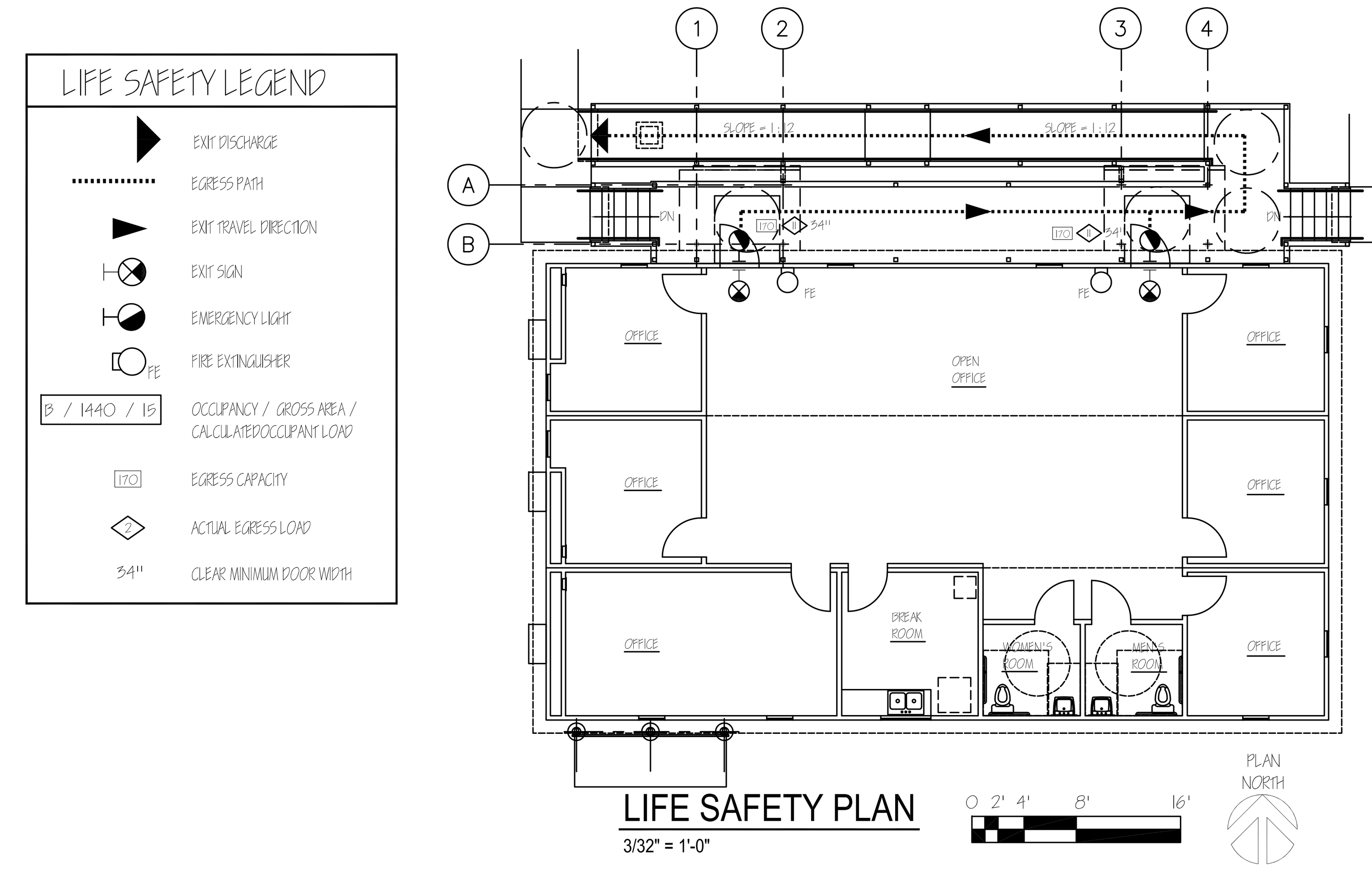
SCO ID No. 21-23168-01A

MODULAR BUILDING REPLACEMENT FOR
NCDOT TRAFFIC SIGNALS OFFICE

NC DEPT OF TRANSPORTATION, HIGHWAY DIVISION 3
299 WILMINGTON HIGHWAY, JACKSONVILLE, NC 28540

ARCHITECT:

