



Easton Staff Development Review MEETING AGENDA

Wednesday, June 28, 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.

This meeting will not be livestreamed or recorded, since these meetings are technical discussions only between staff and the applicant.

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:** 2023-12
Location: Elliott Road
Tax Map 109, Parcel 2849, Lot 4
Applicant: DMS & Associates, LLC
Request: Sketch Site Plan and Stormwater Management review of a proposed climate-controlled self storage facility.

For Office Use Only

Easton Staff Development Review Meeting Required	Y ☒ N ☐	
Easton Staff Development Review Meeting Date	06/28/2023	ESDR: 2023-12
Completeness Check Date		Application No.: 23-959
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

Site Plan, PUD, Planned Healthcare Application**Application Type**Planned Unit Development ☐Amendment ☐Health Care (HC) ☐Site Plan ☒**Subdivision Information**

Name				
Original Property Size	Acres		Square Feet	
Telephone No.		Email		

Site Plan Information

Property Size	Acres	1.775	Square Feet	
Structure's Floor Area	35,000	Structure's Square Feet	35,000	total (3 buildings)
Area of Disturbance	1.80	Number of Dwelling Units	0	

Property Information

Address	Elliott Road						
Tax Map	109	Grid	EA	Parcel	2849	Lot	4
Deed Reference:	Liber	3052	Folio	169			
Plat Reference:	Liber	87	Folio	59			
Base Zoning District	CG	Historic	Y ☐	N ☒	Planned Redevelopment	Y ☐	N ☒
Source of Electricity	Easton Utilities						

Owner

Name	Friel Storage LLC c/o Jay Friel		
Mailing Address	47 Prospect Bay Drive W., Grasonville MD 21638		
Telephone No.	410 827 8811	Email	jay@sewfriel.com

Applicant or Agent

Name	Fink Whitten + Assoc. c/o Elizabeth Fink		
Mailing Address	113 E. Dover St., Unit C, Easton MD 21601		
Telephone No.	410 822 8484	Email	efink@finkwhitten.com

Surveyor / Engineer

Name	DMS + Asso. ^{Brandon Davis}	License No.	37235	Expiration Date	06/2024
Mailing Address	PO Box 80 Centreville MD 21617				
Telephone No.	443 262 9130	Email	bdavis@dmsandassociates.com		

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Development Standards and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Engineer

Date

6/7/2023

Printed Name of Applicant or Agent

Brandon Davis engineer w/ DMS + Assoc

For Office Use Only

Planning Commission Required	Y ☐	N ☐
Planning Commission Meeting Date		
Sketch Approval Date		Project No.
Prelim/Dev. Approval Date		Application No.
Final Approval Date		Sketch Fee Paid
Recordation Date		Develop. Fee Paid

Revised 02-2019

RECEIVED

JUN 07 2023

TOWN OF EASTON

ESDR: 2023-12

Application No.: 23-959

PROJECT INFORMATION PROJECT : 3 NEW SELF STORAGE BUILDINGS SITE : ELLIOTT RD., EASTON, MARYLAND USE GROUP - 'S-1' STORAGE (PARTIALLY HEATED) CONST. TYPE - 2-B NON-COMBUSTIBLE UNSPRINKLERED - 1-STORY, 16' H. 'S-1' - ALLOWABLE AREA = 55' H., 17,500 SF FOR 2-STORY AREA CALCULATION BUILDING #1 = 12,000 SF BUILDING #2 = 11,000 SF BUILDING #3 = 12,000 SF TOTAL BUILDING AREA = 35,000 SF BUILDING IS TO BE SPRINKLERED IN ACCORDANCE WITH NFPA 13 STANDARDS. FULL SET OF SPRINKLER DRAWINGS TO BE SUBMITTED BY FIRE SPRINKLER CONTRACTOR.		FRIEL SELF STORAGE ELLIOTT RD., EASTON, MARYLAND	GENERAL NOTES 1. Contractor shall submit shop drawings for approval by architect & structural engineer. 2. Contractor shall verify conditions & dimensions prior to fabrication or ordering materials & necessary permits are obtained. PLAN NOTES 1. Door handles shall be lever-type, non-locking from inside. 2. Provide exit and emergency lighting min. 1-ft candle at exterior exit. 3. Provide interior illuminated exit signs & battery backup emergency lighting as required. 4. Fire extinguishers located at time of field inspection. FIRE PROTECTION NOTES 1. Means of egress shall be provided with signage in accordance with Section 7.10. Exits shall be marked by approved signage that is readily visible from any direction of exit access. (42.2.8, 7.8.1.2, 42.2.9, 42.2.10, 7.10.1) 2. Illumination of the means of egress shall be provided with continuous lighting during the time that the conditions of occupancies require that means of egress be available. Floors and walking surfaces within the egress path shall be illuminated in accordance with Section 7.8.1.3. Emergency lighting shall be provided in accordance with Section 7.9, and means of egress shall be provided with signage in accordance with Section 7.10. (42.2.8, 7.8.1.2, 42.2.9, 42.2.10) 3. Doors serving as portion of the required means of egress shall be arranged to be opened readily from the egress side whenever the building is occupied. Locks, if provided, shall not require the use of a key, a tool, or special knowledge or effort for operation from the egress side. A latch or a fastening device on a door shall be provided with a releasing device having an obvious method of operation that is readily operated under all lighting conditions. The releasing mechanism for any latch shall be located not less than 34 inches or more than 48 inches above the finished floor, and shall open the door with not more than one releasing operation. (38.2.2.2.1, 7.2.1.5.1, 7.2.1.5.2, 4. Interior finish shall be in accordance with Section 10.2. Interior walls and ceiling finish shall be of Class A, Class B or Class C, and Interior Floor finish shall be Class I or Class II. (42.3.3)
CODE ANALYSIS 1. GENERAL DESCRIPTION THIS SET OF DRAWINGS DEPICTS THE WORK REQUIRED FOR NEW PRE-ENGINEERED STEEL SELF STORAGE BUILDINGS. 2. APPLICABLE CODES FOR TALBOT COUNTY, MARYLAND 2018 INTERNATIONAL BUILDING CODE 2018 INTERNATIONAL RESIDENTIAL CODE 2018 INTERNATIONAL ENERGY CONSERVATION CODE 2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL PLUMBING CODE 2018 INTERNATIONAL FUEL GAS CODE 2020 NATIONAL ELECTRICAL CODE 2018 STATE FIRE PREVENTION CODE NFPA 1 AND NFPA 101 CONSTRUCTION ASSOCIATED WITH THIS APPLICATION SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES GOVERNING THIS PROPERTY. 3. IBC CHAPTER 3-USE AND OCCUPANCY CLASSIFICATION: THIS BUILDING IS CLASSIFIED PER IBC SECTION 311.2, GROUP 'S-1' - UNSPRINKLERED. 5. IBC CHAPTER 5-GENERAL BUILDING HEIGHTS AND AREAS: A) TABLE 506.2 ALLOWABLE BUILDING HEIGHT FOR TYPE II-B CONSTRUCTION: GROUP 'S-1': 2 STORY - 55' FEET HIGH, 17,500 SF ACTUAL BUILDING BUILDING #1 = 12,000 SF BUILDING #2 = 11,000 SF BUILDING #3 = 12,000 SF TOTAL BUILDING AREA = 35,000 SF 6. IBC CHAPTER 6 - TYPES OF CONSTRUCTION: A) BUILDING IS CLASSIFIED AS TYPE II-B TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS: STRUCTURAL FRAME: 0 HR EXTERIOR LOAD BEARING WALLS: 0 HR INTERIOR LOAD BEARING WALLS: 0 HR EXTERIOR NON-LOAD BEARING WALLS: 0 HR INTERIOR NON-LOAD BEARING WALLS: 0 HR FLOOR CONSTRUCTION: 0 HR ROOF CONSTRUCTION: 0 HR B) TABLE 602 FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE: 0 HRS-ENTIRE PERIMETER @ SEPARATION GREATER THAN 30' C) SECTION 603 FIRE RETARDANT TREATED WOOD SHALL BE PERMITTED IN BLOCKING FOR HANDRAILS, CABINETS, WINDOW & DOOR FRAMES PER 603.1. 7. IBC CHAPTER 7 - FIRE AND SMOKE PROTECTION FEATURES A) 706.4 FIREWALL RESISTANCE RATING FIRE WALLS REQUIRED - NONE B) SECTION 707 FIRE BARRIERS SHAFTS 1 HR PER 713.4 INTERIOR EXIT STAIRWAY & RAMP 1 HR PER 1023.2 EXIT ACCESS STAIRWAY 1 HR PER 713.4 EXIT PASSAGEWAY 1 HR PER 1024.3 8. IBC CHAPTER 8 - INTERIOR FINISHES: A) TABLE 803.11 INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY: USE GROUP 'S-1' - UNSPRINKLERED INTERIOR EXIT STAIRWAYS, INTERIOR EXIT RAMPS AND EXIT PASSAGEWAYS: CORRIDORS AND ENCLOSURE FOR EXIT ACCESS STAIRWAYS AND EXIT ACCESS RAMPS: ROOMS AND ENCLOSED SPACES: 'S-1' CLASS B CLASS B CLASS C 9. IBC CHAPTER 9 - FIRE PROTECTION SYSTEMS: -AN AUTOMATIC SPRINKLER SYSTEM SHALL BE PROVIDED THROUGHOUT ALL BUILDINGS CONTAINING A GROUP S-1 OCCUPANCY WHERE ONE OF THE FOLLOWING CONDITIONS EXIST: 1. A GROUP S-1 FIRE AREA EXCEEDS 12,000 SQUARE FEET. 10. IBC CHAPTER 10 - MEANS OF EGRESS: A) MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT SELF STORAGE 1 OCCUPANT PER UNIT TOTAL DESIGN OCCUPANT LOAD = 90 OCCUPANTS B) EGRESS WIDTH REQUIRED PER 1006.3.2 '2" PER OCCUPANT X 90 OCCUPANTS = 18" EGRESS WIDTH REQUIRED = 3' MIN. EGRESS WIDTH PROVIDED = 18' C) NUMBER OF EXITS PER 1006 MINIMUM # OF EXITS REQUIRED 2 NUMBER OF EXITS PROVIDED 6 D) MAXIMUM TRAVEL DISTANCE TO AN EXIT PER 1017 UNSPRINKLERED 'S-1' 200' E) CORRIDOR FIRE RESISTANCE RATING PER 1020.1 UNSPRINKLERED 'S-1' 0 HR (CORRIDORS SERVE 30 OR LESS OCCUPANTS) F) MINIMUM CORRIDOR WIDTH PER 1020.2 'S-1' 44" G) DEAD ENDS 1020.4 UNSPRINKLERED 'S-1' 20' 11. IBC CHAPTER 29 - PLUMBING SYSTEMS RESTROOM IN EXISTING ADJACENT BUILDING < 200' AWAY		KEY PLAN Key Plan 1" = 30'-0"	SYMBOL KEY 101 DOOR # A WINDOW # 1 REVISION TAG 1 ROOM NAME 150 SF ROOM TAG WITH AREA 1 INTERIOR ELEVATION 1 EXTERIOR ELEVATION 1 SECTION 1 DETAIL 1 NORTH 1 POINT OF ELEVATION EL: HEIGHT SPOT ELEVATION 0 COLUMN GRID 1 View Name 1/8" = 1'-0" VIEW TITLE
SELF-STORAGE ADA REQUIREMENTS PROVIDE 4 ACCESSIBLE INDIVIDUAL SELF-STORAGE SPACE PER 2018 IBC TABLE 1108.3, DISPERSED THROUGHOUT EACH BUILDING 1. A PULL MUST BE INSTALLED ON THE DOOR EXTERIOR NO LOWER THAN 15" AND NO HIGHER THAN 48" 2. A PULL MUST HAVE A LOOP LARGE ENOUGH FOR A FIST TO FIT INTO 3. A NYLON ROPE MUST BE INSTALLED ON THE BOTTOM BAR WHICH HANGS 15" - 48" INCHES WHEN DOOR IS OPEN 4. ROPE MUST ALSO CONTAIN A LOOP LARGE ENOUGH TO FIT A FIST AND REPLACES THE TRADITIONAL ROPE 5. AN ACCESSIBILITY PLAQUE WITH BRAILLE MUST BE CLEARLY DISPLAYED OUTSIDE OF UNIT 6. DOOR MUST BE TENSIONED AT 5LBS. MAXIMUM FORCE AS IT PERTAINS TO THE CONTINUOUS APPLICATION OF FORCE NECESSARY TO FULLY OPEN A DOOR, NOT THE INITIAL FORCE NEEDED TO OVERCOME THE INERTIA OF THE DOOR. NOTE: JANUS DOORS MEET THIS REQUIREMENT.		ENERGY CODE Climate Zone: 4A A=Moist Building Envelope Requirements: Roof, Metal Building R-36 + R-5 Therm. Block Roof, Insul. On Deck R-30 Continuous Walls, Metal Studs R-13 + R-7.5 Contin. Wall, CMU R-9.5 Contin. Frost Wall R-10 Doors U=0.70 Metal Door Frames U=0.85 Windows SHGC=0.40 Fixed Fenestration U=0.38 Operable Fenestration U=0.45 Entrance Doors U=0.77 Skylights U=0.5	SECTION C402 (IECC 2018) BUILDING ENVELOPE REQUIREMENTS C402.1 GENERAL (PRESCRIPTIVE) BUILDING THERMAL ENVELOPE ASSEMBLIES FOR BUILDINGS THAT ARE INTENDED TO COMPLY WITH THE CODE ON A PRESCRIPTIVE BASIS, IN ACCORDANCE WITH THE COMPLIANCE PATH DESCRIBED IN ITEM 2 OF SECTION C401.2, SHALL COMPLY WITH THE FOLLOWING: 1. THE OPAQUE PORTIONS OF THE BUILDING THERMAL ENVELOPE SHALL COMPLY WITH THE SPECIFIC INSULATION REQUIREMENTS OF SECTION C402.2 AND THE THERMAL REQUIREMENTS OF EITHER THE R-VALUE-BASED METHOD OF SECTION C402.1.3, THE U-, C- AND F-FACTOR-BASED METHOD OF SECTION C402.1.3; OR THE COMPONENT PERFORMANCE ALTERNATIVE OF SECTION C402.1.5. 2. ROOF SOLAR REFLECTANCE AND THERMAL EMITTANCE SHALL COMPLY WITH SECTION C402.3. 3. FENESTRATION IN BUILDING ENVELOPE ASSEMBLIES SHALL COMPLY WITH SECTION C402.4. 4. AIR LEAKAGE OF BUILDING ENVELOPE ASSEMBLIES SHALL COMPLY WITH SECTION C402.5. ALTERNATIVELY, WHERE BUILDINGS HAVE A VERTICAL FENESTRATION AREA OR SKYLIGHT AREA EXCEEDING THAT ALLOWED IN SECTION C402.4, THE BUILDING AND BUILDING THERMAL ENVELOPE SHALL COMPLY WITH SECTION C401.2, ITEM 1 OR SECTION C401.2, ITEM 3. WALK-IN COOLERS, WALK-IN FREEZERS, REFRIGERATED WAREHOUSE COOLERS AND REFRIGERATED WAREHOUSE FREEZER SHALL COMPLY WITH SECTION C403.2.15 OR C403.2.16. C402.4 FENESTRATION (PRESCRIPTIVE) FENESTRATION SHALL COMPLY WITH SECTIONS C402.4 THROUGH C402.4.4 AND TABLE C402.4. DAYLIGHT RESPONSIVE CONTROLS SHALL COMPLY WITH THIS SECTION C405.2.3.1. C402.4.1 MAXIMUM AREA. THE VERTICAL FENESTRATION AREA (NOT INCLUDING OPAQUE SPANDREL PANELS) SHALL NOT BE GREATER THAN 30% OF THE GROSS ABOVE-GRADE WALL AREA. THE SKYLIGHT AREA SHALL NOT BE GREATER THAN 3 PERCENT OF THE GROSS ROOF AREA.

Paul J. Gorman Architects

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Baltimore, MD 21227
Email: gormanarchitects@erols.com

Consulting Architect: Paul Gorman

Architectural Statement: I certify that these documents were reviewed by and approved by me and I am a duly licensed architect under the laws of the state of Maryland

License Number 7622

Expiration Date 5.11.25

FRIEL
SELF STORAGE

ELLIOTT RD., EASTON, MARYLAND

PROJECT NAME

SHEET ISSUE DATE:
06/07/23

No.	Description	Date

SHEET TITLE:

Cover Sheet

SHEET:

A-1

Scale

As indicated



① CONCEPTUAL VIEW FROM ELLIOTT ROAD

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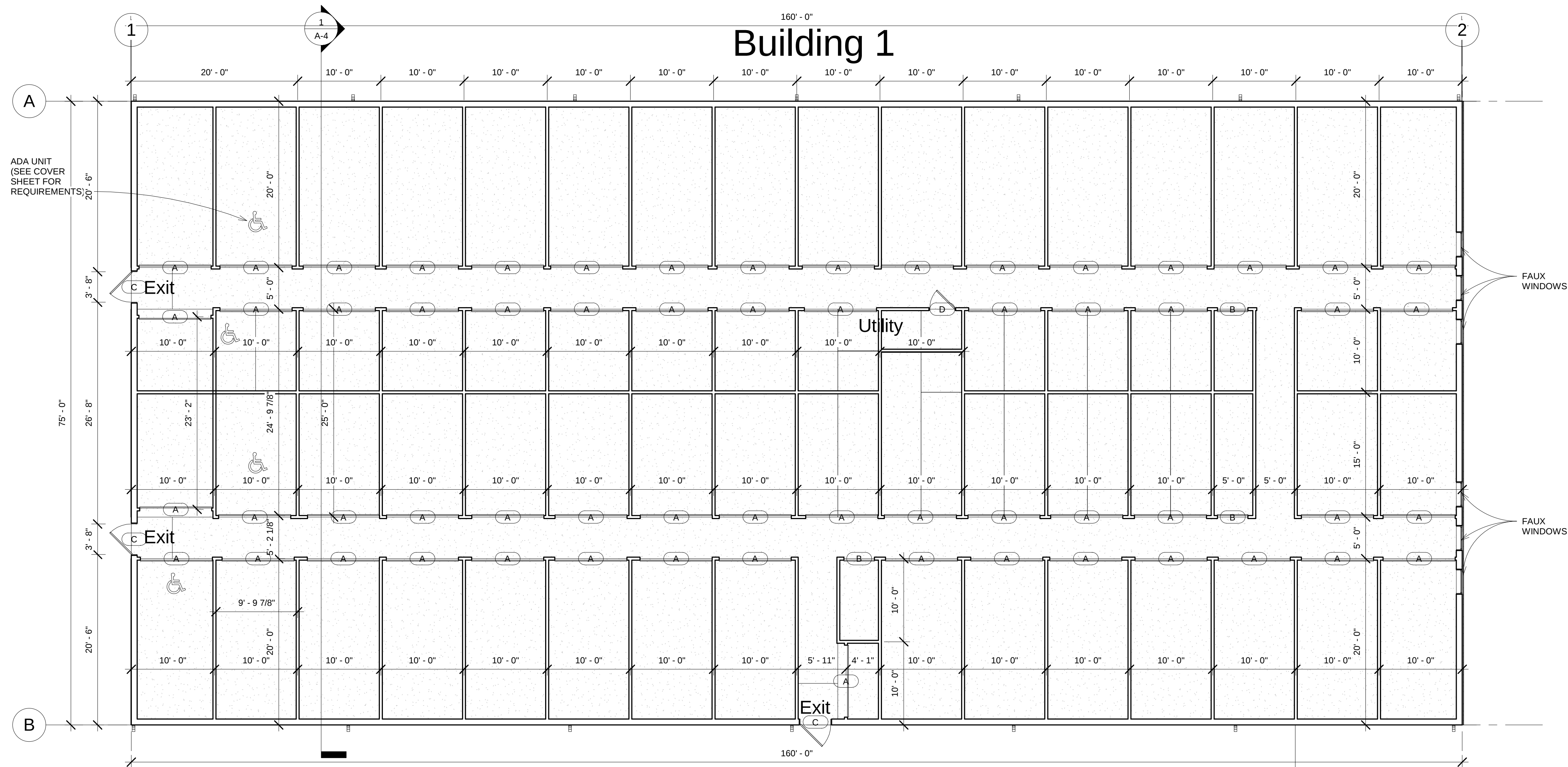
SHEET ISSUE DATE:
06/07/23

No.	Description	Date

SHEET TITLE:
Conceptual 3D View

SHEET:
A-1.1

Scale



1 Floor Plan - Building 1
1/8" = 1'-0"

Consulting Architect: Paul Gorman
Architectural Statement: I certify that these documents were reviewed by and approved by me and I am a duly licensed architect under the laws of the state of Maryland

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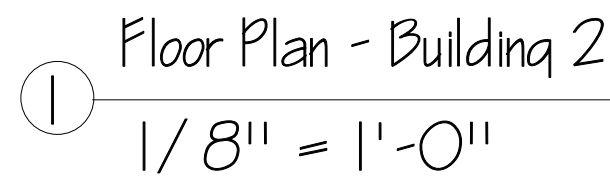
SHEET ISSUE DATE:
06/07/23

No.	Description	Date

SHEET TITLE:
**Floor Plan
Building #1**

SHEET:
A-2

Scale
1/8" = 1'-0"



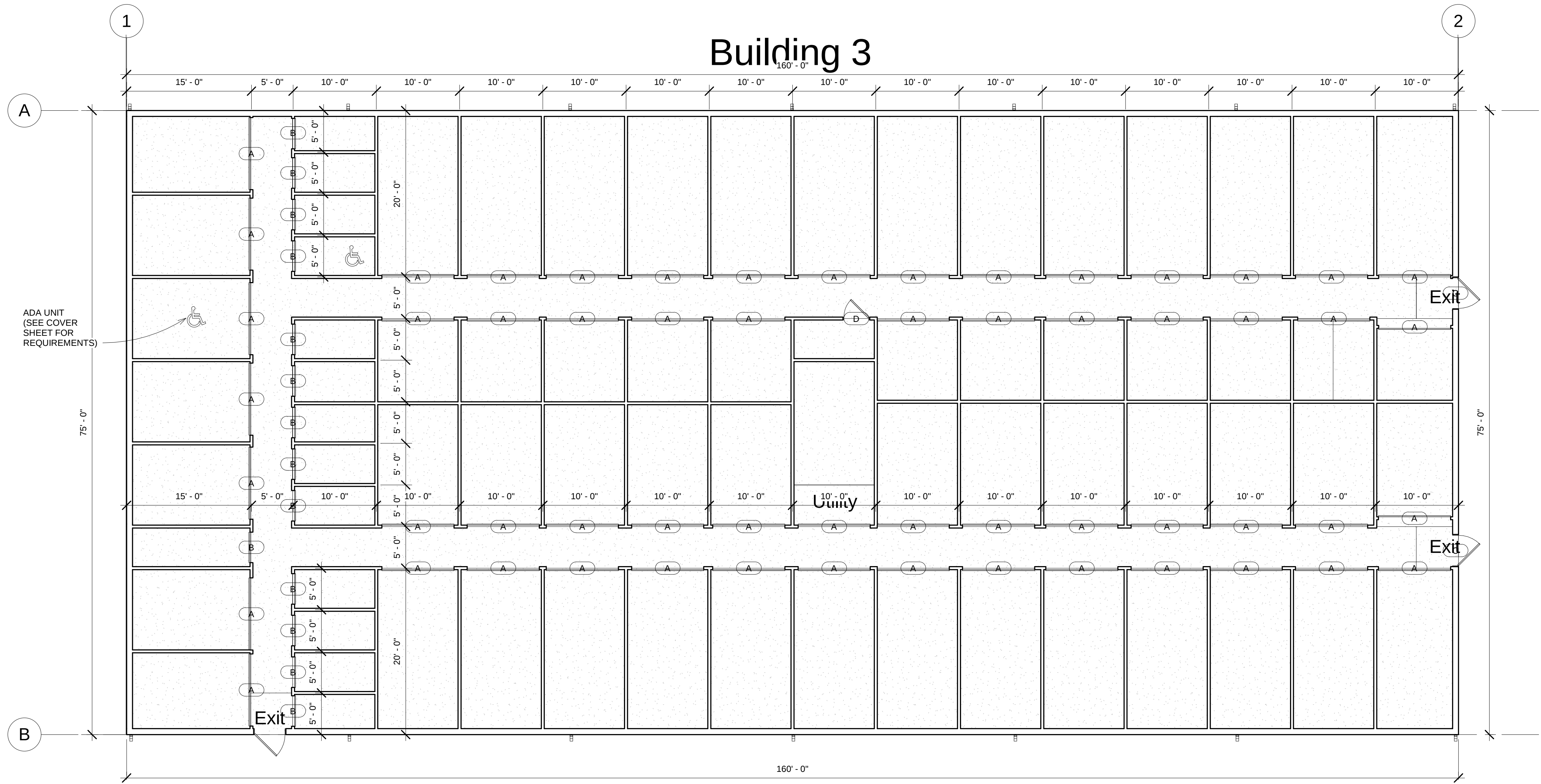
No.	Description	Date

SHEET TITLE:

Floor Plan
Building #2

SHEET:
A-2.1

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



① Floor Plan - Building 3
1/8" = 1'-0"

Consulting Architect: Paul Gorman
Architectural Statement: I certify that these documents were reviewed by and approved by me and I am a duly licensed architect under the laws of the state of Maryland

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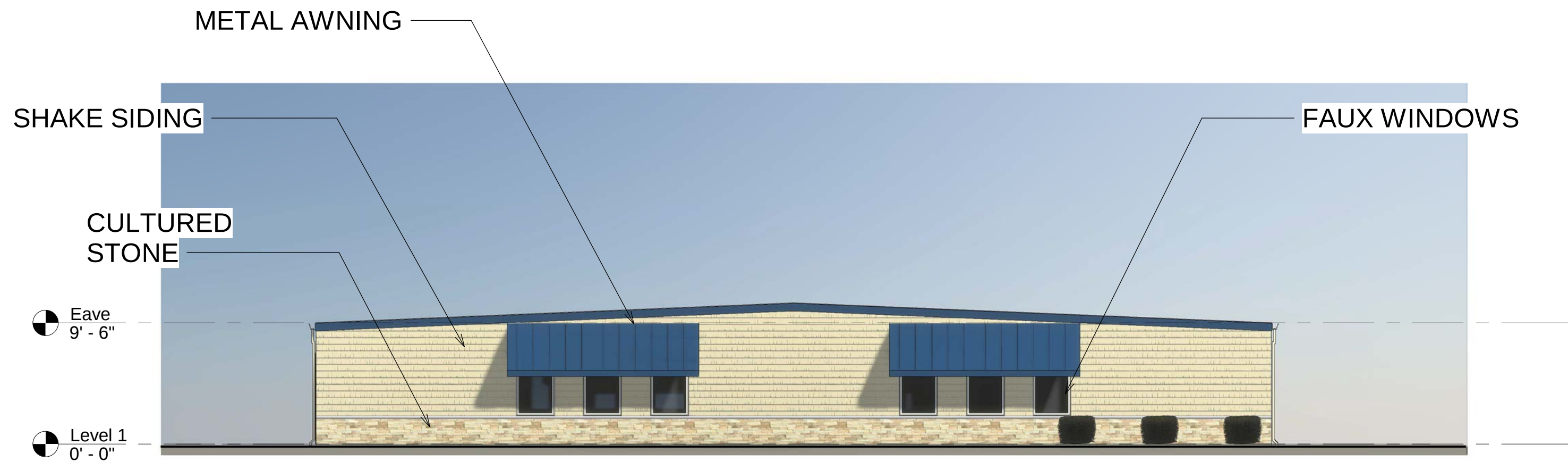
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06/07/23

No.	Description	Date

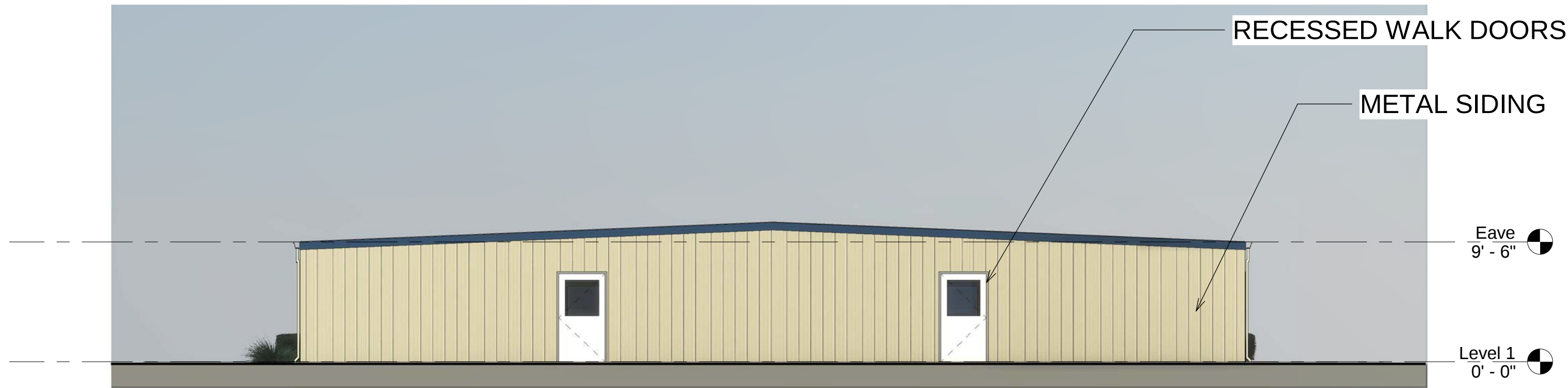
SHEET TITLE:
**Floor Plan
Building #3**

SHEET:
A-2.2

Scale
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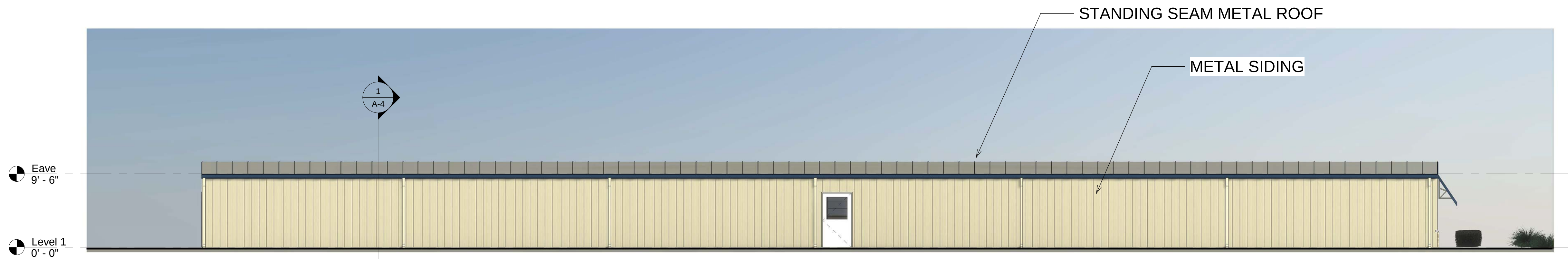
① East - Building 1
1/8" = 1'-0"



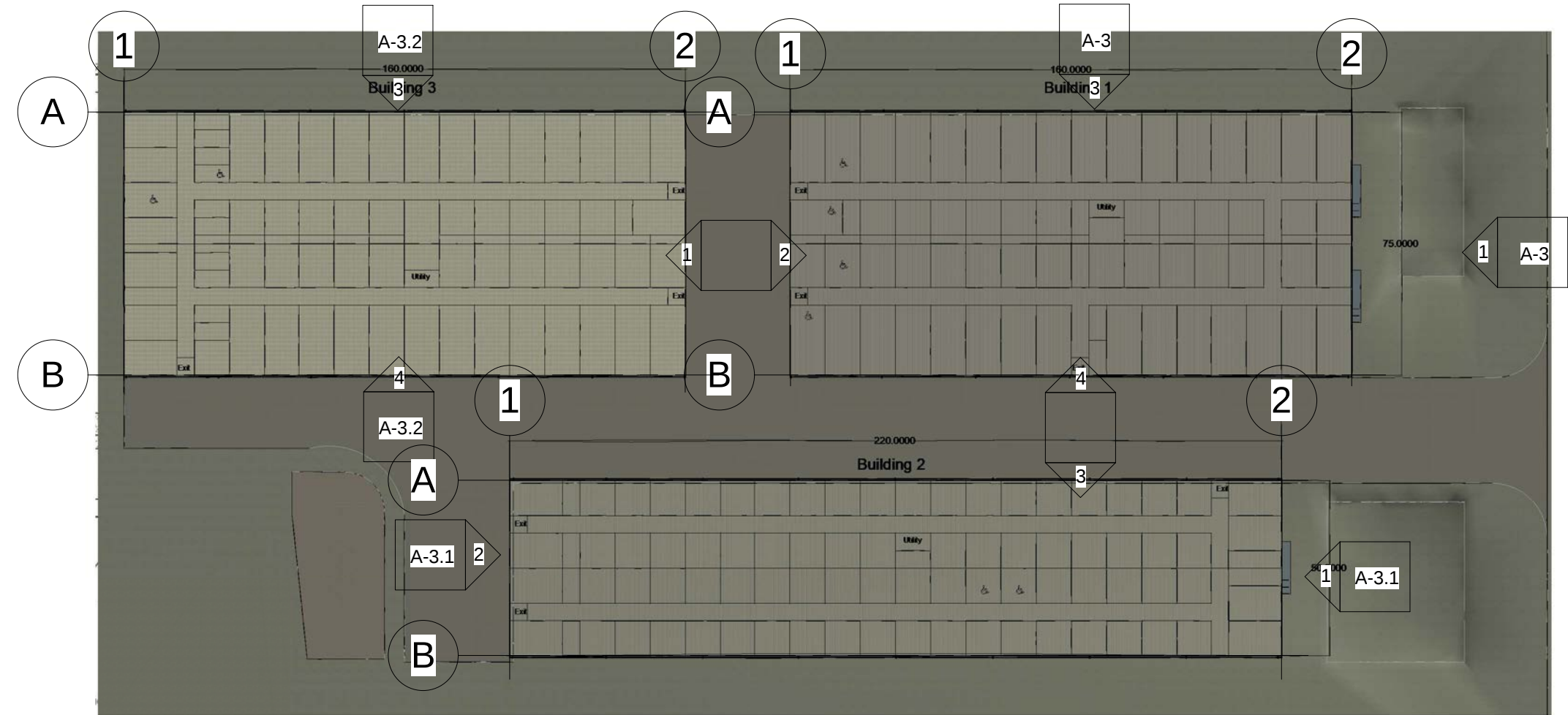
② West - Building 1
1/8" = 1'-0"



