs 3.222 af
Outflow=9.13 cfs 3.222 af

Pond 2P: CB at Longw0od Rd NO SURFACE VOL Peak Elev=52.58' Inflow=25.16 cfs 8.062 af
Outflow=25.16 cfs 8.062 af

Pond 3P: Pond 10A Peak Elev=50.90' Storage=10,555 cf Inflow=17.79 cfs 1.029 af
Outflow=17.26 cfs 1.041 af

Pond 4 ditch: POND 4A Peak Elev=46.84' Storage=189,230 cf Inflow=44.99 cfs 5.599 af
Outflow=29.51 cfs 5.599 af

Pond 4P pr: EX 24 CMP sp4 Peak Elev=48.86' Inflow=43.66 cfs 20.864 af
Primary=22.60 cfs 17.719 af Secondary=21.06 cfs 3.145 af Outflow=43.66 cfs 20.864 af

Pond 6P: Connection of 6B and 6C Peak Elev=53.08' Inflow=23.97 cfs 7.332 af
Outflow=23.97 cfs 7.332 af

Pond 8P: POND 6B Peak Elev=54.72' Storage=15,335 cf Inflow=16.47 cfs 4.043 af
Outflow=16.07 cfs 4.110 af

Pond 9P: POND 6A Peak Elev=55.93' Storage=48,093 cf Inflow=42.34 cfs 3.598 af
Outflow=15.25 cfs 3.600 af

Pond 11P: TCCC main entrance culvert Peak Elev=50.33' Storage=1,853 cf Inflow=19.62 cfs 1.389 af
Outflow=18.03 cfs 1.387 af

Pond pnd 10B1: pnd 10B Cell 1 Peak Elev=50.80' Storage=3,797 cf Inflow=8.41 cfs 1.435 af
Outflow=8.38 cfs 1.989 af

Pond pnd 10B2: Pond 10B Cell 2 Peak Elev=51.11' Storage=11,810 cf Inflow=15.00 cfs 1.435 af
Outflow=8.41 cfs 1.435 af

Pond POND 4B: POND 4B Peak Elev=50.69' Storage=56,283 cf Inflow=30.80 cfs 9.160 af
Outflow=27.38 cfs 9.593 af

Link sp4 PR: Prop Design Point 4 Inflow=43.66 cfs 20.864 af
Primary=43.66 cfs 20.864 af

Total Runoff Area = 82.285 ac Runoff Volume = 19.806 af Average Runoff Depth = 2.89"
92.23% Pervious = 75.893 ac 7.77% Impervious = 6.392 ac

Summary for Subcatchment 2S: AREA 4B.1

Runoff = 34.75 cfs @ 12.07 hrs, Volume= 3.222 af, Depth= 3.25"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	11.890	81	From TR-55
	11.890		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry, From TR-55**

Summary for Subcatchment 3S: AREA 4B.2

Runoff = 12.32 cfs @ 11.99 hrs, Volume= 0.730 af, Depth= 3.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	2.860	79	
	2.860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 4S: offsite 4.3

Runoff = 20.38 cfs @ 12.14 hrs, Volume= 2.302 af, Depth= 2.88"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

Area (sf)	CN	Description
81,840	61	>75% Grass cover, Good, HSG B
139,500	74	>75% Grass cover, Good, HSG C
52,900	98	Paved parking, HSG D
144,260	80	>75% Grass cover, Good, HSG D
418,500	77	Weighted Average
365,600		87.36% Pervious Area
52,900		12.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0350	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.5	594	0.0089	1.52		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	544	0.0050	4.87	175.23	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=3.00' Z= 3.0 '/' Top.W=21.00' n= 0.030
19.5	1,238	Total			

Summary for Subcatchment 7S: AREA 6A

Runoff = 42.34 cfs @ 12.06 hrs, Volume= 3.598 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	19.820	69	
	19.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, From TR-55**

Summary for Subcatchment 8S: AREA 6B

Runoff = 6.92 cfs @ 12.00 hrs, Volume= 0.444 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	1.590	82	From TR-55
	1.590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2					**Direct Entry, From TR-55**

Summary for Subcatchment 9S: AREA 4A- Ph1

Runoff = 26.94 cfs @ 12.23 hrs, Volume= 3.828 af, Depth= 2.88"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (sf)	CN	Description
	132,700	61	>75% Grass cover, Good, HSG B
	535,900	80	>75% Grass cover, Good, HSG D
*	27,100	98	Paved parking,
	695,700	77	Weighted Average
	668,600		96.10% Pervious Area
	27,100		3.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.3	100	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.8	800	0.0088	1.51		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
27.1	900	Total			

Summary for Subcatchment 11S: AREA 4.A1

Runoff = 20.21 cfs @ 11.99 hrs, Volume= 1.199 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	4.560	80	
	4.560		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, From TR-55**

Summary for Subcatchment 12S: AREA 4B

Runoff = 9.56 cfs @ 12.15 hrs, Volume= 1.099 af, Depth= 3.75"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (sf)	CN	Description
	8,600	61	>75% Grass cover, Good, HSG B
	87,800	80	>75% Grass cover, Good, HSG D
*	56,850	98	Paved parking,
	153,250	86	Weighted Average
	96,400		62.90% Pervious Area
	56,850		37.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.9	800	0.0097	4.65	64.47	**Trap/Vee/Rect Channel Flow,** Bot.W=4.00' D=1.50' Z= 4.0 & 3.0 '/' Top.W=14.50' n= 0.030 Earth, grassed & winding
19.9	900	Total			

Summary for Subcatchment 27S: AREA 4.A2

Runoff = 9.56 cfs @ 11.99 hrs, Volume= 0.572 af, Depth= 3.45"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

	Area (ac)	CN	Description
*	1.990	83	
	1.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, From TR-55**

Summary for Subcatchment DA p10a: DA pond 10A

Runoff = 17.79 cfs @ 11.97 hrs, Volume= 1.029 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

Area (sf)	CN	Description
79,300	98	Paved parking, HSG B
10,200	98	Paved parking, HSG D
18,643	80	>75% Grass cover, Good, HSG D
24,529	61	>75% Grass cover, Good, HSG B
132,672	89	Weighted Average
43,172		32.54% Pervious Area
89,500		67.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0080	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
1.7	210	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	70	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	380	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment DA p10b: DA Pond 10B

Runoff = 15.00 cfs @ 12.08 hrs, Volume= 1.435 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

Area (sf)	CN	Description
89,750	61	>75% Grass cover, Good, HSG B
6,250	98	Paved parking, HSG B
4,240	74	>75% Grass cover, Good, HSG C
4,260	98	Paved parking, HSG C
134,451	80	>75% Grass cover, Good, HSG D
30,430	98	Paved parking, HSG D
269,381	76	Weighted Average
228,441		84.80% Pervious Area
40,940		15.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0280	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
3.0	415	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
15.1	515	Total			

Summary for Subcatchment um DA p10a: unmanaged area 10C

Runoff = 3.24 cfs @ 12.12 hrs, Volume= 0.348 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10yr Talbot Rainfall=5.30"

Area (sf)	CN	Description
16,850	74	>75% Grass cover, Good, HSG C
26,401	80	>75% Grass cover, Good, HSG D
3,330	98	Paved parking, HSG C
7,804	98	Paved parking, HSG D
54,385	82	Weighted Average
43,251		79.53% Pervious Area
11,134		20.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0140	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.3	140	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
18.3	240	Total			

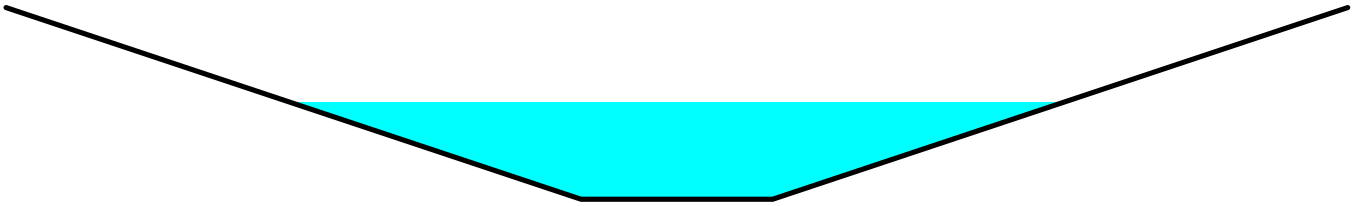
Summary for Reach 1R: Reach 4.2

Inflow Area = 50.157 ac, 9.08% Impervious, Inflow Depth > 3.10" for 10yr Talbot event
Inflow = 35.69 cfs @ 12.77 hrs, Volume= 12.969 af
Outflow = 35.49 cfs @ 12.84 hrs, Volume= 12.963 af, Atten= 1%, Lag= 4.2 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.09 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.87 fps, Avg. Travel Time= 19.1 min

Peak Storage= 11,492 cf @ 12.84 hrs
Average Depth at Peak Storage= 1.52'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 164.38 cfs

3.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 1,000.0' Slope= 0.0044 '/'
Inlet Invert= 48.60', Outlet Invert= 44.20'



Stage-Discharge for Reach 1R: Reach 4.2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
48.60	0.00	0.00
48.62	0.21	0.02
48.64	0.37	0.05
48.66	0.48	0.09
48.68	0.58	0.15
48.70	0.66	0.22
48.72	0.74	0.30
48.74	0.81	0.39
48.76	0.88	0.49
48.78	0.94	0.60
48.80	1.00	0.73
48.82	1.06	0.86
48.84	1.11	1.00
48.86	1.17	1.15
48.88	1.22	1.31
48.90	1.27	1.48
48.92	1.31	1.66
48.94	1.36	1.86
48.96	1.40	2.06
48.98	1.44	2.27
49.00	1.48	2.50
49.02	1.53	2.73
49.04	1.56	2.98
49.06	1.60	3.23
49.08	1.64	3.50
49.10	1.68	3.78
49.12	1.71	4.07
49.14	1.75	4.37
49.16	1.79	4.68
49.18	1.82	5.01
49.20	1.85	5.34
49.22	1.89	5.69
49.24	1.92	6.05
49.26	1.95	6.42
49.28	1.98	6.80
49.30	2.02	7.20
49.32	2.05	7.61
49.34	2.08	8.03
49.36	2.11	8.46
49.38	2.14	8.91
49.40	2.17	9.37
49.42	2.20	9.84
49.44	2.23	10.32
49.46	2.26	10.83
49.48	2.28	11.34
49.50	2.31	11.86
49.52	2.34	12.40
49.54	2.37	12.95
49.56	2.39	13.52
49.58	2.42	14.10
49.60	2.45	14.70
49.62	2.48	15.30
49.64	2.50	15.93
49.66	2.53	16.57
49.68	2.55	17.22
49.70	2.58	17.89
49.72	2.61	18.57
49.74	2.63	19.26
49.76	2.66	19.98
49.78	2.68	20.70
49.80	2.71	21.44
49.82	2.73	22.20
49.84	2.76	22.98
49.86	2.78	23.76
49.88	2.81	24.57
49.90	2.83	25.39
49.92	2.85	26.22
49.94	2.88	27.08
49.96	2.90	27.94
49.98	2.93	28.83
50.00	2.95	29.73
50.02	2.97	30.65
50.04	3.00	31.58
50.06	3.02	32.53
50.08	3.04	33.50
50.10	3.06	34.48
50.12	3.09	35.49
50.14	3.11	36.51
50.16	3.13	37.54
50.18	3.16	38.60
50.20	3.18	39.67
50.22	3.20	40.75
50.24	3.22	41.86
50.26	3.24	42.99
50.28	3.27	44.12
50.30	3.29	45.29
50.32	3.31	46.47
50.34	3.33	47.66
50.36	3.35	48.88
50.38	3.38	50.11
50.40	3.40	51.36
50.42	3.42	52.63
50.44	3.44	53.92
50.46	3.46	55.23
50.48	3.48	56.56
50.50	3.50	57.91
50.52	3.52	59.27
50.54	3.54	60.66
50.56	3.57	62.06
50.58	3.59	63.48
50.60	3.61	64.93
50.62	3.63	66.39
50.64	3.65	67.87
50.66	3.67	69.38
50.68	3.69	70.90
50.70	3.71	72.44
50.72	3.73	74.01
50.74	3.75	75.60
50.76	3.77	77.20
50.78	3.79	78.83
50.80	3.81	80.47
50.82	3.83	82.13
50.84	3.85	83.83
50.86	3.87	85.53
50.88	3.89	87.26
50.90	3.91	89.01
50.92	3.93	90.79
50.94	3.95	92.57
50.96	3.97	94.39
50.98	3.99	96.23
51.00	4.01	98.08
51.02	4.03	99.97
51.04	4.05	101.87
51.06	4.06	103.79
51.08	4.08	105.74
51.10	4.10	107.71
51.12	4.12	109.69
51.14	4.14	111.71
51.16	4.16	113.75
51.18	4.18	115.80
51.20	4.20	117.88
51.22	4.22	119.99
51.24	4.24	122.11
51.26	4.25	124.26
51.28	4.27	126.43
51.30	4.29	128.62
51.32	4.31	130.85
51.34	4.33	133.09
51.36	4.35	135.35
51.38	4.37	137.64
51.40	4.38	139.95
51.42	4.40	142.28
51.44	4.42	144.65
51.46	4.44	147.03
51.48	4.46	149.43
51.50	4.48	151.87
51.52	4.49	154.32
51.54	4.51	156.80
51.56	4.53	159.31
51.58	4.55	161.84
51.60	**4.57**	**164.38**

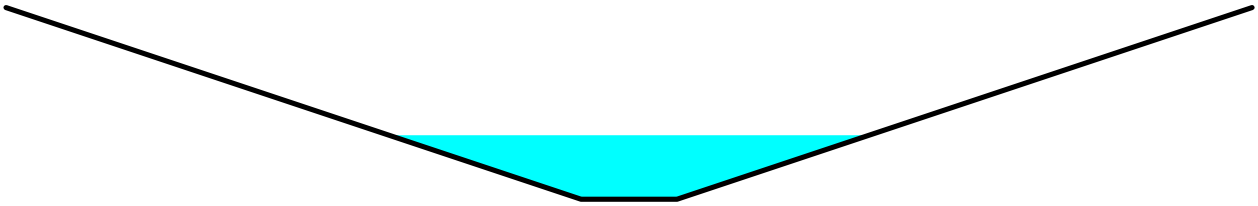
Summary for Reach 3R: (new Reach)

Inflow Area = 6.550 ac, 0.00% Impervious, Inflow Depth = 3.24" for 10yr Talbot event
Inflow = 29.77 cfs @ 11.99 hrs, Volume= 1.771 af
Outflow = 28.04 cfs @ 12.02 hrs, Volume= 1.771 af, Atten= 6%, Lag= 2.3 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.51 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.31 fps, Avg. Travel Time= 37.1 min

Peak Storage= 5,598 cf @ 12.02 hrs
Average Depth at Peak Storage= 1.33'
Bank-Full Depth= 4.00' Flow Area= 56.0 sf, Capacity= 378.49 cfs

2.00' x 4.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 26.00'
Length= 700.0' Slope= 0.0071 '/'
Inlet Invert= 52.00', Outlet Invert= 47.00'



Stage-Discharge for Reach 3R: (new Reach)

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
52.00	0.00	0.00
52.05	0.53	0.06
52.10	0.82	0.19
52.15	1.04	0.39
52.20	1.23	0.64
52.25	1.39	0.96
52.30	1.54	1.35
52.35	1.68	1.79
52.40	1.80	2.31
52.45	1.92	2.90
52.50	2.03	3.57
52.55	2.14	4.31
52.60	2.25	5.13
52.65	2.35	6.03
52.70	2.45	7.03
52.75	2.54	8.10
52.80	2.63	9.27
52.85	2.72	10.53
52.90	2.81	11.89
52.95	2.90	13.35
53.00	2.98	14.90
53.05	3.06	16.57
53.10	3.14	18.34
53.15	3.22	20.21
53.20	3.30	22.19
53.25	3.38	24.30
53.30	3.46	26.52
53.35	3.53	28.86
53.40	3.61	31.31
53.45	3.68	33.89
53.50	3.75	36.60
53.55	3.82	39.43
53.60	3.90	42.39
53.65	3.97	45.49
53.70	4.04	48.72
53.75	4.10	52.09
53.80	4.17	55.58
53.85	4.24	59.24
53.90	4.31	63.03
53.95	4.37	66.96
54.00	4.44	71.04
54.05	4.51	75.28
54.10	4.57	79.67
54.15	4.63	84.20
54.20	4.70	88.89
54.25	4.76	93.75
54.30	4.82	98.77
54.35	4.89	103.94
54.40	4.95	109.27
54.45	5.01	114.79
54.50	5.07	120.46
54.55	5.13	126.31
54.60	5.19	132.31
54.65	5.25	138.51
54.70	5.31	144.88
54.75	5.37	151.43
54.80	5.43	158.14
54.85	5.49	165.06
54.90	5.55	172.16
54.95	5.61	179.43
55.00	5.66	186.88
55.05	5.72	194.55
55.10	5.78	202.40
55.15	5.83	210.44
55.20	5.89	218.66
55.25	5.95	227.11
55.30	6.00	235.74
55.35	6.06	244.57
55.40	6.11	253.60
55.45	6.17	262.85
55.50	6.22	272.30
55.55	6.28	281.95
55.60	6.33	291.80
55.65	6.39	301.89
55.70	6.44	312.19
55.75	6.49	322.69
55.80	6.55	333.40
55.85	6.60	344.35
55.90	6.65	355.52
55.95	6.71	366.90
56.00	**6.76**	**378.49**

Summary for Pond 1P: Pond 6C

Inflow Area = 11.890 ac, 0.00% Impervious, Inflow Depth = 3.25" for 10yr Talbot event
Inflow = 34.75 cfs @ 12.07 hrs, Volume= 3.222 af
Outflow = 9.13 cfs @ 13.56 hrs, Volume= 3.222 af, Atten= 74%, Lag= 89.6 min
Primary = 9.13 cfs @ 13.56 hrs, Volume= 3.222 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 53.53' @ 12.78 hrs Surf.Area= 35,289 sf Storage= 52,702 cf

Plug-Flow detention time= 67.8 min calculated for 3.222 af (100% of inflow)
Center-of-Mass det. time= 67.6 min (897.8 - 830.1)

Volume	Invert	Avail.Storage	Storage Description
#1	51.10'	196,107 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)
51.10	9,830	540.0	0	0	9,830
52.00	19,068	765.0	12,777	12,777	33,203
53.00	27,550	1,028.0	23,179	35,956	70,739
54.00	42,813	1,255.0	34,902	70,858	111,996
55.00	61,819	1,649.0	52,026	122,884	203,058
56.00	85,254	2,232.0	73,223	196,107	383,122

Device	Routing	Invert	Outlet Devices
#1	Primary	50.50'	**24.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.50' / 50.35' S= 0.0033 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Device 1	51.10'	**28.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	52.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	55.50'	**48.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=9.19 cfs @ 13.56 hrs HW=53.20' TW=52.62' (Dynamic Tailwater)
└─**1=Culvert** (Passes 9.19 cfs of 11.51 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 8.55 cfs @ 3.67 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.63 cfs @ 3.23 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Stage-Discharge for Pond 1P: Pond 6C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
51.10	0.00	53.70	17.16
51.15	0.08	53.75	17.38
51.20	0.24	53.80	17.60
51.25	0.44	53.85	17.81
51.30	0.67	53.90	18.02
51.35	0.94	53.95	18.23
51.40	1.23	54.00	18.43
51.45	1.55	54.05	18.63
51.50	1.89	54.10	18.83
51.55	2.26	54.15	19.03
51.60	2.65	54.20	19.23
51.65	3.06	54.25	19.42
51.70	3.48	54.30	19.61
51.75	3.93	54.35	19.80
51.80	4.39	54.40	19.99
51.85	4.86	54.45	20.17
51.90	5.36	54.50	20.36
51.95	5.87	54.55	20.54
52.00	6.40	54.60	20.72
52.05	6.94	54.65	20.90
52.10	7.49	54.70	21.08
52.15	7.97	54.75	21.26
52.20	8.40	54.80	21.43
52.25	8.80	54.85	21.60
52.30	9.18	54.90	21.78
52.35	9.53	54.95	21.95
52.40	9.87	55.00	22.12
52.45	10.20	55.05	22.28
52.50	10.51	55.10	22.45
52.55	10.82	55.15	22.62
52.60	11.14	55.20	22.78
52.65	11.46	55.25	22.94
52.70	11.79	55.30	23.10
52.75	12.12	55.35	23.26
52.80	12.44	55.40	23.42
52.85	12.77	55.45	23.58
52.90	13.09	55.50	23.74
52.95	13.40	55.55	24.33
53.00	13.69	55.60	25.29
53.05	13.98	55.65	26.49
53.10	14.25	55.70	27.87
53.15	14.52	55.75	29.42
53.20	14.79	55.80	31.11
53.25	15.04	55.85	31.55
53.30	15.30	55.90	31.73
53.35	15.54	55.95	31.91
53.40	15.79	56.00	**32.09**
53.45	16.03		
53.50	16.26		
53.55	16.49		
53.60	16.72		
53.65	16.94		

Summary for Pond 2P: CB at Longw0od Rd NO SURFACE VOL

Inflow Area = 36.160 ac, 0.00% Impervious, Inflow Depth = 2.68" for 10yr Talbot event
Inflow = 25.16 cfs @ 12.60 hrs, Volume= 8.062 af
Outflow = 25.16 cfs @ 12.61 hrs, Volume= 8.062 af, Atten= 0%, Lag= 0.6 min
Primary = 25.16 cfs @ 12.61 hrs, Volume= 8.062 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 52.58' @ 12.61 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	50.05'	**42.0" Round Culvert** L= 214.9' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.05' / 49.85' S= 0.0009 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	54.50'	**36.0" x 42.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.10'	**42.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=25.16 cfs @ 12.61 hrs HW=52.58' TW=50.62' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 25.16 cfs @ 4.73 fps)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Passes 25.16 cfs of 38.99 cfs potential flow)

Stage-Discharge for Pond 2P: CB at Longw0od Rd NO SURFACE VOL

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
50.05	0.00	52.65	26.51
50.10	0.00	52.70	27.43
50.15	0.02	52.75	28.35
50.20	0.06	52.80	29.29
50.25	0.12	52.85	30.23
50.30	0.19	52.90	31.17
50.35	0.28	52.95	32.12
50.40	0.40	53.00	33.07
50.45	0.53	53.05	34.03
50.50	0.69	53.10	34.98
50.55	0.87	53.15	35.94
50.60	1.08	53.20	36.90
50.65	1.30	53.25	37.85
50.70	1.55	53.30	38.81
50.75	1.82	53.35	39.76
50.80	2.12	53.40	40.71
50.85	2.43	53.45	41.66
50.90	2.77	53.50	42.60
50.95	3.14	53.55	43.53
51.00	3.52	53.60	44.46
51.05	3.93	53.65	45.37
51.10	4.36	53.70	46.28
51.15	4.81	53.75	47.18
51.20	5.28	53.80	48.06
51.25	5.77	53.85	48.93
51.30	6.28	53.90	49.78
51.35	6.82	53.95	50.61
51.40	7.37	54.00	51.43
51.45	7.94	54.05	52.22
51.50	8.54	54.10	52.98
51.55	9.15	54.15	53.72
51.60	9.78	54.20	54.43
51.65	10.43	54.25	55.11
51.70	11.09	54.30	55.74
51.75	11.77	54.35	56.34
51.80	12.48	54.40	56.88
51.85	13.19	54.45	57.37
51.90	13.92	54.50	**57.78**
51.95	14.67		
52.00	15.44		
52.05	16.21		
52.10	17.01		
52.15	17.81		
52.20	18.63		
52.25	19.46		
52.30	20.31		
52.35	21.16		
52.40	22.03		
52.45	22.91		
52.50	23.79		
52.55	24.69		
52.60	25.59		

Summary for Pond 3P: Pond 10A

Inflow Area = 3.046 ac, 67.46% Impervious, Inflow Depth > 4.06" for 10yr Talbot event
Inflow = 17.79 cfs @ 11.97 hrs, Volume= 1.029 af
Outflow = 17.26 cfs @ 12.00 hrs, Volume= 1.041 af, Atten= 3%, Lag= 1.6 min
Primary = 17.26 cfs @ 12.00 hrs, Volume= 1.041 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 50.90' @ 12.00 hrs Surf.Area= 8,771 sf Storage= 10,555 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 74.8 min (866.6 - 791.8)

Volume	Invert	Avail.Storage	Storage Description
#1	49.50'	23,257 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.50	6,556	0	0
50.00	7,153	3,427	3,427
51.00	8,960	8,057	11,484
52.00	14,586	11,773	23,257

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	50.25'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Primary	50.75'	**120.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.48 (C= 3.10)

Primary OutFlow Max=17.22 cfs @ 12.00 hrs HW=50.90' TW=50.17' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.36 cfs @ 4.09 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 6.56 cfs @ 2.63 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 10.31 cfs @ 1.18 fps)

Stage-Discharge for Pond 3P: Pond 10A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.50	0.00	50.54	2.51	51.58	162.72
49.52	0.25	50.56	2.72	51.60	168.41
49.54	0.26	50.58	2.94	51.62	174.16
49.56	0.26	50.60	3.16	51.64	179.99
49.58	0.27	50.62	3.40	51.66	185.88
49.60	0.28	50.64	3.63	51.68	191.83
49.62	0.28	50.66	3.88	51.70	197.86
49.64	0.29	50.68	4.13	51.72	203.94
49.66	0.30	50.70	4.38	51.74	210.10
49.68	0.30	50.72	4.64	51.76	216.32
49.70	0.31	50.74	4.90	51.78	222.60
49.72	0.31	50.76	5.36	51.80	228.94
49.74	0.32	50.78	6.41	51.82	235.35
49.76	0.32	50.80	7.81	51.84	241.82
49.78	0.33	50.82	9.46	51.86	248.35
49.80	0.33	50.84	11.33	51.88	254.95
49.82	0.34	50.86	13.39	51.90	261.60
49.84	0.34	50.88	15.63	51.92	268.32
49.86	0.35	50.90	18.03	51.94	275.10
49.88	0.35	50.92	20.58	51.96	281.93
49.90	0.36	50.94	23.27	51.98	288.83
49.92	0.36	50.96	26.10	52.00	**295.79**
49.94	0.37	50.98	29.05		
49.96	0.37	51.00	32.13		
49.98	0.38	51.02	35.33		
50.00	0.38	51.04	38.64		
50.02	0.39	51.06	42.06		
50.04	0.39	51.08	45.59		
50.06	0.40	51.10	49.22		
50.08	0.40	51.12	52.96		
50.10	0.41	51.14	56.79		
50.12	0.41	51.16	60.72		
50.14	0.41	51.18	64.75		
50.16	0.42	51.20	68.87		
50.18	0.42	51.22	73.07		
50.20	0.43	51.24	77.37		
50.22	0.43	51.26	81.76		
50.24	0.44	51.28	86.23		
50.26	0.45	51.30	90.78		
50.28	0.51	51.32	95.42		
50.30	0.59	51.34	100.13		
50.32	0.69	51.36	104.93		
50.34	0.81	51.38	109.81		
50.36	0.93	51.40	114.77		
50.38	1.07	51.42	119.80		
50.40	1.22	51.44	124.91		
50.42	1.38	51.46	130.09		
50.44	1.55	51.48	135.35		
50.46	1.72	51.50	140.68		
50.48	1.91	51.52	146.09		
50.50	2.10	51.54	151.56		
50.52	2.30	51.56	157.11		

