

CONSTRUCTION CYCLE 010

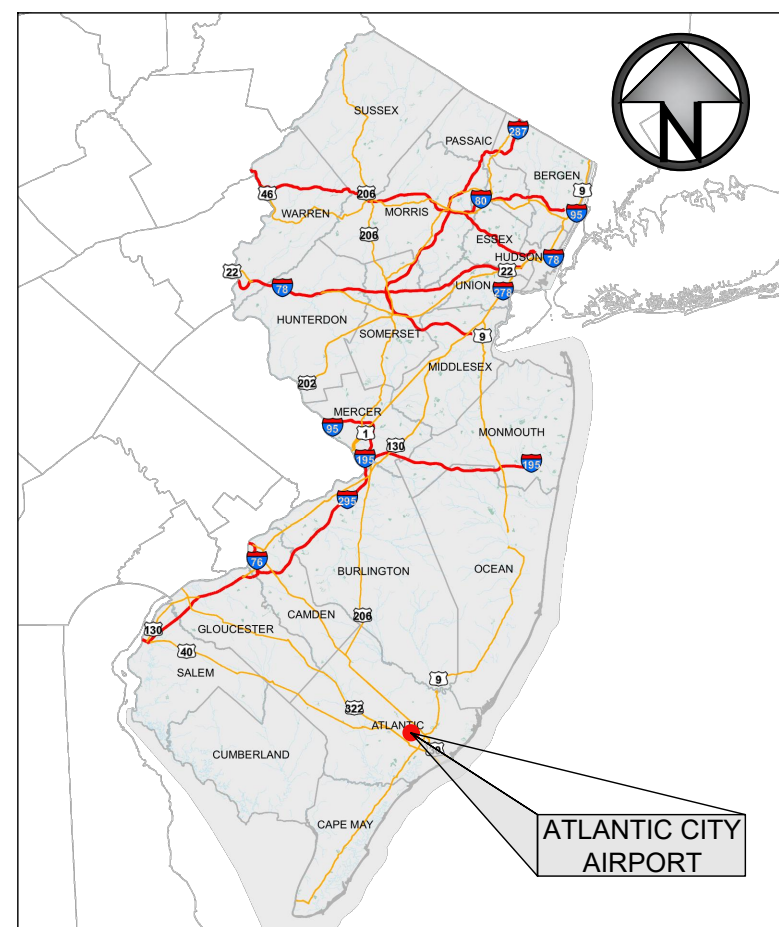
CONTRACT NUMBER: 692M15-21-D-00004

CONSTRUCTION PLAN FOR BID DRAWINGS

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

12/02/2022

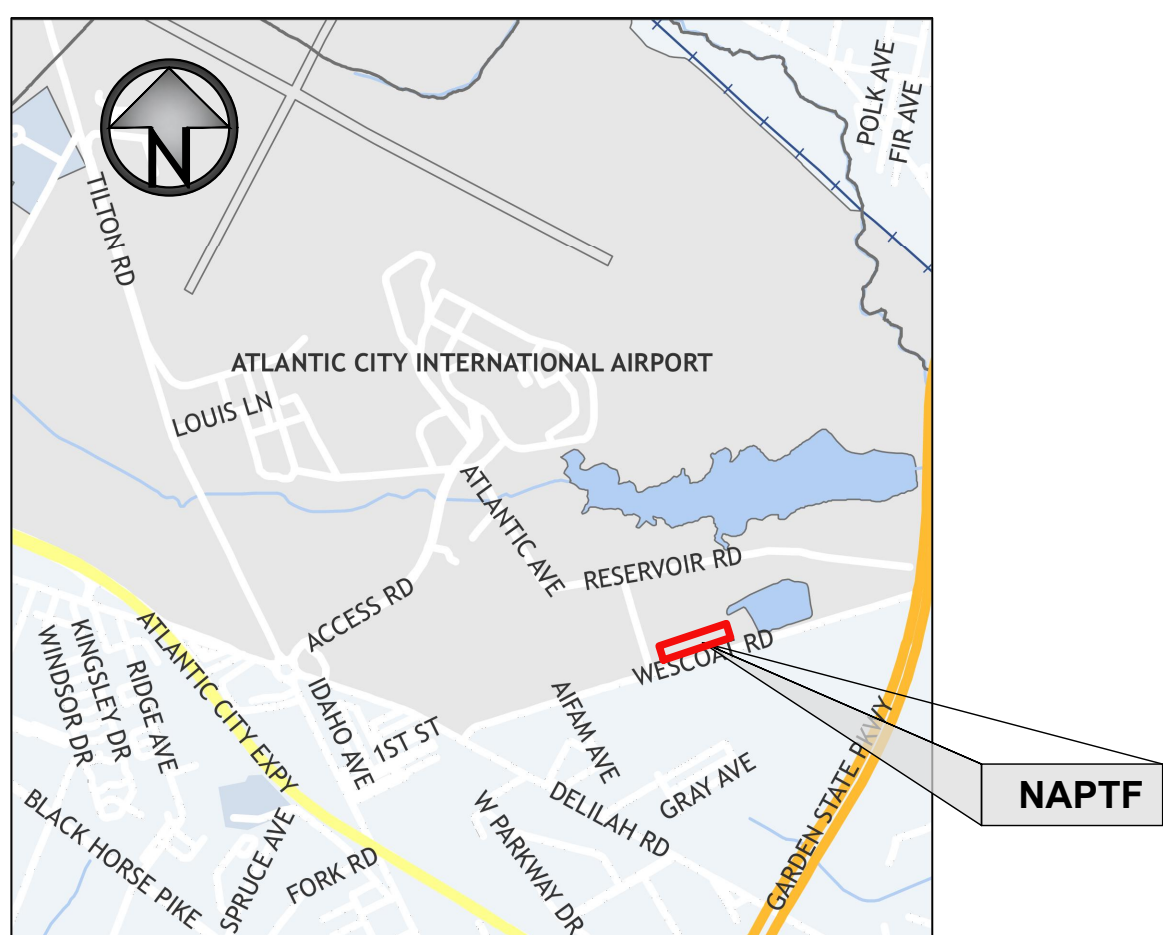
NEW JERSEY STATE MAP N.T.S.



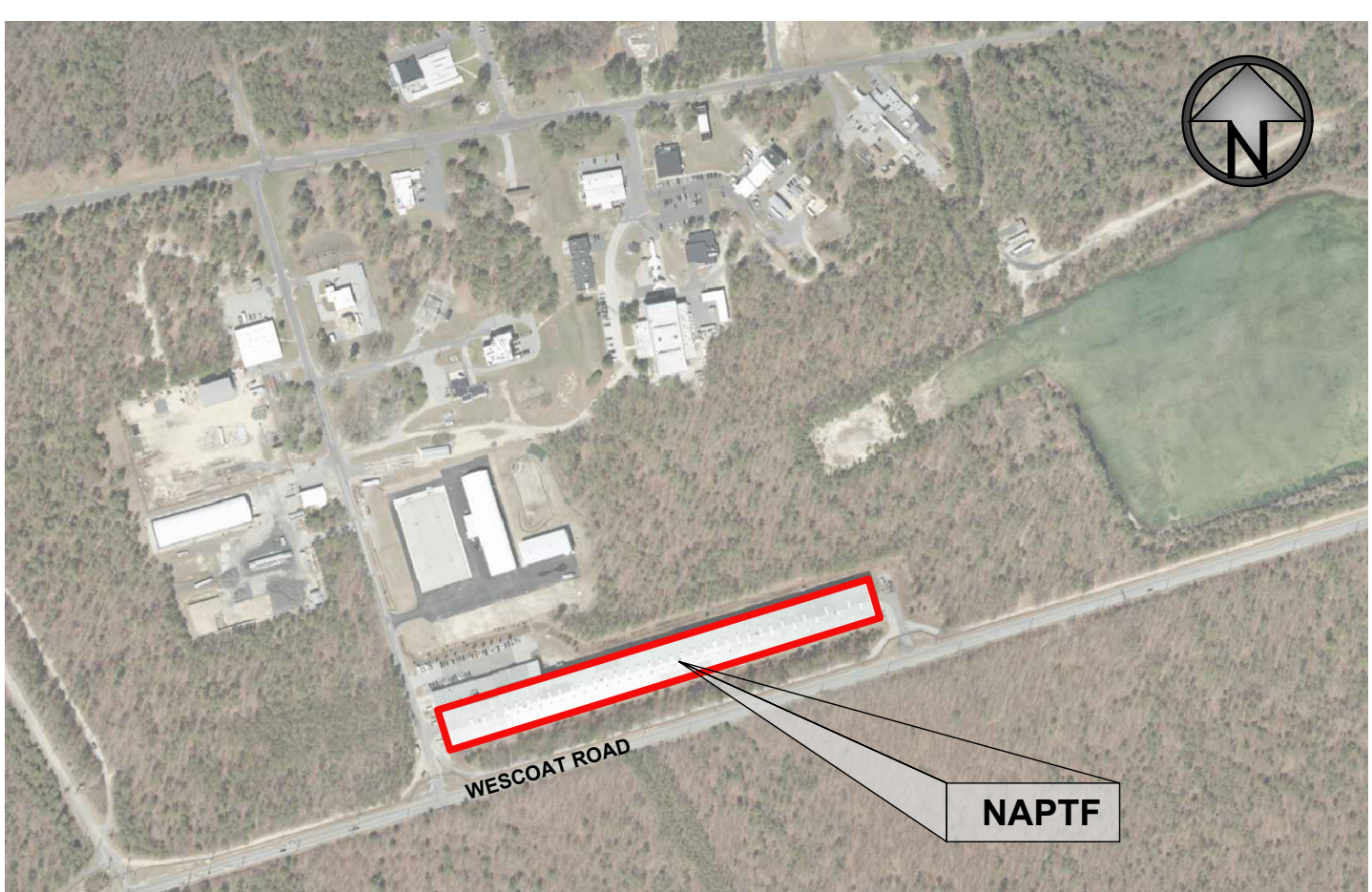
VICINITY MAP N.T.S.



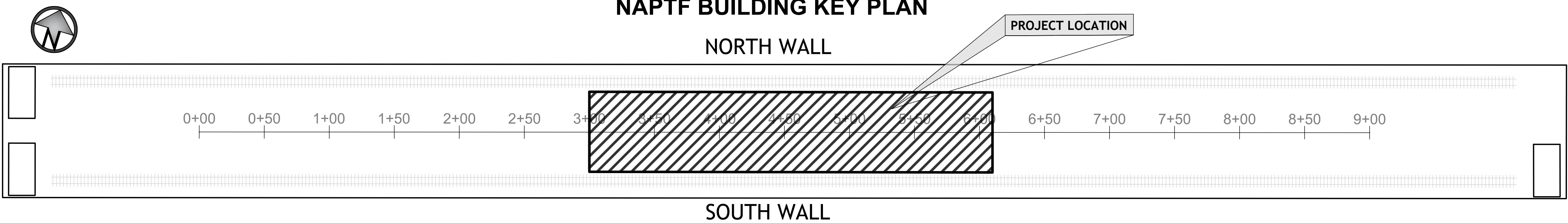
PROJECT LOCATION MAP N.T.S.



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



NAPTF BUILDING KEY PLAN



PREPARED FOR:



NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

PREPARED BY:



APPLIED RESEARCH ASSOCIATES, INC
2628 FIRE ROAD, SUITE 300
EGG HARBOR TOWNSHIP, NJ 08234
PHONE: (609) 380-4240

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CC10 ESTIMATED MATERIAL SCHEDULE			
ITEM	MATERIAL DESCRIPTION	UNIT	NEAT LINE QUANTITY
P-101MR	DEMOLITION AND REMOVAL	CY	843
P-152MR	SUBGRADE	CY	82
P-154MR	SUBBASE COURSE	CY	820
P-154MR	SEPARATION FABRIC	SY	2222
P-403MR	ASPHALT MIX PAVEMENT BASE COURSE	CY	270
P-501MR	CEMENT CONCRETE PAVEMENT	CY	727
P-603MR	BITUMINOUS TACK COAT	SY	1946
P-620MR	PAVEMENT MARKING	SY	187

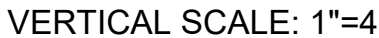
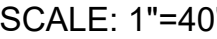
NOTE: THESE VALUES ARE AN ESTIMATE. CONTRACTOR TO CALCULATE THEIR OWN TAKE-OFF QUANTITIES FOR BIDDING PURPOSES.

1. THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER WITH RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE, AND TYPE OF EXISTING UNDERGROUND ITEMS INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES, PRIOR TO DIGGING.
2. THE CONTRACTOR SHALL NOTIFY THE FAA OF HIS OPERATIONAL PLANS. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR DETAILED INFORMATION AND ASSISTANCE IN LOCATING UTILITIES WITH FAA OR THEIR DESIGNATED REPRESENTATIVES. IN THE EVENT AN UNEXPECTED UTILITY IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE FAA. ANY UTILITIES OR SERVICES DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE FAA.
3. THE CONTRACTOR SHALL COORDINATE ALL ROADWAY, PARKING, AND FACILITY CLOSURES WITH FAA. THE CONTRACTORS PRIMARY ACCESS WILL BE THROUGH THE MAIN GATE. HOWEVER, ACCESS THROUGH GATE 12B CAN BE REQUESTED FOR PAVING AND DEMOLITION ACTIVITIES BY CONTACTING MATTHEW BRYNICK IN WRITING AT LEAST 72 HOURS IN ADVANCE
4. THE CONTRACTOR WILL BE REQUIRED TO COORDINATE HIS OPERATIONS WITH ANY OTHER CONTRACTORS WORKING IN THE FACILITY AND WITH FACILITY OPERATIONS.
5. THE SITE LAYOUT IS BASED ON THE CONTROL POINTS AS INDICATED. SURVEY CONTROL IS DEFINED BY BENCHMARKS IDENTIFIED ON G-102.
6. ITEMS NOT MARKED FOR REMOVAL SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR.
7. ITEMS NOT MARKED FOR REMOVAL THAT ARE DAMAGED SHALL BE REPAIRED OR REPLACED IN KIND AT NO COST TO THE FAA.
8. THE CONTRACTOR SHALL KEEP ALL PAVED SURFACES CLEAN AND FREE OF MUD AND DEBRIS.
9. DUMP TRUCKS SHALL USE LOAD COVERS AND SHALL BE LOADED BY THE CONTRACTOR SUCH THAT NO SPILLAGE OCCURS.
10. STOCKPILED MATERIAL SHALL BE CONSTRAINED IN A MANNER TO PREVENT ITS MOVEMENT BY WIND OR WATER FROM ANY SOURCE.
11. OPEN TRENCHES AND EXCAVATIONS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED BY BARRICADES CONFORMING TO OSHA REQUIREMENTS OR COVERED WITH STEEL PLATES, AS APPROVED BY THE FAA.
12. THE CONTRACTOR SHALL CHECK ALL EXISTING GRADES AND DIMENSIONS IN THE FIELD PRIOR TO COMMENCEMENT OF ANY WORK ON THIS PROJECT. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE FAA IMMEDIATELY.
13. EXISTING PAVEMENT THICKNESSES SHOWN IN THESE PLANS ARE BASED ON CONSTRUCTION RECORDS; ACTUAL THICKNESSES MAY VARY.
14. ANY AND ALL DAMAGE BY THE CONTRACTOR TO EXISTING AC OR PCC PAVEMENT, INCLUDING HAUL ROUTES OR STRUCTURES WHICH ARE DESIGNATED TO REMAIN, SHALL BE REPLACED WITH LIKE MATERIALS AND ITEMS AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE FAA. THE CONTRACTOR MUST IDENTIFY AND DOCUMENT ANY PRE-EXISTING DAMAGE TO ANY PAVEMENTS TO REMAIN PRIOR TO STARTING ANY WORK. THE PRE-EXISTING DAMAGE MUST BE REPORTED TO THE FAA IN WRITING BEFORE ANY WORK IS STARTED. IF NO DEFICIENCIES ARE DOCUMENTED AND REPORTED, THEN THE PAVEMENTS WILL BE CONSIDERED TO BE IN GOOD CONDITION AND COMPLETELY UNDAMAGED.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, LOCAL, AND INSTALLATION CODES, LAWS, AND REGULATIONS.
16. NOTHING IN THE GENERAL NOTES OR CONSTRUCTION DOCUMENTS SHALL RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITIES TOWARD THE SAFETY AND CONVENIENCE OF THE GENERAL PUBLIC AND THE TENANTS OF THE INSTALLATION.
17. THE CONTRACTOR WILL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. IN THE EVENT THAT SPECIAL EQUIPMENT IS REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR SHALL FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FURNISHING SPECIAL EQUIPMENT SHALL BE INCLUDED IN THE CONTRACTOR'S BID.
18. BACK FLOW PREVENTION DEVICES ARE REQUIRED ON ALL CONTRACTOR CONNECTIONS TO FACILITY WATER SUPPLIES INCLUDING TEMPORARY AND FIRE HYDRANT CONNECTIONS, EXCEPT FOR EXPRESSLY DESIGNATED WATER LINE CONNECTIONS.
19. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL WASTE MATERIALS OFF GOVERNMENT PROPERTY.
20. IF EXISTING PCC PAVEMENT IS UNDERMINED, THE ENTIRE AFFECTED SLAB SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST.
21. UNDERMINING OF PCC IS DEFINED AS LOSS OF MATERIAL BENEATH THE SLAB TO ANY DEPTH FOR MORE THAN 15% OF ANY INDIVIDUAL EXPOSED FACE OF A SLAB -OR- LOSS OF MATERIAL GREATER THAN 3" IN DEPTH AT ANY POINT ON THE FACE OF THE SLAB.
22. IF EXISTING AC PAVEMENT IS UNDERMINED, THE FACE OF THE PAVEMENT SHALL BE SAWCUT FULL WIDTH TO REMOVE THE UNDERMINED PAVEMENT AND REPLACED AT NO ADDITIONAL COST.
23. UNDERMINING IN AC PAVEMENT IS DEFINED AS LOSS OF MATERIAL GREATER THAN 3" IN DEPTH AT ANY POINT ALONG THE FACE OF THE PAVEMENT.
24. ALL COST RELATING TO THE CONTRACTOR'S ACCESS AND SECURITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, EXCEPT AS NOTED.
25. UTILITIES ARE DEFINED TO INCLUDE GAUGES, OTHER INSTRUMENTATION, AND RELATED APPURTENANCES.

ABBREVIATIONS

AC	ASPHALT CONCRETE
AC	ALTERNATING CURRENT
ARA	APPLIED RESEARCH ASSOCIATES
BSG	BASE STRAIN GAUGE
C	CHASSIS
CB	CIRCUIT BREAKER
CBR	CALIFORNIA BEARING RATIO
CH	CHANNEL
CY	CUBIC YARD
DC	DIRECT CURRENT
ECS	EDDY CURRENT SENSOR
ECSJ	EDDY CURRENT SENSOR (JOINT MONITORING ORIENTATION)
EG	EMBEDDED STRAIN GAUGE
EG45	EMBEDDED STRAIN GAUGE (45DEG ORIENTATION)
EGL	EMBEDDED STRAIN GAUGE (LONGITUDINAL ORIENTATION)
EGT	EMBEDDED STRAIN GAUGE (TRANSVERSE ORIENTATION)
FAA	FEDERAL AVIATION ADMINISTRATION
FOD	FOREIGN OBJECT DEBRIS
FSG	FIXTURE STRAIN GAUGE
HMA	HOT MIX ASPHALT
HWD	HEAVY WEIGHT DEFLECTOMETER
LED	LIGHT EMITTING DIODE
LF	LIGHT FIXTURE
M	MODULE
MIT	MESS-UND PRUFTECHNIK
MRS	MEDIUM STRENGTH SUBGRADE
MS	MOISTURE SENSOR
NI	NATIONAL INSTRUMENTS
O&M	OPERATION AND MAINTENANCE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PC	PRESSURE CELL
PCC	PORTLAND CONCRETE CEMENT
PGF	PIEZO-FLOATING GATE SENSOR
PGFL	PIEZO-FLOATING GATE SENSOR (LONGITUDINAL ORIENTATION)
PGFT	PIEZO-FLOATING GATE SENSOR (TRANSVERSE ORIENTATION)
PS	POWER SUPPLY
PSPA	PORTABLE SEISMIC PAVEMENT ANALYZER
PVC	POLYVINYL CHLORIDE
RH	RELATIVE HUMIDITY
SAE	SOCIETY OF AUTOMOTIVE ENGINEERS
SPU	SIGNAL PROCESSING UNIT
SSG	STUD STRAIN GAUGE
SY	SQUARE YARD
T	THERMOCOUPLE
TB	TERMINAL BLOCK
VXI	VIRTUALIZATION EXPERIENCE INFRASTRUCTURE

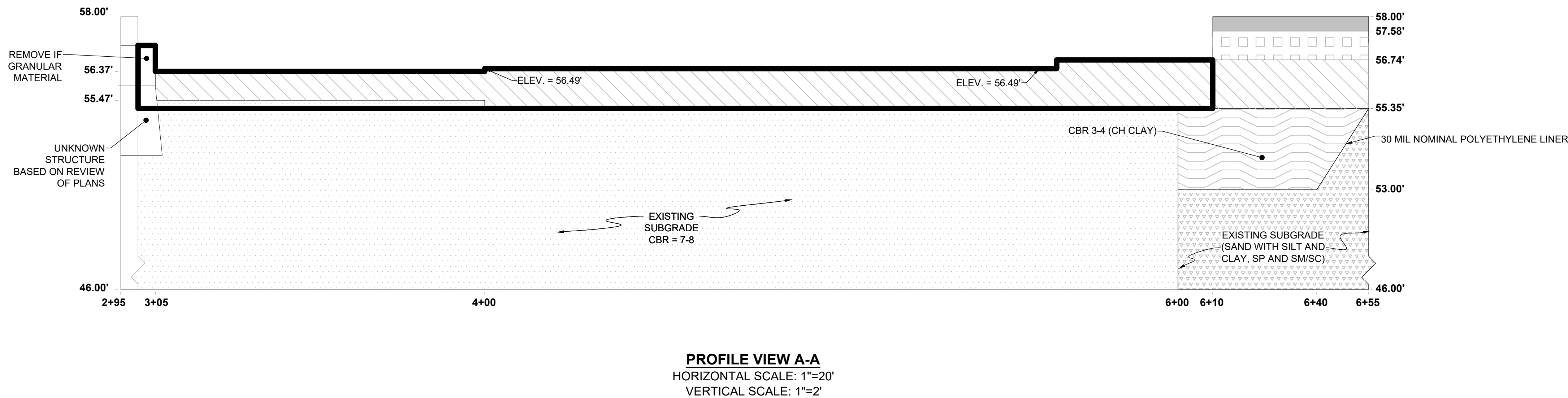
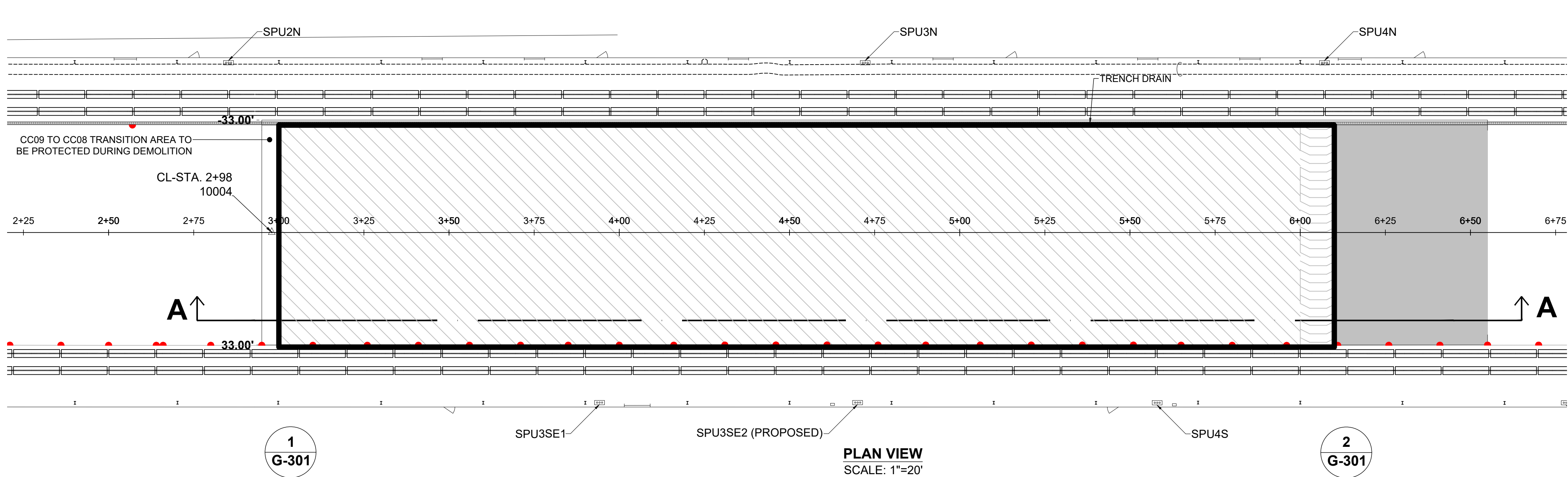
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* PROPOSED LOCATION FOR CC10

GRAPHIC SCALE
1" = 40'

SIZE: ANSI D	SCALE: AS NOTED	SHEET 4 OF 55
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NOTE(S):

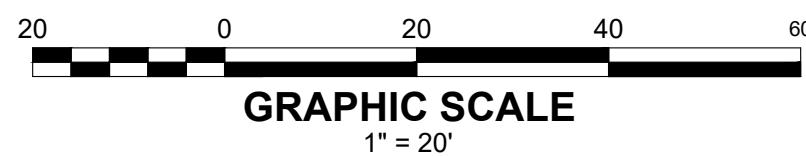
1. DEMOLISH AND REMOVE MATERIALS WITHIN DEMOLITION LIMITS.
2. PROTECT MATERIALS AND STRUCTURES OUTSIDE OF DEMOLITION LIMITS.
3. CBR = CALIFORNIA BEARING RATIO.
4. VERTICAL FACES OF THE FOUNDATION WALLS WITHIN THE CONSTRUCTION LIMITS MAY HAVE MARKING FROM PREVIOUS CONSTRUCTION CYCLES. CONTRACTOR TO PAINT OVER THESE MARKINGS WITH MATERIALS APPROVED BY THE ENGINEER PRIOR TO THE CONSTRUCTION OF P-152MR LAYER.

5. CONTRACTOR TO ENSURE THAT ALL DRAINS AND HANDHOLES ARE CLEANED AND FREE FROM DEBRIS ONCE CONSTRUCTION IS COMPLETED.
6. P-152 INTERFACE SHALL BE CLEAN AND FREE FROM CONTAMINATION. CONTRACTOR SHALL EXCAVATE DEEPER UNTIL A SUITABLE SURFACE IS OBTAINED AND APPROVED BY THE ENGINEER.
7. CONTRACTOR TO PROTECT CC08 TO CC09 TRANSITION AREA AND END DEMOLITION AT STATION 3+00.

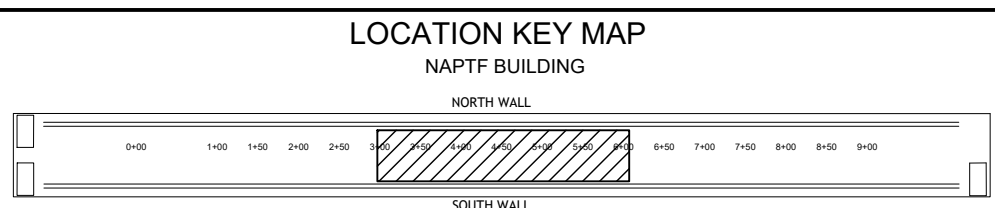
LEGEND:

- HOT MIX ASPHALT - PROTECT
- DENSE-GRADED AGGREGATE - PROTECT
- EXISTING SUBGRADE - CBR 3-4 CH CLAY - PROTECT
- EXISTING SUBGRADE - CBR 7-8 CH CLAY
- DEMOLITION LIMITS

- P-154 - GRANULAR AGGREGATE SUBBASE COURSE - REMOVE
- EXISTING SUBGRADE - SAND WITH SILT & CLAY SP AND SM/SC - PROTECT



NO.	FOR BID	REVISIONS	DATE	BY	CHK	APR
			12/02/2022		C.T.	



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FOR



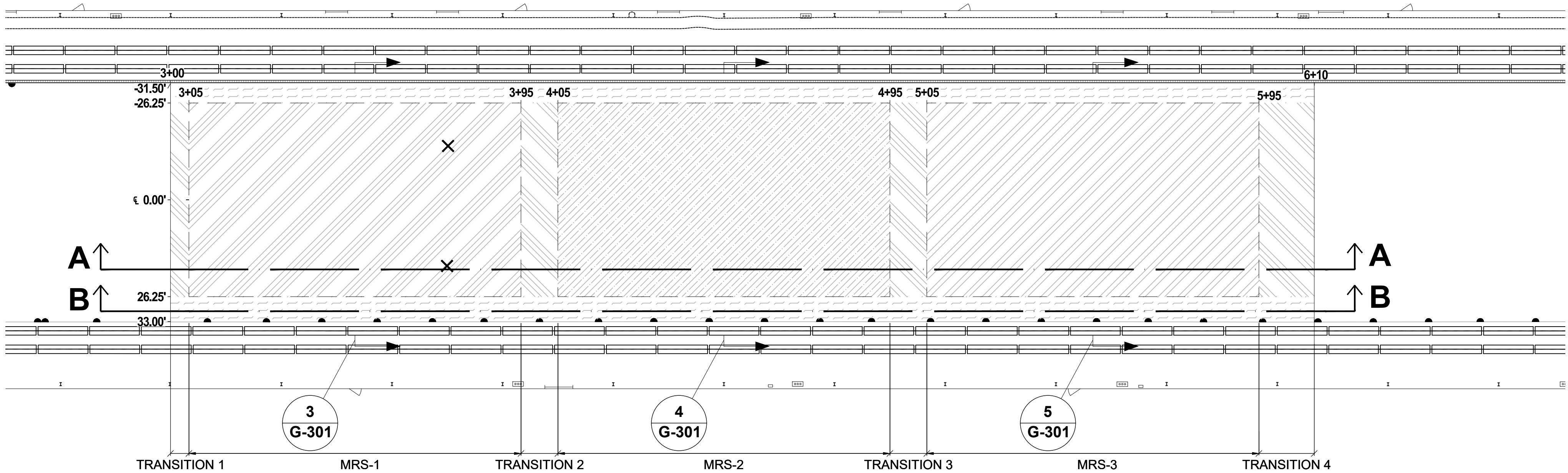
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	G-201	
FILE:	CC10-CONS-PLAN.DWG	

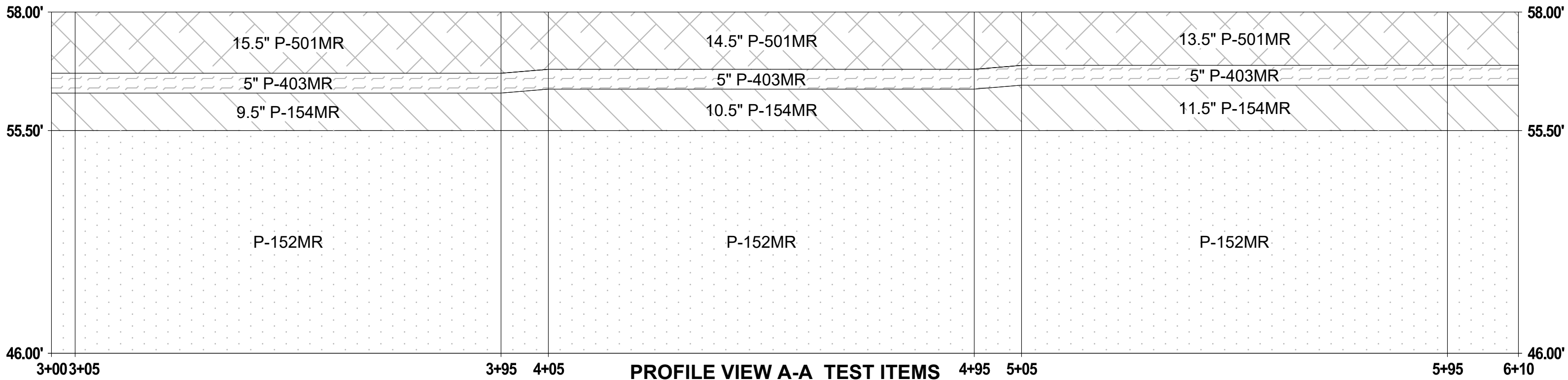
NAPTF CONSTRUCTION CYCLE 010

DEMOLITION PLAN AND PROFILE

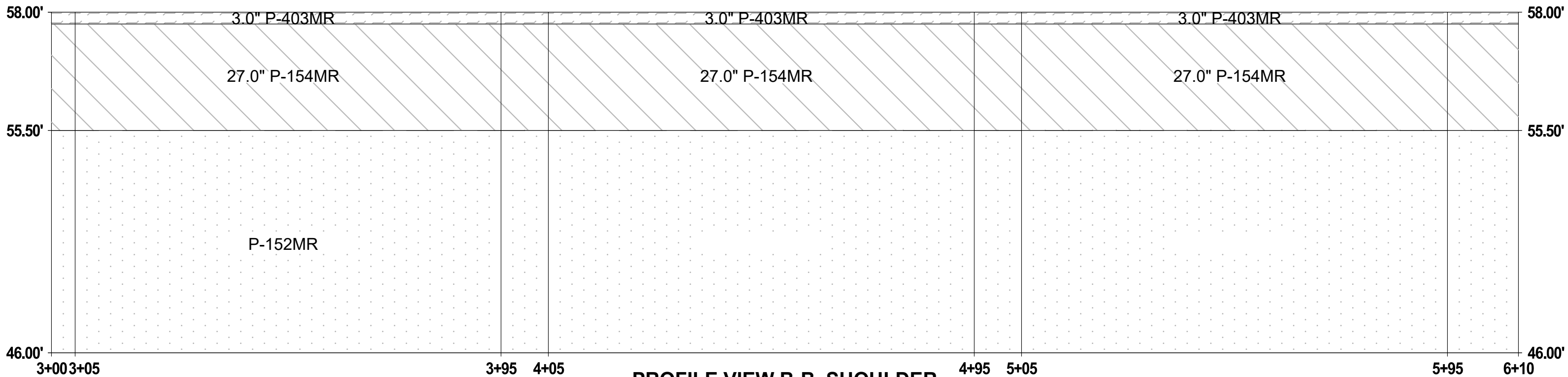
SIZE: ANSI D SCALE: AS NOTED SHEET 5 OF 55



MRS-2
PLAN VIEW
SCALE: 1"=20'



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



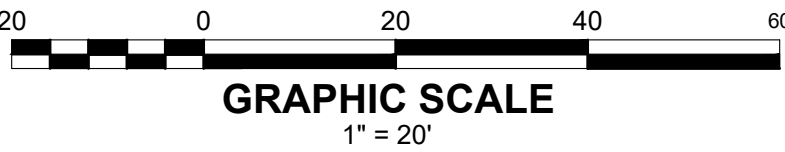
PROFILE VIEW B-B SHOULDER
HORIZONTAL SCALE: 1"=20' VERTICAL SCALE: 1"=2'

NOTE(S):

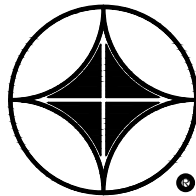
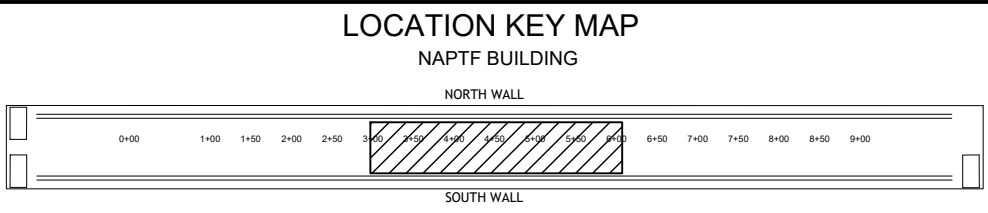
1. MRS = MEDIUM STRENGTH SUBGRADE, RIGID PAVEMENT, STABILIZED BASE.
2. CBR = CALIFORNIA BEARING RATIO
3. VERTICAL FACES OF THE FOUNDATION WALLS WITHIN THE CONSTRUCTION LIMITS MAY HAVE MARKING FROM PREVIOUS CONSTRUCTION CYCLES. CONTRACTOR TO REMOVE OR COVER THESE MARKINGS WITH MATERIALS APPROVED BY THE ENGINEER PRIOR TO THE CONSTRUCTION OF P-152MR LAYER.
4. CONTRACTOR TO ENSURE THAT ALL DRAINS AND HANDHOLES ARE CLEANED AND FREE FROM DEBRIS ONCE CONSTRUCTION IS COMPLETED.

LEGEND:

- | | | |
|----------------------------------|----------------------------------|--|
| — PROJECT LIMITS | 15.5" P-501MR PCC | P-152MR - SUBGRADE 7-8 CBR - CH CLAY |
| - - - TEST ITEM LIMIT | 14.5" P-501MR PCC | P-154MR - SUBBASE COURSE |
| ^ DOOR | 13.5" P-501MR PCC | P-403MR - ASPHALT MIX PAVEMENT BASE COURSE |
| SPU (SIGNAL PROCESSIONG UNIT) | TRANSITION PCC THICKNESS VARRIES | P-501MR - CEMENT CONCRETE PAVEMENT |
| ■ HANDHOLE | | |
| — SEPARATION GEOTEXTILE, CLASS 2 | | |
| — ROSIN PAPER BOND BREAKER | | |
| X LIGHT FIXTURE | | |



	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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FOR



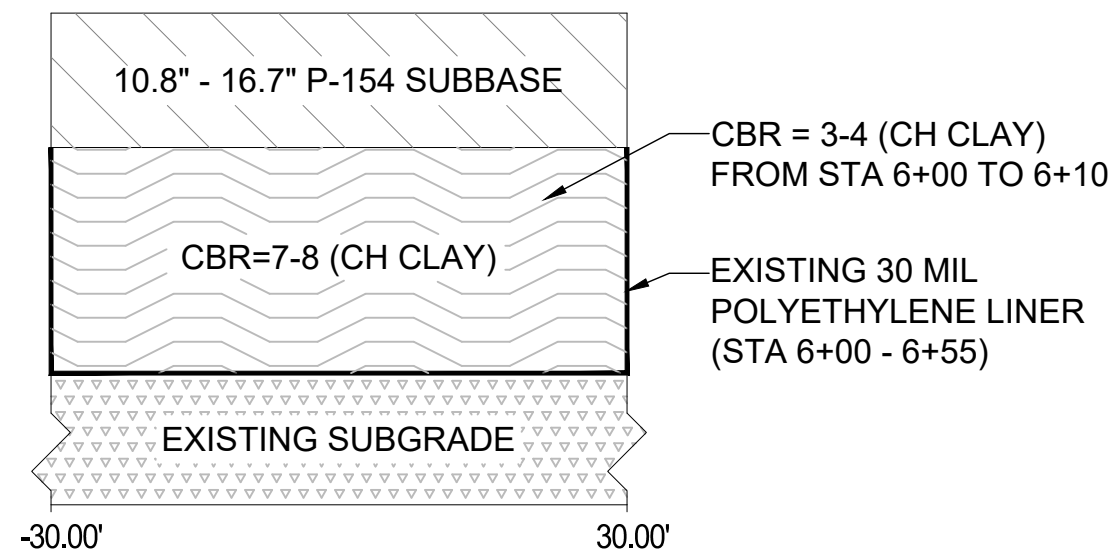
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	G-202	
FILE:	CC10-C-JP.DWG	

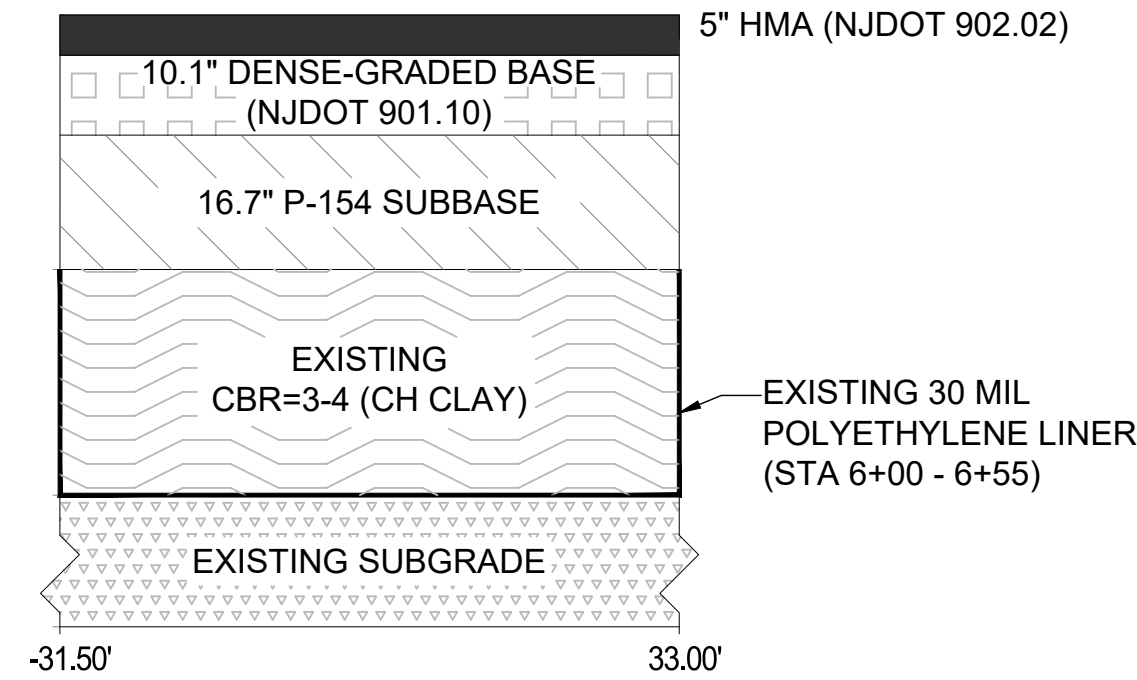
NAPTF CONSTRUCTION CYCLE 010

TEST ITEM PLAN AND PROFILE

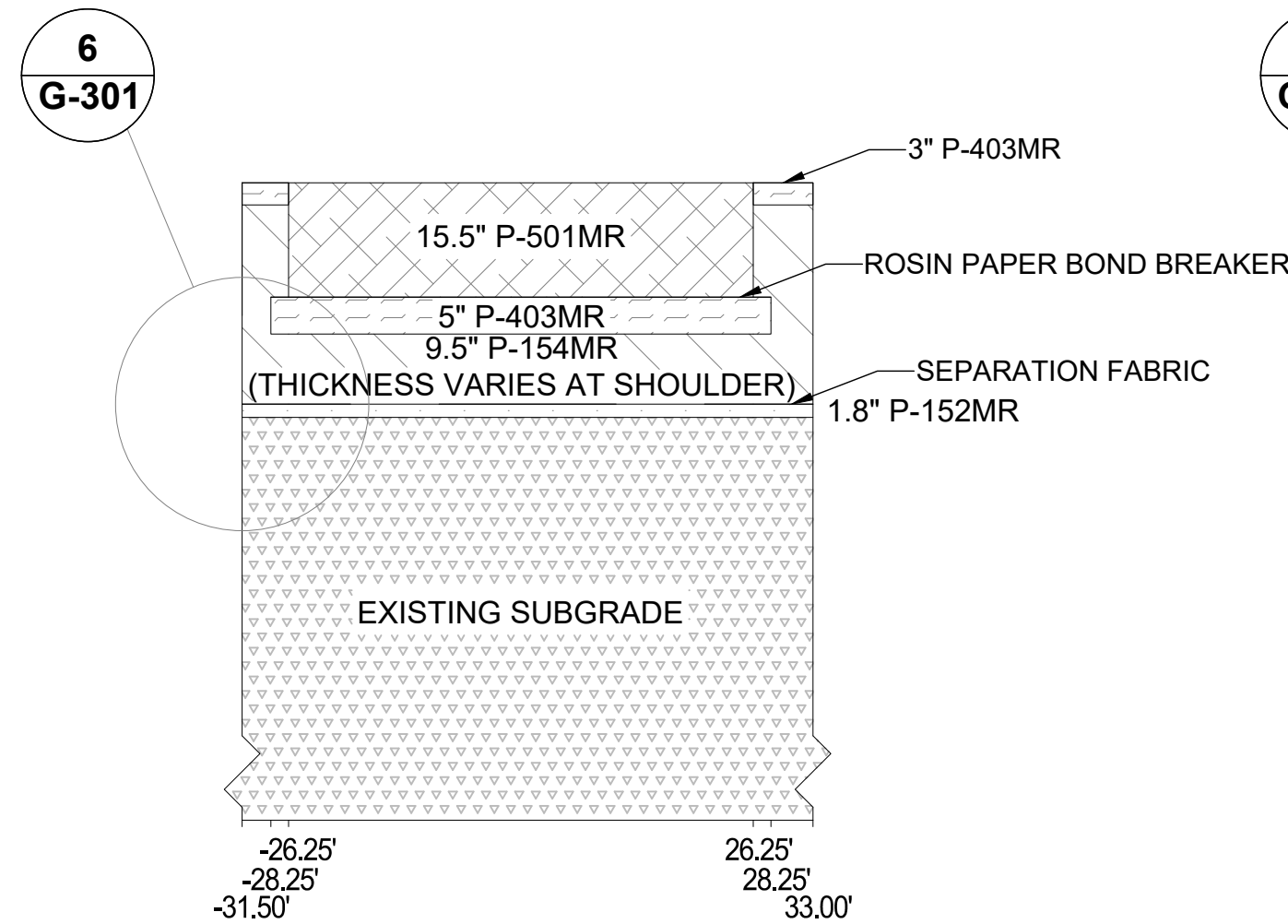
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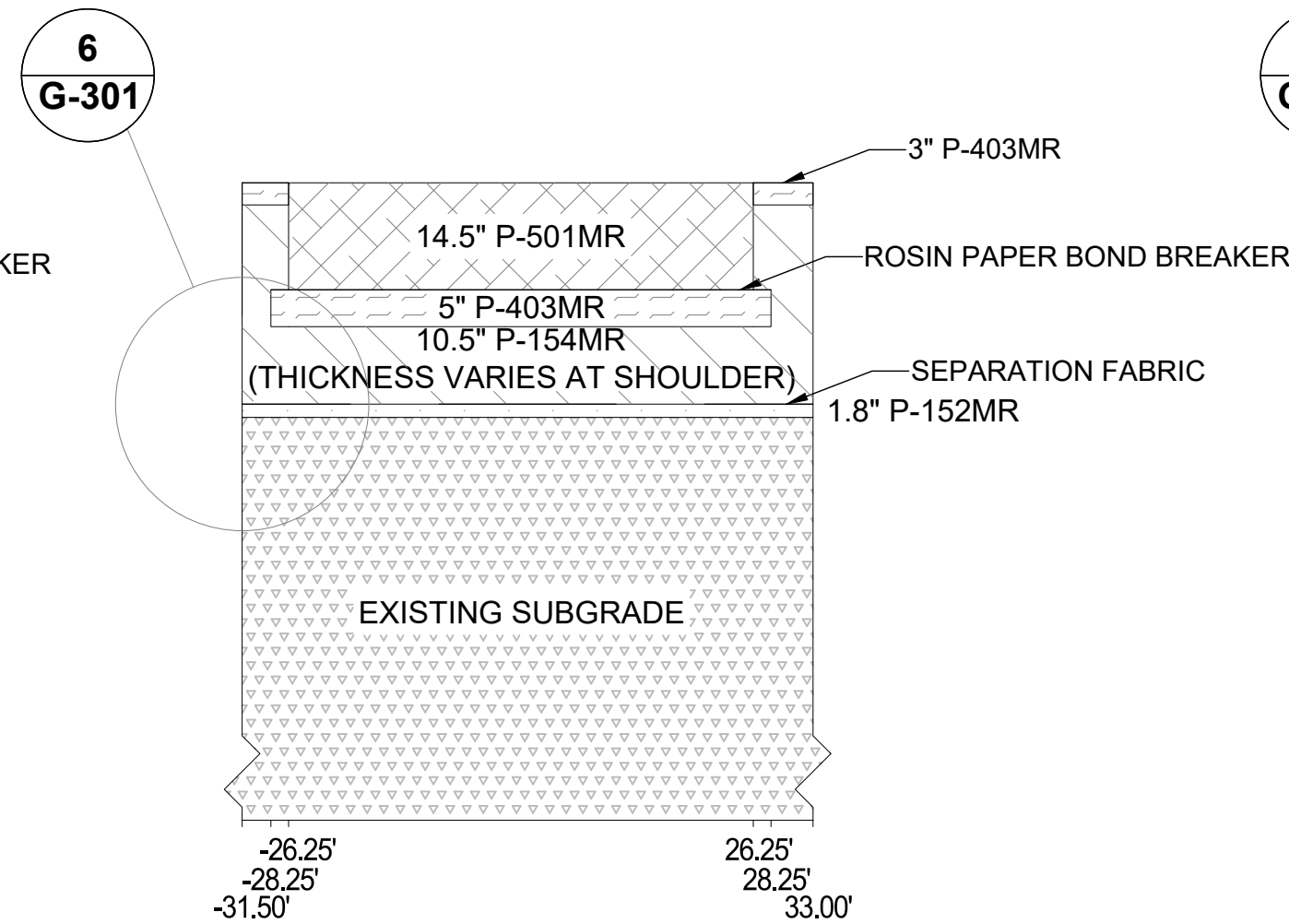
1
G-301
EXISTING CROSS SECTION
STATION 3+00 TO 6+10
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'



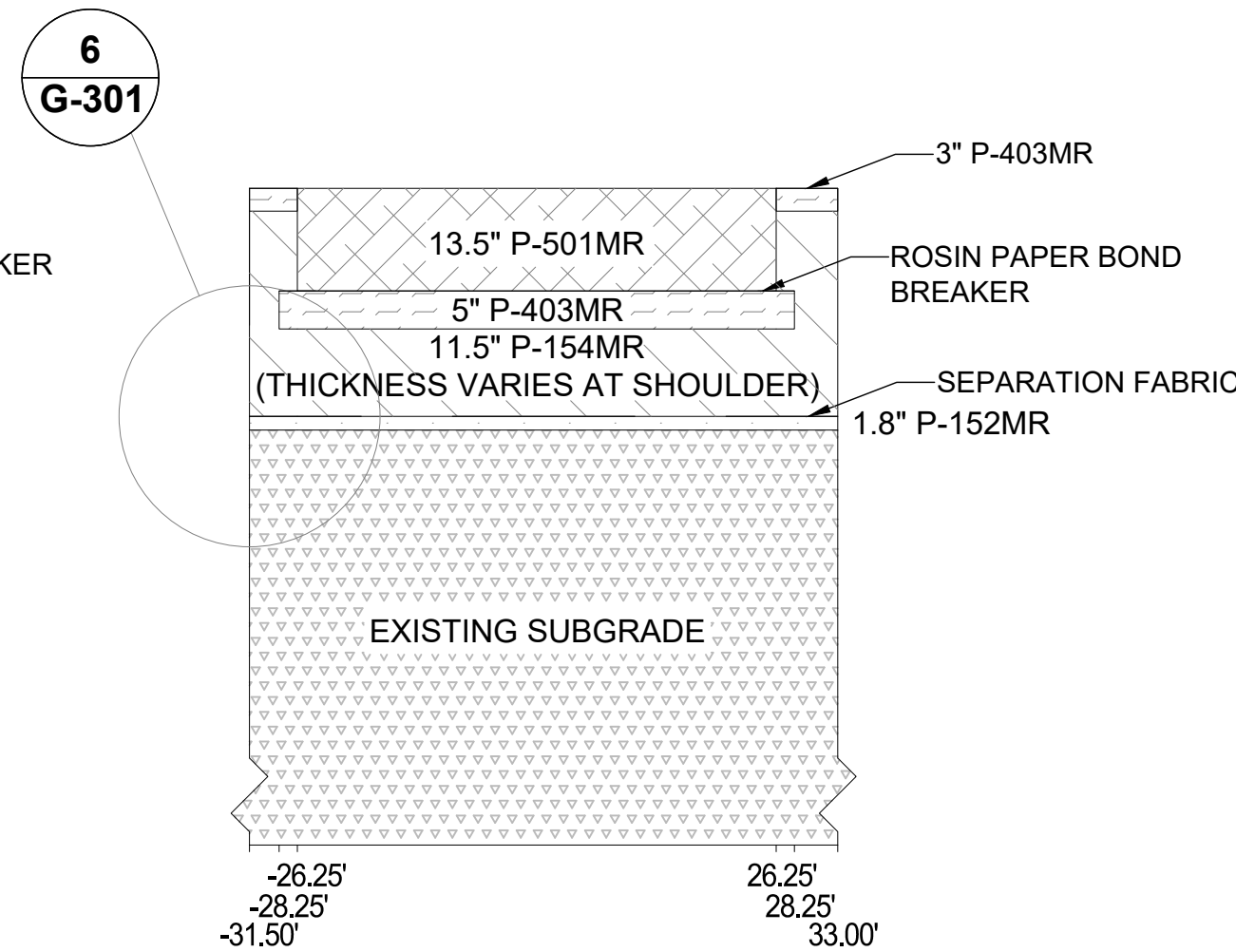
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G-301
EXISTING CROSS SECTION
STATION 6+10 TO 6+55
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'



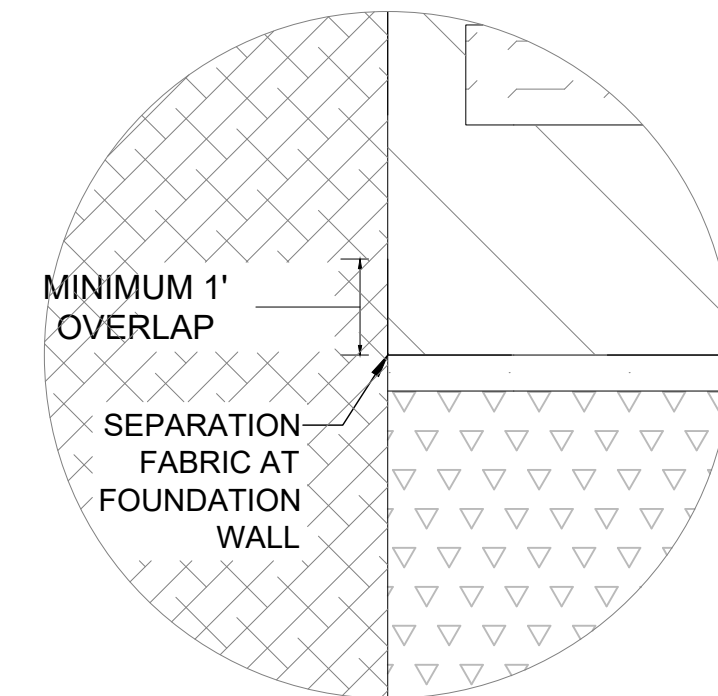
3
G-301
STATION 3+05 TO 3+95
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'



4
G-301
STATION 4+05 TO 4+95
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'



5
G-301
STATION 5+05 TO 6+10
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'



6
G-301
SEPARATION FABRIC AT FOUNDATION WALL
NOT TO SCALE

NOTE(S):

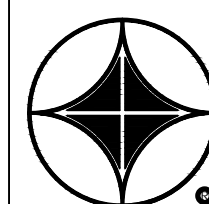
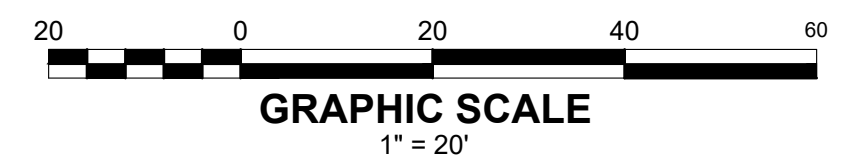
1. CBR = CALIFORNIA BEARING RATIO.

