## TOWN OF VERNON Inland Wetlands Commission (IWC) Meeting Notice & Agenda **Tuesday, April 19, 2022, 7:00 PM**

https://us02web.zoom.us/j/2539513099?pwd=b3NUYIdqZ0RXcWxiTIJKK2VqenhGQT09

Meeting ID: 253 951 3099 Passcode: 2N3X30 Dial In +1 646 876 9923 Meeting ID: 253 951 3099 Passcode: 148252

## AGENDA

- 1. Call to Order & Roll Call
- 2. Administrative Actions
  - 2.1 Approval of Minutes from Special Meeting 2-15-22
  - 2.2 Approval of Minutes from Regular Meeting 3-22-22
- New Applications for Receipt and Determination of Significance, if any
   **3.1 Receipt of Application IWC 2022-3** 129 Talcottville Road. An application for Minor Modifications of Existing Land Use Permits; former application IWC 2016 - 5
- 4. Public Hearing and Action on New Applications

**4.1 CONTINUATION of IWC 2022-01, 501 Talcottville Rd.** An Application by Vernon Development LLC for a Wetlands Re-designation and a Wetlands Permit for activity in a regulated area, in order to develop a child-care facility at 501 Talcottville Rd. (Tax Map 09, Block 007, Parcel 0001D).

NOTE: The Applicant has requested the Public Hearing be continued until May 3, 2022; the Applicant has provided the requisite extension to this date. Staff concurs as time is needed to provide a full third-party review.

4.2 **IWC 2022-02, 304 Merline Rd.** An Application of CT Water Company for a Wetland Re- Designation for property located at 304 Merline Rd. (Tax Map 09, Block 015T, Parcel 00046).

5. Status of Cease & Correct Orders, if any

5.1 Update-26 Naek Rd. & 321 Talcottville Rd.

- 6. Wetlands Enforcement Officer Report
- 7. Inland Wetlands Agent Approvals, if any
- 8. Other Business
- 9. Adjournment

## **Town of Vernon Inland Wetlands Commission (IWC)** Tuesday, February 15, 2022, 7:00 p.m. Virtual ZOOM Meeting

## **DRAFT MINUTES**

## 1. Call to Order and Roll Call

Chairperson Rachel Stansel called the special meeting to order at 7:01pm. In attendance were Commission Members Don Schubert and Kathy Minor. Absent were Frank Galat and Jeff Pescosolido. Staff members present were George McGregor, Town Planner; David Smith, Town Engineer; and Craig Perry, Wetlands Enforcement Officer.

- 2. Administrative Actions
  - 2.1 2022 Election of Officers
     Chairperson Stansel called for nominations. Nominations were Rachel Stansel, Chairperson;
     Don Schubert, Vice Chairman; Kathy Minor, Secretary. Floor was closed to Nominations.
     Nominations were accepted by unanimous consent.
  - 2.2 Approval of Minutes from December 21, 2021, meeting Chairperson Stansel MOVED to approve the minutes of the December 21, 2021, regular meeting. Don Schubert seconded. Motion carried unanimously.
  - 2.3 Call for filing(s) of Intervener Petitions and Determination of Status None
- 3. New Applications for Receipt and Determination of Significance, if any
  - 3.1 **[IWC-2022-01] 501 Talcottville Road.** An Application by Vernon Development, LLC for a Wetlands Re-designation and a Wetlands Permit for activity in a regulated area, in order to develop a child-care facility at 501 Talcottville Road (Tax Map 09, Block 007, Parcel 0001D)

Mr. McGregor informed the Commission that this Application was in the queue for the regular meeting on January 25, 2022, and is therefore deemed accepted and received based on state code.

Chairperson Stansel MOVED that the Inland Wetlands Commission does deem **Application** [IWC-2022-01] an application of significant impact and schedules the application for a public hearing at the regularly scheduled meeting on February 22, 2022. Don Schubert seconded. Motion carried unanimously.

- 4. Public Hearing and Action on New Applications
  - 4.1 **[IWC-2021-07] 57 Hartford Turnpike**. An application by Jerry Fornarelli for a Wetlands Re-designation and a Wetlands Permit for activity in a regulated area, in order to construct a deck addition, pavilion structure, and storage building at 57 Hartford Turnpike (Tax Map 01, Block 0158, Parcel 00057)

Chairperson Stansel read into the record the Public Notice published in the Journal Inquirer on February 5 and February 12, 2022, of the Teleconference Meeting and Public Hearing to be held at a Special Meeting on Tuesday, February 15, 2022, at 7:00 p.m.

Mark Peterson, P.E., Gardner & Peterson, Steven Lamesa and Jerry Fornarelli, applicants, and Rick Zulick, certified soil scientist all appeared to speak on behalf of the application.

Mark Peterson explained the application asking for two approvals: a wetlands redesignation and a permit for proposed improvements on the site. Rick Zulick explained his delineation and the wetlands boundaries. Mark Peterson then described the proposed site improvements on the plan, construction of two small buildings, and addition of a deck. Jerry Fornarelli talked about landscaping and keeping the area stabilized. Concerns were raised regarding the placement of the deck. Discussion took place.

Chairperson Stansel opened the Public Hearing at 7:45 p.m. No public comments were received.

*Chairperson Stansel MOVED to close the Public Hearing at 7:53 p.m. Don Schubert seconded. Motion carried unanimously.* 

Don Schubert MOVED that the Vernon Inland Wetlands and Watercourse Commission does hereby APPROVE application **[IWC-2021-07]**, **57 Hartford Turnpike** for a Wetlands Redesignation, subject to the "Wetlands Re-Designation Plan" dated December 9, 2021, prepared by Gardner & Peterson. Chairperson Stansel seconded. Motion carried unanimously.

Chairperson Stansel MOVED that the Vernon Inland Wetlands and Watercourse Commission does hereby APPROVE application **[IWC 2021-07]**, of Jerry Fornarelli for a Wetlands Permit by Commission with the following stipulations:

- Cleanup removal of invasive species along the river but no other disturbance to the existing vegetation in order to maintain site stability;
- *Cut the deck approximately eight feet to a 45 at the northeast corner by WL10 flag;*
- Work with the town engineer to evaluate the potential for installing a hood on the catch basin

**AND**, subject to the Site Plan of Development dated December 10, 2021, revised February 10, 2022, prepared by Gardner & Peterson Associates, LLC. Don Schubert seconded. Motion carried unanimously.

4.2 **[IWC 2021-08] 95 Hartford Turnpike**. An application of Jerry Fornarelli for a Wetlands Permit by Commission for site grading, new construction, and other development activities in a regulated area, at the Golf Land recreation center located at 95 Hartford Turnpike, (Assessor's ID: Map 1, Block 158, Parcel 00095).

Chairperson Stansel read into the record the Public Notice published in the Journal Inquirer on February 5 and February 12, 2022, of the Teleconference Meeting and Public Hearing to be held at a Special Meeting on Tuesday, February 15, 2022, at 7:00 p.m.

Mark Peterson P.E. along with Jerry Fornarelli, Steve Lamesa and Rick Zulick all appeared to speak on behalf of the application and explain Phase II of Golf Land. Mark Peterson explained the site and proposed changes and construction, storm water management and sedimentary control measures. Discussion took place.

Chairperson Stansel opened the public hearing at 8:08 p.m. No public comments were received.

Kathy Minor MOVED to close the public hearing at 8:10 p.m. Don Schubert seconded. Motion carried unanimously.

Kathy Minor MOVED that the Vernon Inland Wetlands and Watercourse Commission does hereby APPROVE application **[IWC-2021-08]** of CT Golf Land, LLC for a Wetlands Permit by Commission based on the following findings:

- The project will have no adverse impacts on wetlands or watercourses;
- There are no prudent or feasible alternatives

**AND**, subject to the Site Plan of Development dated December 1, 2021, revised February 10, 2022, prepared by Gardner & Peterson Associates, LLC. Don Schubert seconded. Motion carried unanimously.

- 5. Status of Cease & Correct Orders if any
  - 5.1 26 Naek Road and 321 Talcottville Road Brian Juliano and Rashid Hamid were present.

Craig Perry discussed the original site plan approved in 2009 and the latest imagery from 2018. He then discussed the Cease & Correct Order notified by Certified Letter dated January 5, 2022. Discussion took place.

Chairperson Stansel MOVED to defer action on the Cease & Correct Order to the March 22, 2022, meeting in order to give Mr. Juliano additional time to present additional information. Don Schubert seconded. Motion carried unanimously.

- Wetlands Enforcement Officer Report, if any Mr. Perry discussed the IWC Project Status Report dated January 2022 which was included in Commission packet.
- 7. Inland Wetlands Agent Approvals if any None
- 8. Other Business None
- 9. Adjournment Chairperson Stansel adjourned the meeting at 8:59 p.m.

Respectfully Submitted,

Susan Hewett, Recording Secretary

## TOWN OF VERNON Inland Wetlands Commission (IWC) **Tuesday March 22, 2022** <u>7:00 PM</u> VIA Zoom

## **Draft Minutes**

- 1. Call to Order & Roll Call by Chairperson Rachel Stansel at 7:00 PM
  - Regular members present: Rachel Stansel, Kathy Minor, and Don Schubert
  - Regular member Frank Galat, absent; Alternate Jeff Pescosolido, absent
  - Staff members present: Craig Perry, Wetlands Agent, David Smith, Town Engineer and George McGregor, Town Planner
  - Recording Secretary: Jill Rocco
- 2. Administrative Actions
  - 2.1 Approval of Minutes from Special Meeting 2-15-22

No motion made. A page was not included in the minutes for review. Motion will be made at the next meeting.

2.2 Approval of Minutes from Regular Meeting 2-22-22

Kathy Minor **MOVED** to **APPROVE** the minutes from the February 22, 2022 meeting. Don Schubert seconded and the motion carried unanimously.

3. New Applications for Receipt and Determination of Significance, if any

3.1 **IWC 2022-02, 304 Merline Rd.** An Application of CT Water Company for a Wetland Re-Designation for property located at 304 Merline Rd. (Tax Map 09, Block 015T, Parcel 00046). The Applicant also requests confirmation from the IWC that activity related to the parcel (demolition and construction of water treatment building) is exempted from permitting, under State Statute.

- Chair Rachel Stansel read the application into record.
- Town Planner, George McGregor explained the application in detail and recommended a hearing date of April 19, 2022.
- Staff members and commission members had questions.
- CT Water representative Justin Parlapiano responded.
- Discussion ensued.
- Commission requested the soils report.
- Commission recognized no further activity is required by them related to the parcel.

Don Schubert **MOVED** to **ACCEPT** the application for Public Hearing April 19, 2022. Kathy Minor seconded and the motion carried.

4. Public Hearing and Action on New Applications

4.1 CONTINUATION of IWC 2022-01, 501 Talcottville Rd. An Application by Vernon Development LLC for a Wetlands Re-designation and a Wetlands Permit for activity in a regulated area, in order to develop a child-care facility at 501 Talcottville Rd. (Tax Map 09, Block 007, Parcel 0001D).

NOTE: The Applicant has requested the Public Hearing be continued until April 26, 2022 (*note: due annual Town Meeting the regular April IWC meeting is moved to April 19, 2022*); the Applicant has provided the requisite extension to this date. Staff concurs as time is needed to provide a full third-party review.

- Town Planner, George McGregor explained the request for continuation and that they have received the proper extension paperwork.
- Chair Rachel Stansel **MOVE** to **CONTINUE** the hearing to the **April 19, 2022** meeting. Kathy Minor seconded and the motion carried unanimously.
- 5. Status of Cease & Correct Orders, if any
  - 5.1 Update-26 Naek Rd. & 321 Talcottville Rd.
  - Craig Perry, Inland/Wetland Officer gave an update.
  - Additional photography received by Juliano's Pool was shared with the Commission.
  - Don Smith, Town Engineer, gave details regarding the photos submitted by Juliano's Pool and the extent of the fill that is being done.
  - Brian Juliano spoke in regards to the remediation being completed.
  - Discussion ensued.
- 6. Wetlands Enforcement Officer Report

## 6.1 March 2022 Report

- Craig Perry, Inland/Wetland Officer updated the Commission on open applications and the progress and phases of each project.
- Informed the Commission of extended application dates due to COVID
- Discussion ensued.
- 7. Inland Wetlands Agent Approvals, if any

## NONE

8. Other Business

George McGregor, Town Planner, informed the Commission that he would be leaving and this was his last meeting.

9. Adjournment

Chairperson Rachel Stansel ADJOURNED the meeting at 7:29 PM.

Jill Rocco Recording Secretary

## **Minor Modification of Existing Land Development Permits**

## For the Proposed: Commercial Development

Located at: 129 Talcotville Road Vernon, Connecticut

Prepared for Submission to: Town of Vernon, Connecticut

April 6, 2022

Prepared for: **Store Cap Vernon, LP** 330 E. Crown Point Road Winter Garden, FL 34787



BL Companies 100 Constitution Plaza, 10<sup>th</sup> Floor Hartford, Connecticut 06103 Phone: (860) 249-2200 Fax: (860) 249-2400

BL Project Number: 2101607



April 6, 2022

George McGregor, Town Planner Planning & Development Department Town of Vernon 55 West Main Street Vernon, CT 06066

RE: Minor Modification of existing Site Plan of Development, Special Permits, and Wetlands Permit for a proposed multi-story self-storage facility 129 Talcotville Road, Vernon, CT

On behalf of Store Cap Vernon, LP, BL Companies respectfully submits applications of existing Site Plan of Development, Special Permits, and Wetlands Permit for a proposed multi-story self-storage facility located at 129 Talcotville Road in Vernon, Connecticut. The application package includes the following:

- (2) Copies of the application package prepared by BL Companies, Inc. and dated April 6, 2022 including the following:
  - Planning & Zoning Commission Application dated April 6, 2022
  - Inland Wetlands Commission Application dated April 6, 2022
  - Project Narrative
  - Potential Wetland / Stream Impact Survey Letter dated March 29, 2022
- Filing fee for Planning & Zoning in the amount of \$160.00 payable by check to the Town of Vernon.
- Filing fee for Inland Wetlands in the amount of \$177.50 payable by check to the Town of Vernon.
- (2) Copies of 24"x36 set of land development plans prepared by BL Companies, Inc. and dated April 6, 2022.
- (2) Copies of the Stormwater Management letter prepared by BL Companies, Inc. and dated April 6, 2022.

We are available at your convenience to review the plans and supporting documents.

Sincerely,

Kimberly Masiuk, P.E. Senior Project Manager

> 100 Constitution Plaza, 10<sup>th</sup> Floor, Hartford, CT 06103 Tel: **860.249.2200** | Fax: **860.249.2400** www.blcompanies.com

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## Introduction

Store Cap Vernon, LP is proposing to develop a vacant portion of the commercial complex on the north side of Talcotville Road in Vernon, Connecticut. This complex currently is home to Starbucks, Taco Bell, Verizon, and Wendy's and was a master planned development approved by the Town of Vernon in 2016. As part of the master plan for the parcel, a self-storage facility was to be built in the rear of the complex, however, it was never built.

Proposed work for their proposed facility shall include construction of a three-story, +/-90,819 total square foot self-storage facility. This proposed building will be located in the same general area on the site as was approved in the original master plan. Site improvements include associated earthwork, paved parking and driveways, utility connections, additional stormwater management components, site lighting and landscaping.

This narrative is being provided in conjunction with the filing of modifications of existing Site Plan of Development, Special Permits, and Wetlands Permit to the Vernon Planning & Development Department. The proposed site plans and building elevations have been provided in conjunction with this narrative to illustrate details of the project. A project summary is provided below.

## Summary of Site Plan & Development Schedule

## Existing Conditions

The subject site is within the Commercial zoning district and is part of a larger, master-planned, development. Located at 129 Talcotville Road, the development includes Wendy's, Verizon, Starbucks, and a vacant pad site in the rear. The development is bounded by a multi-tenant commercial building and the Hockanum River to the north, Talcotville Road to the east, Jiffy Lube to the south, and the Hockanum River to the west. The development has been mostly completed with multiple commercial buildings, paved parking and driveways, utilities a stormwater management system, landscaping, and site lighting. The western half of the site includes forested areas adjacent to the Hockanum River. Existing features in the pad site include a gravel building pad area, grassy vegetated slopes, and forested areas around the perimeter.

Topography of the pad site includes a largely flat area around elevation 220-221'. Aroundnorth, west, and south sides of the flat building pad is a slope down to existing grade consisting of a grade change of about 20-25'. The surrounding forested areas generally slope from east to west towards the Hockanum River.

## Proposed Project

Construction will include a three-story self-storage facility with a 30,273sf footprint and 90,819sf total area. Site improvements include new parking and circulation areas, minor modifications to the existing parking and circulation areas, associated site grading, stormwater management features, utility connections, site lighting with energy efficient LED fixtures, and landscaping.

The new facility will be constructed out of a variety of non-combustible materials designed to complement the surrounding commercial facilities. It will be 38'-8" tall building with exterior walls consisting of a mix of masonry block and metal panels.

## Project Schedule

Store Cap Vernon, LP would like to begin construction in spring of 2022 and complete construction before the end of 2022. They expect initial occupancy of the building to occur in late 2022 or early 2023.

## Municipal Services & Infrastructure Usage

## Electric, Cable & Data

The master planned site has a three-phase, 480-volt underground feed that powers all building sites. The proposed building will connect to an existing transformer pad location. It is anticipated that a new transformer will be installed on the existing pad. The transformer will be powered by the existing underground electric network onsite.

Telephone, cable, and data were also installed as part of the master planned site to each building pad area. The new building will be fed from the existing underground telephone and data infrastructure onsite.

## Gas

There is an existing gas line that runs up the eastern side of the master planned site and extends towards the self-storage building pad site. The proposed building will extend the existing gas line to the proposed meter location along the front face of the building.

## <u>Sewer</u>

As part of the master plan site construction, a sewer stub was extended from the Verizon store towards the rear pad site for the self-storage facility. The proposed facility will connect to this sewer stub via a new 2" pumped sewer line.

## Domestic Water

There is an existing 12-inch water main that loops through the master planned site, including across the front of the proposed building. A new 1" copper domestic water service will connect to the existing main in front of the building.

## Fire Protection

There is an existing 12-inch water main that loops through the master planned site, including across the front of the proposed building. A new 6" ductile iron fire suppression service will connect to the existing main in front of the building. The proposed site improvements will provide vehicle circulation around the southeast and northeast sides of the building to aid in emergency vehicle access. Additionally, a concrete sidewalk will extend to the egress door on the southwest side of the building.

## <u>Stormwater</u>

The stormwater management system was designed and permitted for the master planned development as a whole. Under master planned conditions, stormwater runoff from the Verizon, Wendy's and proposed self-storage facility is designed to be collected in a deep sump and hooded catch basins. Treatment occurs in a hydrodynamic separator and stormwater basin prior to discharge towards the Hockanum River. Roof runoff from the self-storage building is designed to discharge directly towards the Hockanum River. In current conditions, the site largely functions as designed and permitted with the exception that the self-storage facility has not been built to date.

Under proposed conditions for the self-storage facility, a new catch basin will be added in the northern paved parking and circulation area. This catch basin will connect to the existing stormwater management system. Therefore, paved runoff from the self-storage facility will continue to be treated in the hydrodynamic separator and stormwater basin prior to discharge towards the Hockanum River. Clean roof runoff will be discharged directly towards the Hockanum River. Details of the proposed stormwater management system are outlined in the stormwater summary letter and master planned Stormwater Management Report provided with the filing of modifications of existing Site Plan of Development, Special Permits, and Wetlands Permit to the Vernon Planning & Development Department.

## <u>Traffic</u>

The master planned development has two paved access points off Talcotville Road. The primary access is via a signalized intersection at Pitkin Road. The second is via a driveway along the northern end of the development near the existing Wendy's facility. The signalized access drive is

approximately 46' wide with two exit lanes and one entrance lane. All lanes are sized to accommodate delivery truck access.

Parking for the proposed self-storage facility will be provided in a combination of new and previously constructed parking stalls. Overall, the originally approved master planned contained (95) parking stalls, including (14) allocated for the future self-storage use. Under proposed conditions, the self-storage building will require (14) parking spaces in accordance with the Town Zoning Regulations based on the total number of storage units in the facility. The proposed self-storage facility will include (14) parking spaces based on the Zoning requirements and will provide an additional (10) new paved parking spaces for the master planned development, bringing the toral parking count for the master planned site up to (105). All parking stalls s in the development are a minimum of 9'x18' for regular passenger cars.

Emergency vehicles will have access into the development via either the southern signalized driveway or the northern unsignalized driveway. Access is currently provided around all sides of both the Verizon and Wendy's facilities and will be maintained. Access will be provided around the southeastern and northeastern sides of facility. In addition, a concrete sidewalk is provided from the emergency egress door on the southwest side of the building to the front drive aisle.

## <u>Environmental</u>

Overall, the site has several wetland resource areas onsite including the Hockanum River, an intermittent watercourse, and a vegetated wetland. The proposed self-storage facility is nestled between each of these resources. The Hockanum River will be located to the west of the building. The intermittent watercourse is located north and east of the facility. A vegetated wetland is currelty located just to the southwest of the proposed facility. None of the wetland resources will be directly impacted by the proposed development. Details of the existing wetland resources near the proposed limits of work are outlined a memorandum provided with the filing of modifications of existing Site Plan of Development, Special Permits, and Wetlands Permit to the Vernon Planning & Development Department.

During various site investigations performed throughout the design phase of the project, it was noted that the site contains a moderate to high amount of rubbish and old, dysfunctional erosion control measures. At the onset of construction, workers will remove the trash from the site, including wetland areas, by hand. Dysfunctional erosion control measures will also be removed, and property disposed of.

Floodplain is present onsite but is isolated to the areas immediately adjacent to the Hockanum River. The proposed limit of work for the self-storage facility does not approach the outer edges

of the floodplain. There are no documented rare species habitat or areas of historical significance on the site.

## <u>Aesthetics</u>

The proposed project will be constructed with traditional commercial finishes that complement the look of the surrounding areas. Strategic landscaping has been provided to soften the appearance of the proposed structure and screen the use from the nearby residences.

## Summary

The project has been thoughtfully planned to meet project goals and minimize potential impacts to the surrounding area. The proposed project has been designed in accordance with the current and Zoning Regulations.

The project will provide an aesthetically appealing commercial facility, create jobs and generate revenue for the Town.

In consideration of this information, we are asking that the Town of Vernon staff approve the minor modifications to the existing Site Plan of Development, Special Permits, and Wetlands Permit at 129 Talcotville Road for Store Cap Vernon, LP.



## TOWN OF VERNON PLANNING & ZONING COMMISSION (PZC)

**APPLICATION** 

(Revised March 2021)

The PZC may require additional information to be provided by the applicant in the course of reviewing the application and during the monitoring of the project. Provide all the information requested.

## APPLICANT (S)

NAME:		
COMPANY:		
ADDRESS:		
TELEPHONE:	E-MAIL:	
	PROPERTY OWNER (S)	
NAME:		
ADDRESS:		
TELEPHONE:	EMAIL:	
If the applicant is not the proper approval by the	rty owner, include a letter from the property owner authorizing the applic PZC, if no signature accompanies the application. (ZR Section 2.3) <u>PROPERTY</u>	cant to seek
ADDRESS:		
ASSESSOR'S ID CODE: M	/AP #BLOCK # LOT/PARCEL #	
LAND RECORD REFERENCE	CE TO DEED DESCRIPTION: VOLUME: PAGE Vol. 2577	' Pg. 324
DOES THIS SITE CONTAIN REGULATIONS)	I A WATERCOURSE AND/OR WETLANDS? (SEE THE INLAND WET	LANDS MAP AND
NOYES		
-	NO REGULATED ACTIVITY WILL BE DONE REGULATED ACTIVITY WILL BE DONE IWC APPLICATION HAS BEEN SUBMITTED	
ZONING DISTRICT		
IS THIS PROPERTY LOCAT MUNICIPAL BOUNDARY?	TED WITHIN FIVE HUNDRED (500) FEET OF A	
NO YES:		
CHECK IF HISTORIC STAT	'US APPLIES:	
LOCATED IN	HISTORIC DISTRICT:	
INDIVIDUAL H	IISTORIC PROPERTY	

#### PROJECT SUMMARY

Describe the project briefly in regard to the purpose of the project and the activities that will occur. Attach to this application a complete and detailed description with maps and documentation as required by the "**Town of Vernon Zoning Regulations**" and **"Town of Vernon Subdivision Regulations**".

PURPOSE: \_\_\_\_\_

GENERAL ACTIVITIES: \_\_\_\_\_

## APPROVAL REQUESTED

#### SUBDIVISION OR RESUBDIVISION

\_\_\_\_\_ SUBDIVISION (SUB. SEC. 4, 5, 6)

RESUBDIVISION (SUB. SEC. 4, 5, 6)

- MINOR MODIFICATION OF SUBDIVISION OR RESUBDIVISION (SUB. SEC. 4.6)
- \_\_\_\_\_ AMENDMENT OF SUBDIVISION REGULATIONS (SUB. SEC. II)

SEE SUBDIVISION REGULATIONS SEC. 4 FOR APPLICATION FEE SCHEDULES.

SOIL EROSION AND SEDIMENT CONTROL PLAN (ESCP) (ZR SEC. 2.117; 18) (SUB. 6.14)

SITE PLAN OF DEVELOPMENT (POD) (ZR SEC. 14)

\_\_\_\_\_ POD APPROVAL (ZR SEC. 14.1.1.1; 14.1.2)

\_\_\_\_\_MODIFICATION OF AN APPROVED POD (ZR SEC. 14.1.1.1)

MINOR MODIFICATION OF A SITE POD (ZR SEC. 14.1.1.2)

\_\_SPECIAL PERMIT(S) (ZR SECTION 17.3) SECTION:\_\_\_\_\_

OTHER SPECIAL PERMIT(S). CITE ZR SECTION AND DESCRIBE ACTIVITY:

ZONING:

SITE SPECIFIC CHANGE OF ZONING DISTRICT AND MAP (ZR SEC. 1.2; 1.3; 4) AMENDMENT OF ZONING REGULATIONS (SEC. 1.2; 1.3; 4)

## **CERTIFICATION AND SIGNATURE**

The applicant, undersigned, has reviewed the "Town of Vernon Planning and Zoning Regulations" and completed the application with complete and accurate information:

Property Owner, Applicant, or Applicant's Agent:

APPLICANT OR AGENT SIGNATURE

PRINTED NAME

DATE

OWNER'S SIGNATURE, IF DIFFERENT

PRINTED NAME



## <u>Town of Vernon</u> INLAND WETLANDS COMMISSION (IWC) APPLICATION

(Revised March 2021)

This form is to be used to apply to the Vernon Inland Wetlands Commission (IWC) for approval for a redesignation of a wetlands area, a change to the Inland Wetlands and Watercourses Regulations, and/or a permit to conduct a regulated activity in a wetland, watercourse, or upland review area (URA), which are defined as areas within one hundred (100) feet from the boundary of a wetland, watercourse, or intermittent watercourse and areas within two hundred (200) feet from the boundary of Gage's Brook, Hockanum River, Ogden Brook, Railroad Brook, Tankerhoosen River, Valley Falls Pond, Walker Reservoir East, Walker Reservoir West. Any activity that the Commission determines is likely to impact or affect wetlands or watercourses may be considered a regulated activity.

## Provide all the information requested.

APPLICANT (S)				
NAME:	COMPANY:			
ADDRESS:				
TELEPHONE:	EMAIL:			
PROPERTY	<u>OWNERS</u>			
NAME:				
ADDRESS:				
TELEPHONE:	EMAIL:			
PROPE	RTY			
ADDRESS:				
ASSESSOR ID CODE: MAP# BLOCK#	LOT/PARCEL#			
LAND RECORD REFERENCE TO DEED DESCRIPTION:	VOLUME: PAGE:			
USGA LOCATION:				
CIRCLE THE MAP QUADRANGLE NAME:	MANCHESTER #38 ROCKVILLE #39			
CIRCLE THE SUB REGIONAL DRAINAGE BASIN #	3108 4500 4502 4503			
ZONING DISTRICT:				

## PROJECT SUMMARY

Describe the project briefly in regard to the purpose of the project and the activities that will occur. Attach to this application a complete and detailed description with maps and documentation as required by the

"The Town of Vernon Inland Wetlands and Watercourses Regulations."

....

PURPOSE:

GENERAL ACTIVITIES: \_\_\_\_\_

REGULATIED ACTIVITIES:

WATERCOURSE DISTURBANCE (LINEAR FEET):\_\_\_\_\_

WETLANDS DISTURBANCE (ACRES OR SQ FT.): \_\_\_\_\_

UPLAND REVIEW AREA (URA) DISTURBANCE: \_\_\_\_\_

NONREGULATED ACTIVITIES & ACTIVITIES OUTSIDE URA:

## **APPLICATION**

\_\_\_\_\_ REDESIGNATION OF WETLANDS

AMENDMENT OF INLAND WETLANDS AND WATERCOURSES REGULATIONS

\_\_\_\_\_ MODIFICATION OF A WETLANDS REDESIGNATION

- \_\_\_\_\_ WETLANDS PERMIT
  - \_\_\_\_\_ NON-SIGNIFICANT
  - \_\_\_\_\_ SIGNIFICANT ACTIVITY WITH LESS THAN ½ ACRE SITE DISTURBANCE
  - \_\_\_\_\_ SIGNIFICANT ACTIVITY WITH SITE DISTURBANCE FROM ½ ACRE TO AND INCLUDING 2 ACRES
  - SIGNIFICANT ACTIVITY WITH SITE DISTURBANCE GREATER THAN 2 ACRES
  - \_\_\_\_\_ COMMISSION MODIFICATION OF A WETLAND PERMIT IN EFFECT
  - MODIFICATION OF A WETLAND PERMIT BY THE WETLANDS AGENT
  - APPROVAL OF A LICENSE BY THE WETLANDS AGENT FOR ACTIVITIES IN AN UPLAND
- \_\_\_\_\_ APPEAL OF A DECISION BY THE WETLANDS AGENT
- SUBDIVISION REVIEW PER CGS SECTION 8-26
- JURISDICTIONAL RULING REGARDING PERMITTED AND NONREGULATED USES
- WAIVER, REDUCTION, OR DELAYED PAYMENT OF FEES (ATTACH STMT OF JUSTIFICATION)

\_\_\_\_\_ WAIVER / \_\_\_\_\_ REDUCTION TO \$ \_\_\_\_\_ / \_\_\_\_DELAY OF PAYMENT TO \_\_\_\_\_

#### **CERTIFICATION AND SIGNATURE**

I, the undersigned Applicant or applicant's Agent, hereby certify that I have reviewed the "Town of Vernon Inland Wetlands and Watercourses Regulations" and have prepared this Application with complete and accurate information.

Property Owner, Applicant, or Applicant's Agent:

APPLICANT OR AGENT SIGNATURE	PRINTED NAME	DATE
OWNER'S SIGNATURE, IF DIFFERENT	PRINTED NAME	DATE

An Employee-Owned Company



March 29, 2022

Ms. Sabrina Pernalete Store Space 330 E. Crown Point Road Winter Garden, FL 34787

RE: Potential Wetland / Stream Impact Survey Store Space Vernon CT 129 Talcotville Road, Vernon, CT

## BL Project No. 2101607

Dear Ms. Pernalete:

BL Companies, Inc. (BL) previously produced a Memorandum dated November 29, 2021, which discussed areas of concern for possible stream/wetland fill encroachment. This updated Memorandum will act to supplement the previous document by expounding on the observations made further to the west within the fill areas.

A BL Companies, Inc., Certified Professional Soil Scientist (CPSS) and Professional Wetland Scientist (PWS), Sagan Simko, conducted a field review of the Vernon parcel on November 18, 2021, and identified two areas of concern for possible stream/ wetland encroachment:

Area 1 is located at the north-central area of fill (near a section of Int 4, please see attached map).

- The area in vicinity of stream Int 4 does have stream characteristics and had flowing water and does not appear to have been impacted. However, there are concrete slabs (that may have been resultant of washing out a cement truck) that have been pushed down the hill and are immediately adjacent to this stream (see Photo 1). The concrete fill does not appear to impact the stream and it is our professional opinion that removing it would cause more damage to the stream than leaving it in place.
- As can be seen in Photo 9 and Photo 10 (see attached) the areas to the west of Int 2 and Int 3 as well as the upgradient locations of Int 2 and Int 3 do not contain any stream or wetland areas.

Ms. Sabrina Pernalete BL Project No. 2011607 March 29, 2022 Page 2

Area 2 is located at the south-central area of fill (near Per 1, Int 5 and Int 6).

- This area did not appear to contain stream features outside of the fill. BL's previous wetland investigation conducted in 2015 depicted a culvert with flowing water and identified a perennial stream at this location (Per 1). This previously identified culvert was no longer present during our field review conducted in 2021, and appears to have been located where the base of the fill embankment is now located. However, during our field review there was no evidence of channelization, flow patterns, scour, etc., that would indicate a stream was formed by culvert outflow or where a water discharge point would exit the fill.
- There is a possibility that this culvert may have been a discharge from an extended stormwater system and the area downgradient of the culvert discharge point exhibited scour, bed and banks and channelization at the time this area was previously reviewed in 2015. The area where stream Int 6 appears to have been located is now buried approximately 95% beneath the fill embankment. In addition, stream Int 5, which was previously mapped as connecting to the mapped wetland (Wetland 1), does not currently exhibit stream characteristics.
- An area to the west of Int 6 (as seen in Photo 7 and Photo 8) contained a drainage tile pipe and exhibited some evidence of erosion at the outfall of the pipe. This erosion area has subsequently become vegetated well enough to make it difficult to ascertain whether any erosion deposition occurred within the wetland area. However, if any soil erosion is encroaching into the wetland area it appears to be stable and any effort to remove it would likely cause undue disturbance and harm to the wetland versus letting it remain in place.

In summary, we were unable to locate the origin of the previously delineated stream Per 1, but it is likely that some evidence (channelization remnants, scour, etc.) from the previously located stream leading to the wetland would have been evident. There was no tangible evidence of stream flow in the vicinity of the previously mapped Per 1. Fill does overlap areas previously mapped as streams; however, based upon the existing field evidence it is unlikely that stream impacts occurred at this site. There appears to have been a change to the flow regime, shift in hydrologic connection or possibly a rerouting of stormwater outfall location that eliminated the source of flow at the culverted outfall near Int 6. There is a possibility that the fill placement has altered the hydrology, but even if that were the case it is unlikely that this would have impacted the flow dynamics in the immediate vicinity of the stream. It would stand to reason that some evidence of flow would remain; however, none does. The soil erosion deposition area to

Ms. Sabrina Pernalete BL Project No. 2011607 March 29, 2022 Page 3

the west of Int 6 appears stable and efforts to remove the soil deposition are not recommended.

BL Companies appreciates the opportunity to provide these environmental services to you. Should there be any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

**BL Companies** 

agan A

Sagan M. Simko, CPSS, PWS Senior Project Scientist II

Attachments

## ATTACHMENT A

Site Photo Location Map/ Previously Delineated Features Map



## ATTACHMENT B

## Photographic Documentation



## Photo # 1

Date: November 18, 2021 Direction: Northeast

## **Description**

Northeastern view of the previously delineated Int 1 / Int 4 area, located along the northern boundary of the Project Area.

## Store Space Vernon CT 129 Talcotville Road, Vernon, CT Photographic Documentation



## Photo # 2 Date: November 18, 2021 Direction: Northeast

## **Description**

Northeastern view of the previously delineated Int 1 area with concrete slabs near streambank, located along the northern boundary of the Project Area.





#### Photo # 3

Date: November 18, 2021 Direction: Northwest

## **Description**

Northwestern view of the previously delineated Per 1 / Int 5 area, located in the central portion of the Project Area.

## Store Space Vernon CT 129 Talcotville Road, Vernon, CT Photographic Documentation



## Photo # 4 Date: November 18, 2021 Direction: West

## **Description**

Western view of the previously delineated Int 5 location, located in the central portion of the Project Area.





#### Photo # 5

Date: November 18, 2021 Direction: Northeast

## **Description**

Northeastern view of the previously delineated Int 6 location, located in the central portion of the Project Area.

## Store Space Vernon CT 129 Talcotville Road, Vernon, CT Photographic Documentation



## Photo # 6 Date: November 18, 2021 Direction: Northwest

## **Description**

Northwestern view of the previously delineated Per 1 location, located in the central portion of the Project Area.





#### Photo # 7

Date: November 18, 2021 Direction: Northeast

## **Description**

Northeastern view of a drainage tile and some erosion near previously delineated Wetland 1, located in the central portion of the Project Area.

## Store Space Vernon CT 129 Talcotville Road, Vernon, CT Photographic Documentation



## Photo # 8 Date: November 18, 2021 Direction: West

## **Description**

Western view of some erosion near previously delineated Wetland 1, located in the central portion of the Project Area.





#### Photo # 9

Date: November 18, 2021 Direction: Northwest

#### **Description**

Northwestern view to the west of the previously delineated Int 2 / Int 3 area, located along the northern boundary of the Project Area.

## Store Space Vernon CT 129 Talcotville Road, Vernon, CT Photographic Documentation



## Photo # 10 Date: November 18, 2021 Direction: North

## **Description**

Northern view to the west of the previously delineated Int 2 / Int 3 area, located along the northern boundary of the Project Area.





# LAND DEVELOPMENT PLANS ISSUED FOR LOCAL LAND DEVELOPMENT PERMITTING

SELF STORAGE DEVELOPMENT 129 TALCOTTVILLE ROAD VERNON, CONNECTICUT

PREPARED FOR: STORE CAP VERNON LP 330 E. CROWN POINT ROAD WINTER GARDEN, FL 34787

PREPARED BY:



ARCHITECTURE ENGINEERING ENVIRONMENTAL LAND SURVEYING

100 CONSTITUTION PLAZA, 10TH FLOOR HARTFORD, CONNECTICUT 06103 (860) 249-2200 (860) 249-2400 Fax



SCALE: 1"=250'

DEVELOPER:

STORE CAP VERNON LP 330 E. CROWN POINT ROAD WINTER GARDEN, FL 34787 OWNER:

STORE CAP VERNON LP 330 E. CROWN POINT ROAD WINTER GARDEN, FL 34787



DATES

ISSUE DATE: APRIL 6, 2022



# **GENERAL NOTES**

- 1. A) THIS MAP HAS BEEN PREPARED IN ACCORDANCE WITH THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARDS AND SUGGESTED METHODS AND PROCEDURES FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. AUGUST 29, 2019.
- B) THIS PLAN CONFORMS TO HORIZONTAL ACCURACY CLASS A-2, AND TOPOGRAPHIC ACCURACY CLASS T-2.
- C) BOUNDARY DETERMINATION IS BASED UPON MAP REFERENCE A
- D) THE TYPE OF SURVEY PERFORMED IS A PROPERTY/TOPOGRAPHIC SURVEY AND IS INTENDED TO DEPICT THE EXISTING SITE CONDITIONS WITHIN THE PROJECT AREA OF LOT 2 WITH RESPECT TO MONUMENTATION FOUND, STRUCTURES, EASEMENTS, ENCROACHMENTS, VISIBLE UTILITIES, ROADWAYS AND CONTOURS.
- NORTH ARROW AND BEARINGS REFER TO THE CONNECTICUT COORDINATE SYSTEM (CT NAD 83 GEOID 87).
- 3. ELEVATIONS REFER TO NAVD 88.

N/F

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- 4. THE PROJECT AREA IS LOCATED IN FLOOD AREA ZONE "X", (AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOOD), ZONE "X SHADED", (AREA OF 500-YEAR FLOOD), AS DEPICTED ON F.I.R.M. COMMUNITY PANEL NO. 090131 0005C RÉVISED: AUGUST 09, 1999.
- 5. THE UNDERGROUND UTILITIES DEPICTED HAVE BEEN PLOTTED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES DEPICTED COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES DEPICTED ARE IN THE EXACT LOCATION INDICATED THOUGH THEY ARE PLOTTED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY EXPOSED THE UNDERGROUND UTILITIES. PER CONNECTICUT STATE LAW THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF EXCAVATION. CALL BEFORE YOU DIG 1-800-922-4455.

## MAP REFERENCES

- A. "LOT LINE MODIFICATION PLAN, VERNON PHASE II, 135 & 145 TALCOTTVILLE ROAD (CONN. RTE. NO. 83), VERNON, CONNECTICUT", SCALE 1"=40', DATE 03/23/2017, REV. 5/17/2018, SHEET NO. BS-1 AND PREPARED BY BL COMPANIES, MERIDEN, CONNECTICUT.
- B. "IMPROVEMENT LOCATION SURVEY RECORD DRAWING, LAND OF FIGURE 8/VERNON II, LLC, 145 TALCOTTVILLE ROAD (CONN. RTE. NO. 83), VERNON, CONNECTICUT", SCALE 1'=20', DATE 05/07/2021, REVISED 8/23/2021, SHEET NO. 1 & 2 OF 2, AB-5 AND PREPARED BY BL COMPANIES, MERIDEN, CONNECTICUT.



TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

> ming Marka JENNIFER MARKS L.S. #17939

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE ORIGINAL SIGNATURE AND EMBOSSED SEAL OF THE ABOVE NAMED LAND SURVEYOR.



. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION.	INC. MAPPING AND WETLAND IDENTIFICATION AND DELINEATION REPORT DATED 09/26/2016. ADDITION
2. ALL CONSTRUCTION SHALL COMPLY WITH THE PROJECT SPECIFICATION MANUAL; SELF STORAGE CORPORATION STANDARDS, MUNICIPAL STANDARDS AND SPECIFICATIONS, COUNTY STANDARDS AND SPECIFICATIONS, CONNECTICUT	HAVE BEEN PERFORMED TO REVIEW WETLANDS BY SAGAN SIMKO, SENIOR PROJECT SCIENTIST II, WRITT DATED 11/29/2021 AND ADDITIONALLY 3/29/2022 BY BL COMPANIES, INC.
DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS, 2010 ADA STANDARDS, AND STATE BUILDING CODE IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.	<ul> <li>39. 12" SWSB (STOP BAR) AND 4" SYDL AND SWL PAVEMENT MARKINGS LOCATED IN DRIVEWAYS AND IN SHALL BE EPOXY RESIN TYPE ACCORDING TO CONNDOT SPECIFICATIONS.</li> <li>40. FIRE LANES SHALL BE ESTABLISHED AND PROPERLY DESIGNATED IN ACCORDANCE WITH THE REQUIREM FIRE DISTRICT FIRE MARSHALL</li> </ul>
3. REFER TO OTHER PLANS BY OTHER DISCIPLINES, DETAILS AND PROJECT MANUAL FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL VERIFY ALL SITE AND BUILDING CONDITIONS IN THE FIELD AND CONTACT THE CIVIL ENGINEER AND ARCHITECT IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS, SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO BIDDING. ANY CONFLICT BETWEEN THE DRAMINES AND SECURICATIONS SHALL BE CONFIDENCE WITH THE OWNER'S CONSTRUCTION MANAGER PRIOR TO BIDDING.	41. THE CONTRACTOR SHALL REMOVE CONFLICTING PAVEMENT MARKINGS IN THE ROADWAY BY METHOD AF AUTHORITY HAVING JURISDICTION OR DOT AS APPLICABLE FOR THE LOCATION OF THE WORK.
DRAWINGS AND SPECIFICATIONS SHALL BE CONFIRMED WITH THE OWNER'S CONSTRUCTION MANAGER PRIOR TO BIDDING. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN	<ul> <li>42. ALL ADA DESIGNATED PARKING STALLS, ACCESS AISLES AND PEDESTRIAN WALKWATS SHALL CONFORM CURRENT VERSION OF THE AMERICANS WITH DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN AI STANDARDS AND AS MAY BE SUPERCEDED BY THE STATE BUILDING CODE.</li> <li>43. CONSTRUCTION OCCURRING ON THIS SITE SHALL COMPLY WITH NFPA 241 STANDARD FOR SAFEGUARDI</li> </ul>
THE CONTRACTOR SHALL ABIDE BY ALL OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY	44. ALL BUILDINGS, INCLUDING FOUNDATION WALLS AND FOOTINGS AND BASEMENT SLABS INDICATED ON T PLAN ARE TO BE REMOVED FROM THE SITE. CONTRACTOR SHALL SECURE ANY PERMITS, PAY ALL FEE CLEARING AND GRUBBING AND DEBRIS REMOVAL PRIOR TO COMMENCEMENT OF GRADING OPERATIONS.
UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR. . CONTRACTOR SHALL SUBMIT AN AS-BUILT TOPOGRAPHIC SURVEY TO DESIGN ENGINEER AT THE COMPLETION OF CONSTRUCTION. AS-BUILT SURVEY SHALL COMPLY WITH ALL NPDES NOTICE OF TERMINATION REQUIREMENTS. MUNICIPAL	45. SEDIMENT AND EROSION CONTROLS AS SHOWN ON THE SEDIMENT AND EROSION CONTROL PLAN AND/ PLAN SHALL BE INSTALLED BY THE DEMOLITION CONTRACTOR PRIOR TO START OF DEMOLITION AND C
ORDINANCE REQUIREMENTS AND INCLUDE ALL SITE ELEMENTS, TOPOGRAPHY, STORM WATER MANAGEMENT FACILITY STRUCTURES/BASINS AND LANDSCAPE ELEMENTS. CONTRACTOR SHALL SUBMIT THE AS-BUILT SURVEY IN BOTH PDF AND AUTOCAD DWG FILE FORMAT TO DESIGN ENGINEER.	46. REMOVE AND DISPOSE OF ANY SIDEWALKS, FENCES, STAIRS, WALLS, DEBRIS AND RUBBISH REQUIRING THE WORK AREA IN AN APPROVED OFF SITE LANDFILL, BY AN APPROVED HAULER. HAULER SHALL CO REGULATORY REQUIREMENTS.
CONSTRUCTION. THE ARCHITECT AND ENGINEER HAVE NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.	47. THE CONTRACTOR SHALL SECURE ALL PERMITS FOR HIS DEMOLITION AND DISPOSAL OF HIS DEMOLITIO BE REMOVED FROM THE SITE. THE CONTRACTOR SHALL POST BONDS AND PAY PERMIT FEES AS REQU DEMOLITION CONTRACTOR SHALL BE RESPONSIBLE FOR PERMITS AND DISPOSAL OF ALL BUILDING DEMO AN APPROVED OFF-SITE LANDFILL.
B. THE CONTRACTOR SHALL COMPLY WITH CFR 29 PART 1926 FOR EXCAVATION, TRENCHING, AND TRENCH PROTECTION REQUIREMENTS.	48. ASBESTOS OR HAZARDOUS MATERIAL, IF FOUND ON SITE, SHALL BE REMOVED BY A LICENSED HAZARI ABATEMENT CONTRACTOR.
. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE STSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY AND MUNICIPAL OR COUNTY OR STATE RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING	49. THE CONTRACTOR SHALL PREPARE ALL MANIFEST DOCUMENTS AS REQUIRED PRIOR TO COMMENCEMEN
ACTUAL LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND AND OVERHEAD UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT CT CALL BEFORE YOU DIG (CBYD) 72 HOURS BEFORE COMMENCEMENT OF WORK AT (800) 922–4455 OR AT 811 AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS. THE CONTRACTOR SHALL EMPLOY THE USE OF A UTILITY LOCATING COMPANY TO PROVIDE SUBSURFACE UTILITY ENGINEERING CONSISTING OF DESIGNATING UTILITIES AND STORM PIPING ON	ALL SERVICE PIPING AT THE STREET LINE OR AT THE MAIN, AS REQUIRED BY THE UTILITY PROVIDER, NOTED OR SHOWN ON THE CONTRACT DRAWINGS. ALL SERVICES MAY NOT BE SHOWN ON THIS PLAN. SHALL INVESTIGATE THE SITE PRIOR TO BIDDING TO DETERMINE THE EXTENT OF SERVICE PIPING TO BI OR PLUGGED. THE CONTRACTOR SHALL PAY ALL UTILITY PROVIDER FEES FOR ABANDONMENTS AND RE
PRIVATE PROPERTY WITHIN THE CONTRACT LIMIT AND CONSISTING OF DESIGNATING AND LOCATING WHERE PROPOSED UTILITIES AND STORM PIPING CROSS EXISTING UTILITIES AND STORM PIPING WITHIN THE CONTRACT LIMITS.	51. THE CONTRACTOR SHALL PROTECT ALL IRON PINS, MONUMENTS AND PROPERTY CORNERS DURING DEM CONSTRUCTION ACTIVITIES. ANY CONTRACTOR DISTURBED PINS, MONUMENTS, AND OR PROPERTY CORN BE RESET BY A LICENSED LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
. SHOULD CONFLICTING INFORMATION BE FOUND WITHIN THE CONTRACT DOCUMENTS, IT IS INCUMBENT UPON THE CONTRACTOR TO REQUEST CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK. FOR BUDGETING PURPOSES, THE CONTRACTOR SHALL CARRY THE COST OF THE HIGHER QUALITY/QUANTITY OF WORK UNTIL SUCH TIME THAT A CLARIFICATION IS RENDERED.	52. THE DEMOLITION CONTRACTOR SHALL STABILIZE THE SITE AND KEEP EROSION CONTROL MEASURES IN COMPLETION OF HIS WORK OR UNTIL THE COMMENCEMENT OF WORK BY THE SITE CONTRACTOR, WHICH FIRST, AS REQUIRED OR DEEMED NECESSARY BY THE ENGINEER OR OWNER'S REPRESENTATIVE. THE S SHALL ASSUME RESPONSIBILITY FOR THE MAINTENANCE OF EXISTING EROSION AND SEDIMENTATION CO INSTALLATION OF ANY NEW SEDIMENT AND EROSION CONTROLS AS PER THE SEDIMENT AND EROSION AT THAT TIME.
. ALL CONTRACTORS AND SUBCONTRACTORS SHALL OBTAIN COMPLETE DRAWING PLAN SETS FOR BIDDING AND CONSTRUCTION. PLAN SETS OR PLAN SET ELECTRONIC POSTINGS SHALL NOT BE DISASSEMBLED INTO PARTIAL PLAN SETS FOR USE BY CONTRACTORS AND SUBCONTRACTORS OF INDIVIDUAL TRADES. IT SHALL BE THE CONTRACTOR'S AND SUBCONTRACTOR'S RESPONSIBILITY TO OBTAIN COMPLETE PLAN SETS OR COMPLETE PLAN SET ELECTRONIC POSTINGS FOR USE IN BIDDING AND CONSTRUCTION.	53. THE CONTRACTOR SHALL PUMP OUT BUILDING FUEL AND WASTE OIL TANKS (IF ANY ARE ENCOUNTERE FUEL TO AN APPROVED DISPOSAL AREA BY A LICENSED WASTE OIL HANDLING CONTRACTOR IN STRICT WITH STATE REQUIREMENTS.
. ALL NOTES AND DIMENSION DESIGNATED AS "TYPICAL" OR "TYP" APPLY TO ALL LIKE OR SIMILAR CONDITIONS THROUGHOUT THE PROJECT.	54. IF IMPACTED OR CONTAMINATED SOIL IS ENCOUNTERED BY THE CONTRACTOR, THE CONTRACTOR SHAL EXCAVATION WORK OF IMPACTED SOIL AND NOTIFY THE OWNER AND/OR OWNER'S ENVIRONMENTAL CO TO PROCEEDING WITH FURTHER WORK IN THE IMPACTED SOIL LOCATION UNTIL FURTHER INSTRUCTED E AND/OR OWNER'S ENVIRONMENTAL CONSULTANT.
. CONTRACTOR(S) TO TAKE AND VERIFY ALL DIMENSIONS AND CONDITIONS OF THE WORK AND BE RESPONSIBLE FOR COORDINATION OF SAME. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK.	55. EXISTING WATER SERVICES SHALL BE DISCONNECTED AND CAPPED AT MAIN IN ACCORDANCE WITH THE OF THE WATER UTILITY PROVIDER. REMOVE EXISTING ONSITE WATER PIPING TO BE ABANDONED TO RI
5. BE COMPANIES WILL PREPARE FINAL CONSTRUCTION DOCUMENTS SUITABLE FOR BIDDING AND CONSTRUCTION. PROGRESS SETS OF THESE DOCUMENTS ARE NOT SUITABLE FOR THOSE PURPOSES. IF CLIENT ELECTS TO SOLICIT BIDS OR ENTER INTO CONSTRUCTION CONTRACTS UTILIZING CONSTRUCTION DOCUMENTS THAT ARE NOT YET FINAL, CONSULTANT SHALL NOT BE RESPONSIBLE FOR ANY COSTS OR DELAY ARISING AS A RESULT.	<ul> <li>56. EXISTING SANITARY LATERAL SHALL BE PLUGGED WITH NON-SHRINK GROUT AT CURB LINE OR AT MAI ACCORDANCE WITH THE SANITARY UTILITY PROVIDER REQUIREMENTS. REMOVE EXISTING LATERAL PIPING UNLESS OTHERWISE SHOWN ON DEMOLITION PLANS OR AS REQUIRED BY THE SANITARY UTILITY PROVIDER</li> </ul>
THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING PERMITS REQUIRED BY GOVERNMENT AGENCIES	57. DOMESTIC GAS SERVICES SHALL BE CAPPED AND SERVICE LINES PURGED OF RESIDUAL GAS IN ACCOR GAS UTILITY PROVIDER REQUIREMENTS. WORK TO BE COORDINATED BY AND PAID FOR BY THE CONTRA
PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT AND OBTAIN FROM MUNICIPAL SOURCES ALL CONSTRUCTION PERMITS, INCLUDING ANY STATE DOT PERMITS, SEWER AND WATER CONNECTION PERMITS, AND ROADWAY CONSTRUCTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK	58. THE CONTRACTOR SHALL PROVIDE DISCONNECT NOTIFICATION TO THE MUNICIPALITY ENGINEERING DEPA
THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS AND MATERIALS PER PLANS AND SPECIFICATIONS TO THE OWNER AND CIVIL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.	PROVIDER, AND WATER UTILITY PROVIDER, GAS UTILITY PROVIDER, ELECTRIC UTILITY PROVIDER, SANITAR PROVIDER, AND WATER UTILITY PROVIDER AT LEAST THREE WEEKS PRIOR TO BEGINNING DEMOLITION. 59. THE CONTRACTOR IS RESPONSIBLE FOR SECURING A DEMOLITION PERMIT FROM THE VERNON BUILDING MUST FURNISH THE REQUIRED APPLICATION MATERIAL AND PAY ALL FEES
THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION NOTES PROVIDED ON THE SEDIMENT AND EROSION CONTROL PLAN.	60. BACK FILL DEPRESSIONS, FOUNDATION HOLES AND REMOVED DRIVEWAY AREAS IN LOCATIONS NOT SUE EXCAVATION WITH SOIL MATERIAL APPROVED BY THE OWNER'S GEOTECHNICAL ENGINEER AND COMPAC
. THE CONTRACTOR SHALL REFERENCE ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND CONSTRUCTION DETAILS OF BUILDING, THE RAISED CONCRETE SIDEWALKS, LANDINGS, RAMPS, AND STAIRS.	AND MULCH DISTURBED AREAS NOT SUBJECT TO FURTHER SITE CONSTRUCTION. DEMOLISHED BUILDING AREA AND BASEMENT IF PRESENT TO BE BACKFILLED WITH GRAVEL FILL OR MATERIAL SPECIFIED IN T GEOTECHNICAL REPORT IN LIFT THICKNESS SPECIFIED IN THE GEOTECHNICAL REPORT. COMPACT TO 95
SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED, EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE CIVIL ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.	DENSITY PER ASTM D1557 AT MOISTURE CONTENT SPECIFIED IN GEOTECHNICAL REPORT AND EARTHWO SPECIFICATION. EMPLOY WATERING EQUIPMENT FOR DUST CONTROL. 61. THE CONTRACTOR SHALL REPAIR PAVEMENTS BY INSTALLING TEMPORARY AND PERMANENT PAVEMENT
ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING AS APPLICABLE UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.	RIGHTS OF WAYS AS REQUIRED BY LOCAL GOVERNING AUTHORITIES, THE STATE, MUNICIPALITY AND PE REQUIREMENTS DUE TO DEMOLITION AND PIPE REMOVAL ACTIVITIES.
CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES, TEMPORARY WALKWAYS, TRAFFIC CONTROLLERS AND UNIFORMED TRAFFIC OFFICERS AS REQUIRED OR AS ORDERED BY THE ENGINEER OR AS REQUIRED BY THE LOCAL GOVERNING AUTHORITIES OR AS REQUIRED BY PERMIT STIPULATIONS OR AS REQUIRED BY THE OWNER. CONTRACTOR SHALL MAINTAIN ALL TRAFFIC LANES AND PEDESTRIAN WALKWAYS FOR USE AT ALL TIMES UNLESS WRITTEN APPROVAL	BELOW GRADE. THE CONTRACTOR SHALL REMOVE AN EDMINARE AND SIGN EDUCATIONS ANT FROMRODING CON BELOW GRADE. THE CONTRACTOR SHALL REMOVE ALL CABLE AND CONDUCTORS FROM REMAINING LIG SIGNING CONDUITS TO BE ABANDONED. ANY REMAINING LIGHTING TO REMAIN IN PLACE SHALL BE RE REWIRED AS NECESSARY TO REMAIN IN OPERATION.
FROM THE APPROPRIATE GOVERNING AGENCY IS GRANTED. TRAFFIC CONTROL SIGNAGE SHALL CONFORM TO THE STATE DOT STANDARD DETAIL SHEETS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SIGNS SHALL BE INSTALLED PLUMB WITH THE EDGE OF THE SIGN 2' OFF THE FACE OF THE CURB. AND WITH 7' VERTICAL CLEARANCE UNLESS OTHERWISE DETAILED OR NOTED.	63. NO WORK ON THIS SITE SHALL BE INITIATED BY THE CONTRACTOR UNTIL A PRE-CONSTRUCTION MEET AND THE CIVIL ENGINEER IS PERFORMED. THE CONTRACTOR SHOULD BE AWARE OF ANY SITE INFORMA SUCH AS GEOTECHNICAL AND ENVIRONMENTAL REPORTS. THE CONTRACTOR SHALL HAVE CBYD MARK UTILITIES COMPLETED PRIOR TO MEETING.
REFER TO DETAIL SHEETS FOR PAVEMENT, CURBING, AND SIDEWALK INFORMATION.	64. THE CONTRACTOR SHALL ARRANGE FOR AND INSTALL TEMPORARY OR PERMANENT UTILITY CONNECTIO INDICATED ON PLAN OR AS REQUIRED. MAINTAIN UTILITY SERVICES TO BUILDINGS OR TO SERVICES TO CONTRACTOR TO COORDINATE WITH UTILITY PROVIDERS FOR INSTALLATION AND PAY UTILITY PROVIDER
THE CONTRACT LIMIT IS THE PROPERTY LINE UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE PAVEMENT MARKING PAINT MIXTURE PRIOR TO STRIPING.	65. THE CONTRACTOR SHALL NOT COMMENCE DEMOLITION OR UTILITY DISCONNECTIONS UNTIL AUTHORIZED THE OWNER.
PAVEMENT MARKING KEY: 4" SYDL 4" SOLID YELLOW DOUBLE LINE 4" SYL 4" SOLID YELLOW LINE	66. THE CONTRACTOR OR DEMOLITION CONTRACTOR SHALL INSTALL TEMPORARY SHEETING OR SHORING AS PROTECT EXISTING AND NEW BUILDINGS, STRUCTURES AND UTILITIES DURING CONSTRUCTION AND DEM OR SHORING SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER, LICENSED IN THIS STATE AND EVIDE SUBMITTED TO THE OWNER PRIOR TO INSTALLATION.
4" SWL   4" SOLID WHITE LINE 12" SWSB 12" SOLID WHITE STOP BAR 4" BWL 4" BROKEN WHITE LINE 10' STRIPE 30' SPACE	67. NO SALVAGE SHALL BE PERMITTED UNLESS PAID TO THE OWNER AS A CREDIT.
. PARKING SPACES SHALL BE STRIPED WITH 4" SWL; HATCHED AREA SHALL BE STRIPED WITH 4" SWL AT A 45° ANGLE, 2' ON CENTER. HATCHING, SYMBOLS, AND STRIPING FOR HANDICAPPED SPACES SHALL BE PAINTED WHITE AND BLUE.	REMOVED PER THE MUNICIPALITY AND HEALTH CODE REQUIREMENTS. 69. THE EXISTING PARKING AREA AND DRIVEWAYS SHALL REMAIN OPEN FOR NORMAL BUSINESS OPERATIO
OTHER MARKINGS SHALL BE PAINTED WHITE OR AS NOTED. . ALL PARKING SPACES AND HATCHED AREAS SHALL HAVE TWO COATS OF PAVEMENT MARKINGS APPLIED TO STRIPING.	COMPLETION AND OCCUPATION OF THE NEW BUILDING. 70. THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS NOTED ON DI
PAVEMENT MARKINGS SHALL BE HOT APPLIED TYPE IN ACCORDANCE WITH STATE DOT SPECIFICATIONS, UNLESS WHERE EPOXY RESIN PAVEMENT MARKINGS ARE INDICATED.	TO SEDIMENT AND EROSION CONTROL PLAN FOR LIMIT OF DISTURBANCE AND EROSION CONTROL NOTE 71. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR USE IN FINAL LANDSCAPING.
THE CONTRACTOR SHALL RESTORE ANY UTILITY STRUCTURE, DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS, SWALE, PAVEMENT MARKINGS, OR SIGNAGE DISTURBED DURING DEMOLITION AND/OR CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE CIVIL ENGINEER, AND TO THE SATISFACTION OF THE OWNER AND MUNICIPALITY.	72. THE CONTRACTOR SHALL COMPACT FILL IN LIFT THICKNESS PER THE GEOTECHNICAL REPORT UNDER A BUILDING, DRIVE, AND STRUCTURE AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY (MODIFIED PROCTOR TEST), OR AS REQUIRED BY THE GEOTECHNICAL ENGINEER.
EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "LAND OF RR VERNON II, LLC, 129 TALCOTTVILLE ROAD, VERNON, CONNECTICUT" SCALE 1"=20', DATED 03/17/2022, BY BL COMPANIES INC. & IMPROVEMENT LOCATION SURVEY RECORD DRAWING TITLED "LAND OF FIGURE 8/VERNON II. LLC. 145 TALCOTTVILLF	<ul> <li>73. UNDERDRAINS SHALL BE ADDED, IF DETERMINED NECESSARY IN THE FIELD BY THE OWNER/GEOTECHNI AFTER SUBGRADE IS ROUGH GRADED.</li> <li>74. VERTICAL DATUM IS NAVD 88.</li> </ul>
ROAD (CONN. RTE. NO.83) VERNON, CONNECTICUT" SCALE 1"=20', DATED 05/07/2021 REVISED THROUGH 06/22/2021, BY BL COMPANIES INC. & ALTA/NSPS LAND TITLE SURVEY TITLED "SS VERNON PROJECT. NV5 PROJECT NO.202101782-1. 129 TALCOTVILLE	75. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD AND APPROVED BY THE INLAND WETLA MUNICIPALITY AGENT PRIOR TO THE START OF WORK ON THE SITE.
ROAD, VERNON, CT 06066" SCALE 1"= 40', DATED 05/26/2021 REVISED THROUGH 07/21/2021, BY BOCK & CLARK CORPOERATION AN NV5 COMPANY. . ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, CIVIL ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION DURING THE BIDDING	76. PROPER CONSTRUCTION PROCEDURES SHALL BE FOLLOWED ON ALL IMPROVEMENTS WITHIN THIS PARCE PREVENT THE SILTING OF ANY WATERCOURSE OR WETLANDS IN ACCORDANCE WITH THE REGULATIONS AND THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION THE CONTRACTOR SHALL STRICTLY ADHERE TO THE SEDIMENT AND EROSION CONTROL PLAN CONTAINE CONTRACTOR SHALL BE RESPONSIBLE TO DOST ALL PONDE AS DECUMPED BY THE ACCURATE
PROCESS.	GUARANTEE THE PROPER IMPLEMENTATION OF THE PLAN. 77. ALL SITE WORK. MATERIALS OF CONSTRUCTION. AND CONSTRUCTION METHODS FOR FARTHWORK AND
UN UN UT UTE. THE AMOUNT OF THE ERUSION CONTROL BUND WILL BE DETERMINED BY THE AUTHORITY HAVING	WORK SHALL CONFORM TO THE SPECIFICATIONS AND DETAILS AND APPLICABLE SECTIONS OF THE PRO

36. THE SITE IS CURRENTLY SERVICED BY PUBLIC WATER.

37. THE PROJECT PARCEL IS LOCATED PARTLY WITHIN A FEMA DESIGNATED FLOOD HAZARD AREA.

2022 BL COMPANIES, INC. THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES

38. THERE ARE WETLANDS LOCATED ON THE SITE AS INDICATED BY RACHAEL HYLAND, STAFF SCIENTIST OF BL COMPANIES,

#### ENTIFICATION AND DELINEATION REPORT DATED 09/26/2016. ADDITIONAL SITE VISITS IEW WETLANDS BY SAGAN SIMKO, SENIOR PROJECT SCIENTIST II, WRITTEN UP IN MEMOS NALLY 3/29/2022 BY BL COMPANIES. INC.