Summary for Pond 4 ditch: POND 4A

Inflow Area = 22.521 ac, 2.76% Impervious, Inflow Depth = 2.98" for 10yr Talbot event
Inflow = 44.99 cfs @ 12.06 hrs, Volume= 5.599 af
Outflow = 29.51 cfs @ 16.11 hrs, Volume= 5.599 af, Atten= 34%, Lag= 243.3 min
Primary = 29.51 cfs @ 16.11 hrs, Volume= 5.599 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 46.84' @ 15.55 hrs Surf.Area= 131,489 sf Storage= 189,230 cf

Plug-Flow detention time= 449.8 min calculated for 5.599 af (100% of inflow)
Center-of-Mass det. time= 449.8 min (1,298.3 - 848.5)

Volume	Invert	Avail.Storage	Storage Description
#1	44.75'	461,460 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.75	2,750	0	0
45.00	60,622	7,922	7,922
46.00	103,486	82,054	89,976
47.00	136,633	120,060	210,035
48.00	144,447	140,540	350,575
48.75	151,245	110,885	461,460

Device	Routing	Invert	Outlet Devices
#1	Primary	44.50'	**36.0" Round Culvert X 2.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.50' / 44.25' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	44.75'	**12.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.90'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	45.90'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Primary	47.90'	**200.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 16.11 hrs HW=46.72' TW=47.58' (Dynamic Tailwater)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  - **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 4 ditch: POND 4A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
44.75	0.00	45.79	7.71	46.83	45.89	47.87	80.85
44.77	0.06	45.81	7.79	46.85	47.05	47.89	81.45
44.79	0.16	45.83	7.86	46.87	48.23	47.91	82.53
44.81	0.30	45.85	7.93	46.89	48.94	47.93	85.21
44.83	0.46	45.87	8.00	46.91	49.60	47.95	88.76
44.85	0.65	45.89	8.08	46.93	50.25	47.97	92.99
44.87	0.85	45.91	8.19	46.95	50.91	47.99	97.78
44.89	1.08	45.93	8.42	46.97	51.57	48.01	103.06
44.91	1.31	45.95	8.73	46.99	52.23	48.03	108.79
44.93	1.57	45.97	9.10	47.01	52.90	48.05	114.92
44.95	1.84	45.99	9.50	47.03	53.56	48.07	121.43
44.97	2.12	46.01	9.95	47.05	54.22	48.09	128.30
44.99	2.42	46.03	10.43	47.07	54.89	48.11	135.57
45.01	2.72	46.05	10.95	47.09	55.55	48.13	143.25
45.03	3.04	46.07	11.49	47.11	56.22	48.15	151.27
45.05	3.38	46.09	12.07	47.13	56.89	48.17	159.63
45.07	3.72	46.11	12.66	47.15	57.55	48.19	168.31
45.09	4.01	46.13	13.29	47.17	58.22	48.21	177.31
45.11	4.27	46.15	13.94	47.19	58.89	48.23	186.62
45.13	4.54	46.17	14.61	47.21	59.56	48.25	196.22
45.15	4.78	46.19	15.30	47.23	60.22	48.27	206.12
45.17	4.90	46.21	16.01	47.25	60.89	48.29	216.31
45.19	5.02	46.23	16.74	47.27	61.56	48.31	226.96
45.21	5.13	46.25	17.50	47.29	62.22	48.33	238.11
45.23	5.24	46.27	18.27	47.31	62.89	48.35	249.60
45.25	5.35	46.29	19.06	47.33	63.56	48.37	261.40
45.27	5.45	46.31	19.86	47.35	64.22	48.39	273.52
45.29	5.56	46.33	20.69	47.37	64.89	48.41	285.96
45.31	5.66	46.35	21.53	47.39	65.55	48.43	298.71
45.33	5.76	46.37	22.39	47.41	66.21	48.45	311.75
45.35	5.86	46.39	23.26	47.43	66.87	48.47	325.07
45.37	5.96	46.41	24.15	47.45	67.53	48.49	338.61
45.39	6.05	46.43	25.05	47.47	68.19	48.51	351.90
45.41	6.14	46.45	25.97	47.49	68.85	48.53	365.30
45.43	6.24	46.47	26.91	47.51	69.50	48.55	378.89
45.45	6.33	46.49	27.85	47.53	70.16	48.57	392.67
45.47	6.42	46.51	28.82	47.55	70.81	48.59	406.62
45.49	6.51	46.53	29.79	47.57	71.46	48.61	420.76
45.51	6.59	46.55	30.78	47.59	72.11	48.63	435.08
45.53	6.68	46.57	31.78	47.61	72.75	48.65	449.56
45.55	6.76	46.59	32.80	47.63	73.40	48.67	464.22
45.57	6.85	46.61	33.82	47.65	74.04	48.69	479.05
45.59	6.93	46.63	34.86	47.67	74.67	48.71	494.04
45.61	7.01	46.65	35.91	47.69	75.31	48.73	509.20
45.63	7.10	46.67	36.98	47.71	75.94	48.75	**524.52**
45.65	7.18	46.69	38.05	47.73	76.57		
45.67	7.25	46.71	39.14	47.75	77.19		
45.69	7.33	46.73	40.24	47.77	77.81		
45.71	7.41	46.75	41.34	47.79	78.43		
45.73	7.49	46.77	42.46	47.81	79.04		
45.75	7.56	46.79	43.60	47.83	79.65		
45.77	7.64	46.81	44.74	47.85	80.25		

Summary for Pond 4P pr: EX 24 CMP sp4

Inflow Area =	82.285 ac,	7.77% Impervious,	Inflow Depth >	3.04"	for 10yr Talbot event
Inflow =	43.66 cfs @	12.50 hrs,	Volume=	20.864 af	
Outflow =	43.66 cfs @	12.51 hrs,	Volume=	20.864 af,	Atten= 0%, Lag= 0.6 min
Primary =	22.60 cfs @	12.51 hrs,	Volume=	17.719 af	
Secondary =	21.06 cfs @	12.51 hrs,	Volume=	3.145 af	

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 48.86' @ 12.51 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	44.45'	**24.0" Round Culvert** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.45' / 44.05' S= 0.0100 '/' Cc= 0.900 n= 0.026, Flow Area= 3.14 sf
#2	Secondary	48.60'	**CL Hiners Lane as Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 1.40 2.40 2.90 Width (feet) 0.00 190.00 335.00 583.00 665.00

Primary OutFlow Max=22.60 cfs @ 12.51 hrs HW=48.86' TW=45.88' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 22.60 cfs @ 7.19 fps)

Secondary OutFlow Max=21.06 cfs @ 12.51 hrs HW=48.86' TW=45.88' (Dynamic Tailwater)
└─**2=CL Hiners Lane as Weir** (Weir Controls 21.06 cfs @ 1.33 fps)

Stage-Discharge for Pond 4P pr: EX 24 CMP sp4

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
44.45	0.00	0.00	0.00
44.55	0.03	0.03	0.00
44.65	0.13	0.13	0.00
44.75	0.31	0.31	0.00
44.85	0.56	0.56	0.00
44.95	0.88	0.88	0.00
45.05	1.28	1.28	0.00
45.15	1.73	1.73	0.00
45.25	2.25	2.25	0.00
45.35	2.82	2.82	0.00
45.45	3.43	3.43	0.00
45.55	4.09	4.09	0.00
45.65	4.79	4.79	0.00
45.75	5.52	5.52	0.00
45.85	6.28	6.28	0.00
45.95	7.06	7.06	0.00
46.05	7.86	7.86	0.00
46.15	8.66	8.66	0.00
46.25	9.45	9.45	0.00
46.35	10.24	10.24	0.00
46.45	11.01	11.01	0.00
46.55	11.75	11.75	0.00
46.65	12.45	12.45	0.00
46.75	13.08	13.08	0.00
46.85	13.62	13.62	0.00
46.95	14.04	14.04	0.00
47.05	14.24	14.24	0.00
47.15	14.15	14.15	0.00
47.25	14.77	14.77	0.00
47.35	15.38	15.38	0.00
47.45	15.96	15.96	0.00
47.55	16.52	16.52	0.00
47.65	17.06	17.06	0.00
47.75	17.59	17.59	0.00
47.85	18.10	18.10	0.00
47.95	18.59	18.59	0.00
48.05	19.07	19.07	0.00
48.15	19.55	19.55	0.00
48.25	20.00	20.00	0.00
48.35	20.45	20.45	0.00
48.45	20.89	20.89	0.00
48.55	21.33	21.33	0.00
48.65	22.10	21.75	0.35
48.75	27.58	22.16	5.42
48.85	42.01	22.57	19.45
48.95	68.06	22.97	45.10
49.05	107.65	23.36	84.29
49.15	159.58	23.75	135.83
49.25	222.57	24.13	198.45
49.35	296.29	24.50	271.79
49.45	380.63	24.87	355.76
49.55	475.61	25.23	450.38
49.65	581.31	25.59	555.72
49.75	697.84	25.94	671.90
49.85	825.36	26.29	799.07
49.95	964.01	26.64	937.38
50.05	1,114.05	26.97	1,087.07
50.15	1,276.59	27.31	1,249.28
50.25	1,452.74	27.64	1,425.10
50.35	1,643.25	27.97	1,615.29
50.45	1,848.78	28.29	1,820.49
50.55	2,069.92	28.61	2,041.31
50.65	2,307.20	28.93	2,278.28
50.75	2,561.15	29.24	2,531.91
50.85	2,832.24	29.55	2,802.69
50.95	3,120.94	29.86	3,091.08
51.05	3,427.64	30.16	3,397.48
51.15	3,752.00	30.46	3,721.54
51.25	4,093.69	30.76	4,062.93
51.35	4,452.65	31.05	4,421.60
51.45	**4,828.89**	**31.34**	**4,797.54**

Summary for Pond 6P: Connection of 6B and 6C

Inflow Area = 33.300 ac, 0.00% Impervious, Inflow Depth = 2.64" for 10yr Talbot event
Inflow = 23.97 cfs @ 12.65 hrs, Volume= 7.332 af
Outflow = 23.97 cfs @ 12.66 hrs, Volume= 7.332 af, Atten= 0%, Lag= 0.6 min
Primary = 23.97 cfs @ 12.66 hrs, Volume= 7.332 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 53.08' @ 12.64 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	50.25'	**42.0" Round Culvert** L= 182.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.25' / 50.10' S= 0.0008 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	54.50'	**36.0" x 42.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.25'	**42.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=23.98 cfs @ 12.66 hrs HW=53.08' TW=52.57' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 23.98 cfs @ 3.92 fps)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Passes 23.98 cfs of 28.65 cfs potential flow)

Stage-Discharge for Pond 6P: Connection of 6B and 6C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
50.25	0.00	52.85	26.74
50.30	0.01	52.90	27.68
50.35	0.02	52.95	28.62
50.40	0.06	53.00	29.56
50.45	0.11	53.05	30.52
50.50	0.18	53.10	31.47
50.55	0.28	53.15	32.44
50.60	0.39	53.20	33.40
50.65	0.52	53.25	34.37
50.70	0.68	53.30	35.35
50.75	0.86	53.35	36.32
50.80	1.06	53.40	37.29
50.85	1.29	53.45	38.27
50.90	1.54	53.50	39.24
50.95	1.81	53.55	40.21
51.00	2.11	53.60	41.18
51.05	2.42	53.65	42.14
51.10	2.77	53.70	43.10
51.15	3.13	53.75	44.06
51.20	3.52	53.80	45.00
51.25	3.93	53.85	45.94
51.30	4.36	53.90	46.87
51.35	4.81	53.95	47.79
51.40	5.28	54.00	48.69
51.45	5.78	54.05	49.59
51.50	6.30	54.10	50.46
51.55	6.84	54.15	51.32
51.60	7.39	54.20	52.16
51.65	7.97	54.25	52.98
51.70	8.57	54.30	53.77
51.75	9.19	54.35	54.54
51.80	9.82	54.40	55.28
51.85	10.48	54.45	55.98
51.90	11.15	54.50	**56.65**
51.95	11.84		
52.00	12.55		
52.05	13.27		
52.10	14.01		
52.15	14.77		
52.20	15.54		
52.25	16.33		
52.30	17.13		
52.35	17.94		
52.40	18.77		
52.45	19.61		
52.50	20.47		
52.55	21.33		
52.60	22.21		
52.65	23.10		
52.70	23.99		
52.75	24.90		
52.80	25.82		

Summary for Pond 8P: POND 6B

Inflow Area = 21.410 ac, 0.00% Impervious, Inflow Depth = 2.27" for 10yr Talbot event
Inflow = 16.47 cfs @ 12.38 hrs, Volume= 4.043 af
Outflow = 16.07 cfs @ 12.57 hrs, Volume= 4.110 af, Atten= 2%, Lag= 11.6 min
Primary = 16.07 cfs @ 12.57 hrs, Volume= 4.110 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 54.72' @ 12.57 hrs Surf.Area= 15,101 sf Storage= 15,335 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 41.6 min (1,011.4 - 969.8)

Volume	Invert	Avail.Storage	Storage Description
#1	53.00'	61,963 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.00	38	0	0
53.30	1,415	218	218
53.50	4,629	604	822
53.80	8,567	1,979	2,802
54.00	13,635	2,220	5,022
55.00	15,678	14,657	19,678
56.00	17,821	16,750	36,428
57.00	33,250	25,536	61,963

Device	Routing	Invert	Outlet Devices
#1	Primary	50.75'	**30.0" Round Culvert** L= 336.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.75' / 50.35' S= 0.0012 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Device 1	52.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	54.20'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=16.07 cfs @ 12.57 hrs HW=54.72' TW=53.08' (Dynamic Tailwater)
└─**1=Culvert** (Passes 16.07 cfs of 25.71 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.21 cfs @ 6.17 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 14.86 cfs @ 2.35 fps)

Stage-Discharge for Pond 8P: POND 6B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
53.00	0.00	54.04	1.07	55.08	29.98	56.12	36.30
53.02	0.49	54.06	1.08	55.10	30.11	56.14	36.41
53.04	0.51	54.08	1.09	55.12	30.25	56.16	36.53
53.06	0.53	54.10	1.10	55.14	30.38	56.18	36.64
53.08	0.54	54.12	1.11	55.16	30.51	56.20	36.75
53.10	0.56	54.14	1.11	55.18	30.64	56.22	36.85
53.12	0.58	54.16	1.12	55.20	30.78	56.24	36.96
53.14	0.59	54.18	1.13	55.22	30.91	56.26	37.07
53.16	0.61	54.20	1.14	55.24	31.04	56.28	37.18
53.18	0.62	54.22	1.26	55.26	31.17	56.30	37.29
53.20	0.63	54.24	1.48	55.28	31.30	56.32	37.40
53.22	0.65	54.26	1.75	55.30	31.42	56.34	37.51
53.24	0.66	54.28	2.08	55.32	31.55	56.36	37.61
53.26	0.68	54.30	2.45	55.34	31.68	56.38	37.72
53.28	0.69	54.32	2.85	55.36	31.81	56.40	37.83
53.30	0.70	54.34	3.29	55.38	31.93	56.42	37.93
53.32	0.71	54.36	3.77	55.40	32.06	56.44	38.04
53.34	0.73	54.38	4.27	55.42	32.18	56.46	38.14
53.36	0.74	54.40	4.80	55.44	32.31	56.48	38.25
53.38	0.75	54.42	5.36	55.46	32.43	56.50	38.36
53.40	0.76	54.44	5.94	55.48	32.56	56.52	38.46
53.42	0.77	54.46	6.55	55.50	32.68	56.54	38.56
53.44	0.79	54.48	7.18	55.52	32.80	56.56	38.67
53.46	0.80	54.50	7.83	55.54	32.93	56.58	38.77
53.48	0.81	54.52	8.50	55.56	33.05	56.60	38.88
53.50	0.82	54.54	9.19	55.58	33.17	56.62	38.98
53.52	0.83	54.56	9.91	55.60	33.29	56.64	39.08
53.54	0.84	54.58	10.64	55.62	33.41	56.66	39.19
53.56	0.85	54.60	11.39	55.64	33.53	56.68	39.29
53.58	0.86	54.62	12.17	55.66	33.65	56.70	39.39
53.60	0.87	54.64	12.95	55.68	33.77	56.72	39.49
53.62	0.88	54.66	13.76	55.70	33.89	56.74	39.60
53.64	0.89	54.68	14.58	55.72	34.01	56.76	39.70
53.66	0.90	54.70	15.42	55.74	34.13	56.78	39.80
53.68	0.91	54.72	16.28	55.76	34.25	56.80	39.90
53.70	0.92	54.74	17.15	55.78	34.36	56.82	40.00
53.72	0.93	54.76	18.04	55.80	34.48	56.84	40.10
53.74	0.94	54.78	18.95	55.82	34.60	56.86	40.20
53.76	0.95	54.80	19.86	55.84	34.71	56.88	40.30
53.78	0.96	54.82	20.80	55.86	34.83	56.90	40.40
53.80	0.97	54.84	21.75	55.88	34.95	56.92	40.50
53.82	0.98	54.86	22.71	55.90	35.06	56.94	40.60
53.84	0.99	54.88	23.68	55.92	35.18	56.96	40.70
53.86	1.00	54.90	24.67	55.94	35.29	56.98	40.80
53.88	1.00	54.92	25.68	55.96	35.40	57.00	**40.90**
53.90	1.01	54.94	26.69	55.98	35.52		
53.92	1.02	54.96	27.72	56.00	35.63		
53.94	1.03	54.98	28.77	56.02	35.74		
53.96	1.04	55.00	29.44	56.04	35.86		
53.98	1.05	55.02	29.57	56.06	35.97		
54.00	1.06	55.04	29.71	56.08	36.08		
54.02	1.07	55.06	29.85	56.10	36.19		

Summary for Pond 9P: POND 6A

Inflow Area = 19.820 ac, 0.00% Impervious, Inflow Depth = 2.18" for 10yr Talbot event
Inflow = 42.34 cfs @ 12.06 hrs, Volume= 3.598 af
Outflow = 15.25 cfs @ 12.50 hrs, Volume= 3.600 af, Atten= 64%, Lag= 26.8 min
Primary = 15.25 cfs @ 12.50 hrs, Volume= 3.600 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 55.93' @ 12.50 hrs Surf.Area= 47,052 sf Storage= 48,093 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 132.1 min (988.8 - 856.6)

Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	142,126 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.00	0	0	0
54.25	5,534	692	692
54.50	11,263	2,100	2,791
54.75	19,530	3,849	6,641
55.00	29,317	6,106	12,746
56.00	48,475	38,896	51,642
57.00	52,149	50,312	101,954
57.75	54,976	40,172	142,126

Device	Routing	Invert	Outlet Devices
#1	Primary	53.75'	**36.0" Round Culvert** L= 185.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.75' / 53.65' S= 0.0005 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	53.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	55.20'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=15.25 cfs @ 12.50 hrs HW=55.93' TW=54.72' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 15.25 cfs @ 3.88 fps)
  ├─**2=Orifice/Grate** (Passes < 1.04 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Passes < 24.57 cfs potential flow)

Stage-Discharge for Pond 9P: POND 6A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
54.00	0.00	55.04	1.07	56.08	17.27	57.12	31.09
54.02	0.17	55.06	1.08	56.10	17.53	57.14	31.32
54.04	0.20	55.08	1.09	56.12	17.80	57.16	31.56
54.06	0.24	55.10	1.10	56.14	18.07	57.18	31.79
54.08	0.27	55.12	1.11	56.16	18.34	57.20	32.01
54.10	0.31	55.14	1.11	56.18	18.61	57.22	32.23
54.12	0.35	55.16	1.12	56.20	18.88	57.24	32.45
54.14	0.40	55.18	1.13	56.22	19.15	57.26	32.67
54.16	0.44	55.20	1.14	56.24	19.42	57.28	32.88
54.18	0.50	55.22	1.26	56.26	19.69	57.30	33.09
54.20	0.55	55.24	1.48	56.28	19.96	57.32	33.29
54.22	0.60	55.26	1.75	56.30	20.23	57.34	33.49
54.24	0.66	55.28	2.08	56.32	20.51	57.36	33.69
54.26	0.68	55.30	2.45	56.34	20.78	57.38	33.88
54.28	0.69	55.32	2.85	56.36	21.05	57.40	34.06
54.30	0.70	55.34	3.29	56.38	21.33	57.42	34.24
54.32	0.71	55.36	3.77	56.40	21.60	57.44	34.41
54.34	0.73	55.38	4.27	56.42	21.88	57.46	34.58
54.36	0.74	55.40	4.80	56.44	22.15	57.48	34.74
54.38	0.75	55.42	5.36	56.46	22.42	57.50	34.89
54.40	0.76	55.44	5.94	56.48	22.70	57.52	35.04
54.42	0.77	55.46	6.55	56.50	22.97	57.54	35.17
54.44	0.79	55.48	7.18	56.52	23.25	57.56	35.30
54.46	0.80	55.50	7.83	56.54	23.52	57.58	35.42
54.48	0.81	55.52	8.50	56.56	23.79	57.60	35.52
54.50	0.82	55.54	9.19	56.58	24.07	57.62	35.61
54.52	0.83	55.56	9.91	56.60	24.34	57.64	35.69
54.54	0.84	55.58	10.64	56.62	24.61	57.66	35.74
54.56	0.85	55.60	11.23	56.64	24.89	57.68	**35.78**
54.58	0.86	55.62	11.46	56.66	25.16	57.70	**35.78**
54.60	0.87	55.64	11.70	56.68	25.43	57.72	35.73
54.62	0.88	55.66	11.94	56.70	25.70	57.74	35.59
54.64	0.89	55.68	12.18	56.72	25.97		
54.66	0.90	55.70	12.42	56.74	26.24		
54.68	0.91	55.72	12.66	56.76	26.51		
54.70	0.92	55.74	12.91	56.78	26.77		
54.72	0.93	55.76	13.15	56.80	27.04		
54.74	0.94	55.78	13.40	56.82	27.30		
54.76	0.95	55.80	13.65	56.84	27.57		
54.78	0.96	55.82	13.90	56.86	27.83		
54.80	0.97	55.84	14.15	56.88	28.09		
54.82	0.98	55.86	14.41	56.90	28.35		
54.84	0.99	55.88	14.66	56.92	28.61		
54.86	1.00	55.90	14.92	56.94	28.87		
54.88	1.00	55.92	15.17	56.96	29.12		
54.90	1.01	55.94	15.43	56.98	29.37		
54.92	1.02	55.96	15.69	57.00	29.63		
54.94	1.03	55.98	15.95	57.02	29.87		
54.96	1.04	56.00	16.21	57.04	30.12		
54.98	1.05	56.02	16.47	57.06	30.37		
55.00	1.06	56.04	16.74	57.08	30.61		
55.02	1.07	56.06	17.00	57.10	30.85		

Summary for Pond 11P: TCCC main entrance culvert

Inflow Area = 4.294 ac, 53.80% Impervious, Inflow Depth > 3.88" for 10yr Talbot event
Inflow = 19.62 cfs @ 12.00 hrs, Volume= 1.389 af
Outflow = 18.03 cfs @ 12.03 hrs, Volume= 1.387 af, Atten= 8%, Lag= 1.6 min
Primary = 18.03 cfs @ 12.03 hrs, Volume= 1.387 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 50.33' @ 12.05 hrs Surf.Area= 1,664 sf Storage= 1,853 cf

Plug-Flow detention time= 10.0 min calculated for 1.387 af (100% of inflow)
Center-of-Mass det. time= 9.2 min (867.4 - 858.3)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	7,360 cf	**4.00'W x 100.00'L x 4.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	48.47'	**36.0" Round Culvert w/ 12.0" inside fill** L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.47' / 47.25' S= 0.0045 '/' Cc= 0.900 n= 0.013, Flow Area= 5.01 sf
#2	Primary	52.11'	**TCCC entrance road crown, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.10 0.90 1.50 Width (feet) 0.00 50.00 160.00 275.00

Primary OutFlow Max=17.65 cfs @ 12.03 hrs HW=50.31' TW=49.63' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 17.65 cfs @ 3.63 fps)
└─**2=TCCC entrance road crown** (Controls 0.00 cfs)

Stage-Discharge for Pond 11P: TCCC main entrance culvert

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
48.50	0.00	50.58	22.27	52.66	126.14
48.54	0.00	50.62	22.73	52.70	139.29
48.58	0.00	50.66	23.18	52.74	153.47
48.62	0.14	50.70	23.62	52.78	168.69
48.66	0.35	50.74	24.05	52.82	184.97
48.70	0.60	50.78	24.46	52.86	202.34
48.74	0.89	50.82	24.86	52.90	220.81
48.78	1.22	50.86	25.23	52.94	240.41
48.82	1.59	50.90	25.59	52.98	261.15
48.86	1.99	50.94	25.92	53.02	283.06
48.90	2.43	50.98	26.23	53.06	306.19
48.94	2.89	51.02	26.50	53.10	330.61
48.98	3.25	51.06	26.72	53.14	356.39
49.02	3.62	51.10	26.87	53.18	383.55
49.06	4.01	51.14	26.83	53.22	412.15
49.10	4.40	51.18	27.42	53.26	442.22
49.14	4.80	51.22	28.01	53.30	473.79
49.18	5.21	51.26	28.58	53.34	506.91
49.22	5.63	51.30	29.14	53.38	541.60
49.26	6.06	51.34	29.69	53.42	577.89
49.30	6.50	51.38	30.23	53.46	615.82
49.34	6.94	51.42	30.76	53.50	655.41
49.38	7.39	51.46	31.28	53.54	696.70
49.42	7.85	51.50	31.79	53.58	**739.71**
49.46	8.31	51.54	32.30		
49.50	8.78	51.58	32.80		
49.54	9.26	51.62	33.29		
49.58	9.74	51.66	33.77		
49.62	10.23	51.70	34.24		
49.66	10.72	51.74	34.71		
49.70	11.21	51.78	35.18		
49.74	11.71	51.82	35.63		
49.78	12.21	51.86	36.08		
49.82	12.72	51.90	36.53		
49.86	13.22	51.94	36.97		
49.90	13.73	51.98	37.40		
49.94	14.25	52.02	37.83		
49.98	14.76	52.06	38.26		
50.02	15.27	52.10	38.68		
50.06	15.79	52.14	39.20		
50.10	16.30	52.18	40.36		
50.14	16.81	52.22	42.54		
50.18	17.33	52.26	45.76		
50.22	17.84	52.30	49.87		
50.26	18.35	52.34	54.84		
50.30	18.85	52.38	60.66		
50.34	19.36	52.42	67.34		
50.38	19.86	52.46	74.91		
50.42	20.35	52.50	83.33		
50.46	20.84	52.54	92.60		
50.50	21.33	52.58	102.81		
50.54	21.80	52.62	113.99		

