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STRUCTURAL REPORT

MEXICO BEACH PIER

PREPARED FOR:

THE CITY OF MEXICO BEACH

PREPARED BY:

G. S. PREBLE ENGINEERING, INC.

PROJECT # 001.088

DATE: March 15, 2016

G.S. Preble Engineering, Inc.

2822 Remington Green Circle • Suite 201 • Tallahassee • Florida • 32308

March 15, 2016

Mr. Mell Smigielski
City Administrator
City of Mexico Beach
114 N. 22nd St
Mexico Beach, FL 32410

RE: City of Mexico Beach Fishing Pier
Our Project # 001.088

Dear Mr. Smigielski:

As you requested we conducted a site visit and review of the structural condition of the Mexico Beach Pier. Mr. Hall of your staff and Ms. Bautista of Preble-Rish, Inc. were in attendance. Here is a report of our finding and recommendations:

General Information

To our knowledge, no previous reviews or reports have been done on this structure.

Please note that our review was limited to what we could see from above and below the pier, without entering the water. We did not conduct any load tests, material tests or any other kind of test.

The pier is currently being used for its intended purpose, and there was no indication of overloading or misuse/abuse.

Our site visit/observation found a number of structural defects, some minor and some urgent as follows.

Description of Existing Pier

This pier is was basically comprised of three separate sections:

- The first section was constructed in 1965 (?); it begins at the south end of S. 37th street and extends a distance of about 400 ft. over existing dunes to the waterline (reference Photograph A attached). It once extended out into the Gulf but that part was destroyed in by Hurricane Eloise in 1975.
- The second section was completed about 10 years ago and extends from the end of the first section another 150ft out over the water.
- The third section was added about 8 years ago and stretches from the end of the second section another 260 ft. out into the Gulf of Mexico, it includes a 60 ft. "T" section at its terminus (reference Photograph C attached).

- The entire pier is 810 ft. long, 14 ft. wide and constructed of timber beams and timber pilings except that a small number of the pilings (the ones for the "T" section) are fiberglass and some of the "T" section bracing is steel. The deck is approximately 16 feet above the standing water level and the water depth varies from 0 ft. at the shore to 9 ft. at the "T" section.

Problems Detected

1. Many of the hand rails and their support posts are damaged or loose and need attention (reference Photograph D attached).
2. There is evidence of pile settlement and misalignment which has resulted in an un-even deck surface (reference Photograph E attached). This detracts from the overall appearance, however it does not concern us from a structural standpoint.
3. Many of the timber beams, bracing and connectors that comprise the original portion of the pier are, understandably, deteriorated due to their advanced age and the harsh environment to which they have been subjected. Some beams are warped, checked or cracked many of the connectors (bolts, brackets) are missing or badly corroded (reference Photograph F attached) and some of the bracing is broken. It is evident that quite a bit of repair work has taken place, especially on the pilings; crutch piles where they are rotten at the ground line and shim plates (reference Photograph G attached) either to compensate for settlement or to replace a rotted top section of pile. Luckily though, the original design/construction was so conservative that even in its deteriorated condition we believe it is structurally adequate for the time being. The timber beams, pilings and connectors that comprise the two pier extensions, except as noted below, are still in good shape.
4. The fiberglass pilings that support the "T" section have a plastic coating that protects the fiberglass from ultra violet light (reference Photograph I attached). This coating has delaminated from the pilings and left the fiberglass exposed. Also, some of the steel bracing and connectors are rusted (reference Photograph H attached). These issues need attention, but are not urgent or critical at this time.
5. Several of the piling at the shoreline are completely rotted thru and were repaired in a shoddy manner, in one case, the middle support piling is missing (reference Photograph J attached). This is a cause for alarm and we recommend immediate repairs.

Recommendations:

Generally speaking fishing piers in the Gulf of Mexico, especially timber piers, have a very limited life expectancy as they are not strong enough to resist the wind and wave forces associated with hurricanes or even tropical storms. With that in mind we recommend limiting repairs to only that which is necessary as there is a possibility that the next storm might destroy the whole pier.

Here are our recommendations for repairs:

Replace the missing pile and the ones that were poorly repaired. At least three section of the pier (45 ft.±) will have to be temporarily removed and set aside in order to conduct this work. These sections can be re-used if handled carefully.

While a contractor is mobilized to do this work it would be a good time to:

- Replace damaged or rotted hand rails and posts, re-tighten and or replace loose nuts and bolts.
- Replace broken bracing members
- Recoat the fiberglass pilings (paint them).

In addition we recommend that you schedule periodic structural reviews to keep an eye on the hardware and connectors associated with the "T" Section bracing. Within a few years, you will need to replace them.

We recommend that you limit the number of people allowed on the pier until the repairs can be completed. Do not host events or other activities that would attract large crowds. If this is unavoidable then at the minimum you should replace the missing pile and tighten up/repair the hand rails.