SYDL AND SWL PAVEMENT MARKINGS LOCATED IN DRIVEWAYS AND IN STATE HIGHWAY CCORDING TO CONNDOT SPECIFICATIONS.

HED AND PROPERLY DESIGNATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE

E CONFLICTING PAVEMENT MARKINGS IN THE ROADWAY BY METHOD APPROVED BY THE OR DOT AS APPLICABLE FOR THE LOCATION OF THE WORK. STALLS, ACCESS AISLES AND PEDESTRIAN WALKWAYS SHALL CONFORM TO THE RICANS WITH DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN AND ANSI JPERCEDED BY THE STATE BUILDING CODE.

THIS SITE SHALL COMPLY WITH NFPA 241 STANDARD FOR SAFEGUARDING DEMOLITION OPERATIONS, AND CHAPTER 16 OF NFPA 1 UNIFORM FIRE CODE. DATION WALLS AND FOOTINGS AND BASEMENT SLABS INDICATED ON THE DEMOLITION DM THE SITE. CONTRACTOR SHALL SECURE ANY PERMITS, PAY ALL FEES AND PERFORM

LS AS SHOWN ON THE SEDIMENT AND EROSION CONTROL PLAN AND/OR DEMOLITION THE DEMOLITION CONTRACTOR PRIOR TO START OF DEMOLITION AND CLEARING AND

DEWALKS, FENCES, STAIRS, WALLS, DEBRIS AND RUBBISH REQUIRING REMOVAL FROM 'ED OFF SITE LANDFILL. BY AN APPROVED HAULER. HAULER SHALL COMPLY WITH ALL

ALL PERMITS FOR HIS DEMOLITION AND DISPOSAL OF HIS DEMOLITION MATERIAL TO IE CONTRACTOR SHALL POST BONDS AND PAY PERMIT FEES AS REQUIRED. BUILDING BE RESPONSIBLE FOR PERMITS AND DISPOSAL OF ALL BUILDING DEMOLITION DEBRIS IN

ERIAL, IF FOUND ON SITE, SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIAL

ARE ALL MANIFEST DOCUMENTS AS REQUIRED PRIOR TO COMMENCEMENT OF DEMOLITION.

ND PLUG, OR ARRANGE FOR THE APPROPRIATE UTILITY PROVIDER TO CUT AND PLUG EET LINE OR AT THE MAIN. AS REQUIRED BY THE UTILITY PROVIDER. OR AS OTHERWISE RACT DRAWINGS. ALL SERVICES MAY NOT BE SHOWN ON THIS PLAN. THE CONTRACTOR RIOR TO BIDDING TO DETERMINE THE EXTENT OF SERVICE PIPING TO BE REMOVED, CUT SHALL PAY ALL UTILITY PROVIDER FEES FOR ABANDONMENTS AND REMOVALS.

CT ALL IRON PINS, MONUMENTS AND PROPERTY CORNERS DURING DEMOLITION AND CONTRACTOR DISTURBED PINS. MONUMENTS, AND OR PROPERTY CORNERS, ETC. SHALL SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.

HALL STABILIZE THE SITE AND KEEP EROSION CONTROL MEASURES IN PLACE UNTIL THE NTIL THE COMMENCEMENT OF WORK BY THE SITE CONTRACTOR, WHICHEVER OCCURS NECESSARY BY THE ENGINEER OR OWNER'S REPRESENTATIVE. THE SITE CONTRACTOR FOR THE MAINTENANCE OF EXISTING EROSION AND SEDIMENTATION CONTROLS AND FOR MENT AND EROSION CONTROLS AS PER THE SEDIMENT AND EROSION CONTROL PLAN,

OUT BUILDING FUEL AND WASTE OIL TANKS (IF ANY ARE ENCOUNTERED) AND REMOVE AL AREA BY A LICENSED WASTE OIL HANDLING CONTRACTOR IN STRICT ACCORDANCE

SOIL IS ENCOUNTERED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUSPEND SOIL AND NOTIFY THE OWNER AND/OR OWNER'S ENVIRONMENTAL CONSULTANT PRIOR WORK IN THE IMPACTED SOIL LOCATION UNTIL FURTHER INSTRUCTED BY THE OWNER AL CONSULTANT.

BE DISCONNECTED AND CAPPED AT MAIN IN ACCORDANCE WITH THE REQUIREMENTS REMOVE EXISTING ONSITE WATER PIPING TO BE ABANDONED TO RIGHT OF WAY LINE DEMOLITION PLANS OR AS REQUIRED BY THE WATER UTILITY PROVIDER TO BE REMOVED

ALL BE PLUGGED WITH NON-SHRINK GROUT AT CURB LINE OR AT MAIN CONNECTION IN RY UTILITY PROVIDER REQUIREMENTS. REMOVE EXISTING LATERAL PIPING FROM SITE DEMOLITION PLANS OR AS REQUIRED BY THE SANITARY UTILITY PROVIDER.

BE CAPPED AND SERVICE LINES PURGED OF RESIDUAL GAS IN ACCORDANCE WITH THE IENTS. WORK TO BE COORDINATED BY AND PAID FOR BY THE CONTRACTOR. REMOVE ANY PROPANE TANKS SHALL BE PURGED OF RESIDUAL GAS BY PROPANE SUPPLIER. THIS WORK AND PAY NECESSARY FEES.

DE DISCONNECT NOTIFICATION TO THE MUNICIPALITY ENGINEERING DEPARTMENT, OVIDER. GAS UTILITY PROVIDER. ELECTRIC UTILITY PROVIDER. SANITARY UTILITY PROVIDER AT LEAST THREE WEEKS PRIOR TO BEGINNING DEMOLITION.

LE FOR SECURING A DEMOLITION PERMIT FROM THE VERNON BUILDING DEPARTMENT AND PPLICATION MATERIAL AND PAY ALL FEES.

DATION HOLES AND REMOVED DRIVEWAY AREAS IN LOCATIONS NOT SUBJECT TO FURTHER APPROVED BY THE OWNER'S GEOTECHNICAL ENGINEER AND COMPACT, FERTILIZE, SEED NOT SUBJECT TO FURTHER SITE CONSTRUCTION. DEMOLISHED BUILDING FOUNDATION IT TO BE BACKFILLED WITH GRAVEL FILL OR MATERIAL SPECIFIED IN THE PROJECT HICKNESS SPECIFIED IN THE GEOTECHNICAL REPORT. COMPACT TO 95% MAX. DRY DISTURE CONTENT SPECIFIED IN GEOTECHNICAL REPORT AND EARTHWORK NG EQUIPMENT FOR DUST CONTROL.

PAVEMENTS BY INSTALLING TEMPORARY AND PERMANENT PAVEMENTS IN PUBLIC BY LOCAL GOVERNING AUTHORITIES, THE STATE, MUNICIPALITY AND PER PERMIT ION AND PIPE REMOVAL ACTIVITIES.

ND REMOVE AT LUMINARE AND SIGN LOCATIONS ANY PROTRUDING CONDUITS TO 24" OR SHALL REMOVE ALL CABLE AND CONDUCTORS FROM REMAINING LIGHTING AND OONED. ANY REMAINING LIGHTING TO REMAIN IN PLACE SHALL BE RECIRCUITED OR IAIN IN OPERATION.

BE INITIATED BY THE CONTRACTOR UNTIL A PRE-CONSTRUCTION MEETING WITH OWNER FORMED. THE CONTRACTOR SHOULD BE AWARE OF ANY SITE INFORMATION AVAILABLE IVIRONMENTAL REPORTS. THE CONTRACTOR SHALL HAVE CBYD MARK OUTS OF EXISTING MEETING.

IGE FOR AND INSTALL TEMPORARY OR PERMANENT UTILITY CONNECTIONS WHERE JIRED. MAINTAIN UTILITY SERVICES TO BUILDINGS OR TO SERVICES TO REMAIN. TH UTILITY PROVIDERS FOR INSTALLATION AND PAY UTILITY PROVIDER FEES. DMMENCE DEMOLITION OR UTILITY DISCONNECTIONS UNTIL AUTHORIZED TO DO SO BY

ON CONTRACTOR SHALL INSTALL TEMPORARY SHEETING OR SHORING AS NECESSARY TO LDINGS, STRUCTURES AND UTILITIES DURING CONSTRUCTION AND DEMOLITION. SHEETING D BY A PROFESSIONAL ENGINEER, LICENSED IN THIS STATE AND EVIDENCE OF SUCH OR TO INSTALLATION.

ND ANY EXISTING SEPTIC TANKS/ABSORPTION AREAS SHALL BE ABANDONED AND AND HEALTH CODE REQUIREMENTS.

ID DRIVEWAYS SHALL REMAIN OPEN FOR NORMAL BUSINESS OPERATIONS UNTIL OF THE NEW BUILDING.

RVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS NOTED ON DRAWINGS. REFER TROL PLAN FOR LIMIT OF DISTURBANCE AND EROSION CONTROL NOTES.

ACT FILL IN LIFT THICKNESS PER THE GEOTECHNICAL REPORT UNDER ALL PARKING, E AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 AS REQUIRED BY THE GEOTECHNICAL ENGINEER.

IF DETERMINED NECESSARY IN THE FIELD BY THE OWNER/GEOTECHNICAL ENGINEER,

SICALLY MARKED IN THE FIELD AND APPROVED BY THE INLAND WETLANDS AND/OR THE START OF WORK ON THE SITE.

JRES SHALL BE FOLLOWED ON ALL IMPROVEMENTS WITHIN THIS PARCEL SO AS TO VATERCOURSE OR WETLANDS IN ACCORDANCE WITH THE REGULATIONS OF THE CT DEEP JIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION. IN ADDITION, LY ADHERE TO THE SEDIMENT AND EROSION CONTROL PLAN CONTAINED HEREIN. THE SIBLE TO POST ALL BONDS AS REQUIRED BY THE LOCAL MUNICIPALITIES WHICH WOULD MENTATION OF THE PLAN.

CONSTRUCTION, AND CONSTRUCTION METHODS FOR EARTHWORK AND STORM DRAINAGE SPECIFICATIONS AND DETAILS AND APPLICABLE SECTIONS OF THE PROJECT SPECIFICATIONS MANUAL. OTHERWISE THIS WORK SHALL CONFORM TO THE STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND PROJECT GEOTECHNICAL REPORT IF THERE IS NO PROJECT SPECIFICATIONS MANUAL. ALL FILL MATERIAL UNDER STRUCTURES AND PAVED AREAS SHALL BE PER THE ABOVE STATED APPLICABLE SPECIFICATIONS, AND/OR PROJECT GEOTECHNICAL REPORT, AND SHALL BE PLACED IN ACCORDANCE WITH THE APPLICABLE

SPECIFICATIONS UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER. MATERIAL SHALL BE COMPACTED IN LIFT THICKNESSES PER THE PROJECT GEOTECHNICAL REPORT TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED

BY ASTM D 1557 AT MOISTURE CONTENT INDICATED IN PROJECT GEOTECHNICAL REPORT.

78. ALL DISTURBANCE INCURRED TO MUNICIPAL, COUNTY, AND STATE PROPERTY DUE TO CONSTRUCTION RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE MUNICIPALITY, CO AS APPLICABLE FOR THE LOCATION OF THE WORK.

79. ALL CONSTRUCTION WITHIN A DOT RIGHT OF WAY SHALL COMPLY WITH ALL DEPARTMENT OF TRANSF STANDARDS AND SPECIFICATIONS.

80. THE UTILITY PLAN DETAILS SITE INSTALLED PIPES UP TO 5' FROM THE BUILDING FACE. REFER TO ARCHITECT FOR BUILDING CONNECTIONS. SITE CONTRACTOR SHALL SUPPLY AND INSTALL PIPE ADA NECESSARY AT BUILDING CONNECTION POINT OR AT EXISTING UTILITY OR PIPE CONNECTION POINT.

81. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIE MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE SANITARY SEWERS AND WHERE PROPOSED STORM PIPING WILL CROSS EXISTING UTILITIES. AND THE VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT IN THE EVENT OF ANY DISCOVERED OR UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED STORM PIPING AND UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.

82. UTILITY CONNECTION DESIGN AS REFLECTED ON THE PLAN MAY CHANGE SUBJECT TO UTILITY PROVID AUTHORITY STAFF REVIEW.

83. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITY PROVIDERS AND GOVERNING AUTHORITY STAND. MATERIALS AND CONSTRUCTION METHODS ARE MET. THE CONTRACTOR SHALL PERFORM PROPER COC THE RESPECTIVE UTILITY PROVIDER.

84. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH THE RESPECTIVE UTILITY PROVIDERS INSTALLATIONS AND CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED UTILITY PROVIDERS AND SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, RELOCATIONS, DEMOLITION UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATIONS MANUAL AND/OR GENERAL THE CONTRACT.

85. ALL EXISTING PAVEMENT WHERE UTILITY PIPING IS TO BE INSTALLED SHALL BE SAW CUT. AFTER UTI IS COMPLETED, THE CONTRACTOR SHALL INSTALL TEMPORARY AND/OR PERMANENT PAVEMENT REPA THE DRAWINGS OR AS REQUIRED BY THE OWNER HAVING JURISDICTION.

86. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR METHOD

87. SANITARY LATERAL SHALL MAINTAIN (10' MIN. HORIZONTAL 1.5' VERTICAL MIN.) SEPARATION DISTAI LINES, OR ADDITIONAL PROTECTION MEASURES WILL BE REQUIRED WHERE PERMITTED, WHICH SHALL ENCASEMENT OF PIPING UNLESS OTHERWISE DIRECTED BY THE UTILITY PROVIDERS AND CIVIL ENGINE

88. RELOCATION OF UTILITY PROVIDER FACILITIES SHALL BE DONE IN ACCORDANCE WITH THE REQUIREME PROVIDER.

89. THE CONTRACTOR SHALL COMPACT THE PIPE BACKFILL IN 8" LIFTS ACCORDING TO THE PIPE BEDDIN TRENCH BOTTOM SHALL BE STABLE IN HIGH GROUNDWATER AREAS. A PIPE FOUNDATION SHALL BE TRENCH DETAILS AND IN AREAS OF ROCK EXCAVATION.

90. CONTRACTOR TO PROVIDE STEEL SLEEVES AND ANNULAR SPACE SAND FILL FOR UTILITY PIPE AND CONNECTIONS UNDER FOOTINGS.

91. BUILDING UTILITY PENETRATIONS AND LOCATIONS ARE SHOWN FOR THE CONTRACTOR'S INFORMATION VERIFIED WITH THE BUILDING MEP, STRUCTURAL, AND ARCHITECTURAL DRAWINGS AND WITH THE OWN MANAGER.

92. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION FOR APPROVAL PRIOR TO BACKFILLING, IN THE APPROPRIATE UTILITY PROVIDER REQUIREMENTS.

93. A ONE-FOOT MINIMUM VERTICAL CLEARANCE BETWEEN WATER, GAS, ELECTRICAL, AND TELEPHONE PIPING SHALL BE PROVIDED. A SIX-INCH MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN ST SANITARY SEWER WITH A CONCRETE ENCASEMENT. AN 18-INCH TO 6-INCH VERTICAL CLEARANCE I SEWER PIPING AND STORM PIPING SHALL REQUIRE CONCRETE ENCASEMENT OF THE PROPOSED PIPIN

94. GRAVITY SANITARY SEWER PIPING AND PRESSURIZED WATERLINES SHALL BE LOCATED IN SEPARATE LEAST 10 FEET APART WHENEVER POSSIBLE. WHEN INSTALLED IN THE SAME TRENCH, THE WATER I ON A TRENCH BENCH AT LEAST 18 INCHES ABOVE THE TOP OF THE SANITARY SEWER PIPE AND AT (PREFERABLY 18 INCHES) FROM THE SIDE OF THE SANITARY SEWER PIPE TRENCH.

95. SITE CONTRACTOR SHALL PROVIDE ALL BENDS, FITTINGS, ADAPTERS, ETC., AS REQUIRED FOR PIPE BUILDING STUB OUTS, INCLUDING ROOF/FOOTING DRAIN CONNECTIONS TO ROOF LEADERS AND TO ST

96. MANHOLE RIMS AND CATCH BASIN GRATES SHALL BE SET TO ELEVATIONS SHOWN. SET ALL EXISTING AND VALVE COVERS TO BE RAISED OR LOWERED FLUSH WITH FINAL GRADE AS NECESSARY.

97. SITE CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUIT AND CABLES FOR SITE LIGHTING ELECTRICAL CONTRACTOR.

98. CONTRACTOR SHALL COORDINATE INSTALLATION FOR ELECTRICAL SERVICES TO PYLON SIGNS AND SI THE BUILDING ELECTRICAL CONTRACTOR.

99. THE CONTRACTOR SHALL ARRANGE AND COORDINATE WITH UTILITY PROVIDERS FOR WORK TO BE PE UTILITY PROVIDERS. THE CONTRACTOR SHALL PAY ALL UTILITY FEES UNLESS OTHERWISE STATED IN SPECIFICATION MANUAL AND GENERAL CONDITIONS, AND REPAIR PAVEMENTS AS NECESSARY.

100. ELECTRIC, AND TELECOMMUNICATIONS SERVICES SHALL BE INSTALLED UNDERGROUND FROM EXISTIN CONNECTION. CONTRACTOR TO FIELD VERIFY EXISTING SPARE CONDUIT AVAILABILITY FOR ELECTRIC TELECOMMUNICATION SERVICES TO NEW BUILDING. THE CONTRACTOR SHALL PROVIDE AND INSTALL PVC CONDUITS FOR TELECOMMUNICATIONS SERVICE, (2) 4" PVC CONDUITS FOR ELECTRIC SERVICE F CONDUITS FOR ELECTRICAL SECONDARY PER BUILDING ELECTRICAL PLANS, (SCHEDULE 80 UNDER F 40 IN NON PAVEMENT AREAS). SERVICES MAY BE INSTALLED IN A COMMON TRENCH WITH 12" CLEA MINIMUM COVER IS 36" ON ELECTRIC CONDUITS, AND 24" ON TELECOMMUNICATIONS CONDUITS. SERV MARKED WITH MAGNETIC LOCATOR TAPE AND SHALL BE BEDDED, INSTALLED, AND BACKFILLED IN AC ELECTRIC UTILITY PROVIDER. AND TELECOMMUNICATIONS COMPANY STANDARDS. GALVANIZED STEEL SHALL BE USED AT POLE AND TRANSFORMER LOCATIONS. INSTALL HANDHOLES AS REQUIRED TO FA INSTALLATION AND AS REQUIRED BY UTILITY PROVIDER. INSTALL TRAFFIC LOAD QUALIFIED HANDHOLE AREAS. INSTALL CONCRETE ENCASEMENT ON PRIMARY ELECTRIC CONDUITS IF REQUIRED BY ELECTRIC

101.ALL WATER LINES TO HAVE A MINIMUM COVER OF THE WATER UTILITY PROVIDER STANDARDS. ALL LI BEDDED IN 6" SAND AND INITIALLY BACKFILLED WITH 12" SAND.

102. ALL WATER MAINS, WATER SERVICES AND SANITARY SEWER LATERALS SHALL CONFORM TO THE AP UTILITY PROVIDER SPECIFICATIONS, AND TO THE APPLICABLE SANITARY SEWER PROVIDER SPECIFICAT TO OTHER APPLICABLE INDUSTRY CODES (AWWA) AND PROJECT SPECIFICATIONS FOR POTABLE WATER FOR SANITARY SEWER SYSTEMS.

103. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS TO EXISTING BUILDINGS INTERRUPTION UNLESS/UNTIL AUTHORIZED TO DISCONNECT BY THE OWNERS, THE CIVIL ENGINEER, U AND GOVERNING AUTHORITIES.

104. THE CONTRACTOR MAY SUBSTITUTE MASONRY STRUCTURES FOR PRECAST STRUCTURES IF APPROVI ENGINEER AND ALLOWED BY THE GOVERNING AUTHORITY ENGINEER OR OTHER GOVERNING AUTHORITY 105. PIPING SHALL BE LAID FROM DOWNGRADIENT END OF PIPE RUN IN AN UPGRADIENT DIRECTION WITH

UPGRADE IN THE DIRECTION OF PIPE LAYING. 106. POLYVINYL CHLORIDE PIPE (PVCP) FOR STORM PIPING SHALL HAVE BUILT-IN RUBBER GASKET JOIN CONFORM TO ASTM D-3034 (SDR35) WITH COMPRESSION JOINTS AND MOLDED FITTINGS. PVCP SHA

ACCORDANCE WITH THE DETAILS; ASTM-D2321 AND MANUFACTURERS RECOMMENDED PROCEDURE. 107. MANHOLE SECTIONS AND CONSTRUCTION SHALL CONFORM TO ASTM C-478.

108. HIGH DENSITY POLYETHYLENE (HDPE) STORM SEWER 12" OR GREATER IN DIAMETER SHALL BE HI-PIPE AS MANUFACTURED BY HANCOR INC. OR APPROVED EQUAL. HDPE PIPE SHALL HAVE SMOOTH CORRUGATED EXTERIOR AND SHALL MEET THE REQUIREMENTS OF AASHTO M294, TYPE S. PIPE SECT JOINED WITH BELL-AND-SPIGOT JOINT MEETING THE REQUIREMENTS OF AASHTO M294. THE BELL S INTEGRAL PART OF THE PIPE AND PROVIDE A MINIMUM PULL-APART STRENGTH OF 400 POUNDS. 1 WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. GASKETS SHALL BE MADE OF POL THE REQUIREMENTS OF ASTM F477. ALTERNATIVE HDPE PIPE MAY BE USED IF APPROVED BY THE E OWNER'S CONSTRUCTION MANAGER PRIOR TO ORDERING.

109. HIGH DENSITY POLYETHYLENE (HDPE) STORM SEWER LESS THAN 12" IN DIAMETER SHALL BE HI-Q MANUFACTURED BY HANCOR INC. OR APPROVED EQUAL. HDPE PIPE SHALL HAVE SMOOTH INTERIOR EXTERIOR AND SHALL MEET THE REQUIREMENTS OF AASHTO 252, TYPE S. PIPE SECTIONS SHALL B COUPLING BANDS OR EXTERNAL SNAP COUPLERS COVERING AT LEAST 2 FULL CORRUGATIONS ON F PIPE. SILT-TIGHT (GASKET) CONNECTIONS SHALL INCORPORATE A CLOSED SYNTHETIC EXPANDED RI MEETING THE REQUIREMENTS OF AASHTO D1056 GRADE 2A2. GASKETS SHALL BE INSTALLED ON THE THE PIPE MANUFACTURER. ALTERNATIVE HDPE PIPE MAY BE USED IF APPROVED BY THE ENGINEER CONSTRUCTION MANAGER PRIOR TO ORDERING.

110. COPPER PIPE SHALL BE TYPE K TUBING WITH COMPRESSION FITTINGS.

111. GAS PIPE MATERIAL SHALL BE PER GAS COMPANY REQUIREMENTS.

112. POLYVINYL CHLORIDE PIPE (PVCP) FOR SANITARY PIPING SHALL HAVE BUILT-IN RUBBER GASKET CONFORM TO ASTM D3034 (SDR35) WITH COMPRESSION JOINTS AND MOLDED FITTINGS. PVCP SHALL ACCORDANCE WITH THE DETAILS, ASTM D2321 AND MANUFACTURER'S RECOMMENDED PROCEDURE.

113.DUCTILE IRON PIPE SHALL CONFORM TO AWWA C151 FOR CLASS 52 WITH CEMENT LINING IN ACCOR A21.4 FOR WATER MAINS AND SERVICES 3" ID AND LARGER. JOINTS SHALL BE MADE WITH CONCRE OR WITH MEGAULUG RETAINER GLANDS OR WITH RODDING IN ACCORDANCE WITH PROJECT MANUAL IN ACCORDANCE WITH WATER UTILITY PROVIDER REQUIREMENTS TO EXTEND A MINIMUM OF 2 PIPE DIRECTION FROM FITTINGS AND ELBOWS (40 FT MINIMUM). ALL OTHER JOINTS SHALL BE PUSH-ON GASKETS (TYTON). USE OF OTHER TYPES OF RETAINER GLANDS SHALL REQUIRE USE WITH CLASS S DUCTILE IRON PIPE.

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N SHALL BE	DEFINITIONS MUNICIPALITY SHALL MEAN TOWN OF VERNON	tecture eering Survey
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DRAWINGS BY THE	WATER UTILITY PROVIDER SHALL MEAN THE CONNECTICUT WATER COMPANY	
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E PROPOSED HORIZONTAL AND THE CIVIL ENGINEER SANITARY SEWERS,	TELECOMMUNICATIONS UTILITY PROVIDER SHALL MEAN FRONTIER ELECTRIC UTILITY PROVIDER SHALL MEAN EVERSOURCE	
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PIPE AS AND CORRUGATED E JOINED WITH ACH END OF THE		Designed T.A.H. Drawn T.A.H. Reviewed J.A.B.
UBBER GASKET. E CONNECTION BY AND OWNER'S		ScaleNONEProject No.210160701
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## ZONING INFORMATION

JSE:	SELF	STORAGE	(PERMITTED	USE)	

ITEM #	ITEM	REQUIREMENTS	PROPOSED	VARIANCE
1	MINIMUM LOT AREA	22,000 S.F.	<u>+</u> 396,123 S.F. ( <u>+</u> 9.09 AC.)	NO
2	MINIMUM LOT WIDTH	100 FEET	75 FEET	NO* EXISTING NON-CONFORMING
3	MINIMUM LOT FRONTAGE	NONE REQUIRED	75 FEET	NO
4	MINIMUM FRONT SETBACK	50 FEET	66 FEET	NO
5	MINIMUM SIDE SETBACK	20 FEET	43 FEET	NO
6	MINIMUM REAR SETBACK	50 FEET	113 FEET	NO
7	MAXIMUM BUILDING HEIGHT	35 FEET/ 2 STORIES	38.7 FEET	NO (1)
8	MAXIMUM BUILDING COVERAGE	60 PERCENT	7.6 PERCENT	NO

			-	
ITEM #	ITEM	REQUIREMENTS	PROPOSED	VARIANCE
1	MINIMUM BUILDING SIZE	1,000 S.F.	90,819 SF 91,090 SF WITH CANOPY	NO
2	PARKING REQUIRED	SELF STORAGE: 2 SPACES FOR EMPLOYEES + 1 SPACE PER 100 STORAGE UNITS. 1,140 UNITS PROPOSED: 1,140/100 =11.4 = 11.4+2=13.4 SPACES TOTAL REQUIRED = 14 SPACES RESTAURANT: 1 SPACE/50 SF PUBLIC FLOOR AREA = 1,209 SF/50 = 25 SPACES RETAIL: 1 SPACE/250 SF FLOOR AREA = 3,200 SF/250 SF = 12.8 = 13 SPACES TOTAL DEVELOPMENT: 52 SPACES REQUIRED	SELF STORAGE: 14 SPACES RESTAURANT: 36 SPACES RETAIL: 42 SPACES TOTAL DEVELOPMENT: 92 SPACES PROVIDED	NO
3	MINIMUM HANDICAPPED PARKING SPACES REQUIRED	1 SPACES	1 SPACES	NO
4	MINIMUM PARKING DIMENSIONS	9 FEET X 17 FEET	9 FEET X 18 FEET	NO
5	MINIMUM AISLE WIDTH	24 FEET – 2–WAY 18 FEET – 1–WAY	24 FEET – 2–WAY 18 FEET – 1–WAY	NO
6	MINIMUM FRONT SETBACK	10 FEET	0 FEET	NO (2)
7	MINIMUM SIDE SETBACK	10 FEET	0 FEET	NO (2)
8	MINIMUM REAR SETBACK	10 FEET	204 FEET	NO
9	RESIDENTIAL BUFFER	25 FEET	BUILDING: 49 FEET PARKING: 90 FEET	NO





DEVELOPMENT MMERCIAL DEVELOPMI FALCOTTVILLE ROAD AND COUNTY, CONNECTICUT Ο 129 IOL  $\rightarrow$ VERNON SE 0 **PROP** 

T.A.H. Designed R.R.F. Drawn Reviewed 1"=50' Scale 210160701 Project No. 04/04/2022 Date CAD File: OP210160701 Title OVERALL PLAN Sheet No. **OP-1** 



## NOTE:

ALL UTILITIES SHALL REMAIN IN PLACE AND BE PROTECTED UNLESS NOTED ON THE PLANS AND UTILITY PROVIDER HAS PROVIDED WRITTEN VERIFICATION THAT THEY CAN BE REMOVED.









NOT FOR CONSTRUCTION FOR PERMITTING PURPOSES ONL'

🕲 2022 BL COMPANIES, INC. THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES.




![](_page_37_Figure_0.jpeg)

# SITE UTILITIES LEGEND

![](_page_38_Figure_1.jpeg)

![](_page_38_Figure_2.jpeg)

![](_page_38_Figure_3.jpeg)

![](_page_38_Figure_5.jpeg)

![](_page_38_Figure_6.jpeg)

![](_page_38_Figure_7.jpeg)

FOR PERMITTING PURPOSES ONL'

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![](_page_39_Figure_0.jpeg)

# SEDIMENT AND EROSION CONTROL NOTES

SEDIMENT AND EROSION CONTROL NOTES - CONNECTICUT

SEDIMENT & EROSION CONTROL NARRATIVE

THE SEDIMENT AND EROSION CONTROL PLAN WAS DEVELOPED TO PROTECT THE EXISTING ROADWAY AND SYSTEMS. ADJACENT PROPERTIES. AND ANY ADJACENT WETLAND AREA AND ANY ADJACENT WATER COUR LADEN SURFACE RUNOFF AND EROSION. A CONSTRUCTION SEQUENCE IS PROVIDED TO PROVIDE SURFACE CONTROLS PRIOR TO THE BEGINNING OF PROJECT DEMOLITION AND/OR CONSTRUCTION.

CONSTRUCTION SCHEDULE THE ANTICIPATED STARTING DATE FOR CONSTRUCTION IS SUMMER 2022 WITH COMPLETION ANTICIPATED APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES AS DESCRIBED HEREIN SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ALL DEMOLITION OR CONSTRUCTION ACTIVITY. SCHEDULE WORK TO MINI TIME THAT BARE SOIL WILL BE EXPOSED.

CONTINGENCY EROSION PLAN THE CONTRACTOR SHALL INSTALL ALL SPECIFIED SEDIMENT AND EROSION CONTROL MEASURES AND WILL MAINTAIN THEM IN THEIR INTENDED FUNCTIONING CONDITION. THE AGENTS OF THE MUNICIPALITY AND/OR HAVE THE AUTHORITY TO REQUIRE SUPPLEMENTAL MAINTENANCE OR ADDITIONAL MEASURES IF FIELD CONI ENCOUNTERED BEYOND WHAT WOULD NORMALLY BE ANTICIPATED.

CONSTRUCTION SEQUENCE THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:

- 1. CONTACT MUNICIPALITY AGENT AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF AN CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT.
- 2. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD AND APPROVED BY THE MUNICIPALITY COMMISSION AGENT PRIOR TO THE START OF WORK ON THE SITE. INSTALL TREE PROTECTION AND PER
- 3. CONSTRUCT STONE CONSTRUCTION ENTRANCE ANTI-TRACKING PADS AT CONSTRUCTION ENTRANCES/E FILTER FABRIC AROUND GRATES OF CATCH BASINS OR INSTALL SILT SACKS ON CATCH BASIN INLETS INSTALL SILT FENCE AND OTHER EROSION CONTROL DEVICES INDICATED ON THESE PLANS AT PERIME SITE DISTURBANCE AND INSTALL ALL EROSION CONTROL MEASURES AND TREE PROTECTION INDICATED INSTALL SEDIMENT BASINS AND SEDIMENT TRAPS IF REQUIRED AT LOW AREAS OF SITE OR AS ORDER OR AS SHOWN ON THESE PLANS.
- 4. CLEAR AND GRUB SITE. STOCKPILE CHIPS. STOCKPILE TOPSOIL. INSTALL SEDIMENT AND EROSION CON STOCKPILES.
- 5. SITE DEMOLITION AND REMOVAL. PAVEMENT REMOVAL.
- 6. INSTALL SILT FENCE, COMMENCE INSTALLATION OF STORM DRAINAGE SYSTEM.
- 7. COMMENCE EARTHWORK. CONSTRUCT FILL SLOPE AND RETAINING WALLS, INSTALL ADDITIONAL SEDIMEN CONTROLS AS WORK PROGRESSES AND CONTINUE STORM DRAINAGE SYSTEM CONSTRUCTION, TOPSOIL WHICH HAVE ACHIEVED FINAL SITE GRADING.
- 8. CONSTRUCTION STAKING OF ALL BUILDING CORNERS, UTILITIES, ACCESS DRIVES, AND PARKING AREAS. 9. ROUGH GRADING AND FILLING OF SUBGRADES AND SLOPES.
- 10. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERA SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
- 11. BEFORE DISPOSING OF SOIL OR RECEIVING BORROW FOR THE SITE, THE CONTRACTOR MUST PROVIDE SPOIL OR BORROW AREA HAS A SEDIMENT AND EROSION CONTROL PLAN APPROVED BY THE MUNICIP/ BEING IMPLEMENTED AND MAINTAINED. THE CONTRACTOR SHALL ALSO NOTIFY THE MUNICIPALITY IN RECEIVING SPOIL AND BORROW AREAS WHEN THEY HAVE BEEN IDENTIFIED.
- 12. CONTINUE INSTALLATION OF STORM DRAINAGE AS SUBGRADE ELEVATIONS ARE ACHIEVED.
- 13. BUILDING FOUNDATION SUBGRADE AND PAD SUBGRADE PREPARATION.
- 14. BUILDING FOUNDATION CONSTRUCTION. BEGIN BUILDING SUPERSTRUCTURE
- 15. THROUGHOUT CONSTRUCTION SEQUENCE, REMOVE SEDIMENT FROM BEHIND SILT FENCES, HAY BALES CONTROL DEVICES, AND FROM SEDIMENT BASINS AND SEDIMENT TRAPS AS REQUIRED. REMOVAL SHALL BASIS (EVERY SIGNIFICANT RAINFALL OF 0.25 INCH OR GREATER). INSPECTION OF SEDIMENT AND EROS MEASURES SHALL BE ON A WEEKLY BASIS AND AFTER EACH RAINFALL OF 0.25 INCHES OR GREATER. SHALL BE DEPOSITED AND SPREAD EVENLY UPLAND ON SLOPES DURING CONSTRUCTION.
- 16. INSTALL SANITARY LATERAL AND UTILITIES. COMPLETE STORM DRAINAGE SYSTEM.
- 17. INSTALL SITE LIGHTING AND TRASH ENCLOSURE.
- 18. COMPLETE GRADING TO SUBGRADES AND CONSTRUCT PARKING AREA SUBGRADE.
- 19. CONSTRUCT CURBS, PAVEMENT STRUCTURE AND SIDEWALKS.
- 20. CONDUCT FINE GRADING.
- 21. PAVING OF PARKING AREAS AND DRIVEWAYS
- 22. FINAL FINE GRADING OF SLOPE AND NON-PAVED AREAS.
- 23. PLACE 4" TOPSOIL ON SLOPES AFTER FINAL GRADING IS COMPLETED. FERTILIZE SEED AND MULCH. SE INSTALLED APRIL 15- JUNE 1 USE EROSION CONTROL BLANKETS AS REQUIRED OR ORDERED FOR SLI 3:1 AND AS SHOWN ON LANDSCAPE PLANS OR EROSION CONTROL PLANS. FOR TEMPORARY STABILIZA DATES USE ANNUAL RYE AT 4.0 LBS/1,000 S.F. FERTILIZE WITH 10-10-10 AT 1.0 LBS. OF NITROGEN LIME AT 100 LBS/1,000 S.F. (MAX.).
- 24. LANDSCAPE ISLANDS, INTERIOR NON-PAVED AREAS, AND PERIMETER AREAS.
- 25. INSTALL SIGNING AND PAVEMENT MARKINGS
- 26. CLEAN STORM DRAINAGE PIPE STRUCTURES, DETENTION SYSTEMS AND WATER QUALITY DEVICES OF D
- 27. UPON DIRECTION OF THE MUNICIPALITY AGENT, SEDIMENT AND EROSION CONTROL MEASURES SHALL FOLLOWING STABILIZATION OF THE SITE.

OPERATION REQUIREMENTS

- CLEARING AND GRUBBING OPERATIONS 1. ALL SEDIMENT AND EROSION CONTROL MEASURES, INCLUDING THE CONSTRUCTION OF TEMPORARY SED AND STONE CONSTRUCTION ENTRANCE ANTI-TRACKING PADS, WILL BE INSTALLED PRIOR TO THE STAF GRUBBING AND DEMOLITION OPERATIONS.
- 2. FOLLOWING INSTALLATION OF ALL SEDIMENT AND EROSION CONTROL MEASURES, THE CONTRACTOR SH WITH GRADING, FILLING OR OTHER CONSTRUCTION OPERATIONS UNTIL THE ENGINEER HAS INSPECTED INSTALLATIONS.
- 3. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CLEARING AND GRUBBING OPERATIONS SO AS UNPROTECTED WETLAND AREAS OR SEDIMENT AND EROSION CONTROL DEVICES.
- 4. FOLLOWING THE COMPLETION OF CLEARING AND GRUBBING OPERATIONS, ALL AREAS SHALL BE STABILI AND SEEDING OR CRUSHED STONE AS SOON AS PRACTICAL.

ROUGH GRADING OPERATIONS

- 1. DURING THE REMOVAL AND/OR PLACEMENT OF EARTH AS INDICATED ON THE GRADING PLAN, TOPSOIL AND APPROPRIATELY STOCKPILED FOR REUSE.
- 2. ALL STOCKPILED TOPSOIL SHALL BE SEEDED, MULCHED WITH HAY, AND ENCLOSED BY A SILTATION FEI FILLING OPERATIONS
- 1. PRIOR TO FILLING, ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE PROPERLY IMPLEMENTED, FULLY INSTALLED, AS DIRECTED BY THE ENGINEER AND AS SHOWN ON THIS PLAN.
- 2. ALL FILL MATERIAL ADJACENT TO ANY WETLAND AREAS, IF APPLICABLE TO THIS PROJECT, SHALL BE LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN LIFT THICK GREATER THAN THAT SPECIFIED IN PROJECT SPECIFICATIONS AND/OR THE PROJECT GEOTECHNICAL R BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN THE CONTRACT
- THE GEOTECHNICAL REPORT. 3. AS GENERAL GRADING OPERATIONS PROGRESS, ANY TEMPORARY DIVERSION DITCHES SHALL BE RAISED NECESSARY, TO DIVERT SURFACE RUNOFF TO THE SEDIMENT BASINS OR SEDIMENT TRAPS.
- PLACEMENT OF DRAINAGE STRUCTURES, UTILITIES, AND BUILDING CONSTRUCTION OPERATIONS.

1. SILT FENCES SHALL BE INSTALLED AT THE DOWNHILL SIDES OF BUILDING EXCAVATIONS, MUD PUMP D UTILITY TRENCH MATERIAL STOCKPILES. HAY BALES/STRAW BALES MAY BE USED IF SHOWN ON THE EROSION CONTROL PLANS OR IF DIRECTED BY THE CIVIL ENGINEER. FINAL GRADING AND PAVING OPERATIONS

022 BL COMPANIES, INC. THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES.

	1. ALL INLET AND OUTLET PROTECTION SHALL BE PLACED AND MAINTAINED AS SHOWN ON SEDIMENT AND EROSION CONTROL PLANS AND DETAILS, AND AS DESCRIBED IN SPECIFICATIONS AND AS DESCRIBED HEREIN.	VARIOUS PHASES OF CONST
STORM DRAINAGE RSE FROM SEDIMENT E RUNOFF EROSION	2. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS, OR JUTE MESH AND VEGETATION. ALL SLOPES SHALL BE SEEDED, AND ANY ROAD OR DRIVEWAY SHOULDER AND BANKS SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS	HAY BALES OR SILT FENCE PLACE FOR MORE THAN ON
SPRINT 2023	ESTABLISHED. 3. PAVEMENT SUB-BASE AND BASE COURSES SHALL BE INSTALLED OVER AREAS TO BE PAVED AS SOON AS FINAL SUB-GRADES ARE ESTABLISHED AND UNDERGROUND UTILITIES AND STORM DRAINAGE SYSTEMS HAVE BEEN INSTALLED.	13. COMPLY WITH REQUIREMENT: AND WITH DEEP RECORD KE
BY THE CONTRACTOR NIMIZE THE LENGTH OF	AFTER CONSTRUCTION OF PAVEMENT, TOPSOIL, FINAL SEED, MULCH AND LANDSCAPING, REMOVE ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES ONLY AFTER ALL AREAS HAVE BEEN PAVED AND/OR GRASS HAS BEEN WELL ESTABLISHED	5. MINIMIZE LAND DISTURBANCI
BE REQUIRED TO CIVIL ENGINEER SHALL	AND THE SITE IS STABLE AND HAS BEEN INSPECTED AND APPROVED BY THE MUNICIPALITY. INSTALLATION OF SEDIMENTATION AND EROSION CONTROL MEASURES	(ONE WEEK MAXIMUM UNSTA SLOPES AND SWALES WITH SLOPES WITH EROSION CON CONSTRUCTION STAGING AR
DITIONS ARE	A. DIG A SIX INCH TRENCH ON THE UPHILL SIDE OF THE DESIGNATED FENCE LINE LOCATION. B. POSITION THE POST AT THE BACK OF THE TRENCH (DOWNHILL SIDE), AND HAMMER THE	16. MAINTAIN EXISTING PAVED A
NY DEMOLITION,	POST AT LEAST 1.5 FEET INTO THE GROUND.	CONTRACT DRAWINGS AND N 18. EXCAVATED MATERIAL FROM
OR INLAND WETLANDS ERIMETER SILT FENCE.	D. BACKFILL THE TRENCH AND COMPACT. II. HAY BALES/STRAW BALES A. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE, ORIENTED PARALLEL TO THE CONTOUR, WITH ENDS OF	19. INSTALL SILT FENCE ACCOR GROUND. SILT FENCE SHALL ENGINEER. FILTER FABRIC I FURTHER INFORMATION.
ATTS AND INSTALL ON OFF SITE ROADS. TER OF PROPOSED O ON THESE PLANS.	B. BALES SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF FOUR INCHES. AFTER THE BALES ARE STAKED, THE EXCAVATED SOUND AND BE DACKET FOR A CANNET THE BARRIER	20. WHERE INDICATED ON SEDIM WHENEVER THEIR CONDITION BUTT TIGHTLY TOGETHER TO
NTROLS AT	C. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO (2) STAKES.	21. INSTALL TEMPORARY DIVERS DEWATERING PITS AS SHOW UPHILL AREAS ARE DETERM
	<ul> <li>D. THE GAPS BETWEEN BALES SHALL BE WEDGED WITH STRAW TO PREVENT WATER LEAKAGE.</li> <li>E. THE BARRIER SHALL BE EXTENDED TO SUCH A LENGTH THAT THE BOTTOMS OF THE END BALES ARE HIGHER IN ELEVATION THAN THE TOP OF THE LOWEST MIDDLE BALE, TO ENSURE THAT RUN-OFF WILL FLOW EITHER THROUGH OR OVER THE BARRIER. BUT NOT AROUND IT.</li> </ul>	22. DIRECT ALL DEWATERING PU SEDIMENT BASINS OR GRASS
NT AND EROSION AND SEED SLOPES	OPERATION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROL MEASURES	23. BLOCK END OF STORM SEWI WHEN RAIN IS EXPECTED.
	I. SILTATION FENCE A. ALL SILTATION FENCES SHALL BE INSPECTED AS A MINIMUM WEEKLY OR AFTER EACH RAINFALL. ALL DETERIORATED FABRIC AND DAMAGED POSTS SHALL BE REPLACED AND PROPERLY REPOSITIONED IN ACCORDANCE WITH THIS PLAN. B. SEDIMENT DEPOSITS SHALL BE REMOVED FROM BEHIND THE FENCE WHEN THEY REACH A MAXIMUM HEIGHT OF ONE FOOT.	24. SWEEP AFFECTED PORTIONS A PROBLEM) DURING CONST DOWN DISTURBED AREAS, U
ATED EROSION AND/OR S TO ELIMINATE THE	II. HAY BALES/STRAW BALES A. ALL HAY BALE/STRAW BALE RINGS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE PROMPTLY MADE AS NEEDED.	25. PERIODICALLY CHECK ACCUN CONSTRUCTION AND CLEAN OR PER SPECIFIC CLEANOUT
EVIDENCE THAT EACH ALITY AND WHICH IS	B. DEPOSITS SHALL BE REMOVED AND CLEANED-OUT IF ONE HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOMES FILLED WITH SEDIMENT.	ACCUMULATED SEDIMENT FR THE BALE OR ONE FOOT AT
WRITING OF ALL	C. CONTRACTOR TO KEEP WEEKLY CHECKLIST LOGS FOR INSPECTIONS OF ALL SEDIMENT AND EROSION CONTROL DEVICES AND HAVE THEM READILY AVAILABLE ON-SITE AT ALL TIMES FOR INSPECTION BY DEEP, LOCAL AUTHORITIES OR ENGINEER.	26. IMMEDIATELY UPON DISCOVE SEDIMENT POLLUTION, THE ( POTENTIAL FOR ACCELERATE
	D. SEDIMENT SHALL BE DISPOSED OF ON-SITE OR AS DIRECTED BY THE ENGINEER AND LOCAL GOVERNING OFFICIALS. SEE SEDIMENT AND EROSION CONTROL NOTES HEREIN REGARDING DISPOSAL REQUIREMENTS FOR OFF SITE SPOIL DISPOSAL.	27. ALL PUMPING OF SEDIMENT FILTER BAG OR EQUIVALENT
AND OTHER EROSION L BE ON A PERIODIC	SEDIMENT AND EROSION CONTROL PLAN 1. HAY BALE/STRAW BALE FILTERS WILL BE INSTALLED AT ALL CULVERT OUTLETS IF CULVERT OUTLETS ARE APPLICABLE TO THIS PROJECT AND SILTATION FENCE INSTALLED ALONG THE TOE OF ALL CRITICAL CUT AND FILL SLOPES.	28. ALL EXCAVATED MATERIAL ALLOW THE TRENCH TO INTI
DSION CONTROL 2. SEDIMENT COLLECTED	2. CULVERT DISCHARGE AREAS WILL BE PROTECTED WITH RIP RAP CHANNELS. ENERGY DISSIPATORS WILL BE INSTALLED AS SHOWN ON THESE PLANS AND AS NECESSARY.	29. CONTRACTOR SHALL ONLY BACKFILLED AND STABILIZED
	3. CATCH BASINS WILL BE PROTECTED WITH HAY BALE/STRAW BALE FILTERS, SILT SACKS, SILTATION FENCE, OR OTHER INLET PROTECTION DEVICES PER DETAILS, THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.	STABILIZE POTENTIALLY WINI NEEDED TO SUPPRESS DUST AIRBORNE DUST. DURING H CEASED IF DUST CANNOT B
	<ol> <li>ALL SEDIMENT AND EROSION CONTROL MEASURES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION.</li> <li>SEDIMENT AND EROSION CONTROL MEASURES WILL BE INSTALLED PRIOR TO DEMOLITION AND/OR CONSTRUCTION WHENEVER POSSIBLE.</li> </ol>	31. AN AREA SHALL BE CONSI PERENNIAL VEGETATIVE COV ACCELERATED SURFACE ERC
	6. ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE DEMOLITION AND CONSTRUCTION PERIOD UNTIL THE SITE IS DETERMINED TO BE STABILIZED BY THE AUTHORITY HAVING JURISDICTION.	32. MAINTAIN ALL PERMANENT A THROUGHOUT THE CONSTRU
eed mixture to be	7. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF NECESSARY OR REQUIRED OR AS DIRECTED BY THE CIVIL ENGINEER OR BY THE AUTHORITY HAVING JURISDICTION.	TEMPORARY EROSION AND S OF TERMINATION) WITH AUTI CONSTRUCTION ACTIVITIES P
DPES GREATER THAN ATION BEYOND SEEDING I PER 1,000 S.F. AND	8. SEDIMENT REMOVED FROM EROSION CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT AND REQUIREMENTS OF THE SEDIMENT AND EROSION CONTROL PLANS, NOTES, AND DETAILS.	
	9. CONTRACTOR IS ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS SEDIMENT AND EROSION CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, NOTIFICATION OF THE MUNICIPALITY OFFICE OR AUTHORITY HAVING JURISDICTION OF ANY TRANSFER OF THIS RESPONSIBILITY AND FOR CONVEYING A COPY OF THE SEDIMENT AND EROSION CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.	
EBRIS AND SEDIMENT. BE REMOVED	SEDIMENT AND EROSION CONTROL NOTES 1. THE SEDIMENT AND EROSION CONTROL PLAN IS ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL TREATMENT FOR THIS SITE. SEE SEDIMENT AND EROSION CONTROL DETAILS AND CONSTRUCTION SEQUENCE. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER CONTRACT PLANS FOR APPROPRIATE INFORMATION.	
DIMENTATION BASINS RT OF CLEARING AND	2. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THIS SEDIMENT AND EROSION CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE PROPER INSTALLATION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED WITH CONSTRUCTION ON THE SITE OF THE REQUIREMENTS AND OBJECTIVES OF THIS PLAN, INFORMING THE AUTHORITY HAVING JURISDICTION OR COUNTY SOILS CONSERVATION DISTRICT OR INLAND WETLANDS AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY, AND FOR CONVEYING A COPY OF THE SEDIMENT & EROSION CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.	
IALL NOT PROCEED AND APPROVED ALL	3. AN EROSION CONTROL BOND MAY BE REQUIRED TO BE POSTED WITH THE MUNICIPALITY TO ENSURE IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF THIS BOND AND FOR INQUIRIES TO THE MUNICIPALITY FOR INFORMATION ON THE METHOD, TYPE AND AMOUNT OF THE BOND POSTING UNLESS OTHERWISE DIRECTED BY THE OWNER	
NOT TO DISTURB LIZED WITH TOPSOIL	4. VISUAL SITE INSPECTIONS SHALL BE CONDUCTED WEEKLY, AND AFTER EACH MEASURABLE PRECIPITATION EVENT OF 0.25 INCHES OR GREATER BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN SEDIMENT AND EROSION CONTROL, TO ASCERTAIN THAT THE SEDIMENT AND EROSION CONTROL (E&S) BMPS ARE OPERATIONAL AND EFFECTIVE IN PREVENTING POLLUTION. A WRITTEN REPORT OF EACH INSPECTION SHALL BE KEPT, AND INCLUDE: A)A SUMMARY OF THE SITE CONDITIONS, E&S BMPS, AND COMPLIANCE; AND	
l shall be stripped	<ol> <li>THE DATE, TIME, AND THE NAME OF THE PERSON CONDUCTING THE INSPECTION</li> <li>THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH 2002 GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE MUNICIPALITY. THE CONTRACTOR SHALL KEEP A COPY OF THE GUIDELINES ON-SITE FOR REFERENCE DURING CONSTRUCTION.</li> </ol>	
ENCE.	6. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE ENGINEER, MUNICIPALITY, OR GOVERNING AGENCIES. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED.	
, MAINTAINED AND GOOD QUALITY. WITH	7. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS BEFORE AND AFTER EACH STORM (0.25 INCHES OR GREATER RAINFALL), OR AT LEAST WEEKLY, TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE	
KNESSES NOT EPORT. LIFTS SHALL SPECIFICATIONS OR IN	NEFAINS WHERE NECESSART. 8. THE CONTRACTOR SHALL KEEP A SUPPLY OF SEDIMENT AND EROSION CONTROL MATERIAL (HAY BALES, SILT FENCE, JUTE MESH, RIP RAP, ETC.) ON-SITE FOR MAINTENANCE AND EMERGENCY REPAIRS.	
D OR LOWERED, AS	9. PROTECT EXISTING TREES THAT ARE TO BE SAVED BY FENCING AT THE DRIP LINE OR AS SHOWN WITH SNOW FENCE, ORANGE SAFETY FENCE, OR EQUIVALENT FENCING. ANY LIMB TRIMMING SHOULD BE DONE BEFORE CONSTRUCTION BEGINS IN THAT AREA; FENCING SHALL BE MAINTAINED AND REPAIRED DURING CONSTRUCTION.	
DISCHARGES, AND SEDIMENT AND	10. INSTALL PERIMETER SEDIMENT AND EROSION CONTROLS PRIOR TO CLEARING OR CONSTRUCTION. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, HAY BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SILT FENCE UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE FENCE.	
	11. STONE CONSTRUCTION ENTRANCE ANTI-TRACKING PADS SHALL BE INSTALLED AT START OF CONSTRUCTION AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION THE LOCATION OF THE TRACKING PADS MAY CHANCE AS	

TRUCTION ARE COMPLETED.

