

**PUBLIC MEETING AGENDA**  
MUNICIPALITY OF WOODSTOCK, VERMONT  
WOODSTOCK CONSERVATION COMMISSION  
31 The Green  
Woodstock, VT 05091

The Conservation Commission will meet at **5:00 PM** on **Wednesday, January 21st, 2026.**

The Meeting will be held via Zoom [CLICK HERE TO JOIN](#).  
The login information is at the bottom of this agenda.

1. Call to Order: 5:00 PM
2. Public Hearing:
  - A. **T-0033-26 – Ana Cristina Arumi**  
Location: 5274 West Woodstock Road  
Parcel ID: 06.01.10.002  
Review Type: Conditional Use  
Proposed Development: To replace 8' x 13' deck on rear of house with 16' x 37' deck.
  - B. **T-0035-26 – Green Mountain Horse Association**  
Location: 5491 South Road  
Parcel ID: 33.02.22  
Review Type: Conditional Use  
Proposed Development: To reconstruct the Upwey Arena and undertake regrading and floodplain benching at 5 locations along the Kedron Brook.
3. Other Business:
4. Approval of Minutes: 11/24/25
5. Adjournment

To join the Conservation Commission Meeting via Zoom, [CLICK HERE](#) then enter the following:

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**Meeting ID:** 886 4885 1165  
**Passcode:** 345452



# Woodstock, Vermont

*The Shire Town of Windsor County*

*TOWN-VILLAGE MANAGER GOVERNMENT*

Town Hall • P.O. Box 488 • Woodstock, Vermont 05091 • 802/457-3456

## Planning & Zoning Application

Date: 11/26/2025

### Applicant / Co-Applicant

Applicant: Cristina Arumi  
Name:  
Address: 5274 West Woodstock Road  
City, State, Zip: Woodstock, Vermont 05091  
Phone: 4438272680  
Email: farmhouseinnvermont@gmail.com

Co-Applicant:  
Address:  
City, State, Zip:  
Phone:  
Email:

### Agent

Authorized Agent: Peter Raymond  
Address: 30 Main Street, 6th Floor  
City, State, Zip: Burlington, VT

Phone: 8028656355  
Email: praymond@sheeheyvt.com

### Details

Contact Method: email  
Mail To: 5274 West Woodstock Road  
Parcel ID: 06.01.10.002  
Site Address: 5274 West Woodstock Road

Zoning: Inn  
Overlay: Flood Hazard  
Project Cost: 30000.00  
Habitable: .00  
Non-Habitable: 592.00

Project Description: Replace existing 8ft x 13ft deck on rear of existing house with 16ft x 37 ft. deck.

I do hereby certify that the information contained herein is true and correct.

Peter Raymond

Name

11/26/2025

Date

## Woodstock Planning & Zoning Application

All applicants must be the owner, the owner's attorney, or authorized agent of property described herein. A person holding a binding agreement to purchase property may sign application by providing written proof of such agreement. If an agent or attorney will represent or speak on owner's behalf, owner must complete the agent portion of this application.

Applicant: Cristina Arumi Phone: 443-827-2080 Email: farmhouseinnvermont@gmail.com  
Address: 5274 West Woodstock Rd City/Town: WOODSTOCK State: VT Zip Code: 05091

Co-Applicant: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_  
Address: \_\_\_\_\_ City/Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Signature(s): Cristina Arumi

\*What is the best way to contact you? Phone or Email Contact Peter Raymond  
\*What address would you like your Notice of Hearing/Permit mailed to? 5274 West Woodstock Rd.

### Agent Authorization

(a representative speaking on behalf of the owner/applicant)

I, Ana Cristina Arumi, owner of property located at 5274 West Woodstock Rd, Woodstock, Vermont, hereby designate as my agent.

Name of Agent: Peter Raymond Phone: 8028656355 Email: praymond@sheeheyvt.com  
Address: 30 Main Street, 6th Floor City/Town: Burlington State: VT Zip Code: 05402

Agent may be accepted as though made by me personally, and I understand that I may be bound by an official decision made based upon such representation

Signature: Cristina Arumi

Parcel ID Number(s): \_\_\_\_\_ Address: \_\_\_\_\_ Zoning District: \_\_\_\_\_ Overlay District: \_\_\_\_\_

Proposal of project: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Planning & Zoning Office Only

Village Design Review Hearing Date: \_\_\_\_\_ Village Development Review Hearing Date: \_\_\_\_\_

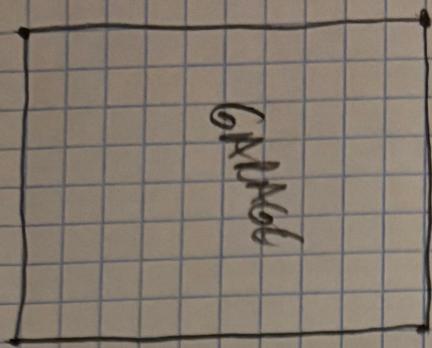
Town Development Review Hearing Date: \_\_\_\_\_ South Woodstock Review Hearing Date: \_\_\_\_\_

Planning Commission Hearing Date: \_\_\_\_\_ Conservation Commission Hearing Date: \_\_\_\_\_ Administrative: \_\_\_\_\_

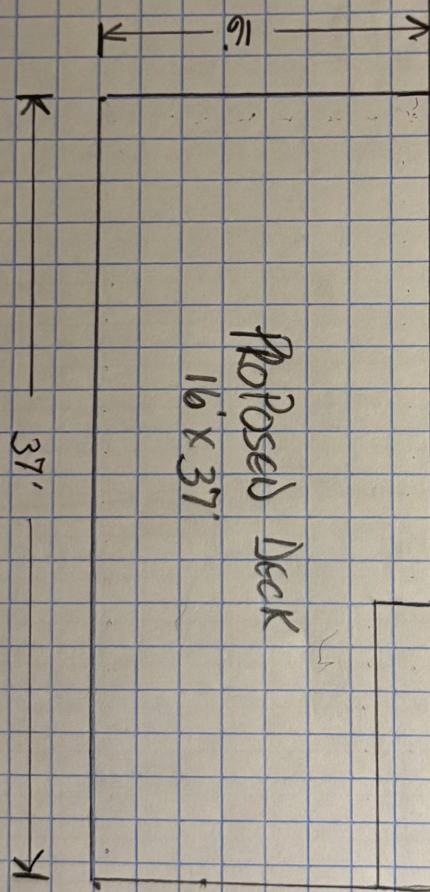
Date Recvd: \_\_\_\_\_ Date Complete: \_\_\_\_\_ By: \_\_\_\_\_ Application #: \_\_\_\_\_

Review Fee: \_\_\_\_\_ Itemized Fee: \_\_\_\_\_ Recording Fee: \_\_\_\_\_ Total Fee: \_\_\_\_\_

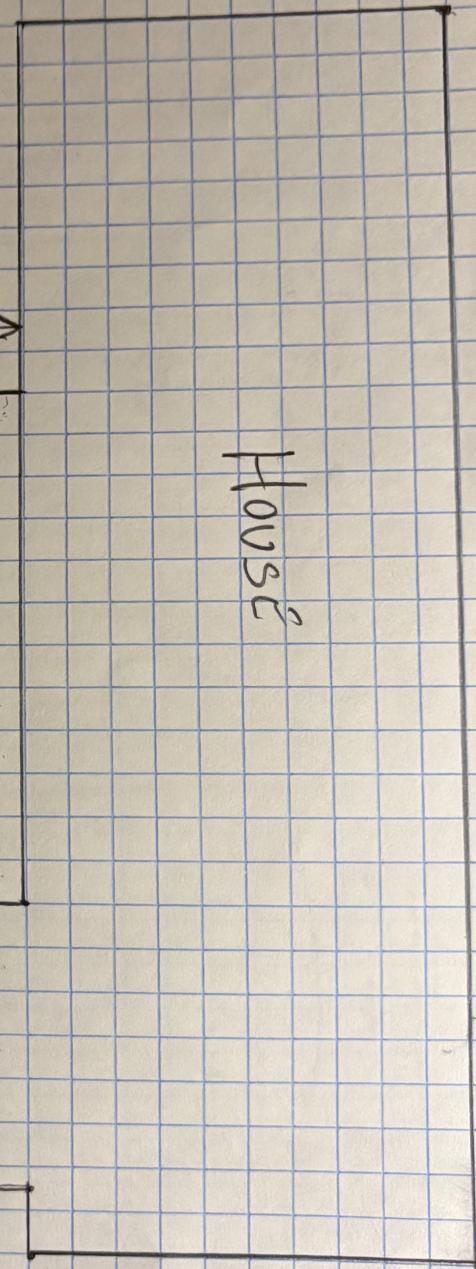
Paid: cash \_\_\_\_\_ check \_\_\_\_\_ MuniPay: \_\_\_\_\_ Payment Date: \_\_\_\_\_



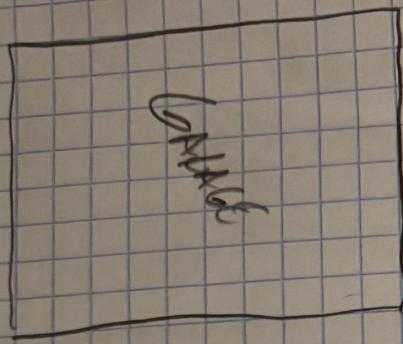
Garden



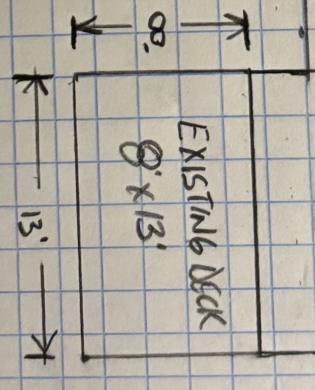
Proposed Deck  
16' x 37'

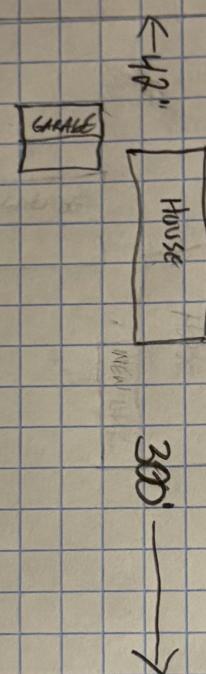


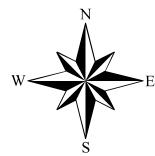
House



House







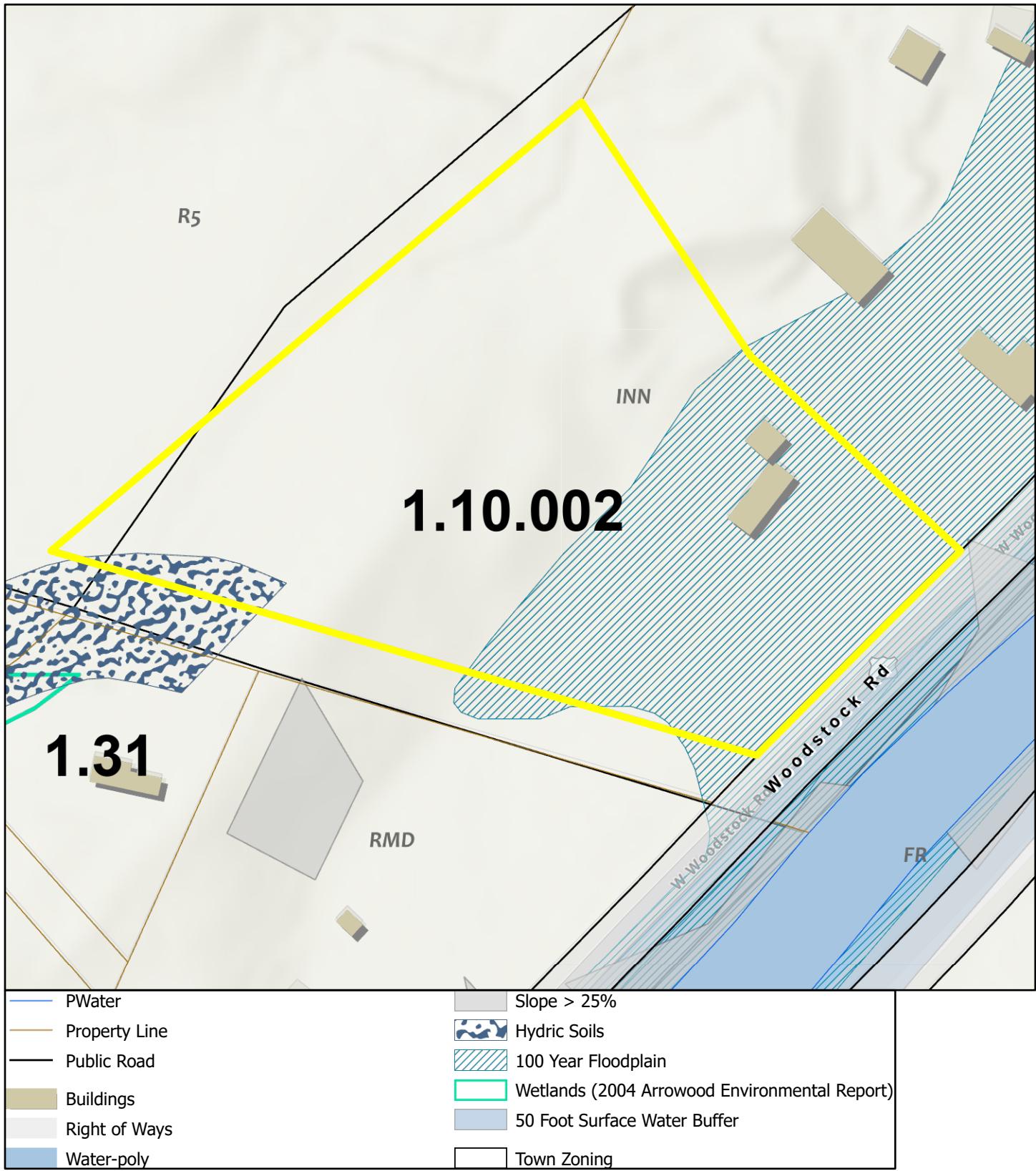
Town of Woodstock, VT

1 inch = 120 Feet

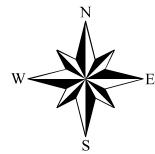
December 2, 2025

0 120 240 360

**CAI** Technologies  
Precision Mapping. Geospatial Solutions.  
[www.cai-tech.com](http://www.cai-tech.com)



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.



