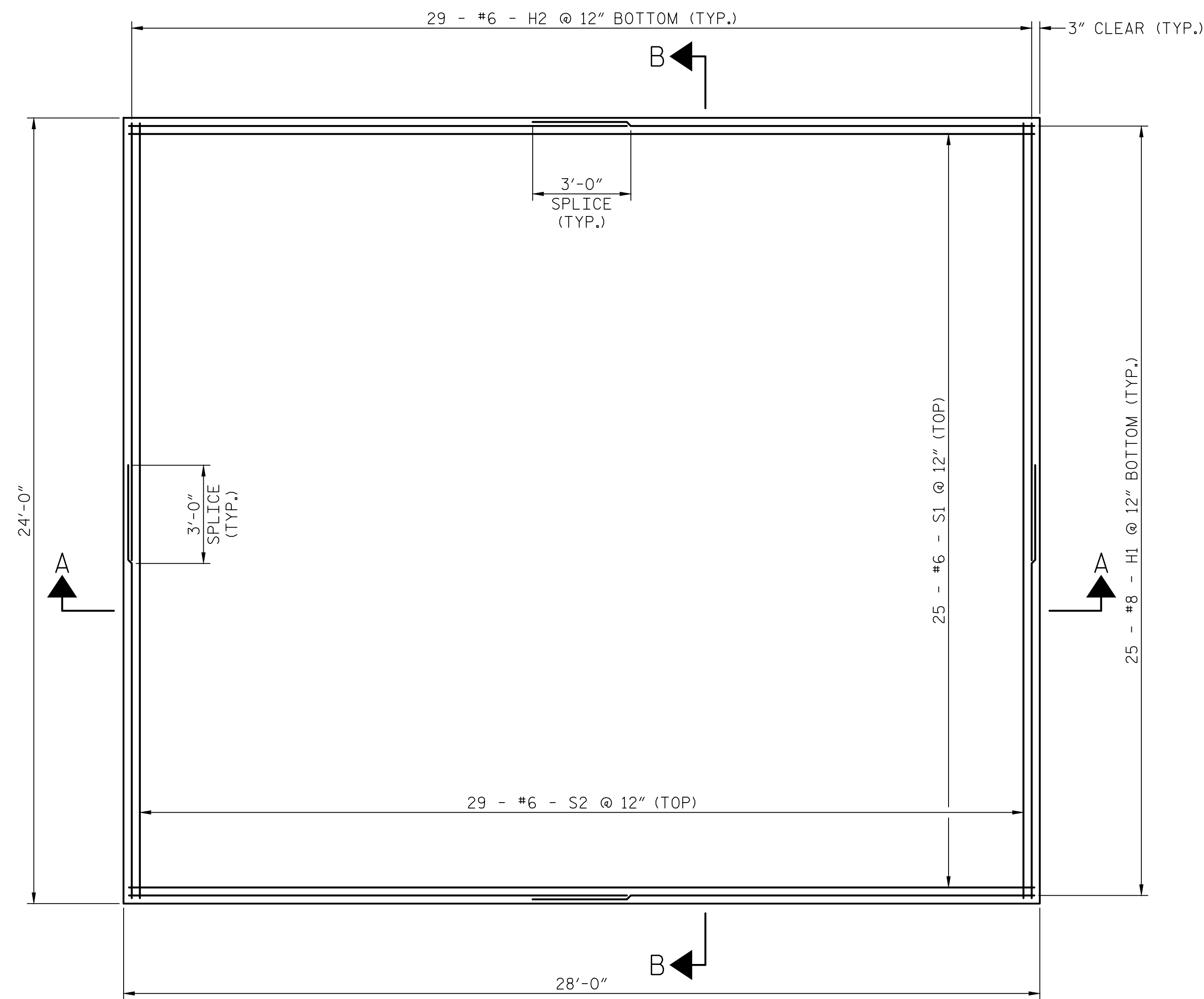


**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

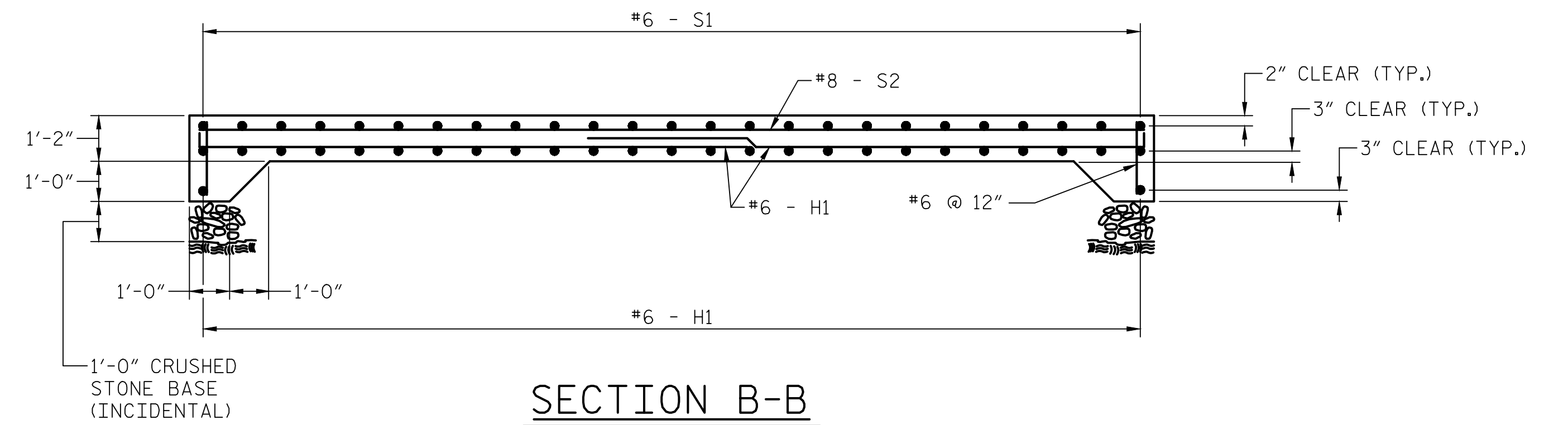
**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**



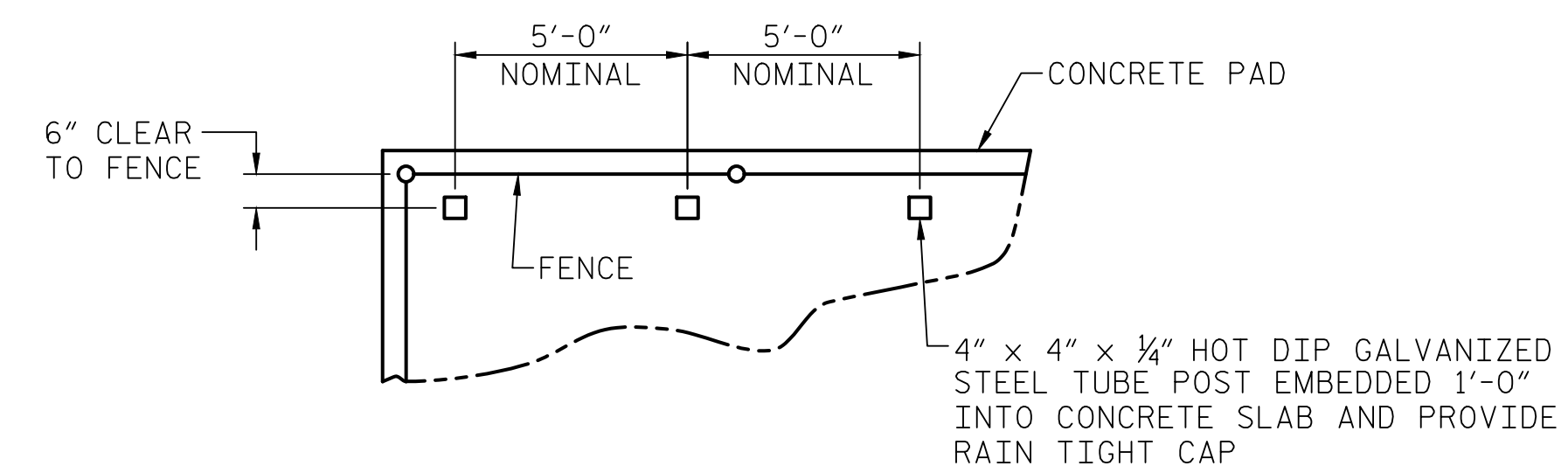
PLAN

SCALE: 3/8"=1'-0"



SECTION B-B

SCALE: 3/8"=1'-0"

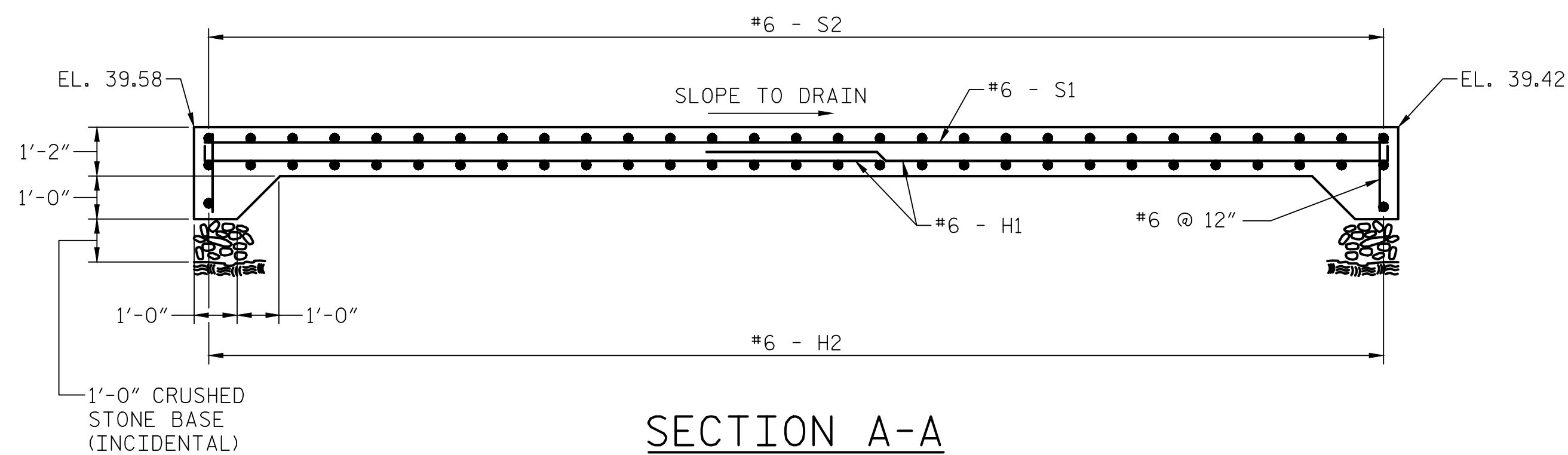


PLAN EQUIPMENT FRAME POSTS DETAIL

SCALE: NONE

NOTES:

1. CONSTRUCT GENERATOR PAD IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS, SECTION 420.
2. USE CLASS A CONCRETE. REINFORCING STEEL TO BE UNCOATED.
3. REFER TO DRAWING E-17 FOR ADDITIONAL DETAILS.
4. ALL WORK SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR BRIDGE BACKUP GENERATOR, UNLESS OTHERWISE NOTED.

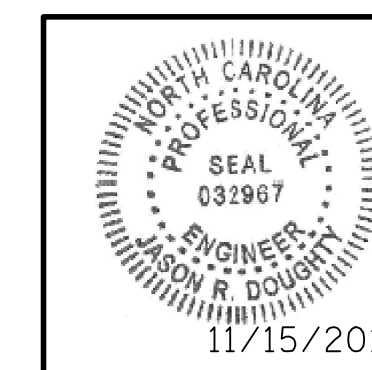


SECTION A-A

SCALE: 3/8"=1'-0"

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**ELECTRICAL GENERATOR
 PAD DETAILS - 2**



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

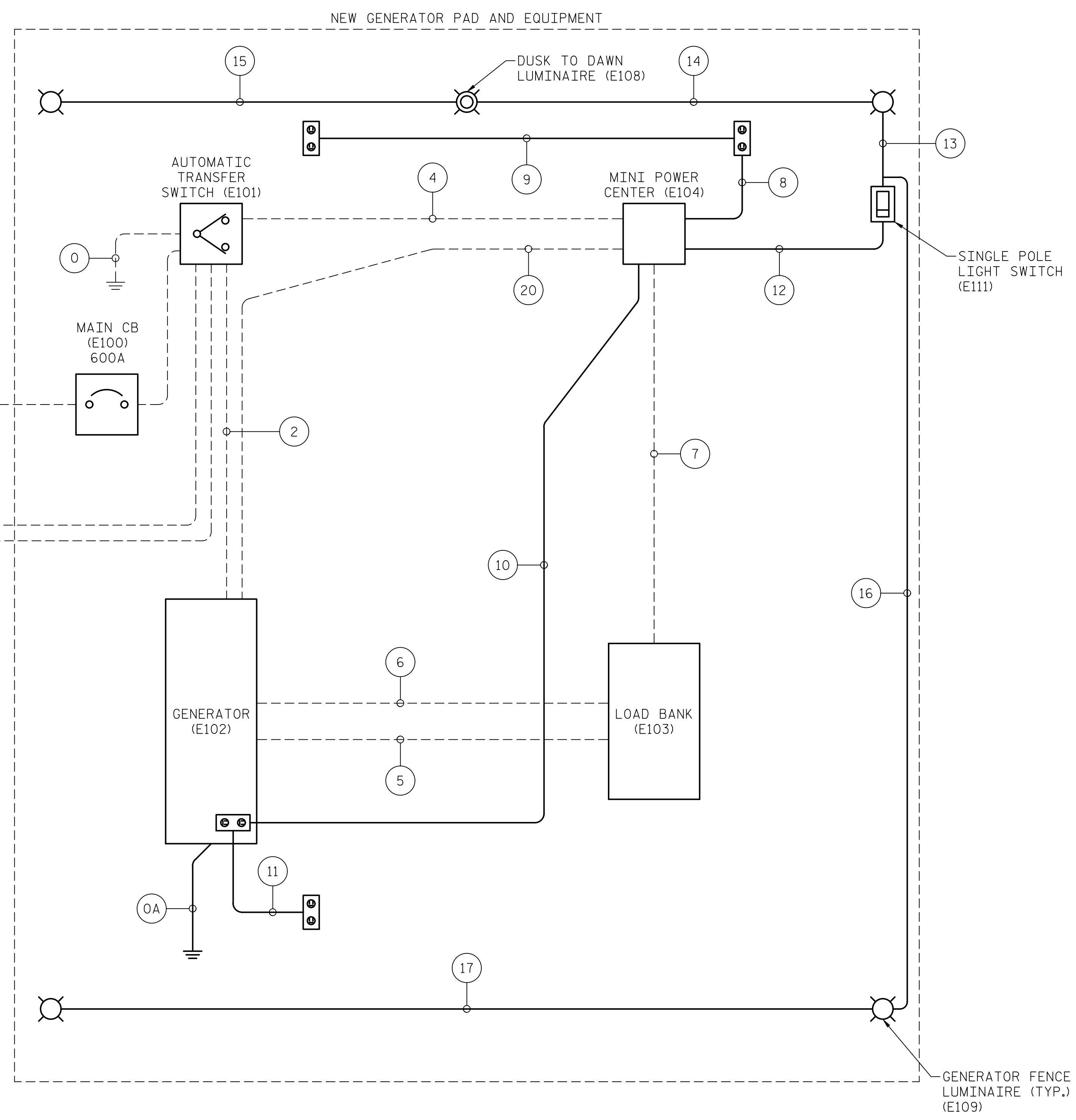
DocuSigned by:
 Jason R. Dougherty
 SF73FA2DEA974E8...

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-13
1			3			TOTAL SHEETS
2			4			213

DESIGNED BY:	N. K. BHINGE	DATE :	04/11/18
DRAWN BY:	R. L. REED	DATE :	04/11/18
CHECKED BY:	L. V. BORDEN	DATE :	11/13/18
DESIGN ENGINEER			
OF RECORD:	J. G. STRENKOSKI	DATE :	11/13/18

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

LAST SAVED 11/13/2018 11:59 AM BY JGRINEHART. LAST PLOTTED 11/13/2018 1:48 PM.
 FILE: \\mmdc10\project\3682\3\CADD\Electrical\04_025_15BPR14_SML_E13_640011



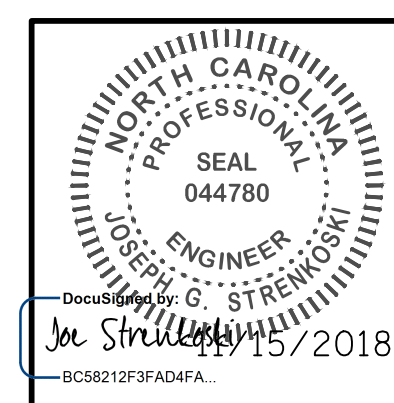
LEGEND:
 - A - - - - A - AERIAL CONDUCTORS
 - - - - - CONDUIT EMBEDDED IN GENERATOR PAD
 - U - - - - U - UNDERGROUND CONDUIT
 _____ EXPOSED CONDUIT

NOTES:
 1. UNDERGROUND CONDUIT FROM NEW ELECTRICAL HANDHOLE SHALL TERMINATE IN EXISTING JUNCTION BOX ALONG EAST APPROACH, RAMP A AND TRANSITION TO AERIAL CABLES. SEE SHEET E-123 FOR MESSENGER CABLE DETAILS

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:50 AM BY JGRINEHART. LAST PLOTTED 11/15/2018 12:43 PM.
 FILE: \\mmod101\p\proj\15\15BPR14\CADD\Electr\15BPR14_SML\E14_640011

DESIGNED BY: N. K. BHINGE DATE: 04/17/18
 DRAWN BY: R. L. REED DATE: 04/17/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
ELECTRICAL GENERATOR PAD DETAILS - 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-14
1			3			TOTAL SHEETS
2			4			213

CONDUIT SCHEDULE

CONDUIT NO.	SIZE	FROM	TO	WIRE	GND	NOTES
0	1	ATS	GROUNDING ELECTRODE/GROUNDING RING	-	#2/0	GROUNDING ELECTRODE CONDUCTOR
0A	1	GENERATOR	GROUNDING ELECTRODE/GROUNDING RING	-	#2/0	GROUNDING ELECTRODE CONDUCTOR
1	5	EXISTING SERVICE POLE	ATS	(8) 400 MCM	400 MCM	BURIED CONDUIT, EMBEDDED IN GENERATOR PAD, COORDINATE WITH UTILITY
2	5	GENERATOR	ATS	(8) 400 MCM	400 MCM	EMBEDDED IN GENERATOR PAD
3	5	ATS	NEW ELECTRIC HANDHOLE	(8) 500 MCM	500 MCM	EMBEDDED IN GENERATOR PAD
4	1	ATS	MINI POWER CENTER	(2) #6 AWG	#6 AWG	EMBEDDED IN GENERATOR PAD
5	2½	GENERATOR	LOAD BANK	(3) #3/0 AWG	#3/0 AWG	EMBEDDED IN GENERATOR PAD (LOAD BANK POWER WIRING)
6	¾	GENERATOR	LOAD BANK	(4) #14 AWG	#14 AWG	EMBEDDED IN GENERATOR PAD (LOAD BANK CURRENT SENSING)
7	¾	MINI POWER CENTER	LOAD BANK	(2) #10 AWG	#10 AWG	EMBEDDED IN GENERATOR PAD (LOAD BANK CONTROL WIRING)
8	¾	MINI POWER CENTER	RECEPTACLE 1	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
9	¾	RECEPTACLE 1	RECEPTACLE 2	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
10	¾	MINI POWER CENTER	RECEPTACLE 3	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
11	¾	RECEPTACLE 3	RECEPTACLE 4	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
12	¾	MINI POWER CENTER	LIGHT SWITCH	(3) #10 AWG	#10 AWG	EXPOSED CONDUIT
13	¾	LIGHT SWITCH	LIGHT 1	(3) #10 AWG	#10 AWG	EXPOSED CONDUIT
14	¾	LIGHT 1	DUSK TO DAWN LIGHT	(3) #10 AWG	#10 AWG	EXPOSED CONDUIT
15	¾	DUSK TO DAWN LIGHT	LIGHT 2	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
16	¾	LIGHT SWITCH	LIGHT 3	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
17	¾	LIGHT 3	LIGHT 4	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
18	-	EXISTING UTILITY SERVICE POLE	EXISTING SERVICE POLE	(8) 400 MCM	400 MCM	AERIAL SERVICE CONDUCTORS, COORDINATE WITH UTILITY
19	5	NEW ELECTRIC HANDHOLE	EXISTING JUNCTION BOX	(8) 500 MCM	500 MCM	UNDERGROUND CONDUIT
20	1	MINI POWER CENTER	GENERATOR	(6) #10 AWG	#10 AWG	GEN. BATTERY CHARGER, GEN. COOLANT HEATER, ALTERNATOR HEATER
21	5	ATS	NEW ELECTRICAL HANDHOLE	(8) 500 MCM	500 MCM	EMBEDDED IN GENERATOR PAD
22	5	NEW ELECTRICAL HANDHOLE	EXISTING JUNCTION BOX	(8) 500 MCM	500 MCM	UNDERGROUND CONDUIT

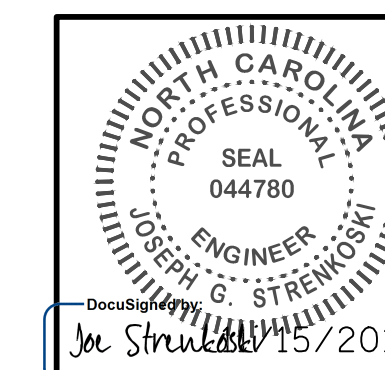
NOTES:

- SEE SHEET E-14 FOR GENERATOR PAD CONDUIT LAYOUT.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:45 AM BY JGRINEHART. LAST PLOTTED 11/15/2018 12:43 PM.
 FILE: \\mmodc101\projects\3682\3\CADD\Electrical\04_029_15BPR14_SML_E15_640011

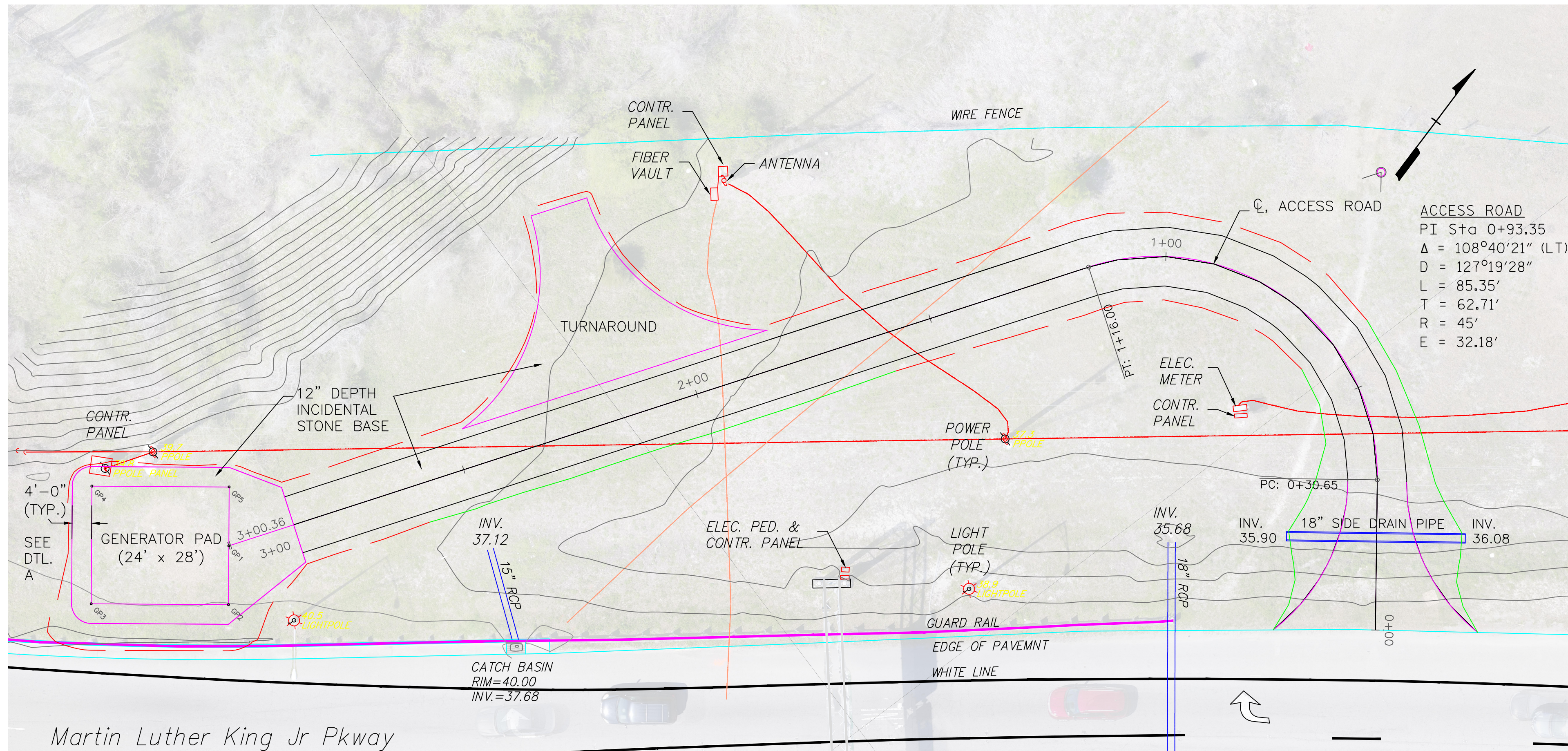
DESIGNED BY: N. K. BHINGE DATE: 04/11/18
 DRAWN BY: R. L. REED DATE: 04/11/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



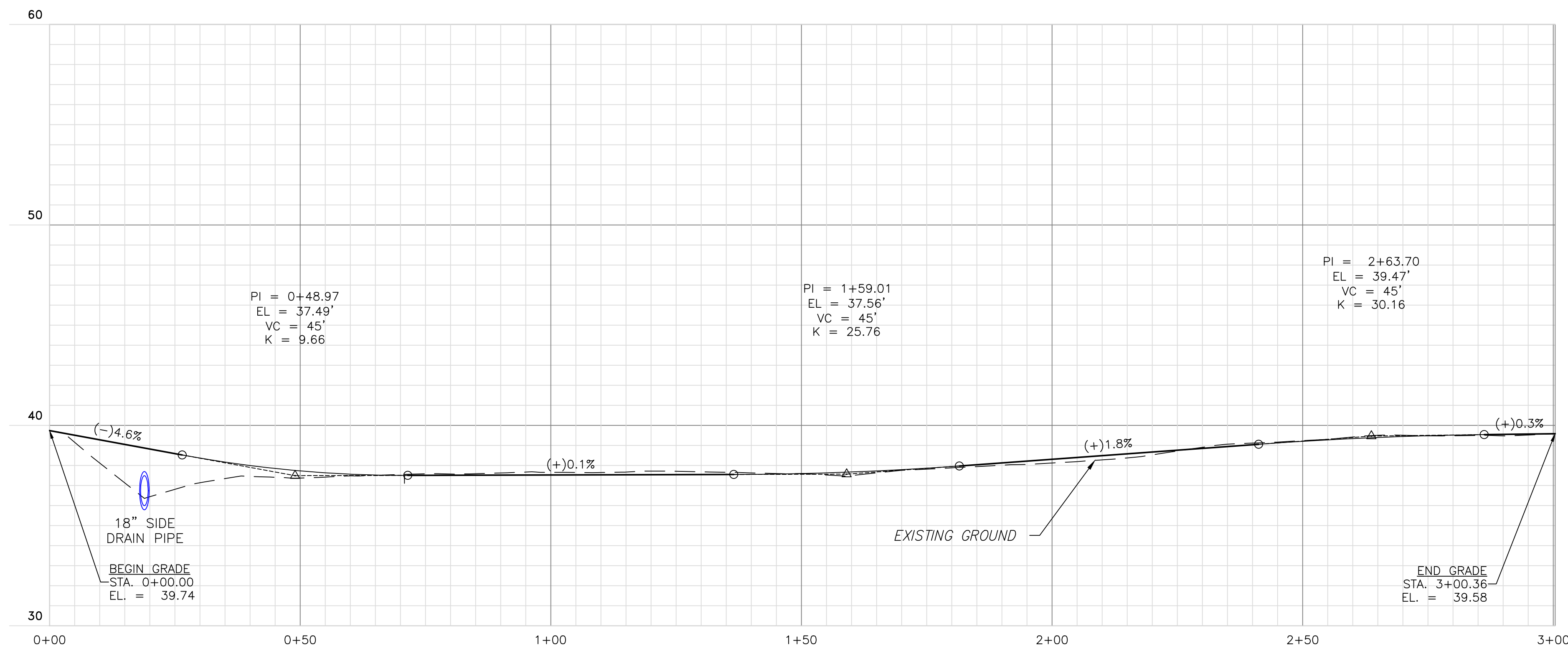
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**ELECTRICAL GENERATOR
 PAD DETAILS - 4**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-15
1			3			TOTAL SHEETS
2			4			213

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



PLAN



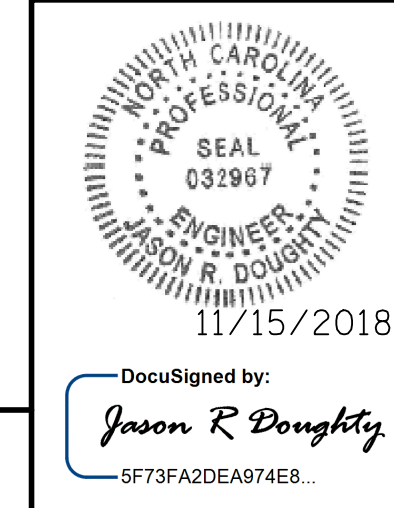
PROFILE

SUMMARY OF ACCESS ROAD COORDINATES				
Station	POINT	COORDINATES		BEARING
		NORTH	EAST	
0+00.00	BEGIN	184694.8285	2318450.2636	N 52° 17' 03.75" W
0+30.65	PC	184713.5758	2318426.0210	
0+93.35	PI	184751.9368	2318376.4156	N 52° 17' 03.75" W
1+16.00	PT	184692.6609	2318355.9553	S 19° 02' 35.45" W
2+86.46	BEGIN TAPER	184531.5268	2318300.3365	S 19° 02' 35.45" W
3+00.36	BEGIN PAD	184518.3849	2318295.8003	S 19° 02' 35.45" W

SUMMARY OF GENERATOR PAD COORDINATES				
Station	POINT	COORDINATES		BEARING
		NORTH	EAST	
3+00.36	GP1	184518.3849	2318295.8003	S 52° 39' 01" E
--	GP2	184511.1047	2318305.3397	
--	GP3	184488.8462	2318288.3527	S 37° 20' 59" W
--	GP4	184503.4065	2318269.2739	N 52° 39' 01" W
--	GP5	184525.6650	2318286.2609	N 19° 02' 35.45" E

LAST SAVED 11/13/2018 9:03 AM BY RUREED. LAST PLOTTED 11/13/2018 11:17 AM.
 FILE: \\mmcd10\projects\3682\3\CADD\Electrical\04_03_15BPR14_SWL\16_640011

DESIGNED BY: J. T. MCILHENNY DATE: 08/23/18
 DRAWN BY: J. T. MCILHENNY DATE: 08/23/18
 CHECKED BY: M. D. HOUSE DATE: 10/18/18
 DESIGN ENGINEER OF RECORD: J. R. DOUGHTY DATE: 11/12/18



PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION:

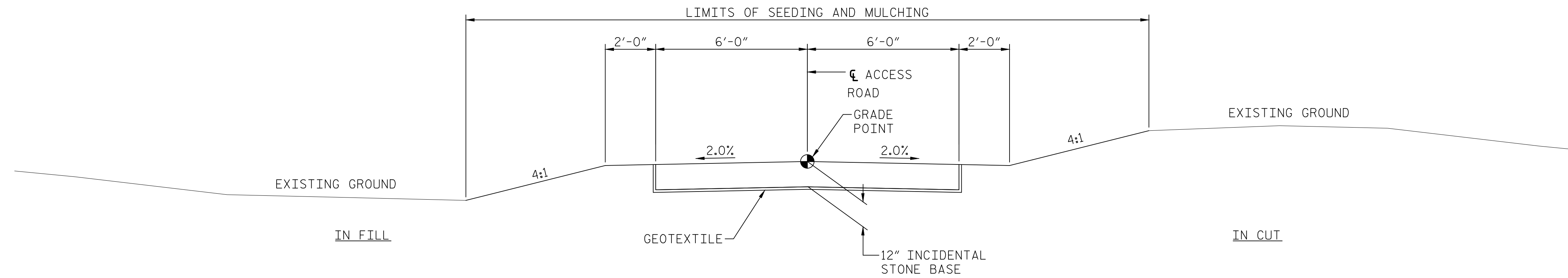
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 GENERATOR PAD
 ACCESS ROAD
 PLAN & PROFILE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. E-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 213
2			4			

NOTES:

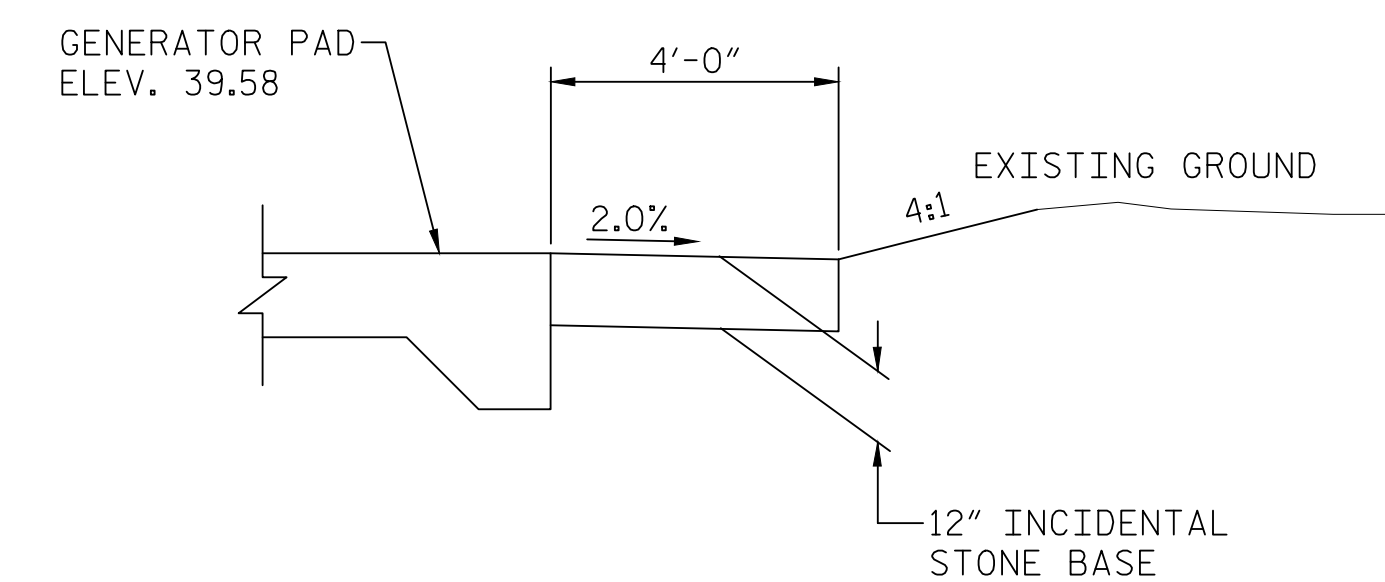
1. CONSTRUCT ACCESS ROAD IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS USING ITEMS NOTED ON THIS DRAWING.
2. UNCLASSIFIED EXCAVATION, UNDERCUT EXCAVATION, EMBANKMENT, SELECT GRANULAR MATERIAL-CLASS III, GEOTEXTILE FOR SOIL STABILIZATION, 18" SIDE DRAIN PIPE, AND SEEDING AND MULCHING ARE ROADWAY PAY ITEMS.



TYPICAL SECTION

SCALE: NONE

SUMMARY OF EARTHWORK (CY) - SEE NOTES					
LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + 5%	BORROW	WASTE
SUMMARY NO.1					
ACCESS ROAD / GENERATOR PAD	303	9	23		290
GRAND TOTAL	303	9	23		290



DETAIL A

SCALE: NONE

ROADWAY PAY ITEMS - SEE NOTES			
ITEM NO.	DESCRIPTION	QTY.	UNIT
0043000000-N	GRADING	LUMP SUM	LUMP SUM
0194000000-E	SELECT GRANULAR MATERIAL, CLASS III	7	CY
0196000000-E	GEOTEXTILE FOR SOIL STABILIZATION	711	SY
0344000000-E	18" SIDE DRAIN PIPE	37	LF
6084000000-E	SEEDING AND MULCHING	0.06	ACRE

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**GENERATOR PAD
 ACCESS ROAD
 TYPICAL SECTION**

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **E-17**
 TOTAL SHEETS 213

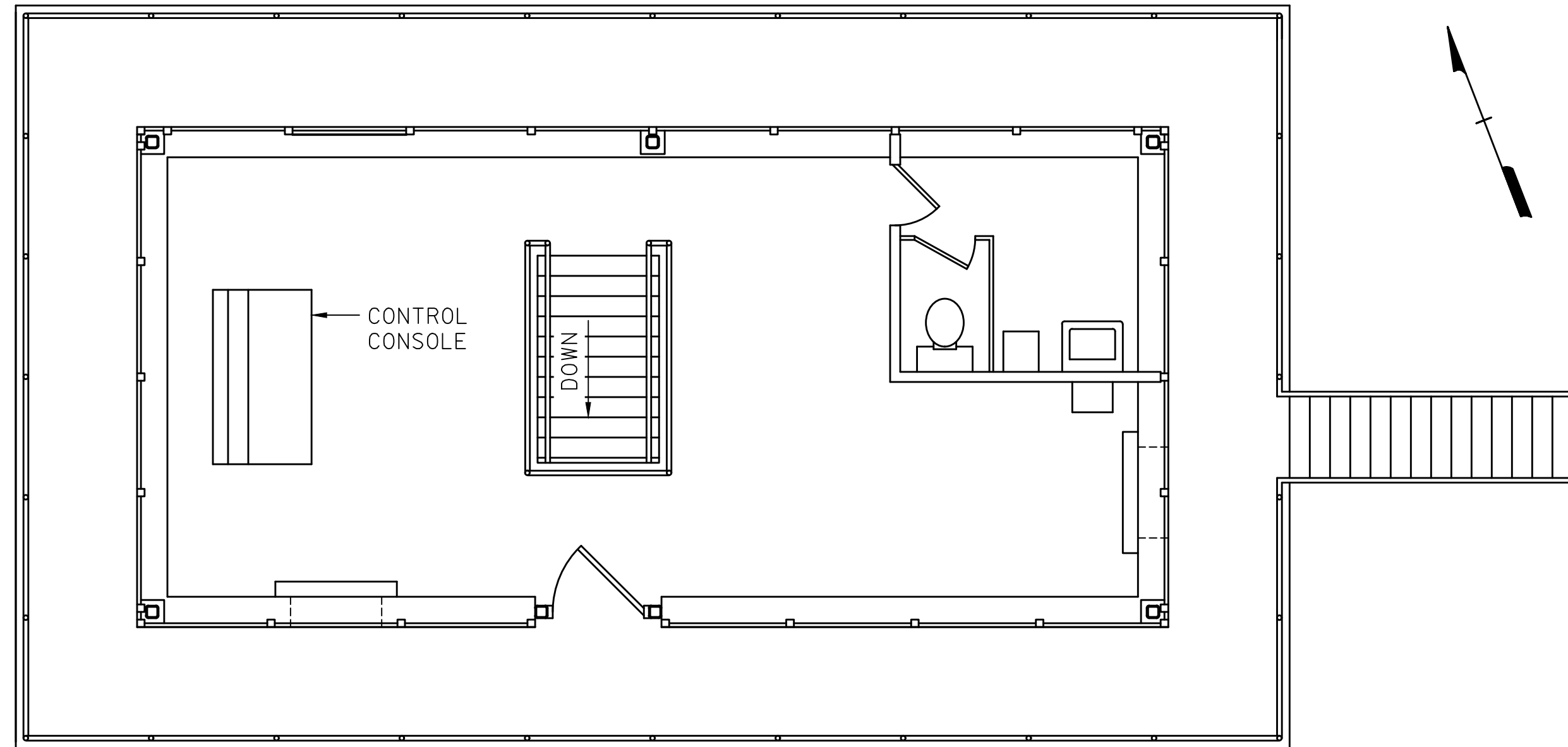
MODJESKI and MASTERS
 Experience great bridges.
 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

DocuSigned by:
Jason R. Doughty
 5F73FA2DEA974E8...

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

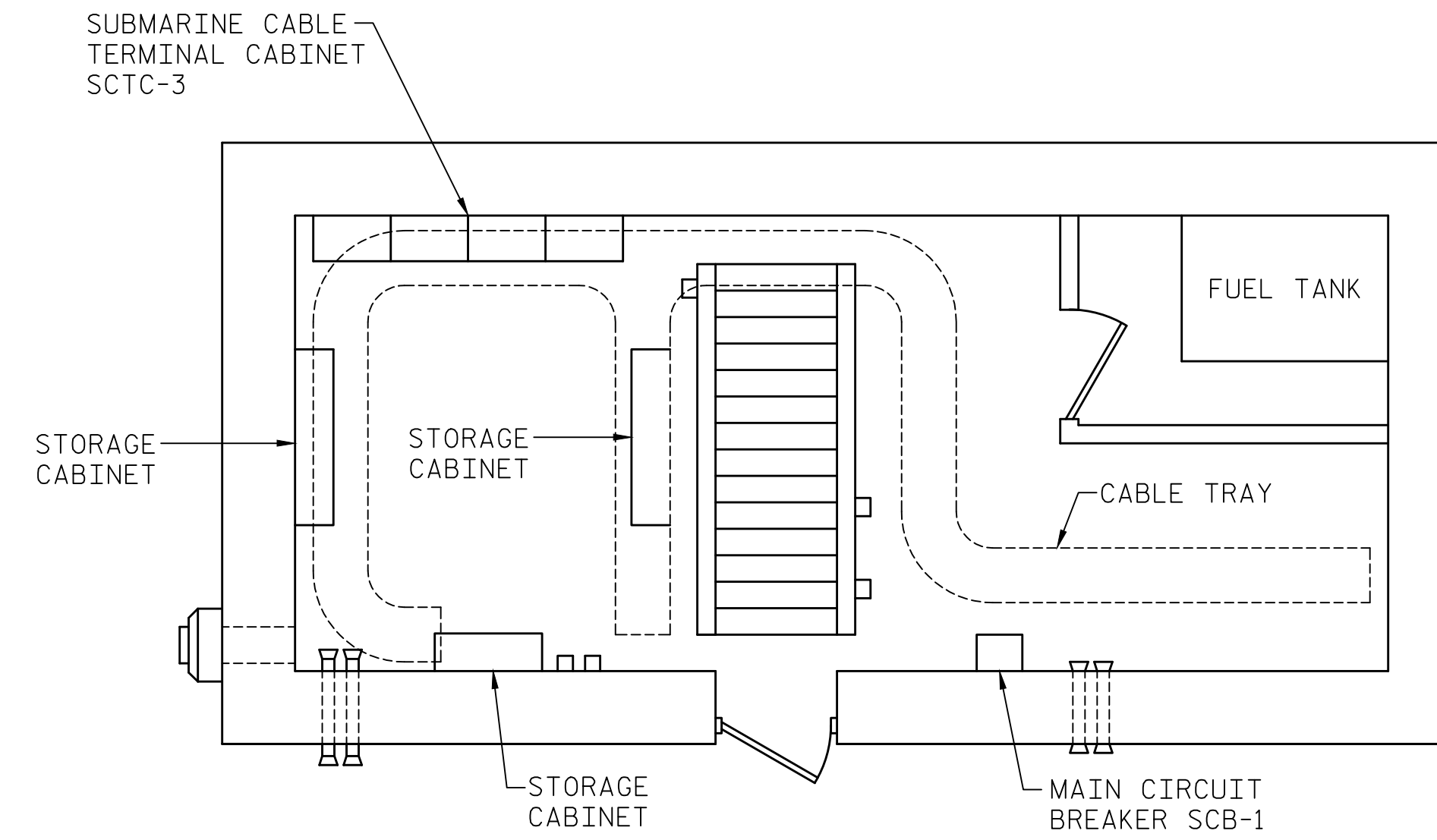
LAST SAVED 1/16/2019 2:36 PM BY RUBIED... LAST PLOTTED 1/17/2019 8:14 AM.
 FILE: \\mmdc10\p\projects\3682\3\CADD\Electrical\04.033.15BPR14_SML_E17_640011

DESIGNED BY: J. T. MCILHENNY DATE : 08/23/18
 DRAWN BY: J. T. MCILHENNY DATE : 08/23/18
 CHECKED BY: M. D. HOUSE DATE : 10/18/18
 DESIGN ENGINEER OF RECORD: J. R. DOUGHTY DATE : 11/12/18



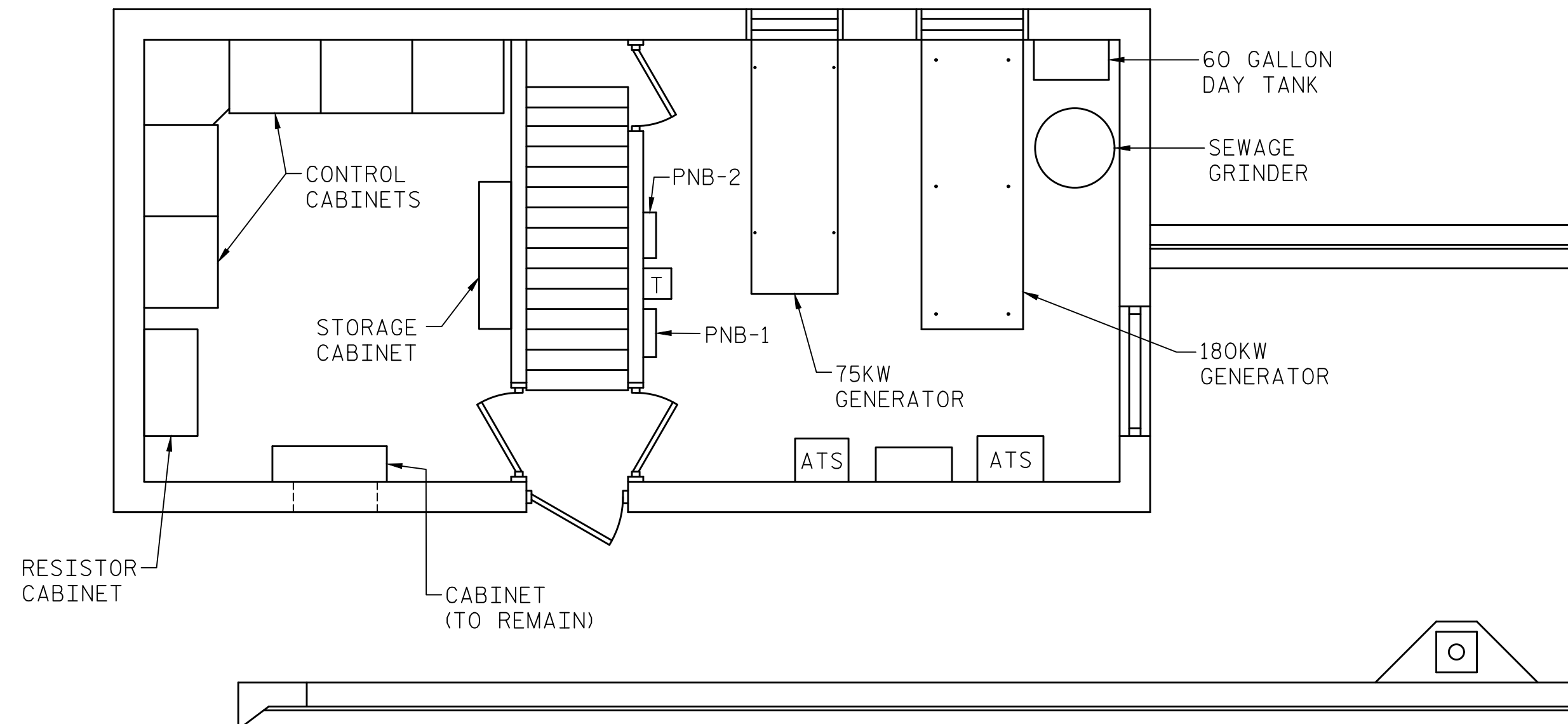
CONTROL ROOM AT ELEV. +67.5

SCALE: 1/4"=1'-0"



FUEL AND WORK ROOMS AT ELEV. +47.5

SCALE: 1/4"=1'-0"



ELECTRICAL AND GENERATOR ROOMS AT ELEV. +57.5 (ROADWAY LEVEL)

SCALE: 1/4"=1'-0"

NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL EXISTING EQUIPMENT, EXCEPT ITEMS MARKED "TO REMAIN". EQUIPMENT REMOVAL SHALL CORRESPOND TO NEW EQUIPMENT LAYOUTS SHOWN ON DRAWING E-19.