FACILITIES DESIGN UNIT
NCDOT FACILITIES MANAGEMENT DIVISION
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601



LIFE SAFETY PLAN
3/32" = 1'-0"

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: MODULAR REPLACEMENT FOR NCDOT HIGHWAY DIVISION 3 TRAFFIC SIGNALS OFFICE
Address: 299 WILMINGTON HIGHWAY, JACKSONVILLE, NC Zip Code 28540
Owner/Authorized Agent: MARK GIBSON Phone # (919) 815 -7719 E-Mail mdgibsonl@ncdot.gov
Owned By: [ ] City/County [ ] Private [x] State
Code Enforcement Jurisdiction: [ ] City ____ [ ] County ____ [x] State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	NCDOT Facilities Design	Mark D. Gibson	5121	(919)815-7719	mdgibsonl@ncdot.gov
Civil	LJB Inc.	Michael J. Mastroluca	046840	(919)594-6710	mmastroluca@ljbinc.com
Electrical	Dibble & Pledger	Ronald E. Pledger	011654	(252)946-3320	rpledger@dibbleandpledger.com
Fire Alarm				( )	
Plumbing	Dibble & Pledger	Ronald E. Pledger	011654	(252)946-3320	rpledger@dibbleandpledger.com
Mechanical				( )	
Sprinkler-Standpipe				( )	
Structural	Ross Linden Engineers	Brian M. Ross	025539	(919)832-5680	brian@rosslinden.com
Retaining Walls >5' High				( )	
Other Water Utility	LJB Inc.	Michael J. Mastroluca	046840	(919)594-6710	mmastroluca@ljbinc.com

("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: [x] New Building [ ] Addition [ ] Renovation
[ ] 1st Time Interior Completion
[ ] Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements
[ ] Phased Construction - Shell/Core- Contact the local inspection jurisdiction for possible additional procedures and requirements

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

CONSTRUCTED: (date) TBD **CURRENT OCCUPANCY(S)** (Ch. 3): GROUP B - BUSINESS
RENOVATED: (date) ____ **PROPOSED OCCUPANCY(S)** (Ch. 3): ____
RISK CATEGORY (Table 1604.5): **Current:** [ ] I [ ] II [ ] III [ ] IV
Proposed: [ ] I [x] II [ ] III [ ] IV

BASIC BUILDING DATA
Construction Type: [ ] I-A [ ] II-A [ ] III-A [ ] IV [ ] V-A
(check all that apply) [ ] I-B [ ] II-B [ ] III-B [x] V-B
Sprinklers: [x] No [ ] Partial [ ] Yes [ ] NFPA 13 [ ] NFPA 13R [ ] NFPA 13D
Standpipes: [x] No [ ] Yes Class [ ] I [ ] II [ ] III [ ] Wet [ ] Dry
Fire District: [x] No [ ] Yes **Flood Hazard Area:** [x] No [ ] Yes
Special Inspections Required: [x] No [ ] Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor		2100	
Basement			
TOTAL		2100	

ALLOWABLE AREA

Primary Occupancy Classification(s):
Assembly [ ] A-1 [ ] A-2 [ ] A-3 [ ] A-4 [ ] A-5
Business [x]
Educational [ ]
Factory [ ] F-1 Moderate [ ] F-2 Low
Hazardous [ ] H-1 Detonate [ ] H-2 Deflagrate [ ] H-3 Combust [ ] H-4 Health [ ] H-5 HPM
Institutional [ ] I-1 Condition [ ] 1 [ ] 2
[ ] I-2 Condition [ ] 1 [ ] 2
[ ] I-3 Condition [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
[ ] I-4
Mercantile [ ]
Residential [ ] R-1 [ ] R-2 [ ] R-3 [ ] R-4
Storage [ ] S-1 Moderate [ ] S-2 Low [ ] High-piled
[ ] Parking Garage [ ] Open [ ] Enclosed [ ] Repair Garage
Utility and Miscellaneous [ ]

Accessory Occupancy Classification(s): ____
Incidental Uses (Table 509): ____
Special Uses (Chapter 4 – List Code Sections): ____
Special Provisions: (Chapter 5 – List Code Sections): ____
Mixed Occupancy: [x] No [ ] Yes Separation: ____ Hr. Exception: ____

[ ] Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

[ ] Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

$$\_\_\_\_ + \_\_\_\_ + \ldots = \_\_\_\_ \leq 1.00$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	OFFICE	2100	9,000	NA	9,000

[1] Frontage area increases from Section 506.3 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = ____ (F)
b. Total Building Perimeter = ____ (P)
c. Ratio (F/P) = ____ (F/P)
d. W = Minimum width of public way = ____ (W)
e. Percent of frontage increase $I_f = 100[F/P - 0.25] \times W/30$ = ____ (%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE [1]
Building Height in Feet (Table 504.3) [2]	40'-0"	13'-0"	T.504.3
Building Height in Stories (Table 504.4) [3]	2	1	T.504.4

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum height of air traffic control towers must comply with Table 412.3.1.
[3] The maximum height of open parking garages must comply with Table 406.5.4.

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/____* REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses	>30'	0					
Bearing Walls							
Exterior							
North	>30'	0					
East	>30'	0					
West	>30'	0					
South	>30'	0					
Interior							
Nonbearing Walls and Partitions							
Exterior walls							
North							
East							
West							
South							
Interior walls and partitions	>30'	0					
Floor Construction Including supporting beams and joists		0					
Floor Ceiling Assembly		0					
Columns Supporting Floors							
Roof Construction, including supporting beams and joists		0					
Roof Ceiling Assembly		0					
Columns Supporting Roof							
Shaft Enclosures - Exit							
Shaft Enclosures - Other		0					
Corridor Separation		0					
Occupancy/Fire Barrier Separation		NA					
Party/Fire Wall Separation		NA					
Smoke Barrier Separation		NA					
Smoke Partition		NA					
Tenant/Dwelling Unit/ Sleeping Unit Separation		NA					
Incidental Use Separation		NA					

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
> 30'	N/A		

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: [ ] No [x] Yes
Exit Signs: [ ] No [x] Yes
Fire Alarm: [x] No [ ] Yes
Smoke Detection Systems: [x] No [ ] Yes [ ] Partial ____
Carbon Monoxide Detection: [x] No [ ] Yes

LIFE SAFETY PLAN REQUIREMENTS

NOTE: This modular assembly will have an NCDOI "Validation Stamp" when constructed.

Life Safety Plan Sheet #: ____

[ ] Fire and/or smoke rated wall locations (Chapter 7)
[ ] Assumed and real property line locations (if not on the 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

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

NOT APPLICABLE

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED: REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	TOTAL # ACCESSIBLE PROVIDED
A	9	9	1	0	0	1
TOTAL						

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATERCLOSETS MALE	WATERCLOSETS FEMALE	WATERCLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS /TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
SPACE	EXIST'G										
OFFICE	NEW	1	1			1	1			1	1
	REQ'D	1	1			1	1			1	1

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

____

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: [ ] No [ ] Yes (The remainder of this section is not applicable)

Exempt Building: [ ] No [ ] Yes (Provide code or statutory reference): ____

Climate Zone: [ ] 3A [ ] 4A [ ] 5A

NOTE: This modular assembly will have an NCDOI "Validation Stamp" when constructed.

Method of Compliance: Energy Code [ ] Performance [ ] Prescriptive
ASHRAE 90.1 [ ] Performance [ ] Prescriptive
(If "Other" specify source here) ____

THERMAL ENVELOPE (Prescriptive method only)

Roof/ceiling Assembly (each assembly)
Description of assembly: ____
U-Value of total assembly: ____
R-Value of insulation: ____
Skylights in each assembly: ____
U-Value of skylight: ____
total square footage of skylights in each assembly: ____

Exterior Walls (each assembly)
Description of assembly: ____
U-Value of total assembly: ____
R-Value of insulation: ____
Openings (windows or doors with glazing)
U-Value of assembly: ____
Solar heat gain coefficient: ____
projection factor: ____
Door R-Values: ____

Walls below grade (each assembly)
Description of assembly: ____
U-Value of total assembly: ____
R-Value of insulation: ____

Floors over unconditioned space (each assembly)
Description of assembly: ____
U-Value of total assembly: ____
R-Value of insulation: ____

