



T.B.P.E. #F-8632

700 Highlander Blvd., Suite 210
Arlington, TX 76015

817.522.1014 PHONE
www.TRCSolutions.com

December 19, 2018

Ms. Theresa Prasil, City Administrator
City of Teague
105 South 4th Avenue
Teague, Texas 75860

**RE: 8th Avenue Park Pavilion
Structural Recommendation Report
Engineering Services Proposal**

Dear Ms. Prasil:

Per your request, TRC Engineers, Inc., is submitting this proposal to provide a recommendation on the structural integrity of the wooden pavilion. The study has been requested to determine if the structure should be repaired or demolished. Specific tasks to be performed are further outlined in the attached Scope of Work.

The cost to provide these services is **\$5,500** (lump sum basis). If approved, the work would be done in accordance with the Master Service Agreement executed by TRC and the City. If you are in agreement, please sign this letter proposal in the below space and return to this office.

The opportunity to provide this proposal to the City is greatly appreciated. If you have any questions regarding this information, please feel free to contact this office.

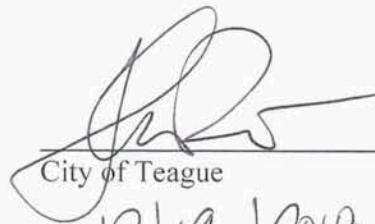
Sincerely,

Justin Thomas

Justin Thomas, P.E. - TRC Engineers, Inc.

12/19/2018

Date



City of Teague

12/19/2018
Date

CITY OF TEAGUE
8TH AVENUE PARK PAVILION
STRUCTURAL RECOMMENDATION REPORT
SCOPE OF WORK
DECEMBER 19, 2018

Background Information

City staff has noticed bowing joists and beams on the roof of the existing wooden pavilion structure located at the City park on 8th Avenue, which has generated concern about the structural stability of the pavilion. On an initial site visit by TRC and City Staff on October 4, 2018, in addition to the bowing joists, possible termite damage and buckling of some of the diagonal truss members was observed.

Tasks to be Performed by TRC

Task 1 – Structural Review of Existing Pavilion:

TRC will coordinate and provide a structural engineer, licensed in the State of Texas, to inspect the pavilion for general structural deficiencies. Specifically, the structural engineer will:

- Attend one meeting at the site with City staff to inspect the facility.
- Perform a frame analysis of the pavilion structural members to identify any areas of concern.
- Provide a report outlying the engineer's opinion of the current structural stability of the pavilion and provide recommendations to assist the City officials with the decision to repair or demolish the structure.

ASSUMPTIONS:

The quote above from TRC for engineering services is based on the following assumptions being made during our Cost Estimating process:

- TRC will perform one (1) site visits to review the existing facilities.
- The report will provide an opinion from a licensed structural engineer with general recommendations on the current stability of the structure. Detailed design plans for repairing the pavilion or construction cost estimates will not be provided.
- For additional services outside the Scope of Work listed herein, TRC will submit a cost proposal under separate cover.

EXCLUSIONS:

The following items are specifically excluded from the scope of work:

- Topographical survey.
- Engineering design or construction work.
- Additional site visits and meetings, other than those mentioned above.
- Environmental or cultural review.
- Attendance or preparation for court proceedings, including any court costs or attorney fees.
- Fees for any regulatory reviews.





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January 14, 2019

Mrs. Theresa Prasil, City Administrator
City of Teague
105 South 4th Avenue
Teague, Texas 75860

**RE: City of Teague
8th Avenue Park Pavilion
Structural Recommendation Report**

Dear Mrs. Prasil:

The City of Teague retained TRC Engineers, Inc. to provide engineering recommendations regarding the structural integrity of the wooden pavilion. TRC has contracted with a reputable structural engineering firm, Structural Design Consulting, to evaluate the current condition of the pavilion. TRC and Structural Design Consulting inspected the pavilion on January 4, 2019 and attached is the evaluation of the structure by Mr. Jack Harrison, P.E.

Due to the numerous structural deficiencies as outlined in Mr. Harrison's report, the facility is not safe in its current condition. We recommend that the pavilion should remain closed to the public and be removed in its entirety. Any attempt to properly repair or renovate the structure would require the pavilion to be taken down completely to its foundation and rebuilt.