- ED AND STOCKPILED FOR USE IN FINAL LANDSCAPING. ALL EARTH STOCKPILES SHALL HAVE AROUND THE LIMIT OF PILE. PILES SHALL BE TEMPORARILY SEEDED IF PILE IS TO REMAIN IN E (1) MONTH.
- IS OF CGS SECTION 22A 430B, FOR STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITIES EEPING AND INSPECTION REQUIREMENTS.
- ANCE ANTI-TRACKING PADS SHALL BE INSTALLED PRIOR TO ANY ON SITE EXCAVATION AND ING ALL DEMOLITION, EXCAVATION AND CONSTRUCTION ACTIVITIES.
- CES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE ABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON ROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY REAS MAY BE HYDROSEEDED WITH TACKIFIER.
- AREAS FOR CONSTRUCTION STAGING FOR AS LONG AS POSSIBLE.
- DIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS PRIOR TO WORK IN ANY UPLAND AREAS. TEMPORARY SILT TRAPS MUST BE STOCKPILED ON UPHILL SIDE OF SILT FENCE.
- DING TO MANUFACTURER'S INSTRUCTION, PARTICULARLY, BURY LOWER EDGE OF FABRIC INTO BE TENCATE ENVIROFENCE, PROPEX GEOTEX OR EQUIVALENT APPROVED BY THE CIVIL USED SHALL BE TENCATE 140N OR 170N, OR APPROVED EQUIVALENT. SEE SPECIFICATIONS FOR
- MENT AND EROSION CONTROL PLANS USE NEW HAY/STRAW BALES AND REPLACE THEM DETERIORATES BEYOND REASONABLE USABILITY. STAKE BALES SECURELY INTO GROUND AND PREVENT UNDERCUTTING AND BYPASSING.
- SION DITCHES, PLUNGE POOLS, SEDIMENT BASINS, SEDIMENT TRAPS, CONCRETE WASH PITS AND IN AND AS NECESSARY DURING VARIOUS PHASES OF CONSTRUCTION TO CONTROL RUNOFF UNTIL INED TO BE STABILIZED BY THE AUTHORITY HAVING JURISDICTION. LOCATION OF TEMPORARY JIRE REVIEW AND APPROVAL BY THE CIVIL ENGINEER AND AUTHORITY HAVING JURISDICTION.
- UMP DISCHARGE TO A SEDIMENT CONTROL DEVICE SUCH AS TEMPORARY PITS, SEDIMENT TRAP, S FILTERS WITHIN THE APPROVED LIMIT OF DISTURBANCE. DISCHARGE TO STORM DRAINAGE TRS FROM SEDIMENT CONTROLS SHALL BE CLEAR.
- VERS IN EXPOSED TRENCHES WITH BOARDS AND SANDBAGS AT THE END OF EACH WORKING DAY
- OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT TRUCTION. OTHER DUST CONTROL MEASURES TO BE USED AS NECESSARY INCLUDE WATERING SING CALCIUM CHLORIDE, AND COVERING LOADS ON DUMP TRUCKS.
- IMULATED SEDIMENT LEVELS IN THE SEDIMENT BASINS AND SEDIMENT TRAPS DURING ACCUMULATED SILT WHEN NECESSARY OR WHEN ONE FOOT OF SEDIMENT HAS ACCUMULATED MARKER ELEVATION. CLEAN ACCUMULATED SEDIMENT FROM CATCH BASIN SUMPS AS TED BY THE CIVIL ENGINEER OR OWNER'S CONSTRUCTION REPRESENTATIVE. REMOVE ROM BEHIND HAY/STRAW BALES AND SILT FENCE WHEN LEVEL REACHES HALF THE HEIGHT OF SILT FENCE. DISPOSE OF SEDIMENT LEGALLY EITHER ON OR OFF SITE.
- ERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE THE ED EROSION AND/OR SEDIMENT POLLUTION.
- LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER SEDIMENT REMOVAL FACILITY, OVER UNDISTURBED VEGETATED AREAS.
- SHALL BE PLACED ON THE HIGH SIDE OF UTILITY AND STORM PIPE TRENCHES SO AS TO ERCEPT ALL SILT LADEN RUNOFF.
- ' EXCAVATE AS MUCH UTILITY AND STORM PIPE TRENCH WORK AS CAN BE COMPLETED, IN ONE DAY SO AS TO LIMIT THE AMOUNT OF OPEN, DISTURBED TRENCHING.
- PED MATERIALS ARE TO BE PERIODICALLY SPRAYED WITH WATER OR A CRUSTING AGENT TO D-BLOWN MATERIAL. HAUL ROADS BOTH INTO AND AROUND THE SITE ARE TO BE SPRAYED AS TRUCKS HAULING IMPORT FILL MATERIAL ARE TO BE TARPED TO AID IN THE CONTROL OF HIGH WIND EVENTS (20 TO 30 MPH SUSTAINED) CONSTRUCTION ACTIVITY SHALL BE LIMITED OR E CONTROLLED BY WETTING.
- IDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM OF 70% UNIFORM R OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST OSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING OR OTHER WISE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.
- AND TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION ICTION PERIOD. UPON COMPLETION OF WORK SWEEP PARKING LOT AND REMOVE ALL SEDIMENT CONTROLS WHEN AUTHORIZED BY AUTHORITY HAVING JURISDICTION. FILE NOT (NOTICE THORITY HAVING JURISDICTION RESPONSIBLE FOR REGULATING STORM WATER DISCHARGES FROM PER NPDES.

![](_page_40_Picture_70.jpeg)

355 Research Parkwav Meriden, CT 06450 (203) 630-1406 (203) 630-2615 Fax

![](_page_40_Picture_72.jpeg)

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![](_page_41_Figure_0.jpeg)

022 BL COMPANIES, INC. THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES.

![](_page_41_Picture_1.jpeg)

![](_page_41_Picture_7.jpeg)

![](_page_42_Figure_0.jpeg)

NOT FOR CONSTRUCTION FOR PERMITTING PURPOSES ONLY

![](_page_42_Picture_3.jpeg)

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED. 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. 3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP. 5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.

![](_page_42_Picture_5.jpeg)

# NOTES

1. CONCRETE WASHOUT AREA(S) SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE. THE CONCRETE WASHOUT AREA SHALL BE ENTIRELY SELF-CONTAINED.

2. THE CONTRACTOR SHALL SUBMIT THE DESIGN, LOCATION AND SIZING OF THE CONCRETE WASHOUT AREA(S) WITH THE PROJECT'S EROSION AND SEDIMENTATION CONTROL PLAN AND SHALL BE APPROVED BY THE ENGINEER.

LOCATION: WASHOUT AREA(S) ARE TO BE LOCATED AT LEAST 50 FEET FROM ANY STREAM, WETLAND, STORM DRAINS, OR OTHER SENSITIVE RESOURCE. THE FLOOD CONTINGENCY PLAN MUST ADDRESS THE CONCRETE WASHOUT IF THE WASHOUT IS TO BE LOCATED WITHIN THE FLOODPLAIN.

SIZE: THE WASHOUT MUST HAVE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS INCLUDING, BUT NOT LIMITED TO, OPERATIONS ASSOCIATED WITH GROUT AND MORTAR.

3. SURFACE DISCHARGE IS UNACCEPTABLE. THEREFORE, HAY BALES OR OTHER CONTROL MEASURES, AS APPROVED BY THE ENGINEER, SHOULD BE USED AROUND THE PERIMETER OF THE CONCRETE WASHOUT AREA FOR CONTAINMENT.

4. SIGNS SHOULD BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CONCRETE AREA(S) AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS. WASHOUT AREA(S) SHOULD BE FLAGGED WITH SAFETY FENCING OR OTHER APPROVED METHOD.

5. WASHOUT AREA(S) ARE TO BE INSPECTED AT LEAST ONCE A WEEK FOR STRUCTURAL INTEGRITY, ADEQUATE HOLDING CAPACITY AND CHECKED FOR LEAKS, TEARS, OR OVERFLOWS. (AS REQUIRED BY THE CONSTRUCTION SITE ENVIRONMENTAL INSPECTION REPORT) WASHOUT AREA(S) SHOULD BE CHECKED AFTER HEAVY RAINS.

6. HARDENED CONCRETE WASTE SHOULD BE REMOVED AND DISPOSED OF WHEN THE WASTE HAS ACCUMULATED TO HALF OF THE CONCRETE WASHOUT'S HEIGHT. THE WASTE CAN BE STORED AT AN UPLAND LOCATION, AS APPROVED BY THE ENGINEER. ALL CONCRETE WASTE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH ALL APPLICABLE LAWS, REGULATIONS, AND GUIDELINES.

7. PAYMENT FOR THIS ITEM IS TO BE INCLUDED UNDER THE GENERAL COST OF THE WORK FOR THE PROJECT, INCLUDING SITE RESTORATION.

![](_page_42_Figure_16.jpeg)

![](_page_42_Figure_17.jpeg)

![](_page_42_Picture_18.jpeg)

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LANDSC	CAPE PL	ANT SCHEDULE				
KEY	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	COMMENTS
GB	4	GINKGO BILOBA 'AUTUMN GOLD'	AUTUMN GOLD GINKGO	B&B	2-2.5" CAL.	MIN. 6' BRANCH HT.
JH	5	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	CONT.	18-24" SPD.	4' O.C. SPACING
PA	5	PICEA ABIES	NORWAY SPRUCE	B&B	6'—7' HT.	15' O.C. SPACING
тт	6	TAXUS X MEDIA 'TAUNTONII'	TAUNTON SPREADING YEW	CONT.	18–24" HT.	4' O.C. SPACING
то	30	THUJA PLICATA 'GREEN GIANT'	GREEN GIANT ARBORVITAE	В&В	5'—6' HT.	8' O.C. SPACING

<u>NOTES:</u> 1) ALL SUBSTITUTIONS MUST RECEIVE APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO DELIVERY TO SITE.

2) PROVIDE AND INSTALL ALL PLANTS SHOWN ON THE PLANTING PLAN DRAWINGS; THE QUANTITIES IN THE PLANT LIST ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF DISCREPANCIES OCCUR, THE LARGER QUANTITY SHALL APPLY.

3) IF THERE IS A DISCREPANCY BETWEEN BOTANICAL AND COMMON NAME, BOTANICAL NAME PREVAILS.

![](_page_43_Figure_5.jpeg)

![](_page_43_Figure_6.jpeg)

LANDSCAPE NOTES	SEE
THE LANDSCAPE PLAN AND DETAIL SHEET ARE FOR LANDSCAPING INFORMATION ONLY. REFER TO THE SITE PLAN, GRADING AND DRAINAGE PLAN, SITE UTILITIES PLAN, LIGHTING PLAN AND DEMOLITION PLAN FOR ALL OTHER INFORMATION. 1. COORDINATE PLANT MATERIAL LOCATIONS WITH SITE UTILITIES. UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. EXERCISE CARE WHEN DIGGING IN AREAS OF POTENTIAL CONFLICT WITH UNDERGROUND OR OVERHEAD UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO CONTRACTOR'S NEGLIGENCE AND SHALL REPLACE OR REPAIR ANY DAMAGE AT CONTRACTOR'S EXPENSE.	A. LAWN
2. THE LOCATIONS FOR PLANT MATERIAL ARE APPROXIMATE AND ARE SUBJECT TO FIELD ADJUSTMENT DUE TO UTILITY LOCATIONS AND SITE CONDITIONS. THE CONTRACTOR SHALL ACCURATELY STAKE OUT THE LOCATIONS FOR ALL PLANTS FOR THE REVIEW, ADJUSTMENT, AND APPROVAL BY OWNER OR LANDSCAPE ARCHITECT PRIOR TO PLANTING.	С
THE CONTRACTOR SHALL GUARANTEE THAT ALL PLANTS SHALL BE HEALTHY AND FREE OF DISEASE FOR A PERIOD OF <u>ONE YEAR OR JUNE 1ST OF THE</u> YEAR FOLLOWING INSTALLATION, WHICHEVER IS LONGER. AFTER SUBSTANTIAL COMPLETION AND ACCEPTANCE BY OWNER OR LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE ANY DEAD OR UNHEALTHY PLANTS AT CONTRACTOR'S EXPENSE. PLANT MATERIAL REPLACEMENTS SHALL BE GUARANTEED FOR <u>ONE FULL YEAR</u> FROM DATE OF REPLACEMENT. REPLACEMENT PLANTS SHALL BE THE SAME AS SPECIFIED FOR THE ORIGINAL PLANTING. REPLACEMENTS SHALL BE MADE AS MANY TIMES AS NECESSARY TO ENSURE HEALTHY PLANTS. FINAL ACCEPTANCE SHALL BE MADE IF ALL PLANTS MEET THE GUARANTEE REQUIREMENTS INCLUDING MAINTENANCE. MAINTENANCE RESPONSIBILITIES INCLUDE CULTIVATING, SPRAYING, WEEDING, WATERING, TIGHTENING GUYS, PRUNING, FERTILIZING, MULCHING, AND ANY OTHER OPERATIONS NECESSARY TO MAINTAIN PLANT VIABILITY. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING AND CONTINUE UNTIL THE END OF THE GUARANTEE PERIOD. DURING THE LANDSCAPE MAINTENANCE PERIOD	B. REST
(GUARANTEE) THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING OF ANY SITE CONSTRAINTS (PHYSICAL, ENVIRONMENT, ETC.) OR MAINTENANCE DEFICIENCIES THAT MAY AFFECT LANDSCAPE VEGETATION ESTABLISHMENT. 3. THE CONTRACTOR SHALL SUPPLY ALL LABOR, PLANTS, AND MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND LISTED IN THE PLANT SCHEDULE. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED BY THE DRAWINGS, THE LARGER SHALL APPLY. ALL PLANTS SHALL BE ACCLIMATED BY THE SUPPLY NURSERY TO THE LOCAL HARDINESS ZONE AND BE CERTIFIED THAT THE PLANTING MATERIAL HAS BEEN GROWN FOR A MINIMUM OF TWO YEARS AT THE SOURCE AND OBTAINED WITHIN 200 MILES OF PROJECT SITE UNLESS OTHERWISE APPROVED BY OWNER OR LANDSCAPE ARCHITECT.	
4. PLANTS SHALL HAVE TAGS THAT IDENTIFY PLANT GENUS, SPECIES, CULTIVAR (IF APPLICABLE), PLANT COMMON NAME, NAME OF SOURCE NURSERY, AND SIZE OF PLANT FOR REVIEW OF OWNER OR LANDSCAPE ARCHITECT.	
5. NO PLANT SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT. STAKING THE LOCATION OF ALL TREES AND SHRUBS SHALL BE COMPLETED PRIOR TO PLANTING FOR APPROVAL BY THE OWNER OR LANDSCAPE ARCHITECT.	
<ul><li>6. FINAL GRADES SHALL BLEND SMOOTHLY WITH EXISTING GRADES, AND TOP AND BOTTOM OF SLOPES SHALL BE ROUNDED.</li><li>7. ALL TREE AND SHRUB MASSINGS SHALL BE MULCHED TO A DEPTH OF 3". ANNUAL AND PERENNIAL BEDS SHALL BE MULCHED TO A DEPTH OF 2".</li></ul>	PLANTING MIX -
MULCH SHALL BE UNCOLORED TRIPLE-SHREDDED HARDWOOD BARK MULCH, AGED AT LEAST 6 MONTHS. BI 8. IF TREE STAKING IS PROPOSED, TREE STAKING MUST BE COMPLETED THE SAME DAY AS THE TREE IS INSTALLED. ALL TREES SHALL BE STAKED OR CLIVED PER DETAIL	ELT STRAPPING
<ul> <li>9. LANDSCAPE PLANTING AREAS MUST BE FREE DRAINING. PAVEMENT, COMPACTED SUBGRADE, DEAD OR DYING PLANT MATERIAL, BLASTED ROCK, STONES GREATER THAN 1" IN DIAMETER, AND ANY OTHER MATERIAL HARMFUL TO PLANT GROWTH AND DEVELOPMENT SHALL BE REMOVED FROM AREAS TO BE LANDSCAPED AS REQUIRED BY PLANTING DETAILS OR SPECIFICATIONS.</li> <li>10. PLANTING SOIL:</li> </ul>	3" DIA. CEDAR HOT DIP GALVANIZED SCREWS
DEPTH: PLANTING SOIL SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4" OR AS NOTED IN THE LANDSCAPE DETAILS. PLANTING SOIL SHALL BE UTILIZED IN ALL PLANTING AREAS INCLUDING SEEDED AREAS.	
TESTING: CONTRACTOR SHALL SUBMIT (2) SOIL SAMPLES PER SOIL STOCKPILE TO A CERTIFIED TESTING LABORATORY TO DETERMINE ACIDITY, ORGANIC CONTENT, MECHANICAL ANALYSIS, AVAILABLE NUTRIENTS (N,P,K,Ca,Mg,S,Fe,Mn,Zn,Cu,B,AI,Pb) AND NECESSARY AMENDMENTS TO SOIL. THE CONTRACTOR SHALL SUBMIT THE TEST RESULTS TO THE OWNER OR LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. TEST RESULTS SHALL RECOMMEND AMENDMENTS THAT WILL ALTER THE SOIL CHARACTERISTICS SUCH THAT THE CHARACTERISTICS DESCRIBED BELOW ARE ACHIEVED AND THE SPECIFIED PLANTS (CONTRACTOR TO PROVIDE LIST TO TESTING LABORATORY) WILL ACHIEVE PROPER GROWTH THAT IS NEITHER DEFICIENT NOR EXCESSIVE. THE CONTRACTOR SHALL INCORPORATE THESE AMENDMENTS AT NO INCREASE IN CONTRACT PRICE.	
CHARACTERISTICS: PLANTING SOIL MAY CONSIST OF EXISTING ON-SITE SOILS, AMENDED ON-SITE SOILS, OR IMPORTED SOILS MEETING THE FOLLOWING CRITERIA: A. NOT TO CONTAIN MATERIALS HARMFUL TO PLANT LIFE, TO BE CLEAN, FERTILE, FRIABLE, AND WELL DRAINING. ALL PLANTING SOIL	TREE WR LAN
SHALL BE FREE OF ANY SUBSOIL EARTH CLODS, SODS, STONES OVER 1" IN ANY DIMENSION, STICKS, ROOTS, WEEDS, LITTER AND OTHER DELETERIOUS MATERIAL. PLANTING SOIL SHALL BE UNIFORM IN QUALITY AND TEXTURE. B. PLANTING SOIL SHALL HAVE THE FOLLOWING OPTIMUM RANGES UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.	PLANT T FL/ ABC
ORGANIC CONTENT 3% – 6% FOR LAWN OR GRASS AREAS. 4% – 8% FOR TREE AND SHRUB PLANTERS. 8%–16% FOR RETENTION OR DETENTION BASINS.	2"X2"X8' POINT 2 STAKES
(BT LOSS OF IGNITION AT 375 C METHOD OF TESTING) PH 6.0 - 7.3 C. NUTRIENT LEVELS SHALL BE ACHIEVED BY THE CONTRACTOR'S ADDITION OF AMENDMENTS TO THE PLANTING SOIL TO MEET THE OPTIMUM	TO BE SET OUT
<ul> <li>NUTRIENT LEVELS SPECIFIED IN THE TESTING LABORATORY REPORT FOR EACH OF PLANTS TO BE INSTALLED.</li> <li>D. SOIL SHALL BE COMPACTED TO A SURFACE PENETRATION RESISTANCE OF 75–125 LBS/SQ.IN.</li> <li>E. SOIL MAY BE TREATED FOR WEEDS WITH PRE-EMERGENT OR POST-EMERGENT HERBICIDE, AS NEEDED AND AS APPROPRIATE FOR THE APPLICATION SEASON OR LOCATION, OR ELIMINATE GROWTH OF UNWANTED PLANT MATERIAL. APPLY HERBICIDES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. HERBICIDE APPLICATOR MUST BE LICENSED IN THE CONNECTICUT, AND PERFORM APPLICATIONS IN ACCORDANCE WITH LOCAL REQUIREMENTS, PERMITTING STIPULATIONS, AND ANY OTHER RESTRICTIONS INCLUDING AND IN EXCESS OF</li> </ul>	PL M
STATE AND FEDERAL REGULATIONS. F. PROPOSED TOPSOIL SHALL MEET THE USDA SOILS TEXTURAL PERCENTAGES OF SAND, SILT, AND CLAY FOR FOLLOWING CLASSIFICATIONS: — LOAM — SANDY LOAM WHERE SAND DOES NOT EXCEED 70% AND CLAY IS NOT LESS THAN 5%	1' BI
<ul> <li>SANDY CLAY LOAM WHERE SAND DOES NOT EXCEED 70% AND CLAY IS LESS THAN 28%.</li> <li>G. BIORETENTION SOILS: SOIL TO BE INSTALLED IN RETENTION BASINS, PONDS, OR OTHER STORMWATER MANAGEMENT ENVIRONS SHALL MEET THE ABOVE DESCRIBED CHARACTERISTICS AND AS FOLLOWS:</li> </ul>	SOIL
<ul> <li>SOIL SHALL NOT CONTAIN MORE THAN 20% CLAY AND LESS THAN 40% SILT.</li> <li>SOIL SHALL HAVE AN INFILTRATION RATE BETWEEN 1/2" AND 3" PER HOUR.</li> <li>H. MODIFICATION TO THE PLANTING SOIL CHARACTERISTICS DESCRIBED ABOVE MAY BE SUBMITTED FOR APPROVAL BY THE LANDSCAPE ARCHITECT. CONTRACTOR MUST DEMONSTRATE PROPOSED CHARACTERISTICS ARE EQUAL TO OR SUPERIOR TO THE SPECIFIED CHARACTERISTICS WITH RESPECT TO SUPPORTING PLANT GROWTH, AND STORMWATER MANAGEMENT.</li> </ul>	NC 1.
12. PLANTING AMENDMENTS: APPLY FERTILIZER AND OTHER AMENDMENTS AS RECOMMENDED FOR EACH PLANTING AREA BY SOIL ANALYSIS. APPLY AMENDMENTS IN A MANNER CONSISTENT WITH MANUFACTURER'S RECOMMENDATIONS. ANY ORGANIC AMENDMENTS SHALL HAVE A pH BETWEEN 4.5 AND 5.5 UNLESS OTHERWISE RECOMMENDED.	2.
13. PLANT REQUIREMENTS: ALL PLANTS SHALL CONFORM IN SIZE AND GRADE TO THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1 (LATEST EDITION). ALL PLANTS SHALL MEET THE ADDITIONAL REQUIREMENTS SET FORTH BELOW AND IN WRITTEN SPECIFICATIONS AS APPLICABLE. ALL TREES AND SHRUBS SHALL HAVE BEEN GROWN AT A COMMERCIAL NURSERY WITHIN 200 MILES OF THE PROJECT SITE UNLESS OTHERWISE APPROVED BY OWNER OR LANDSCAPE ARCHITECT. THEY SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY. THEY SHALL BE HEALTHY, SYMMETRICAL, EVENLY AND DENSELY BRANCHED, AND DENSELY FOLIATED WHEN IN LEAF. THEY SHALL BE FREE OF BARK INJURY, DISEASE, AND INSECT PESTS. ALL TREES SHALL HAVE A STRAIGHT TRUNK WITH A SINGLE MAIN LEADER UNLESS OTHERWISE CHARACTERISTIC OF THE SPECIES OR VARIETY. THE OWNER OR LANDSCAPE ARCHITECT WILL ALLOW SUBSTITUTIONS ONLY UPON WRITTEN APPROVAL. SIZES SHALL CONFORM TO THE MEASUREMENT SPECIFIED ON THE DRAWINGS. PLANTS LARGER THAN SPECIFIED MAY BE USED IF APPROVED, BUT THE USE OF SUCH PLANTS SHALL NOT INCREASE THE CONTRACT PRICE. ALL OVERSTORY TREES PLANTED ALONG PARKING AREAS, SIDEWALKS AND PEDESTRIAN ACCESSES SHALL NOT BRANCH BELOW 7' FEET IF THE TREE CALIPER IS 3" INCHES OR GREATER. ALL PLANT MATERIALS ARE SUBJECT TO INSPECTION AND ACCEPTANCE BY THE OWNER OR LANDSCAPE ARCHITECT AT THE NURSERY SOURCE. THE CONTRACTOR SHALL COORDINATE SOURCE VISITS WITH THE LANDSCAPE ARCHITECT AND SHALL ACCOMPANY THE OWNER	3.
AND/OR LANDSCAPE ARCHITECT FOR ALL INSPECTIONS. CERTIFICATES OF COMPLIANCE WITH SPECIFICATIONS ARE REQUIRED FOR ALL PLANTS. 14. INSPECTION AND REVIEW: ALL PLANT MATERIAL SHALL BE SUBJECT TO INSPECTION AND ACCEPTANCE BY THE OWNER OR LANDSCAPE ARCHITECT AT THE NURSERY SOURCE OR PLACE OF GROWTH. THE CONTRACTOR SHALL COORDINATE WITH THE LANDSCAPE ARCHITECT ON A SCHEDULE FOR SOURCE VISITS AND ACCOMPANY THE OWNER OR LANDSCAPE ARCHITECT FOR ALL SOURCE INSPECTIONS. CERTIFICATES OF COMPLIANCE ARE REQUIRED FOR ALL PLANT MATERIALS. PHOTOGRAPHIC REVIEW OF PLANT MATERIAL IS ACCEPTABLE IF APPROVED BY LANDSCAPE ARCHITECT. PHOTOGRAPHS MUST BE PROVIDED IN QUANTITY AND VARIETY TO ALLOW LANDSCAPE ARCHITECT SUFFICIENT INFORMATION TO MAKE A REASONABLE DETERMINATION AS TO THE PLANTS' QUALITY. OWNER AND LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT PLANT MATERIAL DELIVERED TO THE SITE BUT PREVIOUSLY ACCEPTED IF DAMAGED OR NOT PROPERLY MAINTAINED DUIDING THE DELIVERY PROCESS	
15. PLANTING SEASONS (UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT) SPRING FALL	
EVERGREEN TREES AND SHRUBSAPRIL 1TO JUNE 15SEPTEMBER 1TO OCTOBER 15DECIDUOUS TREES AND SHRUBSAPRIL 1TO JUNE 15SEPTEMBER 15TO NOVEMBER 15GROUNDCOVERSAPRIL 1TO JUNE 15SEPTEMBER 1TO OCTOBER 15SEED MIXESPER MANUFACTURERS RECOMMENDATIONS OR AS LISTED IN SEED MIX NOTES	KE PLANTS MOIS DURIN
SEEDING MIXTURES: REFER TO SEED MIX NOTES. 16. ALL SLOPES STEEPER THAN 3:1 RECEIVING A SEED MIX SHALL BE COVERED WITH AN EROSION CONTROL BLANKET OF STRAW FIBER AND BIODECRADABLE OR BHOTODECRADABLE NETTING	OSEN CIRCLING ROO OF CONTAIN GROWN PLAN
17. UNLESS OTHERWISE NOTED IN DRAWING SET, NEW TREELINES SHALL EQUAL CLEARING AND GRUBBING LIMIT FOR CONSTRUCTION. ALL DISTURBED AREAS NOT OTHERWISE DEVELOPED SHALL BE SEEDED WITH THE LAWN SEED MIX.	3" SHREDDED BA MULCH. COLOR E SELECTED BY OWN FINISHED GRA LANDSCAPE EDGI
	TOPSOIL -
	NOTES
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# D MIX NOTES

- SEEDING MIX:
- 15 % PERENNIAL RYEGRASS (BLEND OF 3 IMPROVED HYBRIDS)
- 25 % FINE LEAF OR CREEPING FESCUE (BLEND OF 3 IMPROVED HYBRIDS) 60 % KENTUCKY BLUEGRASS (BLEND OF 3 IMPROVED HYBRIDS)
- SEEDING RATE: 5 LBS/1,000 S.F.
- SEEDING DATES: AUGUST 15 OCTOBER 1 AND APRIL 15 JUNE 30 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.

FORATION/EROSION CONTROL SEED MIX -

- NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES NEW ENGLAND WETLAND PLANTS INC. OR APPROVED EQUAL
- SPECIES: CREEPING RED FESCUE (FESTUCA RUBRA), CANADA WILD RYE (ELYMUS CANADENSIS), ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), PERENNIAL RYEGRASS (LOLIUM PERENNE), LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM), INDIAN GRASS (SORGHASTRUM NUTANS), SWITCH GRASS (PANICUM VIRGATUM), UPLAND BENTGRASS (AGROSTIS PERENNANS).
- APPLICATION RATE: 35 LBS/ACRE (1 LB PER 1,250 SF)
- SEEDING DATES: AUGUST 15 OCTOBER 1 AND APRIL 15 JUNE 30 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.

![](_page_44_Figure_13.jpeg)

IOTES:

1.5 INCH WOVEN POLYPROPYLENE STAKING MATERIAL SHALL BE DEEPROOT ARBORTIE (GREEN) OR APPROVED EQUIVALENT. MATERIAL SHALL BE LOOPED AROUND TREE THROUGH EACH OTHER, TWISTED, AND SECURED TO THE STAKE. INSTALL SPECIFIED MATERIAL IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS. STAKING MATERIAL SHALL BE ADJUSTED AS NECESSARY THROUGHOUT THE GROWING SEASON TO PREVENT GIRDLING.

SECTION VIEW

BEFORE IN HOLE, REMOVE BOTTOM OF CAGE. ONCE IN HOLE, REMOVE REST OF CAGE FROM ROOT BALL. REMOVE TWINE AND BURLAP FROM TOP 1/3 OF ROOT BALL - SCORE REMAINING 2/3 OF BURLAP. IF BURLAP IS SYNTHETIC, COMPLETELY REMOVE IT FROM ROOT BALL. ROOT FLARE IS EXPOSED AND FLUSH WITH FINISHED GRADE.

# THOROUGHLY WATER ALL TREES TWICE WITHIN THE FIRST 48 HOURS. **DECIDUOUS TREE PLANTING**

![](_page_44_Figure_18.jpeg)

DTOTILL FERTILIZER AND LIME INTO SOIL PRIOR TO PLANTING AND IN ACCORDANCE TO SOIL NALYSIS RECOMMENDATIONS.

NOT OVER COMPACT PLANTING BED.

ROVIDE DRAINAGE DEVICES AS REQUIRED WHEN SUBGRADE IS CLASSIFIED AS A HEAVY SOIL OR CESSIVELY COMPACTED.

IOROUGHLY WATER ALL PLANTING BEDS TWICE IN THE FIRST 48 HOURS.

# ANNUAL/PERENNIAL AND GROUNDCOVER BEDS

![](_page_44_Figure_25.jpeg)

NOTES:

- 2. 1.5 INCH WIDE WOVEN POLYPROPYLENE STAKING MATERIAL SHALL BE DEEPROOT ARBORTIE THROUGHOUT THE GROWING SEASON TO PREVENT GIRDLING.
- EXPOSED AND FLUSH WITH FINISHED GRADE.
- 4. THOROUGHLY WATER ALL TREES TWICE WITHIN THE FIRST 48 HOURS.

Description	1							i		-	- i			
Symbol	Label	Quantity	Manuf	acturer		Catalog Numbe	r	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	١
	P1	2	Lithon	ia Lightin	g	DSX1 LED P3 4 MVOLT	10K T5W	DSX1 LED P3 40K T5W MVOLT	LED	1	DSX1_LED_P3_40K _T5W_MVOLT.ies	12969	0.9	
< 🗆 🛛	P2	1	Lithon	Lithonia Lighting		DSX1 LED P2 40K T4M MVOLT		DSX1 LED P2 40K T4M MVOLT	LED	1	DSX1_LED_P2_40K _T4M_MVOLT.ies	8707	0.9	
$\langle \Box$	W1	6	Lithon	Lithonia Lighting		DSXW1 LED 20C 530 40K T4M MVOLT		DSXW1 LED WITH (2) 10 LED LIGHT ENGINES, TYPE T4M OPTIC, 4000K, @ 530mA.	LED	1	DSXW1_LED_20C_5 30_40K_T4M_MVOL T.ies	4201	0.9	
Statistics							]							
Description	Symbo	ol Avg	Max	Min	Max/Mi	n Avg/Min								
Parking/Loadin g		1.3 fc	2.5 fc	0.3 fc	8.3:1	4.3:1								
Site/Landscape	Ж	0.1 fc	3.3 fc	0.0 fc	N/A	N/A								
LIGHTI	ING	NOT	ES											
1. ALL WOR STATE CODI	RK SHALI E, AND	L BE DO	NE IN S		ACCORD CODE V	DANCE WITH A	ALL REQ AMENDM	UIREMENTS OF ANY LOCAL APPLIC	CABLE CO	ODES OR	ORDINANCES, PUBLIC		PANY REGULA	A TIC
1. ALL WOR STATE CODI 2. ALL MAT UNDERWRITE	RK SHALI E, AND TERIALS ERS, ANI	L BE DOI NATIONA SHALL C D UNDER	NE IN S L ELEC ONFORM WRITER	STRICT TRICAL M TO TH S LABO	ACCORD CODE V HE LATE RATORI	OANCE WITH A MITH INTERIM EST ISSUE OF ES, INC.	ALL REQ AMENDM - ALL AF	UIREMENTS OF ANY LOCAL APPLIC IENTS THERETO. PPLICABLE STANDARDS AS ESTAB	CABLE CO LISHED E	ODES OR BY EEI, NE	ORDINANCES, PUBLIC MA, ASTM, IPCEA, N	C UTILITY CO	)M )A	MPANY REGULA

3. THE CONTRACTOR SHALL TEST THE LIGHTING AFTER INSTALLATION WITH THE DEVELOPER/OWNER, AND PROVIDE TO DEVELOPER/OWNER WARRANTY AND MAINTENANCE INFORMAITON. THE CONTRACTOR SHALL MAKE ADJUSTMENTS AND/OR MODIFICATIONS AS REQUIRED BY THE DEVELOPER/OWNER TO OBTAIN EVEN LIGHT DISTRIBUTION. 4. CONTRACTOR SHALL LEAVE ENTIRE ELECTRICAL SYSTEM INSTALLED BY THE CONTRACTOR IN PROPER WORKING CONDITION AND REPLACE WITHOUT ADDITIONAL CHARGE ALL WORK

OR MATERIALS WHICH MAY DEVELOP DEFECTS WITHIN A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER.

5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, BASES AND CONDUITS TO SITE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO DELIVERY OF MATERIAL TO SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW. IF ALTERNATIVE LIGHTING IS PROPOSED SUBMIT A PHOTOMETRIC FOOT-CANDLE LAYOUT ALONG WITH ANNUAL MAINTENANCE REQUIREMENTS AND ANTICIPATED COSTS.

6. LIGHTS ARE DESIGNED TO PROVIDE EVEN LEVELS OF ILLUMINATION AND AVOID GLARE ONTO NEIGHBORING PROPERTIES. FINAL DESIGN MAY VARY PENDING MANUFACTURER'S RECOMMENDATIONS.

7. ALL LIGHTING CONTROLS, PANELS, CIRCUIT BREAKERS ETC. ARE TO BE PROVIDED UNDER A SEPARATE CONTRACT BY BUILDING CONTRACTOR. CAREFUL COORDINATION IS REQUIRED BETWEEN SITE CONTRACTOR AND BUILDING CONTRACTOR TO PROVIDE A COMPLETE INSTALLATION FOR SITE LIGHTING. 8. THE CONTRACTOR WILL PROVIDE AND INSTALL ALL MATERIAL NECESSARY TO COMPLETE THE SITE LIGHTING SYSTEM INCLUDING BUT NOT LIMITED TO CONDUIT, BASES, ANCHOR BOLTS, POLES, SITE LIGHTS AND LAMPS. THE CONTRACTOR WILL COORDINATE WIRING AND POWERING OF LIGHTS WITH OWNER, ARCHITECT, AND BUILDING CONTRACTOR IF DIFFERENT FROM THE SITE CONTRACTOR.

9. ALL LIGHTS TO BE AS LISTED IN SCHEDULE OR APPROVED EQUIVALENT. LIGHTS SHALL BE MOUNTED ON STEEL POLES ATOP CONCRETE BASES THAT ARE SET 3' (CLEAR) BEHIND CURBS UNLESS OTHERWISE INDICATED ON CONTRACT DRAWINGS. ILLUMINATION ANALYSIS MODELED USING LIGHTING FIXTURES LISTED IN SCHEDULE. 10. LIGHT POLES AND BRACKETS TO BE AS SHOWN ON DETAILS OR APPROVED EQUIVALENT.

11. WIRE AND CABLE SHALL BE COPPER AND CONFORM TO THE FOLLOWING NEC TYPE THHN/THWN SOLID FOR NO. 12 AND NO. 10. NEC TYPE THHN/THWN STRANDED FOR NO. 8 AND LARGER. RIGID STEEL CONDUIT SHALL BE GALVANIZED. FITTINGS SHALL BE CAST FERROUS MATERIAL WITH A CADMIUM OR ZINC PLATED FINISH. 12. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE TO NEC.

13. ANY POLES THAT ARE NOT LOCATED ON INACCESSIBLE OR LANDSCAPED AREAS MUST BE PAINTED SAFETY YELLOW AT THE LIGHT POLE BASE. LIGHT POSTS SHALL BE ALIGNED WITH PARKING STRIPING.

![](_page_45_Figure_8.jpeg)

022 BL COMPANIES, INC. THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES.

![](_page_45_Figure_10.jpeg)

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¥ 0.0	×0.0	× <sub>0.ρ</sub>	*0.0	*0.0	*0.0	*0.0	*0.0	<sup>*</sup> 0.0	* <sub>0.0</sub>	*0.0	*0.0	* <sub>0.0</sub>	* <sub>0.0</sub>	<sup>*</sup> 0.0	<sup>*</sup> 0.0	>		
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0.0	<sup>*</sup> 0.0	*0.0	*0.0	*0.0	*0.0	*0.0	* <sub>0.0</sub>	* <sub>0.0</sub>	* <sub>0.0</sub>	* <sub>0.0</sub>	*0.0	<sup>*</sup> 0.0	*0.0	<sup>*</sup> 0.0	*0.0	>		
	—— dC * <sub>0.1</sub>	)]	-201	*0.0	* <sub>0.0</sub>	<sup>*</sup> 0.0	* <sub>0.0</sub>	* <sub>0.0</sub>	* <sub>0.0</sub>	* <sub>0.0</sub>	*0.0	* <sub>0.0</sub>	<sup>*</sup> 0.0	*0.0	*0.0	>	► Notes the second sec	CUT
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<del>.4</del>	* <u>0.2</u>	a <sup>*0.1</sup>	*0.1	*059	*0.0	*0.0	*0.0	*0.0	*0.0	*0.0	<sup>*</sup> 0.0	*0.0	<sup>*</sup> 0.0	*0.0	*0.0	>		
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0.7	<sup>□</sup> 0.3	*0.2	*0.1	×0.0	* <del>0.0</del>		*0.0	*0.0	*0.0	*0.0	*0.0	*0.0	*0.0	*0.0	*0.0	>	ER (	OTT COI
0.8	0.4	*0.2	*0.1	×0.@	مر *0.0 کر	*0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0	*0.0	*0.0	<sup>*</sup> 0.0	*0.0	* <sub>0.0</sub>	>		ALC
□0.0	0.5	ж 0.8	*0.1	<sup>×</sup> 0.1	*0.0	*0.0	*0.0	*0.0	<sup>*</sup> 0.0	*0.0	<sup>*</sup> 0.0	*0.0	*0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0	>		29 T OLL/
0.9	<b>1</b> 9.6	• *0.3	*0.2	<sup>K</sup> 0.1	*0.1	<sup>*</sup> 0.1	*0.1	*0.1	<sup>*</sup> 0.1	*0.0	*0.0	*0.0	*0.0	*0.0	*0.0	>		N, T
<sup>-</sup> 1.0	0.6	• *0.3	*0.2	#0.2 *0.2	<sup>*</sup> 0.2	*0.2	<sup>*</sup> 0.1	*0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.0	*0.0	*0.0	*0.0	*0.0	*0.0	>		RNO
0.9	0.5	*0.4	*0.3	*0.3	<sup>*</sup> 0.3	*0.2	<sup>*</sup> 0.2	<sup>*</sup> 0.1	<sup>*</sup> 0.1	*0.0	*0.0	*0.0	<sup>*</sup> 0.0	*0.0	*0.0	>		<  
0.8	0.5	*0.4	*0.4	*0.5	*0.5	/ EX RE	ISTIN MAIN	g poi . Rep	LE AN LACE	ID BA FIXT	SE TC URE	• * <sub>0.0</sub>	*0.0	*0.0	<sup>*</sup> 0.0	>	P R	
<sup>1</sup> 0.В	<sup>L</sup> 0.6	*0.6	*0.6	×0.7	×	*WI AP	TH LL PROX	JMINA (. 23'	IRE T HT.	YPE '	P2' @	<sup>*</sup> 0.0	*0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0	>		
1.0	0.8	*1.1	*1.5	*2.0	*1.8	×1.2	*0.8   0.8		*0.4	<sup>*</sup> 0.3	*0.2	<sup>*</sup> 0.1	*0.1	*0.0	*0.0	>		
1.6	<sup>-1.4</sup>	*1.4	- 1.8 - L		—   <u>—</u>				* 45	*0.4	*0.2	<sup>*</sup> 0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.0	*0.0	>		
<u><u><u></u><u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u>	1.5_	11.6	• <sup>-1.8</sup>	/ [_LOD	)	1.3	* <sub>1.1</sub>	*0.8		*0.4	<sup>*</sup> 0.2	*0.1	<sup>*</sup> 0.1	*0.0	<sup>*</sup> 0.0			
1.6	1.6	1.6	1.6	1.5	1.5	1.2	<sup>*</sup> 0.9	*0.7	<sup>*</sup> 0.5	<sup>*</sup> 0.4	*0.2	<sup>*</sup> 0.1	*0.1	*0.0	<sup>*</sup> 0.0			
1.5	1.5	1.5	1.4		1.2	1.0	*0.8	*0.6	*0. <b>4</b>	*0.3	*0.2	<sup>*</sup> 0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.0	*0.0			
1.4	1.4*				0.9	0.8	*0.6	<sup>*</sup> 0.5	*0.3	<sup>*</sup> 0.2	<sup>*</sup> 0.2	*0.1	<sup>*</sup> 0.1	*0.0	<sup>*</sup> 0.0		Desc.	
<u>1.5</u>	<u> </u>				0.0_	<u>0.0</u>	*0.4	*0.4	*0.3	<sup>*</sup> 0.2	<sup>*</sup> 0.1	<sup>*</sup> 0.1	*0.1	*0.0	<sup>*</sup> 0.0		D S S S S S S S S S S S S S S S S S S S	
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1.4	*1.1	* 9.9	*0.8	*0.6	<sup>*</sup> 0.4	<sup>*</sup> 0.3	<sup>*</sup> 0.2	<sup>*</sup> 0.2	<sup>*</sup> 0.2	<sup>*</sup> 0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.1	*0.0	*0.0	<sup>*</sup> 0.0			J.S.L
-op —	<sup>R</sup>	XÎŜTII EMAII	NG P( N. RE	DLE A	ND B	AŜÊ <sup>-</sup> TURE	TO <sup>2</sup>	*0.1	<sup>*</sup> 0.1	*0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0		Drawn Reviewed	J.S. J.A.
0.8	<sup>*</sup> 0.8 A	/ITH L PPRC	UMIN )X. 23	IAIRE ' HT.	TYPE	E 'P1'	@ <sup>2</sup>	<sup>*</sup> 0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0	*0.0		Project No.	21016070 04/04/202
0.6	*0.6	*0.5	*0.4	*0.3	*0.3	*0.2	<sup>*</sup> 0.2	*0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.0	*0.0	<sup>*</sup> 0.0	<sup>*</sup> 0.0	*0.0		CAD File: LP210160701	
0.4	*0.4	*0.4	*0.3	*0.3	<sup>*</sup> 0.2	*0.2	*0.1	*0.1	*0.1	*0.1	*0.0	*0.0	*0.0	*0.0	*0.0			HTING
0.3	*0.3	*0.3	*0.2	*0.2	*0.2	*0.1	<sup>*</sup> 0.1	<sup>*</sup> 0.1	*0.1	*0.0	*0.0	*0.0	*0.0	*0.0	*0.0	703 · VC010		
0.2	<sup>*</sup> 0.2	^0.2	*0.2	^0.2	*0.1	^0.1	*0.1	*0.1	*0.1	*0.0	*0.0	^0.0	*0.0	^0.0	^0.0		Sheet No.	

![](_page_46_Figure_0.jpeg)

![](_page_46_Figure_1.jpeg)

![](_page_46_Figure_2.jpeg)

![](_page_46_Figure_3.jpeg)

![](_page_47_Figure_0.jpeg)

![](_page_48_Figure_0.jpeg)

![](_page_48_Figure_1.jpeg)

	PIPE DIAMETER									
DIMENSION	10"/12"	15"	18"	24"	30"	36"				
Α	42"	41"	49"	59.5 <b>"</b>	88"	88"				
В	14.5"	19"	22"	28"	36"	43"				
С	33"	34"	43"	48"	63.5"	66.5"				
D	6"	6"	6"	6"	6"	6"				

![](_page_48_Figure_7.jpeg)

![](_page_49_Figure_0.jpeg)

🕲 2022 BL COMPANIES, INC. THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES.

![](_page_49_Picture_2.jpeg)

![](_page_50_Figure_0.jpeg)

10'	-0"	4	10' - (	0"		-0"	5) 10'		2 A6.01 7	'-0"	8 10'	P5.02	9	)'-0"		0'-0"	11) 10'	-0"	2)	0"	3)
	7.5x1	0	7.	5x10	7.5x1	0	7.5x10	7.5x1		7.5x10	7.5x1	0	7.5x10	7.5x1	0	7.5x10	7.5x1	0	7.5x10	7.5x10	)
CLEAR	5x5	5>	(5	5x5		5x5	5x5	5x5	5x5	5x5		5x5	5x5	5x5	5x5	5x5	5x5		5x5	5x5	5>
		   10>	(15			10	×10	e	10x15	ſ		10	+     		=     1	0x20	-			10x15	
		     10>	(15		2	10	×10		10x15			10	×10		     1	0x20		<u>(</u>		10x15	<b>}</b>
	[	     10>	(15		]	10	     	6	   10x15	{		10	+       		1	0x20		<u>f</u>		10x15	<b>]</b>
	[	     10>	:15	     		10	x10	6	10x15			10	<u>₽</u>         		     1	0x20		<u>f</u>		10x15	<b>}</b>
		10×	(15			10	×10		10x15			10	×10		1	0x20		<u>[</u>		10x15	
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		   10> 	(15			10	x10		10x15			10	×10		1	0x20				10x15	•
		10×	(15			10	x10		10x15	ſ		10	×10			0x20					
5	5x5	5x 5>	15	5x5		5x5 5x5	5x10	5x10	5x10	5x5 5x5		5x5 5x5	5x10	5x10	5x10	5x10	5x5 5x5				
CLEAR								<b>-</b>			<b>TORAG</b> 4" <u>B00</u> -11' - 4"	E	<b>*=</b>	<b>-</b>		<b>-</b>	<b> </b> 		<u>-</u>		•
5	5x5	5>	(5	5x5	<u> </u>	5x5	5x5	5x5	5x5		<b>₽</b> <b>₽</b> <b>₽</b>	5x5	5x5	5x5	5x5	5x5	5x5	<u>f</u>	5x5	5x5	5>
	[	10>	(15	   	]	10	x10		10x15	{	   <b> </b>	10	x10		1	0x20	•		2	10x15	<b></b>
	[	   10> •	(15	   	3	10	×10		   10x15			10	×10 €		   1	0x20				10x15	
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		   10×	(15			10	x10		10x15	[		10	×10		1	0x20				10x15	
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![](_page_50_Figure_4.jpeg)

FLOOR PLAN GENERAL NOTES
A. SEE G0.01 FOR ALL GENERAL NOTES, LEGENDS, SYMBOLS, MATERIAL DESIGNATIONS & ABBREVIATIONS.
3. ALL DOOR FRAMES (HINGE SIDE) ARE 4" FROM ADJACENT WALLS, MEASURED FROM FACE OF STUD TO OUTSIDE FACE OF FRAME, UNLESS OTHERWISE NOTED.
C. SEE DOOR SCHEDULE FOR DOOR DIMENSIONS.
D. SEE A4.00 SERIES FOR ADDITIONAL DETAILS, NOTES, WALL TYPES & DIMENSIONS.
. TYP. SEE G0.02 FOR ALL WALL TYPES.
. REFER TO FINISH SCHEDULES ON A12.01 FOR ALL SURFACES TO BE FINISHED / PAINTED.
G. ALL GYP. BD. PARTITIONS ABUTTING STORAGE SHALL EXTEND TO THE JNDERSIDE OF DECK ABOVE.
H. ALL GYP. BD. PARTITIONS WITHIN OFFICE & LOADING AREAS SHALL EXTEND 6" ABOVE THE CEILING.
. INSTALL LINER PANEL FROM FLOOR TO TOP OF CONTAINERS IN CORRIDORS @ ALL EXPOSED GYP. BD. SURFACES & CMU SURFACES. PAINT FROM TOP OF CONTAINER TO UNDERSIDE OF DECK ABOVE.
. INSTALL 4'-0" AFF DIAMOND PLATE CORNER GUARDS AT ALL EXPOSED CORNERS & COLUMN LOCATIONS.
TYPICAL STORAGE UNIT DOORS
DTES:

<ul> <li>PROVIDE DOOR SIZES FOR THE FOLLOWIN</li> </ul>	IG UNITS, TYPICAL UNLESS OTHERWISE
NOTED.	
· ODD SIZED UNITS ARE INDICATED WITH DO	OR DESIGNATIONS ON THE FLOOR PLANS
· REFER TO STORAGE UNIT DOOR SCHEDUL	.E ON A8.01.
(SU3) 5 x 5	(SU8) 5 x 15

(SU3)	5 x 10	(SU8)	5 x 20				
(SU4)	7.5 x 10	(SU8)	7.5 x 25				
(SU8)	10 x 10	(SU8)	10 x 20				
(SU8)	10 x 15	(SU8)	10 x 30				
(SUFX')	X' FAUX ROLL UP DOOR	WHERE 'X' IS WIDTH	IN FEET				
(SWX')	X' SWING DOOR WHERE 'X' IS WIDTH IN FEET						

# UNIT MIX #2101607

•		
UNIT TYPE	UNITS	TOTAL AREA
BASEMENT		
3x5L	4	60 SF
5x5	75	1875 SF
5x10	59	2950 SF
5x15	1	75 SF
7.5x10	26	1950 SF
10x10	63	6300 SF
10x15	45	6750 SF
10x20	14	2800 SF
1ST FLOOR PLAN		
5x5	51	1275 SF
5x10	12	600 SF
7.5x10	14	1050 SF
10x10	56	5600 SF
10x15	67	10050 SF
10X20	1	200 SF
10x20	15	3000 SF
2ND FLOOR PLAN		
3x5L	4	60 SF
5x5	72	1800 SF
5x10	65	3250 SF
7.5x10	28	2100 SF
10x10	62	6200 SF
10x15	45	6750 SF
10x20	14	2800 SF
3RD FLOOR		
3x5L	4	60 SF
5x5	73	1825 SF
5x10	124	6200 SF
7.5x10	27	2025 SF
7.5x12.5	1	94 SF
10x10	115	11500 SF
10x15	3	450 SF
	1140	89649 SF

![](_page_50_Picture_10.jpeg)

![](_page_51_Figure_0.jpeg)

1

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![](_page_51_Figure_4.jpeg)

FLOOR PLAN GENERAL NOTES						
<ul> <li>A. SEE G0.01 FOR ALL GENERAL NOTES, LEGENDS, SYMBOLS, MATERIAL</li> <li>DESIGNATIONS</li> <li>&amp; ABBREVIATIONS.</li> </ul>						
B. ALL DOOR FRAMES (HINGE SIDE) ARE 4" FROM ADJACENT WALLS, MEASURED FROM FACE OF STUD TO OUTSIDE FACE OF FRAME, UNLESS OTHERWISE NOTED.						
C. SEE DOOR SCHEDULE FOR DOOR DIMENSIONS.						
D. SEE A4.00 SERIES FOR ADDITIONAL DETAILS, NOTES, WALL TYPES & DIMENSIONS.						
E. TYP. SEE G0.02 FOR ALL WALL TYPES.						
F. REFER TO FINISH SCHEDULES ON A12.01 FOR ALL SURFACES TO BE FINISHED / PAINTED.						
G. ALL GYP. BD. PARTITIONS ABUTTING STORAGE SHALL EXTEND TO THE UNDERSIDE OF DECK ABOVE.						
H. ALL GYP. BD. PARTITIONS WITHIN OFFICE & LOADING AREAS SHALL EXTEND 6" ABOVE THE CEILING.						
I. INSTALL LINER PANEL FROM FLOOR TO TOP OF CONTAINERS IN CORRIDORS @ ALL EXPOSED GYP. BD. SURFACES & CMU SURFACES. PAINT FROM TOP OF CONTAINER TO UNDERSIDE OF DECK ABOVE.						
J. INSTALL 4'-0" AFF DIAMOND PLATE CORNER GUARDS AT ALL EXPOSED CORNERS & COLUMN LOCATIONS.						
TYPICAL STORAGE UNIT DOORS						
NOTES: PROVIDE DOOR SIZES FOR THE FOLLOWING UNITS, TYPICAL UNLESS OTHERWISE NOTED. ODD SIZED UNITS ARE INDICATED WITH DOOR DESIGNATIONS ON THE FLOOR PLANS. REFER TO STORAGE UNIT DOOR SCHEDULE ON A8 01						

(SU3)	5 x 5	(SU8)	5 x 15					
(SU3)	5 x 10	(SU8)	5 x 20					
(SU4)	7.5 x 10	(SU8)	7.5 x 25					
(SU8)	10 x 10	(SU8)	10 x 20					
(SU8)	10 x 15	(SU8)	10 x 30					
(SUFX')	X' FAUX ROLL UP DOOR	WHERE 'X' IS WIDTH	I IN FEET					
(SWX')	X' SWING DOOR WHERE 'X' IS WIDTH IN FEET							

# UNIT MIX #2101607

UNIT TYPE	UNITS	TOTAL AREA
BASEMENT		~ ~ ~ ~
3x5L	4	60 SF
5x5	75	1875 SF
5x10	59	2950 SF
5x15	1	75 SF
7.5x10	26	1950 SF
10x10	63	6300 SF
10x15	45	6750 SF
10x20	14	2800 SF
1ST FLOOR PLAN		
5x5	51	1275 SF
5x10	12	600 SF
7.5x10	14	1050 SF
10x10	56	5600 SF
10x15	67	10050 SF
10X20	1	200 SF
10x20	15	3000 SF
2ND FLOOR PLAN		
3x5L	4	60 SF
5x5	72	1800 SF
5x10	65	3250 SF
7.5x10	28	2100 SF
10x10	62	6200 SF
10x15	45	6750 SF
10x20	14	2800 SF
3RD FLOOR		
3x5L	4	60 SF
5x5	73	1825 SF
5x10	124	6200 SF
7.5x10	27	2025 SF
7.5x12.5	1	94 SF
10x10	115	11500 SF
10x15	3	450 SF
	1140	89649 SF

![](_page_51_Picture_9.jpeg)

![](_page_52_Figure_0.jpeg)

FLOOR PLAN GEI		S
<ul> <li>A. SEE G0.01 FOR ALL GENERAL NOTES, LE DESIGNATIONS</li> <li>&amp; ABBREVIATIONS.</li> </ul>	EGENDS, SYMBOLS, MA	ATERIAL
B. ALL DOOR FRAMES (HINGE SIDE) ARE 4" FROM FACE OF STUD TO OUTSIDE FACE OF	' FROM ADJACENT WA F FRAME, UNLESS OTH	LLS, MEASURED IERWISE NOTED.
C. SEE DOOR SCHEDULE FOR DOOR DIME	NSIONS.	
D. SEE A4.00 SERIES FOR ADDITIONAL DET DIMENSIONS.	AILS, NOTES, WALL TY	PES &
E. TYP. SEE G0.02 FOR ALL WALL TYPES.		
F. REFER TO FINISH SCHEDULES ON A12.0 PAINTED.	1 FOR ALL SURFACES	TO BE FINISHED /
G. ALL GYP. BD. PARTITIONS ABUTTING ST UNDERSIDE OF DECK ABOVE.	ORAGE SHALL EXTEN	D TO THE
H. ALL GYP. BD. PARTITIONS WITHIN OFFIC ABOVE THE CEILING.	E & LOADING AREAS S	HALL EXTEND 6"
I. INSTALL LINER PANEL FROM FLOOR TO T ALL EXPOSED GYP. BD. SURFACES & CONTAINER TO UNDERSIDE OF DECK ABOV	TOP OF CONTAINERS IN CMU SURFACES. PAIN /E.	N CORRIDORS @ IT FROM TOP OF
J. INSTALL 4'-0" AFF DIAMOND PLATE CORN & COLUMN LOCATIONS.	NER GUARDS AT ALL E	XPOSED CORNERS
TYPICAL STORAC	GE UNIT DOO	RS
NOTES: • PROVIDE DOOR SIZES FOR THE FOLLOWIN NOTED. • ODD SIZED UNITS ARE INDICATED WITH DO • REFER TO STORAGE UNIT DOOR SCHEDUL	IG UNITS, TYPICAL UNL DOR DESIGNATIONS ON E ON A8.01.	ESS OTHERWISE N THE FLOOR PLANS.
(SU3) 5 x 5	(SU8)	5 x 15
<u>(SU3)</u> 5 x 10	(SU8)	5 x 20
SU4 7.5 x 10	(SU8)	7.5 x 25

SU8 10 x 10

SU8 10 x 15

SU8 10 x 20

SU8 10 x 30

U	UNIT MIX #2101607								
UNIT TYPE	UNITS	TOTAL AREA							
BASEMENT									
3x5L	4	60 SF							
5x5	75	1875 SF							
5x10	59	2950 SF							
5x15	1	75 SF							
7.5x10	26	1950 SF							
10x10	63	6300 SF							
10x15	45	6750 SF							
10x20	14	2800 SF							
1ST FLOOR PLAN	J								
5x5	51	1275 SF							
5x10	12	600 SF							
7.5x10	14	1050 SF							
10x10	56	5600 SF							
10x15	67	10050 SF							
10X20	1	200 SF							
10x20	15	3000 SF							
2ND FLOOR PLAN	N								
3x5L	4	60 SF							
5x5	72	1800 SF							
5x10	65	3250 SF							
7.5x10	28	2100 SF							
10x10	62	6200 SF							
10x15	45	6750 SF							
10x20	14	2800 SF							
3RD FLOOR									
3x5L	4	60 SF							
5x5	73	1825 SF							
5x10	124	6200 SF							
7.5x10	27	2025 SF							
7.5x12.5	1	94 SF							
10x10	115	11500 SF							
10x15	3	450 SF							
	1140	89649 SF							

(SUFX') X' FAUX ROLL UP DOOR WHERE 'X' IS WIDTH IN FEET

SWX' X' SWING DOOR WHERE 'X' IS WIDTH IN FEET

![](_page_52_Picture_5.jpeg)

![](_page_53_Figure_0.jpeg)

1/8" = 1'-0" © 2016 BL COMPANIES, INC. THESE DRAWINGS SHALL NO BE ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES.

FLOOR PLAN GEI	NERAL NOTES
A. SEE G0.01 FOR ALL GENERAL NOTES, LE DESIGNATIONS & ABBREVIATIONS.	EGENDS, SYMBOLS, MATERIAL
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E. TYP. SEE G0.02 FOR ALL WALL TYPES.	
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I. INSTALL LINER PANEL FROM FLOOR TO T ALL EXPOSED GYP. BD. SURFACES & CONTAINER TO UNDERSIDE OF DECK ABOV	TOP OF CONTAINERS IN CORRIDORS @ CMU SURFACES. PAINT FROM TOP OF E.
J. INSTALL 4'-0" AFF DIAMOND PLATE CORN & COLUMN LOCATIONS.	IER GUARDS AT ALL EXPOSED CORNERS
TYPICAL STORAC	GE UNIT DOORS
NOTES: · PROVIDE DOOR SIZES FOR THE FOLLOWIN NOTED. · ODD SIZED UNITS ARE INDICATED WITH DC · REFER TO STORAGE UNIT DOOR SCHEDUL	G UNITS, TYPICAL UNLESS OTHERWISE OOR DESIGNATIONS ON THE FLOOR PLANS. E ON A8.01.
(SU3) 5 x 5	<b>SU8</b> 5 x 15
<u>SU3</u> 5 x 10	<u>(SU8)</u> 5 x 20
SU4 7.5 x 10	<b>SU8</b> 7.5 x 25
(SU8) 10 x 10	SU8 10 x 20

(SUFX') X' FAUX ROLL UP DOOR WHERE 'X' IS WIDTH IN FEET

(SWX') X' SWING DOOR WHERE 'X' IS WIDTH IN FEET

SU8 10 x 15

UNIT MIX #2101607							
UNIT TYPE	UNITS	TOTAL AREA					
BASEMENT							
3x5L	4	60 SF					
5x5	75	1875 SF					
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5x10	124	6200 SF					
7.5x10	27	2025 SF					
7.5x12.5	1	94 SF					
10x10	115	11500 SF					
10x15	3	450 SF					
	1140	89649 SF					

**SU8** 10 x 30

![](_page_53_Picture_5.jpeg)

![](_page_54_Figure_0.jpeg)

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

![](_page_54_Picture_2.jpeg)

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

© 2016 BL COMPANIES, INC. THESE DRAWINGS SHALL NO BE ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES.