③ North - Building 1
1/8" = 1'-0"



④ South - Building 1
1/8" = 1'-0"



⑤ KEY PLAN
1" = 40'-0"

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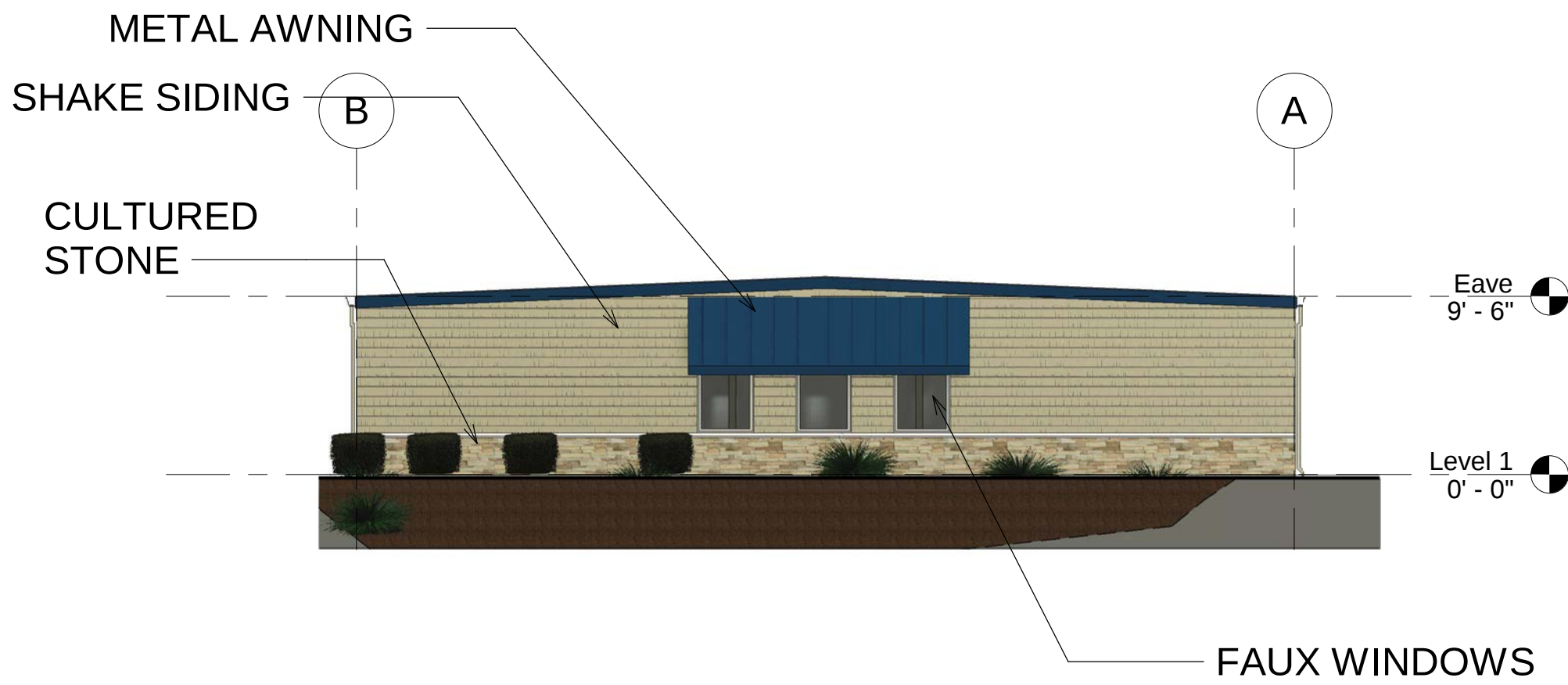
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06/07/23

No.	Description	Date

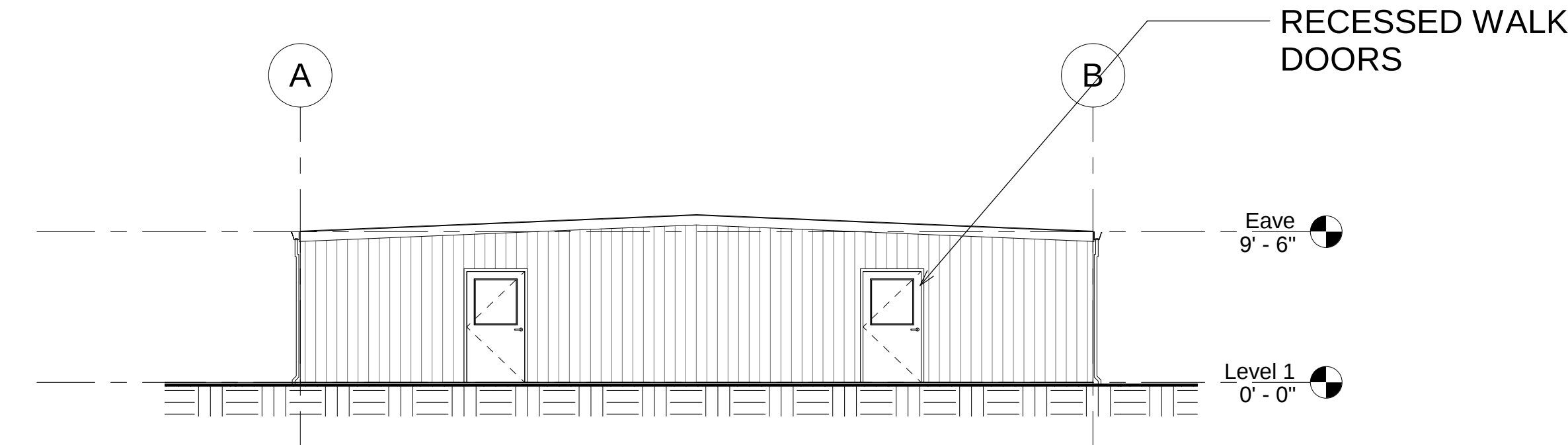
SHEET TITLE:
**Exterior
Elevations
Building #1**

SHEET:
A-3

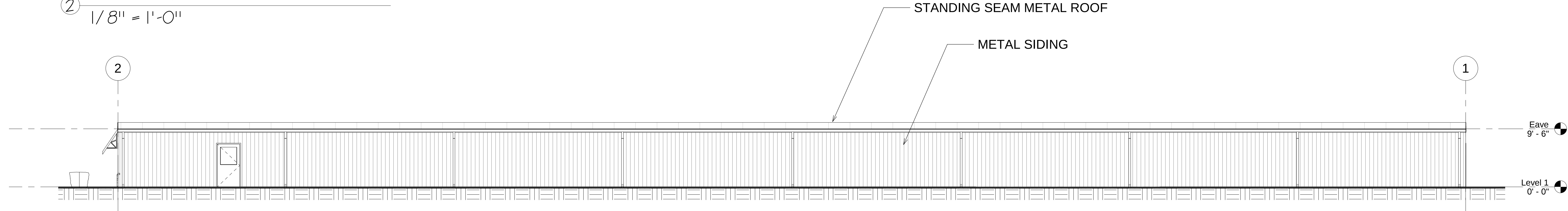
Scale:
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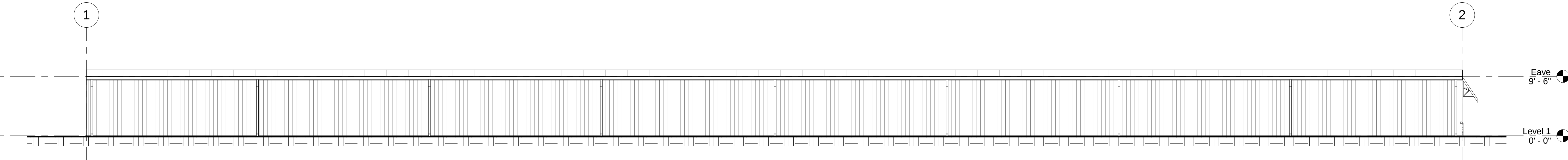
① East - Building 2
1/8" = 1'-0"



② West - Building 2
1/8" = 1'-0"



③ North - Building 2
1/8" = 1'-0"



④ South - Building 2
1/8" = 1'-0"

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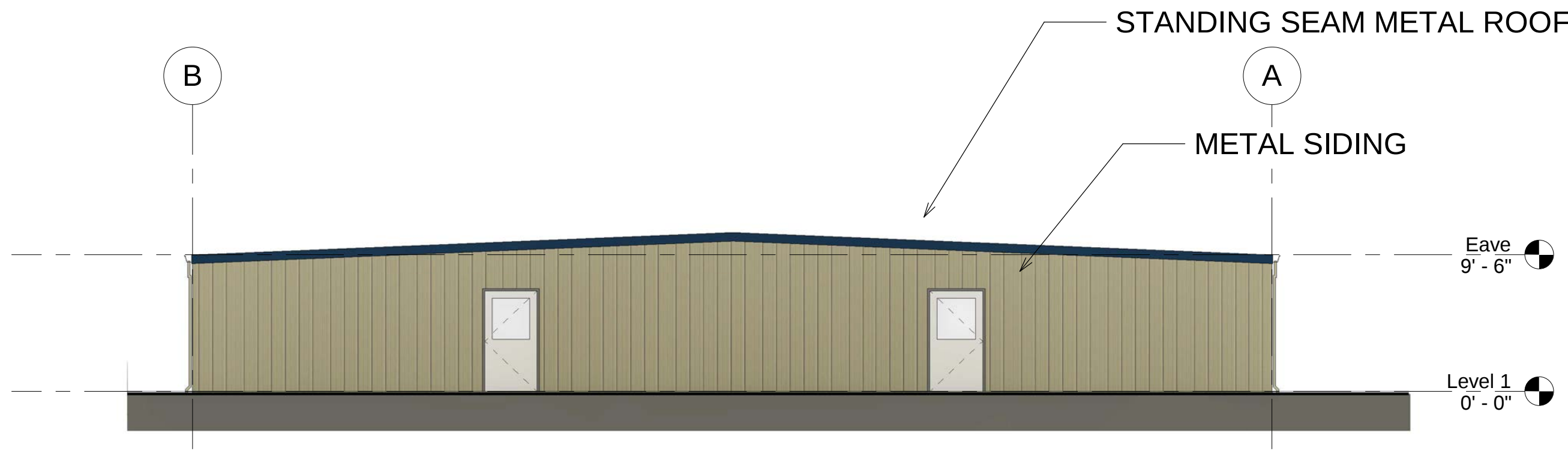
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06/07/23

No.	Description	Date

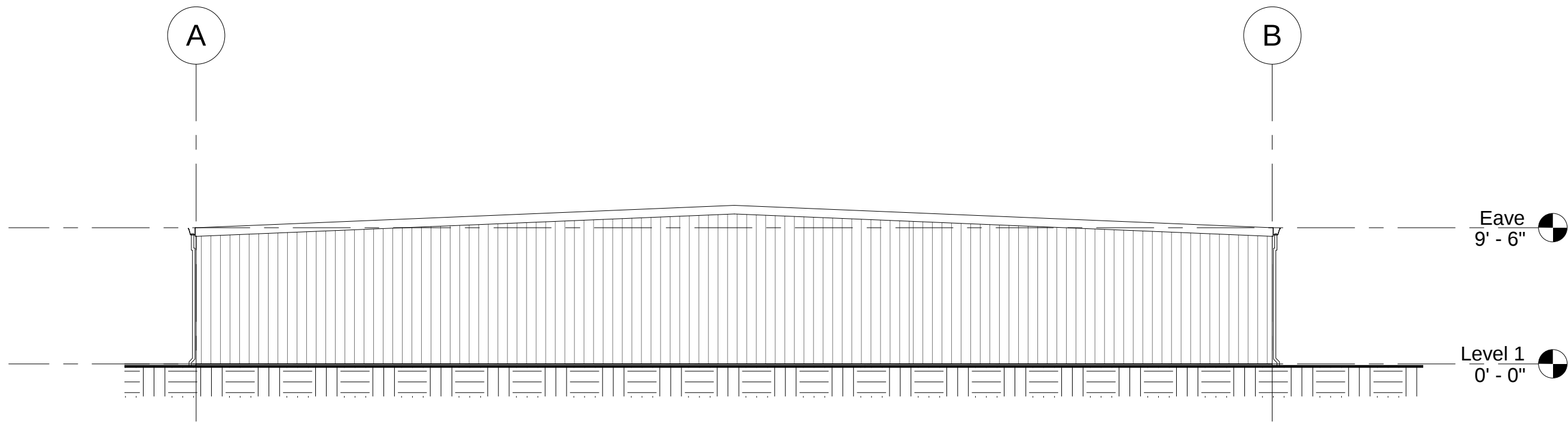
SHEET TITLE:
**Exterior
Elevations
Building #2**

SHEET:
A-3.1

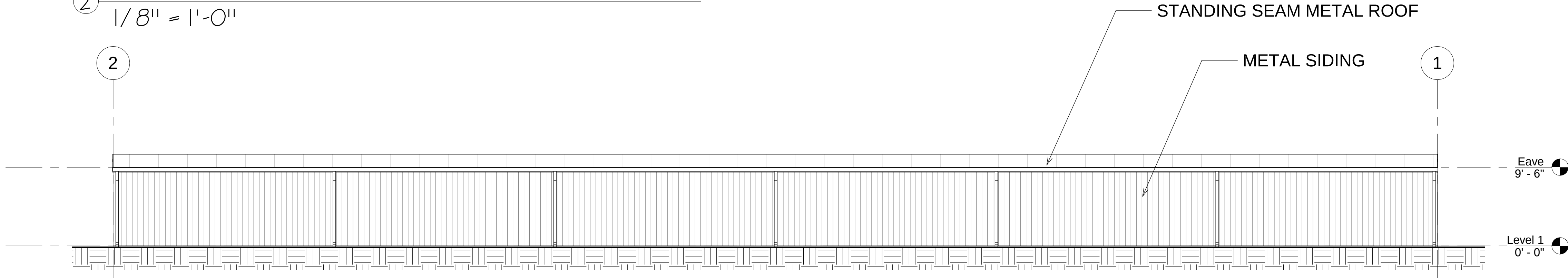
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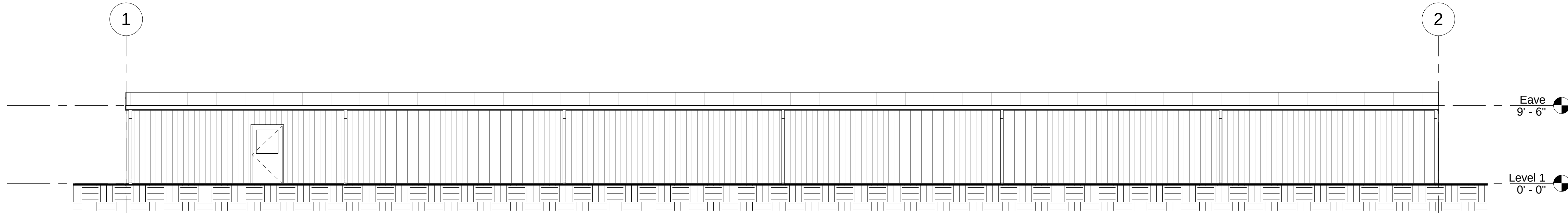
① East - Building 3
1/8" = 1'-0"



② West - Building 3
1/8" = 1'-0"



③ North - Building 3
1/8" = 1'-0"



④ South - Building 3
1/8" = 1'-0"

No.	Description	Date

06/2023 Comment Response
From DMS + Assoc.
+
Fink Whitten
on behalf of
Friel Storage, LLC.



**TOWN OF EASTON
PLANNING & ZONING DEPARTMENT**

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

DATE: June 21, 2022
TO: Elizabeth Fink – Fink, Whitten & Associates, LLC, Dennis Duley – Owner/Developer
cc: Rick Van Emburgh- Engineering Department
FROM: Joseph A. Mayer

SUBJECT: Elliott Road, Lot 4 – Climate Controlled Self Storage

We reviewed the **June 2, 2022** Sketch Site Plan Submittal for the Subject Project and have the following comments:

PLANNING & ZONING COMMENTS

Site Plan

1. Provide ADA path to Accessible Parking Stall. *ADA Parking space has been relocated inside fenced area to a flatter and central location w/ unobstructed paths and access to all 3 buildings.*
2. Prior to Final Site Plan approval, obtain approval from the Talbot County Soil Conservation District and add approved drawings to site plan. *Noted*
3. Will there be any proposed exterior lighting? *We are working w/ new owner and architect to plan & design site security lighting*
4. There's an existing 5' wide right-of-way easement within the proposed SWM Quality Control Area. Please coordinate with the Town's Engineering Department to relocate SWM feature. *We have coordinated w/ Verizon, the current owner of that easement, to relocate it to the rear of site*
5. Label the Bufferyard on the Landscape Plan and provide calculations. Remove the Bufferyard Easement line out of the proposed road and Micro-Bioretenention Area #2. The Micro-Bioretenention Area #2 will need to be adjusted to maintain the 15' wide Bufferyard. *28-1014.7.D.2 allows for SWM to be in the landsc. buffer. 15' Landscape Buffer is labeled on L-1.*
6. Verify and label on the Site Sketch Plan that all proposed landscape material will be native plant species. Please see the "Talbot County Buffer Management Plan Guideline & Plant List" for reference. In addition, please supplement with "U.S. Fish & Wildlife Service, Native Plants for Wildlife Habitat and Conservation Landscaping – Chesapeake Bay Watershed." *The legend on L-1 has native with all plantings.*
7. Off-street loading and unloading areas shall be screened from view by permanent, *loading areas screened by buildings or landscaping along bldg "B".*

Sketch SITE PLAN REVIEW – Elliott Road, Lot 4 – Climate Controlled Self Storage

decorative screens or natural plantings, a minimum of eight (8) feet in height.

8. Prior to submitting Final Site Plan, provide proposed ground elevations on all corners of the proposed buildings and proposed contours. *noted*
9. Revise Signature Block for Easton Utilities to "Easton Utilities – Engineer" on all construction drawings. *Blocks updated*

Forest Conservation

- Landscape plantings meeting size and specification requirements may be credited against afforestation requirements. However, verify from Easton Utilities for the use of Forest Conservation within the utility easements.
- Please revise signature block for Forest Conservation endorsements by:

This FCP Plan has been reviewed and approved:

Forest Conservation Agent, Town of Easton

Date

*add as
on FCP*

Legal Agreements

1. There will be a required Declaration of Covenants that addresses maintenance and inspections for Storm Water Management. In addition, a Bond/Letter of Credit is required.
2. There will be a required Public Works Agreement. In addition, a Bond/Letter of Credit is required.
3. A Storm Water Management Easement is required. Please provide SWM Exhibit upon instruction of Town Attorney.
4. Prior to Final Site Plan approval, please provide a Construction Cost Estimate for the SWM facility.
5. A Forest Conservation Easement is required. Please provide Exhibit upon instruction of Town Attorney.
6. Please confirm or provide items listed below for preparing legal documents.
 - **Owner name**
Please advise.

*all
noted
as
needed*

Sketch SITE PLAN REVIEW – Elliott Road, Lot 4 – Climate Controlled Self Storage

- **Address for property**
Elliott Road, Easton, MD 21601 (Obtain Street Address prior to recording of Deeds.)

will do

- **Legal agreements required (To be prepared by the Town Attorney)**
Declaration of Covenants, Conditions and restrictions for Stormwater Improvements Agreement.
Deed of Easement for Stormwater Management.
Deed of Easement for Forest Conservation Easement.
Public Works Agreement.

noted as required before final

- **Approved Cost Estimate**
To be submitted by applicant.

will submit after P.C.

- **The Title of the Improvement Plans and who they were prepared by.**
Please advise on title.
Prepared by: Fink, Whitten & Associates, LLC

will coordinate w/ your office for preparation.

- **The Authorized Person who will be signing the documents and their title.**
Please advise.

7. Per the latest requirement of the Clerk's Office-Circuit Court of Talbot County, add the title Exhibit 'A' above the top boarder to all exhibit sheets.

ENGINEERING DEPARTMENT COMMENTS

COMMENTS ATTACHED.

TALBOT COUNTY HEALTH DEPARTMENT

NO COMMENTS.

BUILDING INSPECTION AND PERMIT DEPARTMENT COMMENTS

COMMENTS ATTACHED.

EASTON UTILITIES COMMENTS

COMMENTS ATTACHED.

Sketch SITE PLAN REVIEW – Elliott Road, Lot 4 – Climate Controlled Self Storage

Plan Review Status

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

GRADING PERMIT STATUS			
Application and Final Approved Site Plan Submitted to Town Engineer	☐ Y	☒ N	
Easements			
Storm Water			
☒ Required ☐ Submitted ☐ Approved			Required.
Utility			
☐ Required ☐ Submitted ☐ Approved			Not required.
Shared Access/Use			
☐ Required ☐ Submitted ☐ Approved			Not required.
Sidewalk			
☐ Required ☐ Submitted ☐ Approved			Not required.
Declaration of Covenants			
☒ Required ☐ Submitted ☐ Approved			Not required.
Public Works Agreement			
☐ Required ☐ Submitted ☐ Approved			Not required.
Bond/Letter of Credit/ Cash Agreement			
☒ Required ☐ Submitted ☐ Approved			SWM – Required. ROW – Required.
Talbot Soil Conservation District Approval			
☒ Approval Required			Not required for preliminary review.
Forest Stand Delineation & Forest Conservation Plan			
☒ Required ☐ Submitted ☐ Approved			See review letter.
Other			
☐ Required ☐ Submitted ☐ Approved			

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

Diagram illustrating the components and dimensions of a trench:

- EXPOSURE DRAINAGE SYSTEM LINE**
- EXPOSURE SINKER MANHOLE**
- EXPOSURE WATER LINE**
- EXPOSURE FIRE HYDRANT**
- EXPOSURE GAS LINE**
- PERIMETER SILT FENCE**
- "CUSH" INLET PROTECTION**
- "AT GRADE" INLET PROTECTION**
- LIMITS OF DISTURBANCE**
- STABILIZED CONSTRUCTION ENTRANCE**

Dimensions shown:

- 6'**
- 4'**
- 3'**
- 2'**
- 1.0 ft.**

Labels for trench types:

- (SW)**
- (AW)**

[illegible]

DEVELOPER:
DAILY
BOX DRIVE
14425 WILSON
1-442-786-2596

ENGINEER:
DWS & ASSOCIATES, LLC
5/5 BRIDGEMAN DRIVE, P.E.
GREENVILLE, MARYLAND 21871
PHONE NO. 1-442-252-9130

SUBMITTER:
PINK, WRITTEN
C/O ELIZABETH
2000 WILSON DRIVE
EASTON, MARYLAND
PHONE NO. 1-

**DAVIS, MOORE, S
& ASSOCIATES,**
ENGINEERING, DRAWING/DESIGN
ENVIRONMENTAL & SURVEY
P.O. BOX 80
CONNEAUT, OHIO 44824
PHONE NO. 1-440-262-7317
FAX: 1-440-262-9488

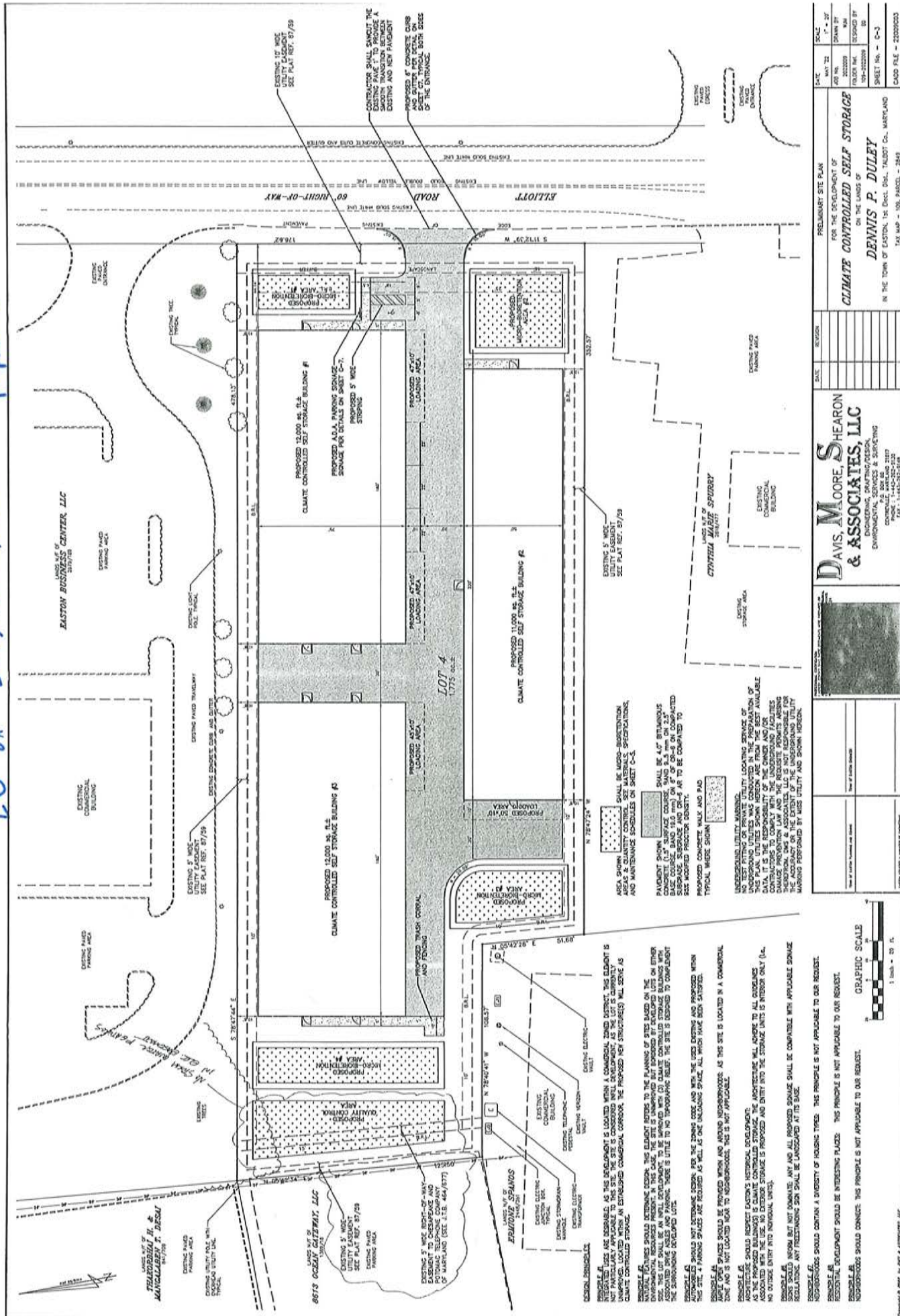
PHOTO COURTESY OF THE U.S. ARMY CORP OF ENGINEERS

[illegible]

F		DATE	SOURCE
SELF STORAGE		MAY '72	AS SHOWN
		JOB NO.	DRAWING BY
		2019268	NAL
		OWNER'S NAME	DESIGNED BY
		IMP-2020268	NS
LEY		SHEET No. -	C-1
LEGAT CO., WARTLAND		CADD FILE - 22006201	
849			

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will coordinate w/
F.U on Elec, Comm's, & Gas





EASTON UTILITIES

Life. Made better.™

Easton Utilities Commission Plan Review Comments

Project Name: Climate Controlled Self Storage
Project Address: Elliott Road Lot 4
Type of Permit: Sketch Plans

Date Received: June 6, 2022
Due Date: June 20, 2022
Date Returned: June 14, 2022

Recipients: Shelby Ruf Joe Mayer Beverly Williamson
 Ryan Heckler Robert Haase
CC: Aaron Goller

Easton Utilities has reviewed the drawings submitted for the above referenced project. Please review our comments below.

No.	DWG/PAGE	PROJECT REVIEW COMMENTS	DEPT.
1	General	Contact Will Cottingham for addressing <i>we will coordinate w/ will</i>	Eng.
2	C-3	There are to be no stormwater features in electrical easement. <i>SWM Revised. The Verizon easement is to be relocated</i>	Elect.
3	C-1	Capital charges due. Please provide information on structure to assess capital charge amount. <i>noted</i>	Eng.
4	General	No utilities shown on plans. Please show all utilities. <i>- no sewer and water are proposed - we will coordinate w/ E.U. on elec, gas, and comm's</i>	Eng.

SWM is outside E.U. easements.



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



ESDR- Building Inspection and Permit Department Comments

Date: June 21, 2022

Project; Parcel 2849 - Lot 4 Elliott Road

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

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

- Contact this Department and verify current Building Codes including the Town of Easton's modifications prior to preparation of Building plans.
- Construction Documents (3 sets) for any new construction will be required. Documents must be prepared by a registered Maryland Registered Architect, with original plans signed and sealed. A code analysis completed by a Registered Maryland Architect including, classification (use group), construction type, and occupant loads must be completed and included with the application materials. (See Maryland Architectural Act- Comar sect. 3-101, 102, 103)
- The Town of Easton, in accordance with the International Building Code Chapter 17, establishes a building inspections procedure that utilizes qualified, third-party professionals in addition to the Town's Building Inspectors. The purpose of this document is to establish the policy and guidelines for the construction process in accordance with the Building Code requirements and to:
 - Define the responsibility of all parties.
 - Standardize code application.
 - Provide for an orderly and systematic approach for updating standards that apply to the Special Inspections.
 - Set forth a guideline for Special Inspections.

A copy of this can be found on the Town's Web Site

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

All noted and will be addressed w/ Building permit.

- All mechanical, electrical, and plumbing permits as required must include construction documents signed and sealed by a professional engineer and by a responsible party for the contractor receiving the permit. Be sure the Town of Easton modifications are included. Section 6-16 of the Town Code.
 - Pursuant to Town of Easton Ordinance 477, Chapter 9 Fire Protection, Article VII Security Key Lock Boxes, a lockbox shall be provided on the exterior of the building and shall be located as required by the chief of the Easton Volunteer Fire Department, Inc. (410-822-4848).
 - An appointment may be set up with this department to review your permit application materials prior to permit application submission.
- **State Fire Marshal**, (410-822-7609) plan review and inspections are required. It is your responsibility to contact them and make application.

we will submit to F.M.



TOWN OF
EASTON
ENGINEERING DEPARTMENT

DATE: June 21, 2022
TO: Joe Mayer
FROM: Rick Van Emburgh, P.E. – Town Engineer
SUBJECT: Duley - Climate Controlled Self Storage
Sketch Plan Review
Sketch Stormwater Management Review

I reviewed the Application for the Subject project received on 6/1/2022.