LEGEND:

- SEPARATION GEOTEXTILE, CLASS 2
ROSIN PAPER BOND BREAKER
30 MIL POLYETHYLENE LINER

- HOT MIX ASPHALT 12.5M SURFACE COURSE CONFORMING TO NJDOT 902.02
DENSE-GRADED AGGREGATE CONFORMING TO NJDOT 901.10
P-501 - CONCRETE PAVEMENT (PORTLAND CEMENT CONCRETE)
P-403 - ASPHALT MIX PAVEMENT BASE COURSE

- P-154 - GRANULAR AGGREGATE SUBBASE COURSE
EXISTING SUBGRADE - CBR 3-4 CH CLAY
EXISTING SUBGRADE - CBR 7-8 CH CLAY
EXISTING SUBGRADE - SAND WITH SILT & CLAY SP AND SM/SC



ARA

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FOR



NATIONAL
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TEST FACILITY
ATLANTIC CITY
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NEW JERSEY 08234

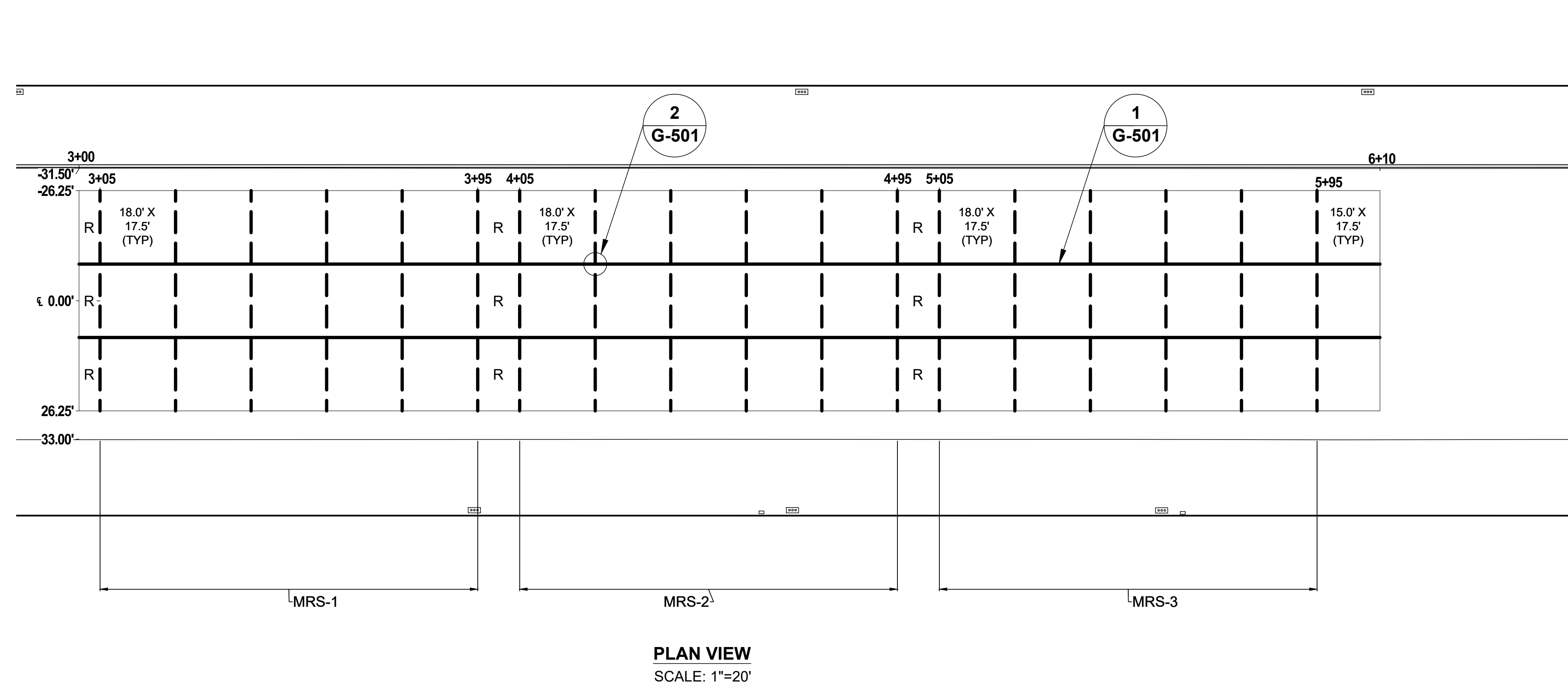
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DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	G-301	
FILE:	CC10-CONS-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010

TEST ITEM SECTIONS

SIZE: ANSI D SCALE: AS NOTED SHEET 7 OF 55

NO.	REVISIONS	DATE	BY	CHK	APR
		12/02/2022		C.T.	



NOTE(S):

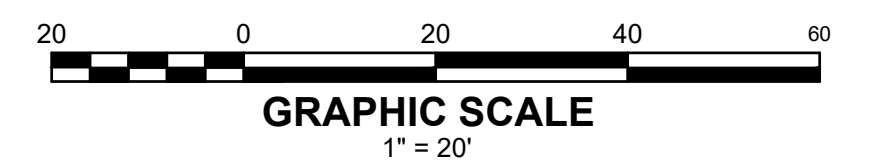
1. CONTRACTOR MAY USE TYPE E CONSTRUCTION JOINT AT TRANSITIONS. NO OTHER CHANGES TO JOINTING PLANS PERMITTED WITHOUT WRITTEN PERMISSION OF ENGINEER.
2. SEE SHEETS G-501 FOR DOWEL DETAIL.
3. SEE SHEET G-501 DOWEL SPACING.
4. JOINT SEALANT TO MEET OR EXCEED REQUIREMENTS IN ITEM P-604MR.

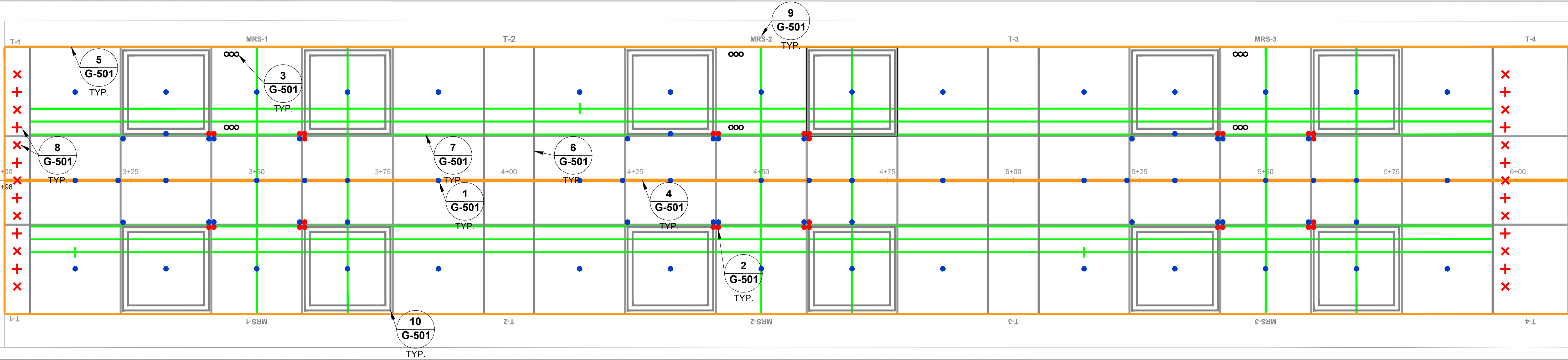
LEGEND:

———— TYPE E DOWELED CONSTRUCTION JOINT. SEE 3/G-501.

— — — TYPE C DOWELED CONTRACTION JOINT. SEE 4/G-501.

R REINFORCED SLAB. SEE 1/G-504 AND 2/G-504.

[illegible]



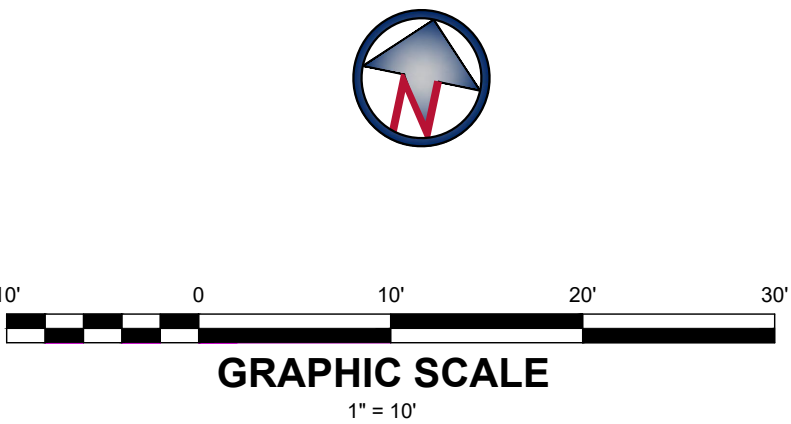
PLAN VIEW
SCALE: 1"=10'

NOTE(S):

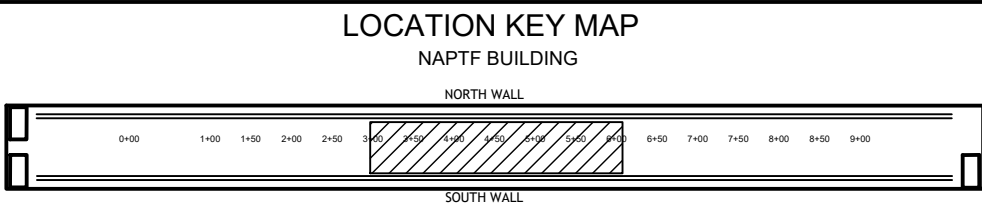
1. STATIONS AND DIMENSIONS ARE FOR PLAN REFERENCE ONLY AND ARE NOT TO BE PAINTED.
2. SEE SHEET G-601 FOR MARKING SCHEDULE AND LOCATIONS OF CENTER POINTS OF MARKING.
3. ORDER OF MARKING FROM TOP TO BOTTOM: SOLID YELLOW SAFETY LINE, LETTERING, BLUE HWD/PSPA TEST LOCATION MARKING, RED HWD TEST LOCATION MARKING, BLACK ELATEXTUR TEST LOCATION MARKING, SOLID RED NDT MARKING, SOLID YELLOW CENTER LINE MARKING, SOLID BLACK TRANSITION/MIRA MARKING, AND SOLID GREEN NDT LINE MARKING.

LEGEND:

- SOLID YELLOW CENTER LINE MARKING 4/G-502
- SOLID YELLOW SAFETY LINE MARKING 5/G-502
- SOLID BLACK TRANSITION/MIRA MARKING 6/G-502, 10/G-502
- SOLID GREEN NDT LINE MARKING 7/G-502
- BLUE HWD/PSPA TEST LOCATION MARKING 1/G-502
- RED HWD TEST LOCATION MARKING 2/G-502
- BLACK ELATEXTUR TEST LOCATION MARKING 3/G-502
- SOLID RED NDT MARKING 8/G-502
- WHITE LETTERING 9/G-502



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			12/02/2022		C.T.	



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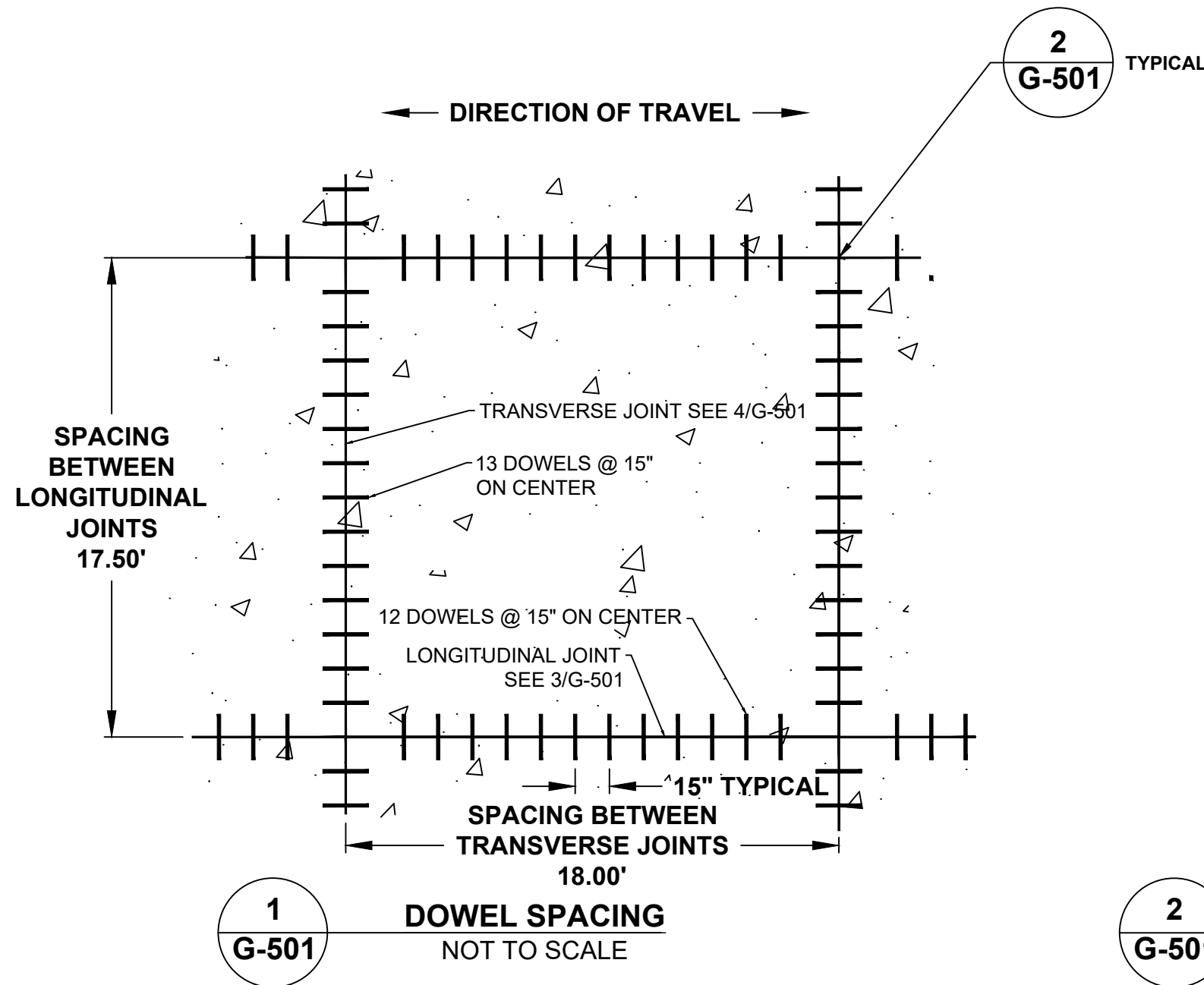
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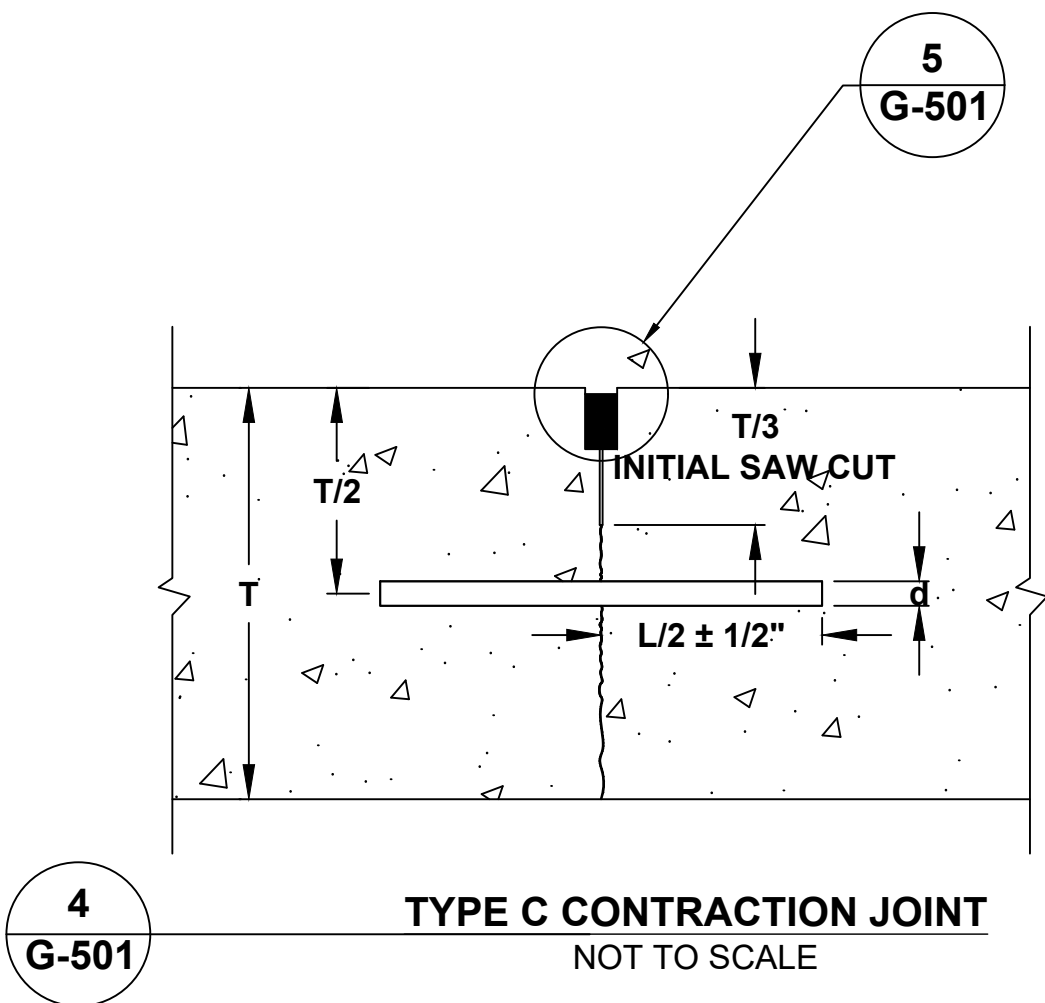
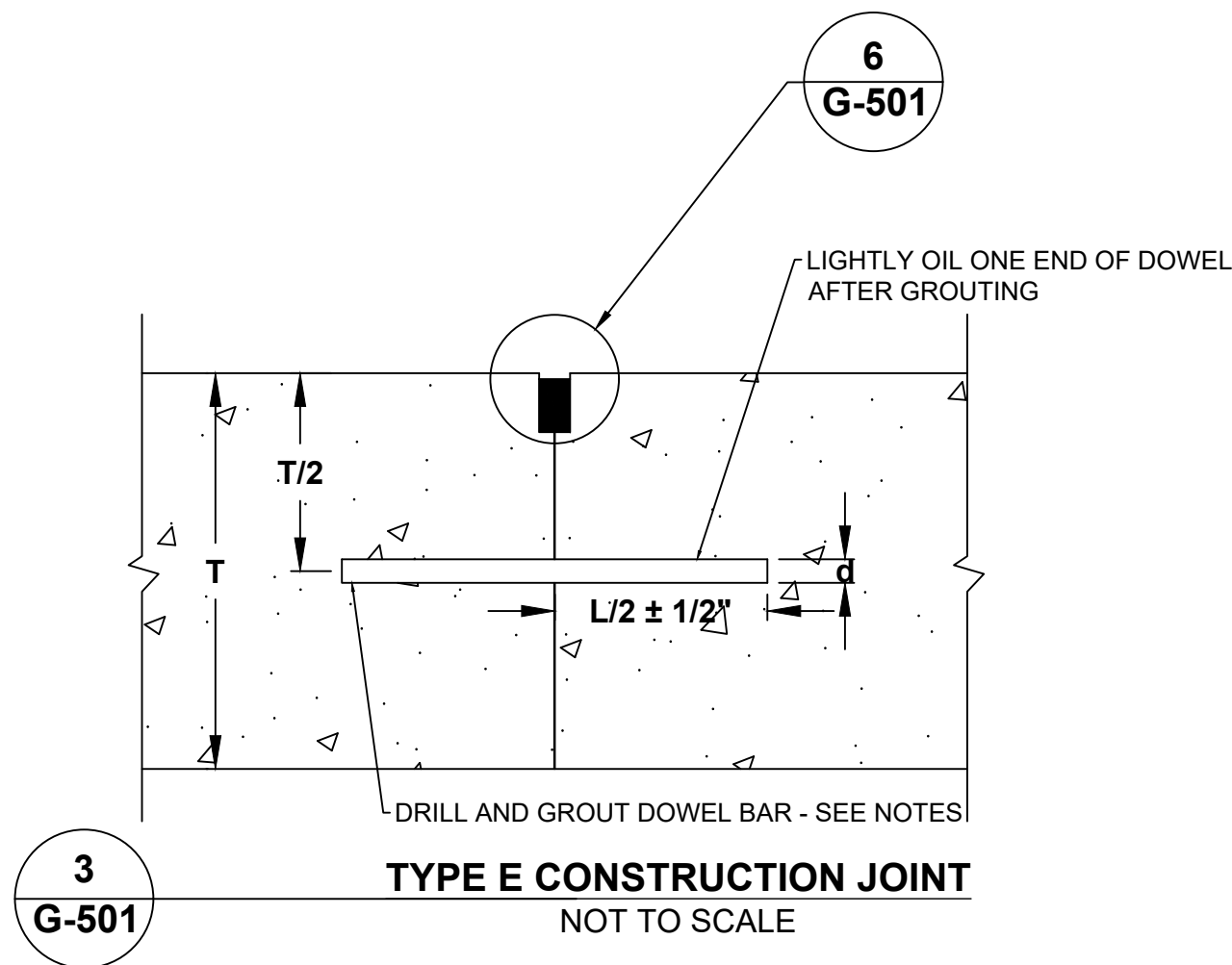
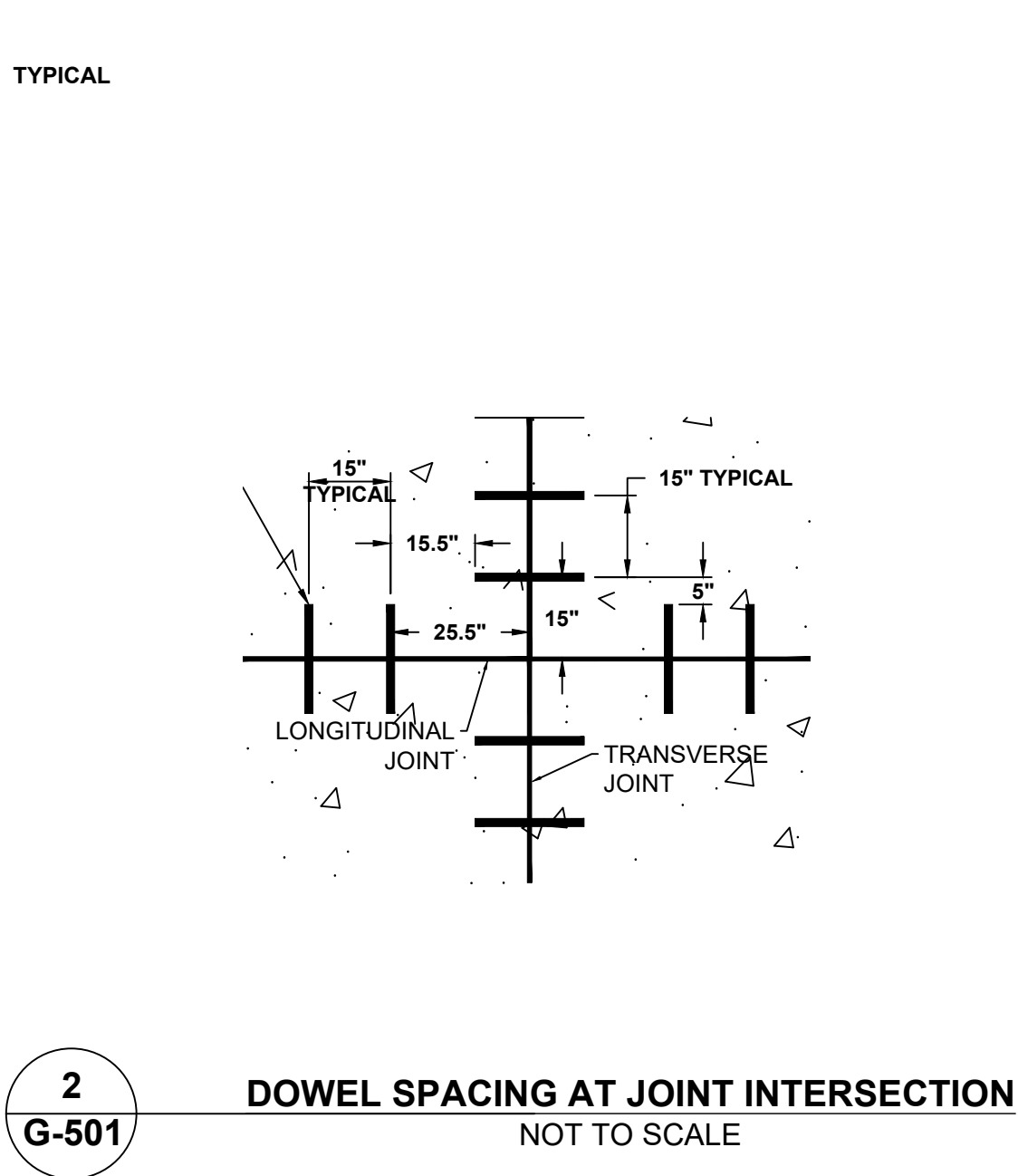
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

DRAWN	NAME	DATE
	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	G-402	
FILE:	CC10-PNTG.DWG	

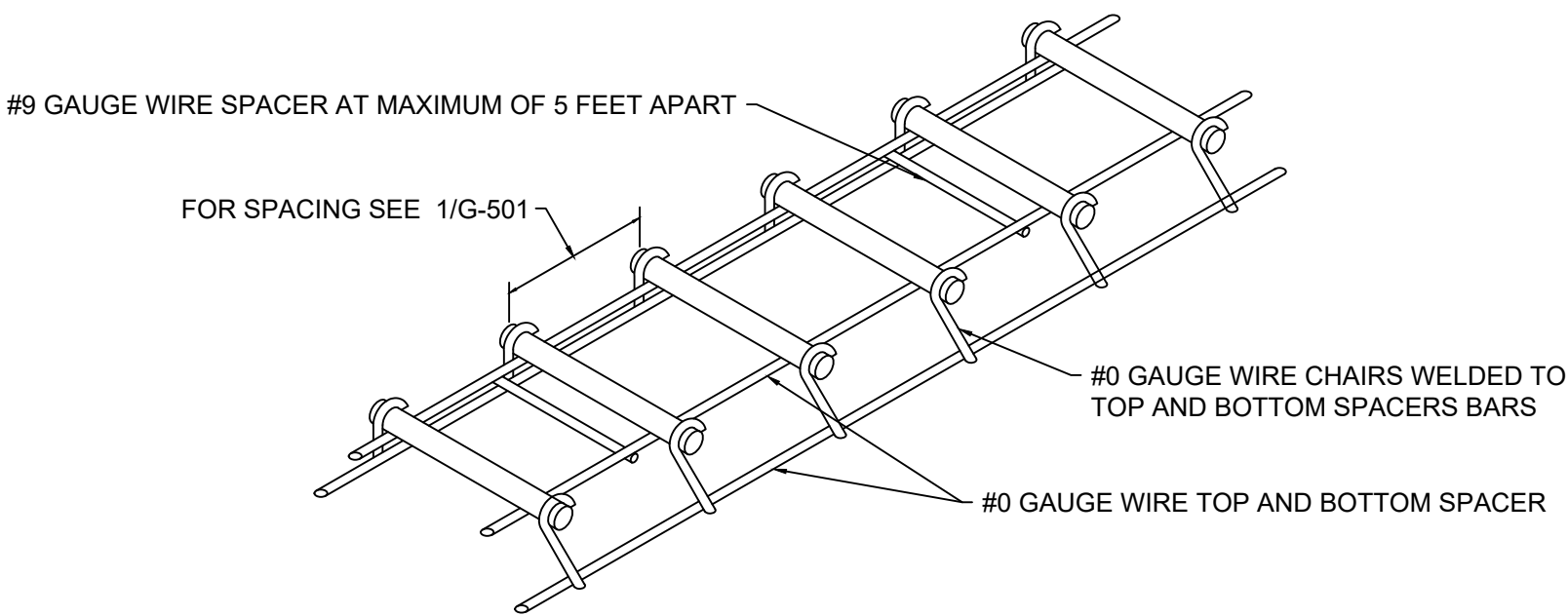
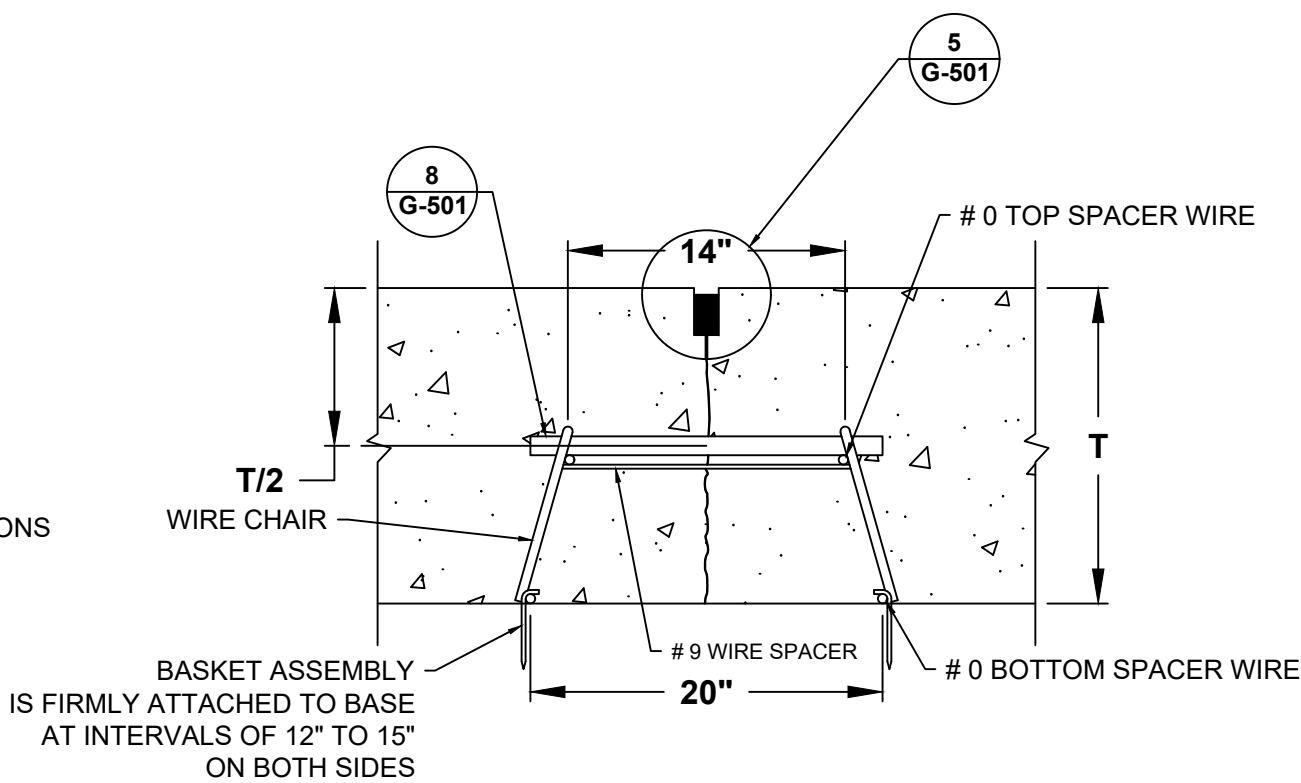
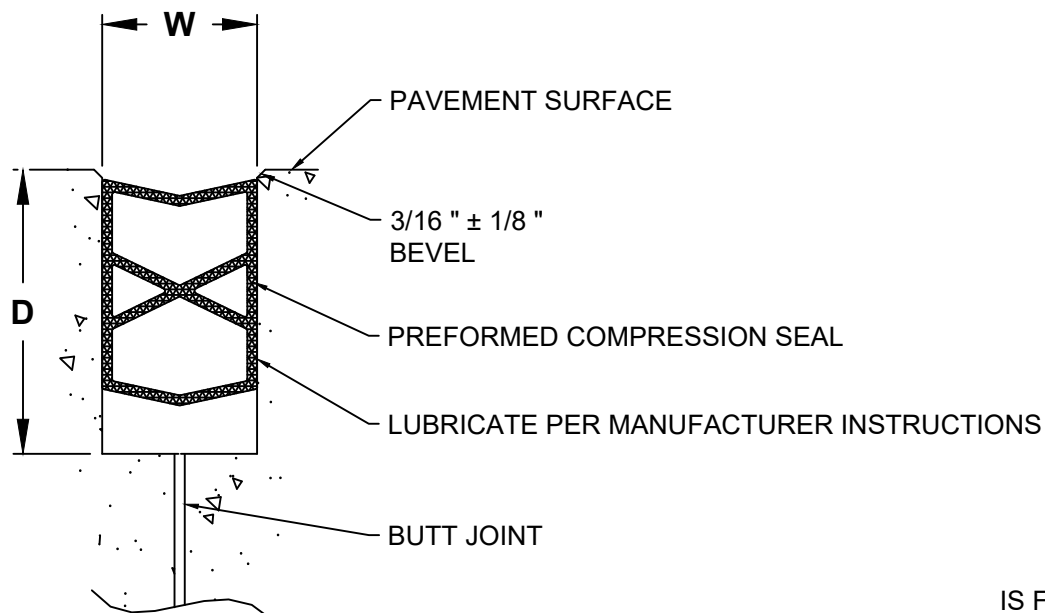
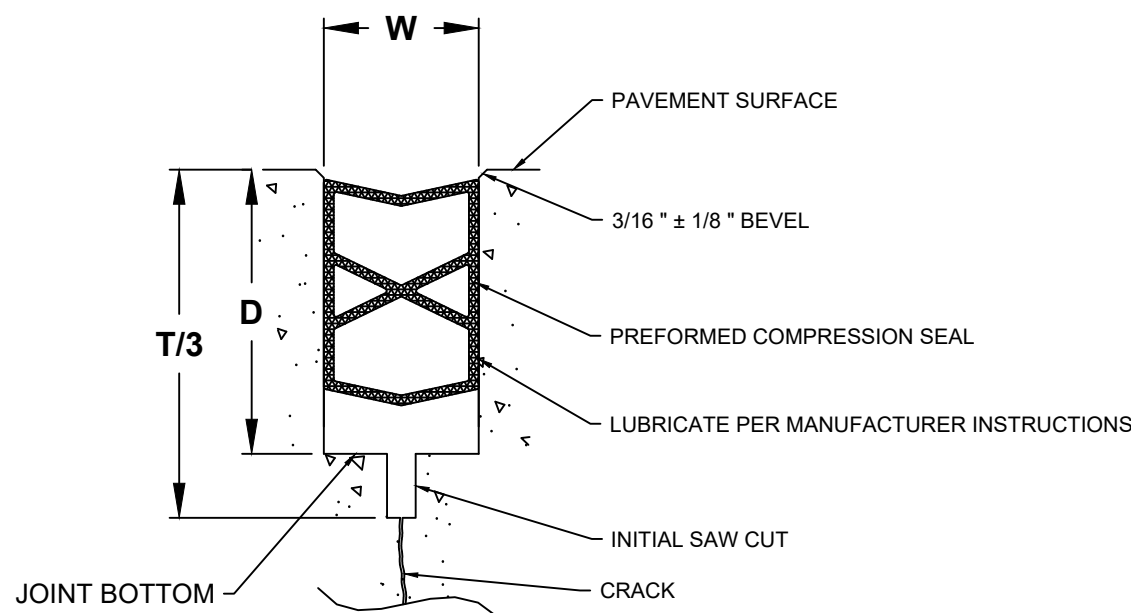
NAPTF CONSTRUCTION CYCLE 010		
TEST ITEM MARKING PLAN		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 9 OF 55



- DOWEL SPACING NOTES:
1. DOWEL BARS ARE 1 1/4 INCH DIAMETER AND 20 INCHES IN LENGTH. SEE 4/G-501
 2. DOWELS SHALL BE EPOXY COATED FULL LENGTH OF DOWEL.
 3. A LUBRICANT BOND BREAKER SHALL BE APPLIED TO THE DOWEL JUST PRIOR TO PAVING.
 4. TRANSVERSE JOINTS MAY USE DOWEL BASKETS.



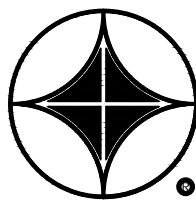
- JOINT NOTES:
1. DRILLING METHOD SHALL MAINTAIN DRILL HOLES PARALLEL TO CONCRETE SURFACE AND NORMAL TO JOINT LINE WITHIN 1/8" ± AT END OF DOWEL BAR.
 - a. USE GANG DRILL WITH 3 OR MORE DRILLS.
 - b. HORIZONTAL DOWEL LOCATION TOLERANCE = D/2.
 - c. HOLE DIAMETER TO BE APPROXIMATELY 1/4" LARGER THAN DOWEL.
 - d. MINIMUM 3 DAYS CURE TIME AND 300 PSI FLEXURAL STRENGTH REQUIRED FOR DRILLING NEW CONCRETE.
 2. AFTER DRILLING IS COMPLETE, AND PRIOR TO INSTALLATION OF DOWELS, THOROUGHLY CLEAN HOLES BY FLUSHING OR AIR BLASTING TO REMOVE DRILLING DUST, CONCRETE CHIPS AND ANY MATERIAL DETRIMENTAL TO DEVELOPING BOND.
 3. INSERT EPOXY INTO BACK OF DOWEL HOLE BY INJECTION NOZZLE WITH SUFFICIENT EPOXY PLACED SO A SLIGHT AMOUNT IS FORCED OUT WHEN DOWEL IS INSERTED INTO CORRECT POSITION. EPOXY SHALL BE SOLID AROUND BARS WITH NO VOIDS. ROTATE DOWELS 1/4 TURN AFTER INSERTION TO CORRECT POSITION. INSTALL PLASTIC DOWEL RINGS TO RETAIN EPOXY. SUBMIT PROPOSED EPOXY INFORMATION FOR APPROVAL PRIOR TO STARTING WORK.
 4. SEE 7/G-501 WHEN DOWEL BASKETS ARE USED.
 5. "T" = THICKNESS OF NEW CONCRETE PAVEMENT.
 6. "d" = DOWEL OR TIE-BAR DIAMETER.
 7. "L" = DOWEL OR TIE-BAR LENGTH.
 8. USE THINNER PAVEMENT TO DETERMINE T/2 WHEN CONSTRUCTING TRANSITIONS.



- JOINT SEAL NOTES:
1. SEAL TO BE INSTALLED PER MANUFACTURER RECOMMENDATIONS.
 2. TOP OF SEALANT TO BE 1/8 INCH TO 1/4 INCH BELOW TOP OF PAVEMENT.
 3. COMPRESSION SEALS MUST BE IN COMPRESSION AT ALL TIMES.
 4. USE FURNISHED 13/16" WIDE COMPRESSION SEAL, THE NOMINAL WIDTH OF THE SAW CUT SHALL BE 1/2" +/- 1/16".
 5. "W" = DEPTH RECOMMENDED BY MANUFACTURER.
 6. "D" = DEPTH RECOMMENDED BY MANUFACTURER.
 7. "T" = THICKNESS OF NEW CONCRETE PAVEMENT.

- DOWEL BASKET NOTES:
1. DOWEL BAR DIAMETER LENGTH AND SPACING SHALL BE AS SHOWN IN THE DOWEL SIZE AND SPACING TABLE. SHEET G-501.
 2. DO NOT CUT WIRE SPACER BAR.
 3. "T" = THICKNESS OF NEW CONCRETE PAVEMENT.

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



ARA

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PHONE: (609) 380-4240

FOR



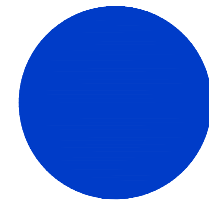
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TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	G-501	
FILE:	CC10-CONS-PLAN.DWG	

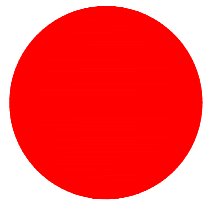
NAPTF CONSTRUCTION CYCLE 010

JOINT DETAILS

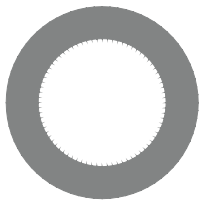
SIZE: ANSI D SCALE: AS NOTED SHEET 10 OF 55



COLOR BLUE
DIAMETER = 12"



COLOR RED
DIAMETER = 12"



COLOR BLACK
INNER DIAMETER = 8"
STROKE WIDTH = 2"

1
G-502

HWD/PSPA TEST LOCATION MARKING
NOT TO SCALE

2
G-502

HWD TEST LOCATION MARKING
NOT TO SCALE

3
G-502

ELATEXTUR TEST LOCATION MARKING
NOT TO SCALE



COLOR YELLOW
STROKE WIDTH 8"



COLOR YELLOW
STROKE WIDTH 4"



COLOR BLACK
STROKE WIDTH 4"

4
G-502

CENTERLINE MARKING
NOT TO SCALE

5
G-502

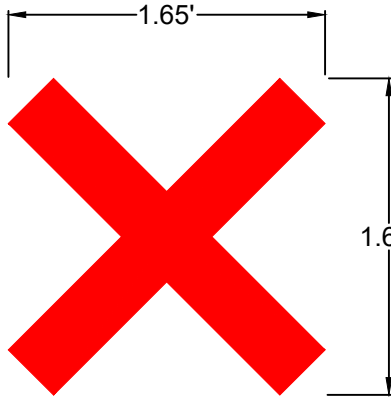
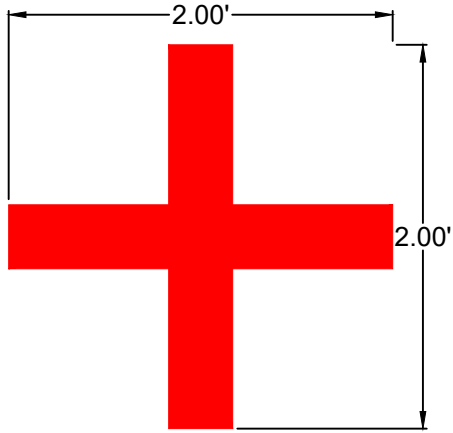
SAFETY LINE MARKING
NOT TO SCALE

6
G-502

TRANSITION MARKING
NOT TO SCALE



COLOR GREEN
STROKE WIDTH 4"



MARKING ROTATED 45° FOR
PLUS SIGN ORIENTATION

COLOR RED
STROKE WIDTH 4"

7
G-502

NDT TRACK MARKING
NOT TO SCALE

8
G-502

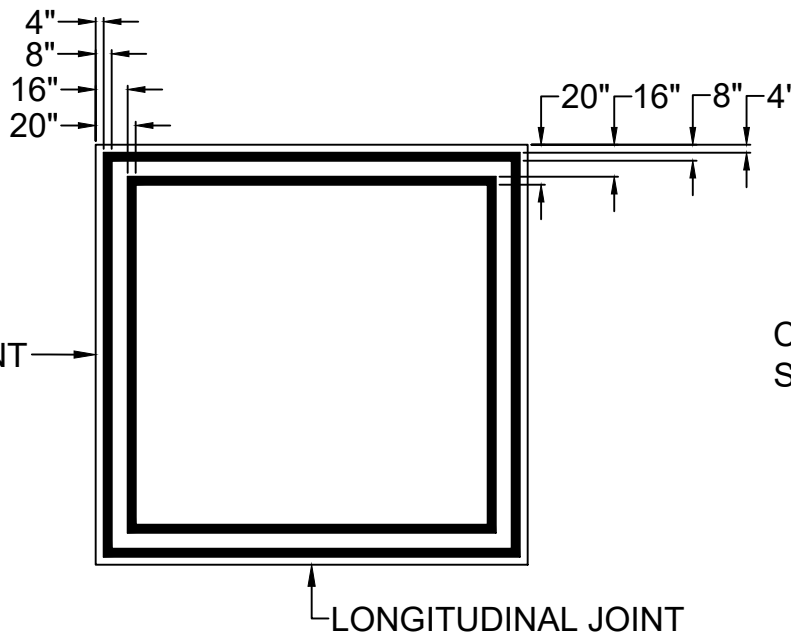
NDT STOP MARKING
NOT TO SCALE

9
G-502

LETTERING
NOT TO SCALE

MRS-2

COLOR WHITE
1' TALL TEXT
2.5" WIDE STROKE



COLOR BLACK
STROKE WIDTH 4"

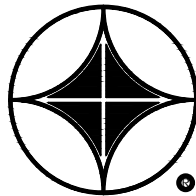
10
G-502

MIRA MARKING
NOT TO SCALE

NOTE(S):

1. SEE SHEET G-601 FOR MARKING SCHEDULE AND LOCATION OF CENTER POINT OF ALL MARKINGS.

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FOR



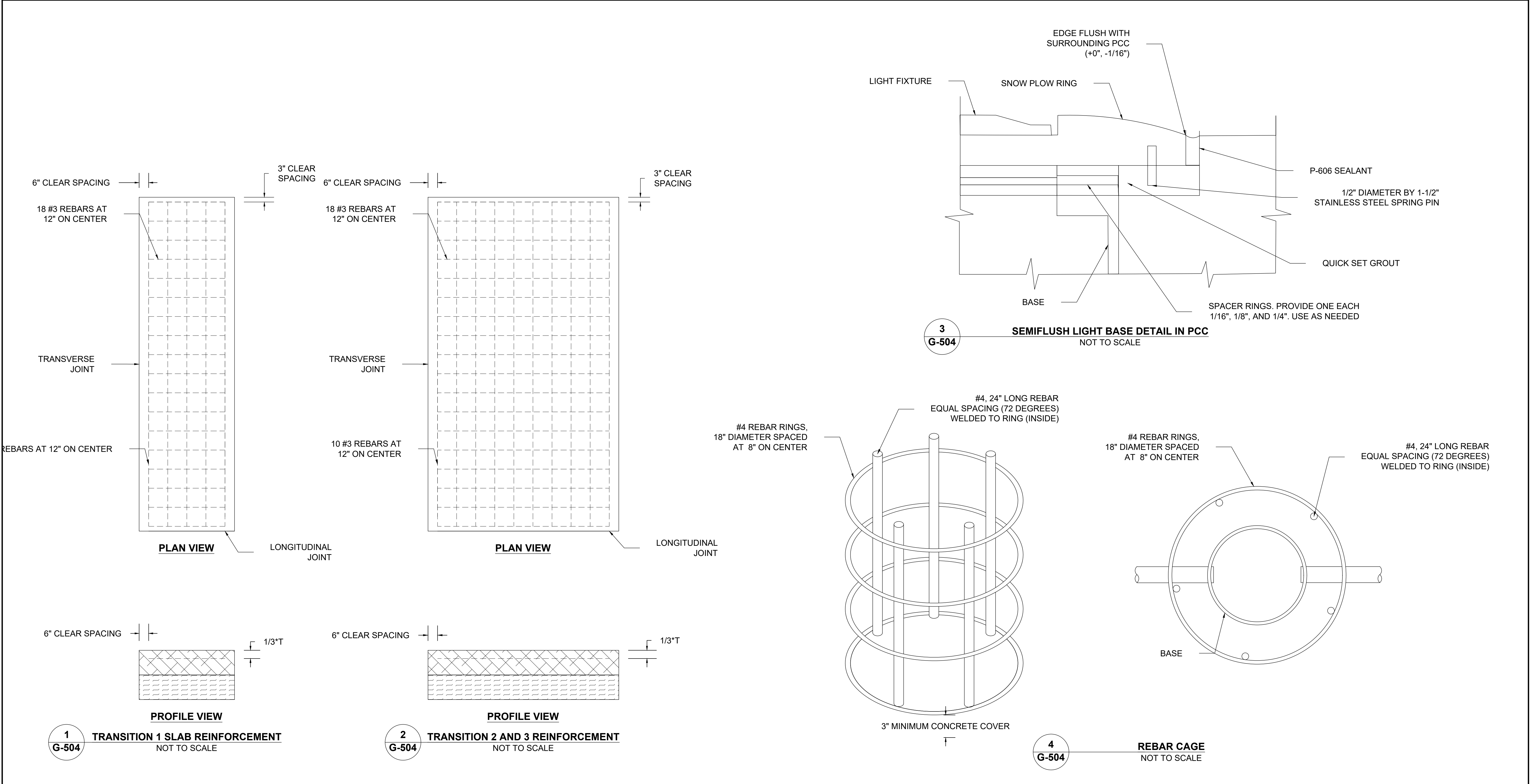
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TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	G-502	
FILE:	CC10-PNTG.DWG	

NAPTF CONSTRUCTION CYCLE 010

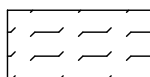
MARKING DETAILS

SIZE: ANSI D SCALE: AS NOTED SHEET 11 OF 55

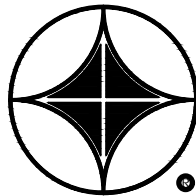


- NOTE(S):**
- 1. USE CAUTION WHEN POURING CONCRETE AS TO NOT DISTURB THE REBAR CAGE.
 - 2. LAP ENDS OF BARS A MINIMUM OF 12 INCHES.
 - 3. USE REBAR CHAIRS WHEN INSTALLING REINFORCEMENT.

