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**November 21, 2020**

To: Mobile Manor Board of Directors

Re: Bridge load deflection test

Upon the request of the Mobile Manor BOD, I designed and performed a load deflection test on the footbridge owned in part by Mobile Manor Inc. The purpose of the test was to determine the structural integrity of the bridge for pedestrians and/or golf carts.

The exact history of the bridge is unclear, however it appears to be at least 40 years old, Upgraded at some time from a wooden footbridge to a dual precast concrete girder structure. The girders support a reinforced concrete deck.

The test was a simple deflection performed as follows: An optical transit was set up and leveled approximately 50 feet perpendicular to the bridge. No load level marks were established on the four railing posts, nearest the high point of the bridge. Three battery powered golf carts, weighing approximately 1200 lbs. each, with driver were driven on to the bridge one at a time, with observations of the level marks taken between each one.

The results were: there was no change with one or two golf carts on any post and no change in three of the four posts with three carts, the remaining post seemed to deflect 0.25 inch. However the deflected post did not return to its original position after the load was removed, It should be noted the computed max deflection is 0.40 inch for a span of this size to determine safe working load. A post test inspection of the girder/abutment connection has determined the girder has settled in to an existing gap, accounting for the 0.25 inch deflection at the adjacent post.

Conclusion: This test indicates the bridge has a minimum safe working load of around 3.600 lbs. and has passed a structural integrity test for the weight used.

Recommendations: Until some maintenance repairs (see list below) are made, golf carts should be restricted, but it will be safe for bicycles and pedestrians.

Maintenance Items (To extend the lifespan of the bridge): Inspecting and sealing the girder cable ends (both ends), Installing slider plates between the girder bottom and the abutment(s) (to

allow for expansion/contraction) Filling the eroded area on the west end with slurry, with edges sealed to prevent further erosion.

After the repairs are completed, and if the board agrees to allow golf carts, I would recommend considering restricting the bridge to one golf cart at a time and signs posted to indicate this policy. The reasoning being, a golf cart with four people could easily exceed 2,000 lbs. and two carts could exceed our test safe load limit,

FYI, my experience in doing concrete and steel structure testing comes from three years as a Field Engineer and Quality Control Inspector, performing tests for Flour Inc. at the pump stations along the Alaska pipeline construction project.

If you require any other further information about this project, please do not hesitate to contact me.

Sincerely,

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John W. Horan P.L.S. #5081 (retired)