

REPORT OF BIENNIAL INSPECTION

TOMMY ROBERTS MEMORIAL STADIUM BLEACHERS KENNEDY DRIVE KEY WEST, FLORIDA

FOR

MONROE COUNTY SCHOOL BOARD 1310 UNITED STREET KEY WEST, FLORIDA 33040

PREPARED BY

**NUTTING ENGINEERS OF FLORIDA, INC. 24478 OVERSEAS HIGHWAY SUMMERLAND KEY, FLORIDA
33042 ORDER NO. 938.4**

AUGUST 2020



Geotechnical & Construction Materials
Engineering, Testing, & Inspection
Environmental Services

Offices throughout the state of Florida

www.nuttingengineers.com info@nuttingengineers.com

August 27, 2020

Mr. Michael Skrodinsky Maintenance Supervisor
Monroe County School District
1310 United Street, Key West, Florida 33040
Phone: 305-293-1400 ext. 53405
Email: Michael.Skrodinsky@KeysSchools.com

Subject: Report of Biennial Inspection
Tommy Roberts Memorial Stadium Bleachers
Kennedy Drive
Key West, Florida

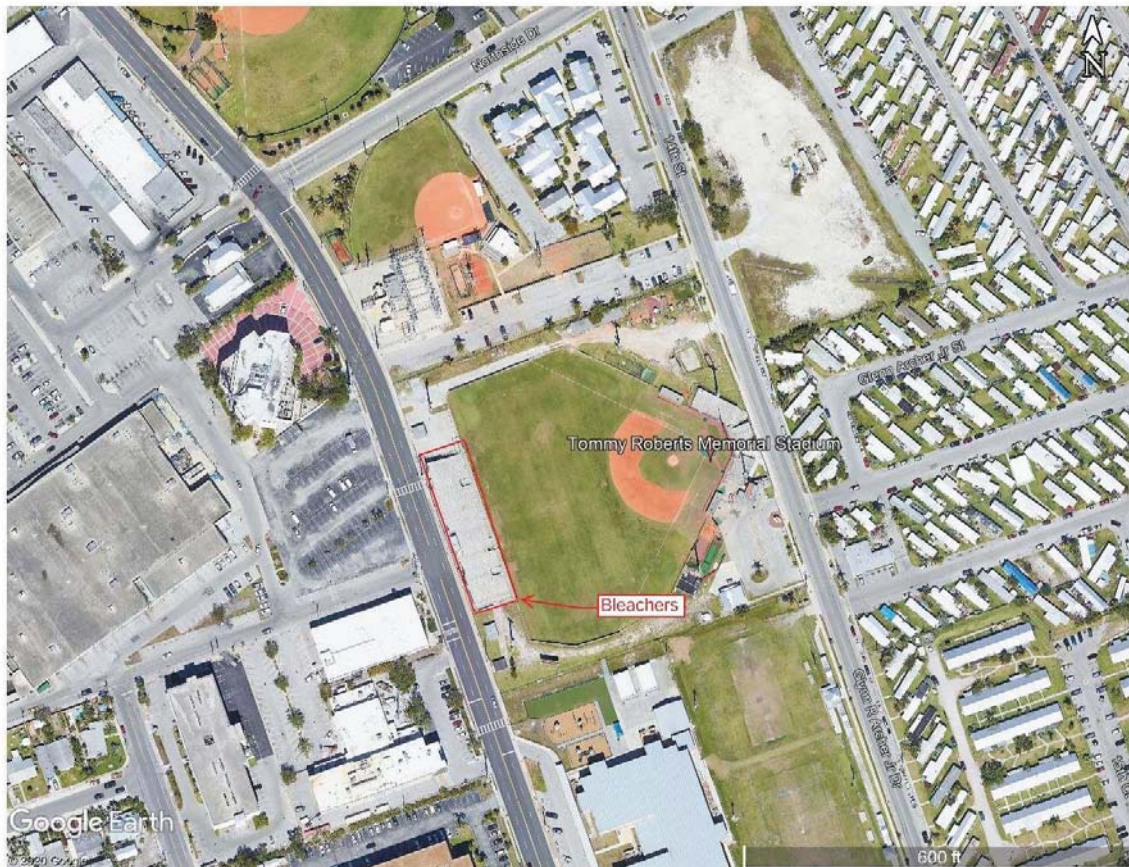
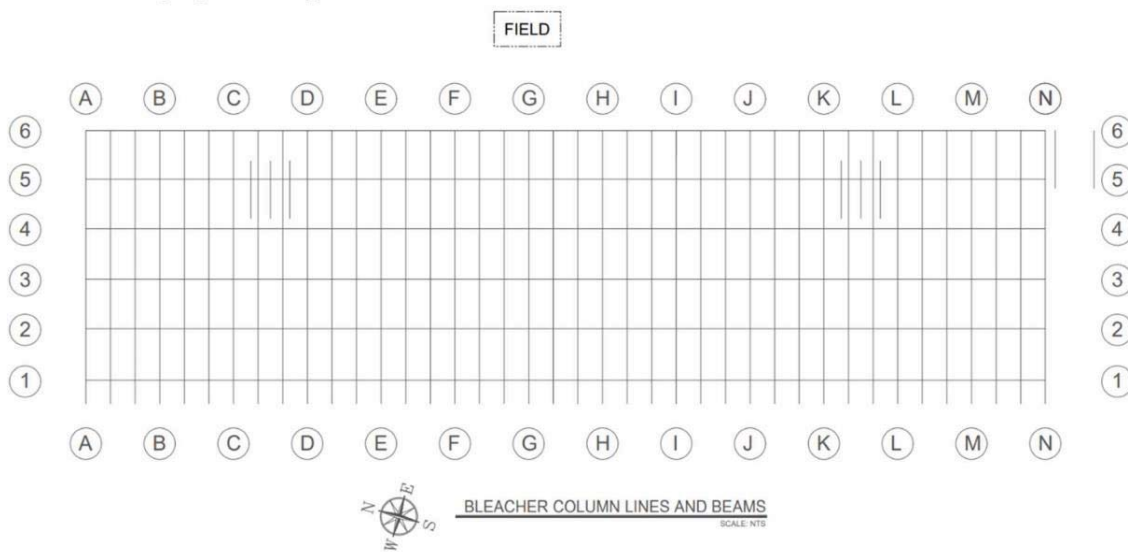
Dear Mr. Skrodinsky:

