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massDOT
Massachusetts Department of Transportation
Highway Division

Bruce Freeman Rail Trail Phase 2D

Notice of Intent

Presented by
Fuss & O'Neill

On Behalf of
MassDOT to The Sudbury Conservation Commission
January 10, 2021

DEP #301-1362
MassDOT #608164

Bruce Freeman Rail Trail Phase 2D

Fuss & O'Neill Team Members in Attendance:

Nick Lapointe, PE-Project Manager

Eric Bernardin, PE, LEED AP- Vice President & Client Executive

Josh Wilson, PWS- Senior Ecologist

Aaron Keegan, PE- Project Engineer

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Bruce Freeman Rail Trail Phase 2D

Project Status

- 100% Design Nearing Completion for Review by MassDOT
- Permitting in progress:
  - ANRAD/ORAD – 2016, Amended 2020
  - Additional Delineation-Broadacres, Davis Field 2021
  - Chapter 91- Received
  - ENF – Received
  - NOI
  - USACE PCN

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Bruce Freeman Rail Trail Phase 2D

Outline

- Project Purpose
- Existing Conditions Overview
- Proposed Conditions
- Proposed Impacts Summary
- Proposed Minimization and Mitigation
- Invasive Species Management
- Stormwater
- Q&A

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Bruce Freeman Rail Trail Phase 2D

Project Purpose

- Provides a safe and separated recreational and commuter path

- Permitted uses include:
  - Walking
  - Jogging
  - In-line skating
  - Snow Shoeing

- Promotes heathy communities and transportation options
- Creates new non-motorized regional connections
- Connects schools, retail areas, and other points of interest in Sudbury without use of motorized vehicles.

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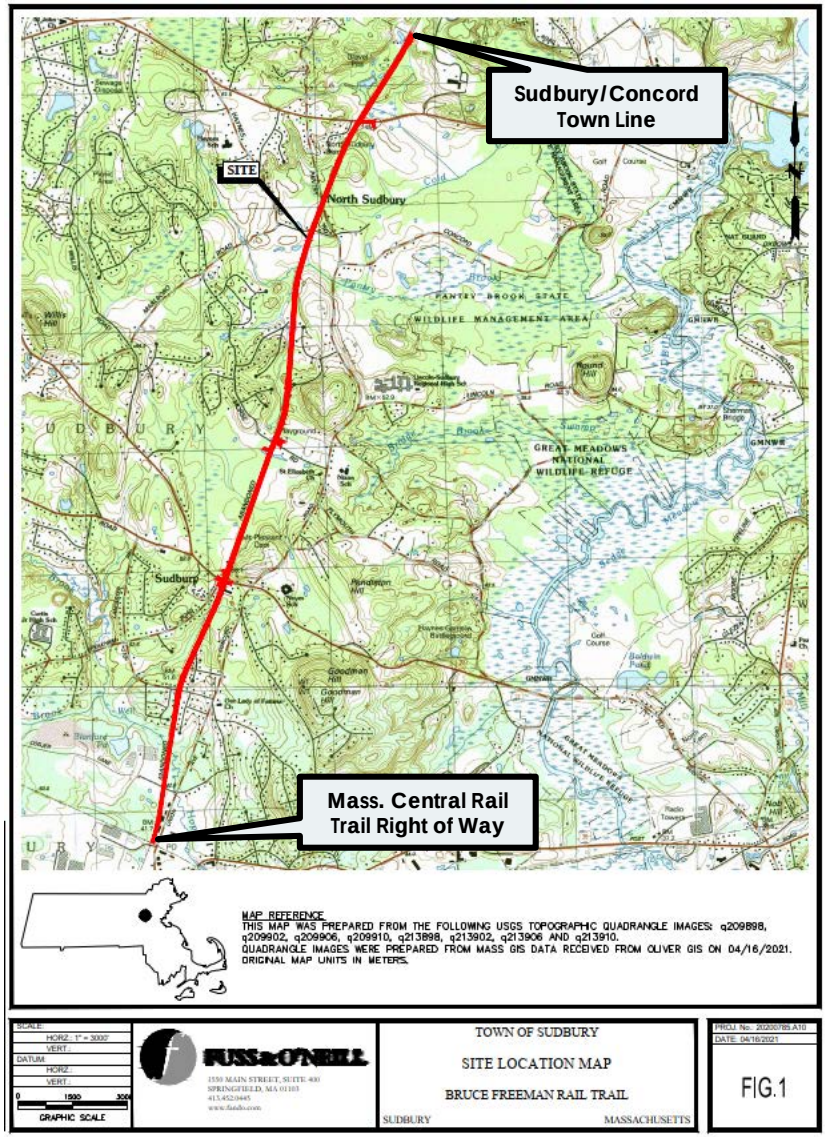
Existing Conditions Overview

- **Project Area**
  - **Existing North-South Inactive Rail Corridor in Sudbury, MA**
  - **From Sudbury/Concord Town Line to Mass. Central Rail Trail Right of Way (Near Station Road)**
  - **Rail Corridor is 65ft wide and 4.4 miles long**
  - **Last segment of Concord Section 2c has been permitted separately**



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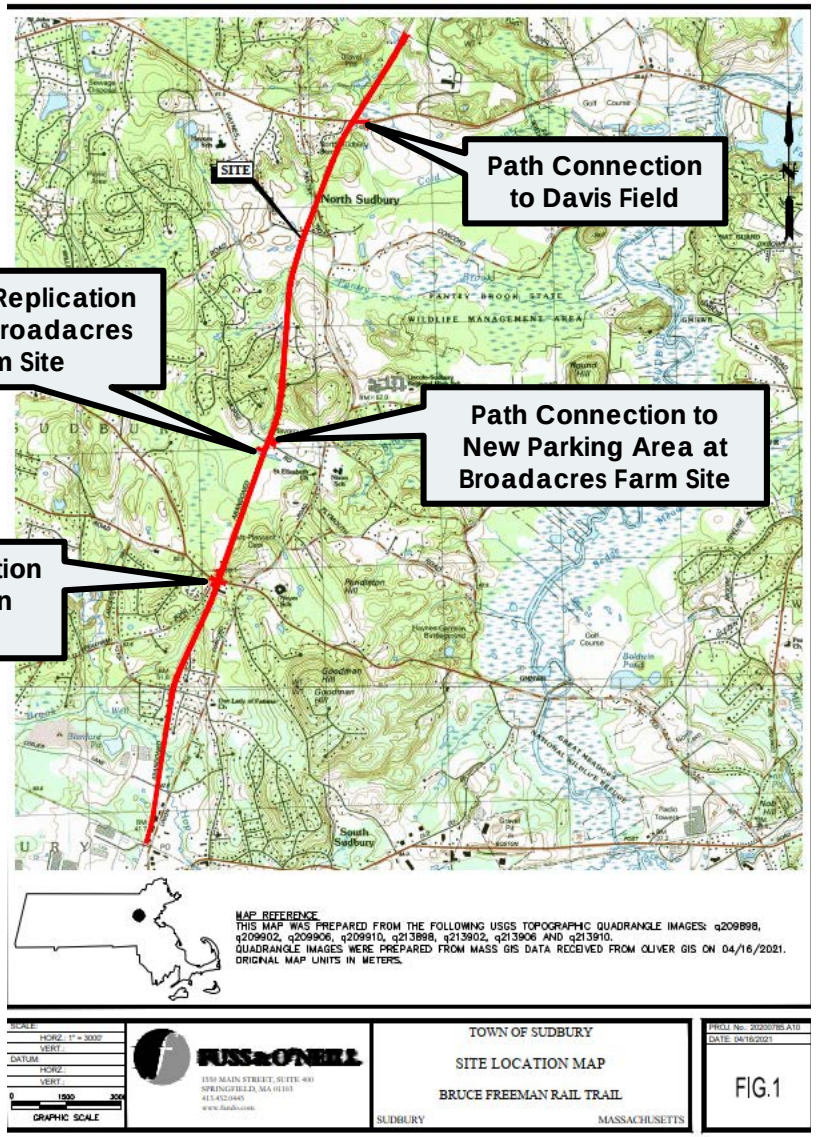
Existing Conditions Overview

- **Project Area**
  - ***Proposed work in four locations outside of the rail corridor ROW***
  - ***North Road/Davis Field***
  - ***Broadacres Farm Site (2 locations)***
  - ***Parkinson Parcel***