Floors slab on grade
Description of assembly: ____
U-Value of total assembly: ____
R-Value of insulation: ____
Horizontal/vertical requirement: ____
slab heated: ____

STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

DESIGN LOADS:

Importance Factors: Snow (I_S) 1.0
Seismic (I_E) 1.0

Live Loads: Roof 20 psf
Mezzanine NA psf
Floor 50 psf

Ground Snow Load: 10 psf

Wind Load: Ultimate Wind Speed 139 mph (ASCE-7)
Exposure Category C

SEISMIC DESIGN CATEGORY: [ ] A [x] B [ ] C [ ] D
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) [ ] I [x] II [ ] III [ ] IV
Spectral Response Acceleration S_S 15.3 %g S_1 7.2 %g
Site Classification (ASCE 7) [ ] A [ ] B [ ] C [x] D [ ] E [ ] F
Data Source: [ ] Field Test [x] Presumptive [ ] Historical Data
Basic structural system [x] Bearing Wall [ ] Dual w/Special Moment Frame
[ ] Building Frame [ ] Dual w/Intermediate R/C or Special Steel
[ ] Moment Frame [ ] Inverted Pendulum
Analysis Procedure: [ ] Simplified [x] Equivalent Lateral Force [ ] Dynamic
Architectural, Mechanical, Components anchored? [x] Yes [ ] No

LATERAL DESIGN CONTROL: Earthquake [ ] Wind [x]

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) 1,000 psf
Presumptive Bearing capacity ____ psf
Pile size, type, and capacity ____

MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY

NOTE: This modular assembly will have an NCDOI "Validation Stamp" when constructed.

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: ____
summer dry bulb: ____

Interior design conditions
winter dry bulb: ____
summer dry bulb: ____
relative humidity: ____

Building heating load: ____

Building cooling load: ____

Mechanical Spacing Conditioning System
Unitary
description of unit: ____
heating efficiency: ____
cooling efficiency: ____
size category of unit: ____
Boiler
Size category. If oversized, state reason.: ____
Chiller
Size category. If oversized, state reason.: ____

List equipment efficiencies: ____

ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY

NOTE: This modular assembly will have an NCDOI "Validation Stamp" when constructed.

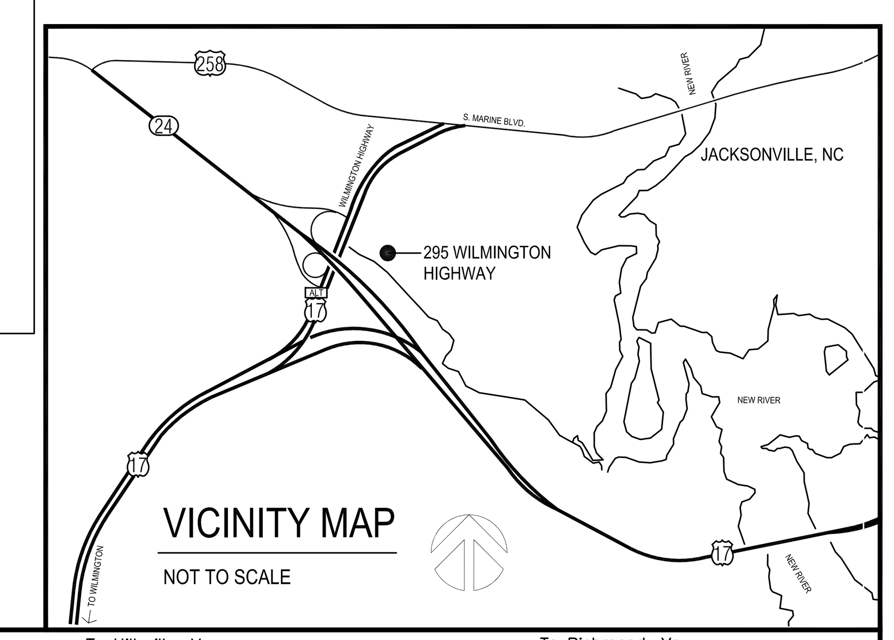
ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code [ ] Performance [ ] Prescriptive
ASHRAE 90.1 [ ] Performance [ ] Prescriptive

