

# Stage Road Bridges



Public Information Meeting  
Town of Gilmanton, New Hampshire  
November 14, 2016

*Prepared by:*  
**Hoyle, Tanner**  
& Associates, Inc.

# Presentation Outline

- Hoyle, Tanner & Associates, Inc.
- Bridge Experience/Project Team
- NHDOT State Aid Bridge Program
- Project Discussion
- Questions



# Hoyle, Tanner & Associates, Inc.

- NH Based Engineering Firm
  - Established in 1973
- Experienced Staff of Transportation Personnel
  - Highway/Structures Group Staff of 19
- All Types of Structures
- Project Partners
  - Sanford Survey
  - SW Cole Engineering



# Bridge Experience/Project Team

- 94 Municipally Managed Bridge Aid Projects
- Project Team:
  - Sean T. James, P.E. – Project Manager, Vice President
  - Josif Bicja, P.E. – Senior Structural Engineer
  - Audrey G. Beaulac, P.E. – Transportation Engineer



# NHDOT State Bridge Aid Program

## ➤ Project Funding

- 80% from NHDOT
- 20% from Municipality

## ➤ Process

1. Engineering Study
2. Preliminary Design & Permitting
3. Final Design
4. Bid Phase
5. Construction



# NHDOT State Bridge Aid Program

## ➤ Main Requirements

1. Follow “Attachment B”
2. 24 Foot Wide Roadway Minimum
3. HL-93 Design Load
4. 75-Year Design Life
5. 1 Foot Freeboard over 50-Year Flood



# Project Discussion

- Services to Date:
  - Topographic Survey
  - Subsurface Borings
  - Hydraulic Analysis
  - Bridge Options Analysis
  - Draft Engineering Study



Soil Borings Operations



# Project Discussion

- NHDES Stream Crossing Rules
  - Accommodate 100-year Flood
  - 1.2 Times Bankfull or Greater Spans
  - Generally Longer Spans than in the Past



# Stage Rd over Nighthawk Hollow Brook

- Built in 1930, Rebuilt 1960
- 25' Clear Span
- I Beams w/Concrete Deck Superstructure
- Cast-in-place Concrete Substructure
- Generally in Fair Condition
- 810 Vehicles/Day