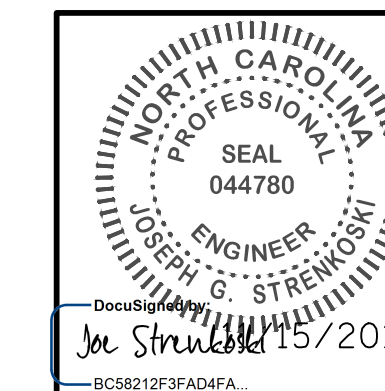
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:28 AM BY AMBROSKY... LAST PLOTTED 11/15/2018 12:44 PM.
 FILE: \\mmodc10\p\proj\15\3682\03\CADD\Electr\15BPR14_SMU_E18_640011

DESIGNED BY: E. N. CLAY DATE: 04/04/18
 DRAWN BY: R. L. REED DATE: 04/04/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



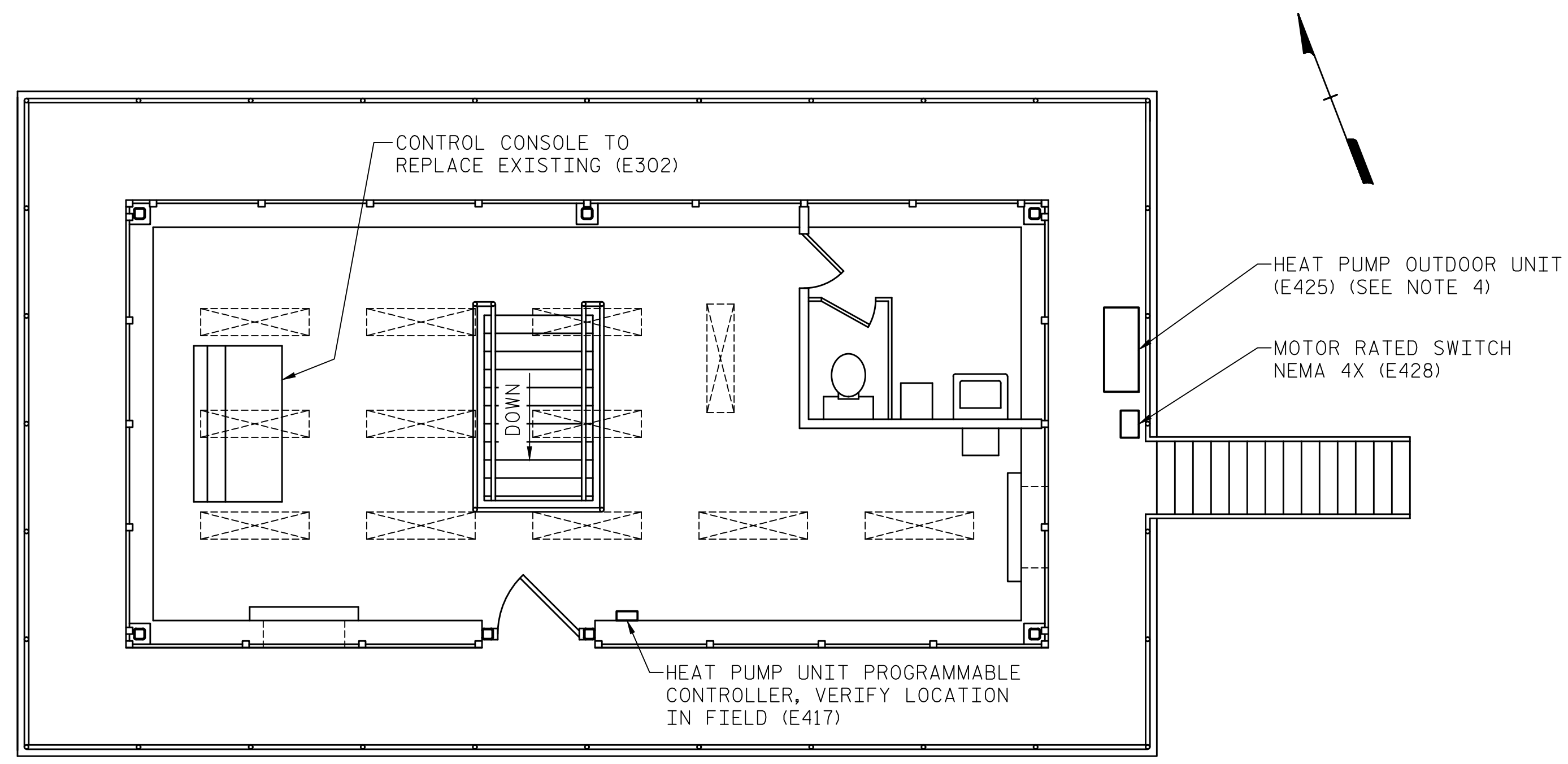
333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



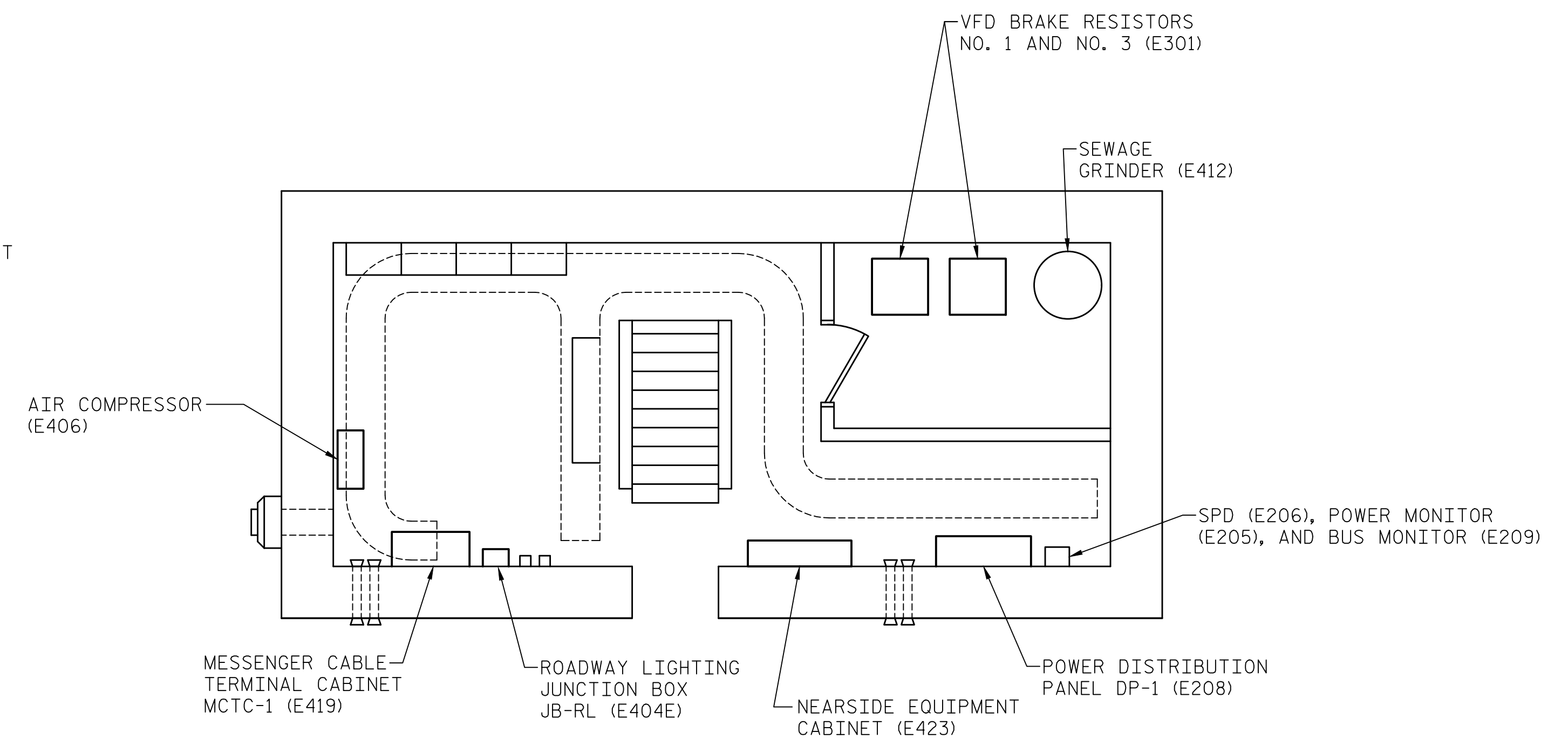
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**CONTROL HOUSE
 DETAILS -
 EXISTING LAYOUTS**

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

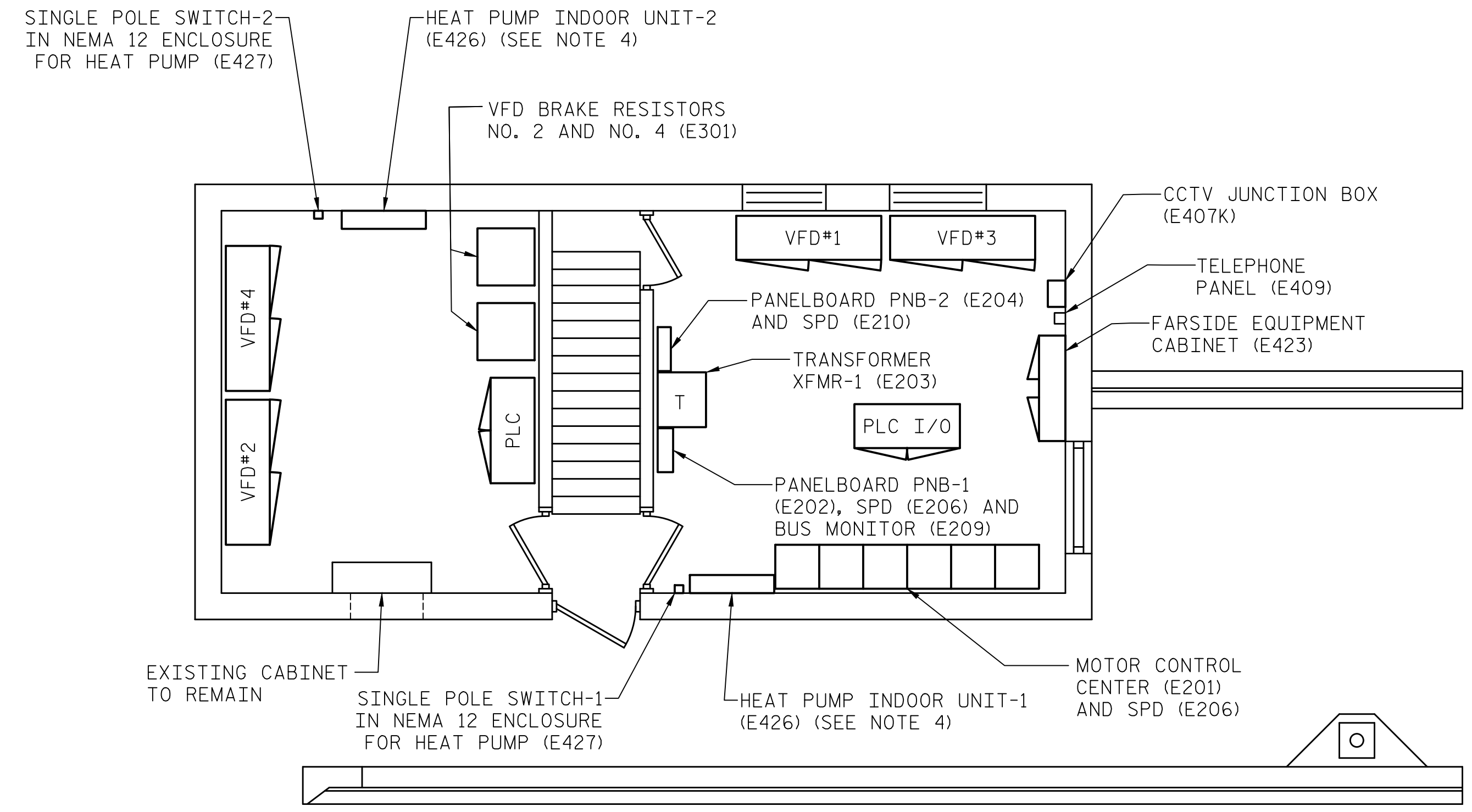
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-18
1			3			TOTAL SHEETS
2			4			213



CONTROL ROOM AT ELEV. +67.5
SCALE: 1/4"=1'-0"



FUEL AND WORK ROOMS AT ELEV. +47.5
SCALE: 1/4"=1'-0"



ELECTRICAL AND GENERATOR ROOMS AT ELEV. +57.5 (ROADWAY LEVEL)
SCALE: 1/4"=1'-0"

NOTES:

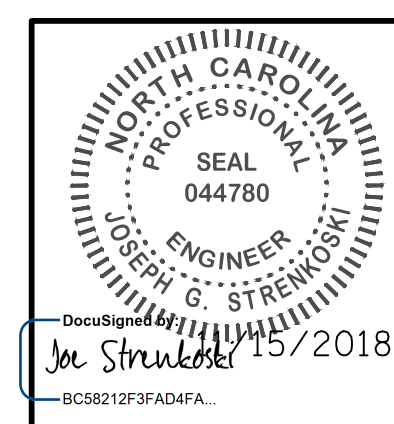
- EQUIPMENT AND CABINET SIZES SHOWN ARE CONCEPTUAL. THE CONTRACTOR SHALL DEVELOP AND SUBMIT ROOM LAYOUT DRAWINGS WITH PROPOSED EQUIPMENT AND CABINET SIZES.
- THE CONTRACTOR'S LAYOUT DRAWINGS SHALL ALSO DETAIL CONSTRUCTION STAGING SHOWING ANY TEMPORARY LOCATIONS FOR ITEMS WHERE APPLICABLE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF EXISTING DIESEL FUEL TANK AND FUEL.
- REFRIGERANT PIPING BETWEEN OUTDOOR AND INDOOR UNITS INCLUDING ALL FITTING, CONNECTIONS, INSULATION, ETC. PER SYSTEM MANUFACTURER REQUIREMENTS. PROVIDE AND INSTALL TEMPERATURE SENSORS AS REQUIRED. PROVIDE AND INSTALL PROGRAMMABLE REMOTE CONTROLLER IN CONTROL ROOM AND LABEL ACCORDINGLY.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

LAST SAVED 11/15/2018 11:28 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:44 PM... FILE: \\mmodc10\p\proj\15BPR14\CADD\Electrical\15BPR14_SMU_E19_640011

DESIGNED BY:	E. N. CLAY	DATE:	04/17/18
DRAWN BY:	R. L. REED	DATE:	04/17/18
CHECKED BY:	L. V. BORDEN	DATE:	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/15/18

MODJESKI and MASTERS
Experience great bridges.
333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979

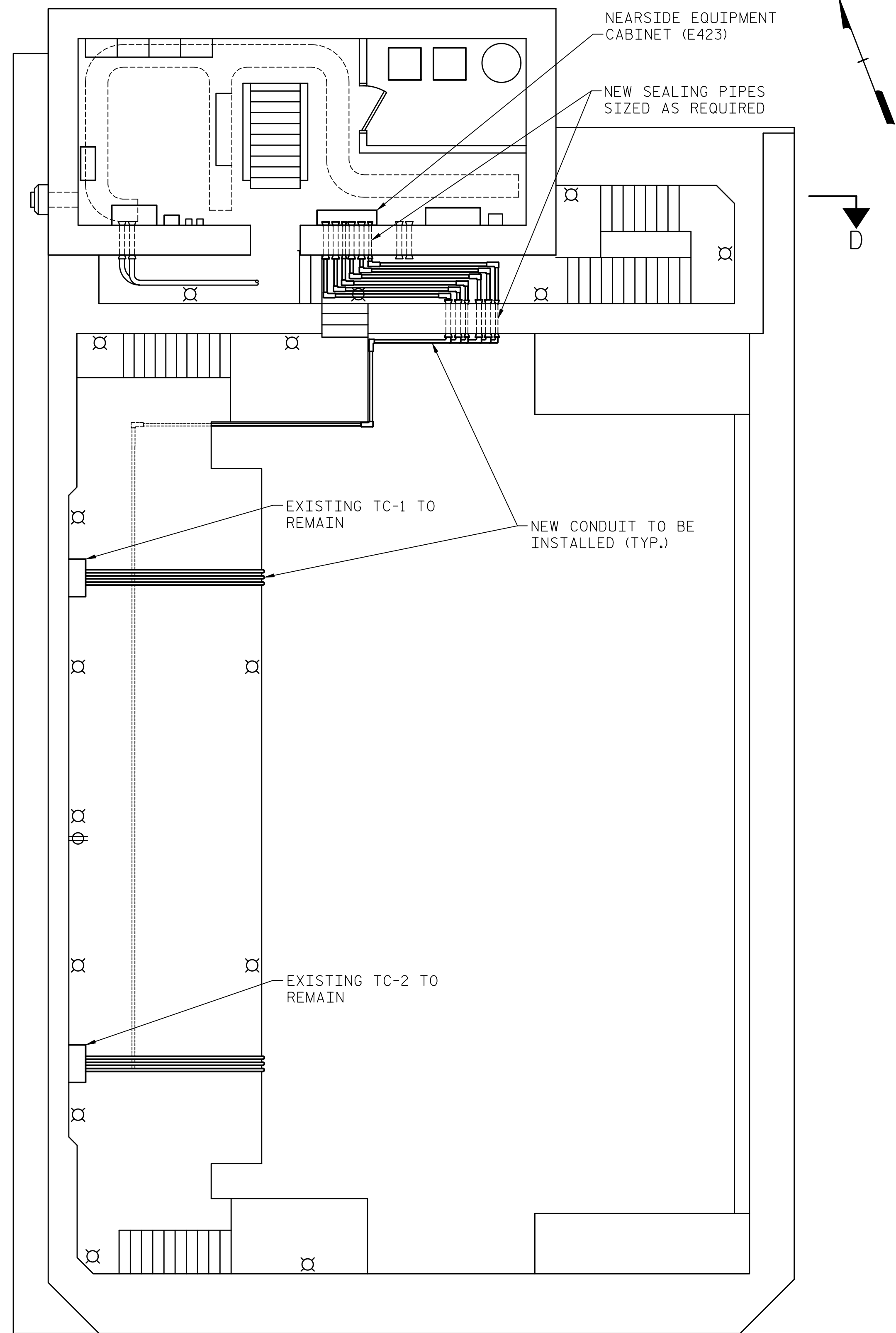


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
**CONTROL HOUSE
DETAILS - NEW
LAYOUTS**

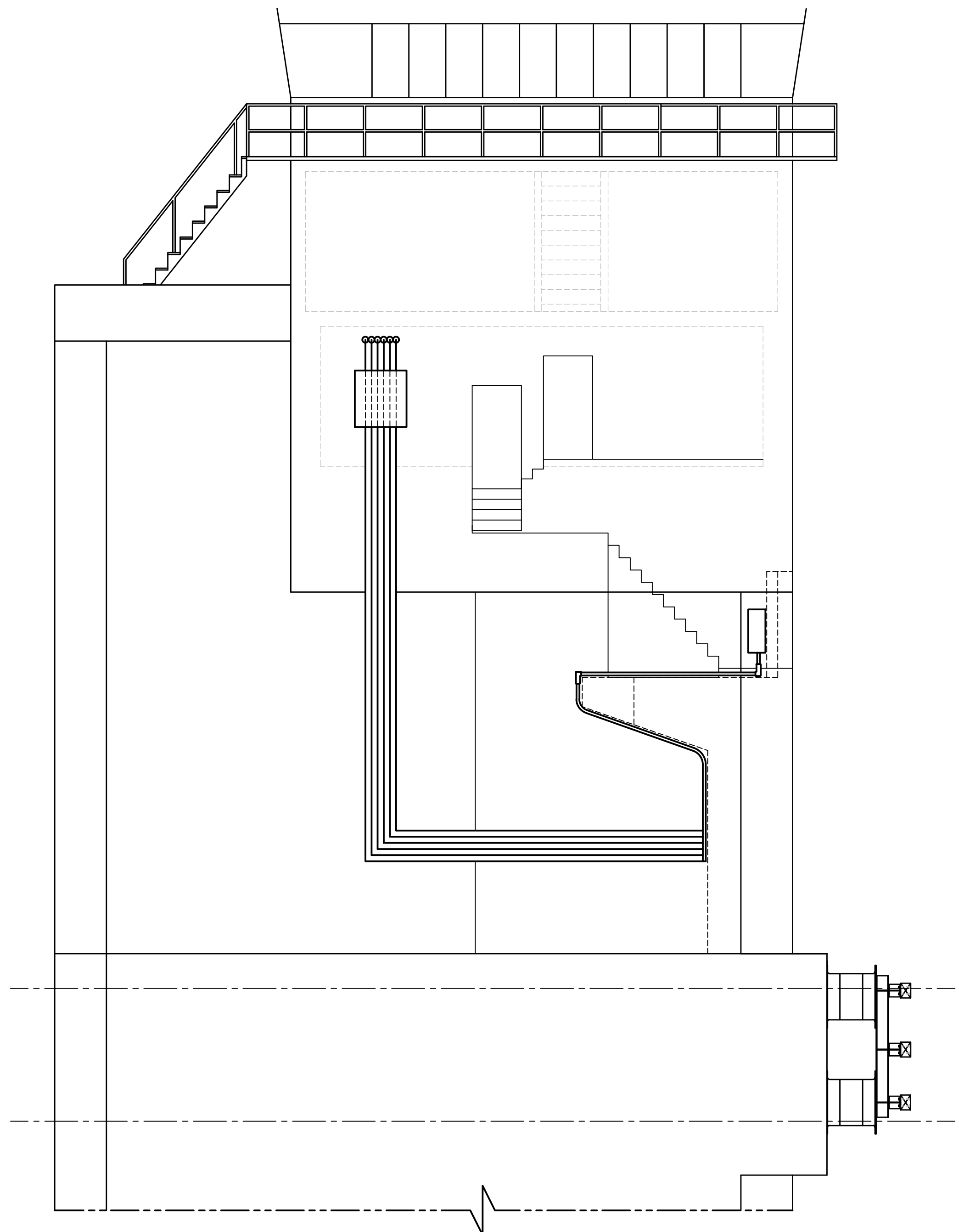
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **E-19**
TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



SECTION C-C
SCALE: 3/16"=1'-0"



SECTION D-D
SCALE: NONE

NOTES:

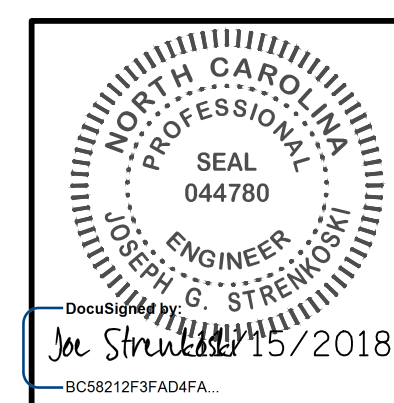
1. FOR LOCATION OF SECTION C-C, SEE SHEET E-40.
2. FOR CONDUIT LAYOUT OF NEARSIDE EQUIPMENT, SEE SHEET E-109
3. CONDUIT ROUTING IS SHOWN AS APPROXIMATE. ROUTINGS SHALL BE FIELD ADJUSTED TO WORK AROUND EXISTING CONDUIT AND MACHINERY.
4. CONTRACTOR MAY SUBMIT ALTERNATE CONDUIT ROUTING FOR APPROVAL BY ENGINEER.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

LAST SAVED 11/15/2018 11:28 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:44 PM... FILE: \\mmdc101\p\proj\ts\3682\03\CADD\Electr\loc\404\039\15BPR14_SML_E20_640011

DESIGNED BY:	J. C. RINEHART	DATE:	07/11/18
DRAWN BY:	R. L. REED	DATE:	07/11/18
CHECKED BY:	L. V. BORDEN	DATE:	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/15/18

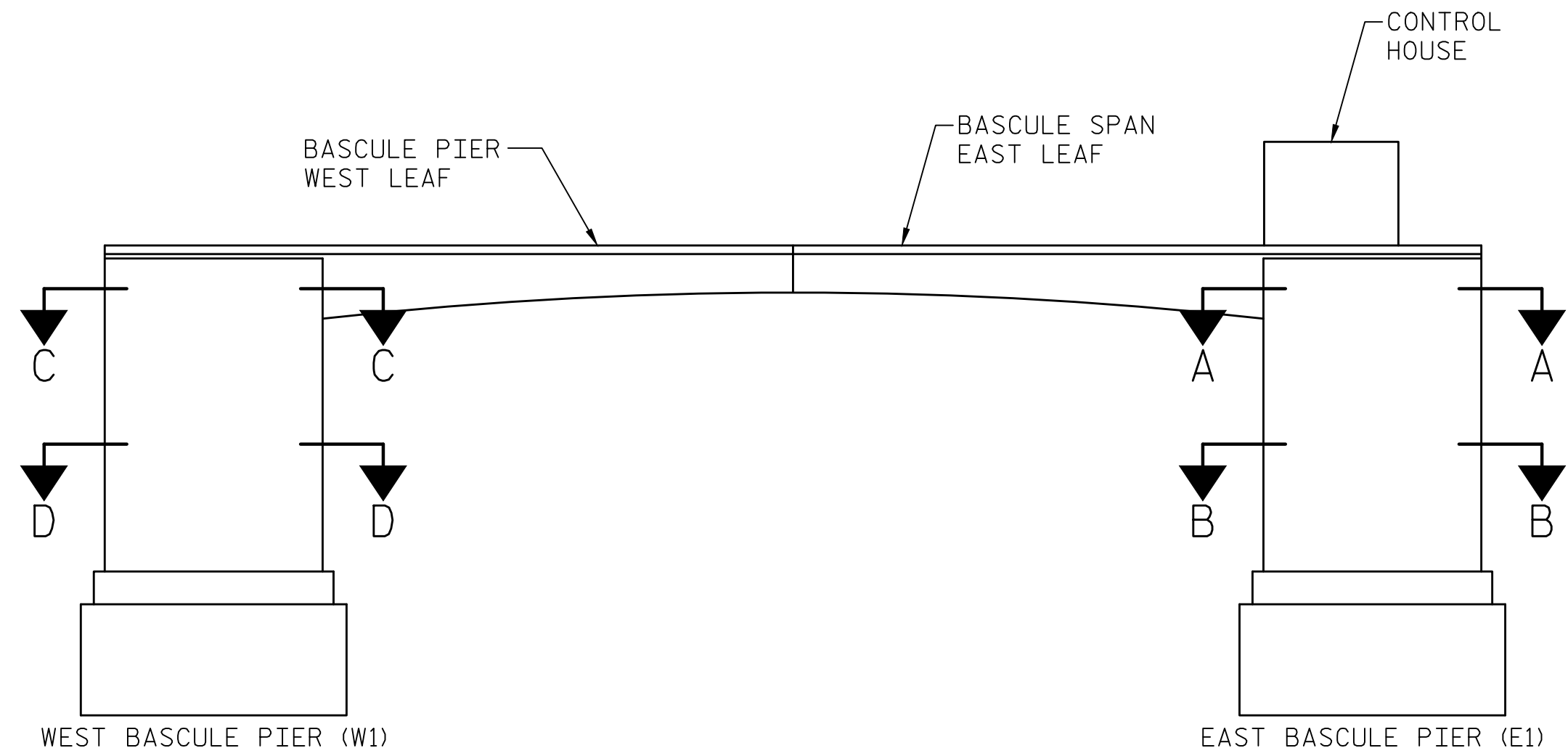
MODJESKI and MASTERS
Experience great bridges.
333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
CONTROL HOUSE AND MACHINERY - E1

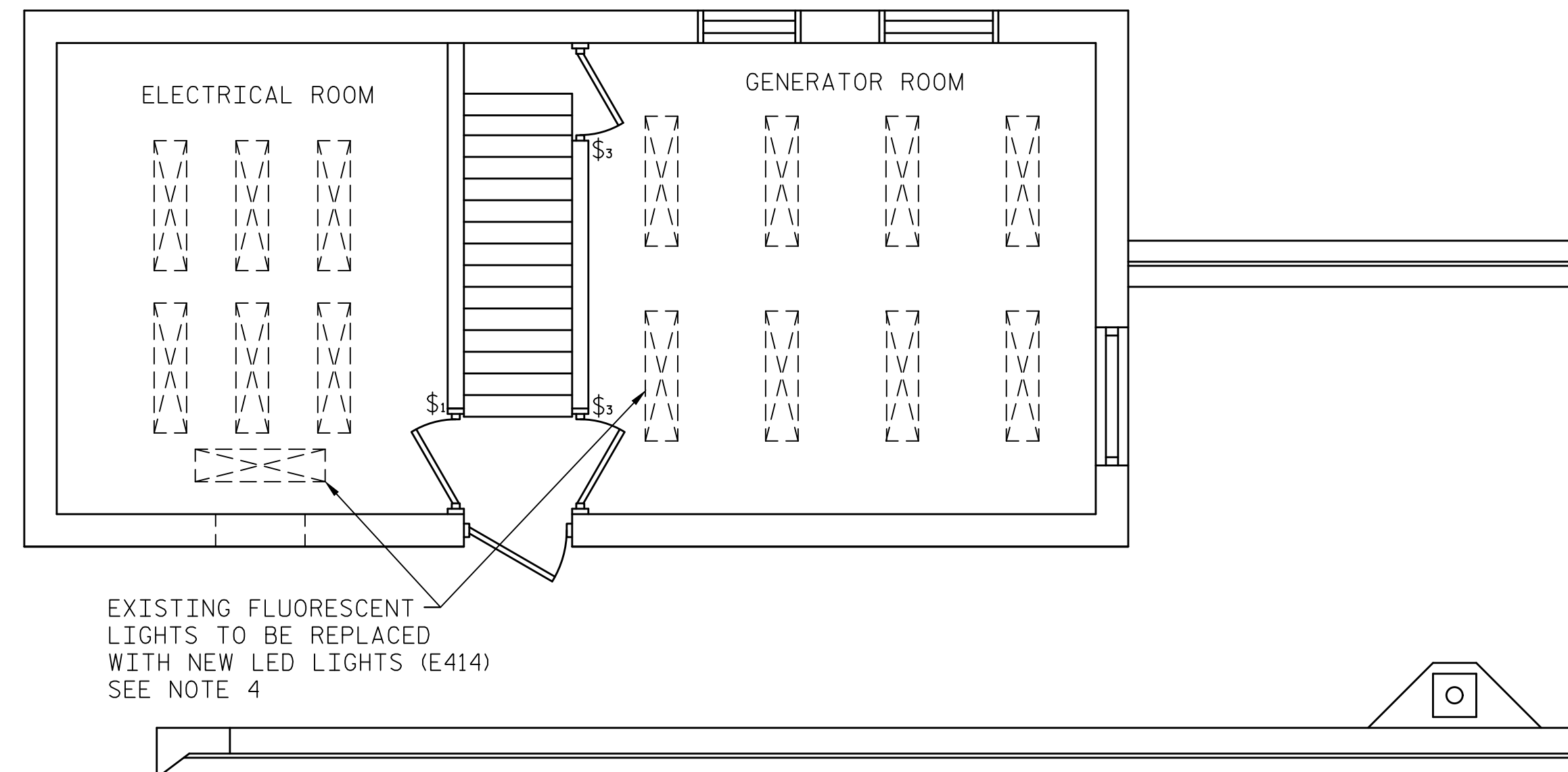
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			E-20
2			4			213



**SIMPLIFIED ELEVATION
BASCULE PIERS AND SPANS**

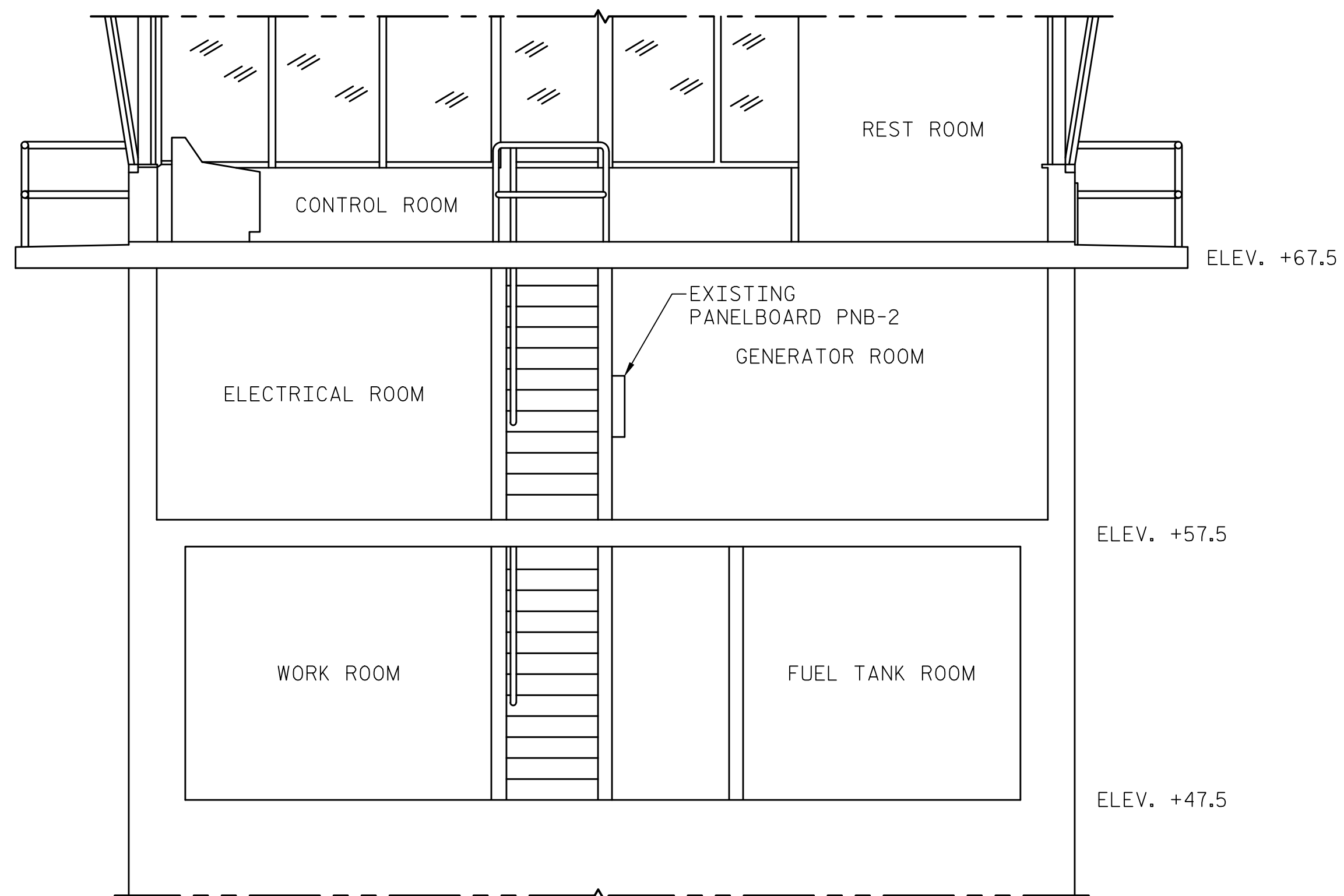
SCALE: NONE



**ELECTRICAL AND GENERATOR ROOMS
LIGHTING LAYOUT**

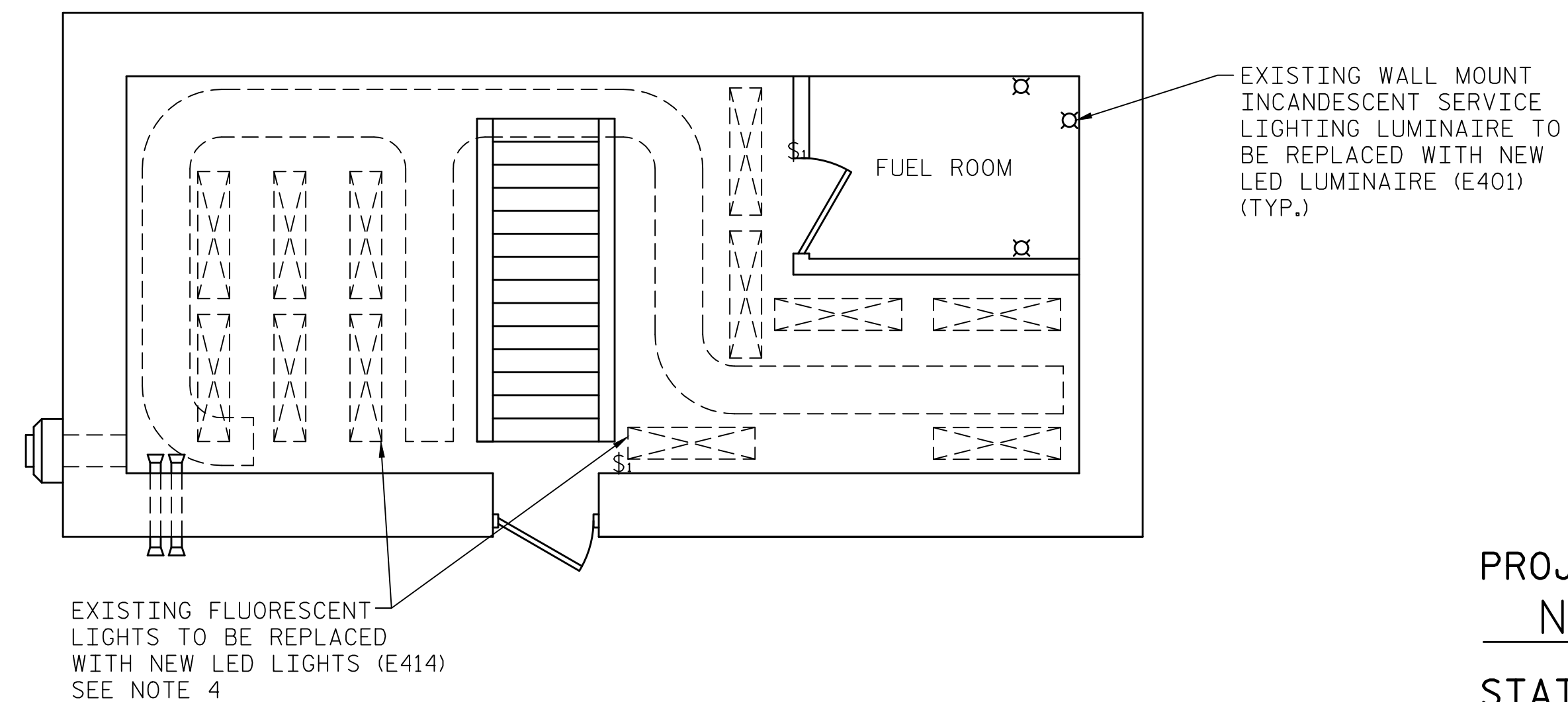
SCALE: 1/4"=1'-0"

NOTE: NOT ALL FEATURES AND EQUIPMENT SHOWN



**PARTIAL SECTION
THROUGH CONTROL HOUSE**

SCALE: 1/4"=1'-0"



**WORK AND FUEL ROOMS
LIGHTING LAYOUT**

SCALE: 1/4"=1'-0"

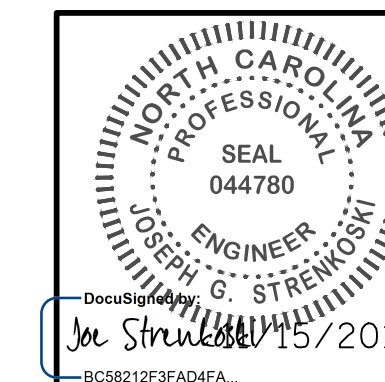
NOTE: NOT ALL FEATURES AND EQUIPMENT SHOWN

DEVICE LEGEND:

- ⌘ SINGLE POLE SWITCH
- ⊠ LUMINAIRE (TYPE AS INDICATED)



333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
ELECTRICAL LIGHTING LAYOUTS - 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					E-21
TOTAL SHEETS					213

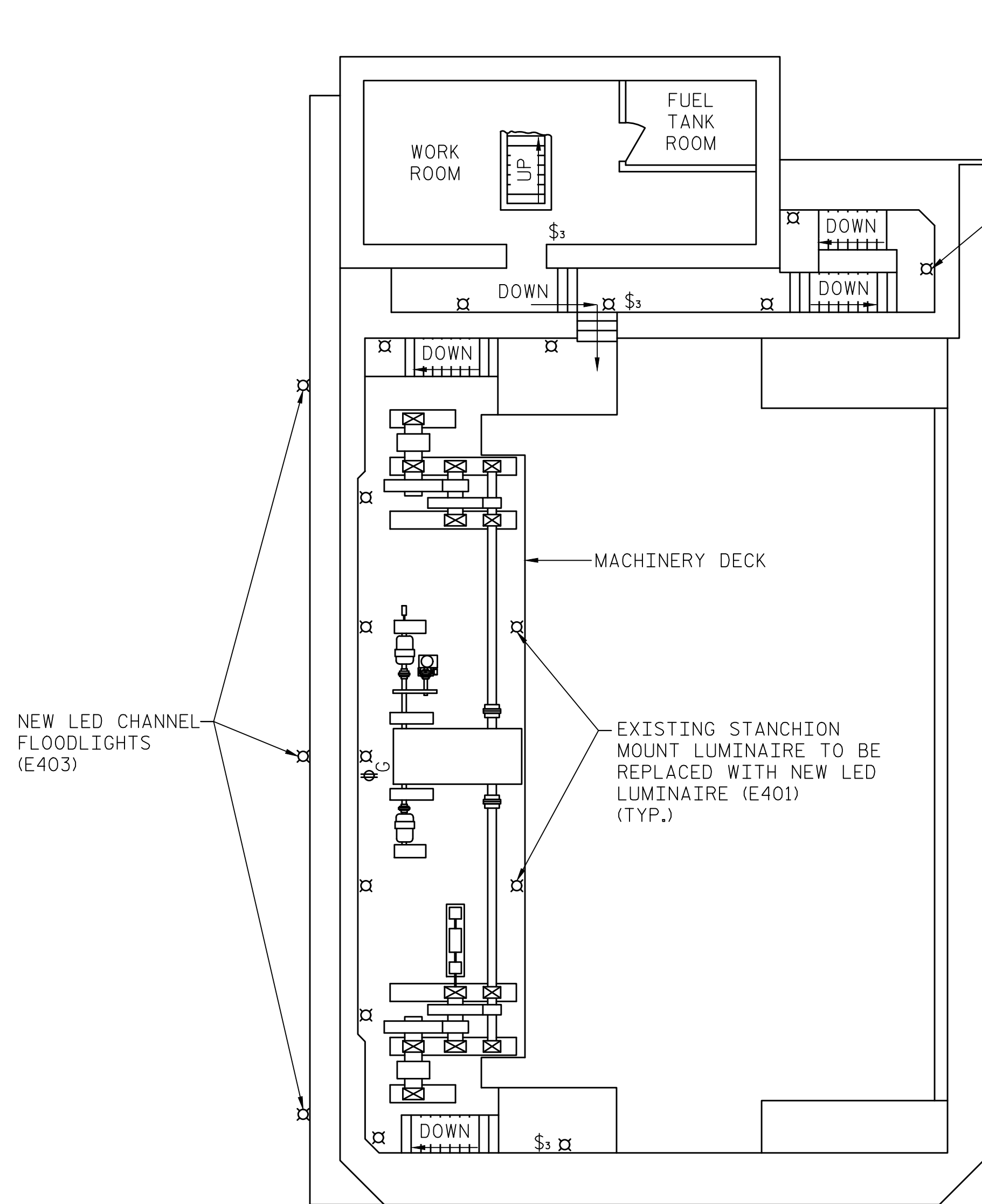
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

LAST SAVED 11/15/2018 11:28 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:45 PM.
 FILE: \\mncd101\p\projects\3682\3\CADD\Electrical\15BPR14_SML\E21_640011

DESIGNED BY: E. N. CLAY DATE: 04/18/18
 DRAWN BY: R. L. REED DATE: 04/18/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

NOTES:

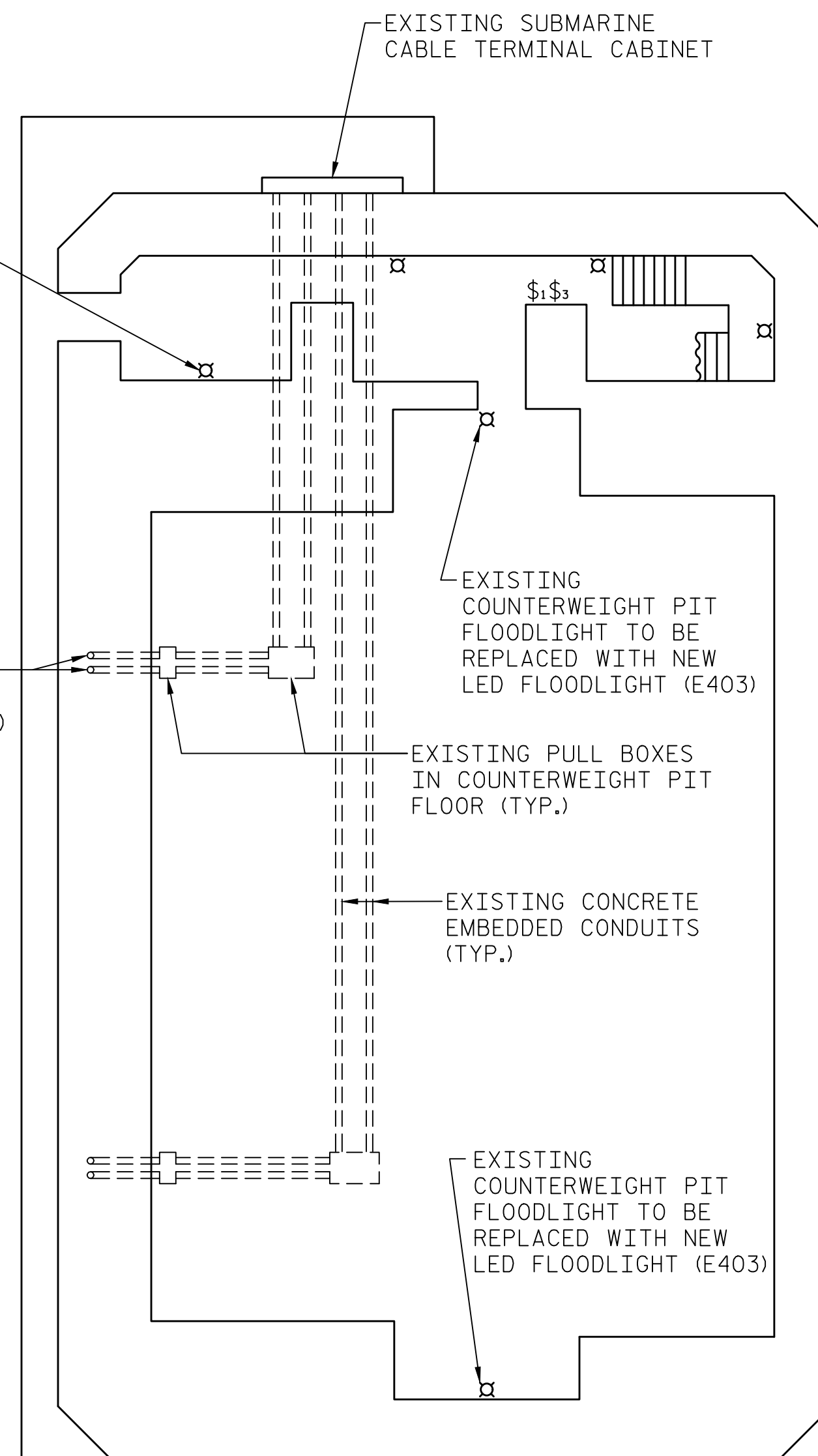
1. FOR SECTIONS A-A AND B-B, SEE SHEET E-22.
2. FOR SECTIONS C-C AND D-D, SEE SHEET E-23.
3. FOR EXISTING EQUIPMENT AND DEVICES IN ELECTRICAL, GENERATOR, AND WORK ROOMS, SEE SHEET E-18.
4. NEW LED LIGHTS IN ELECTRICAL, GENERATOR, AND WORK ROOMS TO MATCH FIXTURE TO BE INSTALLED IN CONTROL ROOM. REFER TO ARCHITECTURAL DRAWING E.01 FOR DETAILS. NEW FIXTURES TO BE INSTALLED AT EXISTING LOCATIONS.
5. EXISTING WALL SWITCHES AND GFCI RECEPTACLES TO REMAIN.



SECTION A-A

SCALE: 1/8"=1'-0"

NOTE: NOT ALL FEATURES AND EQUIPMENT SHOWN



SECTION B-B

SCALE: 1/8"=1'-0"

NOTE: NOT ALL FEATURES AND EQUIPMENT SHOWN

DEVICE LEGEND:

- \$1 SINGLE POLE SWITCH (EXISTING)
- \$3 THREE WAY SWITCH (EXISTING)
- ☒ LUMINAIRE (TYPE AS INDICATED)
- ⊕ GFCI RECEPTACLE (EXISTING)

NOTES:

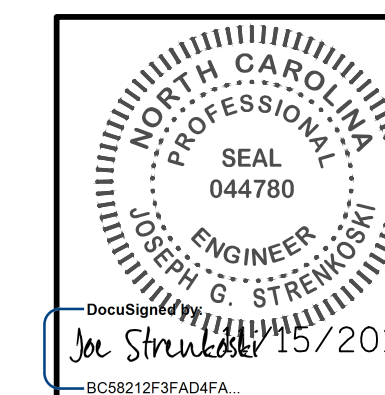
1. FOR SECTIONS A-A AND B-B, SEE SHEET E-21.
2. EXISTING WALL SWITCHES AND GFCI RECEPTACLES TO REMAIN.
3. FOR EXISTING LIGHTING IN FUEL AND WORK ROOMS, SEE SHEET E-21.
4. EXISTING LIGHTS ON OUTSIDE OF PIER FACE (NOT SHOWN) TO BE REMOVED. REMOVE CORRESPONDING CONDUIT AND CONDUCTORS.
5. NEW CHANNEL FLOODLIGHTS TO BE INSTALLED ON YOKE STYLE MOUNT AND AIMED TO ACHIEVE MAXIMUM ILLUMINATION OF THE NAVIGABLE CHANNEL.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
ELECTRICAL					
LIGHTING LAYOUTS - 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					E-22
TOTAL SHEETS					213



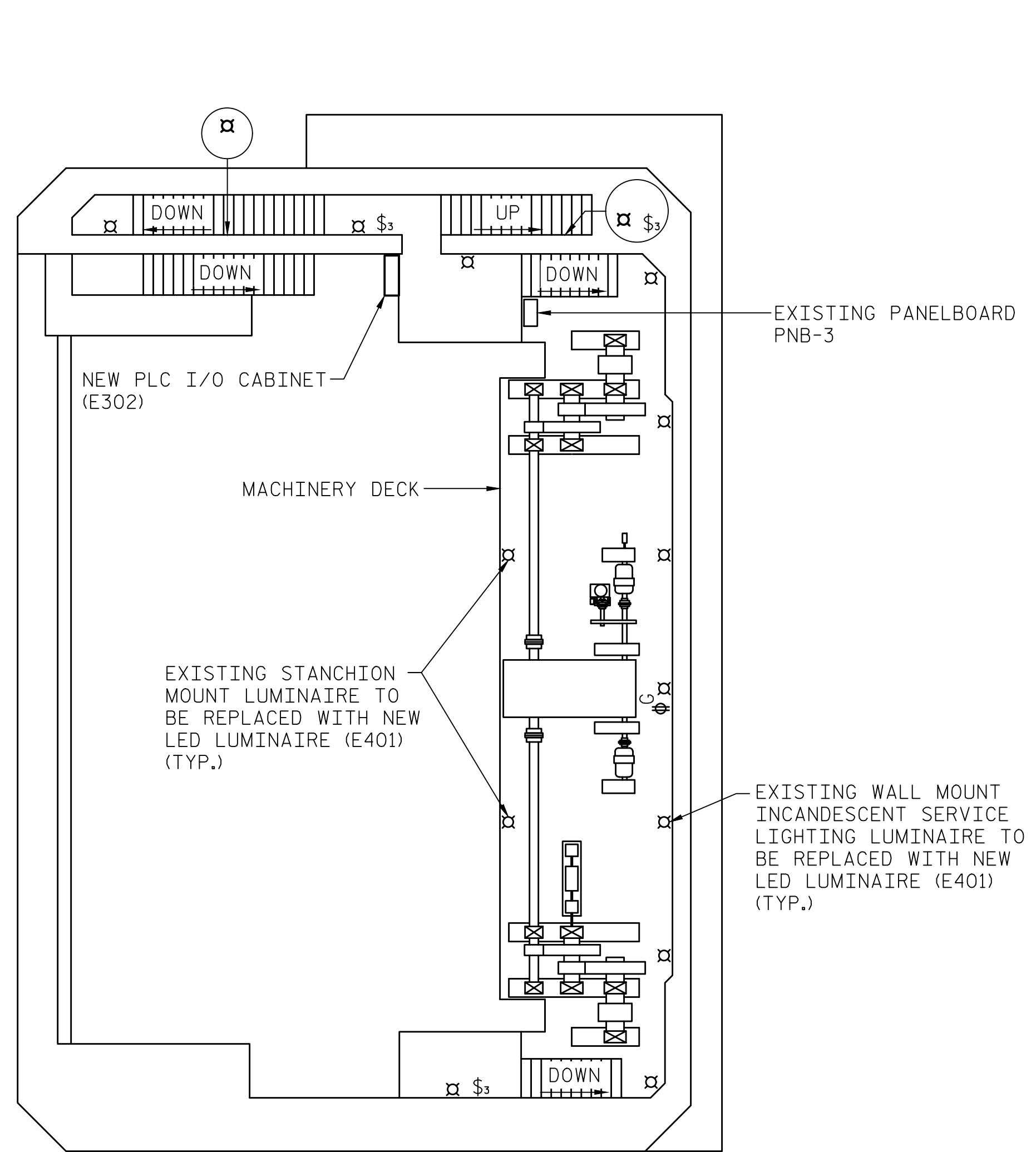
333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

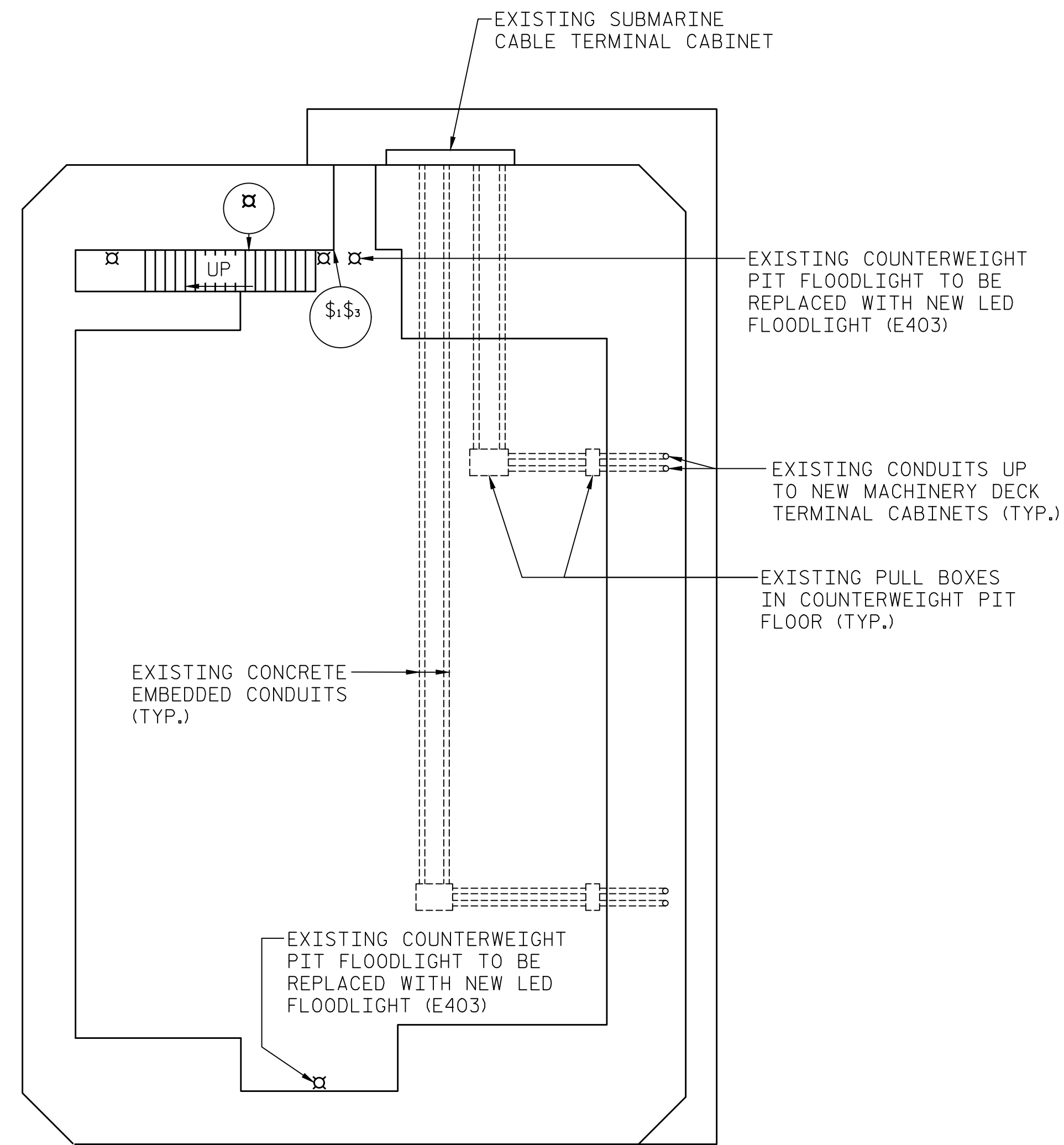
LAST SAVED 11/15/2018 11:28 AM BY AMBRODOKSY... LAST PLOTTED 11/15/2018 12:45 PM.
 FILE: \\mmdc10\p\projects\3682\03\CADD\Electrical\04_043_15BPR14_SML.E22.640011

DESIGNED BY: N. K. BHINGE DATE: 04/11/18
 DRAWN BY: R. L. REED DATE: 04/11/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



SECTION C-C

SCALE: 1/8"=1'-0"
NOTE: NOT ALL FEATURES AND EQUIPMENT SHOWN



SECTION D-D

SCALE: 1/8"=1'-0"
NOTE: NOT ALL FEATURES AND EQUIPMENT SHOWN

DEVICE LEGEND:

- \$1 SINGLE POLE SWITCH (EXISTING)
- \$3 THREE WAY SWITCH (EXISTING)
- ⊠ LUMINAIRE (TYPE AS INDICATED)
- ⊕ GFCI RECEPTACLE (EXISTING)

NOTES:

1. FOR SECTIONS C-C AND D-D, SEE SHEET E-21.
2. EXISTING WALL SWITCHES AND GFCI RECEPTACLES TO REMAIN.
3. EXISTING LIGHTS ON OUTSIDE OF PIER FACE (NOT SHOWN) TO BE REMOVED. REMOVE CORRESPONDING CONDUIT AND CONDUCTORS.

