PREPARED FOR:

CONSTRUCTION CYCLE 9

AS-BUILT DRAWINGS

NATIONAL AIRPORT PAVEMENT TESTING FACILITY
WILLIAM J. HUGHES TECHNICAL CENTER
ATLANTIC CITY AIRPORT, NEW JERSEY

06/02/2020

PREPARED BY:

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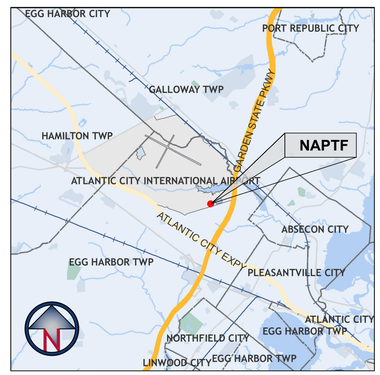
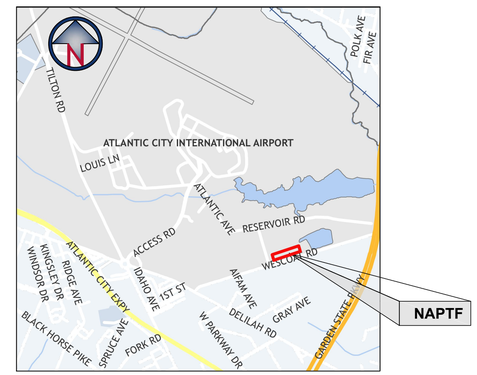
NEW JERSEY STATE MAP N.T.S.

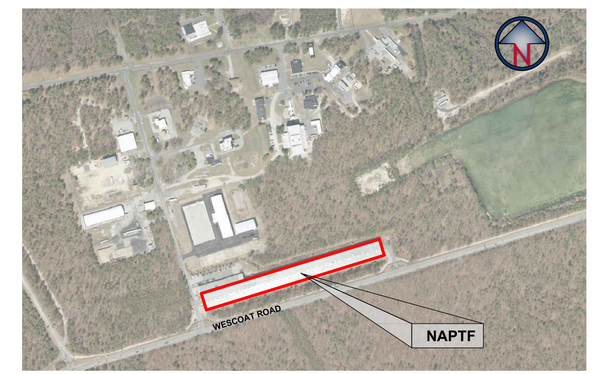
VICINITY MAP N.T.S.



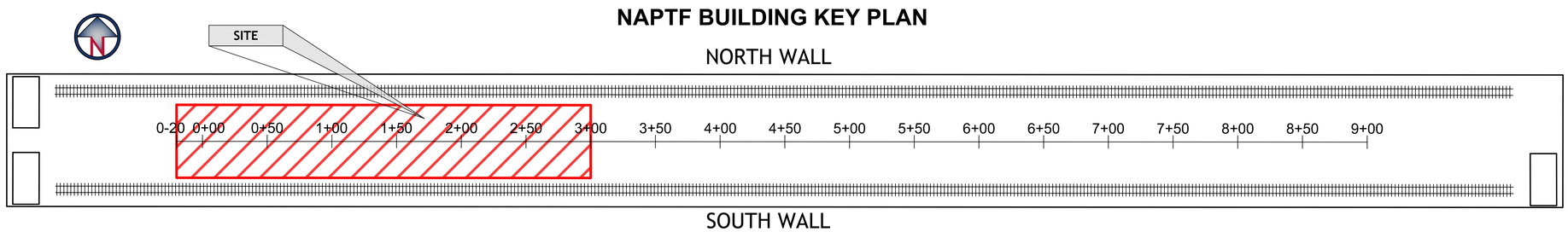
PROJECT LOCATION MAP N.T.S.



AERIAL VIEW OF THE NAPTF BUILDING N.T.S.



NAPTF BUILDING KEY PLAN



INDEX OF DRAWINGS

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6 OF 30	STA. 0+00 TO 1+20 DETAILED PLAN, PROFILE AND SECTION VIEWS	06/02/2020	16 OF 30	INSTRUMENTATION PHOTOGRAPHS	06/02/2020	26 OF 30	P-403MR HOT MIX ASPHALT ELEVATION MAP, ACCEPTANCE & CHARACTERIZATION	06/02/2020
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8 OF 30	STA. 2+40 TO 3+00 DETAILED PLAN, PROFILE AND SECTION VIEWS	06/02/2020	18 OF 30	SUBGRADE P-152MR LIFT PLACEMENT AND CBR PLAN	06/02/2020	28 OF 30	P-401MR HOT MIX ASPHALT ELEVATION MAP	06/02/2020
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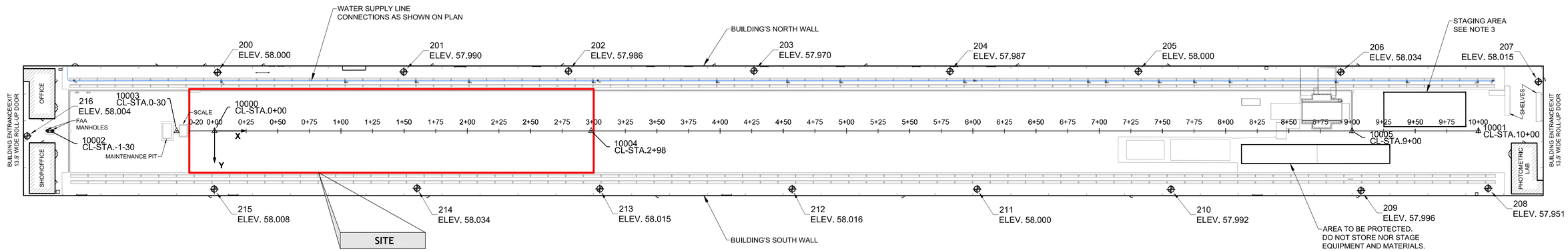
10 OF 30	INSTRUMENTATION OVERVIEW PLAN AND PROFILE VIEWS	06/02/2020	20 OF 30	P-154MR SUBBASE ELEVATION MAP	06/02/2020	30 OF 30	P-401MR ACCEPTANCE AND CHARACTERIZATION RESULTS	06/02/2020



NAPTF BUILDING PLAN VIEW

SCALE: 1"=40'

CC9 EXPERIMENT OBJECTIVES		TEST ITEMS
1	VERIFY/REFINE/MODIFY FATIGUE MODEL BASED ON THE RATIO OF DISSIPATED ENERGY CHANGE (RDEC).	LFS-1N/S, LFS-2N/S, LFS-4N, LFC-4S
2	EFFECT OF P-209 & LAYER THICKNESS ON PAVEMENT LIFE	LFS-1N/S, LFS-2N/S
3	EFFECT OF GEOSYNTHETICS ON FLEXIBLE PAVEMENT PERFORMANCE	LFC-3N/S
4	CEMENT TREATED PERMEABLE BASE (CTPB) PERFORMANCE	LFS-4N, LFC-4S
5	STRAIN CRITERION FOR ALLOWABLE OVERLOAD	LFC-5N/S

CC9 MATERIAL SCHEDULE

ITEM	MATERIAL DESCRIPTION	UNIT	NEAT LINE QUANTITY
M-102MR	DEMOLITION AND REMOVAL	CY	2,400
P-152MR	SUBGRADE - CUT	CY	300
	SUBGRADE - FILL	CY	320
P-154MR	SUBBASE COURSE	CY	970
	SEPARATION FABRIC	SY	440
P-159MR	GEOGRID	SY	210
P-209MR	CRUSHED AGGREGATE BASE COURSE	CY	940
P-307MR	CEMENT TREATED PERMEABLE BASE COURSE (CTPB)	CY	50
P-401MR	HOT MIX ASPHALT (HMA) PAVEMENTS	TN	520
P-403MR	HOT MIX ASPHALT (HMA) PAVEMENTS BASE COURSE	TN	310
P-603MR	EMULSIFIED ASPHALT TACK COAT	SY	1,400
P-620MR	PAVEMENT MARKING	LS	1

NOTES:

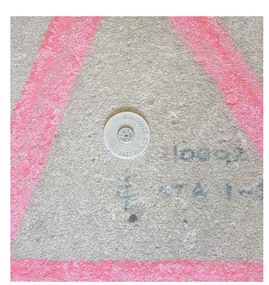
THIS ESTIMATE OF PROBABLE QUANTITIES IS BASED ON A CONCEPTUAL DESIGN AND PROVIDED FOR ESTIMATE PURPOSES ONLY. IT IS NOT TO BE INTERPRETED AS A GUARANTEE BY GDIT OF THE ACTUAL PROJECT QUANTITIES. THE ACTUAL PROJECT QUANTITIES SHALL BE DETERMINED BY THE TENDER AND CONSTRUCTION PROCESS.

THE ESTIMATED QUANTITIES SHOWN ABOVE SHALL BE VALIDATED DURING CONSTRUCTION PHASE TO ACCOUNT FOR FLUCTUATIONS BETWEEN ASSUMPTIONS MADE AND ACTUAL GROUND CONDITIONS.

CENTER LINE MARKER POINTS

NUMBER	X (STA.) COORDINATE [FEET]	Y (OFFSET) COORDINATE [FEET]	LOCATION DESCRIPTION	MARKER DESCRIPTION
10000	0.000	0.0000	ON CENTER LINE STA. 0+00	MAG AND WASHER
10001	1,000.000	0.000	ON CENTER LINE STA. 10+00	MAG AND WASHER
10002	-130.000	0.000	ON CENTER LINE STA. -1-30	MAG AND WASHER
10003	-30.000	0.000	ON CENTER LINE STA. 0-30	MAG AND WASHER
10004	298.000	0.000	ON CENTER LINE STA. 2+98	MAG AND WASHER
10005	900.000	0.000	ON CENTER LINE STA. 9+00	MAG AND WASHER

CENTER LINE MARKER DETAIL



CONTROL POINTS

NUMBER	X (STA.) COORDINATE [FEET]	Y (OFFSET) COORDINATE [FEET]	Z ELEVATION [FEET]	DESCRIPTION
200	2.352	-46.209	58.000	MAG AND WASHER
201	149.673	-46.634	57.990	MAG AND WASHER
202	280.029	-47.236	57.986	MAG AND WASHER
203	426.822	-47.441	57.970	MAG AND WASHER
204	581.880	-47.034	57.987	MAG AND WASHER
205	730.901	-47.054	58.000	MAG AND WASHER
206	891.088	-46.481	58.034	MAG AND WASHER
207	1047.423	-38.858	58.015	MAG AND WASHER
208	1007.640	45.426	57.951	MAG AND WASHER
209	907.144	47.198	57.996	MAG AND WASHER
210	756.728	46.194	57.992	MAG AND WASHER
211	603.298	46.091	58.000	MAG AND WASHER
212	456.998	45.992	58.016	MAG AND WASHER
213	304.791	45.889	58.015	MAG AND WASHER
214	160.140	45.350	58.034	MAG AND WASHER
215	-0.315	46.085	58.008	MAG AND WASHER
216	-148.287	4.082	58.004	MAG AND WASHER

CONTROL POINT MARKER DETAIL

EACH CONTROL POINT LOCATION IS MARKED WITH A MAGNETIC NAIL WITH WASHER. THE CONTROL POINT NUMBER IS ENGRAVED ON EACH WASHER.

NOTES:

1. THE PROJECT AREA IS LOCATED INSIDE OF THE NATIONAL AIRPORT PAVEMENT TESTING FACILITY, BUILDING NUMBER 296, WILLIAM J. HUGHES TECHNICAL CENTER, LOCATED AT THE ATLANTIC CITY INTERNATIONAL AIRPORT, EGG HARBOR TOWNSHIP, NEW JERSEY 08405.
2. THE HORIZONTAL CONTROL NETWORK IS REFERENCED TO A LOCAL COORDINATE SYSTEM ALIGNED WITH THE NAPTF TESTING AREA CENTER LINE. THE VERTICAL CONTROL NETWORK IS ALSO REFERENCED TO A LOCAL ASSUMED DATUM.
3. LOCATION OF THE STAGING AREA SHOWN IS APPROXIMATE. THE EXACT LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

LEGEND

- CENTER LINE MARKER - MAG NAIL
- CONTROL POINT - MAG NAIL
- MANHOLE
- WATER LINE CONNECTION
- WATER SHUT-OFF VALVE
- WATER SUPPLY LINE
- CONSTRUCTION SITE

40' 0 40' 80' 120'

GRAPHIC SCALE

1" = 40'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

GENERAL DYNAMICS
Information Technology
200 DECADON DRIVE
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NEW JERSEY 08234
PHONE: (609) 677-8543

FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

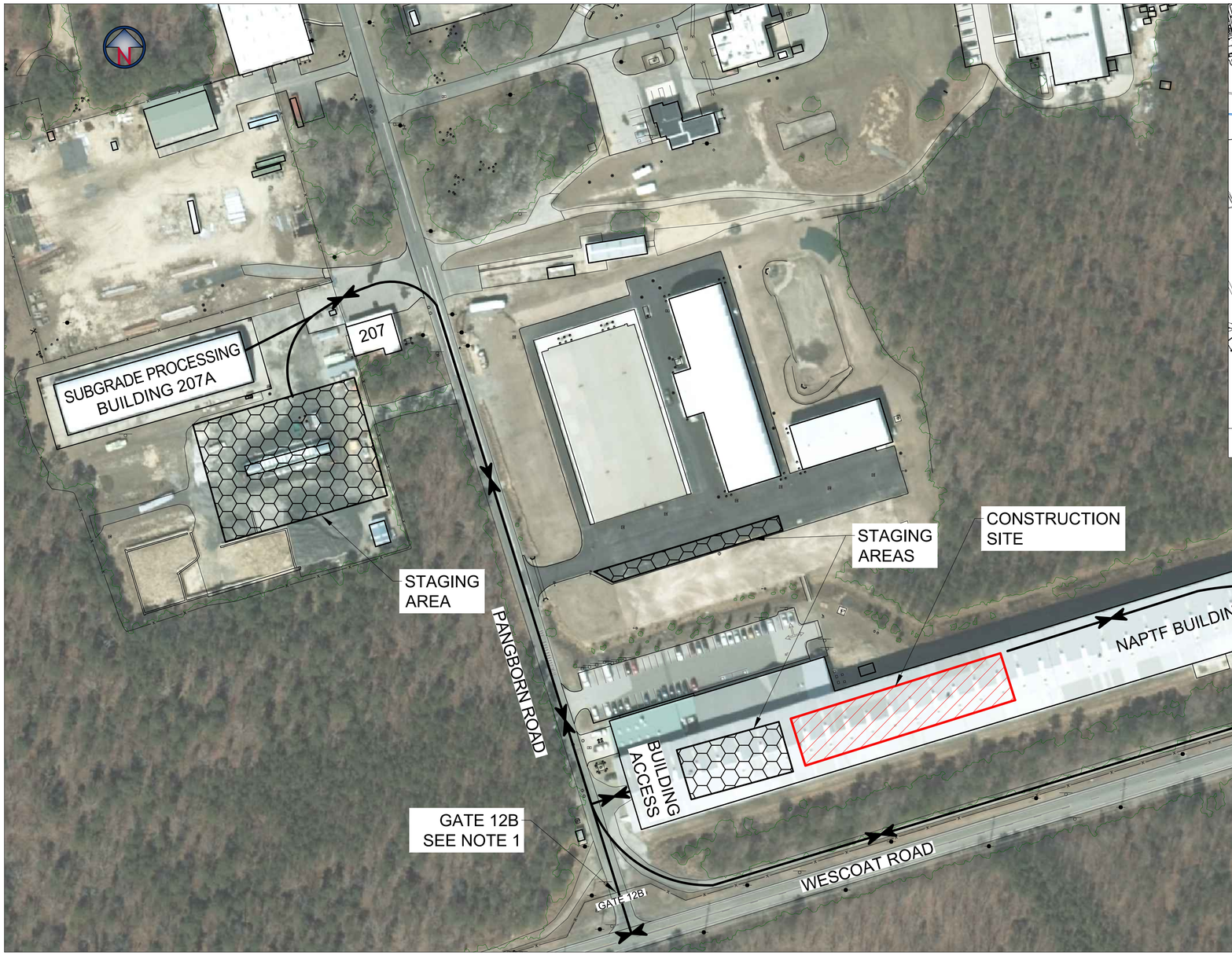
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

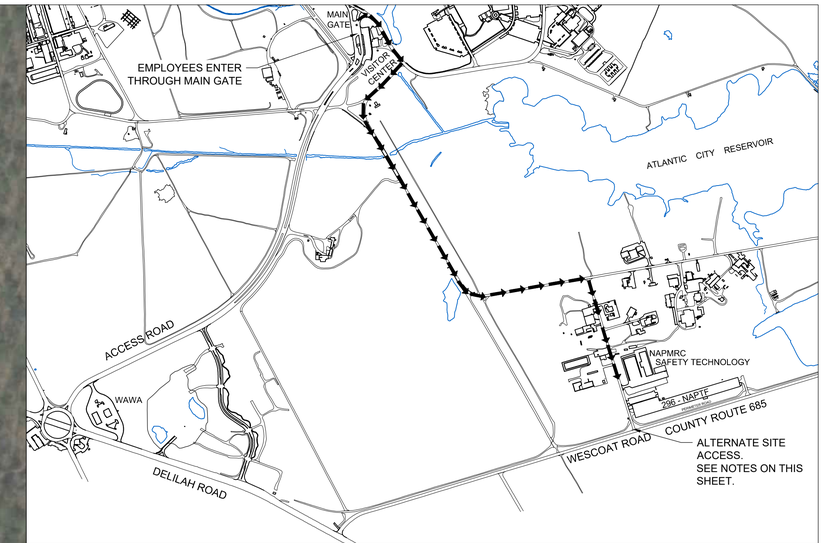
NAPTF CONSTRUCTION CYCLE 9

AS-BUILT
GENERAL NOTES

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 2 OF 30

CAD FILE: CC09-CONS-GNRL-ABLT.DWG





MAIN GATE ACCESS MAP

NOTES:

1. THE CONTRACTOR'S PRIMARY ACCESS WILL BE THROUGH THE MAIN GATE. HOWEVER. ACCESS THROUGH GATE 12A OR 12B CAN BE REQUESTED FOR PAVING AND DEMOLITION ACTIVITIES BY CONTACTING MURPHY FLYNN AT 609-485-5318 OR BEN MAHAFFAY AT 609-485-8555 AT LEAST 72 HOURS IN ADVANCE.
2. LOCATION OF THE CONTRACTOR'S STAGING AREA SHOWN IS APPROXIMATE. THE EXACT LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. THE CONTRACTOR STAGING AREA CAN BE UTILIZED FOR THE CONTRACTOR'S FIELD OFFICE, PARKING OF COMPANY AND EMPLOYEE VEHICLES AND FOR STORAGE OF MATERIALS.
4. TRACKED CONSTRUCTION EQUIPMENT MAY BE PARKED OVERNIGHT IN THE CONSTRUCTION AREA. ALL OTHER PARKING AND ALL EQUIPMENT STORAGE SHALL BE IN THE STAGING AREA, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY DRAINAGE. GRADING, EROSION CONTROL STABILIZATION AND UTILITY CONNECTIONS IN STAGING AREAS AND SHALL RESTORE SITE TO ORIGINAL CONDITIONS UPON COMPLETION OF THE WORK.
6. ALL CONSTRUCTION AREAS SHALL BE CONSIDERED LAND DISTURBANCE AREAS.
7. OVERHEAD UTILITIES AND POLES BELONG TO FAA.
8. CONTRACTOR MUST VERIFY UTILITY CAPACITY IS ADEQUATE FOR PROJECT NEEDS. IF CAPACITY IS INSUFFICIENT. CONTRACTOR IS RESPONSIBLE FOR UPGRADES OR NEW LINES.
9. CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY CONNECTIONS, CONNECTION REQUIREMENTS, AND COORDINATION WITH UTILITY OWNERS.
10. THE ENTIRE HAUL ROUTE MUST BE KEPT CLEAN OF CONSTRUCTION DEBRIS AND AVAILABLE FOR USE BY FACILITY VEHICLES.

LEGEND:

- X — FENCE
- HAUL ROUTE
- CONSTRUCTION SITE
- STAGING AREA

80' 0 80' 160' 240'

GRAPHIC SCALE

1" = 80'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

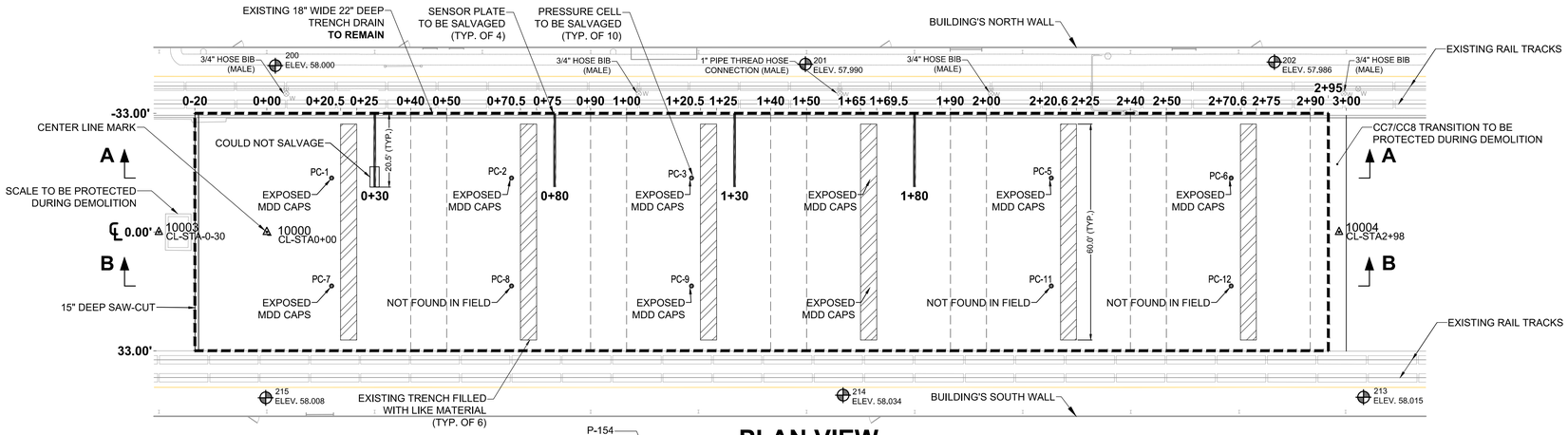
NAPTF CONSTRUCTION CYCLE 9

AS-BUILT

SITE ACCESS, HAULING AND STAGING AREA PLAN

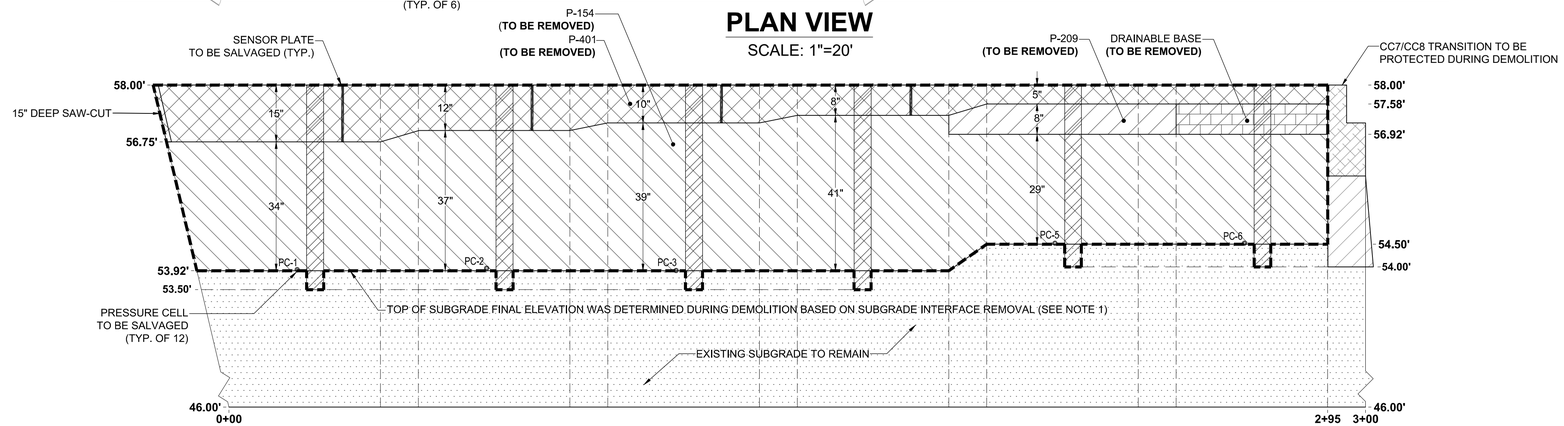
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 3 OF 30

CAD FILE: CC09-CONS-GNRL-ABLT.DWG



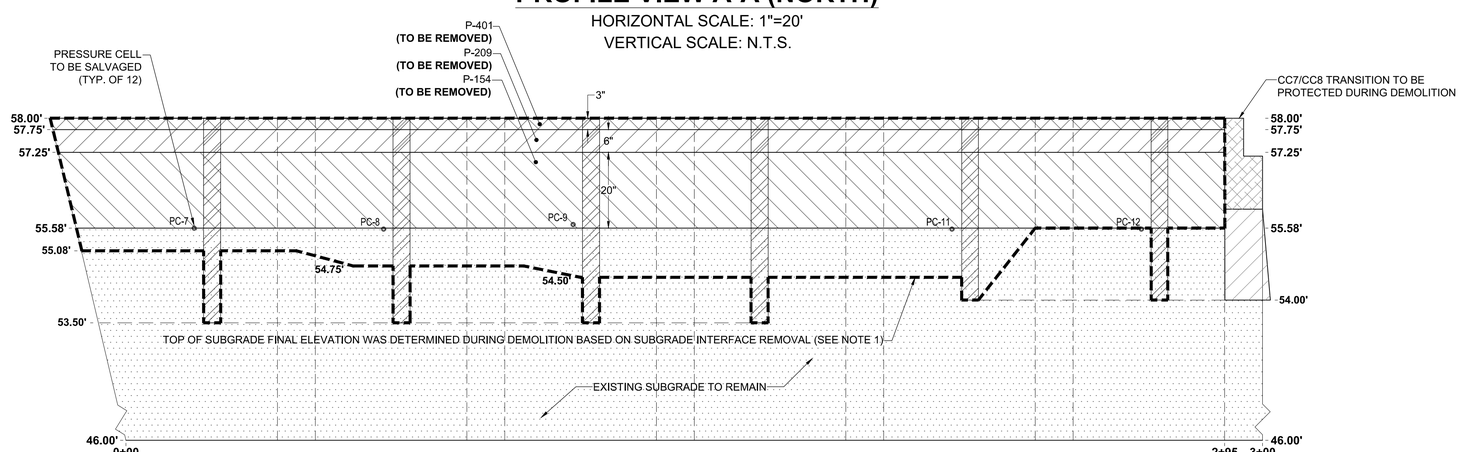
PLAN VIEW

SCALE: 1"=20'



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: N.T.S.



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: N.T.S.

PRESSURE CELLS TO BE SALVAGED:

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
53	PC-1	18.00	-15.00	53.94	48.72
52	PC-2	68.00	-15.00	53.97	48.36
51	PC-3	118.00	-15.00	53.92	48.96
49	PC-5	218.00	-15.00	54.52	41.76
48	PC-6	268.00	-15.00	54.52	41.76
287	PC-7	18.00	15.00	55.58	29.04
288	PC-8	68.00	15.00	55.56	29.28
289	PC-9	118.00	15.00	55.66	28.08
285	PC-11	218.00	15.00	55.56	29.28
286	PC-12	268.00	15.00	55.56	29.28

NOTES:

1. REMOVE MIXED CLAY SUBGRADE/AGGREGATE MATERIAL DOWN TO CLEAN CLAY SURFACE. MINIMIZE AMOUNT OF SUBGRADE REMOVED. CLEAN SURFACE SHALL BE TRIMMED TO A LEVEL SURFACE.
2. PROTECT SUBGRADE FROM DRYING AS DEMOLITION PROCEEDS. PROTECTION WILL INCLUDE COVERING WITH PLASTIC SHEETING AND MAINTAINING THE COVER THROUGHOUT THE DEMOLITION.
3. REFER TO DEMOLITION SPECIFICATIONS DOCUMENT FOR ADDITIONAL REQUIREMENTS.
4. REFER TO U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR NUMBER 150/5370-10H: STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, FOR IN PLACE MATERIALS SPECIFICATIONS.
5. DRAINABLE BASE IS ASPHALT STABILIZED P-209.
6. P-401 PLANT MIX POLYMER MODIFIED PG 76-22 NORTH SIDE.
7. P-401 PLANT MIX PG 64-22 SOUTH SIDE.
8. SENSOR PLATES TO BE EXTRACTED AND SALVAGED PRIOR TO DEMOLITION.
9. CONTRACTOR TO REMOVE TRENCH FILL MATERIAL AND REPLACE IT WITH CBR-5 P-152 MR SUBGRADE. P-152MR LIFT THICKNESS BETWEEN 6" AND 8".
10. DISPOSAL OF MATERIAL TO BE COORDINATED WITH FAA FOR POTENTIAL RECYCLING OPPORTUNITIES PRIOR TO REMOVAL FROM THE BASE. MATERIAL SAMPLES ARE TO BE PROVIDED DURING DEMOLITION TO FAA PERSONNEL TO DETERMINE MATERIAL SUITABILITY. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL AND IS TO ASSUME ALL MATERIAL WILL BE REMOVED FROM BASE FOR ESTIMATION PURPOSES.
11. PRESSURE CELLS TO BE EXTRACTED AND SALVAGED, SEE TABLE FOR EXACT LOCATIONS.
12. CONTRACTOR TO PROTECT CC-07/CC-08 TRANSITION AREA AND END DEMOLITION AT STA. 2+95.
13. CONTRACTOR TO PROTECT HANDHOLES ALONG THE SOUTH SIDE OF A FOUNDATION WALL. IF DAMAGED, SHOULD BE REPLACED AS NECESSARY.

LEGEND:

- TRENCH FILLED WITH LIKE MATERIALS (EXCEPT P-401)
- P-152 SUBGRADE (CLAY)
- P-154 SUBBASE COURSE
- P-209 CRUSHED AGGREGATE BASE COURSE
- ASPHALT TREATED DRAINABLE BASE
- P-401 ASPHALT MIX PAVEMENT
- P-501MR - CONCRETE PAVEMENT (PORTLAND CEMENT CONCRETE)
- DEMOLITION LIMITS
- SENSOR PLATE TO BE SALVAGED
- PC PRESSURE CELL TO BE SALVAGED

20 0 20 40 60
GRAPHIC SCALE
1" = 20'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP
NAPTF BUILDING
NORTH WALL
CC9 PROJECT SITE
SOUTH WALL

GENERAL DYNAMICS
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	NAME	DATE
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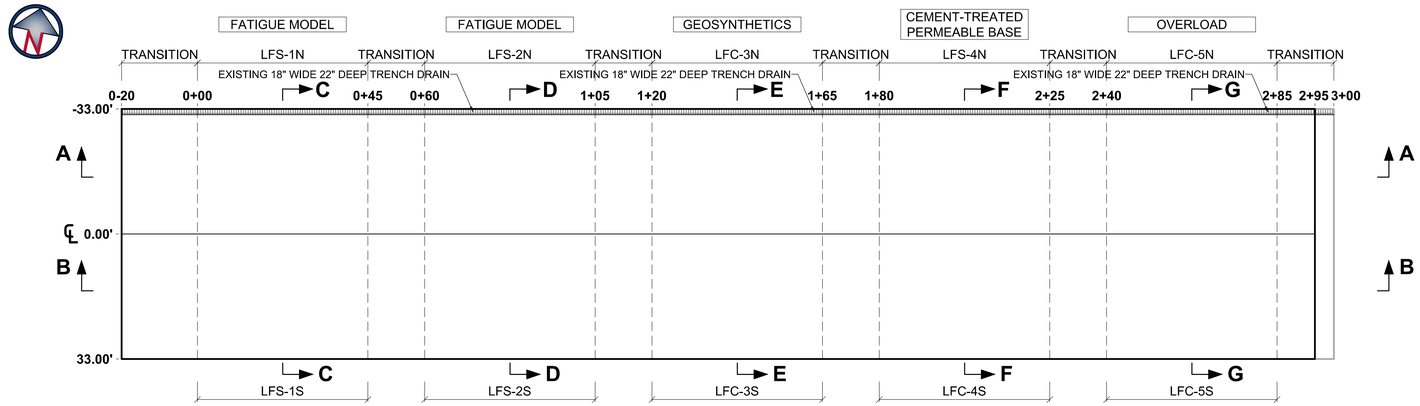
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9
CC7 DEMOLITION PLAN
AS-BUILT

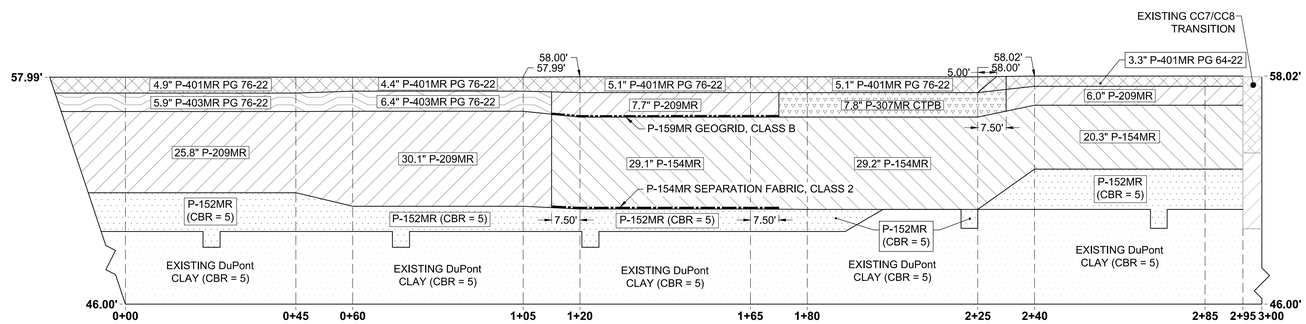
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 4 OF 30

CAD FILE: CC09-DEMO-ABLT.DWG



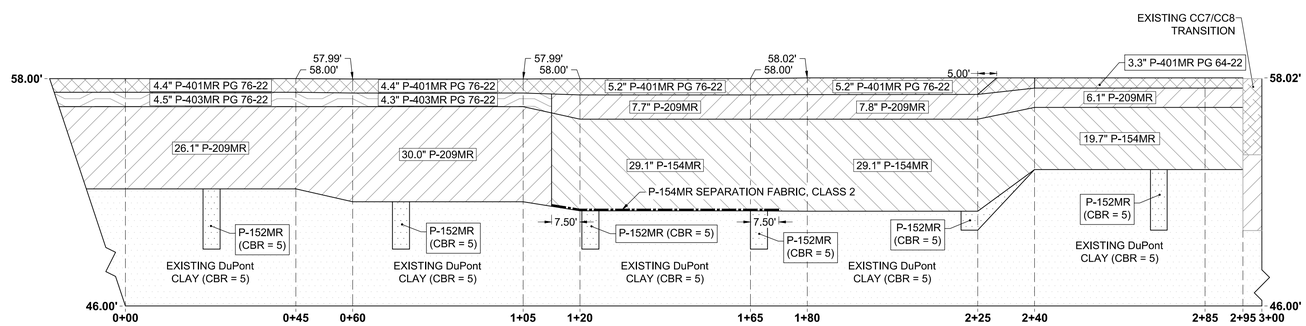
PLAN VIEW

SCALE: 1"=20'



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'

NOTES:

1. LFC = LOW STRENGTH SUBGRADE, FLEXIBLE CONVENTIONAL PAVEMENT.
2. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
3. CBR = CALIFORNIA BEARING RATIO.
4. PERMEABLE BASE IS CEMENT TREATED.
5. AVERAGE LAYER THICKNESS AND TOP ELEVATION FOR EACH TEST ITEM IS BASED ON LiDAR DATA.

LEGEND:

- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-154MR SEPARATION FABRIC, CLASS 2
- P-159MR GEOGRID, CLASS B
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-154MR SUBBASE COURSE
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-307MR CEMENT TREATED PERMEABLE BASE COURSE (CTPB)
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS
- P-403MR HOT MIX ASPHALT (HMA) PAVEMENTS BASE COURSE
- P-501MR - CONCRETE PAVEMENT (PORTLAND CEMENT CONCRETE)

20 0 20 40 60

GRAPHIC SCALE

1" = 20'

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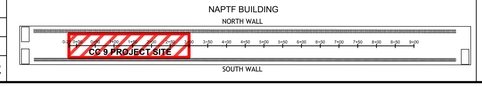
LOCATION KEY MAP



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NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

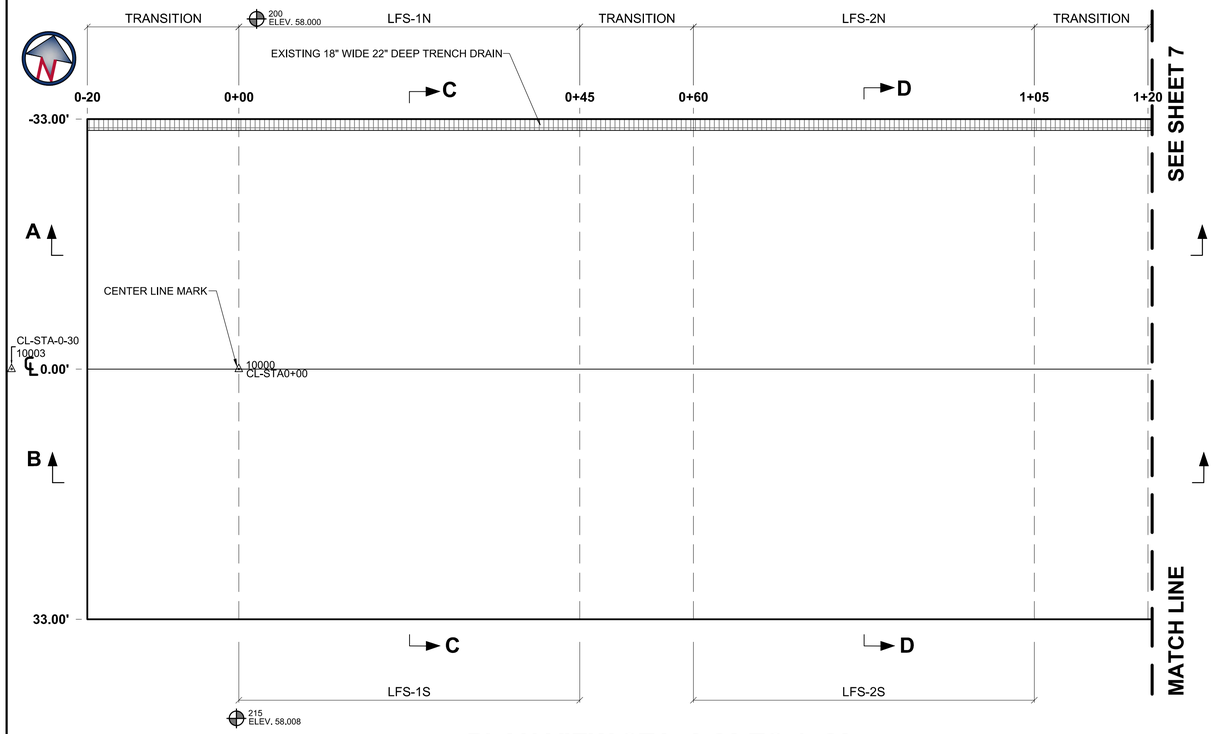
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

CONSTRUCTION PLAN AND PROFILE VIEWS AS-BUILT

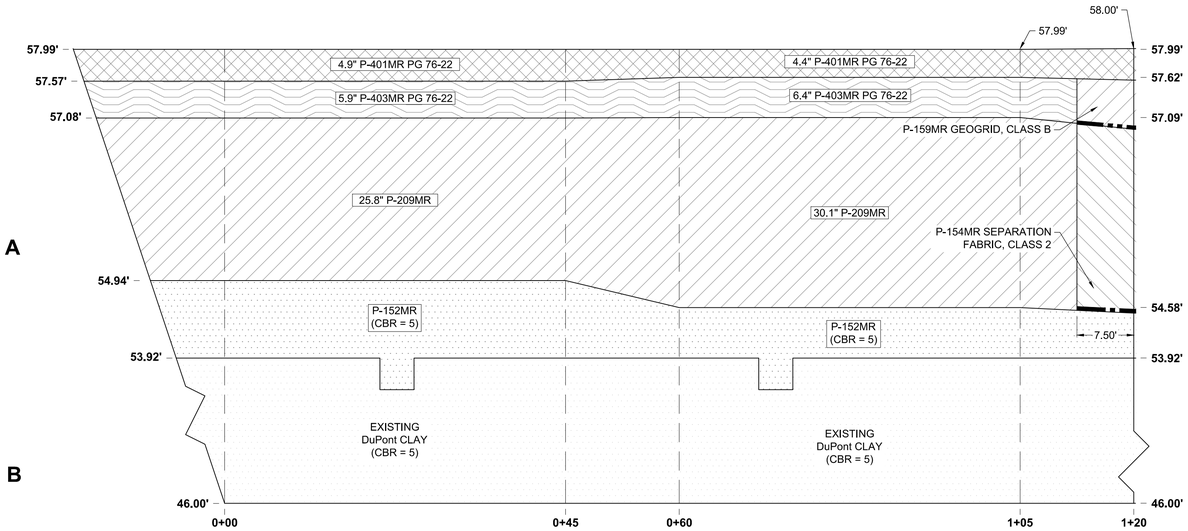
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 5 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



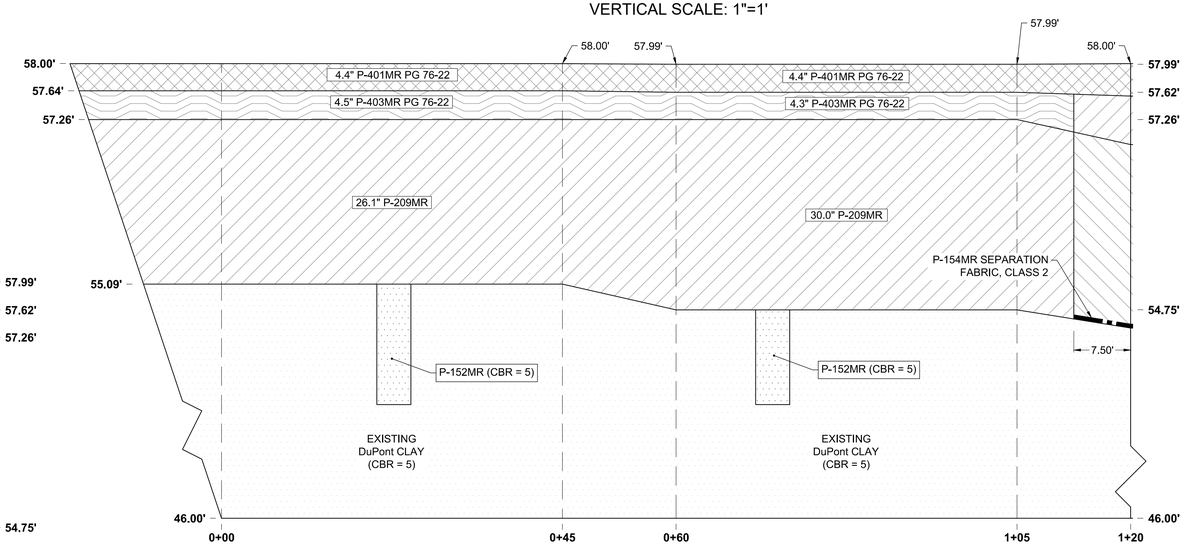
PLAN VIEW STA. 0-20 TO 1+20

SCALE: 1"=10'



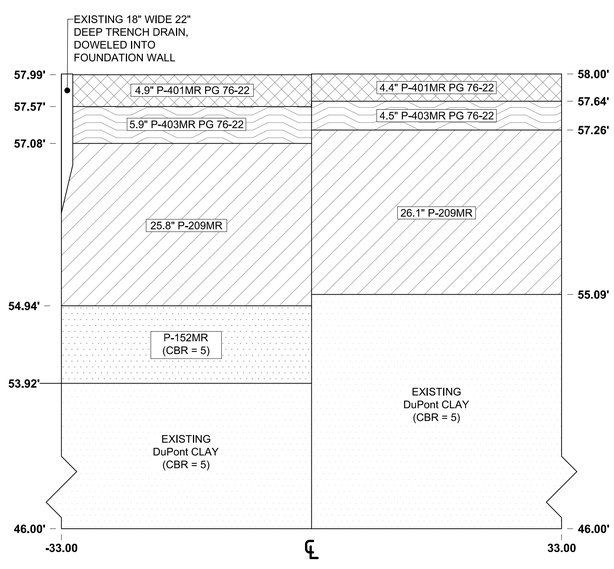
PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



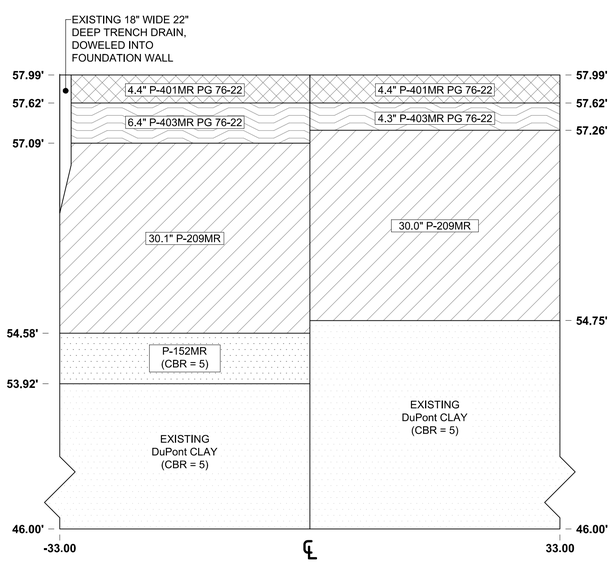
PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



SECTION C-C

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



SECTION D-D

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

LEGEND:

- CONTROL POINT - MAG NAIL
- CENTER LINE MARKER - MAG NAIL
- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-154MR SEPARATION FABRIC, CLASS 2
- P-159MR GEOGRID, CLASS B
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS
- P-403MR HOT MIX ASPHALT (HMA) PAVEMENTS BASE COURSE

10 0 10 20 30

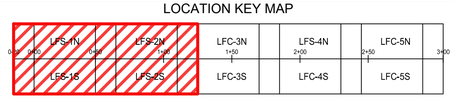
GRAPHIC SCALE
1" = 10'

NOTES:

1. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
2. CBR = CALIFORNIA BEARING RATIO.
3. P-209MR LIFT THICKNESS BETWEEN 4" AND 8".
4. P-401MR AND P-403MR MINIMUM LIFT THICKNESS OF 2.5".
5. P-152MR LIFT THICKNESS BETWEEN 4" AND 16".
6. TOP OF SUBGRADE FINAL ELEVATION WAS DETERMINED DURING DEMOLITION BASED ON SUBGRADE INTERFACE REMOVAL.
7. AVERAGE LAYER THICKNESS AND TOP ELEVATION FOR EACH TEST ITEM IS BASED ON LiDAR DATA.