Nutting Engineers of Florida, Inc. (NE), has performed a biennial visual inspection of the bleachers at the above site located in Key West, Florida. This inspection was performed in accordance with the written authorization to proceed provided by you dated July 30, 2020.

The purpose of this report is to provide the required biennial inspection of the structural components of the bleachers and to document the conditions in accordance with the State Requirements for Educational Facilities (SREF) Chapter 5(n) guidelines. We note that the inspection was conducted visually and no structural analysis or evaluation of the design/construction of the bleachers as this was beyond our scope of services. This report presents our findings and recommendations.

OVERVIEW

The Tommy Roberts Memorial Stadium is located adjacent to the Poinciana Elementary School on Kennedy Drive in Key West, Florida. The bleachers were originally constructed for the Monroe County School District approximately fifty years ago. We note that original plans for the structure were not available, however, we did review the previous inspection report dated May 25, 2018 prepared by Perez Engineering and Development, Inc. in conjunction with Reynolds Engineering Services, Inc. The results of the inspection resulted in several repairs/improvements which were performed over the last two years.



The bleachers cover an area of approximately 15,275 square feet and have dimensions of approximately 235 feet in length (north-south), 65 feet in width (east-west) and 18 feet in height. The main column supports are approximately 37 feet apart in a north-south direction and 11 feet in the east-west direction. For location purposes, the columns were identified with grid lines labeled A through N in the north-south direction and 1 through 6 in the east-west direction. A graphical depiction of the bleachers is shown above:

The bleachers generally consist of steel columns and beams with aluminum seats and walkways. Vertical steel columns support steel horizontal primary beams which in turn support steel angled beams. Both welded and bolted connections are used as part of the support system. The aluminum bleacher structure and seats are bolted to the steel support beams. Included with the bleachers are a concrete block concession stand/locker rooms/bathroom building which has a flat wood truss roof system, and a wood frame press box at the top of the bleachers. The photograph below shows a portion of the support system and the building.

