



March 9, 2023

Mr. Sean Slay, Project Manager II
California Construction Authority (CCA)
1776 Tribute Road
Sacramento, CA 95815

Subject: Ventura County Fairgrounds – Grandstand Inspection – Revision 01

Dear Mr. Slay:

On January 17, 2023, Dagley Engineering, Inc. (DEI) was on-site to perform a visual assessment of all grandstand seating within the racetrack area of the Ventura County Fairgrounds property, which include:

1. South Grandstand
2. North Section

Prior to this visual assessment, an inspector from the California Construction Authority (CCA) was on-site and recommended that, in his purview, there were issues that were of concern and to have a licensed Engineer perform an assessment at the soonest timeframe possible. This report serves as the Engineer's assessment with corresponding recommendations.

The existing conditions are listed below based upon the above-listed areas within the fairground (See *Figures 1 & 2*). Photographs taken of South Grandstand during site inspection can be found in *Appendix A*. Photographs taken of North Grandstand can be found in *Appendix B*. Based on markings observed on some structural elements, it is believed that this structure was erected around 1961. Between the two grandstand areas, there is an announcer/media booth. This area was not inspected as part of this scope of work.

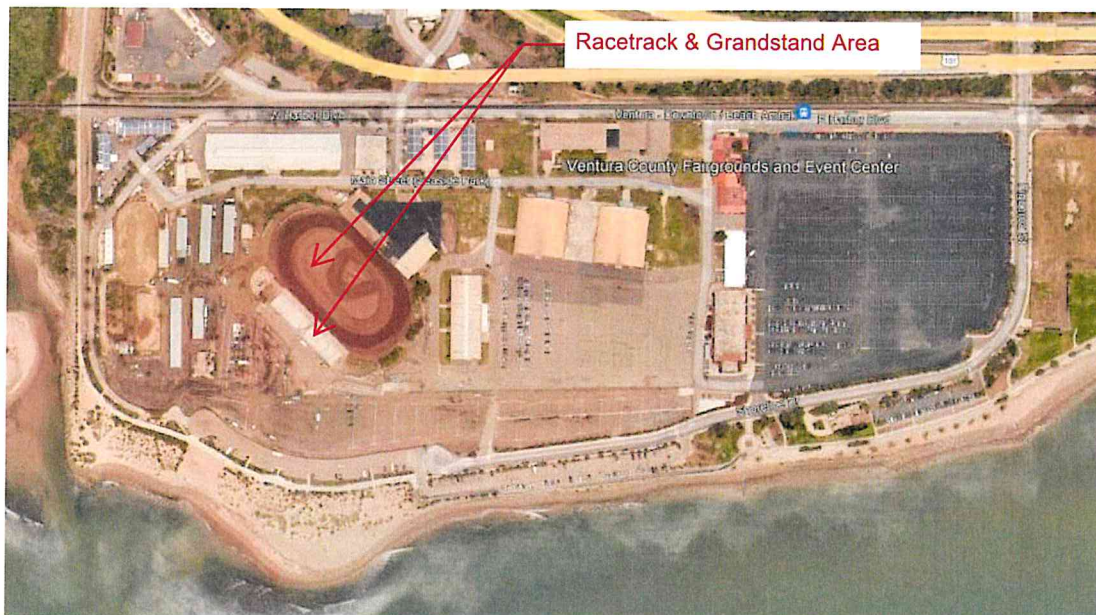


Figure 1 – Aerial image of fairgrounds (Google Earth)

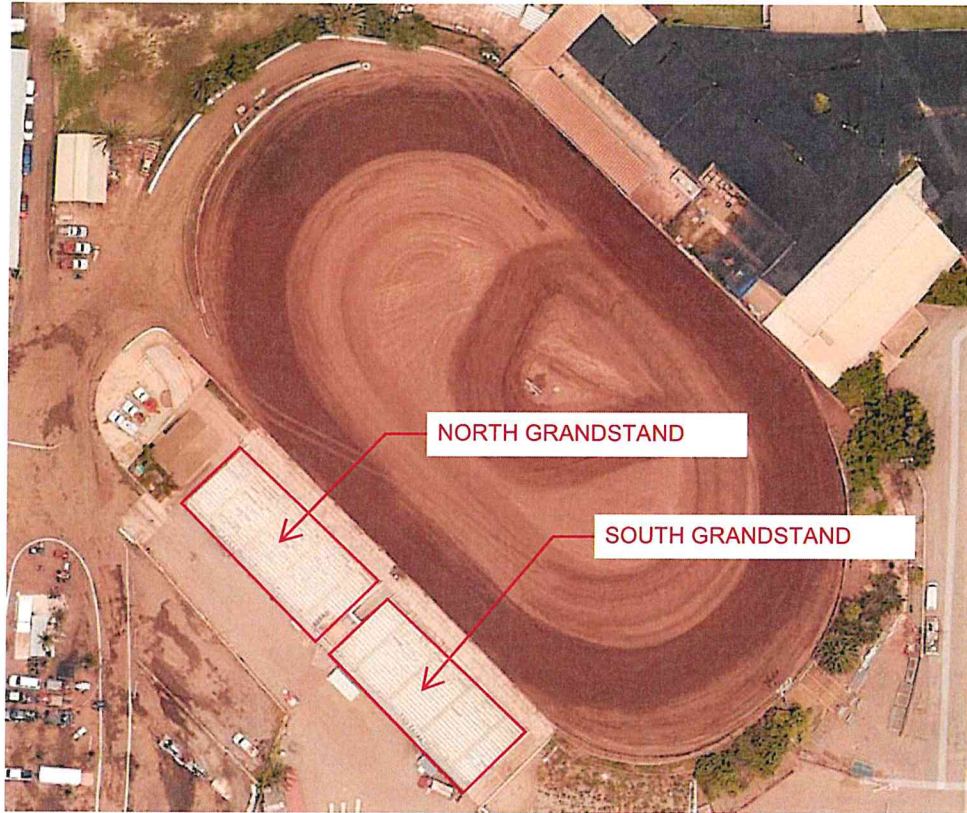


Figure 2 – Close-up Aerial Image of Arena (Google Earth)

GENERAL CONDITIONS:

The two grandstand sections are identical to each other in both size and composition. The general conditions of grandstand structures at the Racetrack area are described in the bulleted lists as follows:

South Grandstand:

- Dimensions are approximately 120'x50' with twenty (20) rows of bleacher seating plus walkway at front
- Six (6) bays wide @ 20' +/- bay width (longitudinal direction)
- Four (4) bays (transverse direction); two bays measured 11'-6" +/-, one measured 16' +/-, and one measured 12'-0" +/-
- Grandstand structure is comprised of steel "wide flange" columns which support steel "wide flange" beams along a grid pattern
- Steel "wide flange" beams support bleacher seating (depth = 10"; flange width = 6")
- Upper-most beams span over three supports with a short cantilever section
- Lower-most beams span over two supports with a small cantilever section
- Middle beam spans between cantilevered sections and is connected to upper/lower beams with welded splice plates at the webs



- Splice plates were observed to have significant corrosion at plate and at welds
- All cross bracing is comprised of tension-only steel rods that are connected to structure with turnbuckle hardware and nuts & washers
- Longitudinal cross bracing present at four of six bays only (at rear, at the middle and along the front)
- Transverse cross-bracing at front and rear bays only
- Transverse bracing at rear is comprised of round tubes welded in a "K-Brace" manner
- Transverse cross-bracing at front is comprised of single round tube
- Cross-bracing observed along bottom side of grandstand seating ("horizontal" bracing) at sloped steel support beams at outer bays only (eight (8) sets of cross braces observed in each bay)
- Cross-bracing rods and/or cross-bracing hardware at front was observed to be nearly buried in soil
- Cross-bracing was also observed to be loose/bent in most locations
- Steel columns were supported on cast-in-place concrete spread footings (size and depth/thickness unable to be determined during site visit)
- A continuous concrete footing was present at rear of grandstand
- Some footing "pedestals" measured 12" square and some measured 24" square
- Steel columns have bolted connection at base plate (only two ½" diameter bolts per column)
- At some locations, anchor bolts had corroded, or hardware was lost/stolen, so retrofit anchor "tabs" were welded to base plate through which new anchor bolts were installed into concrete footing
- ADA access ramp on south end and at front
- ADA access ramps consisted of cast-in-place concrete
- All bleacher seats were present
- All bleacher seats had been covered over with plywood as original seats were severely damaged/rotted
- Plywood topping at seats observed to be rotted/damaged in some areas
- Wooden seat back supports observed to be rotted/damaged in some areas
- Treads, seats and toe kicks, guardrails and hand rails all present
- Treads were comprised of aluminum
- Some tread members had small relief cuts to allow for tighter fit or to accommodate some slight misalignment in the members
- In some areas where aluminum treads are supported by steel members, the dissimilar metals created an environment where the corrosion was accelerated
- Excessive corrosion was observed at the flanges and webs of some of the steel support beams
- Excessive corrosion was noted between the steel support beams and the column cap plates at the top of the column members
- It appears that some of the corroded areas had been repaired or painted previously but the corrosion has continued to propagate and expand

