Engineering Quality
Assurance Division
A04-925.111

Port Authority Facility Condition Survey Program

George Washington Bridge
Main Span Lower Level
2013 Biennial Inspection

December 2013

Engineering Department

THE PORT AUTHORITY OF NY & NJ

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Stantec

December 11, 2013

Mr. C. John Lin, P.E.
Assistant Chief Engineer
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Engineering Department
The Port Authority of NY & NJ
100 Mulberry Street
Gateway 3, 3rd Floor
Newark, NJ 07102

Attention: Mr. Camille Dagher, P.E., Project Manager

Re: Expert Professional Services for the Performance of Biennial Inspection of the George Washington Bridge Upper & Lower Levels
PA Agreement No. 405-13-005; P.O. 4900009127

Gentlemen:

We are forwarding herewith twelve (12) copies of the 2013 Final Condition Survey Report of the George Washington Bridge Lower Level.

The thoroughness and accuracy of all work on this project has been ensured by independent quality control by our senior technical and management staff.

If you have any questions or need additional information, please contact us.

Very truly yours,

STANTEC CONSULTING SERVICES INC.

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EXECUTIVE SUMMARY

Stantec Consulting in association with PK Engineering, P.C. (PKE), SI Engineering, P.C. (SI), performed the 2013 Biennial Inspection of the George Washington Bridge Lower Level (BIN 5522507), from May through September of 2013. The inspection was performed with the assistance of SEMAC personnel. The inspection included lower level roadway and framing, the stiffening trusses (except for the upper gusset plates and upper chord members which were included in the George Washington Bridge Upper Level inspection), the west abutment and travelers, including the traveler support framing and connections. The purpose of this inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies.

The George Washington Bridge Lower Level is in overall good condition.

During the course of this inspection, 1 condition at 1 location requiring an immediate action was identified. The severely deteriorated web, top and bottom flanges of the S1 fascia stringer between Panel Points 7E* and 8E was recommended to be repaired on an immediate basis. The immediate action repair is in progress (See Appendix C for Immediate Action Correspondence).

Out of a total of the 22 priority repair recommendations at 165 locations identified in the previous inspection report, 5 priority repairs at 6 locations have been completed and 4 priority repairs were partially completed at 10 locations. In addition, 1 priority repair at 1 location has been worsen and was re-evaluated to an immediate action condition. As a result, there are 16 priority repairs at 148 locations that remain outstanding. A total of 8 new priority repairs were found at 58 locations for a total of 24 priority repairs at 206 locations recommended for repair in this report. The majority of these recommendations include the repair of deteriorated steel stringers, diaphragms and truss bottom chord, spalled, cracked and/or undermined concrete bearing pedestals, jammed finger expansion joints and deteriorated traveler support framing members and traveler connection tees.

An in-depth inspection of all gusset plate connections at the lower chord of the stiffening truss was performed and all gusset plates were found to be in good overall condition.

There are also 18 non-structural safety repairs recommended at 285 locations and 75 routine repairs recommended at 3,183 locations.

All conditions are listed in the "Inspection Findings, Conclusions and Recommendations" section of this report and located on the "Deficiency and Photo Location Plans".

The engineering assessment used to determine the overall condition rating and to recommend repairs was based on the deficiencies found at the time of the inspection. This assessment is not intended to imply long-term viability.

The report contains conclusions concerning the causes of the noted deterioration and recommendations for the rehabilitation of the structure. The repair procedures contained in the recommendation section of the report outline the general extent of the required rehabilitation work. The presentation of these conceptual repairs does not preclude the necessity of performing further investigation and preliminary design work for the purpose of establishing the complete scope of work and the final rehabilitation design.

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2013 Biennial Inspection of the George Washington Bridge Lower Level

QAD Repair Reference Number	Repair Recommendation 2011 Inspection	Current Status	Repair Recommendation 2013 Inspection	Dwg. No. *(Photo No.)*
GWB-BR001-018	Repair spalled concrete pedestal at the east end of span 11 in the New York Anchorage (1 location).	Outstanding	Repair spalled concrete pedestal at the east end of span 11 in the New York Anchorage (1 location).	SDU-19 *(Photo 6)*
GWB-BR001-022	Repair ½" diameter hole in the bottom of web of stringer S4 at panel point 38E (1 location).	Completed	----------	----------
GWB-BR001-024	Repair spalled and cracked concrete pedestal causing minor undermining of the bearing under stringer S10 at the east end of span 10. Anchor bolts are partially exposed (1 location).	Completed	----------	----------
GWB-BR001-025	Repair twelve (12) up to 6" x 2" holes in the top plate of the south bottom truss chord between panel points 3E* and 3E (1 location). Temporary repair performed by filling holes with caulk and repainting.	Outstanding	Repair twelve (12) up to 6" x 2" holes in the top plate of the south bottom truss chord between panel points 3E* and 3E (1 location). Temporary repair performed by filling holes with caulk and repainting.	SDU-18 *(Photo 9)*
GWB-BR001-034	Repair severely corroded stringer webs with holes above the bearings at stringers S6 and S14 above panel point 1E (2 locations).	Outstanding	Repair severely corroded stringer webs with holes above the bearings at stringers S6 and S14 above panel point 1E (2 locations).	SDU-19 *(Photo 10)*
GWB-BR001-035	Repair spalled and cracked concrete pedestal causing minor undermining of the bearing under stringer S16 at the west end of span 10 and under stringer S14 at the east end of span 11 (2 locations).	Partially Completed	Repair spalled and cracked concrete pedestal causing minor undermining of the bearing under stringer S16 at the west end of span 10 (1 location).	SDU-19 *(Photo 11)*

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2013 Biennial Inspection of the George Washington Bridge Lower Level

QAD Repair Reference Number	Repair Recommendation 2011 Inspection	Current Status	Repair Recommendation 2013 Inspection	Dwg. No. *(Photo No.)*
GWB-BR001-037	Repair the severely corroded stringer S1, between panel points 7E* and 8E, with 50% section loss on the top flange near the quarter point (1 location).	Re-evaluated to an immediate action condition, see correspondence	----------	----------
GWB-BR001-038	Repair the severely corroded top flange and web with holes in the web at the bearings of stringers S2, S3, S4, S6, S7, S10 and S11, located at the east side of floorbeam 1E (7 locations).	Outstanding	Repair the severely corroded top flange and web with holes in the web at the bearings of stringers S2, S3, S4, S6, S7, S10 and S11, located at the east side of floorbeam 1E (7 locations).	SDU-19 *(Photo 13)*
GWB-BR001-039	Repair the severely corroded webs, with hole near the bearing, of stringers S1, S5 and S8 located at the west end of span 7 and stringers S11, S12 and S13, including an adjacent corrosion crack at stringer S12, located at the east end of span 9 (6 locations).	Outstanding	Repair the severely corroded webs, with hole near the bearing, of stringers S1, S5 and S8 located at the west end of span 7 and stringers S11, S12 and S13, including an adjacent corrosion crack at stringer S12, located at the east end of span 9 (6 locations).	SDU-19 *(Photo 14 & 15)*
GWB-BR001-040	Repair the severely corroded stringers S1 and S18 with web holes and 50% section loss of bottom flange near the 1/3 span between panel points 1E* and 1E (2 locations).	Outstanding	Repair the severely corroded stringers S1 and S18 with web holes and 50% section loss of bottom flange near the 1/3 span between panel points 1E* and 1E (2 locations).	SDU-18 *(Photo 16)*
GWB-BR001-041	Repair the severely corroded web, with holes around the bearing stiffening angles, of stringer S1 at the east side of panel point 26W* (1 location).	Outstanding	Repair the severely corroded web, with holes around the bearing stiffening angles, of stringer S1 at the east side of panel point 26W* (1 location).	SDU-6 *(Photo 17)*

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2013 Biennial Inspection of the George Washington Bridge Lower Level

QAD Repair Reference Number	Repair Recommendation 2011 Inspection	Current Status	Repair Recommendation 2013 Inspection	Dwg. No. *(Photo No.)*
GWB-BR001-042	Repair cracked and spalled concrete pedestals causing undermining of the bearing under stringer S13, S15 and S16 at the west end of span 10 and under stringer S4, S7, S8, S10, S15 and S18 at the east end of span 11 (9 locations).	Partially Completed	Repair cracked and spalled concrete pedestals causing undermining of the bearing under stringer S13, S15 and S16 at the west end of span 10 and under stringer S4, S7, S8, and S18 at the east end of span 11 (7 locations).	SDU-19 *(Photo 18)*
GWB-BR001-043	Repair the 2 of 4 broken anchor bolts at the bearing of stringer S16 located at the east end of span 11 (1 location).	Outstanding	Repair the 2 of 4 broken anchor bolts at the bearing of stringer S16 located at the east end of span 11 (1 location).	SDU-19 *(Photo 19)*
GWB-BR001-047	Repair spalled and cracked concrete pedestals, with or without exposed anchor bolts and/or rebar, causing minor undermining of the bearing under stringers S9 and S15 of span 10, under stringer S9 at the east end of span 11, and at 3 locations under stringer S12 in span 11 (6 locations).	Outstanding	Repair spalled and cracked concrete pedestals, with or without exposed anchor bolts and/or rebar, causing minor undermining of the bearing under stringers S9 and S15 of span 10, under stringer S9 at the east end of span 11, and at 3 locations under stringer S12 in span 11 (6 locations).	SDU-19 *(Photo 20)*
GWB-BR001-023	Repair/Replace missing expansion joint filler material at span 9 (1 location).	Completed	----------	----------
GWB-BR001-045	Repair the jammed finger joint plates at panel point 1E (1 location).	Outstanding	Repair the jammed finger joint plates at panel point 1E (1 location).	TD-9 *(Photo 24)*

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2013 Biennial Inspection of the George Washington Bridge Lower Level

QAD Repair Reference Number	Repair Recommendation 2011 Inspection	Current Status	Repair Recommendation 2013 Inspection	Dwg. No. *(Photo No.)*
GWB-BR001-026	New Jersey and New York Main Span Travelers - repair greater than 50% section loss in vertical stem of connection tee for south traveler hanger at panel point 40W that supports the track for the Main Span Travelers (1 location).	Completed	----------	----------
GWB-BR001-030	New Jersey Main Span Traveler – repair moderate to severe section loss at main support truss members. One new location added. (13 locations).	Partially Completed	New Jersey Main Span Traveler – repair moderate to severe section loss at main support truss members (9 locations).	T-3 & 4 *(Photo 25)*
GWB-BR001-028	New York Main Span Traveler – repair moderate to severe section loss at main support truss members. Additional 5 new locations added (Total 95 locations).	Outstanding	New York Main Span Traveler – repair moderate to severe section loss at main support truss members (95 locations).	T-5 & 6 *(Photo 26)*
GWB-BR001-031	New Jersey and New York Main Span Travelers - repair 50% section loss in vertical stem of connection tee that supports the south track at panel point 23E and the north track at Panel Point 42W for the Main Span Travelers (2 locations).	Completed	----------	----------
GWB-BR001-046	New Jersey Main Span Traveler – repair moderate to severe section loss at cross bracings between the main support truss top chords (6 locations).	Partially Completed	New Jersey Main Span Traveler – repair moderate to severe section loss at cross bracings between the main support truss top chords (3 locations).	T-3 *(Photo 28)*
GWB-BR001-048	New Jersey Back Span Traveler – repair moderate to severe section loss at main support truss members (5 locations).	Outstanding	New Jersey Back Span Traveler – repair moderate to severe section loss at main support truss members (5 locations).	T-1 & 2 *(Photo 29)*

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2013 Biennial Inspection of the George Washington Bridge Lower Level

QAD Repair Reference Number	Repair Recommendation 2011 Inspection	Current Status	Repair Recommendation 2013 Inspection	Dwg. No. *(Photo No.)*
GWB-BR001-049	----------	New	Repair severely corroded stringer webs with holes above the bearings at stringers S2 and S17 above panel point 1E (2 locations).	SDU-19 *(Photo 8)*
GWB-BR001-050	----------	New	Repair spalled and cracked concrete pedestal causing minor undermining of the bearing under stringer S10 at the east end of span 11 (1 location).	SDU-19 *(Photo 21)*
GWB-BR001-051	----------	New	Repair severely corroded web, with hole near the bearing of stringer S14, located at the east end of span 9 (1 location).	SDU-19 *(Photo 7)*
GWB-BR001-052	----------	New	New Jersey Main Span Traveler – replace the missing 3 of 3 connection bolts at the frame bracing gusset plate (1 location).	T-3 *(Photo 30)*
GWB-BR001-053	----------	New	New Jersey Main Span Traveler – repair moderate to severe section loss at main support truss members (3 locations).	T-3 *(Photo 27)*
GWB-BR001-054	----------	New	Repair severely corroded web, with holes around the bearing stiffening angles, of stringer S18 at the west face of panel point 36E (1 location).	SDU-11 *(Photo 12)*
GWB-BR001-055	----------	New	Repair bottom of stringer S10 web at the west side of floorbeam 15E connection which exhibits severe corrosion and section loss with 4"x1" and 2"x1" holes and a 3" crack in between (1 location).	SDU-16 *(Photo 22)*

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2013 Biennial Inspection of the George Washington Bridge Lower Level

QAD Repair Reference Number	Repair Recommendation 2011 Inspection	Current Status	Repair Recommendation 2013 Inspection	Dwg. No. *(Photo No.)*
GWB-BR001-056	----------	New	Repair top of the interior stringer webs which exhibit severe corrosion and section loss with cracks (with or without arrestor drill holes) above the splice plates over the bearing area at the floorbeam connections (48 locations).	SDU-1, 2, 3, 6 & 9 thru 18 *(Photo 23)*

SUMMARY OF SAFETY REPAIR RECOMMENDATIONS

2013 Biennial Inspection of the George Washington Bridge Lower Level

Repair Recommendation - 2013 Inspection	**Dwg. No.** ***(Photo No.)***
1. Replace severely deteriorated steel knee brace support bracket for two 3-inch diameter electrical conduits at stringer S2, west of Floorbeam 3W at span 1 (1 location).	SDU-1 *(Photo 31)*
2. Replace the missing bottom rail of the chain link fence panel at Span 10, along the south safety walk (1 location).	TD-10 *(Photo 32)*
3. Repair or replace median safety netting with large holes (7 locations).	TD-1, 5, 7 & 9 *(Photo 33)*
4. Repair or replace the 2' x 1' opening in the north safety walk due to removed conduits and 2' long x 4" wide section of removed safety walk grating at the New Jersey Tower (1 location).	TD-2 *(Photo 34)*
5. Remove partially detached steel curb plate along the roadway barrier (3 locations).	TD-8 & 9 *(Photo 35)*
6. Replace the missing or partially missing railings at the crossover walkways over the open median areas (8 locations).	TD-2, 3, 4, 7 & 8 *(Photo 36)*
7. Repair the detached connections of the safety walk or bridge railings (5 locations).	TD-2, 8 & 9 *(Photo 37)*
8. Repair or replace the missing or loose cover to the electrical panel box with exposed wires attached to the back of the barrier (accessible to the public / stranded motorists) along the north and south safety walks (9 locations).	TD-1, 2, 7, 8 & 9 *(Photo 38)*
9. Repair or replace corroded/uplifted diamond plate (creating a tripping hazard) safety walk grating (12 locations).	TD-2, 6, 7 & 8 *(Photo 39)*
10. Repair severely deteriorated and collapsed section of steel curb at the south side of the eastbound roadway at the NJ Tower (1 location).	TD-2 *(Photo 40)*

SUMMARY OF SAFETY REPAIR RECOMMENDATIONS

2013 Biennial Inspection of the George Washington Bridge Lower Level

Repair Recommendation - 2013 Inspection	**Dwg. No.** ***(Photo No.)***
11. Replace bent and broken diamond end plate at the end of the north safety walk at 1E (creating a tripping hazard) (1 location).	TD-9 *(Photo 41)*
12. Repair broken conduit at the south safety walk of the New Jersey tower (Accessible to the public / stranded motorists) (1 location).	TD-2 *(Photo 42)*
13. Repair or replace the safety netting with large holes at the New York main span traveler (9 locations).	T-5 *(Photo 43)*
14. Repair the moderate to severe section loss of W8's and 3" x 3" L's that support the safety netting for the travelers (35 locations).	T-1, 3, 5 & 7 *(Photo 44)*
15. Replace the missing horizontal rail angle at the New York back span traveler truss platform below the floor access hatch (1 location).	T-7 *(Photo 45)*
16. Tighten or replace loose or missing bolts for safety netting straps and replace the missing safety netting straps and bolts (169 locations).	T-1, 3, 5 & 7 *(Photo 46)*
17. Repair broken aluminum fence posts, rails and welds between the fence fabric connection plates and the posts (9 locations).	T-1, 5 & 7 *(Photo 47)*
18. Replace missing or broken hinges or hinge screws at floor access hatch of the travelers (12 locations).	T-1, 3, 5 & 7 *(Photo 48)*

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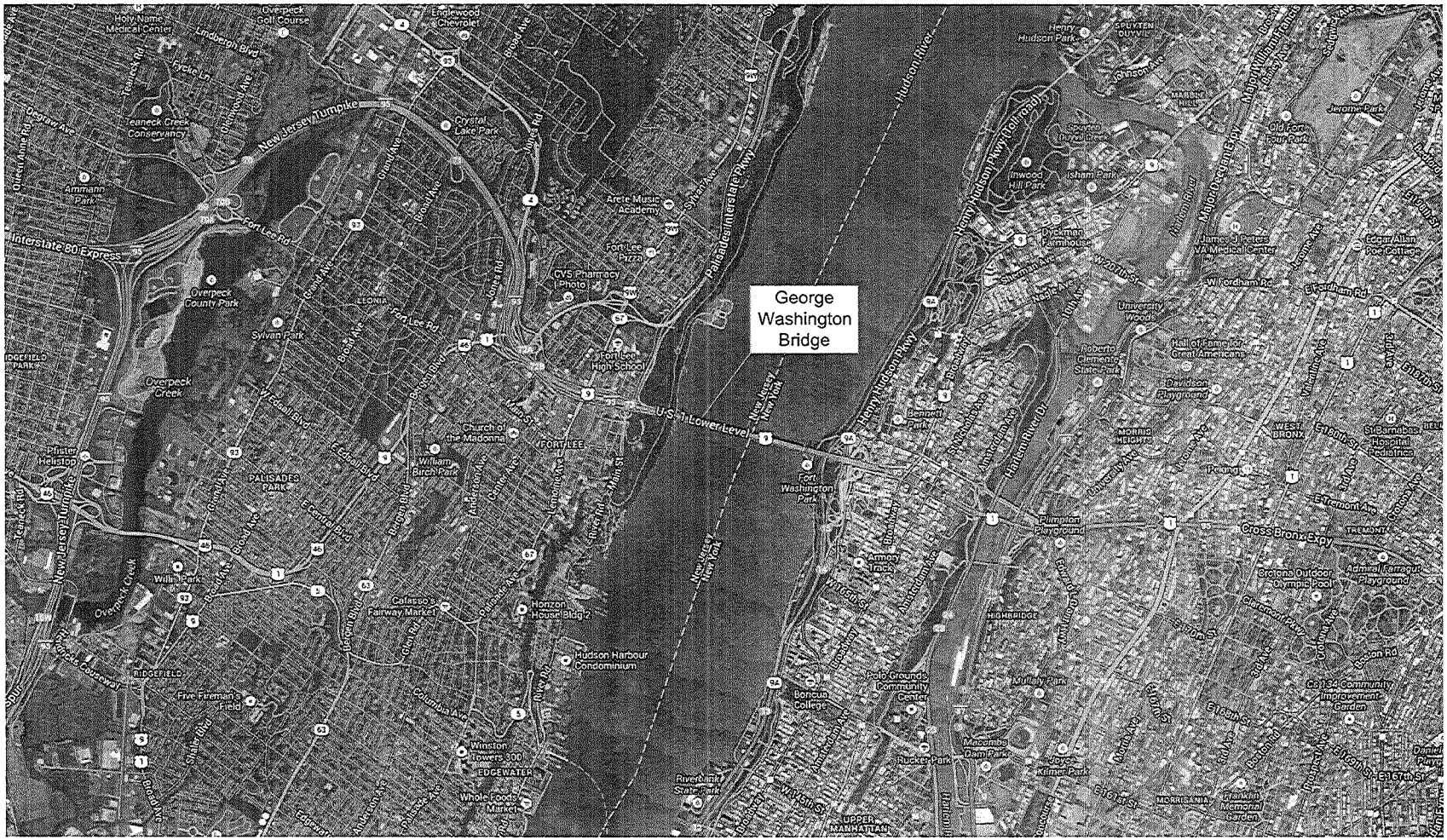
Location Plan



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THE PORT AUTHORITY
OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507
LOWER LEVEL

LOCATION PLAN

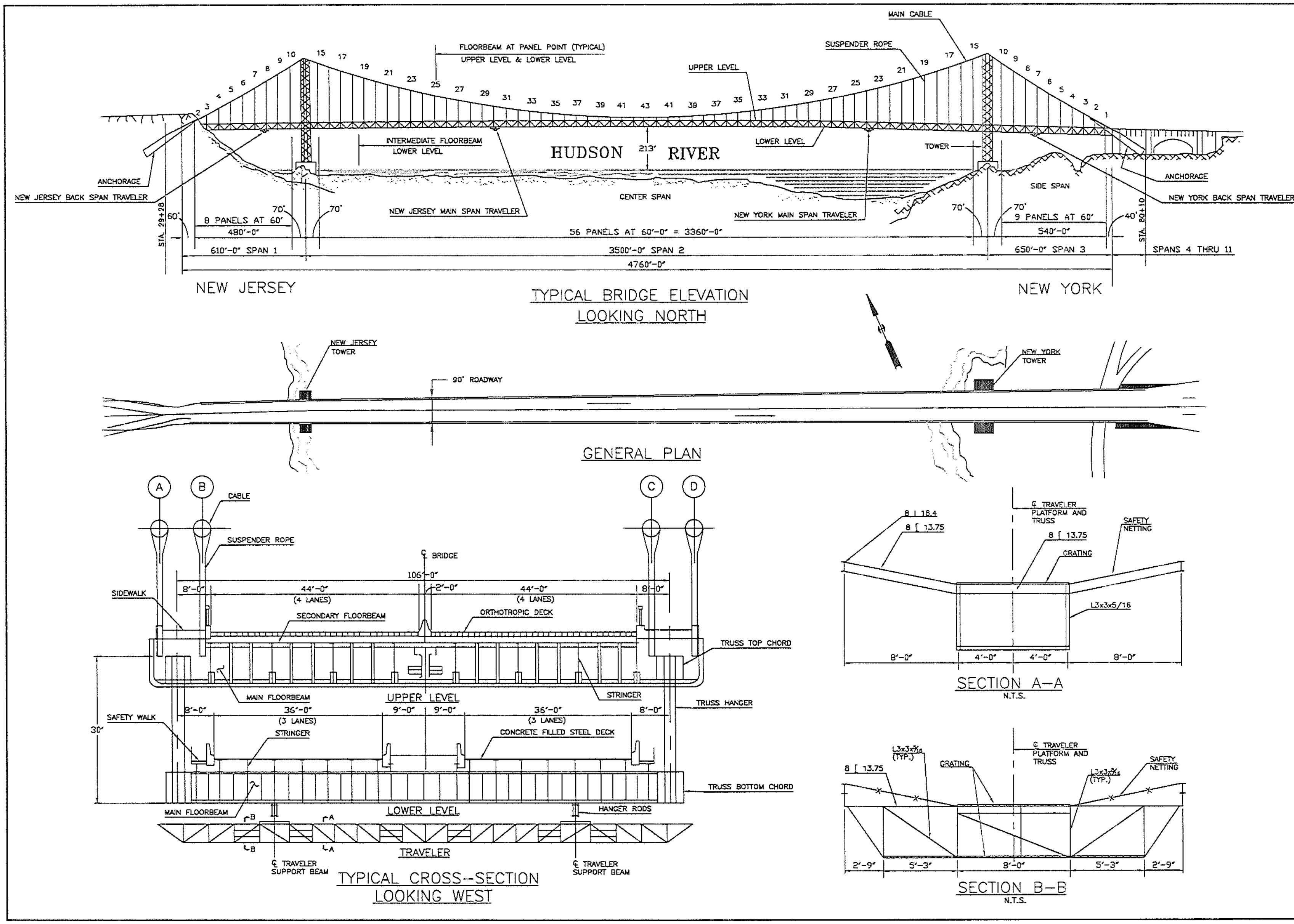
DS	RG	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number LP-1

General Plan, Elevation and Cross-Section



Sheet 1 of 1

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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title

2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507
LOWER LEVEL
GENERAL PLAN, ELEVATION AND CROSS-SECTIONS

Designed by	Drawn by	Checked by
DS	RQ	GA

Date: DECEMBER, 2013

Contract Number: 405-13-005

Drawing Number: G-1

I. Scope of Work, Inspection Procedures and Terminology

Scope of Work, Inspection Procedures and Terminology

A. SCOPE OF WORK

Stantec Consulting Services Inc. in association with PK Engineering, P.C. (PKE) and SI Engineering, P.C. (SI), performed the 2013 Biennial Inspection of the George Washington Bridge Lower Level (BIN 5522507), from May through September 2013. The inspection was performed with the assistance of SEMAC personnel. The inspection included lower level roadway and framing, the stiffening trusses (except for the upper gusset plates and upper chord members which were included in the George Washington Bridge Upper Level inspection), the west abutment and travelers, including the traveler support framing and connections. The purpose of this inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies.

The survey included a 100% visual inspection of all structural elements and a hands-on inspection of all floorbeams, stringers and non-redundant, fracture critical members including steel cap beams and the bottom chord of the stiffening trusses, the gusset plate connections of the stiffening trusses at the bottom chord and the accessible primary traveler main truss members. The NY and NJ Towers (with the exception of the lower level framing across the towers), the anchorages, the stiffening truss upper chord and upper portions of the verticals and diagonals, all bridge mounted signs and lighting structures are included with the inspection of the George Washington Bridge Upper Level.

The inspection was performed in compliance with the latest requirements of the PANY&NJ and New York State Department of Transportation and included the preparation and submittal of a state Biennial Bridge Inspection Report, as well as this Facility Condition Survey Report, which includes verification and status of all priority repairs recommended in the previous report.

B. INSPECTION PROCEDURE

1. Inspection Method

The structural inspections were performed between May and September 2013, utilizing two inspection teams each led by a professional engineer licensed in the state of New York. The field work included a 100% hands-on inspection of all non-redundant, fracture-critical members and fatigue prone details, including the underside of the deck as well as a thorough visual inspection of all the remaining structural and non-structural elements. Dye penetrant tests were performed where cracks were suspected in critical areas. Additionally, all concrete elements were sounded by hammer and all areas of loose concrete were removed during this inspection. All structural and non-structural deficiencies were recorded, photographed and located on the deficiency plans, which are included in this report.

2. Access Methods

Lower level framing between panel points 3W and 1E* between the traveler beams was accessed from the travelers using ladders (see Photo A). Areas outside of the traveler beams and the lower chord gusset plates of the stiffening trusses were inspected with ladders provided by SEMAC personnel set on the travelers.

The lower level framing at the New Jersey abutment between Panel Points 2W and 3W was inspected using extension ladders set on the rock slope in front of the NJ abutment (see Photo B). Lower level framing between panel point 1E* and Spans 3 to 9 were inspected using a 135 ft. manlift from within the New York Anchorage courtyard (see Photo C).

Scope of Work, Inspection Procedures and Terminology

Spans 10 and 11 at the New York Anchorage were inspected by crawling, using Tyvek suits and dust masks (see Photo D).

The top of deck in Spans 1 through 3 was inspected from the north and south safety walks. Spans 4 through 11 and the median areas, deck joints and left lanes in Spans 1 through 9 were inspected at night during lower level roadway closings. A shadow truck was utilized to protect the work areas during all night-time lower level roadway closings.

Photo: A

Location: Span 1, main floorbeam, stiffening truss lower chord and gusset plate at Panel Point 9W*.

Description: Hands-on inspection of stiffening truss lower chord, floorbeams and stringer with ladders set on traveler.

Photo: B

Location: Span 1, main floorbeam and stringers at Panel Point 2W* - 3W.

Description: Hands-on inspection of floorbeams and stringers with ladders near the New Jersey Anchorage.

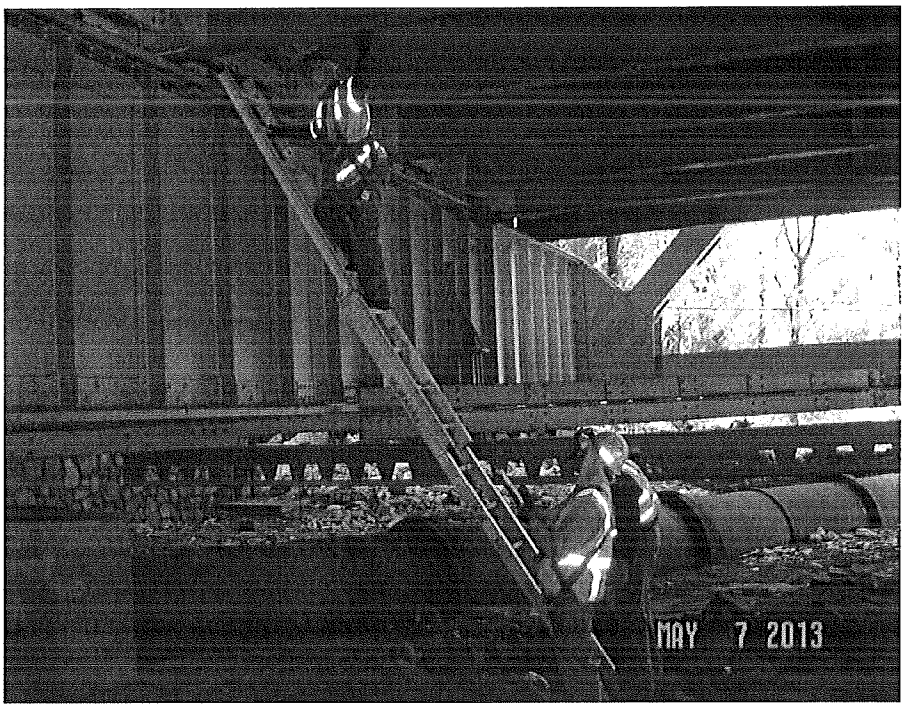
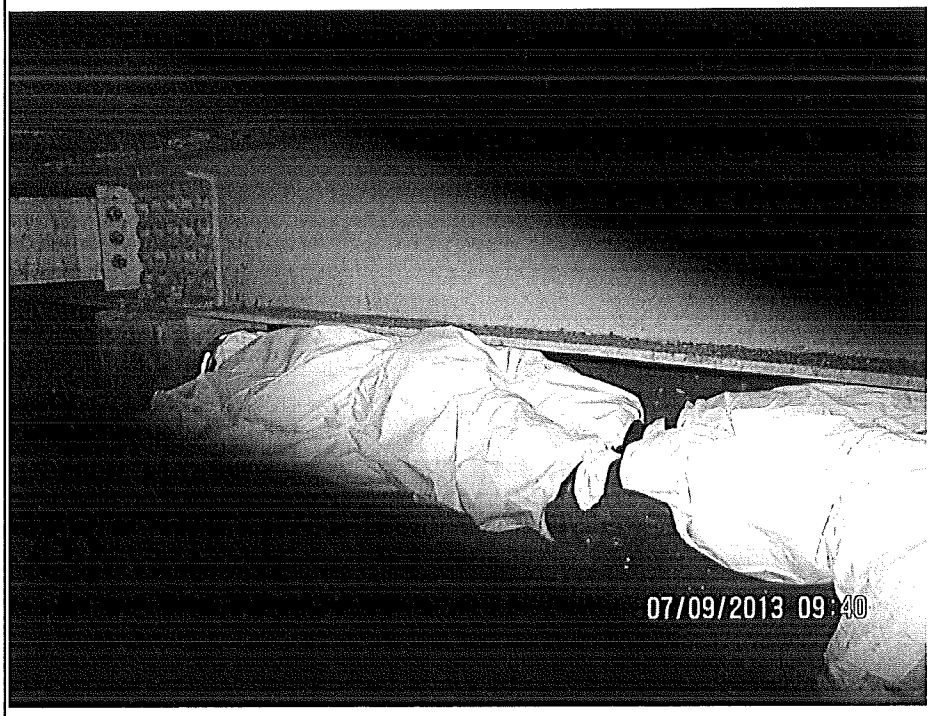


Photo: C **Location:** New York Anchorage Courtyard. **Description:** 135' manlift was utilized within the NY Anchorage courtyard to access the superstructure and deck underside in Spans 3 through 9.	
Photo: D **Location:** Span 10 underdeck at New York Anchorage. **Description:** Hands-on inspection of the stringers and pedestals by crawling.	

C. CONDITION SURVEY DEFINITIONS AND TERMINOLOGY

DEFINITIONS OF RECOMMENDATION CATEGORIES

The inspection involves one of the following methods:

Hands-on Inspection Close-up inspection from no further away than arm's length where the member or element can be physically touched.

Visual Inspection The inspection from a reasonable distance of a member or element where initial determination of the condition can be made.

Four categories of recommendations are identified and defined as follows:

Immediate Requires immediate action including possible closing of the structure or areas affected for safety reasons until interim remedial measures, such as shoring or removal of potentially unsafe structures (or elements), can be implemented. These closings or interim remedial actions, if any, always require immediate action upon discovery.

Priority Conditions for which no immediate action may be required or for which immediate action has been completed, but further investigations, design and implementation of interim or long-term repairs should be undertaken on a priority basis, i.e., taking precedence over all other scheduled work.

Safety Conditions that present a potential hazard and which should be repaired as soon as possible.

Routine Conditions requiring further investigation or remedial work, which can be undertaken as part of a scheduled maintenance program, other scheduled project, or routine facility maintenance, depending on the action required.

RATING CRITERIA

Terms used to describe the condition of a structural system or component are listed and defined below. When the term is applied to an overall structure or system, this does not indicate that all elements of the structure or system are in the same condition.

Excellent "As New" Condition

Good The structural system is sound and performing its function, although it shows signs of wear and may require some minor repairs, mostly routine.

Fair The structural system is still performing adequately at this time, but needs "priority" and/or "routine" repairs to prevent future deterioration and to restore it to good condition.

Poor The structural system cannot be relied upon to continue to perform its original function without "immediate" and/or "priority" repair.

INSPECTION TEMINOLOGY

The following terms may be used during inspection to describe the condition of structural members.

1) **STEEL MEMBERS**

a) **Corrosion**

- Minor (or Light) – A light surface rust.
- Moderate – Rust that is loose and flaking with some pitting. This scaling, or exfoliation, can be removed with some effort by use of a scraper or chipping hammer. Element exhibits measurable but not significant loss of section.
- Severe – Heavy, stratified rust or rust scales with extensive pitting. Removal requires exerted effort and may require mechanical means. Significant loss of section.

b) **Pack Rust** – Rust collected between two interfacing surfaces, usually two steel plates. Pack rust can be minor, moderate, or severe as described above. Pack rust can severely deform the steel members due to the expansive nature of rust.

c) **Pitting** – Formation of cavities due to corrosion. Minor, moderate, and severe pitting categories are used based upon depth and density of cavities.

- Minor – Typically less than ¼ inch diameter and $^1/_{32}$ inch deep.
- Moderate – ¼ inch to ½ inch diameter and up to $^1/_8$ inch deep.
- Severe – Greater than ½ inch diameter and over $^1/_8$ inch deep.

2) **CONCRETE MEMBERS**

a) **Cracking** – A separation into two or more parts with a space between the fractured concrete surfaces.

- Hairline- Crack width less than $^1/_{32}$ inch.
- Fine – Crack width between $^1/_{32}$ inch and $^1/_{16}$ inch.
- Medium – Crack width between $^1/_{16}$ inch and $^1/_8$ inch.
- Wide – Crack width greater than $^1/_8$ inch.

The above definitions for cracks can be modified, depending on the type of structural element. Other terminology, such as map cracking, pattern cracking, etc., may be used as appropriate.

b) **Efflorescence** – A white deposit caused by crystallization of soluble salts brought to the surface by moisture leaching through concrete.

c) **Delamination** – A layered separation of the concrete. When a delaminated area of concrete is struck (sounded) with a hammer, a hollow sound will be emitted.

d) **Leaching** – The dissolution and washing away of the calcium hydroxide in concrete. The moisture enters the concrete through exposed cracks in the surface.

e) **Spall** – A roughly circular, oval, or elongated depression in the surface of a concrete element caused by separation of a portion of the surface concrete.

- Small (Pop-out) – Less than 6 inches in diameter and 1 inch deep.
- Medium – Between 6 inches and 12 inches in diameter and up to 2 inches deep.
- Large – Over 12 inches in diameter and any depth.

f) **Scaling** – The gradual loss of surface mortar and aggregates.

- Light Scaling – Loss of surface mortar up to ¼ inch deep.
- Medium Scaling – Loss of surface mortar between ¼ inch and ½ inch deep, including loss between large aggregate.
- Heavy Scaling – Loss of mortar greater than ½ inch in depth significantly exposing large aggregate.

g) **Hollow area** – An area of concrete which emits a hollow sound when struck with a hammer and indicates the existence of a fracture plane beneath the surface.

h) **Honeycomb** – Typically small pocket voids formed by the entrapment of air during the placement of the concrete.

II. History and Structure Description

History and Structure Description

A. HISTORY

The George Washington Bridge is a 4760' long suspension bridge that spans the Hudson River between upper Manhattan in New York and Fort Lee in New Jersey. The bridge serves as an important link in the I-95 corridor, carrying approximately 300,000 vehicles per day, making it one of the busiest in the world.

The bridge was originally designed to carry a 90' wide upper roadway with 10' wide sidewalks on each side and four electric railway tracks on a lower level. The bridge was opened to traffic on October 25, 1931. Originally the upper level carried only six lanes of traffic and the center portion was unpaved. In 1946, the upper level was expanded to accommodate eight lanes of traffic. The six lane lower level was added and opened to traffic on August 29, 1962 (original contract Dwg. No. GWB-190.008). The new addition made the George Washington Bridge the only fourteen lane suspension bridge in the world. In 2001, the Port Authority prohibited all trucks from using the lower level of the bridge at all times.

B. STRUCTURE DESCRIPTION

For the purpose of recording inspection findings and ratings, the lower level is made up of eleven spans: the New Jersey Side Span (Span 1), the Main Center Span (Span 2), the New York Side Span (Span 3) and the New York Anchorage Spans (Spans 4 through 11).

The stiffening (Warren type) trusses are 30' deep from the center of the top chord to the center of the bottom chord. The top and bottom chords are comprised of built-up riveted steel box sections. The top chord dimensions are 30" deep by 30" wide; and the bottom chord dimensions are 24" deep by 30" wide. The vertical chord members are built-up riveted steel sections that consist of a web plate (31"x½") and flanges made up of angles (8"x8"x¾"); the diagonals vary in size and cross section.

The lower level framing comprising Spans 1, 2 and 3 consists of main floorbeams, intermediate floorbeams, roadway stringers and a concrete filled steel deck. The floorbeams are 7' deep riveted steel plate girders and are located at each main panel point and intermediate panel point (30' on center). The main floorbeams of the lower level are supported by the stiffening truss verticals located directly below and supported by a total of sixteen suspension ropes anchored to the four main bridge suspension cables. The intermediate floorbeams of the lower level are supported by the stiffening truss diagonals and verticals (see General Plan, Elevation and Cross-Sections, Page No. xii). The floorbeams are built-up sections that consist of a web plate (84"x½"), a built-up top flange that consists of two angles (8"x8"x¾") and a top cover plate (22"x⅝") and a built-up bottom flange that consists of two angles (8"x8"x¾"), a bottom cover plate (22"x⅝") and two additional bottom cover plates (22"x½"). The typical roadway stringers are 24 WF sections and are bolted to the top flange of the floorbeams. The roadway consists of a concrete filled steel deck (4¼" I-beams at 6" on center welded to the roadway stringers). The deck is reinforced with ¾" diameter reinforcing rods and there are expansion joints at each panel point (60' on center). The underside of deck has stay-in-place (S.I.P.) metal forms.

The lower level framing in Spans 4 to 9, within the New York Anchorage, is comprised of a similar floorbeam and stringer system. The floorbeams are supported on steel columns or on the walls of the New York anchorage. Spans 10 and 11 are comprised of a series of stringers and diaphragms supported on concrete pedestals bearing on the top of the New York anchorage.

There are two electrically powered travelers situated below the main span and one under each back span. Each traveler is hung from support beams and consists of a box shape truss providing a grated work area of 8'-0" x 116'-0". The top and bottom chords of the trusses are horizontal Vierendeel trusses and the two side support trusses are 4'-0" deep by 116'-0" long. The truss members are comprised of steel angles and channels. Each platform's grated work area is extended on both sides and both ends with a sloping wide wing covered with safety netting consisting of a chain link fabric to safeguard personnel on the traveler.

For typical traveler details see General Plan, Elevation and Cross-Sections, Page No. xii.

III. Inspection Findings, Conclusions and Recommendations

Inspection Findings, Conclusions and Recommendations

A. OVERALL CONDITION

The overall condition of the deck, superstructure, substructure and travelers is good. An in-depth inspection of all gusset plate connections at the lower chord of the stiffening truss was performed and all gusset plates were found to be in good overall condition. During the course of this inspection, 1 condition at 1 location requiring an immediate action was identified. The severely deteriorated web, top and bottom flanges with corrosion holes in the S1 fascia stringer between Panel Points 7E* and 8E was recommended to be repaired on an immediate basis. The immediate action repair is in progress (see Appendix C for Immediate Action Correspondence).

Out of a total of the 22 priority repair recommendations at 165 locations identified in the previous inspection report, 5 priority repairs at 6 locations have been completed and 4 priority repairs were partially completed at 10 out of 30 locations. In addition, 1 priority repair at 1 location has been worsen and is re-evaluated to an immediate action condition. As a result, there are 16 priority repairs at 148 locations that remain outstanding. A total of 8 new priority repairs were found at 58 locations for a total of 24 priority repairs at 206 locations recommended for repair in this report. The majority of these recommendations include the repair of deteriorated steel stringers, diaphragms and truss bottom chord, spalled, cracked and/or undermined concrete bearing pedestals, sheared off bearing anchor bolts, jammed finger expansion joints and deteriorated traveler support framing members and traveler connection tees.

There are also 18 non-structural safety repairs recommended at 285 locations and 75 routine repairs recommended at 3,183 locations.