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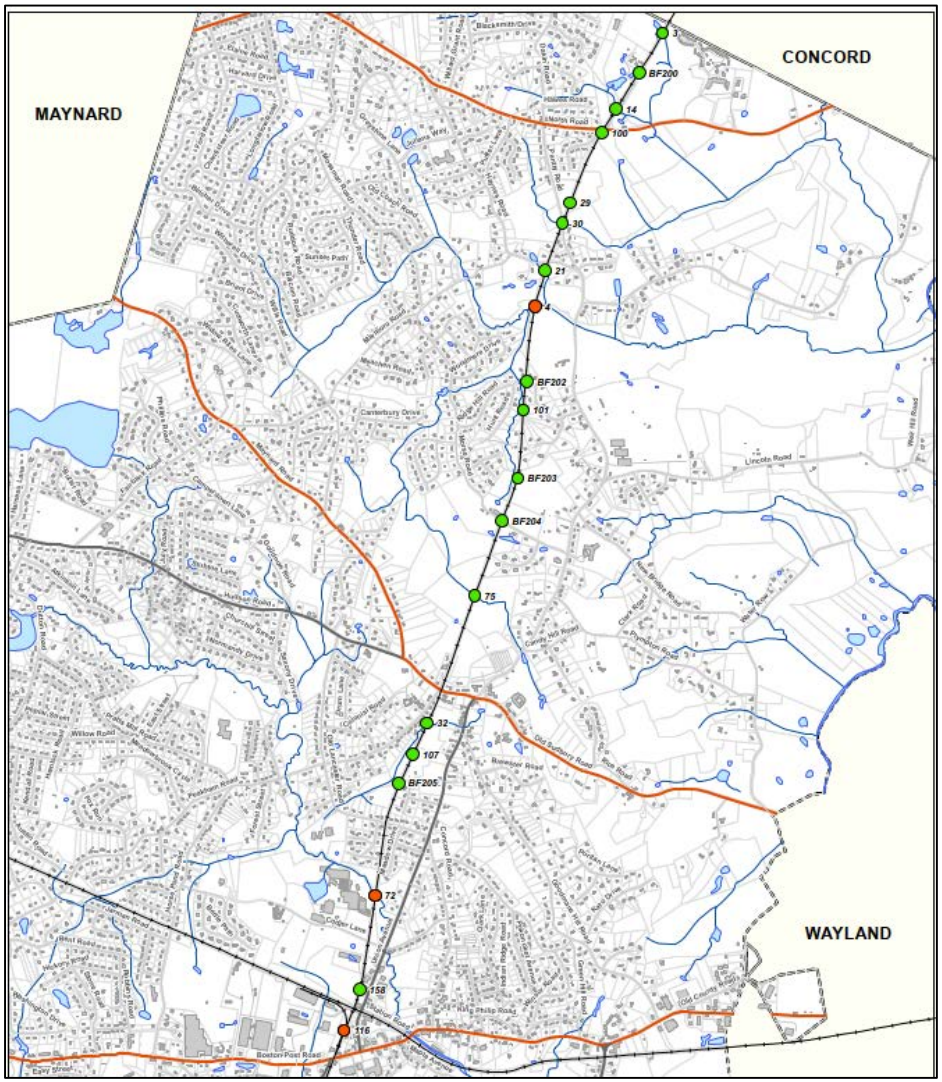
Existing Conditions Overview

- **Project Area**
  - **Stream Crossings**
    - ***2 Existing Bridges***
      - **Pantry Brook Bridge**
      - **Hop Brook Bridge**
    - ***18 Existing Culvert Crossings***



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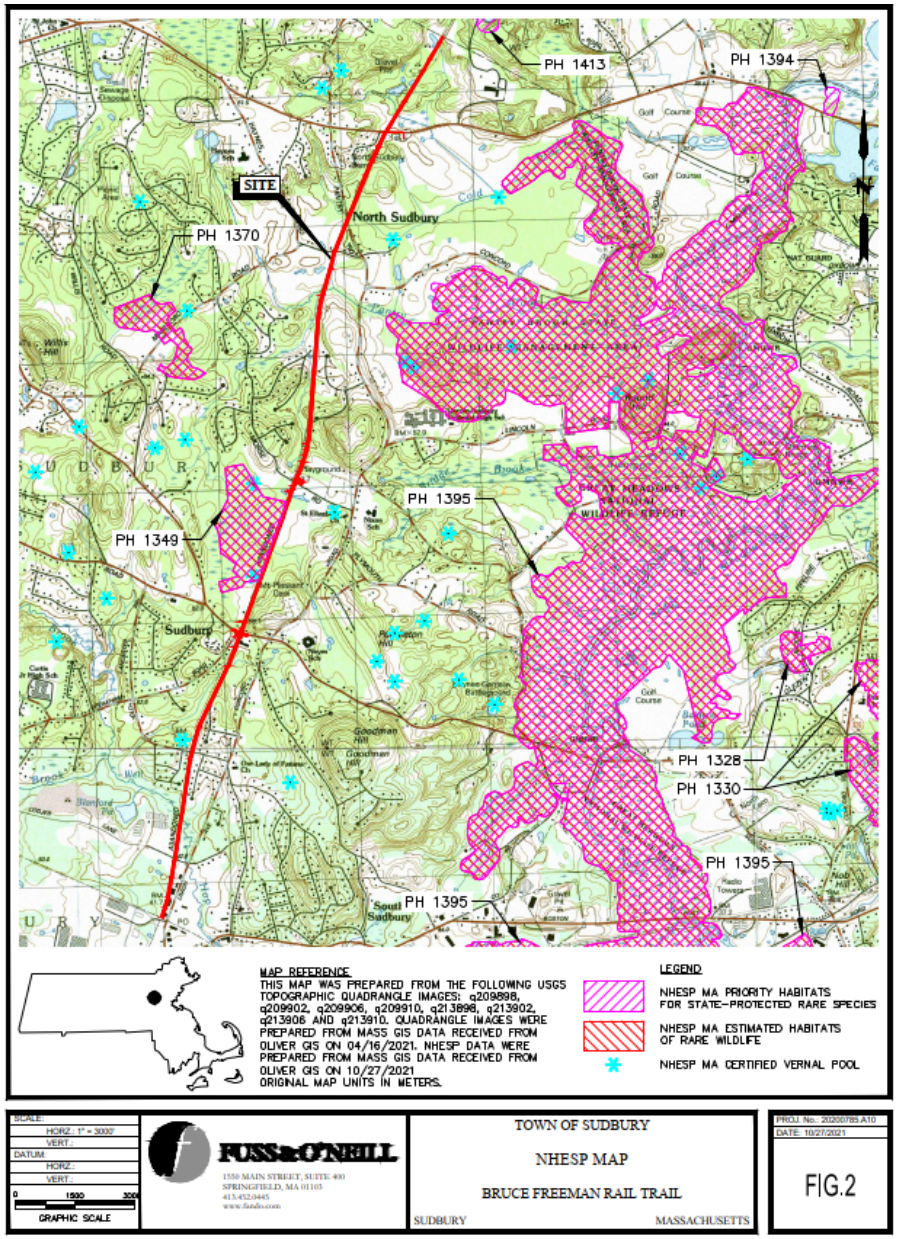
Existing Conditions Overview

- **Project Area**
  - **No priority or estimated habitat within the limit of work.**
  - **Priority Habitat #1349 is adjacent to rail corridor ROW.**
  - **No ACEC within project area**

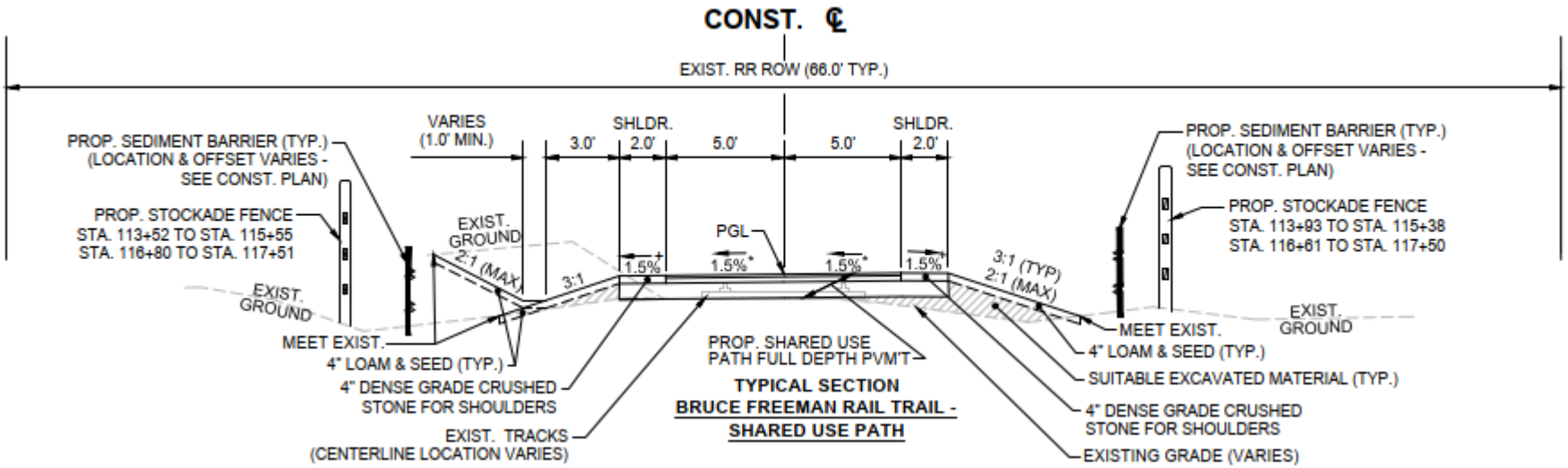


Proposed Conditions

- Proposed Shared-Use Path
- Improved Hop Brook Bridge
- Improved Pantry Brook Bridge
- Culvert Repair
- New Parking Area at Broad Acres
- Shared-Use Path Connections
- Wetland Replication Area
- Invasive Species Management

Proposed Conditions

- **Proposed Shared-Use Path Typical Cross Section**



- **10ft wide path and 2ft wide shoulder**
- **3:1 Typical Slopes**
- **1.5:1 Max Slopes**