Summary for Pond pnd 10B1: pnd 10B Cell 1

Inflow Area = 6.184 ac, 15.20% Impervious, Inflow Depth = 2.78" for 10yr Talbot event
Inflow = 8.41 cfs @ 12.38 hrs, Volume= 1.435 af
Outflow = 8.38 cfs @ 12.41 hrs, Volume= 1.989 af, Atten= 0%, Lag= 1.7 min
Primary = 8.38 cfs @ 12.41 hrs, Volume= 1.989 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 50.80' @ 12.42 hrs Surf.Area= 3,224 sf Storage= 3,797 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 806.0 min (1,681.8 - 875.8)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	7,625 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	1,181	0	0
50.00	2,121	1,651	1,651
51.00	3,494	2,808	4,459
51.75	4,950	3,167	7,625

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**24.0" Round Culvert** L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0012 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	48.75'	**6.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.50'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=8.38 cfs @ 12.41 hrs HW=50.80' TW=50.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 8.38 cfs of 11.33 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.70 cfs @ 4.33 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 6.68 cfs @ 1.80 fps)

Stage-Discharge for Pond pnd 10B1: pnd 10B Cell 1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.00	0.00	50.04	2.15	51.08	13.45
49.02	0.21	50.06	2.16	51.10	13.59
49.04	0.25	50.08	2.18	51.12	13.73
49.06	0.29	50.10	2.20	51.14	13.86
49.08	0.33	50.12	2.21	51.16	13.99
49.10	0.37	50.14	2.23	51.18	14.12
49.12	0.42	50.16	2.25	51.20	14.24
49.14	0.47	50.18	2.26	51.22	14.36
49.16	0.52	50.20	2.28	51.24	14.47
49.18	0.58	50.22	2.29	51.26	14.58
49.20	0.63	50.24	2.31	51.28	14.68
49.22	0.69	50.26	2.32	51.30	14.77
49.24	0.76	50.28	2.34	51.32	14.86
49.26	0.82	50.30	2.35	51.34	14.94
49.28	0.89	50.32	2.37	51.36	15.00
49.30	0.96	50.34	2.38	51.38	15.05
49.32	1.04	50.36	2.40	51.40	15.08
49.34	1.12	50.38	2.41	51.42	15.04
49.36	1.19	50.40	2.43	51.44	15.25
49.38	1.28	50.42	2.44	51.46	15.45
49.40	1.36	50.44	2.46	51.48	15.65
49.42	1.45	50.46	2.47	51.50	15.85
49.44	1.54	50.48	2.49	51.52	16.05
49.46	1.59	50.50	2.50	51.54	16.24
49.48	1.62	50.52	2.63	51.56	16.44
49.50	1.64	50.54	2.85	51.58	16.63
49.52	1.66	50.56	3.13	51.60	16.81
49.54	1.68	50.58	3.47	51.62	17.00
49.56	1.70	50.60	3.84	51.64	17.18
49.58	1.72	50.62	4.25	51.66	17.37
49.60	1.74	50.64	4.70	51.68	17.55
49.62	1.76	50.66	5.18	51.70	17.72
49.64	1.78	50.68	5.69	51.72	17.90
49.66	1.80	50.70	6.23	51.74	**18.07**
49.68	1.82	50.72	6.79		
49.70	1.84	50.74	7.38		
49.72	1.86	50.76	7.99		
49.74	1.88	50.78	8.63		
49.76	1.90	50.80	9.28		
49.78	1.92	50.82	9.96		
49.80	1.94	50.84	10.66		
49.82	1.96	50.86	11.38		
49.84	1.97	50.88	11.94		
49.86	1.99	50.90	12.10		
49.88	2.01	50.92	12.26		
49.90	2.03	50.94	12.42		
49.92	2.05	50.96	12.57		
49.94	2.06	50.98	12.72		
49.96	2.08	51.00	12.87		
49.98	2.10	51.02	13.02		
50.00	2.11	51.04	13.17		
50.02	2.13	51.06	13.31		

Summary for Pond pnd 10B2: Pond 10B Cell 2

Inflow Area = 6.184 ac, 15.20% Impervious, Inflow Depth = 2.78" for 10yr Talbot event
Inflow = 15.00 cfs @ 12.08 hrs, Volume= 1.435 af
Outflow = 8.41 cfs @ 12.38 hrs, Volume= 1.435 af, Atten= 44%, Lag= 17.9 min
Primary = 8.41 cfs @ 12.38 hrs, Volume= 1.435 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 51.11' @ 12.40 hrs Surf.Area= 10,511 sf Storage= 11,810 cf

Plug-Flow detention time= 32.0 min calculated for 1.435 af (100% of inflow)
Center-of-Mass det. time= 31.7 min (875.8 - 844.1)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	31,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	793	0	0
50.00	5,314	3,054	3,054
51.00	9,929	7,622	10,675
52.00	15,165	12,547	23,222
52.50	18,000	8,291	31,513

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**24.0" Round Culvert** L= 78.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0006 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	49.00'	**6.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.75'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	49.00'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=8.40 cfs @ 12.38 hrs HW=51.11' TW=50.80' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 8.40 cfs @ 2.67 fps)
  ├─**2=Orifice/Grate** (Passes < 1.05 cfs potential flow)
  ├─**3=Sharp-Crested Rectangular Weir** (Passes < 3.76 cfs potential flow)
  └─**4=Sharp-Crested Rectangular Weir** (Passes < 35.13 cfs potential flow)

Stage-Discharge for Pond pnd 10B2: Pond 10B Cell 2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.00	0.00	50.04	4.66	51.08	12.37	52.12	19.11
49.02	0.07	50.06	4.80	51.10	12.49	52.14	19.24
49.04	0.11	50.08	4.94	51.12	12.61	52.16	19.37
49.06	0.16	50.10	5.08	51.14	12.73	52.18	19.51
49.08	0.20	50.12	5.22	51.16	12.85	52.20	19.64
49.10	0.26	50.14	5.36	51.18	12.96	52.22	19.77
49.12	0.31	50.16	5.51	51.20	13.07	52.24	19.90
49.14	0.37	50.18	5.65	51.22	13.17	52.26	20.03
49.16	0.43	50.20	5.80	51.24	13.26	52.28	20.16
49.18	0.48	50.22	5.94	51.26	13.36	52.30	20.28
49.20	0.53	50.24	6.09	51.28	13.44	52.32	20.41
49.22	0.58	50.26	6.24	51.30	13.52	52.34	20.53
49.24	0.63	50.28	6.39	51.32	13.58	52.36	20.66
49.26	0.69	50.30	6.54	51.34	13.64	52.38	20.78
49.28	0.75	50.32	6.69	51.36	13.69	52.40	20.91
49.30	0.81	50.34	6.84	51.38	13.71	52.42	21.03
49.32	0.88	50.36	6.99	51.40	13.70	52.44	21.15
49.34	0.95	50.38	7.15	51.42	13.61	52.46	21.27
49.36	1.02	50.40	7.30	51.44	13.79	52.48	21.39
49.38	1.09	50.42	7.45	51.46	13.98	52.50	**21.51**
49.40	1.17	50.44	7.61	51.48	14.16		
49.42	1.24	50.46	7.76	51.50	14.34		
49.44	1.32	50.48	7.92	51.52	14.52		
49.46	1.40	50.50	8.07	51.54	14.70		
49.48	1.49	50.52	8.23	51.56	14.87		
49.50	1.58	50.54	8.39	51.58	15.04		
49.52	1.66	50.56	8.54	51.60	15.21		
49.54	1.76	50.58	8.70	51.62	15.38		
49.56	1.85	50.60	8.85	51.64	15.55		
49.58	1.94	50.62	9.01	51.66	15.71		
49.60	2.04	50.64	9.16	51.68	15.87		
49.62	2.14	50.66	9.32	51.70	16.03		
49.64	2.24	50.68	9.47	51.72	16.19		
49.66	2.35	50.70	9.63	51.74	16.35		
49.68	2.45	50.72	9.78	51.76	16.51		
49.70	2.56	50.74	9.94	51.78	16.66		
49.72	2.67	50.76	10.09	51.80	16.82		
49.74	2.78	50.78	10.24	51.82	16.97		
49.76	2.90	50.80	10.39	51.84	17.12		
49.78	3.01	50.82	10.54	51.86	17.27		
49.80	3.13	50.84	10.69	51.88	17.42		
49.82	3.25	50.86	10.84	51.90	17.57		
49.84	3.37	50.88	10.99	51.92	17.71		
49.86	3.49	50.90	11.13	51.94	17.86		
49.88	3.62	50.92	11.28	51.96	18.00		
49.90	3.74	50.94	11.42	51.98	18.14		
49.92	3.87	50.96	11.56	52.00	18.28		
49.94	4.00	50.98	11.70	52.02	18.42		
49.96	4.13	51.00	11.84	52.04	18.56		
49.98	4.26	51.02	11.98	52.06	18.70		
50.00	4.39	51.04	12.11	52.08	18.84		
50.02	4.53	51.06	12.24	52.10	18.97		

Summary for Pond POND 4B: POND 4B

Inflow Area = 39.678 ac, 3.29% Impervious, Inflow Depth = 2.77" for 10yr Talbot event
Inflow = 30.80 cfs @ 12.42 hrs, Volume= 9.160 af
Outflow = 27.38 cfs @ 12.91 hrs, Volume= 9.593 af, Atten= 11%, Lag= 29.7 min
Primary = 27.38 cfs @ 12.91 hrs, Volume= 9.593 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 50.69' @ 12.89 hrs Surf.Area= 39,698 sf Storage= 56,283 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 185.0 min (1,119.9 - 934.9)

Volume	Invert	Avail.Storage	Storage Description
#1	48.90'	106,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.90	2,378	0	0
49.00	12,688	753	753
49.25	24,390	4,635	5,388
49.50	32,399	7,099	12,487
49.75	34,894	8,412	20,898
50.00	36,984	8,985	29,883
51.00	40,925	38,955	68,838
51.75	58,241	37,187	106,025

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**30.0" Round Culvert X 2.00** L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0016 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf
#2	Device 1	48.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	48.75'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	49.40'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	50.60'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#6	Primary	50.60'	**160.0 deg x 30.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=27.39 cfs @ 12.91 hrs HW=50.69' TW=50.12' (Dynamic Tailwater)
- **1=Culvert** (Passes 24.93 cfs of 26.47 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.72 cfs @ 3.65 fps)
  - **3=Orifice/Grate** (Orifice Controls 1.27 cfs @ 3.65 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 22.36 cfs @ 3.02 fps)
  - **5=Sharp-Crested Rectangular Weir** (Weir Controls 0.58 cfs @ 0.97 fps)
- **6=Sharp-Crested Vee/Trap Weir** (Weir Controls 2.47 cfs @ 0.91 fps)

Stage-Discharge for Pond POND 4B: POND 4B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
48.90	0.00	49.94	10.51	50.98	56.37
48.92	0.20	49.96	10.96	51.00	58.77
48.94	0.26	49.98	11.41	51.02	61.21
48.96	0.32	50.00	11.87	51.04	63.72
48.98	0.39	50.02	12.34	51.06	66.28
49.00	0.46	50.04	12.74	51.08	68.90
49.02	0.55	50.06	13.11	51.10	71.57
49.04	0.64	50.08	13.48	51.12	74.30
49.06	0.73	50.10	13.86	51.14	77.07
49.08	0.84	50.12	14.24	51.16	79.91
49.10	0.95	50.14	14.63	51.18	82.79
49.12	1.06	50.16	15.02	51.20	85.73
49.14	1.19	50.18	15.41	51.22	88.72
49.16	1.32	50.20	15.81	51.24	91.75
49.18	1.45	50.22	16.21	51.26	94.84
49.20	1.60	50.24	16.61	51.28	97.98
49.22	1.75	50.26	17.02	51.30	101.17
49.24	1.84	50.28	17.43	51.32	104.41
49.26	1.88	50.30	17.85	51.34	107.70
49.28	1.91	50.32	18.26	51.36	111.03
49.30	1.95	50.34	18.69	51.38	114.42
49.32	1.98	50.36	19.11	51.40	117.85
49.34	2.02	50.38	19.54	51.42	121.33
49.36	2.05	50.40	19.97	51.44	124.86
49.38	2.08	50.42	20.40	51.46	128.43
49.40	2.12	50.44	20.84	51.48	132.05
49.42	2.21	50.46	21.28	51.50	135.72
49.44	2.34	50.48	21.72	51.52	139.43
49.46	2.50	50.50	22.16	51.54	143.19
49.48	2.69	50.52	22.61	51.56	146.99
49.50	2.89	50.54	23.06	51.58	150.84
49.52	3.12	50.56	23.51	51.60	154.74
49.54	3.36	50.58	23.97	51.62	158.68
49.56	3.61	50.60	24.42	51.64	162.66
49.58	3.88	50.62	25.14	51.66	166.69
49.60	4.16	50.64	26.09	51.68	170.75
49.62	4.46	50.66	27.18	51.70	174.87
49.64	4.77	50.68	28.39	51.72	179.02
49.66	5.08	50.70	29.71	51.74	**183.22**
49.68	5.41	50.72	31.13		
49.70	5.75	50.74	32.63		
49.72	6.10	50.76	34.22		
49.74	6.46	50.78	35.89		
49.76	6.83	50.80	37.64		
49.78	7.20	50.82	39.45		
49.80	7.59	50.84	41.34		
49.82	7.98	50.86	43.30		
49.84	8.38	50.88	45.32		
49.86	8.79	50.90	47.41		
49.88	9.21	50.92	49.56		
49.90	9.64	50.94	51.77		
49.92	10.07	50.96	54.04		

Summary for Link sp4 PR: Prop Design Point 4

Inflow Area = 82.285 ac, 7.77% Impervious, Inflow Depth > 3.04" for 10yr Talbot event
Inflow = 43.66 cfs @ 12.51 hrs, Volume= 20.864 af
Primary = 43.66 cfs @ 12.52 hrs, Volume= 20.864 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

102 Point manual elevation table, To= 0.00 hrs, dt= 0.25 hrs, feet =

44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.08	44.17	44.25	44.75	45.75	45.90	45.50	45.00	44.88
44.75	44.63	44.50	44.46	44.42	44.38	44.33	44.29	44.25
44.24	44.24	44.23	44.22	44.22	44.21	44.20	44.20	44.19
44.18	44.18	44.17	44.16	44.16	44.15	44.14	44.14	44.13
44.13	44.12	44.11	44.11	44.10	44.09	44.09	44.08	44.07
44.07	44.06	44.05	44.05	44.04	44.03	44.03	44.02	44.01
44.01	44.00	44.00						

Time span=5.00-100.00 hrs, dt=0.01 hrs, 9501 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 2S: AREA 4B.1 Runoff Area=11.890 ac 0.00% Impervious Runoff Depth=5.37"
Tc=14.4 min CN=81 Runoff=56.97 cfs 5.317 af

Subcatchment 3S: AREA 4B.2 Runoff Area=2.860 ac 0.00% Impervious Runoff Depth=5.14"
Tc=6.0 min CN=79 Runoff=20.36 cfs 1.224 af

Subcatchment 4S: offsite 4.3 Runoff Area=418,500 sf 12.64% Impervious Runoff Depth=4.91"
Flow Length=1,238' Tc=19.5 min CN=77 Runoff=34.98 cfs 3.930 af

Subcatchment 7S: AREA 6A Runoff Area=19.820 ac 0.00% Impervious Runoff Depth=4.01"
Tc=12.0 min CN=69 Runoff=79.83 cfs 6.626 af

Subcatchment 8S: AREA 6B Runoff Area=1.590 ac 0.00% Impervious Runoff Depth>5.48"
Tc=7.2 min CN=82 Runoff=11.12 cfs 0.726 af

Subcatchment 9S: AREA 4A- Ph1 Runoff Area=695,700 sf 3.90% Impervious Runoff Depth=4.91"
Flow Length=900' Tc=27.1 min CN=77 Runoff=46.39 cfs 6.533 af

Subcatchment 11S: AREA 4.A1 Runoff Area=4.560 ac 0.00% Impervious Runoff Depth=5.25"
Tc=6.0 min CN=80 Runoff=33.08 cfs 1.995 af

Subcatchment 12S: AREA 4B Runoff Area=153,250 sf 37.10% Impervious Runoff Depth>5.94"
Flow Length=900' Tc=19.9 min CN=86 Runoff=14.96 cfs 1.741 af

Subcatchment 27S: AREA 4.A2 Runoff Area=1.990 ac 0.00% Impervious Runoff Depth>5.59"
Tc=6.0 min CN=83 Runoff=15.20 cfs 0.928 af

Subcatchment DA p10a: DA pond 10A Runoff Area=132,672 sf 67.46% Impervious Runoff Depth>6.26"
Flow Length=380' Tc=5.0 min CN=89 Runoff=26.87 cfs 1.590 af

Subcatchment DA p10b: DA Pond 10B Runoff Area=269,381 sf 15.20% Impervious Runoff Depth=4.80"
Flow Length=515' Tc=15.1 min CN=76 Runoff=25.96 cfs 2.471 af

Subcatchment um DA p10a: unmanaged Runoff Area=54,385 sf 20.47% Impervious Runoff Depth>5.48"
Flow Length=240' Tc=18.3 min CN=82 Runoff=5.26 cfs 0.570 af

Reach 1R: Reach 4.2 Avg. Flow Depth=1.97' Max Vel=3.58 fps Inflow=63.29 cfs 21.293 af
n=0.030 L=1,000.0' S=0.0044 '/' Capacity=164.38 cfs Outflow=63.10 cfs 21.287 af

Reach 3R: (new Reach) Avg. Flow Depth=1.66' Max Vel=3.98 fps Inflow=48.27 cfs 2.923 af
n=0.030 L=700.0' S=0.0071 '/' Capacity=378.49 cfs Outflow=46.13 cfs 2.923 af

Pond 1P: Pond 6C Peak Elev=54.62' Storage=100,652 cf Inflow=56.97 cfs 5.317 af
Outflow=12.06 cfs 5.317 af

Pond 2P: CB at Longw0od Rd NO SURFACE VOL Peak Elev=53.24' Inflow=37.66 cfs 13.951 af
Outflow=37.66 cfs 13.951 af

Pond 3P: Pond 10A Peak Elev=51.17' Storage=13,099 cf Inflow=26.87 cfs 1.590 af
Outflow=59.67 cfs 1.592 af

Pond 4 ditch: POND 4A Peak Elev=47.92' Storage=339,257 cf Inflow=75.72 cfs 9.456 af
Outflow=65.10 cfs 9.456 af

Pond 4P pr: EX 24 CMP sp4 Peak Elev=49.00' Inflow=85.78 cfs 34.673 af
Primary=23.16 cfs 22.667 af Secondary=62.62 cfs 12.006 af Outflow=85.78 cfs 34.673 af

Pond 6P: Connection of 6B and 6C Peak Elev=53.88' Inflow=36.17 cfs 12.727 af
Outflow=36.17 cfs 12.727 af

Pond 8P: POND 6B Peak Elev=55.52' Storage=28,126 cf Inflow=29.72 cfs 7.355 af
Outflow=25.72 cfs 7.410 af

Pond 9P: POND 6A Peak Elev=56.86' Storage=94,579 cf Inflow=79.83 cfs 6.626 af
Outflow=27.80 cfs 6.629 af

Pond 11P: TCCC main entrance culvert Peak Elev=51.52' Storage=4,387 cf Inflow=64.44 cfs 2.162 af
Outflow=28.65 cfs 2.160 af

Pond pnd 10B1: pnd 10B Cell 1 Peak Elev=51.24' Storage=5,361 cf Inflow=13.34 cfs 2.471 af
Outflow=12.36 cfs 3.019 af

Pond pnd 10B2: Pond 10B Cell 2 Peak Elev=51.93' Storage=22,116 cf Inflow=25.96 cfs 2.471 af
Outflow=13.34 cfs 2.471 af

Pond POND 4B: POND 4B Peak Elev=50.94' Storage=66,512 cf Inflow=50.83 cfs 15.692 af
Outflow=45.10 cfs 16.114 af

Link sp4 PR: Prop Design Point 4 Inflow=85.78 cfs 34.673 af
Primary=85.78 cfs 34.673 af

Total Runoff Area = 82.285 ac Runoff Volume = 33.652 af Average Runoff Depth = 4.91"
92.23% Pervious = 75.893 ac 7.77% Impervious = 6.392 ac

Summary for Subcatchment 2S: AREA 4B.1

Runoff = 56.97 cfs @ 12.07 hrs, Volume= 5.317 af, Depth= 5.37"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	11.890	81	From TR-55
	11.890		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry, From TR-55**

Summary for Subcatchment 3S: AREA 4B.2

Runoff = 20.36 cfs @ 11.99 hrs, Volume= 1.224 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	2.860	79	
	2.860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 4S: offsite 4.3

Runoff = 34.98 cfs @ 12.13 hrs, Volume= 3.930 af, Depth= 4.91"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

Area (sf)	CN	Description
81,840	61	>75% Grass cover, Good, HSG B
139,500	74	>75% Grass cover, Good, HSG C
52,900	98	Paved parking, HSG D
144,260	80	>75% Grass cover, Good, HSG D
418,500	77	Weighted Average
365,600		87.36% Pervious Area
52,900		12.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0350	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.5	594	0.0089	1.52		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	544	0.0050	4.87	175.23	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=3.00' Z= 3.0 '/' Top.W=21.00' n= 0.030
19.5	1,238	Total			

Summary for Subcatchment 7S: AREA 6A

Runoff = 79.83 cfs @ 12.05 hrs, Volume= 6.626 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	19.820	69	
	19.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, From TR-55**

Summary for Subcatchment 8S: AREA 6B

Runoff = 11.12 cfs @ 12.00 hrs, Volume= 0.726 af, Depth> 5.48"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	1.590	82	From TR-55
	1.590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2					**Direct Entry, From TR-55**

Summary for Subcatchment 9S: AREA 4A- Ph1

Runoff = 46.39 cfs @ 12.23 hrs, Volume= 6.533 af, Depth= 4.91"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (sf)	CN	Description
	132,700	61	>75% Grass cover, Good, HSG B
	535,900	80	>75% Grass cover, Good, HSG D
*	27,100	98	Paved parking,
	695,700	77	Weighted Average
	668,600		96.10% Pervious Area
	27,100		3.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.3	100	0.0100	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.8	800	0.0088	1.51		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
27.1	900	Total			

Summary for Subcatchment 11S: AREA 4.A1

Runoff = 33.08 cfs @ 11.99 hrs, Volume= 1.995 af, Depth= 5.25"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	4.560	80	
	4.560		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, From TR-55**

Summary for Subcatchment 12S: AREA 4B

Runoff = 14.96 cfs @ 12.12 hrs, Volume= 1.741 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (sf)	CN	Description
	8,600	61	>75% Grass cover, Good, HSG B
	87,800	80	>75% Grass cover, Good, HSG D
*	56,850	98	Paved parking,
	153,250	86	Weighted Average
	96,400		62.90% Pervious Area
	56,850		37.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.9	800	0.0097	4.65	64.47	**Trap/Vee/Rect Channel Flow,** Bot.W=4.00' D=1.50' Z= 4.0 & 3.0 '/' Top.W=14.50' n= 0.030 Earth, grassed & winding
19.9	900	Total			

Summary for Subcatchment 27S: AREA 4.A2

Runoff = 15.20 cfs @ 11.98 hrs, Volume= 0.928 af, Depth> 5.59"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

	Area (ac)	CN	Description
*	1.990	83	
	1.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, From TR-55**

Summary for Subcatchment DA p10a: DA pond 10A

Runoff = 26.87 cfs @ 11.97 hrs, Volume= 1.590 af, Depth> 6.26"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

Area (sf)	CN	Description
79,300	98	Paved parking, HSG B
10,200	98	Paved parking, HSG D
18,643	80	>75% Grass cover, Good, HSG D
24,529	61	>75% Grass cover, Good, HSG B
132,672	89	Weighted Average
43,172		32.54% Pervious Area
89,500		67.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0080	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
1.7	210	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	70	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	380	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment DA p10b: DA Pond 10B

Runoff = 25.96 cfs @ 12.08 hrs, Volume= 2.471 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

Area (sf)	CN	Description
89,750	61	>75% Grass cover, Good, HSG B
6,250	98	Paved parking, HSG B
4,240	74	>75% Grass cover, Good, HSG C
4,260	98	Paved parking, HSG C
134,451	80	>75% Grass cover, Good, HSG D
30,430	98	Paved parking, HSG D
269,381	76	Weighted Average
228,441		84.80% Pervious Area
40,940		15.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0280	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
3.0	415	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
15.1	515	Total			

Summary for Subcatchment um DA p10a: unmanaged area 10C

Runoff = 5.26 cfs @ 12.12 hrs, Volume= 0.570 af, Depth> 5.48"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100yr Talbot Rainfall=7.60"

Area (sf)	CN	Description
16,850	74	>75% Grass cover, Good, HSG C
26,401	80	>75% Grass cover, Good, HSG D
3,330	98	Paved parking, HSG C
7,804	98	Paved parking, HSG D
54,385	82	Weighted Average
43,251		79.53% Pervious Area
11,134		20.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0140	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.3	140	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
18.3	240	Total			

Summary for Reach 1R: Reach 4.2

Inflow Area = 50.157 ac, 9.08% Impervious, Inflow Depth > 5.09" for 100yr Talbot event
Inflow = 63.29 cfs @ 12.47 hrs, Volume= 21.293 af
Outflow = 63.10 cfs @ 12.55 hrs, Volume= 21.287 af, Atten= 0%, Lag= 4.5 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.58 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 0.94 fps, Avg. Travel Time= 17.7 min

Peak Storage= 17,623 cf @ 12.55 hrs
Average Depth at Peak Storage= 1.97'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 164.38 cfs

3.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 1,000.0' Slope= 0.0044 '/'
Inlet Invert= 48.60', Outlet Invert= 44.20'