# Stage Rd over Nighthawk Hollow Brook

## ➤ Traffic Control Options

- Detour (8-10 Miles)
- Phased Construction
- Temporary Bridge



Temporary Bridge Project



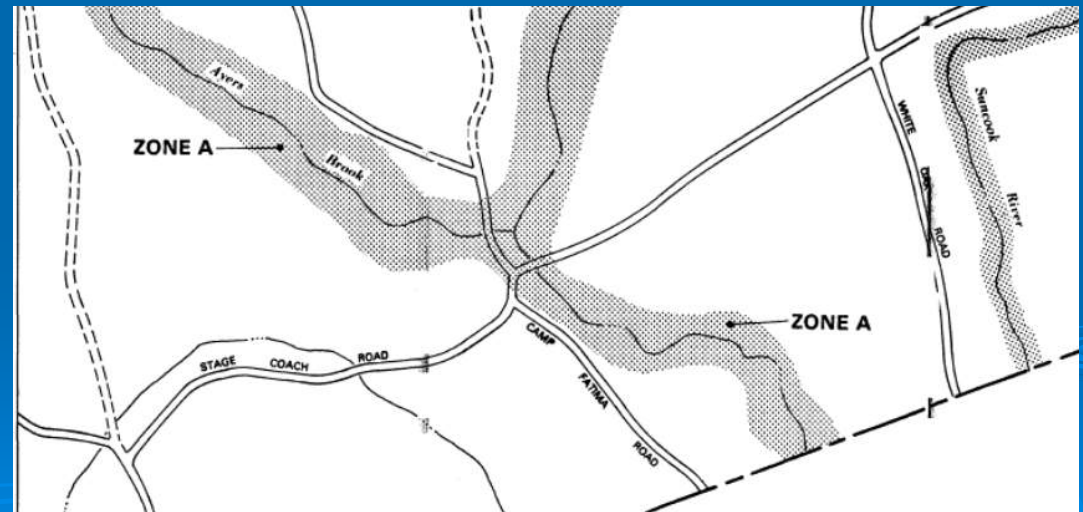
Phased Construction Project



# Stage Rd over Nighthawk Hollow Brook

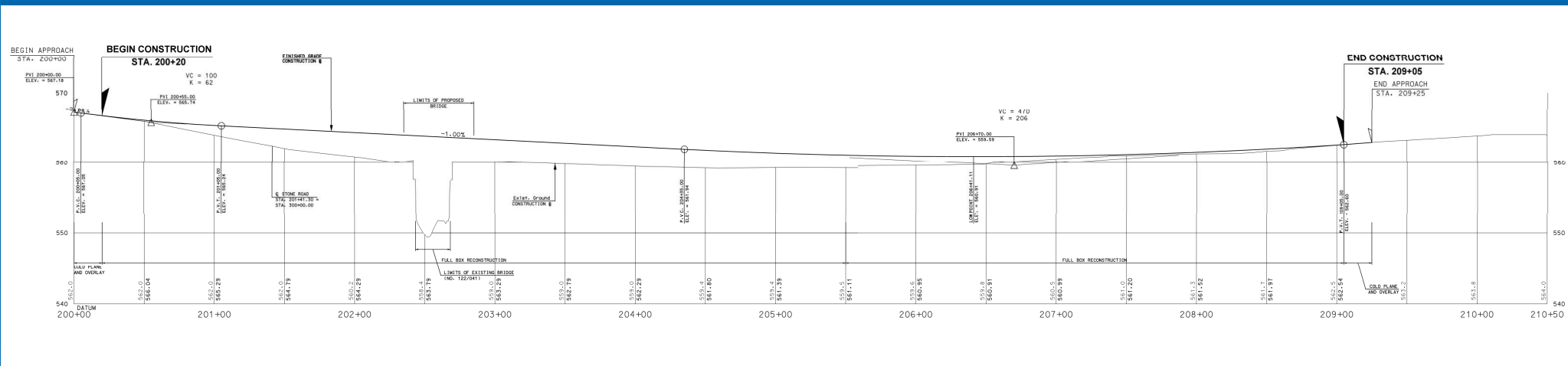
## ➤ Hydraulics

- FEMA Flood Zone A
- 50-Year Flood Event Overtops Road 18"
- NHDOT Requires 1' Freeboard at Bridge
- Raise Road Approx. 3'
- 50' Proposed Clear Span



# Stage Rd over Nighthawk Hollow Brook

## Roadway Profile



# Stage Rd over Nighthawk Hollow Brook

## ➤ Replacement Bridge Options

- Prestressed Concrete Deck Beams
- Prestressed Concrete Box Beams
- Steel Beams

## ➤ Scope of Work

- Raise Road Approx. 3'
- Replace Bridge
  - Concrete Deck Beams
  - Steel Pile Supported Abutment
- 925' of Roadway Reconstruction

