

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:

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 Name: Cristina Arumi
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: 443-827-2680 Email: farmhousecinnvermont@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: _____

Hause

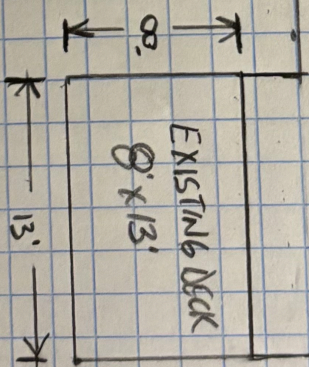
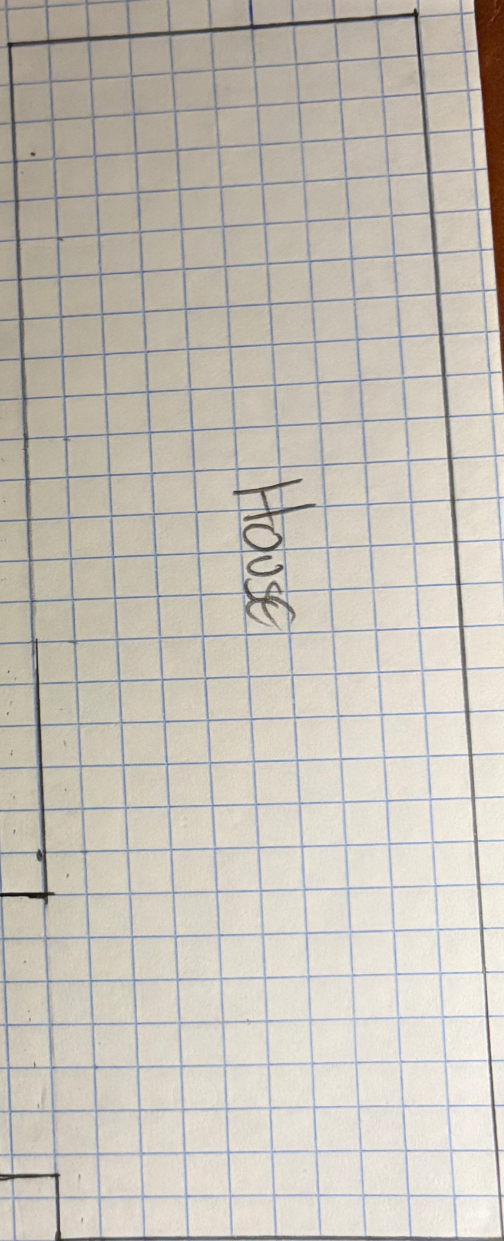
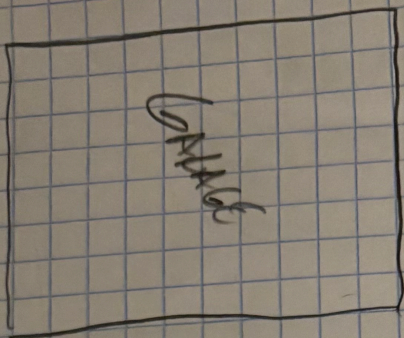
[illegible]

← 91 →

不

下

6/11/2021



ROUTE 4

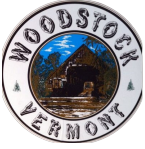
100'

48"

GARAGE

House

300'



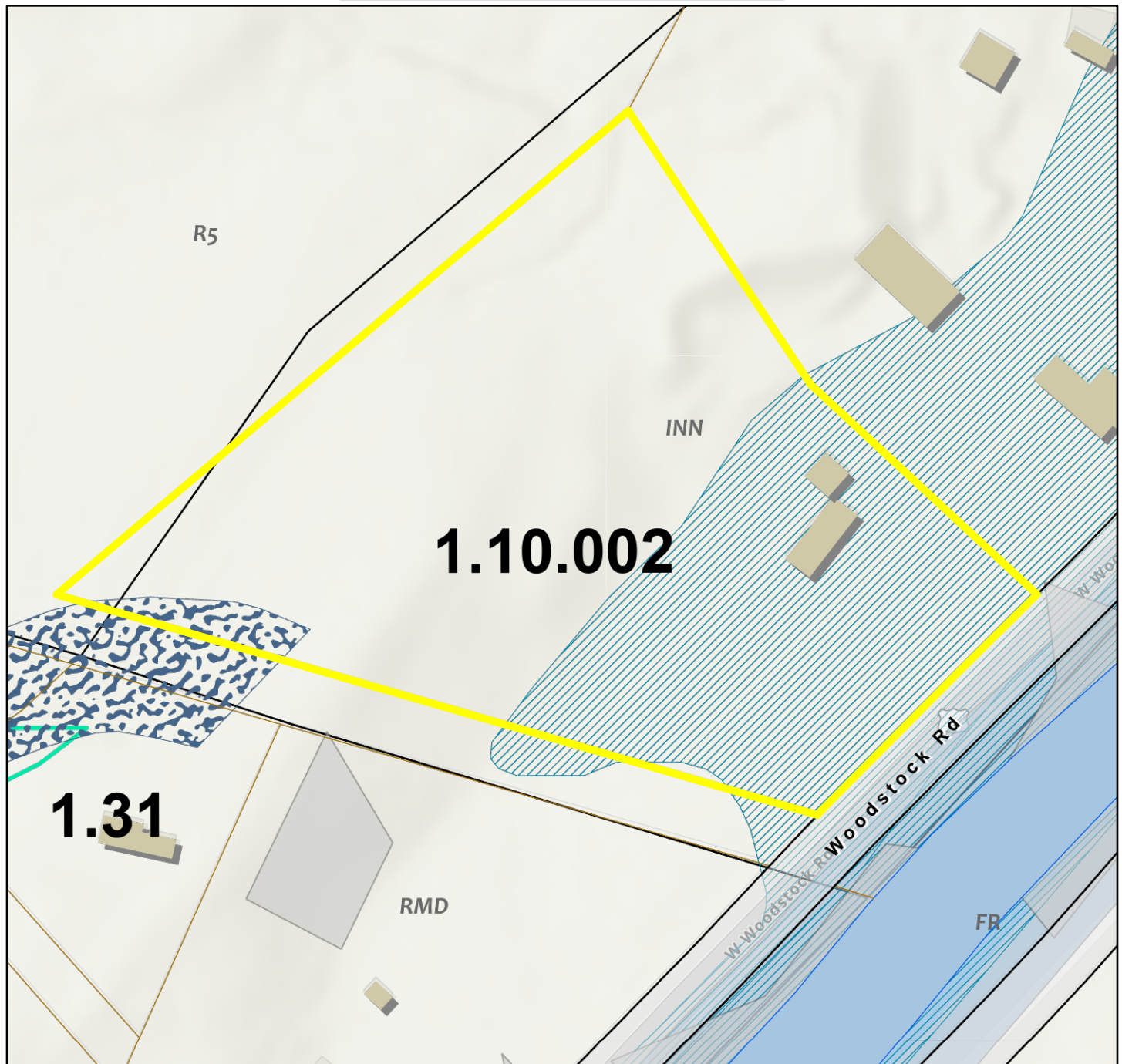
Town of Woodstock, VT

1 inch = 120 Feet



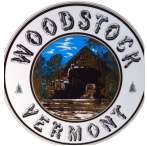
www.cai-tech.com

December 2, 2025



PWater	Slope > 25%
Property Line	Hydric Soils
Public Road	100 Year Floodplain
Buildings	Wetlands (2004 Arrowood Environmental Report)
Right of Ways	50 Foot Surface Water Buffer
Water-poly	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.



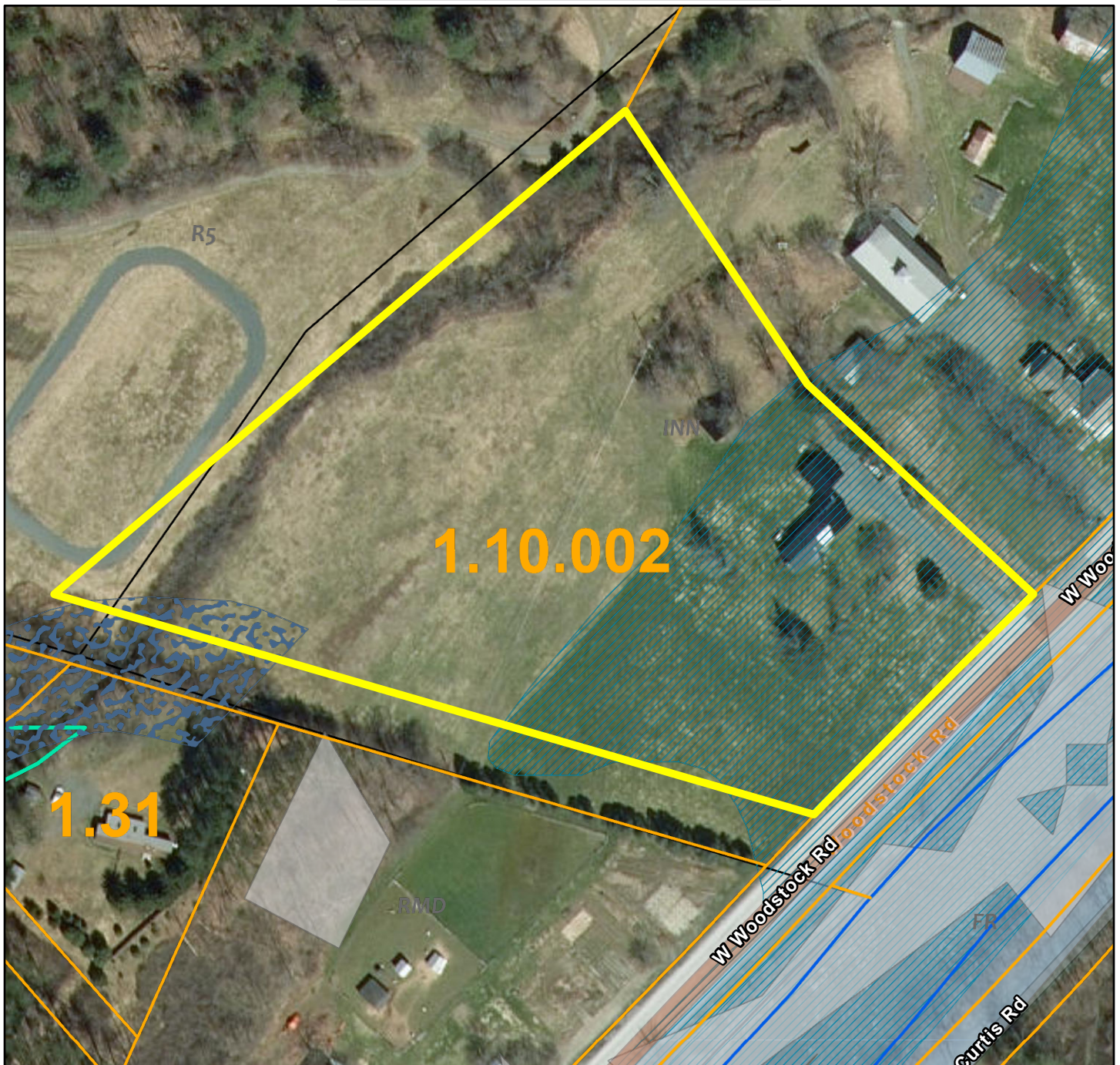
Town of Woodstock, VT

1 inch = 120 Feet



www.cai-tech.com

December 2, 2025



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: _____

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: _____

GREEN MOUNTAIN HORSE ASSOCIATION FLOODPLAIN MITIGATION & MANAGEMENT PROJECT

5491 SOUTH ROAD (ROUTE 106)
SOUTH WOODSTOCK, VERMONT

PREPARED BY:



ENVIRONMENTAL SERVICES
Bristol, Vermont • 802-453-5100

IN COLLABORATION WITH:

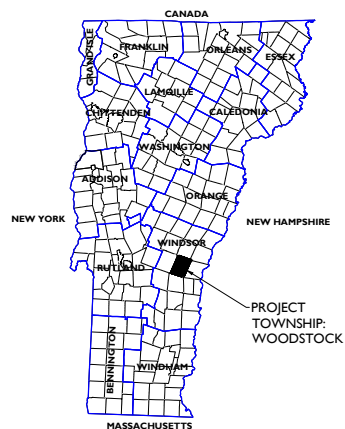


**FITZGERALD ENVIRONMENTAL
ASSOCIATES, LLC**

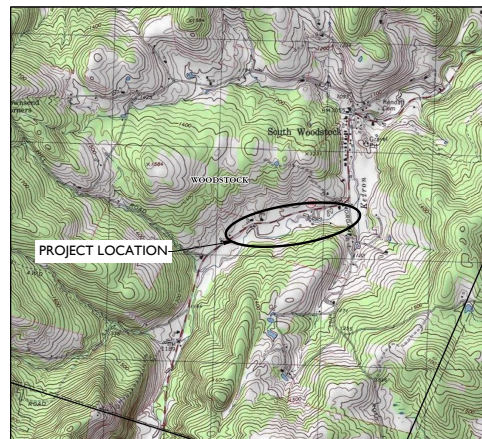
PREPARED FOR:



