



**Killington BF 020-2(50)**  
**Regional Concerns Meeting**  
**US Route 4 – Bridge #30 over unnamed brook**

October 20, 2020

# Introductions

**JB McCarthy, P.E.**

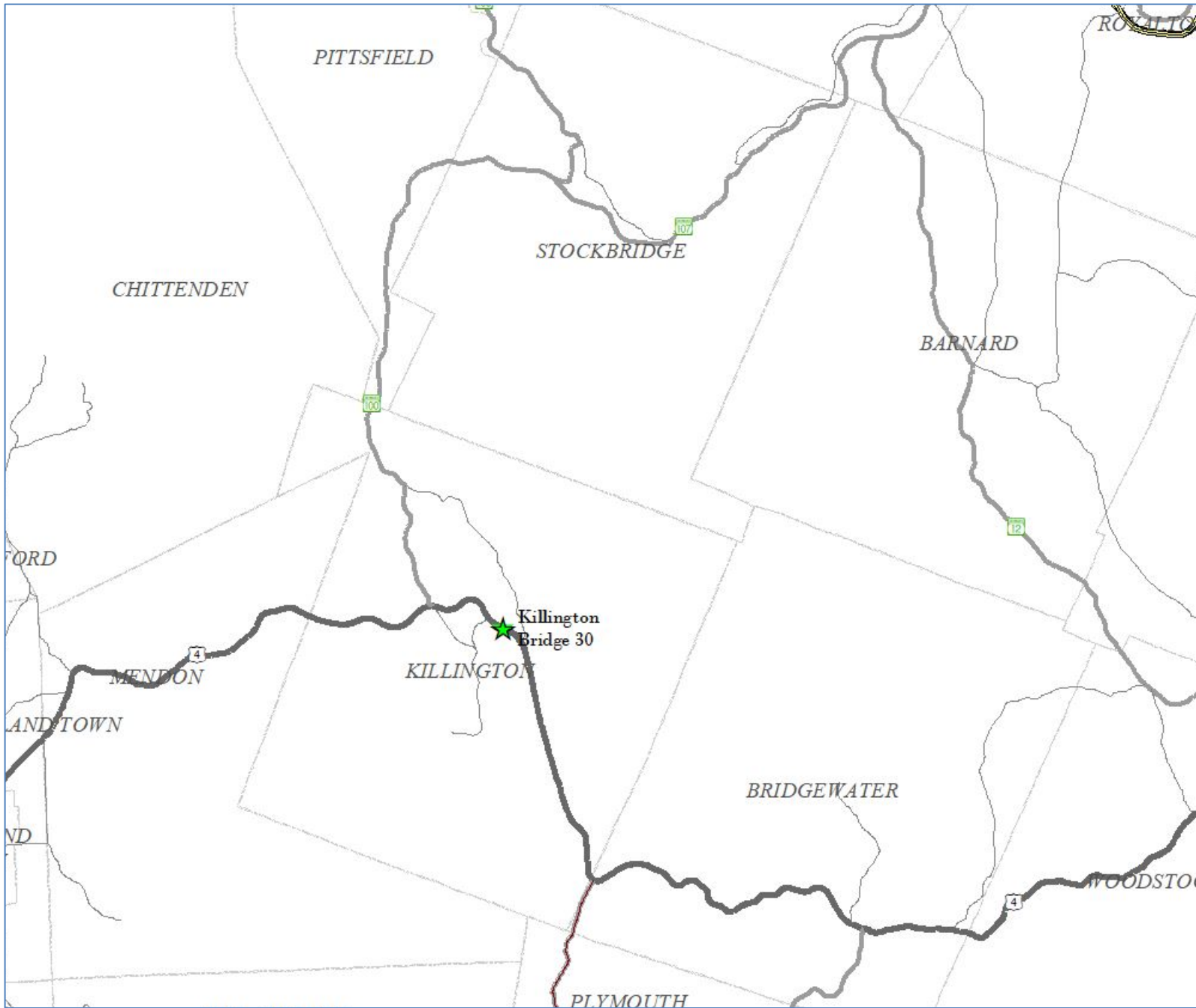
VTrans Project Manager

**Laura Stone, P.E.**

VTrans Scoping Engineer

# 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



Location Map



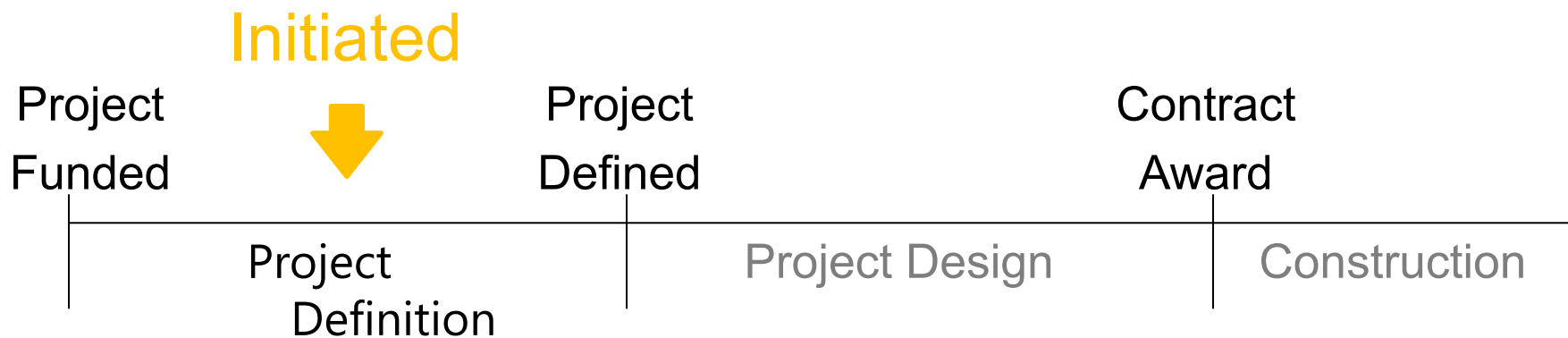
Bridge 30  
Project Location

Google

# Meeting Overview

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

# 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

## Looking West over Bridge 30



### Existing Conditions – Bridge #30

- Roadway Classification – Rural Principal Arterial, National Highway System
- Bridge Type – 6' Span ACCGMPPA, 158' long
  - Asphalt Coated Corrugated Galvanized Metal Plate Pipe Arch
- Ownership – State of Vermont
- Constructed in 1965



Looking East over Bridge 30



## Existing Conditions – Bridge #30

- Aerial Utilities

## Existing Conditions – Bridge #30

- The culvert is in serious condition. There is significant distortion and crushing near outlet end with multiple areas of perforations along the invert mainly near the collars.
  - Piping is occurring at the perforations with voids as deep as 6 to 8 inches observed.
- The existing culvert does not meet the minimum hydraulic standard and does not meet the calculated or measured bank full width.

## Condition Ratings



### Existing Conditions - Bridge #30

- Culvert Rating 3 (Serious)