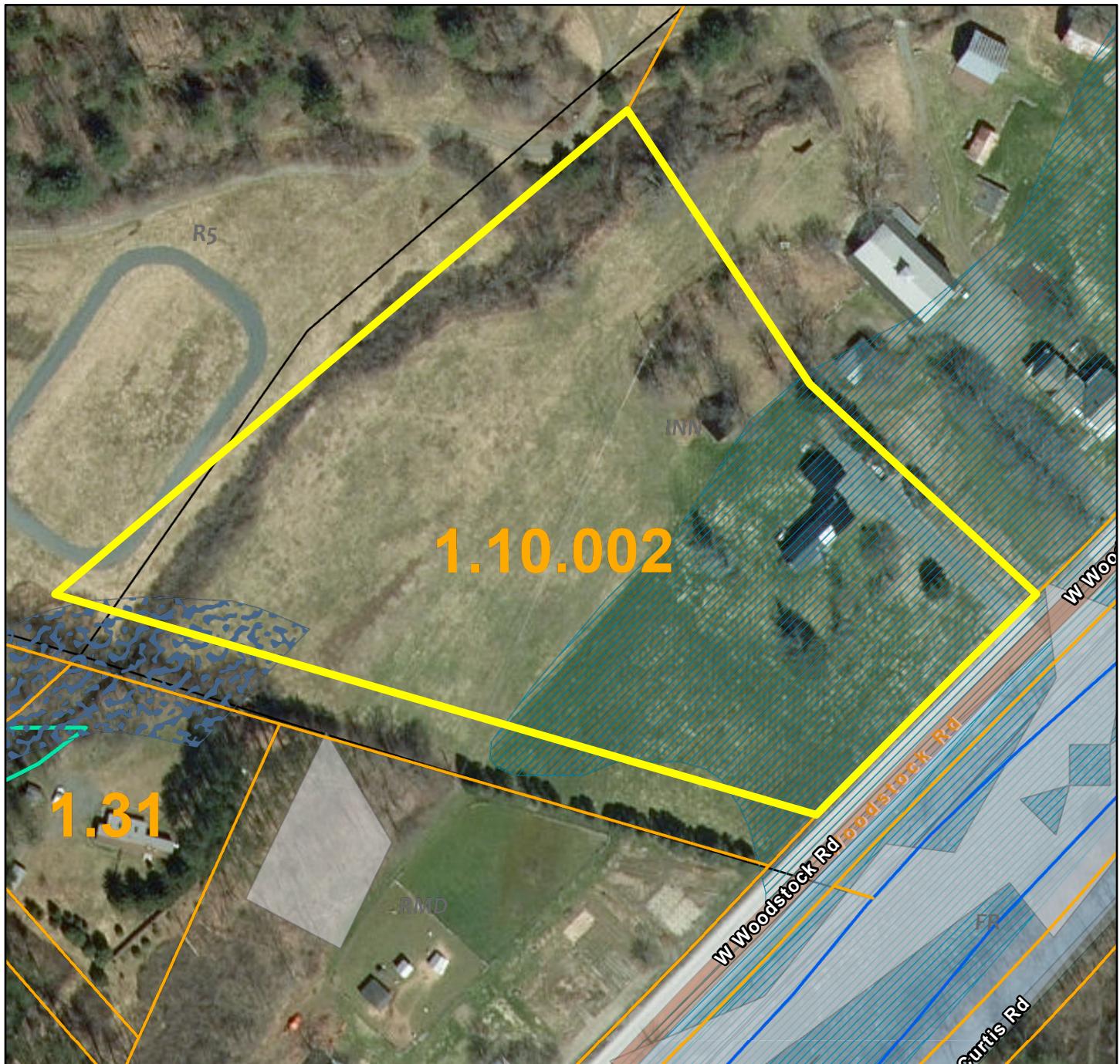
Town of Woodstock, VT

1 inch = 120 Feet

December 2, 2025

0 120 240 360

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[www.cai-tech.com](http://www.cai-tech.com)



— PWater	Hydric Soils
— Property Line	100 Year Floodplain
— Public Road	Wetlands (2004 Arrowood Environmental Report)
— Water-poly	50 Foot Surface Water Buffer
— Slope > 25%	Town Zoning

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

## Woodstock Planning & Zoning Application

All applicants must be the owner, the owner's attorney, or authorized agent of property described herein. A person holding a binding agreement to purchase property may sign application by providing written proof of such agreement. If an agent or attorney will represent or speak on owner's behalf, owner must complete the agent portion of this application.

Applicant: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Address: \_\_\_\_\_ City/Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Co-Applicant: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Address: \_\_\_\_\_ City/Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Signature(s): \_\_\_\_\_

\*What is the best way to contact you? Phone or Email \_\_\_\_\_

\*What address would you like your Notice of Hearing/Permit mailed to? \_\_\_\_\_

### Agent Authorization

(a representative speaking on behalf of the owner/applicant)

I, \_\_\_\_\_ owner of property located at \_\_\_\_\_ Woodstock, Vermont, hereby designate as my agent.

Name of Agent: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Address: \_\_\_\_\_ City/Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Agent may be accepted as though made by me personally, and I understand that I may be bound by an official decision made based upon such representation

Signature: \_\_\_\_\_

Parcel ID Number(s): \_\_\_\_\_ Address: \_\_\_\_\_ Zoning District: \_\_\_\_\_ Overlay District: \_\_\_\_\_

Proposal of project: The project consists of regrading and floodplain benching to reconnect the floodplain at 5 locations along the Kedron Brook. In addition, the application includes reconstructing Upwey Arena, in a slightly smaller footprint, but in the same location. The arena will have a slightly shallower grade resulting in some additional fill within the floodplain. Our Hydrologic and Hydraulic shows there is no net increase in the 100-year flood water elevation as a result of the proposed changes.  
----- Planning & Zoning Office Only -----

Village Design Review Hearing Date: \_\_\_\_\_ Village Development Review Hearing Date: \_\_\_\_\_

Town Development Review Hearing Date: \_\_\_\_\_ South Woodstock Review Hearing Date: \_\_\_\_\_

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Review Fee: \_\_\_\_\_ Itemized Fee: \_\_\_\_\_ Recording Fee: \_\_\_\_\_ Total Fee: \_\_\_\_\_

Paid: cash \_\_\_\_\_ check \_\_\_\_\_ MuniPay: \_\_\_\_\_ Payment Date: \_\_\_\_\_

# GREEN MOUNTAIN HORSE ASSOCIATION

## FLOODPLAIN MITIGATION & MANAGEMENT PROJECT

5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT

**PREPARED BY:**



**ENVIRONMENTAL SERVICES**

IN COLLABORATION WITH:

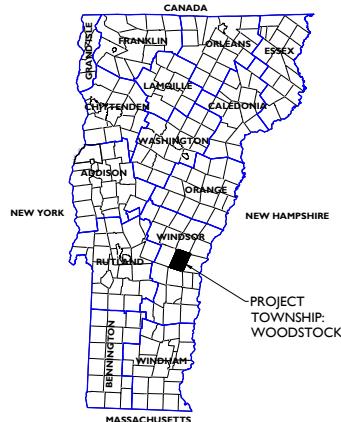


FITZGERALD ENVIRONMENTAL  
ASSOCIATES, LLC

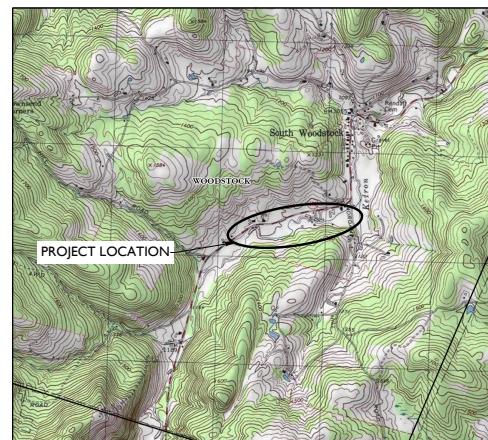
PREPARED FOR



## STATE MAP



### VICINITY MAP



## INDEX OF SHEETS

SHEET NO.		SHEET TITLE
C-1.0		OVERALL EXISTING CONDITIONS SITE PLAN
C-1.1		OVERALL FLOOD HAZARD SITE PLAN
C-1.2		KEDRON BROOK THALWEG PROFILE
C-2.0		OVERALL EPSC SITE PLAN
C-2.1		PHASE 2 EPSC SITE PLAN
C-3.10		PHASE 1A UPWEY ARENA MITIGATION SITE PLAN
C-3.11		PHASE 1A UPWEY ARENA CROSS SECTIONS
C-3.20		PHASE 1B D-BARN MITIGATION SITE PLAN
C-3.21		PHASE 1B D-BARN CROSS SECTIONS
C-3.30		PHASE 1C WALKER ARENA MITIGATION SITE PLAN
C-3.31		PHASE 1C WALKER ARENA CROSS SECTIONS
C-3.40		PHASE 1D LOWER HAY FIELD MITIGATION SITE PLAN
C-3.41		PHASE 1D LOWER HAY FIELD CROSS SECTIONS
C-3.50		PHASE 1D UPPER HAY FIELD MITIGATION SITE PLAN
C-3.51		PHASE 1D UPPER HAY FIELD CROSS SECTIONS
C-4.0		PHASE 2 UPWEY EXISTING CONDITIONS SITE PLAN
C-4.1		PHASE 2 PROPOSED UPWEY ARENA SITE PLAN
C-4.2		PHASE 2 UPWEY ARENA CROSS SECTIONS & CONSTRUCTION DETAILS



## GENERAL NOTES

## LEGEND

## RESIDENTIAL 5-ACRE ZONING REGULATIONS

1. Minimum Lot Area: 5 acres
2. Minimum Lot Frontage: 200 feet (along Route 106)
3. Front Setback Minimum: 80 feet from C/L of Road
4. Rear Setback Minimum: 25 feet
5. Side Setback Minimum: 25 feet
6. Building Height Maximum: 35 feet
7. Maximum Bldg. Footprint: 15,000 s.f.
8. Buffer Strip Requirements: § 505
9. Parking Requirements: § 522

10. Aquatic Buffer Requirements: § 403

## PARCEL INFORMATION

1. Owner Name: Green Mountain Horse Association, Inc.
2. Parcel Address: 5491 South Road (VT Route 106)
3. Project Town: Woodstock
4. Zoning District: RA 5
5. Acreage: 54.63± and 35.62±
6. Parcel ID: 33.02.22.
7. SPAN #: 786-250-10658

## PROJECT NOTES

1. The owner/contractor is responsible for "constructing the system as per the "approved" plans. Any deviations from the "approved" plans must be reported to and authorized by Murray and Masterson Environmental Services, LLC (MMES).
2. All dimensions and elevations shall be verified by the contractor prior to construction. Any deviations in elevations or dimensions shown on the plans shall be immediately reported to MMES.
3. The owner/contractor is responsible for coordinating with MMES the schedule of construction, permits, and certifications from the "approved" plans and state permit requirements.
4. All existing utilities shown on this plan are approximate and should be verified by the contractor prior to excavation and construction. The contractor is to be aware of utilities not shown that may exist. No attempt will be made to locate underground utilities.
5. The contractor is responsible for contacting dig safe (811) or 1-888-344-7233 prior to commencing any work.
6. All excavation work shall be performed in general accordance with the applicable state of Vermont Occupational Safety and Health Administration (VOSHA) guidelines.
7. All equipment must be installed according to manufacturer's specifications unless otherwise directed by MMES.
8. MMES reserves the right to require the conformance of this plan or any attached documents to local and/or town zoning regulations. The property lines, easements and other real estate property descriptions provided in the permit applications are for VT ANR permitting purposes only. They do not define legal or property legal requirements for a land transfer or sale to a U.S. citizen. MMES will not be held responsible for the use of a survey as the basis for any land transfer or establishment of any property right.
9. Any alterations of these plans or specifications without authorization by MMES shall render these documents void.
10. MMES reserves the right to require the owner outside of the permits or the permits conditions obtained for this project.

1. Survey is based on the Vermont State Plane (US Survey Feet) coordinate system, and NAVD88 vertical datum.

2. Topography depicted herein is lidar data obtained from the Vermont Center for Geographic Information (VCGI).

3. All property lines were established with a Trimble SP8 985 Baseline & Receiver.

4. Aerial imagery obtained by FluideState Consulting, LLC of Waterbury, VT in April 2024.

5. Parcel boundaries, floodplain, floodway, river corridor, and base flood information are derived from the VT ANR Atlas and the Vermont State Plane coordinate system.

6. Parcel area and acreage information is derived from 2023 Town of Woodstock Grand List.

7. This is not a licensed boundary survey. All property lines are shown approximately based on the Vermont Agency of Natural Resources (VT ANR) Atlas.

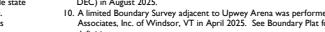
8. Tree locations and boundaries are based on imagery performed by Fitzgerald Environmental Services, LLC (FEA) of Colchester, VT on 9/11/2023.

9. Wetland delineation completed by FEA in July 2023. Wetland boundaries and classifications were reviewed and approved by the Vermont Dept. of Environmental Conservation (DEC) on 8/28/2023.

10. A linear boundary Survey adjacent to Upwey Arena was performed by Brad M. Ruderman Associate, Inc. of Windsor, VT in April 2025. See Boundary Plat for official boundary definition.

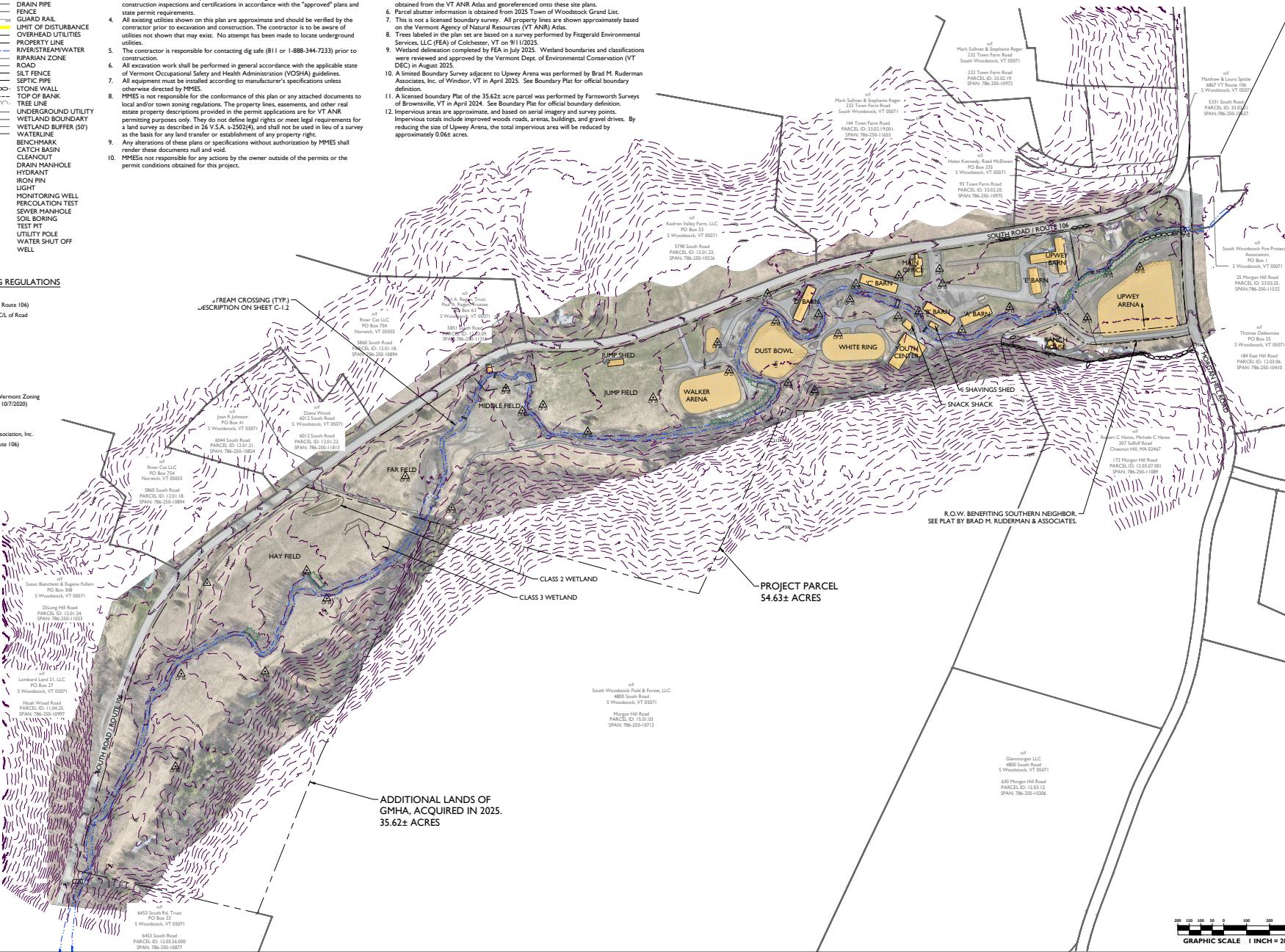
11. A boundary Plat for the 35.62ac acre parcel was performed by Farnsworth Survey of Brattleboro, VT in April 2024. See Boundary Plat for official boundary definition.