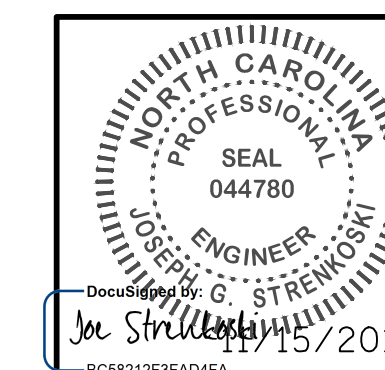
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
LIGHTING LAYOUTS - 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-23
1			3			TOTAL SHEETS
2			4			213



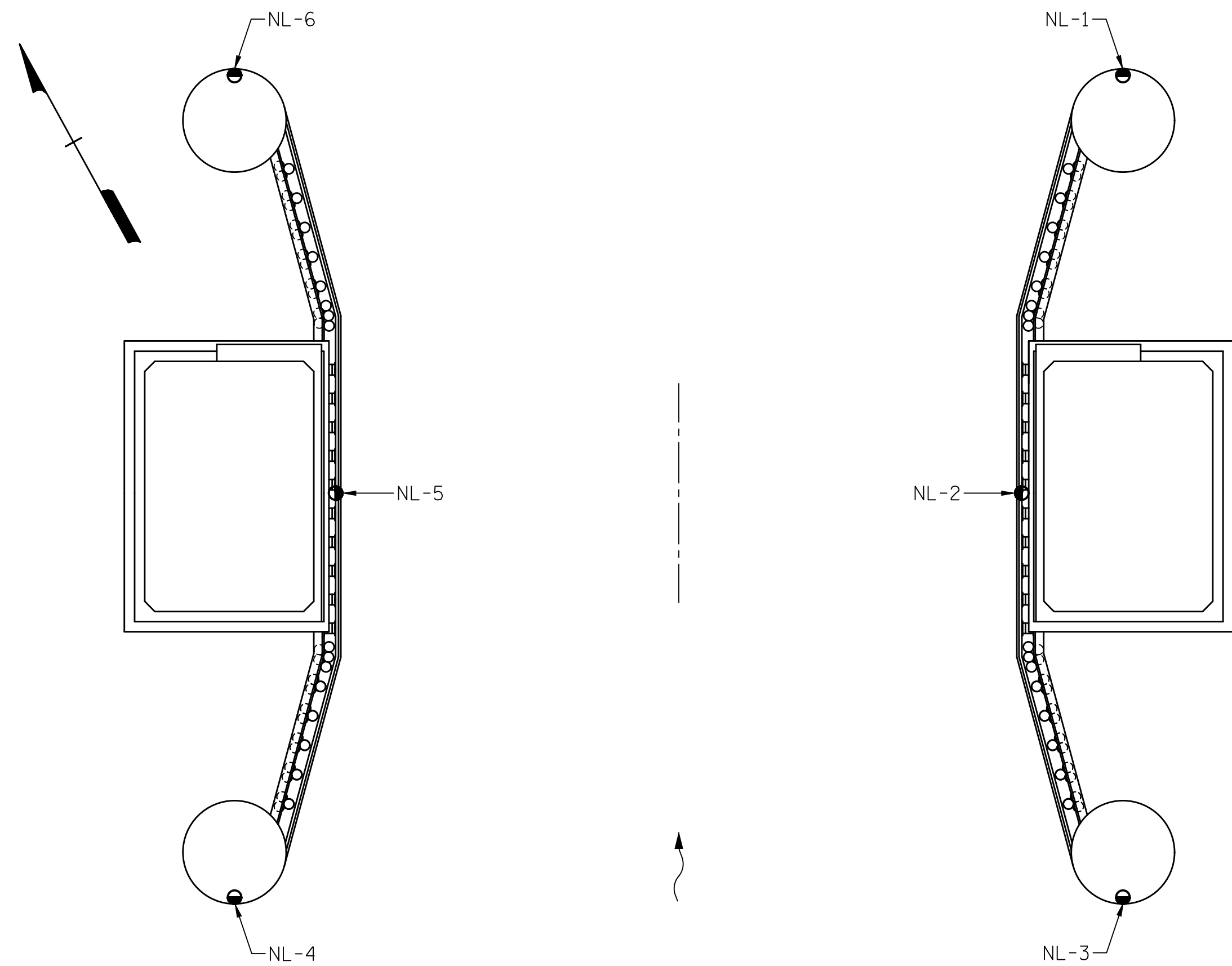
333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979



**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

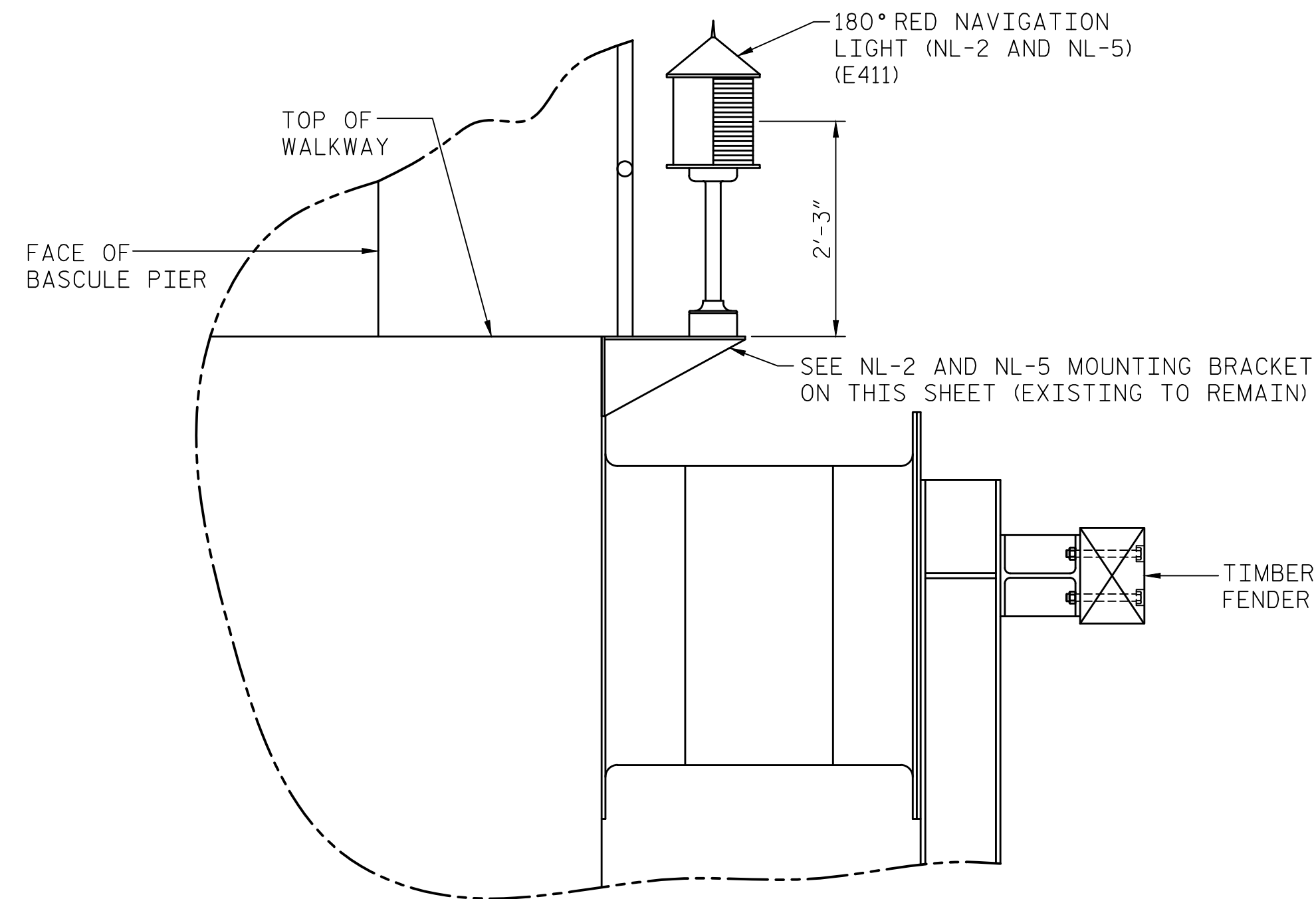
LAST SAVED 11/15/2018 11:29 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:45 PM... FILE: \\mmodc10\p\projects\3682\03\CADD\Electrical\04_045_15BPR14_SML\E23_640011

DESIGNED BY: E. N. CLAY DATE: 04/18/18
DRAWN BY: R. L. REED DATE: 04/18/18
CHECKED BY: L. V. BORDEN DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



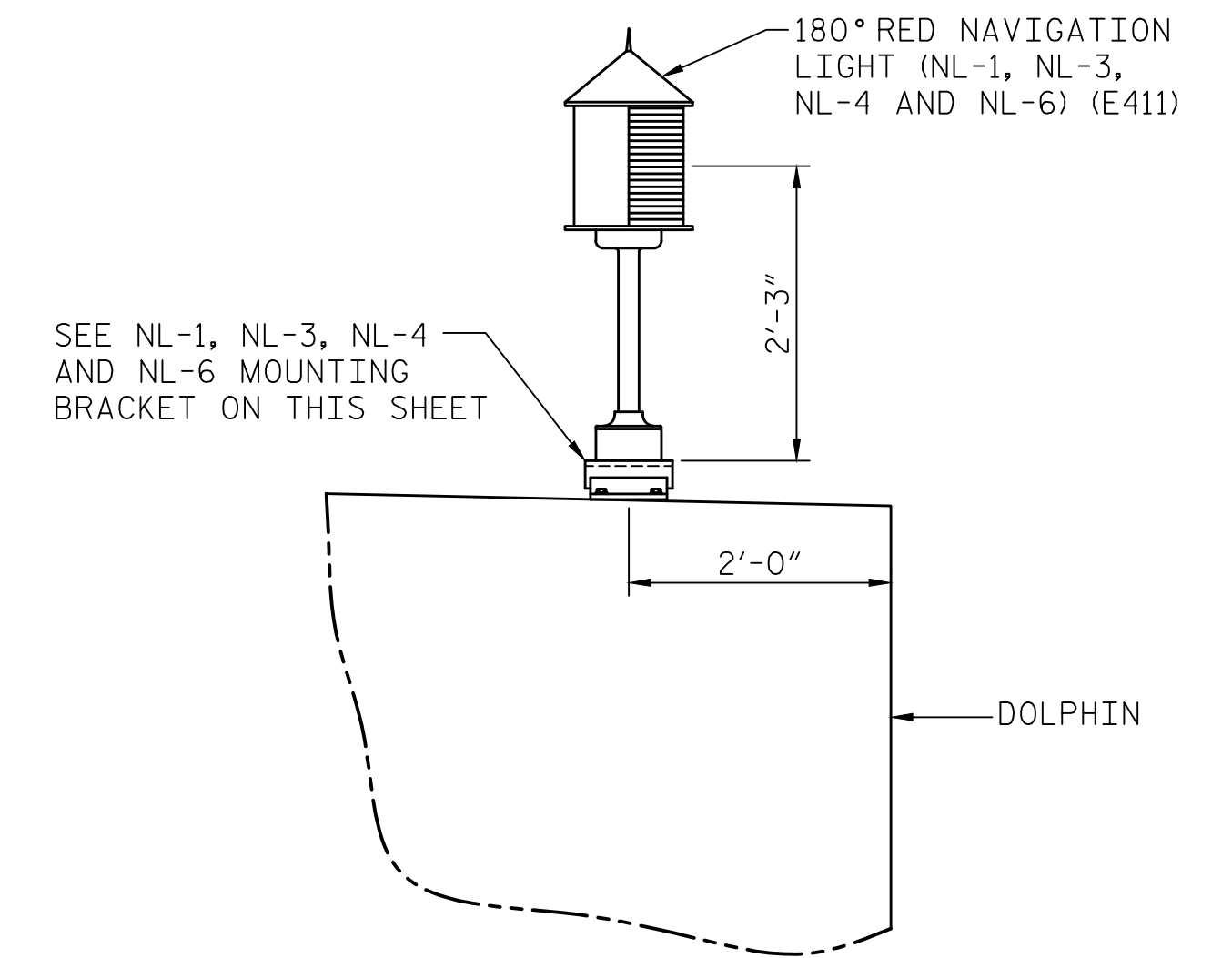
PLAN FENDER/DOLPHIN NAVIGATION LIGHTS

SCALE: 1/32"=1'-0"



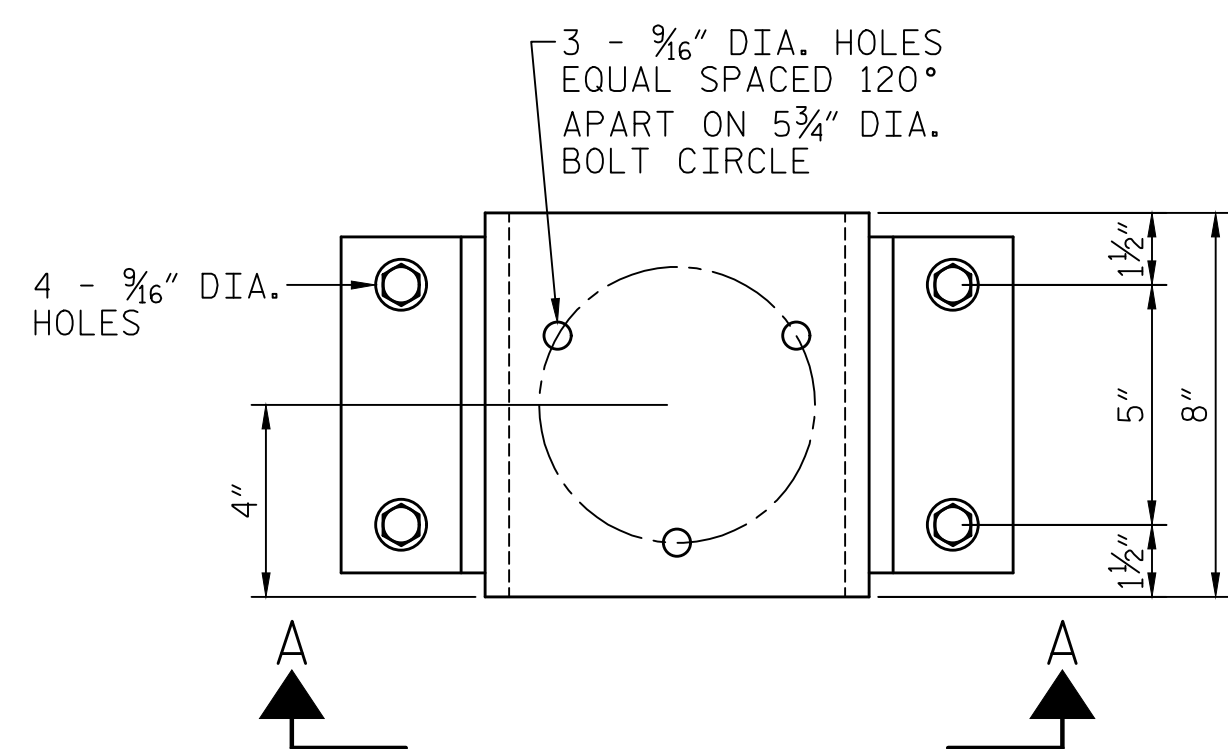
FENDER MOUNTED NAVIGATION LIGHTS

SCALE: 3/4"=1'-0"



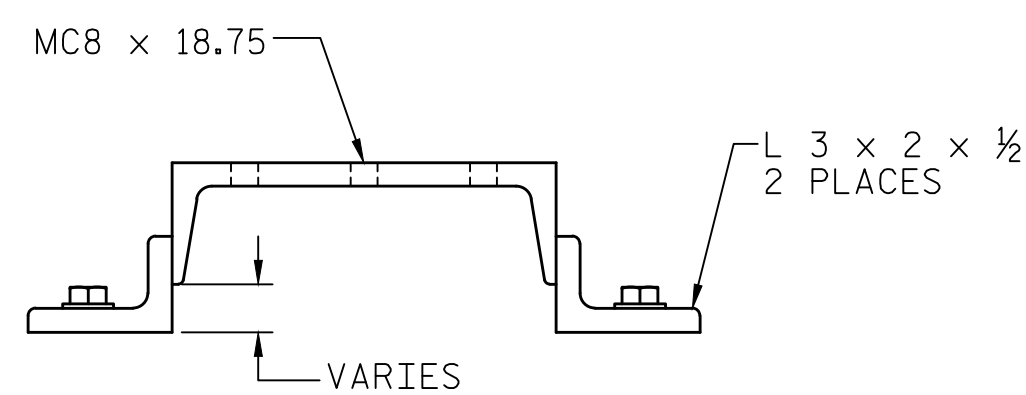
DOLPHIN MOUNTED NAVIGATION LIGHTS

SCALE: 3/4"=1'-0"



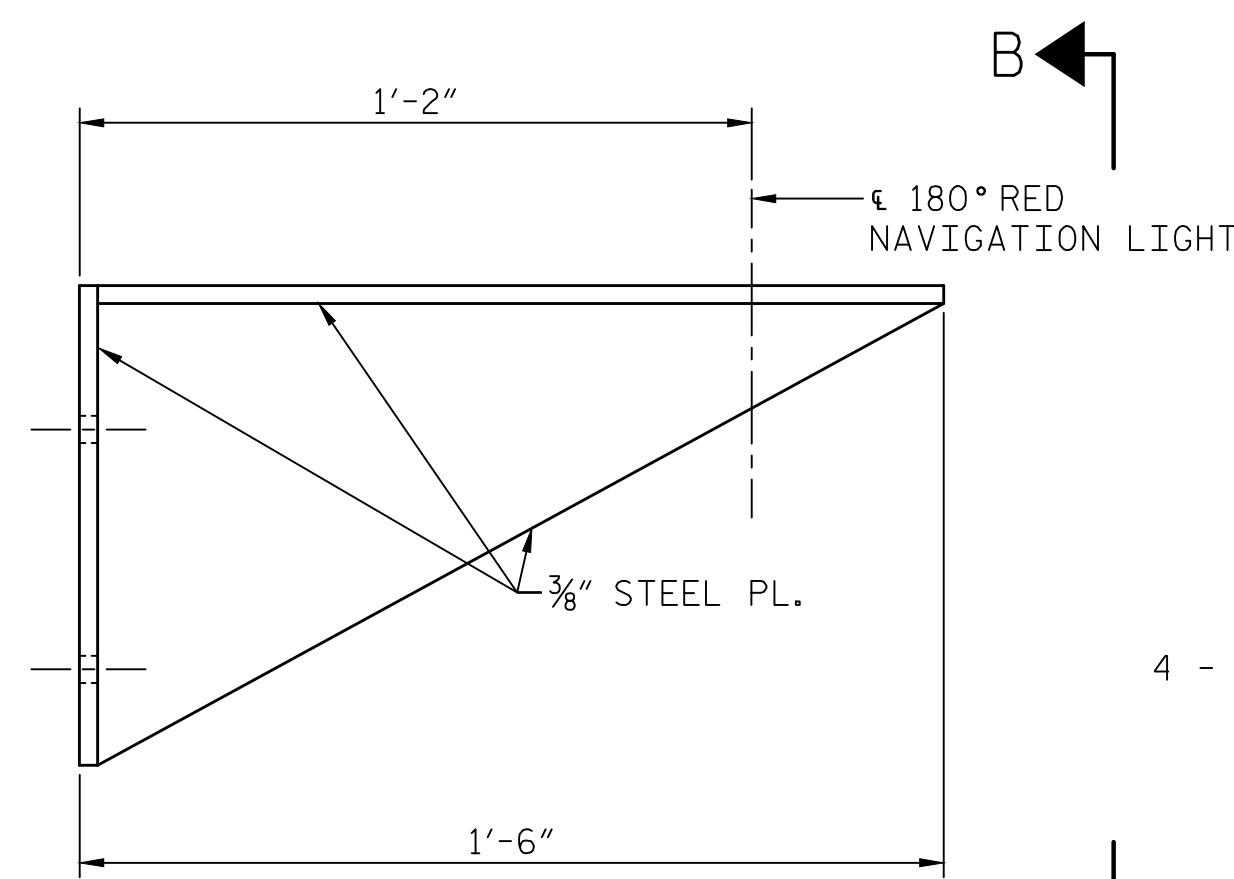
PLAN

SCALE: 3"=1'-0"



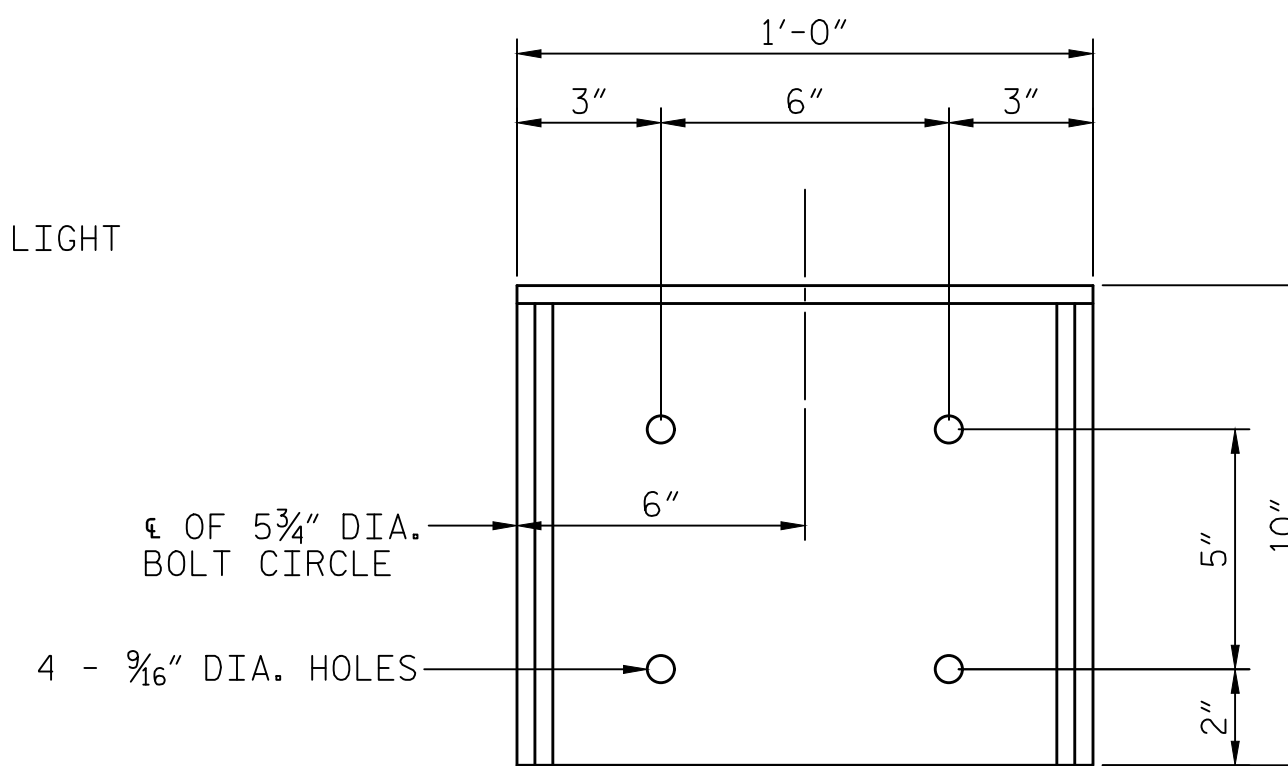
VIEW A-A

SCALE: 3"=1'-0"



ELEVATION

SCALE: 3"=1'-0"



VIEW B-B

SCALE: 3"=1'-0"

NOTES:

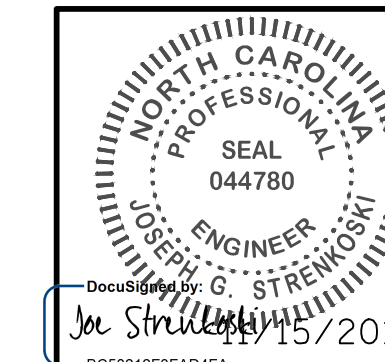
1. EXISTING MOUNTING BRACKETS SHALL BE MODIFIED AS REQUIRED FOR NEW NAVIGATION LIGHTS.
2. ALL EXISTING CONDUITS AND CONDUCTORS FOR NAVIGATION LIGHTS SHALL BE REPLACED. SEE SHEET E-25 FOR NAVIGATION LIGHTING DETAILS.
3. NORTHEAST DOLPHIN TOP IS DAMAGED. CONTRACTOR SHALL DETERMINE OPTIMAL LOCATION OF NAVIGATION LIGHT AROUND DAMAGED DOLPHIN TOP.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 NAVIGATION LIGHTING
 PLAN



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



EXISTING MOUNTING BRACKET FOR NL-1, NL-3, NL-4 AND NL-6

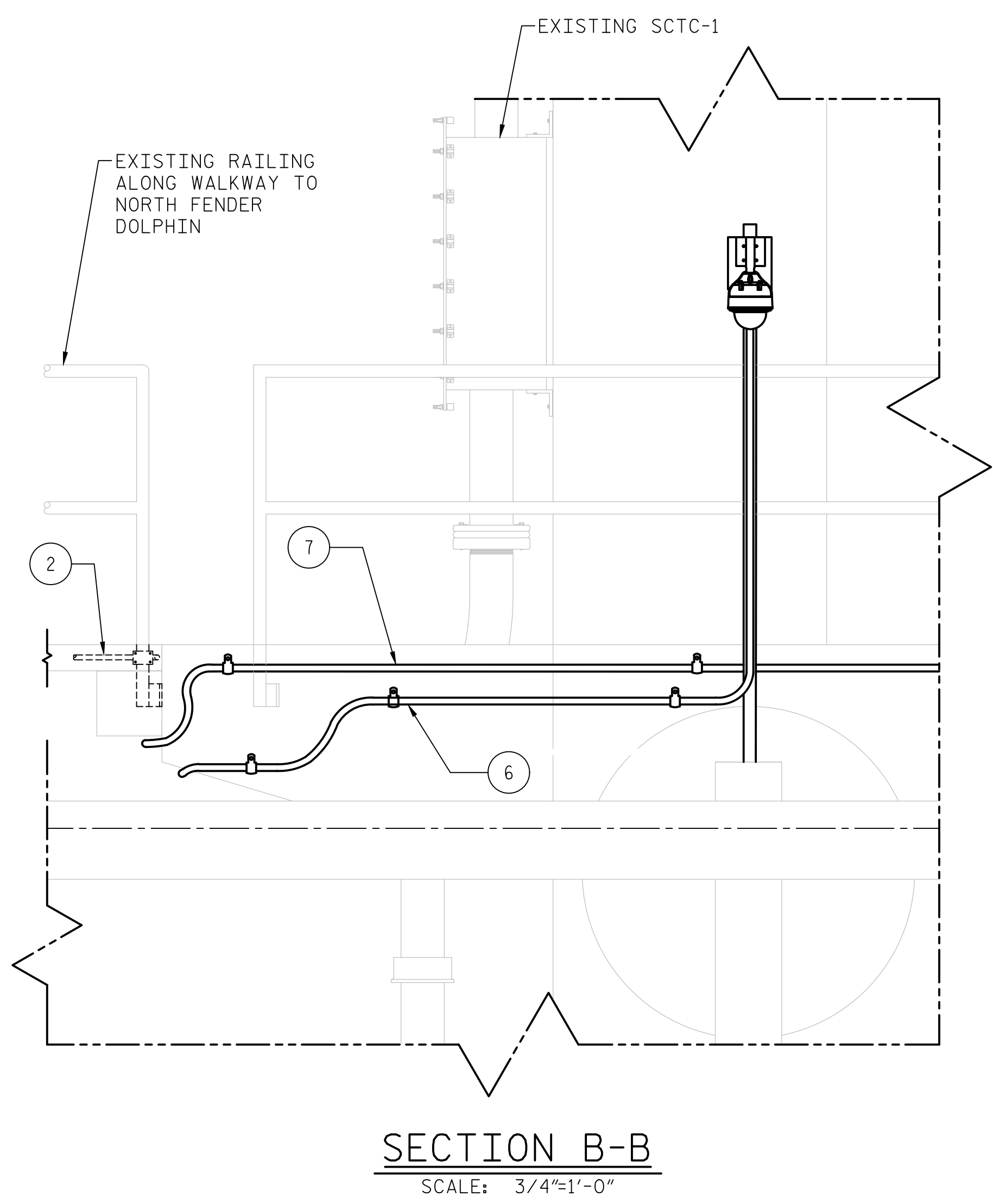
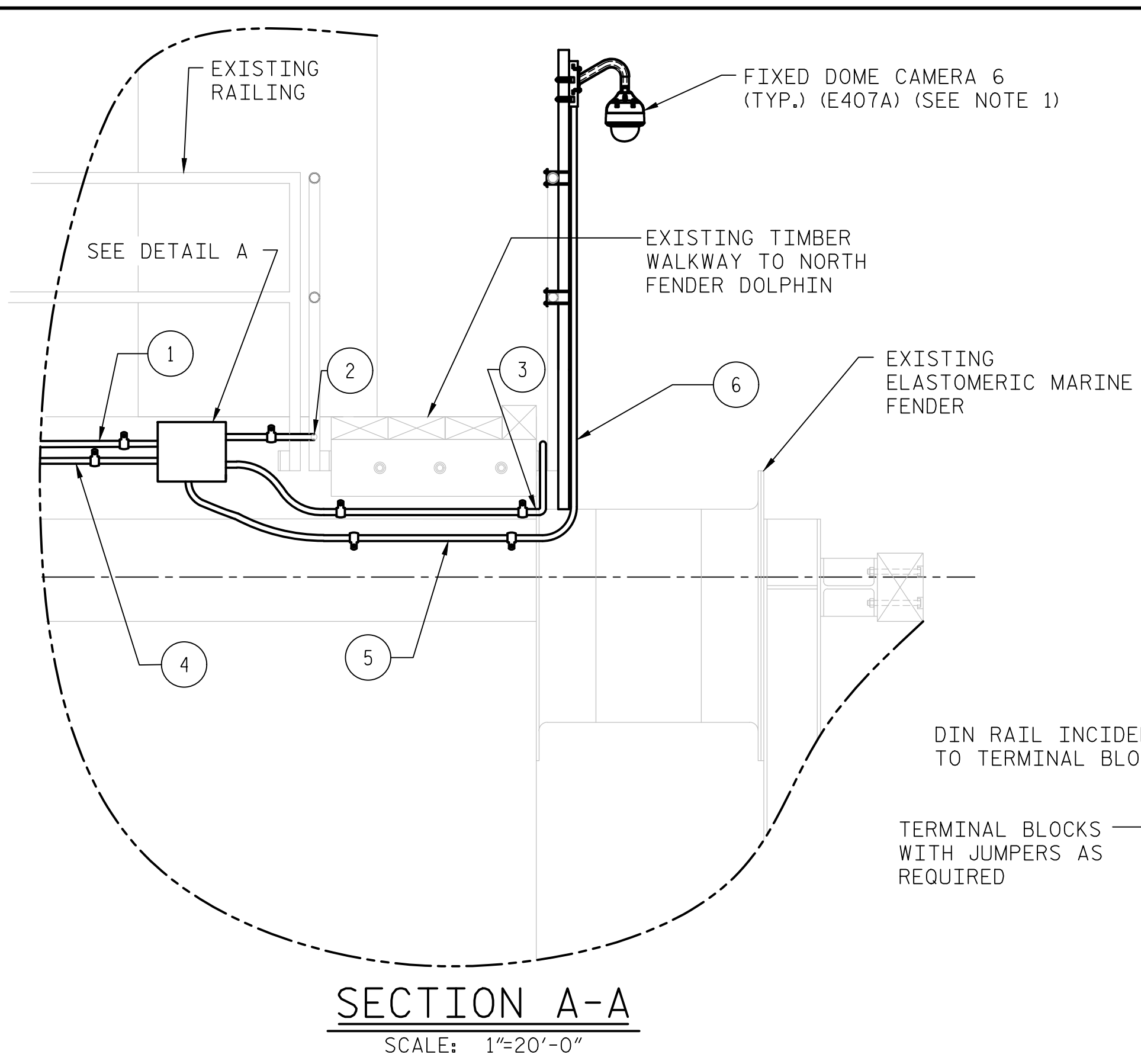
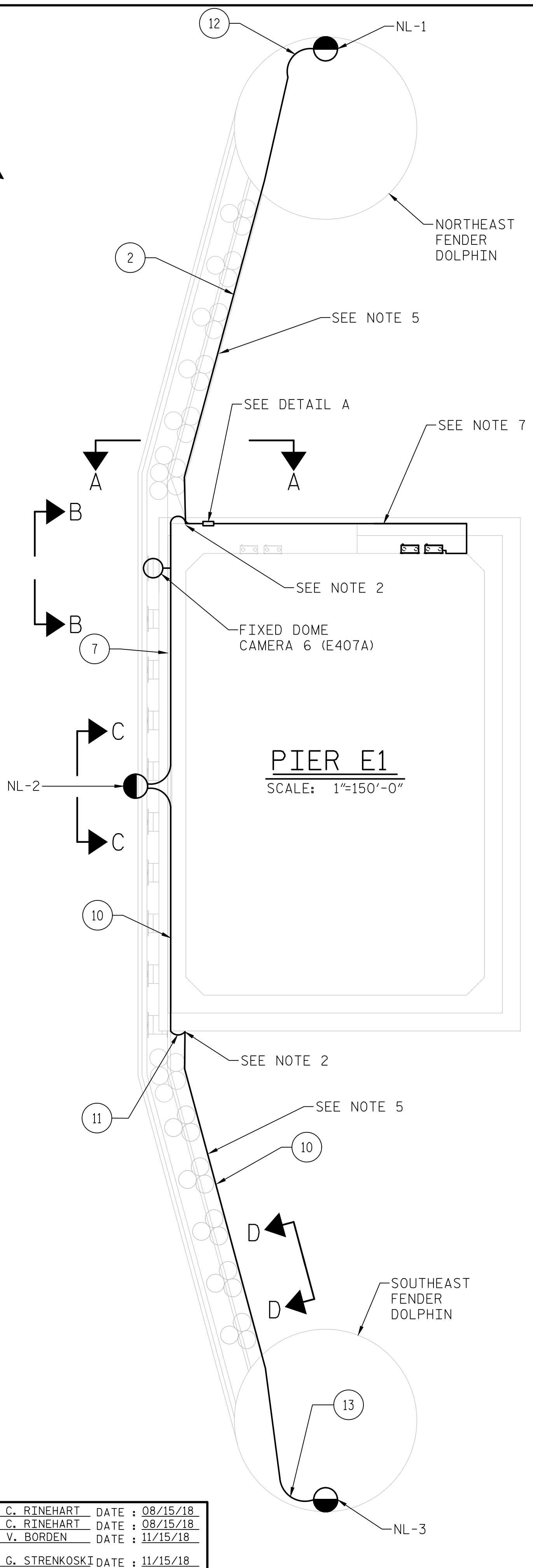
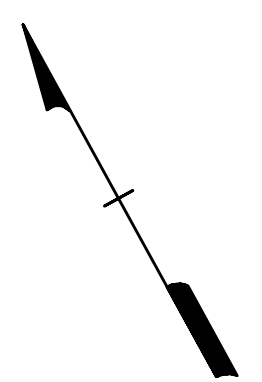
DESIGNED BY: J. C. RINEHART DATE: 04/19/18
 DRAWN BY: R. L. REED DATE: 04/19/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

EXISTING MOUNTING BRACKET FOR NL-2 AND NL-5

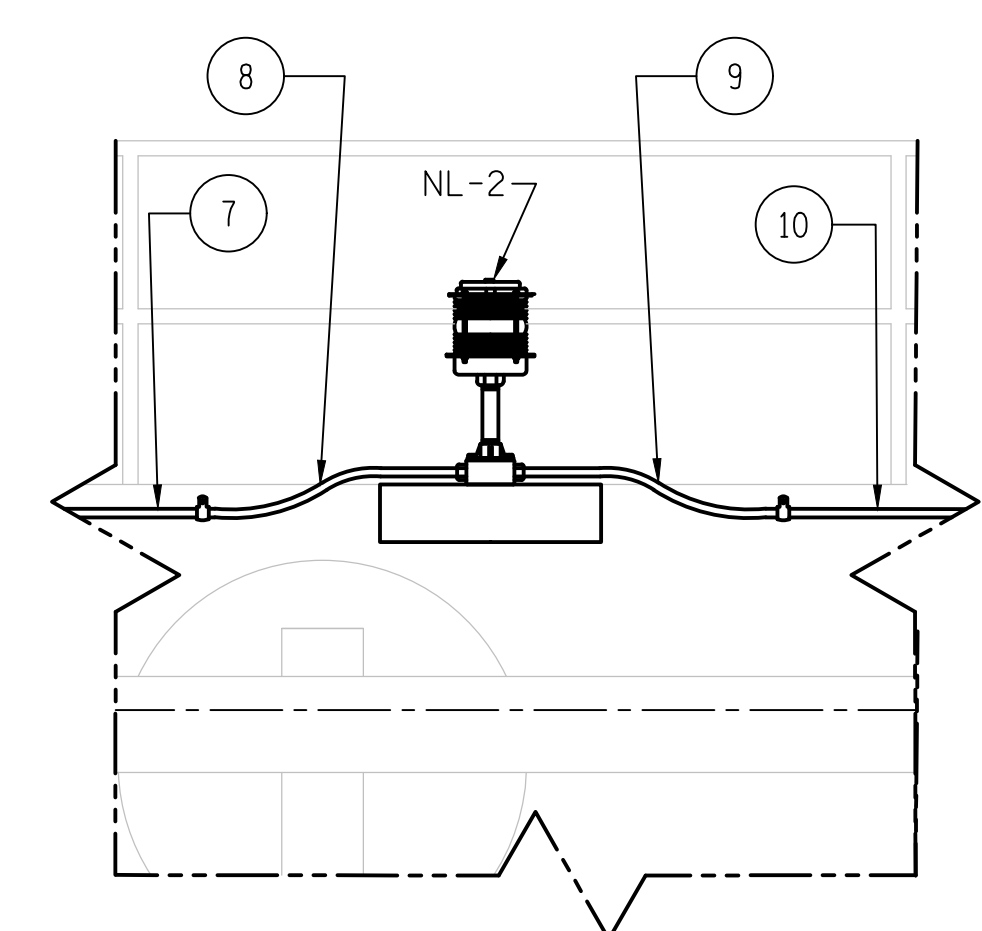
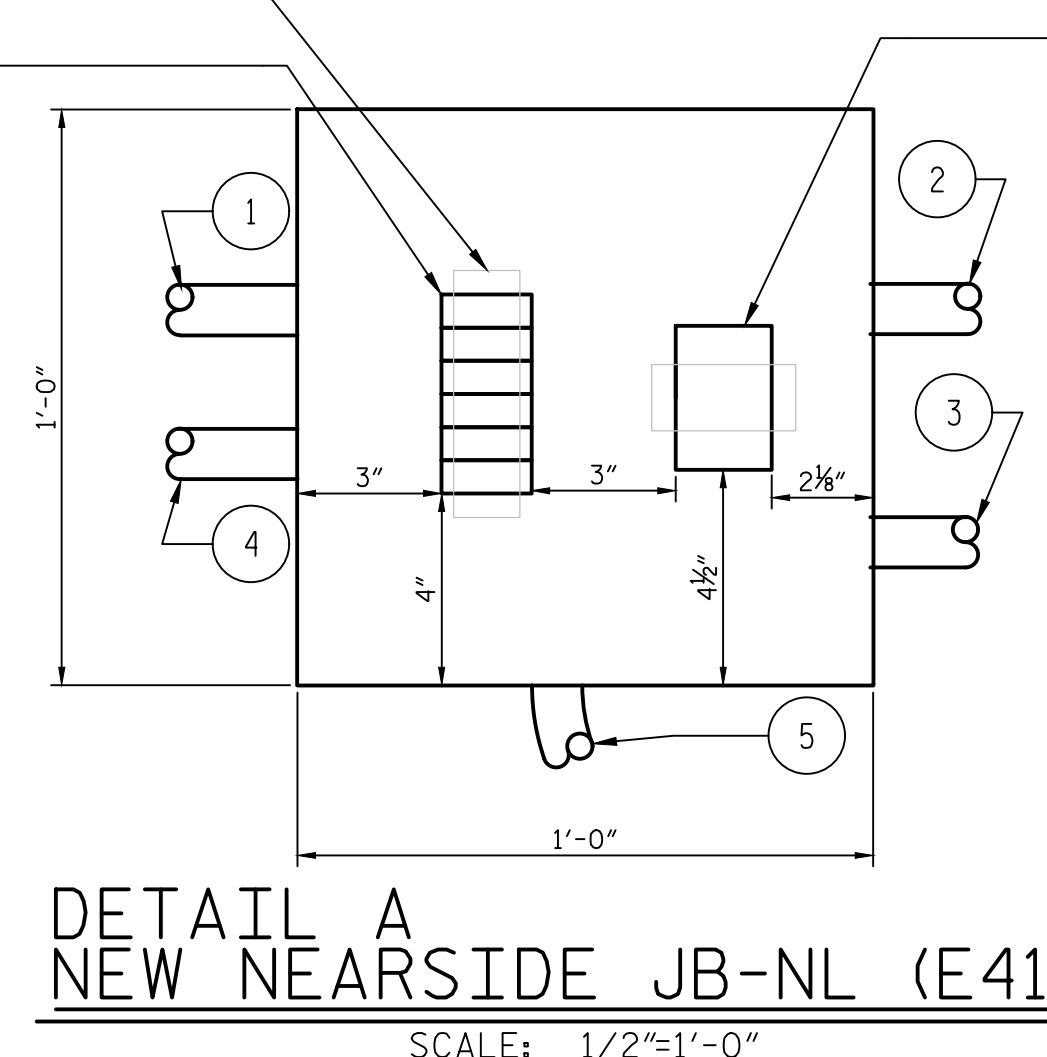
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-24
1			3			TOTAL SHEETS
2			4			213

LAST SAVED 11/15/2018 11:29 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:45 PM...
 FILE: \\mmodj010\projects\3682\03\CADD\Electrical\15BPR14_SML\E24_640011

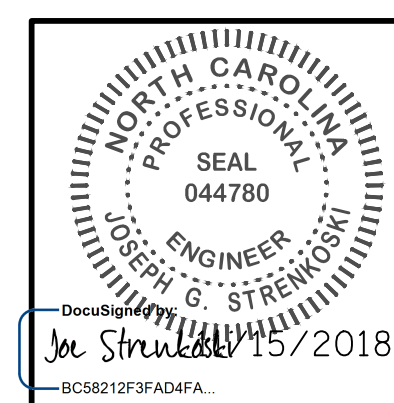


RUN NUMBER	CONDUIT		CONNECTIONS		SERVING
	TRADE SIZE	TYPE	CICUIT	GROUND	
1	3/4"	RMC	(4) 10 AWG	10 AWG	CAMERA #6 NL-1, 2, 3
2	3/4"	RMC	(2) 10 AWG	10 AWG	NL-1
3	3/4"	LFMC	(2) 10 AWG	10 AWG	NL-2, 3
4	3/4"	RMC	(1) COAX	-	CAMERA #6
5	3/4"	LFMC	(2) 10 AWG (1) COAX	10 AWG	CAMERA #6
6	3/4"	RMC	(2) 10 AWG (1) COAX	10 AWG	CAMERA #6
7	3/4"	RMC	(2) 10 AWG	10 AWG	NL-2, 3
8	3/4"	LFMC	(2) 10 AWG	10 AWG	NL-2, 3
9	3/4"	LFMC	(2) 10 AWG	10 AWG	NL-3
10	3/4"	RMC	(2) 10 AWG	10 AWG	NL-3
11	3/4"	LFMC	(2) 10 AWG	10 AWG	NL-3
12	3/4"	LFMC	(2) 10 AWG	10 AWG	NL-1
13	3/4"	LFMC	(2) 10 AWG	10 AWG	NL-13



- NOTES:**
- EXACT CAMERA MOUNTING LOCATION SHALL BE DETERMINED BY CONTRACTOR IN ORDER TO ACHIEVE OPTIMAL VIEWING ANGLES. REFER TO SHEET E-105 FOR POLE MOUNTED CAMERA #6 MOUNTING DETAILS AND SHEET E-104 FOR CCTV PLAN & ELEVATION
 - CONDUIT IS TO TRANSITION FROM RIGID METAL CONDUIT (RMC) TO LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC) AND ROUTE UNDERNEATH TIMBER WALKWAY, TO WEST FACE OF PIER E1.
 - WEST FENDER CONDUIT LAYOUT SHALL RESEMBLE EAST FENDER, MINUS CAMERA #6. SEE SHEET E-110 FOR CONDUIT LAYOUT AND SHEET E-111 FOR CONDUIT SCHEDULE
 - CONDUIT SHALL BE MOUNTED TO WEST FACE OF PIER E1 USING 3/8" CONDUIT CLAMPS (SEE SHEET E-119 FOR TYPICAL CONDUIT MOUNTING DETAILS) AT INTERVALS NOT EXCEEDING 6FT.
 - CONDUIT ROUTING ON TIMBER WALKWAY SHALL BE MOUNTED TO RAILING ON VERTICAL SUPPORT (SEE SHEET E-119 FOR SECTION D-D)
 - CONTRACTOR MAY SUBMIT ALTERNATE ROUTING FOR APPROVAL BY ENGINEER
 - CONDUIT IS TO ROUTE FROM NEW SCTC-1, ACROSS NORTH FACE OF NEW SCTC PLATFORM AND TERMINATE IN NEW JB-NL

MODJESKI and MASTERS
Experience great bridges.
333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
NAVIGATION LIGHTING
DETAILS

DESIGNED BY: J. C. RINEHART DATE: 08/15/18
DRAWN BY: J. C. RINEHART DATE: 08/15/18
CHECKED BY: L. V. BORDEN DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

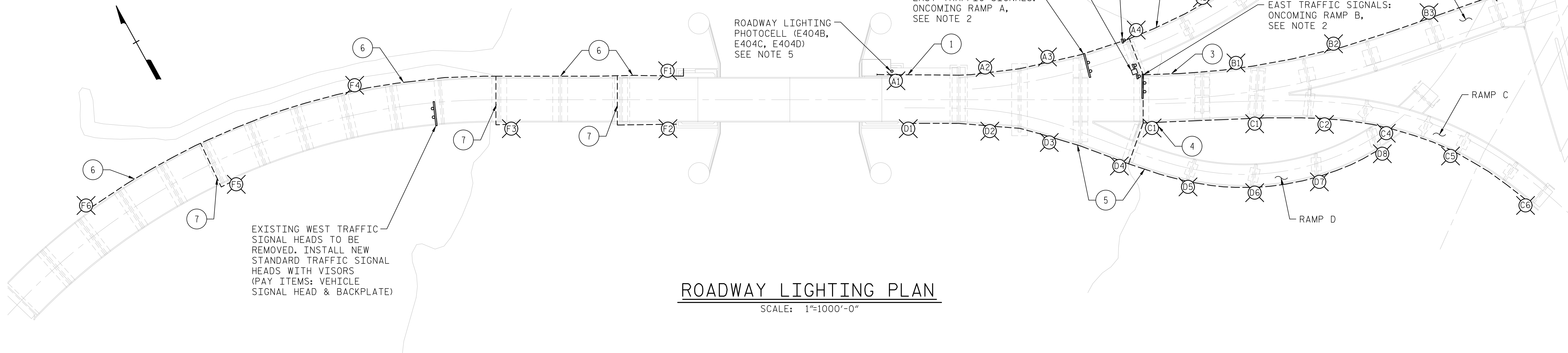
REVISIONS						SHEET NO. E-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 213
2			4			

LAST SAVED 11/15/2018 11:30 AM BY AMBRODSKY... LAST PLOTTED 11/15/2018 12:45 PM.
 FILE: \\mmod101\p\proj\15\3682\03\CADD\Electrical\15BPR14_SML_E25_640011

ROADWAY LIGHTING AERIAL CABLE SCHEDULE				
CABLE NO.	NO. OF CABLES	CABLE CONDUCTOR SIZE	NO. OF CONDUCTORS PER CABLE	DESCRIPTION
1	4	10 AWG	4	ROADWAY LIGHT CABLES: RL-A, RL-B, RL-C & RL-D
2	1	10 AWG	4	ROADWAY LIGHT CABLE: RL-A
3	1	10 AWG	4	ROADWAY LIGHT CABLE: RL-B
4	1	10 AWG	4	ROADWAY LIGHT CABLE: RL-C
5	1	10 AWG	4	ROADWAY LIGHT CABLE: RL-D
6	1	10 AWG	4	ROADWAY LIGHT CABLE: RL-F
7	2	10 AWG	4	ROADWAY LIGHT CABLES: (2) RL-F

LEGEND:

(XY) EXISTING ROADWAY LIGHT
X = RAMP Y = NUMBER



ROADWAY LIGHTING PLAN

SCALE: 1"=1000'-0"

ROADWAY LIGHTING PARTS LIST (ITEM E404)						
ITEM NO.	QUANTITY	UNIT	ITEM NAME	MANUFACTURER	CATALOG NUMBER/MODEL	DESCRIPTION
E404A	1	EA	LIGHTING CONTACTOR	SQUARE D	L060V04	MULTIPOLE ELECTRICALLY HELD LIGHTING CONTACTOR, TYPE L, 6 POLES, 30A, 277V COIL VOLTAGE @ 60HZ, OPEN TYPE.
E404B	1	EA	PHOTOCELL	PRECISION MULTIPLE CONTROLS	P68275	LOCKING TYPE PHOTOCELL, 277V, THERMAL DELAY, 1-3 FC TURN ON RANGE, 1:3 TURNOFF RATIO, SINGLE POLE, SIGNAL THROW, N.C. CONTACT AT NIGHT, UV STABILIZED IMPACT RESISTANT HOUSING. COMPATIBLE WITH ITEM E404C.
E404C	1	EA	LOCKING TYPE RECEPTACLE	PRECISION MULTIPLE CONTROLS	M2ANB	LOCKING TYPE PHOTCELL RECEPTACLE, COMPATIBLE WITH ITEM E404B.
E404D	1	EA	DEVICE BOX AND COVER	CROUSE-HINDS	FS1, DS100G	COPPER-FREE CAST ALUMINUM STANDARD DEVICE BOX, SINGLE GANG, 1/2" CONDUIT HUB, UL LISTED. CAST ALUMINUM BLANK COVER WITH GASKET, SINGLE GANG.
E404E	1	EA	ROADWAY LIGHTING JUNCTION BOX (JB-RL)	PENTAIR	A201208LP	CONTINUOUS HINGE WITH CLAMPS, NEMA TYPE 12, 16 GAUGE STEEL JUNCTION BOX, 20" HIGH, 12" WIDE, 8" DEEP WITH BACK PANEL A20P12. UL LISTED.
E404F	1	EA	CONTROL FUSE AND FUSE HOLDER	COOPER-BUSSMAN	KTK-R7 BC6031B	7 AMP, CLASS CC, FAST-ACTING, UL LISTED, 600 VAC CONTROL FUSE. 30 AMP, CLASS CC, 1 POLE, COPPER BOX LUG TERMINALS, UL LISTED, 600 VAC FUSE HOLDER.
E404G	1	EA	HAND-OFF-AUTO SWITCH	ALLEN BRADLEY	800 BULLETIN	30MM, MAINTAINED CONTACT, 3-POSITION SELECTOR SWITCH, CENTER OFF, STANDARD BLACK KNOB OPERATOR, WITH HAND-OFF-AUTO LEGEND PLATE, CABINET DOOR MOUNTED.
E404H	AS REQ.	EA	TERMINAL BLOCK	ALLEN BRADLEY	1491-CAM1	NEMA SCREW TYPE TERMINAL BLOCK WITH PRESSURE PLATE, MULTI-RAIL MOUNTABLE, 30 AMP (MIN.), WIRE RANGE: *22 - *8 AWG.
E404I	1	EA	GROUND BAR	SQUARE D	PK15GTACP	15 TERMINAL GROUND BAR KIT,

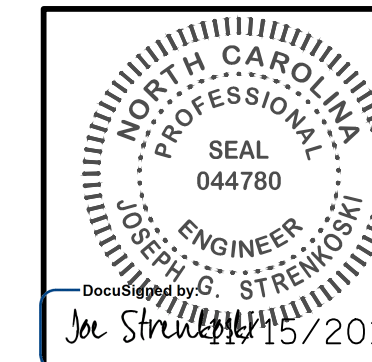
NOTES:

- EXISTING ROADWAY LIGHTING CONDUCTORS RUN ON MESSENGER CABLE TO BE REMOVED. CONDUCTORS SHALL BE DETACHED FROM ROADWAY LIGHTING FIXTURES AND REMOVED FROM LIGHT POLES AND ALL OTHER POINTS OF TERMINATION.
- EAST INTERSECTION TRAFFIC SIGNALS TO BE FED FROM 120V CIRCUIT PNB-2 WITH INTERLOCK AND CONTROLS. INSTALL NEW MANUAL TRANSFER SWITCH WITH PORTABLE GENERATOR CONNECTION (E413) AT EAST TRAFFIC SIGNALS CITY OWNED CONTROL CABINET.
- NEW ROADWAY LIGHTING CONDUCTORS TO BE INSTALLED WITH NEW GENERAL WIRING MESSENGER CABLE. SEE SHEETS E-120, E-121, AND E-122 FOR MESSENGER CABLE DETAILS. CONNECT NEW CONDUCTORS TO EXISTING FIXTURES.
- SEE SHEET E-27 FOR ROADWAY LIGHT CIRCUIT WIRING DIAGRAMS.
- NEW PHOTOCONTROL TO BE INSTALLED ON EAST WALL OF CONTROL HOUSE WITH PHOTOCELL FACING NORTH. PHOTOCELL TO BE MOUNTED ON TOP OF DEVICE BOX THROUGH 3/8" KNOCKOUT. RUN PHOTOCELL CONDUCTORS IN 3/4" RGS CONDUIT FROM NEW LIGHTING CONTACTOR TO PHOTOCELL SECURING CONDUIT TO OPERATOR HOUSE WALLS, USING CONDUIT CLAMPS WITH ANCHOR BOLTS, IN INTERVALS NOT TO EXCEED 6FT.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



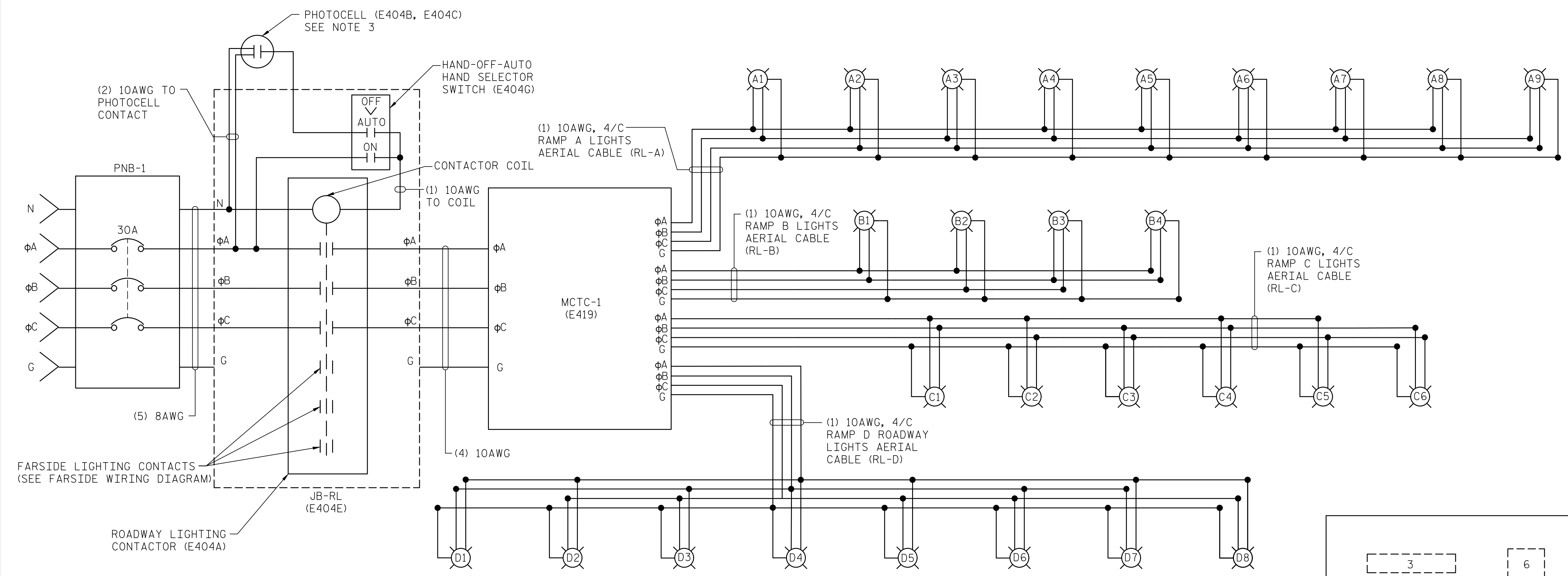
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
ROADWAY LIGHTING PLAN

DESIGNED BY: E. N. CLAY DATE: 04/18/18
 DRAWN BY: R. L. REED DATE: 04/18/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

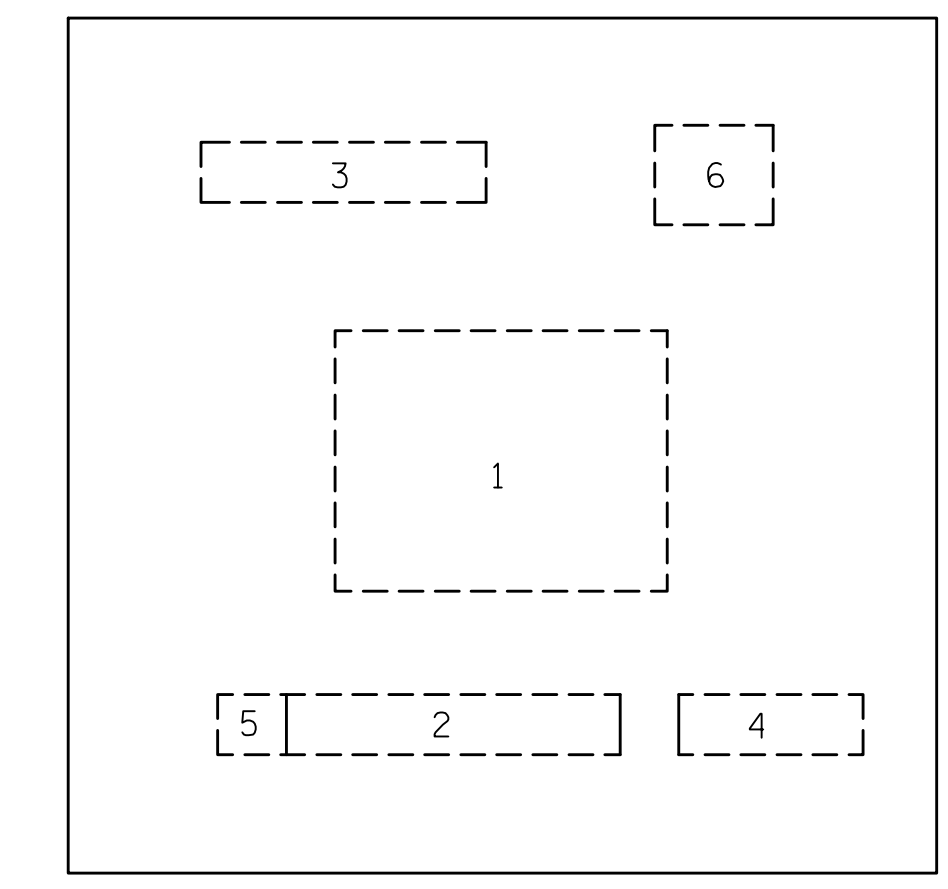
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
E-26
 TOTAL SHEETS
 213

LAST SAVED 11/15/2018 11:30 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:45 PM.
 FILE: \\mmdc101\p\proj\ch3\3682\03\CADD\Electr\15BPR14_SML\E26.dwg

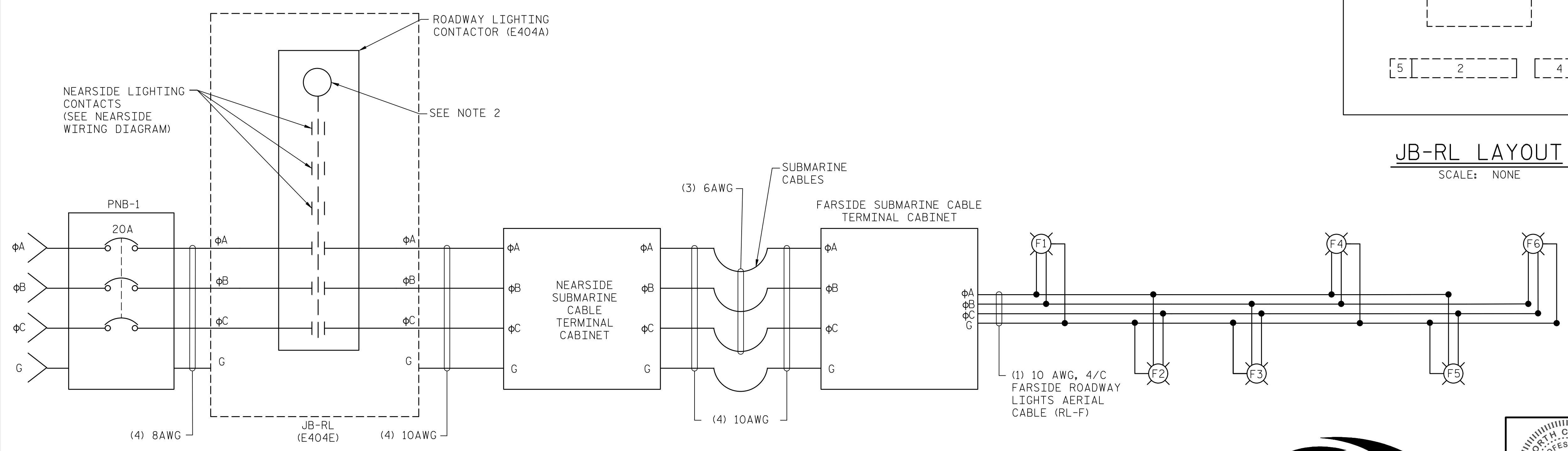


NEARSIDE ROADWAY LIGHTING SCHEMATIC
SCALE: NONE



JB-RL LAYOUT
SCALE: NONE

- LEGEND:**
- (XY) EXISTING ROADWAY LIGHT
X = RAMP Y = NUMBER
- NOTES:**
- SEE SHEET E-26 FOR ROADWAY LIGHTING PLAN.
 - REFER TO NEARSIDE WIRING DIAGRAM FOR PHOTOCELL AND SELECTOR SWITCH CONNECTION. NOT SHOWN ON FARSIDE WIRING DIAGRAM FOR CLARITY.
 - ITEM DESIGNATORS (E404X) CORRESPOND TO ITEMS IN ROADWAY LIGHTING PARTS LIST ON SHEET E-26.
- 1 ROADWAY LIGHTING CONTACTOR (E404A)
 - 2 INCOMING/OUTGOING TERMINAL BLOCKS (E404H)
 - 3 INTERNAL TERMINAL BLOCKS (E404H)
 - 4 GROUND BAR (E404I)
 - 5 FUSE AND FUSE BLOCK (E404F)
 - 6 HAND-OFF-AUTO SWITCH (E404G)



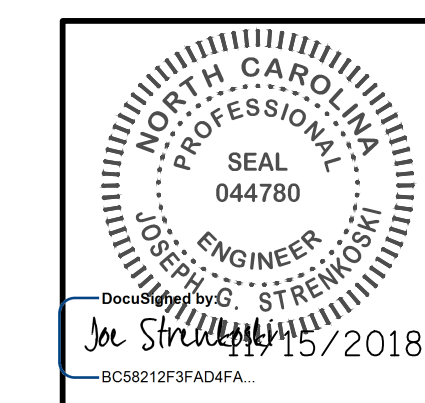
FARSIDE ROADWAY LIGHTING SCHEMATIC
SCALE: NONE

LAST SAVED 11/15/2018 11:31 AM BY AMBROSKIY, LAST PLOTTED 11/15/2018 12:45 PM, FILE: \\mcc101\projects\3682\03\CADD\Electrical\04\053\15BPR14_SML\E27_640011

DESIGNED BY:	E. N. CLAY	DATE :	09-21-18
DRAWN BY:	E. N. CLAY	DATE :	09-21-18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18

MODJESKI and MASTERS
Experience great bridges.

