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ENGINEERING • PLANNING
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MEMORANDUM
(620922)

TO: Historic Covered Bridge Preservation Committee Attendees

RE: Historic Covered Bridge Preservation Committee
Waitsfield Village Covered Bridge
STP EH 08(6)
Meeting Minutes

DATE: June 9, 2011

The Vermont Historic Covered Bridge Preservation Committee met on June 9th, 2011 at VTrans' offices to discuss the referenced project. A list of attendees and a copy of the PowerPoint presentation is attached to this memo. The following was discussed at the meeting:

Evan Detrick updated the Committee regarding activities/progress since the last Committee meeting on April 1st, 2011. Since the April meeting, D&K has:

- Developed 4 alternatives for a self-supporting sidewalk
- Met with VTrans' Structures Engineers to discuss the alternatives, costs, and priorities
- Met with the Waitsfield Selectboard to provide an update, and discuss the alternatives

Evan Detrick presented the 4 alternatives using a PowerPoint presentation, and the Committee discussed numerous issues. The 4 alternatives are:

- Pre-fabricated glulam beams
- Pre-fabricated glulam trussed arch
- Pre-fabricated steel truss
- Sawn lumber queen post truss and Burr arch

The width of the sidewalk was discussed. The existing sidewalk is approximately 4'-2" rail-to-rail, and a question was raised: Would a width of 5'-0" be required for a new

sidewalk to be in compliance with ADA? It was generally thought that 4'-0" minimum would be acceptable, but D&K will discuss with VTrans' Bike and Pedestrian Coordinator, Jon Kaplan.

Because the new sidewalk will be self supporting and separate from the vehicular bridge, yet share a roof, the flexibility of the roof for differential movement was raised as a concern by Mike Hedges. The general consensus was that the vehicular bridge deflects very little during live loading, and that the roof system is flexible enough that any minor differential deflections will not be an issue.

Former Waitsfield resident Mary Alice Bisbee voiced her concern that the current sidewalk roof was changed in the 1970's when the sidewalk was reconstructed, and the roof is not historically accurate. She asked if the sidewalk roof could be rebuilt to its original (~1940) configuration as a separate, flatter roof. The Committee concluded that the change would not be necessary for the Section 106 clearance, and that it would be up to the Town to decide if they wanted to change it back. Concerns such as roof overhang, roof headroom clearance, rain and snow getting into the vehicular bridge, and additional costs were raised and need to be considered. This issue will be taken up with the Town Selectboard.

There was much discussion about materials and visual impact of the new sidewalk bridge. Scott Newman had concerns that a new trussed arch or the sawn lumber arch/truss structures would detract from historic context of the original bridge. He noted you don't want to confuse the actual historic elements with replicated historic elements, and you don't want to visually distract from the actual historic elements.

Charlie Hosford expressed his desire to have a custom made wood structure, and does not prefer the pre-fabricated laminate products, or steel.

Mike Hedges expressed his concern about a steel truss being hidden under wainscoting, and noted that it should be accessible and galvanized or painted.

Eric Gilbertson prefers the glulam beams, because they won't detract from the actual historic truss.

Scott Newman confirmed Eric's assertion that a new trussed arch or the sawn lumber arch/truss structure will not meet the Secretary of the Interior Standards.

Bob Durfee stated that steel is best option for longevity and John Weaver agreed. Charlie Hosford disagreed, and stated that he thought timber is the best option for longevity (as evidenced by the long standing timber bridge).

John Weaver stated that he thought the arch option would accentuate the existing sag of the main trusses.

The discussion of sidewalk alternatives concluded with Scott Newman stating that either the steel truss or glulam beam options would be acceptable in order to issue a Section 106 clearance, but that the trussed arch and the arch/truss structures would not be acceptable.

Charlie Hosford asked for a letter from Scott Newman stating his position so that his thoughts/conclusions could be shared with the Waitsfield Selectboard. Scott agreed to send a summary.

Evan Detrick stated the existing abutments are comprised of both field stones and concrete. Evan asked if the new abutment extensions could be made of concrete. A consensus was reached that the abutment extensions could be concrete.

Charlie Hosford expressed his concern that the existing vehicular bridge floor planks are badly worn and should be replaced, even if only the planks along the vehicle tracks can be afforded. He also expressed his concern about the need to replace any existing floor beams that are rotted or broken.

Evan Detrick discussed options for Add Alternatives. Including Add Alternatives in the final bid documents for items that may include timber and concrete repairs will be acceptable in order to fully utilize the available funding.

The conclusion of the meeting was that the project can advance with a separated sidewalk using either a steel truss or glulam beam system for support. No further meetings with the Committee will be required for this project, unless additional work is proposed in the future.