12. Impermeable areas are approximate, and based on aerial imagery and survey points. Impermeable totals include improved woods roads, areas, buildings, and gravel drives. By reducing the size of Upwey Arena, the total impermeable area will be reduced by approximately 0.045 acres.



### IMPERVIOUS AREAS

DESCRIPTION	IMPERVIOUS AREA (ACRES)
Gravel Drive & Parking Lots	5.32±
Existing Buildings	1.39±
Existing Arenas	4.64±
<b>TOTAL</b>	<b>11.35± Acres</b>



GREEN MOUNTAIN HORSE ASSOC.  
FLOOD MITIGATION & MANAGEMENT  
5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT

PERMIT PLANS

1

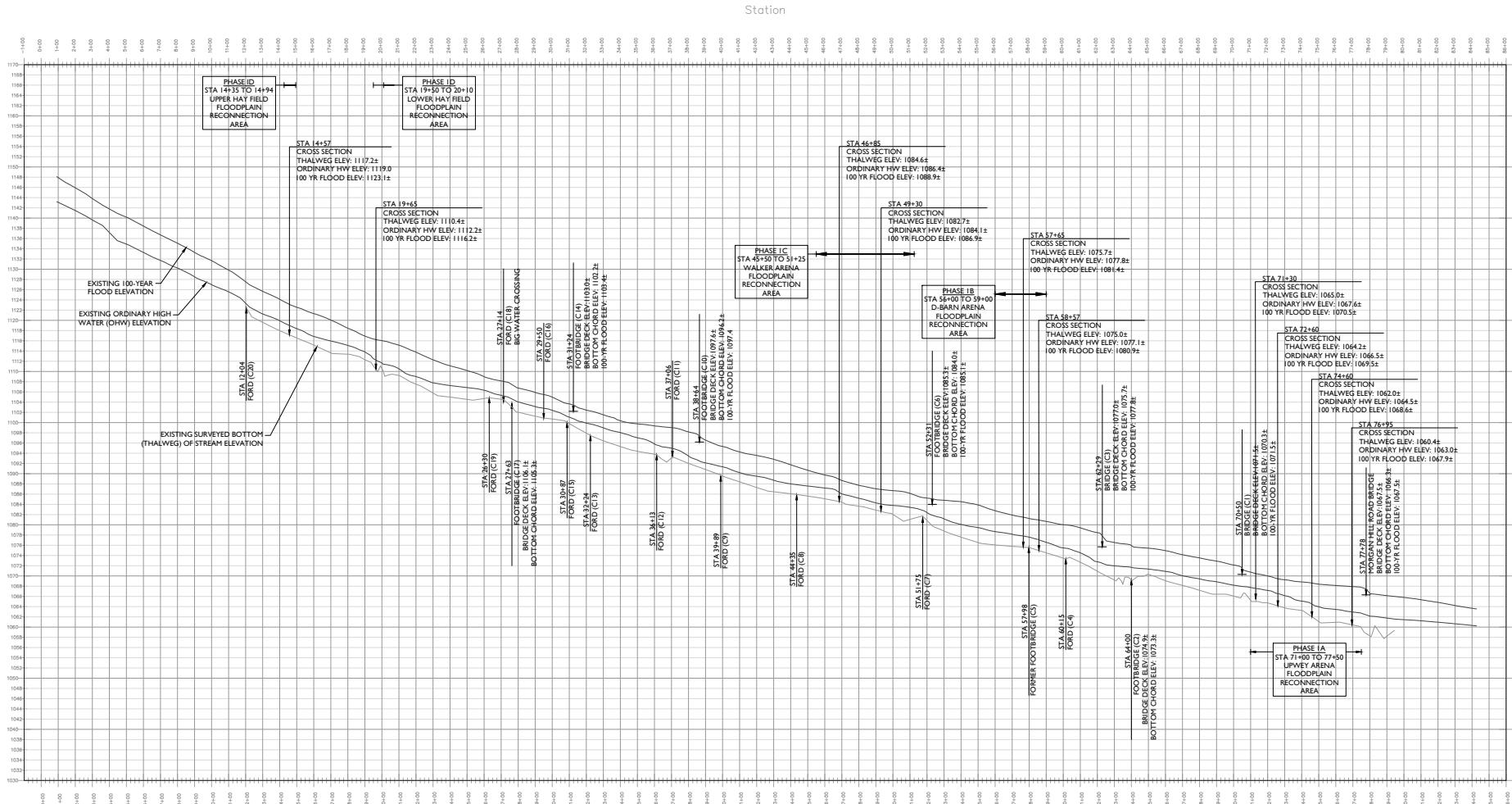
113

1

## OVERALL EXISTING CONDITIONS SITE PLAN

C-1.0





## KEDRON BROOK THALWEG PROFILE

HORIZONTAL SCALE: 1" = 200'  
VERTICAL SCALE: 1" = 10'

GREEN MOUNTAIN HORSE ASSOC.  
FLOOD MITIGATION & MANAGEMENT  
5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT

PERMIT PLAN

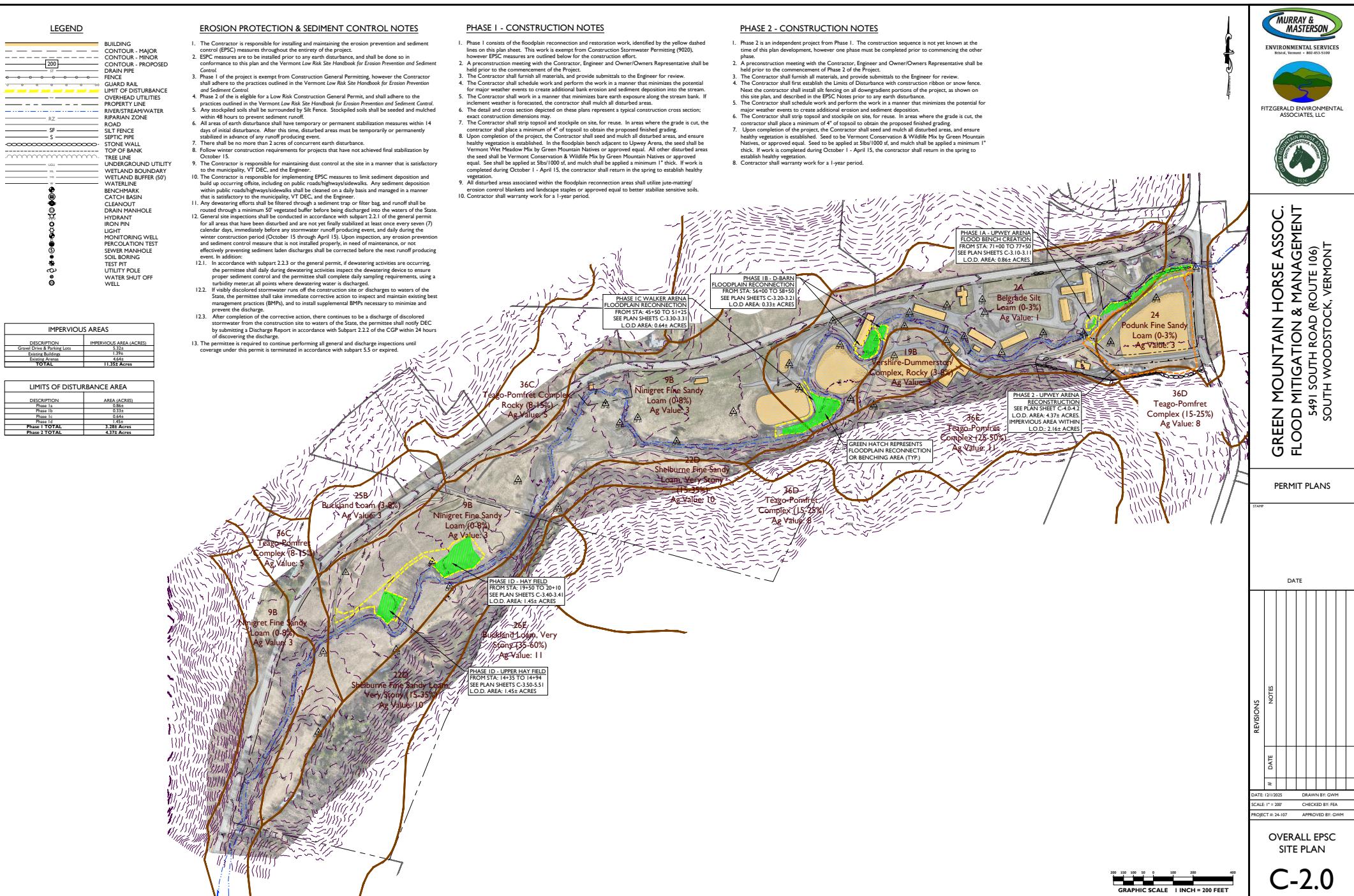
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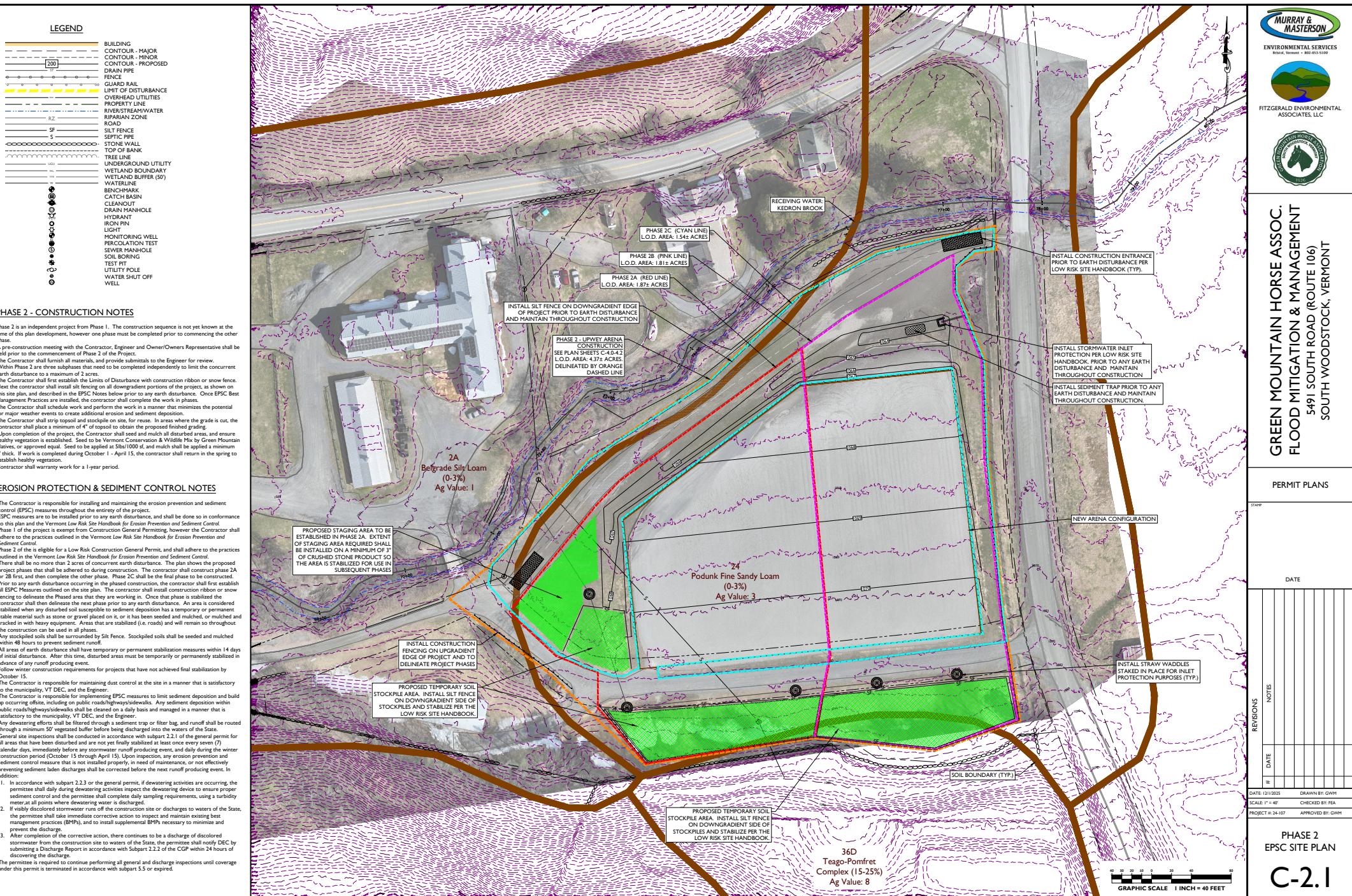
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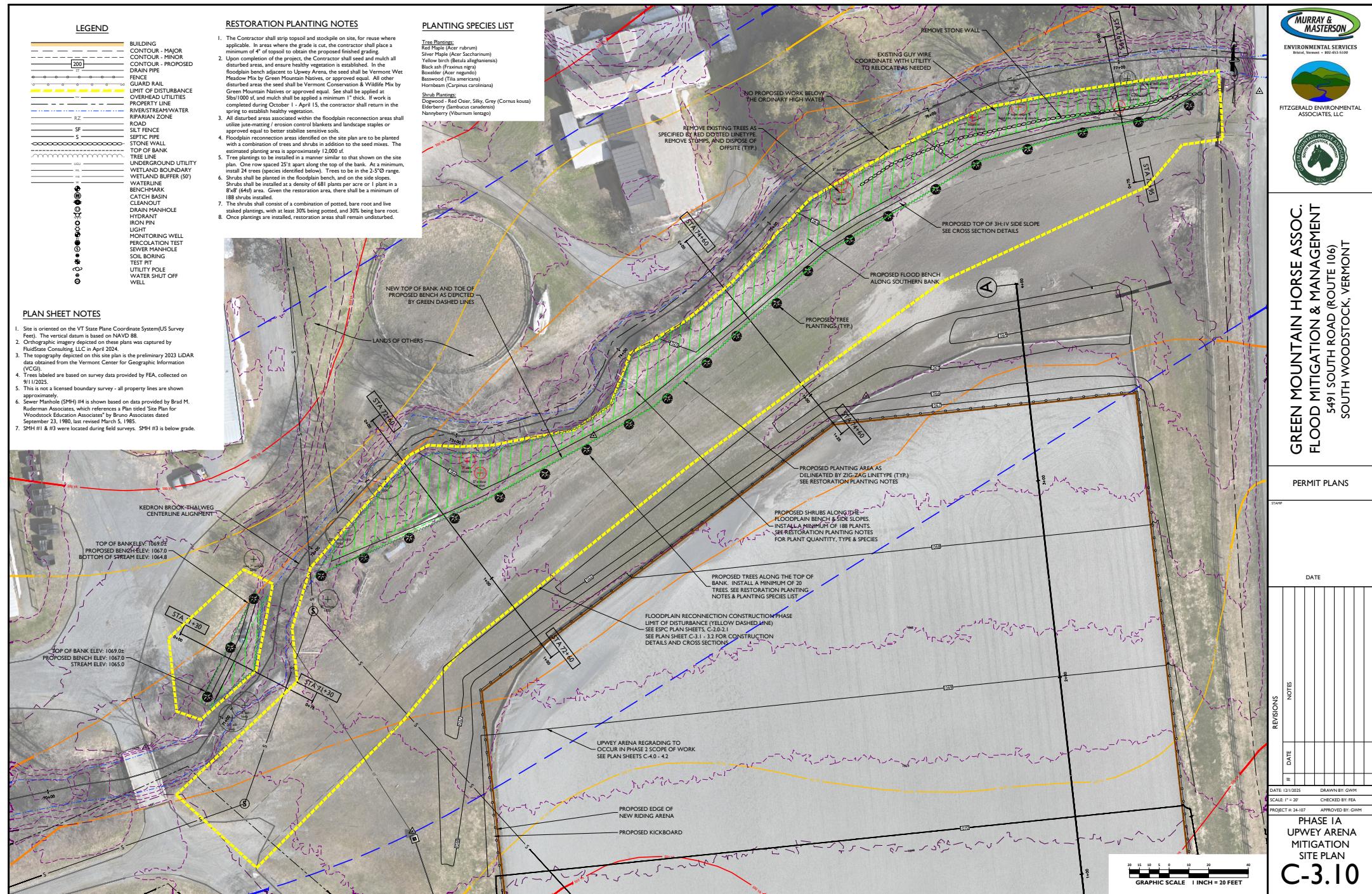
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DATE: 12/11/2025	DRAWN BY: GWM		
SCALE: AS SHOWN	CHECKED BY: FEA		