Stage-Discharge for Reach 1R: Reach 4.2

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
48.60	0.00	0.00
48.62	0.21	0.02
48.64	0.37	0.05
48.66	0.48	0.09
48.68	0.58	0.15
48.70	0.66	0.22
48.72	0.74	0.30
48.74	0.81	0.39
48.76	0.88	0.49
48.78	0.94	0.60
48.80	1.00	0.73
48.82	1.06	0.86
48.84	1.11	1.00
48.86	1.17	1.15
48.88	1.22	1.31
48.90	1.27	1.48
48.92	1.31	1.66
48.94	1.36	1.86
48.96	1.40	2.06
48.98	1.44	2.27
49.00	1.48	2.50
49.02	1.53	2.73
49.04	1.56	2.98
49.06	1.60	3.23
49.08	1.64	3.50
49.10	1.68	3.78
49.12	1.71	4.07
49.14	1.75	4.37
49.16	1.79	4.68
49.18	1.82	5.01
49.20	1.85	5.34
49.22	1.89	5.69
49.24	1.92	6.05
49.26	1.95	6.42
49.28	1.98	6.80
49.30	2.02	7.20
49.32	2.05	7.61
49.34	2.08	8.03
49.36	2.11	8.46
49.38	2.14	8.91
49.40	2.17	9.37
49.42	2.20	9.84
49.44	2.23	10.32
49.46	2.26	10.83
49.48	2.28	11.34
49.50	2.31	11.86
49.52	2.34	12.40
49.54	2.37	12.95
49.56	2.39	13.52
49.58	2.42	14.10
49.60	2.45	14.70
49.62	2.48	15.30
49.64	2.50	15.93
49.66	2.53	16.57
49.68	2.55	17.22
49.70	2.58	17.89
49.72	2.61	18.57
49.74	2.63	19.26
49.76	2.66	19.98
49.78	2.68	20.70
49.80	2.71	21.44
49.82	2.73	22.20
49.84	2.76	22.98
49.86	2.78	23.76
49.88	2.81	24.57
49.90	2.83	25.39
49.92	2.85	26.22
49.94	2.88	27.08
49.96	2.90	27.94
49.98	2.93	28.83
50.00	2.95	29.73
50.02	2.97	30.65
50.04	3.00	31.58
50.06	3.02	32.53
50.08	3.04	33.50
50.10	3.06	34.48
50.12	3.09	35.49
50.14	3.11	36.51
50.16	3.13	37.54
50.18	3.16	38.60
50.20	3.18	39.67
50.22	3.20	40.75
50.24	3.22	41.86
50.26	3.24	42.99
50.28	3.27	44.12
50.30	3.29	45.29
50.32	3.31	46.47
50.34	3.33	47.66
50.36	3.35	48.88
50.38	3.38	50.11
50.40	3.40	51.36
50.42	3.42	52.63
50.44	3.44	53.92
50.46	3.46	55.23
50.48	3.48	56.56
50.50	3.50	57.91
50.52	3.52	59.27
50.54	3.54	60.66
50.56	3.57	62.06
50.58	3.59	63.48
50.60	3.61	64.93
50.62	3.63	66.39
50.64	3.65	67.87
50.66	3.67	69.38
50.68	3.69	70.90
50.70	3.71	72.44
50.72	3.73	74.01
50.74	3.75	75.60
50.76	3.77	77.20
50.78	3.79	78.83
50.80	3.81	80.47
50.82	3.83	82.13
50.84	3.85	83.83
50.86	3.87	85.53
50.88	3.89	87.26
50.90	3.91	89.01
50.92	3.93	90.79
50.94	3.95	92.57
50.96	3.97	94.39
50.98	3.99	96.23
51.00	4.01	98.08
51.02	4.03	99.97
51.04	4.05	101.87
51.06	4.06	103.79
51.08	4.08	105.74
51.10	4.10	107.71
51.12	4.12	109.69
51.14	4.14	111.71
51.16	4.16	113.75
51.18	4.18	115.80
51.20	4.20	117.88
51.22	4.22	119.99
51.24	4.24	122.11
51.26	4.25	124.26
51.28	4.27	126.43
51.30	4.29	128.62
51.32	4.31	130.85
51.34	4.33	133.09
51.36	4.35	135.35
51.38	4.37	137.64
51.40	4.38	139.95
51.42	4.40	142.28
51.44	4.42	144.65
51.46	4.44	147.03
51.48	4.46	149.43
51.50	4.48	151.87
51.52	4.49	154.32
51.54	4.51	156.80
51.56	4.53	159.31
51.58	4.55	161.84
51.60	**4.57**	**164.38**

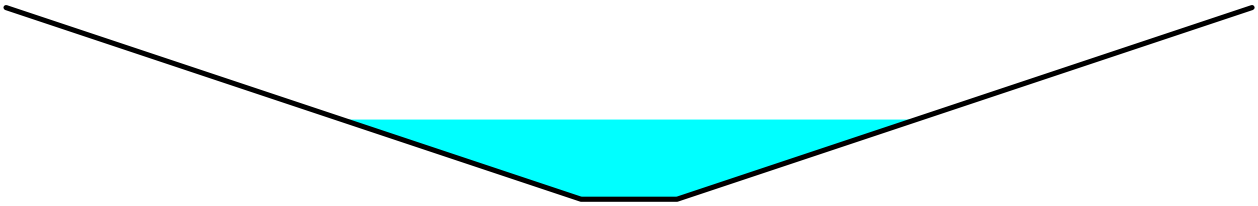
Summary for Reach 3R: (new Reach)

Inflow Area = 6.550 ac, 0.00% Impervious, Inflow Depth > 5.36" for 100yr Talbot event
Inflow = 48.27 cfs @ 11.98 hrs, Volume= 2.923 af
Outflow = 46.13 cfs @ 12.02 hrs, Volume= 2.923 af, Atten= 4%, Lag= 2.0 min

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.98 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.38 fps, Avg. Travel Time= 31.0 min

Peak Storage= 8,113 cf @ 12.02 hrs
Average Depth at Peak Storage= 1.66'
Bank-Full Depth= 4.00' Flow Area= 56.0 sf, Capacity= 378.49 cfs

2.00' x 4.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 26.00'
Length= 700.0' Slope= 0.0071 '/'
Inlet Invert= 52.00', Outlet Invert= 47.00'



Stage-Discharge for Reach 3R: (new Reach)

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
52.00	0.00	0.00
52.05	0.53	0.06
52.10	0.82	0.19
52.15	1.04	0.39
52.20	1.23	0.64
52.25	1.39	0.96
52.30	1.54	1.35
52.35	1.68	1.79
52.40	1.80	2.31
52.45	1.92	2.90
52.50	2.03	3.57
52.55	2.14	4.31
52.60	2.25	5.13
52.65	2.35	6.03
52.70	2.45	7.03
52.75	2.54	8.10
52.80	2.63	9.27
52.85	2.72	10.53
52.90	2.81	11.89
52.95	2.90	13.35
53.00	2.98	14.90
53.05	3.06	16.57
53.10	3.14	18.34
53.15	3.22	20.21
53.20	3.30	22.19
53.25	3.38	24.30
53.30	3.46	26.52
53.35	3.53	28.86
53.40	3.61	31.31
53.45	3.68	33.89
53.50	3.75	36.60
53.55	3.82	39.43
53.60	3.90	42.39
53.65	3.97	45.49
53.70	4.04	48.72
53.75	4.10	52.09
53.80	4.17	55.58
53.85	4.24	59.24
53.90	4.31	63.03
53.95	4.37	66.96
54.00	4.44	71.04
54.05	4.51	75.28
54.10	4.57	79.67
54.15	4.63	84.20
54.20	4.70	88.89
54.25	4.76	93.75
54.30	4.82	98.77
54.35	4.89	103.94
54.40	4.95	109.27
54.45	5.01	114.79
54.50	5.07	120.46
54.55	5.13	126.31
54.60	5.19	132.31
54.65	5.25	138.51
54.70	5.31	144.88
54.75	5.37	151.43
54.80	5.43	158.14
54.85	5.49	165.06
54.90	5.55	172.16
54.95	5.61	179.43
55.00	5.66	186.88
55.05	5.72	194.55
55.10	5.78	202.40
55.15	5.83	210.44
55.20	5.89	218.66
55.25	5.95	227.11
55.30	6.00	235.74
55.35	6.06	244.57
55.40	6.11	253.60
55.45	6.17	262.85
55.50	6.22	272.30
55.55	6.28	281.95
55.60	6.33	291.80
55.65	6.39	301.89
55.70	6.44	312.19
55.75	6.49	322.69
55.80	6.55	333.40
55.85	6.60	344.35
55.90	6.65	355.52
55.95	6.71	366.90
56.00	**6.76**	**378.49**

Summary for Pond 1P: Pond 6C

Inflow Area = 11.890 ac, 0.00% Impervious, Inflow Depth = 5.37" for 100yr Talbot event
Inflow = 56.97 cfs @ 12.07 hrs, Volume= 5.317 af
Outflow = 12.06 cfs @ 14.49 hrs, Volume= 5.317 af, Atten= 79%, Lag= 145.1 min
Primary = 12.06 cfs @ 14.49 hrs, Volume= 5.317 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 54.62' @ 12.89 hrs Surf.Area= 54,112 sf Storage= 100,652 cf

Plug-Flow detention time= 91.0 min calculated for 5.317 af (100% of inflow)
Center-of-Mass det. time= 90.9 min (906.8 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1	51.10'	196,107 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)
51.10	9,830	540.0	0	0	9,830
52.00	19,068	765.0	12,777	12,777	33,203
53.00	27,550	1,028.0	23,179	35,956	70,739
54.00	42,813	1,255.0	34,902	70,858	111,996
55.00	61,819	1,649.0	52,026	122,884	203,058
56.00	85,254	2,232.0	73,223	196,107	383,122

Device	Routing	Invert	Outlet Devices
#1	Primary	50.50'	**24.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.50' / 50.35' S= 0.0033 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Device 1	51.10'	**28.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	52.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	55.50'	**48.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=12.11 cfs @ 14.49 hrs HW=53.87' TW=52.88' (Dynamic Tailwater)
└─**1=Culvert** (Passes 12.11 cfs of 15.04 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 11.17 cfs @ 4.79 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.94 cfs @ 4.79 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Stage-Discharge for Pond 1P: Pond 6C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
51.10	0.00	53.70	17.16
51.15	0.08	53.75	17.38
51.20	0.24	53.80	17.60
51.25	0.44	53.85	17.81
51.30	0.67	53.90	18.02
51.35	0.94	53.95	18.23
51.40	1.23	54.00	18.43
51.45	1.55	54.05	18.63
51.50	1.89	54.10	18.83
51.55	2.26	54.15	19.03
51.60	2.65	54.20	19.23
51.65	3.06	54.25	19.42
51.70	3.48	54.30	19.61
51.75	3.93	54.35	19.80
51.80	4.39	54.40	19.99
51.85	4.86	54.45	20.17
51.90	5.36	54.50	20.36
51.95	5.87	54.55	20.54
52.00	6.40	54.60	20.72
52.05	6.94	54.65	20.90
52.10	7.49	54.70	21.08
52.15	7.97	54.75	21.26
52.20	8.40	54.80	21.43
52.25	8.80	54.85	21.60
52.30	9.18	54.90	21.78
52.35	9.53	54.95	21.95
52.40	9.87	55.00	22.12
52.45	10.20	55.05	22.28
52.50	10.51	55.10	22.45
52.55	10.82	55.15	22.62
52.60	11.14	55.20	22.78
52.65	11.46	55.25	22.94
52.70	11.79	55.30	23.10
52.75	12.12	55.35	23.26
52.80	12.44	55.40	23.42
52.85	12.77	55.45	23.58
52.90	13.09	55.50	23.74
52.95	13.40	55.55	24.33
53.00	13.69	55.60	25.29
53.05	13.98	55.65	26.49
53.10	14.25	55.70	27.87
53.15	14.52	55.75	29.42
53.20	14.79	55.80	31.11
53.25	15.04	55.85	31.55
53.30	15.30	55.90	31.73
53.35	15.54	55.95	31.91
53.40	15.79	56.00	**32.09**
53.45	16.03		
53.50	16.26		
53.55	16.49		
53.60	16.72		
53.65	16.94		

Summary for Pond 2P: CB at Longw0od Rd NO SURFACE VOL

Inflow Area = 36.160 ac, 0.00% Impervious, Inflow Depth > 4.63" for 100yr Talbot event
Inflow = 37.66 cfs @ 12.83 hrs, Volume= 13.951 af
Outflow = 37.66 cfs @ 12.84 hrs, Volume= 13.951 af, Atten= 0%, Lag= 0.6 min
Primary = 37.66 cfs @ 12.84 hrs, Volume= 13.951 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 53.24' @ 12.84 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	50.05'	**42.0" Round Culvert** L= 214.9' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.05' / 49.85' S= 0.0009 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	54.50'	**36.0" x 42.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.10'	**42.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=37.66 cfs @ 12.84 hrs HW=53.24' TW=50.92' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 37.66 cfs @ 5.37 fps)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Passes 37.66 cfs of 54.89 cfs potential flow)

Stage-Discharge for Pond 2P: CB at Longw0od Rd NO SURFACE VOL

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
50.05	0.00	52.65	26.51
50.10	0.00	52.70	27.43
50.15	0.02	52.75	28.35
50.20	0.06	52.80	29.29
50.25	0.12	52.85	30.23
50.30	0.19	52.90	31.17
50.35	0.28	52.95	32.12
50.40	0.40	53.00	33.07
50.45	0.53	53.05	34.03
50.50	0.69	53.10	34.98
50.55	0.87	53.15	35.94
50.60	1.08	53.20	36.90
50.65	1.30	53.25	37.85
50.70	1.55	53.30	38.81
50.75	1.82	53.35	39.76
50.80	2.12	53.40	40.71
50.85	2.43	53.45	41.66
50.90	2.77	53.50	42.60
50.95	3.14	53.55	43.53
51.00	3.52	53.60	44.46
51.05	3.93	53.65	45.37
51.10	4.36	53.70	46.28
51.15	4.81	53.75	47.18
51.20	5.28	53.80	48.06
51.25	5.77	53.85	48.93
51.30	6.28	53.90	49.78
51.35	6.82	53.95	50.61
51.40	7.37	54.00	51.43
51.45	7.94	54.05	52.22
51.50	8.54	54.10	52.98
51.55	9.15	54.15	53.72
51.60	9.78	54.20	54.43
51.65	10.43	54.25	55.11
51.70	11.09	54.30	55.74
51.75	11.77	54.35	56.34
51.80	12.48	54.40	56.88
51.85	13.19	54.45	57.37
51.90	13.92	54.50	**57.78**
51.95	14.67		
52.00	15.44		
52.05	16.21		
52.10	17.01		
52.15	17.81		
52.20	18.63		
52.25	19.46		
52.30	20.31		
52.35	21.16		
52.40	22.03		
52.45	22.91		
52.50	23.79		
52.55	24.69		
52.60	25.59		

Summary for Pond 3P: Pond 10A

Inflow Area = 3.046 ac, 67.46% Impervious, Inflow Depth > 6.26" for 100yr Talbot event
Inflow = 26.87 cfs @ 11.97 hrs, Volume= 1.590 af
Outflow = 59.67 cfs @ 12.05 hrs, Volume= 1.592 af, Atten= 0%, Lag= 4.9 min
Primary = 59.67 cfs @ 12.05 hrs, Volume= 1.592 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 51.17' @ 12.05 hrs Surf.Area= 9,923 sf Storage= 13,099 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 70.4 min (852.4 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	49.50'	23,257 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.50	6,556	0	0
50.00	7,153	3,427	3,427
51.00	8,960	8,057	11,484
52.00	14,586	11,773	23,257

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	50.25'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Primary	50.75'	**120.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.48 (C= 3.10)

Primary OutFlow Max=54.10 cfs @ 12.05 hrs HW=51.14' TW=50.73' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.27 cfs @ 3.08 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 8.60 cfs @ 2.54 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 45.23 cfs @ 1.92 fps)

Stage-Discharge for Pond 3P: Pond 10A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.50	0.00	50.54	2.51	51.58	162.72
49.52	0.25	50.56	2.72	51.60	168.41
49.54	0.26	50.58	2.94	51.62	174.16
49.56	0.26	50.60	3.16	51.64	179.99
49.58	0.27	50.62	3.40	51.66	185.88
49.60	0.28	50.64	3.63	51.68	191.83
49.62	0.28	50.66	3.88	51.70	197.86
49.64	0.29	50.68	4.13	51.72	203.94
49.66	0.30	50.70	4.38	51.74	210.10
49.68	0.30	50.72	4.64	51.76	216.32
49.70	0.31	50.74	4.90	51.78	222.60
49.72	0.31	50.76	5.36	51.80	228.94
49.74	0.32	50.78	6.41	51.82	235.35
49.76	0.32	50.80	7.81	51.84	241.82
49.78	0.33	50.82	9.46	51.86	248.35
49.80	0.33	50.84	11.33	51.88	254.95
49.82	0.34	50.86	13.39	51.90	261.60
49.84	0.34	50.88	15.63	51.92	268.32
49.86	0.35	50.90	18.03	51.94	275.10
49.88	0.35	50.92	20.58	51.96	281.93
49.90	0.36	50.94	23.27	51.98	288.83
49.92	0.36	50.96	26.10	52.00	**295.79**
49.94	0.37	50.98	29.05		
49.96	0.37	51.00	32.13		
49.98	0.38	51.02	35.33		
50.00	0.38	51.04	38.64		
50.02	0.39	51.06	42.06		
50.04	0.39	51.08	45.59		
50.06	0.40	51.10	49.22		
50.08	0.40	51.12	52.96		
50.10	0.41	51.14	56.79		
50.12	0.41	51.16	60.72		
50.14	0.41	51.18	64.75		
50.16	0.42	51.20	68.87		
50.18	0.42	51.22	73.07		
50.20	0.43	51.24	77.37		
50.22	0.43	51.26	81.76		
50.24	0.44	51.28	86.23		
50.26	0.45	51.30	90.78		
50.28	0.51	51.32	95.42		
50.30	0.59	51.34	100.13		
50.32	0.69	51.36	104.93		
50.34	0.81	51.38	109.81		
50.36	0.93	51.40	114.77		
50.38	1.07	51.42	119.80		
50.40	1.22	51.44	124.91		
50.42	1.38	51.46	130.09		
50.44	1.55	51.48	135.35		
50.46	1.72	51.50	140.68		
50.48	1.91	51.52	146.09		
50.50	2.10	51.54	151.56		
50.52	2.30	51.56	157.11		

Summary for Pond 4 ditch: POND 4A

Inflow Area = 22.521 ac, 2.76% Impervious, Inflow Depth = 5.04" for 100yr Talbot event
Inflow = 75.72 cfs @ 12.05 hrs, Volume= 9.456 af
Outflow = 65.10 cfs @ 17.25 hrs, Volume= 9.456 af, Atten= 14%, Lag= 311.5 min
Primary = 65.10 cfs @ 17.25 hrs, Volume= 9.456 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 47.92' @ 16.25 hrs Surf.Area= 143,833 sf Storage= 339,257 cf

Plug-Flow detention time= 432.0 min calculated for 9.455 af (100% of inflow)
Center-of-Mass det. time= 432.1 min (1,265.7 - 833.7)

Volume	Invert	Avail.Storage	Storage Description
#1	44.75'	461,460 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.75	2,750	0	0
45.00	60,622	7,922	7,922
46.00	103,486	82,054	89,976
47.00	136,633	120,060	210,035
48.00	144,447	140,540	350,575
48.75	151,245	110,885	461,460

Device	Routing	Invert	Outlet Devices
#1	Primary	44.50'	**36.0" Round Culvert X 2.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.50' / 44.25' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	44.75'	**12.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.90'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	45.90'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Primary	47.90'	**200.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 17.25 hrs HW=47.52' TW=47.89' (Dynamic Tailwater)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  - **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 4 ditch: POND 4A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
44.75	0.00	45.79	7.71	46.83	45.89	47.87	80.85
44.77	0.06	45.81	7.79	46.85	47.05	47.89	81.45
44.79	0.16	45.83	7.86	46.87	48.23	47.91	82.53
44.81	0.30	45.85	7.93	46.89	48.94	47.93	85.21
44.83	0.46	45.87	8.00	46.91	49.60	47.95	88.76
44.85	0.65	45.89	8.08	46.93	50.25	47.97	92.99
44.87	0.85	45.91	8.19	46.95	50.91	47.99	97.78
44.89	1.08	45.93	8.42	46.97	51.57	48.01	103.06
44.91	1.31	45.95	8.73	46.99	52.23	48.03	108.79
44.93	1.57	45.97	9.10	47.01	52.90	48.05	114.92
44.95	1.84	45.99	9.50	47.03	53.56	48.07	121.43
44.97	2.12	46.01	9.95	47.05	54.22	48.09	128.30
44.99	2.42	46.03	10.43	47.07	54.89	48.11	135.57
45.01	2.72	46.05	10.95	47.09	55.55	48.13	143.25
45.03	3.04	46.07	11.49	47.11	56.22	48.15	151.27
45.05	3.38	46.09	12.07	47.13	56.89	48.17	159.63
45.07	3.72	46.11	12.66	47.15	57.55	48.19	168.31
45.09	4.01	46.13	13.29	47.17	58.22	48.21	177.31
45.11	4.27	46.15	13.94	47.19	58.89	48.23	186.62
45.13	4.54	46.17	14.61	47.21	59.56	48.25	196.22
45.15	4.78	46.19	15.30	47.23	60.22	48.27	206.12
45.17	4.90	46.21	16.01	47.25	60.89	48.29	216.31
45.19	5.02	46.23	16.74	47.27	61.56	48.31	226.96
45.21	5.13	46.25	17.50	47.29	62.22	48.33	238.11
45.23	5.24	46.27	18.27	47.31	62.89	48.35	249.60
45.25	5.35	46.29	19.06	47.33	63.56	48.37	261.40
45.27	5.45	46.31	19.86	47.35	64.22	48.39	273.52
45.29	5.56	46.33	20.69	47.37	64.89	48.41	285.96
45.31	5.66	46.35	21.53	47.39	65.55	48.43	298.71
45.33	5.76	46.37	22.39	47.41	66.21	48.45	311.75
45.35	5.86	46.39	23.26	47.43	66.87	48.47	325.07
45.37	5.96	46.41	24.15	47.45	67.53	48.49	338.61
45.39	6.05	46.43	25.05	47.47	68.19	48.51	351.90
45.41	6.14	46.45	25.97	47.49	68.85	48.53	365.30
45.43	6.24	46.47	26.91	47.51	69.50	48.55	378.89
45.45	6.33	46.49	27.85	47.53	70.16	48.57	392.67
45.47	6.42	46.51	28.82	47.55	70.81	48.59	406.62
45.49	6.51	46.53	29.79	47.57	71.46	48.61	420.76
45.51	6.59	46.55	30.78	47.59	72.11	48.63	435.08
45.53	6.68	46.57	31.78	47.61	72.75	48.65	449.56
45.55	6.76	46.59	32.80	47.63	73.40	48.67	464.22
45.57	6.85	46.61	33.82	47.65	74.04	48.69	479.05
45.59	6.93	46.63	34.86	47.67	74.67	48.71	494.04
45.61	7.01	46.65	35.91	47.69	75.31	48.73	509.20
45.63	7.10	46.67	36.98	47.71	75.94	48.75	**524.52**
45.65	7.18	46.69	38.05	47.73	76.57		
45.67	7.25	46.71	39.14	47.75	77.19		
45.69	7.33	46.73	40.24	47.77	77.81		
45.71	7.41	46.75	41.34	47.79	78.43		
45.73	7.49	46.77	42.46	47.81	79.04		
45.75	7.56	46.79	43.60	47.83	79.65		
45.77	7.64	46.81	44.74	47.85	80.25		

Summary for Pond 4P pr: EX 24 CMP sp4

Inflow Area =	82.285 ac,	7.77% Impervious,	Inflow Depth >	5.06"	for 100yr Talbot event
Inflow =	85.78 cfs @	12.34 hrs,	Volume=	34.673 af	
Outflow =	85.78 cfs @	12.35 hrs,	Volume=	34.673 af,	Atten= 0%, Lag= 0.6 min
Primary =	23.16 cfs @	12.35 hrs,	Volume=	22.667 af	
Secondary =	62.62 cfs @	12.35 hrs,	Volume=	12.006 af	

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 49.00' @ 12.35 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	44.45'	**24.0" Round Culvert** L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.45' / 44.05' S= 0.0100 '/' Cc= 0.900 n= 0.026, Flow Area= 3.14 sf
#2	Secondary	48.60'	**CL Hiners Lane as Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 1.40 2.40 2.90 Width (feet) 0.00 190.00 335.00 583.00 665.00

Primary OutFlow Max=23.16 cfs @ 12.35 hrs HW=49.00' TW=45.81' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 23.16 cfs @ 7.37 fps)

Secondary OutFlow Max=62.61 cfs @ 12.35 hrs HW=49.00' TW=45.81' (Dynamic Tailwater)
└─**2=CL Hiners Lane as Weir** (Weir Controls 62.61 cfs @ 1.66 fps)

Stage-Discharge for Pond 4P pr: EX 24 CMP sp4

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
44.45	0.00	0.00	0.00
44.55	0.03	0.03	0.00
44.65	0.13	0.13	0.00
44.75	0.31	0.31	0.00
44.85	0.56	0.56	0.00
44.95	0.88	0.88	0.00
45.05	1.28	1.28	0.00
45.15	1.73	1.73	0.00
45.25	2.25	2.25	0.00
45.35	2.82	2.82	0.00
45.45	3.43	3.43	0.00
45.55	4.09	4.09	0.00
45.65	4.79	4.79	0.00
45.75	5.52	5.52	0.00
45.85	6.28	6.28	0.00
45.95	7.06	7.06	0.00
46.05	7.86	7.86	0.00
46.15	8.66	8.66	0.00
46.25	9.45	9.45	0.00
46.35	10.24	10.24	0.00
46.45	11.01	11.01	0.00
46.55	11.75	11.75	0.00
46.65	12.45	12.45	0.00
46.75	13.08	13.08	0.00
46.85	13.62	13.62	0.00
46.95	14.04	14.04	0.00
47.05	14.24	14.24	0.00
47.15	14.15	14.15	0.00
47.25	14.77	14.77	0.00
47.35	15.38	15.38	0.00
47.45	15.96	15.96	0.00
47.55	16.52	16.52	0.00
47.65	17.06	17.06	0.00
47.75	17.59	17.59	0.00
47.85	18.10	18.10	0.00
47.95	18.59	18.59	0.00
48.05	19.07	19.07	0.00
48.15	19.55	19.55	0.00
48.25	20.00	20.00	0.00
48.35	20.45	20.45	0.00
48.45	20.89	20.89	0.00
48.55	21.33	21.33	0.00
48.65	22.10	21.75	0.35
48.75	27.58	22.16	5.42
48.85	42.01	22.57	19.45
48.95	68.06	22.97	45.10
49.05	107.65	23.36	84.29
49.15	159.58	23.75	135.83
49.25	222.57	24.13	198.45
49.35	296.29	24.50	271.79
49.45	380.63	24.87	355.76
49.55	475.61	25.23	450.38
49.65	581.31	25.59	555.72
49.75	697.84	25.94	671.90
49.85	825.36	26.29	799.07
49.95	964.01	26.64	937.38
50.05	1,114.05	26.97	1,087.07
50.15	1,276.59	27.31	1,249.28
50.25	1,452.74	27.64	1,425.10
50.35	1,643.25	27.97	1,615.29
50.45	1,848.78	28.29	1,820.49
50.55	2,069.92	28.61	2,041.31
50.65	2,307.20	28.93	2,278.28
50.75	2,561.15	29.24	2,531.91
50.85	2,832.24	29.55	2,802.69
50.95	3,120.94	29.86	3,091.08
51.05	3,427.64	30.16	3,397.48
51.15	3,752.00	30.46	3,721.54
51.25	4,093.69	30.76	4,062.93
51.35	4,452.65	31.05	4,421.60
51.45	**4,828.89**	**31.34**	**4,797.54**

