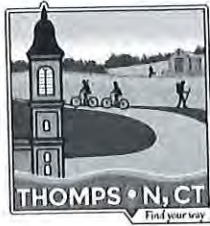


INLAND WETLANDS COMMISSION  
TUESDAY, February 14, 2023  
ZOOM Meeting

- A) Call to Order & Roll Call
- B) Appointment of Alternates

Agenda Item C.a.  
Action on Minutes of Previous Meeting  
Minutes of January 10, 2022



**TOWN OF  
THOMPSON**  
**Inland Wetlands Commission**  
815 Riverside Drive, P.O. Box 899  
North Grosvenordale, CT 06255  
Phone: 860-923-1852, Ext. 1  
Email: [wetlands@thompsonct.org](mailto:wetlands@thompsonct.org)  
Web: <https://www.thompsonct.org/>

RECEIVED  
TOWN OF THOMPSON, CT.

2023 JAN 12 P 1:10

*Paul L. Lujan*  
TOWN CLERK, ASK

## MEETING MINUTES: Tuesday, January 10, 2023, 7:00PM

*Via ZOOM Online Meeting Portal*

- A) The meeting was called to order at 7:05 PM by Chairman George O'Neil who announced the protocols for conducting the online meeting.

Members and staff present: George O'Neil (Chairman), Diane Chapin (Commissioner) Fran Morano (Commissioner), Marla Butts (Wetlands Agent), Gloria Harvey (Recording Secretary), Amy St. Onge (First Selectman)

Members of the public: Valerie Clark, Roberta Gray, and others.

- B) Appointment of Alternates-None  
C) Action on Minutes of Previous Meetings

- a) Minutes of December 13, 2022

The Minutes of December 13, 2022 were unanimously accepted as presented.

- D) Citizens Comments on Agenda Items-None

- E) Applications

- a) Old Applications

1. **WAA22029**, Gary Rawson, 0 Logee Road (Assessor's map 141, block 17, lot 184R), construct a new single-family home in a 100-foot upland review area for Quaddick Reservoir, stamped received 11/16/22, awaiting NDDH approval. Marla reported the house and well are on one side of the Logee Road and the septic system is on the other side of Logee Road. Waiting for NDDH approval. No action is required by the Commission at this time.
2. **WAA22030**, Gary Rawson, 0 Logee Point Road, (Assessor's map 141, block 17, lot 184I), construct a new single-family home in a 100-foot upland review area for Quaddick Reservoir, stamped received 11/16/22, awaiting NDDH approval. Marla reported the septic is on the house side and well is located across Logee Road. Waiting for NDDH approval. No action is required by the Commission at this time.
3. **WAA22033**-Spicer Plus, Inc, 0 Reardon Road, (Assessor's map 65, block 101, lot 6D), Two-phase construction of a propane filling station with associated grading for a stormwater management system (Phase 1) and a septic system for a future associated support building (Phase 2), portions of which are located in the 100-foot upland review area, stamp received 11/23/22, Wetlands Agent Approval issued 1/4/2023, legal notice to be published 1/13/2023, end of approval period 1/27/2023. Conservation Commission comments received included conservation easement delineated by a surveyor, staked during construction and easement markers installed every 50 feet, area and limitations reiterated to a contractor. Erosion and sediment control installed and confirmed by town staff prior to construction. Monitoring of litter throughout the project by on-site Environmental Agent,

chain link fence, downcast lighting, full stabilization of site after Phase 1 and Phase 2 as proposed and an as-built plan. Wetland Agent Approval added special conditions to her approval in addition to the standard conditions. They are prior to the beginning construction (1) Spicer Plus, Inc. shall arrange for flagging of grading construction limits and the Conservation Easement, a pre-construction meeting between representatives of Spicer Plus, Inc., the on-site Environmental Agent referenced in the plans, the contractor performing the site grading work, the Thompson Conservation Agent, and the Wetlands Agent to review the conditions and construction requirements. (2) Prior to the completion of Phase 1, Spicer Plus, Inc. shall erect Conservation Easement markers no greater than 50 feet apart, and (3) Upon completion of Phase 1-construction of the propane filling station with associated grading for the stormwater management system, submit an as-built drawing that meets the standards established in the Thompson Zoning Regulations Article 3C, Section 11, Certificate of Occupancy/Use. The as built plan shall include the location of the Conservation Easement and markers, and shall be submitted for review and approval by the Inland Wetlands Commission prior to beginning Phase 2. No action required by the Commission at this time.

- b) New Applications-None
- c) Applications Received After Agenda was Published-None
- F) Permit Extensions / Changes - None
- G) Violations & Pending Enforcement Actions
  - a) **Notice of Permit Violation VIOL21036**, Permit IWA20022, Marc Baer, 1227 Thompson Rd (Assessor's map 116, block 24, lot 10), grades not as authorized in modified plan approved by the Commission on February 9, 2021 – Marla observed that a piece of equipment on the property has been transferred across the street. Mr. Baer's brother contacted Marla and was concerned about the conditions which she explained to him. Neither the neighbor nor the Lake Association have recently commented. Marla will revisit the site when the weather warms up to make sure there are no erosion and sediment control problems. This notice is on hold.
  - b) **Notice of Violation VIOL22008**, Rodney Lamay, 0 Quaddick Town Farm Road (Assessor's map 160, block 11, lot 15), unauthorized clearing, cutting & grading in wetlands, issued by Acting Wetland Agent 3/21/2022 - Dan Malo and Marla walked a great distance into the property yesterday and observed there has been no activity other than ATVs driving on it. There was no evidence of any filling in wetlands nor clearing or grading, so she is going to close the file as there is nothing to pursue. No further action is required by the Commission at this time.
  - c) **Notice of Violation VIOL22031**, Douglas and Roberta Gray, 0 New Road, (Assessors map 154, block 3, lot 2J), watercourse alternative causing flooding, issued 11/23/22. Marla researched possible alternatives available for water flow. Marla and Dan Milo met with Mr. Calabro and his engineer, Norman Thibeault yesterday to talk about the water flowing from the pond and the underdrain from the septic system Mr. Thibeault will shoot the grades to determine if he can establish a flow channel of sufficient size based on the water shed and anticipated flows in the 25 foot right of way Mr. Calabro has for his driveway. Mr. Thibeault will develop a plan that shows the location of subsurface drain in relation to the septic system on a plan to verify that it's at least 25' from the septic system, the channel design for the water flow from the Calabro pond to New Road, if feasible. Marla gave Mr. Calabro 45 days to submit a plan or submit a permit application. This violation is on hold pending the submission of the plan by Mr. Calabro. Marla will monitor the channel along the Kennett property site for 1-2 months to determine if there is any discharge of groundwater, if a watercourse exists, and if Mr. Calabro can have a channel on the edge of his driveway. Roberta Gray 131 New Road, Thompson asked Marla to



provide the criteria she uses to classify a watercourse. Marla directed Mrs. Gray to the Inland Wetlands Regulations on the website, Definitions Section, Watercourse, page 7, Definition MM, Watercourses, stating she needed two of the three conditions listed to determine a watercourse. Mrs. Gray also mentioned roof runoff from a gutter on the Kennett property and Marla stated that that only flows when it rains and is not an underdrain.

#### H) Other Business

##### a) Update on Proposed Revisions to Zoning Regulations

Marla has reviewed the amended Zoning Regulations adopted 1/3/23 and all her recommendations set forth in her memo of 10/19/22 were adopted by the PZC. Her prior request to the PZC subcommittee to increase in the minimum lot size for the BBD, TCD, and DMRD districts from 4,500 square feet to 15,000 was not included in the proposed amendments. The re-establishment of the net buildable area will help to minimize the submission of proposals for Zoning and Subdivisions. FEMA is in the process of revising the delineations for flood hazard areas, and when done Thompson will need to revise its flood prevention ordinance. The requirement for a net buildable area will also help to guide the expectations of the regulated community in anticipation of the change that is coming.

##### b) Update on Proposed Subdivision Regulations

PZC subcommittee is scheduled to meet on 1/25/23 to finish drafting the amendments to the Subdivision Regulations. Marla plans to focus on the Subdivision Regulation in order to get her comments to the subcommittee before they meet on the 25<sup>th</sup>. She expressed concern about shared driveways, and citations made to the statutes.

##### c) FY23 Budget

The proposed budget was discussed, and the Commission was in agreement to have Marla proceed with submitting the draft budget as proposed.

##### d) Approval of contributory support Eastern Connecticut Conservation District for FY 22-23

The current fiscal budget includes \$1,000 contributory support to the ECC. An invoice was received requesting payment of that support. Fran Morano made a motion to pay the \$1,000 invoice to the Eastern Connecticut Conservation District. The motion was seconded by Diane Chapin. Diane Chapin questioned the yearly contribution and the invoice requesting payment of this contribution. Marla explained the ECC provides assistance to citizens on an as needed basis, do watershed planning, and focus their work on the eastern part of the State of Connecticut. Marla will send a link to the Commissioners of the ECC's annual report explaining what they do. George O'Neil asked Marla to include a reminder note with the contribution asking the ECC to let the Commission know what they are doing for the town. Following discussion, the **motion was unanimously APPROVED.**

#### I) Citizen's Comments

Valerie Clark commented on Commissioner Chapin's reaction to being invoiced for a \$1,000 donation to send to a district that the town may or may not be receiving services stating she agrees with Commissioner Chapin.

#### J) Reports

##### a) Budget & Expenditures-Expended less than 50% of the IWC budget to date.

##### b) Wetlands Agent Report

Update-Marla plans to finish her review of the current version of the draft subdivision regulations amendments next week. When completed she will focus on finishing the draft

Gloria Harvey

Agenda Item D.  
Citizens Comments on Agenda Items

## Agenda Item E.a) 1. Old Applications

WAA22029, Gary Rawson, 0 Logee Road (Assessor's map 141, block 17, lot 184R), construct a new single-family home in a 100-foot upland review area for Quaddick Reservoir, stamped received 11/16/22, awaiting NDDH approval.







## Agenda Item E.a) 2. Old Applications

**WAA22030**, Gary Rawson, 0 Logee Point Road, (Assessor's map 141, block 17, lot 184I), construct a new single-family home in a 100-foot upland review area for Quaddick Reservoir, stamped received 11/16/22, awaiting NDDH approval.







## Agenda Item E.b) 1. New Applications

WAA23001, Hany Youssef, 274 Riverside Drive, (Assessor's map 87, block 95, lot 39), construct a 13' x 50' concrete pad for a refrigeration/freezer unit, stamped received 1/19/23, revised 2/1/2023 to include construction of 2 second floor decks: a 50' x 13' over proposed concrete slab and an 18' x 36' along entire width of the south side of the building, under review.

For Wetland Agent:	rev 01/11
APPLICATION #WAA <u>23001</u>	
DATE RECEIVED <u>January 19, 2023</u>	

Application  
for  
Wetland Agent Approval  
to conduct a regulated activity

## Town of Thompson

INLAND WETLANDS COMMISSION  
815 RIVERSIDE DRIVE  
NORTH GROSVENORDALE, CT 06255

### Instructions:

Two (2) copies of the completed application and two (2) copies of all the additional attached documents (site plan, etc.) must be submitted to the Agent.

The applicant is advised to read Sections 7 and 8 of the Regulations for further information regarding application requirements and procedures. THE APPLICANT IS FURTHER ADVISED THAT A BUFFER (SETBACK) OF 100 FEET FROM AN INLAND WETLAND OR WATERCOURSE IS REQUIRED, AND A BUFFER/SETBACK OF 200 FEET FROM THE TEN (10) ESPECIALLY NOTEWORTHY WETLANDS AND WATERCOURSES IDENTIFIED IN THE *TOWN OF THOMPSON INLAND WETLAND INVENTORY* PREPARED BY NORTHEASTERN CONNECTICUT REGIONAL PLANNING AGENCY 1980 PAGES 9, 14 AND 15 IS REQUIRED. See Section 6 of the Regulations for further information regarding regulated activities.

Please provide the following information:

- Directions to the property from the Thompson Town Hall
  - Location of Utility Pole nearest your property
- \*Pole Number    \*Location of property in reference to Pole

---

NO APPROVAL SHALL BE TRANSFERRED WITHOUT PERMISSION OF THE AGENCY.

---

### FEE SCHEDULE:

(Additional \$60.00 fee to State as per Public Act 09-03, Section 396)

- Individual Lot ..... \$50 + \$60  
(Includes Mandatory Legal Advertisements Fee of \$20)

If the Agent finds that greater than a minimal impact may occur to wetlands, then this proposal must undergo a full permit application. Fee will be applied to the permit application.

---

**Please complete the following application information.**  
**If you need assistance contact the Wetland Agent (office 860- 923-1852)**  
**Fax 860-923-9897**  
**[www.thompsonct.org/wetlands](http://www.thompsonct.org/wetlands)**

Date 1/19/23

1) Name of Applicant Hany Youssef

Home Address 292 Riverside dr N. Grosvonordale, CT 06255

Home Tele & Hrs 860333 7008 Business Tele & Hrs \_\_\_\_\_

Business Address 274 Riverside dr N. Grosvonordale, CT 06255

2) Applicant's interest in the Property: ☒ Owner ☐ Other

**INLAND WETLANDS APPROVALS CAN BE GRANTED TO PROPERTY OWNER ONLY.**

3) Name of Property Owner (if not applicant) \_\_\_\_\_

Home Address \_\_\_\_\_

Business Address \_\_\_\_\_

Home Tele & Hrs \_\_\_\_\_ Business Tele & Hrs \_\_\_\_\_

4) Geographical Location of the Property (site plan to include utility pole number nearest property or other identifying landmarks)

Pole # and Location \_\_\_\_\_

Street or Road Location 274 Riverside Drive

Tax Assessor's Map # 87

Block # 95

Lot # that appears on site plan 39

Deed Information : Volume # 883

Page # 0015

5) The property to be affected by the proposed activity contains:

Soil Types \_\_\_\_\_

Wetland Soils \_\_\_\_\_ (Swamp \_\_\_\_\_ Marsh \_\_\_\_\_ Bog \_\_\_\_\_ Vernal Pool \_\_\_\_\_)

Watercourses \_\_\_\_\_ (Lake or Pond \_\_\_\_\_ Stream or River \_\_\_\_\_ Intermittent Stream \_\_\_\_\_)

Floodplain - Yes / No 100 FT

6) Description of the Activity for which Approval is requested Construction of

Concrete Slab To House 13'x60' walkin  
Cooler / Freezer NO Additional Grating



7) Submit a Site Plan, drawn to scale, with the certification of the preparing Surveyor and/or Engineer including:

- ☐ 1-Locus map at approx. 1" = 1000'
- ☐ 2-Location of property, with boundaries defined and utility pole # near property and any other identifying landmarks.
- ☐ 3-Location of wetlands and /or watercourses. A wetland delineation in the field must be marked with numbered wetlands flags by a certified soil scientist and located on the map/site plan. Site plan shall bear the soil scientist's original signature.
- ☐ 4-Soil types on the property.
- ☐ 5-Flood Hazard area classification and delineation.
- ☐ 6-(a)Location of the proposed activity (i.e. house, septic, well or other areas to be disturbed).  
(b)Location of perc tests and soil test holes.  
(c)Copy of NDDH approval to construct or repair subsurface sewage disposal system.
- ☐ 7-Nature and volume of the material to be placed, removed, or transferred.
- ☐ 8-Topographical contours, proposed and existing.
- ☐ 9-Location and supporting data for proposed drainage.
- ☐ 10-Date, scale (recommend 1"=40') and North arrow.
- ☐ 11-Proposed limits of clearing/disturbance and location of stockpiles during construction.
- ☐ 12-Location of proposed Erosion and Sedimentation controls and other management practices and mitigation measures which may be considered as a condition of issuing a permit for the proposed regulated activity. The erosion and sedimentation control provisions on the site plan must comply with the most current CT DEP edition of the *Connecticut Guidelines for Soil Erosion and Sedimentation Control* and be so noted on the plans.
- ☐ 13 -Location of proposed Stormwater treatment design on the site plan must comply with the most current CT DEP edition of the *Connecticut Stormwater Quality Manual* and be so noted on the plans. It is strongly recommended that low impact development techniques, stormwater management techniques that are designed to approximate the pre-development site hydrology, be utilized in the stormwater system design wherever practical and possible.
- ☐ 14-Location of proposed mitigation or wetland enhancement measures which may be considered as a condition of issuing a permit for the proposed regulated activity.
- ☐ 15-Timing and description of phases of activities, installation of sediment and stormwater control measures and temporary and permanent stabilization methods.

*The Wetland Agent will notify you if any additional information is needed in order to properly evaluate your proposal.*

- 8) Is any portion of this property located within the watershed of a water company as defined in section 16-1 of the Connecticut General Statutes? No If yes, the Applicant is required to provide written notice of the application by certified mail, return receipt requested, to the water company on the same day of filing this permit application with the Thompson Inland Wetlands and Watercourses Commission. Documentation of such notice shall be provided to the Commission.

9) Does any portion of this property contain a Natural Diversity Data Base (NDDDB) area of concern as defined on the map of Federal and State Listed Species and Significant Natural Communities, for Thompson, Connecticut, prepared by the Connecticut Department of Environmental Protection? \_\_\_\_\_ If yes, the Applicant must contact the CT DEP for information regarding the State or Federal Listed Species of Concern.

10) Names and Addresses of Abutters:

Waldron Cristine M + ETALS 20 Wiltshire Dr Worcester MA 01609  
Cuningham Mark 2 Danny Trail Vernon, CT 06066  
Pinto Andrew Patrick P.O. Box 865 Brooklyn, CT 06234  
Sunset Nurseries Inc P.O. Box 6 Thulson, CT 06277  
WThulson Cemetery Assoc 21 Ballard Rd Thulson CT 06277

11) Estimated start date 2/19/23

Estimated date of completion (all disturbed areas are stabilized) 6/19/23

12) The undersigned hereby consents to necessary and proper inspections of the above mentioned property by the Agents of the Town of Thompson Inland Wetlands Commission, at reasonable times, both before and after the approval in question has been granted by the Agent, including site walks by Commission members and staff for the purpose of understanding existing site conditions, which may be necessary in order to render a decision on this application.

The undersigned swears that the information supplied in this completed application is accurate to the best of her/his knowledge and belief.

ABSOLUTELY NO WORK IS TO BEGIN UNTIL ALL NECESSARY APPROVALS ARE OBTAINED.

Upon Approval the Applicant is responsible for publishing a notice of the approval, at the applicant's expense, in a newspaper having a general circulation in the Town of Thompson. The Agent will provide the necessary notice to the newspaper for public notice, and such notice must be published within ten (10) days of the date of approval.

  
Signature of Applicant

11/19/23  
Date

Hany Youssef  
Consent of Landowner if other than applicant

Date

**Please attach a written consent by the owner if applicant is not the property owner.**



Amendment to Application WAA23001274 Riverside Drive, Thompson

In addition to the proposed 50' X 13' concrete slab to support walk-in coolers/ freezers, I am proposing to include a second floor deck of the same size over the concrete slab and a second deck for the second floor along the entire width of the south side of the building that is 18' X 36'. For erosion control we will place small stones underneath the southern deck. The decks will provide for outside seating for customers using the second floor business that currently is proposed to be recreational in nature with refreshments.

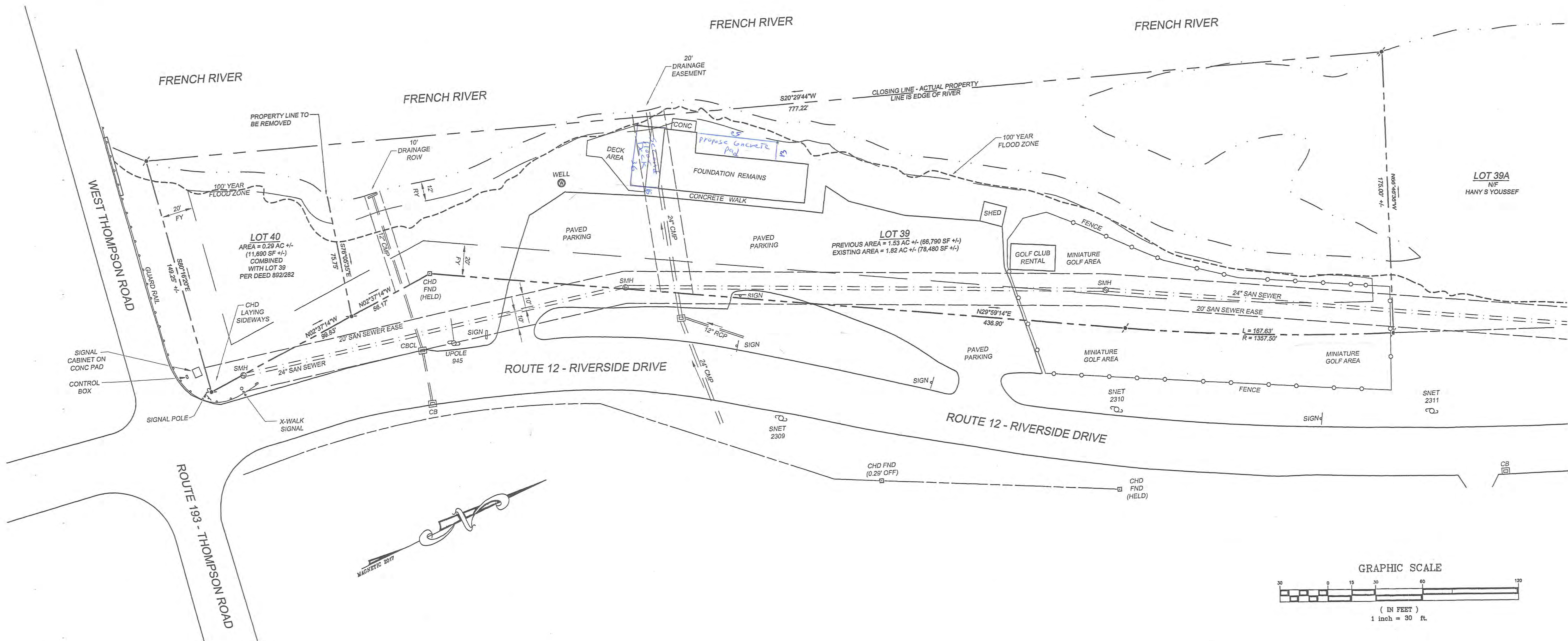
Signed:

A handwritten signature in blue ink, appearing to be 'Hany Youssef', with a long horizontal stroke extending to the right.

2/1/23

Hany Youssef





NOTES

1. THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARD FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

**SURVEY TYPE: BOUNDARY SURVEY**

PURPOSE: TO SHOW THE COMBINATION OF LOTS 39 AND 40,  
PER DEED 892/282 IN THE THOMPSON LAND RECORDS.

BOUNDARY DETERMINATION CATEGORY: DEPENDENT  
RESURVEY LOT 39, FIRST SURVEY OF LOT 40.

HORIZONTAL ACCURACY: A-2

2. REFERENCE PLANS:

(A) "SITE DEVELOPMENT PLAN PREPARED FOR NORTHEAST AUTOBODY, INCORPORATED OWNER CHARLES E. PAQUETTE" BY ALBERT L. FITZBACK, LLS, SEPTEMBER 12, 1991 ON FILE AS MAP 1196 IN THE THOMPSON LAND RECORDS

(B) CT HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF THOMPSON NUMBER 141-01, SHEETS 1 AND 2 OF 5

(C) SITE DEVELOPMENT PLAN PREPARED FOR CHARLES  
PAQUETTE, CONNECTICUT ROUTE 12, THOMPSON CT."  
PREPARED BY MESSIER AND ASSOCIATES, INC. DATED 11/88,  
REVISED 10/30/91, ON FILE AS MAP 1431 IN THE THOMPSON  
LAND RECORDS.

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

3. SEWER EASEMENT IN FAVOR OF THE TOWN OF THOMPSON,  
RECORDED IN 243/308 IN THE THOMPSON LAND RECORDS

4. 10' DRAINAGE RIGHT OF WAY IN FAVOR OF THE STATE OF CONNECTICUT PER REF. MAP B.

5. 20' DRAINAGE EASEMENT IN FAVOR OF THE STATE OF CONNECTICUT PER REF. MAP A-7.

DENNIS R. BLANCHETTE / DATE 8/3/18 LICENSE NUMBER 12107

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE

BEARING SYSTEM NOTES

PREVIOUS SURVEYS USED A MAGNETIC BEARING SYSTEM THAT APPEARS TO BE APPROXIMATELY 73 DEGREES OFF FROM MAGNETIC NORTH. THIS SURVEY USES A RECENT MAGNETIC BEARING.

100 YEAR FLOOD ZONE PER FEMA MAP 0012B, ELEVATION VARIES FROM 310.5 TO 311.

**ZONING INFORMATION:**












ZONE: COMM  
MINIMUM LOT AREA : 15,000 SF  
MINIMUM FRONTAGE 75'  
MINIMUM FRONT YARD: 20'  
MINIMUM SIDE YARD: 12'  
MINIMUM REAR YARD: 12'

PROPERTY OWNER  
HANY S AND SALAMA  
YOUSSEF

REFERENCE DEED  
THOMPSON LAND RECORDS  
VOL 883 PG 15  
VOL 892 PG 282

**ASSESSORS REFERENCE**  
**MAP 87 BLOCK 95 LOT 39**  
**MAP 87 BLOCK 95 LOT 40**

**LEGEND**

	MONUMENT
	ANGLE POINT
	PROPERTY LINE
	EASEMENT LINE
	BUILDING SETBACK
	EDGE OF WATER
	EDGE OF WETLANDS
	GUARD RAIL
	UTILITIES
	EXISTING DRAINAGE
	EXISTING SEWER

Received

JAN 19 2023

Thompson Wetlands Office

App# WAA23001

## PROPERTY SURVEY

**PREPARED FOR  
HANY YOUSSEF**

**274 RIVERSIDE DR  
N. GROSVENORDALE, CT**

**J&D CIVIL ENGINEERS, LLC**

**401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920**

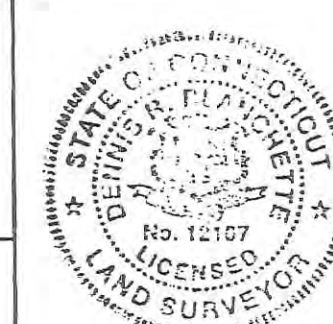
**DESIGNED: DDB**  
**CHECKED: DRB**

**REVISIONS:****JOB NO: 15146**

**DATE: OCTOBER 26, 2017**

**SCALE: 1" = 30'**

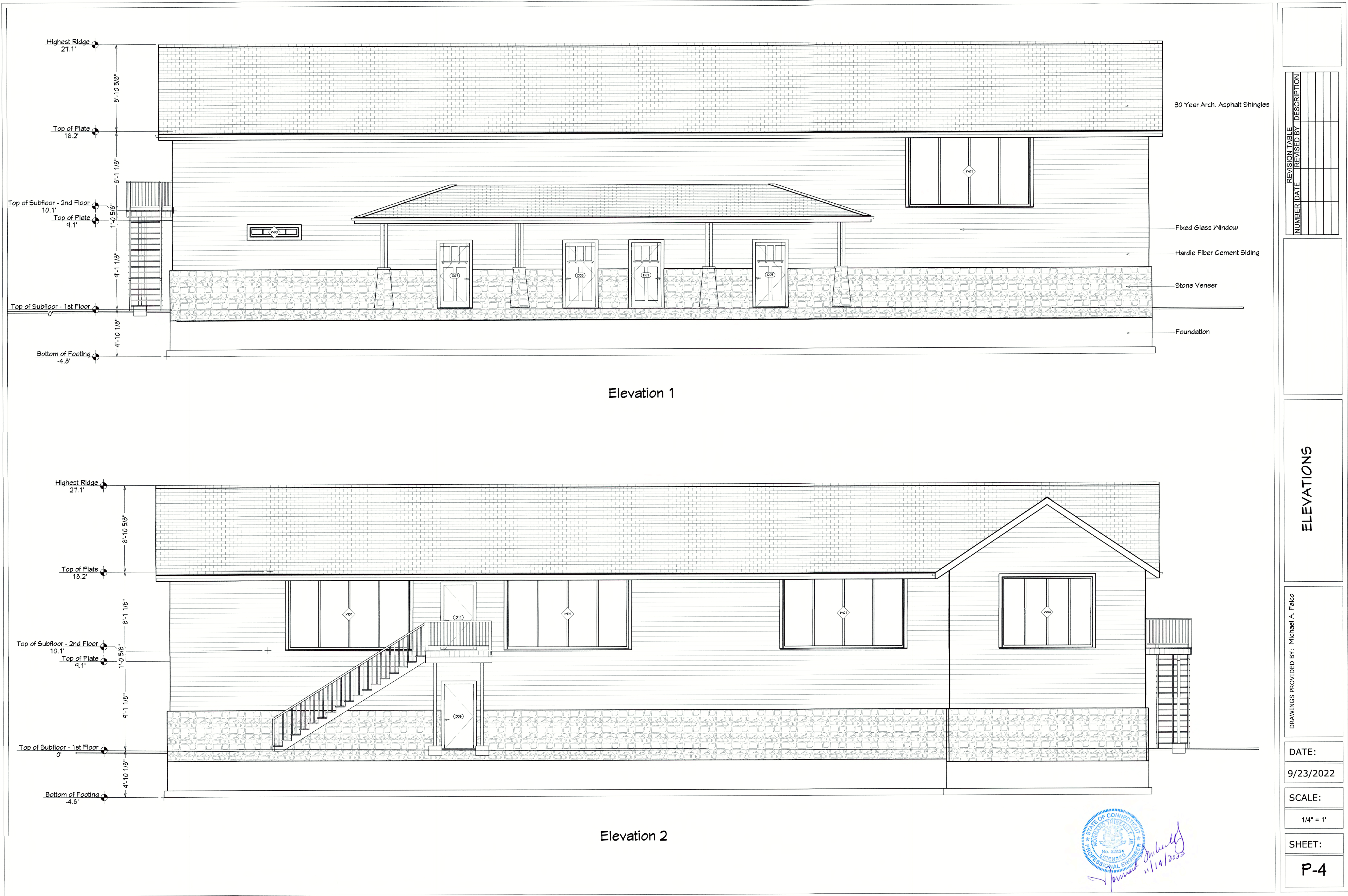
**SHEET: 1 OF 1**



THIS MAY BE USED FOR  
ORIGINAL INK DRAWING  
ON POLY FILM OR LINER  
J & D CIVIL ENGINEERS  
401 FIVEHILL DRIVE  
BIRMINGHAM, AL 35226

Rac # 9718 10/03/2018 02:21:28 PM  
1 Pages  
SURVEY MAP # 1747  
Renee Waldron Town Clerk





REVISION TABLE		REVISION BY	DESCRIPTION
NUMBER	DATE		

ELEVATIONS

DRAWINGS PROVIDED BY: Michael A. Falco

DATE:  
9/23/2022

SCALE:  
1/4" = 1'

SHEET:  
P-4





## Agenda Item E.b) 2. New Applications

IWA23002, Jason Lavallee, 0 Azud Road, (Assessor's Map 67, block 53, lots 1H and 1G, construct multifamily dwellings in 5 phases within upland review area with drainage discharging to wetlands/watercourses, stamped received 2/7/2023, statutory receipt date 2/14/2023.