HISTORIC COVERED BRIDGE MEETING

6/19/11

<u>NAME</u>	<u>REPRESENTING</u>	<u>email</u>
EVAN DETRICK	DUBOIS & KING	edetrick@dubois-king.com
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MIKE HEDGES	VAOT	MIKE.HEDGES@STATE.VT.US



Historic Covered Bridge Preservation Committee Meeting June 9, 2011

Waitsfield STP EH08(6) Waitsfield Village Covered Bridge



Our last Committee meeting was held on April 1, 2011. At that meeting we heard:

- Estimated construction costs seem low
- Develop alternatives for decoupling the cantilevered sidewalk, and replacing it with a new self-supporting sidewalk
- Initially concentrate on the sidewalk replacement and substructure concrete repair; with other repairs in subsequent phases

Subsequent to the last meeting, DuBois & King has:

- Developed alternatives for a self-supporting sidewalk (4 alternatives)
- Met with VTrans' Structures Engineers to discuss the alternatives and the overall construction costs in detail
- Met with the Waitsfield Selectboard to provide a project update, and to discuss sidewalk alternatives
- Revised cost estimates for various options

Here today to discuss our findings, and the results of the meetings

Sidewalk Bridge Alternatives

DuBois & King investigated 4 alternatives for a self-supporting pedestrian bridge:

- Pre-fabricated, glulam beams
- Pre-fabricated, glulam trussed arch
- Pre-fabricated steel truss
- Sawn lumber queen post truss and Burr arch

Construction costs are similar for each pre-fabricated option

- Pre-fabricated, glulam beams \$140,000
- Pre-fabricated, glulam trussed arch \$123,000
- Pre-fabricated steel truss \$117,000

Construction costs are approximately 50% higher for the custom made arch

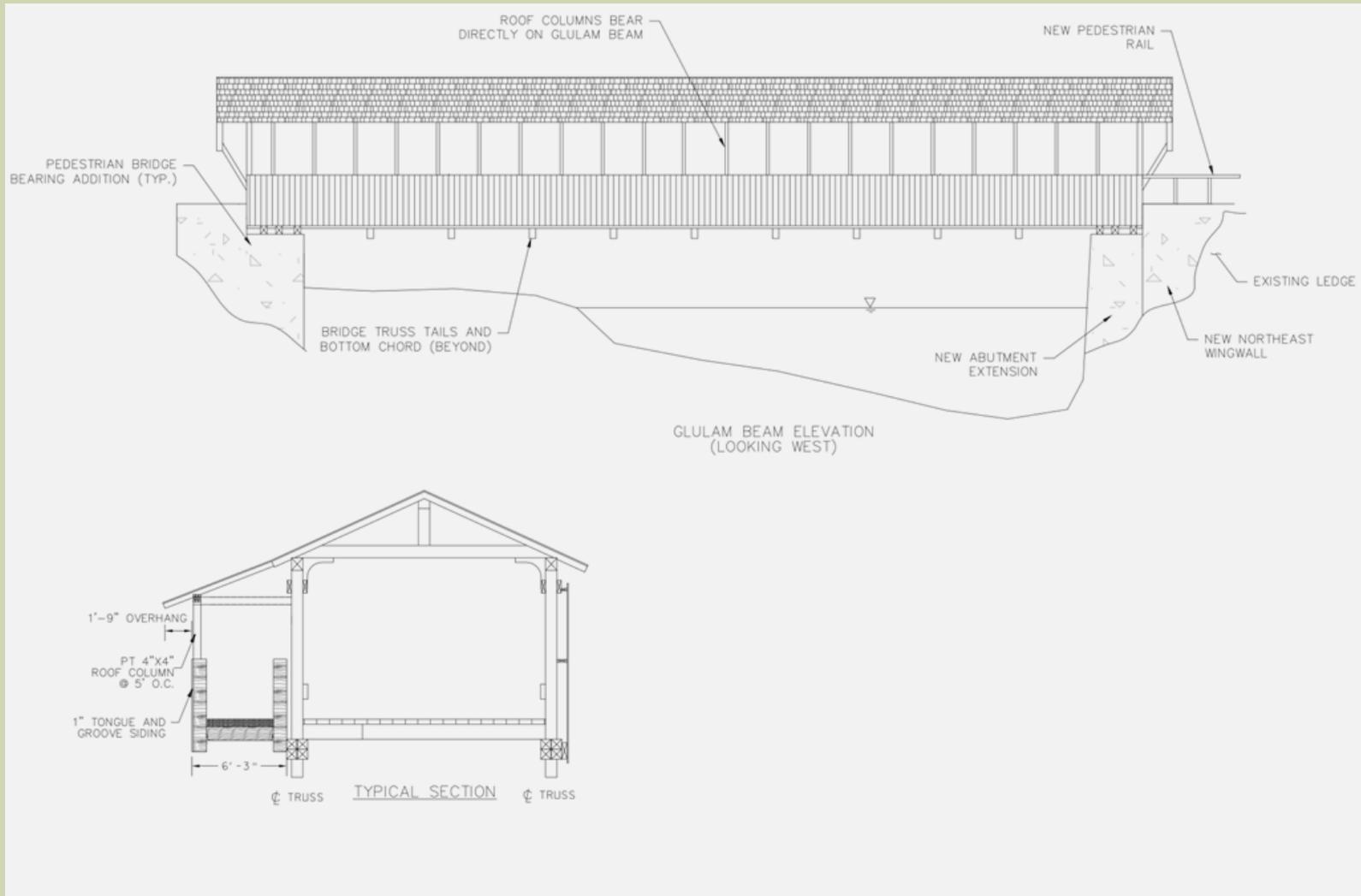
- Sawn lumber queen post truss and Burr arch \$185,000