Summary for Pond 6P: Connection of 6B and 6C

Inflow Area = 33.300 ac, 0.00% Impervious, Inflow Depth > 4.59" for 100yr Talbot event
Inflow = 36.17 cfs @ 12.89 hrs, Volume= 12.727 af
Outflow = 36.17 cfs @ 12.90 hrs, Volume= 12.727 af, Atten= 0%, Lag= 0.6 min
Primary = 36.17 cfs @ 12.90 hrs, Volume= 12.727 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 53.88' @ 12.87 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	50.25'	**42.0" Round Culvert** L= 182.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.25' / 50.10' S= 0.0008 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	54.50'	**36.0" x 42.0" Horiz. Orifice/Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.25'	**42.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=36.18 cfs @ 12.90 hrs HW=53.88' TW=53.24' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 36.18 cfs @ 4.51 fps)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Passes 36.18 cfs of 37.08 cfs potential flow)

Stage-Discharge for Pond 6P: Connection of 6B and 6C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
50.25	0.00	52.85	26.74
50.30	0.01	52.90	27.68
50.35	0.02	52.95	28.62
50.40	0.06	53.00	29.56
50.45	0.11	53.05	30.52
50.50	0.18	53.10	31.47
50.55	0.28	53.15	32.44
50.60	0.39	53.20	33.40
50.65	0.52	53.25	34.37
50.70	0.68	53.30	35.35
50.75	0.86	53.35	36.32
50.80	1.06	53.40	37.29
50.85	1.29	53.45	38.27
50.90	1.54	53.50	39.24
50.95	1.81	53.55	40.21
51.00	2.11	53.60	41.18
51.05	2.42	53.65	42.14
51.10	2.77	53.70	43.10
51.15	3.13	53.75	44.06
51.20	3.52	53.80	45.00
51.25	3.93	53.85	45.94
51.30	4.36	53.90	46.87
51.35	4.81	53.95	47.79
51.40	5.28	54.00	48.69
51.45	5.78	54.05	49.59
51.50	6.30	54.10	50.46
51.55	6.84	54.15	51.32
51.60	7.39	54.20	52.16
51.65	7.97	54.25	52.98
51.70	8.57	54.30	53.77
51.75	9.19	54.35	54.54
51.80	9.82	54.40	55.28
51.85	10.48	54.45	55.98
51.90	11.15	54.50	**56.65**
51.95	11.84		
52.00	12.55		
52.05	13.27		
52.10	14.01		
52.15	14.77		
52.20	15.54		
52.25	16.33		
52.30	17.13		
52.35	17.94		
52.40	18.77		
52.45	19.61		
52.50	20.47		
52.55	21.33		
52.60	22.21		
52.65	23.10		
52.70	23.99		
52.75	24.90		
52.80	25.82		

Summary for Pond 8P: POND 6B

Inflow Area = 21.410 ac, 0.00% Impervious, Inflow Depth > 4.12" for 100yr Talbot event
Inflow = 29.72 cfs @ 12.38 hrs, Volume= 7.355 af
Outflow = 25.72 cfs @ 12.88 hrs, Volume= 7.410 af, Atten= 13%, Lag= 29.9 min
Primary = 25.72 cfs @ 12.88 hrs, Volume= 7.410 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 55.52' @ 12.88 hrs Surf.Area= 16,793 sf Storage= 28,126 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 30.6 min (951.6 - 921.0)

Volume	Invert	Avail.Storage	Storage Description
#1	53.00'	61,963 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.00	38	0	0
53.30	1,415	218	218
53.50	4,629	604	822
53.80	8,567	1,979	2,802
54.00	13,635	2,220	5,022
55.00	15,678	14,657	19,678
56.00	17,821	16,750	36,428
57.00	33,250	25,536	61,963

Device	Routing	Invert	Outlet Devices
#1	Primary	50.75'	**30.0" Round Culvert** L= 336.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 50.75' / 50.35' S= 0.0012 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Device 1	52.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	54.20'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=25.72 cfs @ 12.88 hrs HW=55.52' TW=53.88' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 25.72 cfs @ 5.24 fps)
  ├─**2=Orifice/Grate** (Passes < 1.21 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Passes < 59.71 cfs potential flow)

Stage-Discharge for Pond 8P: POND 6B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
53.00	0.00	54.04	1.07	55.08	29.98	56.12	36.30
53.02	0.49	54.06	1.08	55.10	30.11	56.14	36.41
53.04	0.51	54.08	1.09	55.12	30.25	56.16	36.53
53.06	0.53	54.10	1.10	55.14	30.38	56.18	36.64
53.08	0.54	54.12	1.11	55.16	30.51	56.20	36.75
53.10	0.56	54.14	1.11	55.18	30.64	56.22	36.85
53.12	0.58	54.16	1.12	55.20	30.78	56.24	36.96
53.14	0.59	54.18	1.13	55.22	30.91	56.26	37.07
53.16	0.61	54.20	1.14	55.24	31.04	56.28	37.18
53.18	0.62	54.22	1.26	55.26	31.17	56.30	37.29
53.20	0.63	54.24	1.48	55.28	31.30	56.32	37.40
53.22	0.65	54.26	1.75	55.30	31.42	56.34	37.51
53.24	0.66	54.28	2.08	55.32	31.55	56.36	37.61
53.26	0.68	54.30	2.45	55.34	31.68	56.38	37.72
53.28	0.69	54.32	2.85	55.36	31.81	56.40	37.83
53.30	0.70	54.34	3.29	55.38	31.93	56.42	37.93
53.32	0.71	54.36	3.77	55.40	32.06	56.44	38.04
53.34	0.73	54.38	4.27	55.42	32.18	56.46	38.14
53.36	0.74	54.40	4.80	55.44	32.31	56.48	38.25
53.38	0.75	54.42	5.36	55.46	32.43	56.50	38.36
53.40	0.76	54.44	5.94	55.48	32.56	56.52	38.46
53.42	0.77	54.46	6.55	55.50	32.68	56.54	38.56
53.44	0.79	54.48	7.18	55.52	32.80	56.56	38.67
53.46	0.80	54.50	7.83	55.54	32.93	56.58	38.77
53.48	0.81	54.52	8.50	55.56	33.05	56.60	38.88
53.50	0.82	54.54	9.19	55.58	33.17	56.62	38.98
53.52	0.83	54.56	9.91	55.60	33.29	56.64	39.08
53.54	0.84	54.58	10.64	55.62	33.41	56.66	39.19
53.56	0.85	54.60	11.39	55.64	33.53	56.68	39.29
53.58	0.86	54.62	12.17	55.66	33.65	56.70	39.39
53.60	0.87	54.64	12.95	55.68	33.77	56.72	39.49
53.62	0.88	54.66	13.76	55.70	33.89	56.74	39.60
53.64	0.89	54.68	14.58	55.72	34.01	56.76	39.70
53.66	0.90	54.70	15.42	55.74	34.13	56.78	39.80
53.68	0.91	54.72	16.28	55.76	34.25	56.80	39.90
53.70	0.92	54.74	17.15	55.78	34.36	56.82	40.00
53.72	0.93	54.76	18.04	55.80	34.48	56.84	40.10
53.74	0.94	54.78	18.95	55.82	34.60	56.86	40.20
53.76	0.95	54.80	19.86	55.84	34.71	56.88	40.30
53.78	0.96	54.82	20.80	55.86	34.83	56.90	40.40
53.80	0.97	54.84	21.75	55.88	34.95	56.92	40.50
53.82	0.98	54.86	22.71	55.90	35.06	56.94	40.60
53.84	0.99	54.88	23.68	55.92	35.18	56.96	40.70
53.86	1.00	54.90	24.67	55.94	35.29	56.98	40.80
53.88	1.00	54.92	25.68	55.96	35.40	57.00	**40.90**
53.90	1.01	54.94	26.69	55.98	35.52		
53.92	1.02	54.96	27.72	56.00	35.63		
53.94	1.03	54.98	28.77	56.02	35.74		
53.96	1.04	55.00	29.44	56.04	35.86		
53.98	1.05	55.02	29.57	56.06	35.97		
54.00	1.06	55.04	29.71	56.08	36.08		
54.02	1.07	55.06	29.85	56.10	36.19		

Summary for Pond 9P: POND 6A

Inflow Area = 19.820 ac, 0.00% Impervious, Inflow Depth = 4.01" for 100yr Talbot event
Inflow = 79.83 cfs @ 12.05 hrs, Volume= 6.626 af
Outflow = 27.80 cfs @ 12.50 hrs, Volume= 6.629 af, Atten= 65%, Lag= 26.5 min
Primary = 27.80 cfs @ 12.50 hrs, Volume= 6.629 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 56.86' @ 12.50 hrs Surf.Area= 51,627 sf Storage= 94,579 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 95.0 min (934.0 - 839.0)

Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	142,126 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.00	0	0	0
54.25	5,534	692	692
54.50	11,263	2,100	2,791
54.75	19,530	3,849	6,641
55.00	29,317	6,106	12,746
56.00	48,475	38,896	51,642
57.00	52,149	50,312	101,954
57.75	54,976	40,172	142,126

Device	Routing	Invert	Outlet Devices
#1	Primary	53.75'	**36.0" Round Culvert** L= 185.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.75' / 53.65' S= 0.0005 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	53.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	55.20'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=27.80 cfs @ 12.50 hrs HW=56.86' TW=55.31' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 27.80 cfs @ 4.72 fps)
  ├─**2=Orifice/Grate** (Passes < 1.18 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Passes < 82.99 cfs potential flow)

Stage-Discharge for Pond 9P: POND 6A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
54.00	0.00	55.04	1.07	56.08	17.27	57.12	31.09
54.02	0.17	55.06	1.08	56.10	17.53	57.14	31.32
54.04	0.20	55.08	1.09	56.12	17.80	57.16	31.56
54.06	0.24	55.10	1.10	56.14	18.07	57.18	31.79
54.08	0.27	55.12	1.11	56.16	18.34	57.20	32.01
54.10	0.31	55.14	1.11	56.18	18.61	57.22	32.23
54.12	0.35	55.16	1.12	56.20	18.88	57.24	32.45
54.14	0.40	55.18	1.13	56.22	19.15	57.26	32.67
54.16	0.44	55.20	1.14	56.24	19.42	57.28	32.88
54.18	0.50	55.22	1.26	56.26	19.69	57.30	33.09
54.20	0.55	55.24	1.48	56.28	19.96	57.32	33.29
54.22	0.60	55.26	1.75	56.30	20.23	57.34	33.49
54.24	0.66	55.28	2.08	56.32	20.51	57.36	33.69
54.26	0.68	55.30	2.45	56.34	20.78	57.38	33.88
54.28	0.69	55.32	2.85	56.36	21.05	57.40	34.06
54.30	0.70	55.34	3.29	56.38	21.33	57.42	34.24
54.32	0.71	55.36	3.77	56.40	21.60	57.44	34.41
54.34	0.73	55.38	4.27	56.42	21.88	57.46	34.58
54.36	0.74	55.40	4.80	56.44	22.15	57.48	34.74
54.38	0.75	55.42	5.36	56.46	22.42	57.50	34.89
54.40	0.76	55.44	5.94	56.48	22.70	57.52	35.04
54.42	0.77	55.46	6.55	56.50	22.97	57.54	35.17
54.44	0.79	55.48	7.18	56.52	23.25	57.56	35.30
54.46	0.80	55.50	7.83	56.54	23.52	57.58	35.42
54.48	0.81	55.52	8.50	56.56	23.79	57.60	35.52
54.50	0.82	55.54	9.19	56.58	24.07	57.62	35.61
54.52	0.83	55.56	9.91	56.60	24.34	57.64	35.69
54.54	0.84	55.58	10.64	56.62	24.61	57.66	35.74
54.56	0.85	55.60	11.23	56.64	24.89	57.68	**35.78**
54.58	0.86	55.62	11.46	56.66	25.16	57.70	**35.78**
54.60	0.87	55.64	11.70	56.68	25.43	57.72	35.73
54.62	0.88	55.66	11.94	56.70	25.70	57.74	35.59
54.64	0.89	55.68	12.18	56.72	25.97		
54.66	0.90	55.70	12.42	56.74	26.24		
54.68	0.91	55.72	12.66	56.76	26.51		
54.70	0.92	55.74	12.91	56.78	26.77		
54.72	0.93	55.76	13.15	56.80	27.04		
54.74	0.94	55.78	13.40	56.82	27.30		
54.76	0.95	55.80	13.65	56.84	27.57		
54.78	0.96	55.82	13.90	56.86	27.83		
54.80	0.97	55.84	14.15	56.88	28.09		
54.82	0.98	55.86	14.41	56.90	28.35		
54.84	0.99	55.88	14.66	56.92	28.61		
54.86	1.00	55.90	14.92	56.94	28.87		
54.88	1.00	55.92	15.17	56.96	29.12		
54.90	1.01	55.94	15.43	56.98	29.37		
54.92	1.02	55.96	15.69	57.00	29.63		
54.94	1.03	55.98	15.95	57.02	29.87		
54.96	1.04	56.00	16.21	57.04	30.12		
54.98	1.05	56.02	16.47	57.06	30.37		
55.00	1.06	56.04	16.74	57.08	30.61		
55.02	1.07	56.06	17.00	57.10	30.85		

Summary for Pond 11P: TCCC main entrance culvert

Inflow Area = 4.294 ac, 53.80% Impervious, Inflow Depth > 6.04" for 100yr Talbot event
Inflow = 64.44 cfs @ 12.05 hrs, Volume= 2.162 af
Outflow = 28.65 cfs @ 12.07 hrs, Volume= 2.160 af, Atten= 56%, Lag= 1.0 min
Primary = 28.65 cfs @ 12.07 hrs, Volume= 2.160 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 51.52' @ 12.07 hrs Surf.Area= 2,614 sf Storage= 4,387 cf

Plug-Flow detention time= 9.3 min calculated for 2.160 af (100% of inflow)
Center-of-Mass det. time= 8.6 min (852.3 - 843.7)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	7,360 cf	**4.00'W x 100.00'L x 4.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	48.47'	**36.0" Round Culvert w/ 12.0" inside fill** L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.47' / 47.25' S= 0.0045 '/' Cc= 0.900 n= 0.013, Flow Area= 5.01 sf
#2	Primary	52.11'	**TCCC entrance road crown, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.10 0.90 1.50 Width (feet) 0.00 50.00 160.00 275.00

Primary OutFlow Max=27.92 cfs @ 12.07 hrs HW=51.48' TW=50.13' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 27.92 cfs @ 5.58 fps)
└─**2=TCCC entrance road crown** (Controls 0.00 cfs)

Stage-Discharge for Pond 11P: TCCC main entrance culvert

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
48.50	0.00	50.58	22.27	52.66	126.14
48.54	0.00	50.62	22.73	52.70	139.29
48.58	0.00	50.66	23.18	52.74	153.47
48.62	0.14	50.70	23.62	52.78	168.69
48.66	0.35	50.74	24.05	52.82	184.97
48.70	0.60	50.78	24.46	52.86	202.34
48.74	0.89	50.82	24.86	52.90	220.81
48.78	1.22	50.86	25.23	52.94	240.41
48.82	1.59	50.90	25.59	52.98	261.15
48.86	1.99	50.94	25.92	53.02	283.06
48.90	2.43	50.98	26.23	53.06	306.19
48.94	2.89	51.02	26.50	53.10	330.61
48.98	3.25	51.06	26.72	53.14	356.39
49.02	3.62	51.10	26.87	53.18	383.55
49.06	4.01	51.14	26.83	53.22	412.15
49.10	4.40	51.18	27.42	53.26	442.22
49.14	4.80	51.22	28.01	53.30	473.79
49.18	5.21	51.26	28.58	53.34	506.91
49.22	5.63	51.30	29.14	53.38	541.60
49.26	6.06	51.34	29.69	53.42	577.89
49.30	6.50	51.38	30.23	53.46	615.82
49.34	6.94	51.42	30.76	53.50	655.41
49.38	7.39	51.46	31.28	53.54	696.70
49.42	7.85	51.50	31.79	53.58	**739.71**
49.46	8.31	51.54	32.30		
49.50	8.78	51.58	32.80		
49.54	9.26	51.62	33.29		
49.58	9.74	51.66	33.77		
49.62	10.23	51.70	34.24		
49.66	10.72	51.74	34.71		
49.70	11.21	51.78	35.18		
49.74	11.71	51.82	35.63		
49.78	12.21	51.86	36.08		
49.82	12.72	51.90	36.53		
49.86	13.22	51.94	36.97		
49.90	13.73	51.98	37.40		
49.94	14.25	52.02	37.83		
49.98	14.76	52.06	38.26		
50.02	15.27	52.10	38.68		
50.06	15.79	52.14	39.20		
50.10	16.30	52.18	40.36		
50.14	16.81	52.22	42.54		
50.18	17.33	52.26	45.76		
50.22	17.84	52.30	49.87		
50.26	18.35	52.34	54.84		
50.30	18.85	52.38	60.66		
50.34	19.36	52.42	67.34		
50.38	19.86	52.46	74.91		
50.42	20.35	52.50	83.33		
50.46	20.84	52.54	92.60		
50.50	21.33	52.58	102.81		
50.54	21.80	52.62	113.99		

Summary for Pond pnd 10B1: pnd 10B Cell 1

Inflow Area = 6.184 ac, 15.20% Impervious, Inflow Depth = 4.80" for 100yr Talbot event
Inflow = 13.34 cfs @ 12.24 hrs, Volume= 2.471 af
Outflow = 12.36 cfs @ 12.53 hrs, Volume= 3.019 af, Atten= 7%, Lag= 17.1 min
Primary = 12.36 cfs @ 12.53 hrs, Volume= 3.019 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 51.24' @ 12.54 hrs Surf.Area= 3,964 sf Storage= 5,361 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 535.6 min (1,396.5 - 860.9)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	7,625 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	1,181	0	0
50.00	2,121	1,651	1,651
51.00	3,494	2,808	4,459
51.75	4,950	3,167	7,625

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**24.0" Round Culvert** L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0012 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	48.75'	**6.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.50'	**12.3' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=12.36 cfs @ 12.53 hrs HW=51.24' TW=50.57' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 12.36 cfs @ 3.93 fps)
  ├─**2=Orifice/Grate** (Passes < 1.54 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Passes < 25.07 cfs potential flow)

Stage-Discharge for Pond pnd 10B1: pnd 10B Cell 1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.00	0.00	50.04	2.15	51.08	13.45
49.02	0.21	50.06	2.16	51.10	13.59
49.04	0.25	50.08	2.18	51.12	13.73
49.06	0.29	50.10	2.20	51.14	13.86
49.08	0.33	50.12	2.21	51.16	13.99
49.10	0.37	50.14	2.23	51.18	14.12
49.12	0.42	50.16	2.25	51.20	14.24
49.14	0.47	50.18	2.26	51.22	14.36
49.16	0.52	50.20	2.28	51.24	14.47
49.18	0.58	50.22	2.29	51.26	14.58
49.20	0.63	50.24	2.31	51.28	14.68
49.22	0.69	50.26	2.32	51.30	14.77
49.24	0.76	50.28	2.34	51.32	14.86
49.26	0.82	50.30	2.35	51.34	14.94
49.28	0.89	50.32	2.37	51.36	15.00
49.30	0.96	50.34	2.38	51.38	15.05
49.32	1.04	50.36	2.40	51.40	15.08
49.34	1.12	50.38	2.41	51.42	15.04
49.36	1.19	50.40	2.43	51.44	15.25
49.38	1.28	50.42	2.44	51.46	15.45
49.40	1.36	50.44	2.46	51.48	15.65
49.42	1.45	50.46	2.47	51.50	15.85
49.44	1.54	50.48	2.49	51.52	16.05
49.46	1.59	50.50	2.50	51.54	16.24
49.48	1.62	50.52	2.63	51.56	16.44
49.50	1.64	50.54	2.85	51.58	16.63
49.52	1.66	50.56	3.13	51.60	16.81
49.54	1.68	50.58	3.47	51.62	17.00
49.56	1.70	50.60	3.84	51.64	17.18
49.58	1.72	50.62	4.25	51.66	17.37
49.60	1.74	50.64	4.70	51.68	17.55
49.62	1.76	50.66	5.18	51.70	17.72
49.64	1.78	50.68	5.69	51.72	17.90
49.66	1.80	50.70	6.23	51.74	**18.07**
49.68	1.82	50.72	6.79		
49.70	1.84	50.74	7.38		
49.72	1.86	50.76	7.99		
49.74	1.88	50.78	8.63		
49.76	1.90	50.80	9.28		
49.78	1.92	50.82	9.96		
49.80	1.94	50.84	10.66		
49.82	1.96	50.86	11.38		
49.84	1.97	50.88	11.94		
49.86	1.99	50.90	12.10		
49.88	2.01	50.92	12.26		
49.90	2.03	50.94	12.42		
49.92	2.05	50.96	12.57		
49.94	2.06	50.98	12.72		
49.96	2.08	51.00	12.87		
49.98	2.10	51.02	13.02		
50.00	2.11	51.04	13.17		
50.02	2.13	51.06	13.31		

Summary for Pond pnd 10B2: Pond 10B Cell 2

Inflow Area = 6.184 ac, 15.20% Impervious, Inflow Depth = 4.80" for 100yr Talbot event
Inflow = 25.96 cfs @ 12.08 hrs, Volume= 2.471 af
Outflow = 13.34 cfs @ 12.24 hrs, Volume= 2.471 af, Atten= 49%, Lag= 9.7 min
Primary = 13.34 cfs @ 12.24 hrs, Volume= 2.471 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 51.93' @ 12.45 hrs Surf.Area= 14,778 sf Storage= 22,116 cf

Plug-Flow detention time= 32.3 min calculated for 2.471 af (100% of inflow)
Center-of-Mass det. time= 32.3 min (860.9 - 828.6)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	31,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	793	0	0
50.00	5,314	3,054	3,054
51.00	9,929	7,622	10,675
52.00	15,165	12,547	23,222
52.50	18,000	8,291	31,513

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**24.0" Round Culvert** L= 78.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0006 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	49.00'	**6.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	50.75'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	49.00'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=13.20 cfs @ 12.24 hrs HW=51.78' TW=51.02' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 13.20 cfs @ 4.20 fps)
  ├─**2=Orifice/Grate** (Passes < 1.65 cfs potential flow)
  ├─**3=Sharp-Crested Rectangular Weir** (Passes < 17.05 cfs potential flow)
  └─**4=Sharp-Crested Rectangular Weir** (Passes < 65.18 cfs potential flow)

Stage-Discharge for Pond pnd 10B2: Pond 10B Cell 2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
49.00	0.00	50.04	4.66	51.08	12.37	52.12	19.11
49.02	0.07	50.06	4.80	51.10	12.49	52.14	19.24
49.04	0.11	50.08	4.94	51.12	12.61	52.16	19.37
49.06	0.16	50.10	5.08	51.14	12.73	52.18	19.51
49.08	0.20	50.12	5.22	51.16	12.85	52.20	19.64
49.10	0.26	50.14	5.36	51.18	12.96	52.22	19.77
49.12	0.31	50.16	5.51	51.20	13.07	52.24	19.90
49.14	0.37	50.18	5.65	51.22	13.17	52.26	20.03
49.16	0.43	50.20	5.80	51.24	13.26	52.28	20.16
49.18	0.48	50.22	5.94	51.26	13.36	52.30	20.28
49.20	0.53	50.24	6.09	51.28	13.44	52.32	20.41
49.22	0.58	50.26	6.24	51.30	13.52	52.34	20.53
49.24	0.63	50.28	6.39	51.32	13.58	52.36	20.66
49.26	0.69	50.30	6.54	51.34	13.64	52.38	20.78
49.28	0.75	50.32	6.69	51.36	13.69	52.40	20.91
49.30	0.81	50.34	6.84	51.38	13.71	52.42	21.03
49.32	0.88	50.36	6.99	51.40	13.70	52.44	21.15
49.34	0.95	50.38	7.15	51.42	13.61	52.46	21.27
49.36	1.02	50.40	7.30	51.44	13.79	52.48	21.39
49.38	1.09	50.42	7.45	51.46	13.98	52.50	**21.51**
49.40	1.17	50.44	7.61	51.48	14.16		
49.42	1.24	50.46	7.76	51.50	14.34		
49.44	1.32	50.48	7.92	51.52	14.52		
49.46	1.40	50.50	8.07	51.54	14.70		
49.48	1.49	50.52	8.23	51.56	14.87		
49.50	1.58	50.54	8.39	51.58	15.04		
49.52	1.66	50.56	8.54	51.60	15.21		
49.54	1.76	50.58	8.70	51.62	15.38		
49.56	1.85	50.60	8.85	51.64	15.55		
49.58	1.94	50.62	9.01	51.66	15.71		
49.60	2.04	50.64	9.16	51.68	15.87		
49.62	2.14	50.66	9.32	51.70	16.03		
49.64	2.24	50.68	9.47	51.72	16.19		
49.66	2.35	50.70	9.63	51.74	16.35		
49.68	2.45	50.72	9.78	51.76	16.51		
49.70	2.56	50.74	9.94	51.78	16.66		
49.72	2.67	50.76	10.09	51.80	16.82		
49.74	2.78	50.78	10.24	51.82	16.97		
49.76	2.90	50.80	10.39	51.84	17.12		
49.78	3.01	50.82	10.54	51.86	17.27		
49.80	3.13	50.84	10.69	51.88	17.42		
49.82	3.25	50.86	10.84	51.90	17.57		
49.84	3.37	50.88	10.99	51.92	17.71		
49.86	3.49	50.90	11.13	51.94	17.86		
49.88	3.62	50.92	11.28	51.96	18.00		
49.90	3.74	50.94	11.42	51.98	18.14		
49.92	3.87	50.96	11.56	52.00	18.28		
49.94	4.00	50.98	11.70	52.02	18.42		
49.96	4.13	51.00	11.84	52.04	18.56		
49.98	4.26	51.02	11.98	52.06	18.70		
50.00	4.39	51.04	12.11	52.08	18.84		
50.02	4.53	51.06	12.24	52.10	18.97		