## KEDRON BROOK THALWEG PROFILE

## C-1.2







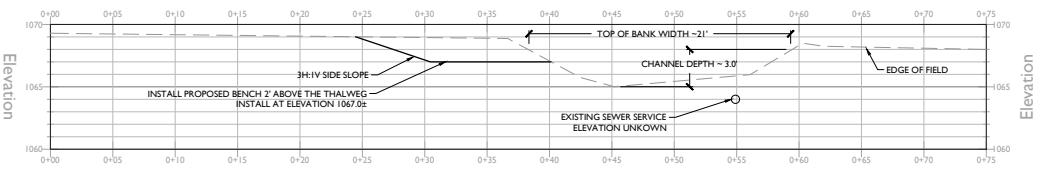


**GREEN MOUNTAIN HORSE ASSOC.  
FLOOD MITIGATION & MANAGEMENT  
5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT**

## PERMIT PLANS

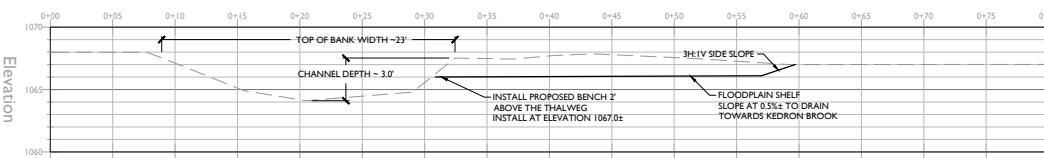
PHASE 1A  
UPWEY ARENA  
CROSS SECTIONS

## CROSS SECTIONS



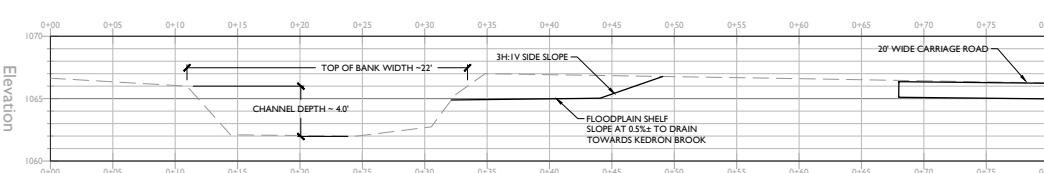
**KEDRON BROOK CROSS SECTION**

STATION: 71+30  
HORIZONTAL SCALE: 1" = 5'  
VERTICAL SCALE: 1" = 5'



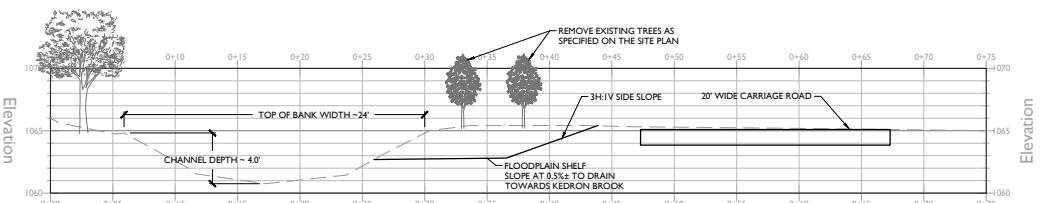
### KEDRON BROOK CROSS SECTION

STATION: 72+60  
HORIZONTAL SCALE: 1" = 50'



**KEDRON BROOK CROSS SECTION**

STATION: 74+60  
HORIZONTAL SCALE: 1" = 5'  
VERTICAL SCALE: 1" = 5'



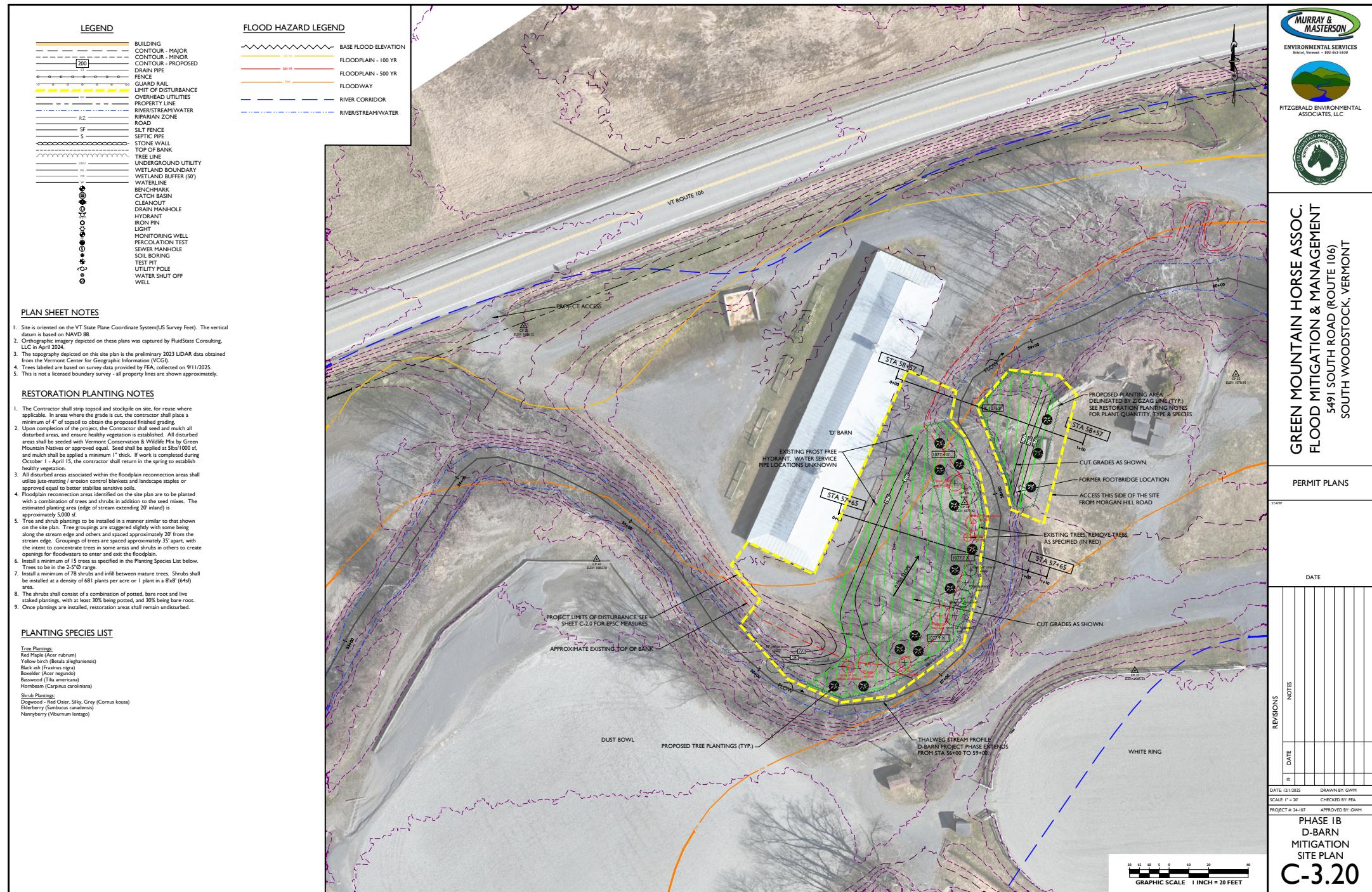
### KEDRON BROOK CROSS SECTION

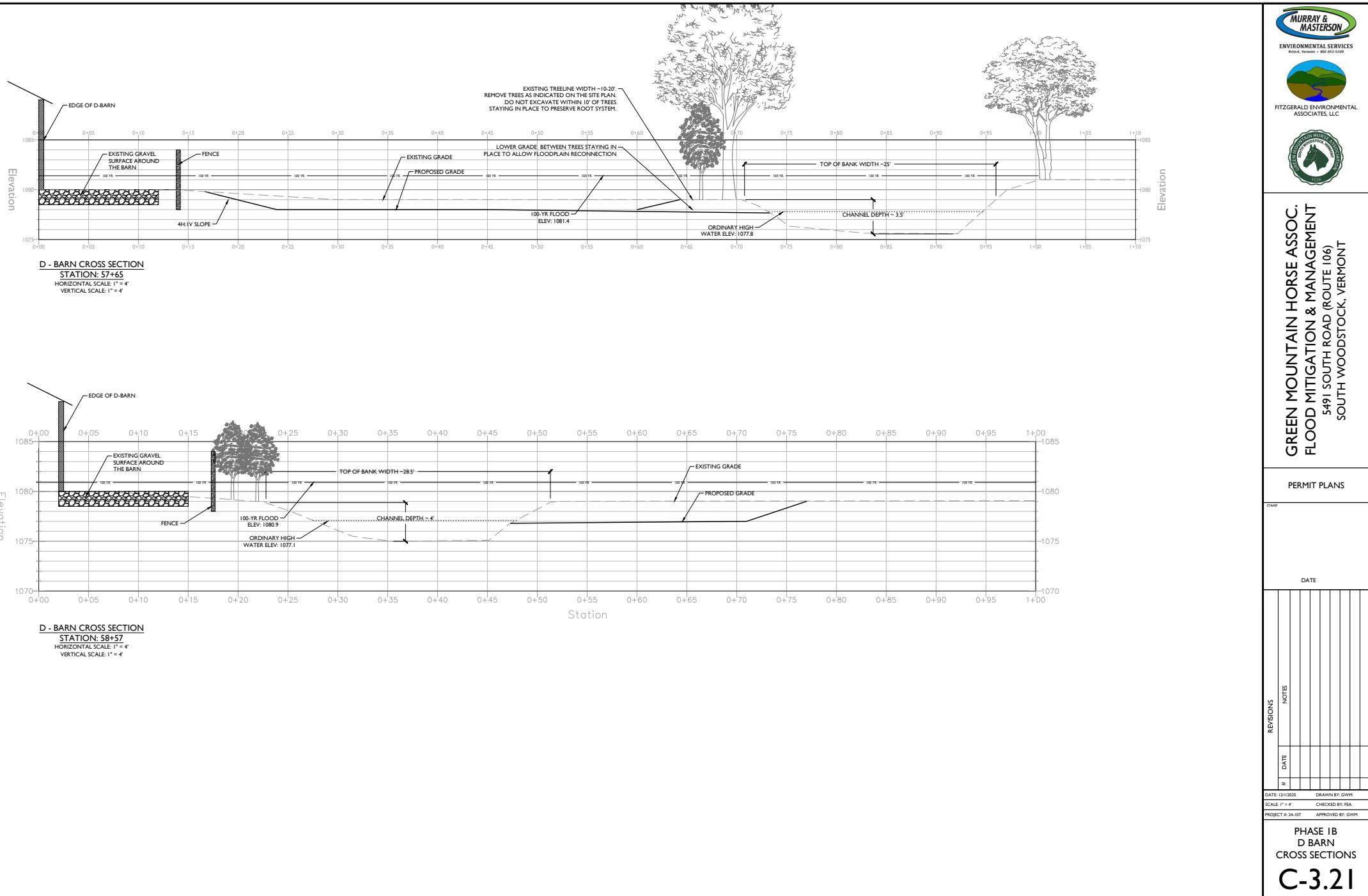
**STATION: 76+95**  
HORIZONTAL SCALE: 1" = 5'  
VERTICAL SCALE: 1" = 5'

## Elevation

0

### Elevation





**GREEN MOUNTAIN HORSE ASSOC.  
FLOOD MITIGATION & MANAGEMENT**  
5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT

## PERMIT PLANS

DATE: 12/1/2025

DRAWN BY: GWM

SCALE: 1" = 4'