If you have any questions regarding this project or need additional information, please contact this office.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Justin Thomas'.

Justin Thomas, P.E.
TRC Engineers, Inc.

Attachments

STRUCTURAL DESIGN CONSULTING

Registered Texas Firm No. 4888

100 Park Road South
Wimberley, Texas 78676

January 10, 2019

Mr. Justin Thomas, P.E.
TRC Engineers, Inc.
Arlington CES Practice Leader
700 Highlander Blvd., Suite 210
Arlington, Texas 76015

Reference: Teague City Park Pavilion

Regarding: Structural Evaluation

Dear Justin,

Structural Design Consulting performed a site visit on January 4, 2019 to the Teague City Park Pavilion on 8th Avenue to observe the existing structural condition. I was joined at the site by yourself, Mayor James Monk, Public Works Director Jacob Cowling and Kelly Satterwhite. Following is an Executive Summary followed by the general report.

Executive Summary

The existing structure has outlived its useful life and needs to be removed. It is Structural Design Consulting finding that the existing structure does not conform to the 2015 edition of the International Building Code or the National Design Specification for Wood Construction. Following is a bullet item list of a few of the structural deficiencies that make this structure unsafe for public occupancy:

- Rotted column bases and column disconnect from supporting footing.
- Rotated column footings next to drainage channel.
- Sagging and over-stressed structural members with hip members sagging as much as four inches.
- Poorly designed structural framing with all truss bottom chord members deflecting as much as six inches under dead load alone.
- Truss support that has separated and very near to catastrophic failure.
- Rafter support beams that are near failure from movement.
- Under-sized roof rafters.
- Under-sized roof beams.

Due to the large number of deficiencies in this structure it is a danger to the public and should be removed.

Primary Report

The Pavilion was constructed around 1906 and has a footprint of approximately seventy-five feet by one hundred feet for a total square footage of approximately seven thousand, five hundred square feet.

The structure consists of five bays along the one-hundred-foot, north/south axis, of approximately twenty feet each and four bays along the seventy-five foot, east/west axis of approximately twenty-two and half feet on the outside and a thirty-foot bay along the center. The center thirty-foot bay has a concrete floor for the second third and fourth bays and a raised stage with a plywood cover for the fifth bay.

The pavilion frame cover is wood framed with an exposed fastener, steel roof. The wood columns along each bay line are nominal six by eight of undetermined grade of material with a maximum height at the north east corner of approximately eleven feet above column support. The column support elements are concrete approximately two feet square and approximately six inches above grade.

The columns typically support the bottom chord of a non-traditional semi-truss framing configuration with knee braces from each column in each of four directions for the interior columns and three directions for the three columns between the corners. The corner columns have knee braces in two directions and all braces are at an approximate forty-five-degree angle and start approximately four feet below the top of the column.

The semi-truss framing supported by the columns consists of diagonally framed members that intersect the double two by six bottom chords at the outer two bays and quadruple two by six bottom chords at the center bay. The diagonal members intersect the bottom chord near the same location as the diagonal knee braces framing up from the columns.

The diagonal truss members along with a vertical member support a longitudinal beam member that spans across the twenty-foot bay and supports the roof rafters. The rafters in the outer east/west bays are two by six at approximately two feet on center and the rafters in the center bay are two by fours at approximately two feet on center. The center east/west bay has the roof ridge line and the roof is approximately at a four to twelve pitch. The east and west end bays are hipped with the hip rafter framing from the corner

columns to the ridge at the first interior bay. The hip beam and the main ridge beam are two by six.

The two by four rafter members over the center bay are extremely under-designed. The two by six roof rafters at the lower spans are also under-designed. The two by six roof ridge and the roof support beams are under-designed. These members are exhibiting unacceptable deflection.

The lack of co-incidence in the truss framing is causing rotation at the truss joints and in some cases has caused or is contributing to member failure. The truss over the stage has primarily failed with some strut members rotating out of plane and the bottom chord support at the column near catastrophic failure.

Conclusion

The pavilion structure is not safe for public use and should remain closed to access until it can be removed. Replacement or renovation of the existing structure would require it to be taken down to the foundation and completely re-built.

It has been a pleasure working with you and the representatives of the City of Teague on this project and if you have any questions or if I may be of further support please let me know.

Sincerely,

Jack Harrison, P.E.