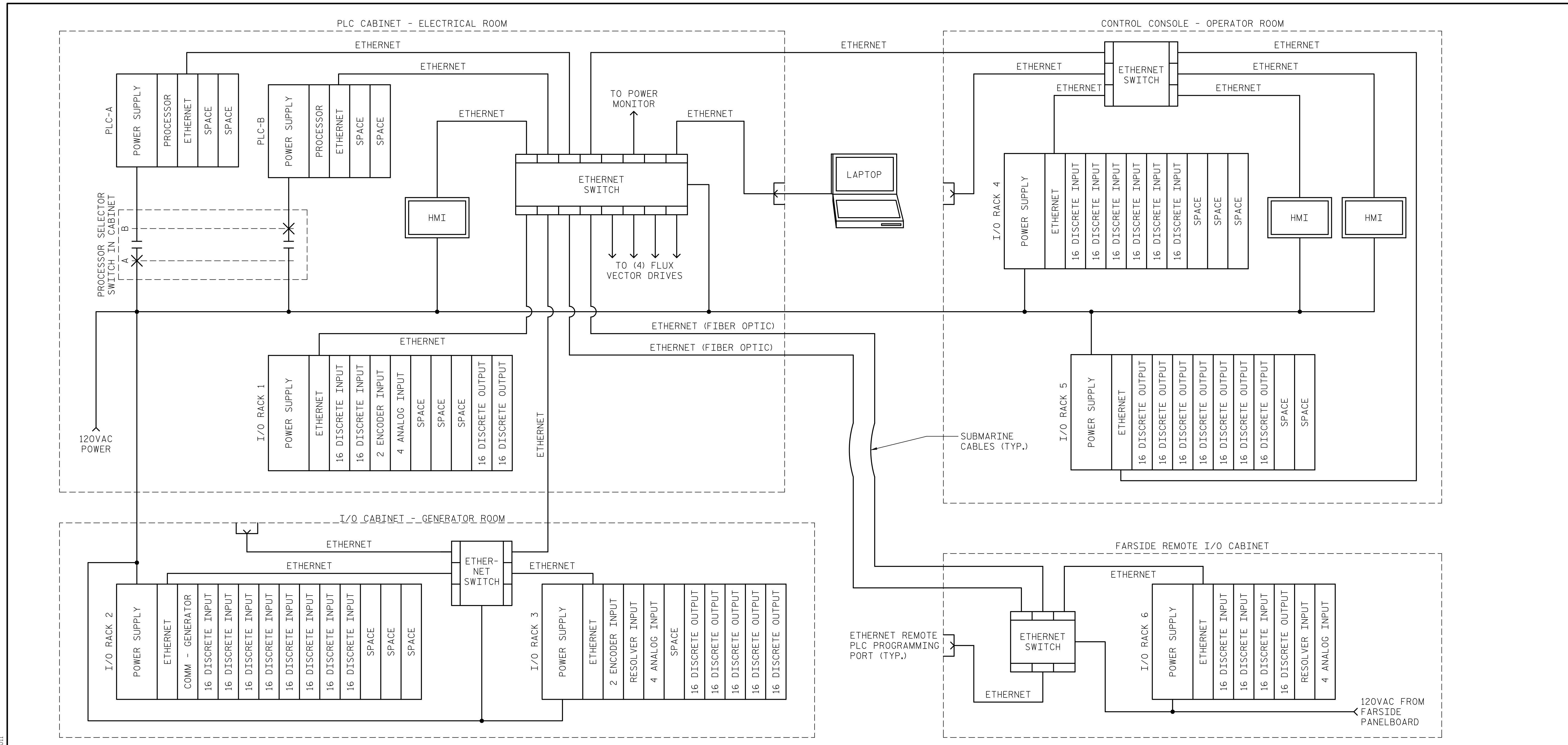
333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL ROADWAY LIGHTING WIRING DIAGRAMS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-27 TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



NOTES:

1. ALL EQUIPMENT SHOWN IS NEW. PLC HARDWARE SHALL BE ALLEN-BRADLEY CONTROL LOGIX 1756 SERIES
2. HMI'S SHALL BE SUPPLIED WITH UPS POWER. UPS SUPPLIES SHALL BE SIZED TO PROVIDE SHORT TERM BACKUP POWER AS DESCRIBED IN THE SPECIFICATIONS.

PLC LAYOUT

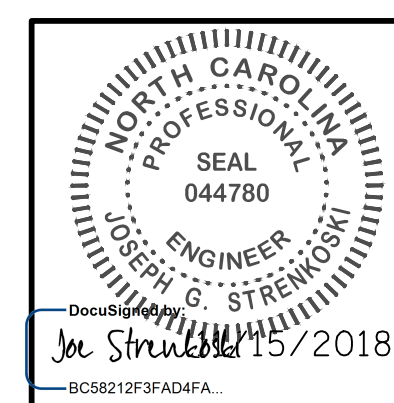
SCALE: NONE

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:31 AM BY AMBRODSKY... LAST PLOTTED 11/15/2018 12:45 PM.
 FILE: \\mmodc10\p\proj\15\3682\3\CADD\Electrical\15BPR14_SML_E28_64001

DESIGNED BY:	R. I. PETERS	DATE :	04/19/18
DRAWN BY:	R. L. REED	DATE :	04/19/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18


MODJESKI and MASTERS
 Experience great bridges.
 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

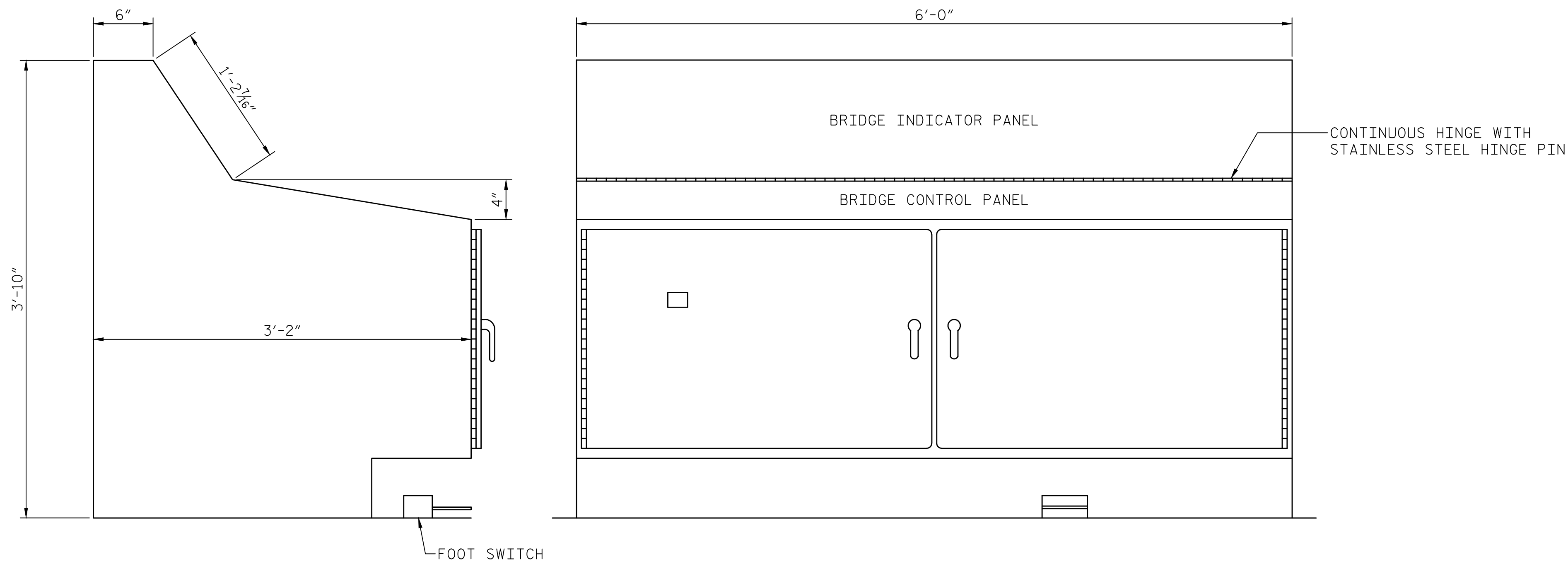

 SEAL 044780
 ENGINEER
 JOSEPH G. STRENKOSKI
 11/15/2018

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
PLC SYSTEM DIAGRAM

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **E-28**
TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SIDE VIEW

FRONT VIEW

CONTROL CONSOLE

SCALE: 1 1/2"=1'-0"

NOTES:

1. CONSOLE SHALL BE OF BOLT-TOGETHER CONSTRUCTION TO FACILITATE INSTALLATION IN THE NEW THIRD FLOOR ROOM. THE TOP PUSH-BUTTON MOUNTING SURFACES SHALL BE STAINLESS STEEL.
2. PROVIDE 10 SPARE KEYS FOR THE BYPASS SWITCHES. ALL BYPASS SWITCHES SHALL BE KEYPED ALIKE.
3. PROVIDE A PROTECTED ETHERNET PORT ON THE OUTSIDE OF THE CONTROL CONSOLE FOR REMOTE PLC PROGRAMMING (MATERIALS LIST, ITEM 9).

DEVICE COLOR CODE

- A - AMBER
- BK - BLACK
- BL - BLUE
- G - GREEN
- R - RED

MATERIALS LIST		
DEVICE NO.	DESCRIPTION	MANUFACTURER/MODEL
1	30MM, MOMENTARY CONTACT PUSHBUTTON, NON-ILLUMINATED, FLUSH HEAD, COLOR AS SHOWN	ALLEN-BRADLEY 800 BULLETIN
2A	30MM, MAINTAINED CONTACT, 3-POSITION SELECTOR SWITCH, STANDARD BLACK KNOB OPERATOR	ALLEN-BRADLEY 800 BULLETIN
2B	30MM, MOMENTARY CONTACT, 3-POSITION SELECTOR SWITCH, SPRING RETURN TO CENTER, BLACK PISTOL GRIP OPERATOR	ALLEN-BRADLEY 800 BULLETIN
3A	30MM, MAINTAINED CONTACT, 2-POSITION SELECTOR SWITCH, STANDARD BLACK KNOB OPERATOR	ALLEN-BRADLEY 800 BULLETIN
3B	30MM, MAINTAINED CONTACT, 2-POSITION SELECTOR SWITCH, PISTOL GRIP KNOB OPERATOR	ALLEN-BRADLEY 800 BULLETIN
4A	30MM, LED PILOT LIGHT, 120V INPUT, PLASTIC FRESNEL LENS, COLOR AS SHOWN	IDEC TWTD SERIES
4B	30MM, MOMENTARY CONTACT ILLUMINATED PUSHBUTTON, WIRED FOR PUSH-TO-TEST PILOT LIGHT OPERATION, COLOR AS SHOWN	IDEC TWTD SERIES
5	30MM, ILLUMINATED, MAINTAINED CONTACT, PUSH-ON, PUSH-OFF MUSHROOM HEAD PUSHBUTTON, RED BUTTON, RED LEGEND PLATE	ALLEN-BRADLEY 800 BULLETIN
6	30MM, MAINTAINED CONTACT, 6-POSITION SELECTOR SWITCH, STANDARD BLACK KNOB OPERATOR	ELECTRO SWITCH KW-25

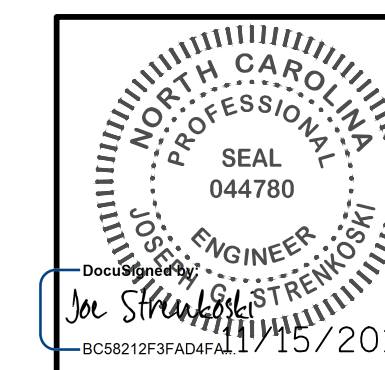
MATERIALS LIST (CONTINUED)		
DEVICE NO.	DESCRIPTION	MANUFACTURER/MODEL
7	2-POSITION KEY OPERATED SELECTOR SWITCH, MAINTAINED/SPRING RETURN, NEMA 4, WITH BRASS KEYS, SPARE KEYS	ALLEN-BRADLEY 800T-H48A
8	MAINTAINED CONTACT 2-POSITION KEY OPERATED SELECTOR SWITCH, NEMA 4 RATED WITH BRASS KEYS, SPARE KEYS	ALLEN-BRADLEY 800T-H33A
9	PANEL MOUNT ETHERNET REMOTE PROGRAMMING PORT	GRACE ENGINEERED PRODUCTS P-R2-B3RX
10	FOOTSWITCH, ALUMINUM HOUSING SPDT, 10A, 120V MOMENTARY CONTACTS, NON-SKID BASE	LINEMASTER 81-S
11	AUDIBLE ALARM, SELECTABLE SOUND AND VOLUME ADJUSTABLE TO 95DB	SIGNAWORKS KSP

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONTROL CONSOLE - 1



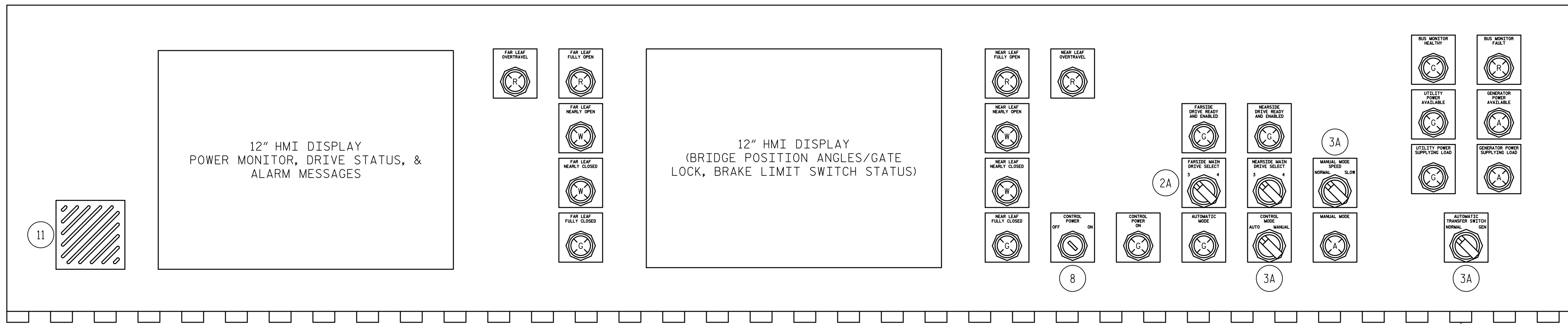
333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



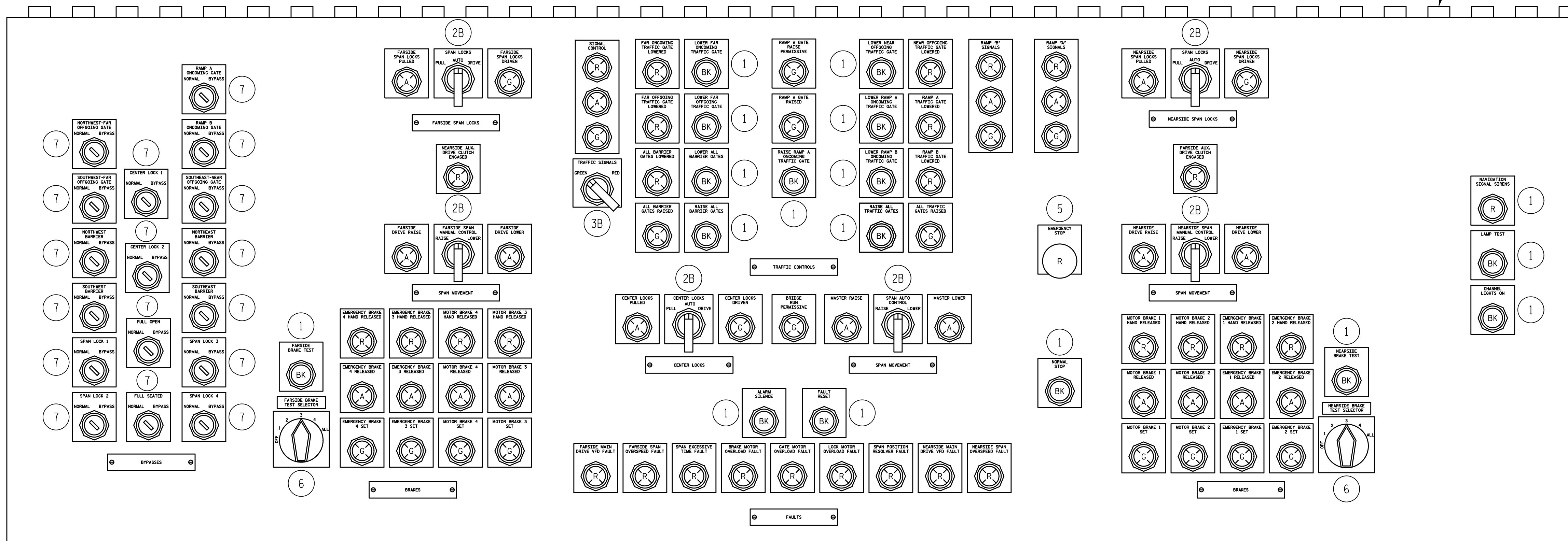
DESIGNED BY: R. I. PETERS DATE: 07/10/18
 DRAWN BY: R. L. REED DATE: 07/10/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-29
1			3			TOTAL SHEETS
2			4			213



BRIDGE INDICATOR PANEL
SCALE: 4"=1'-0"



BRIDGE CONTROL PANEL
SCALE: 4"=1'-0"

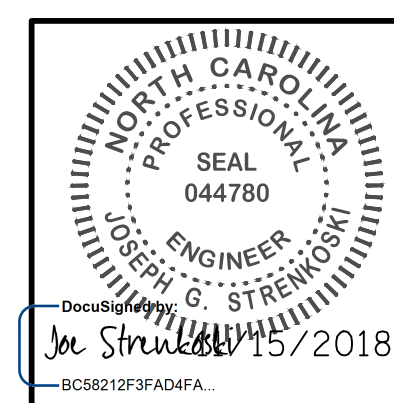
LEGEND
DEVICE COLOR CODE
A - AMBER
BK - BLACK
G - GREEN
R - RED
Y - YELLOW
SELECTOR SWITCH LEVERS - BLACK

NOTES:
1. FOR CONTROL CONSOLE DEVICES LEGEND, SEE SHEET E-29.
2. UNLESS OTHERWISE NOTED, ALL INDICATOR LIGHT ON THE CONTROL CONSOLE ARE TYPE 4A THE CONSOLE LIGHT TEST CIRCUIT IS PLC CONTROLLED.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

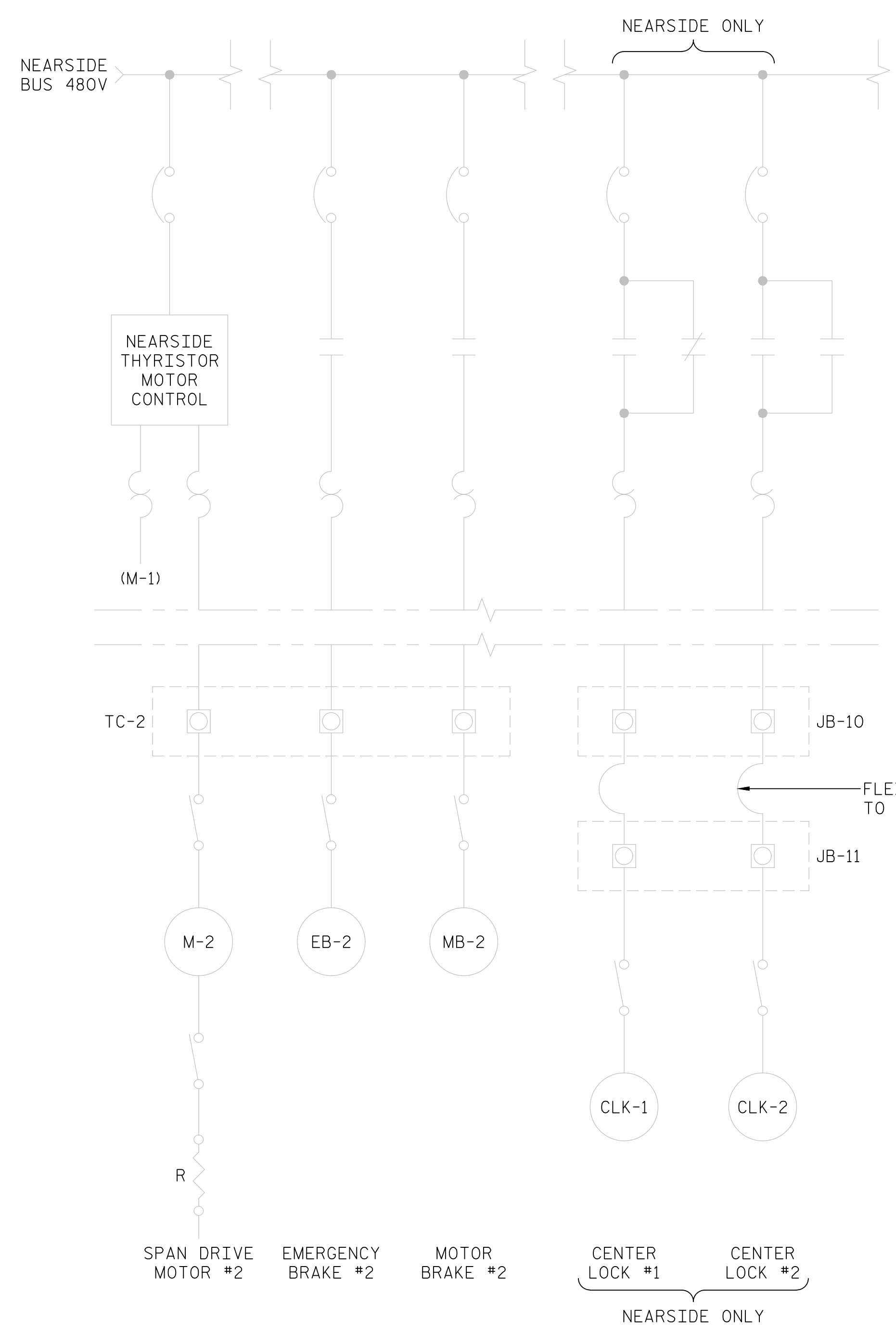
LAST SAVED 11/15/2018 11:31 AM BY AMBROSKY, LAST PLOTTED 11/15/2018 12:46 PM, FILE: \\omd\10\p\proj\15\3682\03\CADD\Electrical\15BPR14_SML_E30_640011

DESIGNED BY: R. I. PETERS DATE: 07/10/18
DRAWN BY: R. L. REED DATE: 07/10/18
CHECKED BY: L. V. BORDEN DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



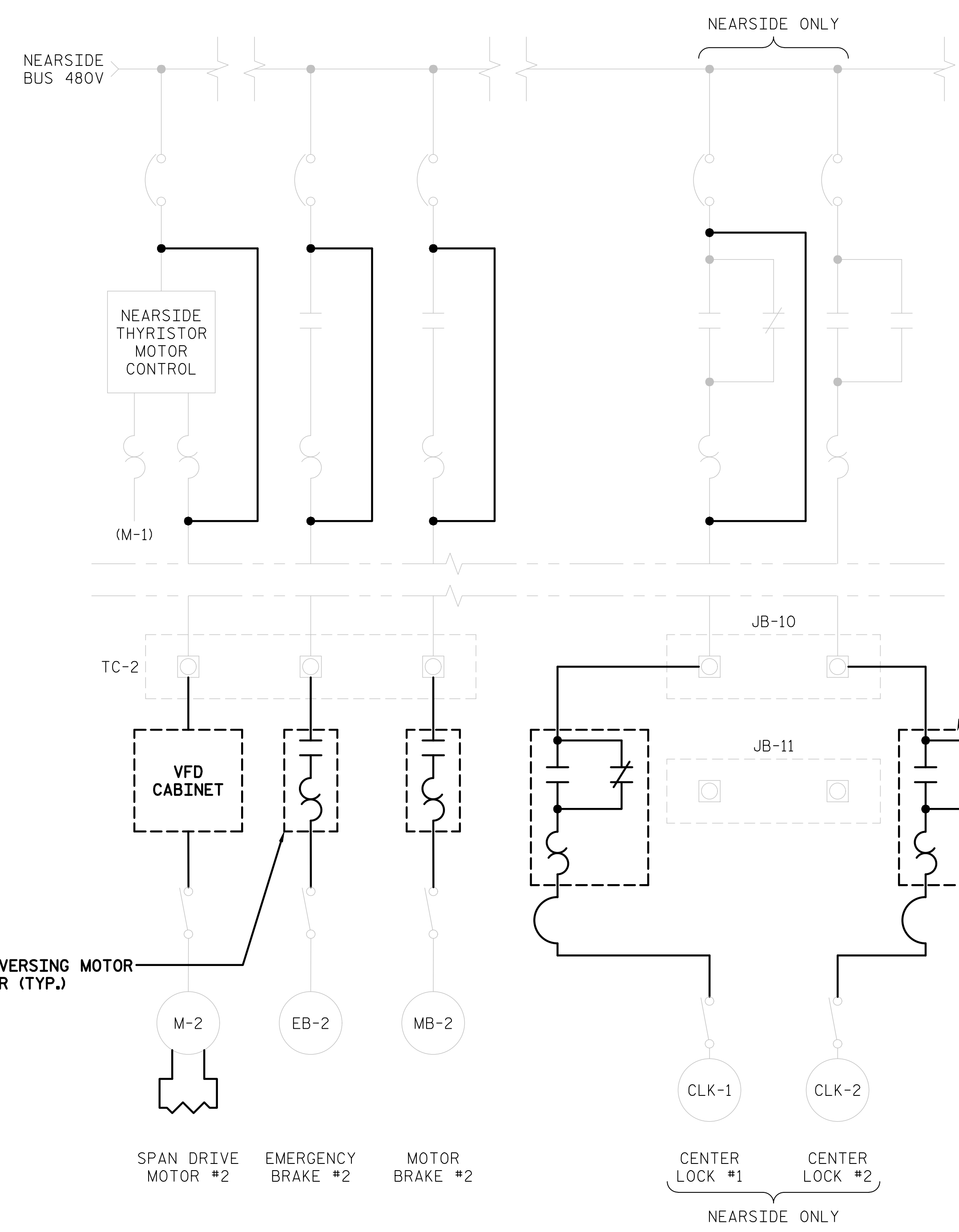
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CONSOLE - 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. <u>E-30</u>					TOTAL SHEETS <u>213</u>

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NEARSIDE - EXISTING SINGLE LINE (FARSIDE SIMILAR)

SCALE: NONE



NEARSIDE - TEMPORARY CONTROL SINGLE LINE (FARSIDE SIMILAR)

SCALE: NONE

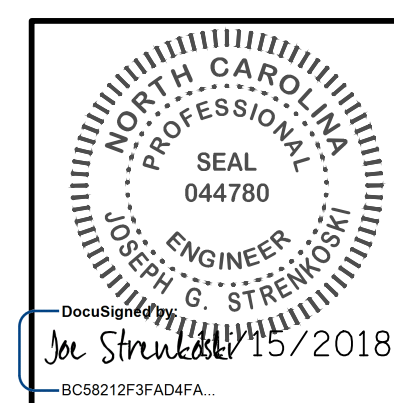
NOTES:

1. THE CONTRACTOR SHALL DESIGN, PROVIDE, AND INSTALL TEMPORARY CONTROLS TO PERMIT BRIDGE OPERATIONS DURING CHANGEOUT OF MECHANICAL MACHINERY AND CORRESPONDING ELECTRICAL COMPONENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY BRIDGE OPERATORS AND SUPPORT PERSONAL TO OPERATE THE BRIDGE FROM THE TIME THE EXISTING CONTROL SYSTEM IS MODIFIED BY THE CONTRACTOR UNTIL FINAL ACCEPTANCE OF THE COMPLETED NEW CONTROL SYSTEM BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND OPERATING ALL TEMPORARY CONTROLS.
3. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL DOCUMENT AND LABEL MOTOR OPERATING DIRECTIONS FOR ALL MAIN DRIVE MOTORS, BRAKE MOTORS, AND CENTER LOCK MOTORS.
4. THE CONTRACTOR SHALL INVESTIGATE THE EXISTING BASCULE LEAF WITH A NEW TEMPORARY VFD DRIVE SYSTEM WITH SINGLE DRIVE MOTOR.
5. FOR EACH BASCULE LEAF PROVIDE A TEMPORARY CONTROL SYSTEM IN NEMA 3R OR 4 ENCLOSURE, WITH TEMPORARY VFD, PLC CONTROLLER, WIRING TO LIMIT SWITCHES, AND PLC PROGRAM SAFETY INTERLOCKING FOR BRIDGE OPERATING SEQUENCE. INTERLOCK TEMPORARY CONTROLS WITH EXISTING OR NEW TRAFFIC GATES AND SIGNALS CONTROLS.
6. FOR NEARSIDE LEAF, ALSO PROVIDE AND INSTALL REVERSING MOTOR STARTERS WITH OVERLOADS FOR THE TWO CENTER LOCKS WITH ADDITIONAL INTERLOCK WIRING TO THE EXISTING LIMIT SWITCHES AND ANY ADDITIONAL LIMIT SWITCHES AS REQUIRED.
7. TEMPORARY CONTROLS SHALL BE OPERATED LOCALLY AT EACH LEAF SO THAT OPERATIONS CAN BE VISUALLY CONFIRMED. OPERATORS FOR EACH LEAF SHALL BE IN DIRECT COMMUNICATION WITH EACH OTHER AND WITH THE OPERATOR RESPONSIBLE FOR OPERATING TRAFFIC CONTROL DEVICES.
8. IF ANY ELECTRICAL COMPONENTS ARE INTENDED FOR PERMANENT INSTALLATION, THEY SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF THE PROJECT SPECIAL PROVISIONS. ELECTRICAL COMPONENTS ONLY USED FOR TEMPORARY CONTROLS ARE NOT REQUIRED TO COMPLY WITH THE REQUIREMENTS OF THE PROJECT SPECIAL PROVISIONS, BUT THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE TEMPORARY SYSTEM PROVIDED MEETS ALL APPLICABLE ELECTRICAL SAFETY CODES AND OPERATES RELIABLY.
9. THE CONTRACTOR SHALL SUBMIT ASSOCIATED PRODUCT DATA AND TEMPORARY CONTROL SYSTEM DESIGN TO THE ENGINEER FOR APPROVAL.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:31 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:46 PM...
 FILE: \\mmod10\projects\3682\3\CADD\Electrical\04_06_15BPR14_SMULE31_640011

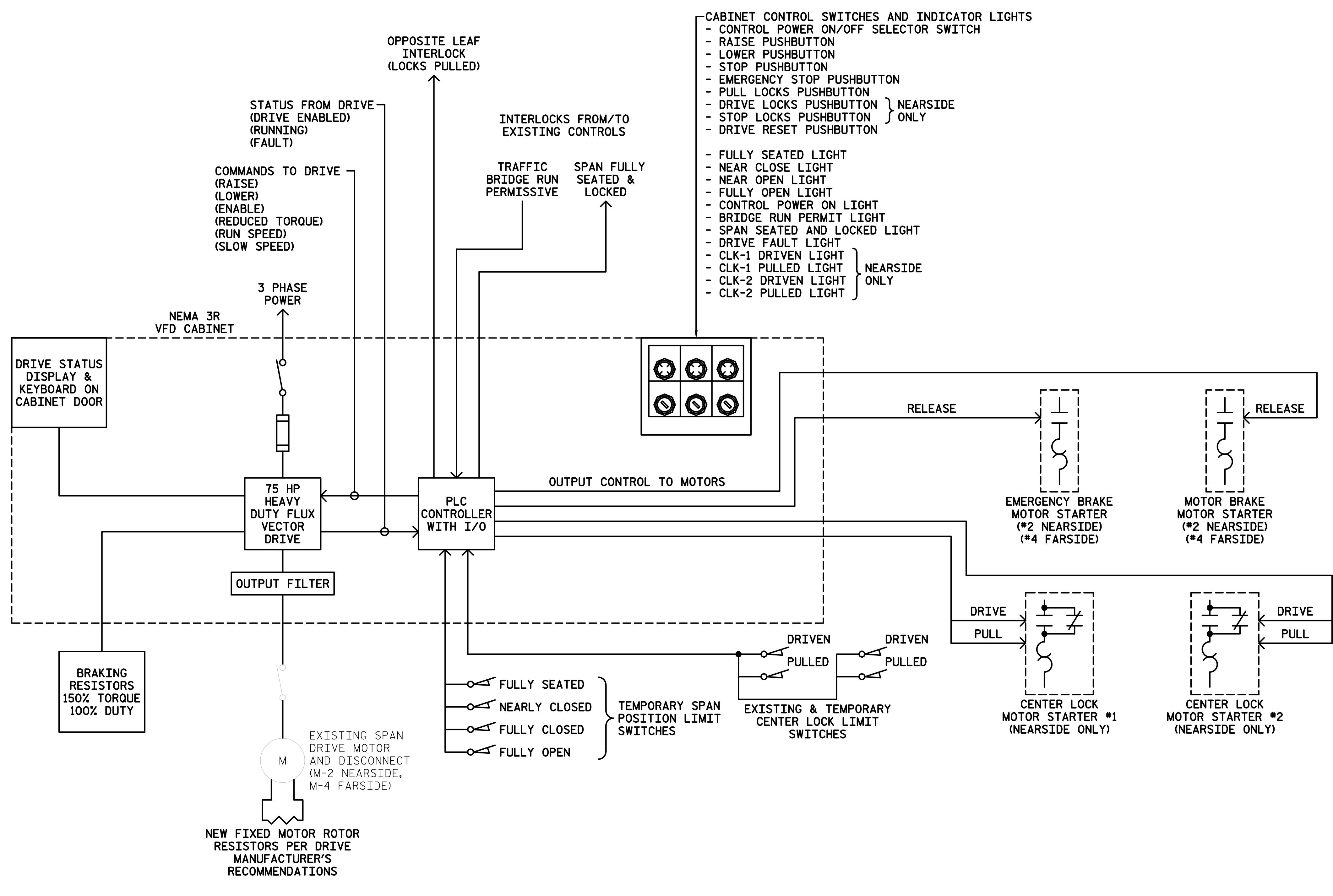
DESIGNED BY:	R. I. PETERS	DATE :	10/18/18
DRAWN BY:	R. L. REED	DATE :	10/18/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
TEMPORARY CONTROLS - 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. E-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 213
2			4			

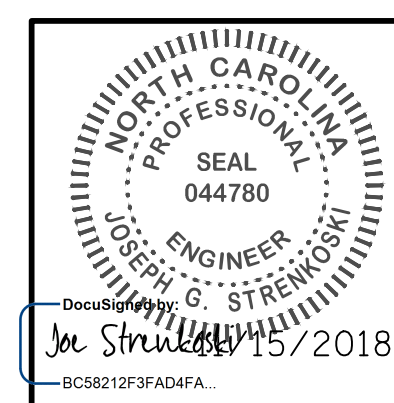


**TEMPORARY CONTROLS
BLOCK DIAGRAM**
SCALE: NONE

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:31 AM BY AMBRODSKY... LAST PLOTTED 11/15/2018 12:46 PM.
 FILE: \\mmod10\proj\cts\3682\03\CADD\Electrical\15BPR14_SML_E32_640011

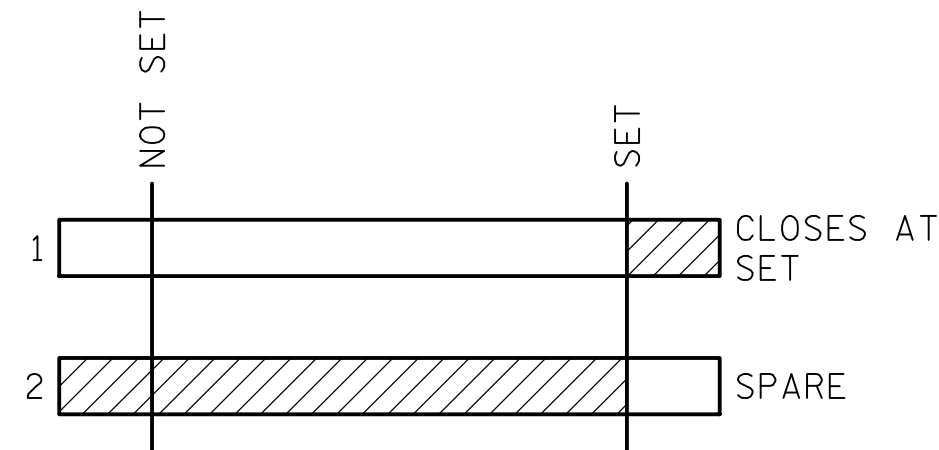
DESIGNED BY:	R. I. PETERS	DATE :	10/18/18
DRAWN BY:	R. L. REED	DATE :	10/23/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**TEMPORARY
 CONTROLS - 2**

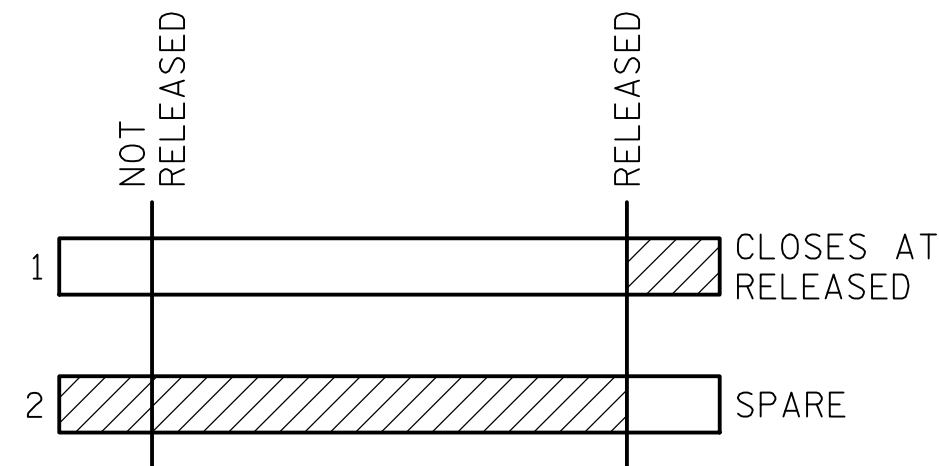
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-32
1			3			TOTAL SHEETS
2			4			213



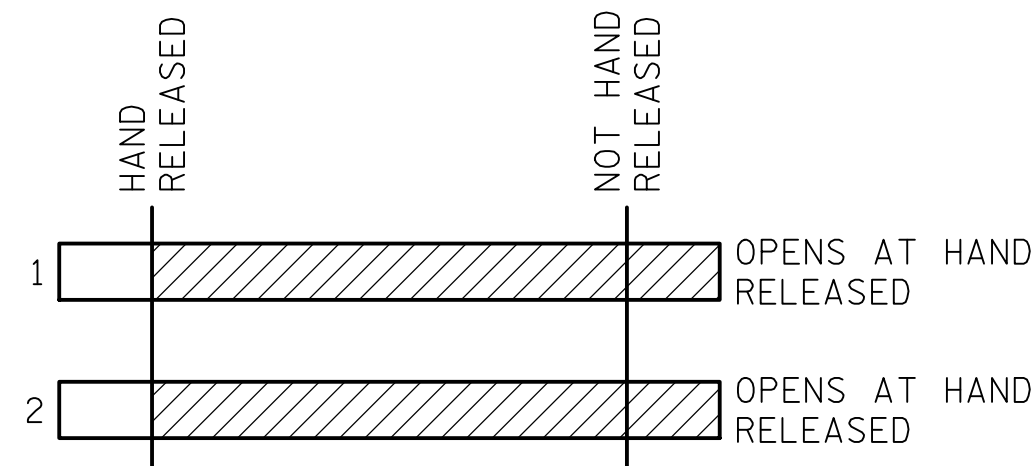
NEW BRAKE SET LIMIT SWITCHES

(LS-MB1S, LS-MB2S, LS-MB3S, LS-MB4S, LS-EB1S, LS-EB2S, LS-EB3S, LS-EB4S)



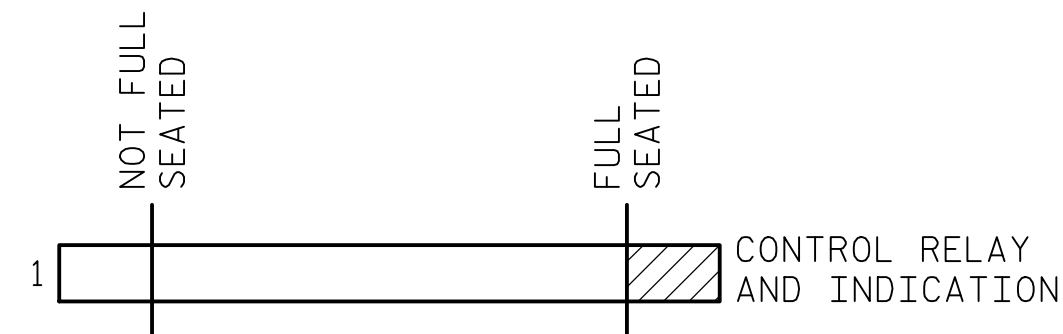
NEW BRAKE RELEASED LIMIT SWITCHES

(LS-MB1R, LS-MB2R, LS-MB3R, LS-MB4R, LS-EB1R, LS-EB2R, LS-EB3R, LS-EB4R)



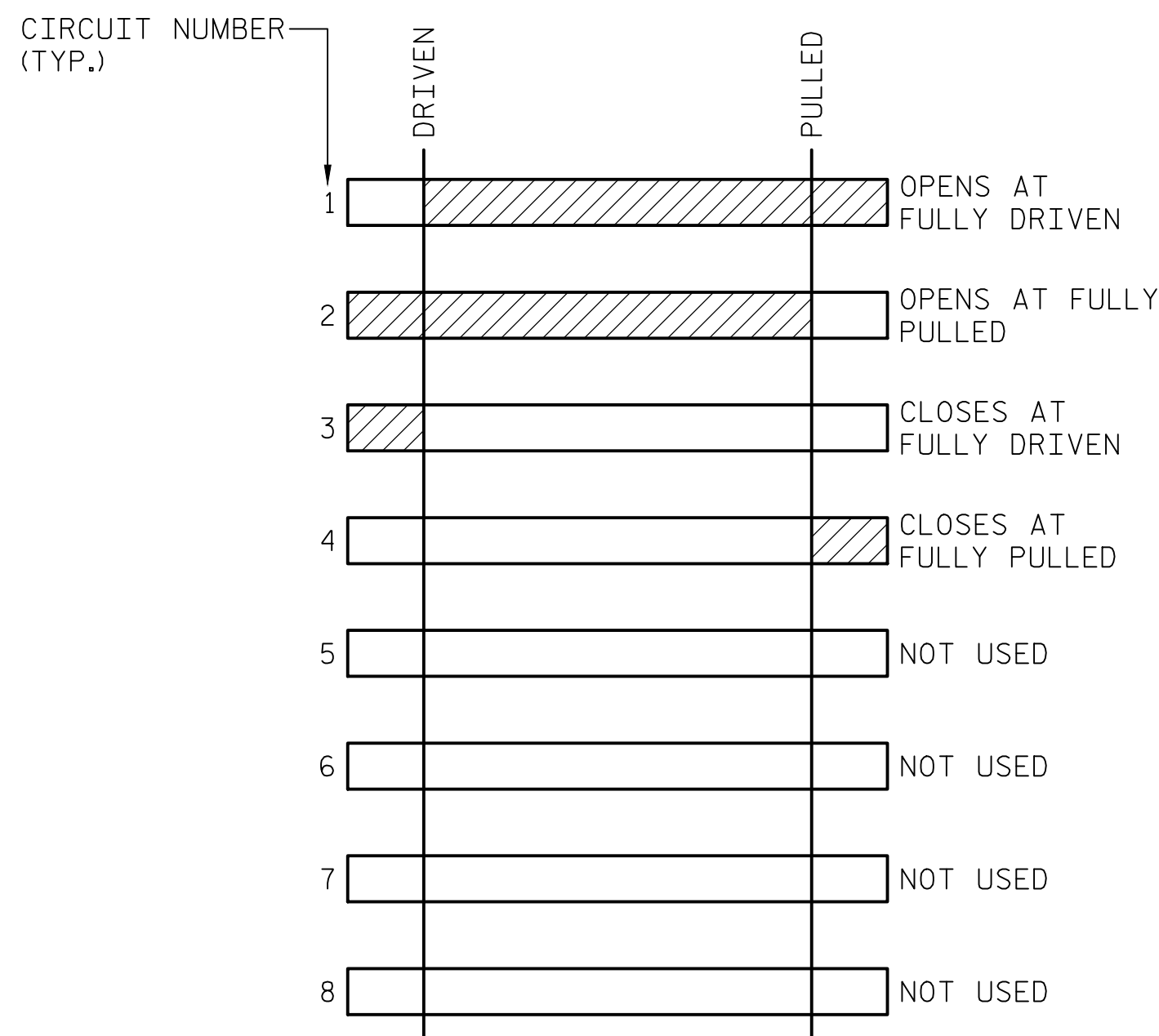
NEW BRAKE HAND RELEASED LIMIT SWITCHES

(LS-MB1HR, LS-MB2HR, LS-MB3HR, LS-MB4HR, LS-EB1HR, LS-EB2HR, LS-EB3HR, LS-EB4HR)



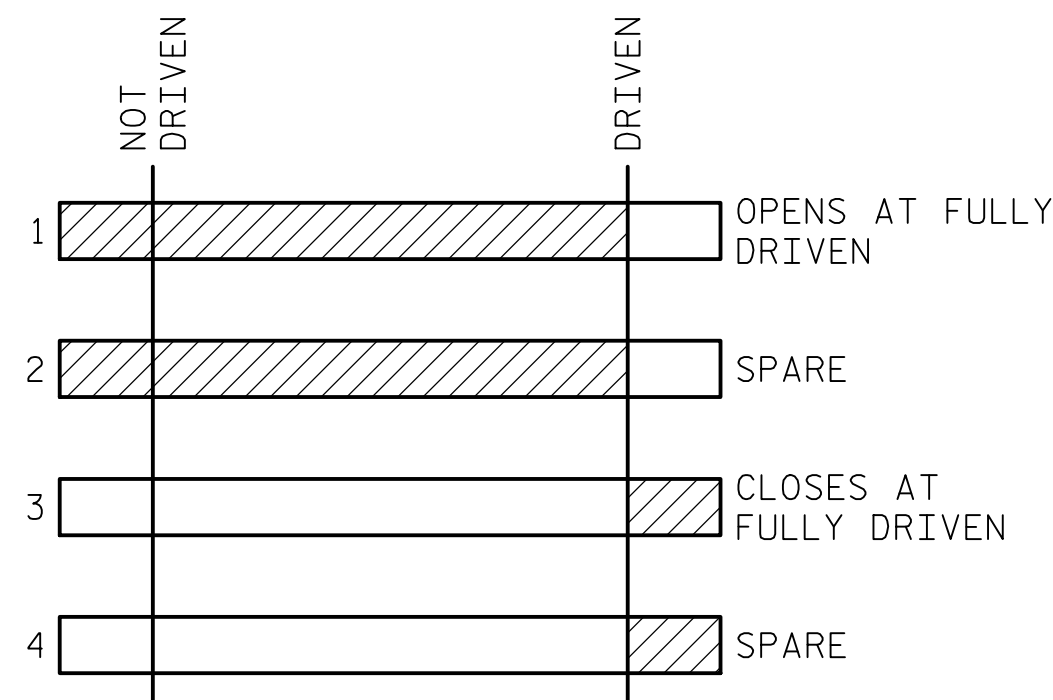
NEW FULL SEATED PROXIMITY SWITCHES

(LS-NSSS, LS-FSSS)



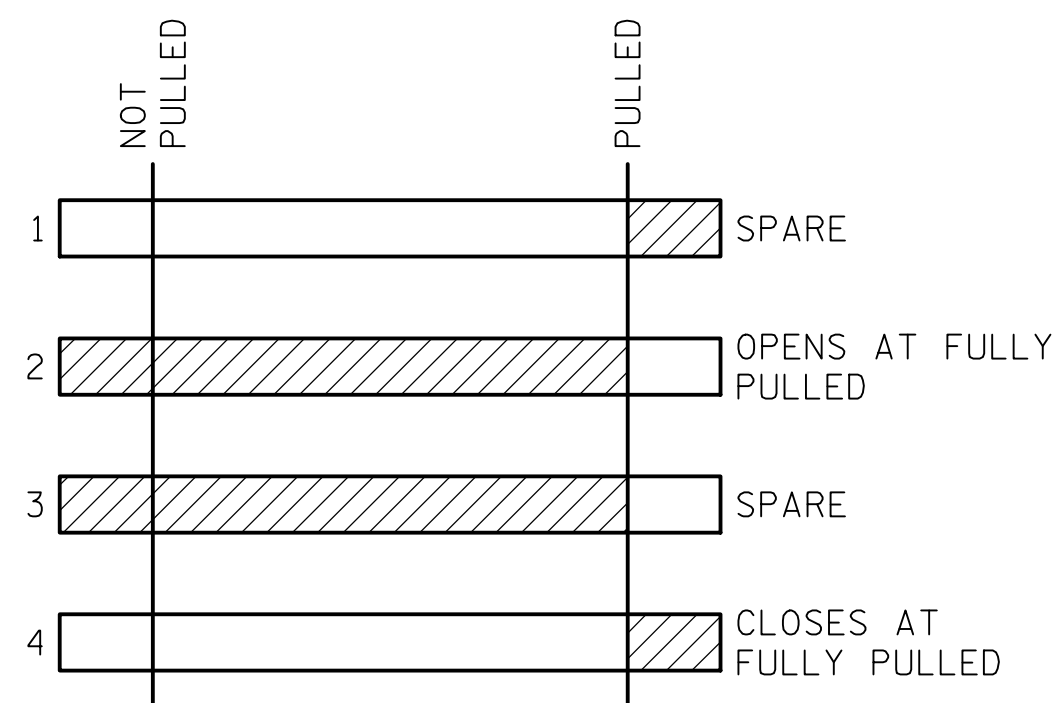
EXISTING CENTER LOCK LIMIT SWITCH

(LS-CL1, LS-CL2)



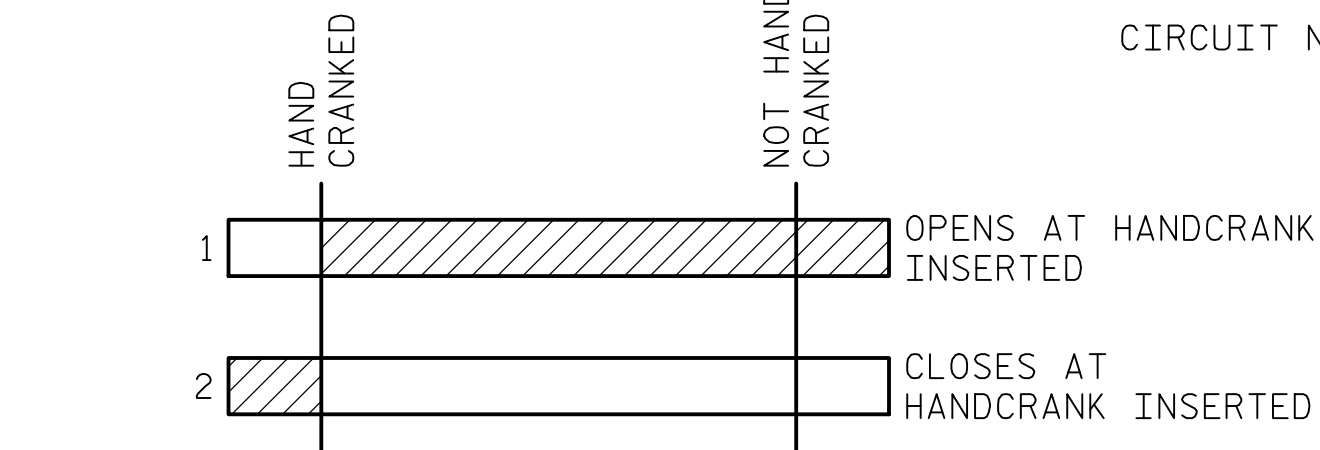
NEW SPAN LOCK DRIVEN LIMIT SWITCH

(LS-SLK1D, LS-SLK2D, LS-SLK3D, LS-SLK4D)



