Rockingham BF 0125-1(48)
Regional Concerns Meeting

VT Route 103– Bridge #3 over Unnamed Brook

October 6, 2021

VERMONT
AGENCY OF TRANSPORTATION

Introductions

Rob Young, P.E.

VTrans Project Manager

Laura Stone, P.E.

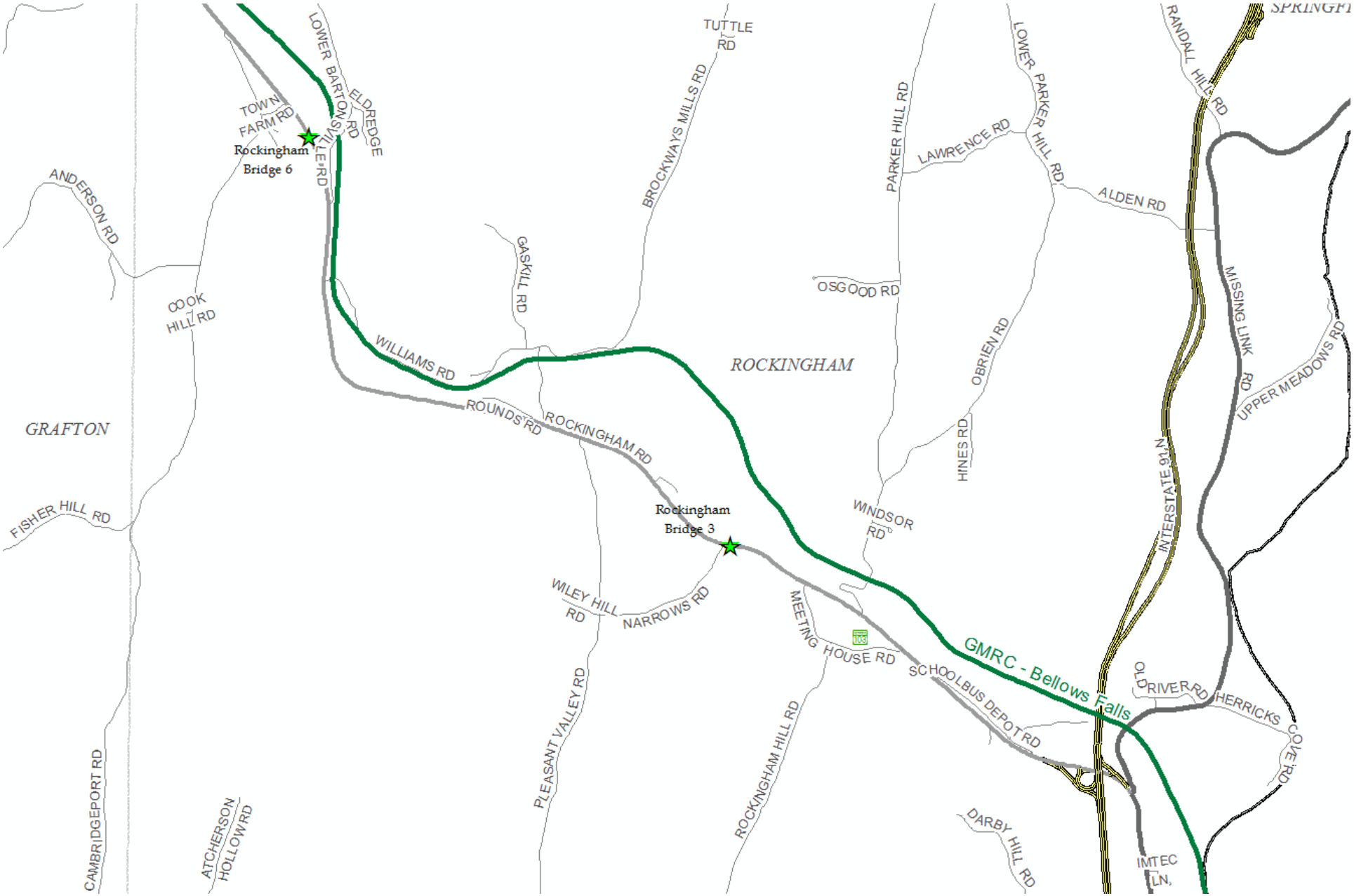
VTrans Scoping Engineer

VERMONT
AGENCY OF TRANSPORTATION

Purpose of Meeting

- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss our selected alternative
- Provide an opportunity to ask questions and voice concerns

VERMONT
AGENCY OF TRANSPORTATION



Location Map

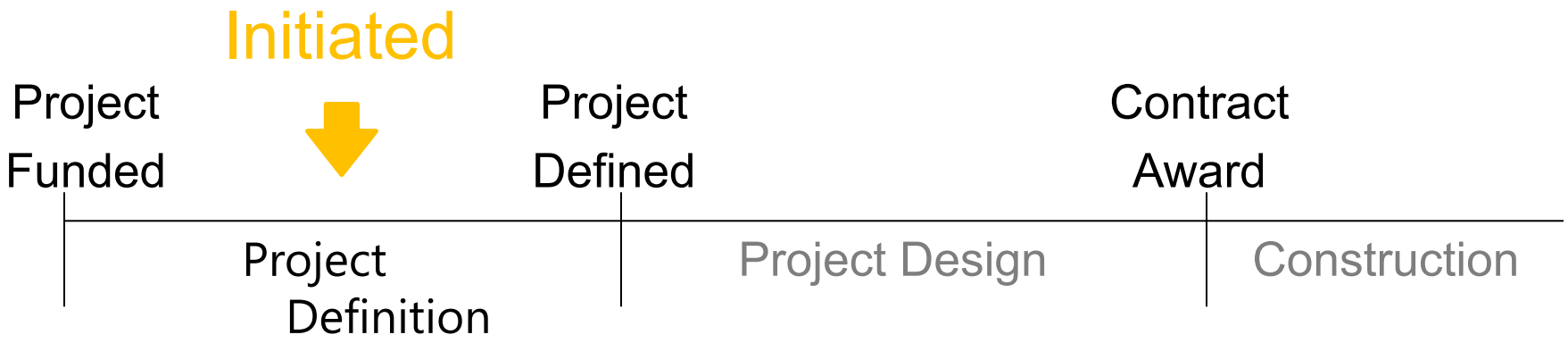

Calvin Coolidge Memorial Hwy
Rockingham Rd
Narrows Rd
103
Bridge 3
Project Location
Google