Original

for commission use:	rev 1/11
application #	<u>IWA23002</u>
date received	<u>February 7, 2023</u>

**PERMIT APPLICATION**  
TO CONDUCT A REGULATED ACTIVITY

## Town of Thompson

INLAND WETLANDS COMMISSION  
815 RIVERSIDE DRIVE  
NORTH GROSVENORDALE, CT 06255

### Instructions:

All applicants must complete this application for preliminary review. The Commission will notify the applicant of any additional information that may be required and will schedule a public hearing if necessary. In addition to the information supplied herein, the applicant may submit other supporting facts or documents which may assist the Commission in its evaluation of the proposal. In order to streamline the application review process, it is recommended that all applications containing significant impact to the wetlands be submitted to the Thompson Conservation Commission for review prior to submission to the regulatory commissions.

Two (2) copies of the completed application and two (2) copies of all the additional attached documents (site plan, etc.) must be submitted to the Town Clerk. State Statute provides that you may submit an application up to three (3) business days prior to the next regularly scheduled meeting, which means by the close of business hours on the Wednesday before a regular meeting date. The applicant is advised to read Sections 7 and 8 of the Regulations for further information regarding application requirements and procedures. THE APPLICANT IS FURTHER ADVISED THAT A BUFFER/SETBACK OF 100 FEET FROM A WETLAND OR WATERCOURSE IS REQUIRED, AND A BUFFER/SETBACK OF 200 FEET FROM THE TEN (10) ESPECIALLY NOTEWORTHY WETLANDS AND WATERCOURSES IDENTIFIED IN THE TOWN OF THOMPSON INLAND WETLAND INVENTORY PREPARED BY NORTHEASTERN CONNECTICUT REGIONAL PLANNING AGENCY 1980 PAGES 9, 14 AND 15 IS REQUIRED. See Section 6 of the Regulations for further information regarding activities.

NO PERMIT SHALL BE TRANSFERRED WITHOUT PERMISSION OF THE AGENCY.

---

### WE MUST HAVE THE FOLLOWING INFORMATION TO PROCESS YOUR APPLICATION:

- Directions to the property from the Thompson Town Hall
- Location of Utility Pole nearest your property
  - \*Pole Number    \*Location of property in reference to Pole (side of street)
- Locations of proposed house, septic test pits, well and driveway must be staked and labeled on site (These requirements must be LEGIBLY PRINTED on your MAPS at the time of application, but NOT in the area of the map details. Use outside edge of map for this information. Thank you.)

---

FAILURE TO HAVE THE ABOVE INFORMATION WILL POSTPONE PROCESSING OF YOUR APPLICATION

### FEE SCHEDULE:

(Additional \$60.00 fee to State as per Public Act 09-03, Section 396)

- Individual Lot ..... \$50 + \$60  
(Permit Fee Now Includes Mandatory Legal Advertisement Fee of \$20. This DOES NOT include Legal Notice fees for Public Hearings, which will be billed separately.)
- Complex Application Fee.....Applicants will be billed for professional review as needed, see regulations booklet Section 18.5

For:                      **Conceptual Approval of Subdivisions use "Subdivision Review Application"**

Please complete the following application information.

Received

FEB 07 2023

Thompson Wetlands Office

Date 12/06/2022

1) Name of Applicant Jason Lavallee

Home Address 83 Rich Road, North Grosvenordale, CT 06255

Home Tele & Hrs (508) 728 - 6628 Business Tele & Hrs \_\_\_\_\_

Business Address 83 Rich Road, North Grosvenordale, CT 06255

2) Applicant's interest in the Property: ☒ Owner ☐ Other

INLAND WETLANDS APPROVALS CAN BE GRANTED TO PROPERTY OWNER ONLY.

No permit shall be assigned or transferred without written permission of the Commission.

3) Name of Property Owner (if not applicant) Lavallee Construction LLC

Home Address 83 Rich Road, North Grosvenordale, CT 06255

Business Address 83 Rich Road, North Grosvenordale, CT 06255

Home Tele & Hrs (508) 728 - 6628 Business Tele & Hrs \_\_\_\_\_

4) Geographical Location of the Property (site plan to include utility pole number nearest property or other identifying landmarks)

Pole # and Location 3446

Street or Road Location Azud Road

Tax Assessor's Map # 67

Block # 53

Lot # that appears on site plan 1 H / 1 G

Deed Info : Volume # 786

Page # 117

5) The property to be affected by the proposed activity contains:

Soil Types See Soil Scientist letter

Wetland Soils x (Swamp        Marsh        Bog        Vernal Pool X ) POTENTIAL

Watercourses        (Lake or Pond        Stream or River        Intermittent Stream       )

Floodplain - Yes ☐ No ☒

6) Purpose and Description of the Activity for which Approval is requested:

a. Give a complete description of the proposed activity Construction of multi-family dwellings.

No direct disturbance to wetlands but grading and other construction is proposed within the upland review area

If the above activity involves deposition or removal of material, what is the quantity? \_\_\_\_\_



b. Submit a Site Plan, drawn to scale, with the certification of the preparing Surveyor and/or Engineer including:

- ☒ 1-Locus map at approx. 1" = 1000'
- ☒ 2-Location of property, with boundaries defined and utility pole # near property and any other identifying landmarks.
- ☒ 3-Location of wetlands and /or watercourses. A wetland delineation in the field must be marked with numbered wetlands flags by a certified soil scientist and located on the map/site plan. Site plan shall bear the soil scientist's original signature.
- ☒ 4-Soil types on the property. *SEE DRAINAGE AREA MAPS*
- ☒ 5-Flood Hazard area classification and delineation with base flood elevations.
- ☒ 6-(a)Location of the proposed activity (i.e. house, septic, well or other areas to be disturbed).  
(b)Location of perc tests and soil test holes. *N/A*  
(c)Copy of NDDH approval to construct or repair subsurface sewage disposal system. *N/A*
- ☒ 7-Nature and volume of the material to be placed, removed, or transferred.
- ☒ 8-Topographical contours, proposed and existing.
- ☒ 9-Location and supporting data for proposed drainage.
- ☒ 10-Date, scale (recommend 1"=40') and North arrow.
- Not applicable ☐ 11-Subdivisions must be A-2 Surveys and have Certified Soil Scientist's original signature on face sheet.
- ☒ 12-Proposed limits of clearing/disturbance and location of stockpiles during construction.
- ☒ 13-Location of proposed Erosion and Sedimentation controls and other management practices which may be considered as a condition of issuing a permit for the proposed regulated activity. The erosion and sedimentation control provisions must comply with the most current DEP edition of the *Connecticut Guidelines for Soil Erosion and Sedimentation Control* and be so noted on the plans.
- ☒ 14 -Location of proposed Stormwater treatment design on the site plan must comply with the most current CT DEP edition of the *Connecticut Stormwater Quality Manual* and be so noted on the plans. It is strongly recommended that low impact development techniques, stormwater management techniques that are designed to approximate the pre-development site hydrology, be utilized in the stormwater system design wherever practical and possible.
- N/A* ☐ 15-Location of proposed mitigation or wetland enhancement measures which may be considered as a condition of issuing a permit for the proposed regulated activity.
- ☒ 16-Timing and description of phases of activities, installation of sediment and stormwater control measures and temporary and permanent stabilization methods.

c. Explain whatever measures you propose to lessen or to compensate for the impacts to the wetlands or watercourse(s). Proposed features located around perimeter of wetland without encroaching into wetlands. Low impact drainage techniques have been incorporated into the design of the project. Proper erosion and sediment control devices will be installed during construction.

d. Have any alternatives been considered? In the past other conceptual developmet plans were considered  
If yes, explain why this proposal was chosen The owner selected this alternative for the development of the property

7) Is any portion of this property located within 500' of the boundary of an adjoining municipality? NO

If yes, Applicant is required to give written notice of the application by certified mail, return receipt requested, to the adjacent municipal wetlands agency on the same day of filing this permit application with the Thompson Inland Wetlands & Watercourses Commission. Documentation of notice shall be provided to the Commission.

8) Is any portion of this property located within the watershed of a water company as defined in section 16-1 of the Connecticut General Statutes? NO If yes, the Applicant is required to provide written notice of the application by certified mail, return receipt requested, to the water company on the same day of filing this permit application with the Thompson Inland Wetlands and Watercourses Commission. Documentation of such notice shall be provided to the Commission.

9) Does any portion of this property contain a Natural Diversity Data Base (NDDDB) area of concern as defined on the most updated map of Federal and State Listed Species and Significant Natural Communities, for Thompson, Connecticut, prepared by the Connecticut Department of Environmental Protection? NO If yes, the Applicant must contact the CT DEP for information regarding the State or Federal Listed Species of Concern.

10) Names and Addresses of Abutters:

See attached list

11) Estimated start date 2024

Estimated date of completion (all disturbed areas are stabilized) 2029

12) The undersigned hereby consents to necessary and proper inspections of the above mentioned property by the Agents of the Town of Thompson Inland Wetlands Commission, at reasonable times, both before and after the approval in question has been granted, including site walks by Commission members and staff for the purpose of understanding existing site conditions, which may be necessary in order to render a decision on this application.

The undersigned swears that the information supplied in this completed application is accurate to the best of her/his knowledge and belief.

ABSOLUTELY NO WORK IS TO BEGIN UNTIL ALL NECESSARY APPROVALS ARE OBTAINED.

I understand by signing this application that it is my responsibility to provide all the information as requested. I understand that the commission is unable to act upon an incomplete application.

Received

FEB 07 2023

Jason Lavelle  
Signature of Applicant

2/3/23  
Date

Thompson Wetlands Office

Consent of Landowner if other than applicant

Date

Please attach a written consent by the owner if applicant is not the property owner.



7) Is any portion of this property located within 500' of the boundary of an adjoining municipality? No

If yes, Applicant is required to give written notice of the application by certified mail, return receipt requested, to the adjacent municipal wetlands agency on the same day of filing this permit application with the Thompson Inland Wetlands & Watercourses Commission. Documentation of notice shall be provided to the Commission.

8) Is any portion of this property located within the watershed of a water company as defined in section 16-1 of the Connecticut General Statutes? No If yes, the Applicant is required to provide written notice of the application by certified mail, return receipt requested, to the water company on the same day of filing this permit application with the Thompson Inland Wetlands and Watercourses Commission. Documentation of such notice shall be provided to the Commission.

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10) Names and Addresses of Abutters:

See attached list  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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I understand by signing this application that it is my responsibility to provide all the information as requested.  
I understand that the commission is unable to act upon an incomplete application.

  
\_\_\_\_\_  
Signature of Applicant Date

\_\_\_\_\_  
Consent of Landowner if other than applicant Date

**Please attach a written consent by the owner if applicant is not the property owner.**

# LOT 1H ABUTTERS

KAUFFMAN KYLE + SANDRA  
87 RIVERSIDE DR  
THOMPSON, CT 06277-2712

BELLAVANCE JAMES + PAMELA M  
91 RIVERSIDE DR  
THOMPSON, CT 06277

REKOWSKI TINA L + JAMES A  
95 RIVERSIDE DR  
THOMPSON, CT 06277 USA

LEO PARM P  
99 RIVERSIDE DRIVE  
THOMPSON, CT 06277 USA

BONNER JOHN J + CHERYL M  
1165 RIVERSIDE DR  
N GROSVENORDALE, CT 06255 USA

SAFFORD KAEVON  
105 RIVERSIDE DR  
THOMPSON, CT 06277-2712

WIGGLESWORTH SCOTT J + KIM M  
81 LABBY RD  
N GROSVENORDALE, CT 06255 USA

THOMPSON TOWN OF  
P O BOX 899  
N GROSVENORDALE, CT 06255 USA

REMILLARD ROBERT L  
72 RIVERSIDE DR  
THOMPSON, CT 06277-2709

MOODY REBECCA + FAUCHER EVAN  
74 RIVERSIDE DR  
N GROSVENORDALE, CT 06255

ENS INVESTMENTS LLC  
P O BOX 248  
THOMPSON, CT 06277

REGGIONE JOHN  
448 SENEXET RD  
WOODSTOCK, CT 06281-2335

LEO NANCY ANNE  
84A RIVERSIDE DR  
THOMPSON, CT 06277

STANDISH JOHNSON CO  
PO BOX 5055  
GREENE, RI 02827-0055 USA

ST PETER ROY GILBERT JR  
66 RIVERSIDE DR  
THOMPSON, CT 06277

CROUCH JULIA M  
68 RIVERSIDE DR  
THOMPSON, CT 06277-2709

STANDISH JOHNSON CO  
PO BOX 5055  
GREENE, RI 02827-0055

LAVALLEE CONSTRUCTION LLC  
83 RICH RD  
N GROSVENORDALE, CT 06255

# LOT 1G ABUTTERS

LAVALLEE CONSTRUCTION LLC  
83 RICH RD  
N GROSVENORDALE, CT 06255

THOMPSON TOWN OF  
P O BOX 899  
N GROSVENORDALE, CT 06255 USA

STANDISH JOHNSON CO  
PO BOX 5055  
GREENE, RI 02827-0055 USA

LAVALLEE CONSTRUCTION LLC  
83 RICH RD  
N GROSVENORDALE, CT 06255

BLAIS PATRICK L + DAWN M  
256 BALLARD RD  
THOMPSON, CT 06277

FARIOLI DENNIS + ROSEMARY  
P O BOX 1867  
WELLS, ME 04090-1867

TATSEY GEORGIA I + RICHARD R  
16 SQUAW ROCK RD  
DANIELSON, CT 06239

PUCHALA RENATA E + ZBIGNIEW  
P O BOX 541  
WEBSTER, MA 01570

# **WASHBURN WETLAND CONSULTING LLC**

19 Wolf Den Road • Pomfret Center, Connecticut 06259-2022

Telephone (860) 928-6728 • Fax (860) 963-1999

Mr. Richard Androlewicz  
115 Schofield Avenue  
Dudley, Massachusetts 01571

April 6, 2004

Dear Mr. Androlewicz,

At your request, on March 2, 2004, and April 6, 2004, I delineated a portion of the wetlands on a parcel of property located on Route in Thompson, Connecticut (Map/Block/Lot 67/53/1). At your request, I only investigated a portion of the total property. I did not attempt to investigate the subject property in its entirety. I did not attempt to delineate all the wetlands on the subject property.

The wetlands consist of two vernal pools connected by an intermittent watercourse. Wood frog eggs were observed, and wood frog choruses were heard, on April 6, 2004. Wood frogs are a vernal pool obligate species. Wood frogs breed exclusively in vernal pools, where there are no fish and there is no inlet or outlet to other wetlands where fish can enter. The area where the vernal pools were delineated was extensively disturbed during the gravel mining process many years ago. The vernal pools were created by human disturbance during the gravel mining process many years ago.

The wetlands were delineated on the basis of soil morphology. The wetlands were delineated using consecutively numbered lengths of blue surveyors' ribbon. There is one series of wetland flags, numbered WF1 – WF58. Please refer to the enclosed site sketch for further details.

References used in the soil identification process included the *Munsell Color Chart*, *Soil Survey of Windham County Connecticut* (USDA Soil Conservation Service, December 1981), *Indicators for Identifying Hydric Soils in New England* (New England Interstate Water Pollution Control Commission, Second Edition, 1998), the USGS topographic map for the subject property, and the assessors' map for the subject property.

According to the *Soil Survey of Windham County Connecticut*, the soils in the area of the delineated wetlands on the subject property consist of Hinckley gravelly sandy loam and a complex of Charlton-Hollis fine sandy loams. It was determined in the field that soils in the delineated wetlands on the subject property consist of smoothed Udorthents.



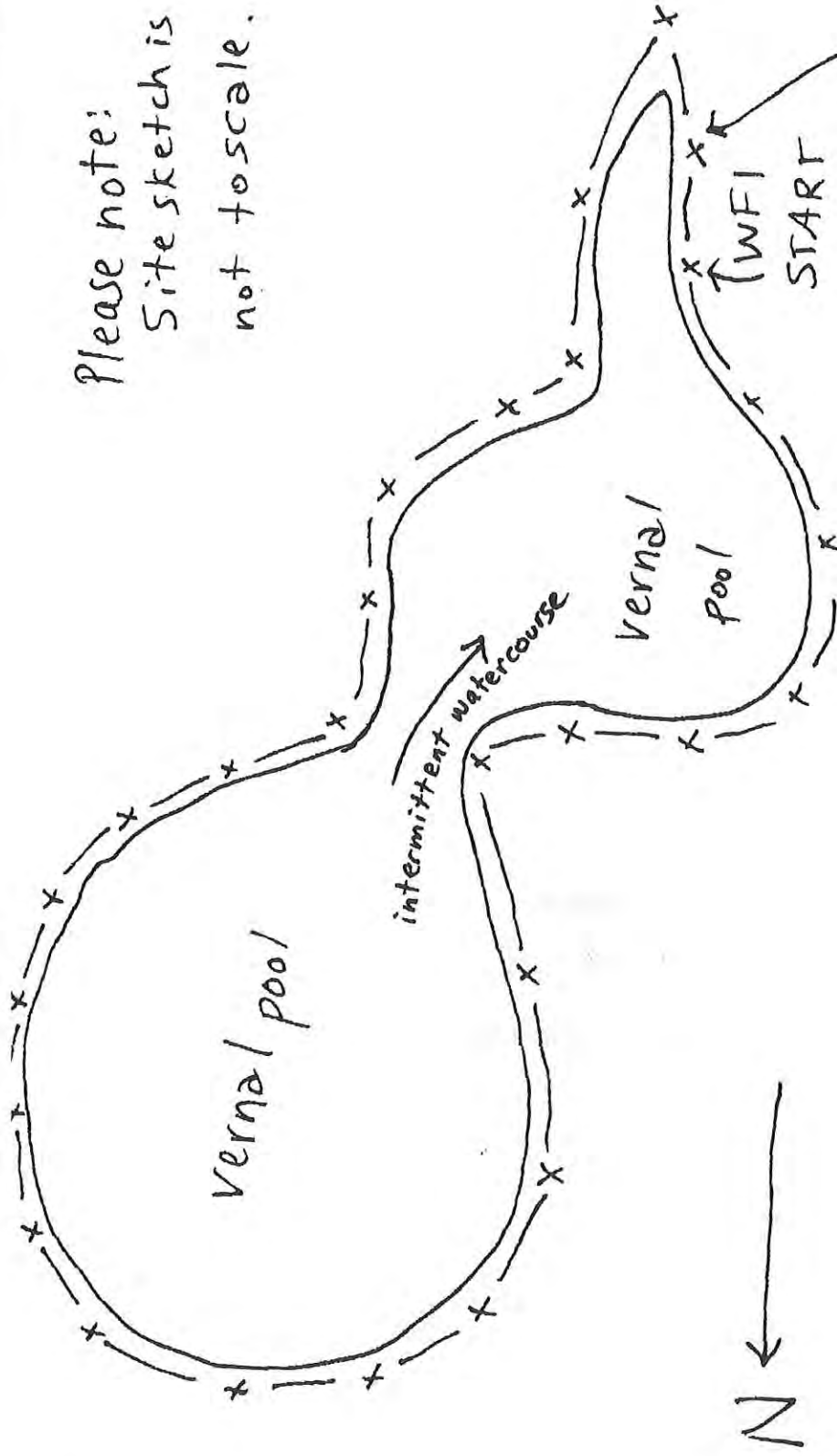
It has been a pleasure working with you on this site. Please feel free to call me if I may be of further assistance.

Sincerely,

*Margaret Washburn, M.S.*

Margaret Washburn, M.S.  
Registered Professional Soil Scientist

Please note:  
Site sketch is  
not to scale.



WF58  
END.  
CONNECT  
TO WF1.

Route 12

# **WASHBURN WETLAND CONSULTING LLC**

19 Wolf Den Road • Pomfret Center, Connecticut 06259-2022

Telephone (860) 928-6728 • Fax (860) 963-1999

Janet Blanchette  
J & D Civil Engineers  
401 Ravenelle Road  
North Grosvenordale, CT  
06255

August 24, 2007

Dear Janet,

At your request, on August 17, 22 and 23, 2007, I conducted a site investigation on the Venuto property located on Route 12 in Thompson, Connecticut. The subject property is mostly located on an area of sloping soils formed on glacial till. There are limited areas of glacial outwash soils on the property as well. The soils on the subject property were extensively disturbed many years ago. I had previously delineated a portion of the wetlands on the subject property in 2004 (see below).

References used in the soil identification process included the *Soil Survey of Windham County Connecticut* (USDA Soil Conservation Service, December 1981), *Indicators for Identifying Hydric Soils in New England* (New England Interstate Water Pollution Control Commission, Third Edition, April, 2004), a surveyor's map you provided, and the U.S.G.S. topographic map for the subject property.

The wetlands were delineated using consecutively numbered lengths of blue surveyors' ribbon. There is one new series of wetland flags (WF), numbered WF1X – WF9X. The wetlands consist of a highly disturbed area that appears to have been part of a municipal water system. A pipe was discharging water into the delineated area on August 23, when the site investigation was completed. Please refer to the attached site sketch for further details.

There appear to be wetlands on the abutting railroad bed property and the abutting property to the north, but these were not delineated as a part of this site investigation.

In 2004, I delineated two vernal pools and an intermittent watercourse on the subject property. Please refer to the attached report and site sketch, dated April 6, 2004, for further details.

According to Map 14 of the *Soil Survey of Windham County Connecticut*, there are no wetlands soils on the subject property. The site investigation revealed that the soils in the wetlands consist of smoothed Udorthents.



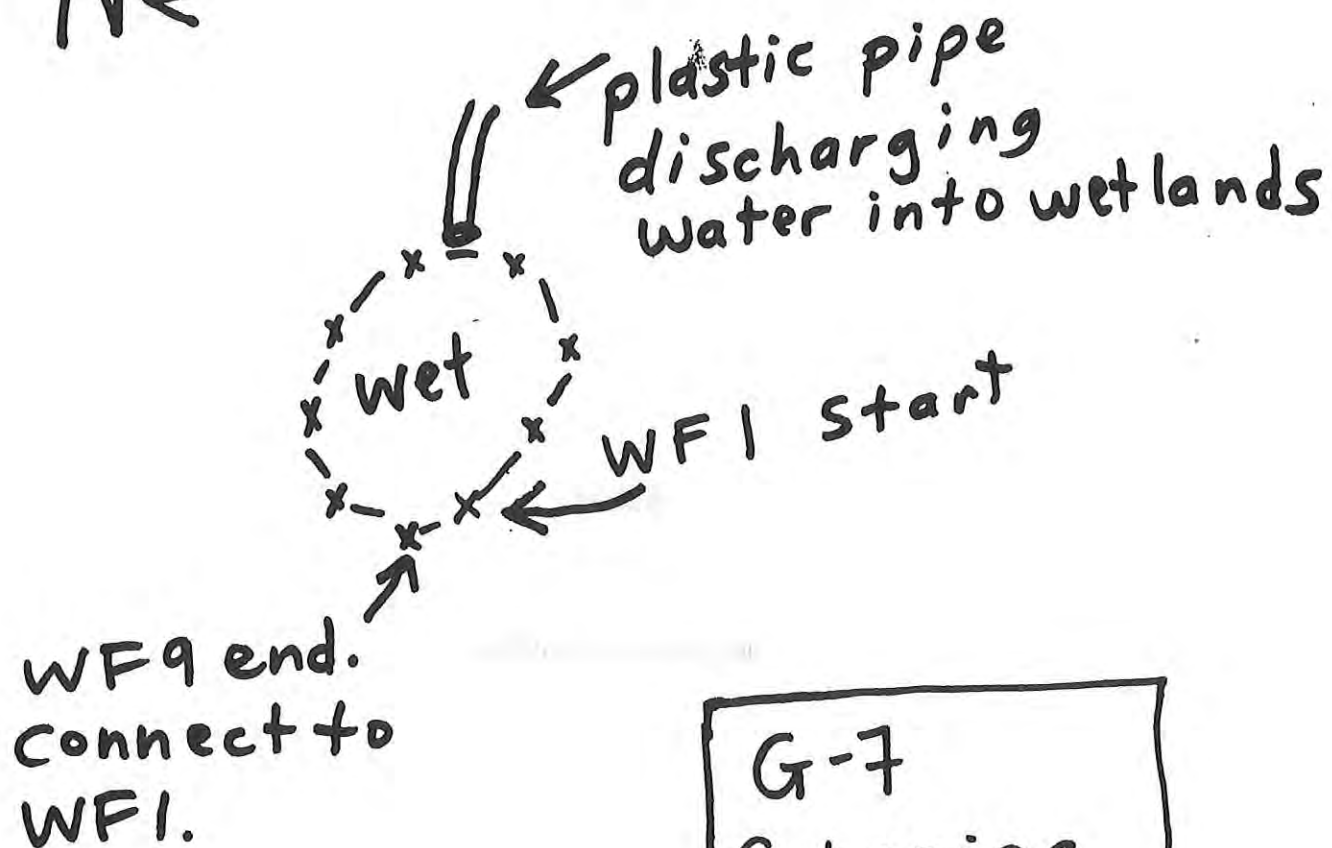
It has been a pleasure working with you on this site. Please feel free to call me if I may be of further assistance.

Sincerely,

*Margaret Washburn, M.S.*

Margaret Washburn, M.S.  
Registered Professional Soil Scientist

N ←



G-7  
Catering

---

Route 12

---

Please note: Site sketch  
is not to scale.

# HILLSIDE TOWNHOMES

PREPARED FOR:  
**LAVALLEE CONSTRUCTION, LLC**

**RIVERSIDE DRIVE AND AZUD ROAD  
THOMPSON, CONNECTICUT**

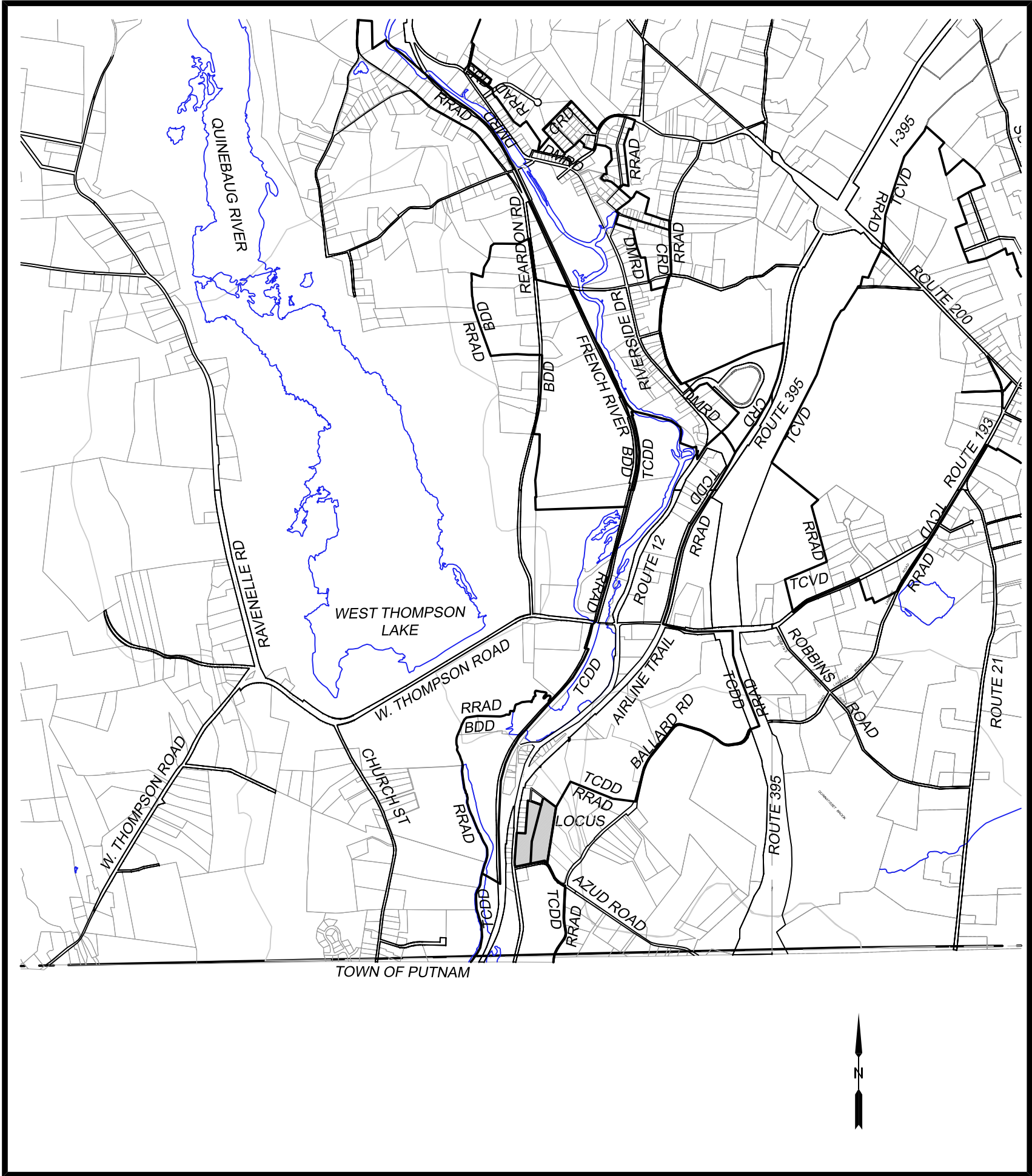
**DATED: JANUARY 31, 2023**

PREPARED FOR:  
LAVALLEE CONSTRUCTION, LLC  
83 RICH ROAD  
NORTH GROSVENORDALE, CT 06255

DIRECTIONS TO SITE FROM TOWN HALL:  
HEAD SOUTH ON RIVERSIDE DRIVE (ROUTE 12).  
SITE IS ON THE LEFT JUST BEFORE AZUD ROAD.

INDEX OF DRAWINGS

- 1 COVER AND LOCATION MAP
- 2 VICINITY AND INDEX PLAN
- 3 PROPERTY SURVEY
- 4 40 SCALE UTILITY AND DRIVEWAY LAYOUT PLAN
- 5 PROFILE SHEET
- 6 PHASES 1 & 2 SITE DEVELOPMENT PLAN
- 7 PHASE 3 SITE DEVELOPMENT PLAN
- 8 PHASE 4 & 5 SITE DEVELOPMENT PLAN
- 9 CONSTRUCTION DETAILS - SEWER AND MISC.
- 10 CONSTRUCTION DETAILS - E & S
- 11 CONSTRUCTION DETAILS - DRAINAGE



LOCATION MAP

1" = 2000'

TABLE OF ZONING COMPLIANCE

ZONE: THOMPSON CORRIDOR DEVELOPMENT DISTRICT (TCDD)

ITEM	REQUIRED*	PROPOSED
FRONTAGE	100'	1153' ±
LOT COVERAGE	<75%	24%
FRONT SETBACK	20'	25' ±
SIDE SETBACK	25'	65' ±
REAR SETBACK	25'	269' ±
LOT SIZE	40,000 SF	558,445 SF

\*MULTI-FAMILY, THREE OR MORE UNITS

PERMIT APPROVAL BY THE THOMPSON  
INLAND WETLAND COMMISSION

CHAIRMAN DATE

SPECIAL PERMIT APPROVAL BY THE THOMPSON  
PLANNING AND ZONING COMMISSION

CHAIRMAN DATE

**J & D CIVIL  
ENGINEERS, LLC**

**401 RAVENELLE ROAD  
THOMPSON, CT 06255**

JDCIVILENGINEERS.COM  
860-923-2920



SURVEY NOTES

1. THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARD FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 28, 1996.

SURVEY TYPE: COMPILATION PLAN

PURPOSE: TO DEPICT NEARBY PROPERTIES AND STRUCTURES.

HORIZONTAL ACCURACY: CLASS D

THIS PLAN WAS COMPILED FROM OTHER MAPS, RECORD RESEARCH OR OTHER SOURCES OF INFORMATION. IT IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD SURVEY AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE.

2. REFERENCE PLANS:  
(A) "SUBDIVISION PLAN PREPARED FOR JASON LAVALLEE, RIVERSIDE DRIVE, THOMPSON CT" ON FILE AS MAP #1562.