Sketch Plan

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

1. Provide concrete curb and gutter along Elliott Road frontage and connect to existing curb and gutter on adjacent properties to both the north and south. *curb + gutter has been added*
2. Provide concrete sidewalk along Elliott Road frontage. Concrete sidewalk will soon be constructed on the east side of Elliott Road from Dover Road to Matthewstown Road as a first phase of sidewalk improvements to improve safety for pedestrians. *sidewalk added*
3. Provide a stormdrain inlet on the south end of the proposed curb. *added*
4. We recommend using the TOE-R-4.02 entrance detail. *Filet/Rounded entrance discussed w/ Eng. as OK*
5. **SHEET C-6** - Confirm Chesapeake & Potomac Telephone Company will allow the proposed Stormwater Management Structure in the existing Easement. *owned by verizon now + will be relocated.*

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

Stormwater Management

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

1. Provide a Quality Management summary table (similar to TOE-SWM-7.01) indicating ESD Volume Required and Provided for each Drainage Area as well as the entire site. Provide this type of table on both the Plans and in the Stormwater Management Report. *added on C-5*
2. Provide a Quantity Management summary table (similar to TOE-SWM-7.02) indicating flows for each Drainage Area as well as the entire site. Provide this type of table on both the Plans and in the Stormwater Management Report. It appears there is an increase in flow from the existing to proposed condition in both drainage areas for both the 2-year and 10-year events. *added on C-5*

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

3. **SHEET C-3** - It appears the "PROPOSED **QUALITY** CONTROL AREA" label should be labeled "PROPOSED **QUANTITY** CONTROL AREA". *label corrected*
4. **SHEET C-4** - Provide a doghouse structure at the tie in to the existing stormdrain on the west edge of the property. *SD configuration revised*
5. **SHEET C-5 - INSPECTION REQUIREMENTS DURING CONSTRUCTION** - Revise "STORMWATER INSPECTOR" to "ENGINEERING DEPARTMENT" in the first sentence. We have recently changed our policy to have contractors contact the office instead of the inspectors directly for better recordkeeping. *due to available invert depth.*

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

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

we revised note



Davis, Moore, Shearon & Associates, LLC

June 7, 2023

Mr. Joe Mayer
Town of Easton Planning & Zoning Dept.
PO Box 520
Easton, MD 21601

**RE: RESUBMITTAL FOR ELLIOTT ROAD, LOT 4 –
CLIMATE CONTROLLED SELF STORAGE
DMS & ASSOCIATES PROJECT #2023084**

Dear Joe:

Please accept this letter, revised plans, architectural information, SWM report, and comment response markup as a formal resubmittal for the Climate Controlled Self Storage facility proposed on Lot 4 on Elliot Road. With Fink, Whitten Associates, we made an initial submittal for Mr. Dennis Duley in June, 2022. The comments from that submittal were minor in nature as related to going to Planning Commission and were mainly related to quantity control requirements. Since that time we have addressed those comments and have refined the proposed layout based on comments and existing conditions. Mr. Duley sold the property to Friel Storage, LLC. in May, 2023. Friel Storage would like to pick up directly where Mr. Duley left off with the application as the layout, building size, and other planning that went into the 2022 submittal fulfills Friel Storage's typical facility preferences with some minor site revisions.

Those revisions include perimeter security fencing which has caused building access doors to be relocated to inside facades. The perimeter fence will extend off the southeast corner of building "A", cross the entrance with gate, then tie to the northeast corner of building "B". Fencing will then extend off the back of buildings and wrap around the back of the site to enclose the area. The gate will be smart phone or code activated. Doors to buildings will be controlled similarly and there is to be no permanent onsite staff. There continues to be no water or sewer connection proposed or needed. We have kept two parking spaces outside the fenced area in the event a new or potential client needs to pull up to the facility to observe or is awaiting their access protocols after contracting a unit. The ADA space has been moved inside the fenced area and is more centrally located for all the buildings compared to the initial submittal. The area of revised ADA parking space will be in a graded area much closer to first floor elevation, therefore the revised

ADA parking location will provide accessibility to all buildings without the need for a ramp. The buildings have been slid back from Elliott Road to provide more room for water quality and quantity treatment in the front of the property.

With this resubmittal today for ESDR, we hope to have a staff review meeting on June 28th. Given the feedback provided with our initial submittal in 2022, we are hopeful that comments, if any, will be minimal from the standpoint of eligibility to go to Planning Commission. We are hopeful that we can provide Planning Commission packages the following day on June 29th to get on the July Planning Commission agenda. This is all with the full understanding that we address any minor and/or technical comments with staff to complete the site plan review and approval and lead into grading permit application processes.

We ask that you please review this submittal for the June 28th ESDR comments meeting. If you should have any questions or need any additional information, please do not hesitate to contact me at (443) 262-9130 or bdavis@dmsandassociates.com.

Sincerely,
DMS & Associates, LLC



Brandon A. Davis, PE

PRELIMINARY SITE PLAN FOR THE DEVELOPMENT OF CLIMATE CONTROLLED SELF STORAGE ON THE LANDS OF FRIEL STORAGE, LLC. IN THE TOWN OF EASTON, MARYLAND

SITE STATISTICS

CURRENT USE – COMMERCIAL/VACANT
PROPOSED USE – COMMERCIAL/CLIMATE CONTROLLED SELF STORAGE

GROSS SITE AREA	=	1.775 ac.± (77,341 sq. ft.±)
CRITICAL AREA	=	0.000 ac.± (0,000 sq. ft.±)
BASE SITE AREA	=	1.775 ac.± (77,341 sq. ft.±)
AREA IN BUFFERYARDS	=	0.061 ac.± (2,649 sq. ft.±)
AREA WITHIN FLOODPLAIN	=	0.000 ac.± (0,000 sq. ft.±)
LOT COVERAGE BY STRUCTURES (PERMITTED) (50%)	=	0.888 ac.± (38,670 sq. ft.±)
LOT COVERAGE BY STRUCTURES (EXISTING) (0.0%)	=	0.000 ac.± (0,000 sq. ft.±)
LOT COVERAGE BY STRUCTURES (PROPOSED) (45.3%)	=	0.803 ac.± (35,000 sq. ft.±)
IMPERVIOUS AREA (EXISTING) (4.7%)	=	0.084 ac.± (3,661 sq. ft.±)
IMPERVIOUS AREA (TO BE REMOVED)	=	0.076 ac.± (3,300 sq. ft.±)
IMPERVIOUS AREA (TOTAL) (66.2%)	=	1.175 ac.± (51,190 sq. ft.±)
IMPERVIOUS AREA (PROPOSED) (66.7%)	=	1.183 ac.± (51,551 sq. ft.±)
LANDSCAPE AREA (EXISTING) (100%)	=	0.000 ac.± (0,000 sq. ft.±)
LANDSCAPE AREA (PROVIDED) (33.3%)	=	0.592 ac.± (25,790 sq. ft.±)

PARKING REQUIREMENTS

PROPOSED: (SECTION 28–1001.3).
4 spaces/climate controlled self storage (mini–warehouse) site = 4 SPACES
2 spaces/managers quarters X 0 managers quarters = 0 SPACES
PARKING SPACES (REQUIRED) = 4 SPACES (1 HANDICAP)
PARKING SPACES (PROVIDED) = 5 SPACES (1 HANDICAP)

OFF-STREET LOADING REQUIREMENTS

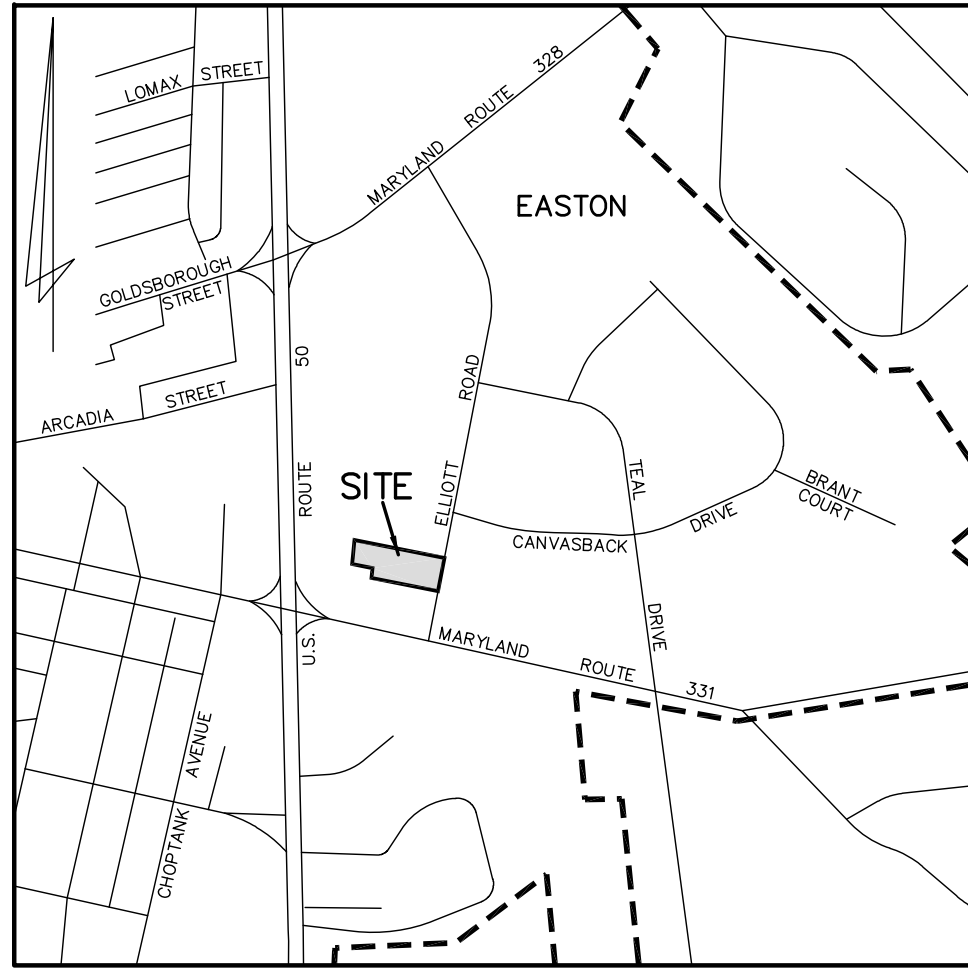
PROPOSED: (SECTION 28–1002.A).
1 loading space/10,000 sq. ft. floor area X 35,000 sq. ft. FLOOR AREA = 3.5 or 4 SPACES
LOADING SPACES (REQUIRED) = 4 SPACES
LOADING SPACES (PROVIDED) = 4 SPACES

LEGEND

	DEED POINT
	EXISTING TREE
	EDGE OF EXISTING TREES
	EXISTING SPOT ELEVATION
	EXISTING CONTOUR
	EXISTING UTILITY POLE
	OVERHEAD LINE
	EXISTING LIGHT POLE
	PROPOSED DRAINAGE MANHOLE
	PROPOSED SIGN
	PROPOSED ACCESSIBLE PARKING SPACE
	EXISTING GRAVITY SEWER LINE
	EXISTING SEWER MANHOLE
	EXISTING WATER LINE
	EXISTING FIRE HYDRANT
	EXISTING GAS LINE
	PERIMETER SILT FENCE
	"CURB" INLET PROTECTION
	"AT GRADE" INLET PROTECTION
	LIMITS OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE

NOTES

- PROPERTY LINE INFORMATION SHOWN HEREON IS THE RESULT OF A FIELD RUN SURVEY BY FINK, WHITTEN AND ASSOCIATES, LLC IN NOVEMBER, 2021. HORIZONTAL DATUM IS NAD 83/2011.
- FOR DEED REFERENCE, SEE LIBER K.M.D. 2932, FOLIO 143.
- THE PROPERTY IS NOT LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA.
- SITE IS NOT LOCATED WITHIN THE 100 YEAR FLOODPLAIN AS SCALED FROM FLOOD INSURANCE RATE MAP COMMUNITY PANEL No. 24041C0193C. (ZONE "X") (UNSHADED) DATED AUGUST 5, 2013.
- SOILS ON SITE CONSIST OF "Up" (URBAN LAND) AS TAKEN FROM THE WEBSITE: <http://websoilsurvey.nrcs.usda.gov> FOR TALBOT COUNTY. NO HYDRIC SOILS EXIST ON THE SITE.
- NO NATURAL RESOURCES (ie... WOODLANDS, NONTIDAL WETLANDS AND BUFFER, STREAM AND BUFFER, STEEP SLOPES, ENDANGERED SPECIES OR HABITATS) EXIST ON THE SITE.
- EXISTING PUBLIC WATER SERVICES THE AREA, HOWEVER THE BUILDINGS WILL NOT HAVE ANY BATHROOMS, SPRINKLERS, SPIGOTS, etc..., THEREFORE NO WATER SERVICE IS PROPOSED.
- EXISTING PUBLIC SEWER SERVICES THE AREA, HOWEVER THE BUILDINGS WILL NOT HAVE ANY BATHROOMS, SPRINKLERS, SPIGOTS, etc..., THEREFORE NO SEWER SERVICE IS PROPOSED.
- EXISTING SPOT ELEVATIONS AND CONTOURS SHOWN HEREON ARE THE RESULT OF A FIELD RUN SURVEY BY FINK, WHITTEN AND ASSOCIATES, LLC IN NOVEMBER, 2021. VERTICAL DATUM IS NAVD 88.
- STORMWATER MANAGEMENT FOR THE SITE WILL BE ADDRESSED VIA THE IMPLEMENTATION OF ENVIRONMENTAL SITE DESIGN (ESD) TO THE MAXIMUM EXTENT PRACTICABLE (MEP).
- ALL ONSITE LIGHTING WILL CONSIST OF WALL MOUNTED LIGHTING.
- THERE SHALL BE NO OUTDOOR STORAGE.
- ONE FREESTANDING SIGN IS PERMITTED, NOT TO EXCEED 50 sq. ft. PER SIDE IN AREA, NOT TO EXCEED 10 ft. VERTICAL DIMENSION, SHALL BE SETBACK AT LEAST 10' FROM ANY PROPERTY LINE. A LANDSCAPE AREA EQUIVALENT EQUIVALENT TO THE AREA OF EACH SIDE OF A FREESTANDING SIGN SHALL BE PROVIDED. SEE ARTICLE XI OF THE TOWN CODE FOR ADDITIONAL SIGN REGULATIONS. SIGNS REQUIRED TO OBTAIN A SIGN PERMIT FROM THE TOWN.
- WALL MOUNTED SIGNAGE IS PERMITTED WITH A MAXIMUM AREA OF 1 sq. ft. OF SIGNAGE PER 1 LINEAL FOOT OF STREET FRONTAGE OF THE BUILDING. SEE ARTICLE XI OF THE TOWN CODE FOR ADDITIONAL SIGN REGULATIONS. SIGNS REQUIRED TO OBTAIN A SIGN PERMIT FROM THE TOWN AS APPLICABLE.
BUILDING #1 = 75 sq. ft. (ALLOWED)
BUILDING #2 = 50 sq. ft. (ALLOWED)
BUILDING #3 = 0 sq. ft. (ALLOWED)
- CURRENT ZONING CLASSIFICATION IS "CG" (GENERAL COMMERCIAL)
- SITE REQUIREMENTS:
BUILDING SETBACKS (SECTION 28.306.2):
FRONT = 25'
REAR = 15'
SIDE = 10'
MAXIMUM BUILDING HEIGHT:
PRINCIPAL = 50' (ALLOWED)
PRINCIPAL = <50' (PROPOSED)



VICINITY MAP
SCALE 1" = 1000'

TABLE OF CONTENTS

SHEET C–1	–	TITLE SHEET
SHEET C–2	–	EXISTING CONDITIONS AND DEMOLITION PLAN
SHEET C–3	–	PRELIMINARY SITE PLAN
SHEET C–4	–	PRELIMINARY STORMWATER MANAGEMENT AND SEDIMENT & EROSION CONTROL PLAN
SHEET C–5	–	STORMWATER MANAGEMENT DETAILS AND SPECIFICATIONS
SHEET C–6	–	PRELIMINARY UTILITY PLAN & EMERGENCY SITE ACCESS PLAN
SHEET C–7	–	SITE DETAILS
SHEET C–8	–	SEDIMENT & EROSION CONTROL DETAILS AND SPECIFICATIONS
SHEET LS–1	–	PRELIMINARY LANDSCAPE PLAN
SHEET FCP	–	PRELIMINARY FOREST CONSERVATION PLAN

OWNER & APPLICANT

FRIEL STORAGE, LLC.
c/o JAY FRIEL
47 PROSPECT BAY DR W
GRASONVILLE, MARYLAND 21638
PHONE No. 1–410–827–8811

ENGINEER:

DMS & ASSOCIATES, LLC
c/o BRANDON DAVIS, P.E.
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE No. 1–443–262–9130

PRIOR OWNER & APPLICANT

DENNIS P. DULEY
27967 JARBOE DRIVE
EASTON, MARYLAND 21632
PHONE No. 1–443–786–3266

SURVEYOR:

FINK, WHITTEN & ASSOCIATES, LLC
c/o ELIZABETH FINK
113 E. DOVER ROAD, UNIT C
EASTON, MARYLAND 21601
PHONE No. 1–410–822–8484

GENERAL NOTES

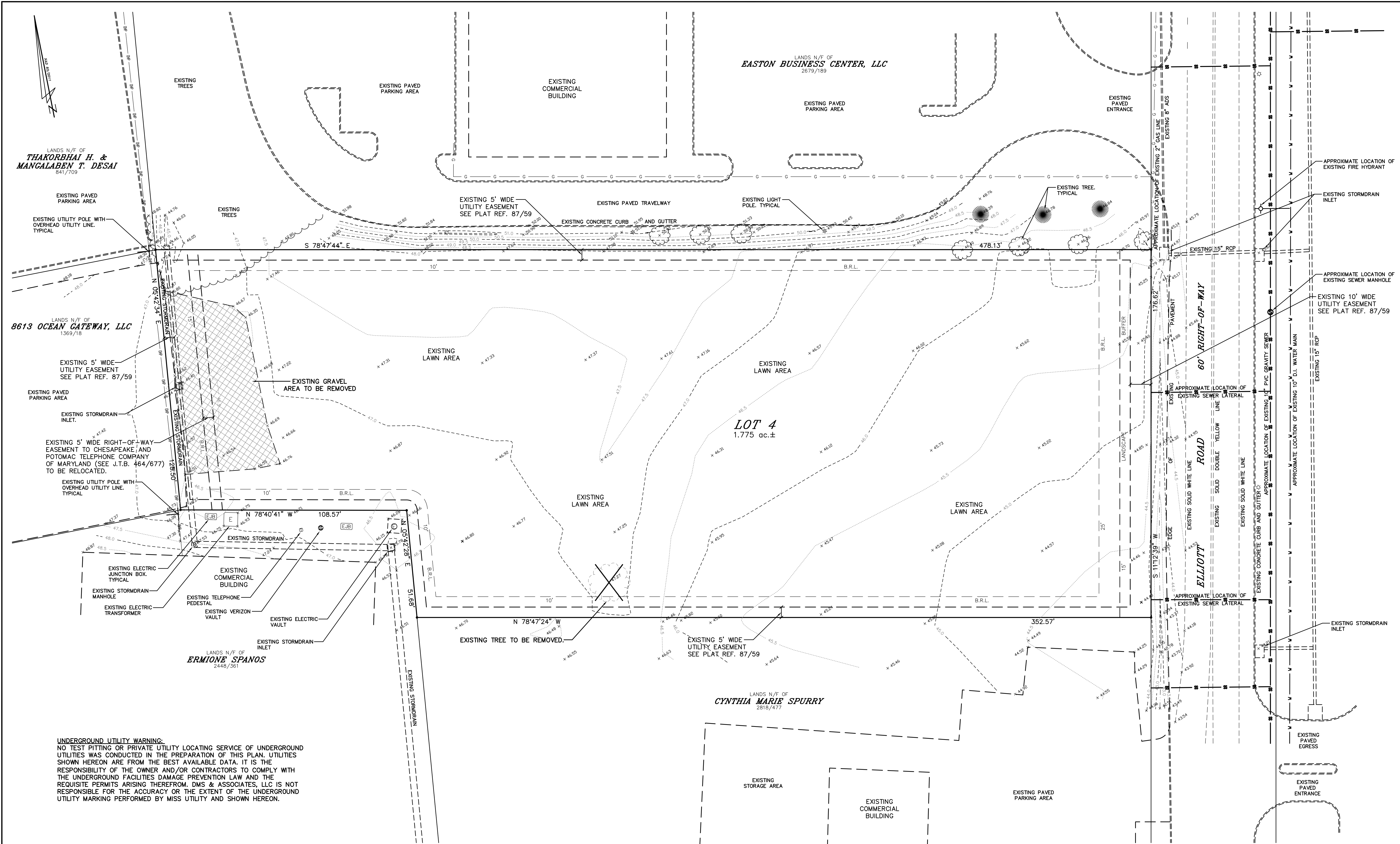
- THE EXISTING UTILITIES SHOWN WERE TAKEN FROM THE BEST AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY THEIR EXACT LOCATION PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE INCURRED TO SUCH UTILITIES SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL TEST PIT AS TO VERIFY THE LOCATION AND INVERT OF EXISTING UTILITIES.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION AND SHALL COORDINATE CONSTRUCTION WITH THE UTILITY COMPANIES INVOLVED:

DELMARVA POWER & LIGHT COMPANY	1–800–375–7117
MSS UTILITY	1–800–441–8355
DMS & ASSOCIATES, LLC	1–443–262–9130
DEPARTMENT OF ENVIRONMENT	1–410–901–4020
TALBOT SOIL CONSERVATION DISTRICT	1–410–822–1577
TOWN OF EASTON ENGINEERING	1–410–820–8822
TOWN OF EASTON DEPARTMENT OF PUBLIC WORKS	1–410–822–0513
EASTON UTILITIES	1–410–822–6110
- THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, LABOR, AND MATERIALS FOR ANY MISCELLANEOUS OR TEST PIT EXCAVATIONS REQUIRED BY THE ENGINEER.
- ALL CONSTRUCTION SHALL BE MARKED FOR TRAFFIC AND PEDESTRIAN SAFETY. ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH SECTION VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE TOWN OF EASTON STANDARDS AND SPECIFICATIONS.
- THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR ANY DEVIATIONS FROM THESE PLANS, UNLESS SAID DEVIATION IS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL RECEIVE WRITTEN PERMISSION FROM THE ENGINEER IF A DEVIATION OF THE PLAN IS NECESSARY.
- ALL DISTURBED AREAS SHALL BE SMOOTHLY GRADED TO PROVIDE POSITIVE DRAINAGE IN THE DIRECTION OF FLOW ARROWS HEREIN AND STABILIZED WITH TOPSOIL, SEED, AND MULCH. IF SETTLEMENT OCCURS, TOPSOIL, SEEDING AND MULCHING SHALL BE REPEATED UNTIL SETTLEMENT SUBSIDES (SEE EROSION AND SEDIMENT CONTROL SPECIFICATIONS).
- ALL TRASH, TREES, AND UNDERBRUSH ARE TO BE CLEARED AND REMOVED OFF SITE TO AN APPROVED DUMP SITE
- ANY EXCESS EXCAVATED MATERIAL SHALL BE REMOVED OFF SITE BY THE CONTRACTOR OR MATERIAL SHALL BE PLACED ON SITE AS DIRECTED BY THE ENGINEER AND/OR OWNER.
- ANY EXISTING SURVEY MONUMENTATION THAT IS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A REGISTERED SURVEYOR AT THE CONTRACTOR'S EXPENSE.
- ALL FILL AREAS WITHIN LIMITS OF ROADWAY CONSTRUCTION AND OTHER AREAS AS DESIGNATED ON THESE PLANS SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY AND LAID AND COMPACTED IN 8" LIFTS MAXIMUM.
- TRENCHES SHALL NOT REMAIN OPEN OVERNIGHT. IF IT IS NECESSARY FOR TRENCHES TO REMAIN OPEN, STEEL PLATES, CAPABLE OF TRAFFIC BEARING, SHALL BE USED TO COMPLETELY COVER THE TRENCH.
- ALL SEWER VALVES, BOXES AND FRAMES & COVERS SHALL BE SET AND ADJUSTED TO FINISHED GRADE.
- CONTRACTOR MUST PROVIDE MONUMENTED SURVEY MARKERS PER PUBLIC WORKS AGREEMENT.
- THE DEVELOPER SHALL COORDINATE WITH THE TOWN OF EASTON TO SCHEDULE INSTALLATION OF ALL NECESSARY ROADWAY SAFETY SIGNAGE AND ROAD NAME BLADES. SIGNAGE SHALL BE INSTALLED AT THE START OF CONSTRUCTION AND MAINTAINED BY THE TOWN OF EASTON THROUGHOUT THE COMPLETION OF THE WORK AT THE EXPENSE OF THE DEVELOPER. THE DEVELOPER SHALL PAY INVOICES UPON RECEIPT FROM THE TOWN OF EASTON.
- ALL PVC, PE, AND HDPE PIPE, OTHER THAN PIPE RUNS BETWEEN GRAVITY SEWER MANHOLES, SHALL HAVE A CONTINUOUS, SINGLE STRAND, 8-GAUGE UNCOATED COPPER TRACER WIRE LOCATED BENEATH THE PIPE. THE WIRE SHALL BE STUBBED INTO ALL METER PITS, VACUUM VALVE PITS, CLEANOUTS, AND DIVISION VALVE BOXES.
- ONCE CONSTRUCTION IS COMPLETE, AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY EITHER A PROFESSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF MARYLAND TO ENSURE ALL CONSTRUCTION IS IN COMPLIANCE WITH THE SPECIFICATIONS AND APPROVED PLANS.

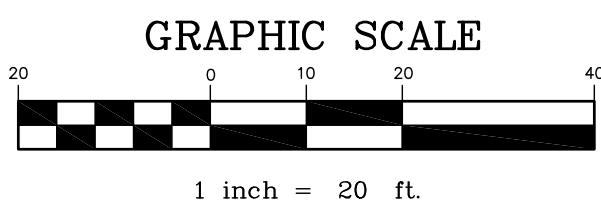
STATEMENT OF PURPOSE AND INTENT

THE SITE IS LOCATED ON THE WEST SIDE OF ELLIOTT ROAD IN THE TOWN OF EASTON. THE SITE IS CURRENTLY VACANT. THREE (3) NEW CLIMATE CONTROLLED SELF STORAGE BUILDINGS ARE PROPOSED FOR THIS DEVELOPMENT.

THE PURPOSE OF THIS PRELIMINARY SITE PLAN IS TO OBTAIN APPROVAL FROM THE TOWN OF EASTON PLANNING AND ZONING AND TOWN OF EASTON PLANNING COMMISSION FOR THE PROPOSED DEVELOPMENT.



UNDERGROUND UTILITY WARNING:
NO TEST PITTING OR PRIVATE UTILITY LOCATING SERVICE OF UNDERGROUND UTILITIES WAS CONDUCTED IN THE PREPARATION OF THIS PLAN. UTILITIES SHOWN HEREON ARE FROM THE BEST AVAILABLE DATA. IT IS THE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTORS TO COMPLY WITH THE UNDERGROUND FACILITIES DAMAGE PREVENTION LAW AND THE REQUISITE PERMITS ARISING THEREFROM. DMS & ASSOCIATES, LLC IS NOT RESPONSIBLE FOR THE ACCURACY OR THE EXTENT OF THE UNDERGROUND UTILITY MARKING PERFORMED BY MISS UTILITY AND SHOWN HEREON.



TOWN OF EASTON PLANNING AND ZONING	TOWN OF EASTON ENGINEER
EASTON UTILITIES - ENGINEER	

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17660

STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER

Wm. Thomas Duff
6/7/2023
DATE SEAL

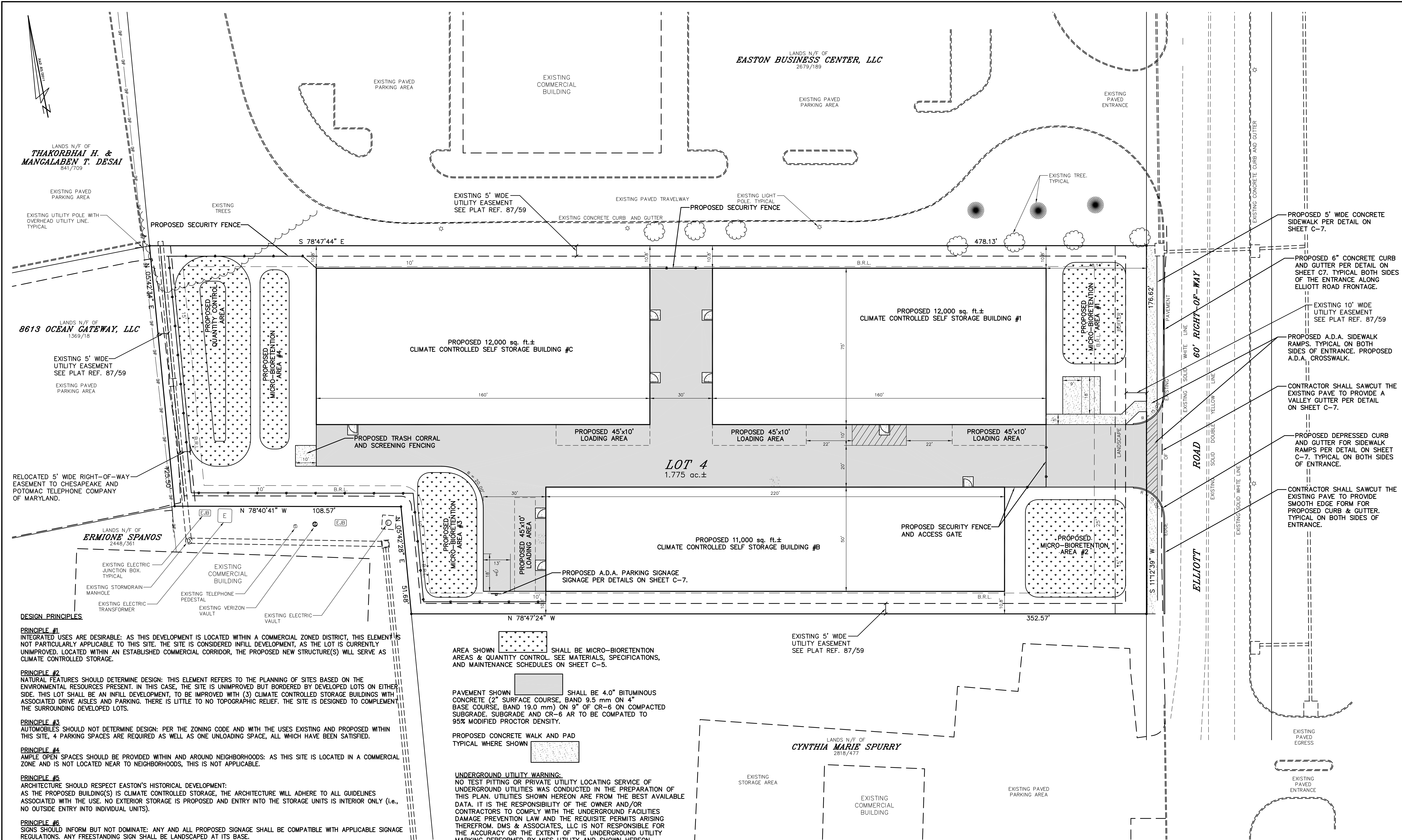
DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN, ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION
6/7/2023	PER 06/22 ESDR COMMENTS

EXISTING CONDITIONS AND DEMOLITION PLAN

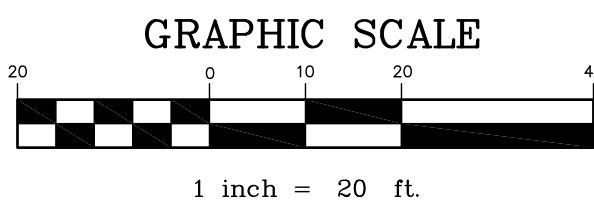
FOR THE DEVELOPMENT OF
CLIMATE CONTROLLED SELF STORAGE
ON THE LANDS OF
FRIEL STORAGE, LLC.
IN THE TOWN OF EASTON, 1st Elect. Dist., TALBOT Co., MARYLAND
TAX MAP - 109, PARCEL - 2849

DATE MAY '22	SCALE 1" = 20'
JOB No. 2022009	DRAWN BY WJM
FOLDER Ref. 109-2022009	DESIGNED BY BD
SHEET No. - C-2	
CADD FILE - 22009C02	



DESIGN PRINCIPLES

- PRINCIPLE #1**
INTEGRATED USES ARE DESIRABLE: AS THIS DEVELOPMENT IS LOCATED WITHIN A COMMERCIAL ZONED DISTRICT, THIS ELEMENT IS NOT PARTICULARLY APPLICABLE TO THIS SITE. THE SITE IS CONSIDERED INFILL DEVELOPMENT, AS THE LOT IS CURRENTLY UNIMPROVED. LOCATED WITHIN AN ESTABLISHED COMMERCIAL CORRIDOR, THE PROPOSED NEW STRUCTURE(S) WILL SERVE AS CLIMATE CONTROLLED STORAGE.
- PRINCIPLE #2**
NATURAL FEATURES SHOULD DETERMINE DESIGN: THIS ELEMENT REFERS TO THE PLANNING OF SITES BASED ON THE ENVIRONMENTAL RESOURCES PRESENT. IN THIS CASE, THE SITE IS UNIMPROVED BUT BORDERED BY DEVELOPED LOTS ON EITHER SIDE. THIS LOT SHALL BE AN INFILL DEVELOPMENT, TO BE IMPROVED WITH (3) CLIMATE CONTROLLED STORAGE BUILDINGS WITH ASSOCIATED DRIVE AISLES AND PARKING. THERE IS LITTLE TO NO TOPOGRAPHIC RELIEF. THE SITE IS DESIGNED TO COMPLEMENT THE SURROUNDING DEVELOPED LOTS.
- PRINCIPLE #3**
AUTOMOBILES SHOULD NOT DETERMINE DESIGN: PER THE ZONING CODE AND WITH THE USES EXISTING AND PROPOSED WITHIN THIS SITE, 4 PARKING SPACES ARE REQUIRED AS WELL AS ONE UNLOADING SPACE, ALL WHICH HAVE BEEN SATISFIED.
- PRINCIPLE #4**
AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN AND AROUND NEIGHBORHOODS: AS THIS SITE IS LOCATED IN A COMMERCIAL ZONE AND IS NOT LOCATED NEAR TO NEIGHBORHOODS, THIS IS NOT APPLICABLE.
- PRINCIPLE #5**
ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT:
AS THE PROPOSED BUILDING(S) IS CLIMATE CONTROLLED STORAGE, THE ARCHITECTURE WILL ADHERE TO ALL GUIDELINES ASSOCIATED WITH THE USE. NO EXTERIOR STORAGE IS PROPOSED AND ENTRY INTO THE STORAGE UNITS IS INTERIOR ONLY (i.e., NO OUTSIDE ENTRY INTO INDIVIDUAL UNITS).
- PRINCIPLE #6**
SIGNS SHOULD INFORM BUT NOT DOMINATE: ANY AND ALL PROPOSED SIGNAGE SHALL BE COMPATIBLE WITH APPLICABLE SIGNAGE REGULATIONS. ANY FREESTANDING SIGN SHALL BE LANDSCAPED AT ITS BASE.
- PRINCIPLE #7**
NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES: THIS PRINCIPLE IS NOT APPLICABLE TO OUR REQUEST.
- PRINCIPLE #8**
RESIDENTIAL DEVELOPMENT SHOULD BE INTERESTING PLACES: THIS PRINCIPLE IS NOT APPLICABLE TO OUR REQUEST.
- PRINCIPLE #9**
NEIGHBORHOODS SHOULD CONNECT: THIS PRINCIPLE IS NOT APPLICABLE TO OUR REQUEST.



