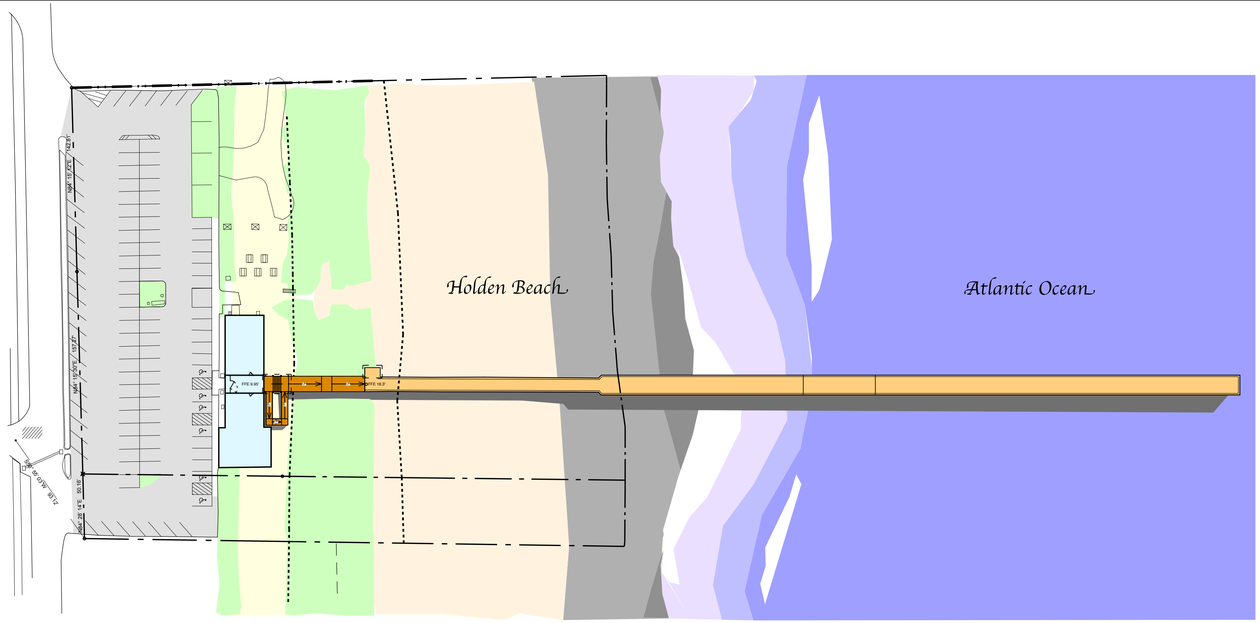
The Town of Holden Beach

Holden Beach Pier Renovation

441 Ocean Boulevard West
Holden Beach, North Carolina 28462



INDEX OF DRAWINGS

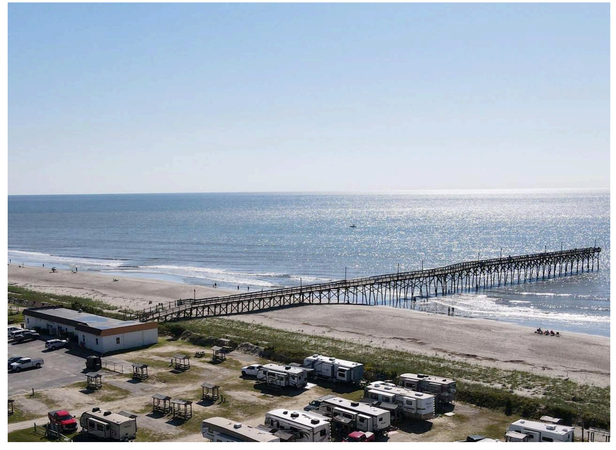
BOWMAN MURRAY HEMINGWAY ARCHITECTS

Bowman Murray Hemingway Architects, PC
514 Market Street
Wilmington, North Carolina 28401
Phone (910) 762-2621
www.bmharch.com

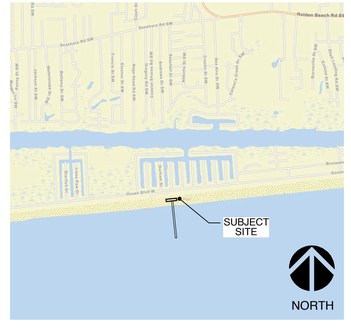
Civil Engineering:
CSD Engineering,
3805 Cherry Avenue
Wilmington, NC 28403
(910) 791-4441

Structural:
Andrew Consulting Engineers P.C.
3811 Peachtree Avenue, Suite 300
Wilmington, NC 28403
(910) 202-5555

Plumbing, Mechanical & Electrical:
CBHF Engineers, PLLC
2246 Yaupon Drive
Wilmington, NC 28401
(910) 791-4000



KEY MAP



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514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
Fax - (910) 762-8506

BOWMAN, MURRAY, HEMINGWAY, ARCHITECTS, P.C. REGISTERED ARCHITECTURAL CORPORATION NORTH CAROLINA CERT. NO. 50424 WILMINGTON, N.C.

GEORGE CARTER HEMINGWAY REGISTERED ARCHITECT 7487 NORTH CAROLINA WILMINGTON, N.C. 9/15/23

Holden Beach Pier
441 Ocean Boulevard West
Holden Beach, North Carolina 28462

Cover Sheet

JOB NUMBER

DRAWN BY
MG

CHECKED BY
GCH

DATE
9/15/23

REVISIONS

SHEET NUMBER
CS-1

2018 APPENDIX B
EXISTING BUILDING DATA SUMMARY

Name of Project: Holden Beach Pier Renovation

Address: 441 Ocean Blvd West, Holden Beach, NC Zip Code 28462

Proposed Use: Public Fishing Pier

Owner or Authorized Agent Town of Holden Beach - David Hewett

Phone #: (910) 842-6488 E-mail david.hewett@hbtownhall.com

Owned By: Town of Holden Beach ☒ City / County ☐ Private ☐ State

Code Enforcement Jurisdiction: ☒ City: Holden Beach ☐ County: _____ ☐ State

LEAD DESIGN PROFESSIONAL: George (Chip) Hemingway, AIA

DESIGNER	FIRM	NAME	LIC#	TEL#	E-MAIL
Architectural	Bowman Murray Hemingway	George (Chip) Hemingway	7487	910.762.2621	hemingway @ bmharch.com
Civil	CSD Engineering	Howard Resnik	25483	910.791.4441	howard@csd-engineering.com
Electrical	CBHF Engineers, PLLC	Duncan McFadyen	8422	910.791.4000	dmcfadyen@cbhfengineers.com
Fire Alarm					
Plumbing					
Mechanical					
Sprinkler/Standpipe					
Structural	Andrew Consulting Engineers	Neal W. Andrew	23591	910.202.5555	neal@andrewengineers.com
Retaining Walls > 5' High					
Other					

2018 NC EXISTING BUILDING CODE: Existing: ☒ Prescriptive ☐ Repair ☐ Chapter 14
Alteration: ☐ Level I ☐ Level II ☐ Level III
☐ Historic Property ☐ Change of Use

CONSTRUCTED: (date) 1960 (PIER) CURRENT OCCUPANCY(S) (Ch. 3): Mercantile, A-3

RENOVATED: (date) 1980 (PIER HOUSE) PROPOSED OCCUPANCY(S) (Ch. 3): Mercantile, A-3

RISK CATEGORY (Table 1604.5): Current: ☐ I ☒ II ☐ III ☐ IV
Proposed: ☐ I ☒ II ☐ III ☐ IV

BASIC BUILDING DATA

Construction Type: (check all that apply) ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A
☐ I-B ☐ II-B ☐ III-B ☒ V-B

Sprinklers: ☒ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D

Standpipes: ☒ No ☐ Yes Class: ☐ I ☐ II ☐ III ☐ Wet ☐ Dry

Fire District: ☒ No ☐ Yes Flood Hazard Area: ☐ No ☒ Yes

Special Inspections Required: ☒ No ☐ Yes

FLOOD DATA: Flood Zone - AE
Base Flood Elevation (BFE): 11 FT
County: Brunswick
Panel: 2015
Map Number: 3720201500K
Existing Finish Floor: 9.95 FT

GROSS BUILDING AREA TABLE (Pier House Only)

Floor	Existing (sq ft)	New (sq ft)	Sub Total (sq ft)	Upfit (sq ft)
First Floor	3,891	0		
Total	3,891	0		

OCCUPANCY

Primary Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ☒ A-3 ☐ A-4 ☐ A-5
Mercantile ☐

Primary Occupancy Classification(s): A-3 ASSEMBLY

Mixed Occupancy: ☐ No ☒ Yes Separation: 0 Hr.
☒ Non-Separated Use (508.3)

BUILDING HEIGHT

EXISTING BUILDING HEIGHT = 10'-6"+/- AVERAGE (FLAT ROOF)
TOP OF PARAPET = 13'-6" +/-

FIRE PROTECTION REQUIREMENTS

TYPE 5B NON-PROTECTED COMBUSTIBLE

FIRE SEPARATION: 30+ MIN. ALL SIDES
NON-RATED EXTERIOR WALLS

OPENING PROTECTION: NOT APPLICABLE
OPEN RESTRICTIONS: NONE

ACCESSIBLE PARKING

103 EXISTING ON-SITE PARKING SPACES (TOTAL)
6 ACCESSIBLE SPACES (INCLUDED)

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting	☐ No	☒ Yes
Exit Signs	☐ No	☒ Yes
Fire Alarms	☒ No	☐ Yes
Smoke Detection Systems	☒ No	☐ Yes ☐ Partial _____
Carbon Monoxide Detection	☒ No	☐ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: 1/CS-2

- ☐ Fire and / or smoke rated wall locations (Chapter 7)
- ☐ Assumed and real property line locations (if not onthe site plan)
- ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
- ☐ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
- ☐ Occupant loads for each area
- ☐ Exit access travel distances (1017)
- ☐ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
- ☐ Dead end lengths (1020.4)
- ☒ Clear exit widths for each exit door
- ☒ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
- ☒ Actual occupant load for each exit door
- ☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- ☐ Location of doors with panic hardware (1010.1.10)
- ☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
- ☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
- ☐ Location of doors equipped with hold-open devices
- ☐ Location of emergency escape windows (1030)
- ☐ The square footage of each fire area (202)
- ☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
- ☐ Note any code exceptions or table notes that may have been utilized regarding the items above

PLUMBING FIXTURE REQUIREMENTS
[N/A - NO WORK]

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, SBCCI, ICC, etc., describe below.)

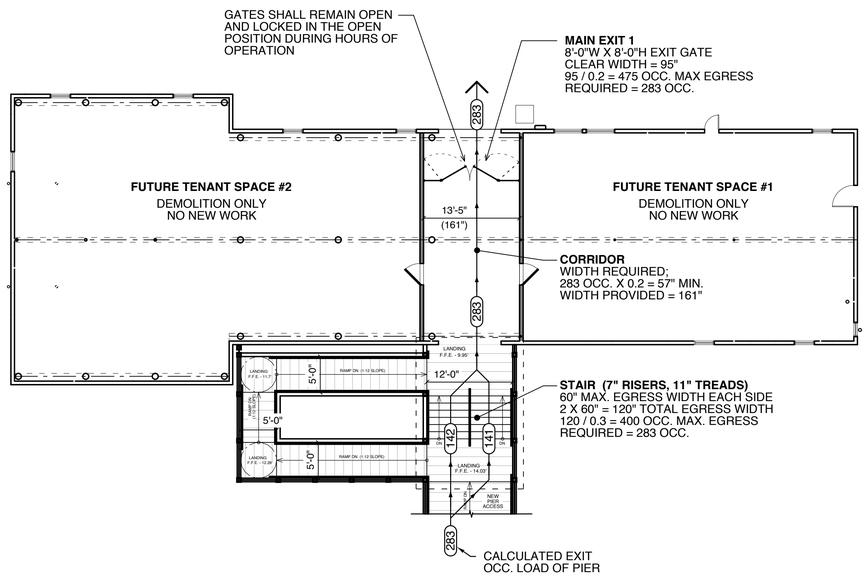
Local Jurisdiction

ENERGY SUMMARY
[NOT APPLICABLE]
EXISTING BUILDING IS NOT CONDITIONED AND VANCANT

STRUCTURAL DESIGN
[SEE STRUCTURAL DRAWINGS]

MECHANICAL SUMMARY
[NO WORK]

ELECTRICAL SUMMARY
[SEE ELECTRICAL DRAWINGS]



TRUE NORTH
PROJECT NORTH

1 / CS-2 **Life Safety Plan**
scale: 1" = 10'-0"

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ARCHITECTS
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GEORGE CARTERS HEMINGWAY REGISTERED ARCHITECT 7487 NORTH CAROLINA WILMINGTON, NC 9/15/23

Holden Beach Pier
441 Ocean Boulevard West
Holden Beach, North Carolina 28462

Appendix B

JOB NUMBER

DRAWN BY
MG

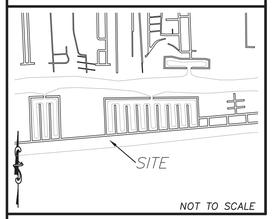
CHECKED BY
GCH

DATE
9/15/23

REVISIONS

SHEET NUMBER
CS-2

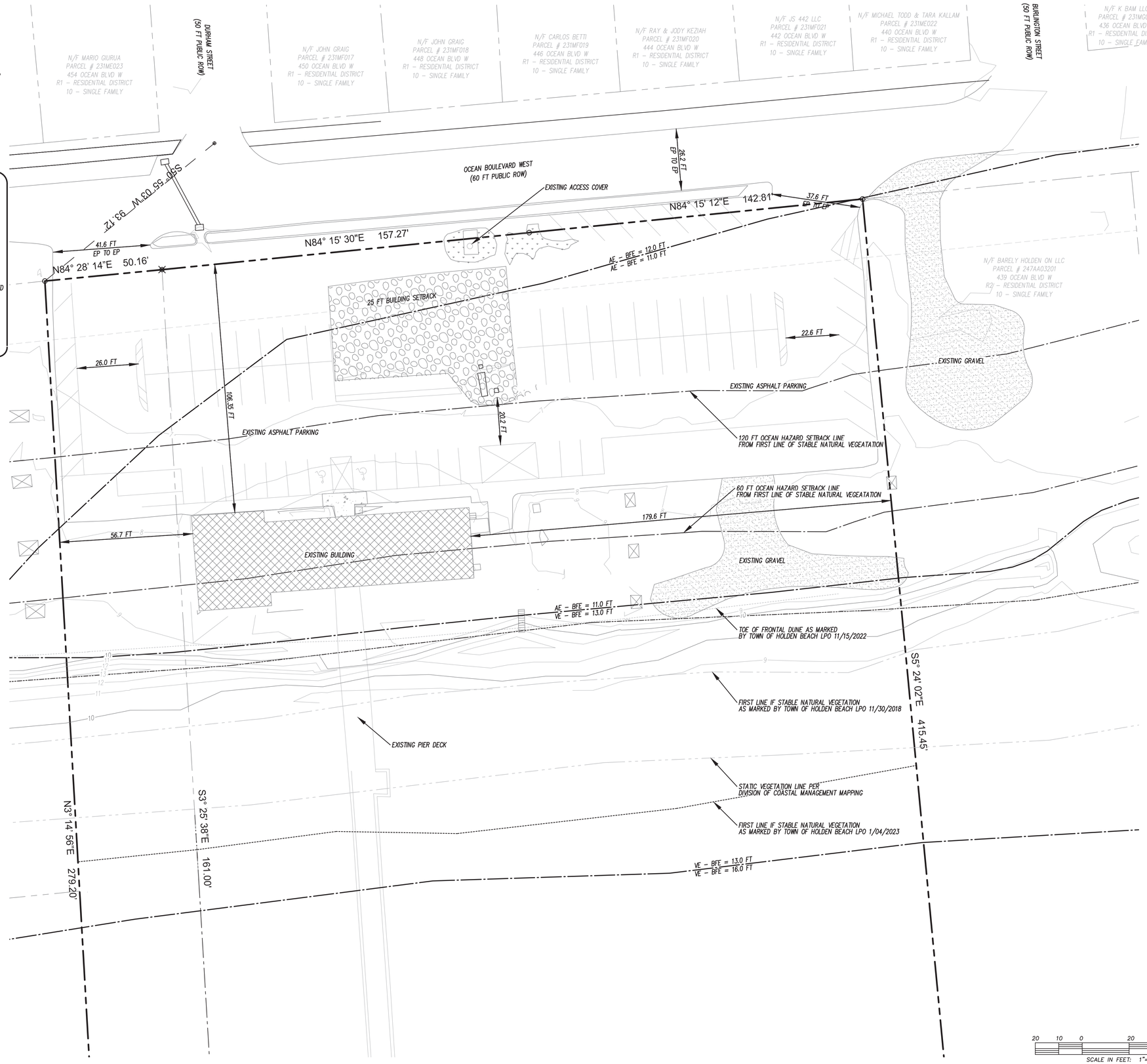
LOCATION MAP



NOT TO SCALE

GENERAL NOTES:

1. BRUNSWICK COUNTY PARCEL NUMBER(S): 246OB001 & 246OB002
2. TOTAL PROJECT AREA: 149,192 SF (3.42 AC)
3. DEEDBOOK 4861 PAGE 828, MAPBOOK 135 PG 86
4. EXISTING ZONING DISTRICT: C-1
5. CAMA LAND CLASSIFICATION: URBAN
6. THIS SITE IS LOCATED WITHIN ZONE "AE-11 FT, AE-12 FT, VE-13 FT, & VE 16 FT" ACCORDING TO FEMA DFIRM MAP NUMBER 3720201500K DATED 8/28/18.
7. SITE ADDRESS: 441 OCEAN BOULEVARD W
8. BOUNDARY AND TOPOGRAPHIC SURVEY PERFORMED AND PROVIDED TO CSD ENGINEERING BY COASTAL GEOMATICS, PLLC VERTICAL DATUM = 88
9. STORMWATER DRAINS TO THE ATLANTIC OCEAN, SB 99-(1)
10. LAND OWNER - TOWN OF HOLDEN BEACH 110 ROTHSCHILD STREET SUPPLY, NC 28462
11. TOWN OF HOLDEN BEACH WATER AND SEWER



LEGEND

- EXISTING BOUNDARY
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING GRAVEL
- EXISTING GRASS
- 9 EXISTING CONTOUR

20 10 0 20 40 60

SCALE IN FEET: 1"= 20'

CSD ENGINEERING

LICENSE # C-2710
ENGINEERING
LAND PLANNING
COMMERCIAL / RESIDENTIAL

P.O. BOX 4041
WILMINGTON, NC 28406
(910) 791-4441

EXISTING CONDITIONS for
HOLDEN BEACH PIER

SITE PLAN for
HOLDEN BEACH PIER
LOCATED IN TOWN OF HOLDEN BEACH
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER: TOWN OF HOLDEN BEACH
110 ROTHSCHILD STREET
SUPPLY, NC 28462

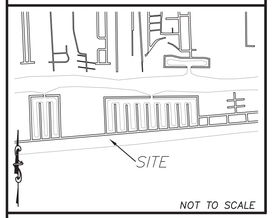
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025483 9/15/23 HARRISON S. REDDICK, V

REV. NO.	REMARKS	BY	DATE

DATE: 9/15/23
HORZ. SCALE: 1" = 20'
VERT. SCALE: N/A
DRAWN BY: JSM
CHECKED BY: HSR
PROJECT NO.: 23-0656

Sheet No. C.1 of C.3

LOCATION MAP



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10. LAND OWNER - TOWN OF HOLDEN BEACH 110 ROTHSCHILD STREET SUPPLY, NC 28462
11. TOWN OF HOLDEN BEACH WATER AND SEWER
12. ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD STANDARDS.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION. CALL U-LOCO AT 1-800-632-4949. CONTRACTOR IS RESPONSIBLE FOR THE REPAIR AND REPLACEMENT OF ANY UTILITIES, CURB AND GUTTER, SIDEWALK PANELS, PAVEMENT, ETC. THAT MAY BE DAMAGED DURING CONSTRUCTION. DAMAGED ITEMS SHALL BE REPAIRED TO AT LEAST THE QUALITY OR WORKMANSHIP FOUND IN THE ORIGINAL ITEM.
14. SOLID WASTE DISPOSAL WILL BE TRASH TOTES.
15. ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE TOWN OF HOLDEN BEACH ZONING ORDINANCE.
20. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT OF WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
21. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREA SHALL BE WHITE.
24. ANY BROKEN OR MISSING SIDEWALK PANELS AND CURBING WILL BE REPLACED.

DEVELOPMENT NOTES:

PROPOSED LAND USE: COMMERCIAL

IMPERVIOUS SURFACES -

EXISTING	
BUILDINGS -	3,891 SF
CONCRETE -	141 SF
ASPHALT -	39,290 SF
GRAVEL (TO BE REMOVED) -	2,458 SF
TOTAL -	45,780 SF
PROPOSED	
EX. BUILDINGS -	3,891 SF
EX. CONCRETE -	141 SF
EX. ASPHALT -	39,290 SF
PROP. ASPHALT -	3,249 SF
TOTAL -	46,571 SF

LOT COVERAGE = 3,891 / 149,192 = 0.026 (3%)

TOTAL BUA = 46,571 / 149,192 = 0.312 OR 31% IMPERVIOUS

PARKING:

66 SPACES EXISTING (INCLUDING 2 ACCESSIBLE SPACES)

103 SPACES PROVIDED (INCLUDING 6 ACCESSIBLE SPACES)

BUILDING HEIGHT: 13.5 FT

BUILDING TYPE: II-B

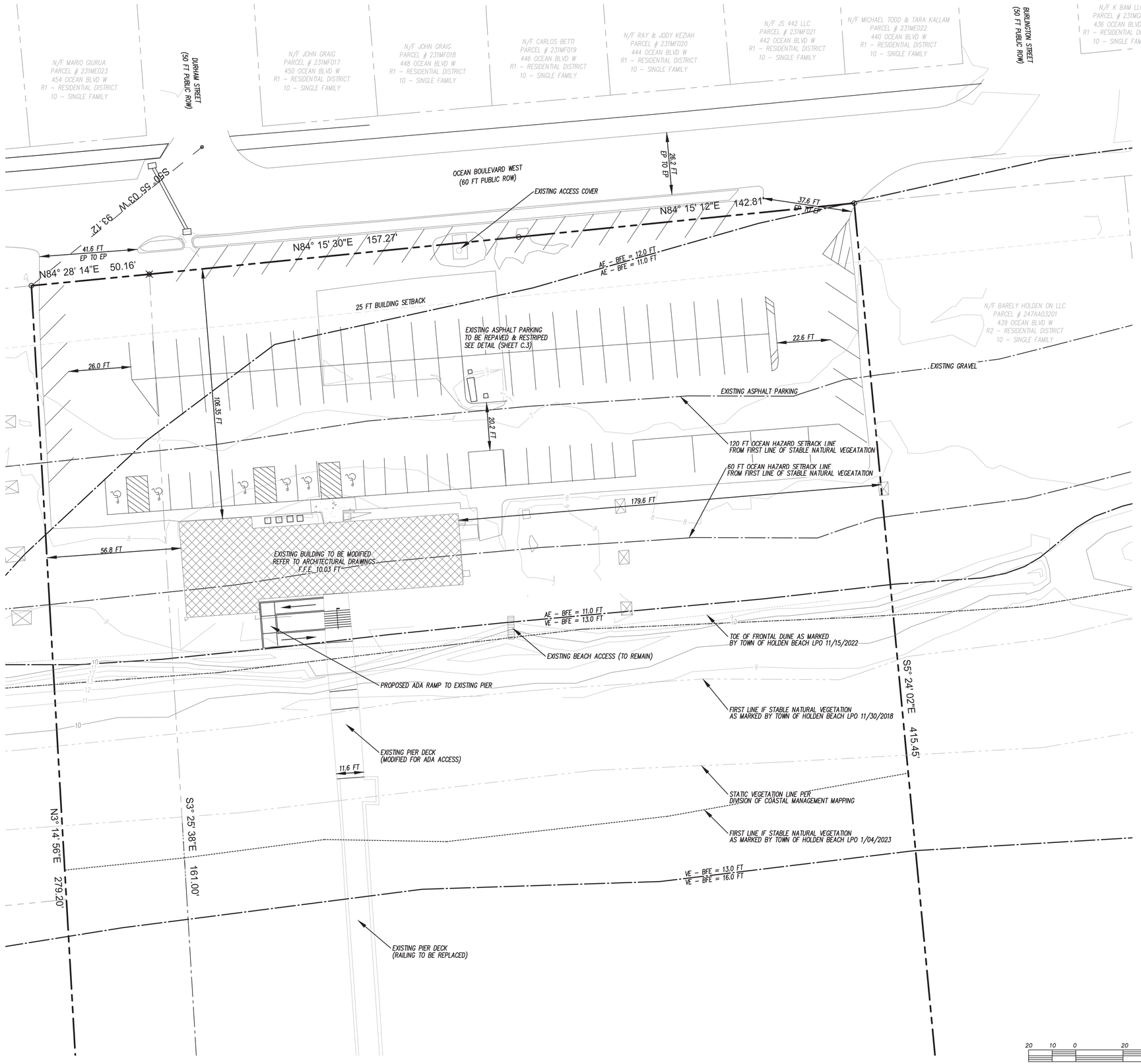
BUILDING SETBACKS (PER CHAPTER 157.062):

C-1

REQUIRED SETBACKS	PROPOSED SETBACKS
FRONT SETBACK: 25 FT	FRONT SETBACK: 106.35 FT
SIDE SETBACK: 5 FT	SIDE SETBACK: 56.7 FT, 179.6 FT
REAR SETBACK: 5 FT	REAR SETBACK: N/A

LEGEND

- EXISTING BOUNDARY
- EXISTING BUILDING
- EXISTING CONCRETE
- 9 EXISTING CONTOUR



CSD ENGINEERING

LICENSE # C-2710
ENGINEERING
LAND PLANNING
COMMERCIAL / RESIDENTIAL

P.O. BOX 4041
WILMINGTON, NC 28406
(910) 791-4441

SITE PLAN for
HOLDEN BEACH PIER

SITE PLAN for
HOLDEN BEACH PIER
LOCATED IN TOWN OF HOLDEN BEACH
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER: TOWN OF HOLDEN BEACH
110 ROTHSCHILD STREET
SUPPLY, NC 28462

NORTH CAROLINA
PROFESSIONAL
SEAL
025483
9/15/23
ENGINEER
HENRY S. REAVIS IV

REV. NO.	REMARKS	BY	DATE

DATE: 9/15/23

HORZ. SCALE: 1" = 20'
VERT. SCALE: N/A

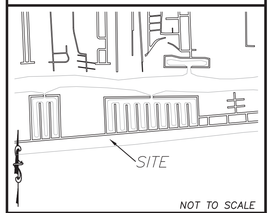
DRAWN BY: JSM

CHECKED BY: HSR

PROJECT NO.: 23-0656

Sheet No. C.2 Of C.3

LOCATION MAP



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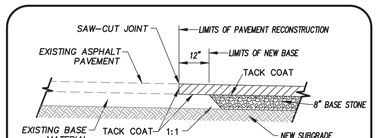
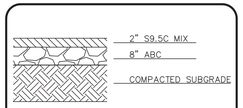


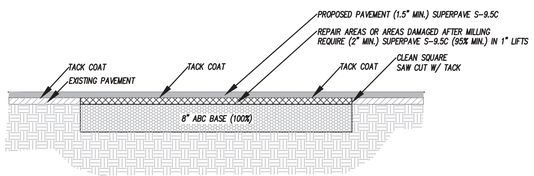
TYPICAL SAWCUT

NOT TO SCALE



ASPHALT PAVEMENT

NOT TO SCALE



NOTES:

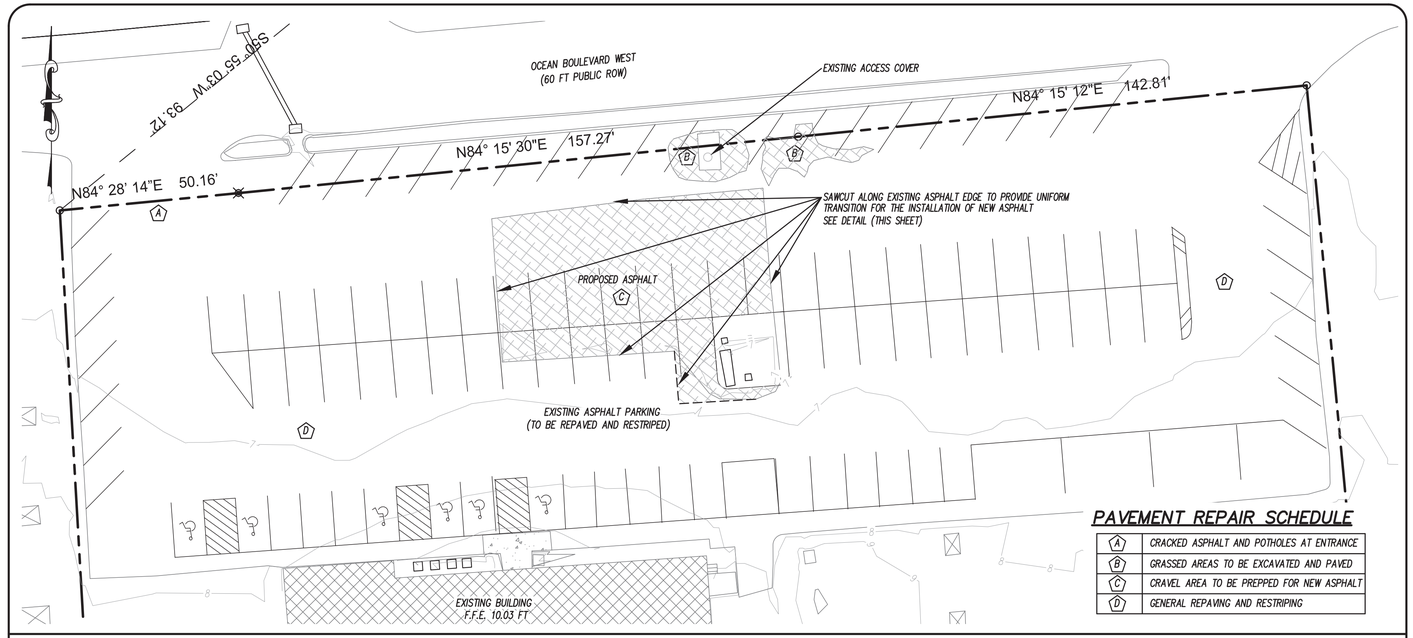
1. FILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
3. SOIL SHALL BE INSTALLED IN 6"-8" LIFTS AND COMPACTED BY A MECHANIZED TAMPER (I.E JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
4. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
5. COMPACT MATERIALS TO MINIMUM % DENSITY SHOWN IN DIAGRAM AS DETERMINED BY THE STANDARD PROCTOR METHOD ASTM D-698-A FOR SOILS; AND ASTM D-698-C FOR ABC STONE; AND BY NUCLEAR GAUGE OR CORE SAMPLE FOR ASPHALT.
6. CUTBACKS OF ASPHALT SHALL BE PREPARED ON EDGE OF EXCAVATION OVER TOP OF UNDISTURBED SOIL.

PAVEMENT REPAIR DETAIL

NOT TO SCALE

LEGEND

- EXISTING BOUNDARY
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING GRAVEL
- EXISTING GRASS
- EXISTING CONTOUR



PAVEMENT REPAIR SCHEDULE

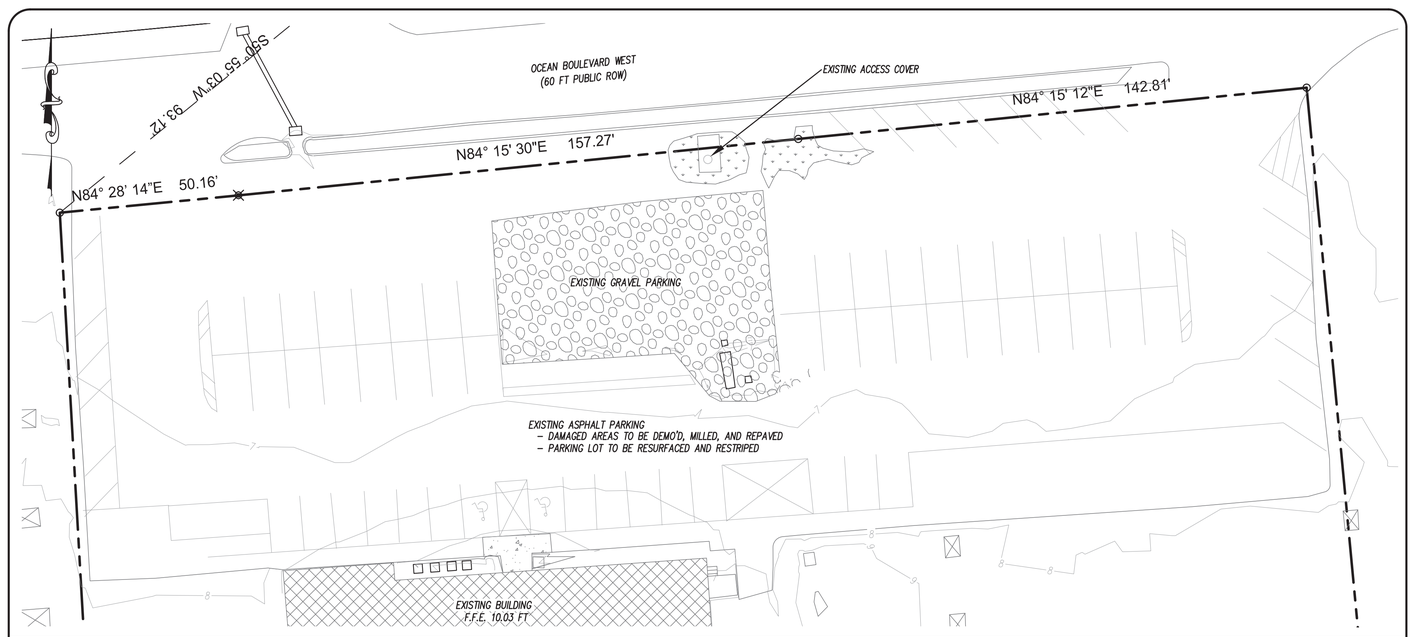
A	CRACKED ASPHALT AND POTHOLES AT ENTRANCE
B	GRASSED AREAS TO BE EXCAVATED AND PAVED
C	GRAVEL AREA TO BE PREPPED FOR NEW ASPHALT
D	GENERAL REPAVING AND RESTRIPING

PROPOSED PARKING LOT DETAIL

SCALE IN FEET: 1"= 20'

20 10 0 20 40 60

SCALE IN FEET: 1"= 20'



EXISTING PARKING LOT DETAIL

SCALE IN FEET: 1"= 20'

20 10 0 20 40 60

SCALE IN FEET: 1"= 20'

CSD ENGINEERING

LICENSE # C-2710
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PARKING LOT IMPROVEMENTS for
HOLDEN BEACH PIER

SITE PLAN for
HOLDEN BEACH PIER
LOCATED IN TOWN OF HOLDEN BEACH
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER: TOWN OF HOLDEN BEACH
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NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL
025483
9/15/23
HARRY S. RAWLS, JR.