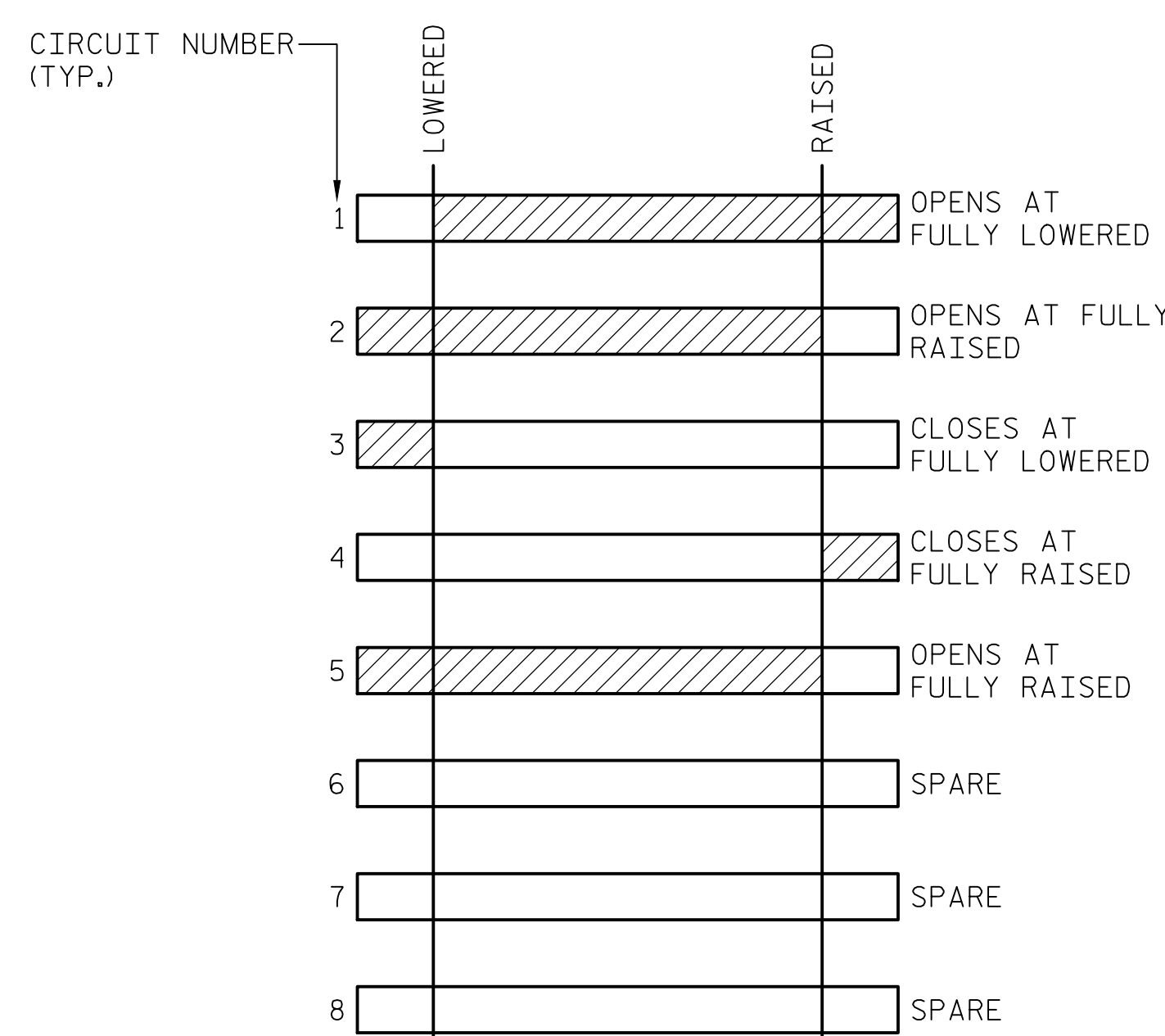
NEW SPAN LOCK PULLED LIMIT SWITCH

(LS-SLK1P, LS-SLK2P, LS-SLK3P, LS-SLK4P)



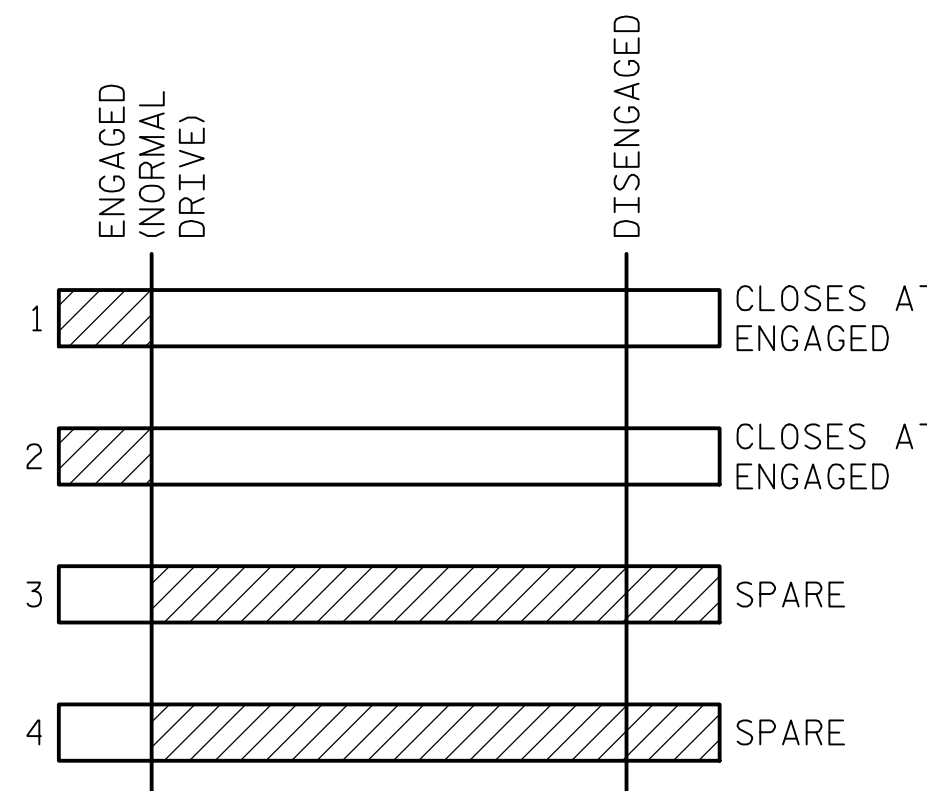
NEW SPAN LOCK HANDCRANK LIMIT SWITCH

(LS-SLK1HC, LS-SLK2HC, LS-SLK3HC, LS-SLK4HC)



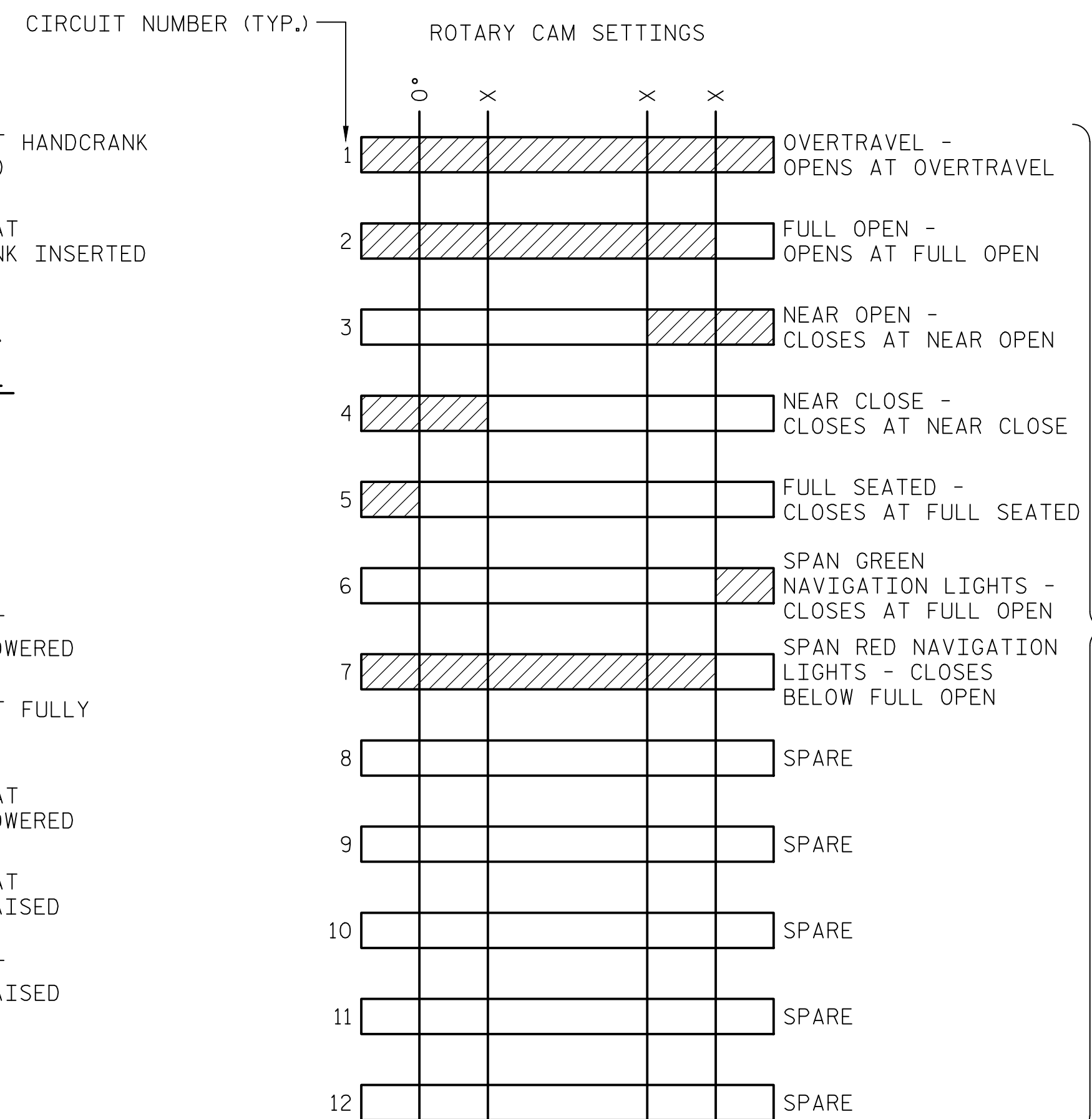
NEW GATE LIMIT SWITCHES

(LS-NEG, LS-NWG, LS-SEG, LS-SWG, LS-NEB, LS-NWB, LS-SEB, LS-SWB, LS-RAG)



NEW AUXILIARY DRIVE SHIFTER COUPLING ENGAGED LIMIT SWITCH

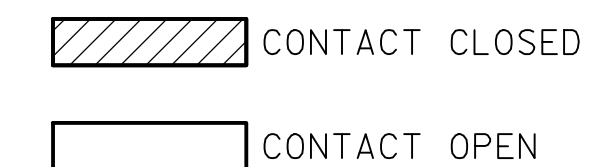
(LS-NAME, LS-FAME)



NEW ROTARY CAM LIMIT SWITCH

(LS-NSSC, LS-FSSC)

CONTACT LEGEND



PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

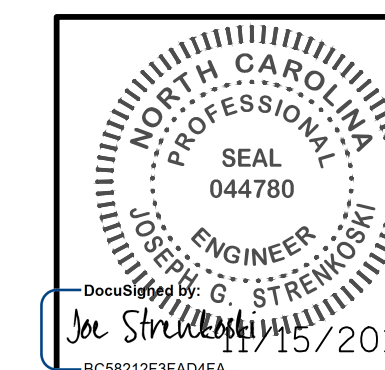
NOTES:

1. TRAFFIC GATE, SPAN LOCK HANDCRANK, AND BRAKE LIMIT SWITCHES TO BE A PART OF TRAFFIC GATE AND BRAKE UNITS.

DESIGNED BY: R. I. PETERS DATE: 04/18/18
 DRAWN BY: R. L. REED DATE: 04/18/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 LIMIT SWITCH
 TRIPPING SCHEDULE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-33
1			3			TOTAL SHEETS
2			4			213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL EQUIPMENT SCHEDULE (GROUP 100)

ITEM NUMBER	QUANTITY	ITEM NAME	MANUFACTURER OR SUPPLIER	CATALOG NUMBER/MODEL	DESCRIPTION
E100	1	MAIN SERVICE CIRCUIT BREAKER	-	-	HEAVY DUTY, ENCLOSED CIRCUIT BREAKER, UL LISTED, 3 POLE, 600VAC, 600A FRAME, WITH INTERCHANGEABLE TRIP UNIT RATED AT 600A, SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT, NEMA 4X STAINLESS STEEL DISCONNECT ENCLOSURE WITH PAD LOCKABLE HANDLE. MINIMUM 65KA SYMMETRICAL SHORT CIRCUIT RATING AT 480VAC, SERVICE GROUND KIT, NEUTRAL ASSEMBLY
E101	1	AUTOMATIC TRANSFER SWITCH	EATON	AT-C-3-C2-C-4-0600-X-R-U	UL LISTED, OPEN TRANSITION, 480VAC, 3PH, 4 POLE, 600A, DIGITAL DISPLAY, GENERATOR CONTROL INTERFACE, RELAY SIGNAL MODULE WITH 120VAC RATED DRY CONTACTS FOR REMOTE MONITORING OF SWITCH POSITION AND SOURCE STATUS, RETRANSFER INHIBIT CONTACT INPUT
E102	1	GENERATOR	GENERAC	SD250	DIESEL GENERATOR, UL LISTED, 480/277VAC, 3PH, INSTALLED AS SEPARATELY DERIVED WITH NEUTRAL ASSEMBLY AND SERVICE GROUND KIT, 250KW (3131KVA) STANDBY, 60HZ, 105C RISE ALTERNATOR, PMG EXCITATION, COOLANT AND ALTERNATOR HEATERS, BATTERY CHARGER, ELECTRONIC CONTROL SYSTEM WITH REMOTE DISPLAY, MAIN LINE CIRCUIT BREAKER, LOAD BANK CIRCUIT BREAKER, WEATHER PROTECTIVE ENCLOSURE, 37 HOUR DUAL-WALL SUBBASE FUEL TANK, SPRING ISOLATORS
E103	1	LOAD BANK	SIMPLEX	POLARIS	RESISTIVE LOAD BANK, 480V, 3PH, 60HZ, NEMA 3R RATED FOR OUTDOOR USE, UL LISTED, PAD MOUNTABLE, FORCED AIR COOLING, DIGITAL CONTROLLER UNIT WITH WEATHER/TAMPER RESISTANT ENCLOSURE, AUTOMATIC LOAD REGULATION, 120VAC CONTROL POWER, WITH ALL REQUIRED CURRENT TRANSFORMERS AND ACCESSORIES
E104	1	MINI POWER CENTER	EATON	P48G11S15P	MINI POWER CENTER, 1PH, 15KVA, 480V/120-240V, 60HZ, PRI. AND SEC. CIRCUIT BREAKERS, BRANCH CIRCUIT BREAKERS AS SHOWN ON PANELBOARD SCHEDULE, NEMA 3R 316 STAINLESS STEEL OUTDOOR ENCLOSURE, UL LISTED
E105	2	FIRE EXTINGUISHER	AMEREX	A411	20 LB ABC TYPE DRY CHEMICAL FIRE EXTINGUISHER, USCG APPROVED, STEEL SHELL, BRASS VALVE, STAINLESS STEEL HANDLE AND LEVER, 6 YEAR WARRANTY
E106	2	FIRE EXTINGUISHER ENCLOSURE	LARSEN	AL-2712-SM	ALUMINUM TRIM AND DOOR MATERIAL, VERTICAL DUO WITH LOCK, VERTICAL RED DIE CUT LETTERING, SURFACE MOUNTED, SIZE COMPATIBLE WITH ITEM E105
E107	1	ELECTRIC HANDHOLE	J & R CONCRETE PRODUCTS	-	4' x 4' x 36" DEEP, OPEN BOTTOM, CONCRETE ELECTRIC HANDHOLE, 2 PC STEEL BOLTDOWN TRAFFIC COVER DESIGNED FOR ASSHTO H-20 WHEEL LOADING
E108	1	DUSK TO DAWN LUMINAIRE	EATON	CARETAKER LED CRTK-A	LED DUSK TO DAWN LUMINAIRE, UL LISTED FOR WET LOCATIONS, IP66 RATING, CAST ALUMINUM HOUSING AND DOOR, INDUSTRIAL GRAY POWDER COAT FINISH, 120V, 60HZ, 10KV SURGE PROTECTION, PHOTOCCELL CONTROL WITH PHOTOCCELL, 1-1/4" TO 2" PIPE SLIPFITTER MOUNT, 3G VIBRATION RATED, 73W/12LED, SMALL ACRYLIC REFRACTOR
E109	4	GENERATOR FENCE LUMINAIRE	EATON	FFL	YOKE MOUNT LED FLOODLIGHT, UL LISTED FOR WET LOCATIONS, IP66 RATING, CAST ALUMINUM HOUSING WITH ALUMINUM YOKE, INDUSTRIAL GRAY POWDER COAT FINISH, SHATTER RESISTANT TEMPERED GLASS LENS WITH WIRE GUARD, POST MOUNT ADAPTOR, 120-277V, 60HZ, 99W/11,100 LUMENS
E110	4	GFCI RECEPTACLE	HUBBEL	GFR5362SGBK	DUPLEX AC GFCI RECEPTACLE, EXTRA HEAVY DUTY INDUSTRIAL GRADE, UL LISTED, WEATHER AND TAMPER RESISTANT, 120VAC, 20A, GREEN LED POWER INDICATION, RED LED TRIPPED / FLASHING RED END OF LIFE INDICATION, WITH CAST ALUMINUM WEATHERPROOF DEVICE BOX, DIE CAST ALUMINUM COVER FOR INTERIOR/ENCLOSED LOCATIONS, WEATHERPROOF EXTRA HEAVY DUTY METALLIC WHILE-IN-USE COVER PLATE FOR EXTERIOR AND DAMP LOCATIONS
E111	1	SINGLE POLE LIGHT SWITCH	HUBBEL	HBL1221W	SINGLE POLE, HEAVY DUTY INDUSTRIAL GRADE, UL LISTED, 120-277VAC, 20A, WITH CAST ALUMINUM WEATHERPROOF DEVICE BOX, WITH WEATHERPROOF CAST ALUMINUM AND GASKETED LIFT COVER SWITCH PLATE
E112	4	GROUND ROD ACCESS WELL	HARGAR	-	PVC SCHEDULE 40 CONSTRUCTION, 3/16" COMMERCIAL GRADE STEEL WITH SEALED ZINC COATING, SLOTTED AS REQUIRED FOR CONDUCTOR CONNECTIONS
E113	1	GROUNDING SYSTEM	-	-	GROUNDING ELECTRODES, COPPER CONDUCTORS, AND HARDWARE AS SHOWN ON THE PLANS

ELECTRICAL EQUIPMENT SCHEDULE (GROUP 100 CONTINUED)

ITEM NUMBER	QUANTITY	ITEM NAME	MANUFACTURER OR SUPPLIER	CATALOG NUMBER OR MODEL	DESCRIPTION
E114	1	ATS SURGE PROTECTIVE DEVICE	THOR SYSTEMS	TSRI250	TYPE 1 SPD, UL 1449 FOURTH EDITION LISTED, 277/480VAC, 60HZ, 3 PHASE, 4 WIRE PLUS GROUND, 250KA PER MODE RATING, NEMA 4X ENCLOSURE, LED STATUS INDICATORS FOR EACH PHASE, SURGE COUNTER WITH AUDIBLE ALARM, INDUSTRIAL RATED, MODULAR DESIGN PERMITTING COMPONENTS REPLACEMENT, INTEGRAL FUSED DISCONNECT SWITCH WITH SURGE RATED FUSES

NOTES:

1. THESE EQUIPMENT SCHEDULES DO NOT NECESSARILY PROVIDE AN EXHAUSTIVE LISTING OF ALL EQUIPMENT REQUIRED.
2. REFERENCE TO A SPECIFIC MANUFACTURER'S NAME AND/OR CATALOG NUMBER IS INTENDED TO DENOTE THE QUALITY AND CHARACTERISTICS OF THE EQUIPMENT AND MATERIAL AND NOT TO SPECIFICALLY EXCLUDE OTHER ACCEPTABLE PRODUCTS, BUT ANY SUBSTITUTIONS TO REFERENCED ITEMS MUST BE APPROVED BY THE ENGINEER.
3. THE CONTRACTOR SHALL CONFIRM ALL QUANTITIES AND THE AVAILABILITY OF ALL SPECIFIED ITEMS.
4. ALL ITEMS IN GROUP 100 SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR BRIDGE BACKUP GENERATOR.

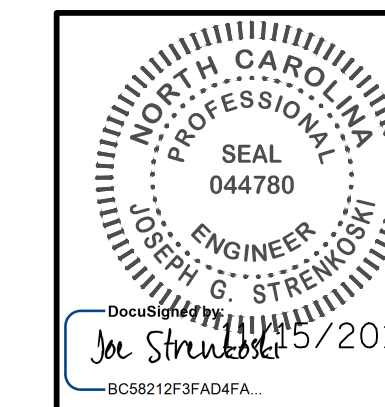
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 ELECTRICAL EQUIPMENT
 SCHEDULE - 1



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-34
1			3			TOTAL SHEETS
2			4			213

ELECTRICAL EQUIPMENT SCHEDULE (GROUP 200)

ITEM NUMBER	QUANTITY	ITEM NAME	MANUFACTURER OR SUPPLIER	CATALOG NUMBER/MODEL	DESCRIPTION
E201	1	MOTOR CONTROL CENTER	EATON	FREEDOM SERIES 2100	U.L. LISTED, 600VAC CLASS MOTOR CONTROL CENTER, 3PH, 600A HORIZONTAL BUS, 300A VERTICAL BUS, TIN PLATED COPPER BUSSES, MINIMUM 42KA BUS BAR BRACING, NEMA 12, NEMA TYPE STARTERS AND CONTACTORS, INDICATOR LIGHTS AND CONTROL SWITCHES ON STARTER DOORS, UNITS AND LAYOUT AS SHOWN IN THE PLANS
E202	1	PNB-1 PANELBOARD	EATON	PRL3	POWER DISTRIBUTION PANELBOARD, U.L. LISTED, 480Y/277VAC, 3PH, 4 WIRE, 225A MAINS, MAIN LUG TYPE, MINIMUM 14KA RMS SYMMETRICAL SHORT CIRCUIT RATING AT 480V, TIN PLATED COPPER BUS, NEUTRAL AND GROUND BARS, CONFIGURED FOR BOLT ON STYLE BREAKERS, SURFACE MOUNT NEMA 12 ENCLOSURE, WITH BRANCH CIRCUIT BREAKERS AS SHOWN IN THE PLANS
E203	1	XFMR-1 TRANSFORMER	EATON	MV48D28	VENTILATED DRY TYPE TRANSFORMER, ENERGY EFFICIENT MEETING CURRENT DEPARTMENT OF ENERGY REQUIREMENTS, U.L. LISTED, 480:208Y/120VAC, 3PH, 45 KVA, 150 DEGREE RISE, COPPER WINDINGS, MINIMUM OF FOUR 2.5% FULL CAPACITY PRIMARY TAPS, BONDING GROUND BAR, VENTILATED ENCLOSURE
E204	1	PNB-2 PANELBOARD	EATON	PRL1A	CIRCUIT BREAKER TYPE BRANCH CIRCUIT PANELBOARD, U.L. LISTED, 208Y/120VAC, 3PH, 4W, 225A, SPACES AS SHOWN ON THE PLANS, MINIMUM 22KA RMS SYMMETRICAL SHORT CIRCUIT RATING AT 208Y/120VAC, COPPER BUS, NEUTRAL AND GROUND BARS, CONFIGURED FOR BOLT ON STYLE BREAKERS, SURFACE MOUNT NEMA 12 ENCLOSURE, WITH MAIN AND BRANCH CIRCUIT BREAKERS AS SHOWN IN THE PLANS
E205	1	POWER MONITOR	ALLEN-BRADLEY	POWER MONITOR 1000	POWER AND ENERGY METER, 120-240VAC CONTROL POWER INPUT, RANGE COMPATIBLE WITH 480VAC, 600A, THREE PHASE POWER, DISPLAY MODULE FOR LOCAL DISPLAY AND CONFIGURATION, CLASS 1, 1% ACCURACY, ETHERNET COMMUNICATION FOR PLC MONITORING, NEMA 12 ENCLOSURE, WITH ALL REQUIRED CURRENT TRANSFORMERS, CONTROL TRANSFORMER, BREAKER/FUSE PROTECTION, AND ACCESSORIES
E206	3	DP-1, MCC, AND PNB-1 SURGE PROTECTIVE DEVICE	THOR SYSTEMS	TSNI150	SPD, U.L. LISTED 1449 FOURTH EDITION LISTED, 277/480VAC, 60HZ, 3PH, 4 WIRE PLUS GROUND, 150KA PER MODE RATING, NEMA 4X ENCLOSURE WITH CLEAR COVER, LED STATUS INDICATORS FOR EACH PHASE, SURGE COUNTER WITH AUDIBLE ALARM, INDUSTRIAL RATED
E207	4	MAIN MOTOR DISCONNECT SWITCH	EATON	DH SERIES	MOTOR SAFETY SWITCH, SUITABLE FOR LOCK OUT/TAG OUT, NON-FUSED, SINGLE THROW, U.L. LISTED, 600VAC, 3 POLE, 100HP RATED AT 480VAC, AUXILIARY CONTACT FOR CONTROL FEEDBACK, NEMA 4X STAINLESS STEEL ENCLOSURE, RATED FOR OUTDOOR INSTALLATION
E208	1	DP-1	EATON	PRL4	POWER DISTRIBUTION PANELBOARD, U.L. LISTED, 480Y/277VAC, 3PH, 4 WIRE, 800A BUS MAIN BREAKER TYPE, MINIMUM 50KA RMS SYMMETRICAL SHORT CIRCUIT RATING AT 480V FOR MAIN, TIN PLATED COPPER BUS, NEUTRAL AND GROUND BARS, CONFIGURED FOR BOLT ON STYLE BREAKERS, SURFACE MOUNT NEMA 12 ENCLOSURE, WITH MAIN AND BRANCH CIRCUIT BREAKERS AS SHOWN IN THE PLANS
E209	2	BUS MONITOR RELAY	EATON	D65PLR SERIES	PHASE LOSS AND REVERSAL RELAY, U.L. LISTED, RATED FOR 480VAC, THREE PHASE, 60HZ, PLUG IN STYLE WITH SOCKET AND HOLD-DOWN SPRING, NORMAL AND FAULT INDICATOR LED, AUTOMATIC RESET, 10A SPDT OUTPUT CONTACT, WITH ALL REQUIRED FUSE PROTECTION AND ACCESSORIES, PROVIDE NEMA 12 ENCLOSURE IF INSTALLED STANDALONE
E210	1	PNB-2 SURGE PROTECTIVE DEVICE	THOR SYSTEMS	TSNI150	SPD, U.L. 1449 FOURTH EDITION LISTED, 120/208VAC, 60HZ, 3 PHASE, 4 WIRE PLUS GROUND, 50KA PER MODE RATING, NEMA 4X ENCLOSURE WITH CLEAR COVER, LED STATUS INDICATORS FOR EACH PHASE, INDUSTRIAL RATED

NOTES:

1. THESE EQUIPMENT SCHEDULES DO NOT NECESSARILY PROVIDE AN EXHAUSTIVE LISTING OF ALL EQUIPMENT REQUIRED.
2. REFERENCE TO A SPECIFIC MANUFACTURER'S NAME AND/OR CATALOG NUMBER IS INTENDED TO DENOTE THE QUALITY AND CHARACTERISTICS OF THE EQUIPMENT AND MATERIAL AND NOT TO SPECIFICALLY EXCLUDE OTHER ACCEPTABLE PRODUCTS, BUT ANY SUBSTITUTIONS TO REFERENCED ITEMS MUST BE APPROVED BY THE ENGINEER.
3. THE CONTRACTOR SHALL CONFIRM ALL QUANTITIES AND THE AVAILABILITY OF ALL SPECIFIED ITEMS.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

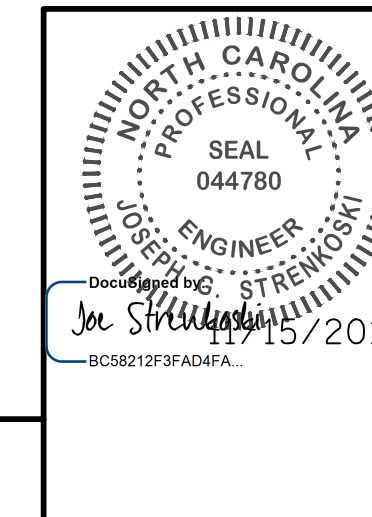
LAST SAVED 11/15/2018 11:32 AM BY AMBRODOKSY... LAST PLOTTED 11/15/2018 12:46 PM.
 FILE: \\mmdc10\p\proj\15BPR14\CADD\Electrical\15BPR14_SML.E35.640011

DESIGNED BY: J.C. RINEHART DATE: 11/01/18
 DRAWN BY: J.C. RINEHART DATE: 11/01/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**ELECTRICAL EQUIPMENT
 SCHEDULE - 2**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			E-35
2			4			213

ELECTRICAL EQUIPMENT SCHEDULE (GROUP 300)

ITEM NUMBER	QUANTITY	ITEM NAME	MANUFACTURER OR SUPPLIER	CATALOG NUMBER/MODEL	DESCRIPTION
E301	4	VFD	ALLEN-BRADLEY	755	FLUX VECTOR (CLOSED LOOP) TYPE VARIABLE FREQUENCY DRIVE, 480VAC, 3PH, 100 HP HEAVY DUTY RATING. COMPLETE WITH NEMA 12 FREE-STANDING DISCONNECT TYPE ENCLOSURE AND ALL FEATURES AND COMPONENTS AS DESCRIBED IN THE PLANS AND SPECIFICATIONS
		MAIN SPAN DRIVE MOTOR	SEE MECHANICAL SPECIFICATIONS	-	ADDITIONAL ELECTRICAL REQUIREMENTS FOR MOTOR: 480VAC, 60HZ, 3 PHASE, INVERTER DUTY RATING, CLASS H INSTALLATION, MOTOR SHAFT AND HOUSING CONFIGURED FOR ENCODER MOUNT, INTERNAL 120VAC ANTI-CONDENSATION HEATER, WINDING THERMOSTATS, RIGHT OR LEFT HAND ELECTRICAL CONNECTION AS REQUIRED BY MACHINERY LAYOUT
		MAIN SPAN DRIVE MOTOR ENCODER	SEE MECHANICAL SPECIFICATIONS	-	ADDITIONAL ELECTRICAL REQUIREMENTS FOR MOTOR ENCODER: HEAVY DUTY OPTICAL INCREMENTAL ENCODER, IP66 ENCLOSURE, -4 TO +185 DEGREE F OPERATING TEMPERATURE, QUADRATURE WITH MARKER PULSE, COUNTS PER REVOLUTION AS REQUIRED BY FLUX VECTOR DRIVE MANUFACTURER, 5-24VDC OPERATING VOLTAGE AND LINE DRIVE, MALE QUICK DISCONNECT CONNECTOR WITH MATING CONNECTOR OR CABLE AS REQUIRED FOR FIELD WIRING
		BRAKING RESISTOR	POWEROHM	-	150% BRAKING TORQUE, SS RESISTORS, THERMOSTAT PROTECTION, REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS
E302	1	PLC CONTROL SYSTEM	ALLEN-BRADLEY	1756 CONTROL LOGIC	PROGRAMMABLE LOGIC CONTROLLER SYSTEM WITH PRIMARY AND REDUNDANT PROCESSORS, RACK BASED DESIGN, LOCAL AND REMOTE RACKS, DISCRETE, ANALOG AND SPECIALTY I/O MODULES, COMMUNICATIONS MODULES, AND ALL RELATED HARDWARE. CONTROL CONSOLE, NEMA 12 CUSTOM CABINETS, NEMA 4X REMOTE I/O CABINET, FOR SEQUENTIAL CONTROL AND INTERLOCKING OF BRIDGE OPERATION, COMPLETE WITH ALL FEATURES AND COMPONENTS AS DESCRIBED IN THE PLANS AND SPECIFICATIONS
		TOUCHSCREEN HMI COMPUTERS	ALLEN-BRADLEY	PANELVIEW PLUS 7 PERFORMANCE	COLOR ACTIVE MATRIX TFT SCREEN, SIZES AS SHOWN ON PLANS, 1024 x 768 OR GREATER RESOLUTION, RESISTIVE TOUCH SCREEN, DEVELOPMENT AND RUNTIME SOFTWARE, REMOTE ACCESS WEB BROWSER SOFTWARE, ETHERNET AND USB COMMUNICATIONS, 120VAC POWER ADAPTER, WITH ALL REQUIRED OPERATING CABLES, MOUNTING HARDWARE, EXTERNAL KEYBOARD, AND EXTERNAL MOUSE
		PLC PROGRAMMING LAPTOP COMPUTER	PANASONIC, DELL	-	SEMI-RUGGEDIZED LAPTOP COMPUTER WITH PLC PROGRAMMING SOFTWARE AND FEATURES AS DESCRIBED IN THE SPECIFICATIONS
		ETHERNET SWITCHES	ALLEN-BRADLEY, NTRON	-	INDUSTRIAL ETHERNET SWITCH, COMPATIBLE WITH PLC SYSTEM, MULTIPLE SWITCHES AS REQUIRED FOR INDIVIDUAL CABINETS WITH COPPER AND FIBEROPTIC PORTS AS REQUIRED BY EQUIPMENT PLUS A MINIMUM OF TWO SPARE PORTS, 120VAC POWER SUPPLY
E303	2	ROTARY CAM LIMIT SWITCHES	AMETEK/GEMCO	1980 SERIES	ROTARY CAM LIMIT SWITCH, 7 CAM SWITCHES, DPDT, CONTACTS RATED AT MIN 10A 120VAC, NEMA 4X STAINLESS STEEL ENCLOSURE, INTERNAL TIMING DIAL, ROTATION AS REQUIRED FOR MECHANICAL INSTALLATION, DOUBLE END SHAFT
E304	10	SPAN LOCK AND AUXILIARY DRIVE LIMIT SWITCH	ALLEN-BRADLEY	802M	HEAVY DUTY LEVER ARM LIMIT SWITCH, NEMA 4 SEALED TYPE, CORROSION RESISTANT LEVER ARM AND HARDWARE, CLOCKWISE OR COUNTER-CLOCKWISE OPERATING AS REQUIRED, SPRING RETURN, 2 NORMALLY OPEN AND 2 NORMALLY CLOSED CONTACTS, CONTACTS RATED 10A AT 120VAC, EXTENDED CABLE LENGTHS AS REQUIRED TO UTILIZE EXISTING JUNCTION BOXES
E305	2	SPAN POSITION RESOLVER	AMCI	HT-400 SERIES	HEAVY DUTY BRUSHLESS SINGLE TURN RESOLVER, 8-30VDC, 303 STAINLESS STEEL INPUT SHAFT, IP64 ANODIZED ALUMINUM ENCLOSURE, -40 TO +257 DEGREE F OPERATING TEMPERATURE, NPT CONDUIT FITTING WITH INTERNAL TERMINAL BLOCK, 50 G'S FOR 11 MSEC SHOCK RATED
E306	2	FULLY SEATED PROXIMITY SWITCH	ALLEN-BRADLEY	871TM	INDUCTIVE PROXIMITY SWITCH, 20-250V AC/DC, 2 WIRE, PLC INPUT COMPATIBLE, NEMA 4X U.L. LISTED, STAINLESS STEEL BARREL, 3-PIN MICRO QUICK DISCONNECT STYLE WITH CABLE, 1 N.O. CONTACT, LED INDICATOR, 30MM BARREL, 15MM NOMINAL SENSING DISTANCE

ELECTRICAL EQUIPMENT SCHEDULE (GROUP 300 CONTINUED)

ITEM NUMBER	QUANTITY	ITEM NAME	MANUFACTURER OR SUPPLIER	CATALOG NUMBER OR MODEL	DESCRIPTION
E307	1	TEMPORARY CONTROL SYSTEM	CUSTOM	-	TEMPORARY CONTROL SYSTEM TO OPERATE SPAN AS SHOWN IN PLANS

NOTES:

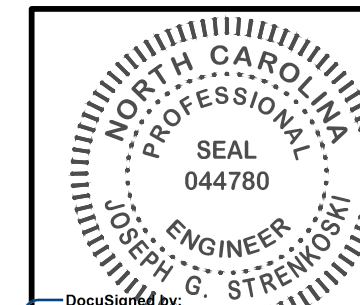
1. THESE EQUIPMENT SCHEDULES DO NOT NECESSARILY PROVIDE AN EXHAUSTIVE LISTING OF ALL EQUIPMENT REQUIRED.
2. REFERENCE TO A SPECIFIC MANUFACTURER'S NAME AND/OR CATALOG NUMBER IS INTENDED TO DENOTE THE QUALITY AND CHARACTERISTICS OF THE EQUIPMENT AND MATERIAL AND NOT TO SPECIFICALLY EXCLUDE OTHER ACCEPTABLE PRODUCTS, BUT ANY SUBSTITUTIONS TO REFERENCED ITEMS MUST BE APPROVED BY THE ENGINEER.
3. THE CONTRACTOR SHALL CONFIRM ALL QUANTITIES AND THE AVAILABILITY OF ALL SPECIFIED ITEMS.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 ELECTRICAL EQUIPMENT
 SCHEDULE - 3



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



DocuSign
 J. G. Strenkoski
 11/15/2018
 BCB8212F3AD4FA

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-36
1			3			TOTAL SHEETS
2			4			213

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

LAST SAVED 11/15/2018 11:32 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:46 PM.
 FILE: \\mmcg101\p\proj\15BPR14\CADD\Electrical\15BPR14_SML1E36_640011

DESIGNED BY: J.C. RINEHART DATE: 11/1/18
 DRAWN BY: J.C. RINEHART DATE: 11/1/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

ELECTRICAL EQUIPMENT SCHEDULE (GROUP 400)

ITEM NUMBER	QUANTITY	ITEM NAME	MANUFACTURER OR SUPPLIER	CATALOG NUMBER/MODEL	DESCRIPTION
E401	37	WALL MOUNT VAPORTITE LED	HUBBELL	VWGL-1	11W, 120V, 250MA DRIVE, WALL MOUNT, FROSTED GLOBE, GRAY DIE-CAST ALUMINUM HOUSING, U.L. LISTED
E402	2	NEAR SIDE DROOP CABLES	ALLIED WIRE & CABLE	SOOW 10/30	15 FT. LENGTH, TYPE SOOW FLEXIBLE CORD, UL LISTED, (30) 10 AWG STRANDED (104X30) COPPER CONDUCTORS, 600V EPDM INSULATION AND CPE JACKET, RATED 90C. WEATHER, WATER, SUNLIGHT, OIL, AND FLAME RESISTANT
E403	7	FLOODLIGHT	HOLOPHANE	PREDATOR LED	FLOOD LUMINAIRE, U.L. LISTED FOR WET LOCATIONS, IP66 RATING, LOW COPPER DIE CAST ALUMINUM HOUSING WITH INTEGRAL HEAT SINK FINS, DURABLE POLYESTER PAINT FINISH, WIRE GUARD LENS PROTECTION, STAINLESS STEEL HARDWARE, 3G VIBRATION RATED PER ANSI C136, STAINLESS STEEL YOKE MOUNT, NPT CONDUIT CONNECTIONS, 100-277VAC
E404	1	ROADWAY LIGHTING CONTROLS	CUSTOM	-	ROADWAY LIGHTING CONTROL AS SHOWN ON PLANS AND DESCRIBED IN THE SPECIFICATIONS
E405	2	AIR HORN	FEDERAL SIGNAL	3H	CAST ALUMINUM HOUSING, OUTDOOR RATED TYPE 4X ENCLOSURE, STAINLESS STEEL DIAPHRAGM, NPT PIPE CONNECTION, 100 DECIBELS OR GREATER AT 10 FEET, WITH 120VAC SOLENOID VALVE AND ALL REQUIRED
E406	1	AIR COMPRESSOR	C-AIRE	S175	INDUSTRIAL HEAVY DUTY AIR COMPRESSOR, 3 GALLON HORIZONTAL TANK, 2.5 OR GREATER CFM AT 100 PSI, 480VAC, 3 PHASE, 1HP MOTOR WITH PRE-WIRED STARTER, ADJUSTABLE PRESSURE SWITCH CONTROL, PRESSURE GAGE, PRESSURE RELIEF SAFETY VALVE, QUIET LOW RPM RATING, STATIONARY MOUNTING HARDWARE WITH VIBRATION ISOLATION, ADJUSTABLE PRESSURE REGULATOR CONTROL FOR OUTLET, LOW PRESSURE SWITCH FOR PLC INPUT, TIMER CONTROLLED TANK AUTODRAIN
E407	1	CCTV SYSTEM	BOSCH	CUSTOM	ANALOG TYPE CCTV SYSTEM AS SHOWN ON THE PLANS AND DESCRIBED IN THE SPECIFICATIONS
E408	1	PUBLIC ADDRESS SYSTEM	GAI-TRONICS	CUSTOM	PUBLIC ADDRESS SYSTEM AS SHOWN ON THE PLANS AND DESCRIBED IN THE SPECIFICATIONS
E409	1	TELEPHONE PANEL	STRUCTURED CABLE PRODUCTS	-	STRUCTURED WIRING MODULE FOR TELECOM DISTRIBUTION SYSTEM, SUPPORT FOR ANALOG AND DIGITAL SERVICES, WIRED FOR TIA/EIA-568, LINE CAPABILITY AS REQUIRED BY TELECOM PROVIDER, MINIMUM 4 PHONE LINE / 8 LOCATION, EXPANDABLE TYPE WITH PUNCH-DOWN AND RJ45 CONNECTIONS, U.L. LISTED SURFACE MOUNT STRUCTURED WIRING PANEL, METAL ENCLOSURE WITH HINGED DOOR AND LOCK
E410	1	RFID ACCESS SYSTEM & SECURITY FENCING	CUSTOM	-	EXTRA HEAVY-DUTY ANSI/BHMA GRADE 1 DUAL CREDENTIAL PIN/PROX LOCK, STANDALONE SYSTEM, 180,000 CYCLES, INDOOR/OUTDOOR, SOLID CAST ADA-COMPLIANT LEVERS, SOLID CAST EXTERIOR HOUSING, GRADE 1 ANSI RATING, GRADE 1 BHMA RATING
E411	6	PIER NAVIGATION LIGHT	AUTOMATIC POWER	FA-143	PIER NAVIGATION LIGHT, USCG APPROVED, 180 DEGREE RED FRESNEL LENS, CAST ALUMINUM HOUSING, HIGH OUTPUT LED ARRANGED IN A REDUNDANT ARRAY, 60,000 HOUR LIFE, STUD BASE FLANGE MOUNT, STAINLESS STEEL HARDWARE, 120VAC POWER SUPPLY
E412	1	SEWAGE GRINDER PUMP	ENVIRONMENT ONE	DH071-44	PACKAGED GRINDER PUMP STATION, INDOOR UNIT, 70 GALLON HDPE TANK, HARDWIRED AUTOMATIC CONTROLS, NEMA 4X ALARM PANEL WITH VISUAL INDICATION, 120/240V, 60HZ, 1HP SINGLE PHASE MOTOR, INTEGRATED MOTOR THERMAL OVERLOAD WITH AUTO RESET, FULLY EPOXY COATED CAST IRON PUMP HOUSING WITH STAINLESS STEEL SHAFT, STAINLESS STEEL DISCHARGE CHECK VALVE, 4" INLET CONNECTION, 1 1/2" NPT OUTLET, DISCHARGE 11 GPM AT 40 PSIG/TOTAL DYNAMIC HEAD OF 92 FEET. PROVIDE APPROPRIATELY SIZED NEMA 3R, U.L. LISTED BUCK-BOOST TRANSFER FOR AVAILABLE 208V CIRCUIT
E413	1	MANUAL TRANSFER SWITCH W/ PORT. GEN HOOKUP	RELIANCE	C20A1N	MANUAL TRANSFER SWITCH FOR TRAFFIC SIGNAL PORTABLE GENERATOR OPERATION, 125V, 20 MAX. UTILITY AMPS, 20 MAX GENERATOR AMPS, 2.5KW MAX PORTABLE GENERATOR RATING, SWITCHED NEUTRAL, OUTDOOR NEMA 3R ENCLOSURE
E414	APPROX. 27	GENERATOR/ELECTRICAL/WORK ROOM LUMINAIRE	LITHONIA	FEML48-4000LM	LED FIXTURE, POLYCARBONATE ENCLOSURE, GASKETED LENS, STAINLESS STEEL LATCHES, U.L. LISTED FOR WET LOCATIONS, 120V, 60HZ, 31W HIGH EFFICIENCY, (SURFACE/PENDANT) MOUNTING BRACKETS FOR CEILING MOUNT OR AS REQUIRED. MATCH CONTROL ROOM FIXTURE SPECIFIED ON ARCHITECTURAL DRAWING EO.1

ELECTRICAL EQUIPMENT SCHEDULE (GROUP 400 CONTINUED)

ITEM NUMBER	QUANTITY	ITEM NAME	MANUFACTURER OR SUPPLIER	CATALOG NUMBER OR MODEL	DESCRIPTION
E415	1	FAR SIDE DROOP CABLES	ALLIED WIRE & CABLE	SOOW 10/16	15 FT. LENGTH, TYPE SOOW FLEXIBLE CORD, UL LISTED, (16) 10 AWG STRANDED (104X30) COPPER CONDUCTORS, 600V EPDM INSULATION AND CPE JACKET, RATED 90C. WEATHER, WATER, SUNLIGHT, OIL, AND FLAME RESISTANT
E416	1	GENERATOR ROOM LOUVRE WALL PATCHES	MBCI	CF ARCHITECTURAL	INSULATED METAL WALL PANEL, 2" THICKNESS. EXTERIOR COLOR TO MATCH BUILDING EXTERIOR CONCRETE COLOR, SUBMIT COLOR TO ENGINEER FOR APPROVAL. APPROXIMATELY 60 SQ. FT.
E417	1	PROGRAMMABLE CONTROLLER	LG	PREMTB10U	PROGRAMMABLE CONTROLLER COMPATIBLE WITH HEAT PUMP SYSTEM
E418	2	JB-NL	NEMA ENCLOSURES	N121208CHNFSS6	JUNCTION BOX TYPE 4X, HINGED COVER WITH CLAMPS, BACK PANEL, 12" TALL x 12" WIDE x 8" DEEP, 316 STAINLESS STEEL CONSTRUCTION
E419	1	NEAR SIDE MESSENGER CABLE TERMINAL CABINET	CROUSE-HINDS	CH603616-4	60" TALL x 36" WIDE x 16" DEEP, STEEL, CONTINUOUS HINGE, WALL MOUNT, SEAMLESS DOOR GASKET, NEMA TYPE 12 ENCLOSURE WITH INTERIOR PANEL AND MOUNTING HARDWARE
E420	4	SUBMARINE CABLE TERMINAL CABINET	CROUSE-HINDS	CH483616-4XSS63PT	48" TALL x 36" WIDE x 16" DEEP, STAINLESS STEEL, 3-POINT LATCH, WALL MOUNT, SEAMLESS DOOR GASKET, NEMA TYPE 4X ENCLOSURE WITH INTERIOR PANEL AND MOUNTING HARDWARE
E421	1	JB-24	CROUSE-HINDS	CH20168-4XSS6	20" TALL x 16" WIDE x 8" DEEP, STAINLESS STEEL, WALL MOUNT, SEAMLESS DOOR GASKET, NEMA TYPE 4X ENCLOSURE WITH INTERIOR PANEL AND MOUNTING HARDWARE
E422	1	CONTROL JB	CROUSE-HINDS	CH20248-4XSS6	20" TALL x 24" WIDE x 8" DEEP, STAINLESS STEEL, WALL MOUNT, SEAMLESS DOOR GASKET, NEMA TYPE 4X ENCLOSURE WITH INTERIOR PANEL AND MOUNTING HARDWARE
E423	2	NEAR SIDE & FAR SIDE EQUIPMENT CAB.	SAGINAW CONTROL & ENGINEERING	SCE-60EL4812LPPL	60" TALL x 48" WIDE x 12" DEEP TWO-DOOR ENCLOSURE, FREE STANDING, 3-POINT LATCH, NEMA TYPE 12 ENCLOSURE WITH INTERIOR PANEL AND MOUNTING HARDWARE
E424	6	SUBMARINE CABLE SUPPORT	OZ-GEDNEY	FS-1050	TYPE FS STRUCTURAL MOUNT SUPPORT, SUITABLE FOR WIRE ARMORED CABLE, SIZE AS REQUIRED
E425	1	OUTDOOR HEAT PUMP UNIT	LG	ARUN024GSS4	2.0 TON OUTDOOR HEAT PUMP UNIT
E426	2	INDOOR HEAT PUMP UNIT	LG	ARNU243SKA4	HEAT PUMP WALL MOUNT INDOOR UNIT
E427	2	208V, 1Ø, WALL SWITCH	-	-	20 AMP RATED SWITCH IN NEMA 12 ENCLOSURE
E428	1	208V, 3Ø, MOTOR SWITCH	-	-	30 AMP, 2 POLE, 208V RATED SWITCH IN NEMA 4X ENCLOSURE

NOTES:

1. THESE EQUIPMENT SCHEDULES DO NOT NECESSARILY PROVIDE AN EXHAUSTIVE LISTING OF ALL EQUIPMENT REQUIRED.
2. REFERENCE TO A SPECIFIC MANUFACTURER'S NAME AND/OR CATALOG NUMBER IS INTENDED TO DENOTE THE QUALITY AND CHARACTERISTICS OF THE EQUIPMENT AND MATERIAL AND NOT TO SPECIFICALLY EXCLUDE OTHER ACCEPTABLE PRODUCTS, BUT ANY SUBSTITUTIONS TO REFERENCED ITEMS MUST BE APPROVED BY THE ENGINEER.
3. THE CONTRACTOR SHALL CONFIRM ALL QUANTITIES AND THE AVAILABILITY OF ALL SPECIFIED ITEMS.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

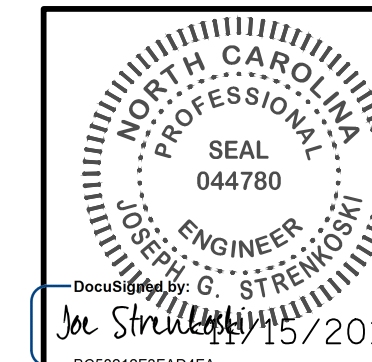
LAST SAVED 11/15/2018 11:33 AM BY AMBRODOKSY... LAST PLOTTED 11/15/2018 12:46 PM...
 FILE: \\mmdc10\p\proj\15\15BPR14\CADD\Electrical\15BPR14_SML.E37_640011

DESIGNED BY: J. C. RINEHART DATE: 11/01/18
 DRAWN BY: R. L. REED DATE: 11/02/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



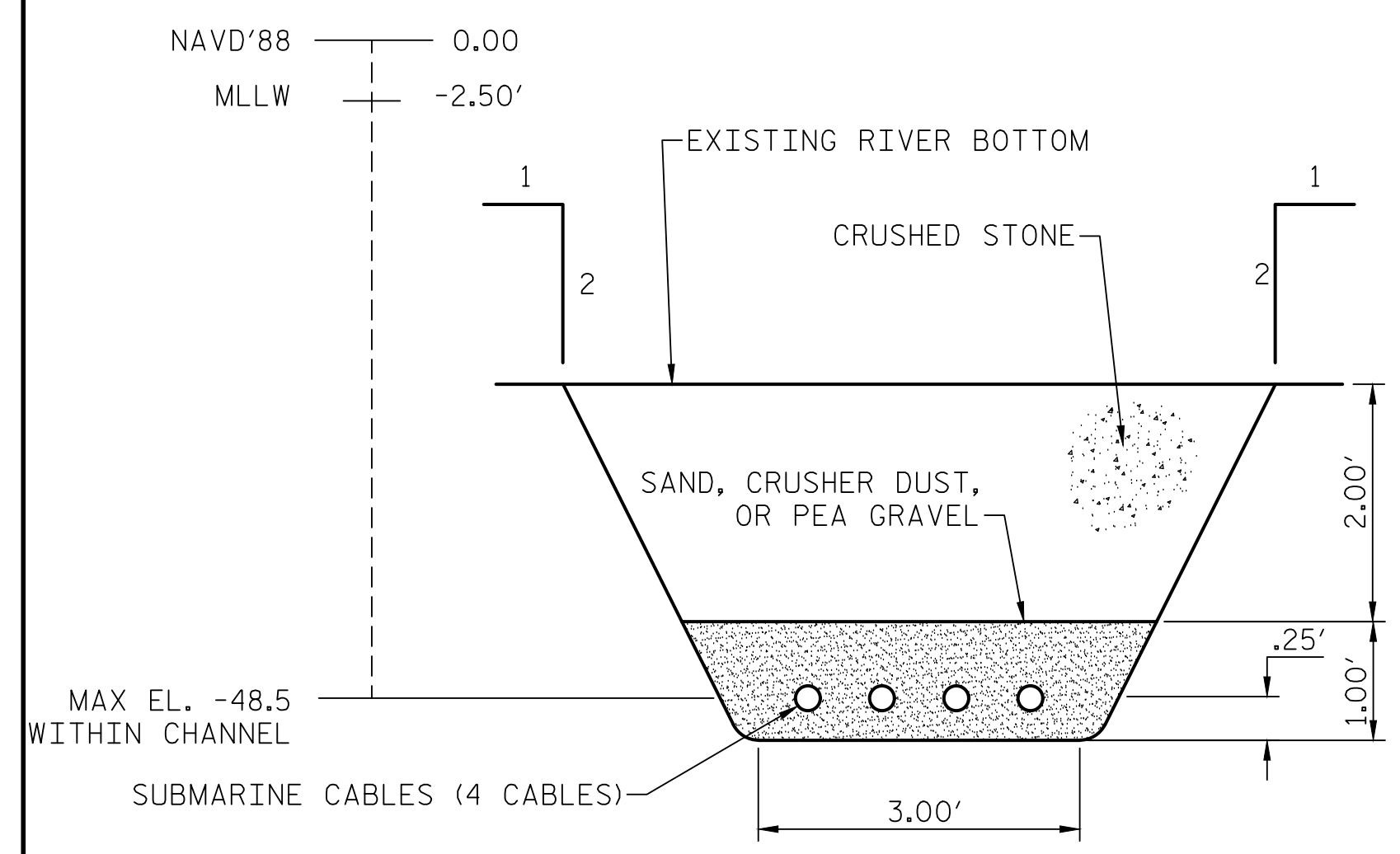
333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**ELECTRICAL EQUIPMENT
 SCHEDULE - 4**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-37
1			3			TOTAL SHEETS
2			4			213



**SECTION B-B
SUBMARINE CABLE TRENCHING DETAIL**
3/4"=1'-0"

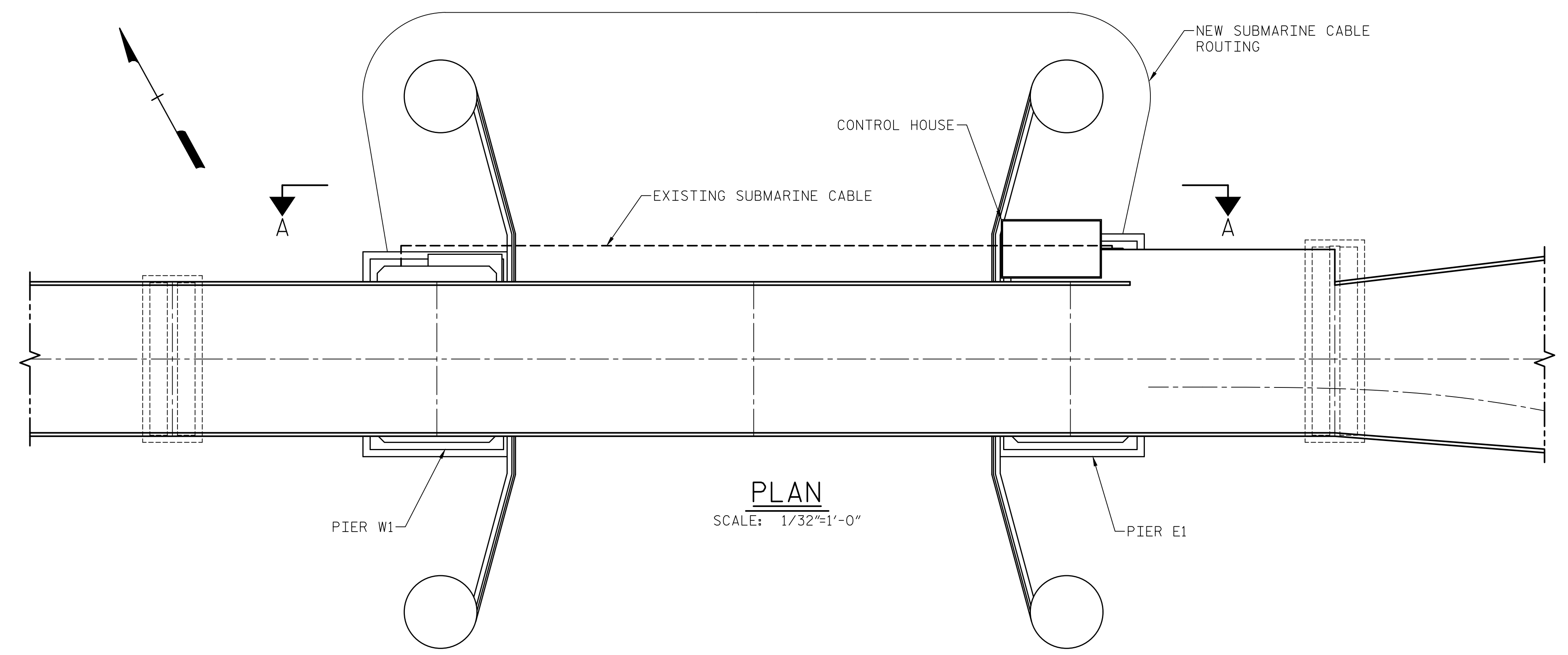
SECTION IS BASED ON MAXIMUM ELEVATION CRITERIA. ELEVATION MAY VARY ALONG CHANNEL BOTTOM. SEE NOTE 2.