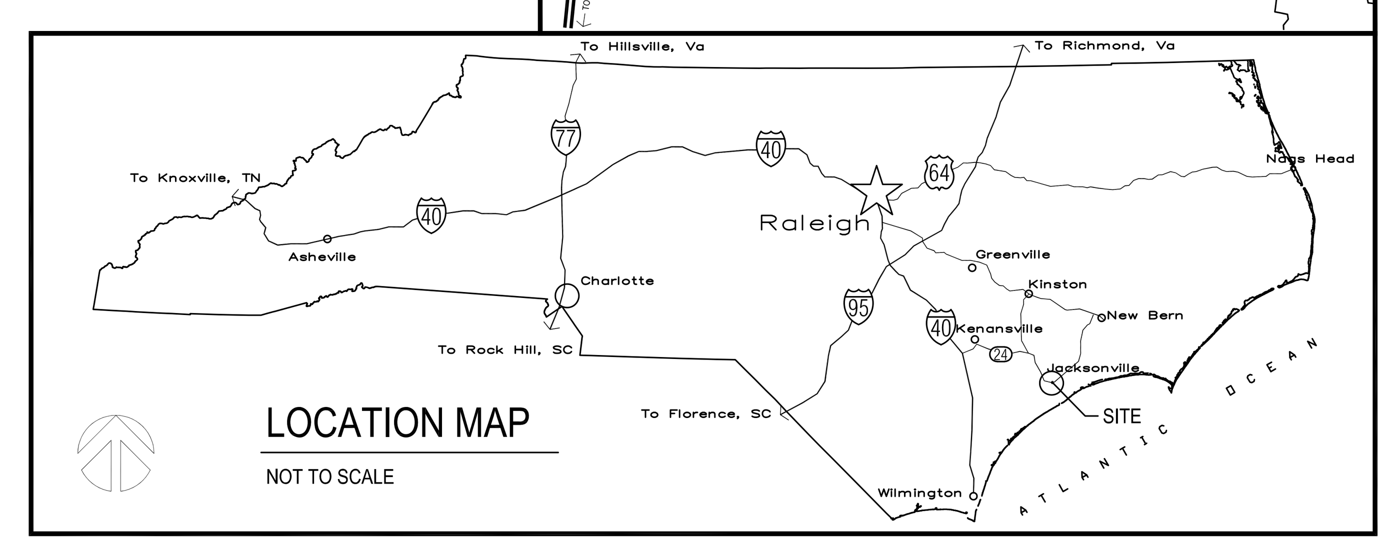
Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
[ ] 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 Outdoor Air System
[ ] C406.7 Reduced Energy Use in Service Water Heating

DRAWING INDEX



VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

BID DOCUMENTS

MARK DOUGLAS GIBSON
REGISTERED ARCHITECT
5121
NORTH CAROLINA
KNIGHTDALE, N.C.
11-14-21

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PHONE: 919/707-4540 FAX 919/715-0399