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

Figure 1 is a vertical cross-section diagram illustrating various engineering and environmental features. The diagram is organized into a grid with horizontal lines and vertical labels. The labels on the right side, from top to bottom, are: BUILDING, CONTOUR - MAJOR, CONTOUR - MINOR, CONTOUR - PROPOSED, FENCE, GUARD RAIL, LIMIT OF DISTURBANCE, OVERHEAD UTILITIES, PROPERTY LINE, RIPARIAN ZONE, ROAD, SALT FENCE, SEPTIC PIPE, STONE WALL, TOP OF BANK, TREE LINE, UNDERGROUND UTILITY, WETLAND BOUNDARY, WETLAND BUFFER (50'), WATERLINE, BENCH MARK, CATCH BASIN, CLEANOUT, DRAIN MANHOLE, HYDRANT, IRON PIN, LIGHT, MONITORING WELL, PERMEATION TEST, SEWER MANHOLE, SOIL BORING, TEST PIT, UTILITY POLE, and WATER SHUT OFF. The diagram shows a road with a 200' width, a 5' sidewalk, a 5' ditch, and a 5' wetland buffer. Below the road are various utilities including a building, contour, minor contour, proposed fence, guard rail, limit of disturbance, overhead utilities, property line, riparian zone, road, salt fence, septic pipe, stone wall, top of bank, tree line, underground utility, wetland boundary, wetland buffer (50'), waterline, bench mark, catch basin, cleanout, drain manhole, hydrant, iron pin, light, monitoring well, permeation test, sewer manhole, soil boring, test pit, utility pole, and water shut off.

- 1 The "owner/contractor" is responsible for constructing the systems 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). Construction of any system not shown on the approved plans shall be considered unauthorized. Any discrepancy in elevations or dimensions shown on the plans shall be immediately reported to MMES.
- 2 The "owner/contractor" is responsible for coordinating with MMES the schedule of construction inspections and certifications in accordance with the "approved" plans and state permit requirements.
- 3 All construction 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 has been made to locate underground utilities.
- 4 The contractor is responsible for contacting dug safe (811 or 1-888-344-7233) prior to construction.
- 5 All construction work shall be performed in general accordance with the applicable state of Vermont Occupational Safety and Health Administration (VOSH) guidelines.
- 6 All equipment must be installed according to manufacturer's specifications unless otherwise noted.
- 7 MMES is not responsible for the conformance of this plan or any attached documents to local and/or town zoning regulations. The property lines, easements, and other real estate matters shall be the responsibility of the owner. The owner shall obtain all necessary permitting purposes. They do not define legal rights or meet legal requirements for a land survey as described in 26 V.S.A. §2502(4), and shall not be used in a survey of the subject land and/or adjacent land.
- 8 Any alterations of these plans or specifications without authorization by MMES shall render these documents null and void.
- 9 MMES is not responsible for any action by the owner outside of the permits or the permit conditions obtained for this project.

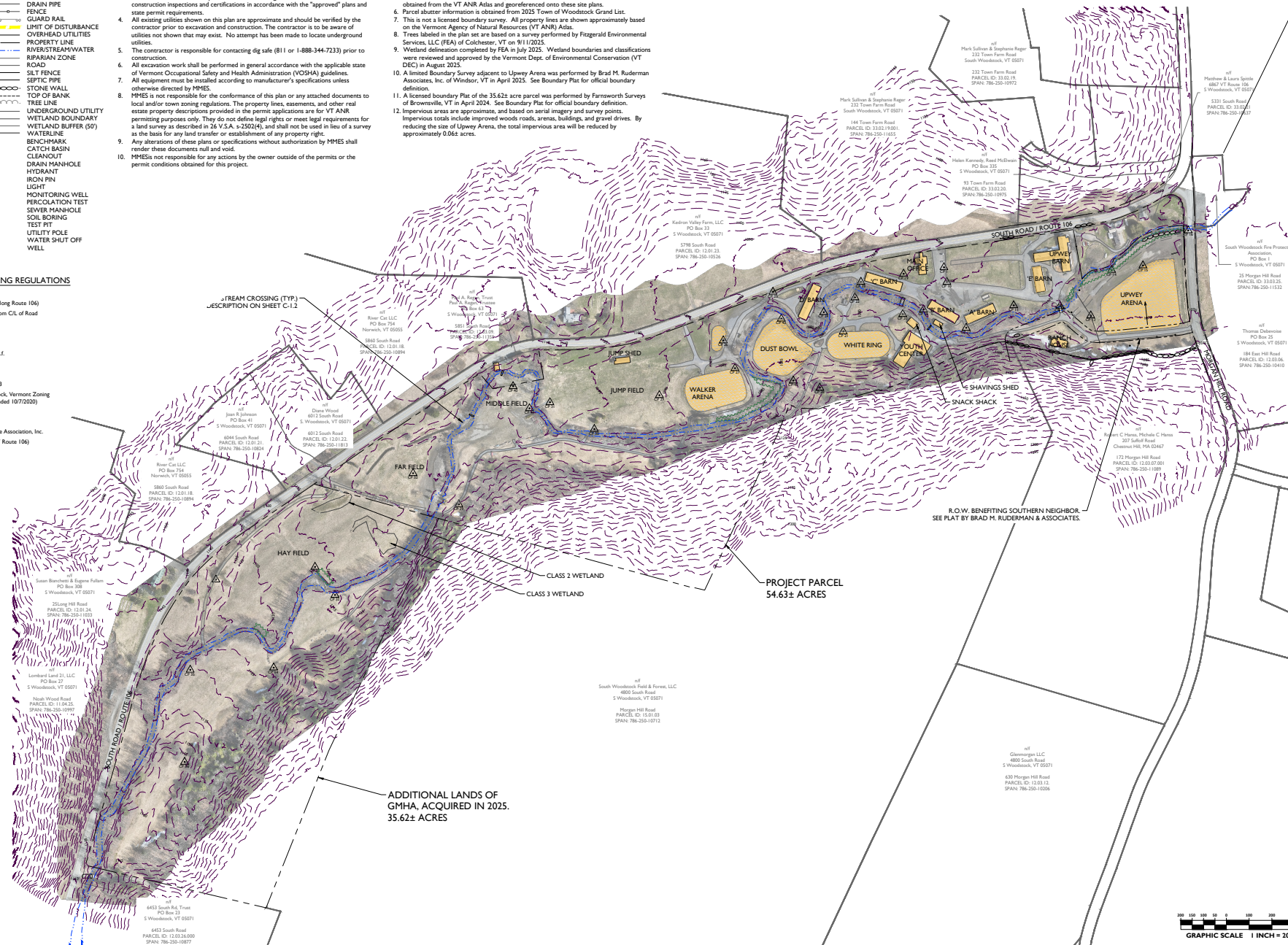
- Survey is based on the Vermont State Plane (NAD 83 Survey Feet) coordinate system and NAVD83 vertical datum.
- Topography depicted herein is data obtained from the Vermont Center for Geographic Information (VCGI).
- Multiple surveys were conducted with a Trimble SP5 985 Base Station & Receiver.
- Aerial imagery obtained by FlyBase/Consular, LLC of Waterbury, VT in April 2024.
- Parcel boundaries, floodplains, riparian, linear corridor, and base flood information are obtained from the Vermont Department of Environmental Conservation (VT DEC).
- Parcel abutter information is obtained from 2025 Town of Woodstock Grand List.
- This is not a licensed boundary survey. All property lines are shown approximately based on the best available information.
- Trees labeled in the plan set are based on a survey performed by Fitzgerald Environmental Services, LLC (FEA) of Colchester, VT on 9/11/2025.
- Violations of the Vermont Department of Environmental Conservation and classifications were reviewed and approved by the Vermont Dept. of Environmental Conservation (VT DEC) in August 2025.
- A limited boundary Plat was adjacent to Upwey Avenue was performed by Brad R. Rudeman and Associates, Inc. of Windsor, VT in April 2025. See Boundary Plat for official boundary information.
- A licensed boundary Plat of the 35.62± acre parcel was performed by Farmwornth Surveys of Brownsville, VT in April 2025. See Farmwornth Surveys for official boundary information.
- Impervious areas are approximate, and based on aerial imagery and survey points.
- Impervious totals include improved roads, areas, buildings, and gravel drives. By reducing the size of Upwey Avenue, the total impervious area will be reduced by approximately 10,000 sq. ft.

IMPERVIOUS AREAS	
DESCRIPTION	IMPERVIOUS AREA (ACRES)
Gravel Drive & Parking Lots	5.32±
Existing Buildings	1.39±
Existing Areas	4.64±
TOTAL	11.35± Acres

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

See Section 302 in the Town of Woodstock, Vermont Zoning Regulations, (effective 8/8/2017, last amended 10/7/2020)

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



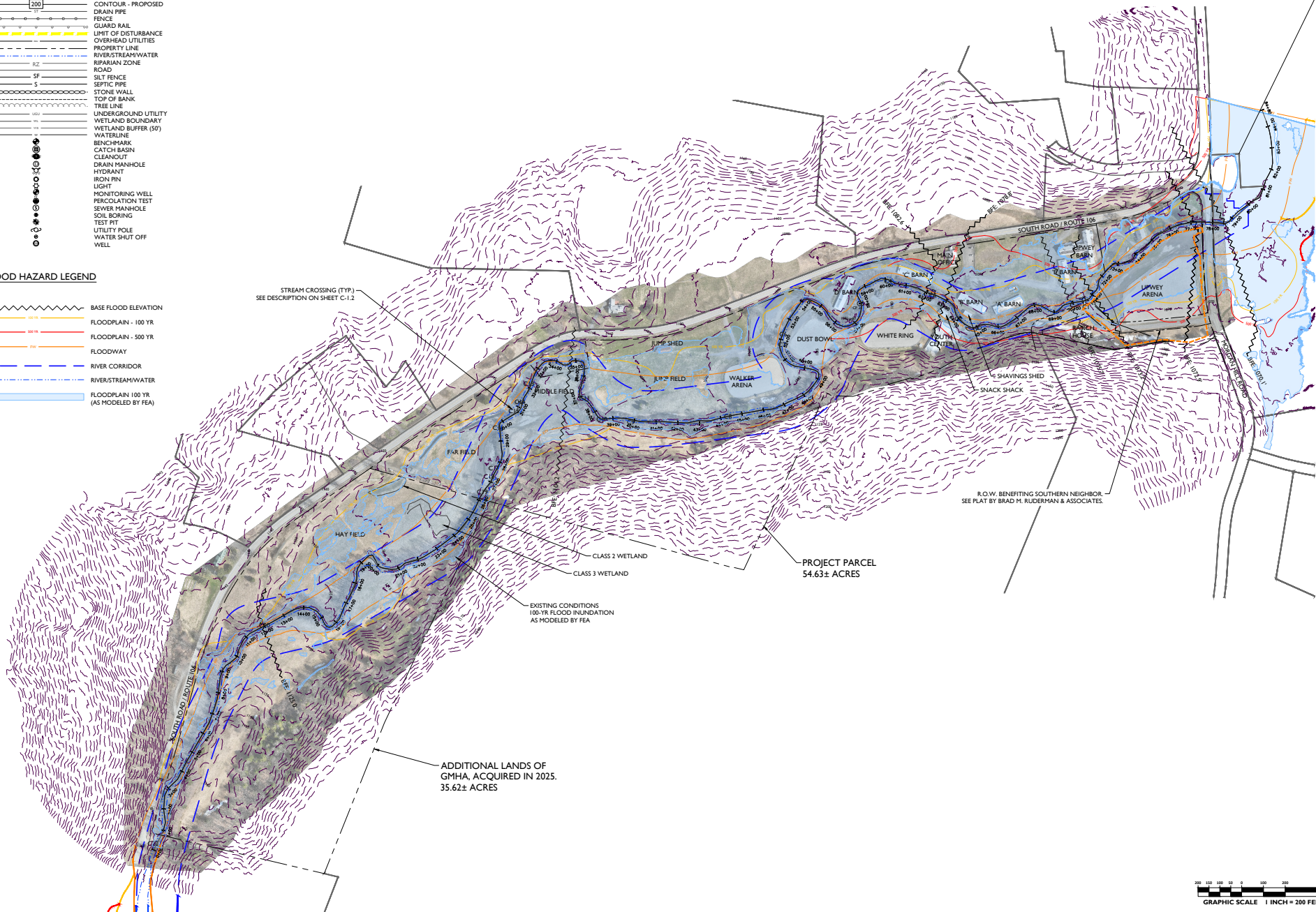
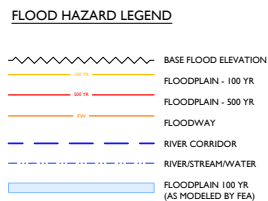
GREEN MOUNTAIN HORSE ASSOC.
FLOOD MITIGATION & MANAGEMENT
5491 SOUTH ROAD (ROUTE 106)
SOUTH WOODSTOCK, VERMONT