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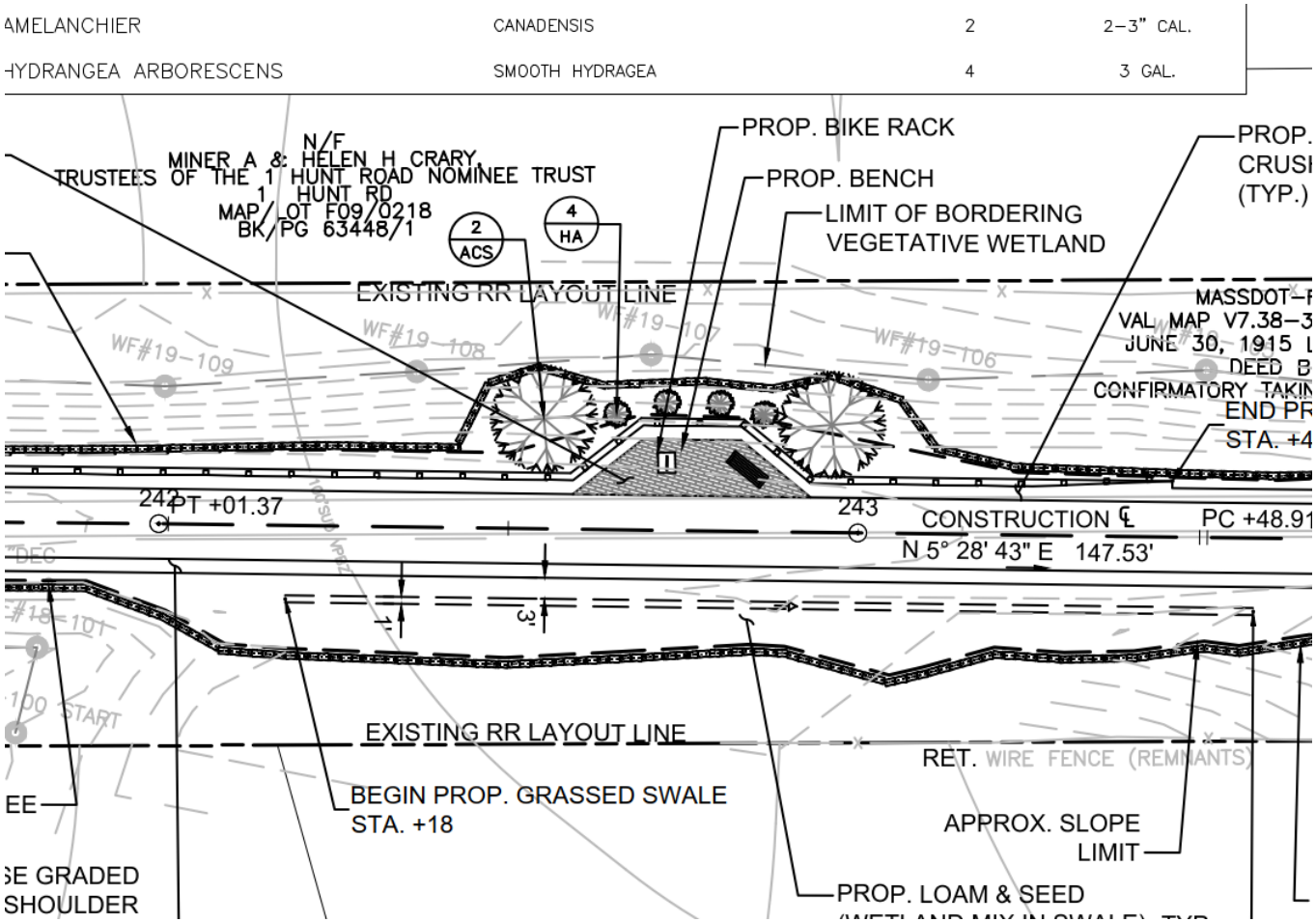
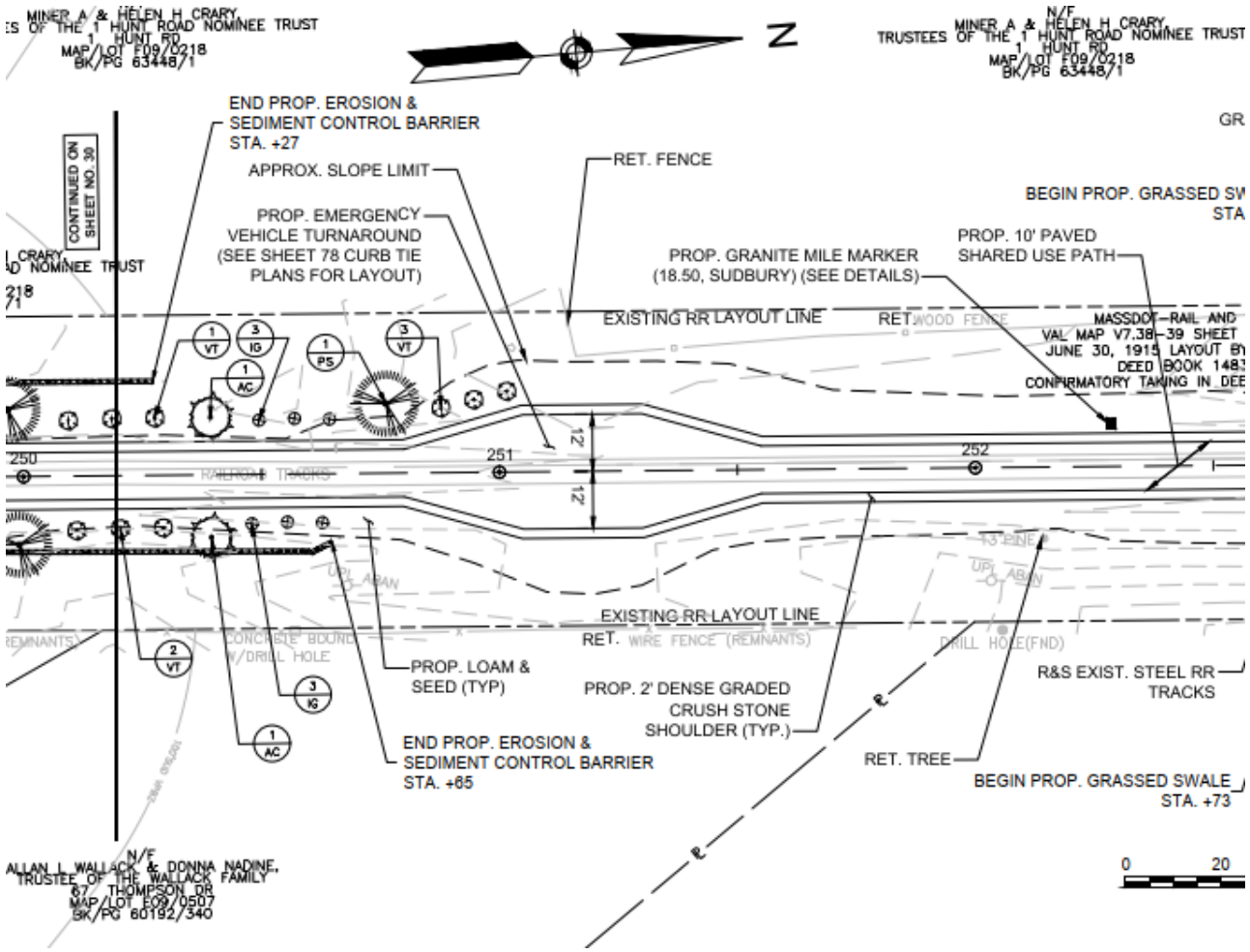
Proposed Conditions

- **Proposed Shared-Use Path Rest Areas (18)**



Proposed Conditions

- **Proposed Shared-Use Path Emergency Vehicle Turn Arounds (2)**



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Proposed Conditions

- **Station 122+00 to 129+00**
- **Hop Brook Crossing**

Photo 1: Existing Bridge at Hop Brook Looking North at the Northwest Quadrant of the Abutment
February 2021

Photo 2: Existing Bridge at Hop Brook Looking North at the Northeast Quadrant of the Abutment
February 2021

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Proposed Conditions

- **Station 122+00 to 129+00**
- **Hop Brook Crossing**

Photo 4: Existing Bridge at Hop Brook Looking South at the Southeast Quadrant of the Abutment
February 2021

Photo 3: Existing Bridge at Hop Brook Looking South at the Southwest Quadrant of the Abutment
February 2021

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Proposed Conditions

- **Hop Brook Bridge Proposed Work**

- **The existing granite block bridge abutments will be repaired, cleaned, and retained. Re-use of the existing abutments at Hop Brook reduced the proposed work within wetland resource areas and associated wetland impacts.**