NOTES:

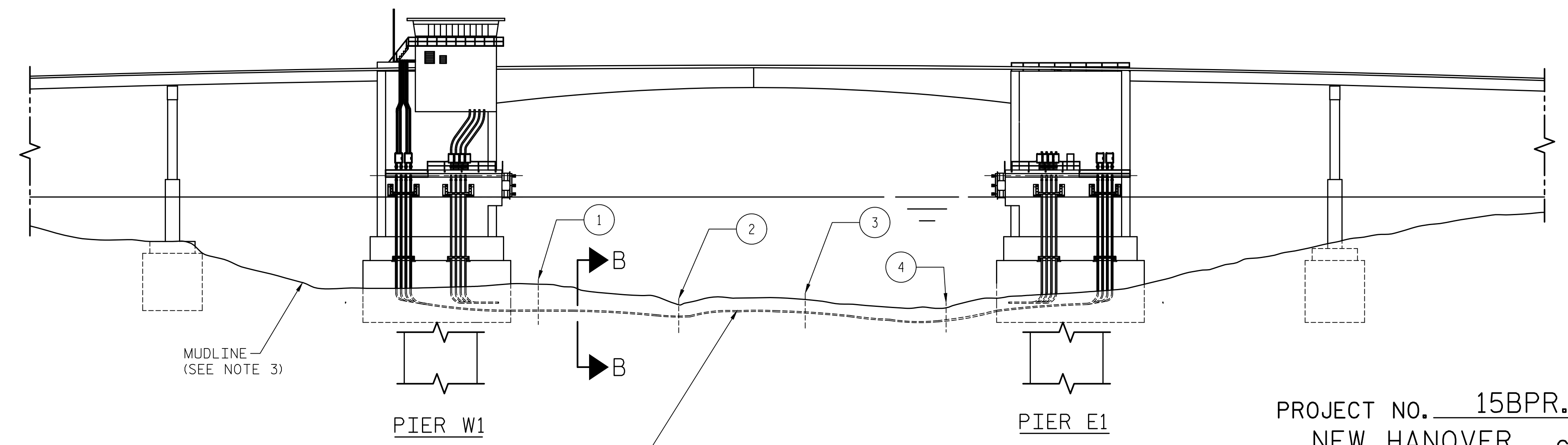
1. FOR SUBMARINE CABLE ROUTING DETAILS, REFER TO SHEET E-40 FOR PIER E1 AND SHEET E-39 FOR PIER W1.
2. THE BURIAL DEPTH OF THE SUBMARINE CABLES WILL VARY ALONG THE LENGTH OF THE RUN BASED ON THIS CRITERIA:
 - 2.1. WITHIN THE 200' NAVIGABLE CHANNEL, THE CABLES MUST BE INSTALLED BELOW AN ELEVATION OF -48.50 BASED ON A MINIMUM CLEARANCE OF 46.00' BELOW MLLW.
 - 2.2. MAINTAIN MINIMUM COVERAGE OF CABLES BELOW RIVER BOTTOM AS SHOWN IN SECTION B-B ON THIS SHEET BOTH WITHIN AND OUTSIDE OF THE NAVIGABLE CHANNEL.
3. MUDLINE IN SECTION A-A IS INTENDED TO SHOW GENERAL CABLE ROUTING, IN ACCORDANCE WITH NOTE 2, FOLLOWING CONTOUR OF MUDLINE BUT IS NOT AN EXACT REPRESENTATION OF EXISTING MUDLINE.

LOCATION APPROXIMATE ELEVATION

①	MUDLINE EL. -44.50 TOP OF CABLE EL. -48.50
②	MUDLINE EL. -47.00 TOP OF CABLE EL. -49.75
③	MUDLINE EL. -45.00 TOP OF CABLE EL. -48.50
④	MUDLINE EL. -48.00 TOP OF CABLE EL. -50.75



PLAN
SCALE: 1/32"=1'-0"



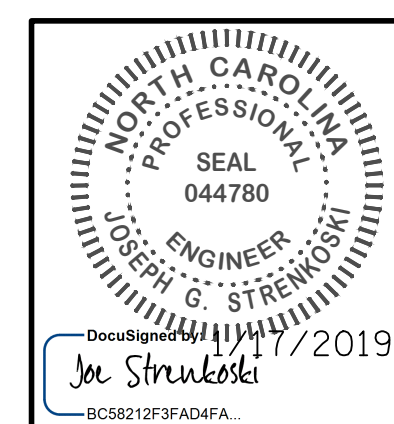
**SECTION A-A
ELEVATION**
SCALE: 1/32"=1'-0"

NEW SUBMARINE CABLE ROUTING LOCATION MARKERS INDICATED AS REFERENCE TO DETERMINE APPROXIMATE TOP OF CABLE BURIAL DEPTH BELOW MUDLINE FOR THE NAVIGABLE CHANNEL RUN.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____



333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979



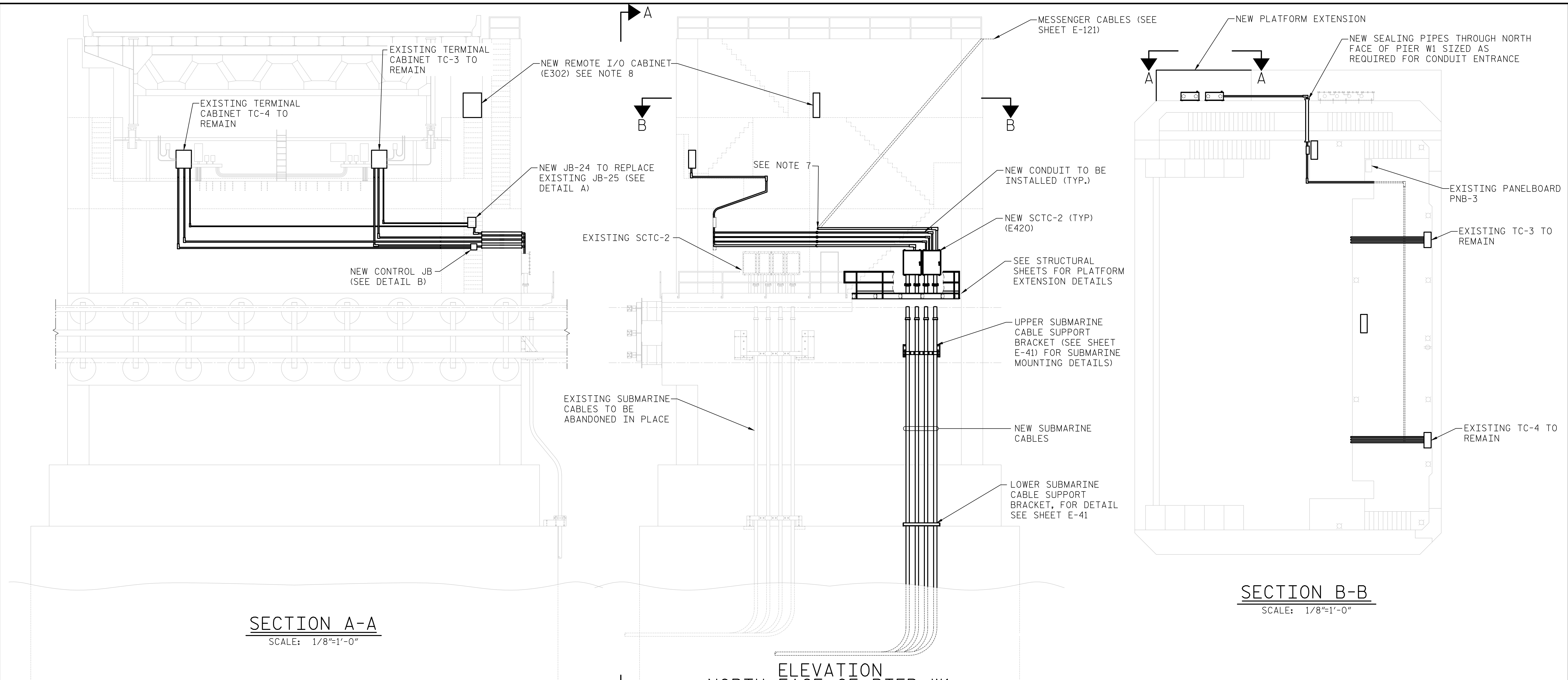
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
**SUBMARINE CABLES,
PLAN & ELEVATION**

DESIGNED BY: J. C. RINEHART DATE: 07/11/18
DRAWN BY: R. L. REED DATE: 07/11/18
CHECKED BY: L. V. BORDEN DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

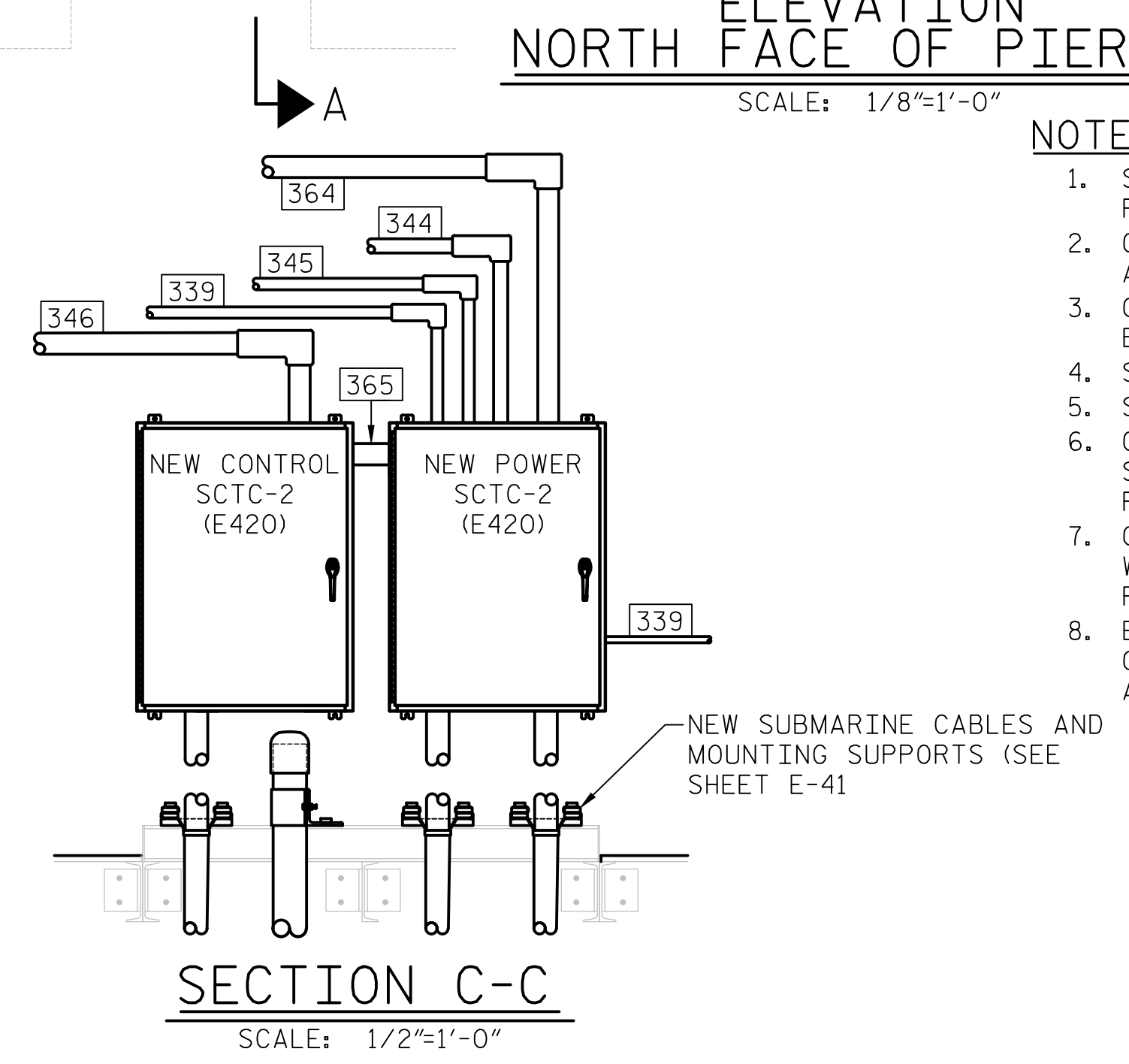
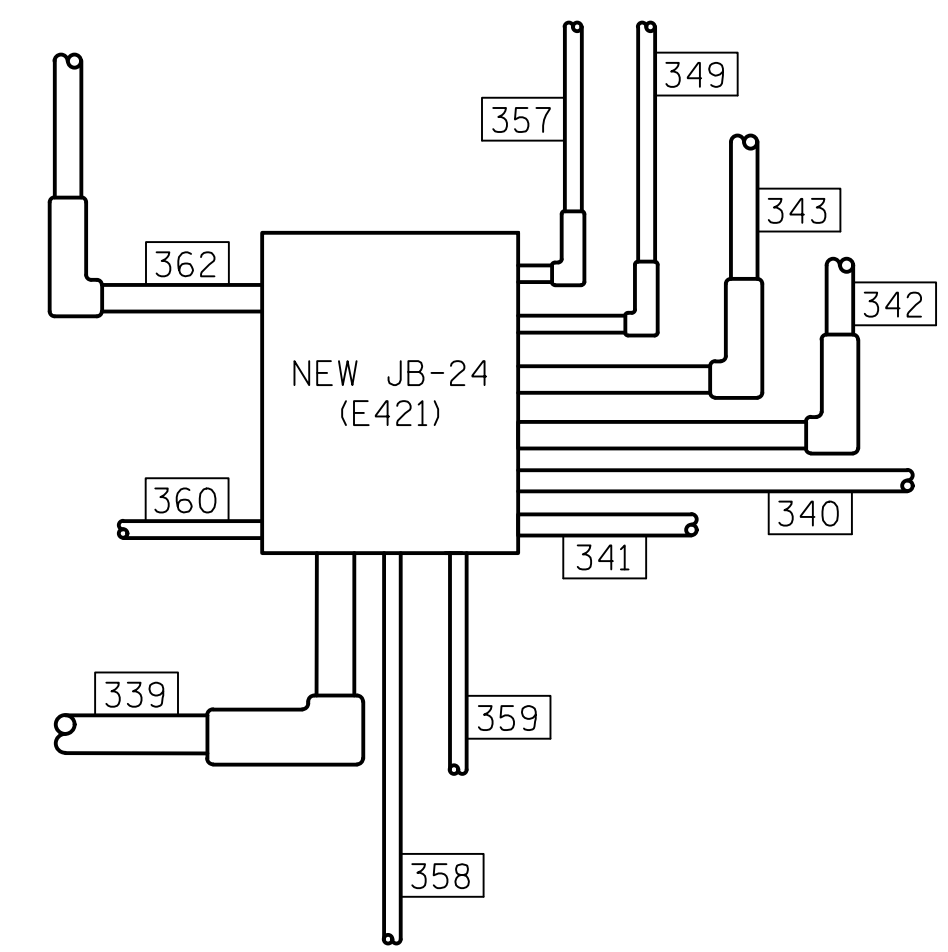
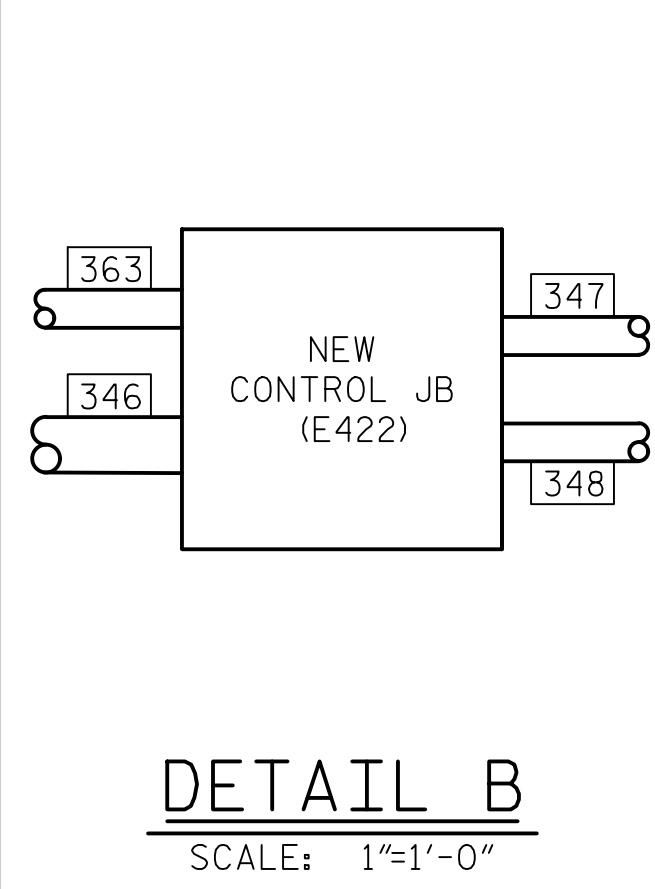
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			E-38
2			4			213

LAST SAVED 1/16/2019 4:04 PM BY JCRINEHART. LAST PLOTTED 1/17/2019 12:24 PM. FILE: \\mmod10\Projects\3682\3\CADD\Electrical\15BPR14_SML.E38.640011



SECTION B-B
SCALE: 1/8"=1'-0"

ELEVATION NORTH FACE OF PIER W1
SCALE: 1/8"=1'-0"

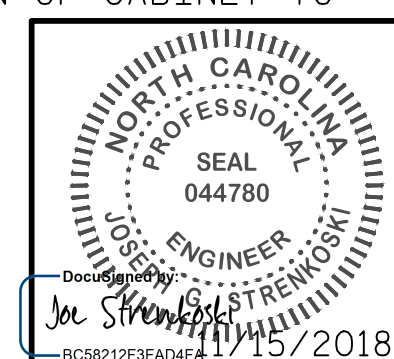


- NOTES:**
1. SEE SHEET E-110 FOR FAR SIDE CONDUIT SCHEDULE AND SHEET E-109 FOR FAR SIDE CONDUIT LAYOUT.
 2. CONDUIT ROUTING IS SHOWN AS APPROXIMATE. ROUTINGS SHALL BE FIELD ADJUSTED TO WORK AROUND EXISTING CONDUIT AND MACHINERY.
 3. CONTRACTOR SHALL ADJUST CONDUIT AND CONDUIT BODY SIZES AS REQUIRED BY THE NEC.
 4. SEE SHEET E-41 FOR SUBMARINE CABLE DETAILS
 5. SEE SHEET E-119 FOR CONDUIT MOUNTING DETAILS
 6. CONDUIT ROUTING FOR MACHINERY PLATFORM LIGHTS AND RECEPTACLE, STAIRWAY LIGHTS, COUNTERWEIGHT PIT LIGHTS, AND SWITCHES SHALL REPLICATE EXISTING ROUTING.
 7. CONDUIT RUN 364 IS TO PENETRATE THROUGH NORTH WALL INTO COUNTER WEIGHT PIT USING EXISTING BORE TO BE USED FOR NEW MESSENGER CABLE. RUNS 339 AND 344-346 SHALL BE NEW BORES THROUGH NORTH WALL.
 8. EXISTING RAILING SHALL BE MODIFIED TO ALLOW MOUNTING OF NEW PLC I/O CABINET. CONTRACTOR SHALL DETERMINE OPTIMAL LOCATION OF CABINET TO ALLOW FOR NEC WORKING SPACE.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

DESIGNED BY:	J. C. RINEHART	DATE:	07/13/18
DRAWN BY:	R. L. REED	DATE:	07/13/18
CHECKED BY:	L. V. BORDEN	DATE:	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/15/18

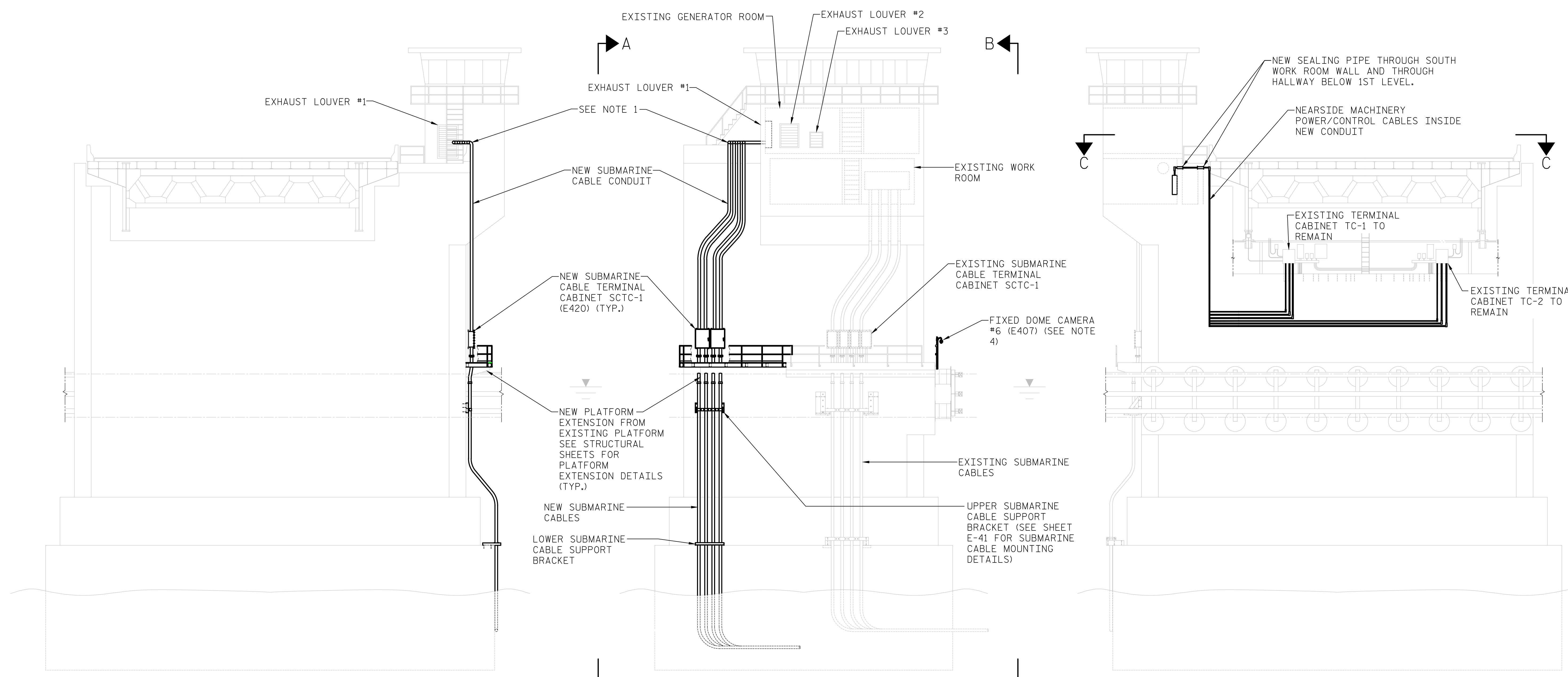
DETAIL A
SEE NOTE 6
SCALE: 1"=1'-0"



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
SUBMARINE CABLE ROUTING DETAILS - FAR SIDE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-39
1			3			TOTAL SHEETS 213
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SECTION A-A
EAST FACE OF PIER E1
 SCALE: 3/32"=1'-0"

ELEVATION
NORTH FACE OF PIER E1
 SCALE: 3/32"=1'-0"

SECTION B-B
WEST FACE OF PIER E1
 SCALE: 3/32"=1'-0"

NOTES:

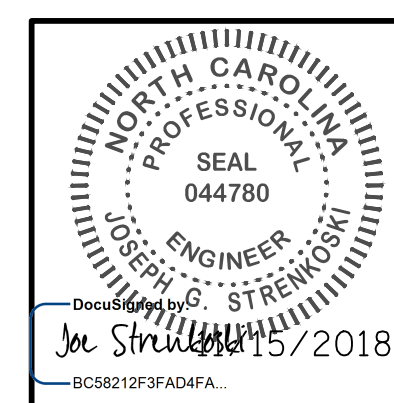
1. ROUTE NEW CONDUIT FROM NEW FAR SIDE EQUIPMENT CABINET IN GENERATOR ROOM, THROUGH EXHAUST LOUVER #1, DOWN NORTH FACE OF PIER E1 TO NEW SUBMARINE CABLE TERMINAL CABINETS.
2. REFER TO SHEET E-19 FOR LOCATION OF NEW FAR SIDE EQUIPMENT CABINET.
3. REFER TO SHEET E-20 FOR SECTION C-C.
4. FOR FIXED DOME CAMERA #6 CONDUIT ROUTING DETAILS, SEE SHEET E-25. FOR CAMERA MOUNTING DETAILS SEE SHEET E-105.

BASE FLOOD ELEVATION (BFE), 9 FT. ABOVE SEA LEVEL.

LAST SAVED 11/15/2018 11:33 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:47 PM.
 FILE: \\mmdc101\p\proj\15BPR14\CADD\Electr\15BPR14_SML_E40_640011

DESIGNED BY:	J. C. RINEHART	DATE :	07/16/18
DRAWN BY:	R. L. REED	DATE :	07/16/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18

MODJESKI and MASTERS
 Experience great bridges.
 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

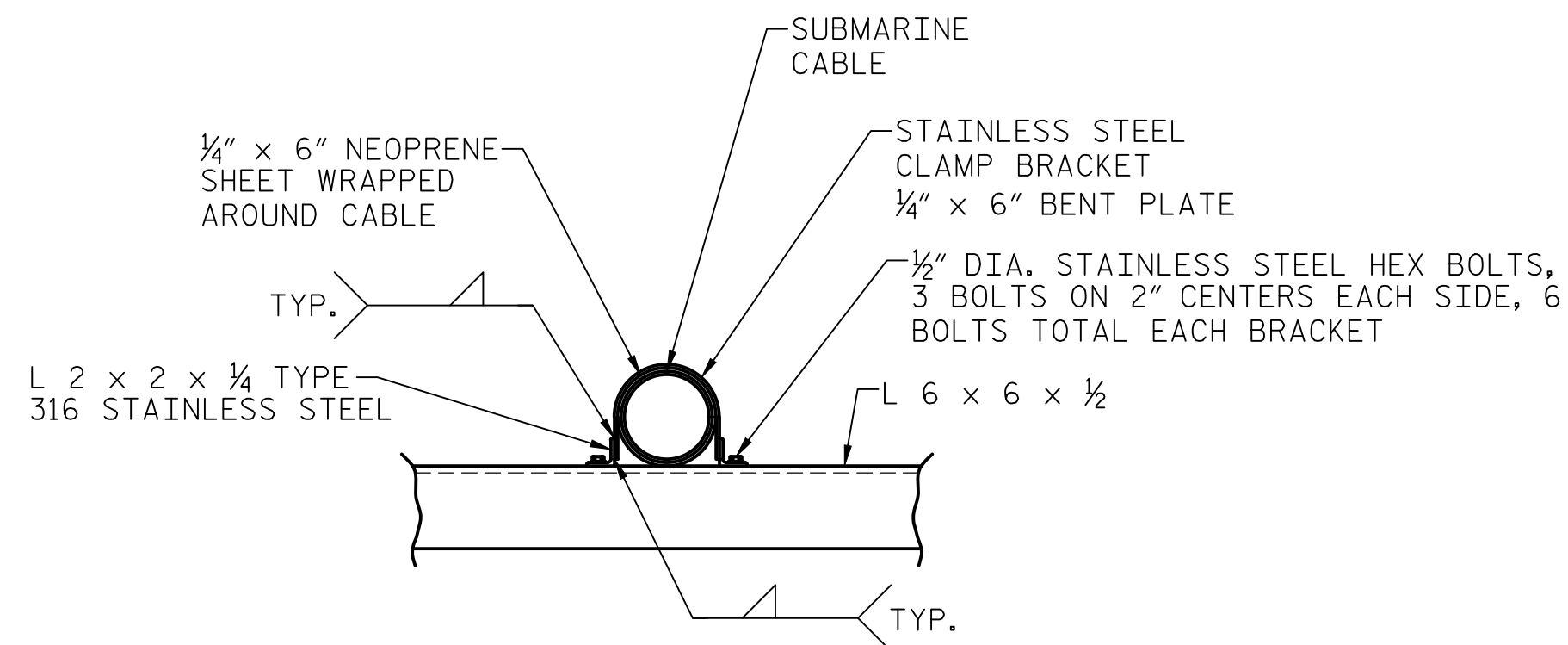


PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
SUBMARINE CABLE ROUTING DETAILS - NEAR SIDE

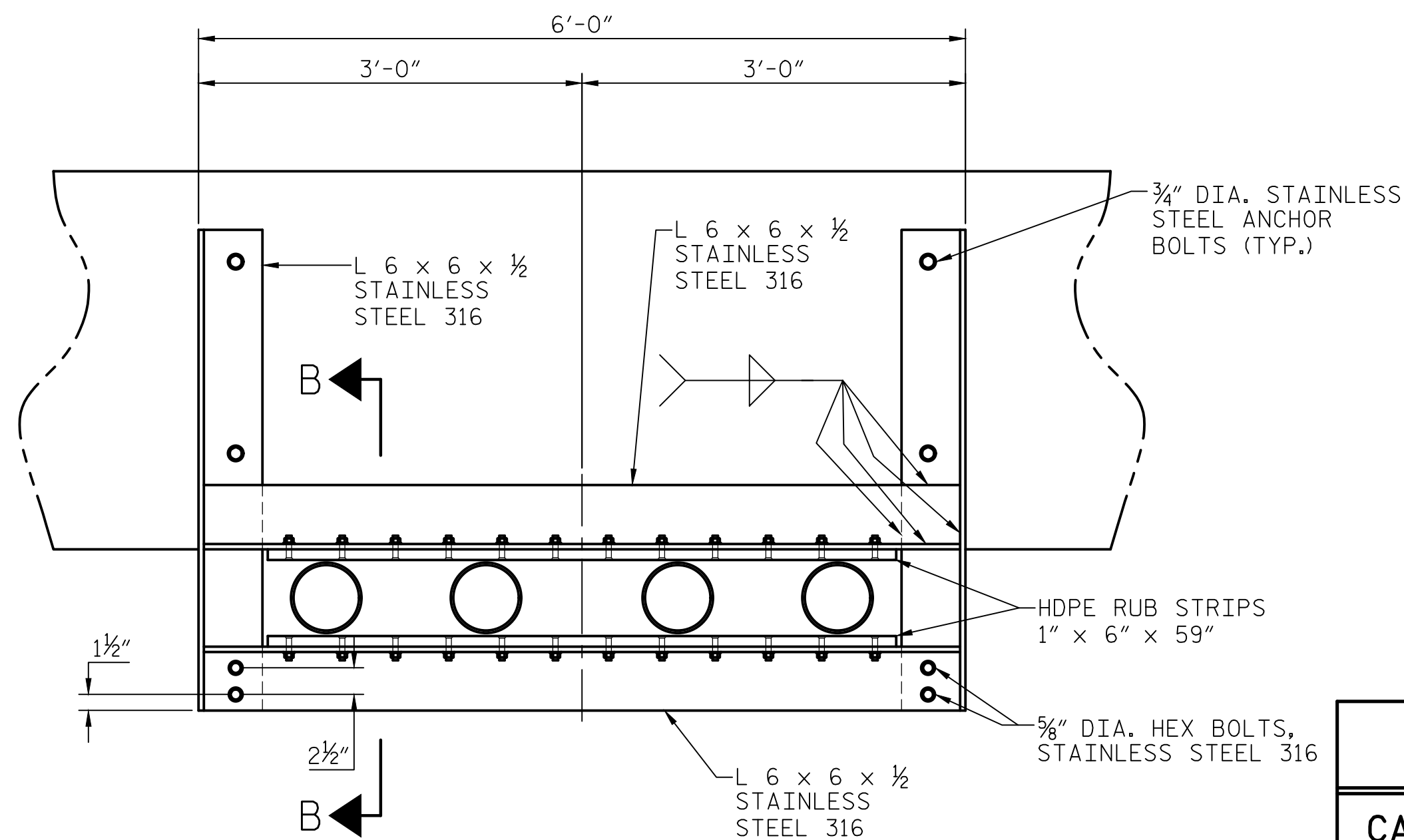
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			213
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



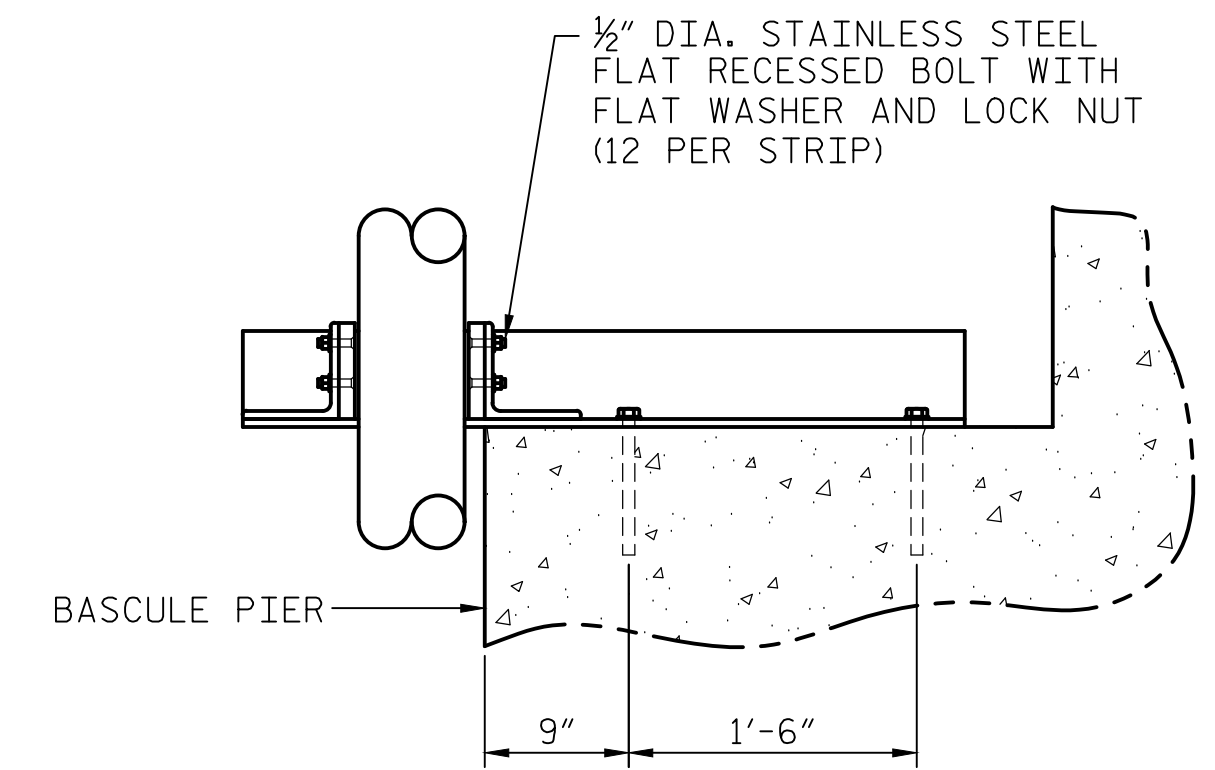
SUBMARINE CABLE BRACKET DETAIL

SCALE: 1 1/2"=1'-0"



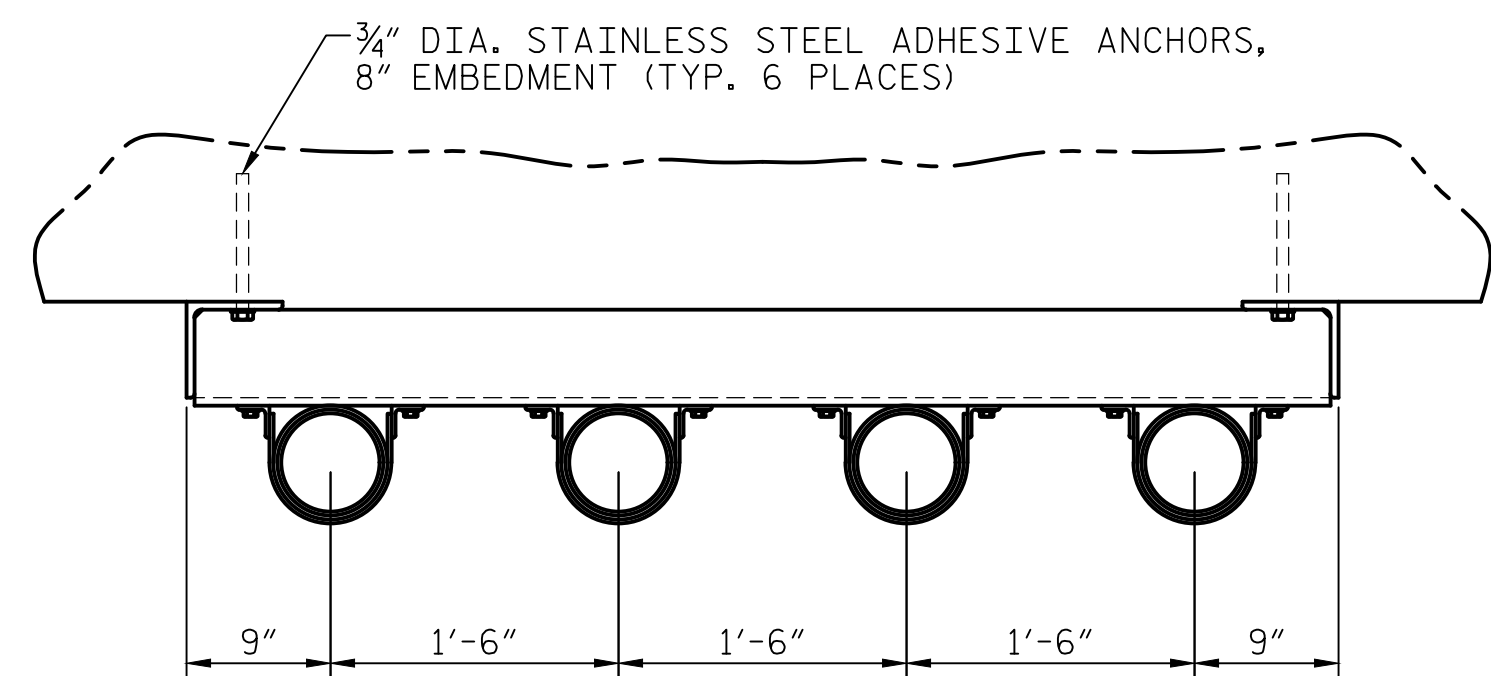
PLAN LOWER SUBMARINE CABLE SUPPORT BRACKET

SCALE: 1"=1'-0"



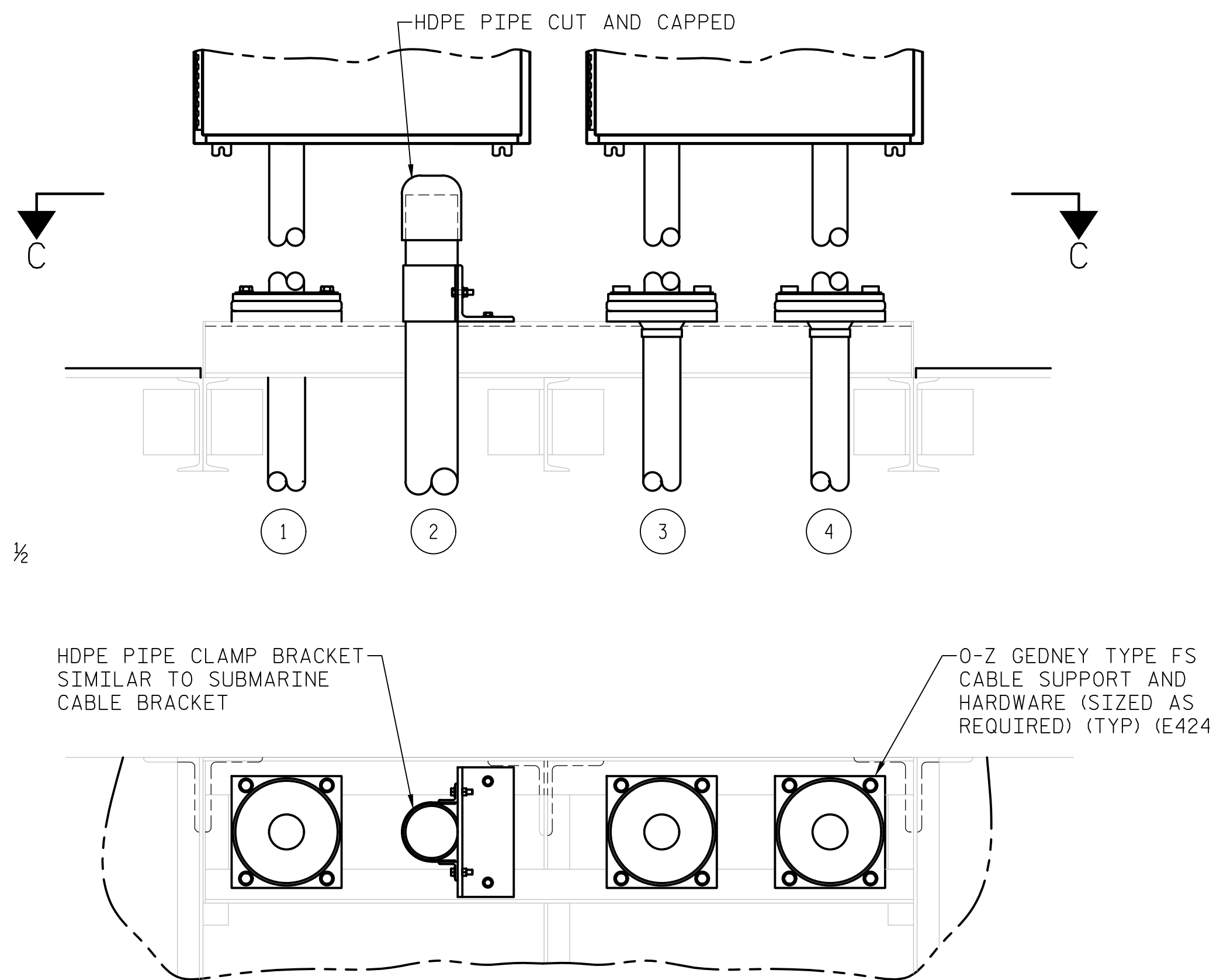
SECTION B-B

SCALE: 1"=1'-0"



VIEW A-A

SCALE: 1"=1'-0"



SECTION C-C

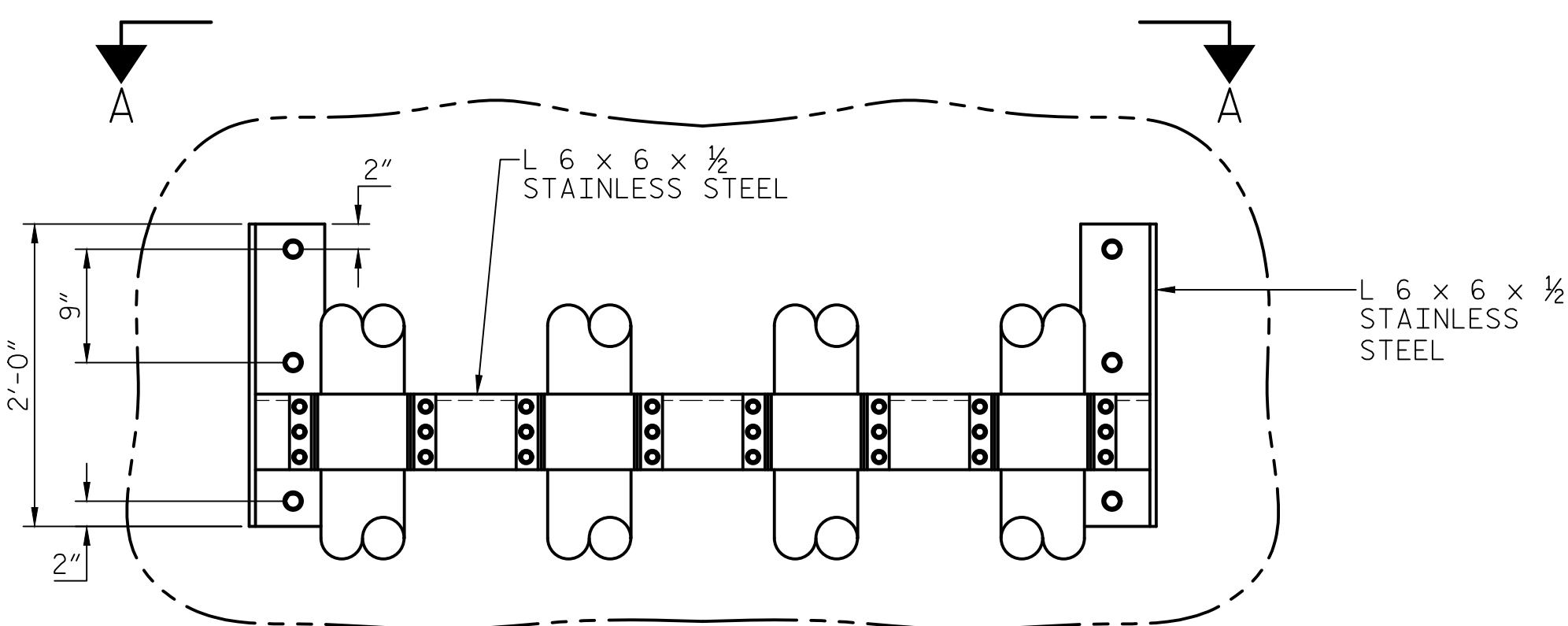
SCALE: 1"=1'-0"

SUBMARINE CABLE MAKEUP			
CABLE RUN NUMBER	DESCRIPTION	CONDUCTOR COUNT AND SIZE (AWG)	TOTAL WITH SPARE CONDUCTOR COUNT AND SIZE (AWG)
1	CONTROL CONDUCTORS SCTC-1 TO SCTC-2	(97) 10 (1) 12-FIBER (3) CAT-5 (3) 3-PAIR (1) PA SYSTEM CABLE	(126) 10 (2) 12-FIBER (5) CAT-5 (5) 3-PAIR (2) PA SYSTEM CABLE (3) 1-PAIR
2	HDPE 5" EMPTY DUCT FOR FUTURE CONNECTIONS	-	-
3	VARIABLE FREQUENCY DRIVE POWER CABLES	(3) 2/0 VFD POWER CABLES	(3) 2/0 VFD POWER CABLES (4) 2/0 POWER CONDUCTORS
4	POWER CONDUCTORS FROM SCTC-1 TO SCTC-2	(24) 10 (13) 6 (6) 8 (7) 1	(47) 10 (18) 6 (12) 8 (13) 1

NOTES:

- SUBMARINE CABLES CONTAINING CONDUCTORS FOR VFD MOTORS SHALL HAVE A 2000V INSULATION RATING. OTHER CABLES SHALL HAVE A 600V MINIMUM RATING.
- THE SUBMARINE CABLE ARMOUR WIRES SHALL BE STRIPPED AT THE POINT WHERE THEY ARE CLAMPED TO PROVIDE A GROUNDING POINT. THE SUBMARINE CABLE PANEL AND SUPPORT FRAME SHALL BE SOLIDLY BONDED TO THE ELECTRICAL SERVICE GROUND.
- DETAILS SHOWN FOR PIER E1. PIER W1 IS SIMILAR.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

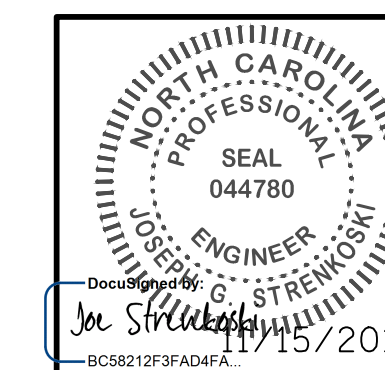


UPPER SUBMARINE CABLE SUPPORT BRACKET

SCALE: 1"=1'-0"



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

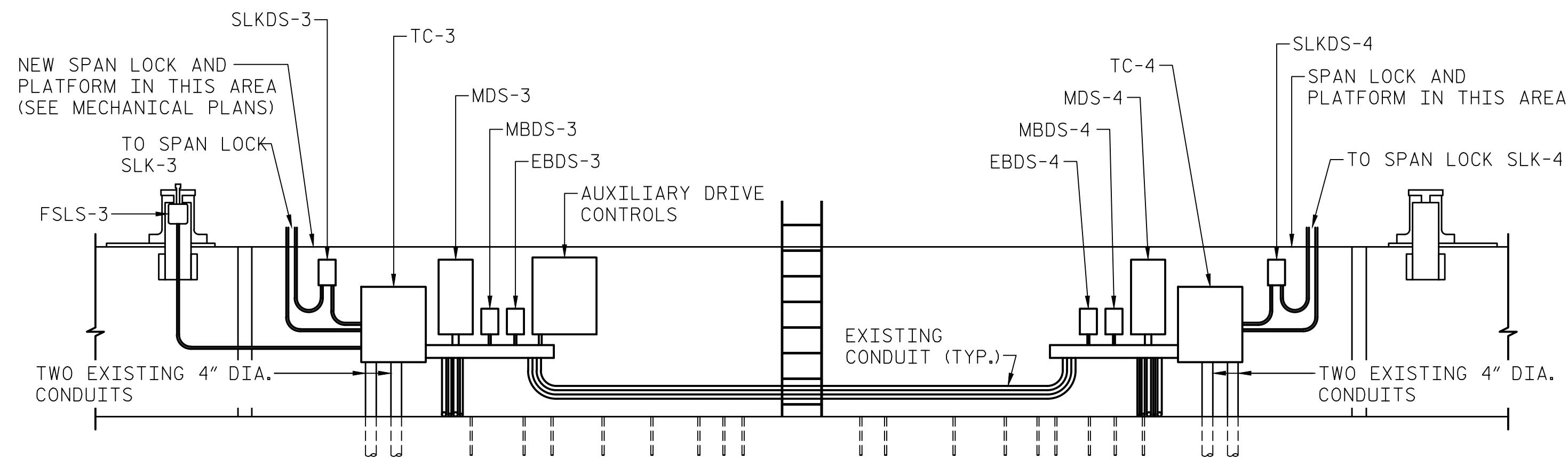


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 SUBMARINE CABLE
 DETAILS

DESIGNED BY: L. V. BORDEN DATE: 08/27/18
 DRAWN BY: R. L. REED DATE: 09/05/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

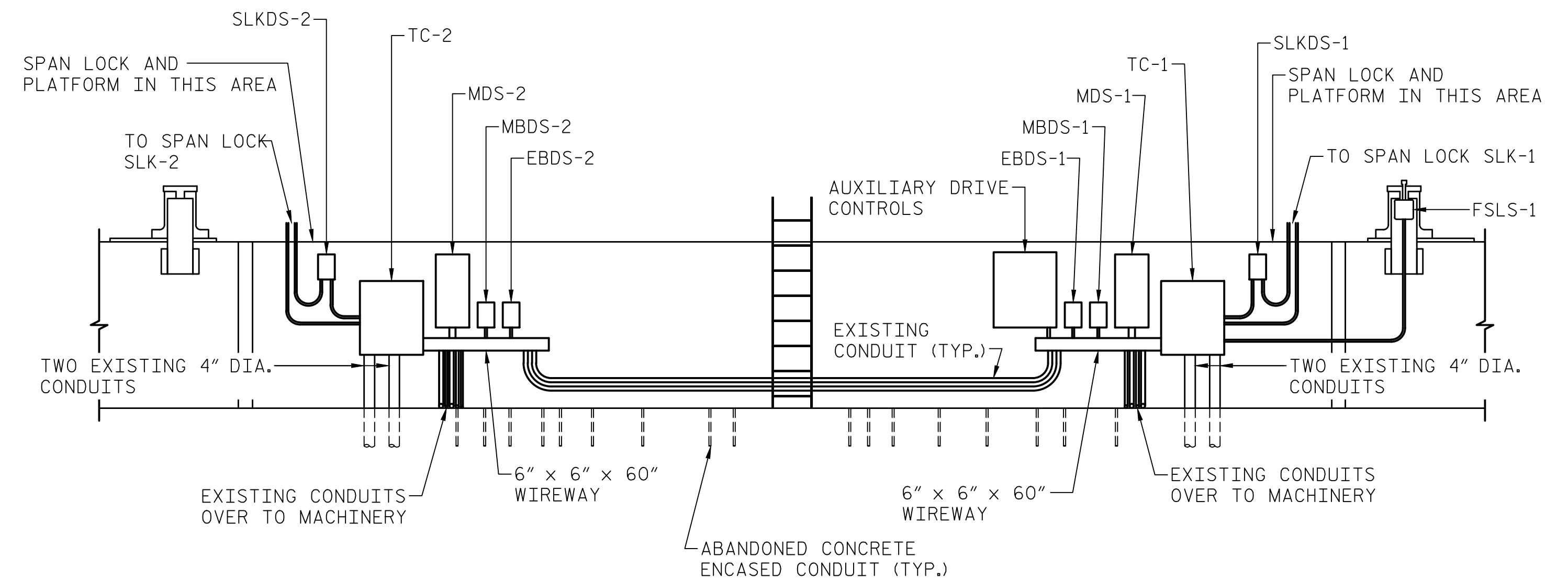
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-41
1			3			TOTAL SHEETS 213
2			4			



EXISTING MACHINERY DECK ELECTRICAL LAYOUT - PIER W1

SCALE: 1/4"=1'-0"



EXISTING MACHINERY DECK ELECTRICAL LAYOUT - PIER E1

SCALE: 1/4"=1'-0"

NOTES:

1. THESE LAYOUTS ARE FOR REFERENCE ONLY AND ARE NOT INTENDED TO ILLUSTRATE THE EXACT PHYSICAL LOCATIONS OF EQUIPMENT OR RACEWAY ROUTING.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