PERMIT PLANS

[illegible]

DATE: 12/1/2025	DRAWN BY: GWM
SCALE: 1" = 200'	CHECKED BY: FEA
PROJECT #: 24-107	APPROVED BY: GWM

OVERALL EXISTING
CONDITIONS
SITE PLAN
C-1.0



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

PERMIT PLANS

33

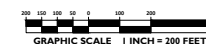
DATE _____

[illegible]

DATE: 12/1/2025	DRAWN BY: GWM
SCALE: 1" = 200'	CHECKED BY: FEA
PROJECT #: 24-107	APPROVED BY: GWM

OVERALL FLOOD
HAZARD SITE PLAN

C-1.1



LEGEND

BUILDING
CONTOUR - MAJOR
CONTOUR - MINOR
CONTOUR - PROPOSED
DRAIN PIPE
FENCE
GUARD RAIL
LIMIT OF DISTURBANCE
OVERHEAD UTILITIES
PROPERTY LINE
RIVER/STREAM/WATER
RIPARIAN ZONE
ROAD
SILT FENCE
SEPTIC PIPE
STONE WALL
TOP OF BANK
TREE LINE
UNDERGROUND UTILITY
WETLAND BOUNDARY
WETLAND BUFFER (50')
WATERLINE
BENCHMARK
CATCH BASIN
CLEANOUT
DRAIN MANHOLE
HYDRANT
IRON PIN
LIGHT
MONITORING WELL
PERCOLATION TEST
SEWER MANHOLE
SOIL BORING
TEST PIT
UTILITY POLE
WATER SHUT OFF
WELL

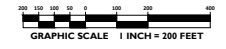
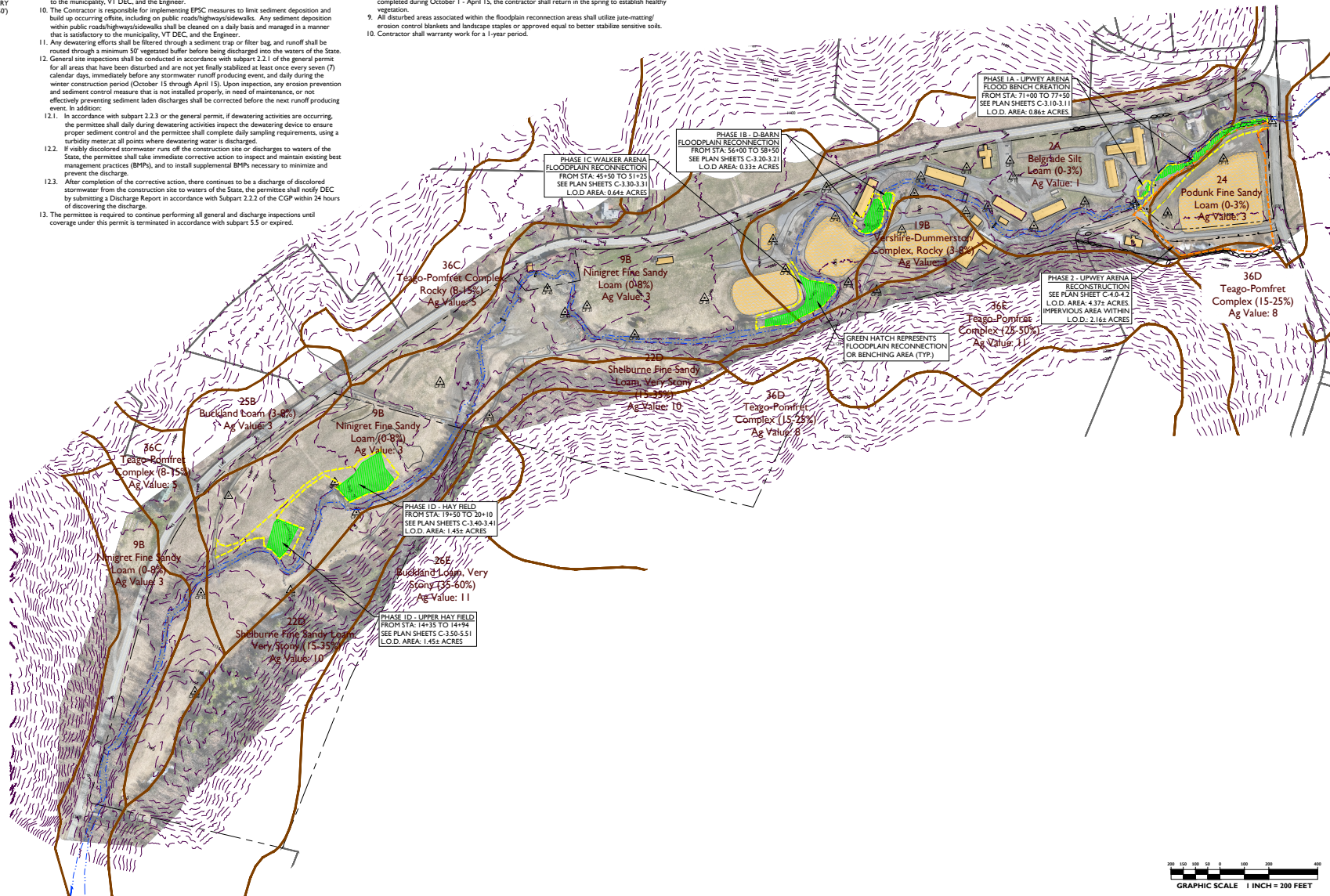
IMPERVIOUS AREAS	
DESCRIPTION	IMPERVIOUS AREA (ACRES)
Gravel Drives & Parking Lots	0.376
Existing Buildings	1.795
Existing Roads	0.644
TOTAL	11.355 Acres

LIMITS OF DISTURBANCE AREA	
DESCRIPTION	AREA (ACRES)
Phase 1A	0.864
Phase 1B	0.334
Phase 1C	0.644
Phase 1D	1.382
Phase 1 TOTAL	3.224 Acres
Phase 2 TOTAL	4.376 Acres

- EROSION PROTECTION & SEDIMENT CONTROL NOTES**
- The Contractor is responsible for installing and maintaining the erosion prevention and sediment control (EPSC) measures throughout the entirety of the project.
 - EPSC measures are to be installed prior to any earth disturbance, and shall be done in conformance to this plan and the Vermont Low Risk Site Handbook for Erosion Prevention and Sediment Control.
 - Phase 1 of the project is exempt from Construction General Permitting, however the Contractor shall adhere to the practices outlined in the Vermont Low Risk Site Handbook for Erosion Prevention and Sediment Control.
 - Phase 2 of the project is eligible for a Low Risk Construction General Permit, and shall adhere to the practices outlined in the Vermont Low Risk Site Handbook for Erosion Prevention and Sediment Control.
 - Any stockpiled soils shall be surrounded by Silt Fence. Stockpiled soils shall be seeded and mulched within 48 hours to prevent sediment runoff.
 - All areas of earth disturbance shall have temporary or permanent stabilization measures within 14 days of initial disturbance. After this time, disturbed areas must be temporarily or permanently stabilized in advance of any runoff producing event.
 - There shall be no more than 2 acres of concurrent earth disturbance.
 - Follow winter construction requirements for projects that have not achieved final stabilization by October 15.
 - The Contractor is responsible for maintaining dust control at the site in a manner that is satisfactory to the municipality, VT DEC, and the Engineer.
 - The Contractor is responsible for implementing EPSC measures to limit sediment deposition and build up occurring offsite, including on public roads/highways/sidewalks. Any sediment deposition within public roads/highways/sidewalks shall be cleaned on a daily basis and managed in a manner that is satisfactory to the municipality, VT DEC, and the Engineer.
 - Any dewatering efforts shall be filtered through a sediment trap or filter bag, and runoff shall be routed through a minimum 50' vegetated buffer before being discharged into the waters of the State.
 - General site inspections shall be conducted in accordance with subpart 2.2.1 of the general permit, for all areas that have been disturbed and are not yet finally stabilized at least once every seven (7) calendar days, immediately before any stormwater runoff producing event, and daily during the winter construction period (October 15 through April 15). Upon inspection, any erosion prevention and sediment control measure that is not installed properly, in need of maintenance, or not effectively preventing sediment laden discharges shall be corrected before the next runoff producing event. In addition:
 - In accordance with subpart 2.2.3 of the general permit, if dewatering activities are occurring, the permittee shall daily during dewatering activities inspect the dewatering device to ensure proper sediment control and the permittee shall complete daily sampling requirements, using a turbidity meter at all points where dewatering water is discharged.
 - If visibly discolored stormwater runs off the construction site or discharges to waters of the State, the permittee shall take immediate corrective action to inspect and maintain existing best management practices (BMPs), and to install supplemental BMPs necessary to minimize and prevent the discharge.
 - After completion of the corrective action, there continues to be a discharge of discolored stormwater from the construction site to waters of the State, the permittee shall notify DEC by submitting a Discharge Report in accordance with Subpart 2.2.2 of the CGP within 24 hours of discovering the discharge.
 - The permittee is required to continue performing all general and discharge inspections until coverage under this permit is terminated in accordance with subpart 5.5 or expired.

- PHASE 1 - CONSTRUCTION NOTES**
- Phase 1 consists of the floodplain reconnection and restoration work, identified by the yellow dashed lines on this plan sheet. This work is exempt from Construction Stormwater Permitting (9020), however EPSC measures are outlined below for the construction effort.
 - A preconstruction meeting with the Contractor, Engineer and Owner/Owners Representative shall be held prior to the commencement of the Project.
 - The Contractor shall furnish all materials, and provide submittals to the Engineer for review.
 - The Contractor shall schedule work and perform the work in a manner that minimizes the potential for major weather events to create additional bank erosion and sediment deposition into the stream.
 - The Contractor shall work in a manner that minimizes bare earth exposure along the stream bank. If inclement weather is forecasted, the contractor shall mulch all disturbed areas.
 - The detail and cross section depicted on these plans represent a typical construction cross section; exact construction dimensions may vary.
 - The Contractor shall strip topsoil and stockpile on site, for reuse. In areas where the grade is cut, the contractor shall place a minimum of 4" of topsoil to obtain the proposed finished grading.
 - Upon completion of the project, the Contractor shall seed and mulch all disturbed areas, and ensure healthy vegetation is established. In the floodplain bench adjacent to Upwey Arena, the seed shall be Vermont Wet Meadow Mix by Green Mountain Natives or approved equal. All other disturbed areas the seed shall be Vermont Conservation & Wildlife Mix by Green Mountain Natives or approved equal. See shall be applied at 5lbs/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.
 - All disturbed areas associated within the floodplain reconnection areas shall utilize jute-matting/ erosion control blankets and landscape staples or approved equal to better stabilize sensitive soils.
 - Contractor shall warranty work for a 1-year period.

- PHASE 2 - CONSTRUCTION NOTES**
- Phase 2 is an independent project from Phase 1. The construction sequence is not yet known at the time of this plan development, however one phase must be completed prior to commencing the other phase.
 - A preconstruction meeting with the Contractor, Engineer and Owner/Owners Representative shall be held prior to the commencement of Phase 2 of the Project.
 - The Contractor shall furnish all materials, and provide submittals to the Engineer for review.
 - The Contractor shall first establish the Limits of Disturbance with construction ribbon or snow fence. Next the contractor shall install silk fencing on all downgradient portions of the project, as shown on this site plan, and described in the EPSC Notes prior to any earth disturbance.
 - The Contractor shall schedule work and perform the work in a manner that minimizes the potential for major weather events to create additional erosion and sediment deposition.
 - The Contractor shall strip topsoil and stockpile on site, for reuse. In areas where the grade is cut, the contractor shall place a minimum of 4" of topsoil to obtain the proposed finished grading.
 - Upon completion of the project, the Contractor shall seed and mulch all disturbed areas, and ensure healthy vegetation is established. Seed to be Vermont Conservation & Wildlife Mix by Green Mountain Natives, or approved equal. Seed to be applied at 5lbs/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.
 - Contractor shall warranty work for a 1-year period.