(B) MAPGEO GIS WEBSITE, 2019 AERIAL PHOTOGRAPHY

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

DENNIS R. BLANCHETTE DATE 12/10/2023 LICENSE NUMBER 12107

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE  
© 2023 J&D CIVIL ENGINEERS, LLC

LEGEND

SUBJECT PROPERTY LINE  
ABUTTING PROPERTY LINE  
EASEMENT LINE  
WETLAND SOILS

VICINITY PLAN & INDEX MAP  
PREPARED FOR  
LAVALLEE CONSTRUCTION LLC  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT  
MAP 67 BLOCK 53 LOTS 1G AND 1H

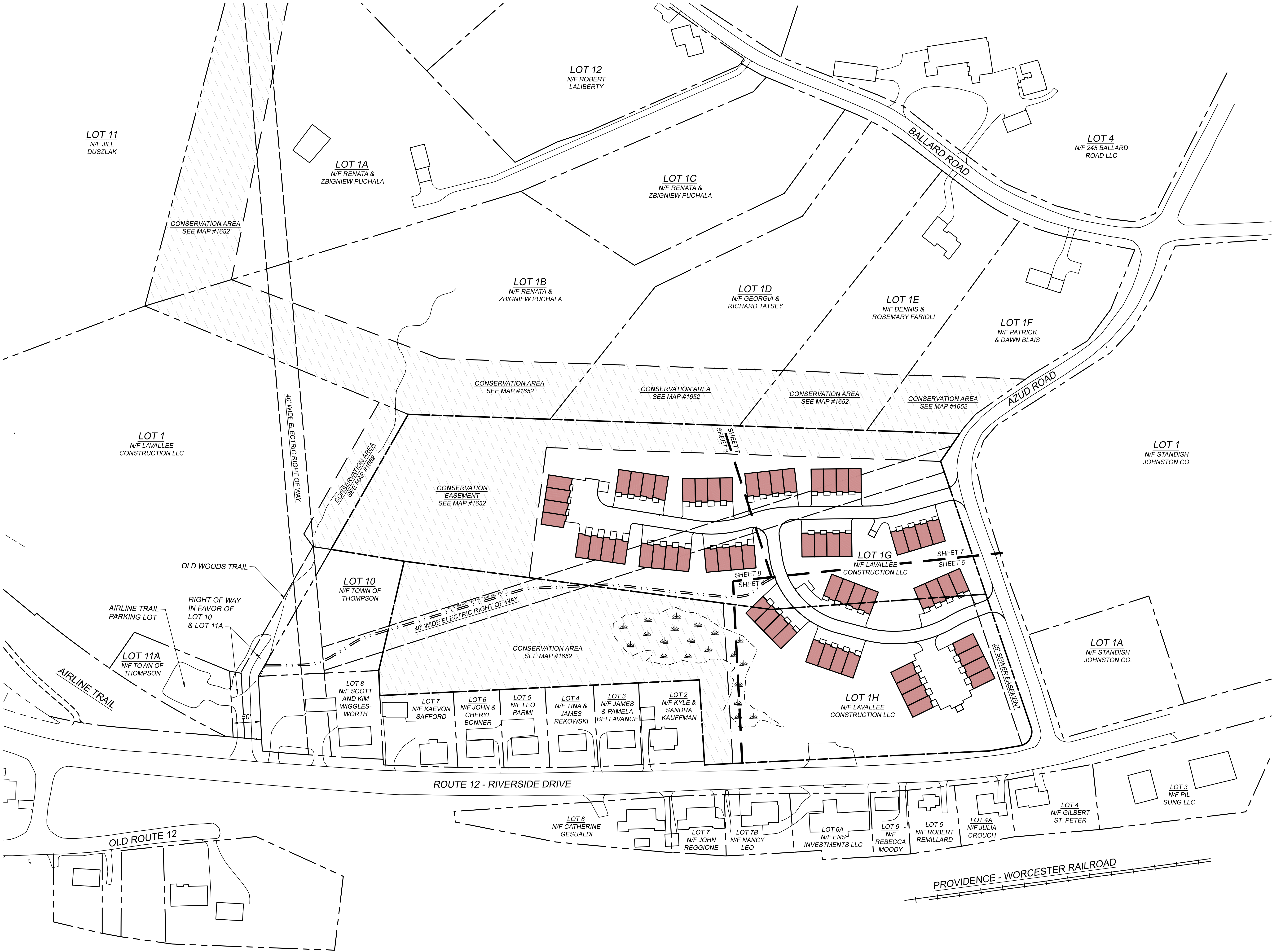
J&D CIVIL ENGINEERS, LLC  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: JJB  
CHECKED: DRB

REVISIONS:

JOB NO: 22203  
SCALE: 1" = 80'

DATE: JANUARY 2023  
SHEET: 2





REFERENCE PLANS

- (A) CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF THOMPSON PUTNAM-WEBSETER ROAD FROM THE QUINEBAUG SCHOOL SO. WESTERLY ABOUT 3,700 FEET ROUTE NO. 12 MAP 141-14 SHEET 1 OF 2 AND SHEET 2 OF 2, DATED SEPT. 1946
- (B) CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF THOMPSON PUTNAM-GROSVENORDALE ROAD FROM THE PUTNAM TOWN LINE NORTHERLY ABOUT 6,000 FEET ROUTE NO. 12 MAP 141-12 SHEET 1 OF 3, DATED SEPT. 1938
- (C) RIGHT OF WAY AND TRACK MAP THE NEW YORK, NEW HAVEN AND HARTFORD R.R. CO. OPERATED BY THE NEW YORK, NEW HAVEN AND HARTFORD R.R. CO. SURVEY STATION 3065+20 TO 3127+30.53 AND SURVEY STATION 3127+30.53 TO 1293+60
- (D) SUBDIVISION OF DWELLINGS AND LANDS OF THE GROSVENOR-DALE COMPANY SOUTH GROSVENORDALE-MECHANICSVILLE, THOMPSON, CONNECTICUT BY WATERMAN ENGINEERING COMPANY MARCH, 1938
- (E) PLOT OF LAND IN MECHANICSVILLE THOMPSON CONN. OWNED BY EDWARD J. BALL SCALE 1" = 20' 1933 GEORGE W. PERRY C.E.
- (F) PLAN OF LAND CONVEYED BY BERTI E. ARNOLD TO PAUL E. AZUD THOMPSON, CONNECTICUT SCALE 1" = 100' OCT. 14, 1959 GILBERT F. PERRY C.E.
- (G) PLAN OF LAND TO BE CONVEYED BY CARMINE DEFILIPPO TO MECHANICSVILLE SUPPLY COMPANY, INC. IN THE TOWN OF THOMPSON, CONN. SCALE 1" = 100' FEB. 20 1952 WILLIAM W. PIKE, SURVEYOR
- (H) GUERIN MILLS INC., BEACHMONT MILL THOMPSON LAND RECORDS MAP 151
- (I) PROPERTY SURVEY PREPARED FOR JACK R.E. LLC, RIVERSIDE DRIVE - THOMPSON, CT. PLAN PREPARED BY J & D CIVIL ENGINEERS, LLC, DATED SEPTEMBER 7, 2007
- (J) PROPERTY SURVEY PREPARED FOR JASON LAVALLEE, RIVERSIDE DRIVE - THOMPSON, CT. PLAN PREPARED BY J & D CIVIL ENGINEERS, LLC, DATED JANUARY 17, 2011, REVISED 1-24-2011.
- (K) "SUBDIVISION PLAN PREPARED FOR JASON LAVALLEE RIVERSIDE DRIVE - THOMPSON, CT" BY J & D CIVIL ENGINEERS, LLC, DATED FEBRUARY 3, 2011, REVISED THROUGH 10-24-11, SHEET 3 OF 8

NOTES

1. THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARD FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

SURVEY TYPE: PROPERTY SURVEY

BOUNDARY DETERMINATION CATEGORY: PROPERTY BOUNDARY LINES DEPICTED HEREON CONTIGUOUS WITH PROPERTY BOUNDARY LINES AS DEPICTED ON THE SURVEY REFERENCE PLANS LISTED HEREON ARE A "RESURVEY". THE REMAINDER OF THE PROPERTY BOUNDARY LINES DEPICTED HEREON ARE AN "ORIGINAL SURVEY".

PURPOSE: TO COMBINE LOTS 1G AND 1H.

HORIZONTAL ACCURACY: CLASS A-2

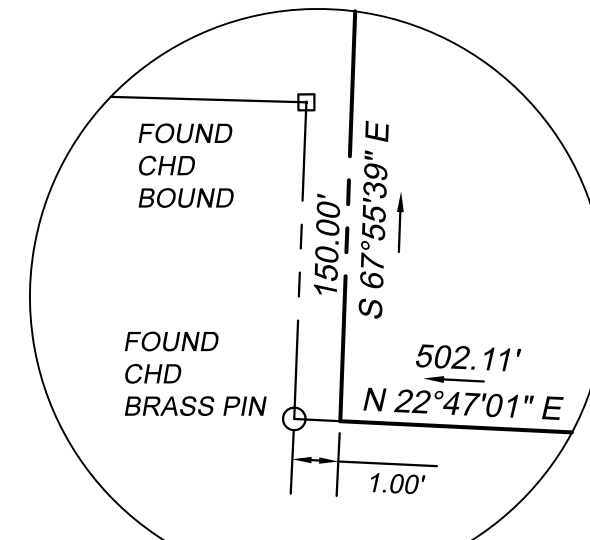
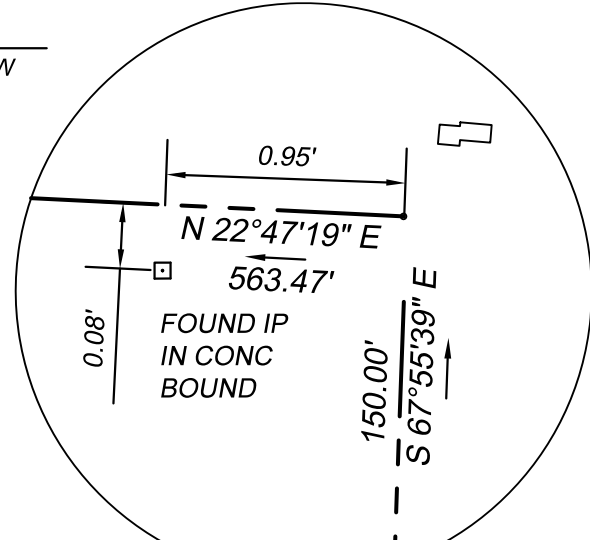
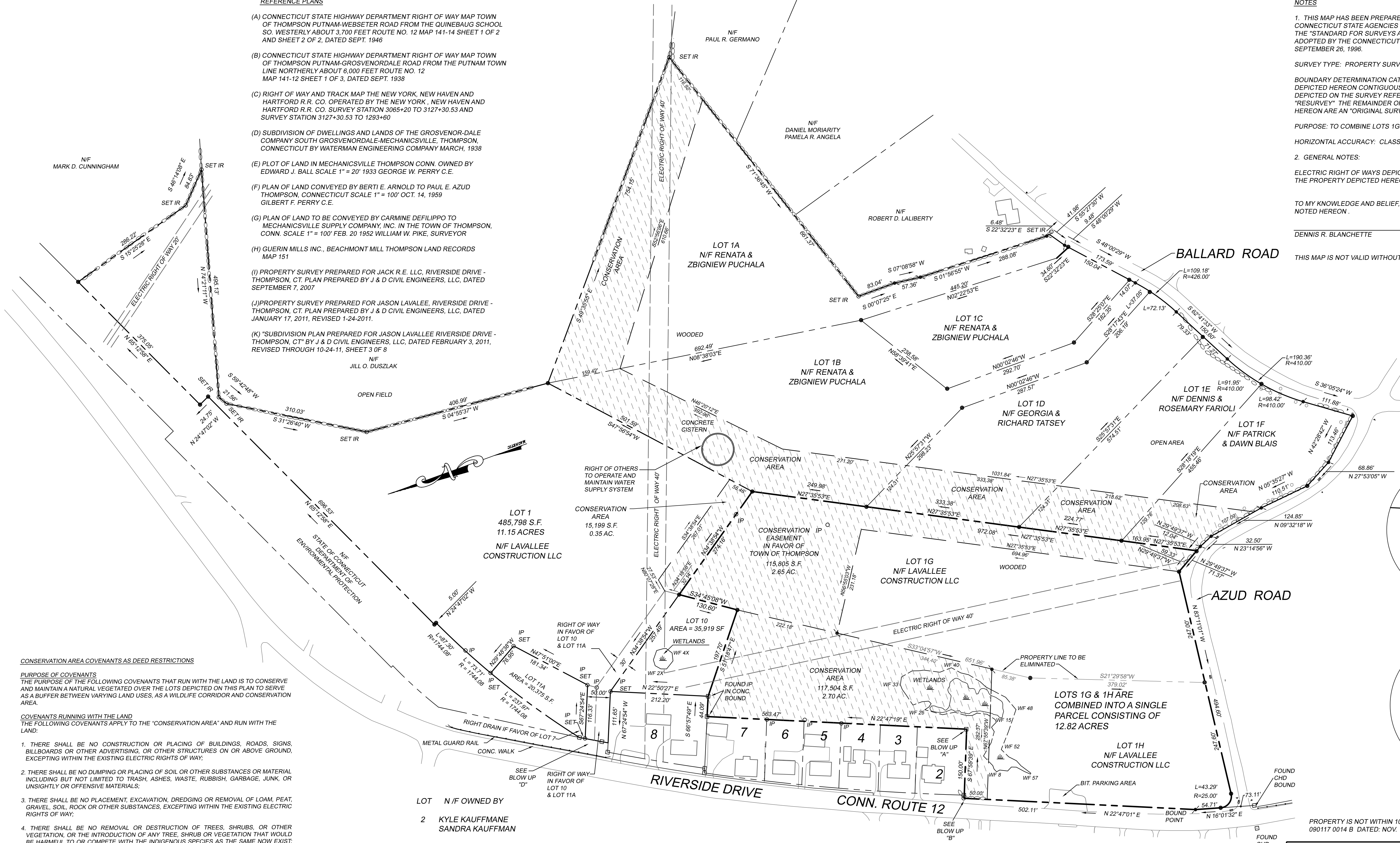
2. GENERAL NOTES:

ELECTRIC RIGHT OF WAYS DEPICTED HEREON ARE APPROXIMATE LOCATION THE PROPERTY DEPICTED HEREON IS SUBJECT TO RIGHTS OF RECORD

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

DENNIS R. BLANCHETTE DATE 12/07 LICENSE NUMBER

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE



CONSERVATION AREA COVENANTS AS DEED RESTRICTIONS

PURPOSE OF COVENANTS  
THE PURPOSE OF THE FOLLOWING COVENANTS THAT RUN WITH THE LAND IS TO CONSERVE AND MAINTAIN A NATURAL VEGETATED OVER THE LOTS DEPICTED ON THIS PLAN TO SERVE AS A BUFFER BETWEEN VARYING LAND USES, AS A WILDLIFE CORRIDOR AND CONSERVATION AREA.

COVENANTS RUNNING WITH THE LAND  
THE FOLLOWING COVENANTS APPLY TO THE "CONSERVATION AREA" AND RUN WITH THE LAND:

- THERE SHALL BE NO CONSTRUCTION OR PLACING OF BUILDINGS, ROADS, SIGNS, BILLBOARDS OR OTHER ADVERTISING, OR OTHER STRUCTURES ON OR ABOVE GROUND, EXCEPTING WITHIN THE EXISTING ELECTRIC RIGHTS OF WAY;
- THERE SHALL BE NO DUMPING OR PLACING OF SOIL OR OTHER SUBSTANCES OR MATERIAL INCLUDING BUT NOT LIMITED TO TRASH, ASHES, WASTE, RUBBISH, GARBAGE, JUNK, OR UNSIGHTLY OR OFFENSIVE MATERIALS;
- THERE SHALL BE NO PLACEMENT, EXCAVATION, DREDGING OR REMOVAL OF LOAM, PEAT, GRAVEL, SOIL, ROCK OR OTHER SUBSTANCES, EXCEPTING WITHIN THE EXISTING ELECTRIC RIGHTS OF WAY;
- THERE SHALL BE NO REMOVAL OR DESTRUCTION OF TREES, SHRUBS, OR OTHER VEGETATION, OR THE INTRODUCTION OF ANY TREE, SHRUB OR VEGETATION THAT WOULD BE HARMFUL TO OR COMPETE WITH THE INDIGENOUS SPECIES AS THE SAME NOW EXIST; DESTRUCTION OF WILDLIFE OR ITS HABITAT, THE APPLICATION OF PESTICIDES OR HERBICIDES, OR ANY ACTIVITY OR USE WHICH IS OR HAS THE POTENTIAL FOR BEING DETRIMENTAL TO DRAINAGE, FLOOD CONTROL, WATER QUALITY, EROSION CONTROL, SOIL CONSERVATION, WILDLIFE OR THE LAND AND WATER AREAS IN THEIR NATURAL CONDITION, EXCEPTING WITHIN THE EXISTING ELECTRIC RIGHTS OF WAY;

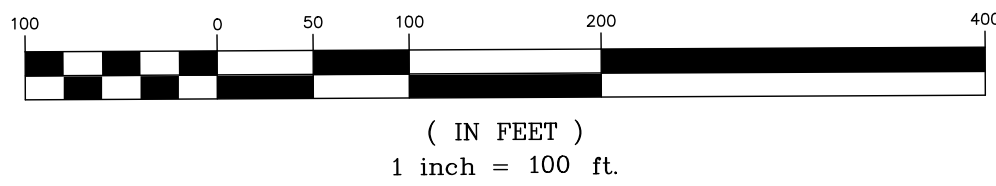
THE ONLY EXCEPTION TO COVENANT #4 WOULD BE FOR URGENT MATTERS OF SAFETY OR FOR THE NEED TO REMOVE INVASIVE SPECIES. IN THE EVENT THAT THERE IS AN URGENT SAFETY MATTER OR AN INVASIVE SPECIES PROBLEM, THE LANDOWNER SHALL DOCUMENT WITH PHOTOGRAPHS AND OTHER RELEVANT DOCUMENTATION THE CONDITIONS THAT COMPEL THE NEED TO BREACH THE PROHIBITION OF THE COVENANT.

5. THERE SHALL BE NO USE OR PLACEMENT OF ANY VEHICLE;

6. THERE SHALL BE NO REMOVAL OR DISTURBANCE OF ANY BOUNDARY MARKERS OF THE CONSERVATION AREA, PERMANENT IRON PINS OR BOUNDARY MARKERS, OR ANY OTHER FIELD IDENTIFICATIONS OF THE CONSERVATION AREA BOUNDARIES.

- LOT N/F OWNED BY
- 2 KYLE KAUFFMAN  
SANDRA KAUFFMAN
- 3 JAMES BELLAVANCE  
PAMELA BELLAVANCE
- 4 TINA REKOWSKI  
JAMES REKOWSKI
- 5 PARMi LEO
- 6 JOHN J. BONNER  
CHERYL M. BONNER
- 7 KAEVON SAFFORD
- 8 SCOTT J. WIGGLESWORTH  
KIM M. WIGGLESWORTH
- 10 TOWN  
OF  
11A THOMPSON

GRAPHIC SCALE



LEGEND

- — — — — PROPERTY LINE
- - - - - EDGE OF WETLANDS
- ○ ○ ○ ○ STONE WALL
- — — — — EASEMENT
- MONUMENT
- IRON ROD SET
- EXISTING IRON ROD
- ANGLE POINT

TOWN OF THOMPSON  
RECEIVED FOR RECORDING

TOWN CLERK DATE TIME MAP #

PROPERTY IS NOT WITHIN 100 YEAR FLOOD ZONE PER FIRM MAP 090117 0014 B DATED: NOV. 1, 1984

PROPERTY SURVEY MAP  
PREPARED FOR  
**LAVALLEE CONSTRUCTION, LLC**  
RIVERSIDE DRIVE - THOMPSON, CT

**J&D** CIVIL  
ENGINEERS, LLC  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: DRB

REVISIONS:

CHECKED: JJB

JOB NO: 22203

SCALE: 1" = 100'

DATE: JANUARY 2023

SHEET: 3





ASSESSORS LOTS 1H AND 1G  
AREA = 558,445 S.F.  
(12.82 ACRES)

LEGEND

- PROPERTY LINE
- EDGE OF WETLANDS
- EROSION CONTROL DEVICES
- TEST PIT
- STONEWALL
- UTILITIES
- TREELINE
- GUARDRAIL
- UPLAND REVIEW AREA
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- PROPOSED SEWER
- EXISTING SEWER
- EXISTING UTILITY POLE
- SIGN
- PROPOSED WATER LINE

**UTILITY & ROAD LAYOUT PLAN**  
FOR  
**HILLSIDE TOWNHOMES**  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT

**J&D** CIVIL  
ENGINEERS, LLC  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: JJB  
CHECKED: DRB

REVISIONS:

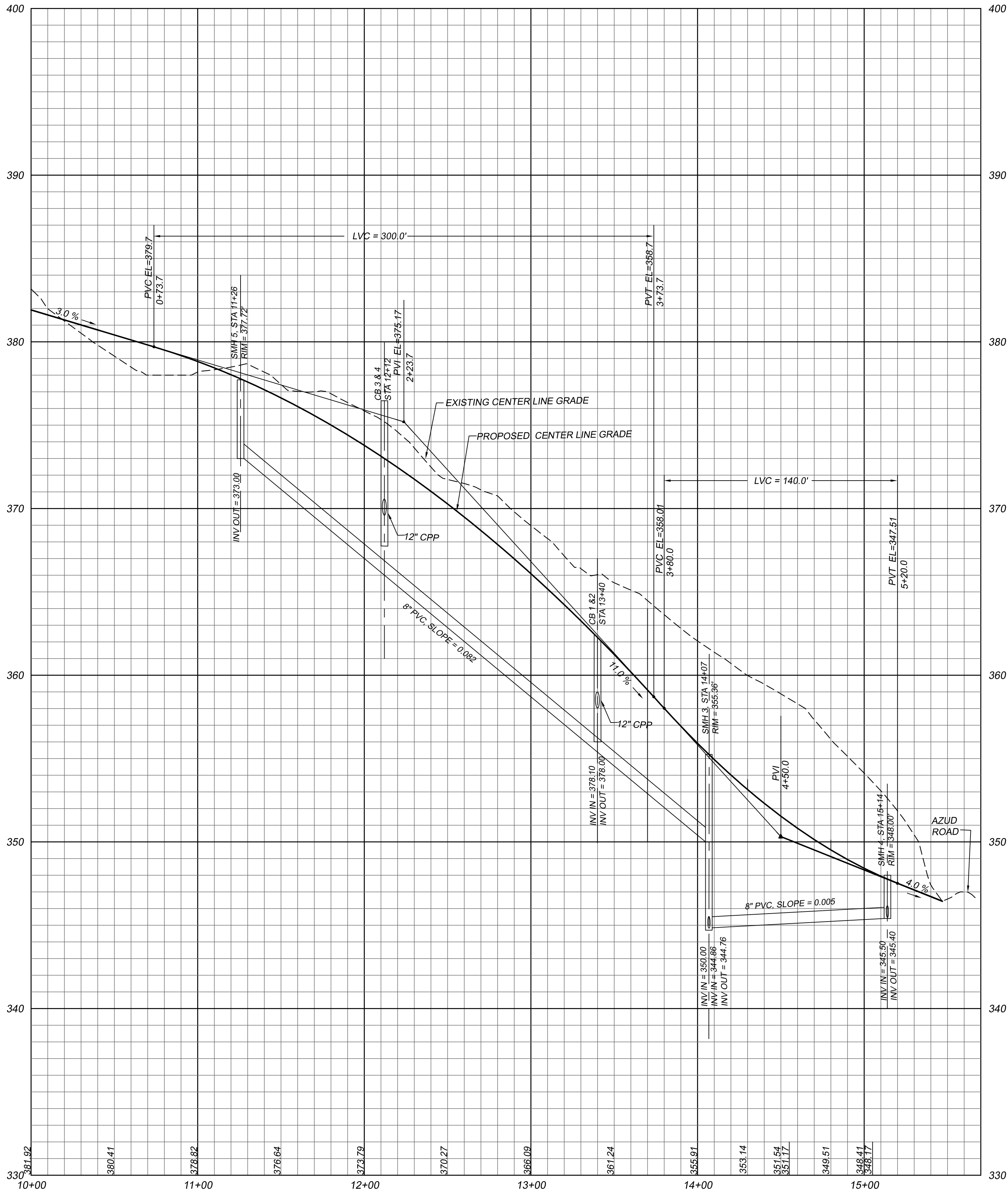
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SCALE: 1" = 40'

DATE: JANUARY 31, 2023  
SHEET: 4

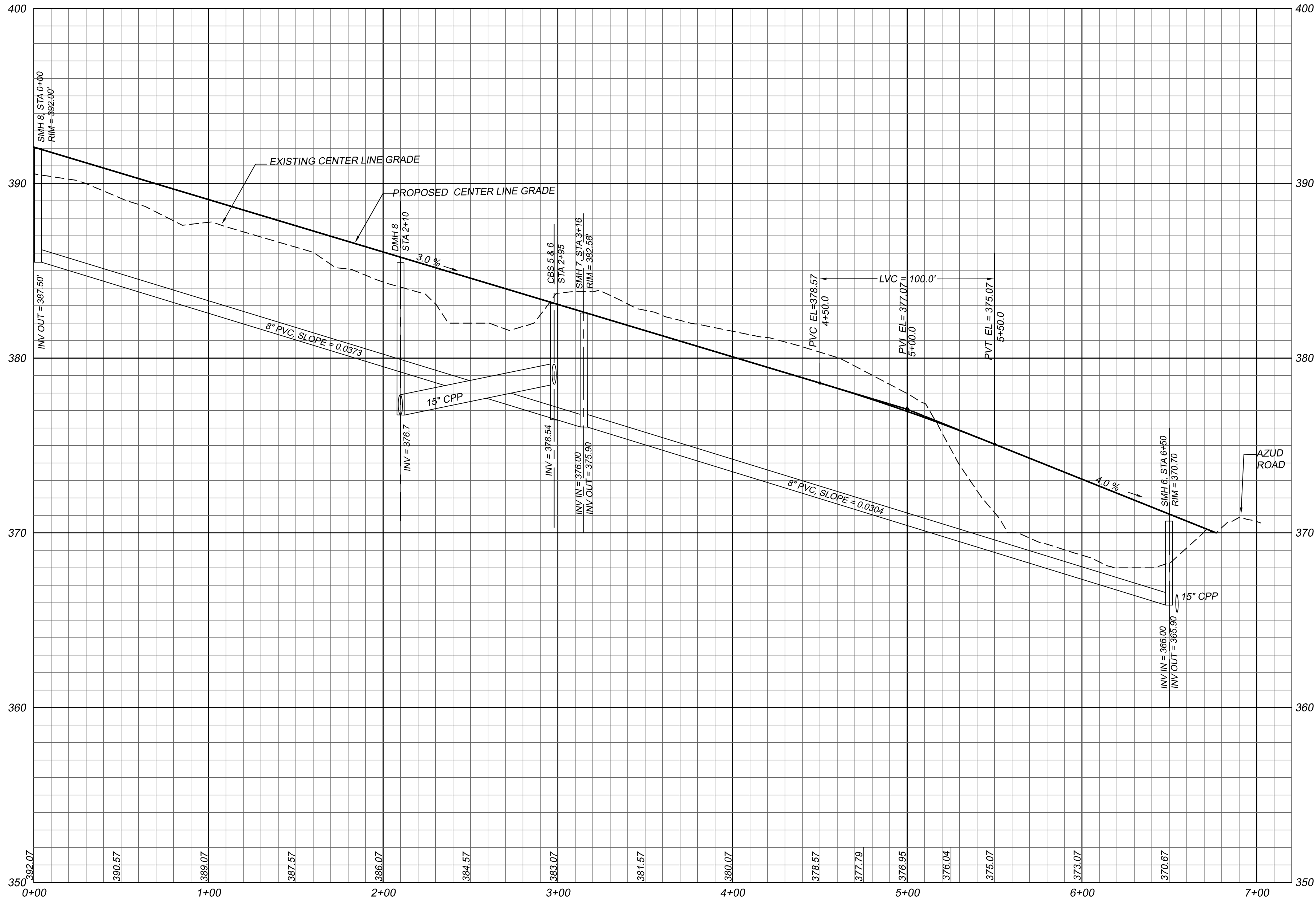
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22203 Laveale final 2023-01-31.dwg PROFILE SHIT 5 1/30/2023 15:31:53



LOWER ROAD PROFILE STA 0+00 - STA 15+00  
SEWER PROFILE STA 11+26 - STA 15+14  
1" = 40' H  
1" = 4' V



UPPER ROAD & SEWER PROFILE STA 0+00 - STA 6+60  
1" = 40' H  
1" = 4' V

DRIVEWAY PROFILES  
FOR  
HILLSIDE TOWNHOMES  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT

**J&D** CIVIL  
ENGINEERS, LLC  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: JJB  
CHECKED: DRB

REVISIONS:

JOB NO: 22203  
SCALE: 1" = 40'

DATE: JANUARY 31, 2023  
SHEET: 5





**LEGEND**

— BUILDING SETBACK LINE  
— PROPERTY LINE  
- - - EXISTING CONTOUR LINE  
- - - PROPOSED CONTOUR LINE  
- - - PROPOSED PHASE (TEMP.) CONTOUR LINE  
- - - EDGE OF WETLANDS  
- - - EROSION CONTROL DEVICES  
- - - TEST PIT  
- - - STONEWALL  
- - - UTILITIES  
- - - TREELINE  
- - - GUARDRAIL  
- - - UPLAND REVIEW AREA  
- - - EXISTING DRAINAGE  
- - - PROPOSED DRAINAGE  
- - - PROPOSED SEWER  
- - - EXISTING SEWER  
- - - EXISTING UTILITY POLE  
- - - SIGN  
- - - LIMIT OF DISTURBANCE (L.O.D.)  
- - - PROPOSED WATER LINE

SEE SHEETS 4&5 FOR  
DRAINAGE & SEWER  
ELEVATIONS AND NOTES

**PHASES 1 & 2 SITE DEVELOPMENT PLAN**  
FOR  
**HILLSIDE TOWNHOMES**  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT  
MAP 67 BLOCK 53 LOTS 1G AND 1H