Inlet



## Existing Conditions - Bridge #30

- Laid up block cutoff wall

Outlet



**Existing Conditions - Bridge #30**

Perforations in Inlet



Existing Conditions - Bridge #30

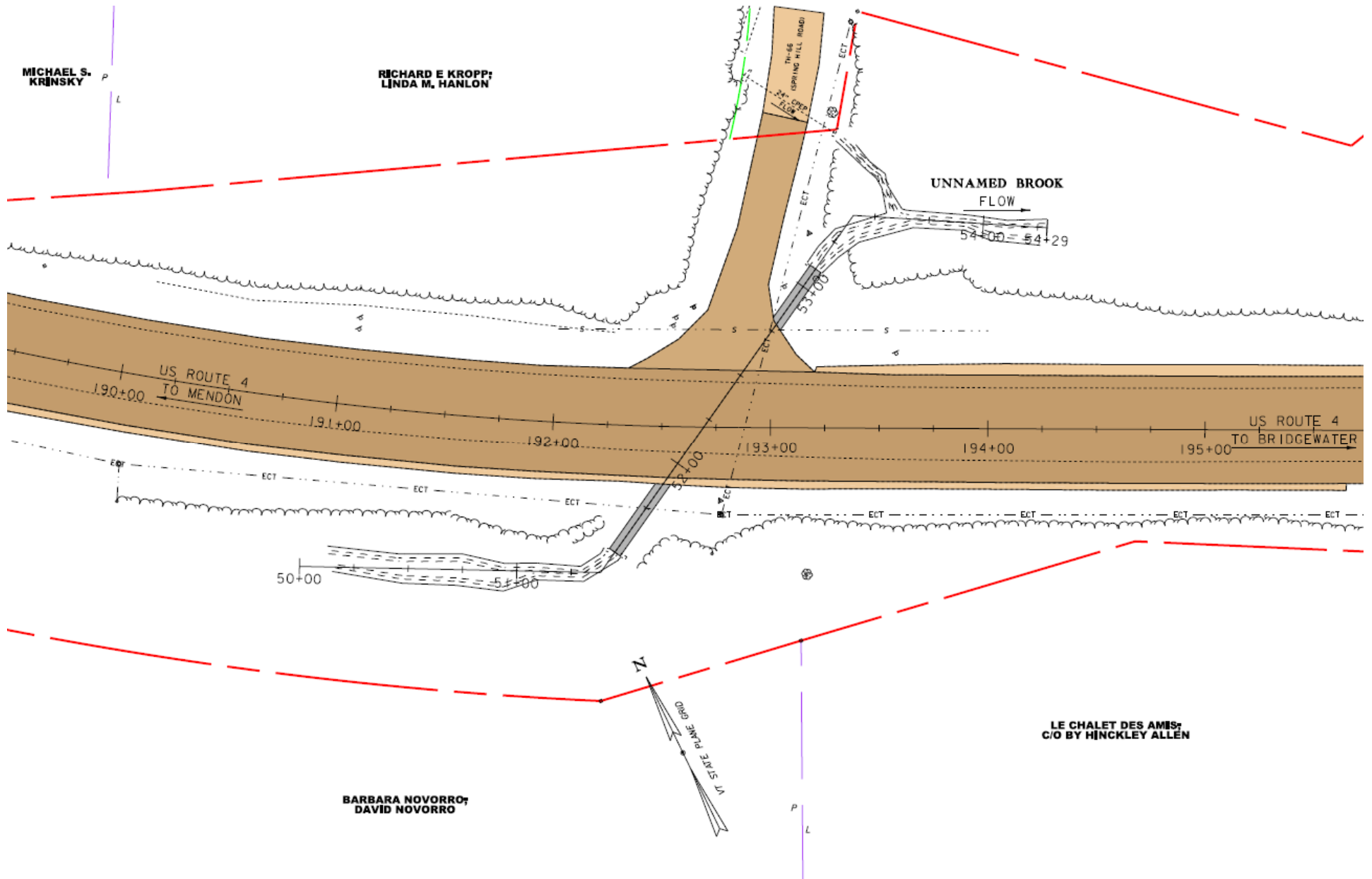
## Resources – Looking Downstream



### Existing Conditions – Bridge #30

- Northern Long-Eared Bat
- Wildlife Habitat

# Existing Conditions





# Design Criteria and Considerations

- Average Daily Traffic
  - 5,600 vehicles per day
- Design Hourly Volume
  - 860 vehicles per hour
- % Trucks
  - 15.8%