BLEACHER OBSERVATIONS

During the inspection, several components of the bleacher system were observed to have various levels of corrosion (rust) with some bolts missing and metal straps that have deteriorated. There are wood blocks attached to steel beams for conduit support, which is causing accelerated corrosion of the steel as the wood allows moisture to be in contact with the steel for relatively long periods of time. It was also noted that supports for the bleacher seats were protected from line 3 to 6 but were not protected from line 1 to 3. The photos below show a general representation of the conditions.





Typical corrosion at connections Corrosion at connections

Corrosion of strap and beam Missing bolt at cross members

Of particular concern are some main steel support members which are corroding to the point where there is a loss of cross section. These members should be repaired/replaced as soon as possible. Representative photos are shown above:

Beam corrosion and spalling Column support plate corrosion and spalling also shown above.



Corrosion at horizontal seat support Corrosion/Spalling at column base

PRESS BOX OBSERVATIONS

The press box consists of wood framing with hollow shaped steel (HSS) supports welded to the structural I-beams of the bleachers. Three legs consisting of 4½ inch diameter steel columns support the west end of the press box. A variety of welded/bolted steel and nailed hurricane straps were used to connect the press box to the structural supports. Corrosion was noted at the hollow shaped steel and other metal components of the support system. An overview of the press box support system is shown in the photographs below.



Corrosion of HSS at press box



Corrosion of I-beams at press box

CONCESSION/RESTROOM/LOCKER ROOMS BUILDING OBSERVATIONS

Observations of the concession building indicated water intrusion at the ceiling penetration areas along grid line 2 where the vertical column supports are located. In addition, termite damage to the 2 by 10's and 2 by 8's supporting the roof deck was observed at several locations. The exterior block walls and tie beams appeared to be in good condition. Based on the previous engineering report, it was evident that the spalling identified in that report was repaired. Photographs of the conditions noted are shown below:



Evidence of water intrusion Evidence of termite damage shown above.

Overview of building west side Overview of building east side

CONCLUSIONS AND RECOMMENDATIONS

The bleachers, concession building and press box have been in use for approximately fifty years and various levels of corrosion and deterioration is evident throughout the structures. This report includes general locations of concern as it was not practical to document every location of corrosion/deterioration. All corrosion should be addressed and the structural elements protected from further deterioration. We are available to provide on-site review of the issues documented in this report as needed. The main column supports showing spalled steel should also be repaired/replaced as soon as possible.

TABLE II – ITEMS NEEDING TO BE INCLUDED IN THE BID.

- B-I-1 – Wood Attached to steel needs to be removed.
- B-C-1 – Horizontal I Beam 8' above roof is Corroded and Spalling.
- D.5 -2 – Horizontal I Beam Corrosion and Spalling.
- H to I-1- Corrosion at Press Box Hollow Shaped Steel (HSS) Supports
- L-3 – Corrosion/Spalling at Angle Connection to Vertical Support
- H.3 -1- Corrosion at Angle connection to Angled I-Beam
- C-D1-2- Termite Damage to 2x10 Wood Roof Supports
- N-1 - Corrosion and Spalling at Vertical I-Beam Base
- N-2 - Corrosion and Spalling at Vertical I-Beam Base
- N 1 – 3 - Restroom Area-Termite Damage at Roof Level
- I-5 - Corrosion at Vertical Columns at field Entrance Base
- C.8 – 5.7 – Corrosion at Ramp Landing Column and Beam Support
- I.3 and I.7 – 5 – Corrosion at Vertical columns at Base
- K.3 – 5.5 –Corrosion at Vertical I-Beam at Base
- N.5 – 4-6 – Corrosion at Vertical and Angled Ramp Supports