Bridge NY 2018 Pre-Review Response to Comments

Town of Brookhaven Culvert 1

Specific Comments regarding Scope are addressed as follows:

1. Culvert dimensions: The new culvert will be 20' wide, 4' high and 74' long.
2. Reconcile plan / profile: 425' of road profile will be modified to remove the existing one-foot grade change between the east-bound and west-bound lanes; and will be graded to match existing grades at the eastern and western-most limits of the project. A new high point will be created in the road at the centerline of the new culvert, and new low points created to accommodate the new drainage structures. The new road bed will be a solid asphalt base, running 50' curb to curb along the entire project limits.

Specific Comments regarding Estimate are addressed as follows:

Revised costs estimates are provided as an attachment.
The budget is amended by adding $30,000 to the project design if drainage design and construction cannot be accomplished using in-house staff and drainage requirement contracts for construction. The design estimate is as follows:

Update topo: $10,000
Planning design: $25,000
Permitting: $10,000
Final Contract Documents: $42,000
Bid review / opening: $3,000
Total: $90,000
New Design Total: $120,000

The culvert project is part of a larger project to address flow issues for the Carmans River. The proposed budget is for those costs yet to be incurred and do not reflect previous expenditures. Cost estimates are below DOT's anticipated budget due to several cost saving factors. Preliminary design costs are not included in the project budget because the project was designed by our in-house licensed professional engineer. Topographic survey was completed as part of the new spillway and fish passage installed in 2017. The dam study analysis report was completed as part of the previously installed spillway project. Hydraulic analyses calculations, typically needed for the culvert design, have been extrapolated from the 2017 spillway project and summarized in the preliminary hydraulic analysis report prepared by Gregg Kelsey, Assistant Town Engineer, licensed to practice in the State of New York. NYSDEC freshwater wetlands permits are in effect for the spillway project. The permit will be modified to include the culvert work.

Construction cost are lower due to the availability of Town requirements contracts, which go through an annual bid process. This allows us to budget and plan for projects on a line

item basis based on existing agreed upon costs for materials and labor. However, Part C construction estimate was revised to reflect the need for dewatering, clearing and grubbing, and a 10% contingency. Revised individual line item costs were updated to reflect new requirements contract unit prices recently negotiated.

Specific Comments regarding Delivery Risk are addressed as follows:

Existing utilities adjacent to the culvert on the south side are water and gas. The water main is a 16" diameter main inside a 24" diameter steel conduit that is suspended over the Carmans River, approximately 4' above grade and 6' off of the existing culvert frame. The water main is proposed to stay at the current location and elevation, only impacted by the modification of the culvert wing walls which will be poured-in-place concrete. Temporary support of the pipe will be provided during construction and monitored by the utility owner, Suffolk County Water Authority. The gas main appears to be a 4" main that will be temporarily removed and replaced by the utility owner, National Grid. It is anticipated that the utility may take this opportunity to upgrade their utility protection equipment by installing a steel sleeve or other support / insulation.

Existing utilities adjacent to the culvert on the north side are street lighting and telephone. The telephone conduits consist of one 15" steel conduit and two 4" steel conduits running alongside the culvert. The 15" steel conduit is 3" off of the existing culvert headwall, which is about 4' above the Carmans River. The two 4" steel conduits abut the culvert headwall. The utility company, Verizon will need to raise the conduit to accommodate the new culvert. The street lighting conduit is a 2.5" steel conduit with electric cables providing power to the existing ground mounted street light on both sides of the culvert. The conduit will likely need to be raised to accommodate the new culvert. Street lights are owned and operated by the Town of Brookhaven Street Lighting Division.

Maintenance, protection and scheduling coordination of utilities are a customary practice and are addressed at the utility preconstruction meeting. Utilities generally take these opportunities to upgrade their systems where needed. Any cost associated with protection and or relocation of utilities are absorbed by the utility company.

Additional Comments Regarding application are addressed as follows:

1. The existing culvert is 46" high measured from the bottom of the timber decking to the stream bed. The width of the culvert is 17'-4", as measured parallel to the centerline of the road. The culvert is 23° skewed from the roadway, as measured off the topographic ACAD drawing, which calculates to a 16'-0" wide culvert, perpendicular to the flow of the Carmans River.
2. The Dam / Hydrology report is provided as an attachment. The report was prepared by Gregg Kelsey, PE and includes *the Dam Evaluation Report for Willow Lake Dam,* dated

November 16, 2012. The report provides calculations to support the culvert design at 20'. A new spillway and fish passage were completed in 2017. These new structures are 50' and 15' respectively, north of the culvert. The new culvert takes into consideration the new structures and is sized to exceed the anticipated 100-year storm event, calculated at 176 cfs, which is slightly higher than the 169 cfs estimated in the fish passage report. The Dam Evaluation Report, dated November 2012 utilized historic gage data from 1943-2010 and the US Army Corps of Engineers Statistical Software package to determine the discharge rate for a 100-year event.