North Grandstand:

- Dimensions are approximately 120'x50' with twenty (20) rows of bleacher seating plus walkway at front
- Wooden stairway to access media booth observed underneath grandstand structure
- Six (6) bays wide @ 20' +/- bay width (longitudinal direction)



- Four (4) bays (transverse direction); two bays measured 11'-6" +/-, one measured 16' +/-, and one measured 12'-0" +/-
- Grandstand structure is comprised of steel "wide flange" columns which support steel "wide flange" beams along a grid pattern
- Significant corrosion observed at the vertical stiffener plates where the sloped support beams bear on steel columns
- Steel "wide flange" beams support bleacher seating (depth = 10"; flange width = 6")
- Upper-most beams span over three supports with a short cantilever section
- Lower-most beams span over two supports with a small cantilever section
- Middle beam spans between cantilevered sections and is connected to upper/lower beams with welded splice plates at the webs
- Splice plates were observed to have significant corrosion at plate and at welds
- All cross bracing is comprised of tension-only steel rods that are connected to structure with turnbuckle hardware and nuts & washers
- Longitudinal cross bracing present at four of six bays only (at rear, at the middle and along the front)
- Transverse cross-bracing at front and rear bays only
- Transverse bracing at rear is comprised of round tubes welded in a "K-Brace" manner
- Transverse cross-bracing at front is comprised of single round tube
- Cross-bracing observed along bottom side of grandstand seating ("horizontal" bracing) at sloped steel support beams at outer bays only (eight (8) sets of cross braces observed in each bay)
- Cross-bracing rods and/or cross-bracing hardware at front was observed to be nearly buried in soil
- Cross-bracing was also observed to be loose/bent in most locations
- Steel columns were supported on cast-in-place concrete spread footings (size and depth/thickness unable to be determined during site visit)
- A continuous concrete footing was present at rear of grandstand
- Some footing "pedestals" measured 12" square and some measured 24" square
- Steel columns have bolted connection at base plate (only two ½" diameter bolts per column)
- At some locations, anchor bolts had corroded, or hardware was lost/stolen, so retrofit anchor "tabs" were welded to base plate through which new anchor bolts were installed into concrete footing
- ADA access ramp on south end and at front
- ADA access ramps consisted of cast-in-place concrete
- All bleacher seats were present
- All bleacher seats had been covered over with plywood as original seats were severely damaged/rotted
- Plywood topping at seats observed to be rotted/damaged in some areas
- Wooden seat back supports observed to be rotted/damaged in some areas
- Treads, seats and toe kicks, guardrails and hand rails all present
- Treads were comprised of aluminum
- Some tread members had small relief cuts to allow for tighter fit or to accommodate some slight misalignment in the members
- In some areas where aluminum treads are supported by steel members, the dissimilar metals created an environment where the corrosion was accelerated



- Excessive corrosion was observed at the flanges and webs of some of the steel support beams
- Excessive corrosion was noted between the steel support beams and the column cap plates at the top of the column members
- It appears that some of the corroded areas had been repaired or painted previously but the corrosion has continued to propagate and expand

REPAIR RECOMMENDATIONS:

My repair recommendations are described in the bulleted lists as follows:

South Grandstand:

- Tighten all loose hardware (bolts, nuts, washers, turnbuckles, anchor bolts, nuts at anchor bolts, etc.)
- Any missing/damaged hardware (bolts, nuts, washers, turnbuckles, anchor bolts, nuts at anchor bolts, etc.) to be replaced in kind
- Tighten all loose cross-bracing rods
- Replace all damaged/bent cross-bracing rods in kind
- Where corrosion has caused metal to begin to “flake” or separate, remove corrosion at splice plates/vertical stiffeners/beam webs/beam flanges using mechanical means (grinder with wire wheel or flap disk, sand blasting, etc.). Where welds/plates/webs/flanges have lost section, install new steel plates (min ¼” thick) that extend minimum 3” beyond damaged area(s) and weld to steel member ensuring weld is to sound metal. Once steel is repaired with steel plate, prime/paint new metal, exposed existing metal and welds with two coats of paint/primer.
- Where cross-bracing members are buried in soil or are in standing water, remove soil or fill in low spots to prevent further standing water
- Where wood seats or seat backs are observed to be rotted/damaged, replace in kind with new wood seat or seat back

North Grandstand:

- Same as South Grandstand

Given the age of the structure and it's condition, it is highly recommended that the repairs as described above be implemented as soon as possible as they may pose a threat to the life safety of the occupants. It is also recommended that Dagley Engineering, Inc. meet on-site with the inspector from CCA and a representative from the Fair to discuss the repairs, indicate where the repairs need to be implemented and which elements/members need to be repaired/replaced. Dagley Engineering, Inc. (DEI) is not liable or responsible for any damages or losses due to negligence by Fair in not implementing repairs as recommended.



March 9 2023

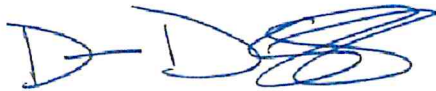
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DISCLAIMER:

This document was prepared for the exclusive use of California Construction Authority (CCA) and the Ventura County Fairgrounds and was not intended for any other purpose. The observations and opinions contained herein are based upon information provided to us at the time of this document's preparation. The evaluation performed on the above date was a visual assessment. Areas hidden from view or other inaccessible areas were not examined. Please note that DEI reserves the right to revise the document above as conditions change or additional information becomes available. This document was prepared for our client's use and DEI disavows any liability for use by others.

Sincerely,

Dagley Engineering, Inc.



Devan E. Dagley, PE
Owner / Principal Engineer



APPENDIX “A”



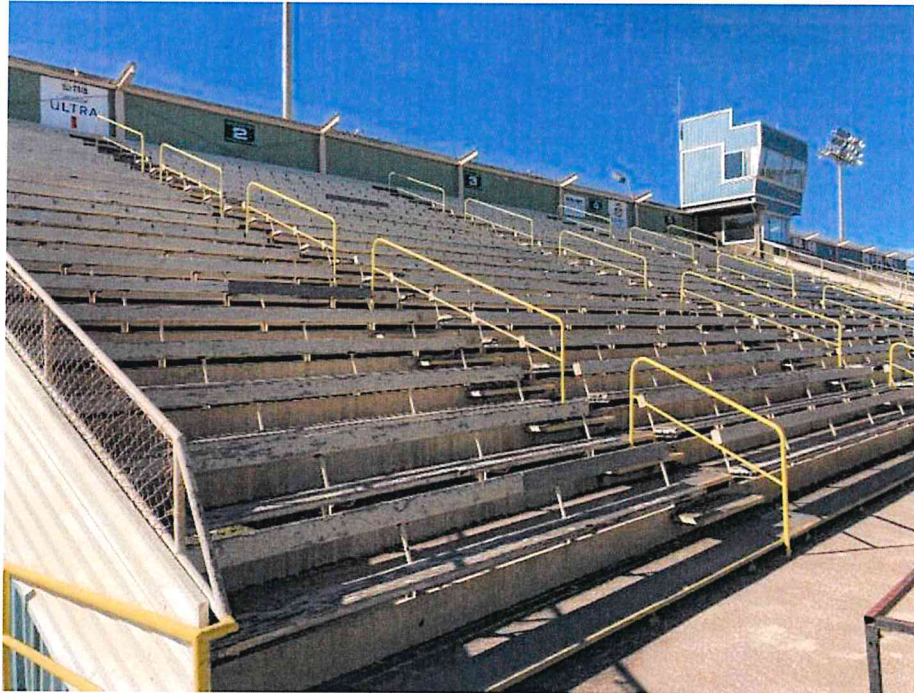


Figure 1 – Overall photo showing south grandstand



Figure 2 – Close-up photo showing aluminum steps and treads and wooden seats and seat backs (note plywood on top of original wood seat)





Figure 3 – Close-up photo showing wooden seats and rotted/damaged seat back (note plywood on top of original wood seat)

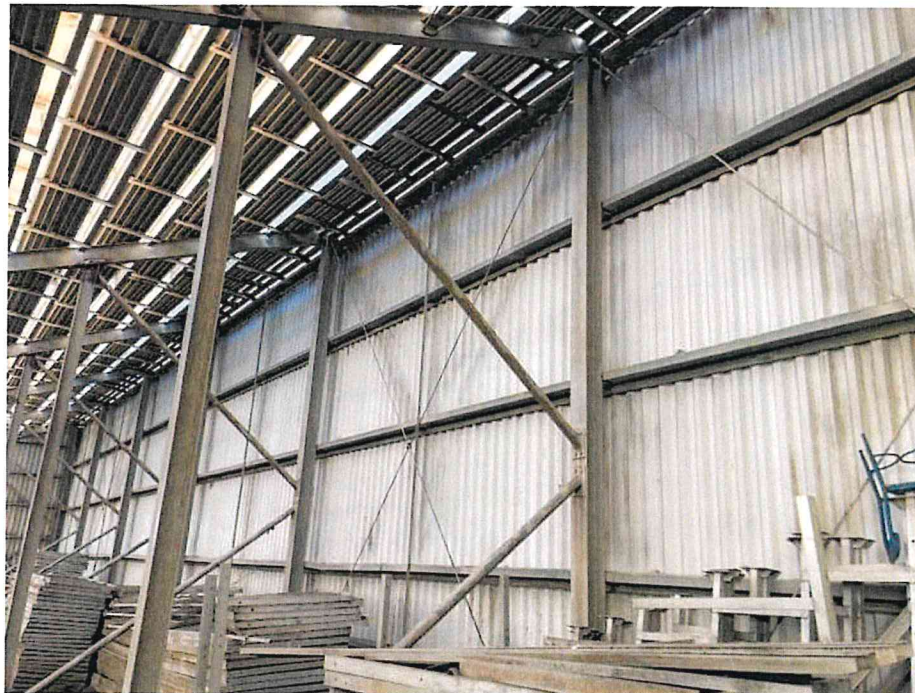


Figure 4 – Photo showing grandstand structural elements (looking toward rear)