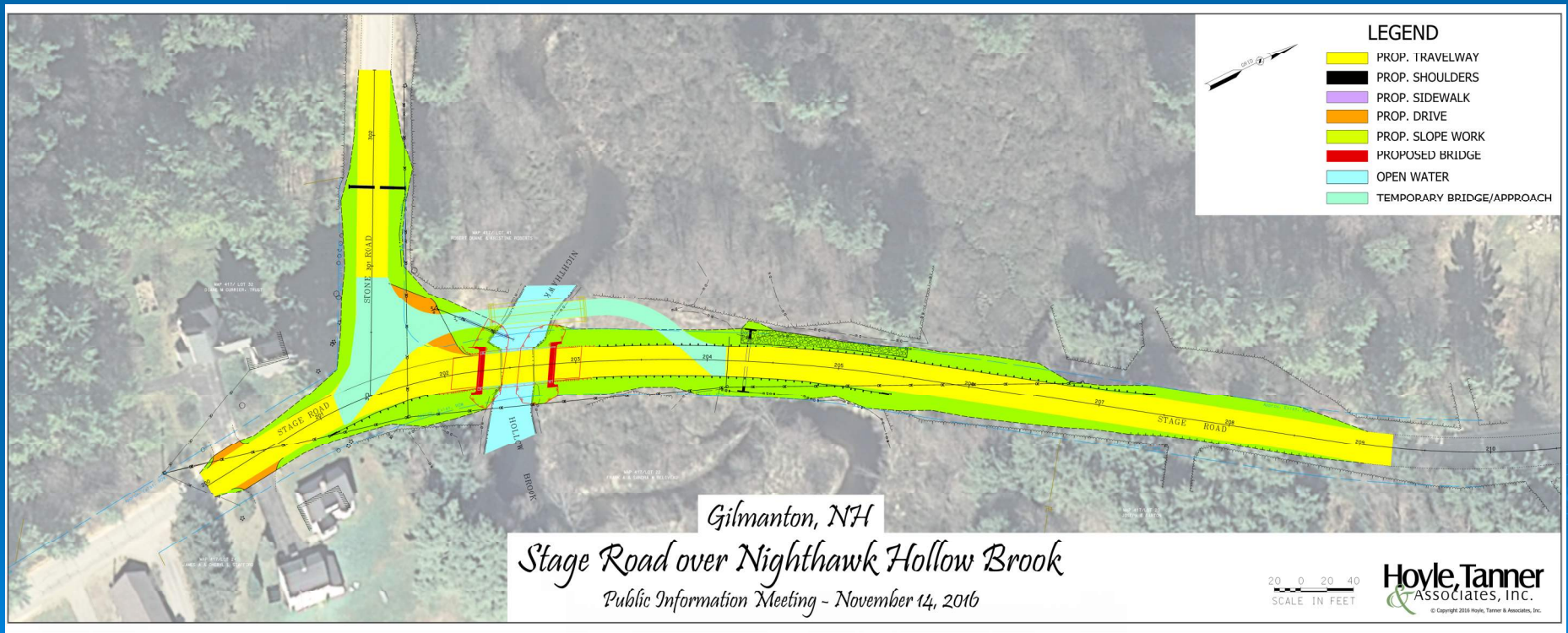


Clay Soil Sample



# Stage Rd over Nighthawk Hollow Brook

## Roadway Plan



# Stage Rd over Nighthawk Hollow Brook

## ➤ Prestressed Concrete Deck Beams Bridge Examples



Town Farm Road, Salem, NH



Crawley Falls Road, Brentwood, NH



# Stage Rd over Nighthawk Hollow Brook

## ➤ Project Schedule

- Complete Engineering Study – December 2016
- Preliminary Design and Permitting – February to August 2017
- Final Design – October 2017 to February 2018
- Bid Phase – November 2018
- Start Construction – April 2019
- Substantial Completion – October 2019
- Final Completion – May 2020



# Stage Rd over Unnamed Brook

- Built in 1930
- 10' Clear Span
- Concrete Slab Superstructure
- Cast-in-place Concrete Substructure
- Generally in Fair Condition
- 810 Vehicles/Day



# Stage Rd over Unnamed Brook

## ➤ Traffic Control Options

- Temporary Bridge Upstream of Crossing

## ➤ Hydraulics

- No FEMA Flood Maps or Study
- 50-Year Flood Event Adequate Freeboard
- 22' Proposed Clear Span