**J&D** CIVIL  
ENGINEERS, LLC  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

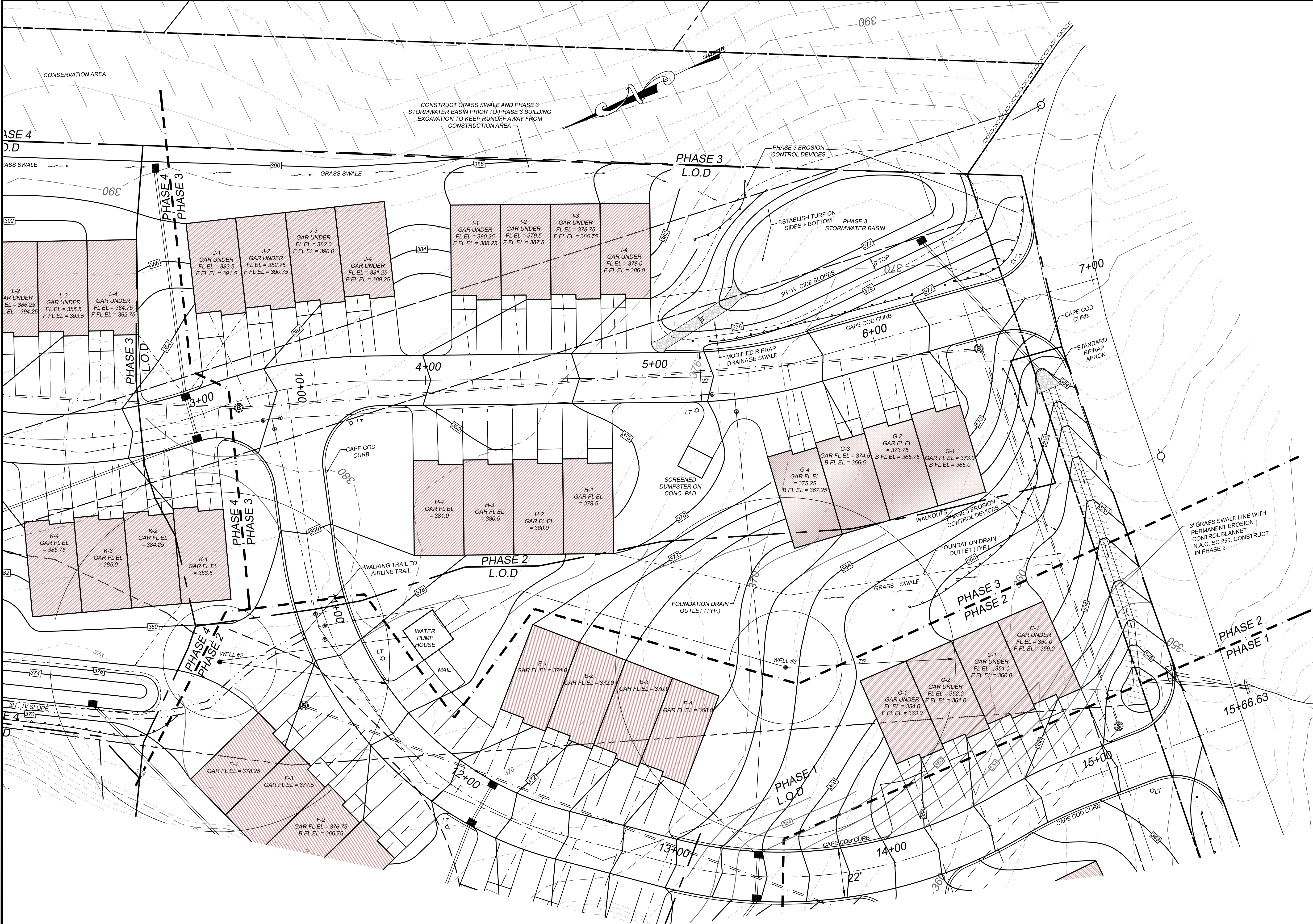
DESIGNED: JJB  
CHECKED: DRB

REVISIONS:

JOB NO: 22203  
SCALE: 1" = 40'

DATE: JANUARY 31, 2023  
SHEET: 6





SEE SHEETS 485 FOR  
DRAINAGE A& SEWER  
ELEVATIONS AND NOTES

LEGEND

- BUILDING SETBACK LINE
- PROPERTY LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- PROPOSED PHASE (TEMP.) CONTOUR LINE
- EDGE OF WETLANDS
- EROSION CONTROL DEVICES
- TEST PIT
- STONEWALL
- UTILITIES
- TREELINE
- GUARDRAIL
- UPLAND REVIEW AREA
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- PROPOSED SEWER
- EXISTING SEWER
- EXISTING UTILITY POLE
- SIGN
- LIMIT OF DISTURBANCE (L.O.D.)
- PROPOSED WATER LINE

PHASE 3 SITE DEVELOPMENT PLAN  
FOR  
HILLSIDE TOWNHOMES  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT  
MAP 67 BLOCK 53 LOTS 1G AND 1H

**J&D** CIVIL  
ENGINEERS, LLC  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: JJB CHECKED: DRB	REVISIONS:
JOB NO: 22203 SCALE: 1" = 40'	DATE: JANUARY 31, 2023 SHEET: 7



22203 Javille final 2023-01-10.dwg Phases 4 and 5 sht 8 1/16/2023 12:59:26



**PHASES 4 & 5 SITE DEVELOPMENT PLAN**  
FOR  
**HILLSIDE TOWNHOMES**  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT  
MAP 67 BLOCK 53 LOTS 1G AND 1H

**J&D** CIVIL  
ENGINEERS, LLC  
401 RAVENELLE ROAD  
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860-923-2920

DESIGNED: JJB  
CHECKED: DRB

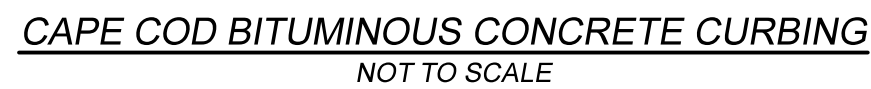
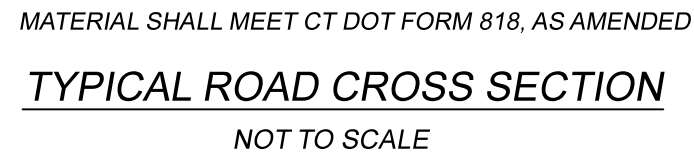
REVISIONS:

JOB NO: 22203  
SCALE: 1" = 40'

DATE: JANUARY 2023  
SHEET: 8



PIPE DIAMETER				
	6"	8"	10"	12"
	OR LESS			
W (FEET)	2.5	3	3	3
A (INCHES)	3	3	3	3
B "	6	6	6	6
C "	3	3	4	4
D "	3	3	3	3
E "	4	4	4	4
F "	4	4	4	4


$$\begin{aligned} 1'' &= 40' H \\ 1'' &= 4' V \end{aligned}$$


THE CONTRACTOR SHALL PROTECT BENCHMARKS, PROPERTY CORNERS AND SURVEY MONUMENTS FROM DAMAGE OR DISPLACEMENT. ANY SUCH ITEMS WHICH NEED TO BE REPLACED SHALL BE AT THE CONTRACTOR'S EXPENSE.

**SHEET: 9**



PHASING NARRATIVE :

LAVALLEE CONSTRUCTION INTENDS TO BUILD THE PROJECT OVER A MULTI-YEAR PERIOD. WORK WILL GENERALLY PROCEED FROM THE SOUTHWEST (LOWEST GROUND) TO THE NORTHEAST (HIGHEST GROUND). THE FOLLOWING IS THE WORK WHICH SHALL BE COMPLETED IN EACH PHASE PRIOR TO INITIATING BUILDING CONSTRUCTION ON SUBSEQUENT PHASES.

PHASE 1: 8 UNITS, BUILDINGS: A AND B  
DRIVEWAY: LOWER ROAD STATION 13+50 TO 15+50 (INTERSECTION WITH AZUD ROAD)  
SEWER: 436" SEWER FROM RIVERSIDE DRIVE INCLUDING SMH 1, SMH 2, SMH 3, SMH 4  
WATER: WELL 1 - PRIVATE, SERVES 8 TWO BEDROOM UNITS X (3) = 24 PEOPLE  
DRAINAGE: REPLACE CULVERT UNDER AZUD ROAD, CONSTRUCT PHASE 1 STORMWATER BASIN PRIOR TO ANY PAVING OR CO'S BEING ISSUED.

PHASE 2: 16 UNITS, BUILDINGS: C, D, E, AND F  
DRIVEWAY: LOWER ROAD STATION 10+50 TO 13+50  
SEWER: 260" SEWER INCLUDING SMH 5  
WATER: WELL 2 - ESTABLISH PUBLIC WATER SUPPLY - COORDINATE WITH CT DPH  
DRAINAGE: CONSTRUCT PHASE 2 STORMWATER BASIN PRIOR TO ANY PAVING OR CO'S BEING ISSUED. INSTALL CB 1, CB 2, CB 3, AND CB 4, CONSTRUCT GRASS SWALE ADJACENT TO AZUD ROAD PRIOR TO BUILDING EXCAVATION

PHASE 3: 16 UNITS, BUILDINGS: G, H, I, AND J  
DRIVEWAY: UPPER ROAD STATION 3+00 TO 6+80 (INTERSECTION WITH AZUD ROAD) AND 10+00 - 10+50  
SEWER: 516" SEWER INCLUDING SMH 6 AND SMH 7  
WATER: COORDINATE WITH CT DPH FOR WELL 3 AND/OR WATER PUMP HOUSE IF NECESSARY  
DRAINAGE: CONSTRUCT GRASS SWALE ON THE EAST SIDE OF THE PROJECT AND PHASE 3 STORMWATER BASIN PRIOR TO BUILDING EXCAVATION.

PHASE 4: 12 UNITS, BUILDINGS: K, L, AND M  
DRIVEWAY: UPPER ROAD STATION 1+00 TO 3+00 (INTERSECTION WITH AZUD ROAD)  
SEWER: 306" SEWER INCLUDING SMH 8  
WATER: EXTEND PUBLIC WATER TO UNITS  
DRAINAGE: CB 5, CB 6, CB 7, DMH 8, CONSTRUCT PHASE 4 STORMWATER BASIN PRIOR TO ANY PAVING OR CO'S BEING ISSUED.

PHASE 5: BUILDINGS: N, O, AND P  
DRIVEWAY: STATION 0+00 TO 6+80 (INTERSECTION WITH AZUD ROAD) AND 10+00 - 10+50  
SEWER: INSTALL SEWER LATERALS TO MAIN  
WATER: EXTEND PUBLIC WATER TO UNITS  
DRAINAGE: NONE

SEQUENCE OF CONSTRUCTION :

SEE PHASING NARRATIVE FOR FEATURES TO BE CONSTRUCTED IN EACH PHASE. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH PHASE SHALL BE COMPLETED AND IMMEDIATELY STABILIZED BEFORE BUILDING CONSTRUCTION FOR ANY FOLLOWING PHASE IS INITIATED. CLEARING, GRUBBING AND TOPSOIL STRIPPING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

- EXCAVATING CONTRACTOR SHALL NOTIFY CALL BEFORE YOU DIG AS REQUIRED, AND IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL BURIED UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
- FIELD STAKE THE BUILDINGS, DRIVEWAYS AND UTILITY STRUCTURES. THROUGHOUT THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL PROTECT DOWNSTREAM WETLANDS FROM SEDIMENTATION.
- INSTALL COMPOST FILTER SOCK ALONG THE DOWNSLOPE SIDE OF CONSTRUCTION ACTIVITIES AS SHOWN ON THE DRAWINGS.
- STRIP TOPSOIL FROM SITE. STOCKPILE SIDE SLOPES MUST BE 2:1 OR FLATTER. INSTALL FILTER SOCK BELOW TOPSOIL AND EXCESS MATERIAL STOCKPILES.
- UPON COMPLETION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION. EROSION AND SEDIMENT CONTROL BMPs SHALL BE IMPLEMENTED AND MAINTAINED UNTIL THE PERMANENT STABILIZATION IS COMPLETED. FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY TO BE CONSIDERED PERMANENTLY STABILIZED, THE DISTURBED AREAS SHALL BE COVERED WITH ONE OF THE FOLLOWING: (1) A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION, (2) AN ACCEPTABLE BMP WHICH PERMANENTLY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION.
- IN THE EVENT THAT CONSTRUCTION OF ANY STRUCTURES IS DELAYED, EITHER DO NOT BEGIN EARTHWORK IN THE AREA OF FEATURES THAT WILL NOT BE CONSTRUCTED IMMEDIATELY, OR COMPLETE EARTHWORK, THEN PROVIDE STABILIZATION OF BUILDING PADS AND ALL ASSOCIATED DISTURBED AREAS WITH CLEAN STONE OR VEGETATION AS INDICATED IN THE PLAN.
- FINE GRADE AND RESPREAD TOPSOIL ALL AREAS AND IMMEDIATELY PERMANENTLY SEED AND MULCH ALL DISTURBED AREAS. PROVIDE EROSION CONTROL BLANKET IN AREAS SHOWN AND AREAS STEEPER THAN 3:1 SLOPE.
- AFTER PERMANENT STABILIZATION OF SITE (I.E. A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION) HAS BEEN ACHIEVED, THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING THE REMOVAL OF THE CONTROLS SHALL BE REESTABLISHED. PERMANENT STORMWATER FEATURES SHOULD BE CLEANOUT OUT AS NEEDED UPON FINAL STABILIZATION OF THE SITE.

GENERAL SEEDING NOTES

- TEMPORARY SEEDING NOTES - SITE PREPARATION: APPLY 1-2 TON /ACRE AGRICULTURAL GRADE LIMESTONE AND 10-10-10 FERTILIZER AT A RATE OF 300 LBS./ACRE AND WORK IN WHERE POSSIBLE. REFER TO FIGURE TS-2 IN THE 2002 CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL FOR APPROPRIATE SEEDING MIXES AND RATES. MULCH SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- PERMANENT SEEDING NOTES - SITE PREPARATION: GRADE AS NECESSARY TO BRING THE SUBGRADE TO A TRUE, SMOOTH SLOPE PARALLEL TO AND SIX INCHES BELOW FINISHED GRADE. PLACE TOPSOIL OVER SPECIFIED AREAS TO A DEPTH SUFFICIENTLY GREATER THAN SIX INCHES SO THAT AFTER SETTLEMENT AND LIGHT ROLLING THE COMPLETE WORK WILL CONFORM TO LINES, GRADES AND ELEVATIONS SHOWN.
- APPLY 4 TONS/ACRE AGRICULTURAL GRADE LIMESTONE AND 10-10-10 FERTILIZER AT A RATE OF 300 LBS/AC OR AS PER SOIL TEST. LIMESTONE AND FERTILIZER MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS.
- FERTILIZER AND AGRICULTURAL LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE SOIL BY ROTOTILLING OR OTHER METHOD TO A MINIMUM DEPTH OF FOUR INCHES. THE ENTIRE SURFACE SHALL BE DONE IN TWO SEPARATE OPERATIONS. THE SECOND SEEDING SHALL BE DONE IMMEDIATELY AFTER THE FIRST AND AT RIGHT ANGLES TO THE FIRST SEEDING AND LIGHTLY RAKED INTO THE SOIL. MULCH SEEDED AREAS IMMEDIATELY AFTER SEEDING.

AREA TO BE SEEDED	MIXTURE NUMBER	SPECIES	SEEDING RATES (LB/AC) PURE LIVE SEED
SLOPES, BANKS CHANNELS AND DIVERSIONS	2	CREEPING RED FESCUE	20
		REDTOP	2
		TALL FESCUE OR SMOOTH BROMEGRASS	20
LAWN AND HIGH MAINTENANCE AREAS	1	KENTUCKY BLUEGRASS	20
		CREEPING RED FESCUE	20
		PERENNIAL RYEGRASS	5

SEED MIXTURE NUMBERS REFER TO TO FIGURE PS-3, 2002 CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO MANUAL FOR POTENTIAL ALTERNATIVE MIXTURES.

PURE LIVE SEED (PLS) IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100.

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT A MULTI-FAMILY DEVELOPMENT. SITE WORK WILL INCLUDE CONSTRUCTION OF BUILDINGS, ACCESS DRIVES, PARKING AREAS, AND NECESSARY UTILITIES.

ATTENTION SHALL BE GIVEN TO THE INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES. NO ERODED SEDIMENTS SHALL BE PERMITTED TO FLOW OFF THE SITE. IF FIELD CONDITIONS WARRANT IT OR THE TOWN REQUESTS IT, ADDITIONAL E & S CONTROL MEASURES, BEYOND WHAT IS SHOWN ON THE PLAN, SHALL BE INSTALLED.

SEDIMENT AND EROSION CONTROL DEVICES WILL BE INSTALLED AS DETAILED ON THIS SHEET AND CHECKED REGULARLY FOR REPLACEMENT AND AFTER EVERY RAIN FOR REMOVAL OF DEPOSITED MATERIALS. RESPONSIBILITY FOR COMPLIANCE WITH THIS PLAN SHALL BELONG TO THE CONTRACTOR. THE CONTRACTOR SHALL BE THE DESIGNATED ON-SITE AGENT RESPONSIBLE FOR ENSURING TO THE TOWN THAT E & S CONTROL MEASURES ARE STRICTLY ENFORCED.

SEEDING DATES FOR PERMANENT VEGETATION ARE APRIL 1 - JUNE 15 AND AUGUST 15 - SEPTEMBER 15. SEEDING DATES FOR TEMPORARY VEGETATION ARE MARCH 1 - OCTOBER 15. OUTSIDE OF THESE DATES TEMPORARY MULCH CONSISTING OF STRAW OR HAY APPLIED AT THE RATE OF 95 LB/1000 SQUARE FEET SHALL BE USED. HYDROSEEDING WILL BE PERMITTED WHERE SLOPES ARE NO STEEPER THAN 2 TO 1 AND SEEDING RATES WILL BE INCREASED BY 10%.

OPERATIONS AND MAINTENANCE

- ALL PROPOSED WORK SHALL CONFORM TO "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL OF SOIL AND WATER CONSERVATION AND TOWN REGULATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE GOALS OF THIS EROSION CONTROL PLAN ARE MET BY WHATEVER MEANS ARE NECESSARY. THE CONTRACTOR SHALL PLAN ALL LAND DISTURBING ACTIVITIES IN A MANNER AS TO MINIMIZE THE EXTENT OF DISTURBED AREAS.
- PRIOR TO CONSTRUCTION OR EXCAVATION, SEDIMENT BARRIERS SHALL BE INSTALLED IN LOCATIONS AS SHOWN ON THE PLAN OR AS REQUIRED BY THE TOWN AND MAINTAINED THROUGHOUT CONSTRUCTION.
- UPON FINAL GRADING, DISTURBED AREAS SHALL COVERED WITH A MINIMUM OF 6" LOAM AND SEEDED WITH PERENNIAL GRASSES AS SPECIFIED FOR THE PROJECT. IMMEDIATELY AFTER SEEDING, MULCH THE SEEDED AREA, NOT COVERED WITH EROSION CONTROL BLANKET, WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE. SEEDING DATES ARE TO BE BETWEEN APRIL 1 THRU JUNE 15 AND AUGUST 15 THRU OCTOBER 15.
- DAILY INSPECTIONS SHALL BE MADE OF EROSION AND SEDIMENT CONTROL MEASURES TO INSURE EFFECTIVENESS AND IMMEDIATE CORRECTIVE ACTION SHALL BE TAKEN IF FAILURE OCCURS. ADDITIONAL EROSION CONTROL MEASURES BEYOND WHAT IS SHOWN ON THE PLAN MAY BE NECESSARY.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN STABILIZED AND VEGETATIVE COVER HAS BEEN ESTABLISHED, AT WHICH TIME THEY SHALL BE REMOVED.
- SITE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF THIS EROSION AND SEDIMENT CONTROL PLAN.

MINIMIZE DISTURBED AREAS

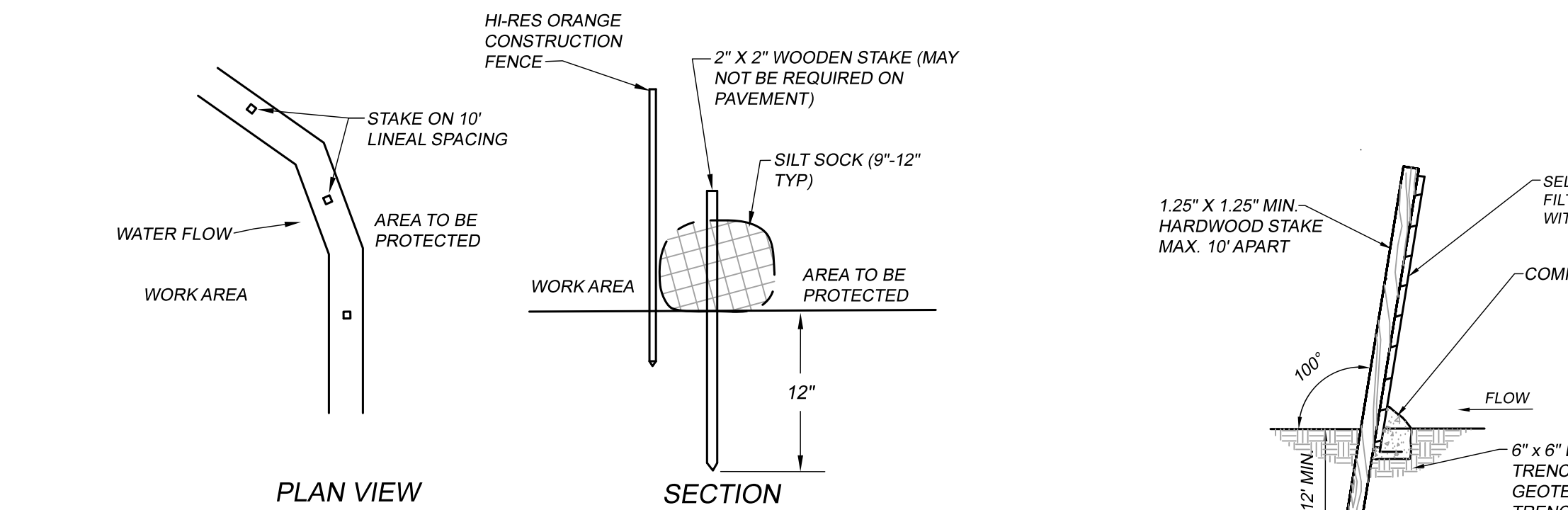
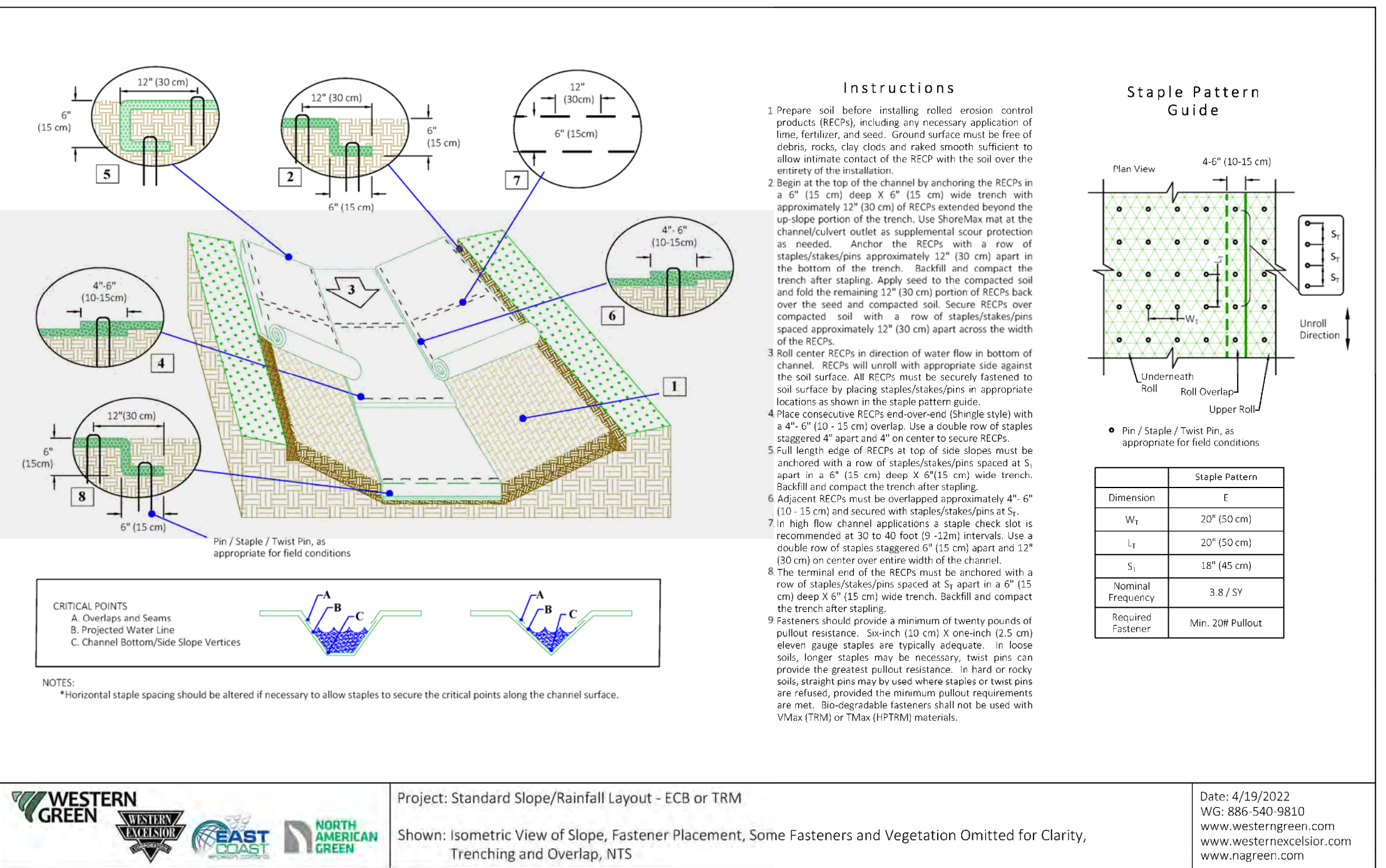
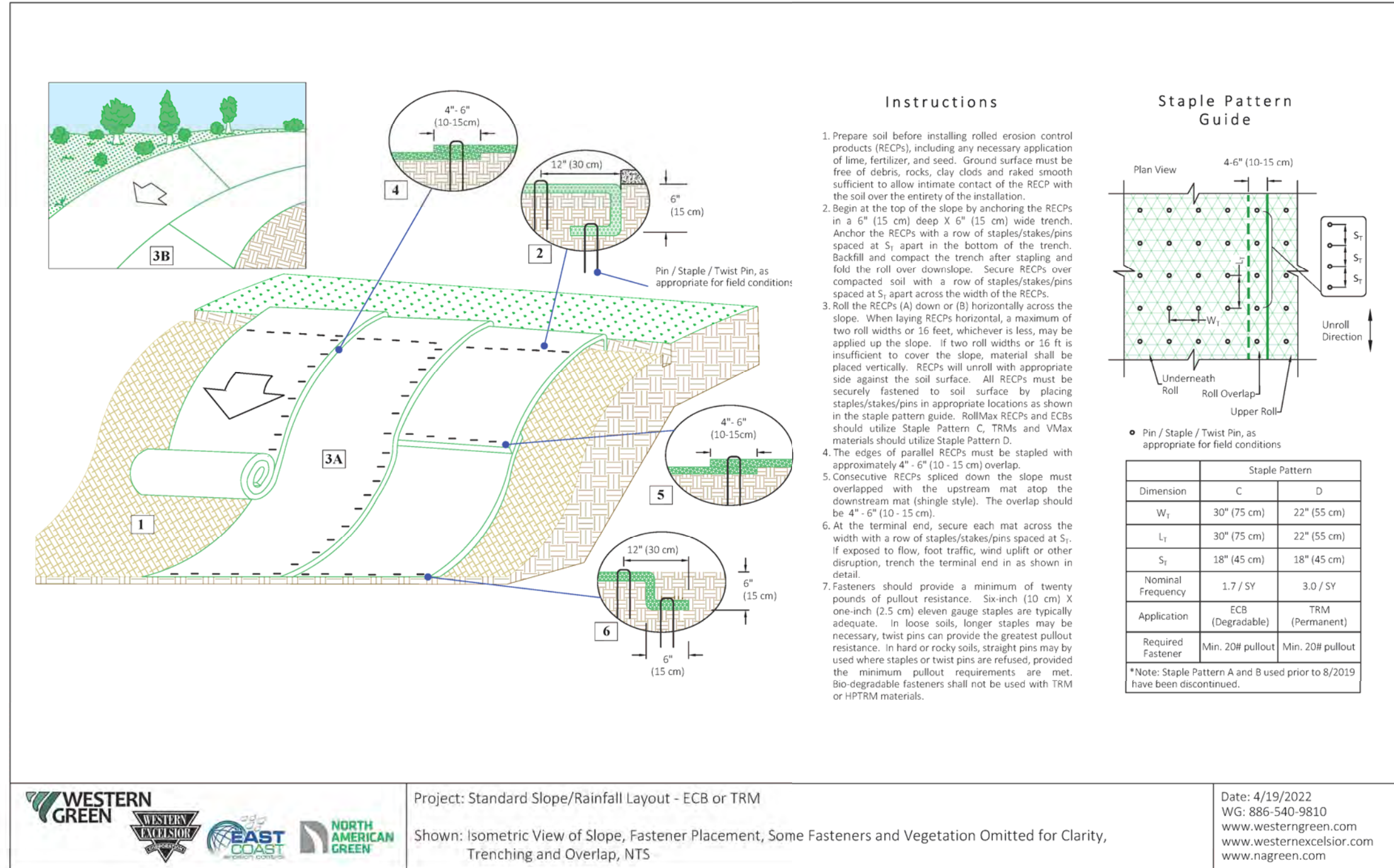
- KEEP LAND DISTURBANCE TO A MINIMUM - THE MORE LAND THAT IS IN VEGETATIVE COVER, THE MORE SURFACE WATER WILL INFILTRATE INTO THE SOIL, THUS MINIMIZING STORMWATER RUNOFF AND POTENTIAL EROSION. KEEPING LAND DISTURBANCE TO A MINIMUM NOT ONLY INVOLVES MINIMIZING THE EXTENT OF EXPOSURE AT AN ONE TIME, BUT ALSO THE DURATION OF EXPOSURE.
- PHASE CONSTRUCTION SO THAT AREAS WHICH ARE ACTIVELY BEING DEVELOPED AT ANY ONE TIME ARE MINIMIZED AND ONLY THAT AREA UNDER CONSTRUCTION IS EXPOSED. CLEAR ONLY THOSE AREAS ESSENTIAL FOR CONSTRUCTION.
- SEQUENCE THE CONSTRUCTION OF STORM DRAINAGE SYSTEMS SO THAT THEY ARE OPERATIONAL AS SOON AS POSSIBLE DURING CONSTRUCTION. ENSURE ALL OUTLETS ARE STABLE BEFORE OUTLETTING STORM DRAINAGE FLOW INTO THEM.
- SCHEDULE CONSTRUCTION SO THAT FINAL GRADING AND STABILIZATION IS COMPLETED AS SOON AS POSSIBLE.

MANAGING RUNOFF

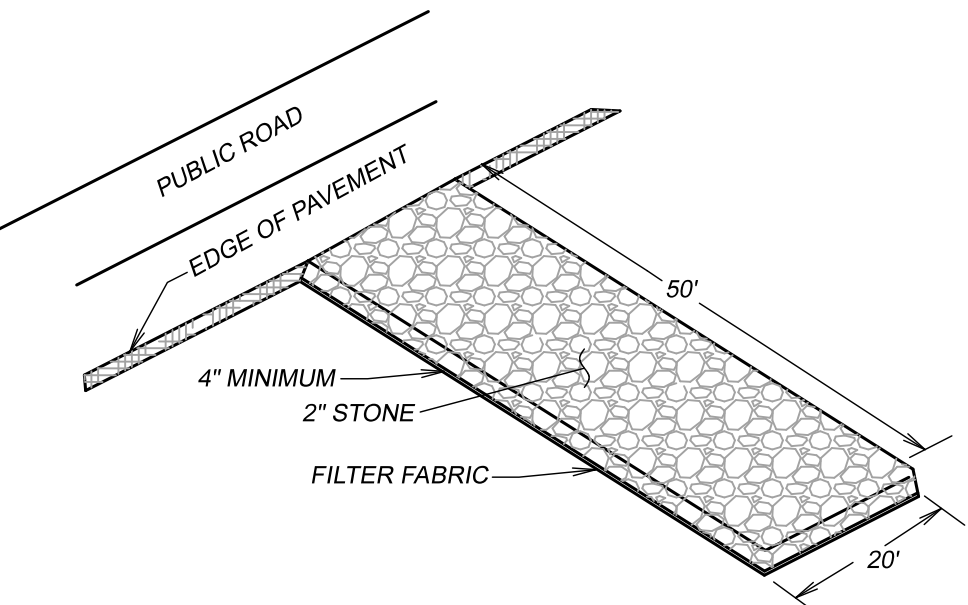
- USE DIVERSIONS, STONE DIKES, SILT FENCES AND SIMILAR MEASURES TO BREAK FLOW LINES AND DISSIPATE STORM WATER ENERGY.
- AVOID DIVERTING ONE DRAINAGE SYSTEM INTO ANOTHER WITHOUT CALCULATING THE POTENTIAL FOR DOWNSTREAM FLOODING OR EROSION.
- CLEAN RUNOFF SHOULD BE KEPT SEPARATED FROM SEDIMENT LADEN WATER AND SHOULD NOT BE DIRECTED OVER DISTURBED AREAS WITHOUT ADDITIONAL CONTROLS. ADDITIONALLY, PREVENT THE MIXING OF CLEAN OFF-SITE GENERATED RUNOFF WITH SEDIMENT LADEN RUNOFF GENERATED ON-SITE UNTIL AFTER ADEQUATE INFILTRATION OF ON-SITE WATERS HAS OCCURRED.