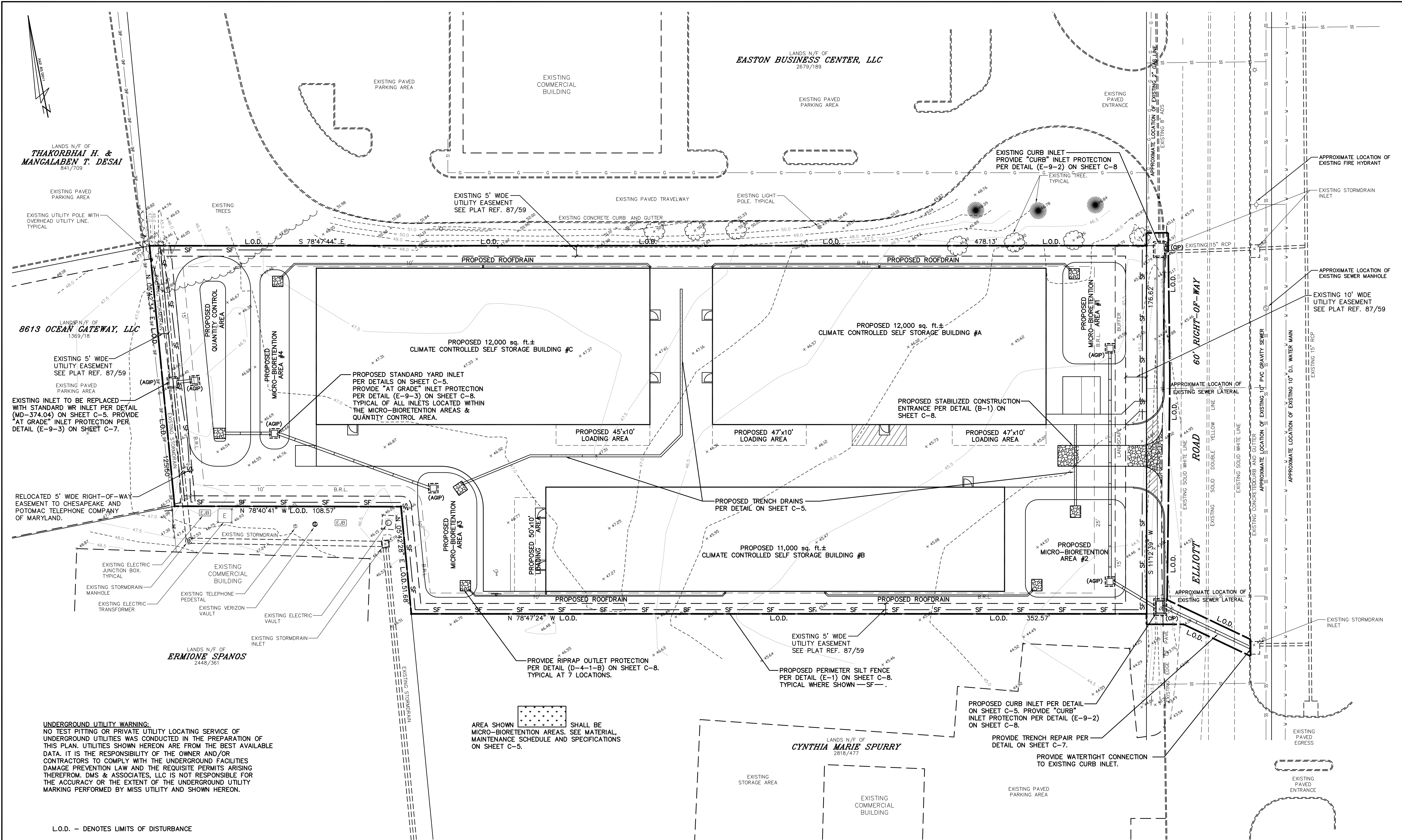
AREA SHOWN SHALL BE MICRO-BIORETENTION AREAS & QUANTITY CONTROL. SEE MATERIALS, SPECIFICATIONS, AND MAINTENANCE SCHEDULES ON SHEET C-5.

PAVEMENT SHOWN SHALL BE 4.0" BITUMINOUS CONCRETE (2" SURFACE COURSE, BAND 9.5 mm ON 4" BASE COURSE, BAND 19.0 mm) ON 9" OF CR-6 ON COMPACTED SUBGRADE. SUBGRADE AND CR-6 AR TO BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY.

PROPOSED CONCRETE WALK AND PAD TYPICAL WHERE SHOWN

UNDERGROUND UTILITY WARNING:
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TOWN OF EASTON PLANNING AND ZONING	TOWN OF EASTON ENGINEER	PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 17660 DATE 8/7/2023 SEAL	DAVIS, MOORE, SHEARON & ASSOCIATES, LLC ENGINEERING, DRAFTING/DESIGN, ENVIRONMENTAL SERVICES & SURVEYING P.O. BOX 80 CENTREVILLE, MARYLAND 21617 PHONE : 1-443-262-9130 FAX : 1-443-262-9148	DATE 6/7/2023 REVISION PER 06/22 ESDR COMMENTS	PRELIMINARY SITE PLAN FOR THE DEVELOPMENT OF CLIMATE CONTROLLED SELF STORAGE ON THE LANDS OF FRIEL STORAGE, LLC. IN THE TOWN OF EASTON, 1st Elect. Dist., TALBOT Co., MARYLAND TAX MAP - 109, PARCEL - 2849	DATE MAY '22 JOB No. 202209 FOLDER Ref. 109-202209 SHEET No. - C-3 CADD FILE - 22009C03	SCALE 1" = 20' DRAWN BY WJM DESIGNED BY BD
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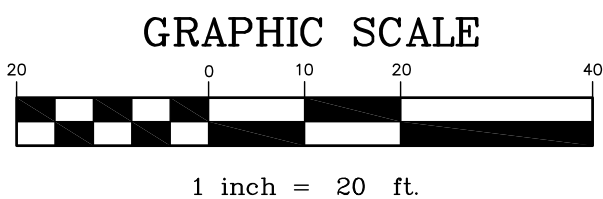


UNDERGROUND UTILITY WARNING:
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UNDERGROUND UTILITIES WAS CONDUCTED IN THE PREPARATION OF
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DAMAGE PREVENTION LAW AND THE REQUISITE PERMITS ARISING
THEREFROM. DMS & ASSOCIATES, LLC IS NOT RESPONSIBLE FOR
THE ACCURACY OR THE EXTENT OF THE UNDERGROUND UTILITY
MARKING PERFORMED BY MISS UTILITY AND SHOWN HEREON.

L.O.D. - DENOTES LIMITS OF DISTURBANCE

NOTE:
SEDIMENT AND EROSION CONTROL
WILL BE STRICTLY ENFORCED

NOTE:
FOLLOWING INITIAL DISTURBANCE, PERMANENT OR
TEMPORARY STABILIZATION SHALL BE COMPLETED
WITHIN 3 CALENDAR DAYS ON ALL PERIMETER
CONTROLS AND SLOPES GREATER THAN 3:1 AND
7 DAYS ON ALL OTHER DISTURBED AREAS ON
THE SITE.



AREA SHOWN
MICRO-BIORETENTION AREAS. SHALL BE
MAINTENANCE SCHEDULE AND SPECIFICATIONS
ON SHEET C-5.

PROVIDE RIPRAP OUTLET PROTECTION
PER DETAIL (D-4-1-B) ON SHEET C-8.
TYPICAL AT 7 LOCATIONS.

EXISTING 5' WIDE
UTILITY EASEMENT
SEE PLAT REF. 87/59

PROPOSED PERIMETER SILT FENCE
PER DETAIL (E-1) ON SHEET C-8.
TYPICAL WHERE SHOWN - SF -

PROPOSED CURB INLET PER DETAIL
ON SHEET C-5. PROVIDE "CURB"
INLET PROTECTION PER DETAIL (E-9-2)
ON SHEET C-8.

PROVIDE TRENCH REPAIR PER
DETAIL ON SHEET C-7.
PROVIDE WATERTIGHT CONNECTION
TO EXISTING CURB INLET.

TOWN OF EASTON PLANNING AND ZONING	TOWN OF EASTON ENGINEER
EASTON UTILITIES - ENGINEER	

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 17660	
	
EXPIRATION DATE: 2024	
	
6/7/2023	
DATE	SEAL

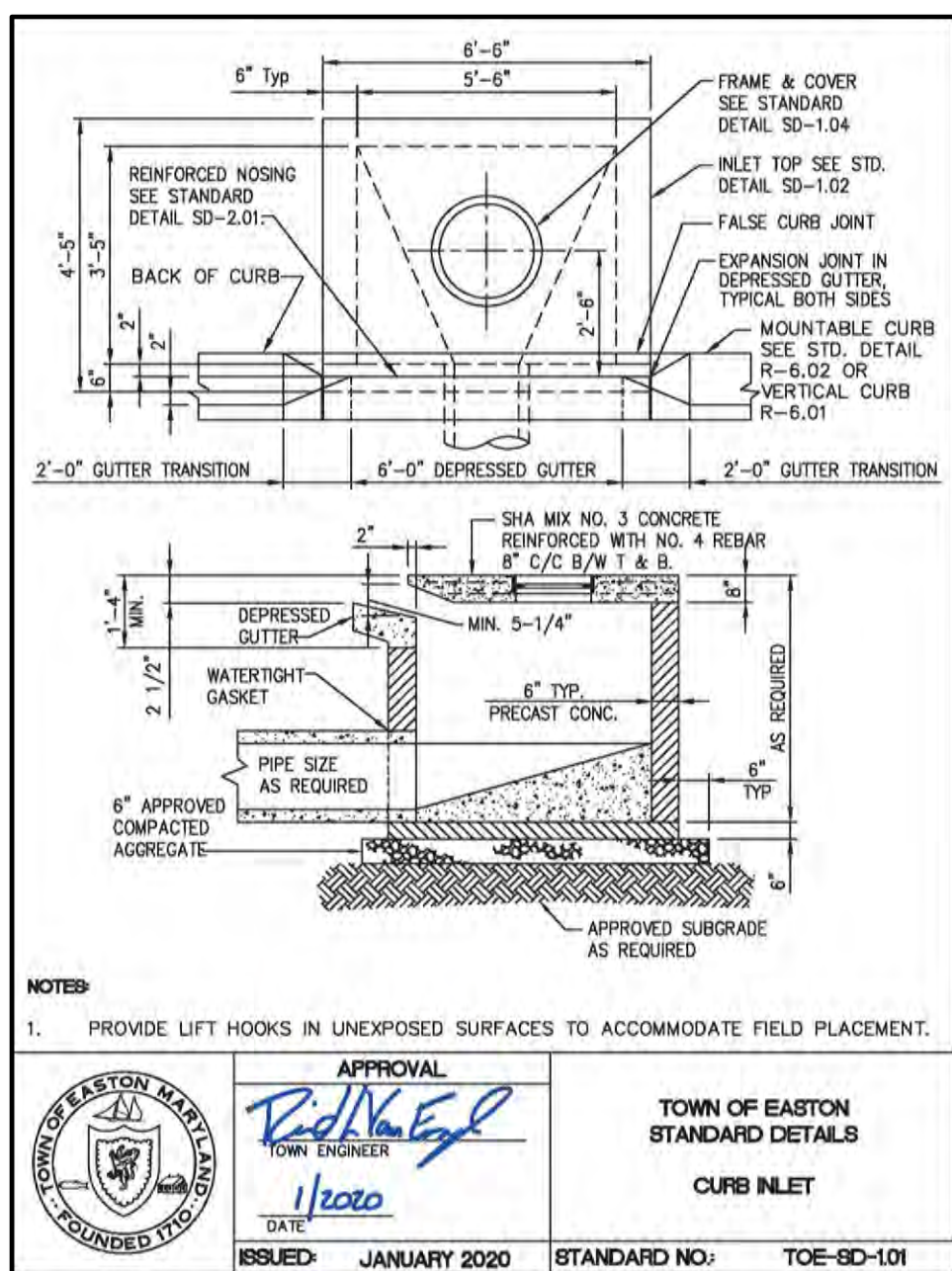
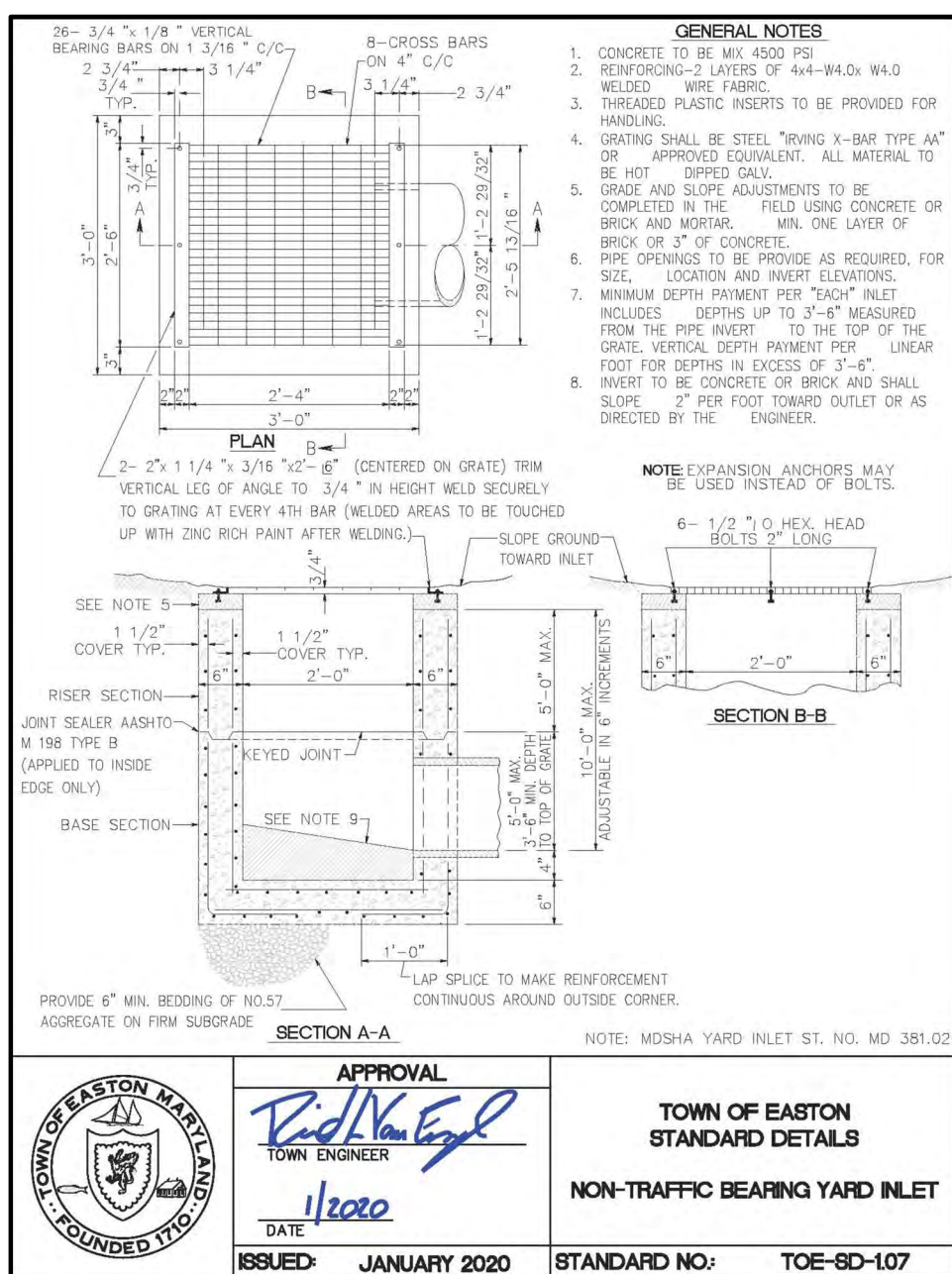
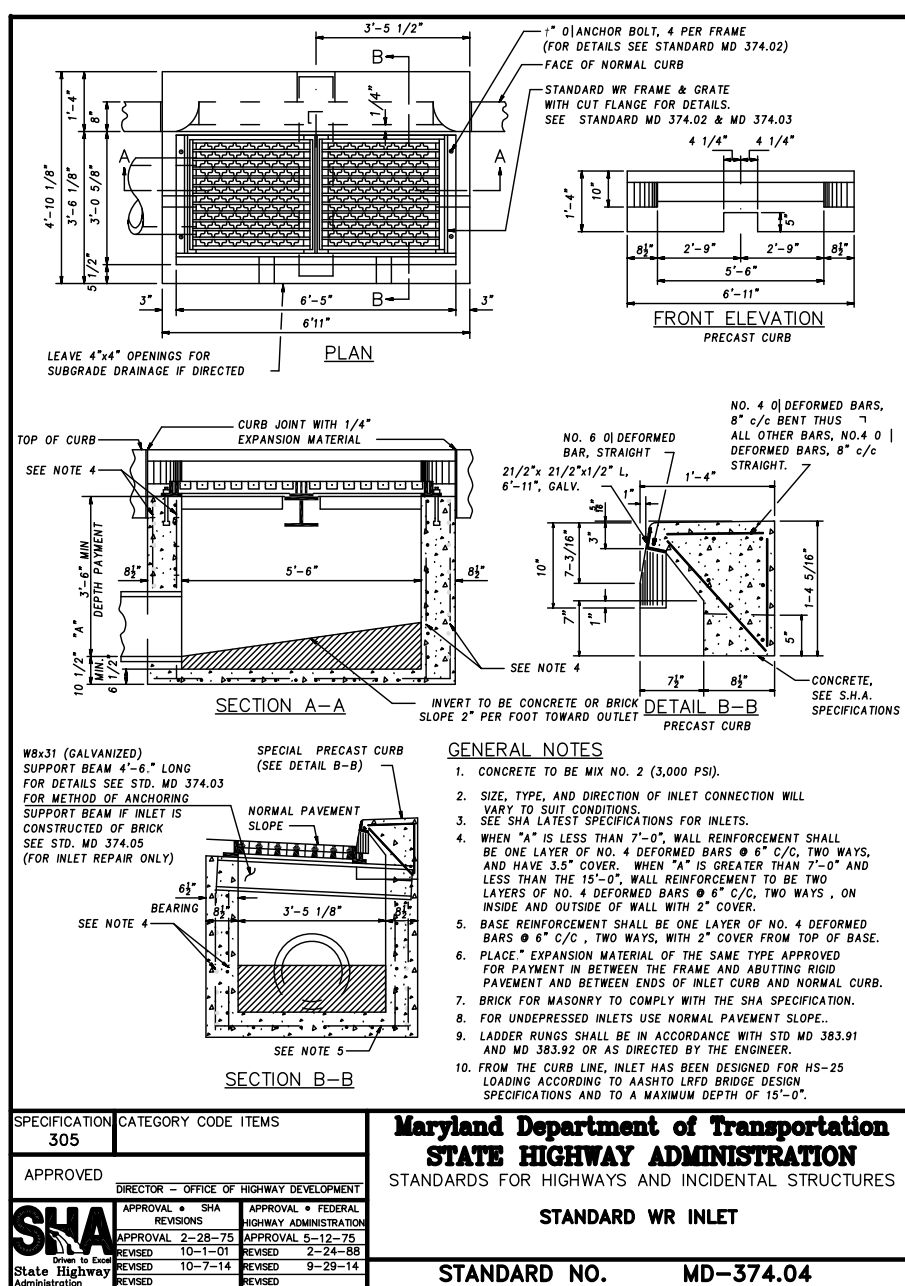
DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
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DATE	REVISION
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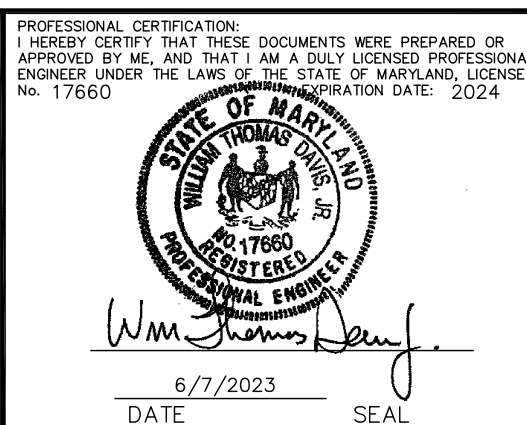
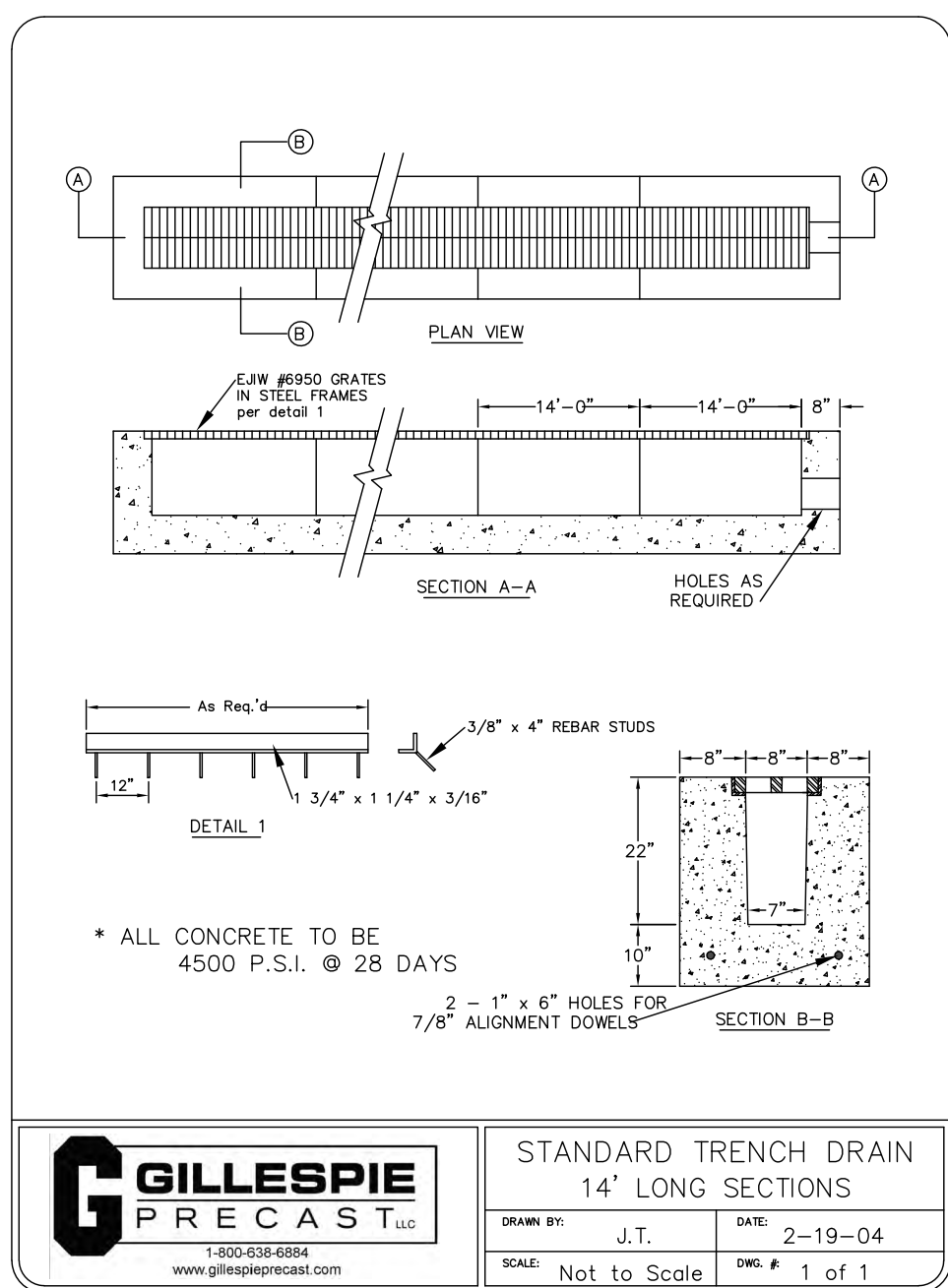
PRELIMINARY STORMWATER MANAGEMENT AND SEDIMENT & EROSION CONTROL PLAN
FOR THE DEVELOPMENT OF CLIMATE CONTROLLED SELF STORAGE ON THE LANDS OF FRIEL STORAGE, LLC. IN THE TOWN OF EASTON, 1st Elect. Dist., TALBOT CO., MARYLAND TAX MAP - 109, PARCEL - 2849

DATE MAY '22	SCALE 1" = 20'
JOB No. 2022009	DRAWN BY WJM
FOLDER Ref. 109-2022009	DESIGNED BY BD
SHEET No. - C-4	
CADD FILE - 22009C04	

DESCRIPTION	METHOD	FREQUENCY	TIME OF THE YEAR
SOIL			
INSPECT AND REPAIR EROSION REPLACEMENT OF SOILS IF PONDING TIME EXCEEDS 48 HOURS	VISUAL	MONTHLY	MONTHLY
ORGANIC LAYER			
RE-MULCH ANY VOID AREAS	BY HAND	WHENEVER NEEDED	WHENEVER NEED
REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER (OPTIONAL)	BY HAND	ONCE EVERY TWO TO THREE YEARS	SPRING
ADD FRESH MULCH LAYER	BY HAND	YEARLY	SPRING
PLANTS			
REMOVAL AND REPLACEMENT OF ALL DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT	SEE PLANTING SPECS.	YEARLY	3/15 to 4/30
INSPECT FOR DISEASE/PEST PROBLEMS	VISUAL	ONCE A MONTH (AVERAGE)	INSPECT MORE FREQUENTLY IN WARMER MONTHS
DETERMINE IF TREATMENT IS WARRANTED. USE LEAST TOXIC TREATMENT APPROACH	BY HAND	N/A	VARIES, DEPENDS ON DISEASE OR INSECT INFESTATION
WATERING OF PLANT MATERIAL SHALL TAKE PLACE FOR FOURTEEN CONSECUTIVE DAYS AFTER PLANTING HAS BEEN COMPLETED UNLESS THERE IS SUFFICIENT NATURAL RAINFALL	BY HAND	IMMEDIATELY AFTER COMPLETION OF PROJECT	N/A
REMOVE STAKES AND WIRES AFTER 6 MONTHS	BY HAND	AFTER TREES HAVE TAKEN ROOT	REMOVE STAKES AND WIRES WHEN POSSIBLE, BUT AT LEAST BY SIX MONTHS TIME
REMOVE TAGS AFTER 6 MONTHS	BY HAND	AT END OF WARRANTEE PERIOD	



MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE APPENDIX A, TABLE A.4	SEE PLAN	PLANTINGS ARE SITE-SPECIFIC – SEE LANDSCAPE PLAN FOR PLANT SPECIES
PLANTINGS SOILS (2' to 4' DEEP)	LOAMY SAND (60% to 65%) & COMPOST (35% to 40%) or SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 5%
ORGANIC CONTENT	Min. 10% BY DRY WEIGHT (ASTM D 2974)		
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM; NO PINE OR WOOD CHIPS
PEA GRAVEL DIAPHRAGM	PEA GRAVEL; ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
CURRENT DRAIN	ORNAMENTAL STONE; WASHED COBBLES	STONE: 2" to 5"	
GEOTEXTILE (SIDES ONLY)	SEE APPENDIX A, TABLE A.4	N/A	PE TYPE 1 NONWOVEN
GRAVEL (UNDERDRAINS AND INFILTRATION BERMS)	AASHTO M-43	No. 57 or No. 6 AGGREGATE (3/8" to 3/4")	
UNDERDRAIN PIPING	F 758, TYPE PS 28 or AASHTO M-278	4" to 6" RIGID (SCH-40) PVC or SDR-35	SLOTTED OR PERFORATED PIPE: 3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MIX NO. 3; $f_c = 3500$ psi @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED; REINFORCING TO MEET ASTM-615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND – DESIGN TO INCLUDE MEETING ACI CODE 350.R/89; VERTICAL LOADING [H-10 OR H-20]; ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
SAND	AASHTO M-6 or ASTM-C-33	0.02" to 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTION ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND



DAVIS, **M**OORE, **S**HEARON
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STORMWATER MANAGEMENT DETAILS AND SPECIFICATIONS

FOR THE DEVELOPMENT OF

CLIMATE CONTROLLED SELF STORAGE

ON THE LANDS OF

FRIEL STORAGE, LLC.

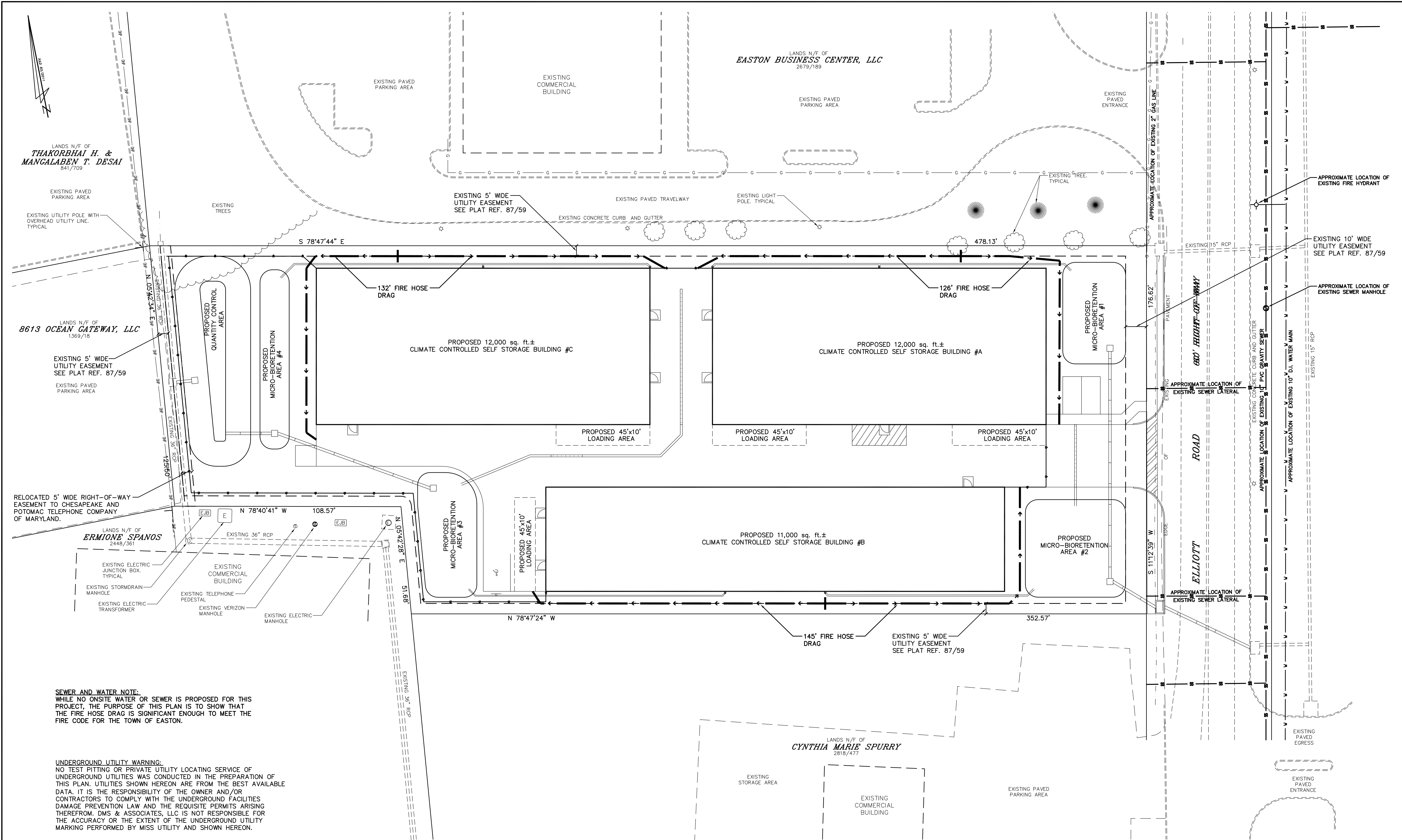
IN THE TOWN OF EASTON, 1st Elect. Dist., TALBOT Co., MARYLAND

TAX MAP - 109, PARCEL - 2849

DATE	SCALE
MAY '22	AS SHOWN
JOB No.	DRAWN BY
2022009	WJM
FOLDER Ref.	DESIGNED BY
109-2022009	BD

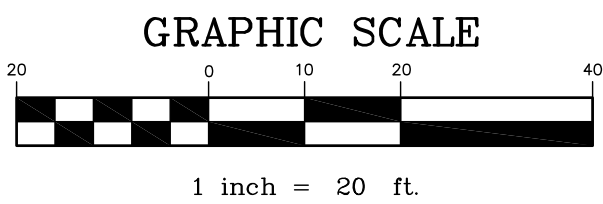
SHEET No. — C-5

CADD FILE — 22009C05



SEWER AND WATER NOTE:
WHILE NO ONSITE WATER OR SEWER IS PROPOSED FOR THIS PROJECT, THE PURPOSE OF THIS PLAN IS TO SHOW THAT THE FIRE HOSE DRAG IS SIGNIFICANT ENOUGH TO MEET THE FIRE CODE FOR THE TOWN OF EASTON.