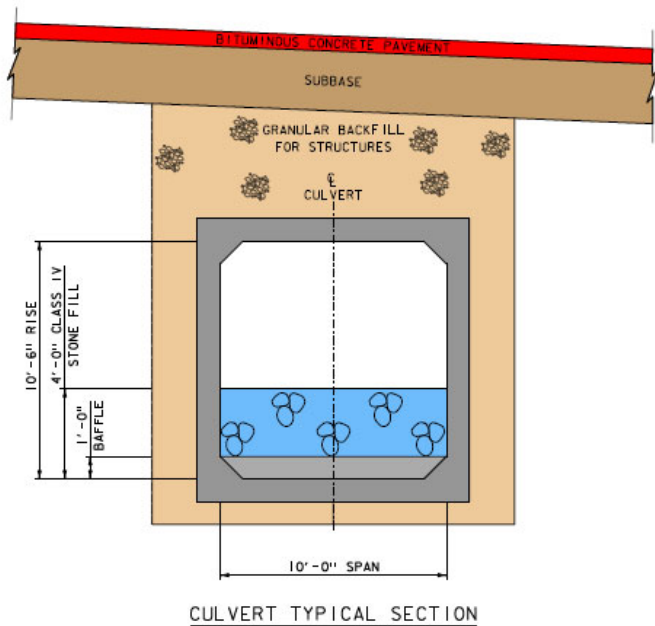
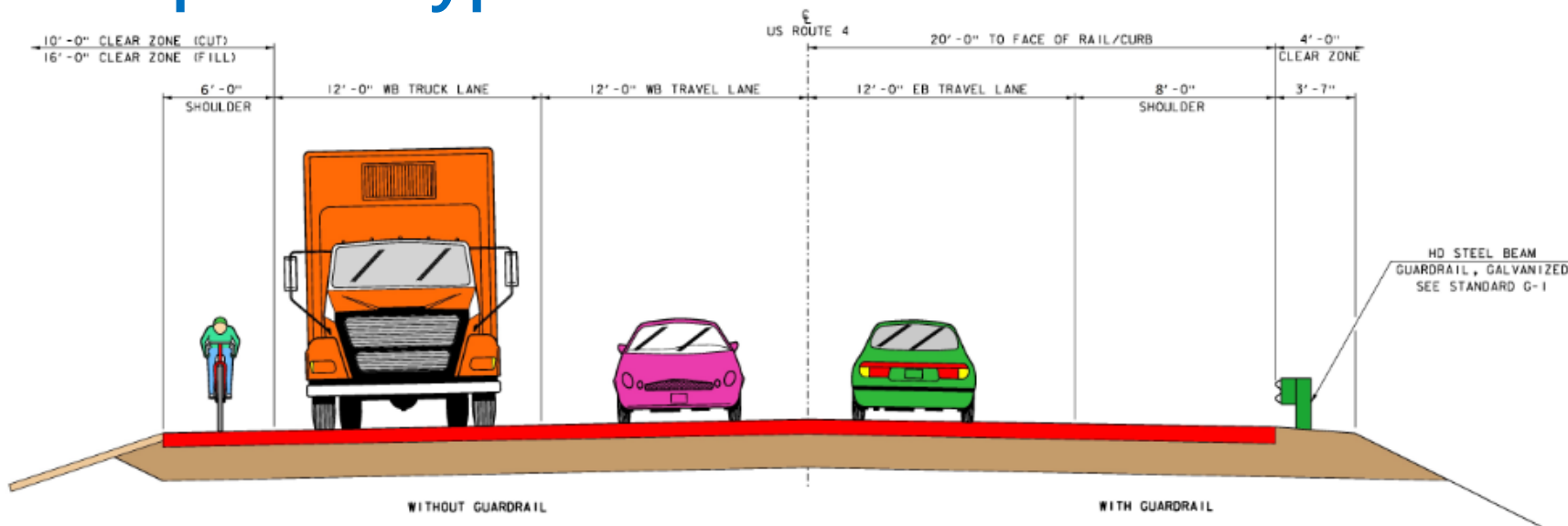
# Alternatives Considered – Bridge #30

- No Action
  - Additional maintenance required within 10 years
- Rehabilitation
  - Culvert Invert or Spray on Liner
  - Minimal Traffic Impacts
  - Hydraulically substandard
  - Roadway width substandard: 11'/6' typical
  - 20 to 30-year design life
- New Precast Box
  - Contingent on borings
  - 10' x 6.5' waterway opening with invert buried 4'
  - Roadway widened: 6'-12'-12'-12'-8' typical
  - 75-year design life
- New Precast 3-Sided Frame
  - 10' x 6.5' waterway opening
  - Roadway widened: 6'-12'-12'-12'-8' typical
  - 75-year design life