Figure 5 – Photo showing column base with retrofit base plate flanges and anchor bolts

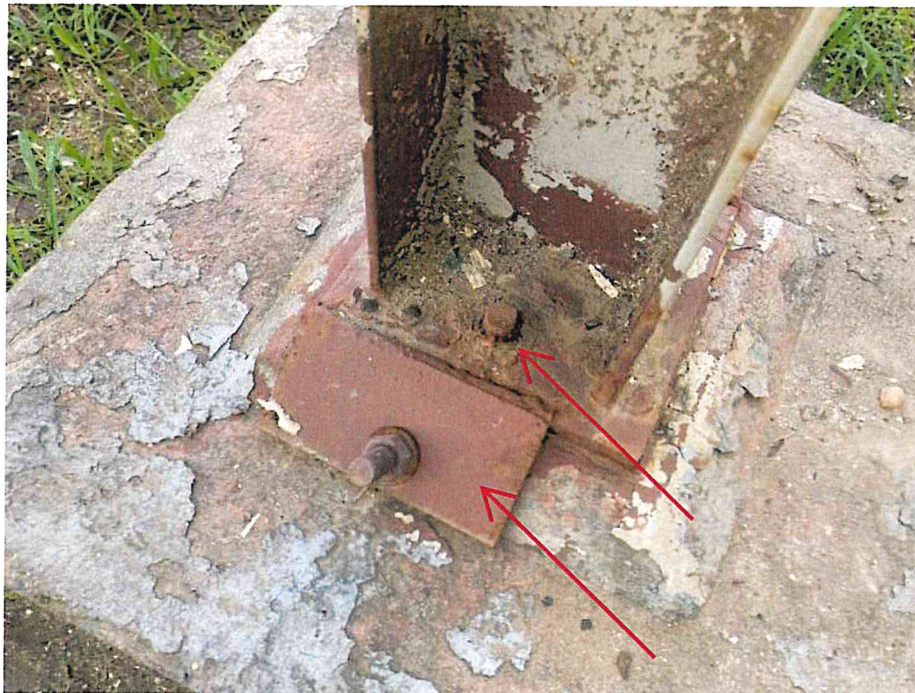


Figure 6 – Close-up photo showing column base with retrofit base plate flanges and anchor bolts





Figure 7 - Photo showing cross-bracing and hardware submerged in water



Figure 8 - Photo corroded splice plates (Indicated by red arrows)



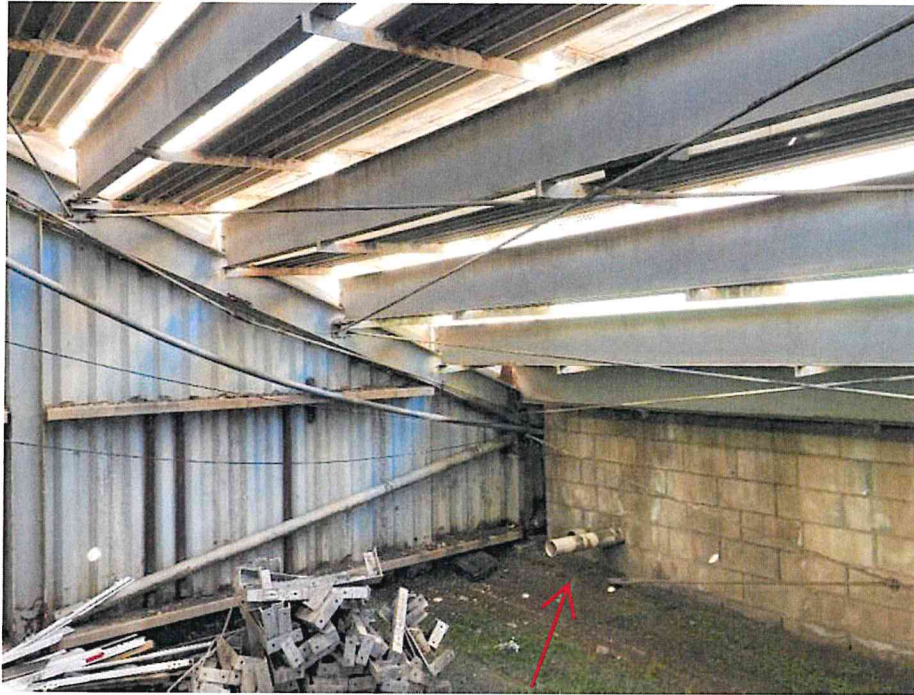


Figure 9 – Photo showing cross-bracing and hardware covered by soil

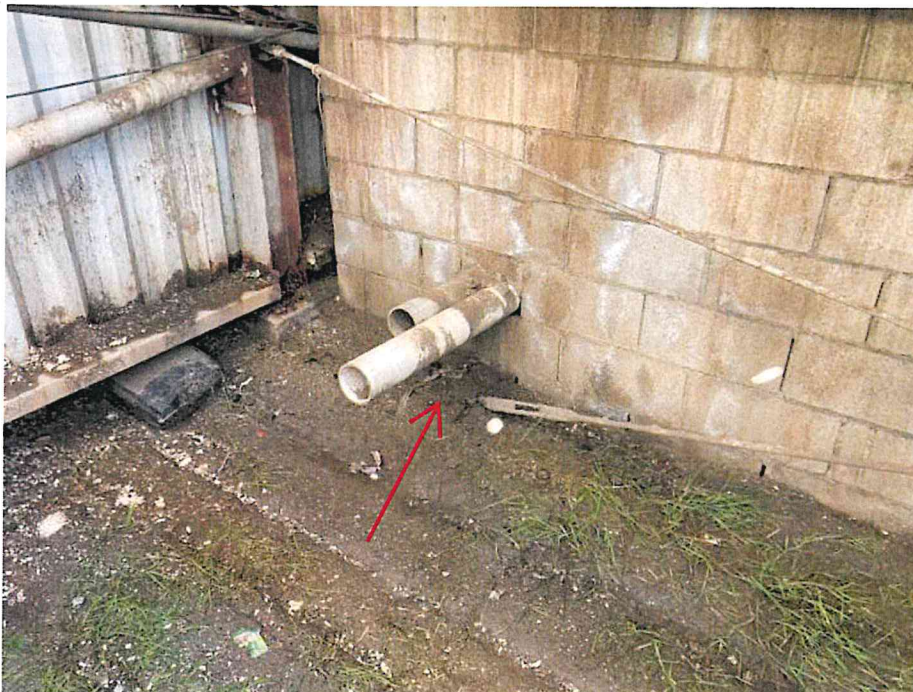


Figure 10 – Close-up photo showing cross-bracing and hardware covered by soil





Figure 11 – Photo showing corroded splice plates and cross-members/tread supports (indicated by red arrows)



Figure 12 – Photo showing cross-bracing rods bent/damaged and covered by soil



Figure 13 – Close-up photo showing cross-bracing rods bent/damaged and covered by soil