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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PHONE: (609) 677-8543

FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

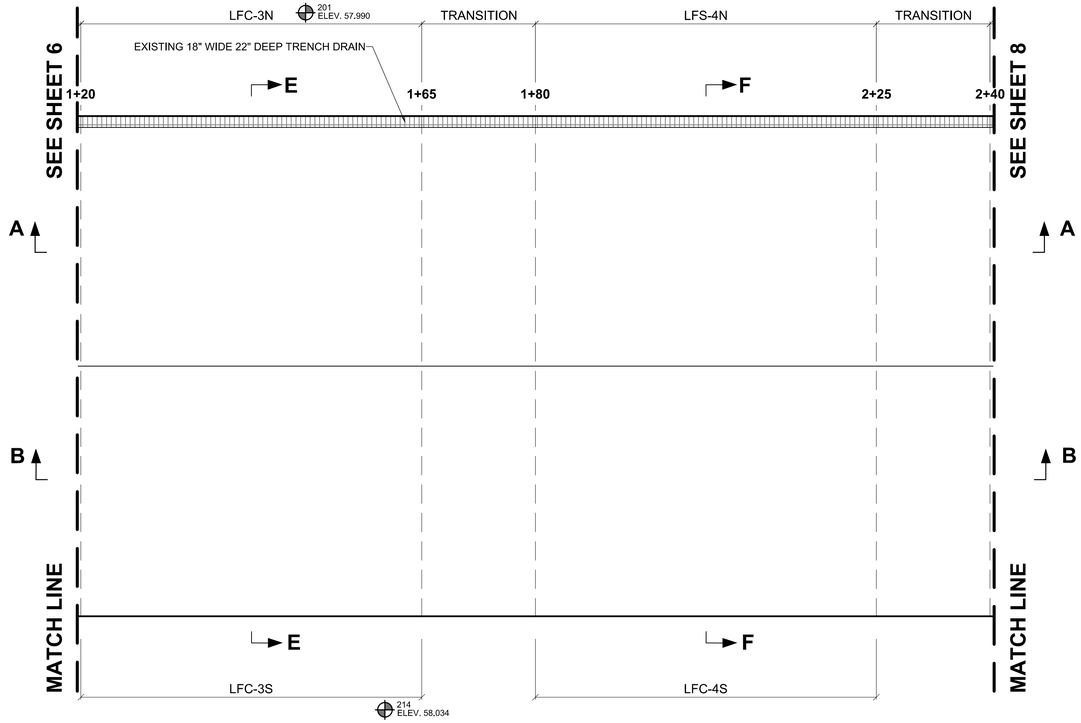
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

STA. 0+00 TO 1+20 DETAILED PLAN, PROFILE AND SECTION VIEWS, AS-BUILT

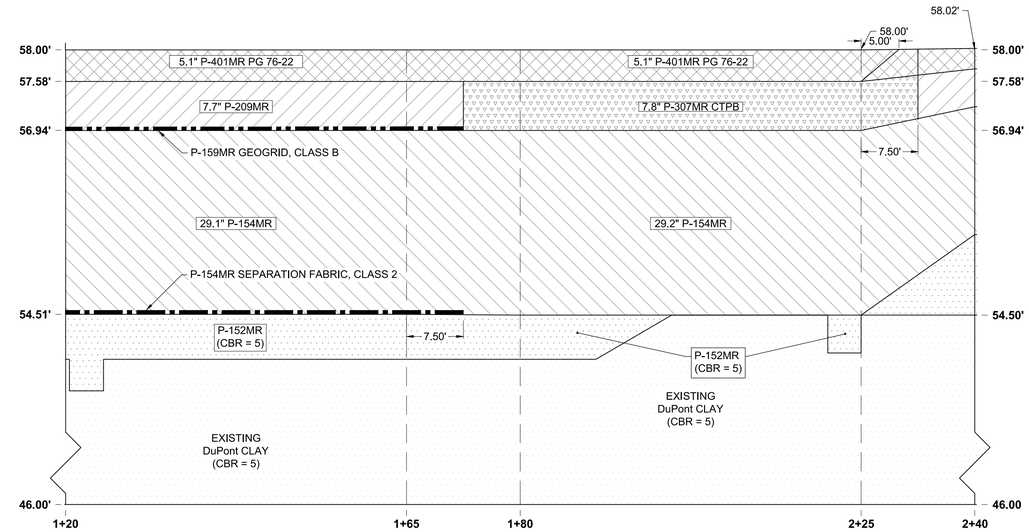
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 6 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



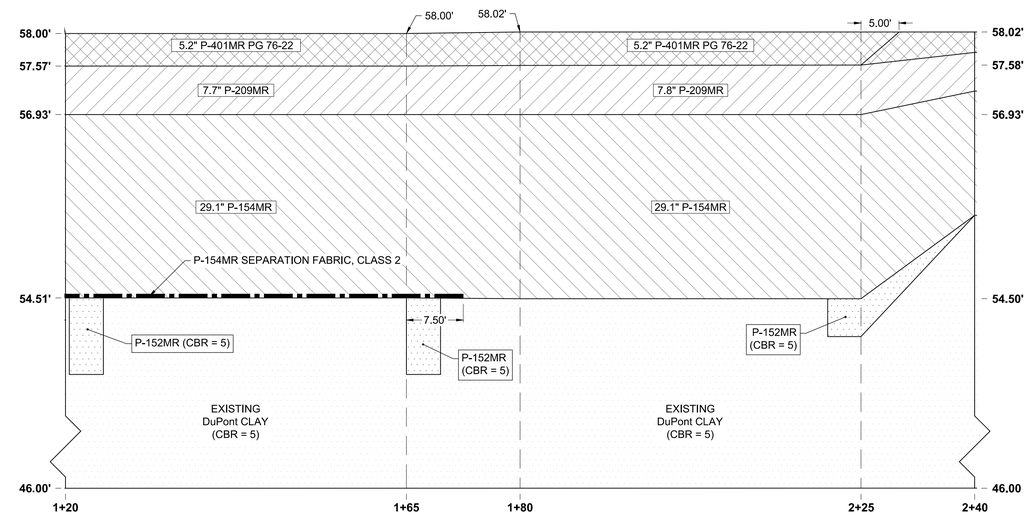
PLAN VIEW STA. 1+20 TO 2+40

SCALE: 1"=10'



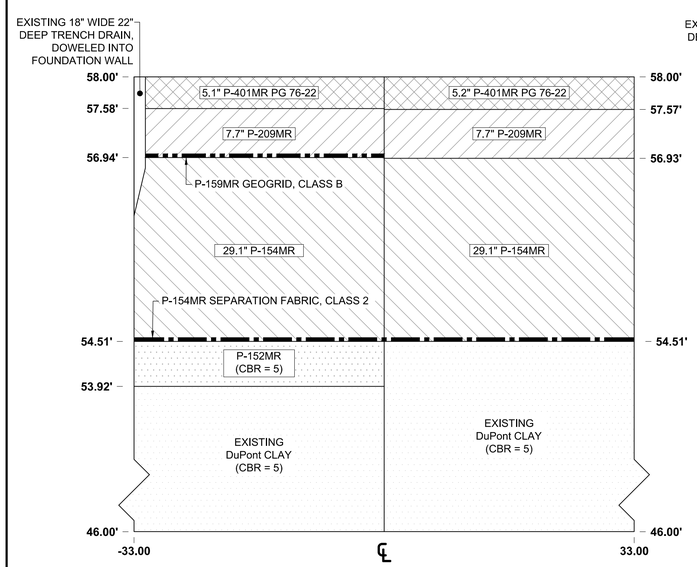
PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



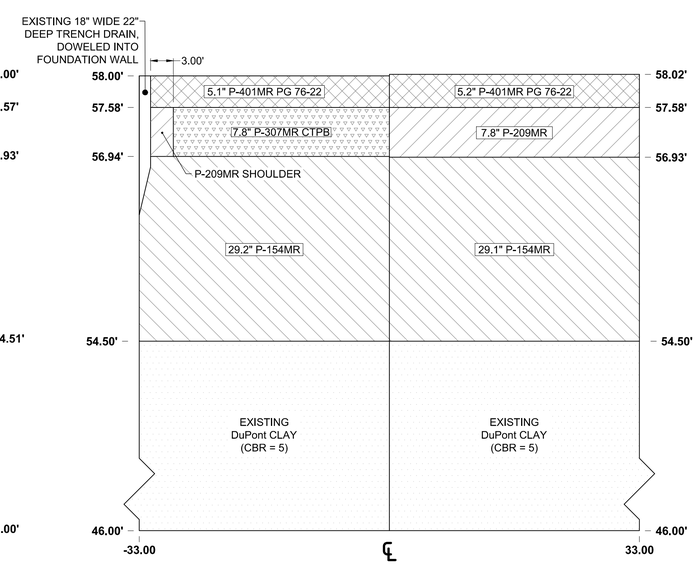
PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



SECTION E-E

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



SECTION F-F

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

LEGEND:

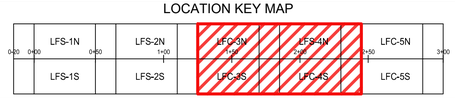
- CONTROL POINT - MAG NAIL
- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-154MR SEPARATION FABRIC, CLASS 2
- P-159MR GEOGRID, CLASS B
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-154MR SUBBASE COURSE
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-307MR CEMENT TREATED PERMEABLE BASE COURSE (CTPB)
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS

NOTES:

1. LFC = LOW STRENGTH SUBGRADE, FLEXIBLE CONVENTIONAL PAVEMENT.
2. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
3. CBR = CALIFORNIA BEARING RATIO.
4. PERMEABLE BASE IS CEMENT TREATED.
5. P-209MR LIFT THICKNESS BETWEEN 4" AND 8".
6. P-154MR LIFT THICKNESS BETWEEN 4" AND 10".
7. P-401MR AND P-403MR MINIMUM LIFT THICKNESS OF 2.5".
8. P-152MR LIFT THICKNESS BETWEEN 4" AND 16".
9. TOP OF SUBGRADE FINAL ELEVATION WAS DETERMINED DURING DEMOLITION BASED ON SUBGRADE INTERFACE REMOVAL.
10. AVERAGE LAYER THICKNESS AND TOP ELEVATION FOR EACH TEST ITEM IS BASED ON LiDAR DATA.

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

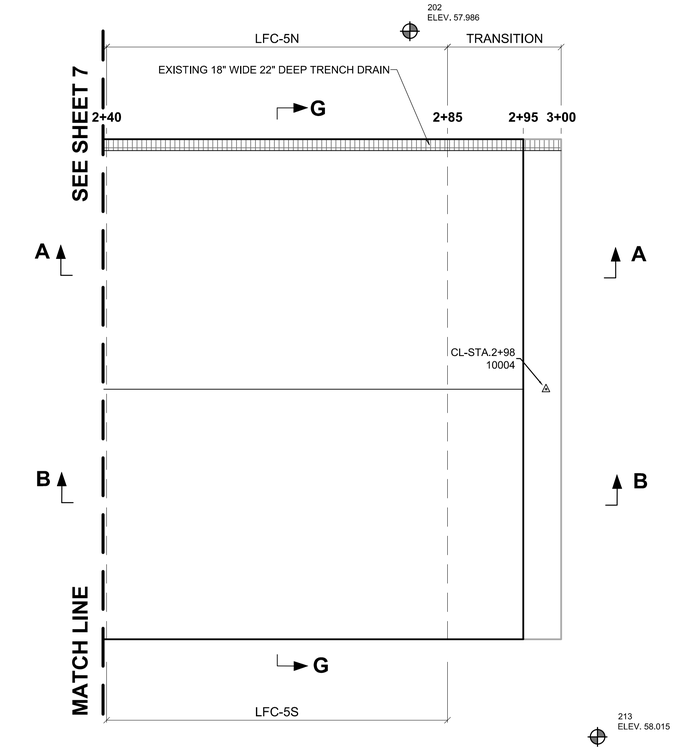
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

STA. 1+20 TO 2+40 DETAILED PLAN, PROFILE AND SECTION VIEWS, AS-BUILT

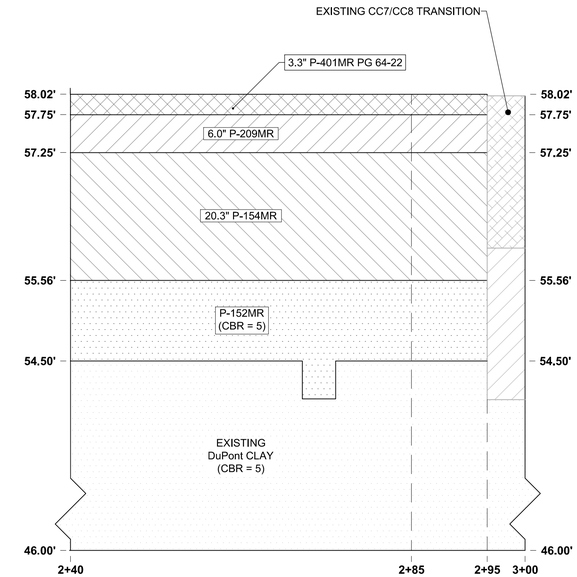
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 7 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



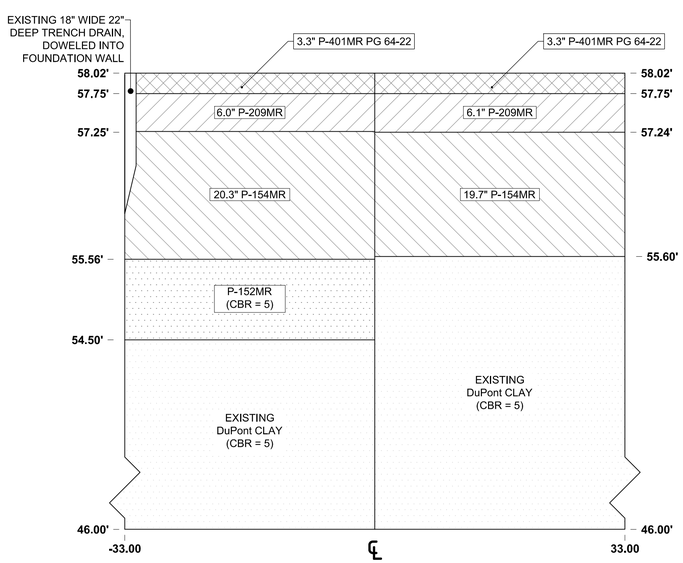
PLAN VIEW STA. 2+40 TO 3+00

SCALE: 1"=10'



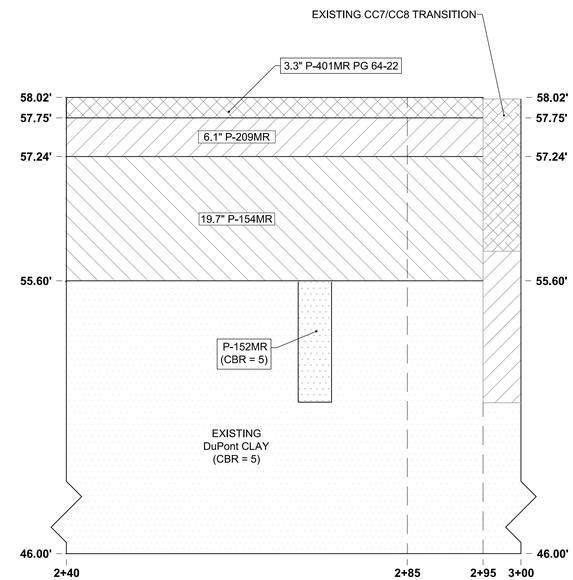
PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



SECTION G-G

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

LEGEND:

- CONTROL POINT - MAG NAIL
- CENTER LINE MARKER - MAG NAIL
- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-154MR SUBBASE COURSE
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS
- P-501MR CONCRETE PAVEMENT (PORTLAND CEMENT CONCRETE)

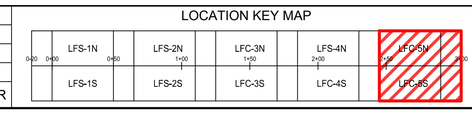
NOTES:

1. LFC = LOW STRENGTH SUBGRADE, FLEXIBLE CONVENTIONAL PAVEMENT.
2. CBR = CALIFORNIA BEARING RATIO.
3. P-209MR LIFT THICKNESS BETWEEN 4" AND 8".
4. P-154MR LIFT THICKNESS BETWEEN 4" AND 10".
5. P-401MR AND P-403MR MINIMUM LIFT THICKNESS OF 2.5".
6. P-152MR LIFT THICKNESS BETWEEN 4" AND 16".
7. TOP OF SUBGRADE FINAL ELEVATION WAS DETERMINED DURING DEMOLITION BASED ON SUBGRADE INTERFACE REMOVAL.
8. AVERAGE LAYER THICKNESS AND TOP ELEVATION FOR EACH TEST ITEM IS BASED ON LiDAR DATA.

10 0 10 20 30
GRAPHIC SCALE
1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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ATLANTIC CITY AIRPORT
NEW JERSEY 08234

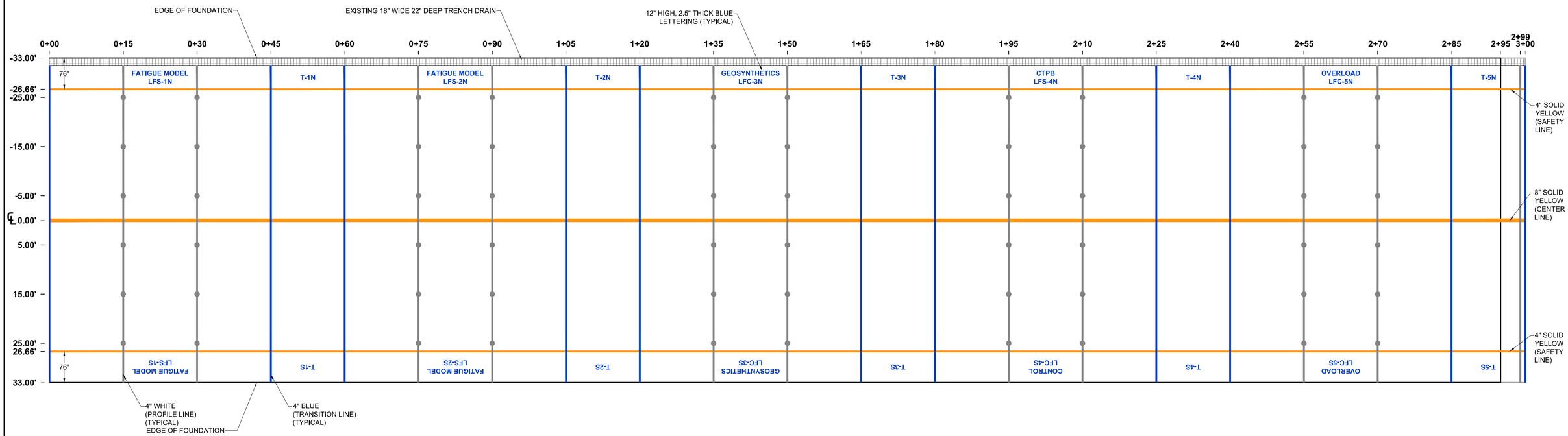
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

STA. 2+40 TO 3+00 DETAILED PLAN, PROFILE AND SECTION VIEWS, AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 8 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



PLAN VIEW

SCALE: 1"=10'

NOTES:

1. CENTERLINE TO BE 12" WIDE AND PAINTED YELLOW.
2. TRANSITION LINES TO BE 4" WIDE AND PAINTED BLUE.
3. SAFETY LINES TO BE 4" WIDE AND PAINTED YELLOW.
4. PROFILE LINES TO BE 4" WIDE AND PAINTED WHITE.
5. NDT DROPS TO BE 12" DIAMETER AND PAINTED WHITE.
6. LETTERING TO BE 12" TALL, 2.5" THICK, PAINTED WHITE, AND ARE TO BE PAINTED ALONG THE EDGE OF PAVEMENT OUTSIDE OF THE TEST AREA.
7. STATIONS AND DIMENSIONS ARE FOR PLAN REFERENCE ONLY AND ARE NOT TO BE PAINTED.

PAVEMENT PAINTING KEY	
	8" SOLID YELLOW CENTER LINE
	4" SOLID YELLOW SAFETY LINE
	4" SOLID BLUE TRANSITION LINE
	4" SOLID WHITE PROFILE LINE
●	12" WHITE CIRCLE
1N	12" BLUE LABEL TEXT

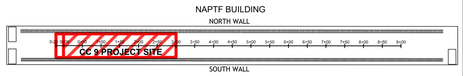
10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
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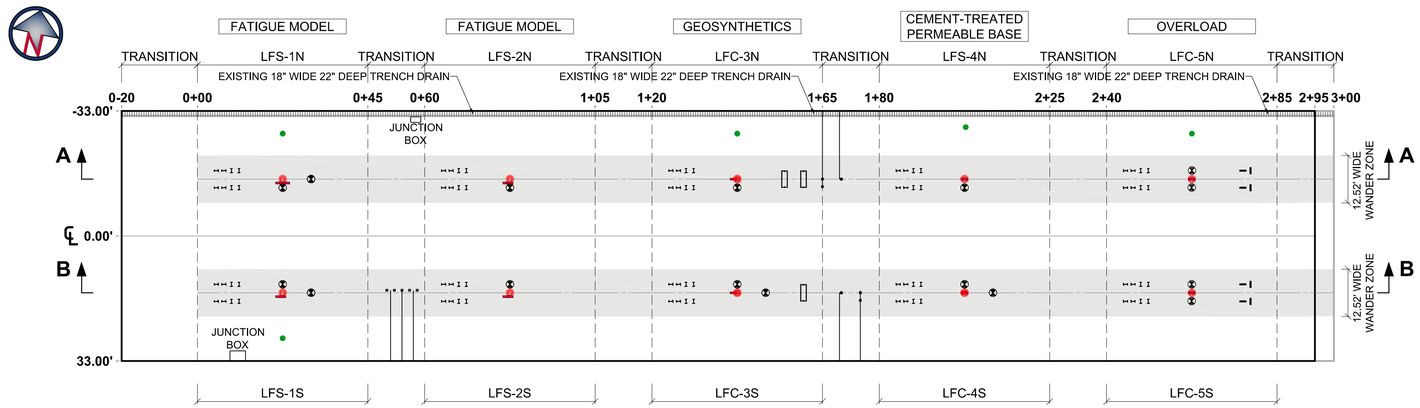
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

PAINTING PLAN AS-BUILT

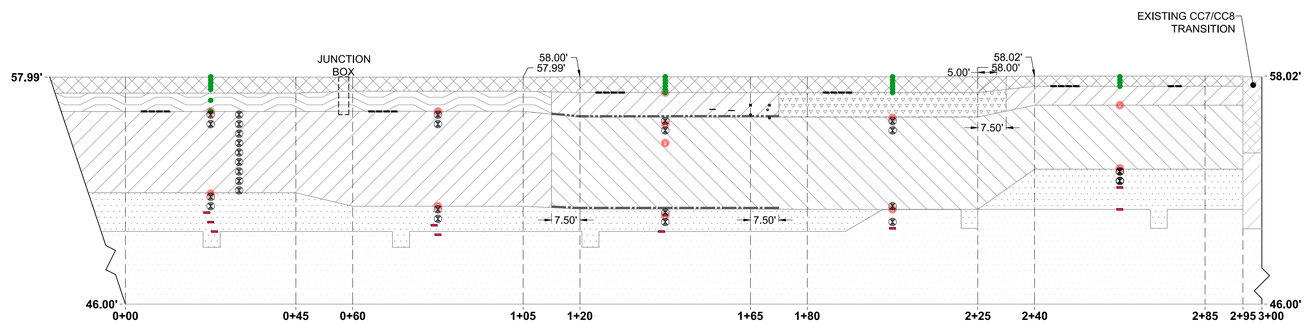
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 9 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



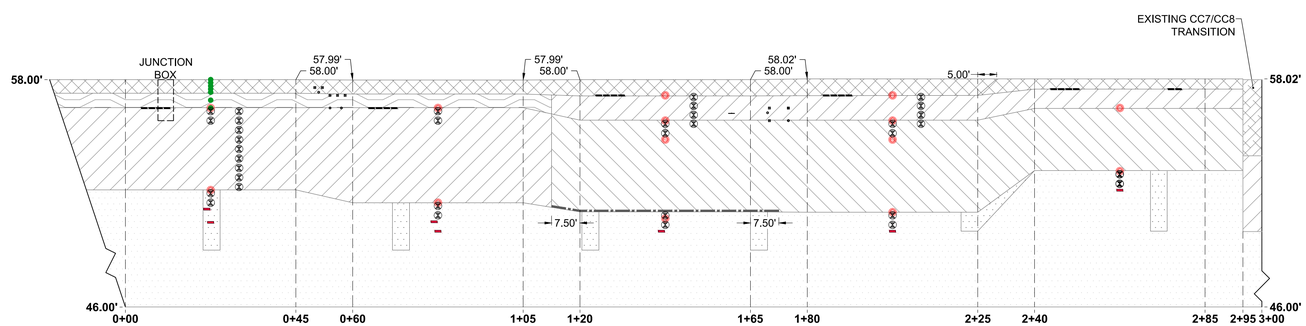
PLAN VIEW

SCALE: 1"=20'



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'

INSTRUMENT KEY			
SYMBOL		SENSOR TYPE	QUANTITY
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE DYNATEST	80
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE TOKYO SOKKI	8
	MS	MOISTURE SENSOR	16
	PC	9" PRESSURE CELL	26
	T	THERMOCOUPLE	30
	CS	COIL SENSOR	66
	SR	SMART ROCK	13
	ANT	ANTENNA	9

NOTES:

1. INSTRUMENTATION TO BE INSTALLED BY THE ENGINEER.
2. LFC = LOW STRENGTH SUBGRADE, FLEXIBLE CONVENTIONAL PAVEMENT.
3. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
4. SEE SHEETS 11 - 13 FOR TABULATED SENSOR LOCATIONS.

LEGEND:

- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-154MR SEPARATION FABRIC, CLASS 2
- P-159MR GEOGRID, CLASS B
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-154MR SUBBASE COURSE
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-307MR CEMENT TREATED PERMEABLE BASE COURSE (CTPB)
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS
- P-403MR HOT MIX ASPHALT (HMA) PAVEMENTS BASE COURSE
- P-501MR - CONCRETE PAVEMENT (PORTLAND CEMENT CONCRETE)

20 0 20 40 60

GRAPHIC SCALE

1" = 20'

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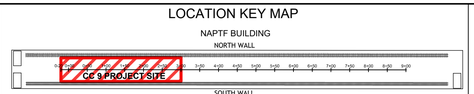
LOCATION KEY MAP



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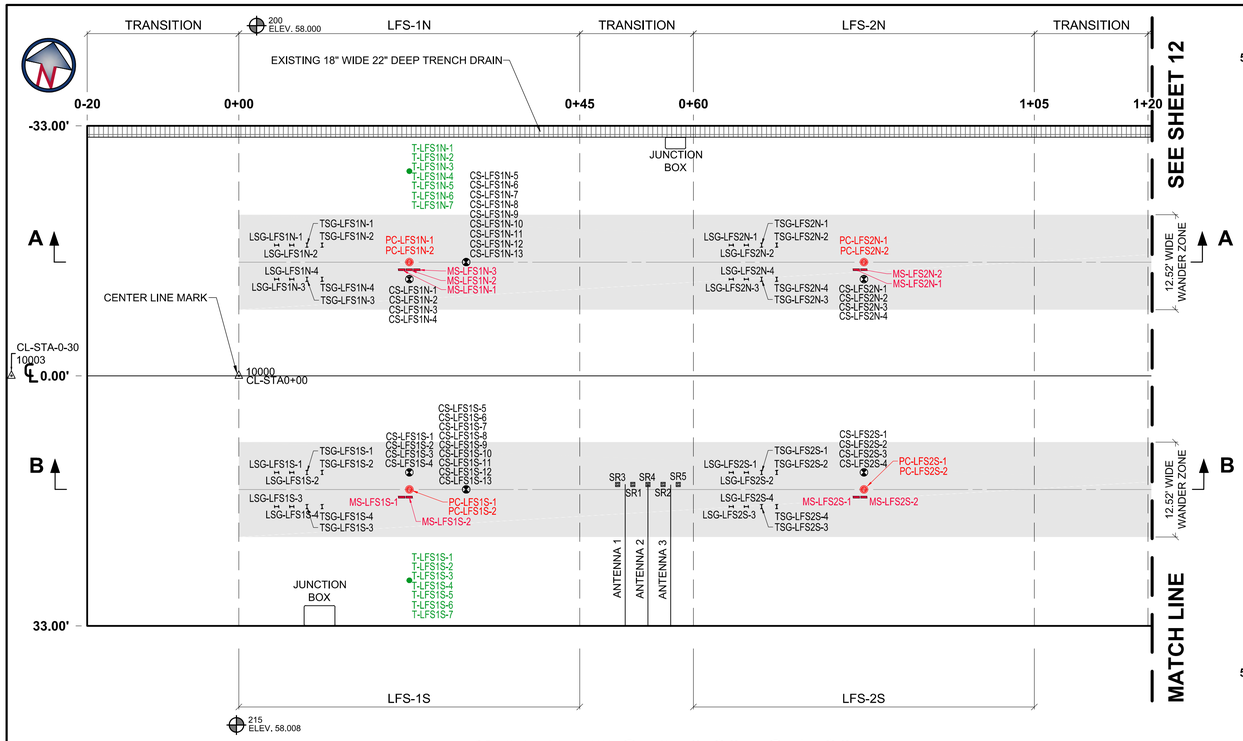
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

INSTRUMENTATION OVERVIEW PLAN & PROFILE VIEWS AS-BUILT

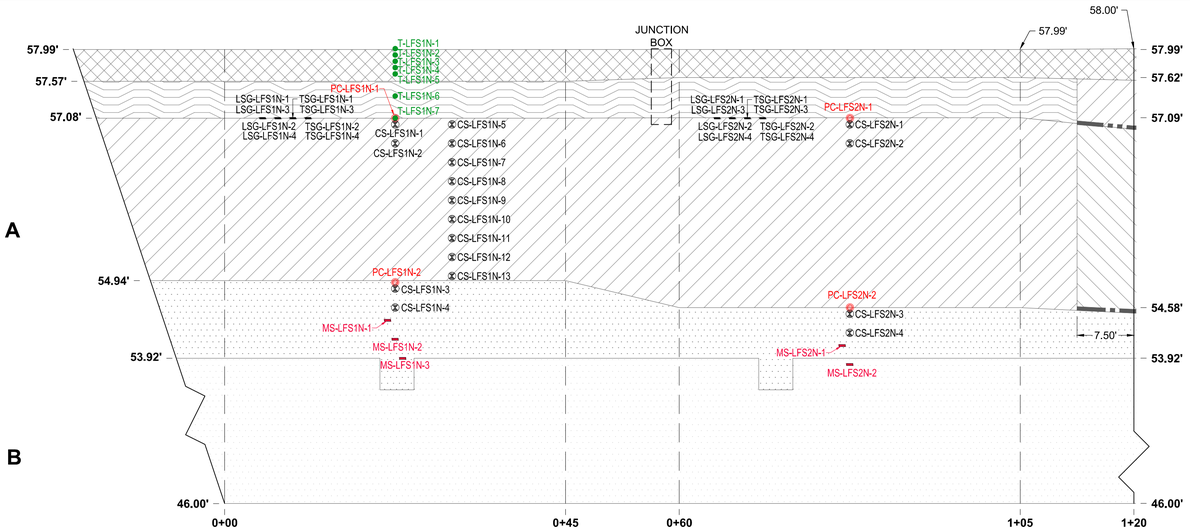
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 10 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



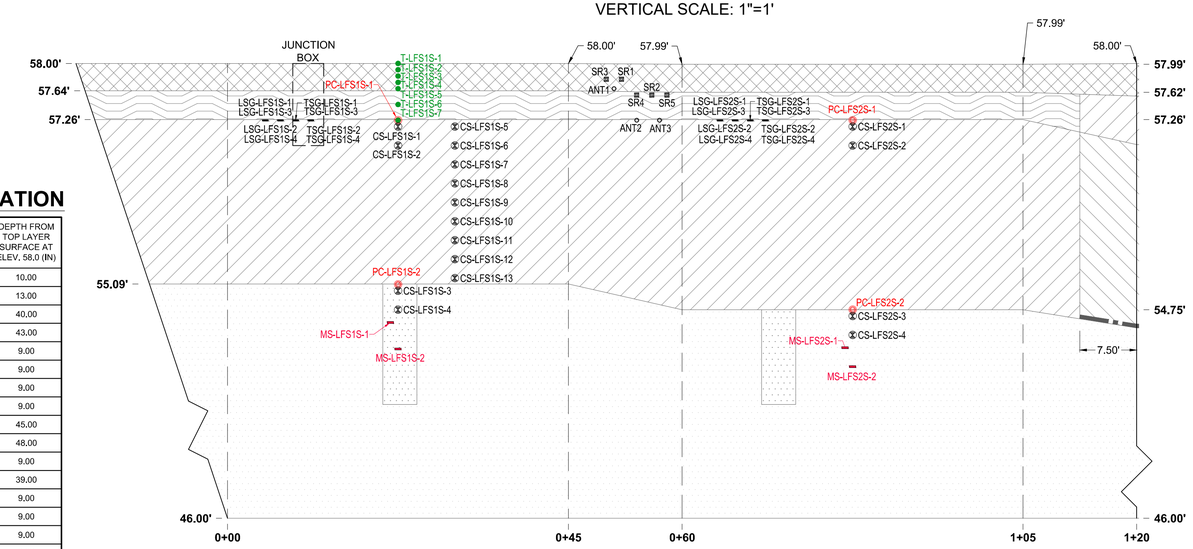
PLAN VIEW STA. 0-20 TO 1+20

SCALE: 1"=10'



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

LFS-1N INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
205	CS-LFS1N-1	22.50	-12.75	57.00	12.00
206	CS-LFS1N-2	22.50	-12.75	56.75	15.00
207	CS-LFS1N-3	22.50	-12.75	54.84	37.92
208	CS-LFS1N-4	22.50	-12.75	54.59	40.92
209	CS-LFS1N-5	30.00	-15.00	57.00	12.00
210	CS-LFS1N-6	30.00	-15.00	56.75	15.00
211	CS-LFS1N-7	30.00	-15.00	56.50	18.00
212	CS-LFS1N-8	30.00	-15.00	56.25	21.00
213	CS-LFS1N-9	30.00	-15.00	56.00	24.00
214	CS-LFS1N-10	30.00	-15.00	55.75	27.00
215	CS-LFS1N-11	30.00	-15.00	55.50	30.00
216	CS-LFS1N-12	30.00	-15.00	55.25	33.00
217	CS-LFS1N-13	30.00	-15.00	55.00	36.00
108	LSG-LFS1N-1	5.00	-17.25	57.08	11.00
110	LSG-LFS1N-2	7.00	-17.25	57.08	11.00
148	LSG-LFS1N-3	5.00	-12.75	57.08	11.00
150	LSG-LFS1N-4	7.00	-12.75	57.08	11.00
82	MS-LFS1N-1	21.50	-14.00	54.42	43.00
192	MS-LFS1N-2	22.50	-14.00	54.17	46.00
191	MS-LFS1N-3	23.50	-14.00	53.92	49.00
57	PC-LFS1N-1	22.50	-15.00	57.08	11.00
58	PC-LFS1N-2	22.50	-15.00	54.92	37.00
1	T-LFS1N-1	22.50	-27.00	58.00	0.00
2	T-LFS1N-2	22.50	-27.00	57.92	1.00
3	T-LFS1N-3	22.50	-27.00	57.83	2.00
4	T-LFS1N-4	22.50	-27.00	57.75	3.00
5	T-LFS1N-5	22.50	-27.00	57.67	4.00
188	T-LFS1N-6	22.50	-27.00	57.38	7.50
6	T-LFS1N-7	22.50	-27.00	57.08	11.00
109	TSG-LFS1N-1	9.00	-17.25	57.08	11.00
111	TSG-LFS1N-2	11.00	-17.25	57.08	11.00
149	TSG-LFS1N-3	9.00	-12.75	57.08	11.00
151	TSG-LFS1N-4	11.00	-12.75	57.08	11.00

LFS-1S INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
218	CS-LFS1S-1	22.50	12.75	57.17	10.00
219	CS-LFS1S-2	22.50	12.75	56.92	13.00
220	CS-LFS1S-3	22.50	12.75	55.00	36.00
221	CS-LFS1S-4	22.50	12.75	54.75	39.00
222	CS-LFS1S-5	30.00	15.00	57.17	10.00
223	CS-LFS1S-6	30.00	15.00	56.92	13.00
224	CS-LFS1S-7	30.00	15.00	56.67	16.00
225	CS-LFS1S-8	30.00	15.00	56.42	19.00
226	CS-LFS1S-9	30.00	15.00	56.17	22.00
227	CS-LFS1S-10	30.00	15.00	55.92	25.00
228	CS-LFS1S-11	30.00	15.00	55.67	28.00
229	CS-LFS1S-12	30.00	15.00	55.42	31.00
230	CS-LFS1S-13	30.00	15.00	55.17	34.00
128	LSG-LFS1S-1	5.00	12.75	57.25	9.00
130	LSG-LFS1S-2	7.00	12.75	57.25	9.00
168	LSG-LFS1S-3	5.00	17.25	57.25	9.00
170	LSG-LFS1S-4	7.00	17.25	57.25	9.00
83	MS-LFS1S-1	21.50	16.00	54.58	41.00
194	MS-LFS1S-2	22.50	16.00	54.33	44.00
59	PC-LFS1S-1	22.50	15.00	57.25	9.00
60	PC-LFS1S-2	22.50	15.00	55.08	35.00
7	T-LFS1S-1	22.50	27.00	58.00	0.00
8	T-LFS1S-2	22.50	27.00	57.92	1.00
9	T-LFS1S-3	22.50	27.00	57.83	2.00
10	T-LFS1S-4	22.50	27.00	57.75	3.00
11	T-LFS1S-5	22.50	27.00	57.67	4.00
189	T-LFS1S-6	22.50	27.00	57.46	6.50
12	T-LFS1S-7	22.50	27.00	57.25	9.00
129	TSG-LFS1S-1	9.00	12.75	57.25	9.00
131	TSG-LFS1S-2	11.00	12.75	57.25	9.00
169	TSG-LFS1S-3	9.00	17.25	57.25	9.00
171	TSG-LFS1S-4	11.00	17.25	57.25	9.00

LFS-2N INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
231	CS-LFS2N-1	82.50	-12.75	57.00	12.00
232	CS-LFS2N-2	82.50	-12.75	56.75	15.00
233	CS-LFS2N-3	82.50	-12.75	54.50	42.00
234	CS-LFS2N-4	82.50	-12.75	54.25	45.00
112	LSG-LFS2N-1	65.00	-17.25	57.08	11.00
114	LSG-LFS2N-2	67.00	-17.25	57.08	11.00
152	LSG-LFS2N-3	65.00	-12.75	57.08	11.00
154	LSG-LFS2N-4	67.00	-12.75	57.08	11.00
84	MS-LFS2N-1	81.50	-14.00	54.08	47.00
193	MS-LFS2N-2	82.50	-14.00	53.83	50.00
61	PC-LFS2N-1	82.50	-15.00	57.08	11.00
62	PC-LFS2N-2	82.50	-15.00	54.58	41.00
113	TSG-LFS2N-1	69.00	-17.25	57.08	11.00
115	TSG-LFS2N-2	71.00	-17.25	57.08	11.00
153	TSG-LFS2N-3	69.00	-12.75	57.08	11.00
155	TSG-LFS2N-4	71.00	-12.75	57.08	11.00

LFS-2S INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
235	CS-LFS2S-1	82.50	12.75	57.17	10.00
236	CS-LFS2S-2	82.50	12.75	56.92	13.00
237	CS-LFS2S-3	82.50	12.75	54.67	40.00
238	CS-LFS2S-4	82.50	12.75	54.42	43.00
132	LSG-LFS2S-1	65.00	12.75	57.25	9.00
134	LSG-LFS2S-2	67.00	12.75	57.25	9.00
172	LSG-LFS2S-3	65.00	17.25	57.25	9.00
174	LSG-LFS2S-4	67.00	17.25	57.25	9.00
85	MS-LFS2S-1	81.50	16.00	54.25	45.00
195	MS-LFS2S-2	82.50	16.00	54.00	48.00
63	PC-LFS2S-1	82.50	15.00	57.25	9.00
64	PC-LFS2S-2	82.50	15.00	54.75	39.00
133	TSG-LFS2S-1	69.00	12.75	57.25	9.00
135	TSG-LFS2S-2	71.00	12.75	57.25	9.00
173	TSG-LFS2S-3	69.00	17.25	57.25	9.00
175	TSG-LFS2S-4	71.00	17.25	57.25	9.00

REFERENCE POINT IS CENTROID OF SENSOR

SMART ROCKS & ANTENNAS TRANSITION LFS-1S/LFS-2S

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
276	ANT1	51.00	14.33	57.67	4.00
277	ANT2	54.00	14.33	57.25	9.00
278	ANT3	57.00	14.33	57.25	9.00
271	SR1	52.00	14.33	57.79	2.50
273	SR2	56.00	14.33	57.58	5.00
272	SR3	50.00	14.33	57.79	2.50
274	SR4	54.00	14.33	57.58	5.00
275	SR5	58.00	14.33	57.58	5.00

INSTRUMENT KEY		
SYMBOL		SENSOR TYPE
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE
	MS	MOISTURE SENSOR
	PC	9" PRESSURE CELL
	T	THERMOCOUPLE
	CS	COIL SENSOR
	SR	SMART ROCK
	ANT	ANTENNA

LEGEND:

- CONTROL POINT - MAG NAIL
- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-154MR SEPARATION FABRIC, CLASS 2
- P-159MR GEOGRID, CLASS B
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-403MR HOT MIX ASPHALT (HMA) PAVEMENTS BASE COURSE
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS

10 0 10 20 30

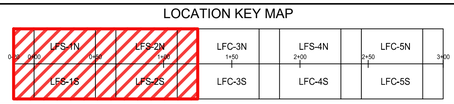
GRAPHIC SCALE
1" = 10'

NOTES:

1. INSTRUMENTATION TO BE INSTALLED BY THE ENGINEER.
2. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
3. MS-LFS1N-3 WAS PLACED AT THE TOP OF SUBGRADE DEMOLITION LIMITS. TOP OF SUBGRADE FINAL ELEVATION WAS DETERMINED DURING DEMOLITION BASED ON SUBGRADE INTERFACE REMOVAL.
4. INSTRUMENTATION CABLES ARE RUN TO A DAQ LOCATED ON THE SOUTH WALL THROUGH EXISTING HANDHOLES AND CONDUITS.

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

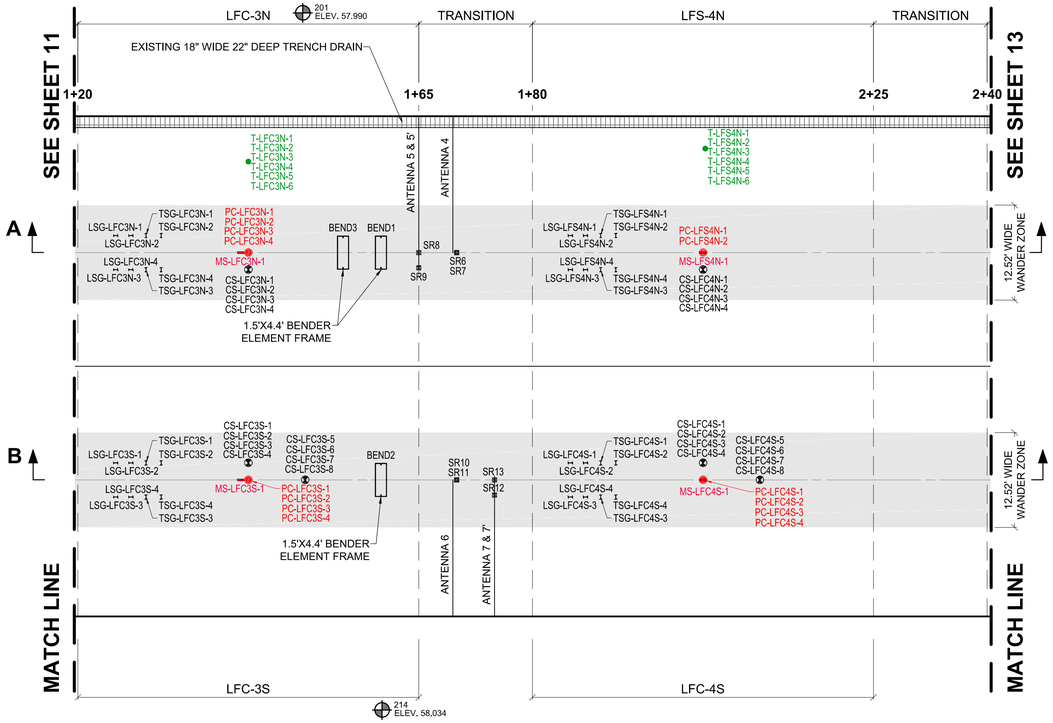
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

STA. 0+00 TO 1+20 INSTRUMENTATION AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 11 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



PLAN VIEW STA. 1+20 TO 2+40

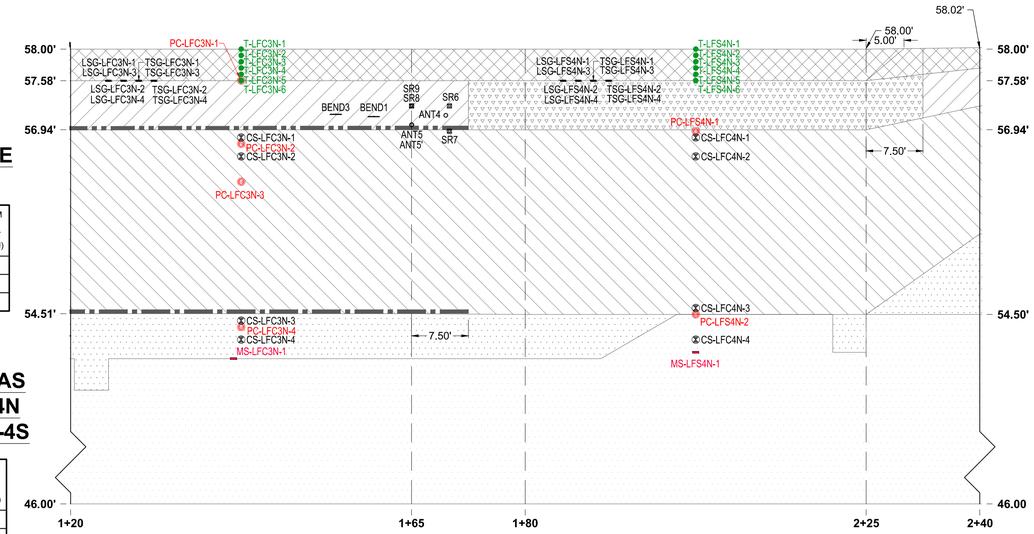
SCALE: 1"=10'

BENDER ELEMENT FRAME CENTER COORDINATES

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
302	BEND1	160.00	-15.00	57.11	10.68
303	BEND2	160.00	15.00	57.11	10.68
300	BEND3	155.00	-15.00	57.14	10.32

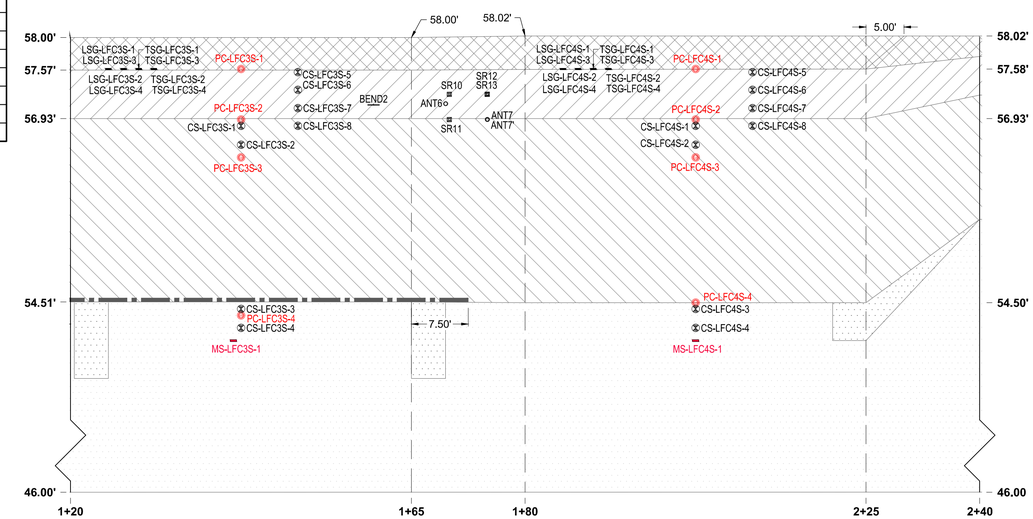
SMART ROCKS & ANTENNAS TRANSITION LFC-3N/LFS-4N & TRANSITION LFC-3S/LFC-4S

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
287	ANT4	169.50	-15.00	57.12	10.50
288	ANT5	165.00	-15.00	57.00	12.00
289	ANT5'	165.00	-13.00	57.00	12.00
290	ANT6	169.50	15.00	57.12	10.50
291	ANT7	175.00	14.50	56.92	13.00
292	ANT7'	175.00	16.50	56.92	13.00
279	SR6	170.00	-15.00	57.25	9.00
280	SR7	170.00	-15.00	56.92	13.00
281	SR8	165.00	-15.00	57.25	9.00
282	SR9	165.00	-13.00	57.25	9.00
283	SR10	170.00	15.00	57.25	9.00
284	SR11	170.00	15.00	56.92	13.00
285	SR12	175.00	17.00	57.25	9.00
286	SR13	175.00	15.00	57.25	9.00



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

LFC-3N INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
239	CS-LFC3N-1	142.50	-12.75	56.83	14.00
240	CS-LFC3N-2	142.50	-12.75	56.58	17.00
241	CS-LFC3N-3	142.50	-12.75	54.42	43.00
242	CS-LFC3N-4	142.50	-12.75	54.17	46.00
116	LSG-LFC3N-1	125.00	-17.25	57.58	5.00
118	LSG-LFC3N-2	127.00	-17.25	57.58	5.00
156	LSG-LFC3N-3	125.00	-12.75	57.58	5.00
158	LSG-LFC3N-4	127.00	-12.75	57.58	5.00
86	MS-LFC3N-1	141.50	-15.00	53.92	48.96
65	PC-LFC3N-1	142.50	-15.00	57.58	5.00
66	PC-LFC3N-2	142.50	-15.00	56.75	15.00
76	PC-LFC3N-3	142.50	-15.00	56.25	21.00
67	PC-LFC3N-4	142.50	-15.00	54.33	44.00
25	T-LFC3N-1	142.50	-27.00	58.00	0.00
26	T-LFC3N-2	142.50	-27.00	57.92	1.00
27	T-LFC3N-3	142.50	-27.00	57.83	2.00
28	T-LFC3N-4	142.50	-27.00	57.75	3.00
29	T-LFC3N-5	142.50	-27.00	57.67	4.00
30	T-LFC3N-6	142.50	-27.00	57.58	5.00
117	TSG-LFC3N-1	129.00	-17.25	57.58	5.00
119	TSG-LFC3N-2	131.00	-17.25	57.58	5.00
157	TSG-LFC3N-3	129.00	-12.75	57.58	5.00
159	TSG-LFC3N-4	131.00	-12.75	57.58	5.00

LFC-3S INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
243	CS-LFC3S-1	142.50	12.75	56.83	14.00
244	CS-LFC3S-2	142.50	12.75	56.58	17.00
245	CS-LFC3S-3	142.50	12.75	54.42	43.00
246	CS-LFC3S-4	142.50	12.75	54.17	46.00
247	CS-LFC3S-5	150.00	15.00	57.54	5.54
248	CS-LFC3S-6	150.00	15.00	57.29	8.54
249	CS-LFC3S-7	150.00	15.00	57.04	11.54
250	CS-LFC3S-8	150.00	15.00	56.79	14.54
136	LSG-LFC3S-1	125.00	12.75	57.58	5.00
138	LSG-LFC3S-2	127.00	12.75	57.58	5.00
176	LSG-LFC3S-3	125.00	17.25	57.58	5.00
178	LSG-LFC3S-4	127.00	17.25	57.58	5.00
87	MS-LFC3S-1	141.50	15.00	54.00	48.00
68	PC-LFC3S-1	142.50	15.00	57.58	5.00
69	PC-LFC3S-2	142.50	15.00	56.92	13.00
79	PC-LFC3S-3	142.50	15.00	56.42	19.00
70	PC-LFC3S-4	142.50	15.00	54.33	44.00
137	TSG-LFC3S-1	129.00	12.75	57.58	5.00
139	TSG-LFC3S-2	131.00	12.75	57.58	5.00
177	TSG-LFC3S-3	129.00	17.25	57.58	5.00
179	TSG-LFC3S-4	131.00	17.25	57.58	5.00

LFS-4N INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
251	CS-LFC4N-1	202.50	-12.75	56.83	14.00
252	CS-LFC4N-2	202.50	-12.75	56.58	17.00
253	CS-LFC4N-3	202.50	-12.75	54.42	43.00
254	CS-LFC4N-4	202.50	-12.75	54.17	46.00
120	LSG-LFS4N-1	185.00	-17.25	57.58	5.00
122	LSG-LFS4N-2	187.00	-17.25	57.58	5.00
160	LSG-LFS4N-3	185.00	-12.75	57.58	5.00
162	LSG-LFS4N-4	187.00	-12.75	57.58	5.00
88	MS-LFS4N-1	202.50	-15.00	54.00	48.00
71	PC-LFS4N-1	202.50	-15.00	56.92	13.00
72	PC-LFS4N-2	202.50	-15.00	54.50	42.00
37	T-LFS4N-1	202.80	-28.71	58.00	0.00
38	T-LFS4N-2	202.80	-28.71	57.92	1.00
39	T-LFS4N-3	202.80	-28.71	57.83	2.00
40	T-LFS4N-4	202.80	-28.71	57.75	3.00
41	T-LFS4N-5	202.80	-28.71	57.67	4.00
42	T-LFS4N-6	202.80	-28.71	57.58	5.00
121	TSG-LFS4N-1	189.00	-17.25	57.58	5.00
123	TSG-LFS4N-2	191.00	-17.25	57.58	5.00
161	TSG-LFS4N-3	189.00	-12.75	57.58	5.00
163	TSG-LFS4N-4	191.00	-12.75	57.58	5.00

LFC-4S INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
255	CS-LFC4S-1	202.50	12.75	56.83	14.00
256	CS-LFC4S-2	202.50	12.75	56.58	17.00
257	CS-LFC4S-3	202.50	12.75	54.42	43.00
258	CS-LFC4S-4	202.50	12.75	54.17	46.00
259	CS-LFC4S-5	210.00	15.00	57.54	5.54
260	CS-LFC4S-6	210.00	15.00	57.29	8.54
261	CS-LFC4S-7	210.00	15.00	57.04	11.54
262	CS-LFC4S-8	210.00	15.00	56.79	14.54
140	LSG-LFC4S-1	185.00	12.75	57.58	5.00
142	LSG-LFC4S-2	187.00	12.75	57.58	5.00
180	LSG-LFC4S-3	185.00	17.25	57.58	5.00
182	LSG-LFC4S-4	187.00	17.25	57.58	5.00
89	MS-LFC4S-1	202.50	15.00	54.00	48.00
73	PC-LFC4S-1	202.50	15.00	57.58	5.00
74	PC-LFC4S-2	202.50	15.00	56.92	13.00
196	PC-LFC4S-3	202.50	15.00	56.42	19.00
75	PC-LFC4S-4	202.50	15.00	54.50	42.00
141	TSG-LFC4S-1	189.00	12.75	57.58	5.00
143	TSG-LFC4S-2	191.00	12.75	57.58	5.00
181	TSG-LFC4S-3	189.00	17.25	57.58	5.00
183	TSG-LFC4S-4	191.00	17.25	57.58	5.00

- REFERENCE POINT IS CENTROID OF SENSOR.

