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May 15, 2018

Mr. Thomas Herits
Maser Consulting P.A.
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701

Re: Kahn Pedestrian Bridge –Structural Follow up Report
Graham Ave.
Metuchen, NJ 08840
MC Project No. MET-294

Dear Mr. Herits:

As noted in our initial bridge report dated 2/2/18, further evaluation of the above-mentioned bridge was required to determine the extent of rust and deterioration on the bridge's two stringers. On 4/20/18, our office conducted a more thorough investigation of the bridge's condition. Our investigation included sound testing with a hammer the full length of both stringers' bottom chord and additional visual observations above and below the bridge. Assisting Maser Consulting during the site visit was the Department of Public Works. Please refer to our original report dated 2/2/18 for additional information.

Structural Observations

Upon sound testing the bottom chord of the East stringer with a hammer, our office observed that the tube steel bottom chord of the stringer is rusting on the inside (see photos #1, #2 and #3). This condition was observed at multiple locations along the stringer's length. Some interior rusted areas that were exposed by sound testing included locations that still had paint on their exterior face and no visible rust on the outside. At the center splice connection of this stringer's bottom chord, our office observed severe rust and deterioration in the stringer members, splice plates and splice plate bolts (see photo #4). At the splice, it also appears that the ends of the bottom stringer chords do not have a closure plate. This has left the tube steel chord open to water infiltration.

The South half of the West stringer's bottom chord has visible rust and deterioration (see photos #5 and #6). But upon sound testing those areas with a hammer, the rust at this stringer appears to be on the exterior and not on the interior like the other stringer. The condition of the center splice connection of this stringer's bottom chord has the same deterioration as the East stringer (see photo #7). In addition, at this splice, no end closure plates were observed at these tube steel chords either.

Our office also observed areas of surface rust in the steel framing supporting the underside of the timber walkway planks (see photo #8). While not of an immediate concern, this rusting needs to be addressed by scraping the deteriorated areas and repainting the steel.

Summary and Recommendations

Based on our further observations, the rust in the West stringer and underside of walkway steel support framing could be addressed by scraping the rust, repainting the steel and providing new



welded steel reinforcement where needed. However, due to the results of the sound testing of the East stringer, the condition of the East stringer's bottom chord is in worse condition than what was observed in our first bridge review. The rust and deterioration of the bottom chord in the East stringer appears to be due to water that has penetrated the interior of the tube and is causing the member to rust on the inside. The location of this water infiltration could be at the open ends of the chord at the stringer's center splice. Since the rust is occurring on the inside of a closed tube steel, the full extent and degree of the rust cannot be completely seen nor definitively determined. The unknown amount of deterioration and rust on the inside of the stringer's bottom chord has made the bridge's structural stability extremely uncertain.

Based on this additional investigation and findings on the East stringer, our previous evaluation noted in our 2/2/18 report needs to be modified. It is our recommendation that the bridge should be completely taken down as soon as possible and replaced with a new bridge.

Our office evaluated the possibility of cutting and removing the bottom of the East Stringer's chord and replacing it with a new chord member. However, we determined that it would not be feasible and cost prohibitive to proceed with this direction due to the amount of cutting and rewelding at each panel point for a new chord replacement, the work needed to repair the splices, repairs needed at the West stringer, repairs needed at the underside support framing and the need to take the bridge down anyway to do the required repair work.

Manufacturer's Review and Estimated Replacement Cost

Our office contacted the original manufacturer of the bridge, Contech Engineered Solutions LLC, for their assessment. Jerry Scheider of Contech conducted a site visit to the bridge and determined that repairing the bridge would not seem to be feasible considering the amount of work that needs to be done. He also recommends that the bridge be replaced. Please find below the manufacturer's estimated material only cost for a new bridge. Removal, erection and installation costs are not included.

- Cost for new in-kind replacement bridge: \$115,000
- Cost for same bridge with galvanized and painted steel: \$190,000

Our comment from the 2/2/18 report still remains; both ends of the bridge are to remain closed to all pedestrian traffic until the bridge has been replaced.

I trust this letter addresses your concerns. Let us know if we can assist you with any further investigation. If you have any questions or require additional information, please do not hesitate to contact me.

Very truly yours,

MASER CONSULTING P.A.

A handwritten signature in blue ink, appearing to read 'W. Doll', is written over the printed name.

William Doll, P.E.
Project Manager

WD/dm



(Photo #1) East Stringer: Rust on Underside of Bottom Chord



(Photo #2) East Stringer: Rust on Interior of Bottom Chord



(Photo #3) East Stringer: Rust on Underside of Bottom Chord



(Photo #4) East Stringer: Rust at Splice Connection



(Photo #5) West Stringer: Rust on Bottom Chord



(Photo #6) West Stringer: Rust on Bottom Chord



(Photo #7) West Stringer: Rust at Splice Connection



(Photo #8) Rust at Underside of Plank Support Steel