ENVIRONMENTAL SERVICES
Bristol, Vermont • 802-853-5100

FITZGERALD ENVIRONMENTAL ASSOCIATES, LLC

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

PERMIT PLANS

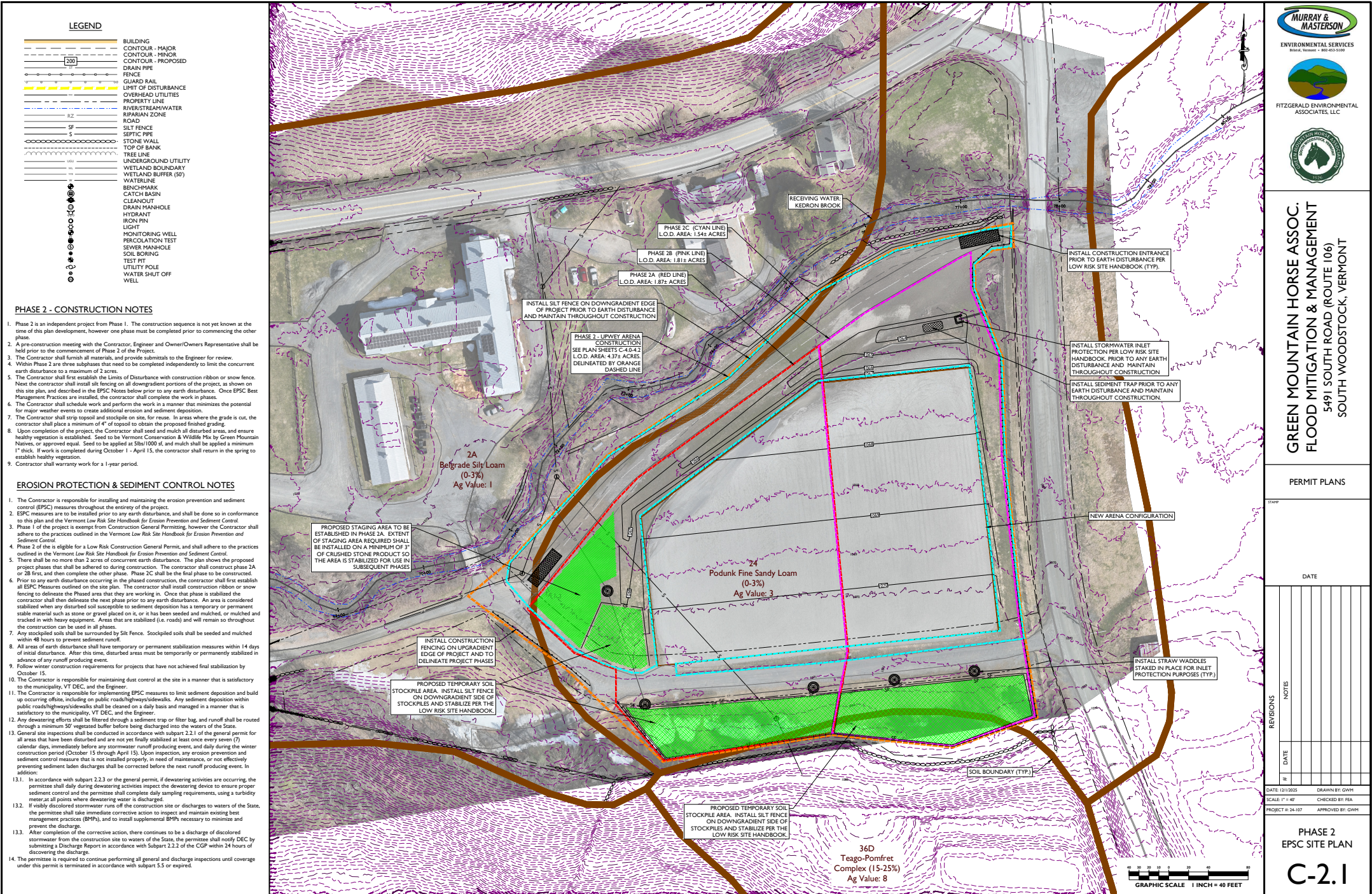
DATE

REVISIONS	DATE	NOTES

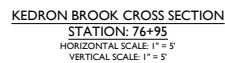
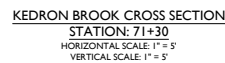
DATE: 12/1/2025 DRAWN BY: GWH
SCALE: 1" = 200' CHECKED BY: FEA
PROJECT #: 24-107 APPROVED BY: GWH

**OVERALL EPSC
SITE PLAN**

C-2.0



REVISIONS	DATE	NOTES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		



PERMIT PLANS

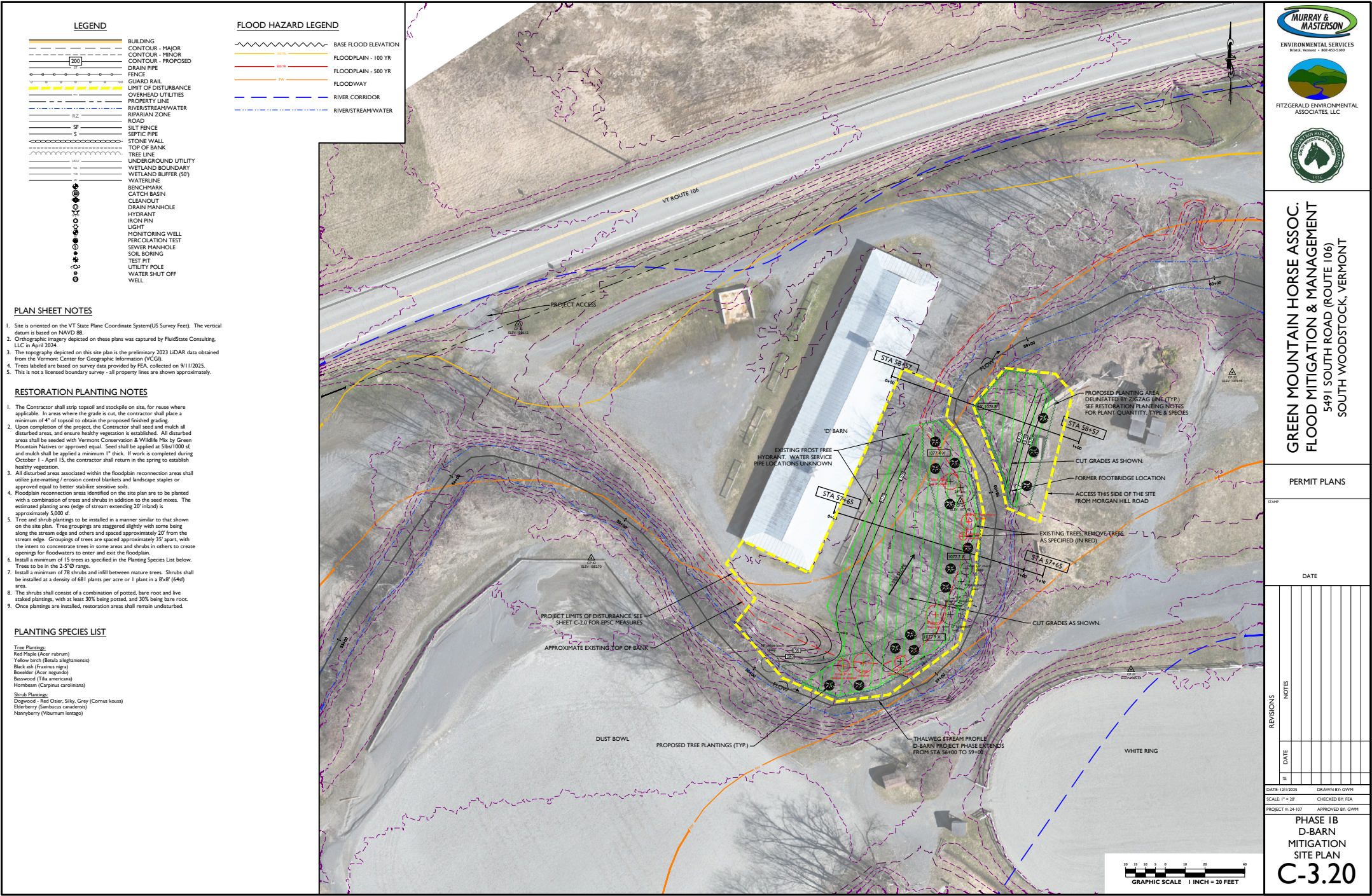
STAMP

DATE _____

DATE: 12/1/2025	DRAWN BY: GWM
SCALE: 1" = 5'	CHECKED BY: FEA
PROJECT #: 24-107	APPROVED BY: GWM

PHASE IA
UPWEY ARENA
CROSS SECTIONS

C-3.11



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

PERMIT PLANS

REVISIONS		NOTES	
#	DATE		

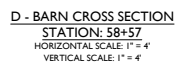
DATE: 12/1/2025
SCALE: 1" = 20'
PROJECT #: 24-107
DRAWN BY: GWH
CHECKED BY: FEA
APPROVED BY: GWH

PHASE 1B D-BARN MITIGATION SITE PLAN

C-3.20



D - BARN CROSS SECTION
STATION: 57+65
HORIZONTAL SCALE: 1" = 4'
VERTICAL SCALE: 1" = 4'



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

PERMIT PLANS

STAMP

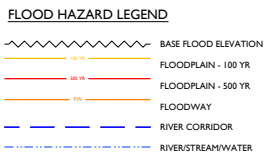
DATE _____

[illegible]