B. UNDERSIDE OF DECK (SPANS 1 THROUGH 11)

Bottom Chord of Stiffening Truss

The "box shaped" bottom chords of the stiffening trusses are generally in good condition. Water ponding was noted on top of the bottom chord at approximately one third of the truss chord panels, mostly adjacent to the panel points. Various rivet heads located along the top of the bottom chords exhibit greater than 50% section loss at isolated locations, generally where water ponding occurs. Pack rust remains between the flange plates and the side plates of the box shaped chords resulting in minor warping and curling of the flange plate edges at the corners of the box member resulting in isolated rivet fractures. To prevent further deterioration, the pack rust beneath the warped top flange plate edges was previously cleaned and caulking was applied to fill the resulting void to seal out water. Caulking is missing or deteriorated along several lengths of the top chord plate allowing water infiltration, exacerbating the condition. Areas of pack rust remain along the lower corners of the box shaped chords. Minor to moderate pitting up to 3/16" deep was evident along the top plate of the bottom chord of the stiffening truss. The 2" diameter hole in the top plate of the south truss between Panel Points 8E* and 9E and the 3" x 1" hole in the top plate of the south truss between panel points 14E and 15E remain unchanged. Twelve holes in the top plate, up to 6" x 2" in size, remain in the south bottom truss chord between Panel Points 3E* and 3E (see Photo 9). Paint failure has also been noted at localized areas.

Inspection Findings, Conclusions and Recommendations

Main and Intermediate Floorbeams

The main and intermediate floorbeams comprising Spans 1 through 3 are generally in good condition. The top flange of the floorbeams is typically covered with roadway debris and sand blasting material below the median openings and the curb lines. As a result of the debris accumulation a large number of rivet heads (approximately 1500 total rivets) exhibit greater than 50% section loss and the top flange exhibits moderate to severe corrosion with minor losses. The rivet heads at the bottom flange of the floorbeams below the median areas also exhibit a large number of rivet heads with greater than 50% section loss (approximately 1000 total rivets). Numerous floorbeams exhibit moderate to severe corrosion with localized pitting up to 3/16" deep along the top and bottom flanges below the deck joints. The paint system along the floorbeams directly below the median opening is in fair condition. The main floorbeams exhibit areas of peeling paint, spot rust and moderate to severe corrosion with minor section losses and the intermediate floorbeams between panel points exhibit similar conditions but to a lesser extent.

The six steel floorbeams/capbeams within the New York Anchorage are generally in good condition. However, there are isolated areas of corrosion and pitting along the bottom flange, bottom of web and web stiffener angles of Floorbeam 4 at Spans 6 and 7.

Stringers and Diaphragms

- Spans 1, 2, and 3

The stringers and diaphragms in Spans 1 through 3 are generally in good condition.

Various interior stringers exhibit severe corrosion and section loss with cracks above the splice plates over the bearing area at the floorbeam connection. Crack arrestor holes were drilled at the end of most cracks. No additional crack propagation was observed during this inspection beyond the drilled arrestor holes. The crack length of five cracked interior stringers without arrestor holes that were identified previously remains unchanged since the 2011 inspection (see Appendix A). These conditions were recommended as priority repairs with or without arrestor drilled holes (see Photo 23).

Previously found severe section loss to the ends of webs with up to 3" x 1" corrosion holes in Stringers S6 and S14 above Floorbeam 1E in Span 3, remains unchanged (see Photo 10). Additionally, 2 new locations were discovered during this inspection with similar conditions above Floorbeam 1E in Span 3, in Stringers S2 and S17 with up to 1" holes in the middle of the web (see Photo 8).

The paint system for fascia Stringers S1 and S18 remains in fair to poor condition in all three spans. Moderate to severe corrosion was noted in the web at the ends of many fascia stringers and at the stringer support angels, end diaphragms and vertical floorbeam stiffeners at the floorbeam connections. Numerous fascia stringers exhibit moderate to severe horizontal and vertical corrosion holes below the angles varying in size.

Previously identified priority repair for fascia Stringer S1 between Panel Point 7E* and 8E was reevaluated to immediate repair due to additional deteriorations found in the web and bottom flange of the member during this inspection (see Appendix C).

Crack arrestor holes were drilled at 15 fascia stringers previously and 1 new location during this inspection. The condition previously found on the east side of Stringer S1 at Panel Point 26W* containing a horizontal corrosion hole 6" long x 5/8" wide and a vertical hole 1/8" wide and 1" long remains unchanged (see Photo 17). A new location was found on the west side of Stringer S18 at Panel Point 36E with a 5" long x 3/4" wide horizontal corrosion hole and a 2" long and 1/8" wide vertical hole with arrestor holes drilled at the ends of each of these holes (see Photo 12). Since the fascia stringers only carry a small percentage of the roadway's live load and only support half of the safety walk's load, 14 of 16 locations with lesser extent of deterioration were recommended to be repaired on a routine basis (refer to Appendix B for documentation and location of corroded stringers with cracks and arrestor holes).

Also, severe corrosion with up to 50% section loss and large holes was found at the web and both flanges of fascia Stringers S1 and S18 between Floorbeams 1E* and 1E in Span 3 (see Photo 16).

At the east end of Span 3, numerous diaphragms supporting the safety walks and median catwalks exhibit moderate to severe corrosion with small holes. Diaphragms under the median area in spans 1 and 3 are also severely corroded.

Extensive accumulation of debris remains on top of the bridge seat at the begin abutment of the New Jersey anchorage with up to 3 inches accumulated on the top of bottom flange of most of the stringers between Floorbeams 2W and 3W in Span 1. Widespread debris accumulation was also observed on the top of all floorbeams directly below the safety walks and median opening in Spans 1 through 3. The debris creates a corrosive environment and advances the deterioration rate of the bearings, stringers, floorbeams, and connections.

- Spans 4 through 9

The stringers and diaphragms in Spans 4 through 9 are generally in good to fair condition. Long-term water leakage through the expansion joints at the end of Spans 3, 6, and 9 has caused advanced deterioration to the stringers below. Above Floorbeam 1E in Span 4, the ends of stringers exhibit severe corrosion with large holes in the web and top flange at Stringers S2, S3, S4, S6, S7, S10 and S11 (see Photo 13). Above Capbeam 4, at the west end of Span 7, the web of Stringers S1, S5 and S8 exhibit severe corrosion with up to 11" high x 4" wide hole (see Photo 14). At the east end of Stringers S11, S12, and S13 in Span 9, severe corrosion was noted at the web bottom over the bearing area with up to 1 1/2" high x 4" wide holes. In addition, a 5" long corrosion crack was also evident in the base of web at Stringer S12 (see Photo 15). Base of Stringer S14 web exhibits a hole near the bearing area at the east end of span 9 (See Photo 7).

All the stringers at the east end of span 9 bear on small concrete pedestals, several of which exhibit small corner spalls and fine cracking, however, no undermining of the bearing plates were evident.

- Spans 10 and 11

The stringers and diaphragms in Spans 10 and 11 are generally in good condition. Concrete pedestals on the top on New York Anchorage support each of the continuous stringers. Cracks and spalls were observed at approximately 30% of the

126 pedestals in these two spans. Twenty two pedestals exhibit spalls and small voids with up to 10% undermining below stringer bearing plate. These conditions were recommended as routine repairs. Furthermore, the concrete pedestals that exhibit disintegrated and severe scaled concrete with exposed rebar and anchor bolts undermining the bearing plate were recommended as priority repairs during this inspection, most notably below Stringers S11 in Span 11 (see Photo 6), S16 in Span 10 (see Photo 11), S13, S15 and S16 at west end of Span 10 & S4, S7, S8 and S18 at east end of Span 11 (see Photo 18), S9 and S15 in Span 10 & S9 and S12 in Span 11 (see Photo 20), and S10 in Span 11 (see Photo 21).

There are two out of four anchor bolts sheared off at the Stringer S16 bearing pedestal in Span 11 (see Photo 19).

The extensive debris accumulation on the top of the New York Anchorage in Spans 10 and 11 has been removed and cleaned during this inspection. The debris created a corrosive environment for the steel superstructure.

Underside of Deck

The underside of the concrete filled steel grid deck in Spans 1 through 3 is generally in good condition. The stay-in-place (S.I.P.) forms observed at the underside of deck in Spans 1 through 3 exhibit peeling paint with light to moderate corrosion and few locations exhibit up to 100% section loss. These areas typically occur at drain tubes, at the short cantilevered sections of the deck over the fascias along median stringers, and at other random locations. Voids were observed in the underside of the steel grid deck particularly at the short cantilevered sections of the deck over the fascia and median stringers and at few other random locations. The voids have exposed the main steel bearing bars and distribution bars of the steel grid, many of which exhibit light to moderate corrosion. At several locations, spalling of the concrete filled steel grid deck was observed, however, since the integrity of the steel grid decking has not been compromised, these concrete deficiencies are not structurally significant and are recommended as routine repairs. The worst condition is located in the underside of deck at east of panel point 16E* which exhibits a large spall 3' x 2' x 2" deep.

The steel finger joint plates at Panel Point 1E remain jammed against each other restricting movement since the previous inspection (see Photo 24).

The underside of deck in the New York Anchorage (Spans 4 through 11) is in generally in good condition. The S.I.P. forms exhibit areas of 100% section loss exposing deteriorated concrete at several locations in Spans 7 and 8, however, the reinforced concrete deck is in good condition.

Miscellaneous Framing

The miscellaneous framing is in generally good condition. The lateral bracing gusset plates, the roadway curbs and barriers, the open median area framing and the closed "turn around" framing exhibit localized areas of moderate to heavy corrosion with light to moderate pitting.

C. TOP OF DECK (SPANS 1 THROUGH 11)

Wearing Surface and Roadway Elements

The wearing surface is in overall good condition. An asphalt-wearing surface exists throughout both directions of the lower level roadways with the exception of Spans 4 through 9, 10 and 11 of the westbound roadway which have a bare concrete wearing surface. The asphalt-wearing surface in both roadways is generally in good condition (see Photo 3). Spans 1 through 3 exhibit a few random small potholes, and areas of raveling in the asphalt wearing surface, mostly near the deck joints. The concrete wearing surface in Spans 4 through 9 is in generally good condition. Several large areas of the concrete wearing surface within the westbound roadway of Spans 10 and 11 were found to be patched with asphalt. However, still exhibit spalled and cracked areas.

Generally, the deck joints are in overall good condition. Several of the expansion joints exhibit portions of missing or deteriorated joint filler material. For further detail of these expansion joints and missing/deteriorated lengths, refer to the "Deficiency and Photo Location Plans" (see Dwg. Nos. TD-1 through TD-10). At the east end of Span 9, the joint filler material is deteriorated and torn throughout the full length of both roadways. The expansion joint deficiencies discussed above allow water to infiltrate onto the structural elements below.

The north and south safety walks along the fascias and the access catwalks and stairs are generally in good condition. The north and south safety walk grating is crushed and broken over areas of less than 3 sq. ft. at numerous random locations and the hold down clips connecting the grating to the steel beam below are either missing or loose at several locations. At the New York Tower, the west edge of the north safety walk plate has uplifted by up to 1 1/2" due to pack rust creating a tripping hazard (see Photo 39). There is a 2' x 1' opening in the north safety walk and a 2' long x 4" wide section of the grating was cut out at the New Jersey Tower (see Photo 34).

The steel traffic barriers and rails with integrally constructed steel curbs are generally in good to fair condition. The north and south traffic barriers and curbs exhibit areas of moderate to severe pitting with localized through holes in Spans 1 through 3. A 4' long section of collapsed curb with severe deterioration and numerous corrosion holes remains, at the south side of the eastbound roadway, at Panel Point 14W near the New Jersey Tower (see Photo 40). Curb plates, used to close the space between the base of the steel curb and the deck remain detached or partially detached at 3 locations along roadway barriers since the last inspection (see Photo 35). The bridge railing is detached from the rail post at several locations due to a previous collision (see Photo 37).

The bridge railing at the outside of the safety walks and the railings at the various access catwalks and stairs are in generally good condition. At the catwalks that cross the open median, one or two of four total handrails are missing at eight locations (see Photo 36).

The chain link security fencing is generally in good condition. However, there is a missing bottom rail on the chain link fence panel along south safety walk in the west end of Span 10 (see Photo 32).

Numerous deficiencies were found at the debris netting spanning the open median. Various holes in the netting were found ranging up to 10' long x 4' wide in Span 1, between Panel Points 7W and 7W* (see Photo 33). In addition, many detached or missing connection clips, partially detached U-bolts and broken welds at the aluminum support rails were also discovered.

Utilities

The conduits extending along the backside of the north and south bridge railing in Spans 1 through 3 exhibit several broken or missing support brackets. However, due to the numerous supports for these conduits, these conditions are recommended as routine repairs. There is a conduit support bracket that is severely corroded at Stringer S2, west of Floorbeam 3W (see Photo 31). There are numerous electrical junction boxes attached along the north and south safety walks that are missing their covers with exposed electrical wires (see Photo 38). In addition, there are broken conduit and coupling along the south safety walk at the New Jersey Tower (see Photo 42). These areas are considered accessible to the public / stranded motorists.

D. TRAVELERS

There are four travelers suspended beneath the lower level that are used for access to the underside of lower level roadway for inspection and maintenance / repair purposes. Each traveler is suspended from two traveler beams that are connected to the floorbeams. The travelers are propelled along the traveler beams by wheels powered by electric motors.

At the time of the inspection three of the four travelers were operational. The New York Main Span traveler remains removed from service and is enclosed by netting to prevent falling debris. The traveler exhibits moderate to severe corrosion and section loss to main support truss members (see Photo 26). An inspection of each traveler was performed prior to use and to verify the status of all previously recommended repairs. The three working travelers were used to complete the condition survey of the lower level inspections.

The traveler beams, located below Stringers S4 and S15, are mostly in good condition. No deficiencies were observed at the welds that join the flanges to the webs of these beams and traveler rail splices were found to be in good condition.

The top flange of the traveler beams exhibit light to moderate corrosion with localized areas of pitting with deliminations. The traveler beams are suspended from each floorbeam with four hanger rods which are wrapped in plastic tape. In Span 1, the tape has been removed. Moisture trapped by the tape has continued to the deterioration of the hanger rods in Spans 2 and 3 resulting in measured losses of up to 30%. Moderate corrosion was also observed at the nuts and washers of the hanger rod connections. Testing performed in 2009 on the most severely deteriorated rods mentioned above were found to have a sufficient factor of safety to support the travelers.

The hanger rods are connected to the floorbeams with an inverted tee section attached to stiffener plates on the web of the beam. The flange of the hanger tee support was roughly cut and coped to allow the tee stem to be connected to the stiffener.

Inspection Findings, Conclusions and Recommendations

The lateral cross bracing angles between the main support truss chords typically exhibit moderate to severe corrosion with large holes noted at three locations (see Photo 28).

During this inspection, a new condition was found at the New Jersey Main Span traveler which exhibited missing 3 of 3 gusset plate connection bolts to bracing member (see Photo 30).

The vertical movement dampening springs and bolts are improperly aligned at numerous locations throughout Spans 1 through 3. The bolts were considered to be misaligned when the tapered center of the bolt was off the edge of the bearing plate attached to the top flange of the traveler beam. This condition was not considered a structural deficiency and therefore recommended as a routine repair.

The New Jersey Back Span (see Photo 29), New Jersey Main Span (see Photos 25 & 27) and the New York Main Span travelers (see Photo 26) exhibit moderate to severe corrosion with section loss at several main truss members. These deteriorated areas are generally located near the center of the traveler directly below the lower level median opening. The chain link safety netting support angles and/or edge beams exhibit severe corrosion with localized holes at all four travelers (see Photo 44). Broken welds exist at the chain link fence posts and rails of the travelers (see Photo 47), and various hinges or connection screws for hinges were missing at the access door grates (see Photo 48). Loose strap bolts and missing bolts that connect the chain link safety netting to the traveler framing were noted at 166 total locations at all four travelers (see Photo 46). The New York Main Span traveler has 9 holes of various sizes in the chain link safety netting, and the panels are brittle and prone to fracture due to their advanced age (see Photo 43). There is a missing horizontal rail angle at the truss platform below the floor access hatch at the New York Back Span traveler (see Photo 45).

E. RECOMMENDATIONS

Immediate: The following immediate action was recommended during this inspection.

No.	Description	Status
1	Repair the severely deteriorated web, top and bottom flanges with corrosion holes in the S1 fascia stringer between Panel Points 7E* and 8E. (1 Location)	In Progress

Priority: The following priority repairs are recommended:

No.	Description	Dwg. No.
Underside of Deck		
*1	Repair spalled concrete pedestal at the east end of span 11 in the New York Anchorage. *(Photo 6)* (1 Location).	SDU-19
2	Repair severely corroded web, with hole near the bearing of stringer S14 located at the east end of span 9. *(Photo 7)* (1 Location).	SDU-19
3	Repair severely corroded stringer webs with holes above the bearings at stringers S2 and S17 above panel point 1E. *(Photo 8)* (2 Locations).	SDU-19
*4	Repair twelve (12) up to 6" x 2" holes in the top plate of the south bottom truss chord between panel points 3E* and 3E. Temporary repair performed by filling holes with caulk and repainting. *(Photo 9)* (1 Location).	SDU-18
*5	Repair severely corroded stringer webs with holes above the bearings at stringers S6 and S14 above panel point 1E. *(Photo 10)* (2 Locations).	SDU-19
*6	Repair spalled and cracked concrete pedestal causing minor undermining of the bearing under stringer S16 at the west end of Span 10. *(Photo 11)* (1 Location).	SDU-19
7	Repair severely corroded web, with holes around the bearing stiffening angles, of stringer S18 at the west side of panel point 36E. *(Photo 12)* (1 Location).	SDU-11
*8	Repair the severely corroded top flange and web with holes in the web at the bearings of stringers S2, S3, S4, S6, S7, S10 and S11, located at the east side of floorbeam 1E. *(Photo 13)* (7 Locations).	SDU-19

*9	Repair the severely corroded webs with holes near the bearing of stringers S1, S5, and S8 located at the west end of span 7, and at stringers S11, S12 and S13, including an adjacent corrosion crack at stringer S12, located at the east end of span 9 *(Photos 14 & 15)* (6 Locations).	SDU-19
*10	Repair the severely corroded stringers S1 and S18 with web holes and 50% section loss of bottom flange near the 1/3 span between panel points 1E* and 1E. *(Photo 16)* (2 Locations).	SDU-18
*11	Repair the severe corroded stringer web, with holes around the bearing stiffening angles, of stringer S1 at the east side of panel point 26W*. *(Photo 17)* (1 Location).	SDU-6
*12	Repair cracked and spalled concrete pedestals causing undermining of the bearing under stringer S13, S15 and S16 at the west end of Span 10 and under stringer S4, S7, S8, and S18 at the east end of span 11. *(Photo 18)* (7 Locations).	SDU-19
*13	Repair the 2 of 4 broken anchor bolts at the bearing of stringer S16 located at the east end of span 11. *(Photo 19)* (1 Location).	SDU-19
*14	Repair spalled and cracked concrete pedestals, with or without exposed anchor bolts and/or rebar, causing minor undermining of the bearing under stringer S9 and S15 of span 10, under stringer S9 at the east end of span 11, and at 3 locations under stringer S12 in span 11. *(Photo 20)* (6 Locations).	SDU-19
15	Repair spalled and cracked concrete pedestal causing minor undermining of the bearing under stringer S10 at the east end of span 11. *(Photo 21)* (1 Location).	SDU-19
16	Repair bottom of Stinger S10 web at the west side of Floorbeam 15E connection which exhibits severe corrosion and section loss with 4"x1" and 2"x1" holes and a 3" crack in between. *(Photo 22)* (1 Location).	SDU-16
17	Repair top of the interior stinger webs which exhibit severe corrosion and section loss with cracks (with or without arrestor drill holes) above the splice plates over the bearing area at the floorbeam connections. *(Photo 23)* (48 Locations).	SDU-1, 2, 3, 6 & 9 thru 18
Top of Deck		
*18	Repair the jammed finger joint plates at panel point 1E. *(Photo 24)* (1 Location).	TD-9

Inspection Findings, Conclusions and Recommendations

Travelers		
*19	New Jersey Main Span Traveler – repair moderate to severe section loss at main support truss members. *(Photo 25)* (9 Locations).	T-3 & 4
*20	New York Main Span Traveler – repair moderate to severe section loss at main support truss members *(Photo 26)* (95 Locations).	T-5 & 6
21	New Jersey Main Span Traveler – repair moderate to severe section loss at main support truss members. *(Photo 27)* (3 Locations).	T-3
*22	New Jersey Main Span Traveler – repair moderate to severe section loss at cross bracings between the main support truss top chords. *(Photo 28)* (3 Locations).	T-3
*23	New Jersey Back Span Traveler – repair moderate to severe section loss at main support truss members. *(Photo 29)* (5 Locations).	T-1 & 2
24	New Jersey Main Span Traveler – replace the missing 3 of 3 connection bolts at the frame bracing gusset plate. *(Photo 30)* (1 Location).	T-3
* Previously recommended as a "Priority Repair" in the 2011 inspection report.		

Safety: The following safety repairs are recommended:

No.	Description	Dwg. No.
Underside of Deck		
1	Replace severely deteriorated steel knee brace support bracket for two 3-inch diameter electrical conduits at Stringer S2, west of floorbeam 3W at span 1. *(Photo 31)* (1 Location).	SDU-1
Top of Deck		
2	Replace the missing bottom rail of the chain link fence panel at Span 10, along the south safety walk. *(Photo 32)* (1 Location).	TD-10
3	Repair or replace median safety netting with large holes. *(Photo 33)* (7 Locations).	TD-1, 5, 7 & 9
4	Repair or replace the 2' x 1' opening in the north safety walk due to removed conduits and 2' long x 4" wide section of removed safety walk grating at the New Jersey Tower. *(Photo 34)* (1 Location).	TD-2

5	Remove partially detached steel curb plate along roadway barrier. *(Photo 35)* (3 Locations).	TD-8 & 9
6	Replace the missing or partially missing railings at the crossover walkways over the open median areas. *(Photo 36)* (8 Locations).	TD-2, 3, 4, 7 & 8
7	Repair the detached connections of the safety walk or bridge railings. *(Photo 37)* (5 Locations).	TD-2, 8 & 9
8	Repair or replace the missing or loose cover to the electrical panel box with exposed wires attached to the back of the barrier (accessible to the public / stranded motorists) along the north and south safety walks *(Photo 38)* (9 Locations).	TD-1, 2, 7, 8 & 9
9	Repair or replace corroded/uplifted diamond plate (creating a tripping hazard) safety walk grating. *(Photo 39)* (12 Locations).	TD-2, 6, 7 & 8
10	Repair severely deteriorated and collapsed section of steel curb at the south side of the eastbound roadway at the NJ Tower. *(Photo 40)* (1 Location)	TD-2
11	Replace bent and broken diamond end plate at the end of north safety walk at 1E (creating a tripping hazard). *(Photo 41)* (1 Location).	TD-9
12	Repair broken conduit at the south safety walk of the New Jersey tower (Accessible to the public / stranded motorists). *(Photo 42)* (1 Location).	TD-2
Travelers		
13	Repair or replace the safety netting with large holes at the New York main span traveler. *(Photo 43)* (9 Locations).	T-5
14	Repair the moderate to severe section loss of W8's and 3" x 3" L's that support the safety netting for the travelers. *(Photo 44)* (35 Locations).	T-1, 3, 5 & 7
15	Replace the missing horizontal rail angle at the New York Back Span Traveler truss platform below the floor access hatch. *(Photo 45)* (1 Location).	T-7
16	Tighten or replace loose or missing bolts for safety netting straps and replace the missing safety netting straps and bolts. *(Photo 46)* (169 Locations).	T-1, 3, 5 & 7

17	Repair broken aluminum fence post, rails and welds between the fence fabric connection plates and the posts. *(Photo 47)* (9 Locations).	T-1, 5 & 7
18	Replace missing or broken hinges or hinge screws at floor access hatch of the travelers. *(Photo 48)* (12 Locations).	T-1, 3, 5 & 7

Routine: The following routine repairs are recommended:

No.	Description	Dwg. No.
Underside of Deck		
1	Replace the missing rivets or bolts at the top and/or bottom flange of the floorbeams, top and/or bottom of the bottom truss chord, or the bottom truss chord gusset plate. (6 Locations).	SDU-1 thru 4
2	Repair the cracks and holes in the fascia stringer webs, S1 and S18, below the stringer support angle, diaphragms or vertical floorbeam stiffeners. (66 Locations).	SDU-2 thru 17
3	Repair or replace broken or bent traveler damper bolts, loose nuts on damper bolts and broken bolt springs. (250 Locations).	SDU-1 thru 18
4	Replace the sheared, fractured or missing bolts at the bottom truss chord. (3 Locations).	SDU-3 & 13
5	Tighten the loose bolts and replace missing nuts and bolts at stringer web connections to the floorbeams (5 bolts per connection except 4 bolts per connection where the stringer tie-down has been modified). (5 Locations).	SDU-4, 10, 14 & 15
6	Remove the roadway debris accumulation that is partially covering the heavily rusted bearings at the New Jersey bridge seat and repair the top of the severely rusted bottom flange and web, with up to 1/8" pitting, of the stringer at the New Jersey back span. (26 Locations).	SDU-1
7	Repair hole in the insulating plastic cover of the power supply line for the traveler near panel point 36E. (1 Location)	SDU-11
8	Reconnect the bearing strap plate at the south bearing of floorbeam 1E. (1 Location)	SDU-19

9	Clean the light to medium rust from top flange of both traveler beams and paint the top of the beam. Remove protective plastic tape where appropriate, clean the light to heavy rust and paint the hanger rod assemblies. (152 Locations)	SDU-1 thru 18
10	Repair or replace the heavily rusted horizontal stiffener plates with more than 50% areas of section loss adjacent to the traveler hanger tee. (96 Locations)	SDU-2 & 5 thru 17
11	Repair the cracked welds between a finger and a finger bar or a cracked finger bar at the tower deck joints. (7 Locations)	SDU-3 & 16
12	Tighten the loose bolts at the top or bottom flange of the floorbeams. (2 Locations)	SDU-1 & 9
13	Repair the broken and disconnected drainage trough. (1 Location)	SDU-19
14	Replace the sheared off and missing bolt at the stringer to floorbeam connection. (1 Location)	SDU-8
15	Replace rivets or bolts with greater than 50% section loss at the top flange of the floorbeams. (310 Locations)	SDU-1 thru 18
16	Repair the heavy corrosion with random holes in channel supports of abandoned platforms attached to the bottom of the floorbeams (Alternately remove the platforms). (5 Locations)	SDU-3, 15 & 17
17	Repair the heavy rust with small holes in the lateral bracing between floorbeams. (2 Locations)	SDU-10 & 15
18	Repair the 3 inch x 1 inch hole in the top plate of the stiffening truss bottom chord between panel points 14E and 15E. (1 Location)	SDU-16
19	Repair detached flange clips, replace missing flange clips and repair detached 1-1/2" channel support for electrical conduits. (10 Locations)	SDU-5, 7 & 15 thru 18
20	Repair the deteriorated stone masonry at the south end of the New Jersey abutment. (1 Location)	SDU-1
21	Repair the areas of section loss with up to 1/4" diameter holes in the base of the web of floorbeam 4 at spans 6 and 7 between stringers S4 to S6. (1 Location)	SDU-19

22	Repair the spalled concrete in underside of concrete filled steel deck grating. (8 Locations)	SDU-16 & 19
23	Clean and paint the moderate pitting, corrosion and pack rust of steel angles of diagonal, longitudinal bracing members between floorbeams or bracing at gusset plate connection to floorbeams particularly below safety walks and open median. (152 Locations)	SDU-1 thru 18
24	Clean and paint the moderate to severe rusting and pitting with minor section loss, paint failure at stringers, stringer web connection plates, diaphragms, pin supports at cap beams (New York anchorage) beneath the median openings and at the outer curb lines. (152 Locations)	SDU-1 thru 18
25	Repair the cracked and/or spalled concrete pedestals with less than 10% undermining at the base plates in Spans 10 and 11 at the New York anchorage. (22 Locations)	SDU-19
26	Remove the debris on the windlock and clean and paint the moderately to severely corroded windlock members. (5 Locations)	SDU-2, 18 & 19
27	Clean debris and clean and paint the moderately to severely rusted bearings at the north and south ends of Cap Beam 1E at the New York anchorage. (2 Locations)	SDU-19
28	Replace the sheared off rivets in the stringer splice plate due to pack rust. (8 Locations)	SDU-5, 7, 9, 11 & 14
29	Repair the 2.5 ft wide x 1.0 ft long x 1.0 ft deep spalls at the south pedestal and north pedestal under Cap Beam 1E at the New York anchorage (no undermining of the bearing was noted). (2 Locations)	SDU-19
30	Clean and paint the moderately rusted bearings with up to 1/2" uplift of the stringer (1/2" maximum measured uplift of stringers 5 at the 14E bearing) due to pack rust at the towers. (59 Locations)	SDU-3 & 16
31	Replace the missing drainpipe at drain hole in top flange of bottom chord of stiffening truss. (7 Locations)	SDU-4, 7, 12, 13 & 18
32	Repair the areas of mutual wear between the stringer lower flange and bearing plate over the floorbeam with up to 1/8" gap and minor vertical movement of the stringer under live load. (18 Locations)	SDU-5 thru 8, 11, 12, 16 & 18
33	Repair the severely corroded diaphragm (with or without holes and up to 1/8" loss) that supports the safety walk or median. (21 Locations)	SDU-1, 2, 7 thru 12, 15 & 16

34	Replace rivets with greater than 50% section loss along bottom chord of the stiffening truss or gusset plates at connections. (69 Locations)	SDU-2 & 4 thru 18
35	Repair the deteriorated web area with or without small corrosion holes and up to 1/16" section loss at the bottom of the stringer at the floorbeam connection. (28 Locations)	SDU-2, 3, 4, 6, 10, 15, 16 & 19
36	Repair the cracked weld between the bottom flange of stringers S4 to S6 and the bearing plate at panel point 11E. (3 Locations)	SDU-16
37	Divert flow from three abandoned water pipe sleeves at the north end of the New Jersey abutment backwall to prevent water from being discharged onto the bridge seat. (1 Location)	SDU-1
38	Replace the sheared tie down bolts for the deck finger joint. (1 Location)	SDU-16
39	Seal the holes at the anchor bolts connecting the Jersey Barrier to the deck in Spans 10 and 11 to prevent water intrusion into the deck. (2 Locations)	SDU-19
40	Repair the 2 inch diameter hole in the top plate of the bottom chord of the stiffening truss. (2 Locations)	SDU-5 & 17
41	Remove and replace cracked and bulging bearing neoprene pads between the stringer and floorbeam. (132 Locations)	SDU-1, 2, 4, 6 thru 18
42	Repair severely corroded diaphragm with hole for the crosswalk. (2 Locations).	SDU-7 & 8
43	Clean pack rust causing bulging between the bottom cover plates and flange angles of stiffening truss bottom chord and paint. (152 Locations)	SDU-1 thru 18
44	Remove and replace the warped/bulging connection plates, due to pack rust, between stringer webs over floorbeams. Clean and paint steel surfaces and reassemble the connections with new bolts. (31 Locations)	SDU-1, 4 thru 11 & 13 thru 17
45	Repair one of four broken anchor bolts at the bearing of stringers S2 and S3 at the west end of Span 10. (2 Locations)	SDU-19
46	Replace rivets or bolts with greater than 50% section loss at the bottom flanges of the floorbeams. (157 Locations)	SDU-1 thru 12 & 16 thru 18

47	Repair the random loose or deteriorated bolts at the gusset plates of the north stiffening truss at panel point 4E*. (1 Location)	SDU-18
48	Repair the detached section of lower hand rail of two rail system at west New York tower catwalk (1 Location)	SDU-16
49	Repair the deteriorated gusset plate at the connection of the bottom chord to the diagonals of the stiffening truss. (152 Locations)	SDU-1 thru 18
50	Clean localized pack rust, up to 3/4" thick, between the cover plates of floorbeam top flange. (436 Locations)	SDU-1 thru 18
51	Clean the medium to heavy rust with minor section loss from the web of the hanger tee or hanger rods. (73 Locations)	SDU-1, 2, 4 & 7 thru 18
Top of Deck		
52	Repair broken weld or coupling at corner connection of debris net fence support rails. (2 Locations)	TD-2 & 8
53	Replace missing curb plate. (5 Locations)	TD-1, 2 & 8
54	Repair or replace missing and broken support straps for traffic signs. (3 Locations)	TD-2, 3 & 8
55	Repair the 1" height differential in the finger joint at panel point 11W (1 Location)	TD-2
56	Replace the missing bollards. (3 Locations)	TD-1 & 2
57	Repair broken hinge to access ladder hatch at median between panel points 14W-15W. (1 Location)	TD-2
58	Repair the potholes or severe raveling in the asphalt wearing surface. (12 Locations)	TD-1, 4, 5 & 8
59	Replace missing downspout anchor bolt at south safety walk at panel point 17E. (1 Location)	TD-8
60	Repair holes and section loss to steel railings, curbs and vertical traffic barriers. (198 Locations)	TD-1 thru 10

61	Repair impact damage to south bridge rail post near panel point 22W. (1 Location)	TD-2
62	Replace 3 missing bolts at bottom plate connection of downspout tube at panel point 18W. (1 Location)	TD-2
63	Repair impact damage to steel median barrier. (2 Locations)	TD-2 & 9
64	Repair cracks in concrete curb at median. (2 Locations)	TD-10
65	Repair cracks at south face of concrete median at the New York Anchorage. (4 Locations)	TD-10
66	Provide support for unsupported bridge railing. (2 Locations)	TD-2 & 9
67	Repair missing, damaged and detached debris netting in median area. (16 Locations)	TD-1 thru 9
68	Repair holes at top of railing/guiderail support. (50 Locations)	TD-1 thru 9
69	Replace broken or detached clips and/or screws attaching the safety walk grating to the steel framing below. (11 locations)	TD-1, 3, 4, 5, 7 & 8
70	Repair spalls with or without exposed rusted steel reinforcement at concrete curbs or pavement. (9 Locations)	TD-1 & 10
71	Replace missing or deteriorated joint filler. (74 Locations)	TD-1 thru 10
72	Repair water main tie down connections with loose or missing nuts and/or bolts at south safety walk. (130 Locations)	TD-1 thru 9
73	Repair loose bolt at bottom of traffic sign connection to curb. (2 Locations)	TD-5
Travelers		
74	Replace approximately 10 SF of damaged floor grate at center of the New Jersey main span traveler. (1 Location)	T-3
75	Repair electrical conduit suspended with rope hanger, detached flange clips and unsupported over 8 feet long section. (4 Locations)	T-1

IV. Deficiency and Photo Location Plans

KEY CONDITION NOTES (FOR LEGEND, SEE DWG. L-3)

PRIORITY REPAIRS

SUPERSTRUCTURE AND DECK UNDERSIDE

1. REPAIR SPALLED CONCRETE PEDESTAL AT THE EAST END OF SPAN 11 IN THE NEW YORK ANCHORAGE.
2. REPAIR SEVERELY CORRODED WEB, WITH HOLE NEAR THE BEARING OF STRINGER S14 LOCATED AT THE EAST END OF SPAN 9.
3. REPAIR SEVERELY CORRODED STRINGER WEBS WITH HOLES ABOVE THE BEARINGS AT STRINGERS S2 AND S17 ABOVE PANEL POINT 1E.
4. REPAIR TWELVE (12) UP TO 6" X 2" HOLES IN THE TOP PLATE OF THE SOUTH BOTTOM TRUSS CHORD BETWEEN PANEL POINTS 3E* AND 3E. TEMPORARY REPAIR PERFORMED BY FILLING HOLES WITH CAULK AND REPAINTING.
5. REPAIR SEVERELY CORRODED STRINGER WEBS WITH HOLES ABOVE THE BEARINGS AT STRINGERS S6 AND S14 ABOVE PANEL POINT 1E.
6. REPAIR SPALLED AND CRACKED CONCRETE PEDESTAL CAUSING MINOR UNDERMINING OF THE BEARING UNDER STRINGER S16 AT THE WEST END OF SPAN 10.
7. REPAIR SEVERELY CORRODED WEB, WITH HOLES AROUND THE BEARING STIFFENING ANGLES, OF STRINGER S18 AT THE WEST SIDE OF PANEL POINT 36E.
8. REPAIR THE SEVERELY CORRODED TOP FLANGE AND WEB WITH HOLES IN THE WEB AT THE BEARINGS OF STRINGERS S2, S3, S4, S6, S7, S10, AND S11, LOCATED AT THE EAST SIDE OF FLOORBEAM 1E.
9. REPAIR THE SEVERELY CORRODED WEBS, WITH HOLE NEAR THE BEARING, OF STRINGERS S1, S5, AND S8 LOCATED AT THE WEST END OF SPAN 7 AND AT STRINGERS S11, S12, AND S13, INCLUDING AN ADJACENT CORROSION CRACK AT STRINGER S12, LOCATED AT THE EAST END OF SPAN 9.
10. REPAIR THE SEVERELY CORRODED STRINGERS S1 AND S18 WITH WEB HOLES AND 50% SECTION LOSS OF BOTTOM FLANGE NEAR THE 1/3 SPAN BETWEEN PANEL POINTS 1E* AND 1E.
11. REPAIR THE SEVERELY CORRODED STRINGER WEB, WITH HOLES AROUND THE BEARING STIFFENING ANGLES, OF STRINGER S1 AT THE EAST SIDE OF PANEL POINT 26W*.
12. REPAIR CRACKED AND SPALLED CONCRETE PEDESTALS CAUSING UNDERMINING OF THE BEARING UNDER STRINGER S13, S15 AND S16 AT THE WEST END OF SPAN 10 AND UNDER STRINGER S4, S7, S8, & S18 AT THE EAST END OF SPAN 11.
13. REPAIR THE 2 OF 4 BROKEN ANCHOR BOLTS AT THE BEARING OF STRINGER S16 LOCATED AT THE EAST END OF SPAN 11.
14. REPAIR SPALLED AND CRACKED CONCRETE PEDESTALS, WITH OR WITHOUT EXPOSED ANCHOR BOLTS AND/OR REBAR, CAUSING MINOR UNDERMINING OF THE BEARING UNDER STRINGERS S9 AND S15 OF SPAN 10, UNDER STRINGER S9 AT EAST END OF SPAN 11, AND AT 3 LOCATIONS UNDER STRINGER S12 IN SPAN 11.
15. REPAIR SPALLED AND CRACKED CONCRETE PEDESTALS CAUSING MINOR UNDERMINING OF THE BEARING UNDER STRINGER S10 AT THE EAST END OF SPAN 11.
16. REPAIR BOTTOM OF STRINGER S10 WEB AT THE WEST SIDE OF FLOORBEAM 15E CONNECTION WHICH EXHIBITS SEVERE CORROSION AND SECTION LOSS WITH 4"X1" AND 2"X1" HOLES AND A 3" CRACK IN BETWEEN.
17. REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (c OR ⓒ DENOTES CRACK WITH OR WITHOUT HOLES. SEE LEGEND ON DWG. L-3)

TOP OF DECK

18. REPAIR THE JAMMED FINGER JOINT PLATES AT PANEL POINT 1E.

PRIORITY REPAIRS (CONTINUED)

TRAVELER

19. NEW JERSEY MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.
20. NEW YORK MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.
21. NEW JERSEY MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.
22. NEW JERSEY MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT CROSS BRACING BETWEEN MAIN SUPPORT TRUSS TOP CHORDS.
23. NEW JERSEY BACK SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.
24. NEW JERSEY MAIN SPAN TRAVELER – REPLACE THE MISSING 3 OF 3 CONNECTION BOLTS AT THE FRAME BRACING GUSSET PLATE.

SAFETY REPAIRS

SUPERSTRUCTURE AND DECK UNDERSIDE

1 REPLACE SEVERELY DETERIORATED STEEL KNEE BRACE SUPPORT BRACKET FOR TWO 3-INCH DIAMETER ELECTRICAL CONDUITS AT STRINGER S2, WEST OF FLOORBEAM 3W AT SPAN 1.

TOP OF DECK

2 REPLACE THE MISSING BOTTOM RAIL OF THE CHAIN LINK FENCE PANEL AT SPAN 10, ALONG THE SOUTH SAFETY WALK.

3 REPAIR OR REPLACE MEDIAN SAFETY NETTING WITH LARGE HOLES.

4 REPAIR OR REPLACE THE 2'X1' OPENING IN THE NORTH SAFETY WALK DUE TO REMOVED CONDUITS AND 2' LONG X 4" WIDE SECTION OF REMOVED SAFETY WALK GRATING AT THE NEW JERSEY TOWER.

5 REMOVE PARTIALLY DETACHED STEEL CURB PLATE ALONG THE ROADWAY BARRIER.

6 REPLACE THE MISSING OR PARTIALLY MISSING RAILINGS AT THE CROSSOVER WALKWAYS OVER THE OPEN MEDIAN AREAS.

7 REPAIR THE DETACHED CONNECTIONS OF THE SAFETY WALK OR BRIDGE RAILINGS.

8 REPAIR OR REPLACE THE MISSING OR LOOSE COVER TO THE ELECTRICAL PANEL BOX WITH EXPOSED WIRES ATTACHED TO THE BACK OF THE BARRIER (ACCESSIBLE TO PUBLIC/STRANDED MOTORISTS) ALONG THE NORTH AND SOUTH SAFETY WALKS.

9 REPAIR OR REPLACE CORRODED/UPLIFTED DIAMOND PLATE (CREATING A TRIPPING HAZARD) SAFETY WALK GRATING.

10 REPAIR SEVERELY DETERIORATED AND COLLAPSED SECTION OF STEEL CURB AT THE SOUTH SIDE OF THE EASTBOUND ROADWAY.

11 REPLACE BENT AND BROKEN DIAMOND END PLATE AT THE END OF NORTH SAFETY WALK AT 1E (CREATING A TRIPPING HAZARD).

12 REPAIR BROKEN CONDUIT AT THE SOUTH SAFETY WALK OF THE NEW JERSEY TOWER (ACCESSIBLE TO PUBLIC/STRANDED MOTORISTS).

TRAVELER

13 REPAIR OR REPLACE THE SAFETY NETTING WITH LARGE HOLES AT NEW YORK MAIN SPAN TRAVELER.

14 REPAIR THE MODERATE TO SEVERE SECTION LOSS OF WB'S AND 3" X 3" L'S THAT SUPPORT THE SAFETY NETTING OF TRAVELERS.

15 REPLACE THE MISSING HORIZONTAL RAIL ANGLE AT THE NEW YORK BACK SPAN TRAVELER TRUSS PLATFORM BELOW THE FLOOR ACCESS HATCH.

16 TIGHTEN OR REPLACE LOOSE OR MISSING BOLTS FOR SAFETY NETTING STRAPS AND REPLACE THE MISSING SAFETY NETTING STRAPS AND BOLTS.