	EXTERIOR COLOR SCHEDULE									
ITEM	COLOR	MANUFACTURER	REMARKS							
			STOREFDONT.							
AL-I										
CMU-1	#620 PEWTER	TBD	8" SPLIT FACED BLOCK							
CMU-2	#624A STAMP GRAY	TBD	12" SPLIT FACED BLOCK							
IMP-1	SNOW WHITE	COLOR TO MATCH TBD	2" INSULATED METAL WALL PANEL,							
IMP-2	TBD	COLOR TO MATCH TBD	2" INSULATED METAL WALL PANEL,							
MT-1	SLATE GRAY	COLOR TO MATCH TBD	METAL TRIM							
MT-2	BRITE RED	COLOR TO MATCH INSULATED	METAL COPING							

![](_page_54_Picture_8.jpeg)

An Employee-Owned Company

![](_page_55_Picture_1.jpeg)

April 6, 2022

George McGregor, Town Planner Town of Vernon 55 West Main Street Vernon, CT 06066

Re: Proposed Self-Storage Facility – 129 Talcotville Road Stormwater Management System Revisions

Dear Mr. McGregor:

This letter is being provided to outline the changes to the stormwater management system at the above referenced site in support of applications to Planning & Zoning and Inland Wetlands. The subject site is part of a master planned development, approved by the Town of Vernon in 2016 under applications PZ-2016-20 and IWC-2016-05. These approved plans included Wendy's and Verizon facilities which have been built, and the proposed self-storage facility in the rear of the site. Proposed work in this last phase of the project includes this self-storage facility in the rear of the site. In order to better meet the needs of the applicant's building and site design program, we have made several changes to the proposed stormwater management system. This letter has been prepared to outline the proposed changes and provide a comparison to the master planned conditions.

Attachments:

- 1. NOAA Atlas 14 Rainfall Depths for the Town of Vernon
- 2. Updated Proposed Conditions Drainage Map
- 3. Updated Proposed Conditions Hydrologic Calculations
- 4. Updated Water Quality Volume Calculations
- 5. Approved Stormwater Management Report dated November 30, 2016

#### **Master Planned Conditions**

The master planned site included the areas north and east of the existing Taco Bell facility. This area is approximately 11 acres in size and is bounded by Talcotville Road to the southeast, Residences to the north, the Hockanum River to the north and west, and commercial developments to the south. The total built out condition of the site included Wendy's in the southeast corner of the site, Verizon in the center, and a self-storage facility in the north of the site. Much of the area north and west of the self-storage is undisturbed forested areas. The areas surrounding the commercial developments were largely paved for customer access and parking. In total, the site consisted of approximately 20.8% impervious surfaces.

![](_page_56_Picture_0.jpeg)

Stormwater from the master planned site is collected in catch basins with sumps and hooded outlets, treated in a hydrodynamic separator or a stormwater management basin prior to discharge to the forested areas surrounding the Hockanum River.

Under the previously approved master plan, the post-development peak discharge rates for the total developed site increased over pre-existing conditions for all storm events. All stormwater was discharged offsite towards the Hockanum River to mimic pre-existing drainage pathways. Since the site is adjacent to the river and at the lower end of the watershed, detention of stormwater was deemed not prudent. Below is a summary of the master planned drainage areas and peak flows. Additional information regarding the master plan can be found in the approved Stormwater Management Report dated November 30, 2016, attached to this letter.

Drainage Area	Area (square feet)	Composite Curve Number	Impervious Cover (%)	Time of Concentration (minutes)
DA-1: To basin/river	450,406	72	20.8	7.8
DA-2: Self-Storage	30,000	98	100.0	5.0

#### Table 1 – Master Plan Drainage Characteristics

Table 2 -	<ul> <li>Master Planned</li> </ul>	Condition	s Peak Flows

Analysis Doint	Peak Flow (cfs)					
Analysis Foint	2-yr	10-yr	25-yr	100-yr		
Total Offsite Discharge	18.59	43.17	60.07	87.06		

#### **Proposed Changes**

Most of the changes to the site plan and drainage system are a result of better aligning the building and site to the applicant's building program. The building itself has been fully designed and the footprint area has grown slightly to 30,273 s.f. In addition, the building has been moved west to minimize disturbance to the existing utilities, stormwater, and paving. Site grading has been revised to reflect the building shift and to minimize earthwork, retaining walls, and maintain positive drainage away from the proposed building.

#### **Proposed Conditions**

In the proposed condition, the master plan drainage patterns will be maintained to the greatest extent possible. All stormwater runoff from newly paved areas will be directed away from the building and towards either existing catch basins or the proposed catch basin. Runoff from the developed areas will be piped through the existing drainage system in front of the proposed building and discharge to the existing stormwater basin for treatment prior to discharge towards the Hockanum River. The overall stormwater treatment train will remain and consists of collection in catch basins with sumps and hoods, treatment in an existing hydrodynamic separator as well as the existing stormwater basin. Calculations have been provided demonstrating that the existing

![](_page_57_Picture_0.jpeg)

basin has sufficient capacity to provide treatment for the proposed development. Roof runoff will be conveyed to flow directly offsite as roof runoff is considered clean water.

The proposed site drainage area matches the mater plan area at approximately 11 acres and is approximately 20.9% impervious. For the hydrologic analysis, the developed site retained the same Design Points as the existing model. Since the 2016 filing, the NOAA Atlas 14 rainfall data for Vernon has been updated. The new rainfall depths for all design storms have decreased and are attached for reference. In addition, soil mappings and groundcover data has been revised since the 2016 filing. The new site composite runoff curve number for drainage area DA-1 has reduced from 72 to 70. As a result of the proposed changes to the stormwater management system, the reduction in NOAA Atlas 14 rainfall depths, and the change in groundcover data, the proposed conditions hydrologic calculations were updated.

Return Period	24-hour Rainfall Depth 2016 Data	24-hour Rainfall Depth 2022 Data
2-year	3.22"	3.14"
10-year	5.05"	4.95"
25-year	6.20"	6.08"
100-year	7.97"	7.82"

 Table 3 – Rainfall Depths per NOAA Atlas 14, 24 hour Rainfall Data

Table 4 –	<b>Post-Develop</b>	ment Drainage	Characteristics.
-----------	---------------------	---------------	------------------

Drainage Area	Area	Composite	Impervious	Time of
	(square	Curve	Cover (%)	Concentration
	feet)	Number		(minutes)
DA-1: To basin/river	450,133	70	20.9	7.3
DA-2: Self-Storage	30,273	98	100.0	5.0

<b>Table 5 – Post-Development</b>	<b>Conditions Peak Flows</b>
-----------------------------------	------------------------------

Analysis Doint	Peak Flow (cfs)				
Analysis Point	2-yr	10-yr	25-yr	100-yr	
Total Offsite Discharge	11.30	28.66	40.72	60.22	

	Peak Flow Rate in Cubic Feet per Second (cfs)						
	2-vr	10-vr	25-vr	100-vr			
Master Plan	18.59	43.17	60.07	87.06			
Proposed	11.30	28.66	40.72	60.22			
Percent Change	-39.2%	-33.6%	-32.2%	-30.8%			

#### Table 6 – Master Plan vs Proposed Peak Rates of Runoff

![](_page_58_Picture_0.jpeg)

Table 6 shows a decrease in peak flow rates during all storm events. This is due to the reduction in rainfall depths for all storms and the reduction in the site composite runoff curve number. As a result, the proposed development will not adversely impact downstream infrastructure and properties within the regional watershed.

#### Summary

The post-development peak discharge rates for the total developed site will decrease for all storm events. All post development stormwater will be discharged offsite to mimic existing drainage patterns. Due to the proximity of the proposed development to the Hockanum River and the site being in the lower reaches of the watershed, detention of stormwater is not prudent. Stormwater quality is being addressed by catch basins with hoods and sumps, a hydrodynamic separator, and a stormwater basin. Stormwater quality will continue to be provided in the existing stormwater basin that is sized to treat 100% of the water quality volume as required in the CT Stormwater Manual. The proposed stormwater management system will meet the stormwater quality requirements of the Town of Vernon and the State of Connecticut.

Should you require additional information, please contact me at 860-760-1908.

Sincerely,

Kimberly M. Masuk, P.E.

Kimberly M. Masiuk, P.E. Senior Project Manager

## ATTACHMENT 1

# NOAA ATLAS 14 RAINFALL DEPTHS

![](_page_60_Picture_0.jpeg)

NOAA Atlas 14, Volume 10, Version 3 Location name: Vernon Rockville, Connecticut, USA\* Latitude: 41.8309°, Longitude: -72.4975° Elevation: 196.03 ft\*\* \* source: ESRI Maps \*\* source: USGS

![](_page_60_Picture_2.jpeg)

#### POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF\_tabular | PF\_graphical | Maps\_&\_aerials

#### **PF** tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>										
Duration		Average recurrence interval (years)								
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	<b>0.332</b>	<b>0.404</b>	<b>0.521</b>	<b>0.618</b>	<b>0.751</b>	<b>0.851</b>	<b>0.956</b>	<b>1.08</b>	<b>1.25</b>	<b>1.39</b>
	(0.255-0.433)	(0.310-0.526)	(0.398-0.681)	(0.470-0.813)	(0.554-1.03)	(0.618-1.20)	(0.675-1.39)	(0.721-1.60)	(0.806-1.92)	(0.878-2.18)
10-min	<b>0.471</b>	<b>0.572</b>	<b>0.737</b>	<b>0.875</b>	<b>1.06</b>	<b>1.21</b>	<b>1.36</b>	<b>1.52</b>	<b>1.77</b>	<b>1.97</b>
	(0.362-0.613)	(0.439-0.746)	(0.564-0.964)	(0.665-1.15)	(0.785-1.46)	(0.874-1.69)	(0.957-1.97)	(1.02-2.27)	(1.14-2.72)	(1.24-3.09)
15-min	<b>0.554</b>	<b>0.673</b>	<b>0.867</b>	<b>1.03</b>	<b>1.25</b>	<b>1.42</b>	<b>1.59</b>	<b>1.79</b>	<b>2.08</b>	<b>2.31</b>
	(0.425-0.722)	(0.516-0.877)	(0.663-1.13)	(0.782-1.35)	(0.924-1.72)	(1.03-1.99)	(1.13-2.32)	(1.20-2.67)	(1.34-3.20)	(1.46-3.63)
30-min	<b>0.748</b>	<b>0.909</b>	<b>1.17</b>	<b>1.39</b>	<b>1.70</b>	<b>1.92</b>	<b>2.16</b>	<b>2.43</b>	<b>2.82</b>	<b>3.14</b>
	(0.574-0.974)	(0.697-1.19)	(0.896-1.53)	(1.06-1.83)	(1.25-2.33)	(1.39-2.70)	(1.53-3.15)	(1.63-3.61)	(1.82-4.34)	(1.98-4.92)
60-min	<b>0.941</b>	<b>1.15</b>	<b>1.48</b>	<b>1.76</b>	<b>2.14</b>	<b>2.43</b>	<b>2.73</b>	<b>3.07</b>	<b>3.56</b>	<b>3.96</b>
	(0.723-1.23)	(0.879-1.49)	(1.13-1.94)	(1.34-2.31)	(1.58-2.94)	(1.76-3.41)	(1.93-3.97)	(2.06-4.56)	(2.30-5.48)	(2.51-6.22)
2-hr	<b>1.21</b>	<b>1.47</b>	<b>1.88</b>	<b>2.23</b>	<b>2.70</b>	<b>3.06</b>	<b>3.44</b>	<b>3.89</b>	<b>4.57</b>	<b>5.16</b>
	(0.935-1.57)	(1.13-1.90)	(1.45-2.45)	(1.70-2.92)	(2.01-3.71)	(2.23-4.29)	(2.45-5.02)	(2.62-5.76)	(2.97-7.00)	(3.27-8.04)
3-hr	<b>1.40</b>	<b>1.69</b>	<b>2.16</b>	<b>2.56</b>	<b>3.10</b>	<b>3.51</b>	<b>3.94</b>	<b>4.48</b>	<b>5.30</b>	<b>6.00</b>
	(1.08-1.81)	(1.30-2.18)	(1.67-2.81)	(1.96-3.34)	(2.32-4.25)	(2.57-4.91)	(2.83-5.76)	(3.02-6.60)	(3.44-8.08)	(3.82-9.33)
6-hr	<b>1.76</b>	<b>2.13</b>	<b>2.74</b>	<b>3.24</b>	<b>3.94</b>	<b>4.45</b>	<b>5.01</b>	<b>5.71</b>	<b>6.80</b>	<b>7.75</b>
	(1.37-2.26)	(1.65-2.74)	(2.12-3.54)	(2.50-4.21)	(2.96-5.37)	(3.29-6.22)	(3.62-7.31)	(3.86-8.37)	(4.43-10.3)	(4.94-12.0)
12-hr	<b>2.16</b>	<b>2.64</b>	<b>3.43</b>	<b>4.08</b>	<b>4.98</b>	<b>5.64</b>	<b>6.36</b>	<b>7.26</b>	<b>8.67</b>	<b>9.90</b>
	(1.69-2.77)	(2.06-3.39)	(2.67-4.41)	(3.16-5.27)	(3.75-6.76)	(4.18-7.84)	(4.62-9.23)	(4.92-10.6)	(5.67-13.1)	(6.33-15.2)
24-hr	<b>2.54</b> (1.99-3.23)	<b>3.14</b> (2.46-4.01)	<b>4.13</b> (3.23-5.28)	<b>4.95</b> (3.85-6.37)	<b>6.08</b> (4.61-8.22)	<b>6.91</b> (5.15-9.57)	<b>7.82</b> (5.71-11.3)	<b>8.98</b> (6.11-13.0)	<b>10.8</b> (7.08-16.2)	<b>12.4</b> (7.96-18.9)
2-day	<b>2.86</b>	<b>3.59</b>	<b>4.78</b>	<b>5.77</b>	<b>7.13</b>	<b>8.13</b>	<b>9.23</b>	<b>10.7</b>	<b>13.0</b>	<b>15.1</b>
	(2.26-3.63)	(2.83-4.55)	(3.76-6.09)	(4.51-7.39)	(5.44-9.63)	(6.10-11.2)	(6.81-13.4)	(7.29-15.4)	(8.57-19.4)	(9.74-22.9)
3-day	<b>3.11</b> (2.46-3.93)	<b>3.91</b> (3.09-4.95)	<b>5.22</b> (4.11-6.62)	<b>6.30</b> (4.93-8.04)	<b>7.80</b> (5.96-10.5)	<b>8.88</b> (6.69-12.3)	<b>10.1</b> (7.47-14.6)	<b>11.7</b> (7.99-16.8)	<b>14.3</b> (9.43-21.2)	<b>16.6</b> (10.7-25.1)
4-day	<b>3.34</b> (2.65-4.22)	<b>4.19</b> (3.32-5.29)	<b>5.58</b> (4.40-7.07)	<b>6.74</b> (5.28-8.57)	<b>8.32</b> (6.38-11.2)	<b>9.48</b> (7.15-13.0)	<b>10.8</b> (7.98-15.5)	<b>12.5</b> (8.54-17.9)	<b>15.3</b> (10.1-22.6)	<b>17.7</b> (11.5-26.7)
7-day	<b>3.97</b> (3.16-4.99)	<b>4.93</b> (3.91-6.19)	<b>6.49</b> (5.14-8.18)	<b>7.78</b> (6.13-9.86)	<b>9.57</b> (7.35-12.8)	<b>10.9</b> (8.21-14.9)	<b>12.3</b> (9.13-17.6)	<b>14.2</b> (9.75-20.2)	<b>17.2</b> (11.4-25.3)	<b>19.9</b> (12.9-29.8)
10-day	<b>4.60</b> (3.67-5.76)	<b>5.61</b> (4.47-7.04)	<b>7.27</b> (5.77-9.14)	<b>8.64</b> (6.82-10.9)	<b>10.5</b> (8.10-14.0)	<b>11.9</b> (9.01-16.2)	<b>13.4</b> (9.95-19.1)	<b>15.4</b> (10.6-21.8)	<b>18.5</b> (12.2-27.1)	<b>21.2</b> (13.7-31.6)
20-day	<b>6.61</b> (5.30-8.24)	<b>7.69</b> (6.16-9.59)	<b>9.45</b> (7.54-11.8)	<b>10.9</b> (8.66-13.7)	<b>12.9</b> (9.95-16.9)	<b>14.4</b> (10.9-19.3)	<b>16.0</b> (11.8-22.2)	<b>17.9</b> (12.4-25.2)	<b>20.7</b> (13.8-30.1)	<b>23.1</b> (15.0-34.2)
30-day	<b>8.33</b> (6.69-10.3)	<b>9.43</b> (7.57-11.7)	<b>11.2</b> (8.99-14.0)	<b>12.7</b> (10.1-16.0)	<b>14.8</b> (11.4-19.2)	<b>16.4</b> (12.3-21.7)	<b>18.0</b> (13.1-24.6)	<b>19.7</b> (13.7-27.7)	<b>22.2</b> (14.9-32.1)	<b>24.2</b> (15.8-35.7)
45-day	<b>10.5</b>	<b>11.6</b>	<b>13.5</b>	<b>15.0</b>	<b>17.1</b>	<b>18.8</b>	<b>20.4</b>	<b>22.0</b>	<b>24.2</b>	<b>25.8</b>
	(8.44-13.0)	(9.35-14.4)	(10.8-16.8)	(12.0-18.8)	(13.2-22.1)	(14.1-24.6)	(14.8-27.5)	(15.4-30.7)	(16.2-34.8)	(16.8-37.8)
60-day	<b>12.3</b> (9.92-15.2)	<b>13.4</b> (10.9-16.6)	<b>15.4</b> (12.3-19.1)	<b>16.9</b> (13.5-21.1)	<b>19.1</b> (14.7-24.5)	<b>20.8</b> (15.7-27.2)	<b>22.5</b> (16.3-30.1)	<b>24.0</b> (16.8-33.3)	<b>25.9</b> (17.4-37.1)	<b>27.2</b> (17.8-39.8)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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**PF** graphical

![](_page_61_Figure_0.jpeg)

![](_page_61_Figure_1.jpeg)

![](_page_61_Figure_2.jpeg)

NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Fri Mar 25 13:03:01 2022

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Maps & aerials

Small scale terrain

![](_page_62_Figure_0.jpeg)

Large scale terrain

![](_page_62_Figure_2.jpeg)

![](_page_62_Figure_3.jpeg)

Large scale aerial

![](_page_63_Picture_0.jpeg)

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US Department of Commerce National Oceanic and Atmospheric Administration National Weather Service National Water Center 1325 East West Highway Silver Spring, MD 20910 Questions?: <u>HDSC.Questions@noaa.gov</u>

**Disclaimer** 

## ATTACHMENT 2

## PROPOSED CONDITIONS DRAINAGE MAP

![](_page_65_Figure_0.jpeg)

THOULE, G:\JOBS21\16\2101607\DWG\PD210160701.DWG.ED-124X3620SC.

## ATTACHMENT 3

## PROPOSED CONDITIONS HYDROLOGIC CALCULATIONS

![](_page_67_Figure_0.jpeg)

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: To Stormwater Basin Runoff Area=450,133 sf 15.60% Impervious Runoff Depth=0.79" Flow Length=450' Slope=0.0427 '/ Tc=7.3 min CN=70 Runoff=9.03 cfs 0.683 af

SubcatchmentDA-2: Self-Storage Runoff Area=30,273 sf 100.00% Impervious Runoff Depth=2.91" Tc=5.0 min CN=98 Runoff=2.60 cfs 0.168 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=11.30 cfs 0.852 af Outflow=11.30 cfs 0.852 af

Total Runoff Area = 11.029 ac Runoff Volume = 0.852 af Average Runoff Depth = 0.93" 79.08% Pervious = 8.722 ac 20.92% Impervious = 2.307 ac

#### Summary for Subcatchment DA-1: To Stormwater Basin

9.03 cfs @ 12.06 hrs, Volume= Runoff 0.683 af, Depth= 0.79" =

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs CT-Vernon 24-hr S1 2-yr Rainfall=3.14"

Are	ea (sf)	CN	Description				
7	0,220	98	Paved park	ing, HSG B	3		
6	4,265	61	>75% Gras	s cover, Go	ood, HSG B		
1	8,836	80	>75% Gras	s cover, Go	ood, HSG D		
17	1,070	55	Woods, Go	od, HSG B			
12	5,742	77	Woods, Go	od, HSG D			
45	0,133	70	Weighted A	verage			
37	9,913		84.40% Pe	rvious Area			
7	0,220		15.60% Imp	pervious Ar	ea		
Tc (min)	Length (feet)	Slope (ft/ft	e Velocity ) (ft/sec)	Capacity (cfs)	Description	I	
7.3	450	0.042	7 1.03		Shallow C Woodland	oncentrated Flow Kv= 5.0 fps	,

#### Subcatchment DA-1: To Stormwater Basin

![](_page_69_Figure_6.jpeg)

### Summary for Subcatchment DA-2: Self-Storage Building

Runoff 2.60 cfs @ 12.02 hrs, Volume= 0.168 af, Depth= 2.91" =

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs CT-Vernon 24-hr S1 2-yr Rainfall=3.14"

![](_page_70_Figure_4.jpeg)

### Summary for Reach DP1: Design Pt 1 - Hockanum River

Inflow Are	ea =	11.029 ac, 20.92% Impervious, Inflo	w Depth = 0.93" for	2-yr event
Inflow	=	11.30 cfs @ 12.06 hrs, Volume=	0.852 af	
Outflow	=	11.30 cfs @   12.06 hrs,  Volume=	0.852 af, Atten=	0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

![](_page_71_Figure_4.jpeg)

## Reach DP1: Design Pt 1 - Hockanum River
Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: To Stormwater BasinRunoff Area=450,133 sf 15.60% Impervious Runoff Depth=2.00" Flow Length=450' Slope=0.0427 '/' Tc=7.3 min CN=70 Runoff=25.08 cfs 1.722 af

SubcatchmentDA-2: Self-Storage Runoff Area=30,273 sf 100.00% Impervious Runoff Depth=4.71" Tc=5.0 min CN=98 Runoff=4.01 cfs 0.273 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=28.66 cfs 1.995 af Outflow=28.66 cfs 1.995 af

Total Runoff Area = 11.029 ac Runoff Volume = 1.995 af Average Runoff Depth = 2.17" 79.08% Pervious = 8.722 ac 20.92% Impervious = 2.307 ac

#### Summary for Subcatchment DA-1: To Stormwater Basin

25.08 cfs @ 12.06 hrs, Volume= Runoff 1.722 af, Depth= 2.00" =

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs CT-Vernon 24-hr S1 10-yr Rainfall=4.95"

_	Area (sf)	CN	Description			
	70,220	98	Paved park	ing, HSG B	3	
	64,265	61	>75% Ġras	s cover, Go	ood, HSG B	
	18,836	80	>75% Gras	s cover, Go	ood, HSG D	
	171,070	55	Woods, Go	od, HSG B	6	
_	125,742	77	Woods, Go	od, HSG D		
	450,133	70	Weighted A	verage		
	379,913		84.40% Pe	rvious Area	3	
	70,220		15.60% Im	pervious Ar	rea	
	Tc Length (min) (feet)	Slop (ft/l	e Velocity t) (ft/sec)	Capacity (cfs)	Description	
	7.3 450	0.042	1.03		Shallow Concentrated Flow, Woodland Kv= 5.0 fps	

#### Subcatchment DA-1: To Stormwater Basin



# Summary for Subcatchment DA-2: Self-Storage Building

Runoff = 4.01 cfs @ 12.02 hrs, Volume= 0.273 af, Depth= 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs CT-Vernon 24-hr S1 10-yr Rainfall=4.95"



# Summary for Reach DP1: Design Pt 1 - Hockanum River

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Inflow A	rea =	11.029 ac, 2	0.92% Impervious,	Inflow Depth = 2	.17" for 10-yr event
Inflow	=	28.66 cfs @	12.05 hrs, Volume	= 1.995 af	
Outflow	=	28.66 cfs @	12.05 hrs, Volume	= 1.995 af	, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs



# Reach DP1: Design Pt 1 - Hockanum River

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: To Stormwater Basin Runoff Area=450,133 sf 15.60% Impervious Runoff Depth=2.87" Flow Length=450' Slope=0.0427 '/' Tc=7.3 min CN=70 Runoff=36.34 cfs 2.470 af

SubcatchmentDA-2: Self-Storage Runoff Area=30,273 sf 100.00% Impervious Runoff Depth=5.84" Tc=5.0 min CN=98 Runoff=4.88 cfs 0.338 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=40.72 cfs 2.809 af Outflow=40.72 cfs 2.809 af

Total Runoff Area = 11.029 ac Runoff Volume = 2.809 af Average Runoff Depth = 3.06" 79.08% Pervious = 8.722 ac 20.92% Impervious = 2.307 ac

#### Summary for Subcatchment DA-1: To Stormwater Basin

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36.34 cfs @ 12.06 hrs, Volume= 2.470 af, Depth= 2.87" Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs CT-Vernon 24-hr S1 25-yr Rainfall=6.08"

_	Area	(sf)	CN [	Description			
	70,2	220	98 F	Paved park	ing, HSG B	3	
	64,2	265	61 >	>75% Ġras	s cover, Go	ood, HSG B	
	18,8	336	80 >	>75% Gras	s cover, Go	ood, HSG D	
	171,0	)70	55 \	Noods, Go	od, HSG B	5	
_	125,7	742	77 \	Noods, Go	od, HSG D		
	450,1	33	70 \	Neighted A	verage		
	379,9	913	8	34.40% Pe	rvious Area	3	
	70,2	220		15.60% Imp	pervious Ar	rea	
	Tc Le	ngth	Slope	Velocity	Capacity	Description	
_	<u>(min)</u> (f	eet)	(ft/ft)	(ft/sec)	(cfs)		
	7.3	450	0.0427	1.03		Shallow Concentrated Flow,	
						Woodland Ky= 5.0 fps	

#### Subcatchment DA-1: To Stormwater Basin



## Summary for Subcatchment DA-2: Self-Storage Building

Runoff = 4.88 cfs @ 12.02 hrs, Volume= 0.338 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs CT-Vernon 24-hr S1 25-yr Rainfall=6.08"



# Summary for Reach DP1: Design Pt 1 - Hockanum River

Inflow Are	a =	11.029 ac, 2	0.92% Impervious,	Inflow Depth = 3.	06" for 25-yr event
Inflow	=	40.72 cfs @	12.05 hrs, Volume	= 2.809 af	
Outflow	=	40.72 cfs @	12.05 hrs, Volume	= 2.809 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs



# Reach DP1: Design Pt 1 - Hockanum River

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: To Stormwater Basin Runoff Area=450,133 sf 15.60% Impervious Runoff Depth=4.31" Flow Length=450' Slope=0.0427 '/' Tc=7.3 min CN=70 Runoff=54.61 cfs 3.711 af

SubcatchmentDA-2: Self-Storage Runoff Area=30,273 sf 100.00% Impervious Runoff Depth=7.58" Tc=5.0 min CN=98 Runoff=6.23 cfs 0.439 af

Reach DP1: Design Pt1 - Hockanum River

Inflow=60.22 cfs 4.151 af Outflow=60.22 cfs 4.151 af

Total Runoff Area = 11.029 ac Runoff Volume = 4.151 af Average Runoff Depth = 4.52" 79.08% Pervious = 8.722 ac 20.92% Impervious = 2.307 ac

#### Summary for Subcatchment DA-1: To Stormwater Basin

Page 15

54.61 cfs @ 12.06 hrs, Volume= Runoff 3.711 af, Depth= 4.31" =

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs CT-Vernon 24-hr S1 100-yr Rainfall=7.82"

Area (sf)	CN	Description		
70,220	98	Paved park	ing, HSG B	В
64,265	61	>75% Ġras	s cover, Go	ood, HSG B
18,836	80	>75% Gras	s cover, Go	ood, HSG D
171,070	55	Woods, Go	od, HSG B	3
125,742	77	Woods, Go	od, HSG D	
450,133	70	Weighted A	verage	
379,913		84.40% Pe	rvious Area	a
70,220		15.60% Imp	pervious Ar	rea
Tc Length (min) (feet)	Slop (ft/1	e Velocity t) (ft/sec)	Capacity (cfs)	Description
7.3 450	0.042	1.03		Shallow Concentrated Flow, Woodland Kv= 5.0 fps

#### Subcatchment DA-1: To Stormwater Basin



# Summary for Subcatchment DA-2: Self-Storage Building

Runoff = 6.23 cfs @ 12.02 hrs, Volume= 0.439 af, Depth= 7.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs CT-Vernon 24-hr S1 100-yr Rainfall=7.82"



# Summary for Reach DP1: Design Pt 1 - Hockanum River

Inflow Ar	rea =	11.029 ac, 2	20.92% Impervious,	Inflow Depth = 4.	52" for 100-yr event
Inflow	=	60.22 cfs @	12.05 hrs, Volume	= 4.151 af	
Outflow	=	60.22 cfs @	12.05 hrs, Volume	= 4.151 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs



# Reach DP1: Design Pt 1 - Hockanum River

# ATTACHMENT 4

# WATER QUALITY VOLUME CALCULATIONS

#### Water Quality Calculations

#### Determine Water Quality Volume

From CT 2004 Stormwater Quality Manual:

$$WQV = \frac{(1")(R)(A)}{12}$$

```
WQV = water quality volume (ac-ft)
R = volumetric runoff coefficient
I = percent impervious cover
A = site area in acres
```

R = 0.05 + 0.009(I)

Area		Tota	l Area	Impervi	ous Area	Impervious Cover	Volumetric Runoff Coefficient	Water Qua (We	lity Volume QV)	Pretreatment Volume (25% of WQV)	Sediment Forebay Volume Provided	Stormwater Volume Retained Onsite
ID		ac	ft <sup>2</sup>	ac	ft <sup>2</sup>	%	R	acre-feet	ft <sup>3</sup>	ft <sup>3</sup>	ft <sup>3</sup>	ft <sup>3</sup>
Design Point 1 (DP#1) (minus SS roof)	DA1	1.775	77334	1.702	74145	95.89	0.913	0.135	5,881	1,470	N/A	9,378

# ATTACHMENT 5

# MASTER PLAN STORMWATER MANAGEMENT REPORT DATED NOVEMBER 30, 2016



# **Stormwater Management Report**

# For the Proposed: Proposed Commercial Development

Located at: 129 Talcottville Road Vernon, Connecticut

Prepared for Submission to: Town of Vernon, Connecticut

September 26, 2016 Revised November 30, 2016

Prepared for:

**Figure 8/Vernon, LLC** 433 South Main Street, Suite 328 West Hartford, CT 06110

> Prepared by: BL Companies 355 Research Parkway Meriden, Connecticut 06450 Phone: (203) 630-1406

Fax: (203) 630-2615

BL Project Number: 15C5289-F



## Contents

Executive Summary	1
Existing Site Conditions and Hydrologic Conditions	2
Developed Site Conditions and Hydrologic Conditions	4
Stormwater Management	5
Summary	5

#### Appendix A: Aerial Map

NRCS Soil Survey Map with Hydrologic Soil Group Data FEMA Federal Insurance Rate Map NOAA Atlas 14 Storm Data

Appendix B: Pre-development Hydrology (2-, 10-, 25-, and 100-year storms)

Appendix C: Post-development Hydrology (2-, 10-, 25-, and 100-year storms)

Appendix D: Water Quality Calculations

Appendix E: Drainage Maps

Appendix F: Stormwater System Operations and Maintenance Manual



# **Executive Summary**

This report has been prepared in support of an Inland Wetland application by Figure 8/Vernon, LLC for the Town of Vernon for the proposed development at 129 Talcottville Road. The property is approximately 11.02 acres in size and is partially developed with a paved parking lot and one story commercial building.

The property is roughly bordered by restaurant and retail space to the south, Talcottville Road (Route 83) to the east, the Hockanum river to the west, and a mix of commercial and residential uses to the north.

In general, the topography slopes from the East (Talcottvile Rd) to West (Hockanum River) with stormwater discharging into the Hockanum River on the Western boundary. Elevations vary from 194 feet to 236 feet. The property discharges to wetlands/river on site. The Hockanum River is along the western property line.

The proposed stormwater management system is designed to be in compliance with the current Town of Vernon Regulations, the 2002 State of Connecticut Guidelines for Soil Erosion and Sediment Control, and the 2004 State of Connecticut Stormwater Quality Manual.

A HydroCad model, using TR-55 methodology, was developed to evaluate the existing and proposed drainage conditions of the property. The results of the analysis demonstrate that there will be an increase in peak stormwater runoff rates for the 2-, 10-, 25-, and 100-year storm events.

The Town of Vernon regulations require that the volume of stormwater runoff from the proposed development for all intensities and durations of rainfall up to the 100-year storm event shall not exceed the existing conditions volume of stormwater runoff. Due to the proximity of the proposed development to the Hockanum River and the site being in the lower reaches of the watershed, detention of stormwater is not prudent. Stormwater quality is being addressed by providing storage for 100% of the water quality volume as required in the CT Stormwater Manual.

Numerous Water Quality Best Management Practices (BMPs) have been incorporated into the project design and include catch basins with deep sumps, hooded catch basin outlets, a hydrodynamic separator, and a stormwater basin. The impervious area runoff, except the roof of the proposed self-storage building, will be captured by catch basins and discharged through a hydrodynamic separator to the stormwater basin. The proposed self-storage roof runoff will outlet directly to the rear of the property because it is classified as clean stormwater.



#### **Existing Site Conditions and Hydrologic Conditions**

#### General Site Information

The site soil identified by the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) is Catden and Freetown, Fluvauqnts-Udifluvents Complex, Urban Land, and Udorthents-Urban Land Complex. Per the USDA the NRCS Hydrologic Soil Group the soil ratings for within the project area are B and D. A copy of the USDA NRCS Hydrologic Soil Group Soil Group Map is included in Appendix A for reference.

Per the FEMA Flood Insurance Rate Map Number 090131 0005C for Tolland County, Connecticut, map revised date: August 9, 1999, the site resides inside FEMA designated flood area Zone AE, Zone X (shaded), and Zone X (unshaded). A copy of the FEMA Flood insurance rate Map is included in Appendix A for reference. The proposed development area falls within Zone X (shaded and unshaded). The BFE's or base flood depths are shown within these zones. The elevations vary from 186 to 188 feet across the western boundary. The proposed finished floor elevations of the building are 222.6, 231.1, and 232.6 respectively.

#### Existing Hydrologic Conditions

The existing site drainage area that was analyzed totals 11.029 acres and is approximately 11.8% impervious. Stormwater from the existing development is captured in catch basins and is piped to the rear of the lot. The pipes outlet directly into the wetland. Below is a description of that area. For the purposes of this report, the only area evaluated was within the property boundaries.

The following is a brief analysis of the existing design points as shown on the enclosed Existing Drainage Mapping (ED-1) Map, in Appendix E;

**Existing Design Point 01 (DP 01):** The design point collects water from a 11.02 acre portion of the site and is approximately 11.8% impervious. This drainage area consists of a portion of the woods, grass, and impervious (building and pavement).



	-	e e	. 0	
Drainage Area /	Area	Composite	Impervious	Time of
<b>Design Point</b>	(square	Curve Number	Cover (%)	Concentration
	feet)			(minutes)
DA-1: To river	480,406	70	11.8	8.9

# Table 1 – Pre Development (Existing Conditions) Drainage Characteristics.

Table 2 – Pre-Development Conditions Peak Flows							
Analysia Daint		Peak Fl	ow (cfs)				
Analysis Point	2-yr	10-yr	25-yr	100-yr			
Total Offsite Discharge	14.14	36.67	52.55	78.22			

# Table 2 Pro-Dovelonment Conditions Deals Fl



## **Developed Site Conditions and Hydrologic Conditions**

The proposed site drainage area totals 11.029 acres and is approximately 20.8% impervious. The intent of the proposed site drainage is to mimic existing drainage patterns to the maximum extent practical. The site stormwater system will provide stormwater quality improvement through the installation of a series of catch basins with 2' sumps and hooded outlets, a hydrodynamic separator, as well as a stormwater basin. The clean roof water from the self-storage building will be conveyed to flow directly offsite. All of these measures will provide water quality measures as required by the Town of Vernon and State of Connecticut. Modeling of the developed site retained the same Design Points as the existing model. The following drainage areas were developed to model the proposed site improvements.

**Proposed Design Point 01:** The design point collects water from a 11.029 acre portion of the site and is approximately 20.8% impervious. This drainage area consists of a buildings, paved parking, maintained lawn and wooded areas. Stormwater sheet flows into catch basins and is piped into a water quality basin. The water quality basin outlets to the wetland/Hockanum River.

Tuble of Tost Development Drumage Characteristics.										
Drainage Area / Design Point	Area (square feet)	Composite Curve Number	Impervious Cover (%)	Time of Concentration (minutes)						
DA-1: To basin/river	450,406	72	15.5	7.8						
DA-2: Self Storage	30,000	98	100.0	5.0						

 Table 3 – Post Development Drainage Characteristics.

<b>I</b>				
Analysis Daint		Peak Fl	ow (cfs)	
Analysis Point	2-yr	10-yr	25-yr	100-yr
Total Offsite Discharge	18.59	43.17	60.07	87.06

Table 4 – Post-Development Conditions Peak Flows

\*The combined site discharge is hydrologically added peak flows, and may not correspond with a straight addition of the individual drainage areas.

	Peak Flow Rate in Cubic Feet per Second (c.f.s)					
Drainage Area	2-yr	10-yr	25-yr	100-yr		
Total Offsite						
Existing	14.14	36.67	52.55	78.22		
Proposed	18.59	43.17	60.07	87.06		
Percent Change	+31.5%	+17.7%	+14.3%	+11.3%		

#### Table 5 – Existing vs Proposed Peak Rates of Runoff



#### **Stormwater Management**

#### Hydrologic Modeling of the Entire Site

The hydrologic analysis to determine peak stormwater discharge rates was performed using the HydroCAD stormwater modeling system computer program, version 10.00 developed by HydroCAD Software Solutions, LLC. Hydrographs for each watershed were developed using the SCS Synthetic Unit Hydrograph Method with a Type III rainfall distribution with Antecedent Moisture Condition II and rainfall depths per the NOAA Atlas 14 for Vernon, CT were used for the calculation of peak flow rates and are listed in Table 6. The drainage areas, or subcatchments as labeled by the program, are depicted by hexagons on the attached drainage diagrams. Predevelopment HydroCAD output can be found in Appendix B and Post-development HydroCAD output can be found in Appendix C.

<b>Return Period</b>	24-hour Rainfall Depth
2-year	3.22"
10-year	5.05"
25-year	6.20"
100-year	7.97"

# Table 6 – Rainfall Depths per NOAA Atlas 14 Appendix B - 24 hour Rainfall Data

#### Summary

The post-development peak discharge rates for the total developed site have been increased for all storm events. All post development stormwater will be discharged offsite to mimic existing drainage patterns. Due to the proximity of the proposed development to the Hockanum River and the site being in the lower reaches of the watershed, detention of stormwater is not prudent. Stormwater quality is being addressed by providing storage for 100% of the water quality volume as required in the CT Stormwater Manual. The proposed stormwater management system will meet the stormwater quality requirements of the Town of Vernon and the State of Connecticut.



# APPENDIX A

#### LOCATION MAPS

Figure 1: Aerial Map Figure 2: NRCS Soil Report Figure 3: Federal Insurance Rate Map Figure 4: NOAA Atlas 14 Storm Data



FIGURE 1



USDA Natural Resources Conservation Service Web Soil Survey National Cooperative Soil Survey



# Map Unit Legend

State of Connecticut (CT600)							
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI				
18	Catden and Freetown soils, 0 to 2 percent slopes	0.1	0.9%				
109	Fluvaquents-Udifluvents complex, frequently flooded	2.1	17.5%				
306	Udorthents-Urban land complex	9.5	79.3%				
307	Urban land	0.3	2.3%				
Totals for Area of Interest		12.0	100.0%				





USDA Natural Resources Conservation Service Web Soil Survey National Cooperative Soil Survey



# Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — State of Connecticut (CT600)							
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI			
18	Catden and Freetown soils, 0 to 2 percent slopes	B/D	0.1	0.9%			
109	Fluvaquents-Udifluvents complex, frequently flooded	B/D	2.1	17.5%			
306	Udorthents-Urban land complex	В	9.5	79.3%			
307	Urban land	D	0.3	2.3%			
Totals for Area of Intere	st	12.0	100.0%				

# Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

# **Rating Options**

Aggregation Method: Dominant Condition Component Percent Cutoff: None Specified Tie-break Rule: Higher



Precipitation Frequency Data Server

NOAA Atlas 14, Volume 10, Version 2 ROCKVILLE Station ID: 06-6942 Location name: Vernon Town of, Connecticut, USA\* Latitude: 41.8667°, Longitude: -72.4333° Elevation: Blevation: Source: ESRI Maps \* source: USGS



#### POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF\_tabular | PF\_graphical | Maps\_&\_aerials

#### **PF** tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>										
Duration	Average recurrence interval (years)									
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	<b>0.330</b> (0.250-0.435)	<b>0.400</b> (0.303-0.528)	<b>0.516</b> (0.390-0.683)	<b>0.611</b> (0.459-0.813)	<b>0.743</b> (0.543-1.03)	<b>0.844</b> (0.607-1.20)	<b>0.945</b> (0.664-1.39)	<b>1.07</b> (0.717-1.61)	<b>1.24</b> (0.802-1.92)	<b>1.37</b> (0.867-2.16)
10-min	<b>0.468</b> (0.355-0.616)	<b>0.567</b> (0.430-0.749)	<b>0.730</b> (0.552-0.967)	<b>0.866</b> (0.651-1.15)	<b>1.05</b> (0.770-1.46)	<b>1.20</b> (0.860-1.70)	<b>1.34</b> (0.940-1.97)	<b>1.52</b> (1.02-2.28)	<b>1.76</b> (1.14-2.73)	<b>1.94</b> (1.23-3.06)
15-min	<b>0.550</b> (0.417-0.725)	<b>0.667</b> (0.506-0.881)	<b>0.859</b> (0.649-1.14)	<b>1.02</b> (0.766-1.36)	<b>1.24</b> (0.906-1.72)	<b>1.41</b> (1.01-1.99)	<b>1.58</b> (1.11-2.31)	<b>1.79</b> (1.20-2.68)	<b>2.07</b> (1.34-3.21)	<b>2.28</b> (1.45-3.61)
30-min	<b>0.747</b> (0.567-0.985)	<b>0.907</b> (0.688-1.20)	<b>1.17</b> (0.884-1.55)	<b>1.39</b> (1.04-1.85)	<b>1.69</b> (1.23-2.34)	<b>1.92</b> (1.38-2.72)	<b>2.15</b> (1.51-3.15)	<b>2.44</b> (1.63-3.65)	<b>2.82</b> (1.82-4.37)	<b>3.11</b> (1.97-4.92)
60-min	<b>0.944</b> (0.716-1.25)	<b>1.15</b> (0.870-1.51)	<b>1.48</b> (1.12-1.96)	<b>1.75</b> (1.32-2.34)	<b>2.13</b> (1.56-2.96)	<b>2.43</b> (1.75-3.44)	<b>2.72</b> (1.91-4.00)	<b>3.09</b> (2.06-4.63)	<b>3.58</b> (2.31-5.54)	<b>3.94</b> (2.50-6.23)
2-hr	<b>1.21</b> (0.924-1.59)	<b>1.47</b> (1.11-1.93)	<b>1.88</b> (1.43-2.48)	<b>2.22</b> (1.68-2.94)	<b>2.69</b> (1.98-3.74)	<b>3.06</b> (2.22-4.33)	<b>3.42</b> (2.43-5.05)	<b>3.94</b> (2.64-5.88)	<b>4.63</b> (3.00-7.13)	<b>5.15</b> (3.27-8.08)
3-hr	<b>1.40</b> (1.07-1.83)	<b>1.69</b> (1.29-2.21)	<b>2.16</b> (1.64-2.84)	<b>2.55</b> (1.93-3.38)	<b>3.09</b> (2.29-4.29)	<b>3.51</b> (2.56-4.98)	<b>3.93</b> (2.81-5.80)	<b>4.55</b> (3.06-6.77)	<b>5.38</b> (3.49-8.27)	<b>6.01</b> (3.82-9.40)
6-hr	<b>1.77</b> (1.36-2.31)	<b>2.14</b> (1.64-2.80)	<b>2.75</b> (2.10-3.61)	<b>3.26</b> (2.48-4.29)	<b>3.96</b> (2.94-5.46)	<b>4.50</b> (3.29-6.35)	<b>5.03</b> (3.62-7.42)	<b>5.87</b> (3.95-8.68)	<b>6.98</b> (4.54-10.7)	<b>7.82</b> (4.99-12.1)
12-hr	<b>2.20</b> (1.70-2.86)	<b>2.69</b> (2.07-3.50)	<b>3.48</b> (2.67-4.54)	<b>4.15</b> (3.16-5.43)	<b>5.05</b> (3.77-6.95)	<b>5.75</b> (4.23-8.09)	<b>6.46</b> (4.66-9.46)	<b>7.54</b> (5.09-11.1)	<b>8.98</b> (5.86-13.6)	<b>10.1</b> (6.44-15.5)
24-hr	<b>2.60</b> (2.01-3.37)	<b>3.22</b> (2.48-4.16)	<b>4.22</b> (3.25-5.48)	<b>5.05</b> (3.87-6.59)	<b>6.20</b> (4.64-8.49)	<b>7.08</b> (5.23-9.93)	<b>7.97</b> (5.78-11.6)	<b>9.37</b> (6.34-13.7)	<b>11.2</b> (7.34-16.9)	<b>12.6</b> (8.10-19.3)
2-day	<b>2.94</b> (2.28-3.78)	<b>3.67</b> (2.85-4.73)	<b>4.88</b> (3.77-6.30)	<b>5.88</b> (4.52-7.63)	<b>7.25</b> (5.46-9.91)	<b>8.31</b> (6.17-11.6)	<b>9.37</b> (6.85-13.7)	<b>11.1</b> (7.56-16.2)	<b>13.5</b> (8.84-20.2)	<b>15.2</b> (9.80-23.2)
3-day	<b>3.19</b> (2.48-4.10)	<b>4.00</b> (3.11-5.14)	<b>5.32</b> (4.12-6.85)	<b>6.41</b> (4.94-8.30)	<b>7.91</b> (5.97-10.8)	<b>9.07</b> (6.75-12.7)	<b>10.2</b> (7.50-14.9)	<b>12.2</b> (8.28-17.6)	<b>14.7</b> (9.70-22.0)	<b>16.7</b> (10.8-25.3)
4-day	<b>3.43</b> (2.67-4.40)	<b>4.29</b> (3.34-5.50)	<b>5.69</b> (4.41-7.32)	<b>6.85</b> (5.29-8.86)	<b>8.45</b> (6.38-11.5)	<b>9.68</b> (7.21-13.5)	<b>10.9</b> (8.01-15.9)	<b>13.0</b> (8.84-18.8)	<b>15.7</b> (10.3-23.4)	<b>17.8</b> (11.5-26.9)
7-day	<b>4.08</b> (3.19-5.22)	<b>5.05</b> (3.94-6.45)	<b>6.62</b> (5.16-8.49)	<b>7.93</b> (6.14-10.2)	<b>9.73</b> (7.37-13.2)	<b>11.1</b> (8.30-15.4)	<b>12.5</b> (9.18-18.0)	<b>14.8</b> (10.1-21.2)	<b>17.8</b> (11.7-26.3)	<b>20.0</b> (13.0-30.1)
10-day	<b>4.74</b> (3.71-6.04)	<b>5.76</b> (4.51-7.35)	<b>7.43</b> (5.80-9.51)	<b>8.82</b> (6.85-11.3)	<b>10.7</b> (8.14-14.4)	<b>12.2</b> (9.11-16.8)	<b>13.7</b> (10.0-19.6)	<b>16.0</b> (10.9-22.9)	<b>19.0</b> (12.6-28.1)	<b>21.3</b> (13.8-32.0)
20-day	<b>6.80</b> (5.35-8.63)	<b>7.89</b> (6.20-10.0)	<b>9.68</b> (7.58-12.3)	<b>11.2</b> (8.70-14.3)	<b>13.2</b> (10.0-17.6)	<b>14.8</b> (11.0-20.0)	<b>16.4</b> (11.9-22.9)	<b>18.4</b> (12.7-26.2)	<b>21.2</b> (14.1-31.1)	<b>23.3</b> (15.2-34.7)
30-day	<b>8.54</b> (6.74-10.8)	<b>9.66</b> (7.61-12.2)	<b>11.5</b> (9.03-14.6)	<b>13.0</b> (10.2-16.6)	<b>15.1</b> (11.5-19.9)	<b>16.7</b> (12.4-22.4)	<b>18.3</b> (13.2-25.3)	<b>20.2</b> (13.9-28.5)	<b>22.6</b> (15.1-33.0)	<b>24.5</b> (15.9-36.3)
45-day	<b>10.7</b> (8.48-13.5)	<b>11.9</b> (9.38-15.0)	<b>13.8</b> (10.8-17.4)	<b>15.3</b> (12.0-19.5)	<b>17.5</b> (13.2-22.9)	<b>19.1</b> (14.2-25.4)	<b>20.8</b> (14.9-28.3)	<b>22.3</b> (15.5-31.4)	<b>24.4</b> (16.3-35.4)	<b>26.0</b> (17.0-38.4)
60-day	<b>12.6</b> (9.94-15.8)	<b>13.7</b> (10.9-17.3)	<b>15.6</b> (12.3-19.8)	<b>17.2</b> (13.5-21.9)	<b>19.4</b> (14.8-25.4)	<b>21.1</b> (15.7-28.0)	<b>22.8</b> (16.4-30.9)	<b>24.2</b> (16.8-34.0)	<b>26.0</b> (17.5-37.7)	<b>27.4</b> (17.9-40.5)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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# **PF graphical**



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# Maps & aerials



Precipitation Frequency Data Server







Large scale map



Large scale aerial





An Employee-Owned Company Stormwater Management Report

# APPENDIX B

# PRE-DEVELOPMENT HYDROLOGY

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**15C5289-F Existing Conditions** Prepared by BL Companies, Inc. HydroCAD® 10.00 s/n 01334 © 2013 HydroCAD Software Solutions LLC

# Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
0.096	61	>75% Grass cover, Good, HSG B (EX-1)
1.300	98	Paved parking, HSG B (EX-1)
6.473	60	Woods, Fair, HSG B (EX-1)
3.160	79	Woods, Fair, HSG D (EX-1)
11.029	70	TOTAL AREA

# Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
7.869	HSG B	EX-1
0.000	HSG C	
3.160	HSG D	EX-1
0.000	Other	
11.029		TOTAL AREA

# 15C5289-F Existing Conditions

Prepared by BL	Companie	es, Inc.
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# Ground Covers (all nodes)

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground	Subcatchment
 (acres)	(acres)	(acres)	(acres)	(acres)	(acres)	Cover	Numbers
 0.000	0.096	0.000	0.000	0.000	0.096	>75% Grass cover, Good	EX-1
0.000	1.300	0.000	0.000	0.000	1.300	Paved parking	EX-1
0.000	6.473	0.000	3.160	0.000	9.633	Woods, Fair	EX-1
0.000	7.869	0.000	3.160	0.000	11.029	TOTAL AREA	

15C5289-F Existing Conditions	Type II 24-I
Prepared by BL Companies, Inc.	
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ype II 24-hr 2-YEAR Rainfall=3.22" Printed 9/27/2016 Page 5

Time span=0.01-40.00 hrs, dt=0.01 hrs, 4000 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX-1: Direct to Rear Runoff Area=480,406 sf 11.79% Impervious Runoff Depth=0.84" Flow Length=577' Tc=8.9 min CN=70 Runoff=14.14 cfs 0.772 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=14.14 cfs 0.772 af Outflow=14.14 cfs 0.772 af

Total Runoff Area = 11.029 ac Runoff Volume = 0.772 af Average Runoff Depth = 0.84" 88.21% Pervious = 9.728 ac 11.79% Impervious = 1.300 ac

### Summary for Subcatchment EX-1: Direct to Rear

Runoff = 14.14 cfs @ 12.02 hrs, Volume= 0.772 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 2-YEAR Rainfall=3.22"

_	Ai	rea (sf)	CN	Description		
		56,635	98	Paved park	ing, HSG B	3
	2	81,965	60	Woods, Fai	r, HSG B	
	1	37,642	79	Woods, Fai	r, HSG D	
_		4,164	61	>75% Gras	s cover, Go	bod, HSG B
	4	80,406	70	Weighted A	verage	
	4	23,771		88.21% Pei	rvious Area	l de la constante d
		56,635		11.79% Imp	pervious Ar	ea
	Тс	Length	Slope	e Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	) (ft/sec)	(cfs)	
	4.0	319	0.0720	) 1.34		Shallow Concentrated Flow, Drainage Swale
						Woodland Kv= 5.0 fps
	4.9	258	0.0310	0.88		Shallow Concentrated Flow, Woods
_						Woodland Kv= 5.0 fps
	8.9	577	Total			

### Subcatchment EX-1: Direct to Rear



[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	11.029 ac, 1	1.79% Impe	ervious,	Inflow De	epth = (	).84"	for 2-Y	ΈAR ε	event
Inflow	=	14.14 cfs @	12.02 hrs,	Volume	=	0.772 a	f			
Outflow	=	14.14 cfs @	12.02 hrs,	Volume	=	0.772 a	f, Atter	ו= 0%,	Lag=	0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs



15C5289-F Existing Conditions	Type II 24-ł
Prepared by BL Companies, Inc.	
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II 24-hr 10-YEAR Rainfall=5.05" Printed 9/27/2016 Page 8

Time span=0.01-40.00 hrs, dt=0.01 hrs, 4000 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX-1: Direct to Rear Runoff Area=480,406 sf 11.79% Impervious Runoff Depth=2.07" Flow Length=577' Tc=8.9 min CN=70 Runoff=36.67 cfs 1.906 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=36.67 cfs 1.906 af Outflow=36.67 cfs 1.906 af

Total Runoff Area = 11.029 acRunoff Volume = 1.906 afAverage Runoff Depth = 2.07"88.21% Pervious = 9.728 ac11.79% Impervious = 1.300 ac

### Summary for Subcatchment EX-1: Direct to Rear

Runoff 36.67 cfs @ 12.01 hrs, Volume= 1.906 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 10-YEAR Rainfall=5.05"

_	Ai	rea (sf)	CN	Description			
		56,635	98	Paved park	ing, HSG B	;	
	2	81,965	60	Woods, Fai	r, HSG B		
	1	37,642	79	Woods, Fai	r, HSG D		
_		4,164	61	>75% Gras	s cover, Go	ood, HSG B	
	4	80,406	70	Weighted A	verage		
	4	23,771		88.21% Per	vious Area		
		56,635		11.79% Imp	pervious Are	ea	
	-		~		<b>•</b> •	<b>.</b>	
	IC	Length	Slope	e Velocity	Capacity	Description	
_	(min)	(feet)	(ft/ft	) (ft/sec)	(cts)		
	4.0	319	0.0720	0 1.34		Shallow Co	ncentrated Flow, Drainage Swale
						Woodland	Kv= 5.0 fps
	4.9	258	0.0310	0.88		Shallow Co	ncentrated Flow, Woods
_						Woodland	Kv= 5.0 fps
	8.9	577	Total				

### Subcatchment EX-1: Direct to Rear



[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	11.029 ac, 1	1.79% Impe	ervious,	Inflow Depth	= 2.0	07" for 10	)-YEAR event
Inflow	=	36.67 cfs @	12.01 hrs,	Volume	= 1.9	06 af		
Outflow	=	36.67 cfs @	12.01 hrs,	Volume	= 1.9	06 af,	Atten= 0%	,Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs



15C5289-F Existing Conditions	Type II 24-h
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be II 24-hr 25-YEAR Rainfall=6.20" Printed 9/27/2016 Page 11

Time span=0.01-40.00 hrs, dt=0.01 hrs, 4000 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX-1: Direct to Rear Runoff Area=480,406 sf 11.79% Impervious Runoff Depth=2.96" Flow Length=577' Tc=8.9 min CN=70 Runoff=52.55 cfs 2.725 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=52.55 cfs 2.725 af Outflow=52.55 cfs 2.725 af

Total Runoff Area = 11.029 ac Runoff Volume = 2.725 af Average Runoff Depth = 2.96" 88.21% Pervious = 9.728 ac 11.79% Impervious = 1.300 ac

### Summary for Subcatchment EX-1: Direct to Rear

Runoff = 52.55 cfs @ 12.01 hrs, Volume= 2.725 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 25-YEAR Rainfall=6.20"

_	Ai	rea (sf)	CN	Description			
		56,635	98	Paved park	ing, HSG B	3	
	2	81,965	60	Woods, Fai	r, HSG B		
	1	37,642	79	Woods, Fai	r, HSG D		
_		4,164	61	>75% Gras	s cover, Go	bod, HSG B	
	4	80,406	70	Weighted A	verage		
	4	23,771		88.21% Pei	vious Area	l	
		56,635		11.79% Imp	pervious Are	ea	
	Tc (min)	Length (feet)	Slope (ft/ft)	e Velocity (ft/sec)	Capacity (cfs)	Description	
	4.0	319	0.0720	1.34		Shallow Concentrated Flow, Drainage Swale	
						Woodland Kv= 5.0 fps	
	4.9	258	0.0310	0.88		Shallow Concentrated Flow, Woods	
_						Woodland Kv= 5.0 fps	_
	8.9	577	Total				

### Subcatchment EX-1: Direct to Rear



[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	11.029 ac, 1	1.79% Impe	ervious,	Inflow Dep	th = 2.9	96" for 25-	YEAR event
Inflow	=	52.55 cfs @	12.01 hrs,	Volume	= 2	.725 af		
Outflow	=	52.55 cfs @	12.01 hrs,	Volume	= 2	.725 af,	Atten= 0%,	Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs



15C5289-F Existing Conditions	Type II 24-hr	100-YEAR Rail	nfall=7.97"
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Time span=0.01-40.00 hrs, dt=0.01 hrs, 4000 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX-1: Direct to Rear Runoff Area=480,406 sf 11.79% Impervious Runoff Depth=4.44" Flow Length=577' Tc=8.9 min CN=70 Runoff=78.22 cfs 4.079 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=78.22 cfs 4.079 af Outflow=78.22 cfs 4.079 af

Total Runoff Area = 11.029 ac Runoff Volume = 4.079 af Average Runoff Depth = 4.44" 88.21% Pervious = 9.728 ac 11.79% Impervious = 1.300 ac

### Summary for Subcatchment EX-1: Direct to Rear

Runoff = 78.22 cfs @ 12.01 hrs, Volume= 4.079 af, Depth= 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 100-YEAR Rainfall=7.97"

_	A	rea (sf)	CN	Description		
		56,635	98	Paved park	ing, HSG B	3
	2	81,965	60	Woods, Fai	r, HSG B	
	1	37,642	79	Woods, Fai	r, HSG D	
		4,164	61	>75% Gras	s cover, Go	ood, HSG B
	4	80,406	70	Weighted A	verage	
	4	23,771		88.21% Per	rvious Area	3
		56,635		11.79% Imp	pervious Ar	rea
	-		0		0	
	I C	Length	Slope	e Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft	) (ft/sec)	(CIS)	
	4.0	319	0.0720	0 1.34		Shallow Concentrated Flow, Drainage Swale
						Woodland Kv= 5.0 fps
	4.9	258	0.0310	0 0.88		Shallow Concentrated Flow, Woods
_						Woodland Kv= 5.0 fps
	8.9	577	Total			

### Subcatchment EX-1: Direct to Rear



[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	11.029 ac, 1	1.79% Impe	ervious,	Inflow Depth =	4.4	44" for 100	)-YEAR event
Inflow	=	78.22 cfs @	12.01 hrs,	Volume	= 4.079	9 af		
Outflow	=	78.22 cfs @	12.01 hrs,	Volume	= 4.079	9 af,	Atten= 0%,	Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs





# APPENDIX C

# POST-DEVELOPMENT HYDROLOGY



**15C5289-F Proposed Conditions** Prepared by BL Companies, Inc. HydroCAD® 10.00 s/n 01334 © 2013 HydroCAD Software Solutions LLC

### Area Listing (selected nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
1.290	61	>75% Grass cover, Good, HSG B (DA-1)
0.068	80	>75% Grass cover, Good, HSG D (DA-1)
1.601	98	Paved parking, HSG B (DA-1)
0.689	98	Unconnected roofs, HSG B (DA-2)
4.289	60	Woods, Fair, HSG B (DA-1)
3.092	79	Woods, Fair, HSG D (DA-1)
11.029	73	TOTAL AREA

# Soil Listing (selected nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
7.869	HSG B	DA-1, DA-2
0.000	HSG C	
3.160	HSG D	DA-1
0.000	Other	
11.029		TOTAL AREA

# 15C5289-F Proposed Conditions

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# Ground Covers (selected nodes)