REV. NO.	REMARKS	BY	DATE

DATE: 9/15/23
HORZ. SCALE: 1" = 20'
VERT. SCALE: N/A
DRAWN BY: JSM
CHECKED BY: HSR
PROJECT NO.: 23-0656

Sheet No. C.3 Of C.3

BOWMAN
MURRAY
HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
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BOWMAN, MURRAY, HEMINGWAY ARCHITECTS, P.A. REGISTERED ARCHITECTURAL CORPORATION NORTH CAROLINA WILMINGTON, N.C. CERT. NO. 50424

GEORGE CARPER HEMINGWAY REGISTERED ARCHITECT 7487 NORTH CAROLINA WILMINGTON 9/15/23

Holden Beach Pier

441 Ocean Boulevard West
Holden Beach, North Carolina 28462

Existing Site Plan

JOB NUMBER

DRAWN BY
MG

CHECKED BY
GCH

DATE
9/15/23

REVISIONS

SHEET NUMBER
A1.0

DURHAM STREET
50' PUBLIC RIGHT OF WAY

BURLINGTON STREET
50' PUBLIC RIGHT OF WAY

OCEAN BOULEVARD WEST
60' PUBLIC RIGHT OF WAY

S73° 42' 03"W 362.60'(GROUND DISTANCE)

S60° 24' 30"E 110.96'

S60° 55' 03"W 93.12'

N84° 53' 55"E 60.77'

N84° 03' 58"E 168.92'

N84° 28' 14"E 50.16'

N84° 15' 30"E 157.27'

N84° 15' 12"E 142.81'

N84° 17' 17"E 60.01'

N84° 16' 44"E 55.03'

STAGING AREA
(CONSTRUCTION FENCING)

AE - BFE = 12.0'
AE - BFE = 11.0'

25' FRONT SETBACK

EXISTING ASPHALT PARKING
REPAIRED TO BE RESTRIPED,
SEE CIVIL DRAWINGS

120 FT OCEAN HAZARD SETBACK

165.42'

S5° 24' 02"E

NEW GALVANIZED STEEL
CHAIN LINK FENCE WITH
(2) LOCKABLE 48" GATES

NEW CORRIDOR THROUGH
EXISTING BUILDING

60 FT OCEAN HAZARD SETBACK

CAMA SETBACK LINE

EXISTING BUILDING
FFE. = 9.95'

FFE
9.95'

PIER DECK
ELEV. = 9.95'

AE - BFE = 11.0'
VE - BFE = 13.0'

AE - BFE = 12.0'
AE - BFE = 11.0'

AE - BFE = 11.0'
VE - BFE = 13.0'

AE - BFE = 11.0'
VE - BFE = 13.0'

NEW PIER SECTION

PIER DECK
ELEV. = 18.3'

FFE 18.3'

FIRST LINE OF STABLE VEGETATION

VE - BFE = 13.0'
VE - BFE = 16.0'

20' ACCESS EASEMENT

EXISTING WOOD PIER

EXISTING WOODEN
PIER TO BE RENOVATED

PIER DECK
ELEV. = 18.2'

N3° 14' 56"E 279.20'

S3° 25' 36"E 161.00'

S5° 24' 02"E 415.45'

Holden Beach

Atlantic Ocean

MEAN HIGH WATER LINE BASED ON
NOAA TIDAL BENCHMARK (ELEV.=2.01')
FEBRUARY 2019

LEGEND

EXISTING PIER STRUCTURE

NEW PIER STRUCTURE

TRUE
PROJECT
NORTH

1 / A1.1 **New Site Plan**

scale: 1" = 30'-0"

0' 7.5' 15' 30' 60' 1" = 30'-0"

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
Fax - (910) 762-8506

BOWMAN, MURRAY, HEMINGWAY ARCHITECTS, P.A. REGISTERED ARCHITECTURAL CORPORATION NORTH CAROLINA CERT. NO. 50424 WILMINGTON, N.C.

GEORGE CARPER HEMINGWAY REGISTERED ARCHITECT 7487 NORTH CAROLINA WILMINGTON 9/15/23

Holden Beach Pier

441 Ocean Boulevard West
Holden Beach, North Carolina 28462

New Site Plan

JOB NUMBER

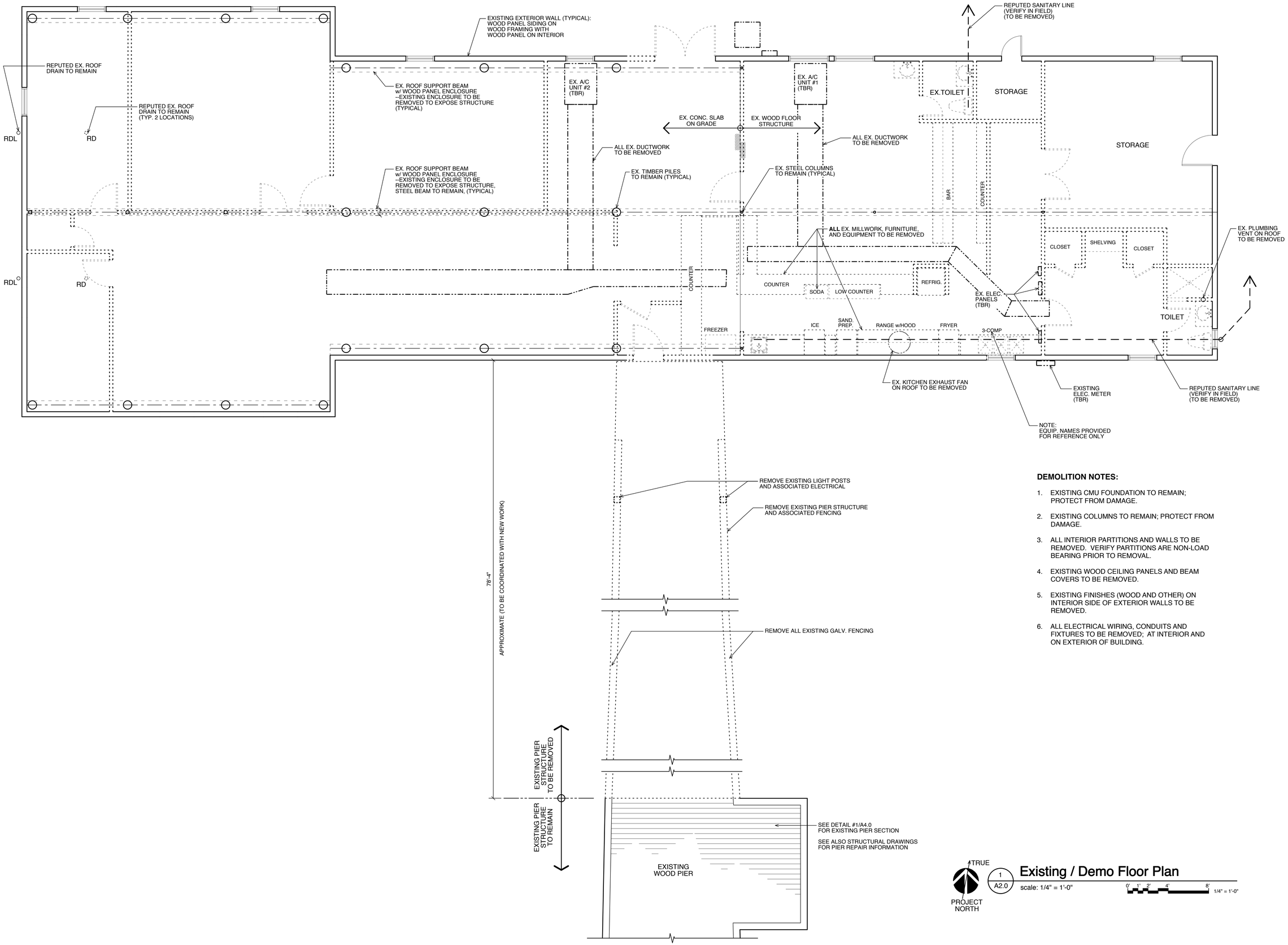
DRAWN BY
MG

CHECKED BY
GCH

DATE
9/15/23

REVISIONS

SHEET NUMBER
A1.1



DEMOLITION NOTES:

1. EXISTING CMU FOUNDATION TO REMAIN; PROTECT FROM DAMAGE.
2. EXISTING COLUMNS TO REMAIN; PROTECT FROM DAMAGE.
3. ALL INTERIOR PARTITIONS AND WALLS TO BE REMOVED. VERIFY PARTITIONS ARE NON-LOAD BEARING PRIOR TO REMOVAL.
4. EXISTING WOOD CEILING PANELS AND BEAM COVERS TO BE REMOVED.
5. EXISTING FINISHES (WOOD AND OTHER) ON INTERIOR SIDE OF EXTERIOR WALLS TO BE REMOVED.
6. ALL ELECTRICAL WIRING, CONDUITS AND FIXTURES TO BE REMOVED; AT INTERIOR AND ON EXTERIOR OF BUILDING.

TRUE
PROJECT
NORTH

1
A2.0

Existing / Demo Floor Plan

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

0' 1' 2' 4' 8' 1/4" = 1'-0"

BOWMAN
MURRAY
HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
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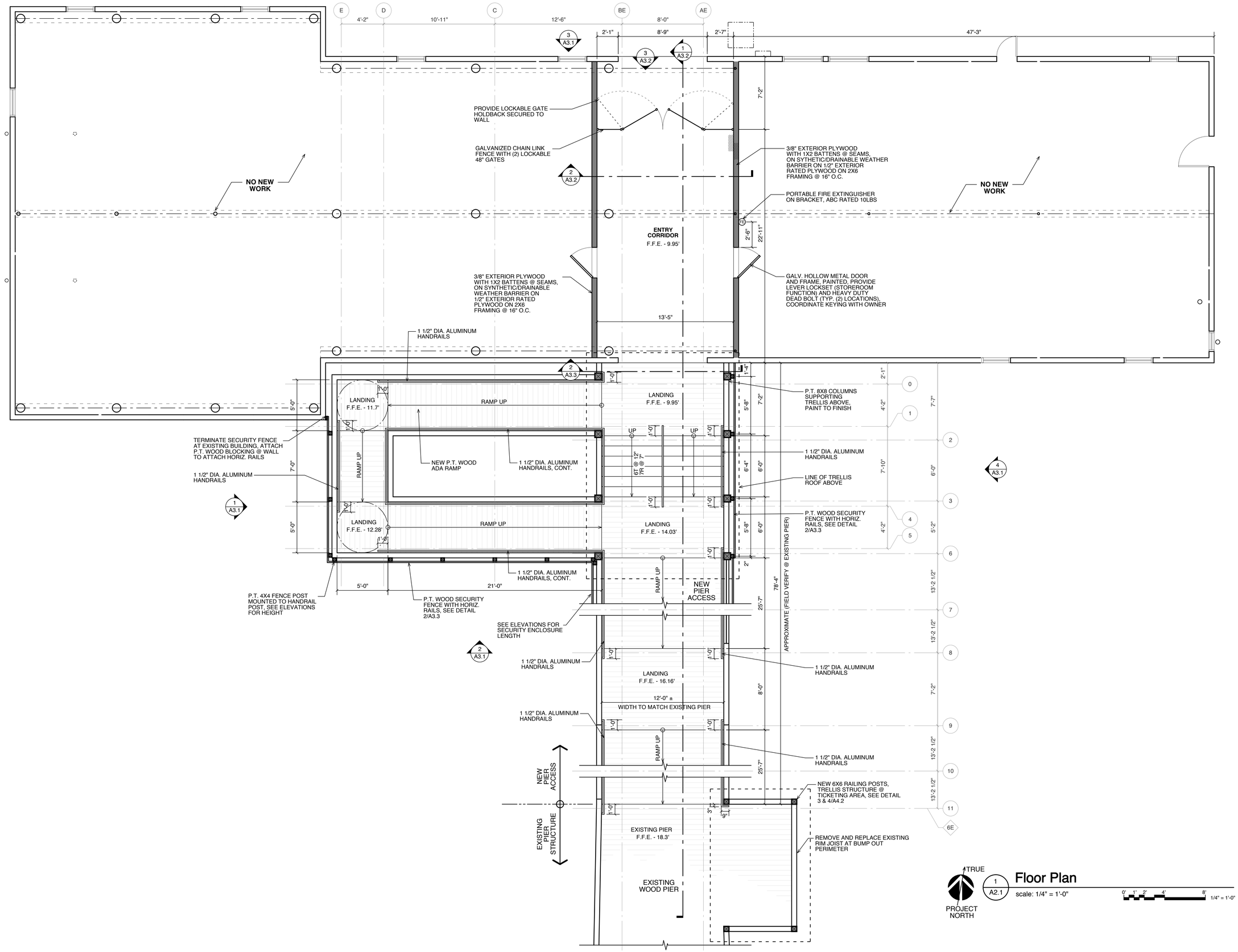

TRUE PROJECT NORTH

1 A2.1 **Floor Plan**

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

0' 1' 2' 4' 8' 1/4" = 1'-0"

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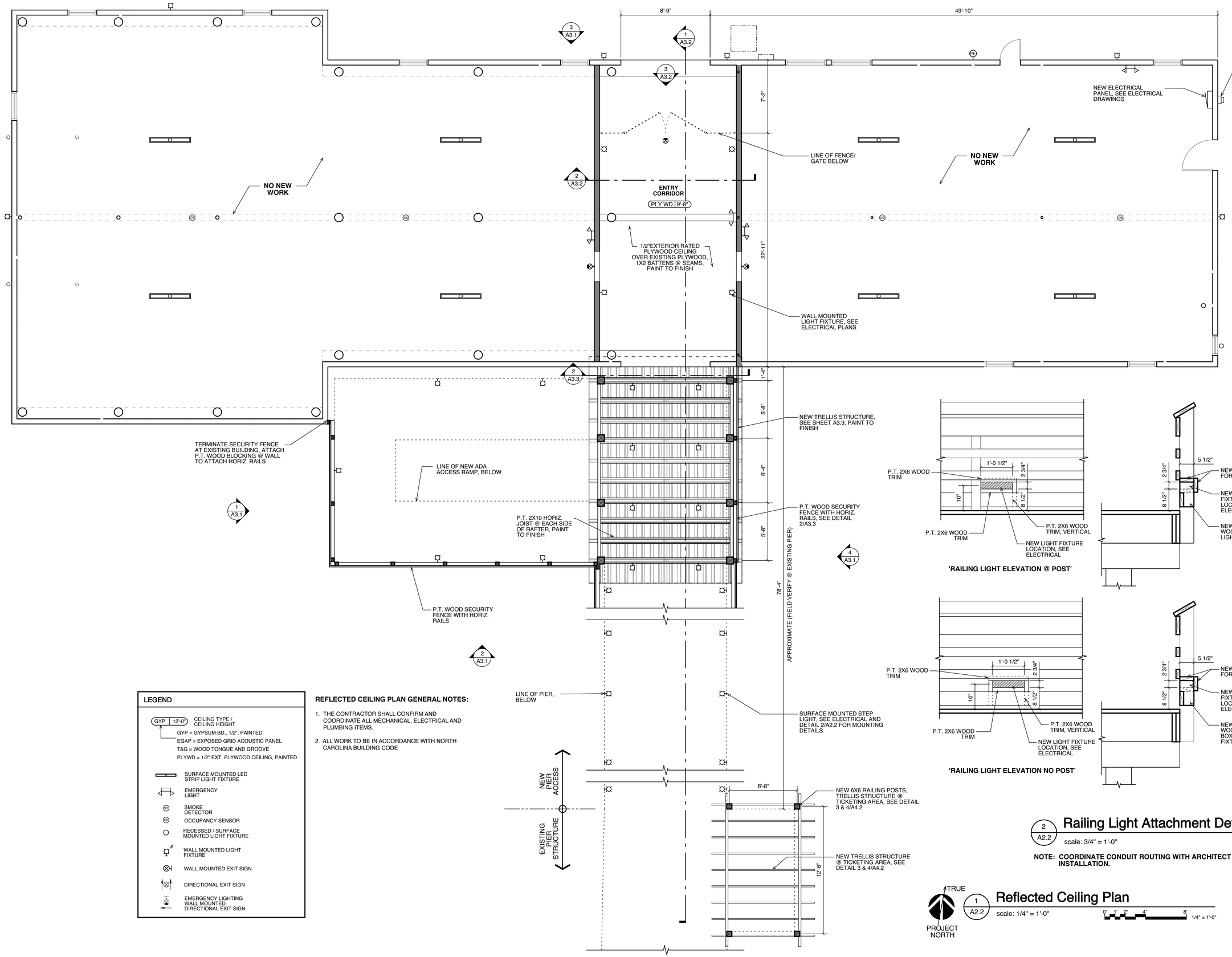
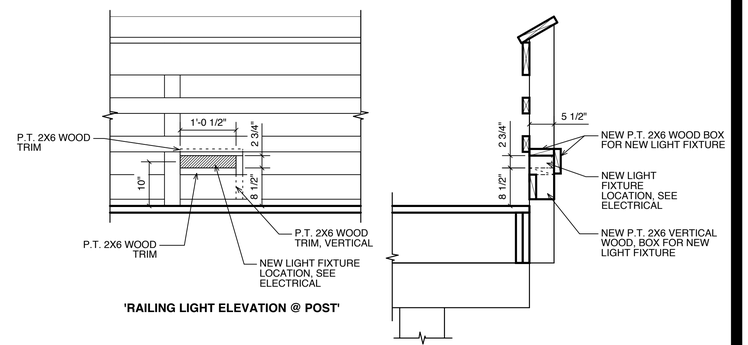
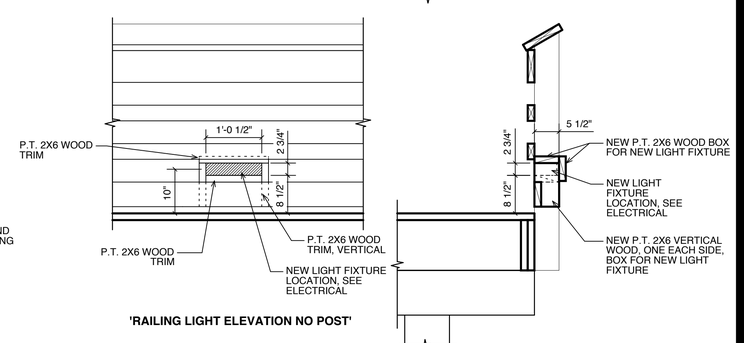




'RAILING LIGHT ELEVATION @ POST'



'RAILING LIGHT ELEVATION NO POST'

LEGEND

- GYP | 12'-0" — CEILING TYPE / CEILING HEIGHT
  - GYP = GYPSUM BD., 1/2", PAINTED.
  - EGAP = EXPOSED GRID ACOUSTIC PANEL
  - T&G = WOOD TONGUE AND GROOVE
  - PLYWD = 1/2" EXT. PLYWOOD CEILING, PAINTED
- SURFACE MOUNTED LED STRIP LIGHT FIXTURE
- EMERGENCY LIGHT
- (SD) SMOKE DETECTOR
- (OS) OCCUPANCY SENSOR
- RECESSED / SURFACE MOUNTED LIGHT FIXTURE
- (#) WALL MOUNTED LIGHT FIXTURE
- WALL MOUNTED EXIT SIGN
- DIRECTIONAL EXIT SIGN
- EMERGENCY LIGHTING WALL MOUNTED DIRECTIONAL EXIT SIGN

REFLECTED CEILING PLAN GENERAL NOTES:

1. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL MECHANICAL, ELECTRICAL AND PLUMBING ITEMS.
2. ALL WORK TO BE IN ACCORDANCE WITH NORTH CAROLINA BUILDING CODE

2 A2.2 Railing Light Attachment Details

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

NOTE: COORDINATE CONDUIT ROUTING WITH ARCHITECT PRIOR TO INSTALLATION.

1 A2.2 Reflected Ceiling Plan

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

TRUE NORTH / PROJECT NORTH

0' 1' 2' 4' 8' 1/4" = 1'-0"

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Reflected Ceiling Plan

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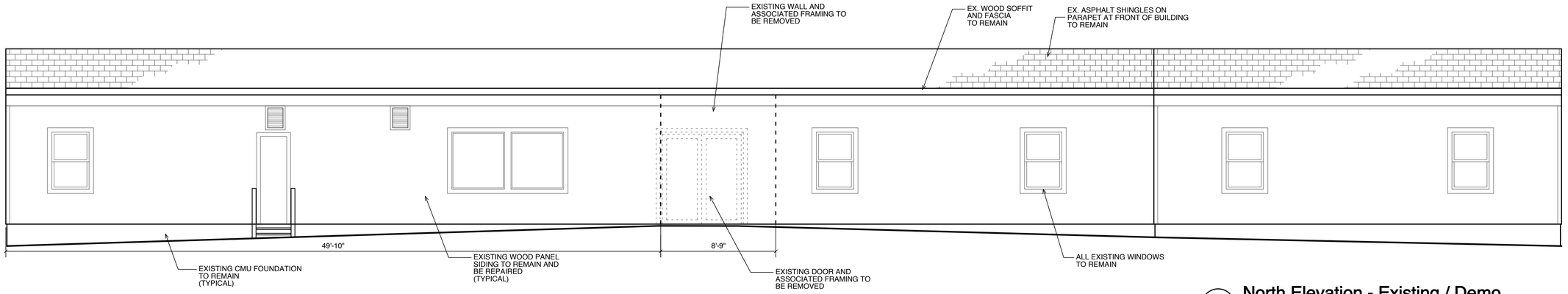
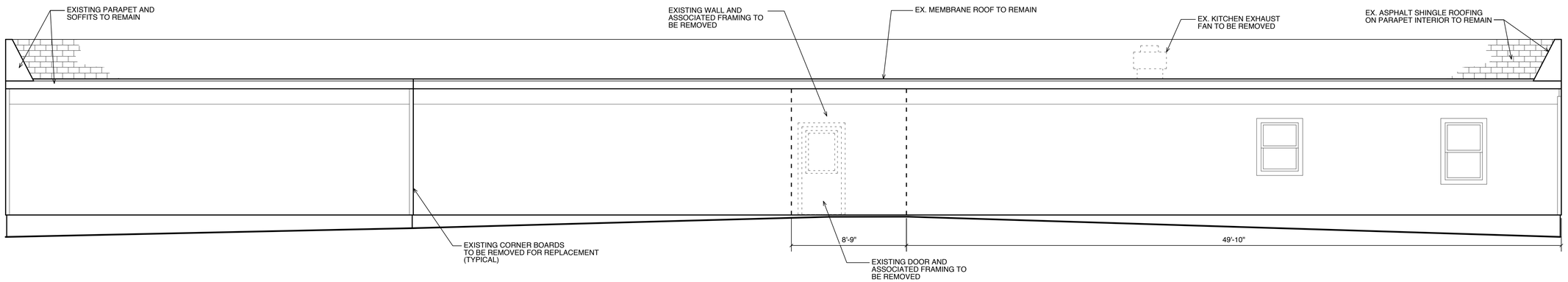
SHEET NUMBER
A2.2



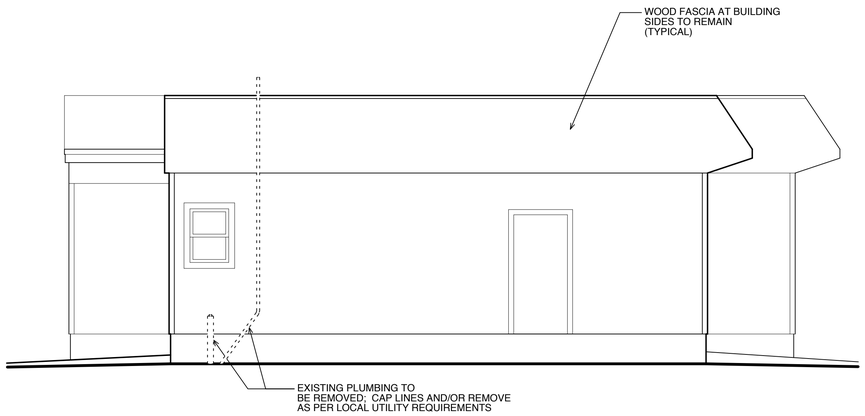
1 A3.0 **North Elevation - Existing / Demo**

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



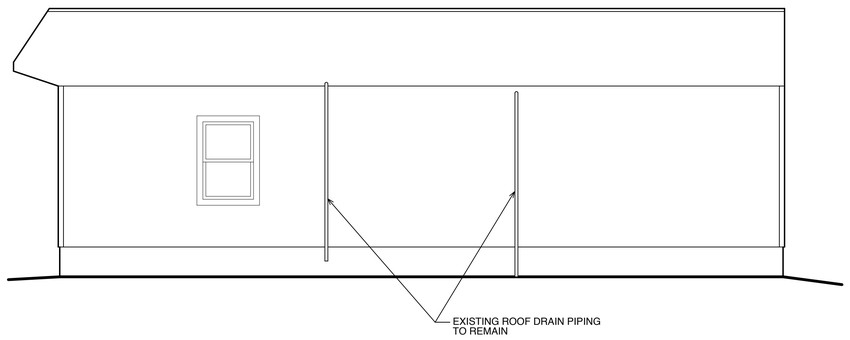
2 A3.0 **South Elevation - Existing / Demo**

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



3 A3.0 **East Elevation - Existing / Demo**

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



4 A3.0 **West Elevation - Existing / Demo**

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

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Existing / Demo Elevations

JOB NUMBER

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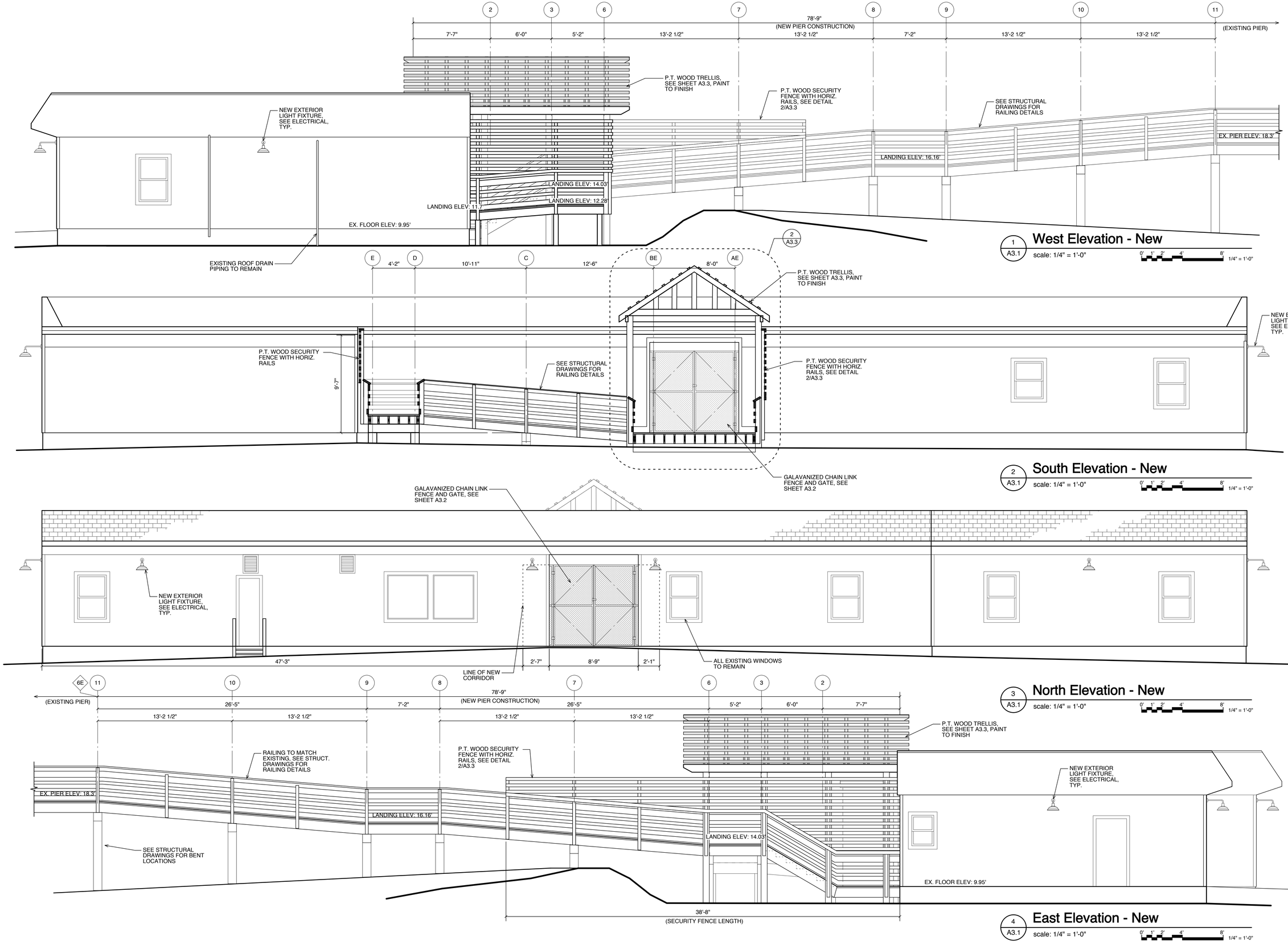
REVISIONS

SHEET NUMBER
A3.0



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New Elevations

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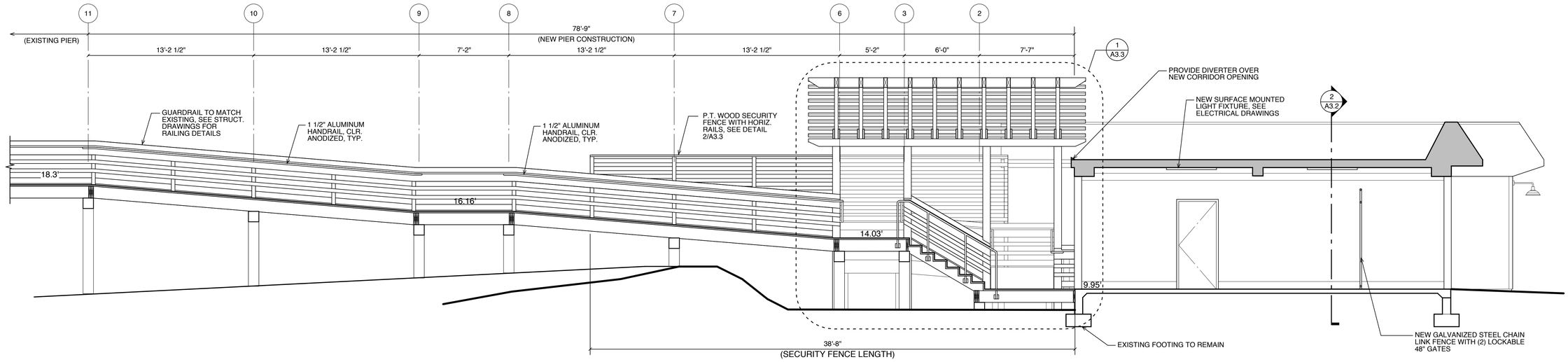
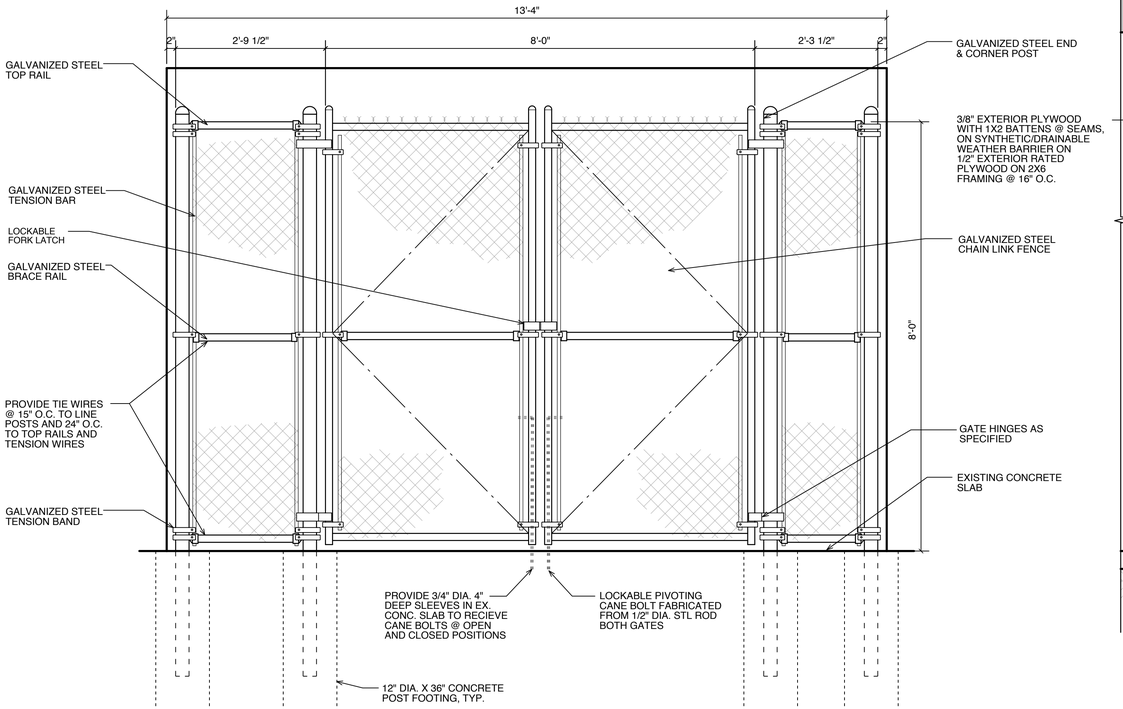