Costs are for only bridge delivery and erection, and do not include demolition or abutments

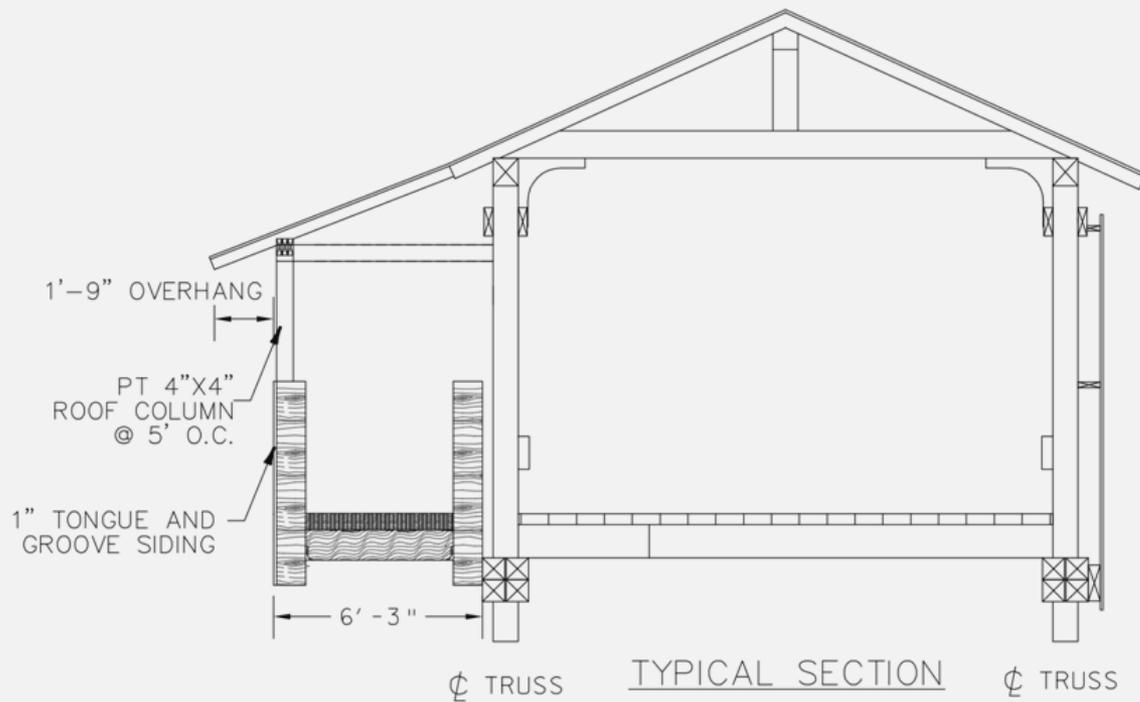