17 REPAIR BROKEN ALUMINUM FENCE POST, RAILS AND WELDS BETWEEN THE FENCE FABRIC CONNECTION PLATES AND THE POSTS.

18 REPLACE MISSING OR BROKEN HINGES OR HINGE SCREWS AT FLOOR ACCESS HATCH OF THE TRAVELERS.

ROUTINE REPAIRS

SUPERSTRUCTURE AND DECK UNDERSIDE

1. (X) REPLACE THE MISSING RIVETS OR BOLTS AT THE TOP AND/OR BOTTOM FLANGE OF THE FLOORBEAMS, TOP AND/OR BOTTOM OF THE BOTTOM TRUSS CHORD, OR THE BOTTOM TRUSS CHORD GUSSET PLATE. 'X' INDICATES THE NUMBER OF MISSING BOLTS OR RIVETS.
2. (*) REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.
3. REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.
4. (X) REPLACE THE SHEARED, FRACTURED OR MISSING BOLTS AT THE BOTTOM TRUSS CHORD. 'X' INDICATES THE NUMBER OF SHEARED, FRACTURED OR MISSING BOLTS.
5. (X) TIGHTEN THE LOOSE BOLTS AND REPLACE MISSING NUTS AND BOLTS AT STRINGER WEB CONNECTIONS TO THE FLOORBEAMS (5 BOLTS PER CONNECTION EXCEPT 4 BOLTS PER CONNECTION WHERE THE STRINGER TIE-DOWN HAS BEEN MODIFIED). 'X' INDICATES THE NUMBER OF LOOSE BOLTS, MISSING BOLTS AND NUTS.
6. REMOVE THE ROADWAY DEBRIS ACCUMULATION THAT IS PARTIALLY COVERING THE HEAVILY RUSTED BEARINGS AT THE NEW JERSEY BRIDGE SEAT AND REPAIR THE TOP OF THE SEVERELY RUSTED BOTTOM FLANGE AND WEB, WITH UP TO 1/8" PITTING, OF THE STRINGER AT THE NEW JERSEY BACK SPAN.
7. REPAIR HOLE IN THE INSULATING PLASTIC COVER OF THE POWER SUPPLY LINE FOR THE TRAVELER NEAR PANEL POINT 36E.
8. RECONNECT THE BEARING STRAP PLATE AT THE SOUTH BEARING OF FLOORBEAM 1E.
9. CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.
10. REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.
11. REPAIR THE CRACKED WELDS BETWEEN A FINGER AND A FINGER BAR OR A CRACKED FINGER BAR AT THE TOWER DECK JOINTS.
12. (X) TIGHTEN THE LOOSE BOLTS AT THE TOP OR BOTTOM FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF LOOSE BOLTS.
13. REPAIR THE BROKEN AND DISCONNECTED DRAINAGE TROUGH.
14. REPLACE THE SHEARED OFF AND MISSING BOLT AT THE STINGER TO FLOORBEAM CONNECTION.
15. (X) REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.
16. REPAIR THE HEAVY CORROSION WITH RANDOM HOLES IN CHANNEL SUPPORTS OF ABANDONED PLATFORMS ATTACHED TO THE BOTTOM OF THE FLOORBEAMS (ALTERNATELY REMOVE THE PLATFORMS).
17. REPAIR THE HEAVY RUST WITH SMALL HOLES IN THE LATERAL BRACING BETWEEN FLOORBEAMS.
18. REPAIR THE 3 INCH X 1 INCH HOLE IN THE TOP PLATE OF THE STIFFENING TRUSS BOTTOM CHORD BETWEEN PANEL POINTS 14E AND 15E.
19. REPAIR DETACHED FLANGE CLIPS, REPLACE MISSING FLANGE CLIPS AND REPAIR DETACHED 1-1/2" CHANNEL SUPPORT FOR ELECTRICAL CONDUITS.
20. REPAIR THE DETERIORATED STONE MASONRY AT THE SOUTH END OF THE NEW JERSEY ABUTMENT.
21. REPAIR THE AREAS OF SECTION LOSS WITH UP TO 1/4" DIAMETER HOLES IN THE BASE OF THE WEB OF FLOORBEAM 4 AT SPANS 6 AND 7 BETWEEN STRINGERS S4 TO S6.
22. REPAIR THE SPALLED CONCRETE IN UNDERSIDE OF CONCRETE FILLED STEEL DECK GRATING.
23. CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET

CONTINUED ON DWG. L-2

Sheet 1 of 40

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title: 2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

MAIN SPAN
KEY CONDITION NOTES
& LEGEND - 1

DS	DC	GA
Designed by	Drawn by	Checked by

Date: DECEMBER, 2013

Contract Number: 405-13-005

Drawing Number: L-1

KEY CONDITION NOTES (FOR LEGEND, SEE DWG. L-3)

ROUTINE REPAIRS (CONTINUED)

SUPERSTRUCTURE AND DECK UNDERSIDE

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(25) REPAIR THE CRACKED AND/OR SPALLED CONCRETE PEDESTALS WITH LESS THAN 10% UNDERMINING OF THE BASE PLATES IN SPANS 10 AND 11 AT THE NEW YORK ANCHORAGE.

(26) REMOVE THE DEBRIS ON THE WINDLOCK AND CLEAN AND PAINT THE MODERATELY TO SEVERELY CORRODED WINDLOCK MEMBERS.

(27) CLEAN DEBRIS AND CLEAN AND PAINT THE MODERATELY TO SEVERELY RUSTED BEARINGS AT THE NORTH AND SOUTH ENDS OF CAP BEAM 1E AT THE NEW YORK ANCHORAGE.

(28)X REPLACE THE SHEARED OF RIVETS IN THE STRINGER SPLICE PLATE DUE TO PACK RUST. 'X' INDICATES THE NUMBER OF SHEARED OFF RIVETS.

(29) REPAIR THE 2.5 FT WIDE X 1.0 FT LONG X 1.0 FT DEEP SPALL AT THE SOUTH PEDESTAL AND NORTH PEDESTAL UNDER CAP BEAM 1E AT THE NEW YORK ANCHORAGE (NO UNDERMINING OF THE BEARING WAS NOTED).

(30) CLEAN AND PAINT THE MODERATELY RUSTED BEARINGS WITH UP TO 1/2" UPLIFT OF THE STRINGER (1/2" MAXIMUM MEASURED UPLIFT OF STRINGER S5 AT THE 14E BEARING) DUE TO PACK RUST AT THE TOWERS.

(31) REPLACE THE MISSING DRAINPIPE AT DRAIN HOLE IN TOP FLANGE OF BOTTOM CHORD OF STIFFENING TRUSS.

(32) REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

(33)X REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(35) REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

(36) REPAIR THE CRACKED WELD BETWEEN THE BOTTOM FLANGE OF STRINGERS S4 TO S6 AND THE BEARING PLATE AT PANEL POINT 11E.

(37) DIVERT FLOW FROM THREE ABANDONED WATER PIPE SLEEVES AT NORTH END OF THE NEW JERSEY ABUTMENT BACKWALL TO PREVENT WATER FROM BEING DISCHARGED ONTO THE BRIDGE SEAT.

(38) REPLACE THE SHEARED TIE DOWN BOLTS FOR THE DECK FINGER JOINT.

(39) SEAL THE HOLES AT THE ANCHOR BOLTS CONNECTING THE JERSEY BARRIER TO THE DECK IN SPANS 10 AND 11 TO PREVENT WATER INTRUSION INTO THE DECK.

(40) REPAIR THE 2 INCH DIAMETER HOLE IN THE TOP PLATE OF THE BOTTOM CHORD OF THE STIFFENING TRUSS.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(42) REPAIR SEVERELY CORRODED DIAPHRAGM WITH HOLE FOR THE CROSSWALK.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(45) REPAIR ONE OF FOUR BROKEN ANCHOR BOLTS AT THE BEARING OF STRINGERS S2 AND S3 AT THE WEST END OF SPAN 10.

(46)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(47) REPAIR THE RANDOM LOOSE OR DETERIORATED BOLTS AT THE GUSSET PLATES OF THE NORTH STIFFENING TRUSSES AT PANEL POINT 4E*.

ROUTINE REPAIRS (CONTINUED)

SUPERSTRUCTURE AND DECK UNDERSIDE

(48) REPAIR THE DETACHED SECTION OF LOWER RAIL OF TWO RAIL SYSTEM AT WEST NEW YORK TOWER CATWALK.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

TOP OF DECK

(52) REPAIR BROKEN WELD OR COUPLING AT CORNER CONNECTION OF DEBRIS NET FENCE SUPPORT RAILS.

(53) REPLACE MISSING CURB PLATE.

(54)X REPAIR OR REPLACE MISSING AND BROKEN SUPPORT STRAPS FOR TRAFFIC SIGNS. 'X' INDICATES RATIO OF BROKEN MISSING SUPPORT STRAP TO TOTAL NUMBER OF REQUIRED SUPPORT STRAPS.

(55) REPAIR THE 1" HEIGHT DIFFERENTIAL IN THE FINGER JOINT AT PANEL POINT 11W.

(56) REPLACE THE MISSING BOLLARDS.

(57) REPAIR BROKEN HINGE TO ACCESS LADDER HATCH AT MEDIAN BETWEEN PANEL POINTS 14W–15W.

(58) REPAIR THE POTHOLES OR SEVERE RAVELING IN THE ASPHALT WEARING SURFACE.

(59) REPLACE MISSING DOWNSPOUT ANCHOR BOLT AT SOUTH SAFETY WALK AT PANEL POINT 17E.

(60) REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

(61) REPAIR IMPACT DAMAGE TO SOUTH BRIDGE RAIL POST NEAR PANEL POINT 22W.

(62) REPLACE 3 MISSING BOLTS AT BOTTOM PLATE CONNECTION OF DOWNSPOUT TUBE AT PANEL POINT 18W.

(63) REPAIR IMPACT DAMAGE TO STEEL MEDIAN BARRIER.

(64) REPAIR CRACKS IN CONCRETE CURB AT MEDIAN.

(65) REPAIR CRACKS AT SOUTH FACE OF CONCRETE MEDIAN AT THE NEW YORK ANCHORAGE.

(66) PROVIDE SUPPORT FOR UNSUPPORTED BRIDGE RAILING.

(67) REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

(68) REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

(69) REPLACE BROKEN OR DETACHED CLIPS AND/OR SCREWS ATTACHING THE SAFETY WALK GRATING TO THE STEEL FRAMING BELOW.

(70) REPAIR SPALLS WITH OR WITHOUT EXPOSED RUSTED STEEL REINFORCEMENT AT CONCRETE CURBS OR PAVEMENT.

(71)X REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

(72) REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

(73) REPAIR LOOSE BOLT AT BOTTOM OF TRAFFIC SIGN CONNECTION TO CURB.

ROUTINE REPAIRS (CONTINUED)

TRAVELER

(74) REPLACE APPROXIMATELY 10 SF OF DAMAGED FLOOR GRATE AT CENTER OF THE NEW JERSEY MAIN SPAN TRAVELER.

(75) REPAIR ELECTRICAL CONDUIT SUSPENDED WITH ROPE HANGER, DETACHED FLANGE CLIPS AND UNSUPPORTED OVER 8 FEET LONG SECTION.

CONTINUED ON DWG. L-3

Sheet 2 of 40

THE PORT AUTHORITY OF NY&NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

MAIN SPAN
KEY CONDITION NOTES & LEGEND - 2

Designed by	Drawn by	Checked by
DS	DG	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number L-2

KEY CONDITION NOTES

FINDINGS WITH NO RECOMMENDATION

SUPERSTRUCTURE AND DECK UNDERSIDE

1. EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.
2. MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
   - EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
   - AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
   - EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.
3. LOOSE TRAVELER HANGER RODS.
4. PACK RUST AT THE CONNECTION OF THE HANGER TEE TO THE FLOORBEAM AT SOUTH CONNECTION AT WEST SIDE OF FLOORBEAM 27W.
5. BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.
6. MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.
7. AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.
8. HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.
9. EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.
10. STEEL STRAPS WELDED TO THE UNDERSIDE OF THE STEEL PLATE MEDIAN COVER ALONG THE BRIDGE CENTERLINE ARE MISSING OR PARTIALLY DETACHED AT FOUR LOCATIONS BETWEEN FLOORBEAMS 2E AND 1E ELEVATION.
11. HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.
12. PIN CONNECTION WAS PREVIOSULY LOOSE AND TIGHTENED WITH SOUTH NUT WELDED TO PIN AND NORTH END OF PIN HAMMERED TO RESTRICT MOVEMENT OF NORTH WASHER.
13. CRACKED WELDED COVER PLATES AT EAST END OF STRINGERS S4 TO S11 IN SPAN 9 DUE TO PACK RUST. COVER PLATE AT STRINGER S12 HAS FALLEN OFF.

TOP OF DECK

NONE

TRAVELER

NONE

LEGEND:

- (8E) CAPBEAM NUMBER/PANEL POINT (AS PER PANY&NJ SYSTEM)
- △ – INDICATES PRIORITY REPAIRS
- – INDICATES SAFETY REPAIRS
- – INDICATES ROUTINE REPAIRS
- □ – INDICATES FINDINGS WITH NO RECOMMENDATION
- PHOTO TAKEN ABOVE DECK
- PHOTO TAKEN BELOW DECK
- – INDICATES HORIZONTAL CRACK IN TOP OF STRINGER WEB ABOVE SPLICE PLATE. (SEE PRIORITY REPAIR 17)
- – INDICATES 3/4"ø HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)
- – DETERIORATED STAY-IN-PLACE FORMS
- – POTHOLE/SPALL
- – AREA OF SEVERE RAVELING IN ASPHALT WEARING SURFACE
- L – LIGHT FIXTURE
- CONDUIT
- LOOSE NET STRAP BOLTS (SEE SAFETY REPAIR 16)
- DETERIORATED STEEL FRAMING

W – WIDE
DP – DEEP
L – LENGTH
F.W. – FULL WIDTH
F.L. – FULL LENGTH

Sheet 3 of 40

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

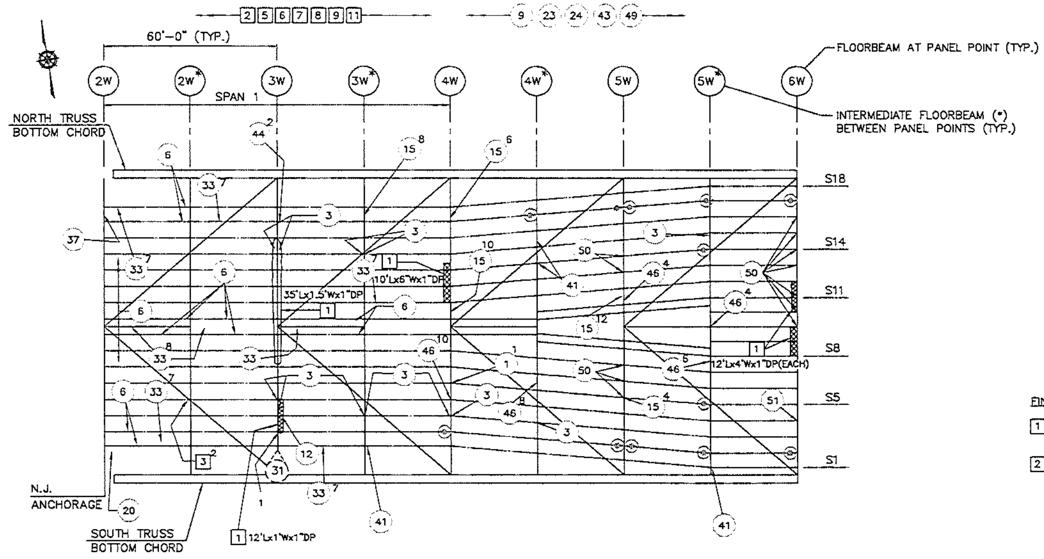
GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
MAIN SPAN
KEY CONDITION NOTES & LEGEND - 3

Designed by	Drawn by	Checked by
DS	DC	GA

Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number L-3



PRIORITY REPAIRS

17 REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (⊘ OR ⊚ DENOTES CRACK WITH OR WITHOUT HOLES. SEE LEGEND BELOW)

SAFETY REPAIRS

1 REPLACE SEVERELY DETERIORATED STEEL KNEE BRACE SUPPORT BRACKET FOR TWO 3-INCH DIAMETER ELECTRICAL CONDUITS AT STRINGER S2, WEST OF FLOORBEAM 3W AT SPAN 1.

ROUTINE REPAIRS

1 (X) REPLACE THE MISSING RIVETS OR BOLTS AT THE TOP AND/OR BOTTOM FLANGE OF THE FLOORBEAMS, TOP AND/OR BOTTOM OF THE BOTTOM TRUSS CHORD, OR THE BOTTOM TRUSS CHORD GUSSET PLATE. 'X' INDICATES THE NUMBER OF MISSING BOLTS OR RIVETS.

3 REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

6 REMOVE THE ROADWAY DEBRIS ACCUMULATION THAT IS PARTIALLY COVERING THE HEAVILY RUSTED BEARINGS AT THE NEW JERSEY BRIDGE SEAT AND REPAIR THE TOP OF THE SEVERELY RUSTED BOTTOM FLANGE AND WEB, WITH UP TO 1/8" PITTING, OF THE STRINGER AT THE NEW JERSEY BACK SPAN.

9 CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

12 (X) TIGHTEN THE LOOSE BOLTS AT THE TOP OR BOTTOM FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF LOOSE BOLTS.

15 (X) REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

20 REPAIR THE DETERIORATED STONE MASONRY AT THE SOUTH END OF THE NEW JERSEY ABUTMENT.

ROUTINE REPAIRS (CONTINUED)

23 CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

24 CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

33 (X) REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

37 DIVERT FLOW FROM THREE ABANDONED WATER PIPE SLEEVES AT NORTH END OF THE NEW JERSEY ABUTMENT BACKWALL TO PREVENT WATER FROM BEING DISCHARGED ONTO THE BRIDGE SEAT.

41 REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

43 CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

44 (X) REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

46 (X) REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

49 REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

50 CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

51 CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

1 EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.

2 MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

3 LOOSE TRAVELER HANGER RODS.

5 BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

6 MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

7 AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

8 HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

9 EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

11 HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

- (8E) PANEL POINT (AS PER PANY&NJ SYSTEM)
- PHOTO TAKEN BELOW DECK
- △ – INDICATES PRIORITY REPAIRS
- – INDICATES SAFETY REPAIRS
- ◯ – INDICATES ROUTINE REPAIRS
- □ – INDICATES FINDINGS WITH NO RECOMMENDATION
- ⊘ – INDICATES HORIZONTAL CRACK IN TOP OF STRINGER WEB ABOVE SPLICE PLATE. (SEE PRIORITY REPAIR 17)
- ⊚ – INDICATES 3/4"ø HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)
- – DETERIORATED STAY-IN-PLACE FORMS
- W – WIDE
- DP – DEEP
- L – LENGTH

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title

2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN

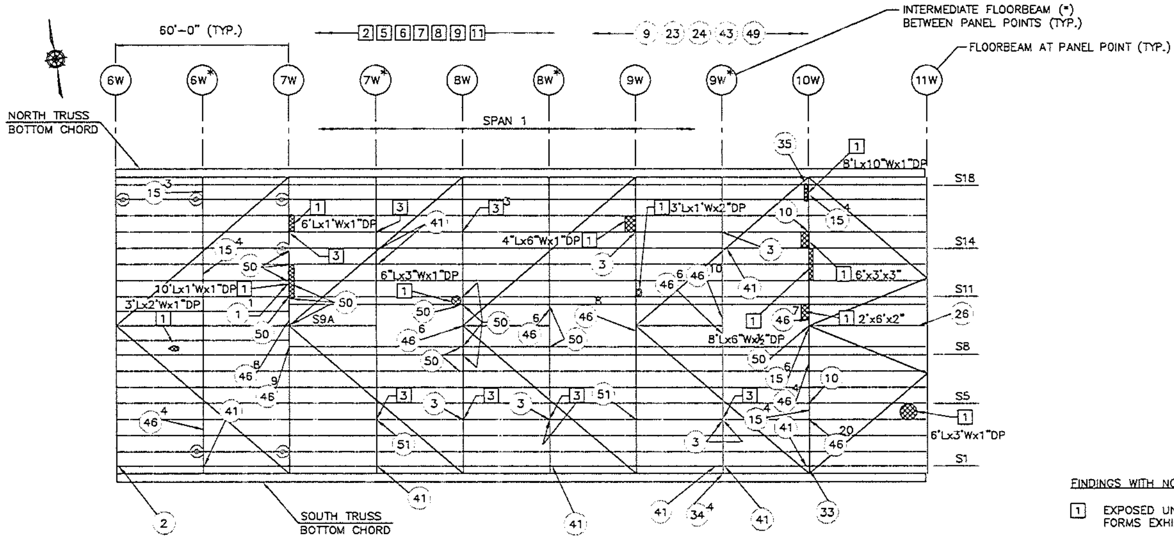
PP 2W TO PP 6W

Designed by	Drawn by	Checked by
DS	RQ	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-1



PRIORITY REPAIRS

17 (priority) REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (⊖ OR ⊛ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

(1)X REPLACE THE MISSING RIVETS OR BOLTS AT THE TOP AND/OR BOTTOM FLANGE OF THE FLOORBEAMS, TOP AND/OR BOTTOM OF THE BOTTOM TRUSS CHORD, OR THE BOTTOM TRUSS CHORD GUSSET PLATE. 'X' INDICATES THE NUMBER OF MISSING BOLTS OR RIVETS.

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(26) REMOVE THE DEBRIS ON THE WINDLOCK AND CLEAN AND PAINT THE MODERATELY TO SEVERELY CORRODED WINDLOCK MEMBERS.

ROUTINE REPAIRS (CONTINUED)

(33)X REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(35) REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(46)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[1] EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

△ - INDICATES PRIORITY REPAIRS

○ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

⊛ - INDICATES 3/4"⌀ HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

▩ - DETERIORATED STAY-IN-PLACE FORMS

W - WIDE
DP - DEEP
L - LENGTH

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

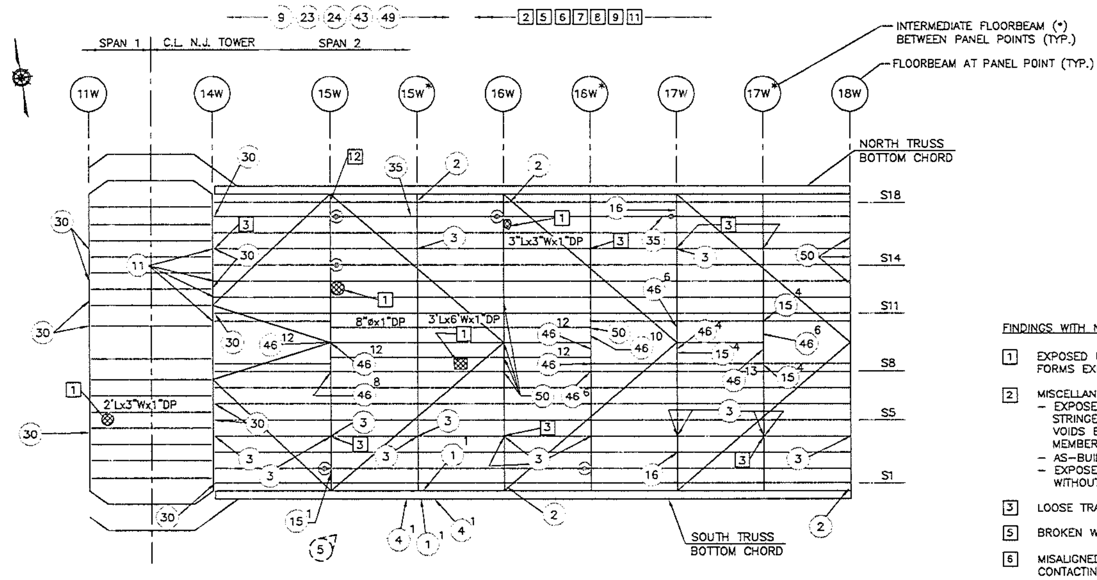
GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 6W TO PP 11W

Designed by	Drawn by	Checked by
DS	RQ	GA

Date: DECEMBER, 2013
Contract Number: 405-13-005
Drawing Number: SDU-2



PRIORITY REPAIRS

17 (priority) REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (⊘ OR ⊚ DENOTES CRACK WITH OR WITHOUT HOLES. SEE LEGEND BELOW)

ROUTINE REPAIRS

(1) X REPLACE THE MISSING RIVETS OR BOLTS AT THE TOP AND/OR BOTTOM FLANGE OF THE FLOORBEAMS, TOP AND/OR BOTTOM OF THE BOTTOM TRUSS CHORD, OR THE BOTTOM TRUSS CHORD GUSSET PLATE. 'X' INDICATES THE NUMBER OF MISSING BOLTS OR RIVETS.

(2) * REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(4) X REPLACE THE SHEARED, FRACTURED OR MISSING BOLTS AT THE BOTTOM TRUSS CHORD. 'X' INDICATES THE NUMBER OF SHEARED, FRACTURED OR MISSING BOLTS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(11) REPAIR THE CRACKED WELDS BETWEEN A FINGER AND A FINGER BAR OR A CRACKED FINGER BAR AT THE TOWER DECK JOINTS.

(15) X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(16) REPAIR THE HEAVY CORROSION WITH RANDOM HOLES IN CHANNEL SUPPORTS OF ABANDONED PLATFORMS ATTACHED TO THE BOTTOM OF THE FLOORBEAMS (ALTERNATELY REMOVE THE PLATFORMS).

ROUTINE REPAIRS (CONTINUED)

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(30) CLEAN AND PAINT THE MODERATELY RUSTED BEARINGS WITH UP TO 1/2" UPLIFT OF THE STRINGER (1/2" MAXIMUM MEASURED UPLIFT OF STRINGER S5 AT THE 14E BEARING) DUE TO PACK RUST AT THE TOWERS.

(35) REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(46) X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

FINDINGS WITH NO RECOMMENDATION

[1] EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

[12] PIN CONNECTION WAS PREVIOSULY LOOSE AND TIGHTENED WITH SOUTH NUT WELDED TO PIN AND NORTH END OF PIN HAMMERED TO RESTRICT MOVEMENT OF NORTH WASHER.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN BELOW DECK

△ - INDICATES PRIORITY REPAIRS

◯ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

⊘ - INDICATES HORIZONTAL CRACK IN TOP OF STRINGER WEB ABOVE SPLICE PLATE. (SEE PRIORITY REPAIR 17)

⊚ - INDICATES 3/4"ø HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

- DETERIORATED STAY-IN-PLACE FORMS

W - WIDE
DP - DEEP
L - LENGTH

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

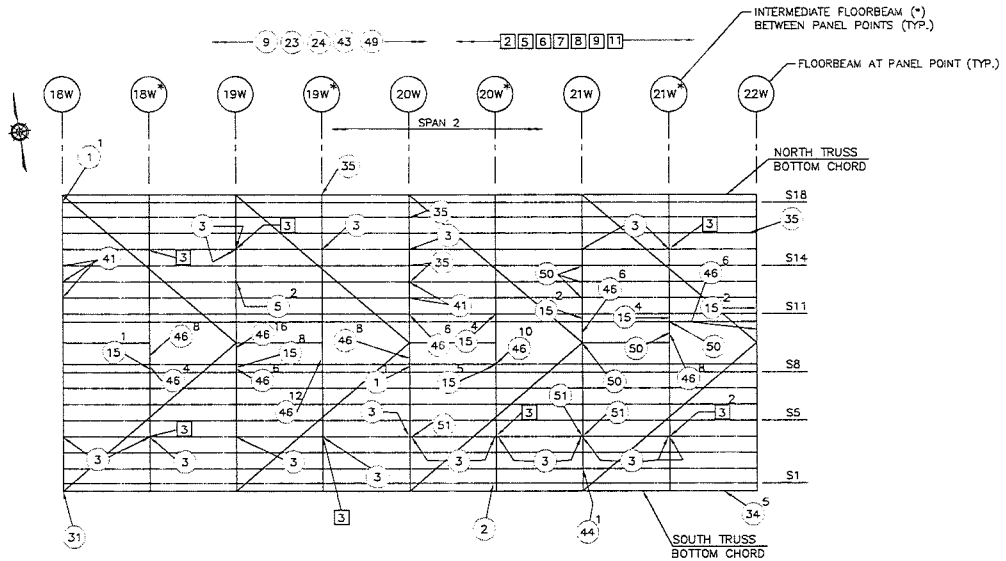
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 11W TO PP 18W

Designed by	Drawn by	Checked by
DS	RQ	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-3



ROUTINE REPAIRS

(1) X REPLACE THE MISSING RIVETS OR BOLTS AT THE TOP AND/OR BOTTOM FLANGE OF THE FLOORBEAMS, TOP AND/OR BOTTOM OF THE BOTTOM TRUSS CHORD, OR THE BOTTOM TRUSS CHORD GUSSET PLATE. 'X' INDICATES THE NUMBER OF MISSING BOLTS OR RIVETS.

(2) * REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(5) X TIGHTEN THE LOOSE BOLTS AND REPLACE MISSING NUTS AND BOLTS AT STRINGER WEB CONNECTIONS TO THE FLOORBEAMS (5 BOLTS PER CONNECTION EXCEPT 4 BOLTS PER CONNECTION WHERE THE STRINGER TIE-DOWN HAS BEEN MODIFIED). 'X' INDICATES THE NUMBER OF LOOSE BOLTS, MISSING BOLTS AND NUTS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(15) X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(31) REPLACE THE MISSING DRAINPIPE AT DRAIN HOLE IN TOP FLANGE OF BOTTOM CHORD OF STIFFENING TRUSS.

ROUTINE REPAIRS (CONTINUED)

(34) X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(35) REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44) X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46) X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS. EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS. EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

( ) - INDICATES ROUTINE REPAIRS

[ ] - INDICATES FINDINGS WITH NO RECOMMENDATION

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title

2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

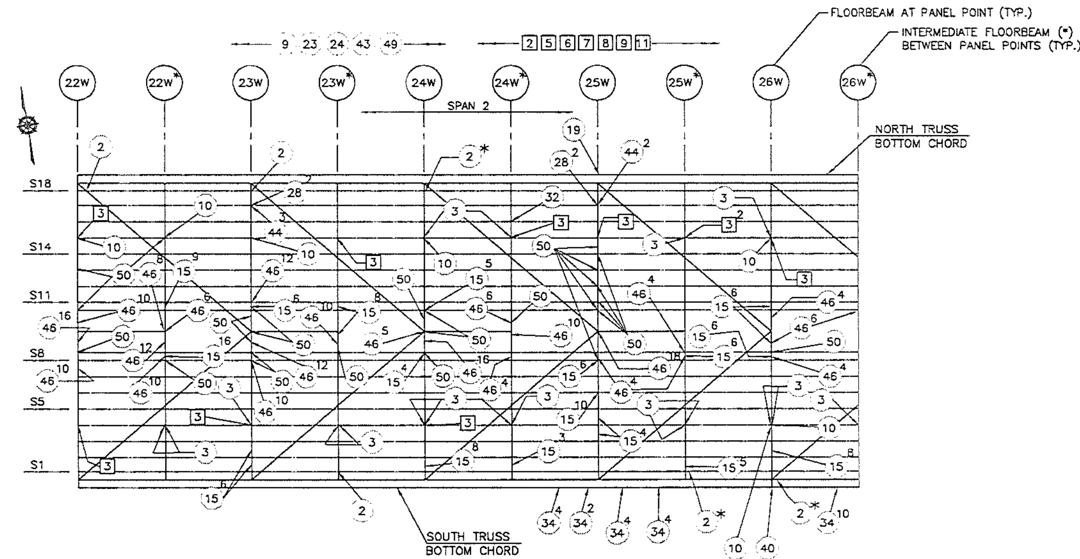
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN PP 18W TO PP 22W

DS	RQ	CA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-4



ROUTINE REPAIRS

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(19) REPAIR DETACHED FLANGE CLIPS, REPLACE MISSING FLANGE CLIPS AND REPAIR DETACHED 1-1/2" CHANNEL SUPPORT FOR ELECTRICAL CONDUITS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(28)X REPLACE THE SHEARED OF RIVETS IN THE STRINGER SPLICE PLATE DUE TO PACK RUST. 'X' INDICATES THE NUMBER OF SHEARED OFF RIVETS.

(32) REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

ROUTINE REPAIRS (CONTINUED)

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(40) REPAIR THE 2 INCH DIAMETER HOLE IN THE TOP PLATE OF THE BOTTOM CHORD OF THE STIFFENING TRUSS.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

FINDINGS WITH NO RECOMMENDATION

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

( ) - INDICATES ROUTINE REPAIRS

[ ] - INDICATES FINDINGS WITH NO RECOMMENDATION

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

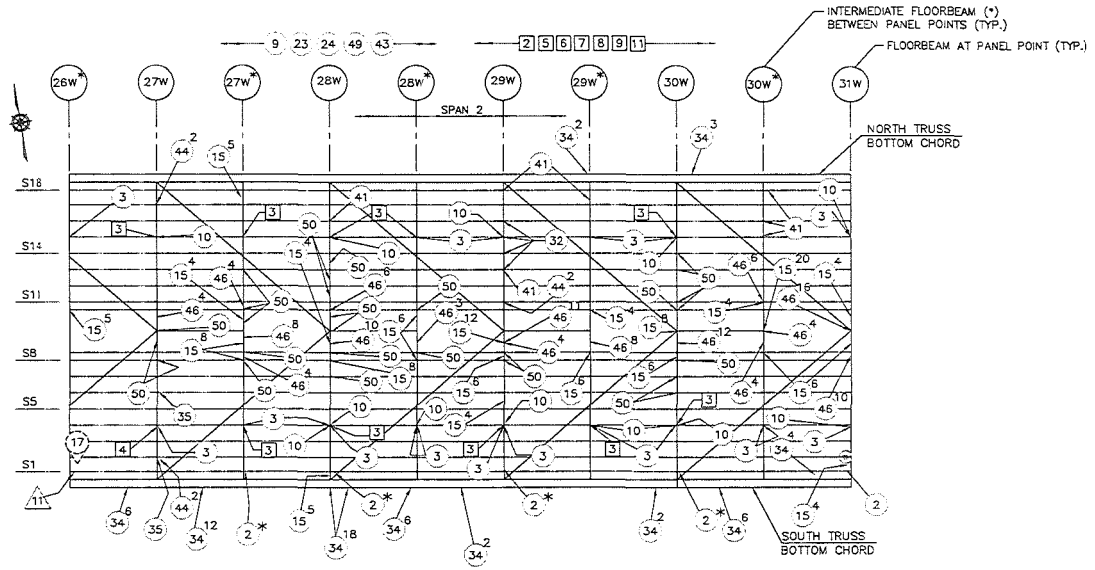
Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 22W TO PP 26W*

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-5



PRIORITY REPAIRS

(11) REPAIR THE SEVERELY CORRODED STRINGER WEB, WITH HOLES AROUND THE BEARING STIFFENING ANGLES, OF STRINGER S1 AT THE EAST SIDE OF PANEL POINT 26W*.

(17) REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (ø OR ⓔ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(32) REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

ROUTINE REPAIRS (CONTINUED)

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(35) REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

FINDINGS WITH NO RECOMMENDATION

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[4] PACK RUST AT THE CONNECTION OF THE HANGER TEE TO THE FLOORBEAM AT SOUTH CONNECTION AT WEST SIDE OF FLOORBEAM 27W.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTON PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN BELOW DECK

△ - INDICATES PRIORITY REPAIRS

○ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

ⓔ - INDICATES 3/4"ø HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR (17))

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

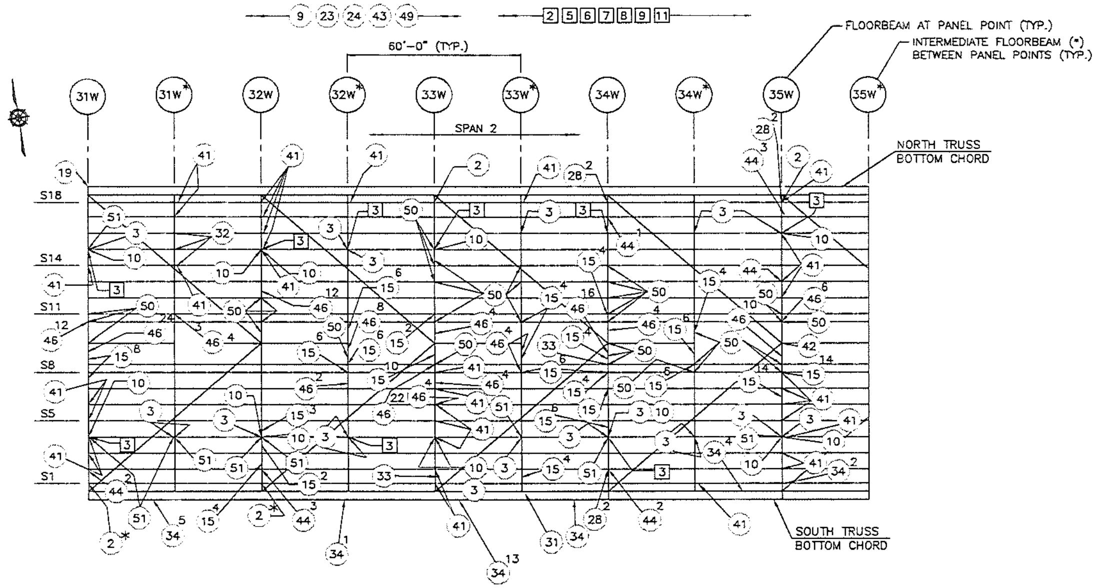
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN PP 28W* TO PP 31W

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-6



ROUTINE REPAIRS

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS. LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(19) REPAIR DETACHED FLANGE CLIPS, REPLACE MISSING FLANGE CLIPS AND REPAIR DETACHED 1-1/2" CHANNEL SUPPORT FOR ELECTRICAL CONDUITS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(28)X REPLACE THE SHEARED OF RIVETS IN THE STRINGER SPLICE PLATE DUE TO PACK RUST. 'X' INDICATES THE NUMBER OF SHEARED OFF RIVETS.

(31) REPLACE THE MISSING DRAINPIPE AT DRAIN HOLE IN TOP FLANGE OF BOTTOM CHORD OF STIFFENING TRUSS.

(32) REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

ROUTINE REPAIRS (CONTINUED)

(33)X REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(42) REPAIR SEVERELY CORRODED DIAPHRAGM WITH HOLE FOR THE CROSSWALK.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

( ) - INDICATES ROUTINE REPAIRS

[ ] - INDICATES FINDINGS WITH NO RECOMMENDATION

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

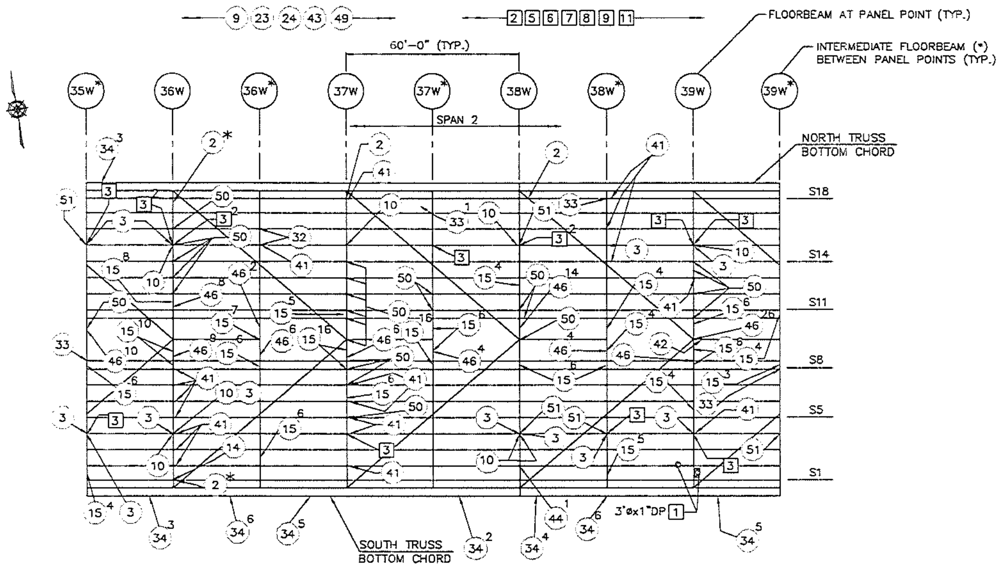
GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 31W TO PP 35W*

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number SDU-7



ROUTINE REPAIRS

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE, CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(14) REPLACE THE SHEARED OFF AND MISSING BOLT AT THE STINGER TO FLOORBEAM CONNECTION.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(32) REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

(33)X REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

ROUTINE REPAIRS (CONTINUED)

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(42) REPAIR SEVERELY CORRODED DIAPHRAGM WITH HOLE FOR THE CROSSWALK.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[1] EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

( ) - INDICATES ROUTINE REPAIRS

[ ] - INDICATES FINDINGS WITH NO RECOMMENDATION

DP - DEEP

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

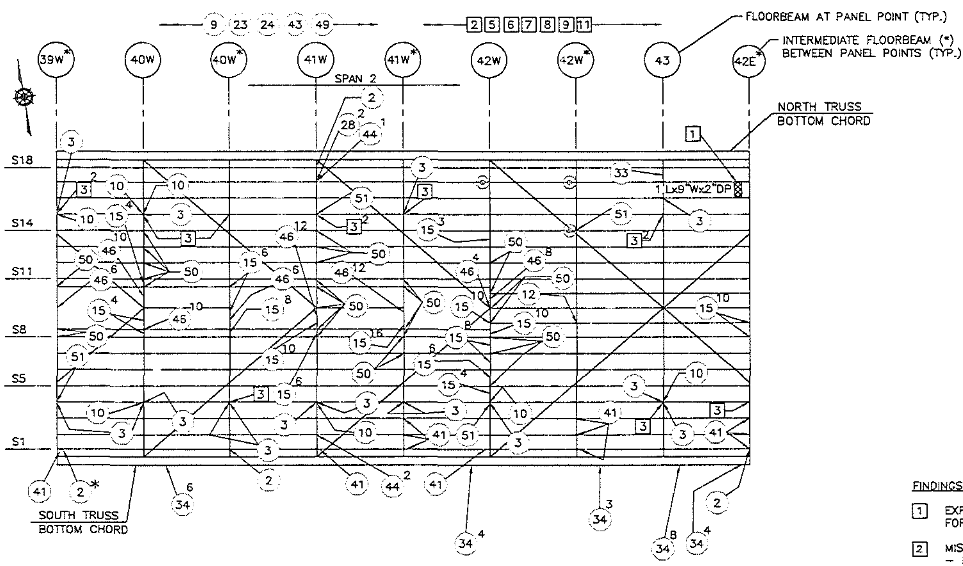
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 35W* TO PP 39W*

Designed by	Drawn by	Checked by
DS	RQ	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-8



PRIORITY REPAIRS

(17) REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (• OR ⓔ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

(2*) REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(12 X) TIGHTEN THE LOOSE BOLTS AT THE TOP OR BOTTOM FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF LOOSE BOLTS.