INSTRUMENT KEY

SYMBOL		SENSOR TYPE
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE
	MS	MOISTURE SENSOR
	PC	9" PRESSURE CELL
	T	THERMOCOUPLE
	CS	COIL SENSOR
	SR	SMART ROCK
	ANT	ANTENNA

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

LEGEND:

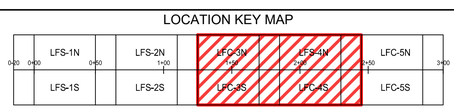
- CONTROL POINT - MAG NAIL
- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-154MR SEPARATION FABRIC, CLASS 2
- P-159MR GEOGRID, CLASS B
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-154MR SUBBASE COURSE
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-307MR CEMENT TREATED PERMEABLE BASE COURSE (CTPB)
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS

NOTES:

1. INSTRUMENTATION TO BE INSTALLED BY THE ENGINEER.
2. LFC = LOW STRENGTH SUBGRADE, FLEXIBLE CONVENTIONAL PAVEMENT.
3. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
4. MS-LFC3N-1 TO BE PLACED AT THE TOP OF SUBGRADE (DEMOLITION LIMITS). MS-LFC3S-1, MS-LFS4N-1, MS-LFC4S-1 WERE PLACED 6" BELOW P-152MR/P-154MR INTERFACE. TOP OF SUBGRADE FINAL ELEVATION WAS DETERMINED DURING DEMOLITION BASED ON SUBGRADE INTERFACE REMOVAL.
5. INSTRUMENTATION CABLES WERE RUN TO A DAQ LOCATED ON THE SOUTH WALL THROUGH EXISTING HANDHOLES AND CONDUITS.

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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PHONE: (609) 677-8543

FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

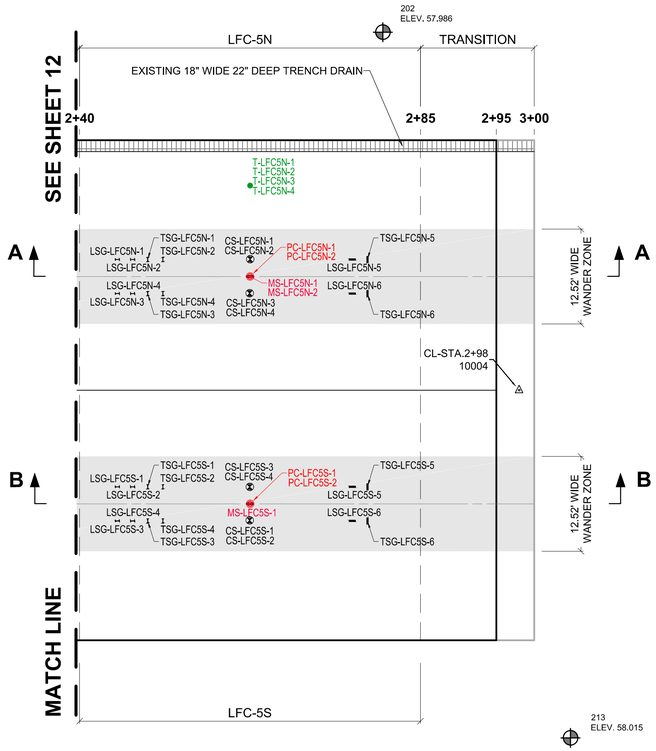
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

STA. 1+20 TO 2+40 INSTRUMENTATION AS-BUILT

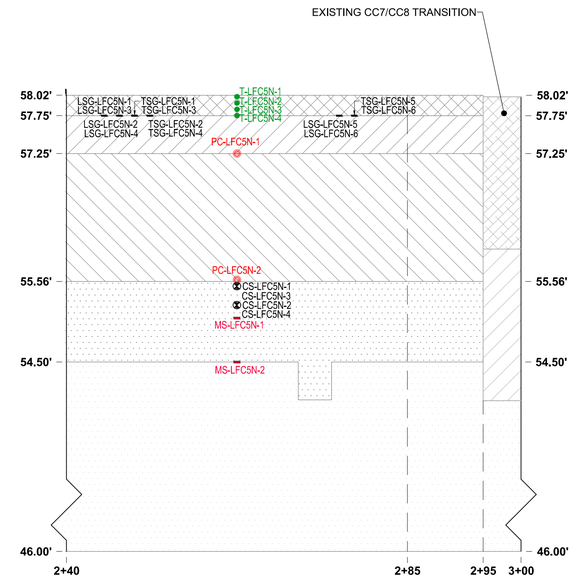
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 12 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



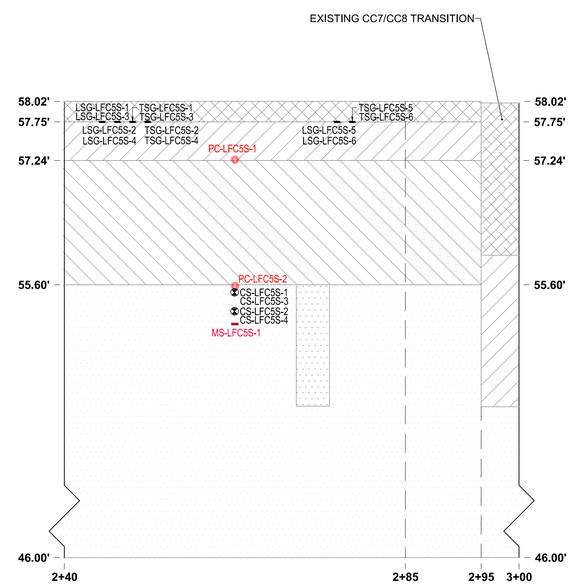
PLAN VIEW STA. 2+40 TO 3+00

SCALE: 1"=10'



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

INSTRUMENT KEY		
SYMBOL		SENSOR TYPE
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE TOKYO SOKKI
	MS	MOISTURE SENSOR
	PC	9" PRESSURE CELL
	T	THERMOCOUPLE
	CS	COIL SENSOR

LFC-5N INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
263	CS-LFC5N-1	262.52	-17.27	55.45	30.58
264	CS-LFC5N-2	262.52	-17.27	55.20	33.58
265	CS-LFC5N-3	262.45	-12.79	55.46	30.48
266	CS-LFC5N-4	262.45	-12.79	55.21	33.48
124	LSG-LFC5N-1	245.00	-17.25	57.75	3.00
126	LSG-LFC5N-2	247.00	-17.25	57.75	3.00
164	LSG-LFC5N-3	245.00	-12.75	57.75	3.00
166	LSG-LFC5N-4	247.00	-12.75	57.75	3.00
198	LSG-LFC5N-5	276.00	-17.25	57.75	3.00
202	LSG-LFC5N-6	276.00	-12.75	57.75	3.00
190	MS-LFC5N-1	262.50	-15.00	55.08	35.00
90	MS-LFC5N-2	262.50	-15.00	54.50	42.00
77	PC-LFC5N-1	262.50	-15.00	57.25	9.00
78	PC-LFC5N-2	262.50	-15.00	55.58	29.00
49	T-LFC5N-1	262.50	-27.00	58.00	0.00
50	T-LFC5N-2	262.50	-27.00	57.92	1.00
51	T-LFC5N-3	262.50	-27.00	57.83	2.00
52	T-LFC5N-4	262.50	-27.00	57.75	3.00
125	TSG-LFC5N-1	249.00	-17.25	57.75	3.00
127	TSG-LFC5N-2	251.00	-17.25	57.75	3.00
165	TSG-LFC5N-3	249.00	-12.75	57.75	3.00
167	TSG-LFC5N-4	251.00	-12.75	57.75	3.00
197	TSG-LFC5N-5	278.00	-17.25	57.75	3.00
201	TSG-LFC5N-6	278.00	-12.75	57.75	3.00

REFERENCE POINT IS CENTROID OF SENSOR

LFC-5S INSTRUMENTATION

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
267	CS-LFC5S-1	262.44	17.19	55.44	30.66
268	CS-LFC5S-2	262.44	17.19	55.20	33.66
269	CS-LFC5S-3	262.46	12.77	55.45	30.58
270	CS-LFC5S-4	262.46	12.77	55.20	33.58
144	LSG-LFC5S-1	245.00	12.75	57.75	3.00
146	LSG-LFC5S-2	247.00	12.75	57.75	3.00
184	LSG-LFC5S-3	245.00	17.25	57.75	3.00
186	LSG-LFC5S-4	247.00	17.25	57.75	3.00
200	LSG-LFC5S-5	276.00	12.75	57.75	3.00
204	LSG-LFC5S-6	276.00	17.25	57.75	3.00
91	MS-LFC5S-1	262.50	15.00	55.08	35.00
80	PC-LFC5S-1	262.50	15.00	57.25	9.00
81	PC-LFC5S-2	262.50	15.00	55.58	29.00
145	TSG-LFC5S-1	249.00	12.75	57.75	3.00
147	TSG-LFC5S-2	251.00	12.75	57.75	3.00
185	TSG-LFC5S-3	249.00	17.25	57.75	3.00
187	TSG-LFC5S-4	251.00	17.25	57.75	3.00
199	TSG-LFC5S-5	278.00	12.75	57.75	3.00
203	TSG-LFC5S-6	278.00	17.25	57.75	3.00

LEGEND:

- CONTROL POINT - MAG NAIL
- CENTER LINE MARKER - MAG NAIL
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-154MR SUBBASE COURSE
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS
- P-501MR CONCRETE PAVEMENT (PORTLAND CEMENT CONCRETE)

NOTES:

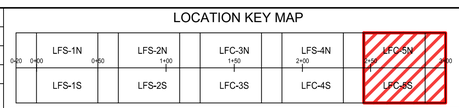
1. INSTRUMENTATION TO BE INSTALLED BY THE ENGINEER.
2. LFC = LOW STRENGTH SUBGRADE, FLEXIBLE CONVENTIONAL PAVEMENT.
4. MS-LFC5N-2 WAS PLACED AT THE TOP OF SUBGRADE DEMOLITION LIMITS. MS-LFC5N-1 AND MS-LFC5S-1 WERE PLACED 6" BELOW P-152MR/P-154MR INTERFACE. TOP OF SUBGRADE FINAL ELEVATION WAS DETERMINED DURING DEMOLITION BASED ON SUBGRADE INTERFACE REMOVAL.
5. INSTRUMENTATION CABLES WERE RUN TO A DAQ LOCATED ON THE SOUTH WALL THROUGH EXISTING HANDHOLES AND CONDUITS.

10 0 10 20 30

GRAPHIC SCALE
1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

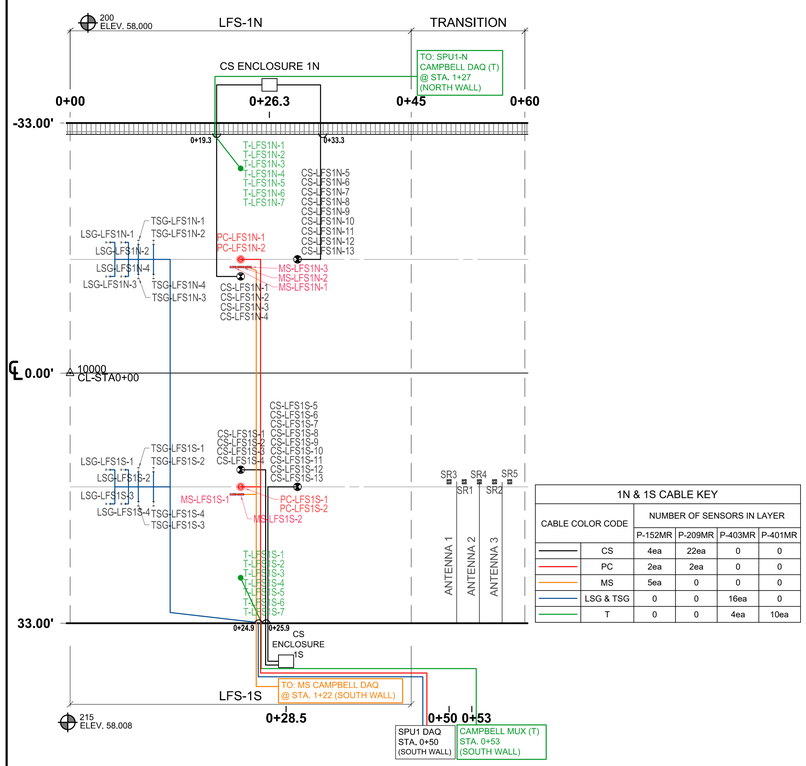
NAPTF CONSTRUCTION CYCLE 9

STA. 2+40 TO 3+00 INSTRUMENTATION AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 13 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG

FATIGUE MODEL

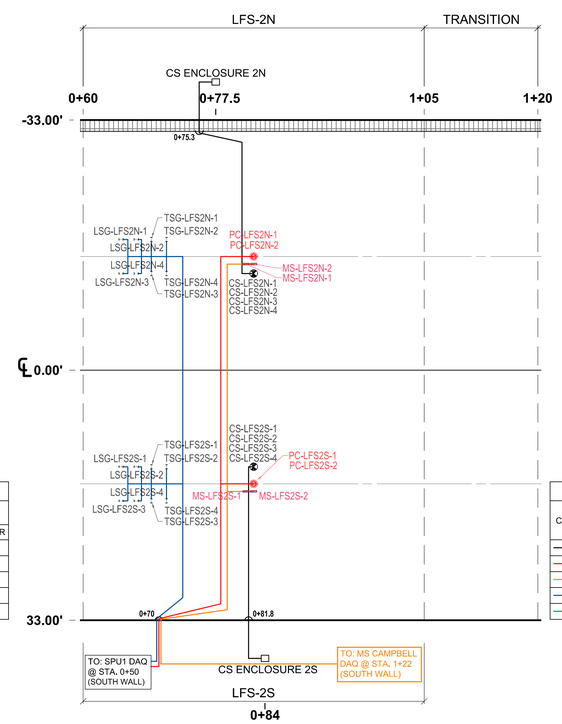


1N & 1S CABLE KEY				
CABLE COLOR CODE	NUMBER OF SENSORS IN LAYER			
	P-152MR	P-209MR	P-403MR	P-401MR
CS	4ea	22ea	0	0
PC	2ea	2ea	0	0
MS	5ea	0	0	0
LSG & TSG	0	0	16ea	0
T	0	0	4ea	10ea

TEST ITEM 1N & 1S STA. 0+00 TO 0+60

SCALE: 1"=10'

FATIGUE MODEL

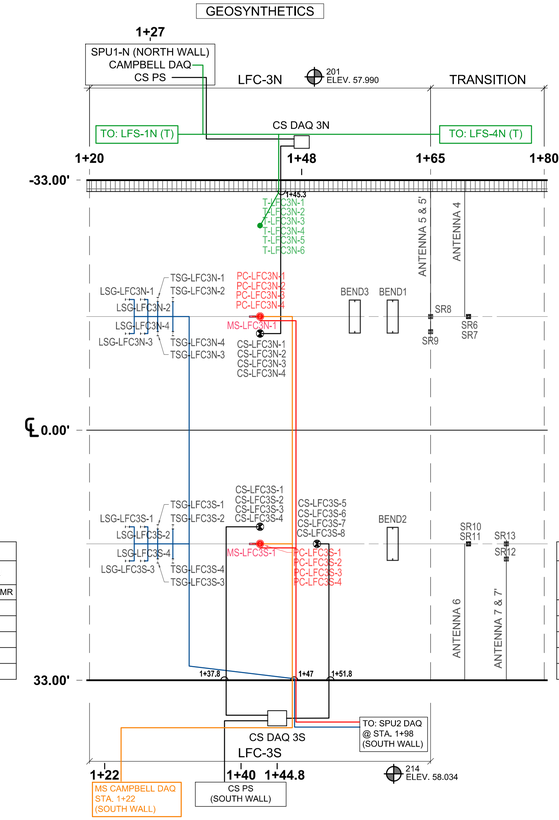


2N & 2S CABLE KEY				
CABLE COLOR CODE	NUMBER OF SENSORS IN LAYER			
	P-152MR	P-209MR	P-403MR	P-401MR
CS	4ea	4ea	0	0
PC	2ea	2ea	0	0
MS	4ea	0	0	0
LSG & TSG	0	0	16ea	0
T	0	0	0	0

TEST ITEM 2N & 2S STA. 0+60 TO 1+20

SCALE: 1"=10'

GEOSYNTHETICS



3N & 3S CABLE KEY				
CABLE COLOR CODE	NUMBER OF SENSORS IN LAYER			
	P-152MR	P-154MR	P-209MR	P-401MR
CS	4ea	4ea	4ea	0
PC	2ea	4ea	2ea	0
MS	2ea	0	0	0
LSG & TSG	0	0	0	16ea
T	0	0	0	6ea

TEST ITEM 3N & 3S STA. 1+20 TO 1+80

SCALE: 1"=10'

INSTRUMENT KEY		
SYMBOL		SENSOR TYPE
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE
	MS	MOISTURE SENSOR
	PC	9" PRESSURE CELL
	T	THERMOCOUPLE
	CS	COIL SENSOR
	SR	SMART ROCK
	ANT	ANTENNA

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP

GENERAL DYNAMICS
Information Technology
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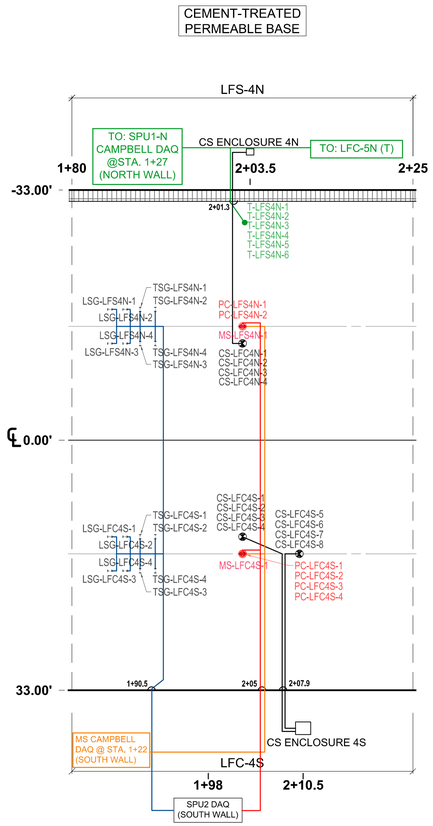
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

SENSOR CABLE ROUTING DIAGRAM AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 14 OF 30

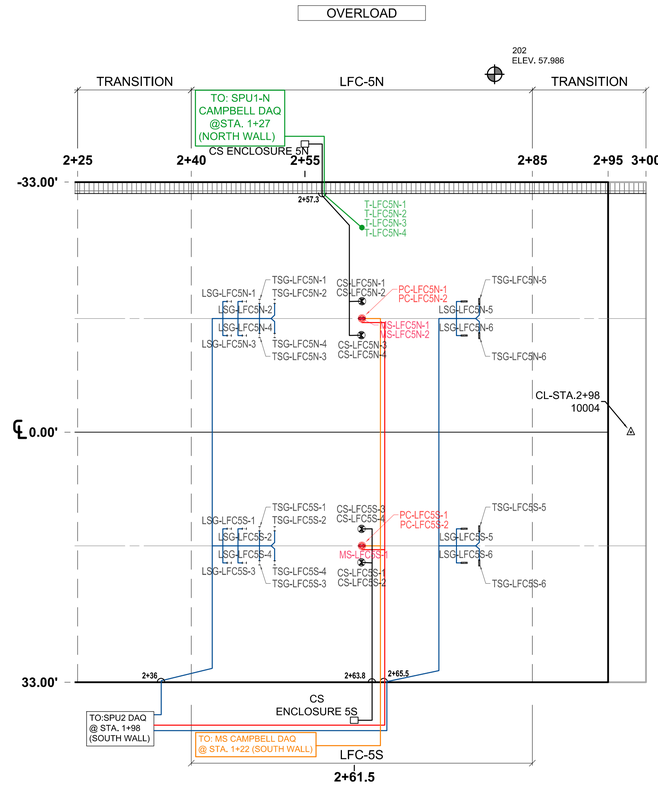
CAD FILE: CC09-CONS-PLAN-ABLT.DWG



4N & 4S CABLE KEY					
CABLE COLOR CODE		NUMBER OF SENSORS IN LAYER			
		P-152MR	P-154MR	P-209MR	P-401MR
	CS	4ea	4ea	4ea	0
	PC	2ea	3ea	1ea	0
	MS	2ea	0	0	0
	LSG & TSG	0	0	0	16ea
	T	0	0	0	6ea

TEST ITEM 4N & 4S STA. 1+80 TO 2+25

SCALE: 1"=10'



5N & 5S CABLE KEY					
CABLE COLOR CODE		NUMBER OF SENSORS IN LAYER			
		P-152MR	P-154MR	P-209MR	P-401MR
	CS	8ea	0	0	0
	PC	2ea	2ea	0	0
	MS	3ea	0	0	0
	LSG & TSG	0	0	0	24ea
	T	0	0	0	4ea

TEST ITEM 5N & 5S STA. 2+25 TO 3+00

SCALE: 1"=10'

INSTRUMENT KEY		
SYMBOL		SENSOR TYPE
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE
	MS	MOISTURE SENSOR
	PC	9" PRESSURE CELL
	T	THERMOCOUPLE
	CS	COIL SENSOR
	SR	SMART ROCK
	ANT	ANTENNA

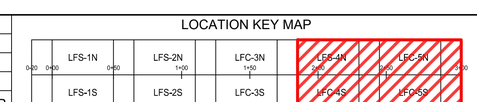
10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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FAA APPROVAL DATE:		

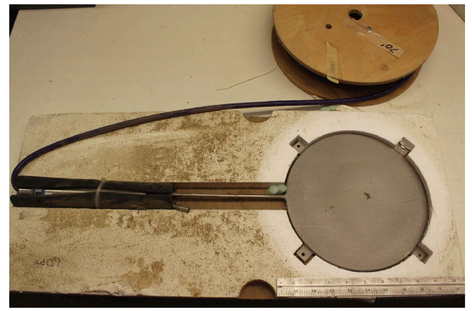
NAPTF CONSTRUCTION CYCLE 9

SENSOR CABLE ROUTING DIAGRAM AS-BUILT

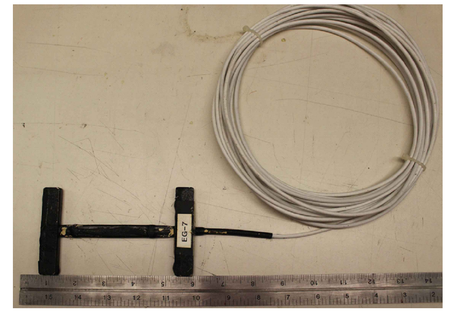
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 15 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG

THERMOCOUPLE
N.T.S.

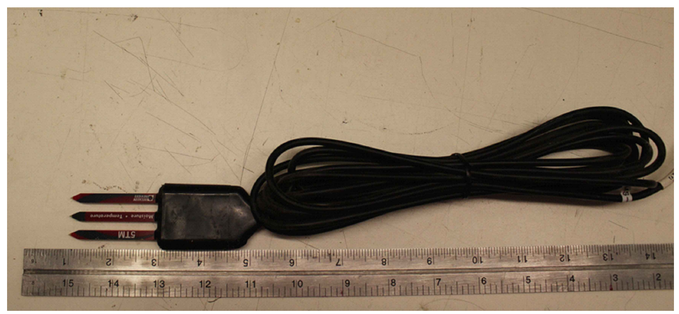


9" PRESSURE CELL
N.T.S.

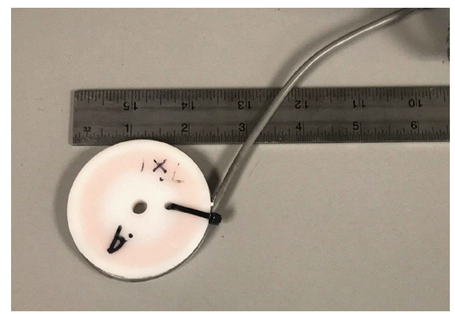


H-BAR ASPHALT STRAIN GAUGE
N.T.S.

TOKYO SOKKI STRAIN GAUGE
N.T.S.



MOISTURE SENSOR
N.T.S.



COIL SENSOR
N.T.S.

BENDER ELEMENT
N.T.S.

SMART ROCK
N.T.S.

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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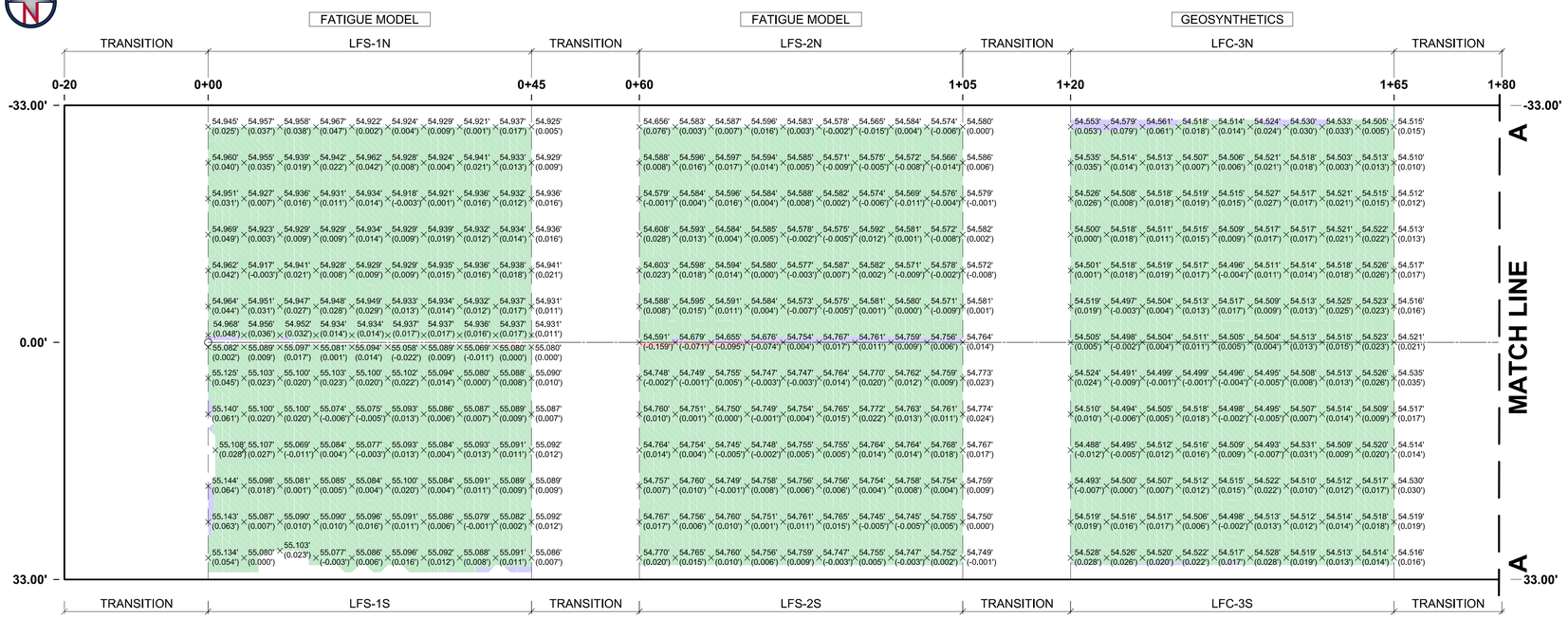
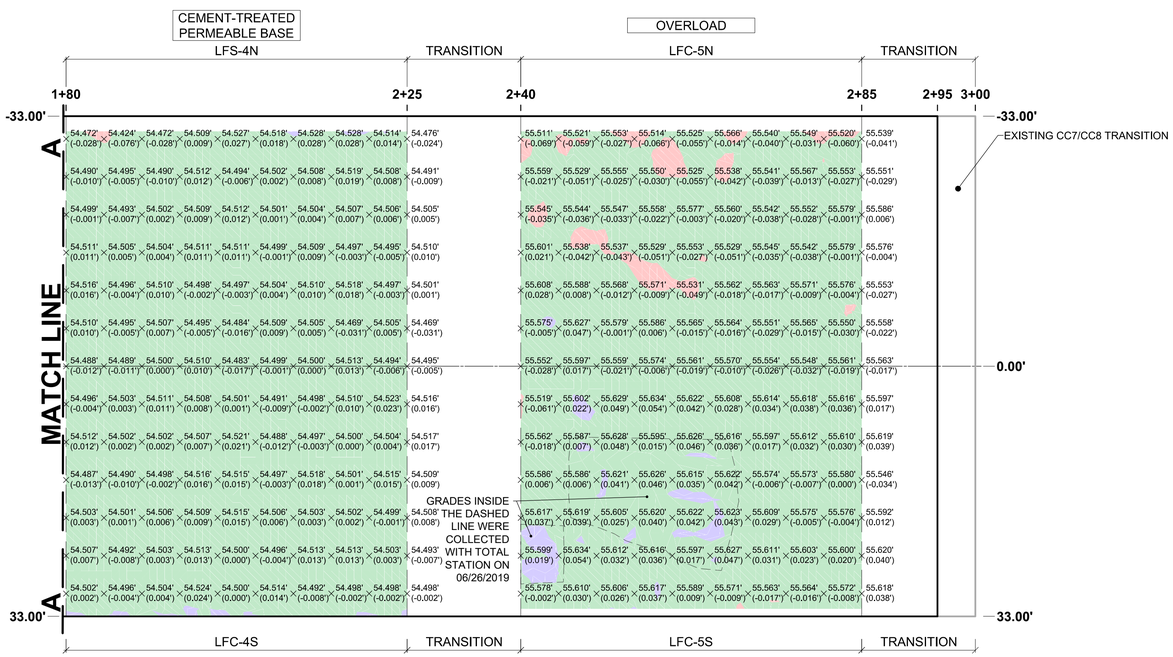
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9
INSTRUMENTATION PHOTOGRAPHS
AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 16 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG





LFS-1N (P-152MR)

TARGET ELEVATION: 54.92' ±0.05' <54.87' - 54.97'>

AVERAGE ELEVATION: 54.94'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		54.870'	54.970'	1333.20
2		54.970'	55.055'	3.30

LFS-1S (P-152MR)

TARGET ELEVATION: 55.08' ±0.05' <55.03' - 55.13'>

AVERAGE ELEVATION: 55.09'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		54.948'	55.030'	1.65
2		55.030'	55.130'	1408.85
3		55.130'	55.187'	16.00

LFS-2N (P-152MR)

TARGET ELEVATION: 54.58' ±0.05' <54.53' - 54.63'>

AVERAGE ELEVATION: 54.58'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		54.532'	54.630'	1324.30
2		54.630'	54.768'	25.70

LFS-2S (P-152MR)

TARGET ELEVATION: 54.75' ±0.05' <54.70' - 54.80'>

AVERAGE ELEVATION: 54.75'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		54.588'	54.700'	8.89
2		54.700'	54.776'	1386.11

LFC-3N (P-152MR)

TARGET ELEVATION: 54.50' ±0.05' <54.45' - 54.55'>

AVERAGE ELEVATION: 54.51'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		54.482'	54.554'	1369.07
2		54.554'	54.900'	25.93

LFC-3S (P-152MR)

TARGET ELEVATION: 54.50' ±0.05' <54.45' - 54.55'>

AVERAGE ELEVATION: 54.51'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		54.475'	54.554'	1390.06
2		54.554'	54.582'	4.94

LFS-4N (P-152MR)

TARGET ELEVATION: 54.50' ±0.05' <54.45' - 54.55'>

AVERAGE ELEVATION: 54.50'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		54.391'	54.446'	3.48
2		54.446'	54.554'	1389.37
3		54.554'	54.602'	2.16

LFC-4S (P-152MR)

TARGET ELEVATION: 54.50' ±0.05' <54.45' - 54.55'>

AVERAGE ELEVATION: 54.50'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		54.470'	54.554'	1474.08
2		54.554'	54.655'	10.92

LFC-5N (P-152MR)

TARGET ELEVATION: 55.58' ±0.05' <55.53' - 55.63'>

AVERAGE ELEVATION: 55.56'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		55.478'	55.526'	98.37
2		55.526'	55.634'	1294.71
3		55.634'	55.641'	1.92

LFC-5S (P-152MR)

TARGET ELEVATION: 55.58' ±0.05' <55.53' - 55.63'>

AVERAGE ELEVATION: 55.60'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		55.499'	55.526'	1.69
2		55.526'	55.634'	1374.64
3		55.634'	55.658'	63.67

NOTES:

1. GRADE TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-152MR SUBGRADE GRADE CONFORMANCE TOLERANCE: ±0.05'.
3. LFC-5N AND LFC-5S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 06/21/2019. ADDITIONAL GRADES WERE COLLECTED ON 06/26/2019 WITH TOTAL STATION AND WITH ROD AND LEVEL, AFTER MINOR RE-GRADING WITHIN SECTION 5S (OUTLINED IN THE PLAN VIEW ABOVE).
4. LFS-4N AND LFC-4S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 07/01/2019.
5. LFC-3N AND LFC-3S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 07/18/2019.
6. LFC-2N AND LFC-2S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 08/12/2019.
7. LFC-1N AND LFC-1S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 08/19/2019.
8. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.

LEGEND:

x - SPOT ELEVATION

CONFORMING ELEVATION

ELEVATION BELOW THE CONFORMANCE RANGE

ELEVATION ABOVE THE CONFORMANCE RANGE

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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NEW JERSEY 08234
PHONE: (609) 677-8543

FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

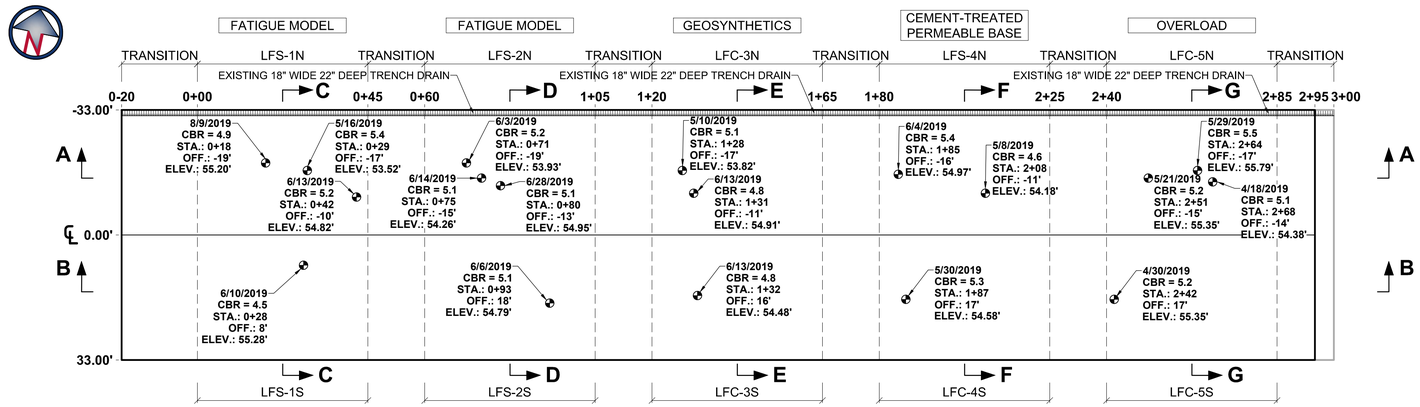
	NAME	DATE
DRAWN	M. MAZUREK	08/23/2019
CHECKED	C. UNZICKER	08/23/2019
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9

P-152MR SUBGRADE ELEVATION MAP AS-BUILT

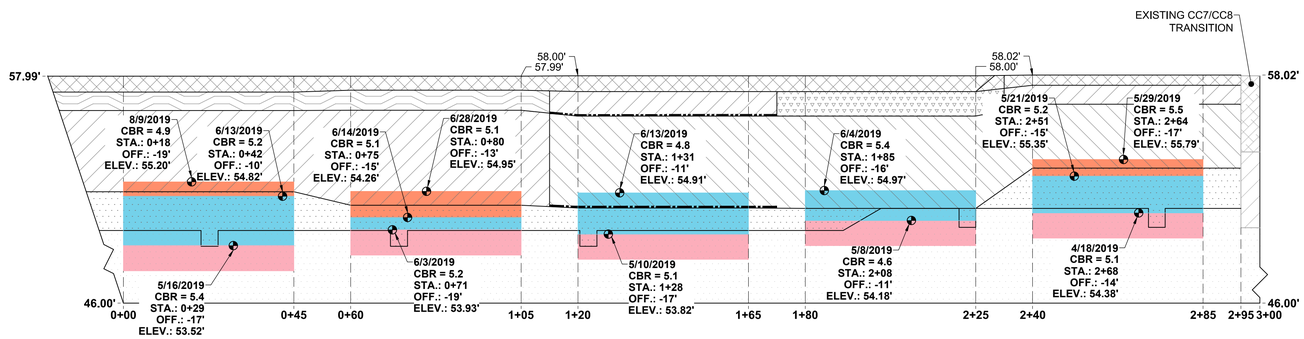
PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 17 OF 30

CAD FILE: CC09-CONF-ABLT.DWG



PLAN VIEW

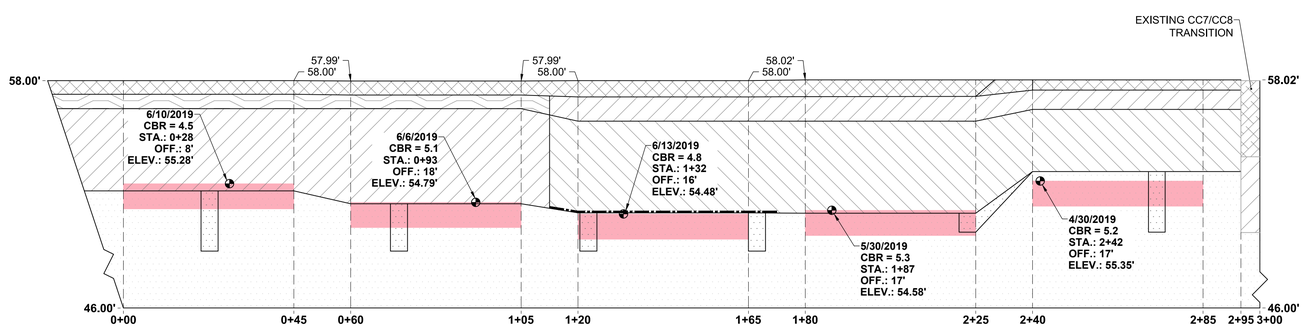
SCALE: 1"=20'



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=2'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=2'

CBR TEST SUMMARY TABLE

Test Item	Lift	Date Passed	CBR Value	CBR Location	Lift Elevation	Lift Thickness*
			%		ft	in
LFS-1S	Lift 0	6/10/2019	4.5	STA 0+28, 8ft	55.28	N/A
LFS-2S	Lift 0	6/6/2019	5.1	STA 0+93, 18ft	54.79	N/A
LFC-3S	Lift 0	6/13/2019	4.8	STA 1+32, 16ft	54.48	N/A
LFC-4S	Lift 0	5/30/2019	5.3	STA 1+87, 17ft	54.58	N/A
LFC-5S	Lift 0	4/30/2019	5.2	STA 2+42, 17ft	55.35	N/A
LFS-1N	Lift 0	5/16/2019	5.4	STA 0+29, -17ft	53.52	N/A
LFS-1N	Lift 1	6/13/2019	5.2	STA 0+42, -10ft	54.82	15.6
LFS-1N	Lift 2	8/9/2019	4.9	STA 0+18, -19ft	55.20	4.6
LFS-2N	Lift 0	6/3/2019	5.2	STA 0+71, -19ft	53.93	N/A
LFS-2N	Lift 1	6/14/2019	5.1	STA 0+75, -15ft	54.26	4.0
LFS-2N	Lift 2	6/28/2019	5.1	STA 0+80, -13ft	54.95	8.3
LFC-3N	Lift 0	5/10/2019	5.1	STA 1+28, -17ft	53.82	N/A
LFC-3N	Lift 1	6/13/2019	4.8	STA 1+31, -11ft	54.91	13.1
LFS-4N	Lift 0	5/8/2019	4.6	STA 2+08, -11ft	54.18	N/A
LFS-4N	Lift 1	6/4/2019	5.4	STA 1+85, -16ft	54.97	9.5
LFC-5N	Lift 0	4/18/2019	5.1	STA 2+68, -14ft	54.38	N/A
LFC-5N	Lift 1	5/21/2019	5.2	STA 2+51, -15ft	55.35	11.6
LFC-5N	Lift 2	5/29/2019	5.5	STA 2+64, -17ft	55.79	5.3

* NOTE - LIFT THICKNESS WAS DETERMINED BY INDIVIDUAL LOCATIONS AT CBR POINT. LIFT THICKNESS MAY NOT BE REPRESENTATIVE OF ENTIRE LAYER.

NOTES:

1. LFC = LOW STRENGTH SUBGRADE, FLEXIBLE CONVENTIONAL PAVEMENT.
2. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
3. CBR = CALIFORNIA BEARING RATIO.
4. PERMEABLE BASE IS CEMENT TREATED.

LEGEND:

- TEST LOCATION
- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-154MR SEPARATION FABRIC, CLASS 2
- P-159MR GEOGRID, CLASS B
- LIFT 0 - 8" THICK
- LIFT 1 - SEE TABLE ON THIS SHEET FOR THICKNESS
- LIFT 2 - SEE TABLE ON THIS SHEET FOR THICKNESS
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)
- P-154MR SUBBASE COURSE
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-307MR CEMENT TREATED PERMEABLE BASE COURSE (CTPB)
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS
- P-403MR HOT MIX ASPHALT (HMA) PAVEMENTS BASE COURSE
- P-501MR - CONCRETE PAVEMENT (PORTLAND CEMENT CONCRETE)

20 0 20 40 60

GRAPHIC SCALE

1" = 20'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP

NAPTF BUILDING

NORTH WALL

CC9 PROJECT SITE

SOUTH WALL

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ATLANTIC CITY AIRPORT
NEW JERSEY 08234

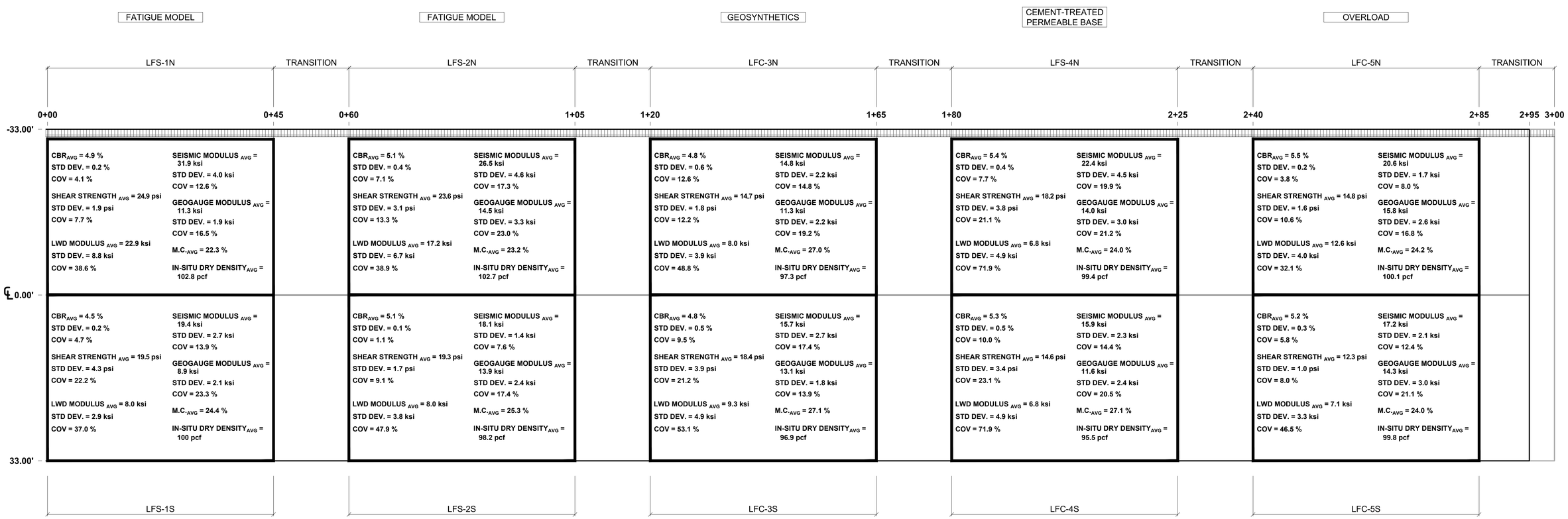
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

SUBGRADE P-152MR LIFT PLACEMENT AND CBR PLAN, AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 18 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



PLAN VIEW

SCALE: 1"=10'

NOTES:

1. TESTS REPORTED WERE THOSE CONDUCTED ON THE FINAL, SURFACE LIFT.
2. IF NO STANDARD DEVIATION OR COV. REPORTED, THERE WERE TOO FEW TESTS TO DERIVE STATISTICS.