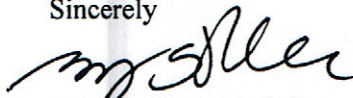
Opinion of Probable Cost:

We would expect that the cost of these repairs, including both urgent and non-urgent, will be in the order of to \$150,000 if all are done at one time. Professional service would be additional.

We expect that the pier would be closed to the public for a month while the piles are being replaced, and that the rest of the repairs could be done while the pier is open to the public. In addition you should allow three or four months for the preparation of construction plans/specifications, permitting (if needed), to allow time for bidding and construction contract awards.

Please call if you have any questions or need additional information.

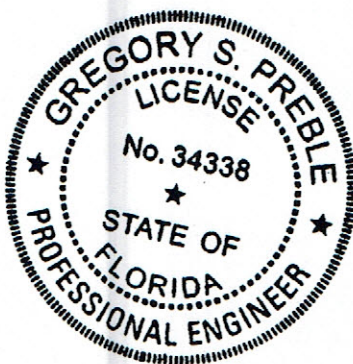
Sincerely



Gregory S. Preble P.E.

ATTACHMENTS

- *PHOTOS*





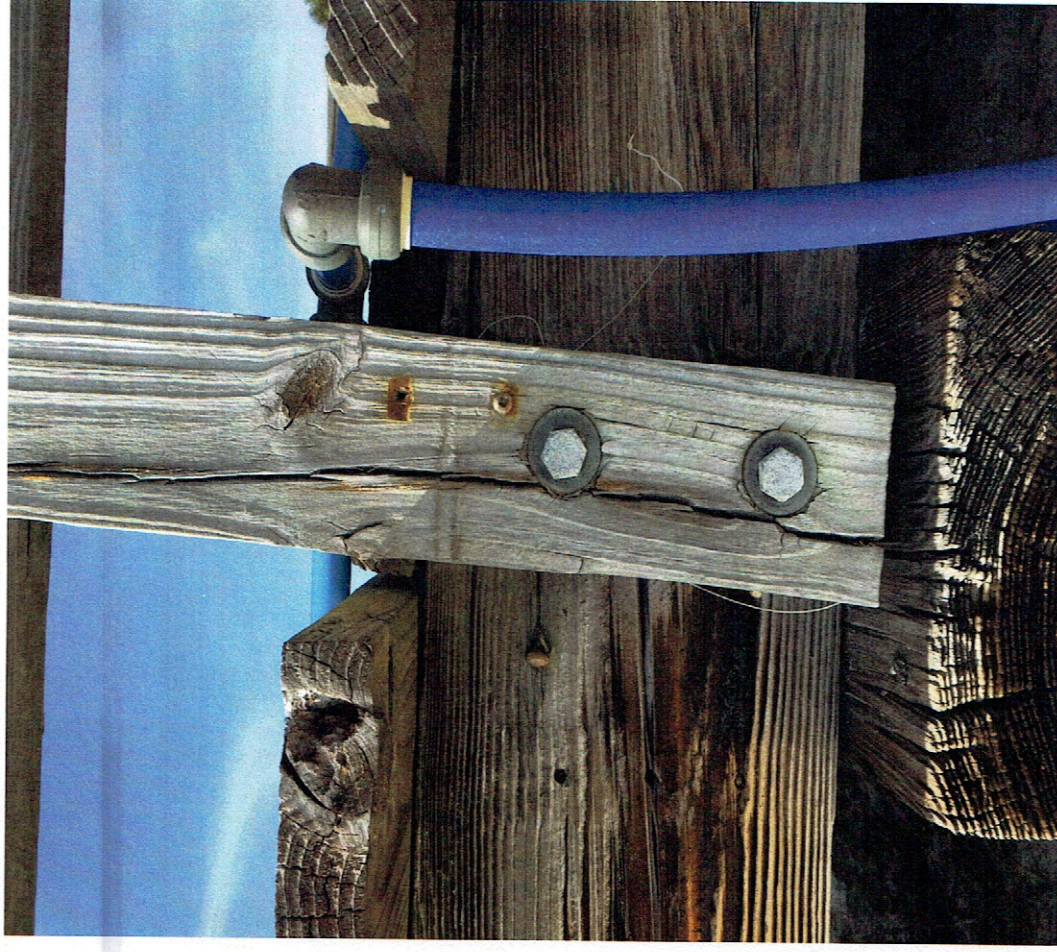
PHOTOGRAPH A - FIRST SECTION OF PIER (ORIGINAL PIER)



PHOTOGRAPH B - THIRD SECTION OF PIER



PHOTOGRAPH C – "T" SECTION



PHOTOGRAPH D – HAND RAILS & POSTS



PHOTOGRAPH E – ALIGNMENT & ELEVATION ISSUES



PHOTOGRAPH F – RUSTY HARDWARE



PHOTOGRAPH G – PILE SHIMS



PHOTOGRAPH H – RUSTED BRACING AT "T" SECTION



PHOTOGRAPH I – DELAMINATED UV COATING ON FIBERGLASS PILES



PHOTOGRAPH J – MISSING PILES & SHODDY PILE REPAIRS