Meeting Overview

- VTrans Project Development Process
- Project Overview
  - Existing Conditions
  - Alternatives Considered
  - Selected Alternative
- Maintenance of Traffic
- Schedule
- Summary
- Questions

VERMONT
AGENCY OF TRANSPORTATION

VTrans Project Development Process



- Identify resources & constraints
- Evaluate alternatives
- Public participation
- Build Consensus

- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications
- Right-of-Way process if necessary

VERMONT
AGENCY OF TRANSPORTATION

Looking North over Bridge 3

Existing Conditions – Bridge #3

- Roadway Classification – Rural Principal Arterial, NHS
- Bridge Type – 7’ Span CGMPP (Corrugated Galvanized Metal Plate Pipe)
- Culvert Length – 264 feet
- Fill Over Culvert – 40 feet
- Ownership – State of Vermont
- Constructed in 1958

Looking South over Bridge 3

Existing Conditions – Bridge #3

- Steep slopes upstream and downstream

Existing Conditions – Bridge #3

- The existing culvert is rated as poor. The first 70 feet of the inlet end has large rust holes along the haunch areas. Beyond that the pipe has only minor small holes. Additionally, there is heavy erosion on the embankments.

- The culvert does not meet the minimum bank full width.

- The shoulders along VT Route 103 are substandard by 2 feet.

VERMONT
AGENCY OF TRANSPORTATION

Existing Conditions - Bridge #3

- Culvert Rating 4 (Poor)

Inlet

Existing Conditions - Bridge #3

Outlet

Existing Conditions - Bridge #3

Barrel

Existing Conditions - Bridge #3

Resources – Looking Downstream

Existing Conditions – Bridge #3

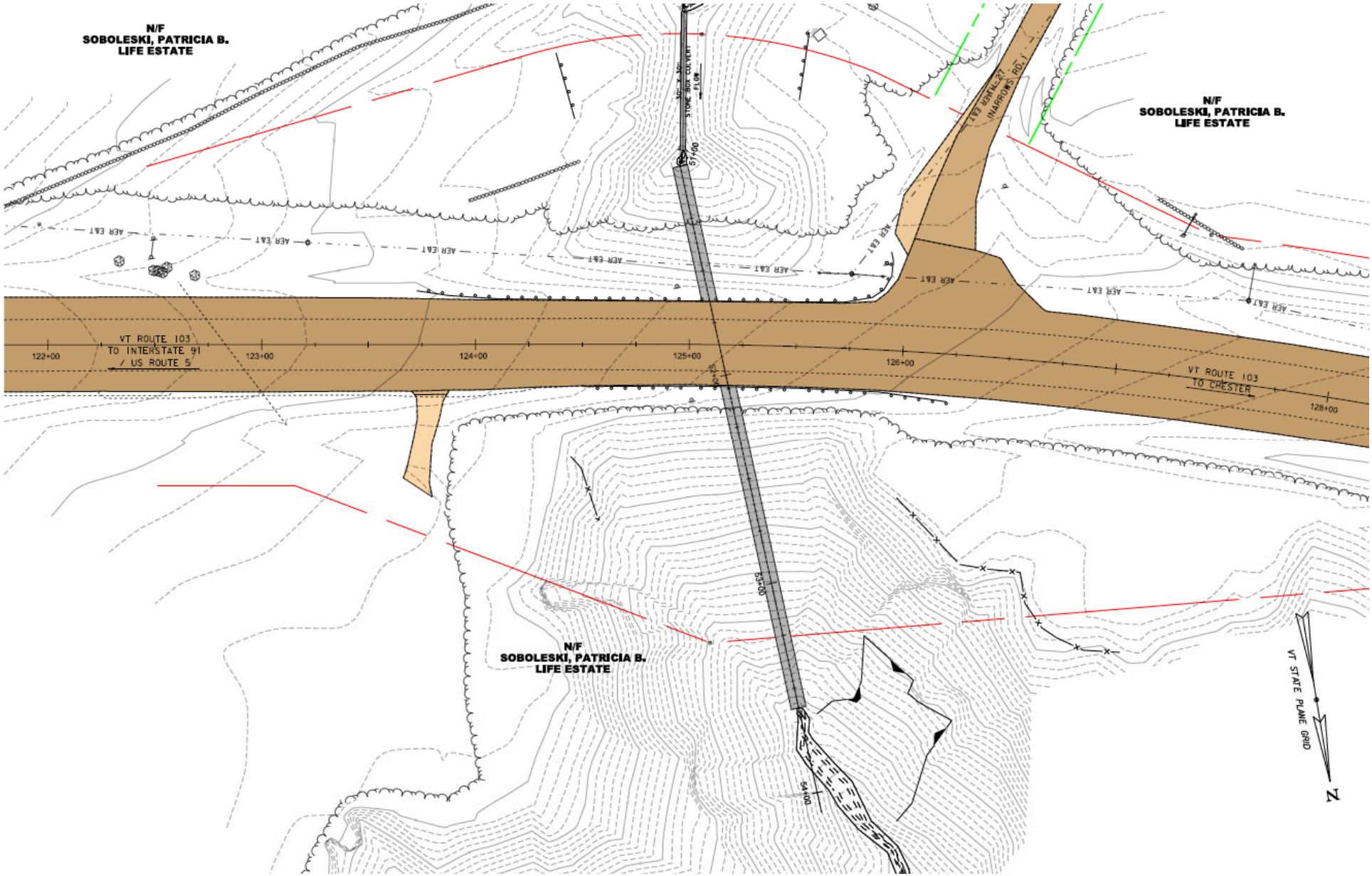
- Northern Long-Eared Bat
- Wetlands – small area to north
- Several rare plants in the project area
- Prime agricultural soils

Resources – Looking Upstream

Existing Conditions – Bridge #3

- Culvert located upstream

Existing Conditions



Design Criteria and Considerations

- Average Daily Traffic
  - 7,300 vehicles per day
- Design Hourly Volume
  - 1,100 vehicles per hour
- % Trucks
  - 18.7%

VERMONT
AGENCY OF TRANSPORTATION

Alternatives Considered – Bridge #3

- No Action
  - Additional maintenance required within 10 years
- Culvert Rehabilitation
  - Invert repair or culvert liner
  - 20 to 50-year design life
  - Substandard bankfull width and hydraulic opening
- New Precast Box or 3-Sided Frame
  - 10’ x 6’ waterway opening
  - 12’/10’ typical
  - Expensive due to the amount of fill, skew, and length of frame needed
  - 100-year design life
- New Integral Abutment Bridge
  - Approximate 150-foot Span
  - 12’/10’ typical
  - Increased future maintenance costs
  - 100-year design life