INTERNAL EROSION CONTROLS

- DO NOT RELY EXCLUSIVELY ON PERIMETER EROSION CONTROL DEVICES.
- CONTROL EROSION AND SEDIMENTATION BY INSTALLING INTERNAL EROSION CONTROL IN THE SMALLEST DRAINAGE AREA POSSIBLE.
- DIRECT RUNOFF FROM SMALL DISTURBED AREAS TO ADJOINING UNDISTURBED VEGETATED AREAS.
- CONCENTRATED RUNOFF SHOULD BE CONVEYED TO SEDIMENT TRAPS OR BASINS AND STABLE OUTLETS USING RIP RAPPED CHANNELS, STORM DRAINS OR SIMILAR MEASURES.



SILT FENCE INSTALLATION  
NOT TO SCALE



NOTES

- SILT SOCK MANUFACTURER SHALL BE SILT SOXX OR ENGINEER APPROVED EQUAL
- ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS
- SEDIMENT SILT SOCK TO BE FILLED WITH LEAF COMPOST AND/OR WOODY MULCH PER MANUFACTURER'S REQUIREMENTS.
- FOLLOWING CONSTRUCTION AND SITE STABILIZATION, COMPOST MATERIAL SHALL BE REMOVED OR DISPERSED ON SITE, AS APPROVED BY THE ENGINEER.

SILT SOCK DETAIL  
NOT TO SCALE

CONSTRUCTION DETAILS  
EROSION AND SEDIMENT CONTROL  
FOR  
HILLSIDE TOWNHOMES  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT

**J&D** CIVIL  
ENGINEERS, LLC  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: JJB  
CHECKED: DRB

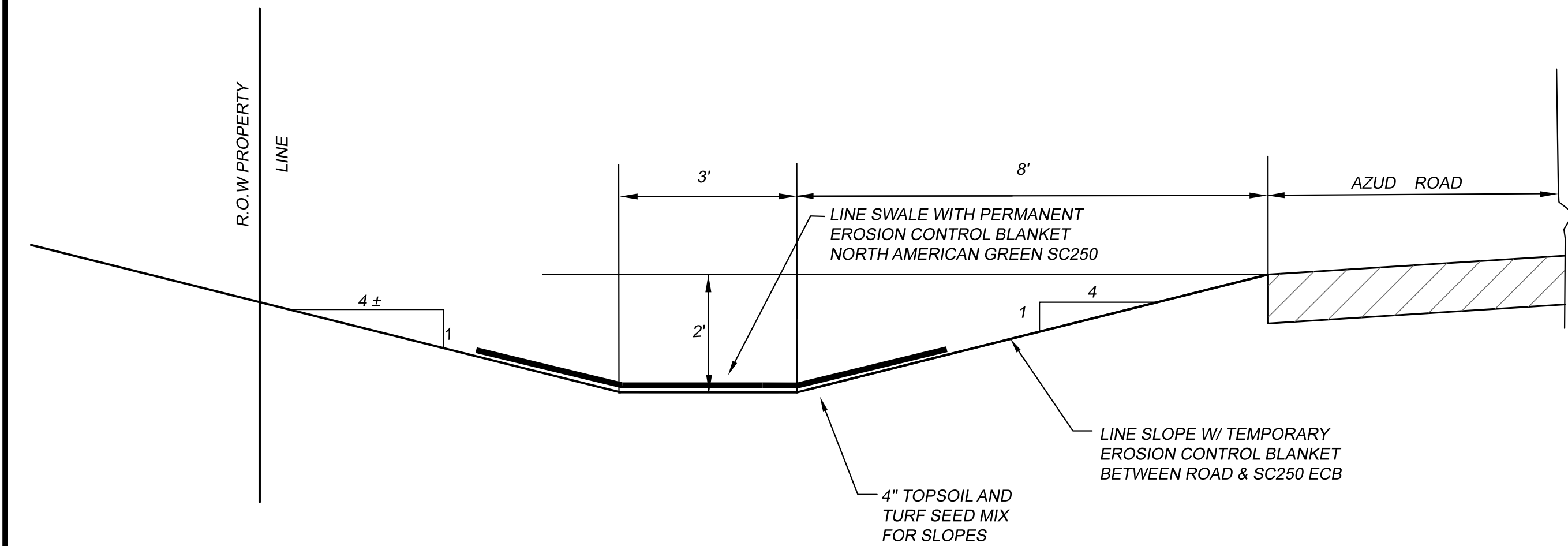
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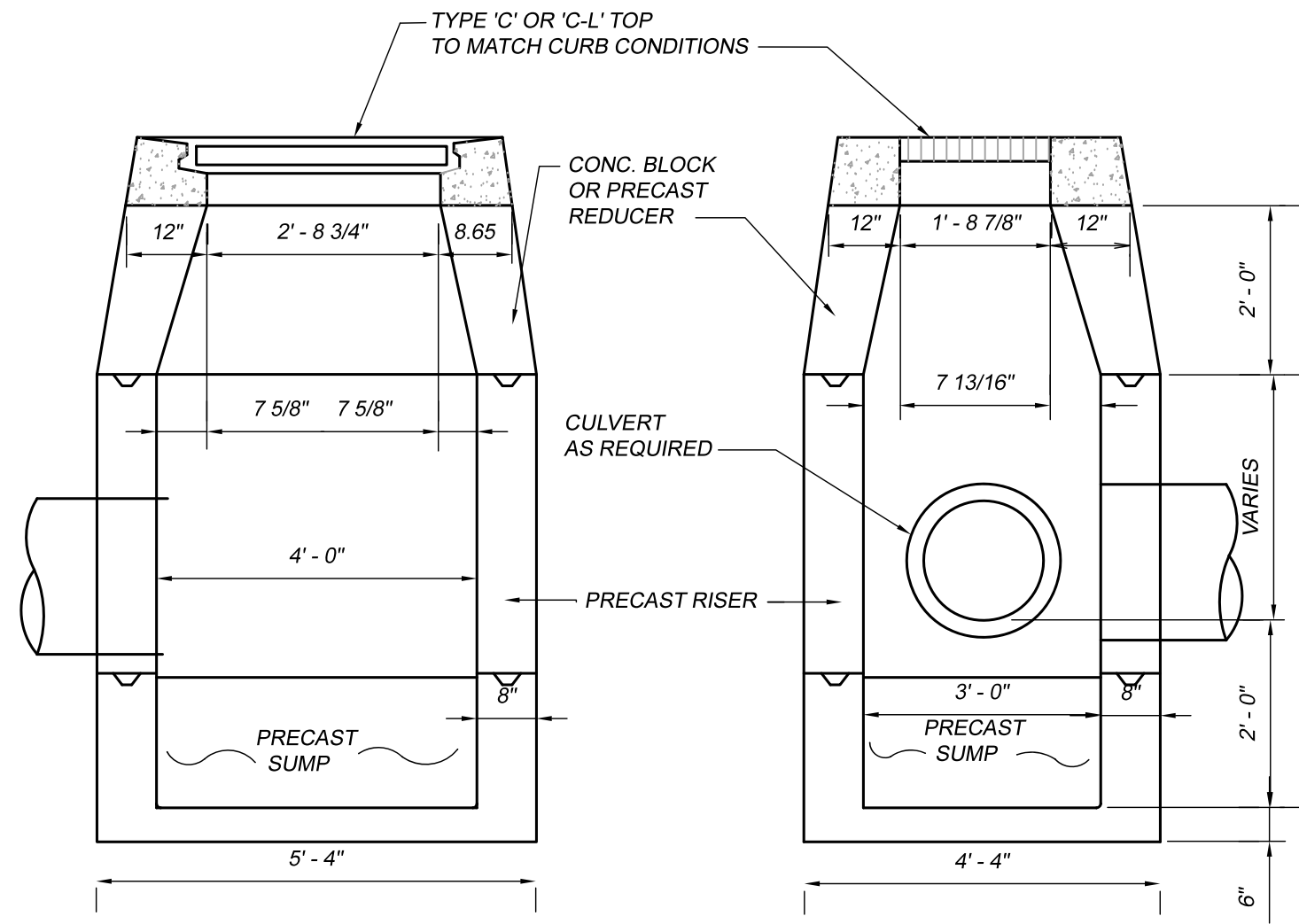
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SHEET: 10



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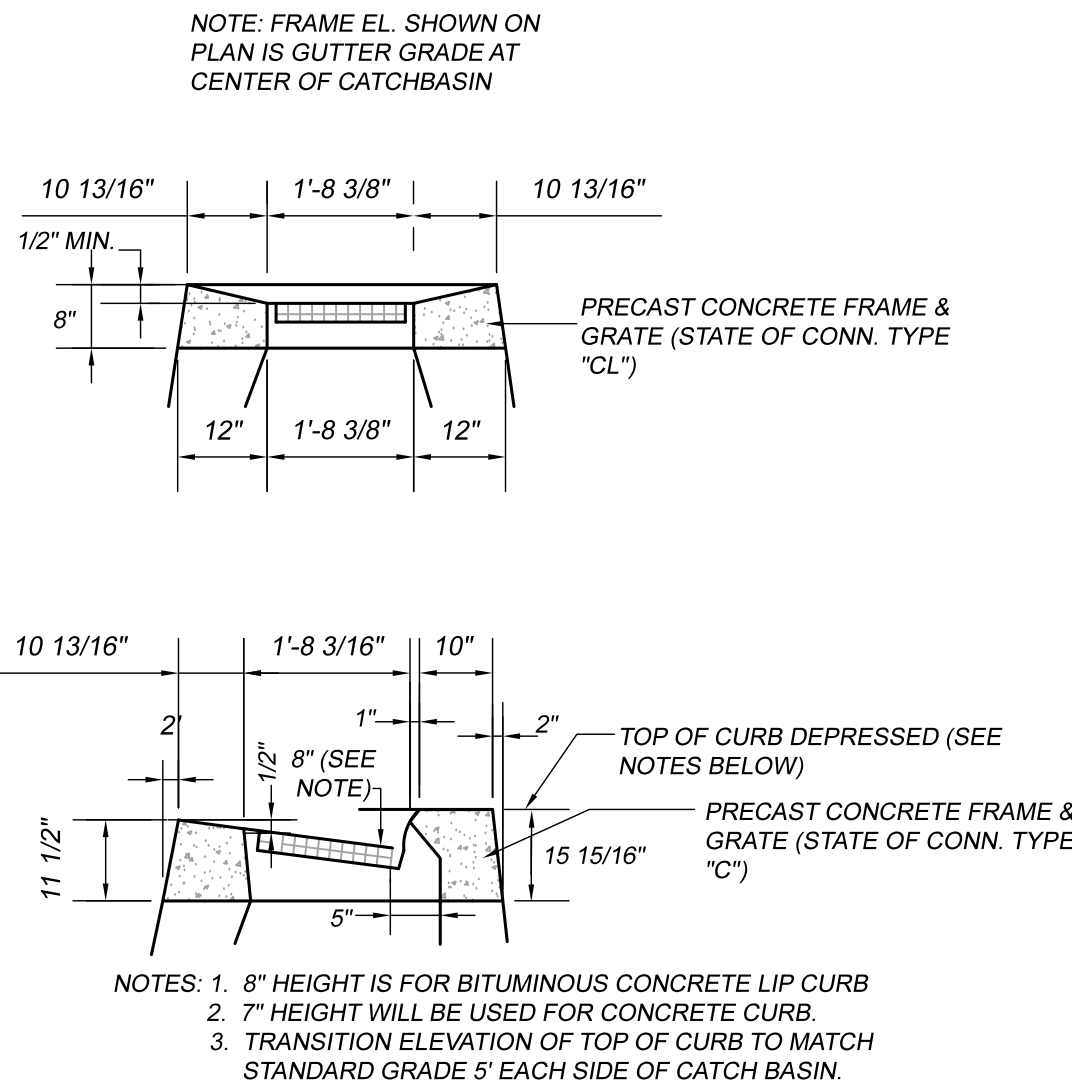


**AZUD ROAD DRAINAGE SWALE SECTION**  
1" = 2'

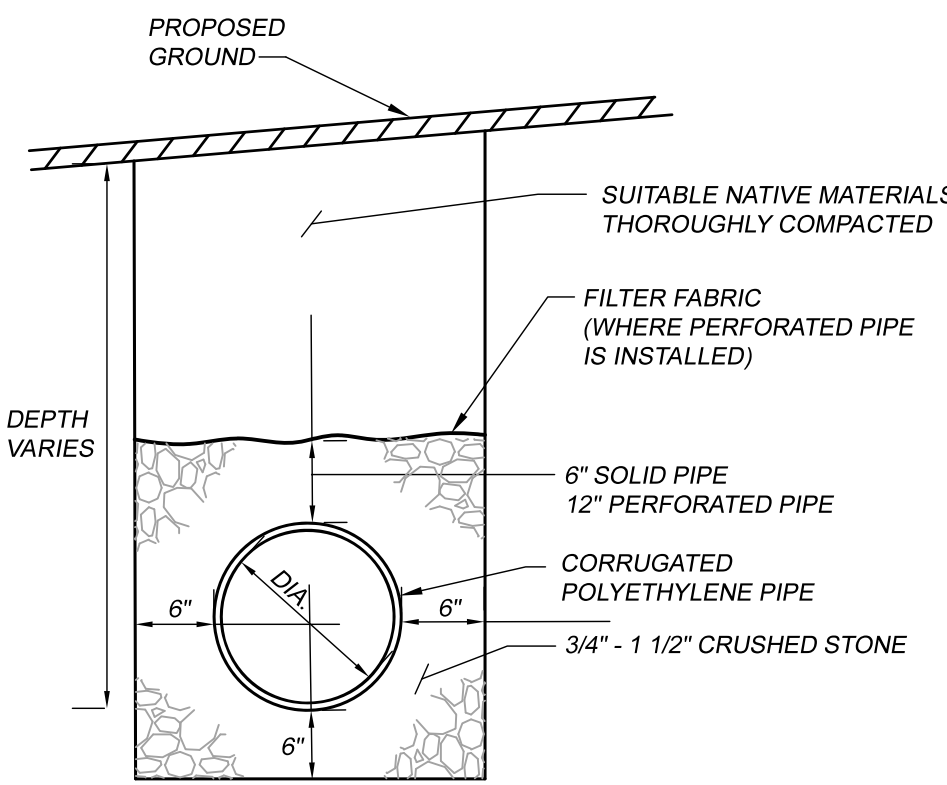


NOTE: CATCHBASIN TO BE FITTED WITH "SNOUT" HOOD WHERE INDICATED ON PLANS. HOODED BASINS SHALL HAVE 4' SUMPS.

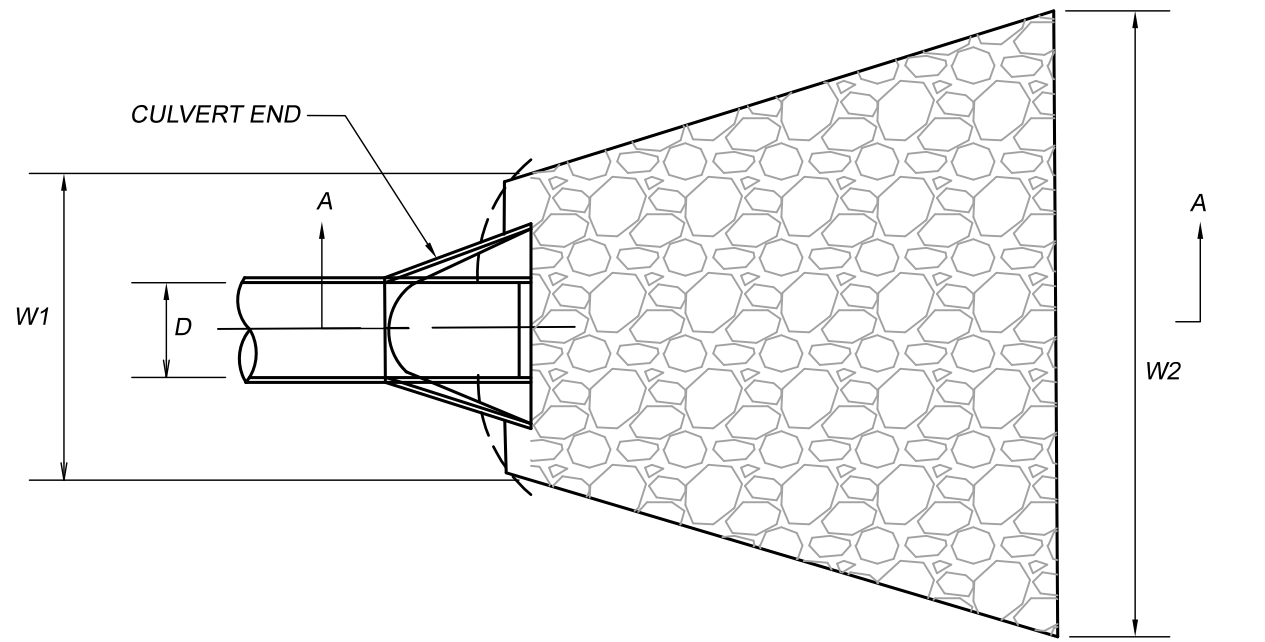
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NOT TO SCALE



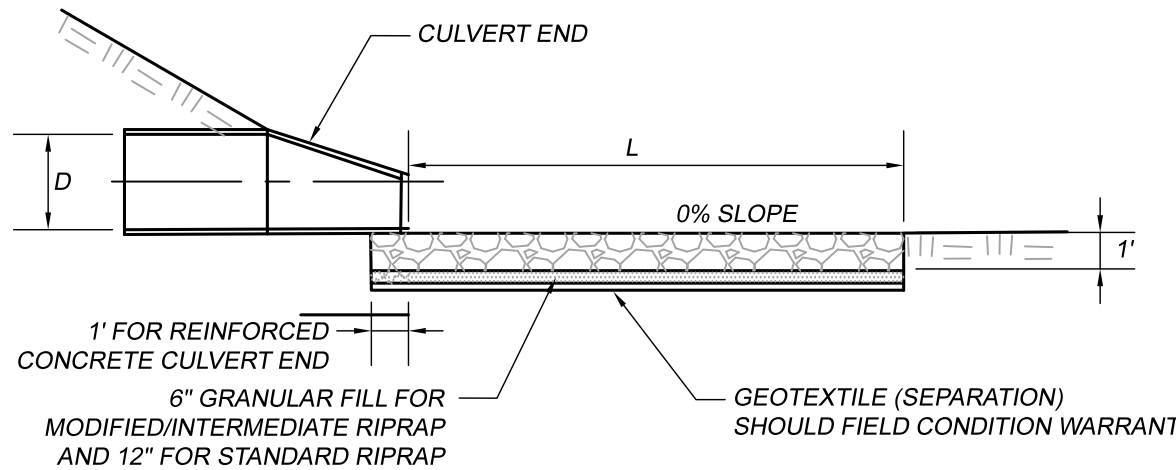
**FRAME AND GRATE FOR TYPE "C" OR "CL" CATCH BASIN**  
NOT TO SCALE



**CPP DRAINAGE PIPE INSTALLATION DETAIL**  
NOT TO SCALE



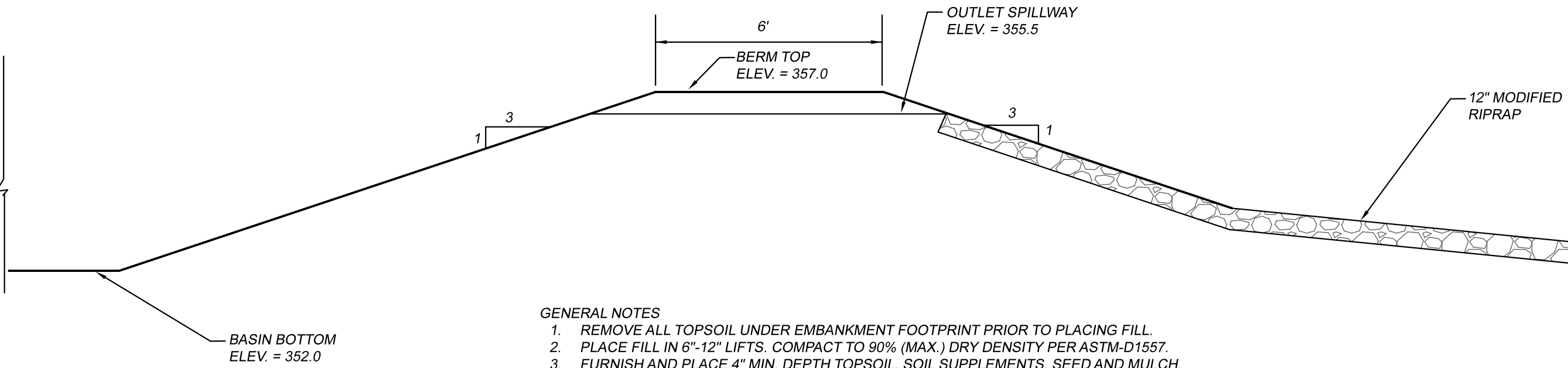
**PLAN VIEW**



**SECTION A-A**

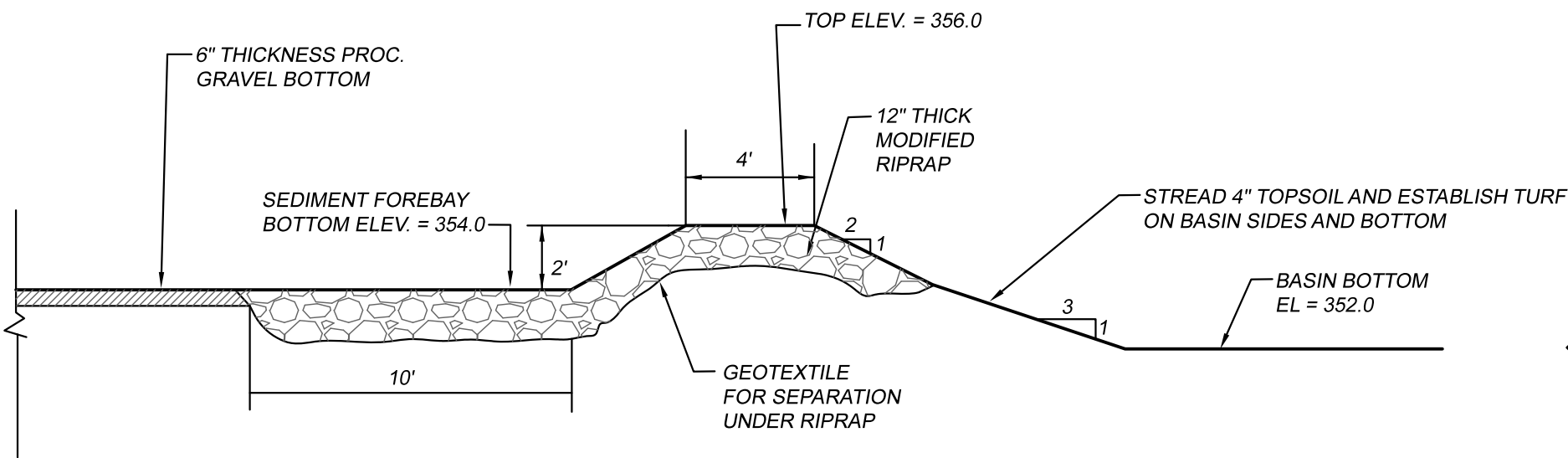
APRON #	W1	W2	L
1	3'	10'	10'
2	3'	10'	10'
3	4'	11'	10'
4	8'	12'	16'

**MODIFIED RIPRAP APRON - TYPE A**  
NOT TO SCALE



GENERAL NOTES  
1. REMOVE ALL TOPSOIL UNDER EMBANKMENT FOOTPRINT PRIOR TO PLACING FILL.  
2. PLACE FILL IN 6"-12" LIFTS. COMPACT TO 90% (MAX.) DRY DENSITY PER ASTM-D1557.  
3. FURNISH AND PLACE 4" MIN. DEPTH TOPSOIL, SOIL SUPPLEMENTS, SEED AND MULCH.

**PHASE 2 STORMWATER BASIN  
TYPICAL SECTION**  
N.T.S.



**PHASE 2 STORMWATER BASIN  
CROSS SECTION THROUGH SEDIMENT FOREBAY**  
1" = 5'

**CONSTRUCTION DETAILS  
DRAINAGE  
FOR  
HILLSIDE TOWNHOMES**  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT

**J&D CIVIL  
ENGINEERS, LLC**  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: JJB  
CHECKED: DRB

REVISIONS:

JOB NO: 22203  
SCALE: AS NOTED

DATE: JANUARY 31, 2023  
SHEET: 11



# **Hillside Townhomes**

## **Stormwater Management Report**

Prepared for: Lavallee Construction LLC

Azud Road and Riverside Drive  
Thompson, CT

**January 31, 2023**

**Prepared by:**

**J & D Civil  
Engineers, LLC**

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401 Ravenelle Road  
N. Grosvenordale, CT 06255



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- I. Hydrologic Model
- II. Drainage Area Map
- III. Calculations – Water Quality, Infiltration velocities, Outlet Protection
- IV. LID Checklist



## **A. Project Narrative**

Lavallee Construction proposes to construct a multi-family housing project with two driveways onto Azud Road. The complete project consists of 16 4-unit buildings. The project will be constructed in phases from the lower elevation to the upper elevation. This will allow the project infrastructure: driveways, sewer lines, stormwater facilities and water system to be built incrementally in a logical manner. A full phasing plan narrative is located on the detail sheets. The following is a summary of the phasing narrative:

Phase 1: 8 units, Buildings: A and B

Driveway: lower road station 13+50 to 15+50 (intersection with Azud Road)

Drainage: replace culvert under Azud Road, construct Phase 1 stormwater basin prior to any paving or CO's being issued.

Phase 2: 16 units, Buildings: C, D, E, and F

Driveway: lower road station 10+50 to 13+50

Drainage: construct Phase 2 stormwater basin prior to any paving or co's being issued. install CB 1, CB 2, CB 3, and CB 4, construct grass swale adjacent to Azud Road prior to building excavation

Phase 3: 16 units, Buildings: G, H, I, and J

Driveway: upper road station 3+00 to 6+80 (intersection with Azud Road) and 10+00 - 10+50

Drainage: construct grass swale on the east side of the project and phase 3 stormwater basin prior to building excavation.

Phase 4: 12 units, Buildings: K, L, and M

Driveway: upper road station 1+00 to 3+00 (intersection with Azud Road)

Drainage: CB 5, CB 6, CB 7, DMH 8, construct Phase 4 stormwater basin prior to any paving or CO's being issued.

Phase 5: Buildings: N, O, AND P

Driveway: station 0+00 to 6+80 (intersection with Azud Road) and 10+00 - 10+50

Drainage: none



Low Impact Development (LID) features were incorporated into the design of the stormwater system to the extent possible. Curbing was minimized and there are no direct discharges to downstream wetlands or the CT DOT drainage system in Riverside Drive (Route 12). Runoff is directed to grass swales, sediment forebays, and stormwater basins. An LID checklist is attached to this report.

## **B. Existing Site and Hydrologic Soil Group Description**

The property is approximately 12 acres in size and contains conservation lands that were created when the property was subdivided. All of the proposed construction takes place within a 6-acre portion of the site.

The Natural Resource Conservation Service (NRCS) groups soils into four categories according to their runoff producing characteristics. Hydrologic Soil Group A consists of soils that have a high infiltrative capacity and a low runoff potential even when saturated. Hydrologic Soil Group D soils have a very low infiltration rate and high runoff potential. Most of the site is within Hydrologic Soil Group B and is well drained Charlton Chatfield soil. Perc rates within the 2011 subdivision averaged less than 5 minutes per inch. The lowest part of the property along Riverside Drive contains Hinckley sand and gravel in Hydrologic Soil Group A.

The wetlands on the northwest end of the property were formed by gravel excavation years ago. They currently contain two ponds. When the wetlands were delineated in 2004 they were functioning as vernal pools. The ponds rarely overflow but can discharge to a well-defined outlet channel near Riverside Drive. Typically, the soil is so pervious that the runoff from the hillside infiltrates into the ground and never leaves the wetlands. On January 18, 2023 runoff was flowing from the upper pond to the lower pond and then infiltrating before reaching the outlet channel. The leaves in the outlet channel had not been displaced by runoff or show sign of water movement over them since fall. So evidently there had been no discharge from the lower pond for several months.

However, during heavy rainfall or high groundwater conditions the ponds can flow out of the pond via the channel and then flow into Riverside Drive. This does not occur frequently. On January 26, 2023 following a heavy rainfall and when groundwater conditions were high a fairly significant flow was observed out of the pond. The flow spread out on a paved apron near Riverside Drive and then flowed in the shoulder of the road to the state catchbasin. There was no bypass of the catchbasin. All of the runoff entered it.

## **C. Drainage Patterns**

The site drains toward three structures as follows:

1. Azud Road 15" culvert – approximately 300' uphill of Riverside Drive
2. Azud Road CB – the last CB just uphill of Riverside Drive
3. Route 12 CB – The state's CB at the intersection of Riverside Drive and Azud Road



For both existing and proposed conditions the site was broken up into appropriate drainage areas to each of the three downslope structures. These drainage areas can be seen on the maps bound into this report

#### **D. Methodology**

The HydroCAD computer program was utilized for the drainage design of this project. This program models the hydrology and hydraulics of stormwater runoff based largely upon the methods developed by the Soil Conservation Service (now known as the Natural Resources Conservation Service). Required input data includes the size of the contributing drainage area, curve numbers which are based upon land use and soil types, and times of concentration.

Hydrographs with peak flows determined are calculated for each drainage area based upon the SCS synthetic unit hydrograph method. The rainfall distribution used in the program was the SCS Type III storm recommended for Connecticut. Precipitation amounts were obtained for the location from NOAA.

#### **E. Results and Comparison of Existing and Proposed Flows**

##### Peak Flow Comparison

	10 YR Exist	10 YR Prop.	25 YR Exist	25 YR Prop.	100 YR Exist	100 YR Prop.
Azud Rd Culvert	7.2 CFS	3.6 CFS	10.9	8.9 CFS	17.0 CFS	18.9 CFS
Azud Rd CB	1.6 CFS	1.3 CFS	2.4 CFS	1.9 CFS	3.8 CFS	2.8 CFS
Route 12 CB	11.1 CFS	4.6 CFS	16.5 CFS	8.1 CFS	25.4 CFS	20.9 CFS

As per the results above, peak flows will generally decrease after construction due to the project's design of stormwater basins. The one exception is for the 100-year storm at the AZUD road culvert. For more frequent storm events flow will be decreased to this culvert. This town owned 15" culvert is undersized for existing conditions. Even without this project the culvert should be replaced with an 18" culvert due to the size of the drainage area in order to keep stormwater from flooding the road and running down to Riverside Drive. In addition, replacing the culvert will remove a very dangerous inlet structure from Azud Road.