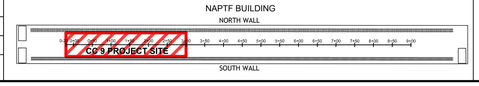
10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

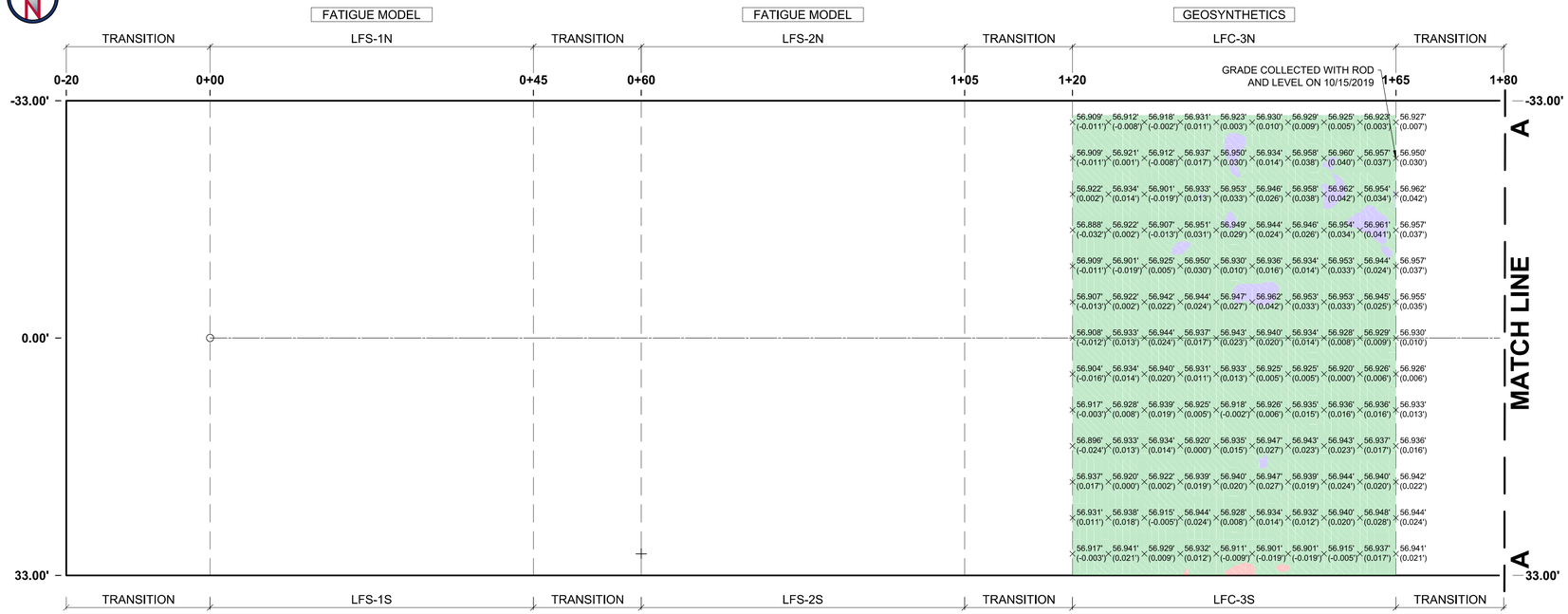
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

SUBGRADE P-152MR ACCEPTANCE AND CHARACTERIZATION RESULTS, AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 19 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



LFC-3N (P-154MR)

TARGET ELEVATION: 56.92' ±0.042' <56.878' - 56.962'>

AVERAGE ELEVATION: 56.94'

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		56.885'	56.961'	1328.52
2		56.961'	56.972'	66.48

LFC-3S (P-154MR)

TARGET ELEVATION: 56.92' ±0.042' <56.878' - 56.962'>

AVERAGE ELEVATION: 56.93'

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		56.860'	56.879'	7.82
2		56.879'	56.961'	1475.36
3		56.961'	56.964'	1.82

LFS-4N (P-154MR)

TARGET ELEVATION: 56.92' ±0.042' <56.878' - 56.962'>

AVERAGE ELEVATION: 56.94'

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		56.884'	56.961'	1371.19
2		56.961'	56.979'	23.81

LFC-4S (P-154MR)

TARGET ELEVATION: 56.92' ±0.042' <56.878' - 56.962'>

AVERAGE ELEVATION: 56.93'

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		56.890'	56.961'	1439.33
2		56.961'	57.004'	45.67

LFC-5N (P-154MR)

TARGET ELEVATION: 57.25' ±0.042' <57.208' - 57.292'>

AVERAGE ELEVATION: 57.25'

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.200'	57.208'	11.00
2		57.208'	57.284'	1384.00

LFC-5S (P-154MR)

TARGET ELEVATION: 57.25' ±0.042' <57.208' - 57.292'>

AVERAGE ELEVATION: 57.24'

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.202'	57.208'	11.94
2		57.208'	57.269'	1473.06

NOTES:

1. GRADE TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-154MR GRADE CONFORMANCE TOLERANCE: ±$\frac{1}{2}$" (0.042').
3. LFC-5N AND LFC-5S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 09/11/2019.
4. LFC-3N, LFC-3S, LFS-4N, AND LFC-4S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 10/10/2019. ADDITIONAL GRADES WERE COLLECTED ON 10/15/2019 WITH ROD AND LEVEL (OUTLINED IN THE PLAN VIEW ABOVE).
5. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.

LEGEND:

x - SPOT ELEVATION

CONFORMING ELEVATION

ELEVATION BELOW THE CONFORMANCE RANGE

ELEVATION ABOVE THE CONFORMANCE RANGE

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	M. MAZUREK	10/17/2019
CHECKED	C. UNZICKER	10/17/2019
FAA APPROVAL DATE:		

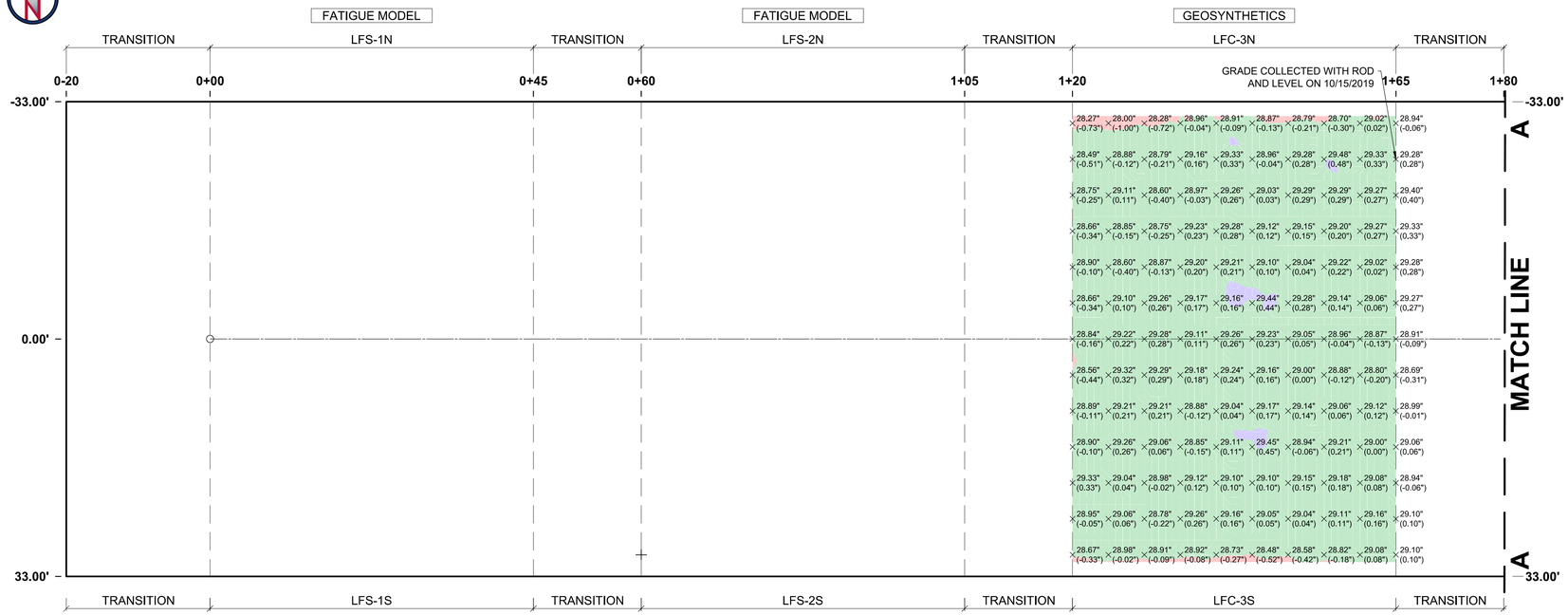
CONSTRUCTION CYCLE 9

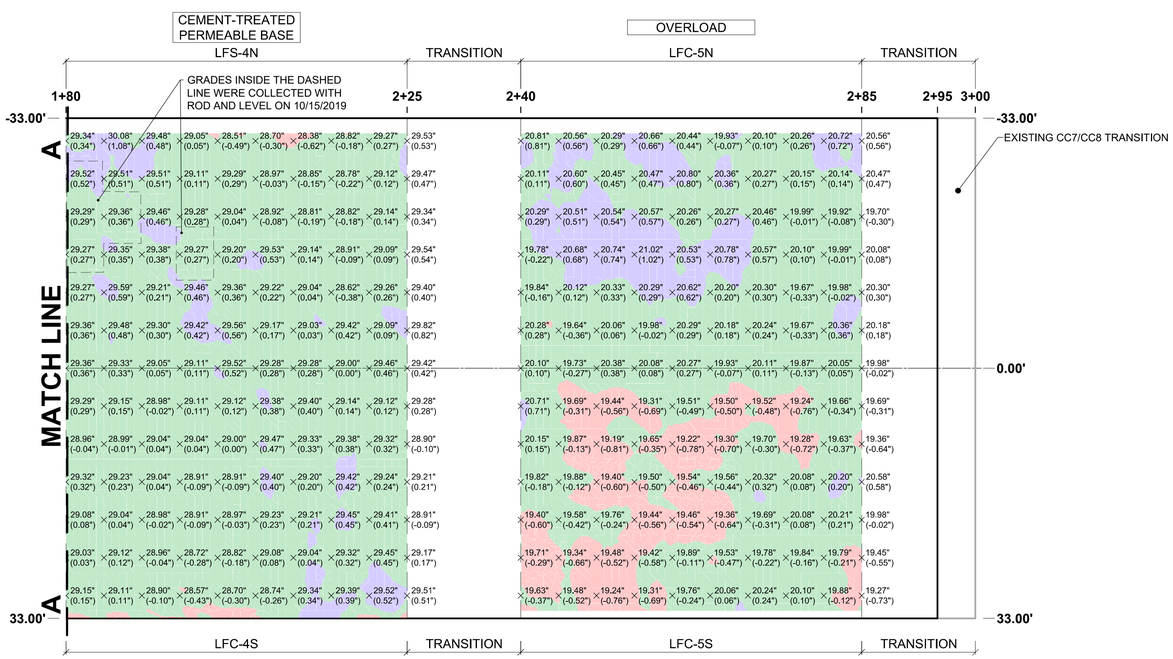
P-154MR SUBBASE ELEVATION MAP

AS-BUILT

PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 20 OF 30

CAD FILE: CC09-CONF-ABLT.DWG





LFC-3N (P-154MR)

TARGET THICKNESS: 29" ±½" <28.50" - 29.50">

AVERAGE THICKNESS: 29.10"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		2.017'	2.375'	31.46
2		2.375'	2.458'	1344.95
3		2.458'	2.470'	18.59

LFC-3S (P-154MR)

TARGET THICKNESS: 29" ±½" <28.50" - 29.50">

AVERAGE THICKNESS: 29.08"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		2.312'	2.375'	17.73
2		2.375'	2.458'	1369.10
3		2.458'	2.467'	8.17

LFS-4N (P-154MR)

TARGET THICKNESS: 29" ±½" <28.50" - 29.50">

AVERAGE THICKNESS: 29.21"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		2.282'	2.375'	7.85
2		2.375'	2.458'	1252.72
3		2.458'	2.523'	134.43

LFC-4S (P-154MR)

TARGET THICKNESS: 29" ±½" <28.50" - 29.50">

AVERAGE THICKNESS: 29.14"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		2.250'	2.375'	21.56
2		2.375'	2.458'	1377.90
3		2.458'	2.497'	85.54

LFC-5N (P-154MR)

TARGET THICKNESS: 20" ±½" <19.50" - 20.50">

AVERAGE THICKNESS: 20.29"

THICKNESS MAP LEGEND				
ID	COLOR	MIN. THICKNESS [INCH]	MAX. THICKNESS [INCH]	AREA [SQ. FT]
1		19.43"	19.50"	0.70
2		19.50"	20.50"	1002.41
3		20.50"	21.29"	391.89

LFC-5S (P-154MR)

TARGET THICKNESS: 20" ±½" <19.50" - 20.50">

AVERAGE THICKNESS: 19.67"

THICKNESS MAP LEGEND				
ID	COLOR	MIN. THICKNESS [INCH]	MAX. THICKNESS [INCH]	AREA [SQ. FT]
1		18.78"	19.50"	532.67
2		19.50"	20.50"	893.96
3		20.50"	20.93"	13.37

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NOTES:

1. GRADE TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-154MR THICKNESS CONFORMANCE TOLERANCE: ±½" (0.042').
3. LFC-5N AND LFC-5S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 09/11/2019.
4. LFC-3N, LFC-3S, LFS-4N, AND LFC-4S TEST ITEMS 3D SCAN DATA WAS COLLECTED ON 10/10/2019. ADDITIONAL GRADES WERE COLLECTED ON 10/15/2019 WITH ROD AND LEVEL (OUTLINED IN THE PLAN VIEW ABOVE).
5. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.

LEGEND:

x - THICKNESS LABEL

CONFORMING THICKNESS

THICKNESS BELOW THE CONFORMANCE RANGE

THICKNESS ABOVE THE CONFORMANCE RANGE

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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ATLANTIC CITY AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	M. MAZUREK	10/17/2019
CHECKED	C. UNZICKER	10/17/2019
FAA APPROVAL DATE:		

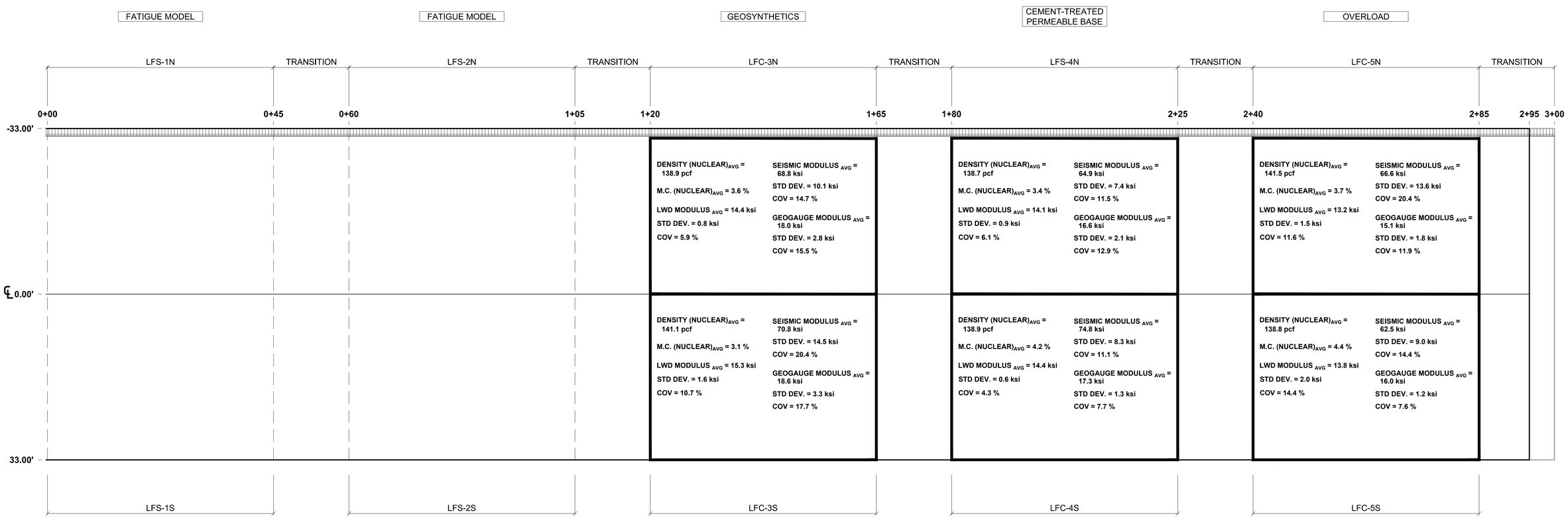
CONSTRUCTION CYCLE 9

P-154MR SUBBASE THICKNESS MAP

AS-BUILT

PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 21 OF 30

CAD FILE: CC09-CONF-ABLT.DWG



PLAN VIEW

SCALE: 1"=10'

NOTES:

1. TESTS REPORTED WERE THOSE CONDUCTED ON THE FINAL, SURFACE LIFT.
2. IF NO STANDARD DEVIATION OR COV. REPORTED, THERE WERE TOO FEW TESTS TO DERIVE STATISTICS.

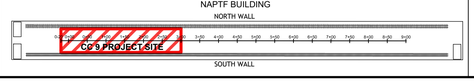
10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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ATLANTIC CITY AIRPORT
NEW JERSEY 08234

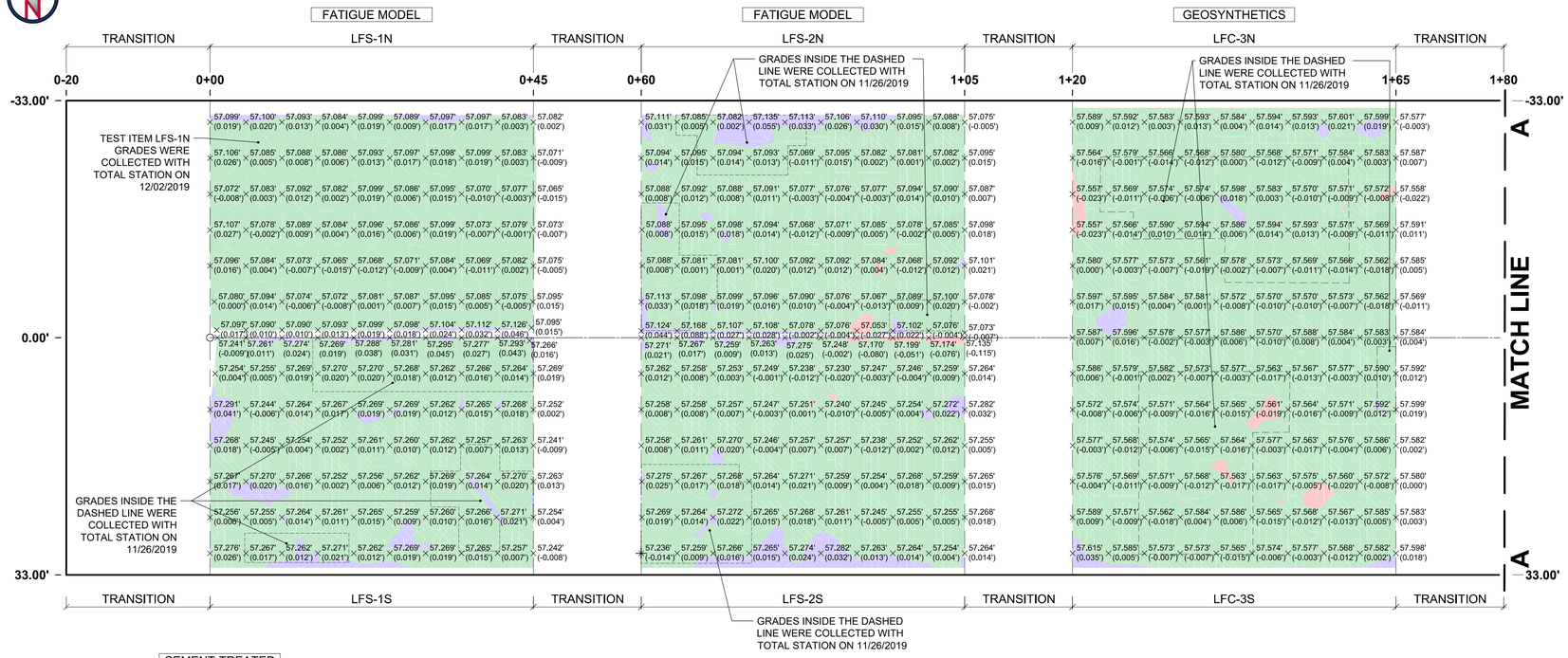
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

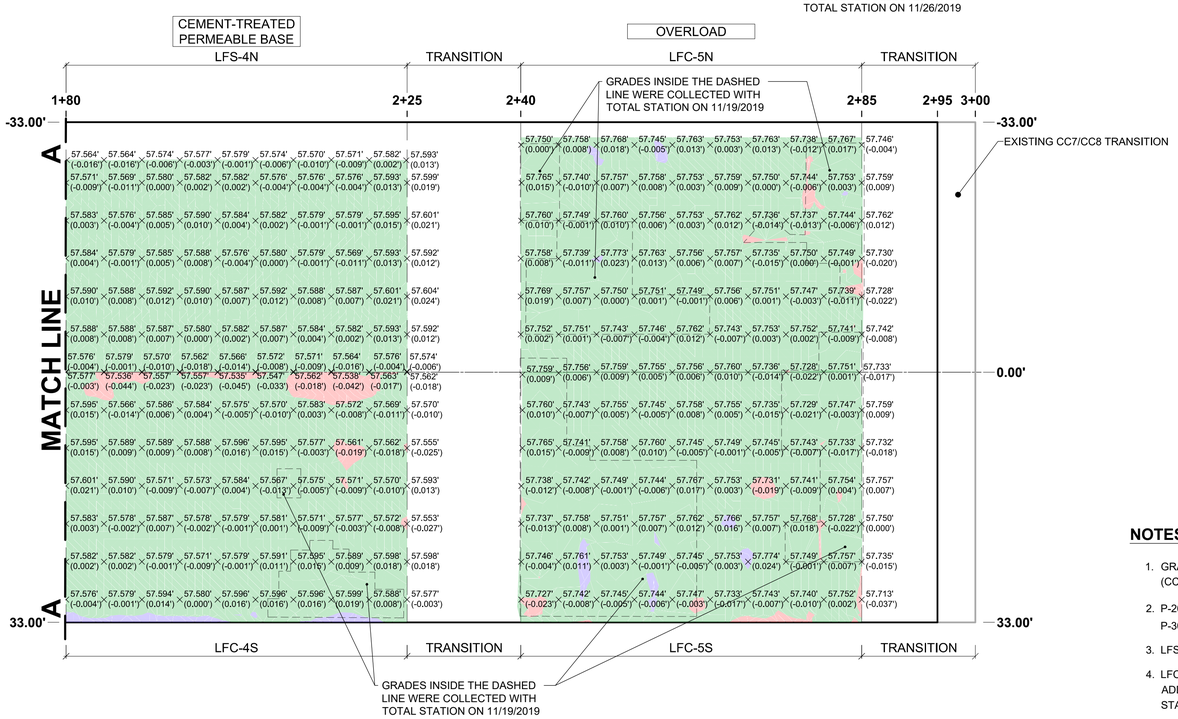
NAPTF CONSTRUCTION CYCLE 9

P-154MR ACCEPTANCE AND CHARACTERIZATION RESULTS, AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 22 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG





LFS-1N (P-209MR)

TARGET ELEVATION: 57.08' ±0.021' <57.059' - 57.101'>
AVERAGE ELEVATION: 57.08'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.060'	57.101'	1332.26
2		57.101'	57.156'	22.90

LFS-1S (P-209MR)

TARGET ELEVATION: 57.25' ±0.021' <57.229' - 57.271'>
AVERAGE ELEVATION: 57.26'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.225'	57.229'	0.03
2		57.229'	57.271'	1338.12
3		57.271'	57.301'	97.10

LFS-2N (P-209MR)

TARGET ELEVATION: 57.08' ±0.021' <57.059' - 57.101'>
AVERAGE ELEVATION: 57.09'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.046'	57.059'	8.90
2		57.059'	57.101'	1266.67
3		57.101'	57.280'	96.29

LFS-2S (P-209MR)

TARGET ELEVATION: 57.25' ±0.021' <57.229' - 57.271'>
AVERAGE ELEVATION: 57.26'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.135'	57.229'	10.39
2		57.229'	57.271'	1329.34
3		57.271'	57.401'	100.52

LFC-3N (P-209MR)

TARGET ELEVATION: 57.58' ±0.021' <57.559' - 57.601'>
AVERAGE ELEVATION: 57.58'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.554'	57.559'	12.88
2		57.559'	57.601'	1398.40
3		57.601'	57.612'	28.82

LFC-3S (P-209MR)

TARGET ELEVATION: 57.58' ±0.021' <57.559' - 57.601'>
AVERAGE ELEVATION: 57.57'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.554'	57.559'	25.28
2		57.559'	57.601'	1396.44
3		57.601'	57.640'	18.27

LFS-4N (P-307MR)

TARGET ELEVATION: 57.58' ±0.042' <57.538' - 57.622'>
AVERAGE ELEVATION: 57.58'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.558'	57.609'	1262.33

LFC-4S (P-209MR)

TARGET ELEVATION: 57.58' ±0.021' <57.559' - 57.601'>
AVERAGE ELEVATION: 57.58'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.518'	57.559'	81.27
2		57.559'	57.622'	1377.28
3		57.622'	57.689'	26.45

LFC-5N (P-209MR)

TARGET ELEVATION: 57.75' ±0.021' <57.729' - 57.771'>
AVERAGE ELEVATION: 57.75'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.712'	57.729'	16.41
2		57.729'	57.771'	1376.20
3		57.771'	57.776'	7.83

LFC-5S (P-209MR)

TARGET ELEVATION: 57.75' ±0.021' <57.729' - 57.771'>
AVERAGE ELEVATION: 57.75'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.710'	57.729'	33.64
2		57.729'	57.771'	1434.53
3		57.771'	57.786'	20.10

10 0 10 20 30
GRAPHIC SCALE
1" = 10'

NOTES:

1. GRADE TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-209MR GRADE CONFORMANCE TOLERANCE: ±1/4" (0.021').
   P-307MR GRADE CONFORMANCE TOLERANCE: ±1/2" (0.042').
3. LFS-4N TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/06/2019.
4. LFC-5N AND LFC-5S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/18/2019. ADDITIONAL GRADES WERE COLLECTED ON 11/19/2019 & 11/20/2019 WITH TOTAL STATION (OUTLINED IN THE PLAN VIEW ABOVE).
5. LFC-4S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/19/2019. ADDITIONAL GRADES WERE COLLECTED ON 11/19/2019 WITH TOTAL STATION (OUTLINED IN THE PLAN VIEW ABOVE).
6. LFC-3N AND LFC-3S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/22/2019. ADDITIONAL GRADES WERE COLLECTED ON 11/26/2019 WITH TOTAL STATION (OUTLINED IN THE PLAN VIEW ABOVE).
7. LFS-1S, LFS-2N, AND LFS-2S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/25/2019. ADDITIONAL GRADES WERE COLLECTED ON 11/26/2019 WITH TOTAL STATION (OUTLINED IN THE PLAN VIEW ABOVE).
8. LFS-1N GRADES WERE COLLECTED WITH TOTAL STATION ON 12/02/2019.
9. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.

LEGEND:

x - SPOT ELEVATION
CONFORMING ELEVATION
ELEVATION BELOW THE CONFORMANCE RANGE
ELEVATION ABOVE THE CONFORMANCE RANGE

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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PHONE: (609) 677-8543

FOR

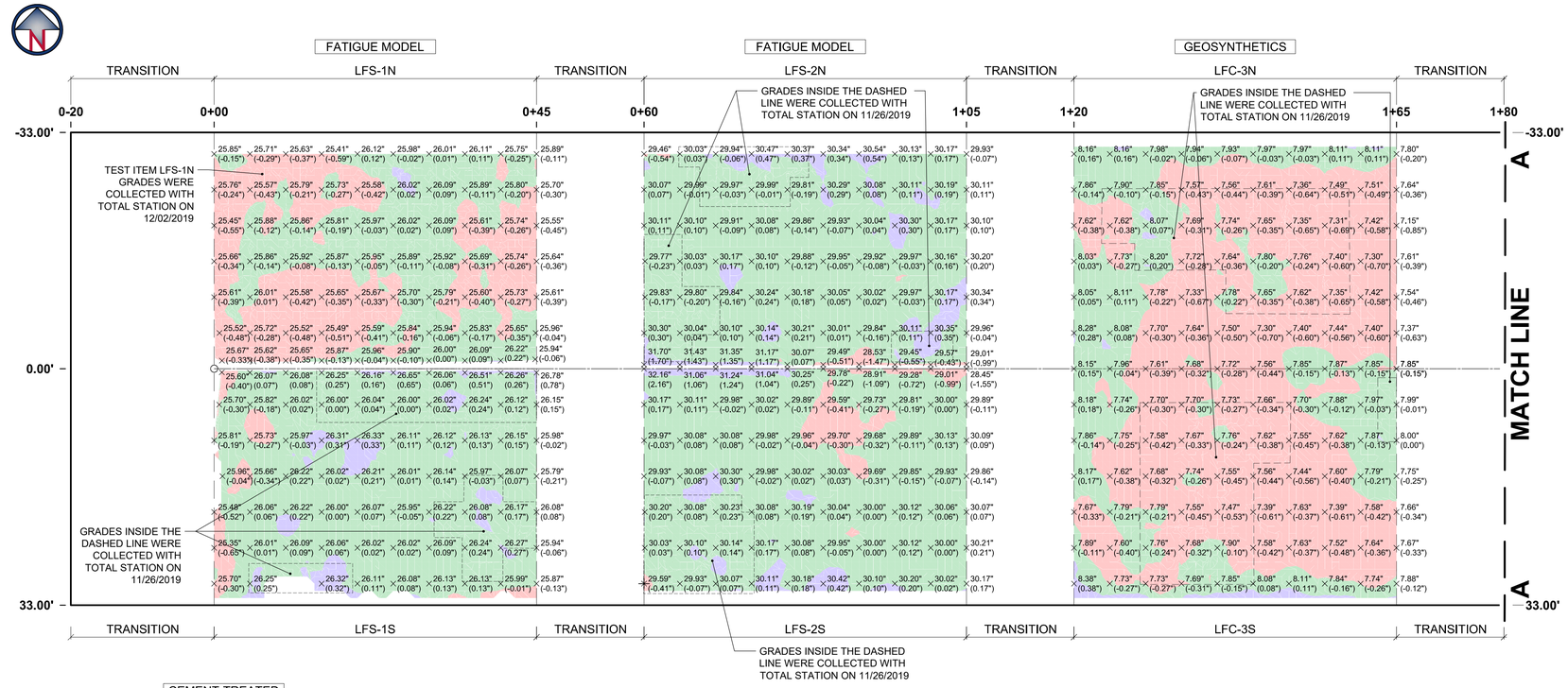
NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

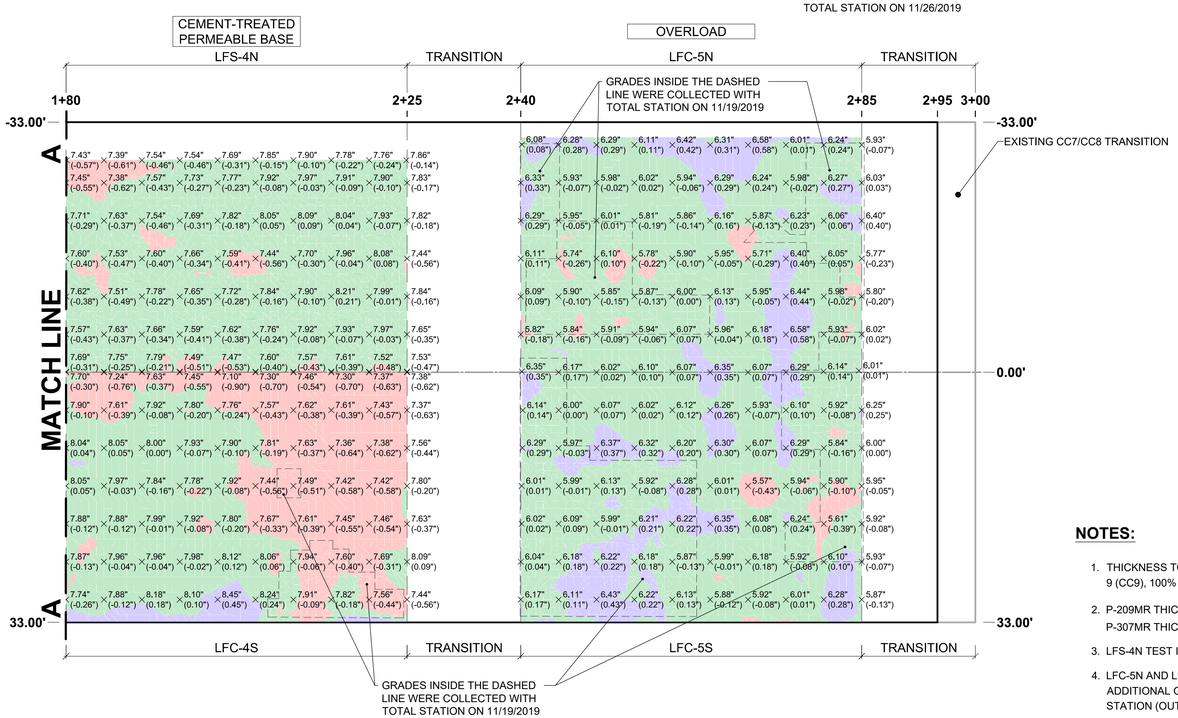
	NAME	DATE
DRAWN	M. MAZUREK	12/03/2019
CHECKED	C. UNZICKER	12/03/2019
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9
P-209MR & P-307MR BASE LAYER ELEVATION MAP AS-BUILT

PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 23 OF 30

CAD FILE: CC09-CONF-ABLT.DWG





LFS-1N (P-209MR)

TARGET THICKNESS: 26" ±¼" <25.75" - 26.25">

AVERAGE THICKNESS: 25.75"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		2.097'	2.146'	647.92
2		2.146'	2.188'	648.43
3		2.188'	2.199'	6.86

LFS-1S (P-209MR)

TARGET THICKNESS: 26" ±¼" <25.75" - 26.25">

AVERAGE THICKNESS: 26.06"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		2.063'	2.146'	67.31
2		2.146'	2.188'	1217.06
3		2.188'	2.307'	97.92

LFS-2N (P-209MR)

TARGET THICKNESS: 30" ±¼" <29.75" - 30.25">

AVERAGE THICKNESS: 30.07"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		2.359'	2.479'	16.15
2		2.479'	2.521'	1188.85
3		2.521'	2.679'	121.86

LFS-2S (P-209MR)

TARGET THICKNESS: 30" ±¼" <29.75" - 30.25">

AVERAGE THICKNESS: 30.04"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		2.371'	2.479'	90.64
2		2.479'	2.521'	1224.08
3		2.521'	2.680'	80.04

LFC-3N (P-209MR)

TARGET THICKNESS: 8" ±¼" <7.75" - 8.25">

AVERAGE THICKNESS: 7.67"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.594'	0.646'	938.17
2		0.646'	0.688'	449.32
3		0.688'	0.700'	7.51

LFC-3S (P-209MR)

TARGET THICKNESS: 8" ±¼" <7.75" - 8.25">

AVERAGE THICKNESS: 7.69"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.601'	0.646'	949.28
2		0.646'	0.688'	464.32
3		0.688'	0.731'	26.40

LFS-4N (P-307MR)

TARGET THICKNESS: 8" ±½" <7.50" - 8.50">

AVERAGE THICKNESS: 7.75"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.609'	0.625'	93.46
2		0.625'	0.700'	1165.90

LFC-4S (P-209MR)

TARGET THICKNESS: 8" ±¼" <7.75" - 8.25">

AVERAGE THICKNESS: 7.78"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.583'	0.646'	680.32
2		0.646'	0.688'	738.08
3		0.688'	0.754'	66.59

LFC-5N (P-209MR)

TARGET THICKNESS: 6" ±¼" <5.75" - 6.25">

AVERAGE THICKNESS: 6.05"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.457'	0.479'	49.58
2		0.479'	0.521'	1131.99
3		0.521'	0.559'	212.25

LFC-5S (P-209MR)

TARGET THICKNESS: 6" ±¼" <5.75" - 6.25">

AVERAGE THICKNESS: 6.10"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.454'	0.479'	56.12
2		0.479'	0.521'	1124.93
3		0.521'	0.560'	300.41

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NOTES:

1. THICKNESS TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-209MR THICKNESS CONFORMANCE TOLERANCE: ±¼" (0.021').
   P-307MR THICKNESS CONFORMANCE TOLERANCE: ±½" (0.042').
3. LFS-4N TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/06/2019.
4. LFC-5N AND LFC-5S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/18/2019. ADDITIONAL GRADES WERE COLLECTED ON 11/19/2019 & 11/20/2019 WITH TOTAL STATION (OUTLINED IN THE PLAN VIEW ABOVE).
5. LFC-4S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/19/2019. ADDITIONAL GRADES WERE COLLECTED ON 11/19/2019 WITH TOTAL STATION (OUTLINED IN THE PLAN VIEW ABOVE).
6. LFC-3N AND LFC-3S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/22/2019. ADDITIONAL GRADES WERE COLLECTED ON 11/26/2019 WITH TOTAL STATION (OUTLINED IN THE PLAN VIEW ABOVE).
7. LFS-1S, LFS-2N, AND LFS-2S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 11/25/2019. ADDITIONAL GRADES WERE COLLECTED ON 11/26/2019 WITH TOTAL STATION (OUTLINED IN THE PLAN VIEW ABOVE).
8. LFS-1N GRADES WERE COLLECTED WITH TOTAL STATION ON 12/02/2019.
9. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.

LEGEND:

x - THICKNESS LABEL

CONFORMING THICKNESS

THICKNESS BELOW THE CONFORMANCE RANGE

THICKNESS ABOVE THE CONFORMANCE RANGE

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

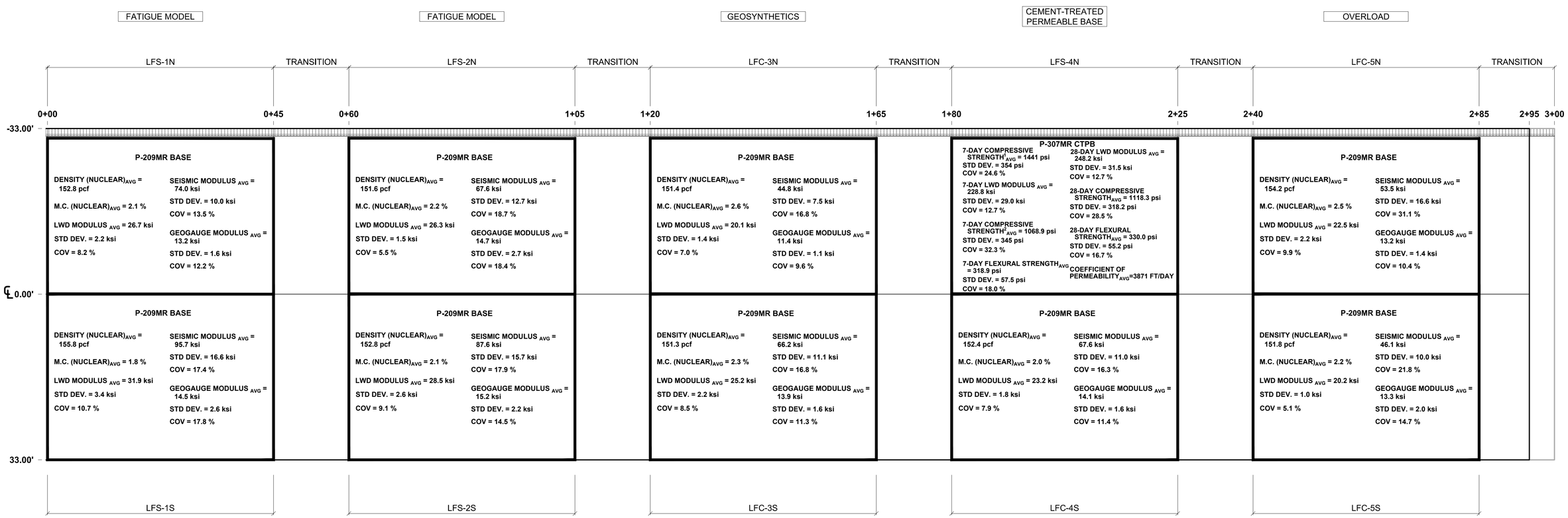
	NAME	DATE
DRAWN	M. MAZUREK	12/03/2019
CHECKED	C. UNZICKER	12/03/2019
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9

P-209MR & P-307MR BASE LAYER THICKNESS MAP AS-BUILT

PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 24 OF 30

CAD FILE: CC09-CONF-ABLT.DWG



PLAN VIEW

SCALE: 1"=10'

[1]CYLINDERS WERE CONSOLIDATED USING METHOD DESCRIBED IN ASTM C31.

[2]CYLINDERS WERE CONSOLIDATED USING METHOD DESCRIBED IN ASTM C1688 AND FINISHING WITH A STRIKE OFF PLATE.

NOTES:

1. TESTS REPORTED WERE THOSE CONDUCTED ON THE FINAL, SURFACE LIFT.
2. IF NO STANDARD DEVIATION OR COV. REPORTED, THERE WERE TOO FEW TESTS TO DERIVE STATISTICS.

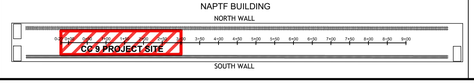
10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

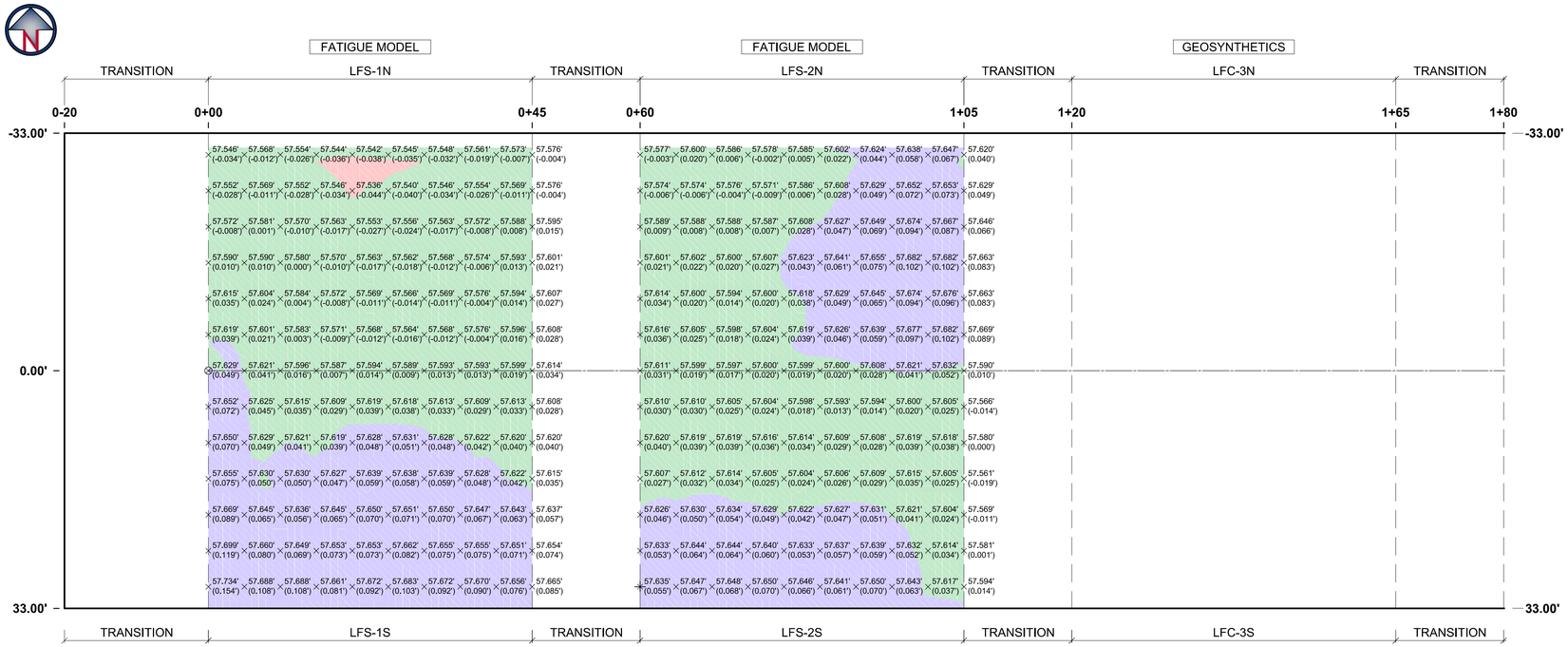
	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

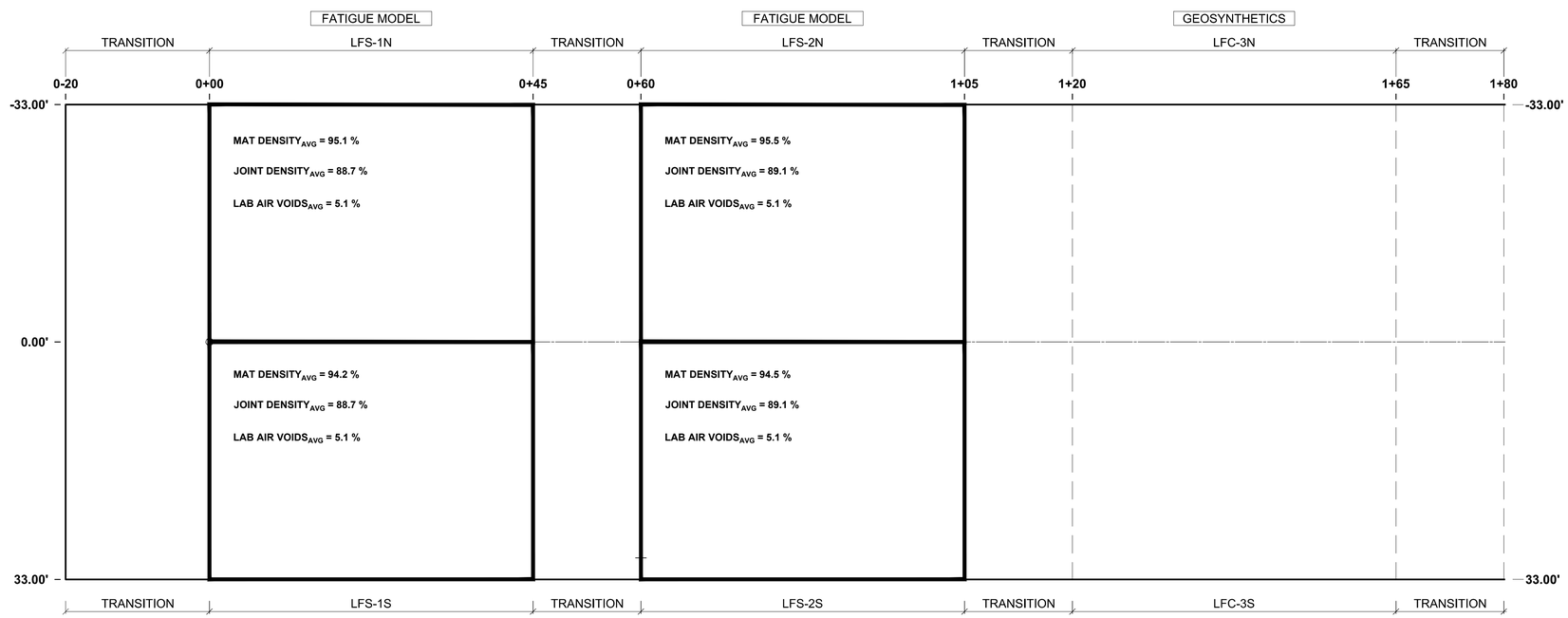
NAPTF CONSTRUCTION CYCLE 9

P-209MR AND P-307MR ACCEPTANCE AND CHARACTERIZATION RESULTS, AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 25 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG





LFS-1N (P-403MR)

TARGET ELEVATION: 57.58' ±0.042' <57.538' - 57.622'>

AVERAGE ELEVATION: 57.57'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.530'	57.538'	39.51
2		57.538'	57.622'	1344.52
3		57.622'	57.629'	10.97

LFS-1S (P-403MR)

TARGET ELEVATION: 57.58' ±0.042' <57.538' - 57.622'>

AVERAGE ELEVATION: 57.64'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.585'	57.622'	408.35
2		57.622'	57.770'	1076.65

LFS-2N (P-403MR)

TARGET ELEVATION: 57.58' ±0.042' <57.538' - 57.622'>

AVERAGE ELEVATION: 57.62'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.565'	57.622'	752.13
2		57.622'	57.696'	642.87

LFS-2S (P-403MR)

TARGET ELEVATION: 57.58' ±0.042' <57.538' - 57.622'>

AVERAGE ELEVATION: 57.62'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.552'	57.622'	920.83
2		57.622'	57.757'	564.17

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NOTES:

1. GRADE TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-403MR GRADE CONFORMANCE TOLERANCE: $\pm\frac{1}{2}$" (0.042').
3. LFS-1N, LFS-1S, LFS-2N, AND LFS-2S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 12/10/2019.
4. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.
5. TESTS REPORTED WERE THOSE CONDUCTED ON THE FINAL, SURFACE LIFT.
6. IF NO STANDARD DEVIATION OR COV. REPORTED, THERE WERE TOO FEW TESTS TO DERIVE STATISTICS.

LEGEND:

x - SPOT ELEVATION

CONFORMING ELEVATION

ELEVATION BELOW THE CONFORMANCE RANGE

ELEVATION ABOVE THE CONFORMANCE RANGE

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

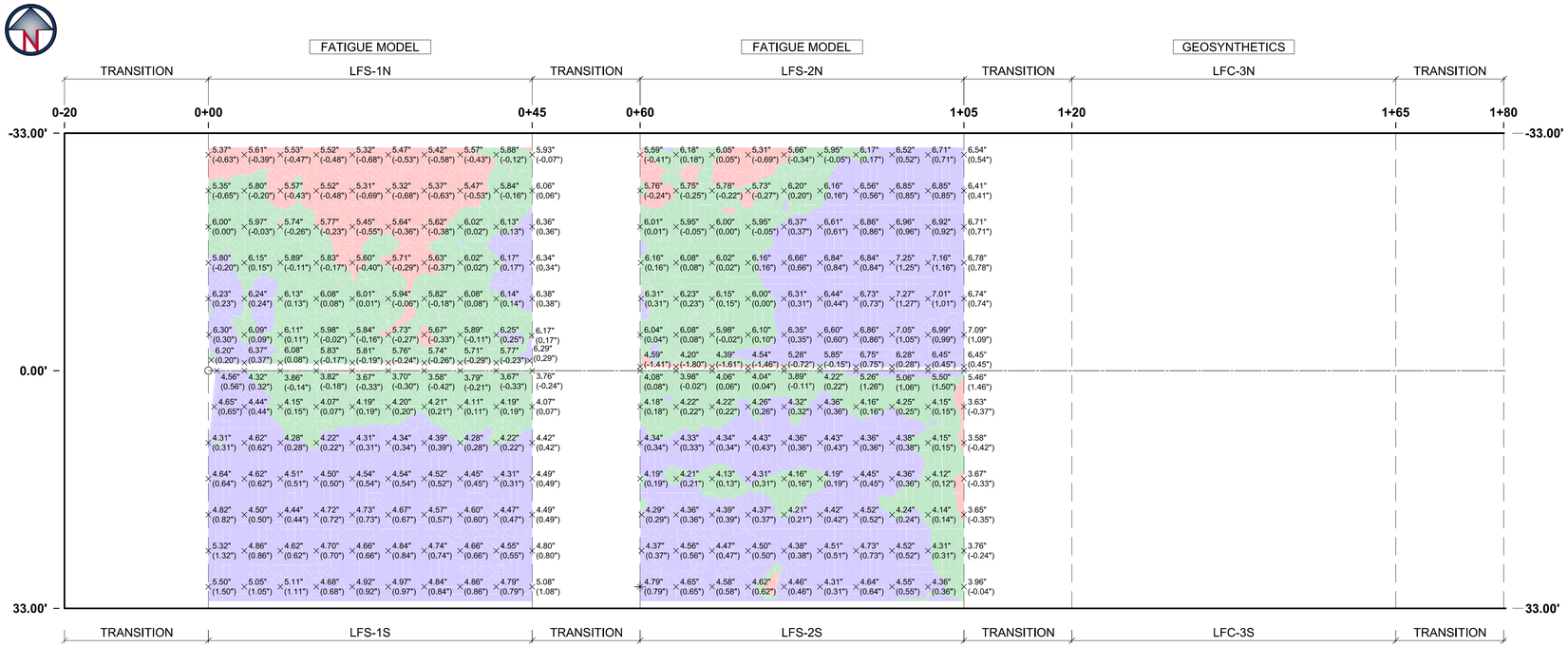
	NAME	DATE
DRAWN	M. MAZUREK	01/23/2020
CHECKED	C. UNZICKER	01/23/2020
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9

P-403MR HOT MIX ASPHALT ELEVATION MAP, ACCEPTANCE & CHARACTERIZATION, AS-BUILT

PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 26 OF 30

CAD FILE: CC09-CONF-ABLT.DWG



LFS-1N (P-403MR)

TARGET THICKNESS: 6" ±¼" <5.75" - 6.25">

AVERAGE THICKNESS: 5.88"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.425'	0.479'	423.66
2		0.479'	0.521'	760.71
3		0.521'	0.548'	163.84

LFS-1S (P-403MR)

TARGET THICKNESS: 4" ±¼" <3.75" - 4.25">

AVERAGE THICKNESS: 4.51"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.298'	0.313'	1.71
2		0.313'	0.354'	310.14
3		0.354'	0.495'	1123.15

LFS-2N (P-403MR)

TARGET THICKNESS: 6" ±¼" <5.75" - 6.25">

AVERAGE THICKNESS: 6.42"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.321'	0.479'	92.45
2		0.479'	0.521'	526.83
3		0.521'	0.633'	752.58

LFS-2S (P-403MR)

TARGET THICKNESS: 4" ±¼" <3.75" - 4.25">

AVERAGE THICKNESS: 4.32"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.247'	0.313'	19.03
2		0.313'	0.354'	490.35
3		0.354'	0.458'	930.39

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NOTES:

1. THICKNESS TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-403MR THICKNESS CONFORMANCE TOLERANCE: ±¼" (0.021')
3. LFS-1N, LFS-1S, LFS-2N, AND LFS-2S TEST ITEM 3D SCAN DATA WAS COLLECTED ON 12/10/2019.
4. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.

LEGEND:

x - THICKNESS LABEL

CONFORMING THICKNESS

THICKNESS BELOW THE CONFORMANCE RANGE

THICKNESS ABOVE THE CONFORMANCE RANGE

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

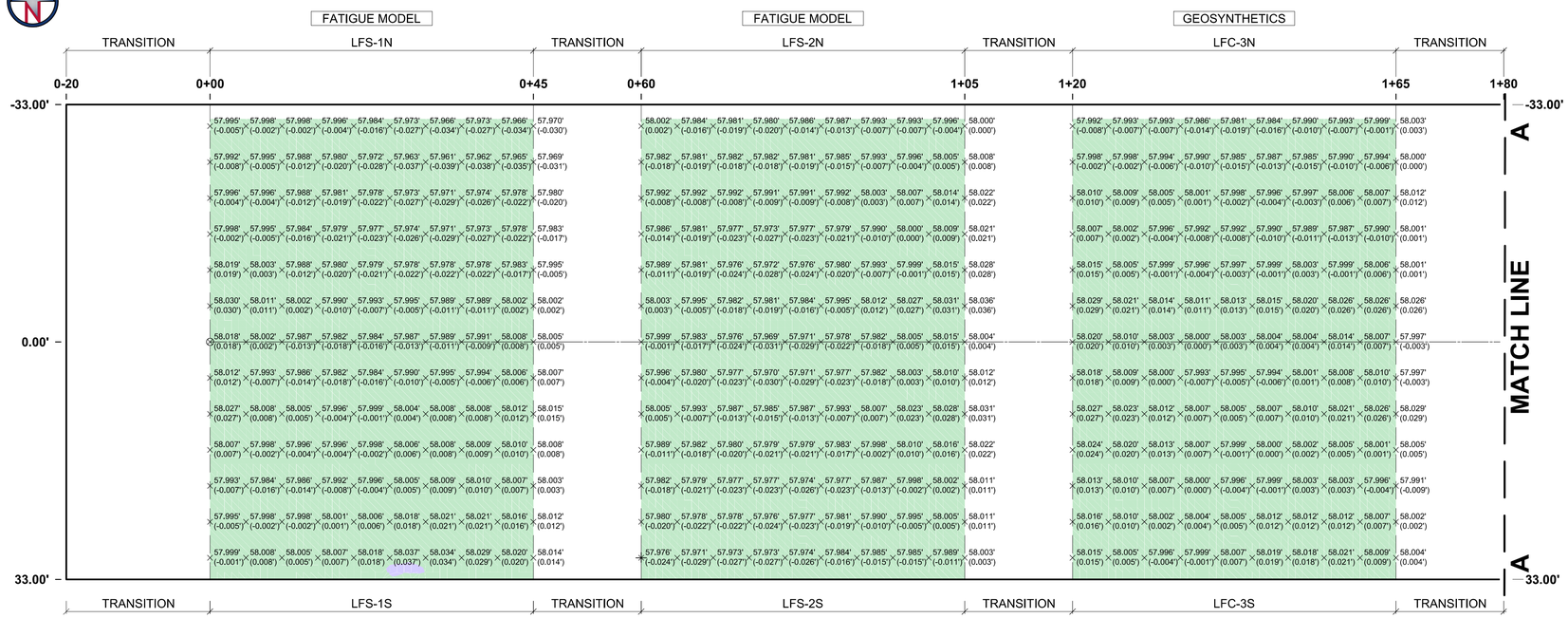
	NAME	DATE
DRAWN	M. MAZUREK	12/11/2019
CHECKED	C. UNZICKER	12/11/2019
FAA APPROVAL DATE:		

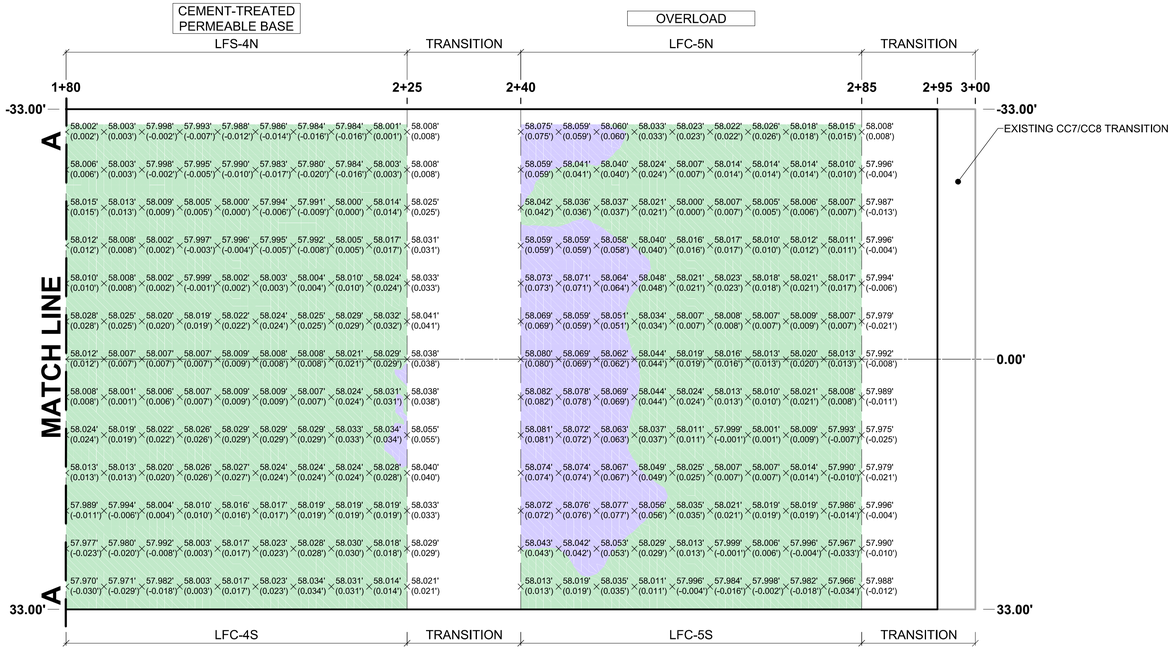
CONSTRUCTION CYCLE 9

P-403MR HOT MIX ASPHALT THICKNESS MAP AS-BUILT

PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 27 OF 30

CAD FILE: CC09-CONF-ABLT.DWG





LFS-1N (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 57.99'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.959'	58.030'	1395.00

LFS-1S (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 58.00'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.981'	58.042'	1477.99
2		58.042'	58.049'	7.01

LFS-2N (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 57.99'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.967'	58.036'	1395.00

LFS-2S (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 57.99'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.964'	58.031'	1485.00

LFC-3N (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 58.00'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.981'	58.030'	1395.00

LFC-3S (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 58.00'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.988'	58.030'	1485.00

LFS-4N (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 58.00'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.979'	58.041'	1395.00

LFC-4S (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 58.02'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.969'	58.042'	1466.37
2		58.042'	58.062'	18.63

LFC-5N (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 58.02'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.979'	58.042'	1056.19
2		58.042'	58.080'	338.81

LFC-5S (P-401MR)

TARGET ELEVATION: 58.00' ±0.042' <57.958' - 58.042'>

AVERAGE ELEVATION: 58.02'

CUT (+) AND FILL (-) SUMMARY TABLE

ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		57.964'	58.042'	1077.00
2		58.042'	58.082'	408.00

NOTES:

1. GRADE TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-401MR GRADE CONFORMANCE TOLERANCE: ±$\frac{1}{2}$" (0.042').
3. 3D SCAN DATA USED TO CREATE THIS MAP WAS COLLECTED ON 12/16/2019.
4. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.

LEGEND:

x - SPOT ELEVATION

CONFORMING ELEVATION

ELEVATION BELOW THE CONFORMANCE RANGE

ELEVATION ABOVE THE CONFORMANCE RANGE

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

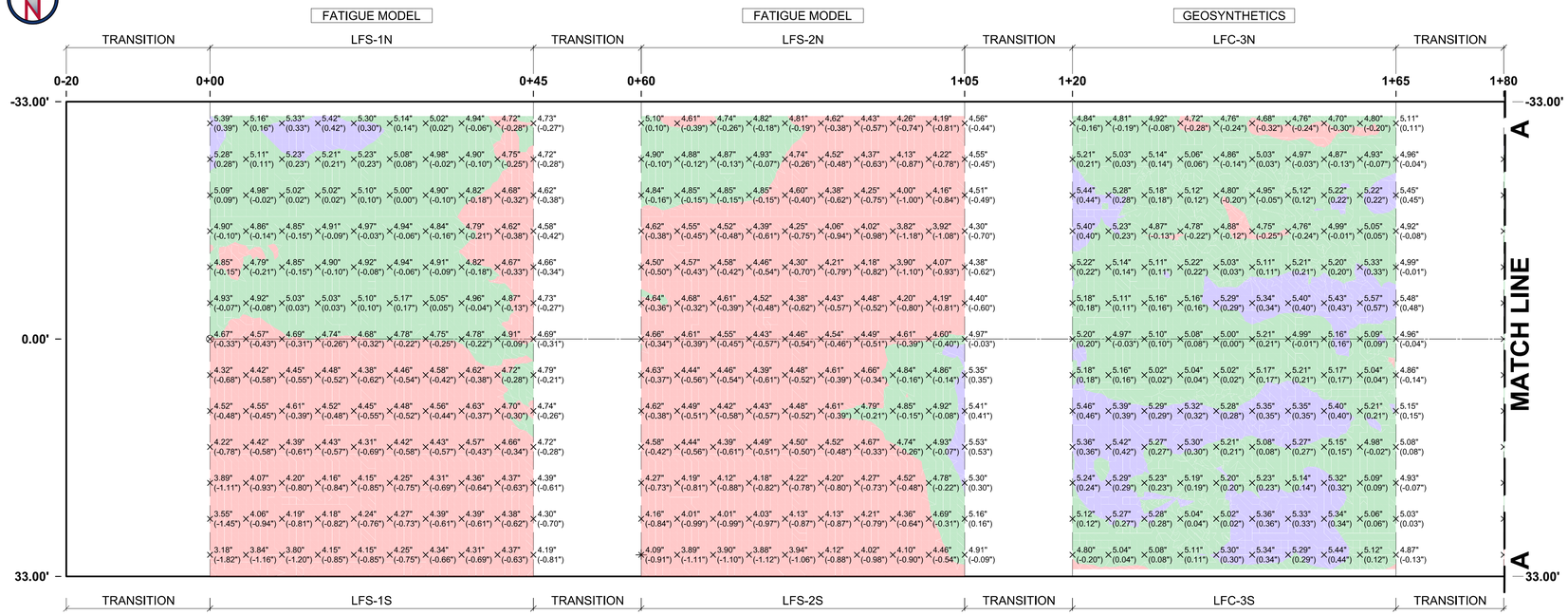
	NAME	DATE
DRAWN	M. MAZUREK	12/16/2019
CHECKED	C. UNZICKER	12/16/2019
FAA APPROVAL DATE:		

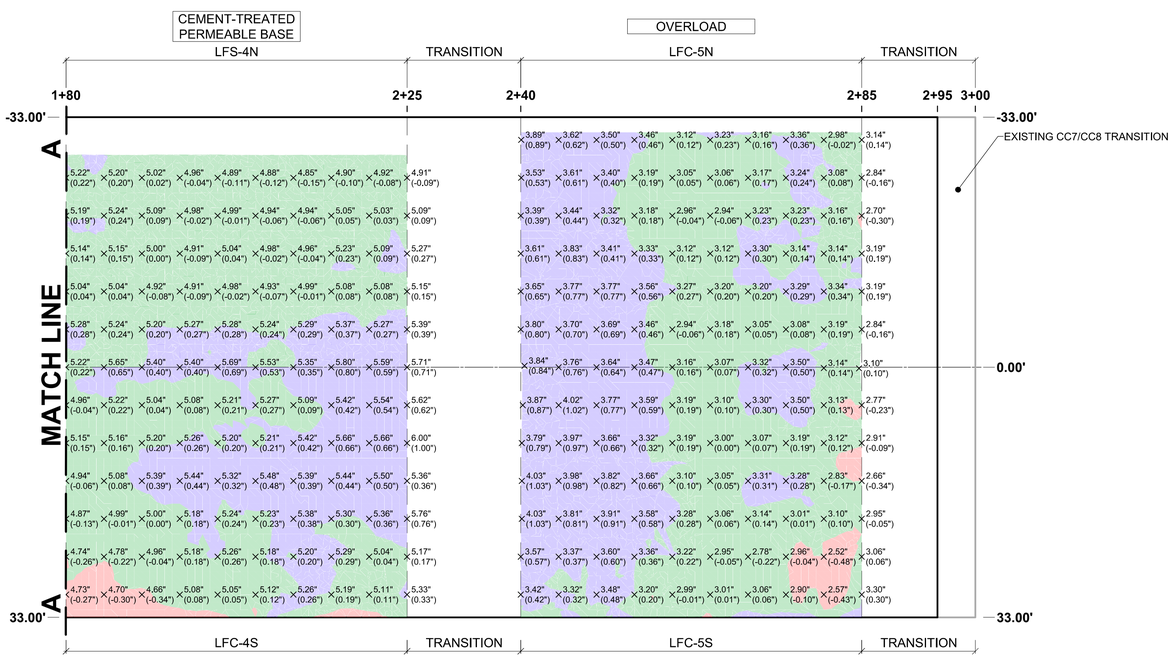
CONSTRUCTION CYCLE 9

P-401MR HOT MIX ASPHALT ELEVATION MAP AS-BUILT

PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 28 OF 30

CAD FILE: CC09-CONF-ABLT.DWG





LFS-1N (P-401MR)

TARGET THICKNESS: 5" $\pm\frac{1}{4}$" <4.75" - 5.25">

AVERAGE THICKNESS: 4.93"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.369'	0.396'	222.07
2		0.396'	0.438'	1095.99
3		0.438'	0.455'	76.94

LFS-1S (P-401MR)

TARGET THICKNESS: 5" $\pm\frac{1}{4}$" <4.75" - 5.25">

AVERAGE THICKNESS: 4.37"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.253'	0.396'	1429.87
2		0.396'	0.410'	55.13

LFS-2N (P-401MR)

TARGET THICKNESS: 5" $\pm\frac{1}{4}$" <4.75" - 5.25">

AVERAGE THICKNESS: 4.43"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.304'	0.396'	1161.04
2		0.396'	0.428'	233.96

LFS-2S (P-401MR)

TARGET THICKNESS: 5" $\pm\frac{1}{4}$" <4.75" - 5.25">

AVERAGE THICKNESS: 4.43"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.223'	0.396'	1235.80
2		0.396'	0.438'	222.70
3		0.438'	0.461'	26.50

LFC-3N (P-401MR)

TARGET THICKNESS: 5" $\pm\frac{1}{4}$" <4.75" - 5.25">

AVERAGE THICKNESS: 5.06"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.387'	0.396'	57.30
2		0.396'	0.438'	1114.05
3		0.438'	0.466'	223.65

LFC-3S (P-401MR)

TARGET THICKNESS: 5" $\pm\frac{1}{4}$" <4.75" - 5.25">

AVERAGE THICKNESS: 5.20"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.376'	0.396'	6.97
2		0.396'	0.438'	901.77
3		0.438'	0.461'	531.26

LFS-4N (P-401MR)

TARGET THICKNESS: 5" $\pm\frac{1}{4}$" <4.75" - 5.25">

AVERAGE THICKNESS: 5.09"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.609'	0.625'	93.46
2		0.625'	0.700'	1165.90

LFC-4S (P-401MR)

TARGET THICKNESS: 5" $\pm\frac{1}{4}$" <4.75" - 5.25">

AVERAGE THICKNESS: 5.22"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.313'	0.396'	79.58
2		0.396'	0.438'	746.55
3		0.438'	0.501'	658.86

LFC-5N (P-401MR)

TARGET THICKNESS: 3" $\pm\frac{1}{4}$" <2.75" - 3.25">

AVERAGE THICKNESS: 3.29"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.224'	0.229'	0.75
2		0.229'	0.271'	755.89
3		0.271'	0.341'	637.18

LFC-5S (P-401MR)

TARGET THICKNESS: 3" $\pm\frac{1}{4}$" <2.75" - 3.25">

AVERAGE THICKNESS: 3.28"

CUT (+) AND FILL (-) SUMMARY TABLE				
ID	COLOR	MIN. EL. [FT]	MAX. EL. [FT]	AREA [SQ. FT]
1		0.203'	0.229'	82.45
2		0.229'	0.271'	734.62
3		0.271'	0.353'	664.38

NOTES:

1. THICKNESS TOLERANCE PER SPECIFICATIONS FOR NAPTF CONSTRUCTION CYCLE 9 (CC9), 100% FINAL, AUGUST 21, 2018.
2. P-401MR THICKNESS CONFORMANCE TOLERANCE: $\pm\frac{1}{4}$" (0.021').
3. TOP OF P-401MR 3D SCAN DATA USED TO CREATE THIS MAP WAS COLLECTED ON 12/16/2019.
4. FAA DIRECTED CONTRACTOR TO TARGET ELEVATION INSTEAD OF THICKNESS.

LEGEND:

x - THICKNESS LABEL

CONFORMING THICKNESS

THICKNESS BELOW THE CONFORMANCE RANGE

THICKNESS ABOVE THE CONFORMANCE RANGE

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

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NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

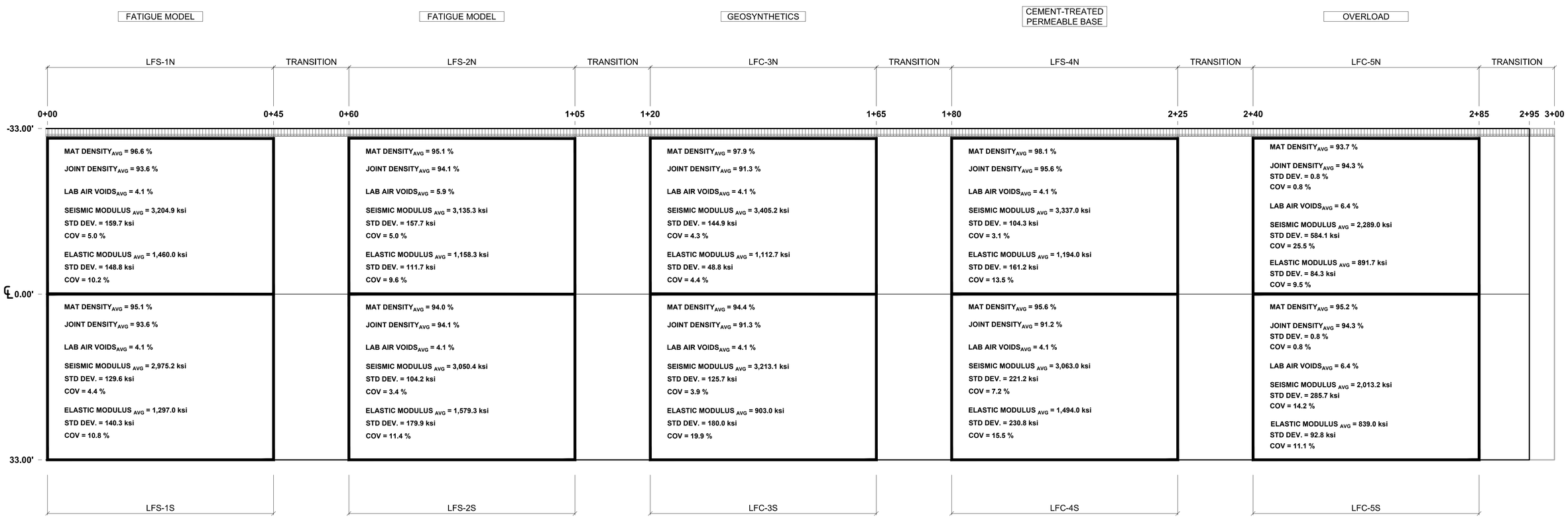
	NAME	DATE
DRAWN	M. MAZUREK	12/17/2019
CHECKED	C. UNZICKER	12/17/2019
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9

P-401MR HOT MIX ASPHALT THICKNESS MAP AS-BUILT

PROJECT NO: | SIZE: ANSI D | SCALE: 1"=10' | SHEET 29 OF 30

CAD FILE: CC09-CONF-ABLT.DWG



PLAN VIEW

SCALE: 1"=10'

NOTES:

1. TESTS REPORTED WERE THOSE CONDUCTED ON THE FINAL, SURFACE LIFT.
2. IF NO STANDARD DEVIATION OR COV. REPORTED, THERE WERE TOO FEW TESTS TO DERIVE STATISTICS.

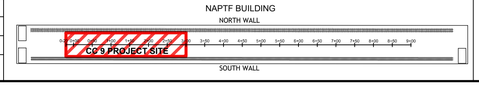
10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR
1.	REVISED BENDER ELEMENT LOCATIONS AND ADDED CABLE ROUTING DIAGRAMS.	06/02/2020	M.M.	C.U.	

LOCATION KEY MAP



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	NAME	DATE
DRAWN	M.MAZUREK	02/17/2020
CHECKED	C.UNZICKER	02/17/2020
FAA APPROVAL DATE:		

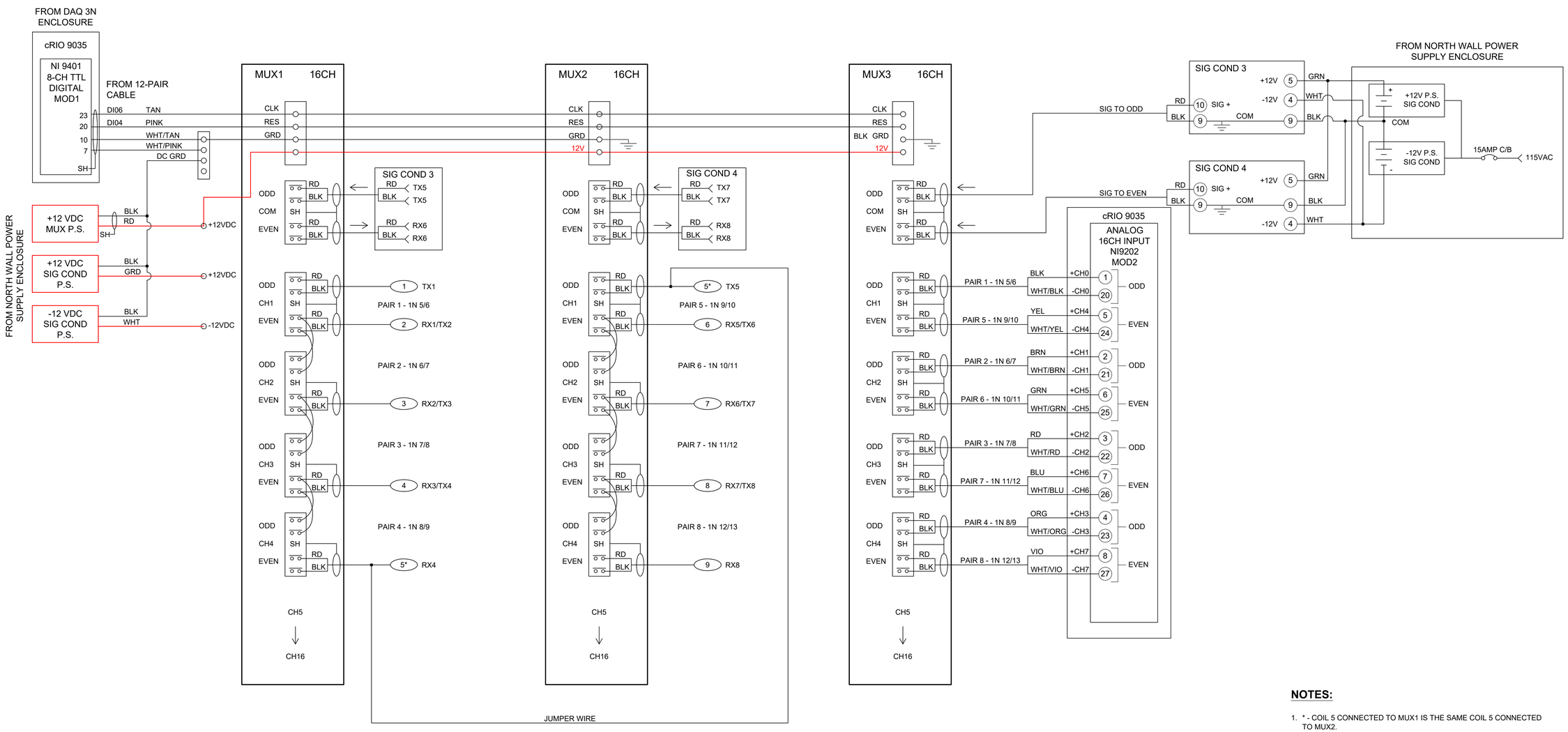
NAPTF CONSTRUCTION CYCLE 9
P-401MR ACCEPTANCE AND CHARACTERIZATION RESULTS, AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 30 OF 30

CAD FILE: CC09-CONS-PLAN-ABLT.DWG

Instrumentation As-Builts

MUX-1N ENCLOSURE



NOTES:

1. * - COIL 5 CONNECTED TO MUX1 IS THE SAME COIL 5 CONNECTED TO MUX2.
2. MUX1 SWITCHES IN TX & RX OF PAIR 1-4.
3. MUX2 SWITCHES IN TX & RX OF PAIR 5-8.
4. MUX3 SWITCHES SIGCOND1 & SIGCOND2 OUTPUT TO THE DAQ ANALOG INPUT CHANNELS.
5. COIL-PAIRS 1-4 ARE SYNCHRONIZED WITH COIL PAIRS 5-8. PAIRS IN SYNC:
   - PAIR 1 & 5 CH 0 & 4
   - PAIR 2 & 6 CH 1 & 5
   - PAIR 3 & 7 CH 2 & 6
   - PAIR 4 & 8 CH 3 & 7
6. cRIO, 8-CH DIGITAL MOD1 16-CH ANALOG MOD2 ARE CONNECTED EXTERNAL TO THE MUX-N ENCLOSURE.
7. +12VDC MUX P.S. +12VDC & -12VDC SIG COND P.S. ARE CONNECTED EXTERNAL TO THE MUX-N ENCLOSURE.

NO.	REVISIONS	DATE	BY	CHK	APR

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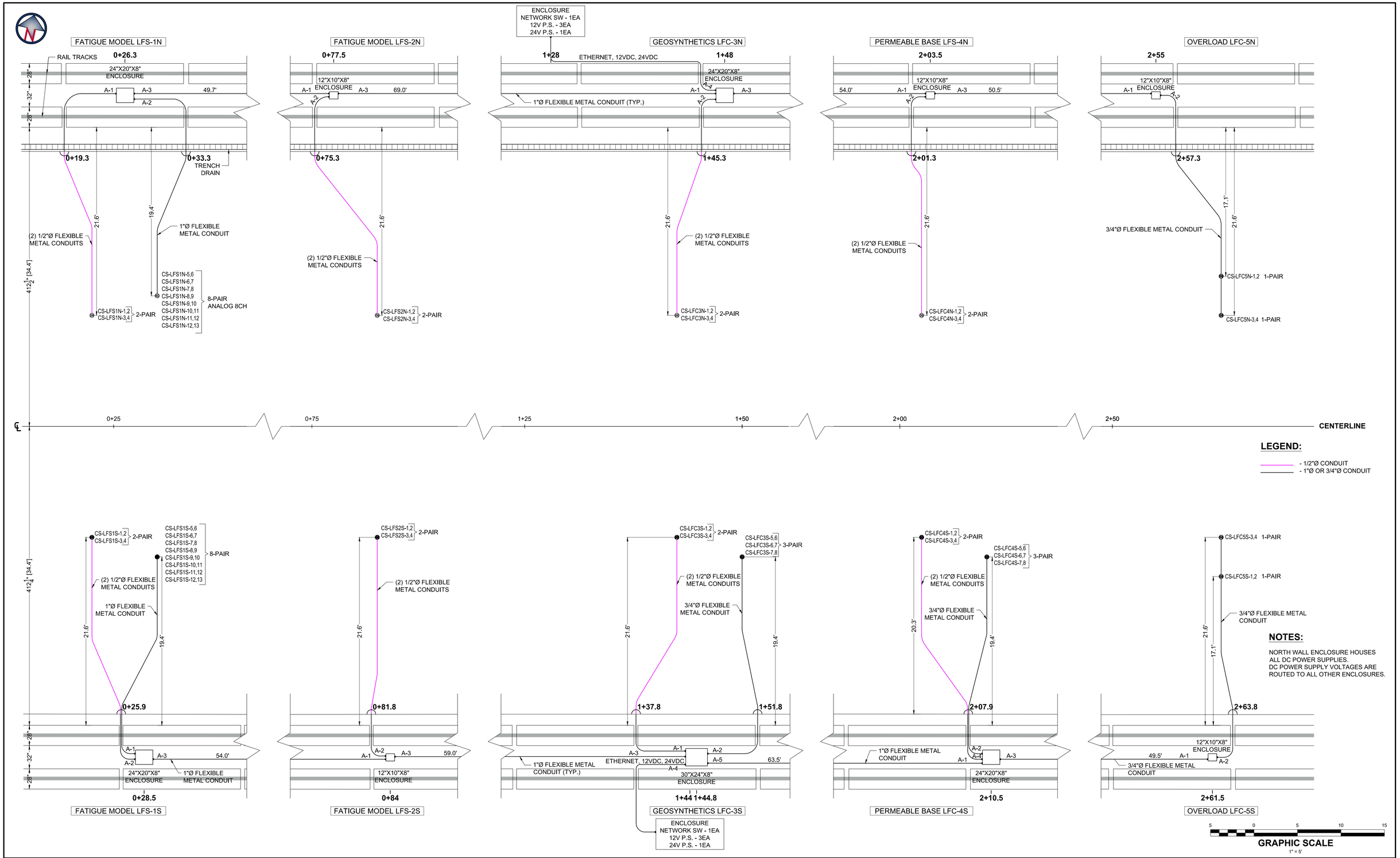
	NAME	DATE
DRAWN	M.MAZUREK	05/06/2019
CHECKED	D.TRAVERZO	
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9
MUX-1N DIAGRAM FOR 8-PAIR COIL SENSOR CONFIGURATION

PROJECT NO: | SIZE: ANSI D | SCALE: N.T.S. | SHEET 1 OF 5

CAD FILE: CC09-COIL.DWG



NO.	REVISIONS	DATE	BY	CHK	APR

LOCATION KEY

NAPTF BUILDING

NORTH WALL

CC9 PROJECT SITE

SOUTH WALL

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NEW JERSEY 08234

	NAME	DATE
DRAWN	M.MAZUREK	05/06/2019
CHECKED	D.TRAVERZO	
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9

COIL SENSOR SYSTEM LAYOUT DIAGRAM

PROJECT NO: | SIZE: ANSI D | SCALE: N.T.S. | SHEET 2 OF 5

CAD FILE: CC09-COIL.DWG

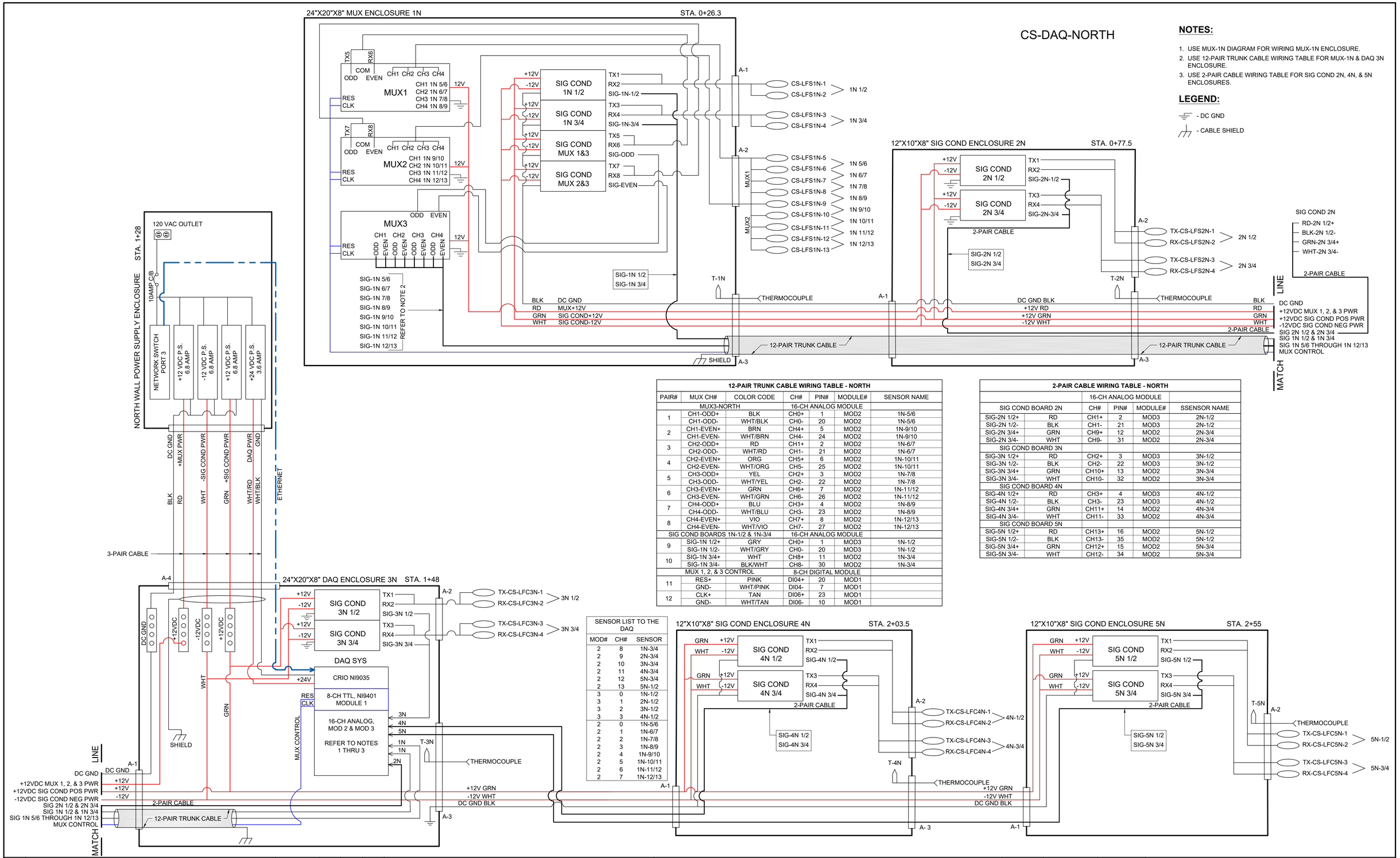
CS-DAQ-NORTH

NOTES:

1. USE MUX-1N DIAGRAM FOR WIRING MUX-1N ENCLOSURE.
2. USE 12-PAIR TRUNK CABLE WIRING TABLE FOR MUX-1N & DAQ 3N ENCLOSURE.
3. USE 2-PAIR CABLE WIRING TABLE FOR SIG COND 2N, 4N, & 5N ENCLOSURES.

LEGEND:

- DC GND
- CABLE SHIELD



SENSOR LIST TO THE DAQ		
MOD#	CH#	SENSOR
2	8	1N-3/4
2	9	2N-3/4
2	10	3N-3/4
2	11	4N-3/4
2	12	5N-3/4
2	13	5N-1/2
3	0	1N-1/2
3	1	2N-1/2
3	2	3N-1/2
3	3	4N-1/2
2	0	1N-5/6
2	1	1N-6/7
2	2	1N-7/8
2	3	1N-8/9
2	4	1N-9/10
2	5	1N-10/11
2	6	1N-11/12
2	7	1N-12/13

12-PAIR TRUNK CABLE WIRING TABLE - NORTH

PAIR#	MUX CH#	COLOR CODE	CH#	PIN#	MODULE#	SENSOR NAME
MUX3-NORTH			16-CH ANALOG MODULE			
1	CH1-ODD+	BLK	CH0+	1	MOD2	1N-5/6
	CH1-ODD-	WHT/BLK	CH0-	20	MOD2	1N-5/6
2	CH1-EVEN+	BRN	CH4+	5	MOD2	1N-9/10
	CH1-EVEN-	WHT/BRN	CH4-	24	MOD2	1N-9/10
3	CH2-ODD+	RD	CH1+	2	MOD2	1N-6/7
	CH2-ODD-	WHT/RD	CH1-	21	MOD2	1N-6/7
4	CH2-EVEN+	ORG	CH5+	6	MOD2	1N-10/11
	CH2-EVEN-	WHT/ORG	CH5-	25	MOD2	1N-10/11
5	CH3-ODD+	YEL	CH2+	3	MOD2	1N-7/8
	CH3-ODD-	WHT/YEL	CH2-	22	MOD2	1N-7/8
6	CH3-EVEN+	GRN	CH6+	7	MOD2	1N-11/12
	CH3-EVEN-	WHT/GRN	CH6-	26	MOD2	1N-11/12
7	CH4-ODD+	BLU	CH3+	4	MOD2	1N-8/9
	CH4-ODD-	WHT/BLU	CH3-	23	MOD2	1N-8/9
8	CH4-EVEN+	VIO	CH7+	8	MOD2	1N-12/13
	CH4-EVEN-	WHT/VIO	CH7-	27	MOD2	1N-12/13
SIG COND BOARDS 1N-1/2 & 1N-3/4			16-CH ANALOG MODULE			
9	SIG-1N 1/2+	GRY	CH0+	1	MOD3	1N-1/2
	SIG-1N 1/2-	WHT/GRY	CH0-	20	MOD3	1N-1/2
10	SIG-1N 3/4+	WHT	CH8+	11	MOD2	1N-3/4
	SIG-1N 3/4-	BLK/WHT	CH8-	30	MOD2	1N-3/4
MUX 1, 2, & 3 CONTROL			8-CH DIGITAL MODULE			
11	RES+	PINK	DI04+	20	MOD1	
	GND-	WHT/PINK	DI04-	7	MOD1	
12	CLK+	TAN	DI06+	23	MOD1	
	GND-	WHT/TAN	DI06-	10	MOD1	

2-PAIR CABLE WIRING TABLE - NORTH

		16-CH ANALOG MODULE			
SIG COND BOARD 2N		CH#	PIN#	MODULE#	SSENSOR NAME
SIG-2N 1/2+	RD	CH1+	2	MOD3	2N-1/2
SIG-2N 1/2-	BLK	CH1-	21	MOD3	2N-1/2
SIG-2N 3/4+	GRN	CH9+	12	MOD2	2N-3/4
SIG-2N 3/4-	WHT	CH9-	31	MOD2	2N-3/4
SIG COND BOARD 3N					
SIG-3N 1/2+	RD	CH2+	3	MOD3	3N-1/2
SIG-3N 1/2-	BLK	CH2-	22	MOD3	3N-1/2
SIG-3N 3/4+	GRN	CH10+	13	MOD2	3N-3/4
SIG-3N 3/4-	WHT	CH10-	32	MOD2	3N-3/4
SIG COND BOARD 4N					
SIG-4N 1/2+	RD	CH3+	4	MOD3	4N-1/2
SIG-4N 1/2-	BLK	CH3-	23	MOD3	4N-1/2
SIG-4N 3/4+	GRN	CH11+	14	MOD2	4N-3/4
SIG-4N 3/4-	WHT	CH11-	33	MOD2	4N-3/4
SIG COND BOARD 5N					
SIG-5N 1/2+	RD	CH13+	16	MOD2	5N-1/2
SIG-5N 1/2-	BLK	CH13-	35	MOD2	5N-1/2
SIG-5N 3/4+	GRN	CH12+	15	MOD2	5N-3/4
SIG-5N 3/4-	WHT	CH12-	34	MOD2	5N-3/4

NO.	REVISIONS	DATE	BY	CHK	APR

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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

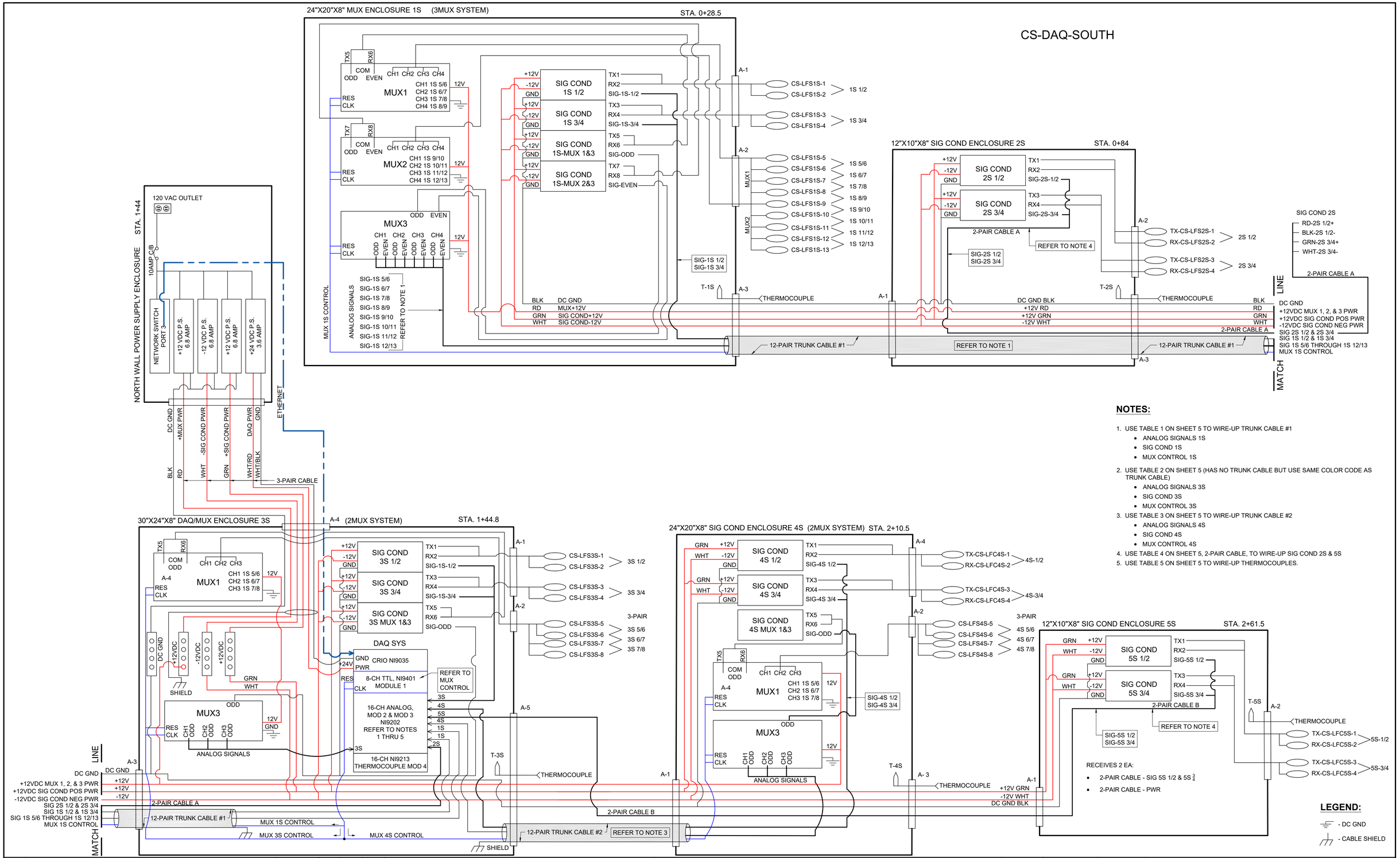
	NAME	DATE
DRAWN	M.MAZUREK	05/20/2019
CHECKED	D.TRAVERZO	
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9
COIL SENSOR SYSTEM NORTH TEST SECTION
WIRING DIAGRAM

PROJECT NO: | SIZE: ANSI D | SCALE: N.T.S. | SHEET 3 OF 5

CAD FILE: CC09-COIL.DWG

CS-DAQ-SOUTH



NOTES:

1. USE TABLE 1 ON SHEET 5 TO WIRE-UP TRUNK CABLE #1
   - ANALOG SIGNALS 1S
   - SIG COND 1S
   - MUX CONTROL 1S
2. USE TABLE 2 ON SHEET 5 (HAS NO TRUNK CABLE BUT USE SAME COLOR CODE AS TRUNK CABLE)
   - ANALOG SIGNALS 3S
   - SIG COND 3S
   - MUX CONTROL 3S
3. USE TABLE 3 ON SHEET 5 TO WIRE-UP TRUNK CABLE #2
   - ANALOG SIGNALS 4S
   - SIG COND 4S
   - MUX CONTROL 4S
4. USE TABLE 4 ON SHEET 5, 2-PAIR CABLE, TO WIRE-UP SIG COND 2S & 5S
5. USE TABLE 5 ON SHEET 5 TO WIRE-UP THERMOCOUPLES.