VERMONT
AGENCY OF TRANSPORTATION

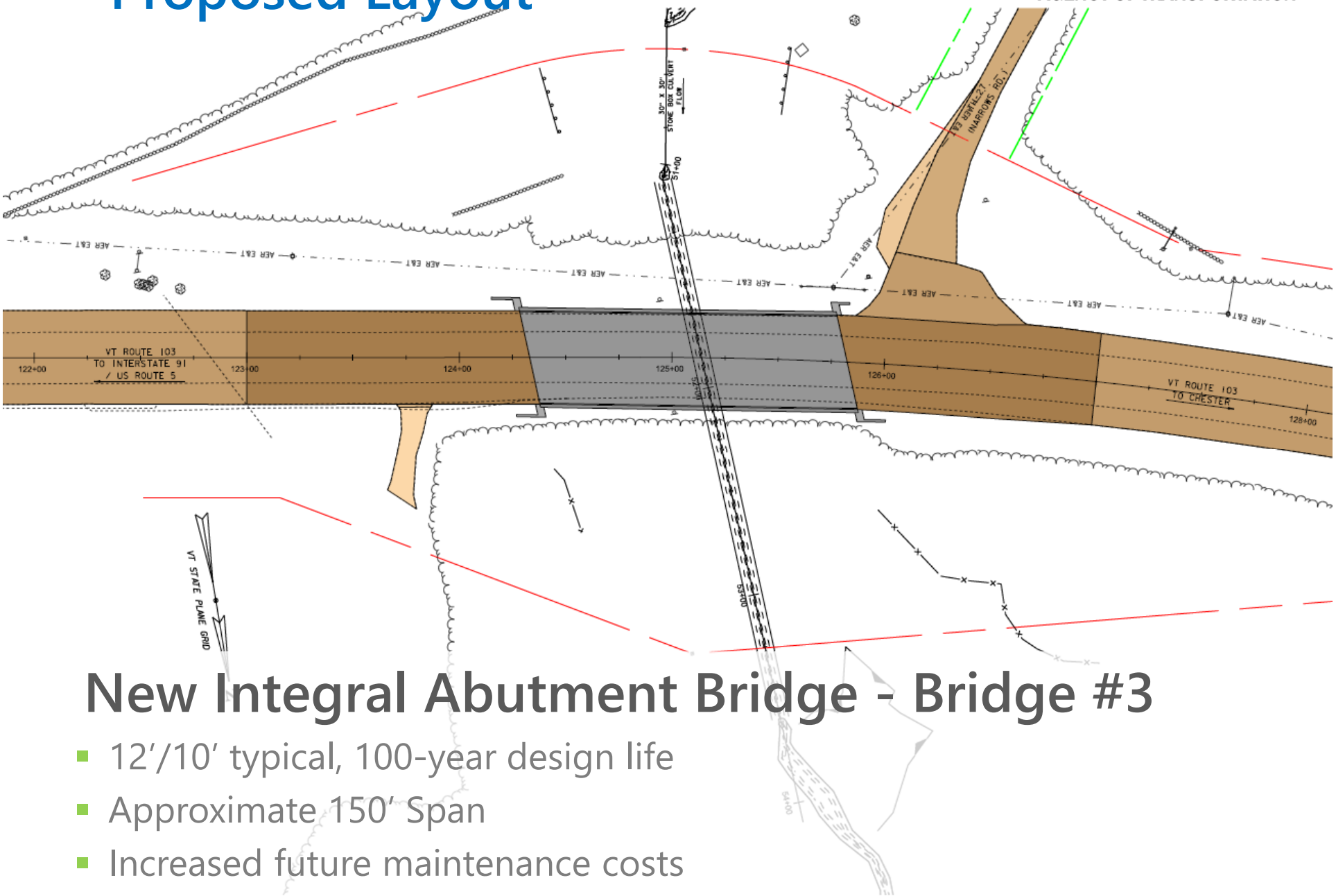
Selected Alternative – Bridge #3

- New Integral Abutment Bridge
  - Approximate 150-foot Span
  - Improved fish movement, constructability, and aerial utility relocation compared to a new precast box
  - Meets minimum hydraulic and BFW standard
  - 12’/10’ typical to meet minimum standards
  - 100-year design life