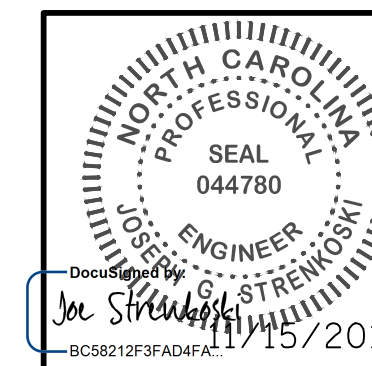
LAST SAVED 11/15/2018 11:34 AM BY AMBRODOKSY... LAST PLOTTED 11/15/2018 12:47 PM.
 FILE: \\mmod101\p\projects\3682\03\CADD\Electrical\15BPR14_SML.E42.640011

DESIGNED BY: R. I. PETERS DATE: 04/24/18
 DRAWN BY: R. L. REED DATE: 04/24/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



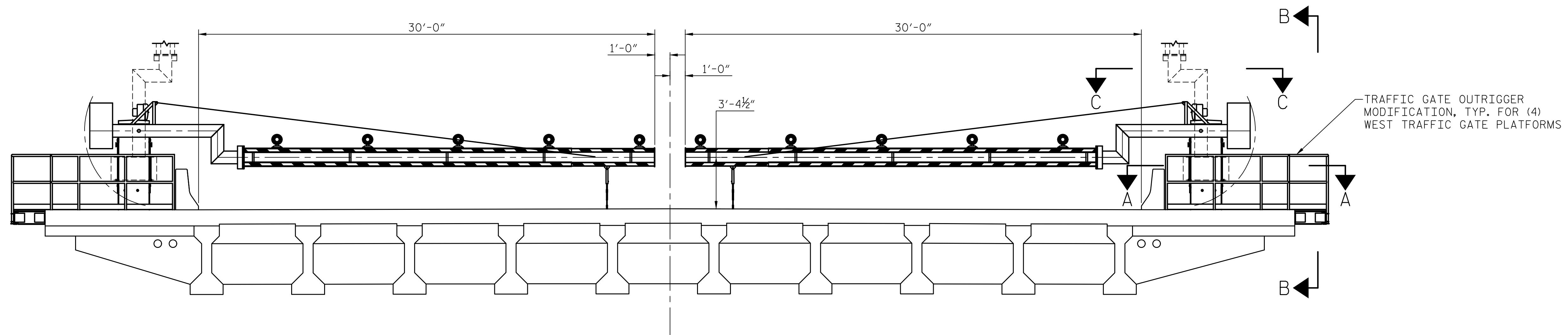
333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



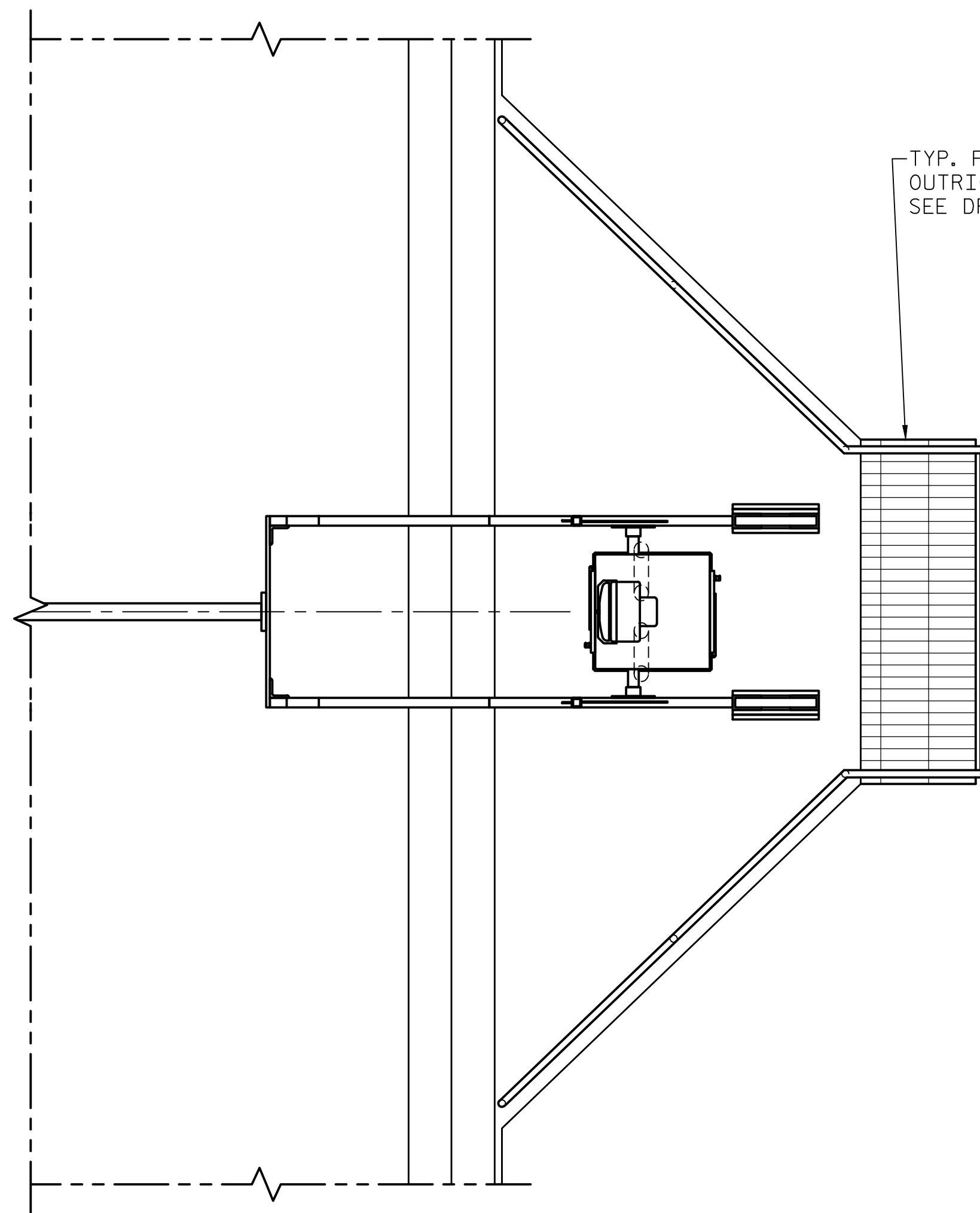
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 EQUIPMENT AT
 MACHINERY LEVEL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-42
1			3			TOTAL SHEETS
2			4			213

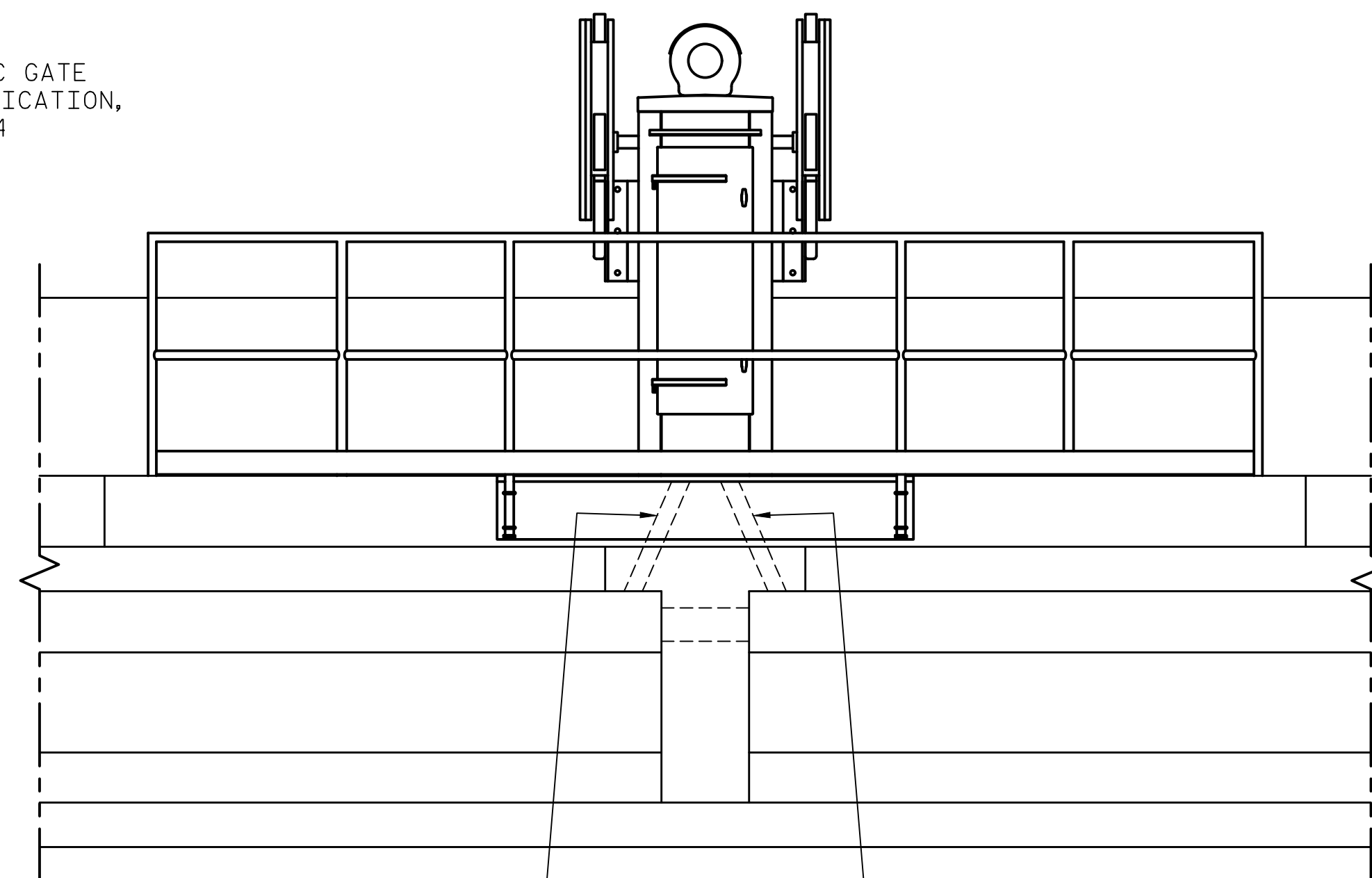


**WEST APPROACH ELEVATION
WARNING GATES - SPAN 11
BARRIER GATES - SPAN 14**

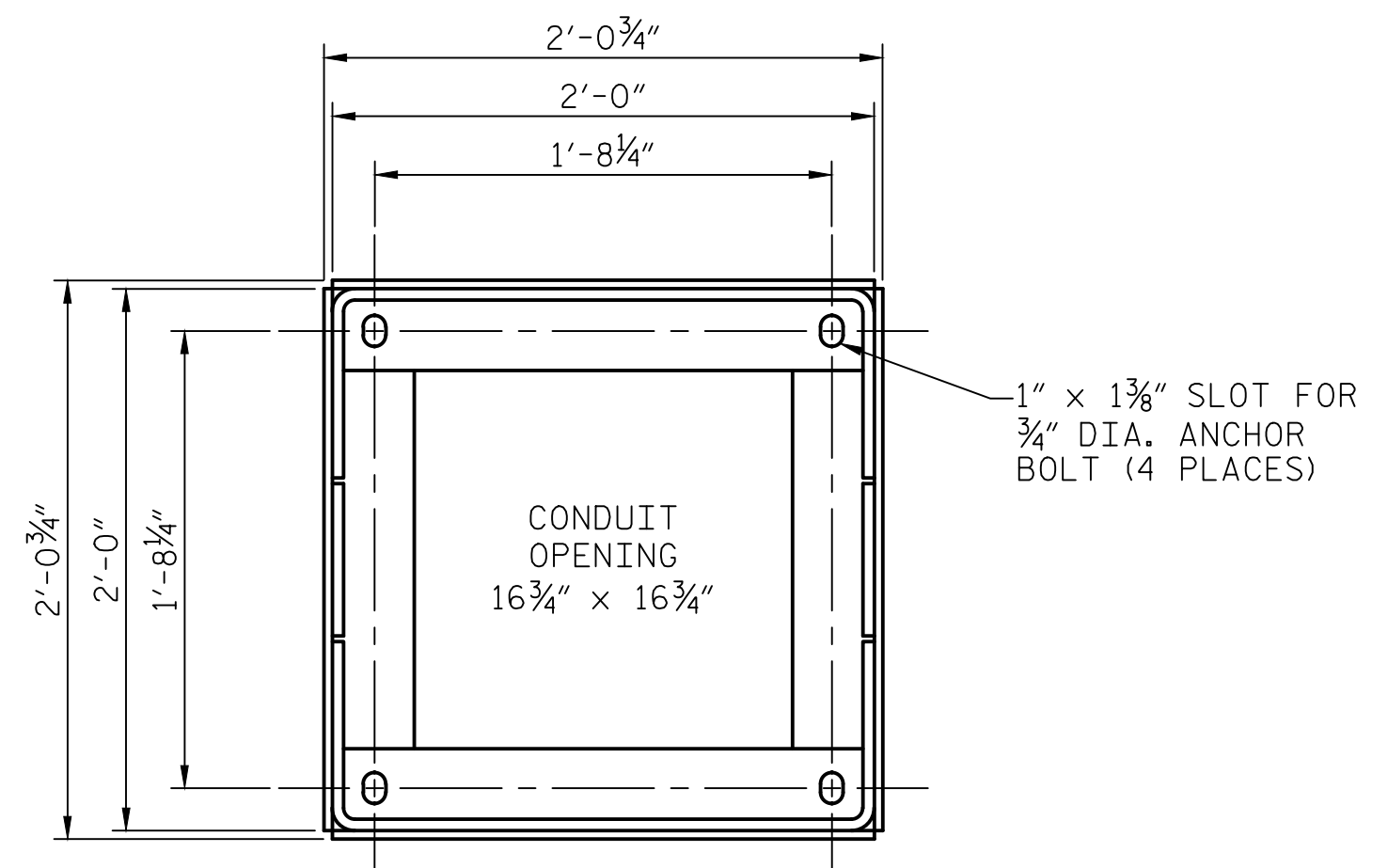
SCALE: 1/4"=1'-0"
(LOOKING WEST)



VIEW C-C
SCALE: 1/2"=1'-0"



VIEW B-B
SCALE: 1/2"=1'-0"



SECTION A-A
SCALE: 3/4"=1'-0"

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

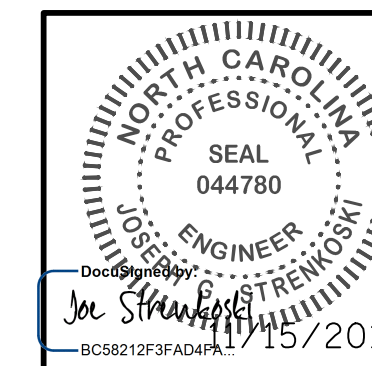
NOTES:

1. REPLACE WEST APPROACH GATES AT EXISTING LOCATIONS, (4) TOTAL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS.
3. TO THE EXTENT POSSIBLE, GATE ARM LENGTHS SHALL BE SIZED TO MINIMIZE THE NUMBER OF ARM LENGTH VARIATIONS REQUIRED FOR SPARE PARTS.
4. ON-COMING GATE FOR SPAN 11 SHALL INCLUDE A GONG.
5. EXISTING GATE PLATFORMS TO BE EXTENDED WITH OUTRIGGERS AS A PART OF STRUCTURAL REHAB WORK. 6 TOTAL GATE PLATFORMS TO BE MODIFIED: ALL WEST APPROACH GATE PLATFORMS (4 TOTAL) AND EAST APPROACH BARRIER GATE PLATFORMS (2 TOTAL). SEE DRAWING S-14 FOR DETAILS.



333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

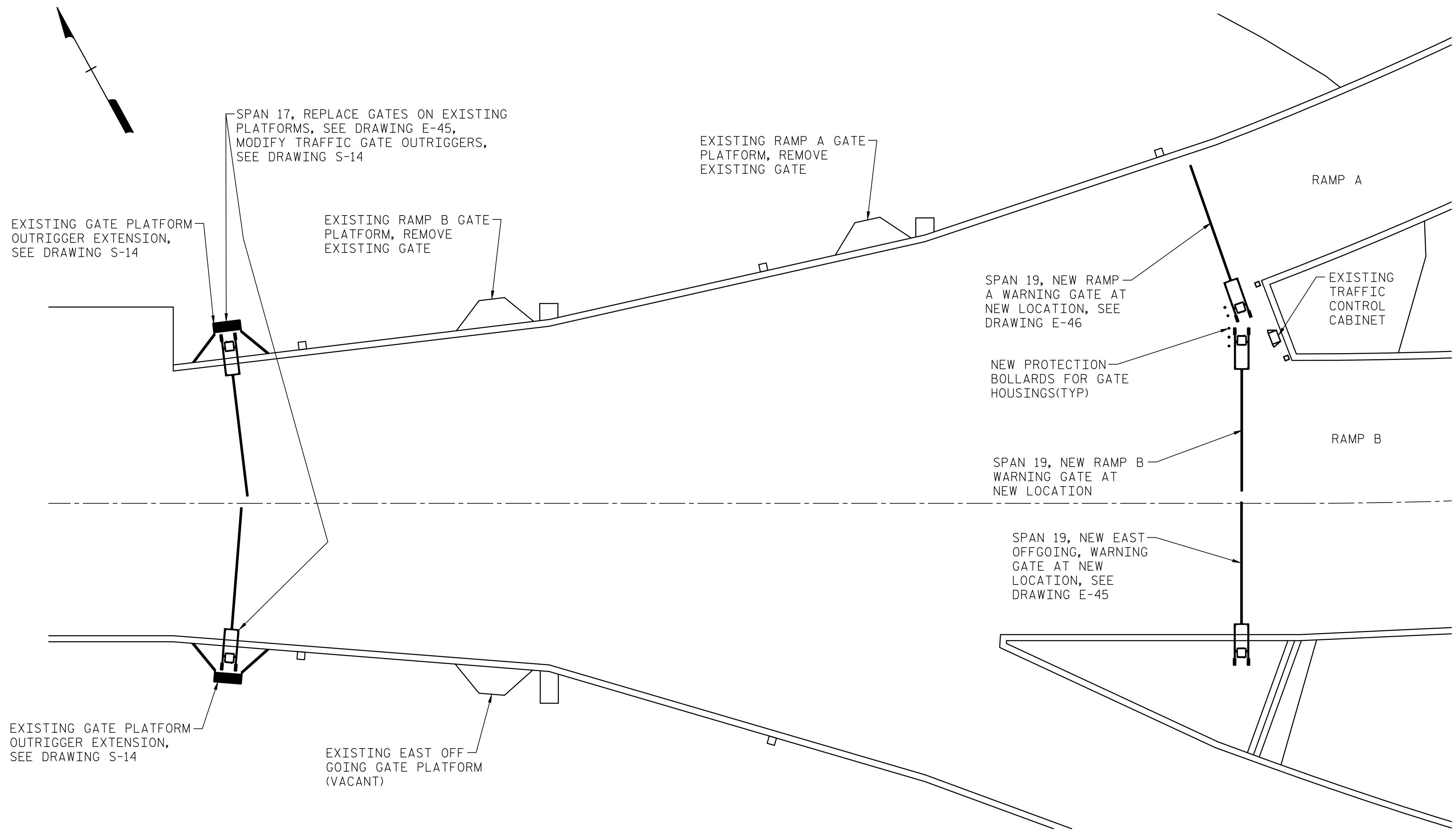
**ELECTRICAL
TRAFFIC GATE
DETAILS - 1**

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
E-43
TOTAL SHEETS
213

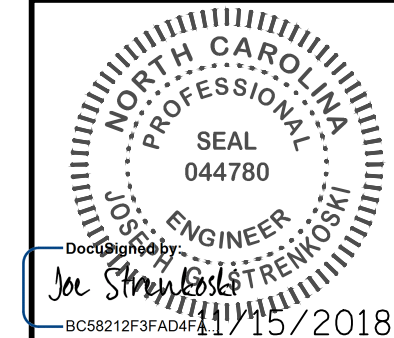
DESIGNED BY: R. I. PETERS DATE: 04/25/18
DRAWN BY: R. L. REED DATE: 04/25/18
CHECKED BY: L. V. BORDEN DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



**PLAN
EAST APPROACH TRAFFIC GATE**
SCALE: 1/16"=1'-0"

LAST SAVED 11/15/2018 11:34 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:47 PM.
 FILE: \\mmcd10\p\objects\3682\3\CADD\Electrical\15BPR14_SML.E44_640011

DESIGNED BY:	R. I. PETERS	DATE :	10/03/18
DRAWN BY:	R. L. REED	DATE :	10/03/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18

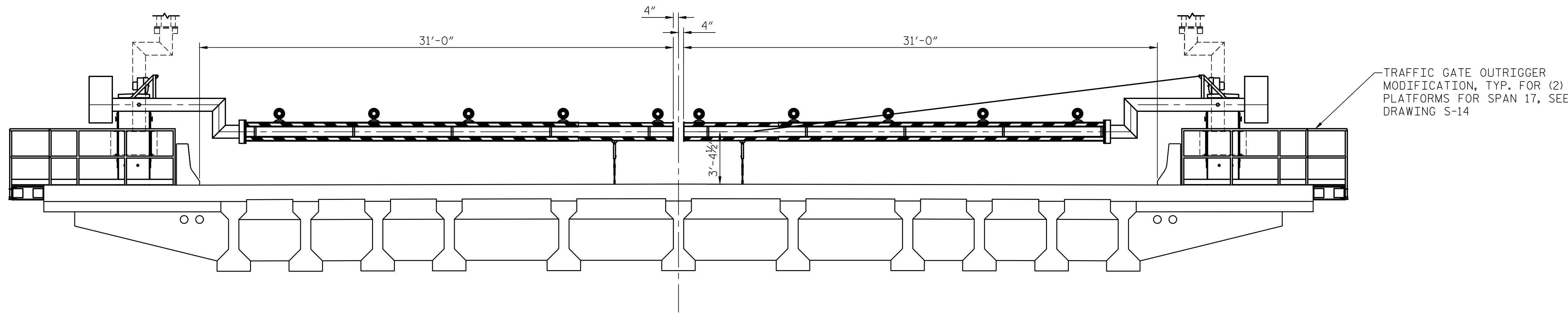


PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**TRAFFIC GATE
 DETAILS - 2**

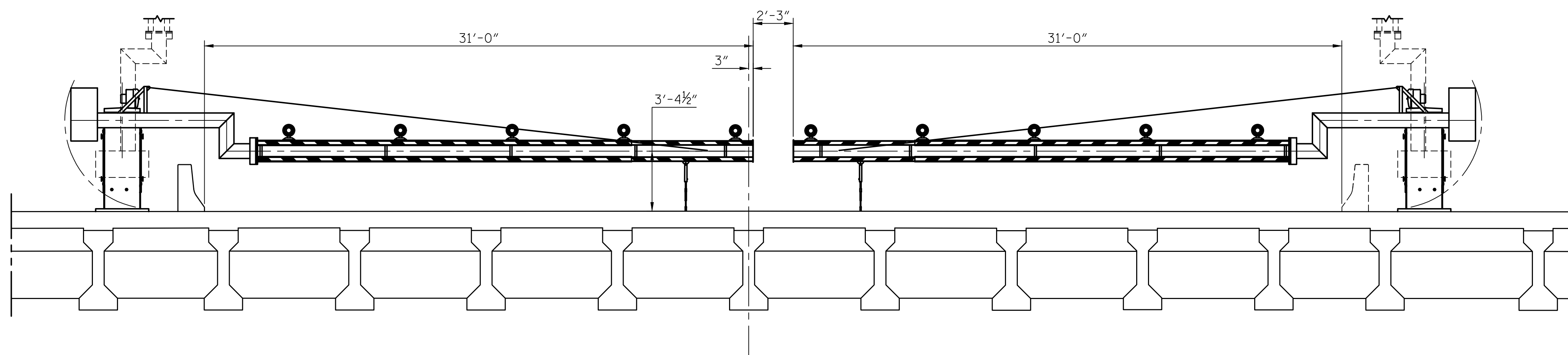
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-44
1			3			TOTAL SHEETS
2			4			213



**EAST APPROACH ELEVATION
BARRIER GATES
SPAN 17**

SCALE: 1/4"=1'-0"
(LOOKING WEST)



**EAST APPROACH ELEVATION
WARNING GATES
RAMP B, SPAN 19**

SCALE: 1/4"=1'-0"
(LOOKING WEST)

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS.
2. TO THE EXTENT POSSIBLE, GATE ARM LENGTHS SHALL BE SIZED TO MINIMIZE THE NUMBER OF ARM LENGTH VARIATIONS REQUIRED FOR SPARE PARTS.
3. RAMP B AND RAMP A ON-COMING GATES SHALL INCLUDE A GONG.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

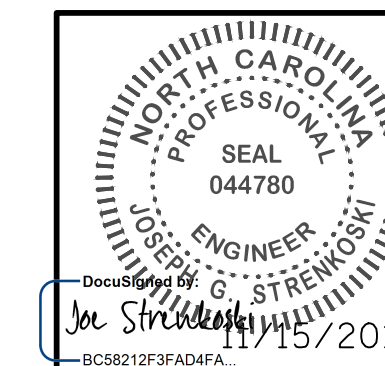
LAST SAVED 11/15/2018 11:34 AM BY AMBROSKI, LAST PLOTTED 11/15/2018 12:47 PM, FILE: \\mnc101\p\proj\15\15BPR14\15BPR14_SML_E45_640011

DESIGNED BY: R. I. PETERS DATE: 10/03/18
DRAWN BY: R. L. REED DATE: 10/04/18
CHECKED BY: L. V. BORDEN DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



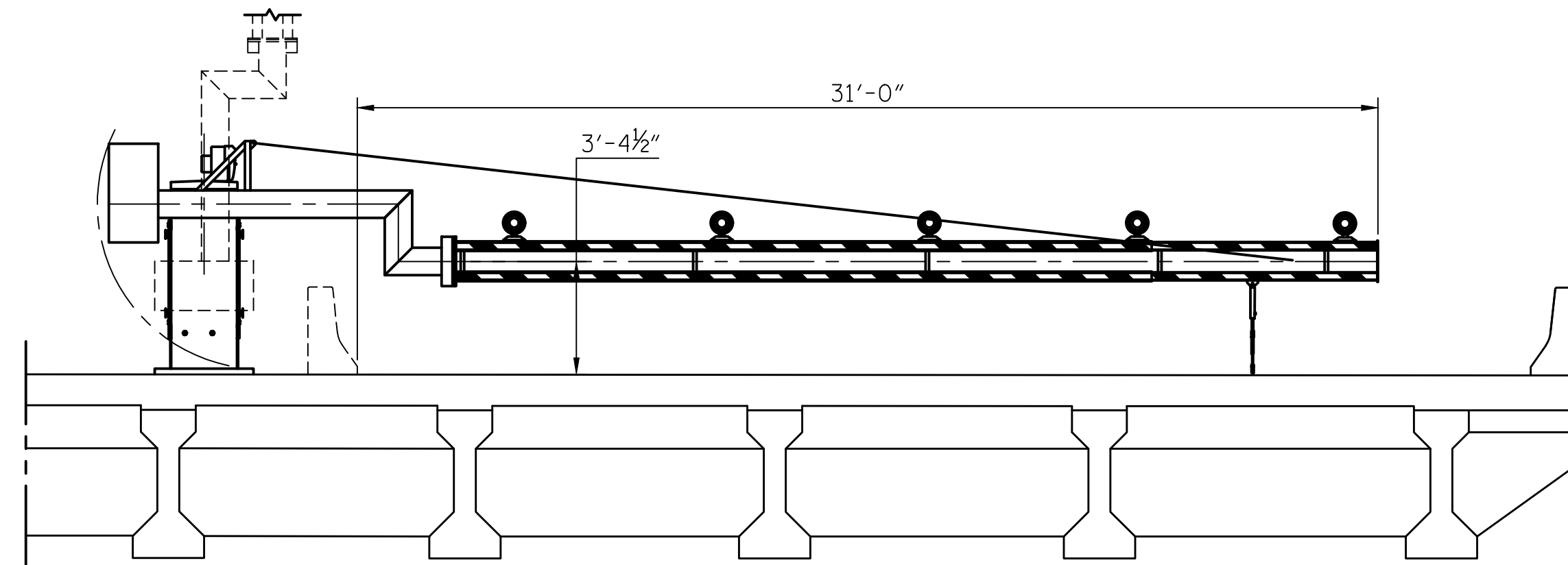
333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
**TRAFFIC GATE
DETAILS - 3**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-45
1			3			TOTAL SHEETS
2			4			213



EAST APPROACH ELEVATION
WARNING GATE
RAMP A, SPAN 19

SCALE: 1/4"=1'-0"
(LOOKING WEST)

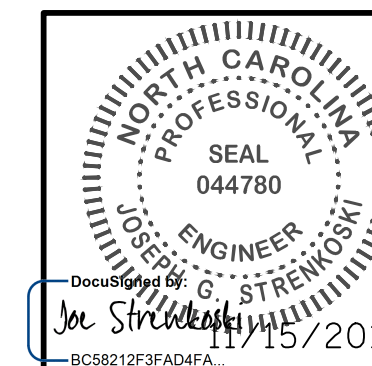
LAST SAVED 11/15/2018 11:35 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:47 PM.
FILE: \\mnc101\p\objects\3682\3\CADD\Electr\cadd\04_091_15BPR14_SWU.E46.640011

DESIGNED BY: R. I. PETERS DATE : 04/26/18
DRAWN BY: R. L. REED DATE : 04/26/18
CHECKED BY: L. V. BORDEN DATE : 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



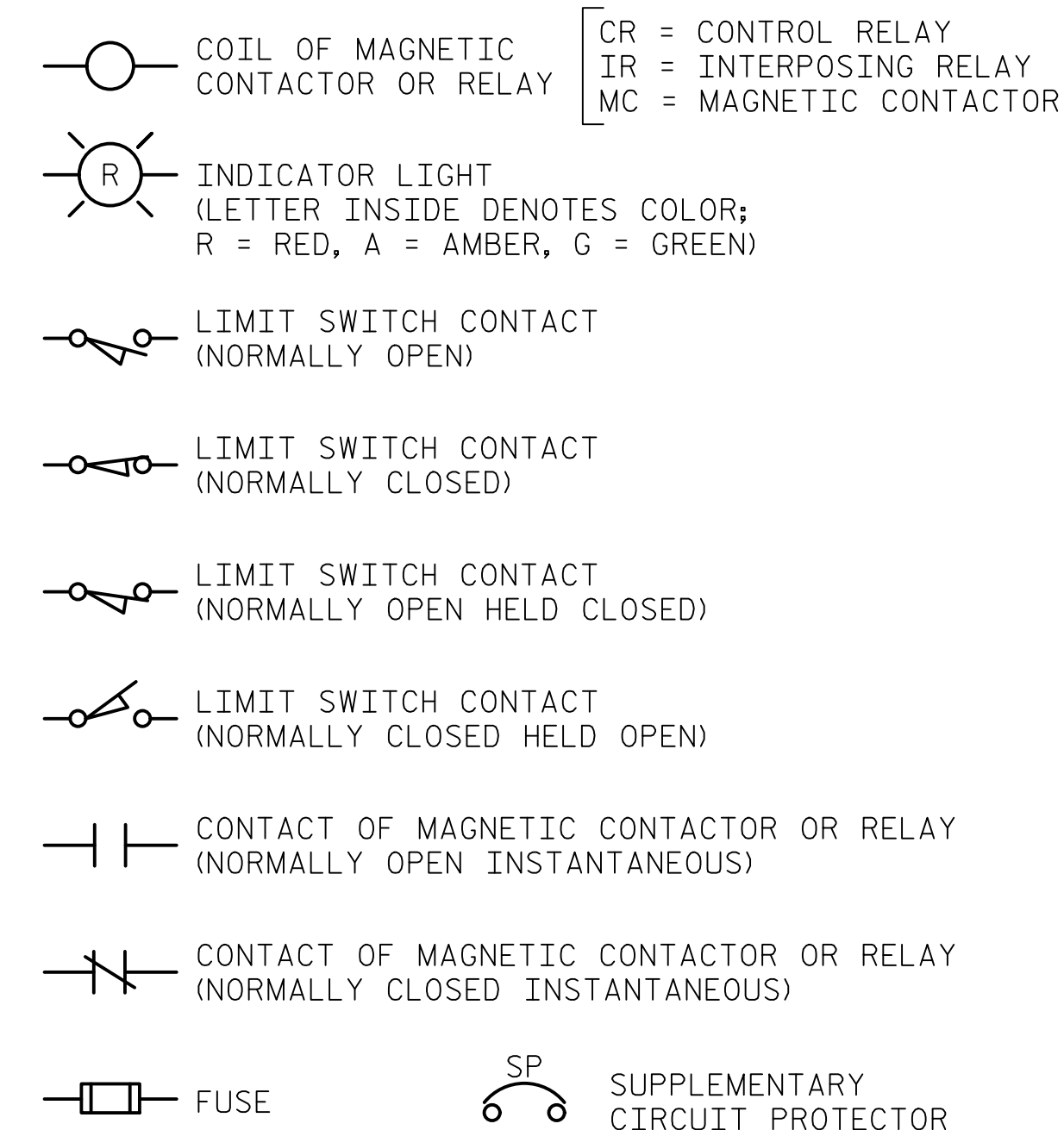
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELECTRICAL
TRAFFIC GATE
DETAILS - 4

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-46
1			3			TOTAL SHEETS
2			4			213

HARDWIRED SYMBOL LEGEND



GENERAL LEGEND

Table with 2 columns: SYMBOL and DESCRIPTION. Lists various components like ATN, CON, CP, CR, CS, DI, ES, FTS, HC, HMI, IL, IR, LS, MC, MCC, MD, OL, OS, PB, TMR, TS, UPS.

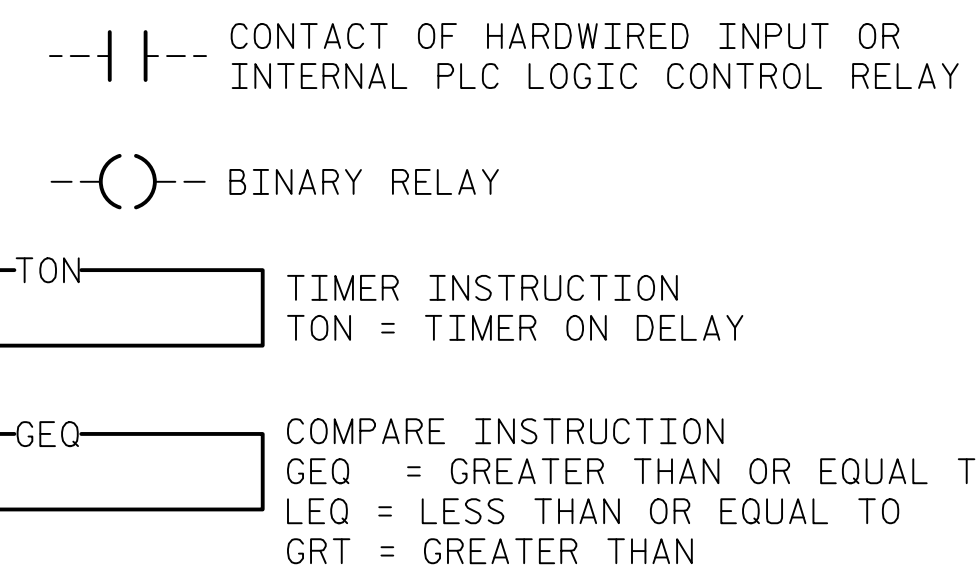
LOGIC INPUT LEGEND (CONTINUED)

Table with 3 columns: SYMBOL, DESCRIPTION, ADDRESS. Lists logic inputs such as CS-SC (L), CS-SC (R), CS-SEBBP, CS-SEGBP, CS-SLK1BP, CS-SLK2BP, CS-SLK3BP, CS-SLK4BP, CS-SWBPP, CS-SWGBP, CS-TS, FTS, LS-CLK1 (3), LS-CLK1 (4), LS-CLK1HC (2), LS-CLK2 (3), LS-CLK2 (4), LS-CLK2HC (2), LS-EB1HR (2), LS-EB1R (1), LS-EB1S (1), LS-EB2HR (2), LS-EB2R (1), LS-EB2S (1), LS-EB3HR (2), LS-EB3R (1), LS-EB3S (1), LS-EB4HR (2), LS-EB4R (1), LS-EB4S (1), LS-FAME(2), LS-FSSC (1), LS-FSSC (2), LS-FSSC (3), LS-FSSC (4), LS-FSSC (5), LS-FSSS (1), LS-MB1HR (2), LS-MB1R (1), LS-MB1S (1), LS-MB2HR (2), LS-MB2R (1), LS-MB2S (1), LS-MB3HR (2), LS-MB3R (1), LS-MB3S (1), LS-MB4HR (2), LS-MB4R (1), LS-MB4S (1), LS-NAME (2), LS-NEB (3), LS-NEB (4), LS-NEB (5), LS-RBG (3), LS-RBG (4), LS-RBG (5), LS-NSSC (1), LS-NSSC (2), LS-NSSC (3), LS-NSSC (4), LS-NSSC (5), LS-NSSS (1), LS-NWB (3), LS-NWB (4), LS-NWB (5).

LOGIC INPUT LEGEND (CONTINUED)

Table with 3 columns: SYMBOL, DESCRIPTION, ADDRESS. Lists logic inputs such as LS-NWG (3), LS-NWG (4), LS-NWG (5), LS-RAG (3), LS-RAG (4), LS-RAG (5), LS-SEB (3), LS-SEB (4), LS-SEB (5), LS-SEG (3), LS-SEG (4), LS-SEG (5), LS-SLK1D (3), LS-SLK1HC (2), LS-SLK1P (4), LS-SLK2D (3), LS-SLK2HC (2), LS-SLK2P (4), LS-SLK3D (3), LS-SLK3HC (2), LS-SLK3P (4), LS-SLK4D (3), LS-SLK4HC (2), LS-SLK4P (4), LS-SWB (3), LS-SWB (4), LS-SWB (5), LS-SWG (3), LS-SWG (4), LS-SWG (5), MD1-E, MD1-F, MD1-OL, MD1-R, MD1-SR, MD1-TR, MD2-E, MD2-F, MD2-OL, MD2-R, MD2-SR, MD2-TR, MD3-E, MD3-F, MD3-OL, MD3-R, MD3-SR, MD3-TR, MD4-E, MD4-F, MD4-OL, MD4-R, MD4-SR, MD4-TR.

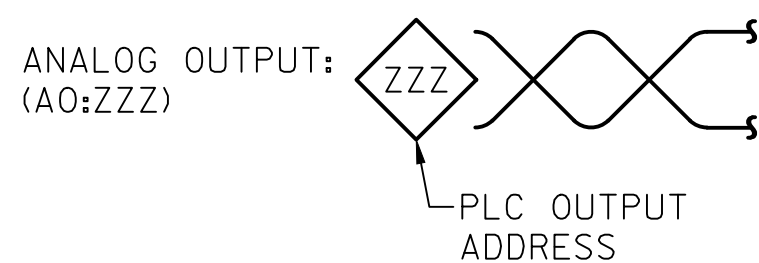
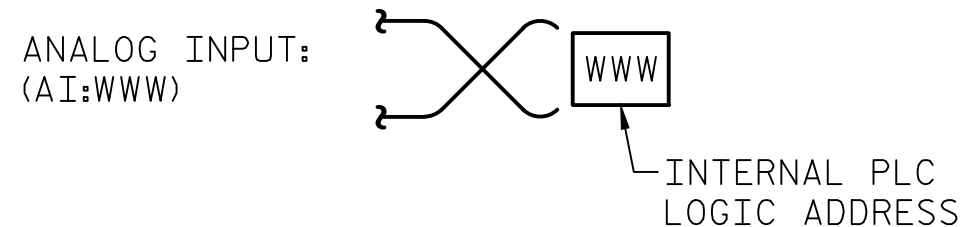
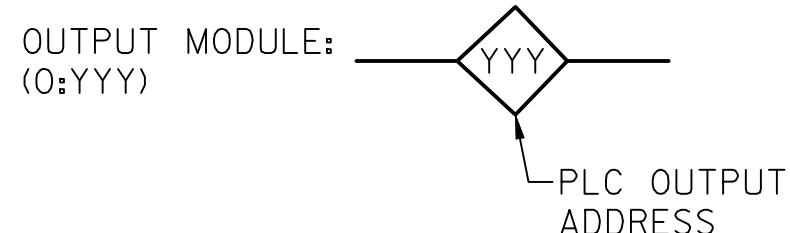
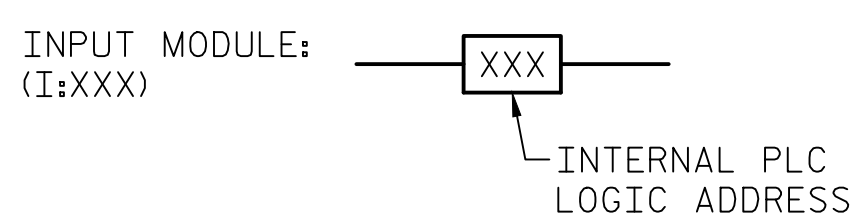
INTERNAL PLC LOGIC SYMBOL LEGEND



LOGIC INPUT LEGEND

Table with 3 columns: SYMBOL, DESCRIPTION, ADDRESS. Lists logic inputs such as ATN-G, ATN-GH, ATN-U, ATN-UH, BM1, BM2, CR-CP, CR-MD1, CR-MD2, CR-MD3, CR-MD4, CS-CLK1BP, CS-CLK2BP, CS-CM (A), CS-CM (M), CS-CP, CS-FOBP, CS-FSBP, CS-FSBTS (1), CS-FSBTS (2), CS-FSBTS (3), CS-FSBTS (4), CS-FSBTS (5), CS-FSSL (D), CS-FSSL (P), CS-HMI, CS-MSCFS (L), CS-MSCFS (R), CS-MSCNS (L), CS-MSCNS (R), CS-MSP, CS-NEBBP, CS-RBBP, CS-NSBTS (1), CS-NSBTS (2), CS-NSBTS (3), CS-NSBTS (4), CS-NSBTS (5), CS-NSSL (D), CS-NSSL (P), CS-NWBBP, CS-NWGBP, CS-RAGBP.

PLC I/O ADDRESS ASSIGNMENT



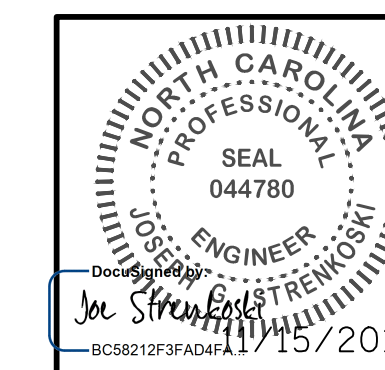
DESIGNED BY: N. K. BHINGE DATE: 05/07/18
DRAWN BY: R. L. REED DATE: 05/07/18
CHECKED BY: L. V. BORDEN DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION:



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
CONTROL CIRCUIT
LEGEND - 1

Table with 2 columns: REVISIONS and SHEET NO. Includes revision details and sheet number E-47.

LAST SAVED 11/15/2018 11:35 AM BY AMBRODOKSY... LAST PLOTTED 11/15/2018 12:47 PM... FILE: \\nmc1010\proj\chgs\3682\03\CADD\Electrical\15BPR14_SML1E47_640011

LOGIC INPUT LEGEND (CONTINUED)

SYMBOL	DESCRIPTION	ADDRESS
OL-CLK1	CENTER LOCK 1, MOTOR OVERLOAD	I:203
OL-CLK2	CENTER LOCK 2, MOTOR OVERLOAD	I:111
OL-EB1	EMERGENCY BRAKE 1, MOTOR OVERLOAD	I:196
OL-EB2	EMERGENCY BRAKE 2, MOTOR OVERLOAD	I:206
OL-EB3	EMERGENCY BRAKE 3, MOTOR OVERLOAD	I:112
OL-EB4	EMERGENCY BRAKE 4, MOTOR OVERLOAD	I:113
OL-MB1	MOTOR BRAKE 1, MOTOR OVERLOAD	I:197
OL-MB2	MOTOR BRAKE 2, MOTOR OVERLOAD	I:199
OL-MB3	MOTOR BRAKE 3, MOTOR OVERLOAD	I:201
OL-MB4	MOTOR BRAKE 4, MOTOR OVERLOAD	I:204
OL-NEB	NORTHEAST BARRIER GATE, MOTOR OVERLOAD	I:120
OL-NWB	NORTHWEST BARRIER GATE, MOTOR OVERLOAD	I:122
OL-NWG	NORTHWEST GATE, MOTOR OVERLOAD	I:129
OL-RAG	RAMP A GATE, MOTOR OVERLOAD	I:130
OL-RBG	RAMP B GATE, MOTOR OVERLOAD	I:121
OL-SEB	SOUTHEAST BARRIER GATE, MOTOR OVERLOAD	I:123
OL-SEG	SOUTHEAST GATE, MOTOR OVERLOAD	I:127
OL-SLK1	SPAN LOCK 1, MOTOR OVERLOAD	I:198
OL-SLK2	SPAN LOCK 2, MOTOR OVERLOAD	I:200
OL-SLK3	SPAN LOCK 3, MOTOR OVERLOAD	I:202
OL-SLK4	SPAN LOCK 4, MOTOR OVERLOAD	I:205
OL-SWB	SOUTHWEST BARRIER GATE, MOTOR OVERLOAD	I:124
OL-SWG	SOUTHWEST GATE, MOTOR OVERLOAD	I:125
PB-AS	ALARM SILENCE	I:548
PB-BTFS	FARSIDE BRAKE TEST	I:507
PB-BTNS	NEARSIDE BRAKE TEST	I:543
PB-ES1	EMERGENCY STOP, PLC PANEL	I:100
PB-ES2	EMERGENCY STOP, OPERATORS CONSOLE	I:500
PB-FR	ALARM FAULT RESET	I:522
PB-GMLB	ALL BARRIER GATES, MASTER LOWER	I:508
PB-GMRB	ALL BARRIER GATES, MASTER RAISE	I:509
PB-GMRG	ALL GATES, MASTER RAISE	I:518
PB-LNEG	NORTHEAST GATE, LOWER	I:504
PB-LNWG	NORTHWEST GATE, LOWER	I:510
PB-LRAG	RAMP A GATE, LOWER	I:511
PB-LSEG	SOUTHEAST GATE, LOWER	I:512
PB-LSWG	SOUTHWEST GATE, LOWER	I:506
PB-LT	LAMP TEST	I:549
PB-NS	NORMAL STOP	I:524
PB-RRAG	RAMP A GATE, RAISE	I:513
RAGP	RAMP A GATE PERMISSIVE	I:131
RATSG	RAMP A TRAFFIC SIGNAL, GREEN	I:132
RATSY	RAMP A TRAFFIC SIGNAL, YELLOW	I:134
RATSR	RAMP A TRAFFIC SIGNAL, RED	I:133
RBTSYG	RAMP B TRAFFIC SIGNAL, GREEN	I:138
RBTSY	RAMP B TRAFFIC SIGNAL, YELLOW	I:140
RBTSR	RAMP B TRAFFIC SIGNAL, RED	I:139
UPS-A	PLC PANEL UPS, LOW BATTERY WARNING	I:212
UPS-B	UPS, ON BATTERY POWER (POWER LOST ALARM)	I:213
UPFS-A	CONT. CONSOLE UPS, LOW BATTERY WARNING	I:331
UPFS-B	UPS, ON BATTERY POWER (POWER LOST ALARM)	I:332

PLC LOGIC BINARY LEGEND

SYMBOL	DESCRIPTION
ABR	ALL BARRIER GATES RAISED
ABGL	ALL BARRIER/TRAFFIC GATES LOWERED
ABL	ALL BARRIER GATES LOWERED
ACF	AUXILIARY DRIVE CLUTCH FAULT
ACL	ALL CENTER LOCKS DRIVEN

PLC LOGIC BINARY LEGEND (CONTINUED)

ACLP	ALL CENTER LOCKS PULLED
AGL	ALL TRAFFIC GATES LOWERED
AGR	ALL TRAFFIC GATES RAISED (EX A)
ALD	ALL LOCKS DRIVEN (CENTER & SPAN)
AFSSLD	ALL FAR SPAN, SPAN LOCKS DRIVEN
AFSSLP	ALL FAR SPAN, SPAN LOCKS PULLED
ANSSLD	ALL NEAR SPAN, SPAN LOCKS DRIVEN
ANSSLP	ALL NEAR SPAN, SPAN LOCKS PULLED
ASLD	ALL SPAN LOCKS DRIVEN
ASLP	ALL SPAN LOCKS PULLED
ATSR	ALL TRAFFIC SIGNALS RED
BHRS	BRAKES HAND RELEASED SHUTDOWN
BMF	BUS MONITOR FAULT
BRP	BRIDGE RUN PERMISSIVE
BTF	BRAKE TEST FARSIDE
BTN	BRAKE TEST NEARSIDE
CMA	CONTROL MODE AUTO
CMM	CONTROL MODE MANUAL
DF	DEVICE FAULT
ERTFS	EXCESSIVE RUN TIME FAR SPAN
ERTNS	EXCESSIVE RUN TIME NEAR SPAN
FCFS	FULLY CLOSED, FAR SPAN
FCNS	FULLY CLOSED, NEAR SPAN
FOBP	BRIDGE FULLY OPEN BYPASS
FOFS	FULLY OPEN, FAR SPAN
FONS	FULLY OPEN, NEAR SPAN
FO	BRIDGE FULLY OPEN, NEAR & FAR
FOBP	FULLY OPEN BYPASS
FS	BRIDGE FULLY SEATED, NEAR & FAR
FSFS	FULLY SEATED, FAR SPAN
FSNS	FULLY SEATED, NEAR SPAN
FR	FAULT RESET
FSBP	FULLY SEATED BYPASS
GBOL	TRAFFIC/BARRIER GATE MOTOR O.L.
GMLB	BARRIER GATES MASTER LOWER, ALL
GMRB	BARRIER GATES MASTER RAISE, ALL
GMRG	TRAFFIC GATES MASTER RAISE (EX. A)
IL	ENABLE CONSOLE INDICATOR LIGHTS
LT	INDICATOR LIGHT TEST FUNCTION
LSF	LIMIT SWITCH FAULT
MAF	MAJOR FAULT PRESENT
MDF	MAIN DRIVE FAULT
MDOL	MAIN DRIVE BRAKE RESISTOR OL
MDFSOK	MAIN DRIVE FARSIDE OK
MDFSRN	MAIN DRIVE FARSIDE RUNNING
MDNSOK	MAIN DRIVE NEARSIDE OK
MDNSRN	MAIN DRIVE NEARSIDE RUNNING
MIF	MINOR FAULT PRESENT
ML	MASTER LOWER
MMSS	MANUAL MODE, SLOW SPEED
MR	MASTER RAISE
NCFS	NEARLY CLOSED, FAR SPAN
NCNS	NEARLY CLOSED, NEAR SPAN
NOFS	NEARLY OPEN, FAR SPAN
NONS	NEARLY OPEN, NEAR SPAN
NOBOL	NO BRAKE MOTOR OVERLOADS
NOCL	NO CLUTCHES FOR AUX DRIVES CONN.
NOHRB	NO HAND RELEASED BRAKES
NOHC	NO HAND CRANKS INSERTED
NOOL	NO MOTOR OVERLOADS (BRAKE/LOCK)
NOSL	NO LOCK MOTOR OVERLOADS

PLC LOGIC BINARY LEGEND (CONTINUED)

NS	NORMAL STOP
OSNS	OVER SPEED, NEAR SPAN
OSFS	OVER SPEED, FAR SPAN
OTFS	OVER TRAVEL, FAR SPAN
OTNS	OVER TRAVEL, NEAR SPAN
OTS	SPAN OVER TRAVEL, SHUTDOWN
RFSB	RELEASE ALL FARSIDE BRAKES
RNSB	RELEASE ALL NEARSIDE BRAKES
RF	RESOLVER FAULT
RFFS	RESOLVER FAULT, FAR SPAN
RFNS	RESOLVER FAULT, NEAR SPAN
RSZ	RESOLVERS, RESET ZERO
UPSF	UPS FAULT (RUNNING ON BATTERY)

PLC LOGIC TIMER LEGEND

SYMBOL	DESCRIPTION	ADDRESS
TMR-BMF	BUS MONITOR OFF (FAULT)	T105
TMR-CP	CONTROL POWER ON DELAY	T107
TMR-ERTF	EXCESSIVE RUN TIME, FAR MAIN DRIVE	T132
TMR-ERTN	EXCESSIVE RUN TIME, NEAR MAIN DRIVE	T130
TMR-TSY	TRAFFIC SIGNAL YELLOW TIME	T100
TMR-FSFS1	FAR SPAN FULLY SEATED TIMER 1	T114
TMR-FSFS2	FAR SPAN FULLY SEATED TIMER 2	T116
TMR-FSNS1	NEAR SPAN FULLY SEATED TIMER 1	T110
TMR-FSNS2	NEAR SPAN FULLY SEATED TIMER 2	T112
TMR-MDFS	FARSIDE MAIN DRIVE ENABLE	T120
TMR-MDFS1	FARSIDE MAIN DRIVE LOWER ON DELAY	T126
TMR-MDFS2	FARSIDE MAIN DRIVE RAISE ON DELAY	T128
TMR-MDNS	NEARSIDE MAIN DRIVE ENABLE	T118
TMR-MDNS1	NEARSIDE MAIN DRIVE LOWER ON DELAY	T122
TMR-MDNS2	NEARSIDE MAIN DRIVE RAISE ON DELAY	T124

HARDWIRED DEVICES LEGEND

SYMBOL	DESCRIPTION
CON-MD1	MAIN DRIVE 1 CONTACTOR
CON-MD2	MAIN DRIVE 2 CONTACTOR
CON-MD3	MAIN DRIVE 3 CONTACTOR
CON-MD4	MAIN DRIVE 4 CONTACTOR
CR-ES	EMERGENCY STOP CONTROL RELAY
CR-FAMCL	FARSIDE AUX. DRIVE CLUTCH ENGAGED
CR-PLCA	SELECT PLC A (PRIMARY)
CR-PLCB	SELECT PLC B (BACKUP)
CR-MD1	SELECT MAIN DRIVE 1
CR-MD2	SELECT MAIN DRIVE 2
CR-MD3	SELECT MAIN DRIVE 3
CR-MD4	SELECT MAIN DRIVE 4
CR-NAMCL	NEARSIDE AUX. DRIVE CLUTCH ENGAGED
CR-NAV	SPAN NAVIGATION LIGHTS
CS-ATS	AUTOMATIC TRANSFER SWITCH ENABLE
CS-FSDS	FARSIDE DRIVE SELECT, 3 / 4
CS-NSDS	NEARSIDE DRIVE SELECT, 1 / 2
CS-PLC	SELECT PLC A OR PLC B
OL-MD1BR	MAIN DRIVE 1 BRAKE RESISTOR O.L.
OL-MD2BR	MAIN DRIVE 2 BRAKE RESISTOR O.L.
OL-MD3BR	MAIN DRIVE 3 BRAKE RESISTOR O.L.
OL-MD4BR	MAIN DRIVE 4 BRAKE RESISTOR O.L.
TMR-CFL	CHANNEL FLOOD LIGHT TIMER

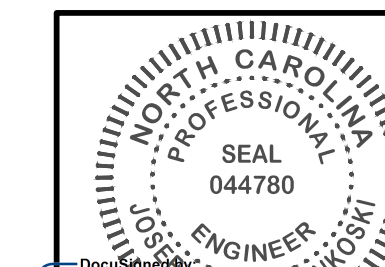
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELECTRICAL
 CONTROL CIRCUIT
 LEGEND - 2



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



11/15/2018

DESIGNED BY: N. K. BHINGE DATE: 05/08/18
 DRAWN BY: R. L. REED DATE: 05/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-48
1			3			TOTAL SHEETS
2			4			213