CHECKED BY: FEA

PROJECT #: 24-107 APPROVED BY: GV

## PHASE 1B

D BARN

## CROSS SECTION

1000

|-32|

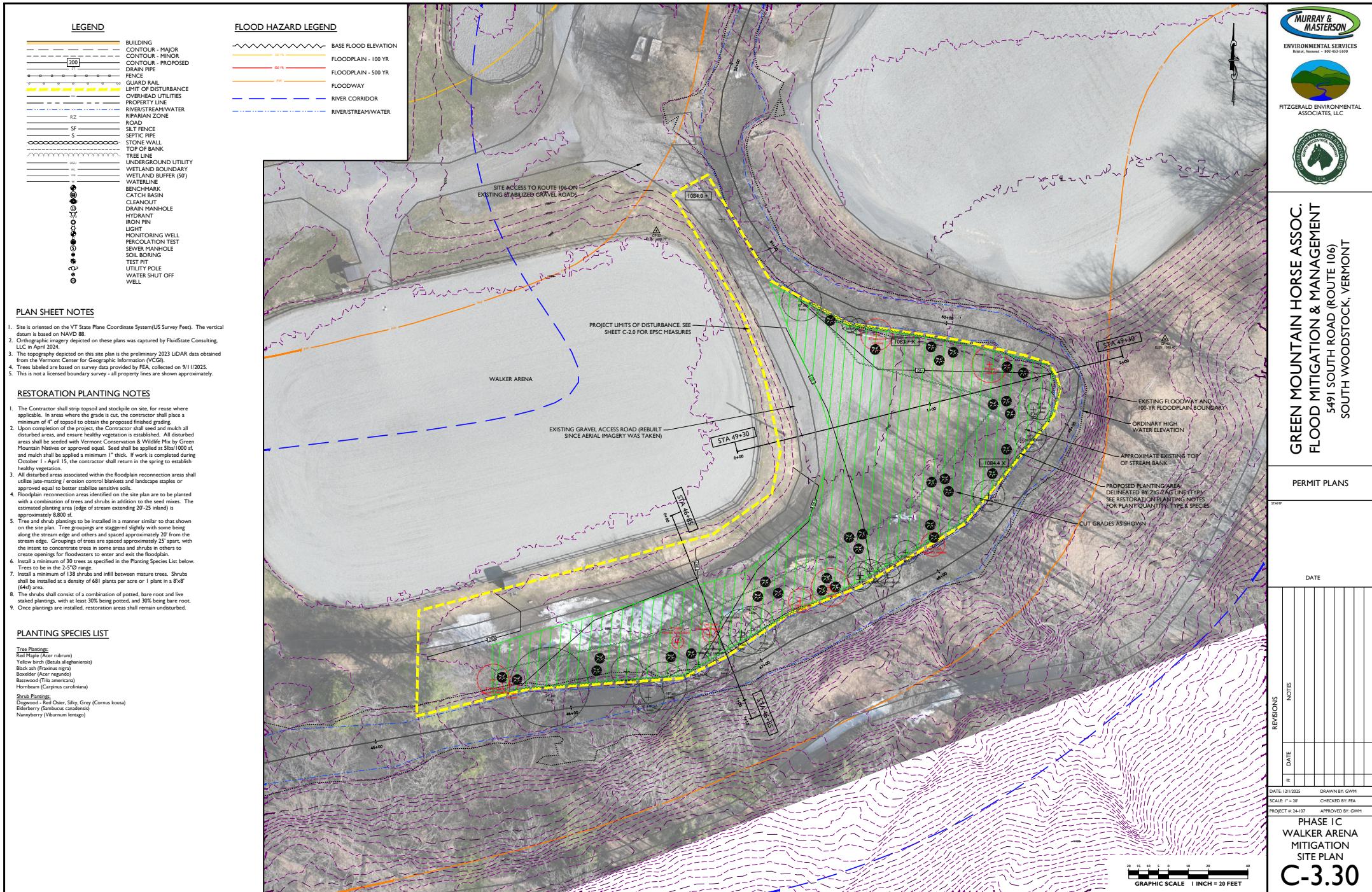
C-5.2.1

Page 1

PROJECT #: 24-107 APPROVED BY: GWM  
**PHASE 1B  
D BARN  
CROSS SECTIONS**

PROJECT #: 24-107 APPROVED BY: GWM  
**PHASE 1B  
D BARN  
CROSS SECTIONS**

C-3.21





**GREEN MOUNTAIN HORSE ASSOC.  
FLOOD MITIGATION & MANAGEMENT  
5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT**

**PERMIT PLANS**

STAMP

DATE

REVISIONS

DATE

NOTES

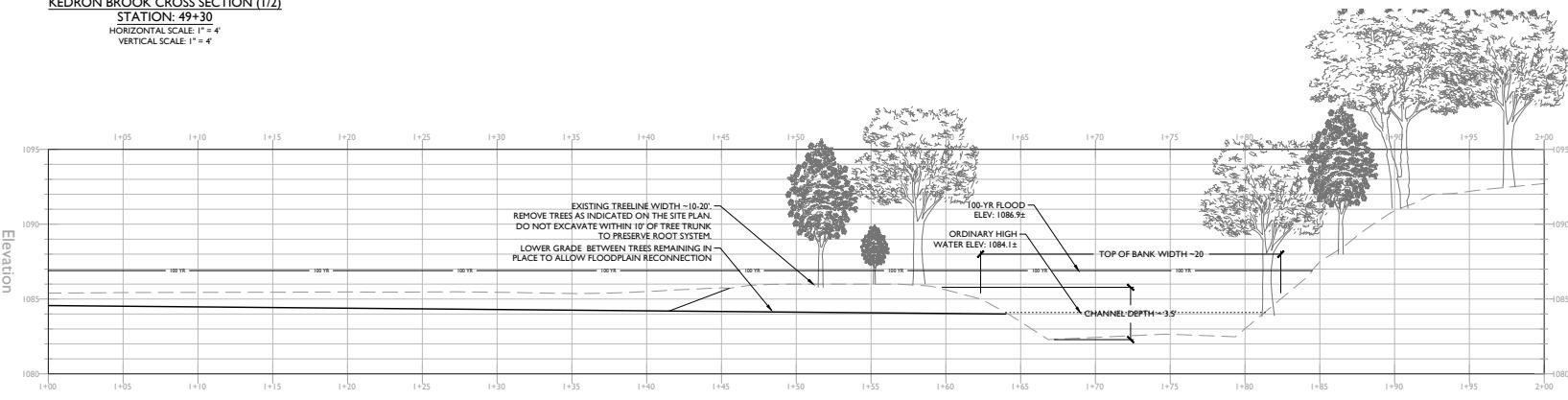
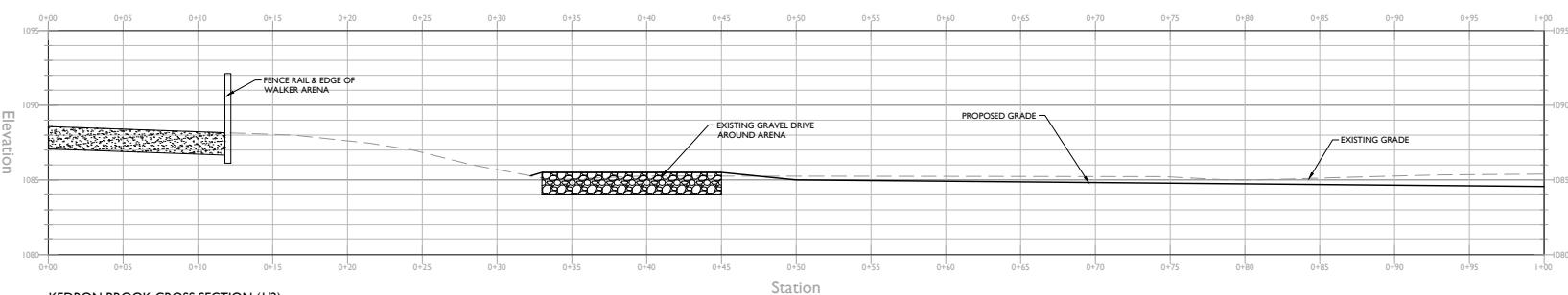
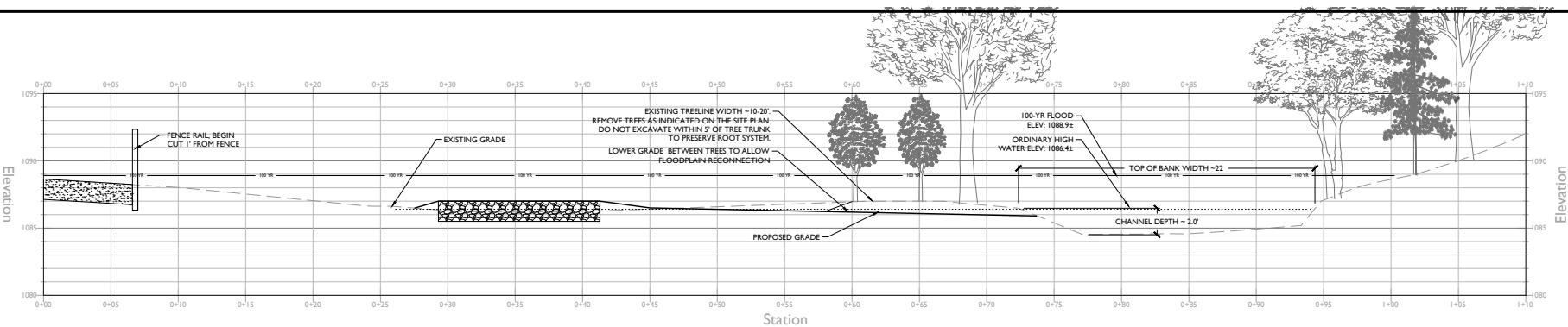
DATE: 12/1/2025 DRAWN BY: GWM

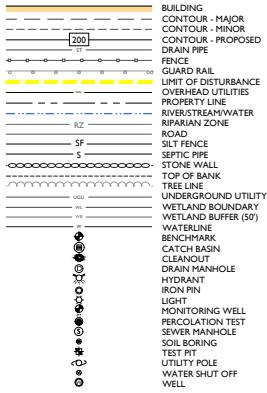
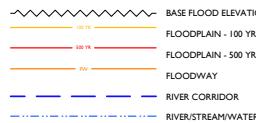
SCALE: 1" = 4' CHECKED BY: FEA

PROJECT #: 24-I07 APPROVED BY: GWM

PHASE 1C  
WALKER ARENA  
CROSS SECTIONS

**C-3.31**



**LEGEND****FLOOD HAZARD LEGEND****PLAN SHEET NOTES**

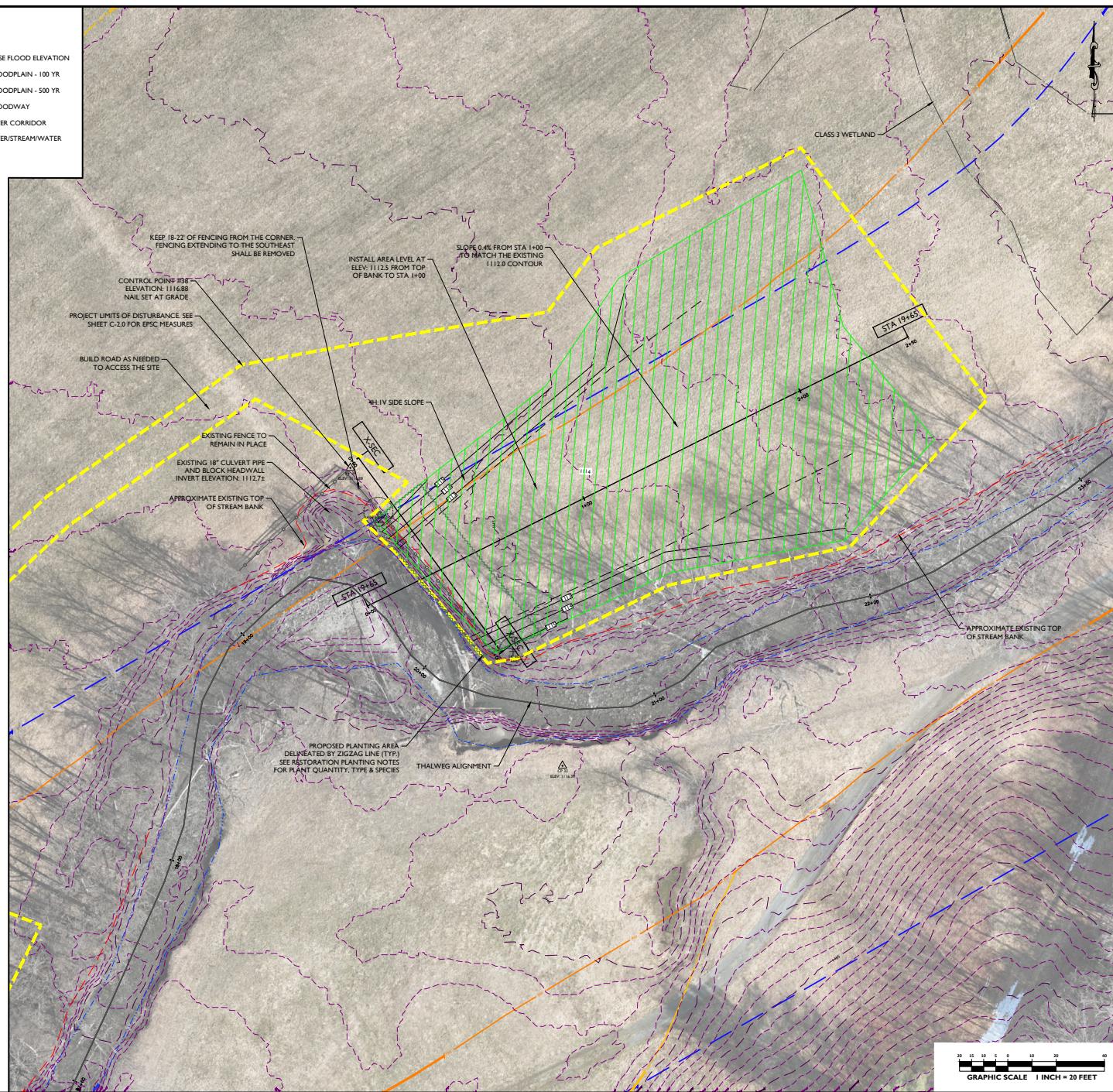
1. Site is oriented on the VT State Plane Coordinate System (US Survey Feet). The vertical datum is based on NAVD 88.
2. Orthographic imagery depicted on these plans was captured by FluidState Consulting, LLC in April 2024.
3. The topographic depicted on this site plan is the preliminary 2023 LiDAR data obtained from the Vermont Center for Geographic Information (VCGI).
4. Trees labeled are based on survey data provided by FEA, collected on 9/11/2025.
5. This is not a licensed boundary survey - all property lines are shown approximately.

**RESTORATION PLANTING NOTES**

1. The Contractor shall strip, topsoil and stockpile on site, for reuse where applicable. In areas where the grade is cut, the contractor shall place a minimum of 4" of topsoil to obtain the proposed finished grading.
2. Upon completion of the project, the Contractor shall seed and mulch all disturbed areas, and ensure healthy vegetation is established. All disturbed areas shall be planted with a mix of native and non-native Green Mountain Natives or approved equal. Seed shall be applied at 5 lbs/1000 sf, and mulch shall be applied a minimum 1" thick. If work is completed during October 1 - April 15, the contractor shall return in the spring to establish healthy vegetation.
3. All disturbed areas associated within the floodplain reconnection areas shall utilize jute-matting / erosion control blankets and landscape staples or appropriate equal to stabilize the soil.
4. Floodplain reconnection areas identified on this site plan are to be planted with shrubs in addition to the seed mixes. The estimated planting area (edge of stream extending 25' inland) is approximately 1,900 sf.
5. Shrub plantings to be planted in 3 rows and spaced approximately 9' apart in the areas shown on the site plan.
6. Install a minimum of 30 shrubs and infill between mature trees. Shrubs shall be installed at a density of 681 plants per acre or 1 plant in a 8x8' (64sf) area.
7. The shrubs shall consist of a combination of potted plants, bare root plants and live staked plantings, with at least 40% being potted, and 30% being bare root.
8. Once plantings are installed, restoration areas shall remain undisturbed.