(15 X) REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

ROUTINE REPAIRS (CONTINUED)

(28 X) REPLACE THE SHEARED OF RIVETS IN THE STRINGER SPLICE PLATE DUE TO PACK RUST. 'X' INDICATES THE NUMBER OF SHEARED OFF RIVETS.

(33 X) REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

(34 X) REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44 X) REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46 X) REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[1] EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

△ - INDICATES PRIORITY REPAIRS

◯ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

ⓔ - INDICATES 3/4"ø HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR (17))

▨ - DETERIORATED STAY-IN-PLACE FORMS

W - WIDE
DP - DEEP
L - LENGTH

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

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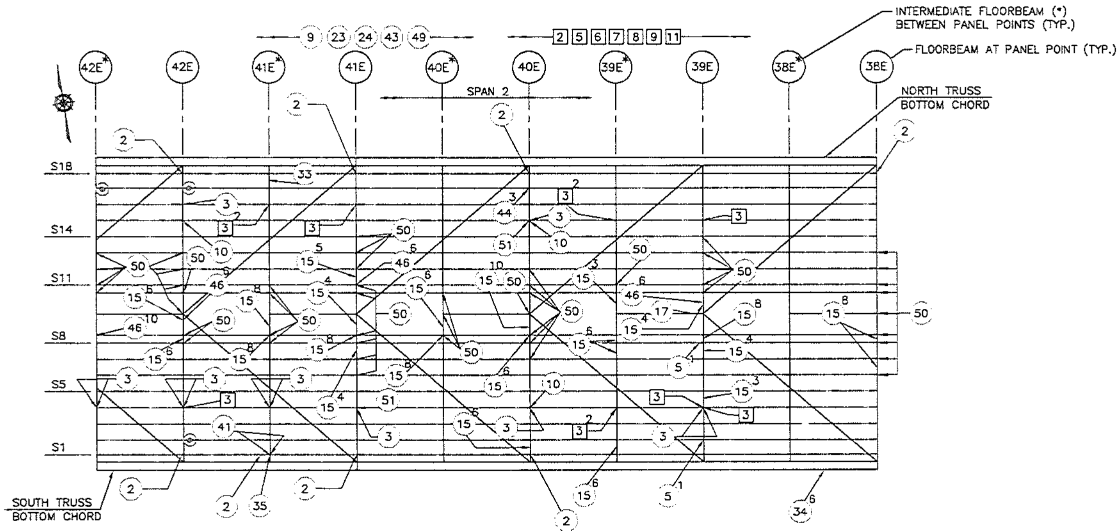
THE PORT AUTHORITY OF NY & NJ

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 39W* TO PP 42E*

Designed by	Drawn by	Checked by
DS	RQ	GA

Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number SDU-9



PRIORITY REPAIRS

(17, triangle) REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (⌀ OR ⓔ DENOTES CRACK WITH OR WITHOUT HOLES. SEE LEGEND BELOW)

ROUTINE REPAIRS

(2*) REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(5 X) TIGHTEN THE LOOSE BOLTS AND REPLACE MISSING NUTS AND BOLTS AT STRINGER WEB CONNECTIONS TO THE FLOORBEAMS (5 BOLTS PER CONNECTION EXCEPT 4 BOLTS PER CONNECTION WHERE THE STRINGER TIE-DOWN HAS BEEN MODIFIED). 'X' INDICATES THE NUMBER OF LOOSE BOLTS, MISSING BOLTS AND NUTS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15 X) REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(17) REPAIR THE HEAVY RUST WITH SMALL HOLES IN THE LATERAL BRACING BETWEEN FLOORBEAMS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

ROUTINE REPAIRS (CONTINUED)

(33 X) REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

(34 X) REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(35) REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44 X) REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46 X) REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

△ - INDICATES PRIORITY REPAIRS

◯ - INDICATES ROUTINE REPAIRS

☐ - INDICATES FINDINGS WITH NO RECOMMENDATION

ⓔ - INDICATES 3/4"⌀ HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

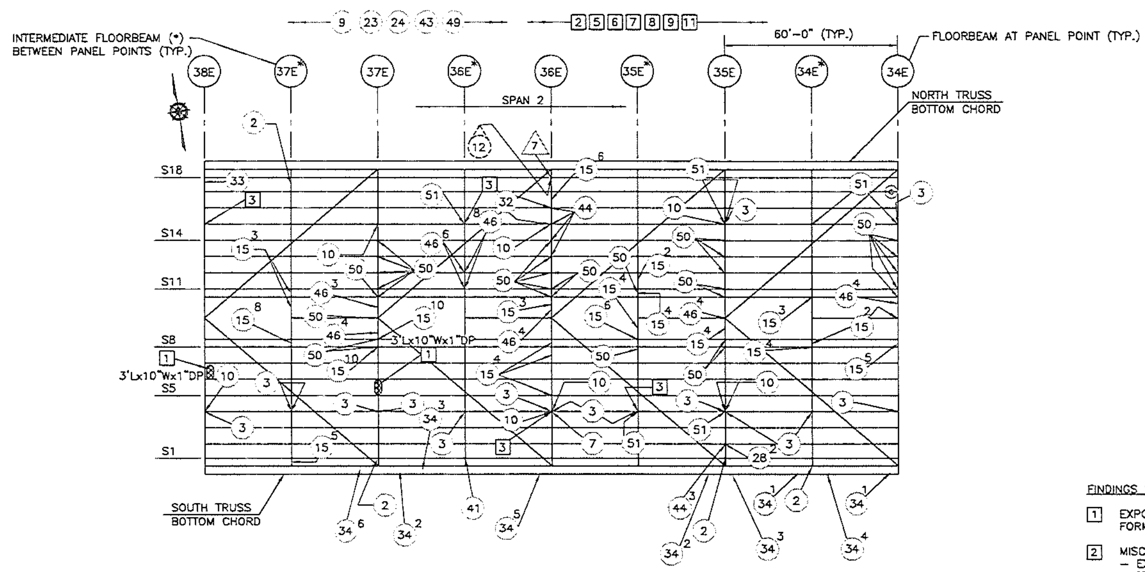
GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 42E* TO PP 38E

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number SDU-10



PRIORITY REPAIRS

(7) REPAIR THE SEVERELY CORRODED WEB, WITH HOLES AROUND THE BEARING STIFFENING ANGLES, OF STRINGER S18 AT THE WEST SIDE OF PANEL POINT 36E.

(17) REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (• OR ⦿ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(7) REPAIR HOLE IN THE INSULATING PLASTIC COVER OF THE POWER SUPPLY LINE FOR THE TRAVELER NEAR PANEL POINT 36E.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE, CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

ROUTINE REPAIRS (CONTINUED)

(28)X REPLACE THE SHEARED OF RIVETS IN THE STRINGER SPLICE PLATE DUE TO PACK RUST. 'X' INDICATES THE NUMBER OF SHEARED OFF RIVETS.

(32) REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

(33)X REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[1] EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN BELOW DECK

△ - INDICATES PRIORITY REPAIRS

◌ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

⦿ - INDICATES 3/4"⌀ HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR (17))

- DETERIORATED STAY-IN-PLACE FORMS

W - WIDE
DP - DEEP
L - LENGTH

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

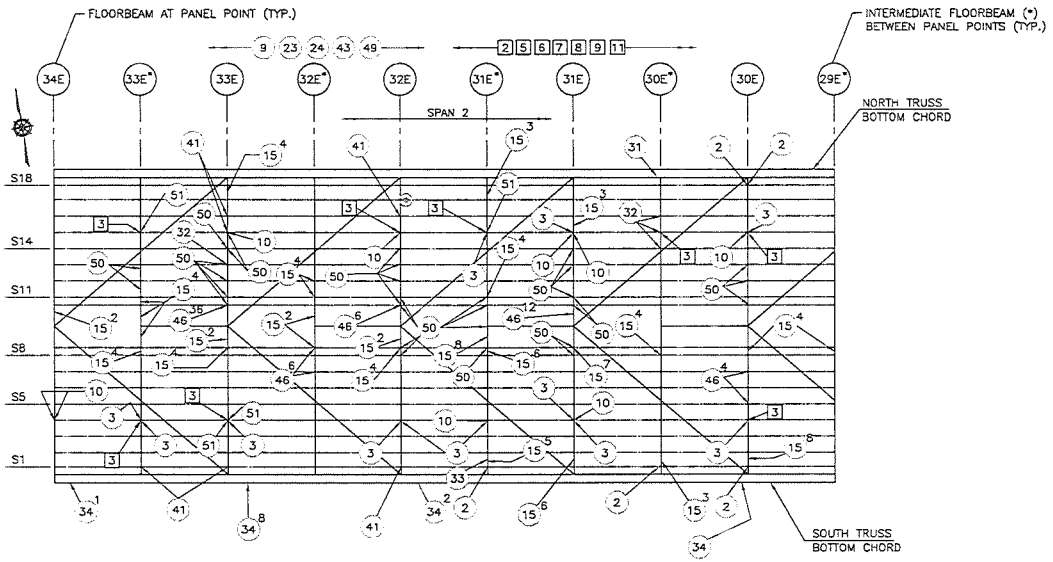
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 38E TO PP 34E

Designed by	Drawn by	Checked by
DS	RQ	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-11



PRIORITY REPAIRS

17 REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (◇ OR ⓐ DENOTES CRACK WITH OR WITHOUT HOLES. SEE LEGEND BELOW)

ROUTINE REPAIRS

2* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

3 REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

9 CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

10 REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

15X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

23 CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

24 CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

31 REPLACE THE MISSING DRAINPIPE AT DRAIN HOLE IN TOP FLANGE OF BOTTOM CHORD OF STIFFENING TRUSS.

ROUTINE REPAIRS (CONTINUED)

32 REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

33X REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

34X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

41 REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

43 CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

46X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

49 REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

50 CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

51 CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

2 MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

3 LOOSE TRAVELER HANGER RODS.

5 BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

6 MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

7 AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

8 HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

9 EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

11 HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

△ – INDICATES PRIORITY REPAIRS

◯ – INDICATES ROUTINE REPAIRS

□ – INDICATES FINDINGS WITH NO RECOMMENDATION

ⓐ – INDICATES 3/4"ø HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

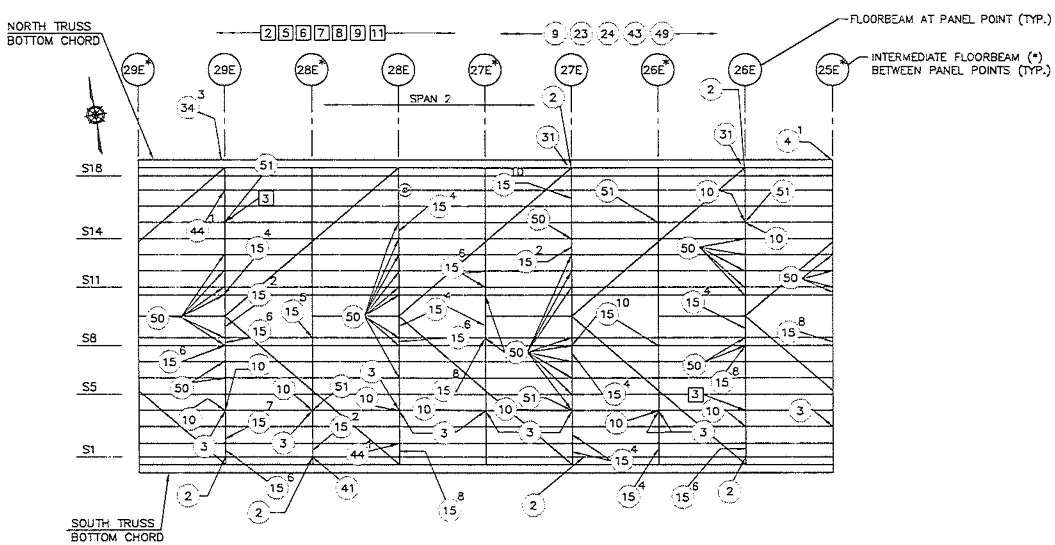
Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 34E TO PP 29E*

DS	RQ	QA
Designed by	Drawn by	Checked by
Date	DECEMBER, 2013	
Contract Number	405-13-005	
Drawing Number	SDU-12	



PRIORITY REPAIRS

17 REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (ɵ OR ⓔ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

2* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

3 REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

4X REPLACE THE SHEARED, FRACTURED OR MISSING BOLTS AT THE BOTTOM TRUSS CHORD. 'X' INDICATES THE NUMBER OF SHEARED, FRACTURED OR MISSING BOLTS.

9 CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

10 REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

15X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

23 CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

24 CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

31 REPLACE THE MISSING DRAINPIPE AT DRAIN HOLE IN TOP FLANGE OF BOTTOM CHORD OF STIFFENING TRUSS.

ROUTINE REPAIRS (CONTINUED)

34X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

41 REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

43 CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

44X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

49 REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

50 CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

51 CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

2 MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

3 LOOSE TRAVELER HANGER RODS.

5 BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

6 MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

7 AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

8 HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

9 EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

11 HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

△ - INDICATES PRIORITY REPAIRS

○ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

ⓔ - INDICATES 3/4"ɵ HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

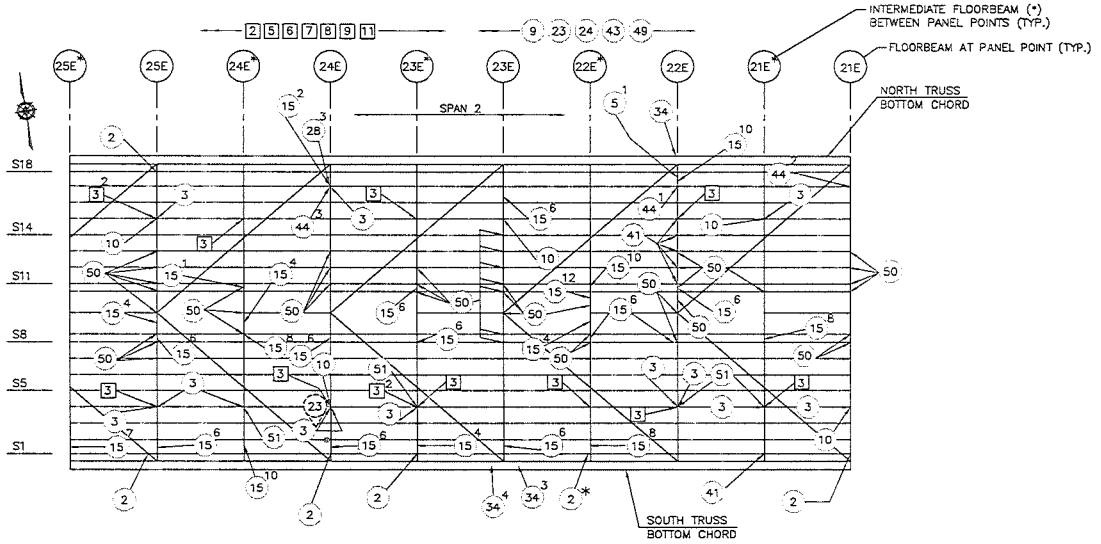
Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 29E* TO PP 25E*

Designed by	Drawn by	Checked by
DS	RQ	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-13



PRIORITY REPAIRS

△17 REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (⊙ OR ⓔ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(5)X TIGHTEN THE LOOSE BOLTS AND REPLACE MISSING NUTS AND BOLTS AT STRINGER WEB CONNECTIONS TO THE FLOORBEAMS (5 BOLTS PER CONNECTION EXCEPT 4 BOLTS PER CONNECTION WHERE THE STRINGER TIE-DOWN HAS BEEN MODIFIED). 'X' INDICATES THE NUMBER OF LOOSE BOLTS, MISSING BOLTS AND NUTS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(28)X REPLACE THE SHEARED OF RIVETS IN THE STRINGER SPLICE PLATE DUE TO PACK RUST. 'X' INDICATES THE NUMBER OF SHEARED OFF RIVETS.

ROUTINE REPAIRS (CONTINUED)

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS. EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS. EXPOSED AT RANDOM LOCATIONS. EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN BELOW DECK

△ - INDICATES PRIORITY REPAIRS

◌ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

⊙ - INDICATES HORIZONTAL CRACK IN TOP OF STRINGER WEB ABOVE SPLICE PLATE. (SEE PRIORITY REPAIR △17)

Sheet 17 of 40

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title

2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

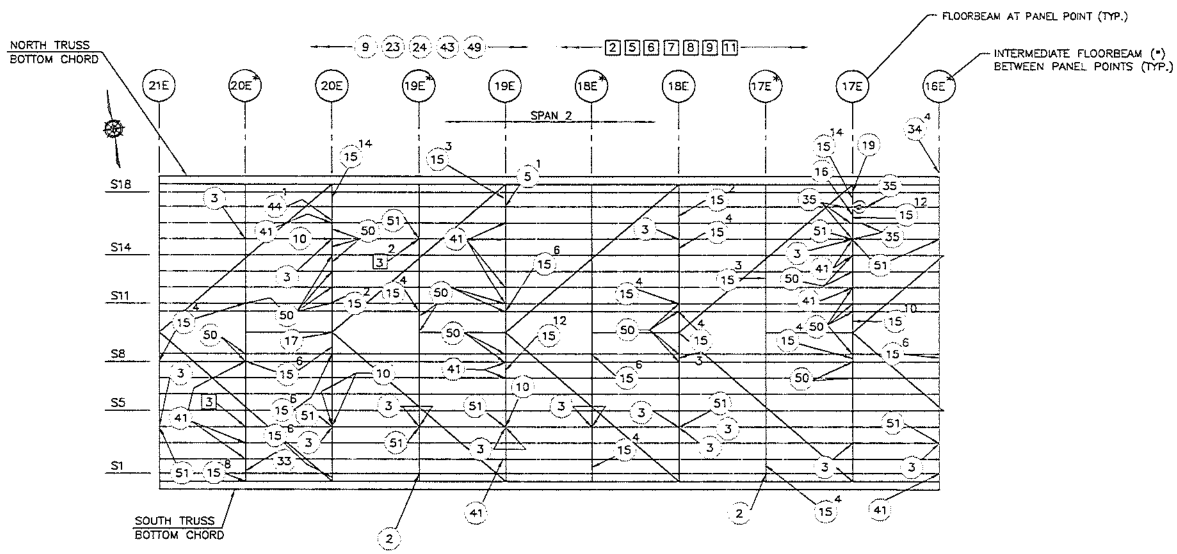
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN PP 25E* TO PP 21E

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-14



PRIORITY REPAIRS

17 (triangle) REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (● OR ⓔ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. * INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(5)X TIGHTEN THE LOOSE BOLTS AND REPLACE MISSING NUTS AND BOLTS AT STRINGER WEB CONNECTIONS TO THE FLOORBEAMS (5 BOLTS PER CONNECTION EXCEPT 4 BOLTS PER CONNECTION WHERE THE STRINGER TIE-DOWN HAS BEEN MODIFIED). 'X' INDICATES THE NUMBER OF LOOSE BOLTS, MISSING BOLTS AND NUTS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(16) REPAIR THE HEAVY CORROSION WITH RANDOM HOLES IN CHANNEL SUPPORTS OF ABANDONED PLATFORMS ATTACHED TO THE BOTTOM OF THE FLOORBEAMS (ALTERNATELY REMOVE THE PLATFORMS).

(17) REPAIR THE HEAVY RUST WITH SMALL HOLES IN THE LATERAL BRACING BETWEEN FLOORBEAMS.

(19) REPAIR DETACHED FLANGE CLIPS, REPLACE MISSING FLANGE CLIPS AND REPAIR DETACHED 1-1/2" CHANNEL SUPPORT FOR ELECTRICAL CONDUITS.

ROUTINE REPAIRS (CONTINUED)

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

(33)X REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(35) REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

(triangle) – INDICATES PRIORITY REPAIRS

(circle) – INDICATES ROUTINE REPAIRS

(square) – INDICATES FINDINGS WITH NO RECOMMENDATION

ⓔ – INDICATES 3/4"⌀ HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

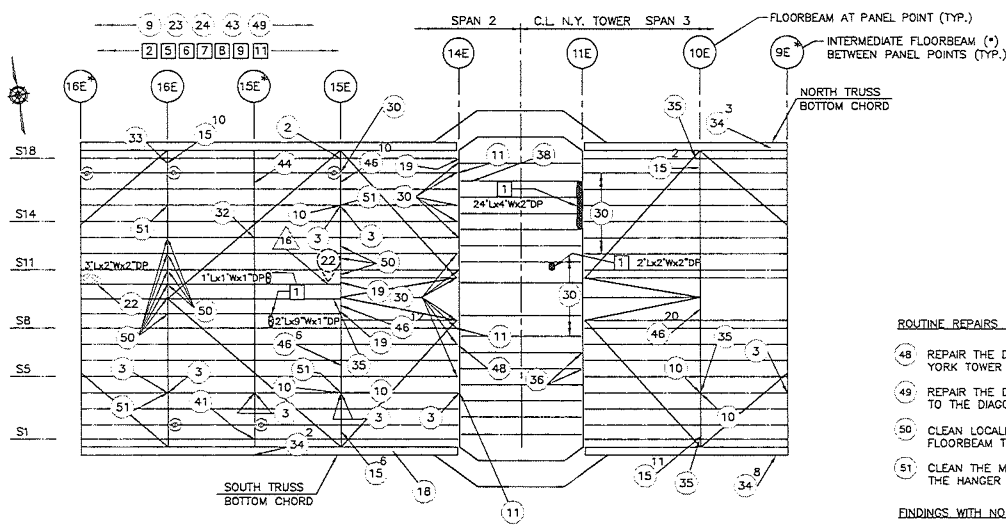
Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 21E TO PP 16E*

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-15



PRIORITY REPAIRS

16 — REPAIR BOTTOM OF STRINGER S10 WEB AT THE WEST SIDE OF FLOORBEAM 15E CONNECTION WHICH EXHIBITS SEVERE CORROSION AND SECTION LOSS WITH 4"X1" AND 2"X1" HOLES AND A 3" CRACK IN BETWEEN.

17 — REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (⊘ OR ⊙ DENOTES CRACK WITH OR WITHOUT HOLES. SEE LEGEND BELOW)

ROUTINE REPAIRS

2* — REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

3 — REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

9 — CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

10 — REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

11 — REPAIR THE CRACKED WELDS BETWEEN A FINGER AND A FINGER BAR OR A CRACKED FINGER BAR AT THE TOWER DECK JOINTS.

15X — REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

18 — REPAIR THE 3 INCH X 1 INCH HOLE IN THE TOP PLATE OF THE STIFFENING TRUSS BOTTOM CHORD BETWEEN PANEL POINTS 14E AND 15E.

19 — REPAIR DETACHED FLANGE CLIPS, REPLACE MISSING FLANGE CLIPS AND REPAIR DETACHED 1-1/2" CHANNEL SUPPORT FOR ELECTRICAL CONDUITS.

22 — REPAIR THE SPALLED CONCRETE IN UNDERSIDE OF CONCRETE FILLED STEEL DECK GRATING.

23 — CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

ROUTINE REPAIRS (CONTINUED)

24 — CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

30 — CLEAN AND PAINT THE MODERATELY RUSTED BEARINGS WITH UP TO 1/2" UPLIFT OF THE STRINGER (1/2" MAXIMUM MEASURED UPLIFT OF STRINGER S5 AT THE 14E BEARING) DUE TO PACK RUST AT THE TOWERS.

32 — REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

33X — REPAIR THE SEVERELY CORRODED DIAPHRAGM (WITH OR WITHOUT HOLES AND UP TO 1/8" LOSS) THAT SUPPORT THE SAFETY WALK OR MEDIAN. 'X' INDICATES THE NUMBER DIAPHRAGMS BETWEEN THE STRINGERS.

34X — REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

35 — REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

36 — REPAIR THE CRACKED WELD BETWEEN THE BOTTOM FLANGE OF STRINGERS S4 TO S6 AND THE BEARING PLATE AT PANEL POINT 11E.

38 — REPLACE THE SHEARED TIE DOWN BOLTS FOR THE DECK FINGER JOINT.

41 — REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

43 — CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

44X — REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

46X — REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

ROUTINE REPAIRS (CONTINUED)

48 — REPAIR THE DETACHED SECTION OF LOWER RAIL OF TWO RAIL SYSTEM AT WEST NEW YORK TOWER CATWALK.

49 — REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

50 — CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

51 — CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[1] EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN BELOW DECK

△ - INDICATES PRIORITY REPAIRS

○ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

⊙ - INDICATES 3/4"⌀ HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

- POTHOLE/SPALL

- DETERIORATED STAY-IN-PLACE FORMS

W - WIDE
DP - DEEP
L - LENGTH

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

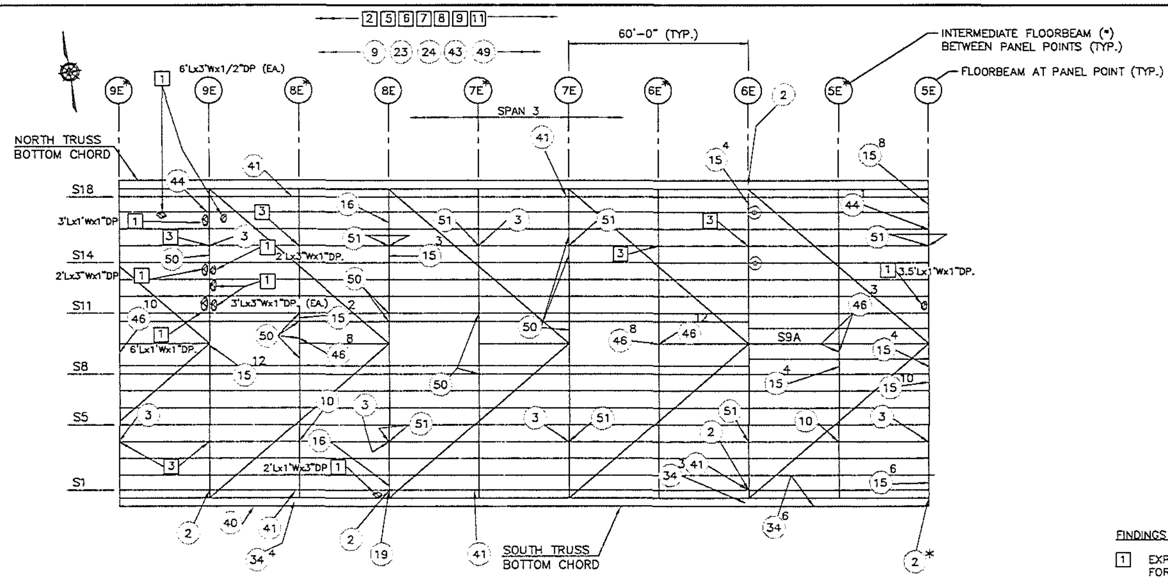
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 16E* TO PP 9E

DS	DC	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-16



PRIORITY REPAIRS

17 (priority) REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (⌀ OR ⊛ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

(2)* REPAIR THE CRACKS AND HOLES IN THE FASCIA STRINGER WEBS, S1 AND S18, BELOW THE STRINGER SUPPORT ANGLE, DIAPHRAGMS OR VERTICAL FLOORBEAM STIFFENERS. '*' INDICATES LOCATION WITH DRILLED ARRESTOR HOLE.

(3) REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

(9) CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE, CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

(10) REPAIR OR REPLACE THE HEAVILY RUSTED HORIZONTAL STIFFENER PLATES WITH MORE THAN 50% AREAS OF SECTION LOSS ADJACENT TO THE TRAVELER HANGER TEE.

(15)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(16) REPAIR THE HEAVY CORROSION WITH RANDOM HOLES IN CHANNEL SUPPORTS OF ABANDONED PLATFORMS ATTACHED TO THE BOTTOM OF THE FLOORBEAMS (ALTERNATELY REMOVE THE PLATFORMS).

(19) REPAIR DETACHED FLANGE CLIPS, REPLACE MISSING FLANGE CLIPS AND REPAIR DETACHED 1-1/2" CHANNEL SUPPORT FOR ELECTRICAL CONDUITS.

(23) CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

(24) CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

ROUTINE REPAIRS (CONTINUED)

(34)X REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

(40) REPAIR THE 2 INCH DIAMETER HOLE IN THE TOP PLATE OF THE BOTTOM CHORD OF THE STIFFENING TRUSS.

(41) REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

(43) CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

(44)X REMOVE AND REPLACE THE WARPED/ BULGING CONNECTION PLATES, DUE TO PACK RUST, BETWEEN STRINGER WEBS OVER FLOORBEAMS. CLEAN AND PAINT STEEL SURFACES AND REASSEMBLE THE CONNECTIONS WITH NEW BOLTS. 'X' INDICATES THE NUMBER OF MISSING BOLTS.

(46)X REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

(49) REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

(50) CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

(51) CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

[1] EXPOSED UNDERSIDE OF STEEL GRID DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS EXHIBITS DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION.

[2] MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

[3] LOOSE TRAVELER HANGER RODS.

[5] BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

[6] MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

[7] AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

[8] HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

[9] EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

[11] HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

△ - INDICATES PRIORITY REPAIRS

◯ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

⊛ - INDICATES 3/4"⌀ HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

▩ - DETERIORATED STAY-IN-PLACE FORMS

W - WIDE
DP - DEEP
L - LENGTH

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THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

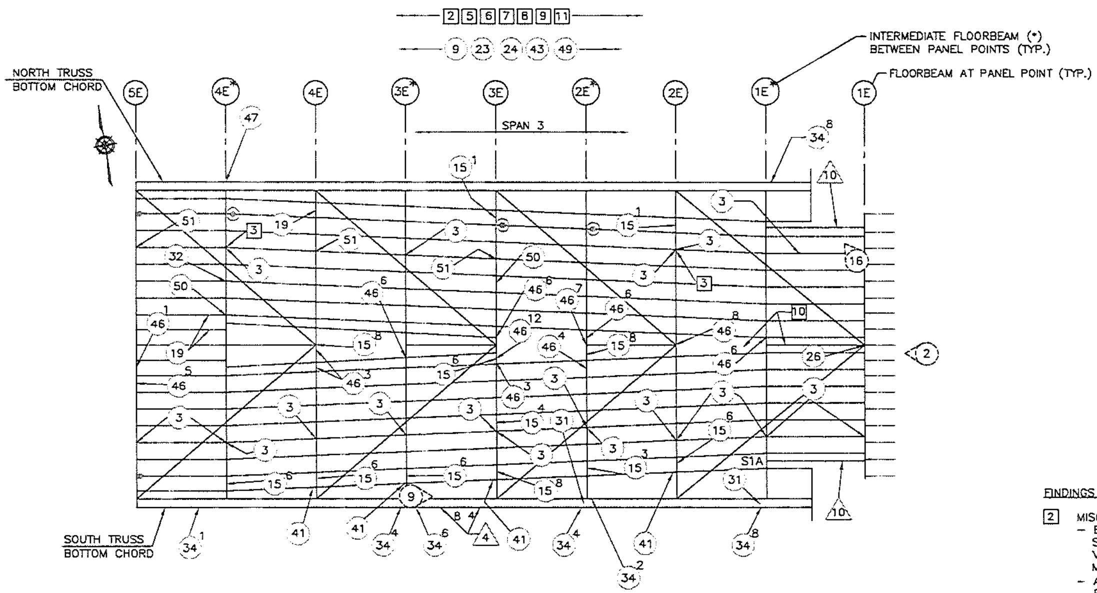
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
PP 9E* TO PP 5E

Designed by	Drawn by	Checked by
DS	DC	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-17



PRIORITY REPAIRS

4 — REPAIR TWELVE (12) UP TO 6" X 2" HOLES IN THE TOP PLATE OF THE SOUTH BOTTOM TRUSS CHORD BETWEEN PANEL POINTS 3E* AND 3E. TEMPORARY REPAIR PERFORMED BY FILLING HOLES WITH CAULK AND REPAINTING.

10 — REPAIR THE SEVERELY CORRODED STRINGERS S1 AND S18 WITH WEB HOLES AND 50% SECTION LOSS OF BOTTOM FLANGE NEAR THE 1/3 SPAN BETWEEN PANEL POINTS 1E* AND 1E.

17 — REPAIR TOP OF THE INTERIOR STRINGER WEBS WHICH EXHIBIT SEVERE CORROSION AND SECTION LOSS WITH CRACKS (WITH OR WITHOUT ARRESTOR DRILL HOLES) ABOVE THE SPLICE PLATES OVER THE BEARING AREA AT THE FLOORBEAM CONNECTIONS. (⊕ OR Ⓔ DENOTES CRACK WITH OR WITHOUT HOLES, SEE LEGEND BELOW)

ROUTINE REPAIRS

3 — REPAIR OR REPLACE BROKEN OR BENT DAMPER BOLTS, LOOSE NUTS ON DAMPER BOLTS AND BROKEN BOLT SPRINGS.

9 — CLEAN THE LIGHT TO MEDIUM RUST FROM TOP FLANGE OF BOTH TRAVELER BEAMS AND PAINT THE TOP OF THE BEAM. REMOVE PROTECTIVE PLASTIC TAPE WHERE APPROPRIATE. CLEAN THE LIGHT TO HEAVY RUST AND PAINT THE HANGER ROD ASSEMBLIES.

15 X — REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE TOP FLANGE OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

19 — REPAIR DETACHED FLANGE CLIPS, REPLACE MISSING FLANGE CLIPS AND REPAIR DETACHED 1-1/2" CHANNEL SUPPORT FOR ELECTRICAL CONDUITS.

23 — CLEAN AND PAINT THE MODERATE PITTING, CORROSION AND PACK RUST OF STEEL ANGLES OF DIAGONAL, LONGITUDINAL BRACING MEMBERS BETWEEN FLOORBEAMS OR BRACING AT GUSSET PLATE CONNECTION TO FLOORBEAMS PARTICULARLY BELOW SAFETY WALKS AND OPEN MEDIAN.

24 — CLEAN AND PAINT THE MODERATE TO SEVERE RUSTING AND PITTING WITH MINOR SECTION LOSS, PAINT FAILURE AT STRINGERS, STRINGER WEB CONNECTION PLATES, DIAPHRAGMS, PIN SUPPORTS AT CAP BEAMS (NEW YORK ANCHORAGE) BENEATH THE MEDIAN OPENINGS AND AT THE OUTER CURB LINES.

26 — REMOVE THE DEBRIS ON THE WINDLOCK AND CLEAN AND PAINT THE MODERATELY TO SEVERELY CORRODED WINDLOCK MEMBERS.

ROUTINE REPAIRS (CONTINUED)

31 — REPLACE THE MISSING DRAINPIPE AT DRAIN HOLE IN TOP FLANGE OF BOTTOM CHORD OF STIFFENING TRUSS.

32 — REPAIR THE AREAS OF MUTUAL WEAR BETWEEN THE STRINGER LOWER FLANGE AND BEARING PLATE OVER THE FLOORBEAM WITH UP TO 1/8" GAP AND MINOR VERTICAL MOVEMENT OF THE STRINGER UNDER LIVE LOAD.

34 X — REPLACE RIVETS WITH GREATER THAN 50% SECTION LOSS ALONG BOTTOM CHORD OF THE STIFFENING TRUSS OR GUSSET PLATES AT CONNECTIONS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVET HEADS.

41 — REMOVE AND REPLACE CRACKED AND BULGING BEARING NEOPRENE PADS BETWEEN THE STRINGER AND FLOORBEAM.

43 — CLEAN PACK RUST CAUSING BULGING BETWEEN THE BOTTOM COVER PLATES AND FLANGE ANGLES OF STIFFENING TRUSS BOTTOM CHORD AND PAINT.

46 X — REPLACE RIVETS OR BOLTS WITH GREATER THAN 50% SECTION LOSS AT THE BOTTOM FLANGES OF THE FLOORBEAMS. 'X' INDICATES THE NUMBER OF DETERIORATED RIVETS OR BOLTS.

47 — REPAIR THE RANDOM LOOSE OR DETERIORATED BOLTS AT THE GUSSET PLATES OF THE NORTH STIFFENING TRUSSES AT PANEL POINT 4E*.

49 — REPAIR THE DETERIORATED GUSSET PLATE AT THE CONNECTION OF THE BOTTOM CHORD TO THE DIAGONALS OF THE STIFFENING TRUSS.

50 — CLEAN LOCALIZED PACK RUST UP TO 3/4" THICK BETWEEN THE COVER PLATES OF FLOORBEAM TOP FLANGE.

51 — CLEAN THE MEDIUM TO HEAVY RUST WITH MINOR SECTION LOSS FROM THE WEB OF THE HANGER TEE OR HANGER RODS.

FINDINGS WITH NO RECOMMENDATION

2 — MISCELLANEOUS UNDERSIDE OF DECK DEFICIENCIES:
- EXPOSED UNDERSIDE OF DECK AT THE CANTILEVERS OF THE DECK BEYOND THE STRINGERS, DUE TO DETERIORATED STAY-IN-PLACE FORMS, EXHIBIT DECK VOIDS BUT WITHOUT CONCRETE DETERIORATION. EMBEDDED STEEL GRID DECK MEMBERS, EXPOSED AT RANDOM LOCATIONS, EXHIBIT LIGHT TO MODERATE RUST.
- AS-BUILT STAY-IN-PLACE FORM BLOW OUTS (FAILURES).
- EXPOSED UNDERSIDE OF DECK DUE TO DETERIORATED STAY-IN-PLACE FORMS WITHOUT VOIDS OR NOTABLE CONCRETE DETERIORATION.

3 — LOOSE TRAVELER HANGER RODS.

5 — BROKEN WELDS AT SQUARE WASHERS OF HANGER ROD CONNECTIONS.

6 — MISALIGNED "NON-VERTICAL" TRAVELER HANGER DAMPER BOLTS THAT REMAIN CONTACTING THE BASE PLATE.

7 — AS-BUILT CUT AT COPE IN STEMS OF HANGER TEES.

8 — HEAVY RUST OF THE SHORT LEG OF THE ANGLE SUPPORT FOR THE STEEL CURB WITH UP TO 100% LOSS OF SECTION AT THE DECK ELEVATION.

9 — EXTRA LENGTHS OF JOINT FILLER EXTEND BEYOND EDGE OF DECK.

10 — STEEL STRAPS WELDED TO THE UNDERSIDE OF THE STEEL PLATE MEDIAN COVER ALONG THE BRIDGE CENTERLINE ARE MISSING OR PARTIALLY DETACHED AT FOUR LOCATIONS BETWEEN FLOORBEAMS 2E AND 1E ELEVATION.

11 — HEAVY PACK RUST AT STRINGER WEB CONNECTION PLATES AND BUILT-UP SAFETY WALK GRATE SUPPORTS.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN BELOW DECK

△ - INDICATES PRIORITY REPAIRS

○ - INDICATES ROUTINE REPAIRS

□ - INDICATES FINDINGS WITH NO RECOMMENDATION

⊕ - INDICATES HORIZONTAL CRACK IN TOP OF STRINGER WEB ABOVE SPLICE PLATE. (SEE PRIORITY REPAIR 17)

Ⓔ - INDICATES 3/4"⌀ HOLE DRILLED AT END OF CRACK IN STRINGER WEB. (SEE PRIORITY REPAIR 17)

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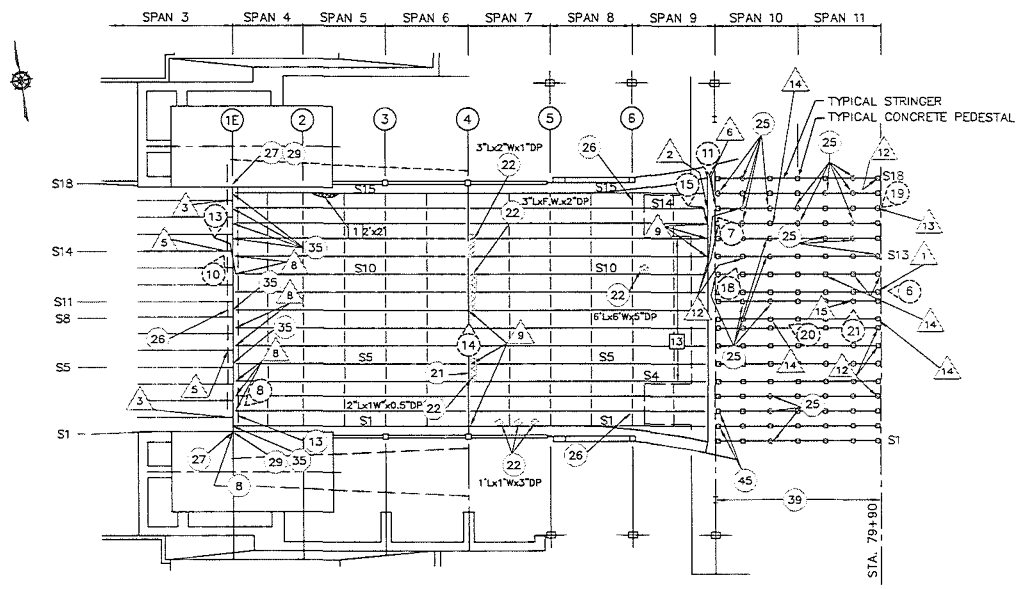
No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
GEORGE WASHINGTON BRIDGE			
QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS			
Title: 2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE — BIN 5522507 — LOWER LEVEL SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN PP 5E TO PP 1E			
Designed by DS	Drawn by RQ	Checked by CA	
Date	DECEMBER, 2013		
Contract Number	405-13-005		
Drawing Number	SDU-18		



PRIORITY REPAIRS

1 REPAIR SPALLED CONCRETE PEDESTAL AT THE EAST END OF SPAN 11 IN THE NEW YORK ANCHORAGE.

2 REPAIR SEVERELY CORRODED WEB, WITH HOLE NEAR THE BEARING OF STRINGER S14 LOCATED AT THE EAST END OF SPAN 9.

3 REPAIR SEVERELY CORRODED STRINGER WEBS WITH HOLES ABOVE THE BEARINGS AT STRINGERS S2 AND S17 ABOVE PANEL POINT 1E.

5 REPAIR SEVERELY CORRODED STRINGER WEBS WITH HOLES ABOVE THE BEARINGS AT STRINGERS S6 AND S14 ABOVE PANEL POINT 1E.

6 REPAIR SPALLED AND CRACKED CONCRETE PEDESTAL CAUSING MINOR UNDERMINING OF THE BEARING UNDER STRINGER S16 AT THE WEST END OF SPAN 10.

8 REPAIR THE SEVERELY CORRODED TOP FLANGE AND WEB WITH HOLES IN THE WEB AT THE BEARINGS OF STRINGERS S2, S3, S4, S6, S7, S10, AND S11, LOCATED AT THE EAST SIDE OF FLOORBEAM 1E.