Pre-Fabricated Glulam Beams and Deck



Pre-Fabricated Glulam Beam and Deck



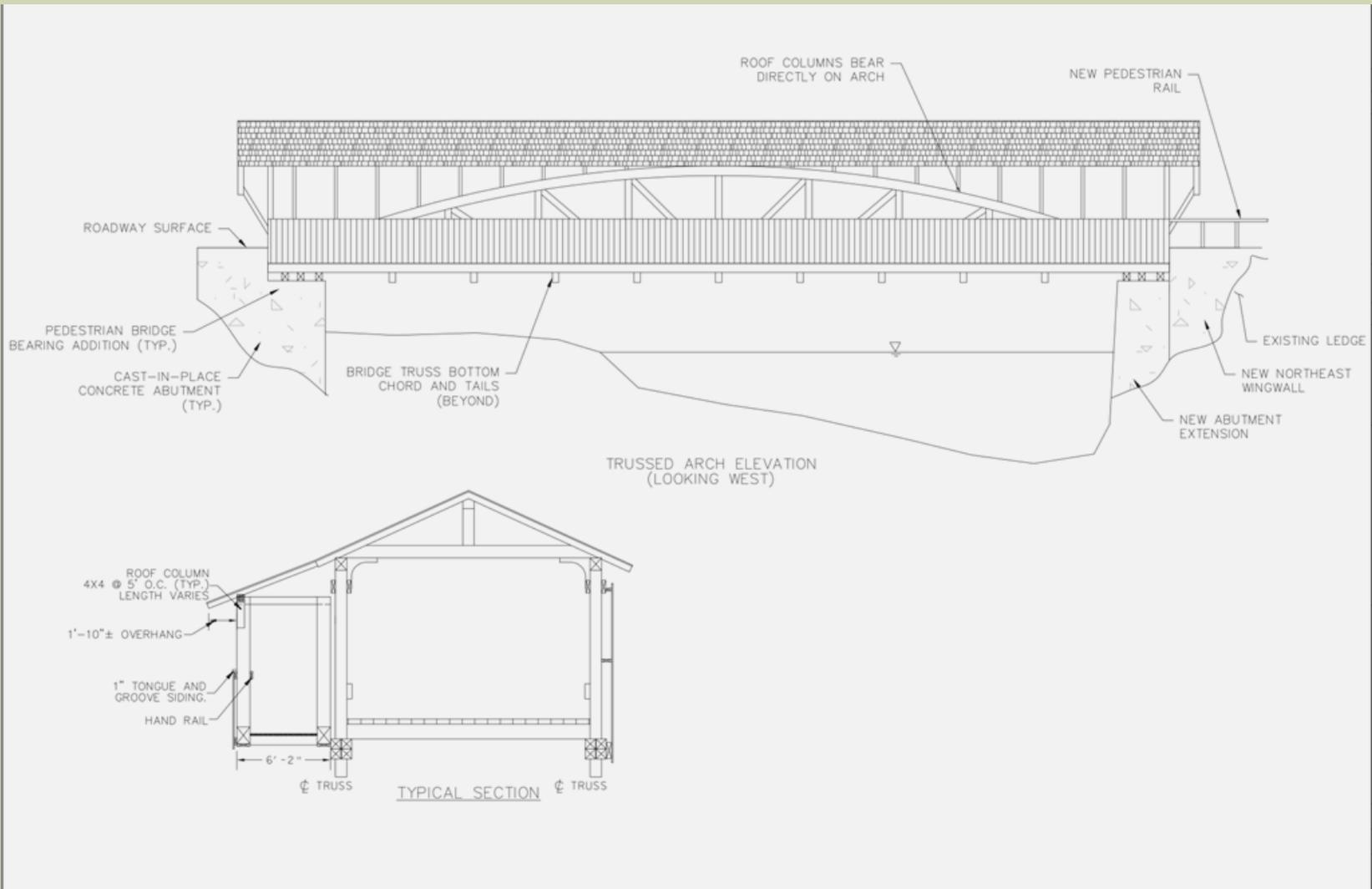
Pre-Fabricated Glulam Beam and Deck