Summary for Pond POND 4B: POND 4B

Inflow Area = 39.678 ac, 3.29% Impervious, Inflow Depth > 4.75" for 100yr Talbot event
Inflow = 50.83 cfs @ 12.17 hrs, Volume= 15.692 af
Outflow = 45.10 cfs @ 12.55 hrs, Volume= 16.114 af, Atten= 11%, Lag= 23.1 min
Primary = 45.10 cfs @ 12.55 hrs, Volume= 16.114 af

Routing by Sim-Route method, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 50.94' @ 12.55 hrs Surf.Area= 40,700 sf Storage= 66,512 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 122.1 min (1,032.9 - 910.7)

Volume	Invert	Avail.Storage	Storage Description
#1	48.90'	106,025 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.90	2,378	0	0
49.00	12,688	753	753
49.25	24,390	4,635	5,388
49.50	32,399	7,099	12,487
49.75	34,894	8,412	20,898
50.00	36,984	8,985	29,883
51.00	40,925	38,955	68,838
51.75	58,241	37,187	106,025

Device	Routing	Invert	Outlet Devices
#1	Primary	48.75'	**30.0" Round Culvert X 2.00** L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.75' / 48.70' S= 0.0016 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf
#2	Device 1	48.75'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	48.75'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	49.40'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	50.60'	**6.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#6	Primary	50.60'	**160.0 deg x 30.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=45.10 cfs @ 12.55 hrs HW=50.94' TW=50.57' (Dynamic Tailwater)
- **1=Culvert** (Outlet Controls 25.53 cfs @ 3.73 fps)
  - **2=Orifice/Grate** (Passes < 0.57 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 1.02 cfs potential flow)
  - **4=Sharp-Crested Rectangular Weir** (Passes < 23.43 cfs potential flow)
  - **5=Sharp-Crested Rectangular Weir** (Passes < 4.42 cfs potential flow)
- **6=Sharp-Crested Vee/Trap Weir** (Weir Controls 19.57 cfs @ 1.79 fps)

Stage-Discharge for Pond POND 4B: POND 4B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
48.90	0.00	49.94	10.51	50.98	56.37
48.92	0.20	49.96	10.96	51.00	58.77
48.94	0.26	49.98	11.41	51.02	61.21
48.96	0.32	50.00	11.87	51.04	63.72
48.98	0.39	50.02	12.34	51.06	66.28
49.00	0.46	50.04	12.74	51.08	68.90
49.02	0.55	50.06	13.11	51.10	71.57
49.04	0.64	50.08	13.48	51.12	74.30
49.06	0.73	50.10	13.86	51.14	77.07
49.08	0.84	50.12	14.24	51.16	79.91
49.10	0.95	50.14	14.63	51.18	82.79
49.12	1.06	50.16	15.02	51.20	85.73
49.14	1.19	50.18	15.41	51.22	88.72
49.16	1.32	50.20	15.81	51.24	91.75
49.18	1.45	50.22	16.21	51.26	94.84
49.20	1.60	50.24	16.61	51.28	97.98
49.22	1.75	50.26	17.02	51.30	101.17
49.24	1.84	50.28	17.43	51.32	104.41
49.26	1.88	50.30	17.85	51.34	107.70
49.28	1.91	50.32	18.26	51.36	111.03
49.30	1.95	50.34	18.69	51.38	114.42
49.32	1.98	50.36	19.11	51.40	117.85
49.34	2.02	50.38	19.54	51.42	121.33
49.36	2.05	50.40	19.97	51.44	124.86
49.38	2.08	50.42	20.40	51.46	128.43
49.40	2.12	50.44	20.84	51.48	132.05
49.42	2.21	50.46	21.28	51.50	135.72
49.44	2.34	50.48	21.72	51.52	139.43
49.46	2.50	50.50	22.16	51.54	143.19
49.48	2.69	50.52	22.61	51.56	146.99
49.50	2.89	50.54	23.06	51.58	150.84
49.52	3.12	50.56	23.51	51.60	154.74
49.54	3.36	50.58	23.97	51.62	158.68
49.56	3.61	50.60	24.42	51.64	162.66
49.58	3.88	50.62	25.14	51.66	166.69
49.60	4.16	50.64	26.09	51.68	170.75
49.62	4.46	50.66	27.18	51.70	174.87
49.64	4.77	50.68	28.39	51.72	179.02
49.66	5.08	50.70	29.71	51.74	**183.22**
49.68	5.41	50.72	31.13		
49.70	5.75	50.74	32.63		
49.72	6.10	50.76	34.22		
49.74	6.46	50.78	35.89		
49.76	6.83	50.80	37.64		
49.78	7.20	50.82	39.45		
49.80	7.59	50.84	41.34		
49.82	7.98	50.86	43.30		
49.84	8.38	50.88	45.32		
49.86	8.79	50.90	47.41		
49.88	9.21	50.92	49.56		
49.90	9.64	50.94	51.77		
49.92	10.07	50.96	54.04		

Summary for Link sp4 PR: Prop Design Point 4

Inflow Area = 82.285 ac, 7.77% Impervious, Inflow Depth > 5.06" for 100yr Talbot event
Inflow = 85.78 cfs @ 12.35 hrs, Volume= 34.673 af
Primary = 85.78 cfs @ 12.36 hrs, Volume= 34.673 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 5.00-100.00 hrs, dt= 0.01 hrs

102 Point manual elevation table, To= 0.00 hrs, dt= 0.25 hrs, feet =

44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
44.08	44.17	44.25	44.75	45.75	45.90	45.50	45.00	44.88
44.75	44.63	44.50	44.46	44.42	44.38	44.33	44.29	44.25
44.24	44.24	44.23	44.22	44.22	44.21	44.20	44.20	44.19
44.18	44.18	44.17	44.16	44.16	44.15	44.14	44.14	44.13
44.13	44.12	44.11	44.11	44.10	44.09	44.09	44.08	44.07
44.07	44.06	44.05	44.05	44.04	44.03	44.03	44.02	44.01
44.01	44.00	44.00						

Environmental Site Design Stormwater Management Computations

Concept (Sketch Plan)

Shore Health System / University of Maryland Medical System
Regional Medical Center
Easton, MD (Talbot County)

DMW Project No. 09035.N6

September 5th, 2023

Prepared for:
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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. 28823 Exp. Date 1/7/2024

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Environmental Site Design Narrative

Introduction:

The following report summarizes the proposed stormwater management (SWM) environmental site design (ESD) for the proposed hospital site development. The quantity SWM design is in a separate report. The SWM design for the relocation of Route 662C, US Route 50, and Medical Center Drive are also in a separate report that was previously reviewed and approved by both Talbot County and SHA. The design point and associated ponds that are affected by the hospital development are restudied within the quantity report to ensure town and state requirements are met.

Project Location:

The subject property is located in Talbot County in the Town of Easton on a parcel of land roughly bordered by Route 50 to the east, Hiners Lane to the north, Hailem School Road to the west, and the Gannon Farm to the south. The project is approximately one mile north of the Easton Municipal Airport. The site is located on Tax Map 17, Grid 23 and includes parcel 129 and is comprised of 236.15 Ac +/-.

Existing Conditions:

The existing onsite conditions are primarily small grain row crops with some areas of trees. There is a section of Route 662C that will be removed and relocated as a part of the overall development of the site. Offsite areas that drain onto the site are made up primarily of small grain row crops and woods.

Proposed Improvements:

A portion of the site will be developed (30 Acres +/- within the loop road and 76 acres +/- of disturbance) to include a hospital building, medical office building, parking areas, loop road, and SWM facilities. The remainder of the disturbance on the site will be graded and seeded.

Stormwater Management Practices:

ESD will be implemented to meet the Stormwater Management Act of 2007. The site falls within a five mile radius of an airport, therefore the most stringent requirement between the Federal Aviation Administration (FAA) and the Maryland Aviation Administration (MAA) must be adhered to. Facilities with standing water that could attract waterfowl are not allowed within this radius. Water quality facilities are required to dewater within twenty-four hours. All ESD practices are required to be maintained to ensure that this criterion is met.

ESD practices chosen for this site are indicated and supported as follows:

Alternative Surfaces: Cost implications precluded the use of a green roof. Permeable pavement will be used in a portion of the parking spaces on the site.

Nonstructural Practices: The loop road and associated parking precluded disconnection of rooftop runoff and grass swales precluded disconnection of non-rooftop impervious surfaces. Potential future development outside of the loop road precludes the use of sheet flow to conservation areas.

Micro-Scale Practices:

1. The Submerged Gravel Wetland (M-2) practice was chosen to treat a portion of the hospital roof. There are two Submerged Gravel Wetlands located in the bottom of the detention ponds 6C and 3.
2. The Micro-Bioretention (M-6) practice was chosen for the treatment of ESD_V requirements for a majority of the site. The proposed Medical Office Building roof will be treated in facility no. 27. Micro-Bioretention facilities make up the majority of the landscape islands that are in the proposed site.
3. Grass Swales (M-8) were chosen to treat the loop road. The grass swales have a bottom width of four feet, depth of two feet and side slopes of 3:1 throughout. The slope along the length of the swales will vary.

Assumptions:

The site is considered new development, the existing conditions impervious area within the limit of disturbance is less than 40%. The P_E value is calculated specific to the Limit of Disturbance (LOD) based on hydrologic soil group and imperviousness.

Soil types are derived from the National Resource Conservation Service Survey. RCN values were taken from the TR-55 manual unless otherwise specified.

The Target RCN value was calculated for the site as if it were woods in good condition.

The Calculated Post Construction RCN value was calculated for the proposed improvements prior to implementing any stormwater management practices.

The area to each facility was defined by the proposed site grading within the site disturbance.

A portion of the Micro-Bioretention facilities have drainage areas that exceed 20,000 sf. The size of the site, including the size of the parking bays, dictates that some of the facilities receive more drainage than the regulations allow. All of the facilities have been designed to have a filter area of at least two percent of the overall drainage area to the facility and the storage is limited to the 1-year-24-hour (Cp_V) storm event.

Natural Resource Protection and Enhancement:

The proposed site design will achieve natural resource protection and enhancement by minimizing earth-moving disturbance to that which is necessary to support the project purpose, and by limiting earth disturbances to only those areas which have historically been used for intensive agricultural production. Natural resource protection and enhancement will also be achieved by avoiding forest clearing and impacts to nearby naturally-vegetated wetlands, streams, and their buffers. Large forested tracts surrounding natural stream and wetland systems are being retained and will be protected through establishment of perpetual conservation easements. Protection and enhancement of natural resources is also being achieved by providing water quality treatment, channel protection volume, and groundwater recharge within numerous ESD facilities located throughout the project site. These facilities have been designed within close proximity to proposed roadways and parking areas to quickly capture and treat stormwater runoff so as to reduce adverse effects to natural receiving water bodies. Native trees, shrubs, grasses, and perennials will be planted within the appropriate Best Management Practices (BMPs), as well as throughout the medical campus as part of the proposed sustainable landscape plan. These plantings will provide an enhanced "green footprint" as well as improved habitat for micro- and macro-invertebrates, insect pollinators, small mammals and songbirds, encouraging species diversity and thereby improving the site's natural resource functional value as compared with the current condition.

Maintenance of natural flow patterns:

The natural flow patterns were modified to aid in alleviating existing flooding conditions at Goldborough Neck Road, Foster's Trailer Park, and Hiners Lane. This management reduces flows from the existing conditions and allows for safer conditions in flood events. See the Quantity SWM report for further discussion.

Reduction of impervious areas through better site design, alternative surfaces, and nonstructural practices:

The site layout design reflects the minimum necessary amount of drive access and sidewalks for the demand required by the proposed use. As a result, impervious areas, and thus runoff from the site, are minimized. Additional parking spaces are proposed over the amount required by zoning. Therefore, locations across the site were chosen to provide permeable pavement for those additional spaces.

Integration of erosion and sediment controls into the stormwater strategy:

ESC controls will be incorporated into the SWM strategy. The filter areas will be protected from receiving sedimentation until the site is stabilized. The detention facilities will be utilized as sediment basins during construction. Trap devices will be located such that the ESD practices can be constructed while such devices are still in place and being utilized. Runoff from disturbed areas will be diverted around proposed permeable pavement and micro-bioretention facilities if final land grading needs to take place before the surrounding site is stabilized. The basins will need to be dewatered and cleaned out before submerged gravel wetlands will be installed at the time of basin conversion to SWM. The swales will be used to convey sediment laden water to trapping devices during construction, then after the contributing drainage area is completely stabilized, accumulated sediment will be removed and the swale will be excavated to the required dimensions before installing permanent vegetation.

Implementation of ESD planning techniques and practices to the MEP:

The facilities chosen were placed and sized to receive and provide the required ESD_V to the maximum extent practical. The ESD facilities were sized to provide volume for the Target P_E but limited to the 1-year-24-hour (Cp_V) storm event. A few of the ESD practices do not provide the required ESD_V in the DA due to site constraints. However, there is more than the required ESD_V provided for the site overall. Recharge volume is provided by adding 3" of stone below the micro-bioretention facilities. Site constraints require that the rooftop drainage be piped underground, rooftop areas are treated in 2-submerged gravel wetlands and 1-micro-bioretention facility. Not all roadside swales will be used for ESD based on the Q_{10} freeboard requirement. All of the micro-bioretention facilities are temporarily storing 100% of the ESD_V. However, MDE allows for micro-bioretention facilities to store at least 75% of the ESD_V.

Daft-McCune-Walker, Inc.
501 Fairmount Avenue Suite 300 - Towson, Maryland 21286

ESD DESIGN COMPUTATIONS
NEW DEVELOPMENT

Project :	Regional Medical Center	By:	LAT
		Date:	8/29/2023
Location:	Talbot County, Town of Easton	Check:	MM
Job No. :	09035.N6	Date:	8/25/2023

Site Characteristics :

LOD Area :	3,246,186	s.f.	=	74.52	Ac.
Proposed Impervious Area :	908,879	s.f.	=	20.86	Ac.
On-Site Soils :	-	sf "A"	=	-	Ac.
	1,892,067	sf "B"	=	43.44	Ac.
	691,391	sf "C"	=	15.87	Ac.
	662,728	sf "D"	=	15.21	Ac.
	3246186				

1. Determine Target RCN, Post Construction RCN:

a. Calculate Target RCN

Soil Condition and RCNs for "Woods in Good Conditions"

Woods - Good Condition
Soil Conditions

HSG	RCN	AREA	PERCENT
A	38	0	0.0%
B	55	1,892,067	58.3%
C	70	691,391	21.3%
D	77	662,728	20.4%

Determine RCN for Woods in Good Condition :

"A" Soils =	(Area x RCN) =	0
"B" Soils =	(Area x RCN) =	104,063,685
"C" Soils =	(Area x RCN) =	48,397,370
"D" Soils =	(Area x RCN) =	51,030,056

$$\text{RCN(woods)} = \frac{203{,}491{,}111}{3{,}246{,}186} = 62.69$$

Target RCN = 63

b. Calculate Post Construction RCN

Impervious Areas

Soil Conditions

HSG	RCN	AREA	PERCENT	Ac. x RCN
A	98	0	0.0%	0
B	98	568,003	17.5%	55,664,294
C	98	197,429	6.1%	19,348,042
D	98	143,447	4.4%	14,057,806

908879

Pervious Areas

Soil Conditions

HSG	RCN	AREA	PERCENT	Ac. x RCN
A	39	0	0.0%	0
B	61	1,324,064	40.8%	80,767,904
C	74	493,962	15.2%	36,553,188
D	80	519,281	16.0%	41,542,480

Determine Post Construction RCN for Impervious Areas and Grass in Good Condition :

$$\text{Post Construction RCN} = \frac{247{,}933{,}714}{3{,}246{,}186} = 76.38$$

Post Construction RCN =	76

2.Using Percent Impervious Determine Target $P(_E)$:

% Impervious = 28%

From Table 5.3 :

			Weighted $P(_E)$	
			Soils Area	Pe x A_{soil}
For Soils type A	Pe =		0%	0.00
For Soils type B	Pe =	1.6	58%	0.93
For Soils type C	Pe =	1.6	21%	0.34
For Soils type D	Pe =	1.2	20%	0.24
			100%	1.52

Target $P(_E)$= 1.52

3. Compute $Q(_E)$:

$Q(_E)$ = Runoff depth used to size ESD practices

$Q(_E) = P(_E) \times Rv$, where

$P(_E)$ = 1.52 inches

Rv = 0.05 + (0.009) I ; I = 28.00

Rv = 0.30

$Q(_E)$ = 1.52 inches x 0.30

$Q(_E)$ = 0.46 inches

ESD Targets

$P(_E)$ = 1.52 inches

A = 3,246,186 s.f.

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.30)(3{,}246{,}186)}{12}$$

Target ESDv = 123,355 c.f.

4. Summary of ESD Practices:

Environmental Site Design (ESD) Summary of Practices

TOTAL Target ESDv = 123,355 c.f. Required

Facility No.	Drainage Area No.	Practice Code	ESDv Provided (c.f.)			Notes
Phase 1-C	Lot A (12 PS)	(A-2)	311			
Phase 1-C	Lot G (10 PS)	(A-2)	-			Removed
Phase 1-B	Lot A (31 PS)	(A-2)	984			
Phase 1-B	Lot E (30 PS)	(A-2)	-			Removed
Phase 1-B	Lot G (23 PS)	(A-2)	-			Removed
Phase 2-C	Lot D (43 PS)	(A-2)	1,115			Phase 2
Phase 2-C	Lot F (43 PS)	(A-2)	1,115			Phase 2
	Alternative Surfaces Subtotal		*3,524*			
1	1	(M-2)	7,863			
2	2	(M-2)	12,452			
	Structural Practice Gravel Wetland Subtotal		*20,315*			
1	3	(M-6)	4,133	1,970	0	
2	4	(M-6)	4,119	2,109	0	
3	5	(M-6)	2,563	1,345	0	Phase 2
4	6	(M-6)	2,860	1,239	0	
5	7	(M-6)	-	#REF!	#REF!	Removed
6	8	(M-6)	1,687	322	0	Phase 2
7	9	(M-6)	1,030	544	0	
8	10	(M-6)	974	(43)	0	
9	11	(M-6)	974	(45)	0	
10	12	(M-6)	1,426	215	0	
11	13	(M-6)	1,865	252	0	
12	14	(M-6)	1,865	267	0	
13	15	(M-6)	1,944	334	0	
14	16	(M-6)	1,215	570	0	
15	17	(M-6)	1,267	(154)	0	
16	18	(M-6)	2,568	(108)	0	
17	19	(M-6)	2,206	175	0	
18	20	(M-6)	2,623	(175)	0	
19	21	(M-6)	2,410	765	0	
20	22	(M-6)	2,894	(448)	0	
21	23	(M-6)	2,148	702	0	
22	24	(M-6)	-	#REF!	#REF!	Removed
23	25	(M-6)	4,833	2,195	0	
24	26	(M-6)	3,456	1,551	0	
25	27	(M-6)	6,712	3,128	0	
26	28	(M-6)	2,004	4,458	0	Phase 2
27	29	(M-6)	-	#REF!	#REF!	Removed
28	30	(M-6)	3,246	1,365	0	
29	31	(M-6)	-	#REF!	#REF!	Removed
30	32	(M-6)	2,327	848	0	
31	33	(M-6)	2,864	1,343	0	Phase 2
32	34	(M-6)	1,968	#REF!	#REF!	
33	35	(M-6)	710	(35)	0	
34	36	(M-6)	972	127	0	

Facility No.	Drainage Area No.	Practice	ESDv Provided (c.f.)			Notes
35	37	(M-6)	2,071	149	0	
36	38	(M-6)	2,667	#REF!	#REF!	
37	39	(M-6)	1,795	1,337	0	
38	40	(M-6)	1,547	447	0	
39	41	(M-6)	2,366	(277)	0	Phase 2
40	42	(M-6)	667	(91)	0	Phase 2
41	43	(M-6)	1,870	1,439	0	
42	44	(M-6)	3,840	1,147	0	Phase 2
43	45	(M-6)	2,566	1,519	0	
44	46	(M-6)	2,058	1,419	0	
45	47	(M-6)	2,599	#REF!	#REF!	
46	48	(M-6)	3,529	1,477	0	
47	49	(M-6)	-	#REF!	#REF!	Removed
Structural Practice Micro-Bioretention Subtotal			*99,440*			
1	50	(M-8)	77			
2	51	(M-8)	508			
3	52	(M-8)	236			
4	53	(M-8)	210			
5	54	(M-8)	181			
6	55	(M-8)	404			
7	56	(M-8)	430			
8	57	(M-8)	269			
9	58	(M-8)	341			
10	59	(M-8)	409			
11	60	(M-8)	408			
12	61	(M-8)	430			
13	62	(M-8)	585			
14	63	(M-8)	153			
15	64	(M-8)	-			Removed
16	65	(M-8)	-			Removed
Structural Practices Grass Swales Subtotal			*4,641*			
		Total	127,921			

Total Target ESDv =	123,355	c.f. Required

Actual Total Target ESD_V on Site:

Alternative Surfaces Subtotal =	3,524	c.f. Provided
Submerged Gravel Wetland Practices Target ESDv =	20,315	c.f. Provided
Micro-Bioretention Practices Target ESDv =	99,440	c.f. Provided
Structural Practices Grass Swales Subtotal =	4,641	c.f. Provided
Total Target ESDv =	127,921	c.f. Provided

The overall site is providing more ESD_V than required and the sizing has been limited to a 1-year-24 hr (Cp_V) storm event.

Total ESDv Provided on Site

ESDv Treated =	127,921	c.f.

Unified Stormwater Sizing Criteria

Sizing Criteria	Required	Provided
Water Quality Volume (WQ_V) (cft)	ESD_V 123,355 c.f.	ESD_V 127,921 c.f.
Recharge Volume (Re_V) (cft) *		
Channel Protection Volume (Cp_V)		

* 3" of additional stone is provided in the bottom of the Micro-Bioretention facilities

5. Performance Evaluations

(A-2)

Permeable Pavement

5. Performance Evaluations:

1. Alternative Surface (A-2): Permeable Pavement Phase 1-C

Drainage Area # : Lot A (12 PS)

Area of DA =	1,944	s.f.	0.04	Ac.
Impervious =	1,944	s.f.	I% =	100.0
(C Soil)				

Maximum ESDv in this Drainage Area;

Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth

P_E = 2.80 inches I% = 100.0

Rv = 0.05 + (0.009) I ;

Rv = 0.95

$$ESDv = \frac{(P_E)(Rv)(A) = (2.80)(0.95)(1,944)}{12 \quad 12}$$

ESDv = 431 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Filter Surface Area = 1,944 s.f.

MDE ESD Process and Computations July 2010

Table 1: ESD Values for Permeable Pavements

Thickness of Reservoir Course =	12	in
Treatment volume per square foot =	0.16	ft^3/sf

ESDv = (1,944) (0.160)

ESDv = 311 c.f. Captured and Treated

Volume Provided within the Facility = 311 c.f.

ESDv Provided in Drainage Area

ESDv Provided = 311 c.f.

5. Performance Evaluations (Continued):

1. Alternative Surface (A-2): Permeable Pavement Phase 1-B

Drainage Area # : Lot A (31 PS)

Area of DA =	5,022	s.f.	0.12	Ac.
Impervious =	5,022	s.f.	I% =	100.0
(B Soil)				

Maximum ESDv in this Drainage Area;

Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth

P_E = 2.80 inches I% = 100.0

Rv = 0.05 + (0.009) I ;

Rv = 0.95

$$ESDv = \frac{(P_E)(Rv)(A) = (2.80)(0.95)(5{,}022)}{12 \quad 12}$$

ESDv = 1,113 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Filter Surface Area = 5,022 s.f.

MDE ESD Process and Computations July 2010

Table 1: ESD Values for Permeable Pavements

Thickness of Reservoir Course =	12	in
Treatment volume per square foot =	0.196	ft^3/sf

ESDv = (5,022) (0.196)

ESDv = 984 c.f. Captured and Treated

Volume Provided within the Facility = 984 c.f.

ESDv Provided in Drainage Area

ESDv Provided =	984	c.f.

5. Performance Evaluations (Continued):

1. Alternative Surface (A-2): Permeable Pavement Phase 2-C

Drainage Area # : Lot D (43 PS)

Area of DA =	6,966	s.f.	0.16	Ac.
Impervious =	6,966	s.f.	I% =	100.0
(C Soil)				

Maximum ESDv in this Drainage Area;

Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth

P_E = 2.80 inches I% = 100.0

Rv = 0.05 + (0.009) I ;

Rv = 0.95

$$ESDv = \frac{(P_E)(Rv)(A) = (2.80)(0.95)(6{,}966)}{12 \quad 12}$$

ESDv = 1,544 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Filter Surface Area = 6,966 s.f.

MDE ESD Process and Computations July 2010

Table 1: ESD Values for Permeable Pavements

Thickness of Reservoir Course =	12	in
Treatment volume per square foot =	0.16	ft^3/sf

ESDv = (6,966) (0.160)

ESDv = 1,115 c.f. Captured and Treated

Volume Provided within the Facility = 1,115 c.f.

ESDv Provided in Drainage Area

ESDv Provided = 1,115 c.f.

5. Performance Evaluations (Continued):

1. Alternative Surface (A-2): Permeable Pavement Phase 2-C

Drainage Area # : Lot F (43 PS)

Area of DA =	6,966	s.f.	0.16	Ac.
Impervious =	6,966	s.f.	I% =	100.0
(C Soil)				

Maximum ESDv in this Drainage Area;

Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth

P_E = 2.80 inches I% = 100.0

Rv = 0.05 + (0.009) I ;

Rv = 0.95

$$ESDv = \frac{(P_E)(Rv)(A) = (2.80)(0.95)(6{,}966)}{12 \quad 12}$$

ESDv = 1,544 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Filter Surface Area = 6,966 s.f.

MDE ESD Process and Computations July 2010

Table 1: ESD Values for Permeable Pavements

Thickness of Reservoir Course =	12	in
Treatment volume per square foot =	0.16	ft^3/sf

ESDv = (6,966) (0.160)

ESDv = 1,115 c.f. Captured and Treated

Volume Provided within the Facility = 1,115 c.f.

ESDv Provided in Drainage Area

ESDv Provided = 1,115 c.f.

5. Performance Evaluations

(M-2)

Submerged Gravel Wetlands

5. Performance Evaluations (Continued):

2. Submerged Gravel Wetland (M-2): Facility No. 1

Drainage Area: 1

Area of DA =	35,592	s.f.	0.82	Ac.
Impervious =	35,592	s.f.	I% =	100.0

Maximum ESDv in this Drainage Area;

From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event

P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;

Rv = 0.95

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.95)\ (35{,}592)}{12}$$

ESDv = 7,890 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;

Using weighted P(E) from Site Characteristics 2. Using Percent Impervious

P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;

Rv = 0.95

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.95)\ (35{,}592)}{12}$$

ESDv = 4,283 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 9829 s.f.

Check minimum Af (2% of DA) = 712 **s.f.**

OK

$ESDv = (V_{ponding*}) + (Af)(df)(void) =$

$ESDv =$ - + (9829) (2.00) (0.40)

(Using $d_{ponding*}$ =0ft)

Volume Provided within the Facility = 7,863 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	7,863	c.f.

5. Performance Evaluations (Continued):

2. Submerged Gravel Wetland (M-2): Facility No. 2

Drainage Area: 2

Area of DA = 72,269 s.f. 1.66 Ac.
Impervious = 72,269 s.f. I% = 100.0

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.95

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.95)\ (72{,}269)}{12}$$

ESDv = 16,020 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.95

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.95)\ (72{,}269)}{12}$$

ESDv = 8,696 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 15565 s.f.

Check minimum Af (2% of DA) = 1,445 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = - + (15565) (2.00) (0.40)
(Using $d_{ponding*}$ =0ft)

Volume Provided within the Facility = 12,452 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	12,452	c.f.

5. Performance Evaluations

(M-6)

Micro-Bioretention

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 1

Drainage Area: 3

Area of DA = 28,114 s.f. 0.65 Ac.
Impervious = 18,243 s.f. I% = 64.9

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.63

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.63)\ (28{,}114)}{12}$$

ESDv = 4,133 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.63

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.63)\ (28{,}114)}{12}$$

ESDv = 2,243 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 2341 s.f.

Check minimum Af (2% of DA) = 562 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (2,341) + (2341) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 4,214 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	4,133	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 2

Drainage Area: 4

Area of DA = 29,920 s.f. 0.69 Ac.
Impervious = 17,925 s.f. I% = 59.9

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.59

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.59)\ (29{,}920)}{12}$$

ESDv = 4,119 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.59

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.59)\ (29{,}920)}{12}$$

ESDv = 2,236 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 2414 s.f.

Check minimum Af (2% of DA) = 598 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (2,414) + (2414) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 4,345 **c.f.**

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	4,119	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 3

Drainage Area: 5

Area of DA = 19,616 s.f. 0.45 Ac.
Impervious = 11,119 s.f. I% = 56.7

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.56

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.56)\ (19{,}616)}{12}$$

ESDv = 2,563 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.56

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.56)\ (19{,}616)}{12}$$

ESDv = 1,391 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1520 s.f.

Check minimum Af (2% of DA) = 392 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,520) + (1520) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,736 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,563	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 4

Drainage Area: 6

Area of DA = 20,095 s.f. 0.46 Ac.
Impervious = 12,441 s.f. I% = 61.9

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.61)\ (20{,}095)}{12}$$

ESDv = 2,860 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.61)\ (20{,}095)}{12}$$

ESDv = 1,553 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1551 s.f.

Check minimum Af (2% of DA) = 402 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,551) + (1551) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,792 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,860	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 6

Drainage Area: 8

Area of DA = 12,407 s.f. 0.28 Ac.
Impervious = 7,635 s.f. I% = 61.5

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.60

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.60)\ (12{,}407)}{12}$$

ESDv = 1,737 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.60

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.60)\ (12{,}407)}{12}$$

ESDv = 943 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 703 s.f.

Check minimum Af (2% of DA) = **248** **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (703) + (703) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,265 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,687	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 7

Drainage Area: 9

Area of DA = 7,120 s.f. 0.16 Ac.
Impervious = 4,505 s.f. I% = 63.3

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.62

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.62)\ (7{,}120)}{12}$$

ESDv = 1,030 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.62

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.62)\ (7{,}120)}{12}$$

ESDv = 559 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 613 s.f.

Check minimum Af (2% of DA) = 142 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (613) + (613) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,103 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,030	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 8

Drainage Area: 10

Area of DA = 8,603 s.f. 0.20 Ac.
Impervious = 6,328 s.f. I% = 73.6

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.71

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.71)\ (8{,}603)}{12}$$

ESDv = 1,425 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.71

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.71)\ (8{,}603)}{12}$$

ESDv = 774 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 406 s.f.

Check minimum Af (2% of DA) = 172 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (406) + (406) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 731 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	974	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 9

Drainage Area: 11

Area of DA = 8,167 s.f. 0.19 Ac.
Impervious = 6,334 s.f. I% = 77.6

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.75

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.75)\ (8{,}167)}{12}$$

ESDv = 1,429 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.75

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.75)\ (8{,}167)}{12}$$

ESDv = 776 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 406 s.f.

Check minimum Af (2% of DA) = 163 **s.f.**
OK

ESDv = $(V_{ponding*})$ + (Af)(df)(void) =
ESDv = (406) + (406) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 731 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	974	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 10

Drainage Area: 12

Area of DA = 10,217 s.f. 0.23 Ac.
Impervious = 6,952 s.f. I% = 68.0

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.66

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.66)(10,217)}{12}$$

ESDv = 1,573 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.66

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.66)(10,217)}{12}$$

ESDv = 854 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 594 s.f.

Check minimum Af (2% of DA) = 204 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (594) + (594) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,069 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,426	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 11

Drainage Area: 13

Area of DA = 13,123 s.f. 0.30 Ac.
Impervious = 9,353 s.f. I% = 71.3

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.69

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.69)\ (13,123)}{12}$$

ESDv = 2,113 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.69

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.69)\ (13,123)}{12}$$

ESDv = 1,147 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 777 s.f.

Check minimum Af (2% of DA) = 262 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (777) + (777) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,399 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,865	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 12

Drainage Area: 14

Area of DA = 12,587 s.f. 0.29 Ac.
Impervious = 9,273 s.f. I% = 73.7

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.71

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.71)\ (12{,}587)}{12}$$

ESDv = 2,085 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.71

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.71)\ (12{,}587)}{12}$$

ESDv = 1,132 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 777 s.f.

Check minimum Af (2% of DA) = 252 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (777) + (777) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,399 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,865	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 13

Drainage Area: 15

Area of DA = 15,573 s.f. 0.36 Ac.
Impervious = 9,076 s.f. I% = 58.3

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.57

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.57)\ (15{,}573)}{12}$$

ESDv = 2,071 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.57

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.57)\ (15{,}573)}{12}$$

ESDv = 1,124 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 810 s.f.

Check minimum Af (2% of DA) = 311 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (810) + (810) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,458 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,944	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 14

Drainage Area: 16

Area of DA = 14,467 s.f. 0.33 Ac.
Impervious = 4,916 s.f. I% = 34.0

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.36

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.36)\ (14{,}467)}{12}$$

ESDv = 1,215 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.36

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.36)\ (14{,}467)}{12}$$

ESDv = 660 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 683 s.f.

Check minimum Af (2% of DA) = 289 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (683) + (683) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,229 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,215	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 15

Drainage Area: 17

Area of DA = 15,293 s.f. 0.35 Ac.
Impervious = 8,837 s.f. I% = 57.8

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.57

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.57)\ (15{,}293)}{12}$$

ESDv = 2,034 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.57

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.57)\ (15{,}293)}{12}$$

ESDv = 1,104 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 528 s.f.

Check minimum Af (2% of DA) = 306 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (528) + (528) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 950 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	1,267	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 16

Drainage Area: 18

Area of DA = 23,967 s.f. 0.55 Ac.
Impervious = 16,412 s.f. I% = 68.5

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.67

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.67)\ (23{,}967)}{12}$$

ESDv = 3,747 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.67

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.67)\ (23{,}967)}{12}$$

ESDv = 2,034 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1070 s.f.

Check minimum Af (2% of DA) = 479 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,070) + (1070) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,926 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	2,568	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 17

Drainage Area: 19

Area of DA = 21,234 s.f. 0.49 Ac.
Impervious = 11,816 s.f. I% = 55.6

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.55

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.55)(21,234)}{12}$$

ESDv = 2,725 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.55

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.55)(21,234)}{12}$$

ESDv = 1,479 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 919 s.f.

Check minimum Af (2% of DA) = 425 s.f.
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (919) + (919) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,654 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided = 2,206 c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 18

Drainage Area: 20

Area of DA = 28,187 s.f. 0.65 Ac.
Impervious = 17,321 s.f. I% = 61.5

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.60

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.60)\ (28,187)}{12}$$

ESDv = 3,946 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.60

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.60)\ (28,187)}{12}$$

ESDv = 2,142 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1093 s.f.

Check minimum Af (2% of DA) = 564 s.f.
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,093) + (1093) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,967 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	2,623	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 19

Drainage Area: 21

Area of DA = 19,128 s.f. 0.44 Ac.
Impervious = 10,412 s.f. I% = 54.4

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.54

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.54)\ (19{,}128)}{12}$$

ESDv = 2,410 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.54

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.54)\ (19{,}128)}{12}$$

ESDv = 1,308 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1152 s.f.

Check minimum Af (2% of DA) = 383 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,152) + (1152) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,074 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,410	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 20

Drainage Area: 22

Area of DA = 36,913 s.f. 0.85 Ac.
Impervious = 20,776 s.f. I% = 56.3

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.56

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.56)\ (36{,}913)}{12}$$

ESDv = 4,823 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.56

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.56)\ (36{,}913)}{12}$$

ESDv = 2,618 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1206 s.f.

Check minimum Af (2% of DA) = 738 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,206) + (1206) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,171 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	2,894	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 21

Drainage Area: 23

Area of DA = 18,053 s.f. 0.41 Ac.
Impervious = 9,199 s.f. I% = 51.0

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.51

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.51)\ (18{,}053)}{12}$$

ESDv = 2,148 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.51

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.51)\ (18{,}053)}{12}$$

ESDv = 1,166 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1038 s.f.

Check minimum Af (2% of DA) = 361 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,038) + (1038) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,868 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,148	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 23

Drainage Area: 25

Area of DA = 46,032 s.f. 1.06 Ac.
Impervious = 20,360 s.f. I% = 44.2

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.45

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.45)(46{,}032)}{12}$$

ESDv = 4,833 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.45

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.45)(46{,}032)}{12}$$

ESDv = 2,624 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 2677 s.f.

Check minimum Af (2% of DA) = 921 s.f.
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (2,677) + (2677) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 4,819 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided = 4,833 c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 24

Drainage Area: 26

Area of DA = 24,279 s.f. 0.56 Ac.
Impervious = 15,074 s.f. I% = 62.1

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.61)\ (24{,}279)}{12}$$

ESDv = 3,456 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.61)\ (24{,}279)}{12}$$

ESDv = 1,876 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1904 s.f.

Check minimum Af (2% of DA) = **486** **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,904) + (1904) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 3,427 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	3,456	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 25

Drainage Area: 27

Area of DA = 39,405 s.f. 0.90 Ac.
Impervious = 29,667 s.f. I% = 75.3

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.73

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.73)\ (39{,}405)}{12}$$

ESDv = 6,712 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.73

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.73)\ (39{,}405)}{12}$$

ESDv = 3,644 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

GOAL SEEK: 3,747

Surface Area of Filter (Af): 3762 s.f.

Check minimum Af (2% of DA) = 788 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (3,762) + (3762) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 6,772 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	6,712	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 26

Drainage Area: 28

Area of DA = 47,724 s.f. 1.10 Ac.
Impervious = 6,848 s.f. I% = 14.3

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.18

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.18)\ (47{,}724)}{12}$$

ESDv = 2,004 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.18

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.18)\ (47{,}724)}{12}$$

ESDv = 1,088 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

GOAL SEEK: 3,068

Surface Area of Filter (Af): 3081 s.f.

Check minimum Af (2% of DA) = 954 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (3,081) + (3081) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 5,546 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,004	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 28

Drainage Area: 30

Area of DA = 55,638 s.f. 1.28 Ac.
Impervious = 12,235 s.f. I% = 22.0

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.25

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.25)\ (55,638)}{12}$$

ESDv = 3,246 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.25

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.25)\ (55,638)}{12}$$

ESDv = 1,762 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

GOAL SEEK: 1,732

Surface Area of Filter (Af): 1737 s.f.

Check minimum Af (2% of DA) = **1,113** **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,737) + (1737) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 3,127 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	3,246	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 30

Drainage Area: 32

Area of DA = 43,355 s.f. 1.00 Ac.
Impervious = 8,715 s.f. I% = 20.1

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.23

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.23)\ (43{,}355)}{12}$$

ESDv = 2,327 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.23

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.23)\ (43{,}355)}{12}$$

ESDv = 1,263 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

GOAL SEEK: 807

Surface Area of Filter (Af): 1173 s.f.

Check minimum Af (2% of DA) = **867** **s.f.**
OK

ESDv = $(V_{ponding*})$ + (Af)(df)(void) =
ESDv = (1,173) + (1173) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,111 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,327	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 31

Drainage Area: 33

Area of DA = 35,067 s.f. 0.81 Ac.
Impervious = 11,703 s.f. I% = 33.4

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.35

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.35)\ (35{,}067)}{12}$$

ESDv = 2,864 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.35

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.35)\ (35{,}067)}{12}$$

ESDv = 1,555 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1610 s.f.

Check minimum Af (2% of DA) = 701 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,610) + (1610) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,898 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,864	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 32

Drainage Area: 34

Area of DA = 36,748 s.f. 0.84 Ac.
Impervious = 13,102 s.f. I% = 35.7

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.37

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.37)\ (36{,}748)}{12}$$

ESDv = 3,173 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.37

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.37)\ (36{,}748)}{12}$$

ESDv = 1,722 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 820 s.f.

Check minimum Af (2% of DA) = 735 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (820) + (820) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,476 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	1,968	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 33

Drainage Area: 35

Area of DA = 6,787 s.f. 0.16 Ac.
Impervious = 4,574 s.f. I% = 67.4

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.66

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.66)\ (6{,}787)}{12}$$

ESDv = 1,045 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.66

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.66)\ (6{,}787)}{12}$$

ESDv = 567 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 296 s.f.

Check minimum Af (2% of DA) = 136 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (296) + (296) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 533 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	710	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 34

Drainage Area: 36

Area of DA = 7,088 s.f. 0.16 Ac.
Impervious = 4,852 s.f. I% = 68.5

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.67

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.67)\ (7{,}088)}{12}$$

ESDv = 1,108 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.67

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.67)\ (7{,}088)}{12}$$

ESDv = 602 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 405 s.f.

Check minimum Af (2% of DA) = 142 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (405) + (405) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 729 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	972	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 35

Drainage Area: 37

Area of DA = 16,309 s.f. 0.37 Ac.
Impervious = 11,383 s.f. I% = 69.8

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.68

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.68)\ (16{,}309)}{12}$$

ESDv = 2,588 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.68

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.68)\ (16{,}309)}{12}$$

ESDv = 1,405 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 863 s.f.

Check minimum Af (2% of DA) = 326 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (863) + (863) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,553 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,071	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 36

Drainage Area: 38

Area of DA = 16,331 s.f. 0.37 Ac.
Impervious = 11,865 s.f. I% = 72.7

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.70

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.70)\ (16{,}331)}{12}$$

ESDv = 2,667 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.70

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.70)\ (16{,}331)}{12}$$

ESDv = 1,448 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1214 s.f.

Check minimum Af (2% of DA) = 327 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,214) + (1214) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,185 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,667	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 37

Drainage Area: 39

Area of DA = 16,723 s.f. 0.38 Ac.
Impervious = 7,631 s.f. I% = 45.6

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.46

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.46)\ (16{,}723)}{12}$$

ESDv = 1,795 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.46

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.46)\ (16{,}723)}{12}$$

ESDv = 974 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1284 s.f.

Check minimum Af (2% of DA) = 334 s.f.
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,284) + (1284) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,311 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided = 1,795 c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 38

Drainage Area: 40

Area of DA = 10,203 s.f. 0.23 Ac.
Impervious = 6,762 s.f. I% = 66.3

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.65

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.65)\ (10{,}203)}{12}$$

ESDv = 1,547 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.65

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.65)\ (10{,}203)}{12}$$

ESDv = 840 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 715 s.f.

Check minimum Af (2% of DA) = 204 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (715) + (715) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,287 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,547	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 39

Drainage Area: 41

Area of DA = 26,555 s.f. 0.61 Ac.
Impervious = 16,505 s.f. I% = 62.2

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.61)\ (26{,}555)}{12}$$

ESDv = 3,780 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.61)\ (26{,}555)}{12}$$

ESDv = 2,052 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 986 s.f.

Check minimum Af (2% of DA) = 531 s.f.
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (986) + (986) (2.00) (0.40)
(Using $d_{ponding*}$ = 1 ft)

75% Volume Provided within the Facility = 1,775 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	2,366	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 40

Drainage Area: 42

Area of DA = 7,654 s.f. 0.18 Ac.
Impervious = 4,749 s.f. I% = 62.0

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.61)\ (7{,}654)}{12}$$

ESDv = 1,089 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.61)\ (7{,}654)}{12}$$

ESDv = 591 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 278 s.f.

Check minimum Af (2% of DA) = 153 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (278) + (278) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 500 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
INCREASE Af to MEET TARGET ESDv

ESDv Provided =	667	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 41

Drainage Area: 43

Area of DA = 12,519 s.f. 0.29 Ac.
Impervious = 8,213 s.f. I% = 65.6

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.64

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.64)\ (12{,}519)}{12}$$

ESDv = 1,870 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.64

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.64)\ (12{,}519)}{12}$$

ESDv = 1,015 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1363 s.f.

Check minimum Af (2% of DA) = 250 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,363) + (1363) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,453 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	1,870	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 42

Drainage Area: 44

Area of DA = 31,048 s.f. 0.71 Ac.
Impervious = 16,495 s.f. I% = 53.1

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.53

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.53)(31,048)}{12}$$

ESDv = 3,840 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.53

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.53)(31,048)}{12}$$

ESDv = 2,084 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1795 s.f.

Check minimum Af (2% of DA) = 621 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,795) + (1795) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 3,231 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	3,840	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 43

Drainage Area: 45

Area of DA = 18,028 s.f. 0.41 Ac.
Impervious = 11,194 s.f. I% = 62.1

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.61)\ (18{,}028)}{12}$$

ESDv = 2,566 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.61

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.61)\ (18{,}028)}{12}$$

ESDv = 1,393 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1618 s.f.

Check minimum Af (2% of DA) = 361 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,618) + (1618) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,912 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	2,566	c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 44

Drainage Area: 46

Area of DA = 14,949 s.f. 0.34 Ac.
Impervious = 8,937 s.f. I% = 59.8

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.59

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.59)(14{,}949)}{12}$$

ESDv = 2,058 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.59

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.59)(14{,}949)}{12}$$

ESDv = 1,117 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1409 s.f.

Check minimum Af (2% of DA) = 299 s.f.
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,409) + (1409) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 2,536 c.f.

ESDv Provided in Drainage Area

MEETS or EXCEEDS Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided = 2,058 c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 45

Drainage Area: 47

Area of DA = 21,659 s.f. 0.50 Ac.
Impervious = 13,245 s.f. I% = 61.2

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.60

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.60)(21,659)}{12}$$

ESDv = 3,032 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.60

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.60)(21,659)}{12}$$

ESDv = 1,646 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1083 s.f.

Check minimum Af (2% of DA) = 433 s.f.
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,083) + (1083) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 1,949 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided = 2,599 c.f.

5. Performance Evaluations (Continued):

3. Micro-Bioretention (M-6): Facility No. 46

Drainage Area: 48

Area of DA = 32,875 s.f. 0.75 Ac.
Impervious = 15,035 s.f. I% = 45.7

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.46

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.46)\ (32{,}875)}{12}$$

ESDv = 3,529 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.46

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.46)\ (32{,}875)}{12}$$

ESDv = 1,916 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Surface Area of Filter (Af): 1885 s.f.

Check minimum Af (2% of DA) = 658 **s.f.**
OK

ESDv = ($V_{ponding*}$) + (Af)(df)(void) =
ESDv = (1,885) + (1885) (2.00) (0.40)
(Using $d_{ponding*}$ = 1ft)

75% Volume Provided within the Facility = 3,393 **c.f.**

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	3,529	c.f.

5. Performance Evaluations

(M-8)

Grass Swales

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 1

Drainage Area: 50

Area of DA = 5,961 s.f. 0.14 Ac.
Impervious = 3,502 s.f. I% = 58.7

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.58

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.58)\ (5{,}961)}{12}$$

ESDv = 807 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (5{,}961)}{12}$$

ESDv = 38 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 58 ft
Swale Width W = 4 ft
Swale Area A = 232 s.f.
Check minimum contributing drainage area (>2%) = 119 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft × 232 s.f. = 77 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	77	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 2

Drainage Area: 51

Area of DA = 21,133 s.f. 0.49 Ac.
Impervious = 6,650 s.f. I% = 31.5

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.33

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.33)\ (21,133)}{12}$$

ESDv = 1,627 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (21,133)}{12}$$

ESDv = 134 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 385 ft
Swale Width W = 4 ft
Swale Area A = 1,540 s.f.
Check minimum contributing drainage area (>2%) = 423 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft × 1,540 s.f. = 508 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided = 508 c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 3

Drainage Area: 52

Area of DA = 7,180 s.f. 0.16 Ac.
Impervious = 3,275 s.f. I% = 45.6

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.46

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.46)\ (7,180)}{12}$$

ESDv = 771 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (7,180)}{12}$$

ESDv = 45 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 179 ft
Swale Width W = 4 ft
Swale Area A = 716 s.f.
Check minimum contributing drainage area (>2%) = 144 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft x 716 s.f. = 236 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	236	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 4

Drainage Area: 53

Area of DA = 6,911 s.f. 0.16 Ac.
Impervious = 3,907 s.f. I% = 56.5

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.56

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.56)\ (6{,}911)}{12}$$

ESDv = 903 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (6{,}911)}{12}$$

ESDv = 44 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 159 ft
Swale Width W = 4 ft
Swale Area A = 636 s.f.
Check minimum contributing drainage area (>2%) = 138 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft x 636 s.f. = 210 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	210	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 5

Drainage Area: 54

Area of DA = 7,416 s.f. 0.17 Ac.
Impervious = 4,500 s.f. I% = 60.7

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.60

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.60)(7,416)}{12}$$

ESDv = 1,038 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.05)(7,416)}{12}$$

ESDv = 47 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 137 ft
Swale Width W = 4 ft
Swale Area A = 548 s.f.
Check minimum contributing drainage area (>2%) = 148 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft × 548 s.f. = 181 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	181	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 6

Drainage Area: 55

Area of DA = 11,661 s.f. 0.27 Ac.
Impervious = 5,267 s.f. I% = 45.2

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.46

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.46)(11,661)}{12}$$

ESDv = 1,252 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.05)(11,661)}{12}$$

ESDv = 74 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 306 ft
Swale Width W = 4 ft
Swale Area A = 1,224 s.f.
Check minimum contributing drainage area (>2%) = 233 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft x 1,224 s.f. = 404 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided = 404 c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 7

Drainage Area: 56

Area of DA = 13,300 s.f. 0.31 Ac.
Impervious = 5,692 s.f. I% = 42.8

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.44

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.44)\ (13{,}300)}{12}$$

ESDv = 1,365 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (13{,}300)}{12}$$

ESDv = 84 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 326 ft
Swale Width W = 4 ft
Swale Area A = 1,304 s.f.
Check minimum contributing drainage area (>2%) = 266 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft × 1,304 s.f. = 430 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	430	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 8

Drainage Area: 57

Area of DA = 7,899 s.f. 0.18 Ac.
Impervious = 3,622 s.f. I% = 45.9

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.46

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.46)(7{,}899)}{12}$$

ESDv = 848 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.05)(7{,}899)}{12}$$

ESDv = 50 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 204 ft
Swale Width W = 4 ft
Swale Area A = 816 s.f.
Check minimum contributing drainage area (>2%) = 158 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft x 816 s.f. = 269 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided = 269 c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 9

Drainage Area: 58

Area of DA = 22,276 s.f. 0.51 Ac.
Impervious = 4,586 s.f. I% = 20.6

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.24

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.24)\ (22,276)}{12}$$

ESDv = 1,247 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (22,276)}{12}$$

ESDv = 141 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 258 ft
Swale Width W = 4 ft
Swale Area A = 1,032 s.f.
Check minimum contributing drainage area (>2%) = 446 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft × 1,032 s.f. = 341 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	341	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 10

Drainage Area: 59

Area of DA = 21,304 s.f. 0.49 Ac.
Impervious = 5,473 s.f. I% = 25.7

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.28

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.28)(21,304)}{12}$$

ESDv = 1,392 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.05)(21,304)}{12}$$

ESDv = 135 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 310 ft
Swale Width W = 4 ft
Swale Area A = 1,240 s.f.
Check minimum contributing drainage area (>2%) = 426 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft x 1,240 s.f. = 409 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	409	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 11

Drainage Area: 60

Area of DA = 12,733 s.f. 0.29 Ac.
Impervious = 5,422 s.f. I% = 42.6

Maximum ESDv in this Drainage Area;
From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.43

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)(0.43)(12{,}733)}{12}$$

ESDv = 1,278 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)(0.05)(12{,}733)}{12}$$

ESDv = 81 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 309 ft
Swale Width W = 4 ft
Swale Area A = 1,236 s.f.
Check minimum contributing drainage area (>2%) = 255 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft × 1,236 s.f. = 408 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	408	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 12

Drainage Area: 61

Area of DA =	25,208	s.f.	0.58	Ac.
Impervious =	5,792	s.f.	I% =	23.0

Maximum ESDv in this Drainage Area;

From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event

P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;

Rv = 0.26

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.26)\ (25{,}208)}{12}$$

ESDv = 1,529 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;

Using weighted P(E) from Site Characteristics 2. Using Percent Impervious

P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;

Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (25{,}208)}{12}$$

ESDv = 160 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L =	326	ft
Swale Width W =	4	ft
Swale Area A =	1,304	s.f.
Check minimum contributing drainage area (>2%) =	504	*OK*
Check bottom width (2' < W < 8') =	*OK*	

Maximum depth is 4" for ESDv

0.33 ft × 1,304 s.f. = 430 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	430	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 13

Drainage Area: 62

Area of DA =	31,053	s.f.	0.71	Ac.
Impervious =	7,924	s.f.	I% =	25.5

Maximum ESDv in this Drainage Area;

From Table 2.2 Rainfall Depth for 1 year-24 hr (Cpv) Storm Event

P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;

Rv = 0.28

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.28)\ (31,053)}{12}$$

ESDv = 2,029 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;

Using weighted P(E) from Site Characteristics 2. Using Percent Impervious

P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;

Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (31,053)}{12}$$

ESDv = 197 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L =	443	ft
Swale Width W =	4	ft
Swale Area A =	1,772	s.f.
Check minimum contributing drainage area (>2%) =	621	*OK*
Check bottom width (2' < W < 8') =	*OK*	

Maximum depth is 4" for ESDv

0.33 ft × 1,772 s.f. = 585 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	585	c.f.

5. Performance Evaluations (Continued):

4. Grass Swale (M-8): Facility No. 14

Drainage Area: 63

Area of DA = 16,694 s.f. 0.38 Ac.
Impervious = 9,541 s.f. I% = 57.2

Maximum ESDv in this Drainage Area;
Using 1-year-24 hr (Cpv) Storm Event From Table 2.2 Rainfall Depth
P_E = 2.80 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.56

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(2.80)\ (0.56)\ (16{,}694)}{12}$$

ESDv = 2,181 c.f. could be treated within this facility.

Required ESDv in this Drainage Area;
Using weighted P(E) from Site Characteristics 2. Using Percent Impervious
P_E = 1.52 inches

Rv = 0.05 + (0.009) I ;
Rv = 0.05

$$ESDv = \frac{(P_E)(Rv)(A)}{12} = \frac{(1.52)\ (0.05)\ (16{,}694)}{12}$$

ESDv = 106 c.f. could be treated within this facility.

Volume Provided within the ESD Practice:

Swale Length L = 116 ft
Swale Width W = 4 ft
Swale Area A = 464 s.f.
Check minimum contributing drainage area (>2%) = 334 *OK*

Check bottom width (2' < W < 8') = *OK*

Maximum depth is 4" for ESDv

0.33 ft x 464 s.f. = 153 c.f.

ESDv Provided in Drainage Area

INCREASE Af TO PROVIDE Cpv
MEETS or EXCEEDS MINIMUM ESDv

ESDv Provided =	153	c.f.

TOWN OF EASTON

14 South Harrison Street
Easton, Maryland 21601

October 4, 2023

Dear Resident,

The Easton Planning Commission will hold a public meeting on **Thursday, October 19, 2023 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 2023-1027 has been filed on behalf of Shore Health System of University of Maryland Medical System (UMMS) at Longwoods Road, Parcel 0129 to request Sketch Site Plan approval for a proposed medical center with associated stormwater management facilities, parking, and utilities. In addition, the applicant is requesting a Supplemental Waiver for landscaping and buffering requirements.

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

APG Media of Chesapeake, LLC **10/02/23**
29088 Airpark Drive
Easton, MD 21601

Phone: Fax:
http://www.chespub.com

Cust. AcctID:	Creation Date: **10/02/23**
	Ad Date: **10/04/23**
	Class:
Name: **Joanne Drummer**	Ad ID:
Company: **TOWN OF EASTON (L)**	Ad Taker:
Address: **PO Box 520**	Sales Person:
EASTON, MD 21601	Words:
	Lines:
	Agate Lines:
Telephone: **(410) 822-2525**	Depth:
Email:	Inserts:
Description: **Planning Comm Meeting**	Blind Box:

Other Charges:		Total:	
Discount:			
Surcharge:		Paid Amount:	
Credits:			
Bill Depth:		Amount Due:	

CREDIT CARD DETAILS

PT	CT	CN	Number	Exp.	Amnt.

Publication	Start	Stop	Inserts	Cost
The Star Democrat	10/04/23	10/04/23		

Ad Note:

Planning Commission
MEETING AGENDA
Thursday, October 19, 2023 - 1:00 PM
Council Chambers, Easton Town Office
14 S Harrison Street

Please continue to check our website at:
https://eastonmd.gov/129/Agendas-Minutes
for agenda updates

1. **Call to Order**
2. **Approval of Minutes.**
   a. Approval of the Decision Summary from the September 21, 2023 meeting.
3. **Old Business**
   a. **Applicant:** Lane Engineering, LLC
      File No.: 2023-933
      Location: Mistletoe Hall Commerce- Business Park Lot 1
      Tax Map 25, Grid 16, Parcel 0138, Lot 1
      Zoning District: I
      Nature of Request: Architectural approval of a proposed warehouse building and a one-story office building with associated stormwater management, parking and landscaping.
   b. **Applicant:** Rise Up Dover Road LLC
      File No.: 2023-870
      Location: 625 Dover Road
      Tax Map 103, Grid 0EA, Parcel 0990
      Zoning District: R-7A
      Nature of Request: Amendment to a previously approved Planned Unit Development (PUD) for the addition of an 8' x 12' walk-in cooler to the existing kitchen unit, and the addition of a 12' x 24' storage shed to the existing property located at 625 Dover Road, also known as Tax Map 103, Parcel 0990.
4. **New Business**
   a. **Applicant:** Phillips Signs Inc.
      File No.: 2023 - 1048
      Location: 499 Idlewild Avenue
      Tax Map 105, Grid 000, Parcel 2366
      Zoning District: BC
      Nature of Request: Signage permit approval where two (2) or more businesses occupy one (1) building with a common entrance.
   b. **Applicant:** Lane Engineering
      File No.: 2023 - 1028
      Location: 29315 Dover Road - East Coast Vets
      Tax Map 105, Grid 000, Parcel 2844,
      Lot 3
      Zoning District: CG
      Nature of Request: Sketch Site Plan and Architectural approval for a proposed two-story addition to an existing single-story veterinarian clinic and parking lot expansion.
   c. **Applicant:** Shore Health System / University of Maryland Medical System
      File No.: 2023 - 1027
      Location: Longwoods Road, Parcel 0129
      Tax Map 017, Grid 023, Parcel 0129, Lot 3/5
      Zoning District: RH
      Nature of Request: Sketch Site Plan approval for a proposed medical center with associated stormwater management facilities, parking and utilities. In addition, the applicant is requesting a Supplemental Waiver for landscaping and buffering requirements.
5. **Discussion Item**
   a. Zoning Requirements for Adult-Use Cannabis Dispensaries.
6. **Adjournment.**

3035939 SD 10/4/2023

(Longwoods Road)

Sign posted on October 4, 2023

Customer Note:

We Appreciate Your Business!
Thank You Joanne Drummer!

(Ocean Gateway)

DATE: October 17, 2023

TO: PLANNING and ZONING

FROM: ANNE BROWNE 28 PARK LN EASTON 21601 627

410-822-7191 in2ny2md@gmail
VOICE ONLY

RE: COMMENT REGARDING HOSPITAL SITE PLAN
A.D.A. PARKING

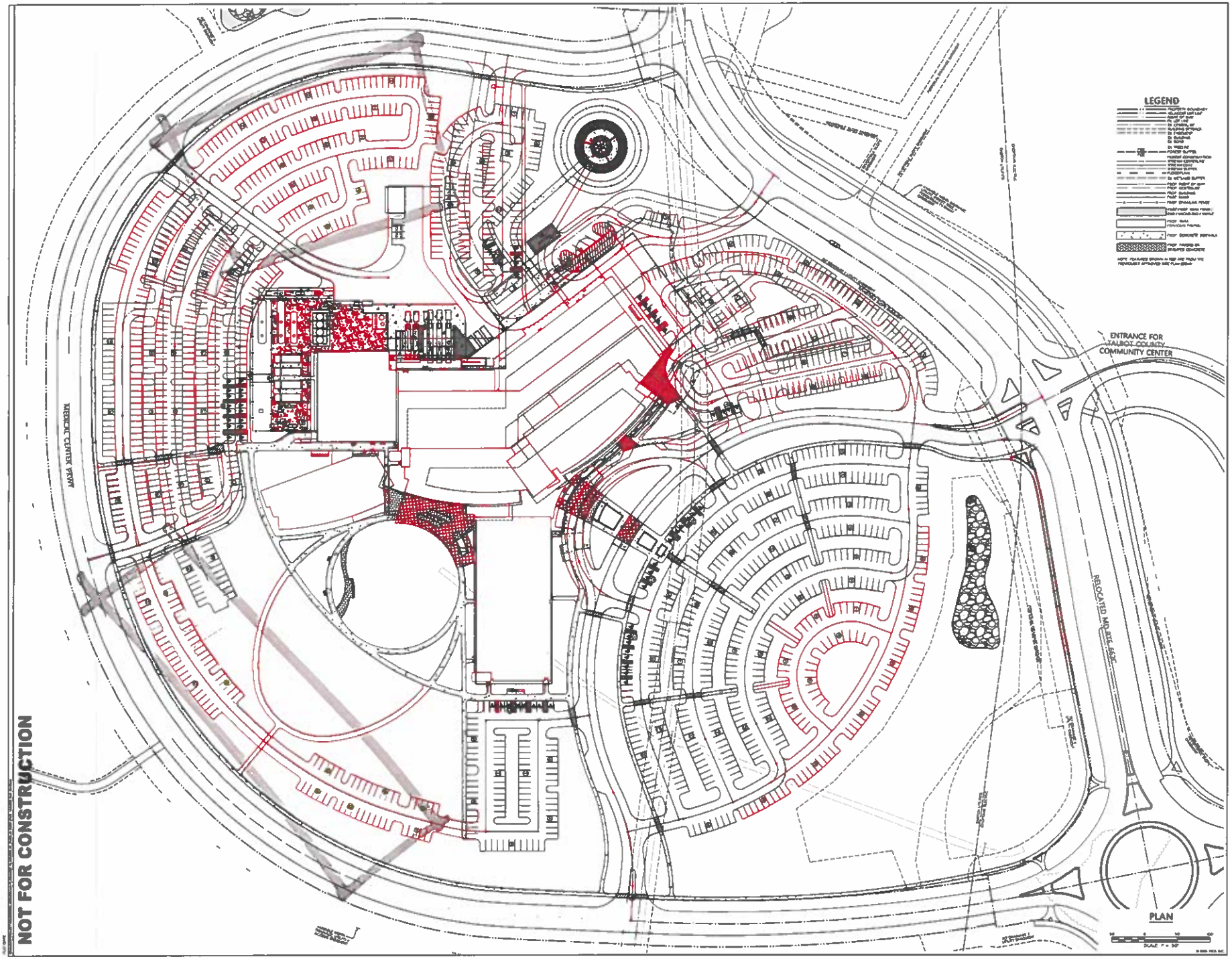
I reviewed the Overlay Site Plan (Sketch plan) Sheet 1 of 1 dated 02 OCTOBER 2023

On the LEFT HAND SIDE OF THAT PLAN "ON" MEDICAL CENTER PARKWAY THERE APPEAR TO BE 3 DISTINCT PARKING LOTS WHICH HAVE NOT EVEN ONE "ACCESSIBLE" PARKING SPOTS

WHY IS THAT ACCEPTABE?

Anne C. Browne
Oct. 17, 2023

RECEIVED
OCT 17 2023
TOWN OF EASTON



HKS

ARCHITECT

INTERIORS

GREEN DESIGN

CIVIL

MEP

STRUCTURAL

LANDSCAPE

FOODSERVICE DESIGN

SHORE HEALTH
UNIVERSITY OF MARYLAND MEDICAL SYSTEM

Shore Regional Medical Center

OWNER

OWNER'S CONSULTANT

PROFESSIONAL CERTIFICATION

REVISION
NO. DESCRIPTION DATE

HKS PROJECT NUMBER: 19782.012 | OWNER PROJECT NUMBER: 000035.N6

DATE
02 OCTOBER, 2023

SCALE
SKETCH PLAN

SHEET TITLE
OVERLAY
SITE PLAN

SHEET NO.
1 OF 1

TOWN OF EASTON

Planning & Zoning Department
14 South Harrison Street
P.O. Box 520

STAFF MEMORANDUM

To: Easton Planning and Zoning Commission
From: Lynn Thomas, Town Planner
Date: October 10, 2023
Subject: Cannabis Zoning Regulations

As the Town Council continues to contemplate whether or not to enact a moratorium on potential cannabis-related uses to give us time to research, propose, and adopt the regulations we deem necessary/appropriate to address these uses, we have been asked to move forward with such consideration as expeditiously as possible. To that end, this memorandum will outline the issues and options for addressing the various issues and provide staff suggestions for each.

To begin with, the current Zoning Code includes three medical cannabis uses: A Dispensary, a growing facility and a processing facility. Each of these also have associated supplemental standards. Here is the relevant section of the Table of Permissible Uses:

USE		A-1	R-7A	R-10A	R-10M	CB	CG	CL	BC	I	G/I	NOTES
231	Any Food and Beverage Establishment Not Listed Above	SE	--	--	--	SE	SE	SE	--	--	--	
Health Services												
232	Animal Hospital or Veterinary Clinic*	--	--	--	--	--	SE	SE	P	--	--	
233	Drug Store/Pharmacy	--	--	--	--	P	P	P	--	--	--	
234	Hospital											
235	Medical Cannabis Dispensary*	--	--	--	--	SE	SE	SE	--	--	--	
236	Medical Cannabis Growing Facility*	P	--	--	--	--	SE	SE	P	P	SE	
237	Medical Cannabis Processing Facility*	--	--	--	--	--	--	--	P	P	--	
238	Medical Services	--	--	--	--	P	P	P	P	--	--	
239	Mobile Medical Facility	--	--	--	--	--	T	--	T	--	T	Also possible Temporary Use in the HC District.
240	Any Health Service Not Listed Above	--	--	--	--	SE	SE	SE	SE	--	--	

The associated supplemental standards are:

19. Medical Cannabis Dispensary

a. A medical cannabis dispensary shall be licensed and operate in accordance with State of Maryland regulations for such use pursuant to COMAR 10.62.01 to 10.62.35.

b. No medical cannabis dispensary shall be permitted within one thousand (1,000) feet (measured from the closest portion of the affected properties) of any of the following uses: Schools, Colleges & Universities, Houses of Worship, Family Day Care, Day Care Group, Day Care Small Group, and Park.

7. Medical Cannabis Growing Facility

   a. A medical cannabis growing facility shall be licensed and operate in accordance with State of Maryland regulations for such use pursuant to COMAR 10.62.01 to 10.62.35.

8. Medical Cannabis Processing Facility

   a. A medical cannabis processing facility shall be licensed and operate in accordance with State of Maryland regulations for such use pursuant to COMAR 10.62.01 to 10.62.35.

In a nutshell, these are simply requiring that the applicant obtain the necessary and appropriate State license, and in the case of the dispensary there is an enhanced separation requirement from certain identified other uses.

It is also worth pointing out that at least in part related to the introduction of medical cannabis uses, we created the use "Agriculture, controlled environment." It is defined as "The practice of agriculture either wholly or partially within a structure in which factors such as temperature, light and humidity can be regulated." This use is then outright permitted in the A-1, BC,and I Zoning Districts and permitted via Special Exception in the CG, CL, and G/I Districts. It is also subject to Supplemental Standards which are:

1. Agriculture, controlled-environment

   a. In addition to common agricultural activities, agriculture, controlled- environment may also include elements of manufacturing, processing, packaging, storage, distribution, etc.

   b. Retail sales of agricultural products grown and/or processed on-site shall be permitted provided they are of a scale that is clearly secondary and incidental to the primary agricultural-based use of the property.

   c. Applicant shall demonstrate and maintain compliance with any State and/or Federal Standards or Rules regulating the particular good or product being grown or processed on-site.

With the legalization of recreational cannabis effective this year, we now need to decide what changes are necessary to address such uses. The uses are the same as those associated with

medical cannabis with the exception that the State Legislation allows for an additional recreational cannabis use; “on-site consumption establishment.”

The most straightforward approach to dealing with the issue of recreational cannabis uses would be to simply delete the word “medical” from our existing list of uses so that we would then have the uses “cannabis dispensary”, “cannabis growing facility”, and “cannabis processing facility.” Pending any adjustments you may want to propose to where/how we permit these uses as well as any revisions to the Supplemental Standards, we would then simply need to address the one new use, “On-site cannabis consumption establishment.” Unlike the three uses that already exist, the State Legislation ***does*** allow local governments to prohibit on-site consumption establishments if they so choose.

In order to arrive at a recommended set of actions, here are the major questions that the Planning/Legal staff believe you need to address:

1. Should we simply drop the word “medical” from our list of cannabis-related uses or is there a reason to distinguish between recreational and medical versions of any of these uses?
2. Should the Table of Permissible Uses be revised in any way to address where these uses are or are not permitted?
3. Should we revise any of the Supplemental Standards associated with the uses? *** - Note, we may need to for one of them regardless of any other actions as the 2023 legislation states that “...a licensed dispensary may not locate within 500 feet of a pre-existing primary or secondary school, or a licensed child care center or registered family day care home, or a playground, recreation center, library or public park, or within 1,000 feet of another dispensary. As you can see above, we have added houses of worship to our list of uses that require the enhanced separation and we require 1,000 feet from each, both of which seem contrary to the Law. There is a provision that states “a political subdivision may adopt an ordinance ***reducing*** the distance requirements…”, but nothing about increasing them, although at the MML-sponsored symposium Miguel, Sharon and I attended, it was suggested that this was perhaps misstated in the law and should have allowed local governments to increase, rather than reduce such distances. Presumably if that is the case, it will be addressed in the next legislative session.
4. Should we allow or prohibit on-site consumption establishments and if so, in what zoning districts and under what conditions (i.e., Permitted or via SE and with or without supplemental standards).

Staff Recommendations:

Staff recommends the following actions related to the issue of cannabis-related uses:

1. Treat all cannabis-related uses the same by simply deleting the word “medical” from our existing list of such uses. Thus our Table or Permissible Uses would be revised to

include the uses “cannabis dispensary”, “cannabis growing facility”, and “cannabis processing facility.”

2. Change “Cannabis Growing Facility” from Permitted (“P”) to Prohibited “(--) in the CG and CL Zoning DIstricts. There are actually limited lands available in the CG and much of it abuts residential neighborhoods. In addition, we have learned that this use can be somewhat of a nuisance in terms of odor, particularly at certain points in the growing cycle.
3. Revise the supplemental standards in the following ways:
    a. Make our separation requirements consistent and compliant with State Law for dispensaries
    b. Add a standard requiring a local contact person to handle complaints for dispensaries.
    c. Add standards for minimum size, setbacks, and odor control measures* for growing facilities. Possibly, require all growing to occur indoors.
    d. Add odor control standards* for processing facilities
4. Add the use “on-site cannabis consumption establishment” to the Table of Permissible Uses, add a definition for it, and depending on whether or not you think this use should be permitted:
    a. Allow as Outright Permitted or Special Exception use in the three commercial zoning districts (CB, CG, and CL) if you want to allow for such use in Easton with supplemental standards; or
    b. Prohibit the use in every zoning district.

*Regarding the odor standards, here are some approaches to this issue that Sharon has found from jurisdictions in California and Oregon:

Local and State Regulations

As cannabis operations continue to proliferate, state and local governments are increasingly promulgating regulations and ordinances that directly regulate cannabis emissions. In addition to these cannabis-specific regulations, governmental entities can also rely on nuisance common law statutes to regulate cannabis emissions.

Most cannabis odor regulations are promulgated at the local level. For example:

LOCAL REGULATIONS - SPECIFIC TO CANNABIS OPERATIONS	
LOCATION	LANGUAGE EXCERPT
Los Angeles, California	"A Business Premises shall be properly ventilated and the exhaust air filtered to neutralize the odor from cannabis so that the odor cannot be detected by a person with a normal sense of smell at the exterior of the Business Premises or on any adjoining property. No operable windows or exhaust vents shall be located on the building façade that abuts a residential use or zone. Exhaust vents on rooftops shall direct exhaust away from residential uses or zones. (Violation Type - Moderate)"[13]
Oakland, California	"Cannabis facilities shall be designed to provide sufficient odor absorbing ventilation and exhaust system so that any odor generated inside the facility is not detected outside the building, on adjacent properties or public rights-of-way, or within any other unit located within the same building as the Cannabis operator, if the use only occupies a portion of a building."[14]
Long Beach, California	"Every Adult-Use Cannabis Business shall implement adequate ventilation system and odor control filtration measures to prevent odors from inside the cannabis facility from being detected outside the cannabis facility."[15]
Pendleton, Oregon	"Unlawful Release of Marijuana Odor. No owner of real property or person in charge thereof shall allow, permit or cause the odor of marijuana to emanate from that premises to any other property."[16]

NOTICE
EASTON PLANNING COMMISSION SPECIAL MEETING
COMPREHENSIVE PLAN BACKGROUND CHAPTERS WORKSHOP

The Easton Planning and Zoning Commission will hold a special meeting on Wednesday, October 11, 2023 at 2:30 p.m. in the Town Council Chambers of the Easton Town Hall, located at 14 South Harrison Street in Easton, MD. This meeting will be conducted as a workshop. As such it will be informal in nature and there is no scheduled opportunity for public comment, although the Commission may allow comments at their discretion.

The purpose of this meeting is to review and discuss Draft versions of the early chapters of the Comprehensive Plan. Specifically, the Commission has received Draft versions of the Introduction, Plan Background, Land Use, and Community Character Chapters of the Plan. Staff would like to receive the Commission's feedback on the overall direction of these early chapters before proceeding to Draft the balance of the initial Draft version of the Plan that will be made available for public review and comment. Staff has also asked for Commission input on some specific big-picture issues, the answers to which will be important in determining the content and direction of the remaining elements of the Plan.

Anyone with questions or desiring further information should contact the Town Planner, Lynn Thomas, at (410) 822-1943 or via email at lthomas@eastonmd.gov.

TOWN OF EASTON

Planning & Zoning Department
14 South Harrison Street
P.O. Box 520

STAFF MEMORANDUM

To: Easton Planning and Zoning Commission
From: Lynn Thomas, Town Planner
Date: October 12, 2023
Subject: Zoning Code Amendments

The Commission will recall that earlier this year, you forwarded a packet of proposed amendments to the Zoning Code to the Town Council for their consideration. The timing of your transmittal was such (i.e., right before the Council election, which then led to a Special Election), that the Council has only just completed their review of the packet and scheduled their Public Hearing on the proposal for November 6, 2023.

As a result of their review over the course of two workshop meetings, the Council has suggested two potential revisions to what you originally sent them. Reference is made to these revisions in the advertisement, which should appear in this Sunday's paper. The ad describes the issues as follows:

In addition, the Town Council solicits the public's input on two potential revisions to the draft amendments that the Planning Commission has forwarded. These are:

- ***Continuing to maintain the more intense Middle Housing types as Special Exception uses in some zoning districts. This would mean Cottage Courts, Townhouses, Mansion Apartments, and Courtyard Buildings would remain SE in the R-10A and R-7A zoning districts, but would be outright permitted in the CB District. Fourplex stacked and triplex stacked would become outright permitted uses in all zoning districts.***
- ***Revising the language concerning the expiration of PUD approvals to allow for an initial approval of three years or a longer period if specifically requested and***

approved by the Town Council pursuant to their legislative approval (rather than the current two years).

The concern with the first issue is that while the Middle housing types towards the less intense end of the spectrum presumably have little impact (certainly, visually at least) beyond that of a single family detached home, the same may not be true at the other end of the spectrum. Townhomes were specifically mentioned as a concern.

The second issue is really little more than a bit more detail or a further elaboration on one of the items that you sent them and is proposed largely in response to issues raised by the prospective developers of the Elliott Road Apartment project, concerning the expiration of PUD approvals. The suggestion is to change the two year expiration to three years and allow for the possibility of the Town Council approving something longer pursuant to their legislative approval of the project.

Lasly, whether you decide to address it now or in a follow-up set of amendments, this week we received an email from Ryan Showalter (see attached) which raises additional issues concerning the difficulty/impossibility of developing townhomes and some of the Middle Housing types in the R-10A Zoning District. This builds on the issue raised by Zach Smith, which you have addressed in the packer of amendments, concerning the treatment of side setbacks in fee-simple Townhomes created through the by-right subdivision process.

At this meeting, Staff would like the Commission's consideration of drafting comments for the Council’s consideration with regards to their suggested revisions to what you sent them, as well as direction as to how to proceed (i.e., attempt to draft now or include in a subsequent set of amendments) with regards to the issues raised by Ryan Showalter.

MDSW MCALLISTER DETAR SHOWALTER & WALKER

Ryan D. Showalter
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(410) 820-0259 Direct

October 9, 2023

Miguel Salinas, Director
Department of Planning & Zoning
Town of Easton
14 S. Harrison Street
Easton, Maryland 21601

Re: R-10A Zoning District Inconsistency

Dear Miguel:

I am writing to highlight conflicting provisions of the R-10A zoning district for your consideration. The R-10A District permits single-family detached, duplex (stacked or side-by-side) and live-work units by right. Additionally, it permits townhouses and other multifamily uses by special exception. The Zoning Code defines the term "Middle Housing Units" and identifies a wide range of housing types that fit within this term, including townhomes.

The R-10A District is intended to "provide land areas suitable for medium density residential use with a variety of housing types." (Zoning Code, § 28-303.1). This intent, however, is restricted by the District's density and lot size limitations. The R-10A District permit a maximum density of 3.5 du/acre for single-family dwellings and 5 du/acre for multi-family dwellings. (§ 28-303.2G). A density increase of up to 15% of the number of dwelling units is available if low- or moderate-income housing is provided. The text regarding this density increase is found in Section 28-303.2(G) immediately following a sentence regarding single-family density and prior to the specification or multi-family and two-family densities. The organization of this paragraph does not clearly address whether the density increase applies to multi-family and two-family dwellings or only single-family dwellings.

More significantly, the R-10A District's minimum lot size is 10,000 sq.ft., except that up to 50% of the lots within an R-10A subdivision may be smaller, provided that 75% of the smaller lots are at least 7,000 sq.ft. (§ 28-303.2(A)(1)). Townhome lots are almost always smaller than 7,000 sq.ft. (typically 20-30' wide and 75-100' deep or 1,500-3,000 sq.ft.). Typical townhome development occurs at densities of 8-14 dwelling units per acre. If, despite special exception approval, townhomes are limited to a maximum density of 5 du/acre and only 12.5% (25% of 50%) of the total units can be smaller than 7,000 sq.ft., then the R-10A District practically permits only single-family development. Absent a project with a large number of dwelling units, this percentage

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permits a quantity of townhomes that is too low to be worth creating and marketing a different home/type.

Due to these restrictions on lot sizes and densities, the R-10A District does not actually provide any flexibility or incentive to develop anything other than by-right single-family homes. I understand that the Planning Commission desires to encourage developers to provide diverse housing types and price points. If doing so was possible without the time, expense and uncertainty of the PUD approval process, the Town may be much more likely to realize this objective. Please consider these points as you review the Zoning Ordinance and the Town's potential inclusionary housing policies and preferences.

Feel free to let me know if you have any questions or wish to discuss this in greater detail.

Sincerely,

Ryan D. Showalter

cc: Lynn B. Thomas
Sharon VanEmburgh