#### **F. Stormwater Basins**

Because of the developer's desire to develop the project in phases, a stormwater basin has been designed for each phase except the last phase. This has the benefit of distributing stormwater features throughout the site instead of concentrating flow to one discharge point. In addition to attenuating peak flows, the stormwater basins will help treat the stormwater through settling out of coarse particles and via filtration.



The basin for Phase 1 will be created in the excessively well drained Hinckley soils by adding a small berm to the downstream end of a previously excavated area. The basin area is large enough that it will not discharge at all during frequent storm events.

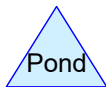
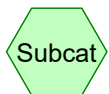
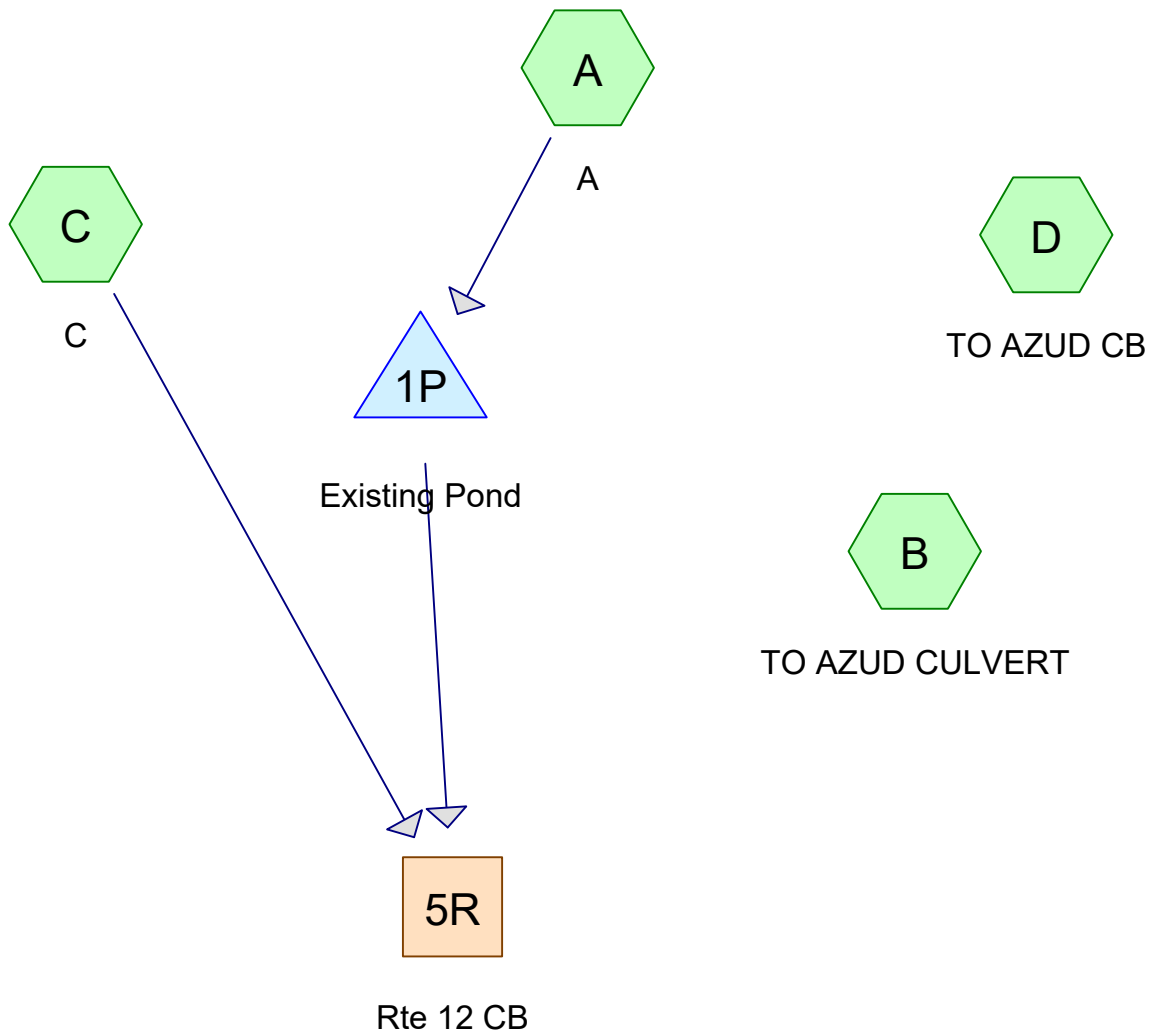
The stormwater basin for Phase 2 will be adjacent to the existing wetlands but will not drain into them since the ponds within the wetlands may function as vernal pools. The discharge channel from the Phase 2 basin will be located next to the outlet channel from the existing pond. The bottom of the Phase 2 basin will be set at the same elevation as the outlet to the existing pond so it will be a few feet higher than the bottom of the lower pond. A sediment forebay will be constructed at the upper end of the Phase 2 stormwater basin to trap sediment from the proposed driveway system.

The stormwater basin for Phase 3 will be constructed by adding a low berm on the lower side of a flat area near Azud Road. In Phase 4, a linear basin, primarily for stormwater quality, will be constructed behind some of the units and it will overflow to the Phase 2 basin.

## **G. Stormwater Quality**

Water quality calculations are included and the design of drainage features includes ample storage to contain the water quality volume for the site.





Routing Diagram for 22203 LAVALLEE multi-family existing conditions

Prepared by J & D Civil Engineers, LLC, Printed 1/30/2023

HydroCAD® 10.10-7a s/n 02673 © 2021 HydroCAD Software Solutions LLC



**22203 LAVALLEE multi-family existing conditions**

Prepared by J &amp; D Civil Engineers, LLC

Printed 1/30/2023

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**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	CT 10-year	Type III 24-hr		Default	24.00	1	5.18	2
2	CT 100-year	Type III 24-hr		Default	24.00	1	8.03	2
3	CT 25-year	Type III 24-hr		Default	24.00	1	6.30	2



### Summary for Subcatchment A: A

Runoff = 8.38 cfs @ 12.39 hrs, Volume= 1.033 af, Depth= 1.70"  
 Routed to Pond 1P : Existing Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
4.170	65	Woods/grass comb., Fair, HSG B
0.040	43	Woods/grass comb., Fair, HSG A
1.860	60	Woods, Fair, HSG B
1.230	69	50-75% Grass cover, Fair, HSG B
7.300	64	Weighted Average
7.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	200	0.1000	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
6.2	670	0.1300	1.80		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
25.3	870	Total			

### Summary for Subcatchment B: TO AZUD CULVERT

Runoff = 7.22 cfs @ 12.33 hrs, Volume= 0.846 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
1.280	65	Woods/grass comb., Fair, HSG B
0.240	98	Paved parking, HSG B
1.130	69	50-75% Grass cover, Fair, HSG B
3.330	60	Woods, Fair, HSG B
5.980	64	Weighted Average
5.740		95.99% Pervious Area
0.240		4.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	200	0.1600	0.21		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
6.7	700	0.1200	1.73		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
22.5	900	Total			



### Summary for Subcatchment C: C

Runoff = 3.92 cfs @ 12.31 hrs, Volume= 0.439 af, Depth= 2.01"  
 Routed to Reach 5R : Rte 12 CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.330	96	Gravel surface, HSG A
0.920	65	Woods/grass comb., Fair, HSG B
0.370	98	Paved parking, HSG A
0.310	36	Woods, Fair, HSG A
0.380	60	Woods, Fair, HSG B
0.310	49	50-75% Grass cover, Fair, HSG A
2.620	68	Weighted Average
2.250		85.88% Pervious Area
0.370		14.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	200	0.1300	0.19		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	110	0.0200	0.99		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
2.4	420	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.5	730	Total			

### Summary for Subcatchment D: TO AZUD CB

Runoff = 1.63 cfs @ 12.38 hrs, Volume= 0.198 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
1.120	65	Woods/grass comb., Fair, HSG B
0.030	98	Paved parking, HSG A
0.030	98	Paved parking, HSG B
0.120	43	Woods/grass comb., Fair, HSG A
0.040	49	50-75% Grass cover, Fair, HSG A
0.060	69	50-75% Grass cover, Fair, HSG B
1.400	64	Weighted Average
1.340		95.71% Pervious Area
0.060		4.29% Impervious Area



**Sheet Flow,**  
Woods: Light underbrush n= 0.400 P2= 3.40"  
**Shallow Concentrated Flow,**  
Woodland Kv= 5.0 fps  
**Shallow Concentrated Flow,**  
Paved Kv= 20.3 fps

## Summary for Reach 5R: Rte 12 CB

Inflow Area = 9.920 ac, 3.73% Impervious, Inflow Depth = 1.60" for CT 10-year event  
Inflow = 11.07 cfs @ 12.42 hrs, Volume= 1.320 af  
Outflow = 11.07 cfs @ 12.42 hrs, Volume= 1.320 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Pond 1P: Existing Pond

Inflow Area = 7.300 ac, 0.00% Impervious, Inflow Depth = 1.70" for CT 10-year event  
 Inflow = 8.38 cfs @ 12.39 hrs, Volume= 1.033 af  
 Outflow = 7.95 cfs @ 12.47 hrs, Volume= 1.033 af, Atten= 5%, Lag= 4.7 min  
 Discarded = 0.29 cfs @ 12.47 hrs, Volume= 0.152 af  
 Primary = 7.66 cfs @ 12.47 hrs, Volume= 0.882 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 352.90' @ 12.47 hrs Surf.Area= 4.155 sf Storage= 2.463 cf

Plug-Flow detention time= 6.4 min calculated for 1.033 af (100% of inflow)  
Center-of-Mass det. time= 6.4 min ( 885.7 - 879.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	352.00'	88,372 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,543	157.0	0	0	1,543
354.00	9,094	680.0	9,589	9,589	36,388
356.00	19,511	763.0	27,950	37,539	46,028
358.00	31,821	925.0	50,833	88,372	67,854

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>3.000 in/hr Exfiltration over Surface area</b>
#2	Primary	352.00'	<b>3.0' long + 0.5 ' /' SideZ x 5.0' breadth Broad-Crested Rectangular Weir</b>
			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 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88



**Discarded OutFlow** Max=0.29 cfs @ 12.47 hrs HW=352.90' (Free Discharge)  
↑**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

**Primary OutFlow** Max=7.66 cfs @ 12.47 hrs HW=352.90' (Free Discharge)  
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 7.66 cfs @ 2.47 fps)



### Summary for Subcatchment A: A

Runoff = 19.72 cfs @ 12.35 hrs, Volume= 2.315 af, Depth= 3.81"  
 Routed to Pond 1P : Existing Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
4.170	65	Woods/grass comb., Fair, HSG B
0.040	43	Woods/grass comb., Fair, HSG A
1.860	60	Woods, Fair, HSG B
1.230	69	50-75% Grass cover, Fair, HSG B
7.300	64	Weighted Average
7.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	200	0.1000	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
6.2	670	0.1300	1.80		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
25.3	870	Total			

### Summary for Subcatchment B: TO AZUD CULVERT

Runoff = 17.01 cfs @ 12.32 hrs, Volume= 1.896 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
1.280	65	Woods/grass comb., Fair, HSG B
0.240	98	Paved parking, HSG B
1.130	69	50-75% Grass cover, Fair, HSG B
3.330	60	Woods, Fair, HSG B
5.980	64	Weighted Average
5.740		95.99% Pervious Area
0.240		4.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	200	0.1600	0.21		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
6.7	700	0.1200	1.73		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
22.5	900	Total			



### Summary for Subcatchment C: C

Runoff = 8.56 cfs @ 12.30 hrs, Volume= 0.930 af, Depth= 4.26"  
 Routed to Reach 5R : Rte 12 CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
0.330	96	Gravel surface, HSG A
0.920	65	Woods/grass comb., Fair, HSG B
0.370	98	Paved parking, HSG A
0.310	36	Woods, Fair, HSG A
0.380	60	Woods, Fair, HSG B
0.310	49	50-75% Grass cover, Fair, HSG A
2.620	68	Weighted Average
2.250		85.88% Pervious Area
0.370		14.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	200	0.1300	0.19		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	110	0.0200	0.99		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
2.4	420	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.5	730	Total			

### Summary for Subcatchment D: TO AZUD CB

Runoff = 3.82 cfs @ 12.35 hrs, Volume= 0.444 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
1.120	65	Woods/grass comb., Fair, HSG B
0.030	98	Paved parking, HSG A
0.030	98	Paved parking, HSG B
0.120	43	Woods/grass comb., Fair, HSG A
0.040	49	50-75% Grass cover, Fair, HSG A
0.060	69	50-75% Grass cover, Fair, HSG B
1.400	64	Weighted Average
1.340		95.71% Pervious Area
0.060		4.29% Impervious Area



Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.0	200	0.0700	0.15		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
2.2	240	0.1300	1.80		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
0.5	187	0.0850	5.92		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
24.7	627	Total			

### Summary for Reach 5R: Rte 12 CB

Inflow Area = 9.920 ac, 3.73% Impervious, Inflow Depth = 3.68" for CT 100-year event  
 Inflow = 25.44 cfs @ 12.40 hrs, Volume= 3.046 af  
 Outflow = 25.44 cfs @ 12.40 hrs, Volume= 3.046 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Pond 1P: Existing Pond

Inflow Area = 7.300 ac, 0.00% Impervious, Inflow Depth = 3.81" for CT 100-year event  
 Inflow = 19.72 cfs @ 12.35 hrs, Volume= 2.315 af  
 Outflow = 18.50 cfs @ 12.45 hrs, Volume= 2.315 af, Atten= 6%, Lag= 5.9 min  
 Discarded = 0.47 cfs @ 12.45 hrs, Volume= 0.199 af  
 Primary = 18.04 cfs @ 12.45 hrs, Volume= 2.116 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 353.53' @ 12.45 hrs Surf.Area= 6,735 sf Storage= 5,849 cf

Plug-Flow detention time= 6.0 min calculated for 2.315 af (100% of inflow)  
 Center-of-Mass det. time= 6.0 min ( 861.2 - 855.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	352.00'	88,372 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,543	157.0	0	0	1,543
354.00	9,094	680.0	9,589	9,589	36,388
356.00	19,511	763.0	27,950	37,539	46,028
358.00	31,821	925.0	50,833	88,372	67,854

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>3.000 in/hr Exfiltration over Surface area</b>
#2	Primary	352.00'	<b>3.0' long + 0.5 ' / SideZ x 5.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88



**Discarded OutFlow** Max=0.47 cfs @ 12.45 hrs HW=353.53' (Free Discharge)  
↑**1=Exfiltration** (Exfiltration Controls 0.47 cfs)

**Primary OutFlow** Max=18.03 cfs @ 12.45 hrs HW=353.53' (Free Discharge)  
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 18.03 cfs @ 3.14 fps)



### Summary for Subcatchment A: A

Runoff = 12.61 cfs @ 12.37 hrs, Volume= 1.508 af, Depth= 2.48"  
 Routed to Pond 1P : Existing Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
4.170	65	Woods/grass comb., Fair, HSG B
0.040	43	Woods/grass comb., Fair, HSG A
1.860	60	Woods, Fair, HSG B
1.230	69	50-75% Grass cover, Fair, HSG B
7.300	64	Weighted Average
7.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	200	0.1000	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
6.2	670	0.1300	1.80		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
25.3	870	Total			

### Summary for Subcatchment B: TO AZUD CULVERT

Runoff = 10.87 cfs @ 12.33 hrs, Volume= 1.236 af, Depth= 2.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
1.280	65	Woods/grass comb., Fair, HSG B
0.240	98	Paved parking, HSG B
1.130	69	50-75% Grass cover, Fair, HSG B
3.330	60	Woods, Fair, HSG B
5.980	64	Weighted Average
5.740		95.99% Pervious Area
0.240		4.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	200	0.1600	0.21		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
6.7	700	0.1200	1.73		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
22.5	900	Total			



### Summary for Subcatchment C: C

Runoff = 5.68 cfs @ 12.30 hrs, Volume= 0.623 af, Depth= 2.85"  
 Routed to Reach 5R : Rte 12 CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.330	96	Gravel surface, HSG A
0.920	65	Woods/grass comb., Fair, HSG B
0.370	98	Paved parking, HSG A
0.310	36	Woods, Fair, HSG A
0.380	60	Woods, Fair, HSG B
0.310	49	50-75% Grass cover, Fair, HSG A
2.620	68	Weighted Average
2.250		85.88% Pervious Area
0.370		14.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	200	0.1300	0.19		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	110	0.0200	0.99		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
2.4	420	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.5	730	Total			

### Summary for Subcatchment D: TO AZUD CB

Runoff = 2.44 cfs @ 12.37 hrs, Volume= 0.289 af, Depth= 2.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
1.120	65	Woods/grass comb., Fair, HSG B
0.030	98	Paved parking, HSG A
0.030	98	Paved parking, HSG B
0.120	43	Woods/grass comb., Fair, HSG A
0.040	49	50-75% Grass cover, Fair, HSG A
0.060	69	50-75% Grass cover, Fair, HSG B
1.400	64	Weighted Average
1.340		95.71% Pervious Area
0.060		4.29% Impervious Area



Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.0	200	0.0700	0.15		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
2.2	240	0.1300	1.80		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
0.5	187	0.0850	5.92		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
24.7	627	Total			

## Summary for Reach 5R: Rte 12 CB

Inflow Area = 9.920 ac, 3.73% Impervious, Inflow Depth = 2.37" for CT 25-year event  
Inflow = 16.46 cfs @ 12.41 hrs, Volume= 1.961 af  
Outflow = 16.46 cfs @ 12.41 hrs, Volume= 1.961 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Pond 1P: Existing Pond

Inflow Area = 7.300 ac, 0.00% Impervious, Inflow Depth = 2.48" for CT 25-year event  
 Inflow = 12.61 cfs @ 12.37 hrs, Volume= 1.508 af  
 Outflow = 11.90 cfs @ 12.46 hrs, Volume= 1.508 af, Atten= 6%, Lag= 5.3 min  
 Discarded = 0.36 cfs @ 12.46 hrs, Volume= 0.171 af  
 Primary = 11.54 cfs @ 12.46 hrs, Volume= 1.338 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 353.16' @ 12.46 hrs Surf.Area= 5,158 sf Storage= 3,683 cf

Plug-Flow detention time= 6.2 min calculated for 1.508 af (100% of inflow)  
Center-of-Mass det. time= 6.2 min ( 874.0 - 867.8 )

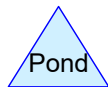
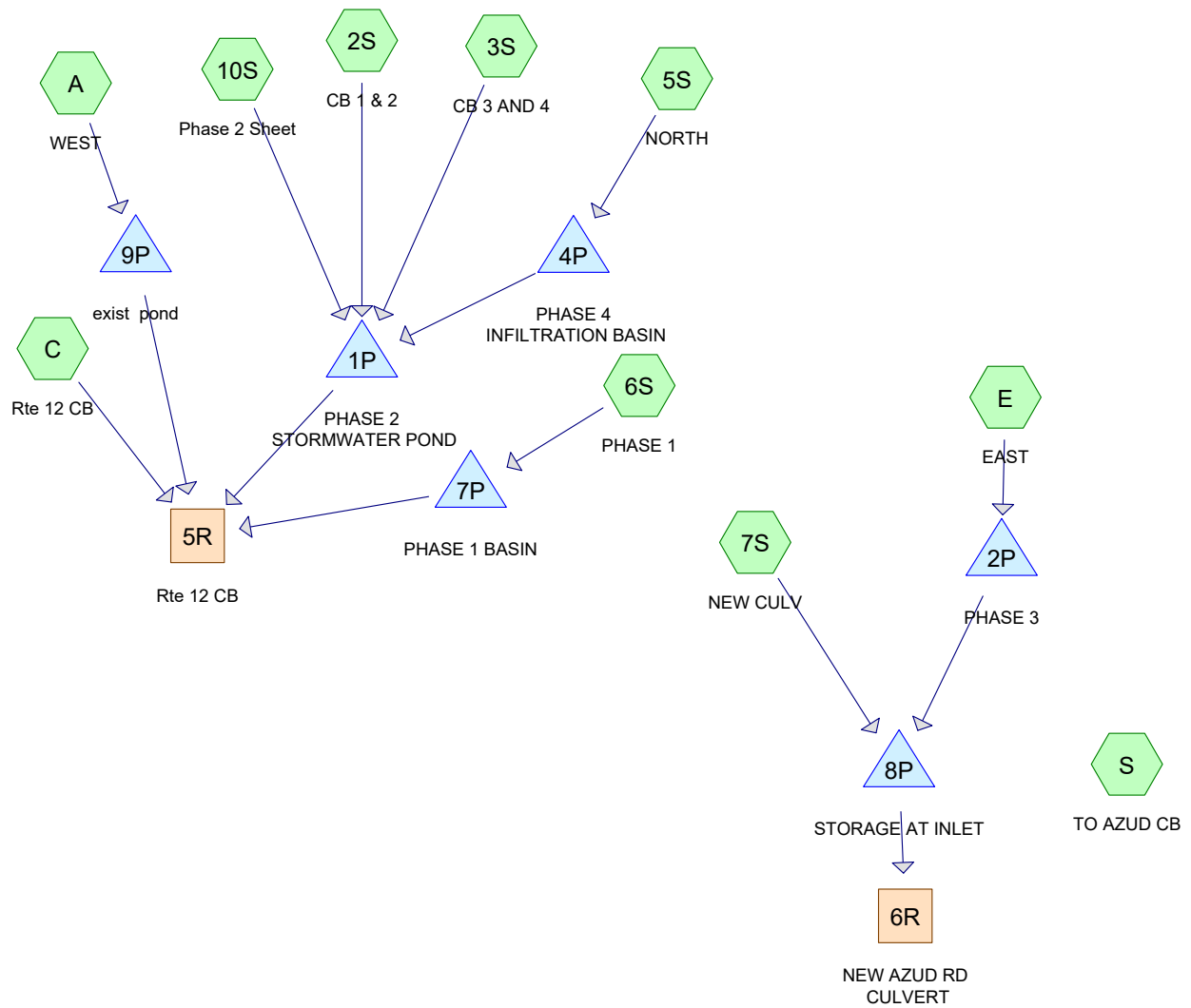
Volume	Invert	Avail.Storage	Storage Description		
#1	352.00'	88,372 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,543	157.0	0	0	1,543
354.00	9,094	680.0	9,589	9,589	36,388
356.00	19,511	763.0	27,950	37,539	46,028
358.00	31,821	925.0	50,833	88,372	67,854

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>3.000 in/hr Exfiltration over Surface area</b>
#2	Primary	352.00'	<b>3.0' long + 0.5 ' /' SideZ x 5.0' breadth Broad-Crested Rectangular Weir</b>
			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 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Discarded OutFlow** Max=0.36 cfs @ 12.46 hrs HW=353.16' (Free Discharge)  
↑**1=Exfiltration** (Exfiltration Controls 0.36 cfs)

**Primary OutFlow** Max=11.53 cfs @ 12.46 hrs HW=353.16' (Free Discharge)  
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 11.53 cfs @ 2.78 fps)





**Routing Diagram for 22203 LAVALLEE PROP multi-family 2023-01-31**

Prepared by J & D Civil Engineers, LLC, Printed 1/30/2023  
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**22203 LAVALLEE PROP multi-family 2023-01-31**

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Printed 1/30/2023

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**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	CT 10-year	Type III 24-hr		Default	24.00	1	5.18	2
2	CT 100-year	Type III 24-hr		Default	24.00	1	8.03	2
3	CT 25-year	Type III 24-hr		Default	24.00	1	6.30	2



### Summary for Subcatchment 2S: CB 1 & 2

Runoff = 1.43 cfs @ 12.07 hrs, Volume= 0.107 af, Depth= 4.60"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.260	98	Paved parking, HSG B
0.020	61	>75% Grass cover, Good, HSG B
0.280	95	Weighted Average
0.020		7.14% Pervious Area
0.260		92.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

### Summary for Subcatchment 3S: CB 3 AND 4

Runoff = 1.70 cfs @ 12.07 hrs, Volume= 0.117 af, Depth= 3.44"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.260	98	Paved parking, HSG B
0.150	61	>75% Grass cover, Good, HSG B
0.410	84	Weighted Average
0.150		36.59% Pervious Area
0.260		63.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

### Summary for Subcatchment 5S: NORTH

Runoff = 6.72 cfs @ 12.35 hrs, Volume= 0.789 af, Depth= 1.93"  
 Routed to Pond 4P : PHASE 4 INFILTRATION BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG B
1.150	61	>75% Grass cover, Good, HSG B
2.830	60	Woods, Fair, HSG B
4.910	67	Weighted Average
3.980		81.06% Pervious Area
0.930		18.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	200	0.0800	0.16		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.8	290	0.1500	2.71		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
1.3	300	0.0370	3.90		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
23.9	790	Total			

### Summary for Subcatchment 6S: PHASE 1

Runoff = 1.82 cfs @ 12.10 hrs, Volume= 0.134 af, Depth= 2.51"  
 Routed to Pond 7P : PHASE 1 BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.270	98	Paved parking, HSG B
0.300	61	>75% Grass cover, Good, HSG B
0.070	39	>75% Grass cover, Good, HSG A
0.640	74	Weighted Average
0.370		57.81% Pervious Area
0.270		42.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	160	0.1200	0.39		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

### Summary for Subcatchment 7S: NEW CULV

Runoff = 3.56 cfs @ 12.29 hrs, Volume= 0.386 af, Depth= 2.42"  
 Routed to Pond 8P : STORAGE AT INLET

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"



Area (ac)	CN	Description
0.630	98	Paved parking, HSG B
0.480	61	>75% Grass cover, Good, HSG B
0.800	60	Woods, Fair, HSG B
1.910	73	Weighted Average
1.280		67.02% Pervious Area
0.630		32.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	200	0.0900	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.0	140	0.1100	2.32		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
20.9	340	Total			

### Summary for Subcatchment 10S: Phase 2 Sheet

Runoff = 0.86 cfs @ 12.08 hrs, Volume= 0.062 af, Depth= 1.85"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.050	98	Roofs, HSG B
0.350	61	>75% Grass cover, Good, HSG B
0.400	66	Weighted Average
0.350		87.50% Pervious Area
0.050		12.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	130	0.1500	0.41		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

### Summary for Subcatchment A: WEST

Runoff = 1.85 cfs @ 12.24 hrs, Volume= 0.195 af, Depth= 1.48"  
 Routed to Pond 9P : exist pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.060	43	Woods/grass comb., Fair, HSG A
0.080	98	Paved parking, HSG B
1.200	60	Woods, Fair, HSG B
0.240	61	>75% Grass cover, Good, HSG B
1.580	61	Weighted Average
1.500		94.94% Pervious Area
0.080		5.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	105	0.0570	0.27		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"
9.3	110	0.1800	0.20		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
15.8	215	Total			

### Summary for Subcatchment C: Rte 12 CB

Runoff = 3.14 cfs @ 12.35 hrs, Volume= 0.365 af, Depth= 1.93"  
 Routed to Reach 5R : Rte 12 CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.330	96	Gravel surface, HSG A
0.510	98	Paved parking, HSG A
0.160	36	Woods, Fair, HSG A
0.380	60	Woods, Fair, HSG B
0.490	49	50-75% Grass cover, Fair, HSG A
0.400	43	Woods/grass comb., Fair, HSG A
2.270	67	Weighted Average
1.760		77.53% Pervious Area
0.510		22.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	200	0.1300	0.19		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	110	0.0200	0.99		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
4.2	722	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
23.3	1,032	Total			



### Summary for Subcatchment E: EAST

Runoff = 5.77 cfs @ 12.34 hrs, Volume= 0.677 af, Depth= 1.62"  
 Routed to Pond 2P : PHASE 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
2.100	61	>75% Grass cover, Good, HSG B
2.570	60	Woods, Fair, HSG B
5.000	63	Weighted Average
4.670		93.40% Pervious Area
0.330		6.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	200	0.1000	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
2.9	345	0.1600	2.00		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
22.0	545	Total			

### Summary for Subcatchment S: TO AZUD CB

Runoff = 1.31 cfs @ 12.12 hrs, Volume= 0.103 af, Depth= 2.17"  
 Routed to nonexistent node 9R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 10-year Rainfall=5.18"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG A
0.200	98	Paved parking, HSG B
0.160	39	>75% Grass cover, Good, HSG A
0.180	61	>75% Grass cover, Good, HSG B
0.570	70	Weighted Average
0.340		59.65% Pervious Area
0.230		40.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	200	0.1100	0.40		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

### Summary for Reach 5R: Rte 12 CB

Inflow Area = 10.490 ac, 22.50% Impervious, Inflow Depth = 0.62" for CT 10-year event  
 Inflow = 4.60 cfs @ 12.35 hrs, Volume= 0.539 af  
 Outflow = 4.60 cfs @ 12.35 hrs, Volume= 0.539 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Reach 6R: NEW AZUD RD CULVERT

Inflow Area = 6.910 ac, 13.89% Impervious, Inflow Depth = 0.87" for CT 10-year event  
 Inflow = 3.56 cfs @ 12.30 hrs, Volume= 0.500 af  
 Outflow = 3.56 cfs @ 12.30 hrs, Volume= 0.500 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Pond 1P: PHASE 2 STORMWATER POND

Inflow Area = 6.000 ac, 25.00% Impervious, Inflow Depth = 1.44" for CT 10-year event  
 Inflow = 7.75 cfs @ 12.35 hrs, Volume= 0.718 af  
 Outflow = 1.20 cfs @ 13.46 hrs, Volume= 0.718 af, Atten= 84%, Lag= 66.8 min  
 Discarded = 0.66 cfs @ 13.46 hrs, Volume= 0.663 af  
 Primary = 0.54 cfs @ 13.46 hrs, Volume= 0.056 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 355.65' @ 13.46 hrs Surf.Area= 7,151 sf Storage= 16,676 cf

Plug-Flow detention time= 264.2 min calculated for 0.718 af (100% of inflow)  
 Center-of-Mass det. time= 264.2 min ( 1,064.0 - 799.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	352.00'	27,718 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,896	170.0	0	0	1,896
354.00	5,044	297.0	6,688	6,688	6,639
356.00	7,651	375.0	12,605	19,293	10,864
357.00	9,223	414.0	8,425	27,718	13,344

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	355.50'	<b>4.0' long + 0.5' /' SideZ x 4.0' breadth Broad-Crested Rectangular Weir</b>
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 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			



**Discarded OutFlow** Max=0.66 cfs @ 13.46 hrs HW=355.65' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.66 cfs)

**Primary OutFlow** Max=0.54 cfs @ 13.46 hrs HW=355.65' (Free Discharge)  
 ↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 0.91 fps)

### Summary for Pond 2P: PHASE 3

Inflow Area = 5.000 ac, 6.60% Impervious, Inflow Depth = 1.62" for CT 10-year event  
 Inflow = 5.77 cfs @ 12.34 hrs, Volume= 0.677 af  
 Outflow = 1.77 cfs @ 12.93 hrs, Volume= 0.677 af, Atten= 69%, Lag= 35.8 min  
 Discarded = 0.45 cfs @ 12.93 hrs, Volume= 0.561 af  
 Primary = 1.32 cfs @ 12.93 hrs, Volume= 0.115 af  
 Routed to Pond 8P : STORAGE AT INLET

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 375.12' @ 12.93 hrs Surf.Area= 4,859 sf Storage= 11,238 cf