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground	Subcatchment
 (acres)	(acres)	(acres)	(acres)	(acres)	(acres)	Cover	Numbers
0.000	1.290	0.000	0.068	0.000	1.358	>75% Grass cover, Good	DA-1
0.000	1.601	0.000	0.000	0.000	1.601	Paved parking	DA-1
0.000	0.689	0.000	0.000	0.000	0.689	Unconnected roofs DA-2	
0.000	4.289	0.000	3.092	0.000	7.381	Woods, Fair	DA-1
0.000	7.869	0.000	3.160	0.000	11.029	TOTAL AREA	

15C5289-F Proposed Conditions	Type II 24-hr 2-YEAR Rainfall=3.22"
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Time span=0.01-40.00 hrs, dt=0.01 hrs, 4000 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: To Stormwater BasinRunoff Area=450,406 sf 15.48% Impervious Runoff Depth=0.94" Flow Length=489' Tc=7.8 min CN=72 Runoff=15.87 cfs 0.812 af

SubcatchmentDA-2: Self-Storage Runoff Area=30,000 sf 100.00% Impervious Runoff Depth=2.99" Tc=5.0 min CN=98 Runoff=3.24 cfs 0.171 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=18.59 cfs 0.983 af Outflow=18.59 cfs 0.983 af

Total Runoff Area = 11.029 ac Runoff Volume = 0.983 af Average Runoff Depth = 1.07" 79.24% Pervious = 8.739 ac 20.76% Impervious = 2.290 ac

### Summary for Subcatchment DA-1: To Stormwater Basin

Runoff = 15.87 cfs @ 12.00 hrs, Volume= 0.812 af, Depth= 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 2-YEAR Rainfall=3.22"

A	rea (sf)	CN	Description		
	69,741	98	Paved park	ing, HSG B	
1	86,826	60	Woods, Fai	r, HSG B	
1	34,681	79	Woods, Fai	r, HSG D	
	56,197	61	>75% Gras	s cover, Go	ood, HSG B
	2,961	80	>75% Gras	s cover, Go	ood, HSG D
4	50,406	72	Weighted A	verage	
3	80,665		84.52% Pei	vious Area	
	69,741		15.48% Imp	pervious Ar	ea
Тс	Length	Slope	e Velocity	Capacity	Description
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)	
0.8	20	0.4000	0.41		Sheet Flow, lawn
					Grass: Short n= 0.150 P2= 3.22"
2.6	209	0.0710	) 1.33		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
2.9	143	0.0270	0.82		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
1.5	117	0.0340	) 1.29		Shallow Concentrated Flow, lawn
					Short Grass Pasture Kv= 7.0 fps
7.8	489	Total			



### Subcatchment DA-1: To Stormwater Basin

### Summary for Subcatchment DA-2: Self-Storage Building

Runoff = 3.24 cfs @ 11.96 hrs, Volume= 0.171 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 2-YEAR Rainfall=3.22"



[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	11.029 ac, 2	20.76% Impe	ervious,	Inflow De	epth = 1	.07" for	2-YEA	R event
Inflow	=	18.59 cfs @	11.99 hrs,	Volume	=	0.983 af			
Outflow	=	18.59 cfs @	11.99 hrs,	Volume	=	0.983 af	, Atten=	0%, La	ig= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs



15C5289-F Proposed Conditions	Type II 24-hr	10-YEAR Rainfall=5.05"
Prepared by BL Companies, Inc.		Printed 11/30/2016
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Time span=0.01-40.00 hrs, dt=0.01 hrs, 4000 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: To Stormwater BasinRunoff Area=450,406 sf 15.48% Impervious Runoff Depth=2.24" Flow Length=489' Tc=7.8 min CN=72 Runoff=38.74 cfs 1.927 af

SubcatchmentDA-2: Self-Storage Runoff Area=30,000 sf 100.00% Impervious Runoff Depth=4.81" Tc=5.0 min CN=98 Runoff=5.11 cfs 0.276 af

Reach DP1: Design Pt1 - Hockanum River

Inflow=43.17 cfs 2.203 af Outflow=43.17 cfs 2.203 af

Total Runoff Area = 11.029 ac Runoff Volume = 2.203 af Average Runoff Depth = 2.40" 79.24% Pervious = 8.739 ac 20.76% Impervious = 2.290 ac

### Summary for Subcatchment DA-1: To Stormwater Basin

Runoff = 38.74 cfs @ 12.00 hrs, Volume= 1.927 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 10-YEAR Rainfall=5.05"

A	rea (sf)	CN	Description		
	69,741	98	Paved park	ing, HSG B	3
1	86,826	60	Woods, Fai	r, HSG B	
1	34,681	79	Woods, Fai	r, HSG D	
	56,197	61	>75% Gras	s cover, Go	bod, HSG B
	2,961	80	>75% Gras	s cover, Go	bod, HSG D
4	50,406	72	Weighted A	verage	
3	80,665		84.52% Pei	rvious Area	l de la constante d
	69,741		15.48% Imp	pervious Ar	ea
Тс	Length	Slope	e Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	) (ft/sec)	(cfs)	
0.8	20	0.4000	0.41		Sheet Flow, lawn
					Grass: Short n= 0.150 P2= 3.22"
2.6	209	0.0710	) 1.33		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
2.9	143	0.0270	0.82		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
1.5	117	0.0340	) 1.29		Shallow Concentrated Flow, lawn
					Short Grass Pasture Kv= 7.0 fps
7.8	489	Total			



### Subcatchment DA-1: To Stormwater Basin

### Summary for Subcatchment DA-2: Self-Storage Building

Runoff = 5.11 cfs @ 11.96 hrs, Volume= 0.276 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 10-YEAR Rainfall=5.05"



[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	11.029 ac, 2	0.76% Imp	ervious,	Inflow Dep	oth = 2.	40" for	10-YEAR event
Inflow	=	43.17 cfs @	11.99 hrs,	Volume	= 2	2.203 af		
Outflow	=	43.17 cfs @	11.99 hrs,	Volume	= 2	2.203 af,	Atten= 0	0%, Lag= 0.0 mir

Routing by Stor-Ind+Trans method, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs



15C5289-F Proposed Conditions	Type II 24-hr	25-YEAR Rainfall=6.20"
Prepared by BL Companies, Inc.		Printed 11/30/2016
HydroCAD® 10.00 s/n 01334 © 2013 HydroCAD Software Solutions I	LLC	Page 15

Time span=0.01-40.00 hrs, dt=0.01 hrs, 4000 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: To Stormwater BasinRunoff Area=450,406 sf 15.48% Impervious Runoff Depth=3.16" Flow Length=489' Tc=7.8 min CN=72 Runoff=54.55 cfs 2.721 af

SubcatchmentDA-2: Self-Storage Runoff Area=30,000 sf 100.00% Impervious Runoff Depth=5.96" Tc=5.0 min CN=98 Runoff=6.28 cfs 0.342 af

Reach DP1: Design Pt1 - Hockanum River

Inflow=60.07 cfs 3.063 af Outflow=60.07 cfs 3.063 af

Total Runoff Area = 11.029 ac Runoff Volume = 3.063 af Average Runoff Depth = 3.33" 79.24% Pervious = 8.739 ac 20.76% Impervious = 2.290 ac

### Summary for Subcatchment DA-1: To Stormwater Basin

Runoff = 54.55 cfs @ 11.99 hrs, Volume= 2.721 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 25-YEAR Rainfall=6.20"

A	rea (sf)	CN	Description		
	69,741	98	Paved park	ing, HSG B	3
1	86,826	60	Woods, Fai	r, HSG B	
1	34,681	79	Woods, Fai	r, HSG D	
	56,197	61	>75% Gras	s cover, Go	bod, HSG B
	2,961	80	>75% Gras	s cover, Go	bod, HSG D
4	50,406	72	Weighted A	verage	
3	80,665		84.52% Pei	rvious Area	
	69,741		15.48% Imp	pervious Ar	ea
Тс	Length	Slope	e Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	) (ft/sec)	(cfs)	
0.8	20	0.4000	0.41		Sheet Flow, lawn
					Grass: Short n= 0.150 P2= 3.22"
2.6	209	0.0710	) 1.33		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
2.9	143	0.0270	0.82		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
1.5	117	0.0340	) 1.29		Shallow Concentrated Flow, lawn
					Short Grass Pasture Kv= 7.0 fps
7.8	489	Total			



# Subcatchment DA-1: To Stormwater Basin

### Summary for Subcatchment DA-2: Self-Storage Building

Runoff = 6.28 cfs @ 11.96 hrs, Volume= 0.342 af, Depth= 5.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 25-YEAR Rainfall=6.20"



[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	11.029 ac, 2	0.76% Imp	ervious,	Inflow Dep	oth = 3.3	33" for 2	5-YEAR event
Inflow	=	60.07 cfs @	11.99 hrs,	Volume	= 3	3.063 af		
Outflow	=	60.07 cfs @	11.99 hrs,	Volume	= 3	3.063 af,	Atten= 0%	%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs


15C5289-F Proposed Conditions	Type II 24-hr	100-YEAR Ra	ainfall=7.97"
Prepared by BL Companies, Inc.		Printed	11/30/2016
HydroCAD® 10.00 s/n 01334 © 2013 HydroCAD Software Solutions	S LLC		Page 20

Time span=0.01-40.00 hrs, dt=0.01 hrs, 4000 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: To Stormwater BasinRunoff Area=450,406 sf 15.48% Impervious Runoff Depth=4.67" Flow Length=489' Tc=7.8 min CN=72 Runoff=79.88 cfs 4.022 af

Runoff Area=30,000 sf 100.00% Impervious Runoff Depth=7.73" SubcatchmentDA-2: Self-Storage Tc=5.0 min CN=98 Runoff=8.09 cfs 0.444 af

Reach DP1: Design Pt 1 - Hockanum River

Inflow=87.06 cfs 4.466 af Outflow=87.06 cfs 4.466 af

Total Runoff Area = 11.029 ac Runoff Volume = 4.466 af Average Runoff Depth = 4.86" 79.24% Pervious = 8.739 ac 20.76% Impervious = 2.290 ac

#### Summary for Subcatchment DA-1: To Stormwater Basin

Runoff = 79.88 cfs @ 11.99 hrs, Volume= 4.022 af, Depth= 4.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 100-YEAR Rainfall=7.97"

A	rea (sf)	CN	Description		
	69,741	98	Paved park	ing, HSG B	
1	86,826	60	Woods, Fai	r, HSG B	
1	34,681	79	Woods, Fai	r, HSG D	
	56,197	61	>75% Gras	s cover, Go	ood, HSG B
	2,961	80	>75% Gras	s cover, Go	ood, HSG D
4	50,406	72	Weighted A	verage	
3	80,665		84.52% Pei	vious Area	
	69,741		15.48% Imp	pervious Ar	ea
Тс	Length	Slope	e Velocity	Capacity	Description
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)	
0.8	20	0.4000	0.41		Sheet Flow, lawn
					Grass: Short n= 0.150 P2= 3.22"
2.6	209	0.0710	) 1.33		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
2.9	143	0.0270	0.82		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
1.5	117	0.0340	) 1.29		Shallow Concentrated Flow, lawn
					Short Grass Pasture Kv= 7.0 fps
7.8	489	Total			



#### Subcatchment DA-1: To Stormwater Basin

#### Summary for Subcatchment DA-2: Self-Storage Building

Runoff = 8.09 cfs @ 11.96 hrs, Volume= 0.444 af, Depth= 7.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs Type II 24-hr 100-YEAR Rainfall=7.97"



#### Summary for Reach DP1: Design Pt 1 - Hockanum River

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	11.029 ac, 2	0.76% Impe	ervious,	Inflow Depth =	4.8	36" for 100	-YEAR event
Inflow	=	87.06 cfs @	11.99 hrs,	Volume	= 4.466	af		
Outflow	=	87.06 cfs @	11.99 hrs,	Volume	= 4.466	af,	Atten= 0%,	Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.01-40.00 hrs, dt= 0.01 hrs



#### Reach DP1: Design Pt 1 - Hockanum River



An Employee-Owned Company Stormwater Management Report

#### APPENDIX D

#### WATER QUALITY CALCULATIONS

#### Water Quality Calculations

#### Determine Water Quality Volume

From CT 2004 Stormwater Quality Manual:

$$WQV = \frac{(1'')(R)(A)}{12}$$

R = 0.05 + 0.009(I)

WQV = water quality volume (ac-ft) R = volumetric runoff coefficient I = percent impervious cover A = site area in acres

Area		Tota	Area	Impervi	ous Area	Impervious Cover	Volumetric Runoff Coefficient	tric Runoff Water Quality Volume I fficient (WQV)		Pretreatment Volume (25% of WQV)	Sediment Forebay Volume Provided	Stormwater Volume Retained Onsite
ID		ac	ft <sup>2</sup>	ac	ft <sup>2</sup>	%	R	acre-feet	ft <sup>3</sup>	ft <sup>3</sup>	ft <sup>3</sup>	ft <sup>3</sup>
Design Point 1 (DP#1) (minus SS roof)	DA1	1.715	74699	1.601	69741	93.35	0.890	0.127	5,532	1,383	N/A	9,378

#### **Water Quality Calculations**

#### **Determine Water Quality Flow**

From CT 2004 Stormwater Quality Manual:

$$CN = \frac{1000}{\left[10 + 5P + 10Q - 10(Q^{2} + 1.25QP)^{\frac{1}{2}}\right]}$$

$$Q = \frac{\left[WQV(acre - feet) \times \left[12(inches / foot)\right]\right]}{DrainageArea(acres)}$$

$$WQF = (q_u)(A)(Q)$$

- CN = Runoff Curve Number
- P = design preciptation, inches, (1" for water quality storm)
- Q = runoff depth (in watershed inches)
- $T_c$  = time of concentration
- $I_a$  = Initial abstraction, inches, from Table 4-1, Chapter 4, TR-55
- q<sub>u</sub> = unit peak discharge,
- WQF = water quality flow (cfs)

Facility	Tot	al Area		Imp Ar	ea	Imp Cover	R	WQV	Q	Р	CN	Т	C	l <sub>a</sub>	I <sub>a</sub> /P	q <sub>u</sub> <sup>1</sup>	WQF
ID	ft <sup>2</sup>	ac	mi <sup>2</sup>	ft <sup>2</sup>	ac	%	-	acre-feet	in	in	-	mins	hours	in	-	cfs/mi <sup>2</sup> /in	cfs
DP #1	74699	1.715	0.0027	69741	1.601	93.35	0.890	0.127	0.89	1.00	97	5	0.08	0.062	0.062	650	1.55

1 From Exhibit 4-III: Unit peak discharge (q<sub>u</sub>) for SCS type III rainfall distribution, Urban Hydrology for Small Watersheds (TR-55), USDS< SCS, June 1986.



An Employee-Owned Company Stormwater Management Report

APPENDIX E

DRAINAGE MAPS







An Employee-Owned Company Stormwater Management Report

#### APPENDIX F

#### STORMWATER SYSTEM OPERATION AND MAINTENANCE MANUAL

### **Appendix F:**

### Stormwater System Operations and Maintenance Plan

#### For the Proposed: Commercial Development

Located at: 129 Talcottville Road Vernon, Connecticut

Prepared for Submission to: Town of Vernon, Connecticut

September 27, 2016

Prepared for: **Figure 8/Vernon, LLC** 433 South Main Street, Suite 328 West Hartford, CT 06110

#### Prepared by:



355 Research Parkway Meriden, Connecticut 06450 Phone: (203) 630-1406 Fax: (203) 630-2615

BL Project Number: 15C5289-F



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#### **General Overview**

The existing site is approximately 11.03 acres and is located at 129 Talcottville Road, Vernon, CT. The property is roughly bordered by restaurant and retail space to the south, Talcottville Road (Route 83) to the east, the Hockanum river to the west, and a mix of commercial and residential uses to the north. The site is partially developed with a paved parking lot and one story commercial building. The proposed site improvements will include a restaurant, retail building, and self-storage building, paved parking areas, landscaped areas, pedestrian sidewalks, site utilities, and a stormwater management system. The site demolition that will occur includes, but is not limited to, building demolition, remove of pavement, removal of existing trees and shrubs, and clearing and grubbing within the limits of work.

The following Operations and Maintenance Plan was prepared specifically for this proposed development in the Town of Vernon, Connecticut. The Plan was developed to satisfy the requirements of the Connecticut Department of Energy and Environmental Protection's 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

#### Purpose & Goals

The purpose of this Manual is to ensure that the stormwater management components are operated in accordance with all approvals and permits. The primary goal is to inform all the property managers about how the system operates and what maintenance items are necessary to protect downstream wetlands and watercourses. The secondary goal is to provide a practical, efficient means of maintenance planning and record keeping to verify permit compliance.

#### **Responsible Parties**

The Property Owner will be responsible for implementing the Plan on the property.

Some utilities located on the site will be owned and maintained by various utility companies in accordance with their standards. The property owner may maintain the service connections.

#### List of Permits & Special Conditions

The project will receive a number of permits, which may contain special conditions that require compliance by the property owner and maintenance contractors. This permit may include the following:

• Town of Vernon Permits – Wetland, Site Plan, Building Permit

#### Maintenance Logs and Checklists

The property owner will keep a record of all maintenance procedures performed, date of inspection/ cleanings, etc. Copies of inspection reports and maintenance records shall be kept on-site.

#### Forms

The following forms will be developed for annual maintenance. Copies of the forms will be kept on-site as part of the Storm Water Management Plan.

- Annual Checklist
- Quarterly Checklist
- Monthly Checklist

#### Employee Training

The property owner will have an employee-training program, with annual up-dates, to ensure that the employees charged with maintaining the buildings and grounds do so in accordance with the approved permit conditions. All employees that have maintenance duties will be adequately informed of their responsibilities.

#### Spill Control

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and clean-up:

- Manufacturer's recommended methods for spill clean-up will be clearly posted and site personnel will be made aware of the procedures and the location of the information and clean-up supplies.
- Materials and equipment necessary for spill clean-up will be kept in the material storage area on-site. Equipment and materials will include but not be limited to: absorbent booms or mats, brooms, dust pans, mops, rags, gloves, goggles, sand, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned immediately after discovery.
- The spill area will be kept well-ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substance.
- Spills of toxic or hazardous material, regardless of size, will be reported to the appropriate State or local government agency.
- If a spill occurs, this plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean the spill if there is another one. A description of the spill, the cause, and the remediation measures will also be included.

A spill report shall be prepared by the property owner following each occurrence. The spill report shall present a description of the release, including quantity and type of material, date of spill, circumstances leading to the release, location of spill, response actions and personnel, documentation of notifications and corrective measures implemented to prevent reoccurrence.

The property owner shall identify an appropriately trained site employee involved with day-today site operations to be the spill prevention and clean-up coordinator. The name(s) of responsible spill personnel shall be posted on-site. Each employee shall be instructed that all spills are to be reported to the spill prevention and clean-up coordinator.

#### **Storm Water Management**

#### System Components

The storm water management system has several components that are shown on the Grading and Drainage Plan (GD-1), that performs various functions in treating storm water runoff:

#### Catch Basins

Catch Basins are inlets, which trap road sand and floatable debris prior to draining through the storm sewer system. The catch basins (CBs) are equipped with 2' deep sumps and hoods over the outlet pipes.

The property owner is responsible for retaining the services of a sub-contractor to routinely clean the catch basins on the property. A Connecticut Licensed hauler shall clean the sumps, and dispose of removed sand legally. The road sand may be reused for winter sanding, but may not be stored on-site. As part of the hauling contract, the hauler shall notify the property owner in writing where the material is being disposed.

Each catch basin shall be inspected every four months, with one inspection occurring during the month of April. Any debris occurring within one foot from the bottom of each sump shall be removed by truck mounted vacuum "Vactor" type of maintenance equipment.

During the inspection of each of the catch basin sumps, the hoods on each of the outlet pipes shall also be inspected. In the event that a hood is damaged or off the hanger, it shall be reset or repaired.

#### Hydrodynamic Separator

The property owner is responsible for retaining a sub-contractor to periodically clean the hydrodynamic separator on the property. A Connecticut Licensed hauler shall inspect the unit post construction and prior to being put into service.

The Hydrodynamic separator unit shall be inspected every six months during the first year of operation to determine the oil and sediment accumulation rate. This interval can then be modified per recorded observations of sediment buildup and highwater elevations. A stadia rod and flashlight shall be used to measure depth of sediment and be recorded on a maintenance log. If sediment is at, or above, the depth corresponding with 15% of storage capacity, the unit shall require cleaning.

The unit shall be inspected immediately after an oil, fuel, or chemical spill.

Hydrodynamic separator cleanout shall be accomplished using standard truck mounted vacuuming, "Vactor," type maintenance equipment. Vactoring shall be conducted annually or when inspection shows that maintenance is necessary.

All removed material shall be disposed of legally. The road sand may be reused for winter sanding, but may not be stored on-site. A licensed waste management company shall remove captured petroleum waste products from any oil, chemical or fuel spills. As part of the hauling contract, the hauler shall notify the property owner in writing where the material is being disposed.

#### Stormwater Basin

The water quality basin shall be checked for and cleaned of trash, excessive sediment, other debris and erosion.

For the first year of operation following construction, inspect the water quality basin each month for the months of January, February, March and April, and once every six months thereafter. After the first year of operation, the water quality basin shall be inspected a minimum of two times yearly with one inspection occurring in the month of April. Any accumulations found to be occurring within one foot of the inlet/outlet pipes shall be removed from the water quality basin, and properly disposed off-site. Also, any floating material discovered during inspections shall be removed from the basin.

A detailed maintenance logbook shall be kept for the water quality basin. Information is to include, but not be limited to, the date of inspection, condition of the inlet pipe(s), condition of outlet control pipes, condition of vegetation, observation of any floatables, and date of cleaning performed.

Regular inspection/maintenance for the water quality basin shall include:

- removing debris and excess sediment from the basin.
- checking that the storm inlet into the basin is clear and functioning properly,
- checking that the outlet control pipe is clear and the outlet is functioning properly,
- checking that the emergency spillway is clear and functioning properly,
- checking that the outlet channel from the basin is clear and not eroding,
- removing paper and debris from inside of the basin
- mowing the crest of the basin for maintenance access
- removing invasive plant species from the basin
- checking slopes for any dips or settlement that might indicate seepage

#### Site Maintenance

#### Parking Lots

Parking lots and sidewalks shall be swept as necessary by the property owner to clean trash and other debris. The property owner will sweep parking lots on the property in the spring to remove winter accumulations of road sand.

#### Landscaping

The management company retained by the property owner will maintain landscaped areas. Normally the landscaping maintenance will consist of pruning, mulching, planting, mowing lawns, raking leaves, etc. Use of fertilizers and pesticides will be controlled and limited to minimal amounts necessary for healthy landscape maintenance.

The lawn areas, once established, will be maintained at a typical height of 3 <sup>1</sup>/<sub>2</sub>". This will allow the grass to be maintained with minimal impact from weeds and/or pests. The low-maintenance areas will be maintained as a meadow or allowed to revert back to natural conditions. Topsoil, brush, leaves, clippings, woodchips, mulch, equipment, and other material shall be stored off site.

#### Outdoor Storage

There will be no outdoor storage of hazardous chemicals, de-icing agents, fertilizer, pesticides, or herbicides anywhere around the buildings.

#### Deicing and Snow Removal & Storage

The use of clean sand may be used to aid traction in conjunction with salt and/or chemicals for deicing, snow melting and other related winter weather management. Snow shall be shoveled and plowed from sidewalk and parking areas as soon as practical during and after winter storms. Sand accumulation shall be removed from the site at the end of the winter season or appropriate time when seasonal snow has melted. Alternative deicing methods must be submitted prior to use onsite for review to the Town of Vernon for approval.

## MAINTENANCE SCHEDULE

During the First Year of Operation:										
Task:	Completion Date:	Manager's Initials:								
JANU	ARY:									
Employee Training Program with Spill Program										
*Stormwater Basin										
FEBRU	JARY:									
* Stormwater Basin										
MAR	CH:									
* Stormwater Basin										
APR	IL:									
*Catch Basin/Hydrodynamic Separator Inspection										
* Stormwater Basin										
*Sanitary Inspection										
Shrub Fertilization										
Lawn Limbing (if necessary)										
AUGI	JST:									
*Catch Basin/Hydrodynamic Separator Inspection										
* Stormwater Basin										
ОСТО	BER:									
* Stormwater Basin										
Tree and Lawn Fertilization										
DECEN	1BER:									
*Catch Basin/Hydrodynamic Separator Inspection										
* Stormwater Basin										

\*NOTE: Use appropriate worksheet found in this plan to conduct the inspection.

After the First Year of Operation:											
FOR YEAR											
Task:		Completion Date:	Manager's Initials:								
	JANUA	ARY:									
Employee Training Progra	im with Spill Program										
	APR	IL:									
*Catch Basin/Hydrodynar	*Catch Basin/Hydrodynamic Separator Inspection										
* Stormwater Basin											
*Sanitary Inspection											
Shrub Fertilization											
Lawn Limbing (if necessa	ary)										
	AUGL	JST:									
*Catch Basin/Hydrodynar	nic Separator Inspection										
	OCTO	BER:									
* Stormwater Basin											
Tree and Lawn Fertilizati	ion										
	DECEN	IBER:									
*Catch Basin/Hydrodynar	nic Separator Inspection										

\*NOTE: Use appropriate worksheet found in this plan to conduct the inspection.

#### STORMWATER BASIN INSPECTION LOG

Name of	Inspecto	or:		Date	::					
Basin ID	Ov Cond inle (circl	erall ition of t pipe e one)	Condition of outlet pipe (circle one)		Debri Sedir Remove syst	Debris and Sediment Removed from system?		outlets are and oning?	Date of cleaning performed:	Comments:
	Exc	ellent								
	Fair	Poor	Yes	No	Yes	No	Yes	No		
	Exc	ellent								
	Fair	Poor	Yes	No	Yes	No	Yes	No		
	Exc	ellent								
	Fair	Poor	Yes	No	Yes	No	Yes	No		
	Fxc	ellent								
	Fair	Poor	Yes	No	Yes	No	Yes	No		
	Fxc	ellent								
	Fair	Poor	Yes	No	Yes	No	Yes	No		
	Fxc	ellent								
	Fair	Poor	Yes	No	Yes	No	Yes	No		
	Fxc	ellent								
	Fair	Poor	Yes	No	Yes	No	Yes	No		
	Fyo	allant								
	Fair	Poor	Yes	No	Yes	No	Yes	No		

## CATCH BASIN / CATCH BASIN INSERT INSPECTION LOG

Name of Inspector:

Date:

Catch			Debris above 2	1' within sump?	Date of C	atch Basin	Condition of	
Basin	Conditi	on (circle	(If yes then cat	ch basin is to be	Cleaning (	if debris is	Hood (if	
ID	0	ne)	cleaned)		greater	than 1')	applicable)	Comments:
		,		,		,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	Exc	ellent						
	Fair	Poor	Yes	No	Yes	No		
	Exc	ellent						
	Fair	Poor	Yes	No	Yes	No		
	Exc	ellent						
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Exc	ellent						
	Fair	Poor	Yes	No	Yes	No		
	Exc	ellent						
	Fair	Poor	Yes	No	Yes	No		
	Exc	ellent						
	Fair	Poor	Yes	No	Yes	No		
	Exc	ellent						
	Fair	Poor	Yes	No	Yes	No		
	Excellent							

Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					
Fair	Poor	Yes	No	Yes	No	
Exc	ellent					

On-site Procedures for Inspection and Maintenance of Catch Basin Inserts

- Secure traffic and pedestrian traffic with cones, barrels, etc.
- Clean surface area around each catch basin
- Remove grates and set aside
- Clean grates, remove litter and debris that may be trapped within the grate

• Remove by vactor hose the debris that has been trapped in the trough area. Dispose of in accordance with local, state and federal regulatory agency requirements. Most debris that is captured in the trough or sump area will fall into the non-hazardous waste category.

- Visually inspect and check the condition of the trough area.
- Replace grate and lockdown as needed.
- Un-secure traffic control area.
- Complete service report and submit to facility owner.



- 1. "Boundary Survey Prepared for 501 Talcottville Road LLC, 501 Talcottville Road (CT Route 83) & Dart Hill Road, Vernon, Connecticut" Sheet SV.01, Scale: 1"=50' Date: May 2021 by Alfred Benesch & Company.
- 2. "Topographic Survey Prepared for 501 Talcottville Road LLC, 501 Talcottville Road (CT Route 83) & Dart Hill Road, Vernon, Connecticut" Sheet SV.02Scale: 1"=30' Date: May 2021 by Alfred Benesch & Company.

- Portion of the parcel is located in inland wetlands as delineated by Rema Ecological Services per reference map #2.
- 2. Proposed lot does not lie within a special flood hazard area per "FEMA flood insurence rate map, town of Vernon, Connecticut community panel number 0901310005C, revised August 9, 1999".
- Horizontal and vertical datums are based upon map references prepared by Alfred Benesch & Company.
- 4. All underground utility locations on this plan are approximate and may not be complete. Anyone using this information without verifying the locations does so at their own risk. No construction will be done on this site prior to utility mark out. "Call Before You Dig 1-800-922-4455".
- Boundary and existing conditions shown hereon are based on map references prepared by Alfred Benesch & Company.

( IN FEET )

1 inch = 30 ft.



TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

Ο S Ŋ R C it 001 *elopment* Main Street necticut 060 *Deve* East Conn *on* 56 von, 4 REVISIONS BY: LF/TAC CHK: JEU LC $\odot$  $\mathcal{O}$ C J 0 à, 5 Road 90 06  $\mathcal{O}$  $\Box$ dxÐ Ē *ville* cottvill U U ning $\frac{tt}{Co}$ -01 7 ຸດ  $T \alpha l c$ 501 /ernon, В **C** O Leern ID: 7 Th50 b Δ Wetland **Redesignation** Plan <u>DATE</u> 1-11-22 <u>SCALE</u> 1"=30'

> JOB NUMBER 2021–083

> > <u>SHEET</u>

1 of 1

\Acad\2021 Civil 3D\2021-083 Vernon Development - 501 Talcottville Rd\Russo Drawings\2021-083 A.dwg



# 501 Talcottville Road Vernon, Connecticut



KEY PLAN MAP

Applicant

Vernon Development LLC 56 East Main Street Avon, CT 06001 (860) 677-5607



Owner

501 Talcottville Road LLC 43 Ridgecrest Lane Bristol, CT 06010-2910



J.R. Russo & Associates, LLC 1 Shoham Rd East Windsor, CT 06088 • CT 860.623.0569 • MA 413.785.1158 www.jrrusso.com • info@jrrusso.com



## ALTERNATE #1

#### DRAWING INDEX SHEET TITLE SHEET NO. LATEST REVISION <u>CIVIL</u> COVER SHEET 4-06-2022 EXISTING CONDITIONS & DEMOLITION PLAN 3-17-2022 3-17-2022 LAYOUT PLAN · 3 of 12 3-17-2022 GRADING & EROSION & SEDIMENT CONTROL PLAN ••••4 of 12 STORM SEWER PLAN 3-17-2022 3-28-2022 4-06-2022 3-17-2022 EROSION & SEDIMENT CONTROL NOTES 8 of 12 3-17-2022 DETAILS 3-17-2022 DETAILS DETAILS 3-17-2022 3-17-2022



<u>Reference Maps:</u>

1. "Boundary Survey Prepared for 501 Talcottville Road LLC, 501 Talcottville Road (CT Route 83) & Dart Hill Road, Vernon, Connecticut" Sheet SV.01, Scale: 1"=50' Date: May 2021 by Alfred Benesch & Company.

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REVISIONS

BY: LF/TAC CHK: JEU

2. "Topographic Survey Prepared for 501 Talcottville Road LLC, 501 Talcottville Road (CT Route 83) & Dart Hill Road, Vernon, Connecticut" Sheet SV.02Scale: 1"=30' Date: May 2021 by Alfred Benesch & Company.

Notes:

- 1. Portion of the parcel is located in inland wetlands as delineated by Rema Ecological Services per reference map #2.
- 2. Proposed lot does not lie within a special flood hazard area per "FEMA flood insurence rate map, town of Vernon, Connecticut community panel number 0901310005C, revised August 9, 1999".
- 3. Horizontal and vertical datums are based upon map references prepared by Alfred Benesch & Company.
- 4. All underground utility locations on this plan are approximate and may not be complete. Anyone using this information without verifying the locations does so at their own risk. No construction will be done on this site prior to utility mark out. "Call Before You Dig 1-800-922-4455".
- 5. Boundary and existing conditions shown hereon are based on map references prepared by Alfred Benesch & Company.
- 6. Line striping in Talcottville Road (Rte. 83) approximated based on aerial photography.





## SAWCUT & REMOVE





:\Acad\2021 Civil 3D\2021-083 Vernon Development - 501 Talcottville Rd\Russo Drawings\2021-083 A.dwg



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\cad\2021 Civil 3D\2021-083 Vernon Development - 501 Talcottville Rd\Russo Drawings\2021-083 B - Pushed forward



y Area Ple	antina								
		Svm	Quan	Rotanical Name	Common Name				
ical Name	Common Name	Size	Root	<u> </u>	Quun.	Doranicar Narric	CONTINUING		
Carnario	Commentario	0120	NOOI	LS	1	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM		
RUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	3in3 1/2in. CAL	B&B	NS	2	NYSSA SYLVATICA	BLACK TUPELO		
NADENSIS	EASTERN REDBUD	2in-2 1/2in. CAL	B&B	QR	1	QUERCUS RUBRA	RED OAK		
TRIACANTHOS 'SHADEMASTER'	SHADEMASTER HONEYLOCUST	3in3 1/2in. CAL	B&B	AMC	6	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY - MULTIS		
S VIRGINIANA 'EMERALD SENTINEL'	EMERALD SENTINEL EASTERN RED-CEDAR	5ft6ft. Ht.	B&B	CLR	31	CLETHRA ALNIFOLIA 'RUBY SPICE'	RUBY SPICE SUMMERSWEET		
RON TULIPIFERA	TULIPTREE	3in3 1/2in. CAL	B&B	VB	12	VIBURNUM X BURKWOODII	BURKWOOD VIBURNUM		
LLERYANA 'CHANTICLEER'	ORNAMENTAL PEAR	3in3 1/2in. CAL	B&B	VD	24	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM		
ERRULATA 'KWANZAN'	KWANZAN CHERRY	3in3 1/2in. CAL	B&B	AP	40	ADIANTUM PEDATUM	MAIDENHAIR FERN		
CIDENTALIS 'NIGRA'	DARK AMERICAN ARBORVITAE	4ft5ft. Ht.	B&B	DP	20	DENNSTAEDTIA PUNCTILOBULA	HAY SCENTED FERN		
X WAREI 'LONG'	REGAL PRINCE OAK - FASTIGIATE FORM	3in3 1/2in. CAL	B&B	00	20	OSMUNDA CINNAMOMEA	CINNAMON FERN		

SEED MIXTURE FOR:	
LATE SUMMER / EARLY FALL / EARLY	SPRING
PLANTING. SOW AT RATE OF 4 LBS/*	1000 S.F.
CREEPING RED FESCUE	35 PARTS
CHEWINGS RED FESCUE	20 PARTS
KENTUCKY 31 TALL FESCUE	15 PARTS
ROUGH BLUEGRASS	10 PARTS
BARON BLUEGRASS	20 PARTS
SEED MIXTURE FOR PLANTING MAY	1 TO LATE
SUMMER. SOW AT A RATE OF 6 LBS	/1000 S.F.
CREEPING RED FESCUE	35 PARTS
CHEWINGS RED FESCUE	20 PARTS
KENTUCKY 31 TALL FESCUE	20 PARTS
DOMESTIC RYEGRASS	25 PARTS

PROPERTY LINE
WETLAND LINE
100' UPLAND REVIEW AREA
PROPOSED DECIDUOUS TREE
PROPOSED FLOWERING TREE
PROPOSED EVERGREEN TREE
PROPOSED SHRUB
PLANT LABEL & COUNT
EXISTING TREELINE
DETENTION BASIN MIX
LAWN SEED MIX
SLOPE MIX

lanting Plan
DATE
04-06-2022
<u>SCALE</u>
1"=30'
JOB NUMBER
2021-083
SHEET 7 of 12

## PERMANENT SEEDING (PS)

#### SPECIFICATIONS

#### Time Of Year

Seeding dates in Connecticut are normally April 1 through June 15 and August 15 through October 1. Spring seedings give the best results and spring seedings of all mixes with legumes is recommended. There are two exceptions to the above dates. The first exception is when seedings will be made in the areas of Connecticut known as the Coastal Slope and the Connecticut River Valley. The Coastal Slope includes the coastal towns of New London, Middlesex, New Haven, and Fairfield counties. In these areas, with the exception of crown vetch (when crown vetch is seeded in late summer, at least 35% of the seed should be hard seed (unscarified), the final fall seeding dates can be extended and additional 15 days. The second exception is frost crack or dormant seeding, the seed is applied during the time of year when no germination can be expected, normally November through February. Germination will take place when weather conditions improve, mulching is extremely important to protect the seed from wind and surface erosion and to provide erosion protection until the seeding becomes established.

#### Site Preparation

Grade in accordance with the Land Grading measure which is in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Install all necessary surface water controls.

For areas to be mowed remove all surface stones 2 inches or larger. Remove all other debris such as wire, cable tree roots, pieces of concrete, clods, lumps, or other unsuitable material.

#### Seed Selection

Lawn Areas: Premium Seed Mix for Sun and Shade. Stormwater Basin: New England Erosion Control/Restoration Mix by New England Wetland Plants, Inc. or approved equal.

#### Seedbed Preparation

Apply topsoil, if necessary, in accordance with the Topsoiling measure which is in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source).

Where soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent and limestone at 4 tons per acre or 200 pounds per 1,000 square feet.

Work lime and fertilizer into the soil to a depth of 3 to 4 inches with a disc or other suitable equipment.

Inspect seedbed just before seeding. If the soil is compacted, crusted or hardened, scarify the area prior to seeding.

#### Seed Application

Apply selected seed at rates per manufacturer's recommendations uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder (slurry including seed, fertilizer). Normal seeding depth is from 0.25 to 0.5 inch. Increase seeding rates by 10% when hydroseeding or frost crack seeding. Seed warm season grasses during the spring period only.

#### Mulching

See guidelines in the Mulch For Seed measures.

#### MAINTENANCE

Inspect temporary soil protection area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater during the first growing season.

Where seed has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

## TEMPORARY SEEDING (TS)

#### **SPECIFICATIONS** Site Preparation

Install needed erosion control measures such as diversions, grade stabilization structures, sedimentation basins and grassed waterways in accordance with the approved plan.

Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application and mulch anchoring.

#### Seedbed Preparation

Loosen the soil to a depth of 3-4 inches with a slightly roughened surface. If the area has been recently loosened or disturbed, no further roughening is required. Soil preparation can be accomplished by tracking with a bulldozer, discing harrowing, raking or dragging with a section of chain link fence.

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source).

If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent.

#### <u>Seeding</u>

Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder. The temporary seed shall be Rye (grain) applied at a rate of 120 pounds per acre. Increase seeding rates by 10% when hydroseeding.

See guidelines in the Mulch For Seed measures.

#### MAINTENANCE

Inspect temporary seeding area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater for seed and mulch movement and rill erosion.

Where seed has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

#### MULCH FOR SEED (MS)

#### **SPECIFICATIONS**

Types of Mulches within this specification include, but are not limited to:

**1. Hay:** The dried stems and leafy parts of plants cut and harvested, such as alfalfa, clovers, other forage legumes and the finer stemmed, leafy grasses. The average stem length should not be less than 4 inches. Hay that can be windblown should be anchored to hold it in place.

2. Straw: Cut and dried stems of herbaceous plants, such as wheat, barley, cereal rye, or brome. The average stem length should not be less than 4 inches. Straw that can be windblown should be anchored to hold it in place.

3. Cellulose Fiber: Fiber origin is either virgin wood,

post-industrial/pre-consumer wood or post consumer wood complying with materials specification (collectively referred to as "wood fiber"), newspaper, kraft paper, cardboard (collectively referred to as "paper fiber") or a combination of wood and paper fiber. Paper fiber, in particular, shall not contain boron, which inhibits seed germination. The cellulose fiber must be manufactured in such a manner that after the addition to and agitation in slurry tanks with water, the fibers in the slurry become uniformly suspended to form a homogeneous product. Subsequent to hydraulic spraying on the ground, the mulch shall allow for the absorption and percolation of moisture and shall not form a tough crust such that it interferes with seed germination or growth. Generally applied with tackifier and fertilizer. Refer to manufacturer's specifications for application rates needed to attain 80%–95% coverage without interfering with seed germination or plant growth. Not recommended as a mulch for use when seeding occurs outside of the recommended seeding dates.

*Tackifiers* within this specification include, but are not limited to: Water soluble materials that cause mulch particles to adhere to one another, generally consisting of either a natural vegetable gum blended with gelling and hardening agents or a blend of hvdrophilic polymers, resins, viscosifiers, sticking aids and gums. Good for areas intended to be mowed. Cellulose fiber mulch may be applied as a tackifier to other mulches, provided the application is sufficient to cause the other mulches to adhere to one another. Emulsified asphalts are specifically prohibited for use as tackifiers due to their potential for causing water pollution following its application.

Nettings within this specification include, but are not limited to: Prefabricated openwork fabrics made of cellulose cords, ropes, threads, or biodegradable synthetic material that is woven, knotted or molded in such a manner that it holds mulch in place until vegetation growth is sufficient to stabilize the soil. Generally used in areas where no mowing is planned.

#### Site Preparation

Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application and mulch anchoring.

Timing: Applied immediately following seeding. Some cellulose fiber may be applied with seed to assist in marking where seed has been sprayed, but expect to apply a second application of cellulose fiber to meet the requirements of Mulch For Seed in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition

Spreading: Mulch material shall be spread uniformly by hand or machine resulting in 80%–95% coverage of the disturbed soil when seeding within the recommended seeding dates. Applications that are uneven can result in excessive mulch smothering the germinating seeds. For hay or straw anticipate an application rate of 2 tons per acre. For cellulose fiber follow manufacture's recommended application rates to provided 80%-95% coverage.

When seeding outside the recommended seeding dates, increase mulch application rate to provide between 95%-100% coverage of the disturbed soil. For hay or straw anticipate an application rate to 2.5 to 3 tons per acre.

When spreading hav mulch by hand, divide the area to be mulched into approximately 1,000 square feet and place 1.5-2 bales of hay in each section to facilitate uniform distribution.

For cellulose fiber mulch, expect several spray passes to attain adequate coverage, to eliminate shadowing, and to avoid slippage.

Anchoring: Expect the need for mulch anchoring along the shoulders of actively traveled roads, hill tops and long open slopes not protected by wind breaks.

When using netting, the most critical aspect is to ensure that the netting maintains substantial contact with the underlying mulch and the mulch, in turn, maintains continuos contact with the soil surface. Without such contact, the material is useless and erosion can be expected to occur.

#### MAINTENANCE

Inspect mulch for seed area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater until the grass has germinated to determine maintenance needs.

Where mulch has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed

## SOIL ERSOION & SEDIMENT CONTROL NOTES

codes.

1. The contractor/developer shall notify the Town Staff prior to construction in accordance with the local approvals and permits.

2. All soil erosion and sediment control work shall be done in strict accordance with the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

3. Any additional erosion/sediment control deemed necessary by the engineer during construction, shall be installed by the developer. In addition, the developer shall be responsible for the repair/replacement and/or maintenance of all erosion control measures until all disturbed areas are stabilized to the satisfaction of the town staff.

4. All soil erosion and sediment control operations shall be in place prior to any grading operations and installation of proposed structures or utilities and shall be left in place until construction is completed and/or area is stabilized.

5. In all areas, removal of trees, bushes and other vegetation as well as disturbance of the soil is to be kept to an absolute minimum while allowing proper development of the site. During construction, expose as small an area of soil as possible for as short a time as possible.

6. The developer shall practice effective dust control per the soil conservation service handbook during construction and until all areas are stabilized or surface treated. The developer shall be responsible for the cleaning of nearby streets of any debris from these construction activities.

7. All fill areas shall be compacted sufficiently for their intended purpose and as required to reduce slipping, erosion or excess saturation. Fill intended to support buildings, structures, conduits, etc., shall be compacted in accordance with local requirements or

8. Topsoil is to be stripped and stockpiled in amounts necessary to complete finished grading of all exposed areas requiring topsoil. The stockpiled topsoil is to be located as designated on the plans. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed sodding or seeding.

9. Any and all fill material is to be free of brush, rubbish, timber, logs vegetative matter and stumps in amounts that will be detrimental to constructing stable fills. Maximum side slopes of exposed surfaces of earth to be 3:1 or as otherwise specified by local authorities.

10. Soil stabilization should be completed within 5 days of clearing or inactivity in construction.

11. Waste Materials – All waste materials (including wastewater) shall be disposed of in accordance with local, state and federal law. Litter shall be picked up at the end of each work day.

12. The Contractor shall maintain on-site additional erosion control materials as a contingency in the event of a failure or when required to shore up existing BMPs. At a minimum, the on-site contingency materials should include 30 feet of silt fence and 5 straw haybales with 10 stakes.



SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, STORRS, CONNECTICUT





ANTI-TRACKING EXIT PAD DETAIL (CE) NOT TO SCALF



Silt Sack - Type B Curb Opening -Curb Deflector nsert 1" Rebar\_For aa Removal From Inle (Rebar Not Included) SIZE L "X W "X D "

831 Cardwell Road ichmond, VA 23234

NOTE: SILT SACK SHALL BE SIZED TO FIT EACH INLET GRATE (SINGLE OR DOUBLE) AND SHALL BE CLEANED AND MAINTAINED UNTIL THE CONTRIBUTING WATERSHED IS STABILIZED WITH VEGETATION AND/OR COMPACTED PROCESSED STONE BASE.



NOT TO SCALE

_	'ARCEL AREA: 2.0 ac ESPONSIBLE PERSONN ROSION AND SEDIMEN CHECKLIST:	: Construction of res NEL: Eric Spungi NT CONTROL PLAI	a Daycare Facility in (860) 989–949 IN PREPARER: J.f	, 4 R. Russo & Ass	ociates, LLC		SURVEYORS • SERVING C <sup>-</sup> SERVING C CT 06088 • CT 860.623.07 Secont • info@jrrusso.co
	Work Description Erosion & Sediment Control Measures	Location	Date Installed	Initials	Date Removed	Initials	R. Russ
1	Install construction entrance	As shown on plan.					J.L J.L Www
]	Install perimeter sediment barriers	As shown on plan.					oham R
	Install inlet protection at CBs	As installed					
М		SURES:					<i>tt LL</i> reet 06001
	Location	Description o	r Number		Date	Initials	ant pmen in Stu ticut
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	Construction storm drainage. Seed by Install other site of Install parking lot Install concrete sid Pave binder course Stabilize remaining Install landscaping Install pavement t placing pavement Apply paint stripin Remove sediment	nwater manager asin and wetlar utilities. and driveway b dewalks and du e. g areas to rece & wetland enh top course in a top course. ng. barriers after s	ment basin, exc ad creation arec pase. mpster pad. ive topsoil and nancement plant Il areas. Sweep site is fully stab	avate wetland is as soon as permanently ings. binder course bilized.	l creation area, s practicable. seed as soon as e and apply tack	and install possible. coat prior to	22 PAGE NUMBERS
ns iu / m	struction of this sit ary 2023, pending soil disturbance an nanent vegetation. Contractor shall ke	e is anticipated approvals. Ter ad maintained t eep the area of	d to begin in th mporary erosion hroughout cons <sup>a</sup> disturbance to	ne spring of 2 control meas truction until a minimum	2022 and be cor sures shall be in soils have been and establish ve	nplete by stalled prior to stabilized with getative cover	BEAISIONS
e d si	in and Sediment ( plans and shall implane and shall be	on as practical ordance with th Control", as am mediately notify	All soll and el ese plans and t rended. The Con the Engineer of	the "Connection the "Connection tractor shall of any discrep	verify all conditions	es for Soil ons noted on	BY: LF/TAC CHK: JEU
a: ui ui te ch in	sures until all distu ired to keep silt fe imulated sediment erial is to be sprea h are not to be po itain proper filtering isure efficient sedir station has been es	responsible for ince functional. has reached or id and stabilize aved or built or g action. Silt fe ment capture u stablished.	a stabilized. Acc In all cases, do ne-half above th d in areas not n. Silt fence (GS ence (GSF) are ntil all areas at	umulated sed eposits shall he ground he subject to er SF) is to be to remain in pove the eros	iment shall be robe removed when ight of the silt to osion, or to be replaced as nece place and shall ion checks are s	emoved as in the fence. This used in areas ssary to be maintained stabilized and	rience d, LLC 010 Zone: C)
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Table 1. Shrubs									
Scientific Name SHRUBS		<u>Zone</u>	<u>Common Na</u>	<u>ime</u>	<u>Size</u>	<u>Shade</u> tolerant?	Wetland Creation Area	Wetland Enhancement Area	<u>Totals</u>
Photinia pyrifolia		С	Chokeberry		3'-4'	Ν	0	4	4
Clethra alnifolia		B,C	Sweet peppe	rbush	3'-4'	Y	4	0	4
llex verticillata A.B.C			Winterberry		3'-4'	Y	3	2	5
Sambucus nigra		В	Common eld	erberry	3'-4'	Ν	0	2	2
Swida amomum		B,C	Silky dogwoo	bd	3'-4'	Ν	0	3	3
Swida racemosum		B,C	Gray dogwoo	bd	3'-4'	Y	5	2	7
Vaccinium corymbosum		B,C	Highbush blu	leberry	3'-4'	Y	2	0	2
Viburnum cassinoides		В	Wild raisin		3'-4'	Y	2	0	2
Viburnum opulus		B,C	Cranberry vit	ournum	3'-4'	Y	0	3	3
Totals:							16	16	32
Table 2.       Herbs         Hydrologic Zones:       Zone A:       Sature         Zone C:       moist, poorly to moderately         Scientific Name	rated/Shallo / well draine Zone	ow inundation ed <b>Common</b>	n; <b>Zone B</b> :tempo	orary satural <b>Form</b>	tion/flooding;	Spacing	Wetland Creation Area	Wetland Enhancement Area	<u>Totals</u>
Asclepias incarnata	B. C	Swamp m	nilkweed	2"plug	OBL	2'OC	10	40	50
Carex crinita	A. B	Fringed s	edae	2"plua	OBL	2'OC	25	25	50
Osmundastrum cinnamomeum	B.C	Cinnamo	n fern	#1 pot	FACW	2'OC	5	5	10
Eutrochium maculatum	<u>_</u> , с В	Spotted .	oe Pve weed	2" plug	FACW	1.5'OC	10	40	50
Carex Iupulina	 А, В	Hop sedg	le	2" plug	FACW+	2'OC	10	40	50
Total:		. 0		. 0			60	150	210

Table 1. Shrubs									
<u>Scientific Name</u> SHRUBS		<u>Zone</u>	<u>Common Na</u>	<u>ime</u>	<u>Size</u>	<u>Shade</u> tolerant?	Wetland Creation Area	Wetland Enhancement Area	<u>Totals</u>
Photinia pyrifolia		С	Chokeberry		3'-4'	Ν	0	4	4
Clethra alnifolia		B,C	Sweet peppe	rbush	3'-4'	Y	4	0	4
llex verticillata		A,B,C	Winterberry		3'-4'	Y	3	2	5
Sambucus nigra		В	Common eld	erberry	3'-4'	Ν	0	2	2
Swida amomum		B,C	Silky dogwoo	bd	3'-4'	N	0	3	3
Swida racemosum		B,C	Gray dogwoo	bd	3'-4'	Y	5	2	7
Vaccinium corymbosum		B,C	Highbush blu	leberry	3'-4'	Y	2	0	2
Viburnum cassinoides		В	Wild raisin		3'-4'	Y	2	0	2
Viburnum opulus		B,C	Cranberry vit	ournum	3'-4'	Y	0	3	3
Totals:							16	16	32
Table 2. Herbs									
Hydrologic Zones: Zone A: Satur Zone C: moist, poorly to moderately Scientific Name	rated/Shallo well draine	ow inundatio ed Commor	n; <b>Zone B</b> :tempo	prary satura	tion/flooding; NWI*	Spacing	Wetland Creation Area	Wetland Enhancement Area	<u>Totals</u>
Asclepias incarnata	B C	Swamp n	nilkweed	2"plug	OBI	2'0C	10	40	50
Carex crinita	A. B	Fringed s	edae	2"plug	OBL	2'OC	25	25	50
Osmundastrum cinnamomeum	B.C	Cinnamo	n fern	#1 pot	FACW	2'0C	5	5	10
Eutrochium maculatum	<u>_</u> , с В	Spotted J	loe Pve weed	2" plua	FACW	1.5'OC	10	40	50
Carex Iupulina	A, B	Hop sedg	je	2" plug	FACW+	2'OC	10	40	50
Total:			-				60	150	210

Seed Mix to be applied at Wetland Creation Area: New England Wetmix at 11b/2,500 sq. ft. (Supplier: New England Wetland Plants, Inc.)

OR WETLAND CREATION & ENHANCEMENT	AREAS
ROAD, VERNON, CONNECTICUT	



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# 501 Talcottville Road Vernon, Connecticut



KEY PLAN MAP

Applicant

Vernon Development LLC 56 East Main Street Avon, CT 06001 (860) 677-5607



Owner

501 Talcottville Road LLC 43 Ridgecrest Lane Bristol, CT 06010-2910



J.R. Russo & Associates, LLC 1 Shoham Rd East Windsor, CT 06088 • CT 860.623.0569 • MA 413.785.1158 www.jrrusso.com • info@jrrusso.com



# ALTERNATE #2

### DRAWING INDEX SHEET TITLE SHEET NO. LATEST REVISION <u>CIVIL</u> COVER SHEET 4-06-2022 EXISTING CONDITIONS & DEMOLITION PLAN 3-26-2022 3-26-2022 LAYOUT PLAN · 3 of 12 3-26-2022 GRADING & EROSION & SEDIMENT CONTROL PLAN 4 of 12 STORM SEWER PLAN 3-26-2022 3-28-2022 4-06-2022 PLANTING PLAN 7 of 12 3-26-2022 EROSION & SEDIMENT CONTROL NOTES 8 of 12 3-26-2022 DETAILS 3-26-2022 DETAILS DETAILS 3-26-2022 3-26-2022



<u>Reference Maps:</u>

1. "Boundary Survey Prepared for 501 Talcottville Road LLC, 501 Talcottville Road (CT Route 83) & Dart Hill Road, Vernon, Connecticut" Sheet SV.01, Scale: 1"=50' Date: May 2021 by Alfred Benesch & Company.

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2 of 12

2. "Topographic Survey Prepared for 501 Talcottville Road LLC, 501 Talcottville Road (CT Route 83) & Dart Hill Road, Vernon, Connecticut" Sheet SV.02Scale: 1"=30' Date: May 2021 by Alfred Benesch & Company.

<u>Notes:</u>

- 1. Portion of the parcel is located in inland wetlands as delineated by Rema Ecological Services per reference map #2.
- 2. Proposed lot does not lie within a special flood hazard area per "FEMA flood insurence rate map, town of Vernon, Connecticut community panel number 0901310005C, revised August 9, 1999".
- 3. Horizontal and vertical datums are based upon map references prepared by Alfred Benesch & Company.
- 4. All underground utility locations on this plan are approximate and may not be complete. Anyone using this information without verifying the locations does so at their own risk. No construction will be done on this site prior to utility mark out. "Call Before You Dig 1-800-922-4455".





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\cad\2021 Civil 3D\2021-083 Vernon Development - 501 Talcottville Rd\Russo Drawings\2021-083 B - Pushed forward



Ho	abi	tat	Planting

/	A41								
/	<b>Y</b> ' / .:			H	abi	tat Planting	7		
g Area Ple	anting			Sym.	Quan.	Botanical Name	Common Name	Size	Root
ical Name	Common Name	Size	Root	LS LT	1	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM	3in3 1/2in. CAL 3in3 1/2in. CAL	B&B B&B
RUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	3in3 1/2in. CAL	B&B	NS	1	NYSSA SYLVATICA	BLACK TUPELO	3in3 1/2in. CAL	B&B
ANADENSIS	EASTERN REDBUD	2in-2 1/2in. CAL	B&B	QR	1	QUERCUS RUBRA	RED OAK	2in2 1/2in. CAL	B&B
TRIACANTHOS 'SHADEMASTER'	SHADEMASTER HONEYLOCUST	3in3 1/2in. CAL	B&B	AMC	3	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY - MULTISTEM SHRUB FORM	4ft5ft.	CONT.
S VIRGINIANA 'EMERALD SENTINEL'	EMERALD SENTINEL EASTERN RED-CEDAR	5ft6ft. Ht.	B&B	CLR	28	CLETHRA ALNIFOLIA 'RUBY SPICE'	RUBY SPICE SUMMERSWEET	24in30in. Ht.	CONT.
DRON TULIPIFERA	TULIPTREE	3in3 1/2in. CAL	B&B	VB	12	VIBURNUM X BURKWOODII	BURKWOOD VIBURNUM	24in30in. Ht.	CONT.
LLERYANA 'CHANTICLEER'	ORNAMENTAL PEAR	3in3 1/2in. CAL	B&B	VD	24	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	24in30in. Ht.	CONT.
ERRULATA 'KWANZAN'	KWANZAN CHERRY	3in3 1/2in. CAL	B&B	AP	40	ADIANTUM PEDATUM	MAIDENHAIR FERN		CONT.
CIDENTALIS 'NIGRA'	DARK AMERICAN ARBORVITAE	4ft5ft. Ht.	B&B	DP	20	DENNSTAEDTIA PUNCTILOBULA	HAY SCENTED FERN		CONT.
X WAREI 'LONG'	REGAL PRINCE OAK - FASTIGIATE FORM	3in3 1/2in. CAL	B&B	00	20	OSMUNDA CINNAMOMEA	CINNAMON FERN		CONT.

SEED MIXTURE FOR:	
LATE SUMMER / EARLY FALL / EARL	Y SPRING
PLANTING. SOW AT RATE OF 4 LBS	6/1000 S.F.
CREEPING RED FESCUE	35 PARTS
CHEWINGS RED FESCUE	20 PARTS
KENTUCKY 31 TALL FESCUE	15 PARTS
ROUGH BLUEGRASS	10 PARTS
BARON BLUEGRASS	20 PARTS
SEED MIXTURE FOR PLANTING MA	Y 1 TO LATE
SUMMER. SOW AT A RATE OF 6 LB	S/1000 S.F.
CREEPING RED FESCUE	35 PARTS
CHEWINGS RED FESCUE	20 PARTS
KENTUCKY 31 TALL FESCUE	20 PARTS
DOMESTIC RYEGRASS	25 PARTS

# PERMANENT SEEDING (PS)

### SPECIFICATIONS

### Time Of Year

Seeding dates in Connecticut are normally April 1 through June 15 and August 15 through October 1. Spring seedings give the best results and spring seedings of all mixes with legumes is recommended. There are two exceptions to the above dates. The first exception is when seedings will be made in the areas of Connecticut known as the Coastal Slope and the Connecticut River Valley. The Coastal Slope includes the coastal towns of New London, Middlesex, New Haven, and Fairfield counties. In these areas, with the exception of crown vetch (when crown vetch is seeded in late summer, at least 35% of the seed should be hard seed (unscarified), the final fall seeding dates can be extended and additional 15 days. The second exception is frost crack or dormant seeding, the seed is applied during the time of year when no germination can be expected. normally November through February. Germination will take place when weather conditions improve, mulching is extremely important to protect the seed from wind and surface erosion and to provide erosion protection until the seeding becomes established.

### Site Preparation

Grade in accordance with the Land Grading measure which is in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Install all necessary surface water controls.

For areas to be mowed remove all surface stones 2 inches or larger. Remove all other debris such as wire, cable tree roots, pieces of concrete, clods, lumps, or other unsuitable material.

### Seed Selection

Lawn Areas: Premium Seed Mix for Sun and Shade. Stormwater Basin: New England Erosion Control/Restoration Mix by New England Wetland Plants, Inc. or approved equal.

### Seedbed Preparation

Apply topsoil, if necessary, in accordance with the Topsoiling measure which is in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source).

Where soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent and limestone at 4 tons per acre or 200 pounds per 1,000 square feet.