**PLANTING SPECIES LIST**

Shrub Planting:  
 Dogwood - Red Osier, Silky, Grey (*Cornus* spp.)  
 Elderberry (*Sambucus canadensis*)  
 Nannyberry (*Viburnum lentago*)



**GREEN MOUNTAIN HORSE ASSOC.  
FLOOD MITIGATION & MANAGEMENT  
5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT**

**PERMIT PLANS**

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**GREEN MOUNTAIN HORSE ASSOC.  
FLOOD MITIGATION & MANAGEMENT  
5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT**

**PERMIT PLANS**

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REVISIONS

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NOTES

DATE: 12/1/2015 DRAWN BY: GWM

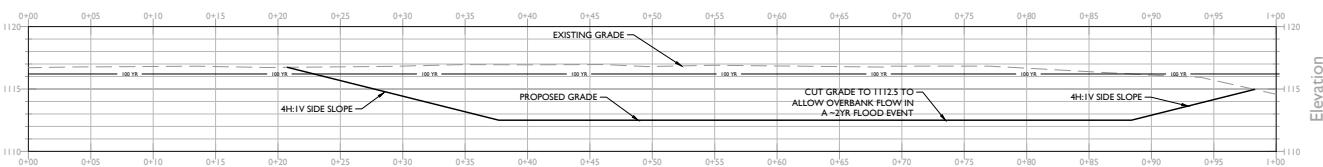
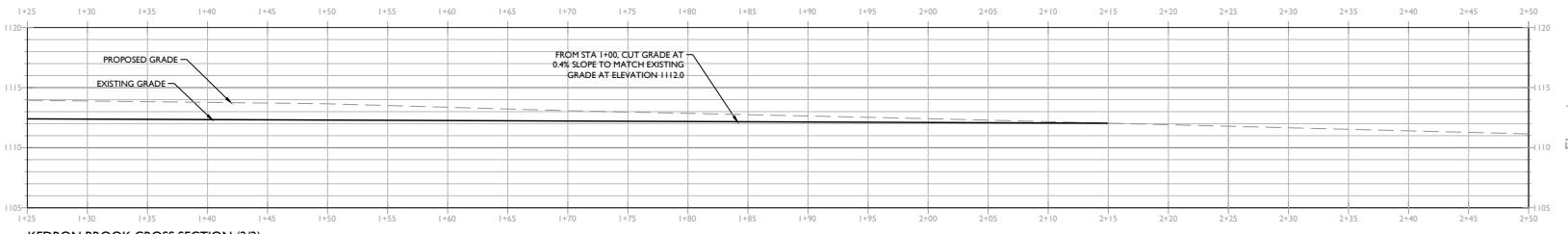
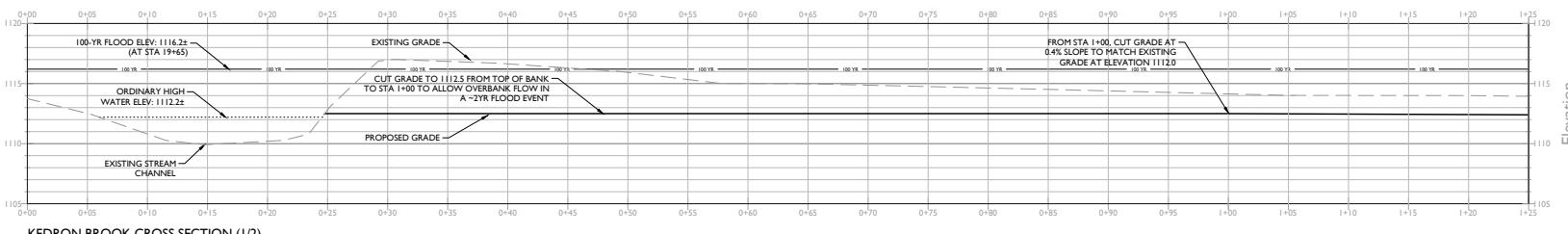
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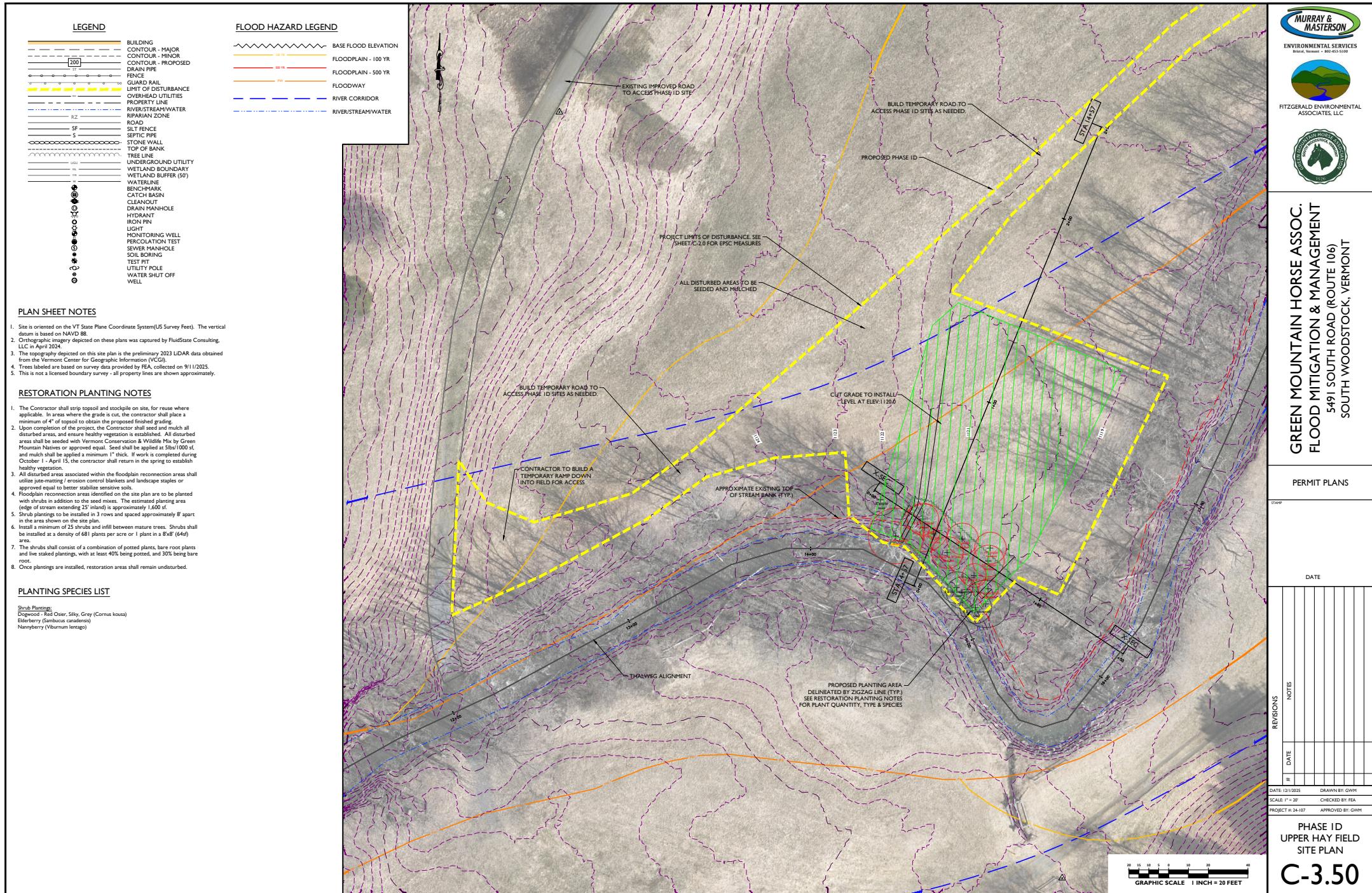
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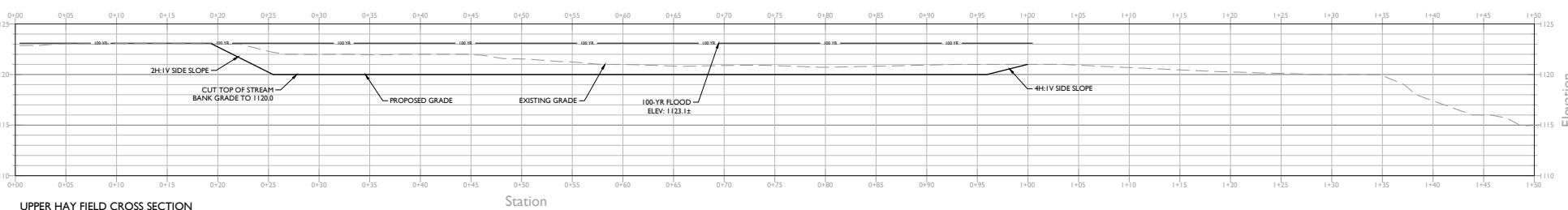
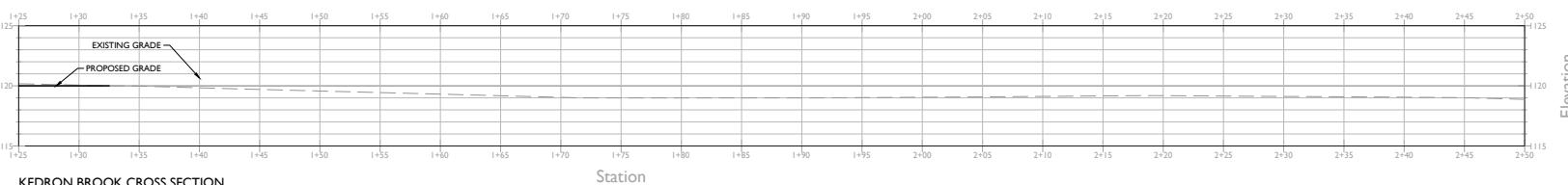
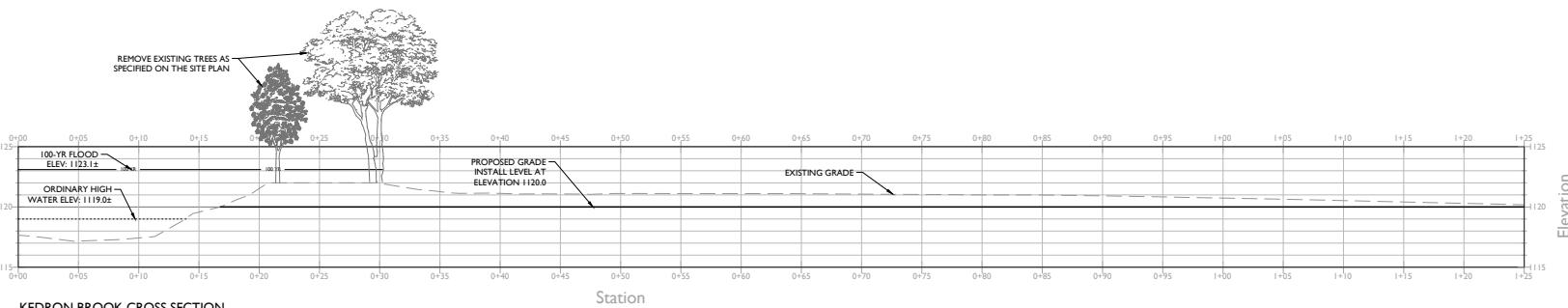
PROJECT #: 24-I07 APPROVED BY: GWM

PHASE 1D  
LOWER HAY FIELD  
CROSS SECTIONS

**C-3.41**







**GREEN MOUNTAIN HORSE ASSOC.  
 FLOOD MITIGATION & MANAGEMENT  
 5491 SOUTH ROAD (ROUTE 106)  
 SOUTH WOODSTOCK, VERMONT**

**PERMIT PLANS**

STAMP

DATE

REVISIONS

DATE

NOTES

DATE: 12/1/2025

DRAWN BY: GWM

SCALE: 1" = 5'

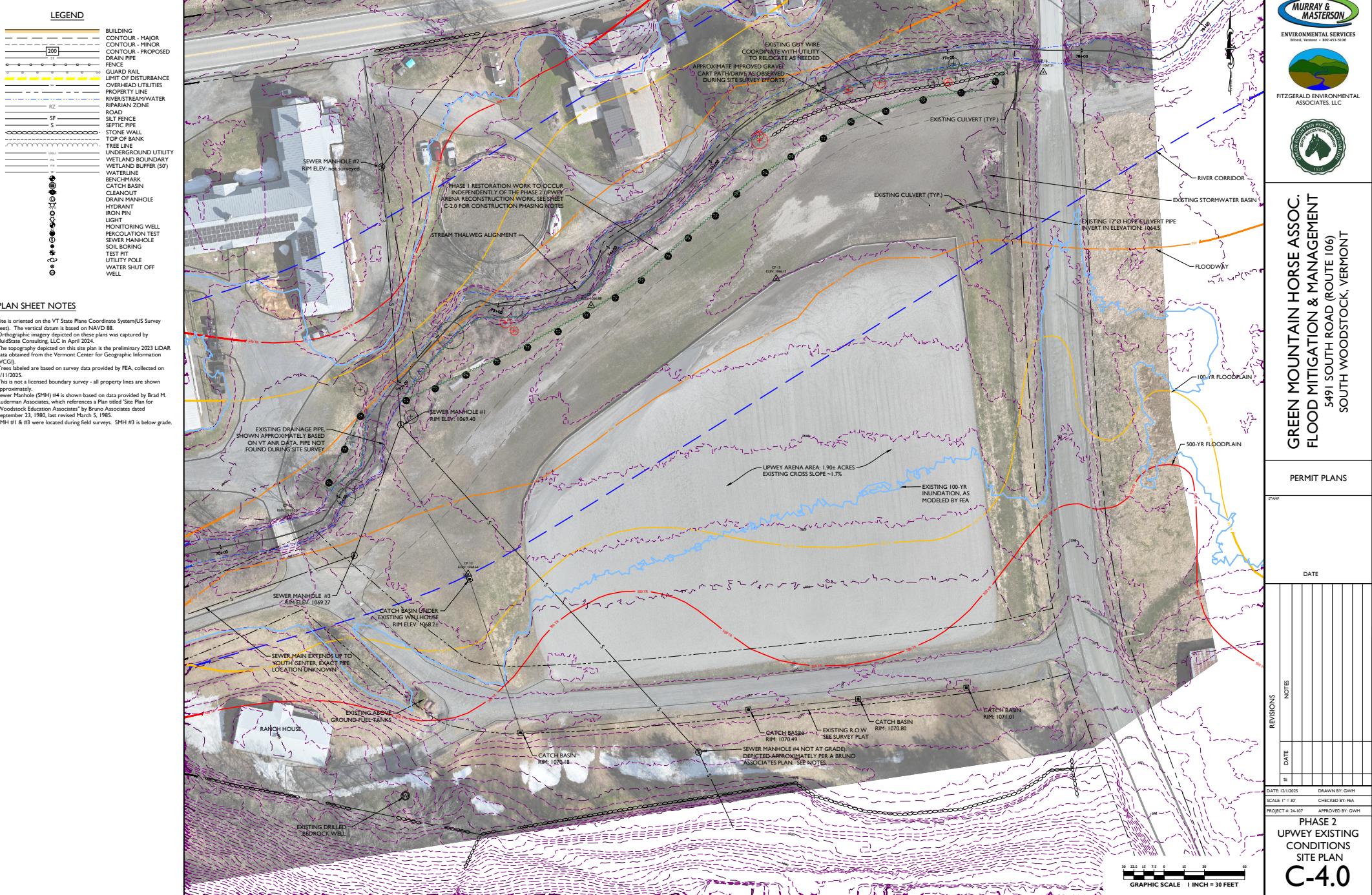
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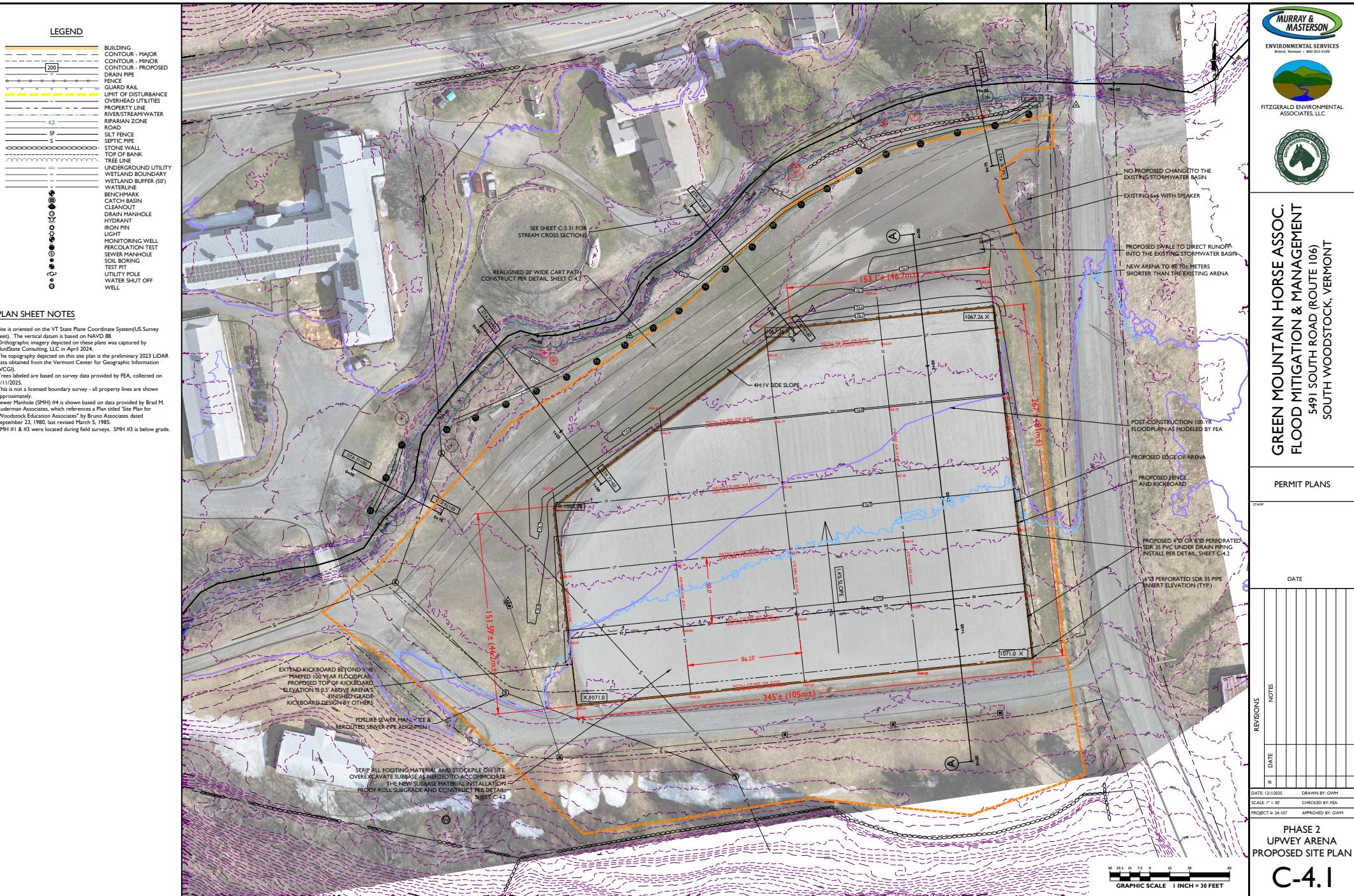
PROJECT #: 24-I07