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TOWN OF EASTON PLANNING AND ZONING	TOWN OF EASTON ENGINEER
EASTON UTILITIES - ENGINEER	

PROFESSIONAL CERTIFICATION
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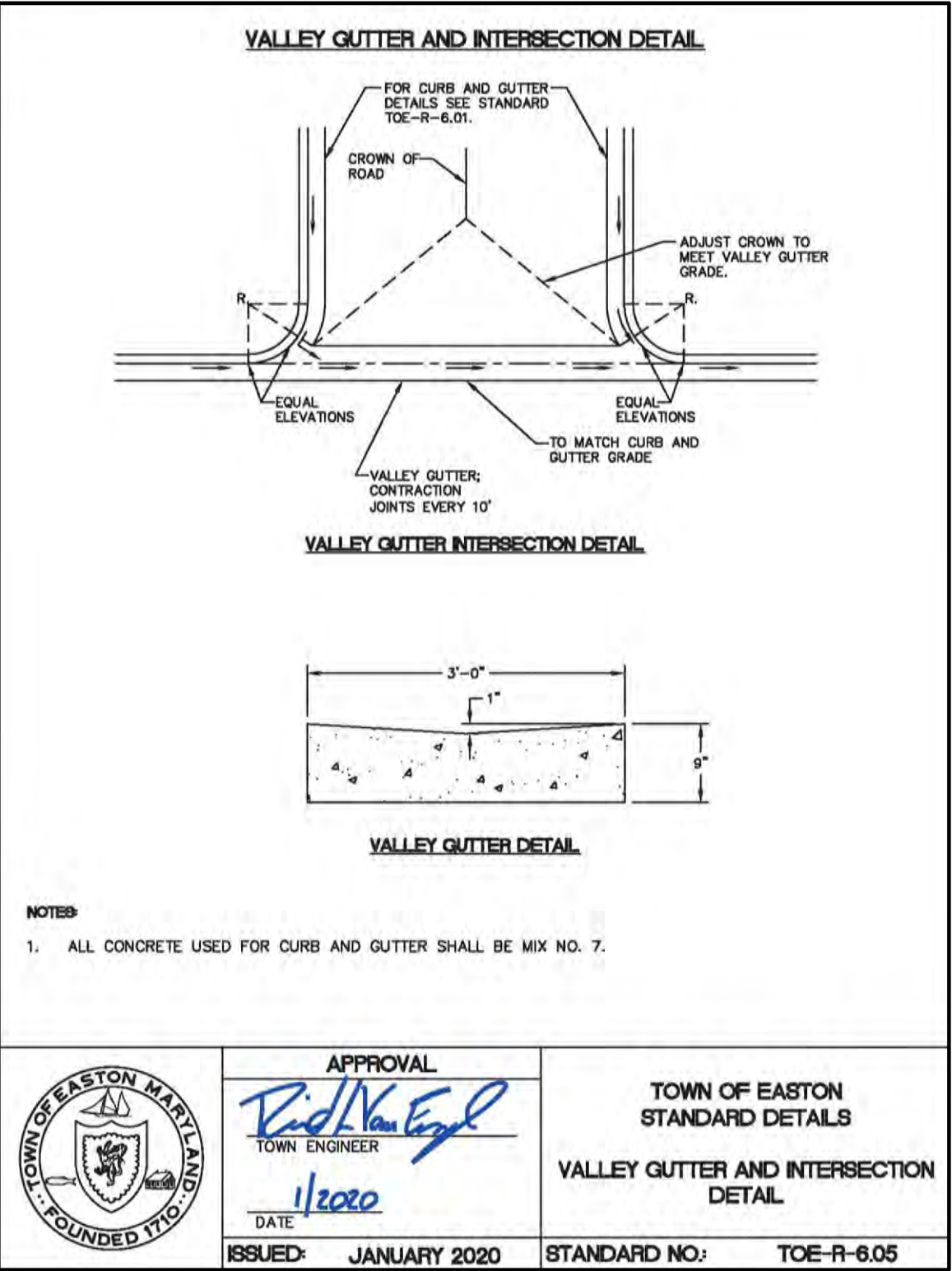
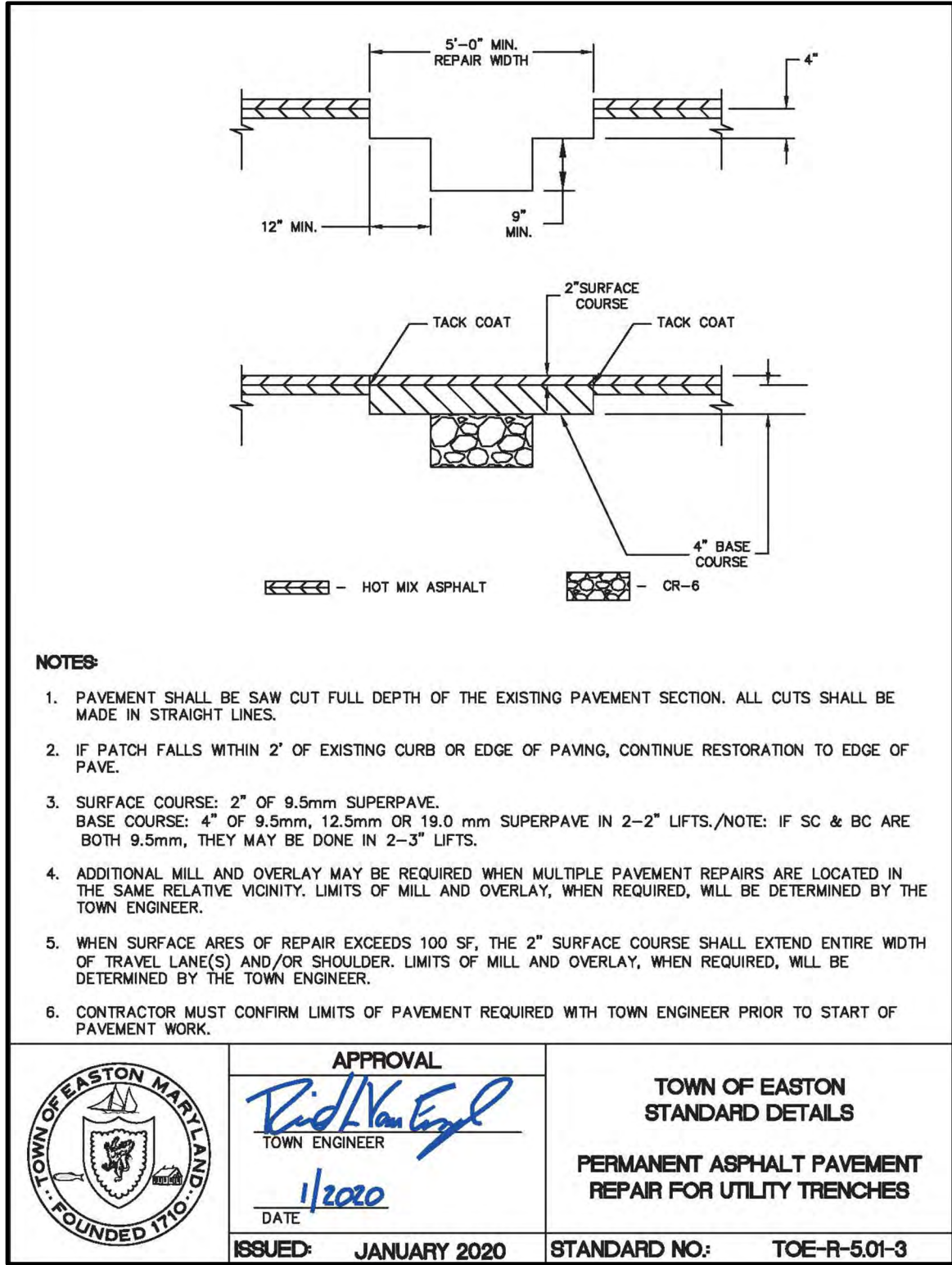
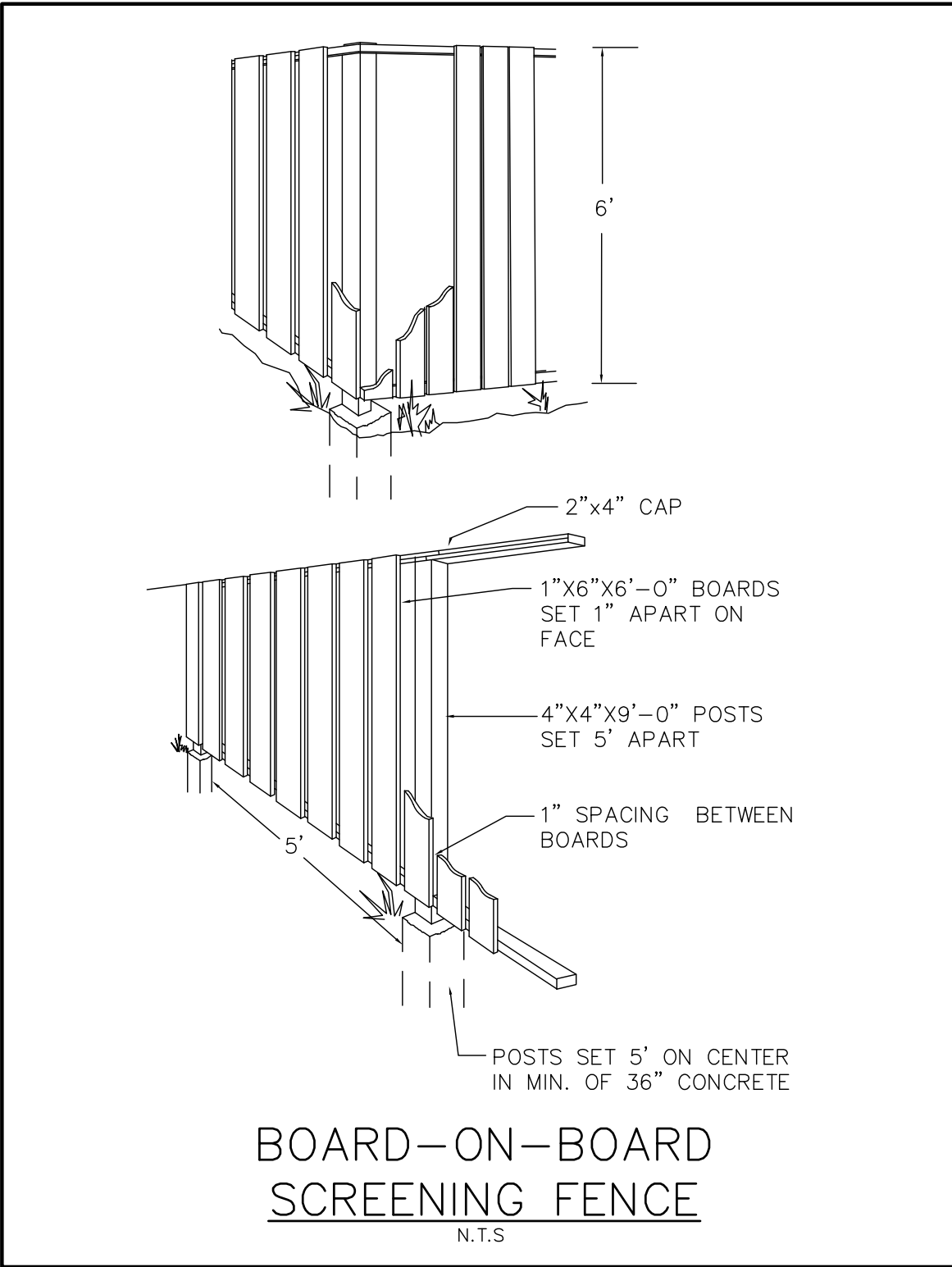
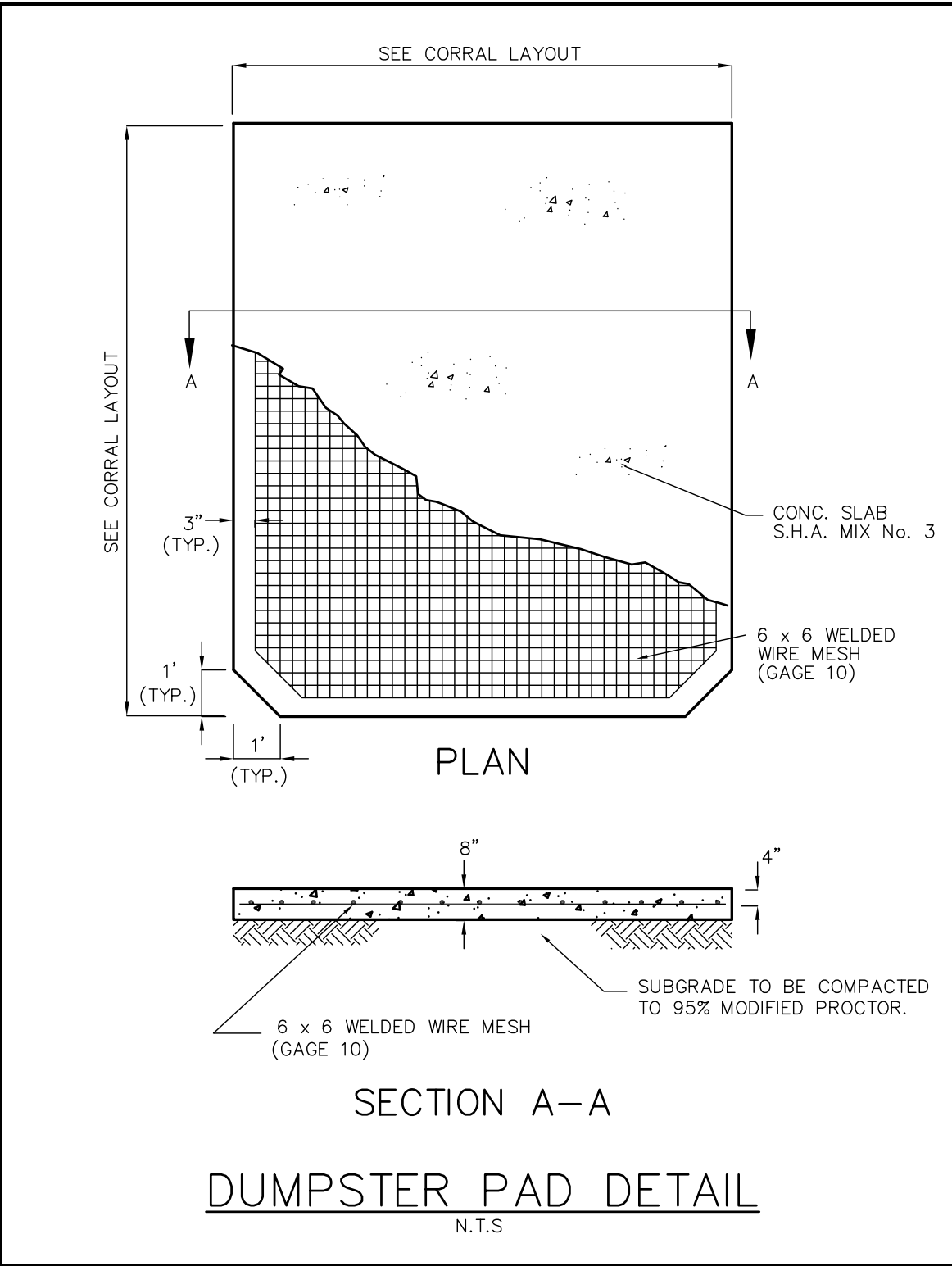
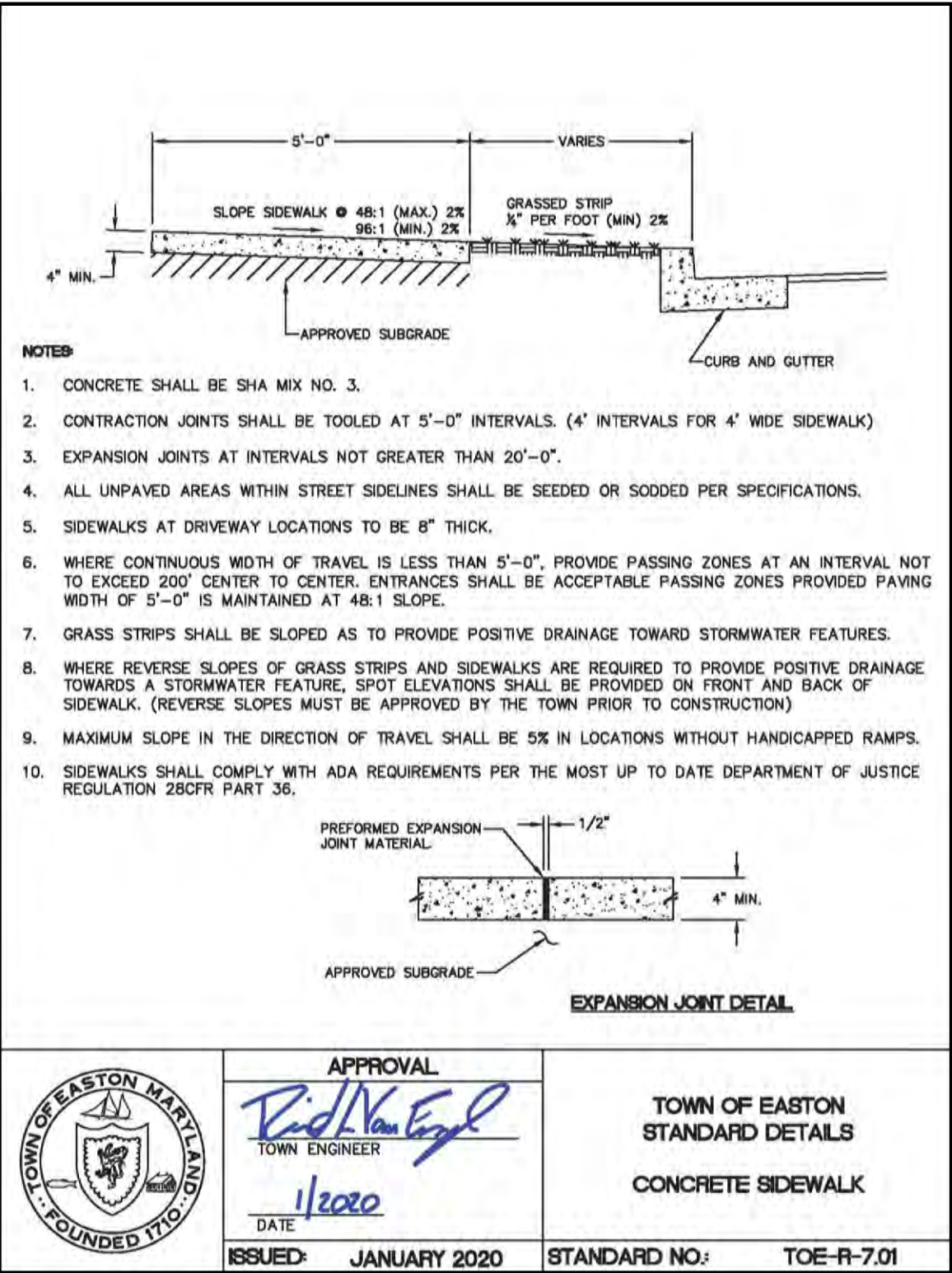
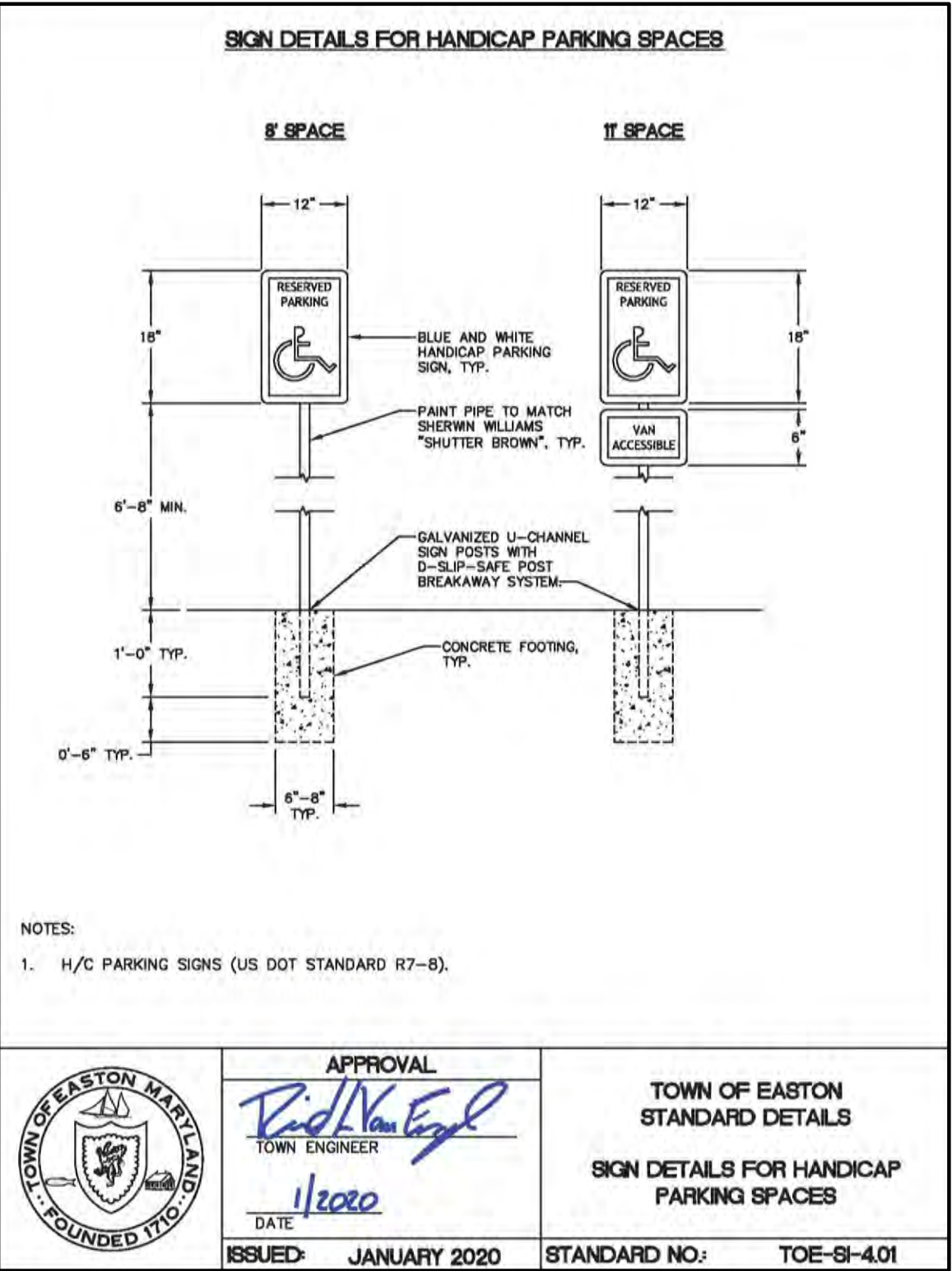
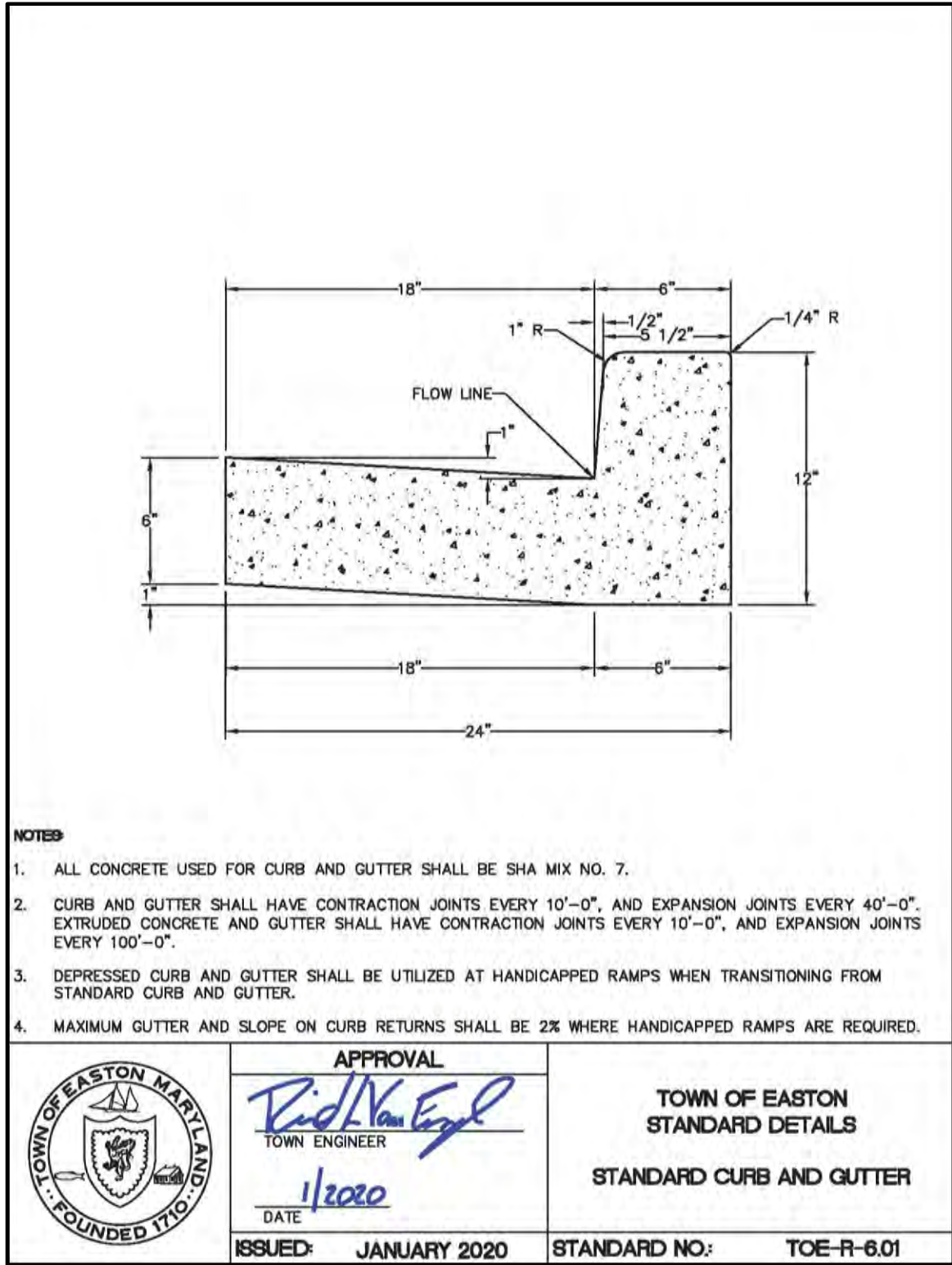

Wm Thomas Sperry
6/7/2023
DATE SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
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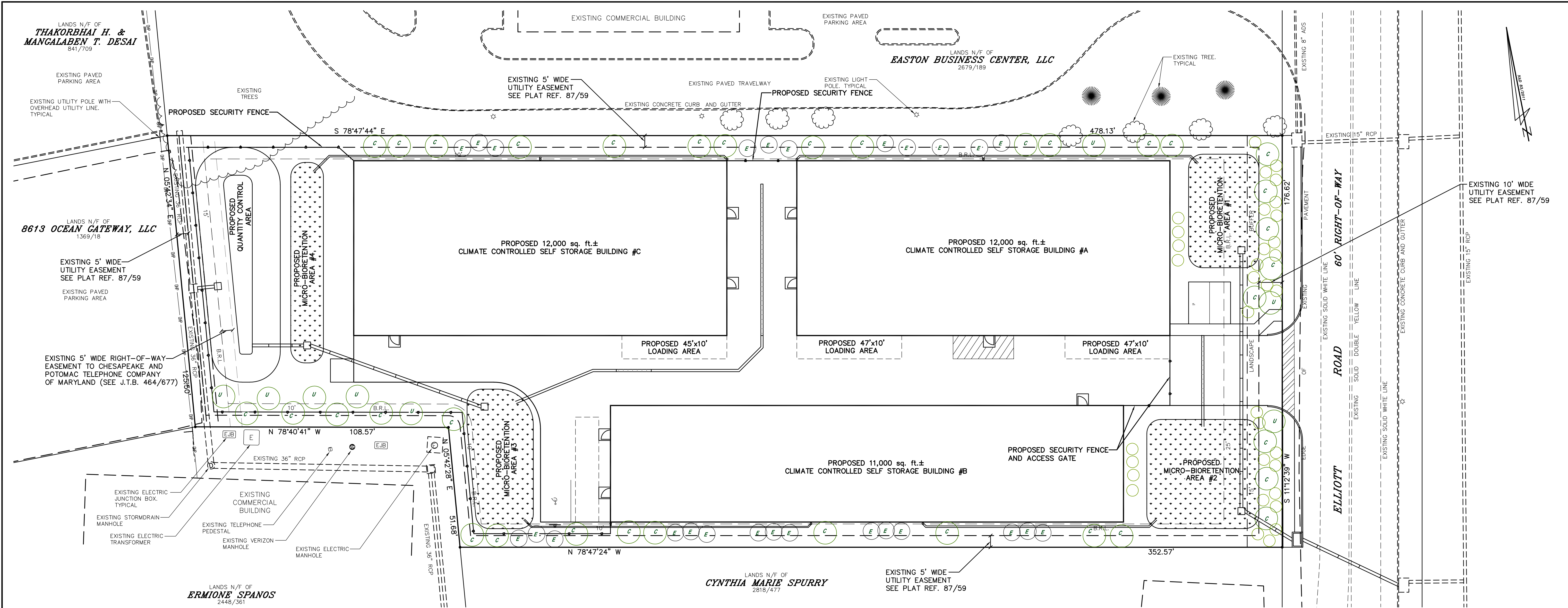
DATE	REVISION
6/7/2023	PER 06/22 ESDR COMMENTS

PRELIMINARY UTILITY PLAN & EMERGENCY SITE ACCESS PLAN
FOR THE DEVELOPMENT OF
CLIMATE CONTROLLED SELF STORAGE
ON THE LANDS OF
FRIEL STORAGE, LLC.
IN THE TOWN OF EASTON, 1st Elect. Dist., TALBOT Co., MARYLAND
TAX MAP - 109, PARCEL - 2849

DATE MAY '22	SCALE 1" = 20'
JOB No. 2022009	DRAWN BY WJM
FOLDER Ref. 109-2022009	DESIGNED BY BD
SHEET No. - C-6	
CADD FILE - 22009C06	



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LANDSCAPE PLAN

NARRATIVE:

THIS SITE IS LOCATED WITHIN A COMMERCIAL ZONING DISTRICT, SURROUNDED BY DEVELOPED COMMERCIAL ESTABLISHMENTS. THERE IS CURRENTLY NO EXISTING FOREST ON SITE, THERE IS ONE DECIDUOUS TREE ON SITE, WHICH WILL BE REMOVED FOR CONSTRUCTION.

PER SECTION 28-1014.6 OF THE TOWN OF EASTON ZONING ORDINANCE, THE FOLLOWING LANDSCAPE PLANTINGS ARE REQUIRED IN THIS SECTION:

ONE (1) TREE PER 3,000 SF OF DISTURBED AREA PER SECTION 2-1017.6F
RESPONSE: DISTURBED AREA = 77,319 SQ.FT. (BUILDING AND PAVEMENT AREA), THUS 25 TREES REQUIRED AND PROVIDED.

ONE (1) INTERIOR PARKING LOT TREE PER SECTION 28-1014.6F(2)(a)
RESPONSE: SEVERAL TREES AND SHRUBS ARE PROVIDED LOCATED NEAR THE PARKING AREA.