9 REPAIR THE SEVERELY CORRODED WEBS, WITH HOLE NEAR THE BEARING, OF STRINGERS S1, S5, AND S8 LOCATED AT THE WEST END OF SPAN 7 AND AT STRINGERS S11, S12, AND S13, INCLUDING AN ADJACENT CORROSION CRACK AT STRINGER S12, LOCATED AT THE EAST END OF SPAN 9.

12 REPAIR CRACKED AND SPALLED CONCRETE PEDESTALS CAUSING UNDERMINING OF THE BEARING UNDER STRINGER S13, S15 AND S16 AT THE WEST END OF SPAN 10 AND UNDER STRINGER S4, S7, S8, & S18 AT THE EAST END OF SPAN 11.

13 REPAIR THE 2 OF 4 BROKEN ANCHOR BOLTS AT THE BEARING OF STRINGER S16 LOCATED AT THE EAST END OF SPAN 11.

14 REPAIR SPALLED AND CRACKED CONCRETE PEDESTALS, WITH OR WITHOUT EXPOSED ANCHOR BOLTS AND/OR REBAR, CAUSING MINOR UNDERMINING OF THE BEARING UNDER STRINGERS S9 AND S15 OF SPAN 10, UNDER STRINGER S9 AT EAST END OF SPAN 11, AND AT 3 LOCATIONS UNDER STRINGER S12 IN SPAN 11.

15 REPAIR SPALLED AND CRACKED CONCRETE PEDESTALS CAUSING MINOR UNDERMINING OF THE BEARING UNDER STRINGER S10 AT THE EAST END OF SPAN 11.

ROUTINE REPAIRS

8 RECONNECT THE BEARING STRAP PLATE AT THE SOUTH BEARING OF FLOORBEAM 1E.

13 REPAIR THE BROKEN AND DISCONNECTED DRAINAGE TROUGH.

21 REPAIR THE AREAS OF SECTION LOSS WITH UP TO 1/4" DIAMETER HOLES IN THE BASE OF THE WEB OF FLOORBEAM 4 AT SPANS 6 AND 7 BETWEEN STRINGERS S4 TO S6.

22 REPAIR THE SPALLED CONCRETE IN UNDERSIDE OF CONCRETE FILLED STEEL DECK GRATING.

25 REPAIR THE CRACKED AND/OR SPALLED CONCRETE PEDESTALS WITH LESS THAN 10% UNDERMINING OF THE BASE PLATES IN SPANS 10 AND 11 AT THE NEW YORK ANCHORAGE.

26 REMOVE THE DEBRIS ON THE WINDLOCK AND CLEAN AND PAINT THE MODERATELY TO SEVERELY CORRODED WINDLOCK MEMBERS.

27 CLEAN DEBRIS AND CLEAN AND PAINT THE MODERATELY TO SEVERELY RUSTED BEARINGS AT THE NORTH AND SOUTH ENDS OF CAP BEAM 1E AT THE NEW YORK ANCHORAGE.

29 REPAIR THE 2.5 FT WIDE X 1.0 FT LONG X 1.0 FT DEEP SPALL AT THE SOUTH PEDESTAL AND NORTH PEDESTAL UNDER CAP BEAM 1E AT THE NEW YORK ANCHORAGE (NO UNDERMINING OF THE BEARING WAS NOTED).

35 REPAIR THE DETERIORATED WEB AREA WITH OR WITHOUT SMALL CORROSION HOLES AND UP TO 1/16" SECTION LOSS AT THE BOTTOM OF THE STRINGER AT THE FLOORBEAM CONNECTION.

39 SEAL THE HOLES AT THE ANCHOR BOLTS CONNECTING THE JERSEY BARRIER TO THE DECK IN SPANS 10 AND 11 TO PREVENT WATER INTRUSION INTO THE DECK.

45 REPAIR ONE OF FOUR BROKEN ANCHOR BOLTS AT THE BEARING OF STRINGERS S2 AND S3 AT THE WEST END OF SPAN 10.

FINDINGS WITH NO RECOMMENDATION

13 CRACKED WELDED COVER PLATES AT EAST END OF STRINGERS S4 TO S11 IN SPAN 9 DUE TO PACK RUST. COVER PLATE AT STRINGER S12 HAS FALLEN OFF.

LEGEND:

8E CAPBEAM NUMBER (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN BELOW DECK

– INDICATES PRIORITY REPAIRS

– INDICATES ROUTINE REPAIRS

– INDICATES FINDINGS WITH NO RECOMMENDATION

– DETERIORATED STAY-IN-PLACE FORMS

– POTHOLE/SPALL

W – WIDE
DP – DEEP
L – LENGTH
F.W. – FULL WIDTH

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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

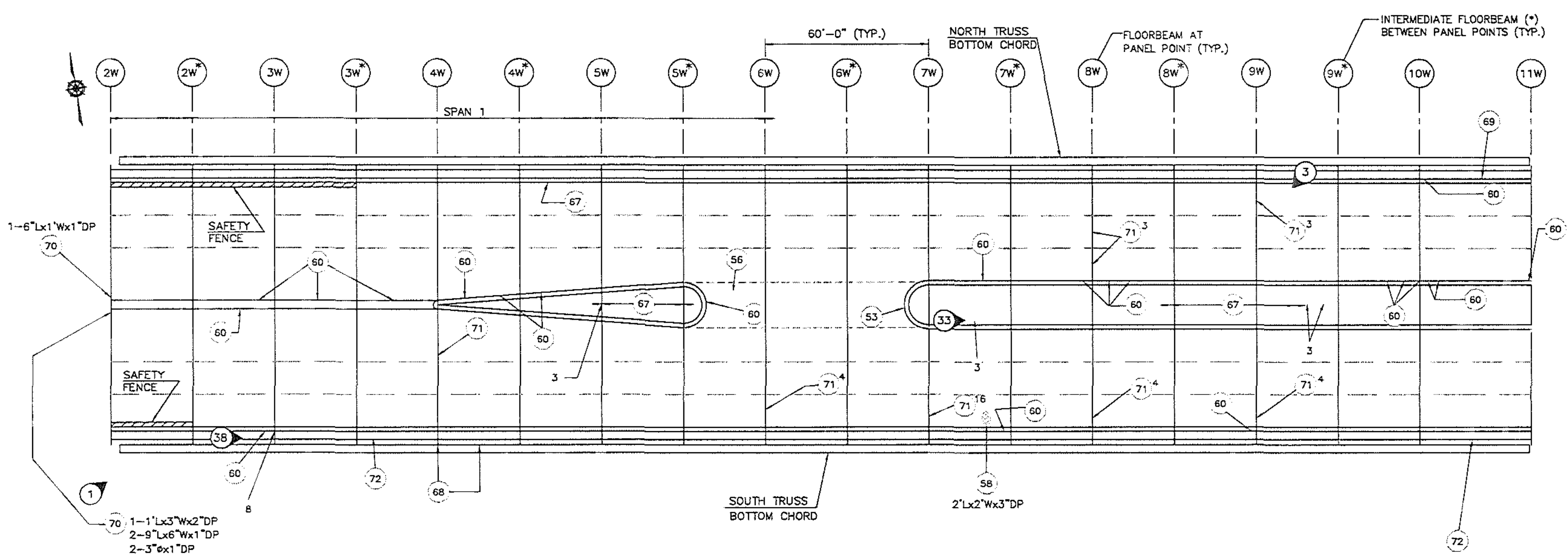
Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
SUPERSTRUCTURE & DECK UNDERSIDE DEFICIENCY & PHOTO LOCATION PLAN
NEW YORK ANCHORAGE

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number SDU-19



SAFETY REPAIRS

3 REPAIR OR REPLACE MEDIAN SAFETY NETTING WITH LARGE HOLES.

8 REPAIR OR REPLACE THE MISSING OR LOOSE COVER TO THE ELECTRICAL PANEL BOX WITH EXPOSED WIRES ATTACHED TO THE BACK OF THE BARRIER (ACCESSIBLE TO PUBLIC/STRANDED MOTORISTS) ALONG THE NORTH AND SOUTH SAFETY WALKS.

ROUTINE REPAIRS

(53) REPLACE MISSING CURB PLATE.

(56) REPLACE THE MISSING BOLLARDS.

(58) REPAIR THE POTHOLES OR SEVERE RAVELING IN THE ASPHALT WEARING SURFACE.

(60) REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

(67) REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

(68) REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

(69) REPLACE BROKEN OR DETACHED CLIPS AND/OR SCREWS ATTACHING THE SAFETY WALK GRATING TO THE STEEL FRAMING BELOW.

(70) REPAIR SPALLS WITH OR WITHOUT EXPOSED RUSTED STEEL REINFORCEMENT AT CONCRETE CURBS OR PAVEMENT.

(71)X REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

(72) REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN ABOVE DECK

- INDICATES SAFETY REPAIRS

- INDICATES ROUTINE REPAIRS

- POTHOLE/SPALL

W - WIDE

DP - DEEP

L - LENGTH

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THE PORT AUTHORITY OF NY & NJ

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ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

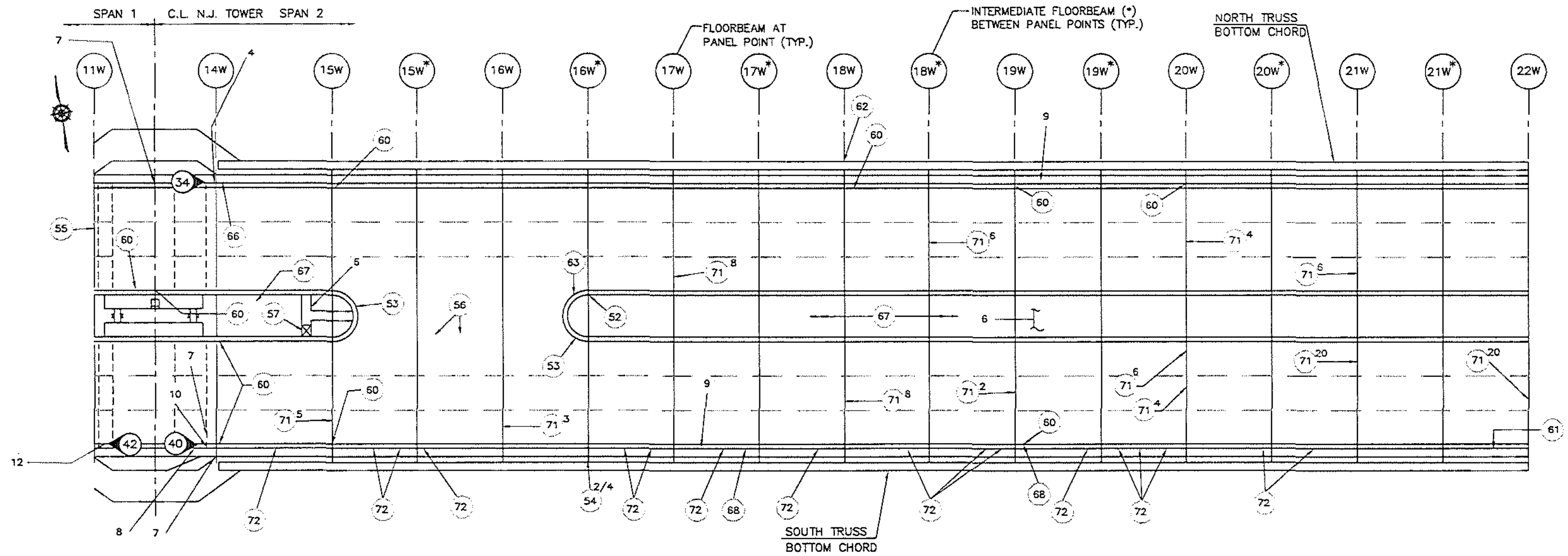
BIN 5522507
LOWER LEVEL
TOP OF DECK
DEFICIENCY & PHOTO LOCATION PLAN
PP 2W TO PP 11W

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number TD-1



SAFETY REPAIRS

4 REPAIR OR REPLACE THE 2'X1' OPENING IN THE NORTH SAFETY WALK DUE TO REMOVED CONDUITS AND 2' LONG X 4" WIDE SECTION OF REMOVED SAFETY WALK GRATING AT THE NEW JERSEY TOWER.

6 REPLACE THE MISSING OR PARTIALLY MISSING RAILINGS AT THE CROSSOVER WALKWAYS OVER THE OPEN MEDIAN AREAS.

7 REPAIR THE DETACHED CONNECTIONS OF THE SAFETY WALK OR BRIDGE RAILINGS.

8 REPAIR OR REPLACE THE MISSING OR LOOSE COVER TO THE ELECTRICAL PANEL BOX WITH EXPOSED WIRES ATTACHED TO THE BACK OF THE BARRIER (ACCESSIBLE TO PUBLIC/STRANDED MOTORISTS) ALONG THE NORTH AND SOUTH SAFETY WALKS.

9 REPAIR OR REPLACE CORRODED/UPLIFTED DIAMOND PLATE (CREATING A TRIPPING HAZARD) SAFETY WALK GRATING.

10 REPAIR SEVERELY DETERIORATED AND COLLAPSED SECTION OF STEEL CURB AT THE SOUTH SIDE OF THE EASTBOUND ROADWAY.

12 REPAIR BROKEN CONDUIT AT THE SOUTH SAFETY WALK OF THE NEW JERSEY TOWER (ACCESSIBLE TO PUBLIC/STRANDED MOTORISTS).

ROUTINE REPAIRS

52 REPAIR BROKEN WELD OR COUPLING AT CORNER CONNECTION OF DEBRIS NET FENCE SUPPORT RAILS.

53 REPLACE MISSING CURB PLATE.

54 (X) REPAIR OR REPLACE MISSING AND BROKEN SUPPORT STRAPS FOR TRAFFIC SIGNS. 'X' INDICATES RATIO OF BROKEN MISSING SUPPORT STRAP TO TOTAL NUMBER OF REQUIRED SUPPORT STRAPS.

55 REPAIR THE 1" HEIGHT DIFFERENTIAL IN THE FINGER JOINT AT PANEL POINT 11W.

56 REPLACE THE MISSING BOLLARDS.

57 REPAIR BROKEN HINGE TO ACCESS LADDER HATCH AT MEDIAN BETWEEN PANEL POINTS 14W–15W.

ROUTINE REPAIRS (CONTINUED)

60 REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

61 REPAIR IMPACT DAMAGE TO SOUTH BRIDGE RAIL POST NEAR PANEL POINT 22W.

62 REPLACE 3 MISSING BOLTS AT BOTTOM PLATE CONNECTION OF DOWNSPOUT TUBE AT PANEL POINT 18W.

63 REPAIR IMPACT DAMAGE TO STEEL MEDIAN BARRIER.

66 PROVIDE SUPPORT FOR UNSUPPORTED BRIDGE RAILING.

67 REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

68 REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

71 (X) REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

72 REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN ABOVE DECK

– INDICATES SAFETY REPAIRS

– INDICATES ROUTINE REPAIRS

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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

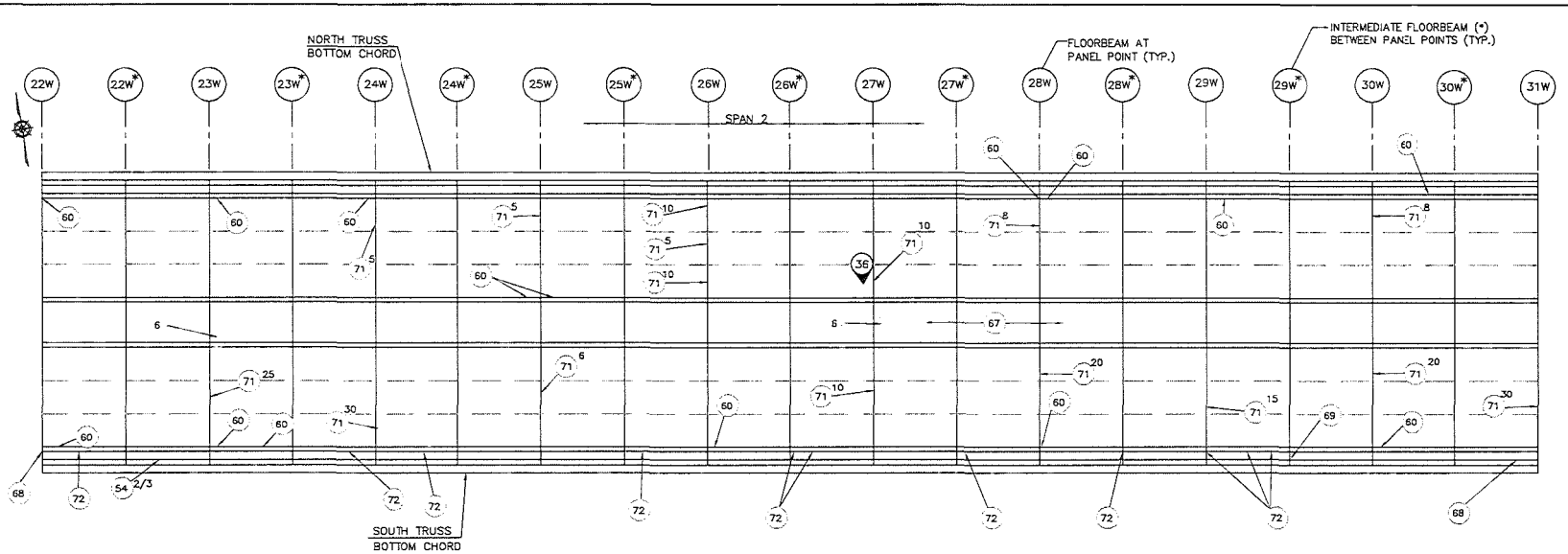
BIN 5522507
LOWER LEVEL
TOP OF DECK
DEFICIENCY & PHOTO LOCATION PLAN
PP 11W TO PP 22W

Designed by	Drawn by	Checked by
DS	RQ	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number TD-2



SAFETY REPAIRS

6 REPLACE THE MISSING OR PARTIALLY MISSING RAILINGS AT THE CROSSOVER WALKWAYS OVER THE OPEN MEDIAN AREAS.

ROUTINE REPAIRS

54 (X) REPAIR OR REPLACE MISSING AND BROKEN SUPPORT STRAPS FOR TRAFFIC SIGNS. 'X' INDICATES RATIO OF BROKEN MISSING SUPPORT STRAP TO TOTAL NUMBER OF REQUIRED SUPPORT STRAPS.

60 REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

67 REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

68 REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

69 REPLACE BROKEN OR DETACHED CLIPS AND/OR SCREWS ATTACHING THE SAFETY WALK GRATING TO THE STEEL FRAMING BELOW.

71 (X) REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

72 REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

LEGEND:

8E PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN ABOVE DECK

– INDICATES SAFETY REPAIRS

– INDICATES ROUTINE REPAIRS

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ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title

2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

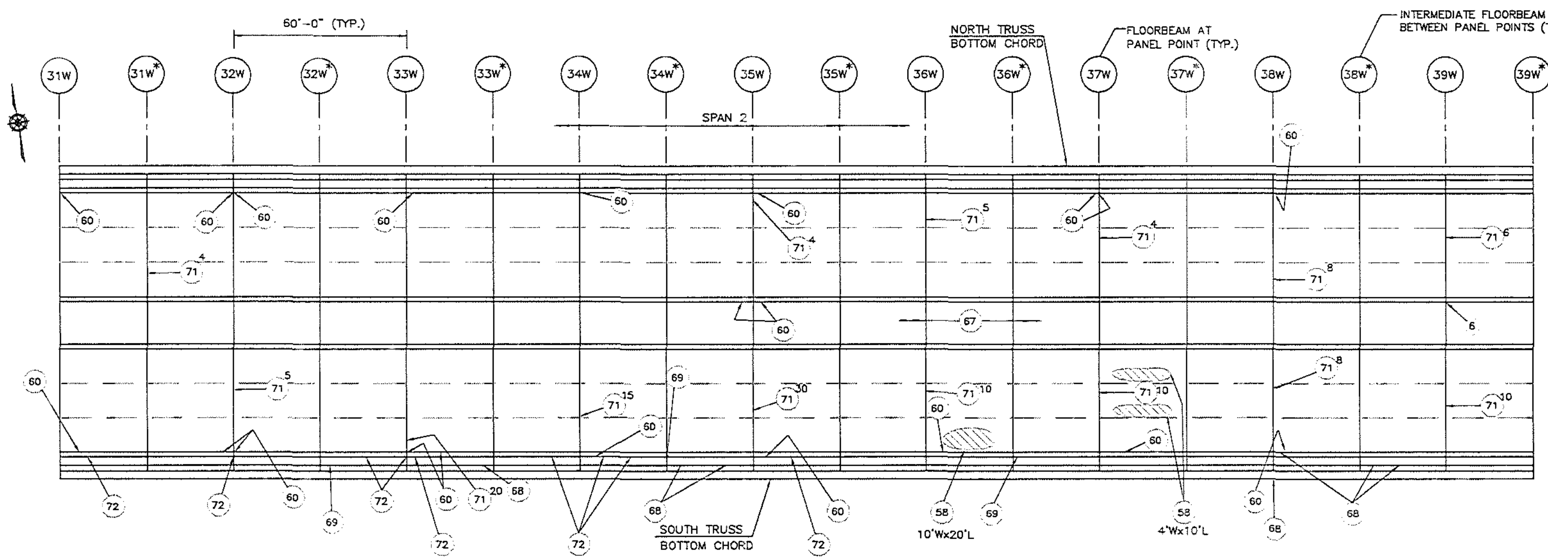
TOP OF DECK DEFICIENCY & PHOTO LOCATION PLAN PP 22W TO PP 31W

BS	RG	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number TD-3



SAFETY REPAIRS

6 REPLACE THE MISSING OR PARTIALLY MISSING RAILINGS AT THE CROSSOVER WALKWAYS OVER THE OPEN MEDIAN AREAS.

ROUTINE REPAIRS

58 REPAIR THE POTHOLES OR SEVERE RAVELING IN THE ASPHALT WEARING SURFACE.

60 REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

67 REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

68 REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

69 REPLACE BROKEN OR DETACHED CLIPS AND/OR SCREWS ATTACHING THE SAFETY WALK GRATING TO THE STEEL FRAMING BELOW.

71 X REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

72 REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

LEGEND:

8E PANEL POINT (AS PER PANY&NJ SYSTEM)

- INDICATES SAFETY REPAIRS
- INDICATES ROUTINE REPAIRS
- POTHOLE/SPALL
- AREA OF SEVERE RAVELING IN ASPHALT WEARING SURFACE

W - WIDE
L - LENGTH

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ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507
LOWER LEVEL
TOP OF DECK
DEFICIENCY & PHOTO LOCATION PLAN
PP 31W TO PP 39W*

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

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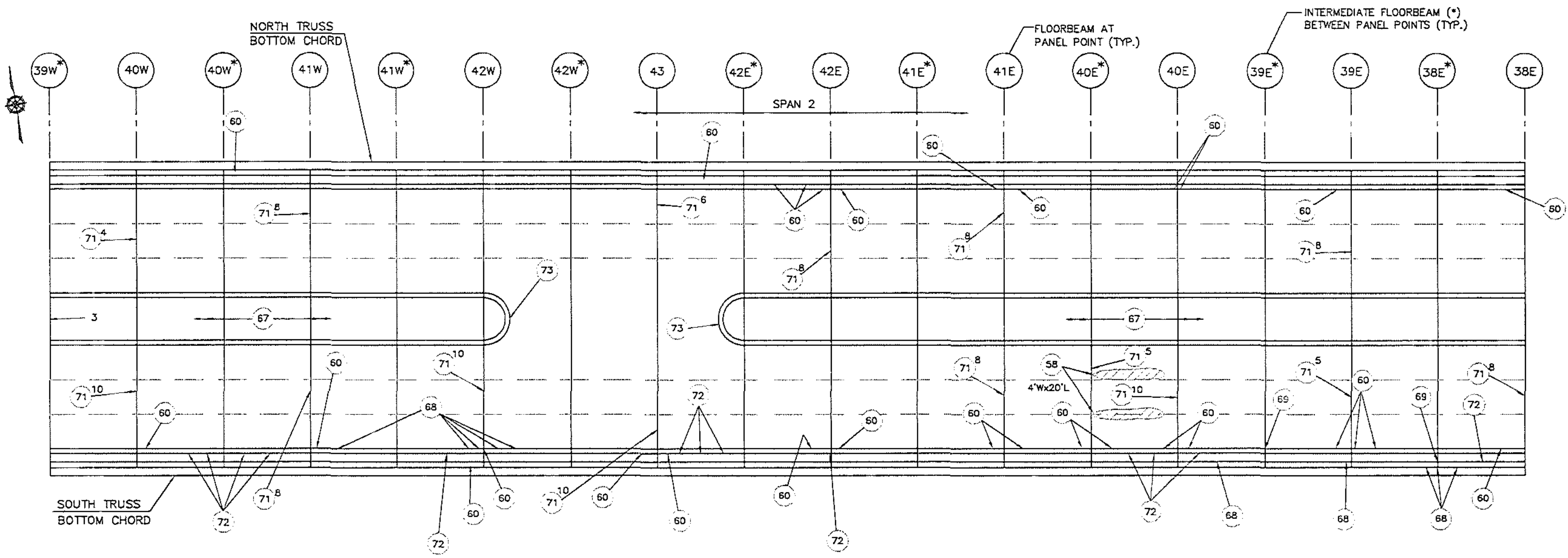

SAFETY REPAIRS

3 REPAIR OR REPLACE MEDIAN SAFETY NETTING WITH LARGE HOLES.

ROUTINE REPAIRS

58 REPAIR THE POTHOLES OR SEVERE RAVELING IN THE ASPHALT WEARING SURFACE.

60 REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

67 REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

68 REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

69 REPLACE BROKEN OR DETACHED CLIPS AND/OR SCREWS ATTACHING THE SAFETY WALK GRATING TO THE STEEL FRAMING BELOW.

71 X REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

72 REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

73 REPAIR LOOSE BOLT AT BOTTOM OF TRAFFIC SIGN CONNECTION TO CURB.

LEGEND:

8E PANEL POINT (AS PER PANY&NJ SYSTEM)

- INDICATES SAFETY REPAIRS
- INDICATES ROUTINE REPAIRS
- POTHOLE/SPALL
- AREA OF SEVERE RAVELING IN ASPHALT WEARING SURFACE

W - WIDE

L - LENGTH

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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

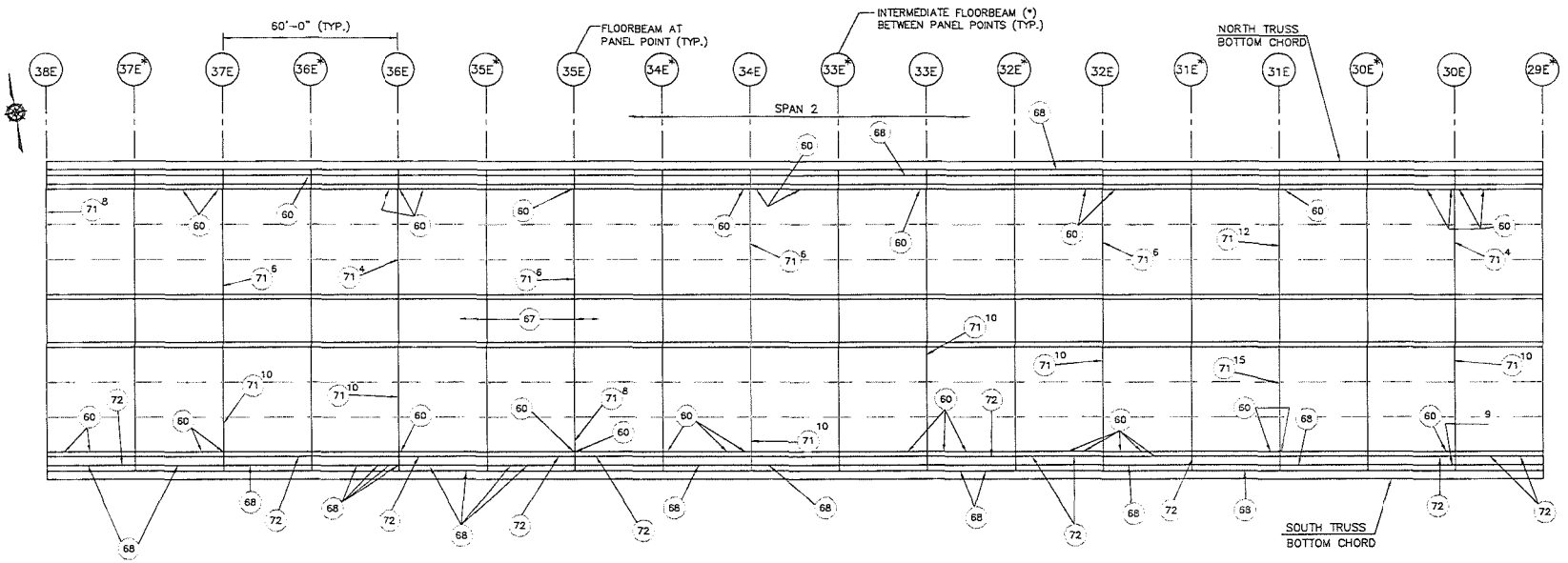
Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
TOP OF DECK
DEFICIENCY & PHOTO LOCATION PLAN
PP39W* TO PP 38E

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number TD-5



SAFETY REPAIRS

S REPAIR OR REPLACE CORRODED/UPLIFTED DIAMOND PLATE (CREATING A TRIPPING HAZARD) SAFETY WALK GRATING.

ROUTINE REPAIRS

(60) REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

(67) REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

(68) REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

(71X) REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

(72) REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

– INDICATES SAFETY REPAIRS

– INDICATES ROUTINE REPAIRS

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No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title

2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

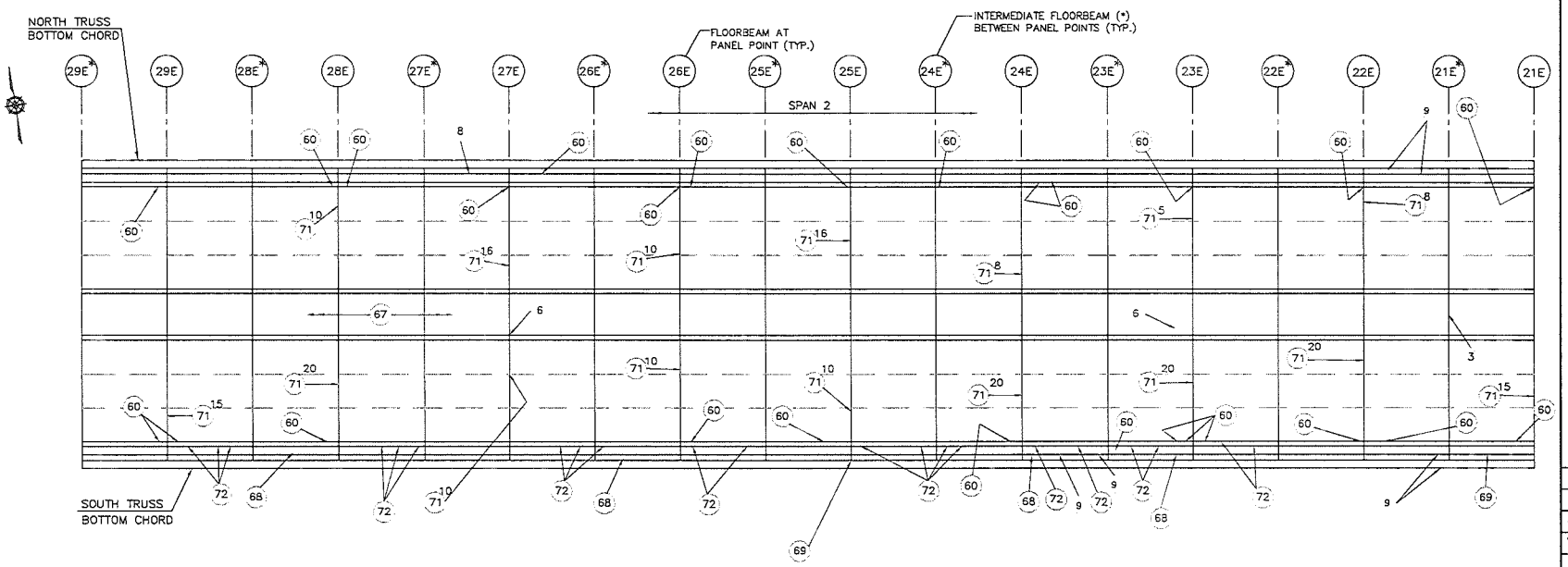
TOP OF DECK DEFICIENCY & PHOTO LOCATION PLAN PP 38E TO PP 29E*

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number TD-6



SAFETY REPAIRS

3 REPAIR OR REPLACE MEDIAN SAFETY NETTING WITH LARGE HOLES.

6 REPLACE THE MISSING OR PARTIALLY MISSING RAILINGS AT THE CROSSOVER WALKWAYS OVER THE OPEN MEDIAN AREAS.

8 REPAIR OR REPLACE THE MISSING OR LOOSE COVER TO THE ELECTRICAL PANEL BOX WITH EXPOSED WIRES ATTACHED TO THE BACK OF THE BARRIER (ACCESSIBLE TO PUBLIC/STRANDED MOTORISTS) ALONG THE NORTH AND SOUTH SAFETY WALKS.

9 REPAIR OR REPLACE CORRODED/UPLIFTED DIAMOND PLATE (CREATING A TRIPPING HAZARD) SAFETY WALK GRATING.

ROUTINE REPAIRS

(60) REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

(67) REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

(68) REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

(69) REPLACE BROKEN OR DETACHED CLIPS AND/OR SCREWS ATTACHING THE SAFETY WALK GRATING TO THE STEEL FRAMING BELOW.

(71X) REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

(72) REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

LEGEND:

(8E) PANEL POINT (AS PER PANY&NJ SYSTEM)

– INDICATES SAFETY REPAIRS

– INDICATES ROUTINE REPAIRS

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THE PORT AUTHORITY
OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title

2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

TOP OF DECK DEFICIENCY & PHOTO LOCATION PLAN PP 29E* TO PP 21E

DS	RO	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

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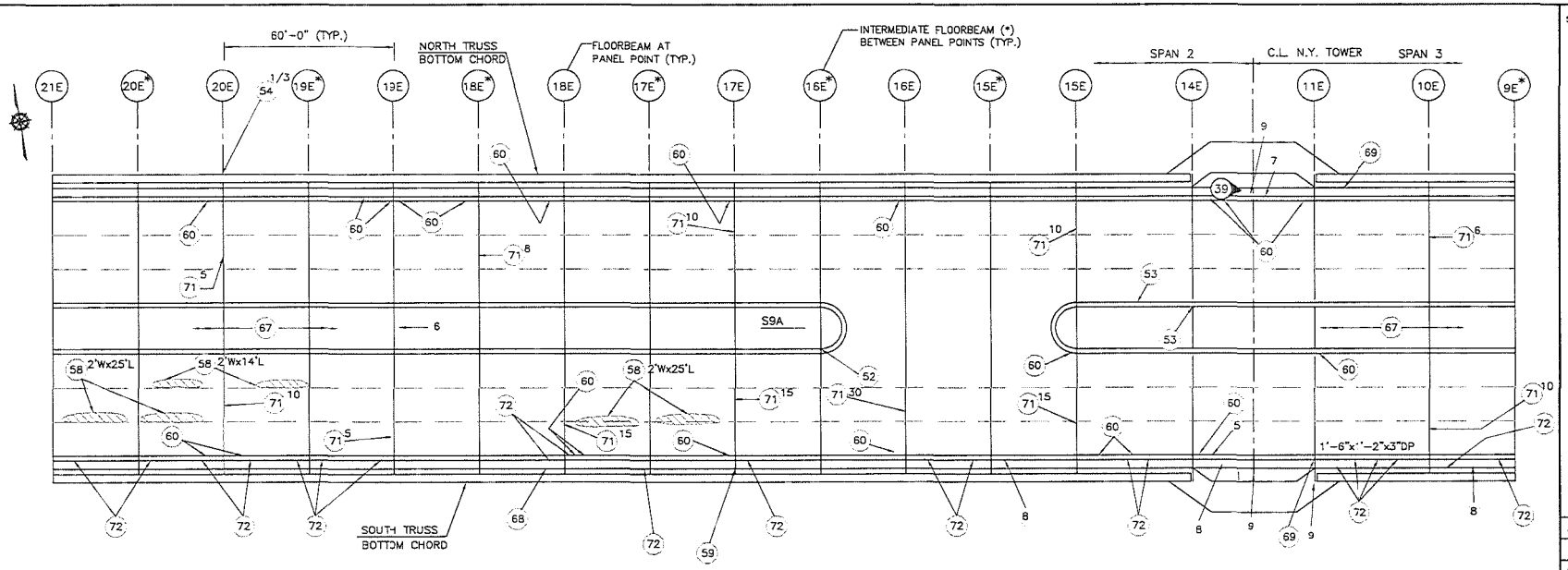


SAFETY REPAIRS

5 REMOVE PARTIALLY DETACHED STEEL CURB PLATE ALONG THE ROADWAY BARRIER.

6 REPLACE THE MISSING OR PARTIALLY MISSING RAILINGS AT THE CROSSOVER WALKWAYS OVER THE OPEN MEDIAN AREAS.

7 REPAIR THE DETACHED CONNECTIONS OF THE SAFETY WALK OR BRIDGE RAILINGS.

8 REPAIR OR REPLACE THE MISSING OR LOOSE COVER TO THE ELECTRICAL PANEL BOX WITH EXPOSED WIRES ATTACHED TO THE BACK OF THE BARRIER (ACCESSIBLE TO PUBLIC/STRANDED MOTORISTS) ALONG THE NORTH AND SOUTH SAFETY WALKS.

9 REPAIR OR REPLACE CORRODED/UPLIFTED DIAMOND PLATE (CREATING A TRIPPING HAZARD) SAFETY WALK GRATING.

ROUTINE REPAIRS

52 REPAIR BROKEN WELD OR COUPLING AT CORNER CONNECTION OF DEBRIS NET FENCE SUPPORT RAILS.

53 REPLACE MISSING CURB PLATE.

54 X REPAIR OR REPLACE MISSING AND BROKEN SUPPORT STRAPS FOR TRAFFIC SIGNS. 'X' INDICATES RATIO OF BROKEN MISSING SUPPORT STRAP TO TOTAL NUMBER OF REQUIRED SUPPORT STRAPS.

58 REPAIR THE POTHOLES OR SEVERE RAVELING IN THE ASPHALT WEARING SURFACE.

59 REPLACE MISSING DOWNSPOUT ANCHOR BOLT AT SOUTH SAFETY WALK AT PANEL POINT 17E.

60 REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

67 REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

68 REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

69 REPLACE BROKEN OR DETACHED CLIPS AND/OR SCREWS ATTACHING THE SAFETY WALK GRATING TO THE STEEL FRAMING BELOW.

71 X REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

72 REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

LEGEND:

8E PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN ABOVE DECK

– INDICATES SAFETY REPAIRS

– INDICATES ROUTINE REPAIRS

– AREA OF SEVERE RAVELING IN ASPHALT WEARING SURFACE

W – WIDE
DP – DEEP
L – LENGTH

Sheet 30 of 40

THE PORT AUTHORITY OF NY & NJ

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

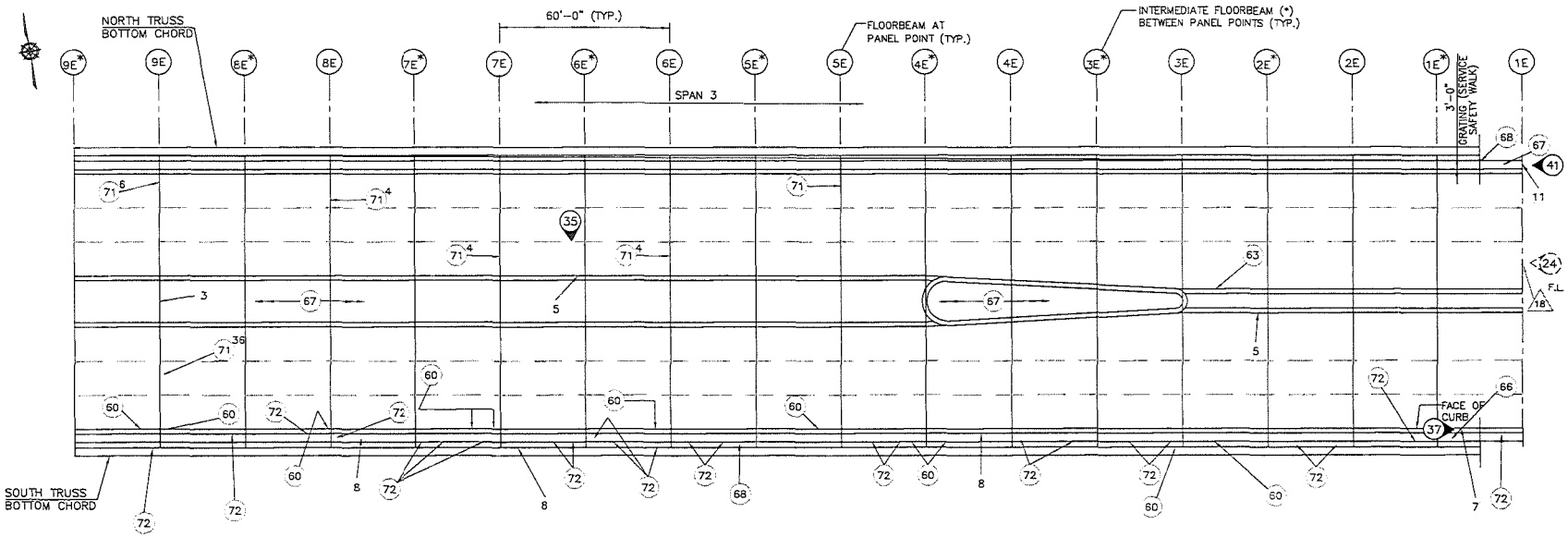
TOP OF DECK DEFICIENCY & PHOTO LOCATION PLAN PP 21E TO PP 9E*

DS	RG	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number TD-8



PRIORITY REPAIRS

(18) REPAIR THE JAMMED FINGER JOINT PLATES AT PANEL POINT 1E.

SAFETY REPAIRS

3 REPAIR OR REPLACE MEDIAN SAFETY NETTING WITH LARGE HOLES.

5 REMOVE PARTIALLY DETACHED STEEL CURB PLATE ALONG THE ROADWAY BARRIER.

7 REPAIR THE DETACHED CONNECTIONS OF THE SAFETY WALK OR BRIDGE RAILINGS.

8 REPAIR OR REPLACE THE MISSING OR LOOSE COVER TO THE ELECTRICAL PANEL BOX WITH EXPOSED WIRES ATTACHED TO THE BACK OF THE BARRIER (ACCESSIBLE TO PUBLIC/STRANDED MOTORISTS) ALONG THE NORTH AND SOUTH SAFETY WALKS.