VERMONT
AGENCY OF TRANSPORTATION

Proposed Layout

VERMONT
AGENCY OF TRANSPORTATION

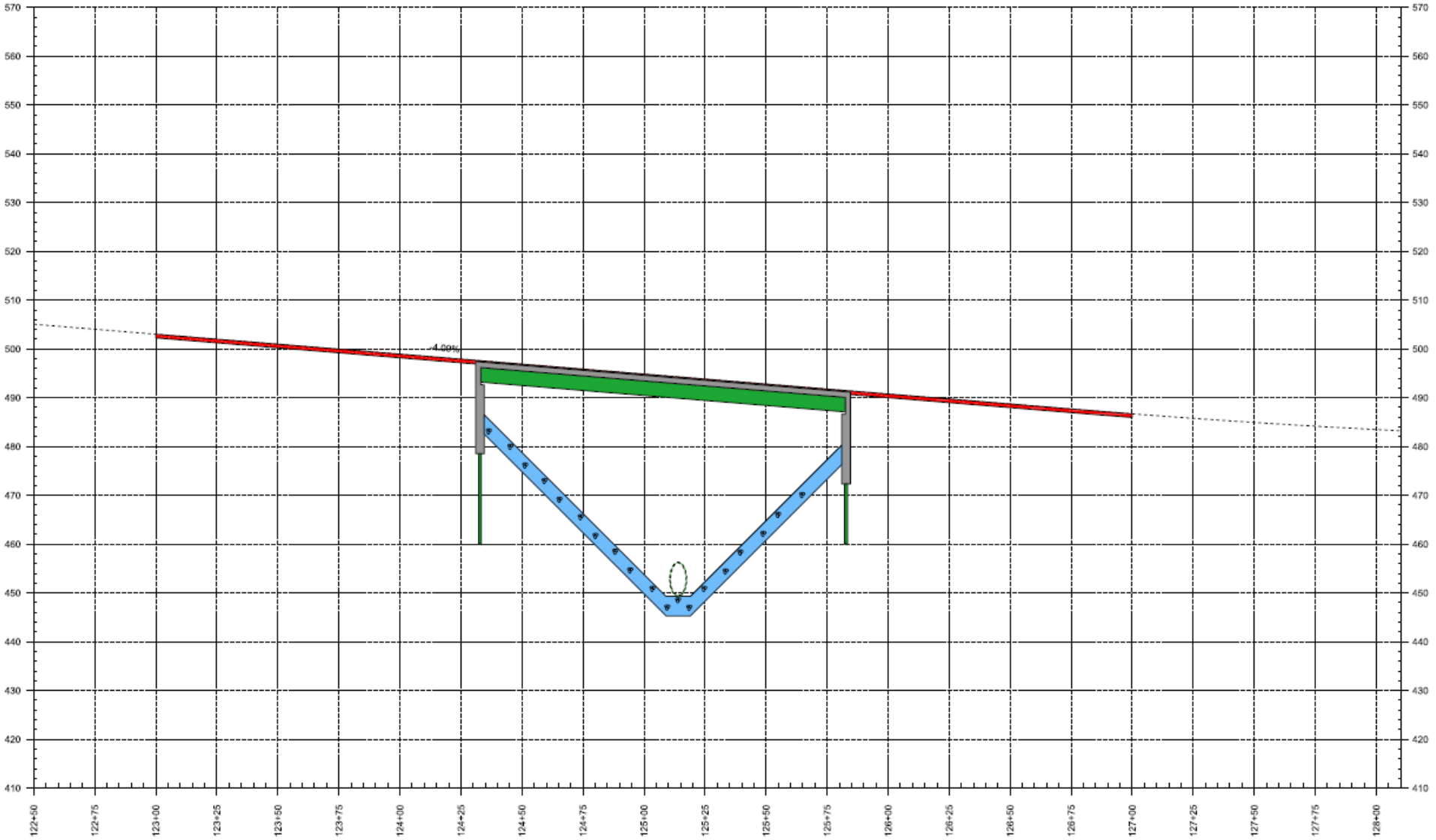


New Integral Abutment Bridge - Bridge #3

- 12’/10’ typical, 100-year design life
- Approximate 150’ Span
- Increased future maintenance costs

Proposed Profile

VERMONT
AGENCY OF TRANSPORTATION



VT ROUTE 103 NEW BRIDGE PROFILE

Maintenance of Traffic Options Considered

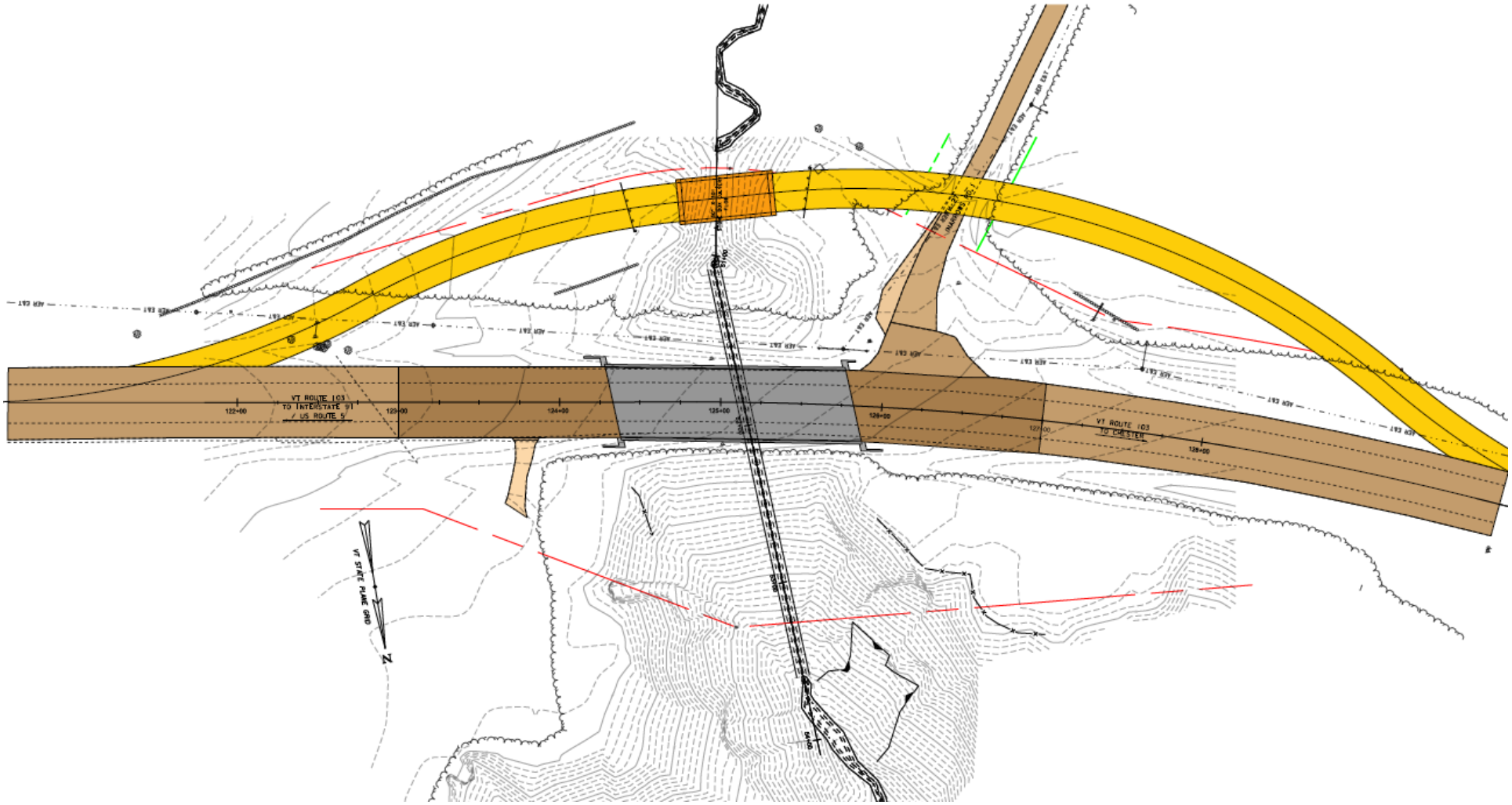
- Offsite Detour
  - Shortest Detour is 28 miles end-to-end
- Phased Construction
  - It would be hard to fit phased in one season due to high fill
- Temporary Bridge

