



Bridge Summary – Bruce Freeman Rail Trail - Phase 2C
March 15, 2010

The purpose of this brief memorandum is to provide a description/understanding of each structure location and the proposed scope of services to provide passage at these locations.

LOCATION 1: Bridge No. C-19-032 –Abandon Line over Nashoba Brook – Mile Marker 14.81

The existing bridge is a ballasted deck bridge approximately seventy (70) feet in length. The bridge is comprised of three (3) spans with two (2) piers located in the river.



The proposed solution at this location is to reuse the existing bridge and construct the trail on the bridge. The ballast material would be removed down to the existing concrete deck and a proper waterproofing system would be installed with the appropriate trail bed material. The bridge is wider than necessary to accommodate the trail, so the adjacent portion that is not necessary for trail use, will be maintained and retrofitted with a railing to provide a rest stop and viewing area.

The design activities associated with this structure include a detailed field assessment to identify any repairs/deficiencies associated with the existing abutments and piers and a field evaluation of the existing steel structure to determine if any repairs are necessary. It is anticipated that the existing structure has sufficient load capacity for the bike path and viewing area based on its historic use as a railroad bridge.

Sketch plans will be developed to confirm the proposed path configuration on the bridge and to identify any required repairs.

Final design documents include construction plans for ballast deck replacement with a bike path and viewing area. Rail attachment details and miscellaneous repair details, project specifications and construction estimate will be completed.



LOCATION 2: Bridge No. C-19-031 – Abandon Line over Assabet River – Mile Marker 15.16

The existing bridge superstructure has been removed at this location. The span between the remaining abutments is approximately ninety (90) feet.

The proposed solution at this location is to construct a prefabricated structure on the existing abutments.

Based on the proximity of this bridge to the West Concord train station and its crossing of the Assabet River, aesthetic details will be incorporated into the prefabricated structure.

The design activities associated with this structure include a detailed field assessment to identify any repairs/deficiencies associated with the existing



abutments and methods for modifying them to support the new structure. A field evaluation of the existing slopes will also be conducted to determine if any walls will be required to prevent intrusion into the adjacent resource areas. Project development activities will include meetings and discussions with prefabricated structure providers to determine appropriate structure type and details for this location.

Sketch plans will be developed to confirm the proposed structure geometry and type. It is currently anticipated that the structure will be single span. Approach grading and retaining walls will be investigated and schematically displayed.

Final design documents will include construction plans for abutment modifications, approach retaining walls, superstructure requirements and details, and railing attachments to adjacent viewing area. Specifications will be required to appropriately define the chosen bridge aesthetic qualities.



LOCATION 3: Bridge No. C-19-015 – Powder Mill Road over Abandon Line – Mile Marker 15.16

The existing structure in this location is a corrugated steel pipe arch that exists within the 20 foot embankment of Power Mill Road. The existing corrugated steel pipe arch is about 9 feet in diameter and approximately one hundred (100) feet long. The vertical clearance ranges from 6.5 feet to 8 feet. This structure was placed after the rail line had been abandoned.



The proposed solution at this location is to construct a tunnel along the same alignment as the corrugated steel pipe arch. A similar structure is pictured below.

An analysis will be performed to determine the most economical and least disruptive solution. The analysis will consider staged construction to allow Power Mill to operate as a one lane road and closing Powder Mill Road during construction. Structure options will include jacked concrete tunnels, cut and cover prefabricated tunnels and a new bridge structure. Traffic maintenance and duration of construction will be determining factors associated with the chosen solution.

The design activities associated with this structure include a detailed field assessment of the existing conditions and a geotechnical exploration program to determine the composition of the existing Power Mill Road embankment. Preliminary structures evaluations will be compiled in a bridge type selection worksheet to develop the chosen alternative and the associated impacts on traffic, considering cost and construction durations.



Sketch plans will be developed to present the chosen concept as required by MassDOT design procedures.

Final design documents will include construction plans for construction of a structure at this location including the tunnel and associated approach retaining walls to support the Power Mill Road embankment above. Specifications and plans will be developed based on the structure type, staging of construction, potential jacking procedures, and structure details.