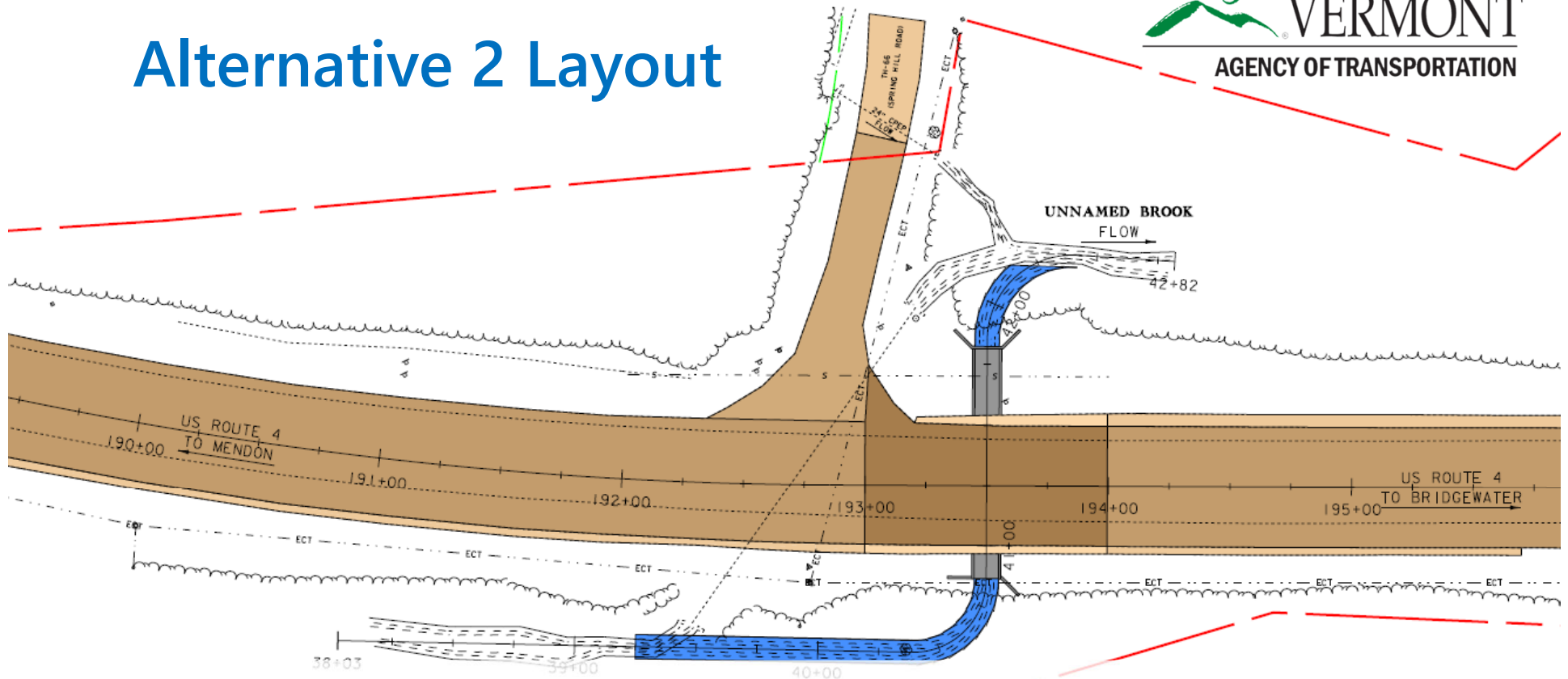
## Selected Alternative - Bridge #30

- Culvert Replacement with a New Precast Box
  - Contingent on borings
  - 10' x 6.5' waterway opening with invert buried 4'
  - Roadway widened: 6'-12'-12'-12'-8' typical
  - Aerial utility relocation
  - Potential impacts to sewer force main
  - 75-year design life