Selected Method of Traffic Maintenance

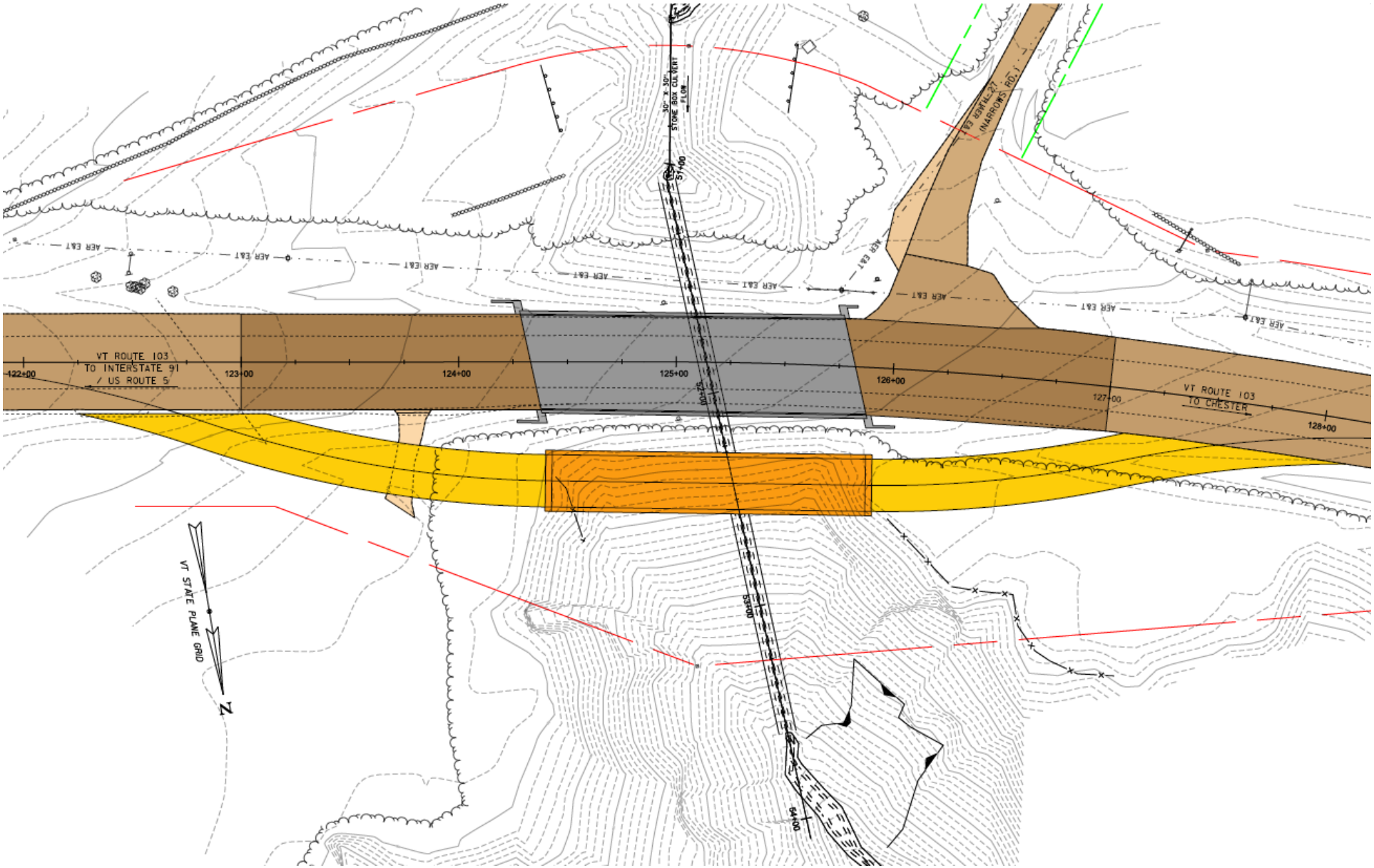
Temporary Bridge/Roadway

- Two Lane Temporary Bridge constructed on Upstream or Downstream side of VT Route 103

Upstream Temporary Bridge Layout



Downstream Temporary Bridge Layout



Preliminary Project Schedule

- Construction Start – Summer 2025
  - Total Cost Estimate: $4,940,885

VERMONT
AGENCY OF TRANSPORTATION

Project Summary: Bridge 3

- New Integral Abutment Bridge with Traffic Maintained on a Temporary Bridge/Roadway
  - Approximate 150-foot Span
  - Improved fish movement, constructability, and aerial utility relocation compared to a new precast box
  - Meets minimum hydraulic and BFW standard
  - 12’/10’ typical to meet minimum standards
  - 100-year design life
  - Right-of-Way needed