11 REPLACE BENT AND BROKEN DIAMOND END PLATE AT THE END OF NORTH SAFETY WALK AT 1E (CREATING A TRIPPING HAZARD).

ROUTINE REPAIRS

(60) REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

(63) REPAIR IMPACT DAMAGE TO STEEL MEDIAN BARRIER.

(66) PROVIDE SUPPORT FOR UNSUPPORTED BRIDGE RAILING.

(67) REPAIR MISSING, DAMAGED AND DETACHED DEBRIS NETTING IN MEDIAN AREA.

(68) REPAIR HOLES AT TOP OF RAILING/GUIDERAIL SUPPORT.

(71X) REPLACE MISSING OR DETERIORATED JOINT FILLER. 'X' INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

(72) REPAIR WATER MAIN TIE DOWN CONNECTIONS WITH LOOSE OR MISSING NUTS AND/OR BOLTS AT SOUTH SAFETY WALK.

LEGEND:

(5E) PANEL POINT (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN ABOVE DECK

PHOTO TAKEN BELOW DECK

△ – INDICATES PRIORITY REPAIRS

– INDICATES SAFETY REPAIRS

○ – INDICATES ROUTINE REPAIRS

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FACILITY CONDITION SURVEYS

Title

2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

BIN 5522507

LOWER LEVEL

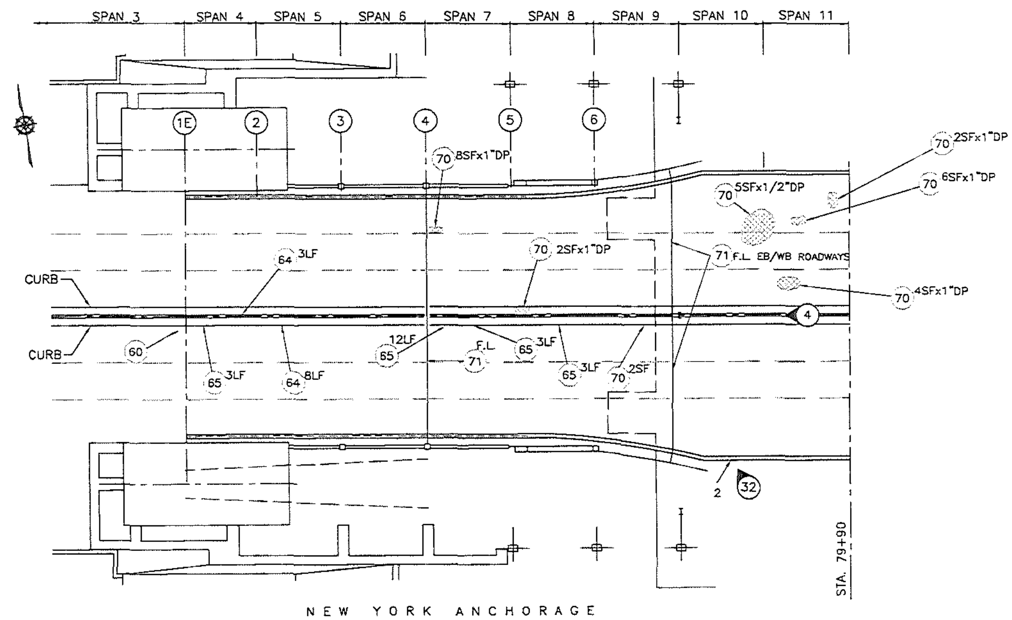
TOP OF DECK DEFICIENCY & PHOTO LOCATION PLAN PP 9E TO PP 1E

DS	RG	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number TD-9



SAFETY REPAIRS

2 REPLACE THE MISSING BOTTOM RAIL OF THE CHAIN LINK FENCE PANEL AT SPAN 10, ALONG THE SOUTH SAFETY WALK.

ROUTINE REPAIRS

(60) REPAIR HOLES AND SECTION LOSS TO STEEL RAILINGS, CURBS AND VERTICAL TRAFFIC BARRIERS.

(64) REPAIR CRACKS IN CONCRETE CURB AT MEDIAN.

(65) REPAIR CRACKS AT SOUTH FACE OF CONCRETE MEDIAN AT THE NEW YORK ANCHORAGE.

(70) REPAIR SPALLS WITH OR WITHOUT EXPOSED RUSTED STEEL REINFORCEMENT AT CONCRETE CURBS OR PAVEMENT.

(71)X REPLACE MISSING OR DETERIORATED JOINT FILLER. "X" INDICATES THE TOTAL LINEAR FEET OF JOINT MATERIAL TO BE REPLACED.

LEGEND:

(8E) CAPBEAM NUMBER (AS PER PANY&NJ SYSTEM)

PHOTO TAKEN ABOVE DECK

— INDICATES SAFETY REPAIRS

— INDICATES ROUTINE REPAIRS

-- POTHOLE/SPALL

W – WIDE
DP – DEEP
L – LENGTH
F.L. – FULL LENGTH

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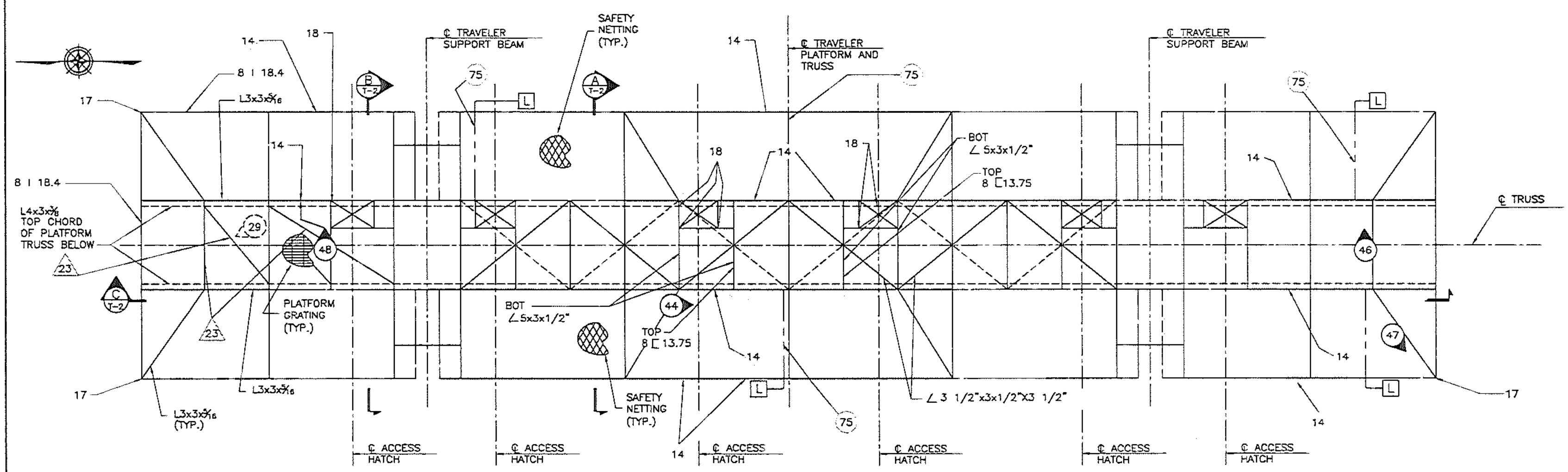
Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
TOP OF DECK
DEFICIENCY & PHOTO
LOCATION PLAN
SPANS 4 TO 11

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number TD-10



PLAN
N.T.S.

PRIORITY REPAIRS

23 NEW JERSEY BACK SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.

SAFETY REPAIRS

14 REPAIR THE MODERATE TO SEVERE SECTION LOSS OF W8'S AND 3" X 3" L'S THAT SUPPORT THE SAFETY NETTING OF TRAVELERS.

16 TIGHTEN OR REPLACE LOOSE OR MISSING BOLTS FOR SAFETY NETTING STRAPS AND REPLACE THE MISSING SAFETY NETTING STRAPS AND BOLTS.

17 REPAIR BROKEN ALUMINUM FENCE POST, RAILS AND WELDS BETWEEN THE FENCE FABRIC CONNECTION PLATES AND THE POSTS.

18 REPLACE MISSING OR BROKEN HINGES OR HINGE SCREWS AT FLOOR ACCESS HATCH OF THE TRAVELERS.

ROUTINE REPAIRS

75 REPAIR ELECTRICAL CONDUIT SUSPENDED WITH ROPE HANGER, DETACHED FLANGE CLIPS AND UNSUPPORTED OVER 8 FEET LONG SECTION.

LEGEND:

- PHOTO TAKEN ABOVE DECK
- PHOTO TAKEN BELOW DECK
- △ – INDICATES PRIORITY REPAIRS
- – INDICATES SAFETY REPAIRS
- ◯ – INDICATES ROUTINE REPAIRS
- [L] – LIGHT FIXTURE
- — — — — CONDUIT
- — — — LOOSE NET STRAP BOLTS (SEE SAFETY REPAIR 16)
- DETERIORATED STEEL FRAMING

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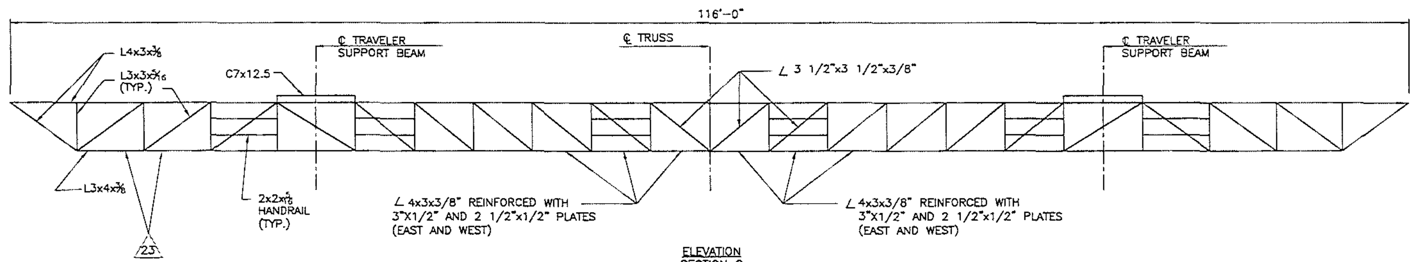
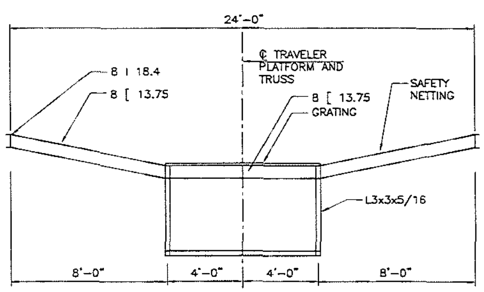
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
NEW JERSEY BACK SPAN TRAVELER: 1 OF 2
PLAN
DEFICIENCY & PHOTO LOCATION PLAN

DS	RQ	CA
Designed by	Drawn by	Checked by

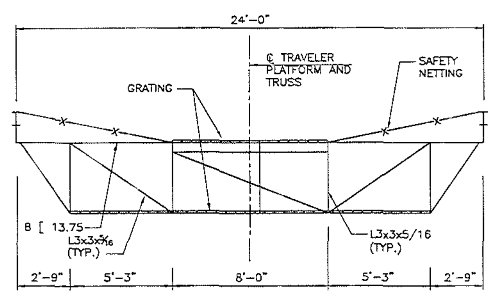
Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number T-1



ELEVATION SECTION C
N.T.S.



SECTION A
N.T.S.



SECTION B
N.T.S.

PRIORITY REPAIRS

23 NEW JERSEY BACK SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.

LEGEND:

△ – INDICATES PRIORITY REPAIRS

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BIN 5522507

LOWER LEVEL

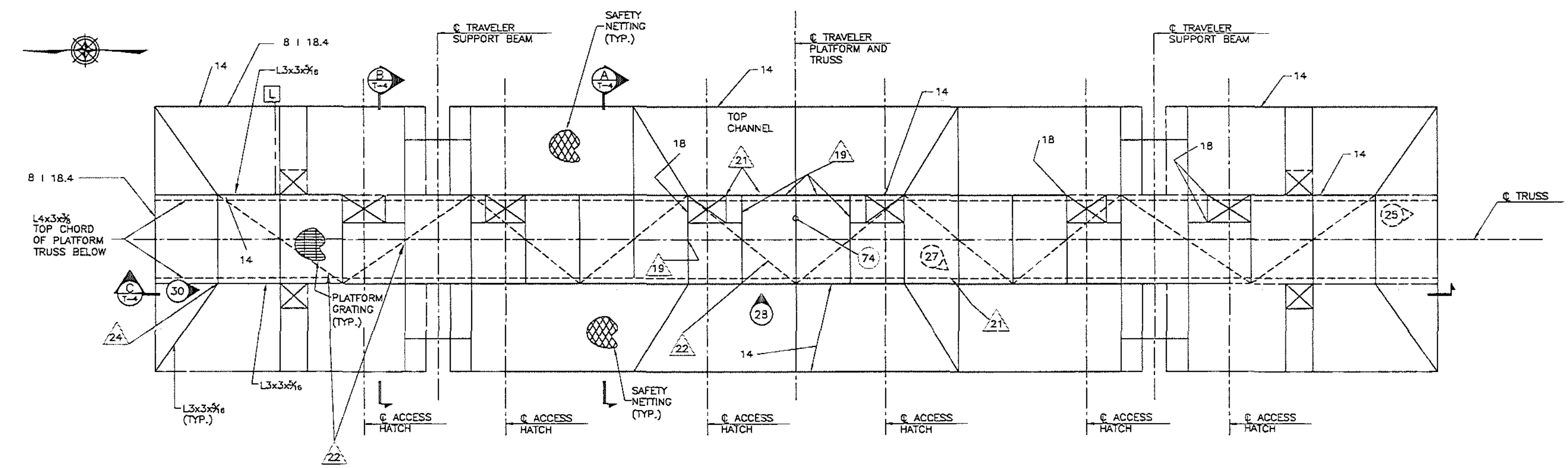
NEW JERSEY BACK SPAN TRAVELER: 2 OF 2
ELEVATION & CROSS-SECTION DEFICIENCY & PHOTO LOCATION PLAN

Designed by	Drawn by	Checked by
DS	RQ	GA

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number T-2



PLAN
N.T.S.

PRIORITY REPAIRS

- 19 NEW JERSEY MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.
- 21 NEW JERSEY MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.
- 22 NEW JERSEY MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT CROSS BRACING BETWEEN MAIN SUPPORT TRUSS TOP CHORDS.
- 24 NEW JERSEY MAIN SPAN TRAVELER – REPLACE THE MISSING 3 OF 3 CONNECTION BOLTS AT THE FRAME BRACING GUSSET PLATE.

SAFETY REPAIRS

- 14 REPAIR THE MODERATE TO SEVERE SECTION LOSS OF W8'S AND 3" X 3" L'S THAT SUPPORT THE SAFETY NETTING OF TRAVELERS.
- 16 TIGHTEN OR REPLACE LOOSE OR MISSING BOLTS FOR SAFETY NETTING STRAPS AND REPLACE THE MISSING SAFETY NETTING STRAPS AND BOLTS.
- 18 REPLACE MISSING OR BROKEN HINGES OR HINGE SCREWS AT FLOOR ACCESS HATCH OF THE TRAVELERS.

ROUTINE REPAIRS

- 74 REPLACE APPROXIMATELY 10 SF OF DAMAGED FLOOR GRATE AT CENTER OF THE NEW JERSEY MAIN SPAN TRAVELER.

LEGEND:

- PHOTO TAKEN ABOVE DECK
- PHOTO TAKEN BELOW DECK
- – INDICATES PRIORITY REPAIRS
- – INDICATES SAFETY REPAIRS
- – INDICATES ROUTINE REPAIRS
- L – LIGHT FIXTURE
- CONDUIT
- LOOSE NET STRAP BOLTS (SEE SAFETY REPAIR 16)
- DETERIORATED STEEL FRAMING

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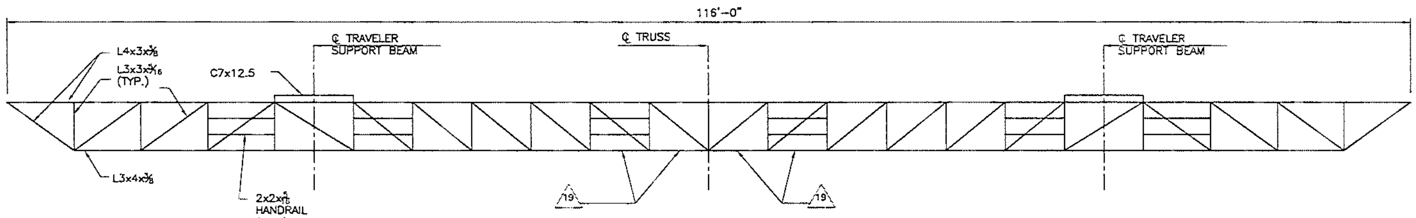
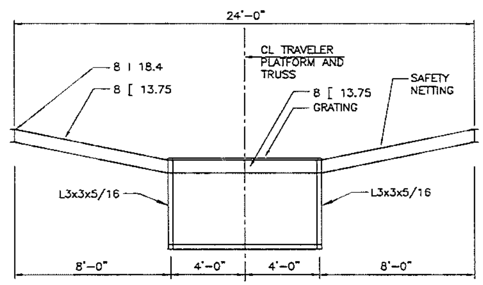
BIN 5522507
LOWER LEVEL
NEW JERSEY MAIN SPAN TRAVELER: 1 OF 2
PLAN
DEFICIENCY & PHOTO LOCATION PLAN

Designed by	Drawn by	Checked by
DS	RQ	GA

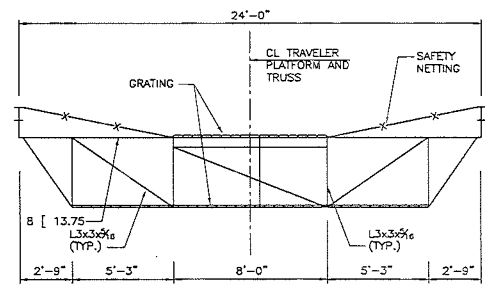
Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number T-3



ELEVATION SECTION C
N.T.S.



SECTION A
N.T.S.



SECTION B
N.T.S.

PRIORITY REPAIRS

19 NEW JERSEY MAIN SPAN TRAVELER - REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.

LEGEND:

△ - INDICATES PRIORITY REPAIRS

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QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

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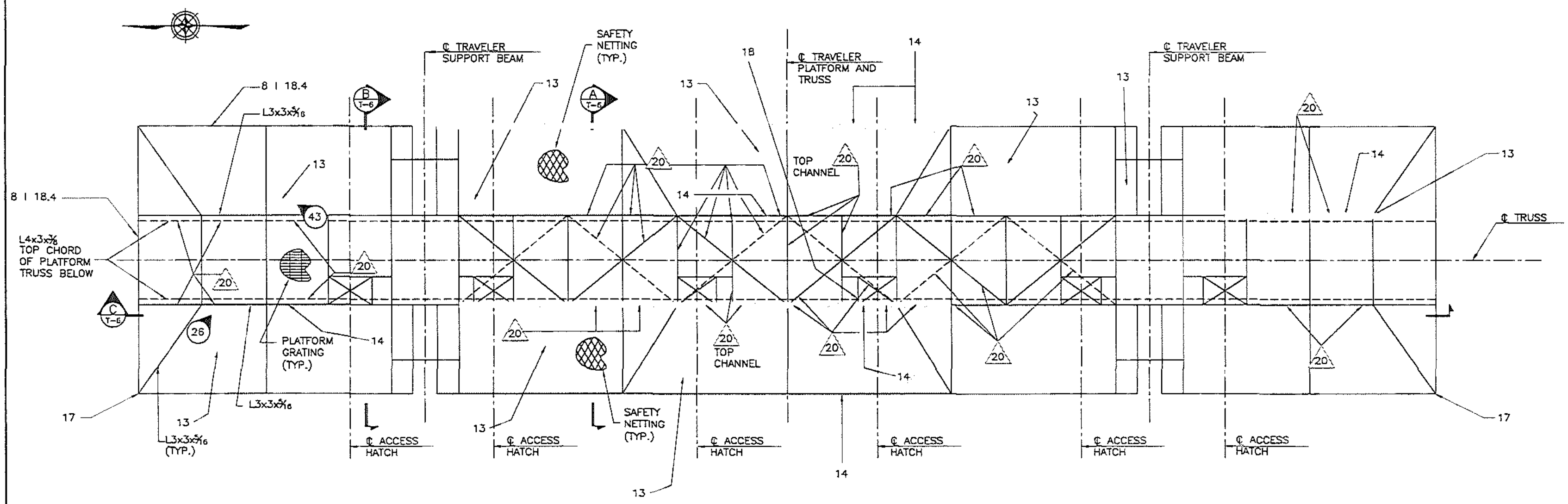
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
NEW JERSEY MAIN SPAN TRAVELER: 2 OF 2
ELEVATION & CROSS-SECTION DEFICIENCY & PHOTO LOCATION PLAN

DS	RQ	GA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013

Contract Number 405-13-005

Drawing Number T-4



PLAN
N.T.S.

PRIORITY REPAIRS

20 NEW YORK MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.

SAFETY REPAIRS

13 REPAIR OR REPLACE THE SAFETY NETTING WITH LARGE HOLES AT NEW YORK MAIN SPAN TRAVELER.

14 REPAIR THE MODERATE TO SEVERE SECTION LOSS OF W8'S AND 3" X 3" L'S THAT SUPPORT THE SAFETY NETTING OF TRAVELERS.

16 TIGHTEN OR REPLACE LOOSE OR MISSING BOLTS FOR SAFETY NETTING STRAPS AND REPLACE THE MISSING SAFETY NETTING STRAPS AND BOLTS.

17 REPAIR BROKEN ALUMINUM FENCE POST, RAILS AND WELDS BETWEEN THE FENCE FABRIC CONNECTION PLATES AND THE POSTS.

18 REPLACE MISSING OR BROKEN HINGES OR HINGE SCREWS AT FLOOR ACCESS HATCH OF THE TRAVELERS.

LEGEND:

- PHOTO TAKEN ABOVE DECK
- △ – INDICATES PRIORITY REPAIRS
- – INDICATES SAFETY REPAIRS
- L – LIGHT FIXTURE
- – – – CONDUIT
- – – – LOOSE NET STRAP BOLTS (SEE SAFETY REPAIR 16)
- DETERIORATED STEEL FRAMING

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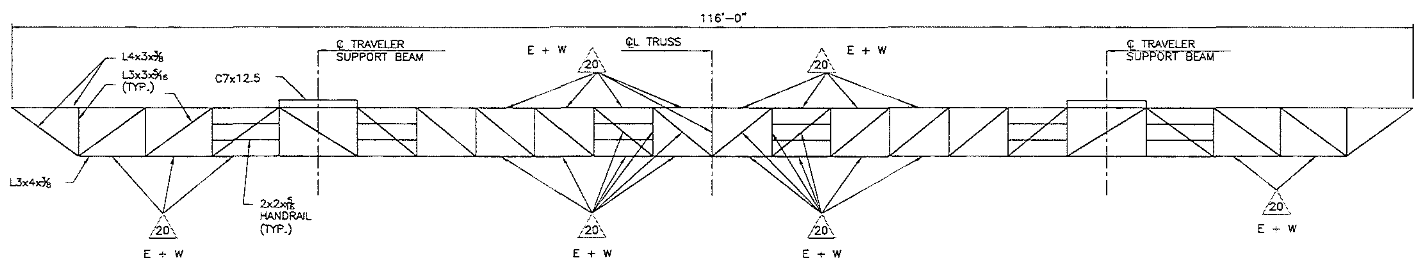
FACILITY CONDITION SURVEYS

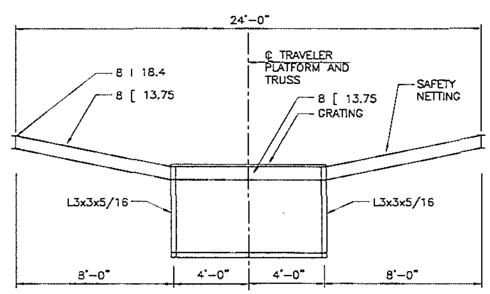
Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
NEW YORK MAIN SPAN TRAVELER: 1 OF 2
PLAN
DEFICIENCY & PHOTO LOCATION PLAN

Designed by	Drawn by	Checked by
DS	RQ	GA

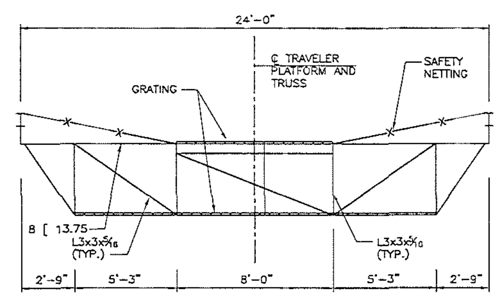
Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number T-5



ELEVATION
SECTION C
N.T.S.



SECTION A
N.T.S.



SECTION B
N.T.S.

PRIORITY REPAIRS

20 — NEW YORK MAIN SPAN TRAVELER – REPAIR MODERATE TO SEVERE SECTION LOSS AT MAIN SUPPORT TRUSS MEMBERS.

LEGEND:

△ – INDICATES PRIORITY REPAIRS

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GEORGE WASHINGTON BRIDGE

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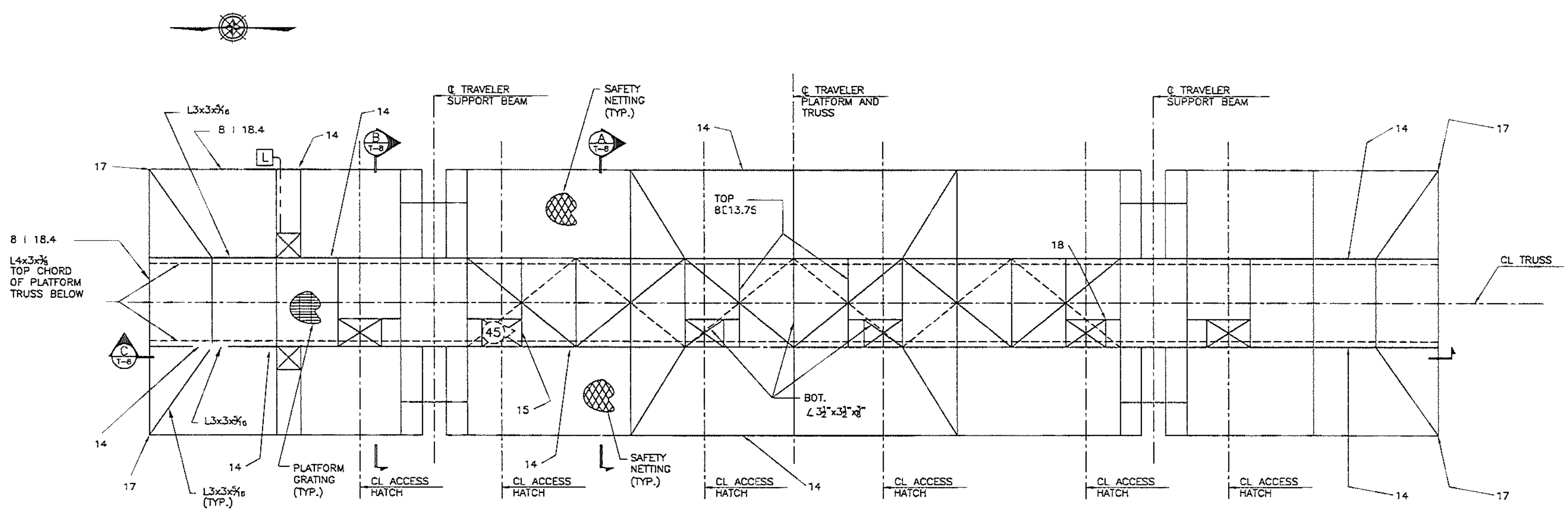
FACILITY CONDITION SURVEYS

Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
NEW YORK MAIN SPAN TRAVELER: 2 OF 2
ELEVATION & CROSS-SECTION DEFICIENCY & PHOTO LOCATION PLAN

DS	RQ	CA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number T-6



PLAN
N.T.S.

SAFETY REPAIRS

14 REPAIR THE MODERATE TO SEVERE SECTION LOSS OF W8'S AND 3" X 3" L'S THAT SUPPORT THE SAFETY NETTING OF TRAVELERS.

15 REPLACE THE MISSING HORIZONTAL RAIL ANGLE AT THE NEW YORK BACK SPAN TRAVELER TRUSS PLATFORM BELOW THE FLOOR ACCESS HATCH.

16 TIGHTEN OR REPLACE LOOSE OR MISSING BOLTS FOR SAFETY NETTING STRAPS AND REPLACE THE MISSING SAFETY NETTING STRAPS AND BOLTS.

17 REPAIR BROKEN ALUMINUM FENCE POST, RAILS AND WELDS BETWEEN THE FENCE FABRIC CONNECTION PLATES AND THE POSTS.

18 REPLACE MISSING OR BROKEN HINGES OR HINGE SCREWS AT FLOOR ACCESS HATCH OF THE TRAVELERS.

LEGEND:

PHOTO TAKEN BELOW DECK
– INDICATES SAFETY REPAIRS
[L] – LIGHT FIXTURE
— — — CONDUIT
—— — LOOSE NET STRAP BOLTS (SEE SAFETY REPAIR 16)
DETERIORATED STEEL FRAMING

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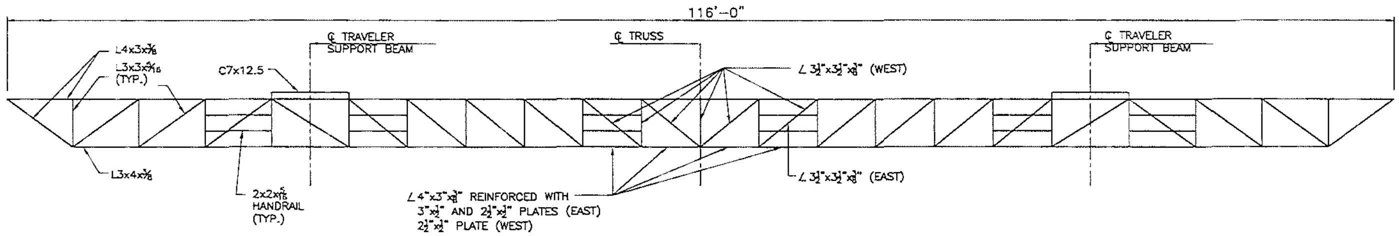
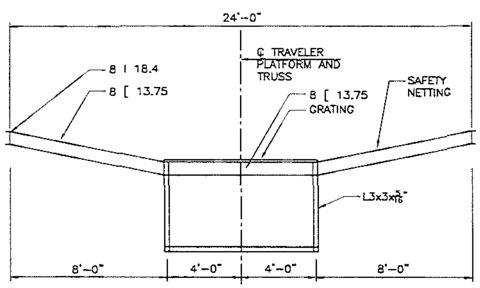
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
NEW YORK BACK SPAN TRAVELER: 1 OF 2
PLAN
DEFICIENCY & PHOTO LOCATION PLAN

DS	RQ	CA
Designed by	Drawn by	Checked by

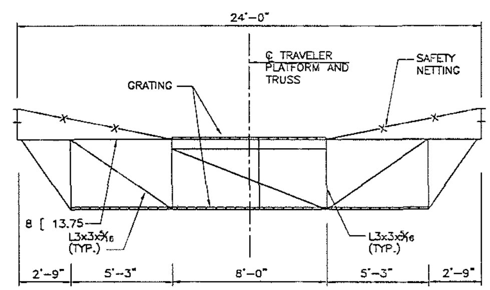
Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number T-7



ELEVATION
SECTION C
N.T.S.



SECTION A
N.T.S.



SECTION B
N.T.S.

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Title
2013 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
BIN 5522507
LOWER LEVEL
NEW YORK BACK SPAN
TRAVELER: 2 OF 2
ELEVATION & CROSS-SECTION
DEFICIENCY & PHOTO
LOCATION PLAN

DS	RQ	CA
Designed by	Drawn by	Checked by

Date DECEMBER, 2013
Contract Number 405-13-005
Drawing Number T-8

V. Photographs

Photo No.: 1.

Location: South elevation, looking northeast.

Description: General view.

Photo No.: 2.

Location: New York Back Span, underside of deck, superstructure and traveler, looking west and up.

Description: General view.

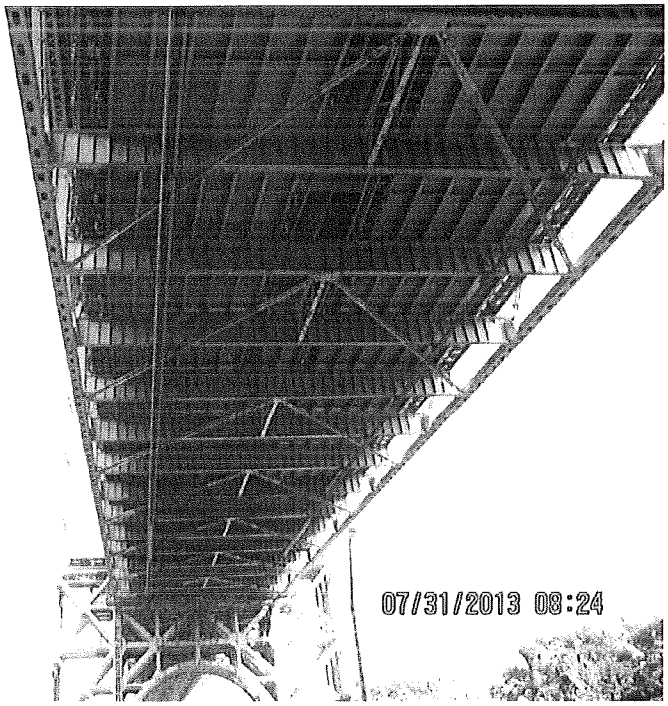


Photo No.: 3.

Location: Top of deck in Spans 1 and 2, westbound roadway, looking southwest.

Description: General view from Panel Point 9W.

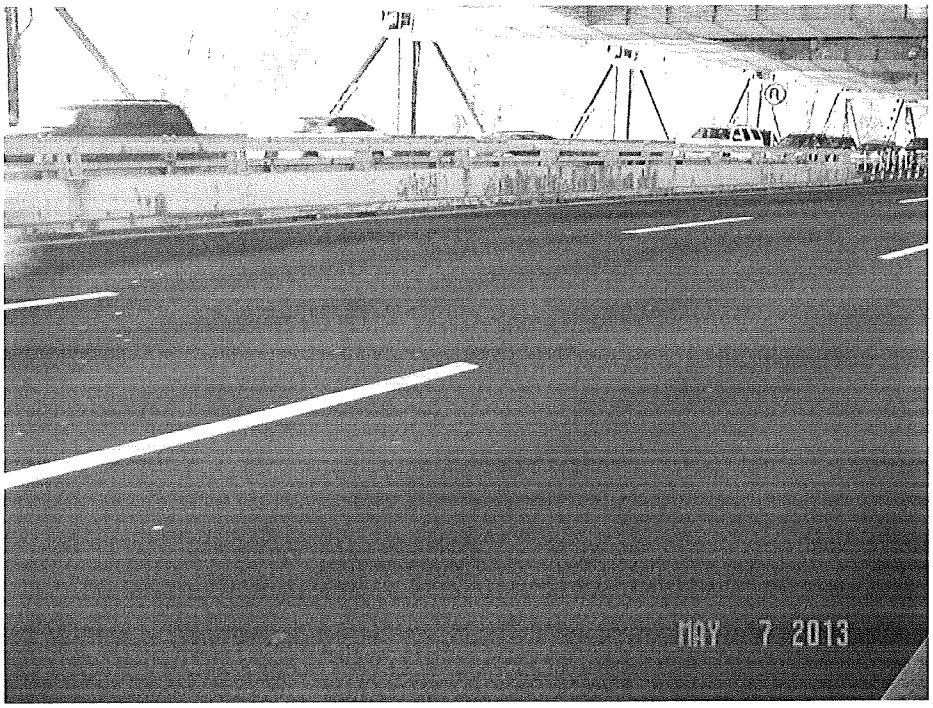


Photo No.: 4.

Location: Top of deck in Spans 9, 10 and 11, looking west.

Description: General view from Span 11.

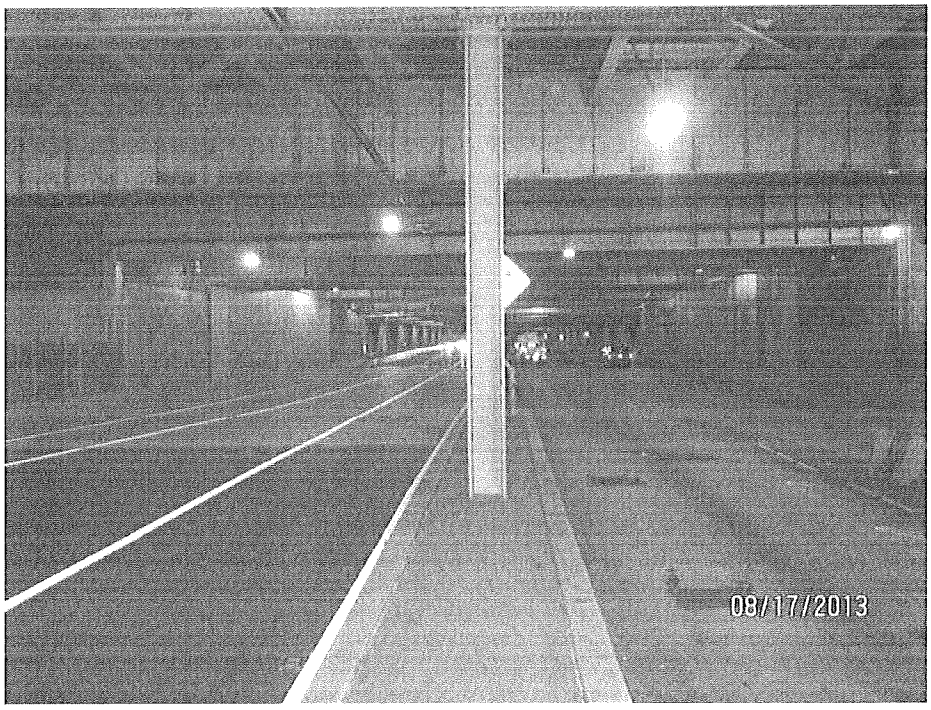


Photo No.: 5.

Location: Span 2, south stiffening truss at Floorbeam 15W*, looking northeast.

Description: General view of bolted gusset plate along the bottom chord of the stiffening truss.

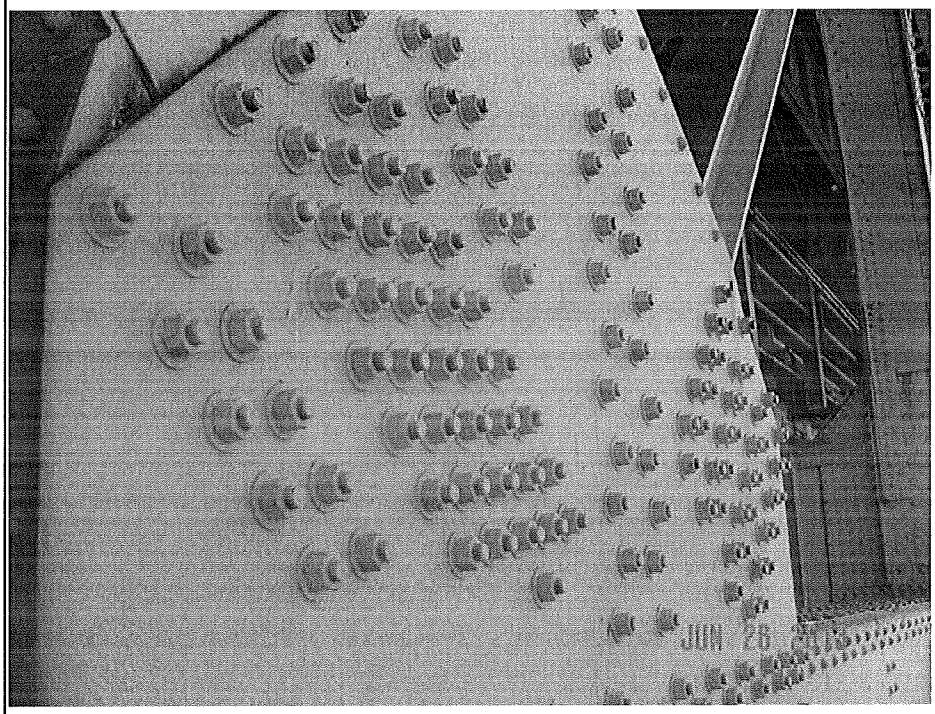


Photo No.: 6.

Location: Span 11, concrete pedestal at the east end of Stringer 11, looking west.

Description: Pedestal exhibits a large spall with exposed and corroded rebar causing minor undermining of the bearing.

(Priority Repair 1)

Photo No.: 7.

Location: Span 9, at east end of Stringer S14, looking northwest.

Description: The end of stringer exhibits severe corrosion with a 6" x 3" hole in the web above the bearing.

(Priority Repair 2)

Photo No.: 8.

Location: Span 3, east end of Stringer S2 at Floorbeam 1E, looking southwest.

Description: The end of the stringer exhibits severe corrosion with two 1" holes in the middle of the web.

(Priority Repair 3)

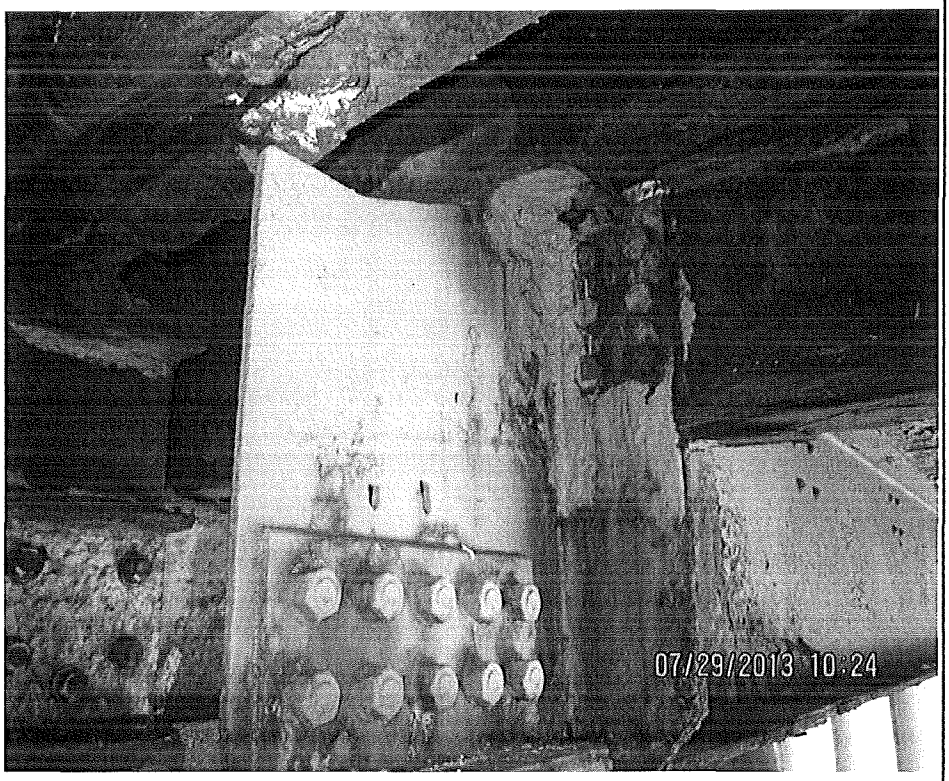


Photo No.: 9.