DATE: 12/1/2025	DRAWN BY: GWM
SCALE: 1" = 4'	CHECKED BY: FEA
PROJECT #: 24-107	APPROVED BY: GWM

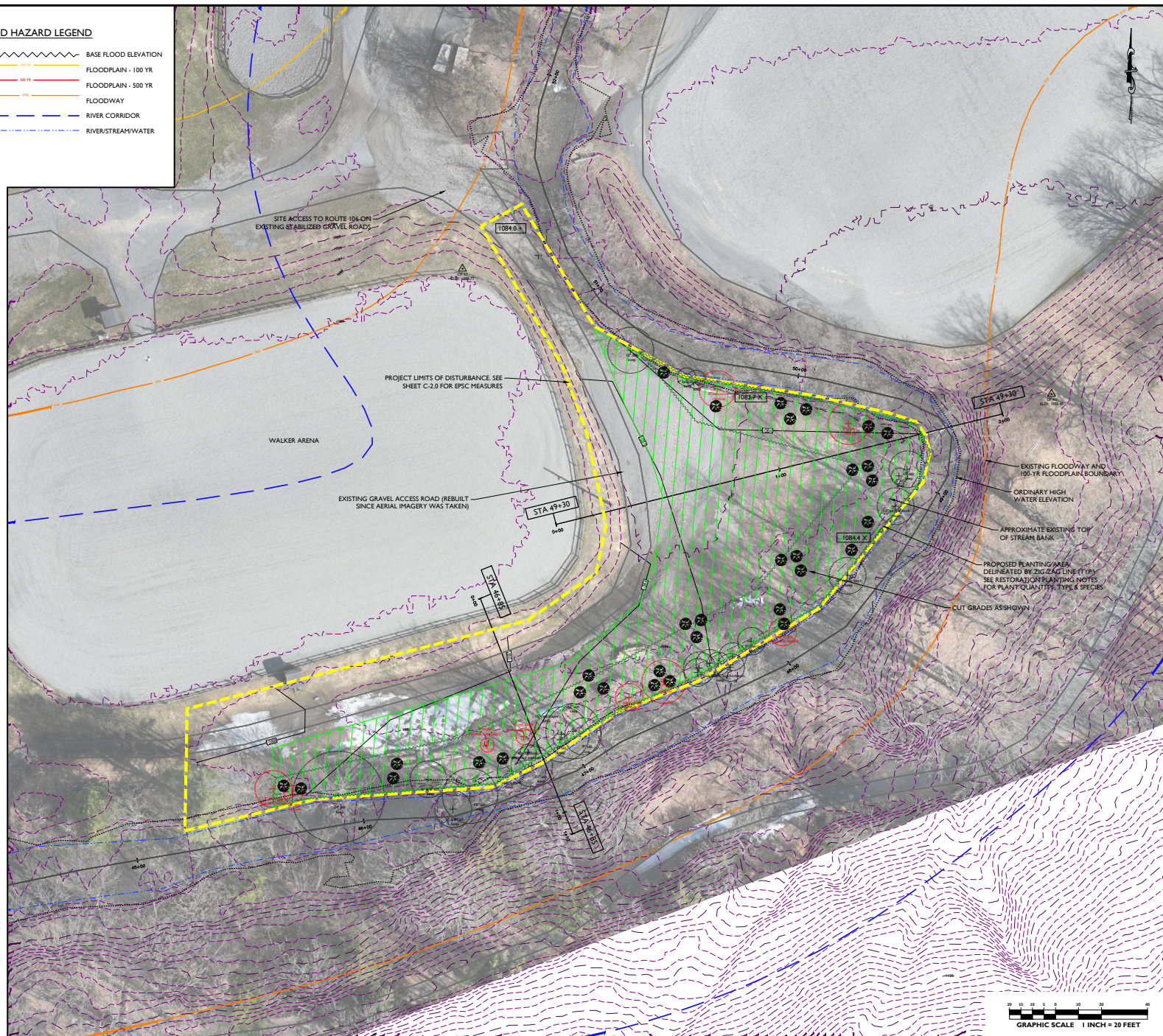
PHASE IB
D BARN
CROSS SECTIONS

C-3.21



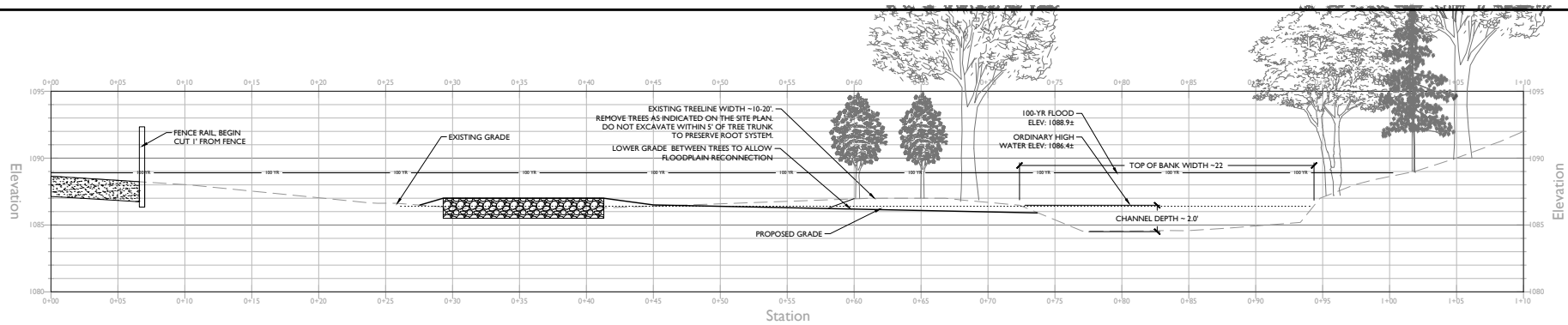
Tree Plantings:
Red Maple (*Acer rubrum*)
Yellow birch (*Betula alleghaniensis*)
Black ash (*Fraxinus nigra*)
Boxelder (*Acer negundo*)
Basswood (*Tilia americana*)
Hornbeam (*Carpinus caroliniana*)

Shrub Plantings:
Dogwood - Red Osier, Silky, Grey
Elderberry (*Sambucus canadensis*)
Nannyberry (*Viburnum lentago*)

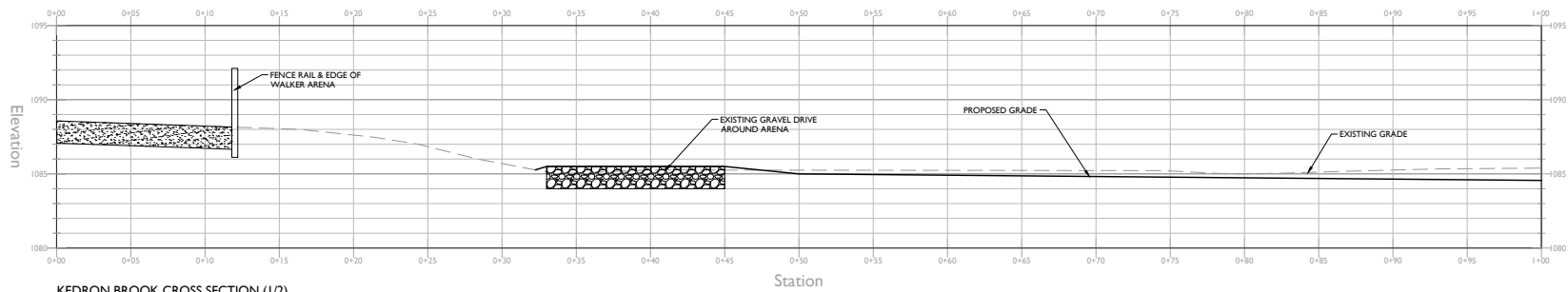
[illegible]

DATE: 12/11/2025	DRAWN BY: GWM
SCALE: 1" = 20'	CHECKED BY: FEA
PROJECT # 24-107	APPROVED BY: GWM

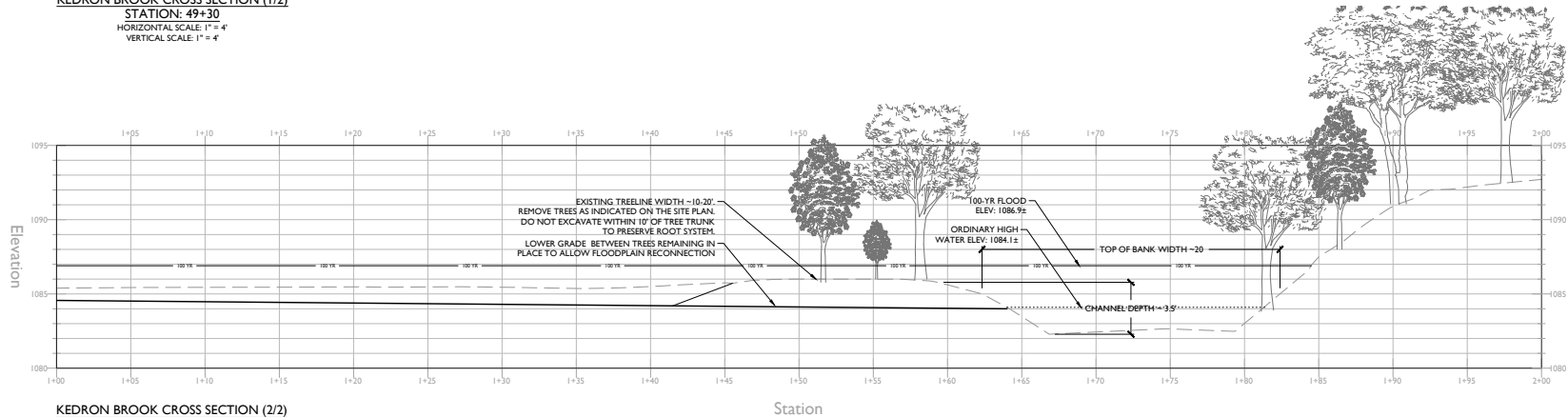
PHASE 1C
WALKER ARENA
MITIGATION
SITE PLAN
C-3.30



KEDRON BROOK CROSS SECTION
STATION: 46+85
 HORIZONTAL SCALE: 1" = 4'
 VERTICAL SCALE: 1" = 4'



KEDRON BROOK CROSS SECTION (1/2)
STATION: 49+30
 HORIZONTAL SCALE: 1" = 4'
 VERTICAL SCALE: 1" = 4'



KEDRON BROOK CROSS SECTION (2/2)
STATION: 49+30
 HORIZONTAL SCALE: 1" = 4'
 VERTICAL SCALE: 1" = 4'



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

PERMIT PLANS

STAMP

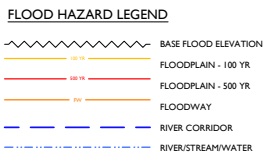
DATE

REVISIONS	DATE	NOTES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

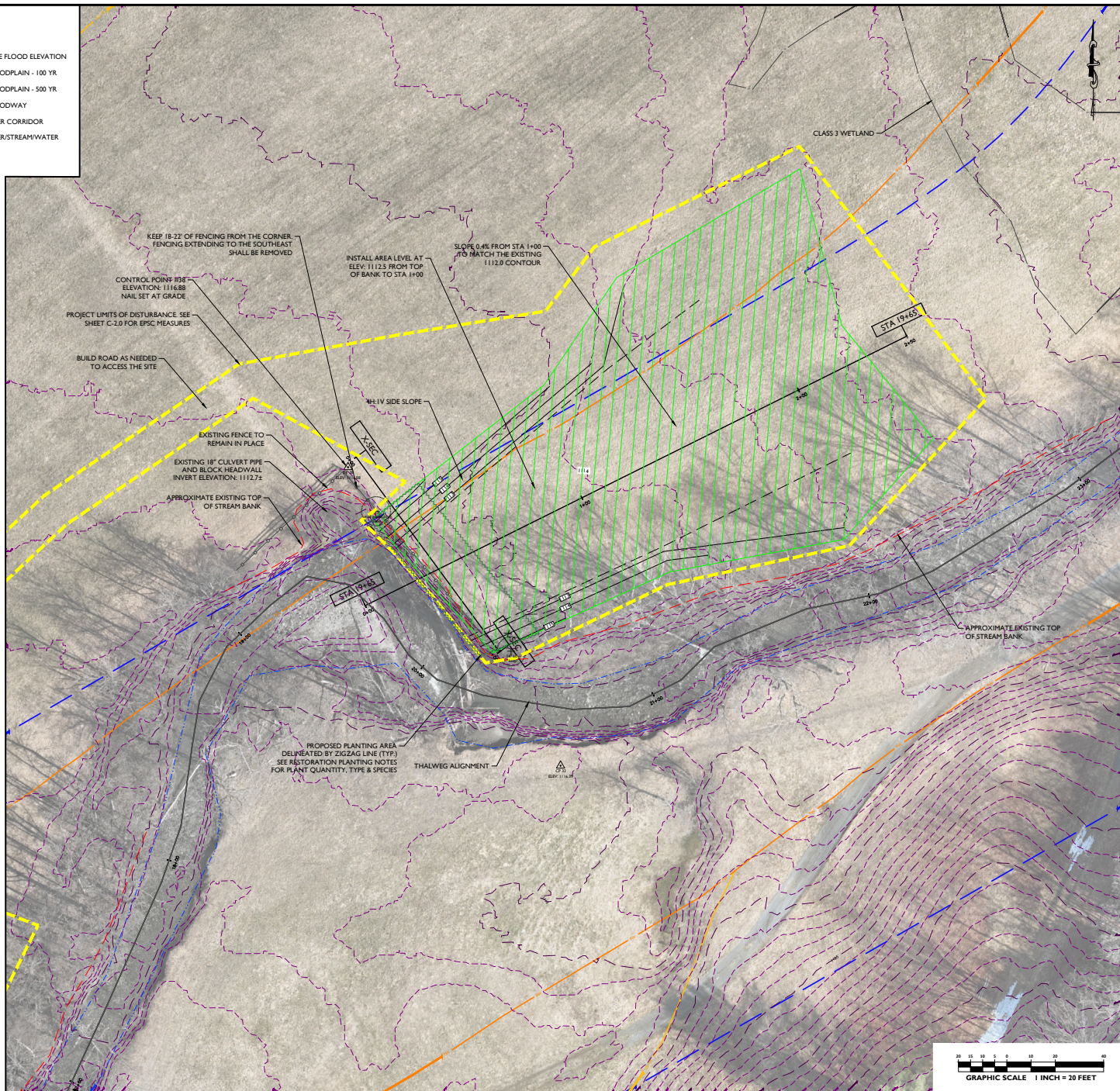
DATE: 12/1/2025 DRAWN BY: GWH
 SCALE: 1" = 4' CHECKED BY: FEA
 PROJECT: 24-107 APPROVED BY: GWH