# Stage Rd over Unnamed Brook

## ➤ Replacement Bridge Options

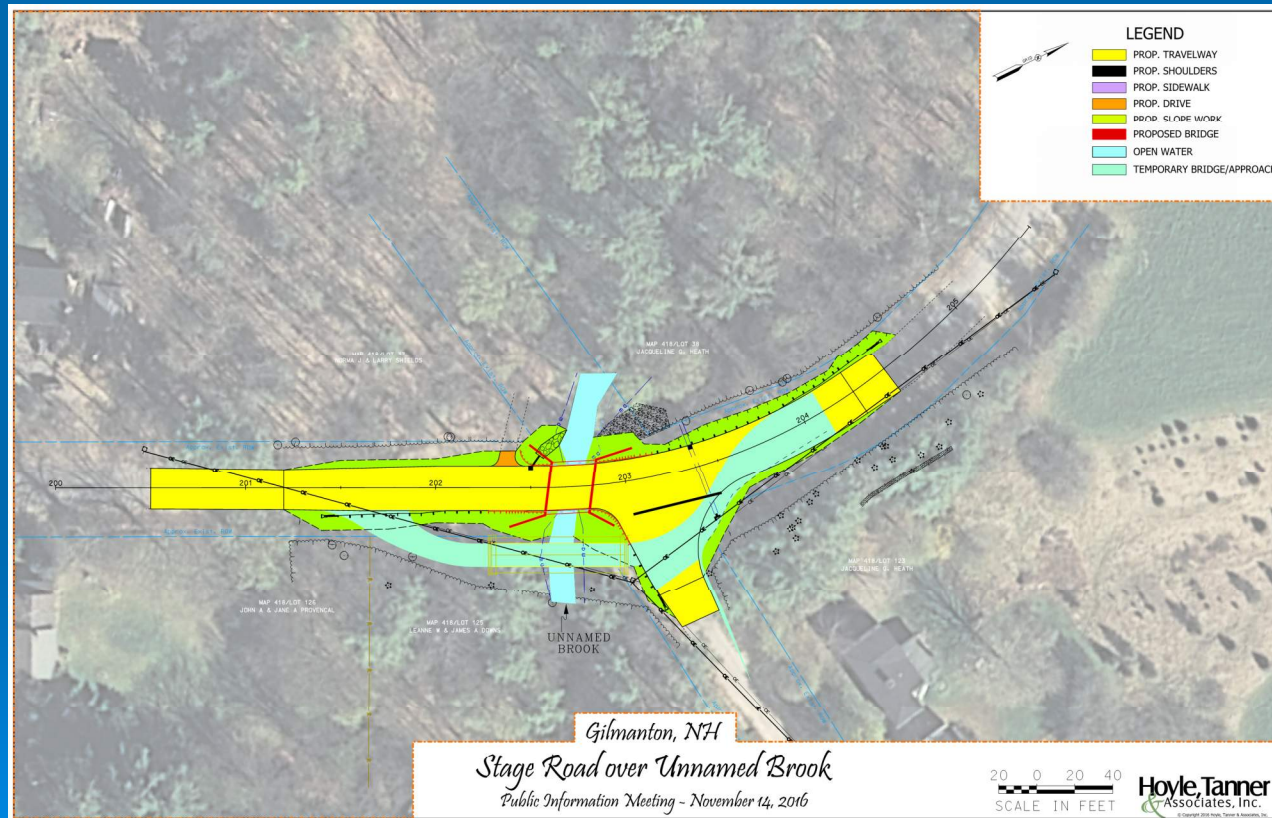
- Bridge in Backpack
- Precast Concrete Rigid Frame

## ➤ Scope of Work

- Raise Road a Maximum of 8"
- Replace Bridge
  - Concrete Rigid Frame
  - Spread Footings/Pedestal Walls
- 400' of Roadway Reconstruction



# Stage Rd over Unnamed Brook Roadway Plan

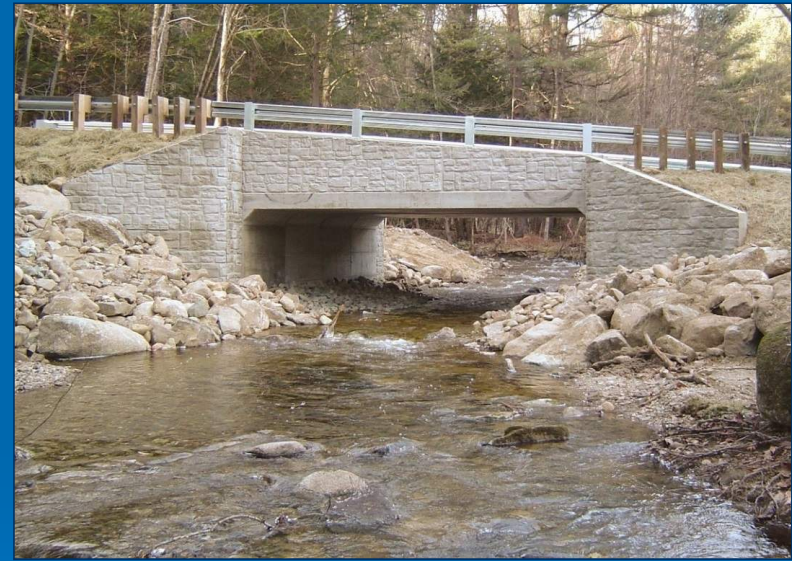


# Stage Rd over Unnamed Brook

## ➤ Precast Concrete Rigid Frame Bridge Examples



Cross Road, Sharon, NH



Verry Brook Road, Winchester, NH



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# Questions/Comments ??