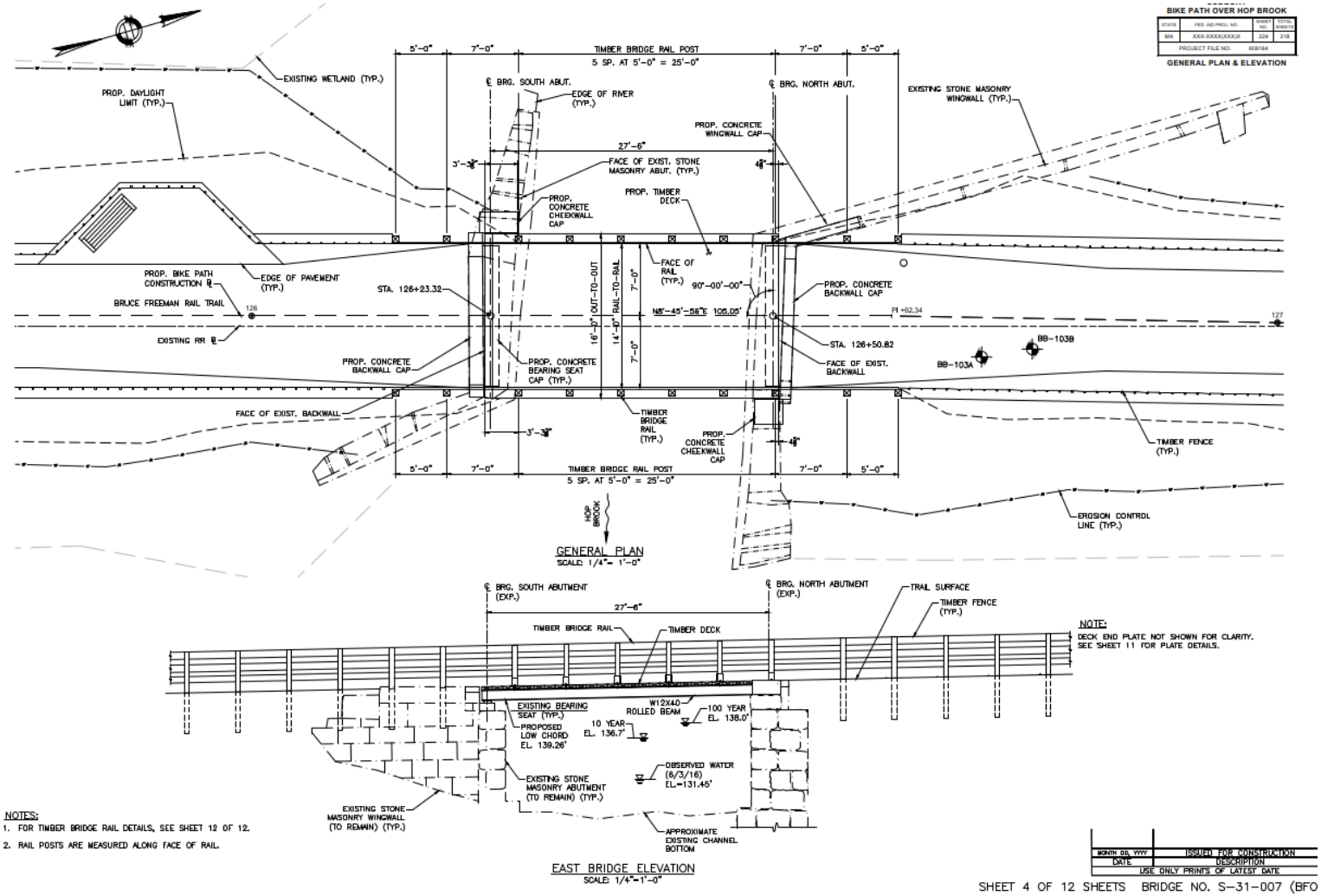
- **The superstructure supporting the bridge deck and the shared-use path will be replaced on top of the existing abutments.**

- **The new bridge span will change from an existing 28ft to 27.5ft in length. The width of the bridge deck will change from an existing 14ft to 16ft. The proposed safety rails on the bridge deck are 4ft in height.**

- **Proposed water control during construction consists of the use of sandbags and a floating silt fence/turbidity curtain for the redirection of water surrounding the existing bridge abutments.**

Proposed Conditions

- **Hop Brook Bridge**



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Proposed Conditions

- **Station 167+17**
- **Collapsed Culvert and Embankment Wash Out**

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Proposed Conditions

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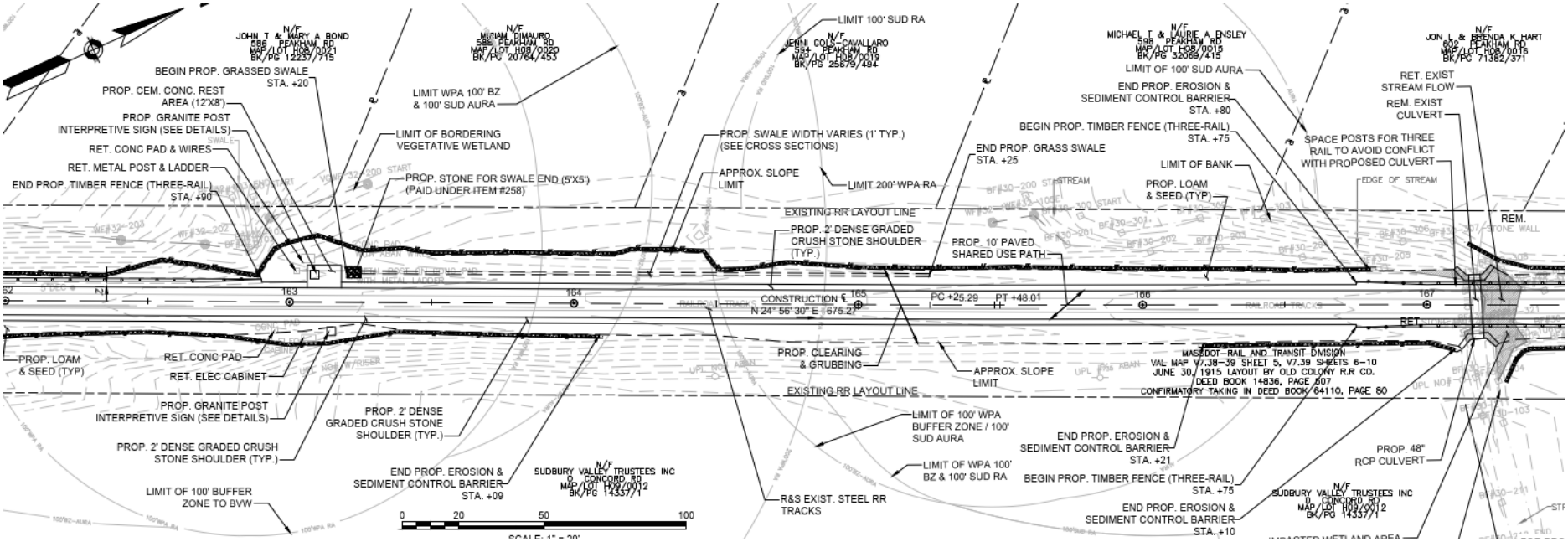
Proposed Conditions

- **Station 167+17**



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Proposed Conditions

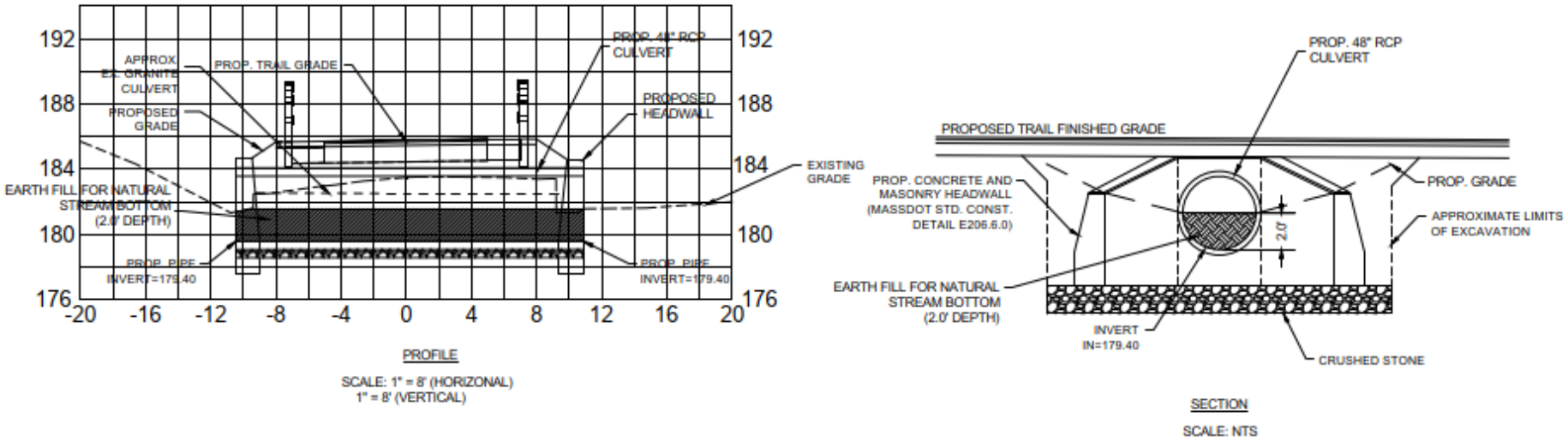
- Station 167+17
- Collapsed Culvert and Embankment Wash Out

- Proposed work includes the replacement of the collapsed culvert with a 48” Concrete pipe with Natural Stream Bottom

- Repair the washed through section of the embankment to a previously filled condition

Proposed Conditions

- **Replacement Culvert STA 167+17**



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Proposed Conditions

- **Cattle Crossing STA 199+55**
- **Between Parkinson Parcel and Broadacres Farm Site**