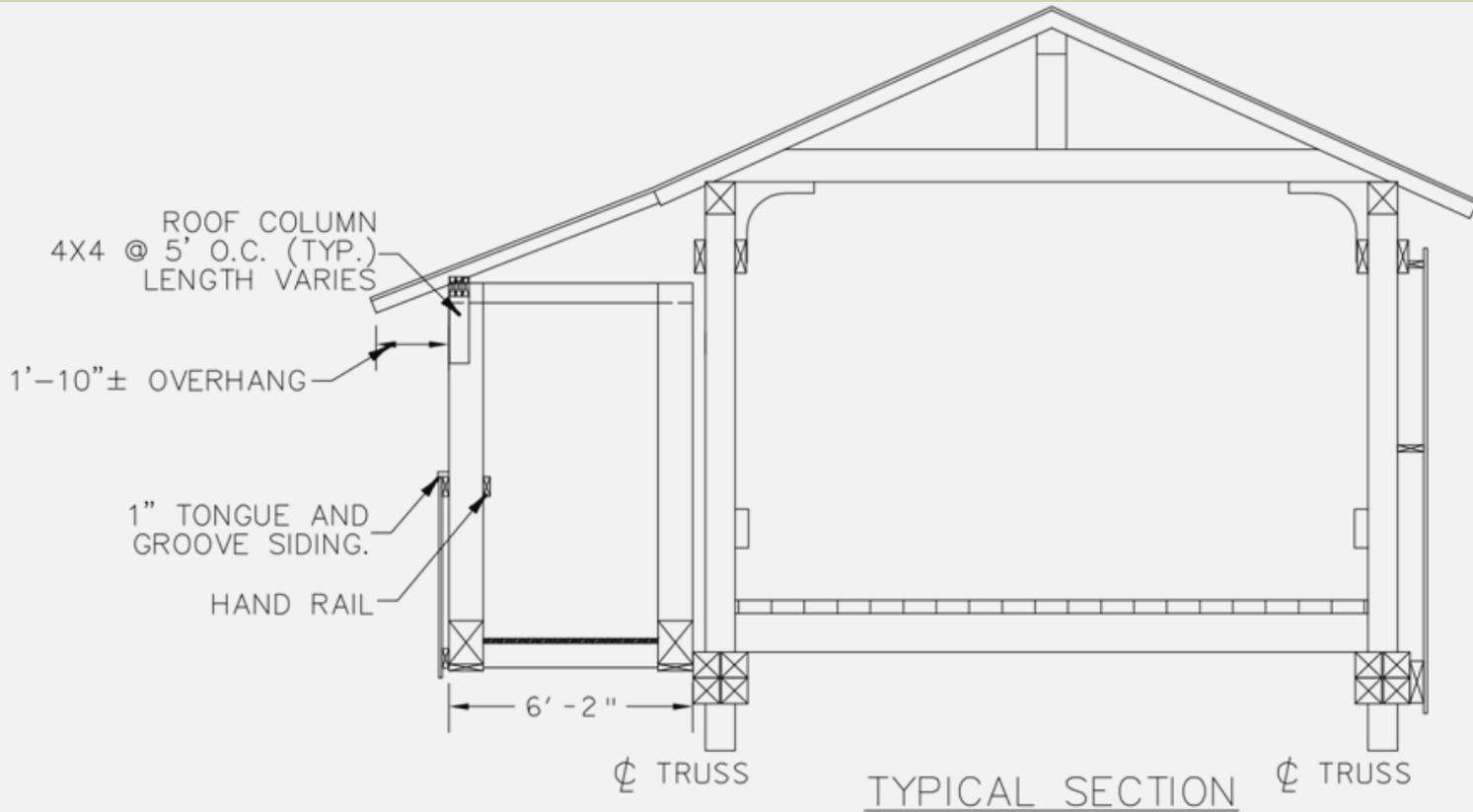
Pre-Fabricated Timber Trussed Arch



Pre-Fabricated Timber Trussed Arch



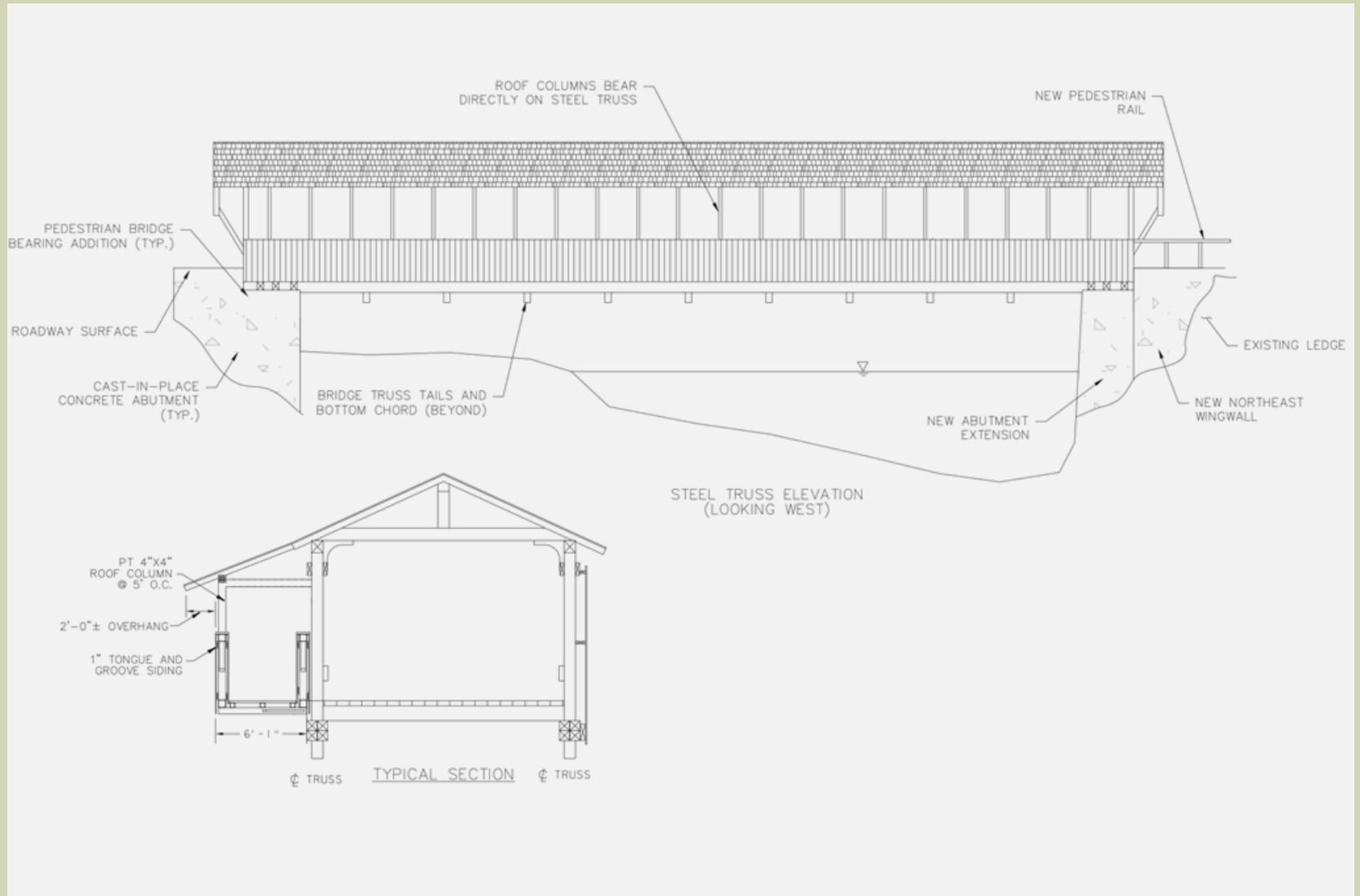