1 A3.2 **Pier Section @ Existing Building**

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

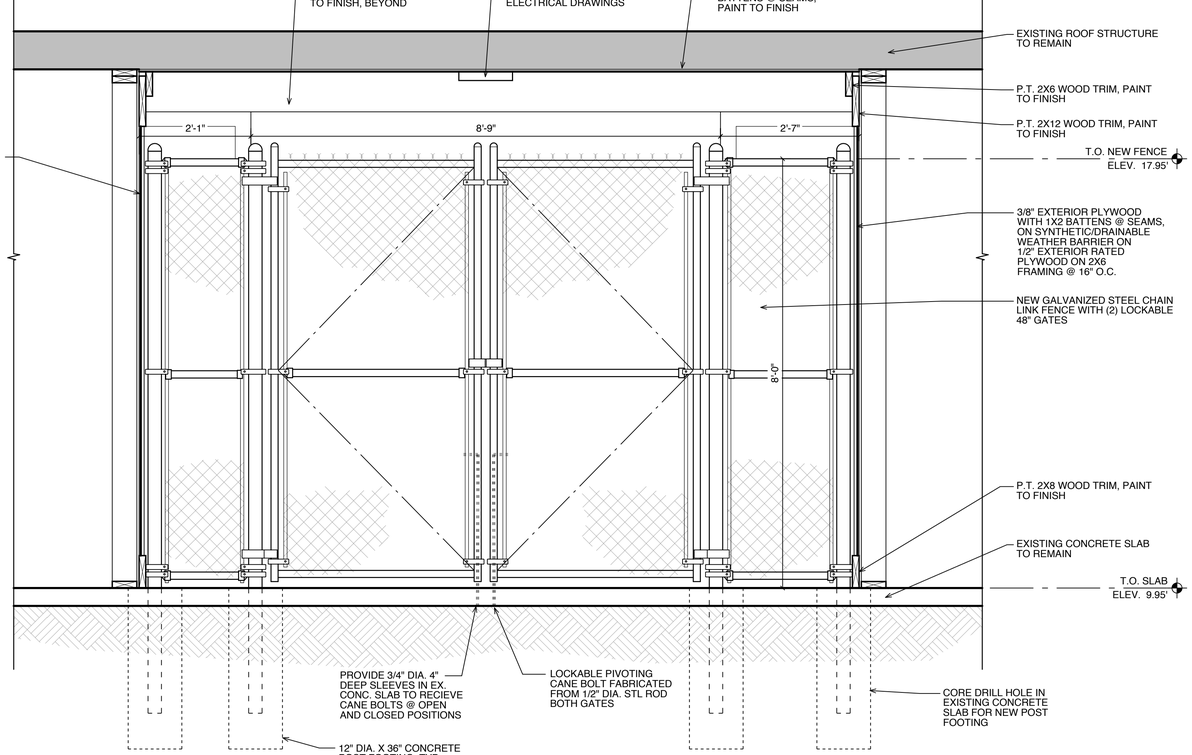
0' 1' 2' 4' 8' 1/4" = 1'-0"



3 A3.2 **Entry Fence Elevation**

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

0' 1' 2' 4' 8' 1/4" = 1'-0"



2 A3.2 **Section @ Building Entry Gate**

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

0' 4" 8" 1'-4" 2'-8" 3/4" = 1'-0"

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Pier Section & Details

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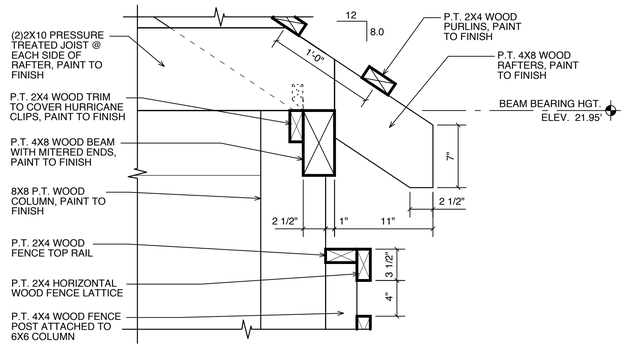
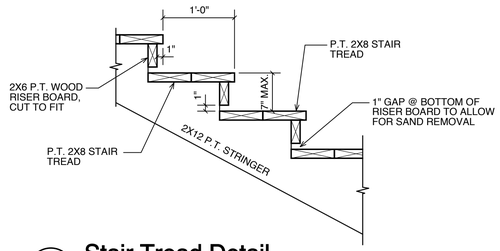
A3.2



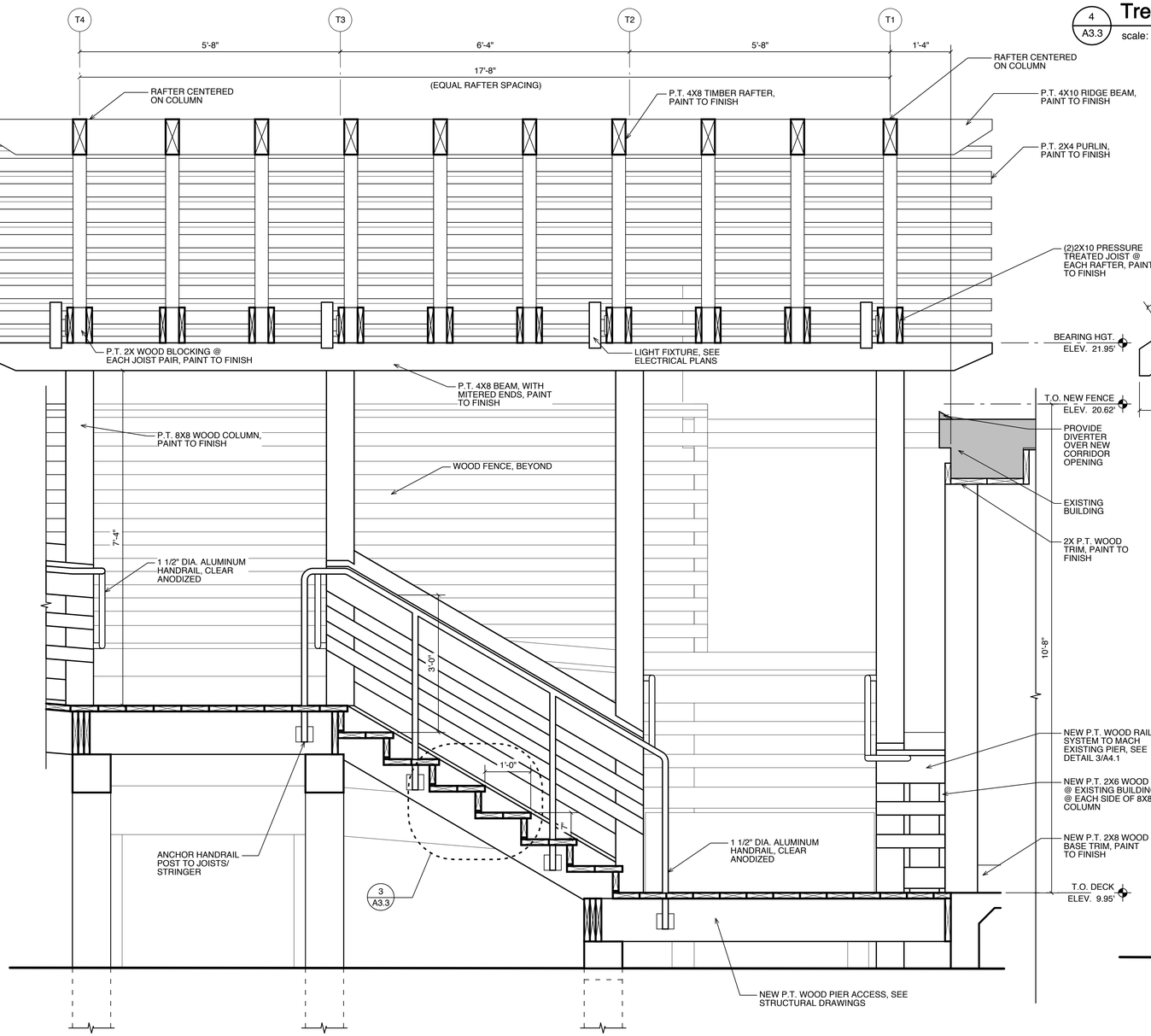
4 A3.3 Trellis Post / Beam Connection

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



3 A3.3 Stair Tread Detail

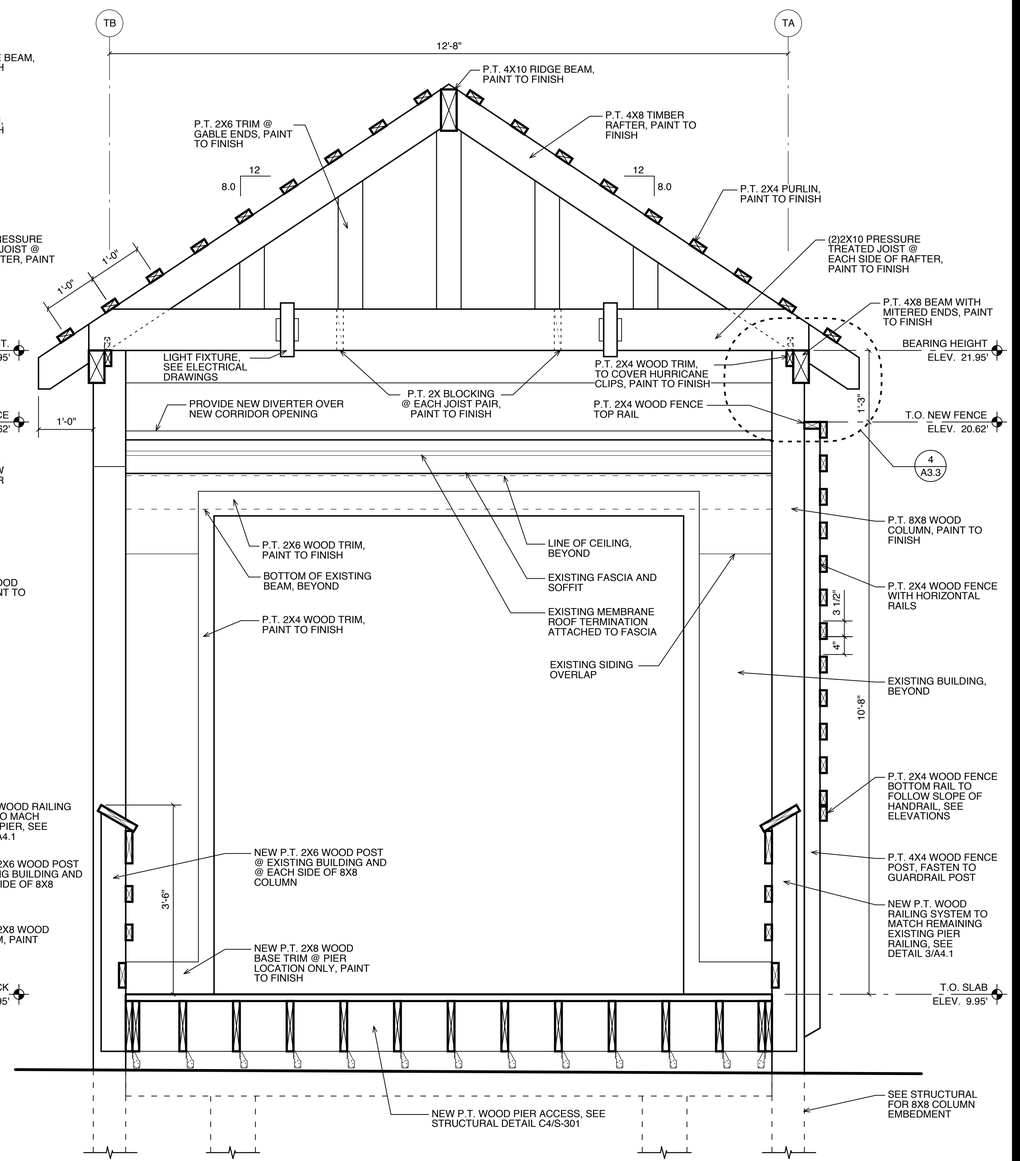
scale: 1" = 1'-0"



1 A3.3 Section @ New Trellis

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

0' 4" 8" 1'-4" 2'-8" 3/4" = 1'-0"



2 A3.3 Section @ New Trellis

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

0' 4" 8" 1'-4" 2'-8" 3/4" = 1'-0"

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Holden Beach Pier

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Trellis Details

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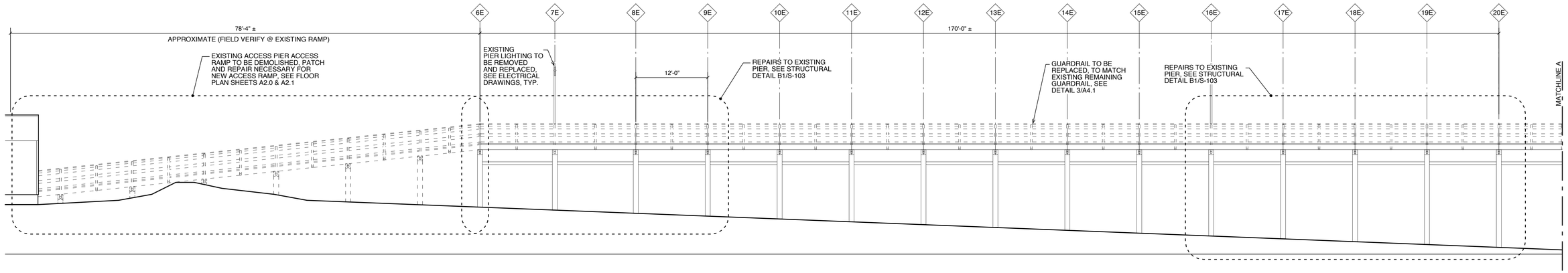
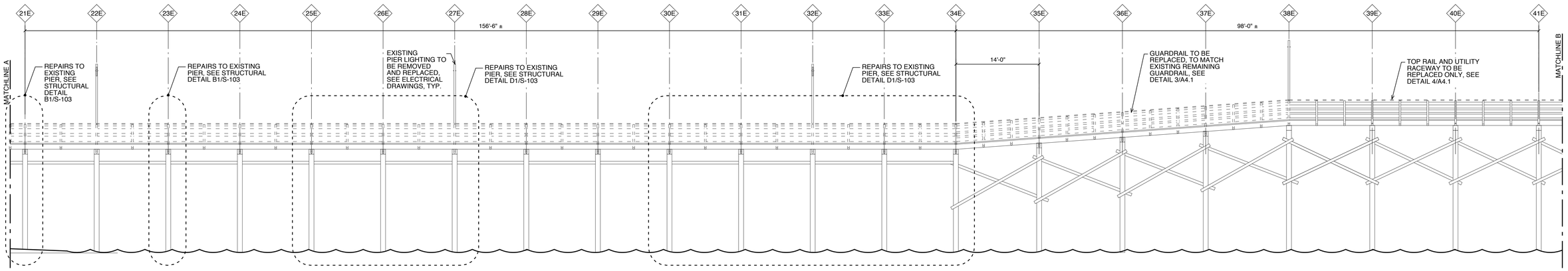
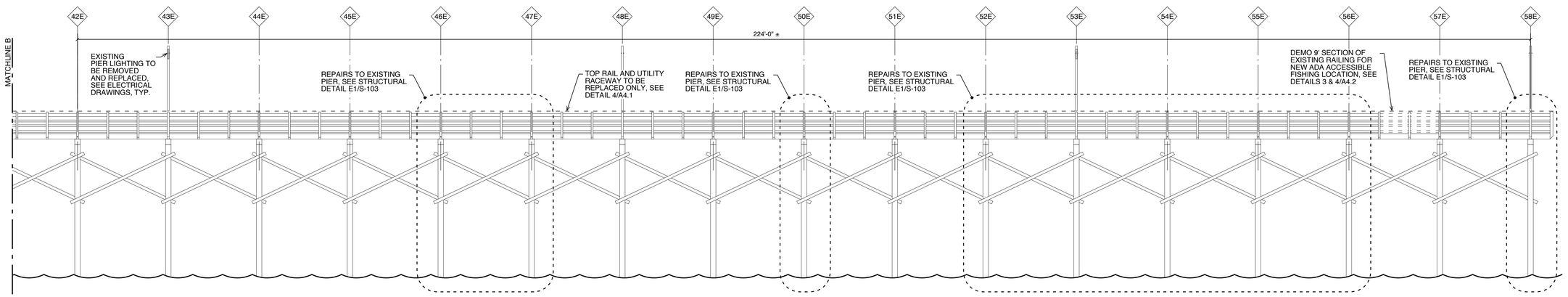
A3.3







NOTE: ALL EXISTING DIMENSIONS ARE APPROXIMATE AND NEED TO BE FIELD VERIFIED.

1 / A4.0 **Existing / Demo Pier Elevations**

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

0' 2' 4' 8' 16' 1/8" = 1'-0"

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Holden Beach Pier

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Existing Pier Elevations

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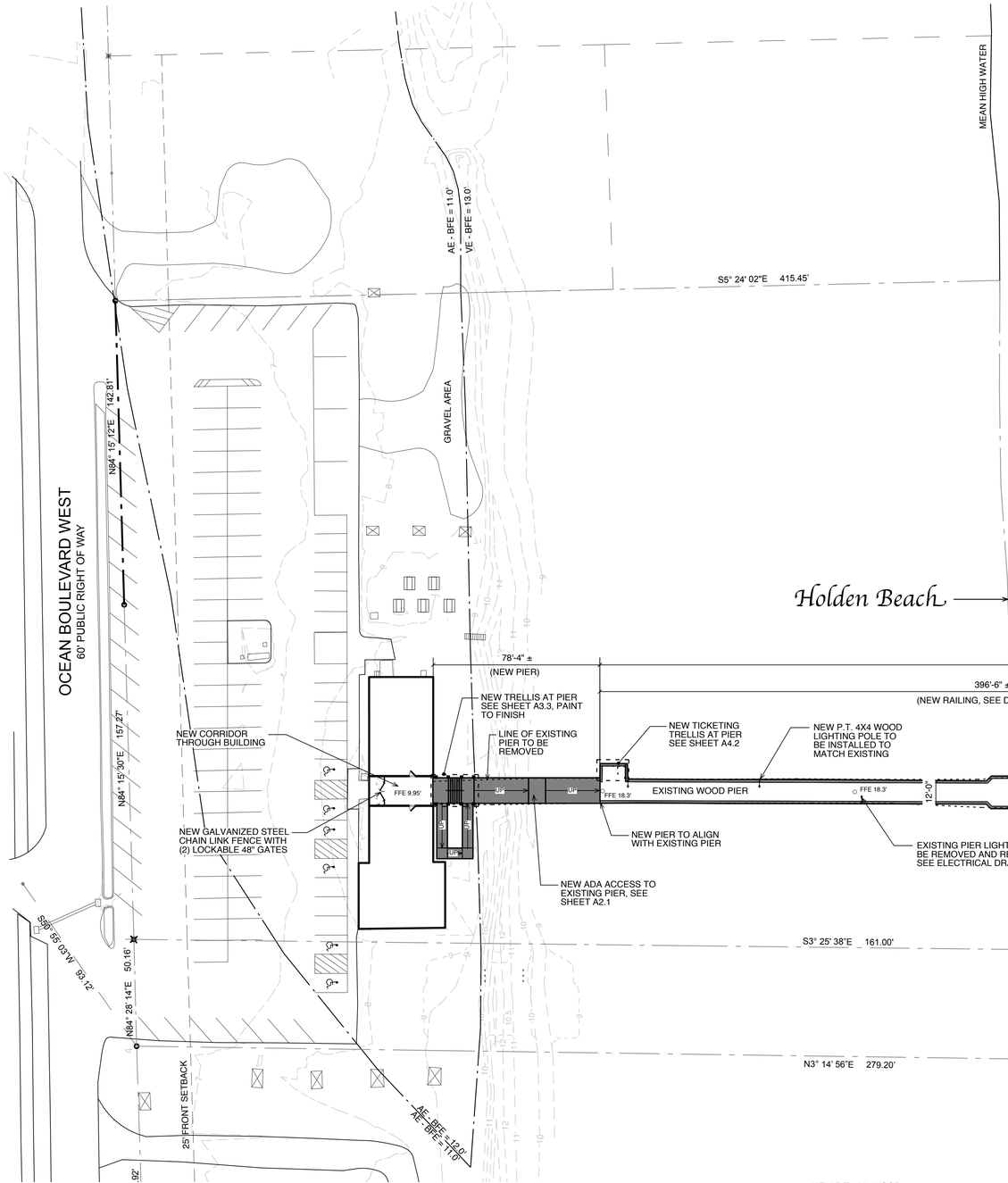
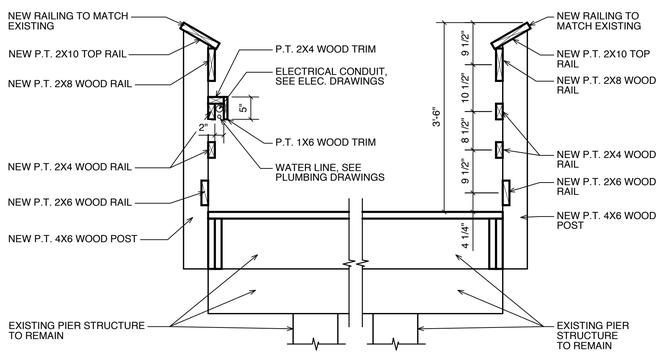
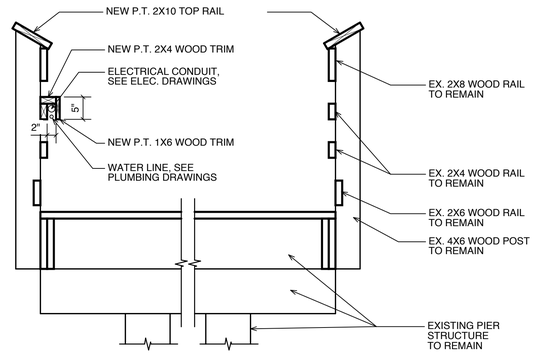




3 A4.1 **New Railing / Utility Raceway Detail**

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



4 A4.1 **Existing Railing / Utility Raceway Repair Detail**

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

LEGEND

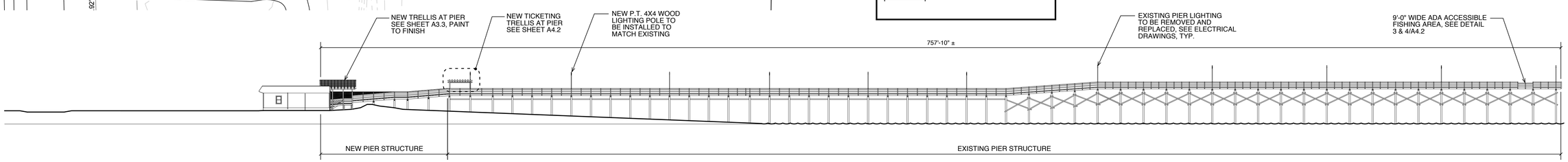
- EXISTING PIER STRUCTURE
- NEW PIER STRUCTURE
- NEW RAILING @ EXISTING PIER, SEE DETAIL 3/A4.1
- EXISTING RAILING TO BE REPAIRED, SEE DETAIL 4/A4.1

NORTH

1 A4.1 **Overall Pier Site Plan - New**

scale: 1" = 30'-0"

0' 7.5' 15' 30' 60' 1" = 30'-0"



NOTE: ALL EXISTING DIMENSIONS ARE APPROXIMATE AND NEED TO BE FIELD VERIFIED.

2 A4.1 **Overall Pier Elevation - New**

scale: 1" = 30'-0"

0' 7.5' 15' 30' 60' 1" = 30'-0"

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Overall Pier Site Plan and Elevation - New

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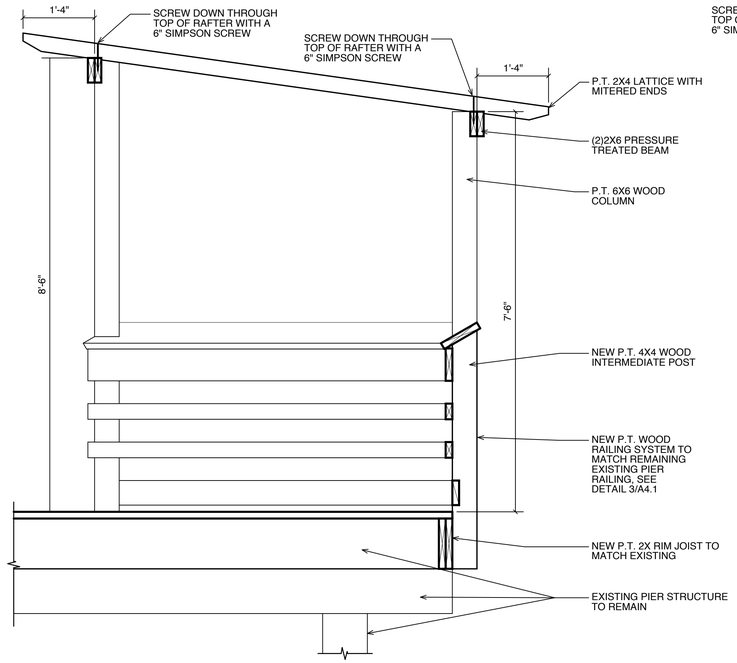
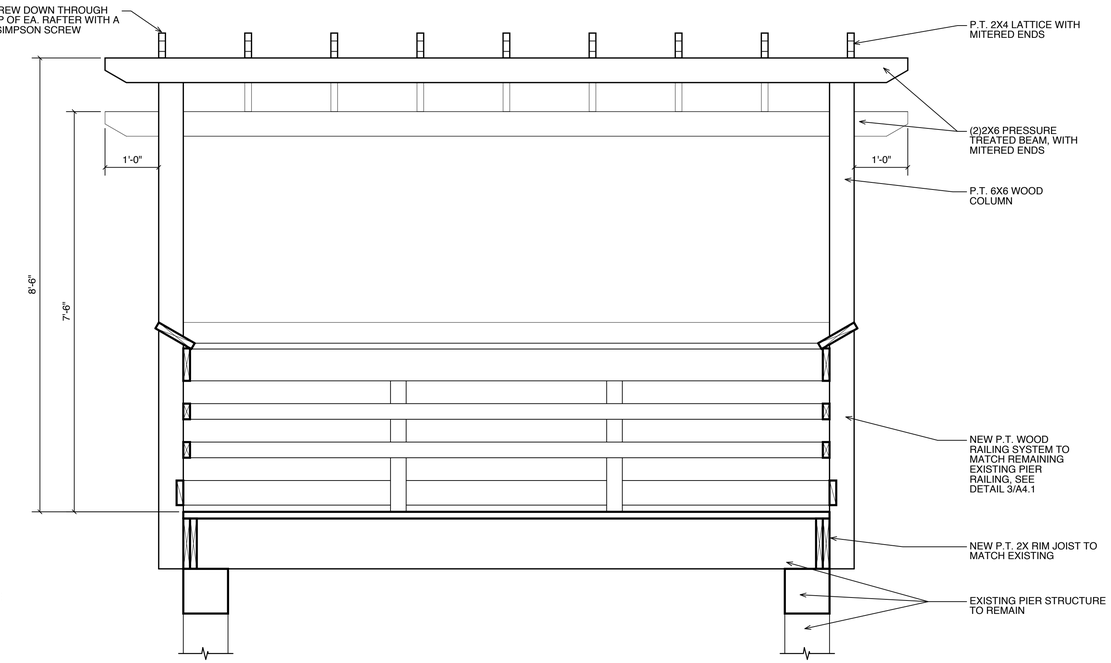


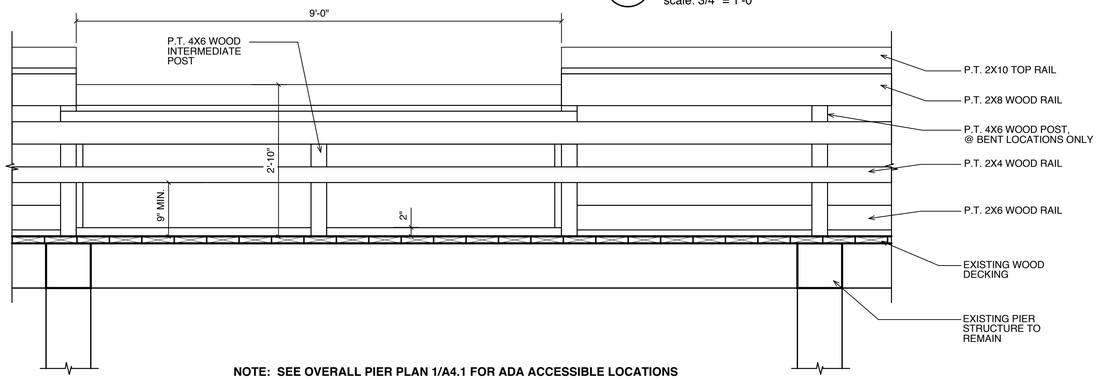
1 A4.2 **Trellis Section @ Ticketing Area**

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



2 A4.2 **Trellis Elevation @ Ticketing Area**

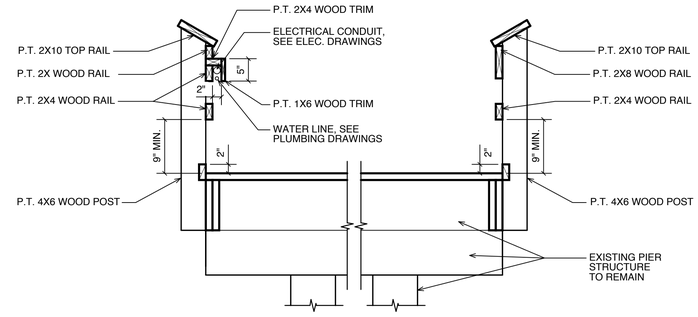
scale: 3/4" = 1'-0"



NOTE: SEE OVERALL PIER PLAN 1/A4.1 FOR ADA ACCESSIBLE LOCATIONS

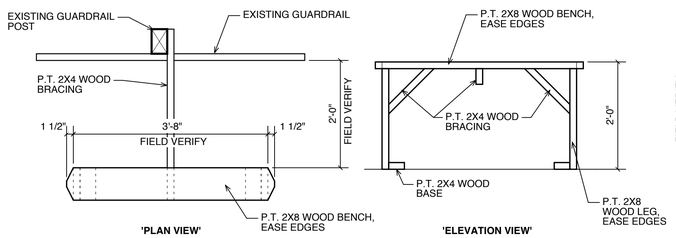
3 A4.2 **ADA Railing Elevation**

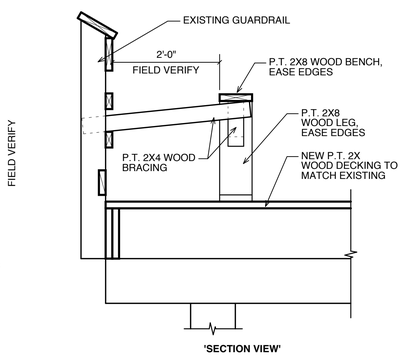
scale: 3/4" = 1'-0"



4 A4.2 **ADA Railing Section**

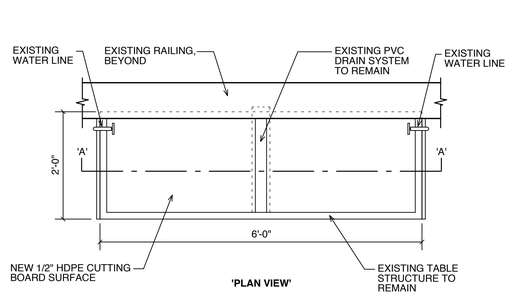
scale: 3/4" = 1'-0"





5 A4.2 **Bench Detail - Add Alternate #1**

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



NOTE: REPLACE ANY DAMAGED WOOD AS NECESSARY.

6 A4.2 **Fish Cleaning Station Repair Details**

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

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Holden Beach, North Carolina 28462

Pier Details

JOB NUMBER

DRAWN BY
MG

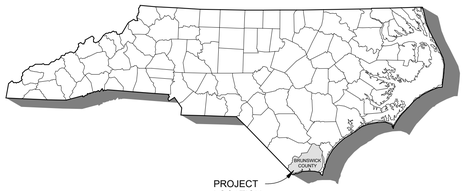
CHECKED BY
GCH

DATE
9/15/23

REVISIONS

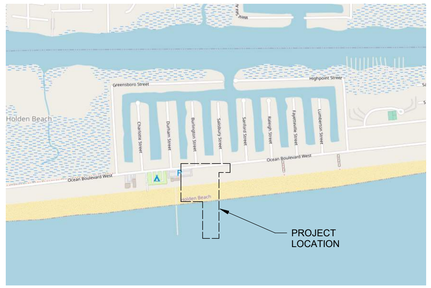
SHEET NUMBER
A4.2

HOLDEN BEACH PIER RENOVATION
441 OCEAN BOULEVARD
HOLDEN BEACH, NC
CONSTRUCTION DOCUMENT DRAWINGS



NORTH

NC MAP



NORTH

LOCATION MAP

SHEET INDEX	
SHEET NUMBER	SHEET NAME
S-001	COVER SHEET
S-002	SPECIAL INSPECTIONS & NOTES
S-101	OVERALL SITE PLAN
SD101	PIER DEMOLITION PLAN
S-102	FRAMING PLAN
S-103	EXISTING PIER LAYOUT
S-301	STRUCTURAL SECTIONS
S-501	STRUCTURAL DETAILS
S-502	EXISTING PIER REPAIR DETAILS
S-503	EXISTING PIER REPAIR DETAILS

GRAPHICAL SYMBOLS LEGEND

VIEW TITLE
A1 VIEW NAME
1/8" = 1'-0"
DRAWING SCALE
DRAWING NUMBER

COLUMN GRID LINES
1 2 COLUMN GRID LINES (NEW)
A
B
COLUMN GRID LINE (EXISTING)

ELEVATION
A1 / S-201
POSITION ON SHEET
SHEET NUMBER

SECTION
A1 / S-301
POSITION ON SHEET
SHEET NUMBER

LEVEL DATUM
LEVEL NAME
LEVEL 01 0'-0"
LEVEL ELEVATION

DETAIL
A1 / S-501
POSITION ON SHEET
SHEET NUMBER

DRAWING REVISIONS
REVISION BOUNDARY
1 REVISION NUMBER

NORTH ARROW
PLAN NORTH
TRUE NORTH

GRAPHIC SCALE
0 2' 4' 8'

ABBREVIATIONS

A	AREA
ACI	AMERICAN CONCRETE INSTITUTE
ADJUST	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALT	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARCH	ARCHITECT
ASD	ALLOWABLE STRESS DESIGN
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
B/	BOTTOM OF
CALCS	CALCULATIONS
CE	CIVIL ENGINEER
CEM	CEMENT
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLR	CLEAR
CS	CHANNEL STUD
CSK	COUNTERSUNK
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CU	CUBIC
DBL	DOUBLE
DEFL	DEFLECTION
DEPR	DEPRESSION
DET	DETAIL
DIAG	DIAGONAL
DIA	DIAMETER
DIM	DIMENSION
DISC	DISCONTINUOUS
DL	DEAD LOAD
DWG	DRAWING
EA	EACH
EL, ELEV	ELEVATION
ENGR	ENGINEER
EOR	ENGINEER OF RECORD
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST, (e)	EXISTING
EXP	EXPANSION, EXPAND
EXPO	EXPOSE
EXT	EXTERIOR
E/	EDGE OF
FDTN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
FILL	FILLET
FIN	FINISH
FLR	FLOOR
FT	FOOT
FTG	FOOTING
FRMG	FRAMING
F/	FACE OF
GA	GAUGE
GALV	GALVANIZED
GR	GRADE
GRD	GROUND
GRT	GROUT
GWB	GYPSUM WALL BOARD
HDG	HOT DIP GALVANIZED
HK	HOOK
HNGR	HANGER
HP	HIGH POINT
HT	HEIGHT
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IN	INCH
INT	INTERIOR
JST	JOIST
JT	JOINT
KSI	KIPS PER SQUARE INCH
LAT	LATERAL
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
LRFD	LOAD & RESISTANCE FACTOR DESIGN
LT WT	LIGHT WEIGHT
MACH	MACHINE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MEM	MEMBRANE
MTL	METAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
NAT	NATURAL
NIC	NOT IN CONTRACT
NO. #	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
N/A	NOT APPLICABLE
OC	ON CENTER
OD	OUTIDE DIAMETER
OPNG	OPENING
OPP	OPPOSITE
PART	PARTITION
PCF	POUNDS PER CUBIC FOOT
PEN	PENETRATION
PL	PLATE
PLYWD	PLYWOOD
PNL	PANEL
PRESS	PRESSURE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
R, RAD	RADIUS
RECT	RECTANGULAR
REINF	REINFORCING
REQD	REQUIRED
REV	REVISION
RFTR	RAFTER
RLL	ROOF LIVE LOAD
RM	ROOM
SCHED	SCHEDULE
SECT	SECTION
SHT	SHEET
SHTG	SHEATHING
SJ	SAW CUT JOINT
SL	SLOPE
SOG	SLAB ON GRADE
SPA	SPACES
SPEC	SPECIFICATION
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STIFF	STIFFENER
SQ	SQUARE
SYM	SYMMETRICAL
THK	THICK
THRU	THROUGH
T/	TOP OF
T&B	TOP AND BOTTOM
ULT	ULTIMATE
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VOL	VOLUME
WL	WIND LOAD
WP	WORK POINT
WT	WEIGHT
WWM	WELDED WIRE MESH
W/	WITH

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

NORTH CAROLINA CORPORATE SEAL C-2461 NORTH CAROLINA, INC. CONSULTING ENGINEERS, P.C.

