



**Bridge Factors Photographs 1 through 111**

**Miami, FL**

**HWY18MH009**

(84 pages)



2016:09:26 10:08:06\*

MCM\_NTSB\_OSHA003821

Bridge Factors Photo 1 – Aerial view of SW 8<sup>th</sup> Street looking to the west prior to any construction on 9/26/16 at 10:08:06 a.m. (Source: Munilla Construction Management, MCM)



Apr 17, 2017, 1:41:47 PM  
25.7609372°, -80.3735089°



Bridge Factors Photo 2 – View of falsework being set up in adjacent casting yard for construction of main span on 4/17/17 at 1:41:47 p.m. Concrete footings being poured in background at south end (Source: Munilla Construction Management, MCM)



May 30, 2017, 9:32:28 AM  
25.7606027°, -80.3726508°



Bridge Factors Photo 3 – View of falsework being set up in adjacent casting yard for construction of main span on 5/30/17 at 9:32:28 a.m. (Source: Munilla Construction Management, MCM)





2017-06-15 08:39:58

MCM\_JT58\_09H400930

Bridge Factors Photo 4 – View of forms being set for concrete pour of main span deck on 6/15/17 at 8:39:58 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 5 – View of initial formwork being set up for diagonal supports of main span on 6/23/17 at 8:29:07 a.m. (Source: Munilla Construction Management, MCM)





2017-07-07 09:21:08

MCM\_JT58\_09H4004013

Bridge Factors Photo 6 – View of post tensioning bars and rebar being placed for diagonal supports of main span on 7/7/17 at 9:21:08 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 7 – View of longitudinal tendons in deck encased in white plastic duct and post tensioning bars in diagonal supports encased in white plastic duct on 7/24/17 at 2:04:38 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 8 – View of nodal region including vertical #12 support and diagonal #11 support (background) and deck end region including bridge deck and diaphragm II (foreground) including reinforcing and conduits before concrete placement on 7/25/17 at 5:24:15 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 9 – View of post tensioning bars and rebar shown in diagonal supports on 8/5/17 at 11:06:51 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 10 – View of longitudinal and transverse tendons encased in white plastic duct in deck on 8/24/17 at 2:04:02 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 11 – View of pouring the deck with concrete on 10/19/17 at 00:07:33 a.m.  
(Source: Munilla Construction Management, MCM)





Bridge Factors Photo 12 – View of poured section of deck with concrete on 10/26/17 at 10:24:33 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 13 – View of setting forms for diagonal supports prior to pouring of concrete on 11/3/17 at 8:59:28 a.m. (Source: Munilla Construction Management, MCM)





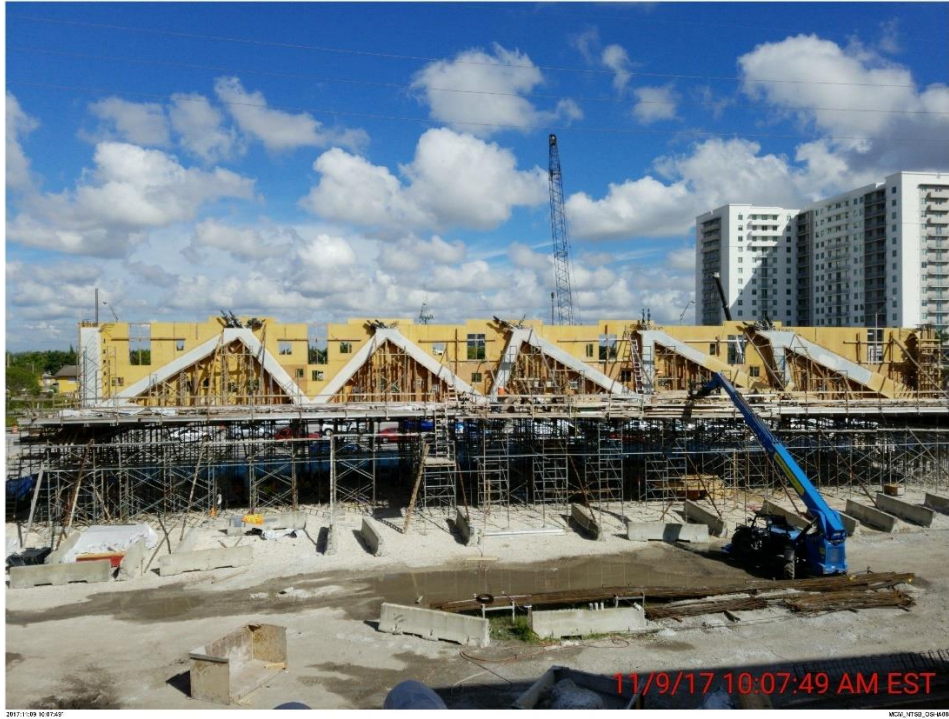
Bridge Factors Photo 14 – View of pouring of concrete in vertical #12 support on 11/6/17 at 7:47:01 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 15 – View of forms removed from vertical #12 support on 11/8/17 at 9:54:28 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 16 – View of forms removed from diagonal supports on 11/9/17 at 10:07:49 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 17 – View of falsework being set up for construction of canopy on 11/12/17 at 8:41:12 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 18 – View of forms being set for canopy looking from ground level on 11/15/17 at 7:27:11 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 19 – View of forms being set looking on top of canopy on 11/16/17 at 11:09:55 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 20 – View of humped forms being set on top of canopy on 11/17/17 at 8:19:40 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 21 – View of humped forms are completely set on top of canopy on 11/20/17 at 8:22:50 a.m. (Source: Munilla Construction Management, MCM)





2017:11:27 13:30:03

MCM\_NTSB\_OSHA004754

Bridge Factors Photo 22 – View of reinforcement bars being set on top of canopy on 11/27/17 at 1:30:04 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 23 – View of longitudinal tendons in canopy encased in white plastic duct and canopy end region including reinforcing and conduits before concrete placement on 11/30/17 at 11:14:35 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 24 – View of rebar for blister located on top of canopy on 12/1/17 at 11:21:04 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 25 – View of concrete being poured on top of canopy on 12/14/17 at 2:04:13 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 26 – View of finished poured concrete section of canopy on 1/3/18 at 7:49:26 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 27 – View of stressing deck longitudinal tendons D1 on 1/16/18 at 8:35:52 a.m. (Source: Munilla Construction Management, MCM)





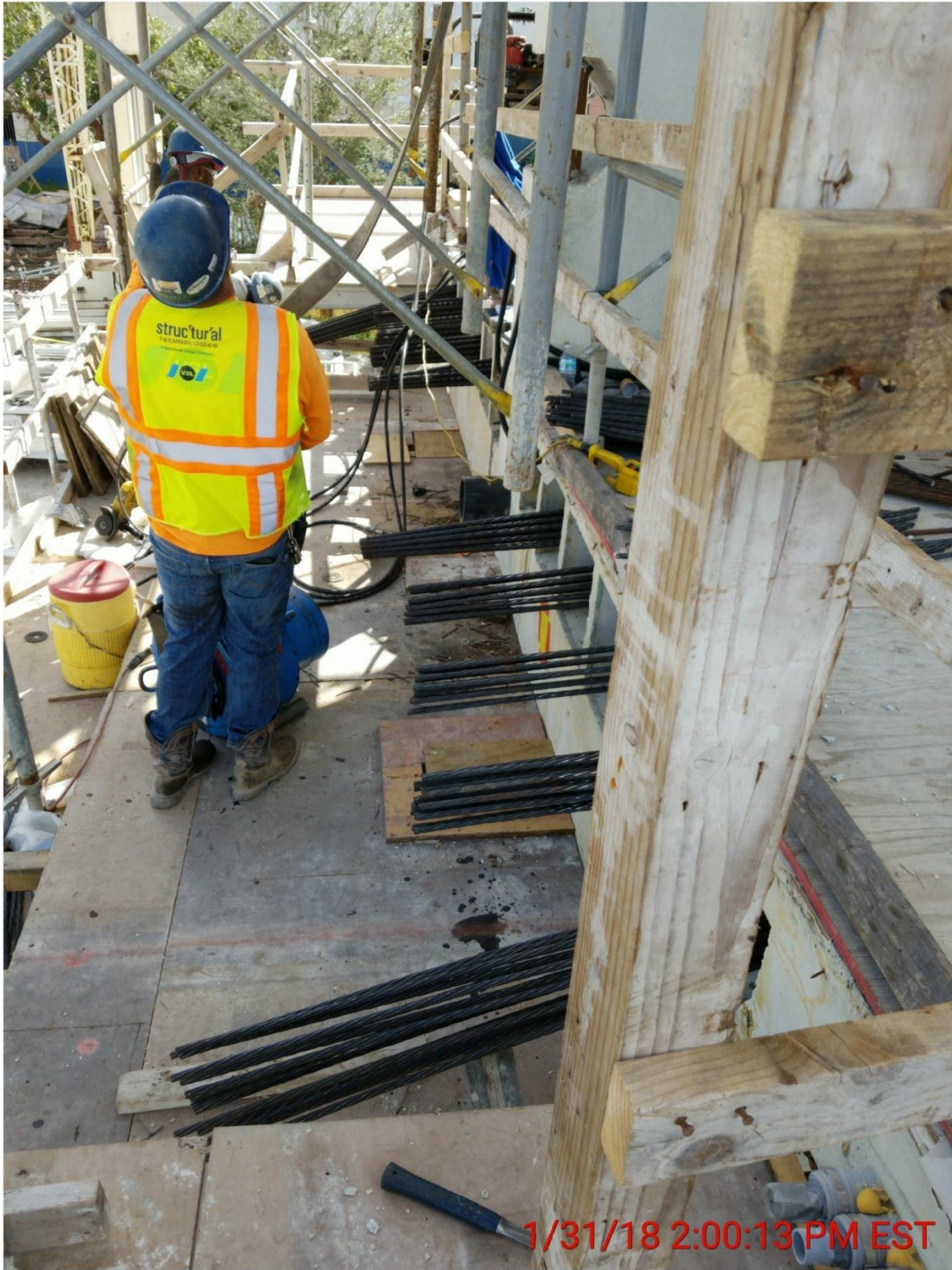
Bridge Factors Photo 28 – View of stressing post tensioning bar in diagonal support #2 on top of canopy on 1/30/18 at 2:04 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 29 – View of stressing canopy longitudinal tendons C2 completed on 1/30/18 at 2:23 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 30 – View of stressing deck longitudinal tendons D2 through D6 on 1/31/18 at 2:00:13 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 31 – View of stressing deck transverse tendons on 2/6/18 at 11:25:27 a.m.  
(Source: Munilla Construction Management, MCM)





Bridge Factors Photo 32 – View of stressing post tensioning bars in diagonal supports on top of canopy on 2/16/18 at 12:00:28 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 33 – View of stressing canopy longitudinal tendon C3 on 2/17/18 at 9:09:21 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 34 – View of falsework removed under canopy on 2/22/18 at 2:23:44 p.m.  
(Source: Munilla Construction Management, MCM)





Bridge Factors Photo 35 – View of falsework being removed under deck from middle to outward megashores on 2/23/18 at 3:31:24 p.m. (Source: Munilla Construction Management, MCM)





2018.02.24 12:23:21\*

MCM\_NTSS\_OSHA005903

Bridge Factors Photo 36 – View of crack at the bottom of diagonal support #2 on north side looking to the south in casting yard on 2/24/18 at 12:23:23 p.m. (Source: Munilla Construction Management, MCM)





2018-02-24 12:24:14

MCM\_NTSB\_OSHA005304

Bridge Factors Photo 37 – View of cracks at the bottom of diagonal support #2 on south side looking to the north in casting yard on 2/24/18 at 12:24:14 p.m. (Source: Munilla Construction Management, MCM)





2018:02:24 12:29:38\*

MCM\_NTSS\_OSHA005305

Bridge Factors Photo 38 – View of crack at the bottom of diagonal support #11 on north side looking to the south in casting yard on 2/24/18 at 12:29:38 p.m. (Source: Munilla Construction Management, MCM)





2018-02-24 12:30:22

MCM\_NTSB\_OSHA005306

Bridge Factors Photo 39 – View of crack at the bottom of diagonal support #11 on south side looking to the north in casting yard on 2/24/18 at 12:30:23 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 40 – View of continued falsework removal under deck from middle to outward mega shores on 2/24/18 at 12:53:47 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 41 – View of all falsework removed under deck, only mega shores at each end holding main span on 2/25/18 at 8:01:38 a.m. (Source: Munilla Construction Management, MCM)





2018-02-26 08:38:16

MCM\_NTSS\_OSH400536

Bridge Factors Photo 42 – View of crack at the bottom of diagonal support #11 on north side looking to the south in casting yard on 2/26/18 at 8:38:16 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 43 – View of crack at the bottom of diagonal support #11 on south side looking to the north in casting yard on 2/26/18 at 8:38:58 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 44 – View of cracks at the bottom of diagonal support #2 on south side looking to the north in casting yard on 2/26/18 at 8:39:52 a.m. (Source: Munilla Construction Management, MCM)

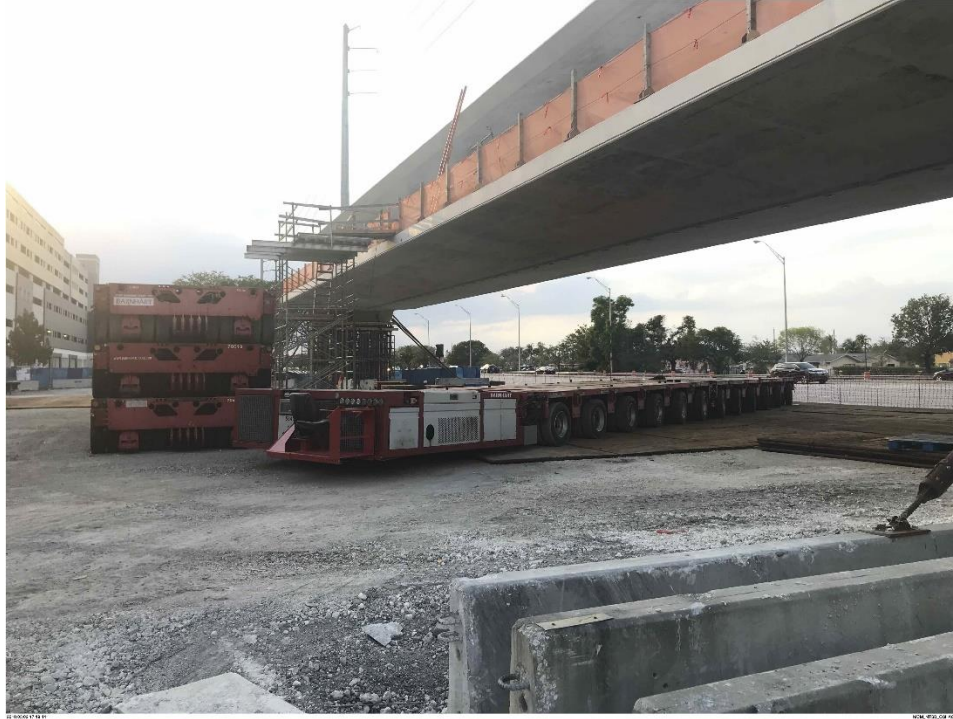


Bridge Factors Photo 45 – View of crack at the bottom of diagonal support #2 on north side looking to the south in casting yard on 2/26/18 at 8:40:08 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 46 – View of finished walkway of main span on 2/26/18 at 3:23:29 p.m.  
(Source: Munilla Construction Management, MCM)

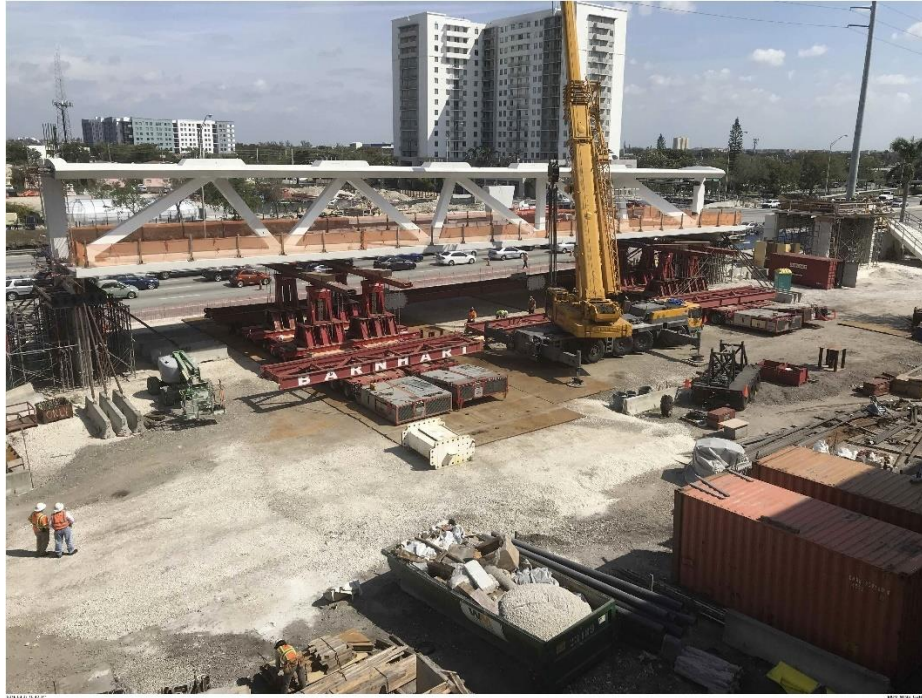


Bridge Factors Photo 47 – View of Barnhart Crane and Rigging equipment arriving on-scene on 3/2/18 at 5:19:44 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 48 – View of main span with partial set up of SPMT units located in foreground on 3/6/18 at 1:55:31 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 49 – View of main span with set up of unattached SPMT units located underneath on 3/7/18 at 10:42:24 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 50 – View of unattached SPMT with oak crane mats with a taper to match the profile of the bottom flange of the bridge span on 3/9/18 at 7:38:03 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 51 – View of strain transducer and rotation sensor on main span during move on 3/9/18 at 1:11 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 52 – View of test move to transport main span on SPMT units on 3/10/18 at 12:29:33 a.m. Actual move began approximately 4:30 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 53 – View of main span being transported on SPMT units across travel lanes of SW 8<sup>th</sup> Street on 3/10/18 at 5:09 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 54 – View of main span being transported on SPMT units west of permanent piers looking to the west on 3/10/18 at 6:38 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 55 – View of main span being transported on SPMT units immediately west of permanent piers looking to the northwest on 3/10/18 at 10:10 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 56 – View of main span being transported on SPMT units immediately west of permanent piers looking to the southeast toward north face of Diaphragm II on 3/10/18 (Source: Structural Technologies, LLC)



Bridge Factors Photo 57 – View of Diaphragm I, south end of main span, just prior to placement on south pier looking to the west on 3/10/18 at 10:23 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 58 – View of Diaphragm I, south end of main span, just prior to placement on south pier looking to the east on 3/10/18 at 10:26 a.m. (Source: Munilla Construction Management, MCM)

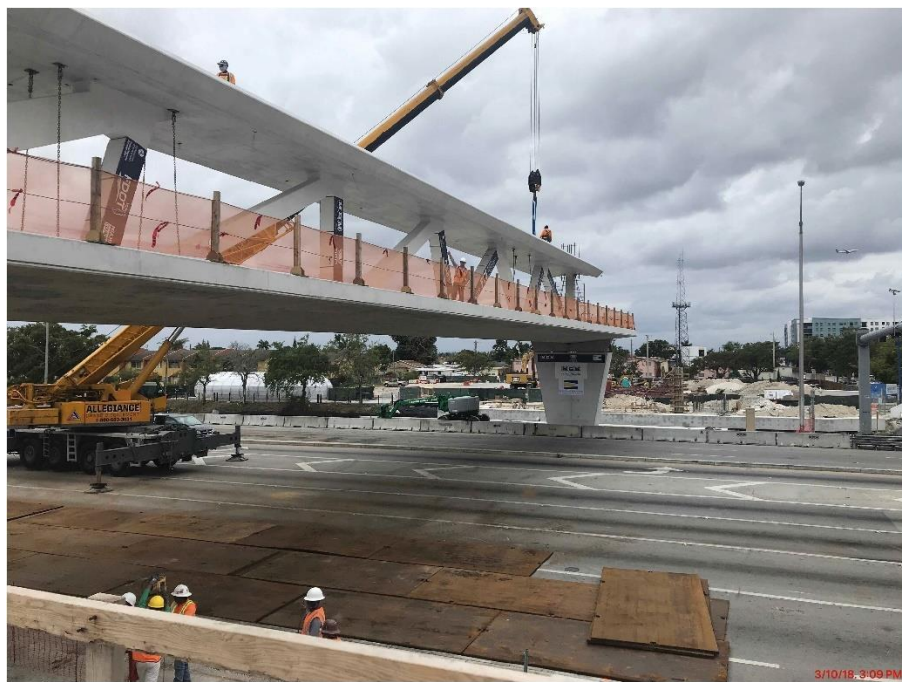


Bridge Factors Photo 59 – View of Diaphragm II, north end of main span, just prior to placement on pylon pier looking to the northeast on 3/10/18 at 10:26 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 60 – View of main span on permanent piers with chains detached from SPMT units on 3/10/18 at 12:29:13 p.m. Actual move complete approximately 12:30 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 61 – View of main span on permanent piers with SPMT units removed below on 3/10/18 at 3:09 p.m. Personnel working on top of canopy with crane hovered over diagonal support #11 (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 62 – View of cracks at the bottom of diagonal support #11 on west side looking to the east on 3/10/18 at 3:16 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 63 – Top view of cracks along west side of Diaphragm II on 3/10/18 at 3:16 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 64 – View of cracks at the bottom of diagonal support #11 on east side looking to the west on 3/10/18 at 3:17 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 65 – Top view of cracks along east side of Diaphragm II on 3/10/18 at 3:17 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 66 – Top view of cracks along east side of Diaphragm II on 3/10/18 at 3:18 p.m. (Source: Munilla Construction Management, MCM)

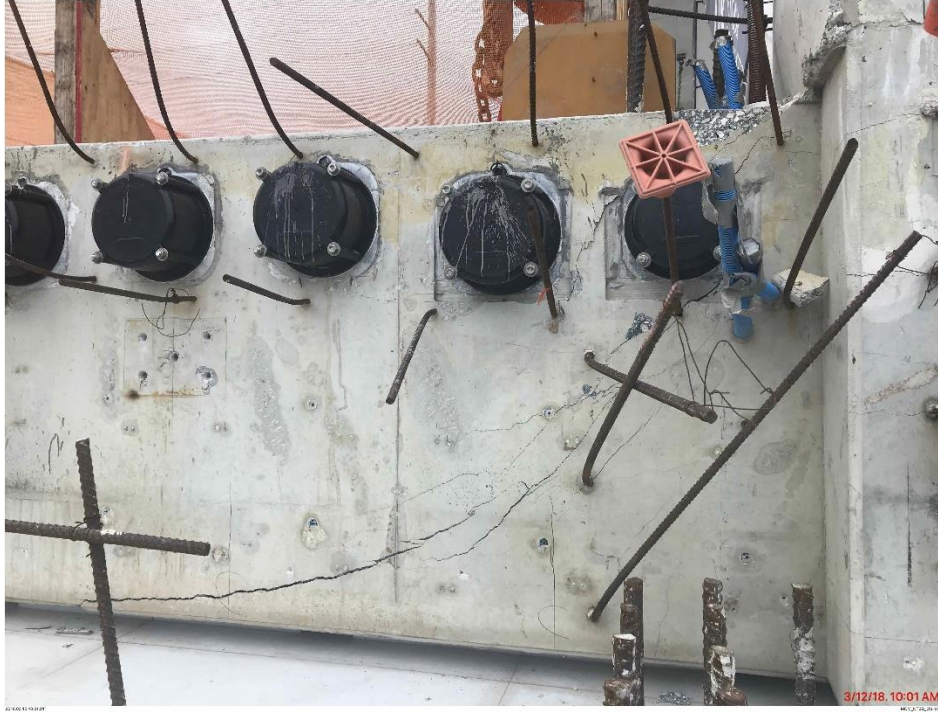




Bridge Factors Photo 67 – View of cracks on north face of Diaphragm II on west side on 3/12/18 at 9:46 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 68 – View of cracks on north face of Diaphragm II on west side on 3/12/18 at 9:49 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 69 – View of cracks on north face of Diaphragm II on east side on 3/12/18 at 10:01 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 70 – View of cracks on south face of Diaphragm II on east side on 3/12/18 at 10:20 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 71 – View of crack in cut-out for drain pipe under deck on 3/12/18 at 10:20 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 72 – View of cut-out for drain pipe under deck looking to the south on 3/12/18 at 10:23 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 73 – View of top of canopy looking to the south and chiseled concrete in blister for destressing diagonal support #11 on 3/12/18 at 10:35 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 74 – View of cracks along west side of Diaphragm II looking to the north showing crack is approximately 4 inches deep on 3/13/18 at 11:16:50 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 75 – Top view of cracks along west side of Diaphragm II on 3/13/18 at 11:17:04 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 76 – View of cracks along west side of Diaphragm II looking to the north showing crack is approximately 3 inches deep on 3/13/18 at 11:17:57 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 77 – View of crack along bottom of diagonal support #11 on west side showing crack is approximately 6 inches deep on 3/13/18 at 11:18:50 a.m. (Source: Munilla Construction Management, MCM)



2018/03/13 11:20:19

MCM\_NT18B\_08HA005899

Bridge Factors Photo 78 – View of crack along bottom of diagonal support #11 on east side on 3/13/18 at 11:20:19 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 79 – View of crack in Node #11/#12 region on west side showing crack is approximately 1 inch deep on 3/13/18 at 11:25:33 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 80 – View of cracks at the bottom of diagonal support #11 on west side looking to the east showing folding rule inside crack on 3/13/18 at 11:26:36 a.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 81 – View of crack at the bottom of diagonal support #11 on east side looking to the west showing crack is 1 inch wide at one location on 3/13/18 at 1:02:14 p.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 82 – View of cracks and delamination at the bottom of diagonal support #11 on east side looking to the west on 3/13/18 at 1:11:16 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 83 – View of cracks at the bottom of diagonal support #11 on west side looking to the east on 3/13/18 at 1:17:46 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 84 – View of cracks at the bottom of diagonal support #11 on east side looking to the west on 3/13/18 at 1:29:15 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 85 – View of cracks at the bottom of diagonal support #2 on west side looking to the southeast on 3/13/18 at 1:44:41 p.m. (Source: Munilla Construction Management, MCM)





2018-03-13 13:44:53

MCM\_NT58\_C09A00952

**Bridge Factors Photo 86 – View of cracks at the bottom of diagonal support #2 on west side looking to the east on 3/13/18 at 1:44:53 p.m. (Source: Munilla Construction Management, MCM)**



Bridge Factors Photo 87 – View of cracks on south face of Diaphragm II above shim plates on 3/13/18 at 4:32:54 p.m. (Source: Munilla Construction Management, MCM)



Bridge Factors Photo 88 – View of crack being monitored at the bottom of diagonal support #11 on east side looking to the west on 3/14/18 at 1:42 p.m. (Source: Bolton – Perez and Associates, BPA)





Bridge Factors Photo 89 – View of crack being monitored at the bottom of diagonal support #11 on east side looking to the west on 3/14/18 at 1:42 p.m. (Source: Bolton – Perez and Associates, BPA)



Bridge Factors Photo 90 – View of cracks and delamination at the bottom of diagonal support #11 on east side looking to the west on 3/14/18 at 1:42 p.m. (Source: Bolton – Perez and Associates, BPA)





Bridge Factors Photo 91 – View of crack being monitored at the bottom of diagonal support #11 and vertical support #12 on east side looking to the west on 3/14/18 at 1:42 p.m. (Source: Bolton – Perez and Associates, BPA)



Bridge Factors Photo 92 – View of cracks being monitored at the bottom of diagonal support #11 and vertical support #12 on west side looking to the east on 3/14/18 at 1:45 p.m. (Source: Bolton – Perez and Associates, BPA)





Bridge Factors Photo 93 – View of cracks at the bottom of diagonal support #11 and vertical support #12 on west side looking to the east on 3/14/18 at 1:46 p.m. (Source: Bolton – Perez and Associates, BPA)



Bridge Factors Photo 94 – View of cracks being monitored at the bottom of diagonal support #11 on west side looking to the east on 3/14/18 at 1:47 p.m. (Source: Bolton – Perez and Associates, BPA)



Bridge Factors Photo 95 – View of crack being monitored at the bottom of diagonal support #11 on west side looking to the east on 3/14/18 at 1:47 p.m. (Source: Bolton – Perez and Associates, BPA)





Bridge Factors Photo 96 – Top view of cracks along east side of Diaphragm II on 3/14/18 at 1:50 p.m. (Source: Bolton – Perez and Associates, BPA)



Bridge Factors Photo 97 – Top view of cracks along east side of Diaphragm II on 3/14/18 at 1:50 p.m. (Source: Bolton – Perez and Associates, BPA)





Bridge Factors Photo 98 – Top view of cracks along west side of Diaphragm II on 3/14/18 at 1:51 p.m. (Source: Bolton – Perez and Associates, BPA)



Bridge Factors Photo 99 – Top view of cracks along west side of Diaphragm II on 3/14/18 at 1:51 p.m. (Source: Bolton – Perez and Associates, BPA)





Bridge Factors Photo 100 – View of crack being monitored on the west side of vertical support #12 looking to the east on 3/14/18 at 1:51 p.m. (Source: Bolton – Perez and Associates, BPA)



Bridge Factors Photo 101 – View of crack being monitored on the west side of vertical support #12 looking to the east on 3/14/18 at 1:51 p.m. (Source: Bolton – Perez and Associates, BPA)





Bridge Factors Photo 102 – View of cracks and delamination at the bottom of diagonal support #11 on east side looking to the northwest on 3/15/18 at 10:53 a.m. (Source: FIU Associate Vice-President of Facilities Management)



Bridge Factors Photo 103 – View of cracks at the bottom of diagonal support #11 on west side looking to the northeast on 3/15/18 at 10:55 a.m. (Source: FIU Associate Vice-President of Facilities Management)



Bridge Factors Photo 104 – Top view of cracks along west side of Diaphragm II on 3/15/18 at 10:55 a.m. (Source: FIU Associate Vice-President of Facilities Management)



Bridge Factors Photo 105 – View of two of the three westbound lanes closed looking to the east to allow for a crane to be used during the restressing of diagonal support #11 on 3/15/18 at 11:51 a.m. (Source: Munilla Construction Management, MCM)





Bridge Factors Photo 106 – View of collapsed pedestrian bridge looking to the southwest on 3/15/18 at approximately 1:47 p.m. (Source: FIU)

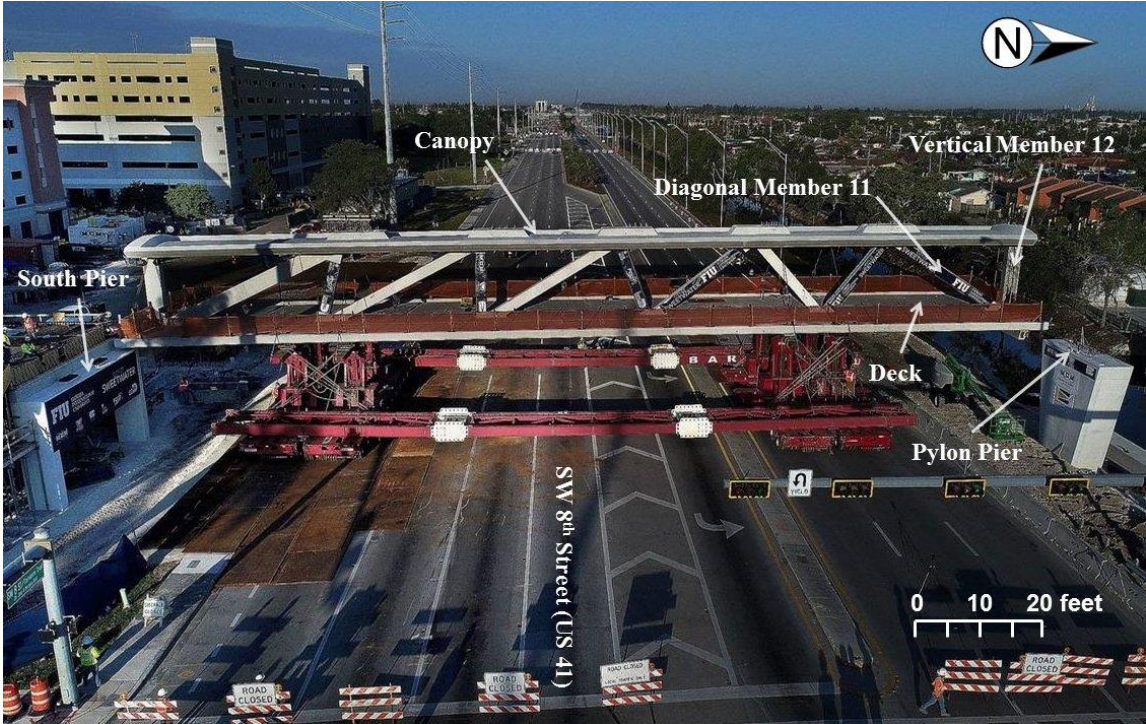


Bridge Factors Photo 107 – View of collapsed pedestrian bridge looking to the northeast (Source: FIU)





Bridge Factors Photo 108 – View of transporters moving the pedestrian bridge into place on the bridge piers looking to the southwest (Source: FIU)



Bridge Factors Photo 109 – View of main span being moved on March 10, 2018, prior to placement on the south pier and north pylon pier, looking to the west, labels added by the NTSB (Source: FIU)





Bridge Factors Photo 110 – View of bridge deck in the vicinity of Node #11 and #12 with center section cut and slid forward for viewing of sample’s internal areas looking to the northeast in FDOT South Dade Maintenance Yard



Bridge Factors Photo 111 – View of bridge deck in the vicinity of Node #11 and #12 with center section cut and slid forward for viewing of sample’s internal areas looking to the east in FDOT South Dade Maintenance Yard