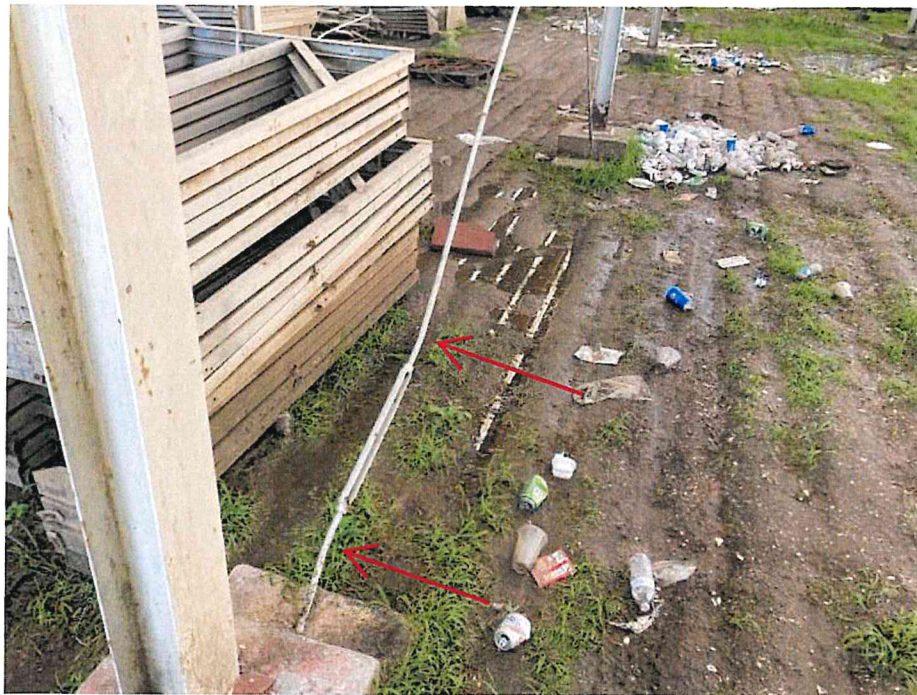


Figure 14 – Close-up photo showing bent/damaged cross-bracing rods





Figure 15 – Close-up photo showing bent/damaged cross-bracing rods

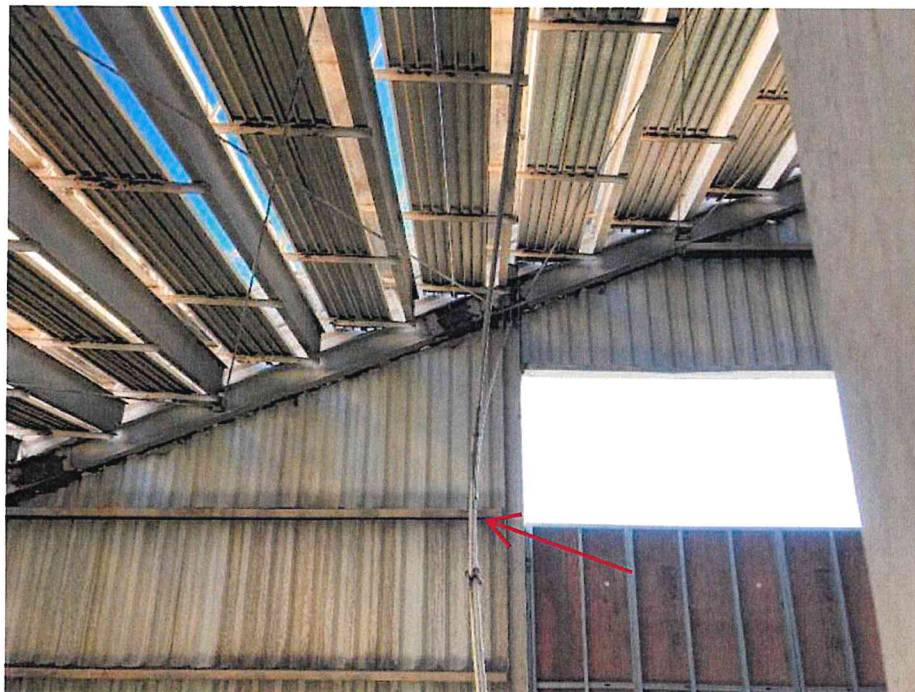


Figure 16 – Close-up photo showing bent/damaged cross-bracing rods





Figure 17 – Close-up photo showing bent/damaged cross-bracing rods

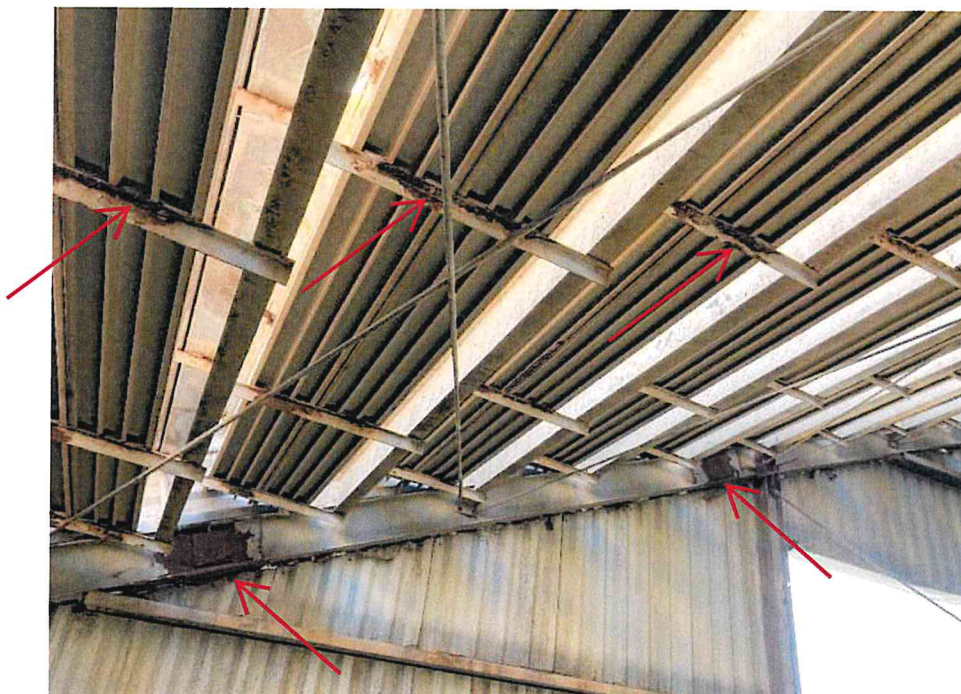


Figure 18 – Photo showing corroded splice plates and cross-members/tread supports (indicated by red arrows)



Figure 19 – Photo showing corroded splice plates and cross-members/tread supports (indicated by red arrows)



Figure 20 – Photo showing cross-bracing rods bent/damaged and covered by soil





Figure 21 – Photo showing cross-bracing rods bent/damaged and covered by soil

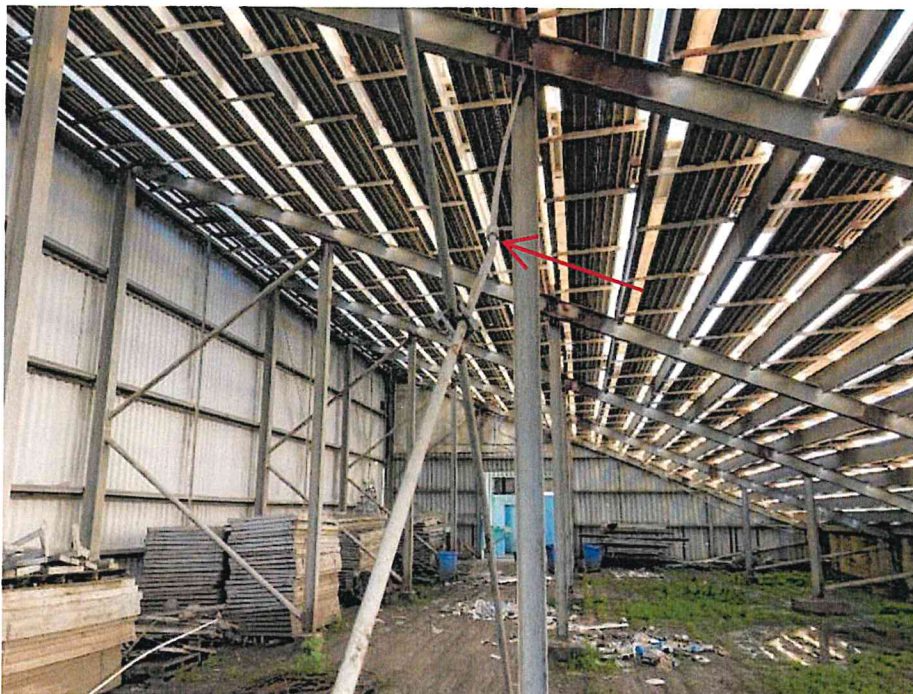


Figure 22 – Photo showing corroded splice plates and cross-members/tread supports (indicated by red arrows) and cross-bracing rods bent/damaged

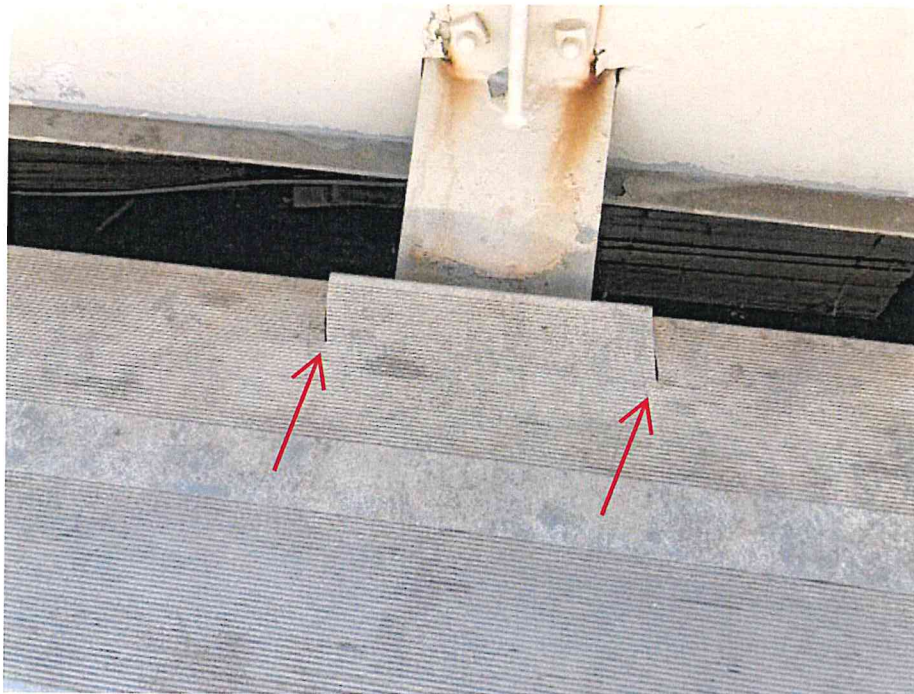


Figure 23 – Photo showing relief cut in aluminum tread to accommodate misaligned steel framing