LEGEND:

-  P-501MR
-  P-403MR
-  #3 REBAR

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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FOR



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AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-11-23
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	G-504	
FILE:	CC10-CONS-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010			
TRANSITION SLAB REINFORCEMENT, REBAR CAGE, AND LIGHT DETAILS			
SIZE: ANSI D	SCALE: AS NOTED	SHEET 13 OF 55	

MRS-1 MARKINGS		
DETAIL	STATION	OFFSET
1/G-502	3+14	-17.50
1/G-502	3+14	0
1/G-502	3+14	17.50
1/G-502	3+32	-17.50
1/G-502	3+32	0
1/G-502	3+32	17.50
1/G-502	3+50	-17.50
1/G-502	3+50	0.00
1/G-502	3+50	17.50
1/G-502	3+68	-17.50
1/G-502	3+68	0
1/G-502	3+68	17.50
1/G-502	3+86	-17.50
1/G-502	3+86	0
1/G-502	3+86	17.50
1/G-502	3+22.50	0
1/G-502	3+23.50	-8.25
1/G-502	3+23.50	8.25
1/G-502	3+32	-9.25
2/G-502	3+40.50	-9.25
1/G-502	3+40.50	-8.25
1/G-502	3+40.50	8.25
2/G-502	3+40.50	9.25
2/G-502	3+41.50	-9.25
1/G-502	3+41.50	-8.25
1/G-502	3+41.50	8.25
2/G-502	3+41.50	9.25
2/G-502	3+58.50	-9.25
1/G-502	3+58.50	-8.25
1/G-502	3+58.50	8.25
2/G-502	3+58.50	9.25
2/G-502	3+59.50	-9.25
2/G-502	3+59.50	-8.25
1/G-502	3+59.50	0
2/G-502	3+59.50	8.25
2/G-502	3+59.50	9.25
1/G-502	3+68	8.25
7/G-502	3+14	13.25 to 15.25
7/G-502	3+50	-26.25 to 26.25
7/G-502	3+68	-26.25 to 26.25
3/G-502	3+44	-10.50
3/G-502	3+45	-10.50
3/G-502	3+46	-10.50
3/G-502	3+44	-25.00
3/G-502	3+45	-25.00
3/G-502	3+46	-25.00
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (3+23.50, -25.75), (3+23.50, -9.25), (3+40.50, -25.25), AND (3+40.50, -9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (3+24.50, -24.75), (3+24.50, -10.25), (3+39.50, -24.75), AND (3+39.50, -10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (3+23.50, 25.75), (3+23.50, 9.25), (3+40.50, 25.25), AND (3+40.50, 9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (3+24.50, 24.75), (3+24.50, 10.25), (3+39.50, 24.75), AND (3+39.50, 10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (3+59.50, -25.75), (3+59.50, -9.25), (3+76.50, -25.25), AND (3+76.50, -9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (3+60.50, -24.75), (3+60.50, -10.25), (3+75.50, -24.75), AND (3+75.50, -10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (3+59.50, 25.75), (3+59.50, 9.25), (3+76.50, 25.25), AND (3+76.50, 9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (3+60.50, 24.75), (3+60.50, 10.25), (3+75.50, 24.75), AND (3+75.50, 10.25)	

MRS-2 MARKINGS		
DETAIL	STATION	OFFSET
1/G-502	4+14	-17.50
1/G-502	4+14	0.00
1/G-502	4+14	17.50
1/G-502	4+32	-17.50
1/G-502	4+32	0
1/G-502	4+32	17.50
1/G-502	4+50	-17.50
1/G-502	4+50	0.00
1/G-502	4+50	17.50
1/G-502	4+68	-17.50
1/G-502	4+68	0
1/G-502	4+68	17.50
1/G-502	4+86	-17.50
1/G-502	4+86	0.00
1/G-502	4+86	17.50
1/G-502	4+22.5	0
1/G-502	4+23.5	-8.25
1/G-502	4+23.5	8.25
1/G-502	4+32	-9.25
2/G-502	4+40.5	-9.25
1/G-502	4+40.5	-8.25
1/G-502	4+40.5	8.25
2/G-502	4+40.5	9.25
2/G-502	4+41.5	-9.25
1/G-502	4+41.5	-8.25
1/G-502	4+41.5	8.25
2/G-502	4+41.5	9.25
2/G-502	4+58.5	-9.25
1/G-502	4+58.5	-8.25
1/G-502	4+58.5	8.25
2/G-502	4+58.5	9.25
2/G-502	4+59.5	-9.25
2/G-502	4+59.5	-8.25
1/G-502	4+59.5	0
2/G-502	4+59.5	8.25
2/G-502	4+59.5	9.25
1/G-502	4+68	8.25
7/G-502	4+14	13.25 to 15.25
7/G-502	4+50	-26.25 to 26.25
7/G-502	4+68	-26.25 to 26.25
3/G-502	4+44	-10.50
3/G-502	4+45	-10.50
3/G-502	4+46	-10.50
3/G-502	4+44	-25.00
3/G-502	4+45	-25.00
3/G-502	4+46	-25.00
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (4+23.50, -25.75), (4+23.50, -9.25), (4+40.50, -25.25), AND (4+40.50, -9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (4+24.50, -24.75), (4+24.50, -10.25), (4+39.50, -24.75), AND (4+39.50, -10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (4+23.50, 25.75), (4+23.50, 9.25), (4+40.50, 25.25), AND (4+40.50, 9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (4+24.50, 24.75), (4+24.50, 10.25), (4+39.50, 24.75), AND (4+39.50, 10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (4+59.50, -25.75), (4+59.50, -9.25), (4+76.50, -25.25), AND (4+76.50, -9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (4+60.50, -24.75), (4+60.50, -10.25), (4+75.50, -24.75), AND (4+75.50, -10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (4+59.50, 25.75), (4+59.50, 9.25), (4+76.50, 25.25), AND (4+76.50, 9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (4+60.50, 24.75), (4+60.50, 10.25), (4+75.50, 24.75), AND (4+75.50, 10.25)	

MRS-3 MARKINGS		
DETAIL	STATION	OFFSET
1/G-502	5+14	-17.50
1/G-502	5+14	0
1/G-502	5+14	17.50
1/G-502	5+32	-17.50
1/G-502	5+32	0
1/G-502	5+32	17.50
1/G-502	5+50	-17.50
1/G-502	5+50	0
1/G-502	5+50	17.50
1/G-502	5+68	-17.50
1/G-502	5+68	0
1/G-502	5+68	17.50
1/G-502	5+86	-17.50
1/G-502	5+86	0.00
1/G-502	5+86	17.50
1/G-502	5+22.5	0
1/G-502	5+23.5	-8.25
1/G-502	5+23.5	8.25
1/G-502	5+32	-9.25
2/G-502	5+40.5	-9.25
1/G-502	5+40.5	-8.25
1/G-502	5+40.5	8.25
2/G-502	5+40.5	9.25
2/G-502	5+41.5	-9.25
1/G-502	5+41.5	-8.25
1/G-502	5+41.5	8.25
2/G-502	5+41.5	9.25
2/G-502	5+58.5	-9.25
1/G-502	5+58.5	-8.25
1/G-502	5+58.5	8.25
2/G-502	5+58.5	9.25
2/G-502	5+59.5	-9.25
2/G-502	5+59.5	-8.25
1/G-502	5+59.5	0
2/G-502	5+59.5	8.25
2/G-502	5+59.5	9.25
1/G-502	5+68	8.25
7/G-502	5+14	13.25 to 15.25
7/G-502	5+50	-26.25 to 26.25
7/G-502	5+68	-26.25 to 26.25
3/G-502	5+44	-10.50
3/G-502	5+45	-10.50
3/G-502	5+46	-10.50
3/G-502	5+44	-25.00
3/G-502	5+45	-25.00
3/G-502	5+46	-25.00
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (5+23.50, -25.75), (5+23.50, -9.25), (5+40.50, -25.25), AND (5+40.50, -9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (5+24.50, -24.75), (5+24.50, -10.25), (5+39.50, -24.75), AND (5+39.50, -10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (5+23.50, 25.75), (5+23.50, 9.25), (5+40.50, 25.25), AND (5+40.50, 9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (5+24.50, 24.75), (5+24.50, 10.25), (5+39.50, 24.75), AND (5+39.50, 10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (5+59.50, -25.75), (5+59.50, -9.25), (5+76.50, -25.25), AND (5+76.50, -9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (5+60.50, -24.75), (5+60.50, -10.25), (5+75.50, -24.75), AND (5+75.50, -10.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (5+59.50, 25.75), (5+59.50, 9.25), (5+76.50, 25.25), AND (5+76.50, 9.25)	
10/G-502	RECTANGULAR BOX WITH CORNERS LOCATED AT (5+60.50, 24.75), (5+60.50, 10.25), (5+75.50, 24.75), AND (5+75.50, 10.25)	

LONGITUDINAL MARKINGS		
DETAIL	STATION	OFFSET
5/G-502	3+00 to 6+10	-26.50
5/G-502	3+00 to 6+10	26.50
4/G-502	3+00 to 6+10	0
7/G-502	3+05 to 5+95	-14.2260
7/G-502	3+05 to 5+95	-11.6670
7/G-502	3+05 to 5+95	-9.1080
7/G-502	3+05 to 5+95	9.1080
7/G-502	3+05 to 5+95	11.6670
7/G-502	3+05 to 5+95	14.2260

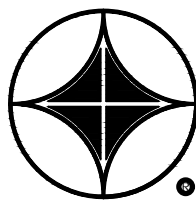
TRANSITION 1 AND TRANSITION 4 MARKINGS		
DETAIL	STATION	OFFSET
8/G-502	3+02.50	-24.00
8/G-502	3+02.50	-20.00
8/G-502	3+02.50	-16.00
8/G-502	3+02.50	-12.00
8/G-502	3+02.50	-8.00
8/G-502	3+02.50	-4.00
8/G-502	3+02.50	0
8/G-502	3+02.50	4.00
8/G-502	3+02.50	8.00
8/G-502	3+02.50	12.00
8/G-502	3+02.50	16.00
8/G-502	3+02.50	20.00
8/G-502	3+02.50	24.00
8/G-502	6+02.50	-24.00
8/G-502	6+02.50	-20.00
8/G-502	6+02.50	-16.00
8/G-502	6+02.50	-12.00
8/G-502	6+02.50	-8.00
8/G-502	6+02.50	-4.00
8/G-502	6+02.50	0
8/G-502	6+02.50	4.00
8/G-502	6+02.50	8.00
8/G-502	6+02.50	12.00
8/G-502	6+02.50	16.00
8/G-502	6+02.50	20.00
8/G-502	6+02.50	24.00
5/G-502	3+00	-26.25 to 26.25
5/G-502	3+00	-26.25 to 26.25

LETTERING			
DETAIL	STATION	OFFSET	TEXT
9/G-502	3+02.50	-28.75	T-1
9/G-502	3+02.50	29.50	T-1
9/G-502	3+50	-28.75	MRS-1
9/G-502	3+50	29.50	MRS-1
9/G-502	4+00	-28.75	T-2
9/G-502	4+00	29.50	T-2
9/G-502	4+50	-28.75	MRS-2
9/G-502	4+50	29.50	MRS-2
9/G-502	5+00	-28.75	T-3
9/G-502	5+00	29.50	T-3
9/G-502	5+50	-28.75	MRS-3
9/G-502	5+50	29.50	MRS-3
9/G-502	6+02.50	-28.75	T-4
9/G-502	6+02.50	29.50	T-4

NOTE(S):

1. STATION AND OFFSET ARE FOR CENTER POINT OF MARKING

	FOR BID	12/02/2022	—	C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



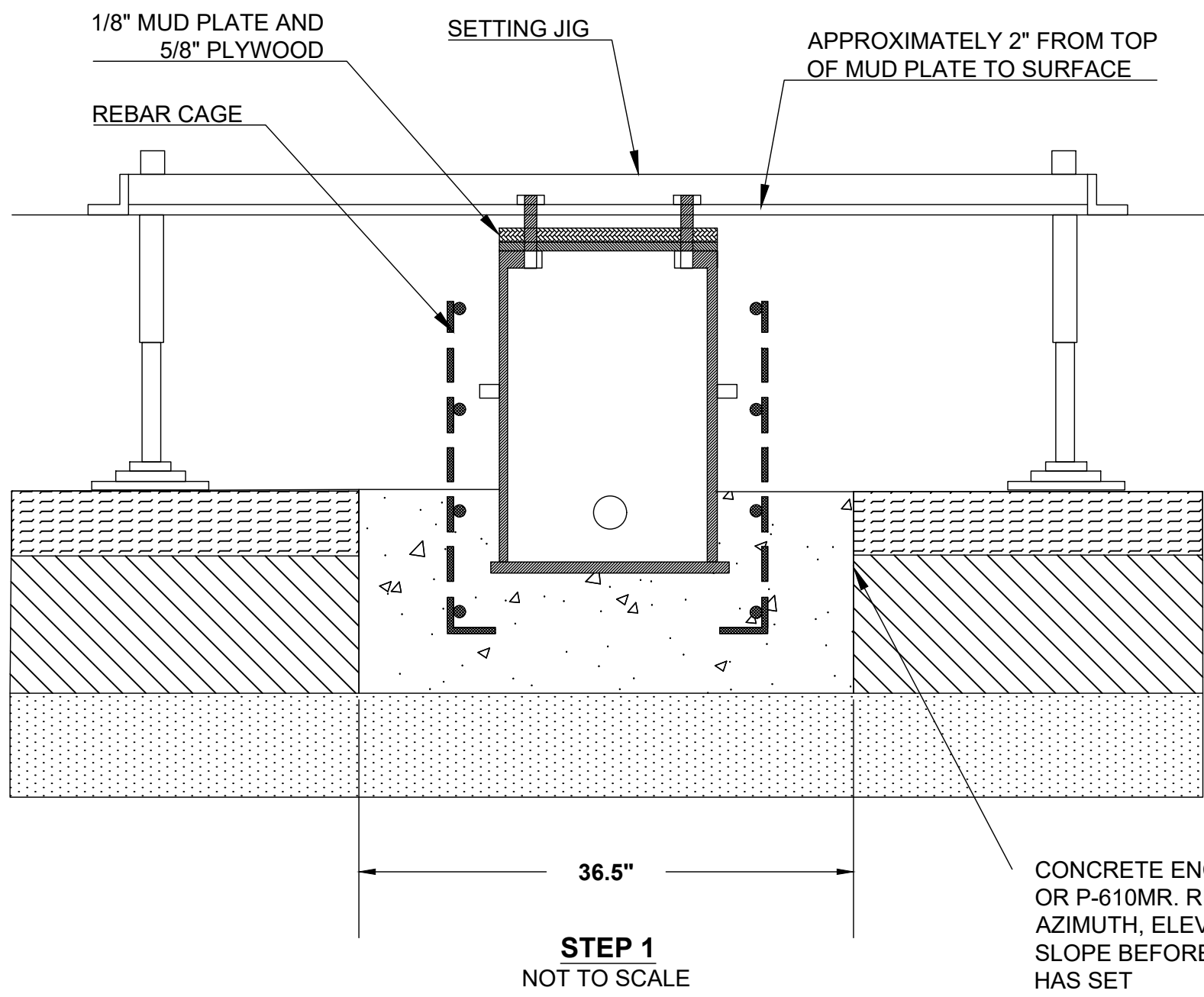
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER: G-601		
FILE: CC10-PNTG.DWG		

NAPTF CONSTRUCTION CYCLE 010

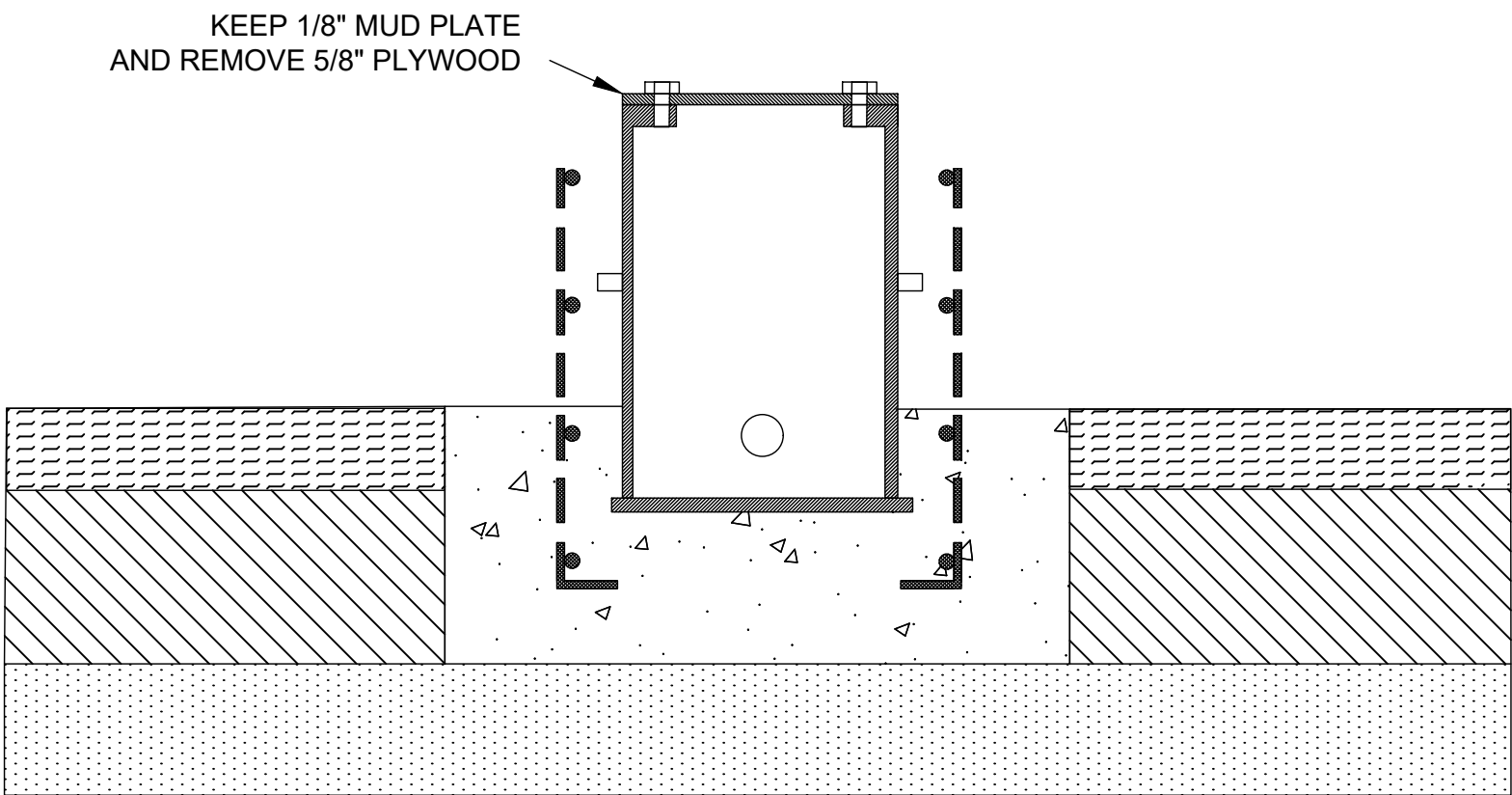
MARKING SCHEDULE

SIZE: ANSI D	SCALE: AS NOTED	SHEET 14 OF 55
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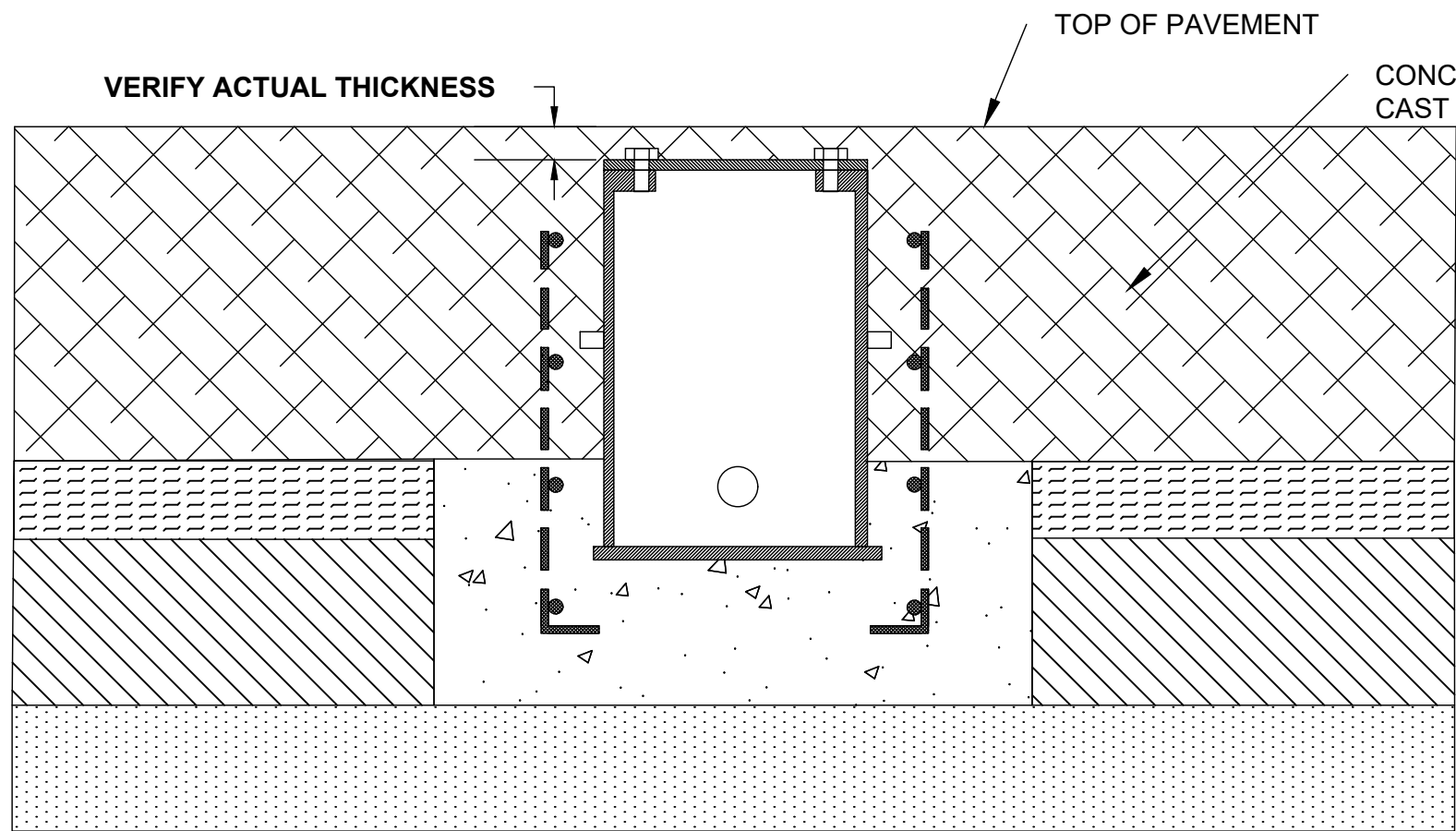


NOTES: STEP 1

1. COORDINATE LIGHT BASE INSTALLATION WITH PAVING OPERATION.
2. EXCAVATE, CORE, AND/OR AUGER 36.5 INCHES TO THE PROPER DEPTH TO ALLOW 6 INCHES CONCRETE ENCASEMENT UNDER NEW LIGHT BASES. COMPACT BOTTOM OF EXCAVATION.
3. USE MANUFACTURER'S SETTING JIG FOR PROPERLY ALIGNING NEW L-868B BASES. SECURE SETTING JIG TO PREVENT MOVEMENT DURING CONCRETE ENCASEMENT. INSTALL AND SECURE REBAR CAGE. THE VARIANCE FOR REQUIRED BASE LOCATION SHALL BE $\pm 1/4$ -INCH.
4. ALL LIGHT BASES SHALL BE PROPERLY POSITIONED, ALIGNED, AND INSPECTED PRIOR TO POURING CONCRETE. ANY BASE INSTALLED INCORRECTLY SHALL BE REMOVED AND REINSTALLED ACCORDING TO DESIGN CRITERIA. TIGHT CONNECTIONS MUST BE ASSURED TO PREVENT CONCRETE FROM ENTERING BASE. ENSURE CONCRETE DEPTH TO BE 6 INCHES MINIMUM BELOW LIGHT BASE AND 12 INCHES MINIMUM AROUND THE LIGHT BASE.

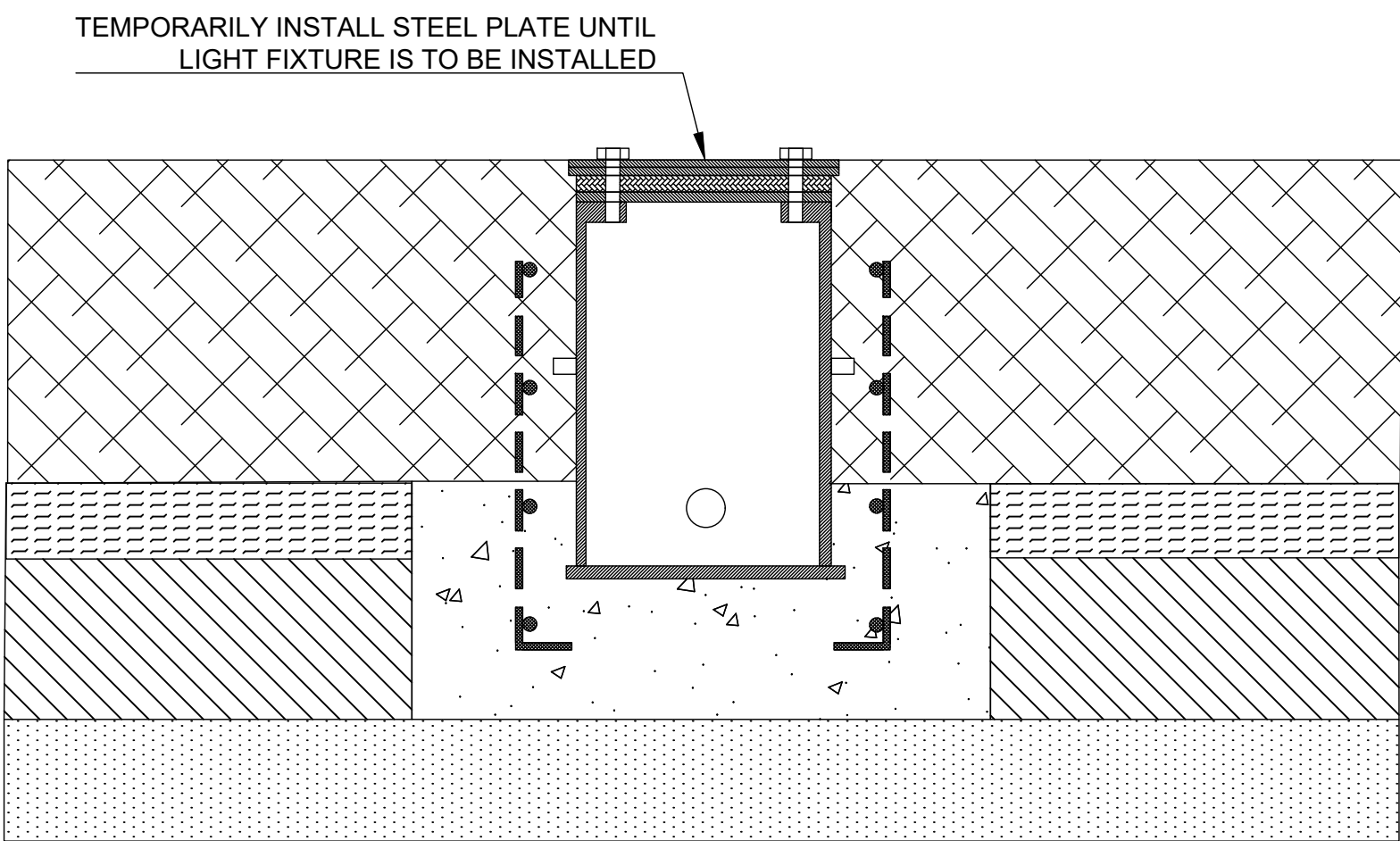


STEP 2
NOT TO SCALE



NOTES: STEP 3

1. SURVEY LOCATION OF BULLSEYE PRIOR TO PLACING P-501MR FOR PAVEMENT.
2. AFTER INITIAL CONCRETE SET, CORE 4-INCH DIAMETER PILOT HOLE TO LOCATE THE CENTER OF THE BULLSEYE PLATE (APPROXIMATELY 2.5 INCHES BELOW FINISHED GRADE). TAPE OR OTHER MEANS MAY BE USED AS A BOND BREAKER BETWEEN LIGHT BASE AND COMPOENTS AND THE CONCRETE TO FACILITATE CONCRETE REMOVAL.



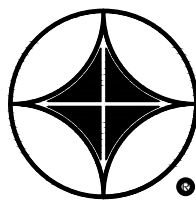
NOTES: STEP 4

1. AFTER FIXTURE OR COVER INSTALLATION, FILL THE ANNULAR SPACE BETWEEN THE FIXTURE BASE AND SURROUNDING PAVEMENT WITH P-606 SEALANT. ANNULAR SPACE SHALL BE 3/4-INCH WIDE. TOLERANCE: LESS THAN 1/2-INCH ON ANY SIDE WILL NOT BE ACCEPTED.
2. THE TOTAL THICKNESS OF THE SPACER RINGS SHALL BE NO MORE THAN 3/4-INCH IN HEIGHT. NO MORE THAN THREE RINGS SHALL BE USED.
3. DO NOT USE SHIPPING BOLTS. USE ONLY STAINLESS STEEL BOLTS INTENDED FOR LIGHT FIXTURE INSTALLATION. USE INDUSTRY ANTI-SEIZE COMPOUND (GREASE) IN PLACE OF LOCK WASHERS AND TORQUE PER MANUFACTURER'S RECOMMENDATIONS.

LEGEND:

- | | |
|--|---------|
| | P-501MR |
| | P-403MR |
| | P-154MR |
| | P-152MR |

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



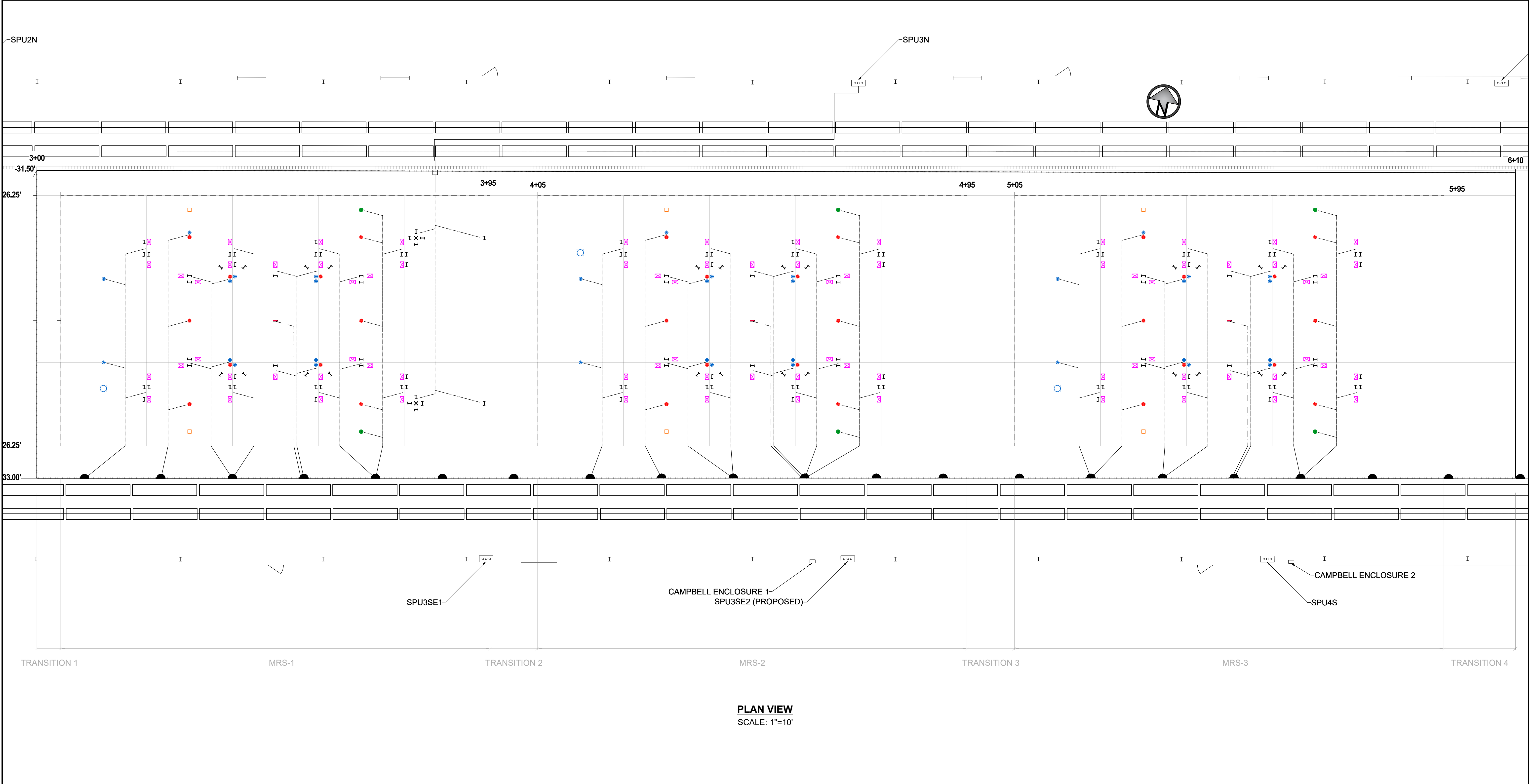
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	G-701	
FILE:	CC10-CONS-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010

IN PAVEMENT LIGHT FIXTURE INSTALLATION PROCESS

SIZE: ANSI D	SCALE: AS NOTED	SHEET 15 OF 55
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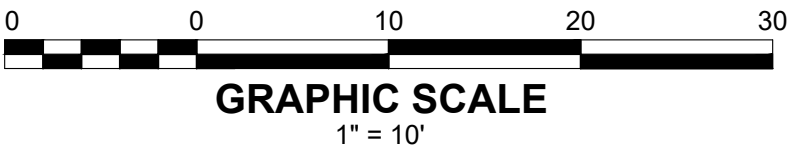


PLAN VIEW
SCALE: 1"=10'

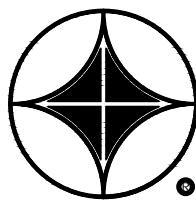
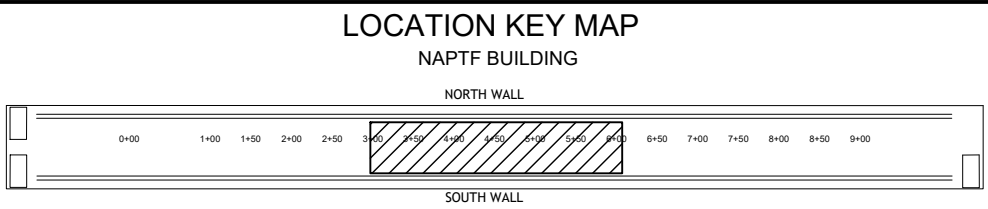
- NOTE(S):**
- 1. ALL CUTS TO BE NO GREATER THAN 3" WIDE AND 1" IN DEPTH.
 - 2. THE CUTS MUST BE FILLED WITH FLEXIBLE POURABLE GRADE SEALANT (PRO-SEAL 6006 EX OR EQUIVALENT) AFTER THE INSTRUMENTATION HAS BEEN INSTALLED.
 - 3. SEE SHEETS Q-201, Q-202, AND Q-203 FOR SENSOR LOCATION SCHEDULES.
 - 4. ROUTE INSTRUMENTATION CABLES FROM HANDHOLE TO SPU INDICATED ON SHEET Q-601 THROUGH EXISTING CONDUIT.

INSTRUMENT KEY			
SYMBOL	SENSOR TYPE	QUANTITY	DRAWING
	EDDY CURRENT SENSOR	33	Q-505, Q-506
	EMBEDDED STRAIN GAUGE	248	Q-501
	MOISTURE SENSOR	3	Q-507
	PRESSURE CELL	30	Q-504
	THERMOCOUPLE	24	Q-503
	RH SENSOR	6	Q-502
	PFG SENSOR	78	Q-509
	MIT SCAN-T2 TARGET	3	Q-508

- PCC JOINT
- HANDHOLE
- KERF
- LIGHT CANS
- DIRECT BURY CABLE IN P-152
- QUAZITE BOX



NO.	REVISIONS	DATE	BY	CHK	APR
		12/02/2022		C.T.	
	FOR BID				



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NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



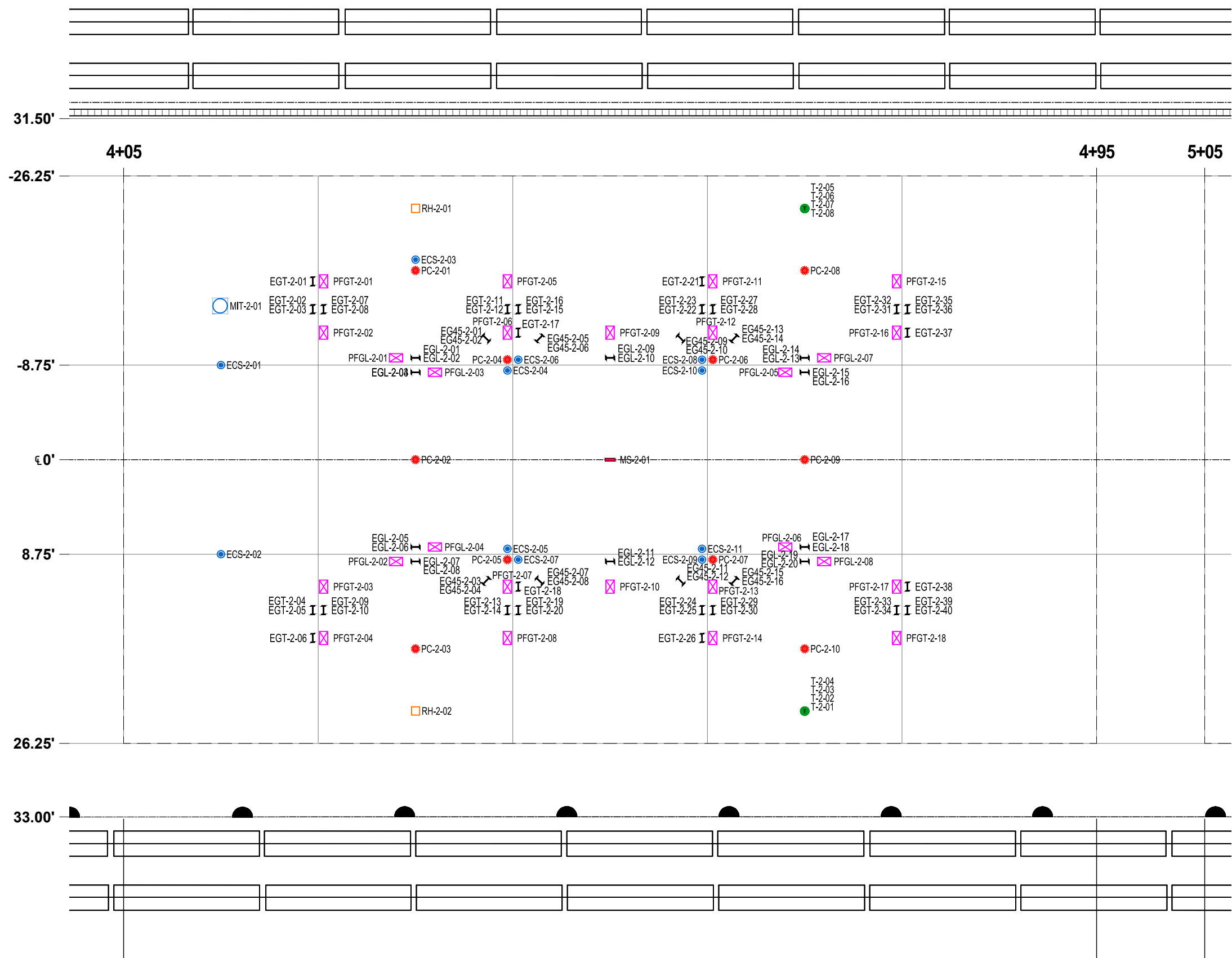
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-101	
FILE:	CC10-INST-PLAN-B.DWG	

NAPTF CONSTRUCTION CYCLE 010

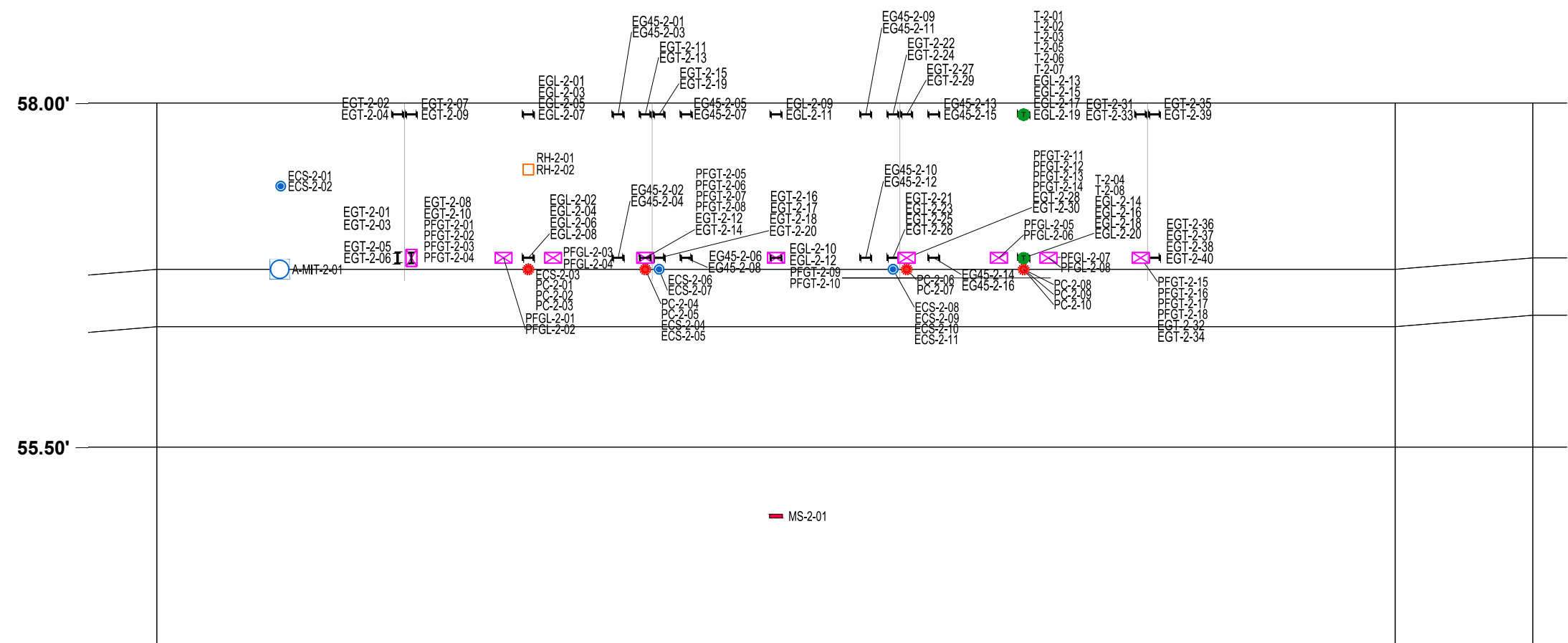
INSTRUMENTATION PLAN AND CABLE ROUTING

SIZE: ANSI D SCALE: AS NOTED SHEET 16 OF 55



PLAN VIEW STATION 4+00 TO 5+00

SCALE: 1"=10'



PROFILE VIEW STATION 4+00 TO 5+00

HORIZONTAL SCALE: 1"=10'

VERTICAL SCALE: 1"=1'

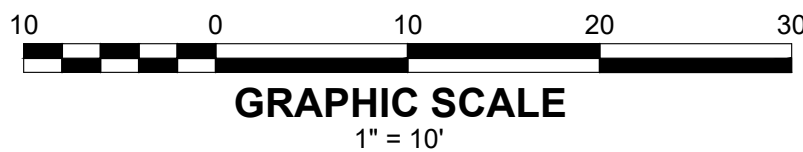
NOTE(S):

- ROUTE INSTRUMENTATION CABLES TO HANDHOLES PER SHEET Q-101.

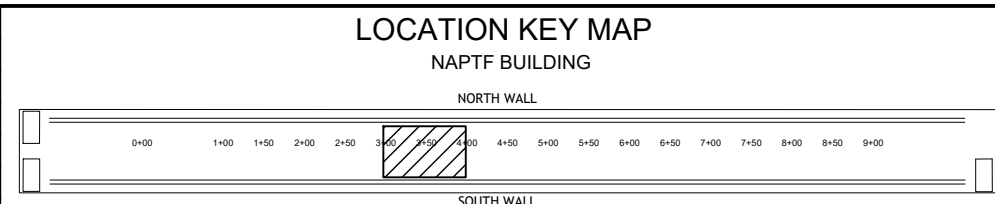
ACRONYM	DESCRIPTION
ECS	EDDY CURRENT SENSOR
ECSJ	EDDY CURRENT SENSOR (JOINT MONITORING ORIENTATION)
EG45	EMBEDDED STRAIN GAUGE (45DEG ORIENTATION)
EGL	EMBEDDED STRAIN GAUGE (LONGITUDINAL ORIENTATION)
EGT	EMBEDDED STRAIN GAUGE (TRANSVERSE ORIENTATION)
MIT	MIT REFLECTOR PLATE LOCATION
MS	MOISTURE SENSOR
PC	PRESSURE CELL
PFGL	PIEZO-FLOATING GATE SENSOR (LONGITUDINAL ORIENTATION)
PFGT	PIEZO-FLOATING GATE SENSOR (TRANSVERSE ORIENTATION)
RH	RELATIVE HUMIDITY SENSOR
T	THERMOCOUPLE

LEGEND:

INSTRUMENT KEY			
SYMBOL	SENSOR TYPE	QUANTITY	DRAWING
	EDDY CURRENT SENSOR	11	Q-505, Q-506
	EDDY CURRENT SENSOR	76	Q-501
	EMBEDDED STRAIN GAUGE	1	Q-507
	MOISTURE SENSOR	10	Q-504
	PRESSURE CELL	8	Q-503
	THERMOCOUPLE	2	Q-502
	RH SENSOR	26	Q-509
	PFG SENSOR	1	Q-508



NO.	REVISIONS	DATE	BY	CHK	APR
		12/02/2022		C.T.	



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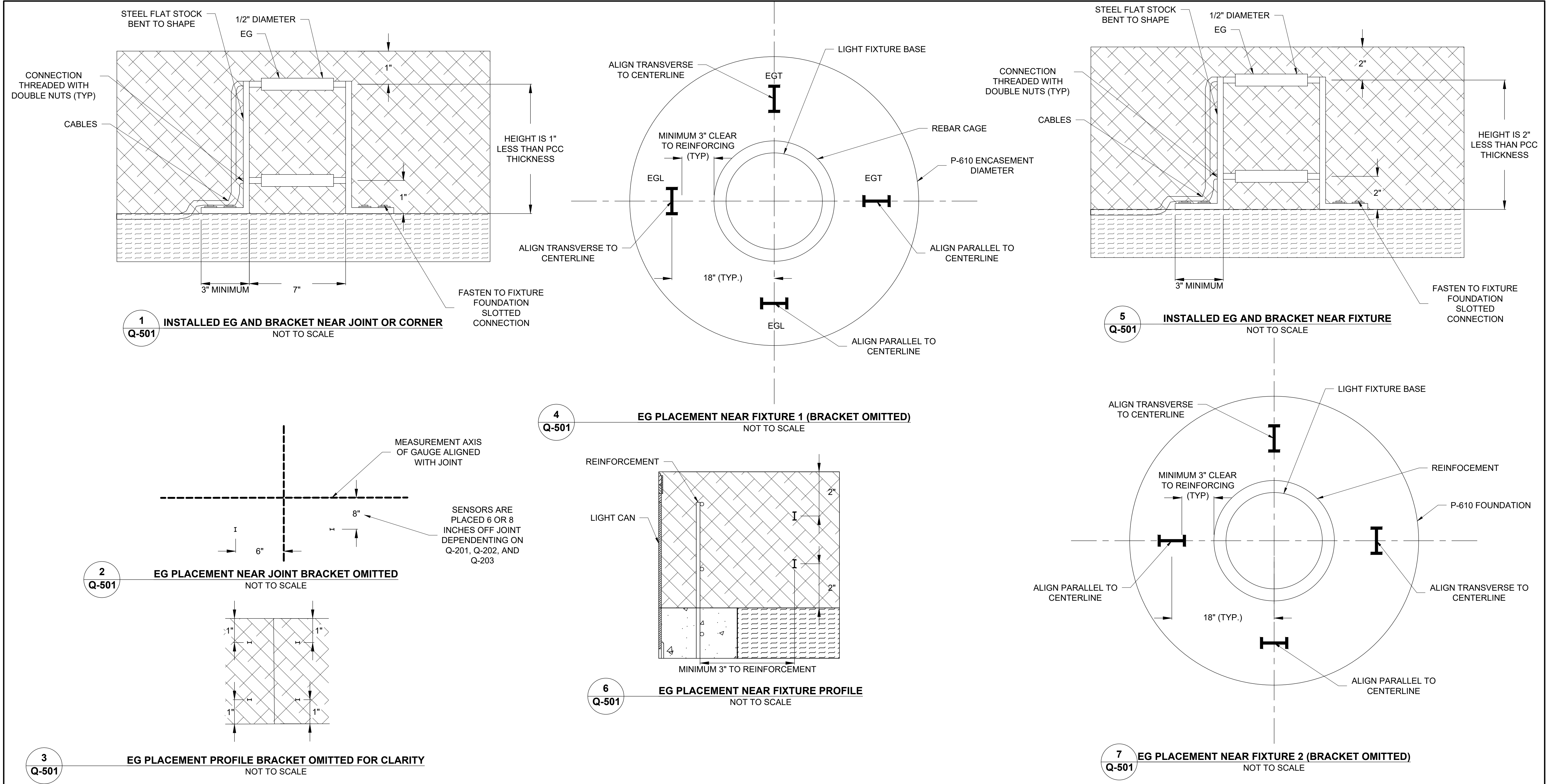
FOR



NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-02
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-202	
FILE:	CC10-INST-PLAN-B.DWG	

NAPTF CONSTRUCTION CYCLE 010		
INSTRUMENTATION PLAN AND PROFILE MRS-2		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 18 OF 55



- NOTE(S):**
- 1. EG = EMBEDDED STRAIN GAUGE.
 - 2. SEE 4/Q-901 FOR PHOTO OF GAUGES AND BRACKET BEFORE PCC PLACEMENT.
 - 3. X, Y, Z LOCATIONS FOR ALL SENSORS PROVIDED ON Q-201, Q-202, AND Q-203.

- LEGEND:**
- EG
 - PCC JOINT
 - P-154MR SUBBASE COURSE
 - P-403MR ASPHALT MIX PAVEMENT BASE COURSE
 - P-501MR - CEMENT CONCRETE PAVEMENT
 - P-610MR - CONCRETE