NORTH CAROLINA PROFESSIONAL SEAL 23591 ENGINEER NEAL W. ANDREW

DocuSigned by: Neal Andrew 330AAE236A904CC... 9/15/2023

ACE PROJECT# 22047

HOLDEN BEACH PIER RENOVATION
441 OCEAN BOULEVARD
HOLDEN BEACH, NC

REV.	DATE	DESCRIPTION

NO.	DATE	ISSUE NOTE
CD	09-15-23	CONSTRUCTION DOCUMENTS

Project Manager: ZJN	Drawn By: GMR/RTW
Date: 09-15-23	Reviewed By: NWA
Project ID: 22047	

Sheet Title: **COVER SHEET**

Sheet No.: S-001

STATEMENT OF SPECIAL INSPECTIONS

PROJECT: HOLDEN BEACH PIER AND PIER HOUSE
LOCATION: HOLDEN BEACH, NC
CLIENT: BMH ARCHITECTS

DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE: NEAL W. ANDREW, PE.

THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED IN ACCORDANCE WITH SECTION 1704.3 OF THE 2015 INTERNATIONAL BUILDING CODE. IT INCLUDES A SCHEDULE OF SPECIAL INSPECTION SERVICES APPLICABLE TO THE ABOVE-REFERENCED PROJECT AS WELL AS THE IDENTITY OF THE INDIVIDUALS, AGENCIES, OR FIRMS INTENDED TO BE RETAINED FOR CONDUCTING THESE INSPECTIONS. IF APPLICABLE, IT INCLUDES REQUIREMENTS FOR SEISMIC RESISTANCE AND/OR REQUIREMENTS FOR WIND RESISTANCE. THIS STATEMENT OF SPECIAL INSPECTIONS ENCOMPASS THE FOLLOWING DISCIPLINES:

☒ STRUCTURAL ☐ MECHANICAL/ELECTRICAL/PLUMBING

☐ ARCHITECTURAL ☐ OTHER

ARE REQUIREMENTS FOR SEISMIC RESISTANCE INCLUDED IN THE STATEMENT OF SPECIAL INSPECTIONS? ☒ YES ☐ NO

ARE REQUIREMENTS FOR WIND RESISTANCE INCLUDED IN THE STATEMENT OF SPECIAL INSPECTIONS? ☐ YES ☒ NO

THE SPECIAL INSPECTOR(S) SHALL KEEP RECORDS OF ALL INSPECTIONS AND SHALL FURNISH INTERIM INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AT A FREQUENCY AGREED UPON BY THE DESIGN PROFESSIONAL AND THE BUILDING OFFICIAL PRIOR TO THE START OF WORK. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO COMPLETION OF THAT PHASE OF WORK. A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTIONS OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AT THE CONCLUSION OF THE PROJECT.

FREQUENCY OF INTERIM REPORT SUBMITTALS TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE:

☒ WEEKLY ☐ BI-WEEKLY ☐ MONTHLY ☐ OTHER; SPECIFY:

THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO COMPLY WITH THE CONTRACT DOCUMENTS. JOBSITE SAFETY AND MEANS AND METHODS OF CONSTRUCTION ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

STATEMENT OF SPECIAL INSPECTIONS PREPARED BY:

NEAL W. ANDREW, PE
TYPE OR PRINT NAME

DocuSigned by:
Neal Andrew
SIGNATURE

9/15/2023
DATE

DocuSigned by:
PREPARER'S SEAL
NORTH CAROLINA PROFESSIONAL SEAL 23591 ENGINEER NEAL W. ANDREW

BUILDING OFFICIAL'S ACCEPTANCE:

SIGNATURE DATE

PERMIT NUMBER

FREQUENCY OF INTERIM REPORT SUBMITTALS TO THE BUILDING OFFICIAL:

☐ WEEKLY ☐ BI-WEEKLY ☐ MONTHLY ☒ OTHER - SPECIFY: AS REQUESTED

* INSPECTION AGENTS

FIRM	ADDRESS	TELEPHONE NO.
1. TO BE DETERMINED		
2.		
3.		
4.		

NOTES:
1. THE INSPECTION AND TESTING AGENT(S) SHALL BE ENGAGED BY THE OWNER OR THE OWNER'S AGENT, AND NOT BY THE CONTRACTOR OR SUBCONTRACTOR WHOSE WORK IS TO BE INSPECTED OR TESTED. ANY CONFLICT OF INTEREST MUST BE DISCLOSED TO THE BUILDING OFFICIAL PRIOR TO COMMENCING WORK. THE QUALIFICATIONS OF THE SPECIAL INSPECTOR(S) AND/OR TESTING AGENCIES MAY BE SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL AND/OR THE DESIGN PROFESSIONAL.
2. THE LIST OF SPECIAL INSPECTORS MAY BE SUBMITTED AS A SEPARATE DOCUMENT, IF NOTED SO ABOVE.
3. SPECIAL INSPECTIONS AS REQUIRED BY SECTION 1704.2.5 ARE NOT REQUIRED WHERE THE FABRICATOR IS APPROVED IN ACCORDANCE WITH IBC SECTION 1704.2.5.1
4. OBSERVE ON A RANDOM BASIS, OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. PERFORM THESE TASKS FOR EACH WELDED JOINT, BOLTED CONNECTION, OR STEEL ELEMENT.
5. NDT OF WELDS COMPLETED IN AN APPROVED FABRICATOR'S SHOP MAY BE PERFORMED BY THAT FABRICATOR WHEN APPROVED BY THE AHJ. REFER TO AISC 360, N6.

QUALIFICATIONS OF INSPECTORS AND TESTING TECHNICIANS

THE QUALIFICATIONS OF ALL PERSONNEL PERFORMING SPECIAL INSPECTION AND TESTING ACTIVITIES ARE SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL. THE CREDENTIALS OF ALL INSPECTORS AND TESTING TECHNICIANS SHALL BE PROVIDED IF REQUESTED.

KEY FOR MINIMUM QUALIFICATIONS OF INSPECTION AGENTS:

WHEN THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE DEEMS IT APPROPRIATE THAT THE INDIVIDUAL PERFORMING A STIPULATED TEST OR INSPECTION HAVE A SPECIFIC CERTIFICATION OR LICENSE AS INDICATED BELOW, SUCH DESIGNATION SHALL APPEAR BELOW THE AGENCY NUMBER ON THE SCHEDULE.

PE/SE STRUCTURAL ENGINEER – A LICENSED SE OR PE SPECIALIZING IN THE DESIGN OF BUILDING STRUCTURES
PE/GE GEOTECHNICAL ENGINEER – A LICENSED PE SPECIALIZING IN SOIL MECHANICS AND FOUNDATIONS
EIT ENGINEER-IN-TRAINING – A GRADUATE ENGINEER WHO HAS PASSED THE FUNDAMENTALS OF ENGINEERING EXAMINATION

AMERICAN CONCRETE INSTITUTE (ACI) CERTIFICATION

ACI-CFTT CONCRETE FIELD TESTING TECHNICIAN – GRADE 1
ACI-CCI CONCRETE CONSTRUCTION INSPECTOR
ACI-LTT LABORATORY TESTING TECHNICIAN – GRADE 1 & 2
ACI-STT STRENGTH TESTING TECHNICIAN

AMERICAN WELDING SOCIETY (AWS) CERTIFICATION

AWS-CWI CERTIFIED WELDING INSPECTOR
AWS/AISC-SSI CERTIFIED STRUCTURAL STEEL INSPECTOR

AMERICAN SOCIETY OF NON-DESTRUCTIVE TESTING (ASNT) CERTIFICATION

ASNT NON-DESTRUCTIVE TESTING TECHNICIAN – LEVEL II OR III

INTERNATIONAL CODE COUNCIL (ICC) CERTIFICATION

ICC-SMSI STRUCTURAL MASONRY SPECIAL INSPECTOR
ICC-SWSI STRUCTURAL STEEL AND WELDING SPECIAL INSPECTOR
ICC-SFSI SPRAY-APPLIED FIREPROOFING SPECIAL INSPECTOR
ICC-PCSI PRESTRESSED CONCRETE SPECIAL INSPECTOR
ICC-RCSI REINFORCED CONCRETE SPECIAL INSPECTOR

NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET)

NICET-CT CONCRETE TECHNICIAN – LEVELS I, II, III & IV
NICET-ST SOILS TECHNICIAN - LEVELS I, II, III & IV
NICET-GET GEOTECHNICAL ENGINEERING TECHNICIAN - LEVELS I, II, III & IV

EXTERIOR DESIGN INSTITUTE (EDI) CERTIFICATION

EDI-EIFS EIFS THIRD PARTY INSPECTOR

OTHER

SCHEDULE OF SPECIAL INSPECTION SERVICES

PROJECT	TRINITY LANDING TIMBER PIER				
MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT			
		Y/N	EXTENT	AGENT*	DATE COMPLETED
1705.7 DRIVEN DEEP FOUNDATIONS					
1. VERIFY ELEMENT MATERIALS, SIZES AND LENGTHS COMPLY WITH REQUIREMENTS	FIELD INSPECTION	Y	CONTINUOUS		
2. DETERMINE CAPACITIES OF TEST ELEMENTS AND CONDUCT ADDITIONAL LOAD TESTS, AS REQUIRED	FIELD INSPECTION	Y	CONTINUOUS		
3. INSPECT DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	FIELD INSPECTION	Y	CONTINUOUS		
4. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM TYPE AND SIZE OF HAMMER, RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENT	FIELD INSPECTION	Y	CONTINUOUS		
1705.9 HELICAL PILE FOUNDATIONS					
1. VERIFY INSTALLATION EQUIPMENT, PILE DIMENSIONS, TIP ELEVATIONS, FINAL DEPTH, FINAL INSTALLATION TORQUE AND OTHER DATA AS REQUIRED.	FIELD INSPECTION	Y	CONTINUOUS		
2. PERFORM ADDITIONAL INSPECTIONS AND TESTS IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS	FIELD INSPECTION AND TESTING	Y	IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS		
1705.11.1 STRUCTURAL WOOD SPECIAL INSPECTIONS FOR WIND RESISTANCE.					
1. INSPECTION OF BOLTING ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM, INCLUDING THE BRACES.	FIELD INSPECTION	Y	PERIODIC		

GENERAL STRUCTURAL NOTES

MISCELLANEOUS:

1. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING, SHORING AND GUYING OF FRAMING AND WALLS AGAINST WIND, CONSTRUCTION LOADS AND OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE FRAMING.
2. DIMENSIONS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE DIMENSIONS OF THE STRUCTURAL DRAWINGS AND ADVISING THE ENGINEER OF ANY DIFFERENCES IN DIMENSIONS BETWEEN THE PLANS, SECTIONS, AND DETAILS PRIOR TO COMMENCING CONSTRUCTION.
3. CONSTRUCTION SAFETY: THESE STRUCTURAL DRAWINGS DO NOT CONTAIN NECESSARY COMPONENTS FOR SAFETY DURING CONSTRUCTION.

ENVIRONMENTAL CONSIDERATIONS:

1. DURING CONSTRUCTION, THE CONTRACTOR SHALL CONDUCT ITS OPERATIONS IN SUCH A MANNER TO PREVENT OR REDUCE TO A MINIMUM ANY DAMAGE TO THE WATER WAY FROM POLLUTION BY DEBRIS, SEDIMENT OR OTHER FOREIGN MATERIAL, OR FROM THE MANIPULATION OF EQUIPMENT AND/OR MATERIALS IN OR NEAR THE WATER WAY. THE CONTRACTOR SHALL NOT RETURN DIRECTLY TO THE WATER WAY ANY WATER WHICH CAUSE THE WATER WAY TO BECOME POLLUTED WITH SILT, CEMENT, OIL, OR OTHER IMPURITIES.
2. DURING REMOVAL OPERATIONS, THE CONTRACTOR SHALL NOT BE ALLOWED TO DROP WASTE CONCRETE, DEBRIS AND OTHER MATERIAL INTO PROJECT AREA. NETS, SCREENS OR OTHER PROTECTIVE DEVICES SHALL BE USED TO CATCH THE MATERIAL. IF THE DESIGN TEAM OR OWNER DETERMINES THAT ADEQUATE PROTECTIVE DEVICES ARE NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL PROTECTION IS PROVIDED.

DESIGN INFORMATION

DESIGN INFORMATION
A. CODES: 2018 NORTH CAROLINA BUILDING CODE
B. LIVE LOADS: 60 PSF AND 300 LB NON-CONCURRENT CONCENTRATED LOAD
C. SNOW LOAD:
   1. GROUND SNOW LOAD: 10 PSF
D. WIND DESIGN DATA: HURRICANE-PRONE REGION, WIND BORNE DEBRIS REGION
   1. ULTIMATE WIND SPEED: 148 MPH
   2. NOMINAL DESIGN WIND SPEED: 114.6 MPH
   3. RISK CATEGORY: II
   4. WIND EXPOSURE: D
   5. INTERNAL PRESSURE COEFFICIENT: N/A
   6. DESIGN WIND PRESSURES FOR COMPONENT AND CLADDING: N/A
E. EARTHQUAKE DESIGN DATA:
   1. RISK CATEGORY: II
   2. SEISMIC IMPORTANCE FACTOR: 1.0
   3. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS: S_S = 0.283 G, S_1 = 0.11 G
   4. SITE CLASS: D (ASSUMED)
   5. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS: S_{DS} = 0.297 G, S_{D1} = 0.175 G
   6. SEISMIC DESIGN CATEGORY: C
   7. BASIC SEISMIC-FORCE-RESISTING SYSTEM: CANTILEVERED COLUMN SYSTEMS DETAILED TO CONFORM TO THE REQUIREMENTS FOR TIMBER FRAMES
   8. DESIGN BASE SHEARS: 610 LBS PER BENT
   9. SEISMIC RESPONSE COEFFICIENTS: 0.198
   10. RESPONSE MODIFICATION COEFFICIENT: 1.5
   11. ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE
F. FLOOD DESIGN DATA:
   1. FLOOD HAZARD AREA: VE
   2. FLOOD ELEVATION: 13 FT NAVD 88
   3. FLOOD DESIGN CLASS: 1
G. DEEP FOUNDATIONS
   1. REQUIRED ALLOWABLE COMPRESSION LOAD PER PILE: 8,400 LBS (ASD)
   2. REQUIRED ALLOWABLE TENSION LOAD PER PILE: 2,400 LBS (ASD)
H. GEOTECHNICAL INFORMATION
   1. DESIGN BASIS: FOUNDATION DESIGN BASED ON S&ME PROJECT NO. 23060076

SPECIAL INSPECTIONS FOR WIND RESISTANCE

SPECIAL INSPECTIONS FOR WIND RESISTANCE ARE REQUIRED IN WIND EXPOSURE CATEGORY B WHERE THE NOMINAL DESIGN WIND SPEED, V_{ASD}, IS 120 MILES PER HOUR OR GREATER AND IN WIND EXPOSURE CATEGORY C OR D WHERE THE NOMINAL DESIGN WIND SPEED, V_{ASD}, IS 110 MILES PER HOUR OR GREATER, UNLESS EXEMPTED BY THE EXCEPTIONS OF IBC SECTION 1740.2. SEE THE SCHEDULE OF SPECIAL INSPECTIONS FOR INSPECTION AND TESTING REQUIREMENTS.

NOMINAL DESIGN WIND SPEED, V_{ASD}: 114.6 MPH
WIND EXPOSURE CATEGORY: D
STATEMENT OF SPECIAL INSPECTION FOR WIND RESISTANCE REQUIRED: YES

DESCRIPTION OF WINDFORCE-RESISTING COMPONENTS SUBJECT TO SPECIAL INSPECTION FOR WIND RESISTANCE: BOLTING OF WOOD PIER BRACES.

STATEMENT OF RESPONSIBILITY:
EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OR FABRICATION OF A SYSTEM OR COMPONENT DESCRIBED ABOVE MUST SUBMIT A STATEMENT OF RESPONSIBILITY.

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

NORTH CAROLINA CORPORATE SEAL C-2461 NORTH CAROLINA, INC. CONSULTING ENGINEERS, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 23591 ENGINEER NEAL W. ANDREW

DocuSigned by: Neal Andrew 330AAE238A9D4CC... 9/15/2023

ACE PROJECT# 22047

HOLDEN BEACH PIER AND PIER HOUSE RENOVATION

441 OCEAN BOULEVARD
HOLDEN BEACH, NC

REV.	DATE	DESCRIPTION
CD	09-15-23	CONSTRUCTION DOCUMENTS

NO.	DATE	ISSUE NOTE

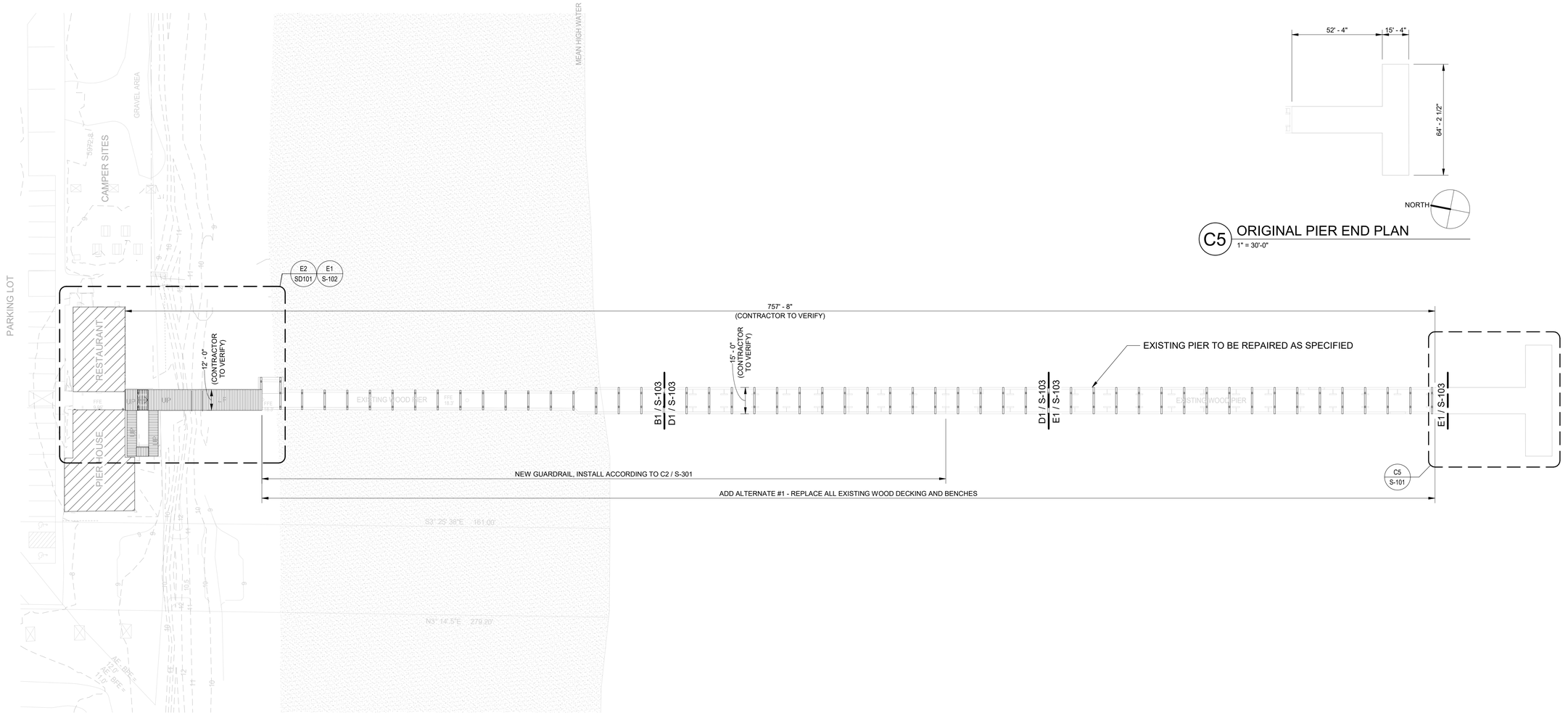
Project Manager: ZJN	Drawn By: GMR/RTW
Date: 09-15-23	Reviewed By: NWA
Project ID: 22047	

Sheet Title: **SPECIAL INSPECTIONS & NOTES**

Sheet No.: S-002

GENERAL SHEET NOTES

1. THE BACKGROUND FOR THESE DRAWINGS WAS TAKEN FROM BMH ARCHITECT'S DRAWINGS TITLED "HOLDEN BEACH PIER," PLAN VIEW TITLED "NEW SITE PLAN," SHEET A1.1, DATED 07/07/23.



E1 OVERALL SITE PLAN
1" = 30'-0"

C5 ORIGINAL PIER END PLAN
1" = 30'-0"

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

NORTH CAROLINA CORPORATE SEAL C-2461 NORTH CAROLINA — MURDOCK CONSULTING ENGINEERS P.C.

NORTH CAROLINA PROFESSIONAL SEAL 23591 ENGINEER NEAL W. ANDREW

DocuSigned by: Neal Andrew 330AAE236A804CC...
9/15/2023

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HOLDEN BEACH PIER RENOVATION

441 OCEAN BOULEVARD
HOLDEN BEACH, NC

REV.	DATE	DESCRIPTION
CD	09-15-23	CONSTRUCTION DOCUMENTS
NO.	DATE	ISSUE NOTE

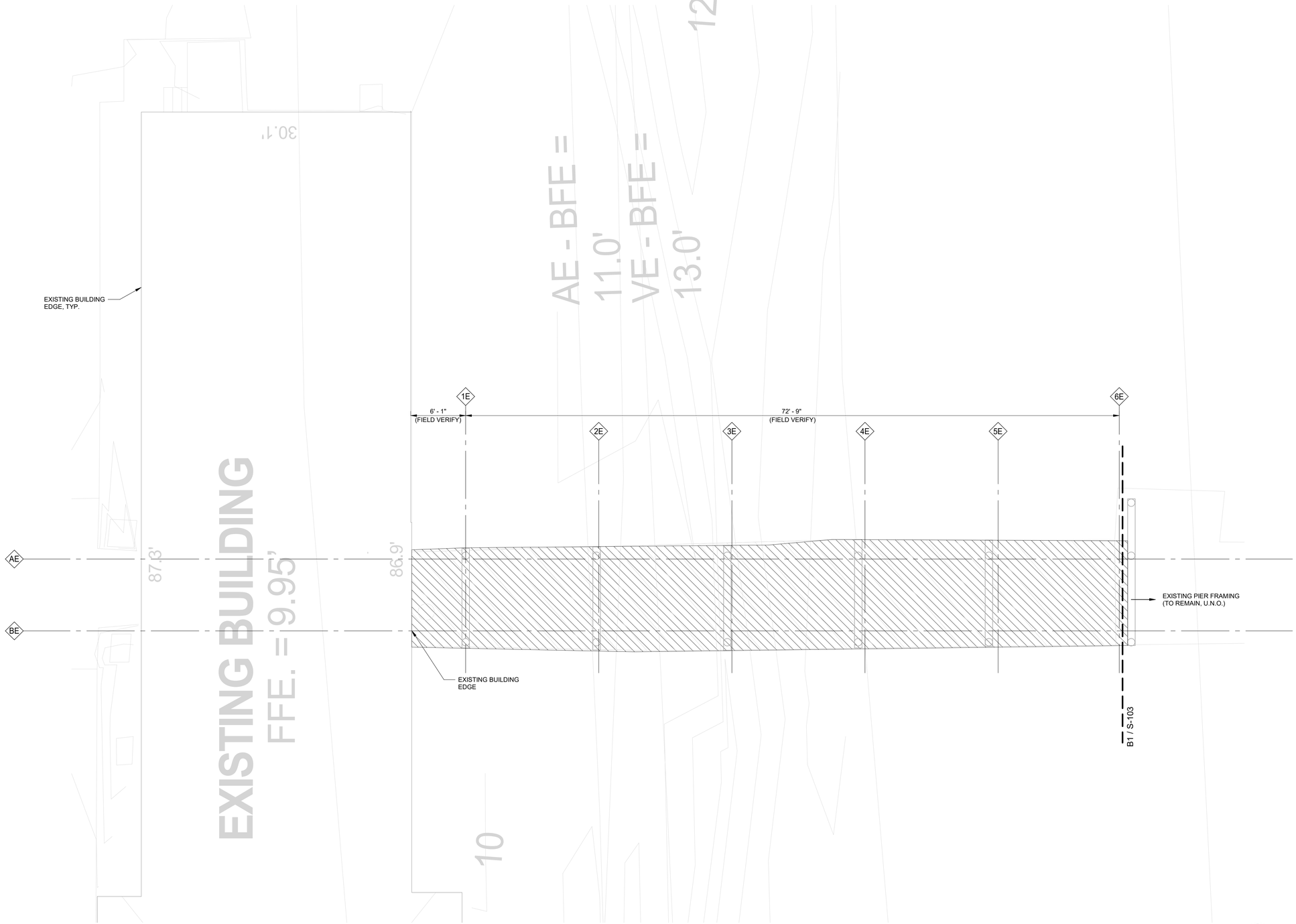
Project Manager: ZJN	Drawn By: GMR/RTW
Date: 09-15-23	Reviewed By: NWA
Project ID: 22047	

Sheet Title: **OVERALL SITE PLAN**

Sheet No.: **S-101**

GENERAL SHEET NOTES

1. ▨ - INDICATES SECTION OF EXISTING PIER TO BE REMOVED INCLUDING HORIZONTAL BRACES, VERTICAL BRACES, PILES, GIRDERS, STRINGERS, DECKING, AND ALL HANDRAIL COMPONENTS.
2. THE BACKGROUND FOR THESE DRAWINGS WAS TAKEN FROM BMH ARCHITECTS DRAWINGS TITLED "HOLDEN BEACH PIER," PLAN VIEW TITLED "EXISTING/DEMO SITE PLAN," SHEET A1.0 DATED 07/07/23.



E2 DEMOLITION PLAN
3/16" = 1'-0"

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

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NUNEZ CONSULTING ENGINEERS, P.C.

NORTH CAROLINA PROFESSIONAL SEAL 23591 ENGINEER NEAL W. ANDREW

DocuSigned by: Neal Andrew 330AAE236A904CC... 9/15/2023

ACE PROJECT# 22047

HOLDEN BEACH PIER RENOVATION

441 OCEAN BOULEVARD
HOLDEN BEACH, NC

REV.	DATE	DESCRIPTION

NO.	DATE	ISSUE NOTE
CD	09-15-23	CONSTRUCTION DOCUMENTS

Project Manager: ZJN	Drawn By: GMR/RTW
Date: 09-15-23	Reviewed By: NWA
Project ID: 22047	

Sheet Title

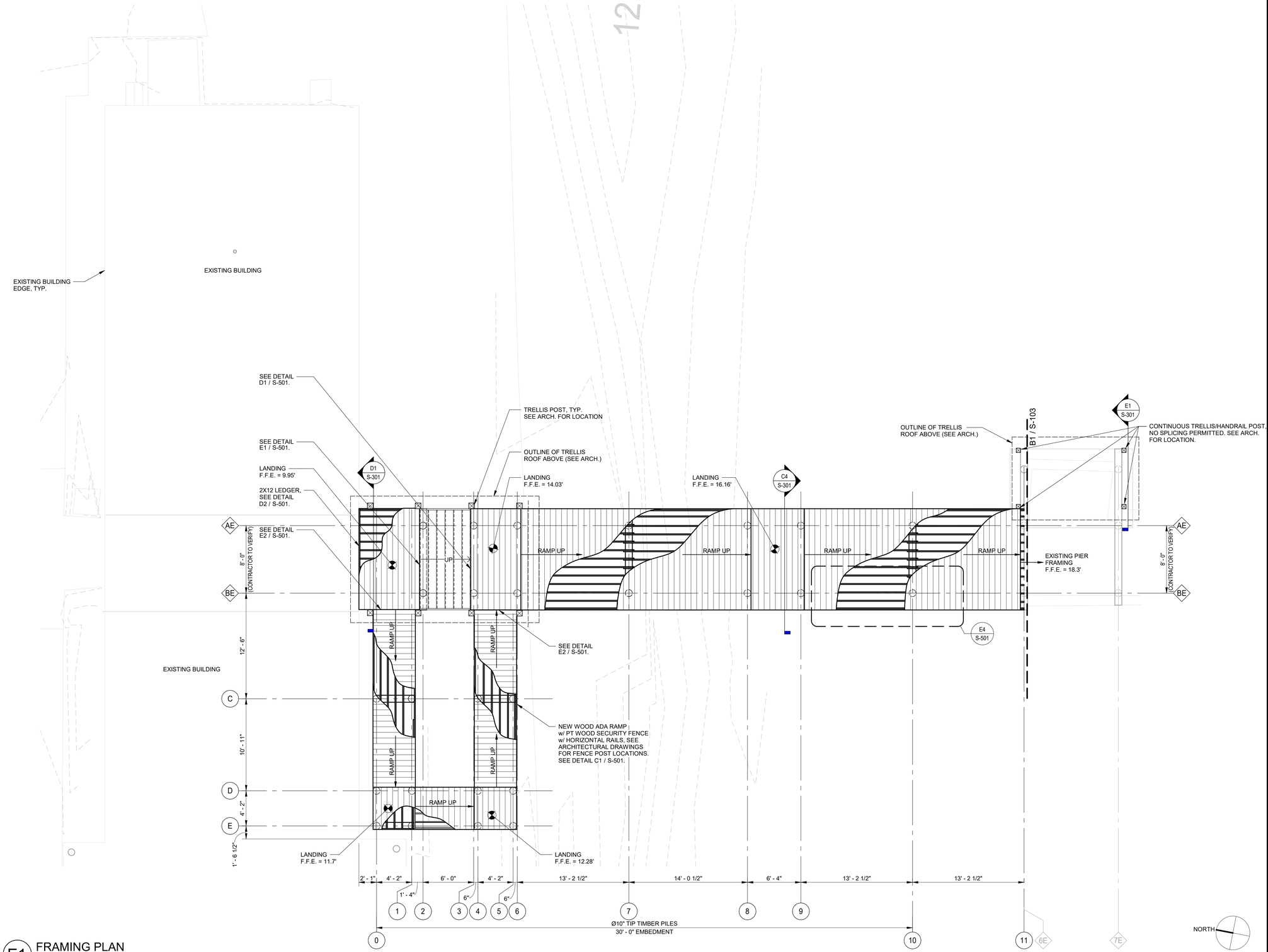
PIER DEMOLITION PLAN

Sheet No.

SD101

GENERAL SHEET NOTES

1. THE BACKGROUND FOR THESE DRAWINGS WAS TAKEN FROM BMH ARCHITECT'S DRAWINGS TITLED "HOLDEN BEACH PIER," PLAN VIEW TITLED "NEW SITE PLAN," SHEET A1.1, DATED 07/07/23.