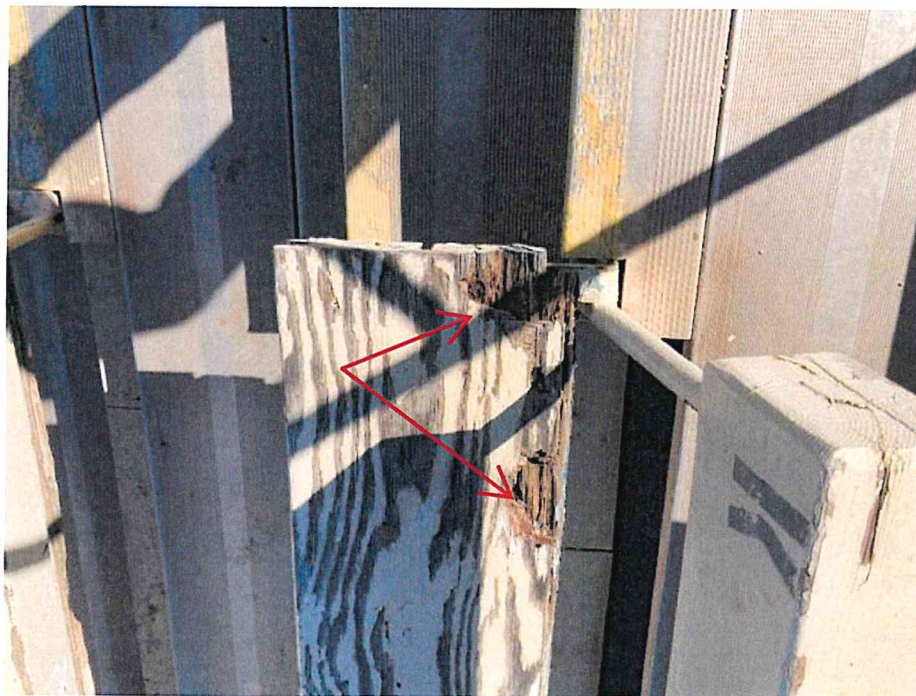


Figure 24 - Close-up photo showing rotted/damaged wooden seats (note plywood on top of original wood seat)



APPENDIX “B”



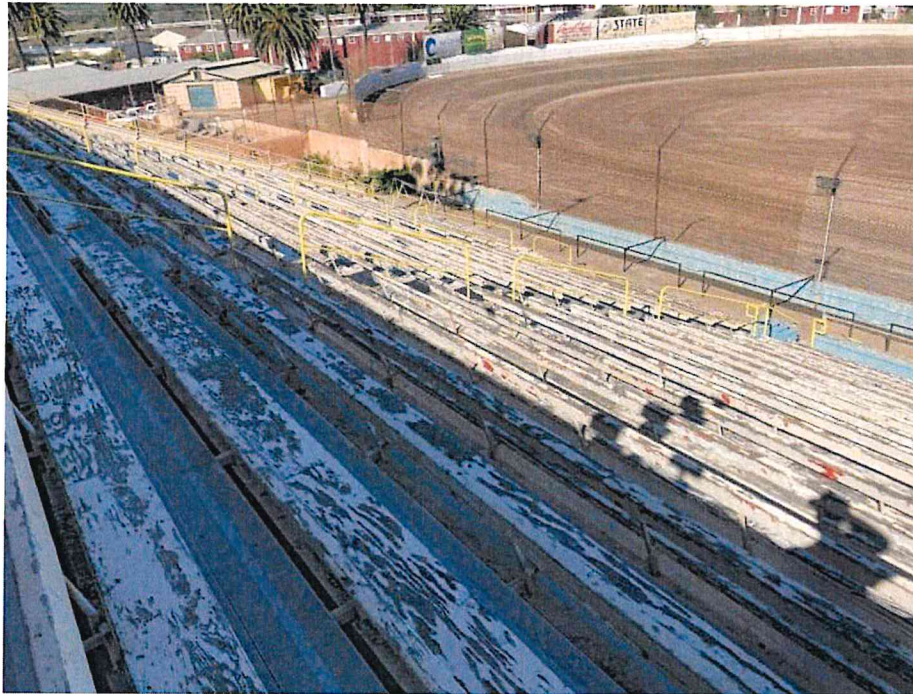


Figure 25 – Overall photo of North Grandstand

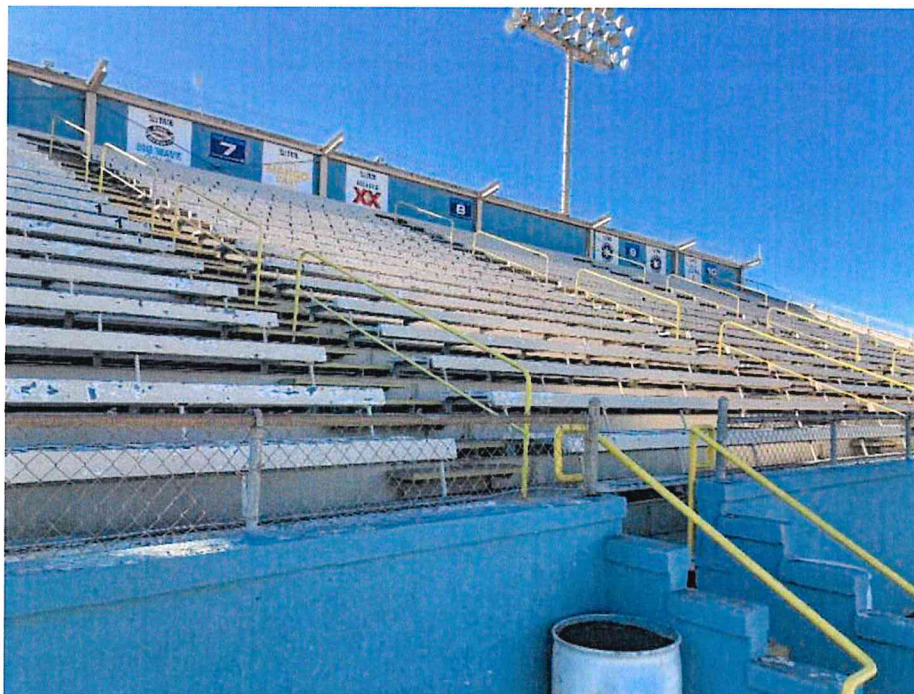


Figure 26 – Overall photo of North Grandstand



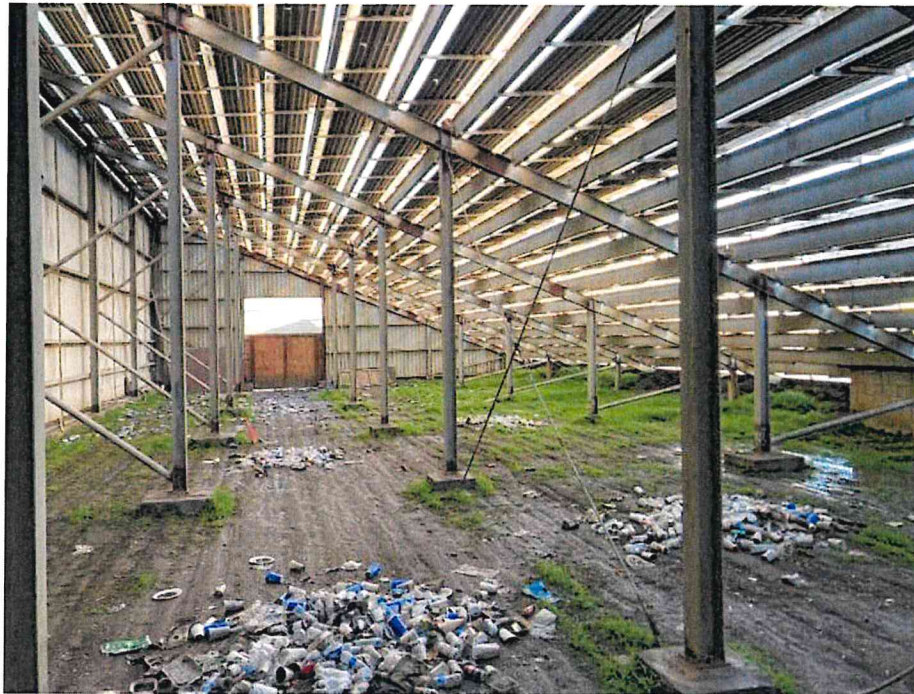


Figure 27 – Photo showing grandstand structural elements



Figure 28 – Photo showing corroded column web at cross-bracing attachment



Figure 29 – Photo showing severe corrosion at splice plates (indicated by red arrows)