# Proposed Typical Section



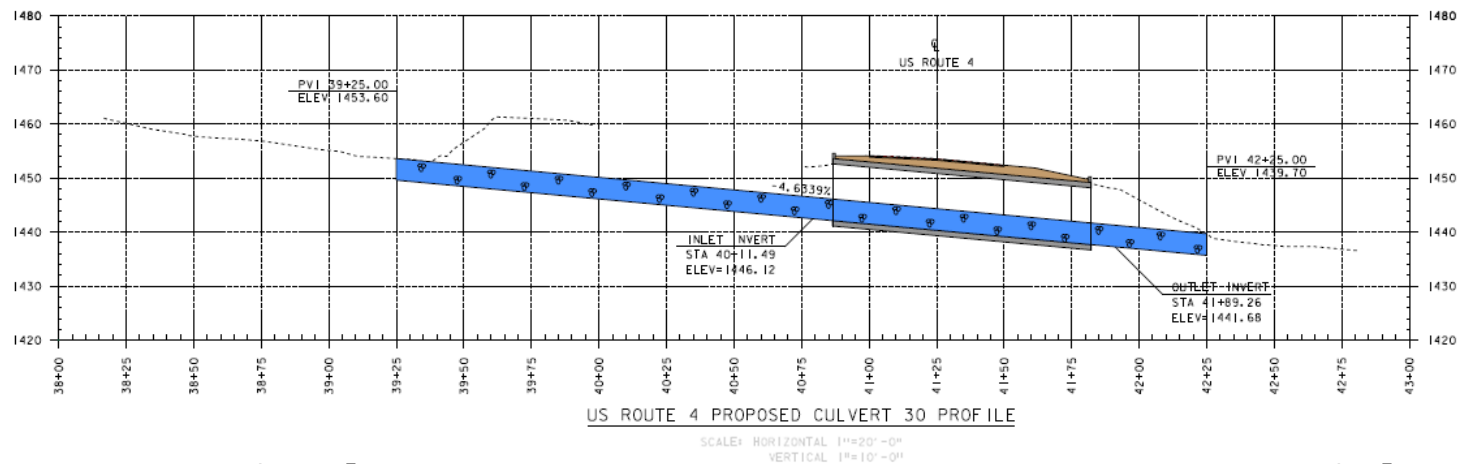
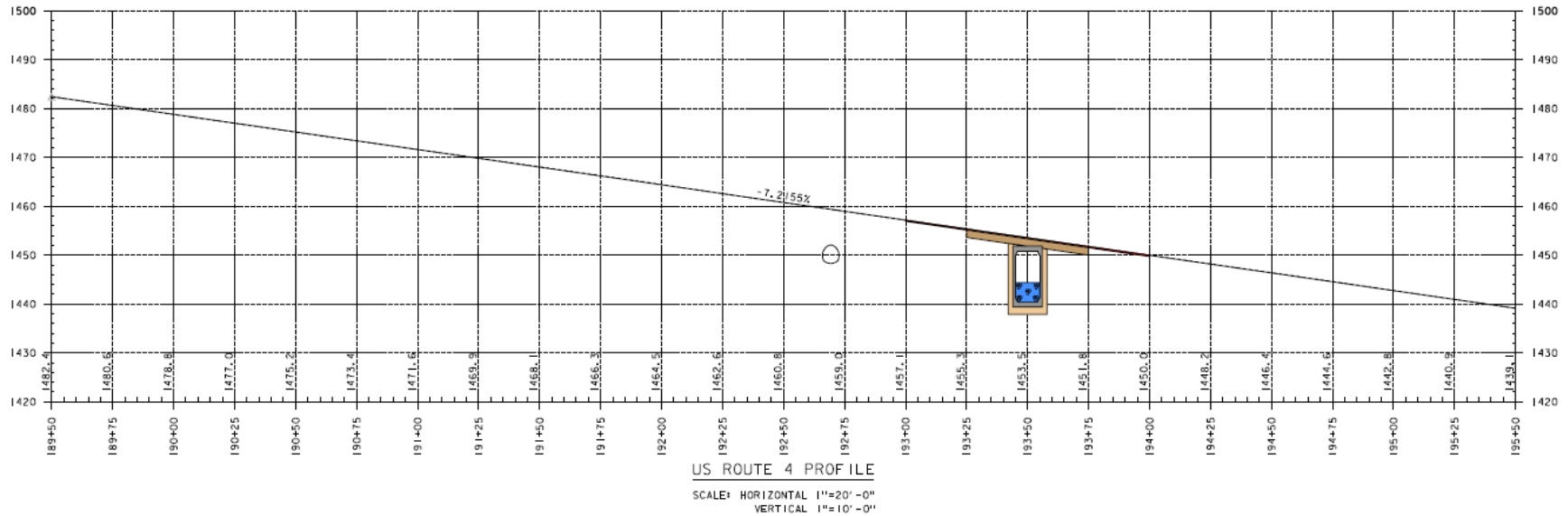
# Alternative 2 Layout



## New Buried Structure, Precast Box - Bridge #30

- 6'-12'-12'-12'-8' (50') typical section
- Modified alignment to shorten structure and provide maintenance of stream during construction
- 75-year design life
- 10' x 6.5' waterway opening (invert buried 4')
- 95' Culvert Length