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

CODE DATA SUMMARY & DRAWING INDEX

Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 WILMINGTON HIGHWAY
JACKSONVILLE, NORTH CAROLINA 28540

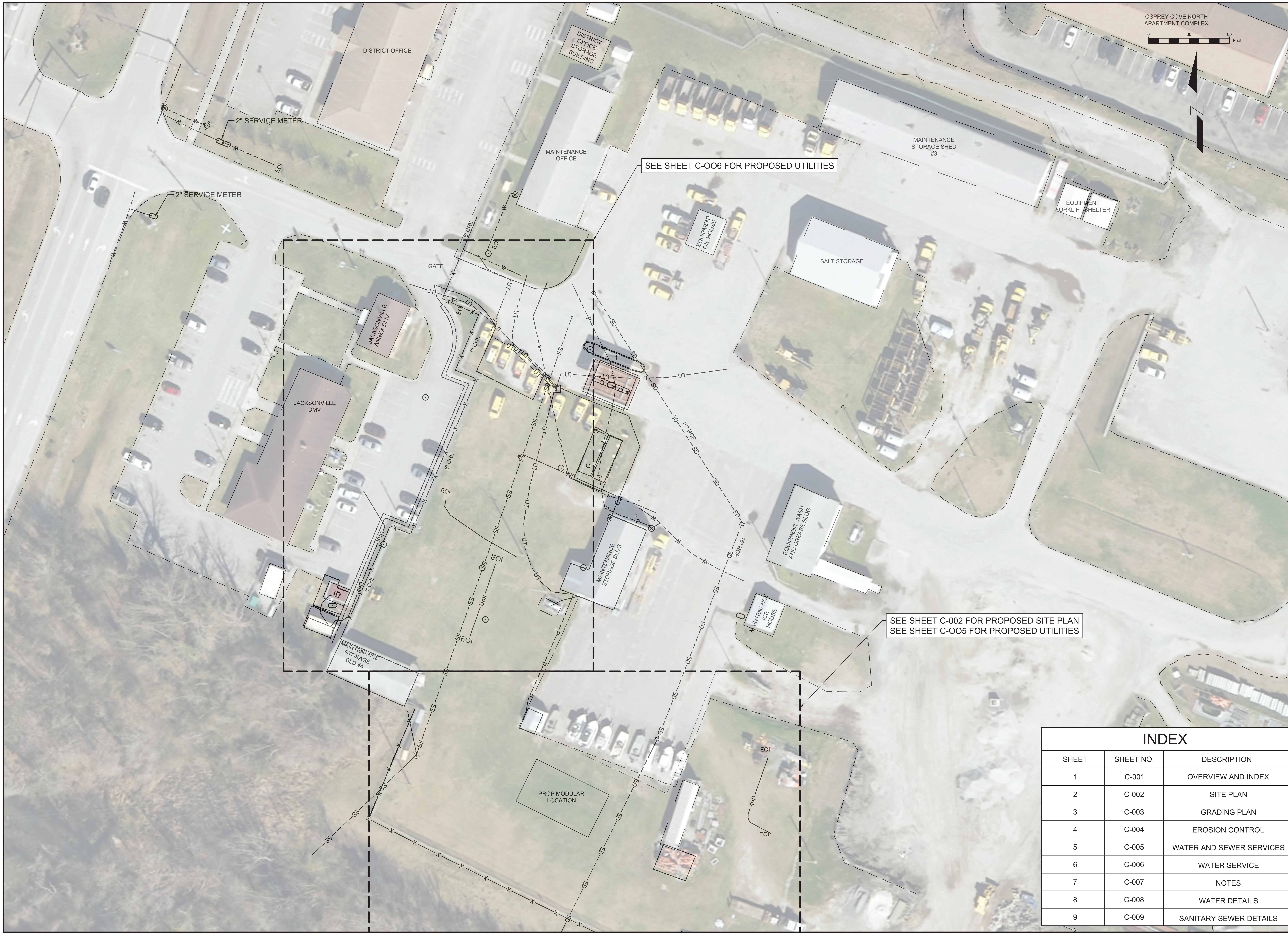
STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:
CO.# SITE.# BLDG.#
XX - XX - XX

REVISIONS

NO.	DATE

DATE ISSUED: 4/8/2022
DRAWN BY: MDG
CHECKED BY: MDG
SHEET NO.
G1



INDEX

SHEET	SHEET NO.	DESCRIPTION
1	C-001	OVERVIEW AND INDEX
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3	C-003	GRADING PLAN
4	C-004	EROSION CONTROL
5	C-005	WATER AND SEWER SERVICES
6	C-006	WATER SERVICE
7	C-007	NOTES
8	C-008	WATER DETAILS
9	C-009	SANITARY SEWER DETAILS

BID DOCUMENTS

SEAL:

Michael J. Mastroluca, PE

Digitally signed by Michael J. Mastroluca, PE
Date: 2022.11.04 17:01:26-04'00'

DESIGNED BY:
NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS
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RALEIGH, NORTH CAROLINA 27601
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STATE OF NORTH CAROLINA ★ DEPARTMENT OF TRANSPORTATION

JJB Engineering Building Partnerships
1401 Aversboro Road Suite 215
Garner, NC 27529
(919) 594-6710 NCBELS C-4947