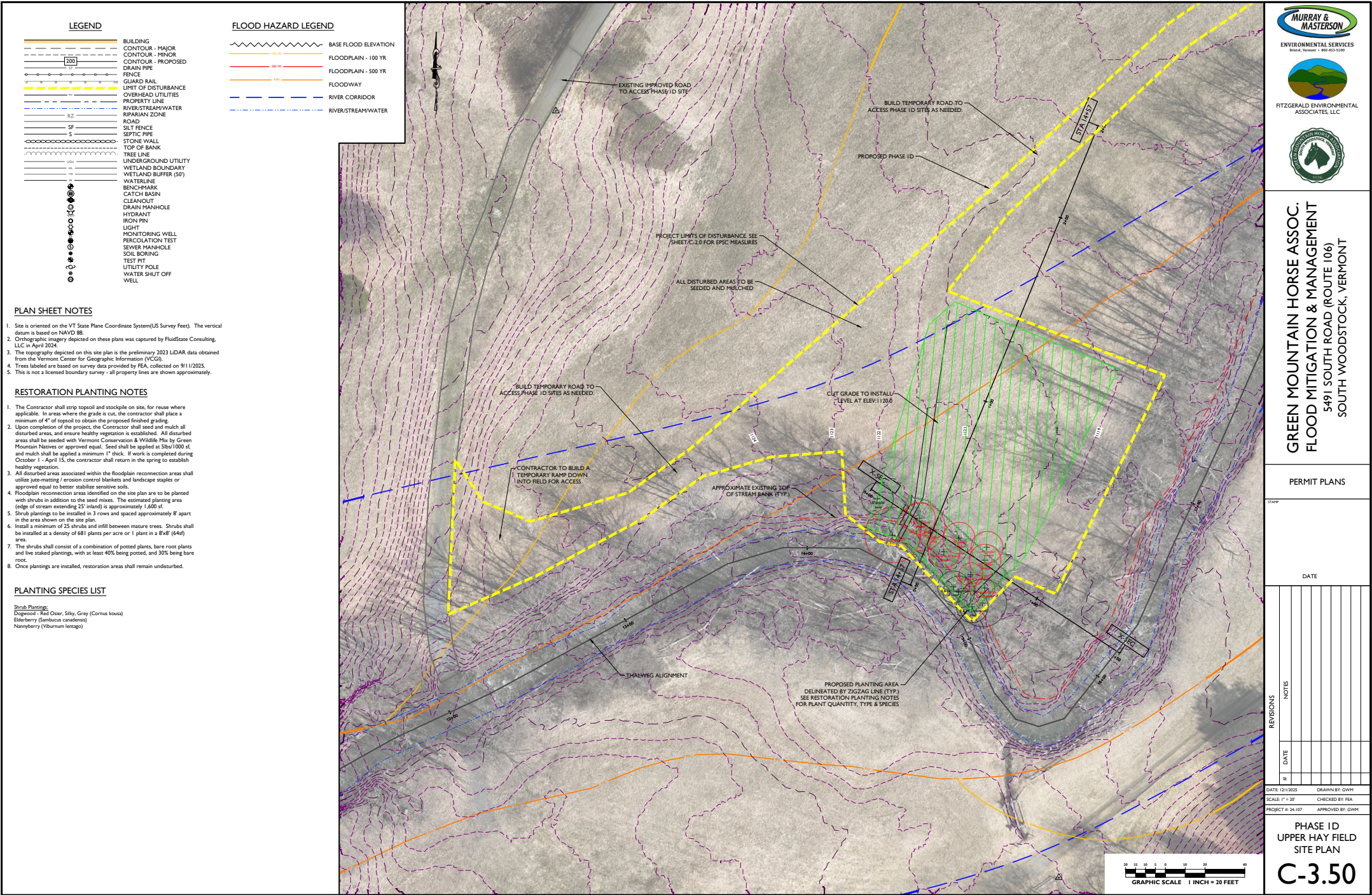
PHASE 1C
 WALKER ARENA
 CROSS SECTIONS

C-3.31



Shrub Plantings:
Dogwood - Red Osier, Silky, Grey (*Cornus kousa*)
Elderberry (*Sambucus canadensis*)
Nannyberry (*Viburnum lentago*)





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

PERMIT PLANS

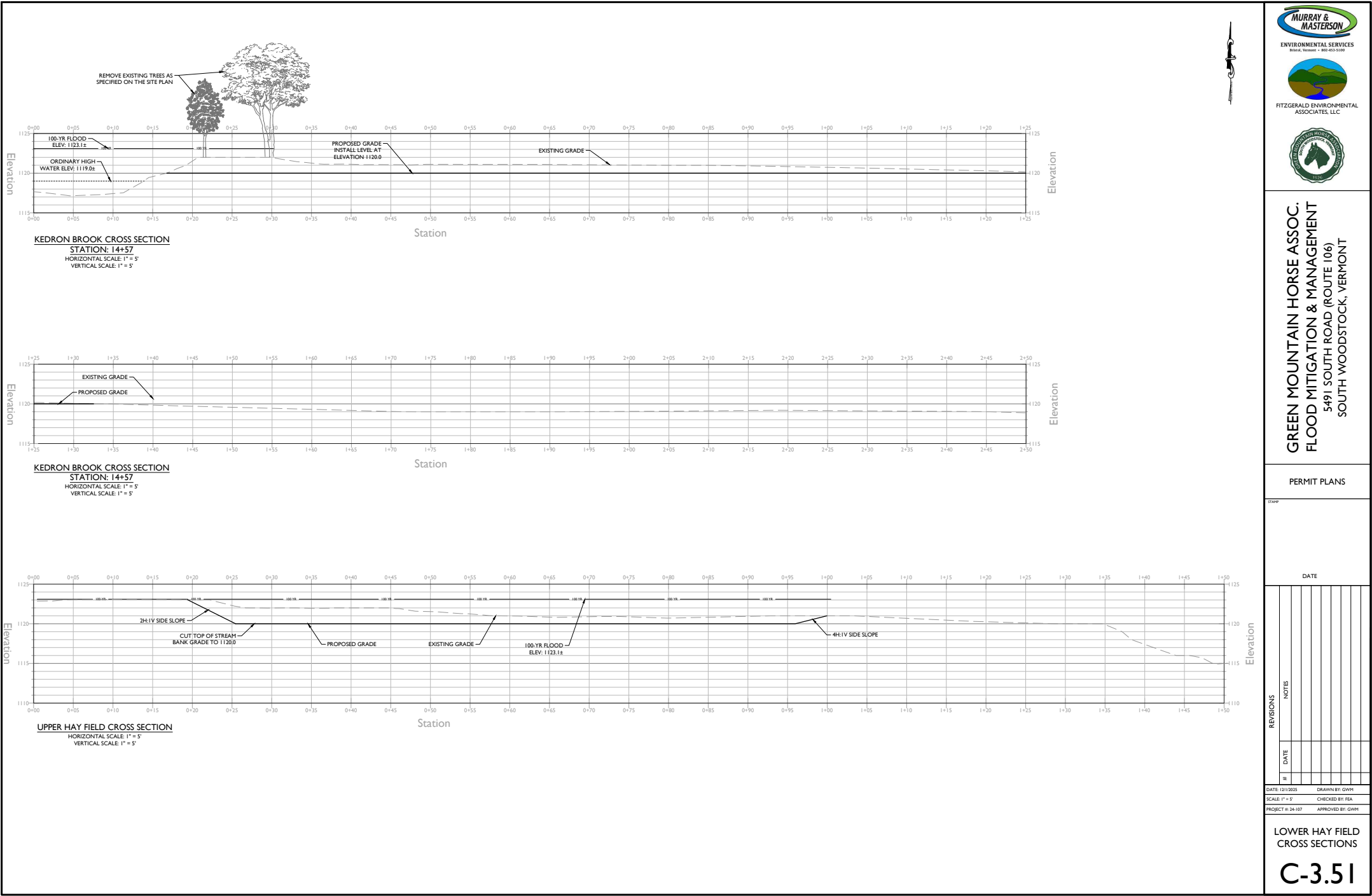
REVISIONS		NOTES	
#	DATE		

DATE: 12/1/2025
SCALE: 1" = 30'
PROJECT: 24-107

DRAWN BY: GWH
CHECKED BY: FEA
APPROVED BY: GWH

PHASE ID
UPPER HAY FIELD
SITE PLAN

C-3.50



MURRAY & MASTERSON
ENVIRONMENTAL SERVICES
Bristol, Vermont • 802-453-5100

FITZGERALD ENVIRONMENTAL
ASSOCIATES, LLC

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

PERMIT PLANS

DATE

REVISIONS	DATE	NOTES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

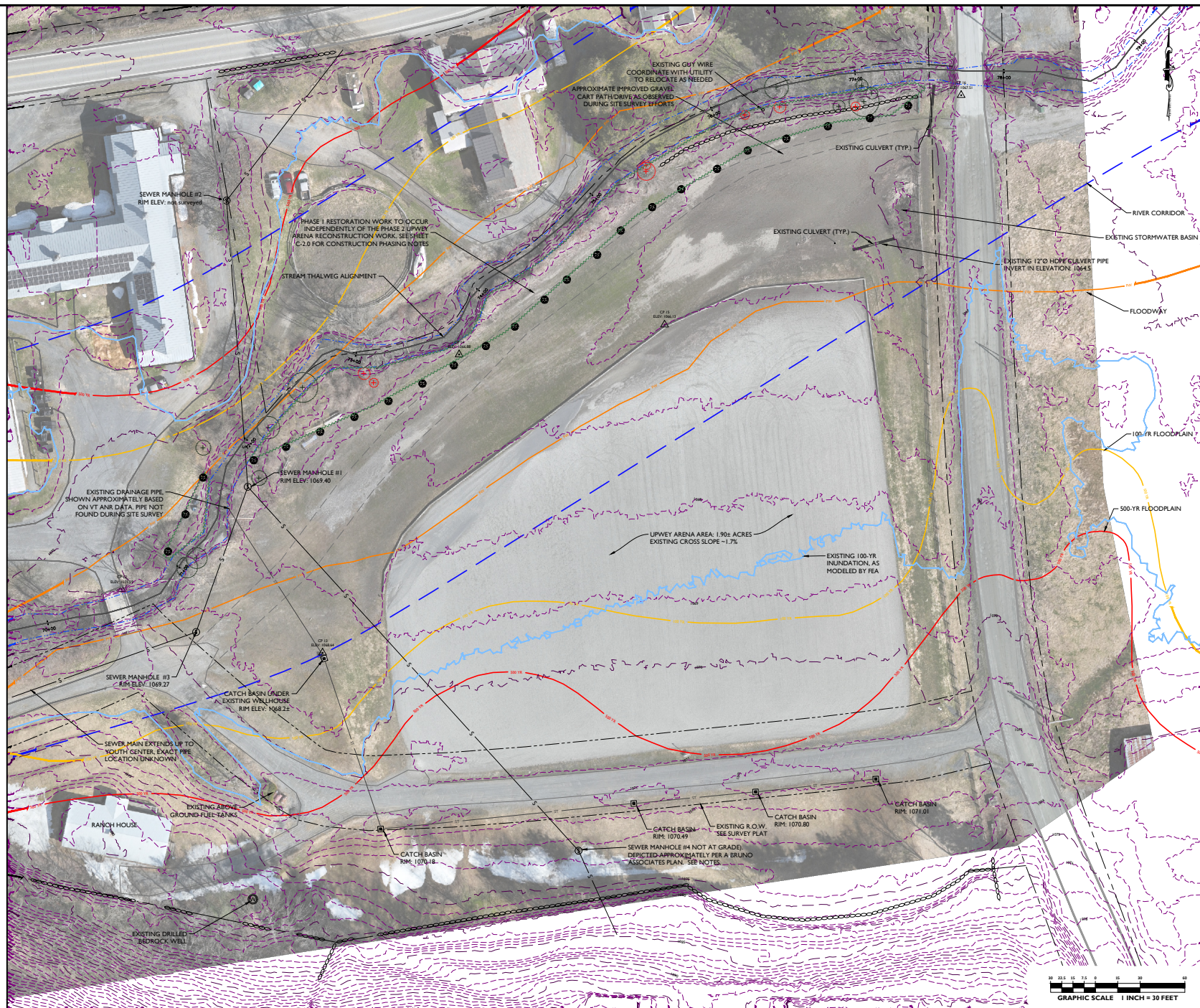
DATE: 12/1/2025 DRAWN BY: GWH
SCALE: 1" = 5' CHECKED BY: FEA
PROJECT #: 24-107 APPROVED BY: GWH

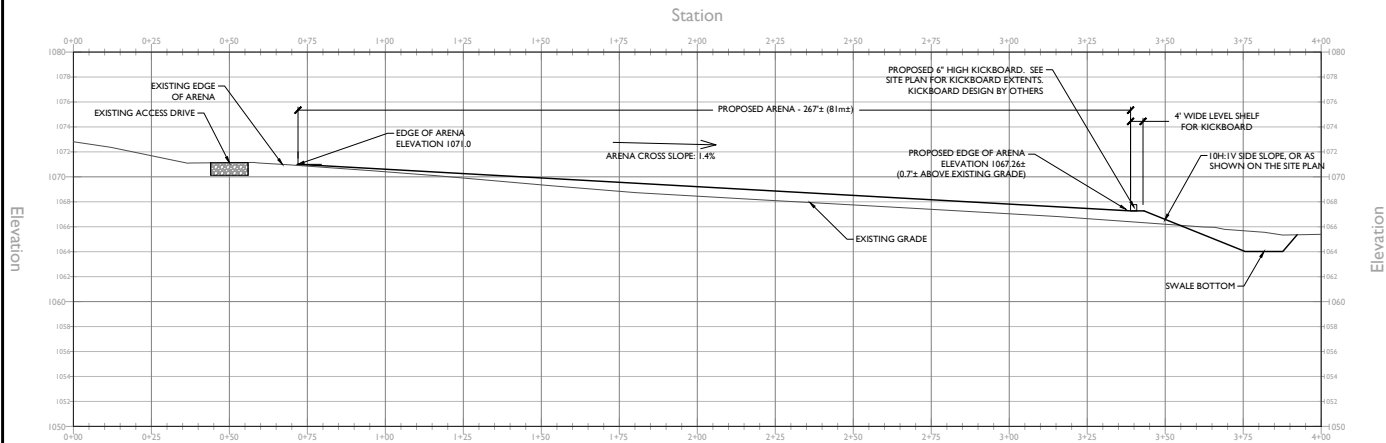
LOWER HAY FIELD
CROSS SECTIONS

C-3.51

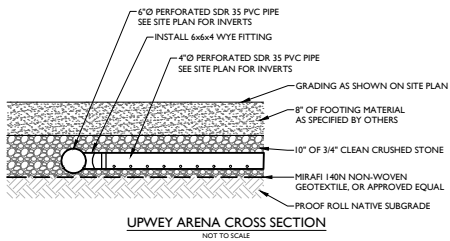


1. Site is oriented on the VT State Plane Coordinate System (US Survey Feet). The vertical datum is based on NAVD 88.
2. Orthographic imagery depicted on these plans was captured by FluidState Consulting, LLC in April 2024.
3. The topography depicted on this site plan is the preliminary 2023 LIDAR data 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.
6. Sewer Manhole (SMH) #14 is shown on data provided by Brad M. Ruderman Associates, which references a Plan titled "Site Plan for Woodstock Education Associates" by Bruno Associates dated September 1990, last revised March 1991.
7. SMH #1 & #3 were located during surface surveys. SMH #3 is below area