NO.	REVISIONS	DATE	BY	CHK	APR

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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	M.MAZUREK	05/20/2019
CHECKED	D.TRAVERZO	
FAA APPROVAL DATE:		

CONSTRUCTION CYCLE 9
COIL SENSOR SYSTEM SOUTH TEST SECTION
WIRING DIAGRAM

PROJECT NO: | SIZE: ANSI D | SCALE: N.T.S. | SHEET 4 OF 5

CAD FILE: CC09-COIL.DWG

TABLE 1: TRUNK CABLE #1

MUX ENCLOSURE 1S TO DAQ 3S						
PAIR#	MUX CH#	COLOR CODE	CH#	PIN#	MODULE#	SENSOR NAME
MUX 1S (MUX3)			16-CH ANALOG MODULE			
1	CH1-ODD+	BLK	CH0+	1	MOD2	1S-5/6
	CH1-ODD-	WHT/BLK	CH0-	20		
2	CH1-EVEN+	BRN	CH4+	5	MOD2	1S-9/10
	CH1-EVEN-	WHT/BRN	CH4-	24		
3	CH2-ODD+	RD	CH1+	2	MOD2	1S-6/7
	CH2-ODD-	WHT/RD	CH1-	21		
4	CH2-EVEN+	ORG	CH5+	6	MOD2	1S-10/11
	CH2-EVEN-	WHT/ORG	CH5-	25		
5	CH3-ODD+	YEL	CH2+	3	MOD2	1S-7/8
	CH3-ODD-	WHT/YEL	CH2-	22		
6	CH3-EVEN+	GRN	CH6+	7	MOD2	1S-11/12
	CH3-EVEN-	WHT/GRN	CH6-	26		
7	CH4-ODD+	BLU	CH3+	4	MOD2	1S-8/9
	CH4-ODD-	WHT/BLU	CH3-	23		
8	CH4-EVEN+	VIO	CH7+	8	MOD2	1S-12/13
	CH4-EVEN-	WHT/VIO	CH7-	27		
SIG COND BOARD 1S						
9	SIG-1S 1/2+	GRY	CH0+	1	MOD3	1S-1/2
	SIG-1S 1/2-	WHT/GRY	CH0-	20		
10	SIG-1S 3/4+	WHT	CH8+	11	MOD2	1S-3/4
	SIG-1S 3/4-	BLK/WHT	CH8-	30		
MUX CONTROL 1S			8-CH DIGITAL MODULE			
11	RESET+	PINK	CH0+	14	MOD1	N/A
	GND-	WHT/PINK	CH0-	1		
12	CLOCK+	TAN	CH3+	19	MOD1	N/A
	GND-	WHT/TAN	CH3-	6		

TABLE 2

*USE SAME COLOR CODE AS 12-PAIR TRUNK CABLE

MUX 3S TO DAQ 3S INTERNAL						
PAIR#	MUX CH#	COLOR CODE	CH#	PIN#	MODULE#	SENSOR NAME
MUX 3S (MUX3)			16-CH ANALOG MODULE			
1	CH1-ODD+	BLK	CH4+	5	MOD3	3S-5/6
	CH1-ODD-	WHT/BLK	CH4-	24		
3	CH2-ODD+	RD	CH5+	6	MOD3	3S-6/7
	CH2-ODD-	WHT/RD	CH5-	25		
5	CH3-ODD+	YEL	CH6+	7	MOD3	3S-7/8
	CH3-ODD-	WHT/YEL	CH6-	26		
SIG COND BOARD 3S						
9	SIG-3S 1/2+	GRY	CH2+	3	MOD3	3S-1/2
	SIG-3S 1/2-	WHT/GRY	CH2-	22		
10	SIG-3S 3/4+	WHT	CH10+	13	MOD2	3S-3/4
	SIG-3S 3/4-	BLK/WHT	CH10-	32		
MUX CONTROL 3S			8-CH DIGITAL MODULE			
11	RESET+	PINK	CH1+	16	MOD1	N/A
	GND-	WHT/PINK	CH1-	3		
12	CLOCK+	TAN	CH4+	20	MOD1	N/A
	GND-	WHT/TAN	CH4-	7		

TABLE 3: TRUNK CABLE #2

MUX ENCLOSURE 4S TO DAQ 3S						
PAIR#	MUX CH#	COLOR CODE	CH#	PIN#	MODULE#	SENSOR NAME
MUX 4S (MUX3)			16-CH ANALOG MODULE			
1	CH1-ODD+	BLK	CH7+	8	MOD3	4S-5/6
	CH1-ODD-	WHT/BLK	CH7-	27		
3	CH2-ODD+	RD	CH8+	11	MOD3	4S-6/7
	CH2-ODD-	WHT/RD	CH8-	30		
5	CH3-ODD+	YEL	CH9+	12	MOD3	4S-7/8
	CH3-ODD-	WHT/YEL	CH9-	31		
SIG COND BOARD 4S						
9	SIG-4S 1/2+	GRY	CH3+	4	MOD3	4S-1/2
	SIG-4S 1/2-	WHT/GRY	CH3-	23		
10	SIG-4S 3/4+	WHT	CH11+	14	MOD2	4S-3/4
	SIG-4S 3/4-	BLK/WHT	CH11-	33		
MUX CONTROL 4S			8-CH DIGITAL MODULE			
11	RESET+	PINK	CH2+	17	MOD1	N/A
	GND-	WHT/PINK	CH2-	4		
12	CLOCK+	TAN	CH5+	22	MOD1	N/A
	GND-	WHT/TAN	CH5-	9		

TABLE 4: 2-PAIR CABLE

SIG COND 2S & 5S						
PAIR#	SIG COND NAME	COLOR CODE	CH#	PIN#	MODULE#	SENSOR NAME
SIG COND BOARD 2S			16-CH ANALOG MODULE (2-PAIR CABLE A)			
1	SIG-2S-1/2+	RD	CH1+	2	MOD3	2S-1/2
	SIG-2S-1/2-	BLK	CH1-	21		
2	SIG-2S-3/4+	GRN	CH9+	12	MOD2	2S-3/4
	SIG-2S-3/4-	WHT	CH9-	31		
SIG COND BOARD 5S			16-CH ANALOG MODULE (2-PAIR CABLE B)			
1	SIG-5S-1/2+	RD	CH13+	16	MOD2	5S-1/2
	SIG-5S-1/2-	BLK	CH13-	35		
2	SIG-5S-3/4+	GRN	CH12+	15	MOD2	5S-3/4
	SIG-5S-3/4-	WHT	CH12-	34		

TABLE 5: TEMPERATURE

PAIR#	SIG COND NAME	COLOR CODE	CH#	PIN#	MODULE#	SENSOR NAME
ENCLOSURE DESCRIPTION			16-CH THERMOCOUPLE MODULE			
MUX & SIG COND 1S		BLU	CH0+	2	MOD4	T-1S
		RD	CH0-	20		
SIG COND ONLY 2S		BLU	CH1+	3	MOD4	T-2S
		RD	CH1-	21		
MUX, SIG COND & DAQ 3S		BLU	CH2+	4	MOD4	T-3S
		RD	CH2-	22		
MUX & SIG COND 4S		BLU	CH3+	5	MOD4	T-4S
		RD	CH3-	23		
SIG COND ONLY 5S		BLU	CH4+	6	MOD4	T-5S
		RD	CH4-	24		

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ATLANTIC CITY AIRPORT
NEW JERSEY 08234

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DRAWN	M.MAZUREK	05/20/2019
CHECKED	D.TRAVERZO	
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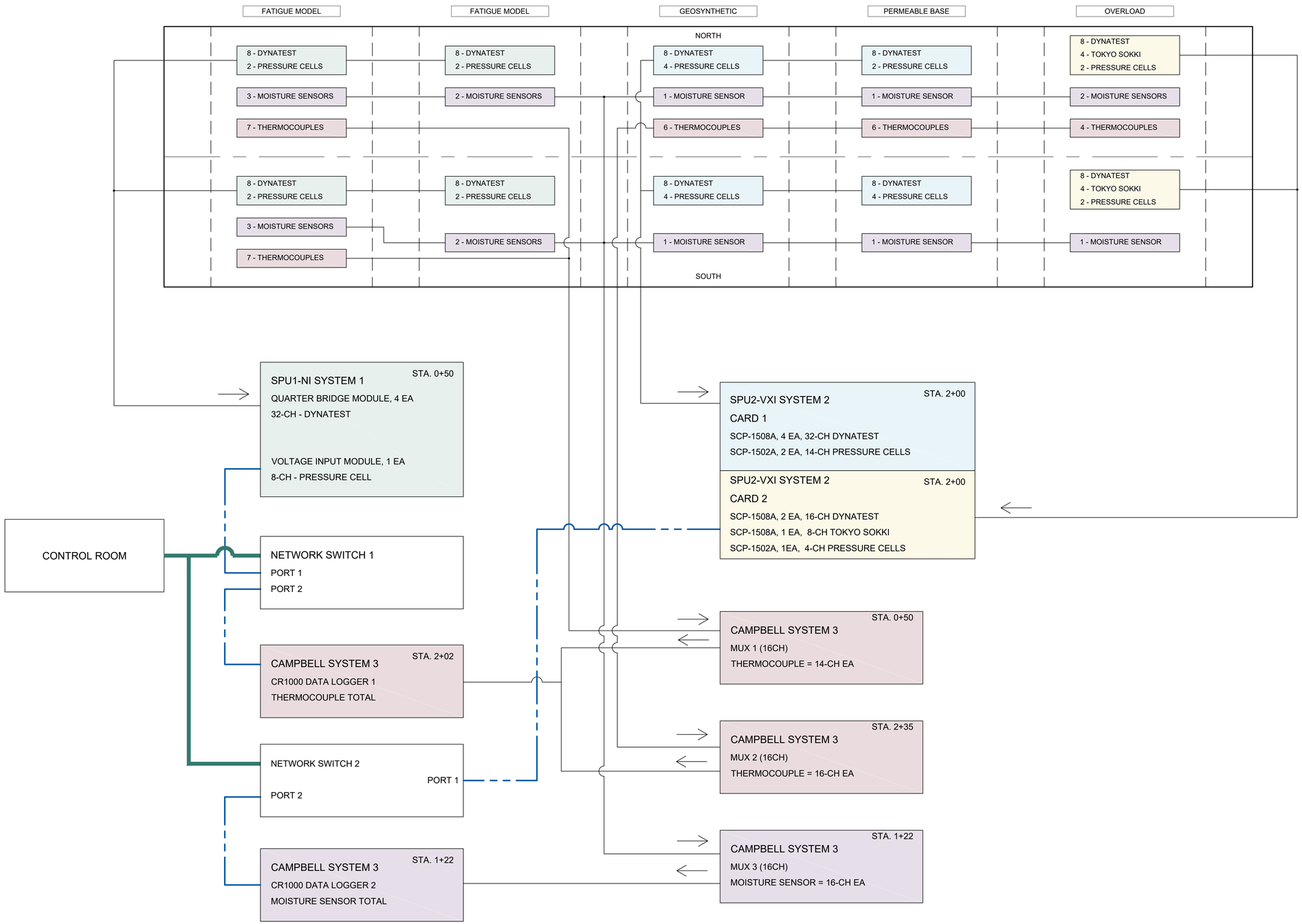
PROJECT NO:		

CONSTRUCTION CYCLE 9
COIL SENSOR SYSTEM SOUTH TEST SECTION
WIRING TABLES

SIZE: ANSI D | SCALE: N.T.S. | SHEET 5 OF 5

CAD FILE: CC09-COIL.DWG



SENSOR LIST

SENSOR TYPE	QUANTITY
ASPHALT STRAIN GAUGE DYNATEST	80
ASPHALT STRAIN GAUGE TOKYO SOKKI	8
MOISTURE SENSOR	16
9" PRESSURE CELL	26
THERMOCOUPLE	30

LEGEND:

- FIBER OPTIC
- ETHERNET

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CONSTRUCTION CYCLE 9
INSTRUMENTATION BLOCK DIAGRAM

PROJECT NO: | SIZE: ANSI D | SCALE: AS NOTED | SHEET 1 OF 1

CAD FILE: CC09-INST-BLCK-DIAG.DWG

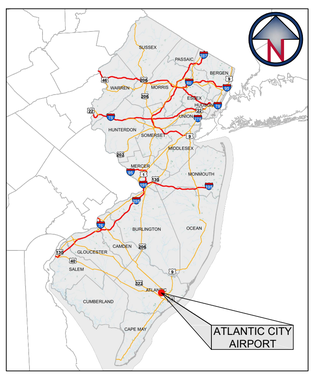
CONSTRUCTION CYCLE 9

SPU1 ENCLOSURE FOR NI DAQ DRAWINGS

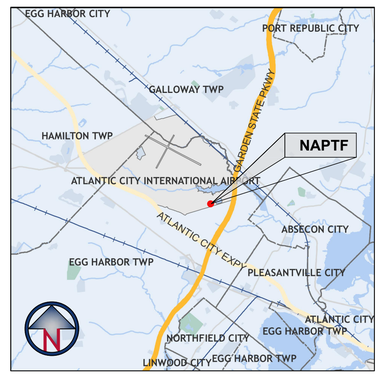
NATIONAL AIRPORT PAVEMENT TESTING FACILITY
WILLIAM J. HUGHES TECHNICAL CENTER
ATLANTIC CITY AIRPORT, NEW JERSEY

09/10/2019

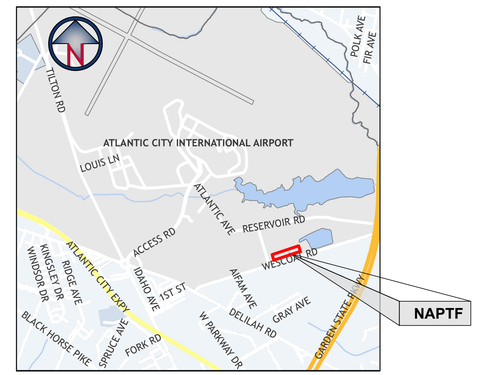
NEW JERSEY STATE MAP N.T.S.



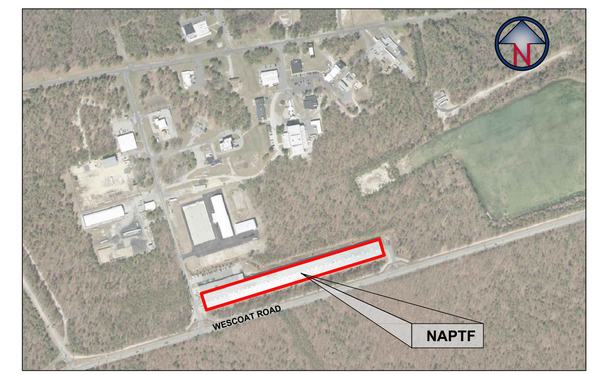
VICINITY MAP N.T.S.



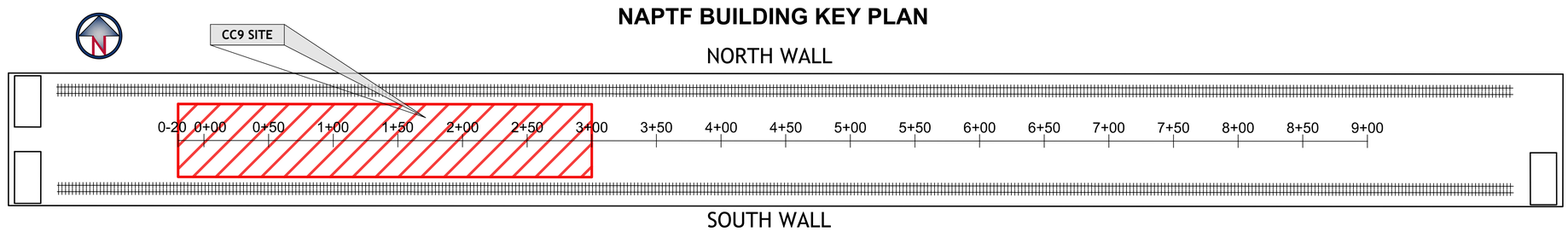
PROJECT LOCATION MAP N.T.S.



AERIAL VIEW OF THE NAPTF BUILDING N.T.S.



NAPTF BUILDING KEY PLAN



PREPARED FOR:

FEDERAL AVIATION ADMINISTRATION

INDEX OF DRAWINGS

SHEET	SHEET TITLE
1 OF 8	COVER SHEET
2 OF 8	CONSTRUCTION CYCLE 9 SPU1 ENCLOSURE FOR NI DAQ LAYOUT DIAGRAM
3 OF 8	CONSTRUCTION CYCLE 9 SPU1-NI DAQ WIRING DIAGRAMS
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6 OF 8	CONSTRUCTION CYCLE 9 SPU1-NI DAQ WIRING DIAGRAM TABLES
7 OF 8	CONSTRUCTION CYCLE 9 SPU1-NI DAQ WIRING DIAGRAM TABLES
8 OF 8	CONSTRUCTION CYCLE 9 SPU1 DATA COLLECTION CABINET PHOTOGRAPH

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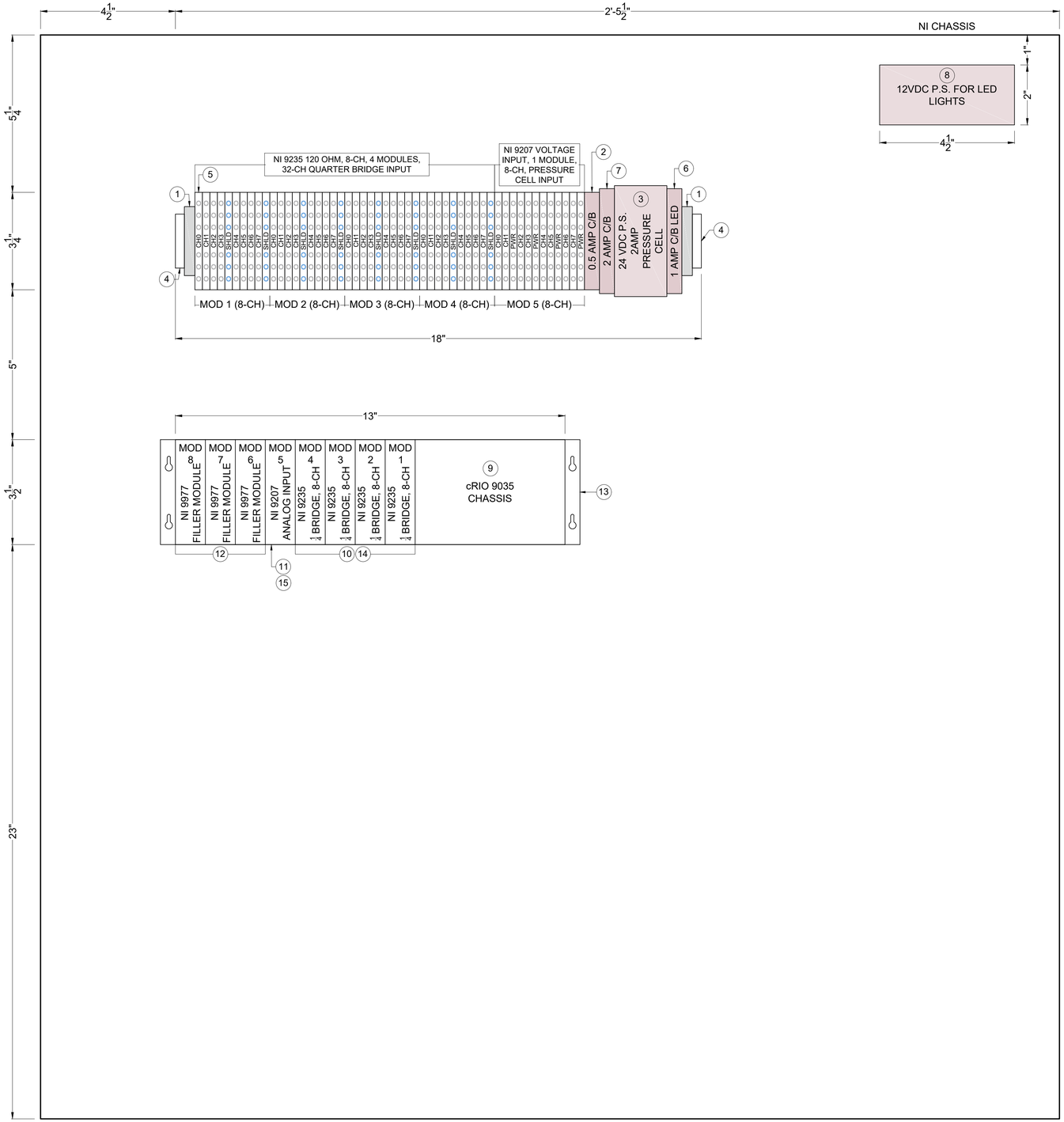

PLAN VIEW

N.T.S.

NI CHASSIS CONFIGURATION:

cRIO

- 32 DYNATEST
- 8 PRESSURE CELL

PARTS LIST

ITEM #	PART DESCRIPTION	PART NUMBER	MANUFACTURER NAME	QTY
1	END BRACKET, TERM BLK, SNAP ON, 57 MM L, 9.5 MM W	3022218	PHOENIX CONTACT	2
2	THERMOMAGNETIC CIRCUIT BREAKER 0.5 AMP, DIN RAIL MOUNT	70207736	PHOENIX CONTACT	1
3	POWER SUPPLY, 24V/4.2AMP, DIN RAIL MOUNT	SOLA-SDP4-24100RT	SOLA	1
4	DIN RAIL, STEEL, COMPONENT MOUNTING	8961K15	MCMASTER CARR	1
5	WEIDMULLER 3 LEVEL TERMINAL BLOCK	1784180000	ALLIED ELECTRONICS	55
6	THERMOMAGNETIC CIRCUIT BREAKER 1 AMP, DIN RAIL MOUNT, EATON	7026K6 1 AMP	MCMASTER CARR	1
7	THERMOMAGNETIC CIRCUIT BREAKER 2AMP, DIN RAIL MOUNT	7208286	ALLIED ELECTRONICS	1
8	LED LIGHT STRIP WITH POWER SUPPLY, LEDMO	B01FFZX0H4	AMAZON	1
9	8-SLOT cRIO STAND ALONE W/ ETHERNET FPGA REAL TIME	CRIO9035	NATIONAL INSTRUMENTS	1
10	120 OHM, 8-CH, 1/4 BRIDGE INPUT MODULE	779993-01	NATIONAL INSTRUMENTS	4
11	8 VOLTAGE INPUT MODULE WITH D SUB CONNECTOR. 500 S/S 24 BIT RESOLUTION, +- 10V DC	NI 9207	NATIONAL INSTRUMENTS	1
12	C SERIES FILLER MODULE	196917-01	NATIONAL INSTRUMENTS	3
13	PANEL MOUNT KIT FOR 8-SLOT cRIO 9035	779558-01	NATIONAL INSTRUMENTS	1
14	BACK SHELL FOR THE 1/4 BRIDGE MODULE	780216-01	NATIONAL INSTRUMENTS	4
15	37 PIN DSUB TERMINAL BLOCK FOR NI9207	NI 19923 150888A	NATIONAL INSTRUMENTS	1

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CONSTRUCTION CYCLE 9

SPU1 ENCLOSURE FOR NI DAQ LAYOUT DIAGRAM

PROJECT NO: | SIZE: ANSI D | SCALE: AS NOTED | SHEET 2 OF 8

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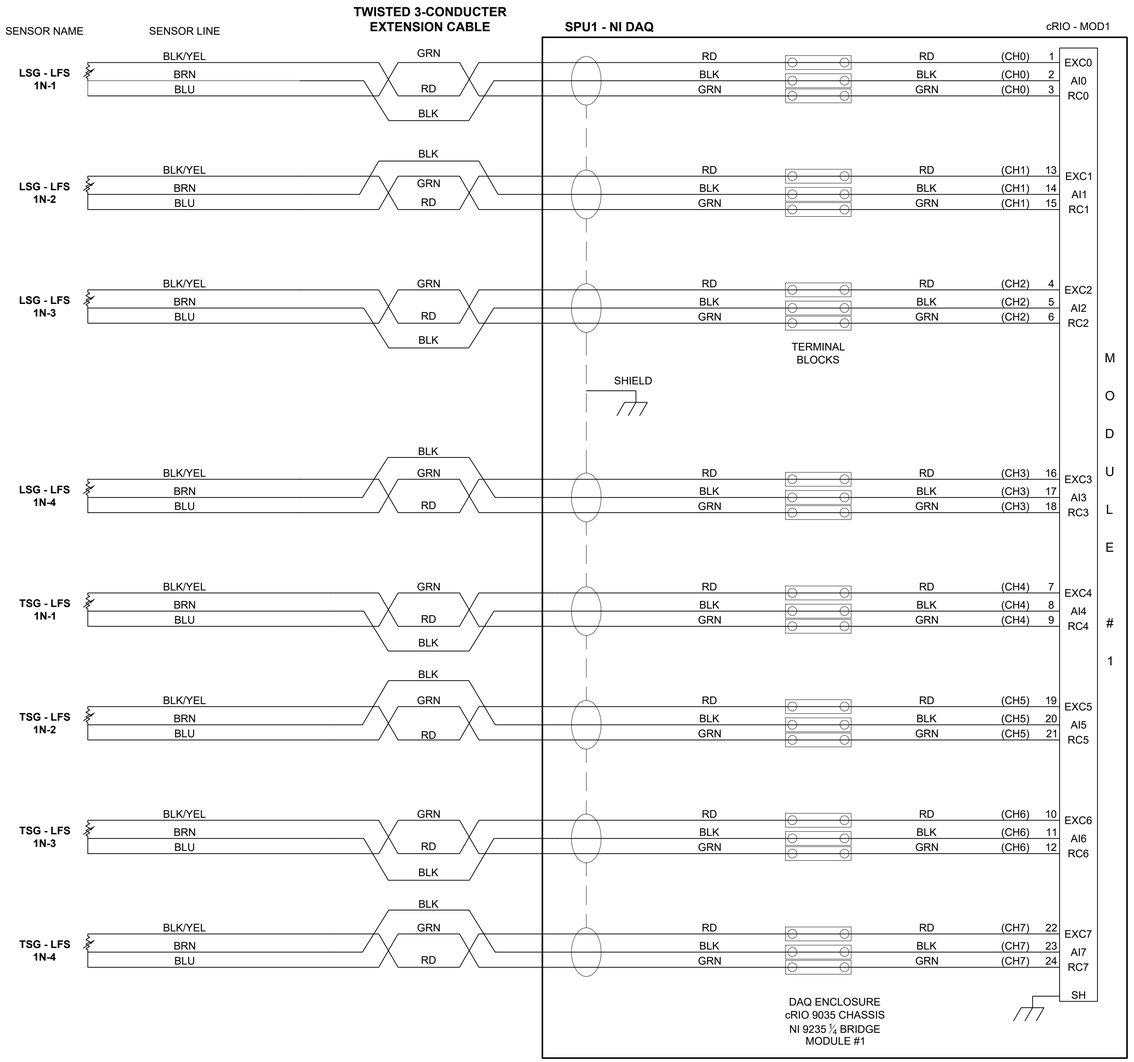
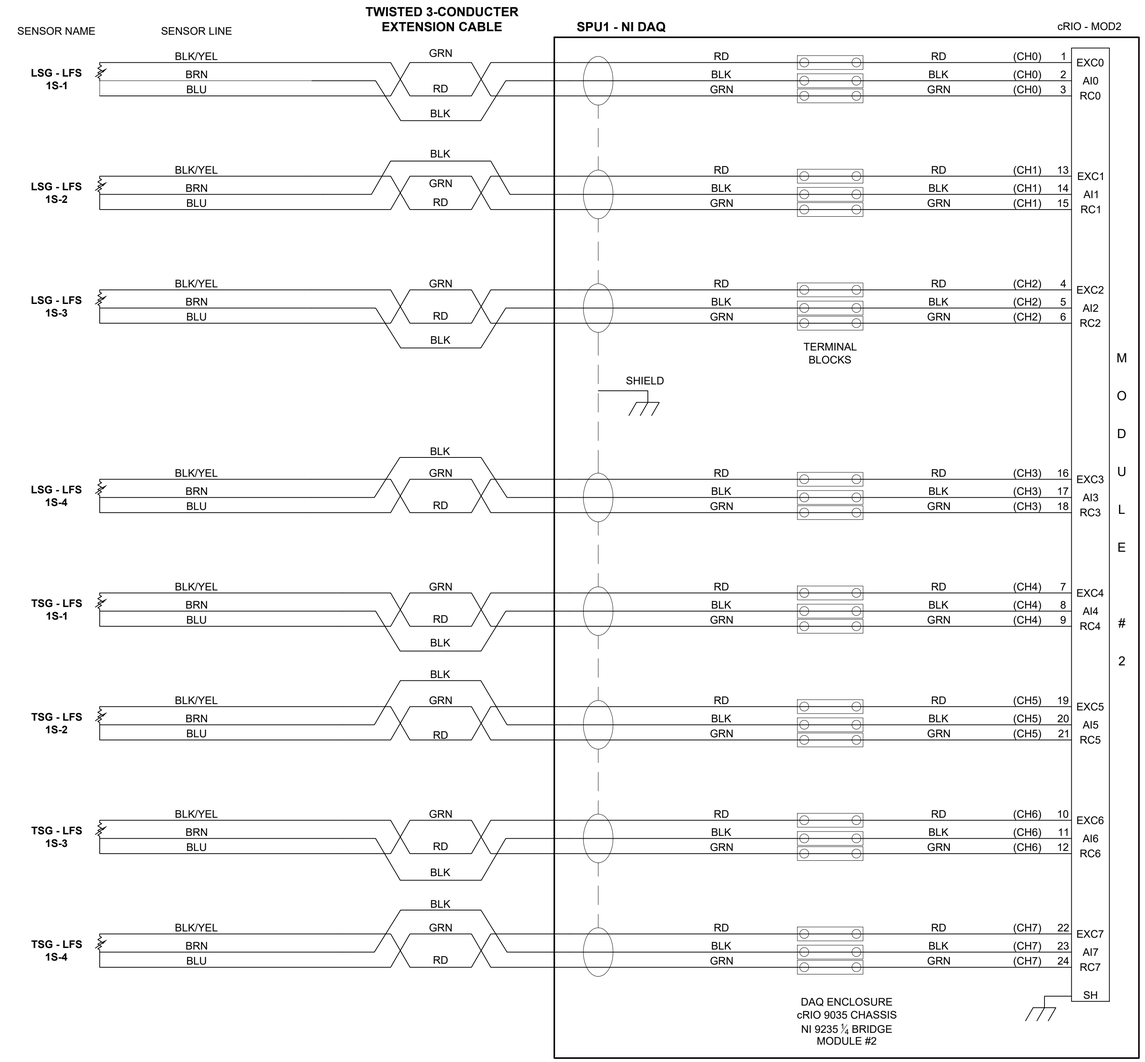


cRIO - MODULE #1
DYNATEST GAUGE
TEST SECTION 1 NORTH



cRIO - MODULE #2
DYNATEST GAUGE
TEST SECTION 1 SOUTH

LEGEND

- TWISTED CABLE
- DC GROUND
- EARTH GROUND

EG - EMBEDDED GAUGE

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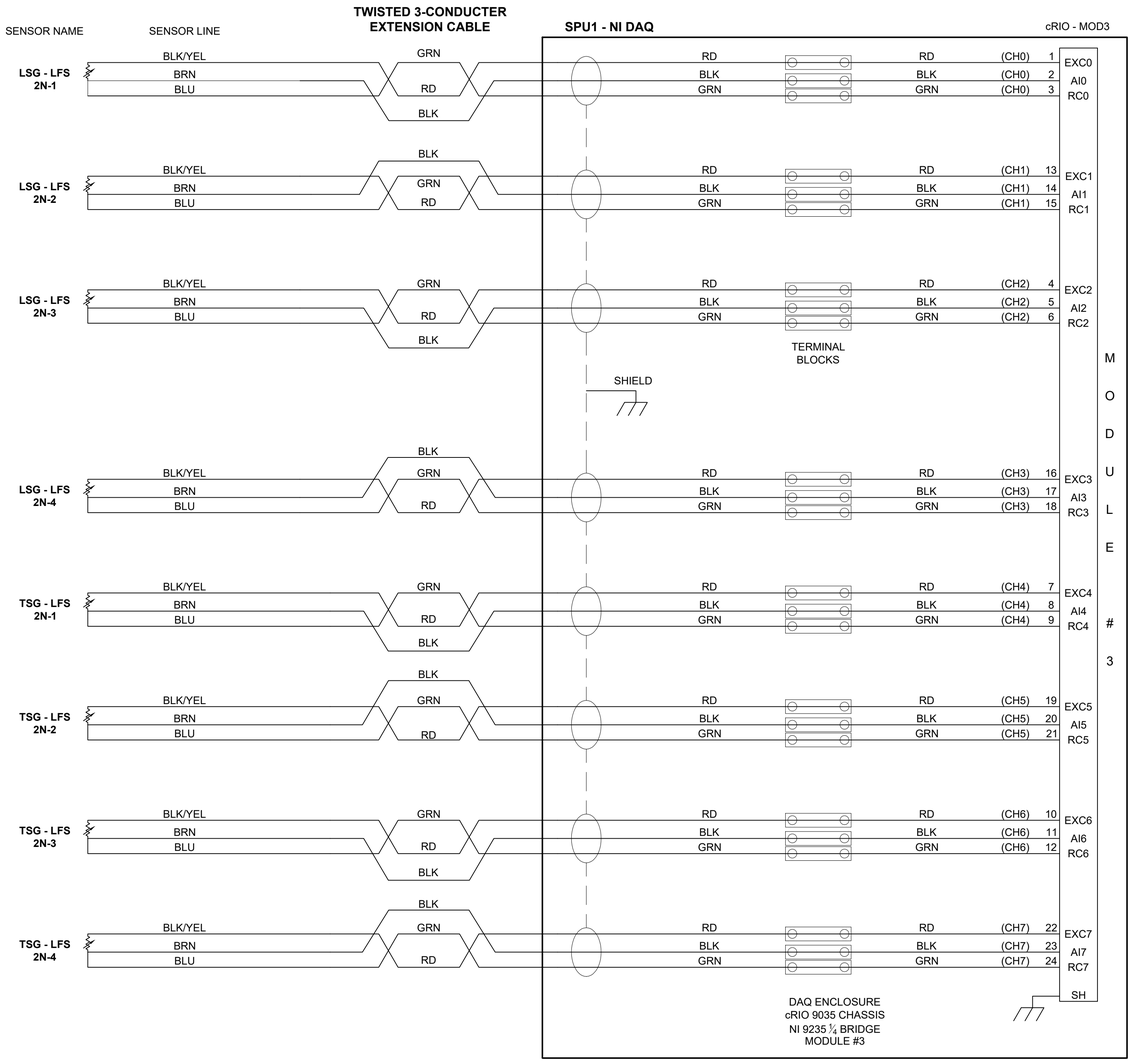
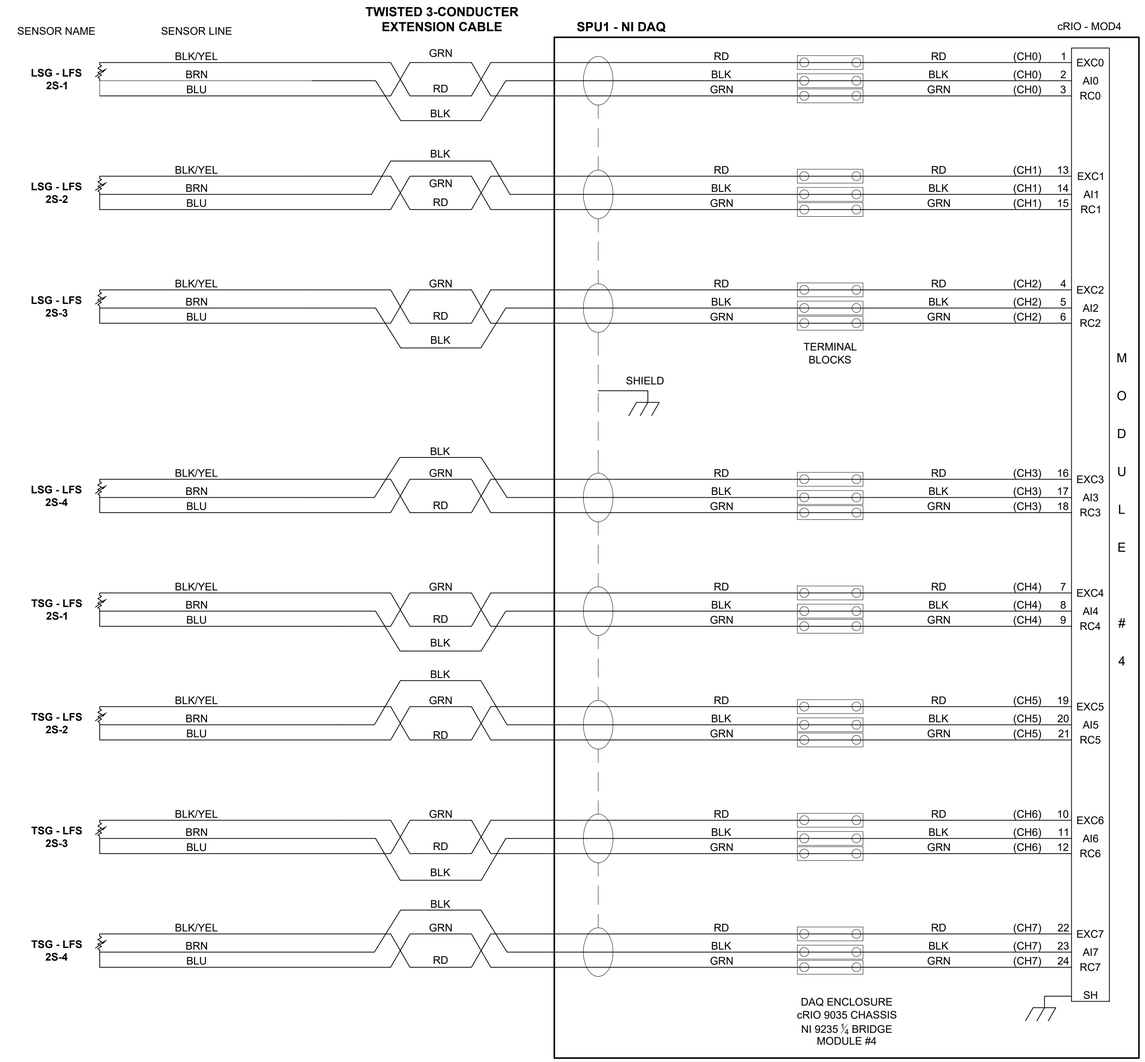
CONSTRUCTION CYCLE 9
SPU1-NI DAQ
WIRING DIAGRAMS

SIZE: ANSI D | SCALE: AS NOTED | SHEET 3 OF 8

CAD FILE: CC09-SPU1.DWG



cRIO - MODULE #3
DYNATEST GAUGE
TEST SECTION 2 NORTH



cRIO - MODULE #4
DYNATEST GAUGE
TEST SECTION 2 SOUTH

LEGEND

- TWISTED CABLE
- DC GROUND
- EARTH GROUND

EG - EMBEDDED GAUGE

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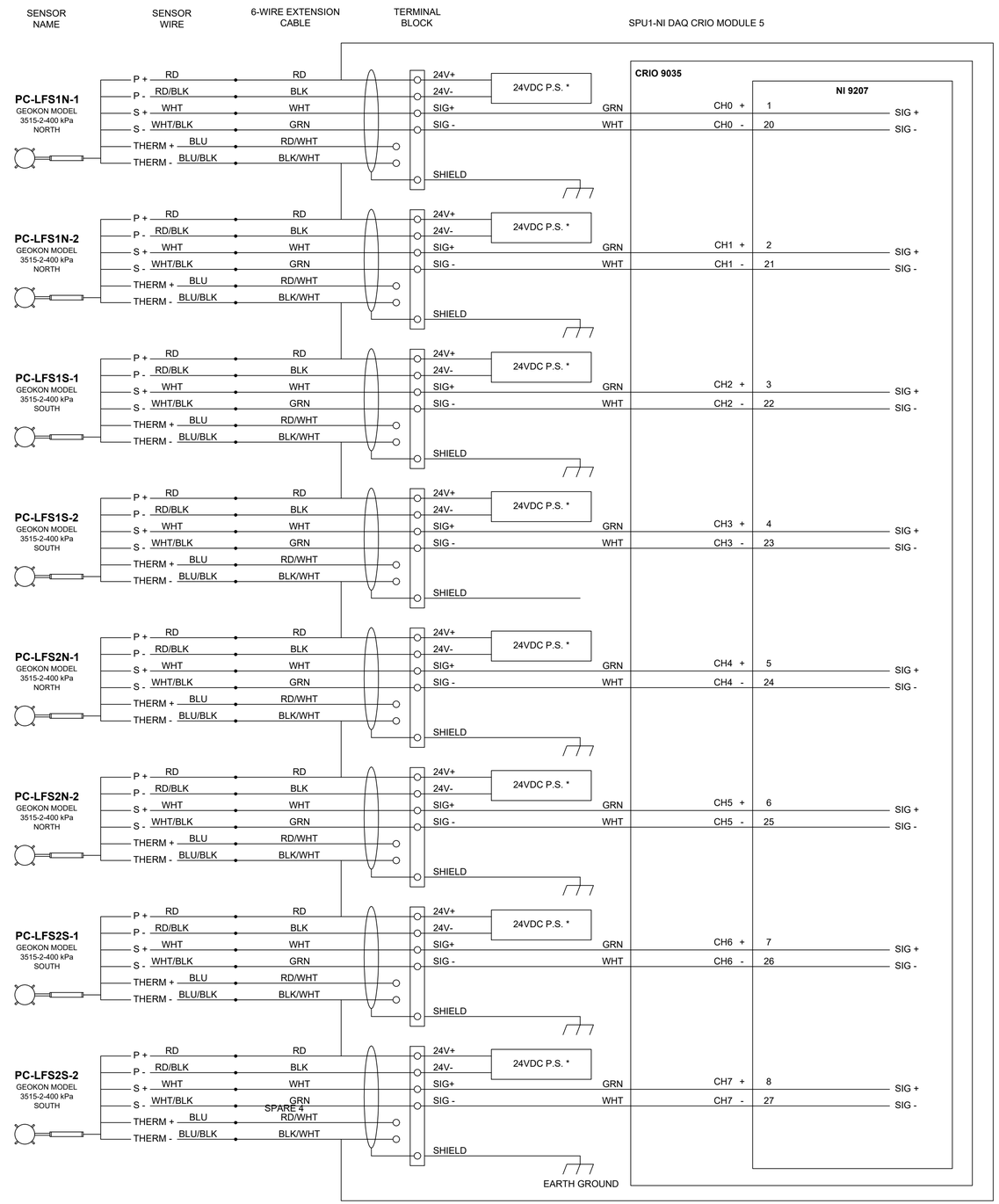
CONSTRUCTION CYCLE 9
SPU1-NI DAQ
WIRING DIAGRAMS

SIZE: ANSI D | SCALE: AS NOTED | SHEET 4 OF 8

CAD FILE: CC09-SPU1.DWG



CRIO - MODULE 5
9" PRESSURE CELL
TEST SECTION 1 N/S & 2 N/S

* NOTE:
A SINGLE 24VDC POWER SUPPLY PROVIDES SOURCE VOLTAGE TO THE 8 PRESSURE CELLS

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CONSTRUCTION CYCLE 9
SPU1-NI DAQ
WIRING DIAGRAMS

SIZE: ANSI D | SCALE: AS NOTED | SHEET 5 OF 8

CAD FILE: CC09-SPU1.DWG

CC9, SPU1-NI DAQ, STA # 00 - 045 NORTH

SPU1 Location: STA # 50 South Wall

Rev2_AUG 15, 2019

1N

Array Index Ch#	Sensor Label MAF Heading	Sensor Color Code	Extension Cable Color Code 3-Wire Cable	Exntension Cable Length (ft.)	SPU1-NI DAQ		CALIBRATION	COORDINATES			VERIFICATION
					MOD #	NI 9235 Pinout 8-CH Analog Input CH #/Connection	Scale Factor GF = ue/V/V Forumla	X STA. (ft.)	Y STA. (ft.)	Z ELEV. (in.)	R-Cal = 29,990 ohms -2000ue @ 1mv pass fail
6	LSG-LFS1N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	95	1	0 EXC0 - 1 0 AI0 - 2 0 RC0 - 3	2000000 m*x-b	5.00	-17.25	11.00	-2009
7	LSG-LFS1N-2 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	93	1	1 EXC1 - 13 1 AI1 - 14 1 RC1 - 15	2000000 m*x-b	7.00	-17.25	11.00	-1986
8	LSG-LFS1N-3 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	95	1	2 EXC2 - 4 2 AI2 - 5 2 RC2 - 6	2000000 m*x-b	5.00	-12.75	11.00	-2013
9	LSG-LFS1N-4 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	93	1	3 EXC3 - 16 3 AI3 - 17 3 RC3 - 18	2000000 m*x-b	7.00	-12.75	11.00	-1982
10	LSG-LFS1N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	91	1	4 EXC4 - 7 4 AI4 - 8 4 RC4 - 9	2000000 m*x-b	9.00	-17.25	11.00	-2026
11	LSG-LFS1N-2 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	89	1	5 EXC5 - 19 5 AI5 - 20 5 RC5 - 21	2000000 m*x-b	11.00	-17.25	11.00	-2016
12	LSG-LFS1N-3 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	91	1	6 EXC6 - 10 6 AI6 - 11 6 RC6 - 12	2000000 m*x-b	9.00	-12.75	11.00	-2013
13	LSG-LFS1N-4 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	89	1	7 EXC7 - 22 7 AI7 - 23 7 RC7 - 24	2000000 m*x-b	11.00	-12.75	11.00	-2005

CC9, SPU1-NI DAQ, STA # 60 - 105 NORTH

SPU1 Location: STA # 50 South Wall

Rev2_AUG 15, 2019

2N

Array Index Ch#	Sensor Label MAF Heading	Sensor Color Code	Extension Cable Color Code 3-Wire Cable	Exntension Cable Length (ft.)	SPU1-NI DAQ		CALIBRATION	COORDINATES			VERIFICATION
					MOD #	NI 9235 Pinout 8-CH Analog Input CH #/Connection	Scale Factor GF = ue/V/V Forumla	X STA. (ft.)	Y STA. (ft.)	Z ELEV. (in.)	R-Cal = 29,990 ohms -2000ue @ 1mv pass fail
24	LSG-LFS2N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	65	3	0 EXC0 - 1 0 AI0 - 2 0 RC0 - 3	2000000 m*x-b	65.00	-17.25	11.00	-1999
25	LSG-LFS2N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	67	3	1 EXC1 - 13 1 AI1 - 14 1 RC1 - 15	2000000 m*x-b	67.00	-17.25	11.00	-1989
26	LSG-LFS2N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	65	3	2 EXC2 - 4 2 AI2 - 5 2 RC2 - 6	2000000 m*x-b	65.00	-12.75	11.00	-2003
27	LSG-LFS2N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	67	3	3 EXC3 - 16 3 AI3 - 17 3 RC3 - 18	2000000 m*x-b	67.00	-12.75	11.00	-2021
28	LSG-LFS2N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	69	3	4 EXC4 - 7 4 AI4 - 8 4 RC4 - 9	2000000 m*x-b	69.00	-17.25	11.00	-1991
29	LSG-LFS2N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	71	3	5 EXC5 - 19 5 AI5 - 20 5 RC5 - 21	2000000 m*x-b	71.00	-17.25	11.00	-2001
30	LSG-LFS2N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	69	3	6 EXC6 - 10 6 AI6 - 11 6 RC6 - 12	2000000 m*x-b	69.00	-12.75	11.00	-2006
31	LSG-LFS2N-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	71	3	7 EXC7 - 22 7 AI7 - 23 7 RC7 - 24	2000000 m*x-b	71.00	-12.75	11.00	-2010

CC9, SPU1-NI DAQ, STA # 00 - 045 SOUTH

SPU1 Location: STA # 50 South Wall

1S

Array Index Ch#	Sensor Label MAF Heading	Sensor Color Code	Extension Cable Color Code 3-Wire Cable	Exntension Cable Length (ft.)	SPU1-NI DAQ		CALIBRATION	COORDINATES			VERIFICATION
					MOD #	NI 9235 Pinout 8-CH Analog Input CH #/Connection	Scale Factor GF = ue/V/V Forumla	X STA. (ft.)	Y STA. (ft.)	Z ELEV. (in.)	R-Cal = 29,990 ohms -2000ue @ 1mv pass fail
15	LSG-LFS1S-1 Dyantest South	BLK/YEL BRN BLU	RED BLK GRN	65	2	0 EXC0 - 1 0 AI0 - 2 0 RC0 - 3	2000000 m*x-b	5.00	17.25	9.00	-1998
16	LSG-LFS1S-1 Dyantest South	BLK/YEL BRN BLU	RED BLK GRN	63	2	1 EXC1 - 13 1 AI1 - 14 1 RC1 - 15	2000000 m*x-b	7.00	17.25	9.00	-2011
17	LSG-LFS1S-1 Dyantest South	BLK/YEL BRN BLU	RED BLK GRN	65	2	2 EXC2 - 4 2 AI2 - 5 2 RC2 - 6	2000000 m*x-b	5.00	12.75	9.00	-1998
18	LSG-LFS1S-1 Dyantest South	BLK/YEL BRN BLU	RED BLK GRN	63	2	3 EXC3 - 16 3 AI3 - 17 3 RC3 - 18	2000000 m*x-b	7.00	12.75	9.00	-1997
19	LSG-LFS1S-1 Dyantest South	BLK/YEL BRN BLU	RED BLK GRN	61	2	4 EXC4 - 7 4 AI4 - 8 4 RC4 - 9	2000000 m*x-b	9.00	17.25	9.00	-2020
20	LSG-LFS1S-1 Dyantest South	BLK/YEL BRN BLU	RED BLK GRN	59	2	5 EXC5 - 19 5 AI5 - 20 5 RC5 - 21	2000000 m*x-b	11.00	17.25	9.00	-1993
21	LSG-LFS1S-1 Dyantest South	BLK/YEL BRN BLU	RED BLK GRN	61	2	6 EXC6 - 10 6 AI6 - 11 6 RC6 - 12	2000000 m*x-b	9.00	12.75	9.00	-2020
22	LSG-LFS1S-1 Dyantest South	BLK/YEL BRN BLU	RED BLK GRN	59	2	7 EXC7 - 22 7 AI7 - 23 7 RC7 - 24	2000000 m*x-b	11.00	12.75	9.00	-1995