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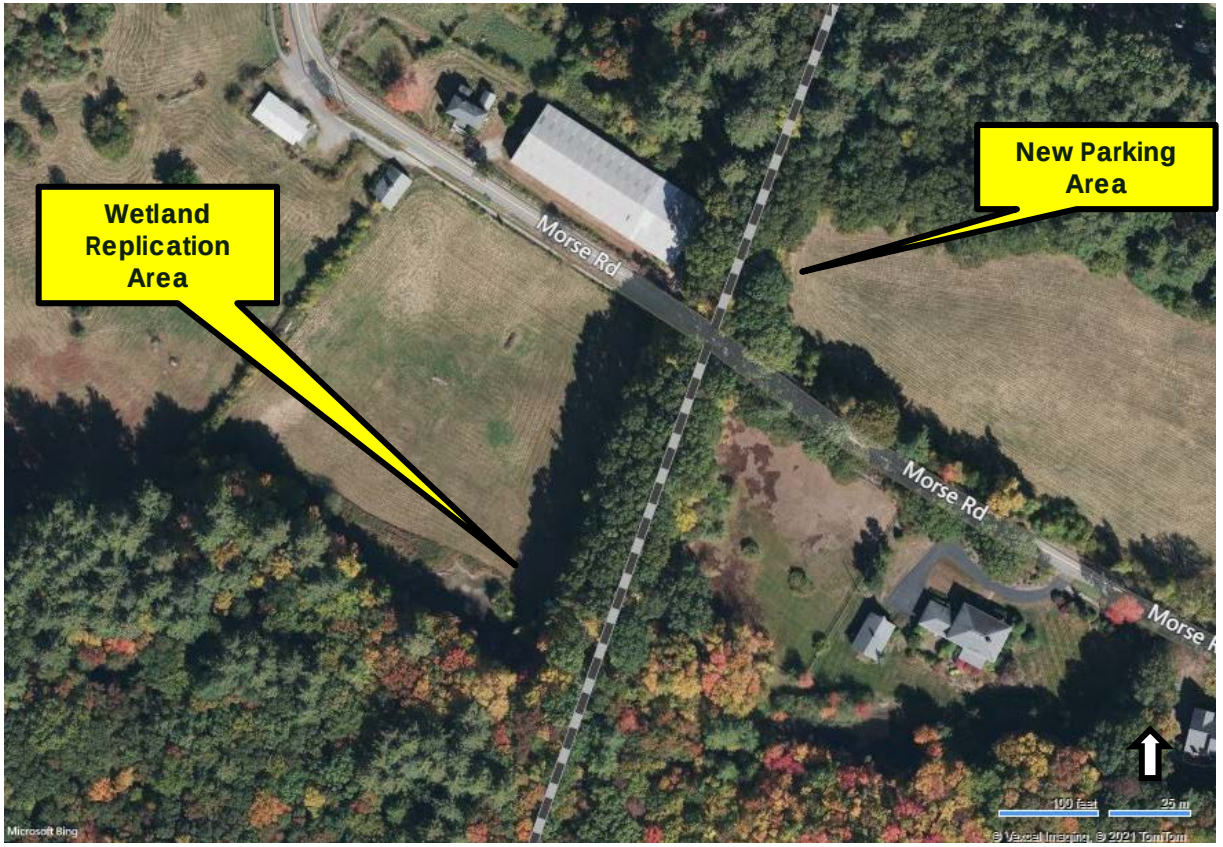
Proposed Conditions

- **STA 212+00 to 222+00**
- **Former Broadacres Farm Site**



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Proposed Conditions

- STA 212+00 to 222+00
- Former Broadacres Farm Site
- Proposed New Parking Area

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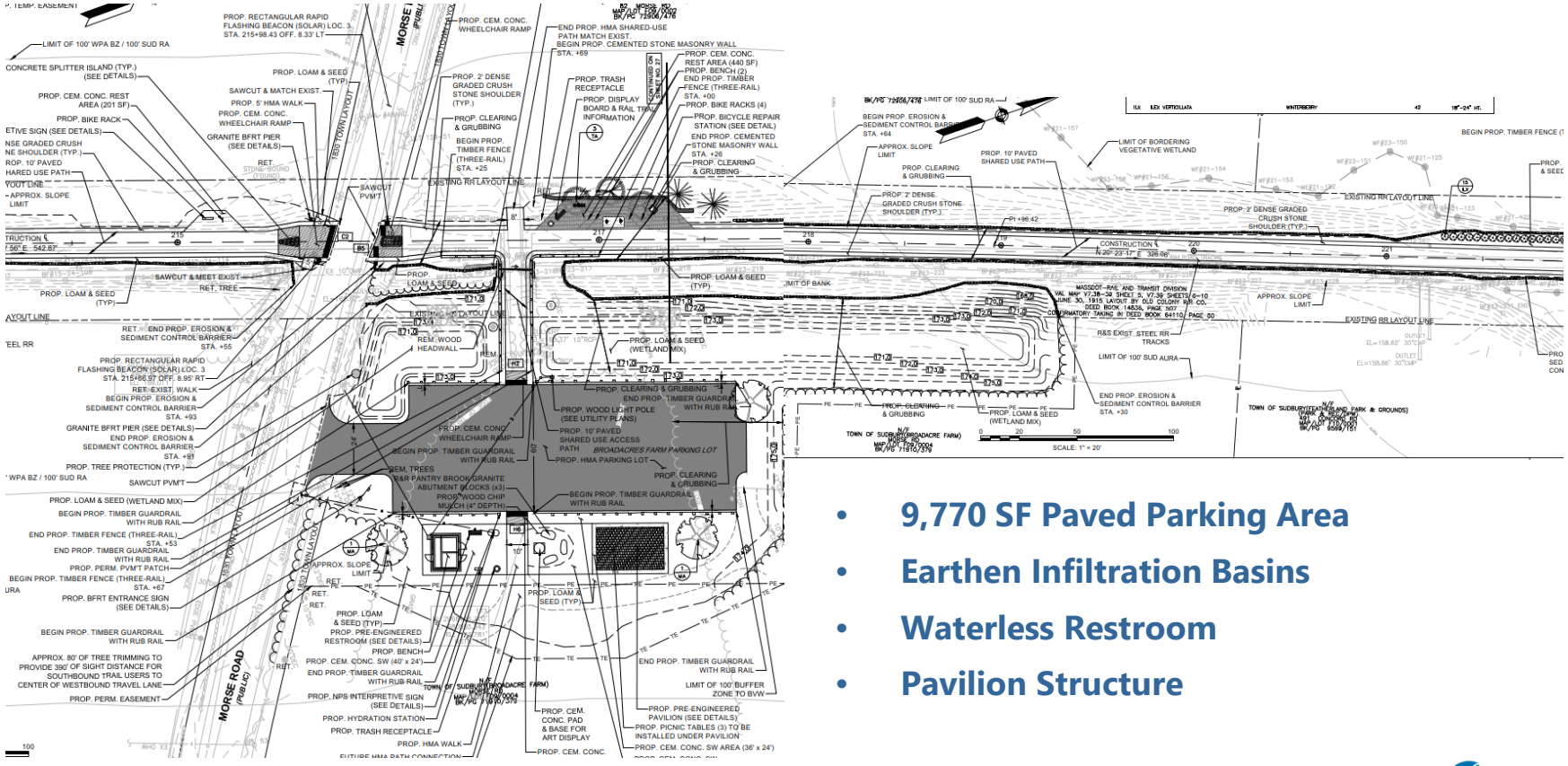

- 9,770 SF Paved Parking Area
- Earthen Infiltration Basins
- Waterless Restroom
- Pavilion Structure

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Proposed Conditions

- **STA 262+00 to 266+00**
- **Pantry Brook Bridge Crossing**

Photo 2: Looking south at the southeast abutment of Pantry Brook Bridge
February 2021

Photo 1: Looking south at the southwest abutment of Pantry Brook Bridge
February 2021

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Proposed Conditions

- **STA 262+00 to 266+00**
- **Pantry Brook Bridge Crossing**

Photo 3: Looking north at the northwest quadrant of Pantry Brook Bridge

Photo 4: Looking north at the northeast quadrant of Pantry Brook Bridge

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Proposed Conditions

- STA 262+00 to 266+00
- Pantry Brook Bridge Crossing

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Proposed Conditions

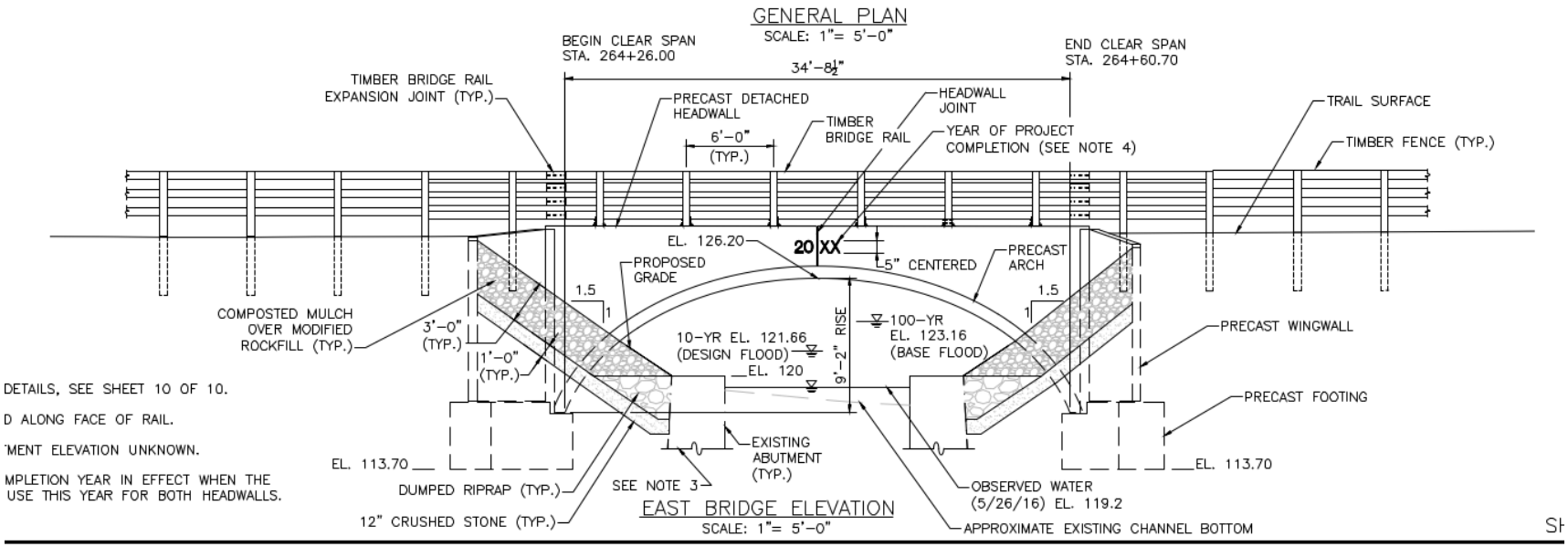
- STA 262+00 to 266+00
- Pantry Brook Bridge Crossing

- Proposed Work
  - Reduce in height, repair, and retain existing block abutment walls.
  - New cement concrete arch bridge super structure over existing walls.
  - Scour protection consisting of riprap transitioning to compost covered modified rock fill.