  - Construction Year: 2025

VERMONT
AGENCY OF TRANSPORTATION

For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/19B209

Rockingham BF 025-1(48)
Questions and Comments

VT Route 103– Bridge #3 over Unnamed Brook

October 6, 2021

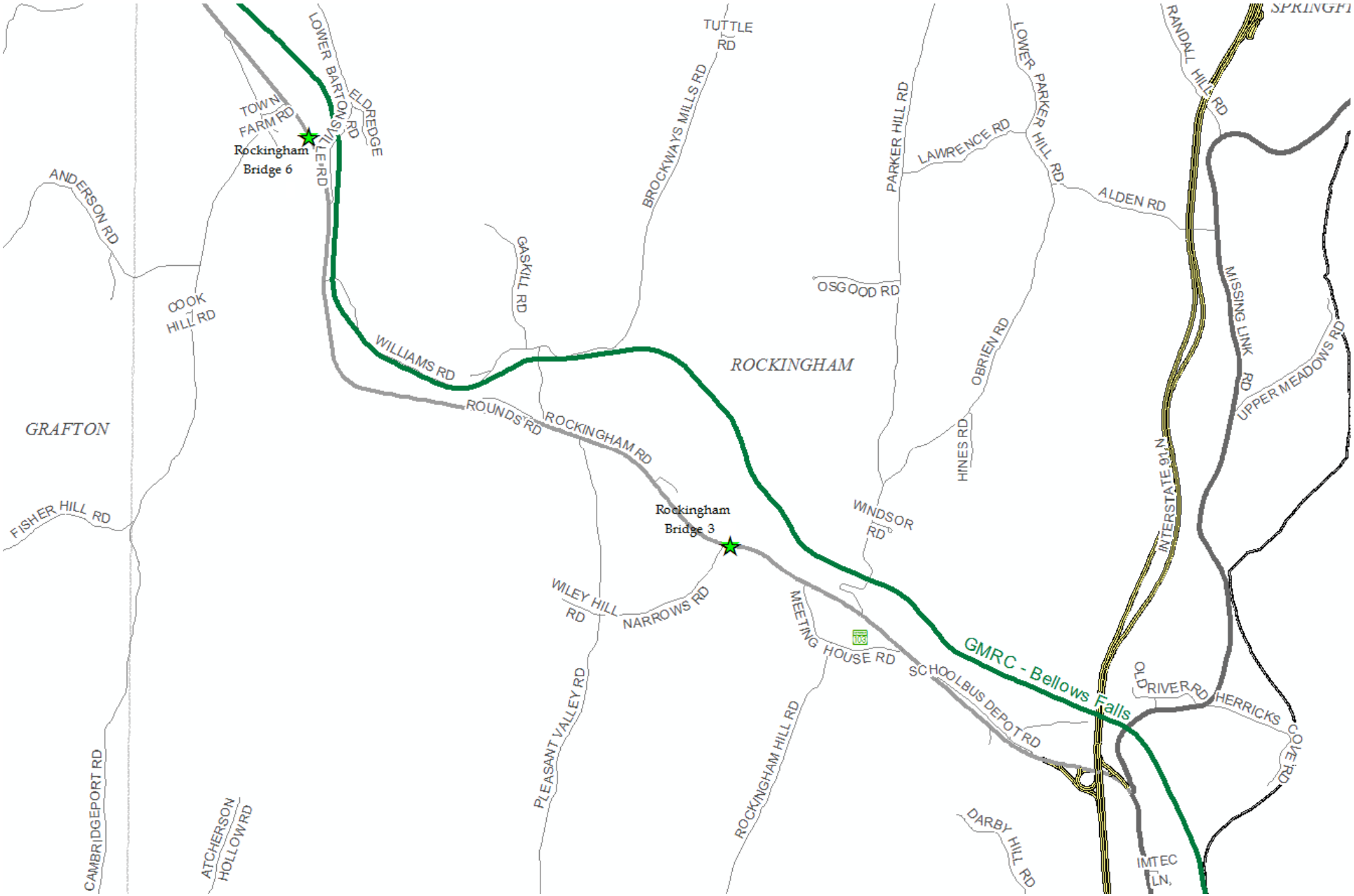
VERMONT
AGENCY OF TRANSPORTATION

Rockingham NH CULV(66) Regional Concerns Meeting

VT Route 103– Bridge #6 over Unnamed Brook

October 6, 2021

VERMONT
AGENCY OF TRANSPORTATION



Location Map


Bridge 6
Project Location
Williams River
Th100
Lower Bartonsville Rd

Looking North over Bridge 6

Existing Conditions – Bridge #6

- Roadway Classification – Rural Principal Arterial, NHS
- Bridge Type – 10’ Span CGMPP (Corrugated Galvanized Metal Plate Pipe)
- Culvert Length – 222 feet
- Fill Over Culvert – 40 feet
- Ownership – State of Vermont
- Constructed in 1962

Looking South over Bridge 6

Existing Conditions – Bridge #6

- Steep slopes upstream and downstream

Existing Conditions – Bridge #6

- The existing culvert is rated as poor with a heavily rotted and rusted out invert.
- The culvert does not provide aquatic organism passage.
- The culvert does not meet the minimum bank full width.
- The shoulder on the northbound side of VT Route 103 is substandard by 1 foot.

VERMONT
AGENCY OF TRANSPORTATION

Existing Conditions - Bridge #6

- Culvert Rating 4 (Poor)