Pre-Fabricated Timber Trussed Arch



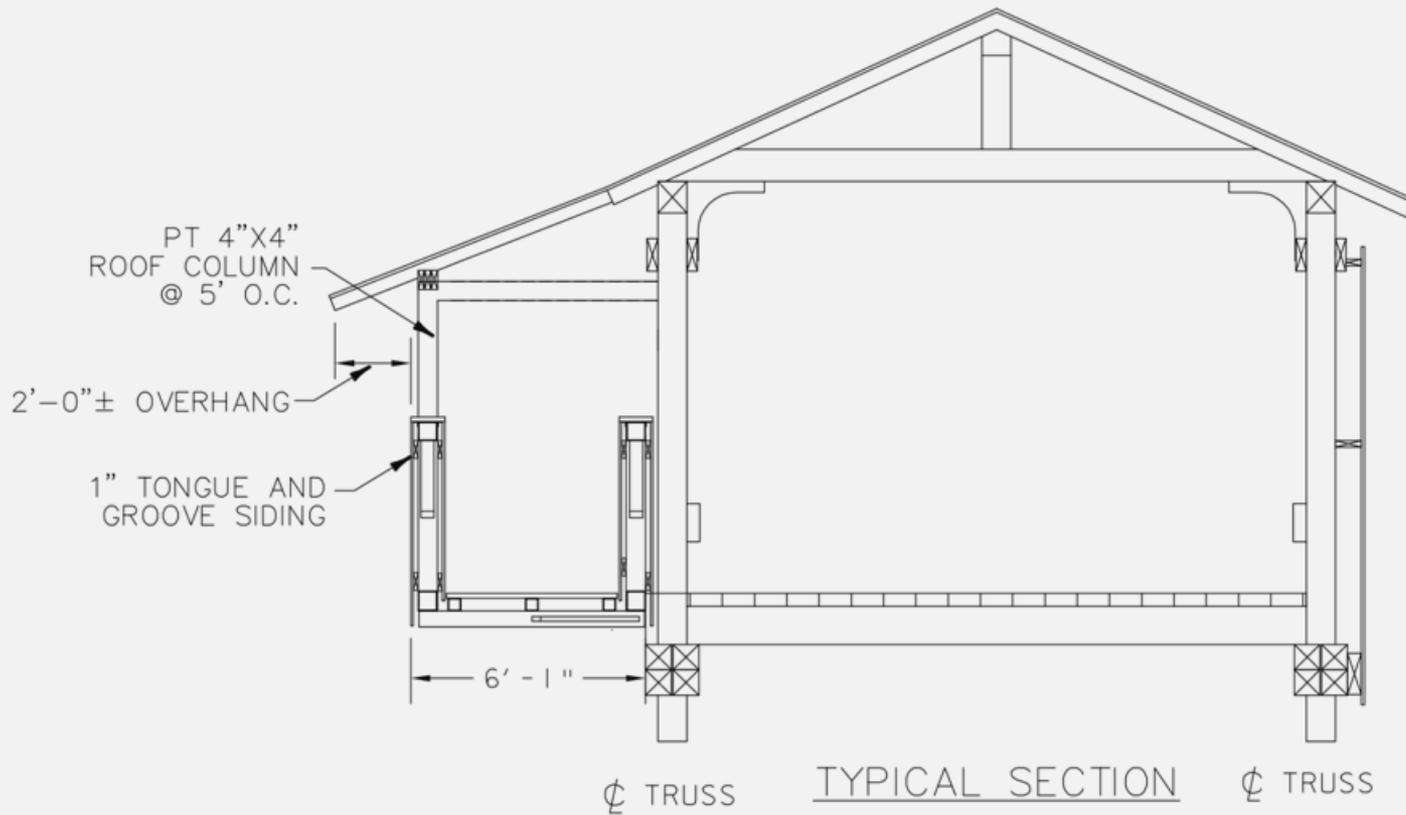
Pre-Fabricated Steel Truss



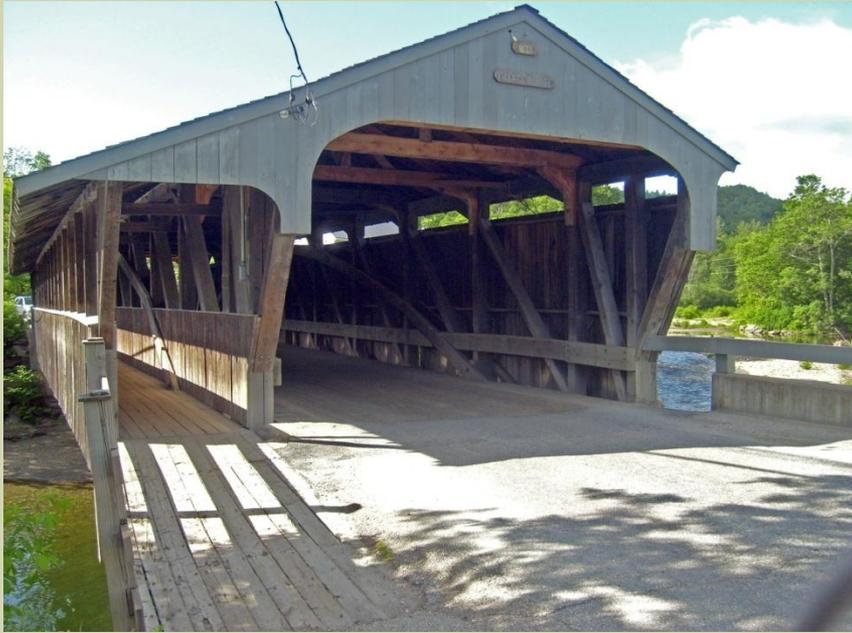