E1 FRAMING PLAN
3/16" = 1'-0"

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

NORTH CAROLINA CONSULTING ENGINEERS P.C. CORPORATE SEAL C-2461 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 23591 ENGINEER NEAL W. ANDREW

DocuSigned by: Neal Andrew 330AAE236A0640D
9/15/2023

ACE PROJECT# 22047

HOLDEN BEACH PIER RENOVATION

441 OCEAN BOULEVARD
HOLDEN BEACH, NC

REV.	DATE	DESCRIPTION
CD	09-15-23	CONSTRUCTION DOCUMENTS
NO.	DATE	ISSUE NOTE

Project Manager: ZJN	Drawn By: GMR/RTW
Date: 09-15-23	Reviewed By: NWA
Project ID: 22047	

Sheet Title: **FRAMING PLAN**

Sheet No.: **S-102**

SHEET KEYNOTES

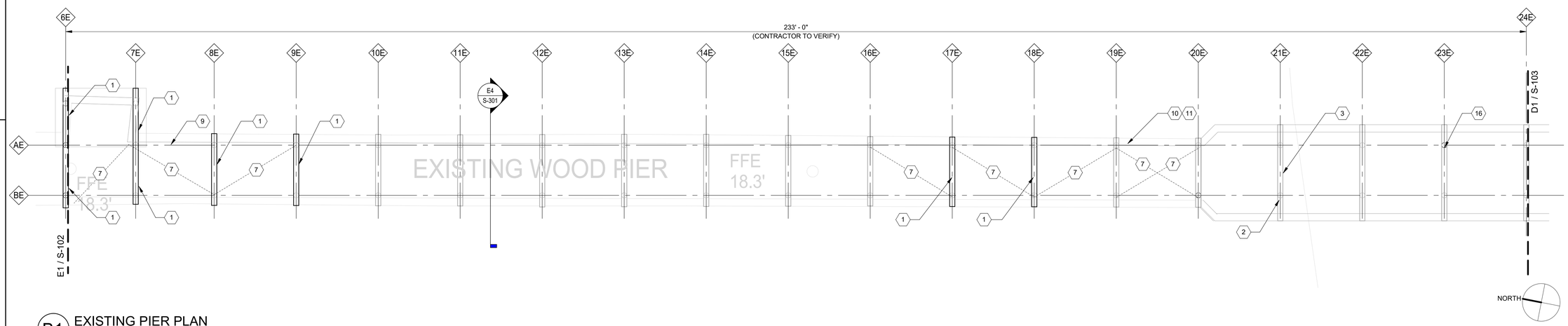
1. REPLACE GIRDER TO MATCH EXISTING.
2. REPLACE EXISTING PILE. PILE SHALL BE Ø16" BUTT AND HAVE 30' EMBEDMENT. RECONNECT HORIZONTAL BRACING, VERTICAL BRACING, AND GIRDER-PILE METAL PLATE CONNECTION TO MATCH EXISTING. FOR TYPICAL PILE REPLACEMENT CONDITION, SEE DETAIL E2 / S-503.
3. INSTALL/REPLACE VERTICAL BRACING TO MATCH EXISTING.
4. INSTALL/REPLACE STRINGER-GIRDER METAL PLATE CONNECTION TO MATCH EXISTING.
5. INSTALL/REPLACE GIRDER-PILE METAL PLATE CONNECTION TO MATCH EXISTING.
6. INSTALL FULL DEPTH BLOCKING IN BETWEEN ALL HANDRAIL POSTS AS SHOWN IN DETAIL E4 / S-501.
7. REPLACE HORIZONTAL BRACING TO MATCH EXISTING.

SHEET KEYNOTES

8. REPLACE ALL BOLTS TO MATCH EXISTING.
9. REPAIR PER DETAIL E1 / S-502.
10. REPAIR PER DETAIL E3 / S-502.
11. REPAIR PER DETAIL C3 / S-502.
12. REPAIR PER DETAIL E5 / S-502.
13. REPAIR PER DETAIL C5 / S-502.
14. REPAIR PER DETAIL C1 / S-502.
15. REPAIR PER DETAIL E5 / S-503.
16. REPAIR PER DETAIL B2 / S-501.

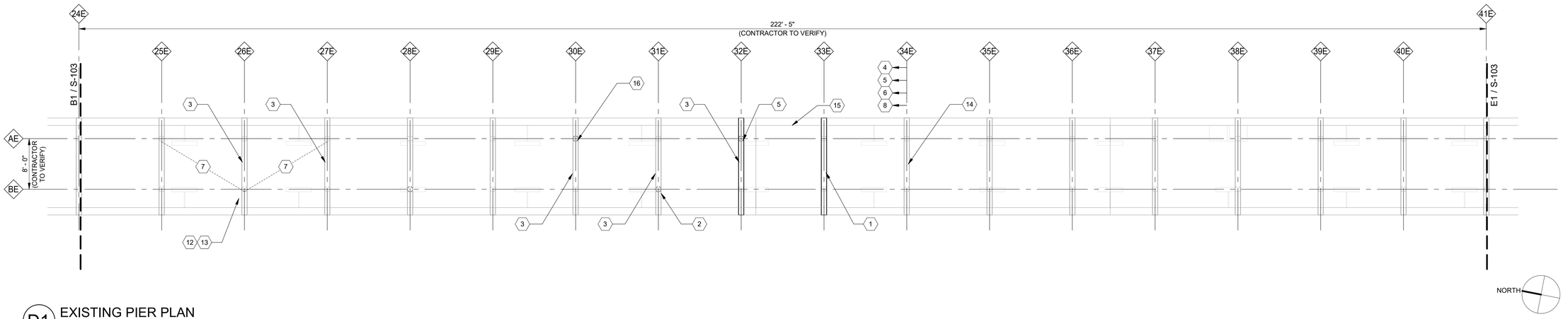
GENERAL SHEET NOTES

1. THE BACKGROUND FOR THESE DRAWINGS WAS TAKEN FROM BMH ARCHITECT'S DRAWINGS TITLED "HOLDEN BEACH PIER," PLAN VIEW TITLED "NEW SITE PLAN," SHEET A1.1, DATED 07/07/23.
2. ---------- REPRESENTS HORIZONTAL BRACE TO BE REPLACED. HORIZONTAL BRACES THAT ARE NOT BEING REPLACED ARE NOT SHOWN.



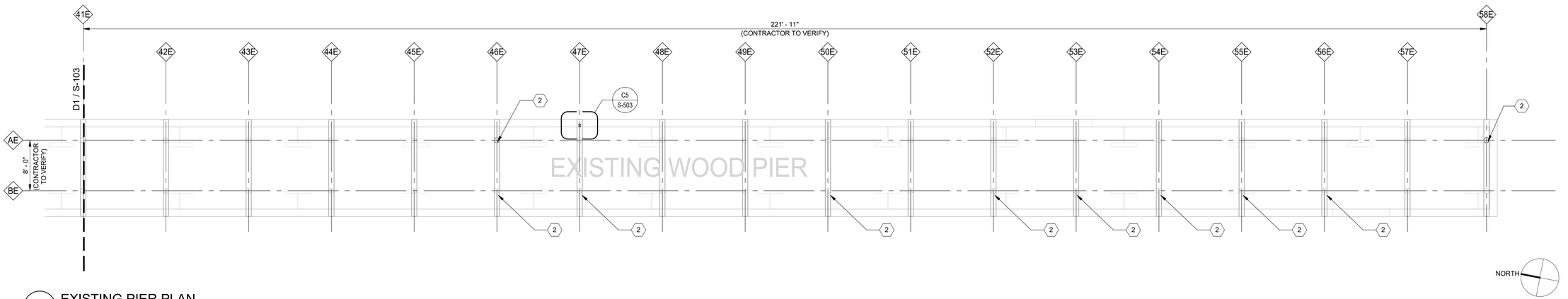
B1 EXISTING PIER PLAN

1/8" = 1'-0"



D1 EXISTING PIER PLAN

1/8" = 1'-0"



E1 EXISTING PIER PLAN

1/8" = 1'-0"

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

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Sheet Title

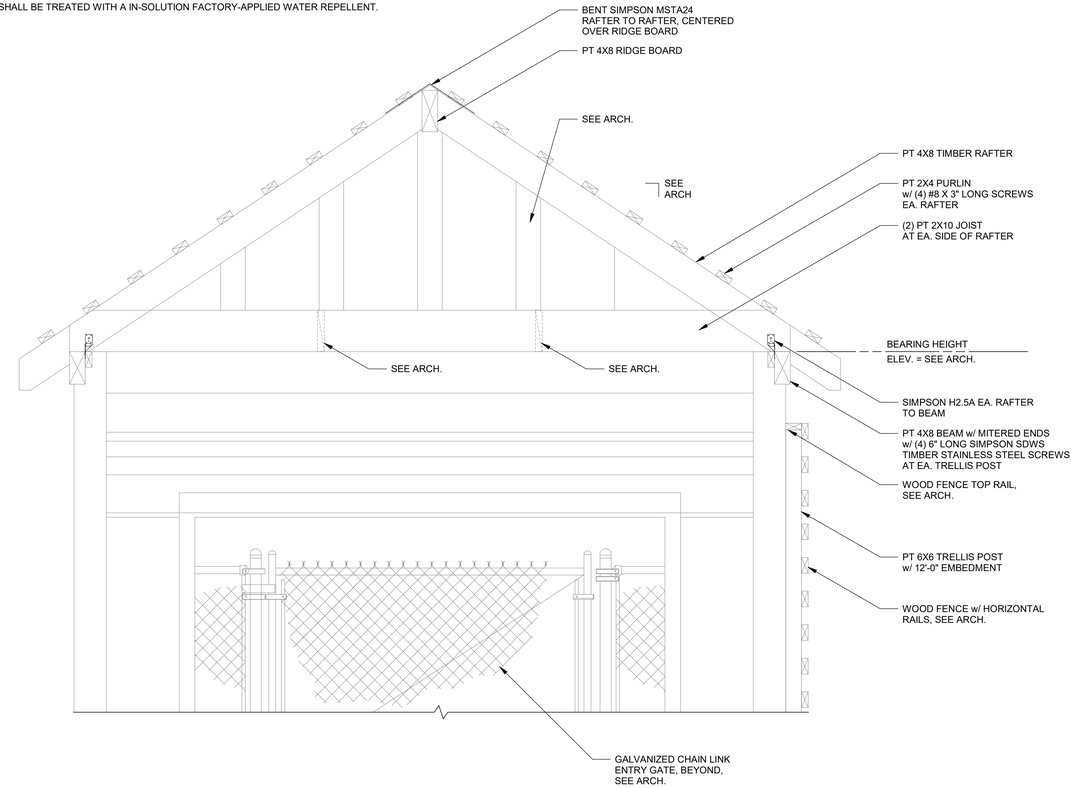
EXISTING PIER LAYOUT

Sheet No.

S-103

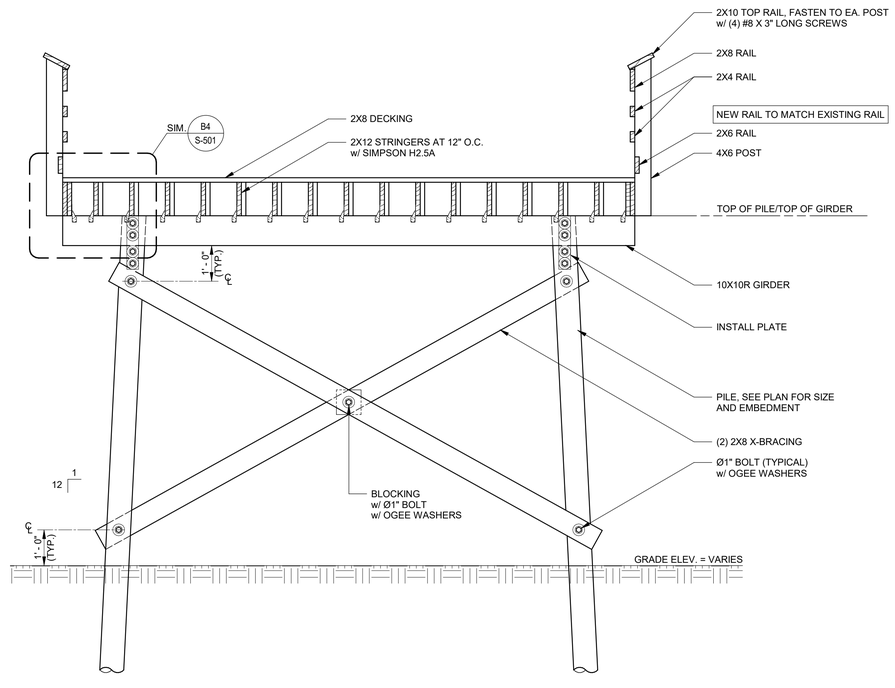
TYPICAL MEMBER AND MATERIAL SCHEDULE				
MEMBER	S.Y. PINE GRADE	SURFACE	MOISTURE CONTENT	AWPA STD (CCA RETENTION)
GIRDERS	#2	ROUGH OR S4S	S-DRY 19	UC4C (0.6)
STRINGERS	#2	S4S	S-DRY 19	UC4C (0.6)
POSTS	#1 PRIME	S4S	S-DRY 19	UC4C (0.23)
RAILS AND CAPS	#1 PRIME	S4S	S-DRY 19	UC4B (0.23)
CROSS BRACES	#2	S4S	S-DRY 19	UC4B (0.6)
DECKING	#1 PRIME	3/8" RADIUS-MILLED EDGES	S-DRY 19	UC4A (0.15) SEE NOTE 1.
ALL ELSE	#2	S4S	S-DRY 19	UC4C (0.6)

NOTES:
1. DECKING SHALL BE TREATED WITH A IN-SOLUTION FACTORY-APPLIED WATER REPELLENT.

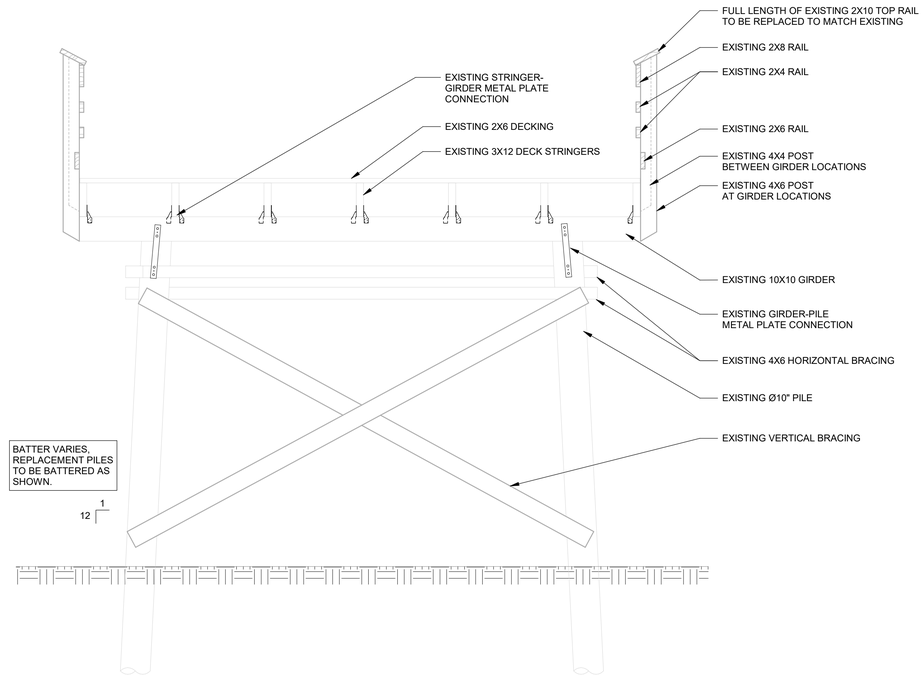


D1 SECTION AT NEW TRELLIS
3/4" = 1'-0"

E1 TRELLIS SECTION AT TICKETING AREA
3/4" = 1'-0"



C4 NEW PIER SECTION
1/2" = 1'-0"



E4 EXISTING PIER SECTION
1/2" = 1'-0"

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

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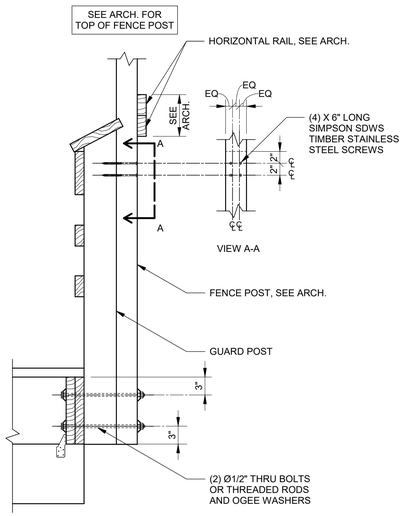
Sheet Title

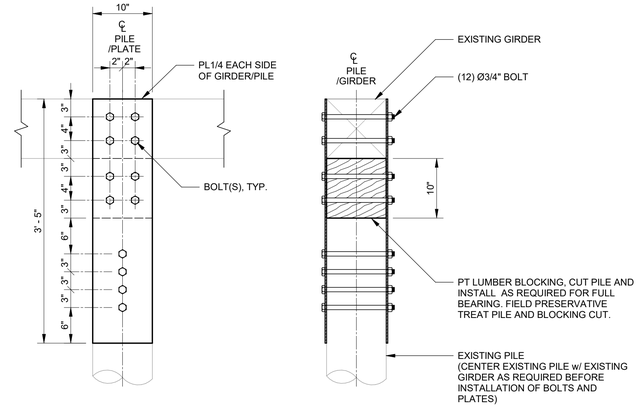
STRUCTURAL SECTIONS

Sheet No.

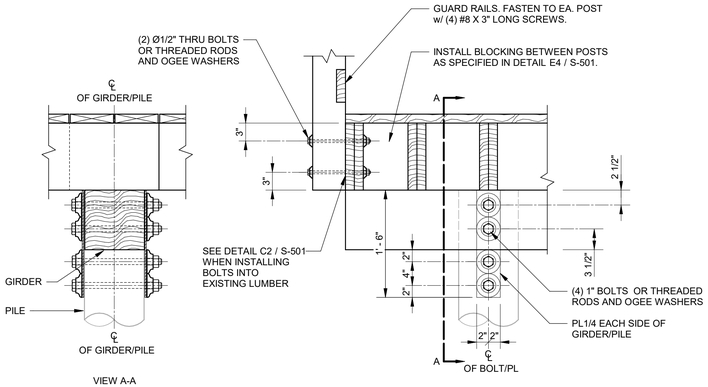
S-301



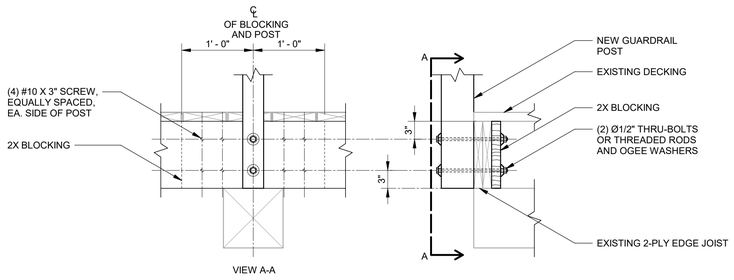
C1 GUARDRAIL POST TO FENCE POST DETAIL
1" = 1'-0"



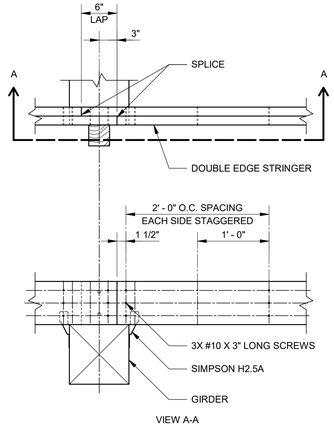
B2 PILE REPAIR DETAIL
1" = 1'-0"



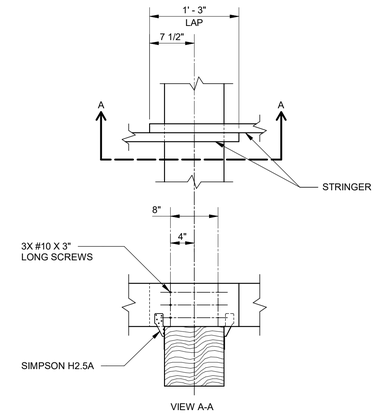
B4 DETAIL
1" = 1'-0"



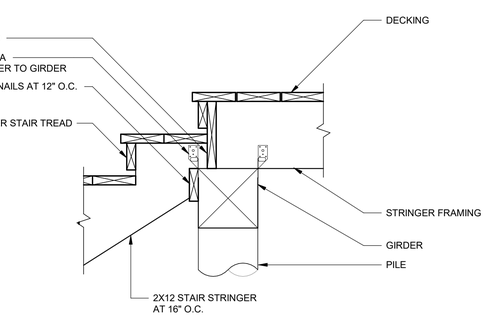
C2 POST BLOCKING DETAIL
1" = 1'-0"



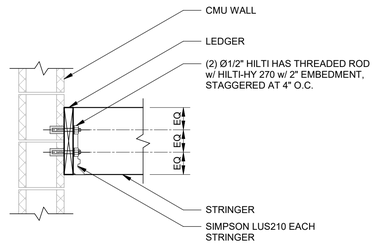
D4 DETAIL
1" = 1'-0"



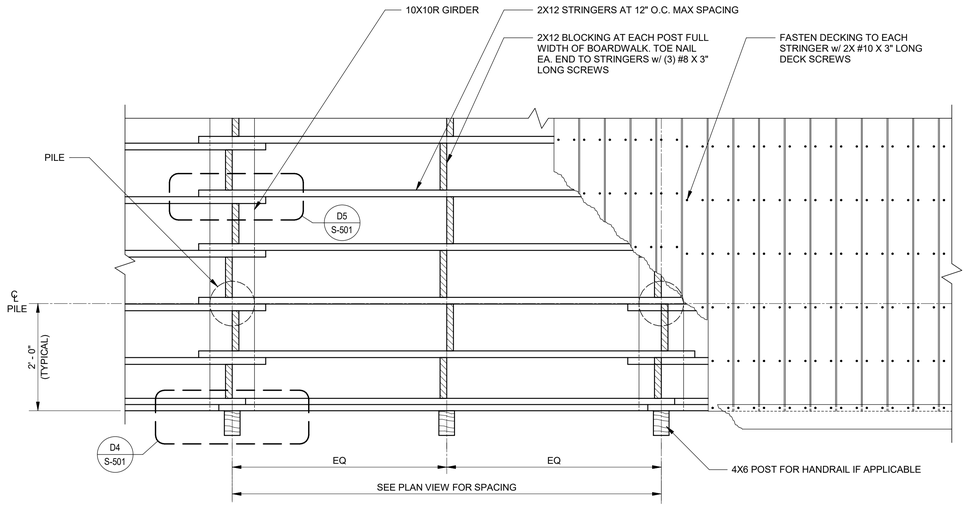
D5 DETAIL
1" = 1'-0"



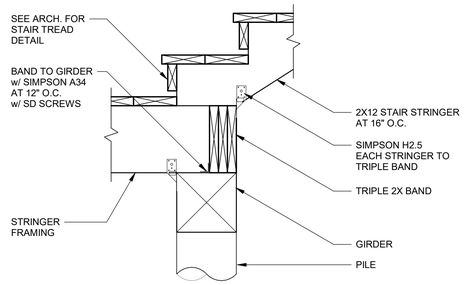
D1 STAIR CONNECTION DETAIL - UPPER
1" = 1'-0"



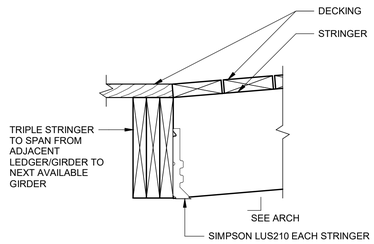
D2 LEDGER TO BUILDING DETAIL
1" = 1'-0"



E4 TYPICAL TIMBER FRAMING DETAIL
3/4" = 1'-0"



E1 STAIR CONNECTION DETAIL - LOWER
1" = 1'-0"



E2 RAMP TO LANDING DETAIL
1 1/2" = 1'-0"

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

NEAL W. ANDREW CONSULTING ENGINEERS P.C. CORPORATE SEAL C-2461 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 23591 ENGINEER NEAL W. ANDREW

DocuSigned by: Neal Andrew 330AAE236A904CC... 9/15/2023

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HOLDEN BEACH PIER RENOVATION

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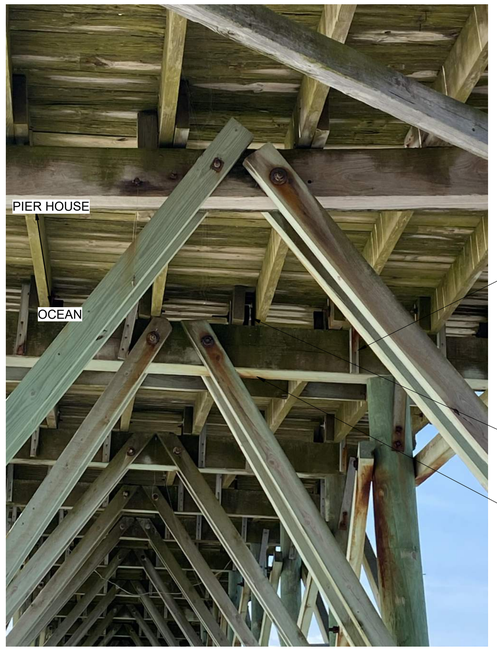
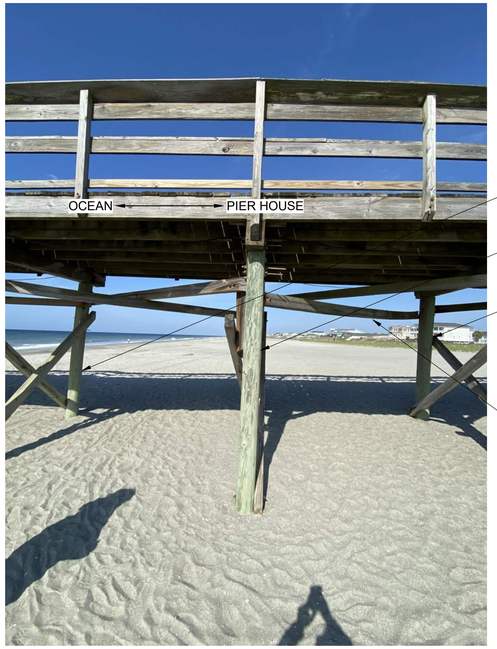
Sheet Title
STRUCTURAL DETAILS

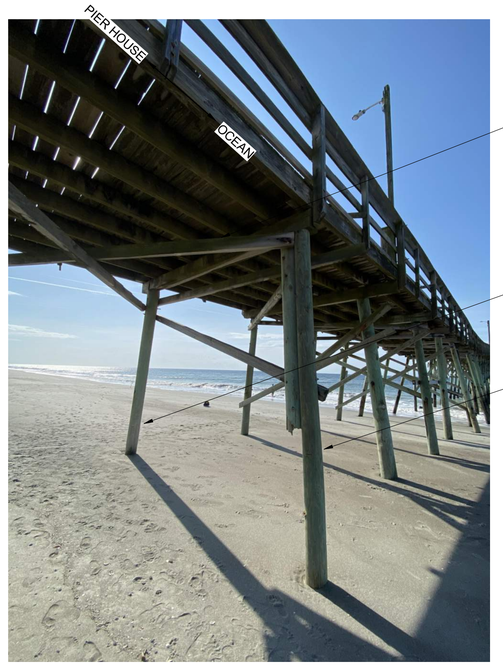
Sheet No.
S-501



C1 DETAIL
NOT TO SCALE

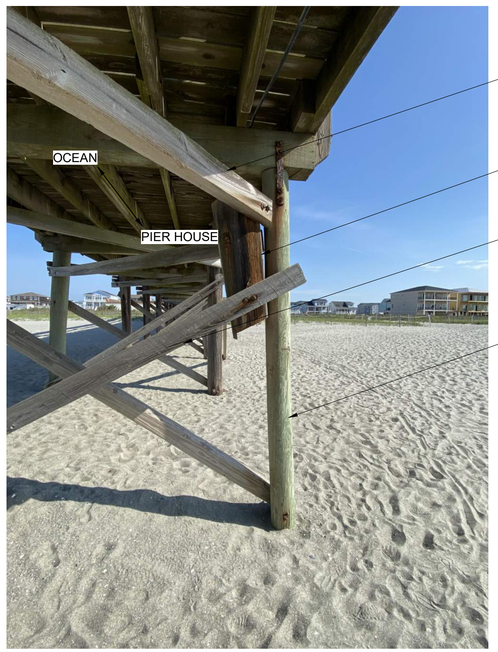


C3 DETAIL
NOT TO SCALE

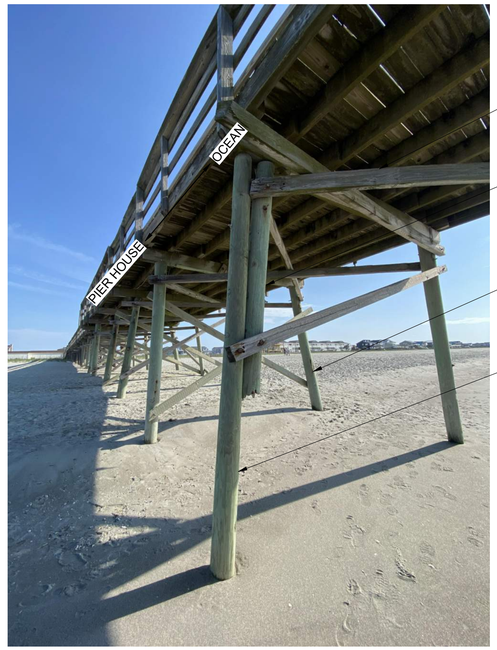


C5 DETAIL
NOT TO SCALE

E1 DETAIL
NOT TO SCALE



E3 DETAIL
NOT TO SCALE



E5 DETAIL
NOT TO SCALE

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

NORTH CAROLINA BOARD OF CONSULTING ENGINEERS CORPORATE SEAL C-2461 NORTH CAROLINA INC.

NORTH CAROLINA PROFESSIONAL SEAL 23591 ENGINEER NEAL W. ANDREW

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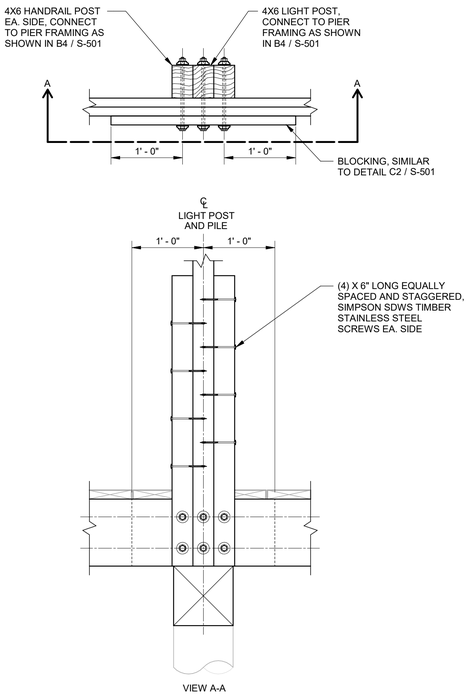
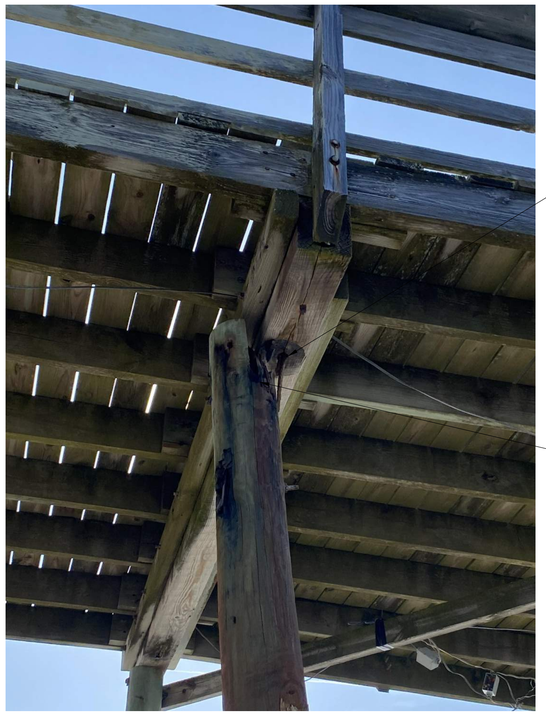
EXISTING PIER REPAIR DETAILS

Sheet No.

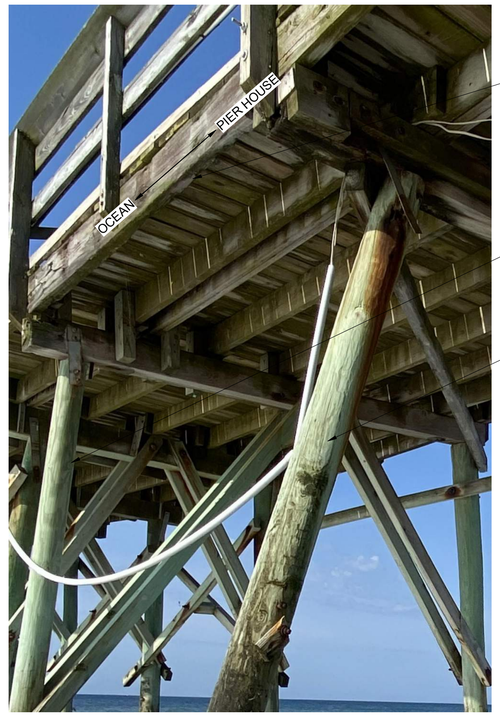
S-502



C5 4X6 LIGHT POST CONNECTION
1" = 1'-0"



E2 TYPICAL PILE REPLACEMENT CONDITION
NOT TO SCALE



E5 DETAIL
NOT TO SCALE

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910 762-2621

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Sheet Title
EXISTING PIER REPAIR DETAILS

Sheet No.
S-503

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	CEILING FAN, SEE LIGHTING FIXTURE SCHEDULE FOR TYPE
	2x4 LIGHT FIXTURE, RECESSED OR SURFACE MOUNTED
	2x2 LIGHT FIXTURE, RECESSED OR SURFACE MOUNTED
	4FT OR 8FT LIGHT FIXTURE, RECESSED OR SURFACE MOUNTED
	4FT OR 8FT CHANNEL LIGHT FIXTURE, SUSPENDED OR SURFACE MOUNTED
	UNDER COUNTER LIGHT FIXTURE
	DIRECT/INDIRECT FIXTURE, SUSPENDED
	TRACK WITH LIGHT KIT
	RECESSED LIGHT FIXTURE
	SURFACE LIGHT FIXTURE
	RECESSED WALL WASH LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	EXIT SIGN, SINGLE FACE, CEILING, CHEVRON INDICATES DIRECTION.
	EXIT SIGN, DOUBLE FACE, CEILING MOUNTED, CHEVRON INDICATES DIRECTION.
	EXIT SIGN W/EMERGENCY LIGHTING UNIT, CEILING MOUNTED, CHEVRON INDICATES DIRECTION.
	EXIT SIGN, SINGLE FACE, WALL/END MOUNTED, CHEVRON INDICATES DIRECTION.
	EXIT SIGN, DOUBLE FACE, WALL/END MOUNTED, CHEVRON INDICATES DIRECTION.
	EXIT SIGN W/EMERGENCY LIGHTING UNIT, WALL/END MOUNTED, CHEVRON INDICATES DIRECTION.
	EMERGENCY LIGHTING UNIT, 2-HEAD WITH BATTERY BACK-UP, WALL MOUNTED, "NOT SWITCHED"
	EMERGENCY LIGHTING UNIT, 2-HEAD WITH BATTERY BACK-UP, CEILING MOUNTED, "NOT SWITCHED"
	**FOR ALL LIGHTING FIXTURE TYPES ABOVE: LETTER ADJACENT TO FIXTURE INDICATES FIXTURE TYPE, SEE LIGHTING FIXTURE SCHEDULE
	POWER & SWITCH LEG
	UNSWITCHED LEG
	CONDUIT, HOME RUN TO PANEL BOARD
PE	PHOTOCELL, REMOTE MOUNTED, 120V, 10 SECOND TIME DELAY, UL WET LOCATION, RATED FOR 1500 W @ 120 VAC AND 4000 W @ 277 VAC (FOR USE WITH LAMP SOURCE(S) SHOWN.
$	SWITCH, SINGLE POLE, 120/277VAC, 20A, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED, SEE ELECTRICAL DEVICES MOUNTING HEIGHT DETAIL. LOWER CASE LETTER INDICATES FIXTURE SWITCHING, WHEN INDICATED.
$3	3-WAY SWITCH, 120/277 VAC, 20A, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED SEE ELECTRICAL DEVICES MOUNTING HEIGHT DETAIL. LOWER CASE LETTER INDICATES FIXTURE SWITCHING, WHEN INDICATED.
$4	4-WAY SWITCH 120/277 VAC, 20A, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED SEE ELECTRICAL DEVICES MOUNTING HEIGHT DETAIL. LOWER CASE LETTER INDICATES FIXTURE SWITCHING, WHEN INDICATED.
$WP	WEATHERPROOF SWITCH, SINGLE POLE 120/277 VAC, 20A, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED.

SYMBOL	DESCRIPTION
OS	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, 360° COVERAGE. PROVIDE SECOND POWER SUPPLY FOR FAN CONTROL AS REQUIRED.
OS	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, LONG RANGE COVERAGE 2 = SECOND CONTACT TO BE PROVIDED FOR CONNECTION TO BUILDING MANAGEMENT
OS	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, 180° COVERAGE 2 = SECOND CONTACT TO BE PROVIDED FOR CONNECTION TO BUILDING MANAGEMENT
OS	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, PIR TECHNOLOGY OCCUPANCY SENSOR, LOW VOLTAGE (24VDC) 19mA DRAW, WATTSTOPPER CX100-1, LONG RANGE SENSOR. INSTALL WHERE FREE OF OBSTRUCTIONS.
OS	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, PIR TECHNOLOGY OCCUPANCY SENSOR, LOW VOLTAGE (24VDC) 19mA DRAW, WATTSTOPPER CX100-3, TWO SIDED AISLEWAY. INSTALL WHERE FREE OF OBSTRUCTIONS.
O$	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, SINGLE BUTTON ON/OFF CONTROL, 180° COVERAGE, MOUNTED AT 46" AFF UNLESS OTHERWISE NOTED.
	RECEPTACLE, DUPLEX, 120VAC, 20A, MOUNTED 16" AFF, UNLESS OTHERWISE NOTED. (SEE ELECTRICAL MOUNTING HEIGHT DETAIL)
	RECEPTACLE, DUPLEX, 120VAC, 20A, MOUNTED 6" ABOVE COUNTER TOP OR BACK SPLASH.
	RECEPTACLE, DUPLEX, GROUND FAULT CIRCUIT INTERRUPTER TYPE, 120VAC, 20A, MOUNTED 16" AFF, UNLESS OTHERWISE NOTED. (SEE ELECTRICAL MOUNTING HEIGHT DETAIL)
	RECEPTACLE, DUPLEX, GROUND FAULT CIRCUIT INTERRUPTER TYPE, 120VAC, 20A, MOUNTED 6" ABOVE COUNTER TOP OR BACK SPLASH.
	**FOR ALL RECEPTACLE TYPES ABOVE: +XX"- INDICATES MOUNTING HEIGHT OF DEVICE IN INCHES AFF (IF GIVEN) (SEE ELECTRICAL MOUNTING HEIGHT DETAIL) WP - LISTED WEATHER-RESISTANT TYPE DEVICE WITH WEATHERPROOF IN USE COVER TR - TAMPER RESISTANT S - INDICATES THE TOP RECEPTACLE OF THE DEVICE IS CONTROLLED VIA WALL SWITCH H - DEVICE MOUNTED HORIZONTALLY U - USB IN-WALL CHARGER
30A/3/3R, W/ 30AF	DISCONNECT SWITCH, FUSED, SIZE AS INDICATED ON DRAWINGS ##A = DISCONNECT SIZE / # = NUMBER OF POLES / # = NEMA RATING, / ##AF = FUSE SIZE
CB	ENCLOSED BREAKER, SIZE AS INDICATED ON DRAWINGS ##A = BREAKER SIZE / # = NUMBER OF POLES / # = NEMA RATING
M$##	MANUAL MOTOR STARTER, ELECTRICAL CONTRACTOR SHALL COORDINATE POLES AND SIZE WITH EQUIPMENT ## = AMPERAGE RATING WHEN INDICATED ON DRAWING
208/120V	PANELBOARD, SURFACE OR RECESSED MOUNTED AS SHOWN. SIZE, RATINGS, AND MOUNTING AS INDICATED ON PANEL SCHEDULE. CONTRACTOR IS RESPONSIBLE FOR REQUIRED CLEARANCE IN FRONT OF ELECTRICAL PANEL. SEE NEC TABLE 110.26 WORKING SPACES FOR ADDITIONAL CLEARANCE CONDITIONS.
	TRANSFORMER, SIZE AS INDICATED ON DRAWING
	METER
1	DEMOLITION KEY NOTE SYMBOL
1	KEY NOTE SYMBOL
1	REVISION DELTA
J	JUNCTION BOX - WALL MOUNTED +##" - INDICATES MOUNTING HEIGHT OF DEVICE IN INCHES AFF (if given)
J	JUNCTION BOX - CEILING/ABOVE CEILING MOUNTED
J	JUNCTION BOX - FLOOR MOUNTED
	GROUND ROD, COPPER, 3/4"DIA x 10'-0" LONG

TYPICAL ABBREVIATIONS:

A, AMP	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AWG	AMERICAN WIRE GAUGE
BOF	BOTTOM OF FIXTURE
BRKR	BREAKER
C, CND	CONDUIT
CAB	CABINET
CAT	CATALOG
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CU	COPPER
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EQ, EQIP	EQUIPMENT
FBO	FURNISHED BY OTHERS
FLA	FULL LOAD AMPS
FLR	FLOOR
FWE	FURNISHED WITH EQUIPMENT
G, GND	GROUND
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HH	HANDHOLE
HP	HORSE POWER
Hz	HERTZ
IMC	INTERMEDIATE METALLIC CONDUIT
JB	JUNCTION BOX
K	THOUSAND
Kcmil	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT AMPERE
KW	KILOWATTS
KWH	KILOWATT-HOURS
LP	LIGHTING PANEL, LIGHT POLE
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
N, NEUT	NEUTRAL
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
P	POLE
PF	POWER FACTOR
PH,ϕ	PHASE
PNL	PANEL
PP	POWER PANEL, POWER POLE
PWR	POWER
RECPT,RCP	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL CONDUIT
RM	ROOM
SH	SHEET
SM	SURFACE MOUNTED
SPEC	SPECIFICATION
SS	SELECTOR SWITCH
SST	STAINLESS STEEL
SW	SWITCH
TYP	TYPICAL
UG, UGND	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UTIL	UTILITY
V	VOLTS
W	WIRE, WATT
WH	WATT-HOUR
WP	WEATHERPROOF
XFMR	TRANSFORMER
(X)	EXISTING

ELECTRICAL GENERAL NOTES

1. ALL EQUIPMENT SHOWN DOTTED OR DASHED IS BY OTHERS OR IS EXISTING, AS NOTED.
2. THE DRAWINGS INDICATE THE NUMBER OF BRANCH CIRCUIT HOMERUN PHASE CONDUCTORS VIA ARROWHEADS. PROVIDE NEUTRAL AND EQUIPMENT GROUND CONDUCTORS AS REQUIRED. ADDITIONAL CONDUCTORS REQUIRED FOR CONTROL SHALL BE INCLUDED EVEN IF NOT EXPLICITLY SHOWN.
3. RACEWAY LAYOUTS ARE NOT INTENDED TO SHOW THE NUMBER OF FITTINGS, OR OTHER INSTALLATION DETAILS.
4. SURFACE MOUNTED PANELBOARDS, JUNCTION, OUTLET AND PULL BOXES, RACEWAYS, ETC., INSTALLED ON EXTERIOR SURFACES OR INSIDE ON EXTERIOR WALLS SHALL BE SUPPORTED BY SPACERS TO PROVIDE A 1/4" MINIMUM CLEARANCE BETWEEN THE WALL AND EQUIPMENT.
5. INSTALL WIRING DEVICES AT HEIGHTS AS SHOWN ON THE DRAWINGS. ALSO COORDINATE MOUNTING HEIGHTS WITH THE ARCHITECTURAL DRAWINGS AND CASEWORK DETAILS. IF CONFLICTING, ARCHITECTURAL DRAWINGS AND DETAILS SHALL GOVERN.
6. PROVIDE GROUND FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL IN ACCORDANCE WITH THE NEC INCLUDING ALL ELECTRIC WATER COOLERS, EXTERIOR RECEPTACLES AND RECEPTACLES IN SERVICE AREAS AND WHERE SUBJECT TO POSSIBLE WET CONDITIONS. ALL RECEPTACLES INSTALLED WITHIN 6 FEET OF A SINK SHALL BE GFCI PROTECTED.
7. GFCI RECEPTACLES SHALL BE READILY ACCESSIBLE AFTER INSTALLATION. IF CONDITIONS OF THE INSTALLATION TO NOT ALLOW FOR READY ACCESS, PROVIDE A STANDARD RECEPTACLE AND PROVIDE A GFCI CIRCUIT BREAKER TO FEED THE CIRCUIT.
8. CONNECT BATTERY PACK TYPE EMERGENCY AND EXIT LIGHTING FIXTURES TO THE UNSWITCHED LIGHTING CIRCUIT SERVING THE SPACE LIGHTED BY THE EMERGENCY AND EXIT FIXTURES. THESE CONNECTIONS ARE INTENTIONALLY NOT SHOWN TO MAINTAIN DRAWING CLARITY.
9. PROVIDE NATIONAL ELECTRIC CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT, PANELBOARDS, SAFETY SWITCHES, ETC. COORDINATE RESOLUTION OF CONFLICTS WITH OTHER TRADES. ADVISE THE ARCHITECT/ENGINEER OF CONFLICTS BEFORE ROUGH-IN.
10. THE CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING NECESSARY TO INSTALL ALL EQUIPMENT AS REQUIRED AND SHALL REESTABLISH ALL FINISHES TO THEIR ORIGINAL CONDITION WHERE CUTTING AND PATCHING OCCUR. ALL CUTTING AND PATCHING SHALL BE DONE IN A THOROUGHLY WORKMANSHIP MANNER. SAW CUT CONCRETE AND MASONRY PRIOR TO BREAKING OUT SECTIONS. ALL PATCHING MATERIALS AND WORKMANSHIP SHALL BE PERFORMED BY TRADESMEN EXPERIENCED IN THAT WORK. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.
11. CUT OPENINGS ONLY LARGE ENOUGH TO ALLOW EASY INSTALLATION OF RACEWAYS.
12. SELECTIVE ELECTRICAL DEMOLITION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AS DESCRIBED HEREIN AND AS SHOWN ON THE CONTRACT DRAWINGS. GROSS DEMOLITION WILL BE PROVIDED BY THE GENERAL CONTRACTOR. IDENTIFY ACTIVE UTILITIES, AND AT THE APPROPRIATE TIME, DISCONNECT AND CAP OFF SUCH UTILITIES AND PROVIDE EXPERIENCED PERSONNEL ON SITE DURING GENERAL CONTRACTOR DEMOLITION OPERATIONS TO PERFORM SUCH OPERATIONS AND RESOLVE ISSUES. REMOVE MATERIALS NOTED FOR SALVAGE AND REUSE. IDENTIFY AND MARK WIRING AND DEVICES TO REMAIN FOR THE GENERAL CONTRACTOR.
13. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
14. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL LAMPS CONTAINING MERCURY IN A LINED LANDFILL IN ACCORDANCE WITH NC GEN STATUTE 309.10M.

CBHF Engineers, PLLC
2246 Yaupon Drive
Wilmington, NC 28401
Phone: 910.791.4000
Fax: 910.791.5266
www.cbhfengineers.com
NC# P-0506

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
Fax - (910) 762-8506

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8433 RICHARD DAN MCELVEEN

09/14/2023

Holden Beach Pier
441 Ocean Boulevard West
Holden Beach, North Carolina 28462

ELECTRICAL LEGEND AND ABBREVIATIONS AND GENERAL NOTES

JOB NUMBER 23065
DRAWN BY WPJ
CHECKED BY RDM
DATE 09/15/2023
REVISIONS

SHEET NUMBER **E-0.1**

ELECTRICAL SPECIFICATIONS

260500 GENERAL ELECTRICAL

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS INSOFAR AS THEY APPLY.

1. THE NATIONAL ELECTRICAL CODE, 2020 EDITION
2. THE NATIONAL ELECTRICAL SAFETY CODE
3. UNDERWRITER'S LABORATORIES, INC., STANDARDS AND APPROVED LISTINGS
4. ELECTRICAL TESTING LABORATORIES STANDARDS
5. NORTH CAROLINA STATE BUILDING CODE, LATEST EDITION AND REVISIONS
6. ALL LOCAL CODES AND ORDINANCES
7. NFPA 72
8. ADA

B. SAFETY:

1. COMPLY WITH OSHA AND NEC ARC FLASH HAZARD PROTECTION REQUIREMENTS.
2. FOR EQUIPMENT BEING REMOVED AND REPLACED, THE CONTRACTOR SHALL DE-ENERGIZE THE EQUIPMENT AND MAKE IT SAFE PRIOR TO REMOVAL AND COMPLY WITH OSHA REQUIREMENTS FOR LOCKING-OUT AND TAGGING EQUIPMENT TO PREVENT INADVERTENT RE-ENERGIZING.
3. WHERE EQUIPMENT IS BEING REMOVED, BUT NOT REPLACED, REMOVE THE CONDUCTORS FEEDING THE EQUIPMENT BACK TO THE POINT WHERE THEY RECEIVE POWER. REMOVE ACCESSIBLE CONDUITS. ABANDON IN PLACE INACCESSIBLE CONDUITS. AFTER REMOVAL OF EQUIPMENT, REPAIR ANY OPENING LEFT TO MATCH SURROUNDING WALLS, CEILINGS, OR FLOORS TO THE ARCHITECT/ENGINEER'S SATISFACTION.

C. THE EXISTING ELECTRICAL SYSTEMS DEPICTED ON THESE DRAWINGS HAVE BEEN COMPILED BY THE ENGINEER FROM LIMITED FIELD VERIFICATION OF EXISTING CONDITIONS FOR THE PURPOSE OF INDICATING THE WORK REQUIRED AND ARE BELIEVED TO BE CORRECT. NOTWITHSTANDING, THE CONTRACTOR SHALL VERIFY ALL CIRCUITS, WIRING, CONDUIT, DIMENSIONS, POINTS OF ACCESS AND ALL FIELD CONDITIONS AFFECTING HIS WORK.

D. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR WORK REQUIREMENTS, THE AMOUNT OF SPACE AVAILABLE FOR ELECTRICAL EQUIPMENT, AND LAYOUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER.

E. SEE ELECTRICAL GENERAL NOTES FOR ADDITIONAL REQUIREMENTS, CONDITIONS AND RESTRICTIONS.

F. UNLESS SPECIFICALLY NOTED OTHERWISE, SYSTEMS PROVIDED OR INSTALLED BY THE CONTRACTOR SHALL BE COMPLETE AND FULLY-FUNCTIONING AFTER INSTALLATION. INCIDENTAL COMPONENTS MAY NOT BE SHOWN, AND ALL WORK WHICH MAY BE REASONABLY IMPLIED AS BEING INCIDENTAL TO THIS WORK, BUT REQUIRED FOR THE PROPER OPERATION OF THE EQUIPMENT OR SYSTEM, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER. ADDITIONAL CIRCUITS SHALL BE PROVIDED AND INSTALLED WHEREVER NEEDED TO CONFORM TO THE SPECIFIC REQUIREMENTS OF EQUIPMENT.

G. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., REQUIRED FOR THE WORK AND SHALL PAY FOR SAME, IF ANY. WORK SHALL NOT BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN INSPECTED, TESTED AND APPROVED BY THE ARCHITECT, ENGINEER AND AUTHORITIES HAVING JURISDICTION OVER THIS WORK. SHOULD ANY OF THE WORK BE ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION AND TEST, THE CONTRACTOR SHALL UNCOVER THE WORK AT THE CONTRACTOR'S EXPENSE. AFTER IT HAS BEEN INSPECTED, TESTED AND APPROVED, THE CONTRACTOR SHALL RESTORE THE WORK TO ITS ORIGINAL CONDITION.

H. BIDDERS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE CONSTRUCTION DOCUMENTS NOTWITHSTANDING.

I. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING ELECTRICAL SYSTEMS AND THE EXISTING BUILDING. THE SUBMISSION OF THE PROPOSAL BY THE CONTRACTOR SHALL BE CONSIDERED EVIDENCE THAT HE OR HIS REPRESENTATIVE HAS VISITED THE SITE AND BUILDINGS AND NOTED THE LOCATION AND CONDITIONS UNDER WHICH THE WORK WILL BE PERFORMED AND THAT HE TAKES FULL RESPONSIBILITY OF ALL FACTORS GOVERNING HIS WORK. NO EXTRAS WILL BE CONSIDERED BECAUSE OF ADDITIONAL WORK NECESSITATED BY EXISTING JOB CONDITIONS THAT ARE NOT INDICATED ON THE DRAWINGS.

J. ALL WORK SHALL BE DONE BY SKILLED MECHANICS AND SHALL PRESENT A NEAT, TRIM AND WORKMANLIKE FINISH WHEN COMPLETED.

K. DO NOT SCALE ELECTRICAL DRAWINGS. FIELD VERIFY ALL DIMENSIONS AS LOCATIONS SHOWN ARE APPROXIMATE.

L. UNLESS DIMENSIONED, WIRING DEVICE AND OTHER OUTLET LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. EXACT DEVICE AND OUTLET LOCATIONS SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS OR AS DIMENSIONED. IF NOT SHOWN ON THE ARCHITECTURAL DRAWINGS OR DIMENSIONED ON THE ELECTRICAL DRAWINGS, VERIFY EXACT LOCATION WITH THE ARCHITECT/ENGINEER AND/OR THE OWNER PRIOR TO ROUGH-IN.

M. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT MEASUREMENTS IN THE PLACEMENT OF EQUIPMENT, FIXTURES, ETC.

N. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING COMPLETE ELECTRICAL CONNECTIONS AS THE DRAWINGS DO NOT PROVIDE EXACT DETAILS AS TO ELEVATIONS AND LOCATIONS OF VARIOUS FITTINGS, CONDUIT, ETC., AND DO NOT SHOW ALL OFFSETS AND OTHER INSTALLATION DETAILS, ALL WHICH MAY BE REQUIRED. ADJUST LOCATIONS AS REQUIRED TO SERVE THE INTENDED PURPOSE AND TO AVOID CONFLICTS AND INTERFERENCES WITH OTHER TRADES.

O. UNLESS NOTED OTHERWISE, THE EXACT ROUTING OF FEEDER AND BRANCH CIRCUIT RACEWAYS AND CABLES IS THE RESPONSIBILITY OF THE CONTRACTOR. RISER AND GENERAL CIRCUIT ARRANGEMENTS ARE SHOWN SCHEMATICALLY/DIAGRAMMATICALLY ONLY. THE CONTRACTOR SHALL ROUTE CONDUITS AND CABLES AS REQUIRED BY THE CONDITIONS OF THE INSTALLATION.

P. ALL MATERIALS SHALL BE NEW AND SHALL BEAR THE MANUFACTURER'S NAME AND TRADE NAME. MATERIALS SHALL BE THE STANDARD PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE MANUFACTURE OF THE REQUIRED TYPE OF EQUIPMENT AND THE MANUFACTURER'S LATEST APPROVED DESIGN. OTHER MATERIALS AND EQUIPMENT TO BE AS SHOWN ON THE DRAWINGS. WHERE NO SPECIFIC MATERIAL TYPE IS MENTIONED, A HIGH QUALITY PRODUCT OF A REPUTABLE MANUFACTURER, AS JUDGED BY THE ARCHITECT/ENGINEER, MAY BE USED PROVIDED IT CONFORMS TO THE REQUIREMENTS OF THESE SPECIFICATIONS.

Q. ALL ELECTRICAL EQUIPMENT AND MATERIAL SHALL BE LISTED BY A QUALIFIED THIRD PARTY TESTING AGENCY ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, FOR THE CONDITIONS OF INSTALLATION. ACCEPTABLE QUALIFIED THIRD PARTY TESTING LABORATORIES/AGENCIES SHALL BE AMONGST THOSE ACCREDITED BY THE NORTH CAROLINA BUILDING CODE COUNCIL (NCBCC) TO LABEL ELECTRICAL AND MECHANICAL EQUIPMENT. EQUIPMENT AND MATERIALS SHALL BEAR THE APPROPRIATE TESTING AGENCY'S LISTING MARK OR CLASSIFICATION MARKING. EQUIPMENT, MATERIALS, ETC. UTILIZED NOT BEARING A THIRD PARTY TESTING AGENCY CERTIFICATION SHALL BE FIELD OR FACTORY THIRD PARTY TESTING AGENCY CERTIFIED PRIOR TO EQUIPMENT ACCEPTANCE AND USE. FIELD CERTIFICATIONS SHALL BE AT THE CONTRACTOR'S EXPENSE.

R. EQUIPMENT SHALL BE SUITABLE FOR ITS APPLICATION (E.G., WHEN INSTALLED IN THE EXTERIOR, IT SHALL BE WEATHERPROOF, ETC.) ALL EXTERIOR WIRING DEVICES, OUTLETS, BOXES, ETC. SHALL BE WEATHERPROOF. LIGHTING FIXTURES SHALL BE APPROPRIATELY RATED AND LISTED FOR THE ENVIRONMENT.

S. ALL ELECTRICAL EQUIPMENT SHALL, AT ALL TIMES DURING CONSTRUCTION, BE ADEQUATELY PROTECTED AGAINST MECHANICAL INJURY, OR DAMAGE BY WATER AND/OR THE ELEMENTS. ELECTRICAL EQUIPMENT SHALL BE STORED IN DRY PERMANENT SHELTERS. PROVIDE HEATING FOR EQUIPMENT SUBJECT TO MOISTURE DAMAGE OR DAMAGE FROM CONDENSATION. IF MATERIALS OR EQUIPMENT HAVE BEEN JUDGED BY THE ARCHITECT/ENGINEER TO BE DAMAGED, OR HAS BEEN SUBJECT TO POSSIBLE INJURY BY WATER OR THE ELEMENTS, SUCH EQUIPMENT SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

T. WIRING METHODS:

1. WET AND DAMP LOCATIONS OUTDOORS (EXPOSED): USE RIGID STEEL, IMC OR SCHEDULE 40 PVC. PLASTIC COATED RIGID STEEL WHERE SUBJECT TO PHYSICAL DAMAGE.
2. WET AND DAMP LOCATIONS OUTDOORS (CONCEALED): USE RIGID STEEL, IMC OR SCHEDULE 40 PVC.
3. DRY LOCATIONS (EXPOSED): USE EMT, RIGID STEEL OR IMC. RIGID STEEL WHERE SUBJECT TO PHYSICAL DAMAGE.
4. DRY LOCATIONS (CONCEALED): USE EMT, IMC, RIGID STEEL OR MC CABLE.
5. INTERIOR WET AND DAMP LOCATIONS: USE RIGID STEEL.

U. EXISTING ELECTRICAL SERVICE: THE EXISTING ELECTRICAL SERVICE AND DISTRIBUTION SYSTEM IS OUT OF SERVICE. REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, CONDUCTORS AND RACEWAYS NOT REUSED BY THIS PROJECT.

V. UTILITY COMPANY COORDINATION

1. COORDINATION WITH THE ELECTRICAL UTILITY COMPANY IS THE RESPONSIBILITY OF THE CONTRACTOR. COORDINATE WITH THE UTILITY COMPANY FOR PLACEMENT OF THE UTILITY'S FACILITIES AND THE CONTRACTOR'S SERVICE ENTRANCE RACEWAYS AND FOR CONNECTIONS TO THE CONTRACTOR'S SERVICE ENTRANCE CONDUCTORS.
2. ALL ELECTRICAL DISTRIBUTION EQUIPMENT (PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, ETC.) SHALL, AS A MINIMUM, BE PROVIDED WITH SHORT CIRCUIT WITHSTAND AND INTERRUPTING RATINGS AS SHOWN IN THE DRAWINGS. COORDINATE ACTUAL FAULT CURRENT AVAILABLE WITH THE SERVING UTILITY COMPANY AND ADJUST RATINGS AS APPROPRIATE.

W. TESTING

1. THE WORK SHALL INCLUDE COMPLETE TESTING OF ALL EQUIPMENT AND WIRING DURING CONSTRUCTION AND/OR AT THE COMPLETION OF WORK AND ANY MINOR CORRECTIONS, CHANGES OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT.
2. MAKE THE FOLLOWING MINIMUM TESTS AND CHECKS PRIOR TO ENERGIZING ELECTRICAL EQUIPMENT:
   a. MECHANICAL INSPECTION, TESTING AND SETTINGS OF ALL CIRCUIT BREAKERS, DISCONNECTING MEANS/SAFETY SWITCHES, MOTOR STARTERS, CONTROL EQUIPMENT, ETC., FOR PROPER OPERATION. ALL OVERCURRENT PROTECTIVE DEVICES SHALL BE SET AS RECOMMENDED BY THE SELECTIVE COORDINATION STUDY, IF APPLICABLE.
   b. CHECK ALL WIRE AND CABLE TERMINATIONS. VERIFY TO THE ARCHITECT/ENGINEER THAT CONNECTIONS MEET THE EQUIPMENT TORQUE REQUIREMENTS.
   c. PROVIDE ALL INSTRUMENTS AND EQUIPMENT FOR THE TESTS SPECIFIED HEREIN.
2. ALL CURRENT CARRYING PHASE CONDUCTORS AND NEUTRALS SHALL BE TESTED AS INSTALLED, AND BEFORE CONNECTIONS ARE MADE, FOR INSULATION RESISTANCE AND ACCIDENTAL GROUNDS. THIS SHALL BE DONE WITH A 500 VOLT CABLE INSULATION TESTER.
   a. MINIMUM READINGS SHALL BE ONE MILLION (1,000,000) OR MORE OHMS FOR #6 WIRE AND SMALLER, 250,000 OHMS OR MORE FOR #4 WIRE OR LARGER BETWEEN CONDUCTORS AND BETWEEN CONDUCTOR AND THE GROUNDED METAL RACEWAY.
   b. AFTER ALL FIXTURES, DEVICES AND EQUIPMENT ARE INSTALLED AND ALL CONNECTIONS COMPLETED TO EACH PANEL, THE CONTRACTOR SHALL DISCONNECT THE NEUTRAL FEEDER CONDUCTOR FROM THE NEUTRAL BAR AND TAKE A CABLE INSULATION TESTER READING BETWEEN THE NEUTRAL BAR AND GROUNDED ENCLOSURE. IF THIS READING IS LESS THAN 250,000 OHMS, THE CONTRACTOR SHALL DISCONNECT THE BRANCH CIRCUIT NEUTRAL WIRES FROM THIS NEUTRAL BAR. HE SHALL THEN TEST EACH ONE SEPARATELY TO THE PANEL AND UNTIL THE LOW READING ONES ARE FOUND. THE CONTRACTOR SHALL CORRECT TROUBLES, RECONNECT AND RETEST UNTIL AT LEAST 250,000 OHMS FROM THE NEUTRAL BAR TO THE GROUNDED PANEL CAN BE ACHIEVED WITH ONLY THE NEUTRAL FEEDER DISCONNECTED.
   c. THE CONTRACTOR SHALL CERTIFY IN WRITING THE ABOVE HAS BEEN DONE AND TABULATE THE MEGGER READINGS FOR EACH PANEL.
   d. AT INSPECTION, THE CONTRACTOR SHALL FURNISH A CABLE INSULATION TESTER AND SHOW ARCHITECT/ENGINEER'S REPRESENTATIVE THAT THE PANELS COMPLY WITH THE ABOVE REQUIREMENTS. THE CONTRACTOR SHALL ALSO FURNISH A CLAMP TYPE AMMETER AND A VOLTMETER AND TAKE CURRENT AND VOLTAGE READINGS AS DIRECTED BY THE REPRESENTATIVES.
   e. AT INSPECTION, THE CONTRACTOR SHALL FURNISH LADDERS, REQUIRED TOOLS, AND MECHANICS TO OPEN FIXTURES, BOXES, PANELS, OR ANY OTHER EQUIPMENT TO ENABLE THE ARCHITECT/ENGINEER'S REPRESENTATIVES TO SEE INTO ANY PARTS OF THE INSTALLATION THAT MAY BE REQUESTED.
3. PROVIDE DOCUMENTATION SHOWING VALUES OF THE EARTH GROUND ELECTRODE IMPEDANCE FOR THE SYSTEM GROUND. SEE SPECIFICATIONS SECTION 260526.
4. ALL TESTS SHALL BE COMPLETELY DOCUMENTED WITH THE TIME OF DAY, DATE, TEMPERATURE, AND ALL OTHER PERTINENT TEST INFORMATION. ALL REQUIRED DOCUMENTATION OF READINGS INDICATED SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER PRIOR TO, AND AS ONE OF THE PREREQUISITES FOR, FINAL ACCEPTANCE OF THE PROJECT.

X. EXISTING BUILDINGS AND CONSTRUCTION

1. THE CONTRACTOR IS CAUTIONED THAT WORK TO BE PERFORMED UNDER THIS CONTRACT IS TO BE ACCOMPLISHED IN AND ADJACENT TO AN EXISTING BUILDING AND PIER.
2. THE CONTRACTOR SHALL DO ALL CUTTING, PATCHING, FINISHING, REPAIRING, ETC., NECESSARY FOR WORK TO BE INSTALLED IN EXISTING BUILDING AND PIER. ALL FINISHES SHALL BE LEFT TO EQUAL FINISH AND CONDITION PRIOR TO CUTTING. NO CUTTING OF STRUCTURAL MEMBERS WILL BE ALLOWED. REMOVE/REPLACE EXISTING LAY-IN CEILING AS REQUIRED TO ACCOMPLISH WORK. ALL CUTTING OF WALLS, FLOORS, ROOFS, ETC., SHALL BE REPAIRED AND/OR REPLACED TO EQUAL FINISH PRIOR TO CUTTING. CORE DRILL ALL HOLES FOR CONDUIT. PATCHING OF WATERPROOFED SURFACES SHALL RENDER THE AREA OF THE PATCHING COMPLETELY WATERPROOF. THE CONTRACTOR SHALL ROUTE CONDUITS AND LOCATE EQUIPMENT AS APPROVED BY THE OWNER'S REPRESENTATIVE. ROUTINGS AND LOCATIONS SHALL BE FIRMLY ESTABLISHED AND APPROVED BEFORE PROCEEDING WITH ANY PHASE OF THE WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING BUILDINGS, GROUNDS, WALKWAYS, PAVING, ETC., CAUSED BY THE WORK, THE CONTRACTOR AND/OR HIS PERSONNEL, AND/OR HIS EQUIPMENT IN THE ACCOMPLISHMENT OF THIS WORK. SUCH DAMAGES SHALL BE REPAIRED AND/OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER, TO FINISH EQUAL TO THAT FINISH PRIOR TO DAMAGE. THE ARCHITECT/ENGINEER SHALL BE THE JUDGE AS TO EQUAL FINISHES, ETC.

Y. SUBMITTALS: SUBMITTALS SHALL INCLUDE PRODUCT DATA FOR EACH PANELBOARD, SAFETY SWITCH, ENCLOSED CIRCUIT BREAKER, LIGHTING FIXTURE, WIRING DEVICES AND ACCESSORIES. INCLUDE DIMENSIONS AND MANUFACTURERS TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS AND FINISHES. IN LIEU OF SUBMITTALS, THE CONTRACTOR MAY PROVIDE A CERTIFICATION OF PRODUCT COMPLIANCE FOR COMMODITY MATERIALS SUCH AS CONDUIT, CONDUCTORS, BOXES, FITTINGS, HANGARS, HARDWARE, ETC. ATTESTING NAMED PRODUCTS COMPLY WITH THE DRAWINGS AND SPECIFICATIONS. COMPLIANCE FORM SHALL BE ACCEPTABLE TO THE ARCHITECT/ENGINEER. ALL SHOP DRAWINGS AND SUBMITTALS SHALL BE SUBMITTED AT THE SAME TIME. PARTIAL SHOP DRAWING AND SUBMITTALS WILL BE REJECTED AND NOT PROCESSED. MATERIALS AND EQUIPMENT WITH LONG LEAD TIMES OR OTHER MATERIALS AND EQUIPMENT REQUIRING SPECIAL HANDLING, IF IDENTIFIED AND REQUESTED BY THE CONTRACTOR, WILL BE PROCESSED SEPARATELY.

Z. GUARANTEE: THE CONTRACTOR SHALL GUARANTEE THE MATERIALS AND WORKMANSHIP COVERED BY THESE DRAWINGS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY PARTS OF ANY SYSTEM THAT MAY PROVE TO BE DEFECTIVE AT NO ADDITIONAL COST TO THE OWNER WITHIN THE GUARANTEE PERIOD.

260519 CONDUCTORS

A. CONDUCTOR SIZING IS BASED ON 75 DEGREE C. COPPER NEC RATINGS, UNLESS NOTED OTHERWISE. DESIGN ASSUMES ALL EQUIPMENT IS RATED FOR USE WITH 75 DEGREE C. WIRING.

B. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. LARGER CONDUCTORS SHALL BE STRANDED.

C. CONDUCTORS SHALL BE COLOR CODED THROUGHOUT, SIZES #10 AWG AND #12 AWG SHALL BE FACTORY CODED, SIZES #8 AWG AND LARGER MAY BE COLOR TAPED ON THE JOB. COLOR CODING SHALL BE: PHASE A - BLACK, PHASE B - RED, NEUTRAL - WHITE, GROUND - GREEN FOR 120/240 VOLT SYSTEMS.