FOR BID				12/02/2022			C.T.				
NO.	REVISIONS			DATE	BY	CHK	APR				



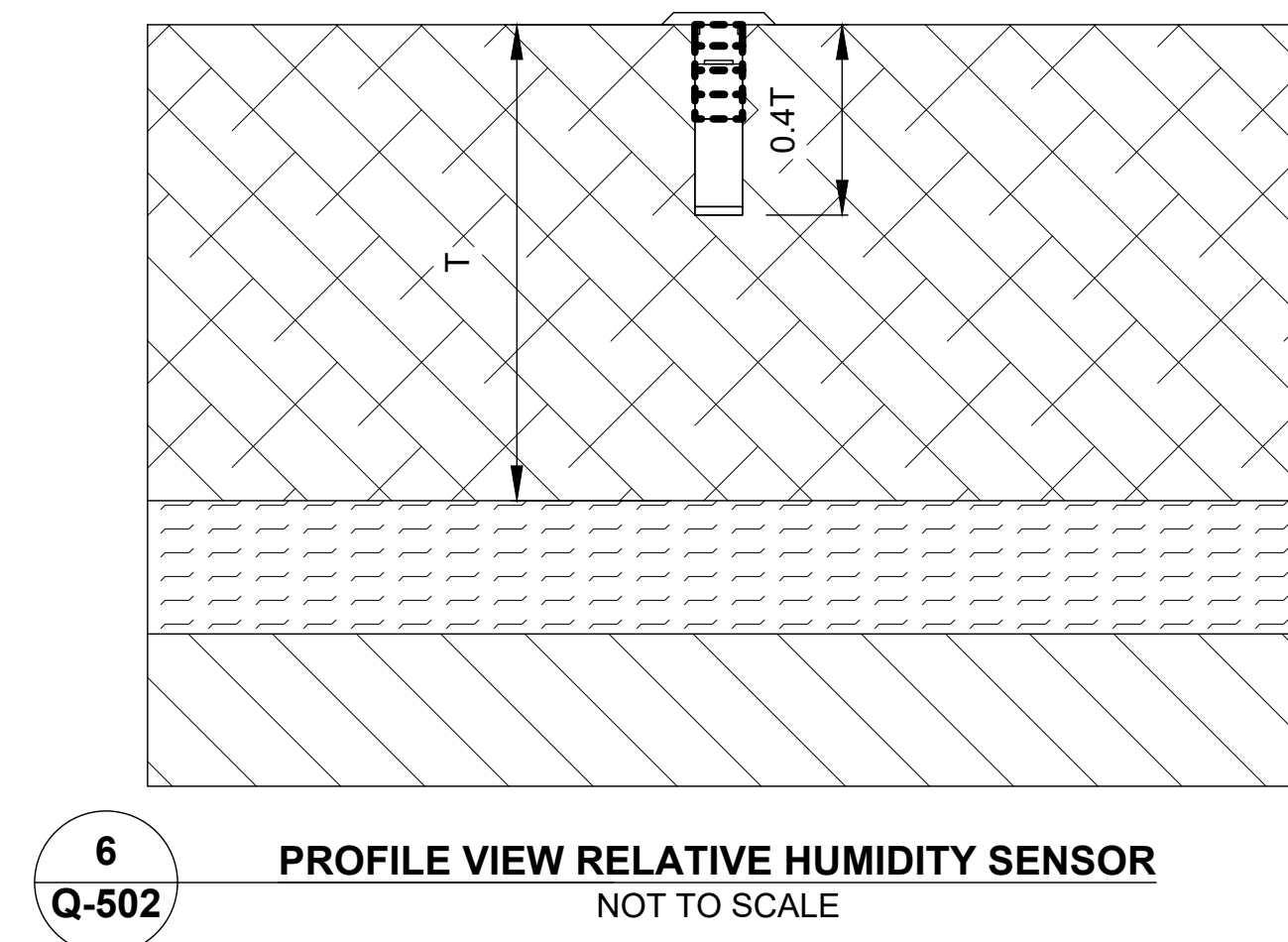
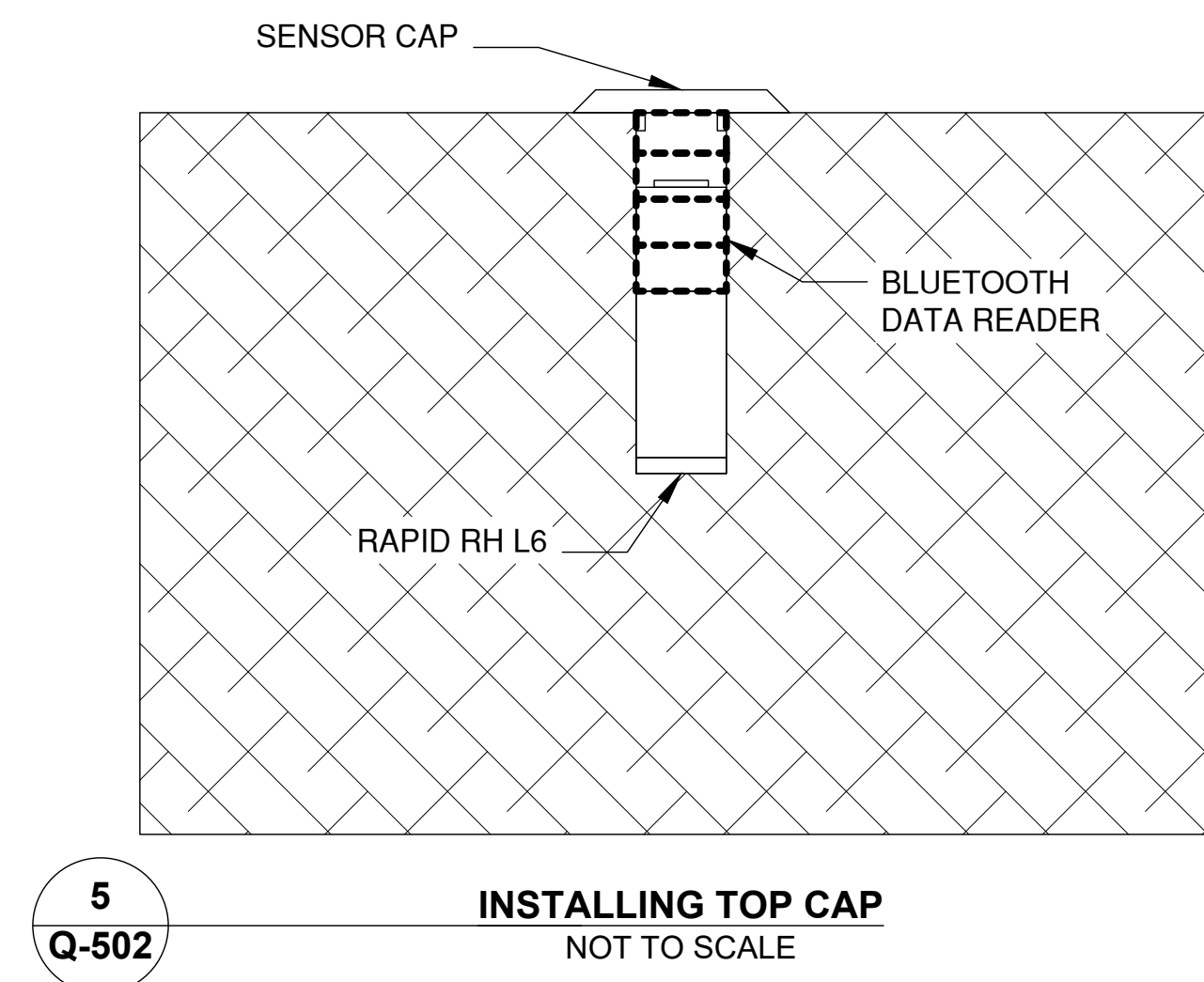
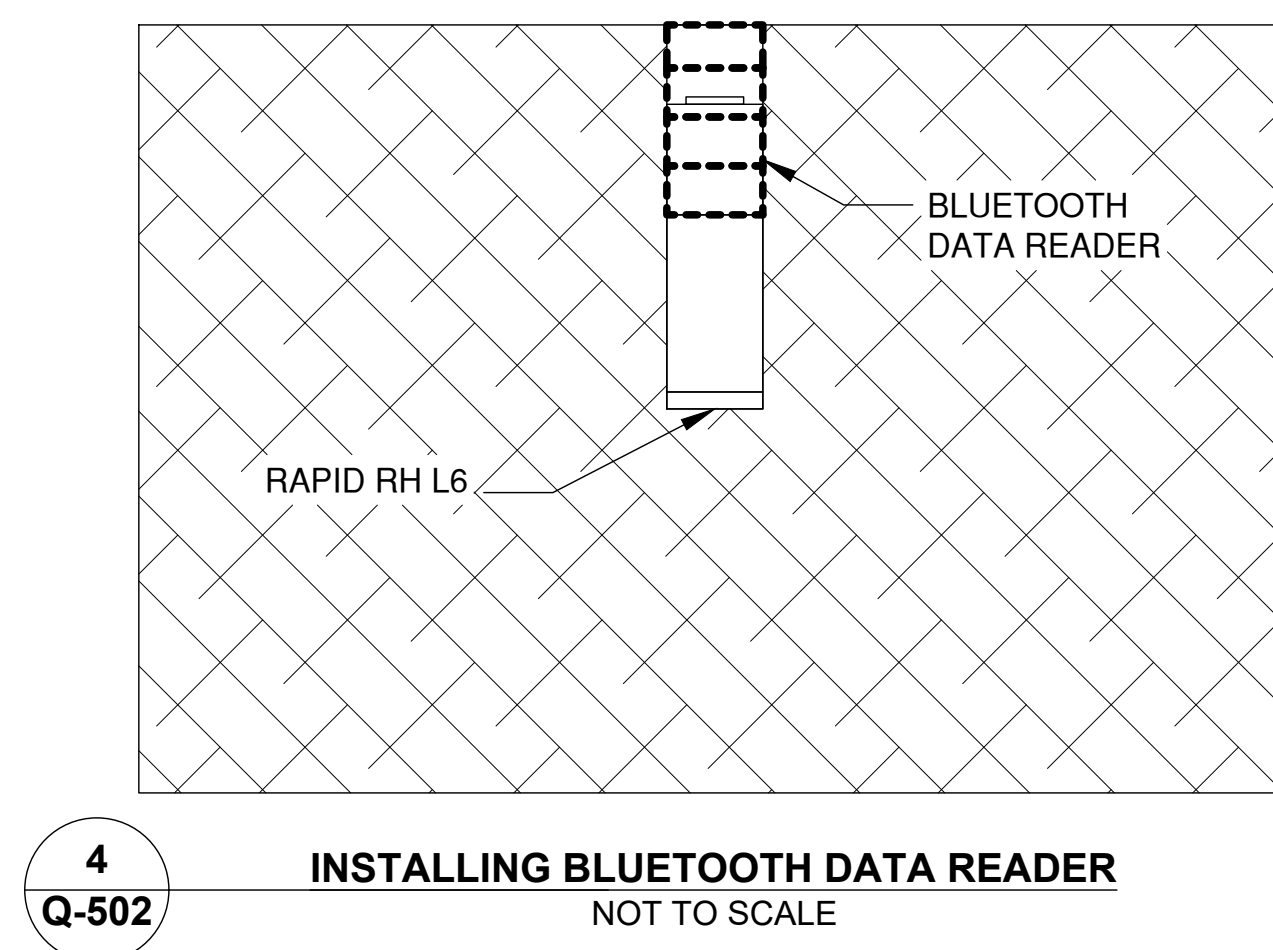
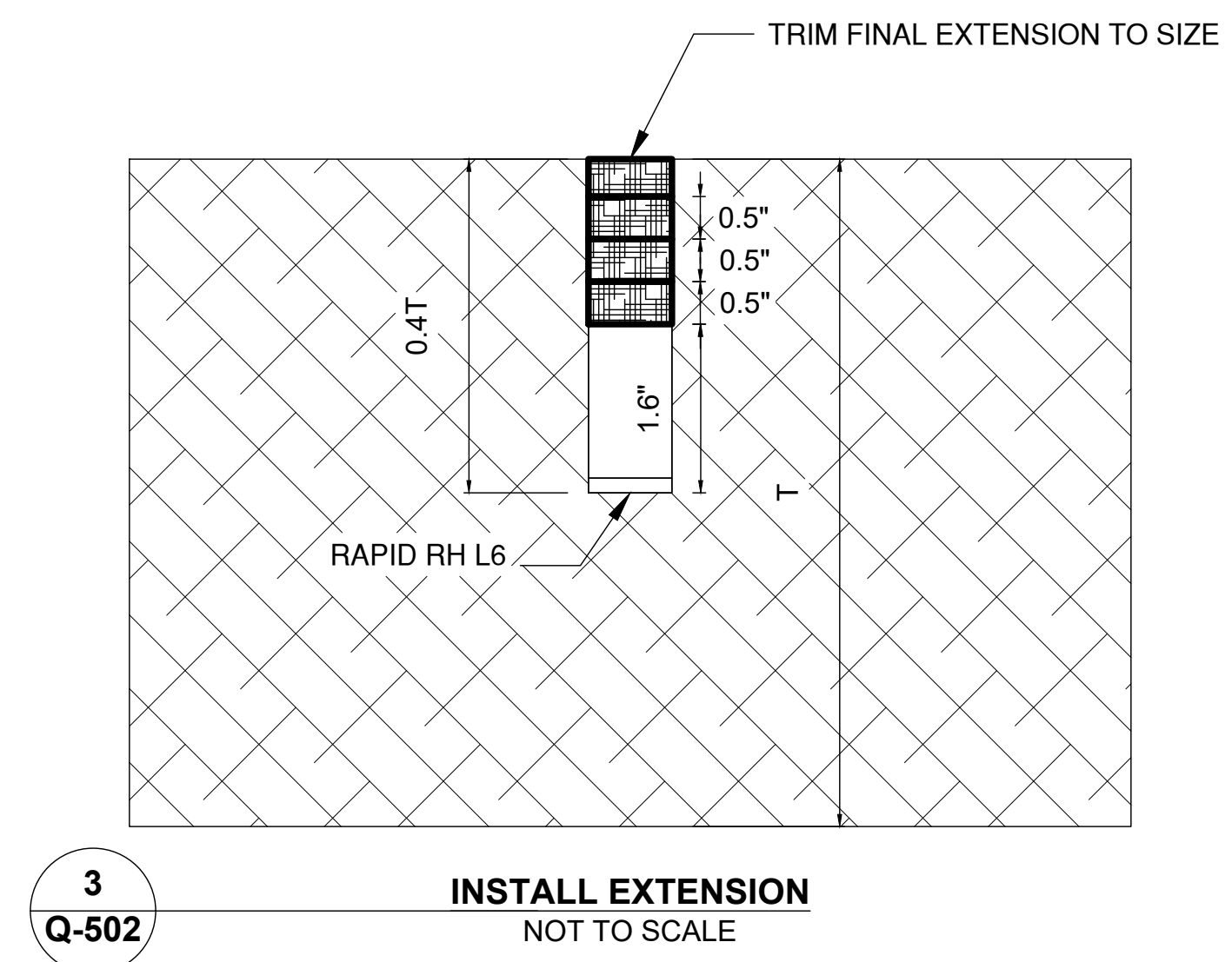
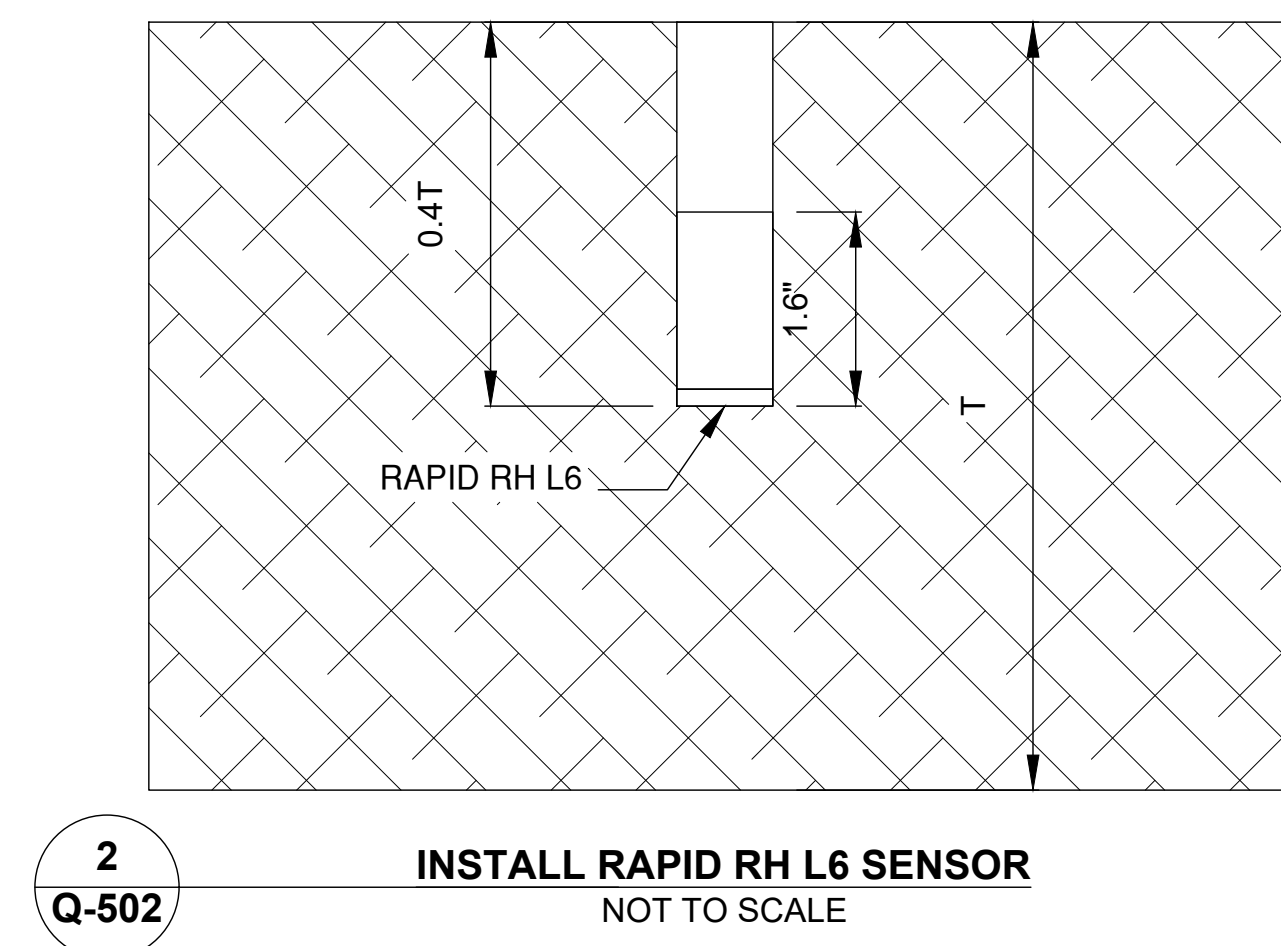
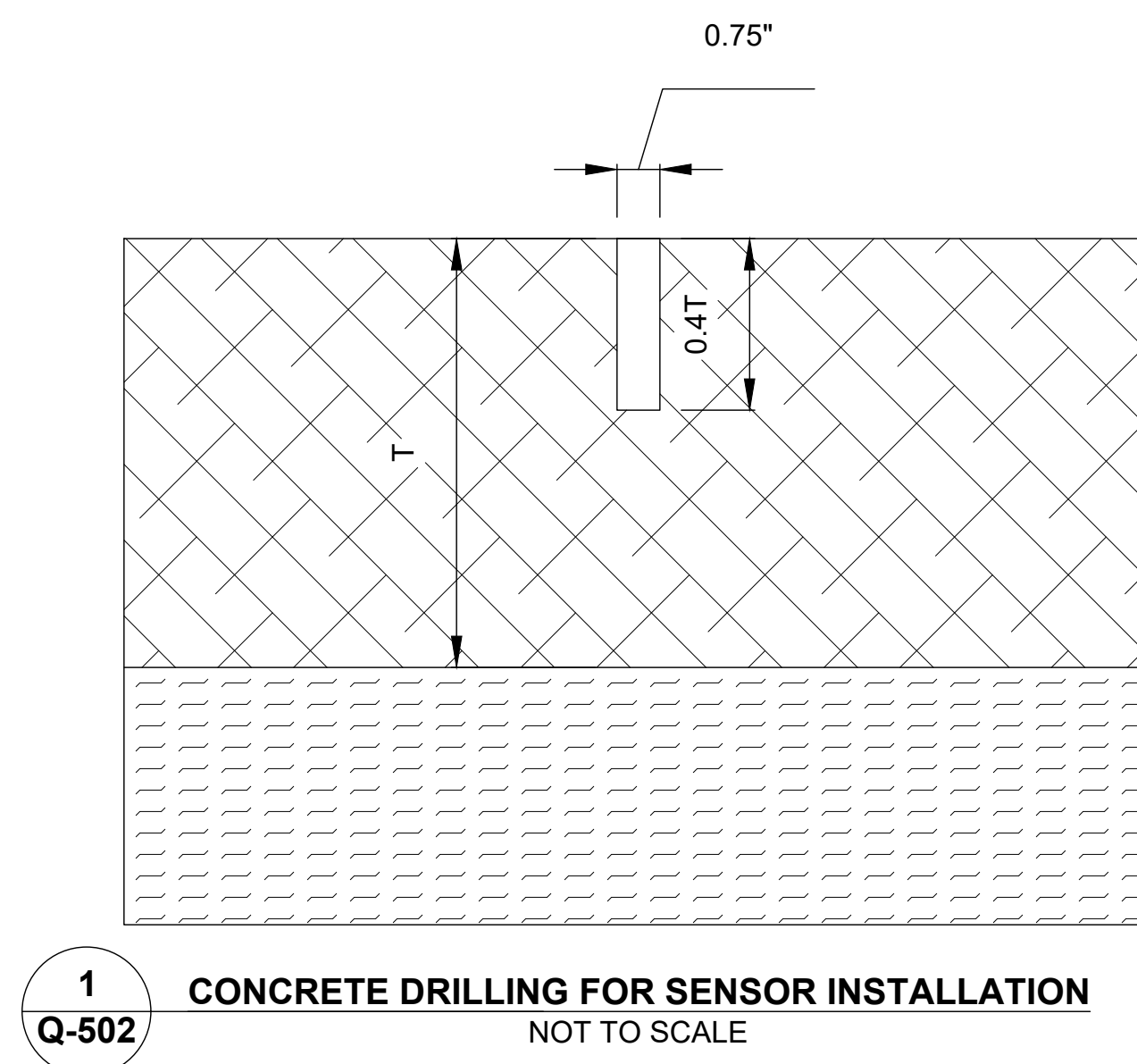
APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR

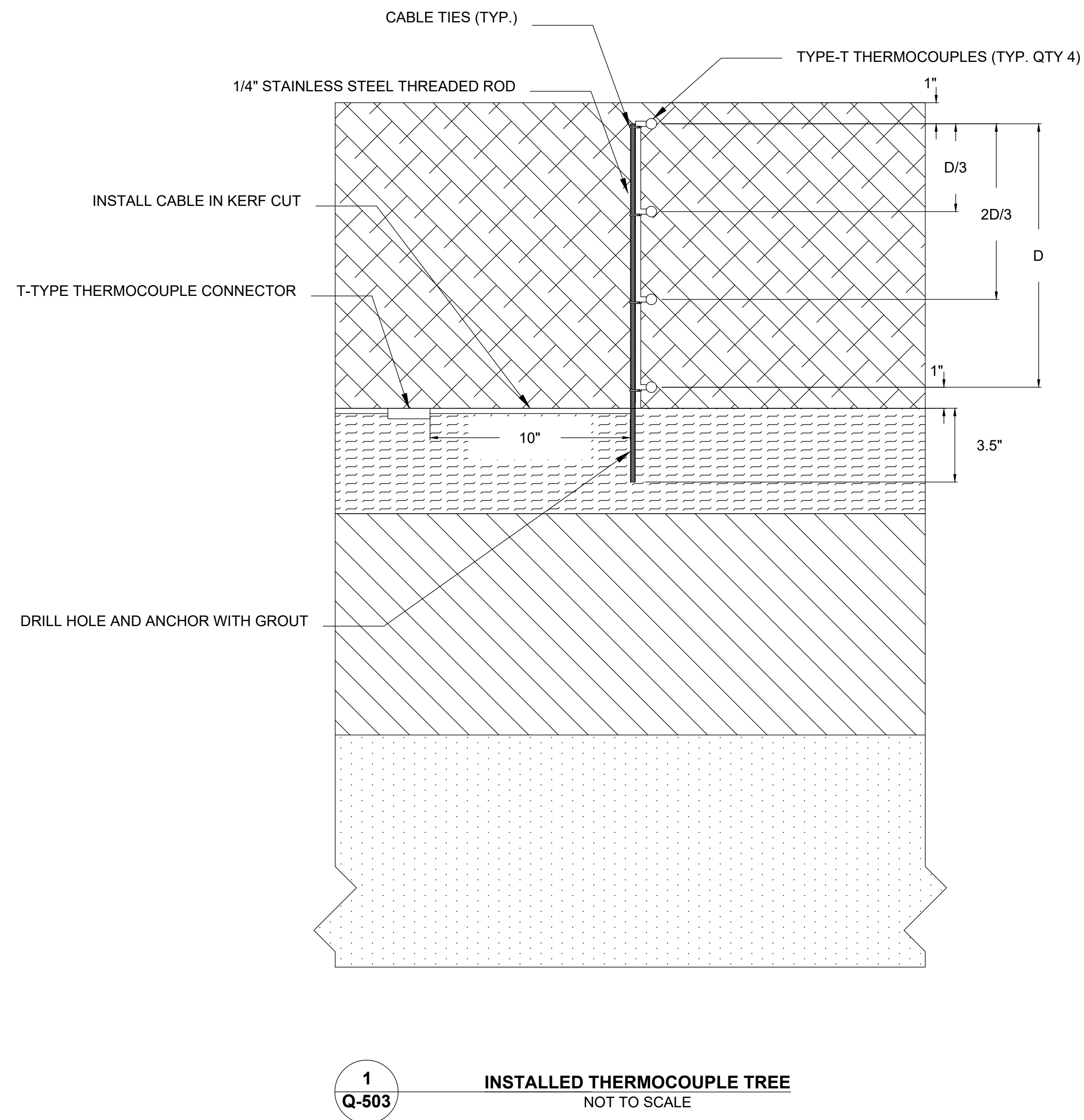


NATIONAL AIRPORT PAVEMENT TEST FACILITY
ATLANTIC CITY AIRPORT
NEW JERSEY 08234

DRAWN	NAME	DATE	NAPTF CONSTRUCTION CYCLE 010 PAVEMENT STRAIN GAUGE SENSOR DETAIL			
CHECKED	C.TOMLINSON					
DRAWING NUMBER: Q-501						
FILE: CC10-INST-PLAN.DWG		SIZE: ANSI D	SCALE: AS NOTED	SHEET 20 OF 55		



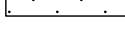
SIZE: ANSI D	SCALE: AS NOTED	SHEET 21 OF 55
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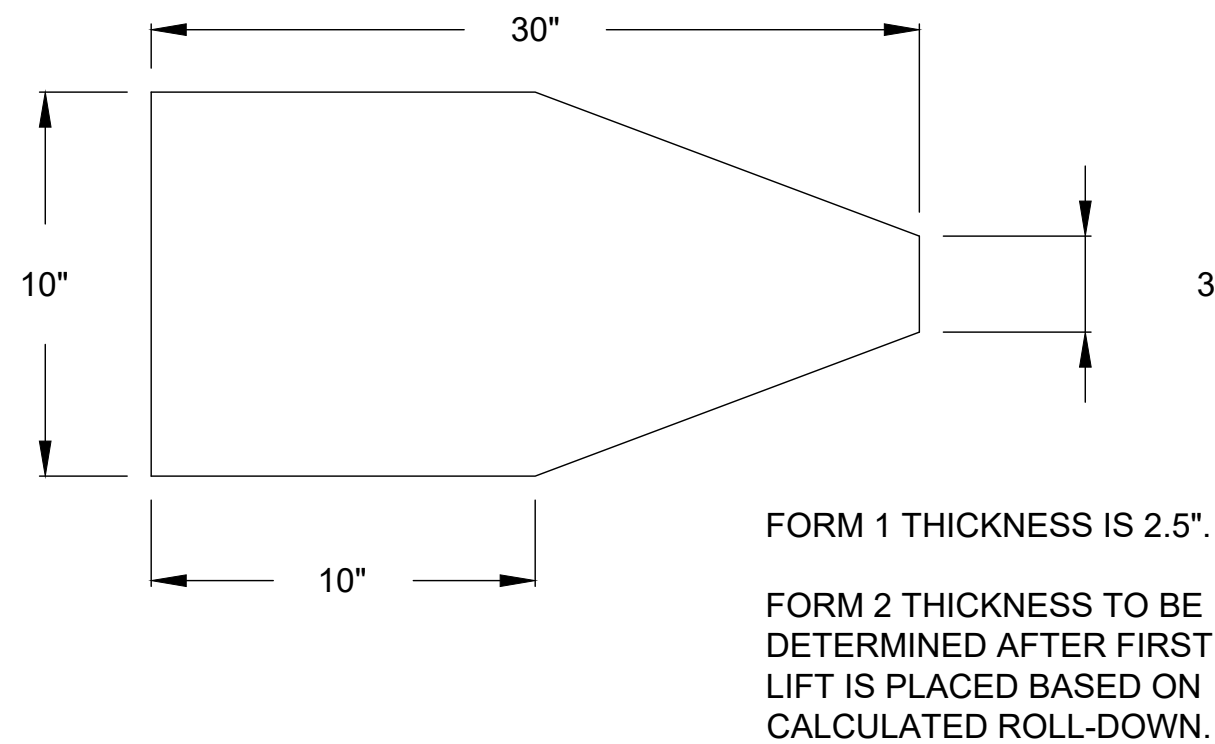
NOTE(S):

1. D = THICKNESS OF PCC MINUS 2".
2. SEE 4/Q-901 FOR PHOTO OF ASSEMBLY BEFORE PCC PLACEMENT.
3. X, Y, Z LOCATIONS FOR ALL SENSORS PROVIDED ON Q-201, Q-202, AND Q-203.

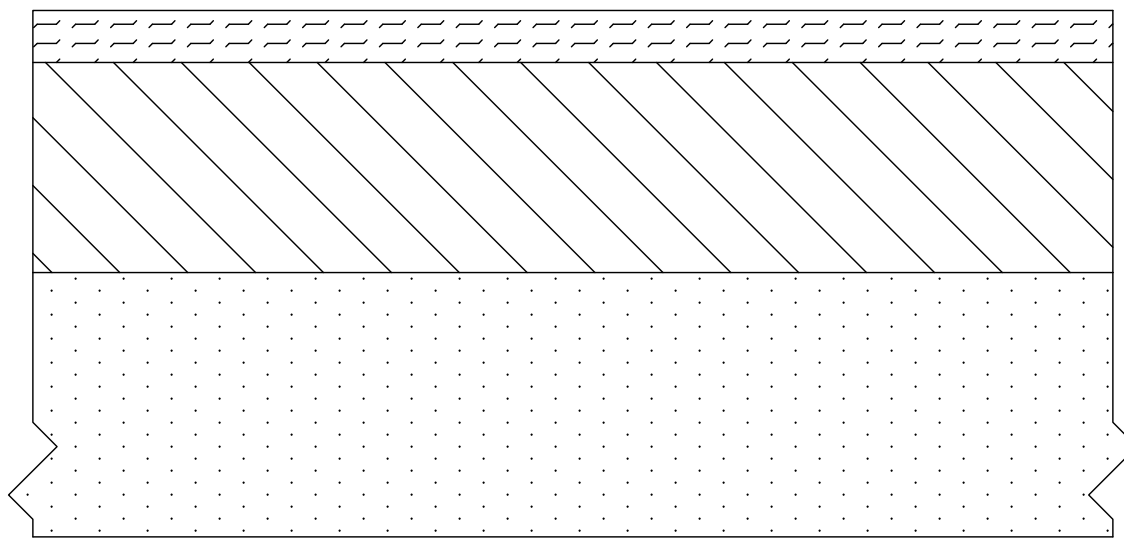
LEGEND:

- | | |
|---|--|
|  | P-152MR SUBGRADE - DUPONT CLAY (7-8 CBR) |
|  | P-154MR SUBBASE COURSE |
|  | P-403MR ASPHALT MIX PAVEMENT BASE COURSE |
|  | P-501MR - CEMENT CONCRETE PAVEMENT |

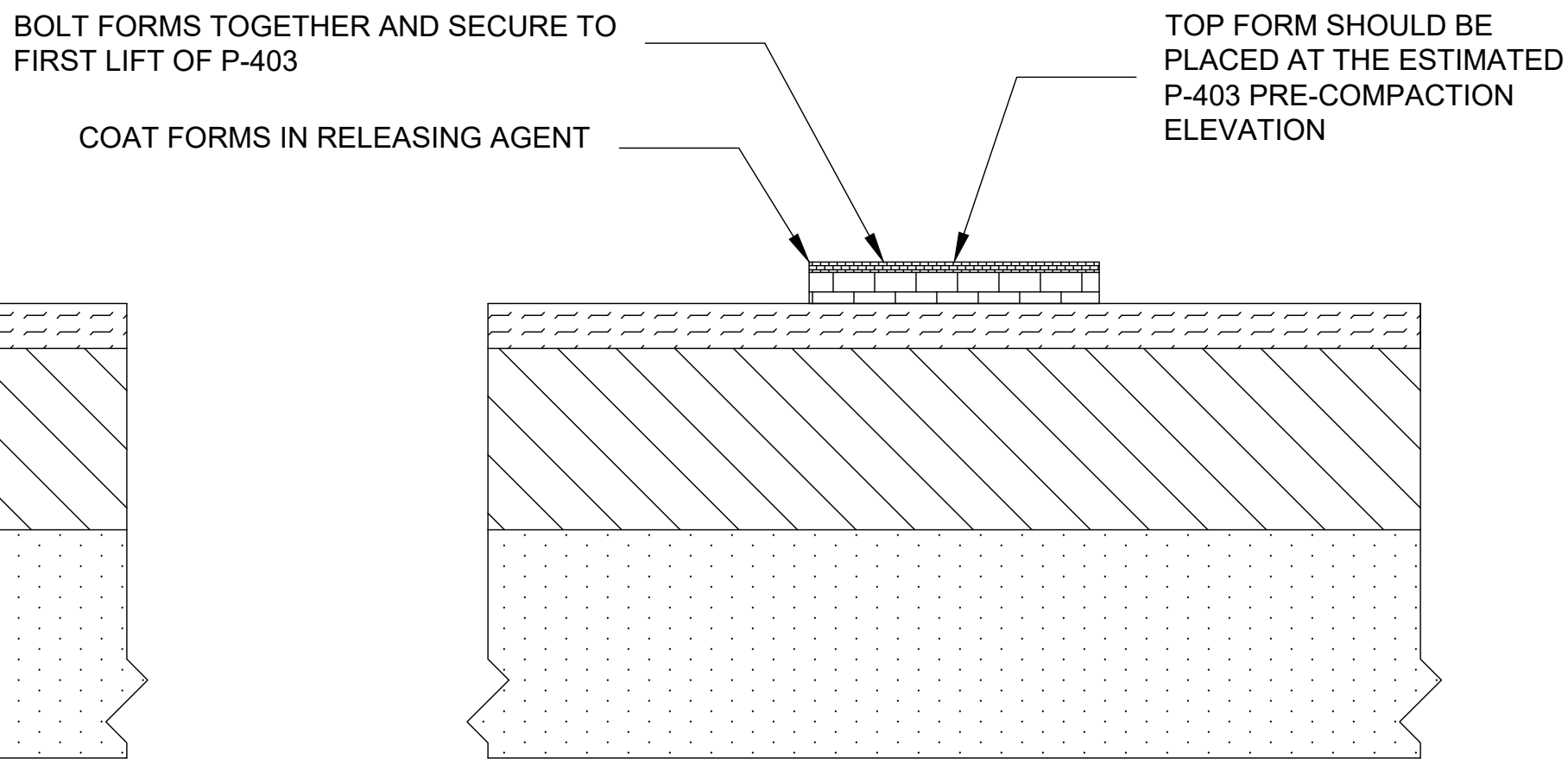
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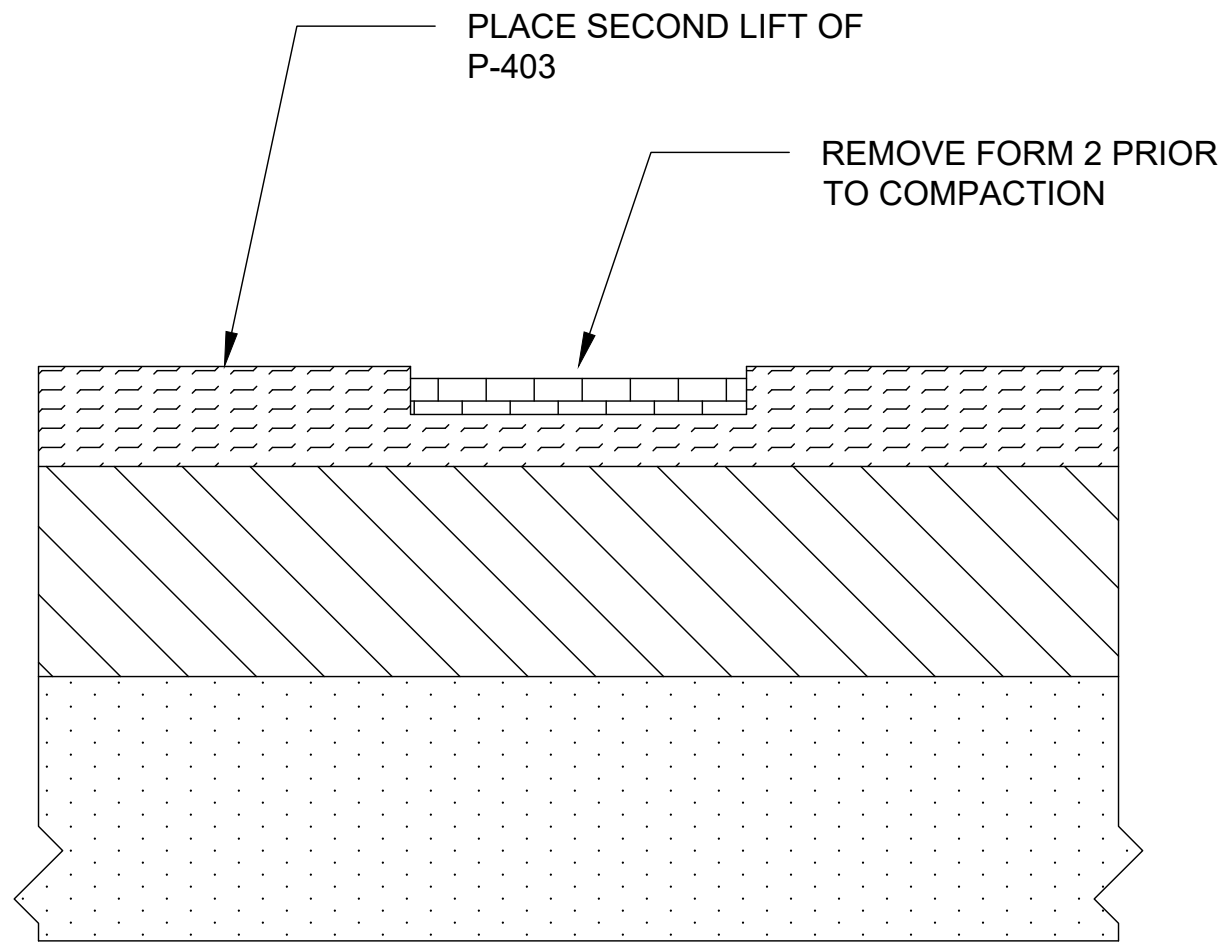
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Q-504
CREATE PRESSURE CELL FORMS
NOT TO SCALE



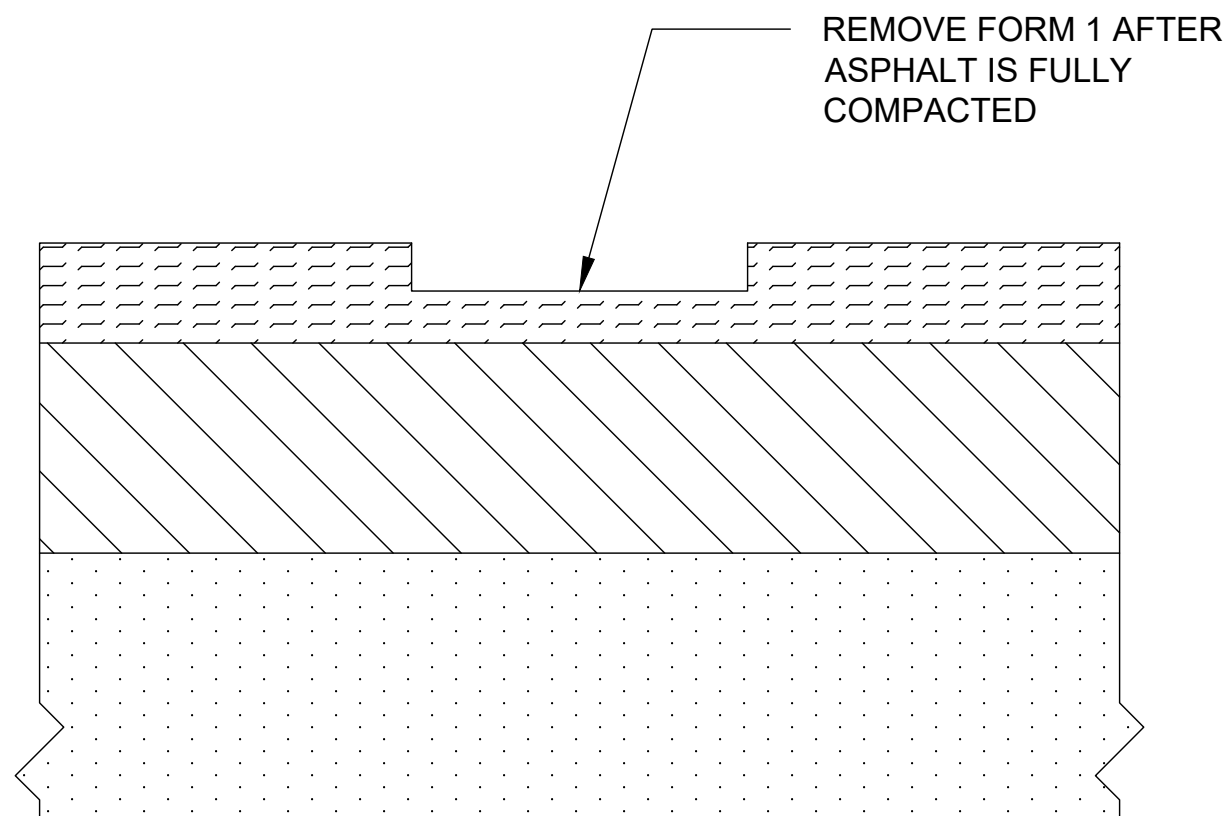
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Q-504
PLACE FIRST LIFT OF P-403
NOT TO SCALE



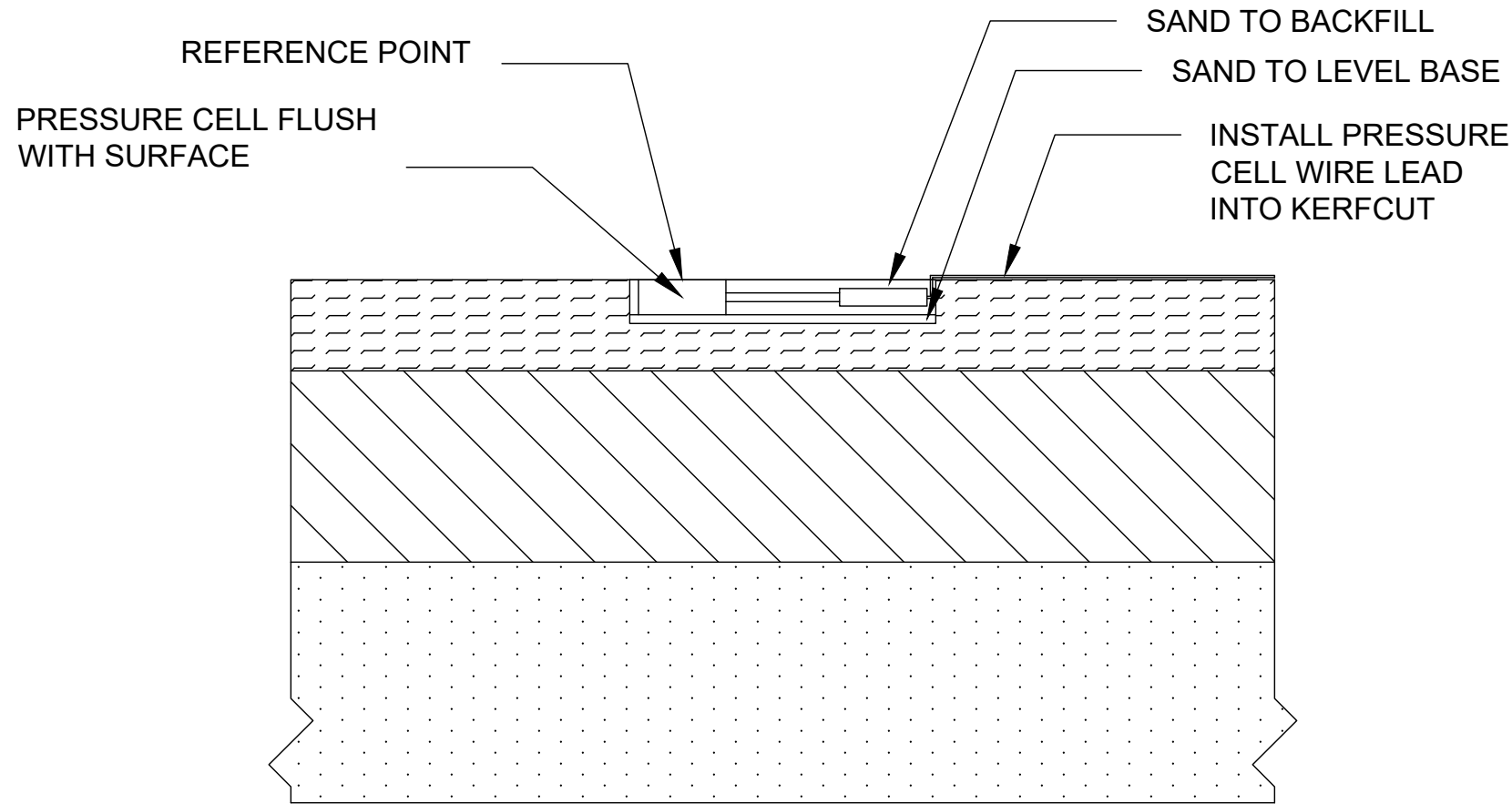
3
Q-504
PLACE PRESSURE CELL FORM
NOT TO SCALE



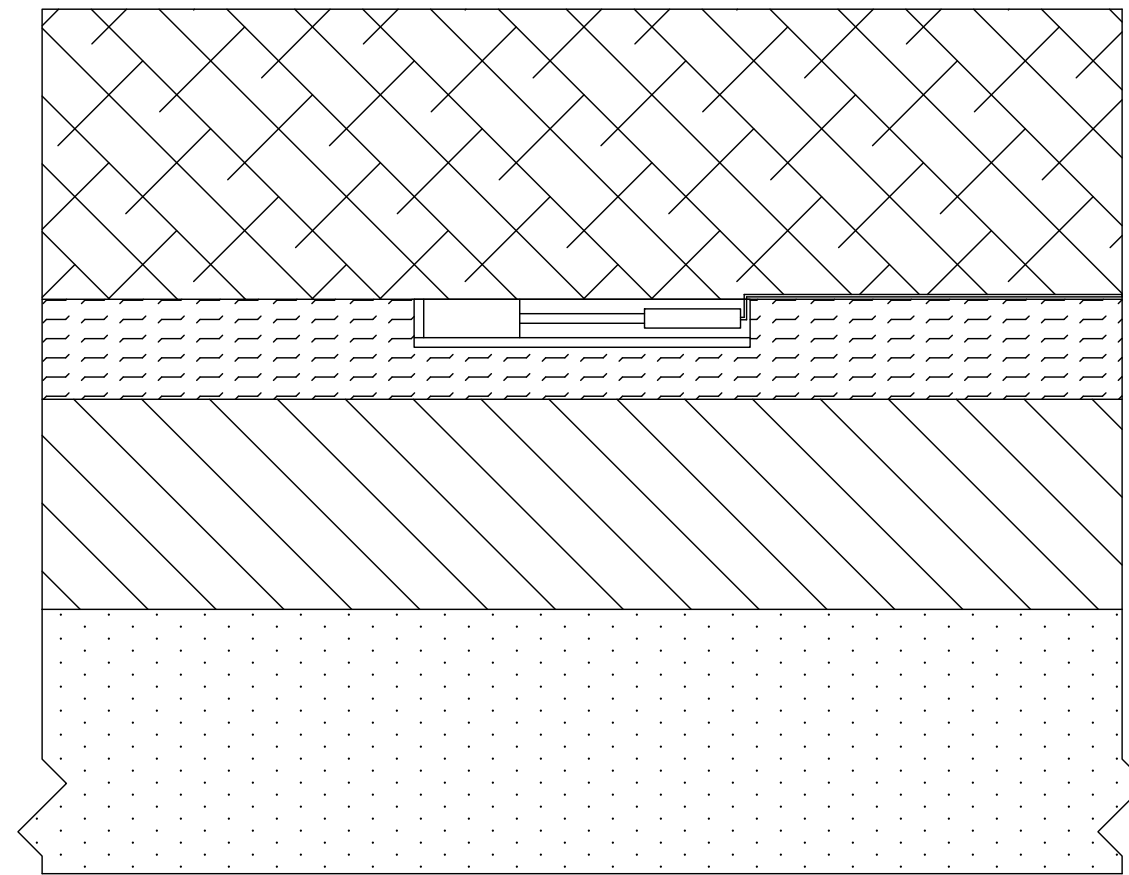
4
Q-504
PLACE SECOND LIFT OF P-403 AND REMOVE PRESSURE CELL FORM 2
NOT TO SCALE



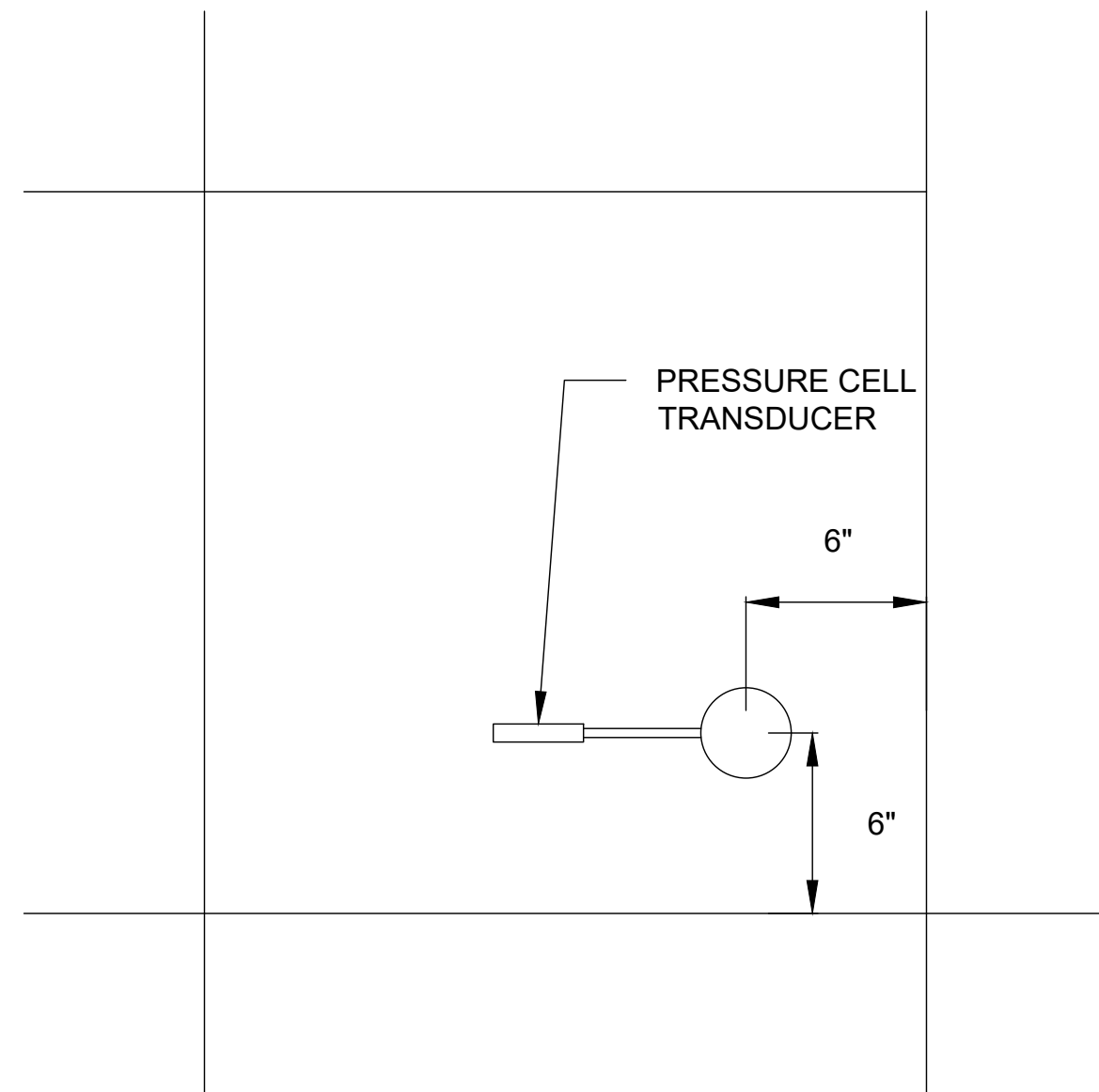
5
Q-504
REMOVE PRESSURE CELL FORM 1
NOT TO SCALE



6
Q-504
PLACEMENT OF PRESSURE CELL
NOT TO SCALE



7
Q-504
PLACEMENT OF P-501
NOT TO SCALE



8
Q-504
PRESSURE CELL ORIENTATION AT CORNER OF SLAB
NOT TO SCALE

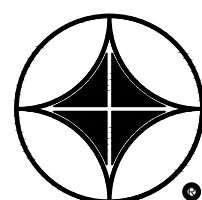
NOTE(S):

- ORIENT PRESSURE CELL TRANSDUCER EAST OR WEST TOWARD KERF CUT LOCATION IN Q-101.
- SAND WILL BE USED TO BOTH LEVEL THE PRESSURE CELL FLUSH WITH THE SURFACE, AS WELL AS BACKFILLING THE SENSOR POST LEVELING.
- X, Y, Z LOCATIONS FOR ALL SENSORS PROVIDED ON Q-201, Q-202, AND Q-203.

LEGEND:

	P-152MR SUBGRADE - DUPONT CLAY (7-8 CBR)		FORM 1
	P-154MR SUBBASE COURSE		FORM 2
	P-403MR ASPHALT MIX PAVEMENT BASE COURSE		
	P-501MR CEMENT CONCRETE PAVEMENT		

NO.	FOR BID	REVISIONS	DATE	BY	CHK	APR
			12/02/2022		C.T.	



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2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



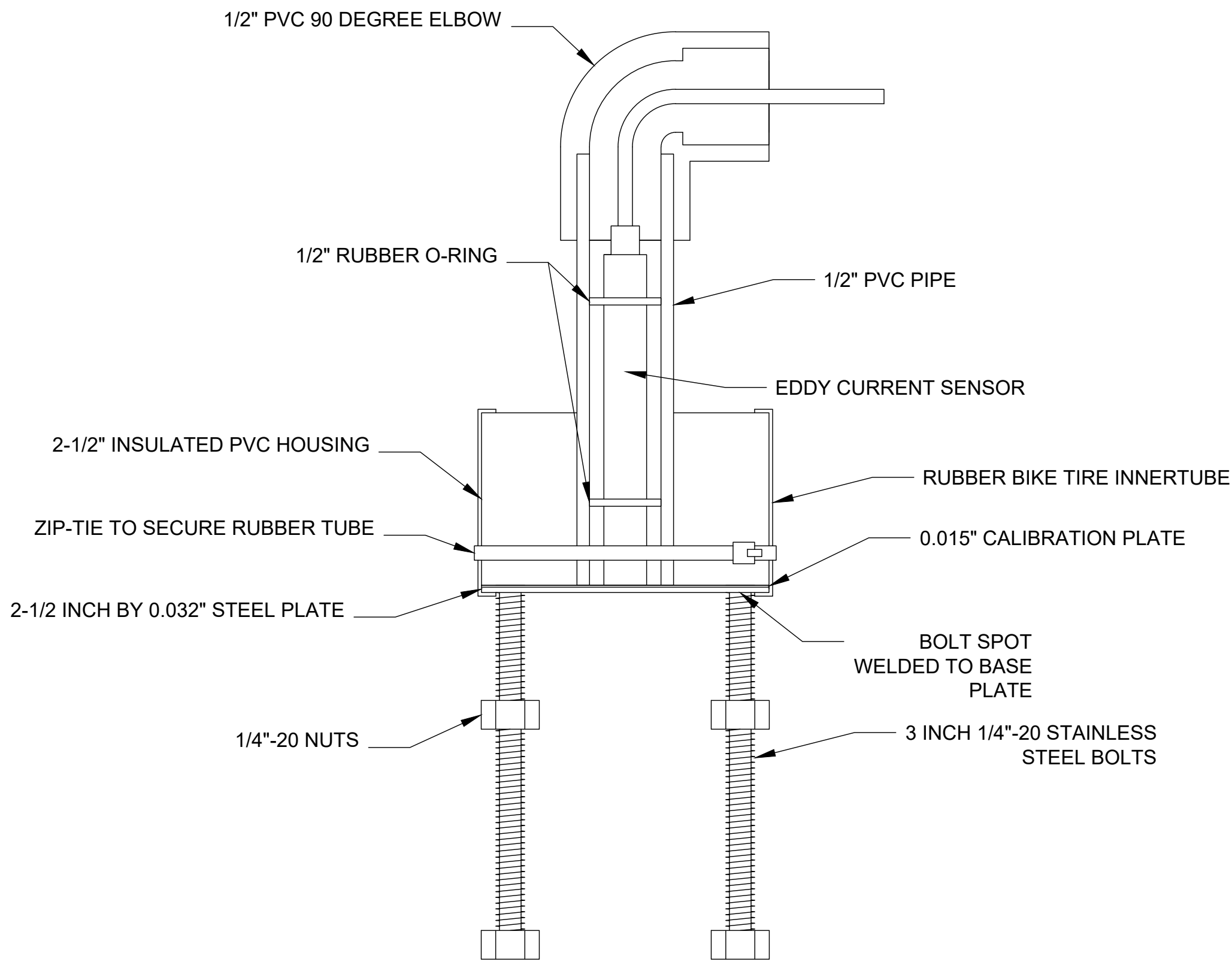
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

DRAWN	NAME ARA	DATE 2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-504	
FILE:	CC10-INST-PLAN.DWG	

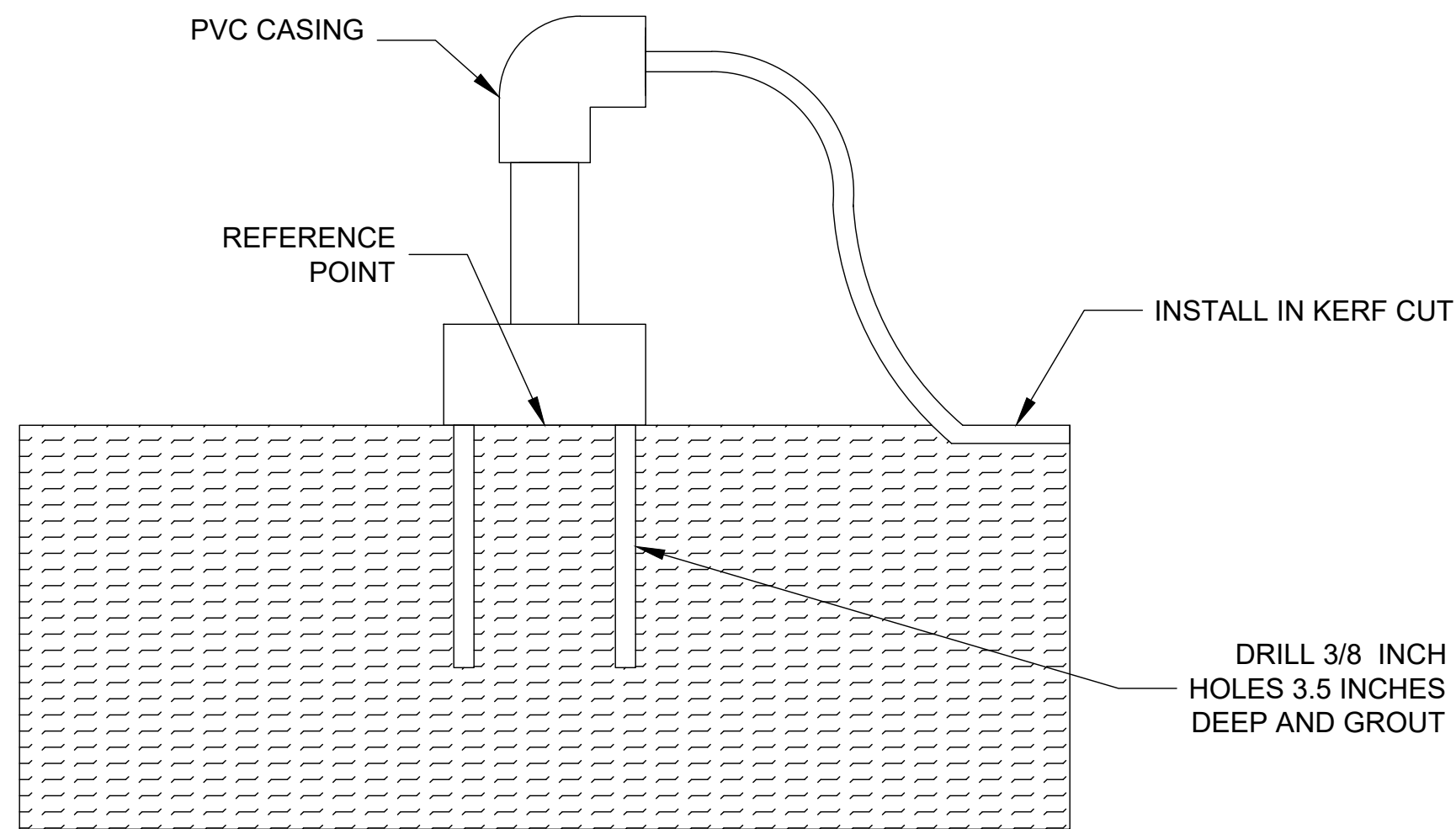
NAPTF CONSTRUCTION CYCLE 010

PRESSURE CELL DETAIL

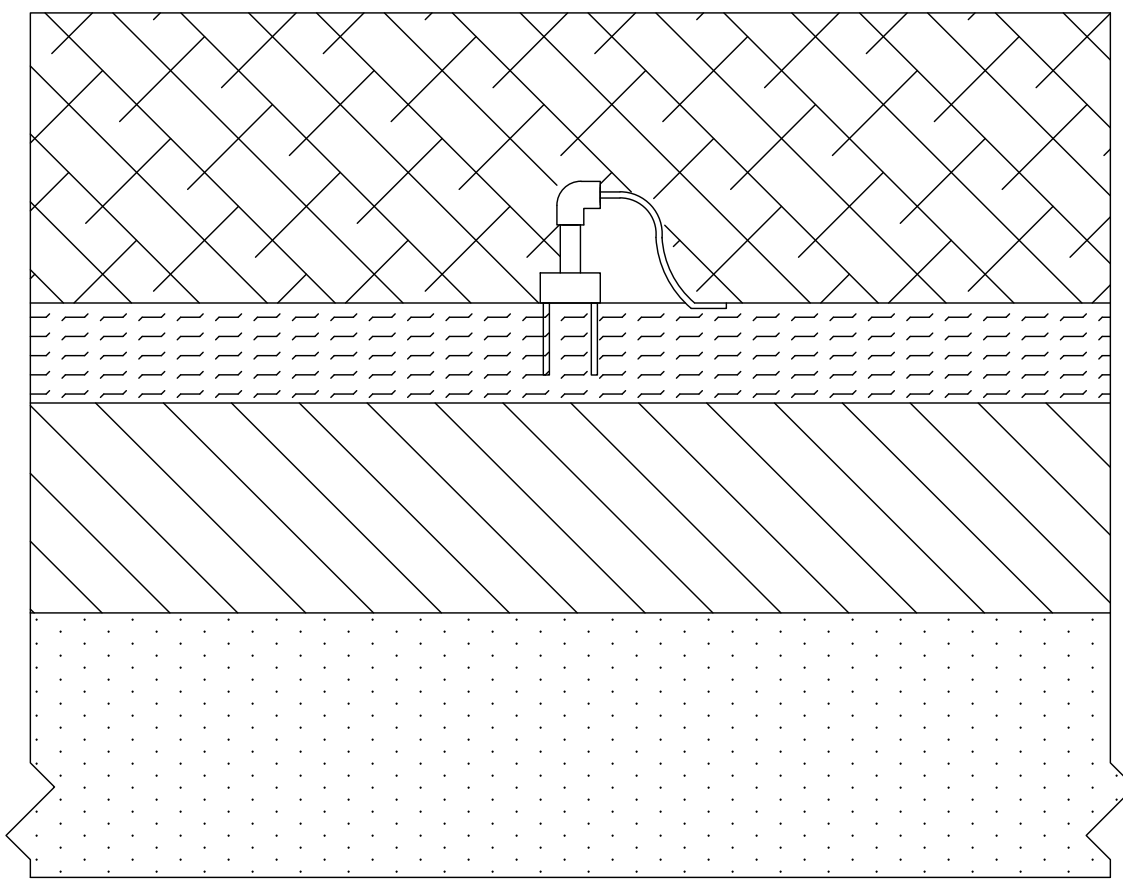
SIZE: ANSI D SCALE: AS NOTED SHEET 23 OF 55



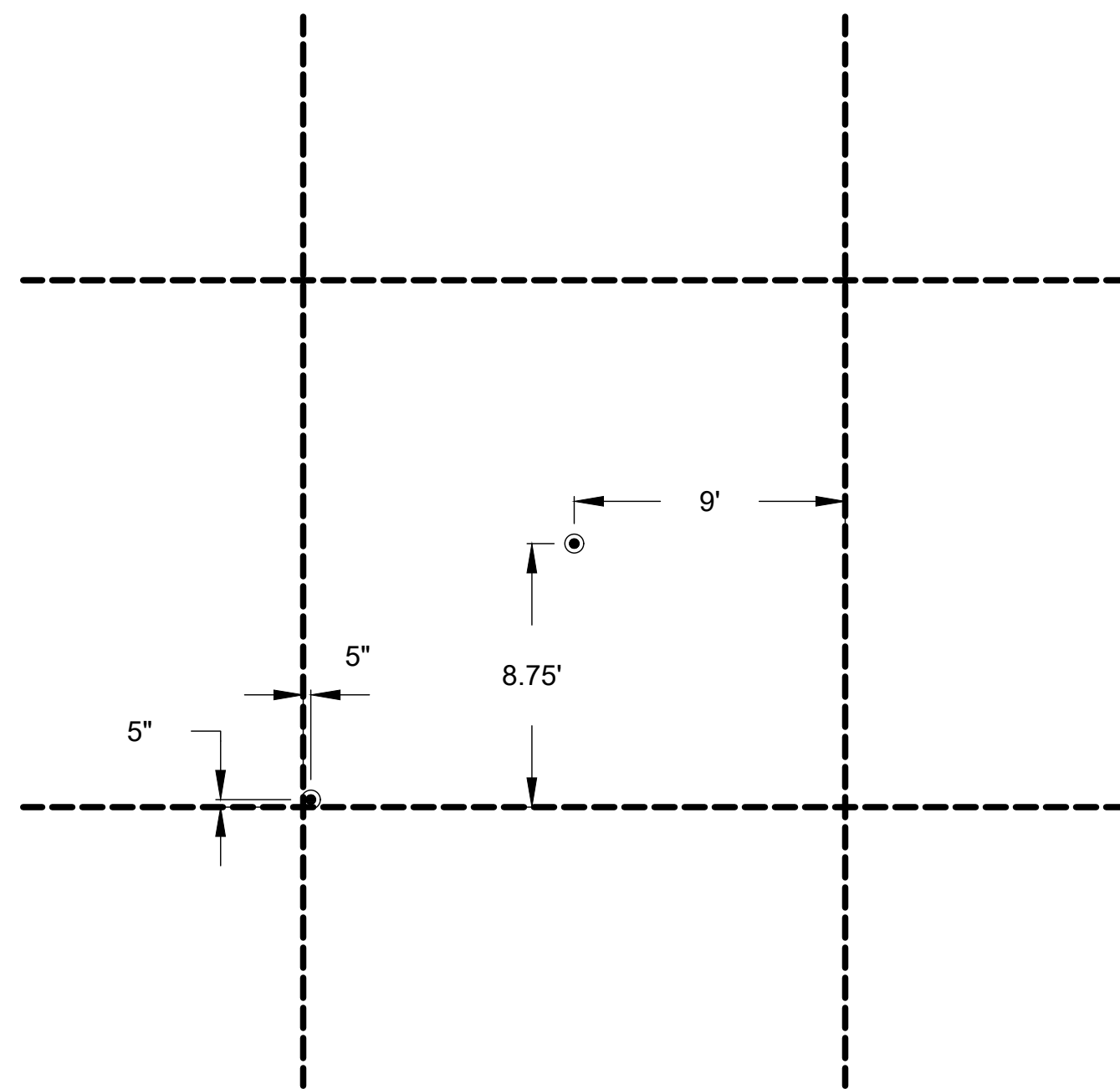
1
Q-505 EDDY CURRENT ASSEMBLY DETAIL
NOT TO SCALE



2
Q-505 SENSOR PLACEMENT POST P-403 COMPACTION
NOT TO SCALE



3
Q-505 P-501 PLACEMENT
NOT TO SCALE



4
Q-505 PLAN VIEW
NOT TO SCALE

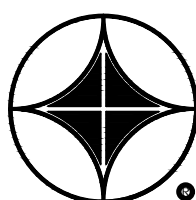
NOTE(S):

- CORNER SLAB EDDY CURRENT SENSOR POSITIONED SUCH THAT WIRE LEAD IS ROUTED AWAY FROM JOINT.
- SEE 1/Q-901 FOR PHOTO OF ASSEMBLY.
- USE ZIP TIES AS SHIMS WHERE NEEDED TO SECURE THE EDDY CURRENT SENSOR WITHIN THE 1/2" PVC HOUSING.

