CONSTRUCTION CYCLE 8
AS-BUILT DRAWINGS
NATIONAL AIRPORT PAVEMENT TESTING FACILITY
WILLIAM J. HUGHES TECHNICAL CENTER, BUILDING 296
ATLANTIC CITY INTERNATIONAL AIRPORT, NEW JERSEY
10/04/2018

NEW JERSEY STATE MAP
VICTIM MAP
PROJECT LOCATION MAP
AERIAL VIEW OF THE NAPTF BUILDING

NAPTF BUILDING KEY PLAN
SOUTH WALL
NORTH WALL

INDEX OF DRAWINGS

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<td>P-501 ACCEPTANCE AND CHARACTERIZATION RESULTS</td>
</tr>
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</table>

PREPARED BY:
SRA INTERNATIONAL, INC., A CSRA COMPANY
200 DECADON DRIVE
EGG HARBOR, NJ 08234
PHONE: (609) 601-6800
1. Contractors' access through Gate available by advanced request.
2. Location of the staging area shown is approximate, the exact location will be determined by the Resident Engineer.
3. Site sheet number 3 for inside the building staging area location and restrictions.
NOTES:
1. ALL IS 550 PSI, UNLESS OTHERWISE INDICATED ON THE PLANS.
2. LIME SLURRY FROM STA 3+40 TO 3+60 WAS USED UNDERNEATH THE ASPHALT INTERLAYER TO MAXIMIZE BONDING.
3. SEE JOINTING PLAN (SHEET 6) FOR JOINTING TYPES AND DOWEL DETAILS.
4. CBR = CALIFORNIA BEARING RATIO.
5. PAPER BOND BREAKER SHALL BE PLACED BETWEEN P-306 AND P-501 FOR ALL CONCRETE BETWEEN STA 3+40 AND STA 3.65.
6. SEE SHEET 11 FOR JOINT & DOWEL DETAILS.
7. SEE SHEET 12 FOR SPEED DOWEL DETAILS.
8. CONTRACTOR REMOVED 28" OF EXISTING HIGH STRENGTH SUBGRADE AND REPLACED IT WITH 24" DEEP LOW STRENGTH SUBGRADE MATERIAL BETWEEN STA 3+00 AND 6+55. SUBGRADE INSTALLED IN 3 LIFTS OF 10" AVERAGE THICKNESS AND TRIMMED TO FINAL ELEVATION/THICKNESS.
9. CONTRACTOR CUT WIRE CHANNELS FOR INSTRUMENTATION INTO THE LEAN CONCRETE BASE COURSE AND THE ASPHALT INTERLAYER. SEE SHEET 11 FOR CUT DETAILS.

LEGEND:
- CENTER LINE MARKER - MAG NAIL
- CONTROL POINT - MAG NAIL
- TRIANGULAR NOTCHES FORMED BY WOOD CHAMFER STRIP
- CONSTRUCTED IN PHASE 1
- PAPER BOND BREAKER
- SINUSOIDAL KEYWAY JOINT
- ASPHALT INTERLAYER
- CBR = CONCRETE INTERLAYER (PORTLAND CEMENT CONCRETE)
- P-306 - LEAN CONCRETE BASE COURSE
- P-154 - GRANULAR AGGREGATE
- SUBBASE COURSE
- NEW SUBGRADE CBR 3-4
- EXISTING SUBGRADE - CH CLAY
- EXISTING SUBGRADE - SAND WITH Silt & CLAY SP & SM  

PROFILE VIEW A-A
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'

PLAN VIEW
SCALE: 1"=20'