LOGIC OUTPUT LEGEND

SYMBOL	DESCRIPTION	ADDRESS
AL	ALARM BUZZER	0:700
CR-GNF	FARSIDE TRAFFIC GATE GONG	0:602
CR-GNN	NEARSIDE TRAFFIC GATE GONG	0:402
CR-HCOFS3	FARSIDE MAIN MOTOR 3 HEATER CUT-OUT	0:603
CR-HCOFS4	FARSIDE MAIN MOTOR 4 HEATER CUT-OUT	0:604
CR-HCONS1	NEARSIDE MAIN MOTOR 1 HEATER CUT-OUT	0:449
CR-HCONS2	NEARSIDE MAIN MOTOR 2 HEATER CUT-OUT	0:450
CR-HTCO	PIPE HEAT TRACE CUT-OUT	0:403
CR-RAGR	RAMP A TRAFFIC GATE RAISED	0:422
CR-TSR	WEST TRAFFIC SIGNAL RED	0:401
CR-TSRF	WEST TRAFFIC SIGNAL RED (FARSIDE)	0:605
CR-TSY	WEST TRAFFIC SIGNAL YELLOW	0:400
IL-ABGL	ALL BARRIER GATES LOWERED	0:756
IL-ABGR	ALL BARRIER GATES RAISED	0:757
IL-ATGR	ALL TRAFFIC GATES RAISED	0:726
IL-ATSG	ATS, GENERATOR SELECTED	0:701
IL-ATSGH	ATS, GENERATOR POWER AVAILABLE	0:702
IL-ATSU	ATS, UTILITY SELECTED	0:703
IL-ATSUH	ATS, UTILITY POWER AVAILABLE	0:704
IL-AUT	AUTOMATIC MODE	0:705
IL-BM	BUS MONITOR OK	0:706
IL-BMF	BUS MONITOR FAULT	0:707
IL-BOL	BRAKE MOTOR OVERLOAD FAULT	0:723
IL-BRP	BRIDGE RUN PERMISSIVE	0:708
IL-CLD	CENTER LOCKS DRIVEN	0:764
IL-CLP	CENTER LOCKS PULLED	0:766
IL-CP	CONTROL POWER IS ON	0:709
IL-EB1HR	EMERGENCY BRAKE 1 HAND RELEASED	0:711
IL-EB1R	EMERGENCY BRAKE 1 RELEASED	0:712
IL-EB1S	EMERGENCY BRAKE 1 SET	0:713
IL-EB2HR	EMERGENCY BRAKE 2 HAND RELEASED	0:779
IL-EB2R	EMERGENCY BRAKE 2 RELEASED	0:780
IL-EB2S	EMERGENCY BRAKE 2 SET	0:781
IL-EB3HR	EMERGENCY BRAKE 3 HAND RELEASED	0:767
IL-EB3R	EMERGENCY BRAKE 3 RELEASED	0:768
IL-EB3S	EMERGENCY BRAKE 3 SET	0:769
IL-EB4HR	EMERGENCY BRAKE 4 HAND RELEASED	0:787
IL-EB4R	EMERGENCY BRAKE 4 RELEASED	0:788
IL-EB4S	EMERGENCY BRAKE 4 SET	0:789
IL-EXT	EXCESSIVE TIME (TO OPEN OR CLOSE BRIDGE)	0:722
IL-FAME	FAR AUXILIARY DRIVE CLUTCH ENGAGED	0:778
IL-FSSFO	FAR SPAN FULLY OPEN	0:782
IL-FSSFS	FAR SPAN FULLY SEATED	0:783
IL-FSSLD	FAR SPAN LOCKS DRIVEN	0:761
IL-FSSLP	FAR SPAN LOCKS PULLED	0:763
IL-FSSNC	FAR SPAN NEARLY CLOSED	0:784
IL-FSSNO	FAR SPAN NEARLY OPEN	0:785
IL-FSSOT	FAR SPAN OVER-TRAVEL OPEN	0:786
IL-GBOL	TRAFFIC GATE/BARRIER MOTOR O.L. FAULT	0:754
IL-LOL	LOCK MOTOR O.L. FAULT	0:724
IL-MAN	MANUAL MODE	0:741
IL-MB1HR	MOTOR BRAKE 1 HAND RELEASED	0:727
IL-MB1R	MOTOR BRAKE 1 RELEASED	0:728
IL-MB1S	MOTOR BRAKE 1 SET	0:729
IL-MB2HR	MOTOR BRAKE 2 HAND RELEASED	0:735
IL-MB2R	MOTOR BRAKE 2 RELEASED	0:736
IL-MB2S	MOTOR BRAKE 2 SET	0:737
IL-MB3HR	MOTOR BRAKE 3 HAND RELEASED	0:758

LOGIC OUTPUT LEGEND (CONTINUED)

IL-MB3R	MOTOR BRAKE 3 RELEASED	0:759
IL-MB3S	MOTOR BRAKE 3 SET	0:760
IL-MB4HR	MOTOR BRAKE 4 HAND RELEASED	0:772
IL-MB4R	MOTOR BRAKE 4 RELEASED	0:773
IL-MB4S	MOTOR BRAKE 4 SET	0:774
IL-MDFSE	MAIN DRIVE FARSIDE, ENABLED/READY	0:748
IL-MDFSF	MAIN DRIVE FARSIDE, FAULT	0:749
IL-MDFSL	MAIN DRIVE FARSIDE, LOWERING SPAN	0:750
IL-MDFSOS	MAIN DRIVE FARSIDE, OVER SPEED	0:751
IL-MDFSR	MAIN DRIVE FARSIDE, RAISING SPAN	0:752
IL-MDNSE	MAIN DRIVE NEARSIDE, ENABLED/READY	0:742
IL-MDNSF	MAIN DRIVE NEARSIDE, FAULT	0:743
IL-MDNSL	MAIN DRIVE NEARSIDE, LOWERING SPAN	0:744
IL-MDNSOS	MAIN DRIVE NEARSIDE, OVER SPEED	0:746
IL-MDNSR	MAIN DRIVE NEARSIDE, RAISING SPAN	0:747
IL-ML	MASTER LOWER	0:790
IL-MR	MASTER RAISE	0:791
IL-NAME	NEAR AUXILIARY DRIVE CLUTCH ENGAGED	0:710
IL-NSSFO	NEAR SPAN FULLY OPEN	0:714
IL-NSSFS	NEAR SPAN FULLY SEATED	0:715
IL-NSSLD	NEAR SPAN LOCKS DRIVEN	0:730
IL-NSSLP	NEAR SPAN LOCKS PULLED	0:732
IL-NSSNC	NEAR SPAN NEARLY CLOSED	0:716
IL-NSSNO	NEAR SPAN NEARLY OPEN	0:717
IL-NSSOT	NEAR SPAN OVER-TRAVEL OPEN	0:718
IL-NWGL	FAR OFFGOING (NW) TRAFFIC GATE LOWERED	0:731
IL-RAGL	RAMP A TRAFFIC GATE LOWERED	0:733
IL-RAGP	RAMP A TRAFFIC GATE PERMISSIVE	0:725
IL-RAGR	RAMP A GATE RAISED	0:734
IL-RATSG	RAMP A TRAFFIC SIGNAL GREEN	0:738
IL-RATSR	RAMP A TRAFFIC SIGNAL RED	0:739
IL-RATSY	RAMP A TRAFFIC SIGNAL YELLOW	0:740
IL-RBGL	RAMP B TRAFFIC GATE LOWERED	0:745
IL-RBTSG	RAMP B TRAFFIC SIGNAL GREEN	0:775
IL-RBTSR	RAMP B TRAFFIC SIGNAL RED	0:776
IL-RBTSY	RAMP B TRAFFIC SIGNAL YELLOW	0:777
IL-RF	RESOLVER FAULT	0:755
IL-SEGL	NEAR OFFGOING (SE) TRAFFIC GATE RAISED	0:770
IL-SWGL	FAR ONCOMING (SW) TRAFFIC GATE RAISED	0:771
IL-TSG	FARSIDE TRAFFIC SIGNAL GREEN	0:719
IL-TSR	FARSIDE TRAFFIC SIGNAL RED	0:720
IL-TSY	FARSIDE TRAFFIC SIGNAL YELLOW	0:721
IR-DCL1	DRIVE CENTER LOCK 1	0:420
IR-DCL2	DRIVE CENTER LOCK 2	0:457
IR-DSLK1	DRIVE SPAN LOCK 1	0:423
IR-DSLK2	DRIVE SPAN LOCK 2	0:425
IR-DSLK3	DRIVE SPAN LOCK 3	0:424
IR-DSLK4	DRIVE SPAN LOCK 4	0:426
IR-LNEB	LOWER NORTHEAST BARRIER GATE	0:412
IR-LNWB	LOWER NORTHWEST BARRIER GATE	0:413
IR-LNWG	LOWER FAR OFFGOING (NW) TRAFFIC GATE	0:453
IR-LRAG	LOWER RAMP A TRAFFIC GATE	0:406
IR-LRBG	LOWER RAMP B TRAFFIC GATE	0:408
IR-LSEB	LOWER SOUTHEAST BARRIER GATE	0:414
IR-LSEG	LOWER NEAR OFFGOING (SE) TRAFFIC GATE	0:455
IR-LSWB	LOWER SOUTHWEST BARRIER GATE	0:415
IR-LSWG	LOWER FAR ONCOMING (SW) TRAFFIC GATE	0:409
IR-MDFSCS	MAIN DRIVE FARSIDE, CREEP SPEED	0:443
IR-MDFSE	MAIN DRIVE FARSIDE, ENABLE	0:444

LOGIC OUTPUT LEGEND (CONTINUED)

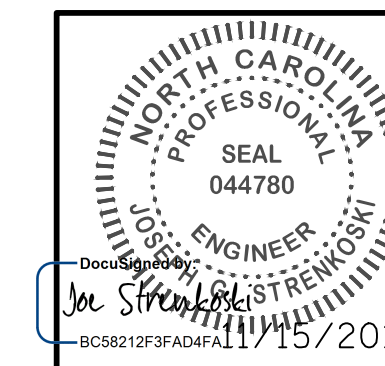
IR-MDFSJS	MAIN DRIVE FARSIDE, JOG SPEED	0:445
IR-MDFSL	MAIN DRIVE FARSIDE, LOWER	0:446
IR-MDFSR	MAIN DRIVE FARSIDE, RAISE	0:447
IR-MDFST	MAIN DRIVE FAR, REDUCED (SEATING) TORQUE	0:448
IR-MDNCS	MAIN DRIVE NEARSIDE, CREEP SPEED	0:437
IR-MDNSE	MAIN DRIVE NEARSIDE, ENABLE	0:438
IR-MDNSJS	MAIN DRIVE NEARSIDE, JOG SPEED	0:439
IR-MDNSL	MAIN DRIVE NEARSIDE, LOWER	0:440
IR-MDNSR	MAIN DRIVE NEARSIDE, RAISE	0:441
IR-MDNST	MAIN DRIVE NEAR, REDUCED (SEATING) TORQUE	0:442
IR-PCL1	PULL CENTER LOCK 1	0:421
IR-PCL2	PULL CENTER LOCK 2	0:458
IR-PSLK1	PULL SPAN LOCK 1	0:427
IR-PSLK2	PULL SPAN LOCK 2	0:429
IR-PSLK3	PULL SPAN LOCK 3	0:428
IR-PSLK4	PULL SPAN LOCK 4	0:430
IR-REB1	RELEASE EMERGENCY BRAKE 1	0:431
IR-REB2	RELEASE EMERGENCY BRAKE 2	0:459
IR-REB3	RELEASE EMERGENCY BRAKE 3	0:432
IR-REB4	RELEASE EMERGENCY BRAKE 4	0:460
IR-RMB1	RELEASE MOTOR BRAKE 1	0:433
IR-RMB2	RELEASE MOTOR BRAKE 2	0:435
IR-RMB3	RELEASE MOTOR BRAKE 3	0:434
IR-RMB4	RELEASE MOTOR BRAKE 4	0:436
IR-RNEB	RAISE NORTHEAST BARRIER GATE	0:416
IR-RNWB	RAISE NORTHWEST BARRIER GATE	0:417
IR-RNWG	RAISE FAR OFFGOING (NW) TRAFFIC GATE	0:454
IR-RRAG	RAISE RAMP A GATE	0:407
IR-RRBG	RAISE RAMP B GATE	0:410
IR-RSEB	RAISE SOUTHEAST BARRIER GATE	0:418
IR-RSEG	RAISE NEAR OFFGOING (SE) TRAFFIC GATE	0:456
IR-RSWB	RAISE SOUTHWEST BARRIER GATE	0:419
IR-RSWG	RAISE FAR ONCOMING (SW) TRAFFIC GATE	0:411

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**CONTROL CIRCUIT
 LEGEND - 3**



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



DESIGNED BY: N. K. BHINGE DATE: 05/09/18
 DRAWN BY: R. L. REED DATE: 05/09/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

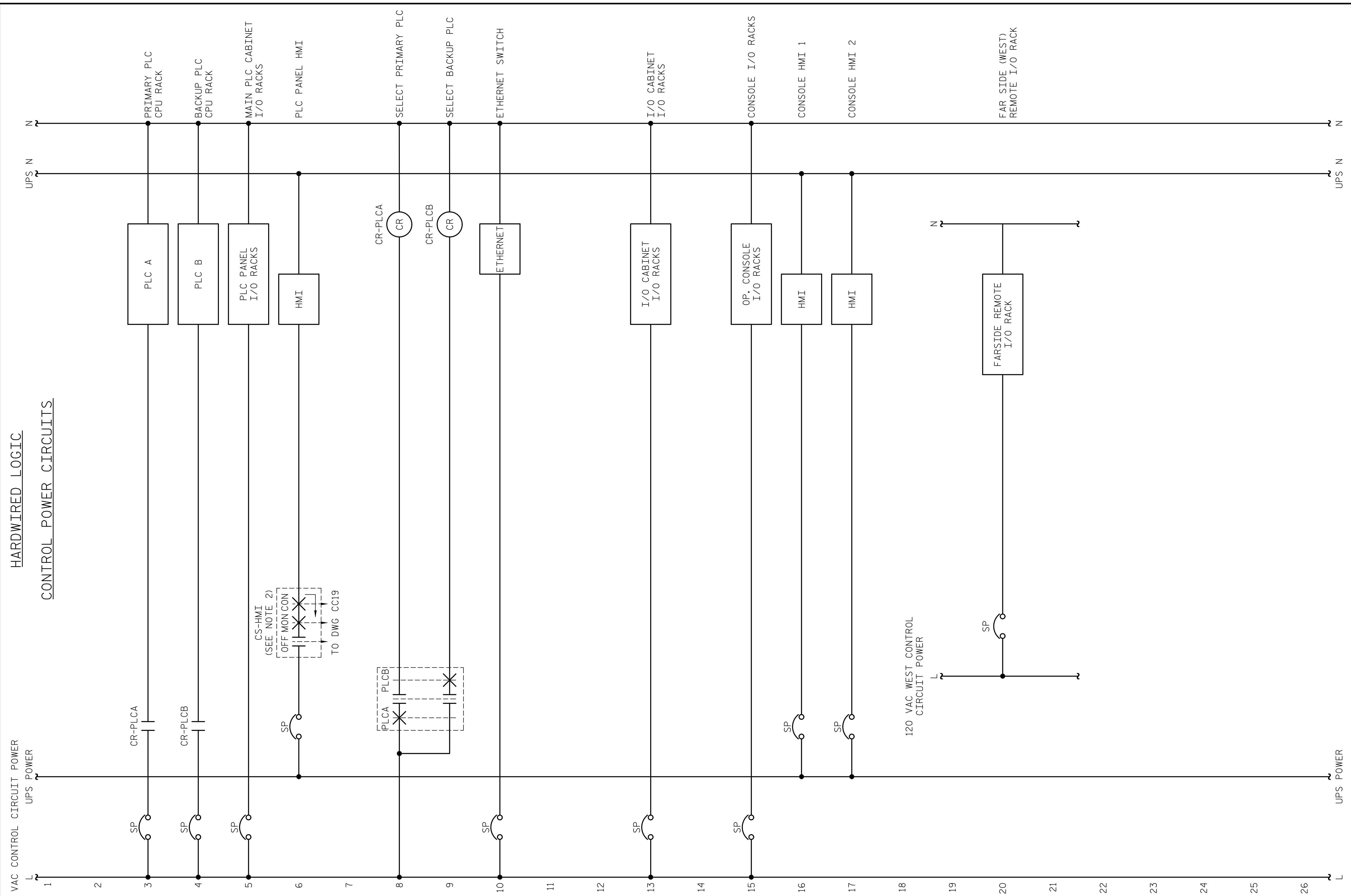
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-49
1			3			TOTAL SHEETS
2			4			213

+

+

LAST SAVED 11/15/2018 11:36 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:48 PM... FILE: \\mmod10\p\proj\ts\3682\03\CADD\Electrical\04_099_15BPR14_SMU_E50_640011

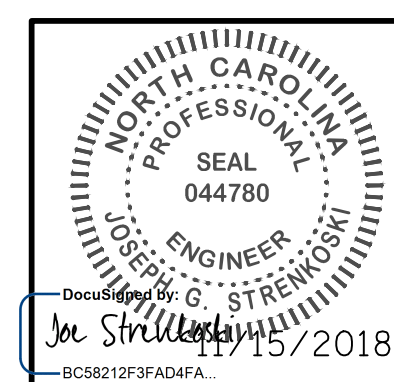


HARDWIRED LOGIC
CONTROL POWER CIRCUITS

120 VAC CONTROL CIRCUIT POWER
UPS POWER

UPS POWER

DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/06/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



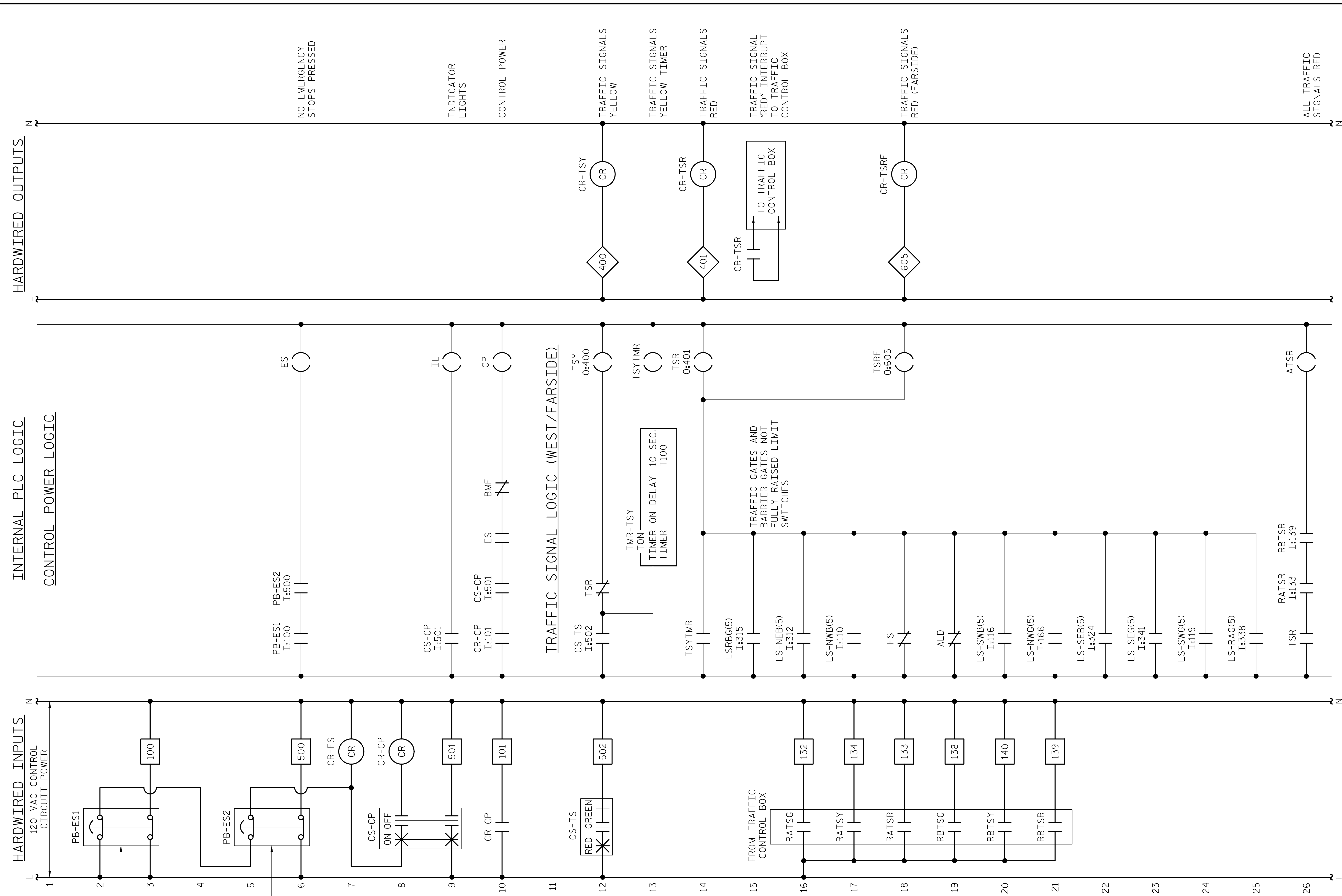
- NOTES:**
1. THE PLC SWITCHING CIRCUITRY SHALL ALLOW ONLY ONE PER PROCESSOR AT A TIME TO BE POWERED ON AND CONNECTED TO REMOTE I/O NETWORK.
 2. LOCATE SWITCH "CS-HMI" INSIDE THE PLC CABINET.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-50 TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

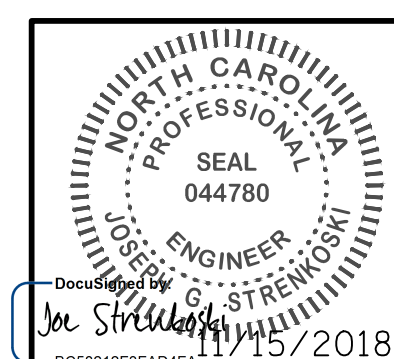
LAST SAVED 11/15/2018 11:36 AM BY AMBRODSKY... LAST PLOTTED 11/15/2018 12:48 PM... FILE: \\mmcd101\p\proj\ts\3682\03\CADD\Electrical\104_101_15BPR14_SMU_E51_64001



NOTES:
 1. EACH EMERGENCY STOP PUSHBUTTON SHALL BE WIRED TO ILLUMINATE WHEN IT HAS BEEN PRESSED.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/06/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

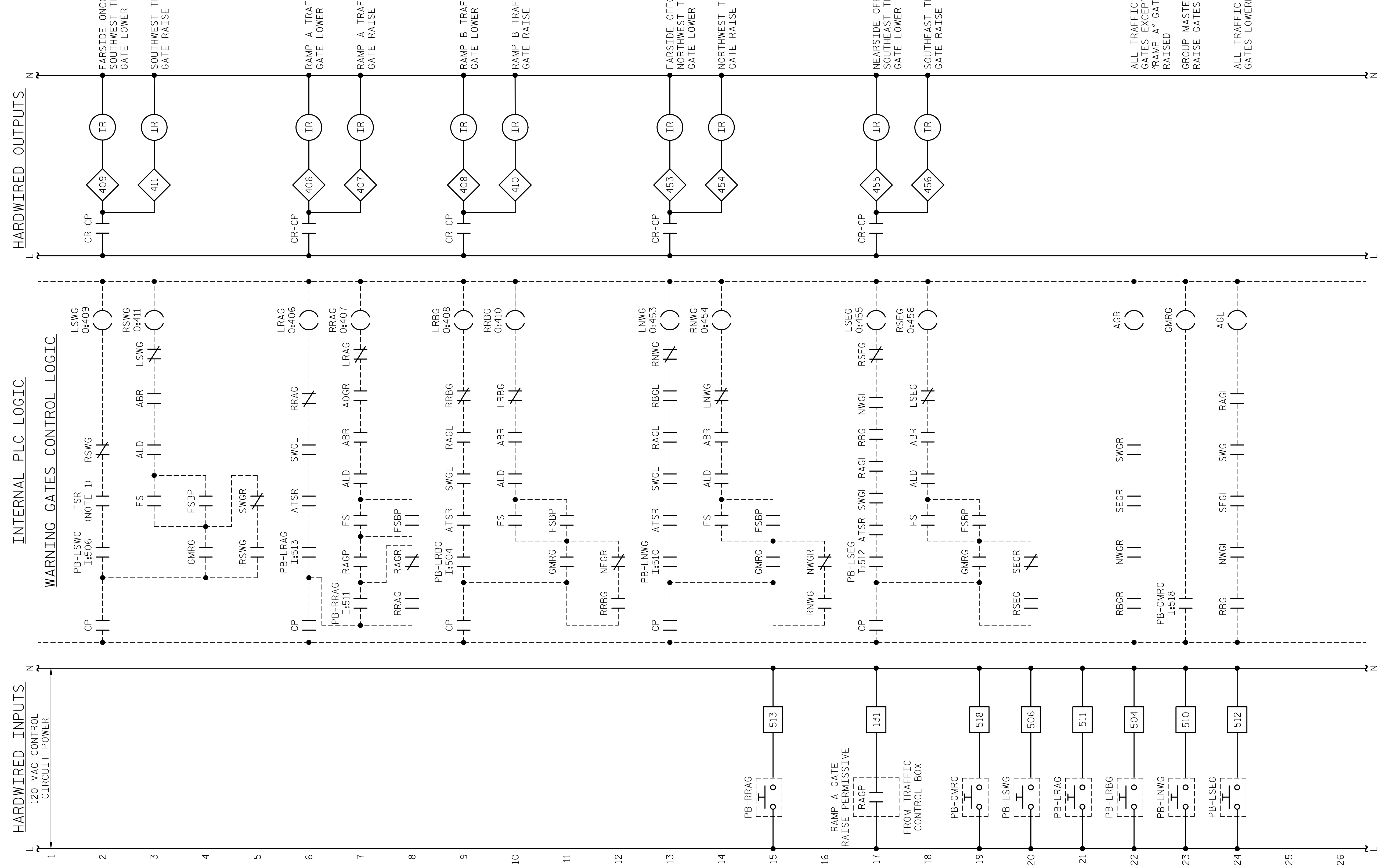


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 2

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

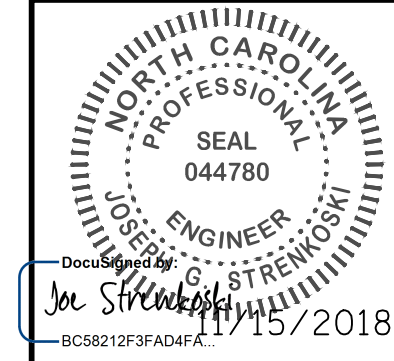
SHEET NO. **E-51**
 TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTES:
 1. ALLOW FARMSIDE ONCOMING TRAFFIC GATE TO BE LOWERED WITH ONLY FARMSIDE TRAFFIC SIGNAL RED.

DESIGNED BY: N. K. BHINGE DATE : 08/03/18
 DRAWN BY: R. L. REED DATE : 08/06/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION:

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONTROL CIRCUIT - 3

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

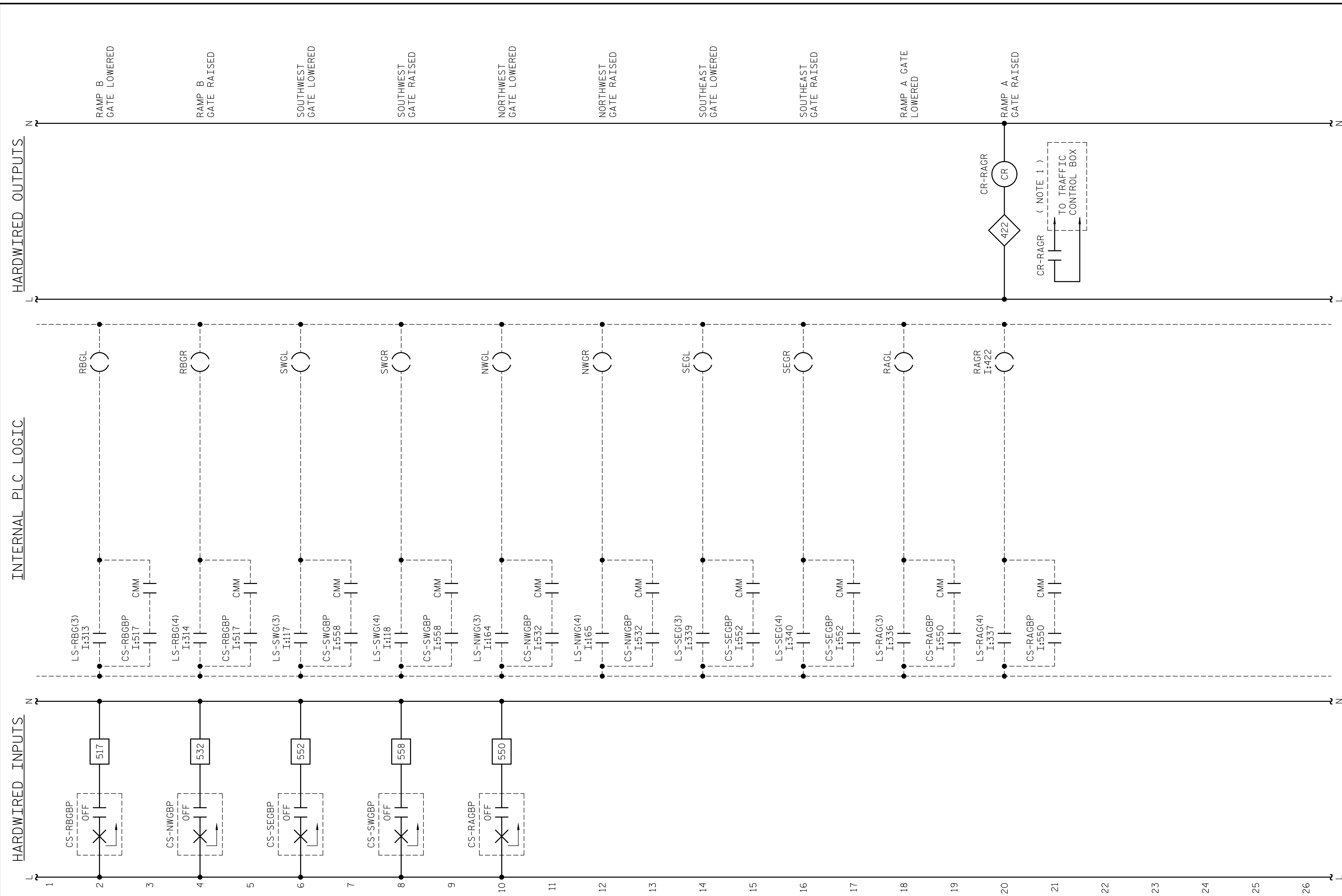
SHEET NO. E-52
 TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

+

+

LAST SAVED 11/15/2018 11:36 AM BY AMBRDSDSKY... LAST PLOTTED 11/15/2018 12:48 PM... FILE: \\mmcg101\p\proj\fs_3682\03\CADD\Electrical\104_105_15BPR14_SML\E53_640011

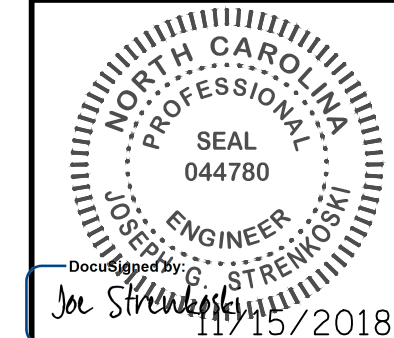


NOTES:

1. WIRING DIRECTLY TO THE RAMP A TRAFFIC GATE LIMIT SWITCH MAY PROVIDE A MORE RELIABLE OPTION. THE CONTRACTOR SHALL FIELD VERIFY HOW THE EXISTING SYSTEM IS CONFIGURED.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

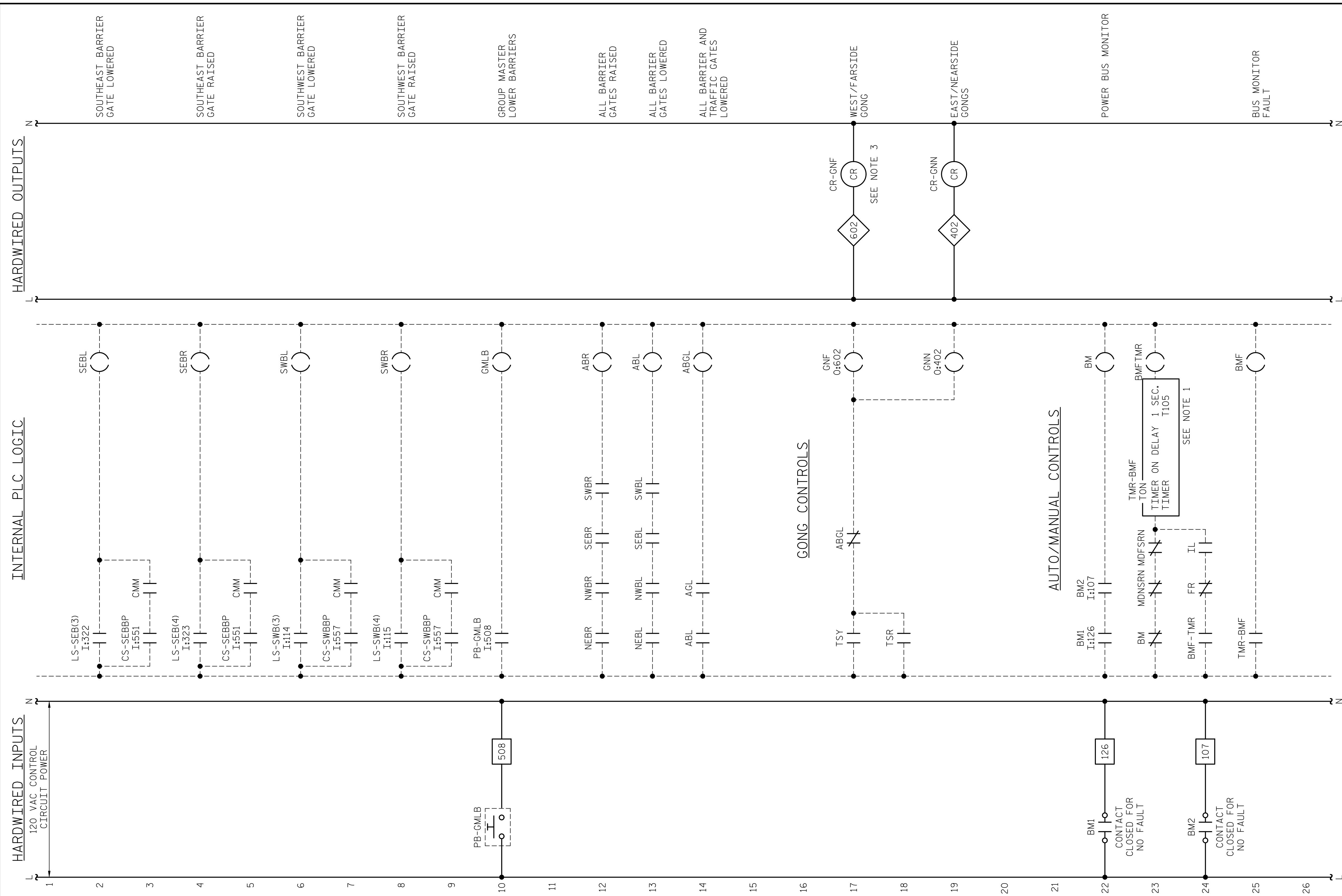
DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/06/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 4					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. <u>E-53</u>					TOTAL SHEETS <u>213</u>

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LAST SAVED 11/15/2018 11:37 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:49 PM... FILE: \\mmcd101\p\proj\ts\3682\03\CADD\Electrical\104_109_15BPR14_SWL\55_640011

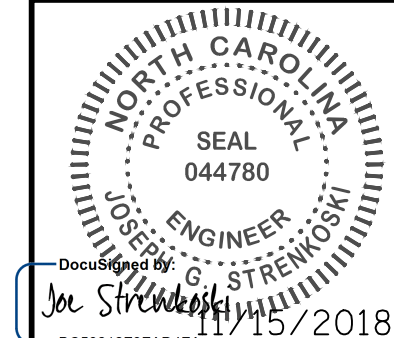


NOTES:

- ADJUST THE BUS MONITOR TIMER TO ALLOW FOR NORMAL BUS POWER FLUCTUATIONS DUE TO MAIN (FLUX VECTOR) RUNNING AND STOPPING.
- CR-GNF IS LOCATED IN THE WEST REMOTE I/O PANEL.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

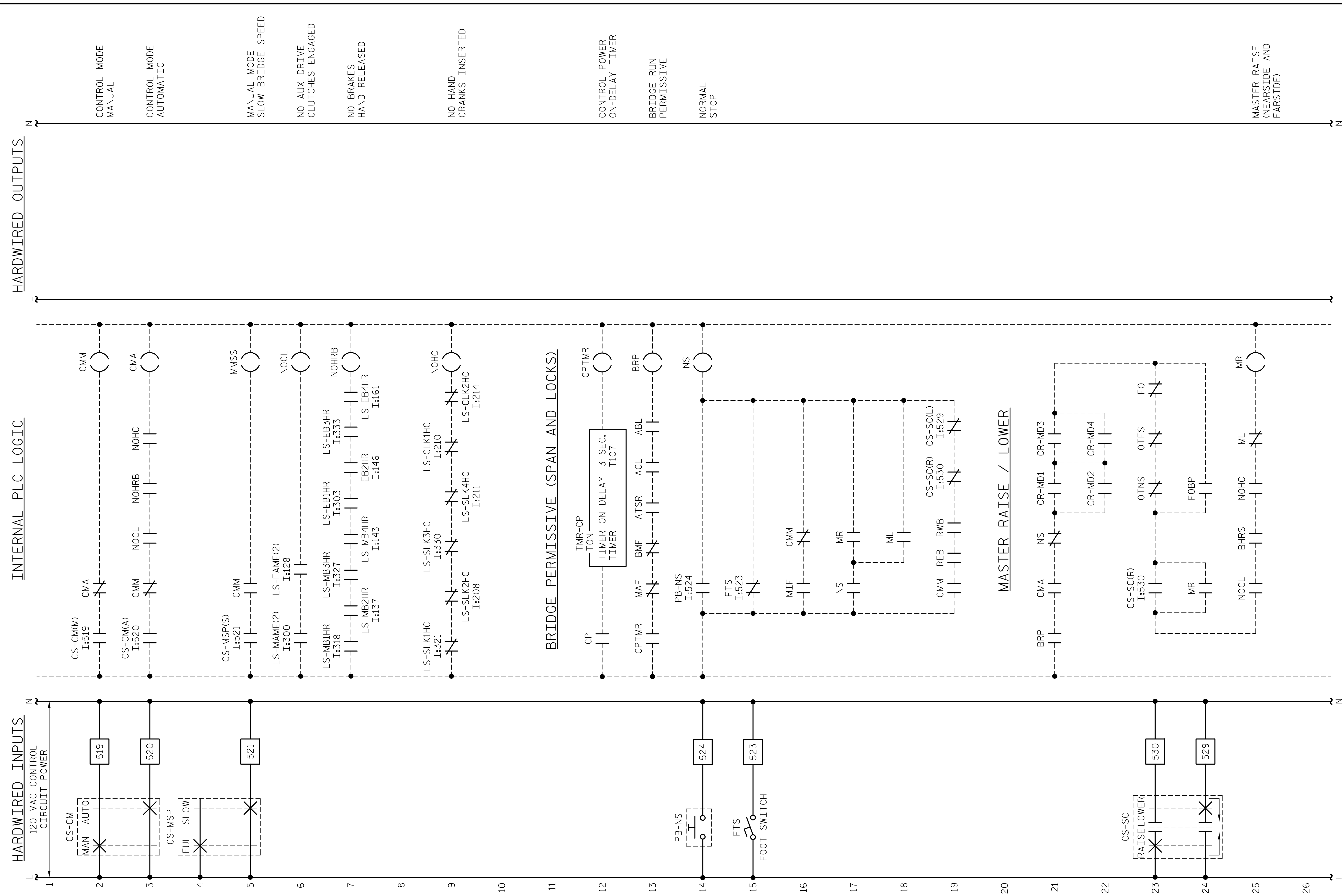
DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/06/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



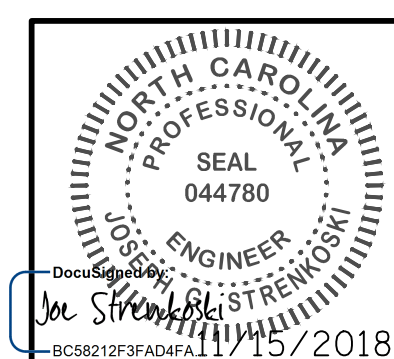
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 6					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-55 TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

LAST SAVED 11/15/2018 11:37 AM BY AMBRODSKY... LAST PLOTTED 11/15/2018 12:49 PM... FILE: \\mmodc10\p\proj\fs_3682\03\CADD\Electrical\15BPR14_SML\556_64001



DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

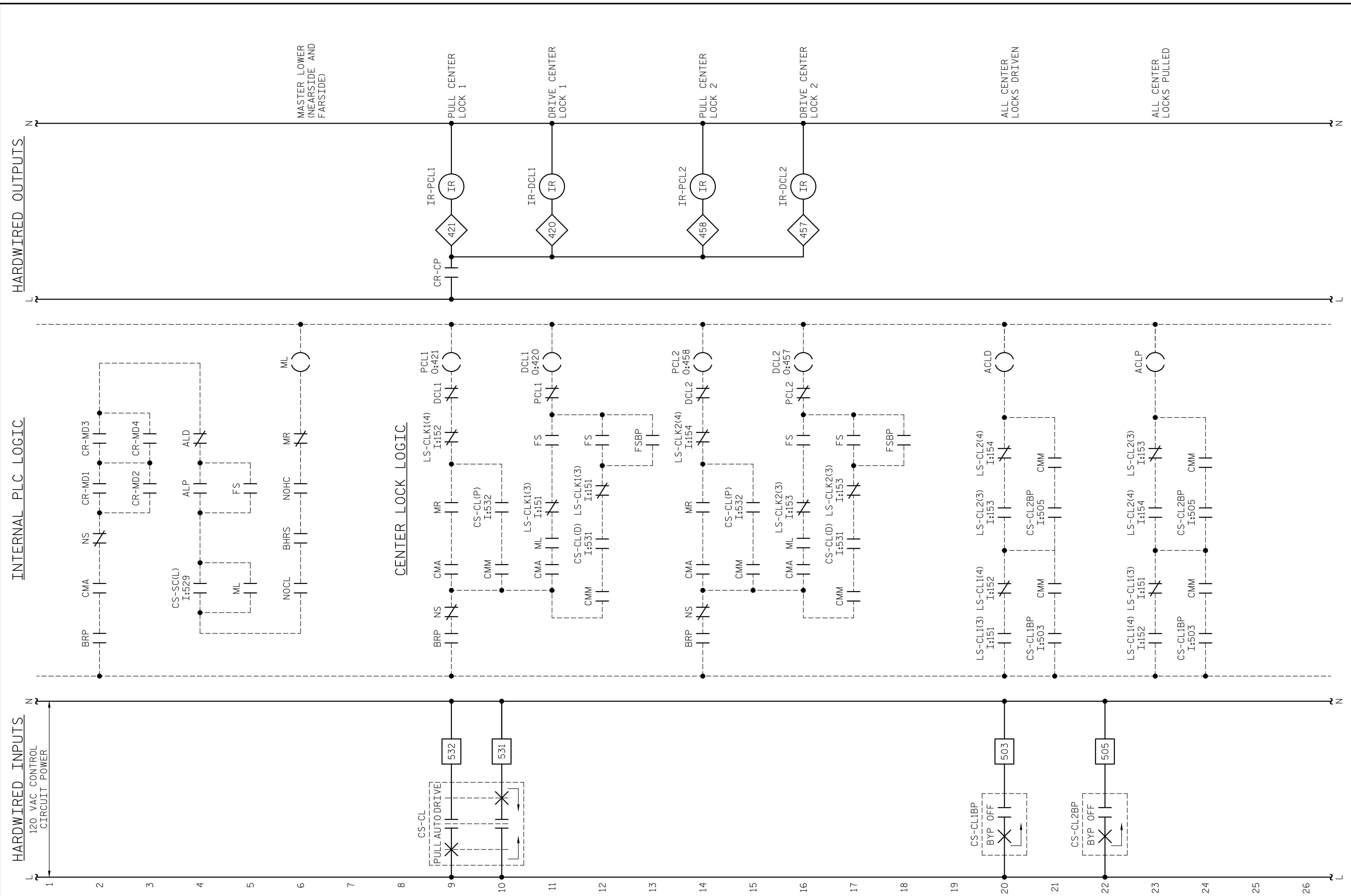


PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 7					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-56
					TOTAL SHEETS 213

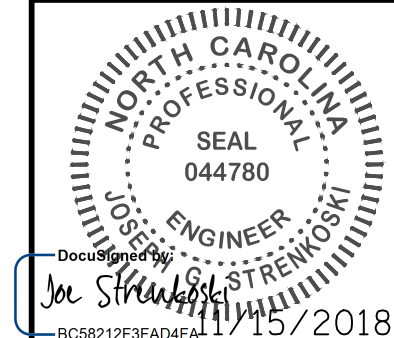
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

LAST SAVED 11/15/2018 11:37 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:49 PM... FILE: \\mmodj10\p\proj\fs_3682\03\CADD\Electrical\113_15BPR14_SML\57_640011



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



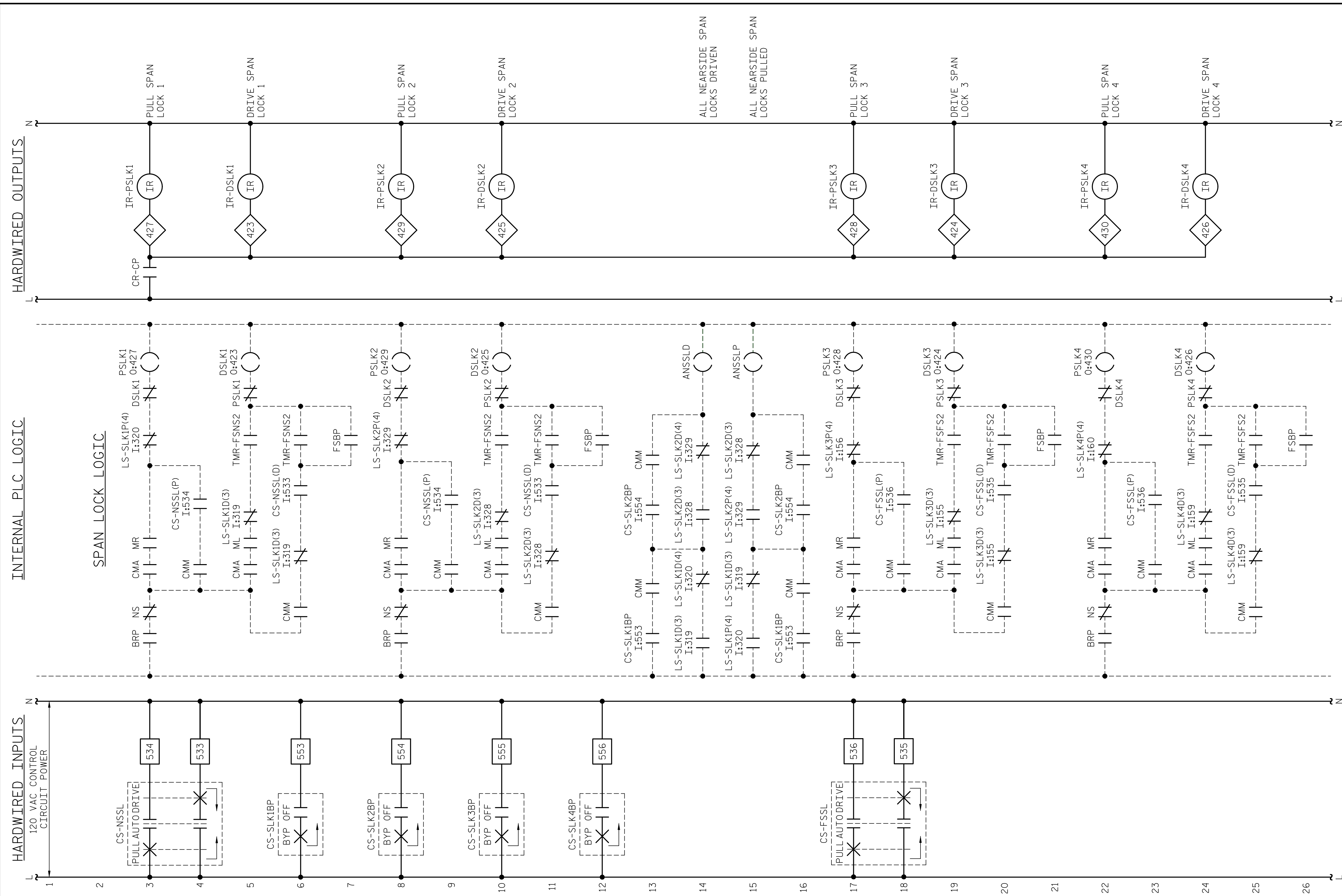
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 8					
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

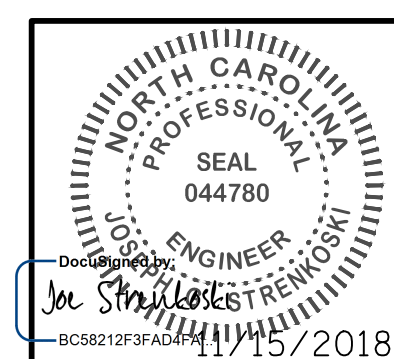
+

+

LAST SAVED 11/15/2018 11:38 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:49 PM... FILE: \\mmcd10\proj\cts\3682\03\CADD\Electrical\04\15_15BPR14_SMU\E58_640011



DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

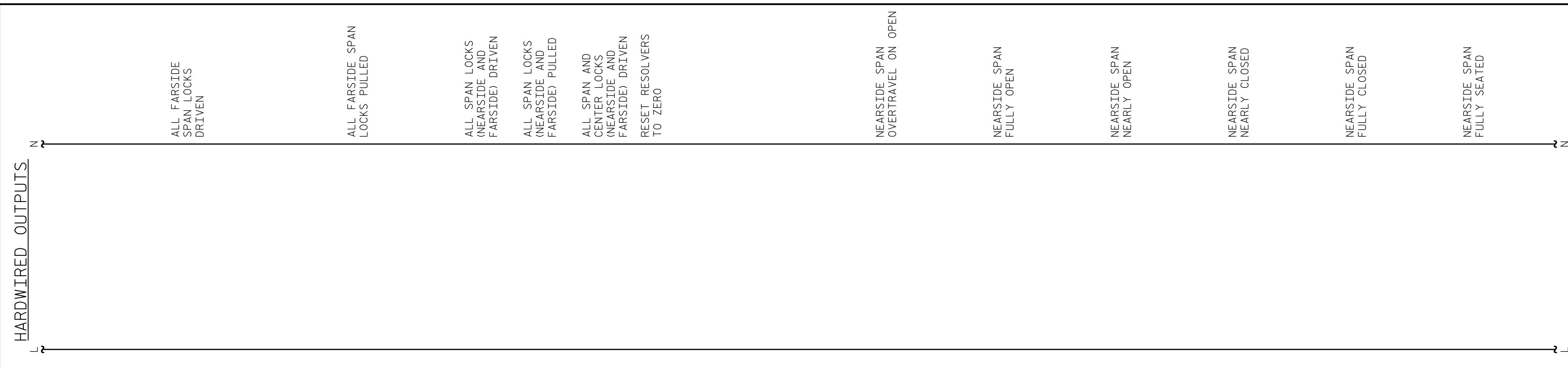
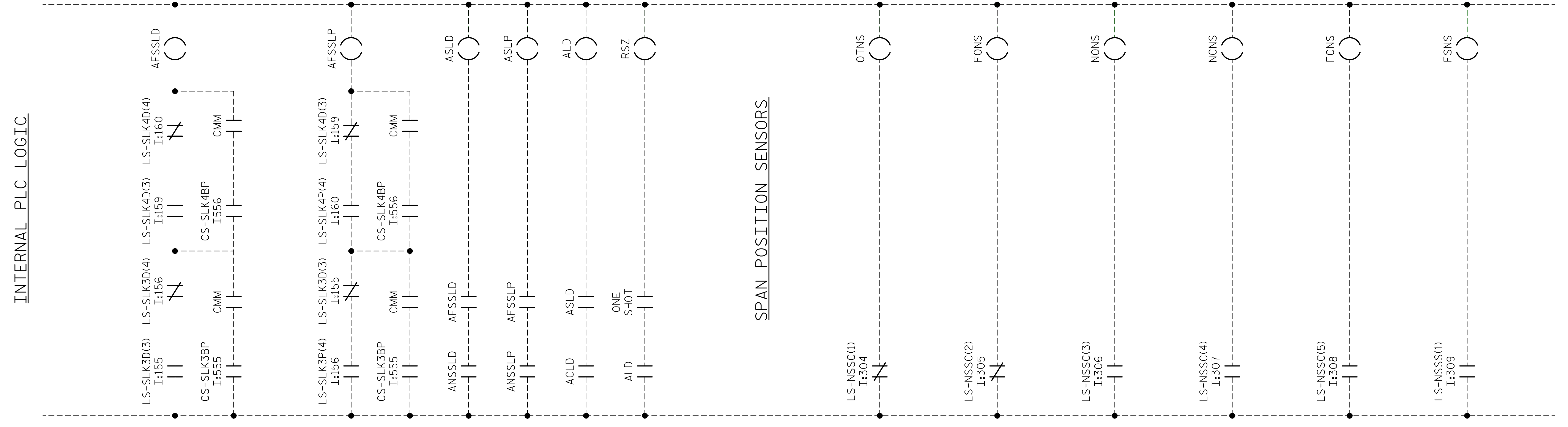
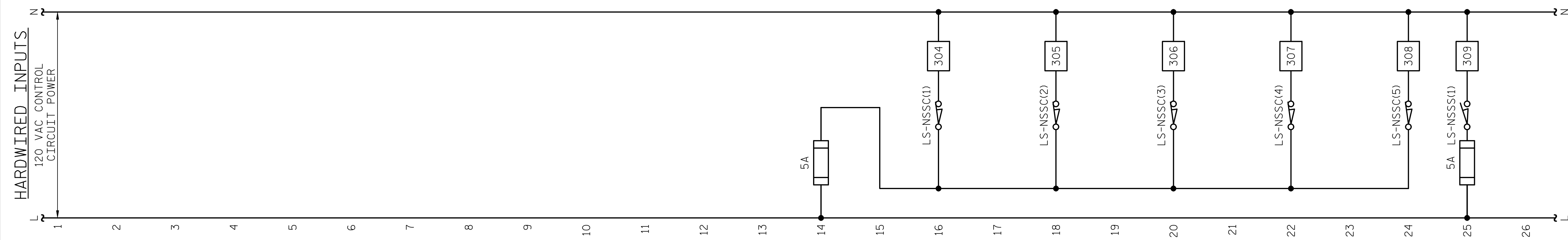


PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 9					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-58
					TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

LAST SAVED 11/15/2018 11:38 AM BY AMBRODSKY, LAST PLOTTED 11/15/2018 12:49 PM, FILE: \\mmcdg10\p\projects\3682\3\CADD\Electrical\17_15BPR14_SML\59_640011

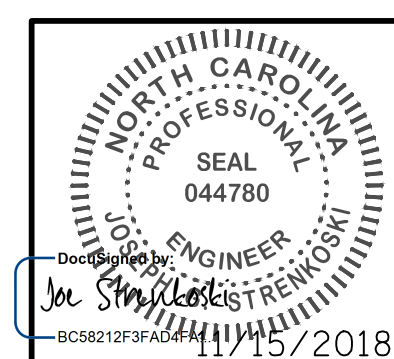


SPAN POSITION SENSORS

- NOTES:**
1. PROVIDE ADJUSTABLE DE-BOUNCE TIMERS FOR ALL SPAN POSITION LIMIT SWITCH INPUTS.
 2. ACTUAL VALUES AND RANGES FOR ROTARY CAM SWITCHES SHALL BE ADJUSTED IN THE FIELD.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 10

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. E-59
 TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED