



Easton Staff Development Review MEETING AGENDA

Wednesday, July 26, 2023 - 11:00 AM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Staff Review

- a. Staff review only time: 10:00 AM - 11:00 AM

Easton Staff Development Review (ESDR) meetings are an opportunity for staff to meet with applicants to discuss our preliminary review of their application. At the ESDR meeting, staff also confirm with the applicant the next steps in the review process.

The July 26, 2023 meeting will be livestreamed and recorded.

No public comments will be taken at this meeting, but there will be opportunities for public comment at future Planning Commission and/or Town Council public hearings.

2. Discussion Items

- a. **Application Number:** 2023-13
Location: 29311 Cecil Drive
Tax Map 025, Parcel 0089, Grid 0024, Lot
Applicant: Lane Engineering
Request: Sketch Site Plan review of a proposed building addition for storage space.
- b. **Application Number:** 2022-20
Location: Camac Street
Tax Map 26, Grid 0020, Parcel 0186
Applicant: Aspire Outdoors, LLC
Request: The applicant (Aspire Outdoors, LLC) proposes a six-building apartment complex with an associated community pool and poolhouse.

For Office Use Only

Easton Staff Development Review Meeting Required	Y ☒ N ☐	ESDR: 23-13 / 2023-976
Easton Staff Development Review Meeting Date	07/26/2023	
Completeness Check Date		
Revisions/Resubmissions Required	Y ☐ N ☐	
Resubmission Date		Documents Received Y ☐ N ☐
Staff Determination		
Planning Commission Required Y ☐ N ☐		
BOZA Required Y ☐ N ☐		
Historic District Commission Required Y ☐ N ☐		
Resubmission for ESDR Required Y ☐ N ☐		
Staff Signature		Date
		Revised 02-2019



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

RECEIVED
JUL 05 2023
TOWN OF EASTON

Planning Commission Concept, Use, and Design Application

Site Information			
Structure's Floor Area	2334 SF	Structure's Square Feet	2334
Area of Disturbance	4300 SF	Number of Dwelling Units	—
Property Size	Acres 3.48	Square Feet	151588
Address	29311 Cecil Drive, Easton		
Tax Map	25	Grid	24 Parcel 89 Lot 4
Zoning District	CL	Historic District	Y ☐ N ☒ PRD Y ☐ N ☒
Other Information			
Existing Use	Vacant. Former Golden Corral Restaurant		
Owner			
Name	Austin Medical Supplies		
Mailing Address	10757 York Rd. Cockeysville MD 21030		
Telephone No.	410 241 6009	Email	austinrx82@aol.com
Applicant / Agent			
Name	John Wolk / Tim Glass, Lane Engineering		
Mailing Address	Same		
Telephone No.	Same	Email	Same / tglass@lanc.com
General Information:			
Bldg Addition for storage space, interior fit-out for Medical Supplies Sales + Storage.			

Any modifications during review shall warrant an updated application.

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

Signature of Applicant or Agent

Date

Printed Name of Applicant or Agent


6.13.23
Timothy Glass P.E. Lane Engineering

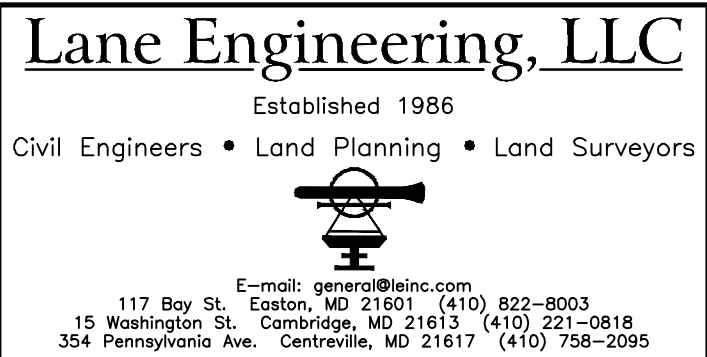
For Office Use Only

Planned Commission Meeting Date	08/17/2023	2023-976
Review Fee Amount		
Review Fee Paid Date		
ESDR Y / N Date		

Revised 02-2019

[illegible]

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.



SEAL

STATE OF MARYLAND
JULY 20 1967
G. S. 23

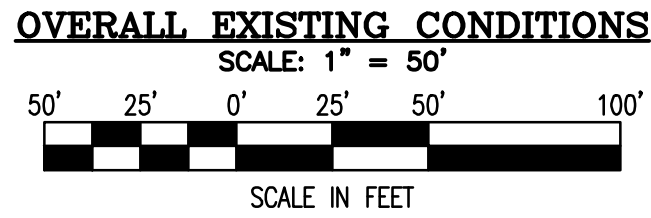
DATE

AUSTIN MEDICAL
SUPPLIES

ISSUED/REVISED FOR:	DATE:	BY:
BUILDING PERMIT SUBMITTAL	05/09/23	TWG
PLANNING COMMISSION REVIEW	06/15/23	TWG

<u>SITE ADDRESS</u> 29311 CECIL DRIVE EASTON, MARYLAND 21601 <u>OWNER/DEVELOPER</u> AUSTIN MEDICAL SUPPLIES C/O JOHN WOLK 10757 YORK ROAD COCKEYSVILLE, MARYLAND 21030 (410) 241-6009 <u>CIVIL ENGINEER</u> LANE ENGINEERING, LLC C/O TIMOTHY W. GLASS, P.E. 117 BAY STREET EASTON, MD 21601 (410) 822-8003 <u>ARCHITECT</u> FISHER ARCHITECTURE C/O LAUREN WHITE 542 RIVERSIDE DRIVE SALISBURY, MARYLAND 21801 (410) 742-0238 <u>MEP ENGINEER</u> ALLEN & SHARIFF C/O TIM CHATTERTON, P.E. 205 EAST MARKET STREET SALISBURY, MARYLAND 21801 (443) 545-1300 <u>CONTRACTOR</u> TO BE DETERMINED	<u>UTILITY CONTACTS</u> 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
<u>PERMITTING AGENCIES</u> TOWN OF EASTON ENGINEERING DEPARTMENT 14 S. HARRISON STREET EASTON, MD 21601 (410) 820-8822	

Page 5 of 24:



SCALE: 1" = 10'

1. STOCKPILE STRIPPED TOPSOIL AT AN OFFSITE LOCATION WITH AN APPROVED SEDIMENT CONTROL PLAN AS REQUIRED.
2. SPOT ELEVATIONS REFER TO EDGE OF PAVEMENT, FLOWLINE OF CURB OR GROUND SURFACE.
3. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING CONSTRUCTION.
4. PROVIDE A SMOOTH GRADING TRANSITION BETWEEN ALL DISTURBED AND EXISTING AREAS.
5. SIDEWALKS SHALL HAVE MAX CROSS SLOPE OF 2.0% AND MAX LONGITUDINAL SLOPE OF 5.0%.
6. LANDING PAD AT DOOR ENTRANCES SHALL HAVE 2.0% MAX SLOPE. SIZE OF LANDING PAD PER PLAN AND CODE REQUIREMENTS.
7. CONTRACTOR SHALL CLEAN ACCUMULATED SEDIMENT FROM ALL DITCHES AND PIPING UPON COMPLETION OF PROJECT.
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.

- 1 TIE TO EXISTING CONCRETE W/ SMOOTH TRANSITION
- 2 INSTALL FULL DEPTH EXPANSION MATERIAL WHERE CONCRETE
- 3 ABUTS RIGID STRUCTURES AND/OR CURBING (TYP)
- 4 STANDARD CURB AND GUTTER, TRANSITION TO FLUSH, MATCH
- 5 EXISTING CURB PROFILE
- 6 DEPRESSED CURB AND GUTTER PER DETAIL
- 7 SAW CUT EXISTING PAVEMENT FOR CONCRETE PAD INSTALLATION
- 8 5' CONCRETE SIDEWALK PER TOWN OF EASTON DETAIL
- 9 T0E-R-7.01 FORMED AS ADA COMPLIANT CURB RAMP
- 10 7' WIDE CONCRETE PAD PER RIGID PAVEMENT DETAIL
- 11 DUMPSTER GATES, REFER TO ARCHITECTURAL PLANS
- 12 4" WIDE WHITE WATER BASED PAVEMENT MARKINGS (TYP)
- 13 CONCRETE WHEEL STOP PER DETAIL (TYP)
- 14 ADA PAVEMENT MARKING SYMBOL PER DETAIL (TYP)
- 15 ACCESS AISLE STRIPING PER DETAIL (TYP)
- 16 WALL MOUNTED ADA PARKING SIGN PER DETAIL
- 17 RIGID PAVEMENT PER DETAIL
- 18 FIRE DEPARTMENT CONNECTION (FDC), COORDINATE W/
19 ARCHITECTURAL PLANS
- 20 KNOX BOX LOCATION, COORDINATE W/ ARCHITECTURAL PLANS
- 21 BROOM FINISH

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 CONTRACTOR SHALL SHOW THE LOCATION OF ALL UTILITIES 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 CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.

MISS UTILITY

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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 21801 (410) 822-8003
15 Washington St. Concord, MD 21038 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 23152, Expiration Date: 7/5/2023.

SEAL

STATE OF MARYLAND
DEPARTMENT OF THE TREASURY
COMPTROLLER OF THE TREASURY
OFFICE OF THE COMPTROLLER OF THE TREASURY
6.15.23

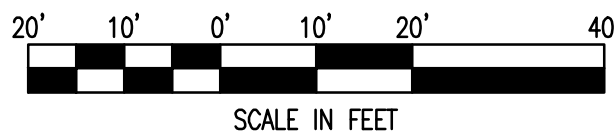
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SUPPLIES

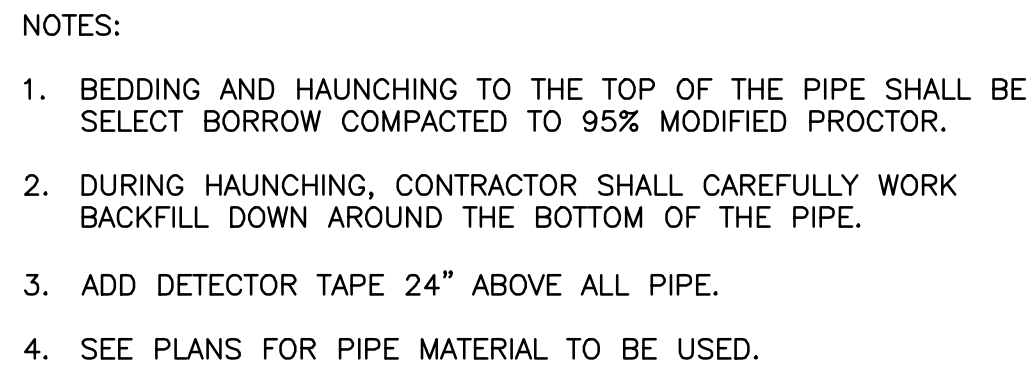
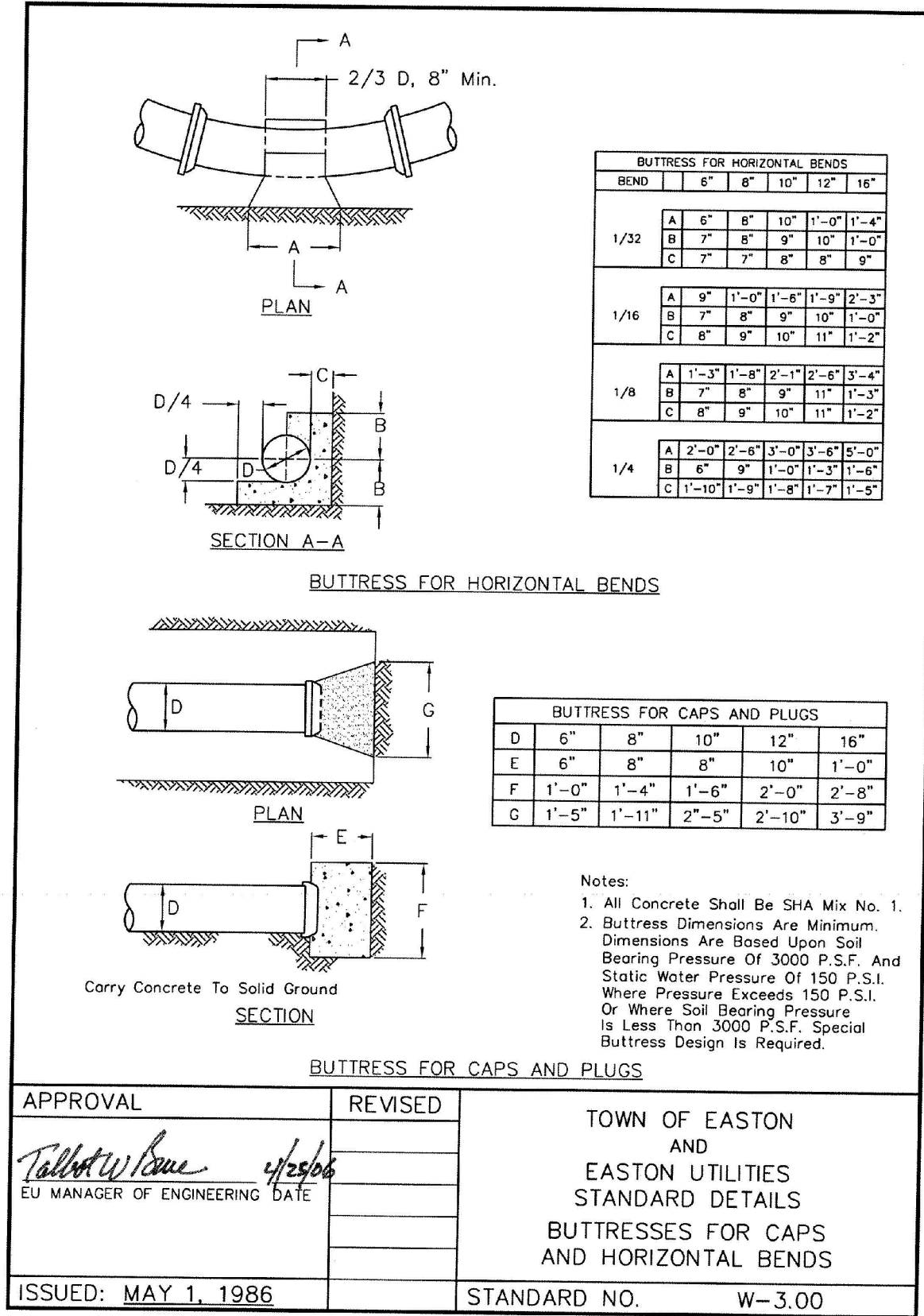
IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 25 GRID 24 PARCEL 89 LOT 4

ISSUED/REVISED FOR:	DATE:	BY:
BUILDING PERMIT SUBMITTAL	05/09/23	TWG
PLANNING COMMISSION REVIEW	06/15/23	TWG

SHEET No. 2 OF 4	
SCALE: AS NOTED	JOB No. 220574
	FILE No. 4412



NAD 83 (2011)
MD COORDINATE SYSTEM

[illegible]

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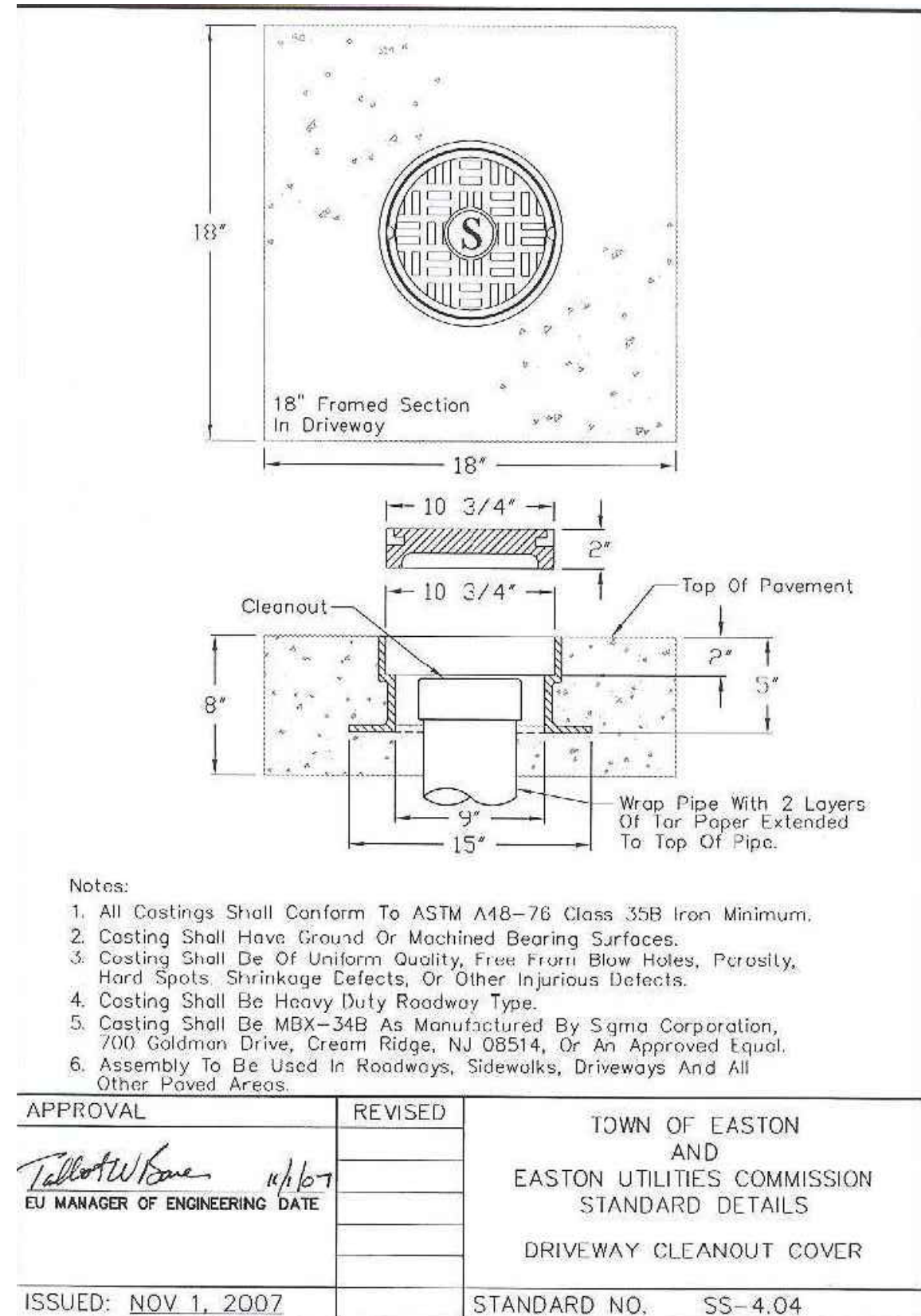
PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 23152, Expiration Date: 7/5/2023.

WATER & SEWER DETAILS

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 25 GRID 24 PARCEL 89 LOT 4

ISSUED/REVISED FOR:	DATE:	BY:
BUILDING PERMIT SUBMITTAL	05/09/23	TWG
PLANNING COMMISSION REVIEW	06/15/23	TWG

© LAKE ENGINEERING, LLC



-

[illegible]

Diagram illustrating the cross-section of a curb and gutter. The diagram shows a curb and gutter structure on the left, sloping down to the right. The slope is indicated as $\text{SLOPE } @ \frac{1}{4}" \text{ PER } 1'-0"$. The width of the gutter is labeled as $4" \text{ MIN.}$. The diagram also shows the **AS SHOWN ON THESE PLANS** and the **APPROVED SUBGRADE** below the gutter. A note points to the gutter area: **SEE ASPHALT PAVEMENT CROSS-SECTION**. A label points to the gutter structure: **CURB AND GUTTER**. A label points to the gutter structure: **PREFORMED EXPANSION JOINT MATERIAL.**

Diagram illustrating a preformed expansion joint in a concrete slab. The joint is shown as a vertical gap in the slab, filled with preformed expansion joint material. The material is labeled "PREFORMED EXPANSION JOINT MATERIAL". The joint is shown in cross-section, with the material filling the gap. The joint is labeled "1/2\".

4" WIDE EDGE STRIPING
(WHITE PAINT TYP ON ASPHALT PAVEMENT & BLUE PAINT TYP ON CONCRETE PAVEMENT)

FRONT OF PARKING SPACE

ADA PARKING SPACE

4" WIDE STRIPING
(WHITE PAINT TYP ON ASPHALT PAVEMENT & BLUE PAINT TYP ON CONCRETE PAVEMENT)

Dimensions shown in the diagram include:

- Overall width: 15'
- Overall height: 4'
- Wheelchair symbol dimensions: 9" (width of seat), 12" (height of seat), 9" (width of base), 6" (height of backrest), 12" (height of backrest), 9" (width of base), 5" (height of footrest), 10" (width of base), 12" (width of base).
- Radius dimensions: R1 (radius of the wheel), R6" (radius of the backrest).

FRONT OF PARKING SPACE

SEE PLAN FOR WIDTH

CONCRETE CURB AND GUTTER DETAIL
NOT TO SCALE

2.0' MINIMUM TO
EDGE OF PAVEMENT

6"

6' LONG PRECAST CONCRETE
WHEEL STOP W/ 2-#4 BARS
CONTINUOUS 5'-9" LONG.

PARKING SURFACE
AS SPECIFIED.

2-#4 BARS THROUGH WHEEL
STOP AND PAVEMENT MINIMUM
18" LONG.

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TWO WORKING DAYS NOTICE

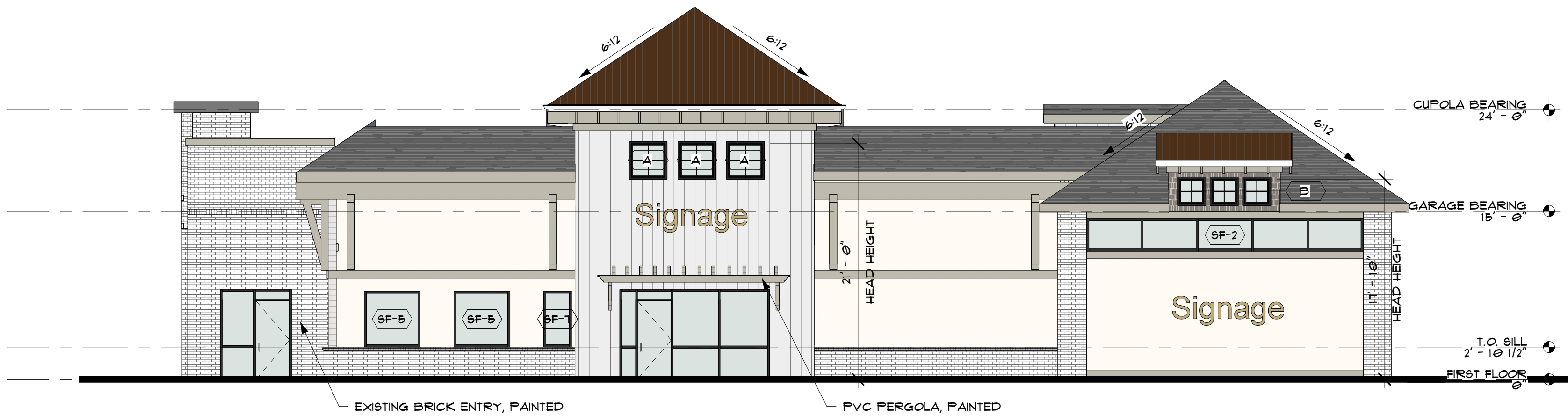
SEAL

STATE OF MASSACHUSETTS
NOTARY PUBLIC
COMMISSION EXPIRES 12/31/2023

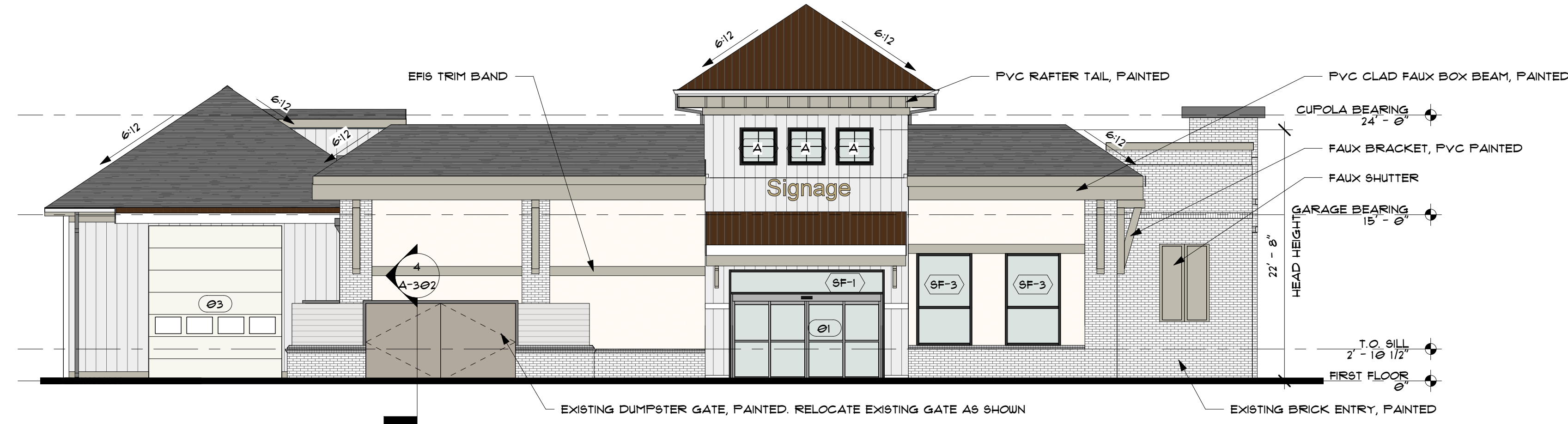
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DATE

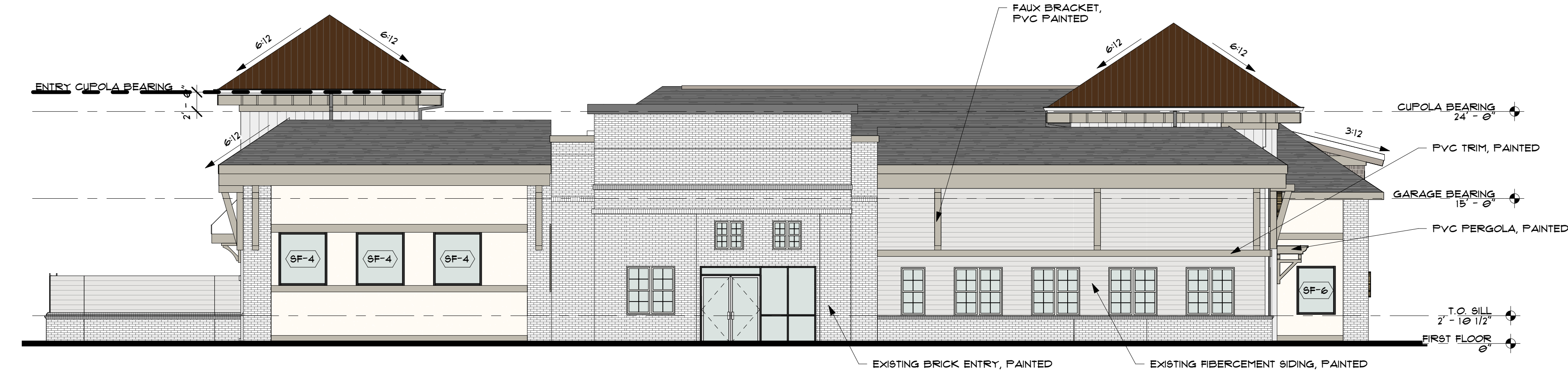
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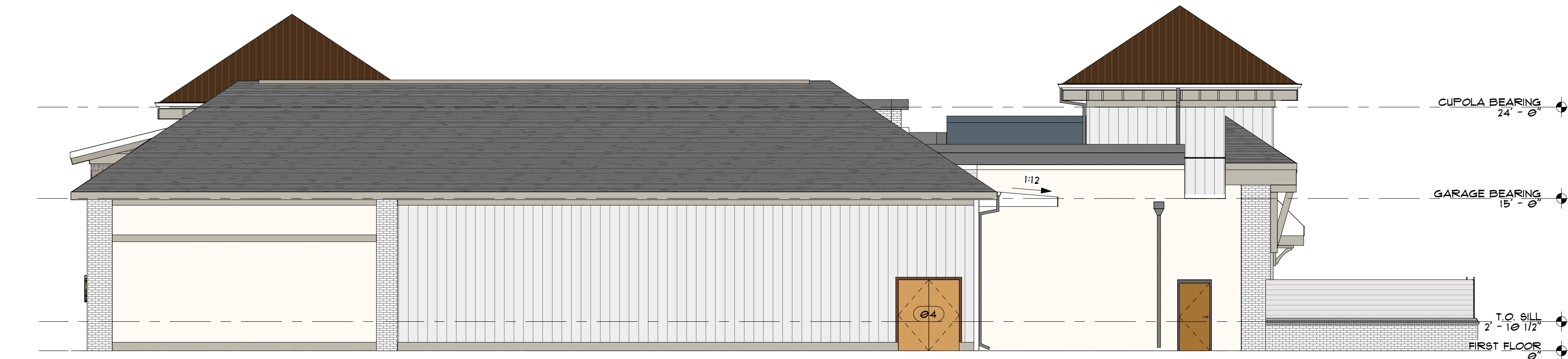
1 ELEVATION EAST
1/8" = 1'-0"



2 ELEVATION WEST
1/8" = 1'-0"



3 ELEVATION SOUTH
1/8" = 1'-0"



4 ELEVATION NORTH
1/8" = 1'-0"

ELEVATION NOTES

1. G.C. TO VERIFY ALL FINAL GRADE ELEVATIONS PRIOR TO EXTERIOR MATERIAL INSTALLATION
2. ALL MATERIALS USED ON THE BUILDING EXTERIOR TO BE SUBMITTED TO ARCHITECT/OWNER; VERIFY NECESSARY WATERPROOFING AND FLASHING FOR SYSTEMS
3. ALL PENETRATIONS IN THE BUILDINGS THERMAL BARRIER TO BE SEALED. ALL WIRES, PIPES, FIXTURES AND FASTENERS TO BE SEALED SO THAT NO GAPS EXIST
4. FILL AND PAINT ALL EXPOSED NAIL AND FASTENERS THAT EXIST IN EXTERIOR TRIM
5. VERIFY ALL FASTENERS IN BUILDING EXTERIOR ARE RATED FOR EXTERIOR EXPOSURE
6. VERIFY ALL METALS ARE COMPLIANT FOR THE USE AND ARE EXPOSED FOR USE WITH ADJACENT MATERIALS
7. CAULK AND SEAL AT INTERSECTION OF ALL DISSIMILAR MATERIALS
8. SEE 'GENERAL NOTES: THERMAL ENVELOPE' ON A-301
9. ROOF SHINGLES TO BE GAF TIMBERLINE HDZ OR SIMILAR
10. METAL ROOF TO BE FAC-CLAD SNAPLOK 24 GAUGE ROOFING OR SIMILAR
11. FIBERCEMENT SIDING TO BE JAMES HARDIE OR SIMILAR. PROVIDE FACTORY FINISHED LAP, SHEET AND BATTENS. ALL FASTENER HOLES TO BE FILLED AND TOUCHED-UP WITH MANUFACTURER'S COLOR MATCHED KIT
12. FAUX SHAKE SIDING TO BE CERTANTEED CEDAR IMPRESSIONS INDIVIDUAL 5" SAWMILL SHINGLES, CEDAR BLEND OR SIMILAR
13. PVC TRIM AND SHEET TO BE AZEK OR SIMILAR. SMOOTH FINISH, CELLULAR PVC
14. COORDINATE DOWNSPOUT LOCATIONS & CONNECTIONS TO STORMWATER PIPING. REFER TO CIVIL DRAWINGS



SEAL:

PROFESSIONAL CERTIFICATION:
I CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM
A PROFESSIONAL ARCHITECT UNDER THE LAWS
OF THE STATE OF MARYLAND.

LICENSE NO.: 0013955
EXPIRATION NO.: 09.23.2024

THE DOCUMENTS PREPARED BY FISHER
ARCHITECTURE, LLC ARE SOLELY FOR
THE PURPOSES OF THE SPECIFIED
PROJECT. THEY ARE NOT INTENDED OR
AUTHORIZED FOR USE ON ANY OTHER
PROJECT. FISHER ARCHITECTURE, LLC
MAKES NO REPRESENTATION AS TO
THEIR SUITABILITY FOR ANY OTHER USE.
ALL DOCUMENTS PREPARED BY FISHER
ARCHITECTURE, LLC ARE INSTRUMENTS
OF PROFESSIONAL SERVICE. IN RESPECT
OF THE PROJECT, THESE DOCUMENTS
ARE, AND SHALL REMAIN, THE PROPERTY
OF FISHER ARCHITECTURE, LLC.

CONSULTANTS:

AUSTIN MEDICAL SUPPLY

29311 CECIL RD
EASTON, MD 21601

SHEET INFO:

ELEVATIONS

REV	DATE	DESCRIPTION
3	2023.05.02	Issued For Permit
2	2023.05.01	CD Set to Ownership
1	2023.03.13	CD Set to Ownership

DATE: 2023.05.02
PROJECT NO: 2022166
SCALE: As indicated
PROJ MGR: L. White
DRAWN BY: Author
SHEET NUMBER:

A-201

ELEVATION MATERIAL SCHEDULE

FAUX SHAKE SIDING - NATURAL WOOD		RED BRICK TO MATCH EXISTING	
LAP FIBERCEMENT SIDING - CHARCOAL		WHITWASHED BRICK	
LAP FIBERCEMENT SIDING - WHITE		EIFS FINISH - BEIGE	
BOARD & BATTEN FIBERCEMENT SIDING - WHITE		EIFS FINISH - TAUPE	
METAL ROOF - LIGHT GRAY		PVC TRIM - TAUPE	
ASPHALT SHINGLE - GRAY		PVC TRIM	



1 FRONT ELEVATION RENDERING

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



2 FRONT PERSPECTIVE RENDERING

NOT TO SCALE

ELEVATIONS

ASPIRE APARTMENTS

MAP 26, GRID 20, PARCEL 186
TALBOT COUNTY
ASPIRE OUTDOORS LLC

RAUCH
Engineering | Survey | Architecture | Environmental
Office: 410.770.9881 | Fax: 410.770.9887
www.raucheng.com
Maryland Office: 106 N. Harrison St. - Easton, MD 21601

PROFESSIONAL
CERTIFICATION:
I CERTIFY THAT THESE
DOCUMENTS WERE
PREPARED BY ME OR
UNDER MY CLOSE PERSONAL
SUPERVISION AND THAT I AM A DULY
LICENSED ARCHITECT UNDER
THE ARCHITECTURE ACT OF THE STATE OF
MARYLAND.
LICENSE NUMBER: 20221
EXPIRATION DATE: 01/16/2024

REVISIONS		DESCRIPTION	
REV. #	DATE		

DATE:	12/07/2022
SCALE:	AS SHOWN
DRAWN BY:	KL, PR
DESIGNED BY:	KL, PR
APPROVED BY:	
SHEET NO.:	

A-201



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

RECEIVED
JUL 03 2023
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	Camac St, Easton, MD 21601				
Tax Map	0026	Grid	0020	Parcel	0186
Deed Reference:	Liber	02644	Folio	00114	
Plat Reference:	Liber		Folio		
Base Zoning District	R10A	Historic District	Y ☐ N ☒		
		Planning Redevelopment	Y ☒ N ☐		

Purpose of Application / Description of Work:

Aspire Outdoors, LLC is looking to develop the property at the South end of Camac Street into 6 apartment buildings with a community pool and pool house. Water and sewer will be extended from the existing mains on Camac St. Stormwater management will be handled via submerged gravel wetlands to the NE and S of the site.

Owner

Name	Aspire Outdoors, LLC	
Mailing Address	29760 Standish St, Easton, MD 21601	
Telephone No.	410-310-6241	Email ddaly@baamboys.com

Applicant / Agent

Name	Same as above	
Mailing Address		
Telephone No.		Email

Surveyor / Engineer

Name	Robert Rauch	License No.	11024	Expiration Date	7/24/2024
Mailing Address	106 N. Harrison St, Easton, MD, 21601				
Telephone No.	410-770-9081	Email	robert@raucheng.com; brian@raucheng.com		

Any modifications during review shall warrant an updated application.

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

Signature of Applicant or Agent

Date 12/07/2022

Printed Name of Applicant or Agent

Robert Rauch

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Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date 07/26/2023

ESDR: 2022-20

Completeness Check Date

Revisions/Resubmissions Required Y ☐ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Required Y ☐ N ☐

BOZA Required Y ☐ N ☐

Historic District Commission Required Y ☐ N ☐

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature

Date

Revised 02-2019

APPENDIX B-1

SKETCH PLAN SUBMITTAL CHECKLIST

NOTE: THIS CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED ON A SITE PLAN. ADDITIONAL INFORMATION MAY BE REQUIRED FOR UNIQUE SITUATIONS.

COMPLETE THE CHECKLIST AND SUBMIT IT WITH THE PLAN. IF AN ITEM IS NOT APPLICABLE, ENTER "N/A".

- | | |
|--|----------|
| 1. Location map, | <u>X</u> |
| 2. Boundary, | <u>X</u> |
| 3. Topography, | <u>X</u> |
| 4. General proposed land uses drawn to scale, and | <u>X</u> |
| 5. The Forest Stand Delineation as detailed in the Town of Easton's Forest Conservation Ordinance. | <u>X</u> |
| 6. The location of any easements, rights-of-way or any other encumbrances which pertain to the property subject to the site plan review. | <u>X</u> |
| 7. Conditions of concern, for example, water courses, wetlands, floodplains, or other environmentally sensitive features. | <u>X</u> |
| 8. Location of refuse collection, exterior lighting, fencing, and all pedestrian walkways and sidewalks. | <u>X</u> |
| 9. General location and description (r.e. intended function, proposed species, etc.) of proposed landscaping. | <u>X</u> |
| 10. Location of parking including layout and landscaping. | <u>X</u> |
| 11. Conceptual building elevations or renderings illustrating the character, scale, and materials of all proposed structures. Such elevations or renderings shall be sealed by a licensed professional as described above. | <u>X</u> |
| 12. 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 | <u>X</u> |

This checklist completed by Brian Fitzgerald Date 12/07/2022

APPENDIX B-2

SKETCH STORMWATER MANAGEMENT PLAN SUBMITTAL CHECKLIST

EFFECTIVE MAY 4, 2010

NOTE: THE FOLLOWING CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED FOR SUPPORT OF A STORMWATER MANAGEMENT CONCEPT PLAN, SITE DEVELOPMENT PLAN, AND/OR FINAL DESIGN PLAN. THE TOWN MAY REQUEST ADDITIONAL INFORMATION AS DEEMED NECESSARY.

COMPLETE THE APPROPRIATE CHECKLIST AND SUBMIT IT WITH THE PLANS, APPLICATION FORM, NARRATIVE OR REPORT, AND FEE. ITEMS IN BOLD ARE REQUIRED FOR CONCEPT AND/OR SITE DEVELOPMENT PHASE REVIEW.

I. Sketch Plan Submittal

A. Site and Resource Map

Natural Resources Identified on Plan, including, but not limited to:

Please use these responses for the following:

(Provided = P; Not Provided = NP; Not Applicable = N/A)

Tidal and Non-Tidal Wetland Boundaries	<u>P</u>	
Wetland Buffers		<u>P</u>
Floodplain Boundaries and Elevations	<u>N/A</u>	
Streams and other Waterways	<u>P</u>	
Stream Buffers	<u>P</u>	
Forest Boundaries		<u>P</u>
Forest Buffers	<u>N/A</u>	
Critical Areas	<u>N/A</u>	
Steep Slopes (>25%)	<u>N/A</u>	
Erodible Soils	<u>N/A</u>	
Areas of High Recharge	<u>N/A</u>	
Springs		<u>N/A</u>
Soil Types and Hydrologic Soil Groups	<u>P</u>	
Bedrock and/or other Geologic Features	<u>N/A</u>	
Vegetative Cover		<u>P</u>
Existing Drainage Areas and Flow Patterns	<u>P</u>	
Existing Stormwater Outfalls	<u>P</u>	
Site and Resource Map field verified by a properly licensed design professional.	<u>P</u>	

Existing contours (1' max intervals) and utilities shown. P

Large tracts of contiguous open spaces, forested areas and
other important resources protected by conservation
easements. N/A

Opportunities for afforestation identified. P

Wetland, stream and forest buffers enhanced and/or

expanded.	<u>N/A</u>
-----------	------------

B. Site Fingerprinting and Development Layout

Locations of proposed impervious areas provided.	<u>P</u>
Proposed contours (1' max intervals) and utilities shown.	<u>P</u>
Preliminary locations of proposed Environmental Site Design (ESD) practices provided.	<u>P</u>
Locations of stormwater outfalls and conveyance provided with offsite storm drains, culverts and grass channels with size and slope.	<u>P</u>
Limit of disturbance and extent of clearing & grading.	<u>P</u>
Site natural resources protected during construction. If site natural resources must be disturbed during construction, please include an explanation in the stormwater narrative.	<u>P</u>
Better Site Design Techniques incorporated, including:	
Sheetflow and overland flow provided wherever possible	<u>P</u>
Building footprint and site layout designed to protect conservation areas	<u>P</u>
Proposed streets, rights of way, and/or sidewalks with modifications to reduce impervious area	<u>P</u>
Landscaped medians and/or cul-de-sacs	<u>P</u>
Stormwater management features in medians or cul-de-sacs	<u>N/A</u>
Private open road section with grass channels and/or biofilters	<u>N/A</u>
Minimize numbers of parking spaces and sizes	<u>N/A</u>
Narrow frontages to reduce road length	<u>N/A</u>
Site graded to encourage runoff from impervious areas to pervious areas or other natural conveyance systems	<u>P</u>

C. Stormwater Narrative

Title Page includes:

Job Name	<u>P</u>
Owner/Developer	<u>P</u>
Design Professional	<u>P</u>
Date Prepared	<u>P</u>
Seal and Signature (properly licensed Design Professional)	<u>P</u>
Project is identified as new development or redevelopment. (Redevelopment projects have $\geq 40\%$ total site imperviousness)	<u>P</u>

Project and streets designed for 2-year and 10-year quantitative management. P

Project is identified as being within the Tanyard Branch Watershed. (Projects within this watershed must manage proposed 10-year storm flows to the existing 2-year storm discharge rate.) N/A

A narrative that supports the concept and describes how the design will achieve:

Natural resource protection and enhancement	<u>P</u>
Maintenance of natural flow patterns	<u>P</u>
Reduction of impervious areas through better site design, alternative surfaces, and non-structural practices	<u>P</u>
Implementation of ESD planning techniques and practices to the Maximum Extent Practicable (MEP)	<u>P</u>
Preliminary ESD sizing calculations provided	<u>P</u>
Integration of erosion and sediment controls (ESC) into the stormwater strategy	<u>P</u>

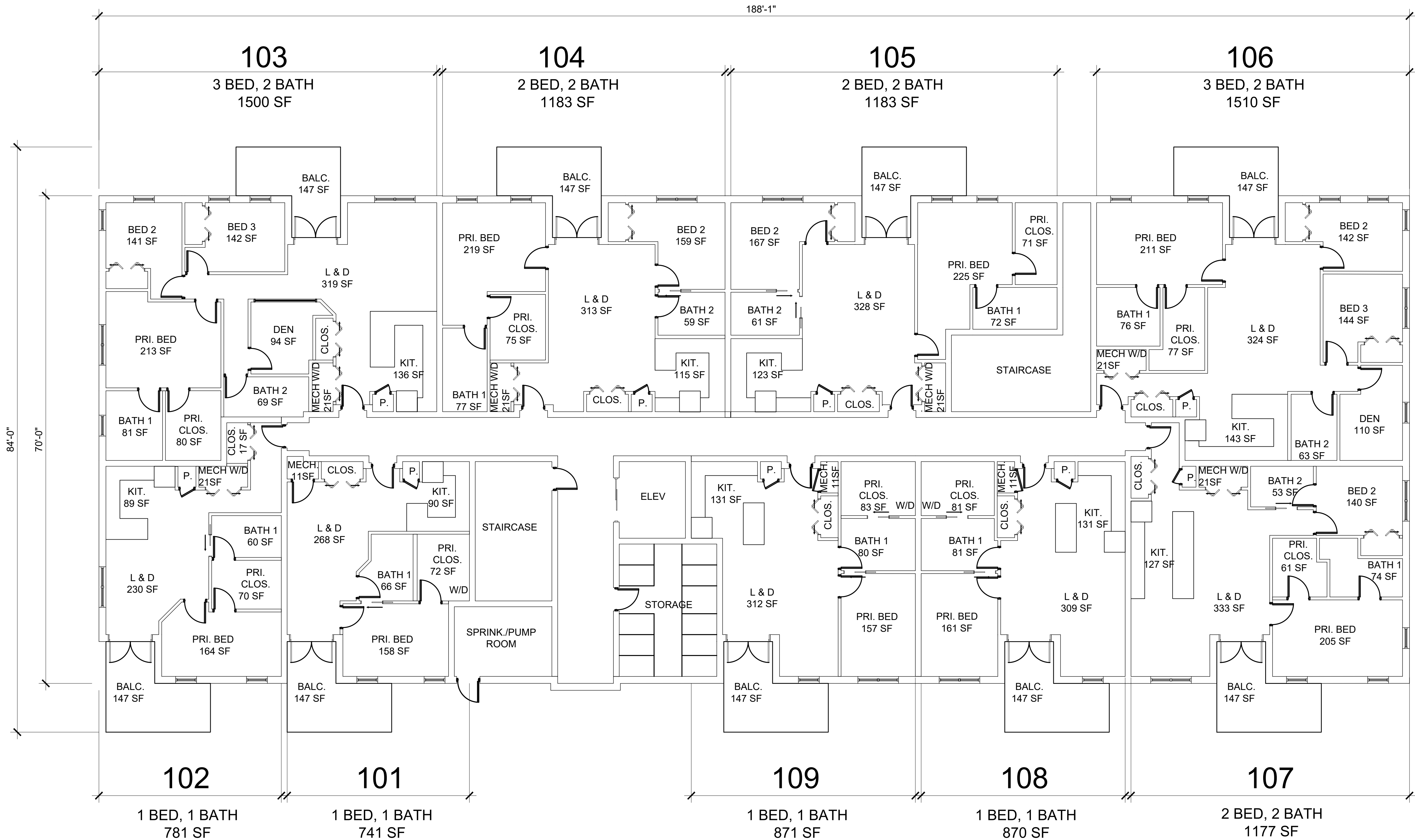
D. Sketch Plan Meeting

Following the Sketch Plan submittal, a meeting will be scheduled between the Town of Easton Planning & Zoning, Town Engineer, the Talbot County Soil Conservation District (SCD) ESC reviewer, the owner/developer, the SWM and ESC designer(s), and any other reviewers deemed necessary by the Town of Easton and/or the Talbot County SCD. Official Minutes from the Sketch Plan Meeting must be submitted for review and acceptance by all parties. These minutes must accompany all future submittals. OK

This checklist completed by Brian Fitzgerald Date 12/07/2022

Forest Conservation Worksheet 2.2 Revised Parcel 186							
Net Tract Area							
A.	Total Tract Area					A =	33.00
B.	Deductions					B =	0.00
C.	Net Tract Area					C =	33.00
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	1	0	0	
D.	Afforestation Threshold (Net Tract Area x 15%)				D =	4.95	
E.	Conservation Threshold (Net Tract Area x 20%)				E =	6.60	
Existing Forest Cover							
F.	Existing Forest Cover within the Net Tract Area					F =	28.61
G.	Area of Forest Above Conservation Threshold					G =	22.01
Break Even Point							
H.	Break Even Point					H =	11.00
I.	Forest Clearing Permitted Without Mitigation					I =	17.61
Proposed Forest Clearing							
J.	Total Area of Forest to be Cleared					J =	7.05
K.	Total Area of Forest to be Retained					K =	21.57
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 =	0.00
R.	Total Planting Requirement					R =	0.00
**PIL Calculation							
					Convert Planting Requirement to: Sq. Ft.		0.00
					If Project is inside a Priority Funding Area:		0.00
					If Project is outside of a Priority Funding Area:		0.00

Forest Conservation Worksheet 2.2										
Net Tract Area										
A.	Total Tract Area							A =	28.78	
B.	Deductions							B =	0.00	
C.	Net Tract Area							C =	28.78	
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	1	0	0				
D.	Afforestation Threshold (Net Tract Area x 15%)							D =	4.32	
E.	Conservation Threshold (Net Tract Area x 20%)							E =	5.76	
Existing Forest Cover										
F.	Existing Forest Cover within the Net Tract Area							F =	28.10	
G.	Area of Forest Above Conservation Threshold							G =	22.34	
Break Even Point										
H.	Break Even Point							H =	10.22	
I.	Forest Clearing Permitted Without Mitigation							I =	17.88	
Proposed Forest Clearing										
J.	Total Area of Forest to be Cleared							J =	8.61	
K.	Total Area of Forest to be Retained							K =	19.49	
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 =	0.00	
R.	Total Planting Requirement							R =	0.00	
**PIL Calculation										
					Convert Planting Requirement to: Sq. Ft.			0.00		
					If Project is inside a Priority Funding Area:			0.00		
					If Project is outside of a Priority Funding Area:			0.00		



1

PROPOSED 1ST FLOOR PLAN

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

PROPOSED FIRST FLOOR PLAN
ASPIRE APARTMENTS



Office: 410.770.9681 | Fax: 410.770.9687
www.raucheng.com
Maryland Office: 106 N. Harrison St. - Easton, MD 21601

PROFESSIONAL
CERTIFICATION:
I CERTIFY THAT THESE
DOCUMENTS WERE
PREPARED OR REVIEWED BY
ME AND THAT I AM A DULY
LICENSED ARCHITECT UNDER
THE ARCHITECTURE ACT OF THE STATE OF
MARYLAND.
LICENSE NUMBER: 20221
EXPIRATION DATE: 01/16/2024

REVISIONS
DESCRIPTION

REV. #	DATE	

DATE: 12/07/2022

SCALE: AS SHOWN

DRAWN BY: KL

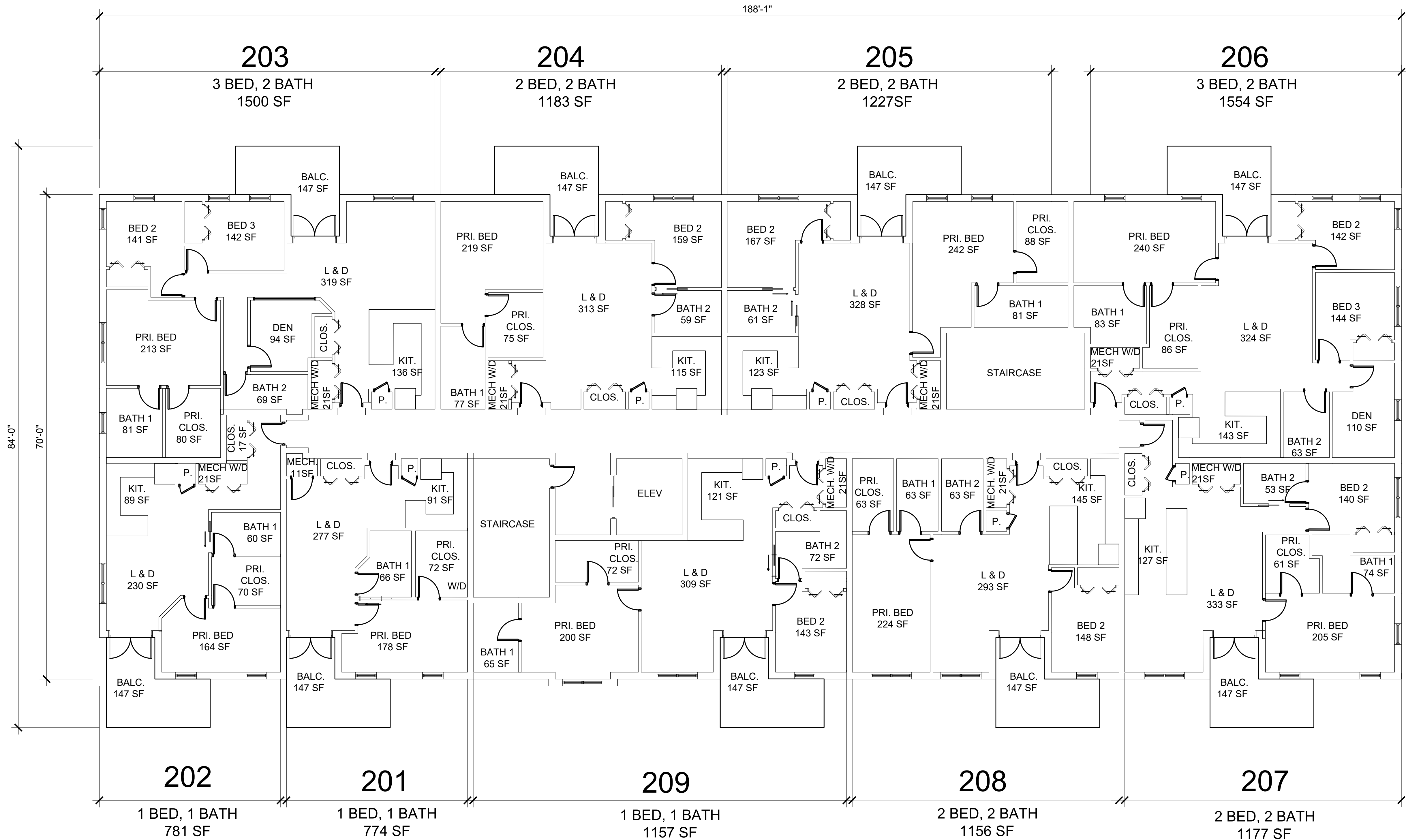
DESIGNED BY: KL, PR

APPROVED BY:

SHEET NO.:

A-101

MAP 26, GRID 20, PARCEL 186
TALBOT COUNTY
ASPIRE OUTDOORS LLC



1 PROPOSED SECOND FLOOR PLAN

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

PROPOSED SECOND FLOOR PLAN
ASPIRE APARTMENTS



MAP 26, GRID 20, PARCEL 186
TALBOT COUNTY
ASPIRE OUTDOORS LLC

PROFESSIONAL
CERTIFICATION
I CERTIFY THAT THESE
DOCUMENTS WERE
PREPARED BY ME OR
UNDER MY CLOSE PERSONAL
SUPERVISION AND THAT I AM A DULY
LICENSED ARCHITECT UNDER
THE LAWS OF THE STATE OF
MARYLAND.
LICENSE NUMBER: 20221
EXPIRATION DATE: 01/19/2024

REVISIONS		DESCRIPTION
REV. #	DATE	

DATE: 12/07/2022

SCALE: AS SHOWN

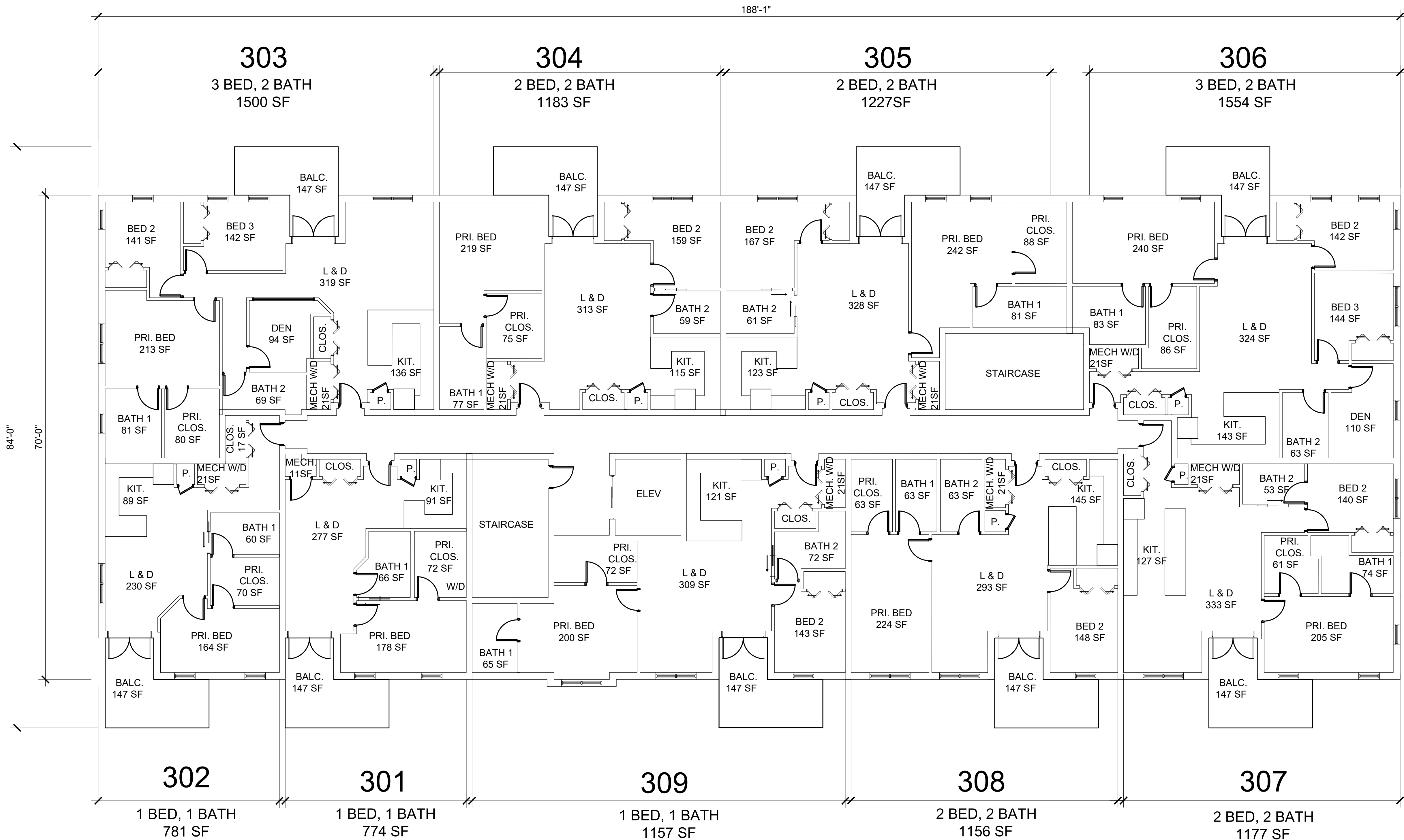
DRAWN BY: KL

DESIGNED BY: KL, PR

APPROVED BY:

SHEET NO.:

A-102



1 PROPOSED THIRD FLOOR PLAN

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

PROPOSED THIRD FLOOR PLAN
ASPIRE APARTMENTS

MAP 26, GRID 20, PARCEL 186
TALBOT COUNTY
ASPIRE OUTDOORS LLC



PROFESSIONAL
CERTIFICATION
I CERTIFY THAT THESE
DOCUMENTS WERE
PREPARED BY ME OR
UNDER MY CLOSE
SUPERVISION AND THAT I AM A DULY
LICENSED ARCHITECT UNDER
THE LAWS OF THE STATE OF
MARYLAND.
LICENSE NUMBER: 20221
EXPIRATION DATE: 01/19/2024

REVISIONS		DESCRIPTION
REV. #	DATE	

DATE: 12/07/2022

SCALE: AS SHOWN

DRAWN BY: KL

DESIGNED BY: KL, PR

APPROVED BY:

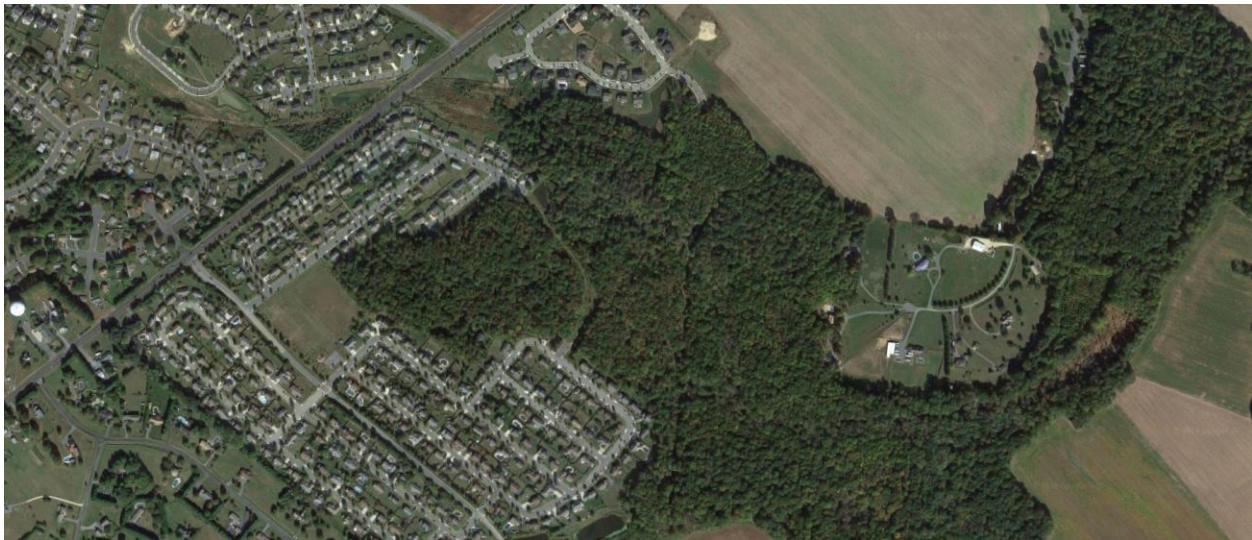
SHEET NO.:

A-103

FOREST STAND DELINEATION AND NATURAL RESOURCES INVENTORY

**Aspire Outdoors LLC
Town of Easton, Talbot County, Maryland**

October 2022



Prepared For:
Aspire Outdoors LLC
29760 Standish Street
Easton, MD 21601

Prepared By:
RAUCH inc.
106 North Harrison Street
Easton, MD 21601

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1.0 INTRODUCTION

This Natural Resource Inventory (NRI), Forest Stand Delineation, and specimen survey of trees 30-inches in diameter and larger has been prepared for Aspire Outdoors, LLC to characterize existing forest cover for an environmental study. This study is intended to assess and aid in preliminary site plan development for the overall project site known as Aspire Outdoors. The overall project site comprises of two separate parcels identified as Parcel 186 and Parcel 112, totaling 65.695 acres. The subject parcels are documented on file as 50.225 acres (Parcel 186) and 15.47 acres (Parcel 112), and are located within the Town of Easton, Talbot County, Maryland. Forest stands were delineated according to guidelines within the *Maryland State Forest Conservation Technical Manual*, Third Edition, 1997, Maryland Department of Natural Resources, hereafter referred to as the State Manual, as well as Talbot County's and the Town of Easton's, Forest Stand Delineation criteria.

The Maryland Forest Conservation Act was passed by the General Assembly in 1991 and subsequently amended in 1993, 1994, and 2009 (*Maryland State Bill 666, Natural Resources, No Net Loss of Forest Policy, Forest Conservation Act*) to conserve the State's forest resources during development. The Act requires identification of existing forest stands, protection of the most desirable forest stands, and establishment of areas where new forests can be planted. The Act and regulations require that any person submitting application for subdivision, grading, or sediment and erosion control permits on units of land 40,000 square feet (0.92 acres) or greater shall submit a forest stand delineation (FSD) and forest conservation plan (FCP). These must be approved by the county or municipal government, a locally adopted forest conservation program, or the Maryland Department of Natural Resources (DNR) where no local program is in effect before other development related approvals are given.

The purpose of the FSD is to provide a tool to be used during the preliminary plan and review process to determine the most suitable and practical areas for forest conservation. Using a combination of resource mapping and field methods of ecology, it inventories and describes existing forests, and locates priority areas for retention, reforestation, or afforestation on the site as required. The FSD becomes the methodology for evaluating the existing natural features and vegetation on a site proposed for development taking into account the environmental elements that shape or influence the structure or makeup of a plant community. An approved FSD is valid for five (5) years in most Maryland Counties and two (2) years in others. To remain valid thereafter, it shall be updated and re-approved every five or two years (Environmental Division Natural Resources Program Manager dependent in this case) unless it becomes part of an approved FCP, and then subsequently acted upon through the land development process.

2.0 GENERAL SITE DESCRIPTION

The Aspire Outdoors LLC property is located within the Mid-Atlantic Coastal Plain (U.S. Department of Agriculture, Natural Resource Conservation Service, MLRA 153C of LRR T). Both parcels are more or less bounded by the Matthewstown Run residential neighborhoods. Parcel 186 is bordered to the North by the Hunter's Mill residential neighborhood. The portions of Matthewstown Run to the southwest of Parcels 112 and 186 pre-date the portions of Matthewstown Run that are located to the northwest.

Historically, the area was characterized by a mix of agricultural and forest fallow, which is evident in the forest stands located on the subject property. Some areas of the property have been left to reforest through ecological succession, while most other areas are upland mixed hardwood stands that have been selectively cut. Evidence of this is shown through logging trails on aerial imagery and presence of three or more tree layers have become established within the canopy.

First order (headwaters) and second order streams are located on the Subject Property and divide the property flowing into the named tributary, Hosewells Branch. Hosewells Branch, confluent to Kings Creek, flows East and ultimately into the Choptank River which is located to the Southeast of the property. Wetlands are contained within the sites boundaries, which have been identified as palustrine forested (PFO). Vernal pools can be found adjacent to the stream towards the southern extent of the property as the water tables rise and, the majority of which reside in forested and stream corridor areas.

The exact project area will be determined by the Limit of Disturbance (LOD), which has been defined in the forest conservation map. Generally, the project area will be focused on upland habitat and areas of previous timber harvesting activities, minimizing impacts to priority forests.

3.0 METHODOLOGY

The current State Manual requires that an FSD be performed to characterize and quantify existing forest resources, identify forest cover in the net tract area, and identify those areas of forest with priorities for retention. In addition to a general vegetation survey and identification of specimen trees (trees of 30-inches in diameter and trees within 75% of a current champion), the Manual requires the use of formal vegetation sampling techniques.

Our study protocol involves the delineation of all existing forest stands within the property boundaries. The forest stands are based on composition, density, size, condition, and age of the stand. The dominant, co-dominant, and associate tree species for each stand are identified and tabulated to indicate their relative frequencies and average tree diameter class and to provide descriptions of each tree stand including the identification of understory and herbaceous species. This information is utilized to isolate stands of higher quality vegetation (i.e. old growth forests, unique forest stands, contiguous forest, etc.) and any individual specimen trees, groves or clusters that should be considered for potential preservation in the planning and development process.

A forest stand or type can be characterized by studying the results of variable plot sampling (a statistical survey method, typically averaging 80-feet across in pole stocked or larger timber). Variable point sampling refers to a method in which sample trees are located with a probability proportional to their basal areas, (i.e. larger trees with larger basal areas have higher probabilities of selection than smaller trees). Basal area is defined as a measurement of the cross-sectional area of a tree trunk at breast height. Basal area of a forest stand is the sum of the basal areas of the individual trees. Furthermore, since basal area is highly correlated with tree volume, variable point sampling is an efficient method for estimating frequency of occurrence, volume, and/or economic value. Using a 10-factor wedge prism for sampling, it can be shown that each tree selected within the variable plot represents 10 square feet of basal area per acre, hence the term 10-factor point sample.

Sample point locations within each vegetation type are randomly selected (minimum of one per every four-acres of homogenous forest type and a minimum of two per stand). At each sample point location, trees that fall within the sample area are tallied and measured. This data is used to estimate the number of trees per acre, per each one-inch diameter class. In addition, the condition of the overstory trees in each vegetation type is evaluated and the understory and ground cover species identified.

Information included in the sample point data includes:

- Percent canopy closure and tree species observed including relative dominance,
- Percent and species of shrubs,
- Percent and species of forest floor covered by herbaceous plants,
- Percent of forest floor covered by downed woody debris,
- The presence or absence of exotic or invasive species.

A study of various aerial photography is also conducted to determine ground forest conditions and to make a preliminary determination of vegetation types occurring on the site. These

vegetation types are then ground-authenticated to verify composition, extent, and ecological importance.

Both within and between the sample plots, specimen trees and trees associated with historic structures are identified and located on the plan. Plan species which are listed as threatened, endangered, or in need of conservation are also identified.

Interpretation of the field data allows us to make judgements as to the forest composition, structure, condition, function, retention potential, and management recommendations for each stand. The FSD map is prepared and includes the natural resources inventory, steep slopes, wetlands, buffer setbacks, and other natural features and constraints required by the Manual or State/County government. The NRI/FSD maps are enclosed at the end of this report. Completed data sheets and a forest stand summary are also included the Appendix.

4.0 RESULTS

This NRI/FSD and tree survey has been prepared for the Aspire Outdoors LLC development to characterize the approximate 65.70-acre Subject Property. This consisted of approximately 56.41-acres of forested area and surrounding specimen trees across the entirety of the woodlands. Forestry fieldwork was performed in 2022 on March 28th, April 1st, & October 28th.

Mesic Mixed Hardwoods

The Mesic Mixed Hardwood stand totals 12.38-acres and is generally the upland stand. These stands are depicted in the map as Stand 1, provided in the attached Forest Stand Delineation Map. The dominant indicator species of these stands is Red Maple. There is an estimated 160.9 trees per acres, having an average diameter of 10.5-inches, and a basal area of 108.3 feet² per acre. This basal area falls within the range of fully stocked stands (100-129 feet² per acre), meaning trees are spaced enough to prevent competition, yet closely enough to utilize the entire site.

Red Maple trees are estimated to be found at 64.4 trees per acre. Red Maple trees have an average diameter of 10-inches, and a frequency of occurrence of 40%. The stand is estimated to be 45 years old, placing the time of the most recent influential perturbation around 1977. This coincides with aerial imagery from 1981 that showed timbering activities occurring in this area (Northern portion) of the site. Co-dominate and Associate species found across the data stations include Northern Red Oak, White Oak, Willow Oak, and Loblolly Pine. The understory was comprised of American Beech, American Holly, Black Cherry, Red Maple. The groundcover species included partridge berry, crowsfoot, and lowbush blueberry. The understory was relatively low and open which is probably due to the significance of American Beech in the understory.

Riparian Hardwood Corridor

The Riparian Hardwood Corridor is 46.03 acres in size and located along the bottomlands including the floodplain along streams and vernal pools found on the property. This forest type can be identified as Stand 2 in the Forest Stand Delineation Map. They are dominated by White Oak species (Willow Oak, Swamp Chestnut, etc.) with co-dominate species including Red Maple. The forest stand is relatively diverse with most of the sampling points having 4-5 tree species over 6" DBH and up to 7 in FSP-13.

The Riparian Hardwood Corridor has an estimated 136.2 trees per acre, with an average diameter of 11.7-inches, and a basal area of 118.8 feet² per acre. Basal areas ranging from 100-129 are described as also being fully stocked. Canopy closure was found to be 70-75%, which correlates with well stocked forests, and further supports the results found by basal area analysis. White Oaks were calculated to occur at 16.4 trees per acre, with an average diameter of 14.4-inches, and frequency of occurrence of 12%. A stand summary of these results is provided in the Appendix. The stand is approximately 72 years old, and is likely the result of an agricultural field that was laid fallow due to poor soils. Due to frequent flooding and proximity to wetlands, most of the specimen trees found on the property were located within this forest stand. A visual of this stand is also provided in the Forest Stand Delineation Map. It should be noted that due to a tornado that went over the property, there is an increase of downed woody debris within the wetland areas that disturbed much of the larger trees.

Specimen Trees

A specimen tree is defined as any tree having a diameter at breast height of 30-inches or greater. A total of 12 specimen trees were identified throughout the Aspire Outdoors LLC property, with diameters ranging up to 44-inches. Species included White Oak, Willow Oak, Swamp Chestnut Oak, Red Maple, and Loblolly Pine. Heights and tree crowns ranged from 35-80 feet and 50-75 feet, respectively. The vast majority of specimen trees were rated to be in "Good" condition.

Rare, Threatened, and Endangered Species

An environmental review request for the 65.70-acre planned development was submitted to the Maryland Department of Natural Resources (DNR), Wildlife and Heritage Service, and a response was obtained from Lori Byrne, Environmental Review Coordinator, dated June 17th, 2022 shown in the Appendix. DNR has determined that the southernmost portion of the project site overlaps with the site known as Swann-Haven Ponds which consists of a series of vernal pools which should be avoided to all extents. Among the animals listed in the review, a state listed endangered species known as the Seth Forest Water Scavenger Beetle (*Hydrochus spangleri*), occurs in this type of habitat. She goes on to encourage the applicant to consider a minimum 100-foot undisturbed buffer (ideally, 300-foot undisturbed buffer) from the wetland edge to this region of the project. If development is planned for the southern area, the Natural Heritage Program would be willing to provide conservation guidelines. Fortunately, it appears that this area will not be impacted.

All woodlands at Aspire Outdoors are proposed to be retained, except for 8.10-acres of highly selective clearing, necessary for road infrastructure and stormwater outfalls are proposed. Any impacts to wetlands/waters, will be permitted through ACOE and MDE. We understand that FWS guidance includes avoidance and minimization of tree clearing, establishing a buffer setback from tree lines as and where possible, and that retained woodlands be protected through some form of easement.

The DNR environmental review also mentioned that some of the forested land at Aspire Outdoors may be considered forest interior dwelling (FID) bird habitat.

The definition of FID habitat is:

- forest at least 50-acres in size with 10 or more acres of “forest interior” habitat, containing forest buffering of 300-feet to the nearest forest edge
- riparian forest with perennial stream, at least 50-acres in size, with a total average width of at least 300-feet

The determination of FID habitat does not consider political boundaries, and may include off-site woodlands that reach into the subject property, where a portion of the subject property contributes to the overall size qualification as being FID habitat. Aspire Outdoors has no control over abutting adjacent land and landowners regarding retention of woodlands considered as being FID habitat, but the applicant has done their due diligence to maintain as much of the contiguous forests as can be avoided.

As previously mentioned, almost all priority woodlands at Aspire Outdoors LLC are proposed to be retained, except necessary improvements to make the project feasible and meet all required comments from local agencies (i.e. Soil Conservation and State Highway Administration). The specific proposed road crossings are essential to gain access to developable land and have gone through the scrutiny of best avoiding and minimizing both forest and wetlands/waters impacts.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Approximately 46.03 acres of the Riparian Hardwood Corridor forests were found in the subject property. This stand contains R4 intermittent and R2 perennial stream channels within the middle of the property. All streams require a 100-foot protection buffer setback from the top of each bank landward. The majority of the specimen trees and wetlands within the scope of the development reside within these setbacks or in the floodplain, which is favorable and will result in minimal impacts to these areas.

The Mature Mixed Hardwood stands consist of approximately 12.38 acres. This stand encompasses most of the proposed development within the scope of the project, which coincides with the upland areas. Using aerial imagery from USGS and sampling data, it appears that this stand was previously timbered in the late 1970s through early 1980s and would be a good candidate for development.

The overwhelming majority of the Riparian Hardwood Corridor stand at Aspire Outdoors LLC includes highly erodible soils, wetlands, streams, and floodplain. This stand should be left as a buffer to any potential habitats that may exist. The Town of Easton states in their regulations that subdivision and site development plans should make all reasonable attempts to preserve specimen trees, smallgroves, hedgerows, or other existing tree stands. It is recommended that impacts to existing forests are minimized to the greatest extent possible. This can be achieved by limiting clearing activities in the interior forest, and in circumstances where impacts cannot be avoided, drafting site designs that place lots along the forest edges.

In conclusion, all the woodlands considered priority retention forest include forest cover within buffer setbacks for wetlands and waters, the majority being located in the riparian hardwood corridors. Forest sampling data shows these areas to be associated with wetlands and waters. Impacts to these areas should be avoided.

Questions or comments regarding this NRI/FSD can be directed to RAUCH inc. at 410-770-9081.

APPENDIX

Aspire Outdoors Forest Stand Summary Analysis

Stand Number or ID	Aerial Extent in Acres	Estimated Trees Per Acre	Average Diameter (d.b.h.)	Basal Area Per Acre ₂	Stand Formation Type	Dominant Indicator Species	Dominant Species Per Acre	Dominant Species Mean d.b.h	Dominant % Frequency of Occurrence	Approximate Age of The Stand ₃
MMH	12.38	160.9	10.5"	Fully Stocked	Mesic Mixed Hardwoods	Red Maple	64.4	10"	40%	45 / 1977
RHC	46.03	136.2	11.7"	Fully Stocked	Riparian Hardwood Corridor	White Oak spp.	16.4	14.4"	12%	72 / 1950

1. A forest association is an assemblage of plants having ecologically similar requirements and include one or more dominant species from which it derives a definite character. The Aspire Outdoors property occurs in the major forest group, the Mesic Mixed Hardwood Forest (Mid-Atlantic). This forest is typically found on well-drained soils with sloping gradients. It is characteristically a mixed forest dominated by Northern Red Oaks, White Oak, Red Maple, and Tulip Poplar in various proportions. Overstory associates include Oak spp. (Red & White), Red Maple, and Loblolly Pine, with a mix of American Beech and American Holly being particularly characteristic and abundant throughout the understory. This forest type occurs throughout Maryland and east of the fall line; located on the Lower Atlantic Coastal Plain Province, *Vegetation Map of Maryland, The Existing Natural Forests, 1976, G.S. Brush, C. Lenk, S. Smith*. The Aspire Outdoors Property is located within this formation type and will express Mixed Oak hardwood community through ecological time.

2. Basal area is a measurement of the cross-section of a tree in square feet at breast height. Basal area (BA) of a forest stand is the sum of the basal areas of the individual trees and is reported as BA per acre. The BA value shown in this Forest Analysis equates to a stocking which is a general description of the density of the forest stand as compared to the desirable density for best growth and management. Stands may be described as understocked; a stand of trees so widely spaced that, even with full growth potential realized, crown closure will not occur, well stocked; the situation in which a forest stand contains trees spaced widely enough to prevent competition, yet closely enough to utilize the entire site, and overstocked; the trees are so closely spaced that they are competing for resources, resulting in less than full growth potential for individual trees. Basal area per acre values are analyzed as non-stocked = 0 to 9, poorly stocked = 10 to 59, moderately stocked = 60 to 99, fully stocked = 100 to 129, and overstocked = 130 to 160. *Forestry Handbook, K.F. Wenger, 1984, pg. 318-321*. There is a correlation between stand density and canopy closure, typically recognized as understocked, under 40% crown closure, well stocked, 40-70% crown closure, overstocked, over 70% crown closure. *Essentials of Forestry Practice, C.H. Stoddard, 1968, page 53*.

3. Age dating methodology – *Valuation of Landscape Trees, Shrubs and other Plants. A Guide to the Methods and Procedures for Appraising Amenity Plants, International Society of Arboriculture, Seventh Edition, 1988, pages 33, 34*, increment boring or cutting and counting of growth rings. Stand age of the dominant overstory represents the time since the last, most influencing perturbation, such as release from agriculture, highgrading (selective harvest) etc.

Project Name: **Aspire Outdoors LLC**
 Stand #: Mesic Mixed Hardwoods
 Number of Point Samples: 6
 Field Crew: Kowalczyk, O'Neal
 Date: 10.31.22

Point Sample Inventory Calculation Data Sheet, ESA, Inc.
 Elementary Timber Measurements, H.V. Wiant
 WVU Division of Forestry, 1990, pgs. 74-81

DBH	FACTOR	BAF TOTALS	TREES PER AC	DOM SP BAF TOTALS	DOM SP T/A	TREES/AC *MDBH	DOM SP T/A*MDBH
1	1833.52	0	0.0	0	0.0	0	0
2	458.38	0	0.0	0	0.0	0	0
3	203.72	0	0.0	0	0.0	0	0
4	114.6	0	0.0	0	0.0	0	0
5	73.34	1	12.2	0	0.0	61.11666667	0
6	50.93	1	8.5	1	8.5	50.93	50.93
7	37.42	4	24.9	2	12.5	174.6266667	87.31333333
8	28.65	2	9.6	2	9.6	76.4	76.4
9	22.64	4	15.1	0	0.0	135.84	0
10	18.34	4	12.2	2	6.1	122.2666667	61.13333333
11	15.15	4	10.1	1	2.5	111.1	27.775
12	12.74	12	25.5	7	14.9	305.76	178.36
13	10.85	8	14.5	2	3.6	188.0666667	47.01666667
14	9.35	0	0.0	0	0.0	0	0
15	8.15	9	12.2	0	0.0	183.375	0
16	7.16	6	7.2	4	4.8	114.56	76.37333333
17	6.34	5	5.3	1	1.1	89.81666667	17.96333333
18	5.66	1	0.9	1	0.9	16.98	16.98
19	5.08	1	0.8	0	0.0	16.08666667	0
20	4.58	1	0.8	0	0.0	15.26666667	0
21	4.16	0	0.0	0	0.0	0	0
22	3.79	0	0.0	0	0.0	0	0
23	3.47	1	0.6	0	0.0	13.30166667	0
24	3.18	1	0.5	0	0.0	12.72	0
25	2.93	0	0.0	0	0.0	0	0
26	2.71	0	0.0	0	0.0	0	0
27	2.52	0	0.0	0	0.0	0	0
28	2.34	0	0.0	0	0.0	0	0
29	2.18	0	0.0	0	0.0	0	0
30	2.04	0	0.0	0	0.0	0	0
31	1.91	0	0.0	0	0.0	0	0
32	1.79	0	0.0	0	0.0	0	0
33	1.68	0	0.0	0	0.0	0	0
34	1.586	0	0.0	0	0.0	0	0
35	1.496	0	0.0	0	0.0	0	0
36	1.414	0	0.0	0	0.0	0	0
37	1.339	0	0.0	0	0.0	0	0
38	1.269	0	0.0	0	0.0	0	0
39	1.205	0	0.0	0	0.0	0	0
40	1.145	0	0.0	0	0.0	0	0
		65	160.9	23	64.4	1688.213333	640.245
ESTIMATED TREES PER ACRE:			160.9				
AVERAGE MEAN DIAMETER:			10.5				
BASAL AREA PER ACRE:			108.3				
DOMINANT SPECIES:			Red Maple				
DOM SPEC TREES PER ACRE:			64.4				
DOM SPEC AVG MEAN DIAMETER:			9.9				
% FREQUENCY OF OCCURENCE:			40.0				

Project Name: **Aspire Outdoors LLC**
 Stand # : Riparian Hardwood Corridor
 Number of Point Samples: 8
 Field Crew: Kowalczyk, O'Neal
 Date: 10.31.22

Point Sample Inventory Calculation Dat
 Elementary Timber Measurement:
 WVU Division of Forestry, 1990,

DBH	FACTOR	BAF TOTALS	TREES PER AC	DOM SP BAF TOTALS	DOM SP T/A
1	1833.52	0	0.0	0	0.0
2	458.38	0	0.0	0	0.0
3	203.72	0	0.0	0	0.0
4	114.6	0	0.0	0	0.0
5	73.34	0	0.0	0	0.0
6	50.93	0	0.0	0	0.0
7	37.42	6	28.1	0	0.0
8	28.65	4	14.3	1	3.6
9	22.64	6	17.0	0	0.0
10	18.34	3	6.9	0	0.0
11	15.15	5	9.5	0	0.0
12	12.74	10	15.9	2	3.2
13	10.85	7	9.5	1	1.4
14	9.35	2	2.3	0	0.0
15	8.15	7	7.1	2	2.0
16	7.16	9	8.1	2	1.8
17	6.34	4	3.2	2	1.6
18	5.66	3	2.1	1	0.7
19	5.08	5	3.2	0	0.0
20	4.58	2	1.1	0	0.0
21	4.16	3	1.6	1	0.5
22	3.79	3	1.4	1	0.5
23	3.47	1	0.4	1	0.4
24	3.18	2	0.8	0	0.0
25	2.93	2	0.7	1	0.4
26	2.71	2	0.7	0	0.0
27	2.52	3	0.9	0	0.0
28	2.34	2	0.6	0	0.0
29	2.18	0	0.0	0	0.0
30	2.04	0	0.0	0	0.0
31	1.91	0	0.0	0	0.0
32	1.79	0	0.0	0	0.0
33	1.68	2	0.4	1	0.2
34	1.586	0	0.0	0	0.0
35	1.496	0	0.0	0	0.0
36	1.414	0	0.0	0	0.0
37	1.339	1	0.2	0	0.0
38	1.269	0	0.0	0	0.0
39	1.205	1	0.2	1	0.2
40	1.145	0	0.0	0	0.0
		95	136.2	17	16.4

ESTIMATED TREES PER ACRE: 136.2
 AVERAGE MEAN DIAMETER: 11.7
 BASAL AREA PER ACRE: 118.8

DOMINANT SPECIES: White Oaks
 DOM SPEC TREES PER ACRE: 16.4
 DOM SPEC AVG MEAN DIAMETER: 14.4
 % FREQUENCY OF OCCURENCE: 12.0

June 17, 2022

Mr. Kyle A. Kowalczyk
Rauch Engineering, Inc.
106 N. Harrison Street
Easton, MD 21601

**RE: Environmental Review for Aspire Outdoors, LLC - Proposed Mixed-Use Facility on Tax Map 35
Parcels 112 & 186 Town of Easton, Talbot County, Maryland.**

Dear Mr. Kowalczyk:

The Wildlife and Heritage Service has determined that the southernmost part of the project site overlaps with the site known as Swann-Haven Ponds. Swann-Haven Ponds is a natural area encompassing vernal pools in a forested habitat. Fairy shrimp, marbled salamander larvae, and wood frog tadpoles are among the animals that inhabit the pool. The globally rare Seth Forest Water Scavenger Beetle (*Hydrochus spangleri*) – state-listed as endangered - is also found here. The vernal pools are surrounded by a mature mesic forest with red maple, sweetgum, white oak, willow oak, and tulip poplar.

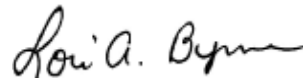
Vernal pools are defined as small, nontidal palustrine forested wetlands with a well-defined, discrete basin and the lack of a permanent, above ground outlet. The basin overlies a clay hardpan or some other impermeable soil or rock layer that impedes drainage. As the water table rises in fall and winter, the basin fills, forming a shallow pool. By spring, the pool typically reaches maximum depth following snowmelt and the onset of spring rains. By mid-late summer, the pool usually dries up completely, although some surface water may persist in relatively deep basins, especially in years with above average precipitation. This periodic, seasonal drying prevents fish populations from becoming established, an important biotic feature of vernal pools.

We would encourage the applicant to consider a minimum 100-foot undisturbed buffer (ideally, 300-foot undisturbed buffer) from the wetland edge, in order to avoid detrimental impacts to the rare species that may occur there.

Also, our remote analysis suggests that the forested area on this property contains Forest Interior Dwelling Bird habitat. Populations of many bird species which depend on this type of forested habitat are declining in Maryland and throughout the eastern United States. Interested landowners can contact us for further voluntary guidelines to help conserve this important habitat.

Please be sure to let us know if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation. Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at lori.byrne@maryland.gov or at (410) 260-8573.

Sincerely,

A handwritten signature in black ink, appearing to read "Lori A. Byrne". The signature is fluid and cursive, with the first name "Lori" being more prominent.

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2022.0550.ta
Cc: D. Limpert, DNR



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

<http://www.fws.gov/chesapeakebay/>

<http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html>



In Reply Refer To:
Project Code: 2022-0026583
Project Name: Aspire Outdoors LLC

March 31, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

Project Summary

Project Code: 2022-0026583

Event Code: None

Project Name: Aspire Outdoors LLC

Project Type: Mixed-Use Construction

Project Description: Proposed mixed-use development on two adjacent parcels totalling approximately 63 AC of woodlands. The developer would like provide housing and recreational activities to underprivileged communities located in Talbot County within the Town limits of Easton, MD. Project is anticipated to begin Spring 2024.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.783641599999996,-76.0408974369104,14z>



Counties: Talbot County, Maryland

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: https://www.fws.gov/savethemonarch/FAQ-Section7.html). Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED.
PLEASE VISIT [HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML](https://www.fws.gov/wetlands/data/mapper.html) OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

Agency: Rauch Inc.

Name: Tyler O'Neal

Address: 106 N. Harrison St.

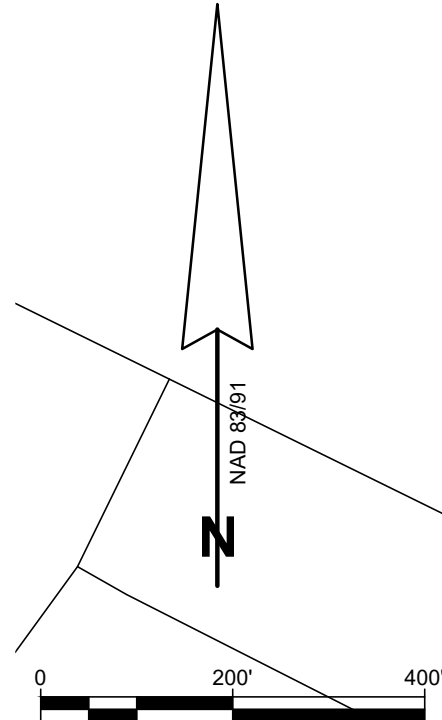
City: Easton

State: MD

Zip: 21601

Email: tyler@raucheng.com

Phone: 3022334501



SITE ANALYSIS		
Feature	Yes	No
Forest On-Site	X	
Contiguous Forest	X	
Priority Forest	X	
Wetlands	X	
Streams	X	
Floodplains	X	
Hydric Soils	X	
Slopes > 15%		X
Historical or Cultural Features		X
Trees >30' DBH	X	
State Champion Trees		X
Easement or ROW Restrictions	X	
Existing Structures		X
Rare, Threatened or Endangered Flora		X
Rare, Threatened or Endangered Fauna	X	
Forest Interior Dwelling Species	X	

LEGEND

- PROPERTY LINE
- EXISTING TREELINE
- EXISTING SOIL TYPE LINE
- EXISTING NON-TIDAL WETLANDS
- EXISTING WETLANDS BUFFER
- EXISTING STREAM
- EXISTING STREAM BUFFER
- DENOTES SPECIMEN TREE
- FOREST STAND 1
- FOREST STAND 2 (PRIORITY)
- DENOTES FOREST SAMPLING POINT

SOILS TYPE

CoA - CORSICA MUCKY LOAM, 0 TO 2 PERCENT SLOPES
FgcA - FALLSINGTON LOAMS, 0 TO 2 PERCENT SLOPES
MtcB - MATTAPEX SILT LOAM, 2 TO 5 PERCENT SLOPES
NsB - NASSAWANGO SILT LOAM, 2 TO 5 PERCENT SLOPES
OtA - OTHELLO SILT LOAMS, 0 TO 2 PERCENT SLOPES
WdcA - WOODSTOWN SANDY LOAM, 0 TO 2 PERCENT SLOPES
WdcB - WOODSTOWN SANDY LOAM, 2 TO 5 PERCENT SLOPES
Zk - ZEKIAH SILT LOAM, FREQUENTLY FLOODED

B/D
C/D
C
C
C/D
C
C/D

AREA CALCULATIONS

TOTAL ACREAGE	38.70 AC.
TOTAL EXISTING FOREST	33.35 AC.
FOREST STAND 1	6.60 AC.
FOREST STAND 2 (PRIORITY)	26.75 AC.

SPECIMEN TREES

NO.	SPECIES	DBH (")	CONDITION	DISPOSITION
1	White Oak	38.8	FAIR	SAVE
2	White Oak	33.8	GOOD	SAVE
3	White Oak	38.2	GOOD	SAVE
4	White Oak	44	POOR	SAVE
5	White Oak	36.5	GOOD	SAVE
6	White Oak	30.3	GOOD	SAVE
7	White Oak	36	GOOD	SAVE
8	White Oak	30.1	FAIR	SAVE
9	Willow Oak	32	GOOD	SAVE
10	Swamp Chestnut Oak	33.2	GOOD	SAVE
11	Red Maple	36.9	GOOD	SAVE
12	Loblolly Pine	32.9	GOOD	SAVE

NOTE: CHRIS PAJAK OF MDE'S NON-TIDAL WETLAND DIVISION PREVIOUSLY CONFIRMED WETLAND DELINEATION ON 5/5/2021. ADJACENT PROPERTY LINES, SOIL MAPPING, AND EXISTING TREE LINE ARE ALL TAKEN FROM PUBLIC SOURCES.

FOREST STAND 2 SHOULD BE RETAINED AS BEST CAN BEING PRIORITY FOREST WITH SENSITIVE ENVIRONMENTAL FEATURES. ANY DISTURBANCES TO NON-TIDAL WETLANDS OR ASSOCIATED BUFFERS WILL REQUIRE ADDITIONAL PERMITTING THROUGH MDE.

REVISIONS

REV. #	DATE	DESCRIPTION	

DATE: OCTOBER 2022

JOB NUMBER: 030320

SCALE: 1" = 200'

DRAWN BY: TPO

DESIGNED BY: RAUCH INC.

APPROVED BY:

FOLDER REF:

SHEET NO.:

3 OF 4

FILE NO.:



NOTES:

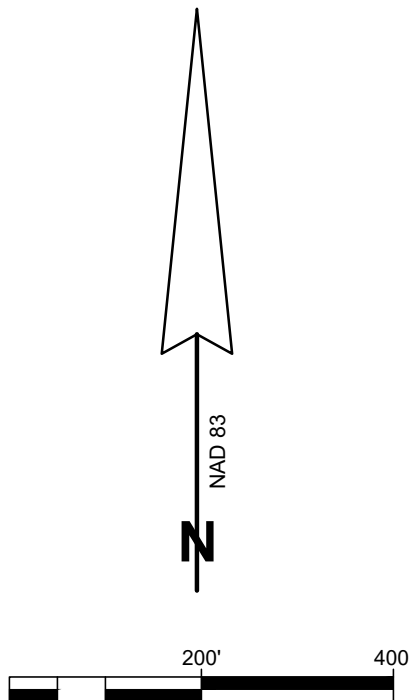
- 1 EXISTING PROPERTY LINE
- 2 PROPOSED PROPERTY LINE
- 3 PROPOSED NEIGHBORHOOD CONNECTIVITY ROAD

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- WETLAND BOUNDARY
- 25' WETLAND BUFFER
- PERENNIAL STREAM
- 100' PERENNIAL STREAM BUFFER
- SETBACK (SEE NOTES)

DENSITY CALCULATIONS:

6 BUILDINGS W/ 27 UNITS EACH = 162 TOTAL DWELLING UNITS
ZONE R10A MAXIMUM DENSITY = 5 DWELLING UNITS PER ACRE
162 UNITS / 5 UNITS PER ACRE = **32.4 ACRES**



PROPERTY LOCATION MAP

OF THE LANDS OF
ASPIRE APARTMENTS
TAX MAP: 0026, GRID: 0020, PARCEL: 0166
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



Engineering | Survey | Architecture | Environmental

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

REVISIONS

REV. #	DATE	DESCRIPTION
1	6/22/2023	REVISED TO CONNECT TO GANNON ESTATES



DATE:	6/22/2023
SCALE:	1" = 200'
DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

SHEET NO.:
C-101

FOR
REVIEW



EXISTING FEATURES

- 1 EXISTING FOREST
- 2 EXISTING WATER METER PIT
- 3 EXISTING CONCRETE CURB & GUTTER
- 4 CENTERLINE OF ROAD
- 5 EXISTING FIRE HYDRANT TO REMAIN

DEMOLITION

- 1 CLEAR & GRUB EXISTING TREES
AREA: 318,072 SF
- 2 REMOVE EXISTING METER PIT. CONTACT EUC REGARDING
DISPOSAL OF EXISTING METER (IF PRESENT)

NOTES:

- GRUBBING
 - EXCAVATION AREAS
 - REMOVE ALL EMBEDDEDD STUMPS AND ROOTS TO A DEPTH OF AT LEAST 3 FT BELOW THE SUBGRADE OR SLOPE SURFACE. REFILL ALL DEPRESSIONS MADE BELOW THE SUBGRADE OR SLOPE SURFACES WITH MATERIALS SUITABLE FOR EMBANKMENT AND COMPACT.
 - LOW EMBANKMENTS
 - GRUB AREAS WHERE THE TOTAL DEPTH OF THE EMBANKMENT IS LESS THAN 3 FT.
 - HIGH EMBANKMENTS
 - IN AREAS WHERE THE EMBANKMENT IS 3 FT OR MORE IN DEPTH, CUT OFF TREES AND STUMPS AS CLOSE TO THE GROUND AS PRACTICAL BUT NOT GREATER THAN 1 FT ABOVE THE GROUND SURFACE. NEAR THE TOE OF THE EMBANKMENT SLOPES, REMOVE TREES AND STUMPS THAT ARE WITHIN 1 FT OF THE SLOPE SURFACE.
- DISPOSAL
 - BURNING
 - BURN ONLY UNDER THE CONSTANT CARE OF A WATCH PERSON AND ACCORDING TO THE APPLICABLE LAWS AND ORDINANCES OF RESPECTIVE JURISDICTIONS.
 - DISPOSAL LOCATIONS
 - REMOVE FROM THE JOB SITE AND DISPOSE OF ALL UNBURNED MATERIAL AND DEBRIS. MAKE ALL NECESSARY ARRANGEMENTS TO OBTAIN SUITABLE DISPOSAL LOCATIONS. FURNISH THE ENGINEER WITH A COPY RESULTING AGREEMENTS.
 - WOOD DISPOSAL
 - IF DISPOSAL OF WOOD TO THE PUBLIC IS PROPOSED, SUBMIT THE DISPOSAL PLAN TO THE TOWN ENGINEER FOR REVIEW, AND OBTAIN APPROVAL PRIOR TO BEGINNING THE CLEARING AND GRUBBING OPERATION. PERFORM THIS METHOD OF DISPOSAL FROM A LOCATION THAT IS OFF THE JOB SITE.
 - ASH TREE QUARANTINE
 - WOOD OF ASH TREES OF THE GENUS FRAXINUS IS QUARANTINED, AND MAY NOT BE MOVED OUTSIDE THE STATE OF MARYLAND.

EXISTING & DEMOLITION PLAN

OF THE LANDS OF
ASPIRE APARTMENTS
TAX MAP - 0026, GRID: 0020, PARCEL - 0166
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
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REVISIONS

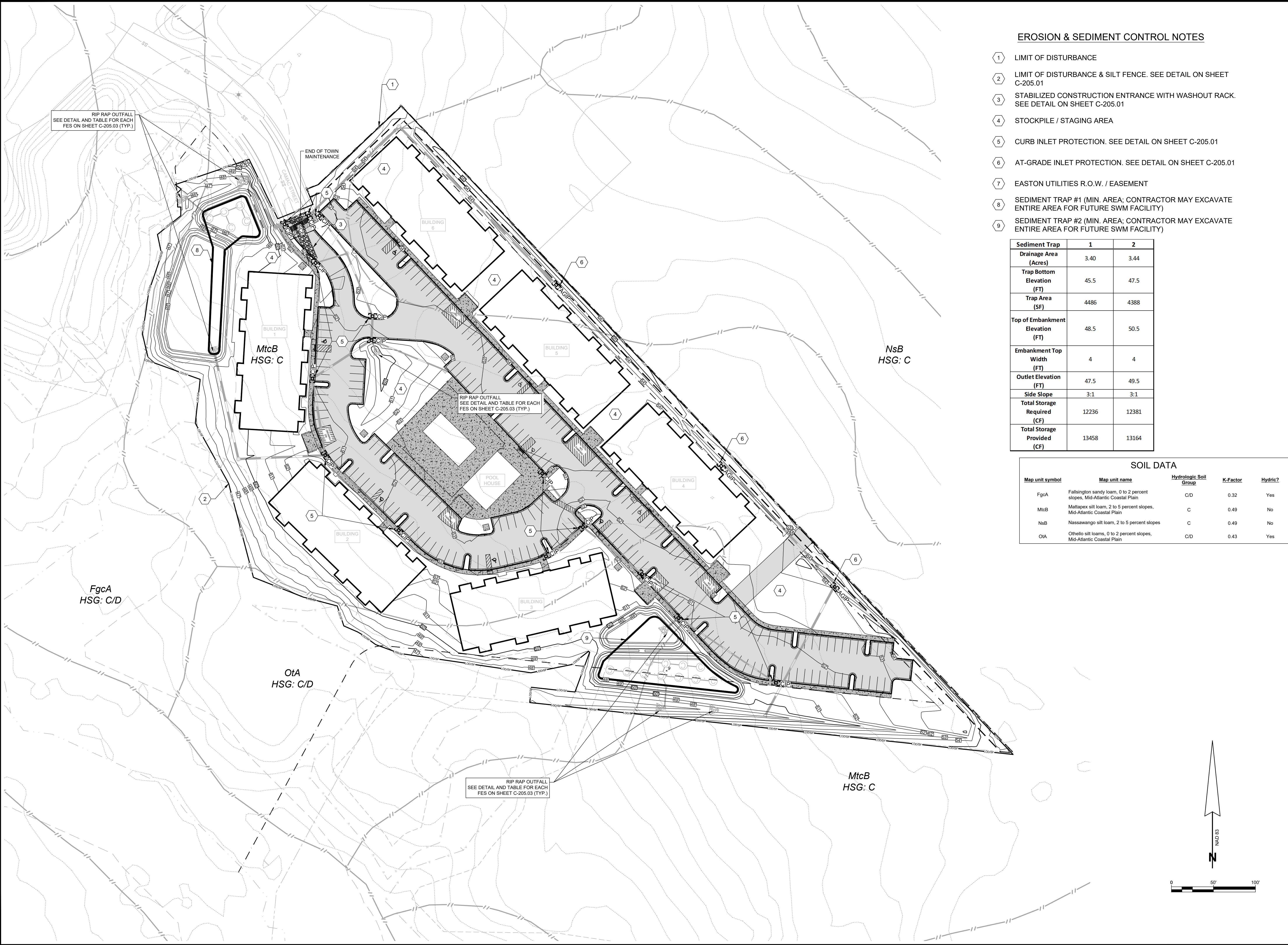
REV. #	DATE	DESCRIPTION
1	6/22/2023	REVISED TO CONNECT TO GANNON ESTATES



DATE:	12/6/2022
SCALE:	1" = 40'
DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

SHEET NO.:
V-101

FOR
REVIEW



EROSION & SEDIMENT CONTROL NOTES

- 1 LIMIT OF DISTURBANCE
- 2 LIMIT OF DISTURBANCE & SILT FENCE. SEE DETAIL ON SHEET C-205.01
- 3 STABILIZED CONSTRUCTION ENTRANCE WITH WASHOUT RACK. SEE DETAIL ON SHEET C-205.01
- 4 STOCKPILE / STAGING AREA
- 5 CURB INLET PROTECTION. SEE DETAIL ON SHEET C-205.01
- 6 AT-GRADE INLET PROTECTION. SEE DETAIL ON SHEET C-205.01
- 7 EASTON UTILITIES R.O.W. / EASEMENT
- 8 SEDIMENT TRAP #1 (MIN. AREA; CONTRACTOR MAY EXCAVATE ENTIRE AREA FOR FUTURE SWM FACILITY)
- 9 SEDIMENT TRAP #2 (MIN. AREA; CONTRACTOR MAY EXCAVATE ENTIRE AREA FOR FUTURE SWM FACILITY)

Sediment Trap	1	2
Drainage Area (Acres)	3.40	3.44
Trap Bottom Elevation (FT)	45.5	47.5
Trap Area (SF)	4486	4388
Top of Embankment Elevation (FT)	48.5	50.5
Embankment Top Width (FT)	4	4
Outlet Elevation (FT)	47.5	49.5
Side Slope	3:1	3:1
Total Storage Required (CF)	12236	12381
Total Storage Provided (CF)	13458	13164

SOIL DATA

Map unit symbol	Map unit name	Hydrologic Soil Group	K-Factor	Hydric?
FgcA	Fallsington sandy loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C/D	0.32	Yes
MtcB	Mattapex silt loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain	C	0.49	No
NsB	Nassawango silt loam, 2 to 5 percent slopes	C	0.49	No
OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C/D	0.43	Yes

EROSION AND SEDIMENT CONTROL PLAN

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP - 0026, GRID: 0020, PARCEL: 0186
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC

RAUCH
Engineering | Survey | Architecture | Environmental

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

REVISIONS

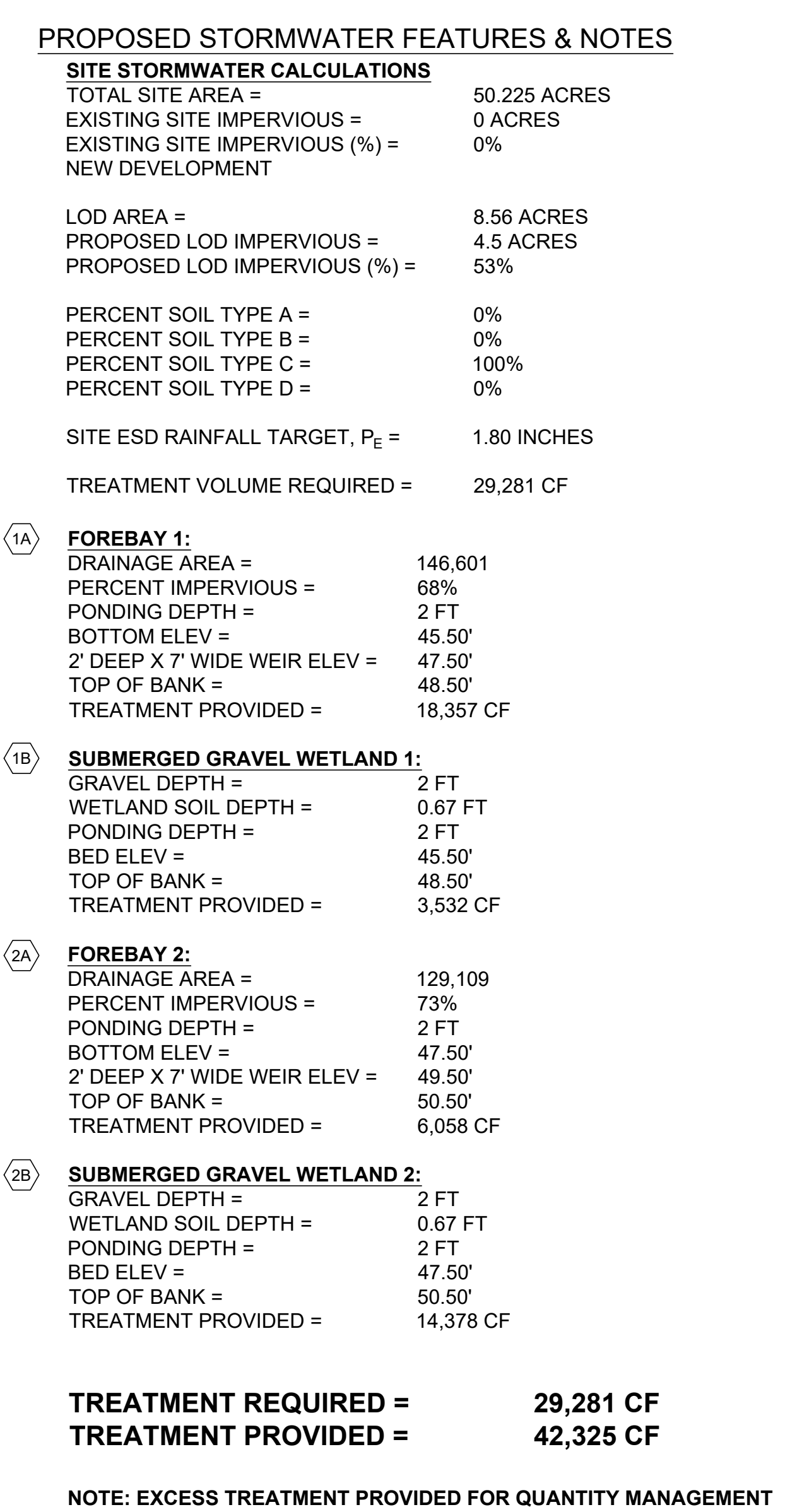
REV. #	DATE	DESCRIPTION
1	6/22/2023	REVISED TO CONNECT TO GANNON ESTATES



DATE:	12/1/2022
SCALE:	1" = 50'
DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

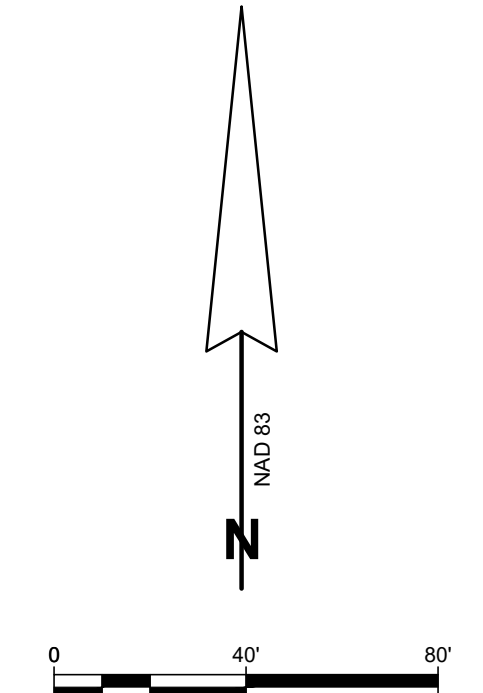
SHEET NO.: C-201.01

FOR REVIEW



STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
EXISTING	4.11	12.09	23.76
PROPOSED	1.75	8.55	16.38
CHANGE	-2.36	-3.54	-7.38

NOTE: EXCESS TREATMENT PROVIDED FOR QUANTITY MANAGEMENT



STORMWATER & STORM DRAIN PLAN

OF THE LANDS OF

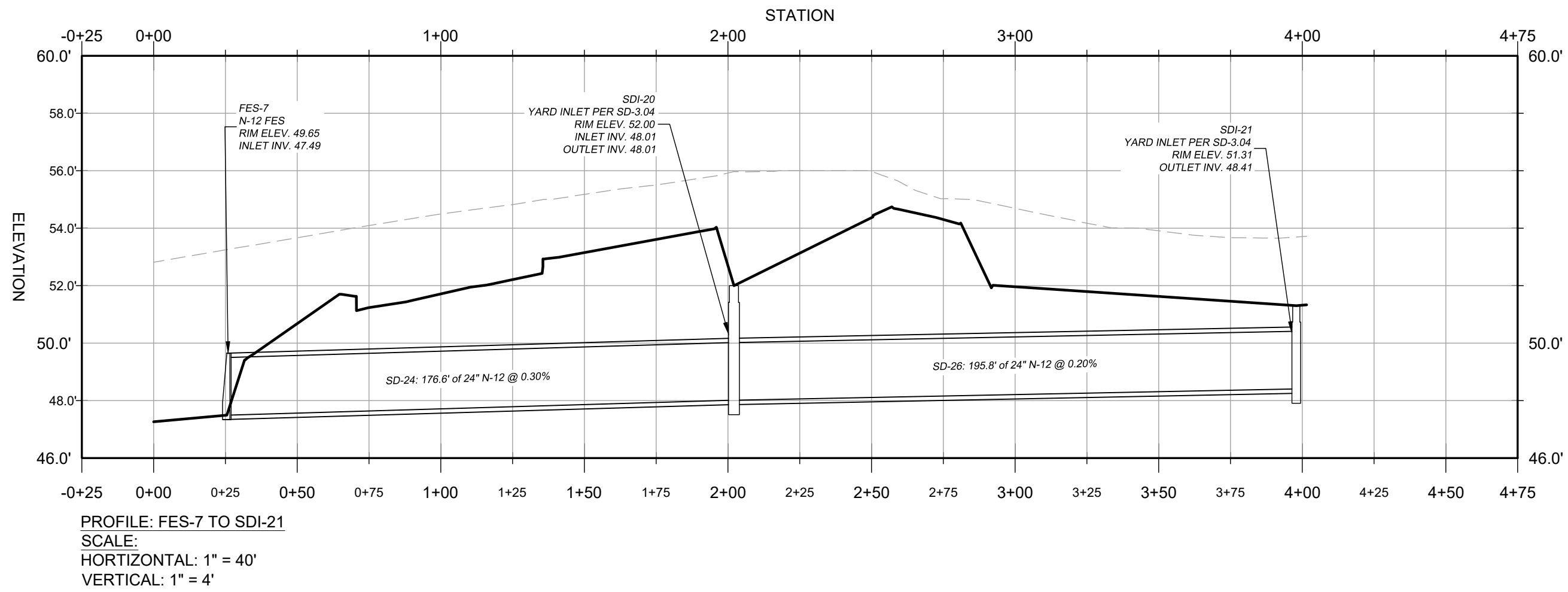
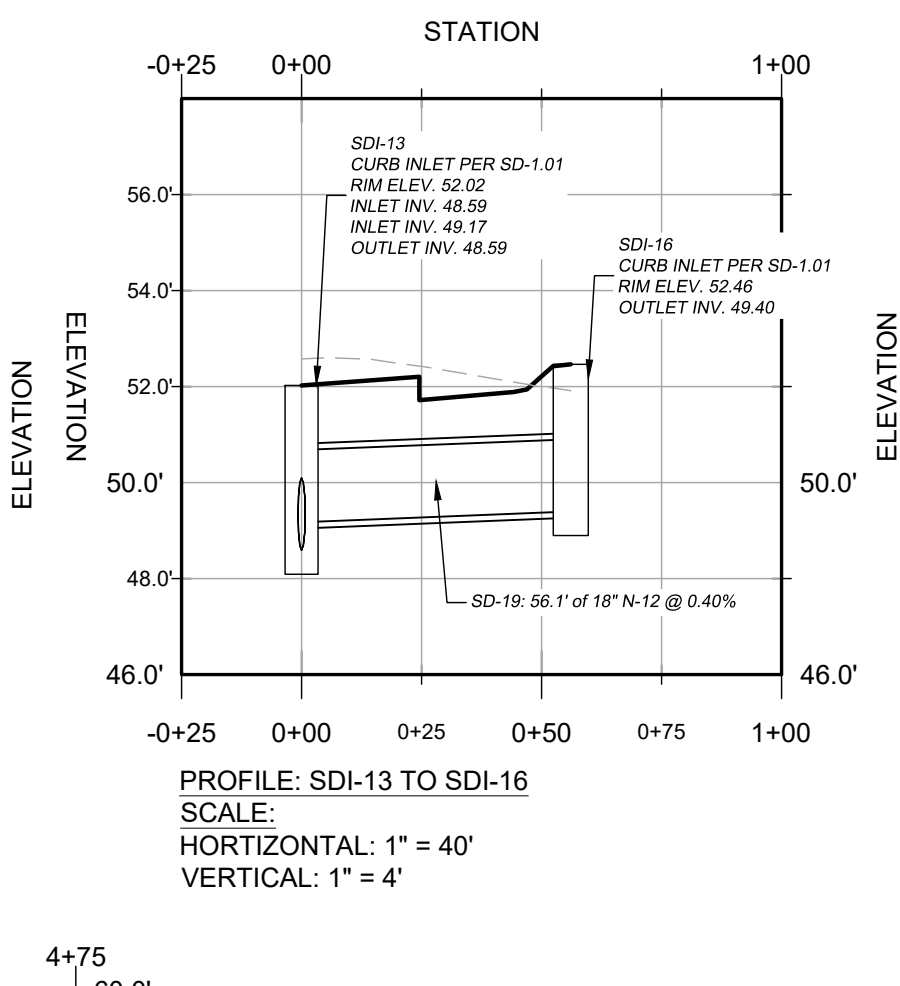
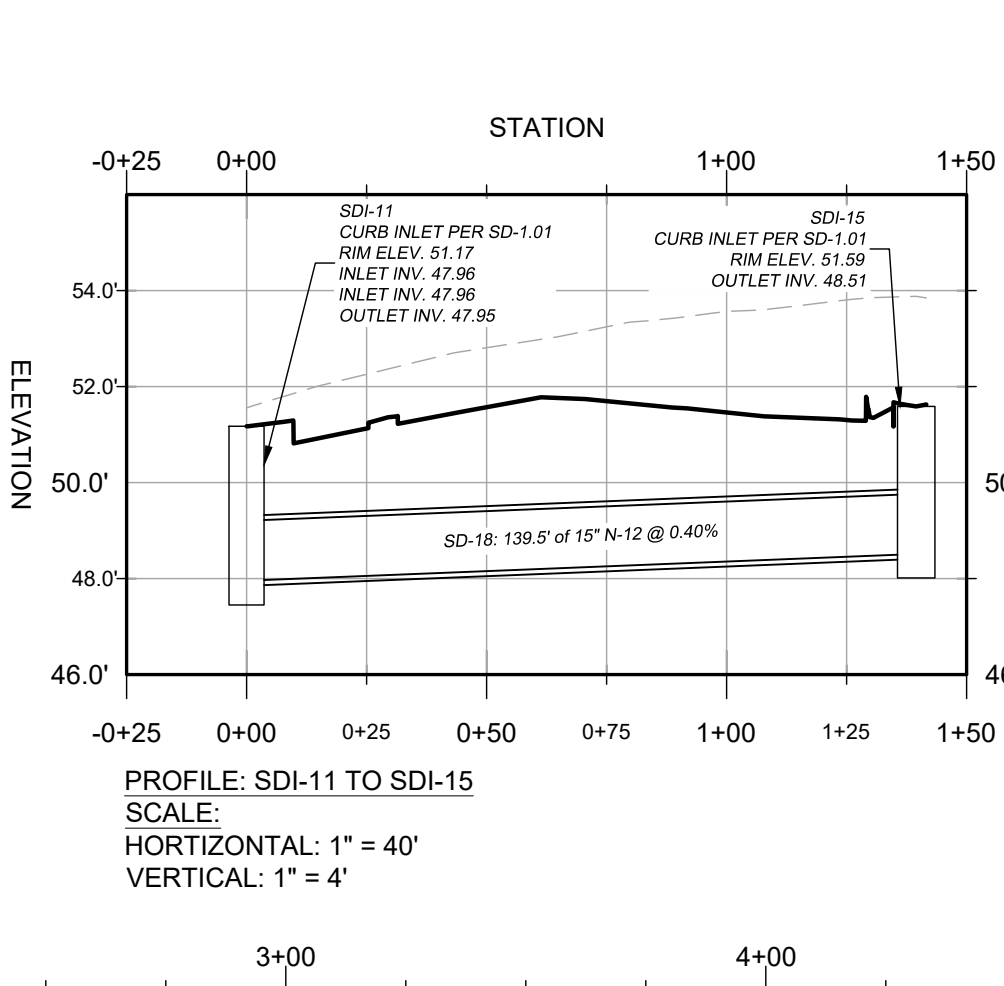
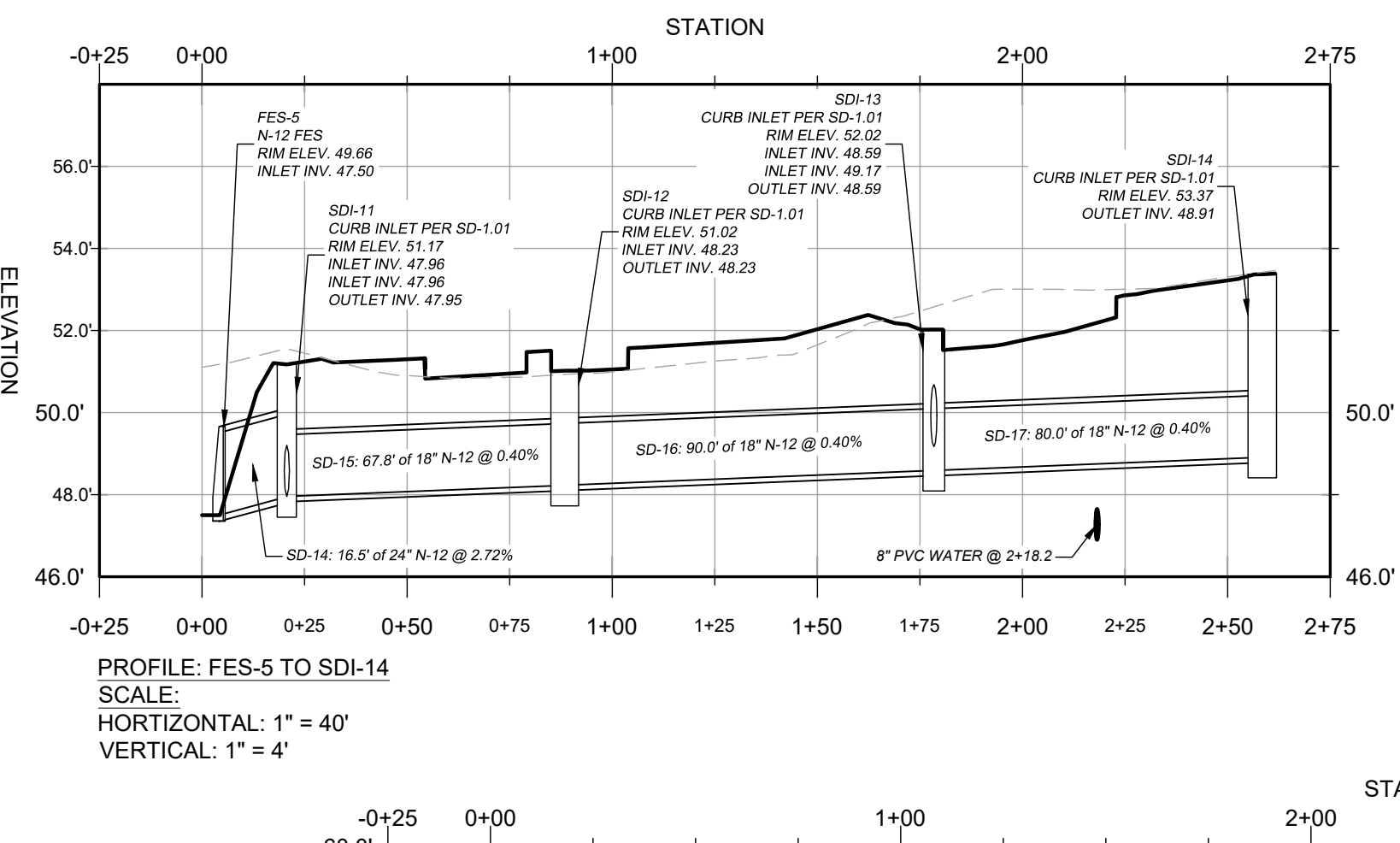
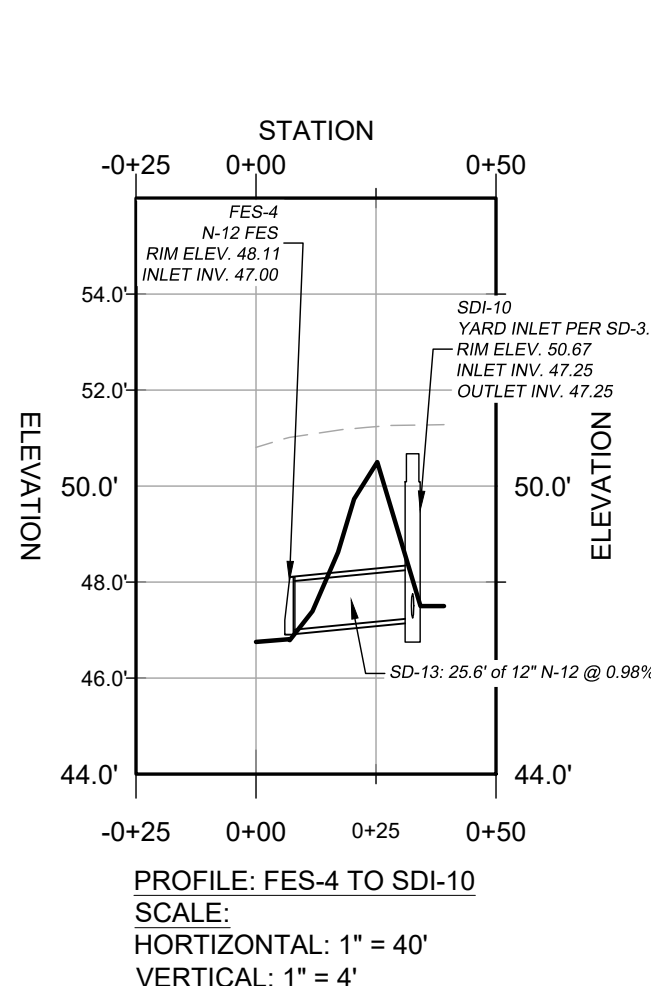
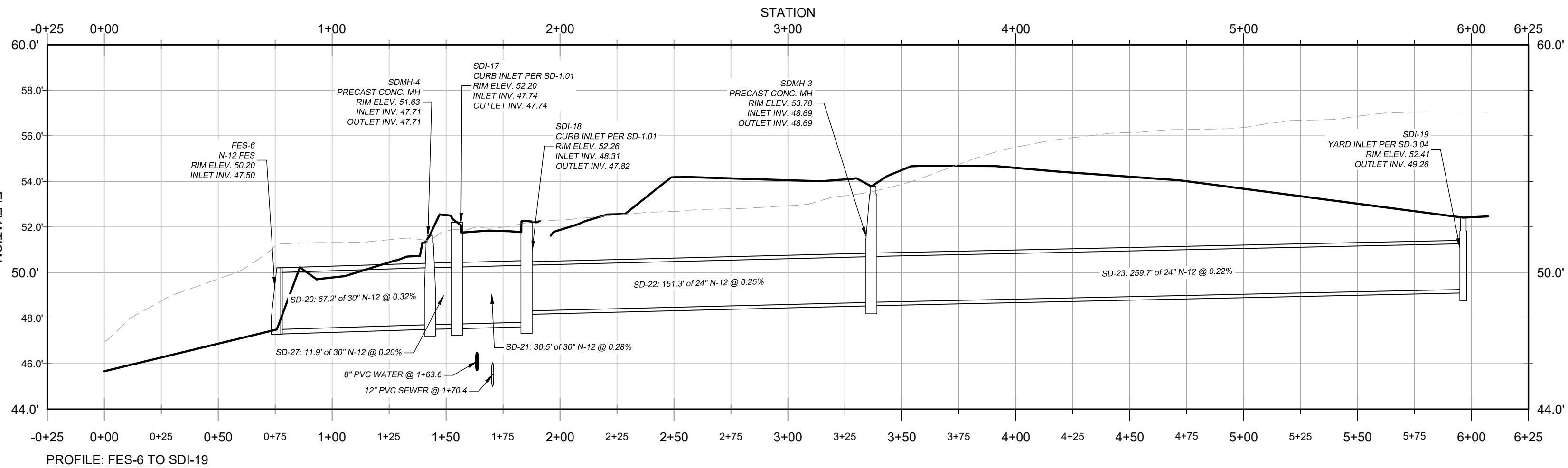
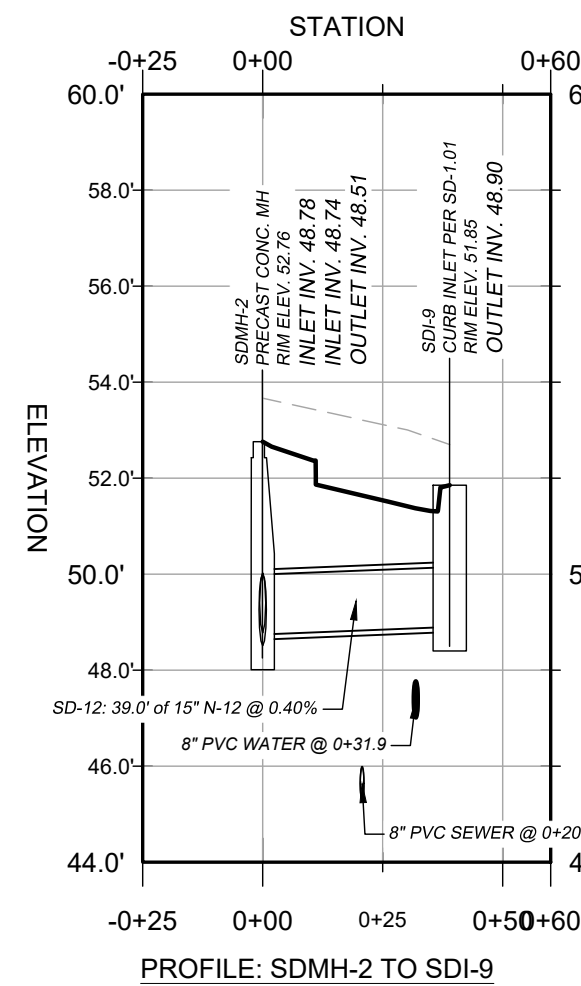
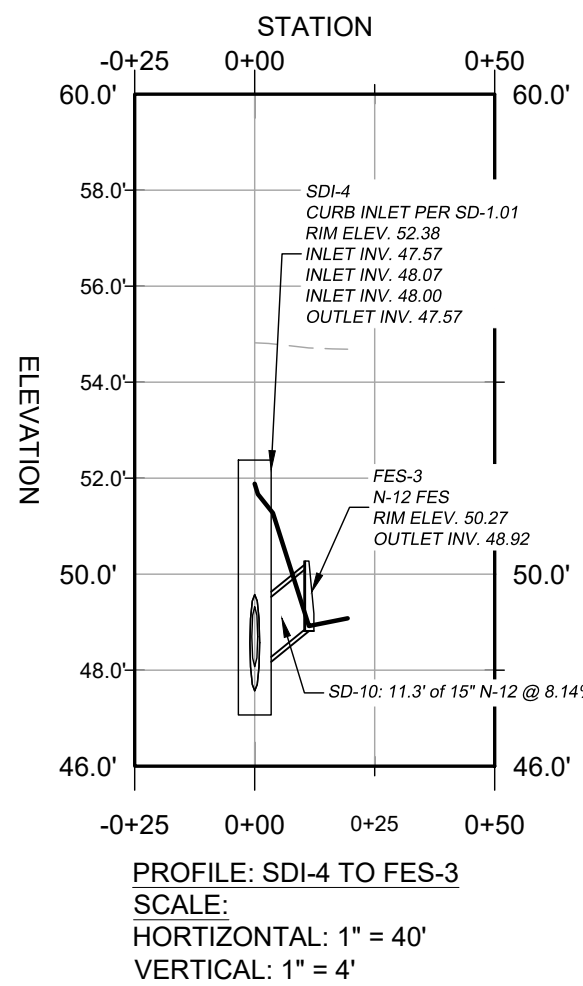
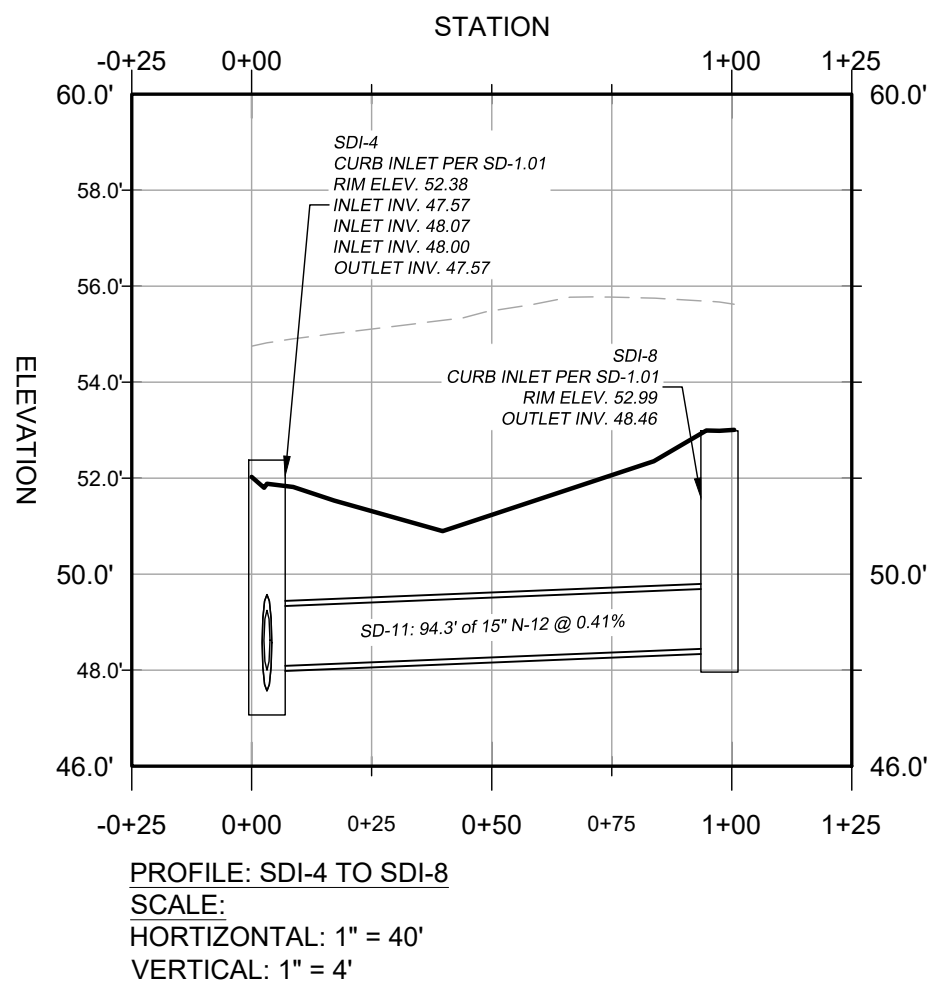
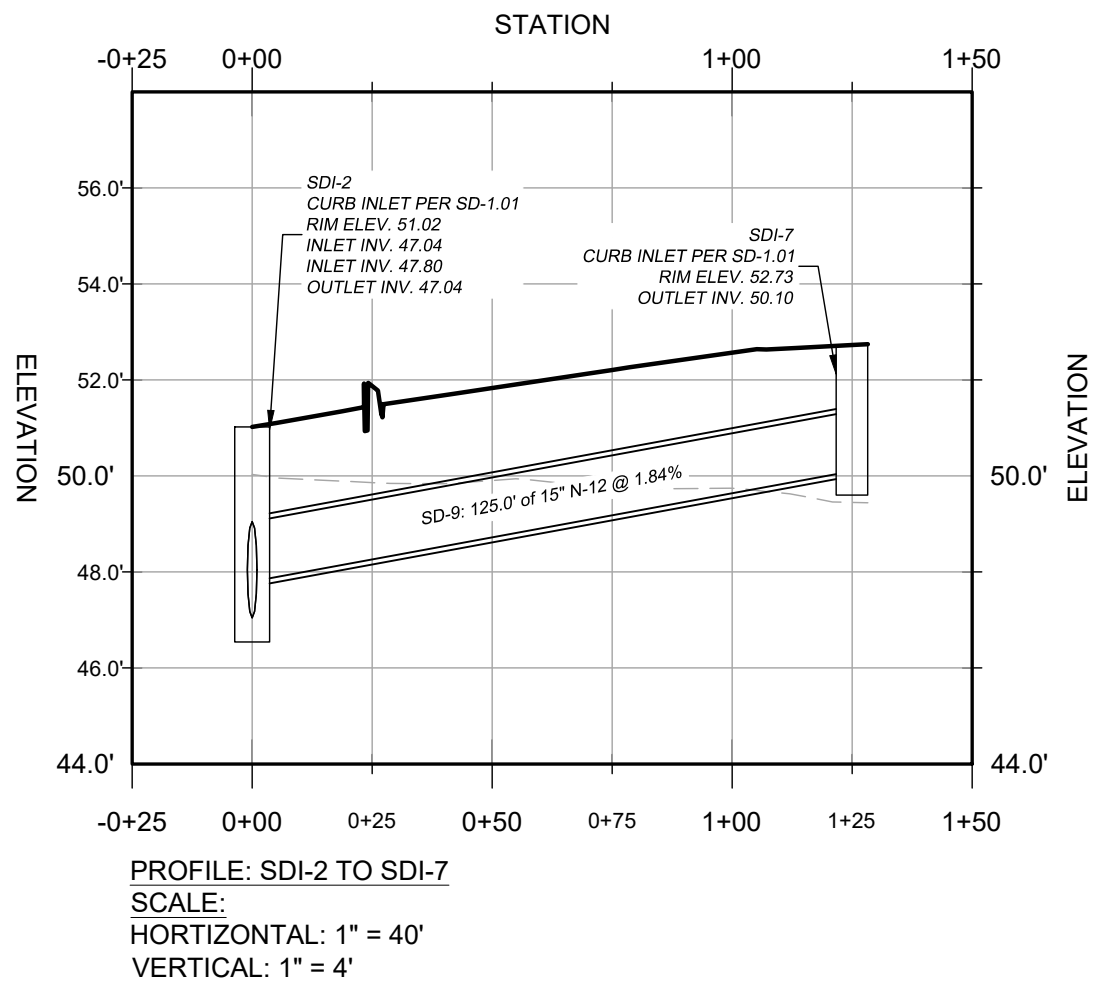
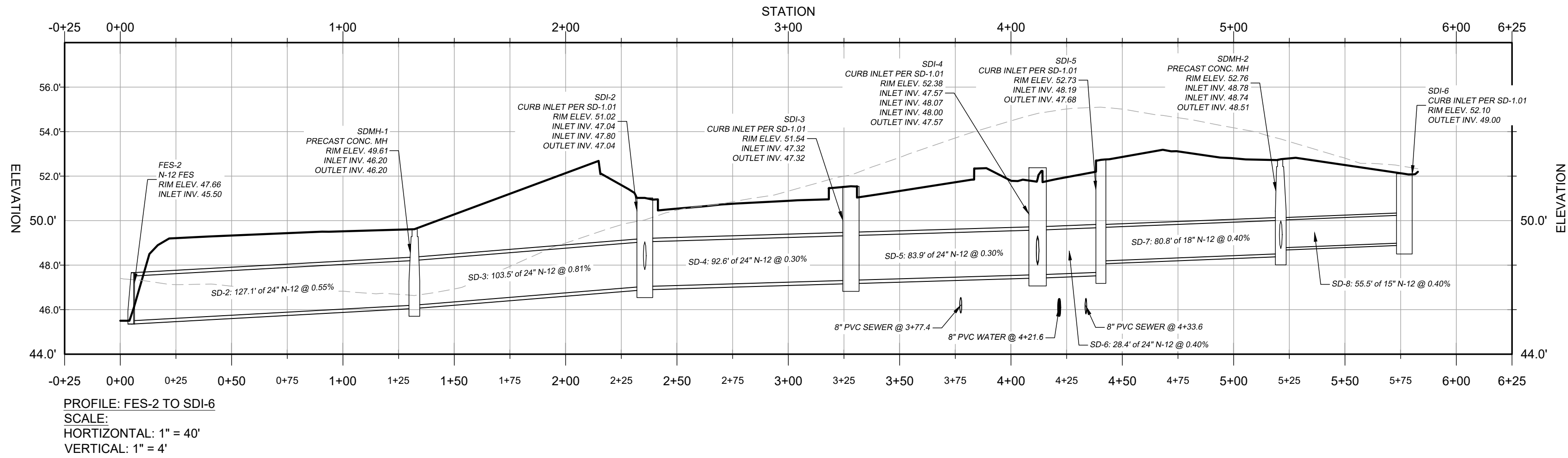
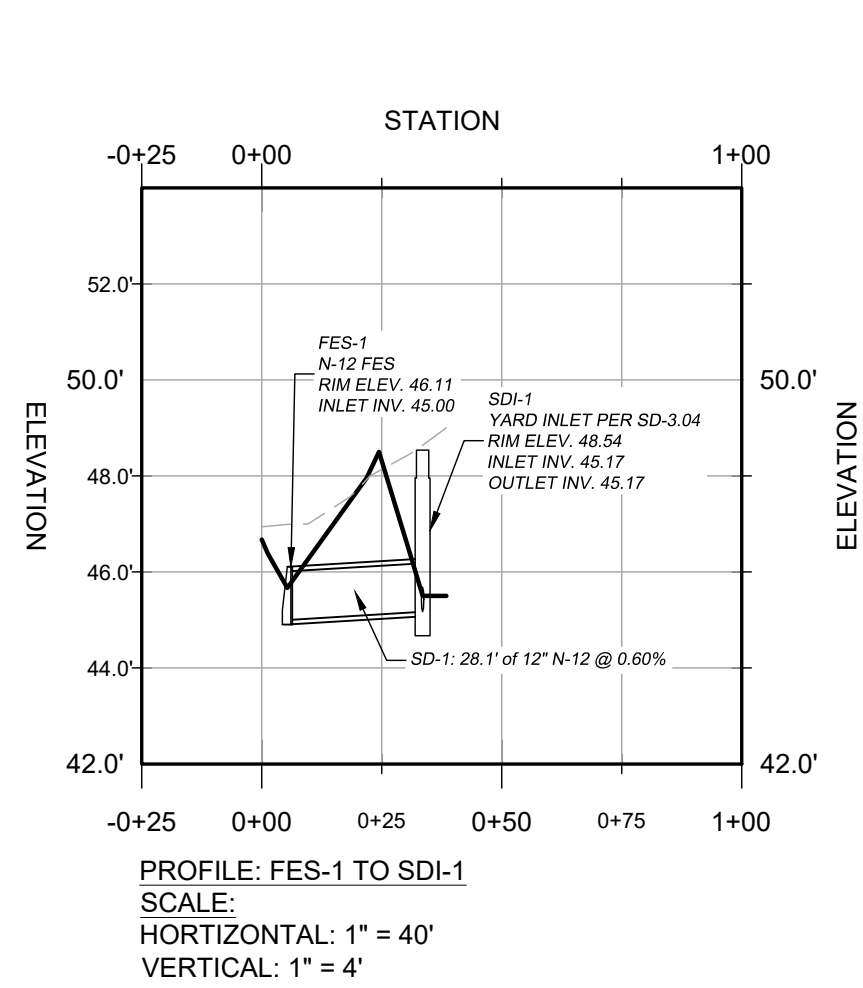
ASPIRE APARTMENTS

TAX MAP: 0026; GRID: 0020, PARCEL: 0186

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

ASPIRE OUTDOORS, LLC

[illegible]



STORMWATER & STORM DRAIN PROFILES

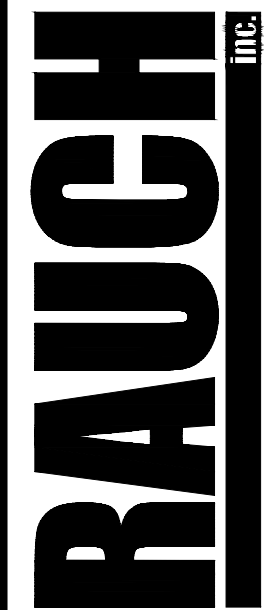
OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0166

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

ASPIRE OUTDOORS, LLC



Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9081 | Fax: 410 770 3687



Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 11024
Expiration Date: July 24, 2024

REVISIONS

REV. #	DATE	DESCRIPTION
1	6/25/2023	REVISED TO CONNECT TO GANNON ESTATES



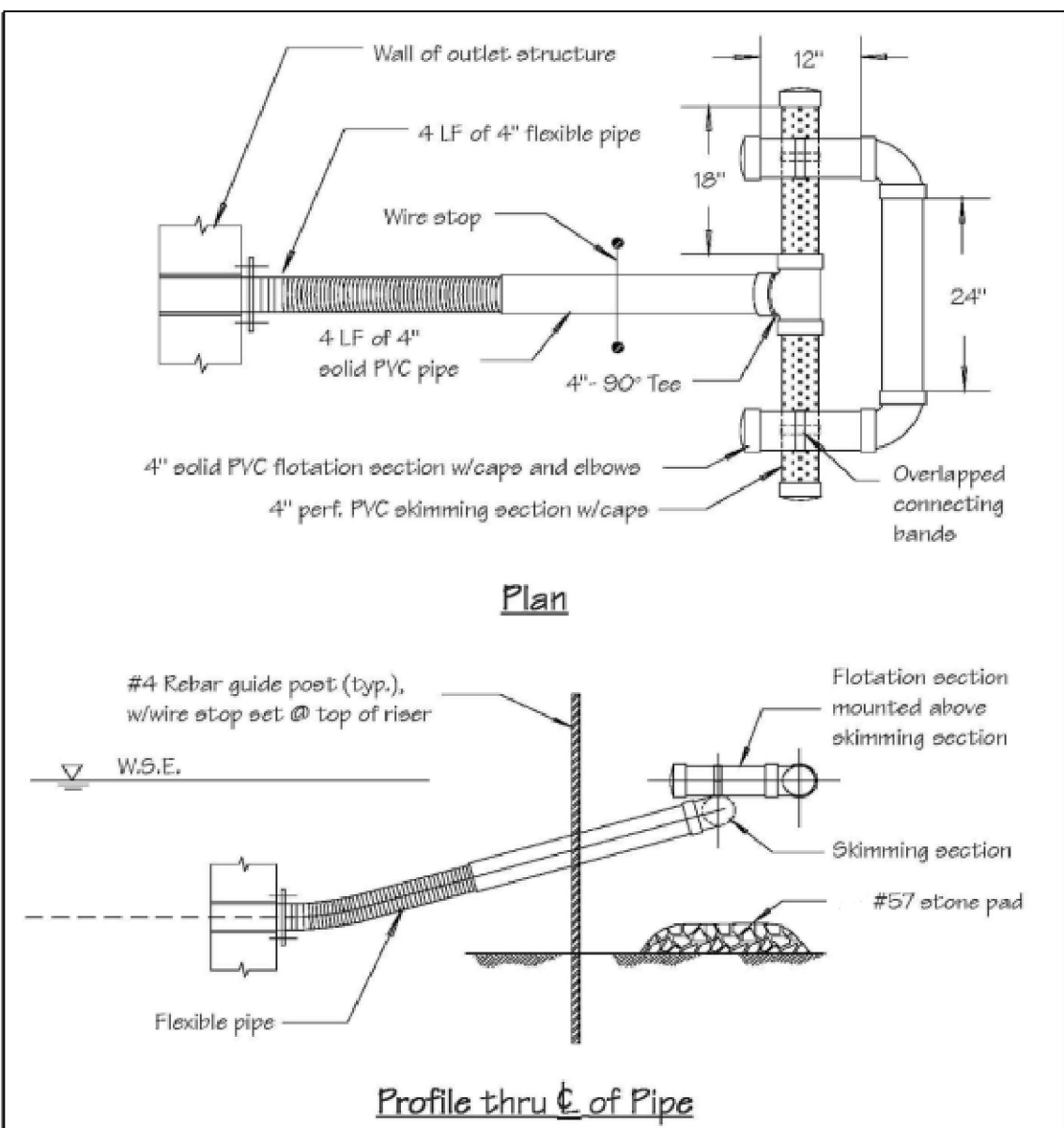
DATE: 12/6/2022
SCALE: 1" = 10'
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.:
C-203

FOR
REVIEW

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE		STANDARD SYMBOL 	
CONSTRUCTION SPECIFICATIONS			
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (+50 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE TO FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS. 2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT. 3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS. 4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE. 5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT, ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.			
DETAIL B-2 WASH RACK OPTION		STANDARD SYMBOL 	
CONSTRUCTION SPECIFICATIONS			
1. USE A WASH RACK DESIGNED AND CONSTRUCTED/MANUFACTURED FOR THE ANTICIPATED TRAFFIC LOADS. CONCRETE, STEEL, OR OTHER MATERIALS ARE ACCEPTABLE. PRE-FABRICATED UNITS SUCH AS CATTLE GUARDS ARE ACCEPTABLE. USE MINIMUM DIMENSION OF 6 FEET x 10 FEET. ORIENT DIRECTION OF RIBS AS SHOWN ON THE DETAIL. 2. INSTALL PRIOR TO, ALONG SIDE OF, OR AS PART OF THE SCE. 3. DIRECT WASH WATER TO AN APPROVED SEDIMENT TRAPPING DEVICE. 4. KEEP AREA UNDER WASH RACK FREE OF ACCUMULATED SEDIMENT. IF DAMAGED, REPAIR OR REPLACE WASH RACK.			
DETAIL E-1 SILT FENCE		STANDARD SYMBOL 	
CONSTRUCTION SPECIFICATIONS			
1. USE WOOD POSTS 1½ x 1½ x ¾ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT. 2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART. 3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION. 4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. 5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC. 6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. 7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE. 8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.			
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL	
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION		MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION	

DETAIL E-9-2 AT-GRADE INLET PROTECTION CONSTRUCTION SPECIFICATIONS 1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. 2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE. 3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE. 4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.	DETAIL E-9-3 CURB INLET PROTECTION CONSTRUCTION SPECIFICATIONS 1. USE NOMINAL 2 INCH x 4 INCH LUMBER 2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. 3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART). 4. ATTACH A CONTINUOUS PIECE OF ¾ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE. 5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR. 6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD. 7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING. 8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE. 9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS. 10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.	DETAIL F-4 FILTER BAG CONSTRUCTION SPECIFICATIONS 1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE. 2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG. 3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE. 4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE. 5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING: <table border="1"> <tr> <td>GRAB TENSILE</td> <td>250 LB</td> <td>ASTM D-4632</td> </tr> <tr> <td>PUNCTURE</td> <td>150 LB</td> <td>ASTM D-4633</td> </tr> <tr> <td>FLOW RATE</td> <td>70 GAL/MIN/FT²</td> <td>ASTM D-4491</td> </tr> <tr> <td>PERMITTIVITY (SEC⁻¹)</td> <td>1.2 SEC⁻¹</td> <td>ASTM D-4491</td> </tr> <tr> <td>UV RESISTANCE</td> <td>70% STRENGTH @ 500 HOURS</td> <td>ASTM D-4355</td> </tr> <tr> <td>APPARENT OPENING SIZE (AOS)</td> <td>0.15-0.18 MM</td> <td>ASTM D-4751</td> </tr> <tr> <td>SEAM STRENGTH</td> <td>90%</td> <td>ASTM D-4632</td> </tr> </table> 6. REPLACE FILTER BAG IF BAG CLOSOS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.	GRAB TENSILE	250 LB	ASTM D-4632	PUNCTURE	150 LB	ASTM D-4633	FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491	PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D-4491	UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355	APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751	SEAM STRENGTH	90%	ASTM D-4632
GRAB TENSILE	250 LB	ASTM D-4632																					
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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL	MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL	MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL																					
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE																					



SKIMMER DEWATERING DEVICE
SHEET 1 OF 2

Construction Notes:

1. Pipe flotation section shall be solvent welded to ensure an airtight assembly. Contractor to conduct a test to check for leaks prior to installation.
2. Skimmer section shall have (12) rows of 1/2" dia. holes, 1-1/4" on center. If additional filtration is necessary, the filtering media shall consist of a Type GD-II geotextile fabric wrapped around the perforated portion of the skimmer and attached with plastic snap ties, bands, etc.
3. Flexible pipe shall be inserted into solid pipe and fastened with (2) #6 wood screws.
4. At a minimum, the structure shall be inspected after each rain and repairs made as needed. If vandalism is a problem, more frequent inspection may be necessary.
5. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
6. The structure shall only be removed when the contributing drainage area has been properly stabilized.

Materials:

1. Solid pipe - 4" Sched. 40 PVC
2. Perforated pipe - 4" Sched. 40 PVC
3. 90° Tee (1 ea.) - 4" Sched. 40 PVC
4. 90° Elbow (2 ea.) - 4" Sched. 40 PVC
5. Cap (4 ea.) - 4" Sched. 40 PVC, solid
6. Flexible pipe - 4" corrugated plastic tubing (non-perforated)

SKIMMER DEWATERING DEVICE
SHEET 2 OF 2

EROSION AND SEDIMENT CONTROL DETAILS

OF THE LANDS OF

521 AUGUST ST

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

ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH

Engineering | Survey | Architecture | Environmental

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

REVISIONS

REV. #	DATE	DESCRIPTION
1	6/25/2023	REVISED TO CONNECT TO GANNON ESTATES

UTILITY OF DELAWARE

811

DATE: 12/6/2022
SCALE: 1" = 10'
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-205.01

FOR REVIEW

B-4 STANDARDS AND SPECIFICATIONS
FOR
VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

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

Effects on Water Quality and Quantity

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

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

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

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

Adequate Vegetative Establishment

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

- Adequate vegetative stabilization requires 95 percent groundcover.
- If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
- If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
- Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

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

Definition

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

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

A. Soil Preparation

1. Temporary Stabilization

- Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
- Apply fertilizer and lime as prescribed on the plans.
- Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization

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

B. Topsoiling

- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
- Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
- Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/permanent material is not adequate to produce vegetative growth.
 - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
- Areas having slopes steeper than 2:1 require special consideration and design.

- Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
 - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
 - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

- Topsoil Application
 - Erosion and sediment control practices must be maintained when applying topsoil.
 - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
 - Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

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

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

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

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

Conditions Where Practice Applies

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

A. Seeding

1. Specifications

- All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
- Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
- Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydrosedding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application

- Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
 - Drill or Cut/packer Seeding: Mechanized seeders that apply and cover seed with soil.
 - Cut/packer seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
 - Hydrosedding: Apply seed uniformly with hydroseder (slurry includes seed and fertilizer).
 - If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorus), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
 - Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydrosedding). Normally, not more than 2 tons are applied by hydrosedding at any one time. Do not use burnt or hydrated lime when hydrosedding.
 - Mix seed and fertilizer on site and seed immediately and without interruption.
 - When hydrosedding do not incorporate seed into the soil.

B. Mulching

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

- Application
 - Apply mulch to all seeded areas immediately after seeding.
 - When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
 - Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

- Anchoring
 - Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
 - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
 - Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petrosel, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
 - Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 STANDARDS AND SPECIFICATIONS
FOR
TEMPORARY STABILIZATION

Definition

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

Purpose

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

Conditions Where Practice Applies

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

Criteria

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

Temporary Seeding Summary

Hardness Zone (from Figure B.3): <u>7a</u>				Fertilizer Rate (10-20-20)	Lime Rate
Seed Mixture (from Table B.1): _____					
No.	Species	Appl. Rate (lb./ac.)	Seeding Dates		
	ANNUAL RYEGRASS	40	FEB 15 - APR 30 AUG 15 - NOV 30	0.5	
	BARLEY	96	FEB 15 - APR 30 AUG 15 - NOV 30	1.0	
					436 lb/ac 10 lb/ 1000 sf
					2 tons/ac 90 lb/ 1000 sf

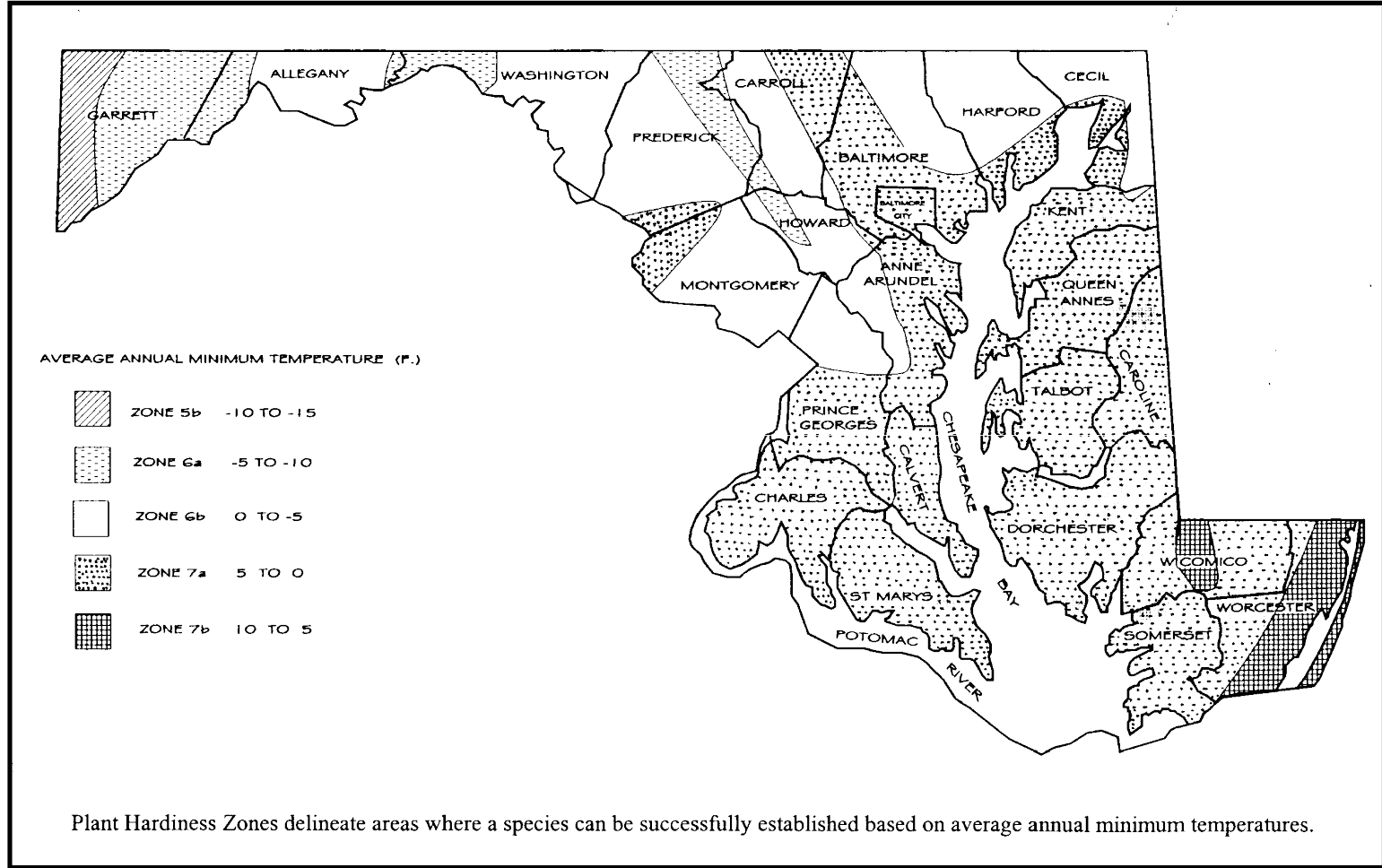


Figure B-3: U.S.D.A. Plant Hardiness Zones

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ^{1/}		Seeding Depth ^{2/} (inches)	Recommended Seeding Dates by Plant Hardiness Zone ^{3/}		
	lb/ac	lb/1000 ft ²		5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (<i>Lolium perenne ssp. multiflorum</i>)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (<i>Hordeum vulgare</i>)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (<i>Avena sativa</i>)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (<i>Triticum aestivum</i>)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (<i>Secale cereale</i>)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (<i>Setaria italica</i>)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (<i>Pennisetum glaucum</i>)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:

- Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.
- Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

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

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

EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS
FOR VEGETATIVE STABILIZATION

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

Seed Mixture (For Hardness Zone 7a) (From Table B.1)					Fertilizer Rate (10-20-20)		Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths	N	P2O5	
	ANNUAL RYEGRASS	50#	2/15 - 4/30 8/15 - 11/30	½"			
	BARLEY	96#	2/15 - 4/30 / 8/15 - 11/30	1"			
	WHEAT	72#	2/15 - 4/30 / 8/15 - 11/30	1"			
	CEREAL RYE	112#	2/15 - 4/30 / 8/15 - 12/15	1"			
	FOXTAIL MILLET	30#	5/1 - 8/14	½"			
	PEARL MILLET	20#	5/1 - 8/14	½"			

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

Seed Mixture (For Hardness Zone 7a) (From Table B.3)					Fertilizer Rate (10-20-20)		Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths	N	P2O5	
7	CREEPING RED FESCUE KENTUCKY BLUEGRASS	60# 15#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"			
8	TALL FESCUE	100#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"	45 lb/ac 1lb/ 1000 sf	90 lb/ac 2lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sq
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60# 40# 20#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"			

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

EROSION AND SEDIMENT CONTROL DETAILS

OF THE LANDS OF

521 AUGUST ST

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

ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND

PREPARED FOR BETTER HOMES, BETTER COMMUNITIES (BHBC)

RAUCH
Engineering / Survey / Architecture / Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3487

REVISIONS

DESCRIPTION

REVISED TO CONNECT TO GANNON ESTATES

DATE

6/25/2023

REV. #

1

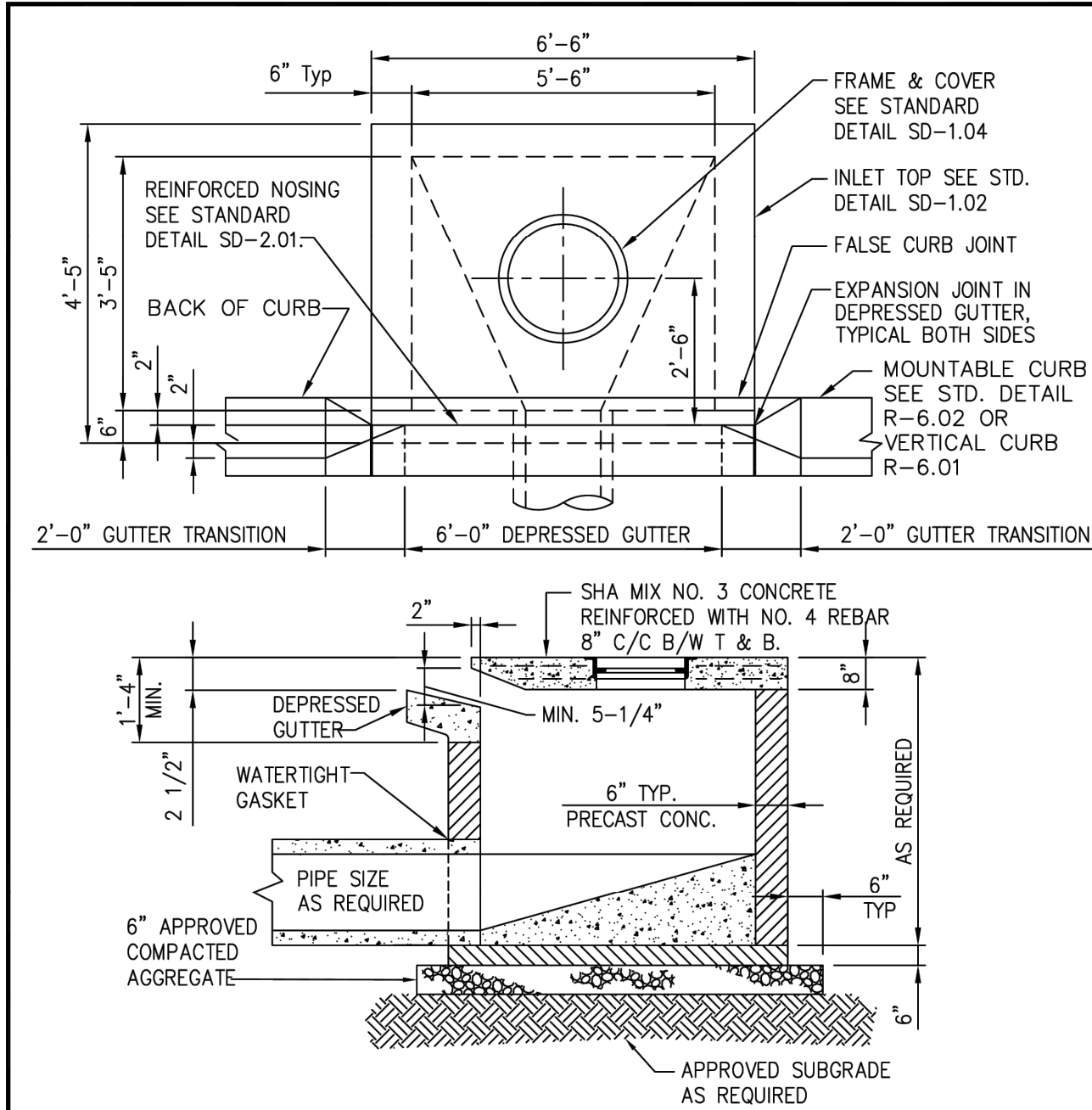
MARYLAND
NOTARY PUBLIC
JULIE A. HARRIS
10/1/2020

811
MARYLAND
NOTARY PUBLIC
JULIE A. HARRIS
10/1/2020

DATE: 12/6/2022
SCALE: N/A
DRAWN BY: WCS
DESIGNED BY: WCS
APPROVED BY: BBF

SHEET NO.: C-205.02

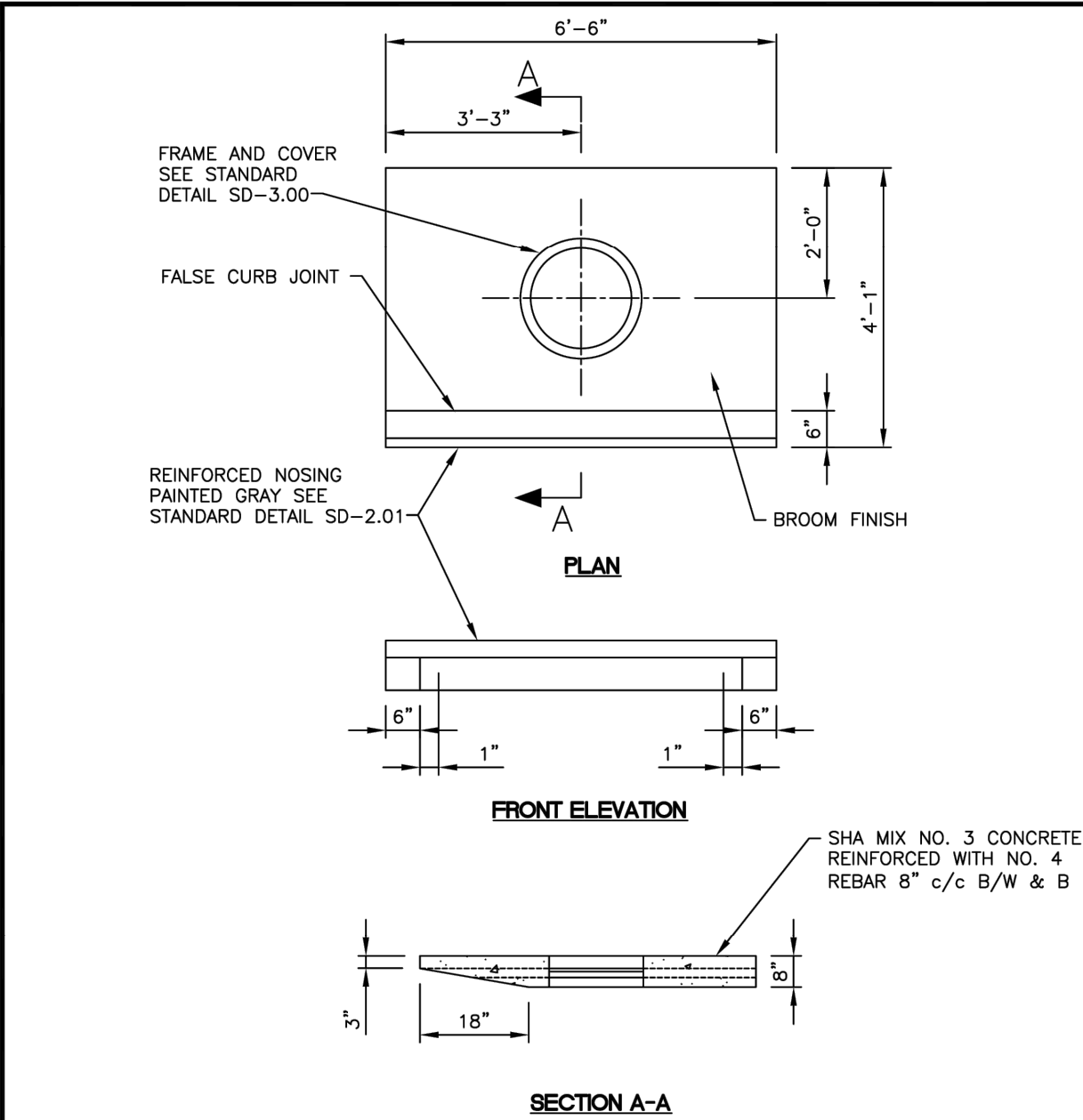
FOR
REVIEW



NOTES:

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

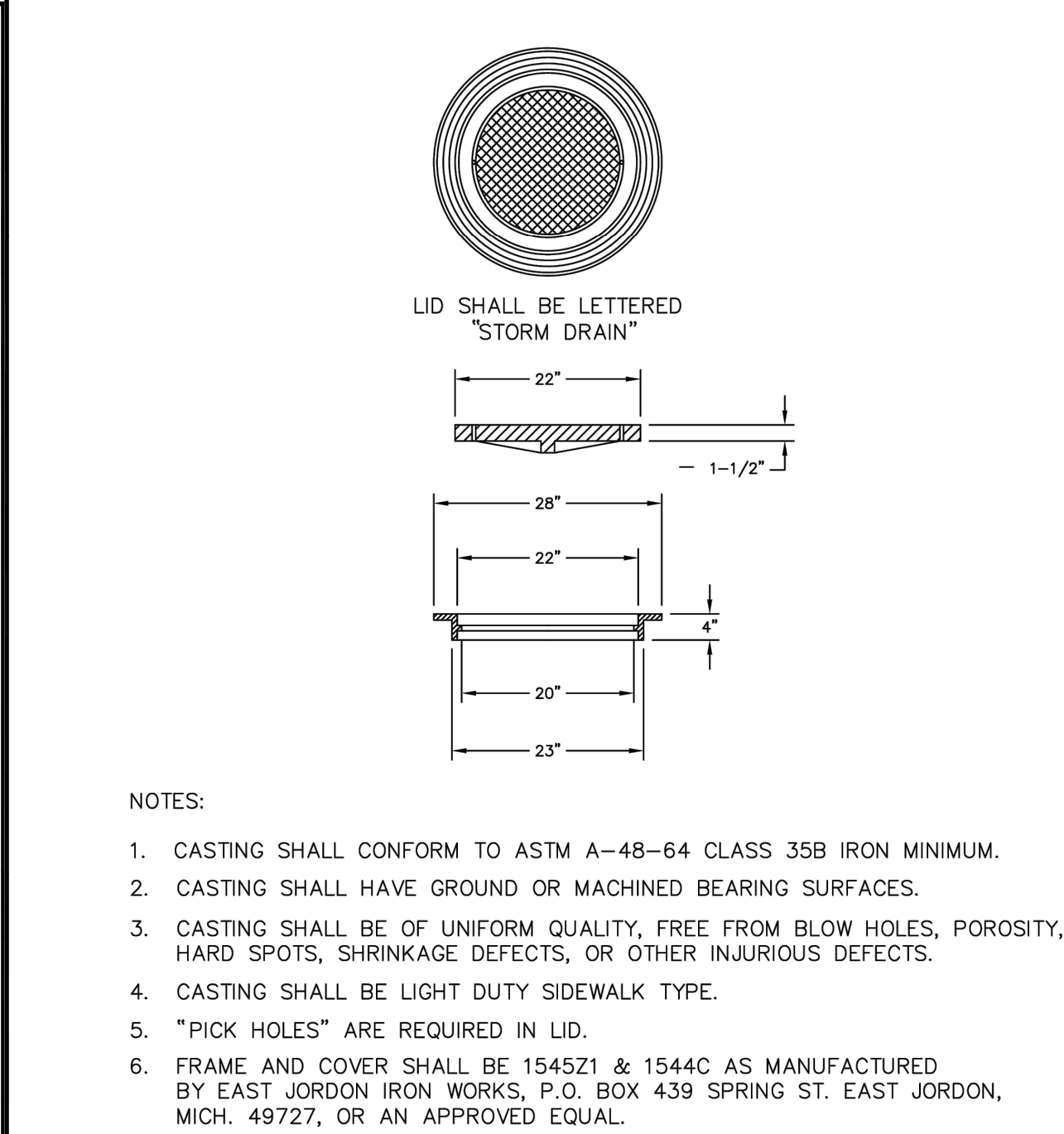
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	ISSUED: JANUARY 2020	
STANDARD NO: TOE-SD-101		



NOTES:

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

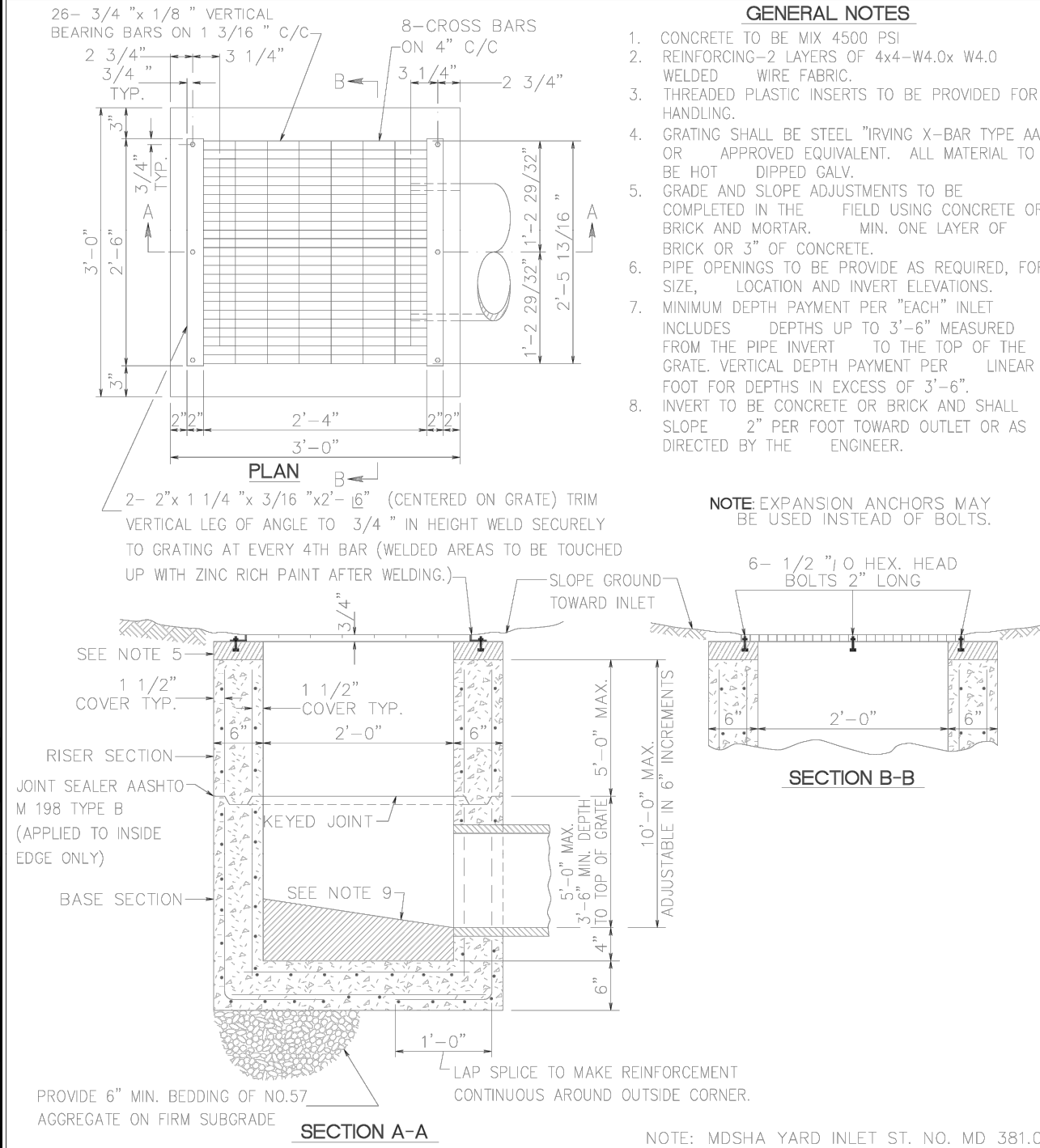
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	ISSUED: JANUARY 2020	
STANDARD NO: TOE-SD-102		



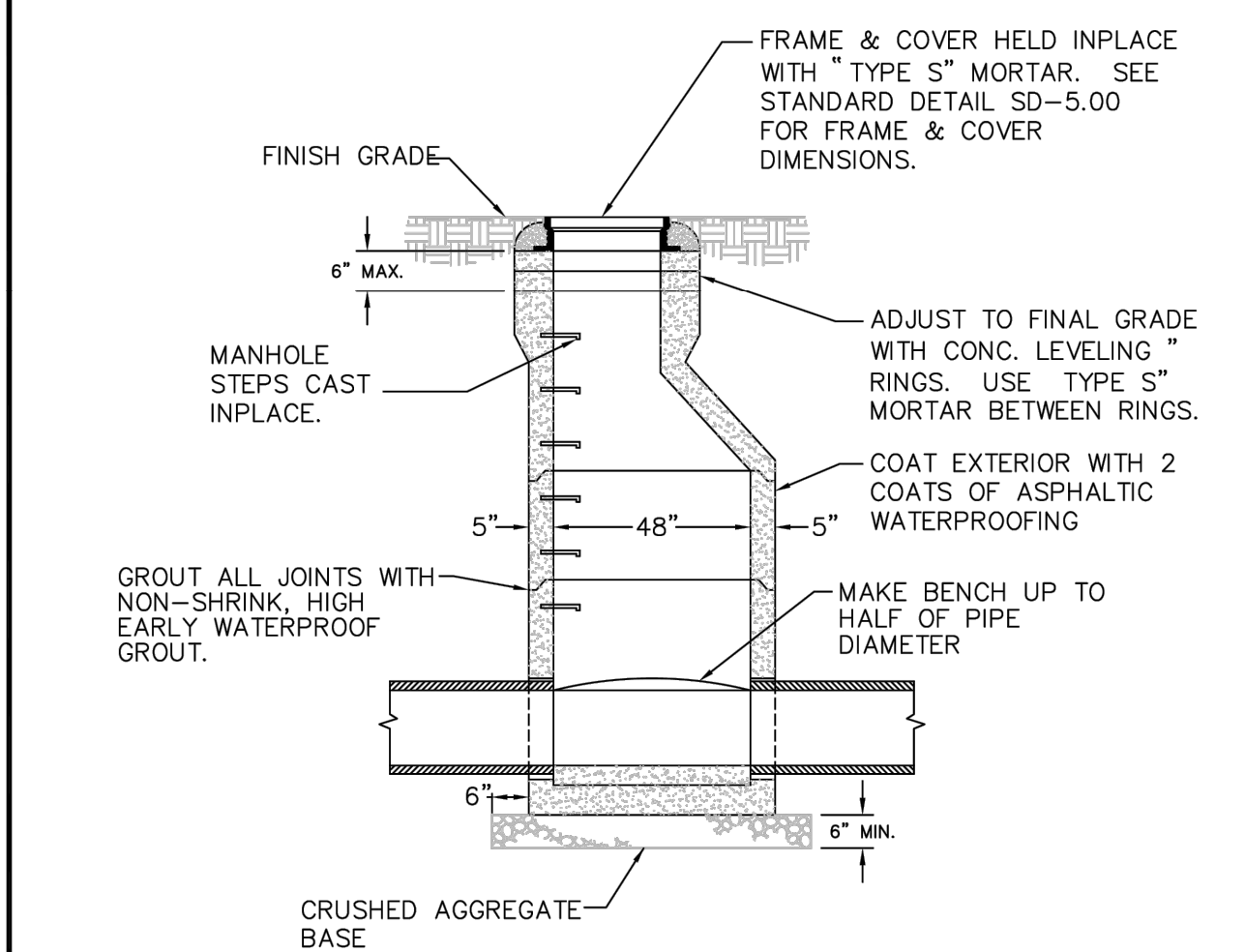
NOTES:

1. CASTING SHALL CONFORM TO ASTM A-48-64 CLASS 35B IRON MINIMUM.
2. CASTING SHALL HAVE GROUND OR MACHINED BEARING SURFACES.
3. CASTING SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DEFECTS, OR OTHER INJURIOUS DEFECTS.
4. CASTING SHALL BE LIGHT DUTY SIDEWALK TYPE.
5. "PICK HOLES" ARE REQUIRED IN LID.
6. FRAME AND COVER SHALL BE 154521 & 1544C AS MANUFACTURED BY EAST JORDON IRON WORKS, P.O. BOX 439 SPRING ST. EAST JORDON, MICH. 49727, OR AN APPROVED EQUAL.

	APPROVAL TOWN ENGINEER DATE: 1/2020	TOWN OF EASTON STANDARD DETAILS INLET FRAME AND COVER
	ISSUED: JANUARY 2020	
STANDARD NO: TOE-SD-104		



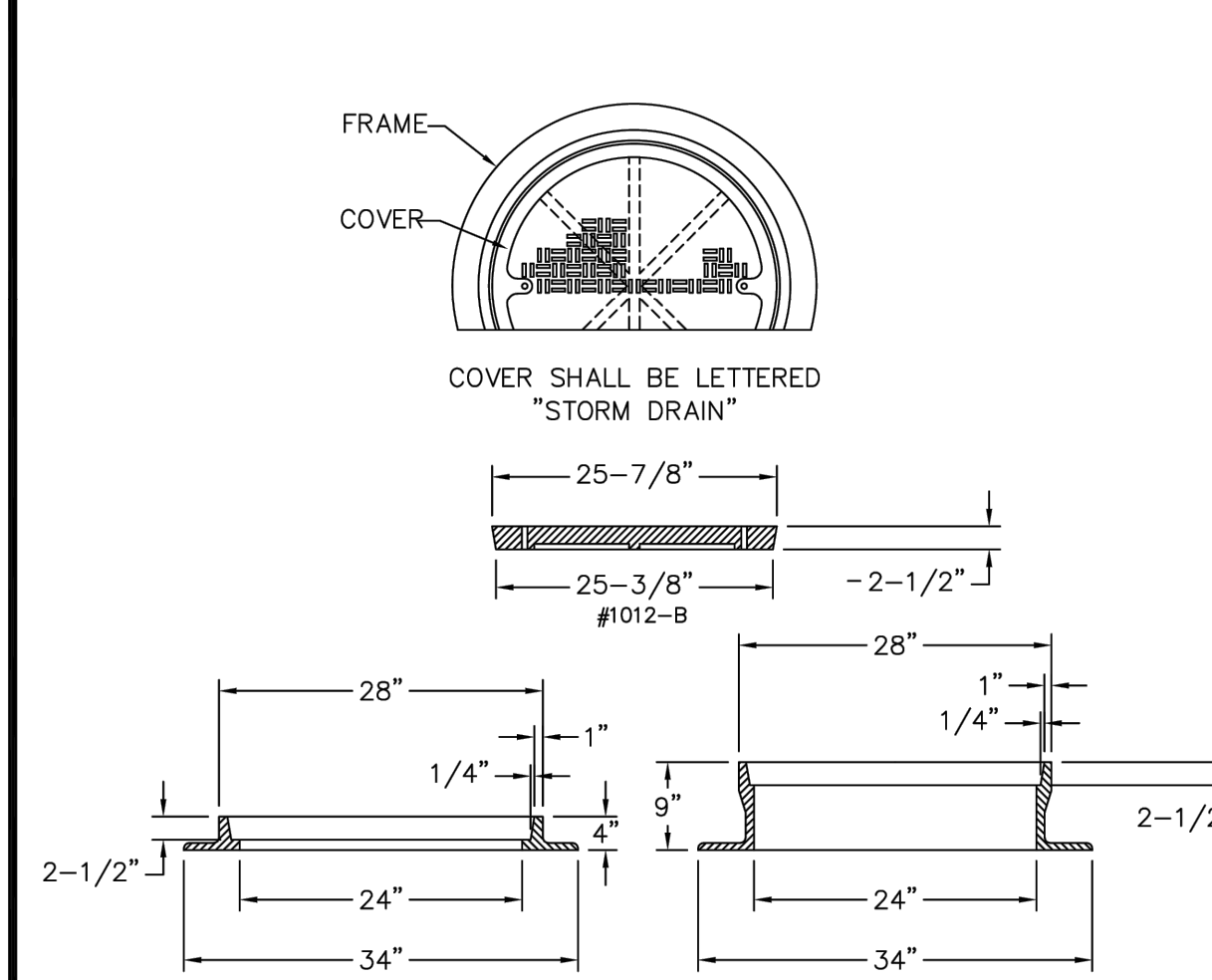
	APPROVAL TOWN ENGINEER DATE: 1/2020	TOWN OF EASTON STANDARD DETAILS NON-TRAFFIC BEARING YARD INLET
	ISSUED: JANUARY 2020	
STANDARD NO: TOE-SD-107		



NOTES:

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

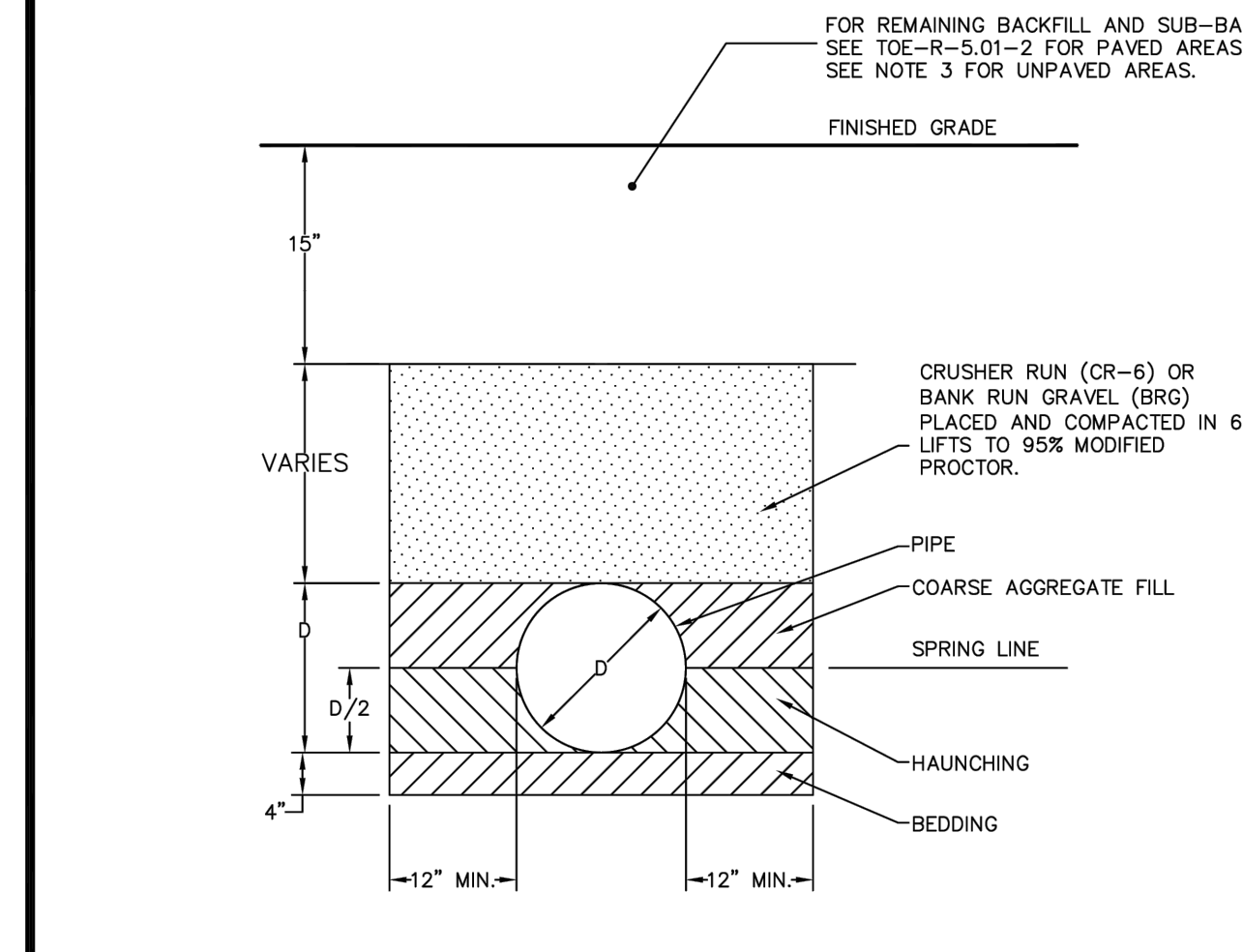
	APPROVAL TOWN ENGINEER DATE: 1/2020	TOWN OF EASTON STANDARD DETAILS PRECAST CONCRETE MANHOLE
	ISSUED: JANUARY 2020	
STANDARD NO: TOE-SD-201		



NOTES:

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

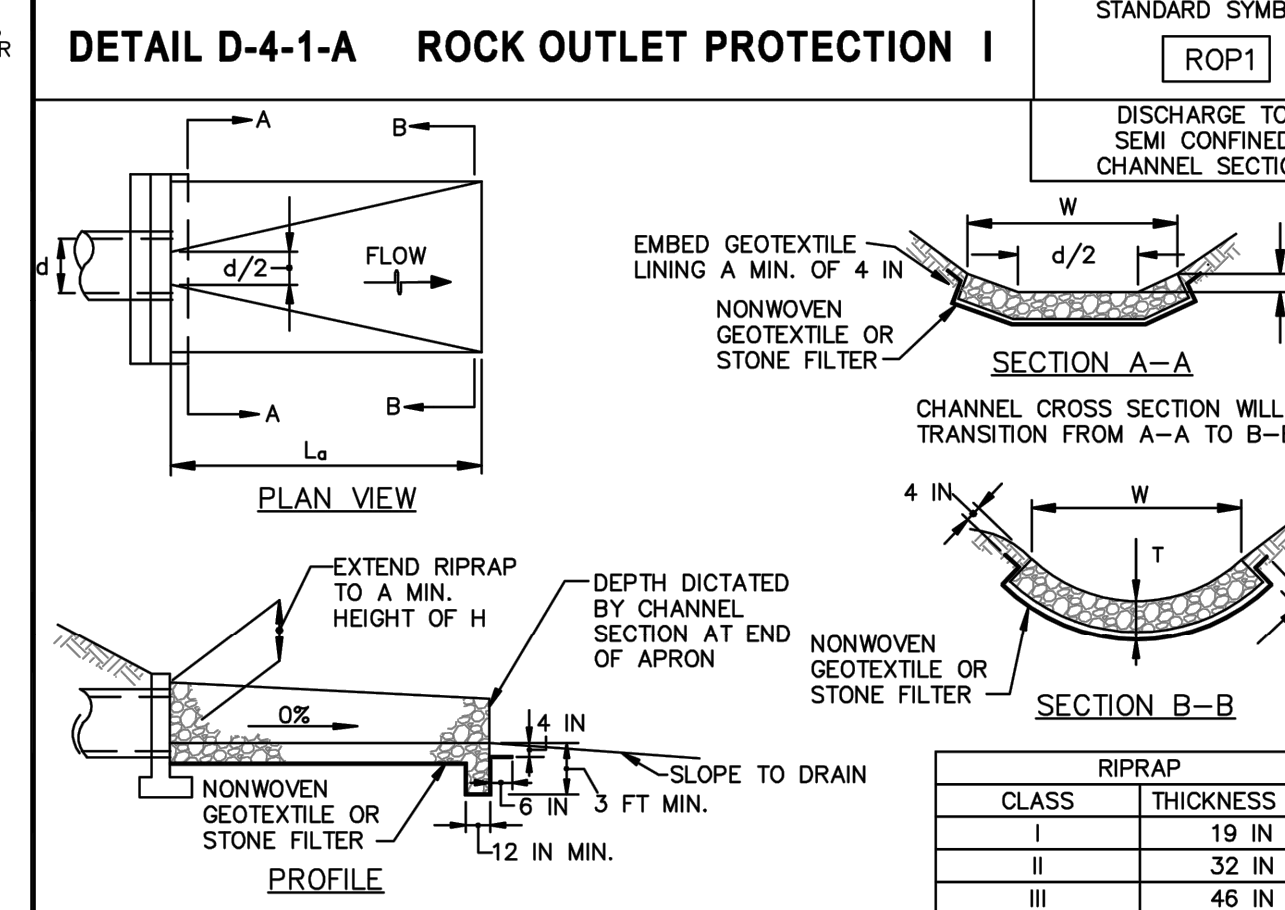
	APPROVAL TOWN ENGINEER DATE: 1/2020	TOWN OF EASTON STANDARD DETAILS MANHOLE FRAME AND COVER
	ISSUED: JANUARY 2020	
STANDARD NO: TOE-D-202		



NOTES:

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

	APPROVAL TOWN ENGINEER DATE: 1/2020	TOWN OF EASTON STANDARD DETAILS TRENCH DETAIL
	ISSUED: JANUARY 2020	
STANDARD NO: TOE-R-501-1		



DETAIL D-4-1-A ROCK OUTLET PROTECTION I

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (3/4 TO 1 1/2 INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE Voids BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

RIPRAP SIZING TABLE						
FES #	FES DIAMETER (IN.)	10-YR STORM (CFS)	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN.)	RIP-RAP TYPE
1	12	5.55	10	11	19	CLASS I
2	24	8.51	11	13	19	CLASS I
3	15	2.01	8	9.25	19	CLASS I
4	12	5.08	10	11	19	CLASS I
5	24	12.57	11	13	19	CLASS I
6	30	17.56	14	16.5	19	CLASS I
7	24	15.82	11	13	19	CLASS I

STORMWATER DETAILS

OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026, GRID: 0020, PARCEL: 0166

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

ASPIRE OUTDOORS, LLC

RAUCH

Engineering | Survey | Architecture | Environmental

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

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

Phone: 410 770 8081 | Fax: 410 770 3687

REVISIONS

DESCRIPTION

REVISED TO CONNECT TO GANNON ESTATES

DATE

6/25/2023

REV. #

1



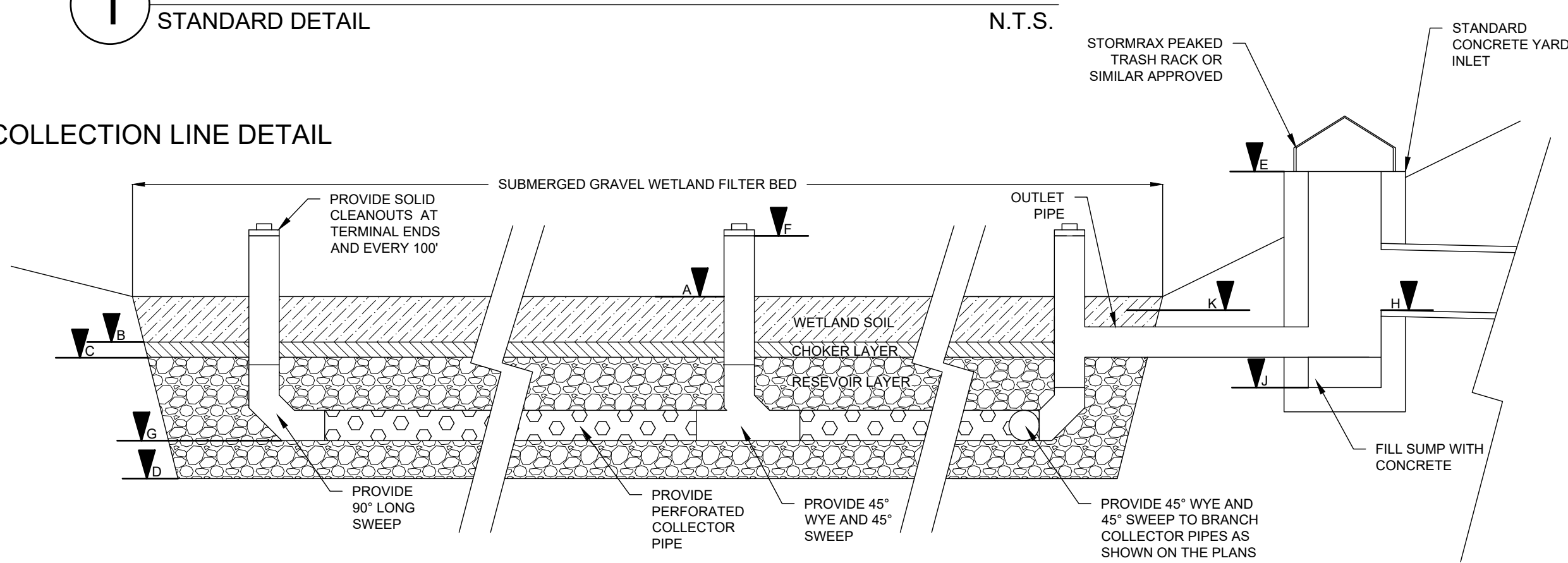
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SCALE: N/A
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.: C-205.03

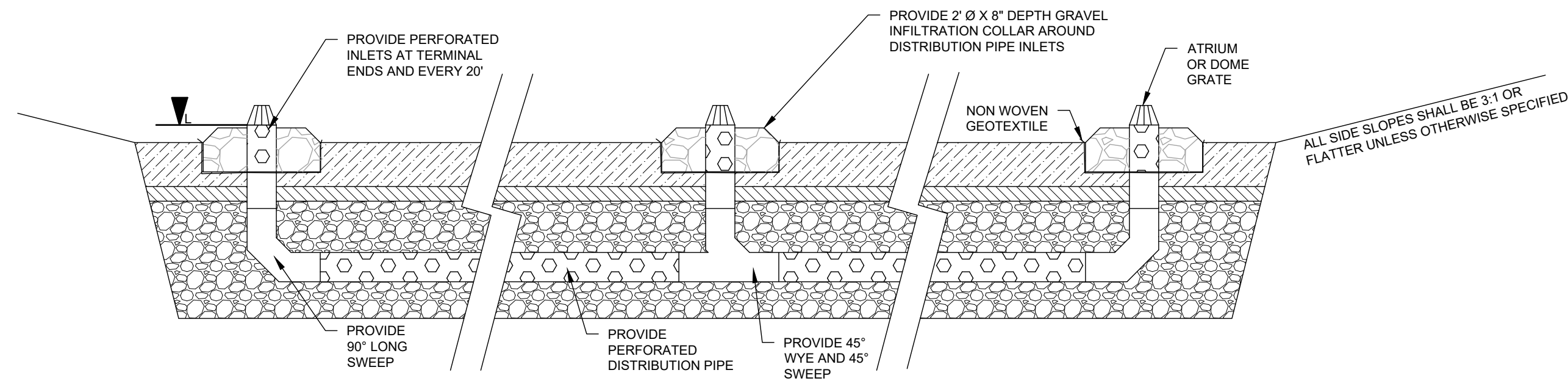
FOR REVIEW

1 SUBMERGED GRAVEL WETLAND
STANDARD DETAIL

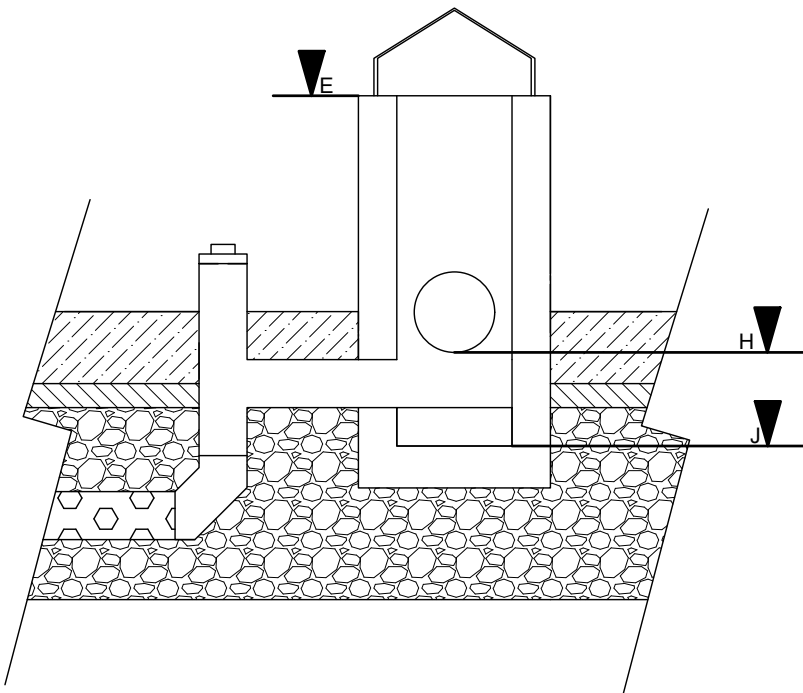
COLLECTION LINE DETAIL



DISTRIBUTION LINE DETAIL

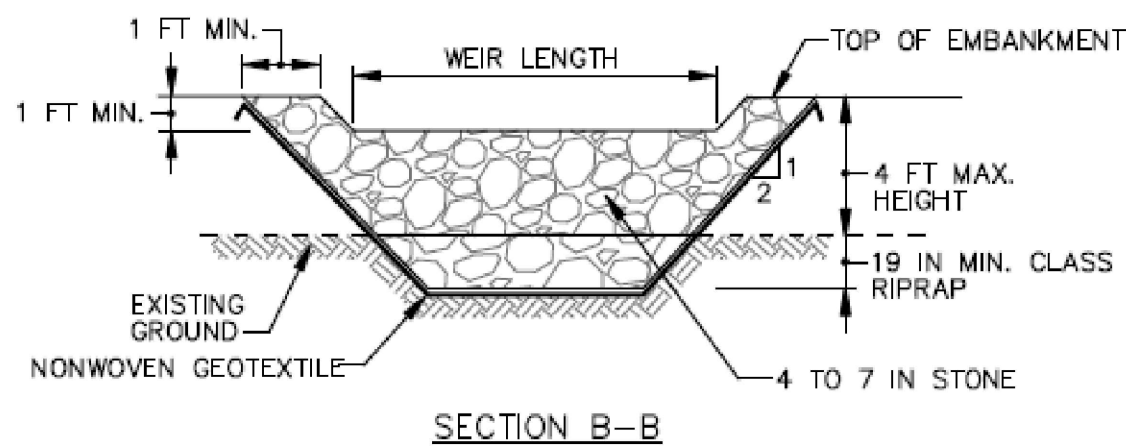
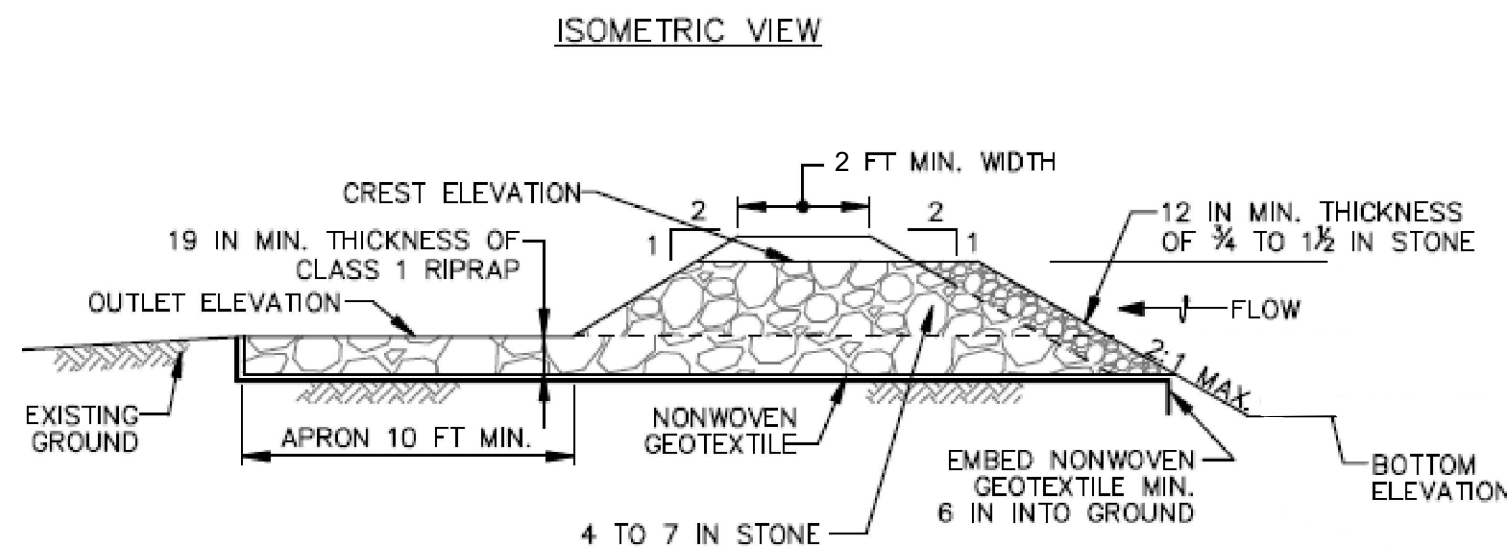
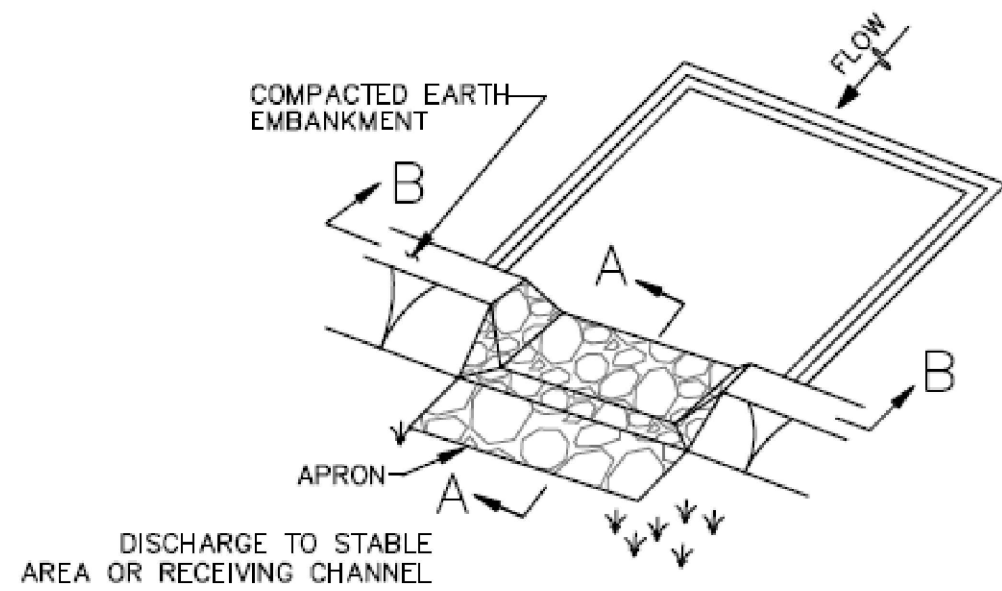


OUTLET STRUCTURE INSIDE
WETLAND BED



- NOTES:
- 8" THICK WETLAND SOILS SHALL BE LOW K_{sat} SOIL (0.1-0.01 FT/DAY) CONTAINING ±50% SILT/CLAY, ±25% SAND, ±25% ORGANIC CONTENT
 - ALL PIPES SHALL BE SDR-35 OR SCHEDULE 40 UNLESS SHOWN
 - FILTER FABRIC IS NOT USED BETWEEN SOIL AND CHOKER STONE OR GRAVEL AND CHOKER STONE
 - PERFORATIONS SHALL BE 3" Ø @ 6" o/c AROUND THE CIRCUMFERENCE OF THE PIPE
 - 4" THICK CHOKER STONE SHALL BE PEA GRAVEL OR #8 STONE, WASHED AND FREE OF FINES
 - RESERVOIR GRAVEL SHALL BE 3" RIVER GRAVEL OR #57 CRUSHED STONE, WASHED AND FREE OF FINES
 - YARD INLETS SHALL BE FOUNDED ON 6" NO 57 STONE ON TOP OF GEOTEXTILE FILTER - COMPACT SUBGRADE.

SUBMERGED GRAVEL WETLAND			
PRACTICE NAME		SGW-1	SGW-2
COMPONENT		ELEVATION - FT	ELEVATION - FT
A	WETLAND BED	45.50	47.50
B	CHOKER TOP	44.83	46.83
C	RESEVOIR TOP	44.50	46.50
D	RESEVOIR BOTTOM	42.50	44.50
E	RIM	47.50	49.50
F	CLEANOUT	47.50	49.50
G	COLLECTOR/DISTRIBUTION PIPE INVERT	42.75	44.75
H	OUTLET	45.17	47.17
J	OUTLET STRUCTURE BOTTOM	40.75	42.75
K	IWS ELEVATION	45.17	47.17
L	COLLECTOR PIPE INLET RIM	47.00	49.00
UNDERDRAIN SIZE - IN		6	6
OUTLET STRUCTURE SIZE + TYPE		2'X2' CONCRETE	2'X2' CONCRETE
OUTLET PIPE SIZE + TYPE		12" N-12	12" N-12
BED AREA		2,056 SF	4,027 SF



FOREBAY 1
CREST ELEV = 47.50
WEIR LENGTH = 7 FT
CREST WIDTH = 2 FT

FOREBAY 2
CREST ELEV = 49.50
WEIR LENGTH = 7 FT
CREST WIDTH = 2 FT

STORMWATER DETAILS

OF THE LANDS OF
ASPIRE APARTMENTS
TAX MAP - 0026, GRID: 0020, PARCEL - 0166
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
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REVISIONS

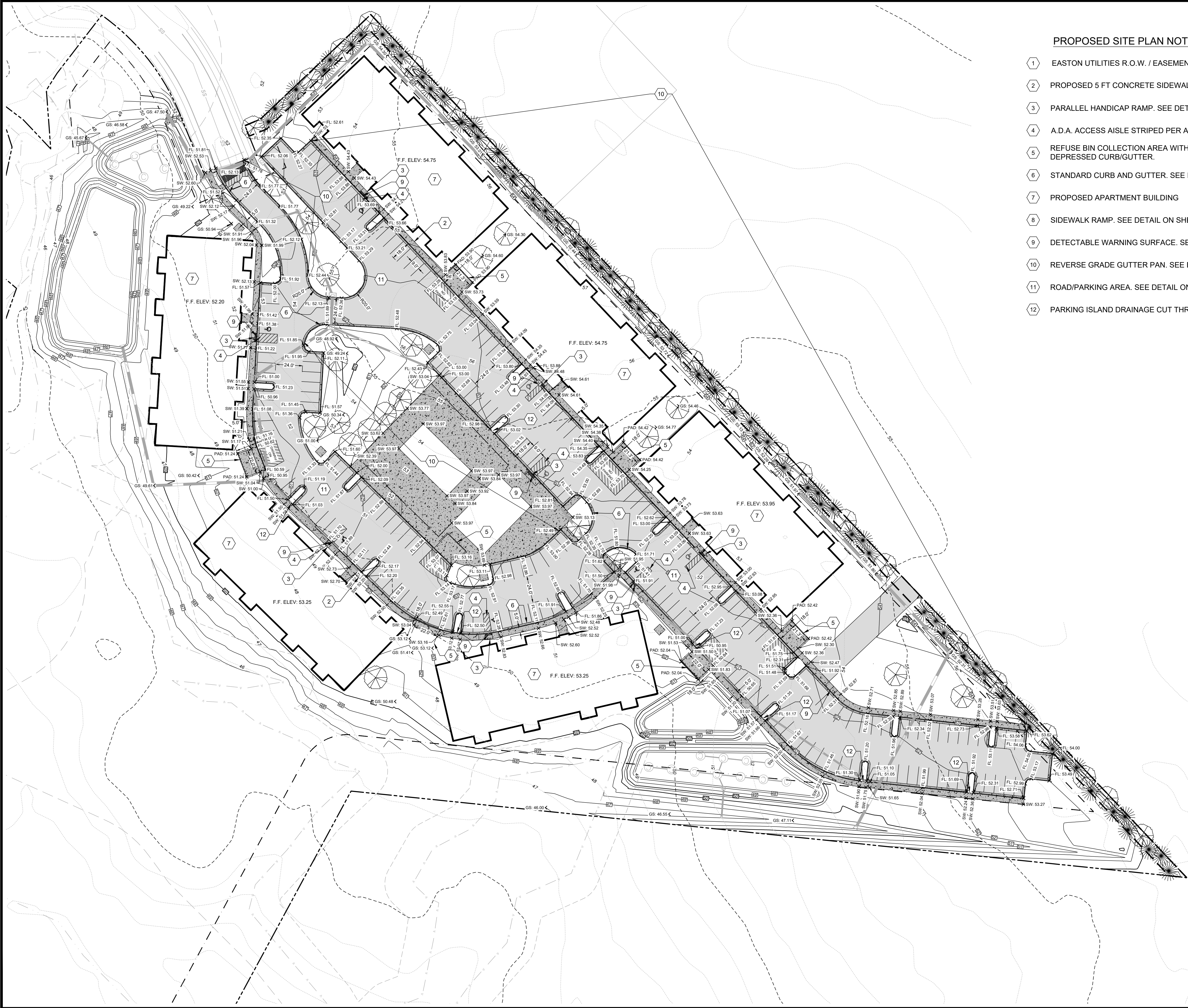
REV. #	DATE	DESCRIPTION
1	6/22/2023	REVISED TO CONNECT TO GANNON ESTATES



DATE: 12/6/2022
SCALE: N/A
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

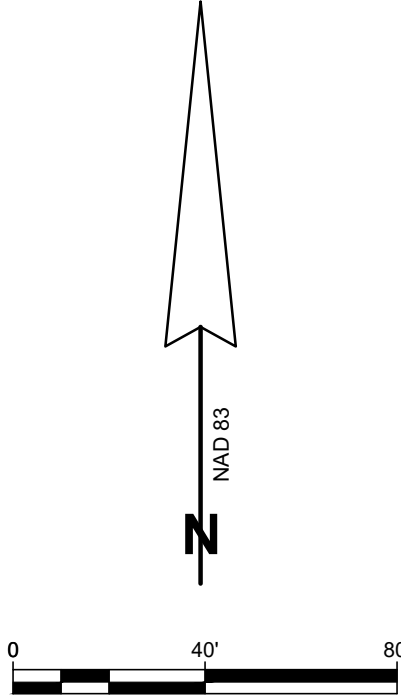
SHEET NO.:
C-205.04

FOR
REVIEW



PROPOSED SITE PLAN NOTES

- 1 EASTON UTILITIES R.O.W. / EASEMENT
- 2 PROPOSED 5 FT CONCRETE SIDEWALK. SEE DETAIL ON SHEET C-305.01
- 3 PARALLEL HANDICAP RAMP. SEE DETAIL ON SHEET C-305.01
- 4 A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
- 5 REFUSE BIN COLLECTION AREA WITH WOODEN FENCE AND DEPRESSED CURB/GUTTER.
- 6 STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
- 7 PROPOSED APARTMENT BUILDING
- 8 SIDEWALK RAMP. SEE DETAIL ON SHEET C-305.02
- 9 DETECTABLE WARNING SURFACE. SEE DETAIL ON SHEET C-305.02
- 10 REVERSE GRADE GUTTER PAN. SEE DETAIL ON SHEET C-305.02.
- 11 ROAD/PARKING AREA. SEE DETAIL ON SHEET C-405.01
- 12 PARKING ISLAND DRAINAGE CUT THROUGH SEE DETAIL ON SHEET C-405.02



SITE GRADING PLAN

OF THE LANDS OF
ASPIRE APARTMENTS
TAX MAP: 0026, GRID: 0020, PARCEL: 0186
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
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REVISIONS

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1	6/23/2023	REVISED TO CONNECT TO GANNON ESTATES



DATE:	6/23/2023
SCALE:	1" = 40'
DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

SHEET NO.:
C-301

FOR
REVIEW

EA

NOTES:

NOTES:

NOTES:

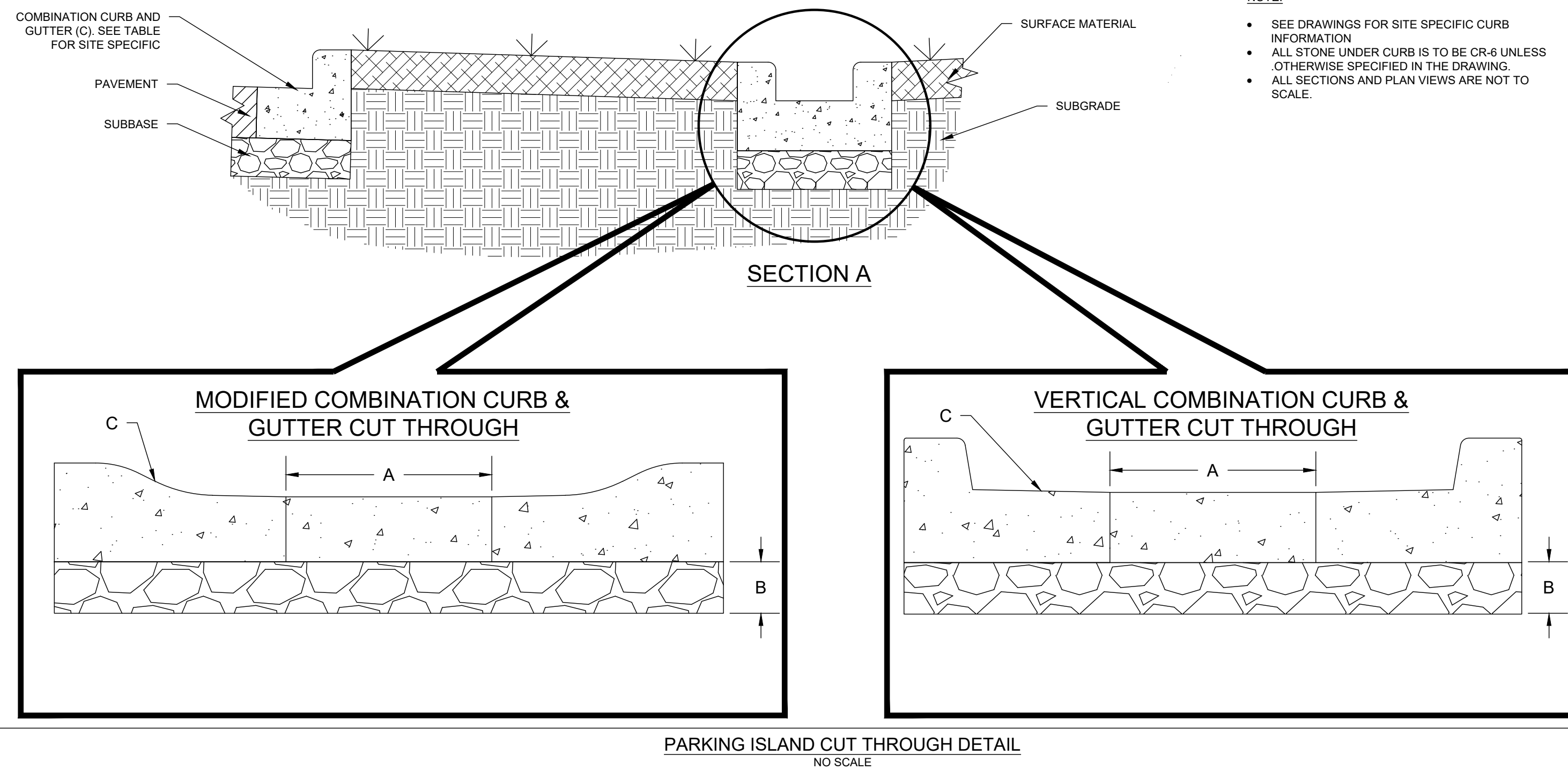
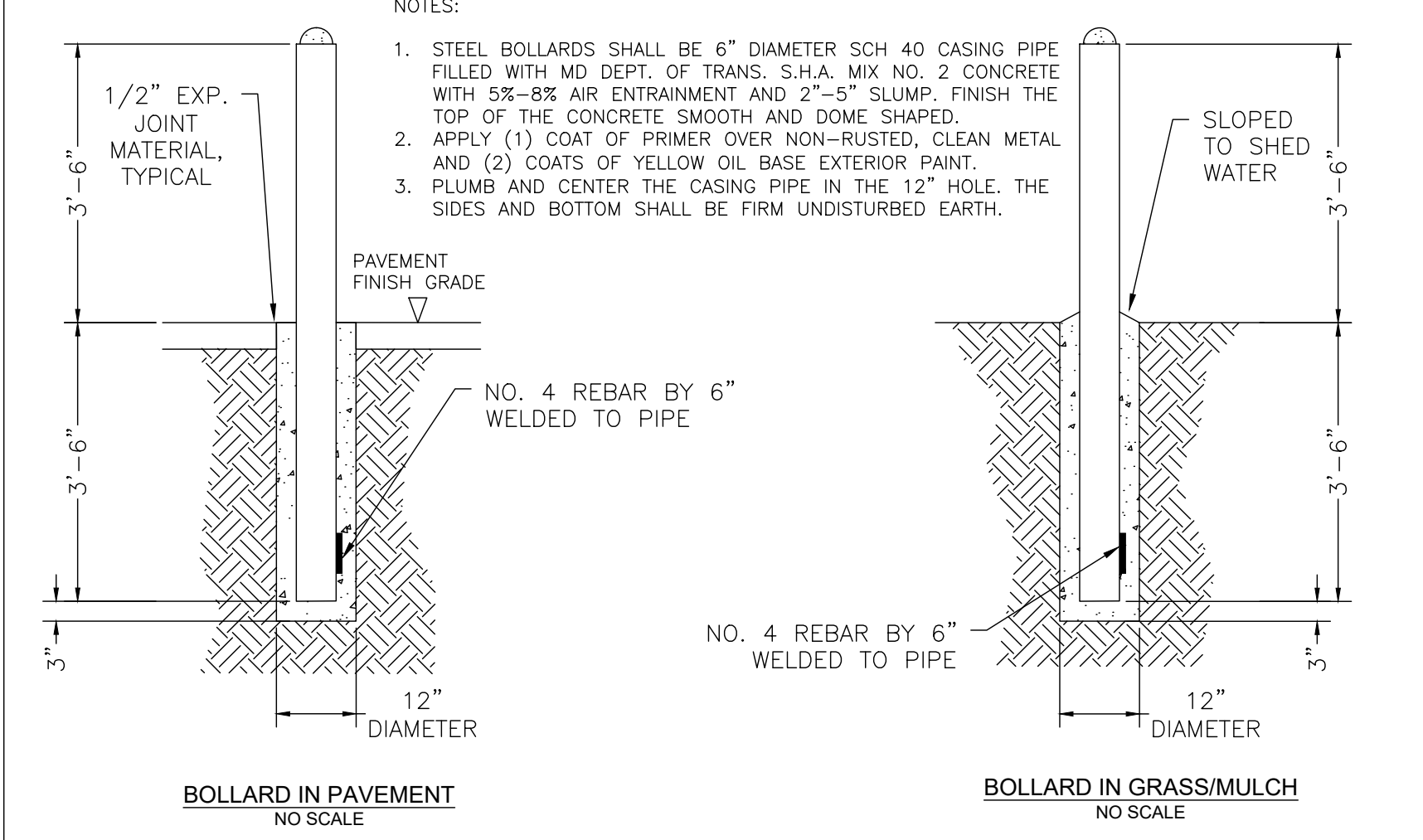
NOTES

-
- Diagram illustrating a standard curb and depressed curb intersection. The diagram shows a 5'-0" wide sidewalk area with a 12:1 MAX slope. A 6'-0" transition area leads to a 3'-0" transition area. A 48:1 (MAX) 2% (MIN) 1% slope is indicated. A 2% MAX SLOPE AT RAMP is shown. A DETECTABLE WARNING SURFACE is located at the curb. A GRASS AREA is shown above the sidewalk. A STANDARD CURB and a DEPRESSED CURB are labeled.
- NOTES:**
1. BRICK SIDEWALK AND HANDICAP RAMPS SHALL BE USED AS DIRECTED BY THE TOWN.
 2. AT NO POINT SHALL THE SLOPE OF THE LANDING BE GREATER THAN 48:1 (2%), INCLUDING DIAGONAL.

3. THERE SHALL BE A LANDING PRIOR TO THE RAMPS. THE LANDING SHALL BE 3' IN LENGTH, MINIMUM.
4. DETAIL ONLY TO BE USED AS A GUIDE, CONTRACTOR TO USE GRADES SHOWN ON GRADING PLAN.

TYPE "G" SIDEWALK RAMP DETAIL

	APPROVAL <i>Red New England</i> TOWN ENGINEER 1/2020 DATE	TOWN OF EASTON STANDARD DETAILS CONCRETE QUICK REFERENCE LIST
	ISSUED: JANUARY 2020	STANDARD NO: TOE-R-7.09



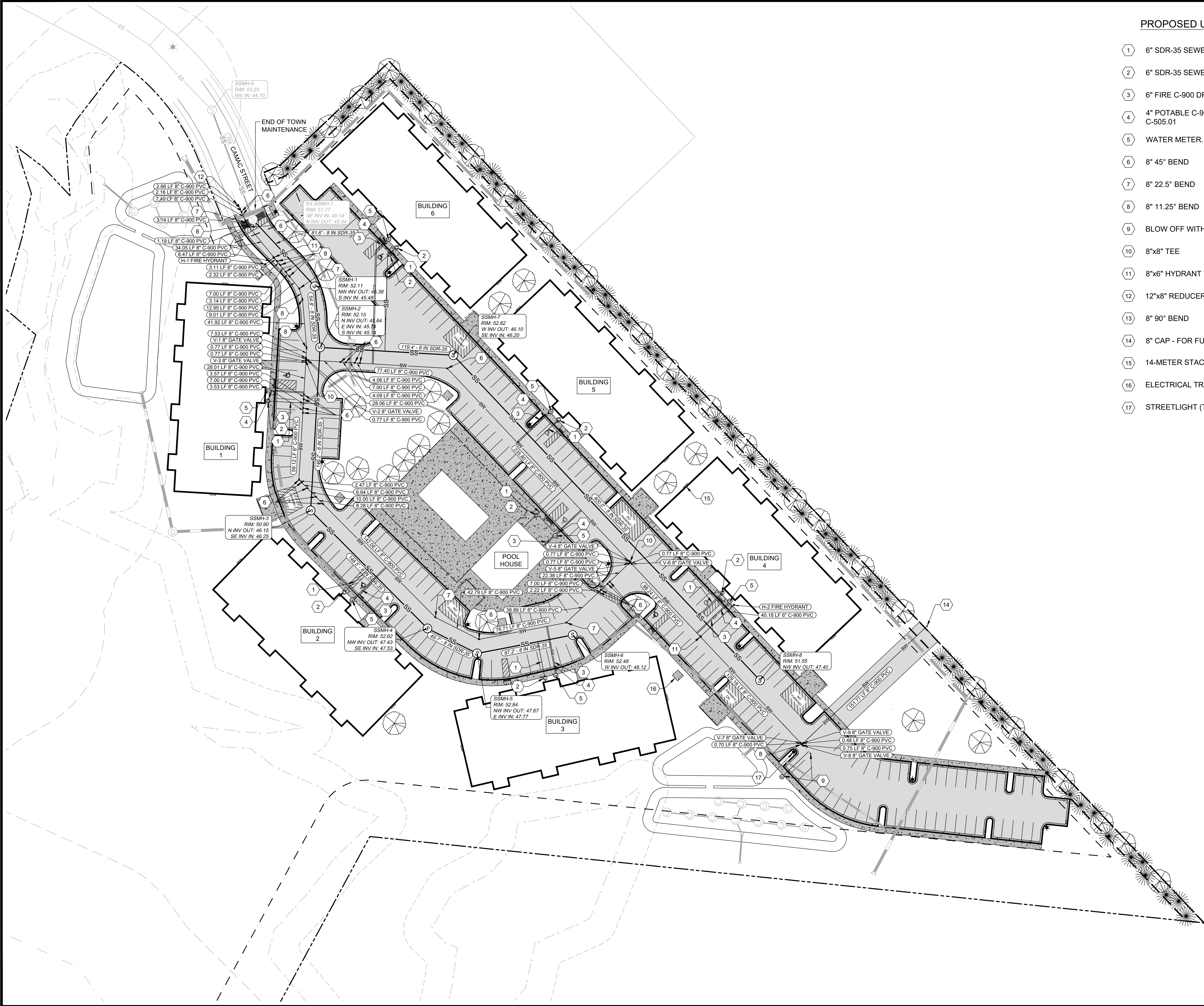
NOTE:

- SEE DRAWINGS FOR SITE SPECIFIC CURB INFORMATION
- ALL STONE UNDER CURB IS TO BE CR-6 UNLESS OTHERWISE SPECIFIED IN THE DRAWING.
- ALL SECTIONS AND PLAN VIEWS ARE NOT TO SCALE.

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
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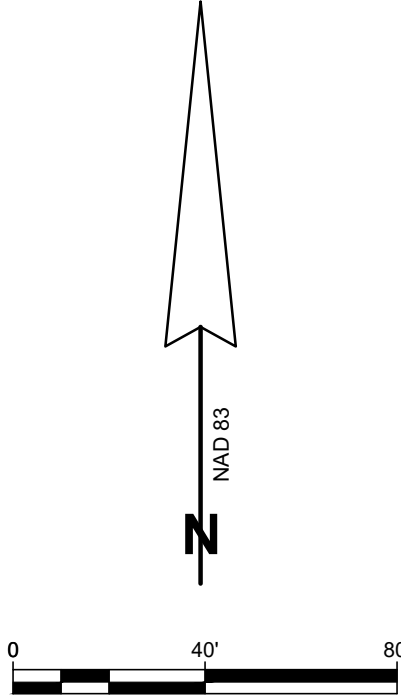
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**FOR
REVIEW**



PROPOSED UTILITY FEATURES

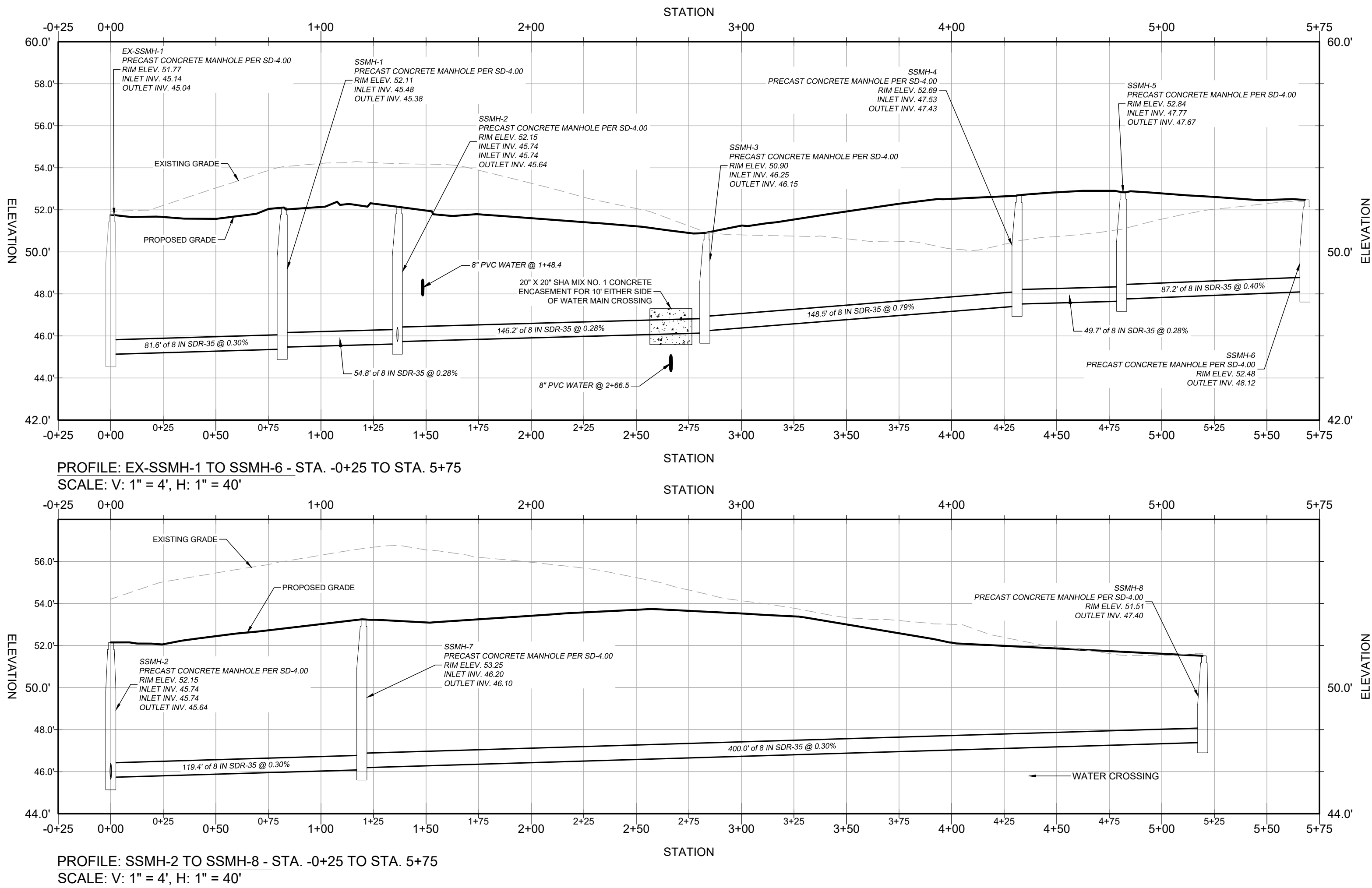
- 1 6" SDR-35 SEWER LATERAL. SEE DETAIL ON SHEET C-505.01
- 2 6" SDR-35 SEWER CLEAN OUT. SEE DETAIL ON SHEET C-505.01
- 3 6" FIRE C-900 DR-18 WATER LINE. SEE DETAIL ON SHEET C-505.01
- 4 4" POTABLE C-900 DR-18 PIPE WATER LINE. SEE DETAIL ON SHEET C-505.01
- 5 WATER METER. SEE DETAIL ON SHEET C-505.01
- 6 8" 45° BEND
- 7 8" 22.5° BEND
- 8 8" 11.25° BEND
- 9 BLOW OFF WITH METER PIT. SEE DETAIL ON SHEET
- 10 8"x8" TEE
- 11 8"x6" HYDRANT TEE
- 12 12"x8" REDUCER
- 13 8" 90° BEND
- 14 8" CAP - FOR FUTURE CONNECTION
- 15 14-METER STACK (TYPICAL)
- 16 ELECTRICAL TRANSFORMER PAD (TYPICAL)
- 17 STREETLIGHT (TYPICAL)



UTILITY PLAN
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1	4/2/2023	REVISED PER TOWNEDUPZ COMMENTS
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DATE: 6/22/2023		
SCALE: 1" = 40'		
DRAWN BY: BBF		
DESIGNED BY: BBF		
APPROVED BY: BBF		
SHEET NO.: C-401		
FOR REVIEW		



STRUCTURE SCHEDULE ASPIRE - APARTMENTS - SEWER				
STRUCTURE NAME	LOCATION	STRUCTURE TYPE AND SIZE	CONNECTED PIPES	RIM ELEVATION
EX-SSMH-1	N408968.37, E1586138.39	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-1 INV IN = 45.14 SS-10 INV OUT = 45.04	51.77
SSMH-1	N408908.59, E1586193.90	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-2 INV IN = 45.48 SS-1 INV OUT = 45.38	52.11
SSMH-2	N408853.98, E1586198.58	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-3 INV IN = 45.74 SS-6 INV IN = 45.74 SS-2 INV OUT = 45.64	52.15
SSMH-3	N408708.01, E1586190.09	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-7 INV IN = 46.25 SS-6 INV OUT = 46.15	50.90
SSMH-4	N408602.49, E1586294.62	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-8 INV IN = 47.53 SS-7 INV OUT = 47.43	52.69
SSMH-5	N408590.08, E1586339.04	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-9 INV IN = 47.77 SS-8 INV OUT = 47.67	52.84
SSMH-6	N408596.55, E1586424.67	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-9 INV OUT = 48.12	52.48
SSMH-7	N408846.99, E1586317.82	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-4 INV IN = 46.20 SS-3 INV OUT = 46.10	53.25
SSMH-8	N408556.00, E1586592.28	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-4 INV OUT = 47.40	51.51
SSMH-9	N409066.14, E1586101.86	48 DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-10 INV IN = 44.70	53.23

PIPE SCHEDULE ASPIRE - APARTMENTS - SEWER					
PIPE NAME	SIZE AND MATERIAL	LENGTH	SLOPE	UPSTREAM STRUCTURE AND INVERT	DOWNSTREAM STRUCTURE AND INVERT
SS-1	8 IN SDR-35	81.58'	0.30%	EX-SSMH-1 INV. 45.14'	SSMH-1 INV. 45.38'
SS-2	8 IN SDR-35	54.81'	0.28%	SSMH-1 INV. 45.48'	SSMH-2 INV. 45.64'
SS-3	8 IN SDR-35	119.45'	0.30%	SSMH-2 INV. 45.74'	SSMH-7 INV. 46.10'
SS-4	8 IN SDR-35	400.00'	0.30%	SSMH-7 INV. 46.20'	SSMH-8 INV. 47.40'
SS-6	8 IN SDR-35	146.22'	0.28%	SSMH-2 INV. 45.74'	SSMH-3 INV. 46.15'
SS-7	8 IN SDR-35	148.53'	0.79%	SSMH-3 INV. 46.25'	SSMH-4 INV. 47.43'
SS-8	8 IN SDR-35	49.75'	0.28%	SSMH-4 INV. 47.53'	SSMH-5 INV. 47.67'
SS-9	8 IN SDR-35	87.20'	0.40%	SSMH-5 INV. 47.77'	SSMH-6 INV. 48.12'
SS-10	12 IN SDR-35	104.37'	0.33%	SSMH-9 INV. 44.70'	EX-SSMH-1 INV. 45.04'

REVISIONS

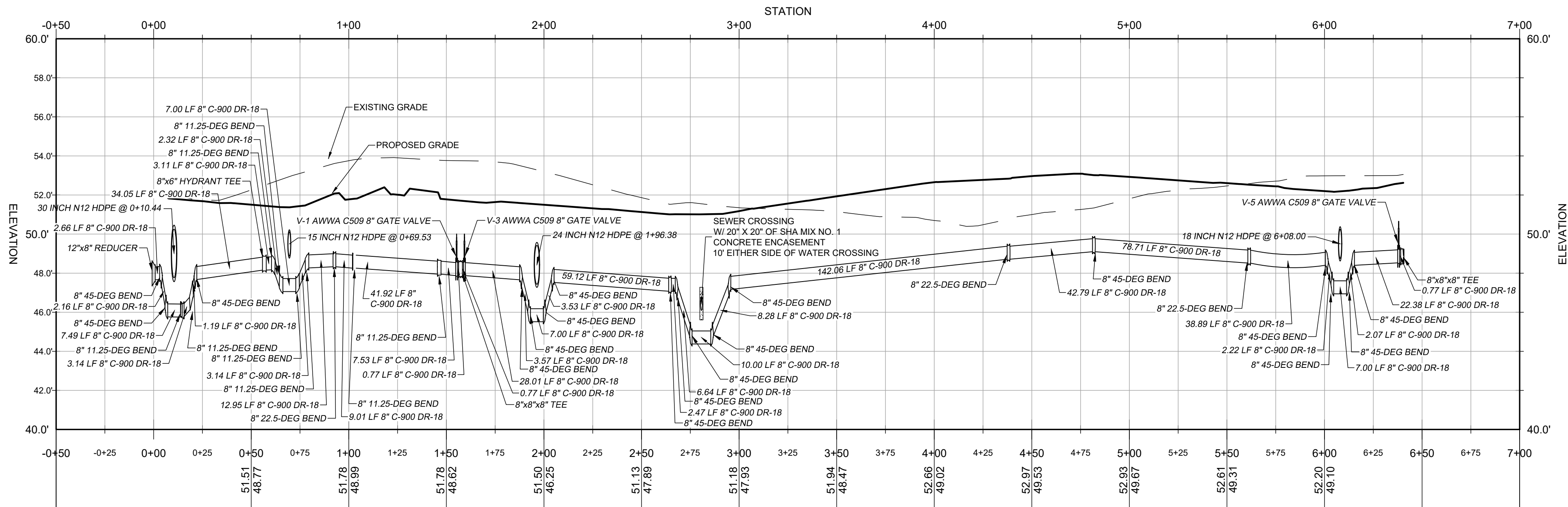
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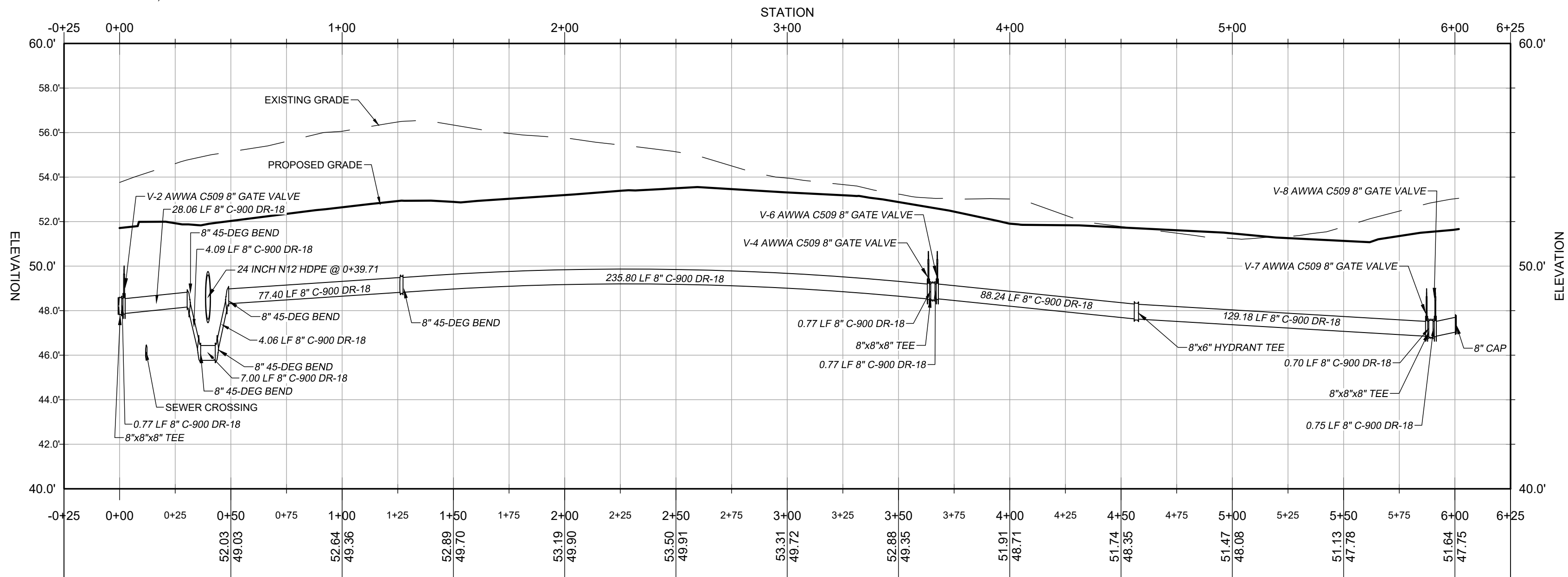
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DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

SHEET NO.:
C-403.01

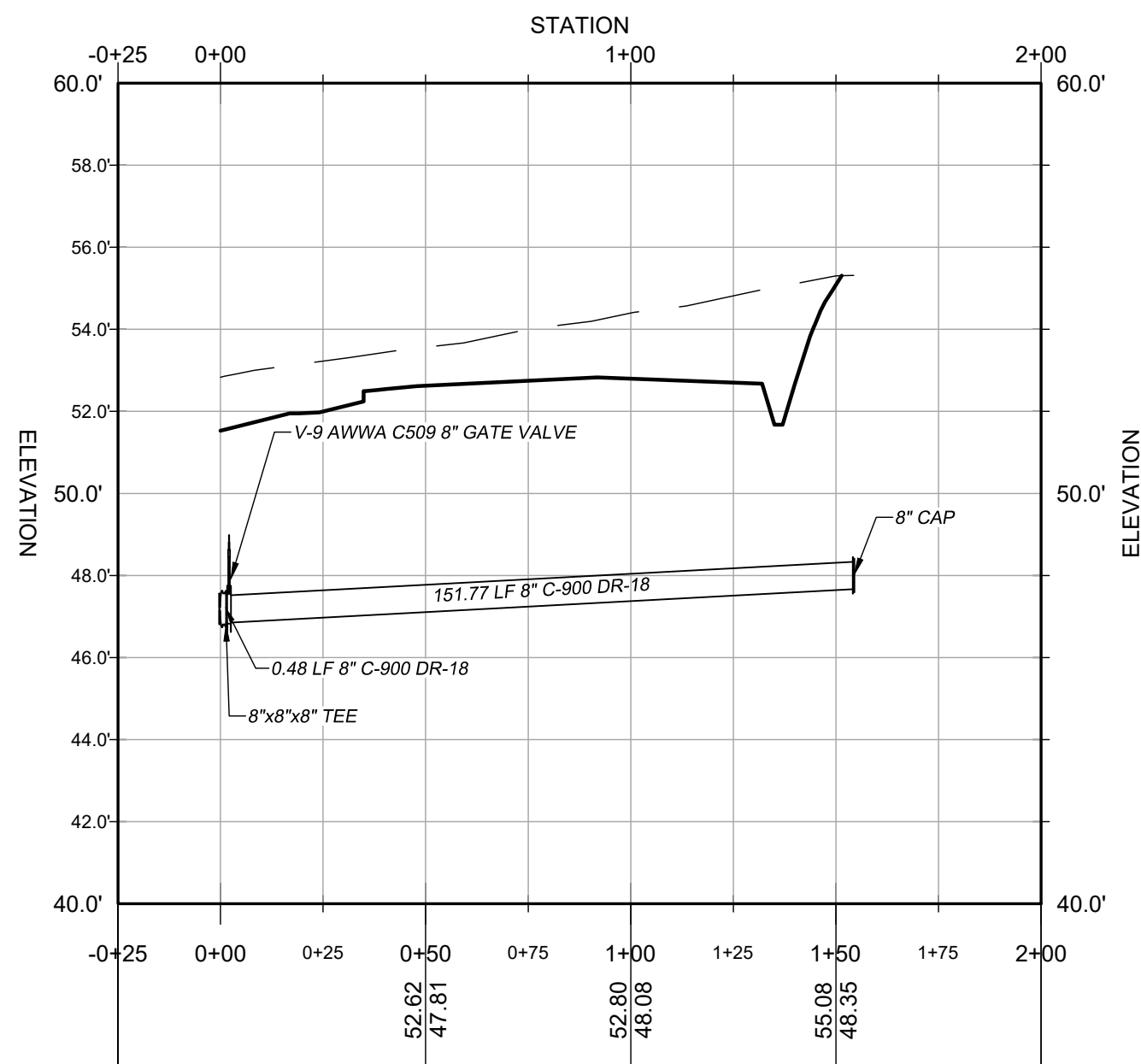
FOR
REVIEW



PROFILE: W - ASPIRE NORTH - ROAD 1,
STA. -0+50 TO STA. 7+00
SCALE: V: 1" = 4', H: 1" = 40'



PROFILE: W - ASPIRE NORTH - ROAD 2,
STA. -0+25 TO STA. 6+00
SCALE: V: 1" = 4', H: 1" = 40'



PROFILE: W - GANNON WATER CONNECTOR,
STA. -0+25 TO STA. 3+50
SCALE: V: 1" = 4', H: 1" = 40'

WATER PROFILES

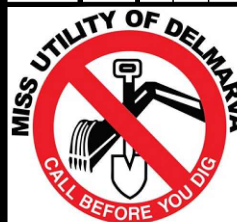
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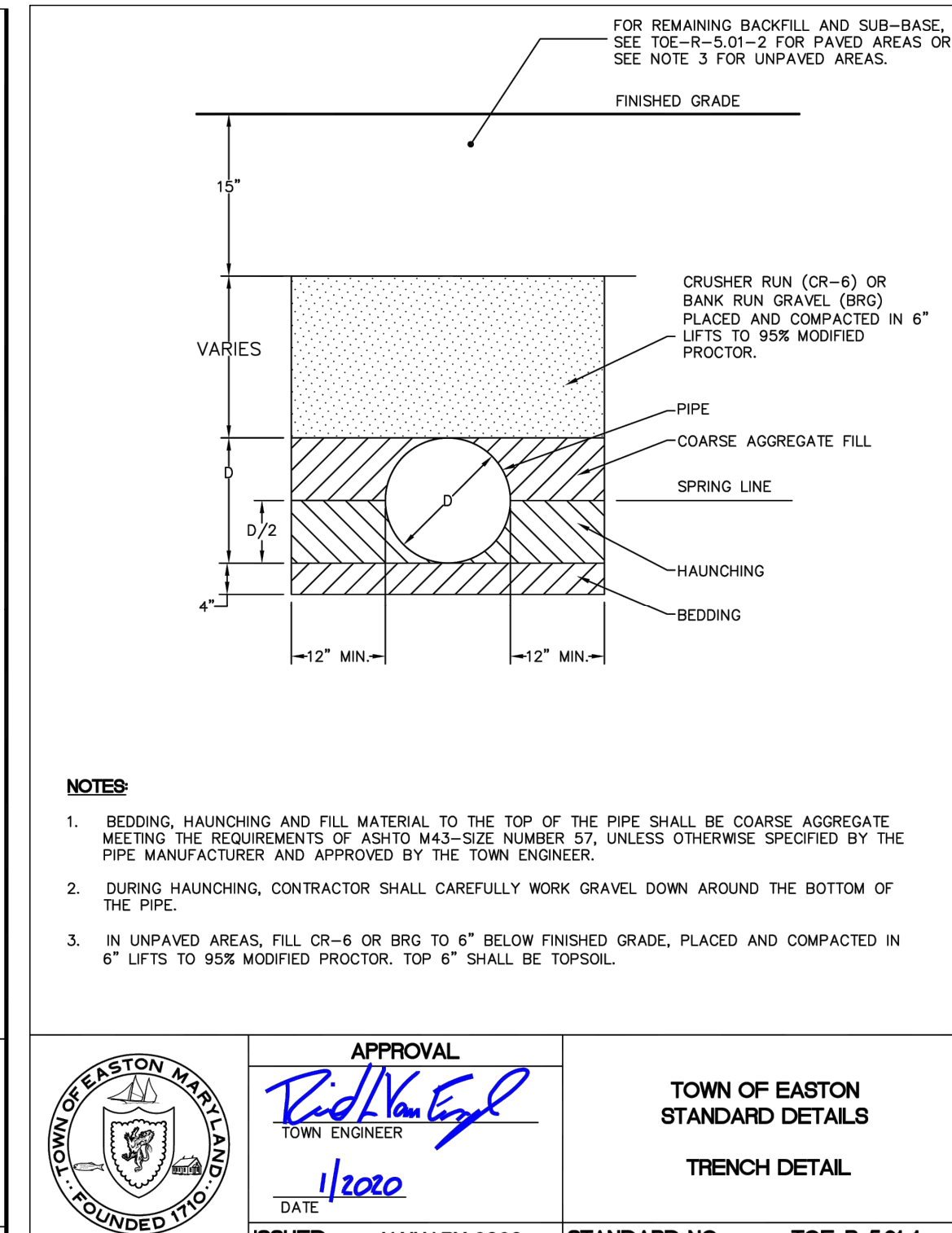
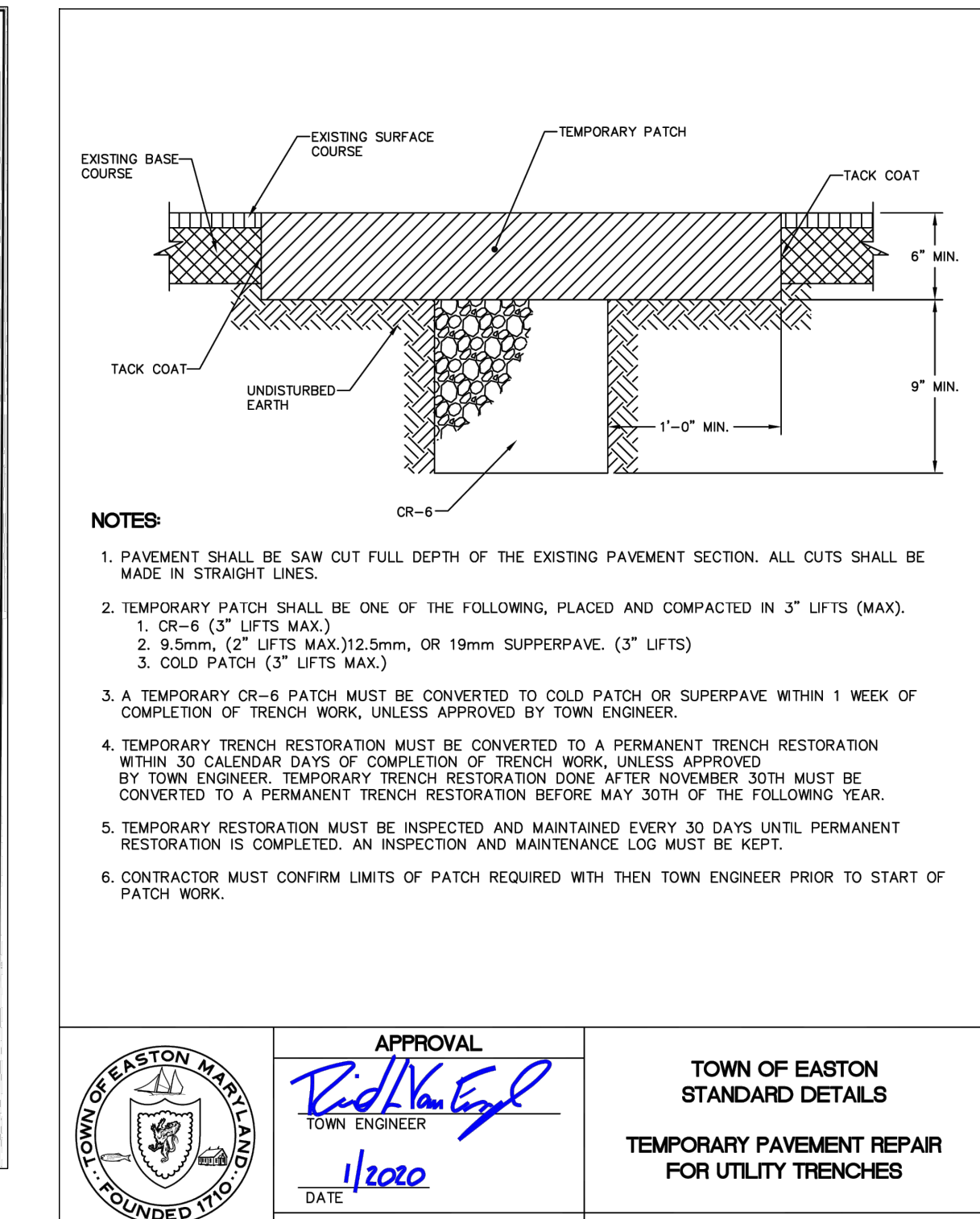
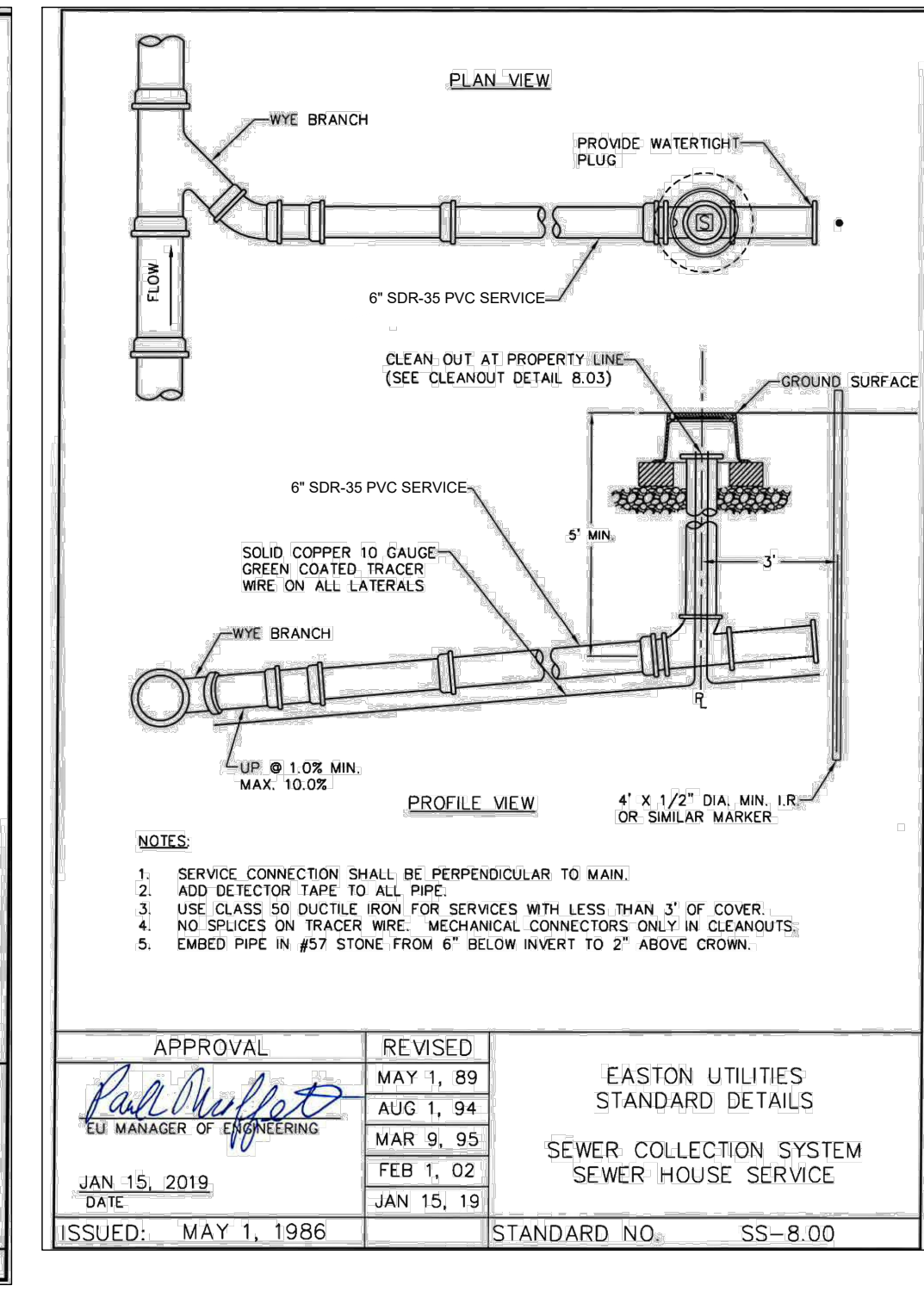
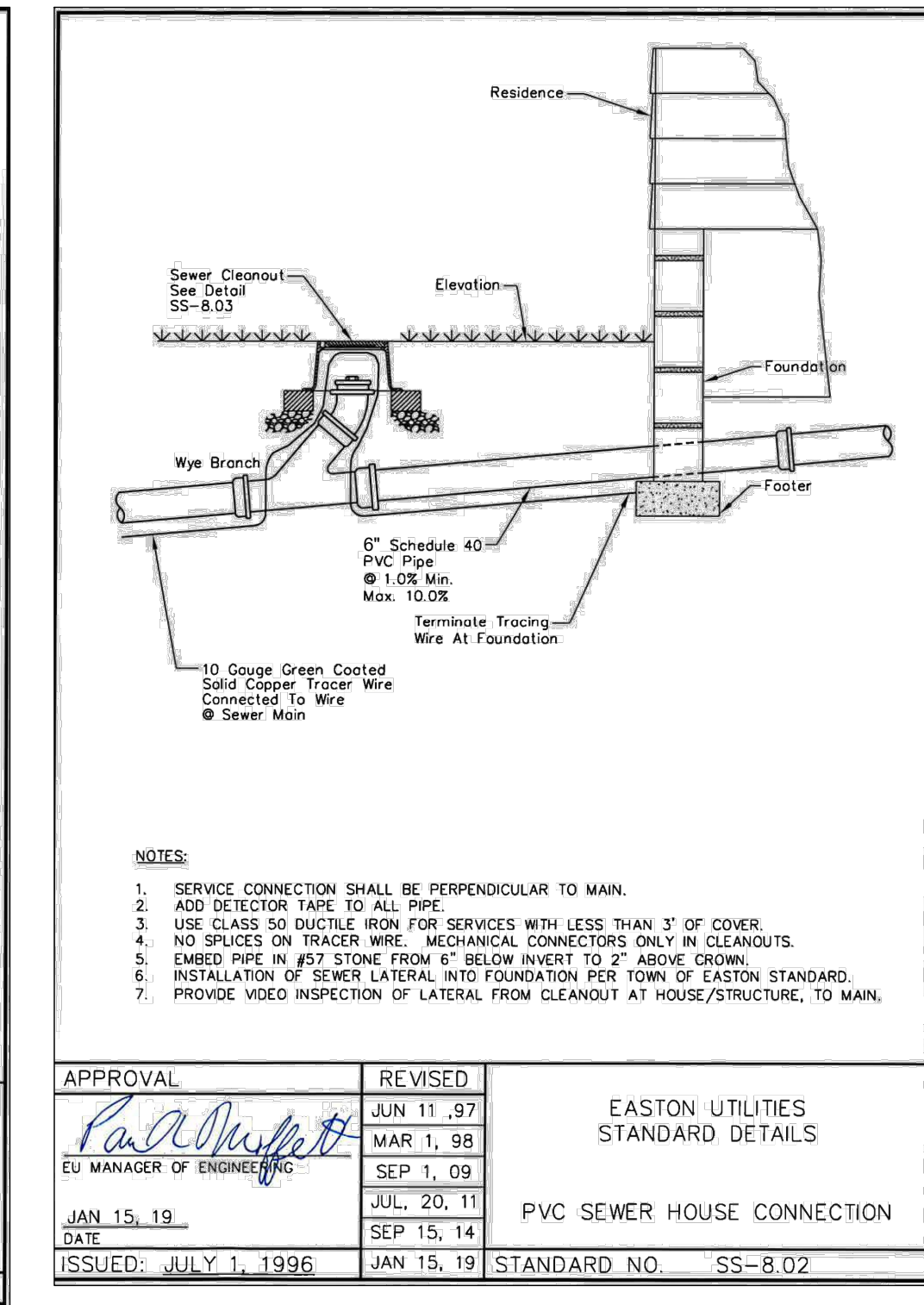
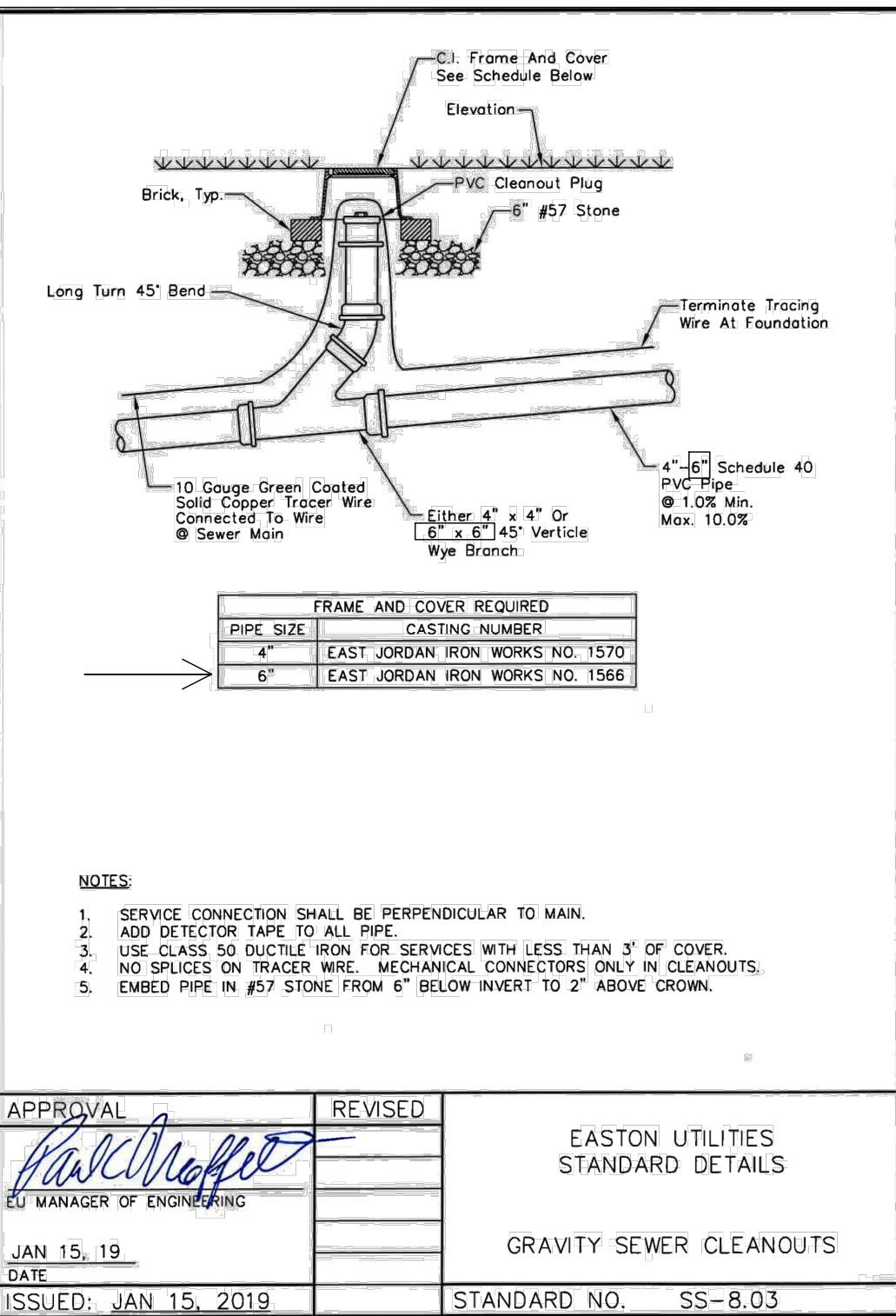
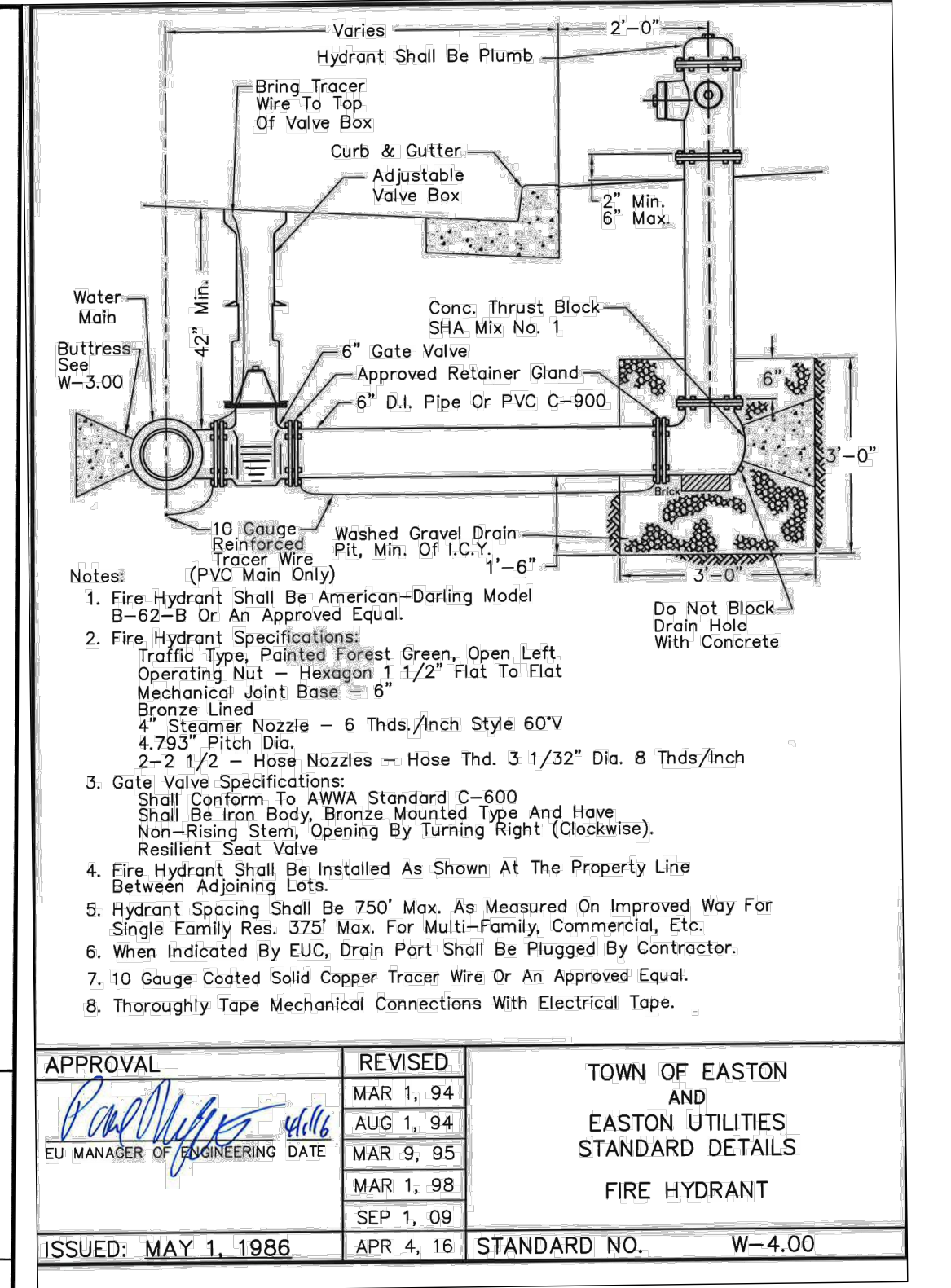
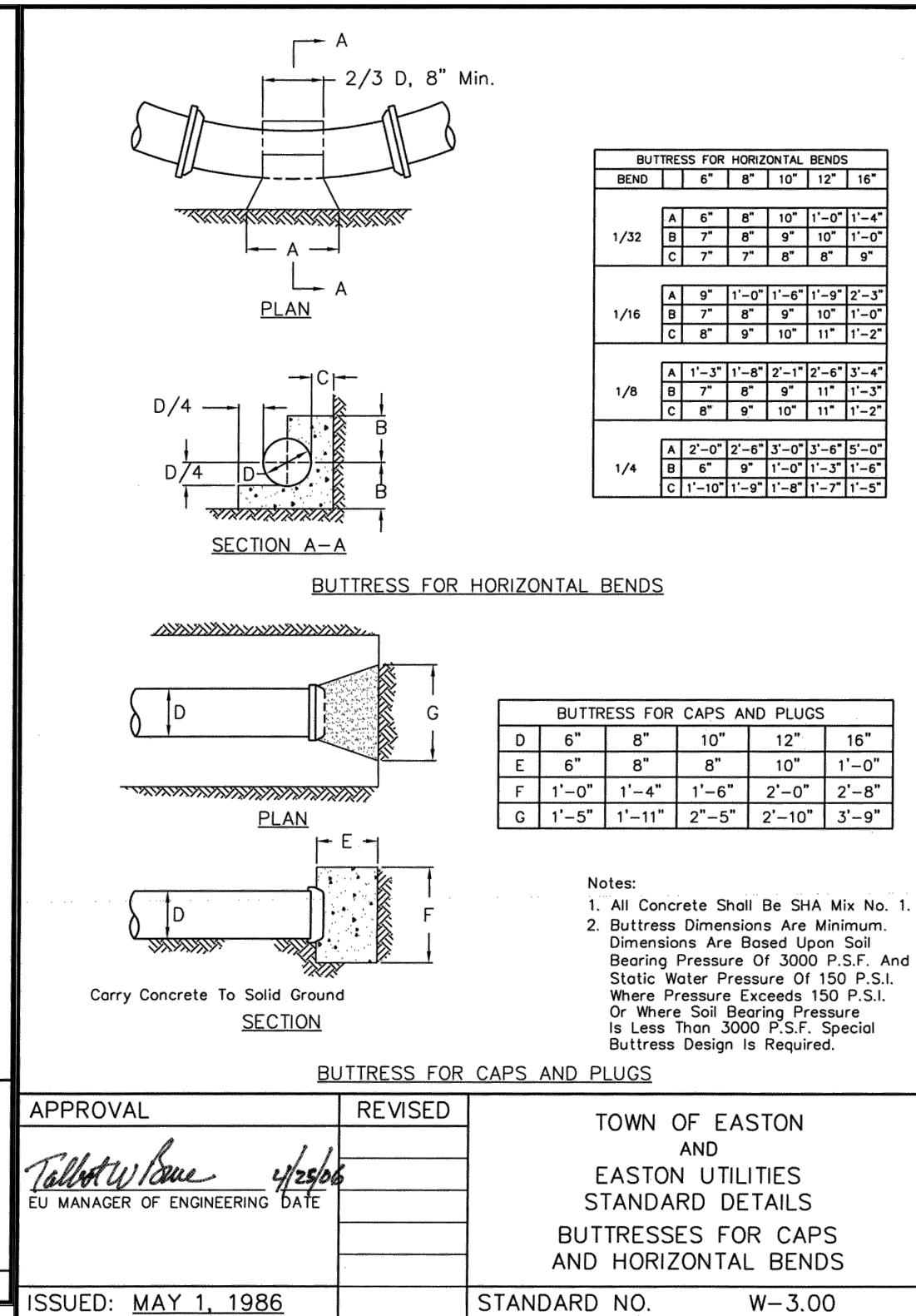
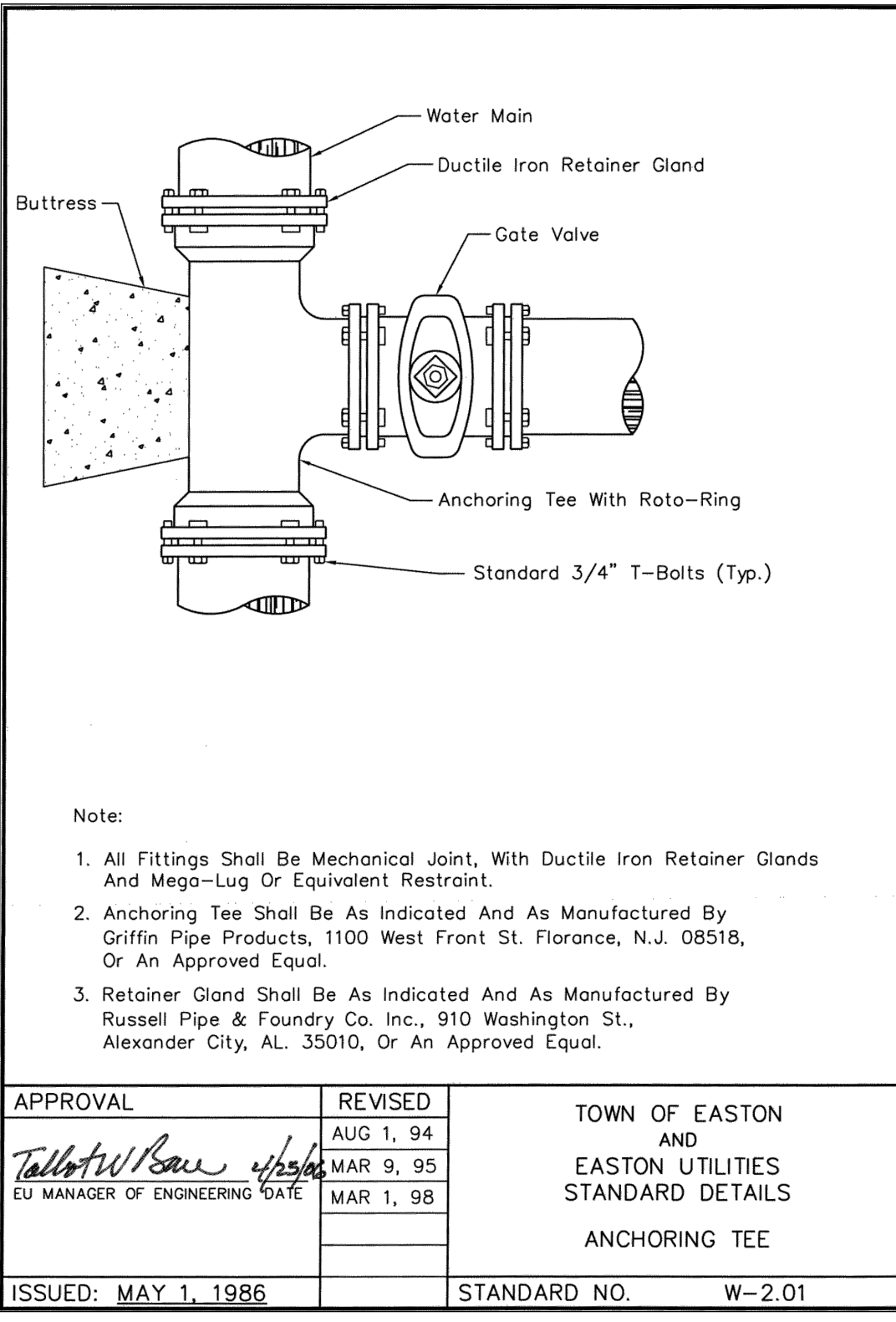
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UTILITY DETAILS
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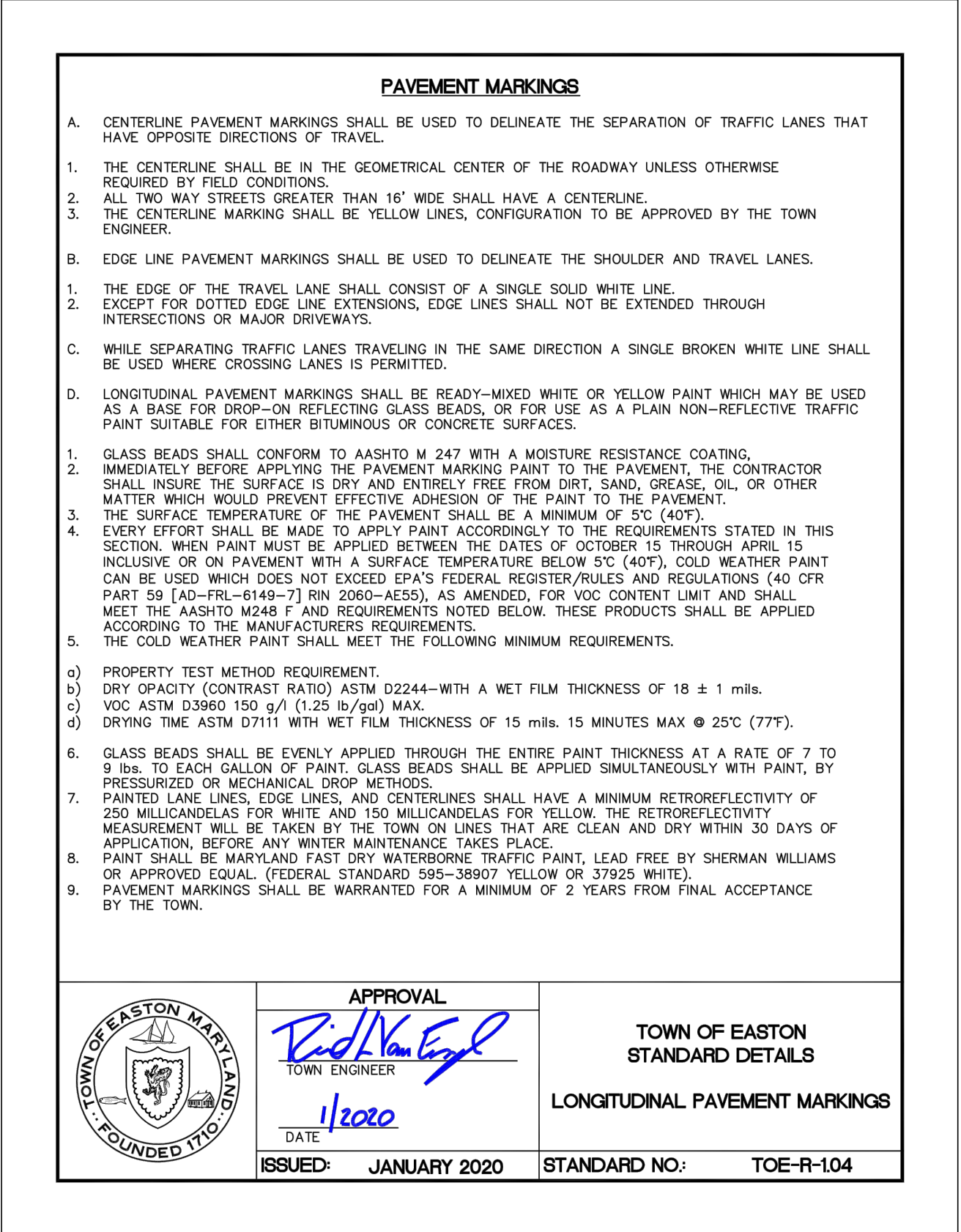
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DATE: 12/7/2022
SCALE: N/A
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.: C-405

FOR REVIEW



1	HANDICAPPED PARKING SIGN - SEE DETAIL ON SHEET C-305.01
2	STOP SIGN - SEE DETAIL ON SHEET C-305.01
3	ENTRANCE SIGN
4	CROSSWALK
5	TRAFFIC CALMING AESTHETIC STAMPED ASPHALT

STRIPING & SIGNAGE PLAN

OF THE LANDS OF

ASPIRE APARTMENTS

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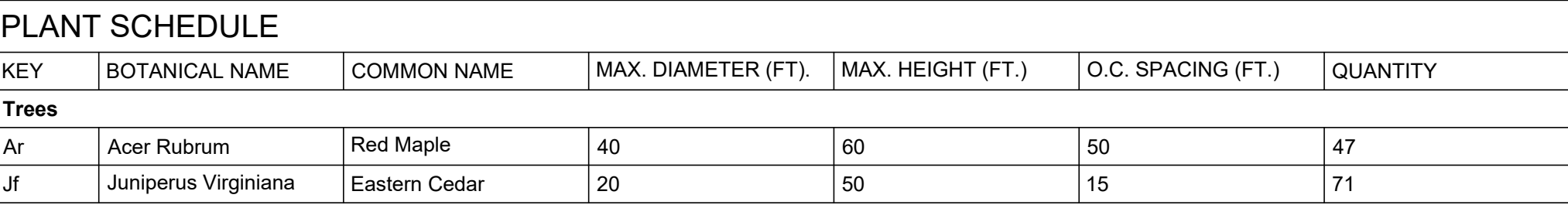
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

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RAUCH  **108**
Engineering | Survey | Architecture | Environmental

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1. INTERNAL, ON-LT PUBLIC OR PRIVATE STREET TREE PLANTINGS: (ONE) SHADE/CANOPY TREE PER 35' OF STREET CENTERLINE LENGTH. TREES TO BE PLANTED WITHIN 15' OF CURB LINE.
2. ALL PARKING LOTS SHALL BE LANDSCAPED WITH AN EVERGREEN SHRUB HEDGE WHICH WILL GROW TO A MINIMUM OF 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).
3. BUILDING FACADE PLANTINGS

-ONE (1) TREE PER 50' OF FRONT BUILDING FACADE OR PORTION THEREOF.

-LANDSCAPE BEDS CONTAINING UNDERSTORY TREES, SHRUBS, GROUNDCOVERS THAT COVER 25% OF THE FRONT OF THE BUILDING FACADE. MINIMUM BED DIMENSION SHALL BE FIVE FEET (5'). A BUILDING WITH A SIXTY FOOT FRONT FACADE WOULD MEET THESE REQUIREMENTS WITH TWO TREES LOCATED IN TWO SHRUB BEDS 7.5' BY 5' ON EITHER SIDE OF THE ENTRANCE DOOR. REQUIRED SHADE/CANOPY TREES CAN BE LOCATED WITHIN THESE BEDS WHERE THE BED SIZE EQUALS OR EXCEEDS 64 SQ. FT. PLANT TYPE AND FORM SHALL REFLECT THE ADJACENT BUILDING FORM AND MASS. LARGE OR TALL BUILDINGS SHALL INCORPORATE LARGER PLANTINGS AND MORE TREES.
4. SERVICE/LOADING AREAS

PROVIDE MINIMUM 6' WALL/FENCE WITH AT LEAST 50% OF FACE PLANTED WITH EVERGREEN SHRUBS OR TREES. IN LIEU OF 50% PLANTING REQUIREMENT, WALL OR FENCE SHALL BE A DECORATIVE ARCHITECTURAL STATEMENT COMPATIBLE WITH THE ARCHITECTURAL DESIGN OF THE ADJOINING STRUCTURE. ACCESS OPENING(S) TO BE ORIENTED AWAY FROM STREETS AND PREDOMINANT PEDESTRIAN/TRAFFIC VIEWS, OR GATED TO SCREEN VIEW.
5. SHRUB AND GROUND COVER PLANTINGS

SHRUBS AND GROUNDCOVERS SHALL BE INTEGRATED INTO THE SITE AND LANDSCAPE PLAN TO COMPLEMENT ARCHITECTURAL DESIGN. SCREEN OBJECTS/ WALLS/ VIEWS. SEPARATE PEDESTRIAN ACTIVITIES FROM VEHICULAR TRAVEL WAYS. STABILIZE SENSITIVE OR ERODING AREAS AND OTHER APPLICATIONS THAT CONTRIBUTE TO THE OVERALL LANDSCAPE APPEARANCE. THE APPLICANT SHALL PROVIDE SHRUB AND GROUND COVER PLANTINGS OR DEMONSTRATE WHY THEY ARE UNNECESSARY, IMPRACTICAL, OR NOT EFFECTIVE IN PROVIDING AN ACCEPTABLE LANDSCAPE APPEARANCE.
6. FOR 11,001 TO 100,000 SQ. FT. OF DISTURBED AREA, THE MINIMUM TREE PLANTING REQUIRED INCLUDING BUFFER YARDS SHALL BE 1 TREE/ 1500 SQ. FT.

1 SUBMERGED GRAVEL WETLAND AND FOREBAY
PLANTINGS ARE DETAILED ON SHEET C-605.02

2 PICKET FENCE

LANDSCAPING PLAN

OF THE LANDS OF

ASPIRE APARTMENTS

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ASPIRE OUTDOORS, LLC

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108
Engineering | Survey | Architecture | Environmental

Main Office: 108 N Harrison St. - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauching.com
Phone: 410 770 9081 | Fax: 410 770 3987

REVIEWS																				
REV. #	DATE	DESCRIPTION																		
1	6/23/2023	REVISED TO CONNECT TO GANNON ESTATES																		

DATE: 12/7/2022
SCALE: 1" = 40'
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.: C-601

FOR REVIEW

LANDSCAPE PLANTING REQUIREMENTS

GENERAL REQUIREMENTS:

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

PLANT MATERIAL:

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

PLANT MATERIAL HANDLING:

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

PLANTING SCHEDULE:

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

TREE & SHRUB PLANTINGS:

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

TREE STAKING/ GUYING:

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

HERBACEOUS PLANT INSTALLATION:

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

MULCHING:

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

MAINTENANCE

DURING CONSTRUCTION PERIOD:

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

DURING WARRANTY PERIOD:

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

LANDSCAPE WARRANTIES

FROM THE 2018 TOWN OF EASTON ZONING ORDINANCE:

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

MAINTENANCE:

DURING CONSTRUCTION PERIOD:

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

PLANT LIST:

SYMBOL	QUAN	SCIENTIFIC NAME	COMMON NAME	SPECIFICATION
UNDERSTORY TREES				
AR	47	ACER RUBRUM	RED MAPLE	2" CALIPER, MIN
JF	71	JUNIPERUS VIRGINIANA	EASTERN CEDAR	2" CALIPER, MIN.

LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE:

SECTION 1014.7.E:

BUFFERYARD "C" (PUD-INFILL APARTMENTS MAY BE EXCLUDED FROM THIS REQUIREMENT):

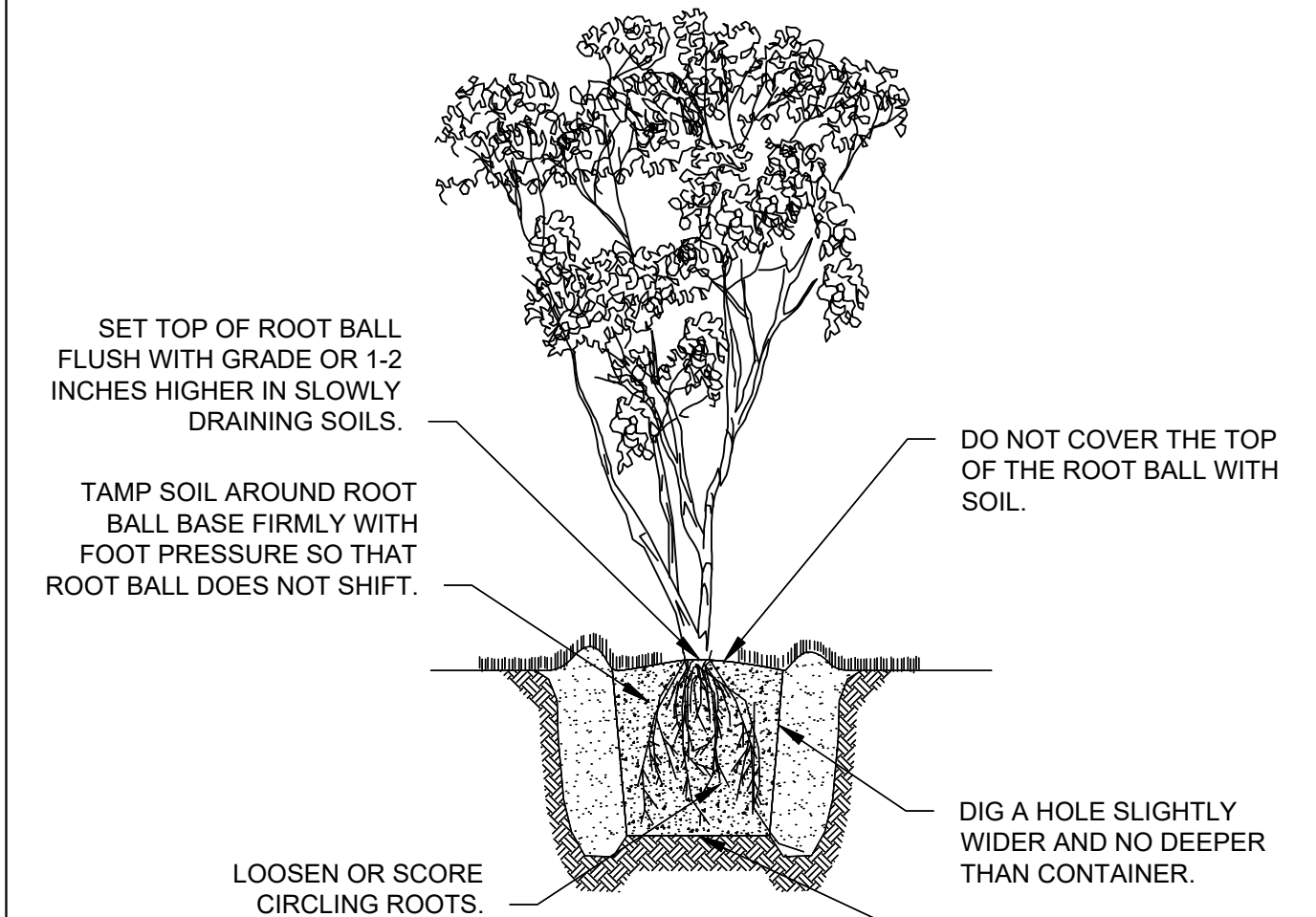
BUFFERYARD "C" (FOR ALL RESIDENTIALLY ZONED LOTS OR LAND USE APPLICATIONS TO BUFFER ALL OTHER STREETS EQUALING OR EXCEEDING TOWN OF EASTON "RESIDENTIAL COLLECTOR DESIGNATION") THIS BUFFERYARD IS NOT REQUIRED ALONG THE STREET WHERE THE PRIMARY LOT FRONTAGE IS DESIGNATED.

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

1 CANOPY TREE
2 EVERGREEN TREE
SHRUBS N/A

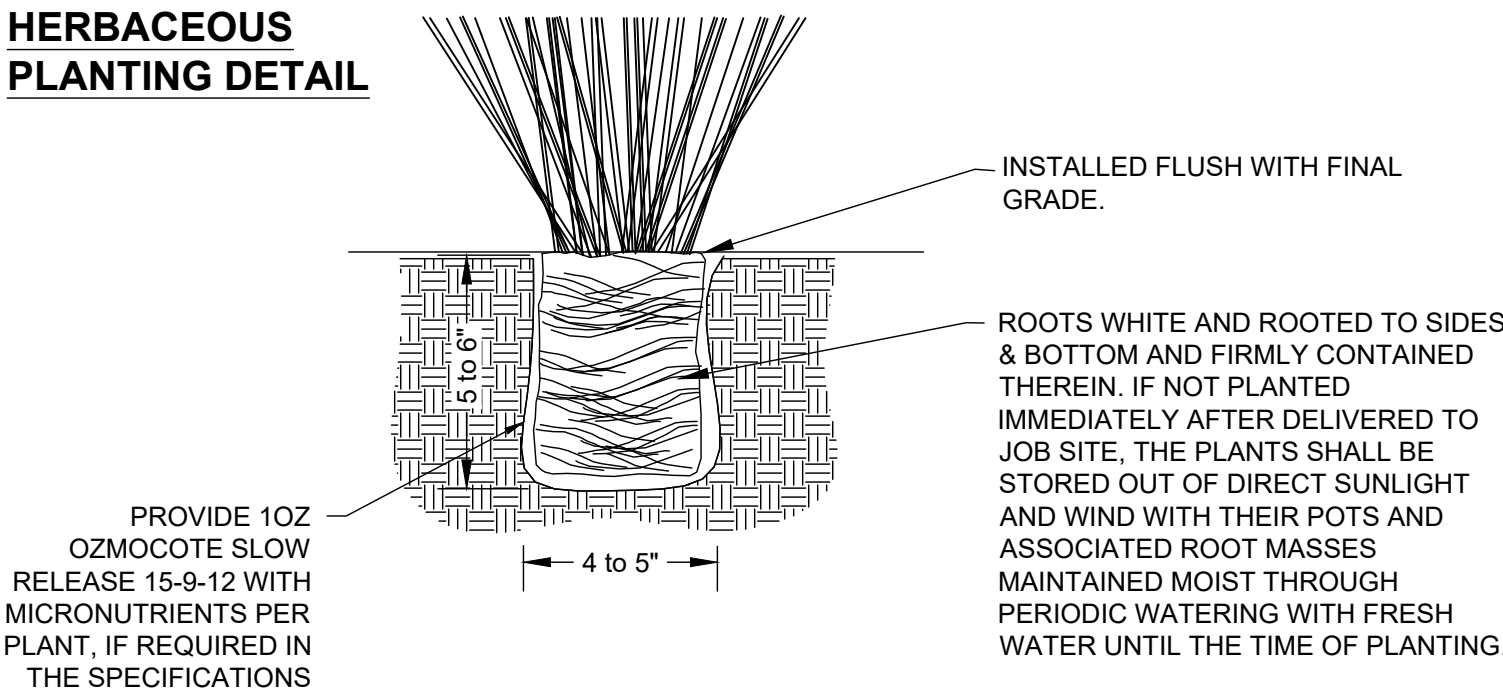
LANDSCAPING NOTES:

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



CONTAINER TREE & SHRUB PLANTING DETAIL

HERBACEOUS PLANTING DETAIL

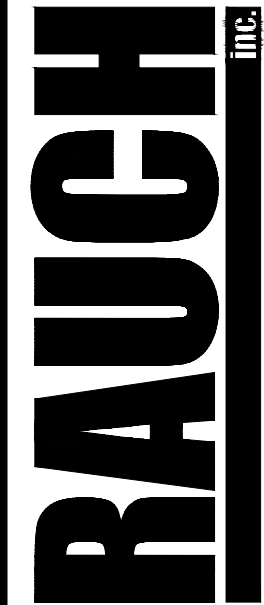


LANDSCAPING NOTES & DETAILS

OF THE LANDS OF

ASPIRE APARTMENTS

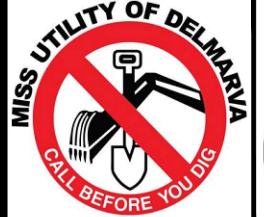
TAX MAP - 0026, GRID: 0020, PARCEL - 0166
ELECTION DISTRICT 01, TALEBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



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

REVISIONS

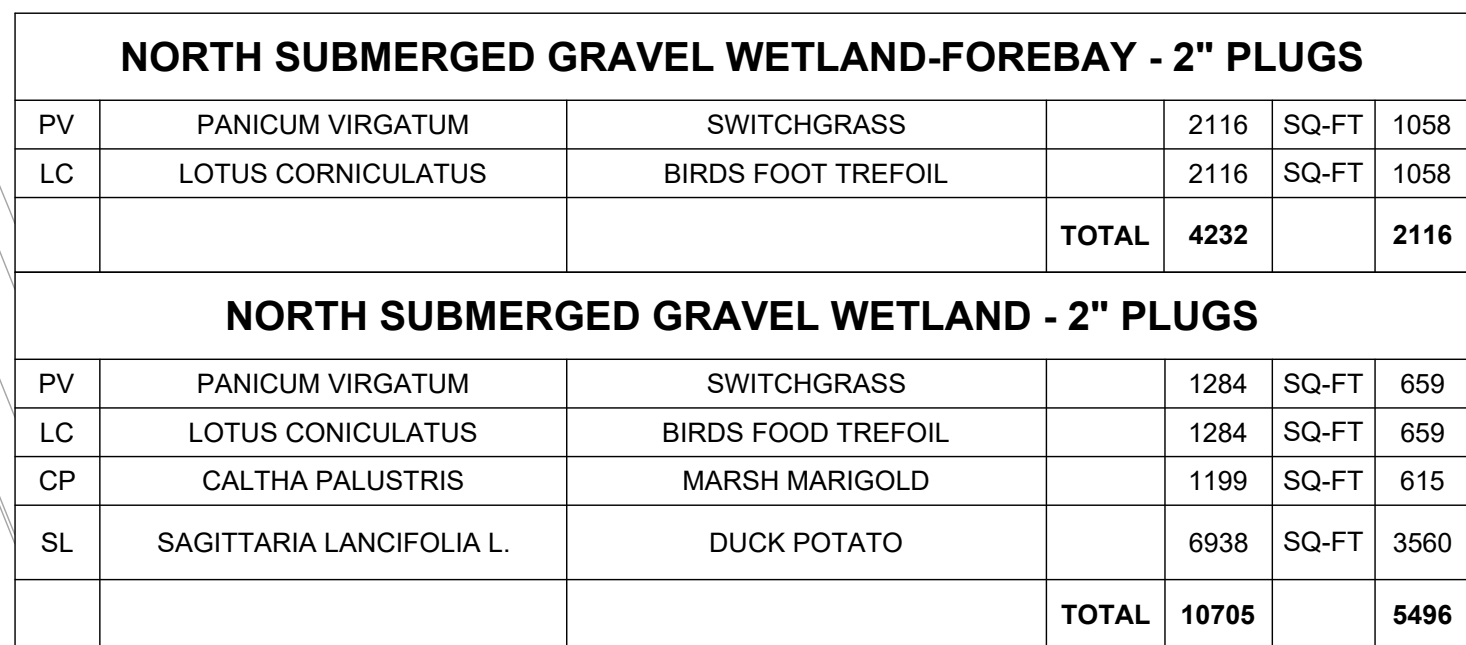
REV. #	DATE	DESCRIPTION
1	6/25/2023	REVISED TO CONNECT TO GANNON ESTATES



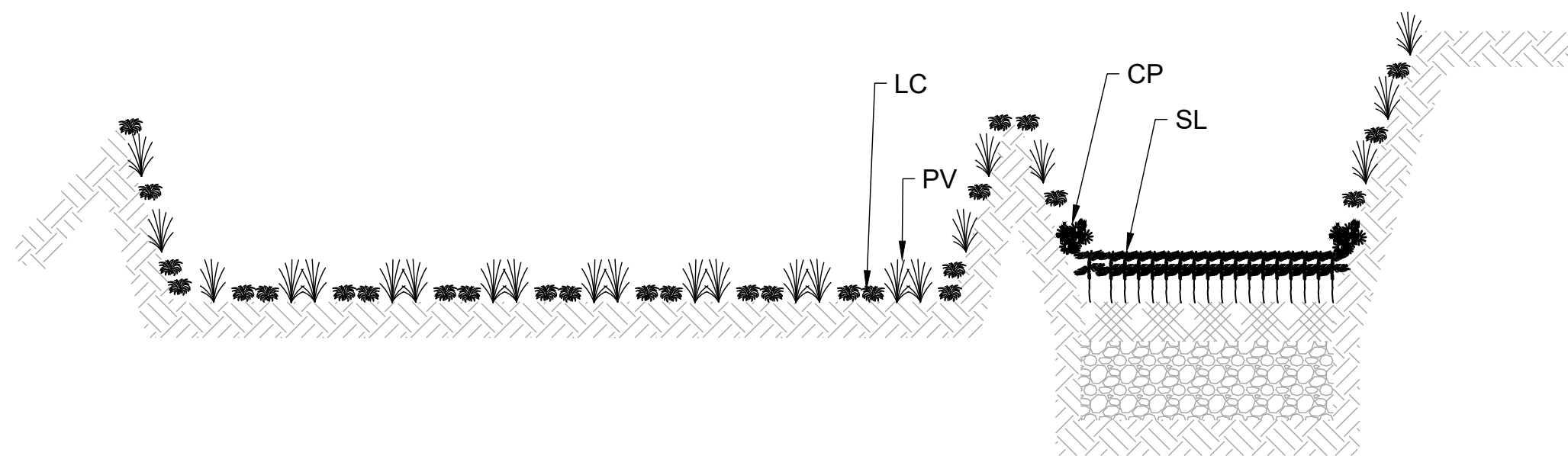
DATE:	12/7/2022
SCALE:	1" = 200'
DRAWN BY:	BBF
DESIGNED BY:	BBF
APPROVED BY:	BBF

SHEET NO.: C-605.01

FOR REVIEW

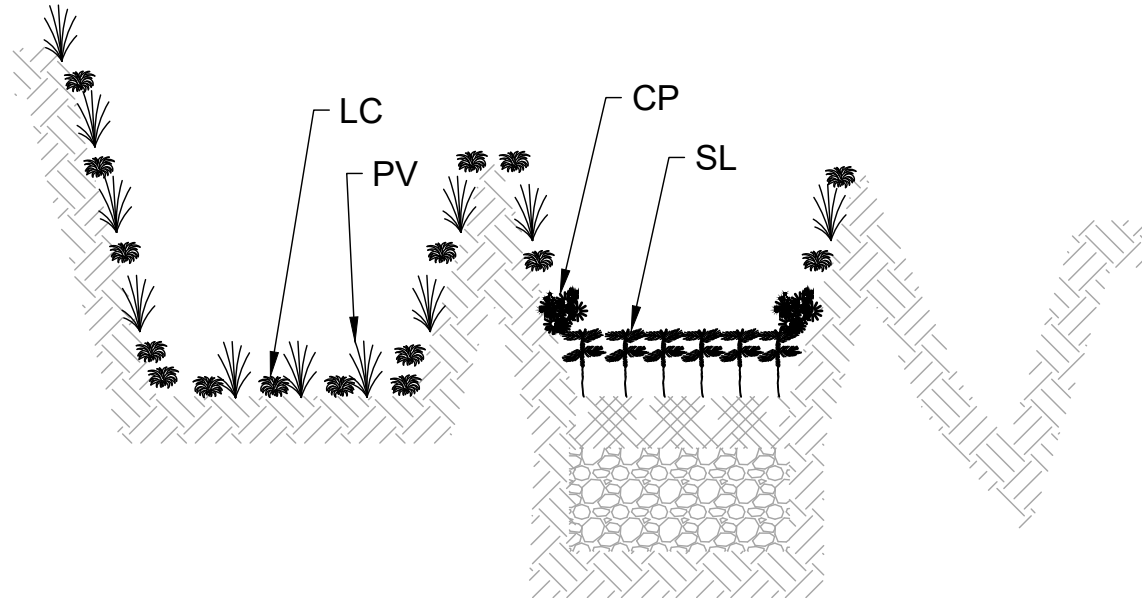


SOUTH SUBMERGED GRAVEL WETLAND-FOREBAY - 2" PLUGS						
PV	PANICUM VIRGATUM	SWITCHGRASS		715	SQ-FT	366
LC	LOTUS CORNICULATUS	BIRDS FOOT TREFOIL		716	SQ-FT	367
			TOTAL	1431		713
SOUTH SUBMERGED GRAVEL WETLAND - 2" PLUGS						
PV	PANICUM VIRGATUM	SWITCHGRASS		608	SQ-FT	312
LC	LOTUS CONICULATUS	BIRDS FOOD TREFOIL		608	SQ-FT	312
CP	CALTHA PALUSTRIS	MARSH MARIGOLD		1131	SQ-FT	580
SL	SAGITTARIA LANCIFOLIA L.	DUCK POTATO		5044	SQ-FT	2588
			TOTAL	7391		3792



NOTE:
PLANTS SPECIFIED ON DETAIL MAY BE REPLACED
BY ANY OF THE PLANTS LISTED IN THE OPTIONS
ON THIS SHEET ASSUMING THE PLANT IS
REPLACED WITH PLANT IN THE SAME ELEVATION.

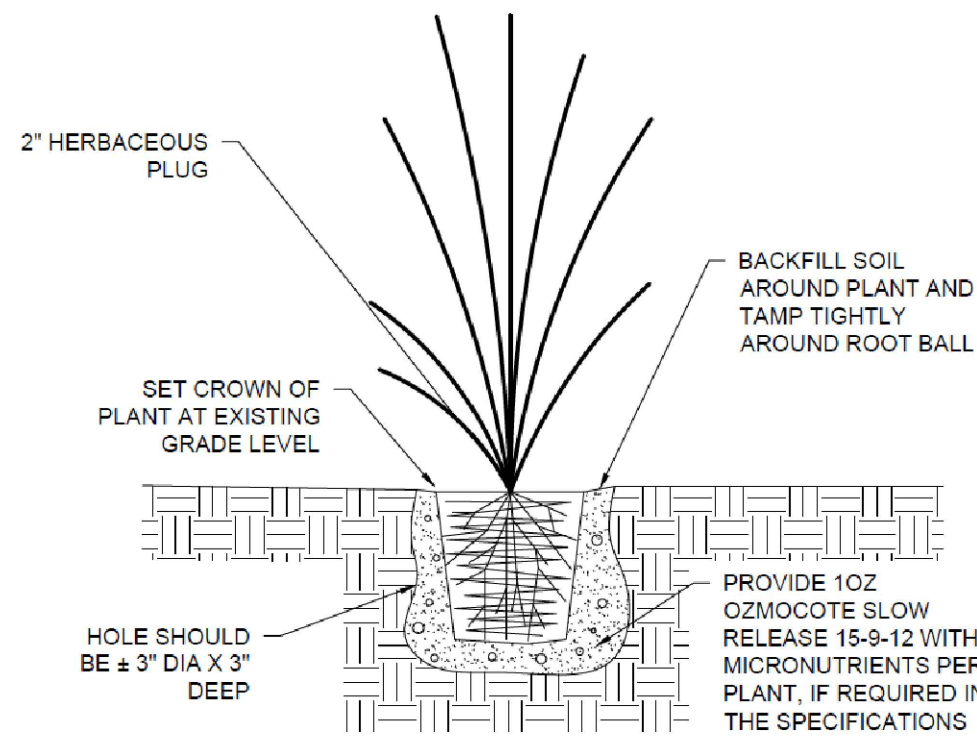
SGW-1 - NORTH POND
TYPICAL LANDSCAPE SECTION



NOTE:
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BY ANY OF THE PLANTS LISTED IN THE OPTIONS
ON THIS SHEET ASSUMING THE PLANT IS
REPLACED WITH PLANT IN THE SAME ELEVATION.

SGW-2 - SOUTH POND
TYPICAL LANDSCAPE SECTION

- THE RISER SHALL BE LOCATED WITHIN THE EMBANKMENT FOR MAINTENANCE ACCESS, SAFETY AND AESTHETICS
- ACCESS TO THE RISER IS TO BE PROVIDED BY LOCKABLE MANHOLE COVERS AND MANHOLE STEPS WITH EASY REACH OF VALVES AND OTHER CONTROLS. RISER OPENINGS SHOULD BE FENCED WITH PIPE OR REBAR TO PREVENT TRASH ACCUMULATION.



2" PLUG PLANTING DETAIL

LANDSCAPING NOTES & DETAILS

OF THE LANDS OF
ASPIRE APARTMENTS

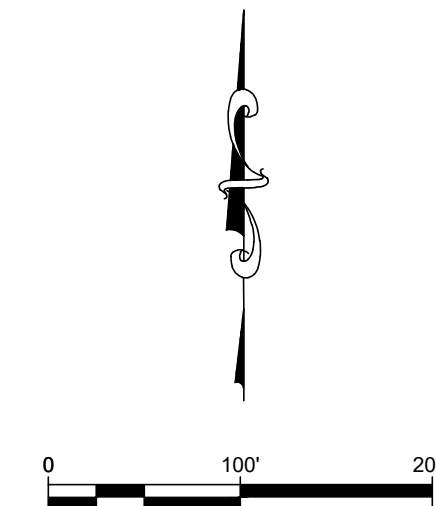
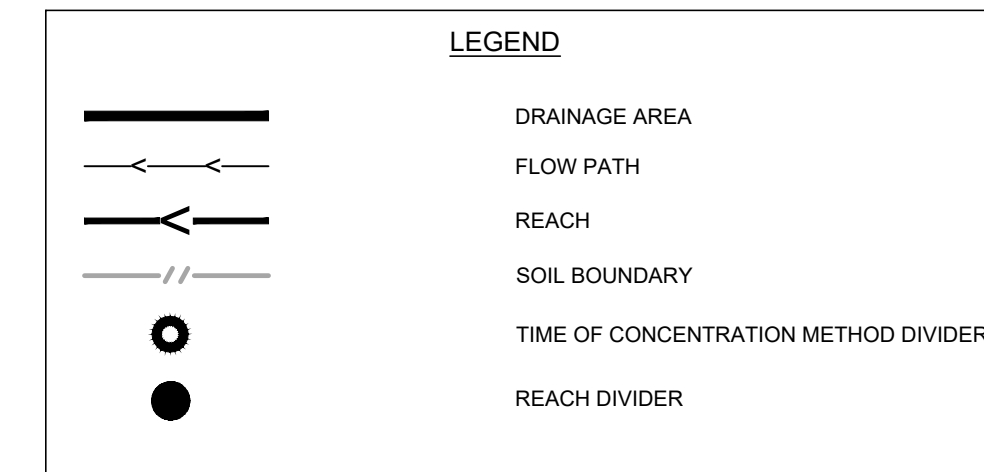
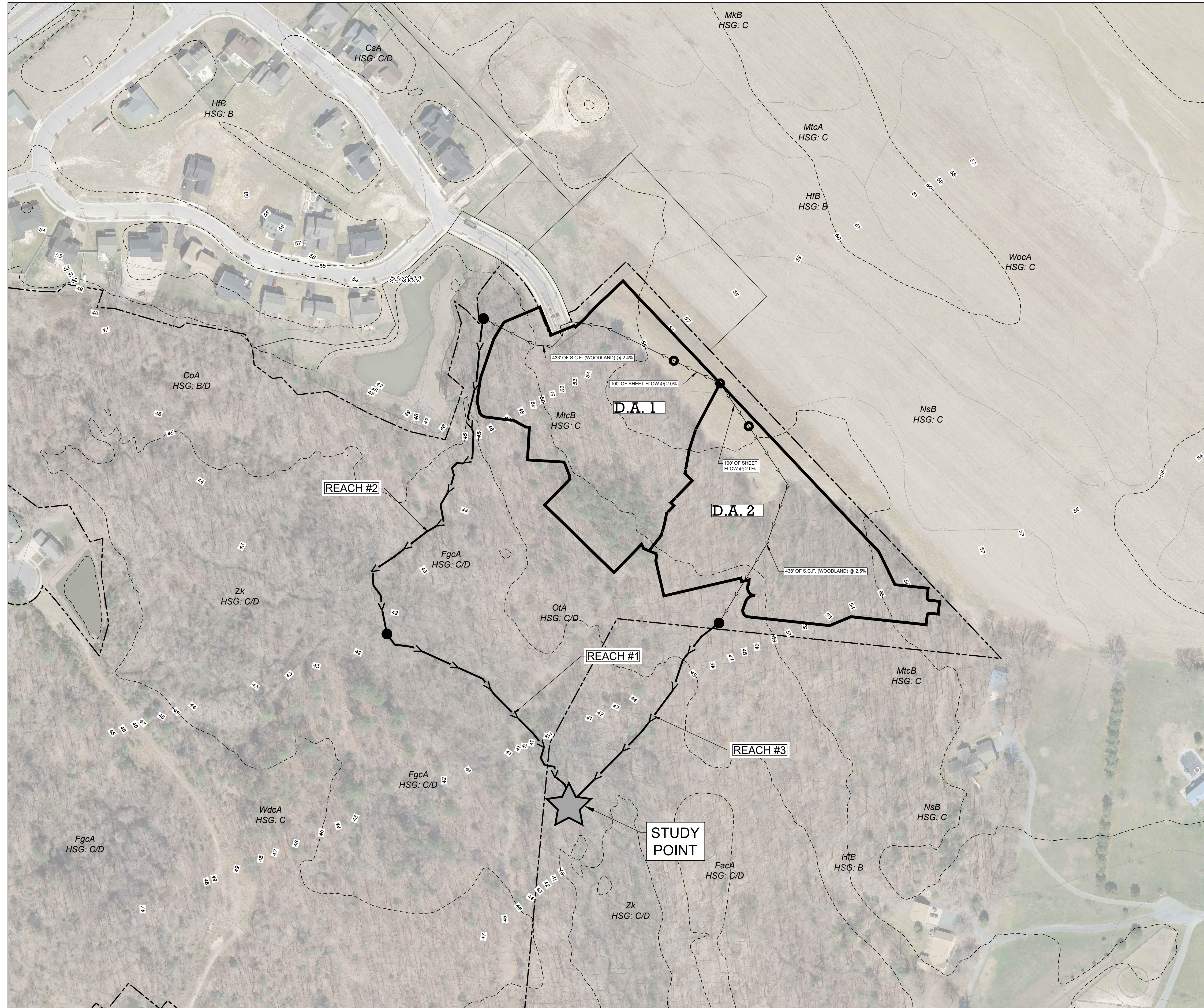
TAX MAP: 0026, GRID: 0020, PARCEL: 0186
ELECTION DISTRICT 04, TALBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC

RAUCH
inc.

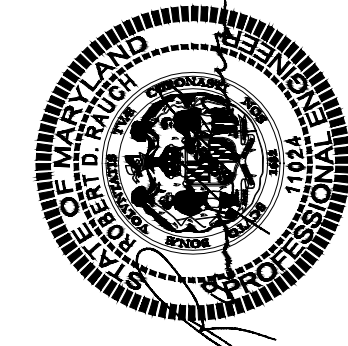
Engineering | Survey | Architecture | Environmental

REVISIONS

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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. 11024
Expiration Date: July 24, 2024

EXISTING STORMWATER QUANTITY ANALYSIS MAP

OF THE LANDS OF

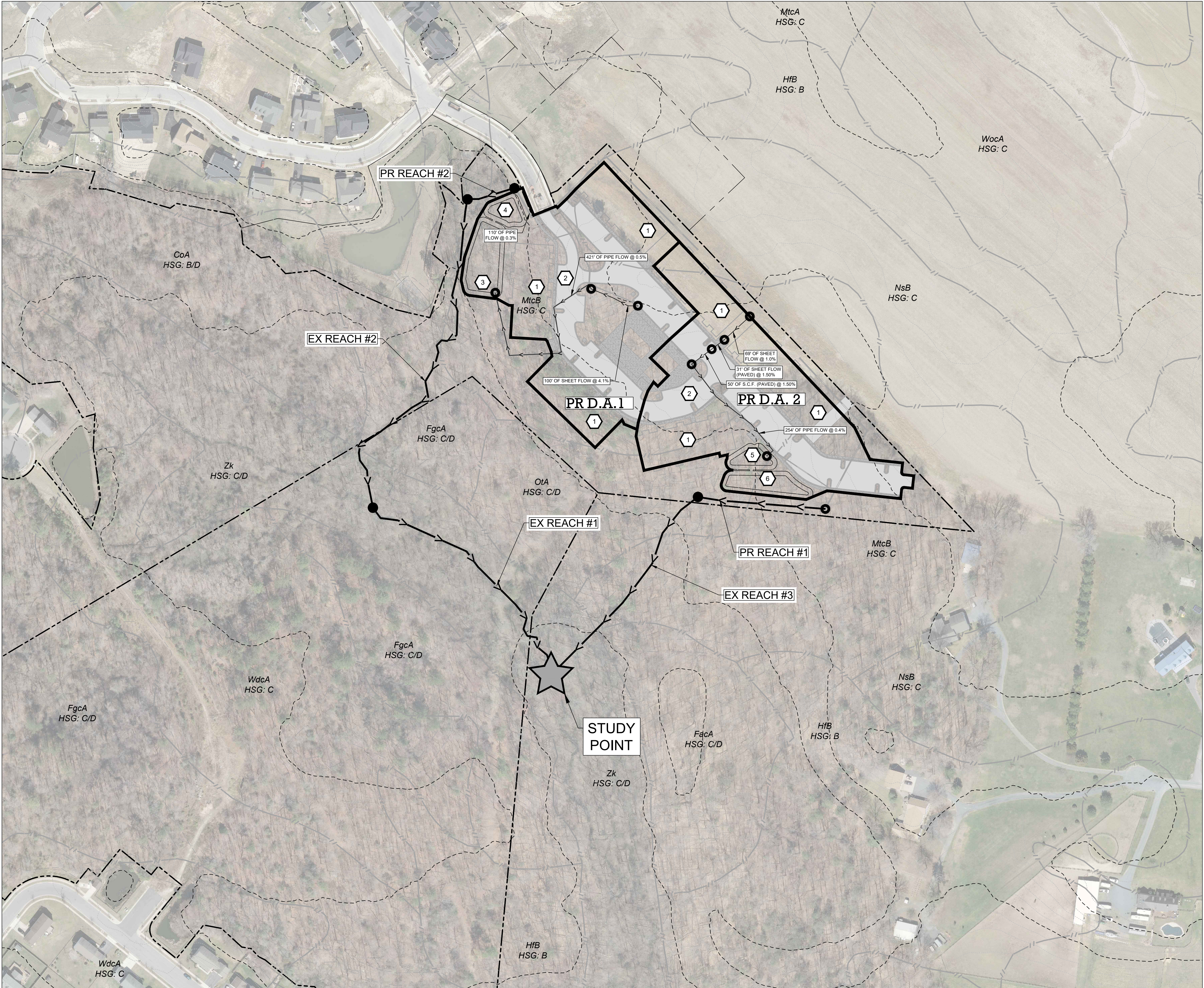
ASPIRE - APARTMENTS

TAX MAP 26, GRID 20, PARCEL 186

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR ASPIRE OUTDOORS LLC

\\02-0816-00\PROJECTS\ASPIRE\CONSULTING\STORMWATER\CALCULATIONS\ASPIRE - PROPOSED LOD QUANTITY ANALYSIS.DWG



PROPOSED SITE FEATURES

- 1 APARTMENT BUILDING
- 2 ASPHALT ROAD
- 3 FOREBAY #1
- 4 SUBMERGED GRAVEL WETLANDS #1
- 5 FOREBAY #2
- 6 SUBMERGED GRAVEL WETLANDS #2

LEGEND

- DRAINAGE AREA
- FLOW PATH
- REACH
- SOIL BOUNDARY
- TIME OF CONCENTRATION METHOD DIVIDER
- REACH DIVIDER

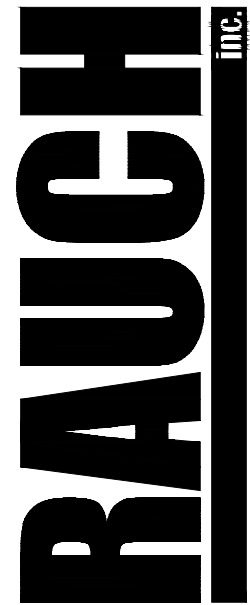
STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
EXISTING	4.11	12.09	23.76
PROPOSED	1.75	8.55	16.38
CHANGE	-2.36	-3.54	-7.38

PROPOSED STORMWATER QUANTITY ANALYSIS

OF THE LANDS OF

ASPIRE - APARTMENTS

TAX MAP 26, GRID 20, PARCEL 186
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR ASPIRE OUTDOORS LLC



Engineering | Survey | Architecture | Environmental
Main Office: 108 N. Harrison St., Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410.770.9081 | Fax: 410.770.3887



12/1/2022

Professional Certification:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 11024
Expiration Date: July 24, 2024

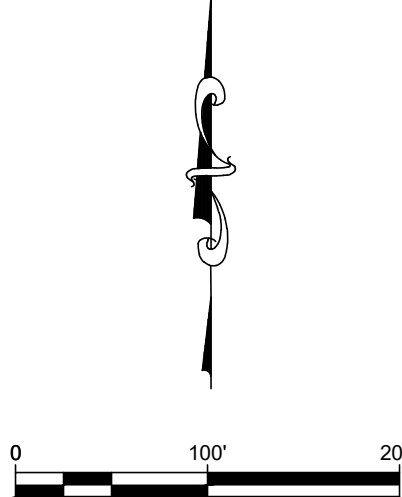
REVISIONS

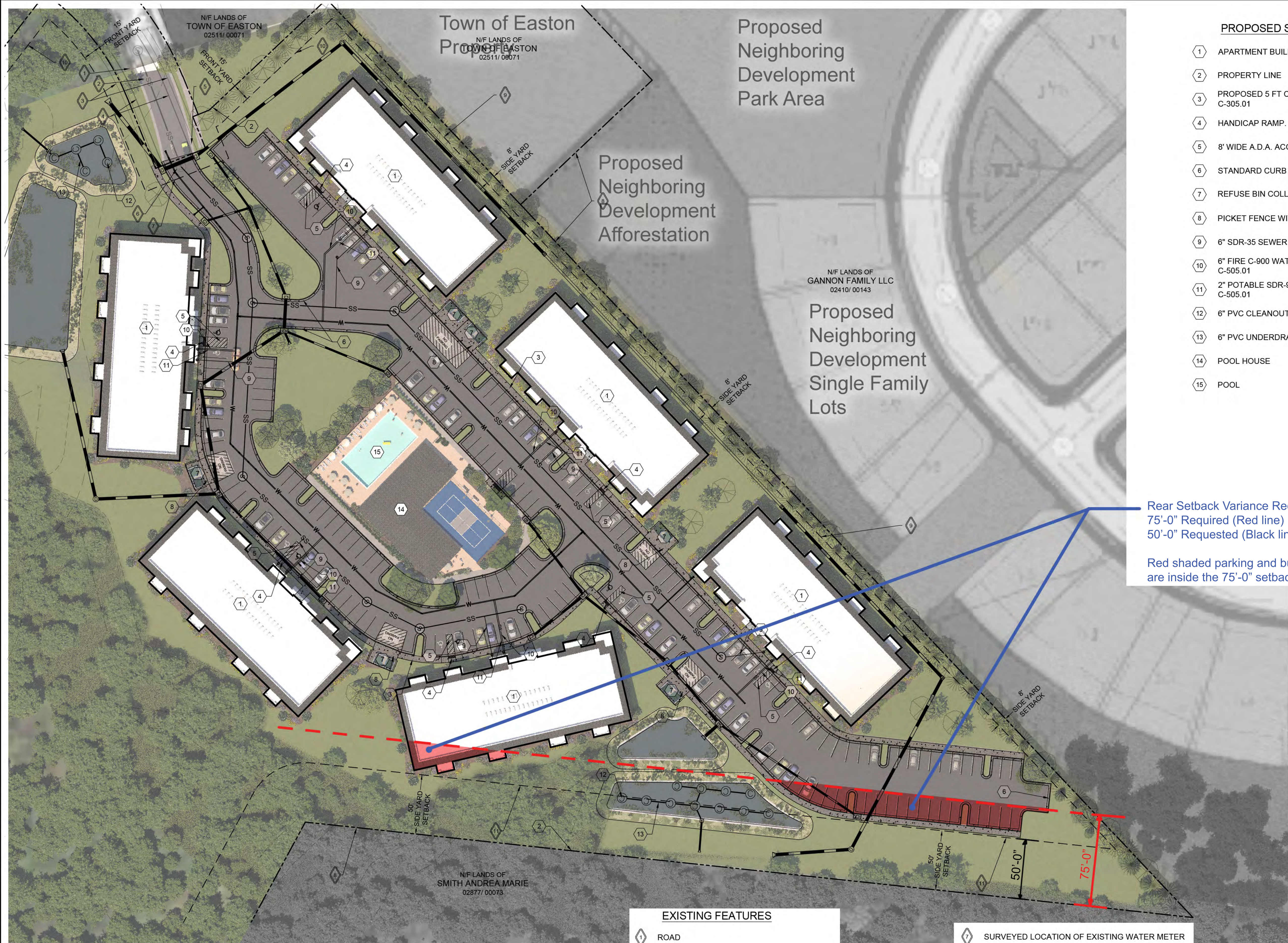
REV. #	DATE	DESCRIPTION



DATE: 12/1/2022
SCALE: 1" = 100'
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.: SWM-QA-PR-1





PROPOSED SITE PLAN NOTES

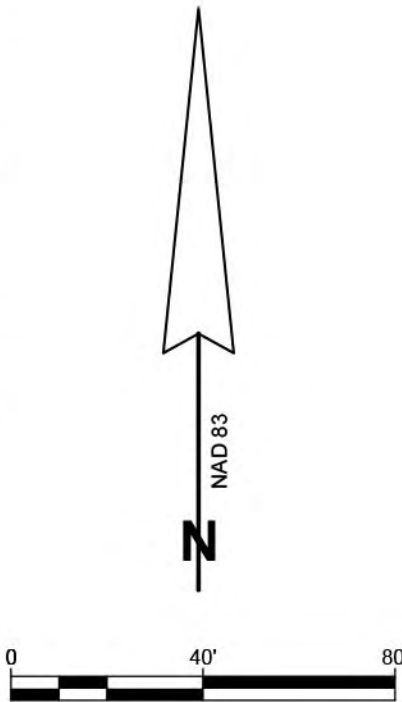
- 1 APARTMENT BUILDING
- 2 PROPERTY LINE
- 3 PROPOSED 5 FT CONCRETE SIDEWALK. SEE DETAIL ON SHEET C-305.01
- 4 HANDICAP RAMP. SEE DETAIL ON SHEET C-305.01
- 5 8" WIDE A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
- 6 STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305.01
- 7 REFUSE BIN COLLECTION AREA WITH WOODEN FENCE
- 8 PICKET FENCE WITH GATE
- 9 6" SDR-35 SEWER CONNECTION. SEE DETAIL ON SHEET C-505.01
- 10 6" FIRE C-900 WATER LINE CONNECTION. SEE DETAIL ON SHEET C-505.01
- 11 2" POTABLE SDR-9 HDPE PIPE WATER LINE. SEE DETAIL ON SHEET C-505.01
- 12 6" PVC CLEANOUT
- 13 6" PVC UNDERDRAIN
- 14 POOL HOUSE
- 15 POOL

Rear Setback Variance Request:
75'-0" Required (Red line)
50'-0" Requested (Black line)

Red shaded parking and building areas
are inside the 75'-0" setback

- EXISTING FEATURES
- 1 ROAD
 - 2 ROAD CENTERLINE
 - 3 SIDEWALK
 - 4 CURB AND GUTTER
 - 5 FIRE HYDRANT
 - 6 SURVEYED LOCATION OF EXISTING SEWER

- 7 SURVEYED LOCATION OF EXISTING WATER METER
- 8 SURVEYED PROPERTY LINES
- 9 8' SIDE YARD SETBACK LINE
- 10 15' FRONT YARD SETBACK LINE
- 11 50' SIDE YARD SETBACK LINE ADJACENT TO RESIDENTIAL SUBDIVISION LOT



VARIANCE EXHIBIT#1

SITE PLAN
OF THE LANDS OF

ASPIRE APARTMENTS

TAX MAP: 0026, GRD: 0020, PARCEL: 0186
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
ASPIRE OUTDOORS, LLC



Main Office: 106 N Harrison St. - Easton, MD 21801
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 9081 | Fax: 410 770 3667

REVISIONS

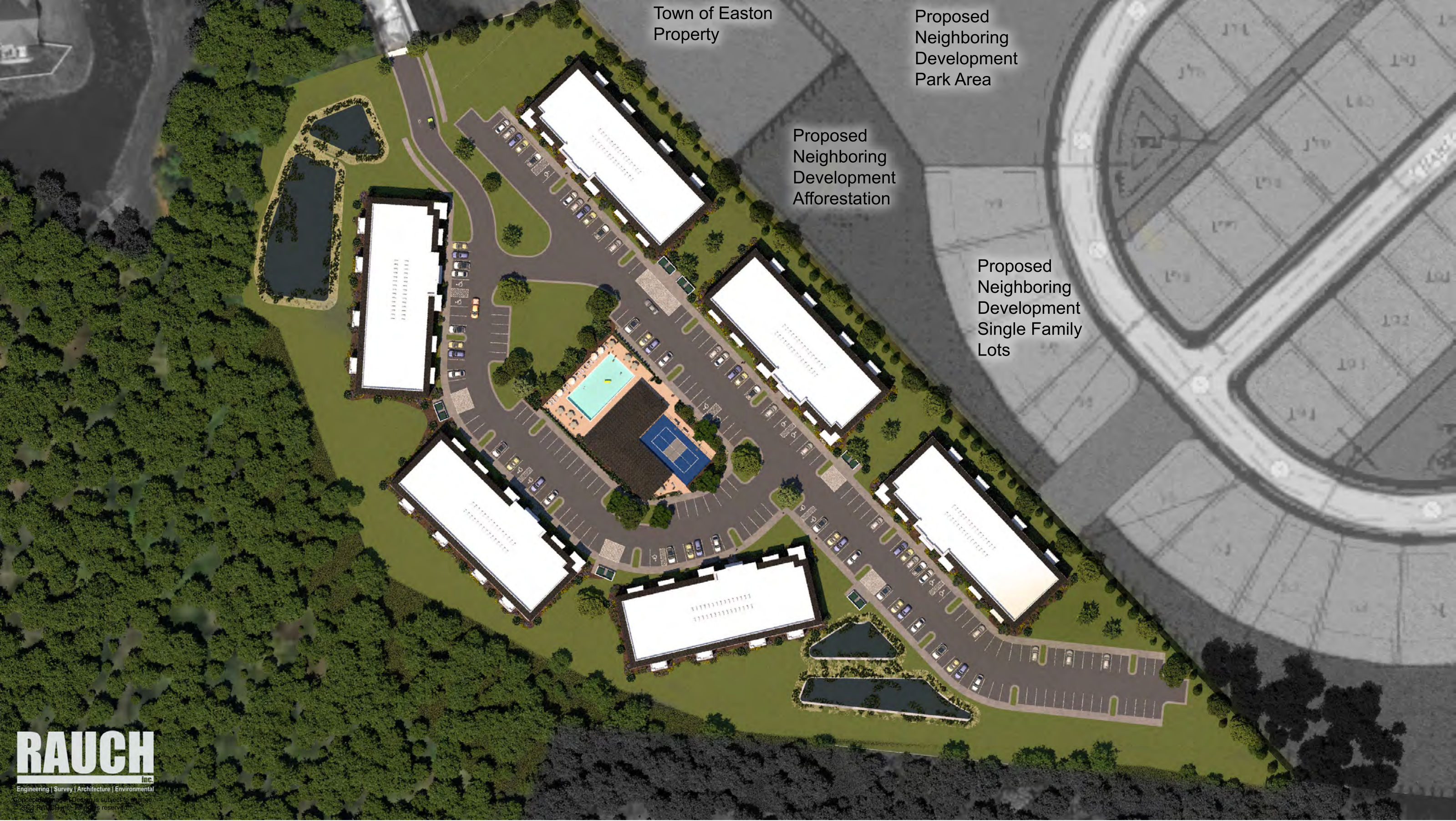
REV. #	DATE	DESCRIPTION
1		



DATE: 12/28/2022
SCALE: 1" = 40'
DRAWN BY: BBF
DESIGNED BY: BBF
APPROVED BY: BBF

SHEET NO.: C-101

FOR
REVIEW



RAUCH
inc.

Engineering | Survey | Architecture | Environmental
Conceptual Design | Decisions subject to change
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Proposed
Neighboring
Development
Single Family Lots

Proposed
Neighboring Development
Afforestation

Proposed
Neighboring Development
Park Area

Town of Easton
Property

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RAUCH
INC.
Engineering | Survey | Architecture | Environmental





**STORMWATER MANAGEMENT ANALYSIS
FOR
ASPIRE - APARTMENTS
PREPARED FOR
ASPIRE OUTDOORS LLC**

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

23rd OF JUNE 2023



PROFESSIONAL CERTIFICATION

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

A handwritten signature in blue ink, appearing to read "Robert D. Rauch", is written over a horizontal line.

ROBERT D. RAUCH, LICENCE NO. 11024
EXPIRATION DATE 7/24/2024

6/23/2023
DATE

Stormwater Management Narrative



PROJECT SUMMARY

The project is located in the town of Easton, off Matthewstown Road, and at the end of Camac Street. The property map is 26, grid 20, parcel 186, deed 2644/114, land use residential, and is zoned R10A. The Town of Easton needs housing and this project proposes the construction of an apartment complex to provide a high density solution to meet Town needs. The following report will show how stormwater management requirements for the project meet the 2000 Maryland Stormwater Manual Volumes I and II as currently updated. The report will also prove the post-construction site will reduce peak runoff of the 2-year and 10-year storm compared to the pre-construction site.

SITE – PRE-CONSTRUCTION CONDITIONS

The existing site contains existing non-tidal wetlands and a perennial stream located on the property. The existing site consists of mainly woods with some agricultural field which drain to the Southwest, into the woods where a perennial stream runs off site. residential areas. The study point selected for the analysis is downstream of the existing perennial stream that runs through the site. Two drainage areas were drawn with the estimated longest time of concentration to be used in the analysis. The drainage areas have C and D soils.

SITE – POST-CONSTRUCTION CONDITIONS

We are proposing converting the site into a 6-building apartment development with a community pool and clubhouse. Adjacent to the pool will be a community area located in the central portion of the site. The impervious is proposed to be treated by a Chapter 5 structural practice. The Chapter 5 ESD structural practice includes the use of two submerged gravel wetlands.

The analysis of postconstruction was performed using 2 proposed catchments all draining to a combination swales, forebays, and submerged gravel wetlands. The outfall of these facilities all reach a single study point downstream of the proposed site. Times of concentration used in most drainage areas start with sheet flow, change to shallow concentrated flow, and either discharge into an inlet or swale/stream. Proposed conditions during the 2,10-, and 100-year storm events have been analyzed and show peak flows from the development during these storms are less than existing conditions peak flows at Study Point #1.

The study point will remain unchanged. The plans included with this report detail all drainage areas with times of concentration.



WATER QUALITY – ESDv

We are proposing to take credit for two submerged gravel wetlands as the Chapter 5 practices to meet the Site's ESDv requirement.

Both Submerged Gravel Wetlands will have the required pretreatment forebay. All inflow into the forebays will enter via a storm drain pipe or surface drainage prior to spilling into the Submerged Gravel Wetlands. The outfall of the forebays will be a 2'x7' stone weir and the outfall of the Submerged Gravel Wetlands will be a 2'x2' yard inlet.

Practice Summary:

Forebay to Submerged Gravel Wetlands #1

Sub-Catchment Area #PR-DA-1	146,601 Sf
Percent Impervious:	68%
Surface Area:	7,419 Sf
Ponding Depth:	2 Ft
Media Depth:	0 Ft

Submerged Gravel Wetland #1

Surface Area:	2,056 Sf
Ponding Depth:	2 Ft
Media Depth:	2 Ft

Forebay to Submerged Gravel Wetlands #2

Sub-Catchment Area #PR-DA-2	129,109 Sf
Percent Impervious:	73%
Surface Area:	2,004 Sf
Ponding Depth:	2 Ft
Media Depth:	0 Ft

Submerged Gravel Wetland #2

Surface Area:	4,027 Sf
Ponding Depth:	2 Ft
Media Depth:	2 Ft

Site Calculation Summary:

ESDv Required =	29,281 Cf
ESDv Provided =	42,325 Cf

***Esd To the Mep Met**

WATER QUANTITY

An effort has been made to bypass all off-site drainage from the existing neighboring agricultural field by capturing this flow in a grass swale and discharging prior to the existing wetlands via a storm drain pipe. On-site volume control is provided within both submerged gravel wetlands, and their forebay. The wetlands will have forebays to capture sediment prior to reaching the facility.

The Submerged Gravel Wetlands will discharge into a proposed “V” bottom swale prior to the non-tidal wetlands and would have treated the stormwater prior to discharging. The proposed Submerged Gravel Wetlands have a 2’x 2’ outfall structure with an orifice at an invert elevation 4” below the bed elevation. From the catch basin, a 12” outfall pipe will be directed to the “V” bottom swale which eventually reaches Study Point #1.

STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
EXISTING	4.11	12.09	23.76
PROPOSED	1.75	8.55	16.38
CHANGE	-2.36	-3.54	-7.38

CONCLUSION

This report shows that all requirements of the MDE stormwater design manual have been met for this site and natural areas have been preserved in meeting these guidelines.

ESD Calculations

Project Name:	Aspire Apartments
Date:	23-Jun-23

	data input cells
	calculation cells

Step 1: Complete ESD Implementation Checklist

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

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

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

Total SITE Area, A (acres or sq-ft)	50.225
Existing SITE Impervious Area (acres or sq-ft)	0
SITE percent impervious	0%
Development Category (for ESD)	New Development

LOD Area, A (acres)	8.56
Existing LOD Impervious Surface Area (acres)	0.00
Proposed LOD Impervious Surface Area (acres)	4.50
Rainfall Depth, P (in)	1.0

Existing LOD Imperviousness, I_{pre}	0%
Proposed LOD Imperviousness, I_{post}	53%

Water Quality Calculation for Redevelopment Only

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

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

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

% Soil Type A	0%
% Soil Type B	0%
% Soil Type C	100%
% Soil Type D	0%

RCN Soil Type A	70.56
RCN Soil Type B	80.52
RCN Soil Type C	87.04
RCN Soil Type D	89.52

Target Pre-Developed Condition, RCN _{woods}	70.00000	Post-Developed Condition, RCN	87.04
--	----------	-------------------------------	-------

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

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

Site ESD Rainfall Target, P_E (in)	1.80
--------------------------------------	------

ESD Runoff Depth, Q_E (in)	0.94
------------------------------	------

ESD Runoff Volume, ESDv (cf)	29,281
------------------------------	--------

Total Treatment Volume (cf)	29,281
-----------------------------	--------

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

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

	P _E Credit Description	Contributing Drainage Area (sf)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up- Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)
<i>Micro-Scale Practices</i>						
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	275,710	42,325	17910	42,325	17,910

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

Drainage Area Treated (sf)	275,710
----------------------------	---------

WQv or ESDv Treated (cf) using ESD practices	42,325
P _E achieved (inches)	2.60

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

New Development Water Quality Volume Requirements

Required Treatment Area (acres)	8.56
Runoff Coefficient, Rv	0.52
Water Quality Volume, WQv (cf)	16,267

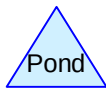
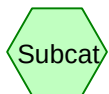
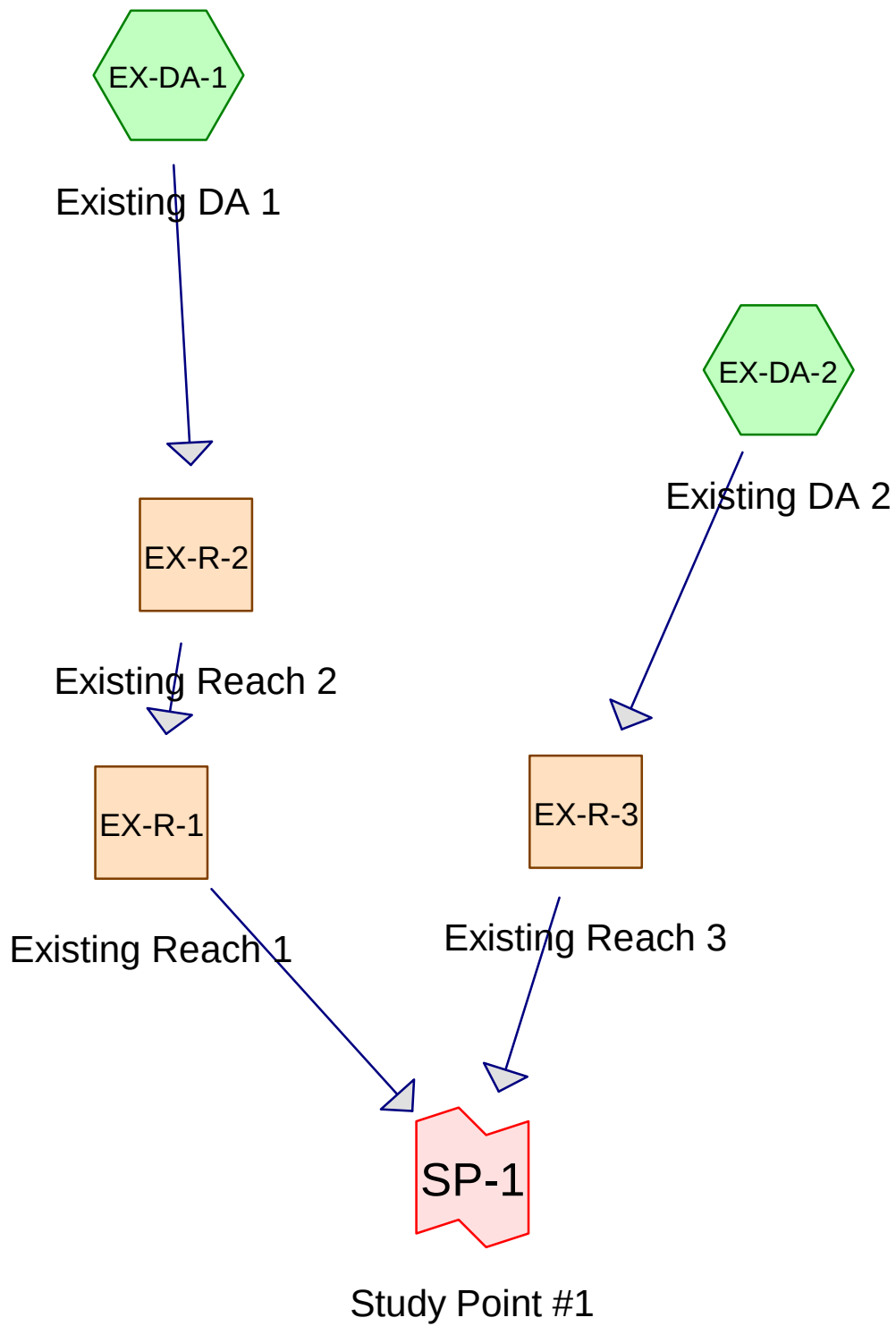
Redevelopment WQv Requirements Met Through ESD Practices?	N/A
WQv Remaining? (cf)	0

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

M-2

	Direct drainage				Indirect drainage		Total catchment area ----- Total ESDv to practice	Practice Specific Parameter(s)				WQV or ESDv provided (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice and Row	SOIL TYPE
	Contributing Drainage Area (sf)	% Impervious Cover ----- RV	To fully treat sub area ----- PE required ----- WQV required	Max available WQV or ESDv from CDA (cf)	Area of upstream catchment (sf)	WQV or ESDv from Up-Gradient Practices (cf)									
<i>Micro-Scale Practices</i>															
Forebay to Submerged Gravel Wetland #1	146,601	68% 0.6636043	2.00 16214	21,889	0	0	146,601 21889	Bed Surface Area (sf) 7,419	Top of Ponding Surface Area (sf) 10,938	Ponding Depth (ft) 2	Media Depth (ft) 0	18,357	3,532	Submerged Gravel Wetlands 2	C/D
Submerged Gravel Wetland #1		0.05	1.00 0	0	146601	3532	146,601 3532	Bed Surface Area (sf) 2,056	Top of Ponding Surface Area (sf) 3,958	Ponding Depth (ft) 2	Media Depth (ft) 2	3,532	0		C/D
Forebay to Submerged Gravel Wetland #2	129,109	73% 0.7034757	2.00 15138	20,436	0	0	129,109 20436	Bed Surface Area (sf) 2,004	Top of Ponding Surface Area (sf) 4,054	Ponding Depth (ft) 2	Media Depth (ft) 0	6,058	14,378	Submerged Gravel Wetlands 4	C/D
Submerged Gravel Wetland #2		0.05	1.00 0	0	129109	14378	129,109 14378	Bed Surface Area (sf) 4,027	Top of Ponding Surface Area (sf) 7,506	Ponding Depth (ft) 2	Media Depth (ft) 2	14,378	0		C/D
Total	275,710			42,325		17,910						42,325	17,910		

Analysis of Existing Conditions



Routing Diagram for Aspire - Existing
Prepared by RAUCH inc., Printed 06/23/23
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Aspire - Existing

Prepared by RAUCH inc.

Printed 06/23/23

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.107	85	Row crops, straight row, Good, HSG C (EX-DA-1, EX-DA-2)
4.664	70	Woods, Good, HSG C (EX-DA-1, EX-DA-2)
0.559	77	Woods, Good, HSG D (EX-DA-2)
6.330	73	TOTAL AREA

2-Year Existing Conditions Analysis

Aspire - Existing

Prepared by RAUCH inc.

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

Printed 06/23/23

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1

Runoff Area=148,969 sf 0.00% Impervious Runoff Depth=1.11"
Flow Length=533' Tc=7.7 min CN=73 Runoff=4.57 cfs 0.317 af

Subcatchment EX-DA-2: Existing DA 2

Runoff Area=126,747 sf 0.00% Impervious Runoff Depth=1.17"
Flow Length=538' Tc=7.7 min CN=74 Runoff=4.13 cfs 0.284 af

Reach EX-R-1: Existing Reach 1

Avg. Flow Depth=0.29' Max Vel=0.94 fps Inflow=2.82 cfs 0.317 af
n=0.040 L=532.0' S=0.0038 '/ Capacity=177.63 cfs Outflow=2.44 cfs 0.317 af

Reach EX-R-2: Existing Reach 2

Avg. Flow Depth=0.68' Max Vel=0.83 fps Inflow=4.57 cfs 0.317 af
n=0.040 L=729.0' S=0.0014 '/ Capacity=27.19 cfs Outflow=2.82 cfs 0.317 af

Reach EX-R-3: Existing Reach 3

Avg. Flow Depth=0.43' Max Vel=0.70 fps Inflow=4.13 cfs 0.284 af
n=0.100 L=564.0' S=0.0168 '/ Capacity=3.82 cfs Outflow=2.61 cfs 0.284 af

Link SP-1: Study Point #1

Inflow=4.11 cfs 0.601 af
Primary=4.11 cfs 0.601 af

Total Runoff Area = 6.330 ac Runoff Volume = 0.601 af Average Runoff Depth = 1.14"
100.00% Pervious = 6.330 ac 0.00% Impervious = 0.000 ac

Aspire - Existing

Prepared by RAUCH inc.

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

Printed 06/23/23

Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 4.57 cfs @ 12.02 hrs, Volume= 0.317 af, Depth= 1.11"

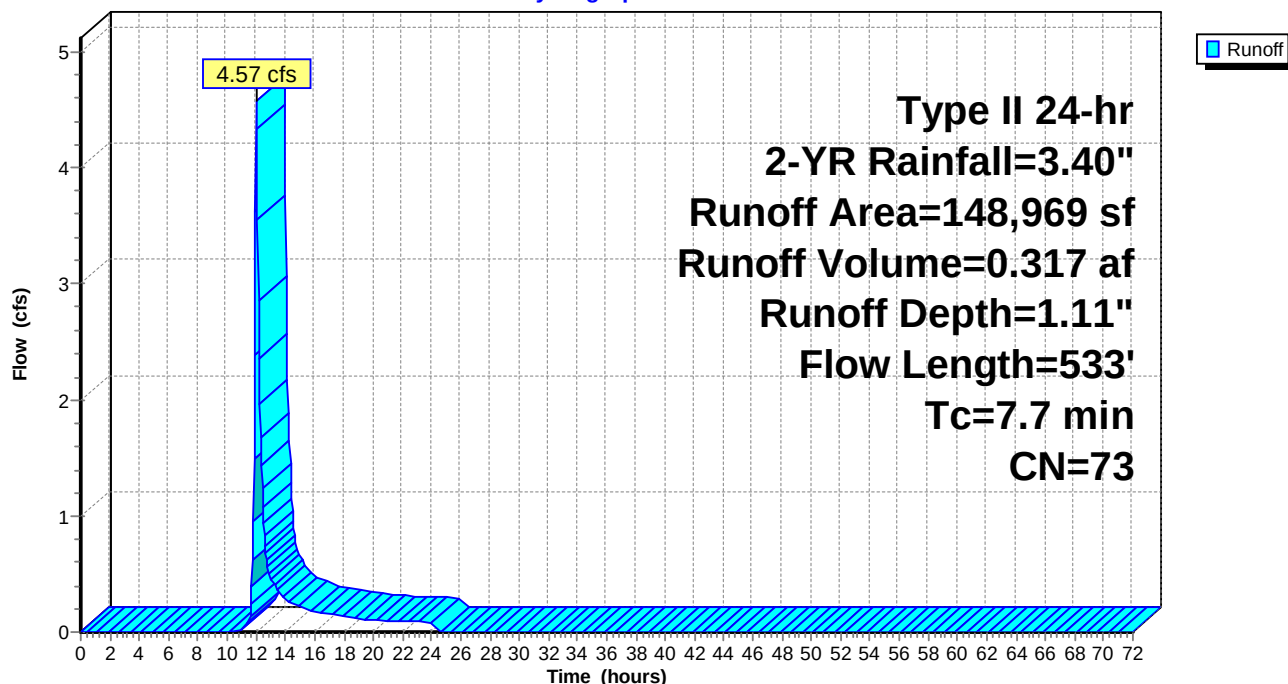
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
25,140	85	Row crops, straight row, Good, HSG C
123,829	70	Woods, Good, HSG C
148,969	73	Weighted Average
148,969		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF
					Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.1	433	0.0240	2.32		Shallow Concentrated Flow, Field and Woods
					Grassed Waterway Kv= 15.0 fps
7.7	533	Total			

Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Existing

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

Printed 06/23/23

Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 4.13 cfs @ 12.02 hrs, Volume= 0.284 af, Depth= 1.17"

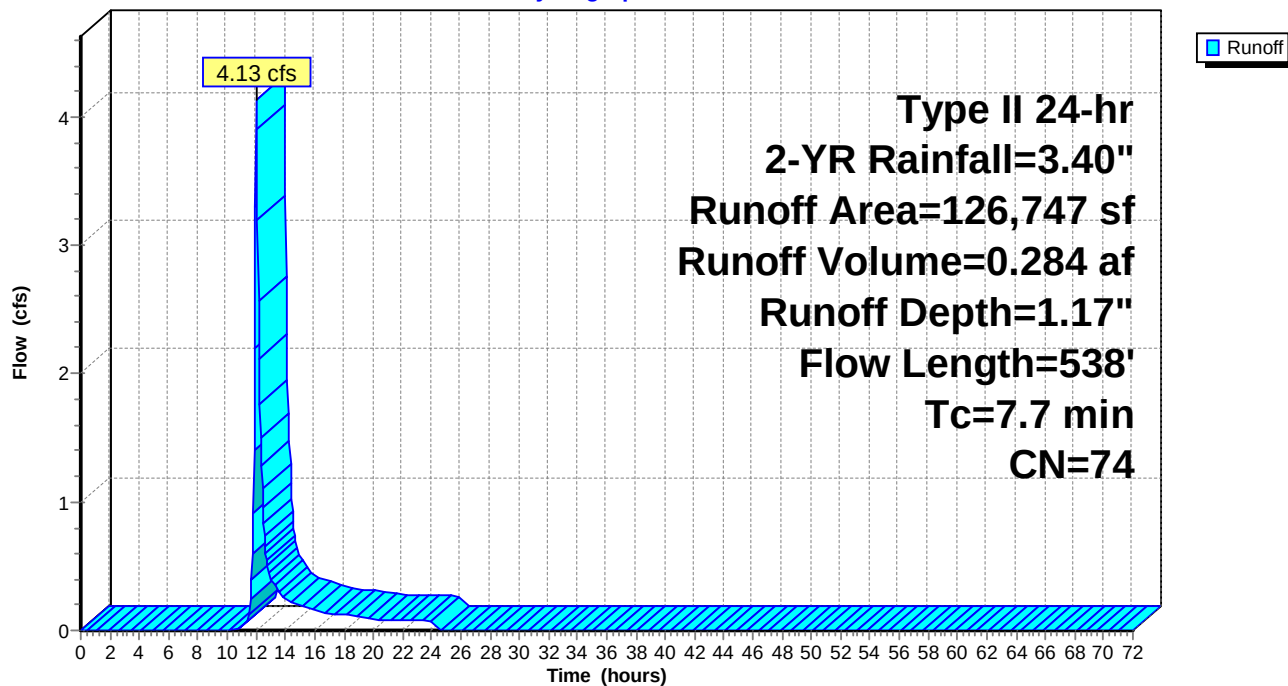
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
23,082	85	Row crops, straight row, Good, HSG C
79,330	70	Woods, Good, HSG C
24,335	77	Woods, Good, HSG D
126,747	74	Weighted Average
126,747		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF
					Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.1	438	0.0250	2.37		Shallow Concentrated Flow, Field and Woods
					Grassed Waterway Kv= 15.0 fps
7.7	538	Total			

Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Existing

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

Printed 06/23/23

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 3.420 ac, 0.00% Impervious, Inflow Depth = 1.11" for 2-YR event
Inflow = 2.82 cfs @ 12.41 hrs, Volume= 0.317 af
Outflow = 2.44 cfs @ 12.70 hrs, Volume= 0.317 af, Atten= 13%, Lag= 17.8 min

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

Max. Velocity= 0.94 fps, Min. Travel Time= 9.4 min

Avg. Velocity = 0.29 fps, Avg. Travel Time= 30.2 min

Peak Storage= 1,385 cf @ 12.54 hrs

Average Depth at Peak Storage= 0.29'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

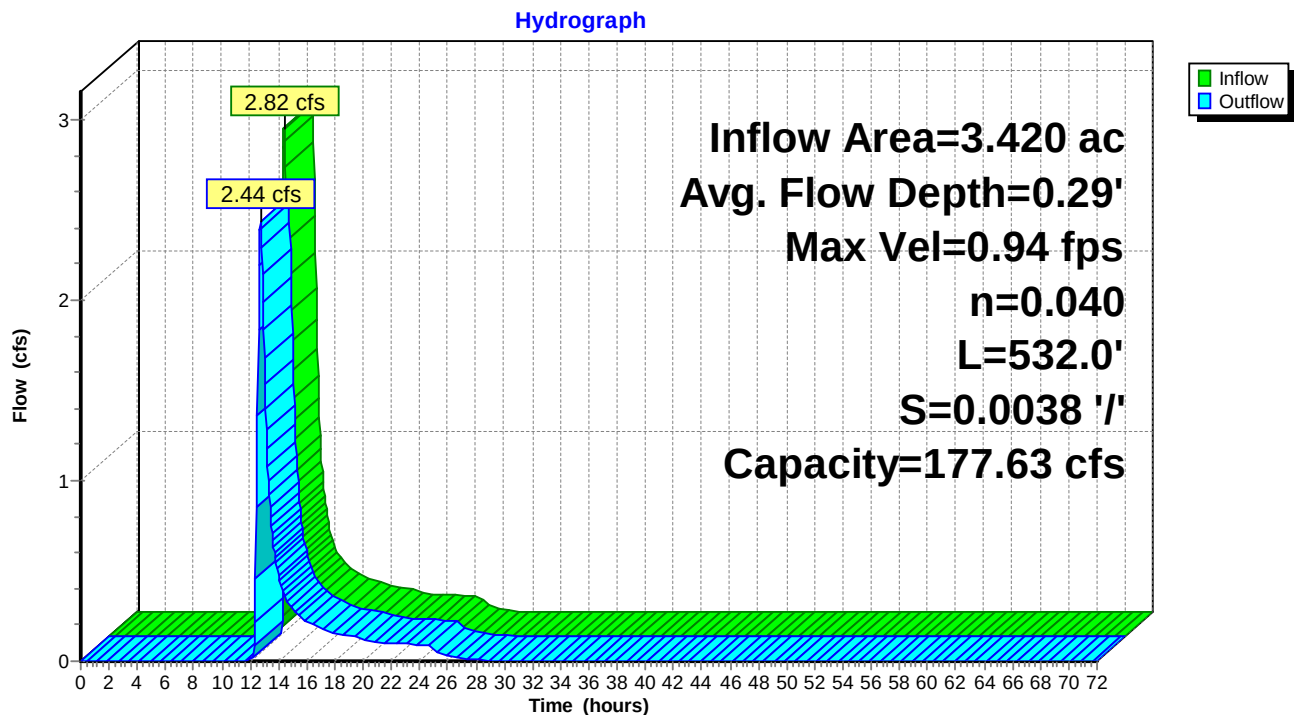
Side Slope Z-value= 3.0 '/' Top Width= 26.00'

Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'



Reach EX-R-1: Existing Reach 1



Aspire - Existing

Prepared by RAUCH inc.

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

Printed 06/23/23

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 3.420 ac, 0.00% Impervious, Inflow Depth = 1.11" for 2-YR event
Inflow = 4.57 cfs @ 12.02 hrs, Volume= 0.317 af
Outflow = 2.82 cfs @ 12.41 hrs, Volume= 0.317 af, Atten= 38%, Lag= 23.4 min

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

Max. Velocity= 0.83 fps, Min. Travel Time= 14.7 min

Avg. Velocity = 0.22 fps, Avg. Travel Time= 54.6 min

Peak Storage= 2,483 cf @ 12.16 hrs

Average Depth at Peak Storage= 0.68'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' / ' Top Width= 15.00'

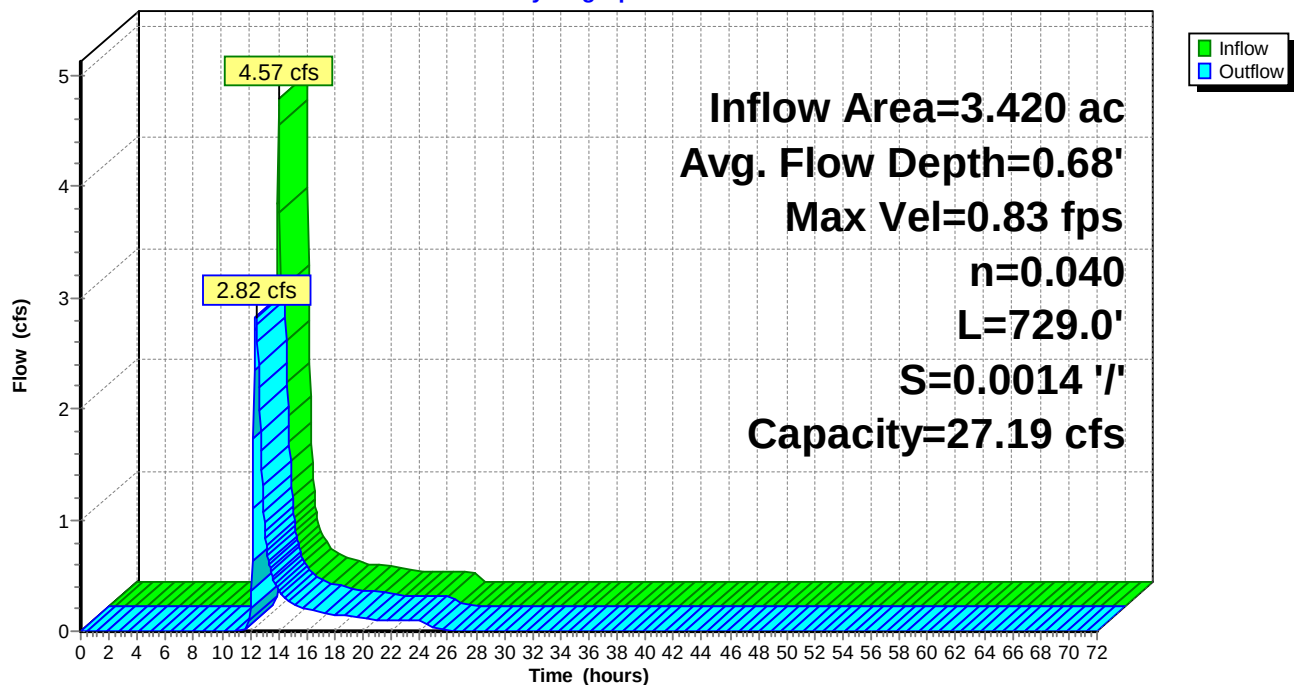
Length= 729.0' Slope= 0.0014 ' / '

Inlet Invert= 43.00', Outlet Invert= 42.00'



Reach EX-R-2: Existing Reach 2

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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

Printed 06/23/23

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 2.910 ac, 0.00% Impervious, Inflow Depth = 1.17" for 2-YR event
Inflow = 4.13 cfs @ 12.02 hrs, Volume= 0.284 af
Outflow = 2.61 cfs @ 12.38 hrs, Volume= 0.284 af, Atten= 37%, Lag= 21.7 min

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

Max. Velocity= 0.70 fps, Min. Travel Time= 13.5 min

Avg. Velocity = 0.18 fps, Avg. Travel Time= 51.3 min

Peak Storage= 2,131 cf @ 12.15 hrs

Average Depth at Peak Storage= 0.43'

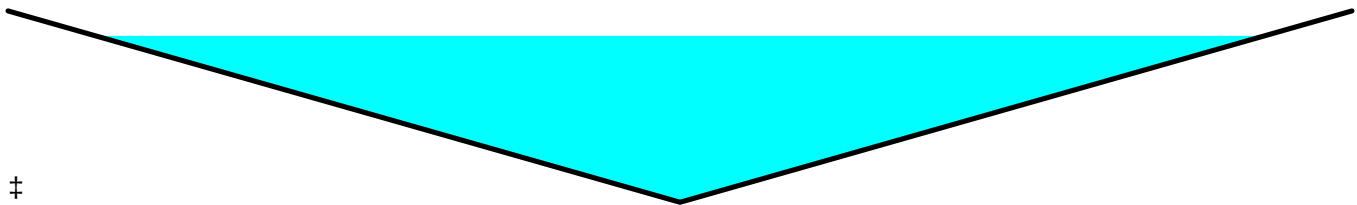
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.82 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 '/' Top Width= 20.00'

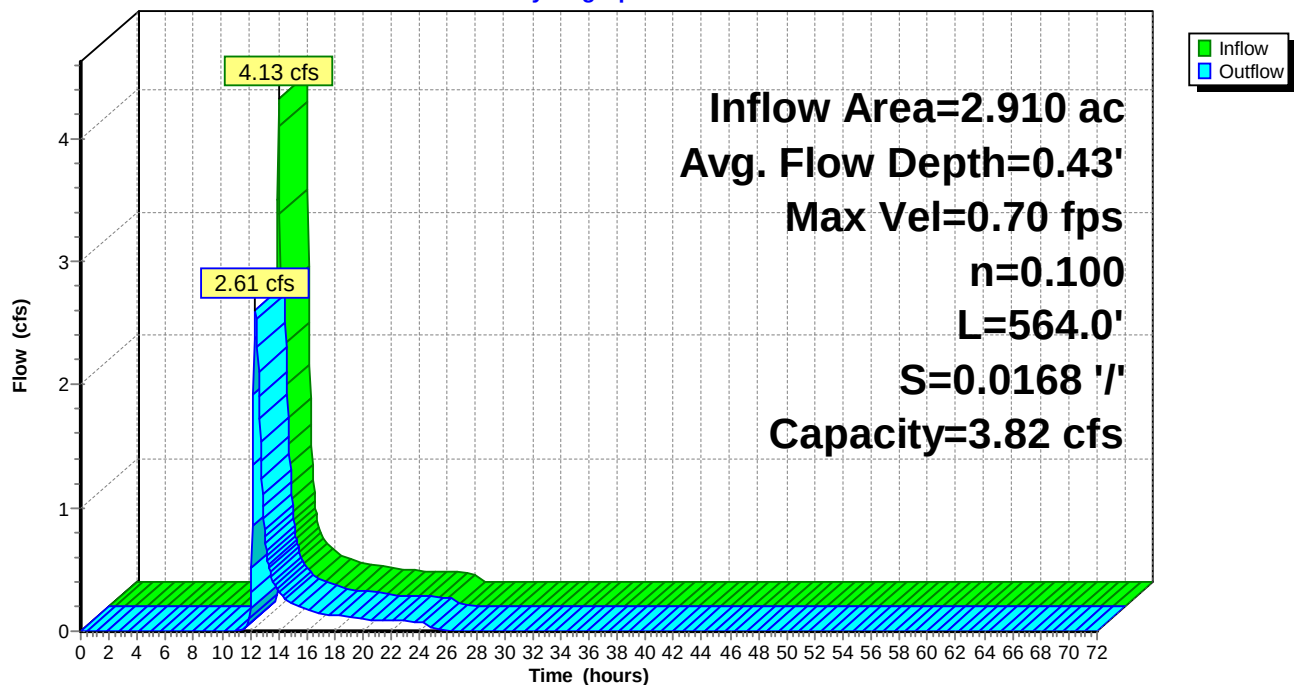
Length= 564.0' Slope= 0.0168 '/'

Inlet Invert= 49.50', Outlet Invert= 40.00'



Reach EX-R-3: Existing Reach 3

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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

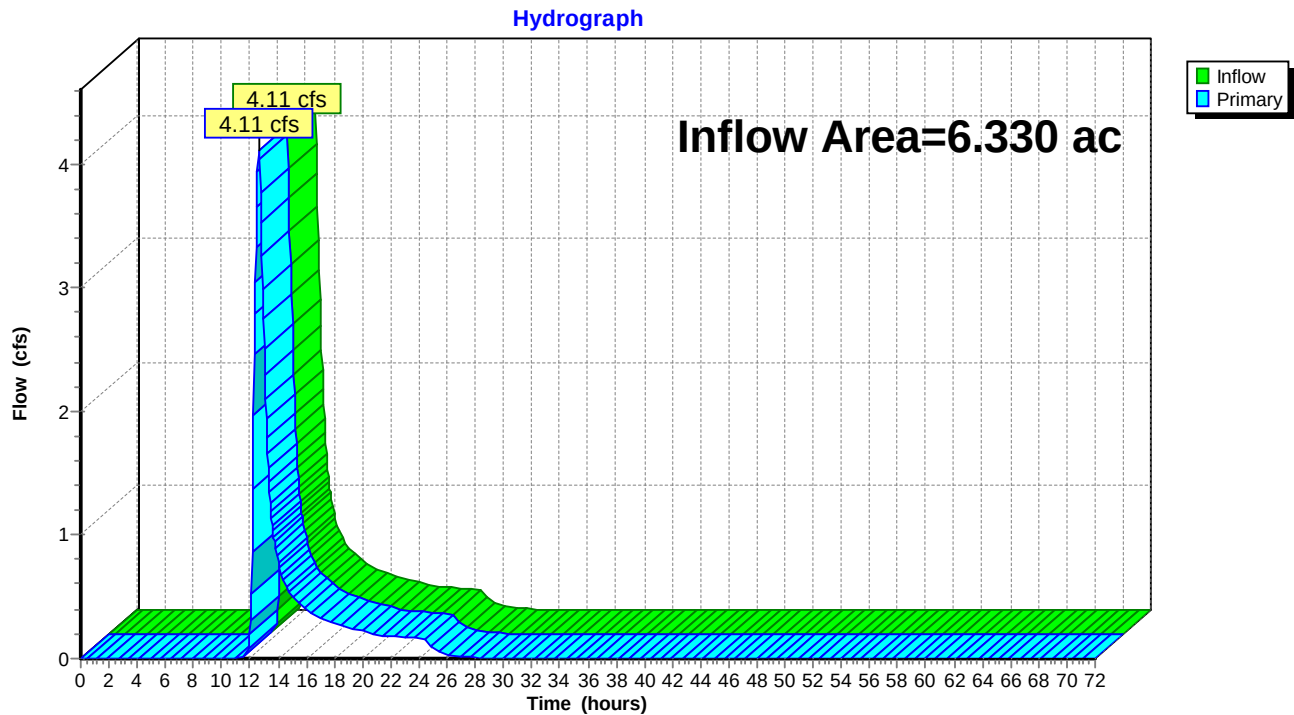
Printed 06/23/23

Summary for Link SP-1: Study Point #1

Inflow Area = 6.330 ac, 0.00% Impervious, Inflow Depth = 1.14" for 2-YR event
Inflow = 4.11 cfs @ 12.63 hrs, Volume= 0.601 af
Primary = 4.11 cfs @ 12.63 hrs, Volume= 0.601 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1



10-Year Existing Conditions Analysis

Aspire - Existing

Prepared by RAUCH inc.

HydroCAD® 10.00-26 s/n 02413 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1

Runoff Area=148,969 sf 0.00% Impervious Runoff Depth=2.52"
Flow Length=533' Tc=7.7 min CN=73 Runoff=10.78 cfs 0.718 af

Subcatchment EX-DA-2: Existing DA 2

Runoff Area=126,747 sf 0.00% Impervious Runoff Depth=2.61"
Flow Length=538' Tc=7.7 min CN=74 Runoff=9.51 cfs 0.632 af

Reach EX-R-1: Existing Reach 1

Avg. Flow Depth=0.54' Max Vel=1.34 fps Inflow=7.61 cfs 0.718 af
n=0.040 L=532.0' S=0.0038 '/ Capacity=177.63 cfs Outflow=6.92 cfs 0.718 af

Reach EX-R-2: Existing Reach 2

Avg. Flow Depth=1.11' Max Vel=1.09 fps Inflow=10.78 cfs 0.718 af
n=0.040 L=729.0' S=0.0014 '/ Capacity=27.19 cfs Outflow=7.61 cfs 0.718 af

Reach EX-R-3: Existing Reach 3

Avg. Flow Depth=0.64' Max Vel=0.86 fps Inflow=9.51 cfs 0.632 af
n=0.100 L=564.0' S=0.0168 '/ Capacity=3.82 cfs Outflow=6.66 cfs 0.632 af

Link SP-1: Study Point #1

Inflow=12.09 cfs 1.349 af
Primary=12.09 cfs 1.349 af

Total Runoff Area = 6.330 ac Runoff Volume = 1.349 af Average Runoff Depth = 2.56"
100.00% Pervious = 6.330 ac 0.00% Impervious = 0.000 ac

Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 10.78 cfs @ 12.01 hrs, Volume= 0.718 af, Depth= 2.52"

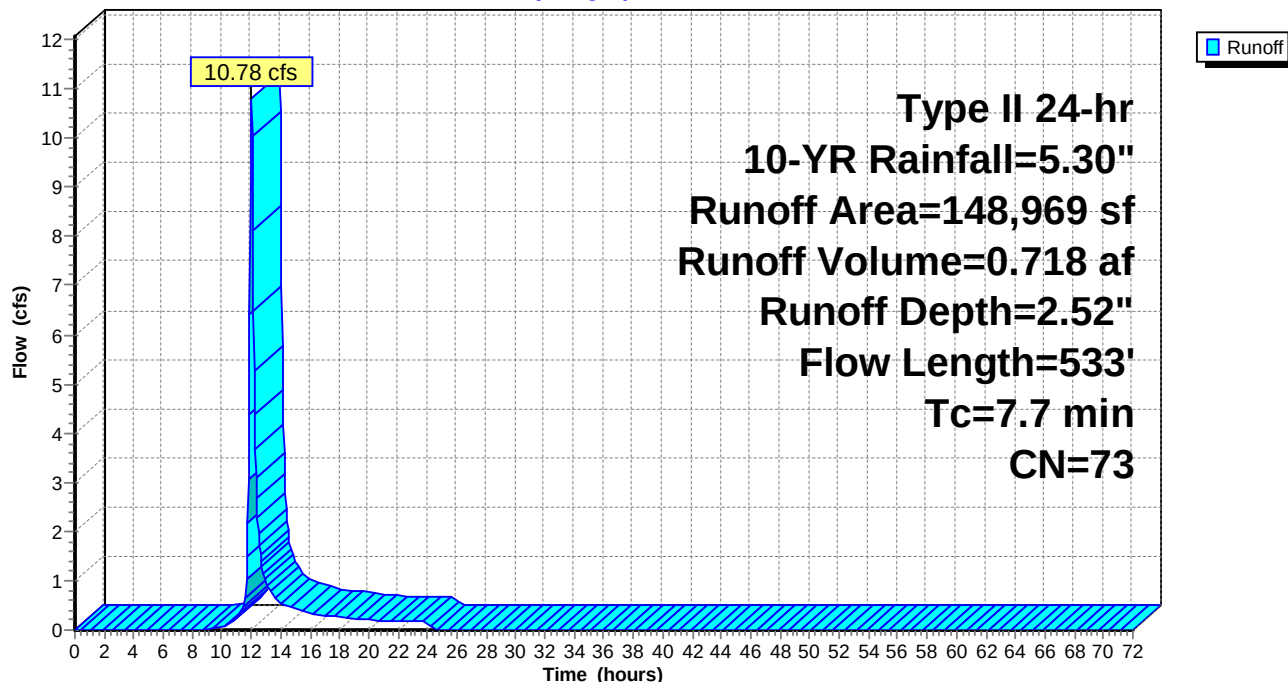
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
25,140	85	Row crops, straight row, Good, HSG C
123,829	70	Woods, Good, HSG C
148,969	73	Weighted Average
148,969		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF
					Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.1	433	0.0240	2.32		Shallow Concentrated Flow, Field and Woods
					Grassed Waterway Kv= 15.0 fps
7.7	533	Total			

Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 9.51 cfs @ 12.01 hrs, Volume= 0.632 af, Depth= 2.61"

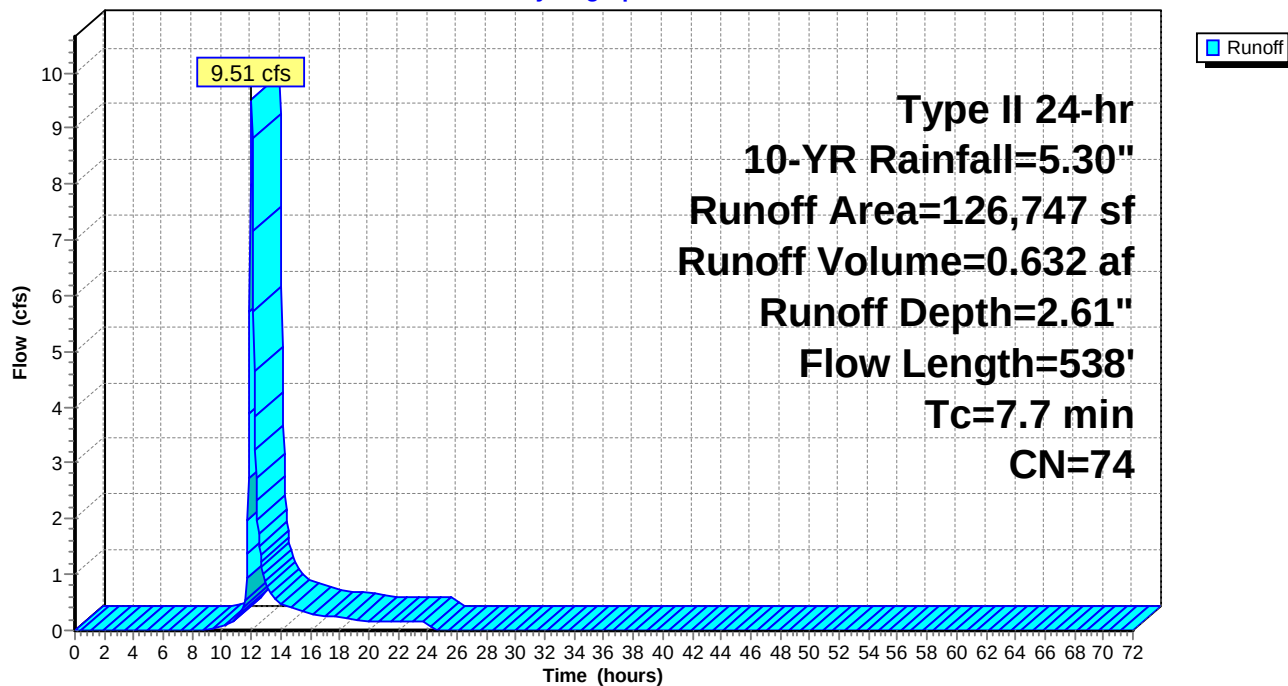
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
23,082	85	Row crops, straight row, Good, HSG C
79,330	70	Woods, Good, HSG C
24,335	77	Woods, Good, HSG D
126,747	74	Weighted Average
126,747		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF
					Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.1	438	0.0250	2.37		Shallow Concentrated Flow, Field and Woods
					Grassed Waterway Kv= 15.0 fps
7.7	538	Total			

Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 3.420 ac, 0.00% Impervious, Inflow Depth = 2.52" for 10-YR event
Inflow = 7.61 cfs @ 12.31 hrs, Volume= 0.718 af
Outflow = 6.92 cfs @ 12.51 hrs, Volume= 0.718 af, Atten= 9%, Lag= 12.0 min

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

Max. Velocity= 1.34 fps, Min. Travel Time= 6.6 min

Avg. Velocity = 0.34 fps, Avg. Travel Time= 26.1 min

Peak Storage= 2,749 cf @ 12.40 hrs

Average Depth at Peak Storage= 0.54'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 26.00'

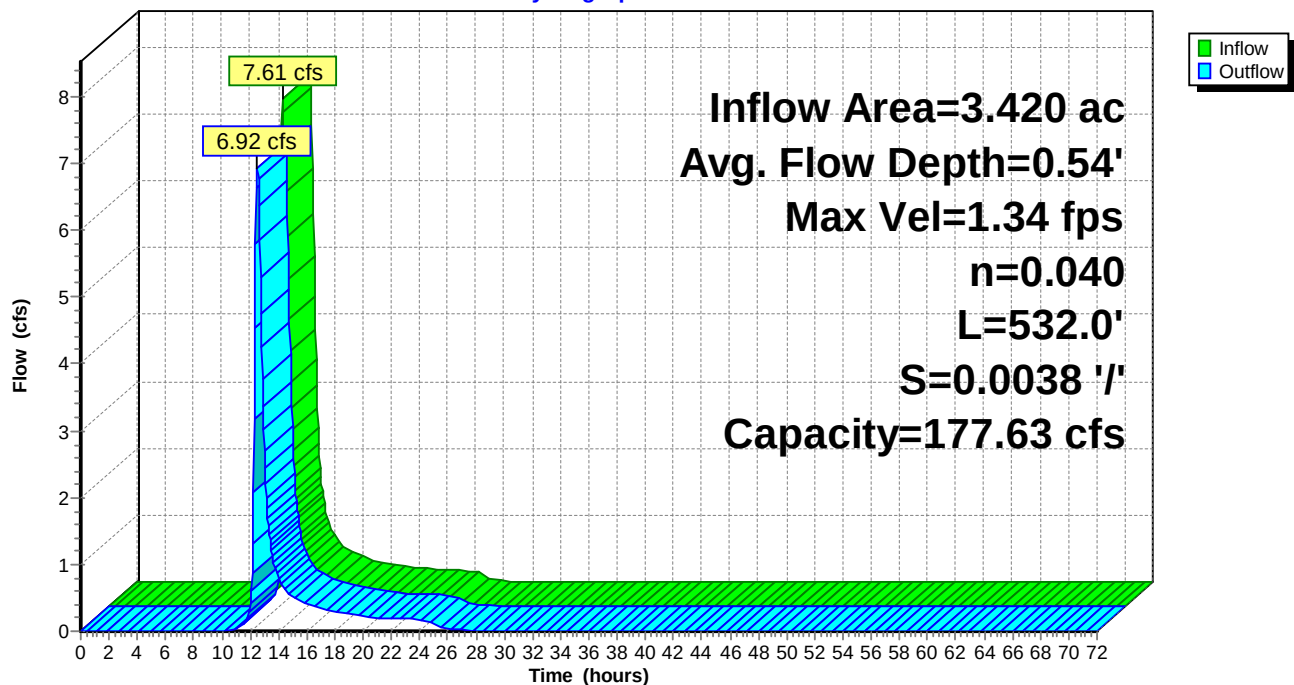
Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'



Reach EX-R-1: Existing Reach 1

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 3.420 ac, 0.00% Impervious, Inflow Depth = 2.52" for 10-YR event
Inflow = 10.78 cfs @ 12.01 hrs, Volume= 0.718 af
Outflow = 7.61 cfs @ 12.31 hrs, Volume= 0.718 af, Atten= 29%, Lag= 17.9 min

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

Max. Velocity= 1.09 fps, Min. Travel Time= 11.2 min

Avg. Velocity = 0.26 fps, Avg. Travel Time= 45.9 min

Peak Storage= 5,145 cf @ 12.12 hrs

Average Depth at Peak Storage= 1.11'

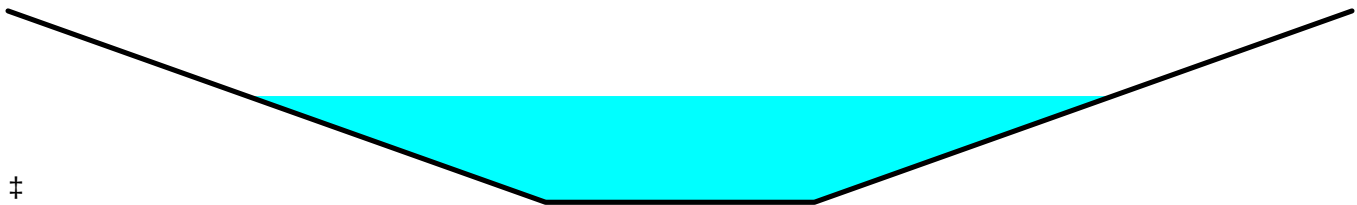
Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' Top Width= 15.00'

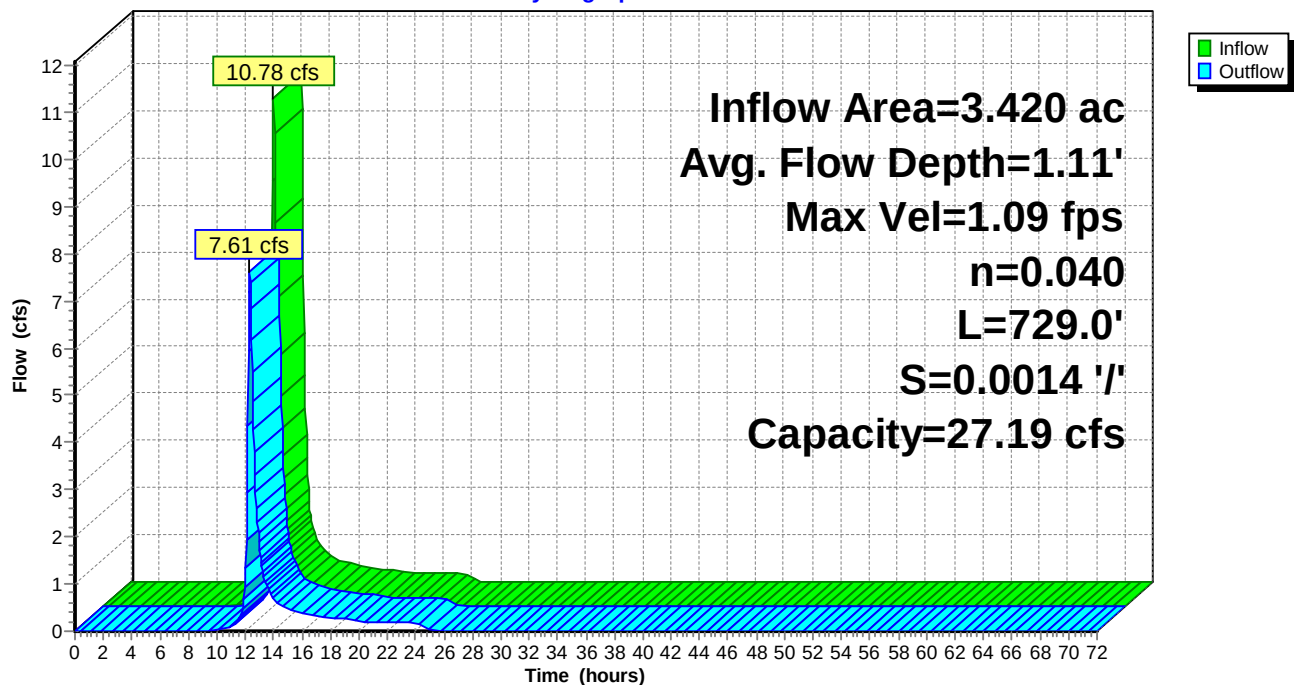
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'



Reach EX-R-2: Existing Reach 2

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 2.910 ac, 0.00% Impervious, Inflow Depth = 2.61" for 10-YR event
Inflow = 9.51 cfs @ 12.01 hrs, Volume= 0.632 af
Outflow = 6.66 cfs @ 12.31 hrs, Volume= 0.632 af, Atten= 30%, Lag= 17.8 min

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

Max. Velocity= 0.86 fps, Min. Travel Time= 11.0 min

Avg. Velocity = 0.21 fps, Avg. Travel Time= 43.8 min

Peak Storage= 4,425 cf @ 12.12 hrs

Average Depth at Peak Storage= 0.64'

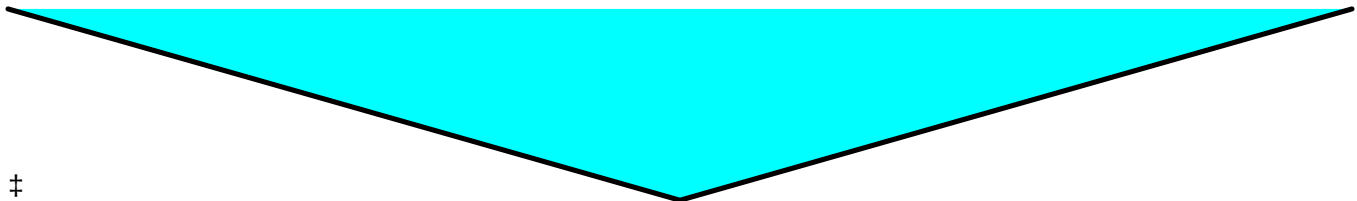
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.82 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

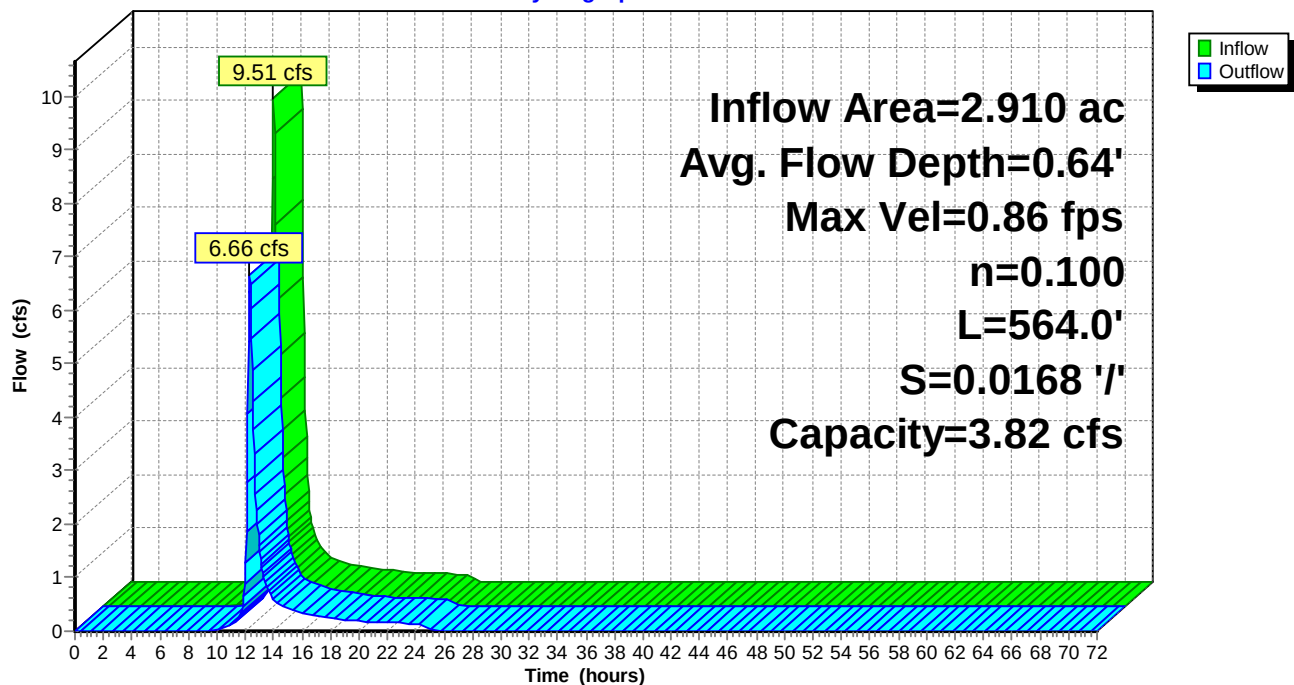
Length= 564.0' Slope= 0.0168 '/'

Inlet Invert= 49.50', Outlet Invert= 40.00'



Reach EX-R-3: Existing Reach 3

Hydrograph



Aspire - Existing

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Type II 24-hr 10-YR Rainfall=5.30"

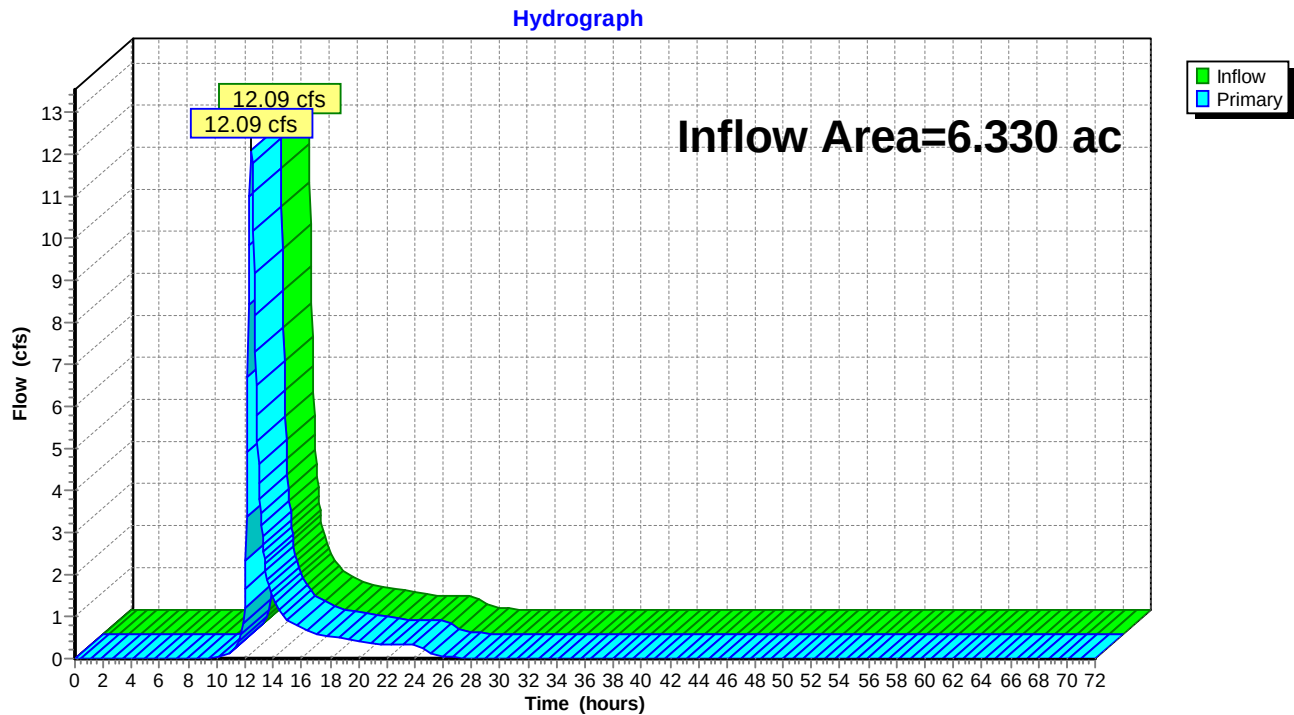
Printed 06/23/23

Summary for Link SP-1: Study Point #1

Inflow Area = 6.330 ac, 0.00% Impervious, Inflow Depth = 2.56" for 10-YR event
Inflow = 12.09 cfs @ 12.45 hrs, Volume= 1.349 af
Primary = 12.09 cfs @ 12.45 hrs, Volume= 1.349 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1



100-Year Existing Conditions Analysis

Aspire - Existing

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-DA-1: Existing DA 1

Runoff Area=148,969 sf 0.00% Impervious Runoff Depth=4.46"
Flow Length=533' Tc=7.7 min CN=73 Runoff=19.11 cfs 1.270 af

Subcatchment EX-DA-2: Existing DA 2

Runoff Area=126,747 sf 0.00% Impervious Runoff Depth=4.57"
Flow Length=538' Tc=7.7 min CN=74 Runoff=16.65 cfs 1.108 af

Reach EX-R-1: Existing Reach 1

Avg. Flow Depth=0.78' Max Vel=1.66 fps Inflow=14.43 cfs 1.270 af
n=0.040 L=532.0' S=0.0038 '/ Capacity=177.63 cfs Outflow=13.38 cfs 1.270 af

Reach EX-R-2: Existing Reach 2

Avg. Flow Depth=1.50' Max Vel=1.29 fps Inflow=19.11 cfs 1.270 af
n=0.040 L=729.0' S=0.0014 '/ Capacity=27.19 cfs Outflow=14.43 cfs 1.270 af

Reach EX-R-3: Existing Reach 3

Avg. Flow Depth=0.91' Max Vel=0.92 fps Inflow=16.65 cfs 1.108 af
n=0.100 L=564.0' S=0.0168 '/ Capacity=3.82 cfs Outflow=11.88 cfs 1.108 af

Link SP-1: Study Point #1

Inflow=23.76 cfs 2.378 af
Primary=23.76 cfs 2.378 af

Total Runoff Area = 6.330 ac Runoff Volume = 2.378 af Average Runoff Depth = 4.51"
100.00% Pervious = 6.330 ac 0.00% Impervious = 0.000 ac

Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Summary for Subcatchment EX-DA-1: Existing DA 1

Runoff = 19.11 cfs @ 12.01 hrs, Volume= 1.270 af, Depth= 4.46"

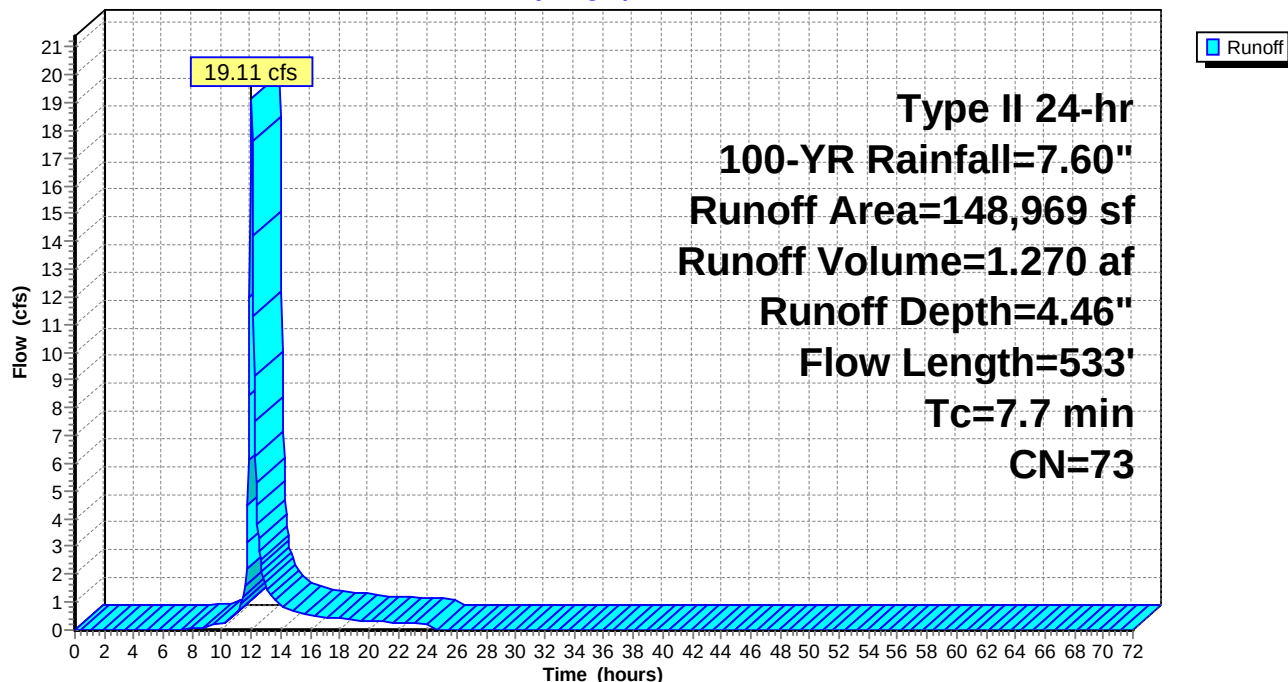
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
25,140	85	Row crops, straight row, Good, HSG C
123,829	70	Woods, Good, HSG C
148,969	73	Weighted Average
148,969		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF
					Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.1	433	0.0240	2.32		Shallow Concentrated Flow, Field and Woods
					Grassed Waterway Kv= 15.0 fps
7.7	533	Total			

Subcatchment EX-DA-1: Existing DA 1

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Summary for Subcatchment EX-DA-2: Existing DA 2

Runoff = 16.65 cfs @ 12.01 hrs, Volume= 1.108 af, Depth= 4.57"

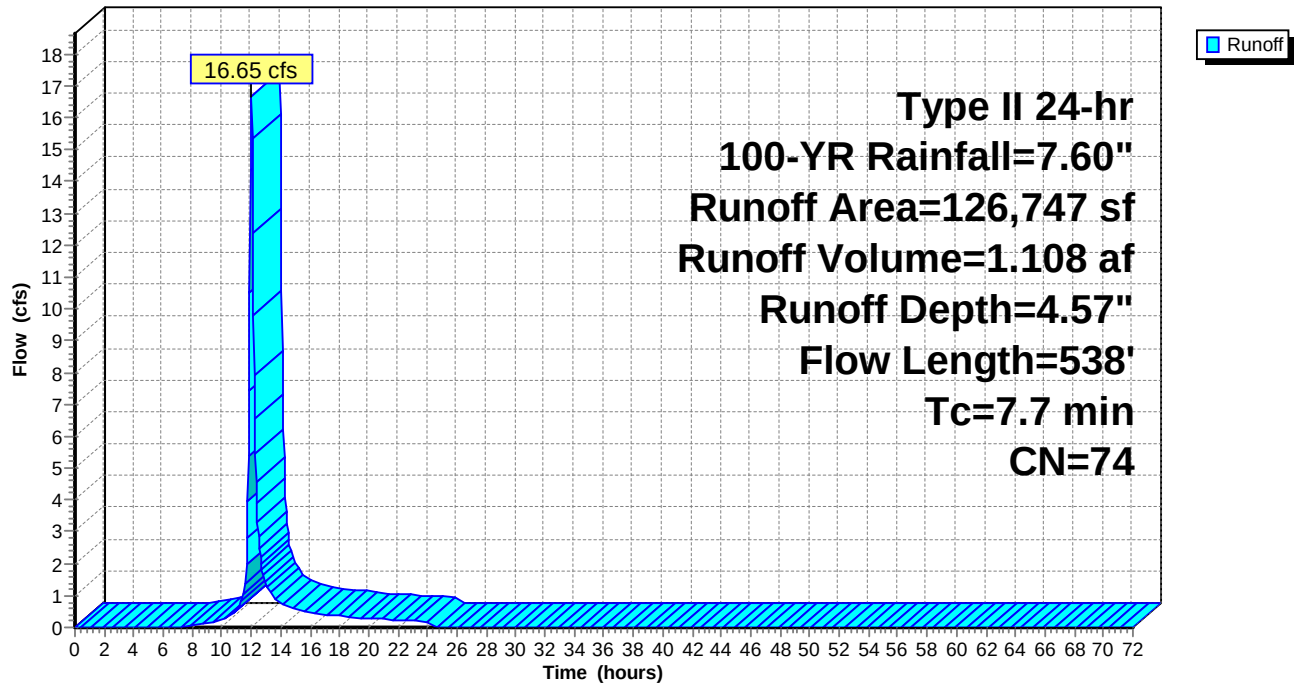
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
23,082	85	Row crops, straight row, Good, HSG C
79,330	70	Woods, Good, HSG C
24,335	77	Woods, Good, HSG D
126,747	74	Weighted Average
126,747		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		Sheet Flow, Ag Field SF
					Cultivated: Residue<=20% n= 0.060 P2= 3.40"
3.1	438	0.0250	2.37		Shallow Concentrated Flow, Field and Woods
					Grassed Waterway Kv= 15.0 fps
7.7	538	Total			

Subcatchment EX-DA-2: Existing DA 2

Hydrograph



Aspire - Existing

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 3.420 ac, 0.00% Impervious, Inflow Depth = 4.46" for 100-YR event
Inflow = 14.43 cfs @ 12.26 hrs, Volume= 1.270 af
Outflow = 13.38 cfs @ 12.42 hrs, Volume= 1.270 af, Atten= 7%, Lag= 9.6 min

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

Max. Velocity= 1.66 fps, Min. Travel Time= 5.3 min

Avg. Velocity = 0.38 fps, Avg. Travel Time= 23.0 min

Peak Storage= 4,293 cf @ 12.33 hrs

Average Depth at Peak Storage= 0.78'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' Top Width= 26.00'

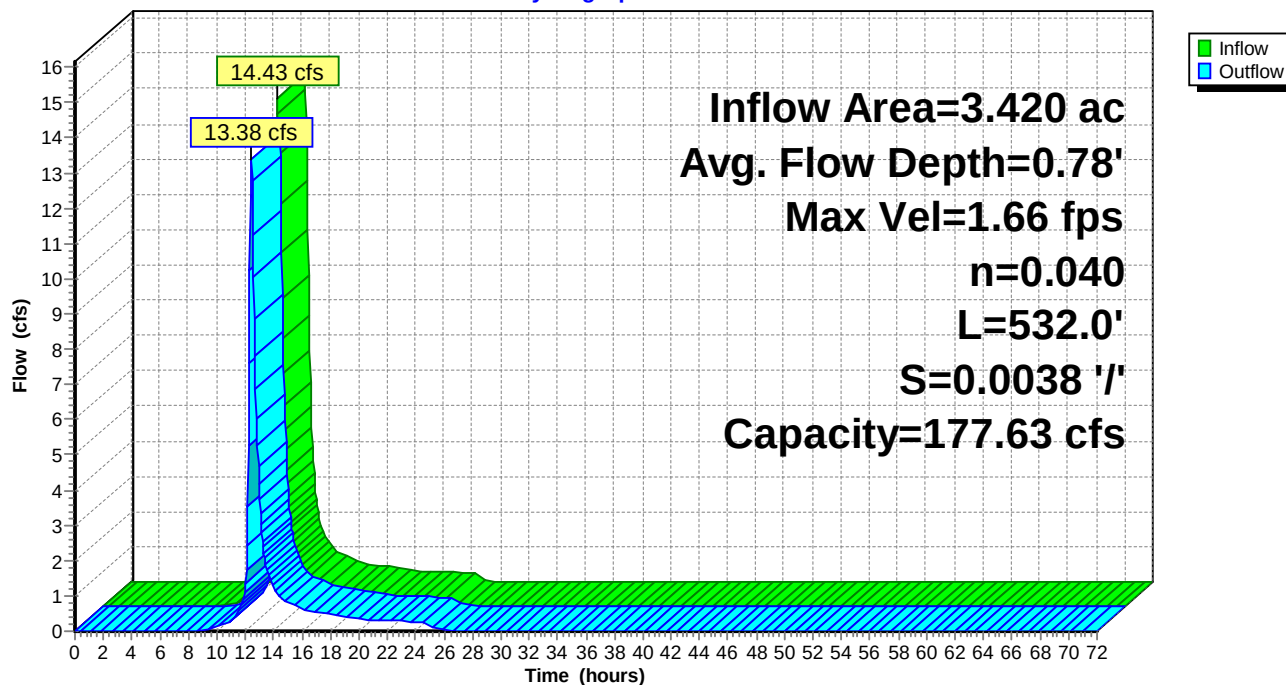
Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'



Reach EX-R-1: Existing Reach 1

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 3.420 ac, 0.00% Impervious, Inflow Depth = 4.46" for 100-YR event
Inflow = 19.11 cfs @ 12.01 hrs, Volume= 1.270 af
Outflow = 14.43 cfs @ 12.26 hrs, Volume= 1.270 af, Atten= 24%, Lag= 15.2 min

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

Max. Velocity= 1.29 fps, Min. Travel Time= 9.5 min

Avg. Velocity = 0.30 fps, Avg. Travel Time= 40.1 min

Peak Storage= 8,233 cf @ 12.10 hrs

Average Depth at Peak Storage= 1.50'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

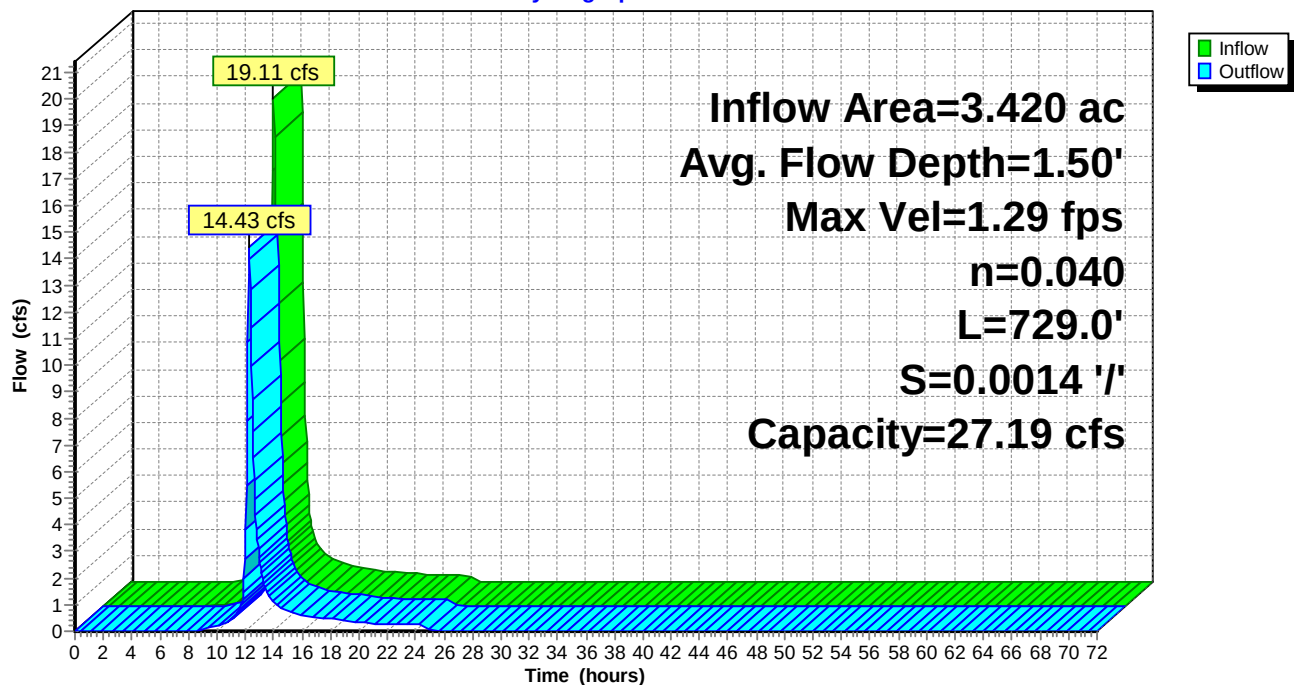
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'



Reach EX-R-2: Existing Reach 2

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 2.910 ac, 0.00% Impervious, Inflow Depth = 4.57" for 100-YR event
Inflow = 16.65 cfs @ 12.01 hrs, Volume= 1.108 af
Outflow = 11.88 cfs @ 12.28 hrs, Volume= 1.108 af, Atten= 29%, Lag= 16.7 min

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

Max. Velocity= 0.92 fps, Min. Travel Time= 10.2 min

Avg. Velocity = 0.24 fps, Avg. Travel Time= 38.9 min

Peak Storage= 7,373 cf @ 12.11 hrs

Average Depth at Peak Storage= 0.91'

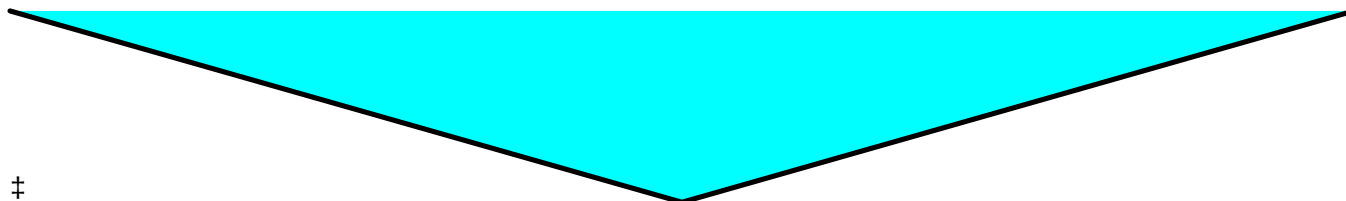
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.82 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

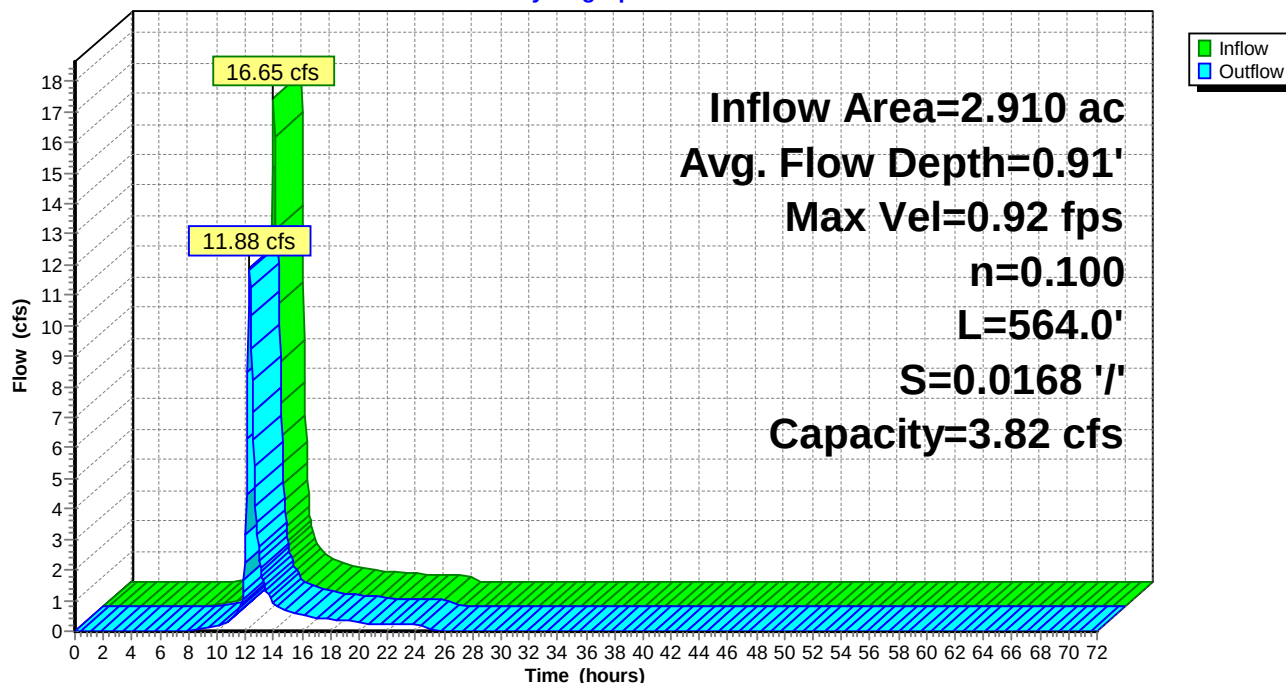
Length= 564.0' Slope= 0.0168 '/'

Inlet Invert= 49.50', Outlet Invert= 40.00'



Reach EX-R-3: Existing Reach 3

Hydrograph



Aspire - Existing

Prepared by RAUCH inc.

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Type II 24-hr 100-YR Rainfall=7.60"

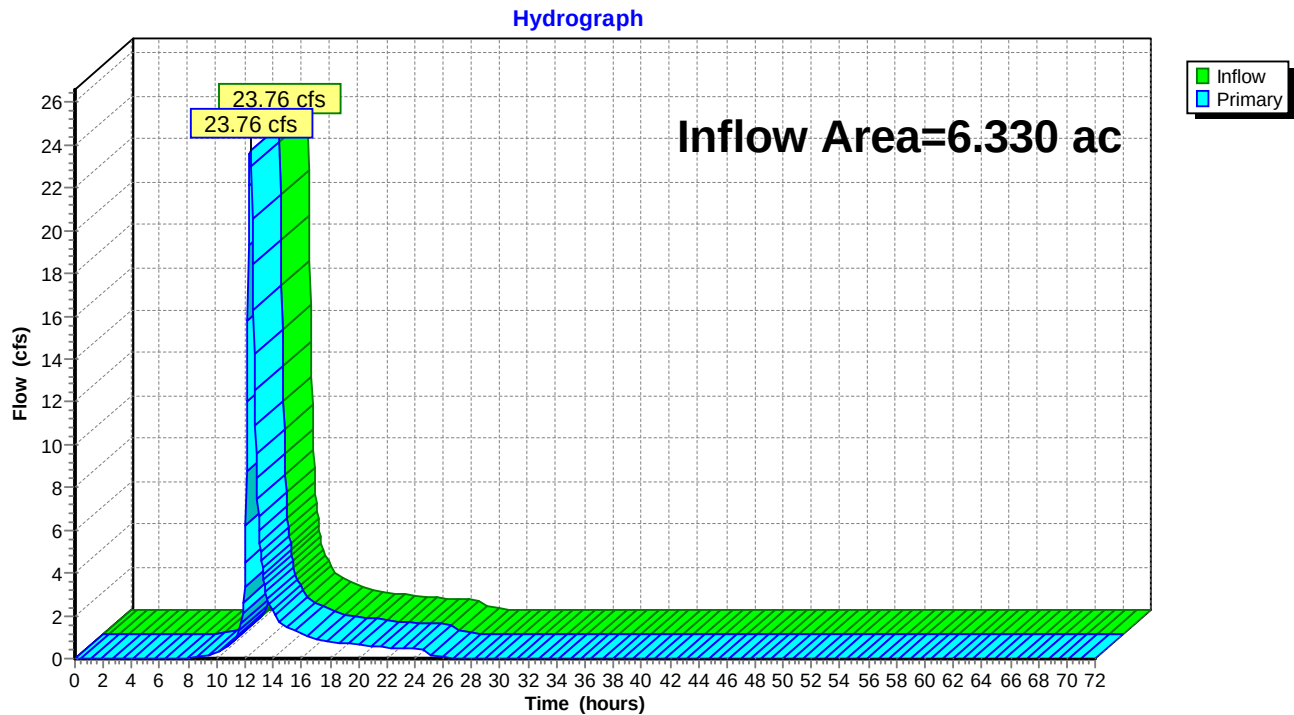
Printed 06/23/23

Summary for Link SP-1: Study Point #1

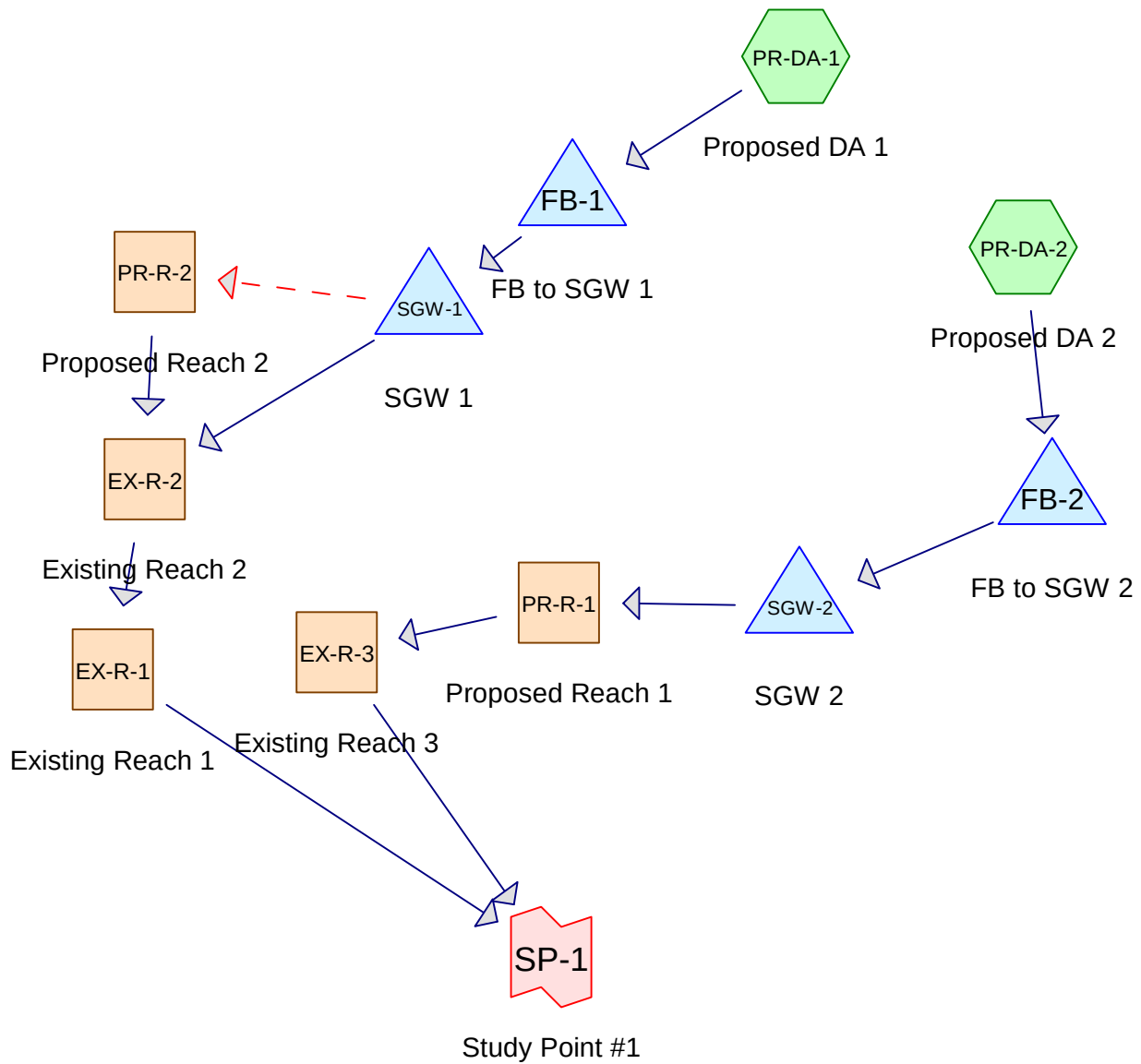
Inflow Area = 6.330 ac, 0.00% Impervious, Inflow Depth = 4.51" for 100-YR event
Inflow = 23.76 cfs @ 12.38 hrs, Volume= 2.378 af
Primary = 23.76 cfs @ 12.38 hrs, Volume= 2.378 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1



Analysis of Proposed Conditions



Aspire - Proposed

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.829	74	>75% Grass cover, Good, HSG C (PR-DA-1, PR-DA-2)
4.500	98	Paved parking, HSG C (PR-DA-1, PR-DA-2)
6.329	91	TOTAL AREA

2-Year Proposed Conditions Analysis

Aspire - Proposed

Prepared by RAUCH inc.

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

Printed 06/23/23

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
 Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-DA-1: Proposed DA 1	Runoff Area=146,601 sf 66.39% Impervious Runoff Depth=2.35" Flow Length=521' Tc=8.4 min CN=90 Runoff=9.41 cfs 0.660 af
Subcatchment PR-DA-2: Proposed DA 2	Runoff Area=129,109 sf 76.46% Impervious Runoff Depth=2.54" Flow Length=404' Tc=11.1 min CN=92 Runoff=7.68 cfs 0.628 af
Reach EX-R-1: Existing Reach 1	Avg. Flow Depth=0.12' Max Vel=0.55 fps Inflow=0.58 cfs 0.266 af n=0.040 L=532.0' S=0.0038 '/' Capacity=177.63 cfs Outflow=0.57 cfs 0.266 af
Reach EX-R-2: Existing Reach 2	Avg. Flow Depth=0.29' Max Vel=0.52 fps Inflow=0.60 cfs 0.266 af n=0.040 L=729.0' S=0.0014 '/' Capacity=27.19 cfs Outflow=0.58 cfs 0.266 af
Reach EX-R-3: Existing Reach 3	Avg. Flow Depth=0.38' Max Vel=0.60 fps Inflow=1.98 cfs 0.619 af n=0.100 L=464.0' S=0.0151 '/' Capacity=3.62 cfs Outflow=1.74 cfs 0.619 af
Reach PR-R-1: Proposed Reach 1	Avg. Flow Depth=0.56' Max Vel=2.08 fps Inflow=1.99 cfs 0.619 af n=0.022 L=254.0' S=0.0055 '/' Capacity=105.34 cfs Outflow=1.98 cfs 0.619 af
Reach PR-R-2: Proposed Reach 2	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.025 L=100.0' S=0.0050 '/' Capacity=7.67 cfs Outflow=0.00 cfs 0.000 af
Pond FB-1: FB to SGW 1	Peak Elev=47.62' Storage=18,407 cf Inflow=9.41 cfs 0.660 af Outflow=0.78 cfs 0.266 af
Pond FB-2: FB to SGW 2	Peak Elev=50.04' Storage=7,277 cf Inflow=7.68 cfs 0.628 af Outflow=7.16 cfs 0.628 af
Pond SGW-1: SGW 1	Peak Elev=45.82' Storage=2,353 cf Inflow=0.78 cfs 0.266 af Primary=0.60 cfs 0.266 af Secondary=0.00 cfs 0.000 af Outflow=0.60 cfs 0.266 af
Pond SGW-2: SGW 2	Peak Elev=49.60' Storage=14,250 cf Inflow=7.16 cfs 0.628 af Outflow=1.99 cfs 0.619 af
Link SP-1: Study Point #1	Inflow=1.75 cfs 0.885 af Primary=1.75 cfs 0.885 af

Total Runoff Area = 6.329 ac Runoff Volume = 1.288 af Average Runoff Depth = 2.44"
28.90% Pervious = 1.829 ac 71.10% Impervious = 4.500 ac

Aspire - Proposed

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

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Summary for Subcatchment PR-DA-1: Proposed DA 1

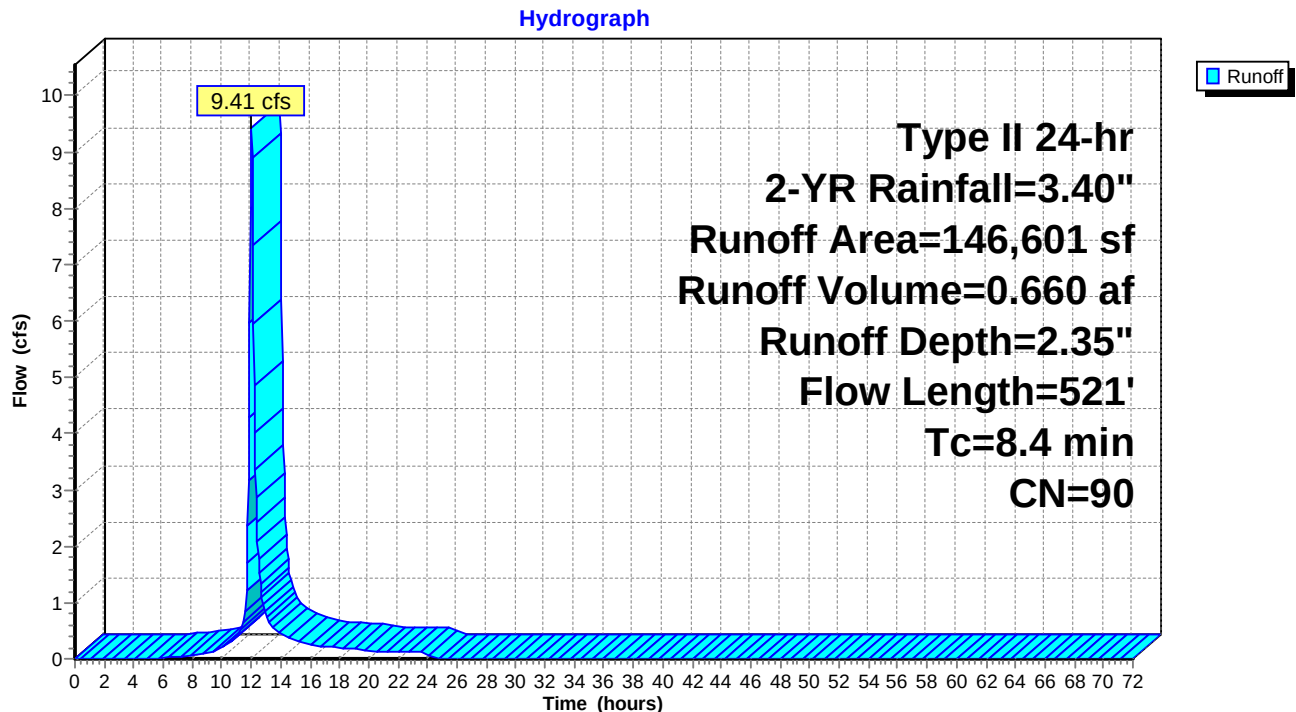
Runoff = 9.41 cfs @ 12.01 hrs, Volume= 0.660 af, Depth= 2.35"

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

Area (sf)	CN	Description
49,279	74	>75% Grass cover, Good, HSG C
97,322	98	Paved parking, HSG C
146,601	90	Weighted Average
49,279		33.61% Pervious Area
97,322		66.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
1.3	421	0.0050	5.52	17.33	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
8.4	521	Total			

Subcatchment PR-DA-1: Proposed DA 1



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

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Summary for Subcatchment PR-DA-2: Proposed DA 2

Runoff = 7.68 cfs @ 12.04 hrs, Volume= 0.628 af, Depth= 2.54"

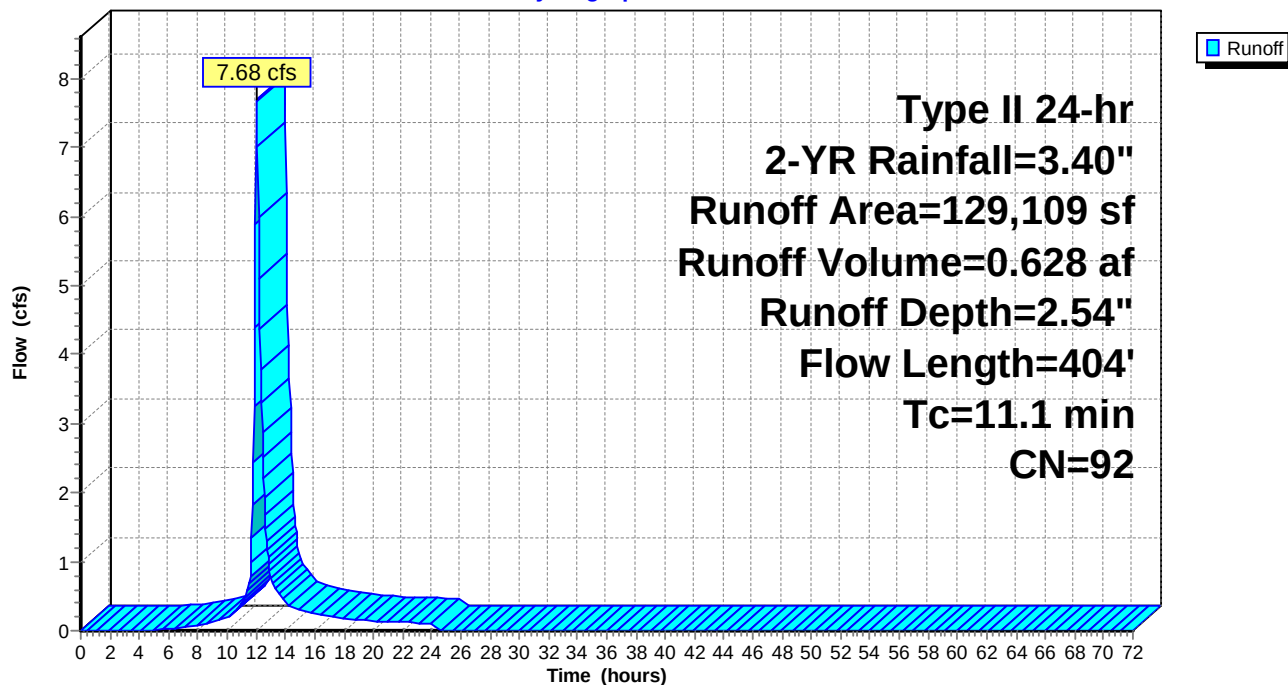
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
30,393	74	>75% Grass cover, Good, HSG C
98,716	98	Paved parking, HSG C
129,109	92	Weighted Average
30,393		23.54% Pervious Area
98,716		76.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	69	0.0100	0.12		Sheet Flow, Side Yard Grass: Short n= 0.150 P2= 3.40"
0.5	31	0.0150	1.00		Sheet Flow, Pave Smooth surfaces n= 0.011 P2= 3.40"
0.3	50	0.0150	2.49		Shallow Concentrated Flow, Pave Paved Kv= 20.3 fps
1.0	254	0.0040	4.07	7.20	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
11.1	404	Total			

Subcatchment PR-DA-2: Proposed DA 2

Hydrograph



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

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Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 0.95" for 2-YR event
Inflow = 0.58 cfs @ 14.07 hrs, Volume= 0.266 af
Outflow = 0.57 cfs @ 14.28 hrs, Volume= 0.266 af, Atten= 1%, Lag= 12.7 min

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

Max. Velocity= 0.55 fps, Min. Travel Time= 16.1 min

Avg. Velocity = 0.25 fps, Avg. Travel Time= 34.9 min

Peak Storage= 551 cf @ 14.28 hrs

Average Depth at Peak Storage= 0.12'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' / ' Top Width= 26.00'

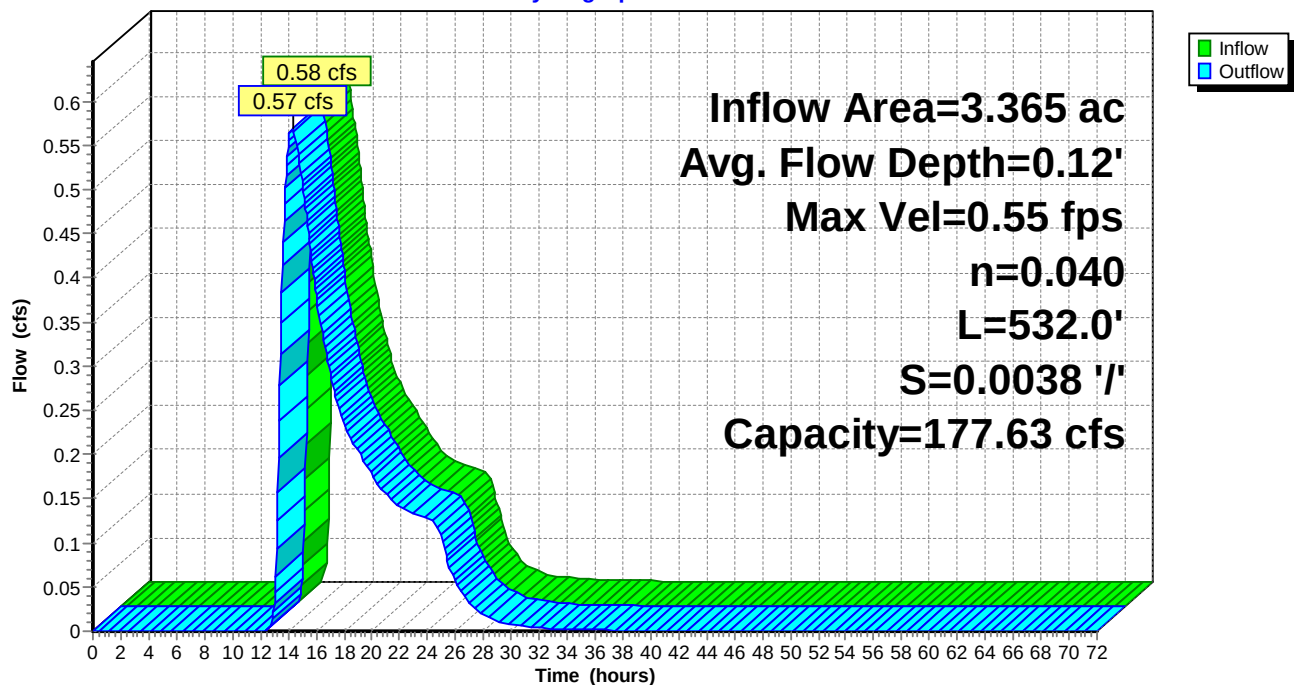
Length= 532.0' Slope= 0.0038 ' / '

Inlet Invert= 42.00', Outlet Invert= 40.00'



Reach EX-R-1: Existing Reach 1

Hydrograph



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

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Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 0.95" for 2-YR event
Inflow = 0.60 cfs @ 13.67 hrs, Volume= 0.266 af
Outflow = 0.58 cfs @ 14.07 hrs, Volume= 0.266 af, Atten= 4%, Lag= 23.6 min

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

Max. Velocity= 0.52 fps, Min. Travel Time= 23.5 min

Avg. Velocity = 0.16 fps, Avg. Travel Time= 74.7 min

Peak Storage= 810 cf @ 14.07 hrs

Average Depth at Peak Storage= 0.29'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' / ' Top Width= 15.00'

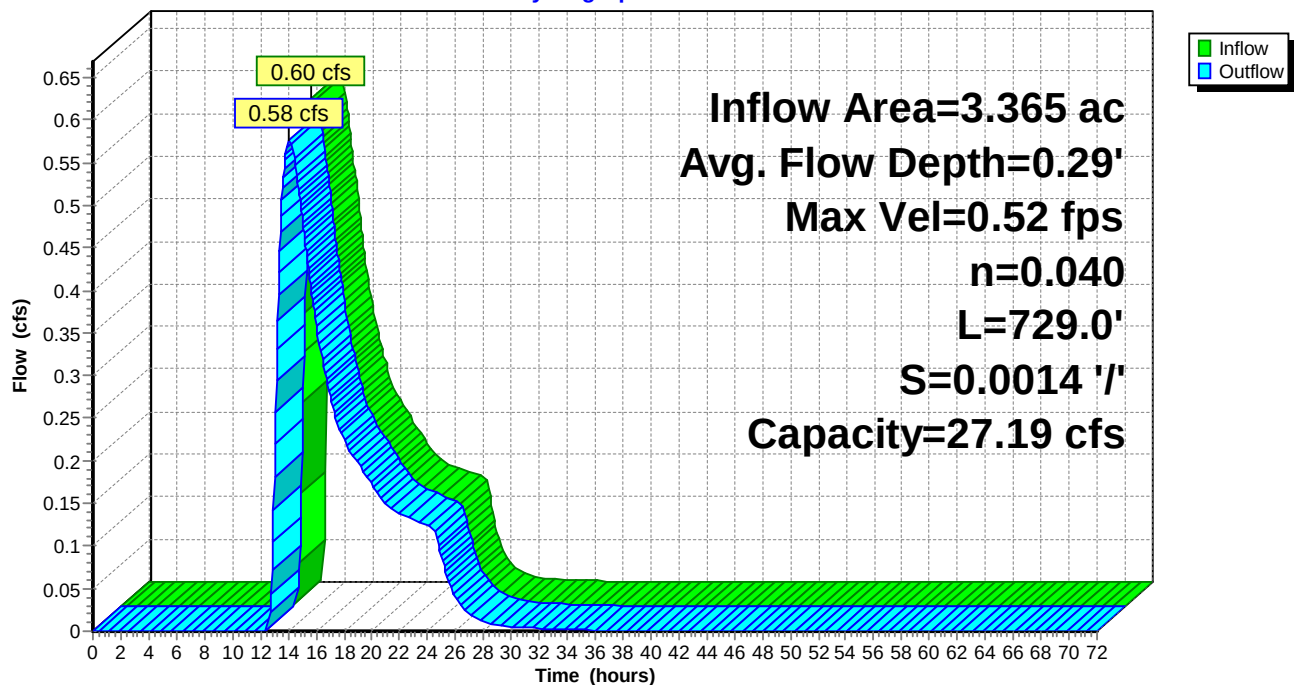
Length= 729.0' Slope= 0.0014 ' / '

Inlet Invert= 43.00', Outlet Invert= 42.00'



Reach EX-R-2: Existing Reach 2

Hydrograph



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

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Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 2.51" for 2-YR event
Inflow = 1.98 cfs @ 12.63 hrs, Volume= 0.619 af
Outflow = 1.74 cfs @ 12.79 hrs, Volume= 0.619 af, Atten= 12%, Lag= 10.0 min

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

Max. Velocity= 0.60 fps, Min. Travel Time= 12.8 min

Avg. Velocity = 0.17 fps, Avg. Travel Time= 46.7 min

Peak Storage= 1,341 cf @ 12.79 hrs

Average Depth at Peak Storage= 0.38'

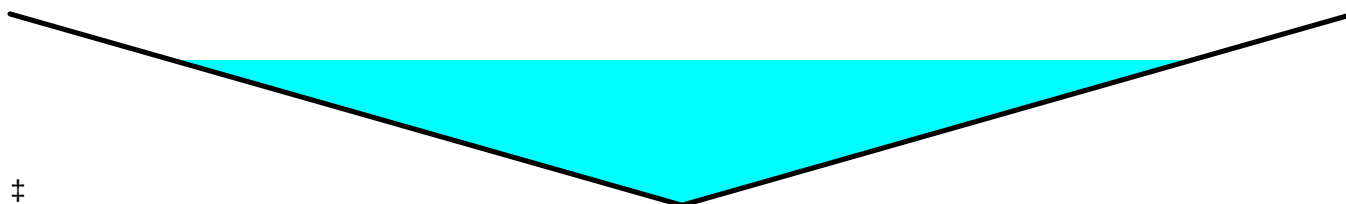
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.62 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

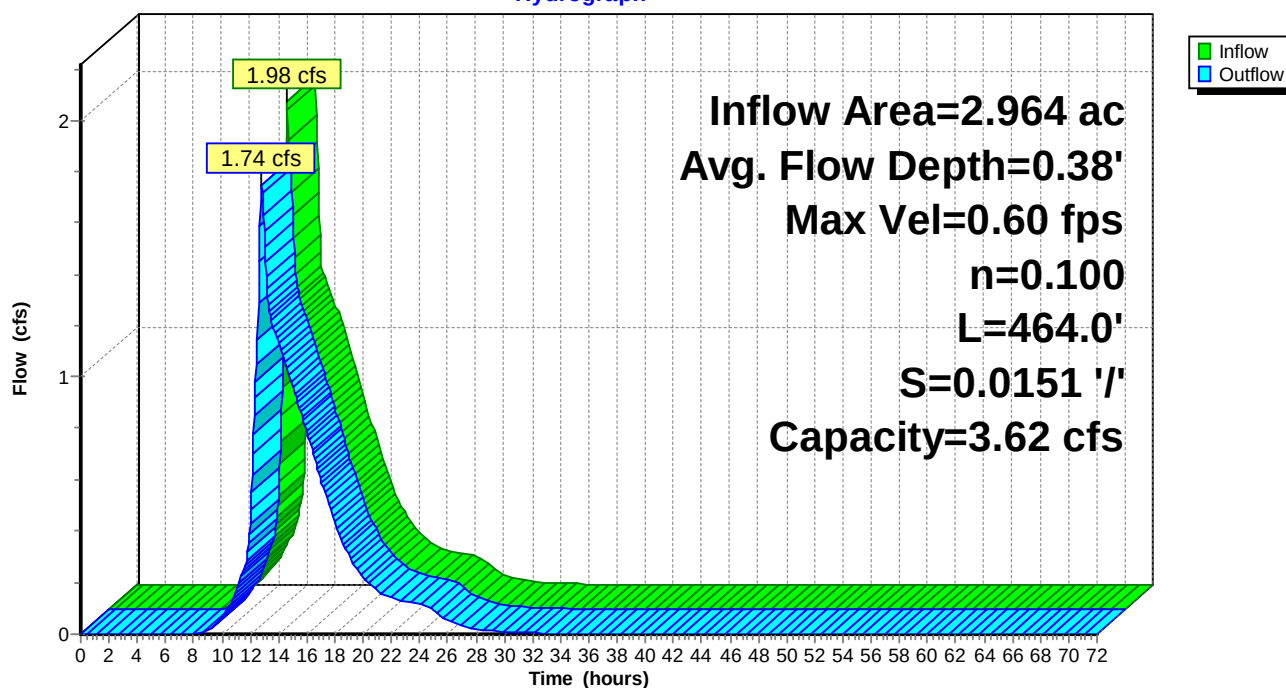
Length= 464.0' Slope= 0.0151 '/'

Inlet Invert= 47.00', Outlet Invert= 40.00'



Reach EX-R-3: Existing Reach 3

Hydrograph



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

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Summary for Reach PR-R-1: Proposed Reach 1

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 2.51" for 2-YR event
Inflow = 1.99 cfs @ 12.60 hrs, Volume= 0.619 af
Outflow = 1.98 cfs @ 12.63 hrs, Volume= 0.619 af, Atten= 1%, Lag= 1.6 min

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

Max. Velocity= 2.08 fps, Min. Travel Time= 2.0 min

Avg. Velocity = 0.62 fps, Avg. Travel Time= 6.8 min

Peak Storage= 241 cf @ 12.63 hrs

Average Depth at Peak Storage= 0.56'

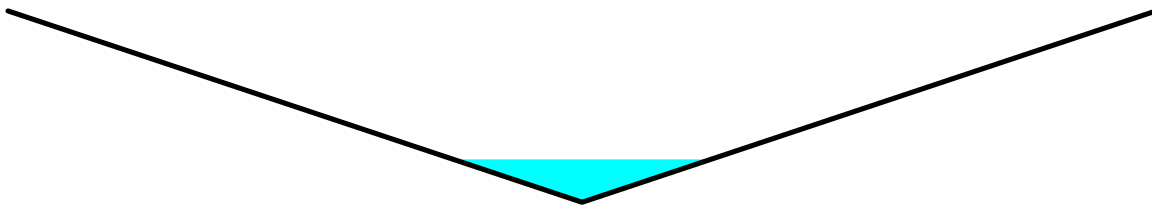
Bank-Full Depth= 2.50' Flow Area= 18.8 sf, Capacity= 105.34 cfs

0.00' x 2.50' deep channel, n= 0.022 Earth, clean & straight

Side Slope Z-value= 3.0 ' Top Width= 15.00'

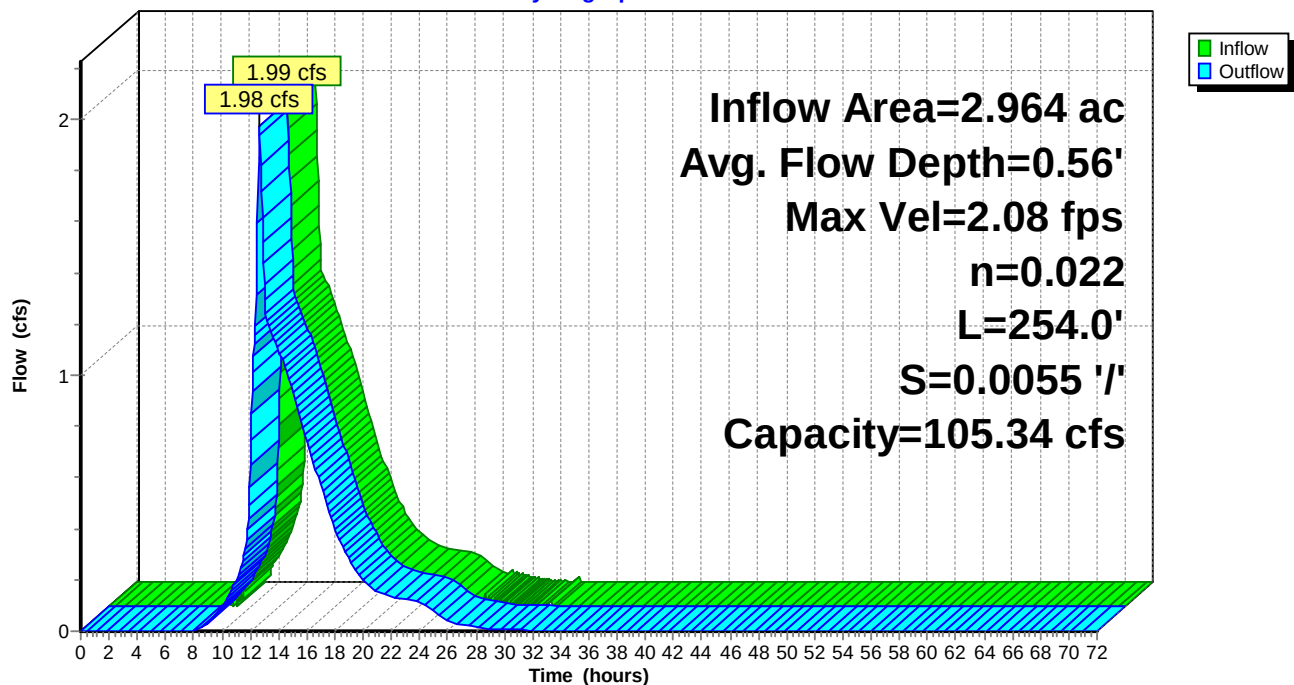
Length= 254.0' Slope= 0.0055 '/'

Inlet Invert= 47.40', Outlet Invert= 46.00'



Reach PR-R-1: Proposed Reach 1

Hydrograph



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

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Summary for Reach PR-R-2: Proposed Reach 2

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

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

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs

Average Depth at Peak Storage= 0.00'

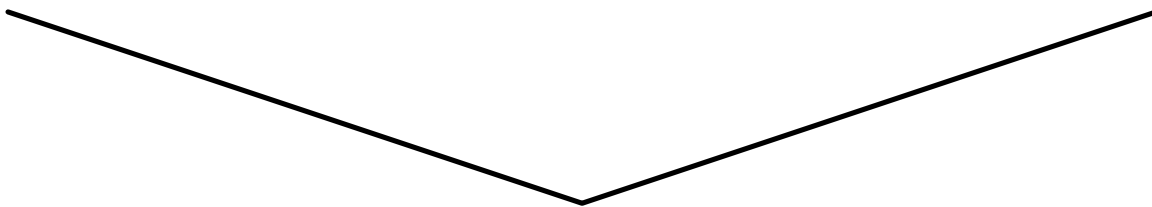
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 7.67 cfs

0.00' x 1.00' deep channel, n= 0.025

Side Slope Z-value= 3.0 '/' Top Width= 6.00'

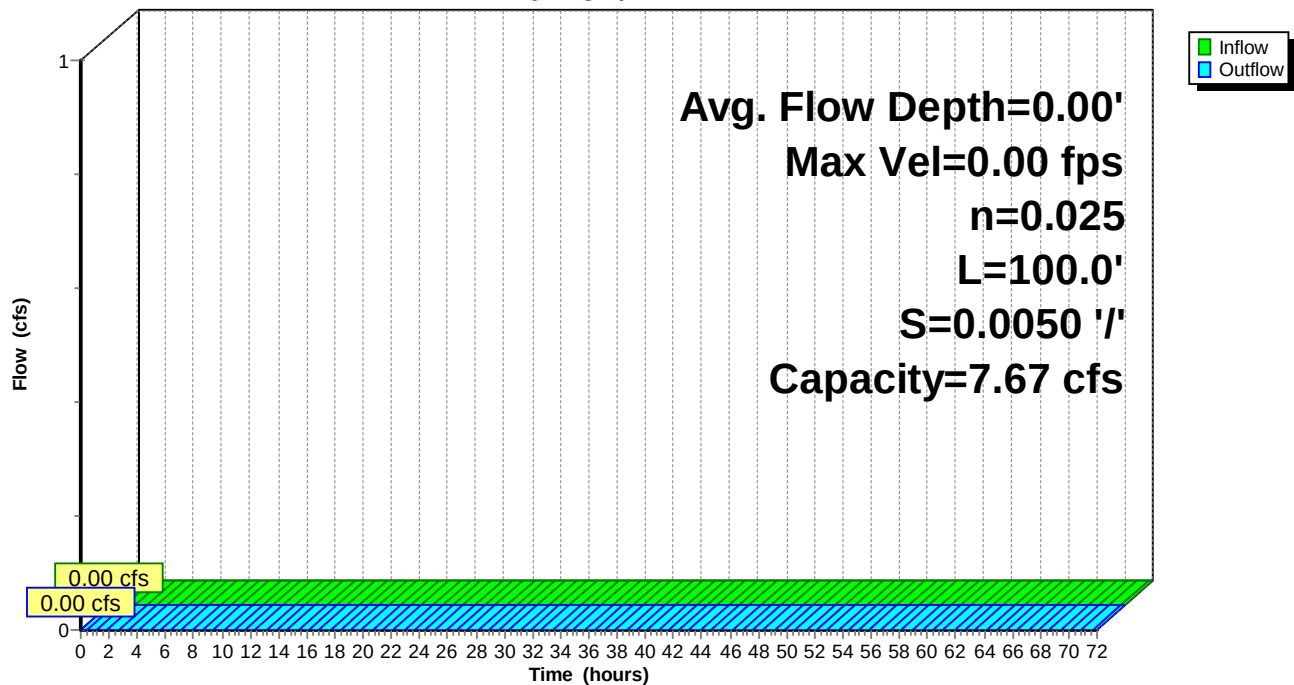
Length= 100.0' Slope= 0.0050 '/'

Inlet Invert= 47.50', Outlet Invert= 47.00'



Reach PR-R-2: Proposed Reach 2

Hydrograph



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

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Summary for Pond FB-1: FB to SGW 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 2.35" for 2-YR event
 Inflow = 9.41 cfs @ 12.01 hrs, Volume= 0.660 af
 Outflow = 0.78 cfs @ 12.97 hrs, Volume= 0.266 af, Atten= 92%, Lag= 57.4 min
 Primary = 0.78 cfs @ 12.97 hrs, Volume= 0.266 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 47.62' @ 12.97 hrs Surf.Area= 9,911 sf Storage= 18,407 cf

Plug-Flow detention time= 319.9 min calculated for 0.266 af (40% of inflow)
 Center-of-Mass det. time= 196.8 min (1,005.6 - 808.8)

Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	27,690 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	7,419	0	0
48.50	10,938	27,536	27,536
48.51	20,000	155	27,690

Device	Routing	Invert	Outlet Devices
#1	Primary	47.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.78 cfs @ 12.97 hrs HW=47.62' TW=45.66' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.78 cfs @ 0.90 fps)

Aspire - Proposed

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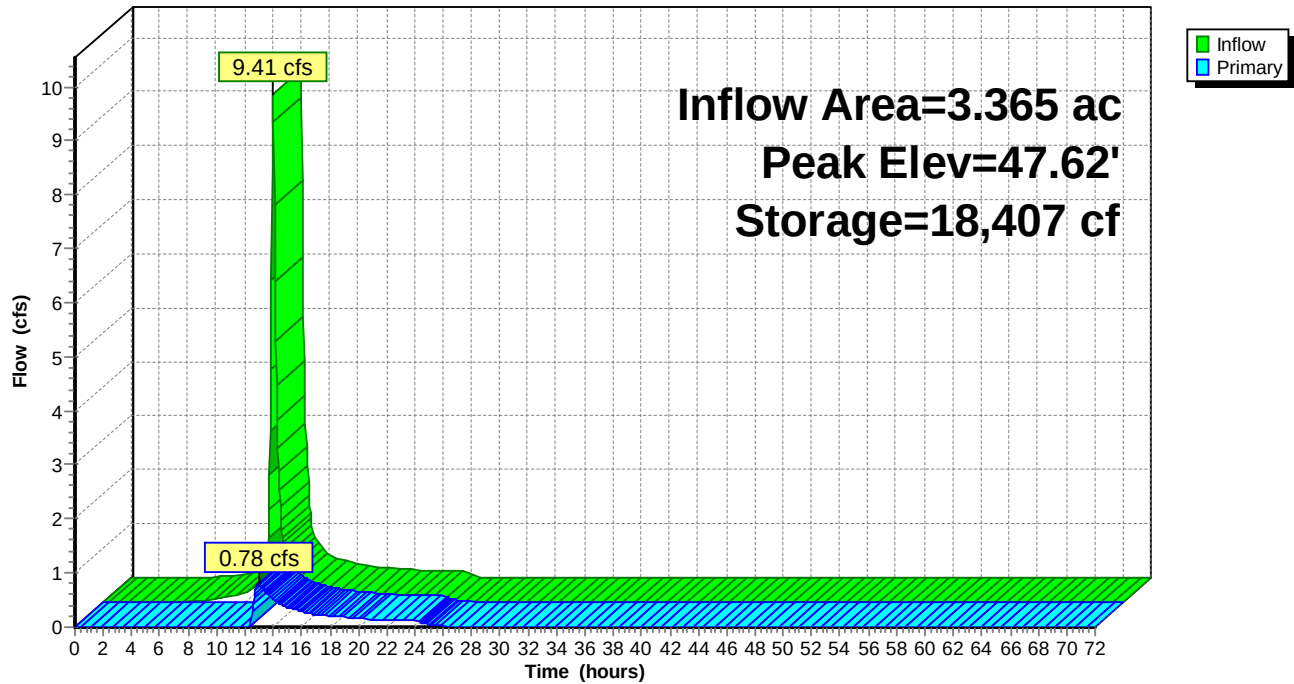
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Type II 24-hr 2-YR Rainfall=3.40"

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Pond FB-1: FB to SGW 1

Hydrograph



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

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Summary for Pond FB-2: FB to SGW 2

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 2.54" for 2-YR event
 Inflow = 7.68 cfs @ 12.04 hrs, Volume= 0.628 af
 Outflow = 7.16 cfs @ 12.10 hrs, Volume= 0.628 af, Atten= 7%, Lag= 3.2 min
 Primary = 7.16 cfs @ 12.10 hrs, Volume= 0.628 af

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

Starting Elev= 49.50' Surf.Area= 3,371 sf Storage= 5,375 cf

Peak Elev= 50.04' @ 12.10 hrs Surf.Area= 3,737 sf Storage= 7,277 cf (1,903 cf above start)

Plug-Flow detention time= 129.8 min calculated for 0.504 af (80% of inflow)

Center-of-Mass det. time= 9.3 min (813.2 - 803.9)

Volume	Invert	Avail.Storage	Storage Description
#1	47.50'	9,157 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	2,004	0	0
50.50	4,054	9,087	9,087
50.51	10,000	70	9,157

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=7.13 cfs @ 12.10 hrs HW=50.03' TW=48.71' (Dynamic Tailwater)↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 7.13 cfs @ 1.91 fps)

Aspire - Proposed

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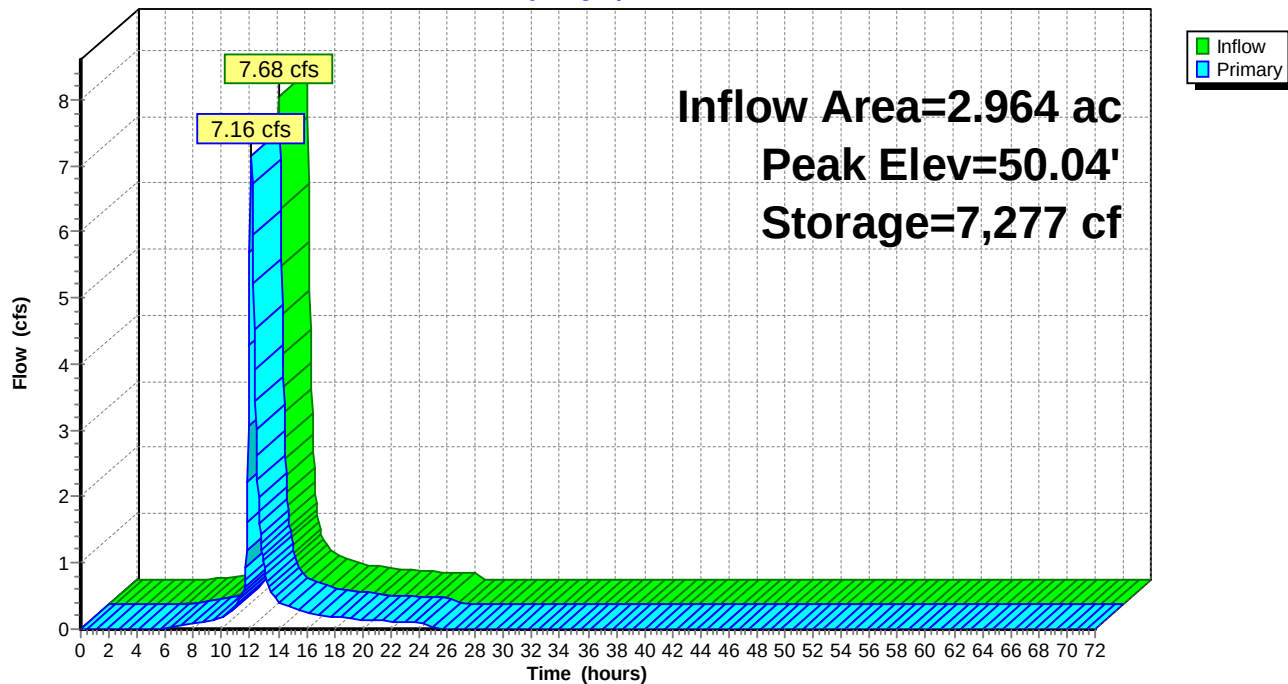
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Type II 24-hr 2-YR Rainfall=3.40"

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Pond FB-2: FB to SGW 2

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

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Summary for Pond SGW-1: SGW 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 0.95" for 2-YR event
 Inflow = 0.78 cfs @ 12.97 hrs, Volume= 0.266 af
 Outflow = 0.60 cfs @ 13.67 hrs, Volume= 0.266 af, Atten= 23%, Lag= 42.3 min
 Primary = 0.60 cfs @ 13.67 hrs, Volume= 0.266 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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

Starting Elev= 45.17' Surf.Area= 2,056 sf Storage= 1,382 cf

Peak Elev= 45.82' @ 13.67 hrs Surf.Area= 2,258 sf Storage= 2,353 cf (971 cf above start)

Plug-Flow detention time= 113.9 min calculated for 0.234 af (88% of inflow)

Center-of-Mass det. time= 23.6 min (1,029.2 - 1,005.6)

Volume	Invert	Avail.Storage	Storage Description
#1	43.49'	11,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)
43.49	2,056	0.0	0
43.50	2,056	40.0	8
45.49	2,056	40.0	1,637
45.50	2,056	100.0	21
48.50	3,958	100.0	9,021
48.51	100,000	100.0	520
			Cum.Store (cubic-feet)
			0
			8
			1,645
			1,665
			10,686
			11,206

Device	Routing	Invert	Outlet Devices
#1	Primary	45.17'	12.0" Round Culvert L= 28.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.17' / 45.00' S= 0.0060 ' / ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	47.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.17'	6.0" Vert. Collector Pipe C= 0.600
#4	Secondary	48.50'	75.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.60 cfs @ 13.67 hrs HW=45.82' TW=43.28' (Dynamic Tailwater)↑ **1=Culvert** (Passes 0.60 cfs of 1.16 cfs potential flow)↑ **2=Rim** (Controls 0.00 cfs)↑ **3=Collector Pipe** (Orifice Controls 0.60 cfs @ 3.04 fps)**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=45.17' TW=47.50' (Dynamic Tailwater)↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Aspire - Proposed

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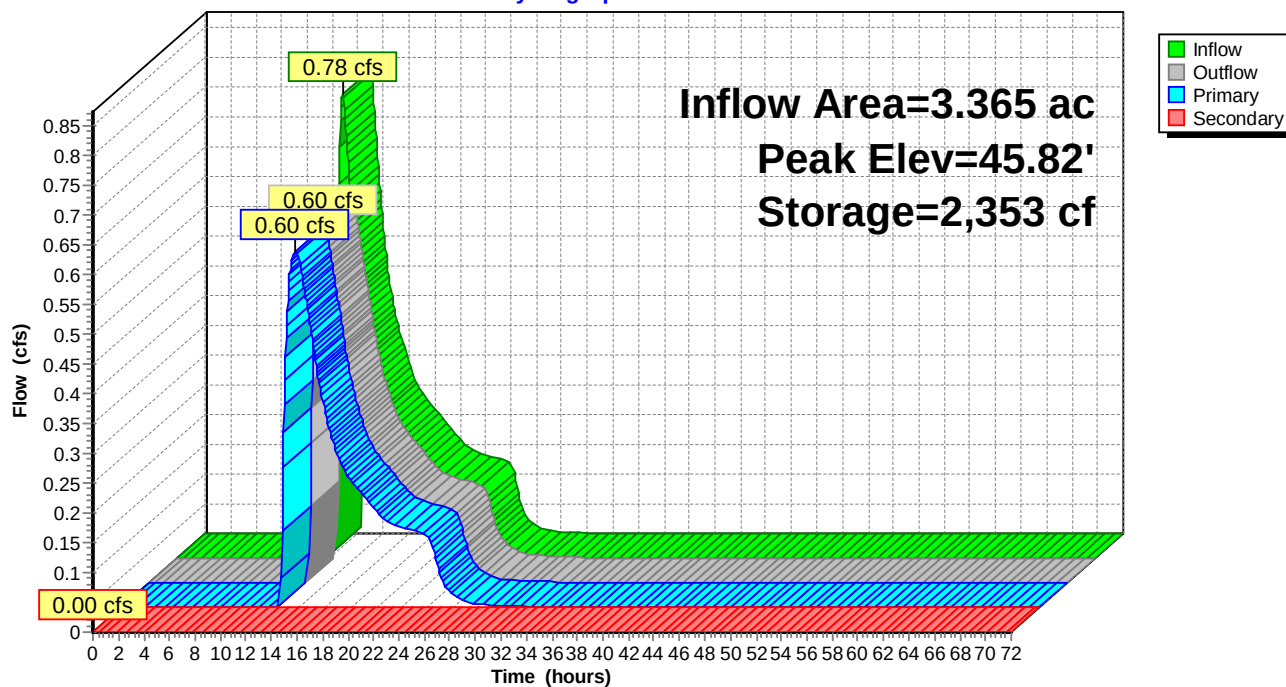
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Type II 24-hr 2-YR Rainfall=3.40"

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Pond SGW-1: SGW 1

Hydrograph



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

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Summary for Pond SGW-2: SGW 2

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 2.54" for 2-YR event
 Inflow = 7.16 cfs @ 12.10 hrs, Volume= 0.628 af
 Outflow = 1.99 cfs @ 12.60 hrs, Volume= 0.619 af, Atten= 72%, Lag= 30.3 min
 Primary = 1.99 cfs @ 12.60 hrs, Volume= 0.619 af

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

Starting Elev= 47.17' Surf.Area= 4,027 sf Storage= 2,706 cf

Peak Elev= 49.60' @ 12.61 hrs Surf.Area= 6,458 sf Storage= 14,250 cf (11,543 cf above start)

Plug-Flow detention time= 199.1 min calculated for 0.557 af (89% of inflow)

Center-of-Mass det. time= 113.9 min (927.2 - 813.2)

Volume	Invert	Avail.Storage	Storage Description									
#1	45.49'	20,699 cf	Custom Stage Data (Prismatic) Listed below (Recalc)									
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)					Cum.Store (cubic-feet)				
45.49	4,027	0.0	0					0				
45.50	4,027	40.0	16					16				
47.49	4,027	40.0	3,205					3,222				
47.50	4,027	100.0	40					3,262				
50.50	7,506	100.0	17,300					20,561				
50.51	20,000	100.0	138					20,699				

Device	Routing	Invert	Outlet Devices														
#1	Primary	47.25'	12.0" Round Culvert L= 25.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.25' / 47.00' S= 0.0098 ' / Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf														
#2	Device 1	49.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads														
#3	Device 1	47.16'	6.0" Vert. Collector Pipe C= 0.600														
#4	Primary	50.50'	159.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32														

Primary OutFlow Max=1.98 cfs @ 12.60 hrs HW=49.60' TW=47.96' (Dynamic Tailwater)

- 1=Culvert (Passes 1.98 cfs of 4.83 cfs potential flow)
 2=Rim (Weir Controls 0.78 cfs @ 1.01 fps)
 3=Collector Pipe (Orifice Controls 1.21 cfs @ 6.16 fps)
 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Aspire - Proposed

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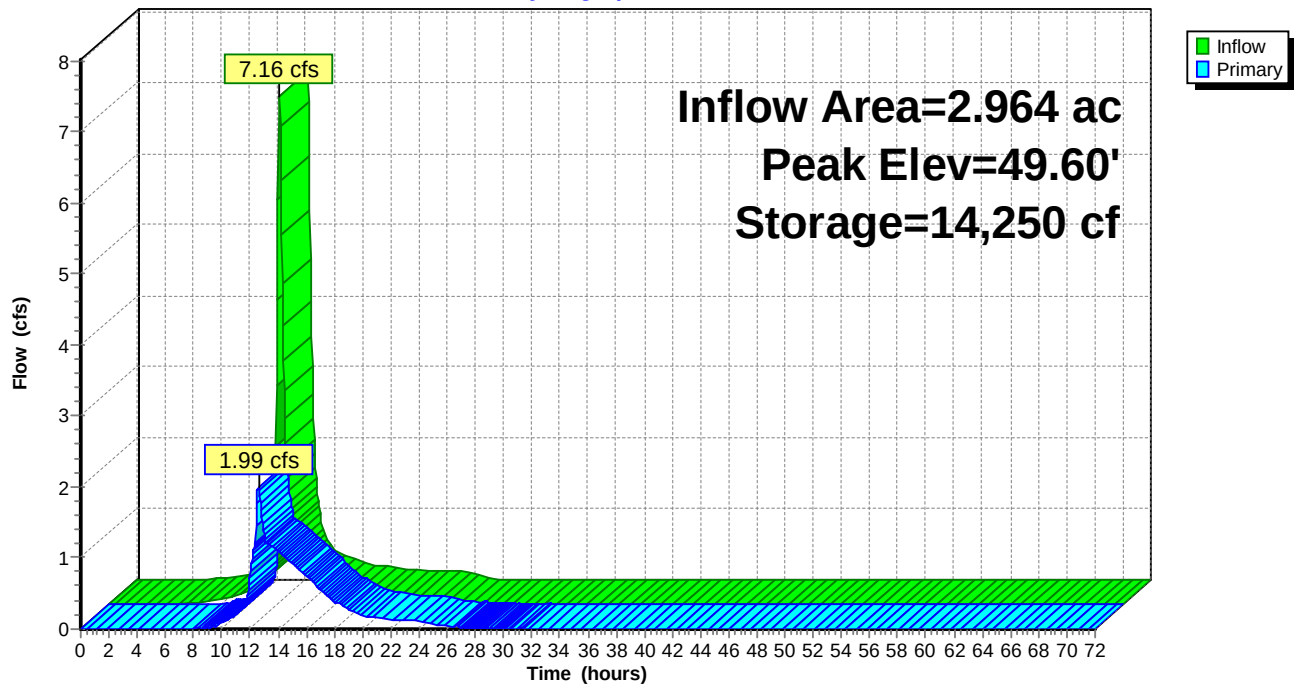
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Type II 24-hr 2-YR Rainfall=3.40"

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Pond SGW-2: SGW 2

Hydrograph



Aspire - Proposed

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

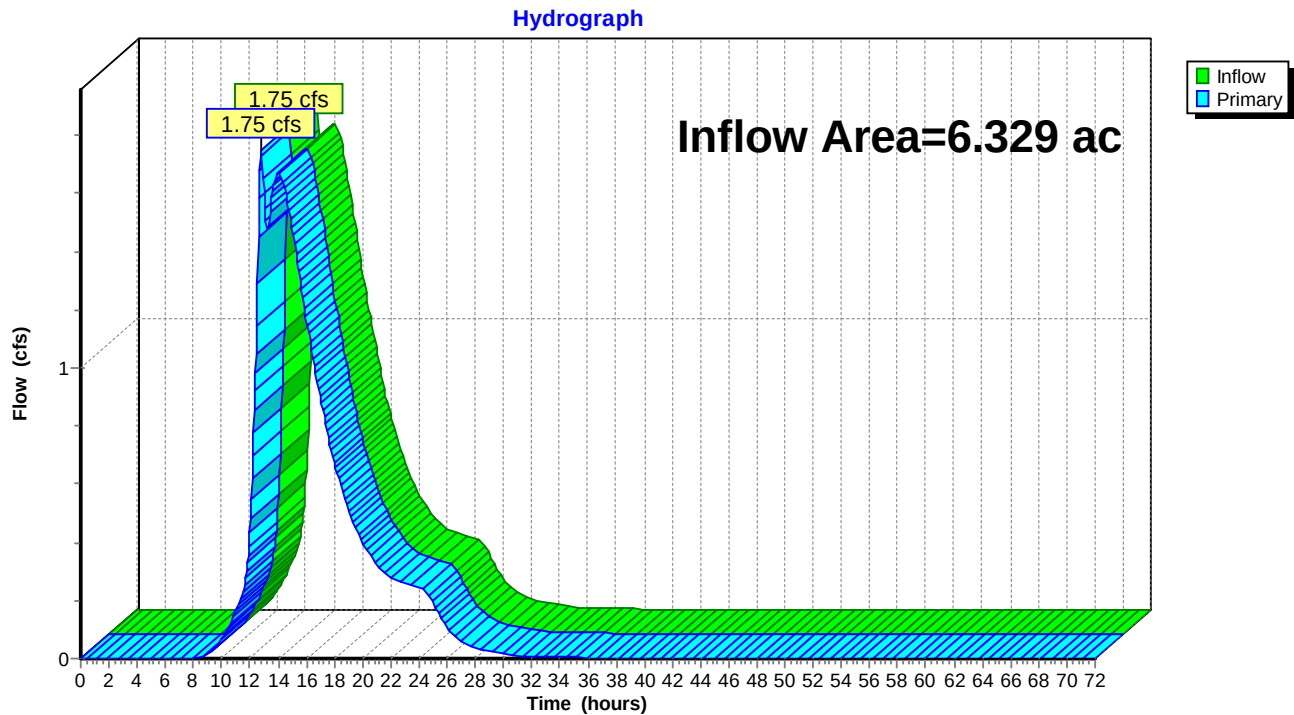
Printed 06/23/23

Summary for Link SP-1: Study Point #1

Inflow Area = 6.329 ac, 71.10% Impervious, Inflow Depth = 1.68" for 2-YR event
Inflow = 1.75 cfs @ 12.80 hrs, Volume= 0.885 af
Primary = 1.75 cfs @ 12.80 hrs, Volume= 0.885 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1



10-Year Proposed Conditions Analysis

Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
 Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-DA-1: Proposed DA 1 Runoff Area=146,601 sf 66.39% Impervious Runoff Depth=4.17"
 Flow Length=521' Tc=8.4 min CN=90 Runoff=16.24 cfs 1.168 af

Subcatchment PR-DA-2: Proposed DA 2 Runoff Area=129,109 sf 76.46% Impervious Runoff Depth=4.38"
 Flow Length=404' Tc=11.1 min CN=92 Runoff=12.91 cfs 1.082 af

Reach EX-R-1: Existing Reach 1 Avg. Flow Depth=0.37' Max Vel=1.07 fps Inflow=3.81 cfs 0.774 af
 n=0.040 L=532.0' S=0.0038 '/' Capacity=177.63 cfs Outflow=3.58 cfs 0.774 af

Reach EX-R-2: Existing Reach 2 Avg. Flow Depth=0.79' Max Vel=0.90 fps Inflow=5.53 cfs 0.774 af
 n=0.040 L=729.0' S=0.0014 '/' Capacity=27.19 cfs Outflow=3.81 cfs 0.774 af

Reach EX-R-3: Existing Reach 3 Avg. Flow Depth=0.57' Max Vel=0.78 fps Inflow=5.31 cfs 1.074 af
 n=0.100 L=464.0' S=0.0151 '/' Capacity=3.62 cfs Outflow=5.01 cfs 1.074 af

Reach PR-R-1: Proposed Reach 1 Avg. Flow Depth=0.82' Max Vel=2.66 fps Inflow=5.21 cfs 1.074 af
 n=0.022 L=254.0' S=0.0055 '/' Capacity=105.34 cfs Outflow=5.31 cfs 1.074 af

Reach PR-R-2: Proposed Reach 2 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
 n=0.025 L=100.0' S=0.0050 '/' Capacity=7.67 cfs Outflow=0.00 cfs 0.000 af

Pond FB-1: FB to SGW 1 Peak Elev=48.09' Storage=23,118 cf Inflow=16.24 cfs 1.168 af
 Outflow=8.22 cfs 0.774 af

Pond FB-2: FB to SGW 2 Peak Elev=50.27' Storage=8,154 cf Inflow=12.91 cfs 1.082 af
 Outflow=12.21 cfs 1.082 af

Pond SGW-1: SGW 1 Peak Elev=47.80' Storage=8,071 cf Inflow=8.22 cfs 0.774 af
 Primary=5.53 cfs 0.774 af Secondary=0.00 cfs 0.000 af Outflow=5.53 cfs 0.774 af

Pond SGW-2: SGW 2 Peak Elev=50.09' Storage=17,579 cf Inflow=12.21 cfs 1.082 af
 Outflow=5.21 cfs 1.074 af

Link SP-1: Study Point #1 Inflow=8.55 cfs 1.848 af
 Primary=8.55 cfs 1.848 af

Total Runoff Area = 6.329 ac Runoff Volume = 2.251 af Average Runoff Depth = 4.27"
28.90% Pervious = 1.829 ac 71.10% Impervious = 4.500 ac

Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Subcatchment PR-DA-1: Proposed DA 1

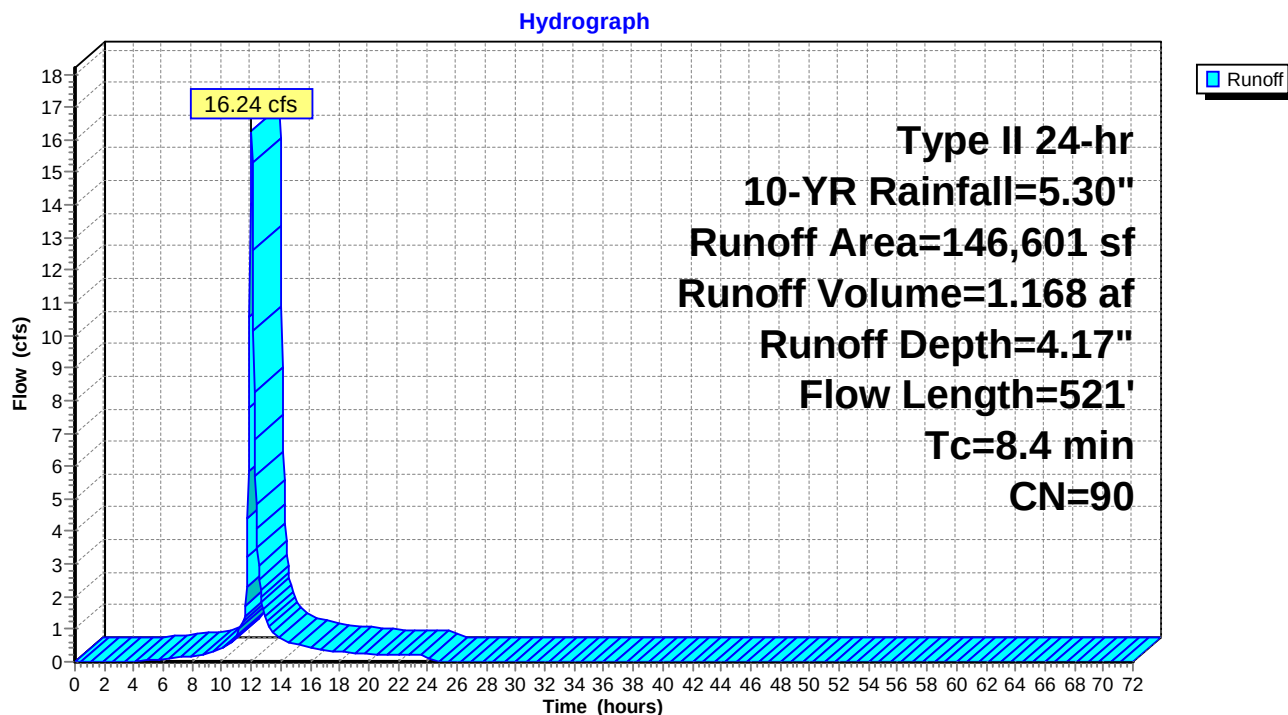
Runoff = 16.24 cfs @ 12.01 hrs, Volume= 1.168 af, Depth= 4.17"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
49,279	74	>75% Grass cover, Good, HSG C
97,322	98	Paved parking, HSG C
146,601	90	Weighted Average
49,279		33.61% Pervious Area
97,322		66.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
1.3	421	0.0050	5.52	17.33	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
8.4	521	Total			

Subcatchment PR-DA-1: Proposed DA 1



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Subcatchment PR-DA-2: Proposed DA 2

Runoff = 12.91 cfs @ 12.04 hrs, Volume= 1.082 af, Depth= 4.38"

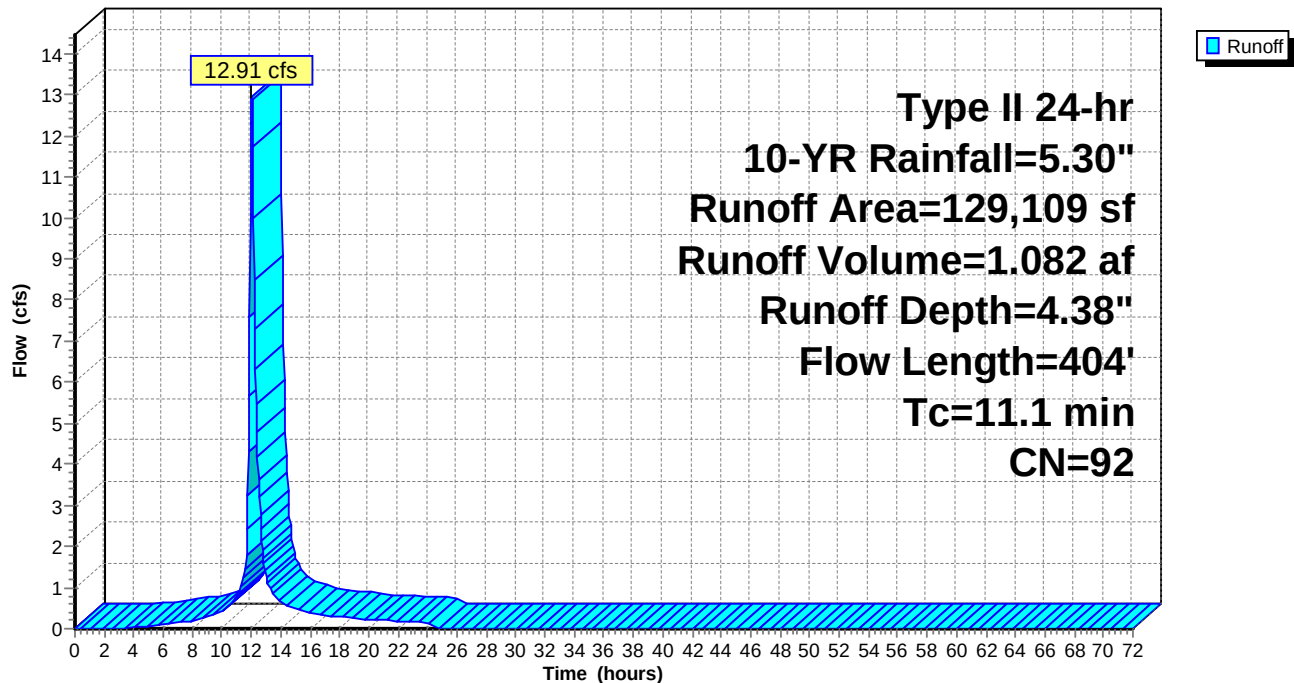
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
30,393	74	>75% Grass cover, Good, HSG C
98,716	98	Paved parking, HSG C
129,109	92	Weighted Average
30,393		23.54% Pervious Area
98,716		76.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	69	0.0100	0.12		Sheet Flow, Side Yard Grass: Short n= 0.150 P2= 3.40"
0.5	31	0.0150	1.00		Sheet Flow, Pave Smooth surfaces n= 0.011 P2= 3.40"
0.3	50	0.0150	2.49		Shallow Concentrated Flow, Pave Paved Kv= 20.3 fps
1.0	254	0.0040	4.07	7.20	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
11.1	404	Total			

Subcatchment PR-DA-2: Proposed DA 2

Hydrograph



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 2.76" for 10-YR event
Inflow = 3.81 cfs @ 12.64 hrs, Volume= 0.774 af
Outflow = 3.58 cfs @ 12.77 hrs, Volume= 0.774 af, Atten= 6%, Lag= 7.7 min

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

Max. Velocity= 1.07 fps, Min. Travel Time= 8.3 min

Avg. Velocity = 0.29 fps, Avg. Travel Time= 30.7 min

Peak Storage= 1,773 cf @ 12.77 hrs

Average Depth at Peak Storage= 0.37'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

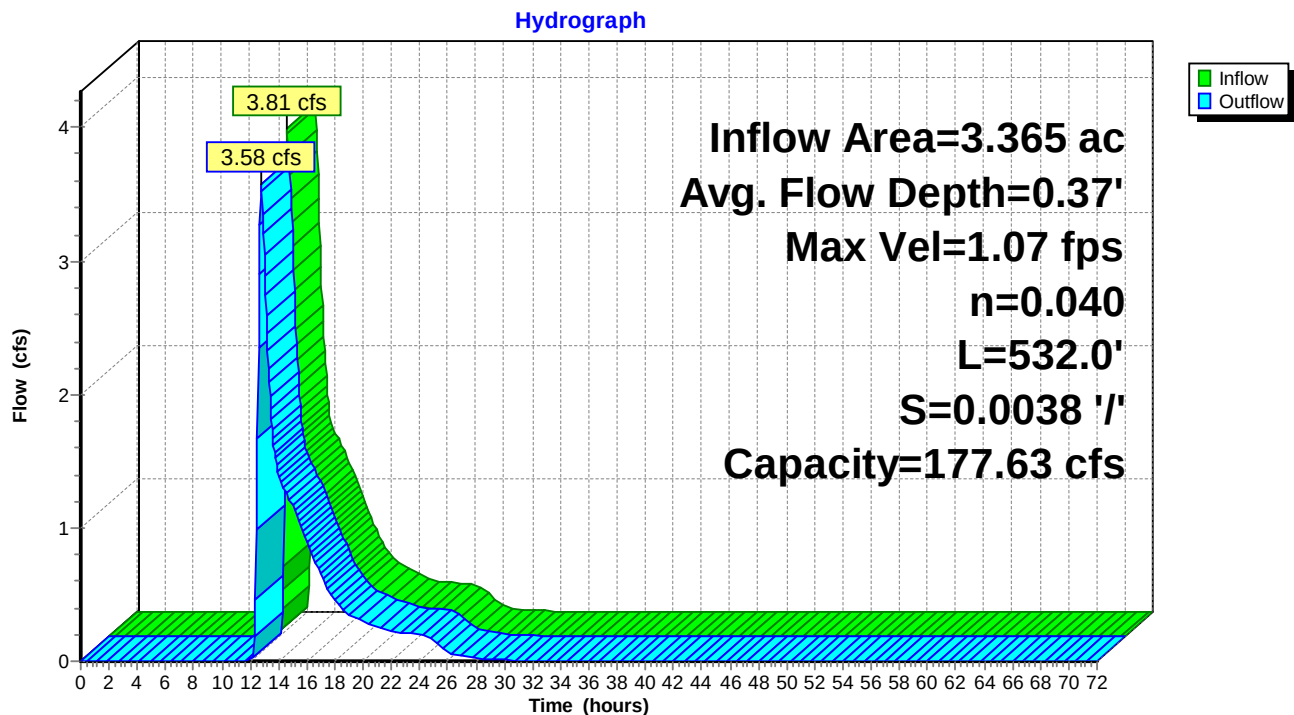
Side Slope Z-value= 3.0 ' Top Width= 26.00'

Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'



Reach EX-R-1: Existing Reach 1



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 2.76" for 10-YR event
Inflow = 5.53 cfs @ 12.41 hrs, Volume= 0.774 af
Outflow = 3.81 cfs @ 12.64 hrs, Volume= 0.774 af, Atten= 31%, Lag= 13.8 min

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

Max. Velocity= 0.90 fps, Min. Travel Time= 13.5 min

Avg. Velocity = 0.19 fps, Avg. Travel Time= 63.4 min

Peak Storage= 3,083 cf @ 12.64 hrs

Average Depth at Peak Storage= 0.79'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' Top Width= 15.00'

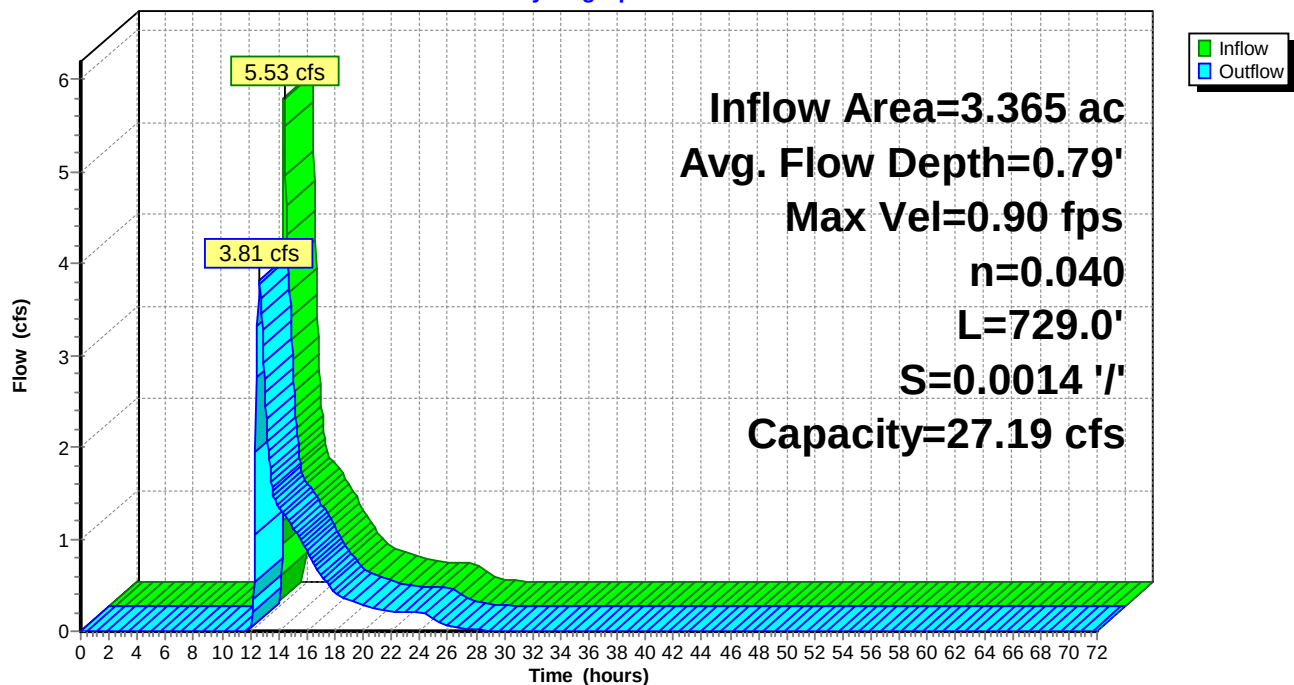
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'



Reach EX-R-2: Existing Reach 2

Hydrograph



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 5.31 cfs @ 12.20 hrs, Volume= 1.074 af
Outflow = 5.01 cfs @ 12.66 hrs, Volume= 1.074 af, Atten= 6%, Lag= 27.8 min

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

Max. Velocity= 0.78 fps, Min. Travel Time= 10.0 min

Avg. Velocity = 0.19 fps, Avg. Travel Time= 41.8 min

Peak Storage= 2,989 cf @ 12.66 hrs

Average Depth at Peak Storage= 0.57'

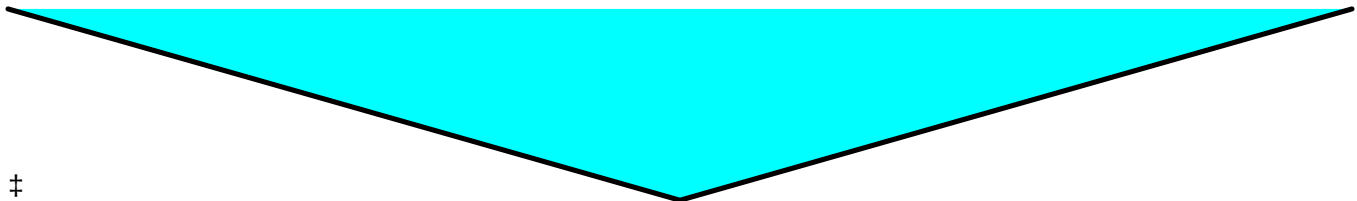
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.62 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

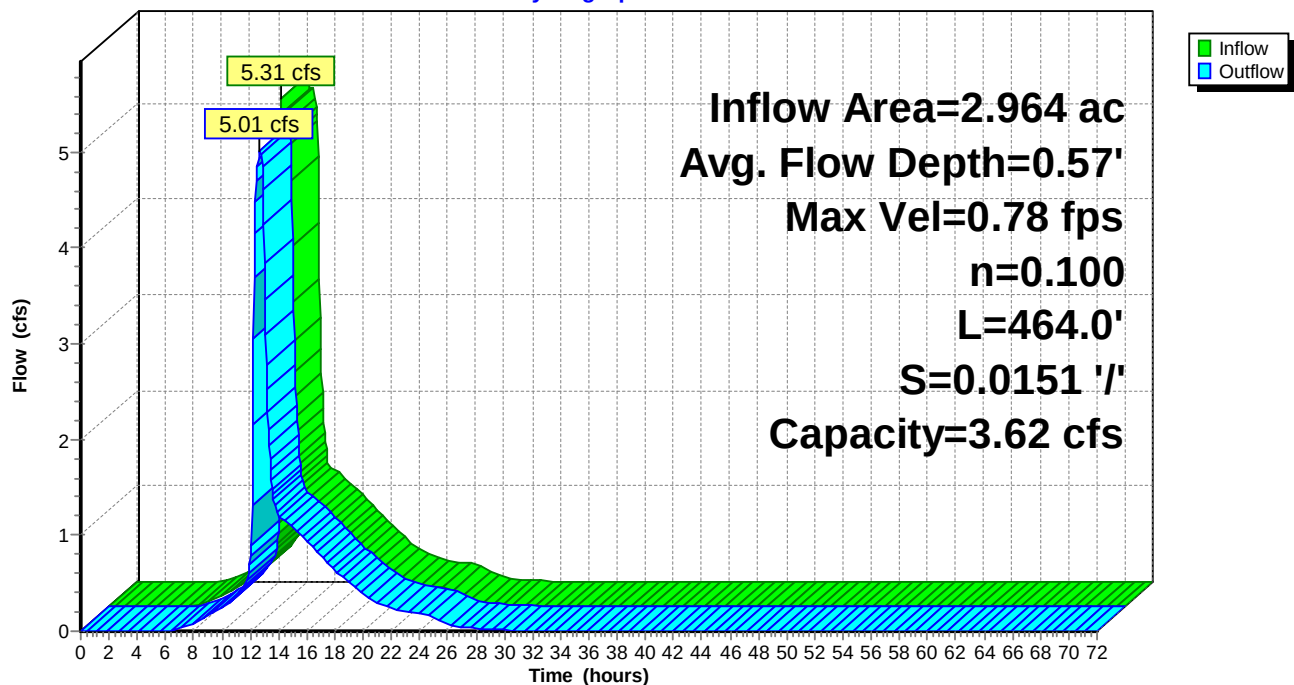
Length= 464.0' Slope= 0.0151 '/'

Inlet Invert= 47.00', Outlet Invert= 40.00'



Reach EX-R-3: Existing Reach 3

Hydrograph



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Reach PR-R-1: Proposed Reach 1

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 5.21 cfs @ 12.15 hrs, Volume= 1.074 af
Outflow = 5.31 cfs @ 12.20 hrs, Volume= 1.074 af, Atten= 0%, Lag= 3.0 min

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

Max. Velocity= 2.66 fps, Min. Travel Time= 1.6 min

Avg. Velocity = 0.68 fps, Avg. Travel Time= 6.2 min

Peak Storage= 507 cf @ 12.20 hrs

Average Depth at Peak Storage= 0.82'

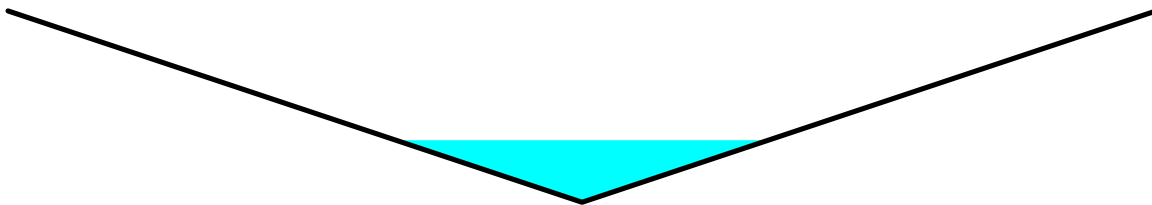
Bank-Full Depth= 2.50' Flow Area= 18.8 sf, Capacity= 105.34 cfs

0.00' x 2.50' deep channel, n= 0.022 Earth, clean & straight

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

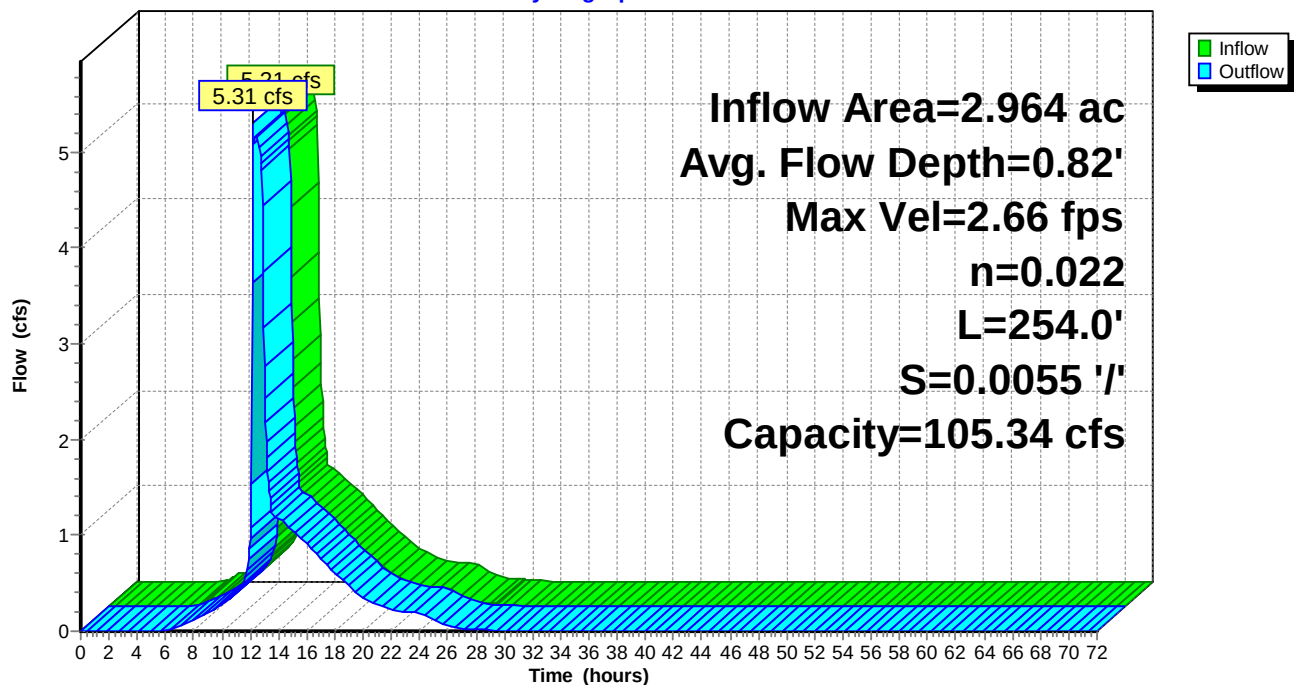
Length= 254.0' Slope= 0.0055 '/'

Inlet Invert= 47.40', Outlet Invert= 46.00'



Reach PR-R-1: Proposed Reach 1

Hydrograph



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Reach PR-R-2: Proposed Reach 2

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

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

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs

Average Depth at Peak Storage= 0.00'

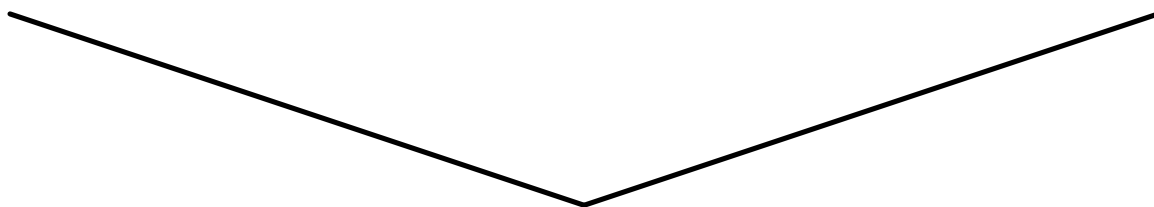
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 7.67 cfs

0.00' x 1.00' deep channel, n= 0.025

Side Slope Z-value= 3.0 '/' Top Width= 6.00'

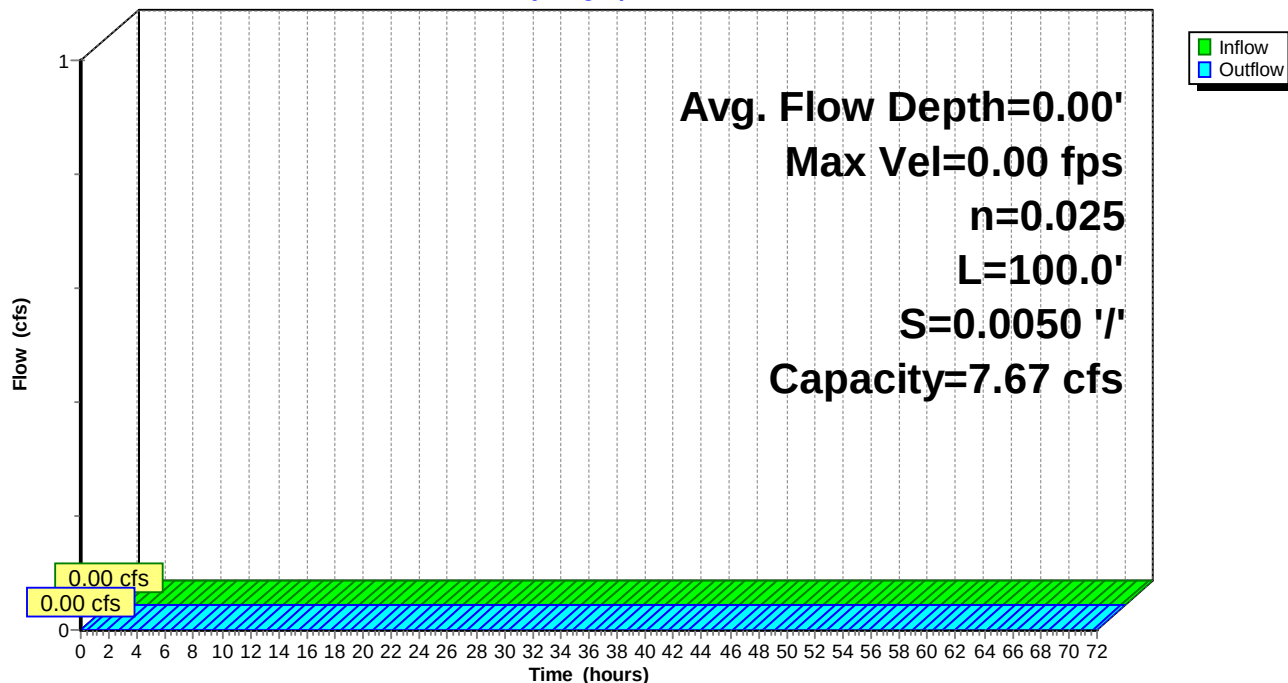
Length= 100.0' Slope= 0.0050 '/'

Inlet Invert= 47.50', Outlet Invert= 47.00'



Reach PR-R-2: Proposed Reach 2

Hydrograph



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Type II 24-hr 10-YR Rainfall=5.30"

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Summary for Pond FB-1: FB to SGW 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 4.17" for 10-YR event
 Inflow = 16.24 cfs @ 12.01 hrs, Volume= 1.168 af
 Outflow = 8.22 cfs @ 12.21 hrs, Volume= 0.774 af, Atten= 49%, Lag= 11.9 min
 Primary = 8.22 cfs @ 12.21 hrs, Volume= 0.774 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 48.09' @ 12.21 hrs Surf.Area= 10,454 sf Storage= 23,118 cf

Plug-Flow detention time= 194.2 min calculated for 0.774 af (66% of inflow)
 Center-of-Mass det. time= 93.9 min (886.7 - 792.9)

Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	27,690 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	7,419	0	0
48.50	10,938	27,536	27,536
48.51	20,000	155	27,690

Device	Routing	Invert	Outlet Devices
#1	Primary	47.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=8.17 cfs @ 12.21 hrs HW=48.08' TW=46.89' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 8.17 cfs @ 2.00 fps)

Aspire - Proposed

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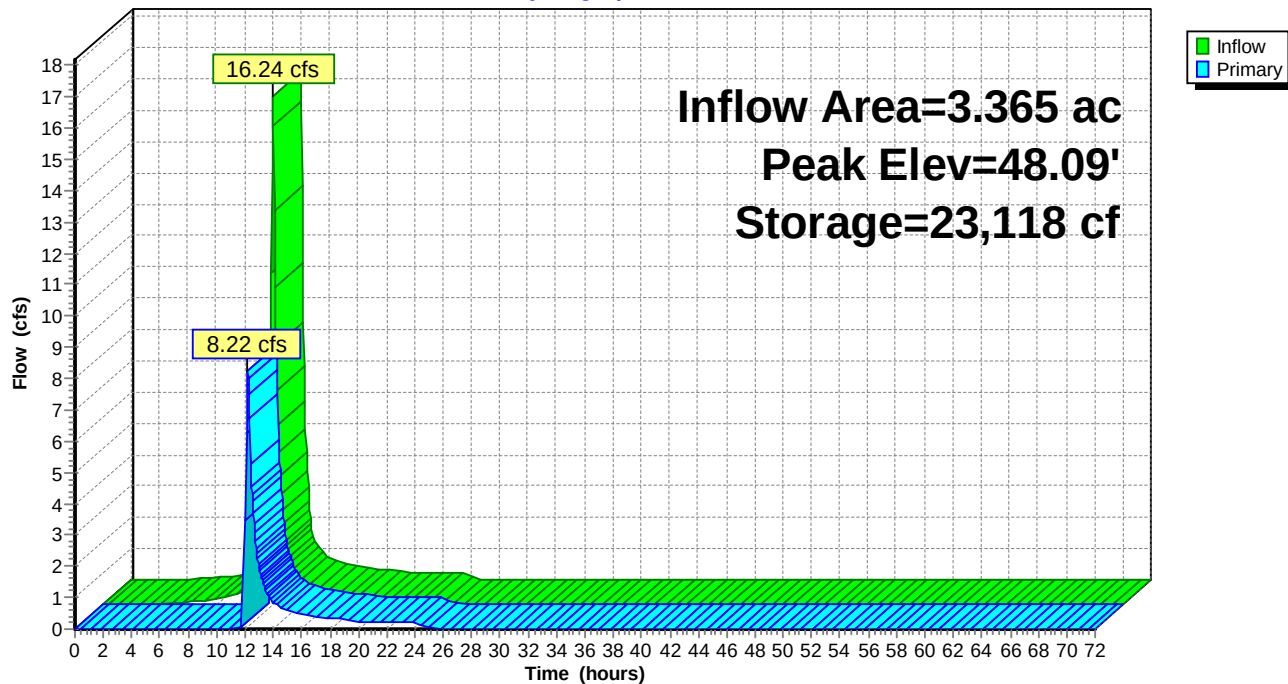
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Type II 24-hr 10-YR Rainfall=5.30"

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Pond FB-1: FB to SGW 1

Hydrograph



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Pond FB-2: FB to SGW 2

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 4.38" for 10-YR event
 Inflow = 12.91 cfs @ 12.04 hrs, Volume= 1.082 af
 Outflow = 12.21 cfs @ 12.09 hrs, Volume= 1.082 af, Atten= 5%, Lag= 2.7 min
 Primary = 12.21 cfs @ 12.09 hrs, Volume= 1.082 af

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

Starting Elev= 49.50' Surf.Area= 3,371 sf Storage= 5,375 cf

Peak Elev= 50.27' @ 12.09 hrs Surf.Area= 3,893 sf Storage= 8,154 cf (2,779 cf above start)

Plug-Flow detention time= 97.8 min calculated for 0.958 af (89% of inflow)

Center-of-Mass det. time= 8.6 min (797.7 - 789.0)

Volume	Invert	Avail.Storage	Storage Description
#1	47.50'	9,157 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

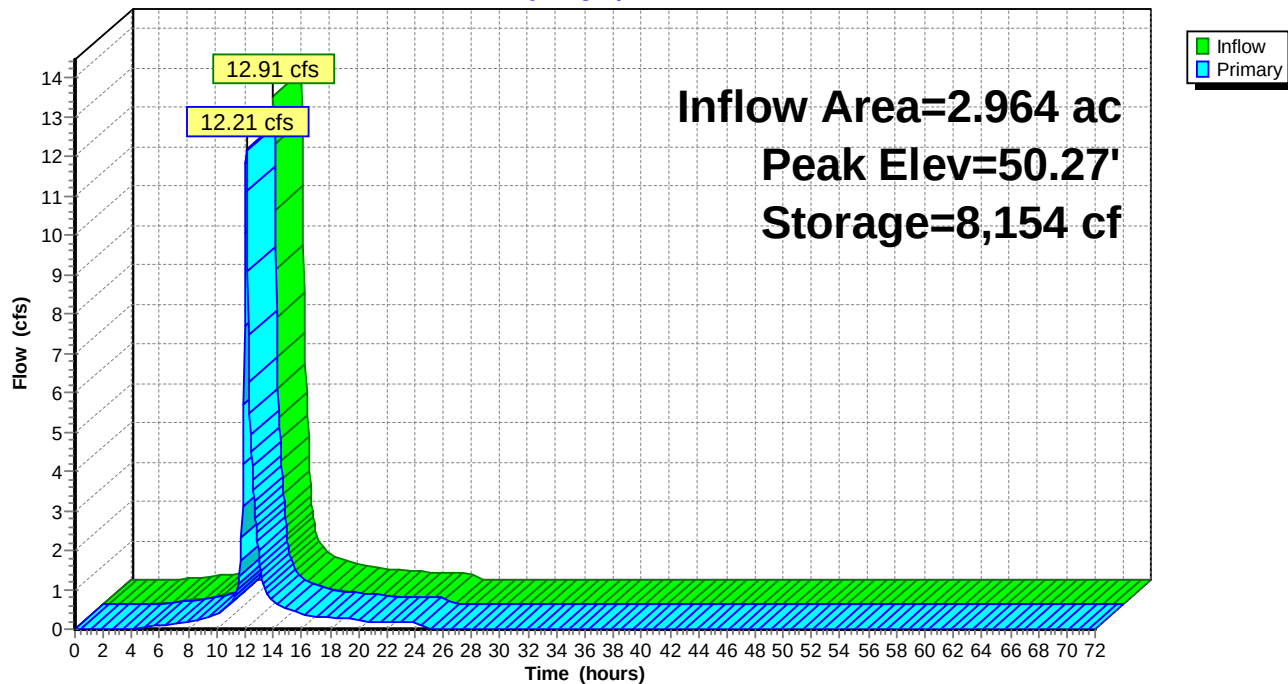
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	2,004	0	0
50.50	4,054	9,087	9,087
50.51	10,000	70	9,157

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=12.06 cfs @ 12.09 hrs HW=50.26' TW=49.52' (Dynamic Tailwater)↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 12.06 cfs @ 2.27 fps)

Pond FB-2: FB to SGW 2

Hydrograph



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Pond SGW-1: SGW 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 2.76" for 10-YR event
 Inflow = 8.22 cfs @ 12.21 hrs, Volume= 0.774 af
 Outflow = 5.53 cfs @ 12.41 hrs, Volume= 0.774 af, Atten= 33%, Lag= 12.0 min
 Primary = 5.53 cfs @ 12.41 hrs, Volume= 0.774 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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

Starting Elev= 45.17' Surf.Area= 2,056 sf Storage= 1,382 cf

Peak Elev= 47.80' @ 12.41 hrs Surf.Area= 3,514 sf Storage= 8,071 cf (6,690 cf above start)

Plug-Flow detention time= 71.6 min calculated for 0.742 af (96% of inflow)

Center-of-Mass det. time= 38.3 min (925.0 - 886.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	43.49'	11,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.49	2,056	0.0	0	0
43.50	2,056	40.0	8	8
45.49	2,056	40.0	1,637	1,645
45.50	2,056	100.0	21	1,665
48.50	3,958	100.0	9,021	10,686
48.51	100,000	100.0	520	11,206

Device	Routing	Invert	Outlet Devices
#1	Primary	45.17'	12.0" Round Culvert L= 28.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.17' / 45.00' S= 0.0060 ' / ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	47.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.17'	6.0" Vert. Collector Pipe C= 0.600
#4	Secondary	48.50'	75.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=5.51 cfs @ 12.41 hrs HW=47.80' TW=43.58' (Dynamic Tailwater)↑ **1=Culvert** (Inlet Controls 5.51 cfs @ 7.02 fps)↑ **2=Rim** (Passes < 4.21 cfs potential flow)↑ **3=Collector Pipe** (Passes < 1.46 cfs potential flow)**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=45.17' TW=47.50' (Dynamic Tailwater)↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Aspire - Proposed

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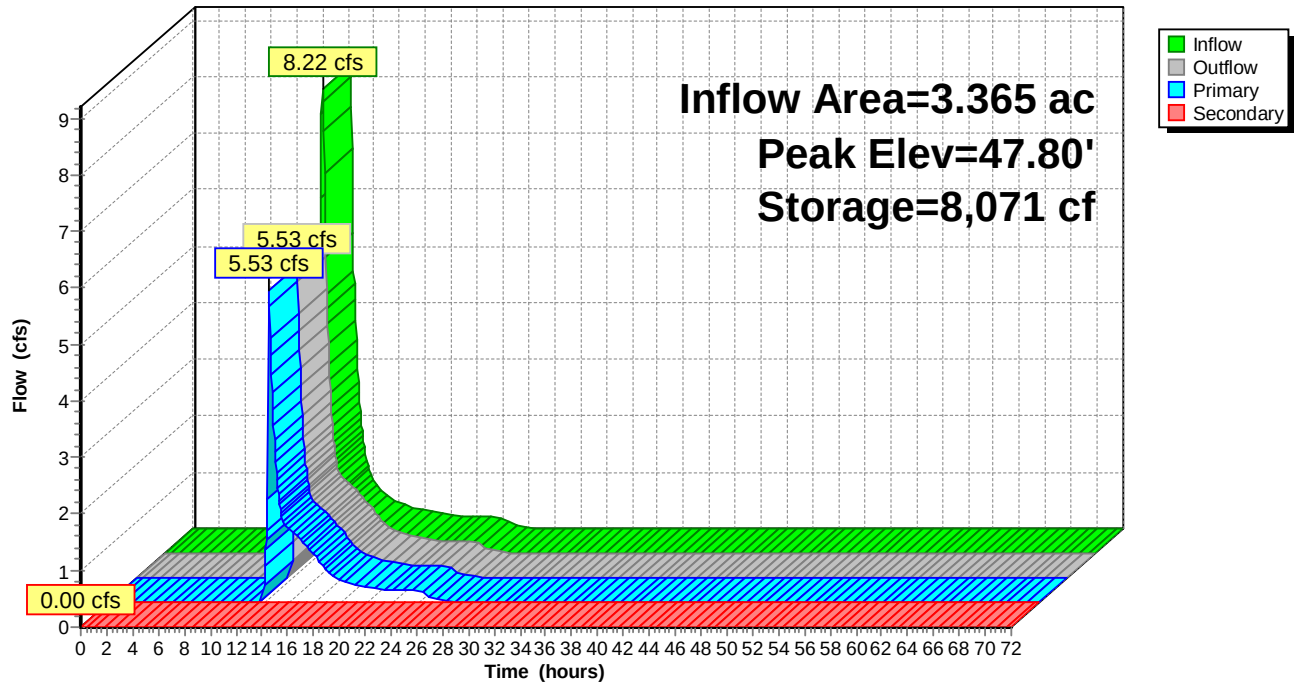
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Type II 24-hr 10-YR Rainfall=5.30"

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Pond SGW-1: SGW 1

Hydrograph



Aspire - Proposed

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Type II 24-hr 10-YR Rainfall=5.30"

Printed 06/23/23

Summary for Pond SGW-2: SGW 2

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 4.38" for 10-YR event
 Inflow = 12.21 cfs @ 12.09 hrs, Volume= 1.082 af
 Outflow = 5.21 cfs @ 12.15 hrs, Volume= 1.074 af, Atten= 57%, Lag= 3.8 min
 Primary = 5.21 cfs @ 12.15 hrs, Volume= 1.074 af

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

Starting Elev= 47.17' Surf.Area= 4,027 sf Storage= 2,706 cf

Peak Elev= 50.09' @ 12.38 hrs Surf.Area= 7,030 sf Storage= 17,579 cf (14,873 cf above start)

Plug-Flow detention time= 147.9 min calculated for 1.012 af (93% of inflow)

Center-of-Mass det. time= 90.1 min (887.7 - 797.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	45.49'	20,699 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.49	4,027	0.0	0	0
45.50	4,027	40.0	16	16
47.49	4,027	40.0	3,205	3,222
47.50	4,027	100.0	40	3,262
50.50	7,506	100.0	17,300	20,561
50.51	20,000	100.0	138	20,699

Device	Routing	Invert	Outlet Devices											
#1	Primary	47.25'	12.0" Round Culvert L= 25.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.25' / 47.00' S= 0.0098 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf											
#2	Device 1	49.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads											
#3	Device 1	47.16'	6.0" Vert. Collector Pipe C= 0.600											
#4	Primary	50.50'	159.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32											

Primary OutFlow Max=4.94 cfs @ 12.15 hrs HW=49.81' TW=48.11' (Dynamic Tailwater)

- 1=Culvert (Inlet Controls 4.94 cfs @ 6.29 fps)
 2=Rim (Passes < 4.56 cfs potential flow)
 3=Collector Pipe (Passes < 1.23 cfs potential flow)
 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Aspire - Proposed

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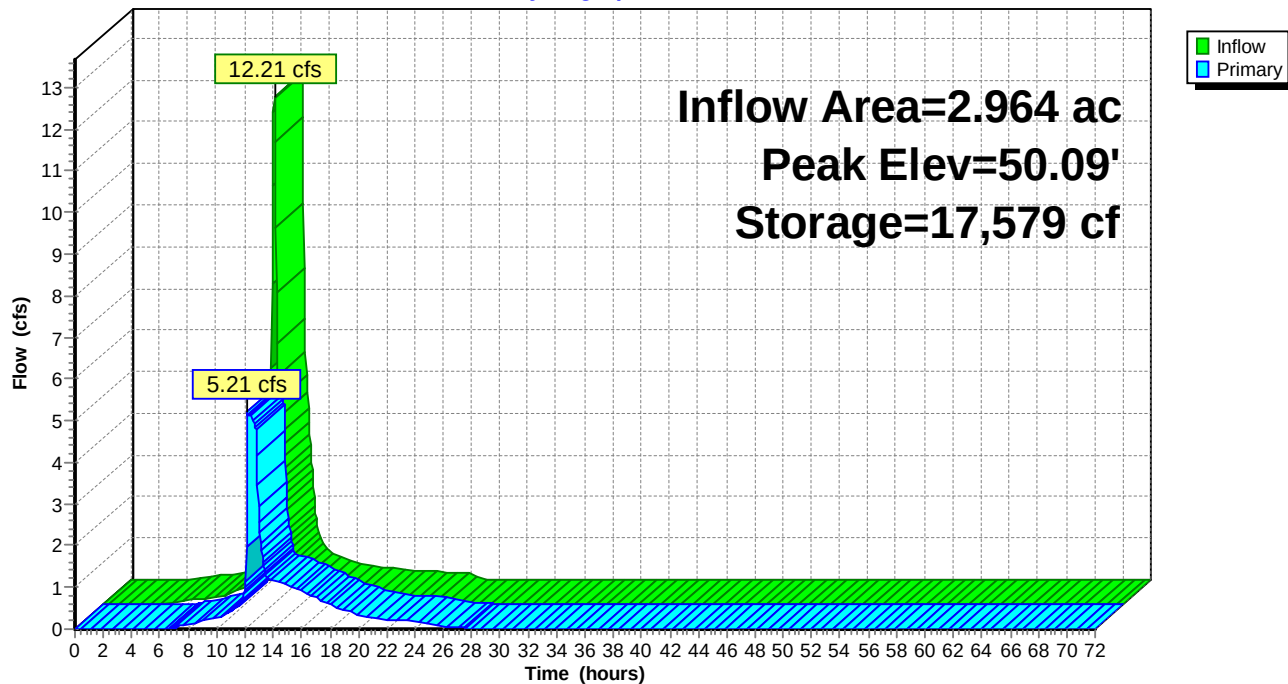
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Type II 24-hr 10-YR Rainfall=5.30"

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Pond SGW-2: SGW 2

Hydrograph



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Type II 24-hr 10-YR Rainfall=5.30"

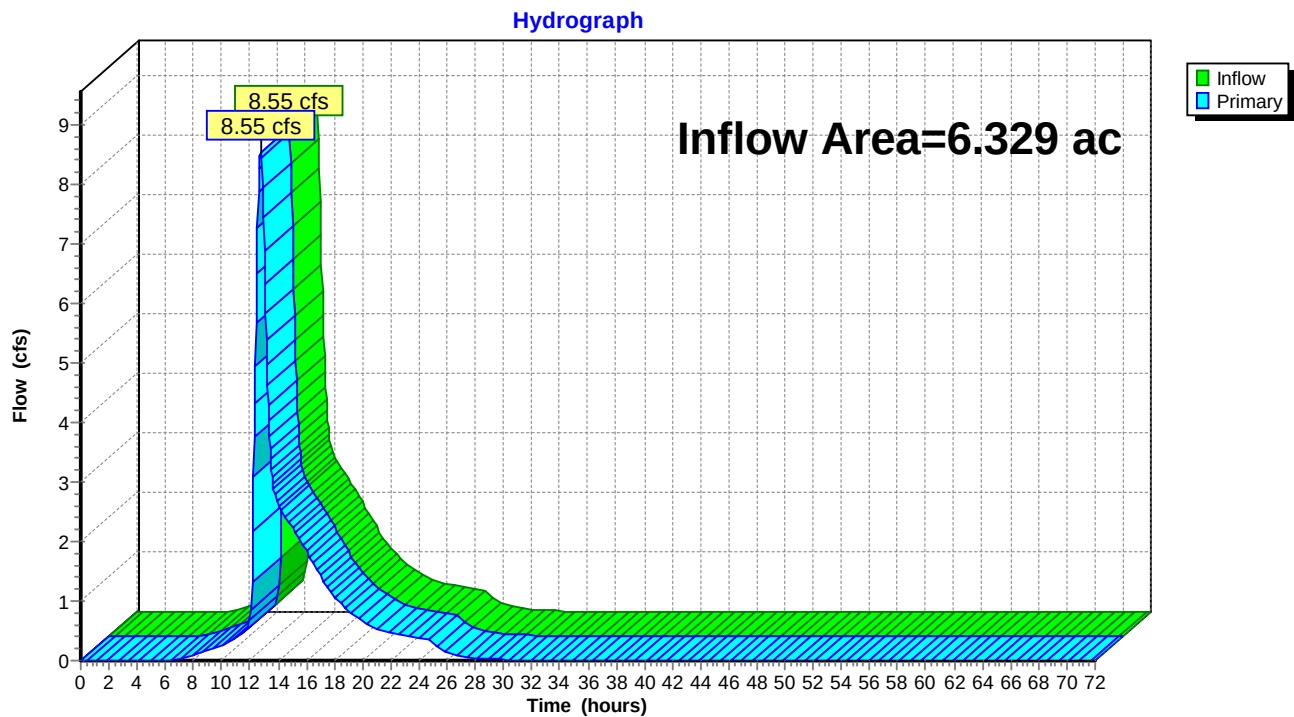
Printed 06/23/23

Summary for Link SP-1: Study Point #1

Inflow Area = 6.329 ac, 71.10% Impervious, Inflow Depth = 3.50" for 10-YR event
Inflow = 8.55 cfs @ 12.75 hrs, Volume= 1.848 af
Primary = 8.55 cfs @ 12.75 hrs, Volume= 1.848 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1



100-Year Proposed Conditions Analysis

Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
 Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-DA-1: Proposed DA 1 Runoff Area=146,601 sf 66.39% Impervious Runoff Depth=6.41"
 Flow Length=521' Tc=8.4 min CN=90 Runoff=24.43 cfs 1.798 af

Subcatchment PR-DA-2: Proposed DA 2 Runoff Area=129,109 sf 76.46% Impervious Runoff Depth=6.65"
 Flow Length=404' Tc=11.1 min CN=92 Runoff=19.16 cfs 1.642 af

Reach EX-R-1: Existing Reach 1 Avg. Flow Depth=0.57' Max Vel=1.39 fps Inflow=8.35 cfs 1.404 af
 n=0.040 L=532.0' S=0.0038 ' / ' Capacity=177.63 cfs Outflow=7.67 cfs 1.404 af

Reach EX-R-2: Existing Reach 2 Avg. Flow Depth=1.16' Max Vel=1.11 fps Inflow=15.11 cfs 1.404 af
 n=0.040 L=729.0' S=0.0014 ' / ' Capacity=27.19 cfs Outflow=8.35 cfs 1.404 af

Reach EX-R-3: Existing Reach 3 Avg. Flow Depth=0.80' Max Vel=0.85 fps Inflow=14.53 cfs 1.633 af
 n=0.100 L=464.0' S=0.0151 ' / ' Capacity=3.62 cfs Outflow=9.30 cfs 1.633 af

Reach PR-R-1: Proposed Reach 1 Avg. Flow Depth=1.19' Max Vel=3.42 fps Inflow=14.68 cfs 1.633 af
 n=0.022 L=254.0' S=0.0055 ' / ' Capacity=105.34 cfs Outflow=14.53 cfs 1.633 af

Reach PR-R-2: Proposed Reach 2 Avg. Flow Depth=1.05' Max Vel=2.63 fps Inflow=8.18 cfs 0.086 af
 n=0.025 L=100.0' S=0.0050 ' / ' Capacity=7.67 cfs Outflow=8.62 cfs 0.086 af

Pond FB-1: FB to SGW 1 Peak Elev=48.74' Storage=27,690 cf Inflow=24.43 cfs 1.798 af
 Outflow=18.49 cfs 1.404 af

Pond FB-2: FB to SGW 2 Peak Elev=50.72' Storage=9,157 cf Inflow=19.16 cfs 1.642 af
 Outflow=18.14 cfs 1.642 af

Pond SGW-1: SGW 1 Peak Elev=48.62' Storage=11,206 cf Inflow=18.49 cfs 1.404 af
 Primary=6.50 cfs 1.318 af Secondary=8.18 cfs 0.086 af Outflow=14.68 cfs 1.404 af

Pond SGW-2: SGW 2 Peak Elev=50.58' Storage=20,699 cf Inflow=18.14 cfs 1.642 af
 Outflow=14.68 cfs 1.633 af

Link SP-1: Study Point #1 Inflow=16.38 cfs 3.038 af
 Primary=16.38 cfs 3.038 af

Total Runoff Area = 6.329 ac Runoff Volume = 3.440 af Average Runoff Depth = 6.52"
28.90% Pervious = 1.829 ac 71.10% Impervious = 4.500 ac

Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Summary for Subcatchment PR-DA-1: Proposed DA 1

Runoff = 24.43 cfs @ 12.01 hrs, Volume= 1.798 af, Depth= 6.41"

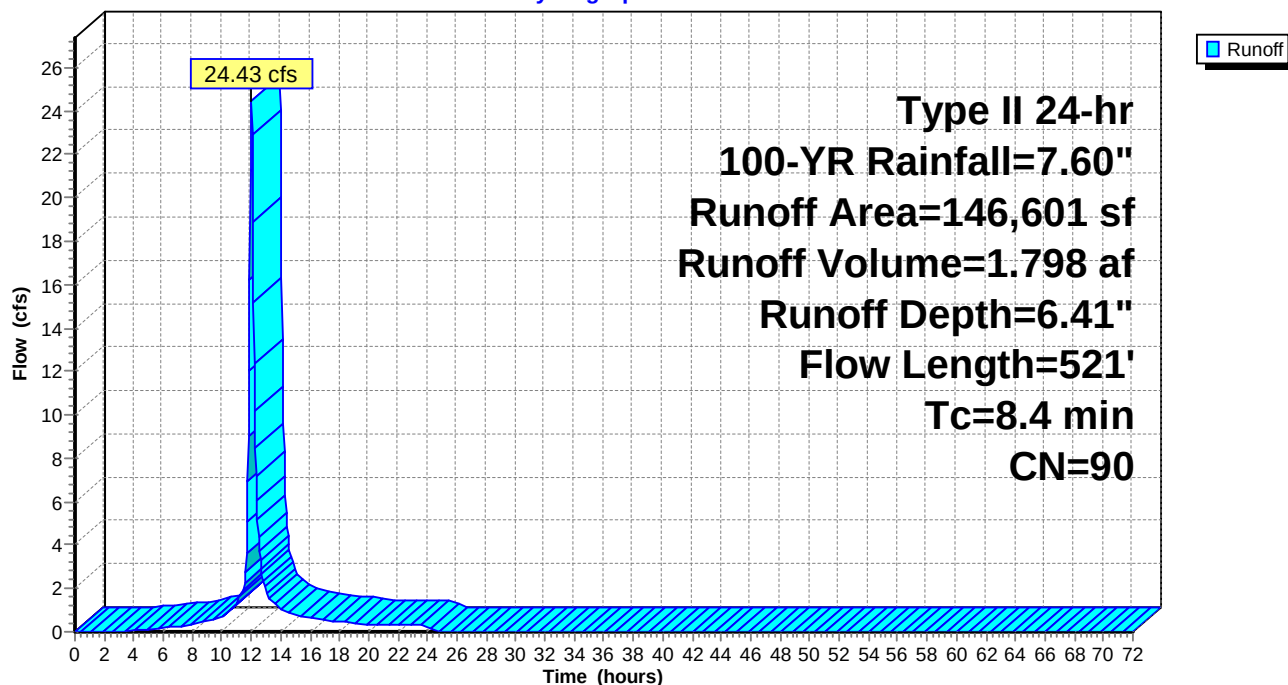
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
49,279	74	>75% Grass cover, Good, HSG C
97,322	98	Paved parking, HSG C
146,601	90	Weighted Average
49,279		33.61% Pervious Area
97,322		66.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.40"
1.3	421	0.0050	5.52	17.33	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
8.4	521	Total			

Subcatchment PR-DA-1: Proposed DA 1

Hydrograph



Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Subcatchment PR-DA-2: Proposed DA 2

Runoff = 19.16 cfs @ 12.04 hrs, Volume= 1.642 af, Depth= 6.65"

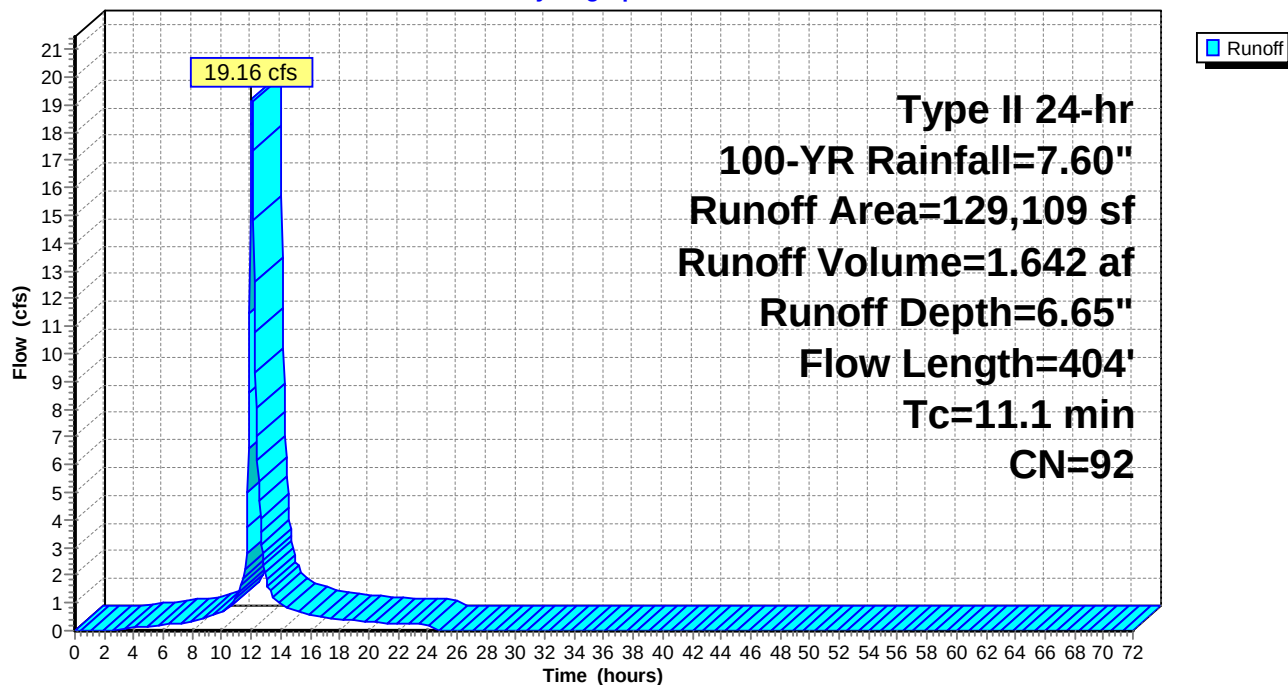
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
30,393	74	>75% Grass cover, Good, HSG C
98,716	98	Paved parking, HSG C
129,109	92	Weighted Average
30,393		23.54% Pervious Area
98,716		76.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	69	0.0100	0.12		Sheet Flow, Side Yard Grass: Short n= 0.150 P2= 3.40"
0.5	31	0.0150	1.00		Sheet Flow, Pave Smooth surfaces n= 0.011 P2= 3.40"
0.3	50	0.0150	2.49		Shallow Concentrated Flow, Pave Paved Kv= 20.3 fps
1.0	254	0.0040	4.07	7.20	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
11.1	404	Total			

Subcatchment PR-DA-2: Proposed DA 2

Hydrograph



Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Summary for Reach EX-R-1: Existing Reach 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 5.01" for 100-YR event
Inflow = 8.35 cfs @ 12.34 hrs, Volume= 1.404 af
Outflow = 7.67 cfs @ 12.44 hrs, Volume= 1.404 af, Atten= 8%, Lag= 6.1 min

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

Max. Velocity= 1.39 fps, Min. Travel Time= 6.4 min

Avg. Velocity = 0.31 fps, Avg. Travel Time= 28.4 min

Peak Storage= 2,937 cf @ 12.44 hrs

Average Depth at Peak Storage= 0.57'

Bank-Full Depth= 3.00' Flow Area= 51.0 sf, Capacity= 177.63 cfs

8.00' x 3.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 ' Top Width= 26.00'

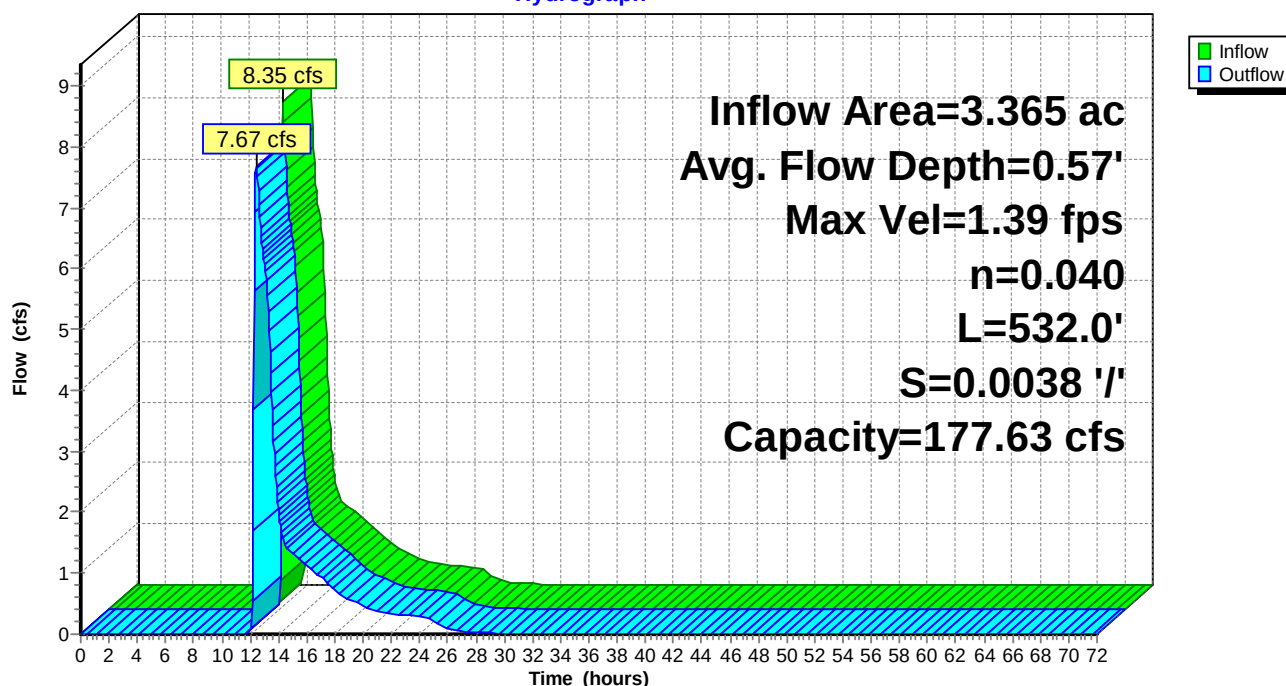
Length= 532.0' Slope= 0.0038 '/'

Inlet Invert= 42.00', Outlet Invert= 40.00'



Reach EX-R-1: Existing Reach 1

Hydrograph



Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Reach EX-R-2: Existing Reach 2

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 5.01" for 100-YR event
Inflow = 15.11 cfs @ 12.20 hrs, Volume= 1.404 af
Outflow = 8.35 cfs @ 12.34 hrs, Volume= 1.404 af, Atten= 45%, Lag= 8.7 min

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

Max. Velocity= 1.11 fps, Min. Travel Time= 10.9 min

Avg. Velocity = 0.21 fps, Avg. Travel Time= 57.8 min

Peak Storage= 5,471 cf @ 12.34 hrs

Average Depth at Peak Storage= 1.16'

Bank-Full Depth= 2.00' Flow Area= 18.0 sf, Capacity= 27.19 cfs

3.00' x 2.00' deep channel, n= 0.040 Winding stream, pools & shoals

Side Slope Z-value= 3.0 '/' Top Width= 15.00'

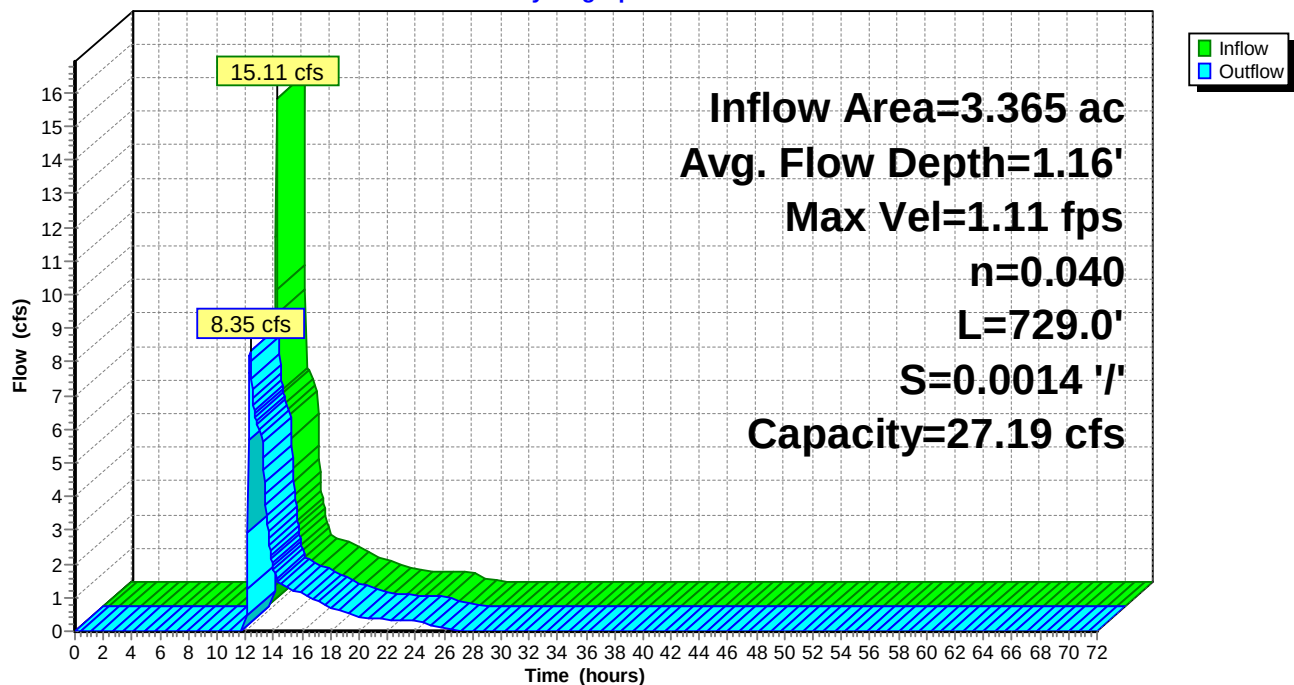
Length= 729.0' Slope= 0.0014 '/'