DRAWING TITLE / DISCRIPTION:
OVERVIEW AND INDEX

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A

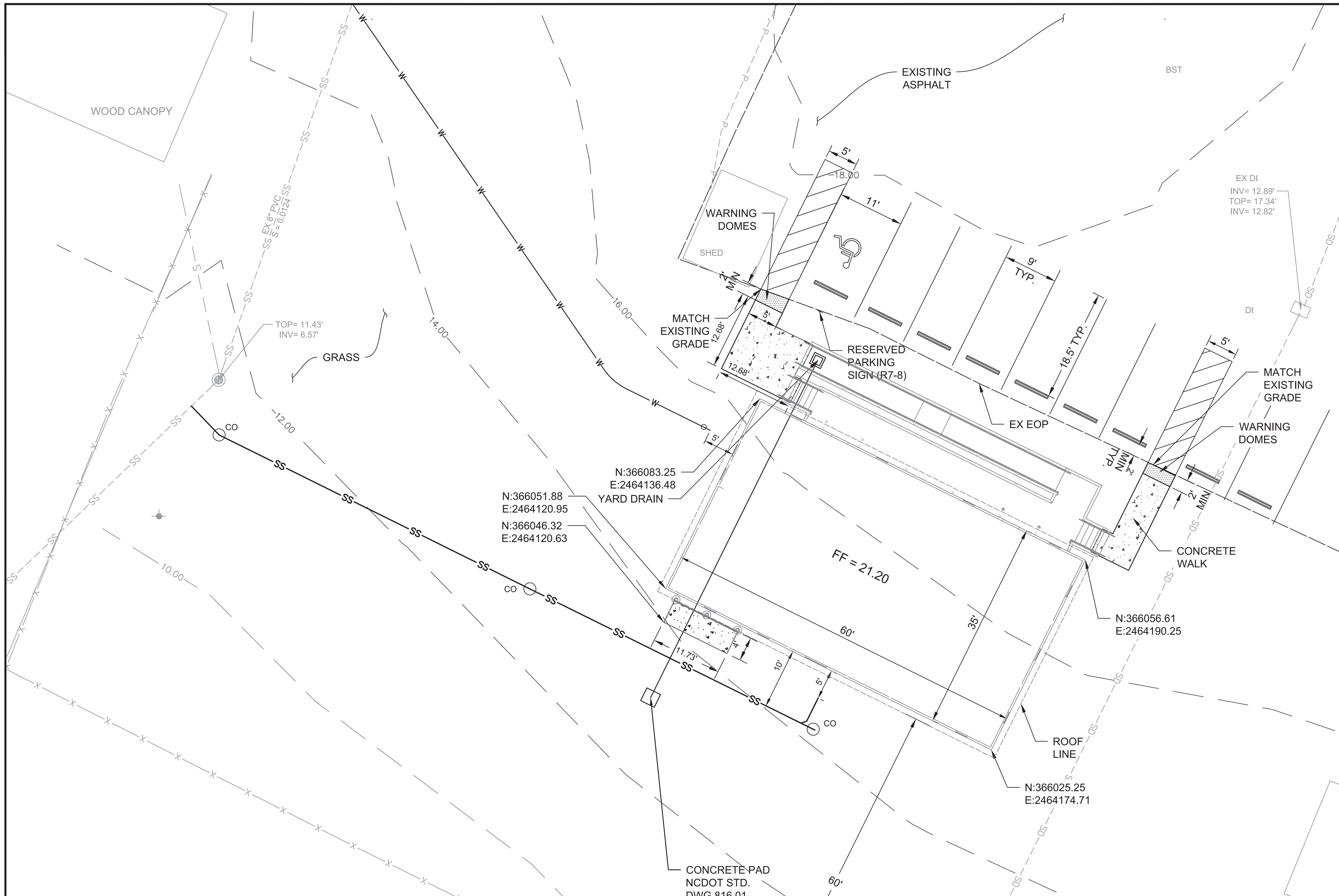
ASSET NUMBER:
CO.# SITE.# BLDG.#
XX - XX - XX