Work lime and fertilizer into the soil to a depth of 3 to 4 inches with a disc or other suitable equipment.

Inspect seedbed just before seeding. If the soil is compacted, crusted or hardened, scarify the area prior to seeding.

### Seed Application

Apply selected seed at rates per manufacturer's recommendations uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder (slurry including seed, fertilizer). Normal seeding depth is from 0.25 to 0.5 inch. Increase seeding rates by 10% when hydroseeding or frost crack seeding. Seed warm season grasses during the spring period only.

<u>Mulching</u> See guidelines in the Mulch For Seed measures.

### MAINTENANCE

Inspect temporary soil protection area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater during the first growing season.

Where seed has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

### TEMPORARY SEEDING (TS)

### **SPECIFICATIONS** Site Preparation

Install needed erosion control measures such as diversions, grade stabilization structures, sedimentation basins and grassed waterways in accordance with the approved plan.

Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application and mulch anchoring.

### Seedbed Preparation

Loosen the soil to a depth of 3-4 inches with a slightly roughened surface. If the area has been recently loosened or disturbed, no further roughening is required. Soil preparation can be accomplished by tracking with a bulldozer, discing harrowing, raking or dragging with a section of chain link fence.

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source).

If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent.

### Seeding

Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder. The temporary seed shall be Rye (grain) applied at a rate of 120 pounds per acre. Increase seeding rates by 10% when hydroseeding.

See guidelines in the Mulch For Seed measures.

# MAINTENANCE

Inspect temporary seeding area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater for seed and mulch movement and rill erosion.

Where seed has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

### MULCH FOR SEED (MS)

### **SPECIFICATIONS**

### Types of Mulches within this specification include, but are not limited to:

**1. Hay:** The dried stems and leafy parts of plants cut and harvested, such as alfalfa, clovers, other forage legumes and the finer stemmed, leafy grasses. The average stem length should not be less than 4 inches. Hay that can be windblown should be anchored to hold it in place.

2. Straw: Cut and dried stems of herbaceous plants, such as wheat, barley, cereal rye, or brome. The average stem length should not be less than 4 inches. Straw that can be windblown should be anchored to hold it in place.

### 3. Cellulose Fiber: Fiber origin is either virgin wood,

post-industrial/pre-consumer wood or post consumer wood complying with materials specification (collectively referred to as "wood fiber"), newspaper, kraft paper, cardboard (collectively referred to as "paper fiber") or a combination of wood and paper fiber. Paper fiber, in particular, shall not contain boron, which inhibits seed germination. The cellulose fiber must be manufactured in such a manner that after the addition to and agitation in slurry tanks with water, the fibers in the slurry become uniformly suspended to form a homogeneous product. Subsequent to hydraulic spraying on the ground, the mulch shall allow for the absorption and percolation of moisture and shall not form a tough crust such that it interferes with seed germination or growth. Generally applied with tackifier and fertilizer. Refer to manufacturer's specifications for application rates needed to attain 80%–95% coverage without interfering with seed germination or plant growth. Not recommended as a mulch for use when seeding occurs outside of the recommended seeding dates.

*Tackifiers* within this specification include, but are not limited to: Water soluble materials that cause mulch particles to adhere to one another, generally consisting of either a natural vegetable gum blended with gelling and hardening agents or a blend of hvdrophilic polymers, resins, viscosifiers, sticking aids and gums. Good for areas intended to be mowed. Cellulose fiber mulch may be applied as a tackifier to other mulches, provided the application is sufficient to cause the other mulches to adhere to one another. Emulsified asphalts are specifically prohibited for use as tackifiers due to their potential for causing water pollution following its application.

Nettings within this specification include, but are not limited to: Prefabricated openwork fabrics made of cellulose cords, ropes, threads, or biodegradable synthetic material that is woven, knotted or molded in such a manner that it holds mulch in place until vegetation growth is sufficient to stabilize the soil. Generally used in areas where no mowing is planned.

### Site Preparation

Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application and mulch anchoring.

Timing: Applied immediately following seeding. Some cellulose fiber may be applied with seed to assist in marking where seed has been sprayed, but expect to apply a second application of cellulose fiber to meet the requirements of Mulch For Seed in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition

Spreading: Mulch material shall be spread uniformly by hand or machine resulting in 80%–95% coverage of the disturbed soil when seeding within the recommended seeding dates. Applications that are uneven can result in excessive mulch smothering the germinating seeds. For hay or straw anticipate an application rate of 2 tons per acre. For cellulose fiber follow manufacture's recommended application rates to provided 80%-95% coverage.

When seeding outside the recommended seeding dates, increase mulch application rate to provide between 95%-100% coverage of the disturbed soil. For hay or straw anticipate an application rate to 2.5 to 3 tons per acre.

When spreading hay mulch by hand, divide the area to be mulched into approximately 1,000 square feet and place 1.5-2 bales of hay in each section to facilitate uniform distribution.

For cellulose fiber mulch, expect several spray passes to attain adequate coverage, to eliminate shadowing, and to avoid slippage.

Anchoring: Expect the need for mulch anchoring along the shoulders of actively traveled roads, hill tops and long open slopes not protected by wind breaks.

When using netting, the most critical aspect is to ensure that the netting maintains substantial contact with the underlying mulch and the mulch, in turn, maintains continuos contact with the soil surface. Without such contact, the material is useless and erosion can be expected to occur.

### MAINTENANCE

Inspect mulch for seed area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater until the grass has germinated to determine maintenance needs.

Where mulch has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed

- possible.
- codes.
- seeding.

## SOIL ERSOION & SEDIMENT CONTROL NOTES

1. The contractor/developer shall notify the Town Staff prior to construction in accordance with the local approvals and permits.

2. All soil erosion and sediment control work shall be done in strict accordance with the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

3. Any additional erosion/sediment control deemed necessary by the engineer during construction, shall be installed by the developer. In addition, the developer shall be responsible for the repair/replacement and/or maintenance of all erosion control measures until all disturbed areas are stabilized to the satisfaction of the town staff.

4. All soil erosion and sediment control operations shall be in place prior to any grading operations and installation of proposed structures or utilities and shall be left in place until construction is completed and/or area is stabilized.

5. In all areas, removal of trees, bushes and other vegetation as well as disturbance of the soil is to be kept to an absolute minimum while allowing proper development of the site. During construction, expose as small an area of soil as possible for as short a time as

6. The developer shall practice effective dust control per the soil conservation service handbook during construction and until all areas are stabilized or surface treated. The developer shall be responsible for the cleaning of nearby streets of any debris from these construction activities.

7. All fill areas shall be compacted sufficiently for their intended purpose and as required to reduce slipping, erosion or excess saturation. Fill intended to support buildings, structures, conduits, etc., shall be compacted in accordance with local requirements or

8. Topsoil is to be stripped and stockpiled in amounts necessary to complete finished grading of all exposed areas requiring topsoil. The stockpiled topsoil is to be located as designated on the plans. Topsoil shall not be placed while in a frozen or muddy condition, when the subarade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed sodding or

9. Any and all fill material is to be free of brush, rubbish, timber, logs vegetative matter and stumps in amounts that will be detrimental to constructing stable fills. Maximum side slopes of exposed surfaces of earth to be 3:1 or as otherwise specified by local authorities.

10. Soil stabilization should be completed within 5 days of clearing or inactivity in construction.

11. Waste Materials – All waste materials (including wastewater) shall be disposed of in accordance with local, state and federal law. Litter shall be picked up at the end of each work day.

12. The Contractor shall maintain on-site additional erosion control materials as a contingency in the event of a failure or when required to shore up existing BMPs. At a minimum, the on-site contingency materials should include 30 feet of silt fence and 5 straw haybales with 10 stakes.



SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, STORRS, CONNECTICUT





# ANTI-TRACKING EXIT PAD DETAIL (CE) NOT TO SCALF



Silt Sack - Type B -Curb Openina -Curb Deflector Insert 1" Rebar For 3ag Removal From Inle Rebar Not Included) -Silt Sack Dump Loops (Rebar Not Included SIZE L " X W " X D

31 Cardwell Road

SILT SACK SHALL BE SIZED TO FIT EACH INLET GRATE (SINGLE OR DOUBLE) AND SHALL BE CLEANED AND MAINTAINED UNTIL THE CONTRIBUTING WATERSHED IS STABILIZED WITH VEGETATION AND/OR COMPACTED PROCESSED STONE BASE.



NOT TO SCALE

PROJECT: The Learning LOCATION: 501 Talcotty PROJECT DESCRIPTION: PARCEL AREA: 2.0 act RESPONSIBLE PERSONN EROSION AND SEDIMEN CHECKLIST: Work Description Erosion & Sediment Control Measures Install construction entrance Install perimeter sediment barriers Install inlet protection at CBs			SURVEYORS • ENGINEER SERVING CT & MA	J.R. Russo & Associates, LLC	1Shoham Rd East Windsor, CT 06088 • CT 860.623.0569 • MA 413.78 www.irrusso.com	,					
MAINTENANCE OF MEAS Location Project Dates: Date of groundbreakin Date of final stabilize	SURES: Description on Description on a for project: Ation: Description of the second s	r Number		Date	Initials		Applicant	non Development LLC 56 East Main Street	Avon, Connecticut 06001		
is project is located e construction of a nstruction is as follo Install constructio Install sediment b Strip topsoil. Stoc Stockpiles shall be Install retaining w retaining wall con Begin building cor Construction storr drainage. Seed b Install other site Install other site Install concrete si Pave binder cours Stabilize remaining. Install landscaping Install pavement placing pavement Apply paint stripir Remove sediment nstruction of this si nuary 2023, pending y soil disturbance ar rmanent vegetation. e Contractor shall ke exposed soils as so d maintained in acco osion and Sediment e plans and shall im	at 501 Talcott 10,000 square f ws: n anti-tracking arriers (GSF) at kpile suitable a surrounded by alls. Place and struction. water managed asin and wetlar utilities. and driveway b dewalks and du e. g areas to rece wetland ent cop course in a top course in a top course. g. barriers after s te is anticipated approvals. Ten d maintained t eep the area of con as practical ordance with th Control", as arr mediately notify	ville Road in Ve foot daycare fac pad (CE). t project perime mount of topso y sediment bar d compact fill to ment basin, exc ad creation area ase. mpster pad. tive topsoil and nancement plan Il areas. Sweep site is fully stat d to begin in the mporary erosion hroughout cons f disturbance to ase plans and nended. The Cor y the Engineer of the repair/repl	rnon, Connect cility. The sur- eters. fil for reuse of iers (GSF). to establish su vavate wetland as as soon as permanently s binder course bilized. the spring of 2 control meas truction until the "Connection tractor shall of any discrep lacement/mair	icut. The propo ggested schedul n-site in areas bgrades coincide creation area, practicable. seed as soon as and apply tack 2022 and be col sures shall be in soils have been and establish ve measures shall cut DEP Guidelin verify all condit ancies.	shown. ent with and install s possible. < coat prior to stalled prior to stabilized with egetative cover be installed nes for Soil ions noted on erosion control	BY:	LF/TAC		S K: JEU	3-26-2022 TALCOTTVILLE RD ENTRANCE, APPLY VARIANCES	2-14-2022 PAGE NUMBERS
operty owner shall b nance schedule: aintain lawn & lands weep parking lot and spect catch basins of lean at least once p ollutants from struct ac-truck. Check con- spect infiltration bas epair eroded areas of orebay to remove a eduction is observed. or filtering of pollutar eeded.	POST CONSTRU POST CONSTRU POST CONSTRU POST CONSTRU POST CONSTRU e responsible for cape areas with paved areas a and storm man er year in April ures. Remove dition of hoods in annually for ind replace ripro- ccumulated sed Mow infiltration the second	JCTION MAINTEN n minimal pestic in and as necess accumulated oil (if applicable). evidence of hyc ap and vegetati iment every 10 on basin on a r let pipes month	IANCE NOTES: IANCE NOTES: I following parts is to per year, ary to prevent I, trash and e drocarbons and on as required years or wher regular basis to ily and remove	spring. , including after t the discharge excessive sedime d remove by va d. Dredge botton significant vol- to maintain as l e trash and det	* sweeping. of ent with c-truck. om of ume lawn area oris as		Ine realizing Luperverice Property Of	501 Talcottville Road, LLC 501 Talcottville Road	Vernon, Connecticut 06010	Parcel ID: 09-0007-0001D (Zone: C)	
						S	Erc edim I	DSION ent C Notes (ALT 2) DATE -11-22	& cont	ro	
							J(	<u>SCALE</u> 1"=20'	 R		

2021-083 SHEET

8 of 12

This project is loce the construction c construction is as 1. Install constru Install sedime 3. Strip topsoil.

- Stockpiles sho 4. Install retainir retaining wall
- Begin building

- Construction drainage. Se
- Install other
- Install parking Install concret
- Pave binder
- Stabilize rema Install landsco 12.
- 13. Install paveme placing paver 14. Apply paint s
- 15. Remove sedim

The property owner sho maintenance schedule:

Maintain Iawn &

- Sweep parking lot Inspect catch basi Clean at least on pollutants from st vac-truck. Check
- 4. Inspect infiltration Repair eroded area forebay to remov reduction is obser for filtering of po needed.













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Table 1. Shrubs									
<u>Scientific Name</u> SHRUBS		<u>Zone</u>	<u>Common Na</u>	ame	<u>Size</u>	<u>Shade</u> tolerant?	Wetland Creation Area	Wetland Enhancement Area	<u>Totals</u>
Photinia pyrifolia		С	Chokeberry		3'-4'	Ν	0	4	4
Clethra alnifolia		B,C	Sweet peppe	erbush	3'-4'	Y	4	0	4
llex verticillata A.B.C W			Winterberry		3'-4'	Y	3	2	5
Sambucus nigra		В	Common eld	erberry	3'-4'	Ν	0	2	2
Swida amomum		B,C	Silky dogwoo	bd	3'-4'	Ν	0	3	3
Swida racemosum		B,C	Gray dogwoo	bd	3'-4'	Y	5	2	7
Vaccinium corymbosum		B,C	Highbush blu	leberry	3'-4'	Y	2	0	2
Viburnum cassinoides		В	Wild raisin		3'-4'	Y	2	0	2
Viburnum opulus		B,C	Cranberry vit	ournum	3'-4'	Y	0	3	3
Totals:							16	16	32
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Hydrologic Zones: Zone A: Satur Zone C: moist, poorly to moderately	rated/Shallc / well draine	ow inundation ed	n; <b>Zone B</b> :tempo	orary satura	tion/flooding;		Wetland Creation Area	Wetland Enhancement Area	<u>Totals</u>
Scientific Name	<u>Zone</u>	Common	<u>Name</u>	<u>Form</u>	<u>NWI*</u>	<u>Spacing</u>			
Asclepias incarnata	B, C	Swamp m	nilkweed	2"plug	OBL	2'OC	10	40	50
Carex crinita	Α, Β	Fringed s	edge	2"plug	OBL	2'OC	25	25	50
Osmundastrum cinnamomeum	B, C	Cinnamor	n fern	#1 pot	FACW	2'OC	5	5	10
Eutrochium maculatum	В	Spotted J	loe Pye weed	2" plug	FACW	1.5'OC	10	40	50
Carex lupulina	A, B	Hop sedg	le	2" plug	FACW+	2'OC	10	40	50
Total:							60	150	210

Table 1. Shrubs									
<u>Scientific Name</u> SHRUBS		<u>Zone</u>	<u>Common Na</u>	<u>ame</u>	<u>Size</u>	<u>Shade</u> tolerant?	Wetland Creation Area	Wetland Enhancement Area	<u>Totals</u>
Photinia pyrifolia		С	Chokeberry		3'-4'	Ν	0	4	4
Clethra alnifolia		B,C	Sweet peppe	erbush	3'-4'	Y	4	0	4
llex verticillata A,B,C W			Winterberry		3'-4'	Y	3	2	5
Sambucus nigra B Com			Common eld	erberry	3'-4'	Ν	0	2	2
Swida amomum B,C Silk		Silky dogwoo	bd	3'-4'	N	0	3	3	
Swida racemosum		B,C	Gray dogwoo	bd	3'-4'	Y	5	2	7
Vaccinium corymbosum		B,C	Highbush blu	leberry	3'-4'	Y	2	0	2
Viburnum cassinoides		В	Wild raisin		3'-4'	Y	2	0	2
Viburnum opulus		B,C	Cranberry vit	ournum	3'-4'	Y	0	3	3
Totals:							16	16	32
Table 2. Herbs									
Hydrologic Zones: Zone A: Satu Zone C: moist, poorly to moderately	rated/Shallo / well draine	ow inundatio ed	n; <b>Zone B</b> :tempo	orary satura	ition/flooding;		Wetland Creation Area	Wetland Enhancement Area	<u>Totals</u>
<u>Scientific Name</u>	<u>Zone</u>	<u>Commor</u>	<u>n Name</u>	<u>Form</u>	<u>NWI*</u>	<u>Spacing</u>			
Asclepias incarnata	B, C	Swamp n	nilkweed	2"plug	OBL	2'OC	10	40	50
Carex crinita	А, В	Fringed s	edge	2"plug	OBL	2'OC	25	25	50
Osmundastrum cinnamomeum	B, C	Cinnamo	n fern	#1 pot	FACW	2'OC	5	5	10
Eutrochium maculatum	В	Spotted J	loe Pye weed	2" plug	FACW	1.5'OC	10	40	50
Carex lupulina	А, В	Hop sedg	je	2" plug	FACW+	2'OC	10	40	50
Total:							60	150	210

Seed Mix to be applied at Wetland Creation Area: New England Wetmix at 11b/2,500 sq. ft. (Supplier: New England Wetland Plants, Inc.)

OR WETLAND CREATION & ENHANCEMENT AREAS
ROAD, VERNON, CONNECTICUT

IShoham Rd East Windsor CT 06088 • CT 06088 • CT 06088 • CT 06088 • CT 06081 • MA Nowwirrusso.com • Info@irrusso.com	
Applicant       Vernon Development LLC       56 East Main Street       Avon, Connecticut 06001	VCES
REVISIONS BY: LF/TAC CHK: JEU	3-26-2022 TALCOTTVILLE RD ENTRANCE, APPLY VARIAN
The Learning Experience Property Of 501 Talcottville Road, LLC 501 Talcottville Road Vernon, Connecticut 06010 Parcel ID: 09-0007-0001D (Zone: C)	
Details (ALT 2)	
DATE 2-14-22 SCALE 1"=20' JOB_NUMBER	
2021–083 SHEET 12 of 12	

# DRAINAGE REPORT The Learning Experience 501 Talcottville Road Enfield, CT

# **ALTERNATIVE 1**

Revised March 17, 2022

Prepared for:

Vernon Development, LLC 56 East Main Street Avon, Connecticut 06001 (860) 677-5607

Project No. 2021-083

Prepared by:

J.R. Russo & Associates, LLC Land Surveyors & Professional Engineers P.O. Box 938 East Windsor, CT 06088 (860) 623-0569

### I. INTRODUCTION

### A. Project Description

Vernon Development, LLC and The Learning Experience are proposing the development of a 10,000 s.f. daycare center on Dart Hill Road near the intersection of Dart Hill Road and Talcottville Road (Rte. 83) in Vernon. The development will result in an impervious area of approximately 1.04 acres. Runoff from the development will be directed to a subsurface infiltration system and infiltration basin designed to provide treatment, ground water recharge, and peak flow attenuation in accordance with the Connecticut Stormwater Quality Manual.

### **B.** Existing Conditions

The proposed 2.0 acre lot for the development will be split off of the existing 4.6 acre parcel at 501 Talcottville Road. The new lot for the development (the project site) will front Dart Hill Road to the north. Access to the site will be via one driveway off of Dart Hill Road and a second limited access driveway off of Talcottville Road. The site currently consists of undeveloped woodlands, including a wooded wetland on the southern portion of the lot. The wetlands ultimately discharge to Ogden Brook further to the south. Starting at the edge of the road, the site slopes southerly toward the wetland. In addition to runoff from the parcel, stormwater from the building and parking lot at the adjacent Panda Palace to the east, discharges onto the property via a leak-off in the concrete curb at the edge of the parking lot. This runoff flows across the development site into the on-site wetland.

Stormwater overflow from an existing stormwater management basin serving the Walgreens development on the north side of Dart Hill Road is also piped underneath the road to discharge onto the site. The discharge from the stormwater basin consists of a 6" PVC pipe which terminates in an existing manhole in Dart Hill Road. The manhole discharges onto the site via a 15" RCP.

Based on a review of the USDA Soil Survey of Connecticut, the majority of the soil in the area to be developed consists of Hartford sandy loam and the remaining soil on the western portion of the site is Udorthents-Urban land complex. (see Soils Map in Appendix 2). The USDA Soil Survey defines groups of soils into Hydrologic Soil Groups (HSG) according to their runoffproducing characteristics. Soils are assigned to four groups (A, B, C, and D Groups). In group A, are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They typically are deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a hardpan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other nearly impervious material. The classification of the Hartford sandy loam is HSG A and the Udorthents-Urban land complex is HSG B.

On December 17, 2021, a series of 5 test pits were performed in the area of the proposed development to confirm the existing soil conditions. Test pits were excavated to depths ranging from 62-90 inches. Soils encountered included 6-12 inches of topsoil over brown fine sandy loam subsoils to a depth of 18-30 inches, overlying red-brown sand and gravel. Soil mottling

indicative of the seasonal high water table was encountered in test pits TP1, TP2, and TP3. The depths of the mottling indicate a seasonal high water table approximately at the elevation of 212.0. Test pit logs are provided on the Site Plans.

Soil samples were collected from test pits 1 through 4 at depths ranging from 30-42 inches. These samples were submitted to New England Materials Testing Lab, LLC for permeability testing by ASTM D2434. Calculated permeabilities ranged from 1.10 in/hr for the sample collected at the bottom of the slope in TP1 to 33.95 in/hr for the sample collected mid-slope in TP4. Permeability test results are also provided in Appendix 3.

### II. STORMWATER RUNOFF ANALYSIS

### A. Methodology

Peak runoff flow rates were determined for pre- and post-development conditions using Applied Microcomputer System's HydroCAD<sup>™</sup> Stormwater Modeling System. This computer software employs the SCS Technical Release 55 and 20 (TR-55 & TR-20) methodology. The potential stormwater impacts downstream were evaluated for the 2-yr, 10-yr, 25-yr, and 100-yr; 24-hour storm events. The rainfall for these storm events was taken from NOAA Atlas 14 provided in Appendix 1. Based on the present drainage patterns, all runoff from the proposed development area flows south into the on-site wetlands. As a result, the edge of the wetlands was selected as the design point. The runoff outlet from across the street will be diverted in order to bypass the on-site drainage system and discharge directly at the edge of the wetland. Thus, it acts independent from the site and was not included in these calculations.

### B. Pre-Development Hydrology

The pre-development site was modeled as two subcatchments. Subcatchment PRE includes the approximately 2.20 acres of on-site development area that drains to the design point. Subcatchment PP includes the off-site runoff from the adjacent Panda Palace parcel. The pre-development drainage area map is provided in Appendix 4. The pre-development runoff characteristics of the contributing area is provided on the HydroCAD data sheets in Appendix 5. The pre-development discharge rates from the site during the design storms are summarized in Table 1.

### C. Post-Development Hydrology

The proposed project will result in approximately 1.04 acres of new impervious area. The development will include a series of catch basins, trench drains, and piping to collect runoff from the development area and divert it to either a new infiltration basin in the southeast corner of the site or subsurface infiltration system under the parking lot. This system will include a riprap swale and area drain installed downgradient of the leak-off from the Panda Palace parking lot. This runoff will be collected and diverted to the subsurface infiltration system. In addition, the roof runoff will be collected and diverted towards the infiltration basin. The subsurface

infiltration system and infiltration basin have been designed in accordance with the CT Storm Water Quality Manual to provide treatment, groundwater recharge, and peak flow attenuation.

As discussed above, several test pits were completed at the site to verify soil conditions. Test pits TP1, TP2 and TP3 were all located within the vicinity of the proposed infiltration basin. Samples collected from these test pits at depths consistent with the proposed bottom of the basin were tested for permeability. The resulting permeabilities were 1.10 in/hr (TP1), 1.97 in/hr (TP2) and 2.34 in/hr (TP3). As a conservative measure, the slowest permeability rate of 1.10 in/hr was used as the basis for the design infiltration rate. This rate was further reduced by 50% to account for potential clogging resulting in a final design infiltration rate for the infiltration basin of 0.55 inches/hour. The subsurface infiltration system will be constructed further up the slope to the north in the vicinity of test pits TP4 and TP5. The soils in these test pits at the elevation of the proposed infiltration system included loose, sand and gravel. The resulting permeability for the soil sample collected from TP4 was 33.95 in/hr. As a conservative measure and to account for potential clogging, the design infiltration rate used for the subsurface infiltration system was selected to be 15.0 in/hr.

The infiltration basin will be equipped with a forebay separated from the main part of the basin by a stone filter berm. The bottom of the basin will be set at elevation 214 which allows 2 feet of separation to the seasonal high water table that was encountered in the test pits. The basin will be equipped with a multi-stage outlet structure constructed from a standard Type CL catch basin. The structures primary outlet will consist of a 10" orifice set at an elevation of 216.8. The secondary outlet will consist of the frame and grate to be set at elevation 218.5. The structure will discharge via a 10" outlet pipe at the edge of the wetland. The basin will also be equipped with an emergency 10-foot wide earthen spillway at elevation 218.5. The subsurface infiltration system under the parking lot will consist of 70 ADS SC740 chambers in stone. The bottom of the chambers will be set at an elevation of 215.0. The subsurface infiltration system will be connected to a proposed manhole for overflow from larger storm events exceeding the capacity of the storage and infiltration capacity of the chambers. In the proposed manhole, a weir set at 217.6 will overflow to a pipe discharging directly to the edge of the wetlands. The proposed storage capacities of the infiltration basin below the primary outlet was sized to exceed the water quality volume. Likewise, the surface basin forebay was sized to contain a minimum of 25% of the WQV per the requirements for infiltration basins. WQV calculations are provided in Appendix 6.

The same design point for the pre-development analysis was used for the post development analysis. The post development site was divided into 9 subcatchments. Subcatchments S1 and S2 include the areas that will be collected by the catch basins in the parking lot and discharged to the subsurface infiltration system. Subcatchments S3 and S4 include the areas that will be collected by the catch basins in the parking lot and discharged to the infiltration basin. Subcatchment S8 includes the roof runoff that will be discharged into a catch basin towards the infiltration basin. Subcatchment S5 includes runoff from the playground area that will be collected in a trench drain and piped directly to the infiltration basin. Subcatchment S7 includes the area that will directly sheet flow into the infiltration basin. Subcatchment S7 includes the area that will continue to drain overland directly to the design point (i.e. wetlands). Subcatchment PP includes the area of the adjacent Panda Palace that discharges to the development area.

The post development drainage area map is provided in Appendix 4. The post development runoff characteristics of the subcatchments are provided on the HydroCAD data sheets in Appendix 5. As shown in the Table 1, the post-development peak rates of runoff from the site to the design point will be maintained or reduced in comparison to the pre-development rates.

# TABLE 1 – COMPARISON OF PRE- & POST-DEVELOPMENTDISCHARGE RATES (CFS) TO DESIGN POINT

	2-year	10-year	25-year	100-year
Pre-Development	2.1	3.4	4.2	5.4
Post Development	0.3	1.7	2.3	5.2

### D. Pipe Sizing

The piping proposed at the site consists of smooth bore corrugated high density polyethylene pipe with smooth interior walls (CPEP-S). The roughness coefficient used for this pipe type is 0.012. The analysis provided in Appendix 5 indicates headwater elevation in the structure at each pipe inlet for the design storms and compares it to the flood elevation, which corresponds to the top of frame of the structure. The calculations indicate that all proposed pipes will have sufficient capacity to convey the 10-year storm event without surcharging out of the top of the structures.

### E. Outlet Protection

Outfall protection for the pipe discharge from the Walgreens Stormwater Management Basin and subsurface infiltration system overflow at the edge of the wetland will consist of a Type A riprap apron. Outfall protection for the pipe discharge from the infiltration basin at the edge of the wetland will consist of a Type A riprap apron. Similarly, riprap channels will be installed at the inlets to the infiltration basin to convey runoff down the slope into the forebay. Outlet protection for the infiltration's spillway will consist of a 12" thick modified riprap slope extended 5 feet beyond the toe of the slope.

### F. Summary of Results

The proposed design and analysis indicates that the proposed development will not result in negative impacts downstream. In addition, the proposed stormwater management system will intercept and divert the untreated runoff from the Panda Palace leak-off to the subsurface infiltration system where it will be treated prior to discharge, whereas previously it was discharged to the wetland without treatment.

Appendix 1:

**RAINFALL DATA** 

Precipitation Frequency Data Server

NOAA Atlas 14, Volume 10, Version 3 Location name: Vernon Rockville, Connecticut, Latitude: 41.8502°, Longitude: -72.4855° Elevation: 224.86 ft\*\* source: ESRI Maps \*\* source: USGS



### POINT PRECIPITATION FREQUENCY ESTIMATES

USA\*

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF\_tabular | PF\_graphical | Maps\_&\_aerials

### **PF** tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>										
Duration	Average recurrence interval (years)									
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	<b>0.332</b> (0.254-0.434)	<b>0.403</b> (0.308-0.528)	<b>0.519</b> (0.395-0.684)	<b>0.616</b> (0.466-0.814)	<b>0.749</b> (0.551-1.03)	<b>0.849</b> (0.614-1.20)	<b>0.953</b> (0.672-1.39)	<b>1.07</b> (0.718-1.60)	<b>1.24</b> (0.803-1.92)	<b>1.38</b> (0.875-2.18)
10-min	<b>0.470</b> (0.359-0.615)	<b>0.571</b> (0.436-0.748)	<b>0.736</b> (0.560-0.967)	<b>0.872</b> (0.660-1.15)	<b>1.06</b> (0.780-1.46)	<b>1.20</b> (0.868-1.69)	<b>1.35</b> (0.951-1.97)	<b>1.52</b> (1.02-2.27)	<b>1.76</b> (1.14-2.72)	<b>1.96</b> (1.24-3.08)
15-min	<b>0.553</b> (0.423-0.724)	<b>0.672</b> (0.513-0.880)	<b>0.866</b> (0.658-1.14)	<b>1.03</b> (0.778-1.36)	<b>1.25</b> (0.918-1.72)	<b>1.41</b> (1.02-1.99)	<b>1.59</b> (1.12-2.32)	<b>1.79</b> (1.20-2.67)	<b>2.07</b> (1.34-3.20)	<b>2.30</b> (1.46-3.63)
30-min	<b>0.748</b> (0.571-0.979)	<b>0.909</b> (0.694-1.19)	<b>1.17</b> (0.892-1.54)	<b>1.39</b> (1.05-1.84)	<b>1.69</b> (1.25-2.34)	<b>1.92</b> (1.39-2.71)	<b>2.16</b> (1.52-3.15)	<b>2.43</b> (1.63-3.62)	<b>2.81</b> (1.82-4.34)	<b>3.13</b> (1.98-4.93)
60-min	<b>0.943</b> (0.720-1.23)	<b>1.15</b> (0.875-1.50)	<b>1.48</b> (1.13-1.95)	<b>1.76</b> (1.33-2.32)	<b>2.14</b> (1.57-2.95)	<b>2.42</b> (1.75-3.42)	<b>2.73</b> (1.92-3.99)	<b>3.07</b> (2.05-4.58)	<b>3.56</b> (2.30-5.49)	<b>3.96</b> (2.51-6.23)
2-hr	<b>1.21</b> (0.931-1.58)	<b>1.47</b> (1.12-1.91)	<b>1.88</b> (1.44-2.46)	<b>2.23</b> (1.69-2.93)	<b>2.70</b> (2.00-3.72)	<b>3.05</b> (2.22-4.30)	<b>3.43</b> (2.44-5.03)	<b>3.89</b> (2.61-5.77)	<b>4.57</b> (2.96-7.02)	<b>5.15</b> (3.27-8.06)
3-hr	<b>1.40</b> (1.08-1.82)	<b>1.69</b> (1.30-2.19)	<b>2.16</b> (1.66-2.82)	<b>2.56</b> (1.95-3.36)	<b>3.10</b> (2.30-4.26)	<b>3.50</b> (2.56-4.93)	<b>3.94</b> (2.82-5.78)	<b>4.47</b> (3.01-6.62)	<b>5.30</b> (3.44-8.10)	<b>6.01</b> (3.82-9.36)
6-hr	<b>1.76</b> (1.36-2.28)	<b>2.13</b> (1.65-2.76)	<b>2.74</b> (2.11-3.56)	<b>3.25</b> (2.49-4.24)	<b>3.95</b> (2.95-5.41)	<b>4.46</b> (3.28-6.26)	<b>5.02</b> (3.62-7.35)	<b>5.72</b> (3.86-8.42)	<b>6.82</b> (4.44-10.4)	<b>7.78</b> (4.96-12.0)
12-hr	<b>2.17</b> (1.69-2.80)	<b>2.66</b> (2.06-3.42)	<b>3.45</b> (2.67-4.46)	<b>4.10</b> (3.16-5.33)	<b>5.01</b> (3.76-6.83)	<b>5.67</b> (4.19-7.92)	<b>6.40</b> (4.63-9.32)	<b>7.31</b> (4.95-10.7)	<b>8.74</b> (5.71-13.2)	<b>9.98</b> (6.38-15.3)
24-hr	<b>2.56</b> (1.99-3.27)	<b>3.16</b> (2.47-4.06)	<b>4.16</b> (3.23-5.35)	<b>4.98</b> (3.85-6.45)	<b>6.12</b> (4.62-8.32)	<b>6.95</b> (5.16-9.68)	<b>7.87</b> (5.74-11.4)	<b>9.04</b> (6.14-13.1)	<b>10.9</b> (7.13-16.3)	<b>12.5</b> (8.03-19.1)
2-day	<b>2.88</b> (2.26-3.67)	<b>3.61</b> (2.83-4.61)	<b>4.81</b> (3.75-6.16)	<b>5.80</b> (4.50-7.47)	<b>7.17</b> (5.44-9.72)	<b>8.16</b> (6.10-11.3)	<b>9.28</b> (6.82-13.5)	<b>10.7</b> (7.30-15.5)	<b>13.1</b> (8.59-19.5)	<b>15.2</b> (9.77-23.0)
3-day	<b>3.13</b> (2.46-3.98)	<b>3.94</b> (3.09-5.01)	<b>5.25</b> (4.10-6.70)	<b>6.33</b> (4.93-8.12)	<b>7.83</b> (5.96-10.6)	<b>8.91</b> (6.69-12.4)	<b>10.1</b> (7.48-14.7)	<b>11.7</b> (8.01-16.9)	<b>14.3</b> (9.44-21.3)	<b>16.7</b> (10.8-25.2)
4-day	<b>3.37</b> (2.65-4.27)	<b>4.22</b> (3.32-5.36)	<b>5.61</b> (4.40-7.15)	<b>6.77</b> (5.28-8.67)	<b>8.36</b> (6.37-11.3)	<b>9.52</b> (7.15-13.2)	<b>10.8</b> (7.99-15.7)	<b>12.5</b> (8.55-18.0)	<b>15.3</b> (10.1-22.7)	<b>17.8</b> (11.5-26.8)
7-day	<b>4.00</b> (3.16-5.06)	<b>4.96</b> (3.92-6.28)	<b>6.53</b> (5.14-8.29)	<b>7.83</b> (6.13-9.99)	<b>9.62</b> (7.35-12.9)	<b>10.9</b> (8.22-15.0)	<b>12.4</b> (9.15-17.8)	<b>14.3</b> (9.78-20.4)	<b>17.3</b> (11.4-25.5)	<b>20.0</b> (12.9-30.0)
10-day	<b>4.64</b> (3.68-5.85)	<b>5.66</b> (4.48-7.14)	<b>7.32</b> (5.78-9.27)	<b>8.70</b> (6.83-11.1)	<b>10.6</b> (8.11-14.2)	<b>12.0</b> (9.02-16.4)	<b>13.5</b> (9.98-19.3)	<b>15.5</b> (10.6-22.1)	<b>18.6</b> (12.3-27.3)	<b>21.3</b> (13.8-31.8)
20-day	<b>6.67</b> (5.31-8.37)	<b>7.75</b> (6.17-9.74)	<b>9.53</b> (7.55-12.0)	<b>11.0</b> (8.67-13.9)	<b>13.0</b> (9.97-17.2)	<b>14.5</b> (10.9-19.5)	<b>16.1</b> (11.8-22.5)	<b>18.0</b> (12.5-25.5)	<b>20.8</b> (13.9-30.4)	<b>23.2</b> (15.1-34.4)
30-day	<b>8.40</b> (6.70-10.5)	<b>9.51</b> (7.58-11.9)	<b>11.3</b> (8.99-14.2)	<b>12.8</b> (10.1-16.2)	<b>14.9</b> (11.4-19.5)	<b>16.5</b> (12.3-21.9)	<b>18.1</b> (13.2-24.9)	<b>19.9</b> (13.8-27.9)	<b>22.3</b> (14.9-32.4)	<b>24.3</b> (15.9-36.0)
45-day	<b>10.6</b> (8.45-13.2)	<b>11.7</b> (9.35-14.6)	<b>13.6</b> (10.8-17.0)	<b>15.1</b> (12.0-19.0)	<b>17.2</b> (13.2-22.4)	<b>18.9</b> (14.1-24.9)	<b>20.5</b> (14.8-27.8)	<b>22.1</b> (15.4-31.0)	<b>24.3</b> (16.3-35.0)	<b>25.8</b> (16.9-38.1)
60-day	<b>12.4</b> (9.92-15.4)	<b>13.5</b> (10.8-16.9)	<b>15.4</b> (12.3-19.3)	<b>17.0</b> (13.5-21.4)	<b>19.2</b> (14.7-24.8)	<b>20.9</b> (15.7-27.5)	<b>22.6</b> (16.3-30.4)	<b>24.1</b> (16.8-33.6)	<b>26.0</b> (17.4-37.4)	<b>27.3</b> (17.8-40.1)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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**PF** graphical

Appendix 2:

**NRCS SOILS INFORMATION** 



United States Department of Agriculture

Natural Resources

Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for State of Connecticut





# **Map Unit Legend**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI		
33B	Hartford sandy loam, 3 to 8 percent slopes	3.3	91.3%		
306	Udorthents-Urban land complex	0.3	8.7%		
Totals for Area of Interest		3.7	100.0%		

# **Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

### State of Connecticut

### 33B—Hartford sandy loam, 3 to 8 percent slopes

### **Map Unit Setting**

National map unit symbol: 9lmw Elevation: 0 to 1,200 feet Mean annual precipitation: 43 to 54 inches Mean annual air temperature: 45 to 55 degrees F Frost-free period: 140 to 185 days Farmland classification: All areas are prime farmland

### **Map Unit Composition**

Hartford and similar soils: 80 percent Minor components: 20 percent Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Hartford**

### Setting

Landform: Terraces, outwash plains Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy glaciofluvial deposits derived from sandstone and/or basalt

### **Typical profile**

Ap - 0 to 8 inches: sandy loam Bw1 - 8 to 20 inches: sandy loam Bw2 - 20 to 26 inches: loamy sand 2C - 26 to 65 inches: stratified very gravelly coarse sand to loamy fine sand

### **Properties and qualities**

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2e Hydrologic Soil Group: A Ecological site: F145XY008MA - Dry Outwash Hydric soil rating: No

### **Minor Components**

### Penwood

Percent of map unit: 5 percent Landform: Terraces, outwash plains Down-slope shape: Convex Across-slope shape: Linear Hydric soil rating: No

### Ellington

Percent of map unit: 5 percent Landform: Terraces, outwash plains Down-slope shape: Linear Across-slope shape: Linear Hydric soil rating: No

### Manchester

Percent of map unit: 5 percent Landform: Terraces, outwash plains, kames, eskers Down-slope shape: Convex Across-slope shape: Convex Hydric soil rating: No

### Branford

Percent of map unit: 5 percent Landform: Terraces, outwash plains Down-slope shape: Linear Across-slope shape: Linear Hydric soil rating: No

### 306—Udorthents-Urban land complex

### **Map Unit Setting**

National map unit symbol: 9Img Elevation: 0 to 2,000 feet Mean annual precipitation: 43 to 56 inches Mean annual air temperature: 45 to 55 degrees F Frost-free period: 120 to 185 days Farmland classification: Not prime farmland

### Map Unit Composition

*Udorthents and similar soils:* 50 percent *Urban land:* 35 percent *Minor components:* 15 percent *Estimates are based on observations, descriptions, and transects of the mapunit.* 

### **Description of Udorthents**

### Setting

*Down-slope shape:* Convex *Across-slope shape:* Linear *Parent material:* Drift

### **Typical profile**

A - 0 to 5 inches: loam C1 - 5 to 21 inches: gravelly loam C2 - 21 to 80 inches: very gravelly sandy loam

### **Properties and qualities**

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3e Hydrologic Soil Group: B Hydric soil rating: No

### **Description of Urban Land**

### **Typical profile**

H - 0 to 6 inches: material

### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 8 Hydrologic Soil Group: D Hydric soil rating: Unranked

### Minor Components

### Unnamed, undisturbed soils

Percent of map unit: 8 percent Hydric soil rating: No

### Udorthents, wet substratum

Percent of map unit: 5 percent Down-slope shape: Convex Across-slope shape: Linear Hydric soil rating: No

### Rock outcrop

Percent of map unit: 2 percent Hydric soil rating: No **Appendix 3:** 

**PERMEABILITY TEST RESULTS** 



72 Bissell Street Manchester, CT 06040 • Tel: 860-783-5830 • Fax: 860-783-5832

Client: JR Russo Surveyors Engineers	<b>Report #:</b> 001
East Windsor, CT. 06088	Lab ID: 098-21
Project: 501Talcottville Road Vernon, CT.	Client ID: TP-1
Technician: Z. A	Date: 12/27/2021

# LAB PERMEABILITY TEST

**Sample description:** Reddish brown silty clayey sand.

Location: Onsite (501Talcottville Red Vernon, CT).

Sample depth: 30" to 36"

Method: Permeability by ASTM D2434 (Constant Head Method)

k = QL/ath

Where k = coefficient of permeability,

Q = quantity of water discharged,	Q =	$800 \text{ cm}^3$
L = length of sample in centimeters	L =	15.24 cm
A = cross sectional area of specimen,	A =	$43.10 \text{ cm}^2$
t = total time for discharge, in seconds	t =	5940 sec
h = difference in head manometers,	h =	61.5 cm

k = 0.00077435 cm/sec.

k = 1.0975 inch/hour

### Reported To: JR Russo Surveyors Engineers

**Submitted By:** New England Materials Testing Lab, LLC.



72 Bissell Street Manchester, CT 06040 • Tel: 860-783-5830 • Fax: 860-783-5832

Client: JR Russo Surveyors Engineers	<b>Report #:</b> 002
East Windsor, CT. 06088	Lab ID: 099-21
Project: 501Talcottville Road Vernon, CT.	Client ID: TP-2
Technician: Z. A	<b>Date:</b> 12/27/2021

# LAB PERMEABILITY TEST

**Sample description:** Reddish brown sand bank run gravel and fines.

Location: Onsite (501Talcottville Red Vernon, CT).

Sample depth: 30" to 36"

Method: Permeability by ASTM D2434 (Constant Head Method)

k = QL/ath

Where k = coefficient of permeability,

Q = quantity of water discharged,	Q =	$1000 \text{ cm}^3$
L = length of sample in centimeters	L =	15.24 cm
A = cross sectional area of specimen,	A =	$43.10 \text{ cm}^2$
t = total time for discharge, in seconds	t =	4140 sec
h = difference in head manometers,	h =	61.5 cm

k = 0.001388776 cm/sec.

k = 1.968 inch/hour

### Reported To: JR Russo Surveyors Engineers

**Submitted By:** New England Materials Testing Lab, LLC.



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Client: JR Russo Surveyors Engineers	<b>Report #:</b> 003
East Windsor, CT. 06088	Lab ID: 100-21
Project: 501Talcottville Road Vernon, CT.	Client ID: TP-3
Technician: Z. A	<b>Date:</b> 12/27/2021

# LAB PERMEABILITY TEST

**Sample description:** Dark brown silty clayey sand and gravel.

Location: Onsite (501Talcottville Red Vernon, CT).

Sample depth: 36" to 42"

Method: Permeability by ASTM D2434 (Constant Head Method)

k = QL/ath

Where k = coefficient of permeability,

Q = quantity of water discharged,	Q =	$1000 \text{ cm}^3$
L = length of sample in centimeters	L =	15.24 cm
A = cross sectional area of specimen,	A =	$43.10 \text{ cm}^2$
t = total time for discharge, in seconds	t =	3480 sec
h = difference in head manometers,	h =	61.5 cm

k = 0.001652165 cm/sec.

k = 2.341 inch/hour

### Reported To: JR Russo Surveyors Engineers

**Submitted By:** New England Materials Testing Lab, LLC.



72 Bissell Street Manchester, CT 06040 • Tel: 860-783-5830 • Fax: 860-783-5832

Client: JR Russo Surveyors Engineers	<b>Report #:</b> 001
East Windsor, CT. 06088	Lab ID: 101-21
Project: 501Talcottville Road Vernon, CT.	Client ID: TP-4
Technician: Z. A	Date: 12/27/2021

# LAB PERMEABILITY TEST

**Sample description:** Reddish brown sand and little gravel.

Location: Onsite (501Talcottville Red Vernon, CT).

Sample depth: 30" to 36"

Method: Permeability by ASTM D2434 (Constant Head Method)

k = QL/ath

Where k = coefficient of permeability,

Q = quantity of water discharged,	Q =	$1000 \text{ cm}^3$
L = length of sample in centimeters	L =	15.24 cm
A = cross sectional area of specimen,	A =	$43.10 \text{ cm}^2$
t = total time for discharge, in seconds	t =	240 sec
h = difference in head manometers,	h =	61.5 cm

k = 0.023956388 cm/sec.

k = 33.953 inch/hour

### Reported To: JR Russo Surveyors Engineers

**Submitted By:** New England Materials Testing Lab, LLC.

Appendix 4:

**DRAINAGE AREA MAPS** 




Appendix 5:

HYDROCAD ANALYSES



## Summary for Pond AD: Area Drain

Inflow Area = 0.668 ac,100.00% Impervious, Inflow Depth > 4.74" for 10-year event Inflow 3.37 cfs @ 12.07 hrs, Volume= 0.264 af = 3.37 cfs @ 12.08 hrs, Volume= Outflow 0.264 af, Atten= 0%, Lag= 0.6 min = Primary = 3.37 cfs @ 12.08 hrs, Volume= 0.264 af Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 218.12' @ 12.08 hrs Flood Elev= 220.50' Device Routing Invert Outlet Devices #1 15.0" Round Culvert L= 54.0' Ke= 0.500 Primary 217.00' Inlet / Outlet Invert= 217.00' / 216.73' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.37 cfs @ 12.08 hrs HW=218.12' TW=215.54' (Dynamic Tailwater) -1=Culvert (Barrel Controls 3.37 cfs @ 3.86 fps)

### Summary for Pond BAS1: BASIN

Inflow Area	=	0.992 ac, 6	7.83% Impei	rvious, Inflow	Depth > 2	2.95" f	or 10-ye	ear event
Inflow	=	3.26 cfs @	12.09 hrs, \	/olume=	0.244 a	af		
Outflow	=	1.73 cfs @	12.21 hrs, \	/olume=	0.244 a	af, Atten	= 47%,	Lag= 7.5 min
Discarded	=	0.04 cfs @	12.21 hrs, \	/olume=	0.100 a	af		
Primary	=	1.69 cfs @	12.21 hrs, \	/olume=	0.145 a	af		

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 217.63' @ 12.21 hrs Surf.Area= 1,951 sf Storage= 3,876 cf Flood Elev= 219.00' Surf.Area= 2,791 sf Storage= 7,112 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 429.5 min (1,217.8 - 788.3)

Volume	Invert	Avail.Sto	rage Storage	e Description	
#1	214.00'	7,11	12 cf Custor	n Stage Data (Pri	ismatic)Listed below (Recalc)
Elevatio	on S	urf.Area	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)	
214.0	00	338	0	0	
216.0	00	1,076	1,414	1,414	
218.0	00	2,151	3,227	4,641	
219.0	00	2,791	2,471	7,112	
Device	Routing	Invert	Outlet Devic	es	
#1	Discarded	214.00'	0.550 in/hr E	Exfiltration over S	Surface area
			Conductivity	to Groundwater E	levation = 212.00'
#2	Primary	218.50'	10.0' long x	7.0' breadth Bro	oad-Crested Rectangular Weir
			Head (feet)	0.20 0.40 0.60 0	0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3	.50 4.00 4.50 5.	00 5.50
			Coef. (Englis	h) 2.40 2.52 2.7	0 2.68 2.68 2.67 2.66 2.65 2.65

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Type III 24-hr 10-year Rainfall=4.98" Printed 3/23/2022 LLC Page 3

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			2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78
#3	Primary	212.30'	10.0" Round Culvert L= 28.0' Ke= 0.500
	-		Inlet / Outlet Invert= 212.30' / 212.00' S= 0.0107 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.55 sf
#4	Device 3	216.80'	10.0" Vert. Orifice/Grate C= 0.600
#5	Device 3	218.50'	36.0" W x 19.4" H Vert. Orifice/Grate C= 0.600

**Discarded OutFlow** Max=0.04 cfs @ 12.21 hrs HW=217.63' (Free Discharge) **1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=1.69 cfs @ 12.21 hrs HW=217.63' TW=0.00' (Dynamic Tailwater) 2=Broad-Crested Rectangular Weir( Controls 0.00 cfs) 3=Culvert (Passes 1.69 cfs of 5.82 cfs potential flow) 4=Orifice/Grate (Orifice Controls 1.69 cfs @ 3.10 fps)

-5=Orifice/Grate (Controls 0.00 cfs)

## Summary for Pond CB1: CB1

Inflow Area	a =	0.200 ac, 8	31.06% Impe	ervious,	Inflow D	epth =	3.55"	for 10-	year even	t
Inflow	=	0.85 cfs @	12.07 hrs,	Volume	=	0.059	af			
Outflow	=	0.85 cfs @	12.08 hrs,	Volume	=	0.059	af, Att	en= 0%,	Lag= 0.6	min
Primary	=	0.85 cfs @	12.08 hrs,	Volume	=	0.059	af			

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 216.58' @ 12.08 hrs Flood Elev= 219.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	216.10'	15.0" Round Culvert L= 107.0' Ke= 0.500
			Inlet / Outlet Invert= 216.10' / 215.56' S= 0.0050 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.23 sf

## Summary for Pond CB2: CB2

Inflow Area	=	0.296 ac, 7	70.91% Imperv	vious, Inflow D	epth = 2	2.97" for	10-year event
Inflow	=	1.06 cfs @	12.07 hrs, Vo	olume=	0.073 a	f	
Outflow	=	1.06 cfs @	12.08 hrs, Vo	olume=	0.073 a	f, Atten=	0%, Lag= 0.6 min
Primary	=	1.06 cfs @	12.08 hrs, Vo	olume=	0.073 at	f	-

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 216.25' @ 12.38 hrs Flood Elev= 220.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	215.00'	<b>15.0" Round Culvert</b> L= 3.0' Ke= 0.500
			Inlet / Outlet Invert= 215.00' / 215.00' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.79 cfs @ 12.08 hrs HW=215.64' TW=215.56' (Dynamic Tailwater)

## Summary for Pond CB3: CB3

Inflow Area	=	0.548 ac, 7	2.46% Impe	ervious,	Inflow De	pth >	3.12"	for 10	)-year event
Inflow	=	1.89 cfs @	12.07 hrs,	Volume	=	0.142	af		
Outflow	=	1.89 cfs @	12.08 hrs,	Volume	=	0.142	af, Atte	n= 0%	, Lag= 0.6 min
Primary	=	1.89 cfs @	12.08 hrs,	Volume	=	0.142	af		

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 217.75' @ 12.15 hrs Flood Elev= 220.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	216.50'	<b>15.0" Round Culvert</b> L= 48.0' Ke= 0.500 Inlet / Outlet Invert= 216.50' / 216.26' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.58 cfs @ 12.08 hrs HW=217.63' TW=217.51' (Dynamic Tailwater) -1=Culvert (Outlet Controls 1.58 cfs @ 1.79 fps)

## Summary for Pond CB4: CB4

Inflow Area	ı =	0.780 ac, 7	1.70% Impe	ervious,	Inflow Dep	oth >	3.04"	for 10-	year event
Inflow	=	2.70 cfs @	12.08 hrs,	Volume	= 0	).198	af		
Outflow	=	2.70 cfs @	12.09 hrs,	Volume	= (	).198	af, Atte	en= 0%,	Lag= 0.6 min
Primary	=	2.70 cfs @	12.09 hrs,	Volume	= 0	).198	af		

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 217.69' @ 12.18 hrs Flood Elev= 220.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	216.26'	15.0" Round Culvert L= 14.0' Ke= 0.500
			Inlet / Outlet Invert= 216.26' / 216.00' S= 0.0186 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.39 cfs @ 12.09 hrs HW=217.55' TW=217.39' (Dynamic Tailwater) -1=Culvert (Inlet Controls 2.39 cfs @ 1.94 fps)

## Summary for Pond FB1: FOREBAY

Volume	Invert	Avail.Storage	Storage Description
#1	214.00'	652 cf	Custom Stage Data (Prismatic)Listed below (Recalc)

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Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
214.00	35	0	0
216.00	268	303	303
217.00	430	349	652

## **Summary for Subcatchment P1: PRE**

Runoff	=	0.01 cfs @	21.37 hrs, Volume	= 0.004 af, Depth= 0.02"
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

A	rea (sf)	CN I	Description							
	89,643	30 \	Woods, Good, HSG A							
	6,051	55 \	Woods, Good, HSG B							
	95,694	32	Weighted Average							
	95,694		100.00% Pe	ervious Are	a					
Тс	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
11.8	100	0.0900	0.14		Sheet Flow,					
					Woods: Light underbrush n= 0.400 P2= 3.20"					
2.5	176	0.0570	1.19		Shallow Concentrated Flow,					
					Woodland Kv= 5.0 fps					
14.3	276	Total								

## Summary for Pond POST: WETLANDS

Inflow Area	a =	2.846 ac, 6	60.18% Impe	ervious,	Inflow	Depth =	0.6	7" for	10-year	event
Inflow	=	1.69 cfs @	12.22 hrs,	Volume	=	0.160	af			
Primary	=	1.69 cfs @	12.23 hrs,	Volume	=	0.160	af,	Atten= 0	%, Lag=	= 0.6 min

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

## Summary for Subcatchment PP: Panda Palace

Runoff = 3.37 cfs @ 12.07 hrs, Volume= 0.264 af, Depth> 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

	Area (sf)	CN	Description
*	29,109	98	Impervious
	29,109		100.00% Impervious Area

Prepare	d by J.R.	Russo	& Asso	ciates l			F	Printed	3/23/2022
HydroCA	D® 10.00-2	26 s/n 10	006 © 2	2020 Hy	droCA	D Software So	olutions LLC		Page 6
Tc (min)	Length (feet)	Slope (ft/ft)	Veloci (ft/se	ty Cap c)	acity (cfs)	Description	I		
5.0						Direct Ent	ry,		
		S	umma	ry for	Subo	atchment	PP.: Panda Palace		
Runoff	=	3.37 cfs	s@ 12	.07 hrs	, Volu	ime=	0.264 af, Depth> 4.74"		
Runoff b Type III 2	y SCS TR 24-hr 10- <u>y</u>	8-20 metl year Rai	hod, UH nfall=4.{	=SCS, 98"	Weigł	nted-CN, Tim	e Span= 1.00-72.00 hrs, dt=	0.01 hi	rs
A	rea (sf)		escripti	on					
~	29,109	<u>98 Ir</u> 1	npervio	US Imporv	ious A	rea			
	29,109	1	00.00 /0	imperv	ious P	n ca			
Tc (min)	Length (feet)	Slope (ft/ft)	Veloci (ft/se	ty Cap c)	acity (cfs)	Description	I		
5.0						Direct Ent	ry,		
			S	Summa	ary fo	or Pond Pl	RE: DP-PRE		
Inflow Ar Inflow Primary	rea = = =	2.865 3.37 cfs 3.37 cfs	ac, 23.3 s @ 12 s @ 12	32% Imp 2.07 hrs 2.08 hrs	pervio Volu Volu	us, Inflow De ime= ime=	epth >  1.12"   for  10-year e 0.269 af 0.269 af,  Atten= 0%,  Lag=	event 0.6 mir	ı
Routing	by Sim-Ro	oute met	hod, Tir	ne Spar	า= 1.0	0-72.00 hrs,	dt= 0.01 hrs		
			Su	mmar	y for	Subcatch	ment S1: CB1		
Runoff	=	0.85 cfs	s@ 12	2.07 hrs	, Volu	ime=	0.059 af, Depth= 3.55"		
Runoff b Type III 2	y SCS TR 24-hr 10-y	R-20 metl year Rai	hod, UH nfall=4.(	=SCS, 98"	Weigh	nted-CN, Tim	e Span= 1.00-72.00 hrs, dt=	0.01 hi	rs

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Type III 24-hr 10-year Rainfall=4.98"

5.0					Direct Entry,				
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)					
Тс	Length	Slop	e Velocity	Capacity	Description				
	7,051		81.06% Imp	81.06% Impervious Area					
	1,647		18.94% Pe	rvious Area	а				
	8,698	87	Weighted A	Weighted Average					
	1,647	39	>75% Gras	s cover, Go	Good, HSG A				
	7,051	98	Paved park	ing, HSG A	A				
A	rea (sf)	CN	Description						

### Summary for Subcatchment S2: CB2

Runoff = 1.06 cfs @ 12.07 hrs, Volume= 0.073 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

Area (sf)	CN	Description							
9,128	98	Paved parki	ing, HSG A	N Contraction of the second seco					
3,744	39	>75% Grass	s cover, Go	bod, HSG A					
12,872	81	Weighted A	verage						
3,744		29.09% Per	vious Area	l					
9,128		70.91% Imp	ervious Ar	ea					
Tc Length (min) (feet)	Slop (ft/	be Velocity ft) (ft/sec)	Capacity (cfs)	Description					
5.0				Direct Entry,					
Summary for Subcatchment S3: CB3									

#### Runoff = 0.73 cfs @ 12.08 hrs, Volume= 0.051 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

CN	Description					
98	Paved park	ing, HSG A	A			
39	>75% Gras	s cover, Go	ood, HSG A			
30	Woods, Go	od, HSG A	A			
69	Weighted A	Veighted Average				
	47.43% Per	vious Area	а			
	52.57% Imp	pervious Ar	rea			
01		0				
Slop	e Velocity	Capacity	Description			
(ft/ft	t) (ft/sec)	(cfs)				
			Direct Entry,			
	<u>CN</u> 98 39 30 69 Slop (ft/ft	CNDescription98Paved park39>75% Grass30Woods, God69Weighted A47.43% Per52.57% ImpSlopeVelocity(ft/ft)(ft/sec)	CNDescription98Paved parking, HSG39>75% Grass cover, G30Woods, Good, HSG A69Weighted Average47.43% Pervious Area52.57% Impervious ASlopeVelocityCapacity(ft/ft)(ft/sec)(cfs)			

### Summary for Subcatchment S4: CB4

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 0.056 af, Depth= 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

Are	ea (sf)	CN	Description				
	7,076	98	Paved parking, HSG A				
	3,046	39	>75% Grass cover, Good, HSG A				
1	0,122	80	Weighted Average				
	3,046		30.09% Pervious Area				
	7,076		69.91% Impervious Area				

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description							
5.0					Direct Entry,							
	Summary for Subcatchment S5: PLAYGROUND											
Runoff	=	0.57 c	fs @ 12.0	7 hrs, Volu	ime= 0	.045 af, Depth> 4.74"						
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr  10-year Rainfall=4.98"												
Α	rea (sf)	CN I	Description									
	4,941	98	Paved park	ting, HSG A	١							
	4,941		100.00% In	npervious A	rea							
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description							
5.0					Direct Entry,							
			Sum	mary for S	Subcatchme	ent S6: BAS1						
Runoff	=	0.00 c	fs @ 12.4	6 hrs, Volu	ime= 0	.002 af, Depth= 0.20"						
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"												
A	rea (sf)	CN I	Description									
	4,293 21	39 : 98	>75% Gras Paved park	s cover, Go ing, HSG A	ood, HSG A							
	4,314	39	Neighted A	verage								
	4,293	ę	99.51% Pe	rvious Area	l							