Pre-Fabricated Steel Truss



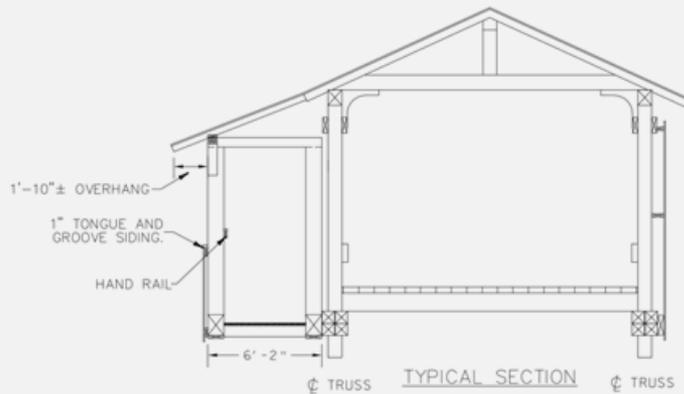
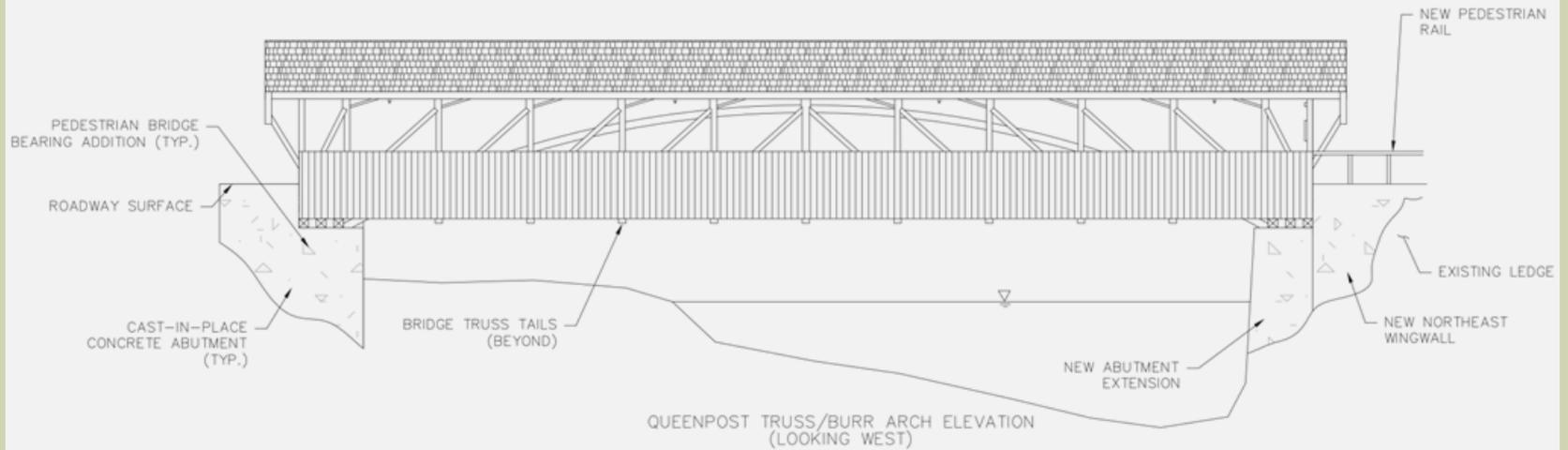
Pre-Fabricated Steel Truss