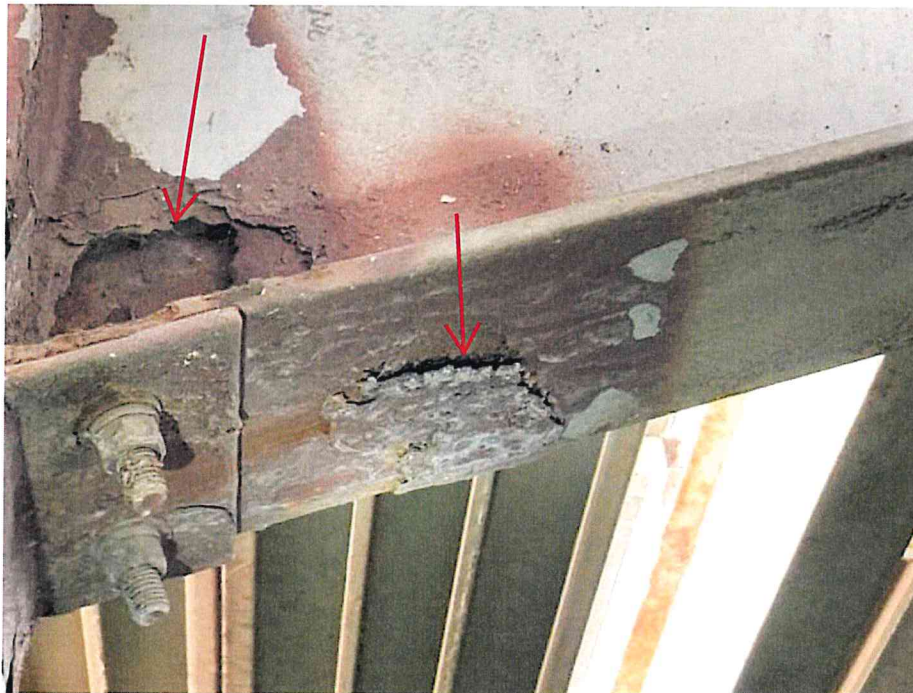


Figure 30 – Photo showing severe corrosion at beam web & flange near column cap plate (indicated by red arrows)

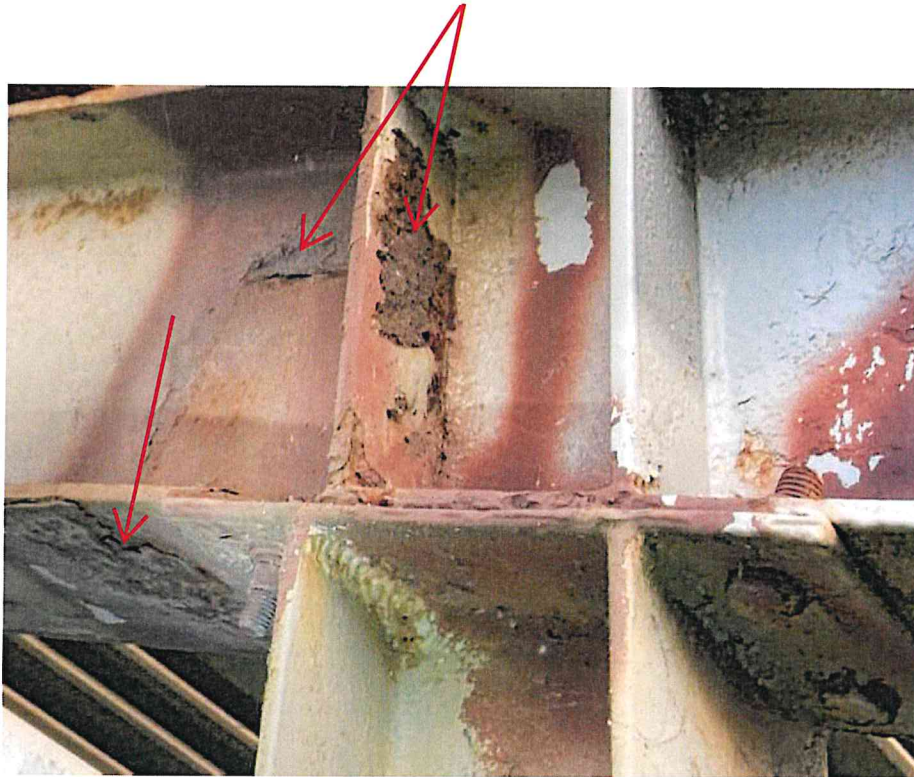


Figure 31 – Photo showing severe corrosion at beam web & flange near column cap plate (indicated by red arrows) and stiffener plates



Figure 32 – Photo showing severe corrosion at column flange (indicated by red arrow)

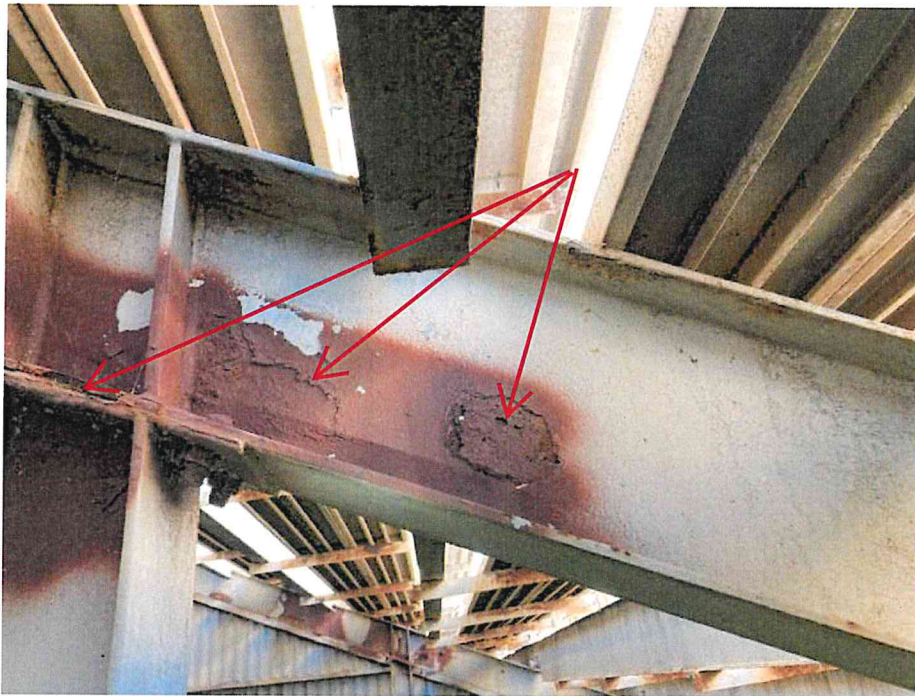


Figure 33 – Photo showing severe corrosion at column web & flange, column top plate, and steel beam web & flange (indicated by red arrows)



Figure 34 – Photo showing severe corrosion at column web & flange, column top plate, and steel beam flange (indicated by red arrows)



Figure 35 – Photo showing severe corrosion at splice plates (indicated by red arrow)

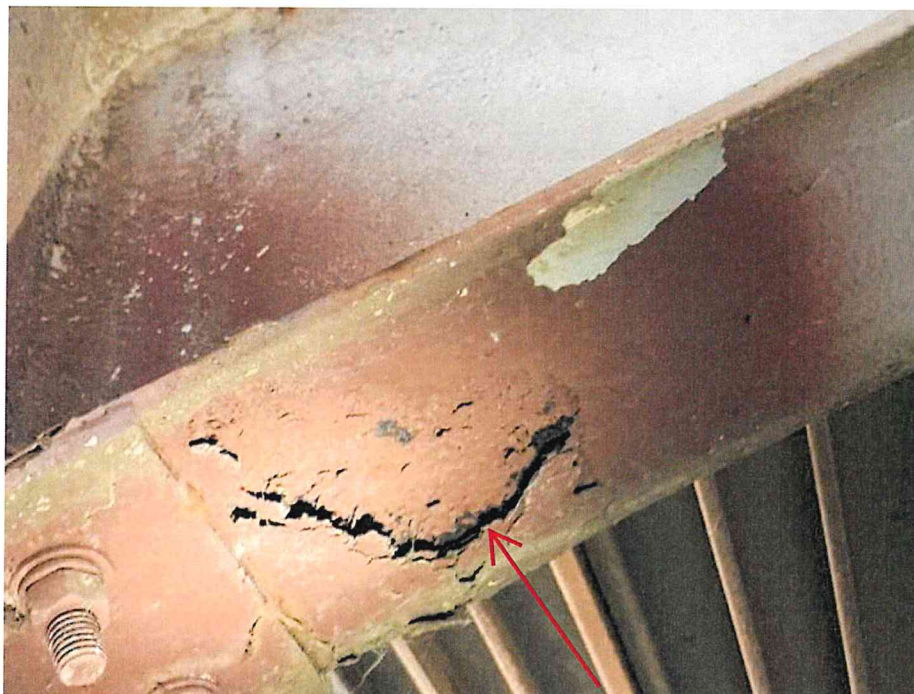


Figure 36 – Photo showing severe corrosion at beam flange (indicated by red arrows)