Tc (min)	Length	Slope	Velocity	Capacity	Description
5.0	(1001)	(10/10)	(1/300)	(00)	Direct Entry,

## Summary for Subcatchment S7: DIRECT

Runoff = 0.04 cfs @ 12.67 hrs, Volume= 0.015 af, Depth= 0.27"

0.49% Impervious Area

21

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

## 2021-083 Vernon TLE-A

 Type III 24-hr
 10-year Rainfall=4.98"

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_	A	rea (sf)	CN	Description				
*		783	39	Disconnect	ed Sidewal	k, HSG A		
		5,480	30	Woods, Go	od, HSG A			
		3,631 55 Woods, Good, HSG B						
		17,744	39 >75% Grass cover, Good, HSG A					
		2,420 61 >75% Grass cover, Good, HSG B						
30,058 41 Weighted Average								
30,058 100.00% Pervious Are					ervious Are	a		
	Тс	Length	Slope	e Velocity	Capacity	Description		
_	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)			
	0.1	6	0.0200	0.78		Sheet Flow, IM		
						Smooth surfaces n= 0.011 P2= 3.20"		
	1.8	22	0.0636	§ 0.20		Sheet Flow, GR		
						Grass: Short n= 0.150 P2= 3.20"		
	1.2	25	0.2400	0.35		Sheet Flow, GR		
						Grass: Short		
	1.4	20	0.1000	0.23		Sheet Flow, GR		
						Grass: Short n= 0.150 P2= 3.20"		
	18.5	74	0.0160	0.07		Sheet Flow, W		
						Woods: Light underbrush n= 0.400 P2= 3.20"		
	00.0	4 4 7	T					

23.0 147 Total

## Summary for Subcatchment S8: ROOF

Runoff	=	1.16 cfs @	12.07 hrs,	Volume=	0.091 af,	Depth>	4.74"
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

Ar	ea (sf)	CN	Description		
	10,000	98	Roofs, HSC	βA	
	10,000		100.00% In	npervious A	Area
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

### Summary for Pond SUB1: DMH1/DMH2

Inflow Area	a =	1.163 ac, 8	9.36% Impe	ervious,	Inflow Depth >	4.09"	for 10-y	ear event
Inflow	=	5.28 cfs @	12.08 hrs,	Volume=	= 0.396	af		
Outflow	=	1.70 cfs @	12.37 hrs,	Volume=	= 1.012	af, Atte	en= 68%,	Lag= 17.4 min
Discarded	=	1.70 cfs @	12.37 hrs,	Volume=	= 1.012	af		-
Primary	=	0.00 cfs @	1.00 hrs,	Volume=	= 0.000	af		

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 216.25' @ 12.37 hrs Surf.Area= 2,608 sf Storage= 3,145 cf Flood Elev= 218.00' Surf.Area= 2,608 sf Storage= 5,778 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1A	214.50'	2,365 cf	25.25'W x 103.30'L x 3.50'H Field A
			9,129 cf Overall - 3,216 cf Embedded = 5,913 cf x 40.0% Voids
#2A	215.00'	3,216 cf	ADS_StormTech SC-740 +Cap x 70 Inside #1
			Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
			Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
			70 Chambers in 5 Rows
#3	215.00'	72 cf	4.00'D x 5.72'H DMH1-Impervious
#4	215.00'	84 cf	4.00'D x 6.65'H DMH2-Impervious
#5	214.80'	78 cf	4.00'D x 6.20'H DMH3-Impervious
#6	216.25'	81 cf	15.0" Round OUTLET PIPE-Impervious
			L= 66.0'
		E 00E of	Total Aveilable Starses

5,895 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	214.50'	15.000 in/hr Exfiltration over Surface area
			Conductivity to Groundwater Elevation = 212.50'
#2	Primary	212.60'	10.0" Round Culvert L= 113.0' Ke= 0.500
	-		Inlet / Outlet Invert= 212.60' / 212.00' S= 0.0053 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.55 sf
#3	Device 2	217.60'	<b>4.0' Iong Sharp-Crested Rectangular Weir</b> 2 End Contraction(s) 2.3' Crest Height

Discarded OutFlow Max=1.70 cfs @ 12.37 hrs HW=216.25' (Free Discharge) **1=Exfiltration** (Controls 1.70 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=214.50' TW=0.00' (Dynamic Tailwater) -2=Culvert (Passes 0.00 cfs of 2.44 cfs potential flow) -3=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

## Summary for Pond TD1: TRENCH DRAIN

Inflow Area	a =	0.113 ac,10	0.00% Impervious,	Inflow Depth >	4.74"	for 10-year event	
Inflow	=	0.57 cfs @	12.07 hrs, Volume	= 0.045	af	-	
Outflow	=	0.57 cfs @	12.08 hrs, Volume	e 0.045	af, Atter	n= 0%, Lag= 0.6 n	nin
Primary	=	0.57 cfs @	12.08 hrs, Volume	e 0.045	af	-	
Routing by Sim-Route method. Time Span= 1.00-72.00 hrs. dt= 0.01 hrs							

1.00-72.00 nrs, 0.0 Peak Elev= 218.12' @ 12.08 hrs Flood Elev= 220.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	217.50'	<b>6.0" Round Culvert</b> L= 26.0' Ke= 0.500 Inlet / Outlet Invert= 217.50' / 217.00' S= 0.0192 '/' Cc= 0.900 n= 0.012 Elow Area= 0.20 sf
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.57 cfs @ 12.08 hrs HW=218.12' TW=217.34' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 0.57 cfs @ 2.92 fps)

2021-083 Vernon TLE-A	Type III 24-h
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## Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond AD: Area Drain	Peak Elev=217.83' Inflow=2.12 cfs 0.163 af 15.0" Round Culvert n=0.012 L=54.0' S=0.0050 '/' Outflow=2.12 cfs 0.163 af
Pond BAS1: BASIN	Peak Elev=217.07' Storage=2,878 cf Inflow=1.72 cfs 0.130 af Discarded=0.04 cfs 0.093 af Primary=0.28 cfs 0.038 af Outflow=0.31 cfs 0.130 af
Pond CB1: CB1	Peak Elev=216.45' Inflow=0.46 cfs 0.031 af 15.0" Round Culvert n=0.012 L=107.0' S=0.0050 '/' Outflow=0.46 cfs 0.031 af
Pond CB2: CB2	Peak Elev=215.43' Inflow=0.51 cfs 0.035 af 15.0" Round Culvert n=0.012 L=3.0' S=0.0000 '/' Outflow=0.51 cfs 0.035 af
Pond CB3: CB3	Peak Elev=217.09' Inflow=0.98 cfs 0.076 af 15.0" Round Culvert n=0.012 L=48.0' S=0.0050 '/' Outflow=0.98 cfs 0.076 af
Pond CB4: CB4	Peak Elev=217.08' Inflow=1.36 cfs 0.103 af 15.0" Round Culvert n=0.012 L=14.0' S=0.0186 '/' Outflow=1.36 cfs 0.103 af
Pond FB1: FOREBAY	Peak Elev=0.00' Storage=0 cf
SubcatchmentP1: PRE	Runoff Area=95,694 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=276' Tc=14.3 min CN=32 Runoff=0.00 cfs 0.000 af
Pond POST: WETLANDS	Inflow=0.28 cfs 0.038 af Primary=0.28 cfs 0.038 af
SubcatchmentPP: Panda	PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth=2.93"Tc=5.0 minCN=98Runoff=2.12 cfs0.163 af
SubcatchmentPP.: Pand	a PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth=2.93"Tc=5.0 minCN=98Runoff=2.12 cfs0.163 af
Pond PRE: DP-PRE	Inflow=2.12 cfs 0.163 af Primary=2.12 cfs 0.163 af
SubcatchmentS1: CB1	Runoff Area=8,698 sf 81.06% Impervious Runoff Depth=1.88" Tc=5.0 min CN=87 Runoff=0.46 cfs 0.031 af
SubcatchmentS2: CB2	Runoff Area=12,872 sf  70.91% Impervious  Runoff Depth=1.44" Tc=5.0 min  CN=81  Runoff=0.51 cfs  0.035 af
SubcatchmentS3: CB3	Runoff Area=13,853 sf 52.57% Impervious Runoff Depth=0.76" Tc=5.0 min CN=69 Runoff=0.26 cfs 0.020 af
SubcatchmentS4: CB4	Runoff Area=10,122 sf 69.91% Impervious Runoff Depth=1.37" Tc=5.0 min CN=80 Runoff=0.38 cfs 0.027 af

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rpe III 24-hr 2-year Rainfall=3.16" Printed 3/23/2022 2 Page 13

SubcatchmentS5: PLAYGROUND	Runoff Area=4,941 sf 100.00% Impervious Runoff Depth=2.93" Tc=5.0 min CN=98 Runoff=0.36 cfs 0.028 af
SubcatchmentS6: BAS1	Runoff Area=4,314 sf 0.49% Impervious Runoff Depth=0.00" Tc=5.0 min CN=39 Runoff=0.00 cfs 0.000 af
SubcatchmentS7: DIRECT	Runoff Area=30,058 sf 0.00% Impervious Runoff Depth=0.01" Flow Length=147' Tc=23.0 min CN=41 Runoff=0.00 cfs 0.000 af
SubcatchmentS8: ROOF	Runoff Area=10,000 sf 100.00% Impervious Runoff Depth=2.93" Tc=5.0 min CN=98 Runoff=0.73 cfs 0.056 af
Pond SUB1: DMH1/DMH2 Discarded=1.27	Peak Elev=215.30' Storage=1,185 cf Inflow=3.09 cfs 0.230 af cfs 0.923 af Primary=0.00 cfs 0.000 af Outflow=1.27 cfs 0.923 af
Pond TD1: TRENCH DRAIN 6.0" Rou	Peak Elev=217.90' Inflow=0.36 cfs 0.028 af nd Culvert n=0.012 L=26.0' S=0.0192 '/' Outflow=0.36 cfs 0.028 af
Total Runoff Area = $5.7^{\circ}$	11 ac Runoff Volume = 0.523 af Average Runoff Denth = 1.1

Total Runoff Area = 5.711 ac Runoff Volume = 0.523 af Average Runoff Depth = 1.10" 58.31% Pervious = 3.330 ac 41.69% Impervious = 2.381 ac

2021-083 Vernon TLE-A	Type III 24-hr	10- <u>j</u>
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## Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond AD: Area Drain	Peak Elev=218.12' Inflow=3.37 cfs 0.264 af 15.0" Round Culvert n=0.012 L=54.0' S=0.0050 '/' Outflow=3.37 cfs 0.264 af
Pond BAS1: BASIN	Peak Elev=217.63' Storage=3,876 cf Inflow=3.26 cfs 0.244 af Discarded=0.04 cfs 0.100 af Primary=1.69 cfs 0.145 af Outflow=1.73 cfs 0.244 af
Pond CB1: CB1	Peak Elev=216.58' Inflow=0.85 cfs 0.059 af 15.0" Round Culvert n=0.012 L=107.0' S=0.0050 '/' Outflow=0.85 cfs 0.059 af
Pond CB2: CB2	Peak Elev=216.25' Inflow=1.06 cfs 0.073 af 15.0" Round Culvert n=0.012 L=3.0' S=0.0000 '/' Outflow=1.06 cfs 0.073 af
Pond CB3: CB3	Peak Elev=217.75' Inflow=1.89 cfs 0.142 af 15.0" Round Culvert n=0.012 L=48.0' S=0.0050 '/' Outflow=1.89 cfs 0.142 af
Pond CB4: CB4	Peak Elev=217.69' Inflow=2.70 cfs 0.198 af 15.0" Round Culvert n=0.012 L=14.0' S=0.0186 '/' Outflow=2.70 cfs 0.198 af
Pond FB1: FOREBAY	Peak Elev=0.00' Storage=0 cf
SubcatchmentP1: PRE	Runoff Area=95,694 sf 0.00% Impervious Runoff Depth=0.02" Flow Length=276' Tc=14.3 min CN=32 Runoff=0.01 cfs 0.004 af
Pond POST: WETLANDS	Inflow=1.69 cfs 0.160 af Primary=1.69 cfs 0.160 af
SubcatchmentPP: Panda	PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth>4.74"Tc=5.0 minCN=98Runoff=3.37 cfs0.264 af
SubcatchmentPP.: Pand	a Palace Runoff Area=29,109 sf 100.00% Impervious Runoff Depth>4.74" Tc=5.0 min CN=98 Runoff=3.37 cfs 0.264 af
Pond PRE: DP-PRE	Inflow=3.37 cfs 0.269 af Primary=3.37 cfs 0.269 af
SubcatchmentS1: CB1	Runoff Area=8,698 sf 81.06% Impervious Runoff Depth=3.55" Tc=5.0 min CN=87 Runoff=0.85 cfs 0.059 af
SubcatchmentS2: CB2	Runoff Area=12,872 sf   70.91% Impervious   Runoff Depth=2.97" Tc=5.0 min   CN=81   Runoff=1.06 cfs   0.073 af
SubcatchmentS3: CB3	Runoff Area=13,853 sf 52.57% Impervious Runoff Depth=1.94" Tc=5.0 min CN=69 Runoff=0.73 cfs 0.051 af
SubcatchmentS4: CB4	Runoff Area=10,122 sf 69.91% Impervious Runoff Depth=2.88" Tc=5.0 min CN=80 Runoff=0.81 cfs 0.056 af

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SubcatchmentS5: PLAYGROUND	Runoff Area=4,941 sf 100. Tc=5.0 m	00% Impervious Runoff Depth>4.74" in CN=98 Runoff=0.57 cfs 0.045 af
SubcatchmentS6: BAS1	Runoff Area=4,314 sf 0. Tc=5.0 m	49% Impervious Runoff Depth=0.20" in CN=39 Runoff=0.00 cfs 0.002 af
SubcatchmentS7: DIRECT	Runoff Area=30,058 sf 0. Flow Length=147' Tc=23.0 m	00% Impervious Runoff Depth=0.27" in CN=41 Runoff=0.04 cfs 0.015 af
SubcatchmentS8: ROOF	Runoff Area=10,000 sf 100. Tc=5.0 m	00% Impervious Runoff Depth>4.74" in CN=98 Runoff=1.16 cfs 0.091 af

 Pond SUB1: DMH1/DMH2
 Peak Elev=216.25' Storage=3,145 cf
 Inflow=5.28 cfs
 0.396 af

 Discarded=1.70 cfs
 1.012 af
 Primary=0.00 cfs
 0.000 af
 Outflow=1.70 cfs
 1.012 af

 Pond TD1: TRENCH DRAIN
 Peak Elev=218.12'
 Inflow=0.57 cfs
 0.045 af

 6.0" Round Culvert n=0.012
 L=26.0'
 S=0.0192 '/'
 Outflow=0.57 cfs
 0.045 af

Total Runoff Area = 5.711 ac Runoff Volume = 0.925 af Average Runoff Depth = 1.94" 58.31% Pervious = 3.330 ac 41.69% Impervious = 2.381 ac

2021-083 Vernon TLE-A	Type III 24-hr 25-
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*I 24-hr 25-year Rainfall=6.12"* Printed 3/23/2022 Page 16

## Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond AD: Area Drain	Pea 15.0" Round Culvert n=0.012 L=54.0'	k Elev=218.30' Inflow=4.15 cfs 0.327 af S=0.0050 '/' Outflow=4.15 cfs 0.327 af
Pond BAS1: BASIN	Peak Elev=217.97' Sto Discarded=0.05 cfs 0.103 af Primary=2.28	orage=4,576 cf Inflow=4.29 cfs 0.322 af cfs 0.219 af Outflow=2.33 cfs 0.322 af
Pond CB1: CB1	Peal 15.0" Round Culvert n=0.012 L=107.0'	k Elev=216.97' Inflow=1.09 cfs 0.077 af S=0.0050 '/' Outflow=1.09 cfs 0.077 af
Pond CB2: CB2	Pea 15.0" Round Culvert n=0.012 L=3.0'	k Elev=216.96' Inflow=1.42 cfs 0.098 af S=0.0000 '/' Outflow=1.42 cfs 0.098 af
Pond CB3: CB3	Peal 15.0" Round Culvert_n=0.012_L=48.0'	k Elev=218.25' Inflow=2.50 cfs 0.187 af S=0.0050 '/' Outflow=2.50 cfs 0.187 af
Pond CB4: CB4	Pea 15.0" Round Culvert n=0.012 L=14.0'	k Elev=218.13' Inflow=3.59 cfs 0.262 af S=0.0186 '/' Outflow=3.59 cfs 0.262 af
Pond FB1: FOREBAY		Peak Elev=0.00' Storage=0 cf
SubcatchmentP1: PRE	Runoff Area=95,694 sf Flow Length=276' Tc=14.3	0.00% Impervious Runoff Depth=0.15" 3 min CN=32 Runoff=0.04 cfs 0.028 af
Pond POST: WETLANDS		Inflow=2.32 cfs 0.253 af Primary=2.32 cfs 0.253 af
SubcatchmentPP: Panda	Palace Runoff Area=29,109 sf 10 Tc=5.0	00.00% Impervious Runoff Depth>5.88" ) min CN=98 Runoff=4.15 cfs 0.327 af
SubcatchmentPP.: Pand	Runoff Area=29,109 sf 10 Tc=5.0	00.00% Impervious Runoff Depth>5.88" ) min CN=98 Runoff=4.15 cfs 0.327 af
Pond PRE: DP-PRE		Inflow=4.15 cfs 0.355 af Primary=4.15 cfs 0.355 af
SubcatchmentS1: CB1	Runoff Area=8,698 sf Tc=5.0	81.06% Impervious Runoff Depth=4.63" ) min CN=87 Runoff=1.09 cfs 0.077 af
SubcatchmentS2: CB2	Runoff Area=12,872 sf Tc=5.0	70.91% Impervious Runoff Depth=3.99" ) min CN=81 Runoff=1.42 cfs 0.098 af
SubcatchmentS3: CB3	Runoff Area=13,853 sf Tc=5.0	52.57% Impervious Runoff Depth=2.81" ) min CN=69 Runoff=1.08 cfs 0.074 af
SubcatchmentS4: CB4	Runoff Area=10,122 sf Tc=5.0	69.91% Impervious Runoff Depth=3.89" ) min CN=80 Runoff=1.09 cfs 0.075 af

### **2021-083 Vernon TLE-A** Prepared by J.R. Russo & Associates LLC

C Type III 24-hr 25-year Rainfall=6.12" C Printed 3/23/2022

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SubcatchmentS5: PLAYGROUND	Runoff Area=4,941 sf 100.00% Impervious Tc=5.0 min CN=98 Runo	Runoff Depth>5.88" ff=0.70 cfs  0.056 af
SubcatchmentS6: BAS1	Runoff Area=4,314 sf 0.49% Impervious Tc=5.0 min CN=39 Runo	Runoff Depth=0.48" ff=0.02 cfs 0.004 af
SubcatchmentS7: DIRECT	Runoff Area=30,058 sf 0.00% Impervious Flow Length=147' Tc=23.0 min CN=41 Runo	Runoff Depth=0.60" ff=0.16 cfs 0.034 af
SubcatchmentS8: ROOF	Runoff Area=10,000 sf 100.00% Impervious Tc=5.0 min CN=98 Runo	Runoff Depth>5.88" ff=1.43 cfs 0.113 af
Pond SUB1: DMH1/DMH2 Discarded	Peak Elev=216.95' Storage=4,463 cf Inflo I=2.02 cfs 1.070 af Primary=0.00 cfs 0.000 af Outflow	<i>w</i> =6.67 cfs 0.503 af v=2.02 cfs 1.070 af
Pond TD1: TRENCH DRAIN 6.0	Peak Elev=218.32' Inflo Round Culvert n=0.012 L=26.0' S=0.0192 '/' Outflov	w=0.70 cfs 0.056 af w=0.70 cfs 0.056 af
Total Runoff Area	= 5 711 ac Runoff Volume = 1 214 af Average I	Runoff Denth = 2.54

Total Runoff Area = 5.711 acRunoff Volume = 1.214 afAverage Runoff Depth = 2.55"58.31% Pervious = 3.330 ac41.69% Impervious = 2.381 ac

2021-083 Vernon TLE-A	Type III 24-hr	100
Prepared by J.R. Russo & Associates LLC		
HydroCAD® 10 00-26 s/n 10006 © 2020 HydroCAD Software Solution	nsIIC	

# Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond AD: Area Drain	Peak Elev=218.74' Inflow=5.35 cfs 0.425 af 15.0" Round Culvert n=0.012 L=54.0' S=0.0050 '/' Outflow=5.35 cfs 0.425 af
Pond BAS1: BASIN	Peak Elev=218.43' Storage=5,633 cf Inflow=5.98 cfs 0.446 af Discarded=0.06 cfs 0.106 af Primary=2.90 cfs 0.340 af Outflow=2.95 cfs 0.446 af
Pond CB1: CB1	Peak Elev=217.91' Inflow=1.46 cfs 0.105 af 15.0" Round Culvert n=0.012 L=107.0' S=0.0050 '/' Outflow=1.46 cfs 0.105 af
Pond CB2: CB2	Peak Elev=217.92' Inflow=1.98 cfs 0.138 af 15.0" Round Culvert n=0.012 L=3.0' S=0.0000 '/' Outflow=1.98 cfs 0.138 af
Pond CB3: CB3	Peak Elev=219.07' Inflow=3.47 cfs 0.258 af 15.0" Round Culvert n=0.012 L=48.0' S=0.0050 '/' Outflow=3.47 cfs 0.258 af
Pond CB4: CB4	Peak Elev=218.79' Inflow=5.00 cfs 0.365 af 15.0" Round Culvert n=0.012 L=14.0' S=0.0186 '/' Outflow=5.00 cfs 0.365 af
Pond FB1: FOREBAY	Peak Elev=0.00' Storage=0 cf
SubcatchmentP1: PRE	Runoff Area=95,694 sf 0.00% Impervious Runoff Depth=0.53" Flow Length=276' Tc=14.3 min CN=32 Runoff=0.38 cfs 0.096 af
Pond POST: WETLANDS	Inflow=5.23 cfs 0.440 af Primary=5.23 cfs 0.440 af
SubcatchmentPP: Panda	PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth>7.63"Tc=5.0 minCN=98Runoff=5.35 cfs0.425 af
SubcatchmentPP.: Pand	<b>a Palace</b> Runoff Area=29,109 sf100.00% ImperviousRunoff Depth>7.63"Tc=5.0 minCN=98Runoff=5.35 cfs0.425 af
Pond PRE: DP-PRE	Inflow=5.35 cfs_0.521 af Primary=5.35 cfs_0.521 af
SubcatchmentS1: CB1	Runoff Area=8,698 sf 81.06% Impervious Runoff Depth=6.32" Tc=5.0 min CN=87 Runoff=1.46 cfs 0.105 af
SubcatchmentS2: CB2	Runoff Area=12,872 sf   70.91% Impervious   Runoff Depth=5.62" Tc=5.0 min   CN=81   Runoff=1.98 cfs   0.138 af
SubcatchmentS3: CB3	Runoff Area=13,853 sf 52.57% Impervious Runoff Depth=4.24" Tc=5.0 min CN=69 Runoff=1.64 cfs 0.112 af
SubcatchmentS4: CB4	Runoff Area=10,122 sf 69.91% Impervious Runoff Depth=5.50" Tc=5.0 min CN=80 Runoff=1.53 cfs 0.107 af

#### 2021-083 Vernon TLE-A Prepared by J.R. Russo & Associates J.J.C.

Type III 24-hr 100-year Rainfall=7.87" Printed 3/23/2022

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SubcatchmentS5: PLAYGRO	UND Runoff Area=4,941 sf 100.00% Impervio Tc=5.0 min CN=98 R	us Runoff Depth>7.63" Runoff=0.91 cfs 0.072 af
SubcatchmentS6: BAS1	Runoff Area=4,314 sf 0.49% Impervio Tc=5.0 min CN=39 R	us Runoff Depth=1.10" Runoff=0.08 cfs 0.009 af
SubcatchmentS7: DIRECT	Runoff Area=30,058 sf 0.00% Impervio Flow Length=147' Tc=23.0 min CN=41 R	us Runoff Depth=1.29" Runoff=0.48 cfs 0.074 af
SubcatchmentS8: ROOF	Runoff Area=10,000 sf 100.00% Impervio Tc=5.0 min CN=98 R	us Runoff Depth>7.63" Runoff=1.84 cfs 0.146 af
Pond SUB1: DMH1/DMH2 Disc	Peak Elev=217.89' Storage=5,661 cf ا arded=2.44 cfs 1.144 af Primary=2.06 cfs 0.027 af Ou	Inflow=8.79 cfs 0.668 af utflow=4.51 cfs 1.171 af
Pond TD1: TRENCH DRAIN	Peak Elev=219.07' 6.0" Round Culvert n=0.012 L=26.0' S=0.0192 '/' Ou	Inflow=0.91 cfs 0.072 af utflow=0.91 cfs 0.072 af
Total Runoff A	Area = 5 711 ac Runoff Volume = 1 709 af Avera	ae Runoff Depth = 3.59

Total Runoff Area = 5.711 ac Runoff Volume = 1.709 af Average Runoff Depth = 3.59" 58.31% Pervious = 3.330 ac 41.69% Impervious = 2.381 ac **Appendix 6:** 

## **MISCELLANEOUS CALCULATIONS**



## DRAINAGE REPORT The Learning Experience 501 Talcottville Road Enfield, CT

## **ALTERNATIVE 2**

Revised March 17, 2022

Prepared for:

Vernon Development, LLC 56 East Main Street Avon, Connecticut 06001 (860) 677-5607

Project No. 2021-083

Prepared by:

J.R. Russo & Associates, LLC Land Surveyors & Professional Engineers P.O. Box 938 East Windsor, CT 06088 (860) 623-0569

## I. INTRODUCTION

## A. Project Description

Vernon Development, LLC and The Learning Experience are proposing the development of a 10,000 s.f. daycare center on Dart Hill Road near the intersection of Dart Hill Road and Talcottville Road (Rte. 83) in Vernon. The development will result in an impervious area of approximately 0.97 acres. Runoff from the development will be directed to a subsurface infiltration system and infiltration basin designed to provide treatment, ground water recharge, and peak flow attenuation in accordance with the Connecticut Stormwater Quality Manual.

## **B.** Existing Conditions

The proposed 2.0 acre lot for the development will be split off of the existing 4.6 acre parcel at 501 Talcottville Road. The new lot for the development (the project site) will front Dart Hill Road to the north. Access to the site will be via one driveway off of Dart Hill Road and a second limited access driveway off of Talcottville Road. The site currently consists of undeveloped woodlands, including a wooded wetland on the southern portion of the lot. The wetlands ultimately discharge to Ogden Brook further to the south. Starting at the edge of the road, the site slopes southerly toward the wetland. In addition to runoff from the parcel, stormwater from the building and parking lot at the adjacent Panda Palace to the east, discharges onto the property via a leak-off in the concrete curb at the edge of the parking lot. This runoff flows across the development site into the on-site wetland.

Stormwater overflow from an existing stormwater management basin serving the Walgreens development on the north side of Dart Hill Road is also piped underneath the road to discharge onto the site. The discharge from the stormwater basin consists of a 6" PVC pipe which terminates in an existing manhole in Dart Hill Road. The manhole discharges onto the site via a 15" RCP.

Based on a review of the USDA Soil Survey of Connecticut, the majority of the soil in the area to be developed consists of Hartford sandy loam and the remaining soil on the western portion of the site is Udorthents-Urban land complex. (see Soils Map in Appendix 2). The USDA Soil Survey defines groups of soils into Hydrologic Soil Groups (HSG) according to their runoff-producing characteristics. Soils are assigned to four groups (A, B, C, and D Groups). In group A, are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They typically are deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a hardpan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other nearly impervious material. The classification of the Hartford sandy loam is HSG A and the Udorthents-Urban land complex is HSG B.

On December 17, 2021, a series of 5 test pits were performed in the area of the proposed development to confirm the existing soil conditions. Test pits were excavated to depths ranging from 62-90 inches. Soils encountered included 6-12 inches of topsoil over brown fine sandy loam subsoils to a depth of 18-30 inches, overlying red-brown sand and gravel. Soil mottling

indicative of the seasonal high water table was encountered in test pits TP1, TP2, and TP3. The depths of the mottling indicate a seasonal high water table approximately at the elevation of 212.0. Test pit logs are provided on the Site Plans.

Soil samples were collected from test pits 1 through 4 at depths ranging from 30-42 inches. These samples were submitted to New England Materials Testing Lab, LLC for permeability testing by ASTM D2434. Calculated permeabilities ranged from 1.10 in/hr for the sample collected at the bottom of the slope in TP1 to 33.95 in/hr for the sample collected mid-slope in TP4. Permeability test results are also provided in Appendix 3.

## II. STORMWATER RUNOFF ANALYSIS

## A. Methodology

Peak runoff flow rates were determined for pre- and post-development conditions using Applied Microcomputer System's HydroCAD<sup>™</sup> Stormwater Modeling System. This computer software employs the SCS Technical Release 55 and 20 (TR-55 & TR-20) methodology. The potential stormwater impacts downstream were evaluated for the 2-yr, 10-yr, 25-yr, and 100-yr; 24-hour storm events. The rainfall for these storm events was taken from NOAA Atlas 14 provided in Appendix 1. Based on the present drainage patterns, all runoff from the proposed development area flows south into the on-site wetlands. As a result, the edge of the wetlands was selected as the design point. The runoff outlet from across the street will be diverted in order to bypass the on-site drainage system and discharge directly at the edge of the wetland. Thus, it acts independent from the site and was not included in these calculations.

## B. Pre-Development Hydrology

The pre-development site was modeled as two subcatchments. Subcatchment PRE includes the approximately 2.20 acres of on-site development area that drains to the design point. Subcatchment PP includes the off-site runoff from the adjacent Panda Palace parcel. The pre-development drainage area map is provided in Appendix 4. The pre-development runoff characteristics of the contributing area is provided on the HydroCAD data sheets in Appendix 5. The pre-development discharge rates from the site during the design storms are summarized in Table 1.

## C. Post-Development Hydrology

The proposed project will result in approximately 0.97 acres of new impervious area. The development will include a series of catch basins, trench drains, and piping to collect runoff from the development area and divert it to either a new infiltration basin in the southeast corner of the site or subsurface infiltration system under the parking lot. This system will include a riprap swale and area drain installed downgradient of the leak-off from the Panda Palace parking lot. This runoff will be collected and diverted to the subsurface infiltration system. In addition, the roof runoff will be collected and diverted towards the infiltration basin. The subsurface

infiltration system and infiltration basin have been designed in accordance with the CT Storm Water Quality Manual to provide treatment, groundwater recharge, and peak flow attenuation.

As discussed above, several test pits were completed at the site to verify soil conditions. Test pits TP1, TP2 and TP3 were all located within the vicinity of the proposed infiltration basin. Samples collected from these test pits at depths consistent with the proposed bottom of the basin were tested for permeability. The resulting permeabilities were 1.10 in/hr (TP1), 1.97 in/hr (TP2) and 2.34 in/hr (TP3). As a conservative measure, the slowest permeability rate of 1.10 in/hr was used as the basis for the design infiltration rate. This rate was further reduced by 50% to account for potential clogging resulting in a final design infiltration rate for the infiltration basin of 0.55 inches/hour. The subsurface infiltration system will be constructed further up the slope to the north in the vicinity of test pits TP4 and TP5. The soils in these test pits at the elevation of the soil sample collected from TP4 was 33.95 in/hr. As a conservative measure and to account for potential clogging, the design infiltration rate used for the subsurface infiltration system was selected to be 15.0 in/hr.

The infiltration basin will be equipped with a forebay separated from the main part of the basin by a stone filter berm. The bottom of the basin will be set at elevation 214 which allows 2 feet of separation to the seasonal high water table that was encountered in the test pits. The basin will be equipped with a multi-stage outlet structure constructed from a standard Type CL catch basin. The structures primary outlet will consist of an 8" orifice set at an elevation of 216.6. The secondary outlet will consist of the frame and grate to be set at elevation 218.4. The structure will discharge via a 10" outlet pipe at the edge of the wetland. The basin will also be equipped with an emergency 10-foot wide earthen spillway at elevation 218.5. The subsurface infiltration system under the parking lot will consist of 60 ADS SC740 chambers in stone. The bottom of the chambers will be set at an elevation of 215.0. The subsurface infiltration system will be connected to a proposed manhole for overflow from larger storm events exceeding the capacity of the storage and infiltration capacity of the chambers. In the proposed manhole, a weir set at 217.6 will overflow to a pipe discharging directly to the edge of the wetlands. The proposed storage capacities of the infiltration basin below the primary outlet was sized to exceed the water quality volume. Likewise, the surface basin forebay was sized to contain a minimum of 25% of the WQV per the requirements for infiltration basins. WQV calculations are provided in Appendix 6.

The same design point for the pre-development analysis was used for the post development analysis. The post development site was divided into 9 subcatchments. Subcatchments S1 and S2 include the areas that will be collected by the catch basins in the parking lot and discharged to the subsurface infiltration system. Subcatchments S3 and S4 include the areas that will be collected by the catch basins in the parking lot and discharged to the infiltration basin. Subcatchment S8 includes the roof runoff that will be discharged into a catch basin towards the infiltration basin. Subcatchment S5 includes runoff from the playground area that will be collected in a trench drain and piped directly to the infiltration basin. Subcatchment S7 includes the area that will directly sheet flow into the infiltration basin. Subcatchment S7 includes the area that will continue to drain overland directly to the design point (i.e. wetlands). Subcatchment PP includes the area of the adjacent Panda Palace that discharges to the development area.

The post development drainage area map is provided in Appendix 4. The post development runoff characteristics of the subcatchments are provided on the HydroCAD data sheets in Appendix 5. As shown in the Table 1, the post-development peak rates of runoff from the site to the design point will be maintained or reduced in comparison to the pre-development rates.

## TABLE 1 – COMPARISON OF PRE- & POST-DEVELOPMENTDISCHARGE RATES (CFS) TO DESIGN POINT

	2-year	10-year	25-year	100-year
Pre-Development	2.1	3.4	4.2	5.4
Post Development	0.2	1.3	1.8	4.9

## D. Pipe Sizing

The piping proposed at the site consists of smooth bore corrugated high density polyethylene pipe with smooth interior walls (CPEP-S). The roughness coefficient used for this pipe type is 0.012. The analysis provided in Appendix 5 indicates headwater elevation in the structure at each pipe inlet for the design storms and compares it to the flood elevation, which corresponds to the top of frame of the structure. The calculations indicate that all proposed pipes will have sufficient capacity to convey the 10-year storm event without surcharging out of the top of the structures.

## E. Outlet Protection

Outfall protection for the pipe discharge from the Walgreens Stormwater Management Basin and subsurface infiltration system overflow at the edge of the wetland will consist of a Type A riprap apron. Outfall protection for the pipe discharge from the infiltration basin at the edge of the wetland will consist of a Type A riprap apron. Similarly, riprap channels will be installed at the inlets to the infiltration basin to convey runoff down the slope into the forebay. Outlet protection for the infiltration's spillway will consist of a 12" thick modified riprap slope extended 5 feet beyond the toe of the slope.

## F. Summary of Results

The proposed design and analysis indicates that the proposed development will not result in negative impacts downstream. In addition, the proposed stormwater management system will intercept and divert the untreated runoff from the Panda Palace leak-off to the subsurface infiltration system where it will be treated prior to discharge, whereas previously it was discharged to the wetland without treatment.

Appendix 1:

**RAINFALL DATA** 

Precipitation Frequency Data Server

NOAA Atlas 14, Volume 10, Version 3 Location name: Vernon Rockville, Connecticut, Latitude: 41.8502°, Longitude: -72.4855° Elevation: 224.86 ft\*\* source: ESRI Maps \*\* source: USGS



#### POINT PRECIPITATION FREQUENCY ESTIMATES

USA\*

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF\_tabular | PF\_graphical | Maps\_&\_aerials

### **PF** tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>										
Duration		Average recurrence interval (years)								
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	<b>0.332</b> (0.254-0.434)	<b>0.403</b> (0.308-0.528)	<b>0.519</b> (0.395-0.684)	<b>0.616</b> (0.466-0.814)	<b>0.749</b> (0.551-1.03)	<b>0.849</b> (0.614-1.20)	<b>0.953</b> (0.672-1.39)	<b>1.07</b> (0.718-1.60)	<b>1.24</b> (0.803-1.92)	<b>1.38</b> (0.875-2.18)
10-min	<b>0.470</b> (0.359-0.615)	<b>0.571</b> (0.436-0.748)	<b>0.736</b> (0.560-0.967)	<b>0.872</b> (0.660-1.15)	<b>1.06</b> (0.780-1.46)	<b>1.20</b> (0.868-1.69)	<b>1.35</b> (0.951-1.97)	<b>1.52</b> (1.02-2.27)	<b>1.76</b> (1.14-2.72)	<b>1.96</b> (1.24-3.08)
15-min	<b>0.553</b> (0.423-0.724)	<b>0.672</b> (0.513-0.880)	<b>0.866</b> (0.658-1.14)	<b>1.03</b> (0.778-1.36)	<b>1.25</b> (0.918-1.72)	<b>1.41</b> (1.02-1.99)	<b>1.59</b> (1.12-2.32)	<b>1.79</b> (1.20-2.67)	<b>2.07</b> (1.34-3.20)	<b>2.30</b> (1.46-3.63)
30-min	<b>0.748</b> (0.571-0.979)	<b>0.909</b> (0.694-1.19)	<b>1.17</b> (0.892-1.54)	<b>1.39</b> (1.05-1.84)	<b>1.69</b> (1.25-2.34)	<b>1.92</b> (1.39-2.71)	<b>2.16</b> (1.52-3.15)	<b>2.43</b> (1.63-3.62)	<b>2.81</b> (1.82-4.34)	<b>3.13</b> (1.98-4.93)
60-min	<b>0.943</b> (0.720-1.23)	<b>1.15</b> (0.875-1.50)	<b>1.48</b> (1.13-1.95)	<b>1.76</b> (1.33-2.32)	<b>2.14</b> (1.57-2.95)	<b>2.42</b> (1.75-3.42)	<b>2.73</b> (1.92-3.99)	<b>3.07</b> (2.05-4.58)	<b>3.56</b> (2.30-5.49)	<b>3.96</b> (2.51-6.23)
2-hr	<b>1.21</b> (0.931-1.58)	<b>1.47</b> (1.12-1.91)	<b>1.88</b> (1.44-2.46)	<b>2.23</b> (1.69-2.93)	<b>2.70</b> (2.00-3.72)	<b>3.05</b> (2.22-4.30)	<b>3.43</b> (2.44-5.03)	<b>3.89</b> (2.61-5.77)	<b>4.57</b> (2.96-7.02)	<b>5.15</b> (3.27-8.06)
3-hr	<b>1.40</b> (1.08-1.82)	<b>1.69</b> (1.30-2.19)	<b>2.16</b> (1.66-2.82)	<b>2.56</b> (1.95-3.36)	<b>3.10</b> (2.30-4.26)	<b>3.50</b> (2.56-4.93)	<b>3.94</b> (2.82-5.78)	<b>4.47</b> (3.01-6.62)	<b>5.30</b> (3.44-8.10)	<b>6.01</b> (3.82-9.36)
6-hr	<b>1.76</b> (1.36-2.28)	<b>2.13</b> (1.65-2.76)	<b>2.74</b> (2.11-3.56)	<b>3.25</b> (2.49-4.24)	<b>3.95</b> (2.95-5.41)	<b>4.46</b> (3.28-6.26)	<b>5.02</b> (3.62-7.35)	<b>5.72</b> (3.86-8.42)	<b>6.82</b> (4.44-10.4)	<b>7.78</b> (4.96-12.0)
12-hr	<b>2.17</b> (1.69-2.80)	<b>2.66</b> (2.06-3.42)	<b>3.45</b> (2.67-4.46)	<b>4.10</b> (3.16-5.33)	<b>5.01</b> (3.76-6.83)	<b>5.67</b> (4.19-7.92)	<b>6.40</b> (4.63-9.32)	<b>7.31</b> (4.95-10.7)	<b>8.74</b> (5.71-13.2)	<b>9.98</b> (6.38-15.3)
24-hr	<b>2.56</b> (1.99-3.27)	<b>3.16</b> (2.47-4.06)	<b>4.16</b> (3.23-5.35)	<b>4.98</b> (3.85-6.45)	<b>6.12</b> (4.62-8.32)	<b>6.95</b> (5.16-9.68)	<b>7.87</b> (5.74-11.4)	<b>9.04</b> (6.14-13.1)	<b>10.9</b> (7.13-16.3)	<b>12.5</b> (8.03-19.1)
2-day	<b>2.88</b> (2.26-3.67)	<b>3.61</b> (2.83-4.61)	<b>4.81</b> (3.75-6.16)	<b>5.80</b> (4.50-7.47)	<b>7.17</b> (5.44-9.72)	<b>8.16</b> (6.10-11.3)	<b>9.28</b> (6.82-13.5)	<b>10.7</b> (7.30-15.5)	<b>13.1</b> (8.59-19.5)	<b>15.2</b> (9.77-23.0)
3-day	<b>3.13</b> (2.46-3.98)	<b>3.94</b> (3.09-5.01)	<b>5.25</b> (4.10-6.70)	<b>6.33</b> (4.93-8.12)	<b>7.83</b> (5.96-10.6)	<b>8.91</b> (6.69-12.4)	<b>10.1</b> (7.48-14.7)	<b>11.7</b> (8.01-16.9)	<b>14.3</b> (9.44-21.3)	<b>16.7</b> (10.8-25.2)
4-day	<b>3.37</b> (2.65-4.27)	<b>4.22</b> (3.32-5.36)	<b>5.61</b> (4.40-7.15)	<b>6.77</b> (5.28-8.67)	<b>8.36</b> (6.37-11.3)	<b>9.52</b> (7.15-13.2)	<b>10.8</b> (7.99-15.7)	<b>12.5</b> (8.55-18.0)	<b>15.3</b> (10.1-22.7)	<b>17.8</b> (11.5-26.8)
7-day	<b>4.00</b> (3.16-5.06)	<b>4.96</b> (3.92-6.28)	<b>6.53</b> (5.14-8.29)	<b>7.83</b> (6.13-9.99)	<b>9.62</b> (7.35-12.9)	<b>10.9</b> (8.22-15.0)	<b>12.4</b> (9.15-17.8)	<b>14.3</b> (9.78-20.4)	<b>17.3</b> (11.4-25.5)	<b>20.0</b> (12.9-30.0)
10-day	<b>4.64</b> (3.68-5.85)	<b>5.66</b> (4.48-7.14)	<b>7.32</b> (5.78-9.27)	<b>8.70</b> (6.83-11.1)	<b>10.6</b> (8.11-14.2)	<b>12.0</b> (9.02-16.4)	<b>13.5</b> (9.98-19.3)	<b>15.5</b> (10.6-22.1)	<b>18.6</b> (12.3-27.3)	<b>21.3</b> (13.8-31.8)
20-day	<b>6.67</b> (5.31-8.37)	<b>7.75</b> (6.17-9.74)	<b>9.53</b> (7.55-12.0)	<b>11.0</b> (8.67-13.9)	<b>13.0</b> (9.97-17.2)	<b>14.5</b> (10.9-19.5)	<b>16.1</b> (11.8-22.5)	<b>18.0</b> (12.5-25.5)	<b>20.8</b> (13.9-30.4)	<b>23.2</b> (15.1-34.4)
30-day	<b>8.40</b> (6.70-10.5)	<b>9.51</b> (7.58-11.9)	<b>11.3</b> (8.99-14.2)	<b>12.8</b> (10.1-16.2)	<b>14.9</b> (11.4-19.5)	<b>16.5</b> (12.3-21.9)	<b>18.1</b> (13.2-24.9)	<b>19.9</b> (13.8-27.9)	<b>22.3</b> (14.9-32.4)	<b>24.3</b> (15.9-36.0)
45-day	<b>10.6</b> (8.45-13.2)	<b>11.7</b> (9.35-14.6)	<b>13.6</b> (10.8-17.0)	<b>15.1</b> (12.0-19.0)	<b>17.2</b> (13.2-22.4)	<b>18.9</b> (14.1-24.9)	<b>20.5</b> (14.8-27.8)	<b>22.1</b> (15.4-31.0)	<b>24.3</b> (16.3-35.0)	<b>25.8</b> (16.9-38.1)
60-day	<b>12.4</b> (9.92-15.4)	<b>13.5</b> (10.8-16.9)	<b>15.4</b> (12.3-19.3)	<b>17.0</b> (13.5-21.4)	<b>19.2</b> (14.7-24.8)	<b>20.9</b> (15.7-27.5)	<b>22.6</b> (16.3-30.4)	<b>24.1</b> (16.8-33.6)	<b>26.0</b> (17.4-37.4)	<b>27.3</b> (17.8-40.1)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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**PF** graphical

Appendix 2:

**NRCS SOILS INFORMATION** 



United States Department of Agriculture

Natural Resources

Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

## Custom Soil Resource Report for State of Connecticut





## **Map Unit Legend**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
33B	Hartford sandy loam, 3 to 8 percent slopes	3.3	91.3%
306	Udorthents-Urban land complex	0.3	8.7%
Totals for Area of Interest		3.7	100.0%

## **Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

## State of Connecticut

#### 33B—Hartford sandy loam, 3 to 8 percent slopes

#### **Map Unit Setting**

National map unit symbol: 9lmw Elevation: 0 to 1,200 feet Mean annual precipitation: 43 to 54 inches Mean annual air temperature: 45 to 55 degrees F Frost-free period: 140 to 185 days Farmland classification: All areas are prime farmland

#### **Map Unit Composition**

Hartford and similar soils: 80 percent Minor components: 20 percent Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Hartford**

#### Setting

Landform: Terraces, outwash plains Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy glaciofluvial deposits derived from sandstone and/or basalt

#### **Typical profile**

Ap - 0 to 8 inches: sandy loam Bw1 - 8 to 20 inches: sandy loam Bw2 - 20 to 26 inches: loamy sand 2C - 26 to 65 inches: stratified very gravelly coarse sand to loamy fine sand

#### **Properties and qualities**

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2e Hydrologic Soil Group: A Ecological site: F145XY008MA - Dry Outwash Hydric soil rating: No

#### **Minor Components**

#### Penwood

Percent of map unit: 5 percent Landform: Terraces, outwash plains Down-slope shape: Convex Across-slope shape: Linear Hydric soil rating: No

#### Ellington

Percent of map unit: 5 percent Landform: Terraces, outwash plains Down-slope shape: Linear Across-slope shape: Linear Hydric soil rating: No

#### Manchester

Percent of map unit: 5 percent Landform: Terraces, outwash plains, kames, eskers Down-slope shape: Convex Across-slope shape: Convex Hydric soil rating: No

#### Branford

Percent of map unit: 5 percent Landform: Terraces, outwash plains Down-slope shape: Linear Across-slope shape: Linear Hydric soil rating: No

### 306—Udorthents-Urban land complex

#### **Map Unit Setting**

National map unit symbol: 9Img Elevation: 0 to 2,000 feet Mean annual precipitation: 43 to 56 inches Mean annual air temperature: 45 to 55 degrees F Frost-free period: 120 to 185 days Farmland classification: Not prime farmland

#### Map Unit Composition

*Udorthents and similar soils:* 50 percent *Urban land:* 35 percent *Minor components:* 15 percent *Estimates are based on observations, descriptions, and transects of the mapunit.* 

#### **Description of Udorthents**

#### Setting

*Down-slope shape:* Convex *Across-slope shape:* Linear *Parent material:* Drift

#### **Typical profile**

A - 0 to 5 inches: loam C1 - 5 to 21 inches: gravelly loam C2 - 21 to 80 inches: very gravelly sandy loam

#### **Properties and qualities**

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3e Hydrologic Soil Group: B Hydric soil rating: No

#### **Description of Urban Land**

#### **Typical profile**

H - 0 to 6 inches: material

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 8 Hydrologic Soil Group: D Hydric soil rating: Unranked

#### Minor Components

#### Unnamed, undisturbed soils

Percent of map unit: 8 percent Hydric soil rating: No

#### Udorthents, wet substratum

Percent of map unit: 5 percent Down-slope shape: Convex Across-slope shape: Linear Hydric soil rating: No

#### Rock outcrop

Percent of map unit: 2 percent Hydric soil rating: No
Appendix 3:

**PERMEABILITY TEST RESULTS** 



72 Bissell Street Manchester, CT 06040 • Tel: 860-783-5830 • Fax: 860-783-5832

Client: JR Russo Surveyors Engineers	<b>Report #:</b> 001
East Windsor, CT. 06088	Lab ID: 098-21
Project: 501Talcottville Road Vernon, CT.	Client ID: TP-1
Technician: Z. A	<b>Date:</b> 12/27/2021

# LAB PERMEABILITY TEST

**Sample description:** Reddish brown silty clayey sand.

Location: Onsite (501Talcottville Red Vernon, CT).

Sample depth: 30" to 36"

Method: Permeability by ASTM D2434 (Constant Head Method)

k = QL/ath

Where k = coefficient of permeability,

Q = quantity of water discharged,	Q =	$800 \text{ cm}^3$
L = length of sample in centimeters	L =	15.24 cm
A = cross sectional area of specimen,	A =	$43.10 \text{ cm}^2$
t = total time for discharge, in seconds	t =	5940 sec
h = difference in head manometers,	h =	61.5 cm

k = 0.00077435 cm/sec.

k = 1.0975 inch/hour

#### Reported To: JR Russo Surveyors Engineers

**Submitted By:** New England Materials Testing Lab, LLC.



72 Bissell Street Manchester, CT 06040 • Tel: 860-783-5830 • Fax: 860-783-5832

Client: JR Russo Surveyors Engineers	<b>Report #:</b> 002
East Windsor, CT. 06088	Lab ID: 099-21
Project: 501Talcottville Road Vernon, CT.	Client ID: TP-2
Technician: Z. A	<b>Date:</b> 12/27/2021

# LAB PERMEABILITY TEST

**Sample description:** Reddish brown sand bank run gravel and fines.

Location: Onsite (501Talcottville Red Vernon, CT).

Sample depth: 30" to 36"

Method: Permeability by ASTM D2434 (Constant Head Method)

k = QL/ath

Where k = coefficient of permeability,

Q = quantity of water discharged,	Q =	$1000 \text{ cm}^3$
L = length of sample in centimeters	L =	15.24 cm
A = cross sectional area of specimen,	A =	$43.10 \text{ cm}^2$
t = total time for discharge, in seconds	t =	4140 sec
h = difference in head manometers,	h =	61.5 cm

k = 0.001388776 cm/sec.

k = 1.968 inch/hour

#### Reported To: JR Russo Surveyors Engineers

**Submitted By:** New England Materials Testing Lab, LLC.



72 Bissell Street Manchester, CT 06040 • Tel: 860-783-5830 • Fax: 860-783-5832

Client: JR Russo Surveyors Engineers	<b>Report #:</b> 003
East Windsor, CT. 06088	Lab ID: 100-21
Project: 501Talcottville Road Vernon, CT.	Client ID: TP-3
Technician: Z. A	<b>Date:</b> 12/27/2021

# LAB PERMEABILITY TEST

**Sample description:** Dark brown silty clayey sand and gravel.

Location: Onsite (501Talcottville Red Vernon, CT).

Sample depth: 36" to 42"

Method: Permeability by ASTM D2434 (Constant Head Method)

k = QL/ath

Where k = coefficient of permeability,

Q = quantity of water discharged,	Q =	$1000 \text{ cm}^3$
L = length of sample in centimeters	L =	15.24 cm
A = cross sectional area of specimen,	A =	$43.10 \text{ cm}^2$
t = total time for discharge, in seconds	t =	3480 sec
h = difference in head manometers,	h =	61.5 cm

k = 0.001652165 cm/sec.

k = 2.341 inch/hour

#### Reported To: JR Russo Surveyors Engineers

**Submitted By:** New England Materials Testing Lab, LLC.



72 Bissell Street Manchester, CT 06040 • Tel: 860-783-5830 • Fax: 860-783-5832

Client: JR Russo Surveyors Engineers	<b>Report #:</b> 001
East Windsor, CT. 06088	Lab ID: 101-21
Project: 501Talcottville Road Vernon, CT.	Client ID: TP-4
Technician: Z. A	<b>Date:</b> 12/27/2021

# LAB PERMEABILITY TEST

Sample description: Reddish brown sand and little gravel.

Location: Onsite (501Talcottville Red Vernon, CT).

Sample depth: 30" to 36"

Method: Permeability by ASTM D2434 (Constant Head Method)

k = QL/ath

Where k = coefficient of permeability,

Q = quantity of water discharged,	Q =	$1000 \text{ cm}^3$
L = length of sample in centimeters	L =	15.24 cm
A = cross sectional area of specimen,	A =	$43.10 \text{ cm}^2$
t = total time for discharge, in seconds	t =	240 sec
h = difference in head manometers,	h =	61.5 cm

k = 0.023956388 cm/sec.

k = 33.953 inch/hour

#### Reported To: JR Russo Surveyors Engineers

**Submitted By:** New England Materials Testing Lab, LLC.

Appendix 4:

**DRAINAGE AREA MAPS** 





Appendix 5:

HYDROCAD ANALYSES



# Summary for Pond AD: Area Drain

Inflow Area = 0.668 ac,100.00% Impervious, Inflow Depth > 4.74" for 10-year event Inflow 3.37 cfs @ 12.07 hrs, Volume= 0.264 af = 3.37 cfs @ 12.08 hrs, Volume= Outflow 0.264 af, Atten= 0%, Lag= 0.6 min = Primary = 3.37 cfs @ 12.08 hrs, Volume= 0.264 af Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 219.86' @ 12.08 hrs Flood Elev= 221.90' Device Routing Invert Outlet Devices 15.0" Round Culvert L= 62.0' Ke= 0.500 #1 Primary 218.90' Inlet / Outlet Invert= 218.90' / 218.28' S= 0.0100 '/' Cc= 0.900

n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.37 cfs @ 12.08 hrs HW=219.86' TW=215.61' (Dynamic Tailwater) -1=Culvert (Inlet Controls 3.37 cfs @ 3.34 fps)

#### Summary for Pond BAS1: BASIN

Inflow Area	ı =	1.022 ac, 6	6.96% Imp	ervious, I	nflow Depth >	2.90"	for 10-y	ear event	
Inflow	=	3.30 cfs @	12.09 hrs,	Volume=	: 0.247	af			
Outflow	=	1.31 cfs @	12.32 hrs,	Volume=	: 0.247	af, Atte	en= 60%,	Lag= 13.6	min
Discarded	=	0.05 cfs @	12.32 hrs,	Volume=	. 0.103	af		-	
Primary	=	1.26 cfs @	12.32 hrs,	Volume=	· 0.144	af			

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 217.50' @ 12.32 hrs Surf.Area= 2,223 sf Storage= 4,200 cf Flood Elev= 219.00' Surf.Area= 3,299 sf Storage= 8,327 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 421.2 min (1,210.8 - 789.6)

Volume	Invert	: Avail.Sto	rage Stora	e Description	
#1	214.00	8,32	27 cf Custo	m Stage Data (Prismati	<b>c)</b> Listed below (Recalc)
Elevatio	on S	urf.Area	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)	
214.0	00	353	0	0	
216.0	00	1,249	1,602	1,602	
218.0	00	2,551	3,800	5,402	
219.0	00	3,299	2,925	8,327	
Device	Routing	Invert	Outlet Devi	ces	
#1	Discarded	214.00'	0.550 in/hr	<b>Exfiltration over Surfac</b>	e area
			Conductivit	y to Groundwater Elevatic	n = 212.00'
#2	Primary	218.50'	10.0' long	x 7.0' breadth Broad-Cr	ested Rectangular Weir
			Head (feet)	0.20 0.40 0.60 0.80 1.	00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00	3.50 4.00 4.50 5.00 5.5	0
			Coef. (Engl	sh) 2.40 2.52 2.70 2.68	3 2.68 2.67 2.66 2.65 2.65

2021-083 Vernon TLE-B

Prepared by J.R. Russo & Associates I.I.C.