Inlet

Existing Conditions - Bridge #6

Outlet

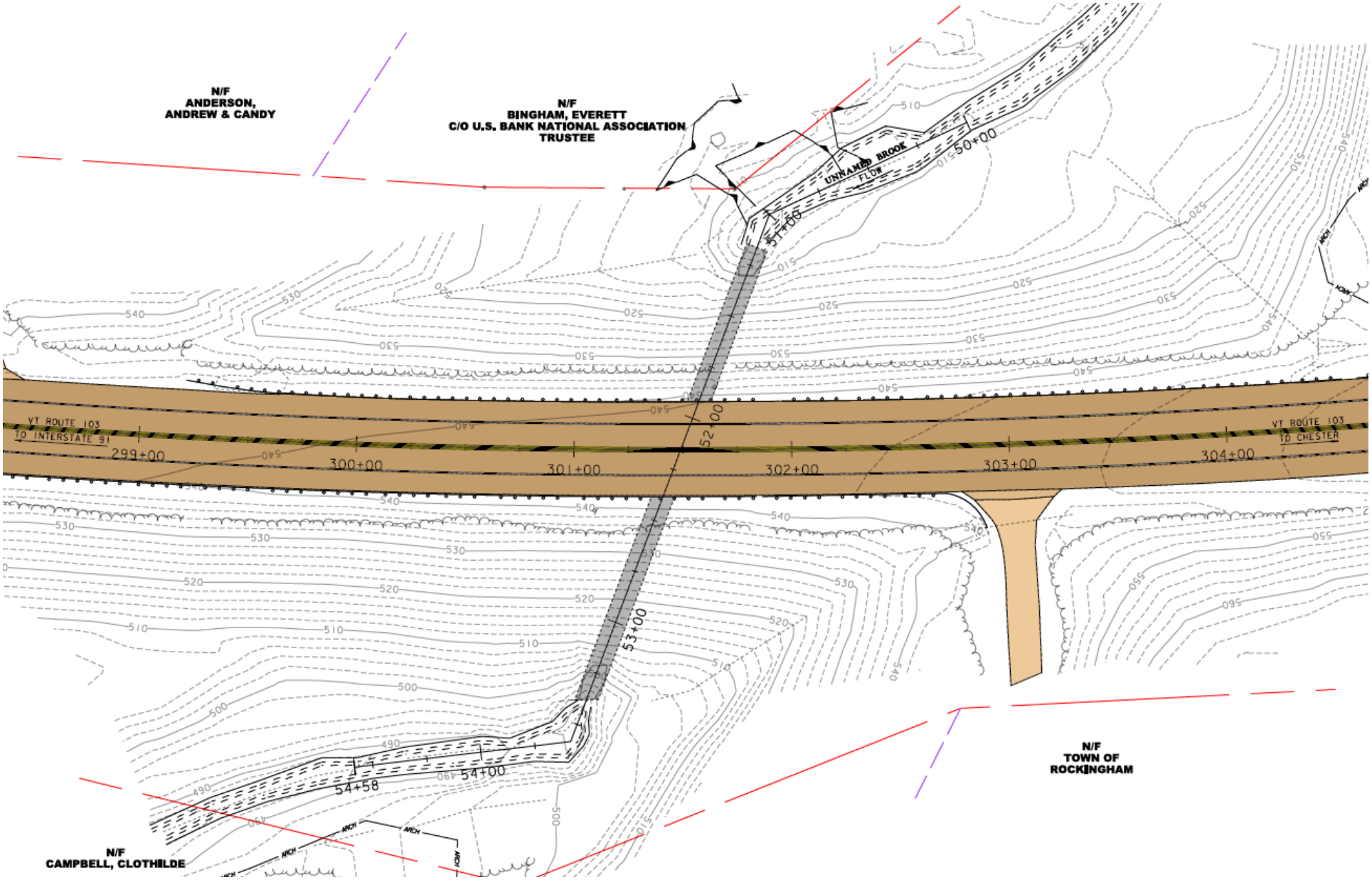
Existing Conditions - Bridge #6

Resources – Looking Upstream

Existing Conditions – Bridge #6

- Northern Long-Eared Bat
- Wetlands – small area in SW quadrant
- Prime agricultural soils

Existing Conditions



Design Criteria and Considerations

- Average Daily Traffic
  - 7,200 vehicles per day
- Design Hourly Volume
  - 1,100 vehicles per hour
- % Trucks
  - 16.4%

VERMONT
AGENCY OF TRANSPORTATION

Alternatives Considered – Bridge #6

- No Action
  - Additional maintenance required within 10 years
- Culvert Rehabilitation
  - Invert repair or culvert liner
  - 20 to 50-year design life
  - Substandard bankfull width
- New Precast Box or 3-Sided Frame
  - 18’ x 7’ waterway opening
  - 12’/10’ typical
  - Expensive due to the amount of fill, skew, and length of frame needed
  - 100-year design life
- New Integral Abutment Bridge
  - Approximate 130-foot Span
  - 12’/10’ typical
  - Increased future maintenance costs
  - 100-year design life

VERMONT
AGENCY OF TRANSPORTATION

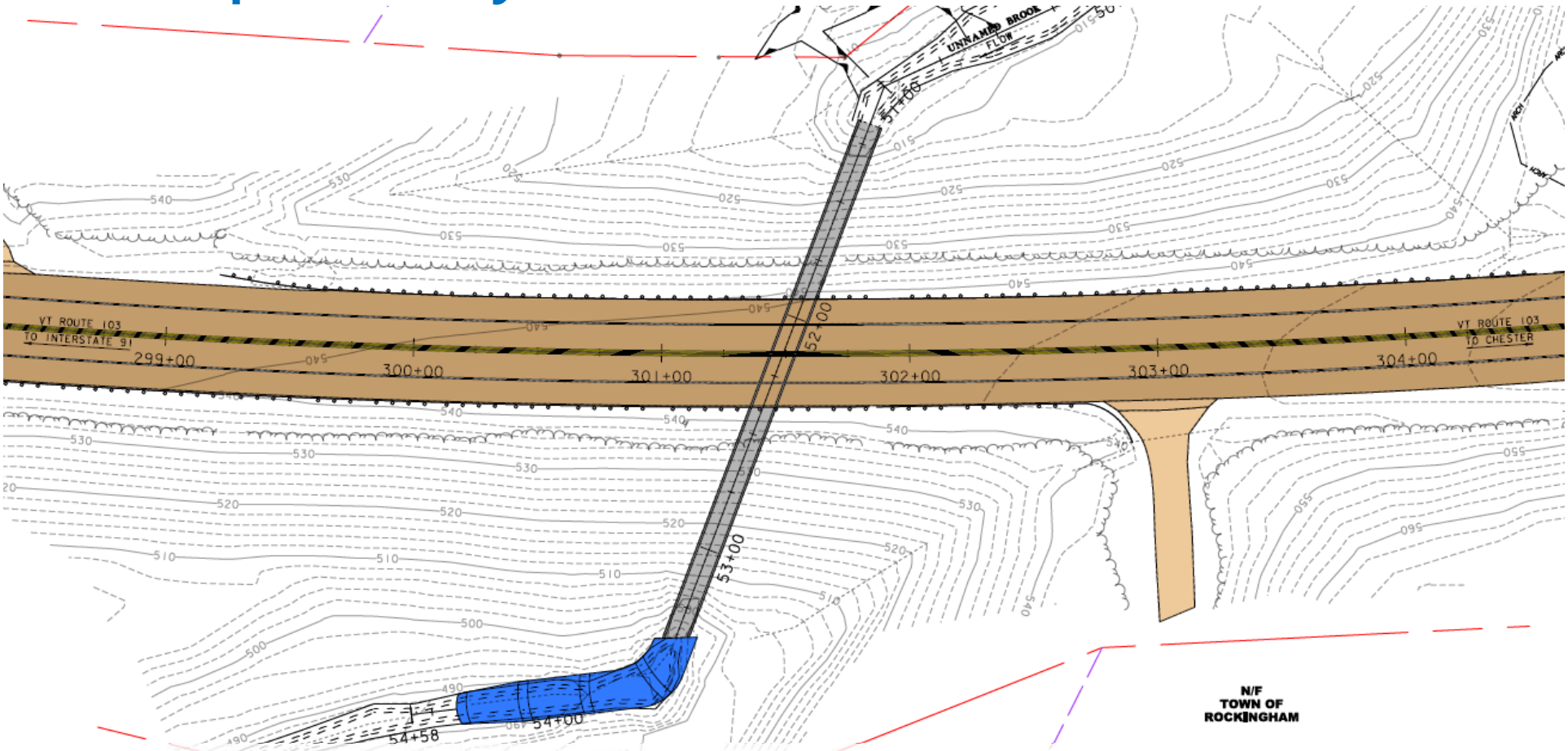
Selected Alternative – Bridge 6

- Culvert Rehabilitation with a Pipe Liner
  - Construct beveled inlet
  - Baffles constructed throughout culvert along with several downstream weirs to satisfy AOP requirements
  - Meets minimum hydraulic standard
    - Does not meet minimum BFW
  - 12’/9’ typical to match existing conditions
    - Slightly substandard – acceptable for rehabilitation
  - 50-year design life
  - No Right-of-Way needed