APPROVED BY: GWM

**LOWER HAY FIELD  
 CROSS SECTIONS**

**C-3.51**





**GREEN MOUNTAIN HORSE ASSOC.  
FLOOD MITIGATION & MANAGEMENT**  
5491 SOUTH ROAD (ROUTE 106)  
SOUTH WOODSTOCK, VERMONT

**PERMIT PLANS**

STAMP

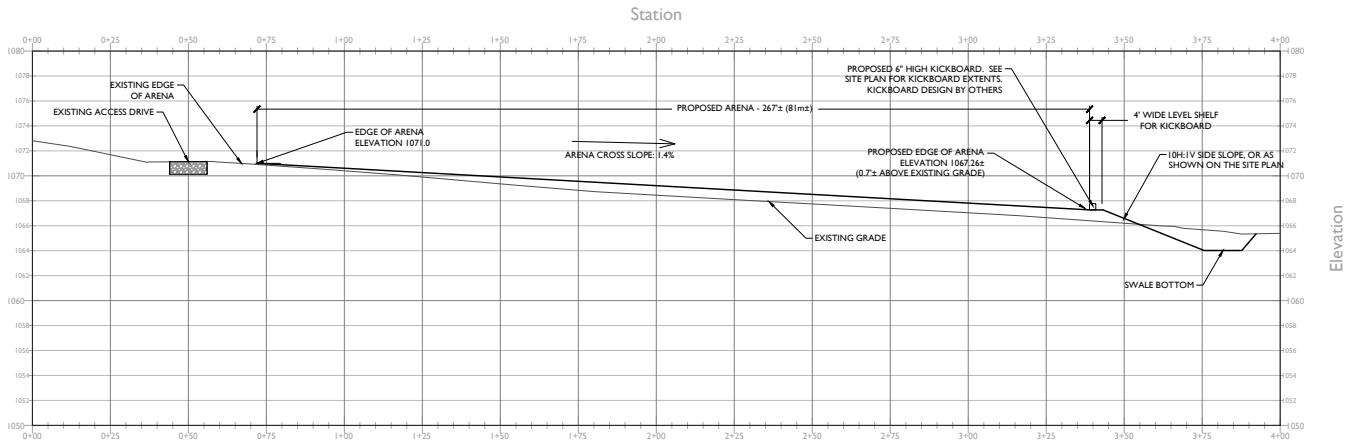
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DATE: 12/1/2025 DRAWN BY: GWM  
SCALE AS SHOWN CHECKED BY: FEA

PROJECT #: 24-107 APPROVED BY: GWM

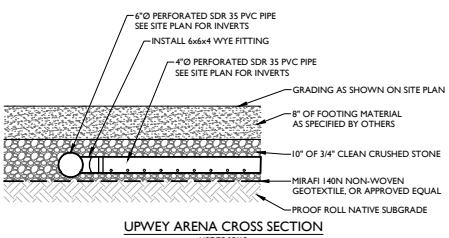
**PH. 2 UPWEY ARENA  
CROSS SECTIONS &  
CONSTRUCTION  
DETAILS**  
**C-4.2**



**UPWEY ARENA SECTION A-A**

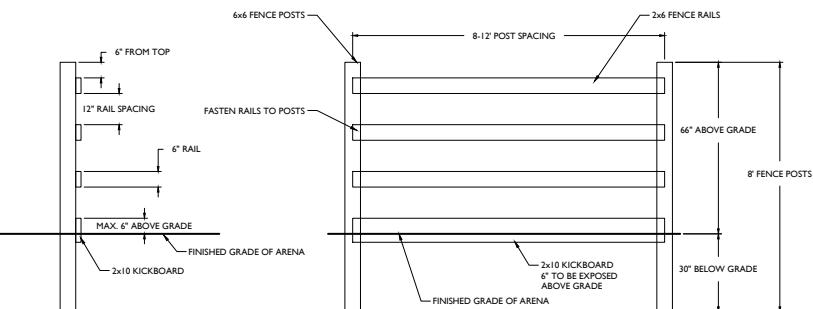
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VERTICAL SCALE: 1" = 5'



**UPWEY ARENA CROSS SECTION**

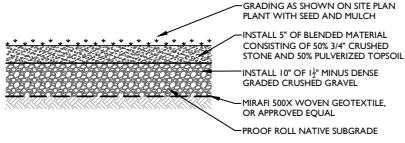
NOT TO SCALE



**SPLIT RAIL FENCE DETAIL**

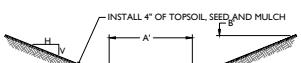
NOT TO SCALE

NOTE: DETAIL IS FOR LIKENESS ONLY AND IS FOR PERMITTING PURPOSES.



**CART PATH SECTION DETAIL**

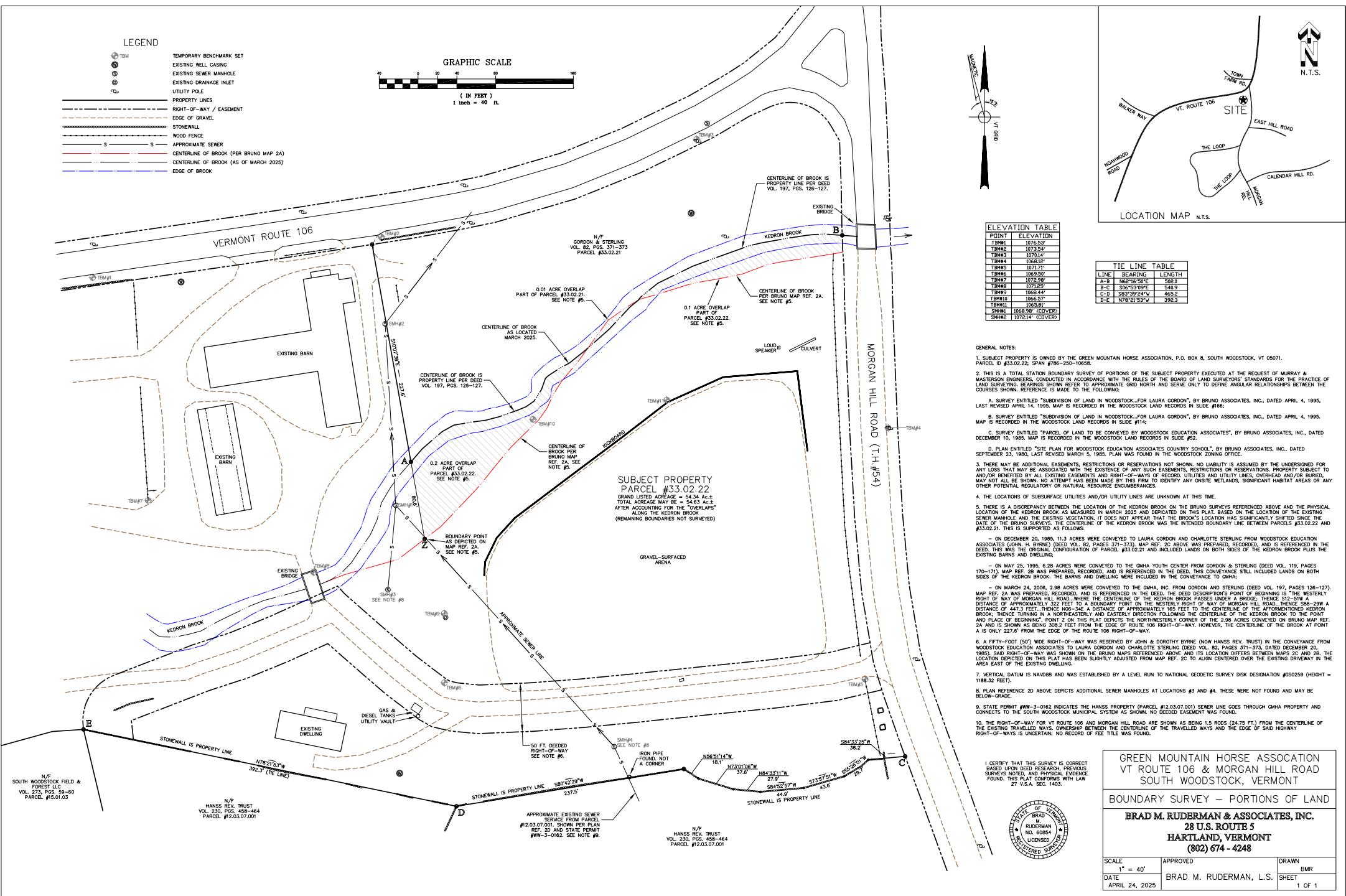
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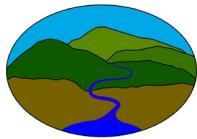


**GRASS SWALE SECTION DETAIL**

NOT TO SCALE

SWALE #	DIMENSION 'A'	DIMENSION 'B'	SIDE SLOPE
1	8'	8'	40%V





## Fitzgerald Environmental Associates, LLC.

Applied Watershed Science & Ecology

### MEMORANDUM

**To:** Bruce Perry, Executive Director, Green Mountain Horse Association  
**From:** Rodrigue Spinette, PhD; Evan Fitzgerald, PE, CPESC, CFM  
**Re:** Green Mountain Horse Association Upwey Arena Project – No Rise Certification  
**Date:** November 6, 2025

#### **Background**

Fitzgerald Environmental Associates (FEA), in collaboration with Murray & Masterson LLC (M&M), was retained by the Green Mountain Horse Association (GMHA) to develop a flood mitigation and management plan for the GMHA's main facility in South Woodstock. The project is funded through the VOREC (The Vermont Outdoor Recreation Community) grant program.

Kedron Brook flows through the GMHA facility and is prone to severe flooding based on firsthand experiences from the GMHA staff and supported by our hydrologic and hydraulic analysis. In brief, different parts of the GMHA facility flood on a yearly or near yearly basis, which is affecting the GMHA operations, so we are examining several flood mitigation practices to dissipate and facilitate flood flows while protecting the GMHA assets.

Part of the proposed plan consists of creating a flood bench, approximately 500-ft long and 20-ft wide, along Kedron Brook on the approach to Morgan Hill Road and north of a horse arena, Upwey arena, which is very important to the GMHA. In addition to the flood bench creation, Upwey arena will be raised by approximately 1-ft at its downslope (north) end and a small 0.5-ft high kickboard installed at its perimeter to minimize flooding of the arena in storms up to the 25-year flood. The intent is to improve flow conditions in small to medium-sized floods within the inner corridor of Kedron Brook, which is currently incised, and establish conditions further out that create fewer conflicts with the GMHA operations, while not creating an adverse impact to the brook, the GMHA's neighbors and the nearby infrastructures. The proposed improvement to the channel and floodplain will lead to greater stability of the bed and banks and of Kedron Brook, and increase attenuation of sediment and nutrients on the floodplain bench.

To guide the design of several flood mitigation alternatives within the GMHA study area, FEA completed a hydrologic and hydraulic analysis of Kedron Brook at this location. This analysis shows that, in a 100-year flood event, the proposed raising of Upwey arena and cutting of a flood bench on the brook as previously described result in a *de minimis* change in the Base Flood Elevation (BFE) during the 100-year flood event. Peak flood velocities across the floodplain change from -18% to +16% depending on location. Additional details of the analysis are described below.

## Hydrology

FEA analyzed a variety of hydrologic regression and sources for the analysis. To best understand Kedron Brook discharge at the project location under different flood scenarios, we examined recurrence interval flows predicted using regional regression equations for Vermont (Olson, 2014; Dunne & Leopold, 1978), and flow predictions in the most recent FEMA Flood Insurance Study for Windsor County, VT (FIS # 50027CV001A from 2007). For our analysis of the 2-year and 5-year flood events, we used the Olson 2014 values (equivalent to USGS Streamstats). For the 10-year flood events and greater, we used values from the FIS which were scaled based on drainage area. The Drainage area at the project location is approximately 5.11 square miles. A summary of the modeled peak discharge rates is provided in table 1.

**Table 1. Modeled peak discharge as a function of annual exceedance probability**

Flood Return Interval (Years)	AEP (%)	Modeled Peak Discharge (cfs)
2	50%	249
5	20%	396
10	10%	932
50	2%	1,716
100	1%	2,172
500	0.20%	3,557

## Hydraulics

FEA used HEC-RAS 6.3.1 software (USACE, 2022) to create a two-dimensional (2D) model of Kedron Brook, its floodplain and areas immediately surrounding the study area.