Type III 24-hr 10-year Rainfall=4.98" Printed 3/23/2022 LLC Page 3

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Hy	/droCAD®	10.00-26	s/n 10006	© 2020 H	ydroCAD	Software	Solutions	LL(

			2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78
#3	Primary	212.30'	10.0" Round Culvert L= 28.0' Ke= 0.500
			Inlet / Outlet Invert= 212.30' / 212.00' S= 0.0107 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.55 sf
#4	Device 3	216.60'	8.0" Vert. Orifice/Grate C= 0.600
#5	Device 3	218.40'	36.0" W x 19.4" H Vert. Orifice/Grate C= 0.600

**Discarded OutFlow** Max=0.05 cfs @ 12.32 hrs HW=217.50' (Free Discharge) **1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=1.26 cfs @ 12.32 hrs HW=217.50' TW=0.00' (Dynamic Tailwater) 2=Broad-Crested Rectangular Weir( Controls 0.00 cfs) 3=Culvert (Passes 1.26 cfs of 5.74 cfs potential flow) 4=Orifice/Grate (Orifice Controls 1.26 cfs @ 3.61 fps)

-5=Orifice/Grate (Controls 0.00 cfs)

# Summary for Pond CB1: CB1

Inflow Area	ı =	0.162 ac, 8	32.30% Impe	ervious,	Inflow D	epth =	3.65"	for 10-	year ever	nt
Inflow	=	0.70 cfs @	12.07 hrs,	Volume	=	0.049	af			
Outflow	=	0.70 cfs @	12.08 hrs,	Volume	=	0.049 a	af, Att	en= 0%,	Lag= 0.6	min
Primary	=	0.70 cfs @	12.08 hrs,	Volume	=	0.049 a	af		-	

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 217.89' @ 12.08 hrs Flood Elev= 221.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	217.50'	15.0" Round Culvert L= 107.0' Ke= 0.500
			Inlet / Outlet Invert= 217.50' / 216.43' S= 0.0100 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.23 sf

# Summary for Pond CB2: CB2

Inflow Area	ı =	0.223 ac, 6	7.98% Impervic	ous, Inflow De	pth = 2.	78" for	10-year event
Inflow	=	0.76 cfs @	12.07 hrs, Volu	ume=	0.052 af		
Outflow	=	0.76 cfs @	12.08 hrs, Volu	ume=	0.052 af,	Atten= 0	%, Lag= 0.6 min
Primary	=	0.76 cfs @	12.08 hrs, Volu	ume=	0.052 af		-

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 216.39' @ 12.38 hrs Flood Elev= 221.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	215.00'	15.0" Round Culvert L= 3.0' Ke= 0.500
	-		Inlet / Outlet Invert= 215.00' / 215.00' S= 0.0000 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.09 cfs @ 12.08 hrs HW=215.65' TW=215.65' (Dynamic Tailwater) ←1=Culvert (Outlet Controls 0.09 cfs @ 0.20 fps)

# Summary for Pond CB3: CB3

Inflow Area	=	0.544 ac, 7	4.18% Imper	vious, Inflow	Depth >	3.17"	for 10-y	/ear event
Inflow	=	1.91 cfs @	12.07 hrs, V	/olume=	0.144	af		
Outflow	=	1.91 cfs @	12.08 hrs, V	/olume=	0.144	af, Atte	n= 0%,	Lag= 0.6 min
Primary	=	1.91 cfs @	12.08 hrs, V	/olume=	0.144	af		

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 218.58' @ 12.08 hrs Flood Elev= 221.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	217.90'	<b>15.0" Round Culvert</b> L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 217.90' / 216.50' S= 0.0222 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.91 cfs @ 12.08 hrs HW=218.58' TW=217.45' (Dynamic Tailwater)

# Summary for Pond CB4: CB4

Inflow Area	ı =	0.796 ac, 7	1.73% Impe	rvious,	Inflow Depth >	3.02	2" for 10-	year event
Inflow	=	2.74 cfs @	12.08 hrs, \	Volume=	= 0.20	) af		-
Outflow	=	2.74 cfs @	12.09 hrs, \	Volume=	= 0.20	) af, <i>1</i>	Atten= 0%,	Lag= 0.6 min
Primary	=	2.74 cfs @	12.09 hrs, \	Volume=	= 0.20	) af		

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 217.55' @ 12.28 hrs Flood Elev= 220.00'

Invert	Outlet Devices
216.50'	<b>15.0" Round Culvert</b> L= 16.0' Ke= 0.500 Inlet / Outlet Invert= 216.50' / 216.00' S= 0.0313 '/' Cc= 0.900 n= 0.012 Flow Area= 1.23 sf
	Invert 216.50'

Primary OutFlow Max=2.56 cfs @ 12.09 hrs HW=217.47' TW=217.15' (Dynamic Tailwater) -1=Culvert (Outlet Controls 2.56 cfs @ 3.43 fps)

# Summary for Pond FB1: FOREBAY

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	214.00'	1,060 cf	Custom Stage Data (Prismatic)Listed below (Recalc)

# 2021-083 Vernon TLE-B

Prepared by J.R. Russo & Associates LLC HydroCAD® 10.00-26 s/n 10006 © 2020 HydroCAD Software Solutions LLC

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
214.00	50	0	0
216.00	441	491	491
217.00	696	569	1,060

# **Summary for Subcatchment P1: PRE**

Runoff	=	0.01 cfs @	21.37 hrs, Volume	= 0.004 af, Depth= 0.02"
--------	---	------------	-------------------	--------------------------

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

A	rea (sf)	CN [	Description		
	89,643	30 \	Voods, Go	od, HSG A	
	6,051	55 \	Noods, Go	od, HSG B	
	95,694	32 \	Veighted A	verage	
	95,694		100.00% Pe	ervious Are	a
Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
11.8	100	0.0900	0.14		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 3.20"
2.5	176	0.0570	1.19		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
14.3	276	Total			

# Summary for Pond POST: WETLANDS

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area	a =	2.846 ac, 5	57.57% Imp	ervious,	Inflow D	Depth = 0	).67" fo	or 10-	year eve	ent
Inflow	=	1.26 cfs @	12.32 hrs,	Volume	=	0.158 a	f			
Primary	=	1.26 cfs @	12.33 hrs,	Volume	=	0.158 a	f, Atten=	= 0%,	Lag= 0.	6 min

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

# Summary for Subcatchment PP: Panda Palace

Runoff = 3.37 cfs @ 12.07 hrs, Volume= 0.264 af, Depth> 4.74"

	Area (sf)	CN	Description
*	29,109	98	Impervious
	29,109		100.00% Impervious Area

Prepare	d by J.R	. Russo &	Associa	tes LLC			Printed	3/23/2022
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Descriptior	1		
5.0					Direct Ent	ry,		
		Su	mmary	for Subc	atchment	PP.: Panda	Palace	
Runoff	=	3.37 cfs	@ 12.07	7 hrs, Volu	me=	0.264 af, Dep	th> 4.74"	
Runoff b Type III	y SCS TF 24-hr 10-	R-20 metho year Rainf	od, UH=S fall=4.98"	CS, Weigh	nted-CN, Tin	ne Span= 1.00-7	72.00 hrs, dt= 0.01 hi	ſS
<u> </u>	<u>rea (sf)</u>	CN De	scription					
	<u>29,109</u> 29,109	<u>90 III</u> 10	0 00% Im	nervious A	rea			
	20,100		0.0070	ip of from of				
Tc (min)	Length (feet)	Slope '	Velocity (ft/sec)	Capacity (cfs)	Descriptior	1		
5.0	(1001)	(1010)	(14000)	(010)	Direct Ent	ry,		
			Su	mmary fo	or Pond P	RE: DP-PRE		
[40] Hint	: Not Des	cribed (Ou	utflow=Inf	low)				
Inflow Au Inflow	rea = =	2.865 ac 3.37 cfs	c, 23.32% @ 12.07	6 Impervio 7 hrs, Volu	us, Inflow D me=	epth > 1.12" 0.269 af	for 10-year event	_
Primary	=	3.37 CIS	@ 12.08	s nrs, voiu	me=	0.269 al, Alle	n= 0%, Lag= 0.6 mir	1
Routing	by Sim-R	oute metho	od, Time	Span= 1.0	0-72.00 hrs,	dt= 0.01 hrs		
			Sum	mary for	Subcatch	ment S1: CB	31	
Runoff	=	0.70 cfs	@ 12.07	7 hrs, Volu	me=	0.049 af, Dep	th= 3.65"	

2021-083 Vernon TLE-B

Type III 24-hr 10-year Rainfall=4.98"

A	rea (sf)	CN	Description				
	5,822	98	Paved park	ing, HSG A	Ą		
	1,252	39	>75% Gras	s cover, Go	ood, HSG A		
	7,074	88	Weighted A	verage			
	1,252		17.70% Pervious Area				
	5,822		82.30% Imp	pervious Ar	rea		
Ŧ	1			0			
IC	Length	Slop	e Velocity	Capacity	Description		
<u>(min)</u>	(feet)	(ft/ft	) (ft/sec)	(cfs)			
5.0					Direct Entry,		

## Summary for Subcatchment S2: CB2

Runoff = 0.76 cfs @ 12.07 hrs, Volume= 0.052 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

Area	a (sf)	CN	Description					
6	618	98	Paved park	ing, HSG A	Α			
3	5,117	39	>75% Gras	s cover, Go	ood, HSG A			
9	,735	79	Weighted A	verage				
3	,117		32.02% Pervious Area					
6	6,618		67.98% Impervious Area					
Tc L _(min)	ength (feet)	Slope (ft/ft	e Velocity ) (ft/sec)	Capacity (cfs)	Description			
5.0					Direct Entry,			
	Summary for Subcatchment S3: CB3							

Runoff	=	0.76 cfs @	12.08 hrs, Volume=	0.053 af, Depth= 2.02'
			,	,

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

Are	ea (sf)	CN	Description					
	7,570	98	Paved park	ing, HSG A	Ν			
	3,876	39	>75% Gras	s cover, Go	bod, HSG A			
	2,239	30	Woods, Go	od, HSG A				
1	3,685	70	Weighted Average					
	6,115		44.68% Pervious Area					
	7,570		55.32% Imp	pervious Ar	ea			
Тс	Length	Slop	e Velocity	Capacity	Description			
<u>(min)</u>	(feet)	(ft/ft	(ft/sec)	(cfs)				
5.0					Direct Entry,			
					-			

#### Summary for Subcatchment S4: CB4

Runoff = 0.83 cfs @ 12.08 hrs, Volume= 0.057 af, Depth= 2.69"

# 2021-083 Vernon TLE-B

Type III 24-hr 10-year Rainfall=4.98" Printed 3/23/2022 LLC Page 8

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A	rea (sf)	CN	Description					
	7,293	98	Paved park	ing, HSG A				
	3,515	39	>75% Gras	s cover, Go	od, HSG A			
	171	30	Woods, Go	od, HSG A				
	10,979	78	Weighted A	Weighted Average				
	3,686		33.57% Pervious Area					
	7,293		66.43% Impervious Area					
Тс	l enath	Slop	<ul> <li>Velocity</li> </ul>	Canacity	Description			
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)	Becomption			
5.0	· · · /	, ,	<u> </u>		Direct Entry,			

#### Summary for Subcatchment S5: PLAYGROUND

Runoff = 0.57 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Type III 24-hr 10-year Rainfall=4.98"

A	rea (sf)	CN	Description						
	4,941	98	Paved parking, HSG A						
	4,941		100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
5.0					Direct Entry,				

# Summary for Subcatchment S6: BAS1

Runoff = 0.00 cfs @ 12.46 hrs, Volume= 0.002 af, Depth= 0.20"

A	rea (sf)	CN	Description						
	4,912	39	>75% Gras	s cover, Go	ood, HSG A				
	18	98	Paved park	ing, HSG A	Α				
	4,930	39	Weighted A	Weighted Average					
	4,912		99.63% Pervious Area						
	18		0.37% Impe	ervious Are	ea				
Tc (min)	Length (feet)	Slop (ft/ft	e Velocity ) (ft/sec)	Capacity (cfs)	Description				
5.0					Direct Entry,				

# Summary for Subcatchment S7: DIRECT

Runoff = 0.03 cfs @ 12.73 hrs, Volume= 0.015 af, Depth= 0.23"

A	rea (sf)	CN	Description		
*	861	39	Disconnect	ed Sidewal	k, HSG A
	7,246	30	Woods, Go	od, HSG A	
	4,092	55	Woods, Go	od, HSG B	
	19,366	39	>75% Gras	s cover, Go	bod, HSG A
	1,958	61	>75% Gras	s cover, Go	bod, HSG B
	33.523	40	Weiahted A	verage	
	33,523		100.00% P	ervious Are	a
	,				
Тс	Length	Slope	e Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•
0.1	6	0.0200	0.78		Sheet Flow, IM
	-				Smooth surfaces $n = 0.011$ P2= 3.20"
1.8	22	0.0636	0.20		Sheet Flow, GR
					Grass: Short n= 0.150 P2= 3.20"
1.2	25	0.2400	0.35		Sheet Flow, GR
					Grass: Short n= 0.150 P2= 3.20"
1.4	20	0.1000	0.23		Sheet Flow, GR
					Grass: Short n= 0.150 P2= 3.20"
18.5	74	0.0160	0.07		Sheet Flow, W
					Woods: Light underbrush n= 0.400 P2= 3.20"
23.0	147	Total			
			Sumn	nary for S	Subcatchment S8: ROOF
Runoff	=	1.16 c	fs @ 12.0	7 hrs, Volu	me= 0.091 af, Depth> 4.74"
Runoff b	y SCS TF	R-20 me	thod, UH=S	SCS, Weigh	nted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
Type III :	24-hr 10-	-year Ra	ainfall=4.98'		
A	rea (sf)	CN	Description		
	10,000	98	Roofs, HSC	6 A	
	10,000		100.00% In	npervious A	vrea

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

## Summary for Pond SUB1: DMH1/DMH2

[86] Warning: Oscillations may require smaller dt (severity=1057)[80] Warning: Exceeded Pond CB2 by 0.10' @ 12.13 hrs (1.44 cfs 0.024 af)

Inflow Area	ı =	1.054 ac, 9	0.49% Imp	ervious,	Inflow Depth >	4.16"	for 10-y	/ear event	
Inflow	=	4.83 cfs @	12.08 hrs,	Volume=	= 0.365	af			
Outflow	=	1.53 cfs @	12.38 hrs,	Volume=	= 0.888	af, Atte	en= 68%,	Lag= 17.6	min
Discarded	=	1.53 cfs @	12.38 hrs,	Volume=	= 0.888	af		-	
Primary	=	0.00 cfs @	1.00 hrs,	Volume=	= 0.000	af			

Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 216.39' @ 12.38 hrs Surf.Area= 2,264 sf Storage= 2,963 cf Flood Elev= 218.00' Surf.Area= 2,264 sf Storage= 5,012 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1A	214.50'	2,066 cf	20.50'W x 110.42'L x 3.50'H Field A
			7,922 cf Overall - 2,756 cf Embedded = 5,166 cf x 40.0% Voids
#2A	215.00'	2,756 cf	ADS_StormTech SC-740 +Cap x 60 Inside #1
			Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
			Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
			60 Chambers in 4 Rows
#3	215.00'	89 cf	4.00'D x 7.12'H DMH1-Impervious
#4	215.00'	101 cf	4.00'D x 8.05'H DMH2-Impervious
#5	214.80'	89 cf	4.00'D x 7.10'H DMH3-Impervious
#6	216.25'	74 cf	15.0" Round OUTLET PIPE-Impervious
			L= 60.0'
		E 470	

5,176 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	214.50'	15.000 in/hr Exfiltration over Surface area
			Conductivity to Groundwater Elevation = 212.50'
#2	Primary	213.20'	10.0" Round Culvert L= 120.0' Ke= 0.500
			Inlet / Outlet Invert= 213.20' / 212.00' S= 0.0100 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.55 sf
#3	Device 2	217.60'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
			2.3' Crest Height

**Discarded OutFlow** Max=1.53 cfs @ 12.38 hrs HW=216.39' (Free Discharge) **1=Exfiltration** (Controls 1.53 cfs)

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=214.50' TW=0.00' (Dynamic Tailwater) **2=Culvert** (Passes 0.00 cfs of 2.39 cfs potential flow)

**1**-3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

# Summary for Pond TD1: TRENCH DRAIN

Inflow Area = 0.113 ac,100.00% Impervious, Inflow Depth > 4.74" for 10-year event Inflow 0.57 cfs @ 12.07 hrs, Volume= 0.045 af = 0.57 cfs @ 12.08 hrs, Volume= Outflow 0.045 af, Atten= 0%, Lag= 0.6 min = Primary = 0.57 cfs @ 12.08 hrs, Volume= 0.045 af Routing by Sim-Route method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs Peak Elev= 219.52' @ 12.08 hrs Flood Elev= 222.35' Device Routing Invert Outlet Devices #1 6.0" Round Culvert L= 15.0' Ke= 0.500 Primary 218.90' Inlet / Outlet Invert= 218.90' / 218.00' S= 0.0600 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.57 cfs @ 12.08 hrs HW=219.52' TW=217.10' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.57 cfs @ 2.92 fps)

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# Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond AD: Area Drain	Peak Elev=219.62' Inflow=2.12 cfs 0.163 af 15.0" Round Culvert n=0.012 L=62.0' S=0.0100 '/' Outflow=2.12 cfs 0.163 af
Pond BAS1: BASIN	Peak Elev=216.86' Storage=2,918 cf Inflow=1.73 cfs 0.131 af Discarded=0.04 cfs 0.095 af Primary=0.22 cfs 0.036 af Outflow=0.26 cfs 0.131 af
Pond CB1: CB1	Peak Elev=217.79' Inflow=0.39 cfs 0.027 af 15.0" Round Culvert n=0.012 L=107.0' S=0.0100 '/' Outflow=0.39 cfs 0.027 af
Pond CB2: CB2	Peak Elev=215.39' Inflow=0.35 cfs 0.024 af 15.0" Round Culvert n=0.012 L=3.0' S=0.0000 '/' Outflow=0.35 cfs 0.024 af
Pond CB3: CB3	Peak Elev=218.37' Inflow=1.00 cfs 0.077 af 15.0" Round Culvert n=0.012 L=63.0' S=0.0222 '/' Outflow=1.00 cfs 0.077 af
Pond CB4: CB4	Peak Elev=217.06' Inflow=1.37 cfs 0.103 af 15.0" Round Culvert n=0.012 L=16.0' S=0.0313 '/' Outflow=1.37 cfs 0.103 af
Pond FB1: FOREBAY	Peak Elev=0.00' Storage=0 cf
SubcatchmentP1: PRE	Runoff Area=95,694 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=276' Tc=14.3 min CN=32 Runoff=0.00 cfs 0.000 af
Pond POST: WETLANDS	Inflow=0.22 cfs 0.036 af Primary=0.22 cfs 0.036 af
SubcatchmentPP: Panda	PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth=2.93"Tc=5.0 minCN=98Runoff=2.12 cfs0.163 af
SubcatchmentPP.: Pand	a Palace Runoff Area=29,109 sf 100.00% Impervious Runoff Depth=2.93" Tc=5.0 min CN=98 Runoff=2.12 cfs 0.163 af
Pond PRE: DP-PRE	Inflow=2.12 cfs 0.163 af Primary=2.12 cfs 0.163 af
SubcatchmentS1: CB1	Runoff Area=7,074 sf 82.30% Impervious Runoff Depth=1.96" Tc=5.0 min CN=88 Runoff=0.39 cfs 0.027 af
SubcatchmentS2: CB2	Runoff Area=9,735 sf 67.98% Impervious Runoff Depth=1.31" Tc=5.0 min CN=79 Runoff=0.35 cfs 0.024 af
SubcatchmentS3: CB3	Runoff Area=13,685 sf 55.32% Impervious Runoff Depth=0.80" Tc=5.0 min CN=70 Runoff=0.27 cfs 0.021 af
SubcatchmentS4: CB4	Runoff Area=10,979 sf 66.43% Impervious Runoff Depth=1.24" Tc=5.0 min CN=78 Runoff=0.37 cfs 0.026 af

#### 2021-083 Vernon TLE-B Prepared by J.R. Russo & Associates LLC

Type III 24-hr 2-year Rainfall=3.16" Printed 3/23/2022

HydroCAD® 10.00-26 s/n 10006 © 2020 HydroCAD Software Solutions LLC Page 13 Runoff Area=4,941 sf 100.00% Impervious Runoff Depth=2.93" SubcatchmentS5: PLAYGROUND Tc=5.0 min CN=98 Runoff=0.36 cfs 0.028 af SubcatchmentS6: BAS1 Runoff Area=4,930 sf 0.37% Impervious Runoff Depth=0.00" Tc=5.0 min CN=39 Runoff=0.00 cfs 0.000 af SubcatchmentS7: DIRECT Runoff Area=33,523 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=147' Tc=23.0 min CN=40 Runoff=0.00 cfs 0.000 af Runoff Area=10,000 sf 100.00% Impervious Runoff Depth=2.93" SubcatchmentS8: ROOF Tc=5.0 min CN=98 Runoff=0.73 cfs 0.056 af Peak Elev=215.38' Storage=1,174 cf Inflow=2.86 cfs 0.214 af Pond SUB1: DMH1/DMH2 Discarded=1.13 cfs 0.807 af Primary=0.00 cfs 0.000 af Outflow=1.13 cfs 0.807 af Pond TD1: TRENCH DRAIN Peak Elev=219.30' Inflow=0.36 cfs 0.028 af 6.0" Round Culvert n=0.012 L=15.0' S=0.0600 '/' Outflow=0.36 cfs 0.028 af

Total Runoff Area = 5.711 ac Runoff Volume = 0.508 af Average Runoff Depth = 1.07" 59.61% Pervious = 3.404 ac 40.39% Impervious = 2.307 ac

2021-083 Vernon TLE-B	Type III 24-hr	1
Prepared by J.R. Russo & Associates LLC		
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# Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond AD: Area Drain	Peak Elev=219.86' Inflow=3.37 cfs 0.264 af 15.0" Round Culvert n=0.012 L=62.0' S=0.0100 '/' Outflow=3.37 cfs 0.264 af
Pond BAS1: BASIN	Peak Elev=217.50' Storage=4,200 cf Inflow=3.30 cfs 0.247 af Discarded=0.05 cfs 0.103 af Primary=1.26 cfs 0.144 af Outflow=1.31 cfs 0.247 af
Pond CB1: CB1	Peak Elev=217.89' Inflow=0.70 cfs 0.049 af 15.0" Round Culvert n=0.012 L=107.0' S=0.0100 '/' Outflow=0.70 cfs 0.049 af
Pond CB2: CB2	Peak Elev=216.39' Inflow=0.76 cfs 0.052 af 15.0" Round Culvert n=0.012 L=3.0' S=0.0000 '/' Outflow=0.76 cfs 0.052 af
Pond CB3: CB3	Peak Elev=218.58' Inflow=1.91 cfs 0.144 af 15.0" Round Culvert n=0.012 L=63.0' S=0.0222 '/' Outflow=1.91 cfs 0.144 af
Pond CB4: CB4	Peak Elev=217.55' Inflow=2.74 cfs 0.200 af 15.0" Round Culvert n=0.012 L=16.0' S=0.0313 '/' Outflow=2.74 cfs 0.200 af
Pond FB1: FOREBAY	Peak Elev=0.00' Storage=0 cf
SubcatchmentP1: PRE	Runoff Area=95,694 sf 0.00% Impervious Runoff Depth=0.02" Flow Length=276' Tc=14.3 min CN=32 Runoff=0.01 cfs 0.004 af
Pond POST: WETLANDS	Inflow=1.26 cfs 0.158 af Primary=1.26 cfs 0.158 af
SubcatchmentPP: Panda	PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth>4.74"Tc=5.0 minCN=98Runoff=3.37 cfs0.264 af
SubcatchmentPP.: Pand	a Palace Runoff Area=29,109 sf 100.00% Impervious Runoff Depth>4.74" Tc=5.0 min CN=98 Runoff=3.37 cfs 0.264 af
Pond PRE: DP-PRE	Inflow=3.37 cfs 0.269 af Primary=3.37 cfs 0.269 af
SubcatchmentS1: CB1	Runoff Area=7,074 sf 82.30% Impervious Runoff Depth=3.65" Tc=5.0 min CN=88 Runoff=0.70 cfs 0.049 af
SubcatchmentS2: CB2	Runoff Area=9,735 sf 67.98% Impervious Runoff Depth=2.78" Tc=5.0 min CN=79 Runoff=0.76 cfs 0.052 af
SubcatchmentS3: CB3	Runoff Area=13,685 sf 55.32% Impervious Runoff Depth=2.02" Tc=5.0 min CN=70 Runoff=0.76 cfs 0.053 af
SubcatchmentS4: CB4	Runoff Area=10,979 sf 66.43% Impervious Runoff Depth=2.69" Tc=5.0 min CN=78 Runoff=0.83 cfs 0.057 af

#### 2021-083 Vernon TLE-B Prepared by J.R. Russo & Associates I.I.C.

Type III 24-hr 10-year Rainfall=4.98" Printed 3/23/2022

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SubcatchmentS5: PLAYGROUN	ND Runoff Area=4,941 sf 100.00% Impervious Tc=5.0 min CN=98 Runo	Runoff Depth>4.74" off=0.57 cfs 0.045 af
SubcatchmentS6: BAS1	Runoff Area=4,930 sf 0.37% Impervious Tc=5.0 min CN=39 Runo	Runoff Depth=0.20" off=0.00 cfs_0.002 af
SubcatchmentS7: DIRECT	Runoff Area=33,523 sf 0.00% Impervious Flow Length=147' Tc=23.0 min CN=40 Runo	Runoff Depth=0.23" off=0.03 cfs_0.015 af
SubcatchmentS8: ROOF	Runoff Area=10,000 sf  100.00% Impervious Tc=5.0 min  CN=98  Runo	Runoff Depth>4.74" off=1.16 cfs_0.091 af
Pond SUB1: DMH1/DMH2 Discard	Peak Elev=216.39' Storage=2,963 cf Inflo ded=1.53 cfs 0.888 af Primary=0.00 cfs 0.000 af Outflo	w=4.83 cfs 0.365 af w=1.53 cfs 0.888 af
Pond TD1: TRENCH DRAIN	Peak Elev=219.52' Inflo 6.0" Round Culvert n=0.012 L=15.0' S=0.0600 '/' Outflo	ow=0.57 cfs 0.045 af ow=0.57 cfs 0.045 af
Total Runoff Are	ea = 5.711 ac Runoff Volume = 0.896 af Average	Runoff Depth = 1.88"

59.61% Pervious = 3.404 ac 40.39% Impervious = 2.307 ac

2021-083 Vernon TLE-B	Type III 24-hr
Prepared by J.R. Russo & Associates LLC	
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# Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond AD: Area Drain	Peak Elev=220.01' Inflow=4.15 cfs 0.327 af 15.0" Round Culvert n=0.012 L=62.0' S=0.0100 '/' Outflow=4.15 cfs 0.327 af
Pond BAS1: BASIN	Peak Elev=217.92' Storage=5,201 cf Inflow=4.36 cfs 0.326 af Discarded=0.06 cfs 0.107 af Primary=1.67 cfs 0.219 af Outflow=1.73 cfs 0.326 af
Pond CB1: CB1	Peak Elev=217.95' Inflow=0.90 cfs 0.064 af 15.0" Round Culvert n=0.012 L=107.0' S=0.0100 '/' Outflow=0.90 cfs 0.064 af
Pond CB2: CB2	Peak Elev=217.16' Inflow=1.03 cfs 0.071 af 15.0" Round Culvert n=0.012 L=3.0' S=0.0000 '/' Outflow=1.03 cfs 0.071 af
Pond CB3: CB3	Peak Elev=218.70' Inflow=2.53 cfs 0.188 af 15.0" Round Culvert n=0.012 L=63.0' S=0.0222 '/' Outflow=2.53 cfs 0.188 af
Pond CB4: CB4	Peak Elev=217.98' Inflow=3.65 cfs 0.266 af 15.0" Round Culvert n=0.012 L=16.0' S=0.0313 '/' Outflow=3.65 cfs 0.266 af
Pond FB1: FOREBAY	Peak Elev=0.00' Storage=0 cf
SubcatchmentP1: PRE	Runoff Area=95,694 sf 0.00% Impervious Runoff Depth=0.15" Flow Length=276' Tc=14.3 min CN=32 Runoff=0.04 cfs 0.028 af
Pond POST: WETLANDS	Inflow=1.77 cfs_0.254 af Primary=1.77 cfs_0.254 af
SubcatchmentPP: Panda	PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth>5.88"Tc=5.0 minCN=98Runoff=4.15 cfs0.327 af
SubcatchmentPP.: Pand	PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth>5.88"Tc=5.0 minCN=98Runoff=4.15 cfs0.327 af
Pond PRE: DP-PRE	Inflow=4.15 cfs 0.355 af Primary=4.15 cfs 0.355 af
SubcatchmentS1: CB1	Runoff Area=7,074 sf 82.30% Impervious Runoff Depth=4.74" Tc=5.0 min CN=88 Runoff=0.90 cfs 0.064 af
SubcatchmentS2: CB2	Runoff Area=9,735 sf 67.98% Impervious Runoff Depth=3.79" Tc=5.0 min CN=79 Runoff=1.03 cfs 0.071 af
SubcatchmentS3: CB3	Runoff Area=13,685 sf 55.32% Impervious Runoff Depth=2.90" Tc=5.0 min CN=70 Runoff=1.10 cfs 0.076 af
SubcatchmentS4: CB4	Runoff Area=10,979 sf 66.43% Impervious Runoff Depth=3.69" Tc=5.0 min CN=78 Runoff=1.13 cfs 0.077 af

#### **2021-083 Vernon TLE-B** Prepared by J.R. Russo & Associates J.J.C.

Type III 24-hr 25-year Rainfall=6.12" Printed 3/23/2022

HydroCAD® 10.00-26 s/n 10006 © 2	2020 HydroCAD Software Solutions LLC	Page 17
SubcatchmentS5: PLAYGROUN	D Runoff Area=4,941 sf 100.00% Impervious Tc=5.0 min CN=98 Rur	Runoff Depth>5.88" noff=0.70 cfs_0.056 af
SubcatchmentS6: BAS1	Runoff Area=4,930 sf 0.37% Impervious Tc=5.0 min CN=39 Rur	Runoff Depth=0.48" noff=0.02 cfs 0.005 af
SubcatchmentS7: DIRECT	Runoff Area=33,523 sf 0.00% Impervious Flow Length=147' Tc=23.0 min CN=40 Rur	Runoff Depth=0.54" noff=0.15 cfs 0.034 af
SubcatchmentS8: ROOF	Runoff Area=10,000 sf 100.00% Impervious Tc=5.0 min CN=98 Rur	Runoff Depth>5.88" noff=1.43 cfs 0.113 af
Pond SUB1: DMH1/DMH2 Discarde	Peak Elev=217.16' Storage=4,155 cf Inf ed=1.83 cfs 0.941 af Primary=0.00 cfs 0.000 af Outfl	low=6.08 cfs  0.462 af ow=1.83 cfs  0.941 af
Pond TD1: TRENCH DRAIN 6.	Peak Elev=219.71' Inf 0" Round Culvert n=0.012 L=15.0' S=0.0600 '/' Outf.	flow=0.70 cfs 0.056 af low=0.70 cfs 0.056 af
Total Runoff Area	a = 5.711 ac Runoff Volume = 1.178 af Average 59.61% Pervious = 3.404 ac 40.39% I	e Runoff Depth = 2.47" mpervious = 2.307 ac

2021-083 Vernon TLE-B	Type III 24-hr
Prepared by J.R. Russo & Associates LLC	
HydroCAD® 10.00-26 s/n 10006 © 2020 HydroCAD Software Solution	ns LLC

# Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond AD: Area Drain	Peak Elev=220.34' Inflow=5.35 cfs 0.425 af 15.0" Round Culvert n=0.012 L=62.0' S=0.0100 '/' Outflow=5.35 cfs 0.425 af
Pond BAS1: BASIN	Peak Elev=218.48' Storage=6,719 cf Inflow=6.08 cfs 0.453 af Discarded=0.07 cfs 0.112 af Primary=2.32 cfs 0.341 af Outflow=2.38 cfs 0.453 af
Pond CB1: CB1	Peak Elev=218.13' Inflow=1.21 cfs 0.087 af 15.0" Round Culvert n=0.012 L=107.0' S=0.0100 '/' Outflow=1.21 cfs 0.087 af
Pond CB2: CB2	Peak Elev=217.97' Inflow=1.45 cfs 0.100 af 15.0" Round Culvert n=0.012 L=3.0' S=0.0000 '/' Outflow=1.45 cfs 0.100 af
Pond CB3: CB3	Peak Elev=219.13' Inflow=3.50 cfs 0.260 af 15.0" Round Culvert n=0.012 L=63.0' S=0.0222 '/' Outflow=3.50 cfs 0.260 af
Pond CB4: CB4	Peak Elev=218.73' Inflow=5.09 cfs 0.371 af 15.0" Round Culvert n=0.012 L=16.0' S=0.0313 '/' Outflow=5.09 cfs 0.371 af
Pond FB1: FOREBAY	Peak Elev=0.00' Storage=0 cf
SubcatchmentP1: PRE	Runoff Area=95,694 sf 0.00% Impervious Runoff Depth=0.53" Flow Length=276' Tc=14.3 min CN=32 Runoff=0.38 cfs 0.096 af
Pond POST: WETLANDS	Inflow=4.93 cfs 0.451 af Primary=4.93 cfs 0.451 af
SubcatchmentPP: Panda	PalaceRunoff Area=29,109 sf100.00% ImperviousRunoff Depth>7.63"Tc=5.0 minCN=98Runoff=5.35 cfs0.425 af
SubcatchmentPP.: Pand	a Palace Runoff Area=29,109 sf 100.00% Impervious Runoff Depth>7.63" Tc=5.0 min CN=98 Runoff=5.35 cfs 0.425 af
Pond PRE: DP-PRE	Inflow=5.35 cfs_0.521 af Primary=5.35 cfs_0.521 af
SubcatchmentS1: CB1	Runoff Area=7,074 sf 82.30% Impervious Runoff Depth=6.44" Tc=5.0 min CN=88 Runoff=1.21 cfs 0.087 af
SubcatchmentS2: CB2	Runoff Area=9,735 sf 67.98% Impervious Runoff Depth=5.39" Tc=5.0 min CN=79 Runoff=1.45 cfs 0.100 af
SubcatchmentS3: CB3	Runoff Area=13,685 sf 55.32% Impervious Runoff Depth=4.35" Tc=5.0 min CN=70 Runoff=1.66 cfs 0.114 af
SubcatchmentS4: CB4	Runoff Area=10,979 sf  66.43% Impervious  Runoff Depth=5.27" Tc=5.0 min  CN=78  Runoff=1.60 cfs  0.111 af

#### **2021-083 Vernon TLE-B** Prepared by J.R. Russo & Associates J.J.C.

Type III 24-hr 100-year Rainfall=7.87" Printed 3/23/2022

Fiehalen ny J.N. Musso & As	SUCIALES LLU	1 mileu 3/23/2022			
HydroCAD® 10.00-26 s/n 10006	© 2020 HydroCAD Software Solutions LLC	Page 19			
SubcatchmentS5: PLAYGROU	JND Runoff Area=4,941 sf 100.00% Impervi Tc=5.0 min CN=98	ous Runoff Depth>7.63" Runoff=0.91 cfs 0.072 af			
SubcatchmentS6: BAS1	Runoff Area=4,930 sf 0.37% Impervi Tc=5.0 min CN=39	ous Runoff Depth=1.10" Runoff=0.10 cfs 0.010 af			
SubcatchmentS7: DIRECT	Runoff Area=33,523 sf 0.00% Impervi Flow Length=147' Tc=23.0 min CN=40	ous Runoff Depth=1.19" Runoff=0.48 cfs 0.077 af			
SubcatchmentS8: ROOF	Runoff Area=10,000 sf 100.00% Impervi Tc=5.0 min CN=98	ous Runoff Depth>7.63" Runoff=1.84 cfs 0.146 af			
Pond SUB1: DMH1/DMH2 Disca	Peak Elev=217.95' Storage=4,966 cf arded=2.14 cfs 1.002 af Primary=2.73 cfs 0.033 af C	Inflow=8.00 cfs 0.612 af outflow=4.87 cfs 1.035 af			
Pond TD1: TRENCH DRAIN	Peak Elev=220.07' 6.0" Round Culvert n=0.012 L=15.0' S=0.0600 '/' C	Inflow=0.91 cfs			
Total Runoff Area = 5.711 ac Runoff Volume = 1.663 af Average Runoff Depth = 3.49"					

59.61% Pervious = 3.404 ac 40.39% Impervious = 2.307 ac

**Appendix 6:** 

# **MISCELLANEOUS CALCULATIONS**





# TOWN OF VERNON

55 WEST MAIN STREET, VERNON, CT 06066 Tel: (860) 870-3667 Fax: (860) 870-3683 planning@vernon-ct.gov

OFFICE OF THE TOWN PLANNER

February 14, 2022

#### **NOTICE TO ABUTTERS**

INLAND WETLANDS COMMISSION MEETING

Town of Vernon

The Vernon Inland Wetlands Commission (IWC) will hold a public hearing on the following Application at a meeting on Tuesday, February 22, 2022 at 7:00 PM, via ZOOM Link Teleconference:

Join Zoom Meeting

https://us02web.zoom.us/j/6149852850?pwd=NUZwVkEwWkRxS1EweC94cFNHVUxBdz09

Meeting ID: 614 985 2850 Passcode: h72Vs7 (646) 876 9923 Meeting ID: 614 985 2850 Passcode: 786221

**IWC 2022-01, 501 Talcottville Rd.** An Application by Vernon Development LLC for a Wetlands Redesignation and a Wetlands Permit for activity in a regulated area, in order to develop a child-care facility at 501 Talcottville Rd. (Tax Map 09, Block 007, Parcel 0001D).

> Rachel Stansel, Chairperson Inland Wetlands Commission (IWC)

All interested persons are invited to participate in the teleconference. In the alternative, please provide written comments to <u>gmcgregor@vernon-ct.gov</u> or via the mailing address above.



 REPORT DATE:
 June 6, 2021

 PAGE 1 OF 3
 REVISED: 3/4/2022

# **REMA ECOLOGICAL SERVICES, LLC**

164 East Center Street, Suite 8 Manchester, CT 06040 860.649.REMA (7362)

# **ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT**

PROJECT NAME & SITE LOCATION:	REMA Job No.: <u>21-2390-VER55</u>
(+/- 4.61 acres)	Field Investigation Date(s): 5/6, 5/11/21 & 3/3/22
501 Talcottville Road	Field Investigation Method(s):
Vernon, CT	Spade and Auger
	Backhoe Test Pits
	Other:
<b>Report Prepared For:</b>	Field Conditions:
Alfred Benesch & Company	Weather: <u>sunny /70s</u>
120 Hebron Avenue, Floor 2	Soil Moisture: <u>Moderate to high</u>
Glastonbury, CT 06033	Snow Depth: N/A
~	Frost Depth: N/A

#### **Purpose of Investigation:**

0		
Wetland	Delineation/Flagging in Field	

Wetland Mapping on Sketch Plan or Topographic Plan

High Intensity Soil Mapping by Soil Scientist

Medium Intensity Soil Mapping from *The Soil Survey of Connecticut* Maps (USDA-NRCS) Other:

Base Map Source: <u>CT Web Soil Survey; USDA-NRCS</u>) (attached); Figure A (attached)

Wetland Boundary Marker Series: <u>RES-A1 to RES-A-69 (open line)</u>, and RES-1A-1 to RES-1A-12 (closed loop; upland island)

**General Site Description/Comments**: The "study area" encompasses roughly 4.87-acres of undeveloped. predominately forested land, on the south side of Dart Hill Road, and to the west of Talcottville Road (Route 83), in Vernon, CT. The study area's soils are both disturbed and undisturbed, with the disturbed soils associated with past fill, particularly within its southeastern section. The study area's soils are derived from glaciofluvial (i.e., stratified sand and gravel), but with a silty mantle. The undisturbed upland soil types are the well-drained Enfield (704) and the moderately well-drained Tisbury (702) soil series. The wetlandtype soils are the poorly drained Raypol (12) soil series. The disturbed upland soils are mapped as udorthents (308). The delineated regulated areas associated with the study area, include seasonally saturated to seasonally flooded wooded swamp, with embedded emergent marsh inclusions. Dominant and common overstory trees include red maple, cottonwood, and American elm. The shrub stratum includes elderberry, spicebush, multiflora rose, silky dogwood, willows, winterberry, arrowwood, sweet peperbush, Morrow's honeysuckle, alternate-leaved dogwood, and gooseberry. Herbs include sensitive and cinnamon ferns, woodfern, sedges, soft rush, asters, goldenrods, skunk cabbage, jack-in-the pulpit, jewelweed, clearweed, fowl meadow grass, poison ivy, cattails, and Virginia jumpseed. PAGE <u>2</u> OF <u>3</u>

# DATE: <u>6/6/2021</u>

#### REVISED: 3/4/2022

# **ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT** (CONTINUED)

PROJECT NAME & SITE LOCATION: (+/- 4.61 acres)

501 Talcottville Road, Vernon, CT

# **Upland Soils**

# SOIL MAP UNITS

- **Enfield silt loam (704).** This series consists of deep, well drained soils formed in a coarse-silty mantle underlain by sandy water deposited glacial outwash materials. They are level to very steep soils on outwash plains and high stream terraces. The soils formed in loamy over stratified sandy and gravelly glacial outwash derived mainly from a variety of acid rocks. Typically, these soils have a dark grayish brown silt loam surface layer 8 inches thick. The subsoil from 8 to 26 inches is strong brown and light olive brown silt loam. The substratum from 26 to 60 inches is brown to reddish brown is stratified sand gravel.
- **Tísbury sílt loam (702).** This series consists of deep, moderately well drained soils formed in a coarse-silty mantle underlain by sandy water deposited glacial outwash materials. They are level to gently sloping soils in broad drainage swales and low lying positions on outwash plains and terraces. The soils formed in loamy over stratified sandy and gravelly glacial outwash derived mainly from a acid crystalline rocks (granite, gneiss and schist). Typically, these soils have a very dark grayish brown silt loam surface layer 8 inches thick. The subsoil from 8 to 26 inches is yellowish brown and brownish yellow silt loam, with mottles common below 16 inches. The substratum from 26 to 60 inches is grayish brown, mottled stratified sand and gravel.
- **Udorthents (308).** This soil mapping unit consists of well drained to moderately well drained soils that have been altered by cutting, filling, or grading. The areas either have had two feet or more of the upper part of the original soil removed or have more than two feet of fill material on top of the original soil. *Udorthents* or Made Land soils can be found on any soil parent material but are typically fluvial on glacial till plains and outwash plains and stream terraces.

# Wetland Soils

**Raypol silt loam (12).** This series consists of deep, poorly drained soils formed in a coarse-loamy mantle underlain by sandy water deposited glacial outwash materials. They are nearly level and gently sloping soils on outwash plains and high stream terraces. The soils formed in loamy over stratified sandy and gravelly glacial outwash derived mainly from acid rocks. Typically, these soils have very dark brown, silt loam Ap horizons, grayish brown and dark yellowish brown, mottled, silt loam and very fine sandy loam B2 horizons over light olive brown, mottled gravelly sand IIC horizons at a depth of 29 inches. PAGE <u>3</u> OF <u>3</u>

DATE: 6/6/2021

REVISED: 3/4/2022

# **ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT** (CONTINUED)

PROJECT NAME & SITE LOCATION: (+/- 4.61 acres)

501 Talcottville Road, Vernon, CT

# SOIL MAP UNITS

See previous page

Any accompanying soil logs and soil maps, and the on-site soil investigation narrative are in accordance with the taxonomic classification of the National Cooperative Soil Survey of the USDA Natural Resource Conservation Service, and with the Connecticut Soil Legend (DEP Bulletin No.5, 1983), as amended by USDA-NRCS. Jurisdictional wetland boundaries were delineated pursuant to the Connecticut General Statutes (CGS Sections 22a-36 to 22a-45), as amended. The site investigation was conducted and/or reviewed by the undersigned Registered Soil Scientist(s) [registered with the Society of Soil Scientists of Southern New England (SSSSNE) in accordance with the standards of the Federal Office of Personnel Management].

Respectfully submitted,

**REMA ECOLOGICAL SERVICES, LLC** 

age T. Jagar

George T. Logan, MS, PWS, CSE Registered Soil Scientist Field Investigator/Senior Reviewer





USDA Natural Resources

**Conservation Service** 

Web Soil Survey National Cooperative Soil Survey
MAF	LEGEND	MAP INFORMATION
Area of Interest (AOI) Area of Interest (AOI)	<ul><li>Spoil Area</li><li>Stony Spot</li></ul>	The soil surveys that comprise your AOI were mapped at 1:12,000.
Area of Interest (AOI)         Soils         Soil Map Unit Polygor         ✓       Soil Map Unit Points         Special Point Features         Image: Spot         Image: Spot	Stony Spot Stony Spot Wery Stony Spot Wet Spot C Other Special Line Features Water Features Water Features Streams and Canals Transportation HH Rails C Interstate Highways US Routes Major Roads Cocal Roads Backgrount Main Photography	<ul> <li>Warning: Soil Map may not be valid at this scale.</li> <li>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</li> <li>Please rely on the bar scale on each map sheet for map measurements.</li> <li>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</li> <li>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</li> <li>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</li> <li>Soil Survey Area: State of Connecticut Survey Area Data: Version 20, Jun 9, 2020</li> <li>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</li> <li>Date(s) aerial images were photographed: Sep 3, 2019—Oct 22, 2019</li> <li>The orthophoto or other base map on which the soil lines were compiled and divitized probably differs from the background</li> </ul>
<ul> <li>Severely Eroded Spo</li> <li>Sinkhole</li> <li>Slide or Slip</li> <li>Sodic Spot</li> </ul>		imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
33B	Hartford sandy loam, 3 to 8 percent slopes	7.6	39.2%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	0.0	0.0%
108	Saco silt loam	1.1	5.6%
306	Udorthents-Urban land complex	9.4	48.4%
307	Urban land	1.3	6.9%
Totals for Area of Interest		19.4	100.0%







Talcottville Rd

FIGURE 2A: 501 Talcottville Road, Vernon, CT (as seen on Bing. com oblique aerial photo, circa 2015)

MULTINITIN D

Talcottville Rd

501 Talcottville Rd, Vernon Rockville, CT 06066

mini

Dart Hill Worcester Rd

Worcester Rd

B3 Talcottvi



## U.S. Fish and Wildlife Service National Wetlands Inventory

**FIGURE 3**: Landscape Context & NWI Wetlands 501 Talcottville Road, Vernon, CT (as seen on 2019 aerial photograph)



### February 17, 2022

#### Wetlands

- Estuarine and Marine Deepwater

Estuarine and Marine Wetland

- Freshwater Forested/Shrub Wetland
  - Freshwater Pond

Freshwater Emergent Wetland

Lake Other Riverine This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site. Proposed Day Care/Learning Center, 501 Talcottville Road, Vernon, CT Photos taken in May 2021 and February 2022



Photo 1: Western section of on-site wetland; seasonally saturated; facing southwesterly



Photo 2: Western section of wetland; facing northeasterly



*Photo 3*: Western more open section of on-site wetland; seasonally saturated to seasonally flooded (shallow); facing southeasterly



*Photo 4*: West-central, open area of wetland, seasonally flooded (shallow), also are of proposed wetland enhancement; facing southerly



Photo 5: Uplands at proposed area of development (typical); facing southeasterly



*Photo 6*: West-central, open area of wetland, seasonally flooded (shallow), also are of proposed wetland enhancement; facing westerly



Photo 7: Proposed wetland creation area (middle to background); facing southeasterly



*Photo 8*: Proposed wetland creation area (trees in perimeter will remain to a large extent); facing southerly



Photo 9: Eastern section of wetland; facing northeasterly



*Photo 10*: Northeasterly open section of wetland (Panda Palace in background); facing northwesterly



*Photo 11*: Wetland drains via a diffuse ditch to Ogden Brook, at the far southern section of property (i.e., "pan handle"); facing northeasterly



*Photo 12*: Mapped uplands within southwestern section of site (see Figure A1); facing southerly



 REPORT DATE:
 June 6, 2021

 PAGE 1 OF 3
 REVISED: 3/4/2022

## **REMA ECOLOGICAL SERVICES, LLC**

164 East Center Street, Suite 8 Manchester, CT 06040 860.649.REMA (7362)

## **ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT**

PROJECT NAME & SITE LOCATION:	REMA Job No.: <u>21-2390-VER55</u>
(+/- 4.61 acres)	Field Investigation Date(s): 5/6, 5/11/21 & 3/3/22
501 Talcottville Road	Field Investigation Method(s):
Vernon, CT	Spade and Auger
	Backhoe Test Pits
	Other:
<b>Report Prepared For:</b>	Field Conditions:
Alfred Benesch & Company	Weather: <u>sunny /70s</u>
120 Hebron Avenue, Floor 2	Soil Moisture: <u>Moderate to high</u>
Glastonbury, CT 06033	Snow Depth: N/A
~	Frost Depth: N/A

### **Purpose of Investigation:**

0		
Wetland	Delineation/Flagging in Field	

Wetland Mapping on Sketch Plan or Topographic Plan

High Intensity Soil Mapping by Soil Scientist

Medium Intensity Soil Mapping from *The Soil Survey of Connecticut* Maps (USDA-NRCS) Other:

Base Map Source: <u>CT Web Soil Survey; USDA-NRCS</u>) (attached); Figure A (attached)

Wetland Boundary Marker Series: <u>RES-A1 to RES-A-69 (open line)</u>, and RES-1A-1 to RES-1A-12 (closed loop; upland island)

**General Site Description/Comments**: The "study area" encompasses roughly 4.87-acres of undeveloped. predominately forested land, on the south side of Dart Hill Road, and to the west of Talcottville Road (Route 83), in Vernon, CT. The study area's soils are both disturbed and undisturbed, with the disturbed soils associated with past fill, particularly within its southeastern section. The study area's soils are derived from glaciofluvial (i.e., stratified sand and gravel), but with a silty mantle. The undisturbed upland soil types are the well-drained Enfield (704) and the moderately well-drained Tisbury (702) soil series. The wetlandtype soils are the poorly drained Raypol (12) soil series. The disturbed upland soils are mapped as udorthents (308). The delineated regulated areas associated with the study area, include seasonally saturated to seasonally flooded wooded swamp, with embedded emergent marsh inclusions. Dominant and common overstory trees include red maple, cottonwood, and American elm. The shrub stratum includes elderberry, spicebush, multiflora rose, silky dogwood, willows, winterberry, arrowwood, sweet peperbush, Morrow's honeysuckle, alternate-leaved dogwood, and gooseberry. Herbs include sensitive and cinnamon ferns, woodfern, sedges, soft rush, asters, goldenrods, skunk cabbage, jack-in-the pulpit, jewelweed, clearweed, fowl meadow grass, poison ivy, cattails, and Virginia jumpseed. PAGE <u>2</u> OF <u>3</u>

### DATE: <u>6/6/2021</u>

### REVISED: 3/4/2022

## **ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT** (CONTINUED)

PROJECT NAME & SITE LOCATION: (+/- 4.61 acres)

501 Talcottville Road, Vernon, CT

## **Upland Soils**

## SOIL MAP UNITS

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### Wetland Soils

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DATE: 6/6/2021

REVISED: 3/4/2022

### **ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT** (CONTINUED)

PROJECT NAME & SITE LOCATION: (+/- 4.61 acres)

501 Talcottville Road, Vernon, CT

## SOIL MAP UNITS

See previous page

Any accompanying soil logs and soil maps, and the on-site soil investigation narrative are in accordance with the taxonomic classification of the National Cooperative Soil Survey of the USDA Natural Resource Conservation Service, and with the Connecticut Soil Legend (DEP Bulletin No.5, 1983), as amended by USDA-NRCS. Jurisdictional wetland boundaries were delineated pursuant to the Connecticut General Statutes (CGS Sections 22a-36 to 22a-45), as amended. The site investigation was conducted and/or reviewed by the undersigned Registered Soil Scientist(s) [registered with the Society of Soil Scientists of Southern New England (SSSSNE) in accordance with the standards of the Federal Office of Personnel Management].

Respectfully submitted,

**REMA ECOLOGICAL SERVICES, LLC** 

age T. Jagar

George T. Logan, MS, PWS, CSE Registered Soil Scientist Field Investigator/Senior Reviewer





USDA Natural Resources

**Conservation Service** 

Web Soil Survey National Cooperative Soil Survey

MAF	LEGEND	MAP INFORMATION
Area of Interest (AOI) Area of Interest (AOI)	<ul><li>Spoil Area</li><li>Stony Spot</li></ul>	The soil surveys that comprise your AOI were mapped at 1:12,000.
Area of Interest (AOI)         Soils         Soil Map Unit Polygor         ✓       Soil Map Unit Points         Special Point Features         Image: Spot         Image: Spot	Stony Spot Stony Spot Wery Stony Spot Wet Spot C Other Special Line Features Water Features Water Features Streams and Canals Transportation HH Rails C Interstate Highways US Routes Major Roads Cocal Roads Backgrount Main Photography	<ul> <li>Warning: Soil Map may not be valid at this scale.</li> <li>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</li> <li>Please rely on the bar scale on each map sheet for map measurements.</li> <li>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</li> <li>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</li> <li>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</li> <li>Soil Survey Area: State of Connecticut Survey Area Data: Version 20, Jun 9, 2020</li> <li>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</li> <li>Date(s) aerial images were photographed: Sep 3, 2019—Oct 22, 2019</li> <li>The orthophoto or other base map on which the soil lines were compiled and divitized probably differs from the background</li> </ul>
<ul> <li>Severely Eroded Spo</li> <li>Sinkhole</li> <li>Slide or Slip</li> <li>Sodic Spot</li> </ul>		imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
33B	Hartford sandy loam, 3 to 8 percent slopes	7.6	39.2%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	0.0	0.0%
108	Saco silt loam	1.1	5.6%
306	Udorthents-Urban land complex	9.4	48.4%
307	Urban land	1.3	6.9%
Totals for Area of Interest		19.4	100.0%



## EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES 102 Grove Street Worcester, MA 01605-2629 508-752-9666 / Fax: 508-752-9494

March 24, 2022

David A. Smith, PE, LS Town of Vernon 55 West Main Street Vernon, CT 06066

Re: 501 Talcottville Road, Vernon, CT

Subject: Peer Review Findings & Recommendations

Dear David:

As requested, I, Arthur Allen of EcoTec, have reviewed the documents listed below and have evaluated the above-referenced project site. I visited the site on March 16, 2022. A list of the documents that I reviewed, as well as my findings and recommendations (in *italics*), are noted below.

### **Documents Reviewed:**

- ✓ Wetland Permit Application and attachments by Vernon Development, LLC, dated January 12, 2022;
- ✓ Site plans titled: The Learning Experience; dated January 11, 2022;
- ✓ Town of Vernon Staff Comments.

### Site Conditions:

The project site consists of a wooded, undeveloped parcel. The parcel slopes gradually, from the frontage along Dart Hill Road and Talcottville Road, down to an Inland Wetland. The Inland Wetland is a seasonally ponded or saturated, wooded and shrubbed swamp. The regulated Upland Review Area is wooded and of good quality. It is vegetated with a closed-canopy forest dominated by Red Maple (*Acer rubrum*). Hydric soils on the site are considered "difficult" due to the presence of red parent material derived from iron-rich, arkose sandstone. The attached photos depict representative site conditions. The wetland delineation is generally representative of the inland wetland resource area although the wetland is more extensive particularly along Talcottville Road (vicinity flags A31 to A37) and between flags A14 to A24. Along Talcottville Road, there was surface water leading from the delineated wetland up to an apparently drainage outlet along the toe of road slope. Between flags A14 to A24, there is little or no elevation above the adjacent wetland and soils were saturated, with redoximorphic features, up to the surface. This being said, I am generally in agreement that the proposed building, parking and stormwater management locations are proposed in upland areas.

### Findings & Recommendations:

1. I note that the proposed plans include subdividing the lot and creating a separate lot fronting on Talcottville Road. As noted above, the wetland delineation is particularly problematic in the

vicinity of flags A31 to A37 and I recommend not approving the delineation in this area without further review. For purposes of this application, the delineation in this area could be shown as "approximate, not confirmed" or similar;

- 2. Due to the questionable wetland delineation in the vicinity of flags A14 to A24, I recommend eliminating the proposed "Wetland Creation Area" in this location. For purposes of this application, I recommend connecting flag A14 to A24 and eliminating flags A15 to A23;
- 3. As the existing wetlands and Upland Review Areas are wooded and of generally good quality, I do not recommend the proposed "Wetland Enhancement Plantings";
- 4. The proposed development, particularly in the vicinity of the proposed playground, will result in the elimination of significant portions of the Upland Review Area with work limits up to the edge of the wetland. As noted above, the Upland Review Area, in the vicinity of the proposed building and playground, is of good quality and serves to protect the adjacent wetland area through shading/temperature amelioration, filtration and infiltration of runoff and provision of habitat for wetland dependent wildlife. *I recommend modifying the project to provide at least a 20-foot, undisturbed, Upland Review Area between the wetland and the project work limits. Largely this would involve relocating the proposed playground area and modifying the associated grading.*

I have attached a brief description of my qualifications. Please do not hesitate to contact me if you have any questions concerning this or other matters.

Sincerely,

1 Mm

Arthur Allen Senior Environmental Scientist

Attachments: 2 (Qualifications & Photo Page)

AA/Monitoring/Vernon 501 Talcottville EcoTec Report 3.24.2022

## EcoTec, Inc.



### ENVIRONMENTAL CONSULTING SERVICES 102 Grove Street Worcester, MA 01605-2629 508-752-9666 / Fax: 508-752-9494

### Arthur Allen, CPSS, CWS, CESSWI Vice President Soil & Wetland Scientist

Arthur Allen is the Vice President of EcoTec, Inc. and has been a senior environmental scientist there since 1995. His work with EcoTec has involved wetland delineation, wildlife habitat evaluation, environmental permitting (federal, state and local), environmental monitoring, expert testimony, peer reviews, contaminated site assessment and the description, mapping and interpretation of soils. His clients have included private landowners, developers, major corporations and regulatory agencies. Prior to joining EcoTec, Mr. Allen mapped and interpreted soils in Franklin County, MA for the U.S.D.A. Natural Resources Conservation Service (formerly Soil Conservation Service) and was a research soil scientist at Harvard University's Harvard Forest. Since 1994, Mr. Allen has assisted the Massachusetts Department of Environmental Protection and the Massachusetts Association of Conservation Commissions as an instructor in the interpretation of soils for wetland delineation and for the Title V Soil Evaluator program.

Mr. Allen has a civil service rating as a soil scientist, an undergraduate degree in Natural Resource Studies and a graduate certificate in Soil Studies. His work on the Franklin County soil survey involved interpretation of landscape-soil-water relationships, classifying soils and drainage, and determining use and limitation of the soil units that he delineated. As a soil scientist at the Harvard Forest, Mr. Allen was involved in identifying the legacies of historical land-use in modern soil and vegetation at a number of study sites across southern New England. He has a working knowledge of the chemical and physical properties of soil and water and how these properties interact with the plants that grow on a given site. While at Harvard Forest he authored and presented several papers describing his research results which were later published. In addition to his aforementioned experience, Mr. Allen was previously employed by the Trustees of Reservations as a land manager and by the Town of North Andover, MA as a conservation commission intern.

#### **Education:**

1993-Graduate Certificate in Soil Studies, University of New Hampshire 1982-Bachelor of Science in Natural Resource Studies, University of Massachusetts

#### **Professional Affiliations:**

Certified Professional Soil Scientist (ARCPACS CPSS #22529) New Hampshire Certified Wetland Scientist (#19) Registered Professional Soil Scientist – Society of Soil Scientists of SNE [Board Member (2000-2006)] Certified Erosion, Sediment & Stormwater Inspector (#965) Massachusetts Approved Soil Evaluator (#13764) Massachusetts Arborists Association-Certified Arborist (1982 – 1998) New England Hydric Soils Technical Committee member Massachusetts Association of Conservation Commissions member Society of Wetland Scientists member

#### **Refereed Publications:**

Soil Science and Survey at Harvard Forest. A.Allen. In: Soil Survey Horizons. Vol. 36, No. 4, 1995, pp. 133-142. Controlling Site to Evaluate History: Vegetation Patterns of a New England Sand Plain. G.Motzkin, D.Foster, A.Allen, J.Harrod, & R.Boone. In: Ecological Monographs 66(3), 1996, pp. 345-365. Vegetation Patterns in Heterogeneous Landscapes: The Importance of History and Environment. G.Motzkin, P.Wilson, D.R.Foster & A.Allen. In: Journal of Vegetation Science 10, 1999, pp. 903-920.

aabio.doc



Wetland & buffer in vicinity of proposed playground 1.



2.





4. Soil parent material exposed on-site

### Smith, David

From:	Judith Veillette <juditta1941@outlook.com></juditta1941@outlook.com>
Sent:	Wednesday, April 13, 2022 11:43 PM
То:	Gately, Shaun; McGregor, George
Cc:	Smith, David; Luciana Granstrand
Subject:	[EXTERNAL] Re: 501 Talcottville Road Daycare Center

# **CAUTION:** This Email is from an EXTERNAL source. Ensure you trust this sender before clicking on any links or attachments.

### Great, thank you so much!

From: Gately, Shaun <sgately@vernon-ct.gov>
Sent: Wednesday, April 13, 2022 11:29 AM
To: Judith Veillette <juditta1941@outlook.com>; McGregor, George <GMcGregor@vernon-ct.gov>
Cc: Smith, David <dsmith@vernon-ct.gov>; Luciana Granstrand <LGranstrand@vernon-ct.gov>
Subject: RE: 501 Talcottville Road Daycare Center

Thank you Judith. George took another position and is no longer with the Town of Vernon. I have received your email and it will be entered into the record during the public hearings at PZC and IWC.

From: Judith Veillette <juditta1941@outlook.com>
Sent: Tuesday, April 12, 2022 8:16 PM
To: McGregor, George <GMcGregor@vernon-ct.gov>
Subject: [EXTERNAL] 501 Talcottville Road Daycare Center

CAUTION: This Email is from an EXTERNAL source. Ensure you trust this sender before clicking on any links or attachments.

Dear George,

I still think this is a bad idea-

Filling in wetlands could dry up our wells on Worcester Road Many of our backyards and basements will get flooded The construction so close to our homes could shake our houses to their foundations-some could collapse

I wish they had planned this project to front on Talcottville Road instead of invading the wooded area and wetlands so close to our homes.

Maybe we can't stop this project, but I can't stop thinking about the repercussions.

Thank you for your time.

Sincerely,

Judith Veillette 786 Dart Hill Road (corner of Worcester and Dart Hill)

### To be published in the Journal Inquirer on Saturday, April 9, 2022 & Saturday, April 16, 2022

Public Notice Town of Vernon The Vernon Inland Wetlands Commission (IWC) will hold a public hearing on the following Applications at a meeting on Tuesday, April 19, 2022 at 7:00 PM, via ZOOM Link Teleconference:

https://us02web.zoom.us/j/2539513099?pwd=b3NUYldqZ0RXcWxiTlJKK2VqenhGQT09

Meeting ID: 253 951 3099 Passcode: 2N3X30 Dial In +1 646 876 9923 Meeting ID: 253 951 3099 Passcode: 148252

**IWC 2022-02, 304 Merline Rd.** An Application of CT Water Company for a Wetland Re-Designation for property located at 304 Merline Rd. (Tax Map 09, Block 015T, Parcel 00046).

> Rachel Stansel, Chairperson Inland Wetlands Commission (IWC)

Please send Affidavit of Publication with bill to: Town Planner's Office 55 West Main Street, Vernon, CT 06066

<mark>Acct: 5668</mark>

CC: Legal Notices IWC 2022-02