VERMONT
AGENCY OF TRANSPORTATION

Proposed Layout

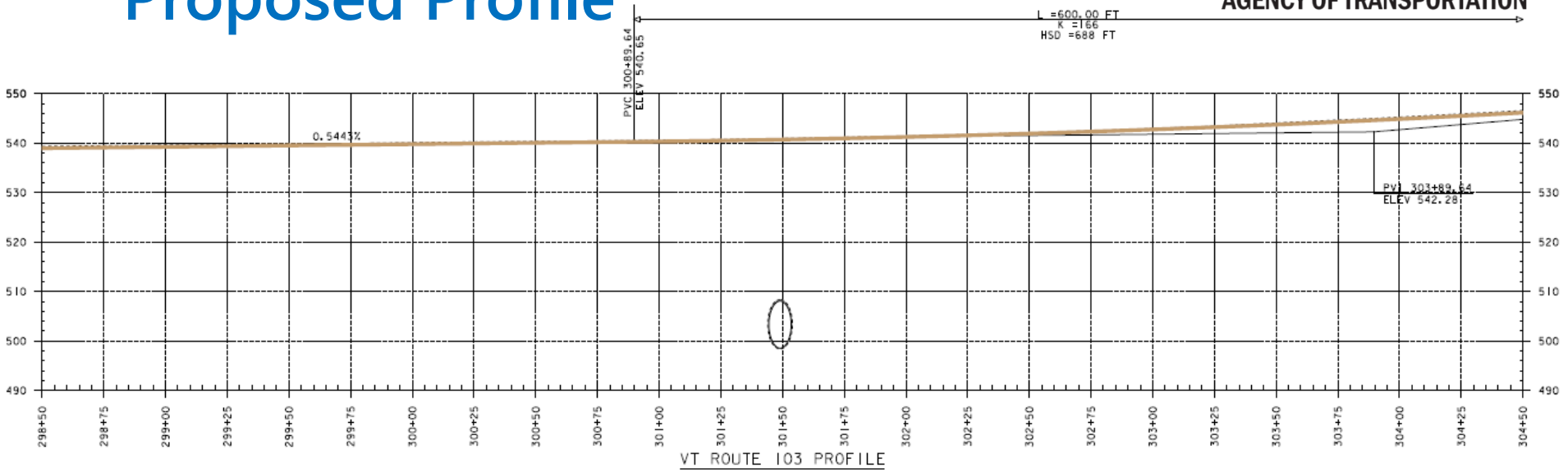
VERMONT
AGENCY OF TRANSPORTATION

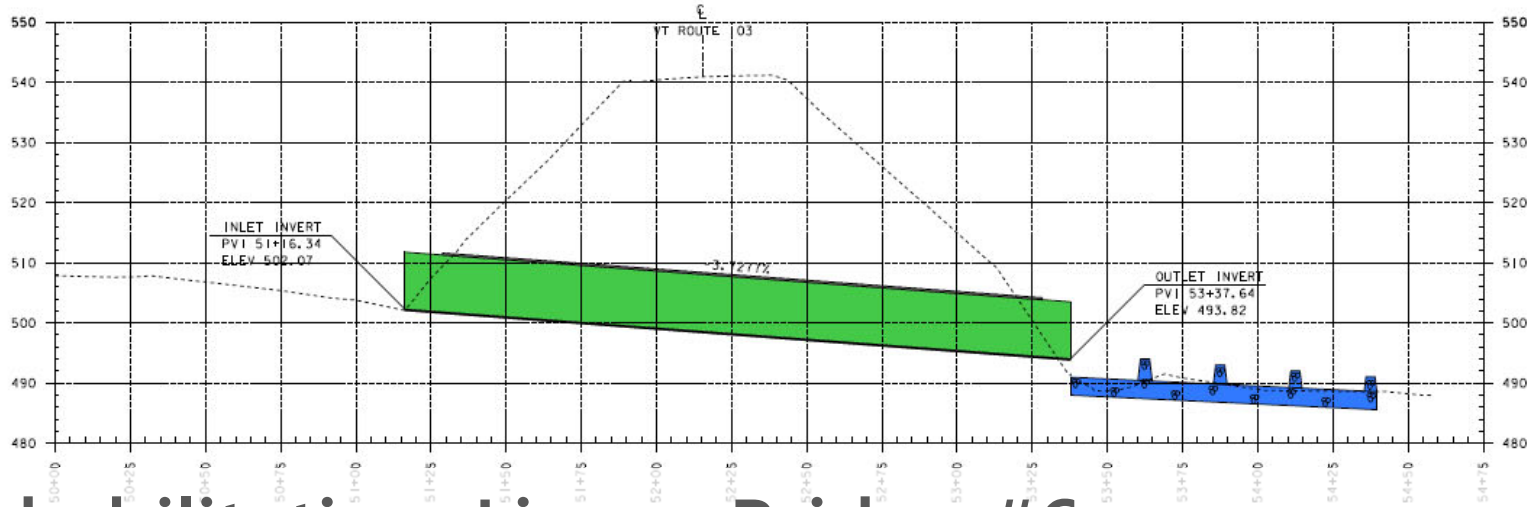


New Integral Abutment Bridge - Bridge #6

- 12’/9’ typical, 20 to 50-year design life
- Downstream weirs for AOP
- Substandard Bankfull Width

Proposed Profile





Rehabilitation, Liner - Bridge #6

- Downstream weirs for AOP

Maintenance of Traffic Options Considered

- **Minimal Traffic Impacts for Rehabilitation Option**

- Offsite Detour
- Phased Construction
- Temporary Bridge

Preliminary Project Schedule

- Construction Start – Summer 2023
  - Total Cost Estimate: $1,650,000

VERMONT
AGENCY OF TRANSPORTATION

Project Summary: Bridge 6

- Culvert Rehabilitation with a Pipe Liner with Minimal Traffic Impacts
  - Construct beveled inlet
  - Baffles constructed throughout culvert along with several downstream weirs to satisfy AOP requirements
  - Meets minimum hydraulic standard
    - Does not meet minimum BFW
  - 12’/9’ typical to match existing conditions
    - Slightly substandard – acceptable for rehabilitation
  - 50-year design life
  - No Right-of-Way needed

  - Construction Year: 2023

VERMONT
AGENCY OF TRANSPORTATION

For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/18B006

Rockingham NH CULV(66) Questions and Comments

VT Route 103– Bridge #6 over Unnamed Brook

October 6, 2021

VERMONT
AGENCY OF TRANSPORTATION