Plug-Flow detention time= 258.5 min calculated for 0.677 af (100% of inflow)  
 Center-of-Mass det. time= 258.5 min ( 1,137.5 - 879.0 )

Volume	Invert	Avail.Storage	Storage Description		
#1	372.00'	18,853 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
372.00	2,534	221.0	0	0	2,534
374.00	3,862	265.0	6,350	6,350	4,304
376.50	6,235	343.0	12,503	18,853	8,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	372.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	375.00'	<b>19.0" x 36.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	376.00'	<b>100.0' long + 0.5 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

**Discarded OutFlow** Max=0.45 cfs @ 12.93 hrs HW=375.12' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.45 cfs)

**Primary OutFlow** Max=1.30 cfs @ 12.93 hrs HW=375.12' (Free Discharge)  
 ↑ **2=Orifice/Grate** (Weir Controls 1.30 cfs @ 1.15 fps)  
 ↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Summary for Pond 4P: PHASE 4 INFILTRATION BASIN

Inflow Area = 4.910 ac, 18.94% Impervious, Inflow Depth = 1.93" for CT 10-year event  
 Inflow = 6.72 cfs @ 12.35 hrs, Volume= 0.789 af  
 Outflow = 6.70 cfs @ 12.36 hrs, Volume= 0.789 af, Atten= 0%, Lag= 0.7 min  
 Discarded = 0.33 cfs @ 12.36 hrs, Volume= 0.358 af  
 Primary = 6.37 cfs @ 12.36 hrs, Volume= 0.432 af  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 376.03' @ 12.36 hrs Surf.Area= 3,540 sf Storage= 4,686 cf

Plug-Flow detention time= 83.1 min calculated for 0.789 af (100% of inflow)  
 Center-of-Mass det. time= 83.1 min ( 953.2 - 870.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	8,843 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
374.00	1,276	430.0	0	0	1,276
376.00	3,505	462.0	4,597	4,597	3,716
377.00	5,032	495.0	4,246	8,843	6,275

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	375.70'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	376.00'	<b>140.0' long + 0.5 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

**Discarded OutFlow** Max=0.33 cfs @ 12.36 hrs HW=376.03' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.33 cfs)

**Primary OutFlow** Max=6.19 cfs @ 12.36 hrs HW=376.03' (Free Discharge)

↑ **2=Orifice/Grate** (Weir Controls 4.85 cfs @ 1.87 fps)

↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 1.33 cfs @ 0.38 fps)

### Summary for Pond 7P: PHASE 1 BASIN

Inflow Area = 0.640 ac, 42.19% Impervious, Inflow Depth = 2.51" for CT 10-year event  
 Inflow = 1.82 cfs @ 12.10 hrs, Volume= 0.134 af  
 Outflow = 0.24 cfs @ 12.83 hrs, Volume= 0.134 af, Atten= 87%, Lag= 43.5 min  
 Discarded = 0.24 cfs @ 12.83 hrs, Volume= 0.134 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



Peak Elev= 347.69' @ 12.83 hrs Surf.Area= 1,696 sf Storage= 2,135 cf

Plug-Flow detention time= 87.4 min calculated for 0.134 af (100% of inflow)  
 Center-of-Mass det. time= 87.4 min ( 923.9 - 836.5 )

Volume	Invert	Avail.Storage	Storage Description		
#1	346.00'	7,861 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
346.00	875	128.0	0	0	875
348.00	1,875	183.0	2,687	2,687	2,271
350.00	3,371	259.0	5,173	7,861	4,981

Device	Routing	Invert	Outlet Devices											
#1	Discarded	346.00'	<b>6.000 in/hr Exfiltration over Surface area</b>											
#2	Primary	349.00'	<b>15.0' long + 0.5 ' SideZ x 4.0' breadth Broad-Crested Rectangular Weir</b>											
			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	5.50				
			Coef. (English)	2.38	2.54	2.69	2.68	2.67	2.67	2.67	2.65	2.66	2.66	
				2.68	2.72	2.73	2.76	2.79	2.88	3.07	3.32			

**Discarded OutFlow** Max=0.24 cfs @ 12.83 hrs HW=347.69' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.24 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=346.00' (Free Discharge)  
 ↑2=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

### Summary for Pond 8P: STORAGE AT INLET

Inflow Area = 6.910 ac, 13.89% Impervious, Inflow Depth = 0.87" for CT 10-year event  
 Inflow = 3.56 cfs @ 12.29 hrs, Volume= 0.501 af  
 Outflow = 3.56 cfs @ 12.30 hrs, Volume= 0.500 af, Atten= 0%, Lag= 0.6 min  
 Primary = 3.56 cfs @ 12.30 hrs, Volume= 0.500 af  
 Routed to Reach 6R : NEW AZUD RD CULVERT

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 345.47' @ 12.30 hrs Surf.Area= 188 sf Storage= 157 cf

Plug-Flow detention time= 2.3 min calculated for 0.500 af (100% of inflow)  
 Center-of-Mass det. time= 1.4 min ( 847.2 - 845.8 )

Volume	Invert	Avail.Storage	Storage Description		
#1	344.00'	1,058 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
344.00	43	25.0	0	0	43
346.00	266	46.0	277	277	181
347.50	827	110.0	781	1,058	984

Device	Routing	Invert	Outlet Devices
#1	Primary	344.50'	<b>18.0" Round Culvert</b> L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 344.50' / 344.00' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Primary	347.00'	<b>20.0' long + 0.5 ' SideZ x 30.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=3.56 cfs @ 12.30 hrs HW=345.47' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 3.56 cfs @ 2.95 fps)  
 ↑ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Summary for Pond 9P: exist pond

Inflow Area = 1.580 ac, 5.06% Impervious, Inflow Depth = 1.48" for CT 10-year event  
 Inflow = 1.85 cfs @ 12.24 hrs, Volume= 0.195 af  
 Outflow = 1.63 cfs @ 12.34 hrs, Volume= 0.195 af, Atten= 12%, Lag= 6.0 min  
 Discarded = 0.16 cfs @ 12.34 hrs, Volume= 0.076 af  
 Primary = 1.47 cfs @ 12.34 hrs, Volume= 0.118 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 352.33' @ 12.34 hrs Surf.Area= 2,360 sf Storage= 643 cf

Plug-Flow detention time= 6.9 min calculated for 0.195 af (100% of inflow)  
 Center-of-Mass det. time= 6.9 min ( 885.8 - 878.9 )

Volume	Invert	Avail.Storage	Storage Description		
#1	352.00'	35,597 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,543	157.0	0	0	1,543
354.00	9,094	680.0	9,589	9,589	36,388
356.00	17,356	768.0	26,009	35,597	46,631

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>3.000 in/hr Exfiltration over Surface area</b>
#2	Primary	352.00'	<b>3.0' long + 0.5 ' SideZ x 5.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Discarded OutFlow** Max=0.16 cfs @ 12.34 hrs HW=352.33' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.16 cfs)

**Primary OutFlow** Max=1.46 cfs @ 12.34 hrs HW=352.33' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 1.46 cfs @ 1.39 fps)



### Summary for Subcatchment 2S: CB 1 & 2

Runoff = 2.26 cfs @ 12.07 hrs, Volume= 0.173 af, Depth= 7.43"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
0.260	98	Paved parking, HSG B
0.020	61	>75% Grass cover, Good, HSG B
0.280	95	Weighted Average
0.020		7.14% Pervious Area
0.260		92.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

### Summary for Subcatchment 3S: CB 3 AND 4

Runoff = 2.96 cfs @ 12.07 hrs, Volume= 0.209 af, Depth= 6.12"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
0.260	98	Paved parking, HSG B
0.150	61	>75% Grass cover, Good, HSG B
0.410	84	Weighted Average
0.150		36.59% Pervious Area
0.260		63.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

### Summary for Subcatchment 5S: NORTH

Runoff = 14.88 cfs @ 12.34 hrs, Volume= 1.696 af, Depth= 4.15"  
 Routed to Pond 4P : PHASE 4 INFILTRATION BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

**22203 LAVALLEE PROP multi-family 2023-01-31 Type III 24-hr CT 100-year Rainfall=8.03"**

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Area (ac)	CN	Description
0.930	98	Paved parking, HSG B
1.150	61	>75% Grass cover, Good, HSG B
2.830	60	Woods, Fair, HSG B
4.910	67	Weighted Average
3.980		81.06% Pervious Area
0.930		18.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	200	0.0800	0.16		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.8	290	0.1500	2.71		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
1.3	300	0.0370	3.90		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
23.9	790	Total			

**Summary for Subcatchment 6S: PHASE 1**

Runoff = 3.61 cfs @ 12.10 hrs, Volume= 0.264 af, Depth= 4.95"  
 Routed to Pond 7P : PHASE 1 BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
0.270	98	Paved parking, HSG B
0.300	61	>75% Grass cover, Good, HSG B
0.070	39	>75% Grass cover, Good, HSG A
0.640	74	Weighted Average
0.370		57.81% Pervious Area
0.270		42.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	160	0.1200	0.39		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

**Summary for Subcatchment 7S: NEW CULV**

Runoff = 7.17 cfs @ 12.28 hrs, Volume= 0.770 af, Depth= 4.84"  
 Routed to Pond 8P : STORAGE AT INLET

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"



**22203 LAVALLEE PROP multi-family 2023-01-31 Type III 24-hr CT 100-year Rainfall=8.03"**

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Area (ac)	CN	Description
0.630	98	Paved parking, HSG B
0.480	61	>75% Grass cover, Good, HSG B
0.800	60	Woods, Fair, HSG B
1.910	73	Weighted Average
1.280		67.02% Pervious Area
0.630		32.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	200	0.0900	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.0	140	0.1100	2.32		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
20.9	340	Total			

**Summary for Subcatchment 10S: Phase 2 Sheet**

Runoff = 1.94 cfs @ 12.08 hrs, Volume= 0.134 af, Depth= 4.03"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
0.050	98	Roofs, HSG B
0.350	61	>75% Grass cover, Good, HSG B
0.400	66	Weighted Average
0.350		87.50% Pervious Area
0.050		12.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	130	0.1500	0.41		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

**Summary for Subcatchment A: WEST**

Runoff = 4.68 cfs @ 12.23 hrs, Volume= 0.457 af, Depth= 3.47"  
 Routed to Pond 9P : exist pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

**22203 LAVALLEE PROP multi-family 2023-01-31 Type III 24-hr CT 100-year Rainfall=8.03"**

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Area (ac)	CN	Description
0.060	43	Woods/grass comb., Fair, HSG A
0.080	98	Paved parking, HSG B
1.200	60	Woods, Fair, HSG B
0.240	61	>75% Grass cover, Good, HSG B
1.580	61	Weighted Average
1.500		94.94% Pervious Area
0.080		5.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	105	0.0570	0.27		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"
9.3	110	0.1800	0.20		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
15.8	215	Total			

**Summary for Subcatchment C: Rte 12 CB**

Runoff = 6.95 cfs @ 12.33 hrs, Volume= 0.784 af, Depth= 4.15"  
 Routed to Reach 5R : Rte 12 CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
0.330	96	Gravel surface, HSG A
0.510	98	Paved parking, HSG A
0.160	36	Woods, Fair, HSG A
0.380	60	Woods, Fair, HSG B
0.490	49	50-75% Grass cover, Fair, HSG A
0.400	43	Woods/grass comb., Fair, HSG A
2.270	67	Weighted Average
1.760		77.53% Pervious Area
0.510		22.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	200	0.1300	0.19		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	110	0.0200	0.99		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
4.2	722	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
23.3	1,032	Total			



### Summary for Subcatchment E: EAST

Runoff = 13.88 cfs @ 12.30 hrs, Volume= 1.538 af, Depth= 3.69"  
 Routed to Pond 2P : PHASE 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
2.100	61	>75% Grass cover, Good, HSG B
2.570	60	Woods, Fair, HSG B
5.000	63	Weighted Average
4.670		93.40% Pervious Area
0.330		6.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	200	0.1000	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
2.9	345	0.1600	2.00		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
22.0	545	Total			

### Summary for Subcatchment S: TO AZUD CB

Runoff = 2.76 cfs @ 12.12 hrs, Volume= 0.213 af, Depth= 4.49"  
 Routed to nonexistent node 9R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 100-year Rainfall=8.03"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG A
0.200	98	Paved parking, HSG B
0.160	39	>75% Grass cover, Good, HSG A
0.180	61	>75% Grass cover, Good, HSG B
0.570	70	Weighted Average
0.340		59.65% Pervious Area
0.230		40.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	200	0.1100	0.40		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

### Summary for Reach 5R: Rte 12 CB

Inflow Area = 10.490 ac, 22.50% Impervious, Inflow Depth = 2.33" for CT 100-year event  
 Inflow = 20.94 cfs @ 12.46 hrs, Volume= 2.036 af  
 Outflow = 20.94 cfs @ 12.46 hrs, Volume= 2.036 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Reach 6R: NEW AZUD RD CULVERT

Inflow Area = 6.910 ac, 13.89% Impervious, Inflow Depth = 2.79" for CT 100-year event  
 Inflow = 18.88 cfs @ 12.38 hrs, Volume= 1.604 af  
 Outflow = 18.88 cfs @ 12.38 hrs, Volume= 1.604 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Pond 1P: PHASE 2 STORMWATER POND

Inflow Area = 6.000 ac, 25.00% Impervious, Inflow Depth = 3.57" for CT 100-year event  
 Inflow = 17.09 cfs @ 12.32 hrs, Volume= 1.785 af  
 Outflow = 12.92 cfs @ 12.52 hrs, Volume= 1.785 af, Atten= 24%, Lag= 12.2 min  
 Discarded = 0.78 cfs @ 12.52 hrs, Volume= 0.870 af  
 Primary = 12.14 cfs @ 12.52 hrs, Volume= 0.915 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 356.52' @ 12.52 hrs Surf.Area= 8,451 sf Storage= 23,483 cf

Plug-Flow detention time= 153.3 min calculated for 1.785 af (100% of inflow)  
 Center-of-Mass det. time= 153.3 min ( 959.5 - 806.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	352.00'	27,718 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,896	170.0	0	0	1,896
354.00	5,044	297.0	6,688	6,688	6,639
356.00	7,651	375.0	12,605	19,293	10,864
357.00	9,223	414.0	8,425	27,718	13,344

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	355.50'	<b>4.0' long + 0.5' /' SideZ x 4.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32



**Discarded OutFlow** Max=0.78 cfs @ 12.52 hrs HW=356.52' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.78 cfs)

**Primary OutFlow** Max=12.13 cfs @ 12.52 hrs HW=356.52' (Free Discharge)  
 ↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 12.13 cfs @ 2.64 fps)

### Summary for Pond 2P: PHASE 3

Inflow Area = 5.000 ac, 6.60% Impervious, Inflow Depth = 3.69" for CT 100-year event  
 Inflow = 13.88 cfs @ 12.30 hrs, Volume= 1.538 af  
 Outflow = 12.94 cfs @ 12.40 hrs, Volume= 1.538 af, Atten= 7%, Lag= 5.7 min  
 Discarded = 0.49 cfs @ 12.40 hrs, Volume= 0.703 af  
 Primary = 12.45 cfs @ 12.40 hrs, Volume= 0.835 af  
 Routed to Pond 8P : STORAGE AT INLET

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 375.56' @ 12.40 hrs Surf.Area= 5,273 sf Storage= 13,431 cf

Plug-Flow detention time= 150.3 min calculated for 1.538 af (100% of inflow)  
 Center-of-Mass det. time= 150.4 min ( 1,004.6 - 854.3 )

Volume	Invert	Avail.Storage	Storage Description		
#1	372.00'	18,853 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
372.00	2,534	221.0	0	0	2,534
374.00	3,862	265.0	6,350	6,350	4,304
376.50	6,235	343.0	12,503	18,853	8,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	372.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	375.00'	<b>19.0" x 36.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	376.00'	<b>100.0' long + 0.5 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

**Discarded OutFlow** Max=0.49 cfs @ 12.40 hrs HW=375.56' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.49 cfs)

**Primary OutFlow** Max=12.45 cfs @ 12.40 hrs HW=375.56' (Free Discharge)  
 ↑ **2=Orifice/Grate** (Weir Controls 12.45 cfs @ 2.44 fps)  
 ↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Summary for Pond 4P: PHASE 4 INFILTRATION BASIN

Inflow Area = 4.910 ac, 18.94% Impervious, Inflow Depth = 4.15" for CT 100-year event  
 Inflow = 14.88 cfs @ 12.34 hrs, Volume= 1.696 af  
 Outflow = 14.88 cfs @ 12.35 hrs, Volume= 1.696 af, Atten= 0%, Lag= 0.3 min  
 Discarded = 0.34 cfs @ 12.35 hrs, Volume= 0.428 af  
 Primary = 14.55 cfs @ 12.35 hrs, Volume= 1.268 af  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 376.08' @ 12.35 hrs Surf.Area= 3,624 sf Storage= 4,900 cf

Plug-Flow detention time= 48.0 min calculated for 1.696 af (100% of inflow)  
 Center-of-Mass det. time= 48.0 min ( 895.6 - 847.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	8,843 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
374.00	1,276	430.0	0	0	1,276
376.00	3,505	462.0	4,597	4,597	3,716
377.00	5,032	495.0	4,246	8,843	6,275

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	375.70'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	376.00'	<b>140.0' long + 0.5 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

**Discarded OutFlow** Max=0.34 cfs @ 12.35 hrs HW=376.08' (Free Discharge)  
 ↳ **1=Exfiltration** (Exfiltration Controls 0.34 cfs)

**Primary OutFlow** Max=14.44 cfs @ 12.35 hrs HW=376.08' (Free Discharge)  
 ↳ **2=Orifice/Grate** (Weir Controls 6.24 cfs @ 2.03 fps)  
 ↳ **3=Broad-Crested Rectangular Weir** (Weir Controls 8.20 cfs @ 0.69 fps)

### Summary for Pond 7P: PHASE 1 BASIN

Inflow Area = 0.640 ac, 42.19% Impervious, Inflow Depth = 4.95" for CT 100-year event  
 Inflow = 3.61 cfs @ 12.10 hrs, Volume= 0.264 af  
 Outflow = 0.40 cfs @ 12.90 hrs, Volume= 0.264 af, Atten= 89%, Lag= 48.3 min  
 Discarded = 0.36 cfs @ 12.90 hrs, Volume= 0.263 af  
 Primary = 0.04 cfs @ 12.90 hrs, Volume= 0.001 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



Peak Elev= 349.01' @ 12.90 hrs Surf.Area= 2,573 sf Storage= 4,914 cf

Plug-Flow detention time= 150.8 min calculated for 0.264 af (100% of inflow)  
 Center-of-Mass det. time= 150.7 min ( 967.6 - 816.9 )

Volume	Invert	Avail.Storage	Storage Description		
#1	346.00'	7,861 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
346.00	875	128.0	0	0	875
348.00	1,875	183.0	2,687	2,687	2,271
350.00	3,371	259.0	5,173	7,861	4,981

Device	Routing	Invert	Outlet Devices											
#1	Discarded	346.00'	<b>6.000 in/hr Exfiltration over Surface area</b>											
#2	Primary	349.00'	<b>15.0' long + 0.5 ' SideZ x 4.0' breadth Broad-Crested Rectangular Weir</b>											
			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	5.50				
			Coef. (English)	2.38	2.54	2.69	2.68	2.67	2.67	2.67	2.65	2.66	2.66	
				2.68	2.72	2.73	2.76	2.79	2.88	3.07	3.32			

**Discarded OutFlow** Max=0.36 cfs @ 12.90 hrs HW=349.01' (Free Discharge)  
 ↑**1=Exfiltration** (Exfiltration Controls 0.36 cfs)

**Primary OutFlow** Max=0.01 cfs @ 12.90 hrs HW=349.01' (Free Discharge)  
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.18 fps)

### Summary for Pond 8P: STORAGE AT INLET

Inflow Area = 6.910 ac, 13.89% Impervious, Inflow Depth = 2.79" for CT 100-year event  
 Inflow = 18.89 cfs @ 12.38 hrs, Volume= 1.605 af  
 Outflow = 18.88 cfs @ 12.38 hrs, Volume= 1.604 af, Atten= 0%, Lag= 0.3 min  
 Primary = 18.88 cfs @ 12.38 hrs, Volume= 1.604 af  
 Routed to Reach 6R : NEW AZUD RD CULVERT

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 347.28' @ 12.38 hrs Surf.Area= 727 sf Storage= 890 cf

Plug-Flow detention time= 1.3 min calculated for 1.604 af (100% of inflow)  
 Center-of-Mass det. time= 1.0 min ( 818.4 - 817.3 )

Volume	Invert	Avail.Storage	Storage Description		
#1	344.00'	1,058 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
344.00	43	25.0	0	0	43
346.00	266	46.0	277	277	181
347.50	827	110.0	781	1,058	984

Device	Routing	Invert	Outlet Devices
#1	Primary	344.50'	<b>18.0" Round Culvert</b> L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 344.50' / 344.00' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Primary	347.00'	<b>20.0' long + 0.5 '/ SideZ x 30.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=18.87 cfs @ 12.38 hrs HW=347.28' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 10.71 cfs @ 6.06 fps)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 8.16 cfs @ 1.43 fps)

### Summary for Pond 9P: exist pond

Inflow Area = 1.580 ac, 5.06% Impervious, Inflow Depth = 3.47" for CT 100-year event  
 Inflow = 4.68 cfs @ 12.23 hrs, Volume= 0.457 af  
 Outflow = 4.29 cfs @ 12.30 hrs, Volume= 0.457 af, Atten= 8%, Lag= 4.3 min  
 Discarded = 0.22 cfs @ 12.30 hrs, Volume= 0.121 af  
 Primary = 4.07 cfs @ 12.30 hrs, Volume= 0.336 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 352.60' @ 12.30 hrs Surf.Area= 3,149 sf Storage= 1,380 cf

Plug-Flow detention time= 6.6 min calculated for 0.457 af (100% of inflow)  
 Center-of-Mass det. time= 6.6 min ( 859.4 - 852.8 )

Volume	Invert	Avail.Storage	Storage Description		
#1	352.00'	35,597 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,543	157.0	0	0	1,543
354.00	9,094	680.0	9,589	9,589	36,388
356.00	17,356	768.0	26,009	35,597	46,631

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>3.000 in/hr Exfiltration over Surface area</b>
#2	Primary	352.00'	<b>3.0' long + 0.5 '/ SideZ x 5.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Discarded OutFlow** Max=0.22 cfs @ 12.30 hrs HW=352.60' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.22 cfs)

**Primary OutFlow** Max=4.07 cfs @ 12.30 hrs HW=352.60' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 4.07 cfs @ 2.05 fps)



### Summary for Subcatchment 2S: CB 1 & 2

Runoff = 1.76 cfs @ 12.07 hrs, Volume= 0.133 af, Depth= 5.71"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.260	98	Paved parking, HSG B
0.020	61	>75% Grass cover, Good, HSG B
0.280	95	Weighted Average
0.020		7.14% Pervious Area
0.260		92.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

### Summary for Subcatchment 3S: CB 3 AND 4

Runoff = 2.19 cfs @ 12.07 hrs, Volume= 0.153 af, Depth= 4.48"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.260	98	Paved parking, HSG B
0.150	61	>75% Grass cover, Good, HSG B
0.410	84	Weighted Average
0.150		36.59% Pervious Area
0.260		63.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

### Summary for Subcatchment 5S: NORTH

Runoff = 9.80 cfs @ 12.35 hrs, Volume= 1.129 af, Depth= 2.76"  
 Routed to Pond 4P : PHASE 4 INFILTRATION BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG B
1.150	61	>75% Grass cover, Good, HSG B
2.830	60	Woods, Fair, HSG B
4.910	67	Weighted Average
3.980		81.06% Pervious Area
0.930		18.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	200	0.0800	0.16		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.8	290	0.1500	2.71		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
1.3	300	0.0370	3.90		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
23.9	790	Total			

### Summary for Subcatchment 6S: PHASE 1

Runoff = 2.51 cfs @ 12.10 hrs, Volume= 0.183 af, Depth= 3.44"  
 Routed to Pond 7P : PHASE 1 BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.270	98	Paved parking, HSG B
0.300	61	>75% Grass cover, Good, HSG B
0.070	39	>75% Grass cover, Good, HSG A
0.640	74	Weighted Average
0.370		57.81% Pervious Area
0.270		42.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	160	0.1200	0.39		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

### Summary for Subcatchment 7S: NEW CULV

Runoff = 4.95 cfs @ 12.29 hrs, Volume= 0.531 af, Depth= 3.34"  
 Routed to Pond 8P : STORAGE AT INLET

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"



Area (ac)	CN	Description
0.630	98	Paved parking, HSG B
0.480	61	>75% Grass cover, Good, HSG B
0.800	60	Woods, Fair, HSG B
1.910	73	Weighted Average
1.280		67.02% Pervious Area
0.630		32.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	200	0.0900	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.0	140	0.1100	2.32		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
20.9	340	Total			

### Summary for Subcatchment 10S: Phase 2 Sheet

Runoff = 1.27 cfs @ 12.08 hrs, Volume= 0.089 af, Depth= 2.66"  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.050	98	Roofs, HSG B
0.350	61	>75% Grass cover, Good, HSG B
0.400	66	Weighted Average
0.350		87.50% Pervious Area
0.050		12.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	130	0.1500	0.41		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

### Summary for Subcatchment A: WEST

Runoff = 2.90 cfs @ 12.23 hrs, Volume= 0.291 af, Depth= 2.21"  
 Routed to Pond 9P : exist pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.060	43	Woods/grass comb., Fair, HSG A
0.080	98	Paved parking, HSG B
1.200	60	Woods, Fair, HSG B
0.240	61	>75% Grass cover, Good, HSG B
1.580	61	Weighted Average
1.500		94.94% Pervious Area
0.080		5.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	105	0.0570	0.27		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"
9.3	110	0.1800	0.20		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
15.8	215	Total			

### Summary for Subcatchment C: Rte 12 CB

Runoff = 4.57 cfs @ 12.34 hrs, Volume= 0.522 af, Depth= 2.76"  
 Routed to Reach 5R : Rte 12 CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.330	96	Gravel surface, HSG A
0.510	98	Paved parking, HSG A
0.160	36	Woods, Fair, HSG A
0.380	60	Woods, Fair, HSG B
0.490	49	50-75% Grass cover, Fair, HSG A
0.400	43	Woods/grass comb., Fair, HSG A
2.270	67	Weighted Average
1.760		77.53% Pervious Area
0.510		22.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	200	0.1300	0.19		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	110	0.0200	0.99		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
4.2	722	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
23.3	1,032	Total			



### Summary for Subcatchment E: EAST

Runoff = 8.77 cfs @ 12.32 hrs, Volume= 0.995 af, Depth= 2.39"  
 Routed to Pond 2P : PHASE 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
2.100	61	>75% Grass cover, Good, HSG B
2.570	60	Woods, Fair, HSG B
5.000	63	Weighted Average
4.670		93.40% Pervious Area
0.330		6.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	200	0.1000	0.17		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.40"
2.9	345	0.1600	2.00		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
22.0	545	Total			

### Summary for Subcatchment S: TO AZUD CB

Runoff = 1.87 cfs @ 12.12 hrs, Volume= 0.145 af, Depth= 3.05"  
 Routed to nonexistent node 9R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr CT 25-year Rainfall=6.30"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG A
0.200	98	Paved parking, HSG B
0.160	39	>75% Grass cover, Good, HSG A
0.180	61	>75% Grass cover, Good, HSG B
0.570	70	Weighted Average
0.340		59.65% Pervious Area
0.230		40.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	200	0.1100	0.40		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.40"

### Summary for Reach 5R: Rte 12 CB

Inflow Area = 10.490 ac, 22.50% Impervious, Inflow Depth = 1.23" for CT 25-year event  
 Inflow = 8.14 cfs @ 12.65 hrs, Volume= 1.078 af  
 Outflow = 8.14 cfs @ 12.65 hrs, Volume= 1.078 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Reach 6R: NEW AZUD RD CULVERT

Inflow Area = 6.910 ac, 13.89% Impervious, Inflow Depth = 1.56" for CT 25-year event  
 Inflow = 8.66 cfs @ 12.58 hrs, Volume= 0.900 af  
 Outflow = 8.66 cfs @ 12.58 hrs, Volume= 0.900 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

### Summary for Pond 1P: PHASE 2 STORMWATER POND

Inflow Area = 6.000 ac, 25.00% Impervious, Inflow Depth = 2.22" for CT 25-year event  
 Inflow = 11.29 cfs @ 12.33 hrs, Volume= 1.108 af  
 Outflow = 5.23 cfs @ 12.74 hrs, Volume= 1.108 af, Atten= 54%, Lag= 24.9 min  
 Discarded = 0.71 cfs @ 12.74 hrs, Volume= 0.747 af  
 Primary = 4.51 cfs @ 12.74 hrs, Volume= 0.361 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 356.05' @ 12.74 hrs Surf.Area= 7,720 sf Storage= 19,649 cf

Plug-Flow detention time= 203.0 min calculated for 1.108 af (100% of inflow)  
 Center-of-Mass det. time= 203.0 min ( 1,003.8 - 800.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	352.00'	27,718 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,896	170.0	0	0	1,896
354.00	5,044	297.0	6,688	6,688	6,639
356.00	7,651	375.0	12,605	19,293	10,864
357.00	9,223	414.0	8,425	27,718	13,344

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	355.50'	<b>4.0' long + 0.5' /' SideZ x 4.0' breadth Broad-Crested Rectangular Weir</b>
			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 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
			2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32



**Discarded OutFlow** Max=0.71 cfs @ 12.74 hrs HW=356.05' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.71 cfs)

**Primary OutFlow** Max=4.51 cfs @ 12.74 hrs HW=356.05' (Free Discharge)  
 ↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 4.51 cfs @ 1.93 fps)

### Summary for Pond 2P: PHASE 3

Inflow Area = 5.000 ac, 6.60% Impervious, Inflow Depth = 2.39" for CT 25-year event  
 Inflow = 8.77 cfs @ 12.32 hrs, Volume= 0.995 af  
 Outflow = 6.15 cfs @ 12.57 hrs, Volume= 0.995 af, Atten= 30%, Lag= 14.7 min  
 Discarded = 0.47 cfs @ 12.57 hrs, Volume= 0.626 af  
 Primary = 5.68 cfs @ 12.57 hrs, Volume= 0.369 af  
 Routed to Pond 8P : STORAGE AT INLET

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 375.33' @ 12.57 hrs Surf.Area= 5,054 sf Storage= 12,261 cf

Plug-Flow detention time= 201.8 min calculated for 0.995 af (100% of inflow)  
 Center-of-Mass det. time= 201.9 min ( 1,069.0 - 867.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	372.00'	18,853 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
372.00	2,534	221.0	0	0	2,534
374.00	3,862	265.0	6,350	6,350	4,304
376.50	6,235	343.0	12,503	18,853	8,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	372.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	375.00'	<b>19.0" x 36.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	376.00'	<b>100.0' long + 0.5 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

**Discarded OutFlow** Max=0.47 cfs @ 12.57 hrs HW=375.33' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.47 cfs)

**Primary OutFlow** Max=5.68 cfs @ 12.57 hrs HW=375.33' (Free Discharge)  
 ↑ **2=Orifice/Grate** (Weir Controls 5.68 cfs @ 1.88 fps)  
 ↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Summary for Pond 4P: PHASE 4 INFILTRATION BASIN

Inflow Area = 4.910 ac, 18.94% Impervious, Inflow Depth = 2.76" for CT 25-year event  
 Inflow = 9.80 cfs @ 12.35 hrs, Volume= 1.129 af  
 Outflow = 9.79 cfs @ 12.35 hrs, Volume= 1.129 af, Atten= 0%, Lag= 0.3 min  
 Discarded = 0.33 cfs @ 12.35 hrs, Volume= 0.396 af  
 Primary = 9.46 cfs @ 12.35 hrs, Volume= 0.733 af  
 Routed to Pond 1P : PHASE 2 STORMWATER POND