Location: Span 3, top of bottom chord between Panel Points 3E* and 3E of the south stiffening truss, looking east.

Description: The top plate is severely pitted with twelve (12) holes up to 6" long x 2" wide filled by caulking.

(Priority Repair 4)

Photo No.: 10.

Location: Span 3, east end of Stringer S14 at Floorbeam 1E, looking northeast.

Description: The web at the end of stringer exhibits severe corrosion with holes, including a 3" x 1" hole near the top of the web.

(Priority Repair 5)

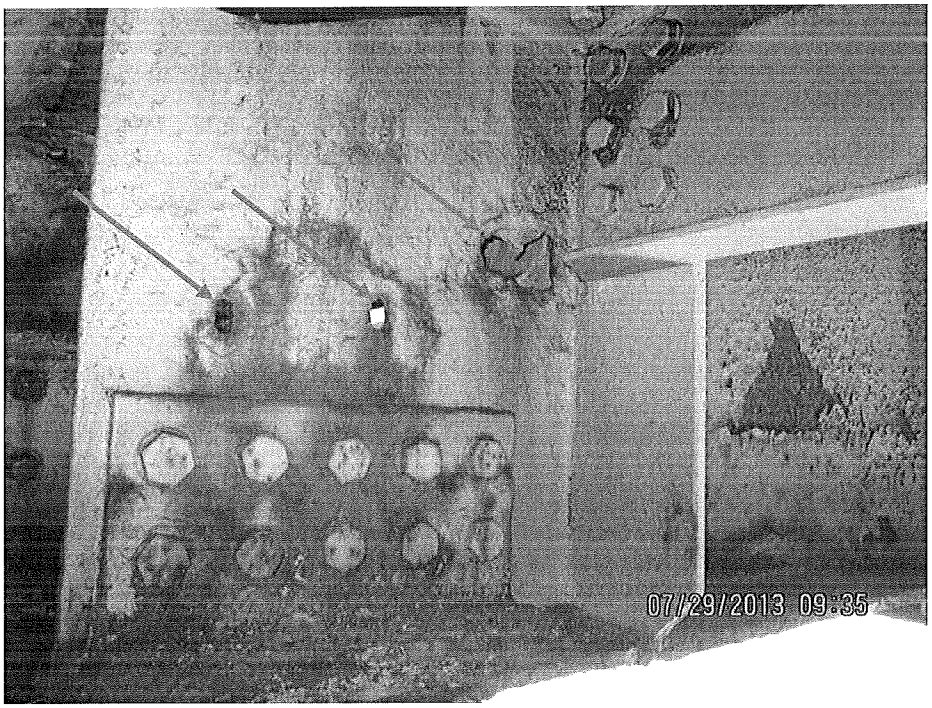


Photo No.: 11.

Location: West end of Span 10, under Stringer S16, looking south.

Description: The pedestal is severely cracked and spalled exposing bearing anchor bolts causing undermining of the bearing plate.

(Priority Repair 6)

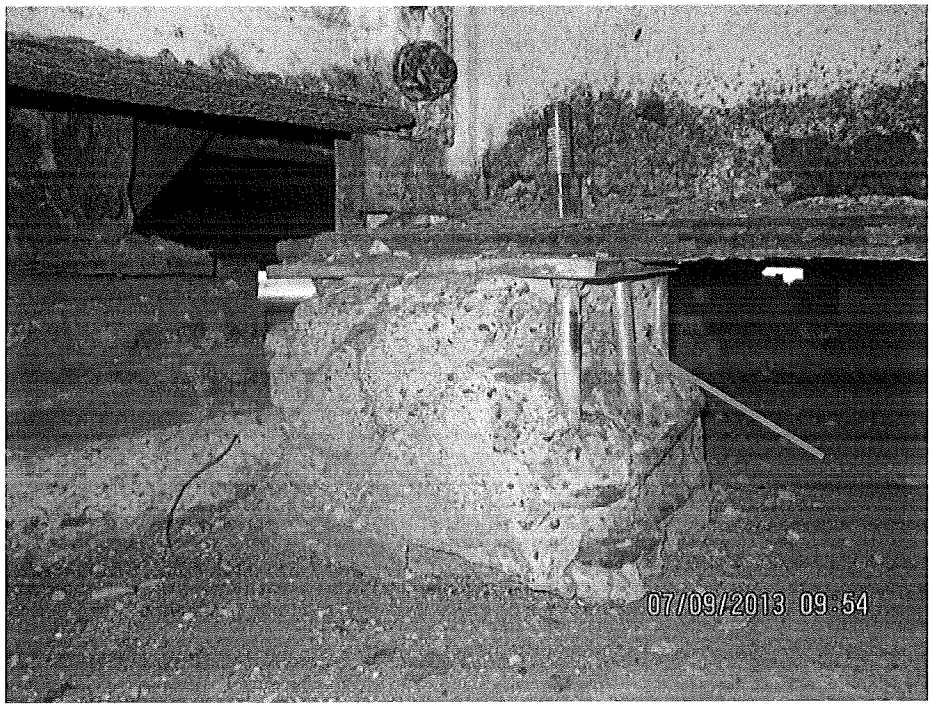


Photo No.: 12.

Location: Span 2, fascia Stringer S18 at the west side of Floorbeam 36E, looking north.

Description: The stringer web exhibits severe corrosion with section loss and holes along the bearing stiffening angle at the floorbeam connection. Two 3/4" crack arrestor holes were drilled at this location.

(Priority Repair 7)

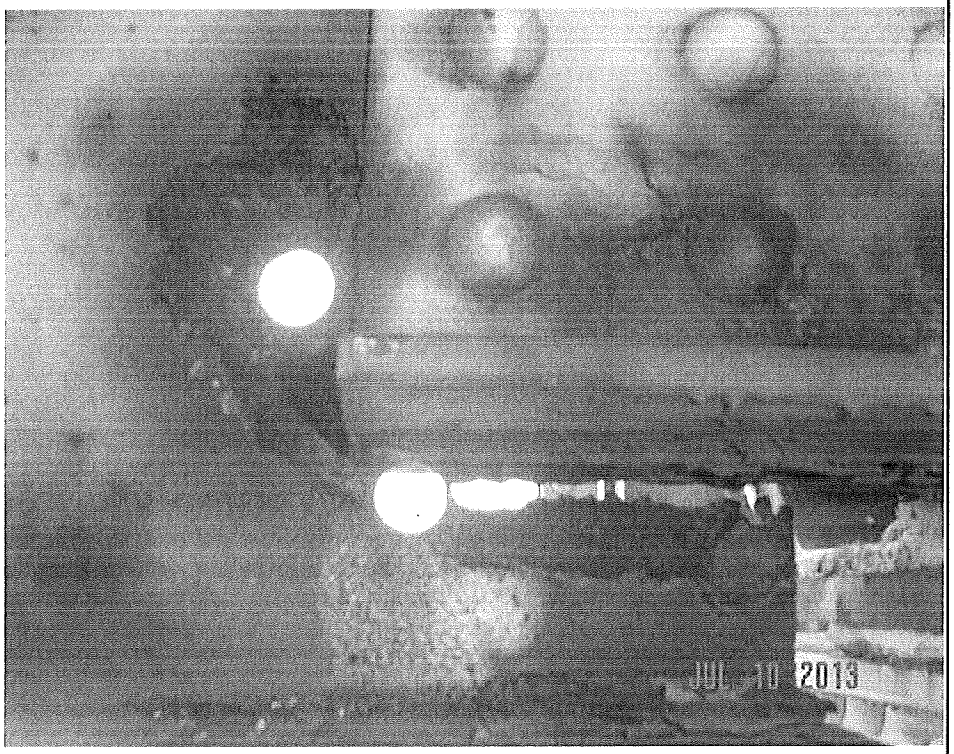


Photo No.: 13.

Location: Span 4, west end of Stringer S10 over Floorbeam 1E, looking south.

Description: The web and top flange are severely corroded with large holes including a 1" high x 6" wide hole in the top of the web and a 2" diameter hole near the middle of the web.

(Priority Repair 8)

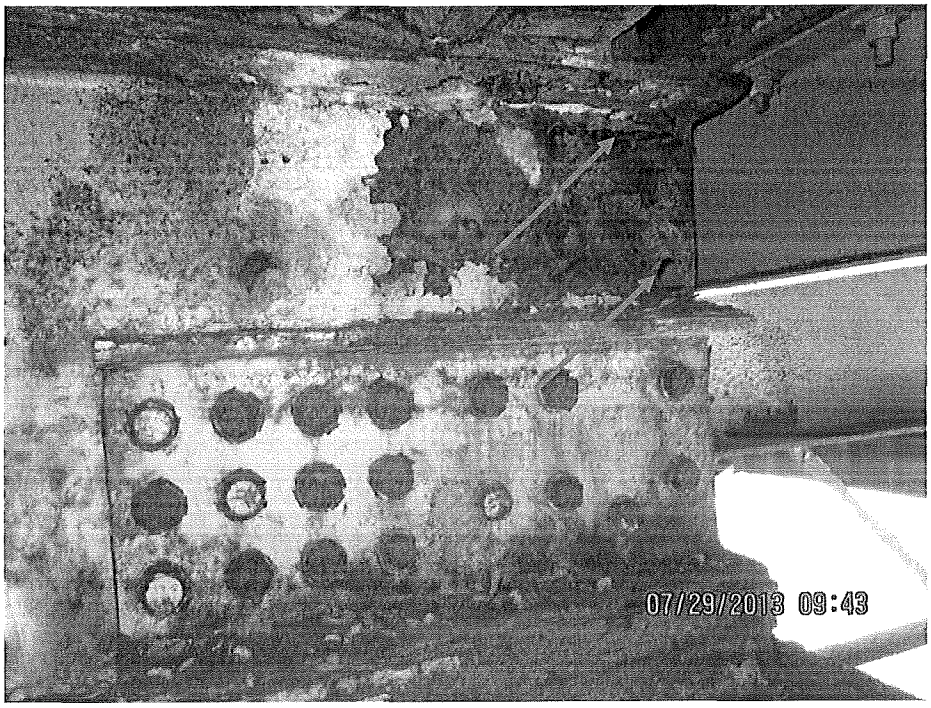


Photo No.: 14.

Location: Span 7, Stringer S8 at Capbeam 4, looking north.

Description: The end of stringer exhibits severe corrosion with a 4" x 11" hole in the web above the bearing.

(Priority Repair 9)

Photo No.: 15.

Location: Span 9, east end of Stringer S13, looking south.

Description: The bottom of the web exhibits severe corrosion with a 2" x 4" hole and an adjacent 5" long corrosion crack above the bearing.

(Priority Repair 9)

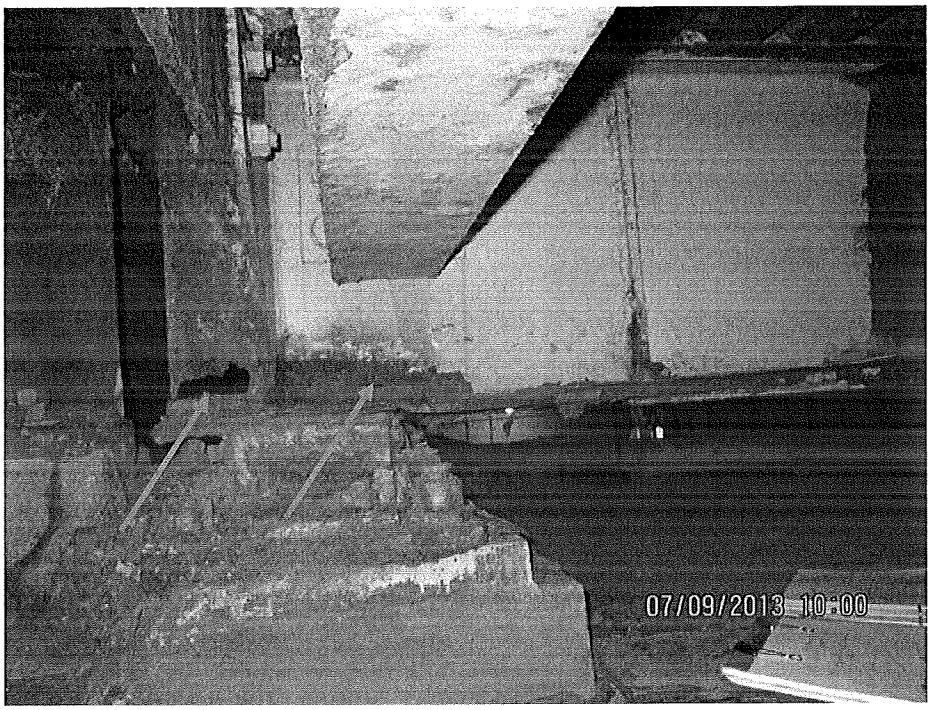


Photo No.: 16.

Location: Span 3, Stringer S18 between Panel Points 1E* and 1E, looking northwest.

Description: Fascia stringer S18 exhibits 50% section loss of both flanges along with large holes at the bottom of the web.

(Priority Repair 10)

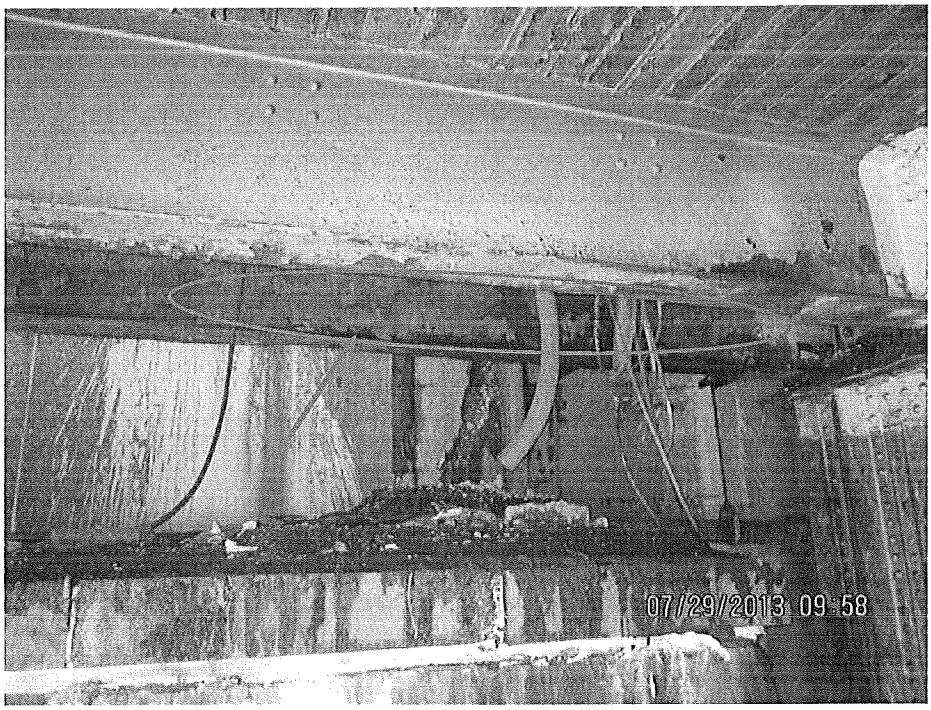


Photo No.: 17.

Location: Span 2, fascia Stringer S1 at the east side of Floorbeam 26W*, looking south.

Description: The stringer web exhibits severe corrosion with section loss and holes along the bearing stiffening angle at the floorbeam connection. Two 3/4" crack arrestor holes were drilled at this location.

(Priority Repair 11)

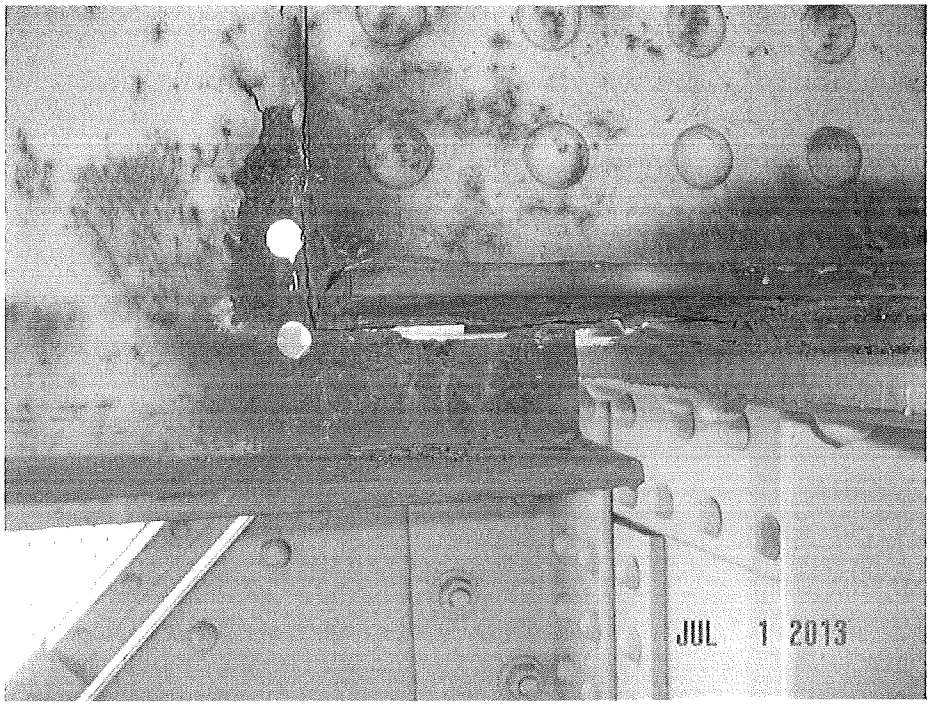


Photo No.: 18.

Location: Span 10, concrete pedestal at the west end of Stringer S13, looking north.

Description: The pedestal exhibits spalled concrete with voids, causing minor undermining of the bearing plate under the stringer.

(Priority Repair 12)

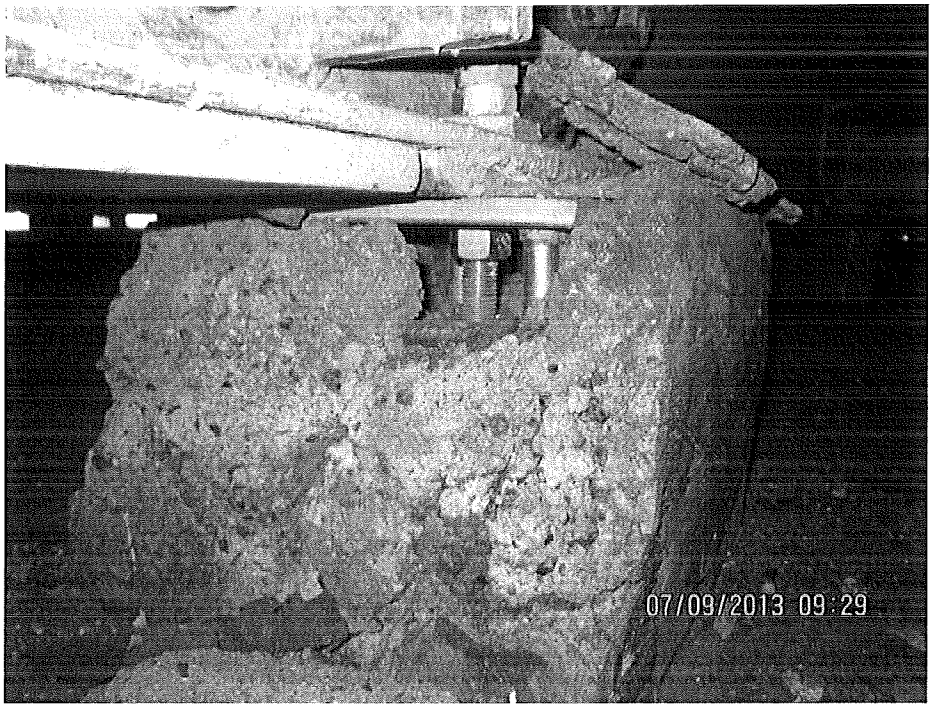


Photo No.: 19.

Location: Span 11, concrete pedestal at the east end of Stringer S16, looking southwest.

Description: One out of two anchor bolts is sheared off on the south side of stringer. Also, one out of two anchor bolts is sheared off on the north side.

(Priority Repair 13)

Photo No.: 20.

Location: Span 10, concrete pedestal for Stringer S9 bearing at Pedestal 3 from west, looking northwest.

Description: Spalled concrete pedestal below stringer bearing with exposed rusted rebar.

(Priority Repair 14)

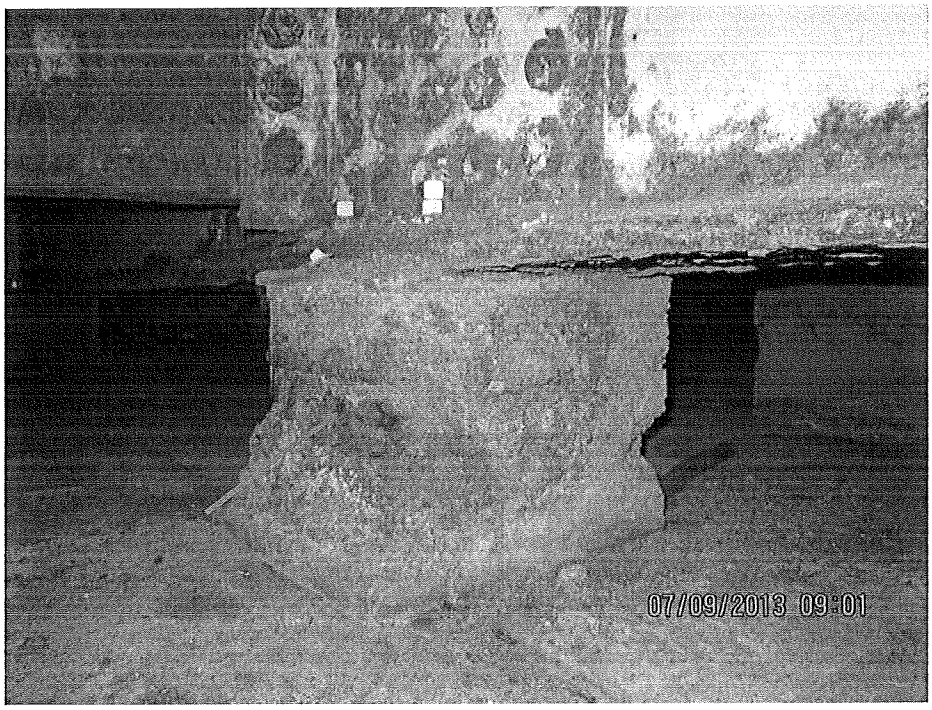


Photo No.: 21.

Location: Span 11, concrete pedestal at east end of Stringer S10, looking north.

Description: The pedestal exhibits spalled concrete with voids, causing minor undermining of the bearing plate under the stringer.

(Priority Repair 15)

Photo No.: 22.

Location: Span 2, Stringer S10 at the west side of Floorbeam 15E, looking south.

Description: The bottom of the stringer web exhibits severe corrosion and section loss with 4"x1" and 2"x1" holes and a 3" crack in between over the bearing area at the floorbeam connection.

(Priority Repair 16)

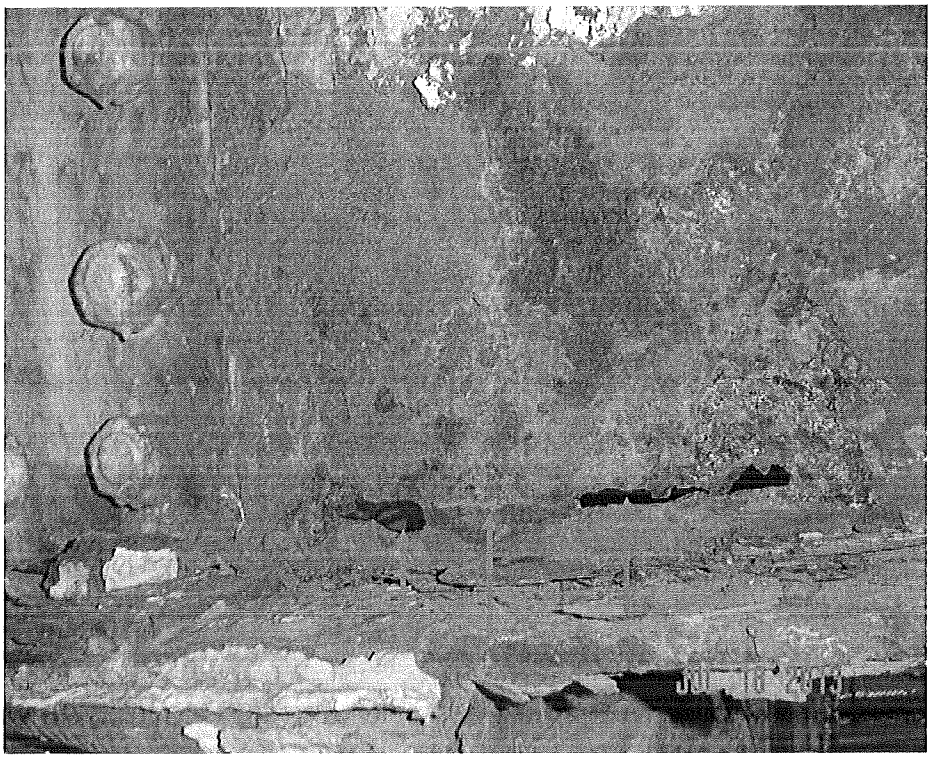


Photo No.: 23.

Location: Span 2, Stringer S2 at the west side of Floorbeam 24E, looking south.

Description: The top of the stringer web exhibits severe corrosion and section loss with a 1-1/2" crack above the splice plate over the bearing area at the floorbeam connection.

(Priority Repair 17)

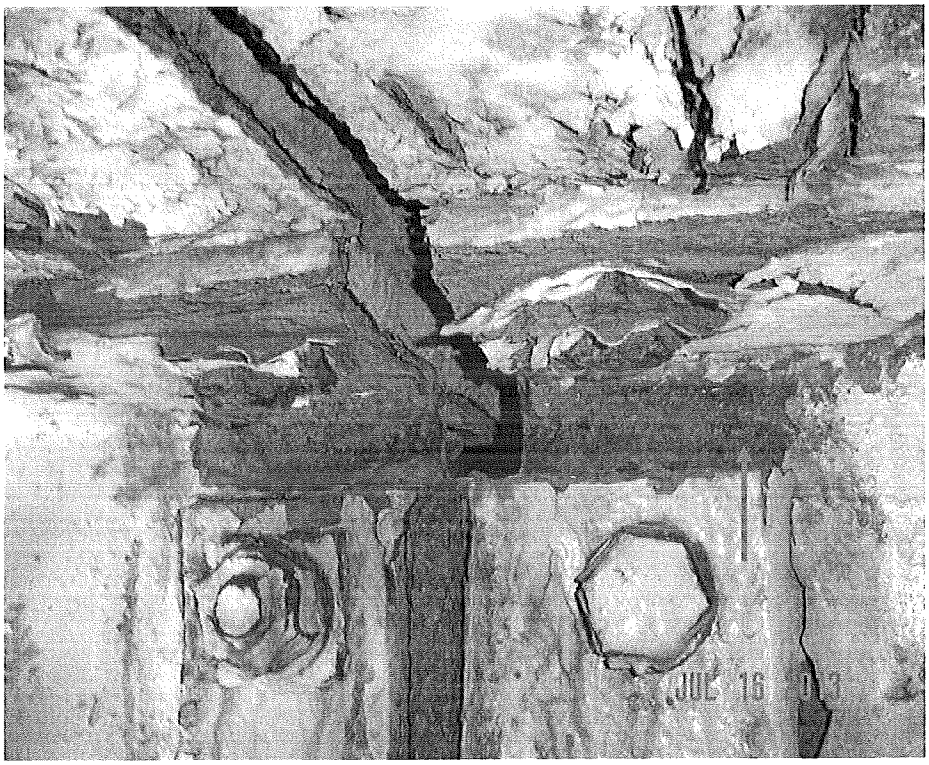


Photo No.: 24.

Location: Span 3, underside of steel finger joint below the eastbound roadway at Panel Point 1E, looking west and up.

Description: The finger joint plates are shifted and jammed against each other, restricting movement.

(Priority Repair 18)

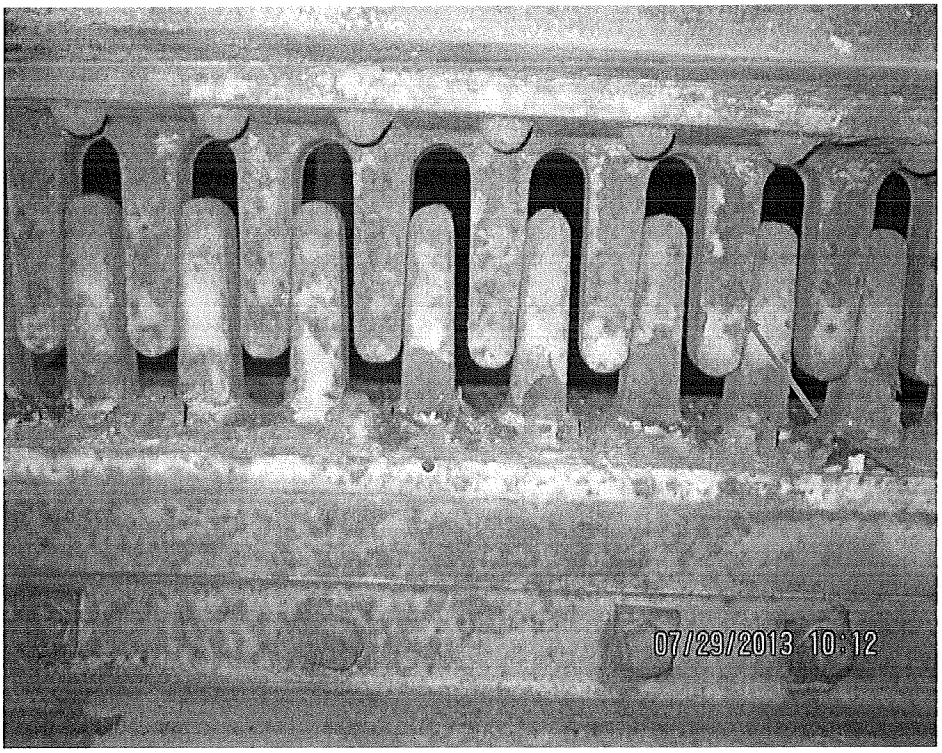


Photo No.: 25.

Location: New Jersey Main Span Traveler, looking south.

Description: Moderate to severe section loss and corrosion at east bottom main support truss members.

(Priority Repair 19)

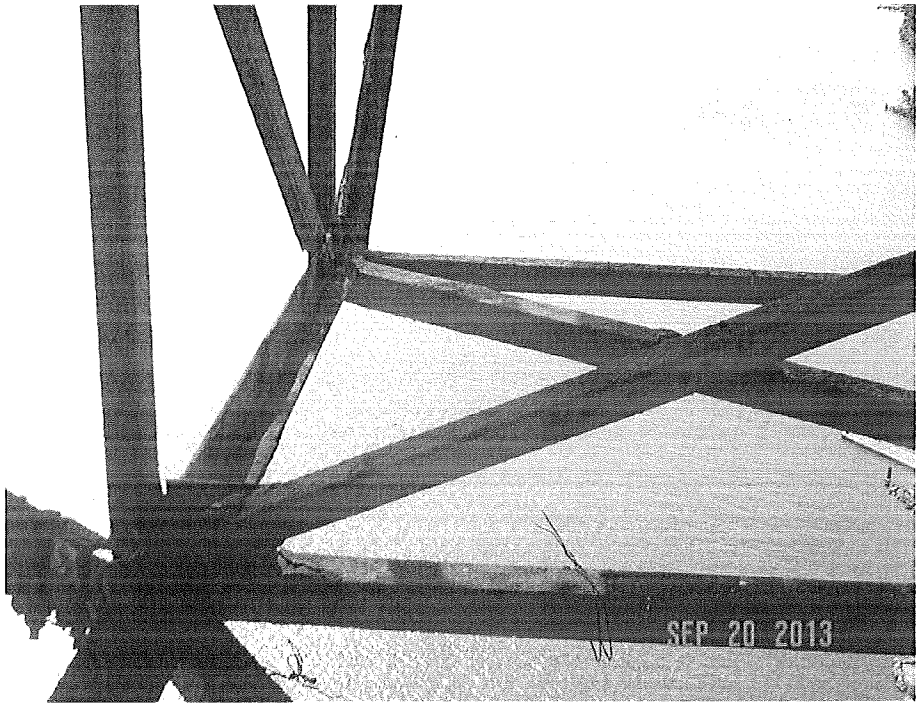


Photo No.: 26.

Location: New York Main Span Traveler, looking southeast.

Description: General View. The traveler is not operational and is enclosed by netting to prevent falling debris. The traveler exhibits moderate to severe corrosion and section loss to main support truss members.

(Priority Repair 20)

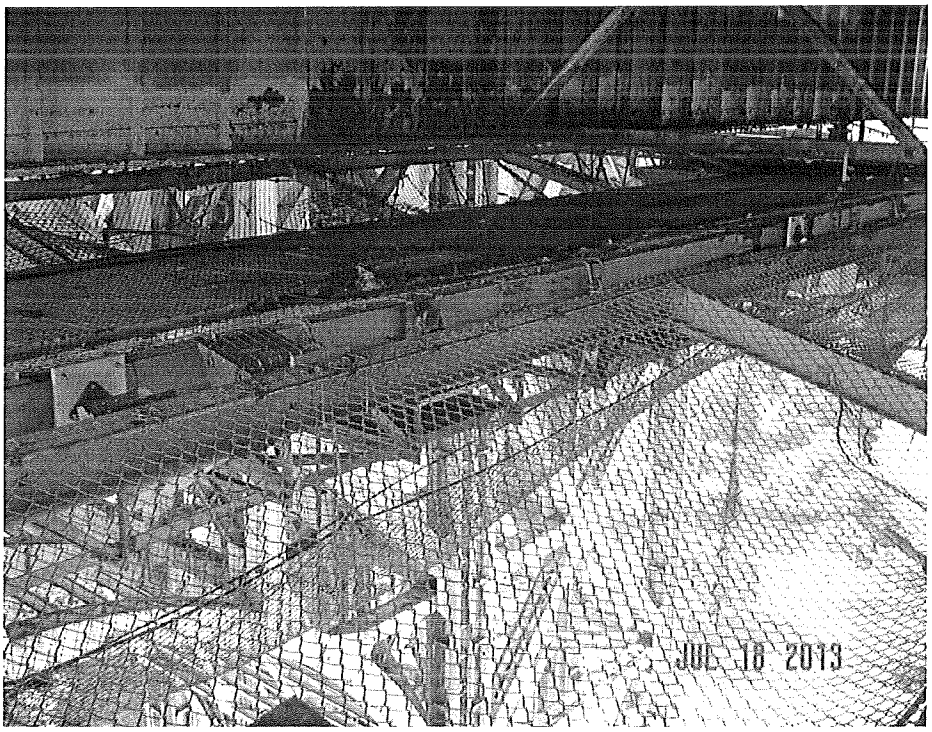


Photo No.: 27.

Location: New Jersey Main Span Traveler, looking southwest

Description: Moderate to severe section loss and corrosion at west bottom main support truss members.

(Priority Repair 21)

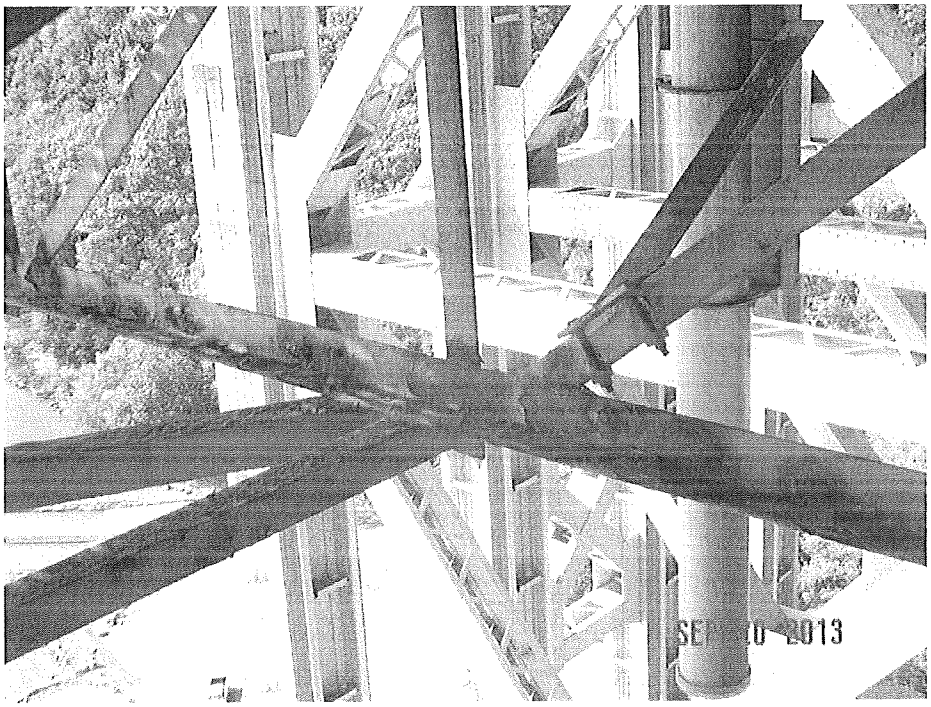


Photo No.: 28.

Location: New Jersey Main Span Traveler, looking east and down

Description: The bracing angle for the top chord of the traveler truss is severely corroded with large holes.

(Priority Repair 22)

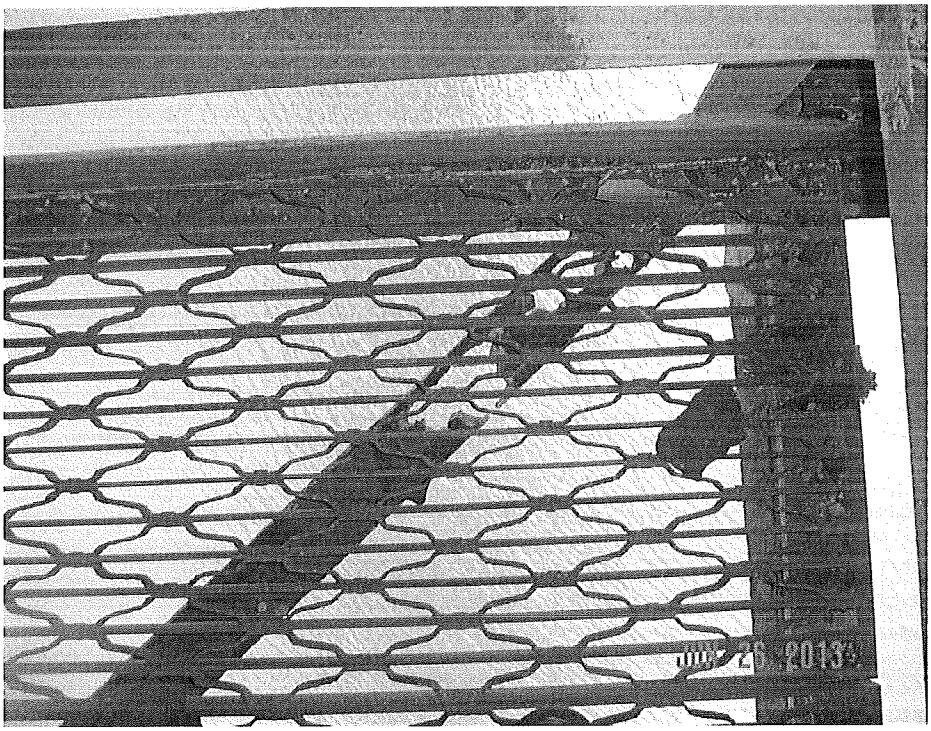


Photo No.: 29.

Location: New Jersey Back Span Traveler, looking northwest.

Description: Moderate to severe section loss at main support truss members.

(Priority Repair 23)

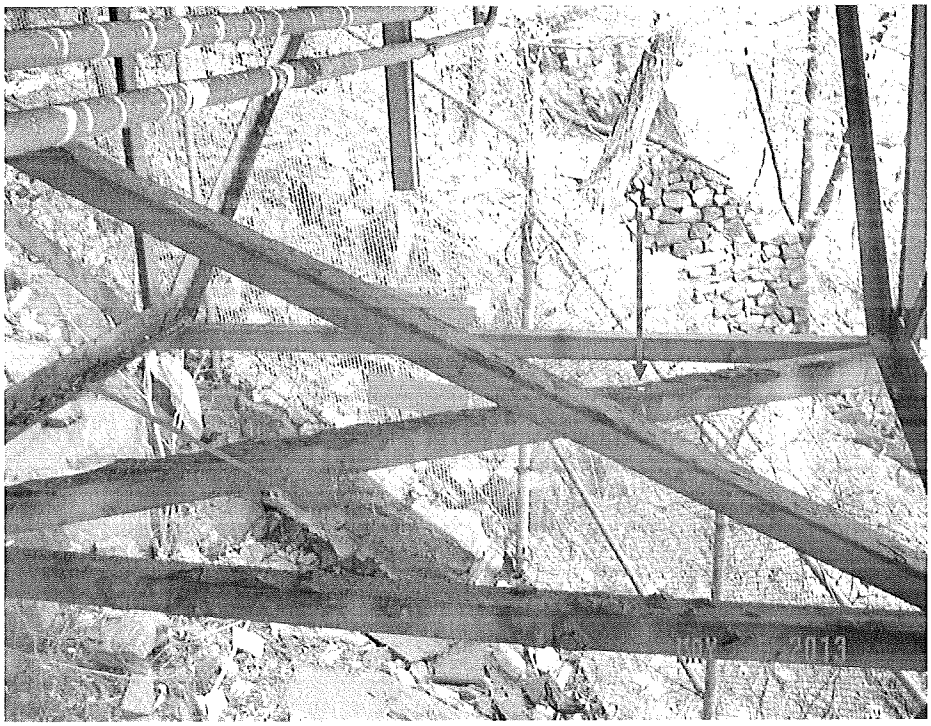


Photo No.: 30.