PARKING LOT SCREENING WITH AN EVERGREEN SHRUB HEDGE WHICH WILL GROW TO A MINIMUM OF 42" HEIGHT WITHIN 5 YEARS ALONG ALL STREET FRONTS, AND ALONG ALL, OR PORTIONS OF SIDES VISIBLE FROM A STREET, EXCLUDING THE BUILDING OR FACILITY ACCESS SIDES PER SECTION 28-1014.6F(2)(b)
RESPONSE: THERE IS NO INTERIOR PARKING LOT, AS PATRONS WILL ENTER THE BUILDING FROM AN INTERNAL ENTRY SYSTEM AND WILL NOT STAY FOR AN EXTENDED PERIOD OF TIME, THEIR IS EXTENSIVE SCREENING ALONG THE FRONT FACADE, BOTH WITH LANDSCAPE PLANTINGS AND STORMWATER MANAGEMENT PLANTINGS, AS WELL AS CANOPY AND UNDERSTORY TREES ALONG EITHER SIDE PROPERTY LINE.

ONE (1) DECIDUOUS SHADE / CANOPY TREE PER EVERY 20' OF BUILDING FACADE PERIMETER VISIBLE FROM STREET PER SECTION 28-1016.F(2)(C).
RESPONSE: THE CANOPY TREES PROVIDED ALONG THE FRONT OF THE LOT SATISFY THIS REQUIREMENT.

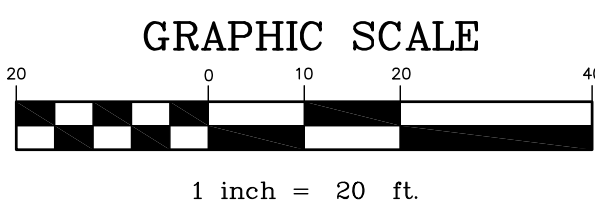
- LANDSCAPE INSTALLER SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK. INSTALLER SHALL INSURE THAT FINAL GRADES HAVE BEEN ESTABLISHED AND THE SITE IS READY FOR LANDSCAPE INSTALLATION.
- LANDSCAPE INSTALLER SHALL MAINTAIN THE LANDSCAPE IMPROVEMENT AREAS IN A CLEAN CONDITION, 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 S OIL 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 UP HILL 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 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.

LANDSCAPE STOCK LEGEND - SITE LANDSCAPING

PROPOSED LANDSCAPE PLANTING:

- = NATIVE CANOPY TREE (MIX)
- = NATIVE UNDERSTORY TREE (MIX)
- = NATIVE EVERGREEN TREE (MIX)
- = NATIVE LARGE SHRUB (MIX)

AREA SHOWN SHALL BE MICRO-BIORETENTION AREAS WITH NATIVE WATER TOLERANT PLANTINGS.



TOWN OF EASTON PLANNING AND ZONING		TOWN OF EASTON ENGINEER	DATE 6/7/2023		SEAL		DMS & ASSOCIATES, LLC P.O. BOX 80 CENTREVILLE, MARYLAND 21617		DATE 6/7/2023	REVISION PER 06/22 ESDR COMMENTS	PRELIMINARY LANDSCAPE PLAN FOR THE DEVELOPMENT OF CLIMATE CONTROLLED SELF STORAGE ON THE LANDS OF FRIEL STORAGE, LLC. IN THE TOWN OF EASTON, 1st Elect. Dist., TALBOT Co., MARYLAND TAX MAP - 109, PARCEL - 2849		DATE MAY '22	SCALE 1" = 20'
EASTON UTILITIES - ENGINEER			DATE 6/7/2023		SEAL		FINK, WHITTEN & ASSOCIATES, LLC. LAND SURVEYING 410-822-8844 113 E. Dover St., Unit C Easton, Maryland 21601				JOB No. 2022009 FOLDER Ref. 109-2022009 SHEET No. - L-1 CADD FILE - 22009-L1		DRAWN BY WJM DESIGNED BY BD	

FEATURE	YES	NO
CONTIGUOUS FOREST		X
WETLANDS		X
STREAMS		X
FLOODPLAINS		X
HYDRIC SOILS		X
PRIME AGRICULTURE SOILS		X
SOILS WITH K-FACTOR ABOVE 35		X
SLOPES GREATER THAN 25%		X
HISTORICAL AND CULTURAL FEATURES		X
TREES >30" DBH		X
STATE CHAMPION TREES		X
TREES >75% STATE CHAMPION		X
RARE, THREATENED OR ENDANGERED FLORA		X
RARE, THREATENED OR ENDANGERED FAUNA HABITAT		X

NARRATIVE:

THIS SITE IS LOCATED WITHIN A COMMERCIAL ZONING DISTRICT WHERE LITTLE TO NO NATIVE VEGETATION EXISTS. THERE IS CURRENTLY NO FOREST ON SITE. ONE MATURE HARDWOOD TREE EXISTS ON SITE, WHICH WILL BE REMOVED FOR DEVELOPMENT. THE REMAINDER OF THE SITE IS IN OPEN LAWN AREA.

NO SPECIAL HABITAT OR PROTECTED ENVIRONMENTAL FEATURES ARE KNOWN TO BE PRESENT ON THE SITE.

OWNERS OBJECTIVES: THE FOREST STAND DELINEATION AND FOREST CONSERVATION PLAN FOR THE SITE PLAN IS INTENDED TO COMPLY WITH THE FOREST CONSERVATION REGULATIONS FOR THE TOWN OF EASTON.

PROPOSED DEVELOPMENT / USE: THE LOT WILL BE IMPROVED WITH (3) CLIMATE CONTROLLED STORAGE BUILDINGS WITH ASSOCIATED PAVED PARKING AND DRIVE AISLES.

FOREST SOIL TYPES: Up - URBAN LAND

TOPOGRAPHY: THE SITE HAS NO SIGNIFICANT CHANGES IN ELEVATION.

CRITICAL HABITAT AREAS OR RARE, THREATENED AND ENDANGERED SPECIES OF PLANTS AND ANIMALS: A REQUEST WAS SUBMITTED TO MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR) REQUESTING INFORMATION REGARDING THE PRESENCE OF RARE, THREATENED AND ENDANGERED SPECIES, HISTORIC SITES, AND CRITICAL HABITATS. ON XXXXX XX, 2022, DNR RESPONDED STATING THAT THERE ARE NO OFFICIAL STATE OR FEDERAL RECORDS FOR LISTED PLANT OR ANIMAL SPECIES WITHIN THE DELINEATED PROJECT AREA.

ADJACENT LAND USE: COMMERCIAL

HYDROLOGY, WETLANDS, STREAMS AND BUFFERS: THE SITE DOES NOT CONTAIN ANY HYDROLOGIC FEATURES, WETLANDS, STREAMS OR BUFFERS OF ANY KIND.

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

CULTURAL FEATURES: NONE

FOREST CONSERVATION REQUIRED: .266 ACRES
FOREST CONSERVATION PROVIDED: .266 ACRES USING CREDITS FOR LANDSCAPE PLANTINGS
35 DECIDUOUS CANOPY TREES PROVIDED AT 400 SQ.FT. CREDIT EACH = .321 ACRES

LOCATION AND TYPES OF PROTECTIVE DEVICES: FOREST RETENTION AREAS ARE TO BE PROTECTED FROM CONSTRUCTION ACTIVITIES. PLACEMENT OF HIGHLY VISIBLE SIGNAGE SHALL BE PLACED PRIOR TO ANY LAND CLEARING OR GRADING. THESE DEVICES SHALL BE MAINTAINED THROUGHOUT THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT. ATTACHMENT OF SIGNS OR OTHER OBJECTS TO TREES IS PROHIBITED AND NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THE PROTECTED AREAS. SIGNS ON THE EDGES OF FOREST CONSERVATION AREAS ARE TO REMAIN ON SITE IN A HIGHLY VISIBLE PLACEMENT AND BE MAINTAINED FOR NOT LESS THAN FIVE YEARS AFTER CONCLUSION OF DEVELOPMENT ACTIVITIES.

M. STARK MCLAUGHLIN
FORESTER RPF#159

FOREST CONSERVATION NOTES:

PRIOR TO THE COMMENCEMENT OF ANY DEVELOPMENT ACTIVITIES AND IF THESE ACTIVITIES ARE TO OCCUR WITHIN 25' OF THE FOREST CONSERVATION RETENTION AREA(S), NOTIFY THE TOWN OF EASTON DEPARTMENT OF PLANNING & ZONING (410-822-1943, FOREST CONSERVATION COORDINATOR) TO DETERMINE IF TEMPORARY PROTECTIVE DEVICES (SILT, BLAZE, WIRE &/OR WOOD FENCING) ARE REQUIRED. IF REQUIRED, DEVICES ARE TO BE INSTALLED AND INSPECTED BY THIS OFFICE PRIOR TO THE COMMENCEMENT OF ANY DEVELOPMENT ACTIVITIES. OWNER MAY BE SUBJECT TO INSTALLATION OF PROTECTIVE DEVICES.

PROTECTIVE DEVICES MUST BE SURVEY LOCATED, OR AS DIRECTED BY THE TOWN OF EASTON FOREST CONSERVATION COORDINATOR. THE TOWN RESERVES THE RIGHT TO MAKE ON-SITE TREE-BY-TREE DECISIONS WHEN INSPECTING RETENTION AREAS FOR CRITICAL ROOT ZONE PROTECTION.

MATERIALS AND STOCKPILE AREAS SHALL BE LOCATED OUTSIDE, AND AT LEAST 25' AWAY FROM THE BOUNDARY OF THE FOREST CONSERVATION AREA(S).

PRIOR TO REQUESTING A CERTIFICATE OF OCCUPANCY, NOTIFY THE TOWN OF EASTON DEPARTMENT OF PLANNING & ZONING (410-822-1943, FOREST CONSERVATION COORDINATOR) TO DETERMINE PROTECTIVE DEVICE REMOVAL. FENCING SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED. SIGNAGE AND OTHER PERMANENT PROTECTIVE DEVICES ARE TO REMAIN IN PERPETUITY.

LONG TERM PROTECTION: THE FOREST CONSERVATION AREA(S) AS SHOWN ON THIS PLAN, ARE SUBJECT TO A LONG TERM PROTECTION AGREEMENT ENTITLED FOREST CONSERVATION EASEMENT DOCUMENT, RECORDED IN THE TALBOT COUNTY LAND RECORDS LIBRARY, VOLUME 10, PAGE 100. THIS AGREEMENT, WHICH IS A CONDITION OF THE SALE OF THIS PROPERTY, IS A PART OF THE RECORDS OF THE TALBOT COUNTY LAND RECORDS LIBRARY. UNLESS OTHERWISE SPECIFICALLY NOTED, PRECLUDES MOWING, TRIMMING, CLEARING, REMOVAL OR OTHERWISE DESTRUCTION OF ANY FOREST PLANTS. THIS AGREEMENT IS UNDER THE JURISDICTION OF THE TOWN OF EASTON DEPARTMENT OF PLANNING AND ZONING. THIS AGREEMENT RUNS PERPETUAL WITH THE PROPERTY, AND IS BINDING UPON THE OWNER(S), OCCUPANTS, AND THEIR PERSONAL ESTATE. THIS AGREEMENT IS A CONDITION OF THE SALE OF THIS PROPERTY AND MUST BE DISCLOSED TO ANY SUBSEQUENT SALE CONTRACT, LEASE, MORTGAGE, DEED OR OTHER LEGAL PROPERTY INSTRUMENT.

THE TOWN OF EASTON DEPARTMENT OF PLANNING & ZONING RESERVES THE RIGHT TO INSPECT THE FOREST CONSERVATION AREA(S) AT ANY FUTURE DATE, WITH PRE-NOTIFICATION OF THE PROPERTY OWNER OR THEIR REPRESENTATIVE, AND TO ENFORCE THE PROVISIONS OF THE PLANTING AGREEMENT AND/OR THE LONG TERM PROTECTIVE DEED OF FOREST CONSERVATION EASEMENT AT ANY TIME.

FOREST CONSERVATION CALCULATIONS:

TOTAL SITE AREA	=	1.775	ACRES
NET TRACT AREA	=	1.775	ACRES
EXISTING FOREST ON SITE	=	0.000	ACRES
FOREST TO BE CLEARED	=	0.000	ACRES
FOREST TO BE RETAINED	=	0.000	ACRES
FOREST CONSERVATION AREA REQUIRED	=	0.266	ACRES

TOTAL FOREST CONSERVATION PROVIDED = 0.321 ACRES
(LANDSCAPE PLANTINGS)

NOTE: PER SECTION 28-1014.5B OF THE TOWN OF EASTON ZONING ORDINANCE, LANDSCAPE PLANTINGS REQUIRED IN THIS SECTION AND MEETING THE SIZE AND SPECIFICATION REQUIREMENTS OF THIS SECTION, MAY BE CREDITED AGAINST AFFORESTATION OR REFORESTATION REQUIREMENTS OF A RELATED FOREST CONSERVATION PLAN FOR THE SAME SITE, IN ACCORDANCE WITH THE FOLLOWING SCHEDULE: (1) DECIDUOUS, SHADE/CANOPY TREES, 400 SQ. FT. AREA; (2) EVERGREEN TREES, 250 SQ. FT. AREA AND (3) UNDERSTORY TREES, 125 SQ. FT. AREA.

DECIDUOUS CANOPY TREES SHOWN HEREON SHALL COUNT TOWARDS FOREST CONSERVATION REQUIREMENT; EVERGREEN TREES SHALL NOT AND ARE PROVIDED TO MEET LANDSCAPE REQUIREMENTS (BUFFER YARD) ONLY.

35 DECIDUOUS CANOPY TREES PROPOSED @ 400 S.F. CREDIT = .321 ACRES (14,000 S.F.); SEE LANDSCAPE PLAN FOR LOCATION
TOTAL CREDIT PROVIDED TOWARDS FOREST CONSERVATION = .321 ACRES
TOTAL REQUIRED FOREST CONSERVATION = .266 ACRES

THIS FOREST CONSERVATION PLAN IS ACCEPTED BY THE PROPERTY OWNER:

JAY FRIEL, FRIEL STORAGE, LLC. DATE

THIS FCP PLAN HAS BEEN REVIEWED AND APPROVED:

FOREST CONSERVATION AGENT, TOWN OF EASTON DATE

		DAVIS, MOORE, SHEARON & ASSOCIATES, LLC P.O. BOX 80 CENTREVILLE, MARYLAND 21617		DATE 6/7/2023 REVISION PER 06/22 ESOR COMMENTS		PRELIMINARY FOREST CONSERVATION PLAN FOR THE DEVELOPMENT OF <i>CLIMATE CONTROLLED SELF STORAGE</i> ON THE LANDS OF <i>FRIEL STORAGE, LLC.</i> IN THE TOWN OF EASTON, 1st Elect. Dist., TALBOT Co., MARYLAND TAX MAP - 109, PARCEL - 2849		DATE MAY '22 SCALE 1" = 20'	
TOWN OF EASTON PLANNING AND ZONING				TOWN OF EASTON ENGINEER				JOB No. 2022009 DRAWN BY WJM	
		FINK, WHITTEN & ASSOCIATES, LLC. LAND SURVEYING 410-822-8484 410-228-8885 113 E. Dover St., Unit C 504 Maryland Avenue Easton, Maryland 21601 Cambridge, Maryland 21613				FOLDER Ref. 109-2022009 DESIGNED BY BD			
						SHEET No. - FCP			
EASTON UTILITIES - ENGINEER				DATE 6/7/2023 _____ DATE SEAL		CADD FILE - 22009-FCP			

STORMWATER MANAGEMENT NARRATIVE AND CALCULATIONS

FOR

PRELIMINARY SITE PLAN

FOR

CLIMATE CONTROLLED SELF STORAGE

**LOT 4 OF ELLIOTT ROAD
EASTON, MARYLAND 21601**

PREPARED FOR:

**FRIEL STORAGE, LLC.
C/O JAY FRIEL
47 PROSPECT BAY DR W
GRASONVILLE, MD 21638**

AND

**FINK, WHITTEN &
ASSOCIATES, LLC.
C/O ELIZABETH FINK
113 E. DOVER ST., UNIT C
EASTON, MD 21601**

PREPARED BY:

**DMS & ASSOCIATES, LLC
P.O Box 80
CENTREVILLE, MD 21617
DMS JOB# 2022009**

PRELIMINARY PLAN DATE: JUNE, 2022

REVISED: JUNE, 2023



Davis, Moore, Shearon & Associates, LLC



P.O. Box 80 Centreville, MD 21617
Phone: (443) 262-9130
Email: email@dmsandassociates.com

STORMWATER MANAGEMENT NARRATIVE

PRELIMINARY PLAN

ELLIOTT ROAD – LOT 4

The subject property is located on Elliott Road in Easton, Maryland. The lot is a vacant lawn area and is commercially zoned. The lot is south of the Staples strip center, east of MyDocsIn, northeast of Aldi's, north of Spurry's Auto Center, and west of Elliott Road. This 1.775 acre lot is covered in lawn. There is a drainage swale along the southern portion of the Elliott Road frontage and storm drain at the northeast corner of the property along Elliott Road. There is a storm drain system running along the rear of the property also. The drainage from the subject property is general spilt equally in the existing conditions to the front and rear of the site. The soils inherent to the subject property are classified as Urban Land (Up) by the USDA-NRCS soil survey. These soils are thereby considered hydrologic soil group "D".

Project Description

The proposed project will construct three climate controlled self storage buildings with required access, parking, and associated improvements. The three buildings are elongated in shape to mimic the property shape. The roof lines of the buildings will run down the middle of their long axis and drain equally north and south for each building. Roof leaders will be applied as needed to direct runoff to appropriate treatment areas. Trench drains and storm drain in the middle of the site will collect roof and pavement runoff and direct it to stormwater treatment areas. Front and rear treatment areas will connection to nearby existing stormdrain.

Quality Control

The proposed project will result in approximately 1.79 acres of disturbance with 1.19 acres of impervious area (or 66.1% imperviousness). Water quality measures will be provided to meet the requirements of the Town of Easton Stormwater Management Ordinance and chapter 5 of the Maryland Department of the Environment (MDE) Stormwater Management Design Manual. Per chapter 5 of the MDE SWM Design Manual, Environmental Site Design (ESD) will be implemented to the Maximum Extent Practicable. The resulting ESD volume requirement for this project is 7,556 c.f. and recharge volume requirement (Rev) of 294 c.f. Two micro-bioretenention devices in the front of the property and two in the rear of the property will provide water quality treatment to address ESD and Rev requirements. The micro-bioretenention areas will meet the restrictions inherent to their respective drainage areas. They will filter runoff, allow it to infiltrate where possible, and will direct it to quantity control areas or storm drain system. The proposed treatment will provide 10,009 c.f. of ESD volume and 4,155 c.f. of Rev volume. The site will mimic woods in good condition as these measures provide ESD to the MEP, and thereby address water quality, ESD, recharge, and channel protection requirements.

Quantity Control

NRCS USDA TR-55 methodology was utilized to compute pre project and post project runoff curve numbers, times of concentration, and peak flow values (without consideration for ESD treatment). ESD is provided to the MEP for the project. That ESD treatment is taken into consideration using the MDE Stormwater Design Guidance – Addressing Quantity Control Requirements supplement. The calculation procedure of determining a reduced curve number for both the 2 and 10 year storms was completed for each outfall drainage area. Those reduced curve

numbers are utilized in TR-55 to determine the positive effects that the ESD treatment has on the peak discharges at the outfall locations.

Front Outfall at Elliott Road Existing Stormdrain

Two micro bioretentions in the front of the property and two in the rear of the property will provide required water quality treatment for the site. The extra storage in the two front micro-bioretentions will also address quantity treatment requirements to the front outfall. Given ESD is met to the MEP, the quality treatment provides a reduced curve number for the 2 year and 10 year storms. The front outfall area also has a reduction in drainage area in that direction between pre and post project conditions. The reduction to drainage area and the reduced curve number provided by ESD to the MEP result in the reduction of post project peak flows versus pre project, therefore quantity control requirements are met.

Rear Outfall to Existing Stormdrain

A quantity control treatment area is provided in the rear of the property and addresses quantity treatment requirements for the rear outfall. The provided calculations currently do not even consider the reduced curve numbers calculated based on the provided ESD treatment. TR-20 methodology has been utilized and is conservative given no reduced CNs are used. The analysis shows the post project peak flows do not exceed pre project, based on the provided detention volume and outfall structure. Therefore, quantity control for the increase to runoff and drainage area to the rear of the site is addressed.

The combination of ESD treatment and quantity control storage for the project will allow it to mimic the pre project outfall peak flows. The proposed water quality and quantity measures collect, store, filter and discharge runoff in a responsible manner. The piping, storm drain structures, rip rap protection, and storm drain connections will provide controlled release of treated stormwater to the existing downstream conveyance systems. Neighboring properties will not be negatively impacted as side drainage is capture in roof leader systems and directed towards outfalls even though the southern and southwestern neighbors receive direct runoff in the pre project conditions.

In conclusion, we feel that this preliminary site plan and associated SWM calculations support that this project abides by all Town and MDE SWM requirements for recommendation of preliminary SWM approval.

DMS

Davis, Moore, Shearon, & Associates, LLC
Engineering, Drafting/Design, Environmental Services & Surveying

Site Name: Duley - Climate Controlled Storage Designed By: B.A.D.
Date: Jun-23 Checked By: W.T.D.
Description: Development Conditions

Determine ESD Implementation:

$$ESD_v = \frac{(P_E)(R_v)(A)}{12.00}$$

A = Site Area
 I = % Imperviousness
 $R_v = 0.05 + 0.009(I)$

P_E = Rain Fall Target From Tbl. 5.3 (RCN Reductions)
(Total $P_E \times \text{Area}$) / Area = Weighted P_E

ESD_v = Runoff Volume for ESD design

Site Data Redeveloped Site= No

Area A = 1.793 acres LOD
Prop. Hard Surfaces = 1.185 acres
Alternative Surfaces = 0.000
Net Imp. Area = 1.185
% Impervious = 66.1 %
 R_v = 0.645
Zone = eastern
 P_E = 1.80 inches

ESD_v = <u>0.173</u> ac-ft or <u>7,556</u> cf
--

$ESD_{v \text{ redev}}$ = ESD Volume for redevelopment site

$A_{\text{redev}} = (0.50)(\text{Ex. Imp. Area}) - (\text{Ex. Imp. Area} - \text{Prop. Imp. Area})$
 $A_{\text{redev}} = 0$ acres

Ex. Imp. Area _____ acres

$ESD_{v \text{ redev}}$ = <u>0.000</u> ac-ft or <u>0</u> cf
--

Compute Recharge Volume (Rev)

HSG	RCN (woods)	P_E Table 5.3	$P_E \times \text{Area}$	RCN xArea	Recharge factor (S)	Area	%
A	38	0.00	0.00	0	0.38	0.000	0.00%
B	55	0.00	0.00	0	0.26	0.000	0.00%
C	70	0.00	0.00	0	0.13	0.000	0.00%
D	77	1.80	3.23	138	0.07	1.793	100.00%
TOTALS			3.23	138		1.793	100.00%

$S = 0.07$

a.) $Rev = \frac{[(S)(R_v)(A)]}{12}$
(percent volume method)

Rev = <u>0.007</u> ac-ft or <u>294</u> cf
--

Table 5.3 Runoff Curve Number Reductions used for Environmental Site Design

Hydrologic Soil Group D										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	80									
5%	81									
10%	82									
15%	83									
20%	84	77								
25%	85	78								
30%	85	78	77	77						
35%	86	79	78	78						
40%	87	82	75	79	77					
45%	88	82	76	79	78					
50%	89	83	76	80	78					
55%	90	84	76	80	78					
60%	91	85	78	81	78					
65%	92	85	80	81	78					
70%	93	86	80	81	78					
75%	94	86	81	81	78					
80%	94	86	82	82	79					
85%	95	86	82	82	79					
90%	96	87	83	82	79	77				
95%	97	88	85	82	80	78				
100%	98	89	86	83	80	78	77			

☐ Cpv Addressed (RCN = Woods in Good Condition)

☐ RCN Applied to Cpv Calculations

NON-STRUCTURAL

AND

ESD PRACTICES

CRITERIA & DESIGN PARAMETERS MET FOR SELECTED PRACTICE

M-6 Micro-Bioretenention (page 5.96 of the MDE SWM design manual):

Performance Criteria:

- Equation 5.2 is applied during the sizing criteria to ensure that the device is had an adequate area and volume provided. Recharge requirements are not required in a redevelopment criteria situation.

Constraints:

- Space – the provided area aligns with the site shape and is adequate area for the contributing impervious area and overall drainage area.
- Topography – the site is less than 5% and will be flat in the treatment area. Runoff will enter the SWM area using sheet flow, or piped with riprap protection.
- Soils – the developed nature of the site and associated soils have led us to this practice since undisturbed high infiltrating soils are not available. An underdrain will be provided to avoid ponding water.
- Drainage Area – the drainage areas meets the constraints.
- Hotspot Runoff – this site is not considered a hotspot
- Infrastructure – the selected locations avoid conflicts with existing utilities and is in a convenient location to easily tie into existing stormwater conveyance system.

Design Guidance:

- Conveyance – the SWM is located off line and not in series with other conveyance paths. Runoff will enter the treatment area in a stable manner. The proposed underdrain will convey treated runoff to existing storm drain system.
- Treatment – the device meets within reason the maximum drainage area, capture volume, surface area minimum, filter bed depth, groundwater avoidance, media layering, and material spec. requirements.
- Setbacks – the SWM area meets all MDE recommended setbacks from buildings, wells, and utilities.
- Landscaping – plantings are provided in the SWM area to provide nutrient uptake, filtration surface stabilization and gel with landscaping.

Construction Criteria:

- Sediment and Erosion Control – the construction sequencing requires drainage areas to be stabilized before SWM is installed.
- Soil Compaction – the SWM area is set off to the sides of the LOD to avoid construction traffic and associated compaction.
- Underdrain Installation – gravel and drain specifications are shown on the plans per MDE recommendations.
- Filter Media Installation – soils specifications are shown on the plans per MDE recommendations.
- Landscaping – plantings should be installed at the optimum seasonal timing, otherwise provisions should be made to ensure their health

Inspection and Maintenance Criteria:

- Inspection and Maintenance procedures are provided on the plans.

DMS

Davis, Moore, Shearon, & Associates, LLC
Engineering, Drafting/Design, Environmental Services & Surveying

Project: Duley - Climate Controlled Storage

Micro-Bioretenction

Device: MB #1

<u>Filter Bed Requirements</u>				
Device Drainage Area =	15793	sq. Ft.		
Minimum Af (2% of DA) =	316	sq. Ft.		
<u>ESDv Targets</u>				
DA Impervious Area =	13491	sq. Ft.	% Site Area =	26.1%
Device DA %I =	85.42	%		
Device DA Rv =	0.819			
Soil Type	D			
Minimum Device P _E Target =	1.00	inches		
Minimum Device ESDv =	1078	cu.Ft.		
ESDv burden per % Site Area =	1974	cu.Ft.		
1-year P _E =	2.70	inches		
1-year Strom Max. ESDv =	2910	cu.Ft.		
<u>Provided</u>				
Af Provided =	1023	sq. Ft.	d _{mulch} =	3 inches
			d _{soil} =	12 inches
			d _{pea} =	4 inches
			d _{stone} =	12 inches
			porosity =	0.40
Temp Pond. Area Prov. =	1437	sq. Ft.	D _{temp. Stor.} =	12 inches
Media Storage Provided =	1057	cu.Ft.		
Temp Pond. Stor. Prov. =	1230	cu.Ft.		
Total ESDv Provided =	2287	cu.Ft.		
<u>Re_v</u>				
Soils S Factor =	0.07			
P _E Achieved	0.972	inches	(Equation 5.2)	
P _E Achiev. > Soil S Factor (yes/no):	yes			
Re _v Credit:	955	cu.Ft.		
<u>Additional Considerations</u>				
Underdrain Provided (yes/no):	yes			
Notes: Device will have perforated underdrain and tie to stormdrain				

DMS

Davis, Moore, Shearon, & Associates, LLC
Engineering, Drafting/Design, Environmental Services & Surveying

Project: Duley - Climate Controlled Storage

Micro-Bioretenction

Device: MB #2

<u>Filter Bed Requirements</u>				
Device Drainage Area =	13731	sq. Ft.		
Minimum Af (2% of DA) =	275	sq. Ft.		
<u>ESDv Targets</u>				
DA Impervious Area =	10621	sq. Ft.	% Site Area =	20.6%
Device DA %I =	77.35	%		
Device DA Rv =	0.746			
Soil Type	D			
Minimum Device P _E Target =	1.00	inches		
Minimum Device ESDv =	854	cu.Ft.		
ESDv burden per % Site Area =	1554	cu.Ft.		
1-year P _E =	2.70	inches		
1-year Strom Max. ESDv =	2305	cu.Ft.		
<u>Provided</u>				
Af Provided =	1709	sq. Ft.	d _{mulch} =	3 inches
			d _{soil} =	12 inches
			d _{pea} =	4 inches
			d _{stone} =	12 inches
			porosity =	0.40
Temp Pond. Area Prov. =	2219	sq. Ft.	D _{temp. Stor.} =	12 inches
Media Storage Provided =	1766	cu.Ft.		
Temp Pond. Stor. Prov. =	1964	cu.Ft.		
Total ESDv Provided =	3730	cu.Ft.		
<u>Re_v</u>				
Soils S Factor =	0.07			
P _E Achieved	1.867	inches	(Equation 5.2)	
P _E Achiev. > Soil S Factor (yes/no):	yes			
Re _v Credit:	1595	cu.Ft.		
<u>Additional Considerations</u>				
Underdrain Provided (yes/no):	yes			
Notes: Device will have perforated underdrain and tie to stormdrain				

DMS

Davis, Moore, Shearon, & Associates, LLC
Engineering, Drafting/Design, Environmental Services & Surveying

Project: Duley - Climate Controlled Storage

Micro-Bioretenction

Device: MB #3

<u>Filter Bed Requirements</u>				
Device Drainage Area =	19287	sq. Ft.		
Minimum Af (2% of DA) =	386	sq. Ft.		
<u>ESDv Targets</u>				
DA Impervious Area =	16748	sq. Ft.	% Site Area =	32.4%
Device DA %I =	86.84	%		
Device DA Rv =	0.832			
Soil Type	D			
Minimum Device P _E Target =	1.00	inches		
Minimum Device ESDv =	1337	cu.Ft.		
ESDv burden per % Site Area =	2451	cu.Ft.		
1-year P _E =	2.70	inches		
1-year Strom Max. ESDv =	3611	cu.Ft.		
<u>Provided</u>				
Af Provided =	1088	sq. Ft.	d _{mulch} =	3 inches
			d _{soil} =	12 inches
			d _{pea} =	4 inches
			d _{stone} =	12 inches
			porosity =	0.40
Temp Pond. Area Prov. =	1536	sq. Ft.	D _{temp. Stor.} =	12 inches
Media Storage Provided =	1124	cu.Ft.		
Temp Pond. Stor. Prov. =	1312	cu.Ft.		
Total ESDv Provided =	2436	cu.Ft.		
<u>Re_v</u>				
Soils S Factor =	0.07			
P _E Achieved	0.846	inches	(Equation 5.2)	
P _E Achiev. > Soil S Factor (yes/no):	yes			
Re _v Credit:	1015	cu.Ft.		
<u>Additional Considerations</u>				
Underdrain Provided (yes/no):	yes			
Notes: Device will have perforated underdrain and tie to stormdrain				

DMS

Davis, Moore, Shearon, & Associates, LLC
Engineering, Drafting/Design, Environmental Services & Surveying

Project: Duley - Climate Controlled Storage

Micro-Bioretenction

Device: MB #4

<u>Filter Bed Requirements</u>			
Device Drainage Area =	13869	sq. Ft.	
Minimum Af (2% of DA) =	277	sq. Ft.	
<u>ESDv Targets</u>			
DA Impervious Area =	10012	sq. Ft.	% Site Area = 19.4%
Device DA %I =	72.19	%	
Device DA Rv =	0.700		
Soil Type	D		
Minimum Device P _E Target =	1.00	inches	
Minimum Device ESDv =	809	cu.Ft.	
ESDv burden per % Site Area =	1465	cu.Ft.	
1-year P _E =	2.70	inches	
1-year Strom Max. ESDv =	2184	cu.Ft.	
<u>Provided</u>			
Af Provided =	632	sq. Ft.	d _{mulch} = 3 inches
			d _{soil} = 12 inches
			d _{pea} = 4 inches
			d _{stone} = 12 inches
			porosity = 0.40
Temp Pond. Area Prov. =	1173	sq. Ft.	D _{temp. Stor.} = 12 inches
Media Storage Provided =	653	cu.Ft.	
Temp Pond. Stor. Prov. =	903	cu.Ft.	
Total ESDv Provided =	1556	cu.Ft.	
<u>Re_v</u>			
Soils S Factor =	0.07		
P _E Achieved	0.684	inches	(Equation 5.2)
P _E Achiev. > Soil S Factor (yes/no):	yes		
Re _v Credit:	590	cu.Ft.	
<u>Additional Considerations</u>			
Underdrain Provided (yes/no):	yes		
Notes: Device will have perforated underdrain and tie to stormdrain			

<u>Device #</u>	<u>Type</u>	<u>Provided ESDv</u>	<u>Provided Rev</u>
MB #1	Micro-Bioretentation	2287	955
MB #2	Micro-Bioretentation	3730	1595
MB #1	Micro-Bioretentation	2436	1015
MB #2	Micro-Bioretentation	1556	590
Total		10009	4155