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 376.05' @ 12.35 hrs Surf.Area= 3,577 sf Storage= 4,780 cf

Plug-Flow detention time= 65.9 min calculated for 1.129 af (100% of inflow)  
 Center-of-Mass det. time= 65.8 min ( 925.2 - 859.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	8,843 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
374.00	1,276	430.0	0	0	1,276
376.00	3,505	462.0	4,597	4,597	3,716
377.00	5,032	495.0	4,246	8,843	6,275

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	<b>4.000 in/hr Exfiltration over Surface area</b>
#2	Primary	375.70'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	376.00'	<b>140.0' long + 0.5 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

**Discarded OutFlow** Max=0.33 cfs @ 12.35 hrs HW=376.05' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.33 cfs)

**Primary OutFlow** Max=9.34 cfs @ 12.35 hrs HW=376.05' (Free Discharge)

↑ **2=Orifice/Grate** (Weir Controls 5.45 cfs @ 1.94 fps)

↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 3.88 cfs @ 0.54 fps)

### Summary for Pond 7P: PHASE 1 BASIN

Inflow Area = 0.640 ac, 42.19% Impervious, Inflow Depth = 3.44" for CT 25-year event  
 Inflow = 2.51 cfs @ 12.10 hrs, Volume= 0.183 af  
 Outflow = 0.28 cfs @ 12.93 hrs, Volume= 0.183 af, Atten= 89%, Lag= 49.6 min  
 Discarded = 0.28 cfs @ 12.93 hrs, Volume= 0.183 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



Peak Elev= 348.25' @ 12.93 hrs Surf.Area= 2,036 sf Storage= 3,169 cf

Plug-Flow detention time= 115.4 min calculated for 0.183 af (100% of inflow)  
 Center-of-Mass det. time= 115.4 min ( 942.7 - 827.3 )

Volume	Invert	Avail.Storage	Storage Description		
#1	346.00'	7,861 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
346.00	875	128.0	0	0	875
348.00	1,875	183.0	2,687	2,687	2,271
350.00	3,371	259.0	5,173	7,861	4,981

Device	Routing	Invert	Outlet Devices											
#1	Discarded	346.00'	<b>6.000 in/hr Exfiltration over Surface area</b>											
#2	Primary	349.00'	<b>15.0' long + 0.5 ' SideZ x 4.0' breadth Broad-Crested Rectangular Weir</b>											
			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	5.50				
			Coef. (English)	2.38	2.54	2.69	2.68	2.67	2.67	2.67	2.65	2.66	2.66	
				2.68	2.72	2.73	2.76	2.79	2.88	3.07	3.32			

**Discarded OutFlow** Max=0.28 cfs @ 12.93 hrs HW=348.25' (Free Discharge)  
 ↗1=Exfiltration (Exfiltration Controls 0.28 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=346.00' (Free Discharge)  
 ↗2=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

### Summary for Pond 8P: STORAGE AT INLET

Inflow Area = 6.910 ac, 13.89% Impervious, Inflow Depth = 1.56" for CT 25-year event  
 Inflow = 8.85 cfs @ 12.54 hrs, Volume= 0.901 af  
 Outflow = 8.66 cfs @ 12.58 hrs, Volume= 0.900 af, Atten= 2%, Lag= 2.1 min  
 Primary = 8.66 cfs @ 12.58 hrs, Volume= 0.900 af  
 Routed to Reach 6R : NEW AZUD RD CULVERT

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 346.58' @ 12.58 hrs Surf.Area= 446 sf Storage= 481 cf

Plug-Flow detention time= 1.6 min calculated for 0.900 af (100% of inflow)  
 Center-of-Mass det. time= 1.1 min ( 829.1 - 828.0 )

Volume	Invert	Avail.Storage	Storage Description		
#1	344.00'	1,058 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
344.00	43	25.0	0	0	43
346.00	266	46.0	277	277	181
347.50	827	110.0	781	1,058	984

Device	Routing	Invert	Outlet Devices
#1	Primary	344.50'	<b>18.0" Round Culvert</b> L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 344.50' / 344.00' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Primary	347.00'	<b>20.0' long + 0.5 '/ SideZ x 30.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=8.65 cfs @ 12.58 hrs HW=346.58' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 8.65 cfs @ 4.90 fps)  
 ↑ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Summary for Pond 9P: exist pond

Inflow Area = 1.580 ac, 5.06% Impervious, Inflow Depth = 2.21" for CT 25-year event  
 Inflow = 2.90 cfs @ 12.23 hrs, Volume= 0.291 af  
 Outflow = 2.61 cfs @ 12.31 hrs, Volume= 0.291 af, Atten= 10%, Lag= 4.9 min  
 Discarded = 0.19 cfs @ 12.31 hrs, Volume= 0.095 af  
 Primary = 2.42 cfs @ 12.31 hrs, Volume= 0.196 af  
 Routed to Reach 5R : Rte 12 CB

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 352.45' @ 12.31 hrs Surf.Area= 2,684 sf Storage= 933 cf

Plug-Flow detention time= 6.8 min calculated for 0.291 af (100% of inflow)  
 Center-of-Mass det. time= 6.8 min ( 873.1 - 866.3 )

Volume	Invert	Avail.Storage	Storage Description		
#1	352.00'	35,597 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
352.00	1,543	157.0	0	0	1,543
354.00	9,094	680.0	9,589	9,589	36,388
356.00	17,356	768.0	26,009	35,597	46,631

Device	Routing	Invert	Outlet Devices
#1	Discarded	352.00'	<b>3.000 in/hr Exfiltration over Surface area</b>
#2	Primary	352.00'	<b>3.0' long + 0.5 '/ SideZ x 5.0' breadth Broad-Crested Rectangular Weir</b> 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 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Discarded OutFlow** Max=0.19 cfs @ 12.31 hrs HW=352.45' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.19 cfs)

**Primary OutFlow** Max=2.42 cfs @ 12.31 hrs HW=352.45' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 2.42 cfs @ 1.68 fps)



22203 DRAINAGE AREA PLANS 2023-01-31.dwg EXISTING Drainage Areas 1/30/2023 11:02:15



**LEGEND**

---	PHASE LINE
---	DRAINAGE AREA LINE
---	PROPERTY LINE
---	EXISTING CONTOUR LINE
---	PROPOSED CONTOUR LINE

**EXISTING CONDITIONS  
DRAINAGE AREA PLAN  
FOR  
HILLSIDE TOWN HOMES  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT**

**J&D CIVIL ENGINEERS, LLC**  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: JJB CHECKED: DRB	REVISIONS:
JOB NO: 22203 SCALE: 1" = 60'	DATE: JANUARY 31, 2023 SHEET: 1



22203 DRAINAGE AREA PLANS 2023-01-31.dwg PROPOSED DRAINAGE AREA MAP 1/30/2023 11:03:00



**LEGEND**

--- PHASE LINE  
--- DRAINAGE AREA LINE  
... PROPERTY LINE  
--- EXISTING CONTOUR LINE  
--- PROPOSED CONTOUR LINE

**PROPOSED CONDITIONS  
DRAINAGE AREA PLAN  
FOR  
HILLSIDE TOWNHOMES**  
RIVERSIDE DRIVE AND AZUD ROAD - THOMPSON, CT

**J&D** CIVIL  
ENGINEERS, LLC  
401 RAVENELLE ROAD  
N. GROSVENORDALE, CT 06255  
860-923-2920

DESIGNED: JJB  
CHECKED: DRB

REVISIONS:

JOB NO: 22203  
SCALE: 1" = 60'

DATE: JANUARY 31, 2023  
SHEET: 1



JOB NO. 22203  
DATE 1/25/23  
BY JJB  
CH'D BY \_\_\_\_\_

**J & D** CIVIL  
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401 Ravenelle Road  
North Grosvenordale, CT 06255  
(860) 923-2920 | www.jdcivilengineers.com

SHEET NO. 1  
JOB \_\_\_\_\_  
SUBJECT WQV  
CLIENT LAVALLEE

## STORMWATER QUALITY CALCULATIONS

DETERMINE WQV FOR THE 4 STORMWATER BASINS

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

(IN AC-FT)

$$R = 0.05 + 0.0009 I$$

$$I = \% \text{ IMPERVIOUS}$$

$$A = \text{AREA (AC)}$$

### STORMWATER BASIN #1

TOTAL AREA = 0.64 AC, ALL FROM PHASE I  
% IMPERVIOUS = 42.2% (SEE HYDROCAD)

$$R = 0.088$$

$$WQV = \frac{1(0.088)(0.64)}{12} = 0.0047 \text{ AC-FT}$$

$$\underline{\underline{WQV = 204 \text{ FT}^3 \text{ REQUIRED}}}$$

### STORMWATER BASIN #2

$$\begin{aligned} \text{TOTAL AREA} &= \text{AREA 'WEST'} + \text{CB 1, 2, 3 \& 4} \\ &= 1.98 + 0.28 + 0.41 = 2.67 \text{ AC} \end{aligned}$$

$$\text{AREA IMP} = 0.08 + 0.26 + 0.26 = 0.60 \text{ AC}$$

$$\% \text{ IMP AREA} = 0.60 / 2.67 = 0.23 = 23\%$$

$$R = 0.05 + 0.0009(23) = 0.07$$

$$WQV = \frac{1(0.07)(2.67)}{12} = 0.016 \text{ AC-FT}$$

$$\underline{\underline{WQV = 685 \text{ FT}^3 \text{ REQUIRED}}}$$

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SHEET NO. 2  
JOB \_\_\_\_\_  
SUBJECT WQV  
CLIENT LAVALLEE

### STORMWATER BASIN #3

$$\text{TOTAL AREA} = \text{AREA 'EAST'} = 5.00 \text{ AC}$$

$$\% \text{ IMP AREA} = 6.6 \%$$

$$R = 0.05 + 0.0009(6.6) = 0.056$$

$$\text{WQV} = \frac{1(0.056)(5.0)}{12} = 0.023 \text{ AC-FT}$$

$$\underline{\underline{\text{WQV} = 1,016 \text{ FT}^3 \text{ REQ'D}}}$$

### STORMWATER BASIN #4

$$\text{TOTAL AREA} = \text{'NORTH'} = 4.91 \text{ AC}$$

$$\% \text{ IMP. AREA} = 18.9 \%$$

$$R = 0.05 + 0.0009(18.9) = 0.67$$

$$\text{WQV} = \frac{1(0.67)(4.91)}{12} = 0.027 \text{ AC-FT}$$

$$\underline{\underline{\text{WQV} = 1194 \text{ FT}^3 \text{ REQ'D}}}$$

### DETERMINE WQV PROVIDED ON SITE

#### STORMWATER BASIN #1 - THIS BASIN STORES

7860 FT<sup>3</sup> OF RUNOFF AND IS DESIGNED FOR INFILTRATION IN THE VERY PERVIOUS HINKLEY SOILS,

$$\underline{\underline{7860 \text{ FT}^3 > 204 \text{ FT}^3 \therefore \text{GOOD}}}$$



JOB NO. 222203  
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SHEET NO. 3  
JOB \_\_\_\_\_  
SUBJECT WQV  
CLIENT LAVALLEE

### STORMWATER BASIN #2

CREATE A SEPARATE SEDIMENT FOREBAY AT  
OUTLET OF PIPES. DIMENSIONS:  
 $\frac{1}{2} (50)(50) 2' \text{ DEEP} =$

STORMWATER BASIN #3 - THIS BASIN STORES  
APPROXIMATELY 10,000 FT<sup>3</sup> UP TO ELEV 375.00  
CB GRATE

$$\underline{\underline{10,000 > 1,016 \text{ FT}^3 \therefore \text{GOOD}}}$$

STORMWATER BASIN #4 - THIS BASIN STORES  
APPROXIMATELY 4000 FT<sup>3</sup> UP TO ELEV 375.7  
YARD BOX GRATE

$$\underline{\underline{4000 \text{ FT}^3 > 1194 \text{ FT}^3 \therefore \text{GOOD}}}$$

JOB NO. 22203  
DATE 1/20/23  
BY JSB  
CH'D BY \_\_\_\_\_

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SHEET NO. \_\_\_\_\_  
JOB \_\_\_\_\_  
SUBJECT DRAINAGE  
CLIENT LAVALLEE

INFILTRATION VELOCITIES TO USE IN HYDROCAD

$V = \text{EXFILTRATION VELOCITY (IN/HR)}$

$$V = \frac{60}{P}$$

$P = \text{PERC RATE IN MIN/IN}$

FOR HYD SOIL GROUP B (73 C, 73 E)

CHARLTON CHATFIELD

DRAINAGE CLASS: WELL DRAINED

PERC RATES FROM 2011 SUBDIVISION

A	4.4
B	3.6
C	2.2
D	6.6
E	4.4
F	6.6

} AVERAGE 4.6 MIN/IN

$$V = \frac{60}{4.6} = 13 \text{ IN/HR}$$

TO BE CONSERVATIVE USE  $\frac{1}{3}$  OR  $V = 4 \text{ IN/HR}$

FOR HYD SOIL GROUP A (38 C - HINCKLEY LOAMY SAND)

EXISTING WETLANDS INFILTRATE INTO GROUND

ASSUME PERC = 2 MIN/IN

$$V = \frac{60}{2} = 30 \text{ IN/HR}$$

TO BE CONSERVATIVE USE  $\frac{1}{3}$  OR 10 IN/HR

(THIS IS ONLY APPLICABLE FOR THE  
PHASE I STORMWATER BASIN)



JOB NO. 22203  
DATE 1/30/23  
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SHEET NO. \_\_\_\_\_  
JOB HILLSIDE  
SUBJECT DRAWAGE  
CLIENT LAVALLEE

## DESIGN OF RIPRAP OUTLET PROTECTION

- USE 25 YR DESIGN STORM
- USE CONDOT DRAINAGE MANUAL CHAPTER 8.7  
OUTLET PROTECTION GUIDELINES
- FOR RIPRAP SIZES FOR TYPE 'A' APRONS

VELOCITY	RIPRAP	$d_{50}$
0-8 FT/S	MODIFIED	$< 0.42'$
8-10 FT/S	INTERMEDIATE	$0.42' < 0.67'$
10-14 FT/S	STANDARD	$0.67' < 1.25'$

### OUTLET #1 - FROM CBS #3 + #4

$$Q_{25} = 2.2 \text{ CFS}$$

$$\text{PIPE} = 12" \text{ CPP}, S = \frac{368.67 - 355.0}{90} = 0.15 \text{ FT/FT}$$

$$Q_{\text{FULL}} = 14.9 \text{ CFS}, V_{\text{FULL}} = 19 \text{ FT/S} \quad \frac{Q}{Q_{\text{FULL}}} = 0.15$$

$$V = 9.8 \text{ FT/S} \quad \therefore \text{USE INTERMEDIATE RIPRAP}$$

$$\text{USE A RIPRAP APRON W/ } L_a = 10'$$

$$W_1 = 3D = 3'$$

$$W_2 = 3D + 0.7L_a = 3 + 7 = 10'$$

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JOB HILLSIDE  
SUBJECT DRAWAGE  
CLIENT LAVALLEE

OUTLET # 2 - FROM CB # 2

$$Q_{25} = 1.76 \text{ CFS}$$

$$\text{PIPE} = 12" \text{ CPP} \quad S = \frac{357.93 - 357.0}{104} = 0.009 \text{ FT/FT}$$

$$Q_{\text{FULL}} = 3.7 \text{ CFS}, \quad V_{\text{FULL}} = 4.67, \quad \frac{Q}{Q_{\text{FULL}}} = 0.48$$

$$V = 4.6 \text{ FT/s} \quad \therefore \text{USE MODIFIED RIPRAP}$$

$$L_a = 10'$$

$$W_1 = 3D = 3', \quad W_2 = 3D + 0.7L_a = 10'$$

OUTLET # 3 - FROM PHASE 3 BASIN

$$Q_{25} = 5.68 \text{ CFS}$$

$$\text{PIPE} = 15" \text{ CPP} \quad S = \frac{368 - 364}{70'} = 0.057$$

$$Q_F = 16.7 \text{ CFS}, \quad V_F = 13.6, \quad \frac{Q}{Q_F} = 42\%, \quad V = 12.5 \text{ FT/s}$$

$$\therefore \text{USE STANDARD RIPRAP}, \quad L_a = 10'$$

$$W_1 = 3D = 3.75', \quad \text{SAY } 4'$$

$$W_2 = 3D + 0.7L_a = 3.75 + 7 = 10.75, \quad \text{SAY } 11'$$



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ENGINEERS LLC  
401 Ravenelle Road  
North Grosvenordale, CT 06255  
(860) 923-2920 | www.jdcivilengineers.com

SHEET NO. \_\_\_\_\_  
JOB HILLSIDE  
SUBJECT DRAWAGE  
CLIENT LAVALLEE

OUTLET #4 - FROM PHASE 4 BASIN

$$Q_{25} = 9.46 \text{ CFS}, \text{ PIPE} = 15''$$

$$S = \frac{373.7 - 355.0}{190'} = 0.098 \text{ FT/FT}$$

$$Q_F = 21.9, V_F = 17.8, \frac{Q}{Q_F} = 43\%, V = 16.7 \text{ FT/S}$$

OUTLET  $V > 14 \text{ FT/S}$   $\therefore$  SCOUR HOLE

NOTE: THIS OUTLET WILL BE ADJACENT TO  
OUTLET #1 AT THE SEDIMENT FOREBAY  
 $\therefore$  SHOW AREA W/ STANDARD RIPRAP

OUTLET PROTECTION - OUTLET VELOCITY  $\leq 14$  feet/sec

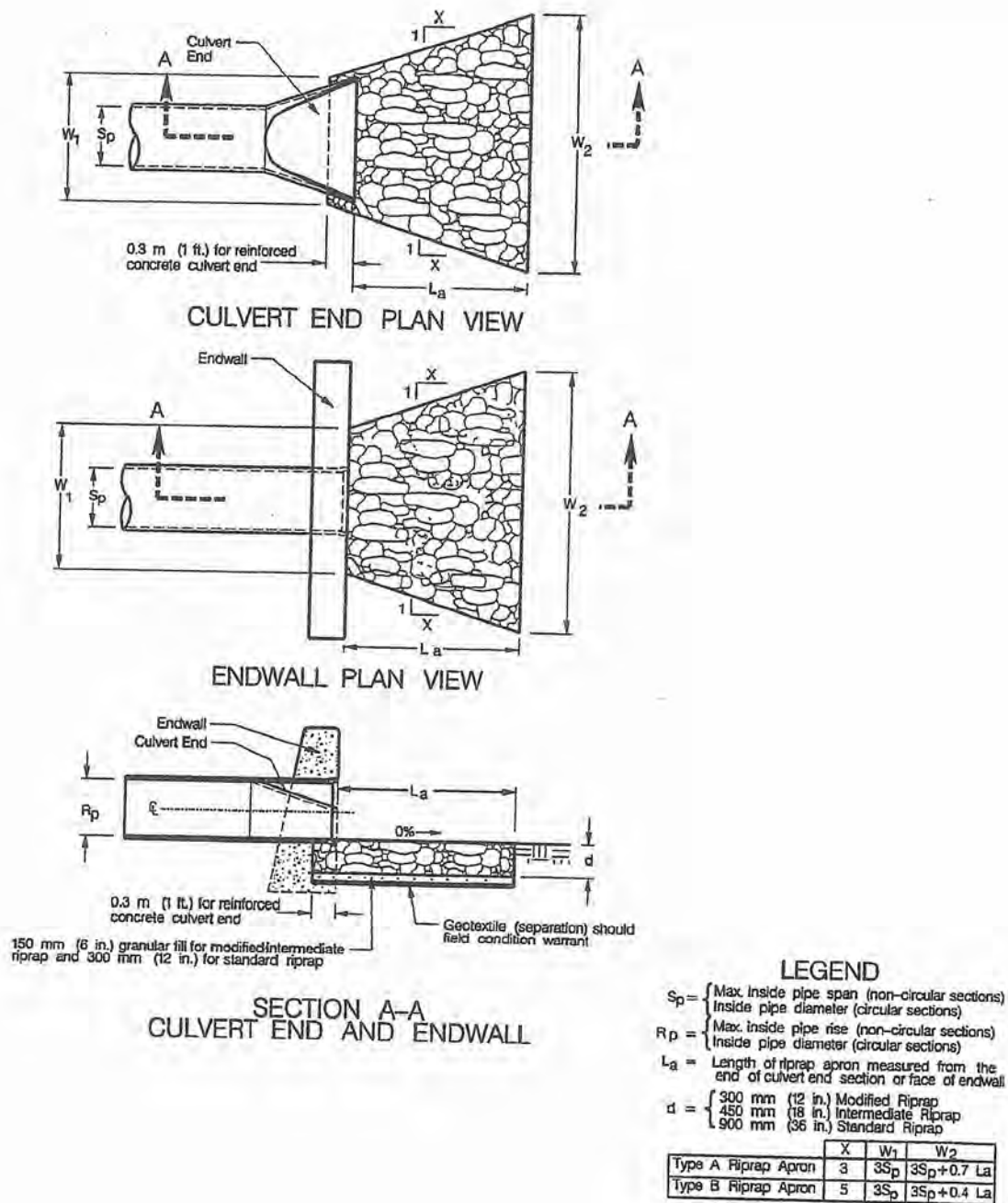
DISCHARGE (cfs)	OUTLET PIPE DIAMETER OR SPAN (in)									
	12	15	18	24	30	36	42	48	54	60
0-5	<b>10</b>	<b>10</b>		<i>USE</i>						
6	12	11								
7		13	<b>12</b>							
8		14	13	<b>12</b>		<i>MINIMUM</i>				
9			14	13						
10			15	13						
11			16	14				<i>LENGTH</i>		
12				14						
14				16	<b>14</b>					
16				17	15	<b>14</b>			<i>OUTLINED</i>	
18				18	16	15				
20					17	15	<b>14</b>			
22		<i>USE</i>			18	16	15			
24						17	15	<b>14</b>		
26						17	16	15		
28						18	16	15		
30						19	17	16		
35						20	18	17	<b>16</b>	
40			<i>PREFORMED</i>				20	18	17	<b>16</b>
45							21	19	18	16
50							22	20	18	17
55								21	19	18
60								22	20	19
65								24	21	20
70					<i>SCOUR</i>			25	22	20
75								26	23	21
80									24	22
90									26	24
100									28	25
110										27
125							<i>HOLE</i>			29
130										30

Table 8-6.1 - Length -  $L_a$  (feet)

## Type A Riprap Apron

- Notes: 1. Bold face outlined boxes indicate minimum  $L_a$  to be used for a given pipe diameter or span.  
 2. Rounding and interpolating are acceptable.





**Figure 8-9 Type A and B Riprap Apron**  
(to be used where there is no defined channel downstream of the outlet)

## Appendix B LID Checklist

### TOWN OF THOMPSON

#### LID CHECKLIST—Required for site plan review

Applicants must complete and submit the following checklist with the application

Date: <u>JANUARY 31, 2023</u>	Project: <u>HILLSIDE TOWNHOMES</u>	Verifier: <u>JANET BLANCHETTE, PE</u>
Name and Profession		
Conformance with the following criteria shall be initialed in the spaces provided below by a Connecticut Registered Professional Engineer, Land Surveyor or Certified Soils Scientist as appropriate. If conditions cannot be met, or are not appropriate for the project, comments addressing each item should be provided by the applicant in the space provided.		

Item	Description	Verified	Comments
1	Development is designed avoiding critical watercourses, wetlands and steep slopes.	YES AND NO	NO DISTURBANCE TO WETLANDS. THE SITE WAS PREVIOUSLY EXCAVATED & LEFT WITH STEEP SLOPES. DEVELOPMENT WILL DECREASE THE SLOPE
2	Development has been located to maximize preservation of contiguous natural sensitive areas.	YES	IN 2011 THE OWNER SET ASIDE ALMOST HALF OF THE AREA OF THE TWO LOTS FOR CONSERVATION RESTRICTIONS WHEN THE PROPERTY WAS SUB-DIVIDED.
3	Natural areas, including woodlands, regulated wetland areas and naturally vegetated areas have been preserved and/or replicated to the maximum extent practical.	YES	
4	Onsite soils have been assessed to determine suitability for stormwater infiltration.	YES	

5	<p>Limits of disturbance have been delineated to avoid unnecessary clearing or grading.</p>	YES	LIMITS OF DISTURBANCE (L.O.D.) LINES FOR EACH PHASE HAVE BEEN SHOWN
6	<p>Reduce and Disconnect Impervious Cover</p> <p>Impervious surfaces have been kept to the minimum extent practicable, using the following methods:</p> <p>(Check which methods were used.)</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Minimized road widths 22'</li> <li><input checked="" type="checkbox"/> Minimized driveway area</li> <li><input checked="" type="checkbox"/> Minimized sidewalk area</li> <li><input checked="" type="checkbox"/> Minimized cul-de-sacs</li> <li><input checked="" type="checkbox"/> Minimized building footprint</li> <li><input checked="" type="checkbox"/> Minimized parking lot area</li> </ul>	YES	
7	<p>Impervious surfaces have been disconnected from the stormwater system and directed to appropriate pervious areas, where practicable. Pervious areas may be LID practices or uncompacted turf areas.</p>	YES	PROPOSED IMPERVIOUS AREAS HAVE NOT BEEN CONNECTED TO EXISTING STORMWATER SYSTEMS
8	<p>Sheet flow is used to the maximum extent possible to avoid concentrating runoff.</p>	YES	
9	<p>Vegetated swales have been installed adjacent to driveways and/or roads in lieu of a curb and gutter stormwater collection system.</p>	YES	



10	Rooftop drainage is discharged to bioretention/rain gardens.	YES	ROOFTOPS DRAIN TO STORMWATER BASINS FOR INFILTRATION
11	Rooftop drainage is discharged to drywell or infiltration trench.	NO	
12	Rain water harvesting methods such as rain barrels or cisterns have been installed to manage roof drainage.	NO	
13	Bioretention basins or rain gardens have been incorporated within yards, median strips, cul-de-sac islands and parking lot islands.	NO	
14	Permeable (porous) pavement has been incorporated into areas of low traffic, parking lots, residential and light commercial use driveways, walkways, bike paths etc.	NO	
15	Stormwater infiltration for impervious areas has been provided by the use of underground storage units, devices, and/or infiltration swales/trenches.	YES	

Agenda Item E.c) Applications Received After Agenda  
was Published

None



Agenda Item F) Permit Extensions / Changes - None

## Agenda Item G.a) Violations & Pending Enforcement Actions

**Notice of Permit Violation VIOL21036**, Permit  
IWA20022, Marc Baer, 1227 Thompson Rd  
(Assessor's map 116, block 24, lot 10), grades not  
as authorized in modified plan approved by the  
Commission on February 9, 2021 - status.



## Agenda Item G.b) Violations & Pending Enforcement Actions

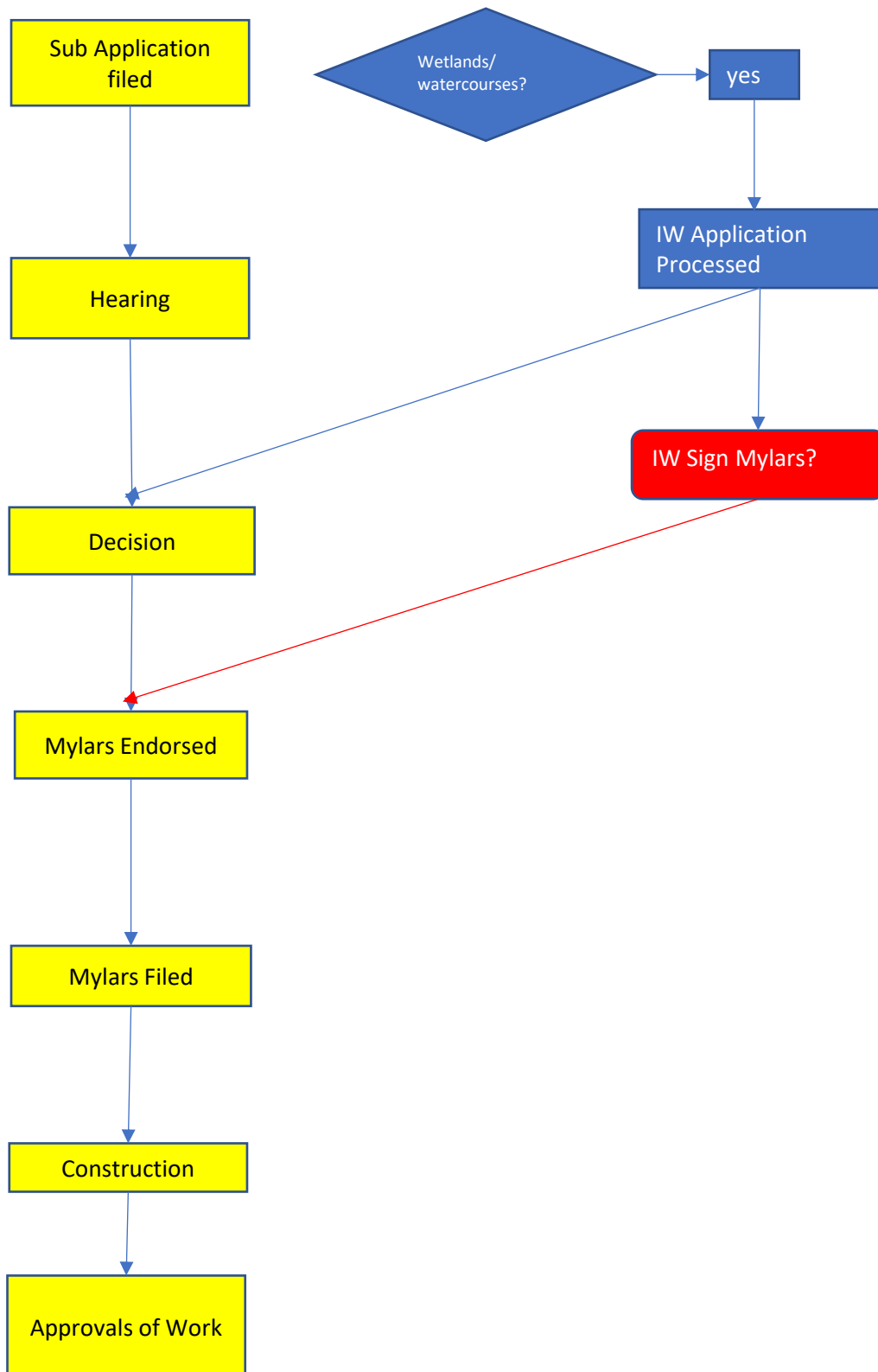
**Notice of Violation VIOL22031**, Douglas and Roberta Gray, 0 New Road, (Assessors map 154, block 3, lot2J), watercourse alternative causing flooding, issued 11/23/22 - status.

## Agenda Item H.a) Other Business

Update on Proposed Revisions Subdivision  
Regulations.



## Question on Subdivision Mylars



Agenda Item H.b) Other Business

FY23-24 Budget.



Agenda Item I

Citizens Comments on Agenda Items

## Agenda Item J Reports

a) Budget & Expenditures

b) Wetlands Agent Report

## Agenda Item K, Correspondence -

- a) Connecticut Land Use Law for Municipal Land Use Agencies, Boards, and Commissions
- b) Letter from Eastern Connecticut Conservation District, Inc.



Agenda Item L, Signing of Mylars - None

Agenda Item M, Comments by Commissioners

Agenda Item N, Adjournment