LEGEND:

- P-152MR SUBGRADE - DUPONT CLAY (7-8 CBR)
- P-154MR SUBBASE COURSE
- P-403MR ASPHALT MIX PAVEMENT BASE COURSE
- P-501MR CEMENT CONCRETE PAVEMENT
- PCC JOINT

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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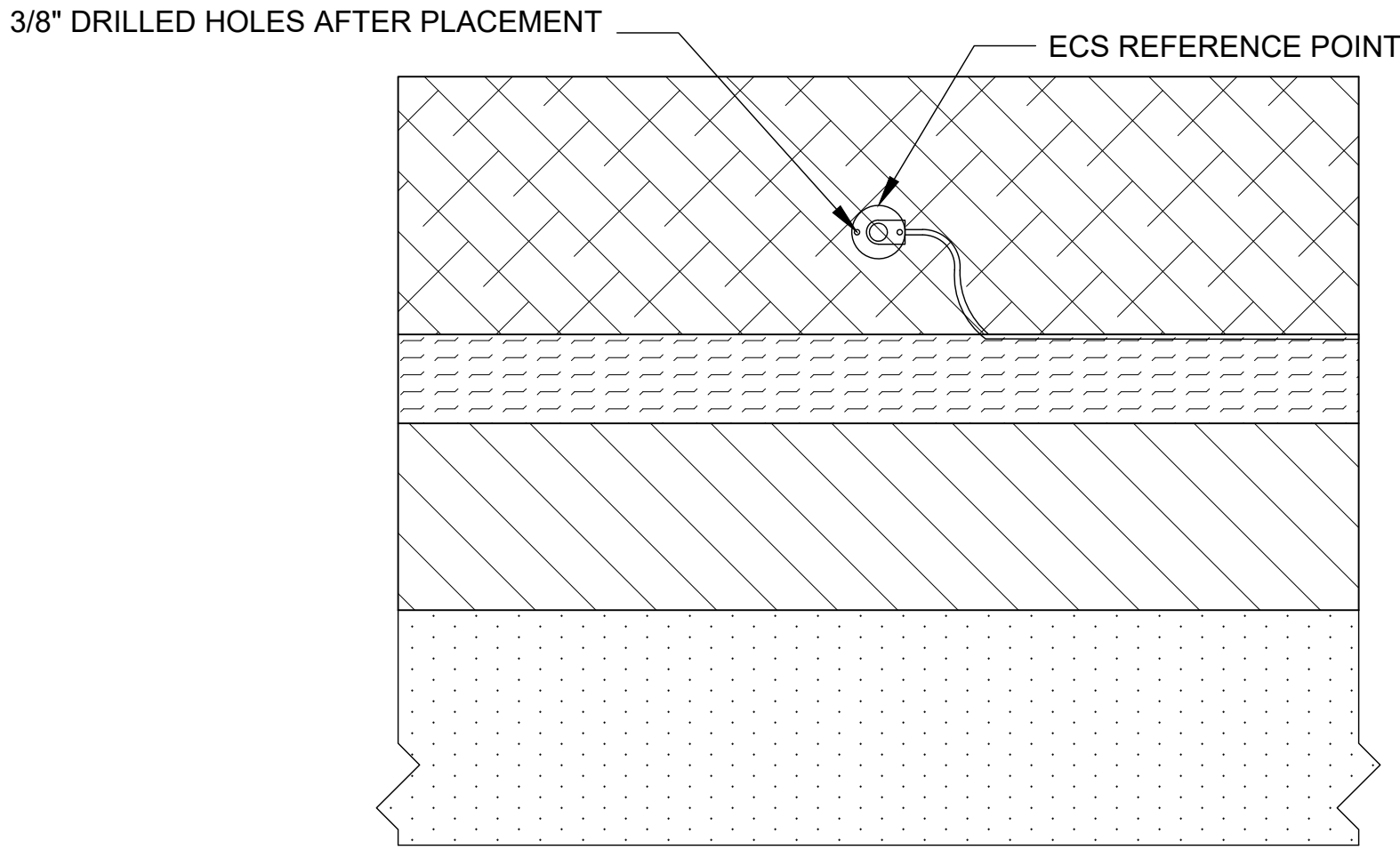
FOR



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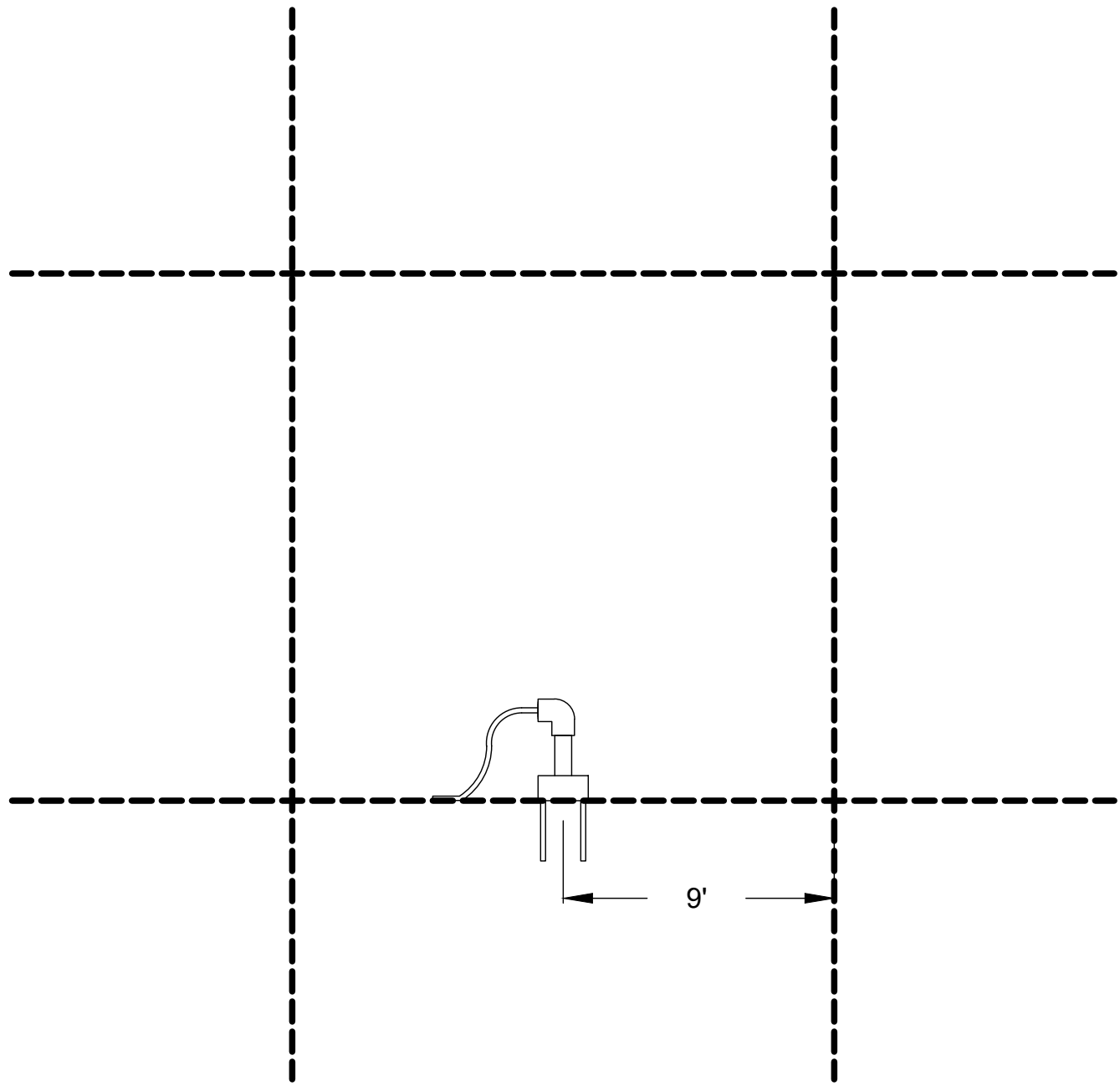
	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER: Q-505		
FILE: CC10-INST-PLAN.DWG		

NAPTF CONSTRUCTION CYCLE 010		
EDDY CURRENT SENSOR DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 24 OF 55



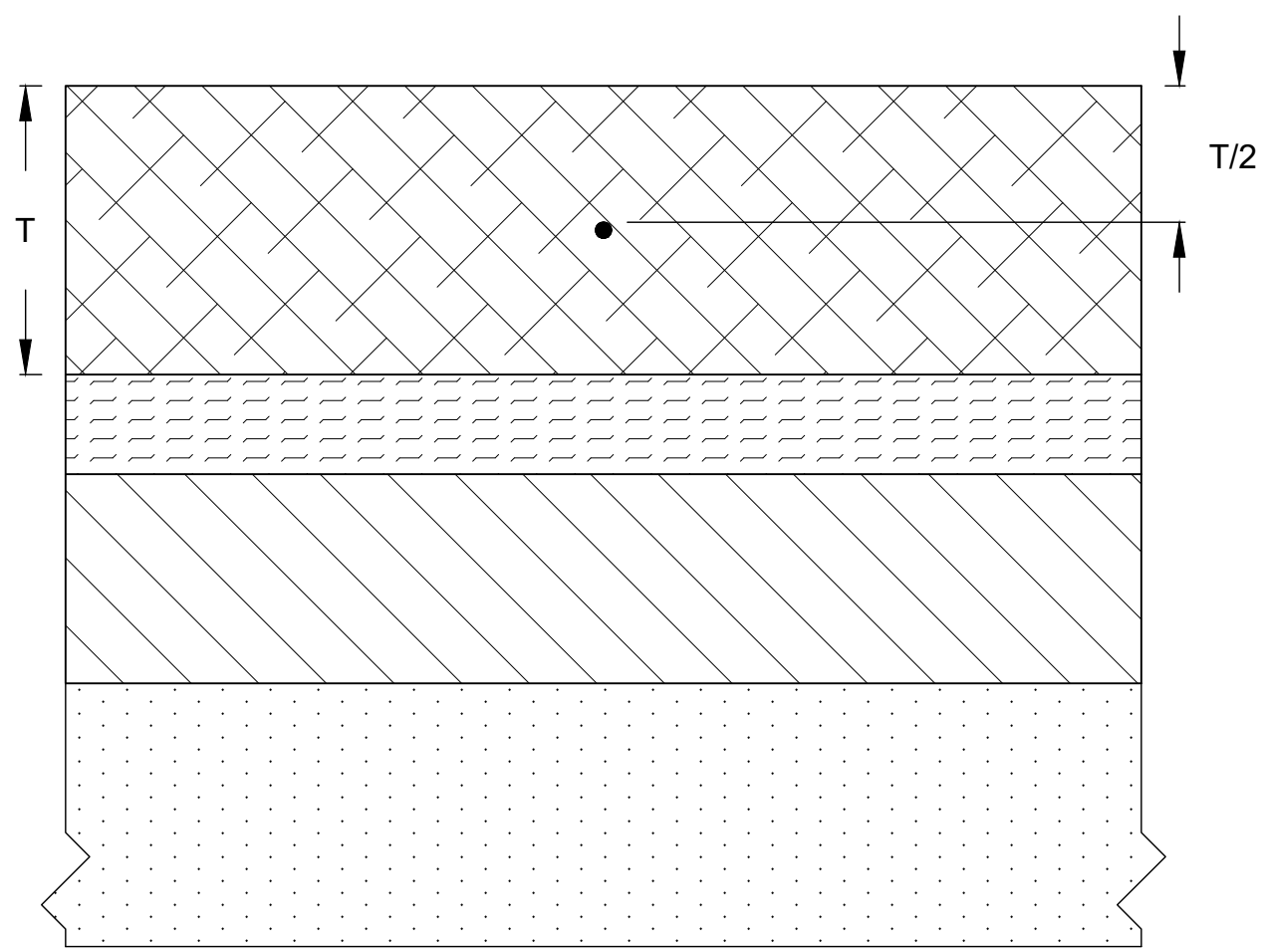
1
Q-506

**LONGITUDINAL JOINT EDDY CURRENT SENSOR
PLACEMENT POST PILOT LANE PLACEMENT**
NOT TO SCALE



2
Q-506

PLAN VIEW
NOT TO SCALE



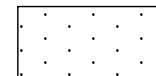
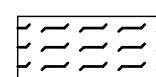
3
Q-506

PROFILE VIEW
NOT TO SCALE

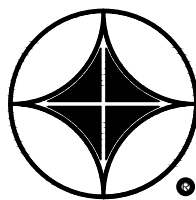
NOTE(S):

1. LONGITUDINAL EDDY CURRENT SENSOR PLACED AFTER OUTSIDE LANES OF P-501 HAVE BEEN PAVED AND STRIPPED.
2. REFERENCE POINT FOR LONGITUDINAL JOINT EDDY CURRENT SENSOR PLACED AT TOP TO AVOID CONFLICTING WITH JOINT WIDENING SAW CUT.
3. BLOW OUT DRILLED HOLES USING COMPRESSED AIR PRIOR TO PLACEMENT.
4. PROTECT SENSOR DURING ADJACENT LANE PCC PLACEMENT.

LEGEND:

-  P-152MR SUBGRADE - DUPONT CLAY (7-8 CBR)
-  P-154MR SUBBASE COURSE
-  P-403MR ASPHALT MIX PAVEMENT BASE COURSE
-  P-501MR CEMENT CONCRETE PAVEMENT
-  PCC JOINT

	FOR BID	12/02/2022		C.T.	
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NEW JERSEY 08234
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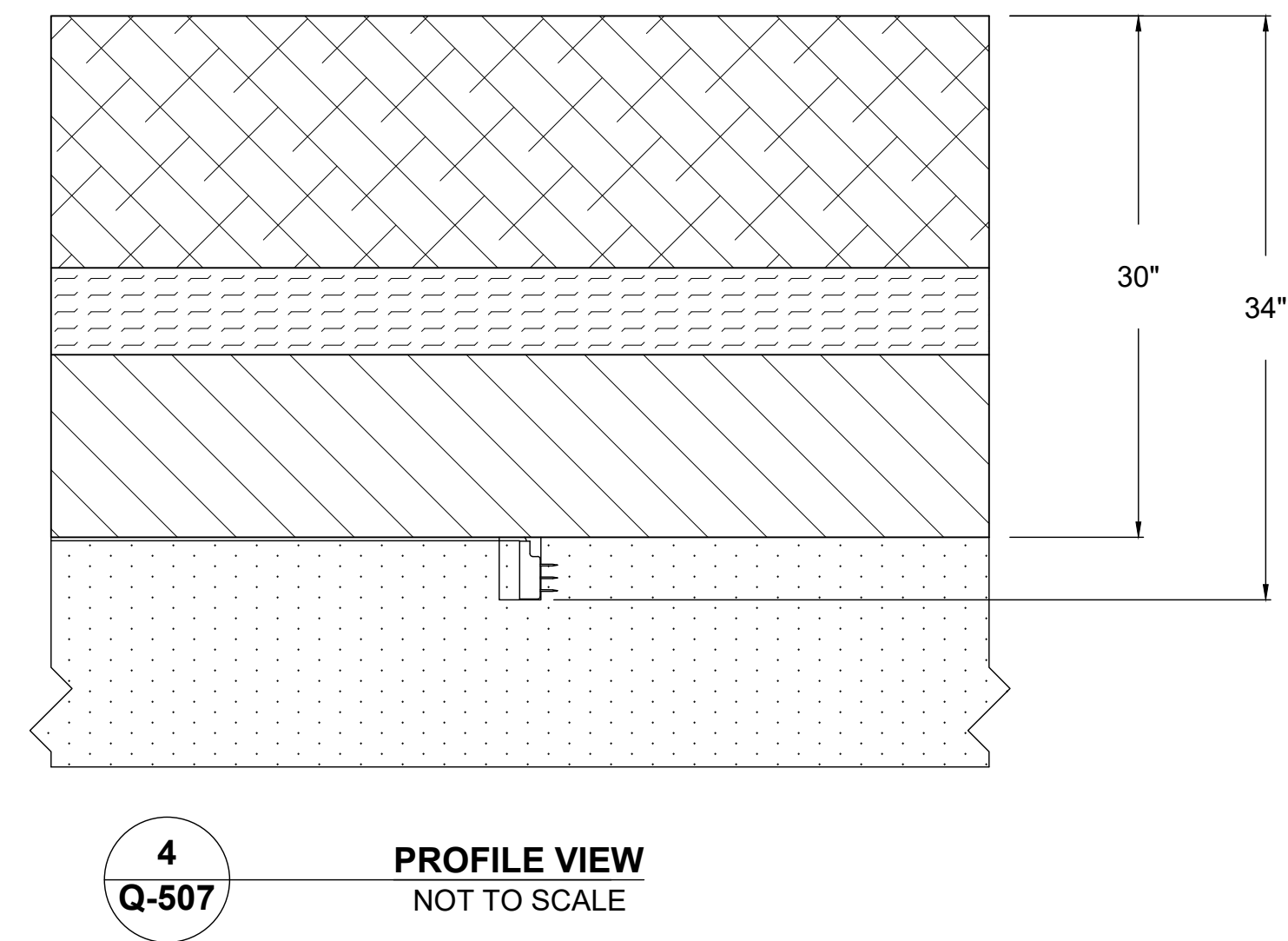
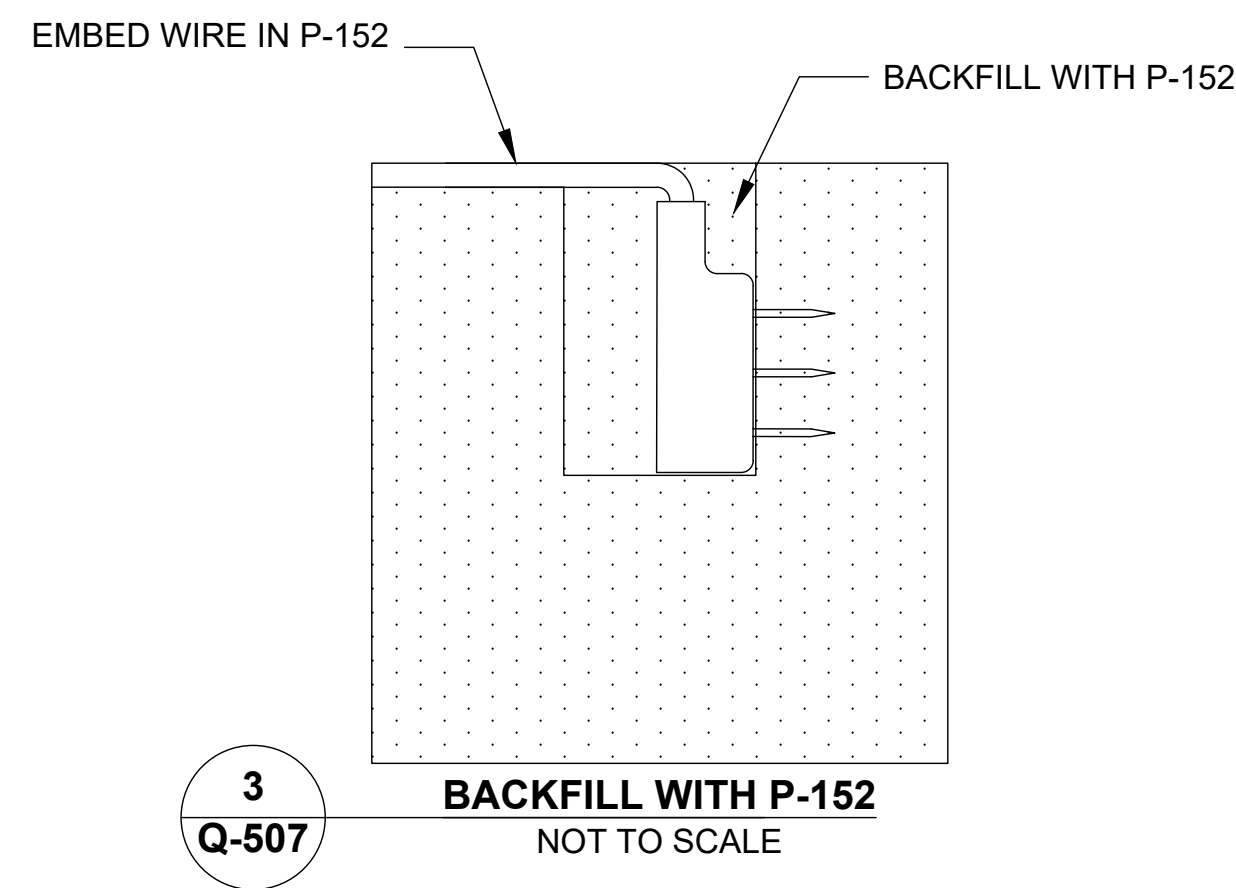
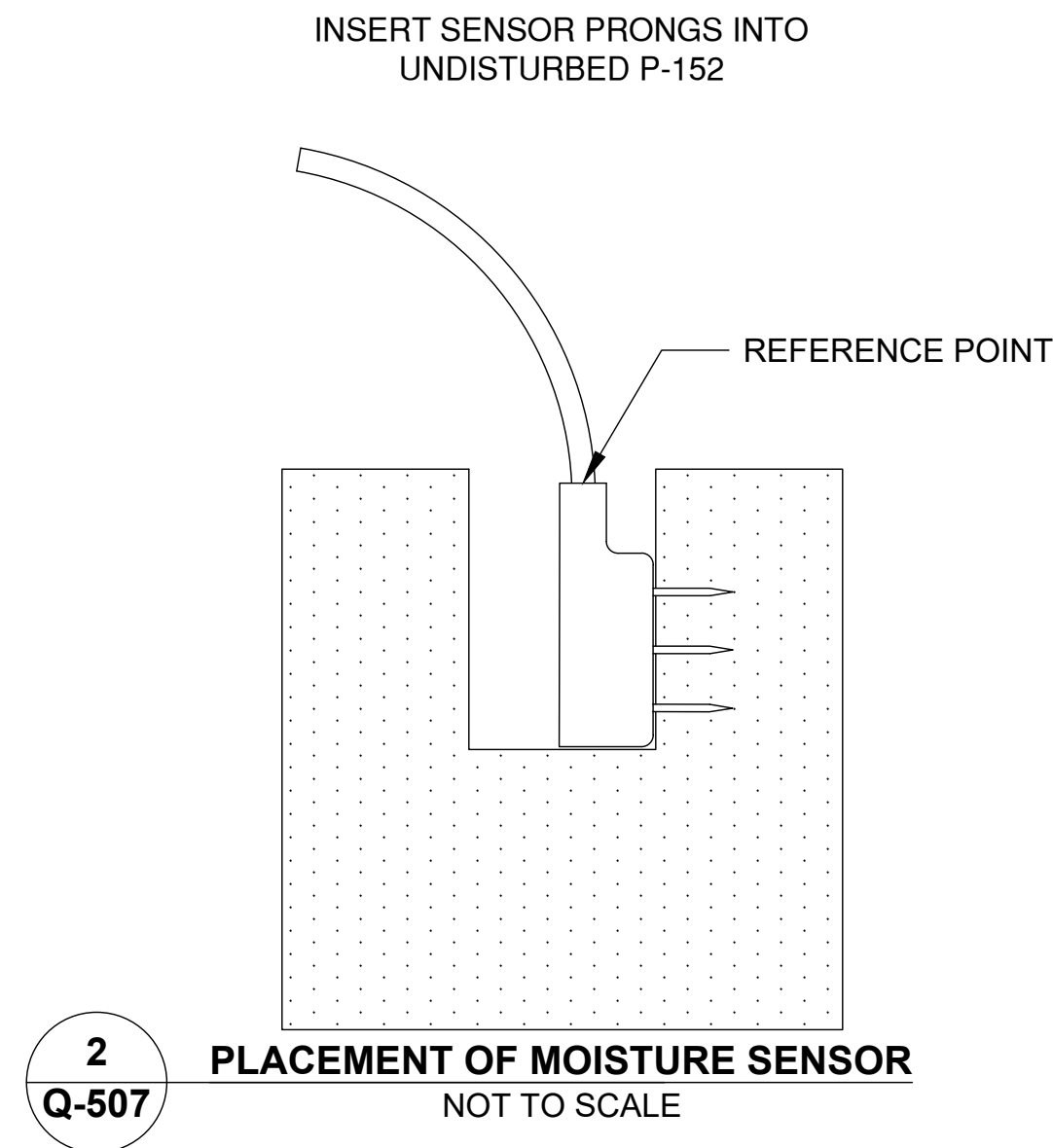
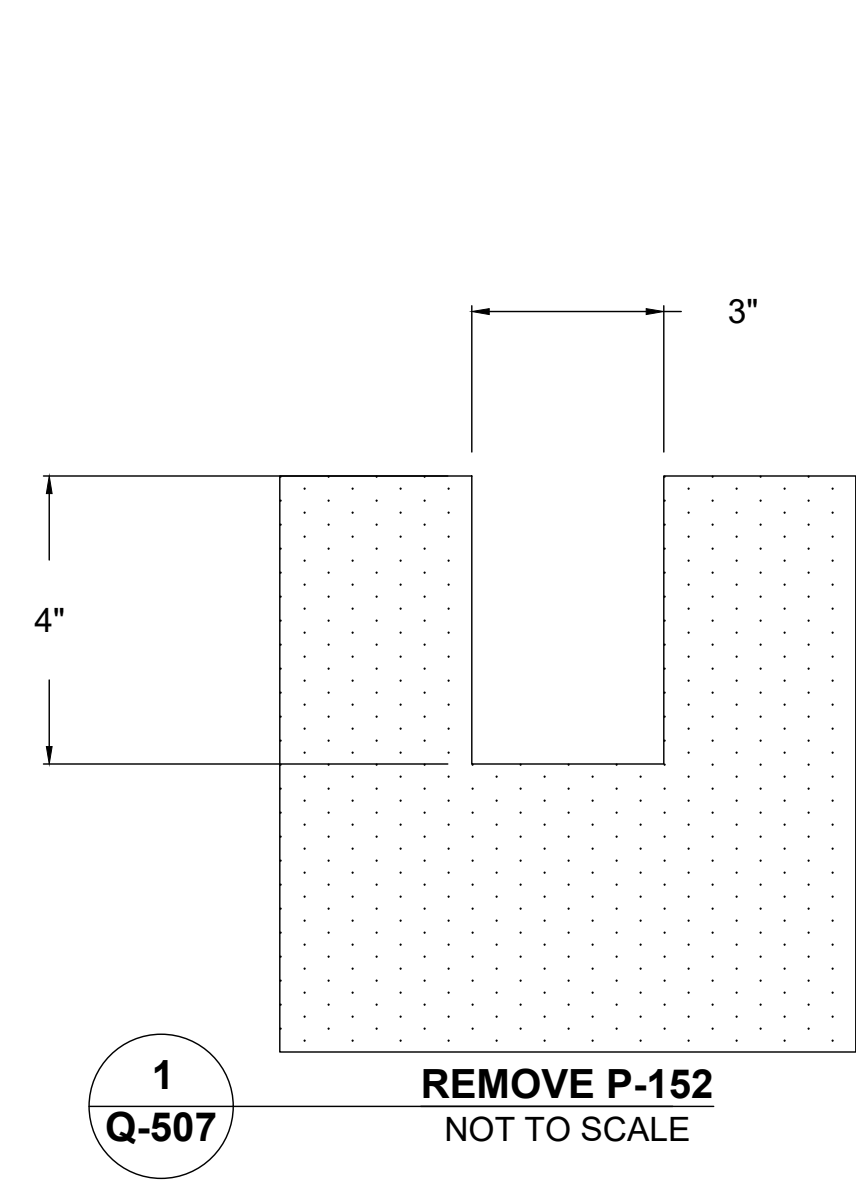
FOR



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	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-506	
FILE:	CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010		
EDDY CURRENT SENSOR DETAIL		
(LONGITUDINAL JOINT)		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 25 OF 55



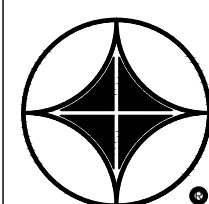
NOTE(S):

1. WHEN BACKFILLING P-152. HAND TAMP MATERIAL FLUSH WITH SURFACE , ENSURE THE SENSOR IN NOT MOVED IN THE PROCESS.
2. X, Y, Z LOCATIONS FOR ALL SENSORS PROVIDED ON Q-201, Q-202, AND Q-203.

LEGEND:

- P-152MR SUBGRADE - DUPONT CLAY (7-8 CBR)
- P-154MR SUBBASE COURSE
- P-403MR ASPHALT MIX PAVEMENT BASE COURSE
- P-501MR CEMENT CONCRETE PAVEMENT

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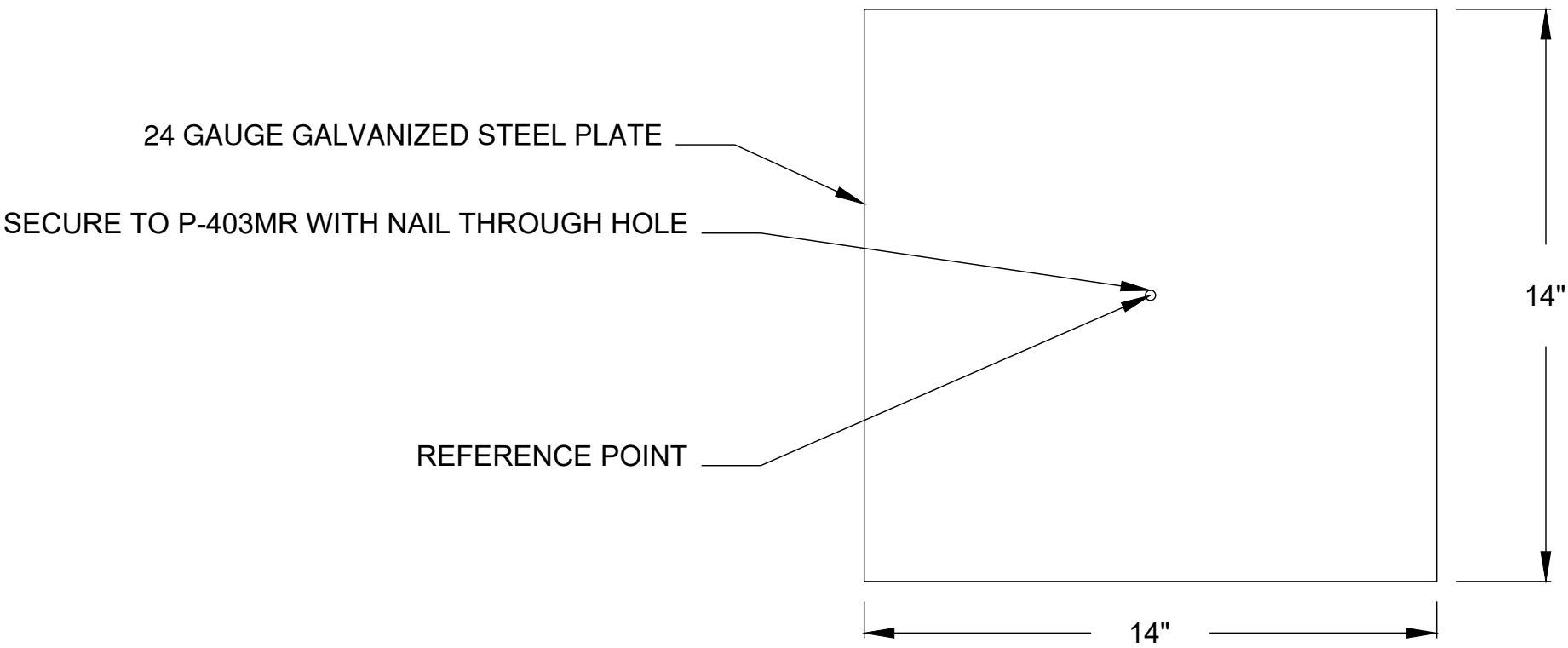
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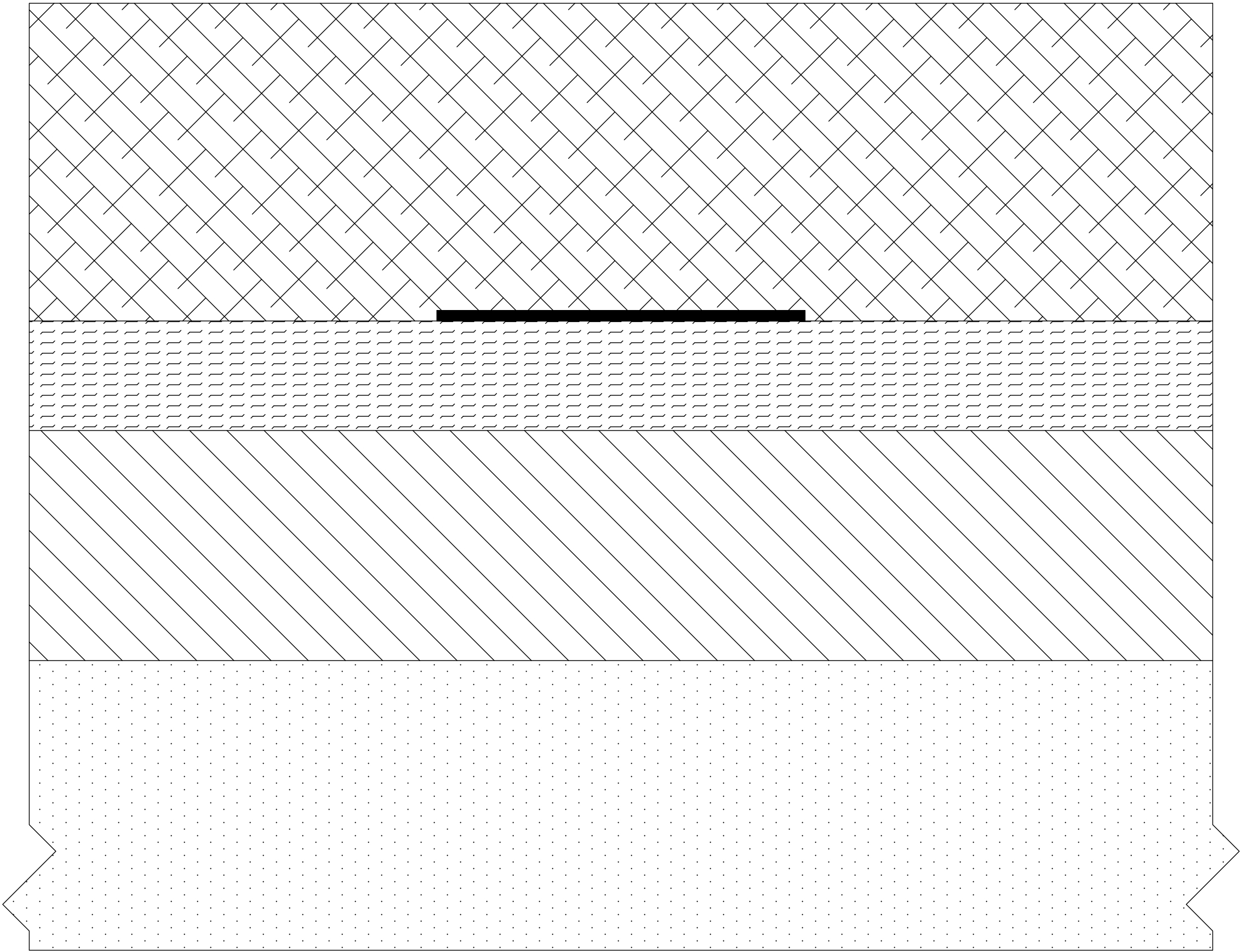
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TEST FACILITY
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	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-507	
FILE:	CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010		
MOISTURE SENSOR DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 26 OF 55



1
Q-508 MIT SCAN-T2 GALVANIZED STEEL TARGET
NOT TO SCALE

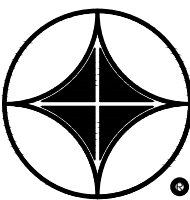


2
Q-508 PROFILE VIEW MIT SCAN-T2 TARGET
NOT TO SCALE

- NOTE(S):**
- MIT SCAN-T2 TARGET PLATE WILL BE PLACED AT THE P-501 INTERFACE IN ALL THESE TEST SECTIONS FOR PAST CONSTRUCTION THICKNESS VERIFICATION.
 - X, Y, Z LOCATIONS FOR ALL SENSORS PROVIDED ON Q-201, Q-202, AND Q-203.

- LEGEND:**
- P-152MR SUBGRADE - DUPONT CLAY (7-8 CBR)
 - P-154MR SUBBASE COURSE
 - P-403MR ASPHALT MIX PAVEMENT BASE COURSE
 - P-501MR CEMENT CONCRETE PAVEMENT

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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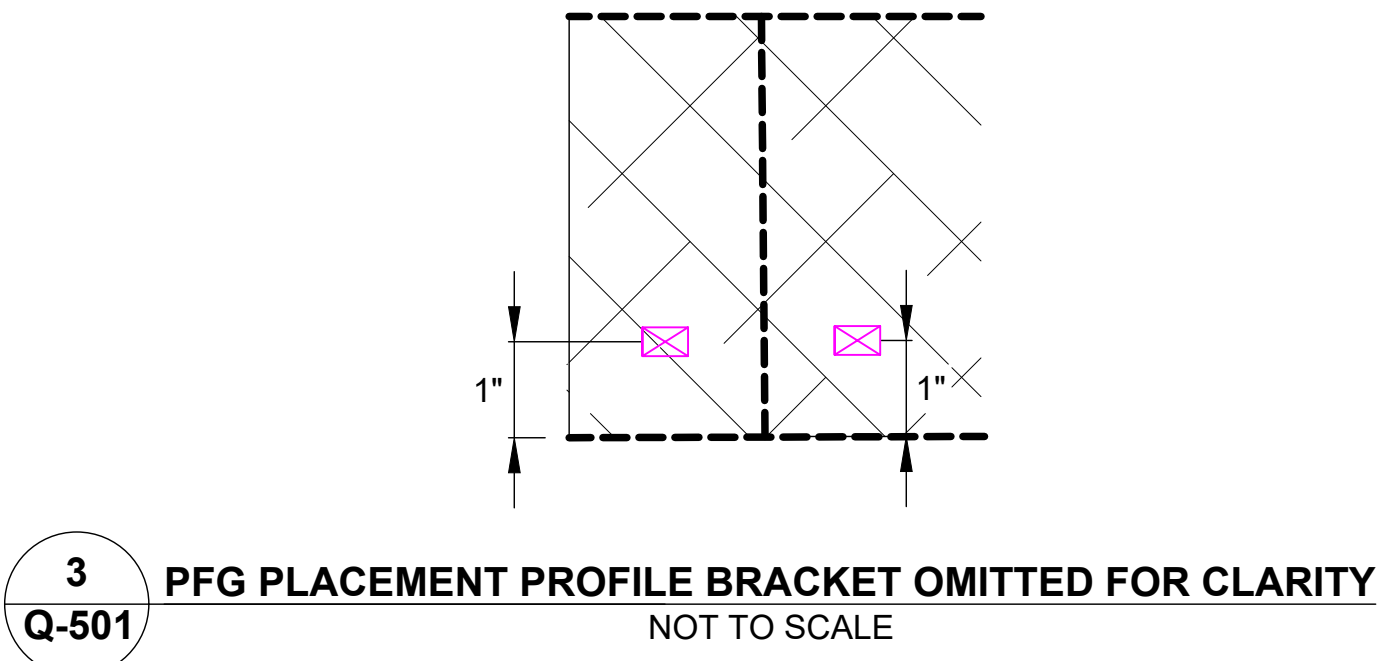
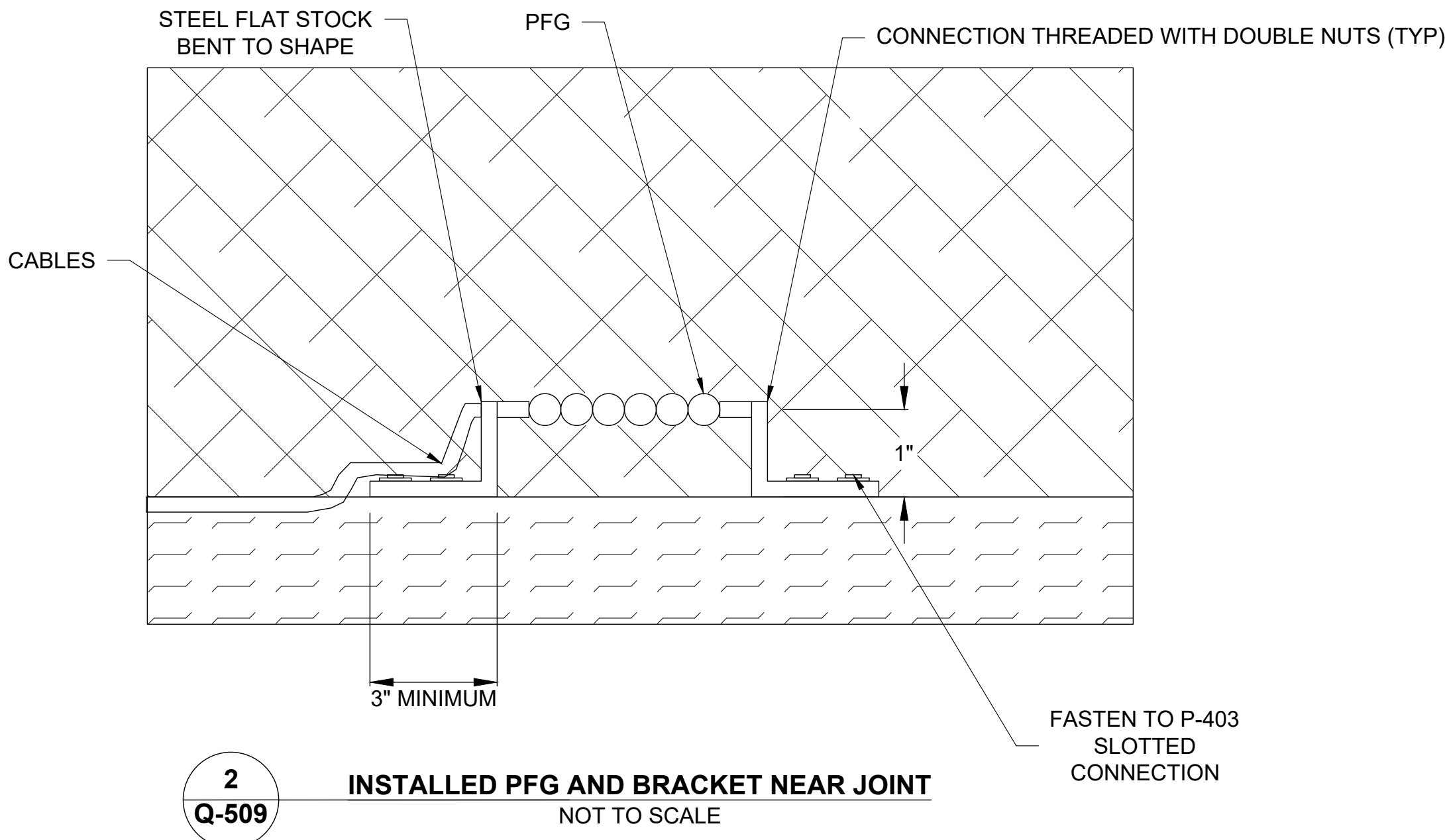
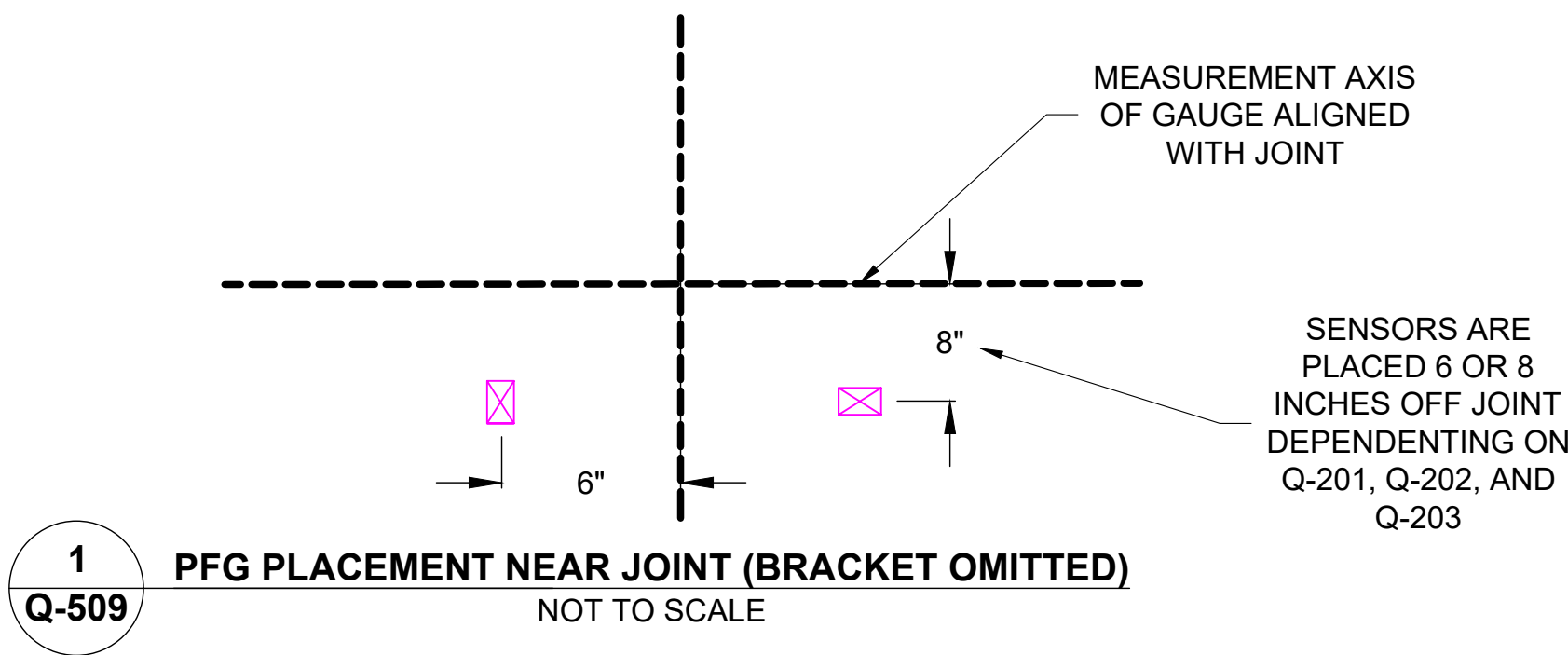
FOR



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	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-508	
FILE:	CC10-INST-PLAN.DWG	

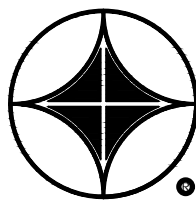
NAPTF CONSTRUCTION CYCLE 010		
MIT SCAN-T2 PLATE DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 27 OF 55



- NOTE(S):**
- DURING DRILLING NO WATER IS TO BE USED
 - ENSURE HOLE IS FREE OF DEBRIS, VACUUM OUT ANY MATERIAL CAUSED FROM DRILLING
 - AFTER DEBRIS IS CLEARED CLEAN HOLE WITH WIRE BRUSH AND REPEAT VACUUMING
 - USING PROVIDED INSTALLATION TOOL INSTALL RAPID RH L6 SENSOR
 - INSTALL 0.5" EXTENSIONS AS NEEDED TO ACHIEVE DESIRED DEPTH PER TEST SECTION
 - X, Y, Z LOCATIONS FOR ALL SENSORS PROVIDED ON Q-201, Q-202, AND Q-203.