Summary

Step	Requirement	Volume Required (cft)	Volume Provided (cft)	Notes
1	ESD _v =	7556	10009	Micro-Bioretentation
2	Recharge (Rev)	294	4155	Micro-Bioretentation
3	Channel Protection (CPv)	N/A	N/A	ESD to MEP and overflow volume storage
4	Overbank Flood (Qp)	5783	7723	Quantity Control Area and MicroBio Ponding Storage
5	Extreme Flood (Qf)	N/A	N/A	N/A

Worksheet 2: Runoff curve number and runoff

Project: Duley - Self Storage

By: BD

Date: June-23

Location: Elliott Rd, Easton

Checked: _____

Date: _____

Check one: Present ☒ Developed ☐

Notes: Existing Conditions DA 1 - Western Outfall

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition)	CN			Area acres mi ² %	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4		
D	Lawn	80			0.6862	54.898072
D	IMPERVIOUS	98			0.0843	8.2656566
D	Woods	77			0	0
						0
						0
						0
						0
Totals =					0.7706	63.163728

1/ Use only one CN source per line

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area (acres)}} = \frac{63.16372819}{0.77056933} = 81.97$$

Use CN = 82

2. Runoff

Frequency..... yr

Rainfall, P (24-hour)..... in

Runoff, Q..... in

(Use P and Cn with table 2-1, fig. 2-1 or equ. 2-3 and 2-4)

(210-VI-TR-55, Second Ed., June 1986)

Storm #1	Storm #2	Storm #3
2	10	100
3.33	5.20	8.98
1.643	3.259	6.79

12

Worksheet 3: Time of concentration (Tc) or travel time (Tt)

Project: Duley - Self Storage

By: BD

Date: June-23

Location: Elliott Rd, Easton

Checked: _____

Date: _____

Circle one: Present ☒ Developed ☐

Circle one: Tc ☒ Tt ☐ rough subarea ☐ Notes: Existing Conditions DA 1 - Western Outfall

Sheet flow (Applicable to Tc only) _____ Segment ID

1 surface description (table 3-1)

2 Manning's roughness coeff., n (table 3-1)

3 Flow length, L (total L $\leq$ 300 ft)

4 two-yr 24-hr rainfall, P₂

5 Land slope, s

6 $T_t = 0.007(nL)^{0.8} / P_2^{0.5} s^{0.4}$

ft

in

ft/ft

hr

AB	
LAWN	
0.15	
100	
3.33	
0.0092	
0.22	+

= 0.218

Shallow concentrated flow _____

Segment ID

7 Surface description (paved(P) or unpaved(UP))

8 Flow length, L

9 Watercourse slope, s

10 Average Velocity, V (figure 3-1)

11 $T_t = L / 3600 V$

ft

ft/ft

ft/s

hr

BC	
UP	
103	
0.01	
1.61	
0.018	+

= 0.018

Channel Flow _____

Segment ID

12 Cross sectional flow area, a

13 Wetted perimeter, Pw

14 Hydraulic radius, $r = a / Pw$ compute r

15 Channel slope, s

16 Manning's roughness coeff., n

17 $V = 1.49 r^{2/3} s^{1/2} / n$

18 Flow length, L

19 $T_t = L / 3600 V$

ft²

ft

ft

ft/ft

ft/s

ft

hr

CD	
3.142	
6.28	
0.50	
0.005	
0.013	
5.11	
240	
0.013	+

= 0.013

20 Watershed or subarea Tc or Tt (add Tt in steps 6,11,and 19)

0.249

Worksheet 2: Runoff curve number and runoff

Project: Duley-Self Storage By: BD Date: June-23
 Location: Elliott Rd, Easton

Check one: Present ☐ Developed ☒

Checked: _____ Date: _____

Notes: Proposed Conditions DA 1 - Western Outfall

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition)	CN			Area acres mi ² %	Product of CN x area
		Table 2-2	Fig 2-3	Fig 2-4		
D	Lawn	80			0.3805	30.438935
D	IMPERVIOUS	98			0.623	61.05877
D	Woods	77			0	0
						0
						0
						0
						0
Totals =					1.0035	91.497704

1/ Use only one CN source per line

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area (acres)}} = \frac{91.49770432}{1.003535354} = 91.18$$

Use CN = 91

2. Runoff

Frequency..... yr
 Rainfall, P (24-hour)..... in
 Runoff, Q..... in

Storm #1	Storm #2	Storm #3
2	10	100
3.33	5.20	8.98
2.40	4.20	7.91

(Use P and Cn with table 2-1, fig. 2-1
 or equ. 2-3 and 2-4)
 (210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (Tc) or travel time (Tt)

Project: Duley-Self Storage

By: WTD

Date: June-23

Location: Elliott Rd, Easton

Checked: _____

Date: _____

Circle one: Present ☐ Developed ☒

Circle one: Tc ☒ Tt ☐ rough subarea ☐ Notes: Proposed Conditions DA 1 - Western Outfall

Sheet flow (Applicable to Tc only) Segment ID

1 surface description (table 3-1)

2 Manning's roughness coeff., n (table 3-1)

3 Flow length, L (total L ≤ 300 ft)

4 two-yr 24-hr rainfall, P₂

5 Land slope, s

6 $T_t = 0.007(nL)^{0.8} / P_2^{0.5} s^{0.4}$

ft

in

ft/ft

hr

AB	
Smooth	
0.011	
44	
3.33	
0.005	
0.02	+

+

=

0.018

Shallow concentrated flow

Segment ID

7 Surface description (paved(P) or unpaved(UP))

8 Flow length, L

9 Watercourse slope, s

10 Average Velocity, V (figure 3-1)

11 $T_t = L / 3600 V$

ft

ft/ft

ft/s

hr

0	+

=

0.000

Channel Flow

Segment ID

12 Cross sectional flow area, a

13 Wetted perimeter, P_w

14 Hydraulic radius, $r = a / P_w$ compute r

15 Channel slope, s

16 Manning's roughness coeff., n

17 $V = 1.49 r^{2/3} s^{1/2} / n$

18 Flow length, L

19 $T_t = L / 3600 V$

ft²

ft

ft

ft/ft

ft/s

ft

hr

BC	
1.227	
3.93	
0.31	
0.005	
0.013	
3.73	
382	
0.028	+

+

=

0.028

20 Watershed or subarea Tc or Tt (add Tt in steps 6,11,and 19)

0.046

0.1

Worksheet 2: Runoff curve number and runoff

Project: Duley - Self Storage By: BD Date: June-23
 Location: Elliott Rd, Easton

Check one: Present ☒ Developed ☐

Checked: _____ Date: _____

Notes: Existing Conditions DA 2 - Eastern Outfall

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition)	CN			Area acres mi ² %	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4		
D	Lawn	80			1.0049	80.393021
D	IMPERVIOUS	98			0	0
D	Woods	77			0	0
						0
						0
						0
						0
Totals =					1.0049	80.393021

1/ Use only one CN source per line

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area (acres)}} = \frac{80.39302112}{1.004912764} = 80.00$$

Use CN = 80

2. Runoff

Frequency..... yr
 Rainfall, P (24-hour)..... in
 Runoff, Q..... in

Storm #1	Storm #2	Storm #3
2	10	100
3.33	5.20	8.98
1.503	3.068	6.55

(Use P and Cn with table 2-1, fig. 2-1 or equ. 2-3 and 2-4)
 (210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (Tc) or travel time (Tt)

Project: Duley - Self Storage

By: BD

Date: June-23

Location: Elliott Rd, Easton

Checked: _____ Date: _____

Circle one: Present ☒ Developed ☐

Circle one: Tc ☒ Tt ☐ rough subarea ☐ Notes: Existing Conditions DA 2 - Eastern Outfall

Sheet flow (Applicable to Tc only) _____ Segment ID

1 surface description (table 3-1)

2 Manning's roughness coeff., n (table 3-1)

3 Flow length, L (total L $\leq$ 300 ft)

4 two-yr 24-hr rainfall, P₂

5 Land slope, s

6 $T_t = 0.007(nL)^{0.8} / P_2^{0.5} s^{0.4}$

ft

in

ft/ft

hr

AB	
LAWN	
0.15	
100	
3.33	
0.02	
0.16	+

= 0.160

Shallow concentrated flow _____

Segment ID

7 Surface description (paved(P) or unpaved(UP))

8 Flow length, L

9 Watercourse slope, s

10 Average Velocity, V (figure 3-1)

11 $T_t = L / 3600 V$

ft

ft/ft

ft/s

hr

BC	
UP	
192	
0.011	
1.69	
0.032	+

= 0.032

Channel Flow _____

Segment ID

12 Cross sectional flow area, a

13 Wetted perimeter, Pw

14 Hydraulic radius, $r = a / Pw$ compute r

15 Channel slope, s

16 Manning's roughness coeff., n

17 $V = 1.49 r^{2/3} s^{1/2} / n$

18 Flow length, L

19 $T_t = L / 3600 V$

ft²

ft

ft

ft/ft

ft/s

ft

hr

#VALUE!	+

=

0.192

20 Watershed or subarea Tc or Tt (add Tt in steps 6,11,and 19)

Worksheet 2: Runoff curve number and runoff

Project: Duley-Self Storage By: BD Date: June-23
 Location: Elliott Rd, Easton

Check one: Present ☐ Developed ☒

Checked: _____ Date: _____

Notes: Proposed Conditions DA 2 - Eastern Outfall

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition)	CN			Area acres mi ² %	Product of CN x area
		Table 2-2	Fig 2-3	Fig 2-4		
D	Lawn	80			0.1733	13.864096
D	IMPERVIOUS	98			0.5978	58.579522
D	Woods	77			0	0
						0
						0
						0
						0
Totals =					0.7711	72.443618

1/ Use only one CN source per line

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area (acres)}} = \frac{72.443618}{0.771051423} = 93.95$$

Use CN = 94

2. Runoff

Frequency..... yr
 Rainfall, P (24-hour)..... in
 Runoff, Q..... in

Storm #1	Storm #2	Storm #3
2	10	100
3.33	5.20	8.98
2.67	4.50	8.25

(Use P and Cn with table 2-1, fig. 2-1
 or equ. 2-3 and 2-4)
 (210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (Tc) or travel time (Tt)

Project: Duley-Self Storage

By: WTD

Date: June-23

Location: Elliott Rd, Easton

Checked: _____

Date: _____

Circle one: Present ☐ Developed ☒

Circle one: Tc ☒ Tt ☐ rough subarea ☐

Notes: Proposed Conditions DA 2 - Eastern Outfall

Sheet flow (Applicable to Tc only) _____ Segment ID

1 surface description (table 3-1)

2 Manning's roughness coeff., n (table 3-1)

3 Flow length, L (total L $\leq$ 300 ft)

4 two-yr 24-hr rainfall, P₂

5 Land slope, s

6 $T_t = 0.007(nL)^{0.8} / P_2^{0.5} s^{0.4}$

ft

in

ft/ft

hr

AB	
Smooth	
0.011	
44	
3.33	
0.005	
0.02	+

+

=

0.018

Shallow concentrated flow _____

Segment ID

7 Surface description (paved(P) or unpaved(UP))

8 Flow length, L

9 Watercourse slope, s

10 Average Velocity, V (figure 3-1)

11 $T_t = L / 3600 V$

ft

ft/ft

ft/s

hr

0	+

=

0.000

Channel Flow _____

Segment ID

12 Cross sectional flow area, a

13 Wetted perimeter, Pw

14 Hydraulic radius, $r = a / Pw$ compute r

15 Channel slope, s

16 Manning's roughness coeff., n

17 $V = 1.49 r^{2/3} s^{1/2} / n$

18 Flow length, L

19 $T_t = L / 3600 V$

ft²

ft

ft

ft/ft

ft/s

ft

hr

BC	
1.227	
3.93	
0.31	
0.005	
0.013	
3.73	
255	
0.019	+

+

=

0.019

20 Watershed or subarea Tc or Tt (add Tt in steps 6,11,and 19)

0.037

0.1



Stormwater Design Guidance - Addressing Quantity Control Requirements

Revisions to Maryland's stormwater management regulations in 2010 require that environmental site design (ESD) be used to the maximum extent practicable (MEP) to reduce the volume of runoff from the one-year design storm to levels equivalent to woods in good condition. This will address the groundwater recharge, water quality, and channel protection volumes (Re_v , WQ_v , and Cp_v , respectively) as described in Chapter 2 of the **2000 Maryland Stormwater Design Manual**¹ (the Manual). However, the ESD to the MEP mandate may not completely address overbank flood protection volume (Qp_2 or Qp_{10}) requirements for peak management of the two or ten-year design storm where locally required. In these situations, the volume of runoff that is captured using ESD techniques and practices (ESD_v) may contribute to meeting these requirements.

As described above and in Chapter 5 (see p. 5.19 of the Manual), the volume of storage within various ESD practices, or ESD_v , may be considered when determining Qp_2 and/or Qp_{10} requirements. There are several methods that may be used and designers are encouraged to consult with the local approval authority to find out which are acceptable. The Maryland Department of the Environment (MDE) recommends using the "Change in Runoff Curve Number Method"² as an acceptable approach for this purpose.

The "Change in Runoff Curve Number Method" was developed to be used with TR-20³ to model how capturing runoff in small-scale, uniformly distributed practices would effect the hydrograph for a given drainage area. The method uses Equation 1 below to calculate a storm-specific runoff curve number, CN^* , that reflects the runoff volume stored by ESD techniques and practices. In this equation, P is the rainfall depth in inches for the specific design storm (e.g., 10 year 24 hour design storm). The second variable, Q , is the difference between the post-development runoff depth (e.g., Q_{10}) and Q_E , the runoff depth stored in ESD techniques and practices[†] (e.g., $Q = Q_{10} - Q_E$). The resulting CN^* is used with either the TR-20 or TR-55⁴ programs to develop downstream hydrographs that account for the difference in runoff from the two and/or ten-year design storms and the runoff already treated using ESD.

Equation 1.
$$CN^* = \frac{200}{(P + 2Q + 2) - \sqrt{5PQ + 4Q^2}}$$

MDE offers the following examples for using the "Change in Runoff Curve Number Method" to address Qp_2 and Qp_{10} using ESD. These examples are based on the Reker Meadows and Claytor Community Center designs found in both Chapters 2 and 5 of the Manual. In each example, the existing and proposed conditions reflect the Unified Sizing Criteria and structural approach to stormwater management design described in Chapter 2 of the Manual while the ESD goals reflect newer design requirements found in Chapter 5.

Example 1 – Reker Meadows

Using the Reker Meadows design examples found in Chapters 2 and 5 (see pp. 2.14 - 2.21 and 5.23 - 5.27), the effect of ESD on ten-year peak discharge control could be determined as follows:

[†] NOTE: According to the Design Manual (see p. 5.18), Q_E is the depth of runoff treated using ESD practices and is equal to the product of P_E and the volumetric runoff coefficient, R_v . Because ESD requirements are based on the 1-year rainfall event, Q_E is limited to the runoff from the 1 year, 24 hour design storm.

Site Data:

Existing Conditions

Total Drainage Area:	38 acres
Soil Types:	60% B, 40% C
Land Use:	Residential
Runoff Curve Numbers	
Pre-Development:	63
Wooded Conditions:	61
Time of Concentration (t_c):	0.35 hours
Ten-Year Peak Discharge:	50.4 cubic feet per second (cfs)

Proposed Conditions

Impervious Cover (I):	13.8 acres; $\%I = 13.8/38$ or 36.3%
Lot Size:	$\frac{1}{2}$ acre lots
Runoff Curve Number:	78
Time of Concentration:	0.19 hours
Q_{p10} Criteria (see pp. 2.14 - 2.21 of the Manual)	
Ten-Year Rainfall (P_{10}):	5.0 inches (see Table 2.2, p. 2.11)
Ten-Year Runoff (Q_{10}):	2.71 inches (from TR-55, see p. 2.21)
Ten-Year Peak Discharge:	130 cfs (from TR-55, see p. 2.21)

ESD Criteria (see pp. 5.23 - 5.27 of the Manual)

One-Year Rainfall (P_1):	2.5 inches
P_E :	1.8 inches (see p. 5.25)
Q_E :	0.68 inches ($Q_E = P_E \times R_v$; see pp. 5.18 and 5.25)
ESD_v :	2.15 ac-ft or 93,800 ft ³ (see pp. 5.18 and 5.25)

This example assumes that the ESD targets shown in Chapter 5 for the Reker Meadows project have been met. For the ten-year design storm, the design rainfall depth, or P_{10} , is 5.0 inches, Q_{10} (the post-development runoff depth) is 2.71 inches and Q_E (the runoff depth stored in ESD practices) is 0.68 inches. Q , (Q_{10} minus Q_E) is 2.03 inches. Using these values and Equation 1 (see above), the revised post-development RCN (CN^*) is determined as follows:

$$CN^* = \frac{200}{(P_{10} + 2Q + 2) - \sqrt{5P_{10}Q + 4Q^2}} = \frac{200}{[5 + (2 \times 2.03) + 2] - \sqrt{(5 \times 5 \times 2.03) + (4 \times 2.03^2)}} = 70$$

The revised CN^* of 70 is used with either the TR-20 or TR-55 models to determine a revised runoff depth and peak discharge that reflect the effect of ESD on peak discharge controls. However, for this example, the impact of ESD on Q_{p10} requirements is summarized below. Please recognize that steps in the process may be missing as this is not meant as an example of how to use TR-55.

To be conservative, this example assumes that there is no change in the post-development time of concentration (t_c). The example also uses an initial abstraction (I_a) of 0.857 inches (see Table 4-1, p. 4-1 of TR-55 for an RCN of 70), a P_{10} of 5.0 inches, and using Exhibit 4-II (p. 4-6, TR-55), the unit peak discharge (q_u) is 750 cfs/mi²/in. Using these values, the post-development peak discharge or q_{p10} may be calculated as follows:

$$q_{p10} = q_u A_m Q F_p \quad (\text{Equation 4-1, TR-55})$$

where A_m is the site area in square miles (38 acres/640 acres per mile² or 0.0594), Q is the 10-year post-development runoff depth for an RCN of 70 (2.03 inches), and F_p is an adjustment for ponds or swamps

within the watershed (in this case, $F_p = 1.0$). Using these values, the post-development peak discharge is:

$$q_{p10} = q_u A_m Q F_p = 750 \times 0.0594 \times 2.04 \times 1 = 90.8 \text{ cfs}$$

Using Figure 6-1 (see p. 6-2 of TR-55), for a inflow rate (q_{in}) of 90.8 cfs and an allowable outflow rate (q_{out}) of 50.4 cfs, the storage volume (V_s) necessary for control is 1.68 acre-ft (73,180 ft³). This is almost 50,000 ft³ less than the 123,275 ft³ storage volume needed to address Q_{p10} without ESD.

Example 2 – Claytor Community Center

Using the Claytor Community Center design examples found in Chapters 2 and 5 (see pp. 2.22 - 2.27 and 5.28 - 5.31 of the Manual), the effect of ESD on two-year peak discharge control might be determined as follows:

Site Data:

Existing Conditions

Total Drainage Area:	3 acres
Soil Types:	100% B
Land Use:	Commercial
Runoff Curve Numbers	
Pre-Development:	57
Wooded Conditions:	55
Time of Concentration (t_c):	0.42 hours
Two-Year Peak Discharge:	0.58 cfs

Proposed Conditions

Impervious Cover:	1.9 acres; $I = 1.9/3$ or 63.3%
Runoff Curve Number:	83
Time of Concentration:	0.16 hours
Q _{p2} Criteria (see pp. 2.22 - 2.27 of the Manual)	
Two-Year Rainfall (P_2):	3.4 inches (see Table 2.2, p. 2.11)
Two-Year Runoff (Q_2):	1.77 inches (from TR-55, see p. 2.27)
Two-Year Peak Discharge:	7.11 cfs (from TR-55, see p. 2.27)
Storage Volume (V_s):	10,630 ft ³ (see p. 2.25)
ESD Criteria (see pp. 5.28 - 5.31)	
One-Year Rainfall (P_1):	2.8 inches
Target P_E :	2.0 inches (see p. 5.29)
Design P_E :	1.6 inches (see p. 5.30)
Target Q_E :	1.24 inches (see pp. 5.18 and 5.29)
Design Q_E :	0.99 inches (see p. 5.30)
Target ESD_v :	13,505 ft ³ (see pp. 5.18 and 5.29)
Design Cp_v [§] :	3,265 ft ³

This example assumes that the ESD targets shown above have not been met. When this occurs, the CN^* should be determined using the P_E and Q_E provided, which for this example are 1.6 inches and 0.99 inches respectively. For the two-year design storm, the design rainfall depth or P_2 is 3.4 inches, Q_2 is 1.77 inches, Q_E is 0.99 inches, and Q is 0.78 inches. Using these values and Equation 1, CN^* is determined as follows:

[§] Because the ESD targets have not been met, structural practices (see Chapter 3 of the Manual) must be used to capture and treat the difference in the 1 year design storm runoff from the achieved RCN of 65 (0.42 inches, see Manual, pp. 5.30 - 5.31) and that for woods in good condition (runoff for an RCN = 55 is 0.12 inches). Therefore, Cp_v is equal to $[(0.42 - 0.12) \times 3 \text{ acres}] / 12"$, or approximately 3,265 ft³.

$$CN^* = \frac{200}{(P_2 + 2Q + 2) - \sqrt{5P_2Q + 4Q^2}} = \frac{200}{[3.4 + (2 \times 0.78) + 2] - \sqrt{(5 \times 3.4 \times 0.78) + (4 \times 0.78^2)}} = 66$$

The revised CN^* of 66 is used with either the TR-20 or TR-55 models to determine a revised runoff depth and peak discharge that reflect the effect of ESD on peak discharge controls. However, the impact of ESD on Q_{p2} requirements is also summarized below. Again, to be conservative, the calculations assume that there is no change in the post-development time of concentration (t_c). The example also uses initial abstraction (I_a) of 1.03 inches (see Table 4-1, p. 4-1 of TR-55 for an RCN of 66), the 2-year rainfall depth (P_2) of 3.4 inches, and the unit peak discharge (q_u) is 775 cfs/mi²/in (see Exhibit 4-II, TR-55). The site area (A_m) is 0.00468 square miles (3 acres/640 acres per mile²), the 2-year post-development runoff depth (Q) for a RCN of 66 is 0.78 inches, and F_p is 1.0. Using these values, the post-development peak discharge or q_{p2} may be calculated using Equation 4-1 from TR-55 as follows:

$$q_{p2} = q_u A_m Q F_p = 775 \times 0.00468 \times 0.75 \times 1 = 2.7 \text{ cfs}$$

Using Figure 6-1 (see p. 6-2 of TR-55), for a q_{in} of 2.7 cfs and an allowable q_{out} of 0.58 cfs, the storage volume (V_s) necessary for control is 3,595 ft³. This is almost 7,000 ft³ less than the 10,630 ft³ storage volume needed to address Q_{p2} without ESD.

Conclusion

The primary purpose of the overbank flood protection criteria is to prevent increases in the frequency and magnitude of out-of-bank flooding attributed to new development. In Maryland, controlling overbank flooding is required only if the local approval authority determines that additional stormwater management is necessary because there are historical flooding problems and downstream floodplain development cannot be controlled. While designers should consult with the local approval authority for acceptable methods, MDE recommends using the "Reduced Runoff Curve Number Method" for determining the effect of ESD when determining Q_{p2} and/or Q_{p10} requirements. As shown in the two examples above, meeting the ESD to the MEP mandate does not necessarily mean that overbank flood protection requirements are addressed as well. Where needed to manage peak discharges, additional storage may be provided by increasing the size of ESD practices, adding structural practices, or using some combination of ESD and structural practices.

Resources

¹ 2000 Maryland Stormwater Design Manual, Volumes I and II, MDE, October 2000

(http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/MarylandStormwaterDesignManual/Pages/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.aspx)

² "Modeling Infiltration Practices Using the TR-20 Hydrologic Program", McCuen, R., MDE 1983

(<http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/SoilErosionandSedimentControl/Documents/Modeling%20Infiltration%20wTR%2020.pdf>)

³ "Technical Release 20 - Computer Program for Project Formulation Hydrology", United States Department of Agriculture – Natural Resources Conservation Service, 1964, 1986, & 1992

⁴ "Technical Release 55 – "Urban Hydrology for Small Watersheds", United States Department of Agriculture – Natural Resources Conservation Service, 1986

Reduced Curve Number Computations per MDE Stormwater Design
Guidance - Addressing Quantity Control Requirements

Frequency	2	10
-----------	---	----

P	3.33	5.20
---	------	------

	Q (TR-55)	
DA1	2.40	4.20
DA2	2.67	4.50

	Q*	
DA1	1.24	3.04
DA2	1.51	3.34

	P + (2 x Q*) + 2	
DA1	7.808	13.278
DA2	8.348	13.878

SQRT [(5 x P x Q*) + (4 x Q^2)]		
	5.173957286	10.76829067
	5.850912237	11.4634063

200
(P + 2 x Q* + 2) - SQRT (5 x P x Q* + 4 x Q^2)

CN*	DA1	75.9	79.7
	DA2	80.1	82.8

Rounded CN*	DA1	76	80
	DA2	81	83

A	CN
1.004	91
0.771	94

PE	Rv	QE
1.8	0.645	1.161

WinTR-55 Current Data Description

--- Identification Data ---

User: bdavis Date: 6/7/2023
 Project: Duley-Self Storage Units: English
 SubTitle: DA 1 (Western) Areal Units: Acres
 State: Maryland
 County: Talbot NOAA-C
 Filename: S:\ACAD\PROJECTS\D-I\Fink & Whitten\22009-Duley-Miniwarehouses\SWM\12-2022\TR-55 Analysis

--- Sub-Area Data ---

Name	Description	Reach	Area (ac)	RCN	Tc
DA1 Ex	Existing Conditions	Outlet	0.77	82	0.249
DA1 Pr	Proposed Conditions	Outlet	1	91	0.100
DA1 RCN2	Reduc. CN 2 yr	Outlet	1	76	0.100
DA1 RCN10	Reduc. CN 10 yr	Outlet	1	80	0.100

Total area: 3.77 (ac)

--- Storm Data ---

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.33	4.33	5.2	6.52	7.73	8.98	2.74

Storm Data Source: User-provided custom storm data
 Rainfall Distribution Type: NOAA_C
 Dimensionless Unit Hydrograph: <standard>

bdavis

Duley-Self Storage
DA 1 (Western)
Talbot NOAA-C County, Maryland

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by 2-Yr (cfs)	10-Yr (cfs)	100-Yr (cfs)
------------------------------------	-------------------------------	----------------	-----------------

SUBAREAS

DA1 Ex	1.25	2.46	4.98
--------	------	------	------

DA1 Pr	3.07	5.20	9.43
--------	------	------	------

DA1 RCN2	1.66		
----------	------	--	--

DA1 RCN10		4.07	
-----------	--	------	--

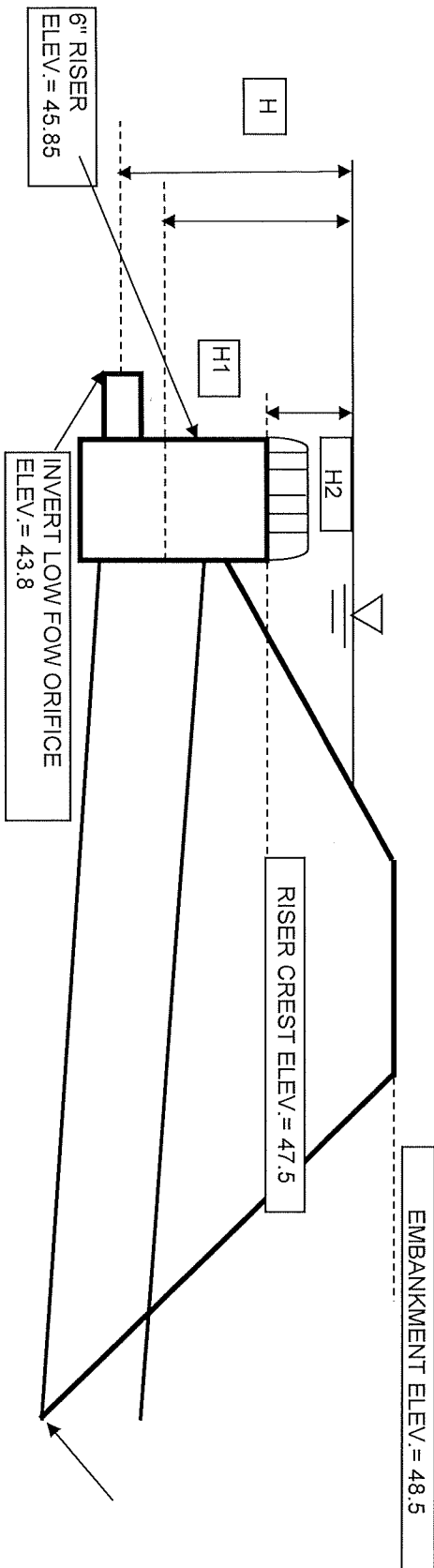
Shows reduction
to peak flow
due to ESD provided
however confirms
ESD + reduced
CN's don't provide
full quantity treatment

Note Reduced CN's
are not utilized in
current TH 20 calc's
therefore they are deemed conservative

STORAGE: Proposed Conditions

ELEV. (FT)	SURFACE AREA (SQ.FT)	AVERAGE SURFACE AREA (SQ.FT.)	DIFF. IN ELEV. (FT)	INCREMENT STORAGE (CU.FT.)	STORAGE (CU. FT.)	STORAGE (ACRE FT.)
42.50	56				0	0.0000
		136	0.50	68		
43.00	215				68	0.0016
		331	0.50	165		
43.50	446				233	0.0053
		520	0.30	156		
43.80	593				389	0.0089
		644	0.20	129		
44.00	695				518	0.0119
		829	0.50	414		
44.50	962				932	0.0214
		1,105	0.50	552		
45.00	1,247				1,484	0.0341
		1,399	0.50	699		
45.50	1,550				2,183	0.0501
		1,662	0.35	582		
45.85	1,773				2,765	0.0635
		1,822	0.15	273		
46.00	1,871				3,038	0.0697
		2,041	0.50	1,020		
46.50	2,210				4,058	0.0932
		2,281	0.20	456		
46.70	2,351				4,515	0.1036
		2,459	0.30	738		
47.00	2,567				5,252	0.1206
		2,755	0.50	1,378		
47.50	2,943				6,630	0.1522
		3,140	0.50	1,570		
48.00	3,336				8,200	0.1882

WATER TOWER POND SWM POND OUTLET STRUCTURE HYDRAULICS SUMMARY



WATER in Pond Elev	ORIFICE		RISER NOTCH		STRUC. TOP		ACTUAL FLOW Q	STORAGE VOLUME
	H	Q	H1	Q2	H2	Q3		
	CL = 43.80 Size(ft) = 0.41667 Area = 0.136		CL = 45.85 Size(ft) = 0.5 Area = 0.196		Crest = 46.70 Length = 13.55			
ft	ft	cfs	ft	cfs	ft	cfs		
42.50	-1.30	0.00	0	0	0	0	0.00	0.000
43.00	-0.80	0.00	0	0	0	0	0.00	0.000
43.50	-0.30	0.00	0	0	0	0	0.00	0.165
43.80	0.00	0.00	0	0	0	0	0.00	0.451
44.00	0.20	0.29	0	0	0	0	0.29	0.750
44.50	0.70	0.55	0	0	0	0	0.55	0.811
45.00	1.20	0.72	0	0	0	0	0.72	1.061
45.50	1.70	0.86	0	0	0	0	0.86	1.385
45.85	2.05	0.94	0	0	0	0.00	0.94	1.518
46.00	2.20	0.97	0.15	0.37	0	0.00	1.34	1.518
46.50	2.70	1.08	0.65	0.76	0	0.00	1.84	1.722
46.70	2.90	1.12	0.85	0.87	0	0.00	1.99	1.722
47.00	3.20	1.17	1.15	1.01	0.30	6.90	9.09	2.073
47.50	3.70	1.26	1.65	1.21	0.80	30.06	32.53	2.437
48.00	4.20	1.35	2.15	1.39	1.30	62.26	64.99	

NOTES: Q1 = 0.6 A [(2gH)^{1/2}] Q2 = 3.1(L)(H3/2) Q3 = 3.1(L)(H3/2)
(1) Weir flow Q = CLH^{3/2} C = 3.1