  - Retained and lowered abutment walls may be used for wildlife passage
  - Compost covered modified rock fill will be seeded and will also enhance wildlife passage

Proposed Conditions

- **STA 262+00 to 266+00**
- **Pantry Brook Bridge Crossing**



Proposed Conditions

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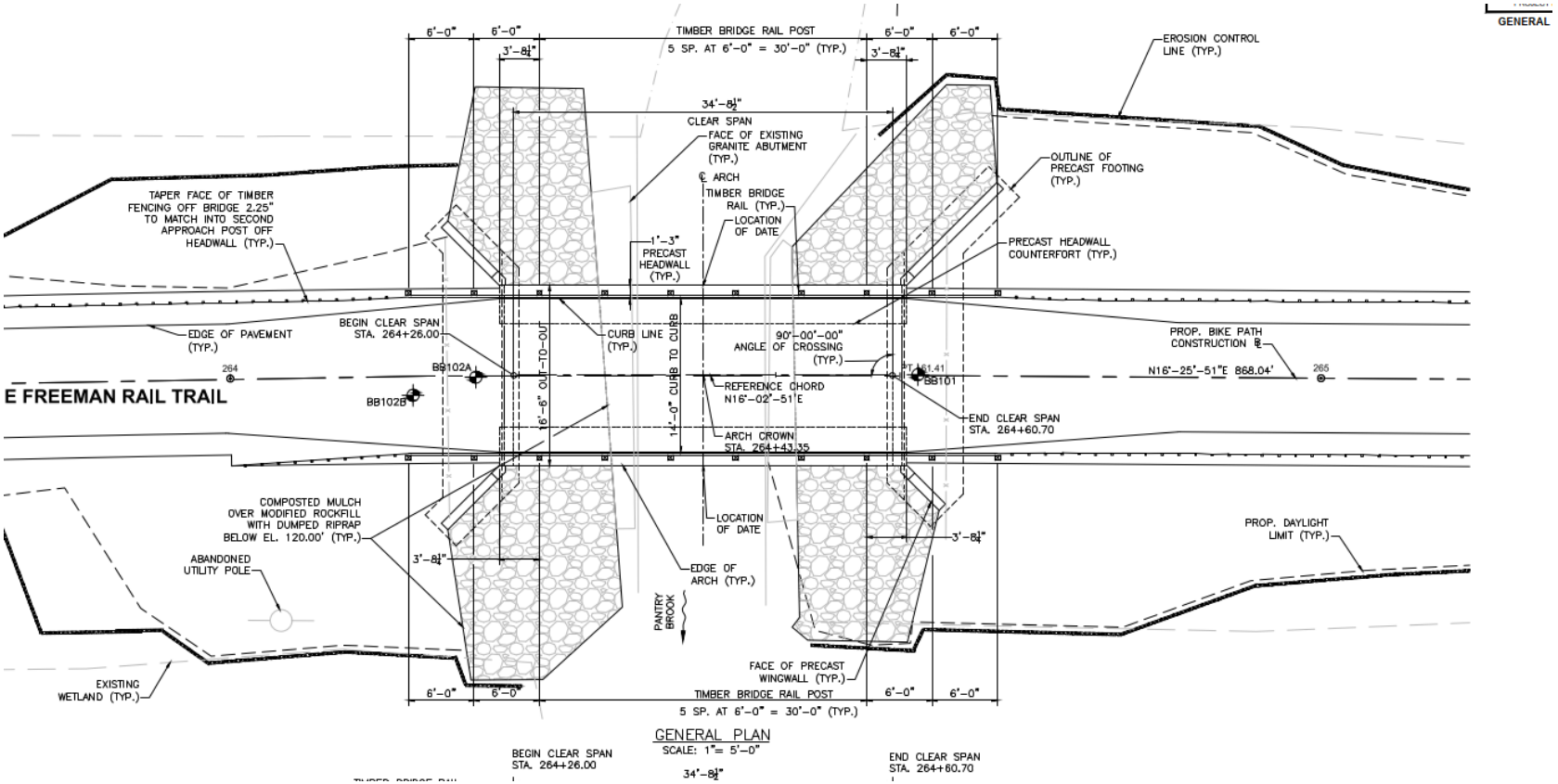

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Proposed Conditions

- STA 291+00 to 305+25
- Challenging Wetlands Section

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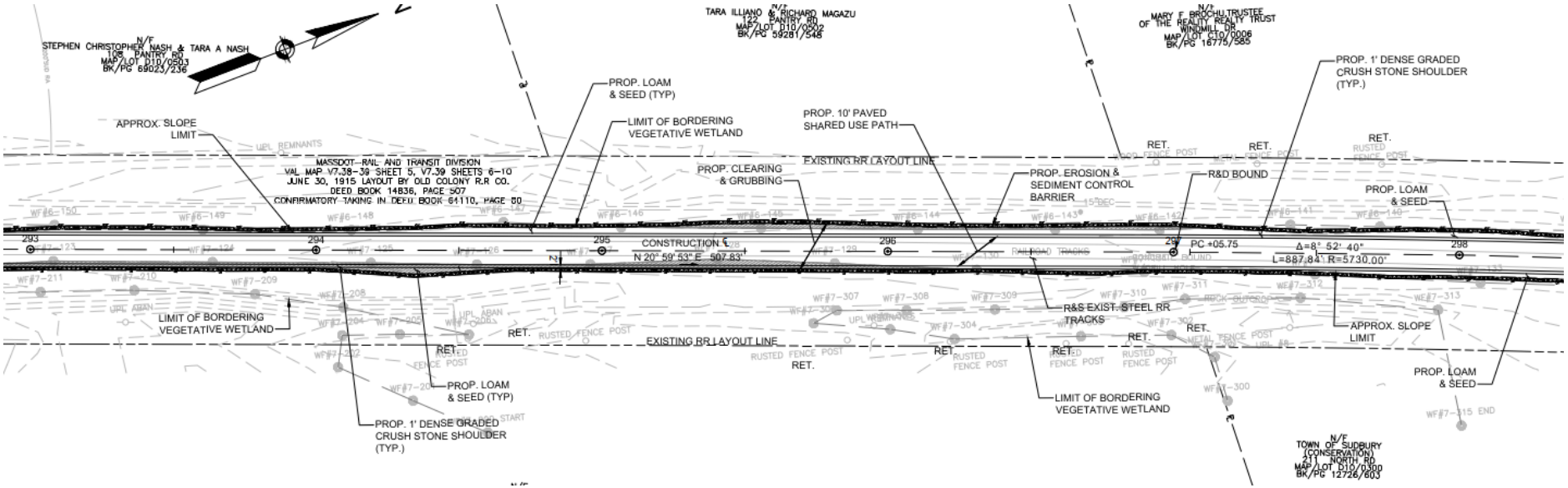
Proposed Conditions

- **STA 291+00 to 305+25**
- **Challenging Wetlands Section**
- **Cross Section of Trail Narrowed From 14’ to 12’ to Avoid and Minimize BVW Impacts**