D. POWER RISER DIAGRAM SERVICE AND FEEDER CONDUCTOR SIZES ARE BASED ON 75°C COPPER CONDUCTORS IN PVC RACEWAYS ROUTED DIRECTLY FROM SOURCE TO LOAD TO ACHIEVE NO MORE THAN THREE (3) PERCENT VOLTAGE DROP AT THE DEMAND LOAD SHOWN IN THE PANELBOARD SCHEDULES. IF THE CONTRACTOR ELECTS TO INSTALL CIRCUITS IN A DIFFERENT MANNER, CALCULATE VOLTAGE DROP USING ACTUAL CONDUCTOR LENGTHS AND SUBMIT CALCULATIONS TO THE ARCHITECT/ENGINEER DOCUMENTING THREE (3) PERCENT OR LESS VOLTAGE DROP UNDER THE LOAD CONDITIONS INDICATED.

E. LIGHTING AND RECEPTACLE BRANCH CIRCUITS SHALL CONSIST OF #12 AWG AND/OR #10 AWG MINIMUM PHASE, NEUTRAL AND EQUIPMENT GROUND CONDUCTORS IN 1/2" MINIMUM RACEWAY. OTHER BRANCH CIRCUITS MAY BE INDICATED AND MINIMUM CONDUCTOR SIZES MAY BE SHOWN ON THE DRAWINGS, REGARDLESS, THE CONTRACTOR SHALL REFER TO THE “MINIMUM CONDUCTORS SIZE CHART” ON THE DRAWINGS AND PROVIDE CONDUCTORS SIZES AS REQUIRED TO MAINTAIN A MAXIMUM 3% VOLTAGE DROP.

F. FEEDER CONDUCTORS SHALL BE CONTINUOUS WITHOUT SPLICE FROM SOURCE TO LOAD, UNLESS SPLICING IS SPECIFICALLY APPROVED BY THE ENGINEER. KEEP BRANCH CIRCUIT CONDUCTOR SPLICES TO A MINIMUM. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE CONTINUOUS WITHOUT SPLICE BETWEEN JUNCTION, OUTLET, DEVICE BOXES, ETC. NO SPLICING WILL BE PERMITTED IN PANELBOARD CABINETS, SAFETY SWITCHES, ETC. WHERE REQUIRED AND PERMITTED, INSTALL SPLICES AND TAPES THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN CONDUCTORS BEING SPLICED. USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH CONDUCTOR MATERIAL.

G. INSTALL CONDUCTORS AT EACH OUTLET WITH AT LEAST 6 INCHES OF SLACK. CONNECT OUTLETS AND COMPONENTS TO WIRING AND TO GROUND AS INDICATED AND INSTRUCTED BY THE MANUFACTURER.

H. PROVIDE SEPARATE, INDIVIDUAL NEUTRAL CONDUCTORS FOR ALL BRANCH CIRCUITS.

I. MC CABLE WITH GREEN INSULATED EQUIPMENT GROUND CONDUCTOR MAY BE USED FOR INTERIOR CONCEALED 30A MAXIMUM BRANCH CIRCUITS FOR RECEPTACLE AND LIGHTING CIRCUITS. MC CABLE SHALL BE OF STEEL OR ALUMINUM INTERLOCKED ARMOR CONSTRUCTION WITH COPPER CONDUCTORS AND AN INTERNAL GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR. CONDUCTOR CHARACTERISTICS, COLOR CODING, ETC. SHALL BE AS HEREIN SPECIFIED FOR BUILDING WIRE. CONNECTORS SHALL BE ZINC PLATED MALLEABLE IRON OR STEEL BODY WITH LOCKNUT, DUAL CABLE GRIPPING SADDLE DESIGN WITH SET SCREW AND INSULATED THROAT. PRESSURE CAST (POT METAL) CONNECTORS ARE NOT PERMITTED.

J. MC CABLE SHALL BE SUPPORTED IN STRAIGHT LINES USING APPROVED SUPPORTING MEANS AND IN COMPLIANCE WITH THE NEC. DEDICATED SUPPORT WIRES MAY BE USED ABOVE FINISHED CEILINGS AND SHALL BE PAINTED RED PRIOR TO INSTALLATION. DO NOT SUPPORT CABLE WITH CEILING GRID SUPPORTS WIRES. DO NOT DRAPE CABLE OVER CEILINGS, LIGHTING FIXTURES, CONDUIT, DUCTWORK, PIPING OR EQUIPMENT.

K. DO NOT PULL CONDUCTORS UNTIL THE CONDUIT SYSTEM IS COMPLETE IN EVERY DETAIL.

L. DO NOT COMBINE BRANCH CIRCUIT HOMERUNS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS.

M. DO NOT CHANGE CIRCUITING SHOWN WITHOUT PERMISSION OF THE ARCHITECT/ENGINEER.

260526 GROUNDING

A. THE NEUTRAL OF EACH SECONDARY ELECTRICAL DISTRIBUTION SYSTEM SHALL BE GROUNDED AT ONE POINT ONLY WHICH SHALL BE AT THE MAIN DISCONNECTING DEVICE. FROM THE MAIN DISCONNECTING DEVICE, A COPPER GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC SHALL BE EXTENDED TO THE EARTH ELECTRODE. MAIN GROUNDING CONDUCTORS #8 AWG THROUGH AND INCLUDING #4 AWG SHALL BE INSULATED AND IDENTIFIED BY A GREEN COLORED INSULATION. ALL GROUNDING CONDUCTORS SHALL BE INSTALLED IN CONDUIT SIZED IN ACCORDANCE WITH THE NEC. CONDUIT CARRYING A GROUNDING CONDUCTOR SHALL ALSO BE GROUNDED AT THE EARTH ELECTRODE.

B. THE EARTH ELECTRODE SHALL BE:

1. THE METALLIC DOMESTIC WATER PIPING SYSTEM OF THE BUILDING. CONNECTION OF THE GROUNDING CONDUCTOR SHALL BE MADE BY AN APPROVED GROUNDING CLAMP. ALUMINUM CLAMPS ARE NOT PERMITTED. THE POINT OF CONNECTION TO THE WATER SYSTEM SHALL BE WITHIN 6 INCHES OF THE ENTRANCE OF THE PIPE INSIDE THE BUILDING OR STRUCTURE. WHERE DIELECTRIC UNIONS ARE USED IN THE WATER PIPING SYSTEM, THE GROUNDING CONNECTION SHALL BE MADE ON THE “STREET SIDE” OF THE FIRST SUCH UNION IN THE SYSTEM. A BONDING JUMPER THE SAME WIRE SIZE AS THE GROUNDING CONDUCTOR SHALL BE INSTALLED ACROSS THE WATER PIPING CONNECTION SUCH THAT THE WATER METER MAY BE REMOVED WITHOUT INTERRUPTING THE GROUNDING SYSTEM CONTINUITY. WHERE NO METALLIC DOMESTIC WATER PIPING SYSTEM EXISTS, THE EARTH ELECTRODE SHALL BE A GROUND ROD WITH SUPPLEMENTAL GROUND ELECTRODES AS DEFINED BELOW.
2. GROUND RODS: SIZE AS SPECIFIED BELOW DRIVEN 11 FEET INTO THE EARTH WHERE SHOWN ON THE CONTRACT DRAWINGS OR AS REQUIRED. THE RODS SHALL BE CONNECTED TO THE SYSTEM GROUND POINT BY AN INSULATED, GREEN COPPER JUMPER IN CONDUIT. THE JUMPER SHALL BE SIZED IN ACCORDANCE WITH THE NEC AND THE CONNECTION AT THE RODS SHALL BE BRAZED OR EXOTHERMICALLY WELDED. THE POINTS OF CONNECTION TO THE EARTH ELECTRODE SYSTEM SHALL BE VISIBLE AND ACCESSIBLE UPON COMPLETION OF CONSTRUCTION. SECTIONAL RODS OF THE SAME SIZE AND LENGTH SHALL BE USED IN MULTIPLE ROD INSTALLATIONS, IF REQUIRED BY SOIL CONDITIONS.

C. THE GROUND RESISTANCE OF THE EARTH ELECTRODE SHALL NOT EXCEED 5 OHMS. THE ELECTRICAL CONTRACTOR SHALL TEST THE EARTH ELECTRODE USING A STANDARD THREE POINT GROUND RESISTANCE TESTER OR CLAMP ON INSTRUMENT AND SHALL ADVISE THE ARCHITECT/ENGINEER OF THE RESULTS OF SUCH TESTS IN WRITING. WHERE TESTS SHOW THE RESISTANCE TO GROUND EXCEEDS 5 OHMS, APPROPRIATE ACTION SHALL BE TAKEN TO REDUCE THE RESISTANCE TO 5 OHMS, OR LESS, BY DRIVING ADDITIONAL GROUND RODS OR OTHER APPROVED METHODS. COMPLIANCE SHALL BE DEMONSTRATED BY RETESTING.

D. ALL GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLE 250 OF THE NEC. IN ADDITION, THE FOLLOWING REQUIREMENTS SHALL BE MET:

1. GROUNDING CONDUCTORS SHALL BE INSTALLED AS TO PERMIT THE SHORTEST AND MOST DIRECT PATH FROM EQUIPMENT TO GROUND. ALL GROUND CONNECTIONS TO GROUND CONDUCTORS SHALL BE ACCESSIBLE.
2. EQUIPMENT GROUND CONTINUITY SHALL BE MAINTAINED THROUGH FLEXIBLE METAL CONDUIT.
3. ALL WIRING DEVICES EQUIPPED WITH GROUNDING CONNECTION SHALL BE SOLIDLY GROUNDED TO GROUND SYSTEM WITH GROUNDING CONDUCTORS.
4. THE FRAME OF ALL LIGHTING FIXTURES SHALL BE SECURELY GROUNDED TO THE EQUIPMENT GROUND SYSTEM WITH GROUNDING CONDUCTORS.
5. GROUNDING TYPE CONVENIENCE OUTLETS AND SWITCHES SHALL BE SOLIDLY GROUNDED TO EQUIPMENT GROUNDING SYSTEM WITH A GREEN COLORED INSULATED CONDUCTOR. ELECTRICAL CONNECTIONS SHALL BE CONTINUOUS FROM EQUIPMENT GROUND BUS IN PANELBOARD TO THE HEX NUT ON THE CONVENIENCE OUTLET OR SWITCH.
6. ALL CIRCUITS SHALL CONTAIN AN INSULATED, GREEN, COPPER GROUNDING CONDUCTOR, SIZED IN ACCORDANCE WITH THE NEC. GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT GROUND BUS IN PANELBOARD AND SECURELY ATTACHED AND GROUNDED TO THE DEVICE OR ENCLOSURE AT THE OTHER END.
7. ALL EQUIPMENT ENCLOSURES, AND NON-CURRENT METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, ETC., SHALL BE EFFECTIVELY AND ADEQUATELY BONDED TO GROUND.

E. GROUNDING TYPE INSULATED BONDING BUSHINGS AND JUMPERS SHALL BE PROVIDED WHERE CONCENTRIC, ECCENTRIC OR OVER-SIZED KNOCKOUTS ARE ENCOUNTERED. THE JUMPERS SHALL BE SIZED PER THE NEC.

F. ALL METALLIC RACEWAYS ENTERING OR LEAVING PANELBOARDS (BRANCH CIRCUITS LESS THAN 30 AMPERES IN BRANCH CIRCUIT PANELBOARDS EXCEPTED), SAFETY SWITCHES, ETC. SHALL BE PROVIDED WITH INSULATED GROUNDING AND BONDING BUSHINGS AND EACH SEPARATE PIECE OF RACEWAY SHALL BE INDIVIDUALLY BONDED TO THE EQUIPMENT GROUND BUS OR METALLIC ENCLOSURE, AS APPLICABLE, AT EACH END BY MEANS OF COPPER CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC.

260529 SUPPORTING DEVICES

A. PROVIDE MATERIALS, SIZES, AND TYPES OF ANCHORS, FASTENERS AND SUPPORTS TO CARRY THE LOADS OF EQUIPMENT AND CONDUIT. CONSIDER WEIGHT OF WIRE IN CONDUIT WHEN SELECTING PRODUCTS. PROVIDE ADEQUATE CORROSION RESISTANCE.

B. ANCHORS AND FASTENERS:

1. CONCRETE STRUCTURAL ELEMENTS: USE EXPANSION ANCHORS.
2. STEEL STRUCTURAL ELEMENTS: USE BEAM CLAMPS.
3. CONCRETE SURFACES: USE SELF_DRILLING ANCHORS AND EXPANSION ANCHORS.
4. HOLLOW MASONRY, PLASTER, AND GYPSUM BOARD PARTITIONS: USE TOGGLE BOLTS.
5. SOLID MASONRY WALLS: USE EXPANSION ANCHORS.
6. SHEET METAL: USE SHEET METAL SCREWS OR BOLTS
7. WOOD ELEMENTS: USE WOOD SCREWS.

C. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

D. PROVIDE ANCHORS, FASTENERS, AND SUPPORTS IN ACCORDANCE WITH NECA “STANDARD OF INSTALLATION.”

E. DO NOT FASTEN SUPPORTS TO PIPES, DUCTS, MECHANICAL EQUIPMENT, AND CONDUIT.

F. DO NOT USE POWDER_ACTUATED ANCHORS.

G. OBTAIN PERMISSION FROM THE OWNER BEFORE DRILLING OR CUTTING STRUCTURAL MEMBERS.

H. FABRICATE SUPPORTS FROM STRUCTURAL STEEL OR STEEL CHANNEL. RIGIDLY WELD MEMBERS OR USE HEXAGON HEAD BOLTS TO PRESENT NEAT APPEARANCE WITH ADEQUATE STRENGTH AND RIGIDITY. USE SPRING LOCK WASHERS UNDER ALL NUTS.

260533 RACEWAYS AND FITTINGS

A. RACEWAYS SHALL BE RIGID GALVANIZED STEEL CONDUIT (RMC), ELECTRICAL METALLIC TUBING (EMT) AND SCHEDULE 40 RIGID POLYVINYL CHLORIDE CONDUIT (PVC) WITH APPROPRIATE FITTINGS. EMT FITTINGS SHALL BE HEX NUT STEEL COMPRESSION TYPE WITH INSULATED THROATS.

B. FLEXIBLE METAL CONDUIT (FMC), LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LMFC) AND NON-METALLIC LIQUIDTIGHT FLEXIBLE CONDUIT (LFNC): UL APPROVED AND LABELED WITH HEX NUT MALLEABLE OR NON-METALLIC FITTINGS. ALL FLEXIBLE METAL CONDUIT INSTALLED AT OR BELOW 8 FEET AFF/AFG SHALL BE LIQUIDTIGHT. ALL FLEXIBLE CONDUIT EXPOSED TO THE ELEMENTS SHALL BE LFNC.

C. INSTALL EXPOSED RACEWAYS PARALLEL TO OR AT RIGHT ANGLES TO NEARBY SURFACES OR STRUCTURAL MEMBERS, AND FOLLOW THE SURFACE CONTOURS AS MUCH AS POSSIBLE. NO DIAGONAL RUNS. ALL CONDUITS SHALL BE RUN STRAIGHT AND TRUE.

D. CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC UNLESS SHOWN OTHERWISE.

E. RACEWAYS SHALL BE SIZED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC UNLESS SHOWN OTHERWISE, WITH MINIMUM SIZE OF ½ INCH, EXCEPT HOMERUNS MINIMUM SIZE SHALL BE 3/4”. FLEXIBLE METAL AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT IN SIZE ½ INCH AND LARGER ARE ACCEPTABLE FOR MOTOR, APPLIANCE AND FIXTURE CONNECTIONS PROVIDED GREEN EQUIPMENT GROUND CONDUCTOR IS INSTALLED (SEE SECTION 260526) AND NEC IS FOLLOWED.

F. EMT SHALL NOT BE INSTALLED:

   a. WHERE TUBING, COUPLINGS, ELBOWS AND FITTINGS WOULD BE IN DIRECT CONTACT WITH THE EARTH.
   b. UNDERGROUND (IN/BELOW SLAB-ON-GRADE OR IN EARTH).
   c. WHERE SUBJECT TO SEVERE CORROSIVE INFLUENCE.
   d. WHERE SUBJECT TO SEVERE PHYSICAL DAMAGE.

G. PVC SHALL BE USED WHERE EXPOSED TO THE ELEMENTS AND FOR UNDERGROUND WORK.

H. SEAL ALL CONDUIT OPENINGS THROUGH EXTERIOR BUILDING WALLS WATERTIGHT.

260534 BOXES

A. JUNCTION, SWITCH, RECEPTACLE AND OUTLET BOXES FOR INTERIOR USE IN DRY LOCATIONS SHALL BE ZINC COATED OR CADMIUM PLATED SHEET STEEL, 4" SQUARE AND 2-1/8" DEEP, UNLESS OTHERWISE INDICATED ON THE CONTRACT, EXCEPT SINGLE WIRING DEVICE BOXES MAY BE SINGLE GANG. WHERE LARGER JUNCTION BOXES ARE REQUIRED, THEY SHALL BE FABRICATED FROM NO. 10, 12, 14 OR 16 GAUGE SHEET STEEL AS REQUIRED BY THE UNDERWRITER'S LABORATORIES, INC., AND GALVANIZED AFTER FABRICATION.

B. EXTERIOR EXPOSED JUNCTION, SWITCH, RECEPTACLE AND OUTLET BOXES SHALL BE NON-METALLIC WITH HUBS, STAINLESS STEEL HARDWARE AND GASKETED PLATES.

260553 IDENTIFICATION

A. WIRE MARKERS: PROVIDE SPLIT SLEEVE TYPE WIRE MARKERS OR APPROVED EQUIVALENT ON EACH CONDUCTOR AT PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND EACH LOAD CONNECTION. LEGEND FOR POWER AND LIGHTING CIRCUITS: BRANCH CIRCUIT OR FEEDER NUMBER AS INDICATED ON DRAWINGS.

B. IDENTIFICATION NAMEPLATES: FURNISH AND INSTALL ENGRAVED LAMINATED PHENOLIC NAMEPLATES FOR ALL SAFETY SWITCHES, ENCLOSED CIRCUIT BREAKERS, PANELBOARDS AND ELECTRICAL EQUIPMENT SUPPLIED FOR IDENTIFICATION OF EQUIPMENT CONTROLLED, SERVED, PHASE, VOLTAGE, ETC. NAMEPLATES SHALL BE SECURELY ATTACHED TO EQUIPMENT WITH STAINLESS STEEL RIVETS AND SHALL IDENTIFY BY NAME THE EQUIPMENT CONTROLLED, ATTACHED, ETC. SEE DRAWINGS FOR DETAILS. INSTALL NAMEPLATE PARALLEL TO EQUIPMENT LINES. EMBOSSED, SELF-ADHESIVE PLASTIC TAPE IS NOT ACCEPTABLE.

C. RECEPTACLE CIRCUIT IDENTIFICATION: PROVIDE ADHESIVE BACKED, LAMINATED PLASTIC RECEPTACLE DEVICE PLATE LABELS IDENTIFYING THE CIRCUIT FEEDING THE DEVICE. LABELS SHALL BE LABEL MACHINE PRINTED, BLACK LETTERING ON A CLEAR BACKGROUND, TO INDICATE PANEL AND CIRCUIT NUMBER FEEDING THE DEVICE AND SHALL BE CASIO, BROTHER, T&B OR APPROVED EQUAL. ON EACH RECEPTACLE DEVICE PLATE APPLY CIRCUIT LABEL CENTERED ON THE UPPER PORTION ABOVE THE RECEPTACLE, PARALLEL TO THE UPPER SURFACE. TYPED LABELS SHALL INDICATE PANEL AND CIRCUIT NUMBER FEEDING THE DEVICE (I.E., RPA-24).

D. NEATLY AND LEGIBLY MARK RACEWAYS AT JUNCTION BOXES IN UNFINISHED AREAS, ELECTRICAL/MECHANICAL EQUIPMENT ROOMS AND ABOVE ACCESSIBLE CEILINGS WITH THE PANELBOARD AND CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED IN THE RACEWAY USING A PERMANENT BLACK BOLD MARKING PEN.

262416 PANELBOARDS

A. NEMA PB1, CIRCUIT BREAKER TYPE, LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARD WITH COPPER PHASE BUS, 100% COPPER GROUND AND NEUTRALS BUSES AND RATINGS AS INDICATED. MINIMUM INTEGRATED SHORT CIRCUIT RATING: 10,000 AMPERES RMS SYMMETRICAL FOR 240 VOLT PANELBOARDS, OR AS INDICATED. CIRCUIT BREAKERS: NEMA AB 1, BOLT-ON TYPE. ENCLOSURE: NEMA PB 1, TYPE 1 OR TYPE 3R. CABINET FRONT: FLUSH AND SURFACE CABINET FRONT DOOR-IN-DOOR TYPE (HINGED TRIMS ARE NOT ACCEPTABLE) WITH CONCEALED TRIM CLAMPS, CONCEALED HINGE, METAL DIRECTORY FRAME, AND FLUSH LOCK ALL KEYED ALIKE. FINISH IN MANUFACTURER'S STANDARD GRAY ENAMEL.

B. PANELBOARDS SHALL BE MANUFACTURED BY EATON, GENERAL ELECTRIC/ABB, SIEMENS OR SQUARE D SCHNEIDER.

C. PROVIDE TYPED CIRCUIT DIRECTORY FOR EACH BRANCH CIRCUIT PANELBOARD. FINAL TYPED PANELBOARD DIRECTORIES INSTALLED IN THE PANELBOARD DOOR POCKET SHALL INCLUDE FINAL ACTUAL ROOM NAMES AND NUMBERS IN ADDITION TO THE GENERAL DESCRIPTION SHOWN ON THE PANEL SCHEDULES ON THE DRAWINGS. REVISE DIRECTORY TO REFLECT CIRCUITING CHANGES REQUIRED TO BALANCE PHASE LOADS. GROUND AND BOND PANELBOARD ENCLOSURE ACCORDING TO SECTION 260553.

262726 WIRING DEVICES

PROVIDE HEAVY DUTY IVORY INDUSTRIAL SPECIFICATION GRADE RECEPTACLES AND SWITCHES. ALL DEVICES SHALL BE RATED 20 AMPERES. HUBBELL HBL 5362 AND HBL 1221/2/3/4, PASS AND SEYMOUR 5362A AND PS20AC1/2/3/4, OR LEVITON 5362 AND 1221/2/3/4. PROVIDE PLASTIC DEVICE PLATES TO MATCH.

262727 OCCUPANCY SENSORS

OCCUPANCY SENSORS SHALL UTILIZE DUAL TECHNOLOGY SENSING. ACCEPTABLE TECHNOLOGY IS PASSIVE INFRARED (PIR), ULTRASONIC AND MICROPHONIC. DUAL TECHNOLOGY IS REQUIRED UTILIZING PIR AND ONE OF THE OTHER TECHNOLOGIES. SENSORS SHALL AUTOMATICALLY ADJUST TIME DELAYS AND SENSITIVITY BASED ON THE ACTIVITY LEVEL IN THE SPACE. ALL SWITCHES SHALL BE APPROVED BY A THIRD PARTY AGENCY, APPROVED FOR THE VOLTAGE AND CURRENT INDICATED. SENSORS SHALL BE COMPATIBLE WITH ALL LOAD TYPES AND REQUIRE NO MINIMUM LOAD.

262816 SAFETY SWITCHES

A. NEMA KS 1, TYPE HD WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED (DEFEATABLE) TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION, ENCLOSED LOAD INTERRUPTER KNIFE SWITCH. MECHANISMS SHALL BE NON-TEASIBLE, POSITIVE, QUICK MAKE-QUICK BREAK TYPE. HANDLE LOCKABLE IN ON OR OFF POSITION. SWITCHES SHALL HAVE HANDLES WHOSE POSITIONS ARE EASILY RECOGNIZABLE IN THE ON OR OFF POSITION. FUSE CLIPS SHALL BE DESIGNED TO ACCOMMODATE NEMA FU1, CLASS R FUSES.

B. APPLY ADHESIVE TAG ON INSIDE DOOR OF EACH FUSED SWITCH INDICATING NEMA FUSE CLASS AND SIZE INSTALLED.

C. SAFETY SWITCHES SHALL BE MANUFACTURED BY EATON, GENERAL ELECTRIC/ABB, SIEMENS OR SQUARE D SCHNEIDER.

265100 LIGHTING FIXTURES

LIGHTING FIXTURE TYPES SHALL BE FURNISHED AS REQUIRED BY THE LIGHTING FIXTURE SCHEDULE AS INDICATED ON THE DRAWINGS. CATALOG NUMBERS ARE PROVIDED AS A GUIDE TO THE DESIGN AND QUALITY OF FIXTURE DESIRED. EQUIVALENT DESIGNS AND EQUAL QUALITY FIXTURES OF OTHER MANUFACTURERS LISTED ARE ACCEPTABLE. PROVIDE COMPATIBLE MOUNTING ATTACHMENTS AND TRIM. REPLACE LED MODULES IN WHICH MORE THAN 5% OF THE LEDS HAVE FAILED LAMPS AT FINAL ACCEPTANCE OF THE WORK.

265200 EMERGENCY AND EXIT LIGHTING FIXTURES

A. EMERGENCY AND EXIT LIGHTING FIXTURES SHALL BE SELF_CONTAINED UNITS AUTOMATICALLY ACTIVATED WHEN THE LINE VOLTAGE DROPS BELOW 80% AND SHALL COMPLY WITH UL 924, NFPA 101 - LIFE SAFETY CODE, NFPA 70 - NEC AND THE NCSBC. LIGHTING FIXTURE TYPES SHALL BE FURNISHED AS REQUIRED BY THE LIGHTING FIXTURE SCHEDULE AS INDICATED ON THE DRAWINGS. CATALOG NUMBERS ARE PROVIDED AS A GUIDE TO THE DESIGN AND QUALITY OF FIXTURE DESIRED. EQUIVALENT DESIGNS AND EQUAL QUALITY FIXTURES OF OTHER MANUFACTURERS LISTED WILL BE ACCEPTABLE UPON APPROVAL OF THE ARCHITECT/ENGINEER.

B. ALL FIXTURES SHALL BE COMPLETELY SELF-CONTAINED, PROVIDED WITH MAINTENANCE FREE BATTERY, AUTOMATIC CHARGER AND OTHER FEATURES. THEY SHALL BE INSTALLED COMPLETE WITH LAMPS, BATTERIES, ETC. WHICH SHALL BE NEW AND UNUSED AT TIME OF FINAL INSPECTION OF THE PROjECT FOR ACCEPTANCE.

C. ALL FIXTURES SHALL HAVE SELF-DIAGNOSTICS. ELECTRONICS SHALL AUTOMATICALLY, OR MANUALLY UPON DEMAND, CONDUCT SELF TEST ON BATTERY CONDITION (INCLUDING ACTUAL DISCHARGE), CHARGER, LAMPS AND INTERNAL WIRING INTEGRITY PER NEC AND NFPA AT PRESCRIBED INTERVALS. A PILOT LIGHT SHALL INDICATE THE UNIT IS CONNECTED TO AC POWER. PROVIDE TEST SWITCH AND VISUAL INDICATOR(S) OF UNIT OPERATIONAL CONDITION INCLUDING CHARGER STATUS, READY AND SERVICE CODE. TEST SWITCH SHALL SIMULATE OPERATION OF THE UNIT UPON LOSS OF AC POWER BY ENERGIZING LAMPS FROM THE BATTERY, AND ALSO EXERCISE THE TRANSFER RELAY.

D. EACH UNIT SHALL BE WARRANTED FOR THREE YEARS. THE BATTERY SHALL HAVE AN ADDITIONAL TWO MORE YEARS PRO-RATED WARRANTY. WARRANTY SHALL DATE FROM THE DATE OF FINAL PROJECT ACCEPTANCE.

CBHF
Engineers, PLLC
2246 Yaupon Drive
Wilmington, NC 28401
Phone: 910.791.4000
Fax: 910.791.5266
www.cbhfengineers.com
NC# P-0506

BOWMAN
MURRAY
HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
Fax - (910) 762-8506

SEAL
8433
R. DUNCAN MCFADYEN

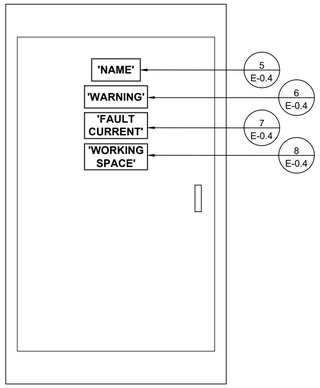
09/14/2023

Holden Beach Pier
441 Ocean Boulevard West
Holden Beach, North Carolina 28462

ELECTRICAL
SPECIFICATIONS

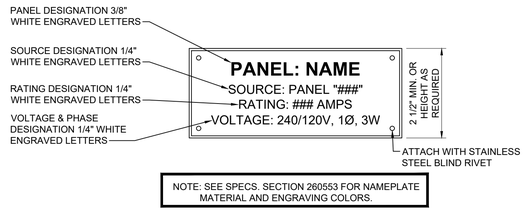
JOB NUMBER
23065
DRAWN BY
WPJ
CHECKED BY
RDM
DATE
09/15/2023
REVISIONS

SHEET NUMBER
E-0.2



4 REQUIRED PANELBOARD NAMEPLATE & LABELS DETAIL

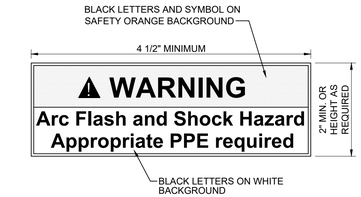
NOT TO SCALE



NOTE: SEE SPECS. SECTION 260553 FOR NAMEPLATE MATERIAL AND ENGRAVING COLORS.

5 TYPICAL PANELBOARD NAMEPLATE DETAIL

NOT TO SCALE

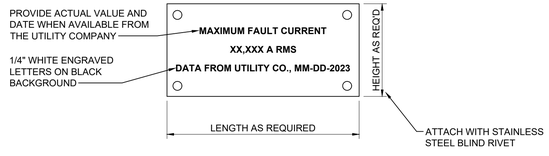


NOTES:
1. LABEL SHOWN CAN BE SOURCED FROM SAFETYSIGN.COM, OTHER SUPPLIERS ARE COMPLIANTSIGNS.COM & SETON.COM

2. THIS WARNING LABEL MINIMALLY COMPLIES WITH NEC, HOWEVER IF ELECTRICAL EQUIPMENT IS LIKELY TO REQUIRE EXAMINATION OR MAINTENANCE WHILE ENERGIZED A DETAILED SHORT CIRCUIT AND ARC FLASH HAZARD ANALYSIS IS RECOMMENDED.