We created a floodplain digital elevation model (DEM) for the study area using high-resolution (0.7 m) LiDAR elevation surfaces from a 2023 dataset covering Windsor County. We loaded the DEM into RAS Mapper as the base terrain for setting up the HEC-RAS model. Because the LiDAR method does not capture data below the water surface when depth exceeds a few inches, FEA adjusted the terrain in the model using elevation measurements that were field collected by M&M in late 2024 and in July 2025. This type of correction was applied to the Kedron Brook channel. Additional adjustments were made to the terrain where the banks of Kedron Brook were observed to have experienced significant erosion and migration since the 2023 Lidar data was collected.

An existing conditions model was developed utilizing the methodology described above. A proposed conditions model was then created by altering the geometry of the existing conditions model to cut a flood bench along Kedron Brook and raise Upwey arena. See the Final Design Plans, included in Attachment 1, for additional information on the design elevations and proposed geometry.

Figures 1 and 2 below show the inundation results of the existing conditions and proposed conditions models for the 100-year flood event. As shown in the figures, the inundation boundary is nearly identical in most places except for Upwey arena where flooding does not reach nearly as far south into the arena under the proposed conditions compared to the existing conditions. Water surface elevations and water velocities were also examined at three cross sections along this segment of Kedron Brook, at STA 72+13, STA 73+74, and STA 75+56.



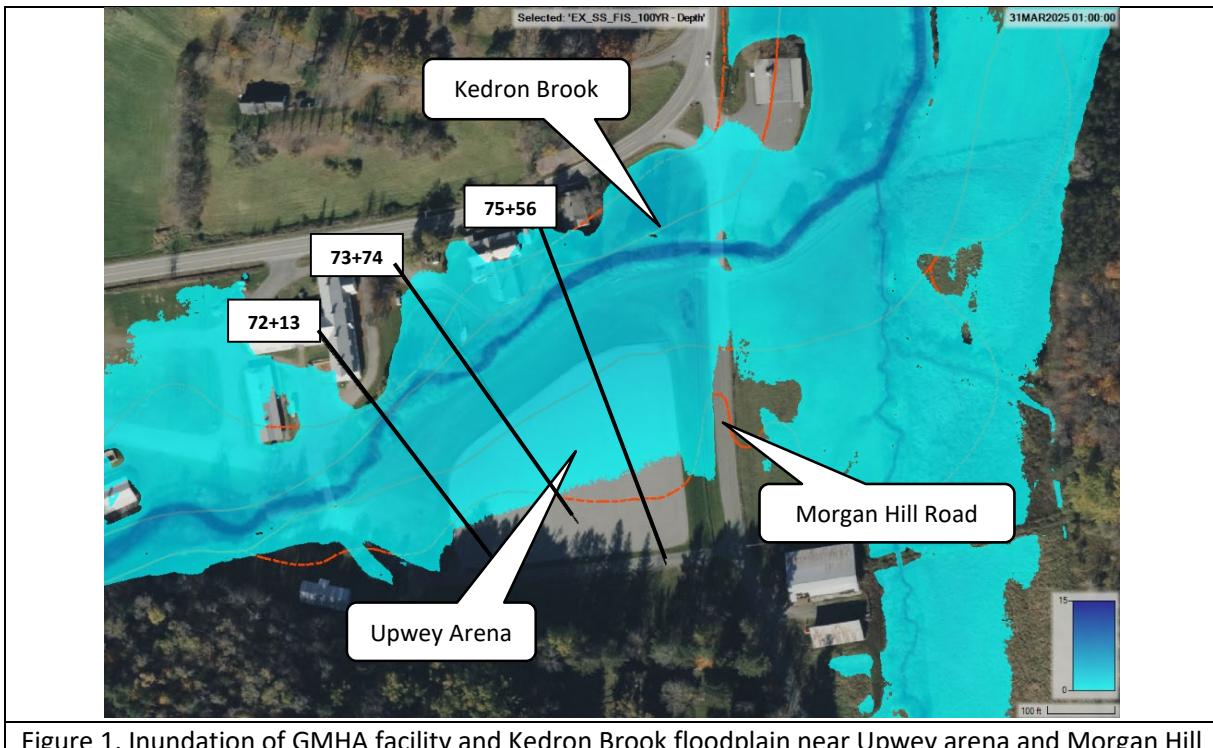


Figure 1. Inundation of GMHA facility and Kedron Brook floodplain near Upwey arena and Morgan Hill Road under existing conditions in 100-year flood event.

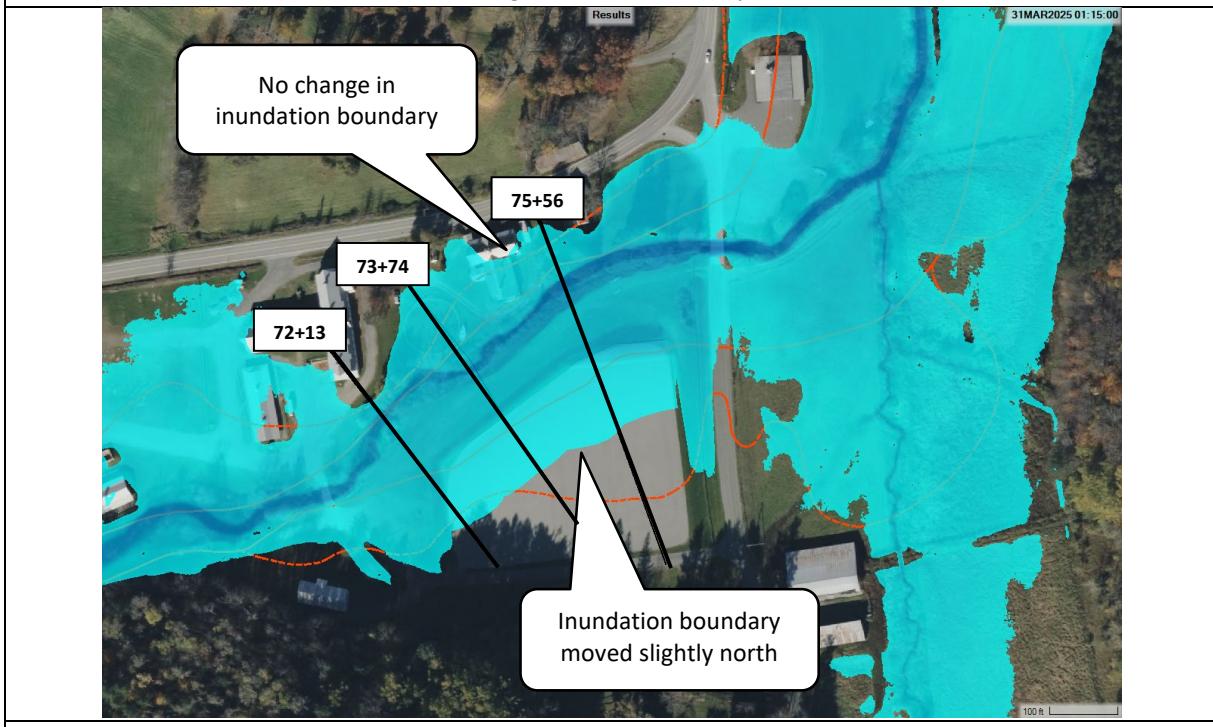


Figure 2. Inundation of GMHA facility and Kedron Brook floodplain near Upwey arena and Morgan Hill Road under proposed conditions in 100-year flood event.



Table 2 summarizes the changes in water surface elevation observed in our models at the Kedron Brook center line under existing and proposed conditions. All WSE are referenced to NAVD88 feet. As shown in table 2, the water surface elevation over Kedron Brook did not change appreciably between the two models. Rises in WSE are less than 0.05 ft, which rounds to less than 0.1ft (the smallest interval in FEMA FIS reporting) making it effectively a “no rise” conclusion.

<b>Table 2 – Kedron Brook Center Line WSE Comparison for the 100-Year Flood (2,172 cfs)</b>			
<b>STA</b>	<b>FEA Existing Conditions WSE (ft)</b>	<b>FEA Proposed Conditions WSE (ft)</b>	<b>WSE Difference (FEA PR - FEA EX)</b>
72+13	1070.06	1070.03	-0.03
73+74	1068.95	1068.97	0.02
75+56	1068.30	1068.27	-0.03

Table 3 summaries the changes in water velocities observed in our models at three cross sections along this segment of Kedron Brook. As shown in table 3, changes in water velocities varied with location. Comparing existing and proposed conditions, water velocities were observed to change between 3% and 16% within the channel, -8% to 11% in the left overbank and -18% to -9% in the right overbank.

<b>Table 3 – Water velocities Comparison for the 100-Year Flood (2,172 cfs)</b>						
<b>STA</b>	<b>Channel EX</b>	<b>Channel PR (% change)</b>	<b>LT Overbank EX</b>	<b>LT Overbank PR (% change)</b>	<b>RT Overbank EX</b>	<b>RT Overbank PR (% change)</b>
72+13	8.1	9.1 (+12%)	4.1	4.3 (+5%)	3.9	3.2 (-18%)
73+74	5.4	6.3 (+16%)	1.8	2.0 (+11%)	3.4	2.8 (-18%)
75+56	5.2	5.4 (+3%)	1.1	1.0 (-8%)	2.8	2.5 (-9%)

### Conclusion

Based on the hydraulic analysis discussed above, FEA concludes that the proposed bench cut and raising of Upwey arena within the GMHA property will result in **No Rise** of flood levels from Kedron Brook in the vicinity of the proposed work, and no adverse impacts to surrounding properties, facilities, or structures. There were no significant changes to the water surface elevation observed in our models, and the changes observed in the water velocities, although variable, should not present a significant increased risk for erosion over existing conditions. FEA supports the request for approval for this work within the FEMA designated Special Flood Hazard Area of Kedron Brook, under the Town of Woodstock’s Flood Hazard Regulation per section 405.D.2.l.

### Attachments

1. Murray & Masterson Plans



Fitzgerald  
Environmental

### **References**

FEMA (Federal Emergency Management Agency), 2007. Flood Insurance Study # 50027CV001A, Windsor County, Vermont. Available at: <https://msc.fema.gov/portal/home>

Olson, S. A., 2014, Estimation of Flood Discharges at Selected Annual Exceedance Probabilities for Unregulated, Rural Streams in Vermont, United States Geologic Survey, USGS Scientific Investigations Report 2014-5078.

USACE (US Army Corps of Engineers), 2022. HEC-RAS River Analysis System, Version 5.2. Available at: <https://www.hec.usace.army.mil/software/hec-ras/download.aspx>

VCGI (Vermont Center for Geographic Information), et. al., 2013. 0.7-Meter Bare Earth Digital Elevation Model (DEM). Available at: [http://maps.vcgi.vermont.gov/arcgis/services/EGC\\_services/IMG\\_VCGI\\_LIDARDEM\\_SP\\_NOCAC\\_HE\\_v1/ImageServer](http://maps.vcgi.vermont.gov/arcgis/services/EGC_services/IMG_VCGI_LIDARDEM_SP_NOCAC_HE_v1/ImageServer)



**PUBLIC MEETING MINUTES**  
WOODSTOCK, VERMONT  
CONSERVATION COMMISSION  
31 The Green  
Woodstock, VT 05091  
(802) 457-7515

The Conservation Commission held a public meeting on Monday, November 24, 2025, at 5:00PM to conduct the following business:

**Members present:** Justin Quinn (Chair), Al Alessi and Jenny Ahlen

**Staff present:** Emily Collins and Molly Maxham.

**Public present:** Mike Dunne and Cole Stever.

**Call to Order:**

The meeting was called to order at 5:00 PM.

**PUBLIC HEARINGS**

**A. AD-T-0004-26 – Scott Schwartz & Ashley Losier**

Location: 2115 East Woodstock Road

Parcel ID: 05.01.18

Review Type: Conditional Use

Proposed Development: To construct a 12'2" x 32'4" deck.

Emily Collins presented the application for construction of a 12'2" x 32'4" deck. Molly Maxham explained that this application was previously approved, but an amendment was added to change the size of the deck. Justin Quinn was concerned about impervious surfaces but confirmed that this deck would be well away from the floodplain. Molly Maxham that this deck would be on steep slopes which could be a cause for concern. Al Alessi suggested that the applicant be sure to control rain flow. Jenny Ahlen stated that the size increase of the deck is not significant and did not have any concerns.

*Al Alessi motioned to approve this application as submitted.*

*Jenny Ahlen seconded this.*

**Approved 3-0**

**B. V-0027-26 – El-Kam Realty Co**

Location: 47 Central Street

Parcel ID: 20.52.43

Review Type: Conditional Use & Design Review

Proposed Development: To replace stone entryway stairs using bluestone treads.

Emily Collins presented the application to replace stone entryway stairs using bluestone treads. Justin Quinn confirmed that the only aspect of the stairs that is being changed is the type of material being used. Emily Collins explained that this application is coming before the Conservation Commission because the stairs are located on the river. Justin Quinn was concerned about hard surfaces. Jenny Ahlen and Al Alessi had no further concerns.

*Al Alessi motioned to approve this application as submitted.*

*Jenny Ahlen seconded this.*

**Approved 3-0**

**C. V-0028-26 – John and Mary Quinn**

Location: 4 River Street

Parcel ID: 20.52.07

Review Type: Conditional Use & Design Review

Proposed Development: Addition of 14'x22' to the south of existing structure and 44" to the east of existing deck.

Mike Dunne presented the application of an addition of 14'x22' to the south of existing structure and 44" to the east of existing deck. Justin Quinn asked if there was significant drip edge put in to help with mitigating water runoff. Mike Dunne explained that there would be a drainage system, especially from the roadside. Jenny Ahlen questioned whether the addition would come from the existing structure and porch. Mike Dunne stated that the structure would mostly come from the front section of the house.

Justin Quinn expressed concern about there being enough room for people to pass through the area still. Mike Dunne stated that the addition would not encroach on the driveway or access road and would not impede access.

Jenny Ahlen inquired if the house had experienced flooding that happened in 2023 across Vermont. Michael Dunne was not exactly sure. Al Alessi questioned if there was any way for staff to find out if properties had experienced flooding events in the past. Molly Maxham explained that staff does not keep specific flooding records for each parcel.

Justin Quinn stated that the addition is well away from the river and that the structure should not cause any more issues in the event of a flood.

The board expressed no further concerns.

*Al Alessi motioned to approve this application as submitted.*

*Jenny Ahlen seconded this.*

**Approved 3-0**

**D. V-0032-26 – Joe & Carole Kashner**

Location: 11 College Hill Road

Parcel ID: 23.52.37

Review Type: Conditional Use

Proposed Development: To construct an 886 sq ft addition.

Cole Stevers presented the application to construction an 886 sq ft addition. Emily Collins explained that this property is on steep slopes. Justin Quinn questioned why the addition could not be added to the other side of the property where no steep slopes were present. Emily Collins explained that only a small portion of the addition would be on the steep slope.

Justin Quinn questioned whether there was a gap between the floor of the addition and the steep slope. Cole Stevers explained that there would be storage underneath the addition. Jenny Ahlen had no concerns. Al Alessi suggested that the maps with applications should have flow lines for more clarity and saw no issue with the application.

*Al Alessi motioned to approve this application as submitted.*

*Jenny Ahlen seconded this.*

**Approved 3-0**

**APPROVAL OF CC MINUTES –**

There were no minutes approved. The minutes from 09/17/2025 will be approved at the next meeting.

**Other Business:**

**Adjournment:**

Meeting adjourned at 5:27 PM.