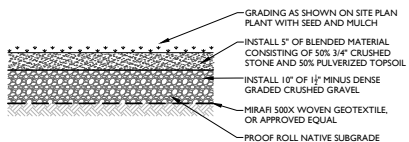
[illegible]



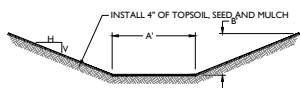
UPWEY ARENA SECTION A-A
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



UPWEY ARENA CROSS SECTION
NOT TO SCALE

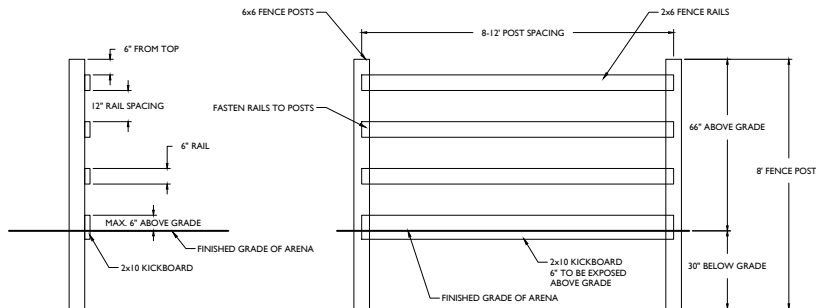


CART PATH SECTION DETAIL
NOT TO SCALE



GRASS SWALE SECTION DETAIL
NOT TO SCALE

SECTION	SECTION	SECTION	SECTION
1	2	3	4



SPLIT RAIL FENCE DETAIL
NOT TO SCALE

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



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

PERMIT PLANS

STAMP

DATE

REVISIONS	DATE	NOTES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

DATE: 12/1/2025 DRAWN BY: GWH

SCALE AS SHOWN CHECKED BY: FEA

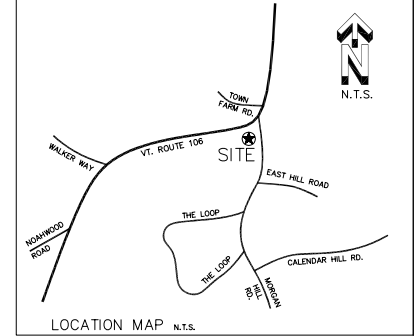
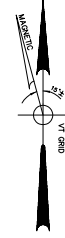
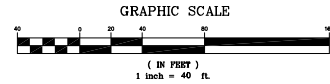
PROJECT: 24-107 APPROVED BY: GWH

PH. 2 UPWEY ARENA
CROSS SECTIONS &
CONSTRUCTION
DETAILS

C-4.2

LEGEND

- TEMPORARY BENCHMARK SET
- EXISTING WELL CASING
- EXISTING SEWER MANHOLE
- EXISTING DRAINAGE INLET
- UTILITY POLE
- PROPERTY LINES
- RIGHT-OF-WAY / EASEMENT
- EDGE OF GRAVEL
- STONEWALL
- WOOD FENCE
- APPROXIMATE SEWER
- CENTERLINE OF BROOK (PER BRUNO MAP 2A)
- CENTERLINE OF BROOK (AS OF MARCH 2023)
- EDGE OF BROOK



POINT	ELEVATION
TBM#1	1076.537
TBM#2	1073.547
TBM#3	1070.147
TBM#4	1068.507
TBM#5	1071.777
TBM#6	1069.507
TBM#7	1072.987
TBM#8	1071.257
TBM#9	1068.447
TBM#10	1066.577
TBM#11	1065.817
SM#1	1068.387 (COVERED)
SM#2	1072.147 (COVERED)

LINE	BEARING	LENGTH
A-B	N62°16'50"E	502.0
B-C	S04°53'09"E	540.9
C-D	S83°39'24"W	465.6
D-E	N78°21'53"W	392.3

GENERAL NOTES:

- SUBJECT PROPERTY IS OWNED BY THE GREEN MOUNTAIN HORSE ASSOCIATION, P.O. BOX 8, SOUTH WOODSTOCK, VT 05071. PARCEL ID #33.02.22; SPAN #786-250-10658.
- THIS IS A TOTAL STATION BOUNDARY SURVEY OF PORTIONS OF THE SUBJECT PROPERTY EXECUTED AT THE REQUEST OF MURRAY & MASTERSON ENGINEERS, CONDUCTED IN ACCORDANCE WITH THE RULES OF THE BOARD OF LAND SURVEYORS' STANDARDS FOR THE PRACTICE OF LAND SURVEYING. BEARINGS SHOWN REFER TO APPROXIMATE GRID NORTH AND SERVE ONLY TO DEFINE ANGULAR RELATIONSHIPS BETWEEN THE COURSES SHOWN. REFERENCE IS MADE TO THE FOLLOWING:
 - SURVEY ENTITLED "SUBDIVISION OF LAND IN WOODSTOCK, FOR LAURA GORDON", BY BRUNO ASSOCIATES, INC., DATED APRIL 4, 1995, LAST REVISED APRIL 14, 1995. MAP IS RECORDED IN THE WOODSTOCK LAND RECORDS IN SLIDE #166.
 - SURVEY ENTITLED "SUBDIVISION OF LAND IN WOODSTOCK, FOR LAURA GORDON", BY BRUNO ASSOCIATES, INC., DATED APRIL 4, 1995. MAP IS RECORDED IN THE WOODSTOCK LAND RECORDS IN SLIDE #114.
 - SURVEY ENTITLED "PARCEL OF LAND TO BE CONVEYED BY WOODSTOCK EDUCATION ASSOCIATES", BY BRUNO ASSOCIATES, INC., DATED DECEMBER 10, 1985. MAP IS RECORDED IN THE WOODSTOCK LAND RECORDS IN SLIDE #62.
 - PLAN ENTITLED "SITE PLAN FOR WOODSTOCK EDUCATION ASSOCIATES COUNTRY SCHOOL", BY BRUNO ASSOCIATES, INC., DATED SEPTEMBER 23, 1980, LAST REVISED MARCH 5, 1985. PLAN WAS FOUND IN THE WOODSTOCK ZONING OFFICE.
- THERE MAY BE ADDITIONAL EASEMENTS, RESTRICTIONS OR RESERVATIONS NOT SHOWN. NO LIABILITY IS ASSUMED BY THE UNDERSIGNED FOR ANY LOSS THAT MAY BE ASSOCIATED WITH THE EXISTENCE OF ANY SUCH EASEMENTS, RESTRICTIONS OR RESERVATIONS. PROPERTY SUBJECT TO AND/OR BENEFITED BY ALL EXISTING EASEMENTS AND RIGHT-OF-WAYS OF RECORD, UTILITIES AND UTILITY LINES, OVERHEAD AND/OR BURIED, MAY NOT ALL BE SHOWN. NO ATTEMPT HAS BEEN MADE BY THIS FIRM TO IDENTIFY ANY ONSITE WETLANDS, SIGNIFICANT HABITAT AREAS OR ANY OTHER POTENTIAL REGULATORY OR NATURAL RESOURCE ENCUMBRANCES.
- THE LOCATIONS OF SUBSURFACE UTILITIES AND/OR UTILITY LINES ARE UNKNOWN AT THIS TIME.
- THERE IS A DISCREPANCY BETWEEN THE LOCATION OF THE KEDRON BROOK ON THE BRUNO SURVEYS REFERENCED ABOVE AND THE PHYSICAL LOCATION OF THE KEDRON BROOK AS MEASURED IN MARCH 2023 AND DEPICTED ON THIS PLAN. BASED ON THE LOCATION OF THE EXISTING SEWER MANHOLE AND THE EXISTING VEGETATION, IT DOES NOT APPEAR THAT THE BROOK'S LOCATION HAS SIGNIFICANTLY SHIFTED SINCE THE DATE OF THE BRUNO SURVEYS. THE CENTERLINE OF THE KEDRON BROOK WAS THE INTENDED BOUNDARY LINE BETWEEN PARCELS #33.02.22 AND #33.02.21. THIS IS SUPPORTED AS FOLLOWS:
 - ON DECEMBER 20, 1985, 11.3 ACRES WERE CONVEYED TO LAURA GORDON AND CHARLOTTE STERLING FROM WOODSTOCK EDUCATION ASSOCIATES (JOHN H. BRINE) (DEED VOL. 82, PAGES 371-373). MAP REF. 2C ABOVE WAS PREPARED, RECORDED, AND IS REFERENCED IN THE DEED. THIS WAS THE ORIGINAL CONFIGURATION OF PARCEL #33.02.21 AND INCLUDED LANDS ON BOTH SIDES OF THE KEDRON BROOK PLUS THE EXISTING BARNS AND DWELLING.
 - ON MAY 25, 1995, 6.28 ACRES WERE CONVEYED TO THE OJIMA YOUTH CENTER FROM GORDON & STERLING (DEED VOL. 119, PAGES 170-171). MAP REF. 2B WAS PREPARED, RECORDED, AND IS REFERENCED IN THE DEED. THIS CONVEYANCE STILL INCLUDED LANDS ON BOTH SIDES OF THE KEDRON BROOK. THE BARNS AND DWELLING WERE INCLUDED IN THE CONVEYANCE TO OJIMA.
 - ON MARCH 24, 2006, 2.98 ACRES WERE CONVEYED TO THE OJIMA YOUTH CENTER FROM GORDON & STERLING (DEED VOL. 197, PAGES 126-127). MAP REF. 2A WAS PREPARED, RECORDED, AND IS REFERENCED IN THE DEED. THE DEED DESCRIPTION'S POINT OF BEGINNING IS THE WESTERLY RIGHT-OF-WAY OF MORGAN HILL ROAD, WHERE THE CENTERLINE OF THE KEDRON BROOK PASSES UNDER A BRIDGE, THENCE S12°51'W A DISTANCE OF APPROXIMATELY 332 FEET TO A BOUNDARY POINT ON THE WESTERLY RIGHT-OF-WAY OF MORGAN HILL ROAD, THENCE S84°29'W A DISTANCE OF 447.3 FEET, THENCE N06°34'E A DISTANCE OF APPROXIMATELY 165 FEET TO THE CENTERLINE OF THE AFFORMENTIONED KEDRON BROOK, THENCE TURNING IN A NORTHEASTERLY AND EASTERLY DIRECTION FOLLOWING THE CENTERLINE OF THE KEDRON BROOK TO THE POINT AND PLACE OF BEGINNING. POINT Z ON THIS PLAN DEPICTS THE NORTHWESTERLY CORNER OF THE 2.98 ACRES CONVEYED ON BRUNO MAP REF. 2A AND IS SHOWN AS BEING 308.2 FEET FROM THE EDGE OF ROUTE 106 RIGHT-OF-WAY. HOWEVER, THE CENTERLINE OF THE BROOK AT POINT A IS ONLY 227.8' FROM THE EDGE OF THE ROUTE 106 RIGHT-OF-WAY.
- A FIFTY-FOOT (50') WIDE RIGHT-OF-WAY WAS RESERVED BY JOHN & DOROTHY BYRNE (NOW HANNS REV. TRUST) IN THE CONVEYANCE FROM WOODSTOCK EDUCATION ASSOCIATES TO LAURA GORDON AND CHARLOTTE STERLING (DEED VOL. 82, PAGES 371-373, DATED DECEMBER 20, 1985). SAID RIGHT-OF-WAY WAS SHOWN ON THE BRUNO MAPS REFERENCED ABOVE AND ITS LOCATION DIFFERS BETWEEN MAPS 2C AND 2B. THE LOCATION DEPICTED ON THIS PLAN HAS BEEN SLIGHTLY ADJUSTED FROM MAP REF. 2C TO ALIGN CENTERED OVER THE EXISTING DRIVEWAY IN THE AREA EAST OF THE EXISTING DWELLING.
- VERTICAL DATUM IS NAVD83 AND WAS ESTABLISHED BY A LEVEL RUN TO NATIONAL GEODETIC SURVEY DISK DESIGNATION #502259 (HEIGHT = 1188.32 FEET).
- PLAN REFERENCE 2D ABOVE DEPICTS ADDITIONAL SEWER MANHOLES AT LOCATIONS #3 AND #4. THESE WERE NOT FOUND AND MAY BE BELOW-GRADE.
- STATE PERMIT #WW-3-0162 INDICATES THE HANNS PROPERTY (PARCEL #33.02.001) SEWER LINE GOES THROUGH OJIMA PROPERTY AND CONNECTS TO THE SOUTH WOODSTOCK MUNICIPAL SYSTEM AS SHOWN. NO DEEDED EASEMENT WAS FOUND.
- THE RIGHT-OF-WAY FOR VT ROUTE 106 AND MORGAN HILL ROAD ARE SHOWN AS BEING 1.5 ROADS (24.75 FT.) FROM THE CENTERLINE OF THE EXISTING TRAVELLED WAYS. OWNERSHIP BETWEEN THE CENTERLINE OF THE TRAVELLED WAYS AND THE EDGE OF SAID HIGHWAY RIGHT-OF-WAYS IS UNCERTAIN; NO RECORD OF FEE TITLE WAS FOUND.