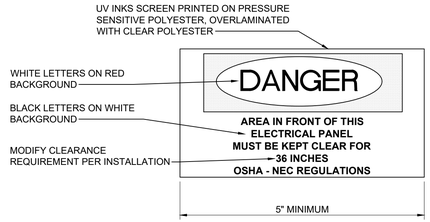
6 ELECTRICAL EQUIPMENT WARNING LABEL DETAIL

NOT TO SCALE



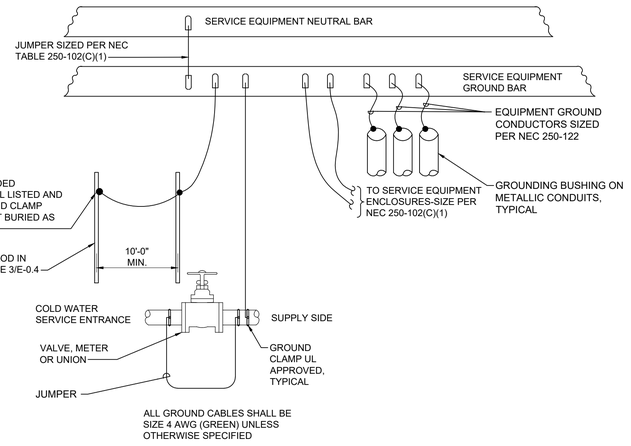
7 FAULT CURRENT NAMEPLATE DETAIL

NOT TO SCALE



8 NEC WORKING SPACE LABEL DETAIL

NOT TO SCALE



2 SERVICE GROUNDING DETAIL

NOT TO SCALE

LOAD SUMMARY

VOLTAGE	PHASE
240	1
LIGHTING	
LIGHTS (INTERIOR, BASED ON NEC 220.12)	4,030 VA
LIGHTS (EXTERIOR)	1,321 VA
TOTAL LIGHTING LOAD	5,351 VA
TOTAL DEMAND FOR LIGHTING	22 AMPS
RECEPTACLES	
RECEPTACLES	360 VA
TOTAL DEMAND FOR RECEPTACLE/POWER PANELS	360 VA
TOTAL DEMAND FOR RECEPTACLE/POWER PANELS	2 AMPS
TOTAL DEMAND BUILDING AMPS	24 AMPS
TOTAL DEMAND BUILDING VA	5,711 VA
TOTAL BUILDING CONNECTED LOAD	5,711 VA

Panel "P"

TYPE:	240	120	VOLTS, 1 PHASE, 3 WIRE					PROVIDE	XX	EQUIPMENT GROUND BUS
BOLT-ON	MOUNT:	SURFACE						IF	XX	100 % NEUTRAL BUS
HINGED TRIM	FEED:	TOP						CHECKED	XX	ULSE LABEL
	NEMA -	1	ENCLOSURE							ISOLATED GROUND BAR

	LOAD	CKT BKR	CKT			CKT	CKT BKR	LOAD	
LOAD SERVED	VA	TRIP/POLES	#	A	B	#	TRIP/POLES	VA	LOAD SERVED
INTERIOR LIGHTS	304	20/1	1	833		2	20/1	529	EXTERIOR LIGHTS THRU PHOTOCELL
RECEPTACLES	360	20/1	3		360	4	20/1		SPARE
SPARE		20/1	5			6	20/1		SPARE
SPARE		20/1	7			8	20/1		SPARE
SPARE		20/1	9			10	20/1		SPARE
SPARE		20/1	11			12	20/1		SPARE
SPARE		20/1	13			14	20/1		SPARE
SPARE		20/1	15			16	20/1		SPARE
SPARE		20/1	17			18	20/1		SPARE
SPARE		20/1	19			20	20/1		SPARE
SPARE		20/1	21			22	20/1		SPARE
SPARE		20/1	23			24	20/1		SPARE
SPARE		20/1	25			26	20/1		SPARE
SPARE		20/1	27			28	20/1		SPARE
SPARE		20/1	29			30	20/1		SPARE
SPARE		20/1	31			32	20/1		SPARE
SPARE		20/1	33			34	20/1		SPARE
SPARE		20/1	35			36	20/1		SPARE
SPARE		20/1	37			38	20/1		SPARE
SPARE		20/1	39		396	40	20/2	396	PIER LIGHTS THRU LC1/PC
SPARE		20/1	41	396		42		396	
NOTES (AS APPLICABLE):				1,229	756	TTL PHASE VA		200	A. BUS (COPPER, UNO)
				10	6	TTL PHASE AMPS		200	A. MAIN CIRCUIT BREAKER
				62%	38%	PHASE BALANCE		10	KAIC MINIMUM RATING

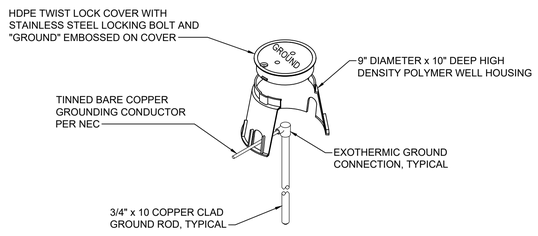
DEMAND SUMMARY:	CONN. (VA)	DEMAND FACTOR	DEMAND (VA)
TOTAL RECEPTACLES (VA) = 360			
RECEPTACLES FIRST 10 KVA	360	1.00	360
RECEPTACLES > 10 KVA		0.50	
LIGHTING	1,625	1.25	2,031
MISCELLANEOUS EQUIPMENT		1.00	
OTHER EQUIPMENT (CONTINUOUS)		1.25	
LARGEST MOTOR		1.25	
HVAC EQUIPMENT (FLA = MCA X 0.8)		1.00	
KITCHEN EQUIPMENT		1.00	
TOTAL CONNECTED (VA)	1,985		
TOTAL DEMAND (VA)			2,391
TOTAL DEMAND (AMPERES)			10.0
PANEL DEMAND LOADING VS RATING	5.0%		

NOTE:
1. SHORT CIRCUIT CALCULATION COMPLETED ON 9/11/23. BASED ON A 25 KVA PAD MOUNTED TRANSFORMER @ 1.5% IMPEDANCE, AND 1.54 X/R, WITH 30 FEET OF #1 AWG AL SERVICE ENTRANCE CONDUCTOR. VERIFY ACTUAL PARAMETERS WITH UTILITY COMPANY PRIOR TO INSTALLATION

2. SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED WITH MAX. AVAILABLE FAULT CURRENT, INCLUDING THE DATE THE FAULT CURRENT CALCULATIONS WERE PERFORMED, PER NEC 110.24

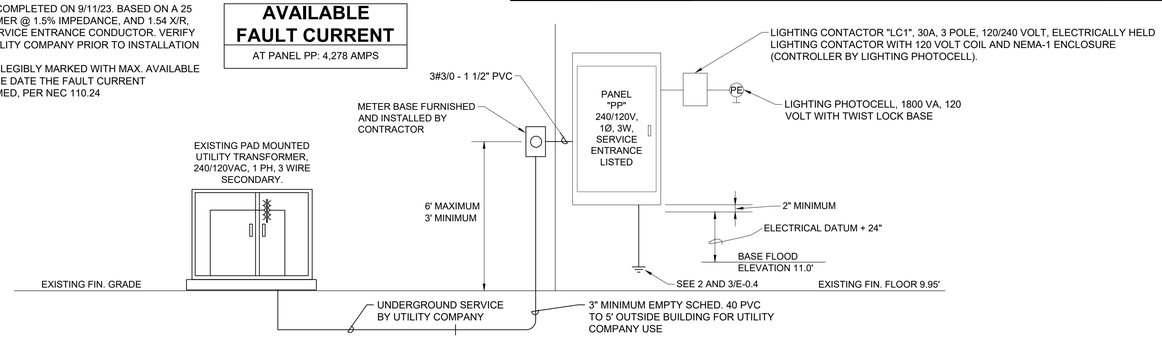
AVAILABLE FAULT CURRENT

AT PANEL PP: 4,278 AMPS



3 GROUNDING INSPECTION WELL DETAIL

NOT TO SCALE



1 POWER RISER DIAGRAM

NOT TO SCALE

CBHF Engineers, PLLC
2246 Yaupon Drive
Wilmington, NC 28401
Phone: 910.791.4000
Fax: 910.791.5266
www.cbhfengineers.com
NC# P-0506

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
Fax - (910) 762-8506

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8433 RICHARD DAN MCELVEEN

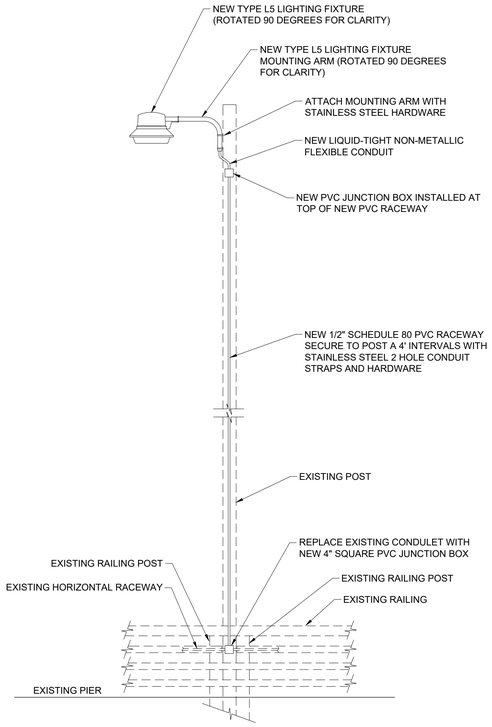
09/14/2023

Holden Beach Pier
441 Ocean Boulevard West
Holden Beach, North Carolina 28462

ELECTRICAL POWER RISER DIAGRAM, SUMMARIES, SCHEDULES AND DETAILS

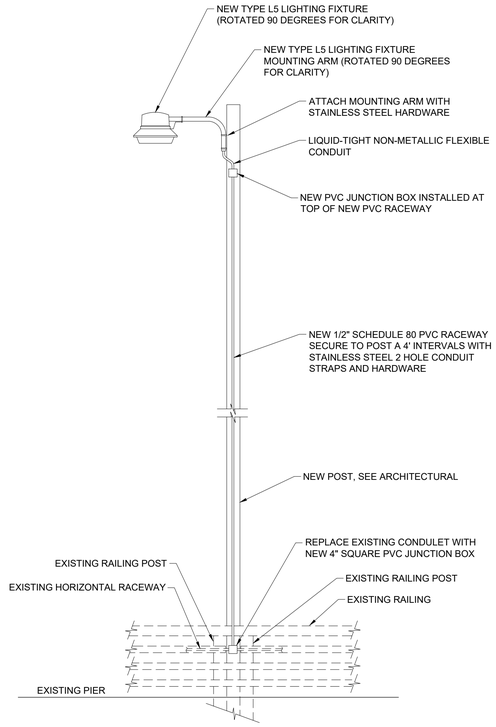
JOB NUMBER 23065
DRAWN BY WPJ
CHECKED BY RDM
DATE 09/15/2023
REVISIONS

SHEET NUMBER **E-0.3**



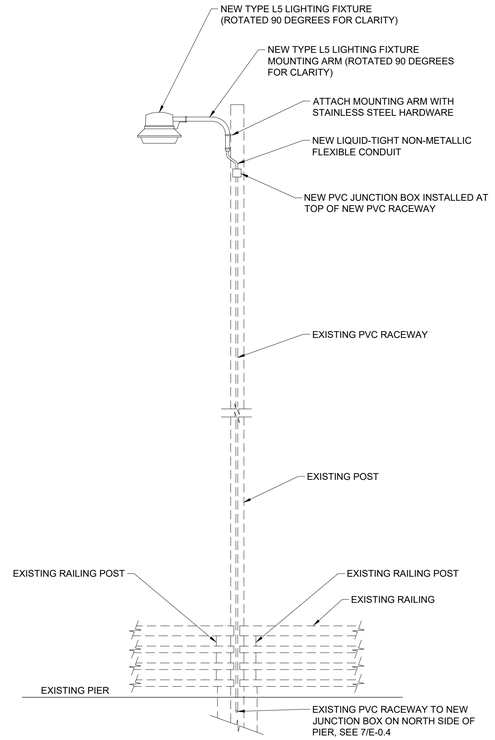
4 PIER POST/LIGHT AT EXISTING POST ON NORTH SIDE OF PIER

NOT TO SCALE



5 PIER POST/LIGHT AT NEW POST ON NORTH SIDE OF PIER

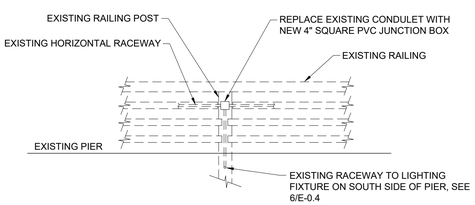
NOT TO SCALE



6 PIER POST/LIGHT AT EXISTING POST ON SOUTH SIDE OF PIER

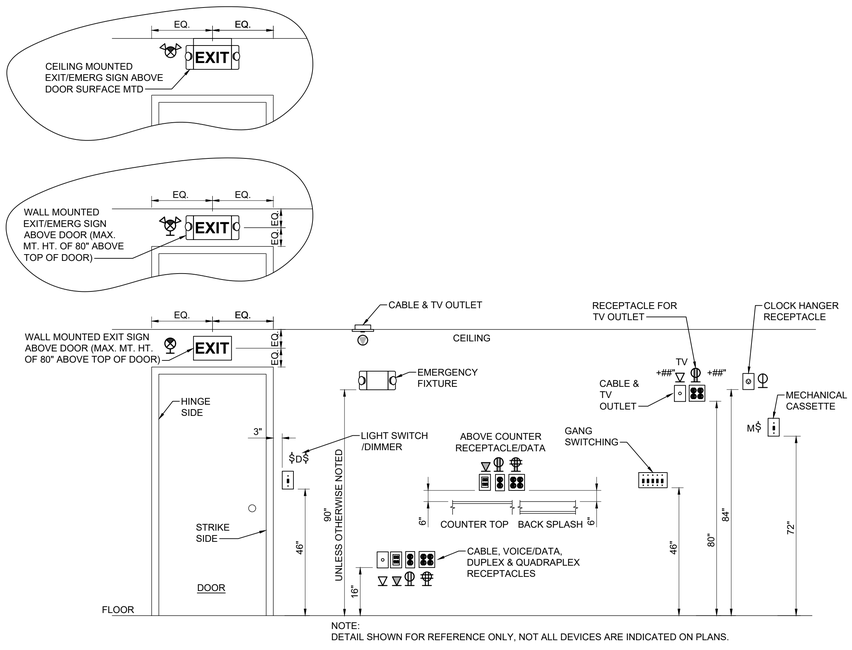
NOT TO SCALE

NOTE: ALL MOUNTING HARDWARE, BOX AND CONDULET COVER SCREWS, CONDUIT STRAPS, ETC. SHALL BE TYPE 316 STAINLESS STEEL



7 NORTH SIDE OF PIER RACEWAY MODIFICATIONS

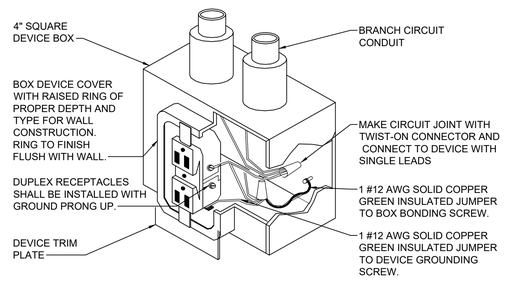
NOT TO SCALE



NOTE:
DETAIL SHOWN FOR REFERENCE ONLY, NOT ALL DEVICES ARE INDICATED ON PLANS.

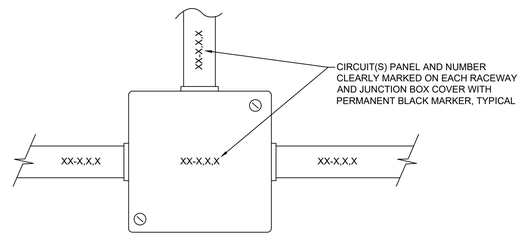
1 ELECTRICAL DEVICES - MOUNTING HEIGHT DETAIL

NOT TO SCALE



2 RECEPTACLE GROUNDING DETAIL

NOT TO SCALE



3 CIRCUIT IDENTIFICATION DETAIL

NOT TO SCALE

CBHF
Engineers, PLLC
2246 Yaupon Drive
Wilmington, NC 28401
Phone: 910.791.4000
Fax: 910.791.5266
www.cbhfengineers.com
NC# P-0506

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
Fax - (910) 762-8506

NORTH CAROLINA PROFESSIONAL SEAL 8433 ENGINEER RICHARD DAN MCELVEEN

09/14/2023

Holden Beach Pier
441 Ocean Boulevard West
Holden Beach, North Carolina 28462

ELECTRICAL DETAILS

JOB NUMBER 23065
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DATE 09/15/2023
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SHEET NUMBER
E-0.4

CBHF
Engineers, PLLC
2246 Yaupon Drive
Wilmington, NC 28401
Phone: 910.791.4000
Fax: 910.791.5266
www.cbhfengineers.com
NC# P-0506

LIGHTING FIXTURE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER/SERIES	NOM. SIZE	SOURCE / TEMP(oK) / DELIVERED LUMENS	VOLTS	WATTS	LENS	COLOR/ MATERIAL	MOUNTING HEIGHT	DRIVER/ DIMMING	REMARKS / MFGR. OPTIONS
L1	SURFACE MOUNTED ENCLOSED AND GASKTED LED	LITHONIA "FEM LED" SERIES	4'	LEDs / 4000K / 6000 LUMENS	120	38	LPPFL POLYCARBONATE	FIBERGLASS	SURFACE CEILING	LED DRIVER GZ10 DIMMING	L48, NEMA-4X GASKET MD DISTRIBUTION, 80 CRI
L2	WALL MOUNED LED	TROY RLM LIGHTING HEAVY DUTY "RH14" SERIES	14" x 8.25"	LEDs / 4000K / 1334 LUMENS	120	18		PNC PAINTED NATURAL ALUMINUM	WALL / 8'-0"	LED DRIVER	"C" COASTAL COATING, 3-LC18-PNA-C CURVE ARM, CANOPY ARM MOUNTING
L3	SURFACE MOUNTED LED STEPLIGHT	BEGA "33055" SERIES	12.5" x 2 3/4" x 5"	LEDs / 3000K / 480 LUMENS	120	11		SILVER	SURFACE ON RAILING SYSTEM	LED DRIVER	DIE CAST MARINE GRADE ALUMINUM HOUSING, STAINLESS STEEL HARDWARE, ASYMMETRIC DISTRIBUTION, BB24065 INSTALL KIT, IP65 LISTING
L4	SURFACE MOUNED LED UP/DOWN CYLINDER	KIRLIN "LWC-03RDI" SERIES	3" x 12"	LEDs / 4000K / 1500 LUMENS DOWN 1000 LUMEN UP	120	23		SILVER ENAMEL	SURFACE ON JOIST	LED DRIVER	WFL BEAM DOWN, WFU BEAM UP, WET LOCATION LABEL, WEATHERCAP
L5	POST MOUNTED LED AREA LIGHT	LITHONIA "BGR" SERIES	9.45" x 9.13 x 11.42"	LEDs / 4000K / 10000 LUMENS	240	72		DNA ALUMINUM	POST MOUNTED	LED DRIVER	OMA MOUNTING ARM, DSHORT / SBK SHORTING CAP AND COVER
X1	CEILING MOUNTED WET LOCATION EXIT FIXTURE	LITHONIA "WLTE" SERIES		RED LED	120	2.7		WHITE	CEILING		SINGLE FACE, EL BATTERY, SD SELF-DIAGNOSTICS
X2	WALL MOUNTED EXIT FIXTURE	LITHONIA "LQM "SERIES		RED LED	120	1		WHITE	WALL OVER DOOR		SINGLE FACE, ELN BATTERY, SD SELF-DIAGNOSTICS
E1	WALL MOUNTED EMERGENCY FIXTURE	LITHONIA "ELM6L" SERIES		LED 1100 LUMENS	120	10.6		WHITE	WALL / 7'-6"		SDRT SELF-DIAGNOSTICS, WPVS LRG W WET PROTECTIVE VANDAL SHIELD
E2	WALL MOUNTED EMERGENCY FIXTURE	LITHONIA "ELM6L" SERIES		LED 1100 LUMENS	120	10.6		WHITE	WALL / 7'-6"		SDRT SELF-DIAGNOSTICS

REMARKS:
1. BI-LEVEL SWITCHING
2. DAMP LOCATION
3. WET LOCATION
4. WIREGUARD
5. LED REQUIRED SURGE PROTECTION

GENERAL NOTES:
A. THE CONTRACTOR SHALL VERIFY THE LEAD TIME OF ALL PRODUCTS SPECIFIED IN THIS SCHEDULE AT THE TIME OF PACKAGE QUOTE.
B. DURING THE BID PROCESS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DELIVERY/SCHEDULING ISSUES.
C. NO SUBSTITUTIONS WILL BE ALLOWED DUE TO THE LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
D. THE CONTRACTOR SHALL RECEIVE APPROVAL FOR ALL LIGHTING FIXTURES FROM THE ARCHITECT/OWNER PRIOR TO PURCHASE AND ROUGH-IN.
E. FIXTURES INSTALLED IN CEILINGS INDICATED ON THE ARCHITECTURAL PLANS AS HAVING INSULATION IN CONTACT WITH THE CEILING SURFACE SHALL BE MANUFACTURER RATED "IC"..
F. LED MODULES SHALL BE REPLACEABLE.
G. ACRYLIC PRISMATIC LENSES SHALL BE 0.125" NOMINAL MINIMUM THICKNESS.
H. ALL EXIT AND EMERGENCY FIXTURES SHALL COMPLY WITH NCSBC STANDARDS AND HAVE AUTOMATIC TESTING DEVICES.
I. SEE SPECIFICATIONS SECTIONS 265100 AND 265200 FOR ADDITIONAL REQUIREMENTS.
J. SUBSTITUTIONS MAY BE APPROVED BY THE ARCHITECT AND ENGINEER IF THEY ARE JUDGED TO BE EQUAL TO THE SPECIFIED FIXTURES. "EQUAL" MAY INCLUDE, AT THE SOLE DISCRETION OF THE ARCHITECT AND ENGINEER, LENS MATERIAL AND CHARACTERISTICS, COLORS, REFLECTORS, HOUSING MATERIAL AND CONFIGURATION, FINISHES, PHOTOMETRICS, EFFICIENCY, OPTIONS, FUNCTIONALITY, ETC.

2018 APPENDIX B BUILDING CODE SUMMARY
ELECTRICAL SUMMARY
ELECTRICAL SYSTEMS AND EQUIPMENT

METHOD OF COMPLIANCE:

ENERGY CODE:	☑ PRESCRIPTIVE	☐ PERFORMANCE
ASHRAE 90.1:	☐ PRESCRIPTIVE	☐ PERFORMANCE

LIGHTING SCHEDULE (EACH FIXTURE TYPE)
LAMP TYPE REQUIRED IN FIXTURE: SEE FIXTURE SCHEDULE
NUMBER OF LAMPS IN FIXTURE: SEE FIXTURE SCHEDULE
BALLAST TYPE USED IN THE FIXTURE: SEE FIXTURE SCHEDULE
NUMBER OF BALLASTS IN FIXTURE: SEE FIXTURE SCHEDULE
TOTAL WATTAGE PER FIXTURE: SEE FIXTURE SCHEDULE

TOTAL INTERIOR WATTAGE: (WHOLE BUILDING OR SPACE BY SPACE)

ALLOWED =	2,116	WATTS
ADDITIONAL 10% =	1,904	WATTS
SPECIFIED =	304	WATTS

EXTERIOR ALLOWANCE:
(TRADEABLE SURFACES)

ALLOWED =	1,406	WATTS
SPECIFIED =	1,321	WATTS

(NON-TRADEABLE SURFACES:)

ALLOWED =	N/A	WATTS
SPECIFIED =	N/A	WATTS

ADDITIONAL PRESCRIPTIVE COMPLIANCE
☐ C406.2 MORE EFFICIENT HVAC EQUIPMENT PERFORMANCE
☑ C406.3 REDUCED LIGHTING POWER DENSITY
☐ C406.4 ENHANCED DIGITAL LIGHTING CONTROLS
☐ C406.5 ON-SITE RENEWABLE ENERGY
☐ C406.6 DEDICATED OUTSIDE AIR SYSTEM
☐ C406.7 REDUCED ENERGY USE IN SERVICE WATER HEATING

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
Fax - (910) 762-8506

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8433 REGISTERED RYAN M. DELVEN

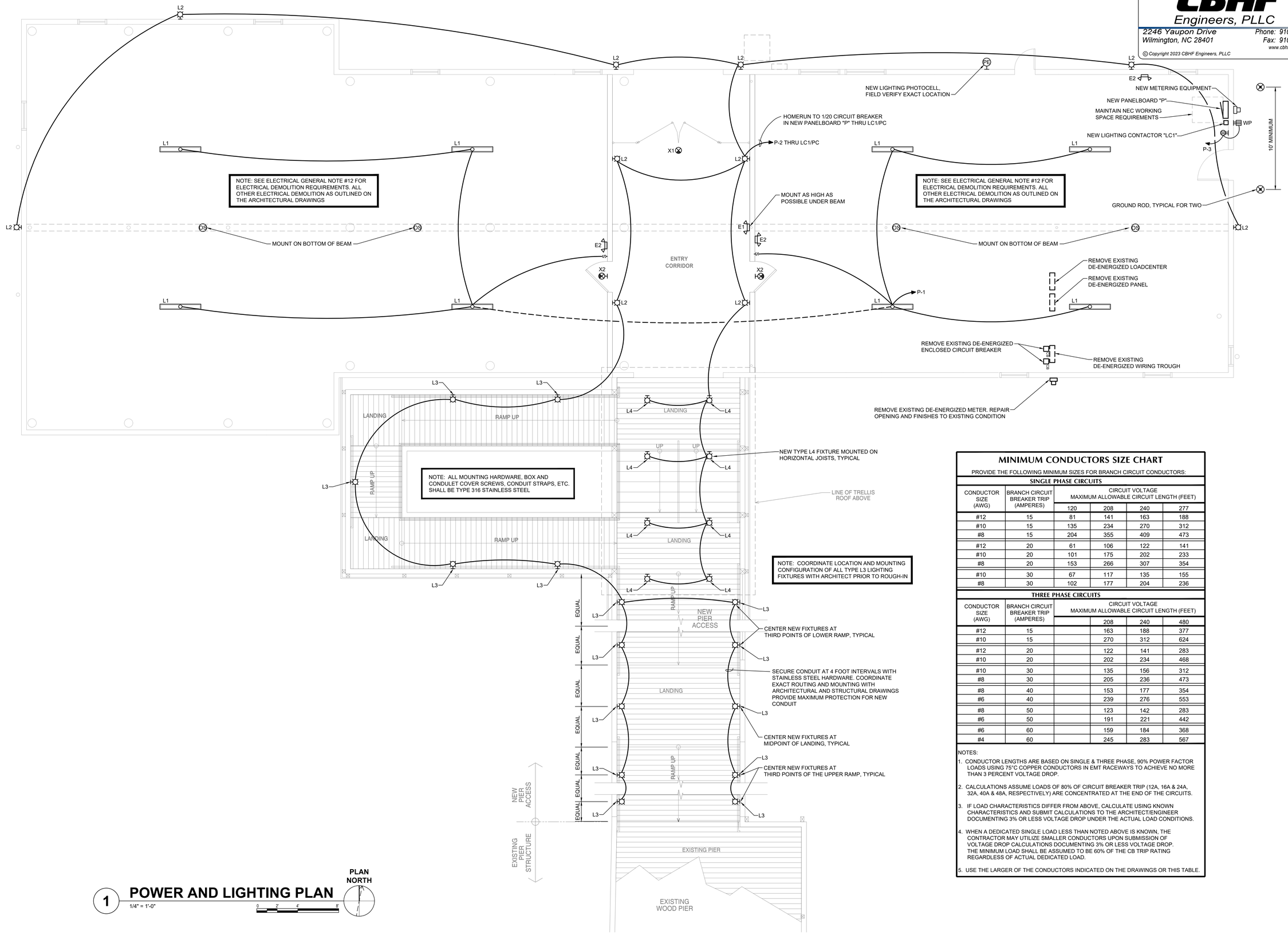
09/14/2023

Holden Beach Pier
441 Ocean Boulevard West
Holden Beach, North Carolina 28462

ELECTRICAL LIGHTING FIXTURE SCHEDULE AND ENERGY SUMMARY

JOB NUMBER 23065
DRAWN BY WPJ
CHECKED BY RDM
DATE 09/15/2023
REVISIONS

SHEET NUMBER
E-0.5



1 POWER AND LIGHTING PLAN

1/4" = 1'-0"

MINIMUM CONDUCTORS SIZE CHART

PROVIDE THE FOLLOWING MINIMUM SIZES FOR BRANCH CIRCUIT CONDUCTORS:

SINGLE PHASE CIRCUITS

CONDUCTOR SIZE (AWG)	BRANCH CIRCUIT BREAKER TRIP (AMPERES)	CIRCUIT VOLTAGE MAXIMUM ALLOWABLE CIRCUIT LENGTH (FEET)			
		120	208	240	277
#12	15	81	141	163	188
#10	15	135	234	270	312
#8	15	204	355	409	473
#12	20	61	106	122	141
#10	20	101	175	202	233
#8	20	153	266	307	354
#10	30	67	117	135	155
#8	30	102	177	204	236

THREE PHASE CIRCUITS

CONDUCTOR SIZE (AWG)	BRANCH CIRCUIT BREAKER TRIP (AMPERES)	CIRCUIT VOLTAGE MAXIMUM ALLOWABLE CIRCUIT LENGTH (FEET)			
			208	240	480
#12	15		163	188	377
#10	15		270	312	624
#12	20		122	141	283
#10	20		202	234	468
#10	30		135	156	312
#8	30		205	236	473
#8	40		153	177	354
#6	40		239	276	553
#8	50		123	142	283
#6	50		191	221	442
#6	60		159	184	368
#4	60		245	283	567

NOTES:

1. CONDUCTOR LENGTHS ARE BASED ON SINGLE & THREE PHASE, 90% POWER FACTOR LOADS USING 75°C COPPER CONDUCTORS IN EMT RACEWAYS TO ACHIEVE NO MORE THAN 3 PERCENT VOLTAGE DROP.
2. CALCULATIONS ASSUME LOADS OF 80% OF CIRCUIT BREAKER TRIP (12A, 16A & 24A, 32A, 40A & 48A, RESPECTIVELY) ARE CONCENTRATED AT THE END OF THE CIRCUITS.
3. IF LOAD CHARACTERISTICS DIFFER FROM ABOVE, CALCULATE USING KNOWN CHARACTERISTICS AND SUBMIT CALCULATIONS TO THE ARCHITECT/ENGINEER DOCUMENTING 3% OR LESS VOLTAGE DROP UNDER THE ACTUAL LOAD CONDITIONS.
4. WHEN A DEDICATED SINGLE LOAD LESS THAN NOTED ABOVE IS KNOWN, THE CONTRACTOR MAY UTILIZE SMALLER CONDUCTORS UPON SUBMISSION OF VOLTAGE DROP CALCULATIONS DOCUMENTING 3% OR LESS VOLTAGE DROP. THE MINIMUM LOAD SHALL BE ASSUMED TO BE 60% OF THE CB TRIP RATING REGARDLESS OF ACTUAL DEDICATED LOAD.
5. USE THE LARGER OF THE CONDUCTORS INDICATED ON THE DRAWINGS OR THIS TABLE.

CBHF Engineers, PLLC
2246 Yaupon Drive
Wilmington, NC 28401
Phone: 910.791.4000
Fax: 910.791.5266
www.cbhfengineers.com
NC# P-0506

BOWMAN MURRAY HEMINGWAY
ARCHITECTS
514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
Fax - (910) 762-8506

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9433 RYAN M. DELOVEN

09/14/2023

Holden Beach Pier
441 Ocean Boulevard West
Holden Beach, North Carolina 28462

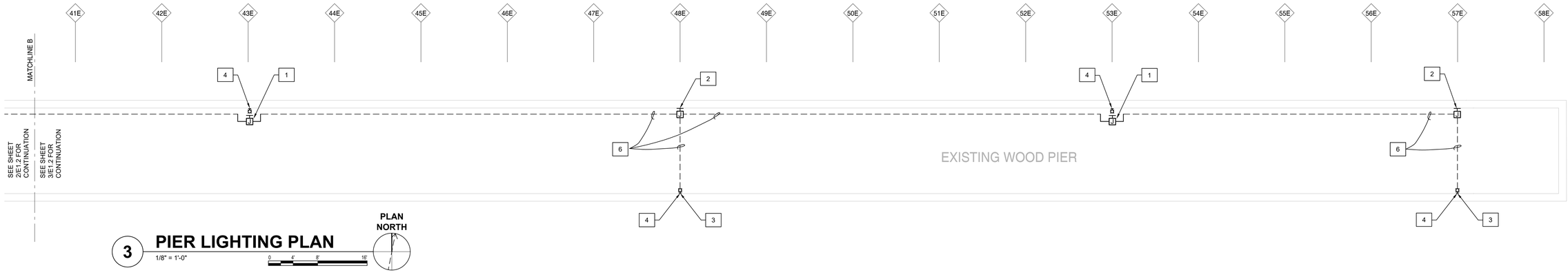
ELECTRICAL POWER AND LIGHTING PLAN

JOB NUMBER 23065
DRAWN BY WPJ
CHECKED BY RDM
DATE 09/15/2023
REVISIONS

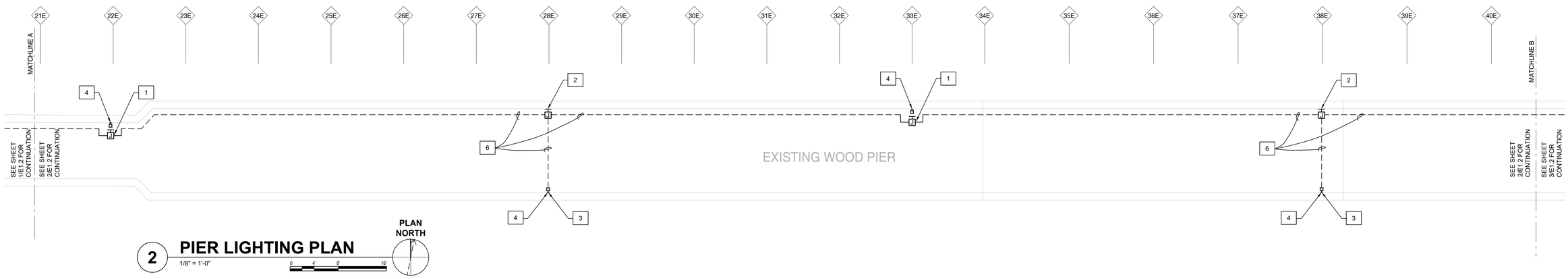
SHEET NUMBER **E1.1**

KEYED NOTES

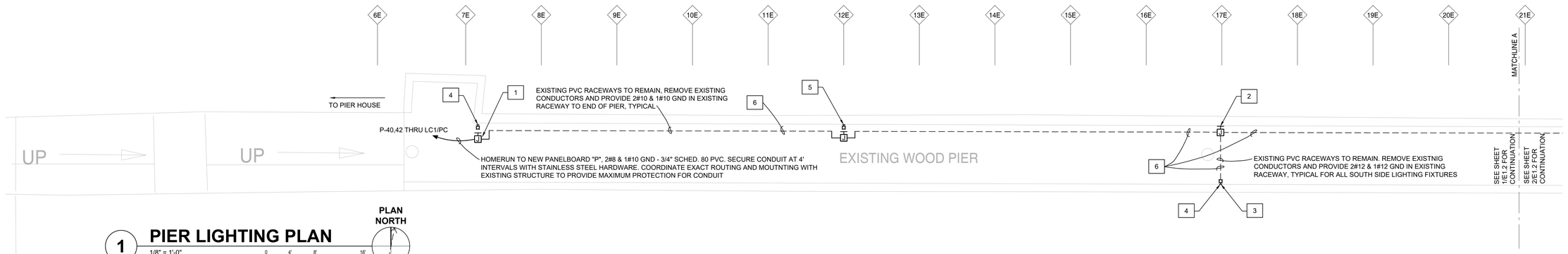
1. REMOVE EXISTING CONDULET, VERTICAL RACEWAY, WEATHERHEAD, LIGHT FIXTURE, SUPPORT ARM AND BRANCH CIRCUIT CONDUCTORS. PROVIDE AND INSTALL NEW 4" SQUARE PVC JUNCTION BOX. REWORK/RECONFIGURE EXISTING PVC RACEWAY AS REQUIRED, SEE DETAIL 4/E-0.4.
2. REMOVE EXISTING CONDULET. PROVIDE AND INSTALL NEW 4" SQUARE PVC JUNCTION BOX AT SAME LOCATION. REWORK/RECONFIGURE EXISTING PVC RACEWAY AS REQUIRED, SEE DETAIL 7/E-0.4.
3. REMOVE EXISTING LIGHT FIXTURE, SUPPORT ARM, WEATHER HEAD AND BRANCH CIRCUIT CONDUCTORS. EXISTING VERTICAL RACEWAY TO REMAIN FOR REUSE, SEE DETAIL 6/E-0.4.
4. NEW TYPE L5 LIGHTING FIXTURE INSTALLED ON EXISTING WOOD POST, SEE DETAIL 4/E-0.4 AND 6/E-0.4
5. NEW TYPE L5 LIGHTING FIXTURE INSTALLED ON NEW WOOD POST. PROVIDE AND INSTALL NEW 4" SQUARE PVC JUNCTION BOX, SEE DETAIL 5/E-0.4.
6. NEW BRANCH CIRCUIT CONDUCTORS INSTALLED IN EXISTING RACEWAY.



3 **PIER LIGHTING PLAN**
1/8" = 1'-0"



2 **PIER LIGHTING PLAN**
1/8" = 1'-0"



1 **PIER LIGHTING PLAN**
1/8" = 1'-0"

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514 Market Street
Wilmington, NC 28401
Tel - (910) 762-2621
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NORTH CAROLINA PROFESSIONAL SEAL 8433 ENGINEER RYAN M. HELVEY

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ELECTRICAL
PIER LIGHTING
PLAN

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E1.2