Figure 37 – Photo showing severe corrosion at beam bottom & top flange (indicated by red arrows)



Figure 38 – Photo showing severe corrosion at splice plates (indicated by red arrows)

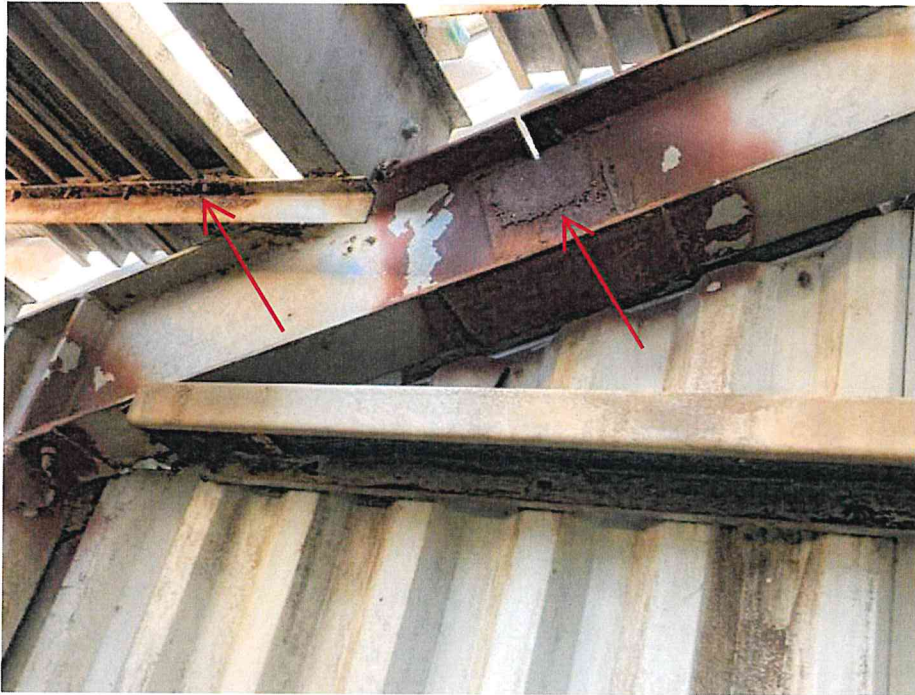


Figure 39 – Photo showing severe corrosion at splice plates and steel support members (indicated by red arrows)



Figure 40 – Photo showing cross-bracing rods and hardware covered by soil & water

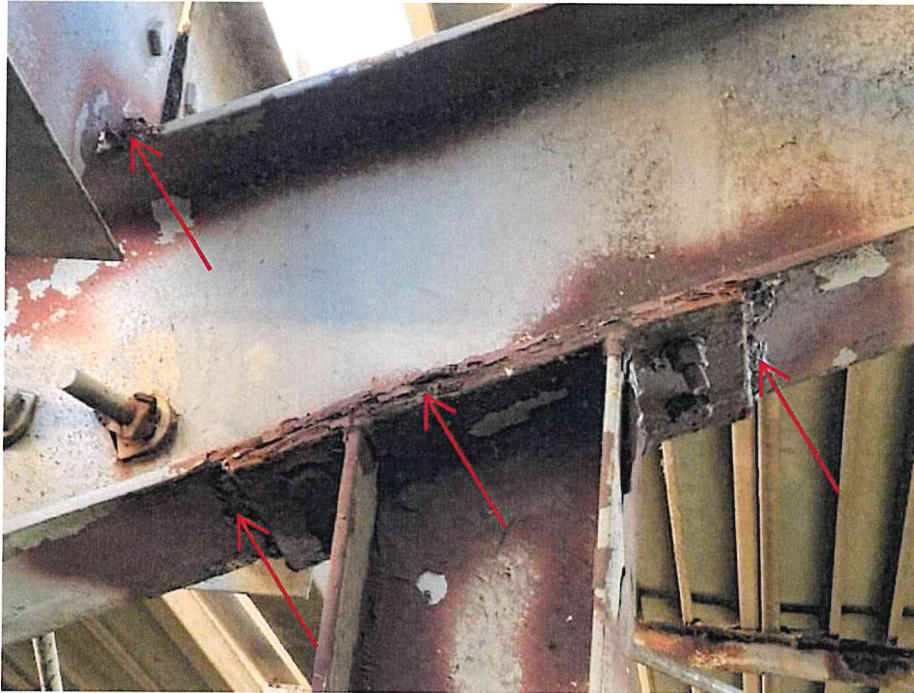


Figure 41 – Photo showing severe corrosion at column web & flange, column top plate, and steel beam flange (indicated by red arrows)

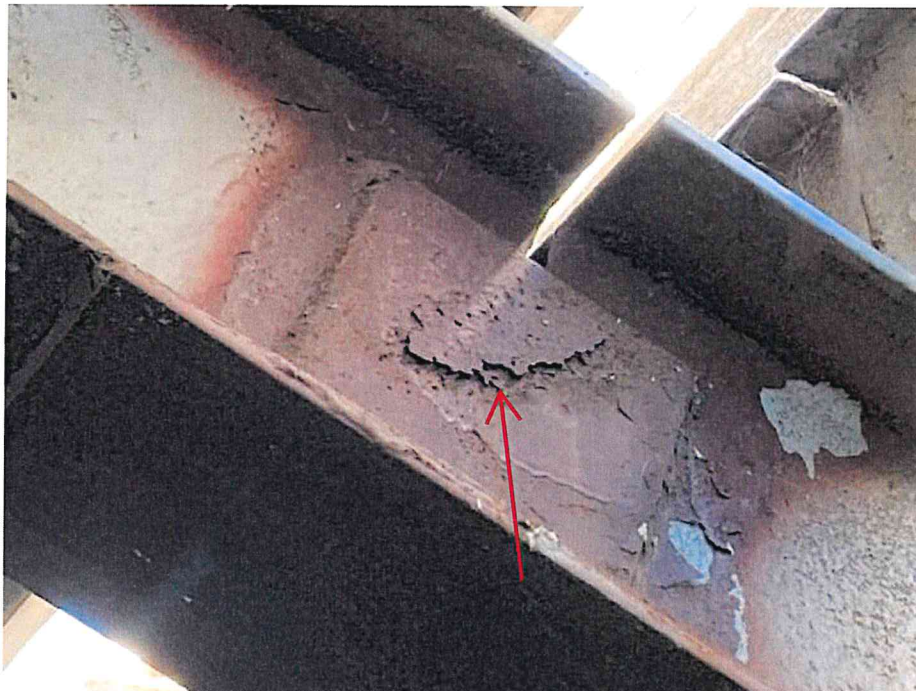


Figure 42 – Photo showing severe corrosion at splice plates (indicated by red arrows)

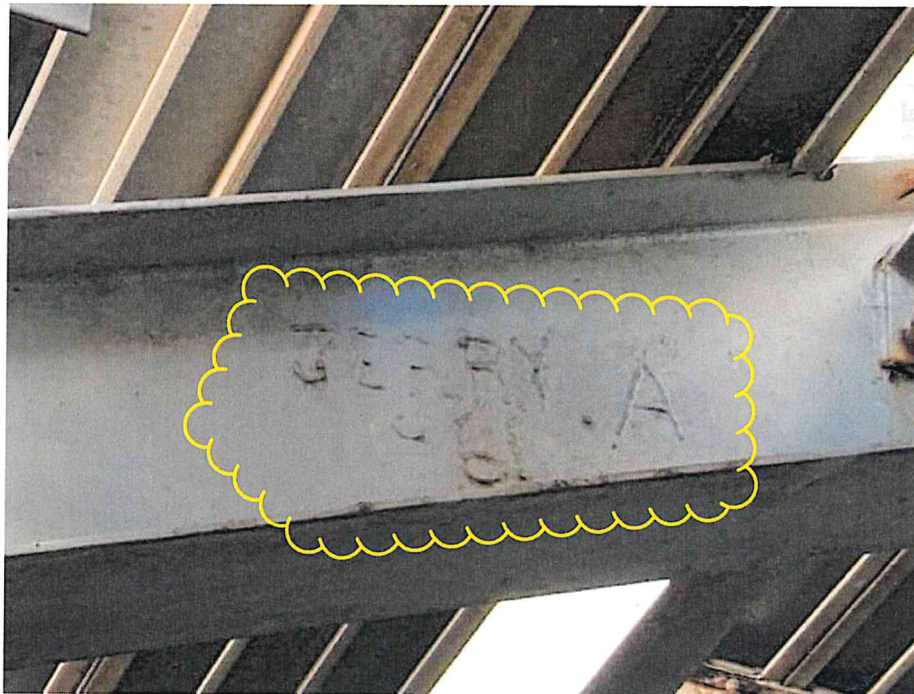


Figure 43 – Marking identifying year of erection



Figure 44 – Photo showing severe corrosion at steel seat support members (indicated by red arrows)