*****80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****

JOB	TR-20	FULLPRINT	SUMMARY	NOPILOTS
TITLE	001	SCS ANALYSIS FOR DULEY - ELLIOTT ROAD, EASTON		
TITLE	002	TALBOT COUNTY PREPARED BY BAD 12/2022 #2022009		
4	DIMHYD			
8		0.000	0.111	0.356
8		1.000	0.929	0.828
8		0.584	0.521	0.465
8		0.331	0.296	0.265
8		0.190	0.170	0.153
8		0.109	0.097	0.086
8		0.057	0.049	0.041
8		0.024	0.021	0.018
8		0.012	0.011	0.009
8		0.006	0.006	0.005
9	ENDTBL			
3	STRUCT	01		
8		42.50	0.001	0.0000
8		43.00	0.002	0.0016
8		43.50	0.003	0.0053
8		43.80	0.004	0.0089
8		44.00	0.029	0.0119
8		44.50	0.055	0.0214
8		45.00	0.072	0.0341
8		45.50	0.086	0.0501
8		45.85	0.094	0.0635
8		46.00	1.34	0.0697
8		46.50	1.84	0.0932
8		46.70	1.99	0.1036
8		47.00	9.09	0.1206
8		47.50	32.53	0.1522
8		48.00	64.99	0.1882
9	ENDTBL			

```

6 RUNOFF 1 01 1 0.00120 82.0 0.249 1 1 1 1 1
6 RUNOFF 1 01 2 0.00157 91.0 0.100 1 1 1 1 1
6 RESVOR 2 01 2 3 42.50 1 1 1 1 1
ENDATA
7 INCREM 6 0.1
7 COMPUT 7 01 01 0.0 3.33 1.0 2 2 01 02
ENDCMP 1
7 COMPUT 7 01 01 0.0 5.20 1.0 2 2 01 10
ENDCMP 1
7 COMPUT 7 01 01 0.0 8.98 1.0 2 2 01 99
ENDCMP 1
ENDJOB 2
*****
0*****END OF 80-80 LIST*****
1

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TR20 XEQ 12-20-22 06:43 SCS ANALYSIS FOR DULEY - ELLIOTT ROAD, EASTON
JOB 1 PASS 1
REV PC 09/83(.2) TALBOT COUNTY PREPARED BY BAD 12/2022 #2022009
PAGE 1

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EXECUTIVE CONTROL OPERATION INCREM
RECORD ID
+
MAIN TIME INCREMENT = .10 HOURS

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EXECUTIVE CONTROL OPERATION COMPUT
RECORD ID
+
FROM STRUCTURE 1 TO STRUCTURE 1
+
STARTING TIME = .00 RAIN DEPTH = 3.33 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT.
MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 2 MAIN TIME INCREMENT = .10 HOURS

```

OPERATION RUNOFF STRUCTURE 1

OUTPUT HYDROGRAPH= 1

AREA= .00 SQ MI INPUT RUNOFF CURVE= 82. TIME OF CONCENTRATION= .25 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0332 HOURS

*** WARNING-NO PEAK FOUND, MAXIMUM DISCHARGE = .03 CFS.

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA
= .00 SQ.MI.					
9.00 DISCHG	.00	.00	.00	.00	.01
.01 DISCHG	.01	.01	.01	.02	.02
10.00 DISCHG	.03	.04	.05	.06	.10
.30 DISCHG	.91	1.04	.87	.71	.57
12.00 DISCHG	.20	.18	.16	.14	.13
.28 DISCHG	.09	.08	.08	.07	.07
14.00 DISCHG	.06	.06	.06	.05	.05
.06 DISCHG	.05	.05	.05	.05	.05
15.00 DISCHG	.04	.04	.04	.04	.04
.04 DISCHG	.04	.04	.04	.04	.04
17.00 DISCHG	.03	.03	.03	.03	.03
.03 DISCHG	.03	.03	.03	.03	.03
19.00 DISCHG	.03	.03	.03	.03	.03
.03 DISCHG	.03	.03	.03	.03	.03
20.00 DISCHG	.02	.03	.03	.03	.03
.03 DISCHG					

TIME(HRS)	DISCHG	DISCHG	DISCHG	DISCHG	DISCHG	DISCHG	DISCHG	DISCHG	DISCHG
21.00	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
22.00	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
23.00	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
24.00	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01

RUNOFF VOLUME ABOVE BASEFLOW = 1.64 WATERSHED INCHES, 1.27 CFS-HRS, .10 ACRE-FEET; BASEFLOW = .00 CFS

FILE --- --- HYDROGRAPH FOR STRUCTURE 1, ALTERNATE 1, STORM 2, ADDED TO OUTPUT HYDROGRAPH

OPERATION RUNOFF STRUCTURE 1
 OUTPUT HYDROGRAPH= 2
 AREA= .00 SQ MI INPUT RUNOFF CURVE= 91. TIME OF CONCENTRATION= .10 HOURS
 INTERNAL HYDROGRAPH TIME INCREMENT= .0133 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	2.88	(RUNOFF)

1

TR20 XEQ 12-20-22 06:43 SCS ANALYSIS FOR DULEY - ELLIOTT ROAD, EASTON
 JOB 1 PASS 1
 REV PC 09/83(.2) TALBOT COUNTY PREPARED BY BAD 12/2022 #2022009
 PAGE 2

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA
= .00 SQ.MI.					
5.00 DISCHG	.00	.00	.00	.00	.00
.01 DISCHG	.01	.01	.01	.01	.01
6.00 DISCHG	.01	.01	.01	.01	.01

= .00 CFS

FILE --- --- HYDROGRAPH FOR STRUCTURE 1, ALTERNATE 1, STORM 2, ADDED TO OUTPUT HYDROGRAPH

OPERATION RESVOR STRUCTURE 1
INPUT HYDROGRAPH= 2 OUTPUT HYDROGRAPH= 3
SURFACE ELEVATION= 42.50

*** WARNING - STRUCTURE 1 DELTA T IS TOO LARGE. 0 / 2 > 5 / DELTA T OCCURED 64 TIMES STARTING WITH POINT 2

*** WARNING--NO PEAK FOUND, MAXIMUM DISCHARGE = .04 CFS.

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
23.70	.04	43.82
12.20	.94	45.83

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA			
= .00 SQ.MI.								
10.00 DISCHG	.00	.00	.04	.06	.07	.08	.09	
.10	.12							
10.00 ELEV	42.00	42.00	42.00	43.82	43.84	43.85	43.85	43.86
43.87	43.88							
11.00 DISCHG	.13	.14	.15	.17	.18	.20	.30	.38
.52	.67							
11.00 ELEV	43.89	43.89	43.90	43.91	43.92	43.94	44.01	44.17
44.43	44.84							
12.00 DISCHG	.82	.91	.94	.93	.92	.90	.87	.84
.80	.76							
12.00 ELEV	45.35	45.70	45.83	45.83	45.76	45.65	45.54	45.41
45.27	45.14							
13.00 DISCHG	.72	.67	.62	.58	.52	.45	.39	.34
.30	.22							
13.00 ELEV	45.01	44.86	44.71	44.58	44.45	44.31	44.19	44.10
44.02	43.95							
14.00 DISCHG	.17	.14	.13	.12	.11	.11	.10	.10

.09 .09
1

TR20 XEQ 12-20-22 06:43
JOB 1 PASS 1
REV PC 09/83(.2)
PAGE 3

SCS ANALYSIS FOR DULEY - ELLIOTT ROAD, EASTON
TALBOT COUNTY PREPARED BY BAD 12/2022 #2022009

14.00	ELEV	43.92	43.90	43.89	43.88	43.88	43.87	43.87	43.86
43.86	DISCHG	.09	.09	.09	.09	.08	.08	.08	.08
15.00	ELEV	43.86	43.86	43.86	43.86	43.85	43.85	43.85	43.85
43.85	DISCHG	.08	.08	.08	.08	.08	.08	.07	.07
16.00	ELEV	43.85	43.85	43.85	43.85	43.85	43.85	43.85	43.85
43.84	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
17.00	ELEV	43.84	43.84	43.84	43.84	43.84	43.84	43.84	43.84
43.84	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
18.00	ELEV	43.84	43.83	43.83	43.83	43.83	43.83	43.83	43.83
43.83	DISCHG	.05	.05	.05	.05	.05	.05	.05	.05
19.00	ELEV	43.83	43.83	43.83	43.83	43.83	43.83	43.83	43.83
43.83	DISCHG	.04	.04	.04	.04	.04	.04	.04	.04
20.00	ELEV	43.83	43.83	43.82	43.82	43.82	43.82	43.82	43.82
43.82	DISCHG	.04	.04	.04	.04	.04	.04	.04	.04
21.00	ELEV	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82
43.82	DISCHG	.04	.04	.04	.04	.04	.04	.04	.04

.04	.04																		
21.00	ELEV	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82
43.82	DISCHG	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
22.00	ELEV	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82
43.82	DISCHG	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
23.00	ELEV	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82	43.82
43.82	DISCHG	.03	.03	.02	.01	.00													
24.00	ELEV	43.82	43.82	43.81	43.80	42.00													

RUNOFF VOLUME ABOVE BASEFLOW = 2.25 WATERSHED INCHES, 2.28 CFS-HRS, .19 ACRE-FEET; BASEFLOW = .00 CFS

FILE --- --- HYDROGRAPH FOR STRUCTURE 1, ALTERNATE 1, STORM 2, ADDED TO OUTPUT HYDROGRAPH

EXECUTIVE CONTROL OPERATION ENDCMP

RECORD ID

+ COMPUTATIONS COMPLETED FOR PASS 1

1

TR20 XEQ 12-20-22 06:43 SCS ANALYSIS FOR DULEY - ELLIOTT ROAD, EASTON
 JOB 1 PASS 2
 REV PC 09/83(.2) TALBOT COUNTY PREPARED BY BAD 12/2022 #2022009
 PAGE 4

EXECUTIVE CONTROL OPERATION COMPUT

RECORD ID

+

FROM STRUCTURE 1

+

TO STRUCTURE 1

STARTING TIME = .00 RAIN DEPTH = 5.20 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT.

MOIST. COND= 2

ALTERNATE NO.= 1

STORM NO.=10

MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF STRUCTURE 1

OUTPUT HYDROGRAPH= 1

AREA= .00 SQ MI INPUT RUNOFF CURVE= 82. TIME OF CONCENTRATION= .25 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0332 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	2.06	(RUNOFF)

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA
= .00 SQ.MI.					
7.00 DISCHG	.00	.00	.01	.01	.01
.01 DISCHG	.01	.01	.01	.01	.02
8.00 DISCHG	.01	.01	.01	.02	.02
.02 DISCHG	.02	.02	.03	.03	.04
9.00 DISCHG	.02	.03	.03	.03	.04
.04 DISCHG	.04	.05	.05	.06	.07
10.00 DISCHG	.04	.05	.05	.06	.08
.08 DISCHG	.10	.11	.13	.16	.26
11.00 DISCHG	.10	.11	.14	.18	.46
.69 DISCHG	1.22	2.06	1.38	1.11	.62
12.00 DISCHG	1.85	2.06	1.38	1.11	.75
.52 DISCHG	.44				
13.00 DISCHG	.37	.33	.29	.26	.20
.18 DISCHG	.17	.33	.29	.26	.20
14.00 DISCHG	.16	.15	.14	.13	.12
.11 DISCHG	.11	.15	.14	.13	.11
15.00 DISCHG	.10	.10	.10	.10	.09
.09 DISCHG	.09	.10	.10	.09	.09
16.00 DISCHG	.09	.09	.09	.09	.08

.08	.08								
17.00	DISCHG	.07	.07	.07	.07	.07	.07	.07	.07
.07	.07								
18.00	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
.06	.06								
19.00	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
.06	.05								
20.00	DISCHG	.05	.05	.05	.05	.05	.05	.05	.05
.04	.04								
21.00	DISCHG	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04								
22.00	DISCHG	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04								
23.00	DISCHG	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04								
24.00	DISCHG	.04	.03	.02	.02	.01	.01	.01	.00

RUNOFF VOLUME ABOVE BASEFLOW = 3.26 WATERSHED INCHES, 2.52 CFS-HRS, .21 ACRE-FEET; BASEFLOW = .00 CFS

FILE --- --- HYDROGRAPH FOR STRUCTURE 1, ALTERNATE 1, STORM 10, ADDED TO OUTPUT HYDROGRAPH

38

OPERATION RUNOFF STRUCTURE 1
 OUTPUT HYDROGRAPH= 2
 AREA= .00 SQ MI INPUT RUNOFF CURVE= 91. TIME OF CONCENTRATION= .10 HOURS
 INTERNAL HYDROGRAPH TIME INCREMENT= .0133 HOURS

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA
= .00 SQ.MI.					
4.00	DISCHG	.01	.01	.01	.01
.02	.02				
5.00	DISCHG	.02	.02	.02	.02
.02	.03				

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 4.90 PEAK ELEVATION(FEET) (RUNOFF)

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 JOB 1 PASS 2
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6.00	DISCHG	.03	.03	.03	.04	.04	.04	.04	.04
.04	.04								
7.00	DISCHG	.04	.05	.05	.05	.05	.05	.05	.05
.05	.05								
8.00	DISCHG	.05	.06	.06	.07	.07	.08	.08	.08
.08	.09								
9.00	DISCHG	.09	.09	.10	.10	.10	.11	.11	.12
.12	.12								
10.00	DISCHG	.13	.13	.14	.15	.16	.17	.20	.22
.23	.26								
11.00	DISCHG	.28	.31	.33	.35	.40	.43	1.05	1.52
2.26	4.02								
12.00	DISCHG	4.86	3.19	1.85	1.21	.80	.64	.54	.49
.46	.40								
13.00	DISCHG	.38	.34	.32	.30	.28	.27	.25	.23
.22	.21								
14.00	DISCHG	.21	.19	.19	.18	.17	.17	.15	.15
.14	.14								
15.00	DISCHG	.14	.14	.14	.14	.13	.12	.12	.12
.12	.12								
16.00	DISCHG	.12	.12	.12	.12	.12	.12	.11	.11
.10	.10								
17.00	DISCHG	.10	.10	.10	.10	.10	.10	.10	.10
.10	.09								
18.00	DISCHG	.08	.08	.08	.08	.08	.08	.08	.08
.08	.08								
19.00	DISCHG	.08	.08	.08	.08	.08	.08	.08	.08
.08	.07								

20.00	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
.06	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
21.00	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
.06	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
22.00	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
.06	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
23.00	DISCHG	.06	.06	.06	.06	.06	.06	.06	.06
.06	DISCHG	.05	.06	.06	.06	.06	.06	.06	.06
24.00	DISCHG	.04	.02	.01	.00				

RUNOFF VOLUME ABOVE BASEFLOW = 4.16 WATERSHED INCHES, 4.22 CFS-HRS, .35 ACRE-FEET; BASEFLOW = .00 CFS

FILE --- --- HYDROGRAPH FOR STRUCTURE 1, ALTERNATE 1, STORM 10, ADDED TO OUTPUT HYDROGRAPH

OPERATION RESVOR STRUCTURE 1
 INPUT HYDROGRAPH= 2 OUTPUT HYDROGRAPH= 3
 SURFACE ELEVATION= 42.50

*** WARNING - STRUCTURE 1 DELTA T IS TOO LARGE. 0 / 2 > S / DELTA T OCCURED 44 TIMES STARTING WITH POINT 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1.98	46.69

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA
= .00 SQ.MI.					
8.00 DISCHG	.01	.04	.05	.06	.07
.08					.08
8.00 ELEV	43.80	43.82	43.83	43.84	43.85
43.85	43.86				43.85
9.00 DISCHG	.08	.09	.09	.10	.11
.12					.11
9.00 ELEV	43.86	43.86	43.86	43.87	43.87
43.88	43.88				43.88
10.00 DISCHG	.12	.13	.13	.14	.15
					.16
					.17
					.19

5

SCS ANALYSIS FOR DULEY - ELLIOTT ROAD, EASTON

TALBOT COUNTY PREPARED BY BAD 12/2022 #2022009

15.00	ELEV	43.90	43.90	43.90	43.90	43.89	43.89	43.89	43.88
43.88	DISCHG	.12	.12	.12	.12	.12	.12	.11	
16.00	DISCHG	.12	.12	.12	.12	.12	.12	.11	
.11		.11							
16.00	ELEV	43.88	43.88	43.88	43.88	43.88	43.88	43.88	43.88
43.87	DISCHG	.10	.10	.10	.10	.10	.10	.10	
17.00	DISCHG	.10	.10	.10	.10	.10	.10	.10	

FILE ---

EXECUTIVE CONTROL OPERATION ENDCMP

RECORD ID COMPUTATIONS COMPLETED FOR PASS 2

1

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EXECUTIVE CONTROL OPERATION COMPUT

RECORD ID FROM STRUCTURE 1 TO STRUCTURE 1
+ STARTING TIME = .00 RAIN DEPTH = 8.98 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT.
+ MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.=99 MAIN TIME INCREMENT = .10 HOURS

43

OPERATION RUNOFF STRUCTURE 1
OUTPUT HYDROGRAPH= 1
AREA= .00 SQ MI INPUT RUNOFF CURVE= 82. TIME OF CONCENTRATION= .25 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0332 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.08 4.21 (RUNOFF)

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA
= .00 SQ.MI.					
4.00 DISCHG	.00	.00	.00	.00	.00
.01 DISCHG	.01	.01	.01	.01	.02
5.00 DISCHG	.01	.01	.01	.01	.02

.00

RUNOFF VOLUME ABOVE BASEFLOW = 6.80 WATERSHED INCHES, 5.27 CFS-HRS, .44 ACRE-FEET; BASEFLOW
= .00 CFS

FILE ---

--- HYDROGRAPH FOR STRUCTURE 1, ALTERNATE 1, STORM 99, ADDED TO OUTPUT HYDROGRAPH

OPERATION RUNOFF STRUCTURE 1

OUTPUT HYDROGRAPH= 2

AREA= .00 SQ MI INPUT RUNOFF CURVE= 91. TIME OF CONCENTRATION= .10 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0133 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
11.98 8.90 (RUNOFF)

1

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JOB 1 PASS 3

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SCS ANALYSIS FOR DULEY - ELLIOTT ROAD, EASTON

TALBOT COUNTY PREPARED BY BAD 12/2022 #2022009

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA
= .00 SQ.MI.					
2.00 DISCHG	.00	.00	.01	.01	.01
.02 DISCHG	.02	.02	.02	.03	.03
3.00 DISCHG	.02	.02	.02	.03	.03
.03 DISCHG	.04	.05	.05	.06	.06
4.00 DISCHG	.05	.05	.05	.06	.06
.06 DISCHG	.07	.07	.07	.07	.08
5.00 DISCHG	.07	.07	.07	.07	.08
.08 DISCHG	.08	.09	.10	.11	.11
6.00 DISCHG	.08	.09	.10	.11	.11

.11	.12	.12	.12	.12	.12	.12	.13	.13
7.00	DISCHG	.12	.12	.12	.12	.12	.13	.13
.13	.13	.13	.14	.15	.16	.18	.19	.19
8.00	DISCHG	.13	.14	.15	.16	.18	.19	.19
.19	.20	.20	.21	.22	.23	.23	.25	.26
9.00	DISCHG	.20	.21	.22	.23	.23	.25	.26
.26	.27	.27	.29	.30	.31	.35	.41	.45
10.00	DISCHG	.27	.29	.30	.31	.35	.41	.45
.48	.53	.56	.62	.66	.70	.79	2.03	2.91
11.00	DISCHG	.56	.62	.66	.70	.79	2.03	2.91
4.25	7.41	8.83	5.76	3.33	2.17	1.42	1.15	.87
12.00	DISCHG	8.83	5.76	3.33	2.17	1.42	1.15	.87
.81	.71	.67	.61	.56	.54	.49	.48	.44
13.00	DISCHG	.67	.61	.56	.54	.49	.48	.44
.40	.37	.36	.34	.33	.32	.30	.29	.27
14.00	DISCHG	.36	.34	.33	.32	.30	.29	.27
.25	.25	.25	.25	.25	.25	.23	.22	.22
15.00	DISCHG	.25	.25	.25	.25	.23	.22	.22
.22	.22	.22	.22	.22	.22	.22	.22	.19
16.00	DISCHG	.22	.22	.22	.22	.22	.22	.19
.18	.18	.18	.18	.18	.18	.18	.18	.18
17.00	DISCHG	.18	.18	.18	.18	.18	.18	.18
.17	.16	.15	.15	.14	.14	.14	.14	.14
18.00	DISCHG	.15	.15	.14	.14	.14	.14	.14
.14	.14	.14	.14	.14	.14	.14	.14	.14
19.00	DISCHG	.14	.14	.14	.14	.14	.14	.14
.14	.12	.11	.11	.11	.11	.11	.11	.11
20.00	DISCHG	.11	.11	.11	.11	.11	.11	.11
.11	.11	.11	.11	.11	.11	.11	.11	.11
21.00	DISCHG	.11	.11	.11	.11	.11	.11	.11
.11	.11	.11	.11	.11	.11	.11	.11	.11
22.00	DISCHG	.11	.11	.11	.11	.11	.11	.11
.11	.11	.11	.11	.11	.11	.11	.11	.11
23.00	DISCHG	.11	.11	.11	.11	.11	.11	.11
.10	.08	.08	.04	.02	.01	.00		
24.00	DISCHG	.08	.04	.02	.01	.00		

RUNOFF VOLUME ABOVE BASEFLOW = 7.87 WATERSHED INCHES, 7.97 CFS-HRS, .66 ACRE-FEET; BASEFLOW

= .00 CFS

FILE ---
--- HYDROGRAPH FOR STRUCTURE 1, ALTERNATE 1, STORM 99, ADDED TO OUTPUT HYDROGRAPH

OPERATION RESVOR STRUCTURE 1
INPUT HYDROGRAPH= 2 OUTPUT HYDROGRAPH= 3
SURFACE ELEVATION= 42.50

*** WARNING - STRUCTURE 1 DELTA T IS TOO LARGE. 0 /2 > 5 /DELTA T OCCURED 25 TIMES STARTING
WITH POINT 2

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.02 9.85 47.02

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.10 HOURS	DRAINAGE AREA
= .00 SQ.MI.					
5.00 DISCHG	.00	.00	.00	.04	.07
.08					
5.00 ELEV	42.00	42.00	42.00	43.83	43.85
43.85					
6.00 DISCHG	.08	.08	.09	.10	.11
.11					
6.00 ELEV	43.85	43.86	43.87	43.87	43.87
43.88					
7.00 DISCHG	.12	.12	.12	.12	.12
.13					
7.00 ELEV	43.88	43.88	43.88	43.88	43.88
43.89					
8.00 DISCHG	.13	.13	.14	.15	.16
.19					
8.00 ELEV	43.89	43.89	43.90	43.91	43.92
43.93					
9.00 DISCHG	.19	.20	.21	.22	.23
.25					
.26					
1					

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9.00	ELEV	43.93	43.94	43.94	43.95	43.95	43.96	43.96	43.97
43.98	DISCHG	.27	.27	.28	.29	.30	.31	.33	.35
10.00									
.37	ELEV	43.98	43.99	44.00	44.00	44.02	44.04	44.07	44.11
10.00	DISCHG	.43	.46	.50	.53	.56	.59	.68	.82
11.00									
1.15	ELEV	44.27	44.33	44.40	44.47	44.54	44.62	44.88	45.35
11.00	DISCHG	9.60	6.60	4.00	2.42	1.96	1.88	1.77	1.63
45.93									
12.00	ELEV	47.01	46.89	46.78	46.72	46.66	46.56	46.43	46.29
1.50	DISCHG	1.38	.94	.92	.90	.89	.87	.84	.81
46.16									
13.00	ELEV	45.93	45.85	45.78	45.70	45.61	45.53	45.43	45.33
13.00	DISCHG	.76	.69	.66	.62	.59	.56	.51	.46
.78									
13.00	ELEV	45.03	44.92	44.81	44.71	44.62	44.53	44.42	44.33
45.23	DISCHG	.36	.34	.32	.31	.29	.26	.23	.22
14.00									
.42	ELEV	44.13	44.09	44.06	44.03	44.00	43.98	43.96	43.95
14.25	DISCHG	.22	.22	.22	.22	.22	.22	.21	.20
15.00									
.22	ELEV	43.95	43.95	43.95	43.95	43.95	43.95	43.94	43.94
15.00	DISCHG	.19	.19	.19	.19	.19	.19	.19	.19
43.95									
16.00	ELEV	43.93	43.93	43.93	43.93	43.93	43.93	43.94	43.94
.19	DISCHG								
16.00									
43.93									

17.00	DISCHG	.18	.18	.18	.18	.18	.18	.18	.18
.18	.17								
17.00	ELEV	43.93	43.92	43.92	43.92	43.92	43.92	43.92	43.92
43.92	DISCHG	.16	.15	.15	.15	.14	.14	.14	.14
18.00	DISCHG	.14							
.14	.14								
18.00	ELEV	43.91	43.90	43.90	43.90	43.90	43.90	43.90	43.90
43.90	DISCHG	.14	.14	.14	.14	.14	.14	.14	.14
19.00	DISCHG	.14							
.14	.14								
19.00	ELEV	43.90	43.90	43.90	43.90	43.90	43.90	43.90	43.90
43.90	DISCHG	.12	.12	.11	.11	.11	.11	.11	.11
20.00	DISCHG	.11							
.11	.11								
20.00	ELEV	43.88	43.88	43.87	43.87	43.87	43.87	43.87	43.87
43.87	DISCHG	.11	.11	.11	.11	.11	.11	.11	.11
21.00	DISCHG	.11							
.11	.11								
21.00	ELEV	43.87	43.87	43.87	43.87	43.87	43.87	43.87	43.87
43.87	DISCHG	.11	.11	.11	.11	.11	.11	.11	.11
22.00	DISCHG	.11							
.11	.11								
22.00	ELEV	43.87	43.87	43.87	43.87	43.87	43.87	43.87	43.87
43.87	DISCHG	.11	.11	.11	.11	.11	.11	.11	.11
23.00	DISCHG	.11							
.11	.10								
23.00	ELEV	43.87	43.87	43.87	43.87	43.87	43.87	43.87	43.87
43.87	DISCHG	.09	.07	.05	.03	.01	.01	.00	
24.00	DISCHG								
24.00	ELEV	43.86	43.85	43.83	43.82	43.81	43.80	43.80	

RUNOFF VOLUME ABOVE BASEFLOW = 7.63 WATERSHED INCHES, 7.73 CFS-HRS, .64 ACRE-FEET; BASEFLOW = .00 CFS

FILE --- --- HYDROGRAPH FOR STRUCTURE 1, ALTERNATE 1, STORM 99, ADDED TO OUTPUT HYDROGRAPH

EXECUTIVE CONTROL OPERATION ENDCMP
RECORD ID

COMPUTATIONS COMPLETED FOR PASS 3

EXECUTIVE CONTROL OPERATION ENDJOB
RECORD ID

1

TR20 XEQ 12-20-22 06:43 SCS ANALYSIS FOR DULEY - ELLIOTT ROAD, EASTON
JOB 1 SUMMARY
REV PC 09/83(.2) TALBOT COUNTY PREPARED BY BAD 12/2022 #2022009
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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP
HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ DISCHARGE STRUCTURE	STANDARD CONTROL	RAIN DRAINAGE	ANTEC TABLE	MAIN MOIST	PRECIPITATION				PEAK		
ID	OPERATION	AREA	#	COND	INCREM	BEGIN	AMOUNT	DURATION	AMOUNT	ELEVATION	TIME
RATE	RATE	(SQ MI)			(HR)	(HR)	(IN)	(HR)	(IN)	(FT)	(HR)
(CFS)	(CSM)										
ALTERNATE	1	STORM	2								
+											
STRUCTURE	1	RUNOFF	.00	2	2	.10	.0	3.33	24.00	1.64	12.10

[illegible]

ID	(SQ MI)	2	10	99
0 STRUCTURE 1	.00			
+ ALTERNATE 1				
LEND OF 1 JOBS IN THIS RUN		.94	1.98	9.85

WinTR-55 Current Data Description

--- Identification Data ---

User: bdavis Date: 6/7/2023
 Project: Duley-Self Storage Units: English
 SubTitle: DA 2 (Eastern) Areal Units: Acres
 State: Maryland
 County: Talbot NOAA-C
 Filename: S:\ACAD\PROJECTS\D-I\Fink & Whitten\22009-Duley-Miniwarehouses\SWM\12-2022\TR-55 Analysis

--- Sub-Area Data ---

Name	Description	Reach	Area (ac)	RCN	Tc
DA2 Ex	Existing Conditions	Outlet	1	80	0.192
DA2 Pr	Proposed Conditions	Outlet	0.77	94	0.100
DA2 RCN2	Reduc. CN 2 yr	Outlet	0.77	81	0.100
DA2 RCN10	Reduc. CN 10 yr	Outlet	0.77	83	0.100

Total area: 3.31 (ac)

--- Storm Data ---

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.33	4.33	5.2	6.52	7.73	8.98	2.74

Storm Data Source: User-provided custom storm data
 Rainfall Distribution Type: NOAA_C
 Dimensionless Unit Hydrograph: <standard>

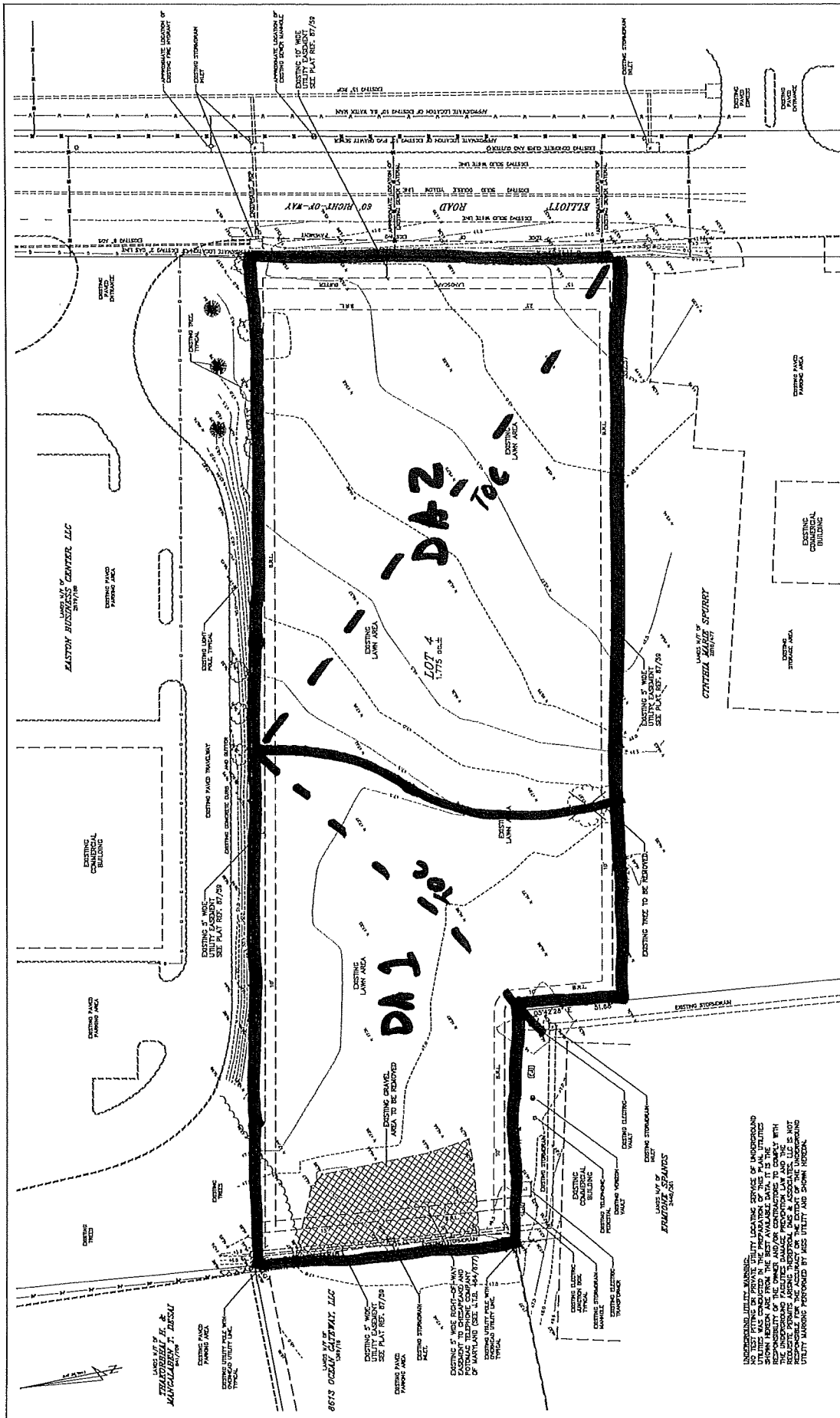
bdavis

Duley-Self Storage
DA 2 (Eastern)
Talbot NOAA-C County, Maryland

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period		
	2-Yr (cfs)	10-Yr (cfs)	100-Yr (cfs)

SUBAREAS			
DA2 Ex	1.64	3.35	6.96
DA2 Pr	2.56	4.18	7.38
DA2 RCN2	1.62		
DA2 RCN10		3.39	



CLIMATE CONTROLLED SELF STORAGE

FOR THE DEVELOPMENT OF

ON THE LANDS OF

DENNIS P. DULEY

IN THE TOWN OF EASTON, 14, DUEL DR., TOWN OF EASTON, MARYLAND

14, DUEL DR. - 100, PARCEL - 200

DATE _____

REVISION _____

DATE _____

REVISION _____

DATE _____

REVISION _____

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC

ENGINEERING, ARCHITECTURE, INTERIOR DESIGN, ENVIRONMENTAL SCIENCE & SURVEYING

14, DUEL DR., TOWN OF EASTON, MARYLAND

14, DUEL DR. - 100, PARCEL - 200

SCALE 1" = 20'

DATE MAY 22, 2009

DESIGNED BY JMD

CHECKED BY JMD

DATE MAY 22, 2009

PROJECT NO. 04-2

PROJECT FILE 20090002

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