GRAPHIC SCALE

NAPTF CONSTRUCTION CYCLE 8
PHASE 2 AS-BUILT
CONSTRUCTION PLAN VIEW AND PROFILE VIEW

CAD FILE: CCB-CONSTR-AS-BUILT.DWG
NATIONAL ROADWAY NAME
PROJECT NO: CCB
SIZE: ANS D
SCALE AS NOTED SHEET S OF 34

E.G./M.M.
R.A./J.G.
LEGEND:
1. CONTRACTOR CUT WIRE CHANNELS FOR INSTRUMENTATION INTO THE LEAN CONCRETE BASE COURSE AND THE ASPHALT INTERLAYER. SEE SHEET 11 FOR CUT DETAILS.
2. CENTER LINE MARKER - MAG NAIL
3. CONTROL POINT - MAG NAIL
4. TRIANGULAR NOTCHES FORMED BY WOOD CHAMFER STRIP
5. CONSTRUCTED IN PHASE 1
6. PAPER BOND BREAKER
7. SINUSOIDAL KEYWAY JOINT
8. ASPHALT INTERLAYER
9. CBR = CONCRETE INTERLAYER (PORTLAND CEMENT CONCRETE)
10. P-306 - LEAN CONCRETE BASE COURSE
11. P-154 - GRANULAR AGGREGATE
12. SUBBASE COURSE
13. NEW SUBGRADE CBR 3-4
14. EXISTING SUBGRADE - CH CLAY
15. EXISTING SUBGRADE - SAND WITH Silt & CLAY SP & SM

EXISTING SUBGRADE - SAND WITH Silt & CLAY SP & SM
LEGEND:

- P-301 - CONCRETE PAVEMENT
  (PORTLAND CEMENT CONCRETE)
- P-305 - LEAN CONCRETE BASE COURSE
- P-154 - GRANULAR AGGREGATE
  SUBBASE COURSE
- EXISTING SUBGRADE - CH CLAY

NOTES:

1. SEE SHEET 11 FOR JOINT & DOWEL DETAILS.
2. SEE SHEET 12 FOR SPEED DOWEL DETAILS.
BETWEEN STA. 3+00 TO 4+00 SLABS WERE PLACED IN 5 SEPARATE LANES AND SAWCUT TRANSVERSELY. SEE SHEET 11 AND 12 FOR JOINT TYPE DETAIL.

1. LIME SLURRY WAS USED UNDERneath THE ASPHALT INTERLAYER TO MINIMIZE BONDING TO CONCRETE UNDERLAYER.

2. SEE JOINTING PLAN (SHEET 6) FOR JOINT TYPES.

3. SEE SHEET 11 FOR JOINT & DOWEL DETAILS.

4. SEE SHEET 12 FOR SPEED DOWEL DETAILS.
PLAN VIEW STA. 4+00 TO 5+00
SCALE: 1"=10'

LEGEND:
- Control Point - Mag Nail
- Paper Bond Breaker
- Sinusoidal Keyway Joint
- P-301 - Concrete Pavement
- P-306 - Lean Concrete Base Course
- P-154 - Granular Aggregate
- Subbase Course
- Existing Subgrade - CH Clay

NOTES:
1. See jointing plan (Sheet 6) for joint types.
2. See Sheet 11 for joint & dowel details.
3. See Sheet 12 for speed dowel details.
**LEGEND:**
- CONTROL POINT - MAG NAIL
- TRANSITIONAL NOTCHES FORMED BY WOOD CHAMFER STRIP
- PAPER BOND BREAKER
- P-501 - CONCRETE PAVEMENT (PORTLAND CEMENT CONCRETE)
- P-306 - CONCRETE BASE COURSE
- P-154 - GRANULAR AGGREGATE
- P-154 - SUBGRADE CB# 3-4
- EXISTING SUBGRADE - CH CLAY
- EXISTING SUBGRADE - SAND WITH SILT AND CLAY (SP AND SM/SC)

**NOTES:**
1. CBR = CALIFORNIA BEARING RATIO.
2. SEE JOINTING PLAN (SHEET 6) FOR JOINT TYPES.
3. SEE SHEET 11 FOR JOINT DETAILS.
4. CONTRACTOR REMOVED 28' OF EXISTING HIGH STRENGTH SUBGRADE AND REPLACED IT WITH 28' DEEP LOW STRENGTH SUBGRADE MATERIAL BETWEEN STA. 6+00 AND 6+55. SUBGRADE INSTALLED IN 3 LIFTS OF 10" AVERAGE THICKNESS AND TRIMMED TO FINAL ELEVATION/THICKNESS.