Figure 45 – Photo showing severe corrosion at beam web and flange (indicated by red arrows)

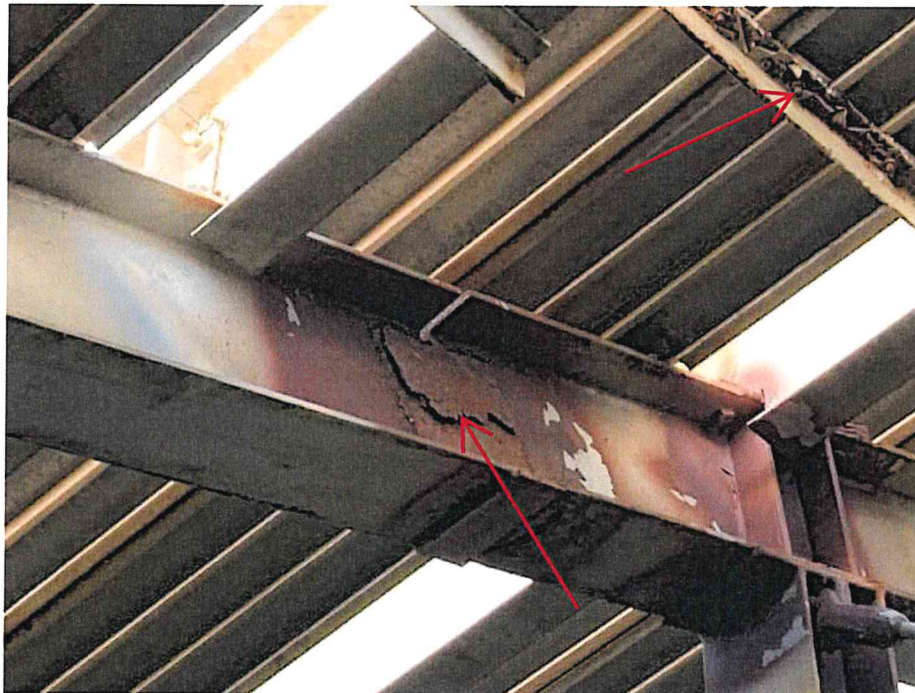


Figure 46 – Photo showing severe corrosion at splice plates (indicated by red arrows)

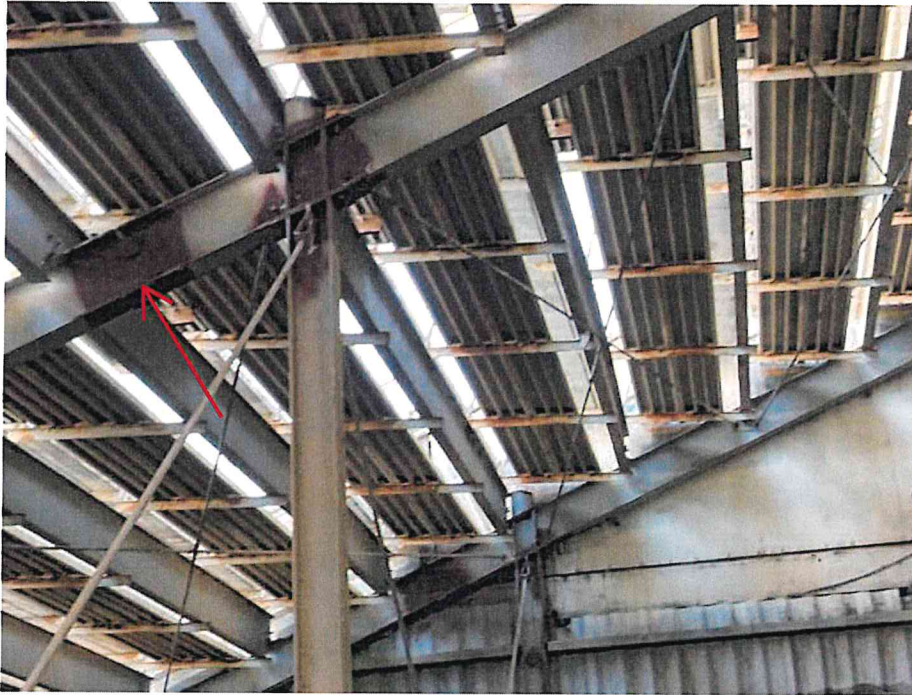


Figure 47 – Photo showing severe corrosion at splice plates and beams (indicated by red arrows)



Figure 48 – Photo showing severe corrosion at splice plates and beams (indicated by red arrows)



Figure 49 – Photo showing severe corrosion at beam flanges (indicated by red arrows)

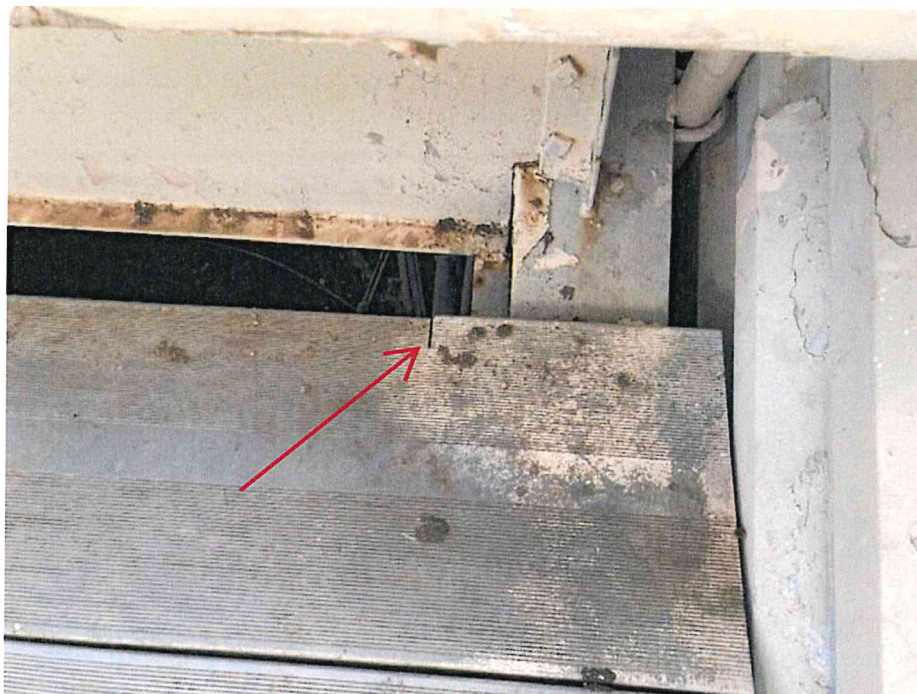


Figure 50 – Photo showing relief cut at aluminum tread to accommodate misaligned steel framing





Figure 51 – Photo showing severe corrosion at beam web (indicated by red arrows)

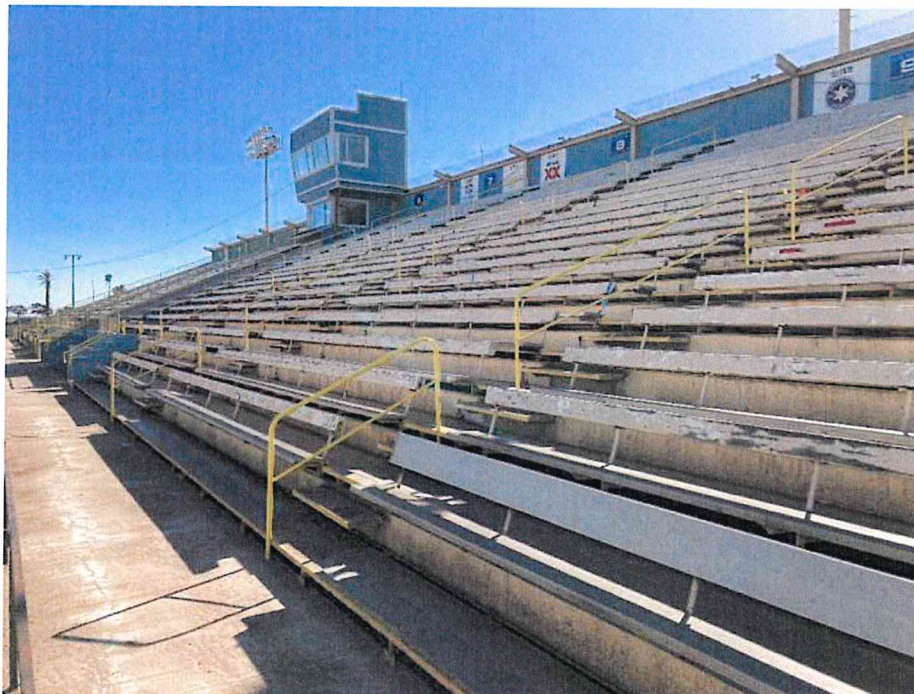


Figure 52 – Overall photo of North Grandstand (looking south)