Location: New Jersey Main Span Traveler, looking south and down.

Description: Missing 3 of 3 connection bolts at the frame bracing gusset plate.

(Priority Repair 24)

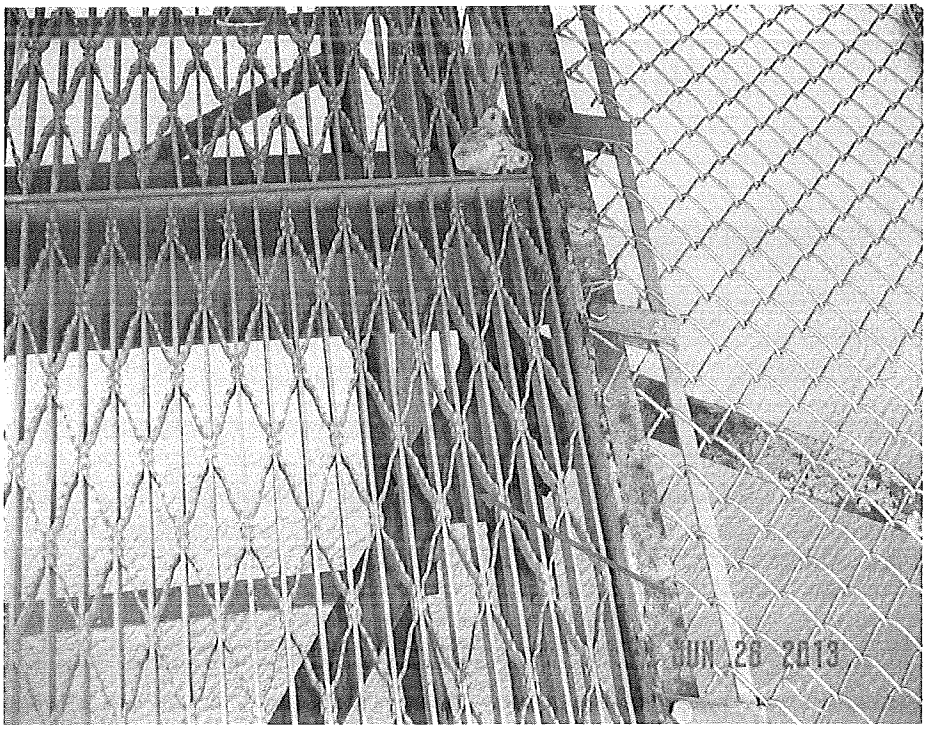


Photo No.: 31.

Location: Span 1, west face of Floorbeam 3W under Stringer S2, looking north.

Description: The conduit knee brace support exhibits severe corrosion with up to 90% section loss to the horizontal support member. One of the conduits is severely corroded.

(Safety Repair 1)

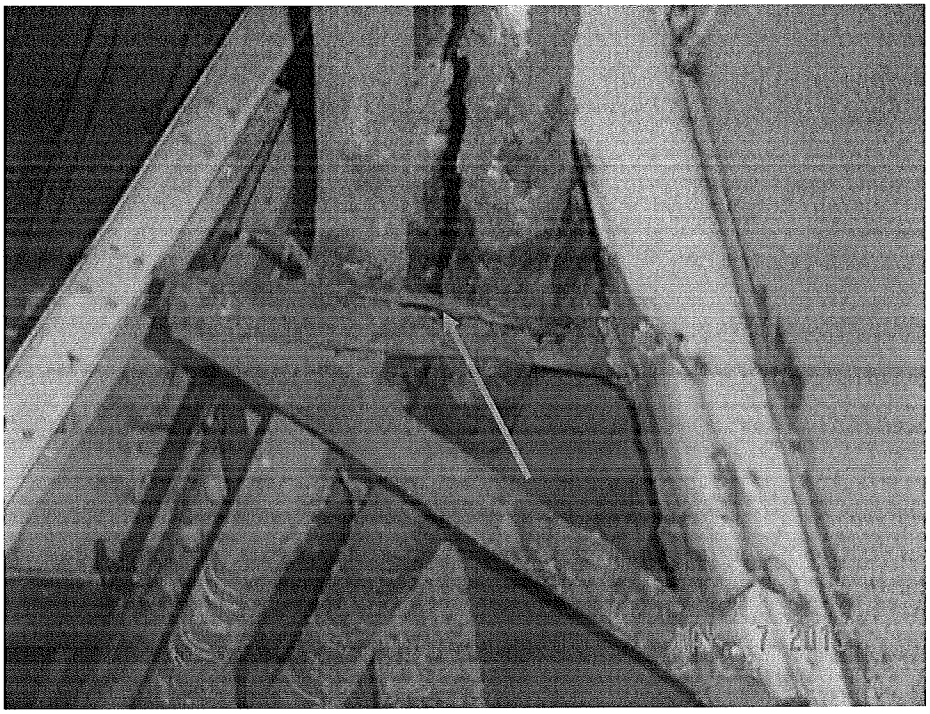


Photo No.: 32.

Location: Span 10, at the south safety walk, looking northwest.

Description: Bottom rail of the chain link fence panel is missing.

(Safety Repair 2)

Photo No.: 33.

Location: Span 1, median safety netting between Panel Points 7W and 7W*, looking east and down.

Description: The netting exhibits a 10' long x 4' wide hole.

(Safety Repair 3)

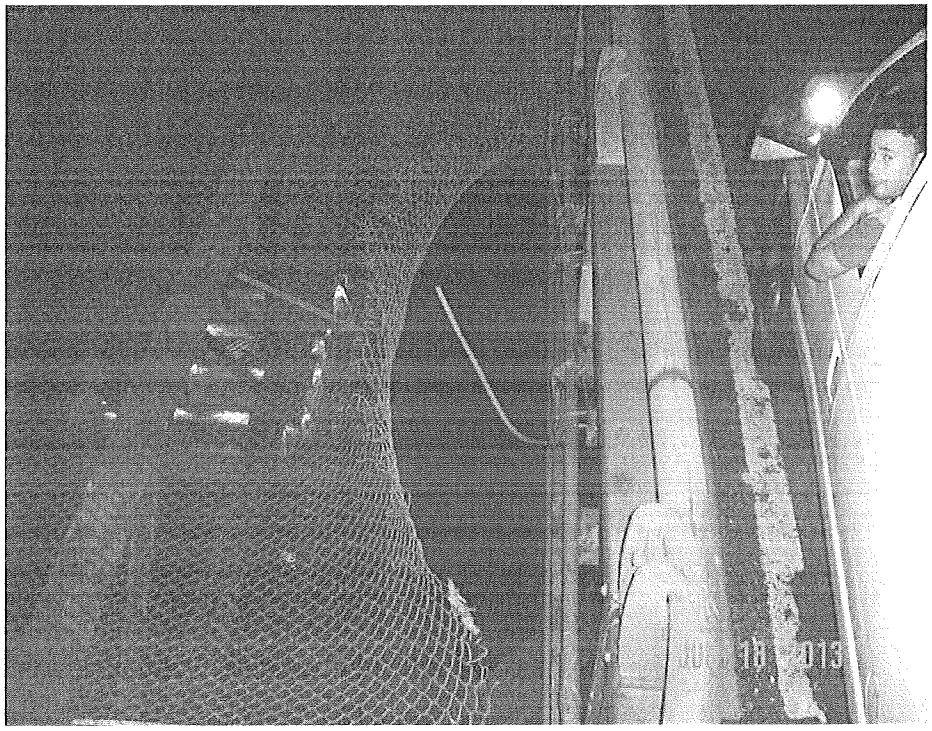


Photo No.: 34.

Location: New Jersey Tower north safety walk, looking east.

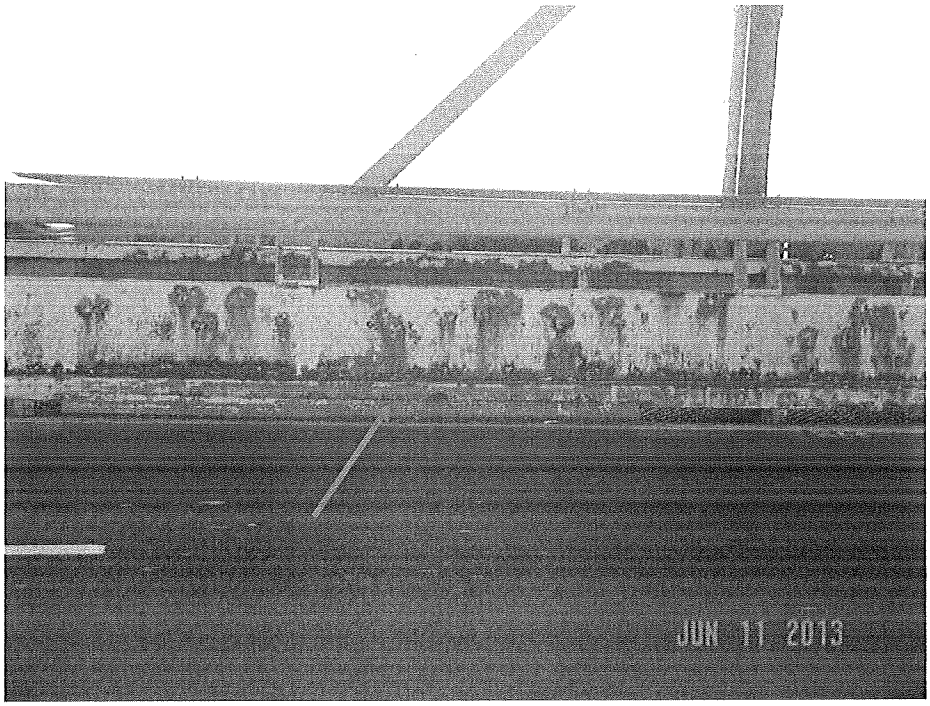
Description: 2' x 1' opening in the safety walk, and 2' long x 4" wide cut out area of safety walk grating for conduits.

(Safety Repair 4)

Photo No.: 35.

Location: Span 3, north median curb, along west bound roadway between Panel Points 7E and 6E*, looking south.

Description: Section of steel curb plate has been partially detached along the median barrier.

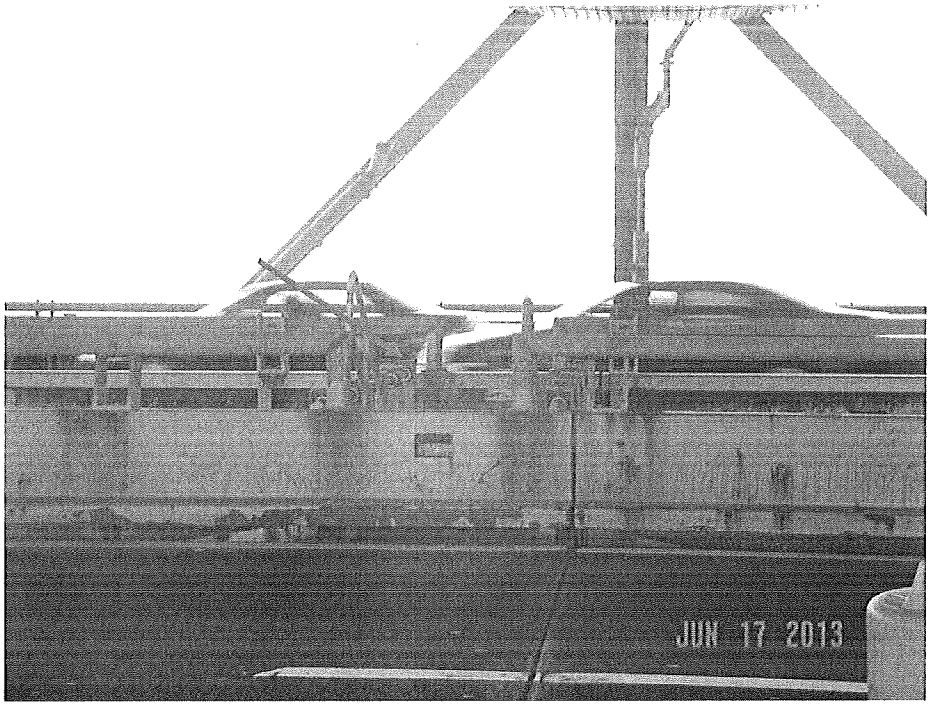


(Safety Repair 5)

Photo No.: 36.

Location: Span 2, crossover walkway at Panel Point 27W, looking south.

Description: The southeast handrail (one of four) is missing at the stairs from the median barrier to the access catwalk.



(Safety Repair 6)

Photo No.: 37.

Location: Span 3, bridge railing of south safety walk at Panel Point 1E, looking east.

Description: Railing is detached from the post connection along the top of the roadway barrier.

(Safety Repair 7)

Photo No.: 38.

Location: Span 1, south safety walk at Panel Point 3W, looking east and down.

Description: Missing electrical box cover with exposed wires attached to the back of roadway barrier (Accessible to public/stranded motorists).

(Safety Repair 8)

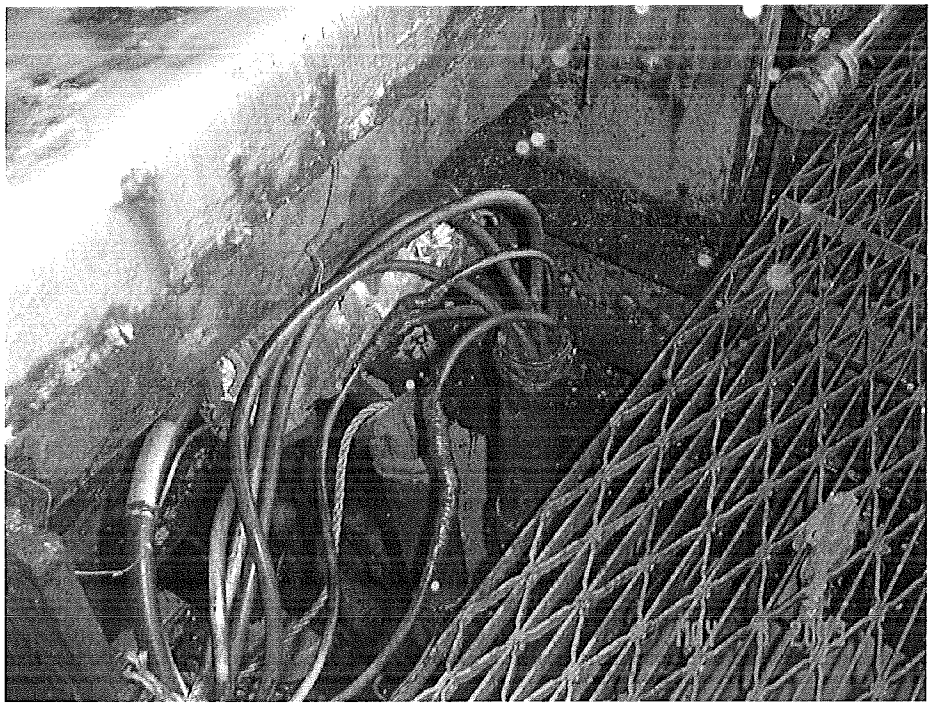


Photo No.: 39.

Location: Span 2, north safety walk at New York Tower, looking east and down.

Description: The west edge of the safety walk diamond plate is uplifted 1.5" causing a tripping hazard.

(Safety Repair 9)

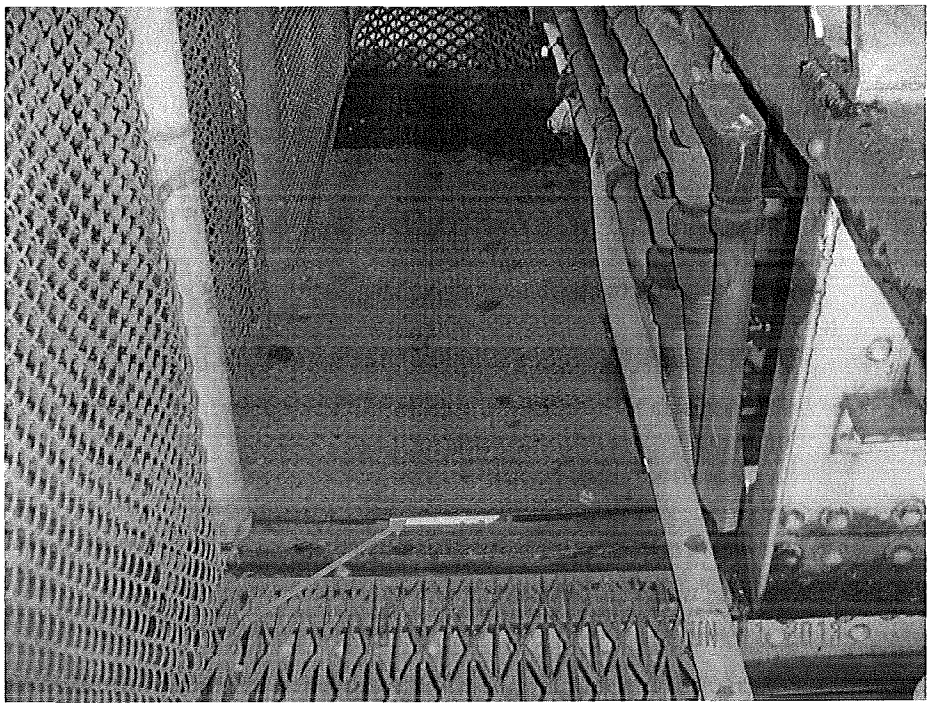


Photo No.: 40.

Location: Span 2, south curb of eastbound roadway at NJ tower (Panel Point 14W) finger joint, looking east and down.

Description: A four feet long section of steel curb is severely corroded with numerous holes.

(Safety Repair 10)

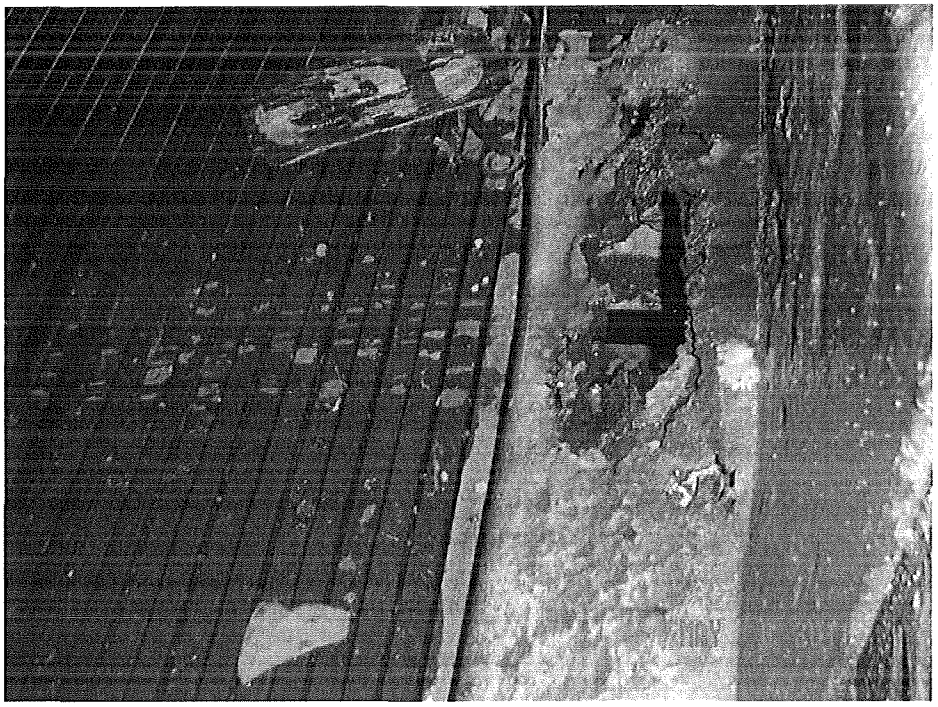


Photo No.: 41.

Location: Span 3, north safety walk, at Panel Point 1E, looking west and down.

Description: There is a bent and broken end plate at the end of the safety walk (creating a tripping hazard).

(Safety Repair 11)

Photo No.: 42.

Location: South safety walk at the New Jersey Tower, looking west and down.

Description: Broken conduit coupling connection with exposed wires along the safety walk (Accessible to public / stranded motorists).

(Safety Repair 12)

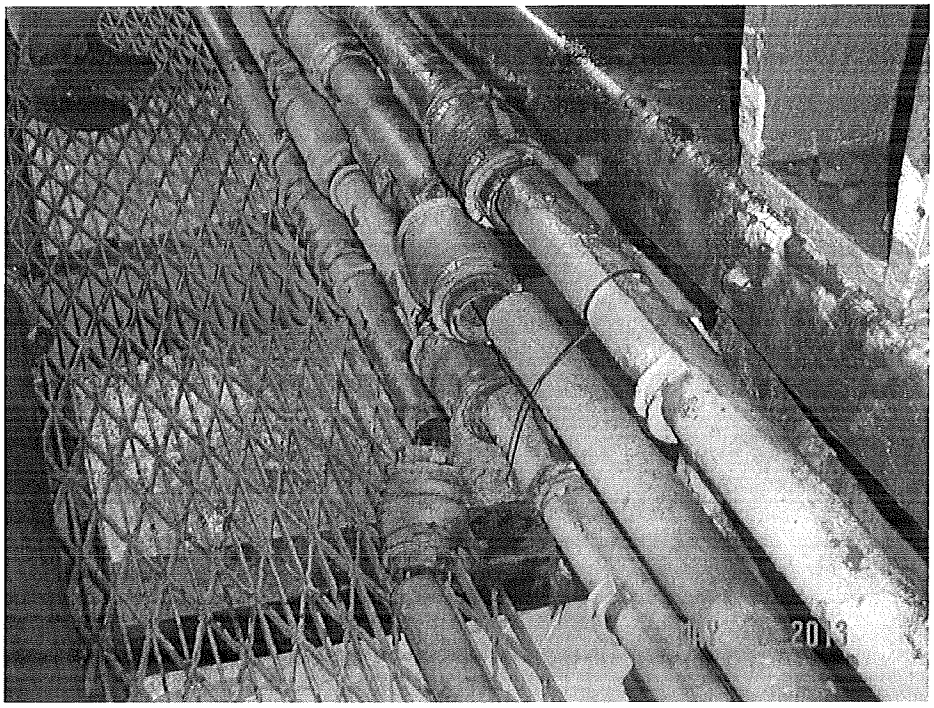


Photo No.: 43.

Location: New York Main Span Traveler, looking northeast and down.

Description: Large hole in the safety netting with inadequate wire mesh.

(Safety Repair 13)

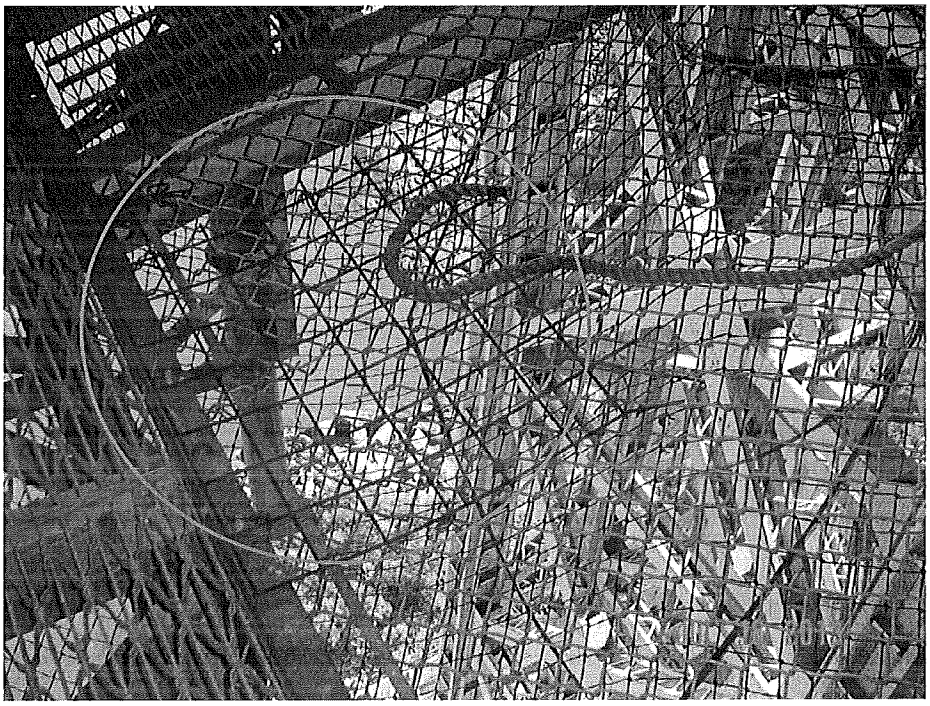


Photo No.: 44.

Location: New Jersey Back Span Traveler, looking south.

Description: The 3" x 3" angle supporting the safety netting is severely corroded with holes in horizontal and vertical legs.

(Safety Repair 14)

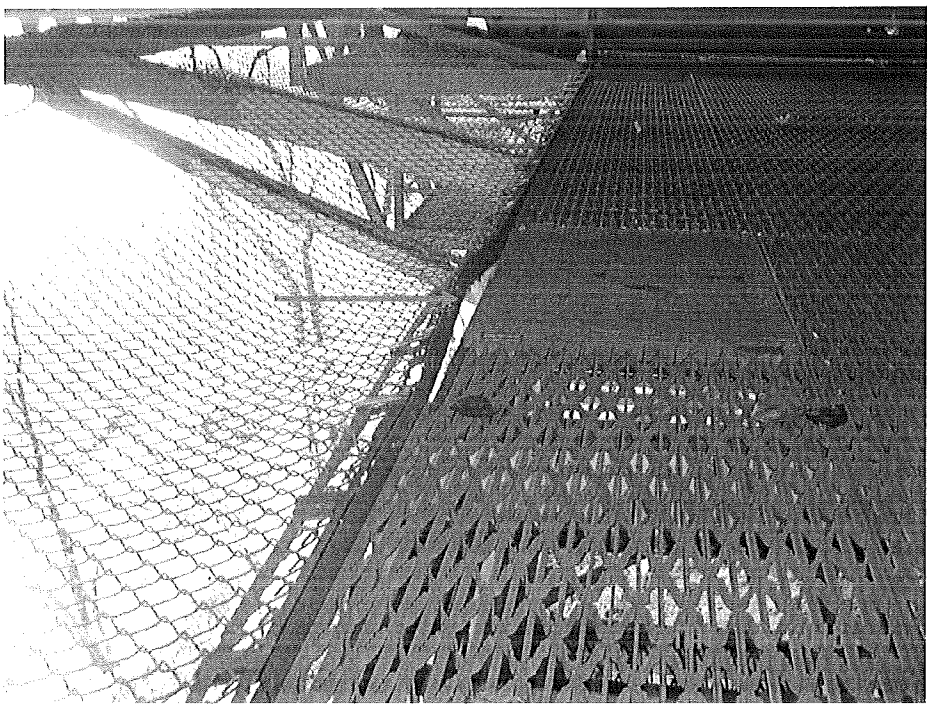


Photo No.: 45.

Location: New York Back Span Traveler, looking south.

Description: Missing horizontal rail angle for platform below traveler floor access hatch.

(Safety Repair 15)

Photo No.: 46.

Location: New Jersey Back Span Traveler, looking east.

Description: Missing strap attachment bolt connecting traveler floor to safety netting fence fabric.

(Safety Repair 16)

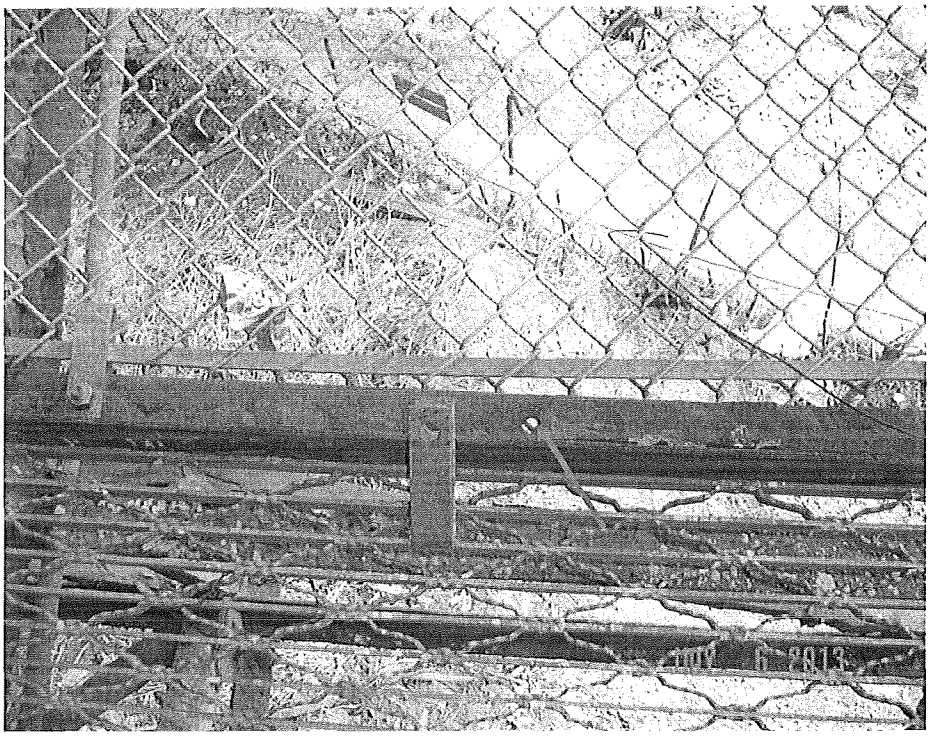


Photo No.: 47.

Location: Southwest corner of New Jersey Back Span Traveler, looking southwest.

Description: The weld between the fence fabric connection plate and the aluminum post is broken.

(Safety Repair 17)

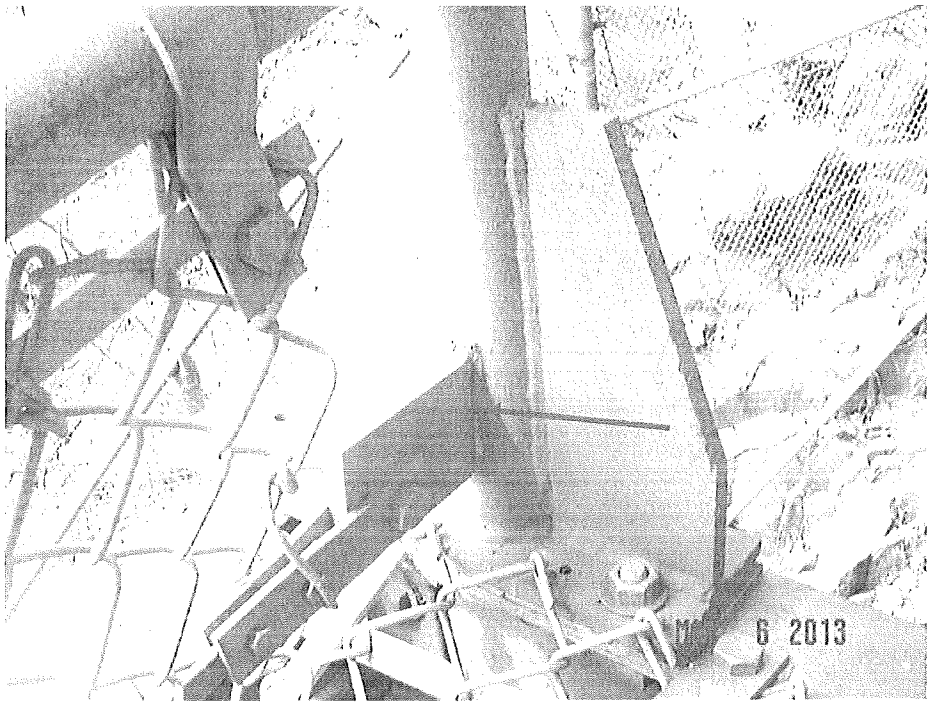
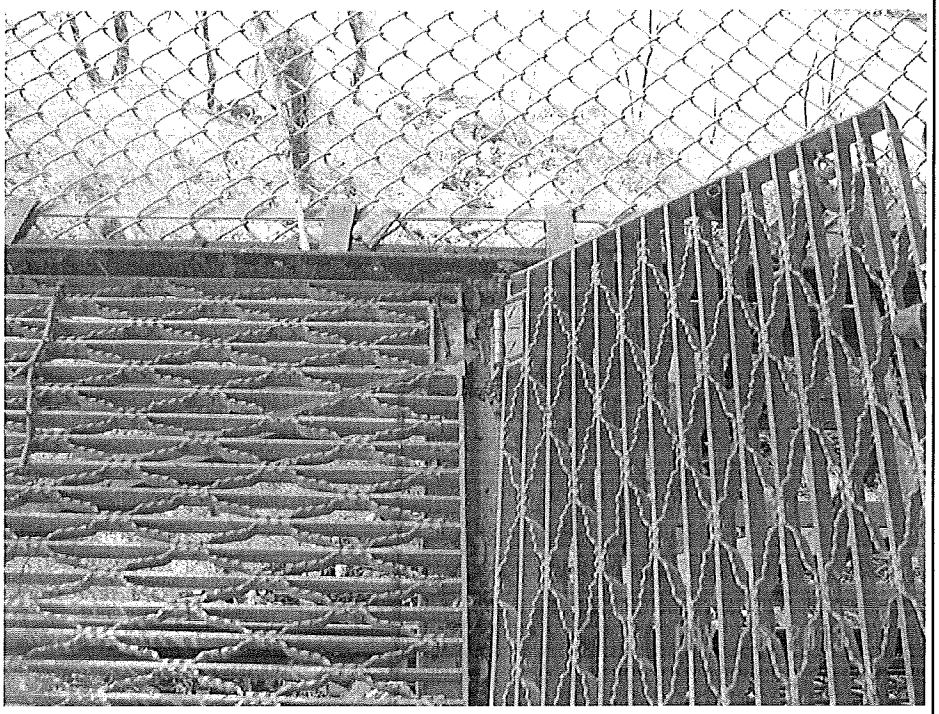


Photo No.: 48.

Location: East side of New Jersey Back Span Traveler, looking east.

Description: The connection screws for the access hatch hinge are missing at the north side of the floor grating.

(Safety Repair 18)



VI. Appendices

Appendix A
Table of Horizontal Cracks

APPENDIX A

TABLE OF HORIZONTAL CRACKS

FLOORBEAM	STRINGER (E/W)	CRACK LENGTH	CRACK LENGTH
		2011	2013
5W	S17(W)	1-3/8"	1-3/8"
24E	S2(W)	1-1/2"	1-1/2"
17W(See Note 2)	S17(W)	1/2"	1/2"
5E	S2(E)	2"	2"
5E	S17(E)	1"	1"

(E/W) denotes: Stringer on east or west side of floorbeam.

Notes:

1. The crack length development at the stringer webs along the top flange has not changed since the previous inspection in 2011.

2. This crack was previously noted and extends beyond a 2" x ½" corrosion hole at the end of the stringer web.

Appendix B
Table of Drilled Holes

APPENDIX B

GWB LOWER LEVEL

LOCATIONS OF ARRESTOR HOLES DRILLED IN WEBS OF FASCIA STRINGER

Span No.	Stringer No.	Panel Point	East / West Side	Size of Web Deterioration	Repair
2	S18	24W	East Side	1" Diameter Horizontal Hole	ROUTINE
	S1	25W*	East Side	1/2" x 2-3/4" Horizontal Hole	ROUTINE
	S1	26W	East Side	1/2" x 5" Horizontal Hole	ROUTINE
	S1	26W*	East Side	5/8" x 6" Horizontal Hole & 1/8" x 1" Vertical Hole	PRIORITY
	S1	27W*	East Side	1/2" x 2-1/2" Horizontal Hole	ROUTINE
	S1	28W	East Side	3/8" x 5" Horizontal Hole	ROUTINE
	S1	29W	East Side	5/8" x 6" Horizontal Hole	ROUTINE
	S1	30W	East Side	1/2" x 3-1/2" Horizontal Hole	ROUTINE
	S1	31W	East Side	3/8" x 4-1/2" Horizontal Hole	ROUTINE
	S1	32W	East Side	3/8" x 4" Horizontal Hole	ROUTINE
	S1	36W	East Side	3/8" x 4" Horizontal Hole	ROUTINE
	S18	36W	East Side	3/4" x 4" Horizontal Hole	ROUTINE
	S1	39W*	East Side	3/8" x 2-3/4" Horizontal crack propagated past 1st drilled hole	ROUTINE
	S18**	36E	West Side	3/4" x 5" Horizontal Hole & 2" Vertical Crack	PRIORITY
	S1	22E*	West Side	1/2" x 2" Horizontal Hole	ROUTINE
	S1	5E	West Side	1/2" Diameter Horizontal Hole	ROUTINE

** New location of drilled arrestor holes noted in this report.

Note:
1. For detailed description of deficiencies and repair recommendations see Page No. 13.

Appendix C
Immediate Action Correspondence

Stantec Consulting Services Inc.
50 West 23rd Street, 8th Floor
New York, NY 10010
Tel: (212) 366-5600
Fax: (212) 366-5629

Stantec

May 28, 2013

Mr. C. John Lin, P.E.
Assistant Chief Engineer - Quality Assurance
Engineering Department
The Port Authority of New York & New Jersey
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, NJ 07102

Attention: Mr. Camille Dagher, P.E., Project Manager

Reference: **Expert Professional Services for the Performance of Biennial Inspection of the George Washington Bridge, Main Span Upper & Lower Levels**
PA Agreement No. 405-13-005; P.O. 4900009127

Subject: **Immediate Action – Severe deterioration of Stringer S1 between PP 7E* & PP 8E**

Gentlemen:

During the course of the biennial inspection of the George Washington Bridge – Main Span Lower Level, the following condition was found at stringer S1 between Panel Points 7E* & 8E requiring immediate action.

Approximately 3'-6" long by up to 4" high section of the web exhibits severe corrosion with a 3" long crack and hole thru near the bottom flange starting approximately 5' west of PP7E* floorbeam. At the same location, the bottom flange exhibits up to 70% section loss with several rusted thru holes in the north leg. In addition, a 10" (L) x 2" (W) portion of the top flange south leg above the deteriorated web area exhibits severe corrosion with hole thru and up to 50% section loss. See attached location plan and photos.

Stringer S1 is a fascia stringer and primarily is supporting safety walk above as well as providing partial support to the roadway barrier.

The above deterioration compromises the structural integrity of the stringer. Therefore, it is recommended to repair the deteriorated S1 Stringer section on an immediate basis. It is also recommended that a 1" diameter hole to be drilled at the end of web crack on an immediate basis while the repair details are being prepared.

If you have any questions or need additional information, please contact us.

Sincerely,

STANTEC CONSULTING SERVICES INC.

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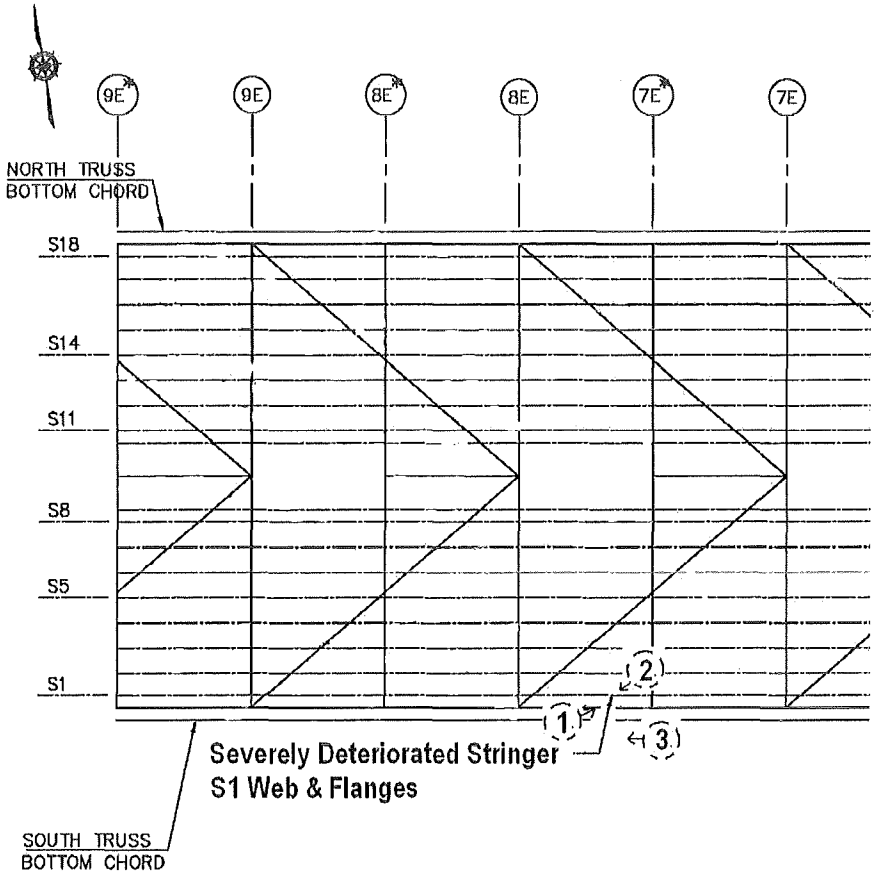

GWB Lower Level NY Back Span

LOCATION PLAN

Photo No.: 1

Location:
New York Side Span, Stringer S1 (South face) between Panel Points 7E* & 8E.
(Looking Northeast)

Description:
Severely deteriorated web bottom with holes up to 4" high. Also, 10" (L) x 2" (W) hole thru in the top flange.

Photo No.: 2

Location:
New York Side Span, Stringer S1 (North face) between Panel Points 7E* & 8E.
(Looking Southwest)

Description:
Severely deteriorated web bottom with holes up to 4" high. Also, rusted thru holes in the bottom flange.

Photo No.: 3 **Location:** New York Side Span, Stringer S1 (North face) between Panel Points 7E* & 8E. (Looking Up & West) **Description:** Severely deteriorated bottom flange North side with rusted thru holes.	
Photo No.: **Location:** **Description:**	**Not Used**

Appendix D
Bridge Data Summary

BRIDGE DATA SUMMARY

BIN NO.	NAME	SPANS	LENGTH	YEAR	STRUCTURE TYPE	FCM	LAST INSPECTION	CONTRACT DWGS
5522507	Main Span	11	5062'	1962	Steel Suspension	Y (spans 1 to 9)	October 2011	HRB-5 HRB-5A HRB-5B GWB-190.008 GWB-190.040 GWB-244.056 GWB-244.114 CJ4375