**PLAN VIEW STA. 5+00 TO 6+55**
- SCALE: 1"=10'
EXISTING 18" WIDE 22" DEEP TRENCH DRAIN, DOWELED INTO FOUNDATION WALL

3.0' ± SHOULDER

60' WIDE TEST AREA

SEE TEST AREA SECTION VIEWS FOR DETAILS

P-154 SUBBASE

FG ELEV. 58.00'

EXISTING FOUNDATION WALL

EXISTING SUBGRADE

FG ELEV. ±55.47'

EXISTING 6.0' ± PHASE 1 SHOULDER

EXISTING 54' WIDE PHASE 1 TEST AREA

SEE TEST AREA SECTION VIEWS FOR DETAILS

P-154 SUBBASE

PLACED IN PHASE 1

FG ELEV. ±57.14'

1.4" THICK ASPHALT INTERLAYER

FG ELEV. 57.26'

P-154 SUBBASE

FG ELEV. 58.00'

0.75'

PHASE 2 AS-BUILT

FOR NO.

REV.

DATE

BY

CHECKED

APR

NAME

DATE

DRAWN

CHECKED

CAD FILE: CC8-CONSTR-AS-BUILT.DWG

PROJECT NO: CC8

SIZE: ANSI D

SCALE: AS NOTED

NAPTF CONSTRUCTION CYCLE 8

PHASE 2 AS-BUILT DETAILS

NAPTF NATIONAL AIRPORT PAVEMENT TEST FACILITY

ATLANTIC CITY AIRPORT, NJ 08234

NATIONAL AIRPORT PAVEMENT TEST FACILITY

ATLANTIC CITY AIRPORT, NJ 08234

FAA APPROVAL DATE:

E.G./M.M.

03/19/2018

12/12/2013

02/24/2014

REVISED PER FFA COMMENTS.

E.G.

REVISED PER FFA COMMENTS.

E.G.

REVISED PER FFA COMMENTS.

M.M.

REVISED PER FFA COMMENTS.

M.M.

REVISED PER FFA COMMENTS.

M.M.

REVISED PER FFA COMMENTS.

M.M.

STANDARD DIMENSIONS:

1. BLACK SHADED AREA IS JOINT SEALER.
2. GROOVE MAY BE FORMED OR SAWED.
3. EARLY ENTRY SAW CUTS TO BE CUT MINIMUM OF 6" X 1/8".
4. FINAL SAW CUT TO BE 3" X 1/8".

NOTE:

1. Jointing for rigid pavement

JOINING FOR RIGID PAVEMENT

PREFORMED ELASTOMERIC JOINT SEAL SHALL BE D.S. BROWN E-686 3/8" +1/16" - 0" 3/16" ±1/16"

1/8" 1 7/16" PAVEMENT SEALS SPECIFICATIONS

SYLVAN INDUSTRIES, LLC

WOOD CHAMFER DETAIL

2.12" 1-1/2" 1-1/2" P-306

THE NOTCH MUST BE BONDED TO THE P-306 AT THE LOCATIONS SHOWN ON THE PLANS.

9" 12" 15" 12" 24" 15" X 15" SLAB TRANSVERSE JOINT LONGITUDINAL JOINT 12" (TYP.) 12" (TYP.) 9"

JOINT LAYOUT PATTERN IN JOINT COMPARISON TEST AREA

PHOTO OF SAMPLE FORMWORK FOR KEYWAY

1.4" Ø FOR 9" THICK SLABS IN OVERLAY TEST AREA.

d = 3/4" Ø FOR 12" THICK SLABS IN JOINT COMPARISON TEST AREA.

NOTES:

1. Black shaded area is joint seal.
2. Groove may be formed or sawed.
3. Early entry saw cuts to be cut minimum of 6" x 1/8".
4. Final saw cut to be 3" x 1/8".

CHAPTER 3-04: JOINT DESIGN AND SLEEVING

J-M-1044: KEYWAY JOINT-CONSTRUCTION

T/2 ± d/2 T-SEE PROFILE & SECTION VIEW

PAINT AND OIL ONE END OF DOWEL

SEE CONSTRUCTION JOINT DETAIL ON THIS SHEET

N.T.S.