CC9, SPU1-NI DAQ, STA # 60 - 105 SOUTH

SPU1 Location: STA # 50 South Wall

2S

Array Index Ch#	Sensor Label MAF Heading	Sensor Color Code	Extension Cable Color Code 3-Wire Cable	Exntension Cable Length (ft.)	SPU1-NI DAQ		CALIBRATION	COORDINATES			VERIFICATION
					MOD #	NI 9235 Pinout 8-CH Analog Input CH #/Connection	Scale Factor GF = ue/V/V Forumla	X STA. (ft.)	Y STA. (ft.)	Z ELEV. (in.)	R-Cal = 29,990 ohms -2000ue @ 1mv pass fail
33	LSG-LFS2S-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	35	4	0 EXC0 - 1 0 AI0 - 2 0 RC0 - 3	2000000 m*x-b	65.00	12.75	9.00	-2009
34	LSG-LFS2S-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	37	4	1 EXC1 - 13 1 AI1 - 14 1 RC1 - 15	2000000 m*x-b	67.00	12.75	9.00	-1979
35	LSG-LFS2S-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	35	4	2 EXC2 - 4 2 AI2 - 5 2 RC2 - 6	2000000 m*x-b	65.00	17.25	9.00	-2013
36	LSG-LFS2S-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	37	4	3 EXC3 - 16 3 AI3 - 17 3 RC3 - 18	2000000 m*x-b	67.00	17.25	9.00	-2016
37	LSG-LFS2S-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	39	4	4 EXC4 - 7 4 AI4 - 8 4 RC4 - 9	2000000 m*x-b	69.00	12.75	9.00	-2001
38	LSG-LFS2S-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	41	4	5 EXC5 - 19 5 AI5 - 20 5 RC5 - 21	2000000 m*x-b	71.00	12.75	9.00	-2016
39	LSG-LFS2S-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	39	4	6 EXC6 - 10 6 AI6 - 11 6 RC6 - 12	2000000 m*x-b	69.00	17.25	9.00	-2013
40	LSG-LFS2S-1 Dyantest North	BLK/YEL BRN BLU	RED BLK GRN	41	4	7 EXC7 - 22 7 AI7 - 23 7 RC7 - 24	2000000 m*x-b	71.00	17.25	9.00	-2015

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CONSTRUCTION CYCLE 9

SPU1-N1 DAQ WIRING DIAGRAM TABLES

PROJECT NO: | SIZE: ANSI D | SCALE: AS NOTED | SHEET 6 OF 8

CAD FILE: CC09-SPU1.DWG

CC9, SPU1-NI DAQ test section STA 00 - 105, LFS-1N&1S & LFS-2N&2S | SPU1 Location: STA # 50 South Wall | 1N. 1S, 2N & 2S | Rev2_Aug 15,2019

Array Index Ch#	Sensor Label MAF Model # Heading	Sensor Color Code	Extension Wire Color Code 3-Pair Cable	Exntension Wire Length (ft.)	SPU1-NI DAQ			CALIBRATION			COORDINATES			VERIFICATION			
					DAQ MOD #	NI 9207 Analog Input CH #	Pin#	Sensor S/N Slope = m value = GF = psi/1v	x = volts input m*(x+b) b value = volts offset	Unit of Measure	X STA. (ft.)	Y OFFSET. (ft.)	Z ELEV. (in.) Depth from Top Layer	V in signal simulator	Calculated psi out	Actual psi out	X = Pass F = Fail
42	PC-LFS1N-1 GEOKON Model 3515-2-400kPa North	P+ P- S+ S- Therm Therm	RD RD/BLK WHT WHT/BLK BLU BLU/BLK	RD BLK WHT GRN RD/WHT BLK/WHT	88	5	CH0+ CH0-	24V+ GND 1 20 TBD TBD	S/N 1900244 11.647	0.088	psi	22.50	-15.00	11.00	1.00 3.00 5.00	11.647 34.941 58.235	11.649 34.921 58.201	X X X
43	PC-LFS1N-2 GEOKON Model 3515-2-400kPa North	P+ P- S+ S- Therm Therm	RD RD/BLK WHT WHT/BLK BLU BLU/BLK	RD BLK WHT GRN RD/WHT BLK/WHT	88	5	CH1+ CH1-	24V+ GND 2 21 TBD TBD	S/N 1900245 11.623	0.088	psi	22.50	-15.00	37.00	1.00 3.00 5.00	11.623 34.869 58.115	11.625 34.846 58.089	X X X
44	PC-LFS1S-1 GEOKON Model 3515-2-400kPa South	P+ P- S+ S- Therm Therm	RD RD/BLK WHT WHT/BLK BLU BLU/BLK	RD BLK WHT GRN RD/WHT BLK/WHT	58	5	CH2+ CH2-	24V+ GND 3 22 TBD TBD	S/N 1900246 11.607	0.088	psi	22.50	15.00	9.00	1.00 3.00 5.00	11.607 34.821 58.035	11.611 34.801 58.005	X X X
45	PC-LFS1S-2 GEOKON Model 3515-2-400kPa South	P+ P- S+ S- Therm Therm	RD RD/BLK WHT WHT/BLK BLU BLU/BLK	RD BLK WHT GRN RD/WHT BLK/WHT	58	5	CH3+ CH3-	24V+ GND 4 23 TBD TBD	S/N 1900247 11.623	0.088	psi	22.50	15.00	35.00	1.00 3.00 5.00	11.623 34.869 58.115	11.627 34.859 58.079	X X X
46	PC-LFS2N-1 GEOKON Model 3515-2-400kPa North	P+ P- S+ S- Therm Therm	RD RD/BLK WHT WHT/BLK BLU BLU/BLK	RD BLK WHT GRN RD/WHT BLK/WHT	93	5	CH4+ CH4-	24V+ GND 5 24 TBD TBD	S/N 1900248 11.632	0.088	psi	82.50	-15.00	11.00	1.00 3.00 5.00	11.632 34.896 58.16	11.634 34.866 58.113	X X X
47	PC-LFS2N-2 GEOKON Model 3515-2-400kPa North	P+ P- S+ S- Therm Therm	RD RD/BLK WHT WHT/BLK BLU BLU/BLK	RD BLK WHT GRN RD/WHT BLK/WHT	93	5	CH5+ CH5-	24V+ GND 6 25 TBD TBD	S/N 1900249 11.668	0.088	psi	82.50	-15.00	41.00	1.00 3.00 5.00	11.668 35.004 58.34	11.669 34.978 58.286	X X X
48	PC-LFS2S-1 GEOKON Model 3515-2-400kPa South	P+ P- S+ S- Therm Therm	RD RD/BLK WHT WHT/BLK BLU BLU/BLK	RD BLK WHT GRN RD/WHT BLK/WHT	63	5	CH6+ CH6-	24V+ GND 7 26 TBD TBD	S/N 1900250 11.616	0.088	psi	82.50	15.00	9.00	1.00 3.00 5.00	11.616 34.848 58.08	11.617 34.818 58.043	X X X
49	PC-LFS2S-2 GEOKON Model 3515-2-400kPa South	P+ P- S+ S- Therm Therm	RD RD/BLK WHT WHT/BLK BLU BLU/BLK	RD BLK WHT GRN RD/WHT BLK/WHT	63	5	CH7+ CH7-	24V+ GND 8 27 TBD TBD	S/N 1900251 11.623	0.088	psi	82.50	15.00	39.00	1.00 3.00 5.00	11.623 34.869 58.115	11.627 34.835 58.076	X X X

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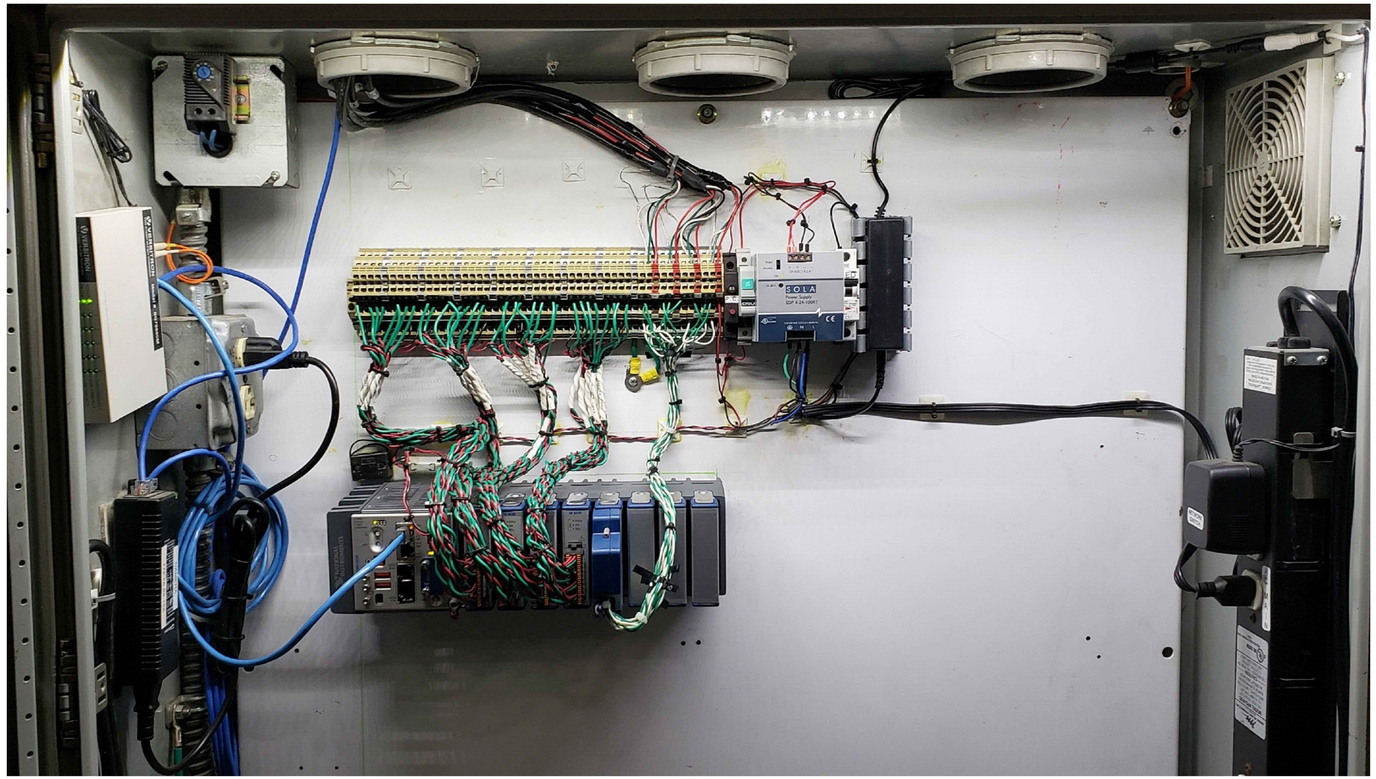
CONSTRUCTION CYCLE 9

SPU1-N1 DAQ WIRING DIAGRAM TABLES

PROJECT NO: | SIZE: ANSI D | SCALE: AS NOTED | SHEET 7 OF 8

CAD FILE: CC09-SPU1.DWG



SPU1 DATA COLLECTION CABINET

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CONSTRUCTION CYCLE 9

SPU1 DATA COLLECTION CABINET PHOTOGRAPH

SIZE: ANSI D | SCALE: AS NOTED | SHEET 8 OF 8

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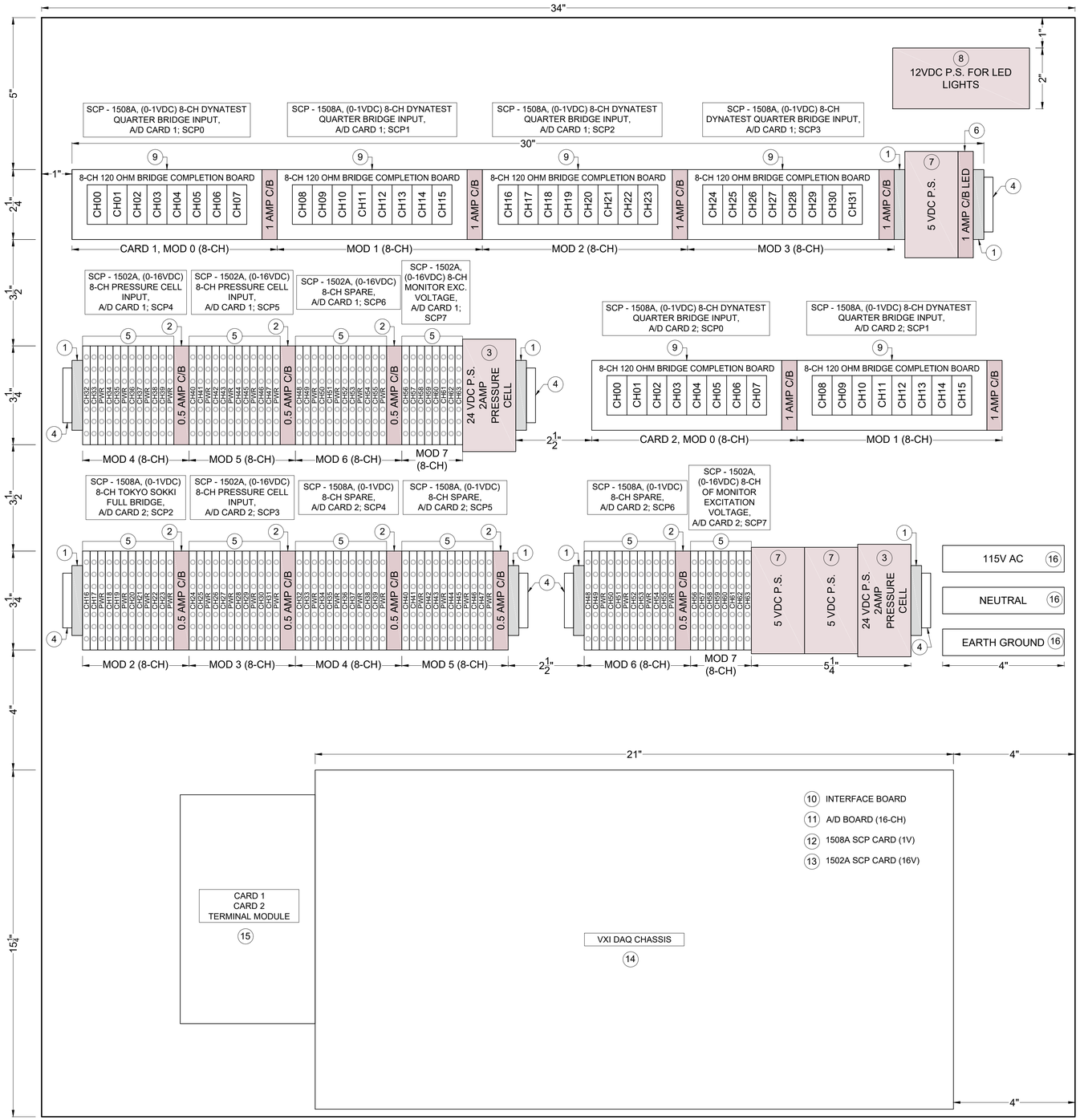

PLAN VIEW

N.T.S.

SPU-VXI CHASSIS SPECIFICATIONS:

- CARD 1 = 64 CHANNELS:
  32 DYNATEST, 1/4 BRIDGE
  14 PRESSURE CELL, 2 SPARE
  8 SPARE
  08 MONITOR
- CARD 2 = 64 CHANNELS:
  16 DYNATEST, 1/4 BRIDGE
  08 TOKYO SOKKI, FULL BRIDGE
  04 PRESSURE CELL, 4 SPARE
  24 SPARE
  08 MONITOR

PARTS LIST

ITEM #	PART DESCRIPTION	PART NUMBER	MANUFACTURER NAME	QTY
1	END BRACKET, TERM BLK, SNAP ON, 57 MM L, 9.5 MM W	3022218	PHOENIX CONTACT	6
2	THERMOMAGNETIC CIRCUIT BREAKER 0.5 AMP, DIN RAIL MOUNT	70207736	PHOENIX CONTACT	8
3	POWER SUPPLY, 24V/ 2A, DIN RAIL MOUNT	70001025	PHOENIX CONTACT	2
4	DIN RAIL, STEEL, COMPONENT MOUNTING	8961K15	MCMASTER CARR	4
5	WEIDMULLER 3 LEVEL TERMINAL BLOCK	1784180000	ALLIED ELECTRONICS	112
6	THERMOMAGNETIC CIRCUIT BREAKER 1 AMP, DIN RAIL MOUNT, EATON	7026K6 1 AMP	MCMASTER CARR	1
7	SOLAR POWER SUPPLY, 5VDC/ 5A	70211365	ALLIED ELECTRONICS	3
8	LED LIGHT STRIP WITH POWER SUPPLY, LEDMO	B01FFZX0H4	AMAZON	1
9	BRIDGE COMPLETION BOARD	BCB	DIGI-KEY	6
10	INTERFACE BOARD SLOT 0	70-0313-000	VXI	1
11	A/D BOARD (64 CH)	E1413C	VXI	2
12	1508A SCP CARD (1V)	669577	VXI	10
13	1502A SCP CARD (16V)	669497	VXI	6
14	VXI DAQ CHASSIS	CT100C	VXI	1
15	TERMINAL MODULE	52-0527-000	VXI	2
16	4-STUD TERMINAL BAR	9290T32	MCMASTER CARR	3

ITEM 9 BRIDGE COMPLETION BOARD BOM PARTS LIST

ITEM 9-#	PART DESCRIPTION	PART NUMBER	MANUFACTURER NAME	QTY
9-1	TERMINAL BLOCK	1-2834016-6	TE CONNECTIVITY / AMP	100
9-2	BRIDGE COMPLETION RESISTOR	S102K_120R00_0.01	TEXAS COMPONENTS	144
9-3	TERM BLOCK HDR 2POS VERT 5MM	1933189	PHOENIX CONTACT	150
9-4	#4-40 X 0.375 IN. STANDOFF	2102-440-AL	RAF ELECTRONIC HARDWARE	24
9-5	#4-40 X 0.25 IN. SCREW	9900	KEYSTONE ELECTRONICS	24
9-6	PROTOBOARD	SBB830	CHIP QUIK INC.	6
9-7	CIRCUIT BREAKER - 1 A (PCB)	1410-L210-L2F1-S02-1A	E-T-A	6
9-8	FLASHING LED	SSL-LX5093BSRD	LUMEX OPTO/COMPONENTS	6
9-9	LED RESISTOR	RNF18FTD100R	STACKPOLE ELECTRONICS	6

SPU2-VXI CHASSIS POWER REQUIREMENTS

POWER RATTING SPU2-VXI CARD 1

Sensor Type	NUMBER OF SENSORS FOR 1 CIRCUIT BREAKER	TOTAL NUMBER OF BREAKERS	CURRENT PULL FOR 1 BREAKER [AMPS]	CIRCUIT BREAKER RATING	TOTAL SENSORS [QTY]	TOTAL CURRENT [AMPS]	POWER SUPPLY RATTING
DYNATEST STRAIN GAUGE QUARTER BRIDGE	8	4	0.333	1 AMP	32	1.332	5 VOLTS @ 5 AMPS
PRESSURE CELL	7	2	0.047	1 AMP	14	0.094	24 VOLTS @ 2 AMPS

POWER RATTING SPU2-VXI CARD 2

Sensor Type	NUMBER OF SENSORS FOR 1 CIRCUIT BREAKER	TOTAL NUMBER OF BREAKERS	CURRENT PULL FOR 1 BREAKER [AMPS]	CIRCUIT BREAKER RATING	TOTAL SENSORS [QTY]	TOTAL CURRENT [AMPS]	POWER SUPPLY RATTING
DYNATEST STRAIN GAUGE QUARTER BRIDGE	8	2	0.333	1 AMP	16	0.666	5 VOLTS @ 5 AMPS
TOKYO SOKKI FULL BRIDGE	8	1	0.115	N/A	8	0.115	5 VOLTS @ 5 AMPS
PRESSURE CELL	4	1	0.047	1 AMP	4	0.047	24 VOLTS @ 2 AMPS

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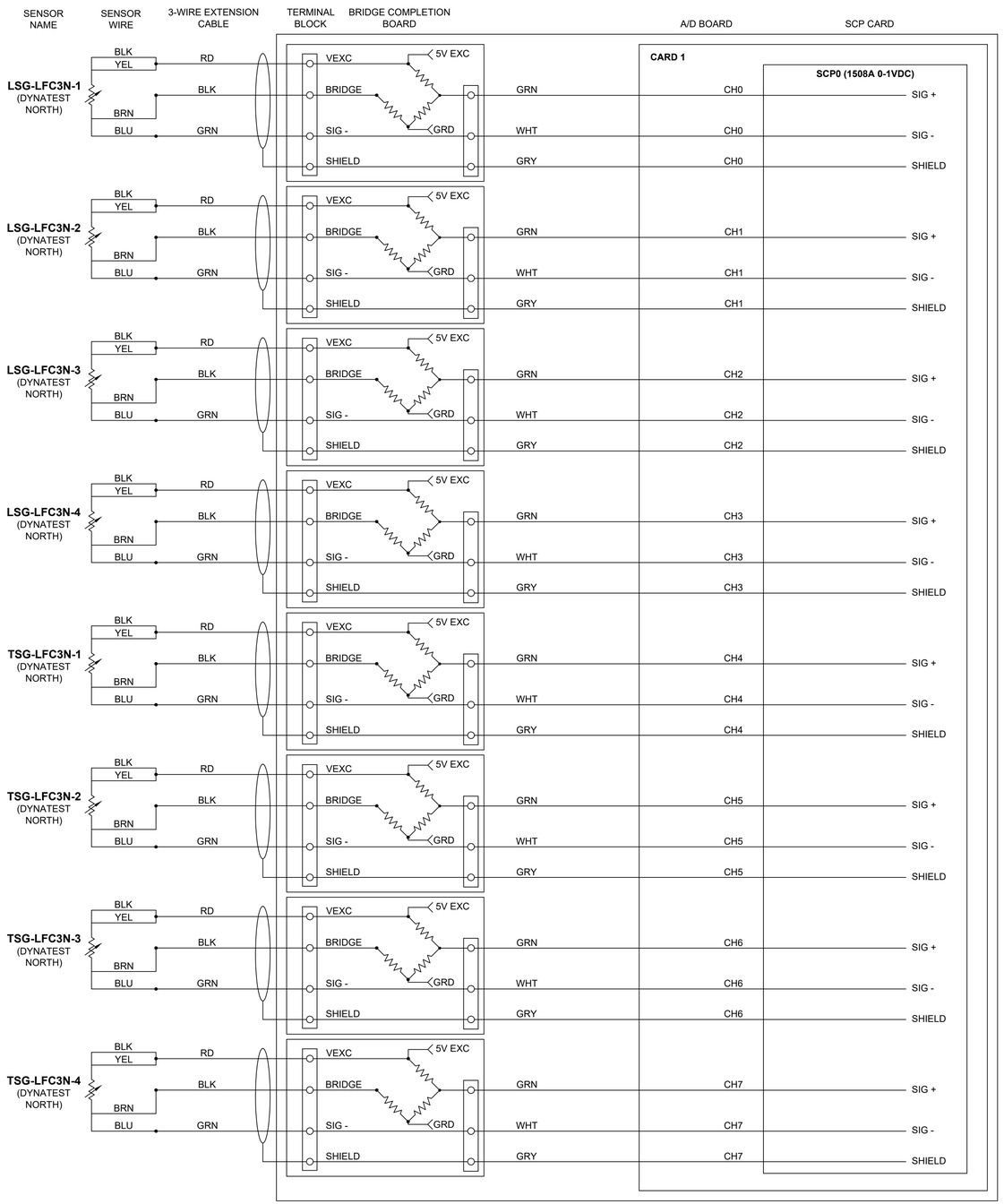
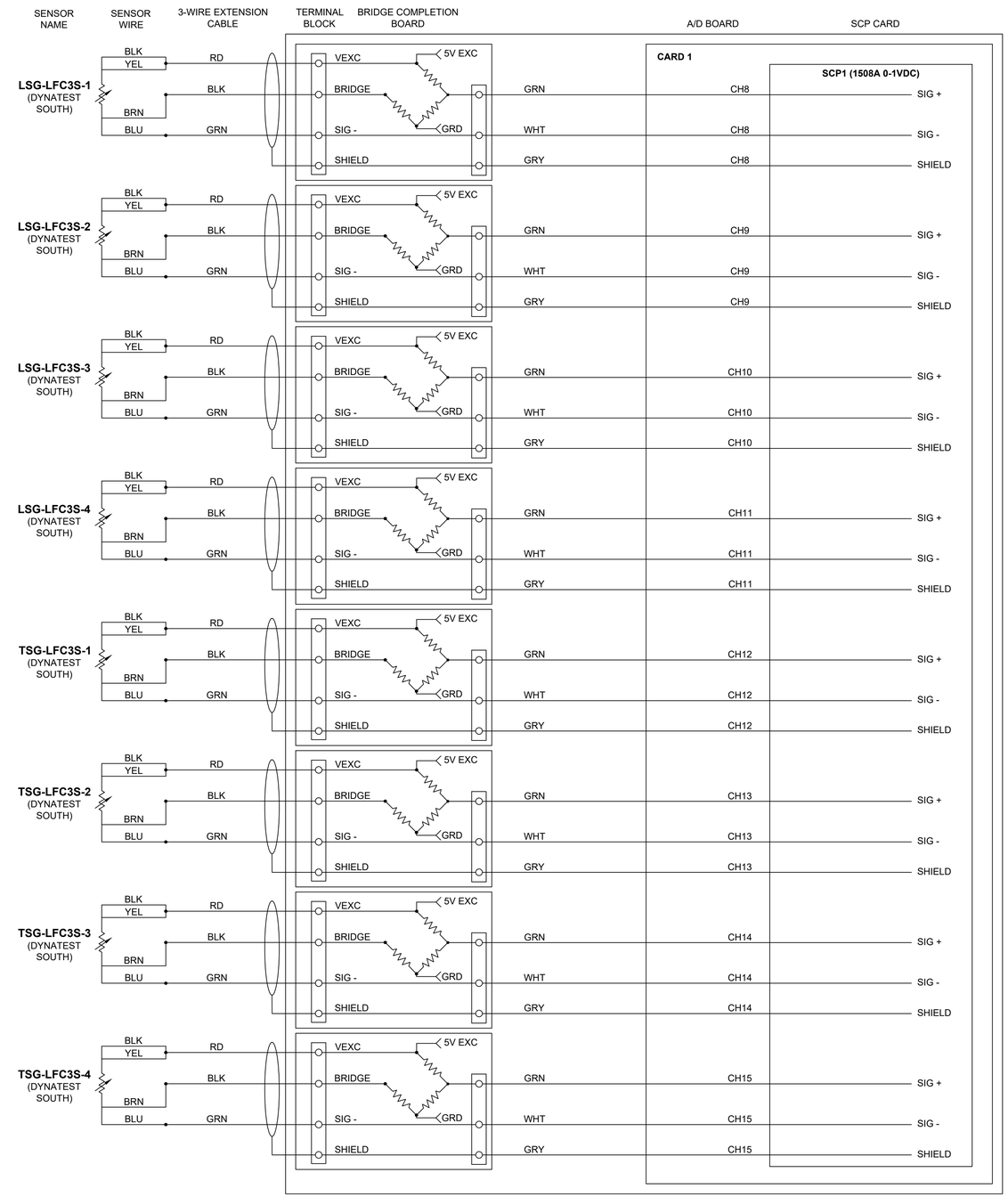
CONSTRUCTION CYCLE 9
SPU2 VXI CHASSIS
LAYOUT DIAGRAM

PROJECT NO: | SIZE: ANSI D | SCALE: AS NOTED | SHEET 1 OF 7

CAD FILE: CC09-DAQ-ENCL-SPU2.DWG



SPU2-VXI_CARD1_SCP0_CH0-7
DYNATEST STRAIN GAUGES



SPU2-VXI_CARD1_SCP1_CH8-15
DYNATEST STRAIN GAUGES

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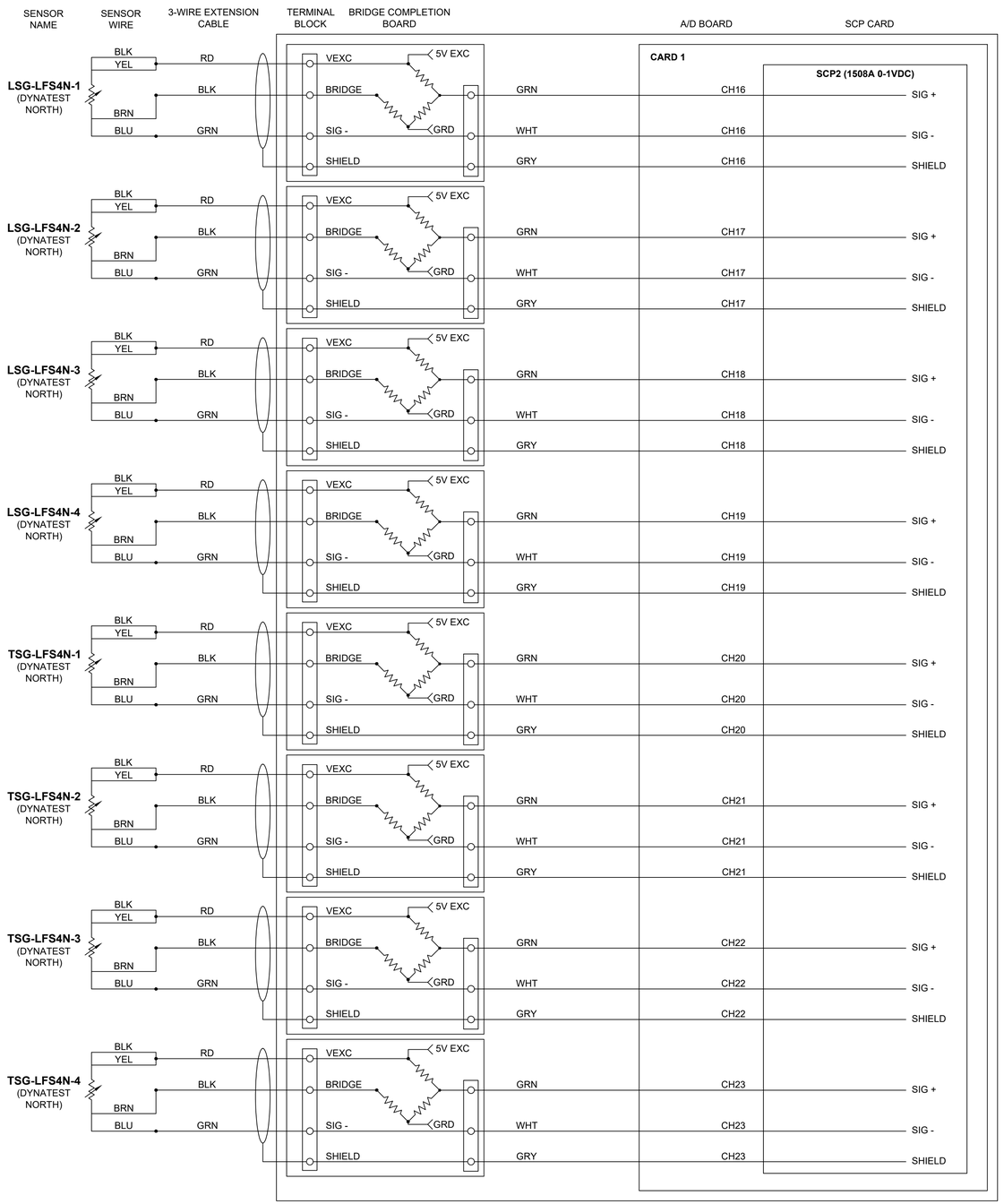
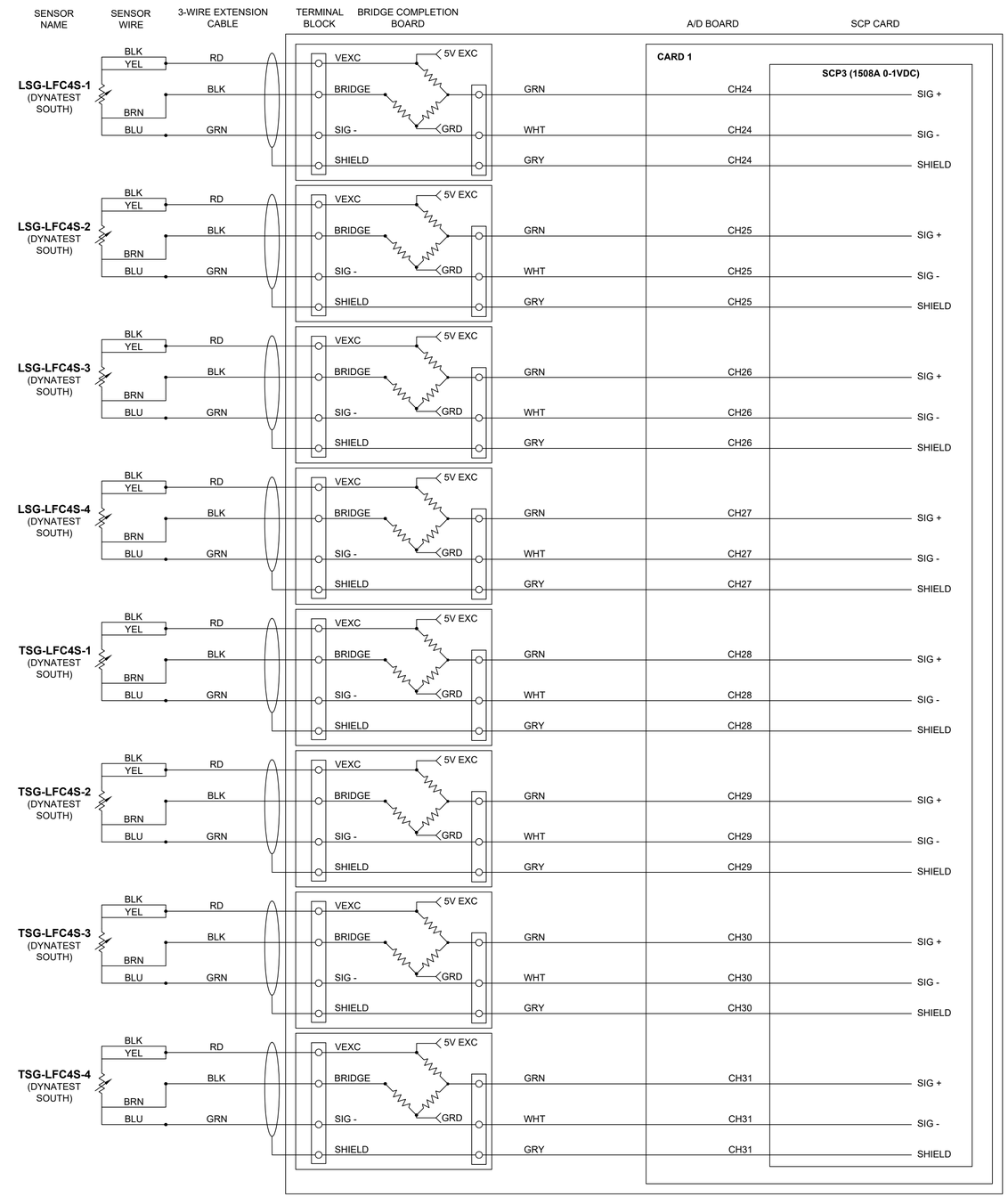
CONSTRUCTION CYCLE 9
SPU2-VXI WIRING DIAGRAMS

PROJECT NO: | SIZE: ANSI D | SCALE: AS NOTED | SHEET 2 OF 7

CAD FILE: CC09-DAQ-WIRE.DWG



SPU2-VXI_CARD1_SCP2_CH16-23
DYNATEST STRAIN GAUGES



SPU2-VXI_CARD1_SCP3_CH24-31
DYNATEST STRAIN GAUGES

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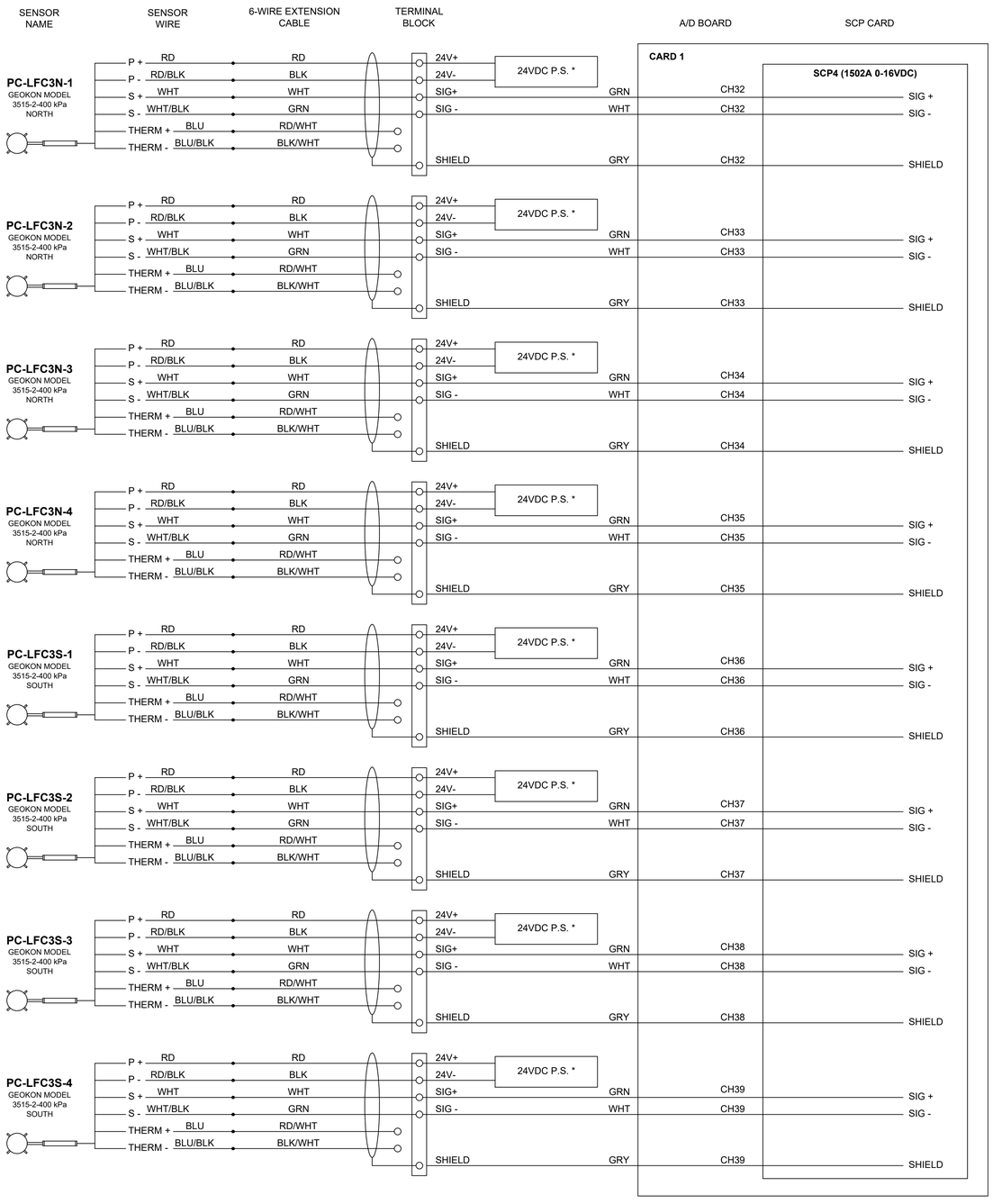
CONSTRUCTION CYCLE 9
SPU2-VXI WIRING DIAGRAMS

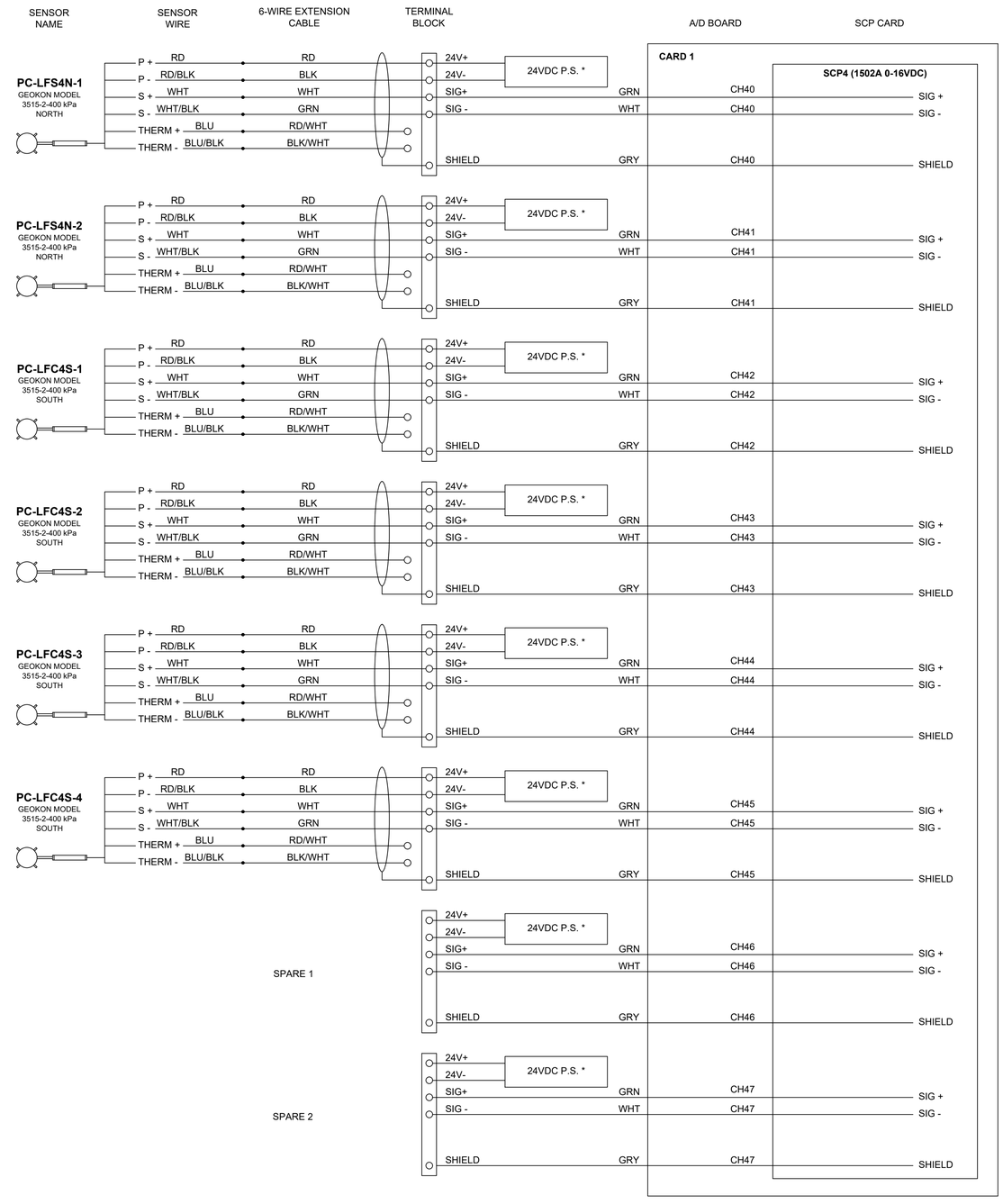
SIZE: ANSI D | SCALE: AS NOTED | SHEET 3 OF 7

CAD FILE: CC09-DAQ-WIRE.DWG



* - A SINGLE 24VDC POWER SUPPLY PROVIDES SOURCE VOLTAGE TO THE 8 PRESSURE CELLS

SPU2-VXI_CARD1_SCP4_CH32-39
PRESSURE CELLS



* - A SINGLE 24VDC POWER SUPPLY PROVIDES SOURCE VOLTAGE TO THE 8 PRESSURE CELLS

SPU2-VXI_CARD1_SCP5_CH40-47
PRESSURE CELLS

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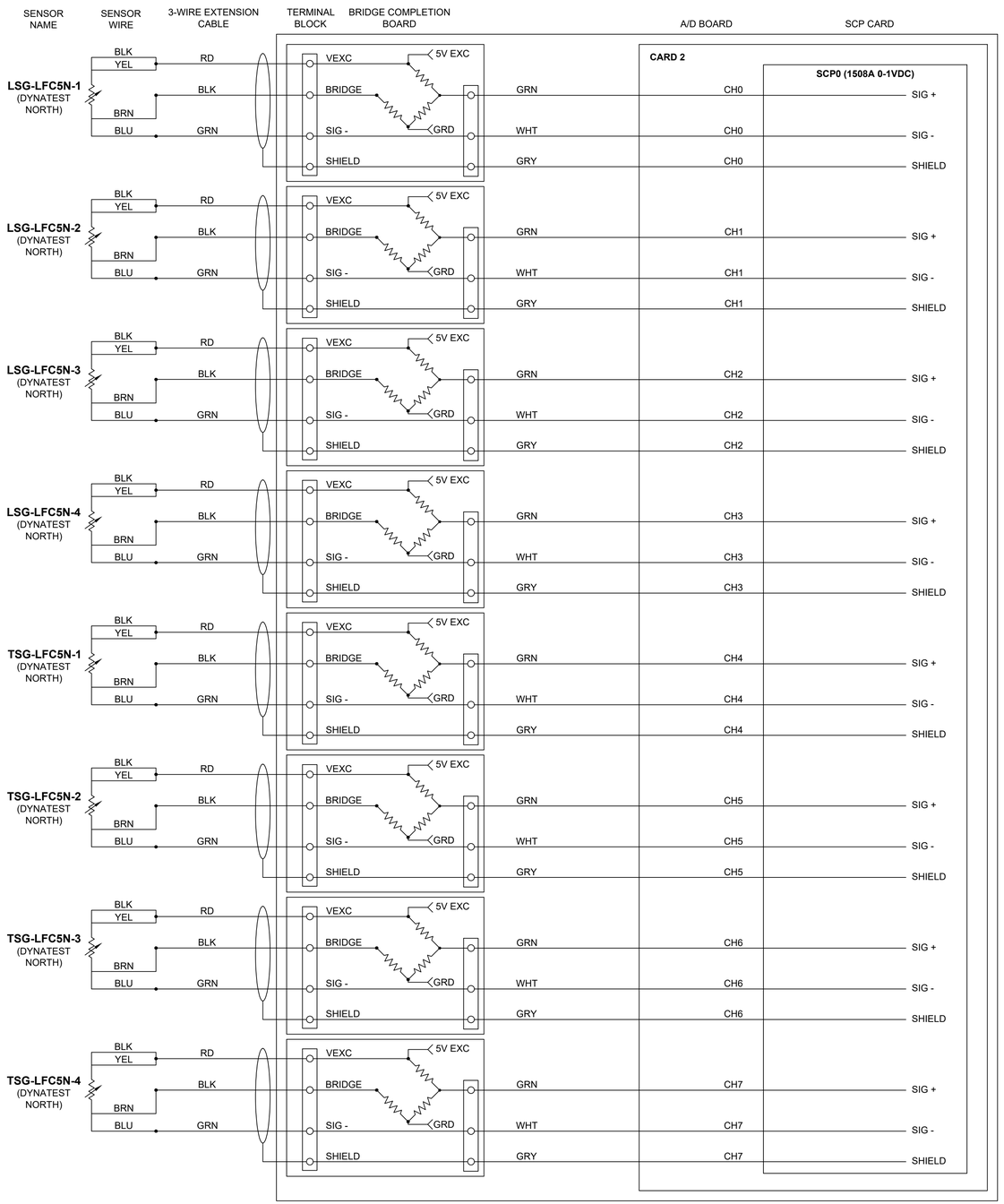
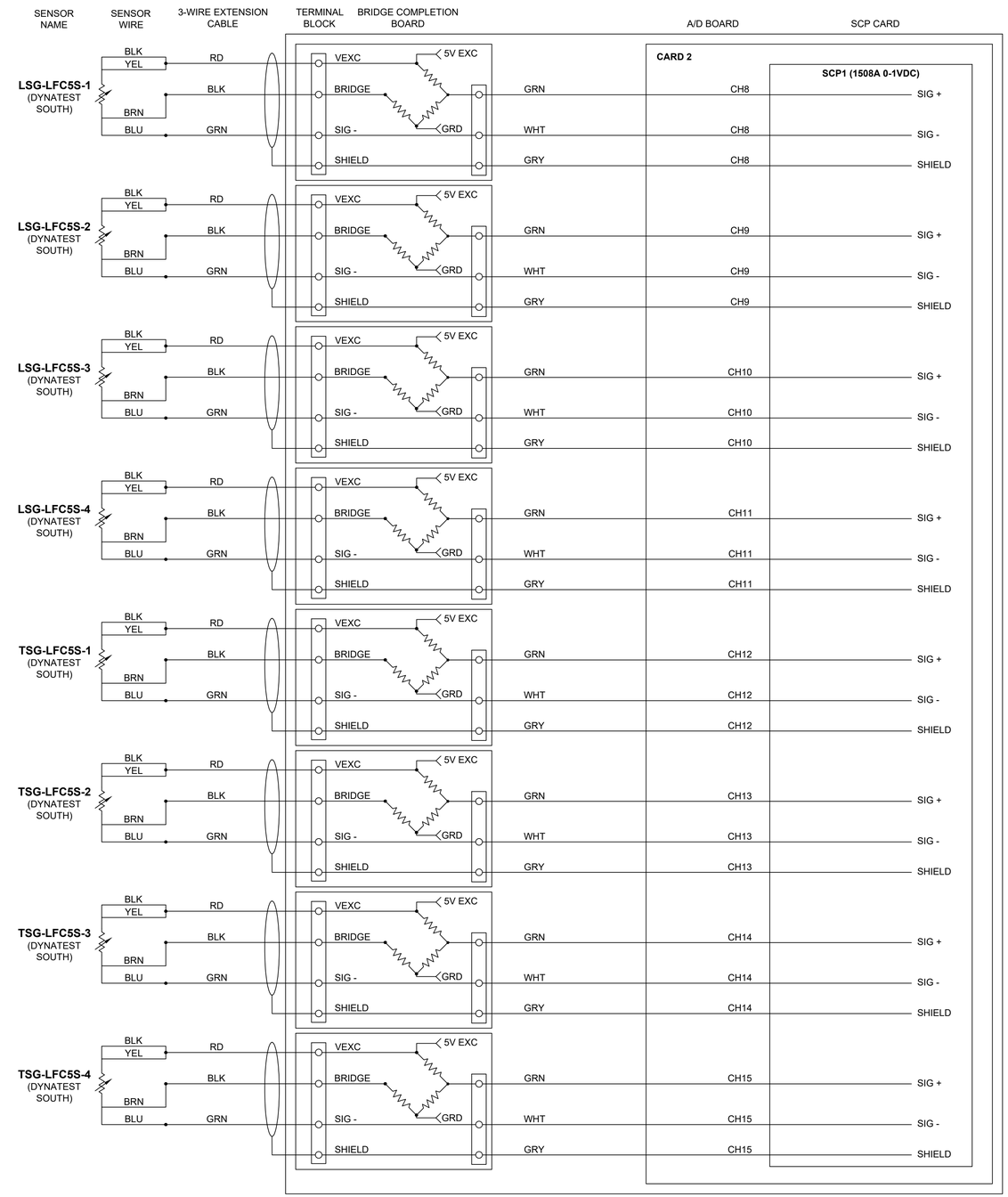
CONSTRUCTION CYCLE 9
SPU2-VXI WIRING DIAGRAMS