# Alternative 2 Layout



## New Buried Structure, Precast Box - Bridge #30

- Match Existing vertical alignment

# Maintenance of Traffic Options Considered

- Offsite Detour
- Phased Construction
- Temporary Bridge

## Selected Method of Traffic Maintenance

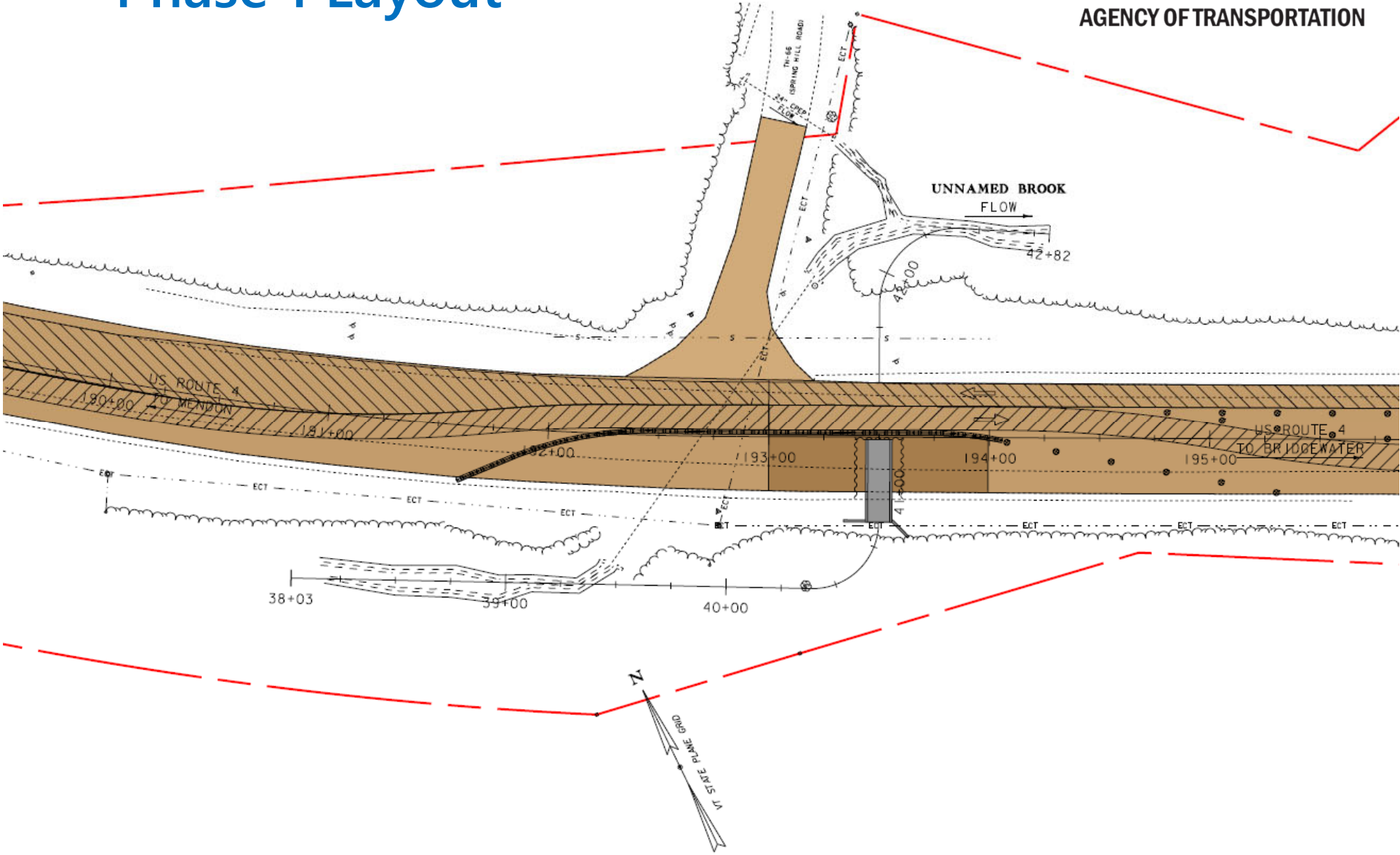


### Phased Construction

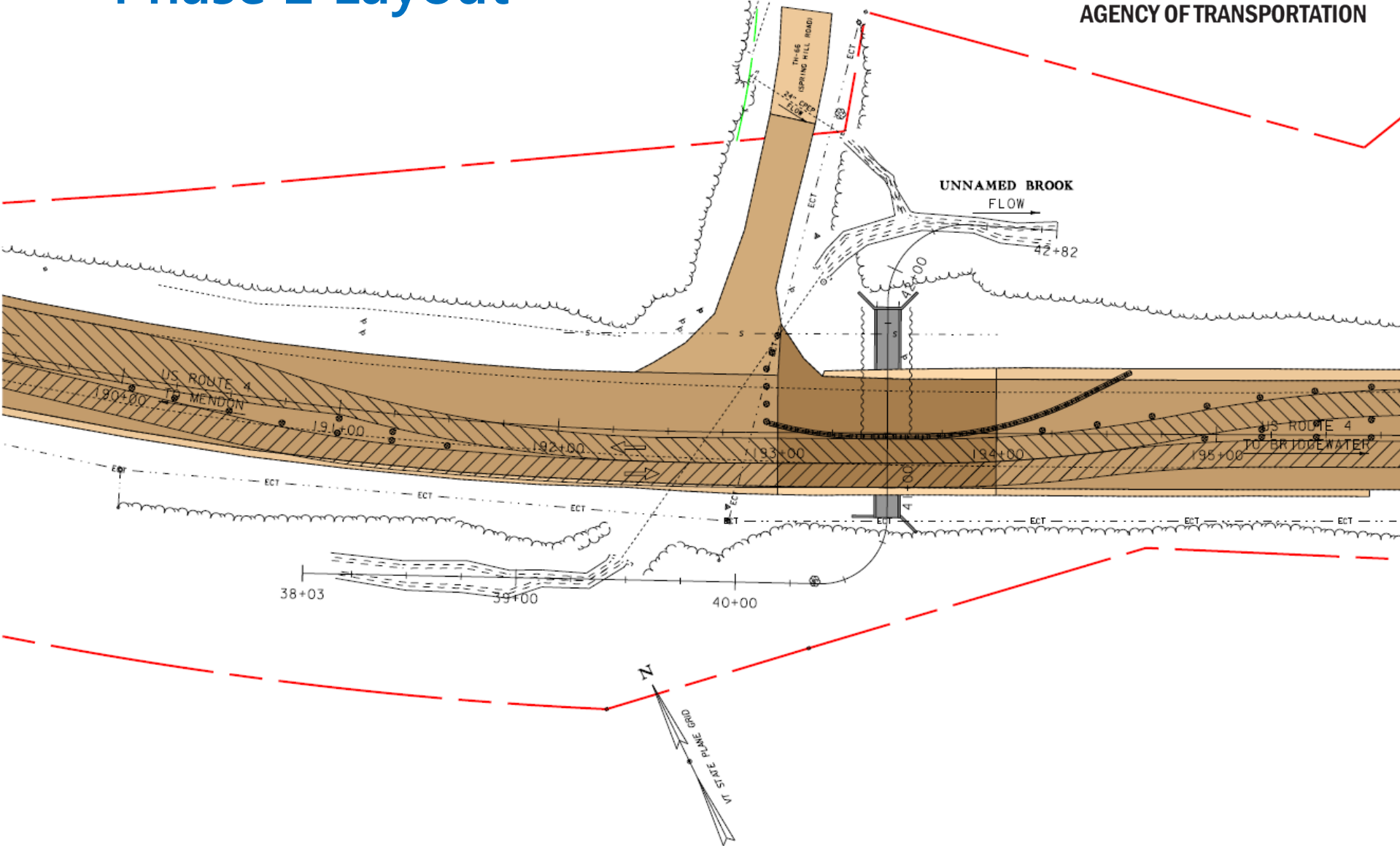
- Two-Way Traffic Maintained
- Work Completed in 2-phases



# Phase 1 Layout



# Phase 2 Layout



# Preliminary Project Schedule

- Construction Start – Summer 2023
  - Total Cost Estimate: \$2,540,000

# Project Summary: Bridge 30

- Culvert Replacement with a Precast Box and Traffic Maintained with Phased Construction
  - Contingent on borings
  - 10' x 6.5' waterway opening with invert buried 4'
  - Roadway widened: 6'-12'-12'-12'-8' typical
  - Aerial utility relocation
  - Potential impacts to sewer force main
  - 75-year design life
- Construction Year: 2023

## For more information:

- <https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/19B207>



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**Questions and Comments**

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