JOINT SEAL DETAIL

N.T.S.

JOINT SEALS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

N.T.S.

POLYETHYLENE LINER SPECIFICATIONS

SYLVAN INDUSTRIES, LLC

WOOD CHAMFER DETAIL

1-1/2" 1-1/2" 2.12" P-306

THE NOTCH MUST BE BONDED TO THE P-306 AT THE LOCATIONS SHOWN ON THE PLANS.

9" 12" 15" 12" 24" 15" X 15" SLAB TRANSVERSE JOINT LONGITUDINAL JOINT 12" (TYP.) 12" (TYP.) 9"

JOINT LAYOUT PATTERN IN JOINT COMPARISON TEST AREA

PHOTO OF SAMPLE FORMWORK FOR KEYWAY

1.4" Ø FOR 9" THICK SLABS IN OVERLAY TEST AREA.

d = 3/4" Ø FOR 12" THICK SLABS IN JOINT COMPARISON TEST AREA.

NOTES:

1. Black shaded area is joint seal.
2. Groove may be formed or sawed.
3. Early entry saw cuts to be cut minimum of 6" x 1/8".
4. Final saw cut to be 3" x 1/8".

CHAPTER 3-04: JOINT DESIGN AND SLEEVING

J-M-1044: KEYWAY JOINT-CONSTRUCTION

T/2 ± d/2 T-SEE PROFILE & SECTION VIEW

PAINT AND OIL ONE END OF DOWEL

SEE CONSTRUCTION JOINT DETAIL ON THIS SHEET

N.T.S.

JOINT SEAL DETAIL

N.T.S.

JOINT SEALS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

N.T.S.

POLYETHYLENE LINER SPECIFICATIONS

SYLVAN INDUSTRIES, LLC

WOOD CHAMFER DETAIL

1-1/2" 1-1/2" 2.12" P-306

THE NOTCH MUST BE BONDED TO THE P-306 AT THE LOCATIONS SHOWN ON THE PLANS.

9" 12" 15" 12" 24" 15" X 15" SLAB TRANSVERSE JOINT LONGITUDINAL JOINT 12" (TYP.) 12" (TYP.) 9"

JOINT LAYOUT PATTERN IN JOINT COMPARISON TEST AREA

PHOTO OF SAMPLE FORMWORK FOR KEYWAY

1.4" Ø FOR 9" THICK SLABS IN OVERLAY TEST AREA.

d = 3/4" Ø FOR 12" THICK SLABS IN JOINT COMPARISON TEST AREA.

NOTES:

1. Black shaded area is joint seal.
2. Groove may be formed or sawed.
3. Early entry saw cuts to be cut minimum of 6" x 1/8".
4. Final saw cut to be 3" x 1/8".
WOOD TRANSITION STRIP DETAIL STA. 5+65

SIDE VIEW
SCALE: 1"=1/2'

WOOD TRANSITION STRIP PHOTOGRAPH STA. 5+65
SIDE VIEW LOOKING NORTH
SCALE: N.T.S.

EXISTING TARP ENCOUNTERED BETWEEN STA. 5+98 AND 6+00
VIEW LOOKING SOUTH
SCALE: N.T.S.

NOTES:
1. Allows the concrete to shrink axially without restraint.
2. Typically used in slab or small construction joints.
3. Round dowels used in new construction and square dowels are recommended for retrofit construction.
4. Subgrades dowel, maximizes load and reduces internal stresses.
5. No need to drill forms (reduces form removal).

INSTALLATION GUIDE

SPEED DOWEL BASE IS CENTERED IN FUTURE CONCRETE SECTION AND NAILLED TO THE WOOD FORM AT MINIMUM 2'/12" DEPTH. SPEED DOWEL SLEEVE IS PLACED OVER THE SPEED DOWEL BASE PRIOR TO THE FIRST CONCRETE PLACEMENT. MILLING��GRAPHIC PROGRESS SLOWLY, ALIGNMENT (LS) AND (RS) PAVEMENT PLACING CONCRETE AROUND THE SPEED DOWEL, SLIDE-OUT.

EXHAUSTIVE DESIGN OF THE SPEED DOWEL SYSTEM ALLOWS FOR AXIAL MOVEMENT BETWEEN PLACEMENTS AS THE CONCRETE SHRINKS.

SIKA® GREENSTREEK SPEED DOWEL® DETAILS

SIKA® GREENSTREEK SPEED DOWEL® SPECIFICATIONS

SIKA INTERNATIONAL, INC.
CORPO CITATION
CSRA
MURPHY CO.
BRIAR CREEK ROAD
EGG HARBOR, NJ 08234
PHONE: (609) 601-6800

NAPTF CONSTRUCTION CYCLE 8
PHASE 2 AS-BUILT DETAILS

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT, NJ 08234

PROJECT NO: NAPTF
SIZE: ANSI D
SCALE: AS NOTED
SHEET 12 OF 34

CAD FILE: CCR-CONSTR-AS-BUILT.DWG
REVISED SENSOR ELEVATION AND DEPTH FROM top layer surface at elevation 58.0'
REVISED PER FAA comments.

ADDED KERF CUT diagrams sheet 8 of 8.
1. All cuts were no greater than 2" wide and 1" in depth.
2. All cuts from station 3+00 to 4+00 were made in the asphalt interlayer. Cuts from 4+00 to 6+55 were made in the P-308 surface.
3. These cuts were filled with a rapid setting heavy duty flowable repair mortar (HD-50 or similar approved product) after the instrumentation has been installed.
4. Instrumentation installed in Phase 1 shown with gray color.
5. Kerf cuts between STA. 3+00 and 4+00 are approximate. Kerf cuts between STA. 4+00 and 6+55 are based on as-built survey.

Kerf Cuts Plan View

Scale: 1"=20'

INSTRUMENT KEY

- POT
- RESISTANCE GAGE
- PRESSURE CELL
- MOISTURE SENSOR
- EMBEDDED STRAIN GAUGE
- POTENTIOMETER
- THERMOCOUPLE

LEGEND:

- CENTER LINE MARKER - MAG NAIL
- CONTROL POINT - MAG NAIL
- 1" WIDE KERF CUT
- 3" WIDE KERF CUT
- NOTCH

NOTES:

1. All cuts were no greater than 2" wide and 1" in depth.
2. All cuts from station 3+00 to 4+00 were made in the asphalt interlayer. Cuts from 4+00 to 6+55 were made in the P-308 surface.
3. These cuts were filled with a rapid setting heavy duty flowable repair mortar (HD-50 or similar approved product) after the instrumentation has been installed.
4. Instrumentation installed in Phase 1 shown with gray color.
5. Kerf cuts between STA. 3+00 and 4+00 are approximate. Kerf cuts between STA. 4+00 and 6+55 are based on as-built survey.
GENERAL NOTES:
1. CENTERLINE TO BE 12" WIDE AND PAINTED YELLOW.
2. TRANSITION LINES TO BE 4" WIDE AND PAINTED BLACK.
3. SAFETY LINES TO BE 4" WIDE AND PAINTED YELLOW.
4. CIRCLES TO BE 12" DIAMETER AND PAINTED BLUE.
5. LETTERING TO BE 12" TALL, 2.5" THICK, PAINTED BLACK, AND ARE TO BE PAINTED OUTSIDE OF THE TEST AREA.
6. STATIONS AND DIMENSIONS ARE FOR PLAN REFERENCE ONLY AND ARE NOT TO BE PAINTED.
<table>
<thead>
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<th>Location</th>
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<tr>
<td>A</td>
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<tr>
<td>B</td>
<td>55.378</td>
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**SCALE:** 1"=100'

**PHASE 1 OVERLAY (STA. 3+05 TO 4+00) LEGEND:**
- **+15.00'** Spot Elevation
- **TARGET ELEVATION:** 55.378' ± 0.024'
- **CONFORMANCE ELEVATION:** (55.355' - 55.362')
- **ELEVATION BELOW THE CONFORMANCE RANGE:** (55.355' - 55.362')
- **ELEVATION ABOVE THE CONFORMANCE RANGE:** (55.363' - 55.372')