- **No widened rest area pads within this section**

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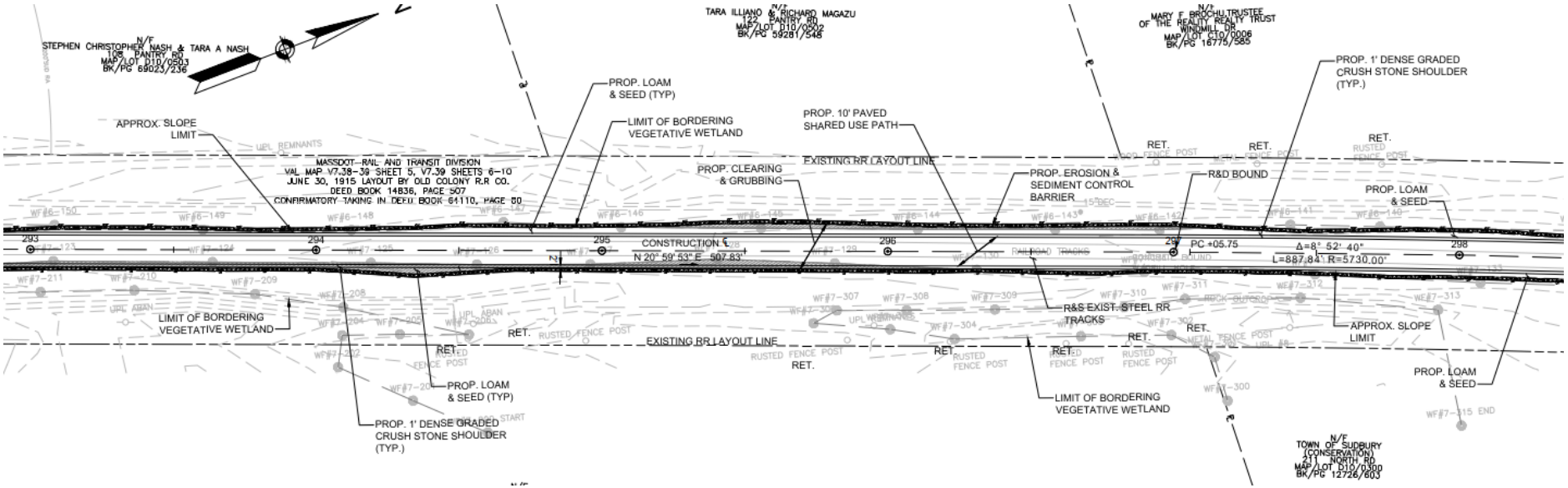
Proposed Conditions

- **STA 291+00 to 305+25**
- **Challenging Wetlands Section**
- **Cross Section of Trail Narrowed From 14’ to 12’ to Avoid and Minimize BVW Impacts**



- **No widened rest area pads within this section**

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Proposed Impacts

- **Cumulative Summary of Impacts**

WPA Jurisdictional Resource Areas	Permanent Impacts	Temporary Impacts	Total Impacts
Bank	134 LF	317 LF	451 LF
Land Under Water	437 SF	1,309 SF	1,746 SF
Bordering Vegetated Wetlands	1,190 SF	1,520 SF	2,710 SF
Vernal Pools	0 SF	0 SF	0 SF
Riverfront Area	65,857 SF	43,769 SF	109,626 SF
100ft Buffer Zone	254,639 SF	173,777 SF	428,416 SF
100ft Buffer to Vernal Pool*	14,545 SF	7,531 SF	22,076 SF
Section 401 Jurisdictional			
Isolated Vegetated Wetlands	303 SF	166 SF	469 SF

Proposed Impacts

- **Summary of Impacts**

Bordering Land Subject to Flooding	Fill	Cut	Compensatory Storage
Hop Brook	0.33 CY	0	7.1 CY
Mineway Brook	2.21 CY	0	5.4 CY
Pantry Brook	0	78.4 CY	0

Proposed Minimization and Mitigation

Avoidance and Minimization

- Selection of a previously developed and degraded Rail ROW with Existing Crossings
- Reuse of Hop Brook Abutment Walls
- Retention of Lowered Existing Pantry Brook Abutment Walls
- Narrowing of Trail Shoulders to Minimize Impacts
- Minimum Trail Pavement width of 10 feet
- No Clearing, Grubbing, or thinning Beyond the Limits of Work

Proposed Minimization and Mitigation

- Proposed Wetland Replication Area
- Former Broadacres Farm Site Former Pasture Land

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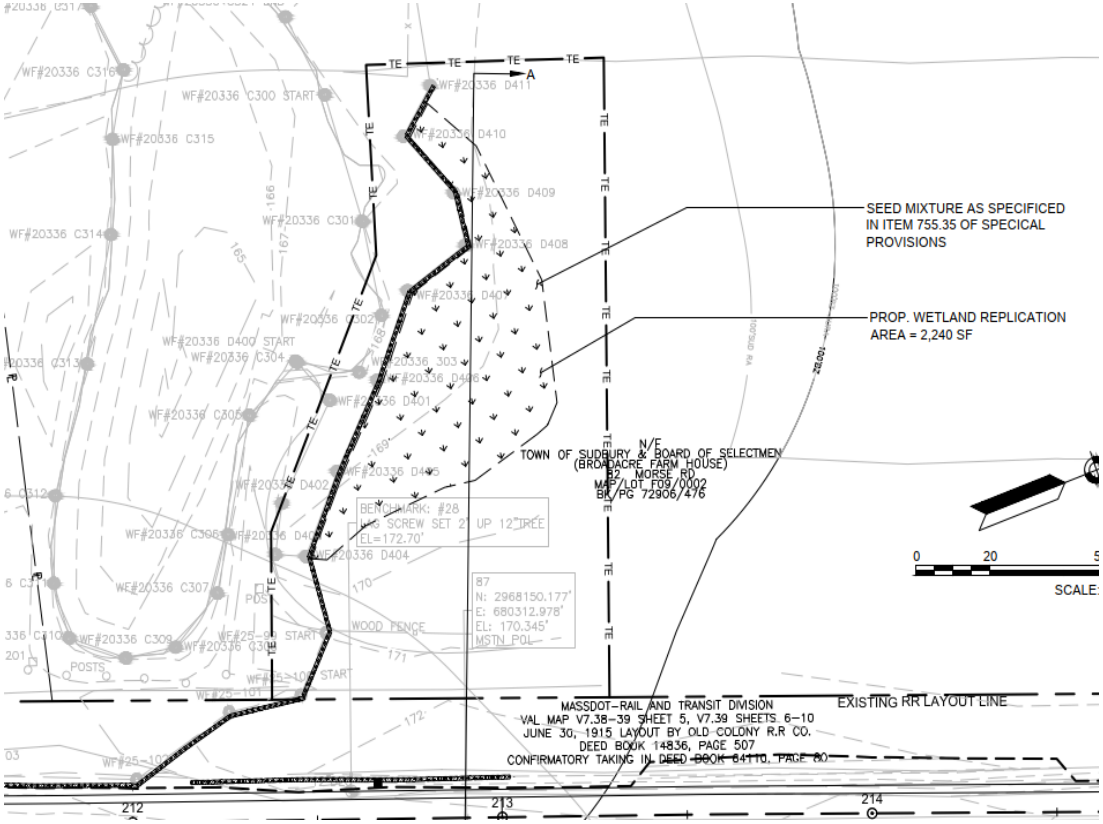
Proposed Conditions

- **Proposed Wetland Replication Area**



Seasonally Saturated, Palustrine Broad-Leaved Deciduous Scrub-Shrub Wetland (PSS1E)

Will provide habitat for local amphibian and reptile populations and augment existing habitat for birds and mammals

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Proposed Minimization and Mitigation

Mitigation Area

- Proposed Area = 2, 240 SF
- Permanent Impacts to WPA BVW + Permanent Impact to Sudbury Bylaw IVW
- Replicated at a ratio of 1.5:1 (replicated: impacted)
- Proposed Improvement by MassDOT above required by WPA

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Proposed Invasive Species Management

- **Clearing, Grubbing, and Planting in the Rail ROW**
- **Invasive Plant Management Inclusive of the Wetland Replication Area**
- **Invasive Plant Management Strategy**
  - **80 hours to formulate plan**
  - **120 hours for treatment (crew of 2 workers)**
  - **Depending on treatment type, this amount of effort could cover up to 7.5 acres**

Stormwater Management

- **Shared-Use Path and Path Connections to Drain by Sheet-Flow from Shoulders to grass infiltration**

- **New Parking Area at Broadacres Farm will Include Bioretention Basins. Full Report included with NOI**

Questions

- Q&A

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EXTRA SLIDES

Alternatives Analysis

- **Preferred Alternative: Rail Trail Along the Former Lowell Secondary Rail Corridor**
- **Alternative B: On-Road Project Location**
- **Alternative C: Adjacent to Roadway**
- **Alternative D: No Build Scenario**