- LEGEND:**
- | | | | |
|--|-----|--|--|
| | PFG | | P-152MR SUBGRADE - DUPONT CLAY (7-8 CBR) |
| | | | P-154MR SUBBASE COURSE |
| | | | P-403MR ASPHALT MIX PAVEMENT BASE COURSE |
| | | | P-501MR CEMENT CONCRETE PAVEMENT |

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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NEW JERSEY 08234
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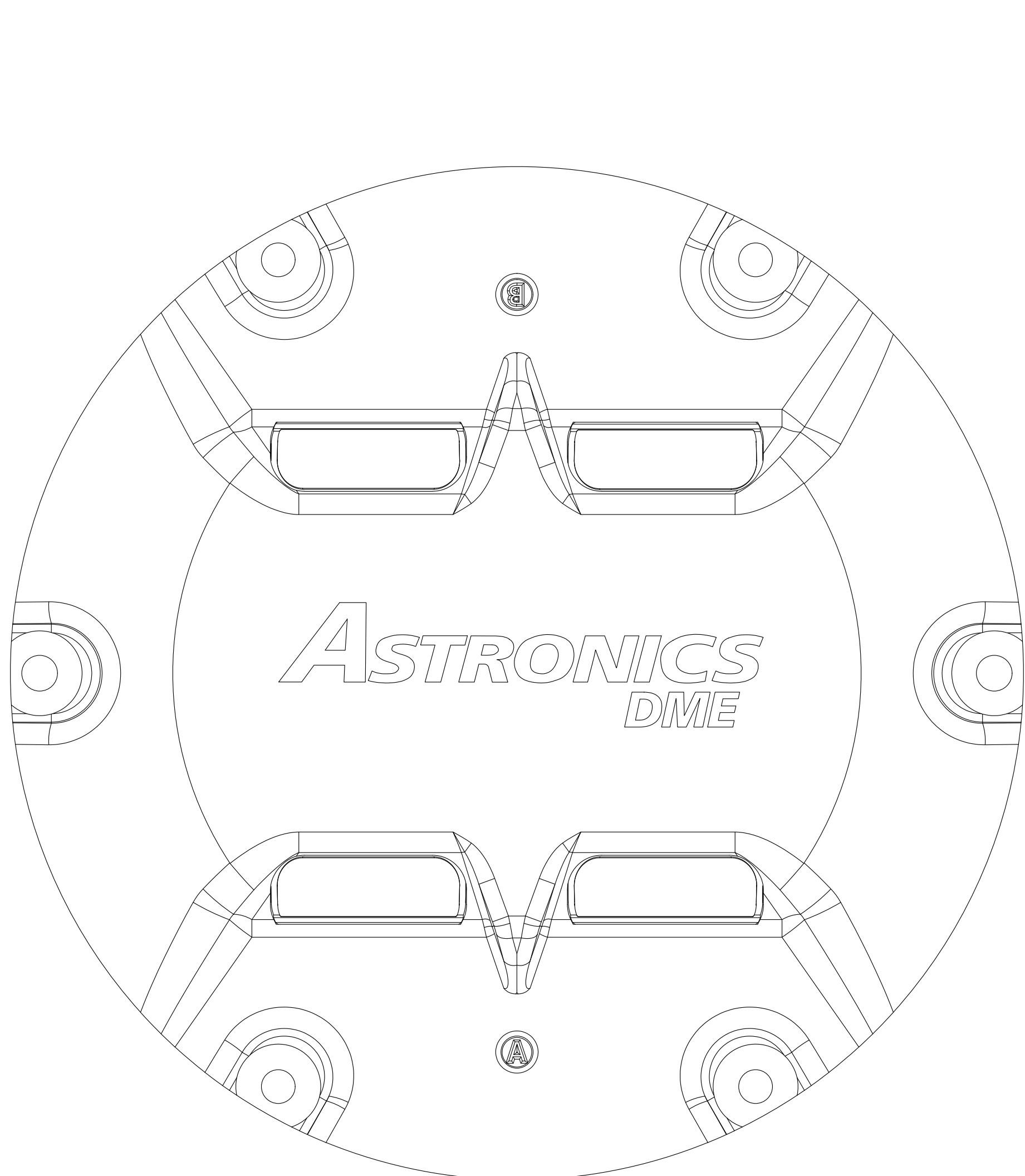
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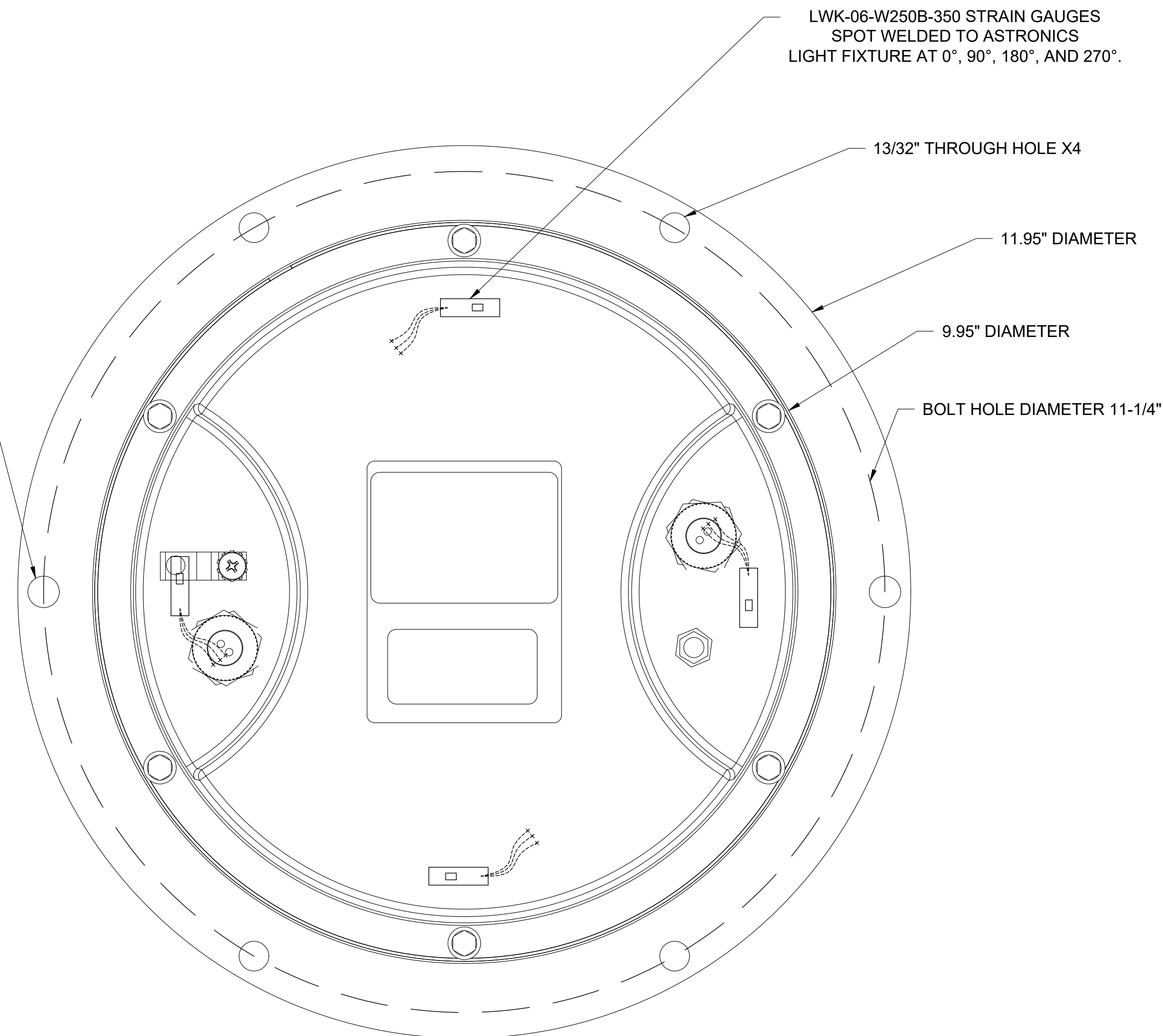
	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-509	
FILE:	CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010		
PIEZO-FLOATING GATE SENSOR DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 28 OF 55



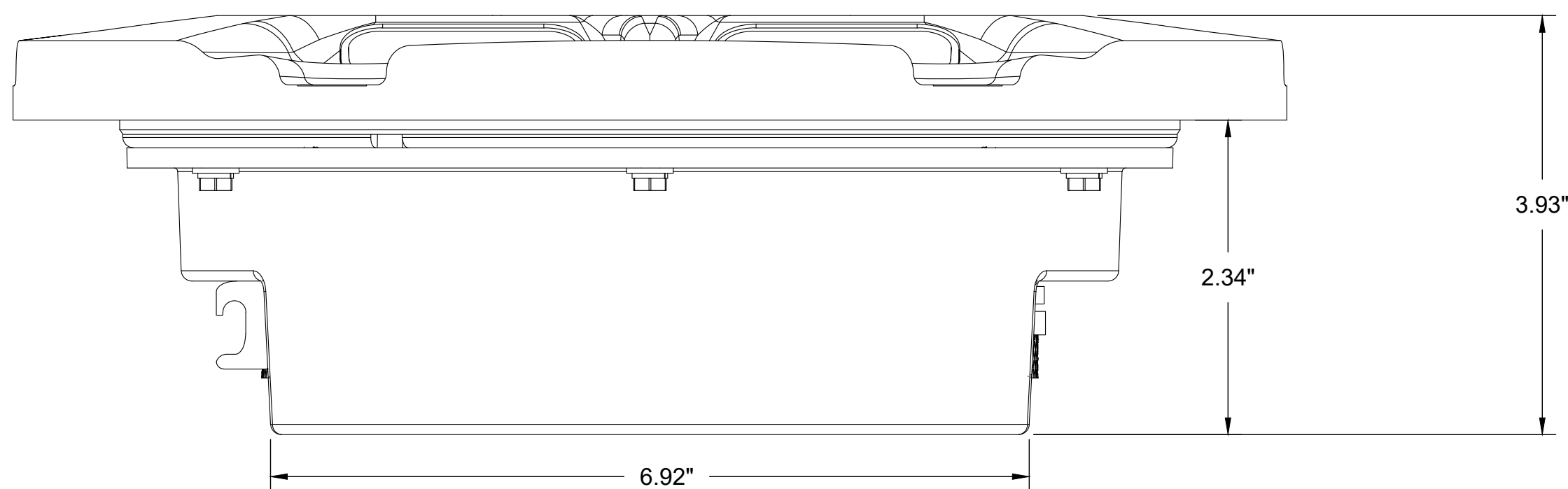
TOP VIEW

NOT TO SCALE



BOTTOM VIEW

NOT TO SCALE



SIDE ELEVATION OF FIXTURE

NOT TO SCALE

1/2"-13 THREADED
HOLE X2

LWK-06-W250B-350 STRAIN GAUGES
SPOT WELDED TO ASTRONICS
LIGHT FIXTURE AT 0°, 90°, 180°, AND 270°.

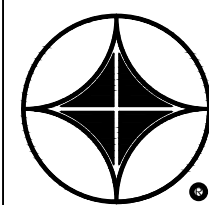
13/32" THROUGH HOLE X4

11.95" DIAMETER

9.95" DIAMETER

BOLT HOLE DIAMETER 11-1/4"

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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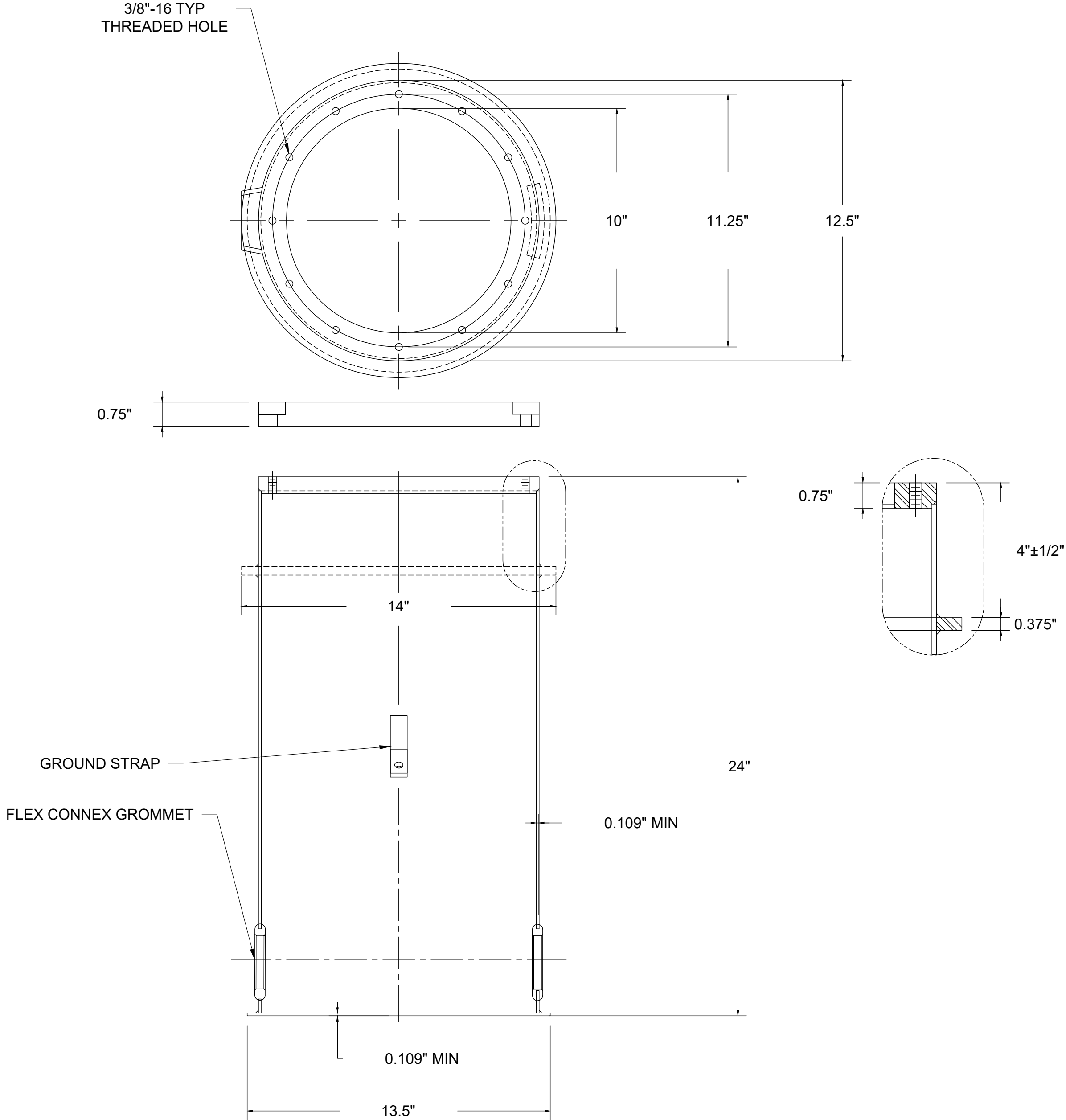
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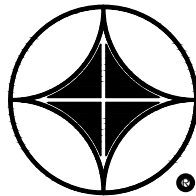
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TEST FACILITY
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AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-510	
FILE:	CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010		
L-850A RUNWAY LIGHT DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 29 OF 55



	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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2628 FIRE ROAD, SUITE 200
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NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



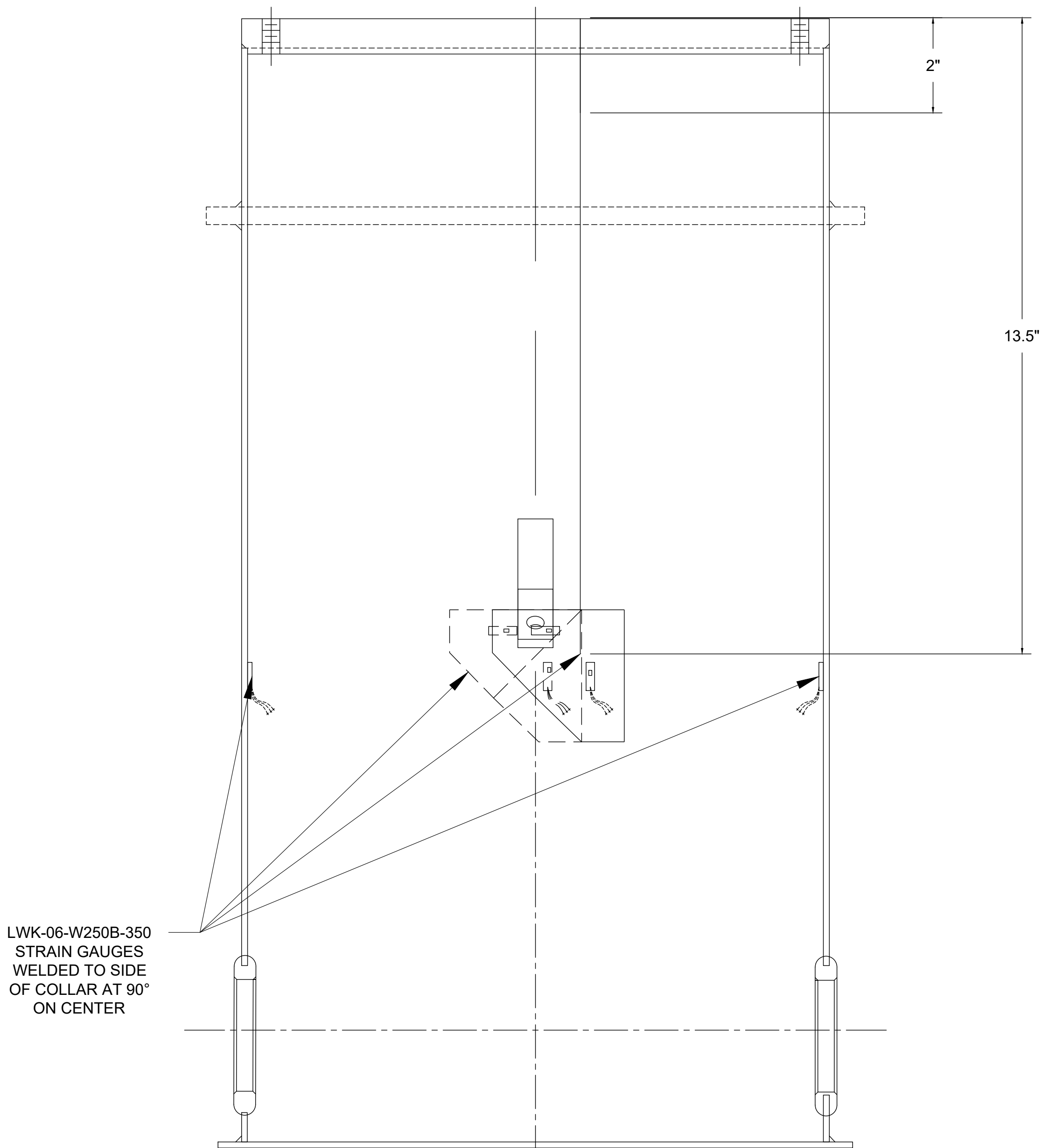
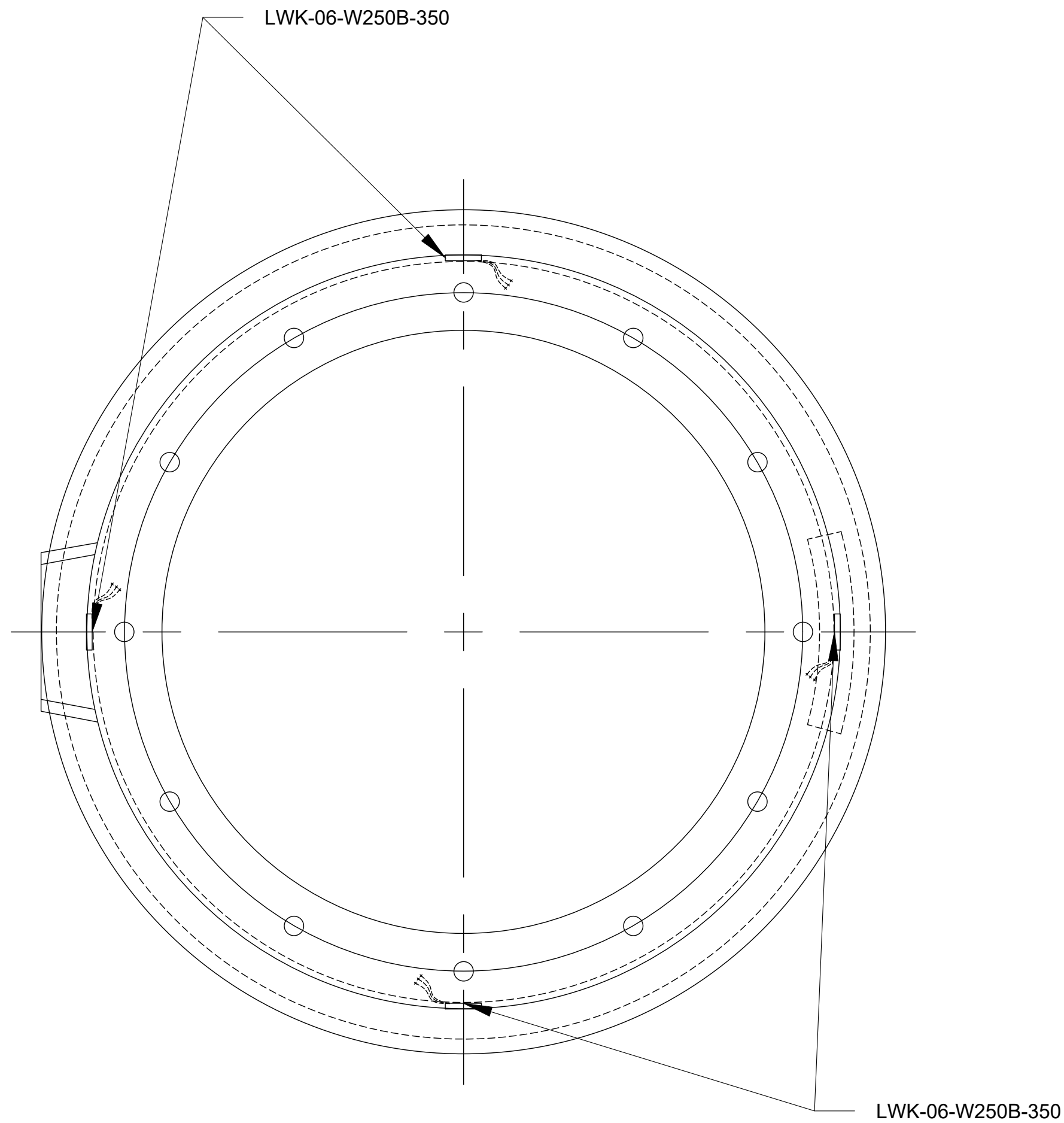
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER: Q-511		
FILE: CC10-INST-PLAN.DWG		

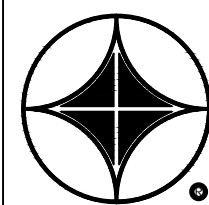
NAPTF CONSTRUCTION CYCLE 010

L-868B CLASS 1A LIGHT BASE DETAIL

SIZE: ANSI D SCALE: AS NOTED SHEET 30 OF 55



NO.	FOR BID	REVISIONS	DATE	BY	CHK	APR
			12/02/2022		C.T.	



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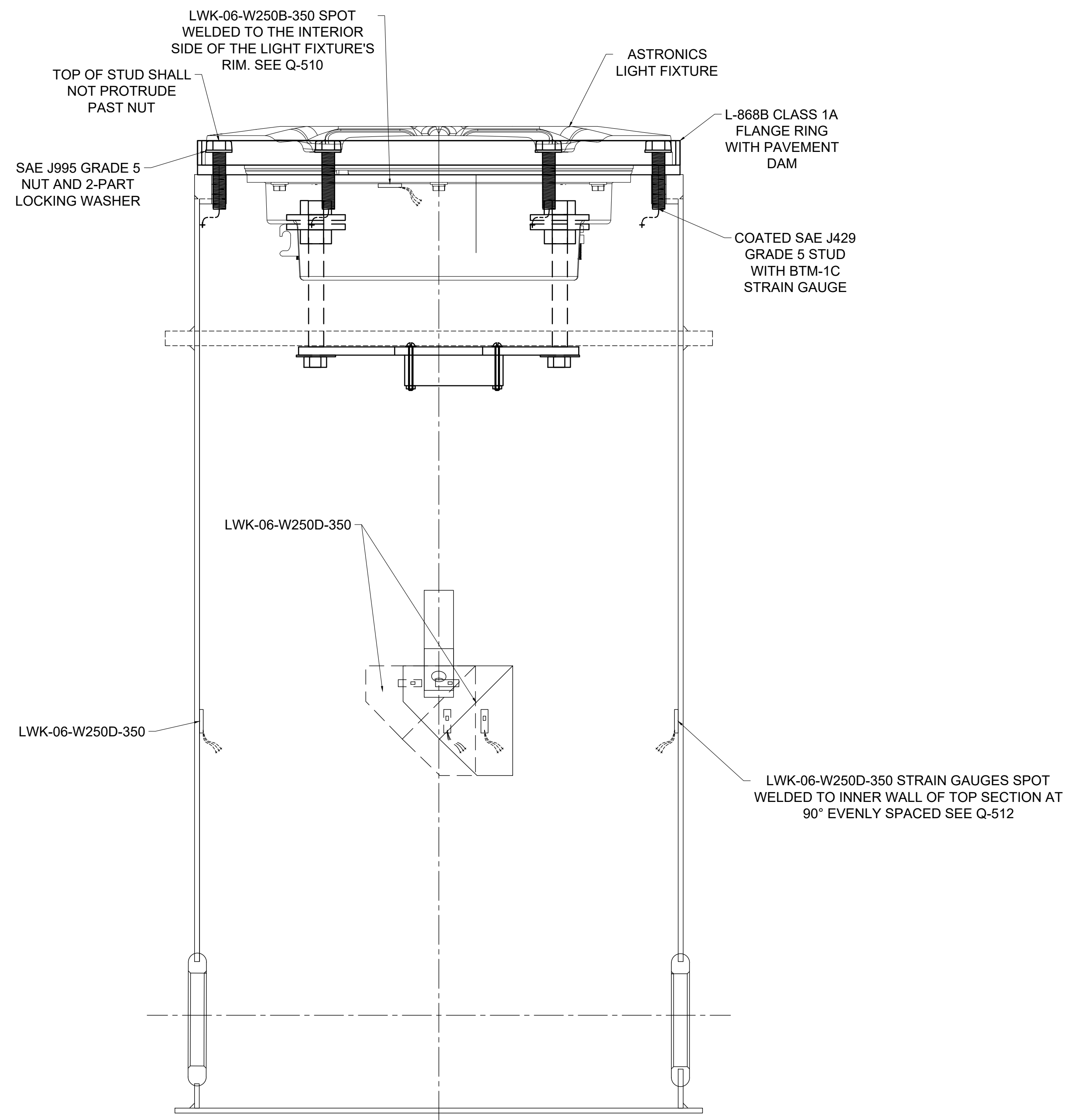
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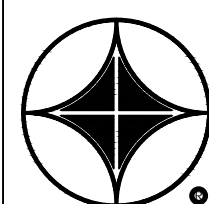
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

NAME	DATE
ARA	2022-12-01
CHECKED C. TOMLINSON	
DRAWING NUMBER: Q-512	
FILE: CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010		
LIGHT FIXTURE INSTRUMENTATION DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 31 OF 55



NO.	FOR BID	REVISIONS	DATE	BY	CHK	APR
			12/02/2022		C.T.	



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NEW JERSEY 08234
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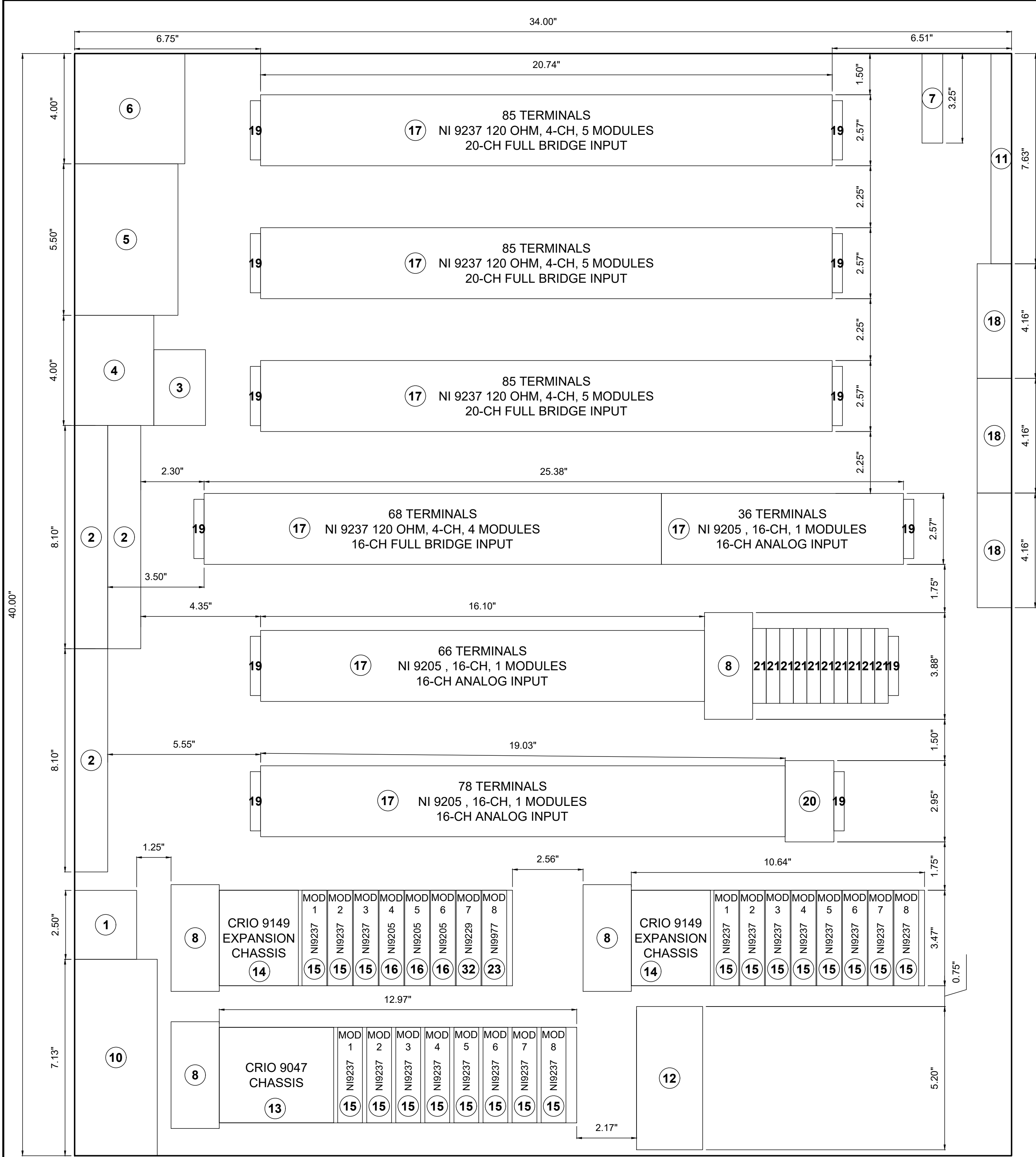
FOR



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AIRPORT
NEW JERSEY 08234

NAME	DATE
ARA	2022-12-01
C.TOMLINSON	
DRAWING NUMBER: Q-513	
FILE: CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010		
LIGHT FIXTURE ASSEMBLY DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 32 OF 55



SPU3SE1 PARTS AND QUANTITIES			
ITEM NUMBER	DESCRIPTION	MAKE/MODEL	QUANTITY
1	AC SWITCH	EXISTING	EXISTING
2	AC POWER STRIP 4 CONNECTORS WITH SWITCH	TRIPP LITE TLP404	3
3	AC/DC CONVERTER	EXISTING	EXISTING
4	AC 2 CONNECTION WALL OUTLET	EXISTING	EXISTING
5	FIBER OPTIC SWITCH	EXISTING	EXISTING
6	METAL AC BREAKOUT BOX	EXISTING	EXISTING
7	LED FUSE	EXISTING	EXISTING
8	24 VOLT DC POWER SUPPLY	SOLA SDP 4-24-100RT	4
9	ADHESIVE LED LIGHT STRIP	EXISTING	EXISTING
10	ENCLOSURE FAN	HAMMOND MANUFACTURING XF 6115	1
11	ENCLOSURE EXHAUST GRILL	HAMMOND MANUFACTURING XFG6	2
12	PTC HEATER	STEGO 060210-00	1
13	NI CRIO 9047	NATIONAL INSTRUMENTS CRIO 9047	1
14	NI CRIO 9149	NATIONAL INSTRUMENTS CRIO 9149	2
15	NI C SERIES STRAIN BRIDGE MODULE	NATIONAL INSTRUMENTS NI9237	19
16	NI C SERIES ANALOG INPUT MODULE 4 CH	NATIONAL INSTRUMENTS NI9205	3
17	TERMINAL BLOCK	PHOENIX CONTACT UT 4 TWIN MT BU-3073018	596
18	GROUND DISTRIBUTION BAR	SIEMENS-HI CECOMINOD 010376	3
19	END BRACKET	PHOENIX CONTACT 3022218	12
20	12 VOLT DC POWER SUPPLY	SOLA SDP 3-15-100T	1
21	THERMOMAGNETIC CIRCUIT BREAKER	PHOENIX CONTACT TMC 42-01-0.5AMPS	10
22	SPU ENCLOSURE AND BACK PANEL	EXISTING	EXISTING
23	NI SLOT FILLER	NATIONAL INSTRUMENTS NI9977	2
24	UNINTERRUPTIBLE POWER SUPPLY (UPS)	TRIPP LITE SMART1500LCDT	1
25	BACKSHELL STRAIN RELIEF	NATIONAL INSTRUMENTS NI9965	22
26	FRONT-MOUNT TERMINAL BLOCK	NATIONAL INSTRUMENTS NI9923	22
27	DIN RAIL	8961K16 MCMASTER-CARR	3
28	DIN RAIL SCREWS	92364A245 MCMASTER-CARR	2
29	DIN MOUNT (NI CRIO 9149)	NI DIN RAIL MOUNTING KIT, 779018-01	2
30	DIN MOUNT (NI CRIO 9047)	NI DIN RAIL MOUNTING KIT, 157268-01	1
31	SCREWS (AC POWER STRIP)	92364A200 MCMASTER-CARR	1
32	NI C SERIES ANALOG INPUT MODULE 16 CH	NATIONAL INSTRUMENTS NI 9229	1

SPU3SE1 POWER CONNECTIONS			
DEVICE	PART NUMBER	POWER REQ.	SUPPLY
NI CRIO 9035	NI9035	9 V TO 30 VDC	24 VOLT DC POWER SUPPLY (NI9035)
NI CRIO 9149	NI9149	9 V TO 30 VDC	24 VOLT DC POWER SUPPLY (NI9149)
12 VOLT DC POWER SUPPLY	SOLA SDP 3-15-100T	120VAC	POWER STRIP
24 VOLT DC POWER SUPPLY (SENSORS)	SOLA SDP4-24-100RT	120VAC	POWER STRIP
FIBER OPTIC SWITCH	EXISTING	12VDC	INCLUDED POWER SUPPLY (AC/DC CONVERTER)
HEATER	STEGO 060210-00	120VAC	POWER STRIP
FIBER OPTIC POWER SUPPLY	EXISTING	120VAC	POWER STRIP
24 VOLT DC POWER SUPPLY (NI9035)	SOLA SDP4-24-100RT	120VAC	POWER STRIP
24 VOLT DC POWER SUPPLY (NI9149)	SOLA SDP4-24-100RT	120VAC	POWER STRIP
POWER STRIP	TRIPP LITE TLP404	120VAC	UPS
UPS	TRIPP LITE SMART1500LCDT	120VAC	AC WALL OUTLET
ENCLOSURE FAN	HAMMOND XF 6115	120VAC	POWER STRIP
12VDC+ TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	12VDC	12 VOLT DC POWER SUPPLY (+)TERMINAL
12VDC- TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	12VDC	12 VOLT DC POWER SUPPLY (-)TERMINAL
24VDC+ TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	24VDC	24 VOLT DC POWER SUPPLY (+)TERMINAL
24VDC- TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	24VDC	24 VOLT DC POWER SUPPLY (-)TERMINAL
AC WALL OUTLET	RACO 683	120VAC	BUILDING POWER

MOUNTING METHOD/HARDWARE		
ITEM NUMBER	DESCRIPTION	BRACKET/HARDWARE MODEL
2	AC POWER STRIP	SCREWS (ITEM 31)
8	DC POWER SUPPLY	DIN RAIL
10	ENCLOSURE FAN	DIN SCREWS
11	EXHAUST GRILL	DIN SCREWS
12	PTC HEATER	DIN RAIL
13	NI CRIO 9035	NI DIN RAIL MOUNTING KIT
14	NI CRIO 9149	NI DIN RAIL MOUNTING KIT
17	TERMINAL BLOCKS	DIN RAIL
18	GROUND DISTRIBUTION BAR	SUPPLIED BRACKET
19	END BRACKET	DIN RAIL
20	12 VOLT DC POWER SUPPLY	DIN RAIL
21	CIRCUIT BREAKER	DIN RAIL
24	UPS	SURFACE PLACEMENT OUTSIDE ENCLOSURE

QTY (FT)	STYLE	NOTES
2000	TWISTED PAIR	PER I-100MR: WIRE SHALL BE 22AWG BRAIDED COPPER OR AS RECOMMENDED BY THE SENSOR MANUFACTURER, WHICHEVER IS LARGER.
100	SINGLE WIRE	WIRE SHALL BE 8AWG FOR COMMONING SHIELDS AND SHIELD BUS BARS.

NOTE(S):

- CABLES ENTER FROM TOP OF ENCLOSURE.
- ROUTE WIRES FROM TERMINALS TO CHASSIS IN NEAT AND WORKMANLIKE MANNER.
- CABINET SPU3SE1 FORMERLY DESIGNATED SPU3S.
- THE O&M CONTRACTOR MAY PROVIDE EQUIVALENT OR BETTER ALTERNATIVES TO THE ONES LISTED. IT IS EXPECTED THAT THE O&M CONTRACTOR WILL SUBMIT ALL CUT SHEETS REQUIRED FOR INSTRUMENTATION TO THE ENGINEER FOR REVIEW AND APPROVAL.
- UPS TO BE LOCATED OUTSIDE OF SPU ENCLOSURE.
- USE POLYETHYLENE CLOSED CELL FOAM CYLINDER OR EQUIVALENT TO SEAL THE CABLE CONDUIT.
- PLACE LED LIGHT STRIP (PART #9) ALONG INNER PERIPHERY OF SPU ENCLOSURE AS NEEDED.
- DIN RAILS AND CORRESPONDING MOUNTING HARDWARE TO BE PLACED BEHIND DIN-MOUNTABLE PARTS.

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



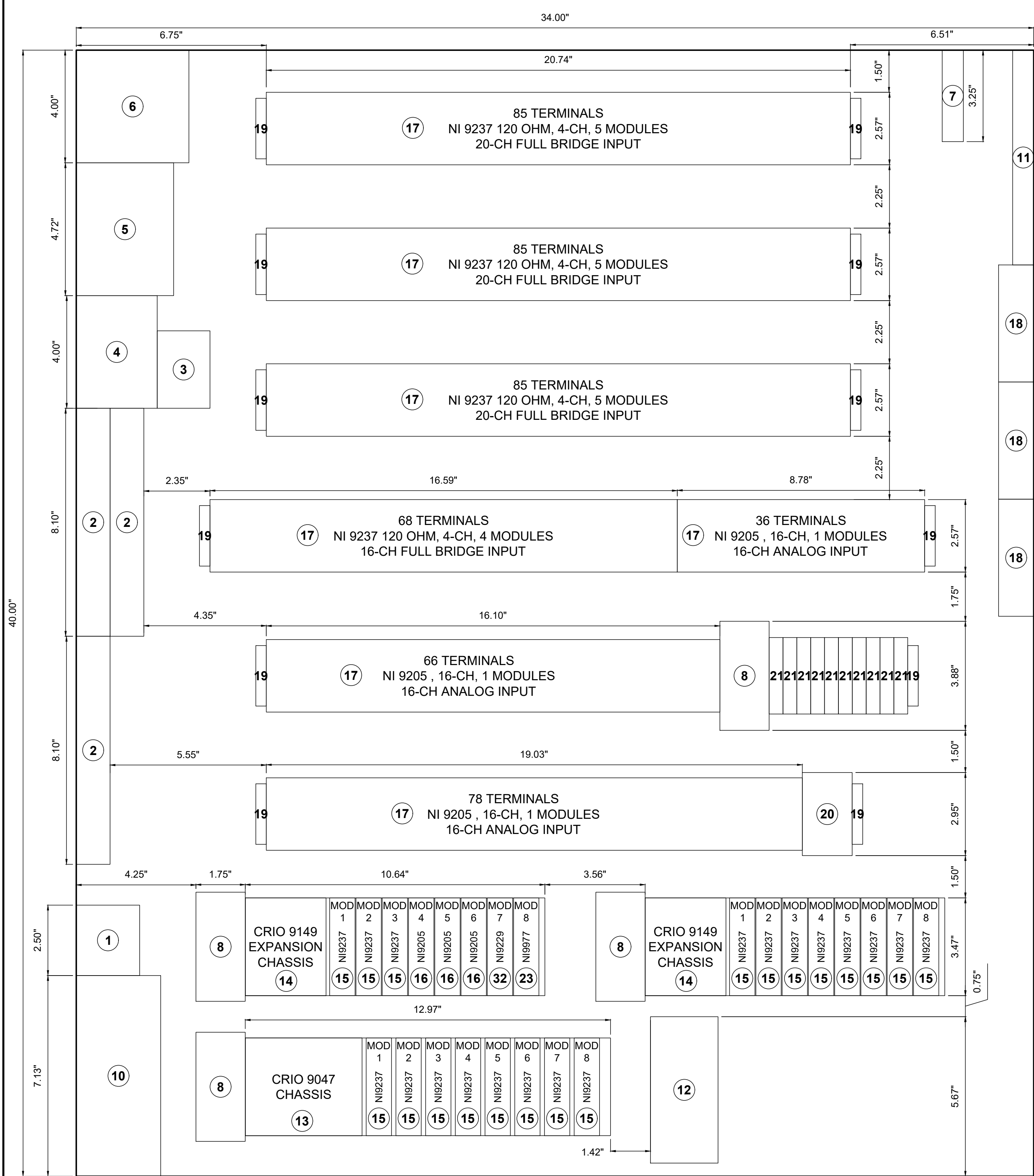
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-514	
FILE:	CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010

DAQ CABINET SPU3SE1

SIZE: ANSI D SCALE: AS NOTED SHEET 33 OF 55



SPU3SE2 PARTS AND QUANTITIES			
ITEM NUMBER	DESCRIPTION	MAKE/MODEL	QUANTITY
1	AC SWITCH	RACO 660	1
2	AC POWER STRIP 4 CONNECTORS WITH SWITCH	TRIPP LITE TLP404	3
3	AC/DC CONVERTER	STANCOR STA-4812A	1
4	AC 2 CONNECTION WALL OUTLET	RACO 683	1
5	FIBER OPTIC SWITCH	VERISTRON SG70660M	1
6	METAL AC BREAKOUT BOX	RACO 683	1
7	LED FUSE	EATON FAZ-D2-1-SP	1
8	24 VOLT DC POWER SUPPLY	SOLA SDP 4-24-100RT	4
9	ADHESIVE LED LIGHT STRIP	ASPECTLED AL-SL-W-U	1
10	ENCLOSURE FAN	HAMMOND MANUFACTURING XF 6115	1
11	ENCLOSURE EXHAUST GRILL	HAMMOND MANUFACTURING XFG6	2
12	PTC HEATER	STEGO 060210-00	1
13	NI SLOT FILLER	NATIONAL INSTRUMENTS NI9977	2
14	NI CRIO 9149	NATIONAL INSTRUMENTS CRIO 9149	3
15	NI C SERIES STRAIN BRIDGE MODULE	NATIONAL INSTRUMENTS NI9237	19
16	NI C SERIES ANALOG INPUT MODULE 4 CH	NATIONAL INSTRUMENTS NI9205	3
17	TERMINAL BLOCK	PHOENIX CONTACT UT 4 TWIN MT BU-3073018	596
18	GROUND DISTRIBUTION BAR	SIEMENS-HI CECOMINOD 010376	3
19	END BRACKET	PHOENIX CONTACT 3022218	12
20	12 VOLT DC POWER SUPPLY	SOLA SDP 3-15-100T	1
21	THERMOMAGNETIC CIRCUIT BREAKER	PHOENIX CONTACT TMC 42-01-0.5AMPS	10
22	SPU ENCLOSURE AND BACK PANEL	NVENT HOFFMAN CSD423612LG	1
23	DIN RAIL	8961K16 MCMASTER-CARR	3
24	UNINTERRUPTIBLE POWER SUPPLY (UPS)	TRIPP LITE SMART1500LCDT	1
25	COMPACT RIO CONTROLLER	NATIONAL INSTRUMENTS CRIO 074	1
26	BACKSHELL STRAIN RELIEF	NATIONAL INSTRUMENTS NI9965	22
27	FRONT-MOUNT TERMINAL BLOCK	NATIONAL INSTRUMENTS NI9923	22
28	DIN RAIL SCREWS	92364A245 MCMASTER-CARR	2
29	DIN MOUNT (NI CRIO 9149)	NI DIN RAIL MOUNTING KIT, 779018-01	2
30	DIN MOUNT (NI CRIO 9047)	NI DIN RAIL MOUNTING KIT, 157268-01	1
31	SCREWS AC POWER STRIP)	2364A200 MCMASTER-CARR	1
32	NI C SERIES ANALOG INPUT MODULE 16 CH	NATIONAL INSTRUMENTS NI9229	1

SPU3SE2 POWER CONNECTIONS				
DEVICE	PART NUMBER	POWER REQ.	SUPPLY	QTY
NI CRIO 9035	NI9035	9 V TO 30 VDC	24 VOLT DC POWER SUPPLY (NI9035)	1
NI CRIO 9149	NI9149	9 V TO 30 VDC	24 VOLT DC POWER SUPPLY (NI9149)	2
12 VOLT DC POWER SUPPLY	SOLA SDP 3-15-100T	120VAC	POWER STRIP	1
24 VOLT DC POWER SUPPLY (SENSORS)	SOLA SDP4-24-100RT	120VAC	POWER STRIP	1
FIBER OPTIC SWITCH	VERISTRON SG 70660M	12VDC	INCLUDED POWER SUPPLY (AC/DC CONVERTER)	1
HEATER	STEGO 060210-00	120VAC	POWER STRIP	1
FIBER OPTIC POWER SUPPLY	INCLUDED WITH SWITCH	120VAC	POWER STRIP	1
24 VOLT DC POWER SUPPLY (NI9035)	SOLA SDP4-24-100RT	120VAC	POWER STRIP	1
24 VOLT DC POWER SUPPLY (NI9149)	SOLA SDP4-24-100RT	120VAC	POWER STRIP	2
POWER STRIP	TRIPP LITE TLP404	120VAC	UPS	3
UPS	TRIPP LITE SMART1500LCDT	120VAC	AC WALL OUTLET	1
ENCLOSURE FAN	HAMMOND XF 6115	120VAC	POWER STRIP	1
12VDC+ TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	12VDC	12 VOLT DC POWER SUPPLY (+)TERMINAL	3
12VDC- TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	12VDC	12 VOLT DC POWER SUPPLY (-)TERMINAL	3
24VDC+ TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	24VDC	24 VOLT DC POWER SUPPLY (+)TERMINAL	3
24VDC- TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	24VDC	24 VOLT DC POWER SUPPLY (-)TERMINAL	3
AC WALL OUTLET	RACO 683	120VAC	BUILDING POWER	1

MOUNTING METHOD/HARDWARE		
ITEM NUMBER	DESCRIPTION	BRACKET/HARDWARE MODEL
1	AC SWITCH	DIN SCREWS
2	AC POWER STRIP	SAME SCREWS FROM SPU3SE1
3	AC/DC CONVERTER	NONE
4	AC 2 CONNECTION WALL OUTLET	SAME SCREWS FROM SPU3SE1
5	FIBER OPTIC SWITCH	SAME SCREWS FROM SPU3SE1
6	METAL AC BREAKOUT BOX	SAME SCREWS FROM SPU3SE1
7	LED FUSE	DIN RAIL
8	24V DC POWER SUPPLY	DIN RAIL
9	ADHESIVE LED LIGHT STRIP	SUPPLIED ADHESIVE
10	ENCLOSURE FAN	DIN SCREWS

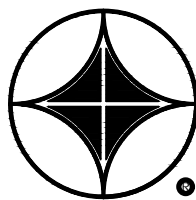
11	ENCLOSURE EXHAUST GRILL	DIN SCREWS
12	PTC HEATER	DIN RAIL
14	NI CRIO 9149	NI DIN RAIL MOUNTING KIT
17	TERMINAL BLOCK	DIN RAIL
18	GROUND DISTRIBUTION BAR	SUPPLIED BRACKET
19	END BRACKET	DIN RAIL
20	12V DC POWER SUPPLY	DIN RAIL
21	CIRCUIT BREAKER	DIN RAIL
22	SPU ENCLOSURE	SPU ENCLOSURE BRACKET
24	UPS	SURFACE PLACEMENT OUTSIDE ENCLOSURE
25	NI CRIO 9047	NI DIN RAIL MOUNTING KIT

QTY (FT)	STYLE	NOTES
2000	TWISTED PAIR	PER I-100MR: WIRE SHALL BE 22AWG BRAIDED COPPER OR AS RECOMMENDED BY THE SENSOR MANUFACTURER, WHICHEVER IS LARGER.
100	SINGLE WIRE	WIRE SHALL BE 8AWG FOR COMMONING SHIELDS AND SHIELD BUS BARS.

NOTE(S):

- PROPOSED LOCATION OF SPU3SE2 PROVIDED ON G-102.
- CABLES ENTER FROM TOP OF ENCLOSURE.
- ROUTE WIRES FROM TERMINALS TO CHASSIS IN NEAT AND WORKMANLIKE MANNER.
- THE O&M CONTRACTOR MAY PROVIDE EQUIVALENT OR BETTER ALTERNATIVES TO THE ONES LISTED. IT IS EXPECTED THAT THE O&M CONTRACTOR WILL SUBMIT ALL CUT SHEETS REQUIRED FOR INSTRUMENTATION TO THE ENGINEER FOR REVIEW AND APPROVAL.
- INSTALL DIN RAILS BEHIND TERMINAL BLOCKS FOR MOUNTING.
- UPS TO BE LOCATED OUTSIDE OF SPU ENCLOSURE.
- USE POLYETHYLENE CLOSED CELL FOAM CYLINDER OR EQUIVALENT TO SEAL THE CABLE CONDUIT.
- PLACE LED LIGHT STRIP (PART #9) ALONG INNER PERIPHERY OF SPU ENCLOSURE S NEEDED.
- DIN RAILS AND CORRESPONDING MOUNTING HARDWARE TO BE PLACED BEHIND DIN-MOUNTABLE PARTS.

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



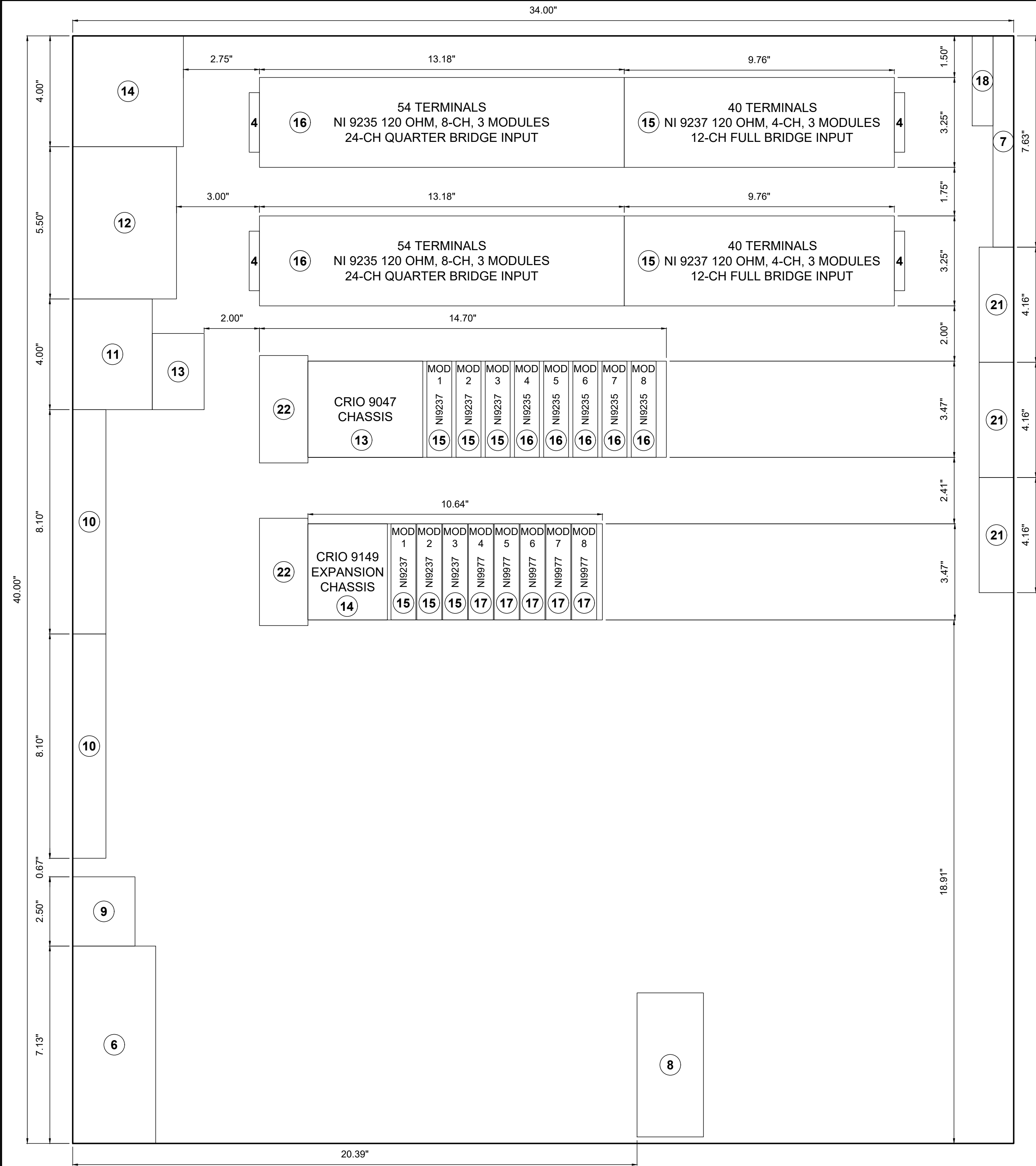
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER: Q-515		
FILE: CC10-INST-PLAN.DWG		

NAPTF CONSTRUCTION CYCLE 010

DAQ CABINET SPU3SE2

SIZE: ANSI D SCALE: AS NOTED SHEET 34 OF 55



SPU3N PARTS AND QUANTITIES			
ITEM NUMBER	DESCRIPTION	MAKE/MODEL	QUANTITY
1	SPU ENCLOSURE	EXISTING	EXISTING
2	COMPACT RIO CONTROLLER	NATIONAL INSTRUMENTS CRIO 9047	1
3	TERMINAL BLOCK	EXISTING	EXISTING
4	END BRACKET	PHOENIX CONTACT 3022218	12
5	COMPACT RIO CHASSIS	NATIONAL INSTRUMENTS CRIO 9149	1
6	ENCLOSURE FAN	HAMMOND MANUFACTURING XF 6115	1
7	ENCLOSURE EXHAUST GRILL	HAMMOND MANUFACTURING XFG6	2
8	PTC HEATER	STEGO 060210-00	1
9	AC POWER SWITCH BOX	RACO 660	1
10	AC POWER STRIP 4 CONNECTORS WITH SWITCH	TRIPP LITE TLP404	2
11	AC PLUG TWO CONNECTORS	EXISTING	EXISTING
12	ETHERNET NETWORK SWITCH	VERISTRON SG70660M	1
13	AC/DC CONVERTER	STANCOR STA-4812A	1
14	ELECTRICAL JUNCTION BOX	RACO 683	1
15	C SERIES STRAIN/BRIDGE INPUT MODULE	NATIONAL INSTRUMENTS NI9237	6
16	C SERIES STRAIN/BRIDGE INPUT MODULE	NATIONAL INSTRUMENTS NI9235	5
17	SLOT FILLER	NATIONAL INSTRUMENTS NI9977	5
18	LED FUSE	EATON FAZ-D2-1-SP	1
19	ADHESIVE LED LIGHT STRIP	ASPECTLED AL-SL-W-U	1
20	UNINTERRUPTIBLE POWER SUPPLY (UPS)	TRIPP LITE SMART1500LCDT	1
21	GROUND DISTRIBUTION BAR	SIEMENS-HI CECOMINOD 010376	3
22	24 VOLT DC POWER SUPPLY	SOLA SDP 4-24-100RT	2
23	BACKSHELL STRAIN RELIEF	NATIONAL INSTRUMENTS NI9965	6
24	FRONT-MOUNT TERMINAL BLOCK	NATIONAL INSTRUMENTS NI9923	2
25	DIN RAIL	8961K16 MCMMASTER-CARR	1
26	DIN SCREWS	92364A245 MCMMASTER-CARR	2
27	DIN MOUNT (NI CRIO 9149)	NI DIN RAIL MOUNTING KIT, 779018-01	1
28	DIN MOUNT (NI CRIO 9047)	NI DIN RAIL MOUNTING KIT, 157268-01	1

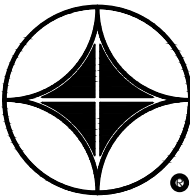
SPU3N POWER CONNECTIONS				
DEVICE	PART NUMBER	POWER REQ.	SUPPLY	QTY
NI CRIO 9097	NI9097	9 V TO 30 VDC	24 VOLT DC POWER SUPPLY (NI9035)	1
NI CRIO 9149	NI9149	9 V TO 30 VDC	24 VOLT DC POWER SUPPLY (NI9149)	1
FIBER OPTIC SWITCH	VERISTRON SG 70660M	+7.5VDC, 1A	INCLUDED POWER SUPPLY (AC/DC CONVERTER)	1
HEATER	STEGO 060210-00	120VAC	POWER STRIP	1
FIBER OPTIC POWER SUPPLY	INCLUDED WITH SWITCH	120VAC	POWER STRIP	1
24 VOLT DC POWER SUPPLY (NI9035)	SOLA SDP4-24-100RT	120VAC	POWER STRIP	1
24 VOLT DC POWER SUPPLY (NI9149)	SOLA SDP4-24-100RT	120VAC	POWER STRIP	1
POWER STRIP	TRIPP LITE TLP404	120VAC	UPS	2
UPS	TRIPP LITE SMART1500LCDT	120VAC	AC WALL OUTLET	1
ENCLOSURE FAN	HAMMOND XF 6115	120VAC	POWER STRIP	1
AC WALL OUTLET	RACO 683	120VAC	BUILDING POWER	1

MOUNTING METHOD/HARDWARE		
ITEM NUMBER	DESCRIPTION	BRACKET/HARDWARE MODEL
2	NI CRIO 9047	NI DIN RAIL MOUNTING KIT
3	TERMINAL BLOCKS	DIN RAIL
4	END BRACKET	DIN RAIL
5	NI CRIO 9149	NI DIN RAIL MOUNTING KIT
6	ENCOSURE FAN	DIN SCREWS
7	EXHAUST GRILL	DIN SCREWS
8	PTC HEATER	DIN RAIL
9	AC SWITCH BOX	DIN SCREWS
10	AC POWER STRIP	SAME SCREWS FROM SPU3SE1
12	FIBER OPTIC SWITCH	SAME SCREWS FROM SPU3SE1
13	AC/DC CONVERTER	NONE
14	JUNCTION BOX	SAME SCREWS FROM SPU3SE1
18	LED FUSE	DIN RAIL
19	LED LIGHT STRIP	SUPPLIED ADHESIVE
20	UPS	SURFACE PLACEMENT OUTSIDE ENCLOSURE
21	GROUND DISTRIBUTION BAR	SUPPLIED BRACKET
22	24V DC POWER SUPPLY	DIN RAIL

QTY (FT)	STYLE	NOTES
2000	TWISTED PAIR	PER I-100MR: WIRE SHALL BE 22AWG BRAIDED COPPER OR AS RECOMMENDED BY THE SENSOR MANUFACTURER, WHICHEVER IS LARGER.
100	SINGLE WIRE	WIRE SHALL BE 8AWG FOR COMMONING SHIELDS AND SHIELD BUS BARS.