**NOTES:**
1. **TOLERANCES:** PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 8 (CC8) ISSUED FOR CONSTRUCTION, NOVEMBER 14, 2019.
2. **SUBGRADE GRADE CONFORMANCE TOLERANCE:** ±0.024'
PHASE 1 OVERLAY (STA. 3+05 TO 4+00) LEGEND:

- 1.00' THICKNESS LABEL
- TARGET THICKNESSES: 1.0' ± 0.01 (0.03')
- CONFORMING THICKNESS
- 1.00' ± 0.04 (0.012')
- THICKNESSES BELOW THE CONFORMANCE RANGE (1.00' ± 0.01')
- THICKNESSES ABOVE THE CONFORMANCE RANGE (1.00' ± 0.04')

SCALE: 1" = 10'

PHASE 1 OVERLAY TEST

TRANSITION 1

MATCH LINE

SCALE: 1" = 10'

PHASE 2 JOINT COMPARISON TEST

PHASE 2 STRENGTH/FATIGUE TEST

PHASE 2 STRENGTH/FATIGUE TEST

PHASE 2 STRENGTH/FATIGUE TEST

PHASE 2 JOINT COMPARISON TEST

MATCH LINE

SCALE: 1" = 10'

PHASE 2 STA. 4+00 TO 5+05 LEGEND:

- 1.00' THICKNESS LABEL
- TARGET THICKNESSES: 1.0' ± 0.01 (0.03')
- CONFORMING THICKNESS
- 1.00' ± 0.04 (0.012')
- THICKNESSES BELOW THE CONFORMANCE RANGE (1.00' ± 0.01')
- THICKNESSES ABOVE THE CONFORMANCE RANGE (1.00' ± 0.04')

PHASE 2 STA. 5+05 TO 6+05 LEGEND:

- 1.00' THICKNESS LABEL
- TARGET THICKNESSES: 1.0' ± 0.01 (0.03')
- CONFORMING THICKNESS
- 1.00' ± 0.04 (0.012')
- THICKNESSES BELOW THE CONFORMANCE RANGE (1.00' ± 0.01')
- THICKNESSES ABOVE THE CONFORMANCE RANGE (1.00' ± 0.04')

NOTES:

1. THICKNESSES TO BE CONFORM TO SPECIFICATIONS
3. PHASE 2 STA. 4+00 TO 5+05
4. PHASE 2 STA. 5+05 TO 6+05
5. CONFORMANCE RANGES

LOCATION KEY

DATE

CONSTRUCTION CYCLE 8

P-154 THICKNESS MAP

AS-BUILT

CAD FILE: CSRA-AS-BUILT-MODEL.DWG

SCALE: AS NOTED

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### PHASE 2 P-306

**Scale: 1"=10'**

#### P-306 Acceptance and Characterization Testing Results

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<th>Load</th>
<th>Location</th>
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<th>OC Stemp</th>
<th>OC Unit Weight</th>
<th>OC Temp</th>
<th>1 Day Compression Strength</th>
<th>28 Day Compression Strength</th>
<th>28 Day Relaxation</th>
<th>7-Day Relaxation</th>
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<td>North</td>
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#### Notes:

- **Positive Compression Strength**
- **Negative Compression Strength**
- **Positive Relaxation**
- **Negative Relaxation**

### Location Key

- **NORTH WALL**
- **SOUTH WALL**

### Additional Details:

- **SCRA International, Inc., A CSRA Company**
- **200 Decadon Drive, Egg Harbor, NJ 08234**
- **Phone: (609) 601-6800**
- **National Airport Pavement Test Facility**

### Project Details:

- **Construction Cycle 8**
- **Project No:** AS-BUILT
- **Scale:** AS NOTED

---

**CAD FILE:** CSRA-A2-BUILT-MODEL.DWG

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<th>Coefficient of Variation, %</th>
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**Note:** PSPA data not included due to incomplete data set. Pre-traffic PSPA data will be included in appendix of the construction report.
### P-501 (650 PS) Acceptance and Characterization Results

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*Values for 20-Day Resilient Strength results for 11/27/2017 and 12/4/2017 tests were lower to lower results than those in between 11/21/2017 and 12/1/2017.*