Inlet Invert= 43.00', Outlet Invert= 42.00'



Reach EX-R-2: Existing Reach 2

Hydrograph



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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Reach EX-R-3: Existing Reach 3

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 6.61" for 100-YR event
Inflow = 14.53 cfs @ 12.20 hrs, Volume= 1.633 af
Outflow = 9.30 cfs @ 12.32 hrs, Volume= 1.633 af, Atten= 36%, Lag= 7.1 min

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

Max. Velocity= 0.85 fps, Min. Travel Time= 9.1 min

Avg. Velocity = 0.20 fps, Avg. Travel Time= 38.2 min

Peak Storage= 5,061 cf @ 12.32 hrs

Average Depth at Peak Storage= 0.80'

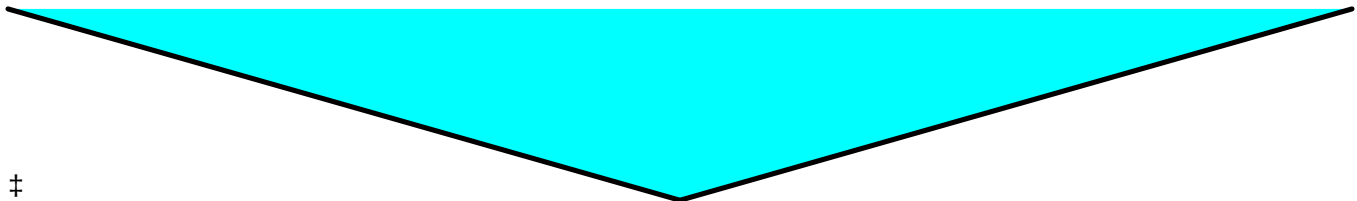
Bank-Full Depth= 0.50' Flow Area= 5.0 sf, Capacity= 3.62 cfs

0.00' x 0.50' deep channel, n= 0.100 Heavy timber, flow below branches

Side Slope Z-value= 20.0 ' Top Width= 20.00'

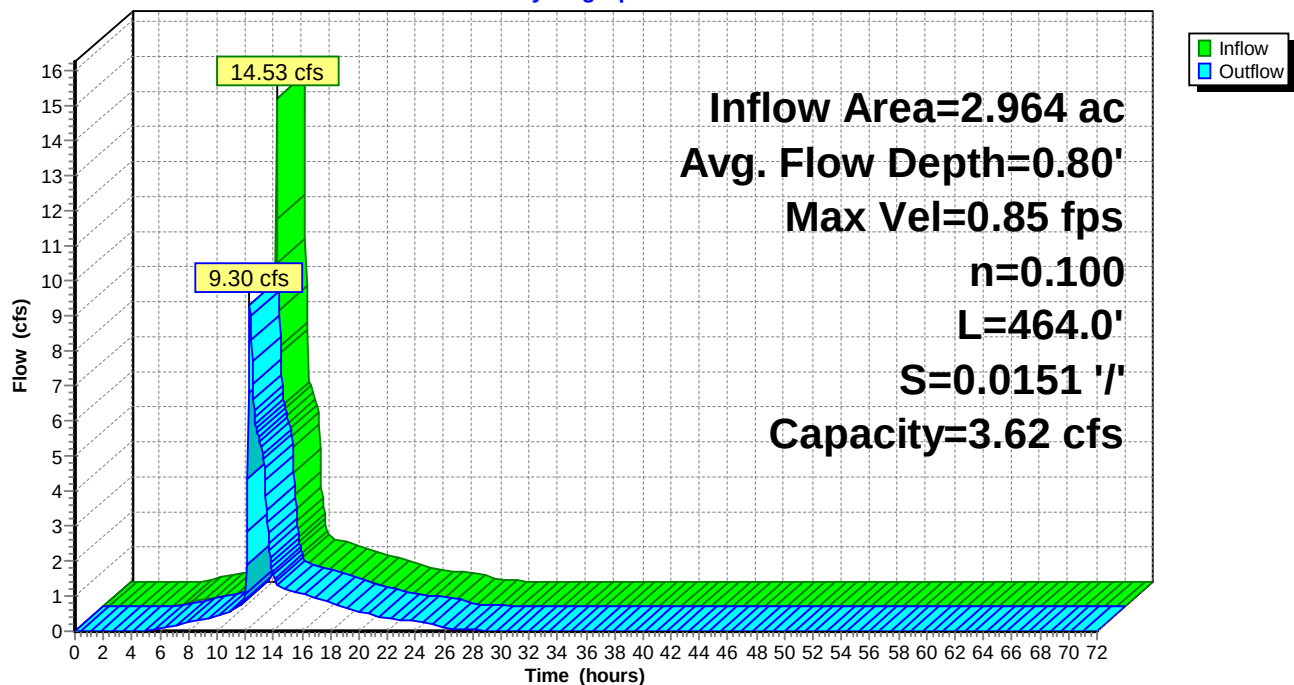
Length= 464.0' Slope= 0.0151 '/'

Inlet Invert= 47.00', Outlet Invert= 40.00'



Reach EX-R-3: Existing Reach 3

Hydrograph



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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Reach PR-R-1: Proposed Reach 1

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 6.61" for 100-YR event
Inflow = 14.68 cfs @ 12.19 hrs, Volume= 1.633 af
Outflow = 14.53 cfs @ 12.20 hrs, Volume= 1.633 af, Atten= 1%, Lag= 1.1 min

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

Max. Velocity= 3.42 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 0.74 fps, Avg. Travel Time= 5.8 min

Peak Storage= 1,078 cf @ 12.20 hrs

Average Depth at Peak Storage= 1.19'

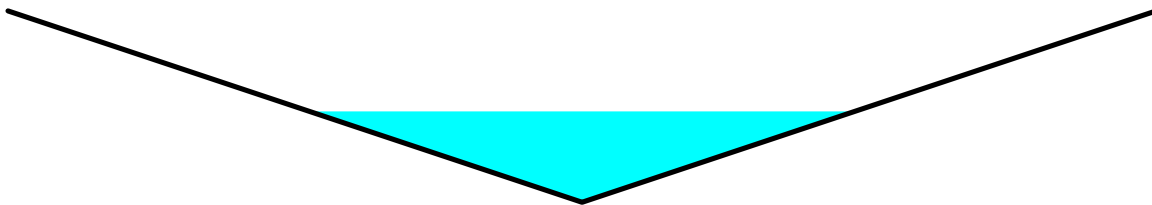
Bank-Full Depth= 2.50' Flow Area= 18.8 sf, Capacity= 105.34 cfs

0.00' x 2.50' deep channel, n= 0.022 Earth, clean & straight

Side Slope Z-value= 3.0 ' Top Width= 15.00'

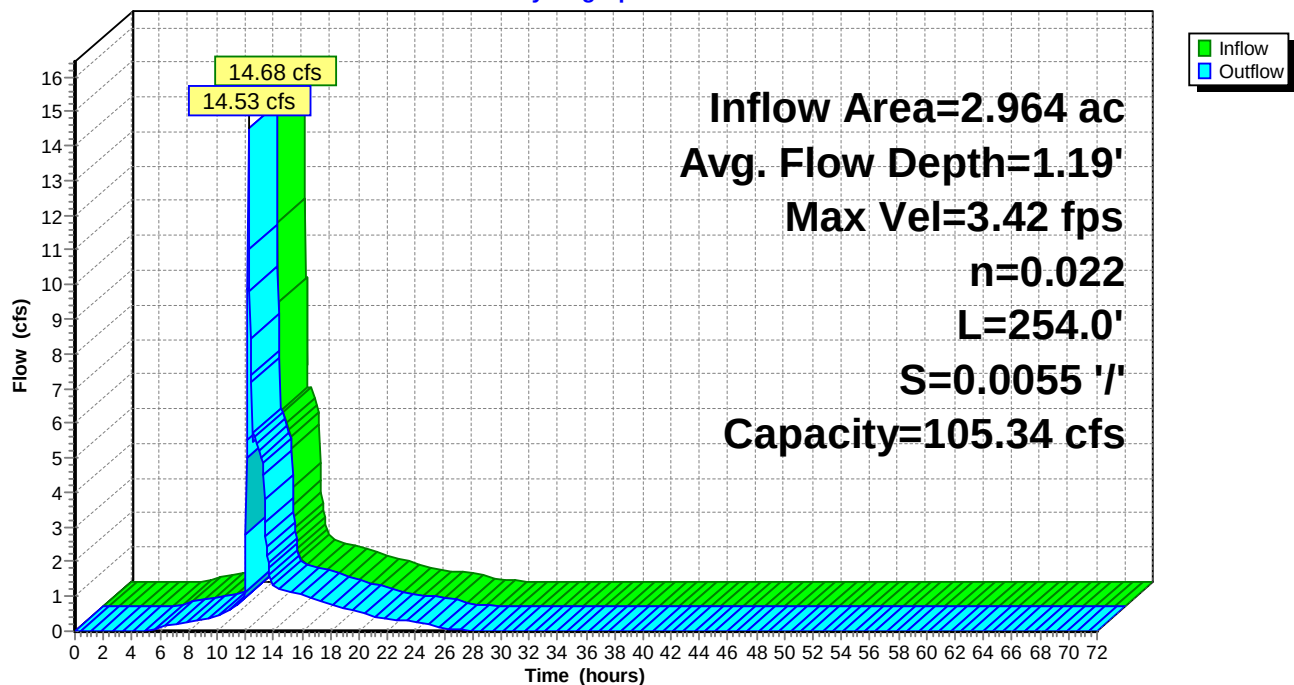
Length= 254.0' Slope= 0.0055 '/'

Inlet Invert= 47.40', Outlet Invert= 46.00'



Reach PR-R-1: Proposed Reach 1

Hydrograph



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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Reach PR-R-2: Proposed Reach 2

Inflow = 8.18 cfs @ 12.18 hrs, Volume= 0.086 af
Outflow = 8.62 cfs @ 12.20 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.8 min

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

Max. Velocity= 2.63 fps, Min. Travel Time= 0.6 min

Avg. Velocity = 0.69 fps, Avg. Travel Time= 2.4 min

Peak Storage= 328 cf @ 12.20 hrs

Average Depth at Peak Storage= 1.05'

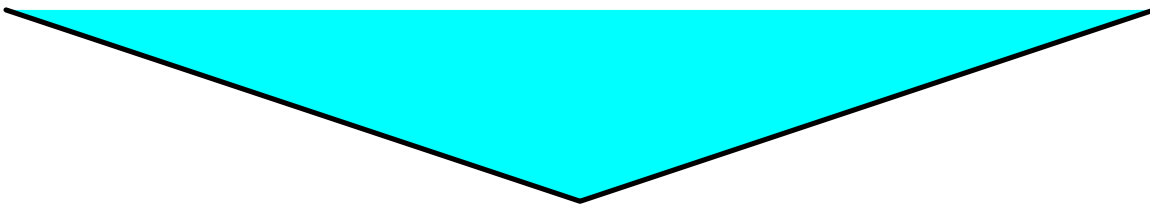
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 7.67 cfs

0.00' x 1.00' deep channel, n= 0.025

Side Slope Z-value= 3.0 ' Top Width= 6.00'

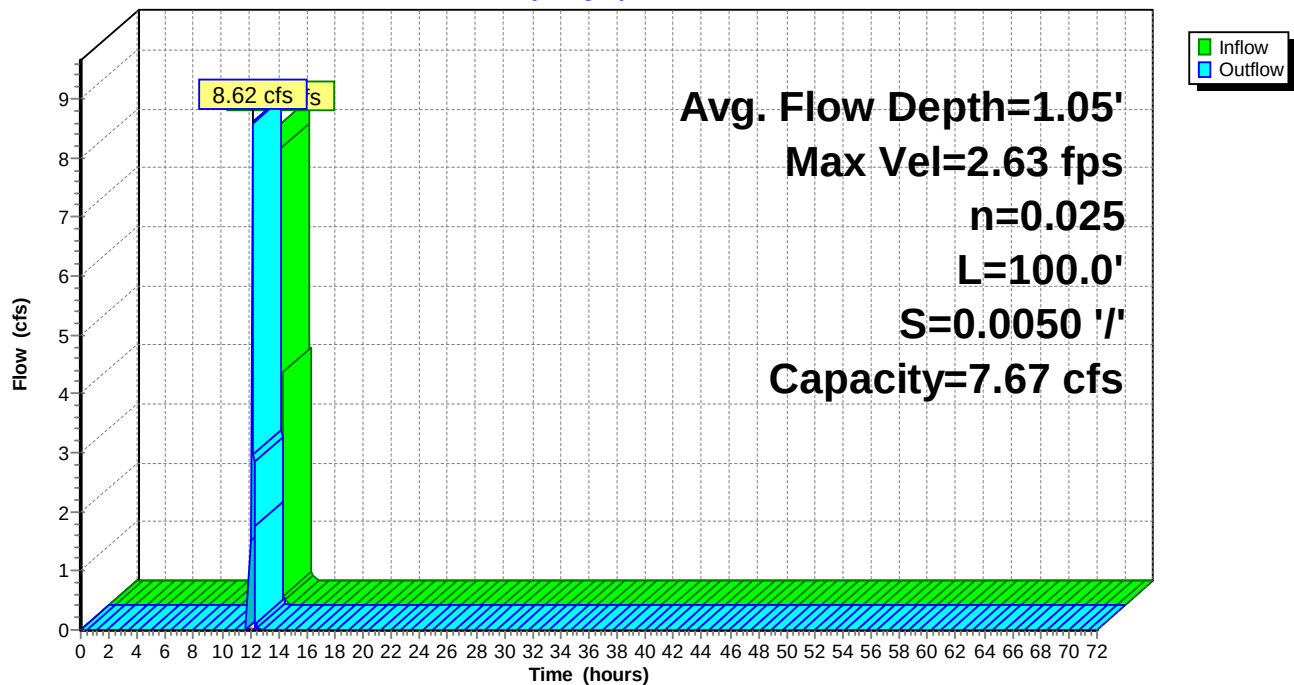
Length= 100.0' Slope= 0.0050 '/'

Inlet Invert= 47.50', Outlet Invert= 47.00'



Reach PR-R-2: Proposed Reach 2

Hydrograph



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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Pond FB-1: FB to SGW 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 6.41" for 100-YR event
 Inflow = 24.43 cfs @ 12.01 hrs, Volume= 1.798 af
 Outflow = 18.49 cfs @ 12.09 hrs, Volume= 1.404 af, Atten= 24%, Lag= 4.6 min
 Primary = 18.49 cfs @ 12.09 hrs, Volume= 1.404 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 48.74' @ 12.21 hrs Surf.Area= 20,000 sf Storage= 27,690 cf

Plug-Flow detention time= 159.6 min calculated for 1.404 af (78% of inflow)
 Center-of-Mass det. time= 75.4 min (856.7 - 781.3)

Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	27,690 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	7,419	0	0
48.50	10,938	27,536	27,536
48.51	20,000	155	27,690

Device	Routing	Invert	Outlet Devices
#1	Primary	47.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=14.00 cfs @ 12.09 hrs HW=48.49' TW=48.13' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 14.00 cfs @ 2.02 fps)

Aspire - Proposed

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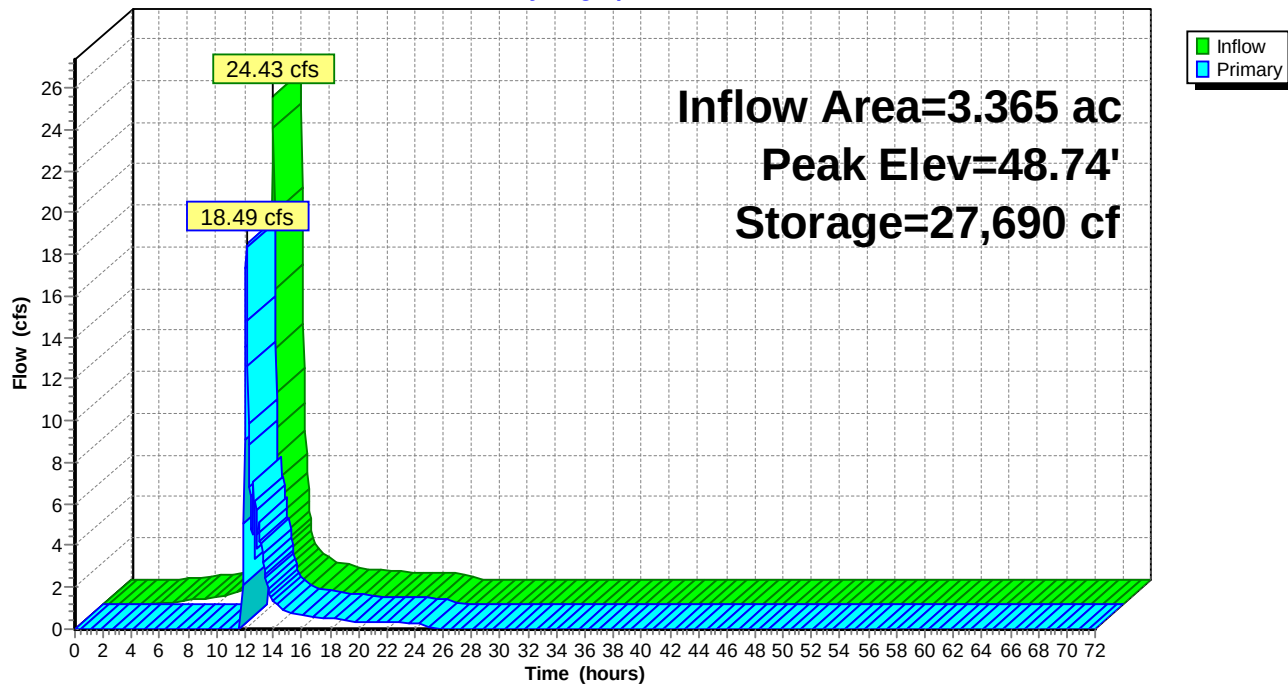
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Type II 24-hr 100-YR Rainfall=7.60"

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Pond FB-1: FB to SGW 1

Hydrograph



Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

Printed 06/23/23

Summary for Pond FB-2: FB to SGW 2

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 6.65" for 100-YR event
 Inflow = 19.16 cfs @ 12.04 hrs, Volume= 1.642 af
 Outflow = 18.14 cfs @ 12.08 hrs, Volume= 1.642 af, Atten= 5%, Lag= 2.3 min
 Primary = 18.14 cfs @ 12.08 hrs, Volume= 1.642 af

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

Starting Elev= 49.50' Surf.Area= 3,371 sf Storage= 5,375 cf

Peak Elev= 50.72' @ 12.21 hrs Surf.Area= 10,000 sf Storage= 9,157 cf (3,783 cf above start)

Plug-Flow detention time= 79.0 min calculated for 1.519 af (92% of inflow)

Center-of-Mass det. time= 8.7 min (787.1 - 778.4)

Volume	Invert	Avail.Storage	Storage Description
#1	47.50'	9,157 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	2,004	0	0
50.50	4,054	9,087	9,087
50.51	10,000	70	9,157

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	7.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=14.30 cfs @ 12.08 hrs HW=50.55' TW=50.23' (Dynamic Tailwater)↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 14.30 cfs @ 1.95 fps)

Aspire - Proposed

Prepared by RAUCH inc.

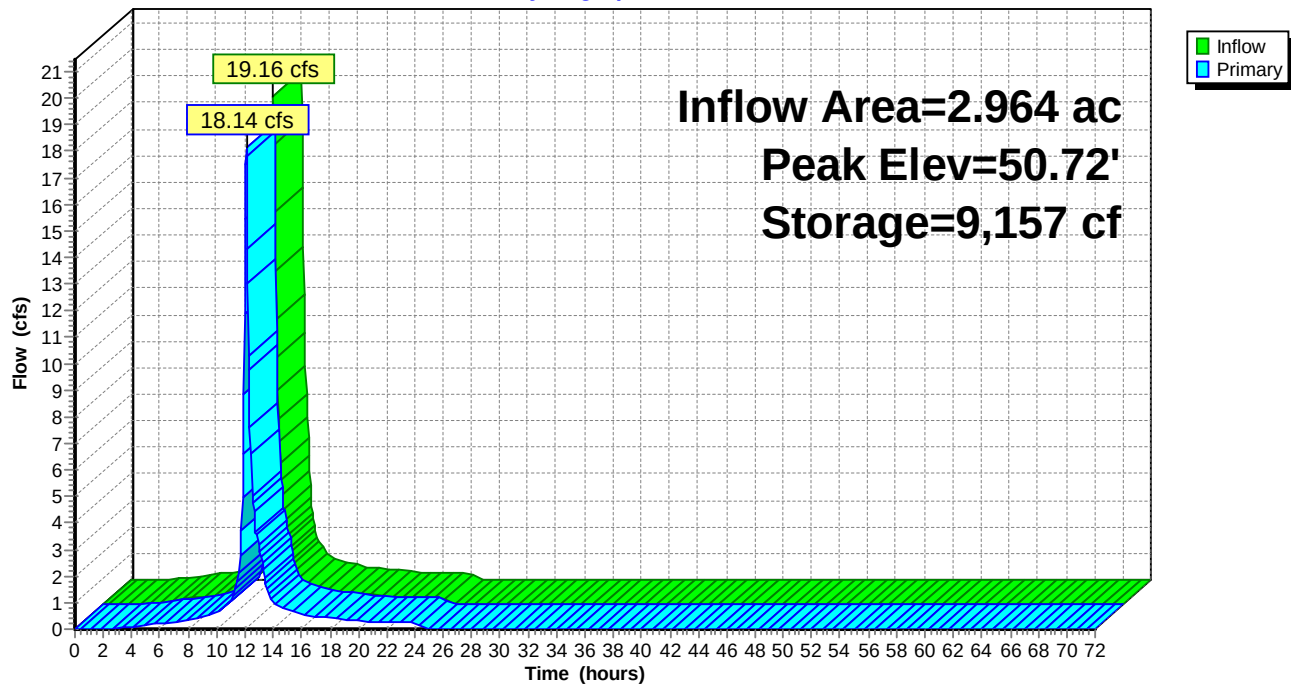
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Type II 24-hr 100-YR Rainfall=7.60"

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Pond FB-2: FB to SGW 2

Hydrograph



Aspire - Proposed

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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Pond SGW-1: SGW 1

Inflow Area = 3.365 ac, 66.39% Impervious, Inflow Depth = 5.01" for 100-YR event
 Inflow = 18.49 cfs @ 12.09 hrs, Volume= 1.404 af
 Outflow = 14.68 cfs @ 12.18 hrs, Volume= 1.404 af, Atten= 21%, Lag= 5.8 min
 Primary = 6.50 cfs @ 12.18 hrs, Volume= 1.318 af
 Secondary = 8.18 cfs @ 12.18 hrs, Volume= 0.086 af

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

Starting Elev= 45.17' Surf.Area= 2,056 sf Storage= 1,382 cf

Peak Elev= 48.62' @ 12.18 hrs Surf.Area= 100,000 sf Storage= 11,206 cf (9,825 cf above start)

Plug-Flow detention time= 50.4 min calculated for 1.372 af (98% of inflow)

Center-of-Mass det. time= 31.4 min (888.2 - 856.7)

Volume	Invert	Avail.Storage	Storage Description
#1	43.49'	11,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)
43.49	2,056	0.0	0
43.50	2,056	40.0	8
45.49	2,056	40.0	1,637
45.50	2,056	100.0	21
48.50	3,958	100.0	9,021
48.51	100,000	100.0	520
			Cum.Store (cubic-feet)
			0
			8
			1,645
			1,665
			10,686
			11,206

Device	Routing	Invert	Outlet Devices
#1	Primary	45.17'	12.0" Round Culvert L= 28.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.17' / 45.00' S= 0.0060 ' / S= 0.0060 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	47.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Device 1	45.17'	6.0" Vert. Collector Pipe C= 0.600
#4	Secondary	48.50'	75.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=6.49 cfs @ 12.18 hrs HW=48.61' TW=43.86' (Dynamic Tailwater)↑ **1=Culvert** (Inlet Controls 6.49 cfs @ 8.26 fps)↑ **2=Rim** (Passes < 20.33 cfs potential flow)↑ **3=Collector Pipe** (Passes < 1.69 cfs potential flow)**Secondary OutFlow** Max=7.38 cfs @ 12.18 hrs HW=48.61' TW=48.46' (Dynamic Tailwater)↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 7.38 cfs @ 0.86 fps)

Aspire - Proposed

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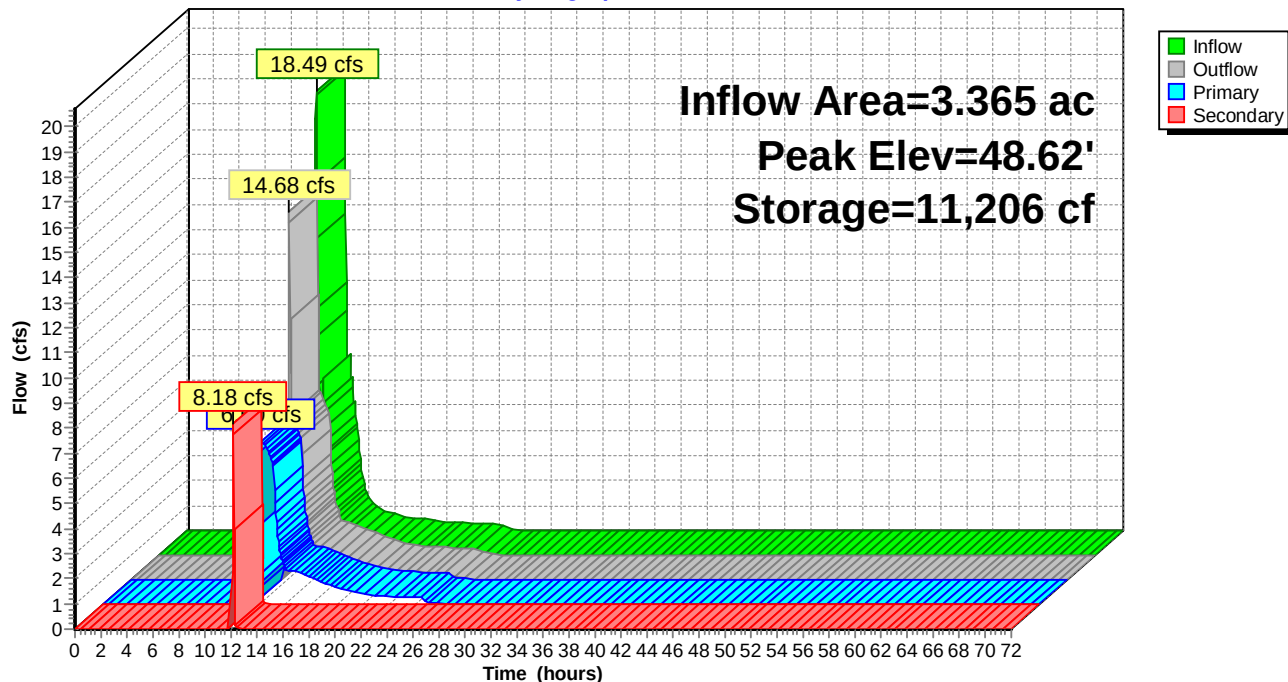
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Type II 24-hr 100-YR Rainfall=7.60"

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Pond SGW-1: SGW 1

Hydrograph



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Type II 24-hr 100-YR Rainfall=7.60"

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Summary for Pond SGW-2: SGW 2

Inflow Area = 2.964 ac, 76.46% Impervious, Inflow Depth = 6.65" for 100-YR event
 Inflow = 18.14 cfs @ 12.08 hrs, Volume= 1.642 af
 Outflow = 14.68 cfs @ 12.19 hrs, Volume= 1.633 af, Atten= 19%, Lag= 6.4 min
 Primary = 14.68 cfs @ 12.19 hrs, Volume= 1.633 af

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

Starting Elev= 47.17' Surf.Area= 4,027 sf Storage= 2,706 cf

Peak Elev= 50.58' @ 12.19 hrs Surf.Area= 20,000 sf Storage= 20,699 cf (17,993 cf above start)

Plug-Flow detention time= 120.7 min calculated for 1.570 af (96% of inflow)

Center-of-Mass det. time= 79.0 min (866.0 - 787.1)

Volume	Invert	Avail.Storage	Storage Description									
#1	45.49'	20,699 cf	Custom Stage Data (Prismatic) Listed below (Recalc)									
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)					Cum.Store (cubic-feet)				
45.49	4,027	0.0	0					0				
45.50	4,027	40.0	16					16				
47.49	4,027	40.0	3,205					3,222				
47.50	4,027	100.0	40					3,262				
50.50	7,506	100.0	17,300					20,561				
50.51	20,000	100.0	138					20,699				

Device	Routing	Invert	Outlet Devices														
#1	Primary	47.25'	12.0" Round Culvert L= 25.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.25' / 47.00' S= 0.0098 ' / Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf														
#2	Device 1	49.50'	24.0" x 24.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads														
#3	Device 1	47.16'	6.0" Vert. Collector Pipe C= 0.600														
#4	Primary	50.50'	159.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32														

Primary OutFlow Max=13.73 cfs @ 12.19 hrs HW=50.58' TW=48.54' (Dynamic Tailwater)

1=Culvert (Inlet Controls 5.39 cfs @ 6.87 fps)

2=Rim (Passes < 19.97 cfs potential flow)

3=Collector Pipe (Passes < 1.35 cfs potential flow)

4=Broad-Crested Rectangular Weir (Weir Controls 8.34 cfs @ 0.70 fps)

Aspire - Proposed

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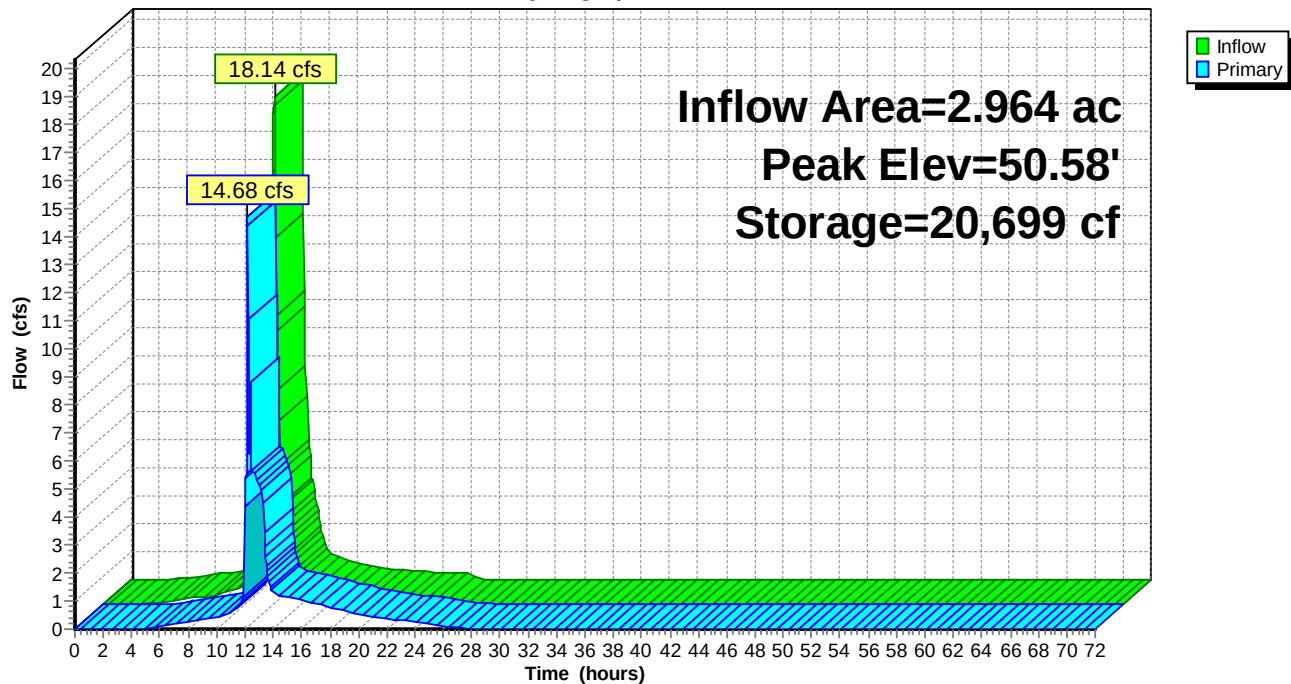
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Type II 24-hr 100-YR Rainfall=7.60"

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Pond SGW-2: SGW 2

Hydrograph



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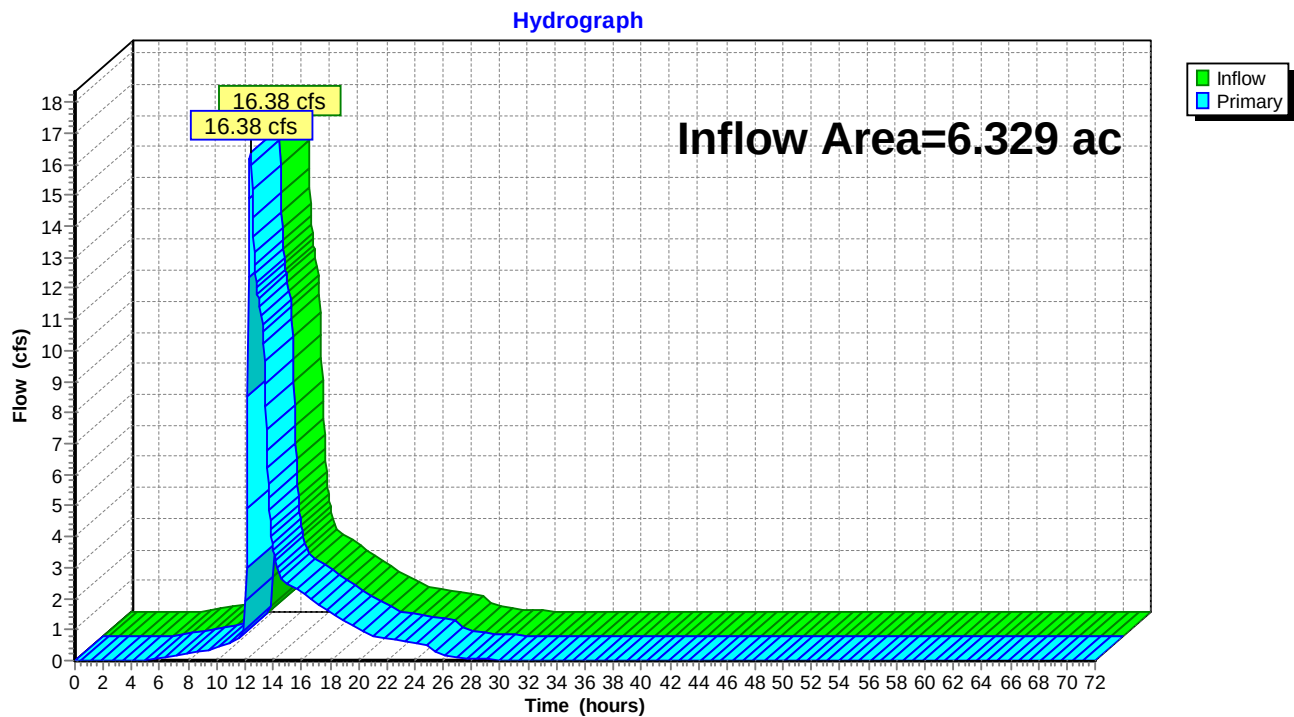
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Summary for Link SP-1: Study Point #1

Inflow Area = 6.329 ac, 71.10% Impervious, Inflow Depth = 5.76" for 100-YR event
Inflow = 16.38 cfs @ 12.39 hrs, Volume= 3.038 af
Primary = 16.38 cfs @ 12.39 hrs, Volume= 3.038 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link SP-1: Study Point #1



Comparisons

2-Year Comparison

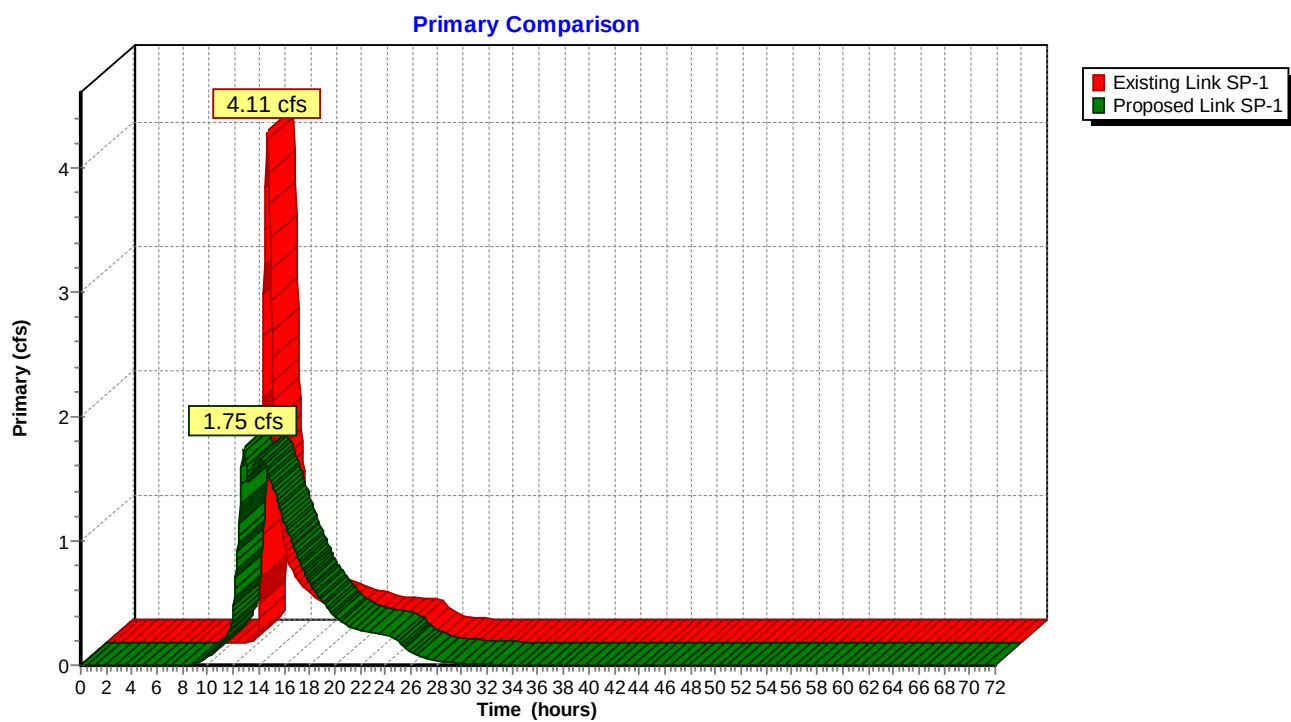
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Type II 24-hr 2-YR Rainfall=3.40"

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10-Year Comparison

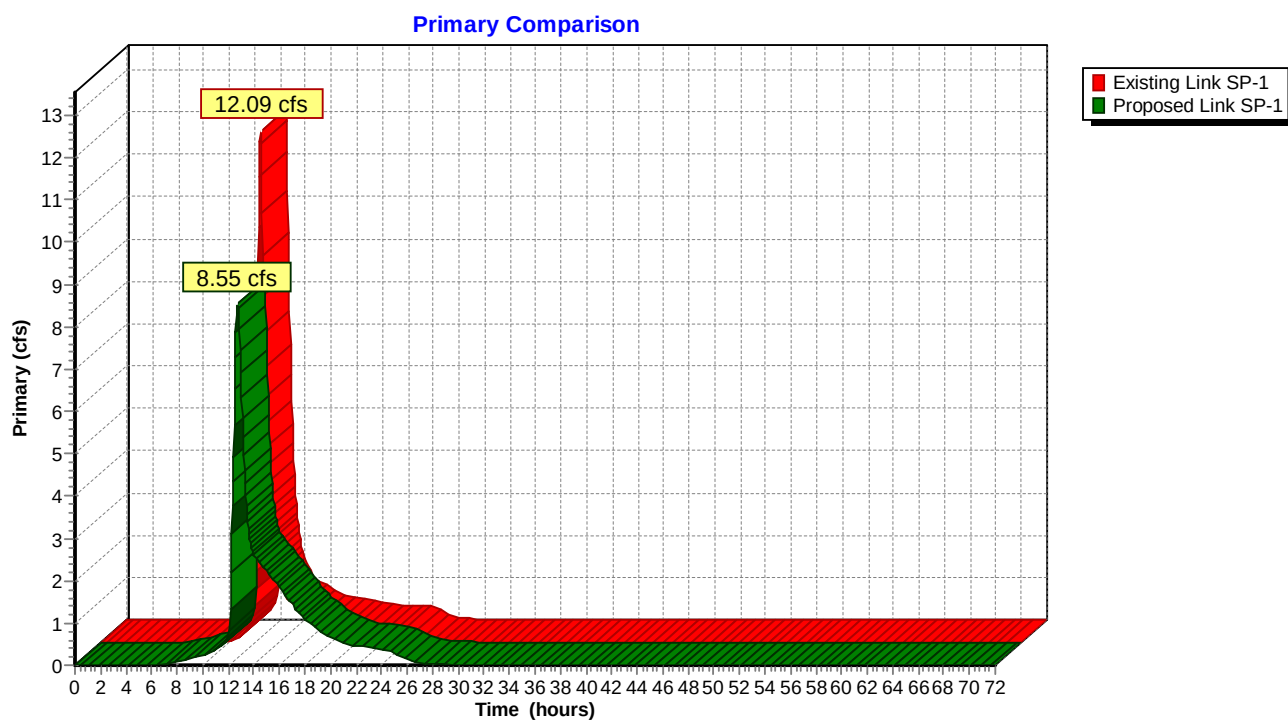
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Type II 24-hr 10-YR Rainfall=5.30"

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100-Year Comparison

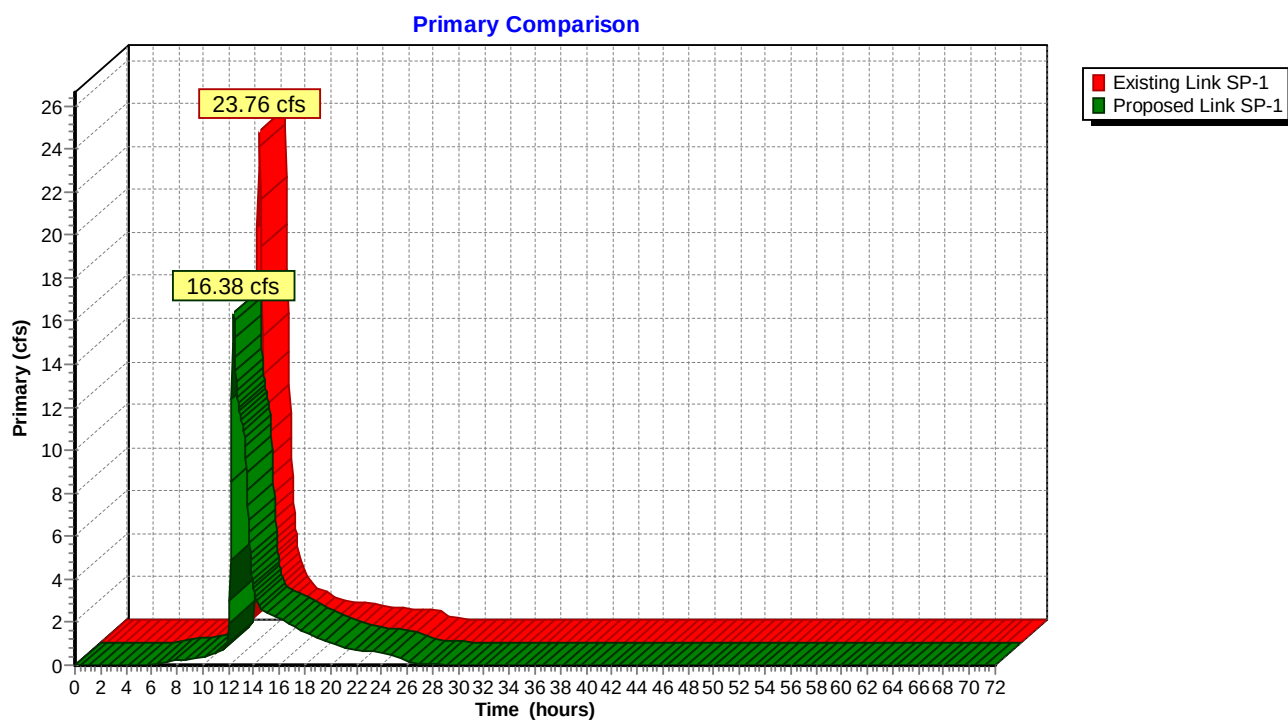
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Type II 24-hr 100-YR Rainfall=7.60"

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Soil Report



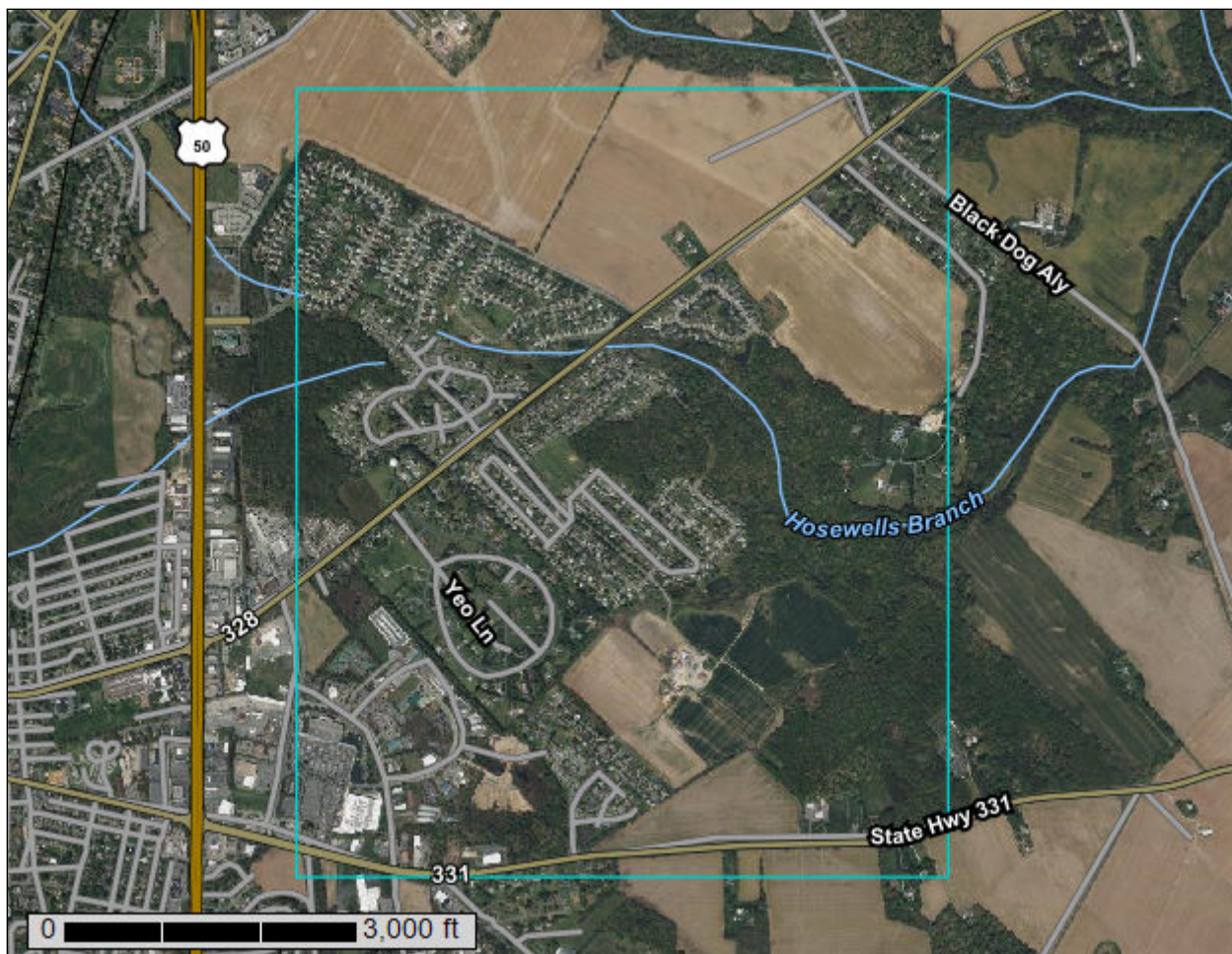
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Talbot County, Maryland



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

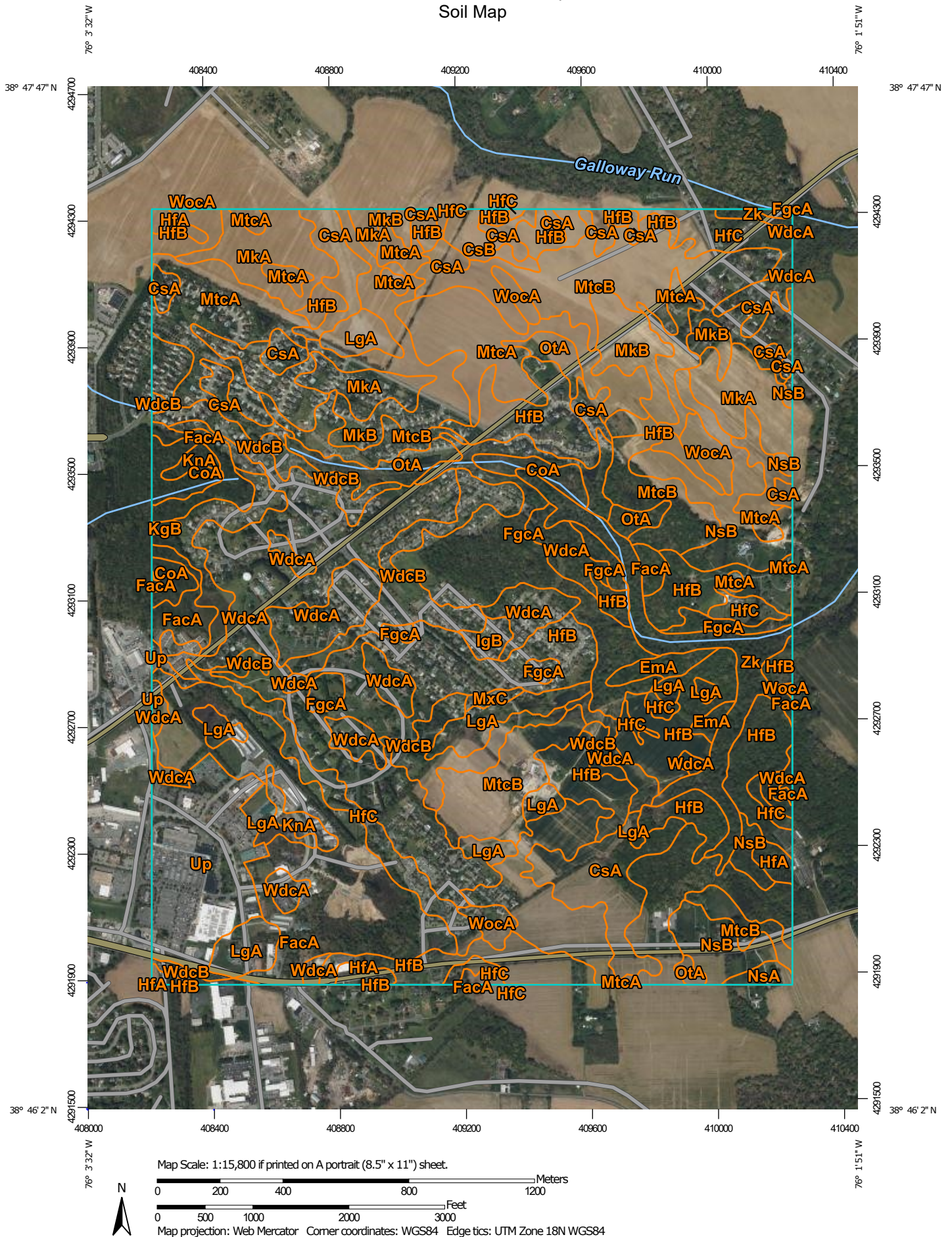
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Talbot County, Maryland

Survey Area Data: Version 19, Sep 14, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2021—Oct 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CoA	Corsica mucky loam, 0 to 2 percent slopes	16.0	1.3%
CsA	Crosiadore silt loam, 0 to 2 percent slopes	62.7	5.1%
CsB	Crosiadore silt loam, 2 to 5 percent slopes	5.8	0.5%
EmA	Elkton silt loam, 0 to 2 percent slopes	6.5	0.5%
FacA	Fallsington sandy loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	90.5	7.3%
FgcA	Fallsington loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	61.7	5.0%
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	7.7	0.6%
HfB	Hambrook-Sassafras complex, 2 to 5 percent slopes	268.0	21.7%
HfC	Hambrook-Sassafras complex, 5 to 10 percent slopes	39.2	3.2%
IgB	Ingleside sandy loam, 2 to 5 percent slopes	3.5	0.3%
KgB	Klej-Galloway complex, 0 to 5 percent slopes	0.7	0.1%
KnA	Kentuck mucky silt loam, 0 to 2 percent slopes	6.4	0.5%
LgA	Lenni loam, 0 to 2 percent slopes	38.8	3.1%
MkA	Matapeake silt loam, 0 to 2 percent slopes	46.6	3.8%
MkB	Matapeake silt loam, 2 to 5 percent slopes	54.5	4.4%
MtcA	Mattapex silt loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	139.7	11.3%
MtcB	Mattapex silt loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain	108.7	8.8%
MxC	Mattapex-Woodstown complex, 5 to 10 percent slopes	2.4	0.2%
NsA	Nassawango silt loam, 0 to 2 percent slopes	2.7	0.2%
NsB	Nassawango silt loam, 2 to 5 percent slopes	39.3	3.2%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	18.1	1.5%
Up	Urban land	46.6	3.8%
WdcA	Woodstown sandy loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	71.6	5.8%
WdcB	Woodstown sandy loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain	54.5	4.4%
WocA	Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	11.3	0.9%
Zk	Zekiah silt loam, frequently flooded	32.6	2.6%
Totals for Area of Interest		1,235.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Talbot County, Maryland

CoA—Corsica mucky loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1vh02

Elevation: 0 to 200 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Corsica, undrained, and similar soils: 55 percent

Corsica, drained, and similar soils: 25 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Corsica, Undrained

Setting

Landform: Depressions, drainageways, swales, flats

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material

A - 2 to 12 inches: mucky loam

BEg - 12 to 18 inches: sandy loam

Btg - 18 to 40 inches: sandy clay loam

BCg - 40 to 48 inches: sandy loam

2Cg - 48 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Description of Corsica, Drained

Setting

Landform: Swales, flats, depressions

Custom Soil Resource Report

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Typical profile

Ap - 0 to 12 inches: mucky loam

BEg - 12 to 18 inches: sandy loam

Btg - 18 to 40 inches: sandy clay loam

BCg - 40 to 48 inches: sandy loam

2Cg - 48 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Rare

Available water supply, 0 to 60 inches: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Minor Components

Fallsington, drained

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Hurlock, drained

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Kentuck, undrained

Percent of map unit: 5 percent

Landform: Swales, depressions

Down-slope shape: Concave

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Woodstown

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Rise

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

CsA—Crosiadore silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: nmd5
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Crosiadore and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosiadore

Setting

Landform: Depressions, flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 28 inches: silt loam
2Btg - 28 to 33 inches: sandy loam
2Cg - 33 to 50 inches: sandy loam
2C1 - 50 to 57 inches: gravelly loamy sand
2C2 - 57 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Mattapex

Percent of map unit: 10 percent
Landform: Flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

Kentuck

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Elkton

Percent of map unit: 5 percent
Landform: Swales, flats, depressions
Hydric soil rating: Yes

Othello

Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways, swales
Landform position (three-dimensional): Dip
Hydric soil rating: Yes

CsB—Crosiadore silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh03
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Crosiadore and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosiadore

Setting

Landform: Depressions, flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 28 inches: silt loam
2Btg - 28 to 33 inches: sandy loam
2Cg - 33 to 50 inches: sandy loam
2C1 - 50 to 57 inches: gravelly loamy sand
2C2 - 57 to 80 inches: fine sandy loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Mattapex

Percent of map unit: 10 percent
Landform: Flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

Elkton

Percent of map unit: 5 percent
Landform: Swales, flats, depressions
Landform position (three-dimensional): Dip
Hydric soil rating: Yes

Othello

Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways, swales
Landform position (three-dimensional): Dip
Hydric soil rating: Yes

EmA—Elkton silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: spvy
Elevation: 0 to 210 feet

Custom Soil Resource Report

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Elkton, undrained, and similar soils: 40 percent

Elkton, drained, and similar soils: 35 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkton, Undrained

Setting

Landform: Depressions, flats, drainageways, swales

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Silty eolian deposits and/or fluviomarine sediments

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material

A - 3 to 4 inches: silt loam

Eg - 4 to 13 inches: silt loam

Btg - 13 to 43 inches: silty clay loam

2BCg - 43 to 80 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Elkton, Drained

Setting

Landform: Swales, depressions, flats

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Silty eolian deposits and/or fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam

BEg - 10 to 13 inches: silt loam

Custom Soil Resource Report

Btg - 13 to 43 inches: silty clay loam
2BCg - 43 to 80 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Crosiadore

Percent of map unit: 10 percent
Landform: Depressions, flats
Landform position (three-dimensional): Rise
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Keyport

Percent of map unit: 5 percent
Landform: Flats, depressions, fluvio-marine terraces
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Kentuck, undrained

Percent of map unit: 5 percent
Landform: Depressions, swales
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

FacA—Fallsington sandy loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2s96z

Elevation: 40 to 50 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Fallsington, undrained, and similar soils: 48 percent

Fallsington, drained, and similar soils: 25 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fallsington, Undrained

Setting

Landform: Depressions, flats, drainageways, swales

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Loamy fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: mucky peat

A - 2 to 10 inches: sandy loam

Btg - 10 to 32 inches: sandy clay loam

BCg - 32 to 39 inches: loamy sand

Cg1 - 39 to 46 inches: sandy clay loam

Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Fallsington, Drained

Setting

Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: sandy loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand
Cg1 - 39 to 46 inches: sandy clay loam
Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Marshyhope

Percent of map unit: 8 percent
Landform: Drainageways, flats, depressions
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Hydric soil rating: No

Woodstown

Percent of map unit: 7 percent
Landform: Flats, broad interstream divides, depressions, fluviomarine terraces
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Hammonton

Percent of map unit: 5 percent
Landform: Drainageways, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: No

Othello

Percent of map unit: 5 percent
Landform: Drainageways, swales, depressions, flats
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

FgcA—Fallsington loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2s96t
Elevation: 10 to 70 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Fallsington, undrained, and similar soils: 38 percent
Fallsington, drained, and similar soils: 37 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fallsington, Undrained

Setting

Landform: Swales, depressions, flats, drainageways
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: mucky peat
A - 2 to 10 inches: loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand

Custom Soil Resource Report

Cg1 - 39 to 46 inches: sandy clay loam

Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)*

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Fallsington, Drained

Setting

Landform: Swales, depressions, flats

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: loam

Btg - 10 to 32 inches: sandy clay loam

BCg - 32 to 39 inches: loamy sand

Cg1 - 39 to 46 inches: sandy clay loam

Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 1.98 in/hr)*

Depth to water table: About 10 to 20 inches

Frequency of flooding: None

Frequency of ponding: Rare

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Minor Components

Hammonton

Percent of map unit: 7 percent
Landform: Drainageways, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: No

Woodstown

Percent of map unit: 7 percent
Landform: Broad interstream divides, depressions, fluviomarine terraces, flats
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Othello

Percent of map unit: 6 percent
Landform: Flats, drainageways, swales, depressions
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Marshyhope

Percent of map unit: 5 percent
Landform: Drainageways, flats, depressions
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Hydric soil rating: No

HfA—Hambrook-Sassafras complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1vh08
Elevation: 0 to 330 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Hambrook and similar soils: 41 percent
Sassafras and similar soils: 39 percent

Custom Soil Resource Report

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting

Landform: Depressions, flats, fluviomarine terraces

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Typical profile

Ap - 0 to 10 inches: sandy loam

BE - 10 to 14 inches: loam

Bt - 14 to 28 inches: sandy clay loam

BC - 28 to 65 inches: loamy sand

2Cg - 65 to 80 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)

Depth to water table: About 42 to 72 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: B

Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, flats, fluviomarine terraces, knolls

Landform position (three-dimensional): Riser, dip

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 9 inches: sandy loam

E - 9 to 15 inches: sandy loam

Bt - 15 to 30 inches: loam

BC - 30 to 37 inches: sandy loam

C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Custom Soil Resource Report

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 10 percent

Landform: Flats, depressions

Landform position (three-dimensional): Dip

Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent

Landform: Depressions, flats

Landform position (three-dimensional): Dip

Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Talf

Hydric soil rating: No

HfB—Hambrook-Sassafras complex, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh09

Elevation: 0 to 330 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Hambrook and similar soils: 41 percent

Sassafras and similar soils: 39 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting

Landform: Depressions, knolls, fluvio-marine terraces, flats

Custom Soil Resource Report

Landform position (three-dimensional): Rise
Down-slope shape: Concave, convex, linear
Across-slope shape: Concave, convex, linear

Typical profile

Ap - 0 to 10 inches: sandy loam
BE - 10 to 14 inches: loam
Bt - 14 to 28 inches: sandy clay loam
BC - 28 to 65 inches: loamy sand
2Cg - 65 to 80 inches: silt loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, flats, fluviomarine terraces, knolls
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 9 inches: sandy loam
E - 9 to 15 inches: sandy loam
Bt - 15 to 30 inches: loam
BC - 30 to 37 inches: sandy loam
C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 10 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Talf
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Hydric soil rating: No

HfC—Hambrook-Sassafras complex, 5 to 10 percent slopes

Map Unit Setting

National map unit symbol: 1vh0b
Elevation: 20 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hambrook and similar soils: 60 percent
Sassafras and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting

Landform: Knolls, fluviomarine terraces, low hills
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 10 inches: sandy loam

Custom Soil Resource Report

BE - 10 to 14 inches: loam
Bt - 14 to 28 inches: sandy clay loam
BC - 28 to 65 inches: loamy sand
2Cg - 65 to 80 inches: silt loam

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, fluviomarine terraces, knolls
Landform position (three-dimensional): Side slope, riser
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 9 inches: sandy loam
E - 9 to 15 inches: sandy loam
Bt - 15 to 30 inches: loam
BC - 30 to 37 inches: sandy loam
C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Galestown

Percent of map unit: 5 percent

Landform: Knolls, low hills

Landform position (three-dimensional): Side slope

Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent

Landform: Low hills

Landform position (three-dimensional): Base slope

Hydric soil rating: No

IgB—Ingleside sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh0f

Elevation: 10 to 140 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Ingleside and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ingleside

Setting

Landform: Fluvio-marine terraces, depressions, flats

Landform position (three-dimensional): Rise

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Typical profile

Ap - 0 to 10 inches: sandy loam

E - 10 to 15 inches: sandy loam

Bt - 15 to 33 inches: sandy loam

BC - 33 to 43 inches: sandy loam

C1 - 43 to 56 inches: loamy sand

C2 - 56 to 80 inches: silt loam

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Custom Soil Resource Report

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)

Depth to water table: About 40 to 72 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 5 percent

Landform: Depressions, flats, drainageways

Landform position (three-dimensional): Dip

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Downer

Percent of map unit: 5 percent

Landform: Fluvio-marine terraces, knolls, flats

Landform position (three-dimensional): Rise

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Hammonton

Percent of map unit: 5 percent

Landform: Depressions, drainageways, flats

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Cedartown

Percent of map unit: 5 percent

Landform: Flats, knolls, dunes

Landform position (three-dimensional): Talf

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Rosedale

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

KgB—Klej-Galloway complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh2v

Elevation: 0 to 200 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Klej and similar soils: 45 percent

Galloway and similar soils: 35 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Klej

Setting

Landform: Depressions, flats

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Sandy eolian deposits and/or fluviomarine sediments

Typical profile

A - 0 to 7 inches: loamy sand

E - 7 to 14 inches: loamy sand

Bw - 14 to 20 inches: loamy sand

C - 20 to 62 inches: loamy sand

Cg - 62 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.57 to 19.98 in/hr)

Depth to water table: About 10 to 20 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D

Hydric soil rating: No

Description of Galloway

Setting

Landform: Depressions, flats

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Sandy eolian deposits and/or fluviomarine sediments

Typical profile

Ap - 0 to 12 inches: loamy sand

Bw - 12 to 15 inches: loamy sand

C1 - 15 to 30 inches: loamy sand

C2 - 30 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.38 to 99.90 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Hurlock, drained

Percent of map unit: 5 percent

Landform: Flats, depressions, swales

Landform position (three-dimensional): Dip

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Berryland, drained

Percent of map unit: 5 percent

Landform: Depressions, swales, flats

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Askecksy, drained

Percent of map unit: 5 percent

Landform: Swales, depressions, flats

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Runclint

Percent of map unit: 5 percent
Landform: Fluviomarine terraces, flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

KnA—Kentuck mucky silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 216cy
Elevation: 0 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Kentuck, undrained, and similar soils: 45 percent
Kentuck, drained, and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kentuck, Undrained

Setting

Landform: Swales, depressions
Down-slope shape: Concave
Across-slope shape: Linear, concave
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
A - 3 to 13 inches: mucky silt loam
Eg - 13 to 24 inches: silt loam
Btg - 24 to 45 inches: silt loam
2BCg - 45 to 57 inches: fine sandy loam
2Cg - 57 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: Frequent

Custom Soil Resource Report

Available water supply, 0 to 60 inches: Very high (about 12.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Kentuck, Drained

Setting

Landform: Swales, depressions

Down-slope shape: Concave

Across-slope shape: Linear, concave

Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 13 inches: mucky silt loam

Eg - 13 to 24 inches: silt loam

Btg - 24 to 45 inches: silt loam

2BCg - 45 to 57 inches: fine sandy loam

2Cg - 57 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Rare

Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Minor Components

Whitemarsh, undrained

Percent of map unit: 10 percent

Landform: Flats, drainageways, depressions

Landform position (three-dimensional): Talf

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Othello, undrained

Percent of map unit: 5 percent

Landform: Depressions, drainageways, flats

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: Yes

Crosiadore

Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (three-dimensional): Rise
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (three-dimensional): Rise
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

LgA—Lenni loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: spw3
Elevation: 10 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lenni, undrained, and similar soils: 50 percent
Lenni, drained, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lenni, Undrained

Setting

Landform: Flats, swales, depressions
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine sediments

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 7 inches: loam
Eg - 7 to 14 inches: loam
Btg - 14 to 51 inches: clay
2Cg - 51 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent

Custom Soil Resource Report

Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Description of Lenni, Drained

Setting

Landform: Flats, swales, depressions
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine sediments

Typical profile

Ap - 0 to 7 inches: loam
Eg - 7 to 14 inches: loam
Btg - 14 to 51 inches: clay
2Cg - 51 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Keyport

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

Rosedale

Percent of map unit: 5 percent

Landform: Dunes, knolls, flats
Landform position (three-dimensional): Rise
Hydric soil rating: No

Pepperbox

Percent of map unit: 5 percent
Landform: Flats, knolls
Landform position (three-dimensional): Rise
Hydric soil rating: No

MkA—Matapeake silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: spw7
Elevation: 10 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Matapeake and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matapeake

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 5 inches: silt loam
E - 5 to 11 inches: silt loam
Bt - 11 to 34 inches: silt loam
2BC - 34 to 38 inches: sandy loam
2C - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Nassawango

Percent of map unit: 10 percent

Landform: Terraces, flats

Landform position (three-dimensional): Dip, talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Butlertown

Percent of map unit: 5 percent

Landform: Flats, broad interstream divides, interfluves

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent

Landform: Depressions, swales, flats

Landform position (three-dimensional): Dip

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

MkB—Matapeake silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh0k

Elevation: 10 to 120 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Matapeake and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matapeake

Setting

Landform: Flats, knolls
Landform position (three-dimensional): Talf
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 5 inches: silt loam
E - 5 to 11 inches: silt loam
Bt - 11 to 34 inches: silt loam
2BC - 34 to 38 inches: sandy loam
2C - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Nassawango

Percent of map unit: 10 percent
Landform: Terraces, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Butlertown

Percent of map unit: 5 percent
Landform: Flats, interfluves, broad interstream divides
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Depressions, flats, swales
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear

Across-slope shape: Concave, linear
Hydric soil rating: No

MtcA—Mattapex silt loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thwt
Elevation: 0 to 90 feet
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 190 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Mattapex and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mattapex

Setting

Landform: Depressions, flats, swales
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 11 inches: silt loam
BE - 11 to 15 inches: silt loam
Bt - 15 to 36 inches: silt loam
2C1 - 36 to 60 inches: fine sandy loam
2C2 - 60 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Nassawango

Percent of map unit: 10 percent
Landform: Terraces, flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Othello, drained

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Crosiadore

Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

MtcB—Mattapex silt loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thwx
Elevation: 0 to 100 feet
Mean annual precipitation: 41 to 50 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 190 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Mattapex and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mattapex

Setting

Landform: Depressions, flats, swales
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear

Custom Soil Resource Report

Across-slope shape: Concave, linear

Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 11 inches: silt loam

BE - 11 to 15 inches: silt loam

Bt - 15 to 36 inches: silt loam

2C1 - 36 to 60 inches: fine sandy loam

2C2 - 60 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Nassawango

Percent of map unit: 10 percent

Landform: Flats, terraces

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Crosiadore

Percent of map unit: 5 percent

Landform: Depressions, flats

Landform position (three-dimensional): Dip

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Othello, drained

Percent of map unit: 5 percent

Landform: Swales, flats, depressions

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Dip

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Hydric soil rating: Yes

MxC—Mattapex-Woodstown complex, 5 to 10 percent slopes

Map Unit Setting

National map unit symbol: 1vh0l

Elevation: 0 to 200 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Mattapex and similar soils: 45 percent

Woodstown and similar soils: 40 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mattapex

Setting

Landform: Swales, depressions, low hills

Landform position (three-dimensional): Side slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 11 inches: silt loam

BE - 11 to 15 inches: silt loam

Bt - 15 to 36 inches: silty clay loam

2C1 - 36 to 60 inches: fine sandy loam

2C2 - 60 to 80 inches: loamy sand

Properties and qualities

Slope: 5 to 10 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.28 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Hydric soil rating: No

Description of Woodstown

Setting

Landform: Swales, low hills
Landform position (three-dimensional): Side slope, dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine sediments

Typical profile

Ap - 0 to 7 inches: loam
E - 7 to 11 inches: sandy loam
Bt - 11 to 29 inches: sandy clay loam
Cg1 - 29 to 45 inches: sandy loam
Cg2 - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Matapeake

Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Side slope
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Side slope
Hydric soil rating: No

Galestown

Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Side slope
Hydric soil rating: No

NsA—Nassawango silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: spwc
Elevation: 0 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Nassawango and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassawango

Setting

Landform: Terraces, flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
E - 10 to 16 inches: silt loam
Bt - 16 to 44 inches: silt loam
2C - 44 to 60 inches: loamy sand
2Cg - 60 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Othello, drained

Percent of map unit: 5 percent
Landform: Depressions, swales
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Crosiadore

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Matapeake

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

NsB—Nassawango silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: spwd
Elevation: 10 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Nassawango and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassawango

Setting

Landform: Terraces, flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
E - 10 to 16 inches: silt loam
Bt - 16 to 44 inches: silt loam
2C - 44 to 60 inches: loamy sand
2Cg - 60 to 80 inches: fine sandy loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Mattapex

Percent of map unit: 5 percent
Landform: Flats, swales, depressions
Landform position (three-dimensional): Dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Matapeake

Percent of map unit: 5 percent
Landform: Knolls, flats
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Crosiadore

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear

Across-slope shape: Concave, linear
Hydric soil rating: No

Othello, drained

Percent of map unit: 5 percent
Landform: Depressions, swales
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

OtA—Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thwn
Elevation: 0 to 100 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 46 to 68 degrees F
Frost-free period: 210 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Othello, drained, and similar soils: 48 percent
Othello, undrained, and similar soils: 28 percent
Minor components: 24 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Othello, Drained

Setting

Landform: Swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Silty eolian deposits over fluviomarine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Btg - 9 to 29 inches: silt loam
2BCg - 29 to 34 inches: sandy loam
2Cg - 34 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: Rare

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Description of Othello, Undrained

Setting

Landform: Drainageways, swales, depressions, flats

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Silty eolian deposits over fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: peat

A - 2 to 4 inches: silt loam

Eg - 4 to 10 inches: silt loam

Btg - 10 to 29 inches: silt loam

2BCg - 29 to 35 inches: sandy loam

2Cg - 35 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Minor Components

Crosiadore

Percent of map unit: 7 percent

Landform: Depressions, fluviomarine terraces, flats

Landform position (two-dimensional): Footslope, summit

Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Mattapex

Percent of map unit: 7 percent
Landform: Broad interstream divides, swales, depressions, flats
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Kentuck, undrained

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Fallsington, undrained

Percent of map unit: 5 percent
Landform: Drainageways, swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Up—Urban land

Map Unit Setting

National map unit symbol: 1vh0w
Elevation: 0 to 300 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear

Minor Components

Udorthents, loamy

Percent of map unit: 10 percent

Landform: Broad interstream divides

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

WdcA—Woodstown sandy loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thvt

Elevation: 0 to 90 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, broad interstream divides, depressions, fluviomarine terraces

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Tread, talf, dip

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: sandy loam

E - 7 to 11 inches: sandy loam

Bt - 11 to 29 inches: sandy loam

BCg - 29 to 45 inches: fine sandy loam

Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

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Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 6 percent

Landform: Broad interstream divides, flats

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Fallsington

Percent of map unit: 6 percent

Landform: Flats, swales, depressions, drainageways

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Talf, dip

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: Yes

Hambrook

Percent of map unit: 4 percent

Landform: Flats, fluviomarine terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Mattapex

Percent of map unit: 4 percent

Landform: Depressions, flats, broad interstream divides, swales

Landform position (two-dimensional): Footslope, summit

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

WdcB—Woodstown sandy loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thvv
Elevation: 0 to 90 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, broad interstream divides, depressions, fluviomarine terraces
Landform position (two-dimensional): Shoulder, footslope
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: sandy loam
E - 7 to 11 inches: sandy loam
Bt - 11 to 29 inches: sandy loam
BCg - 29 to 45 inches: fine sandy loam
Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 6 percent
Landform: Broad interstream divides, flats
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Dip
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Fallsington, occasionally ponded

Percent of map unit: 6 percent
Landform: Flats, swales, depressions, drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Hambrook

Percent of map unit: 4 percent
Landform: Flats, fluviomarine terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Mattapex

Percent of map unit: 4 percent
Landform: Broad interstream divides, swales, depressions, flats
Landform position (two-dimensional): Shoulder, footslope
Landform position (three-dimensional): Dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

WocA—Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thx4
Elevation: 0 to 90 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 210 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, broad interstream divides, depressions, fluviomarine terraces

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Tread, talf, dip

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: loam

E - 7 to 11 inches: sandy loam

Bt - 11 to 29 inches: sandy loam

BCg - 29 to 45 inches: fine sandy loam

Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 6 percent

Landform: Broad interstream divides, flats

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Fallsington

Percent of map unit: 6 percent

Landform: Swales, depressions, flats, drainageways

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Hambrook

Percent of map unit: 4 percent
Landform: Flats, fluviomarine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mattapex

Percent of map unit: 4 percent
Landform: Depressions, flats, broad interstream divides, swales
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Zk—Zekiah silt loam, frequently flooded

Map Unit Setting

National map unit symbol: 1vh0y
Elevation: 0 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Zekiah and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Zekiah

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 3 inches: silt loam
Cg - 3 to 20 inches: silt loam
2Ab - 20 to 27 inches: sandy loam
2Cg1 - 27 to 37 inches: sandy loam
2Cg2 - 37 to 50 inches: loam
2Cg3 - 50 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.38 to 1.98 in/hr)

Depth to water table: About 0 to 10 inches

Frequency of flooding: Frequent

Frequency of ponding: Frequent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Hydric soil rating: Yes

Minor Components

Longmarsh

Percent of map unit: 10 percent

Landform: Flood plains

Hydric soil rating: Yes

Hurlock

Percent of map unit: 5 percent

Landform: Flood plains

Hydric soil rating: Yes

Hammonton

Percent of map unit: 5 percent

Landform: Flats

Landform position (three-dimensional): Rise

Hydric soil rating: No

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