- NOTE(S):**
- CABLES ENTER FROM TOP OF ENCLOSURE.
 - ROUTE WIRES FROM TERMINALS TO CHASSIS IN NEAT AND WORKMANLIKE MANNER.
 - THE O&M CONTRACTOR MAY PROVIDE EQUIVALENT OR BETTER ALTERNATIVES TO THE ONES LISTED. IT IS EXPECTED THAT THE O&M CONTRACTOR WILL SUBMIT ALL CUT SHEETS REQUIRED FOR INSTRUMENTATION TO THE ENGINEER FOR REVIEW AND APPROVAL.
 - UPS TO BE LOCATED OUTSIDE OF SPU ENCLOSURE.
 - USE POLYETHYLENE CLOSED CELL FOAM CYLINDER OR EQUIVALENT TO SEAL THE CABLE CONDUIT.

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



ARA

APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

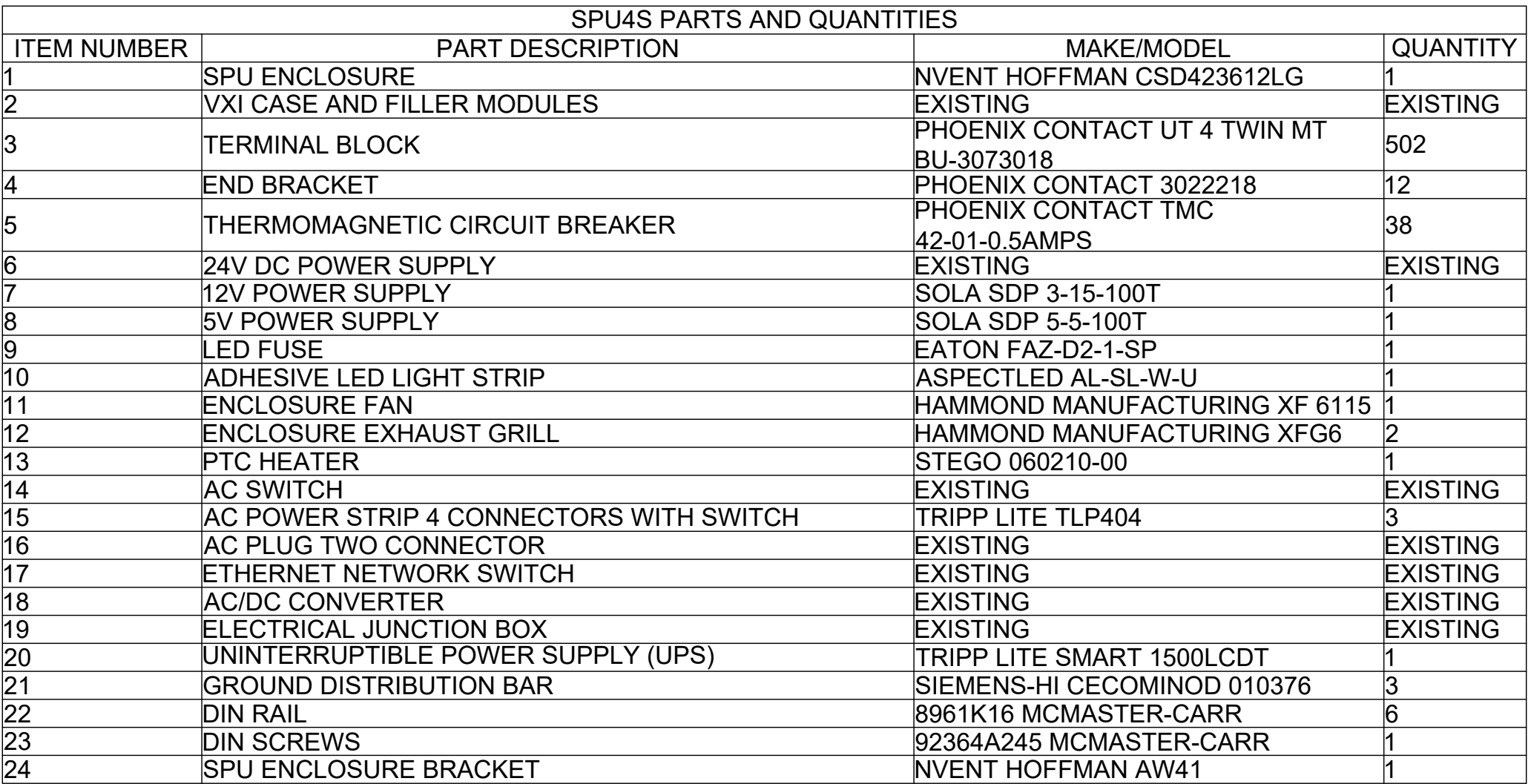
FOR



NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-516	
FILE:	CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010		
DAQ CABINET SPU3N		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 35 OF 55

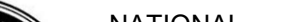


SPU4S POWER CONNECTIONS				
DEVICE	PART NUMBER	POWER REQ.	SUPPLY	QTY
VXI CASE	EXISTING	120VAC	POWER STRIP	1
CIRCUIT BREAKER	PHOENIX TMC 42-01-0.5	5VDC	5VDC POWER SUPPLY	38
12 VOLT DC POWER SUPPLY	SOLA SDP 3-15-100T	120VAC	POWER STRIP	1
24 VOLT DC POWER SUPPLY	EXISTING	120VAC	POWER STRIP	1
ETHERNET NETWORK SWITCH	EXISTING	EXISTING	INCLUDED POWER SUPPLY (AC/DC CONVERTER)	1
HEATER	STEGO 060210-00	120VAC	POWER STRIP	1
ETHERNET SWITCH POWER SUPPLY	EXISTING	120VAC	POWER STRIP	1
5VDC POWER SUPPLY	SOLA SDP 5-5-100T	120VAC	POWER STRIP	1
LED FUSE	EATON FAZ-D2-1-SP	12VDC	12 VOLT DC POWER SUPPLY	1
ADHESIVE LIGHT STRIP	ASPECTLED AL-SL-W-U	12VDC	LED FUSE	1
POWER STRIP	TRIPP LITE TLP404	120VAC	UPS	2
UPS	TRIPP LITE SMART1500LCDT	120VAC	AC WALL OUTLET	1
ENCLOSURE FAN	HAMMOND XF 6115	120VAC	UPS	1
12VDC+ TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	12VDC	12 VOLT DC POWER SUPPLY (+)TERMINAL	3
12VDC- TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	12VDC	12 VOLT DC POWER SUPPLY (-)TERMINAL	3
24VDC+ TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	24VDC	24 VOLT DC POWER SUPPLY (+)TERMINAL	3
24VDC- TERMINAL BLOCKS	PHOENIX UT 4 TWIN MT BU-3073018	24VDC	24 VOLT DC POWER SUPPLY (-)TERMINAL	3
AC WALL OUTLET	RACO 683	120VAC	BUILDING POWER	1

MOUNTING METHOD/HARDWARE		
ITEM NUMBER	DESCRIPTION	BACKET/HARDWARE MODEL
1	SPU ENCLOSURE AND BACK PANEL	SPU ENCLOSURE BRACKET
3	TERMINAL BLOCKS	DIN RAIL
4	END BRACKET	DIN RAIL
5	CIRCUIT BREAKER	DIN RAIL
7	12V DC POWER SUPPLY	DIN RAIL
8	5V POWER SUPPLY	DIN RAIL
9	LED FUSE	DIN RAIL
10	LED LIGHTSTRIP	SUPPLIED ADHESIVE
11	ENCOSURE FAN	DIN SCREWS
12	EXHAUST GRILL	DIN SCREWS
13	PTC HEATER	DIN RAIL
15	AC POWER STRIP	SAME SCREWS FROM SPU3SE1
20	UPS	SURFACE PLACEMENT OUTSIDE ENCLOSURE
21	GROUND DISTRIBUTION BAR	SUPPLIED BRACKET

QTY (FT)	STYLE	NOTES
850	TWISTED PAIR	PER I-100MR: WIRE SHALL BE 22AWG BRAIDED COPPER OR AS RECOMMENDED BY THE SENSOR MANUFACTURER, WHICHEVER IS LARGER.
100	SINGLE WIRE	WIRE SHALL BE 8AWG FOR COMMONING SHIELDS AND SHIELD BUS BARS.

1. PS = POWER SUPPLY
2. CABLES ENTER FROM TOP OF ENCLOSURE.
3. ROUTE WIRES FROM TERMINALS TO CHASSIS IN NEAT AND WORKMANLIKE MANNER.
4. THE O&M CONTRACTOR MAY PROVIDE EQUIVALENT OR BETTER ALTERNATIVES TO THE ONES LISTED. IT IS EXPECTED THAT THE O&M CONTRACTOR WILL SUBMIT ALL CUT SHEETS REQUIRED FOR INSTRUMENTATION TO THE ENGINEER FOR REVIEW AND APPROVAL.
5. UPS TO BE LOCATED OUTSIDE OF SPU ENCLOSURE.
6. USE POLYETHYLENE CLOSED CELL FOAM CYLINDER OR EQUIVALENT TO SEAL THE CABLE CONDUIT.
7. DIN RAILS AND CORRESPONDING MOUNTING HARDWARE TO BE PLACED BEHIND DIN-MOUNTABLE PARTS.

												 APPLIED RESEARCH ASSOCIATES, INC. 2628 FIRE ROAD, SUITE 200 EGG HARBOR TOWNSHIP NEW JERSEY 08234 PHONE: (609) 380-4240				 FEDERAL AVIATION ADMINISTRATION				NATIONAL AIRPORT PAVEMENT TEST FACILITY ATLANTIC CITY AIRPORT NEW JERSEY 08234				<table><tr><td></td><td>NAME</td><td>DATE</td></tr><tr><td>DRAWN</td><td>ARA</td><td>2022-12-01</td></tr><tr><td>CHECKED</td><td colspan="2">C.TOMLINSON</td></tr><tr><td>DRAWING NUMBER:</td><td colspan="2">Q-517</td></tr><tr><td>FILE:</td><td colspan="2">CC10-INST-PLAN.DWG</td></tr></table>				NAME	DATE	DRAWN	ARA	2022-12-01	CHECKED	C.TOMLINSON		DRAWING NUMBER:	Q-517		FILE:	CC10-INST-PLAN.DWG		SIZE: ANSI D			SCALE: AS NOTED			SHEET 36 OF 55																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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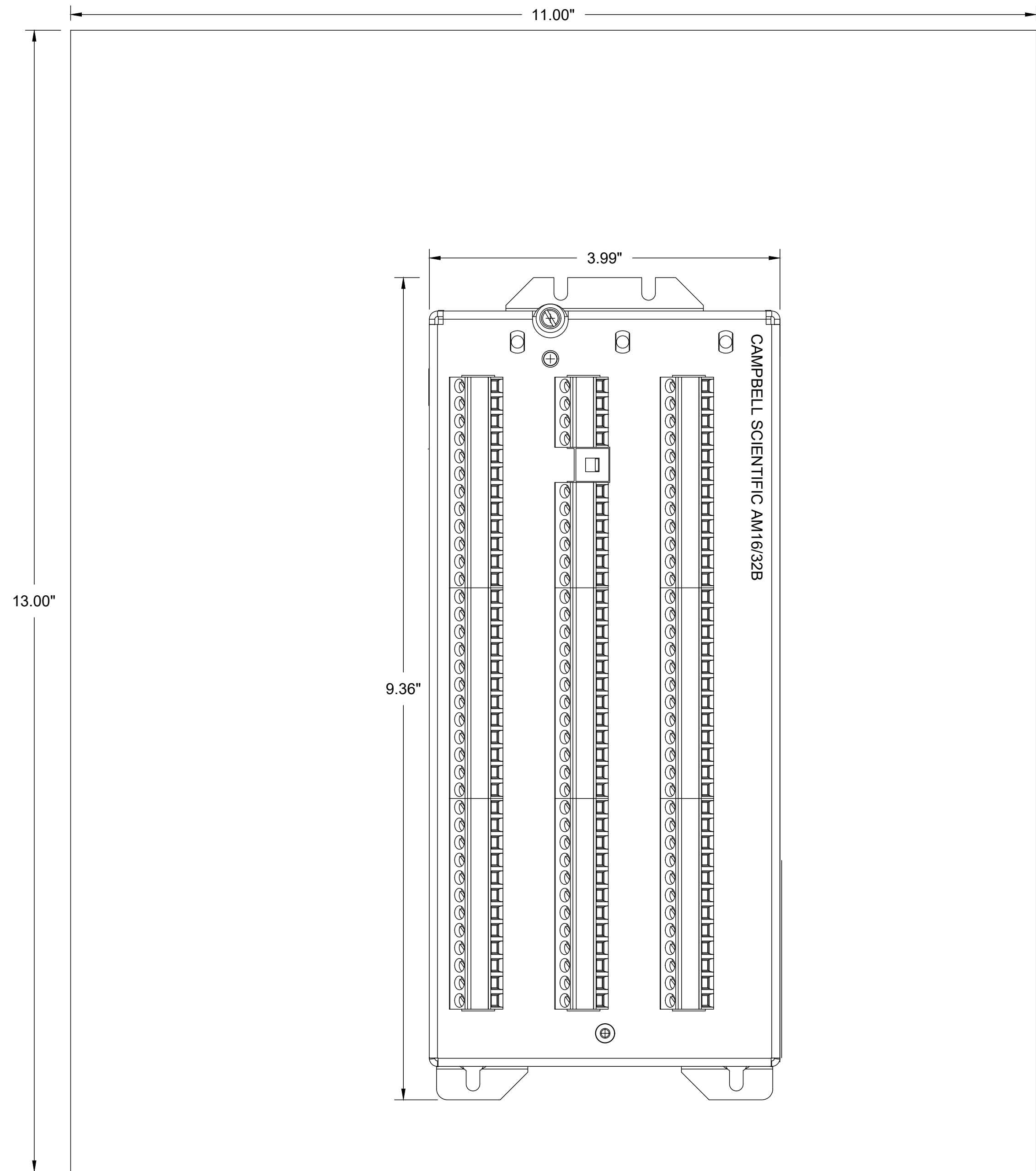
APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



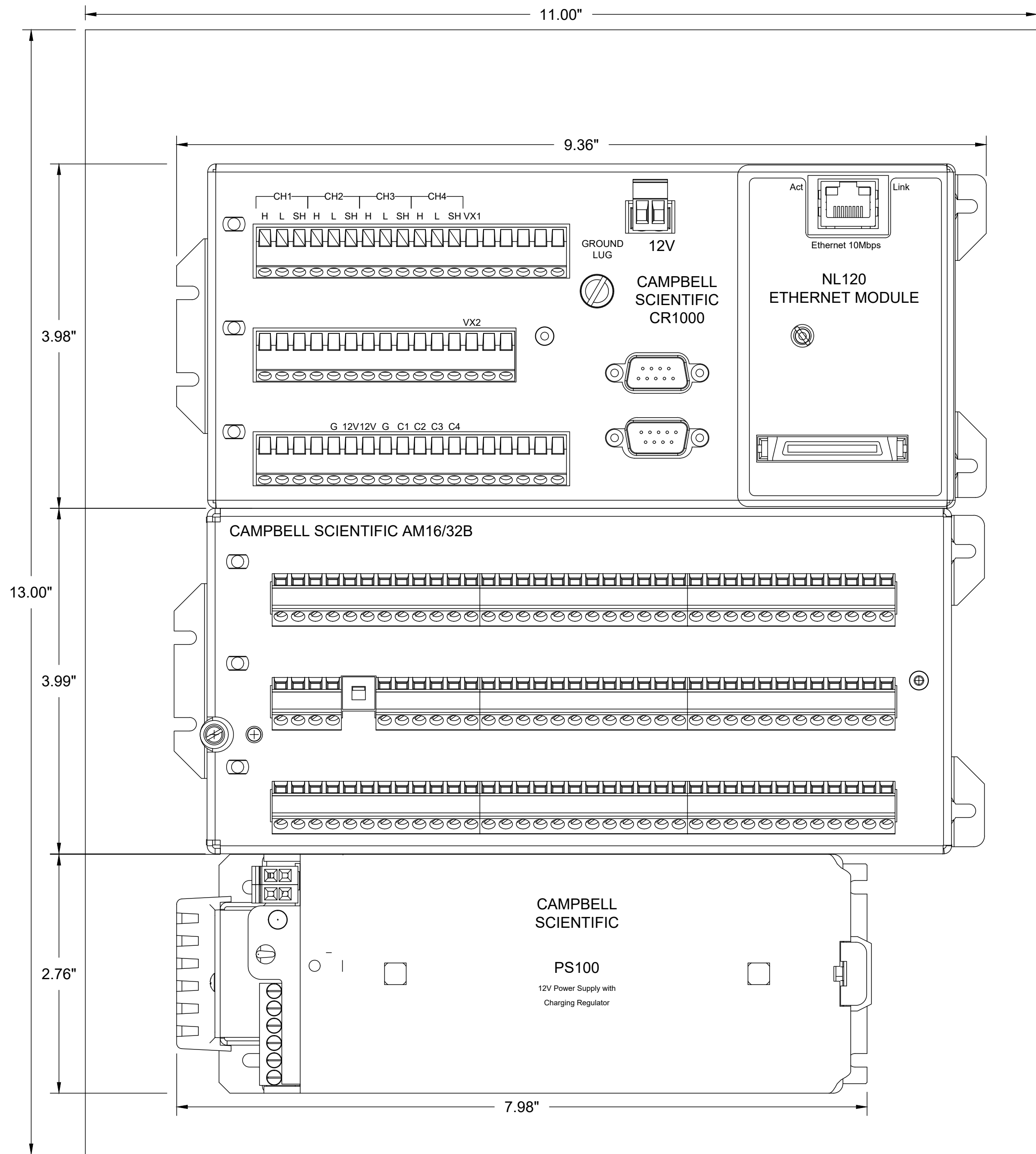
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER: Q-517		
FILE: CC10-INST-PLAN.DWG		



1
Q-518 **CAMPBELL ENCLOSURE 1: CAMPBELL SCIENTIFIC MULTIPLEXER**
NOT TO SCALE

ITEM NUMBER	PART DESCRIPTION	MAKE/MODEL	QUANTITY
1	WEATHER RESISTANT ENCLOSURE	EXISTING	EXISTING
2	CHANNEL RELAY MULTIPLEXER	EXISTING	EXISTING



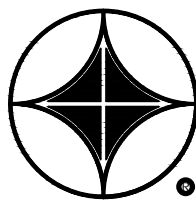
2
Q-518 **CAMPBELL ENCLOSURE 2: CAMPBELL SCIENTIFIC DATALOGGER AND MULTIPLEXER**
NOT TO SCALE

ITEM NUMBER	PART DESCRIPTION	MAKE/MODEL	QUANTITY
1	WEATHER RESISTANT ENCLOSURE	EXISTING	EXISTING
2	CHANNEL RELAY MULTIPLEXER	EXISTING	EXISTING
3	12 V POWER SUPPLY WITH CHARGING REGULATOR AND	EXISTING	EXISTING
4	7 AH RECHARGEABLE BATTERY	EXISTING	EXISTING
5	MEASUREMENT AND CONTROL DATALOGGER	EXISTING	EXISTING
	ETHERNET INTERFACE	EXISTING	EXISTING

NOTE(S):

1. THE O&M CONTRACTOR MAY PROVIDE EQUIVALENT OR BETTER ALTERNATIVES TO THE ONES LISTED. IT IS EXPECTED THAT THE O&M CONTRACTOR WILL SUBMIT ALL CUT SHEETS REQUIRED FOR INSTRUMENTATION TO THE ENGINEER FOR REVIEW AND APPROVAL.

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



ARA

APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



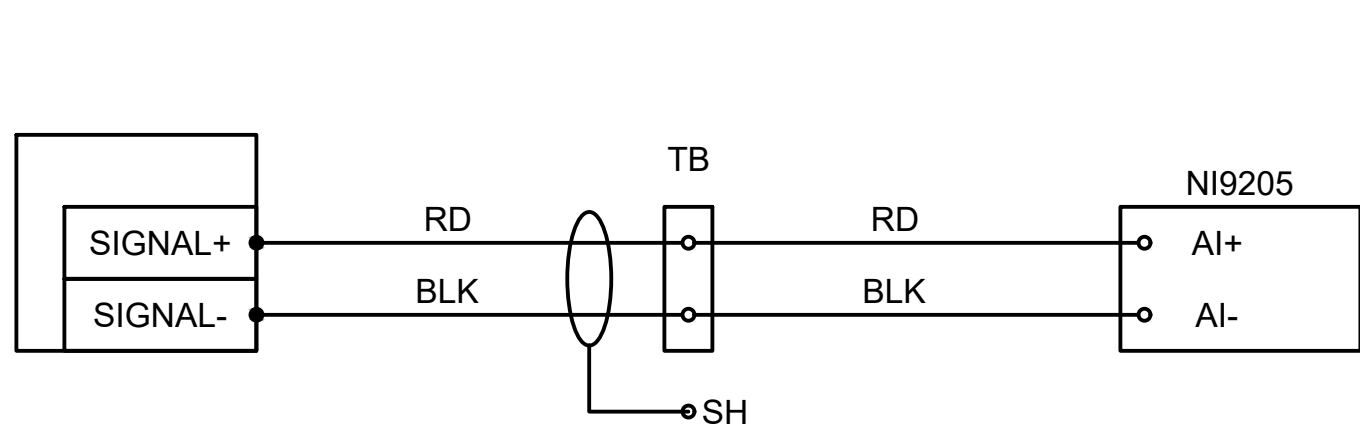
NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-518	
FILE:	CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010

DAQ CABINET CAMPBELL ENCLOSURES

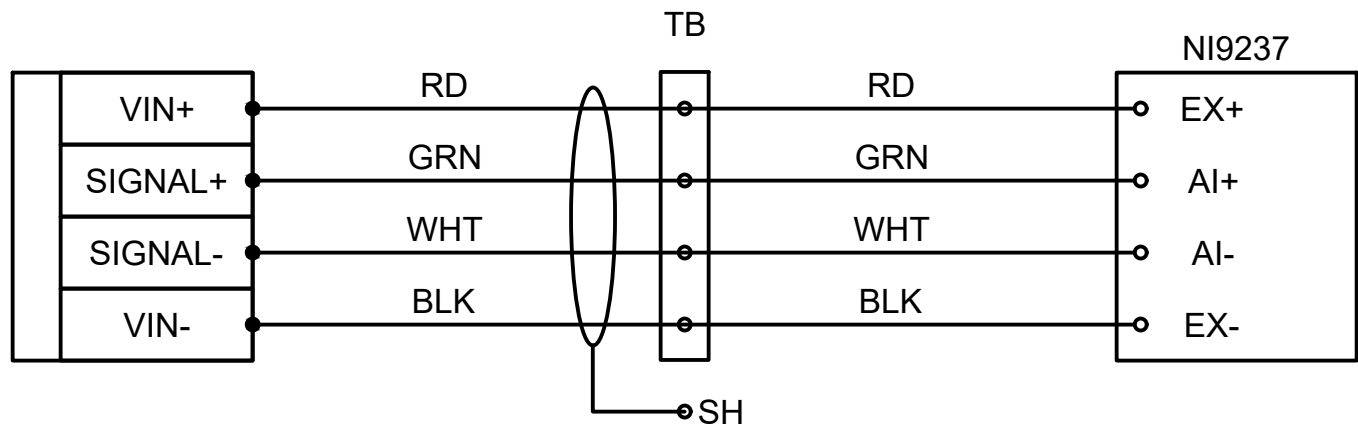
SIZE: ANSI D SCALE: AS NOTED SHEET 37 OF 55



1
Q-519

PIEZO FLOATING GATE WIRING DIAGRAM

NOT TO SCALE



2
Q-519

EMBEDDED STRAIN GAUGE WIRING DIAGRAM

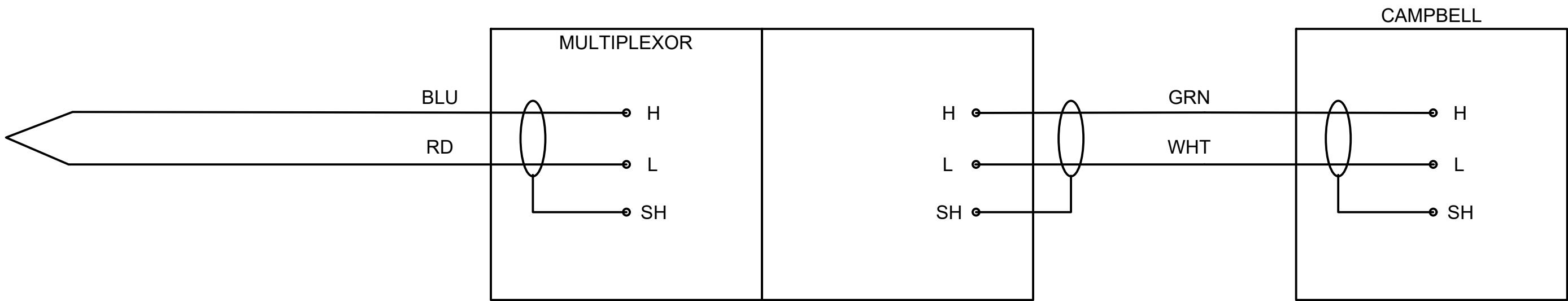
NOT TO SCALE



3
Q-519

THERMOCOUPLE EXTENSION CABLE WIRING DIAGRAM

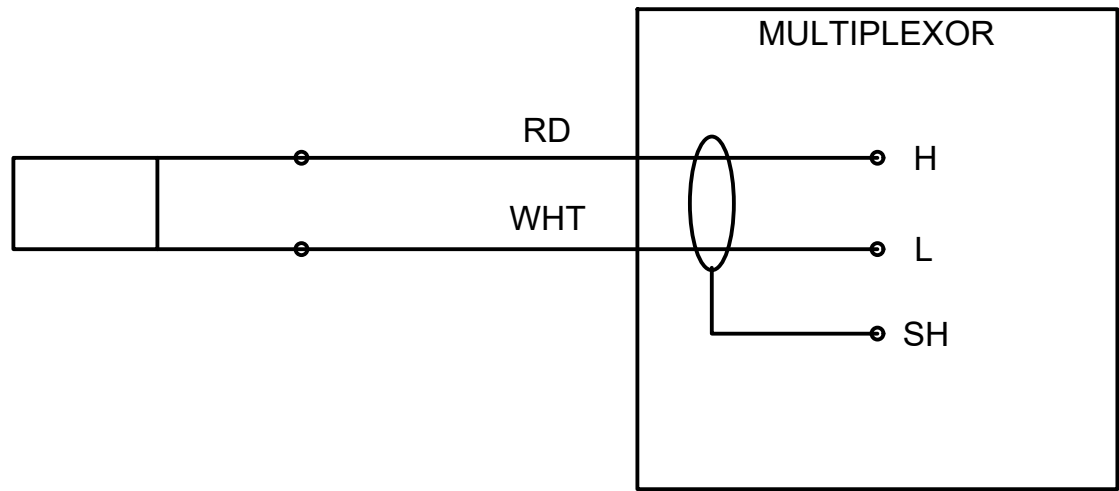
NOT TO SCALE



4
Q-519

THERMOCOUPLE WIRING DIAGRAM

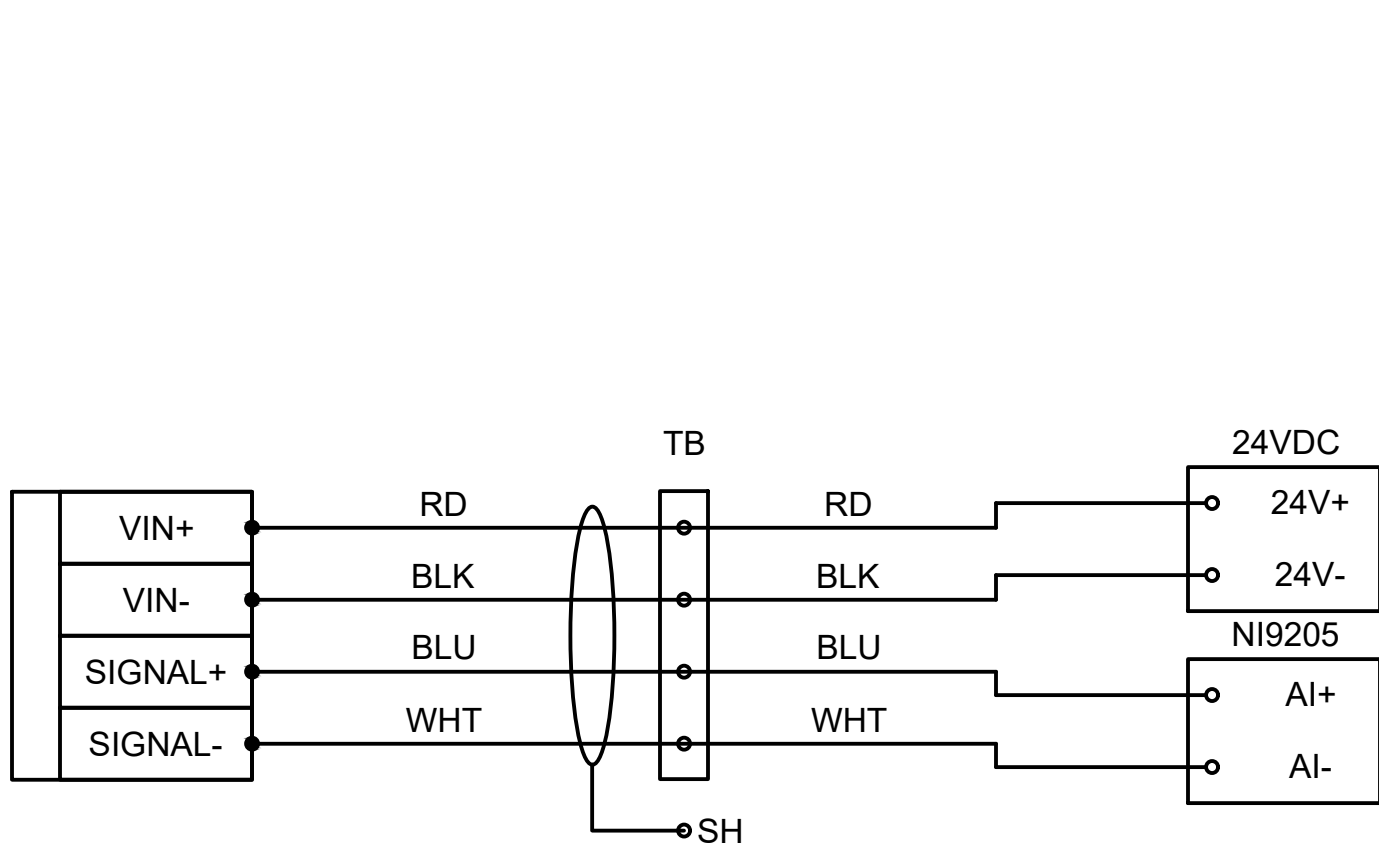
NOT TO SCALE



5
Q-519

MOISTURE SENSOR WIRING DIAGRAM

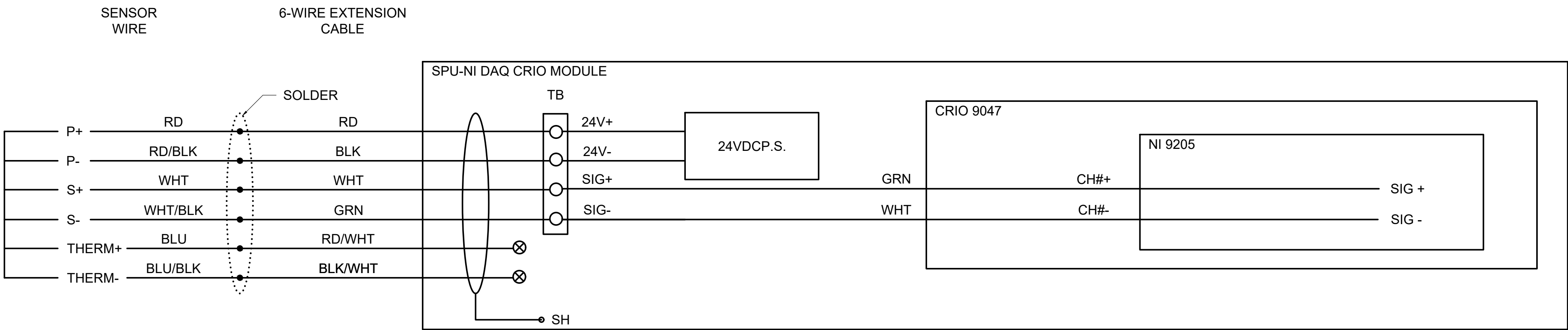
NOT TO SCALE



6
Q-519

EDDY CURRENT SENSOR WIRING DIAGRAM

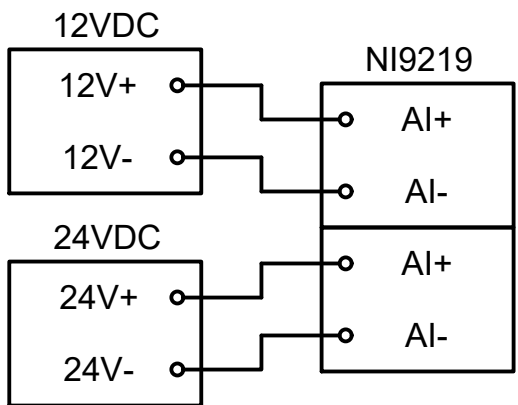
NOT TO SCALE



7
Q-519

PRESSURE CELL WIRING DIAGRAM

NOT TO SCALE



8
Q-519

POWER SUPPLY MONITORING

NOT TO SCALE

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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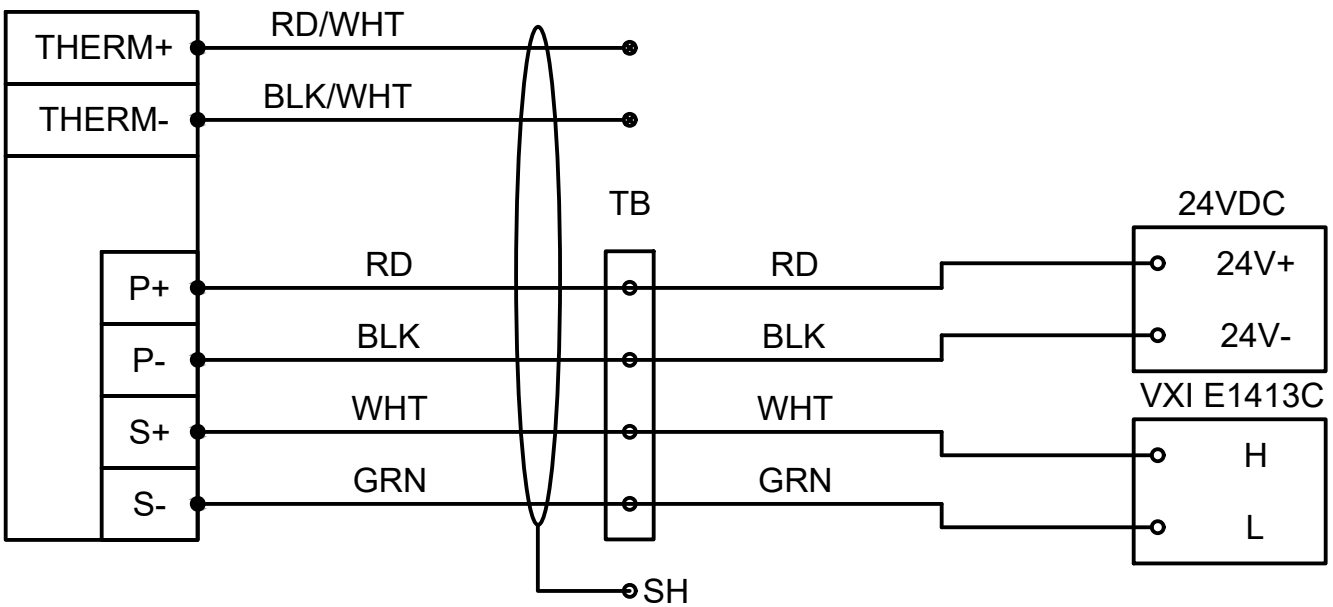
FOR



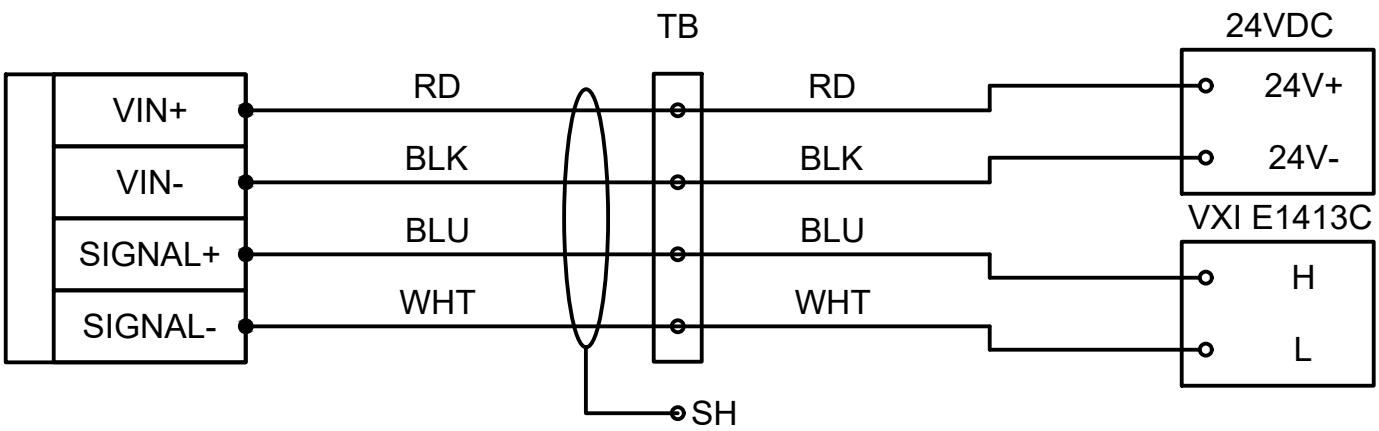
NATIONAL
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TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-519	
FILE:	CC10-INST-PLAN.DWG	

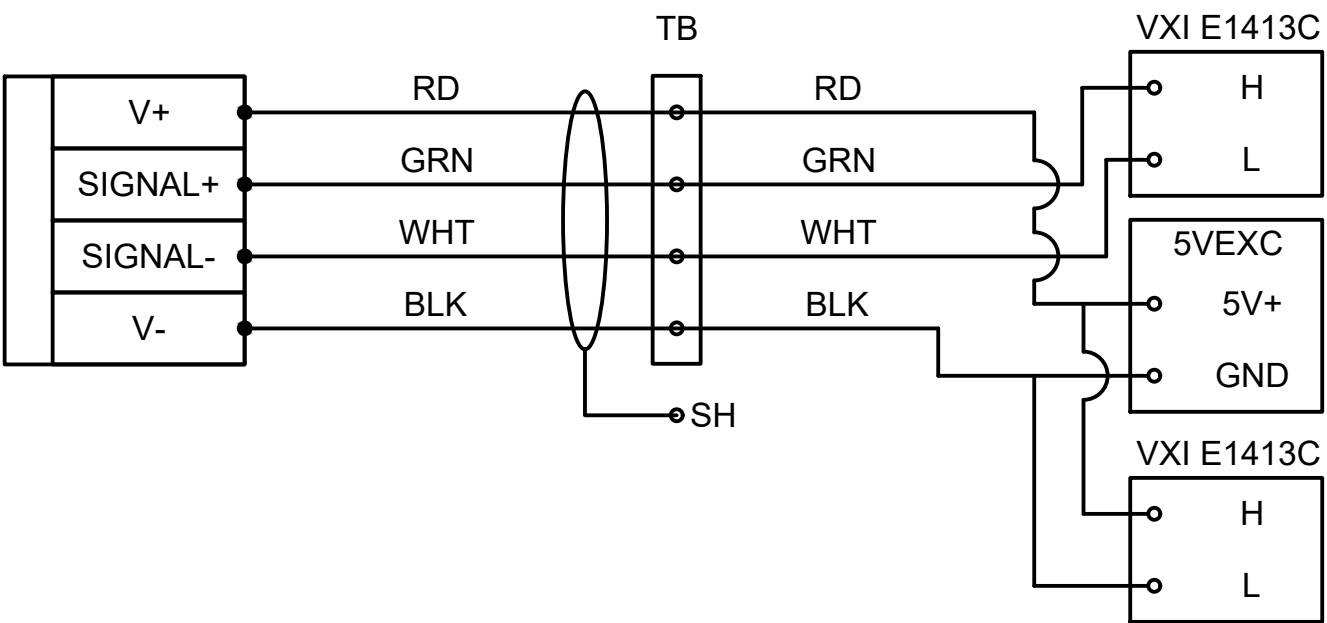
NAPTF CONSTRUCTION CYCLE 010		
NI INSTRUMENTATION SENSOR		
TYPICAL WIRING DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 38 OF 55



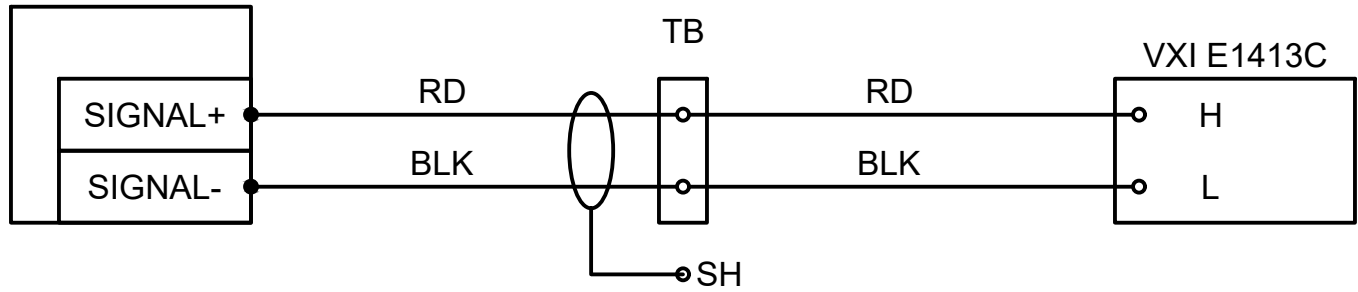
1
Q-520
VXI PRESSURE CELL WIRING DIAGRAM
NOT TO SCALE



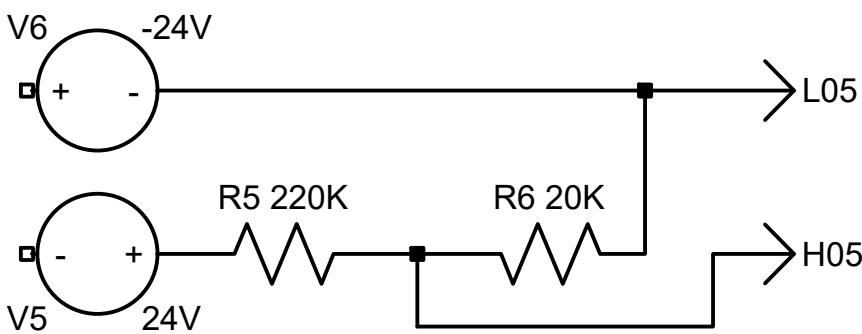
2
Q-520
VXI EDDY CURRENT SENSOR WIRING DIAGRAM
NOT TO SCALE



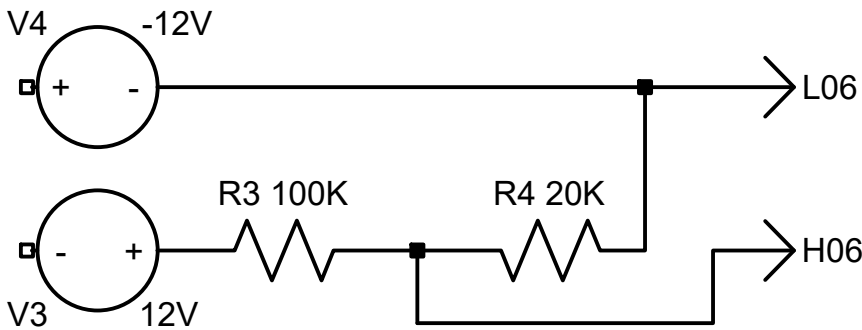
3
Q-520
VXI EMBEDDED STRAIN GAUGE WIRING DIAGRAM
NOT TO SCALE



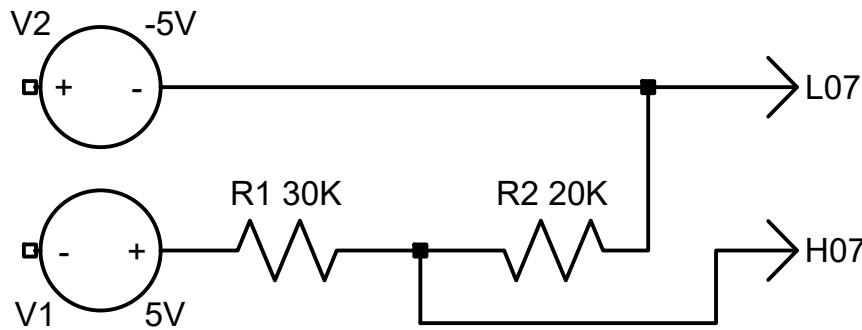
4
Q-520
VXI PIEZO FLOATING GATE WIRING DIAGRAM
NOT TO SCALE



5
Q-520
VXI 24VDC POWER SUPPLY VOLTAGE DIVIDER
NOT TO SCALE

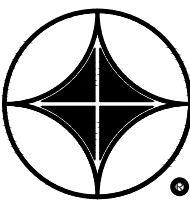


6
Q-520
VXI 12VDC POWER SUPPLY VOLTAGE DIVIDER
NOT TO SCALE



7
Q-520
VXI 5VDC POWER SUPPLY VOLTAGE DIVIDER
NOT TO SCALE

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



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NEW JERSEY 08234
PHONE: (609) 380-4240

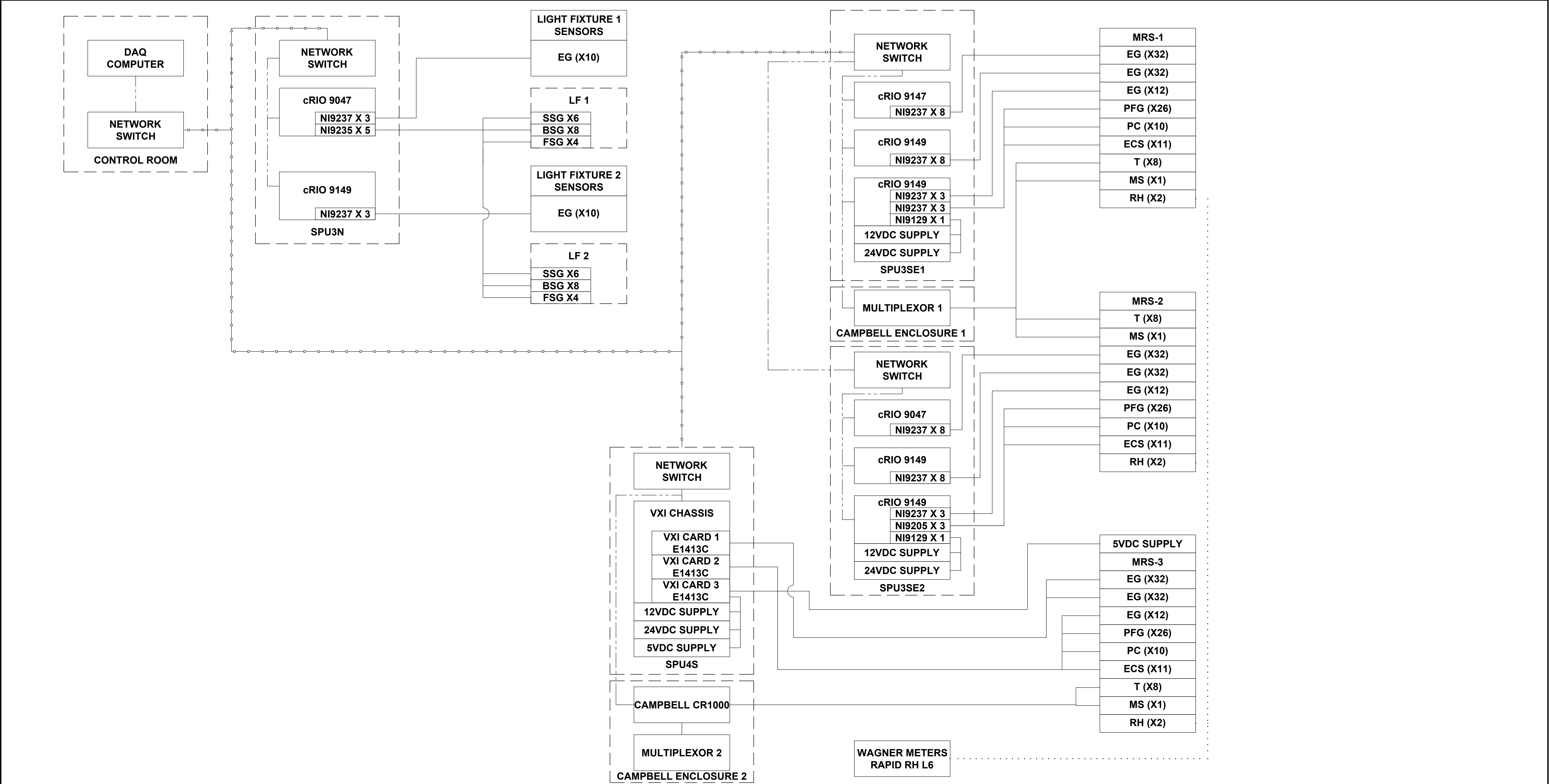
FOR



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TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER:	Q-520	
FILE:	CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010		
VXI INSTRUMENTATION SENSOR TYPICAL		
WIRING DETAIL		
SIZE: ANSI D	SCALE: AS NOTED	SHEET 39 OF 55



NOTE(S):

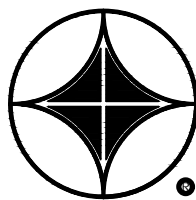
EG = EMBEDDED STRAIN GAUGE
PFG = PIEZO FLOATING GATE SENSOR
PC = PRESSURE CELL
ECS = EDDY CURRENT SENSOR
T = THERMOCOUPLE
MS = MOISTURE SENSOR
RH = RELATIVE HUMIDITY SENSOR
LF = LIGHT FIXTURE
SSG = STUD STRAIN GAUGE
BSG = BASE STRAIN GAUGE
FSG = FIXTURE STRAIN GAUGE

MODULE	INPUT	CHANNELS
NI9205	ANALOG	16
NI9235	QUARTER BRIDGE	8
NI9237	FULL BRIDGE	4
E1413C	ANALOG	64

LEGEND:

- ETHERNET CABLE
- PHYSICAL ENCLOSURE
- WIRELESS
- SENSOR CABLE
- FIBER CABLE

NO.	FOR BID	REVISIONS	DATE	BY	CHK	APR
			12/02/2022		C.T.	



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FOR



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ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

NAME	DATE
ARA	2022-12-01
C.TOMLINSON	
DRAWING NUMBER: Q-601	
FILE: CC10-INST-PLAN.DWG	

NAPTF CONSTRUCTION CYCLE 010			
INSTRUMENTATION ONE-LINE			
SIZE: ANSI D	SCALE: AS NOTED	SHEET 40 OF 55	

Test Item	Type	Sensor Label	Wire Label	Wire Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ	
					C	M	T							
MRS-1	45 Degree Embedded Strain Gauge	EG45-1-01	Vin+	Red	1			RS0+, EX0+	1,2	NI9237	1			
			Signal+	Green				2	AI0+, SC0+					3,4
			Signal-	White				3	AI0-					22
			Vin-	Black				4	RS0-, EX0-					20,21
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-02	Vin+	Red				5	RS1+, EX1+					5,6
			Signal+	Green				6	AI1+, SC1+					7,8
			Signal-	White				7	AI1-					26
			Vin-	Black				8	RS1-, EX1-					24,25
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-03	Vin+	Red				9	RS2+, EX2+					11,12
			Signal+	Green				10	AI2+, SC2+					13,14
			Signal-	White				11	AI2-					32
			Vin-	Black				12	RS2-, EX2-					30,31
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-04	Vin+	Red				13	RS3+, EX3+					15,16
			Signal+	Green				14	AI3+, SC3+					17,18
			Signal-	White				15	AI3-					36
			Vin-	Black				16	RS3-, EX3-					34,55
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-05	Vin+	Red	2			RS0+, EX0+	1,2	NI9237	2			
			Signal+	Green				2	AI0+, SC0+					3,4
			Signal-	White				3	AI0-					22
			Vin-	Black				4	RS0-, EX0-					20,21
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-06	Vin+	Red				5	RS1+, EX1+					5,6
			Signal+	Green				6	AI1+, SC1+					7,8
			Signal-	White				7	AI1-					26
			Vin-	Black				8	RS1-, EX1-					24,25
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-07	Vin+	Red				9	RS2+, EX2+					11,12
			Signal+	Green				10	AI2+, SC2+					13,14
			Signal-	White				11	AI2-					32
			Vin-	Black				12	RS2-, EX2-					30,31
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-08	Vin+	Red				13	RS3+, EX3+					15,16
			Signal+	Green				14	AI3+, SC3+					17,18
			Signal-	White				15	AI3-					36
			Vin-	Black				16	RS3-, EX3-					34,55
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-09	Vin+	Red	3			RS0+, EX0+	1,2	NI9237	3			
			Signal+	Green				1	AI0+, SC0+					3,4
			Signal-	White				3	AI0-					22
			Vin-	Black				4	RS0-, EX0-					20,21
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-10	Vin+	Red				5	RS1+, EX1+					5,6
			Signal+	Green				6	AI1+, SC1+					7,8
			Signal-	White				7	AI1-					26
			Vin-	Black				8	RS1-, EX1-					24,25
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-11	Vin+	Red				9	RS2+, EX2+					11,12
			Signal+	Green				10	AI2+, SC2+					13,14
			Signal-	White				11	AI2-					32
			Vin-	Black				12	RS2-, EX2-					30,31
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-12	Vin+	Red				13	RS3+, EX3+					15,16
			Signal+	Green				14	AI3+, SC3+					17,18
			Signal-	White				15	AI3-					36
			Vin-	Black				16	RS3-, EX3-					34,55
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-13	Vin+	Red	4			RS0+, EX0+	1,2	NI9237	4			
			Signal+	Green				2	AI0+, SC0+					3,4
			Signal-	White				3	AI0-					22
			Vin-	Black				4	RS0-, EX0-					20,21
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-14	Vin+	Red				5	RS1+, EX1+					5,6
			Signal+	Green				6	AI1+, SC1+					7,8
			Signal-	White				7	AI1-					26
			Vin-	Black				8	RS1-, EX1-					24,25
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-15	Vin+	Red				9	RS2+, EX2+					11,12
			Signal+	Green				10	AI2+, SC2+					13,14
			Signal-	White				11	AI2-					32
			Vin-	Black				12	RS2-, EX2-					30,31
			Shield	Shield				17						
	45 Degree Embedded Strain Gauge	EG45-1-16	Vin+	Red				13	RS3+, EX3+					15,16
			Signal+	Green				14	AI3+, SC3+					17,18
			Signal-	White				15	AI3-					36
			Vin-	Black				16	RS3-, EX3-					34,55
			Shield	Shield				17						

Test Item	Type	Sensor Label	Wire Label	Wire Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ	
					C	M	TB							
MRS-1	Longitudinal Embedded Strain Gauge	EGL-1-01	Vin+	Red	5	1	1	RS0+, EX0+	1,2	NI9237	5			
			Signal+	Green				2	AI0+, SC0+					3,4
			Signal-	White				3	AI0-					22
			Vin-	Black				4	RS0-, EX0-					20,21
			Shield	Shield				17						
	Longitudinal Embedded Strain Gauge	EGL-1-02	Vin+	Red				5	RS1+, EX1+					5,6
			Signal+	Green				6	AI1+, SC1+					7,8
			Signal-	White				7	AI1-					26
			Vin-	Black				8	RS1-, EX1-					24,25
			Shield	Shield				17						
	Longitudinal Embedded Strain Gauge	EGL-1-03	Vin+	Red				9	RS2+, EX2+					11,12
			Signal+	Green				10	AI2+, SC2+					13,14
			Signal-	White				11	AI2-					32
			Vin-	Black				12	RS2-, EX2-					30,31
			Shield	Shield	17									
	Longitudinal Embedded Strain Gauge	EGL-1-04	Vin+	Red	13	RS3+, EX3+	15,16							
			Signal+	Green	14	AI3+, SC3+	17,18							
			Signal-	White	15	AI3-	36							
			Vin-	Black	16	RS3-, EX3-	34,55							
			Shield	Shield	17									
	Longitudinal Embedded Strain Gauge	EGL-1-05	Vin+	Red	6	2	1	RS0+, EX0+	1,2	NI9237	6			
			Signal+	Green				2	AI0+, SC0+					3,4
			Signal-	White				3	AI0-					22
			Vin-	Black				4	RS0-, EX0-					20,21
			Shield	Shield				17						
	Longitudinal Embedded Strain Gauge	EGL-1-06	Vin+	Red				5	RS1+, EX1+					5,6
			Signal+	Green				6	AI1+, SC1+					7,8
			Signal-	White				7	AI1-					26
			Vin-	Black				8	RS1-, EX1-					24,25
			Shield	Shield				17						
	Longitudinal Embedded Strain Gauge	EGL-1-07	Vin+	Red				9	RS2+, EX2+					11,12
			Signal+	Green				10	AI2+, SC2+					13,14
			Signal-	White				11	AI2-					32
			Vin-	Black				12	RS2-, EX2-					30,31
			Shield	Shield	17									
	Longitudinal Embedded Strain Gauge	EGL-1-08	Vin+	Red	13	RS3+, EX3+	15,16							
			Signal+	Green	14	AI3+, SC3+	17,18							
			Signal-	White	15	AI3-	36							
			Vin-	Black	16	RS3-, EX3-	34,55							
			Shield	Shield	17									
	Longitudinal Embedded Strain Gauge	EGL-1-09	Vin+	Red	7	1	1	RS0+, EX0+	1,2	NI9237	7			
			Signal+	Green				2	AI0+, SC0+					3,4
			Signal-	White				3	AI0-					22
			Vin-	Black				4	RS0-, EX0-					20,21
			Shield	Shield				17						
	Longitudinal Embedded Strain Gauge	EGL-1-10	Vin+	Red				5	RS1+, EX1+					5,6
			Signal+	Green				6	AI1+, SC1+					7,8
			Signal-	White				7	AI1-					26
			Vin-	Black				8	RS1-, EX1-					24,25
			Shield	Shield				17						
	Longitudinal Embedded Strain Gauge	EGL-1-11	Vin+	Red				9	RS2+, EX2+					11,12
			Signal+	Green				10	AI2+, SC2+					13,14
			Signal-	White				11	AI2-					32
			Vin-	Black				12	RS2-, EX2-					30,31
			Shield	Shield	17									
	Longitudinal Embedded Strain Gauge	EGL-1-12	Vin+	Red	13	RS3+, EX3+	15,16							
			Signal+	Green	14	AI3+, SC3+	17,18							
			Signal-	White	15	AI3-	36							
			Vin-	Black	16	RS3-, EX3-	34,55							
			Shield	Shield	17									
Longitudinal Embedded Strain Gauge	EGL-1-13	Vin+	Red	8	1	1	RS0+, EX0+	1,2	NI9237	8				
		Signal+	Green				2	AI0+, SC0+					3,4	
		Signal-	White				3	AI0-					22	
		Vin-	Black				4	RS0-, EX0-					20,21	
		Shield	Shield				17							
Longitudinal Embedded Strain Gauge	EGL-1-14	Vin+	Red				5	RS1+, EX1+					5,6	
		Signal+	Green				6	AI1+, SC1+					7,8	
		Signal-	White				7	AI1-					26	
		Vin-	Black				8	RS1-, EX1-					24,25	
		Shield	Shield				17							
Longitudinal Embedded Strain Gauge	EGL-1-15	Vin+	Red				9	RS2+, EX2+					11,12	
		Signal+	Green				10	AI2+, SC2+					13,14	
		Signal-	White				11	AI2-					32	
		Vin-	Black				12	RS2-, EX2-					30,31	
		Shield	Shield	17										
Longitudinal Embedded Strain Gauge	EGL-1-16	Vin+	Red	13	RS3+, EX3+	15,16								
		Signal+	Green	14	AI3+, SC3+	17,18								
		Signal-	White	15	AI3-	36								
		Vin-	Black	16	RS3-, EX3-	34,55								
		Shield	Shield	17										

Test Item	Type	Sensor Label	Wire Label	Wire Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ	
					C	M	TB							
MRS-2	45 Degree Embedded Strain Gauge	EG45-2-01	Vin+	Red	1	2	RS0+, EX0+	1,2	NI9237	1	1	SPU3SE2		
			Signal+	Green			2	AI0+, SC0+					3,4	
			Signal-	White			3	AI0-					22	
			Vin-	Black			4	RS0-, EX0-					20,21	
			Shield	Shield			17							
	Vin+	Red	5	RS1+, EX1+			5,6							
	Signal+	Green	6	AI1+, SC1+			7,8							
	Signal-	White	7	AI1-			26							
	Vin-	Black	8	RS1-, EX1-			24,25							
	Shield	Shield	17											
	Vin+	Red	9	RS2+, EX2+			11,12							
	Signal+	Green	10	AI2+, SC2+			13,14							
	Signal-	White	11	AI2-			32							
	Vin-	Black	12	RS2-, EX2-			30,31							
	Shield	Shield	17											
	Vin+	Red	13	RS3+, EX3+			15,16							
	Signal+	Green	14	AI3+, SC3+			17,18							
	Signal-	White	15	AI3-		36								
	Vin-	Black	16	RS3-, EX3-		34,55								
	Shield	Shield	17											
	45 Degree Embedded Strain Gauge	EG45-2-02	Vin+	Red		2	2	RS0+, EX0+	1,2	NI9237			2	
			Signal+	Green				2	AI0+, SC0+					3,4
			Signal-	White				3	AI0-					22
			Vin-	Black				4	RS0-, EX0-					20,21
			Shield	Shield				17						
	Vin+	Red	5	RS1+, EX1+				5,6						
	Signal+	Green	6	AI1+, SC1+				7,8						
	Signal-	White	7	AI1-				26						
	Vin-	Black	8	RS1-, EX1-				24,25						
	Shield	Shield	17											
	Vin+	Red	9	RS2+, EX2+				11,12						
	Signal+	Green	10	AI2+, SC2+				13,14						
	Signal-	White	11	AI2-				32						
	Vin-	Black	12	RS2-, EX2-				30,31						
	Shield	Shield	17											
	Vin+	Red	13	RS3+, EX3+				15,16						
	Signal+	Green	14	AI3+, SC3+				17,18						
	Signal-	White	15	AI3-		36								
	Vin-	Black	16	RS3-, EX3-		34,55								
	Shield	Shield	17											
	45 Degree Embedded Strain Gauge	EG45-2-03	Vin+	Red		3	3	RS0+, EX0+	1,2	NI9237	3			
			Signal+	Green				2	AI0+, SC0+			3,4		
			Signal-	White				3	AI0-			22		
			Vin-	Black				4	RS0-, EX0-			20,21		
			Shield	Shield				17						
	Vin+	Red	5	RS1+, EX1+				5,6						
	Signal+	Green	6	AI1+, SC1+				7,8						
	Signal-	White	7	AI1-				26						
	Vin-	Black	8	RS1-, EX1-				24,25						
	Shield	Shield	17											
	Vin+	Red	9	RS2+, EX2+				11,12						
	Signal+	Green	10	AI2+, SC2+				13,14						
	Signal-	White	11	AI2-				32						
	Vin-	Black	12	RS2-, EX2-				30,31						
	Shield	Shield	17											
	Vin+	Red	13	RS3+, EX3+				15,16						
	Signal+	Green	14	AI3+, SC3+				17,18						
	Signal-	White	15	AI3-		36								
	Vin-	Black	16	RS3-, EX3-		34,55								
	Shield	Shield	17											
45 Degree Embedded Strain Gauge	EG45-2-04	Vin+	Red	4	4	RS0+, EX0+	1,2	NI9237	4					
		Signal+	Green			2	AI0+, SC0+			3,4				
		Signal-	White			3	AI0-			22				
		Vin-	Black			4	RS0-, EX0-			20,21				
		Shield	Shield			17								
Vin+	Red	5	RS1+, EX1+			5,6								
Signal+	Green	6	AI1+, SC1+			7,8								
Signal-	White	7	AI1-			26								
Vin-	Black	8	RS1-, EX1-			24,25								
Shield	Shield	17												
Vin+	Red	9	RS2+, EX2+			11,12								
Signal+	Green	10	AI2+, SC2+			13,14								
Signal-	White	11	AI2-			32								
Vin-	Black	12	RS2-, EX2-			30,31								
Shield	Shield	17												
Vin+	Red	13	RS3+, EX3+			15,16								
Signal+	Green	14	AI3+, SC3+			17,18								
Signal-	White	15	AI3-	36										
Vin-	Black	16	RS3-, EX3-	34,55										
Shield	Shield	17												
45 Degree Embedded Strain Gauge	EG45-2-05	Vin+	Red	4	5	RS0+, EX0+	1,2	NI9237	5					
		Signal+	Green			2	AI0+, SC0+			3,4				
		Signal-	White			3	AI0-			22				
		Vin-	Black			4	RS0-, EX0-			20,21				
		Shield	Shield			17								
Vin+	Red	5	RS1+, EX1+			5,6								
Signal+	Green	6	AI1+, SC1+			7,8								
Signal-	White	7	AI1-			26								
Vin-	Black	8	RS1-, EX1-			24,25								
Shield	Shield	17												
Vin+	Red	9	RS2+, EX2+			11,12								
Signal+	Green	10	AI2+, SC2+			13,14								
Signal-	White	11	AI2-</											

NOTE(S):

1. TERMINAL BLOCKS(TB) ARE ORGANIZED BASED ON CHASSIS(C) AND MODULE(M).
2. EMBEDDED STRAIN GAUGE: SEE DETAIL 2/Q-519.

Test Item	Type	Sensor Label	Wire Label	Wire Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ																			
					C	M	TB																									
MRS-2	Longitudinal Embedded Strain Gauge	EGL-2-01	Vin+	Red	1	5	17	RS0+, EX0+	1,2	NI9237	5																					
			Signal+	Green				2	AI0+, SC0+					3,4																		
			Signal-	White				3	AI0-					22																		
			Vin-	Black				4	RS0-, EX0-					20,21																		
			Shield	Shield				17																								
	Longitudinal Embedded Strain Gauge	EGL-2-02	Vin+	Red				5	RS1+, EX1+					5,6																		
			Signal+	Green				6	AI1+, SC1+					7,8																		
			Signal-	White				7	AI1-					26																		
			Vin-	Black				8	RS1-, EX1-					24,25																		
			Shield	Shield				17																								
	Longitudinal Embedded Strain Gauge	EGL-2-03	Vin+	Red				9	RS2+, EX2+					11,12																		
			Signal+	Green				10	AI2+, SC2+					13,14																		
			Signal-	White				11	AI2-					32																		
			Vin-	Black				12	RS2-, EX2-					30,31																		
			Shield	Shield				17																								
	Longitudinal Embedded Strain Gauge	EGL-2-04	Vin+	Red				13	RS3+, EX3+					15,16																		
			Signal+	Green				14	AI3+, SC3+					17,18																		
			Signal-	White				15	AI3-					36																		
			Vin-	Black				16	RS3-, EX3-					34,55																		
			Shield	Shield				17																								
	Longitudinal Embedded Strain Gauge	EGL-2-05	Vin+	Red				6	17					1	RS0+, EX0+	1,2	NI9237	6														
			Signal+	Green										2	AI0+, SC0+	3,4																
			Signal-	White										3	AI0-	22																
			Vin-	Black										4	RS0-, EX0-	20,21																
			Shield	Shield										17																		
	Longitudinal Embedded Strain Gauge	EGL-2-06	Vin+	Red										5	RS1+, EX1+	5,6																
			Signal+	Green										6	AI1+, SC1+	7,8																
			Signal-	White										7	AI1-	26																
			Vin-	Black										8	RS1-, EX1-	24,25																
			Shield	Shield										17																		
	Longitudinal Embedded Strain Gauge	EGL-2-07	Vin+	Red										9	RS2+, EX2+	11,12																
			Signal+	Green										10	AI2+, SC2+	13,14																
			Signal-	White										11	AI2-	32																
			Vin-	Black										12	RS2-, EX2-	30,31																
			Shield	Shield										17																		
	Longitudinal Embedded Strain Gauge	EGL-2-08	Vin+	Red										13	RS3+, EX3+	15,16																
			Signal+	Green										14	AI3+, SC3+	17,18																
			Signal-	White										15	AI3-	36																
			Vin-	Black										16	RS3-, EX3-	34,55																
			Shield	Shield										17																		
	Longitudinal Embedded Strain Gauge	EGL-2-09	Vin+	Red										7	17	1					RS0+, EX0+	1,2	NI9237	7								
			Signal+	Green												2					AI0+, SC0+	3,4										
			Signal-	White												3					AI0-	22										
			Vin-	Black												4					RS0-, EX0-	20,21										
			Shield	Shield												17																
	Longitudinal Embedded Strain Gauge	EGL-2-10	Vin+	Red												5					RS1+, EX1+	5,6										
			Signal+	Green												6					AI1+, SC1+	7,8										
			Signal-	White												7					AI1-	26										
			Vin-	Black												8					RS1-, EX1-	24,25										
			Shield	Shield												17																
	Longitudinal Embedded Strain Gauge	EGL-2-11	Vin+	Red												9					RS2+, EX2+	11,12										
			Signal+	Green												10					AI2+, SC2+	13,14										
			Signal-	White												11					AI2-	32										
			Vin-	Black												12					RS2-, EX2-	30,31										
			Shield	Shield												17																
	Longitudinal Embedded Strain Gauge	EGL-2-12	Vin+	Red												13					RS3+, EX3+	15,16										
			Signal+	Green												14					AI3+, SC3+	17,18										
			Signal-	White												15					AI3-	36										
			Vin-	Black												16					RS3-, EX3-	34,55										
			Shield	Shield												17																
	Longitudinal Embedded Strain Gauge	EGL-2-13	Vin+	Red												8					17	1					RS0+, EX0+	1,2	NI9237	8		
			Signal+	Green																		2					AI0+, SC0+	3,4				
			Signal-	White																		3					AI0-	22				
			Vin-	Black																		4					RS0-, EX0-	20,21				
			Shield	Shield																		17										
	Longitudinal Embedded Strain Gauge	EGL-2-14	Vin+	Red																		5					RS1+, EX1+	5,6				
			Signal+	Green																		6					AI1+, SC1+	7,8				
			Signal-	White																		7					AI1-	26				
			Vin-	Black																		8					RS1-, EX1-	24,25				
			Shield	Shield																		17										
	Longitudinal Embedded Strain Gauge	EGL-2-15	Vin+	Red																		9					RS2+, EX2+	11,12				
			Signal+	Green																		10					AI2+, SC2+	13,14				
			Signal-	White																		11					AI2-	32				
			Vin-	Black																		12					RS2-, EX2-	30,31				
			Shield	Shield																		17										
	Longitudinal Embedded Strain Gauge	EGL-2-16	Vin+	Red																		13					RS3+, EX3+	15,16				
			Signal+	Green																		14					AI3+, SC3+	17,18				
			Signal-	White																		15					AI3-	36				
			Vin-	Black																		16					RS3-, EX3-	34,55				
			Shield	Shield																		17										

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE	NAPTF CONSTRUCTION CYCLE 010 INSTRUMENTATION WIRING SCHEDULE MRS-2		
DRAWN	ARA	2022-12-01			
CHECKED	C.TOMLINSON				
DRAWING NUMBER: Q-606					
FILE: CC10-INST-PLAN.DWG			SIZE: ANSI D	SCALE: AS NOTED	SHEET 45 OF 55

Test Item	Type	Sensor Label	Wire Label	Wire Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ
					C	M	TB						
MRS-2	Transverse Embedded Strain Gauge	EGT-2-29	Vin+	Red	1			RS0+, EX0+	1,2	NI9237	1		
			Signal+	Green				AI0+, SC0+	3,4				
			Signal-	White				AI0-	22				
			Vin-	Black				RS0-, EX0-	20,21				
	Transverse Embedded Strain Gauge	EGT-2-30	Shield	Shield									
			Vin+	Red				RS1+, EX1+	5,6				
			Signal+	Green				AI1+, SC1+	7,8				
			Signal-	White				AI1-	26				
	Transverse Embedded Strain Gauge	EGT-2-31	Vin-	Black				RS1-, EX1-	24,25				
			Shield	Shield									
			Vin+	Red				RS2+, EX2+	11,12				
			Signal+	Green				AI2+, SC2+	13,14				
	Transverse Embedded Strain Gauge	EGT-2-32	Signal-	White	2			AI2-	32	NI9237	2		
			Vin-	Black				RS2-, EX2-	30,31				
			Shield	Shield									
			Vin+	Red				RS3+, EX3+	15,16				
	Transverse Embedded Strain Gauge	EGT-2-33	Signal+	Green				AI3+, SC3+	17,18				
			Signal-	White				AI3-	36				
			Vin-	Black				RS3-, EX3-	34,55				
			Shield	Shield									
	Transverse Embedded Strain Gauge	EGT-2-34	Vin+	Red				RS0+, EX0+	1,2	NI9237	3		
			Signal+	Green				AI0+, SC0+	3,4				
			Signal-	White				AI0-	22				
			Vin-	Black				RS0-, EX0-	20,21				
	Transverse Embedded Strain Gauge	EGT-2-35	Shield	Shield									
			Vin+	Red				RS1+, EX1+	5,6				
			Signal+	Green				AI1+, SC1+	7,8				
			Signal-	White				AI1-	26				
	Transverse Embedded Strain Gauge	EGT-2-36	Vin-	Black				RS1-, EX1-	24,25				
			Shield	Shield									
	Transverse Embedded Strain Gauge	EGT-2-37	Vin+	Red	3			RS2+, EX2+	11,12	NI9237	2		
			Signal+	Green				AI2+, SC2+	13,14				
			Signal-	White				AI2-	32				
			Vin-	Black				RS2-, EX2-	30,31				
	Transverse Embedded Strain Gauge	EGT-2-38	Shield	Shield									
			Vin+	Red				RS3+, EX3+	15,16				
			Signal+	Green				AI3+, SC3+	17,18				
			Signal-	White				AI3-	36				
	Transverse Embedded Strain Gauge	EGT-2-39	Vin-	Black				RS3-, EX3-	34,55				
			Shield	Shield									
	Longitudinal Piezo Floating Gate	PFGL-2-01	Vin+	Red	4			RS0+, EX0+	1,2	NI9205	4		
			Signal+	Green				AI0+, SC0+	3,4				
			Signal-	White				AI0-	22				
			Vin-	Black				RS0-, EX0-	20,21				
	Longitudinal Piezo Floating Gate	PFGL-2-02	Shield	Shield									
			Vin+	Red				RS1+, EX1+	5,6				
			Signal+	Green				AI1+, SC1+	7,8				
			Signal-	White				AI1-	26				
	Longitudinal Piezo Floating Gate	PFGL-2-03	Vin-	Black				RS1-, EX1-	24,25				
			Shield	Shield									
	Longitudinal Piezo Floating Gate	PFGL-2-04	Vin+	Red				RS2+, EX2+	11,12				
			Signal+	Green				AI2+, SC2+	13,14				
			Signal-	White				AI2-	32				
			Vin-	Black				RS2-, EX2-	30,31				
	Longitudinal Piezo Floating Gate	PFGL-2-05	Shield	Shield									
			Vin+	Red				RS3+, EX3+	15,16				
			Signal+	Green				AI3+, SC3+	17,18				
			Signal-	White				AI3-	36				
	Longitudinal Piezo Floating Gate	PFGL-2-06	Vin-	Black	4			RS3-, EX3-	34,55	NI9205	4		
			Shield	Shield									
			Vin+	Red				AI0	1				
			Signal	Red				AI8	20				
	Longitudinal Piezo Floating Gate	PFGL-2-07	Ground	Black									
			Shield	Shield									
			Signal	Red				AI1	2				
			Ground	Black				AI9	21				
	Longitudinal Piezo Floating Gate	PFGL-2-08	Shield	Shield									
			Signal	Red									
			Ground	Black				AI2	3				
			Shield	Shield				AI10	22				
	Longitudinal Piezo Floating Gate	PFGL-2-09	Signal	Red	4								
			Ground	Black				AI3	4				
			Shield	Shield				AI11	23				
			Signal	Red									
	Longitudinal Piezo Floating Gate	PFGL-2-10	Ground	Black				AI4	5				
			Shield	Shield				AI12	24				
			Signal	Red									
			Ground	Black				AI5	6				
	Longitudinal Piezo Floating Gate	PFGL-2-11	Shield	Shield				AI13	25				
			Signal	Red									
			Ground	Black				AI6	7				
			Shield	Shield				AI14	26				
	Longitudinal Piezo Floating Gate	PFGL-2-12	Signal	Red	4								
			Ground	Black									
			Shield	Shield				AI7	8				
			Signal	Red				AI15	27				
	Longitudinal Piezo Floating Gate	PFGL-2-13	Ground	Black									
			Shield	Shield									
			Signal	Red									
			Ground	Black									
	Longitudinal Piezo Floating Gate	PFGL-2-14	Shield	Shield									
			Signal	Red									
			Ground	Black									
			Shield	Shield									

NOTE(S):

1. TERMINAL BLOCKS(TB) ARE ORGANIZED BASED ON CHASSIS(C) AND MODULE(M).
2. EMBEDDED STRAIN GAUGE: SEE DETAIL 2/Q-519.
3. PIEZO FLOATING GATE: SEE DETAIL 1/Q-519.
4. PRESSURE CELL: SEE DETAIL 7/Q-519

Test Item	Type	Sensor Label	Wire Label	Wire Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ	
					C	M	TB							
MRS-2	Transverse Piezo Floating Gate	PFGT-2-01	Signal	Red	4	3	5	A116	11	NI9205	4	3	SPU3SE2	
			Ground	Black				19	A124					30
			Shield	Shield				20						
	Transverse Piezo Floating Gate	PFGT-2-02	Signal	Red				21	A117					12
			Ground	Black				22	A125					31
			Shield	Shield				27						
	Transverse Piezo Floating Gate	PFGT-2-03	Signal	Red				23	A118					13
			Ground	Black				24	A126					32
			Shield	Shield				27						
	Transverse Piezo Floating Gate	PFGT-2-04	Signal	Red				25	A119					14
			Ground	Black				26	A127					33
			Shield	Shield				27						
	Transverse Piezo Floating Gate	PFGT-2-05	Signal	Red				28	A120					15
			Ground	Black				29	A128					34
			Shield	Shield				36						
	Transverse Piezo Floating Gate	PFGT-2-06	Signal	Red				30	A121					16
			Ground	Black				31	A129					35
			Shield	Shield				36						
	Transverse Piezo Floating Gate	PFGT-2-07	Signal	Red				32	A122					17
			Ground	Black				33	A130					36
			Shield	Shield				36						
	Transverse Piezo Floating Gate	PFGT-2-08	Signal	Red				34	A123					18
			Ground	Black				35	A131					37
			Shield	Shield				36						
	Transverse Piezo Floating Gate	PFGT-2-09	Signal	Red				1	A10					1
			Ground	Black				2	A18					20
			Shield	Shield				9						
	Transverse Piezo Floating Gate	PFGT-2-10	Signal	Red				3	A11					2
			Ground	Black				4	A19					21
			Shield	Shield				9						
	Transverse Piezo Floating Gate	PFGT-2-11	Signal	Red				5	A12					3
			Ground	Black				6	A110					22
			Shield	Shield				9						
	Transverse Piezo Floating Gate	PFGT-2-12	Signal	Red				7	A13					4
			Ground	Black				8	A111					23
			Shield	Shield				9						
	Transverse Piezo Floating Gate	PFGT-2-13	Signal	Red				10	A14					5
			Ground	Black				11	A112					24
			Shield	Shield				18						
	Transverse Piezo Floating Gate	PFGT-2-14	Signal	Red				12	A15					6
			Ground	Black				13	A113					25
			Shield	Shield				18						
	Transverse Piezo Floating Gate	PFGT-2-15	Signal	Red				14	A16					7
			Ground	Black				15	A114					26
			Shield	Shield				18						
	Transverse Piezo Floating Gate	PFGT-2-16	Signal	Red				16	A17					8
			Ground	Black				17	A115					27
			Shield	Shield				18						
	Transverse Piezo Floating Gate	PFGT-2-17	Signal	Red				19	A116					11
			Ground	Black				20	A124					30
			Shield	Shield				27						
	Transverse Piezo Floating Gate	PFGT-2-18	Signal	Red				21	A117					12
			Ground	Black				22	A125					31
			Shield	Shield				27						
	Pressure Cell	PC-2-01	P+	Red				23	24VDC+					PS24TB1
			P-	Black				24	24VDC-					PS24TB4
			S+	White				25	A118					13
			S-	Green				26	A126					32
			THERM+	Red/White				27	NC					
			THERM-	Black/White				28	NC					
Shield			Shield	27										
Pressure Cell	PC-2-02	P+	Red	29	24VDC+	PS24TB1								
		P-	Black	30	24VDC-	PS24TB4								
		S+	White	31	A119	14								
		S-	Green	32	A127	33								
		THERM+	Red/White	33	NC									
		THERM-	Black/White	34	NC									
		Shield	Shield	27										
Pressure Cell	PC-2-03	P+	Red	35	24VDC+	PS24TB1								
		P-	Black	36	24VDC-	PS24TB4								
		S+	White	37	A120	15								
		S-	Green	38	A128	34								
		THERM+	Red/White	39	NC									
		THERM-	Black/White	40	NC									
		Shield	Shield	59										
Pressure Cell	PC-2-04	P+	Red	41	24VDC+	PS24TB1								
		P-	Black	42	24VDC-	PS24TB4								
		S+	White	43	A121	16								
		S-	Green	44	A129	35								
		THERM+	Red/White	45	NC									
		THERM-	Black/White	46	NC									
		Shield	Shield	59										

Test Item	Type	Sensor Label	Wire Label	Wire Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ
					C	M	TB						
MRS-3	Transverse Embedded Strain Gauge	EGT-3-29	Vin+	Red	1	1	5VDC+	PS5TB17	E1413	2	1	SPU4S	
			Signal+	Green		2	A10+	H00					
			Signal-	White		3	A10-	L00					
			Vin-	Black		4	5VDC-	C1M16TB16					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-30	Vin+	Red		5	5VDC+	PS5TB17					
			Signal+	Green		6	A11+	H01					
			Signal-	White		7	A11-	L01					
			Vin-	Black		8	5VDC-	C2M11TB4					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-31	Vin+	Red		9	5VDC+	PS5TB17					
			Signal+	Green		10	A12+	H02					
			Signal-	White		11	A12-	L02					
			Vin-	Black		12	5VDC-	C2M1TB8					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-32	Vin+	Red		13	5VDC+	PS5TB17					
			Signal+	Green		14	A13+	H03					
			Signal-	White		15	A13-	L03					
			Vin-	Black		16	5VDC-	C2M1TB12					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-33	Vin+	Red		1	5VDC+	PS5TB18					
			Signal+	Green		2	A14+	H04					
			Signal-	White		3	A14-	L04					
			Vin-	Black		4	5VDC-	C2M1TB16					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-34	Vin+	Red		5	5VDC+	PS5TB18					
			Signal+	Green		6	A15+	H05					
			Signal-	White		7	A15-	L05					
			Vin-	Black		8	5VDC-	C2M2TB4					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-35	Vin+	Red		9	5VDC+	PS5TB18					
			Signal+	Green		10	A16+	H06					
			Signal-	White		11	A16-	L06					
			Vin-	Black		12	5VDC-	C2M2TB8					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-36	Vin+	Red		13	5VDC+	PS5TB18					
			Signal+	Green		14	A17+	H07					
			Signal-	White		15	A17-	L07					
			Vin-	Black		16	5VDC-	C2M2TB12					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-37	Vin+	Red		1	5VDC+	PS5TB19					
			Signal+	Green		2	A18+	H08					
			Signal-	White		3	A18-	L08					
			Vin-	Black		4	5VDC-	C2M2TB16					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-38	Vin+	Red		5	5VDC+	PS5TB19					
			Signal+	Green		6	A19+	H09					
			Signal-	White		7	A19-	L09					
			Vin-	Black		8	5VDC-	C2M3TB4					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-39	Vin+	Red		9	5VDC+	PS5TB19					
			Signal+	Green		10	A110+	H10					
			Signal-	White		11	A110-	L10					
			Vin-	Black		12	5VDC-	C2M3TB8					
			Shield	Shield		17	Shield						
	Transverse Embedded Strain Gauge	EGT-3-40	Vin+	Red		13	5VDC+	PS5TB19					
			Signal+	Green		14	A111+	H11					
			Signal-	White		15	A111-	L11					
			Vin-	Black		16	5VDC-	C2M3TB12					
			Shield	Shield		17	Shield						
Longitudinal Piezo Floating Gate	PFGL-3-01	Signal	Red	1	A112+	H12							
		Ground	Black	2	A112-	L12							
		Shield	Shield	9	Shield								
Longitudinal Piezo Floating Gate	PFGL-3-02	Signal	Red	3	A113+	H13							
		Ground	Black	4	A113-	L13							
		Shield	Shield	9	Shield								
Longitudinal Piezo Floating Gate	PFGL-3-03	Signal	Red	5	A114+	H14							
		Ground	Black	6	A114-	L14							
		Shield	Shield	9	Shield								
Longitudinal Piezo Floating Gate	PFGL-3-04	Signal	Red	7	A115+	H15							
		Ground	Black	8	A115-	L15							
		Shield	Shield	9	Shield								
Longitudinal Piezo Floating Gate	PFGL-3-05	Signal	Red	10	A116+	H16							
		Ground	Black	11	A116-	L16							
		Shield	Shield	18	Shield								
Longitudinal Piezo Floating Gate	PFGL-3-06	Signal	Red	12	A117+	H17							
		Ground	Black	13	A117-	L17							
		Shield	Shield	18	Shield								
Longitudinal Piezo Floating Gate	PFGL-3-07	Signal	Red	14	A118+	H18							
		Ground	Black	15	A118-	L18							
		Shield	Shield	18	Shield								

NOTE(S):

1. TERMINAL BLOCKS(TB) ARE ORGANIZED BASED ON CHASSIS(C) AND MODULE(M).
2. EMBEDDED STRAIN GAUGE: SEE DETAIL 3/Q-520.
3. PIEZO FLOATING GATE: SEE DETAIL 4/Q-520.
4. PRESSURE CELL: SEE DETAIL 1/Q-520

Test Item	Type	Sensor Label	Wire Label	Wire Color	TB Label		Device Label	Pin	Module	Card	Chassis	DAQ	
					C	M							TB
MRS-3	Longitudinal Piezo Floating Gate	PFGL-3-08	Signal	Red	4	2	A119+	H19	E1413	2	1	SPU4S	
			Ground	Black			A119-	L19					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-01	Signal	Red			A120+	H20					
			Ground	Black			A120-	L20					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-02	Signal	Red			A121+	H21					
			Ground	Black			A121-	L21					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-03	Signal	Red			A122+	H22					
			Ground	Black			A122-	L22					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-04	Signal	Red			A123+	H23					
			Ground	Black			A123-	L23					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-05	Signal	Red			A124+	H24					
			Ground	Black			A124-	L24					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-06	Signal	Red			A125+	H25					
			Ground	Black			A125-	L25					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-07	Signal	Red			A126+	H26					
			Ground	Black			A126-	L26					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-08	Signal	Red			A127+	H27					
			Ground	Black			A127-	L27					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-09	Signal	Red			A128+	H28					
			Ground	Black			A128-	L28					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-10	Signal	Red			A129+	H29					
			Ground	Black			A129-	L29					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-11	Signal	Red			A130+	H30					
			Ground	Black			A130-	L30					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-12	Signal	Red			A131+	H31					
			Ground	Black			A131-	L31					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-13	Signal	Red			A132+	H32					
			Ground	Black			A132-	L32					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-14	Signal	Red			A133+	H33					
			Ground	Black			A133-	L33					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-15	Signal	Red			A134+	H34					
			Ground	Black			A134-	L34					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-16	Signal	Red			A135+	H35					
			Ground	Black			A135-	L35					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-17	Signal	Red			A136+	H36					
			Ground	Black			A136-	L36					
			Shield	Shield									
	Transverse Piezo Floating Gate	PFGT-3-18	Signal	Red			A137+	H37					
			Ground	Black			A137-	L37					
			Shield	Shield									
	Pressure Cell	PC-3-01	P+	Red			23	24VDC+					PS24TB1
			P-	Black			24	24VDC-					PS24 (-)
S+			White	25	A138+	H38							
S-			Green	26	A138-	L38							
THERM+			Red/White	27	NC								
THERM-			Black/White	28	NC								
Shield			Shield	27	Shield								
Shield			Shield	27	Shield								
Pressure Cell	PC-3-02	P+	Red	29	24VDC+	PS24TB1							
		P-	Black	30	24VDC-	C2M5TB24							
		S+	White	31	A139+	H39							
		S-	Green	32	A139-	L39							
		THERM+	Red/White	33	NC								
		THERM-	Black/White	34	NC								
		Shield	Shield	27	Shield								
		Shield	Shield	27	Shield								
Pressure Cell	PC-3-03	P+	Red	35	24VDC+	PS24TB1							
		P-	Black	36	24VDC-	C2M5TB30							
		S+	White	37	A140+	H40							
		S-	Green	38	A140-	L40							
		THERM+	Red/White	39	NC								
		THERM-	Black/White	40	NC								
		Shield	Shield	59	Shield								
		Shield	Shield	59	Shield								
Pressure Cell	PC-3-04	P+	Red	41	24VDC+	PS24TB1							
		P-	Black	42	24VDC-	C2M5TB36							
		S+	White	43	A141+	H41							
		S-	Green	44	A141-	L41							
		THERM+	Red/White	45	NC								
		THERM-	Black/White	46	NC								
		Shield	Shield	59	Shield								
		Shield	Shield	59	Shield								

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE	NAPTF CONSTRUCTION CYCLE 010
DRAWN	ARA	2022-12-01	
CHECKED	C.TOMLINSON		
DRAWING NUMBER: Q-612			
FILE: CC10-INST-PLAN.DWG			INSTRUMENTATION WIRING SCHEDULE MRS-3
			SIZE: ANSI D SCALE: AS NOTED SHEET 51 OF 55

Fixture	Type	Sensor	Label	Conductor Color	Cable PN: 5362-CL Conductor Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ								
						C	M	TB														
LF1	Stud Strain Gauge	SSG-1-01	EXC	Black	Blk	1	1	1	EXC0	1	NI9235	1										
			Al	Brown	Brn			2	A10	2												
	RC		Blue	Brn/W	3			RC0	3													
	Stud Strain Gauge	SSG-1-02	EXC	Black	Blk/W			4	EXC1	13												
			Al	Brown	Red			5	A11	14												
			RC	Blue	Red/W			6	RC1	15												
	Stud Strain Gauge	SSG-1-03	EXC	Black	Or			7	EXC2	4												
			Al	Brown	Y			8	A12	5												
			RC	Blue	Y/W			9	RC2	6												
	Stud Strain Gauge	SSG-1-04	EXC	Black	Or/W			10	EXC3	16												
			Al	Brown	G			11	A13	17												
			RC	Blue	G/W			12	RC3	18												
	Stud Strain Gauge	SSG-1-05	EXC	Black	Blu			13	EXC4	7												
			Al	Brown	V			14	A14	8												
			RC	Blue	V/W			15	RC4	9												
	Stud Strain Gauge	SSG-1-06	EXC	Black	Blu/W			16	EXC5	19												
			Al	Brown	Gry			17	A15	20												
			RC	Blue	Gry/W			18	RC5	21												
	SPARE	SPARE	N/A	N/A	W	N/A		N/A	N/A	N/A	N/A											
					Pink																	
					Pink/W																	
					W/Blk																	
	Tan																					
	Tan/W																					
	Shield																					
	All Shields																					
	Base Strain Gauge	BSG-1-01	EXC	Black	Blk									Shield Bus		19	EXC6	10	NI9235	1		
			Al	Brown	Brn											20	A16	11				
			RC	Blue	Brn/W											21	RC6	12				
	Base Strain Gauge	BSG-1-02	EXC	Black	Blk/W											22	EXC7	22				
			Al	Brown	Red	23	A17	23														
			RC	Blue	Red/W	24	RC7	24														
	Base Strain Gauge	BSG-1-03	EXC	Black	Or	1	2	1	EXC0	1	NI9235	2										
			Al	Brown	Y			2	A10	2												
			RC	Blue	Y/W			3	RC0	3												
	Base Strain Gauge	BSG-1-04	EXC	Black	Or/W			4	EXC1	13												
			Al	Brown	G			5	A11	14												
			RC	Blue	G/W			6	RC1	15												
	Base Strain Gauge	BSG-1-05	EXC	Black	Blu			7	EXC2	4												
			Al	Brown	V			8	A12	5												
			RC	Blue	V/W			9	RC2	6												
	Base Strain Gauge	BSG-1-06	EXC	Black	Blu/W			10	EXC3	16												
			Al	Brown	Gry			11	A13	17												
			RC	Blue	Gry/W			12	RC3	18												
	Base Strain Gauge	BSG-1-07	EXC	Black	W	13	EXC4	7														
			Al	Brown	Pink	14	A14	8														
			RC	Blue	Pink/W	15	RC4	9														
	Base Strain Gauge	BSG-1-08	EXC	Black	W/Blk	16	EXC5	19														
			Al	Brown	Tan	17	A15	20														
			RC	Blue	Tan/W	18	RC5	21														
	All Shields				Shield	Shield Bus																
	Fixture Strain Gauge	FSG-1-01	EXC	Black	Blk	2		19	EXC6	10	NI9235	3										
			Al	Brown	Brn			20	A16	11												
			RC	Blue	Brn/W			21	RC6	12												
	Fixture Strain Gauge	FSG-1-02	EXC	Black	Blk/W			22	EXC7	22												
			Al	Brown	Red			23	A17	23												
			RC	Blue	Red/W			24	RC7	24												
	Fixture Strain Gauge	FSG-1-03	EXC	Black	Or			1	3	1					EXC0	1	NI9235	4				
			Al	Brown	Y					2					A10	2						
			RC	Blue	Y/W					3					RC0	3						
Fixture Strain Gauge	FSG-1-04	EXC	Black	OR/W	4					EXC1					13							
		Al	Brown	G	5					A11					14							
		RC	Blue	G/W	6					RC1					15							
Longitudinal Pavement Strain Gauge	EGL-1-21	Vin+	Red	Blu	4		1			RS0+, EX0+	1,2	NI9237	4									
		Signal+	Green	Blu/W			2			A10+, SC0+	3,4											
		Signal-	White	V			3			A10-	22											
Longitudinal Pavement Strain Gauge	EGL-1-22	Vin-	Black	V/W			4			RS0-, EX0-	20,21											
		Vin+	Red	Gry			5			RS1+, EX1+	5,6											
		Signal+	Green	Gry/W			6			A11+, SC1+	7,8											
Longitudinal Pavement Strain Gauge	EGL-1-22	Signal-	White	W			7	A11-	26													
		Vin-	Black	W/Blk			8	RS1-, EX1-	24,25													
SPARE	SPARE	N/A	N/A	Pink			N/A		N/A	N/A	N/A					N/A						
				Pink/W																		
				Tan																		
				Tan/W																		
Shield	Shield Bus																					
Longitudinal Pavement Strain Gauge	EGL-1-25	Vin+	Red	Blk	1	4						9	RS2+, EX2+	11,12	NI9237				4			
		Signal+	Green	Brn								10	A12+, SC2+	13,14								
		Signal-	White	Brn/W								11	A12-	32								
Longitudinal Pavement Strain Gauge	EGL-1-26	Vin-	Black	Blk/W								12	RS2-, EX2-	30,31								
		Vin+	Red	Red								13	RS3+, EX3+	15,16								
		Signal+	Green	Red/W								14	A13+, SC3+	17,18								
Longitudinal Pavement Strain Gauge	EGL-1-26	Signal-	White	Or								15	A13-	36								
		Vin-	Black	Y			16	RS3-, EX3-	34,55													

Fixture	Type	Sensor	Label	Conductor Color	Cable PN: 5362-CL Conductor Color	TB Label			Device Label	Pin	Module	Card	Chassis	DAQ	
						C	M	TB							
LF1	Transverse Pavement Strain Gauge	EGT-1-45	Vin+	Red	Y/W	1	5		RS0+, EX0+	1,2	N19237	5			
			Signal+	Green	Or/W				2	AI0+, SC0+					3,4
			Signal-	White	G				3	AI0-					22
	Vin-	Black	G/W	4	RS0-, EX0-				20,21						
	Vin+	Red	Blu	5	RS1+, EX1+				5,6						
	Signal+	Green	V	6	AI1+, SC1+				7,8						
	Signal-	White	V/W	7	AI1-				26						
	Vin-	Black	Blu/W	8	RS1-, EX1-				24,25						
	Vin+	Red	Gry	9	RS2+, EX2+				11,12						
	Signal+	Green	Gry/W	10	AI2+, SC2+				13,14						
	Signal-	White	W	11	AI2-				32						
	Vin-	Black	Pink	12	RS2-, EX2-				30,31						
	Vin+	Red	Pink/W	13	RS3+, EX3+				15,16						
	Signal+	Green	W/Blk	14	AI3+, SC3+				17,18						
	Signal-	White	Tan	15	AI3-				36						
	Vin-	Black	Tan/W	16	RS3-, EX3-				34,55						
			All Shields		Shield		Shield Bus								
	Transverse Pavement Strain Gauge	EGT-1-51	Vin+	Red	Blk	1	6		1	RS0+, EX0+	1,2	N19237	6	1	SPU3N
			Signal+	Green	Bm				2	AI0+, SC0+	3,4				
			Signal-	White	Bm/W				3	AI0-	22				
	Vin-	Black	Blk/W	4	RS0-, EX0-				20,21						
	Vin+	Red	Red	5	RS1+, EX1+				5,6						
	Signal+	Green	Red/W	6	AI1+, SC1+				7,8						
	Signal-	White	Or	7	AI1-				26						
	Vin-	Black	Y	8	RS1-, EX1-				24,25						
	SPARE	SPARE	N/A	N/A	Y/W	N/A			N/A	N/A	N/A	N/A			
					Or/W										
					G										
					G/W										
					Blu										
					V										
					V/W										
Blu/W															
Gry															
Gry/W															
W															
Pink															
Pink/W															
W/Blk															
Tan															
Tan/W															
		All Shields		Shield		Shield Bus									

NOTE(S):

1. TERMINAL BLOCKS(TB) ARE ORGANIZED BASED ON CHASSIS(C) AND MODULE(M).
2. EMBEDDED STRAIN GAUGE: SEE DETAIL 2/Q-519.

	FOR BID	12/02/2022		C.T.		
NO.	REVISIONS	DATE	BY	CHK	APR	



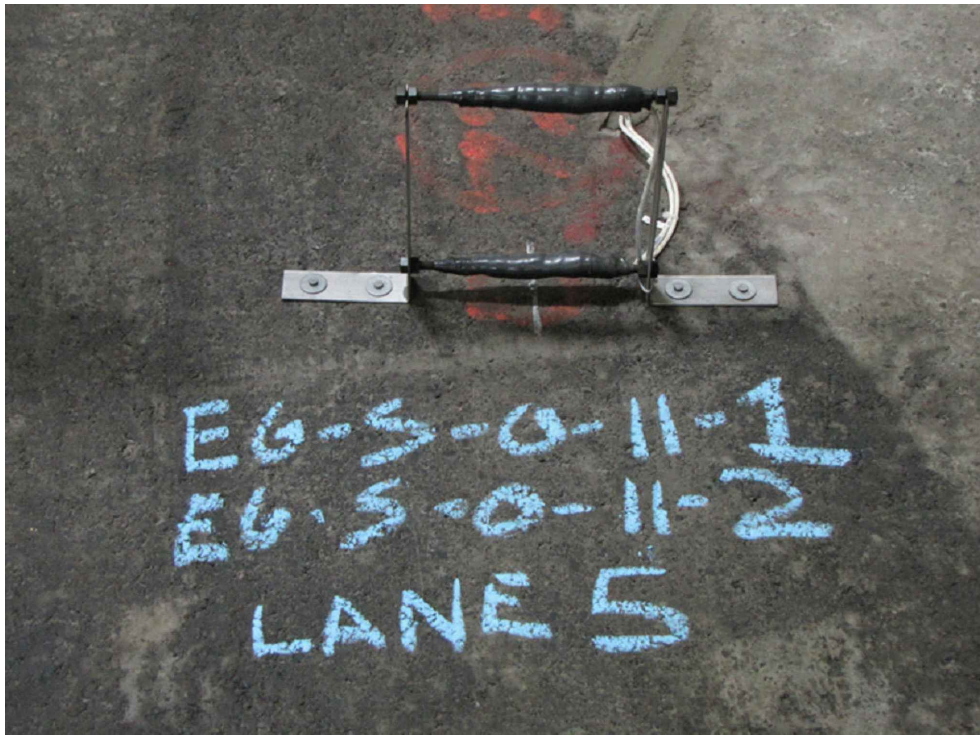
APPLIED RESEARCH ASSOCIATES, INC.
2628 FIRE ROAD, SUITE 200
EGG HARBOR TOWNSHIP
NEW JERSEY 08234
PHONE: (609) 380-4240

FOR



NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE	NAPTF CONSTRUCTION CYCLE 010		
DRAWN	ARA	2022-12-01			
CHECKED	C.TOMLINSON		INSTRUMENTATION WIRING SCHEDULE LF-1		
DRAWING NUMBER: Q-614					
FILE: CC10-INST-PLAN.DWG			SIZE: ANSI D	SCALE: AS NOTED	SHEET 53 OF 55

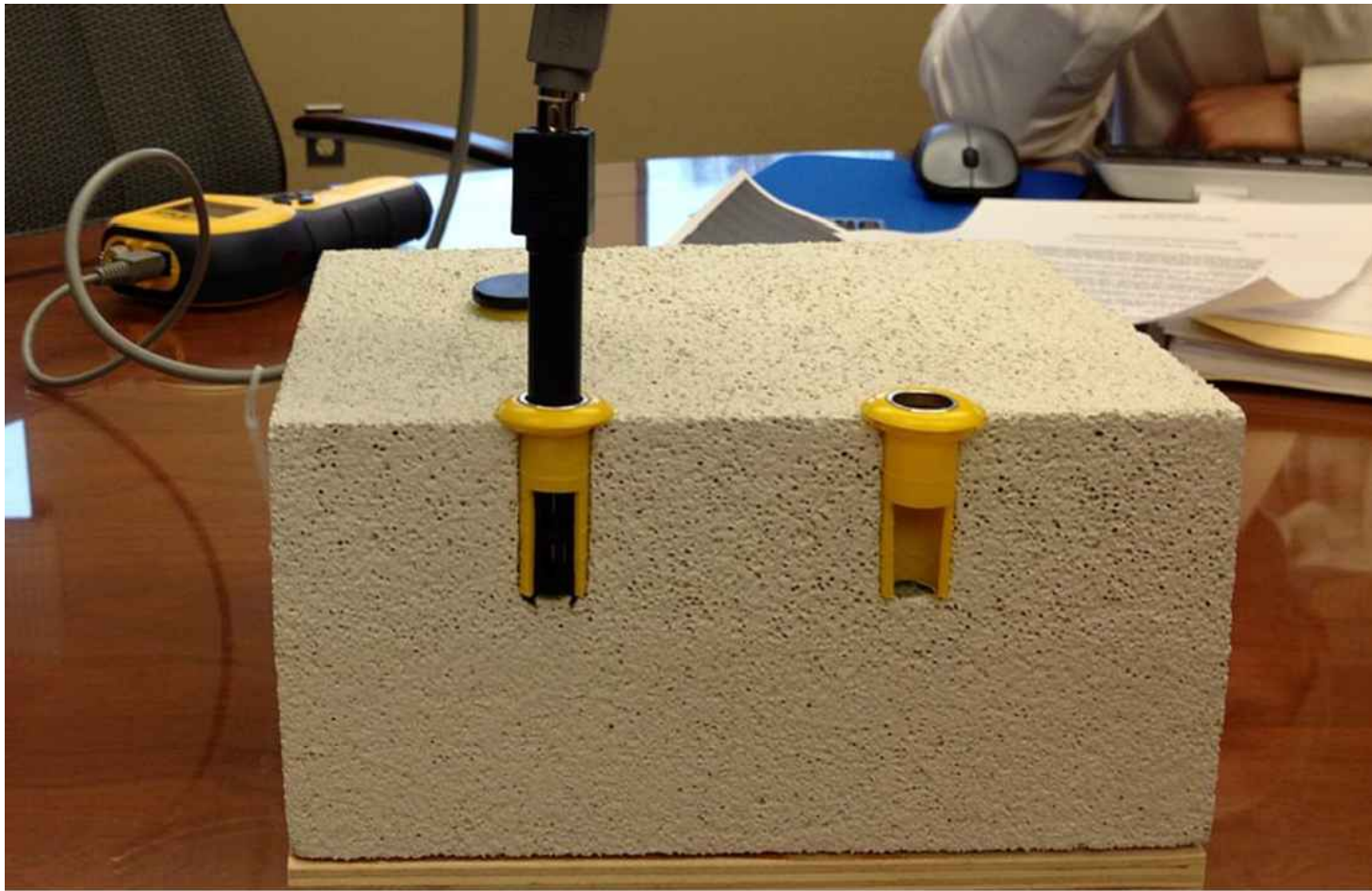
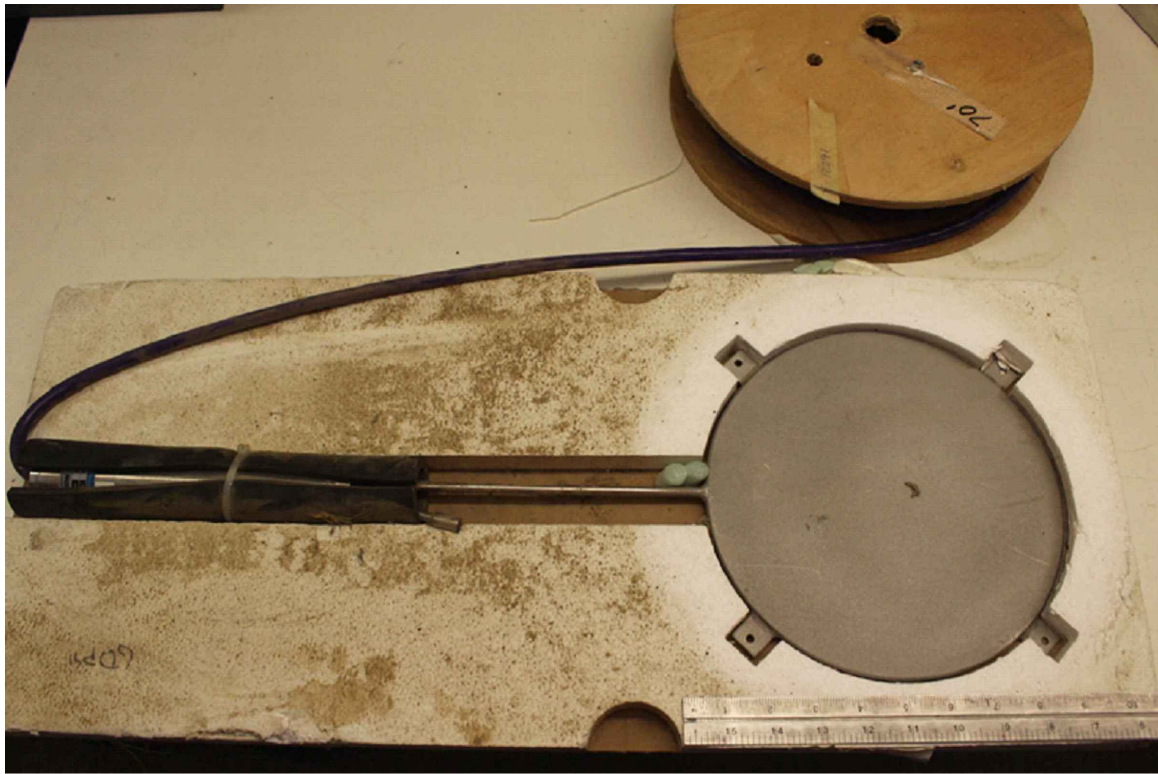


1
Q-901

EDDY CURRENT SENSOR
NOT TO SCALE

2
Q-901

EMBEDDED STRAIN GAUGE
NOT TO SCALE



3
Q-901

MOISTURE SENSOR
NOT TO SCALE

4
Q-901

THERMOCOUPLE
NOT TO SCALE

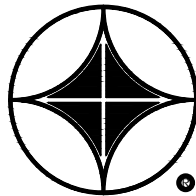
5
Q-901

PRESSURE CELL
NOT TO SCALE

6
Q-901

RELATIVE HUMIDITY SENSOR
NOT TO SCALE

	FOR BID	12/02/2022		C.T.	
NO.	REVISIONS	DATE	BY	CHK	APR



ARA

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FOR



NATIONAL
AIRPORT PAVEMENT
TEST FACILITY
ATLANTIC CITY
AIRPORT
NEW JERSEY 08234

	NAME	DATE
DRAWN	ARA	2022-12-01
CHECKED	C.TOMLINSON	
DRAWING NUMBER: Q-901		
FILE: CC10-INST-PLAN.DWG		

NAPTF CONSTRUCTION CYCLE 010
TYPICAL INSTRUMENTATION INSTALLATIONS