Alternatives Analysis

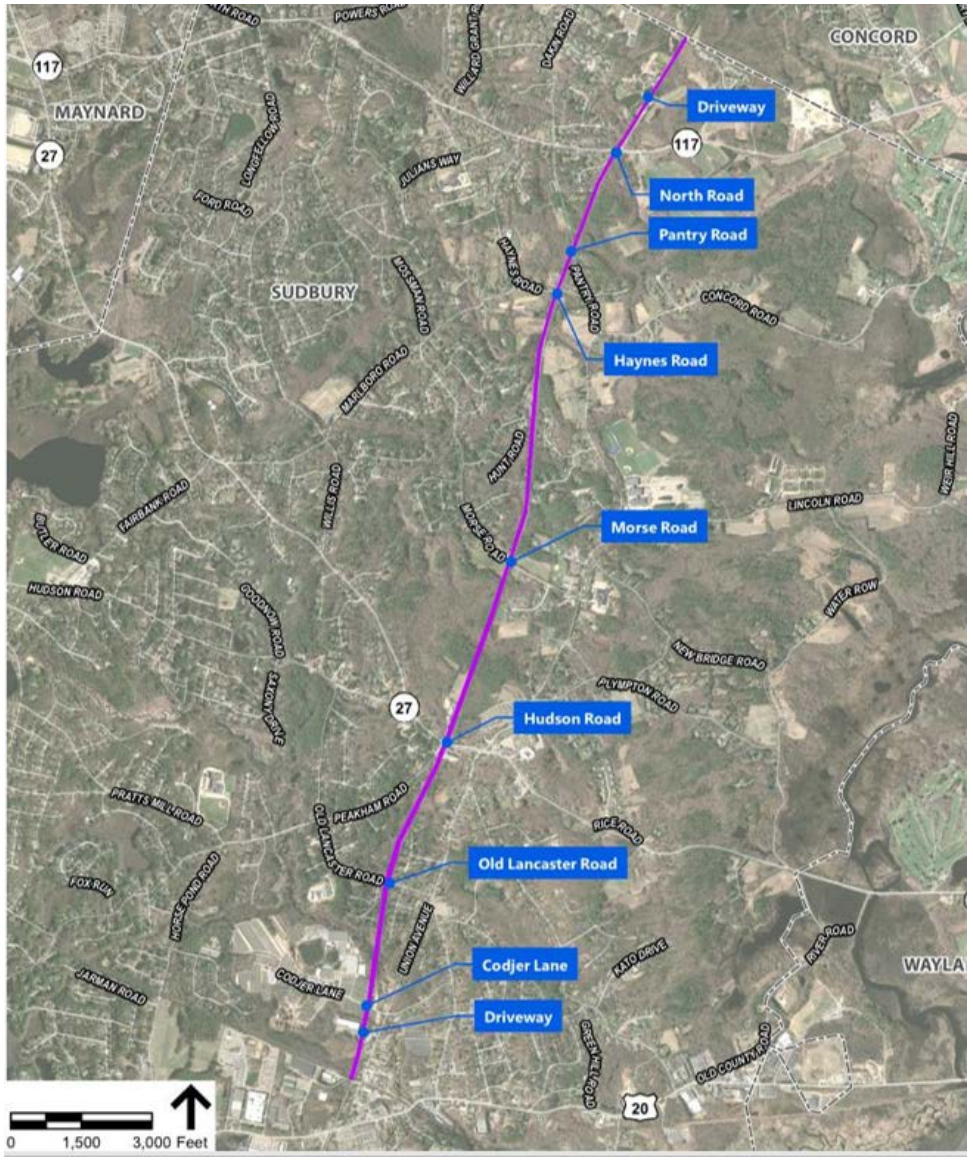
- **Alternatives for Challenging Wetlands Area STA 293+00 to 305+00**
  - **Reduced width path**
  - **Retaining walls to raise the vertical profile of the path**
  - **Reduced width shoulder**

Alternatives Analysis

- **Alternatives for Bridge Crossings**
  - **Hop Brook- Reuse of existing abutments**
    - ***Replace steel girders***
    - ***Reuse existing steel girders***
  - **Pantry Brook- Structure must be replaced, but existing abutments lowered and retained to reduce impacts**
    - ***Concrete arch design***
    - ***Steel girder design***

Existing Conditions Overview

- **Project Area**
  - **Nine Road Crossings**
    - ***Driveway to Fairview Farm***
    - ***North Road***
    - ***Pantry Road***
    - ***Haynes Rd***
    - ***Morse Rd***
    - ***Hudson Rd***
    - ***Old Lancaster Road***
    - ***Codjer Lane***
    - ***Driveway to 71 Union Ave***



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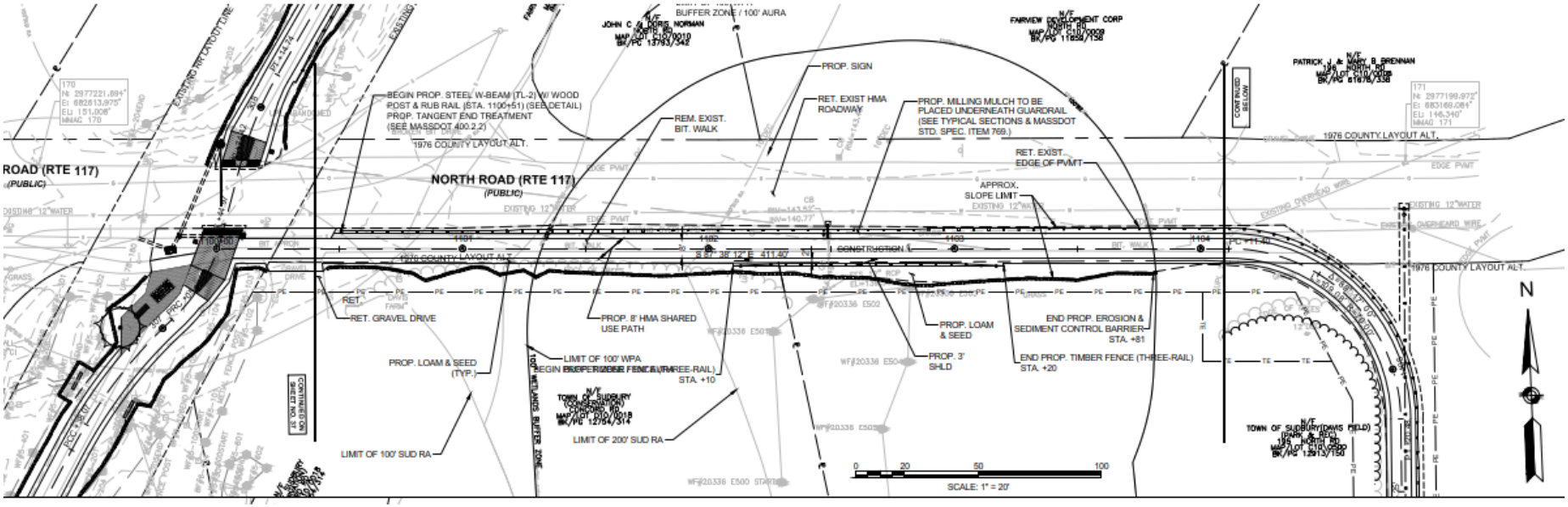
Site Walk Through

- **STA 307+50**
- **Davis Field Path Connection to Existing Parking Area**



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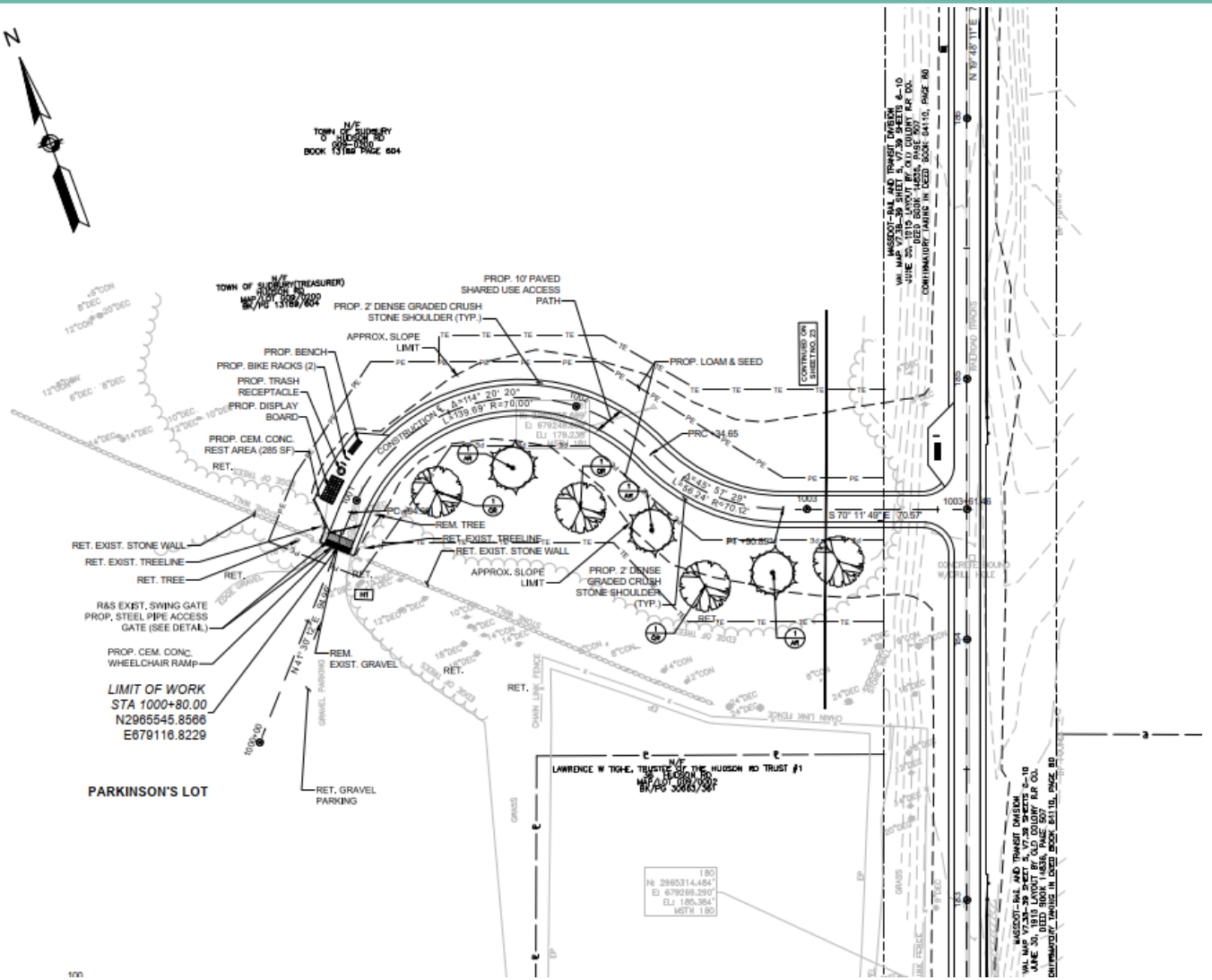
Site Walk Through

- **STA 178+00 to 189+00**
- **Parkinson Parcel Path Connection**



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