PROJECT NO: | SIZE: ANSI D | SCALE: AS NOTED | SHEET 4 OF 7

CAD FILE: CC09-DAQ-WIRE.DWG



SPU2-VXI_CARD2_SCP0_CH0-7
DYNATEST STRAIN GAUGES



SPU2-VXI_CARD2_SCP1_CH8-15
DYNATEST STRAIN GAUGES

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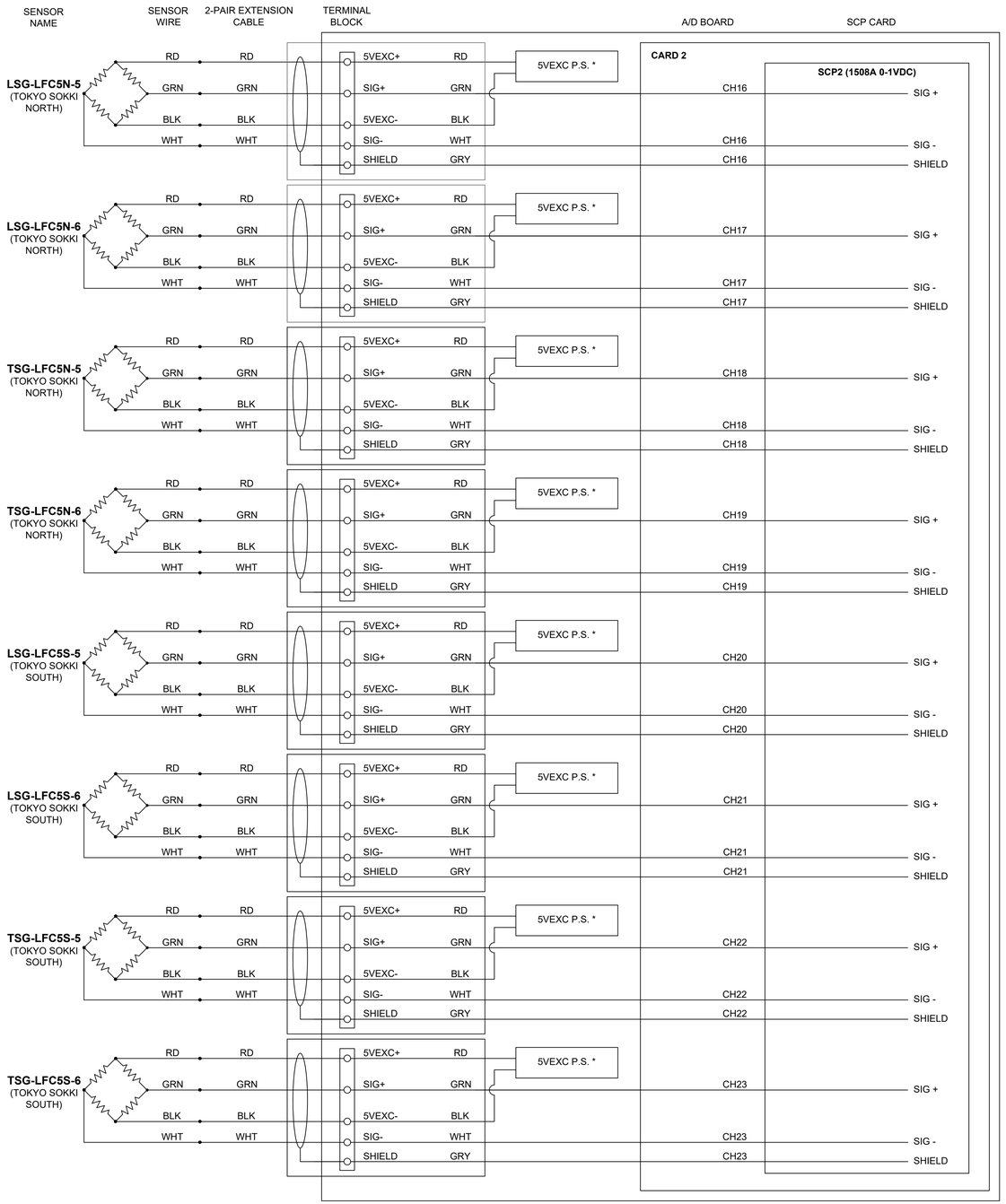
NEW JERSEY 08234

	NAME	DATE
DRAWN	M.MAZUREK	03/12/2019
CHECKED		
FAA APPROVAL DATE:		
PROJECT NO:		

CONSTRUCTION CYCLE 9
SPU2-VXI WIRING DIAGRAMS

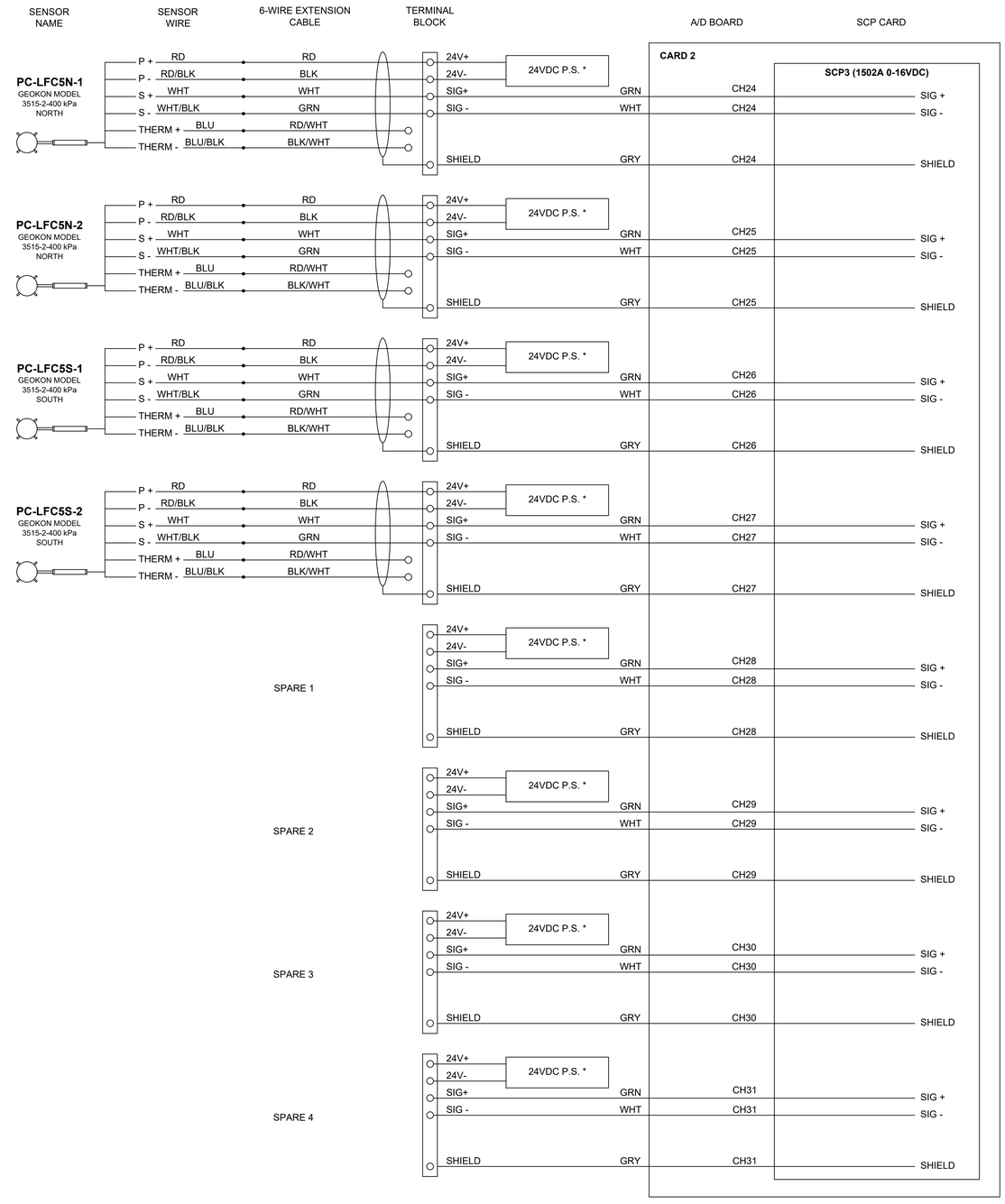
SIZE: ANSI D | SCALE: AS NOTED | SHEET 5 OF 7

CAD FILE: CC09-DAQ-WIRE.DWG



* - A SINGLE 5VDC POWER SUPPLY PROVIDES SOURCE VOLTAGE TO THE 8 TOKYO SOKKI GAUGES

SPU2-VXI_CARD2_SCP2_CH16-23
TOKYO SOKKI FULL BRIDGE



* - A SINGLE 24VDC POWER SUPPLY PROVIDES SOURCE VOLTAGE TO THE 4 PRESSURE CELLS

SPU2-VXI_CARD2_SCP3_CH24-31
PRESSURE CELLS

NO.	REVISIONS	DATE	BY	CHK	APR

LOCATION KEY

GENERAL DYNAMICS
Information Technology
200 DECADON DRIVE
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 677-8543

FOR

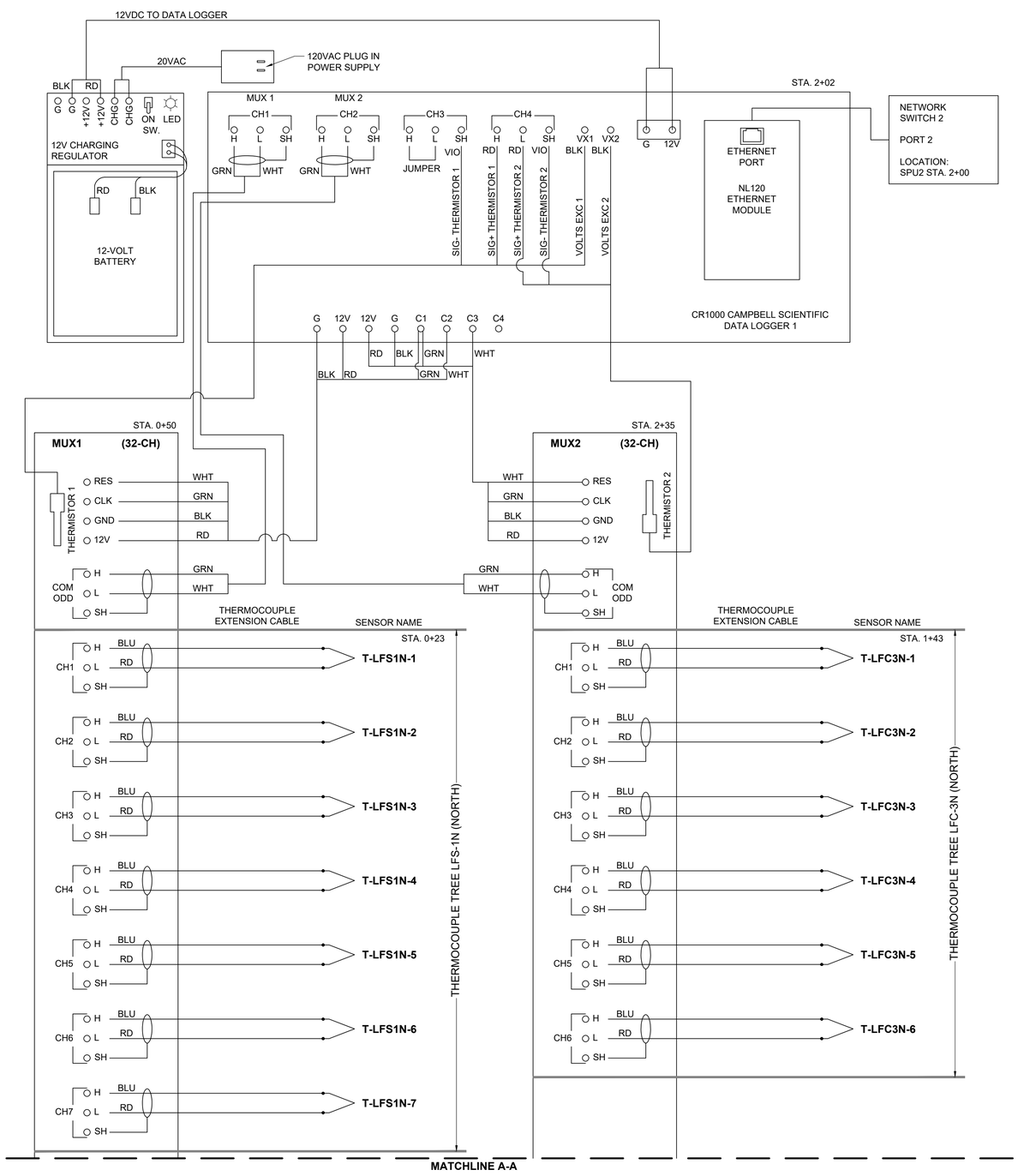
NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

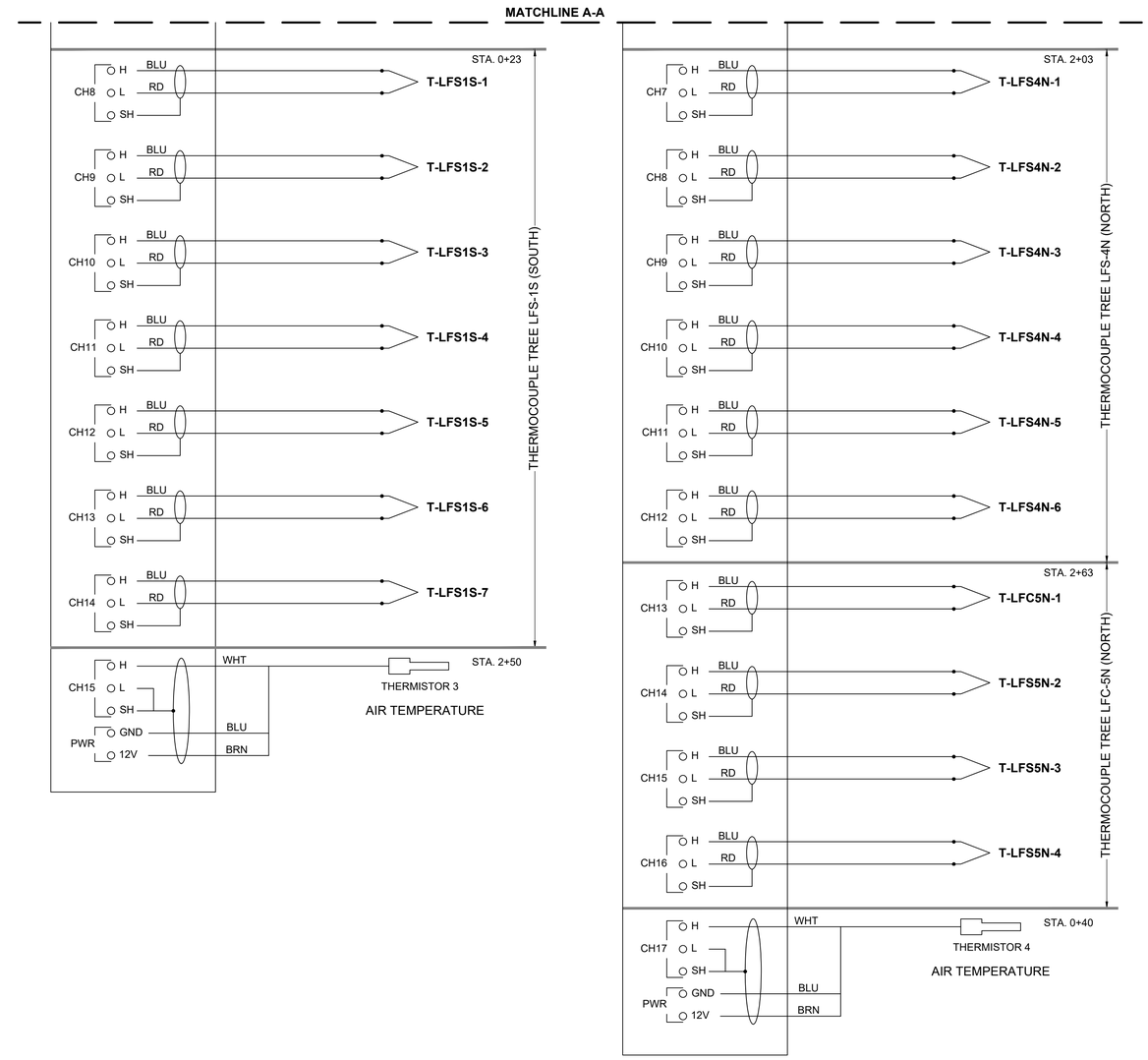
	NAME	DATE
DRAWN	M.MAZUREK	03/12/2019
CHECKED		
FAA APPROVAL DATE:		
PROJECT NO:		

CONSTRUCTION CYCLE 9
SPU2-VXI WIRING DIAGRAMS

SIZE: ANSI D | SCALE: AS NOTED | SHEET 6 OF 7

CAD FILE: CC09-DAQ-WIRE.DWG





NO.	REVISIONS	DATE	BY	CHK	APR

LOCATION KEY

GENERAL DYNAMICS
Information Technology
200 DECADON DRIVE
EGG HARBOR TOWNSHIP
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NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	M.MAZUREK	03/12/2019
CHECKED		
FAA APPROVAL DATE:		
PROJECT NO:		

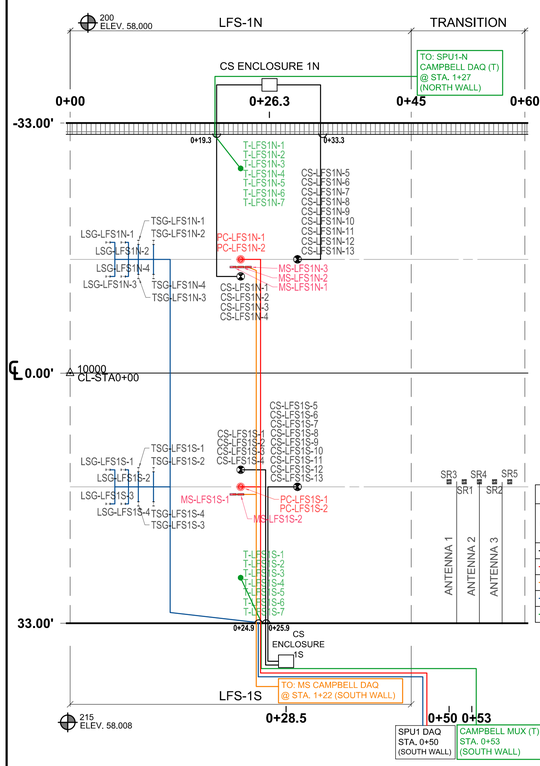
CONSTRUCTION CYCLE 9

CAMPBELL SCIENTIFIC THERMOCOUPLE WIRING DIAGRAM

SIZE: ANSI D | SCALE: AS NOTED | SHEET 7 OF 7

CAD FILE: CC09-DAQ-WIRE.DWG

FATIGUE MODEL

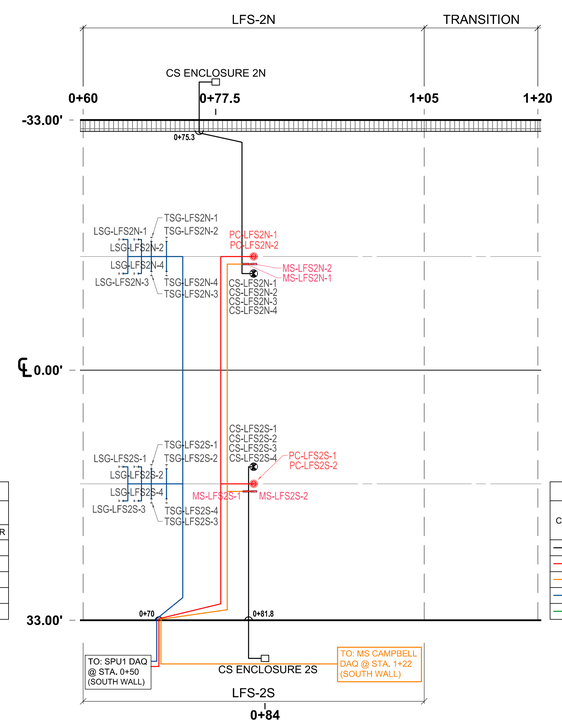


1N & 1S CABLE KEY				
CABLE COLOR CODE	NUMBER OF SENSORS IN LAYER			
	P-152MR	P-209MR	P-403MR	P-401MR
CS	4ea	22ea	0	0
PC	2ea	2ea	0	0
MS	5ea	0	0	0
LSG & TSG	0	0	16ea	0
T	0	0	4ea	10ea

TEST ITEM 1N & 1S STA. 0+00 TO 0+60

SCALE: 1"=10'

FATIGUE MODEL

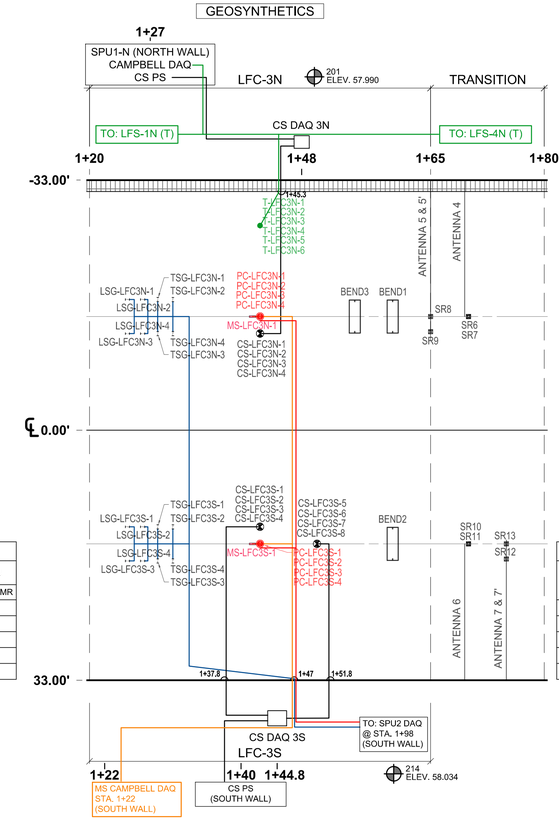


2N & 2S CABLE KEY				
CABLE COLOR CODE	NUMBER OF SENSORS IN LAYER			
	P-152MR	P-209MR	P-403MR	P-401MR
CS	4ea	4ea	0	0
PC	2ea	2ea	0	0
MS	4ea	0	0	0
LSG & TSG	0	0	16ea	0
T	0	0	0	0

TEST ITEM 2N & 2S STA. 0+60 TO 1+20

SCALE: 1"=10'

GEOSYNTHETICS



3N & 3S CABLE KEY				
CABLE COLOR CODE	NUMBER OF SENSORS IN LAYER			
	P-152MR	P-154MR	P-209MR	P-401MR
CS	4ea	4ea	4ea	0
PC	2ea	4ea	2ea	0
MS	2ea	0	0	0
LSG & TSG	0	0	0	16ea
T	0	0	0	6ea

TEST ITEM 3N & 3S STA. 1+20 TO 1+80

SCALE: 1"=10'

INSTRUMENT KEY		
SYMBOL		SENSOR TYPE
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE
	MS	MOISTURE SENSOR
	PC	9" PRESSURE CELL
	T	THERMOCOUPLE
	CS	COIL SENSOR
	SR	SMART ROCK
	ANT	ANTENNA

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR

LOCATION KEY MAP

GENERAL DYNAMICS
Information Technology
200 DECADON DRIVE
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PHONE: (609) 677-8543

FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

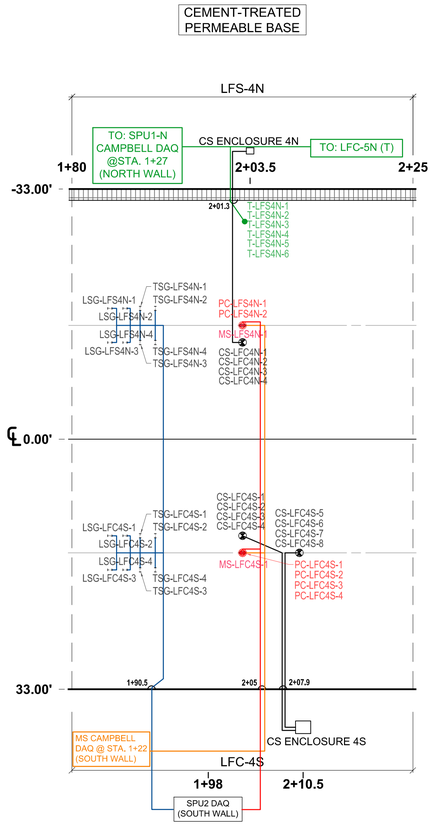
	NAME	DATE
DRAWN	M.MAZUREK	05/21/2020
CHECKED	C.UNZICKER	05/21/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

SENSOR CABLE ROUTING DIAGRAM AS-BUILT

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 1 OF 2

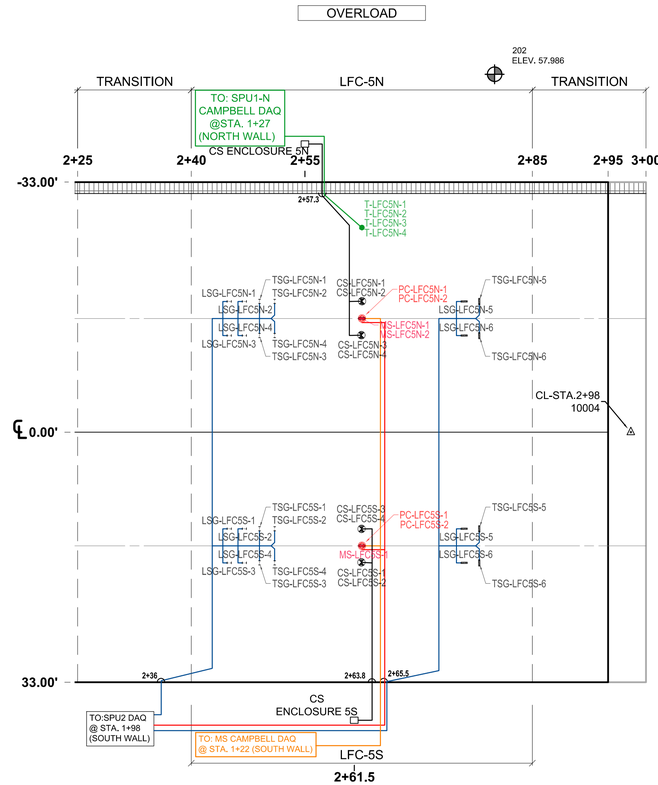
CAD FILE: CC09-CONS-PLAN-ABLT.DWG



4N & 4S CABLE KEY					
CABLE COLOR CODE		NUMBER OF SENSORS IN LAYER			
		P-152MR	P-154MR	P-209MR	P-401MR
	CS	4ea	4ea	4ea	0
	PC	2ea	3ea	1ea	0
	MS	2ea	0	0	0
	LSG & TSG	0	0	0	16ea
	T	0	0	0	6ea

TEST ITEM 4N & 4S STA. 1+80 TO 2+25

SCALE: 1"=10'



5N & 5S CABLE KEY					
CABLE COLOR CODE		NUMBER OF SENSORS IN LAYER			
		P-152MR	P-154MR	P-209MR	P-401MR
	CS	8ea	0	0	0
	PC	2ea	2ea	0	0
	MS	3ea	0	0	0
	LSG & TSG	0	0	0	24ea
	T	0	0	0	4ea

TEST ITEM 5N & 5S STA. 2+25 TO 3+00

SCALE: 1"=10'

INSTRUMENT KEY		
SYMBOL		SENSOR TYPE
	LSG/TSG	LONGITUDINAL/TRANSVERSE ASPHALT STRAIN GAUGE
	MS	MOISTURE SENSOR
	PC	9" PRESSURE CELL
	T	THERMOCOUPLE
	CS	COIL SENSOR
	SR	SMART ROCK
	ANT	ANTENNA

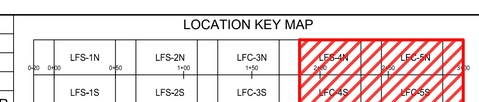
10 0 10 20 30

GRAPHIC SCALE

1" = 10'

NO.	REVISIONS	DATE	BY	CHK	APR

LOCATION KEY MAP



GENERAL DYNAMICS
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FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

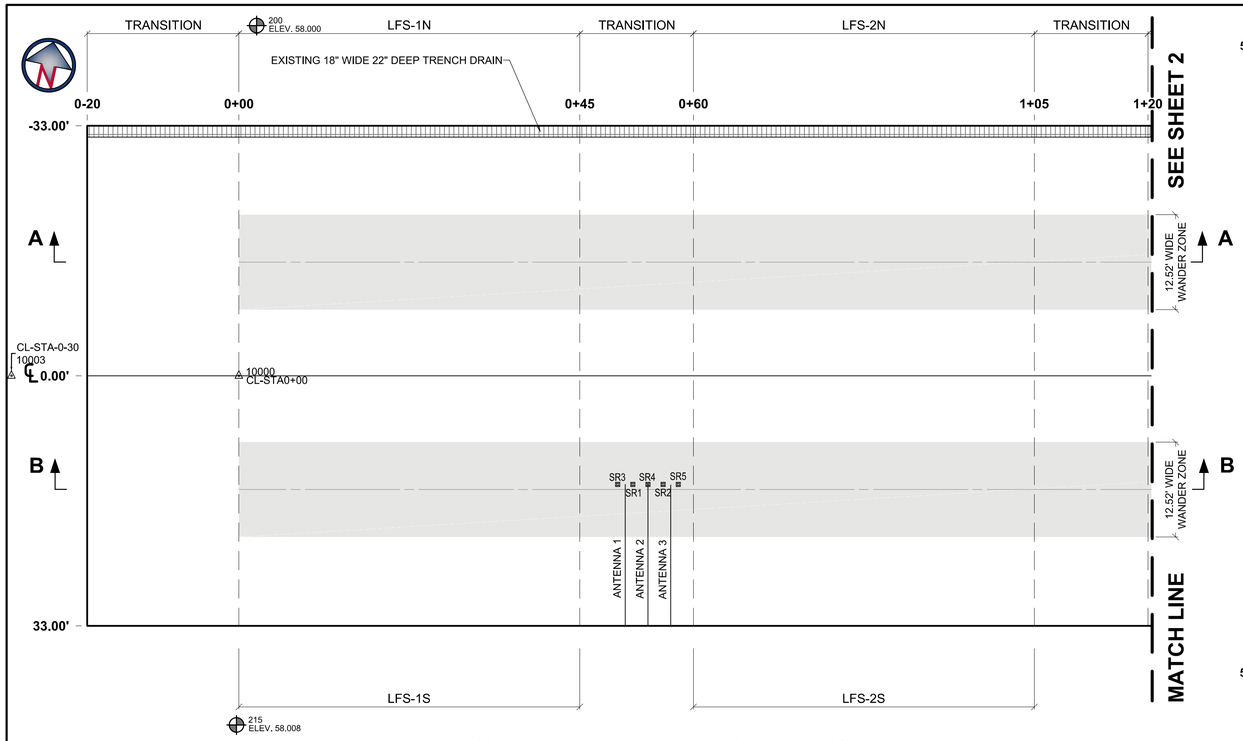
	NAME	DATE
DRAWN	M.MAZUREK	05/22/2020
CHECKED	C.UNZICKER	05/22/2020
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

SENSOR CABLE ROUTING DIAGRAM AS-BUILT

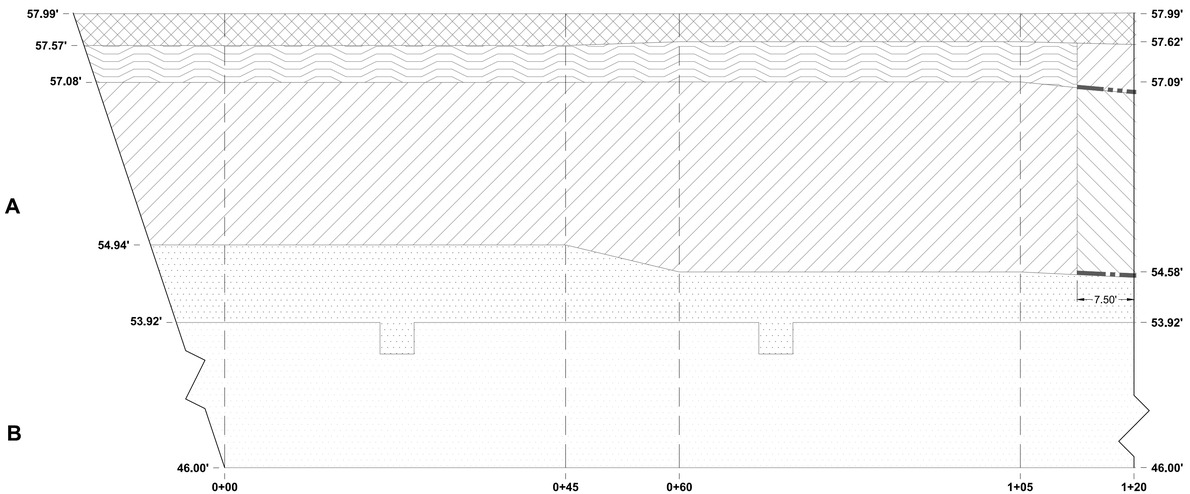
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 2 OF 2

CAD FILE: CC09-CONS-PLAN-ABLT.DWG



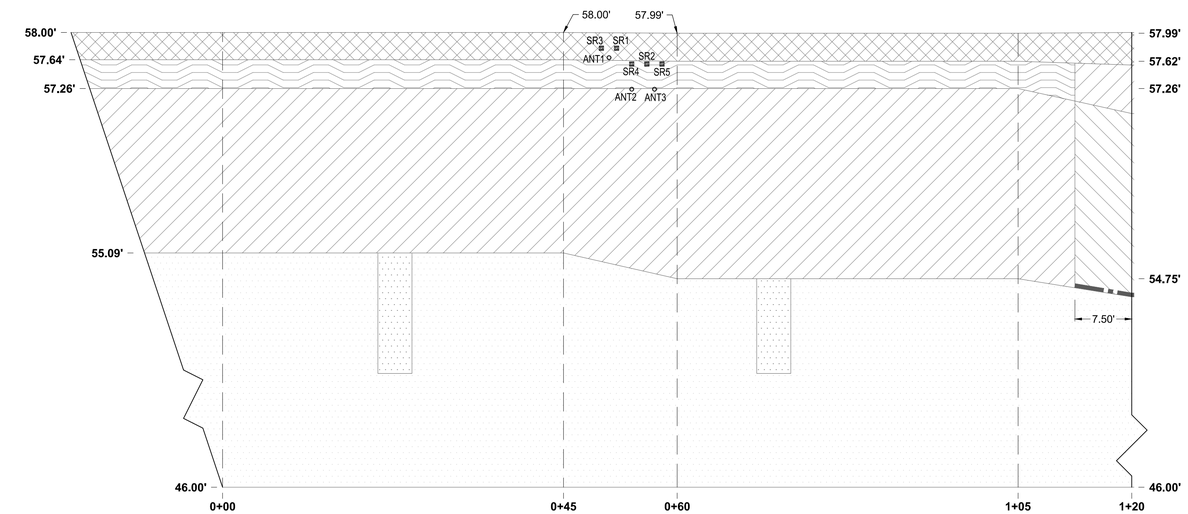
PLAN VIEW STA. 0-20 TO 1+20

SCALE: 1"=10'



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

SMART ROCKS AND ANTENNAS TRANSITION LFS-1S/LFS-2S

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
276	ANT1	51.00	14.33	57.67	4.00
277	ANT2	54.00	14.33	57.25	9.00
278	ANT3	57.00	14.33	57.25	9.00
271	SR1	52.00	14.33	57.79	2.50
273	SR2	56.00	14.33	57.58	5.00
272	SR3	50.00	14.33	57.79	2.50
274	SR4	54.00	14.33	57.58	5.00
275	SR5	58.00	14.33	57.58	5.00

REFERENCE POINT IS CENTROID OF SENSOR

INSTRUMENT KEY		
SYMBOL		DESCRIPTION
■	SR	SMART ROCK
○	ANT	ANTENNA

LEGEND:

- CONTROL POINT - MAG NAIL
- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-159MR GEOGRID, CLASS B
- P-154MR SEPARATION FABRIC, CLASS 2
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-403MR HOT MIX ASPHALT (HMA) PAVEMENTS BASE COURSE
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)

10 0 10 20 30

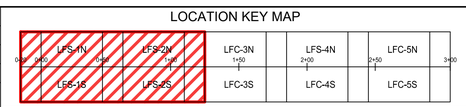
GRAPHIC SCALE
1" = 10'

NOTES:

1. INSTRUMENTATION TO BE INSTALLED BY THE ENGINEER.
2. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
3. MS-LFS1N-3 TO BE PLACED AT THE TOP OF SUBGRADE DEMOLITION LIMITS. MS-LFS1N-1, MS-LFS1S-1, MS-LFS2N-1, MS-LFS2S-1 TO BE PLACED AT P-152MR/P-209MR INTERFACE. MS-LFS1N-2, MS-LFS1S-2, MS-LFS2N-2, MS-LFS2S-2 TO BE PLACED 6" BELOW P-152MR/P-209MR INTERFACE. TOP OF SUBGRADE FINAL ELEVATION TO BE DETERMINED DURING DEMOLITION BASED ON SUBGRADE INTERFACE REMOVAL.
4. INSTRUMENTATION CABLES TO BE RUN TO A DAQ LOCATED ON THE SOUTH WALL THROUGH EXISTING HANDHOLES AND CONDUITS.

NO.	REVISIONS	DATE	BY	CHK	APR

LOCATION KEY MAP



GENERAL DYNAMICS
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PHONE: (609) 677-8543

FOR

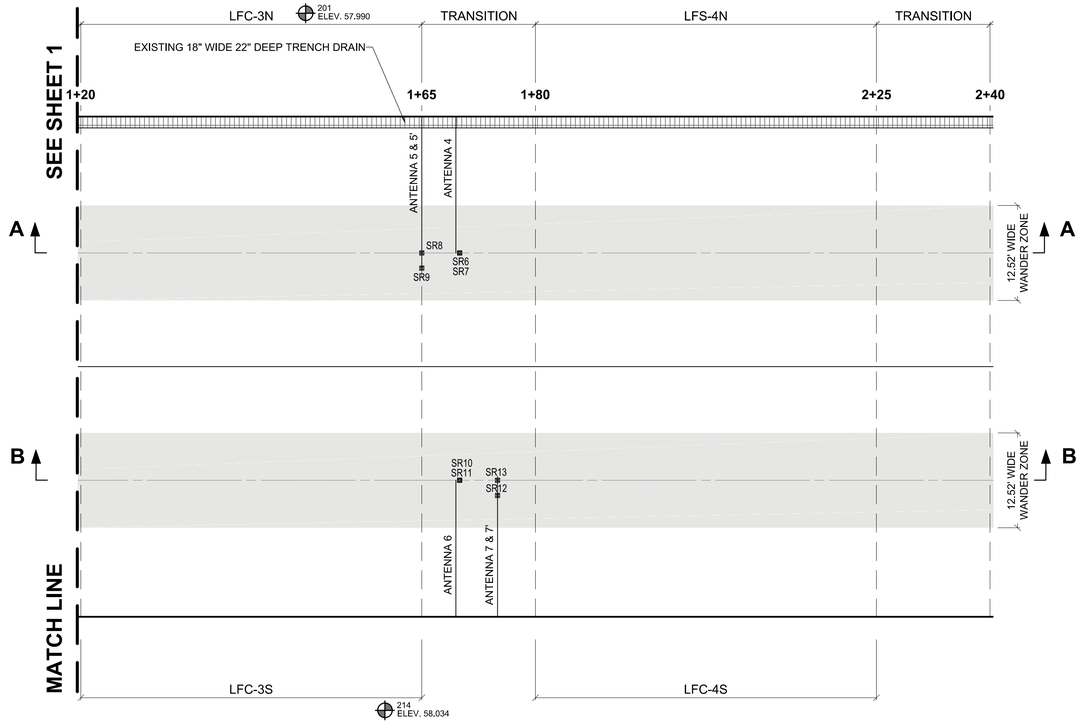
NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	M.MAZUREK	12/16/2019
CHECKED	C.UNZICKER	
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9
STA. 0+00 TO 1+20
SMART ROCK INSTRUMENTATION AS-BUILT PLAN

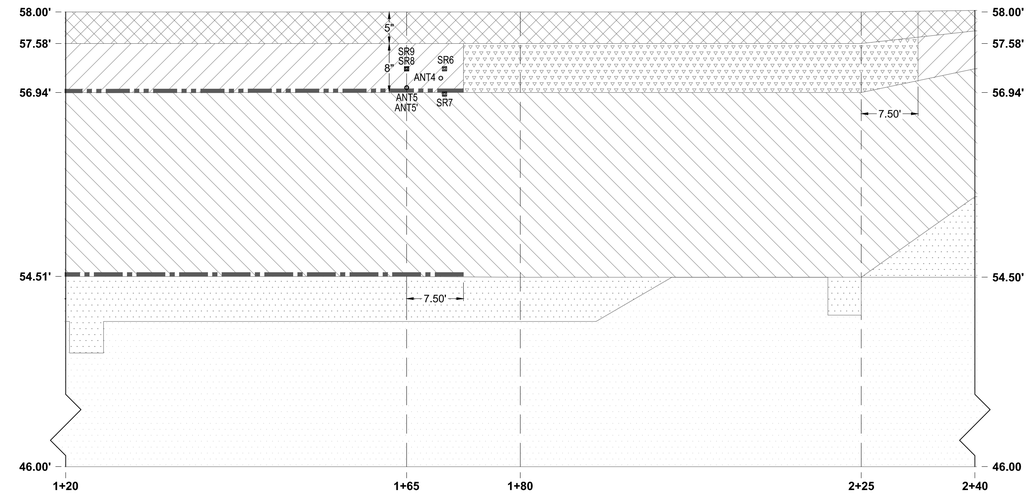
PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 1 OF 2

CAD FILE: CC09-CONS-PLAN-ABLT-SMART ROCK.DWG



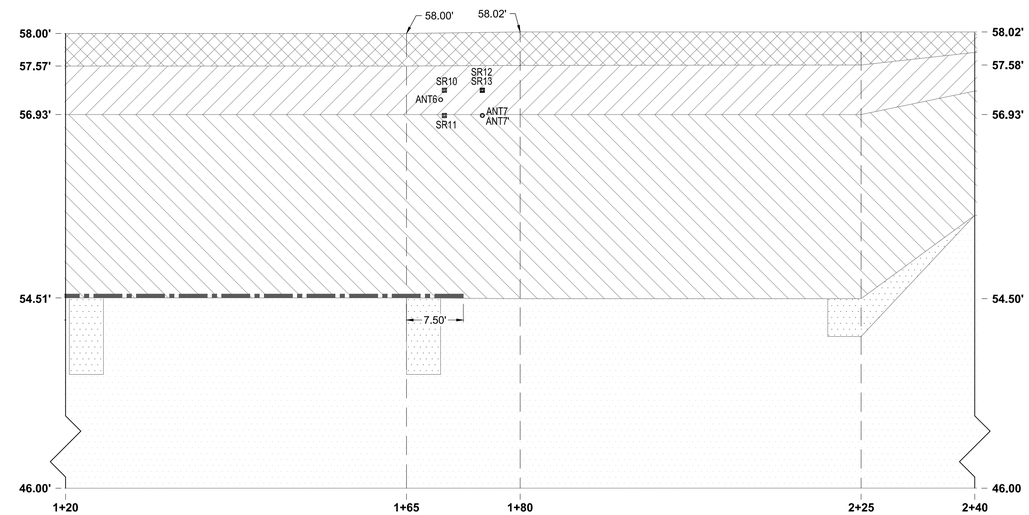
PLAN VIEW STA. 1+20 TO 2+40

SCALE: 1"=10'



PROFILE VIEW A-A (NORTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



PROFILE VIEW B-B (SOUTH)

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

SMART ROCKS AND ANTENNAS TRANSITION LFC-3N/LFS-4N & TRANSITION LFC-3S/LFC-4S

ID	SENSOR	X STA. (FEET)	Y OFFSET (FEET)	Z ELEV. (FEET)	DEPTH FROM TOP LAYER SURFACE AT ELEV. 58.0 (IN)
287	ANT4	169.50	-15.00	57.12	10.50
288	ANT5	165.00	-15.00	57.00	12.00
289	ANT5'	165.00	-13.00	57.00	12.00
290	ANT6	169.50	15.00	57.12	10.50
291	ANT7	175.00	14.50	56.92	13.00
292	ANT7'	175.00	16.50	56.92	13.00
279	SR6	170.00	-15.00	57.25	9.00
280	SR7	170.00	-15.00	56.92	13.00
281	SR8	165.00	-15.00	57.25	9.00
282	SR9	165.00	-13.00	57.25	9.00
283	SR10	170.00	15.00	57.25	9.00
284	SR11	170.00	15.00	56.92	13.00
285	SR12	175.00	17.00	57.25	9.00
286	SR13	175.00	15.00	57.25	9.00

REFERENCE POINT IS CENTROID OF SENSOR.

10 0 10 20 30

GRAPHIC SCALE

1" = 10'

INSTRUMENT KEY	
SYMBOL	DESCRIPTION
■ SR	SMART ROCK
○ ANT	ANTENNA

LEGEND:

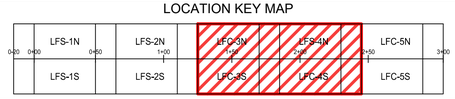
- CONTROL POINT - MAG NAIL
- PROJECT LIMITS
- TEST ITEM DELINEATION LINE
- P-159MR GEOGRID, CLASS B
- P-154MR SEPARATION FABRIC, CLASS 2
- P-401MR HOT MIX ASPHALT (HMA) PAVEMENTS
- P-209MR CRUSHED AGGREGATE BASE COURSE
- P-154MR SUBBASE COURSE
- P-307MR CEMENT TREATED PERMEABLE BASE COURSE (CTPB)
- P-152MR SUBGRADE - DuPont CLAY (CBR = 5)

NOTES:

1. INSTRUMENTATION TO BE INSTALLED BY THE ENGINEER.
2. LFC = LOW STRENGTH SUBGRADE, FLEXIBLE CONVENTIONAL PAVEMENT.
3. LFS = LOW STRENGTH SUBGRADE, FLEXIBLE STABILIZED PAVEMENT.
4. MS-LFC3N-1 TO BE PLACED AT THE TOP OF SUBGRADE (DEMOLITION LIMITS). MS-LFC3S-1, MS-LFS4N-1, MS-LFC4S-1 TO BE PLACED 6" BELOW P-152MR/P-154MR INTERFACE. TOP OF SUBGRADE FINAL ELEVATION TO BE DETERMINED DURING DEMOLITION BASED ON SUBGRADE INTERFACE REMOVAL.
5. INSTRUMENTATION CABLES TO BE RUN TO A DAQ LOCATED ON THE SOUTH WALL THROUGH EXISTING HANDHOLES AND CONDUITS.

NO.	REVISIONS	DATE	BY	CHK	APR

LOCATION KEY MAP



GENERAL DYNAMICS
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PHONE: (609) 677-8543

FOR

NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	M.MAZUREK	12/16/2019
CHECKED	C.UNZICKER	
FAA APPROVAL DATE:		

NAPTF CONSTRUCTION CYCLE 9

STA. 1+20 TO 2+40

SMART ROCK INSTRUMENTATION AS-BUILT PLAN

PROJECT NO: CC9 | SIZE: ANSI D | SCALE: AS NOTED | SHEET 2 OF 2

CAD FILE: CC09-CONS-PLAN-ABLT-SMART ROCK.DWG