I CERTIFY THAT THIS SURVEY IS CORRECT BASED UPON DEED RESEARCH, PREVIOUS SURVEYS NOTED, AND PHYSICAL EVIDENCE FOUND. THIS PLAN CONFORMS WITH LAW 27 V.S.A. SEC. 1403.

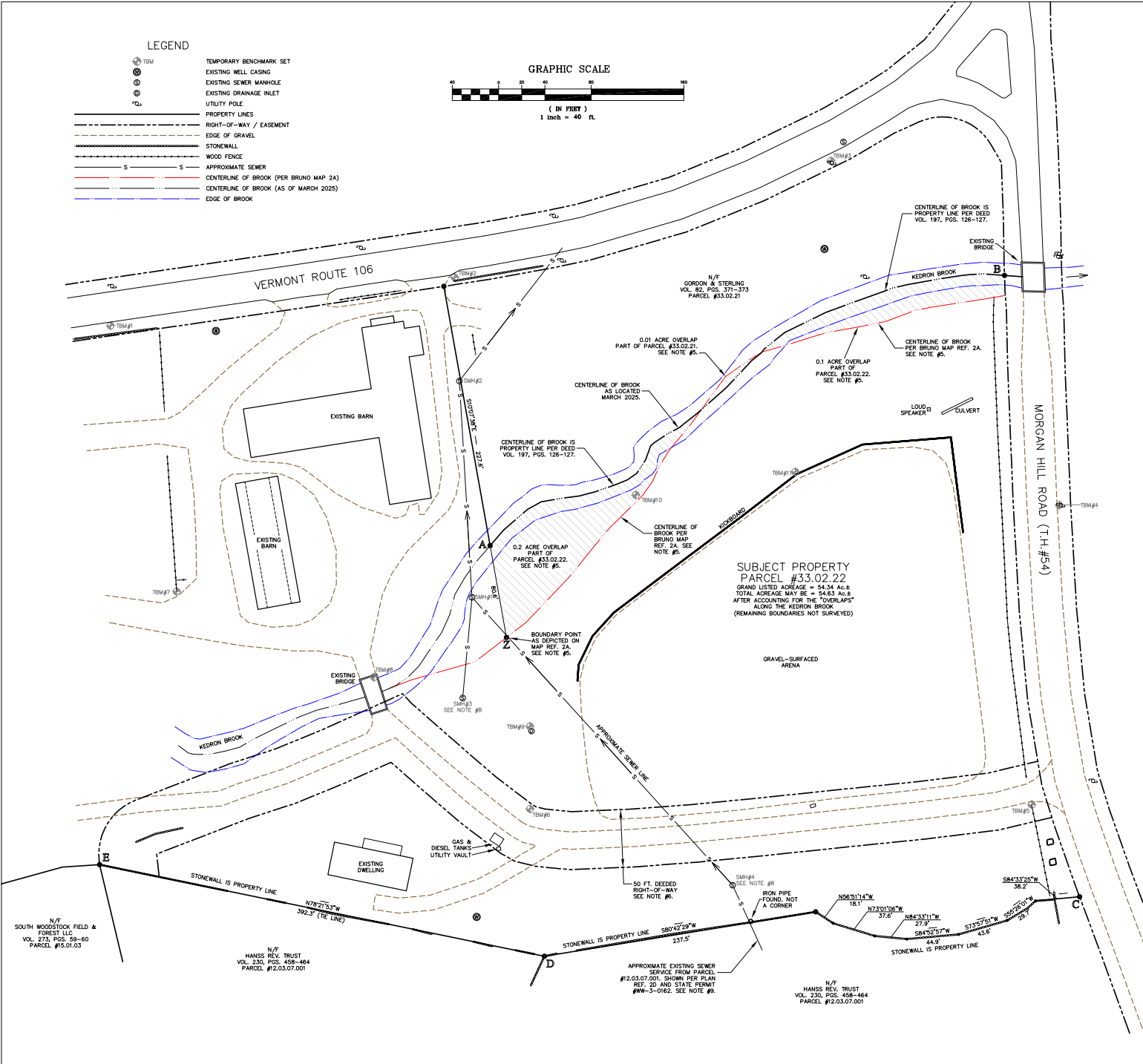


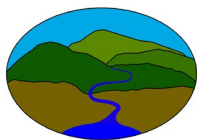
GREEN MOUNTAIN HORSE ASSOCIATION
VT ROUTE 106 & MORGAN HILL ROAD
SOUTH WOODSTOCK, VERMONT

BOUNDARY SURVEY - PORTIONS OF LAND

BRAD M. RUDERMAN & ASSOCIATES, INC.
28 U.S. ROUTE 5
HARTLAND, VERMONT
(802) 674 - 4248

SCALE 1" = 40'	APPROVED BRAD M. RUDERMAN, L.S.	DRAWN BMR
DATE APRIL 24, 2025	SHEET 1 OF 1	





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 Country, 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.



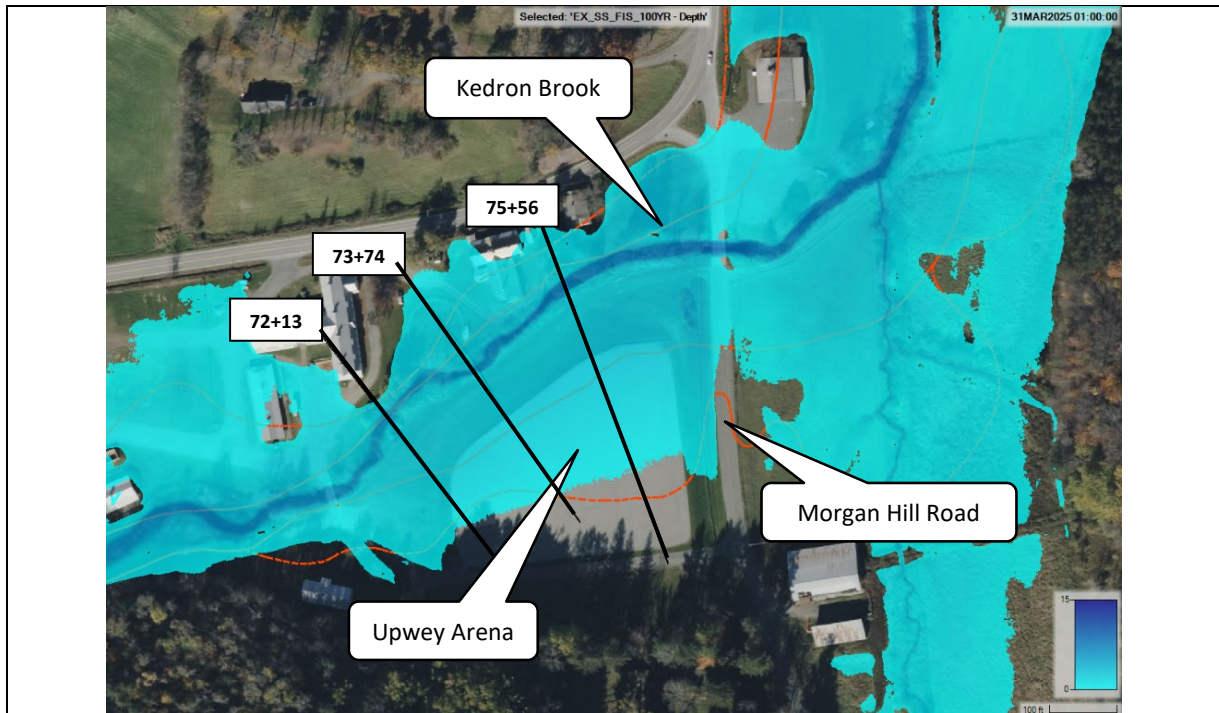


Figure 1. Inundation of GMHA facility and Kedron Brook floodplain near Upwey arena and Morgan Hill Road under existing conditions in 100-year flood event.

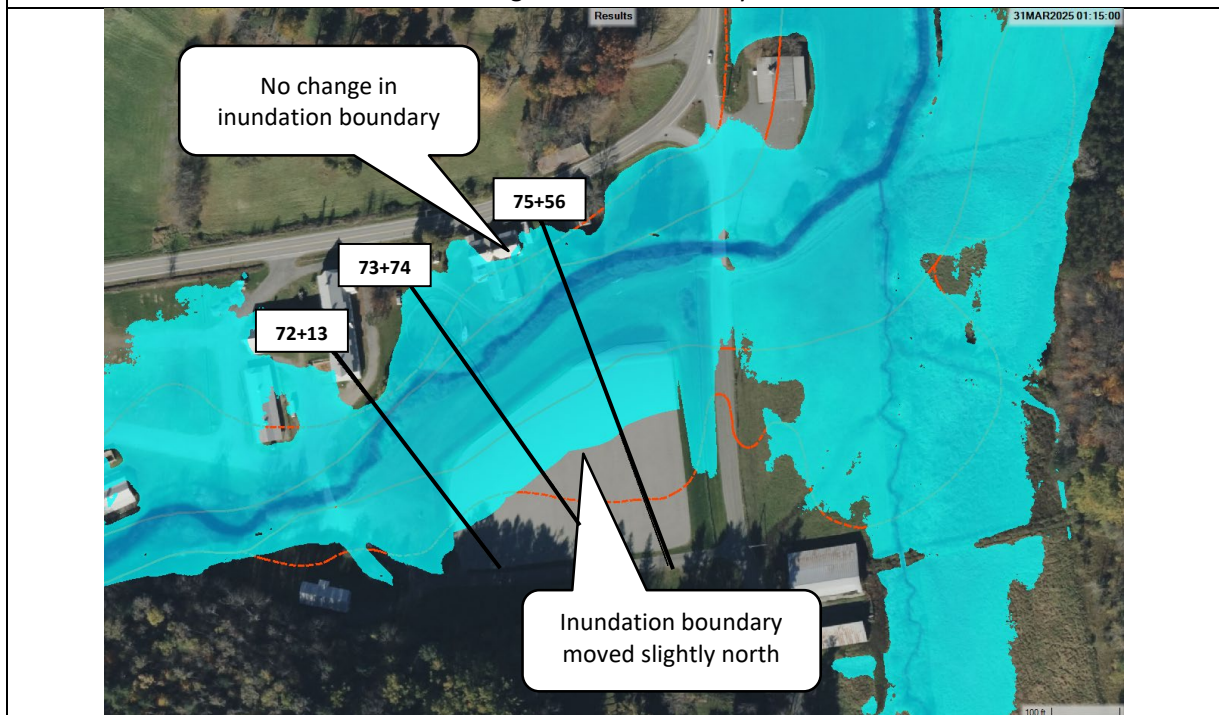


Figure 2. Inundation of GMHA facility and Kedron Brook floodplain near Upwey arena and Morgan Hill Road under proposed conditions in 100-year flood event.



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.

Table 2 – Kedron Brook Center Line WSE Comparison for the 100-Year Flood (2,172 cfs)			
STA	FEA Existing Conditions WSE (ft)	FEA Proposed Conditions WSE (ft)	WSE Difference (FEA PR - FEA EX)
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 summarizes 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.

Table 3 – Water velocities Comparison for the 100-Year Flood (2,172 cfs)						
STA	Channel EX	Channel PR (% change)	LT Overbank EX	LT Overbank PR (% change)	RT Overbank EX	RT Overbank PR (% change)
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.I.

Attachments

1. Murray & Masterson Plans



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



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.