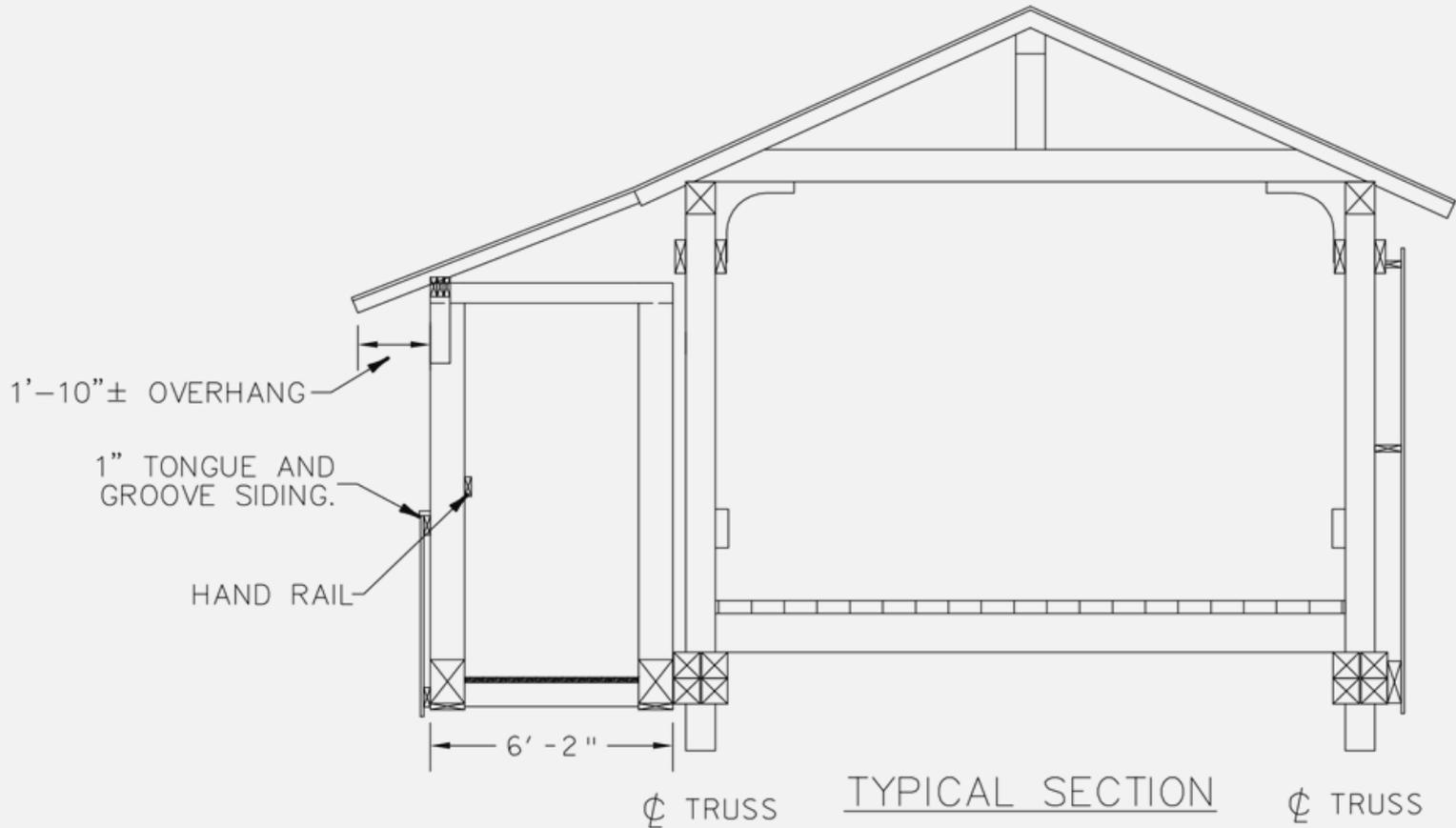
Sawn Lumber



Sawn Lumber Queen Post Truss and Burr Arch



Sawn Lumber Queen Post Truss and Burr Arch



Which Sidewalk Style is Preferred?

VTrans' Structures Engineer's opinion was that the glulam beam and steel truss configurations are probably not preferable, and either the glulam arch or custom made arch/truss would be acceptable. The Town could even bid the two as bid alternatives to see which has a better price if they have no strong preference.

Town's opinion (via Selectboard vote) would be to have custom made arch/truss because it seems more traditional. There is some concern about actual view of bridge from the outside, and that the look would be changed if the arch/truss configuration is chosen. The current view could be maintained if a steel truss or glulam beam were to be used.





Other Construction Components and Costs

Required for New Sidewalk

• Sidewalk bridge	\$185,000
• Demolish the existing sidewalk	\$ 12,000
• Construct abutment extensions to support the new sidewalk	<u>\$ 25,000</u>
TOTAL:	\$222,000

Other components that should be addressed as funding becomes available

• Repair existing concrete substructure elements	\$ 80,000
• Repair superstructure floor beams, roof rafters, decking	\$ 50,000
• Paint with fire protective coating	\$ 30,000
• Jack, shore, & rehabilitate trusses to eliminate decay & negative camber	\$150,000
• Signing improvements	\$ 2,000
• Guard rail replacement	<u>\$ 18,000</u>
TOTAL:	\$330,000

CONSTRUCTION TOTAL: \$550,000

Advance project in phases as funding becomes available

1st phase – Do now under current grant

- Replace sidewalk
- Extend abutments
- Repair substructure concrete elements

Subsequent phase(s) – Do whatever could be afforded under future funding

- Repair/Replace deteriorated timber members
- Rehabilitate trusses
- Add fire protective coating
- Signing and guardrail

Potential future funding could come from:

- TE Grant
- Town Structures Grant
- National Historic Covered Bridge Preservation Program

North abutment, East side under sidewalk



South abutment, East side under sidewalk



South abutment, East side under trusses



Downstream Elevation View



Upstream Elevation View



Existing sidewalk