REVISIONS

NO.	DATE

DATE ISSUED: 11/10/22
DRAWN BY: JHD
CHECKED BY: MJM

SHEET NO.
C-001
SHEET 01 OF 09

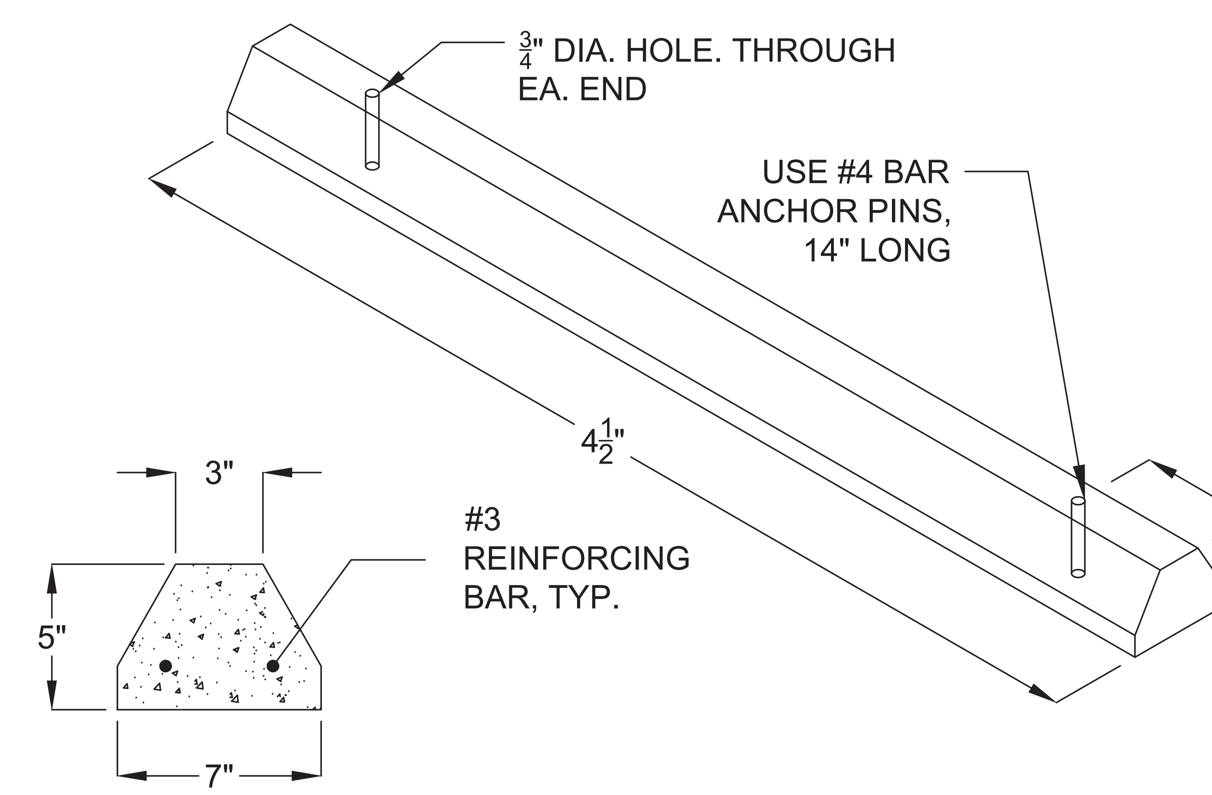


STD NUMBER: R7-8Y
SIZE: 12" X 118"

COPY COLOR: GREEN (RETROREFL)
2.0"C, 1.5"C
BACKGROUND COLOR: WHITE (RETROREFL)
SYMBOL COLOR: WHITE SYMBOL ON BLUE (RETROREFL)

MARGIN: 0.375"
BORDER: 0.375"
RADIUS: 1.50"

RESERVED PARKING SIGN



STANDARD PARKING CURB DETAIL

LEGEND

Unk	UNKNOWN UTILITY
W	EXISTING WATER
— — —	EXISTING OBJECT
X	EXISTING FENCE
SS	EXISTING SEWER
G	EXISTING GAS
SD	EXISTING STORM
SS	PROP SEWER
W	PROP WATER
P	PROP ELECTRIC
	PROP CONC
EL.	ELEVATION
INV.	INVERT
TYP.	TYPICAL
CONC.	CONCRETE
○	EXISTING LIGHT POST
BM	BENCHMARK
	EXISTING FIRE HYDRANT
CLF	CHAIN LINK FENCE
W/	
○	EXISTING BOLLARDS
●	PROP BOLLARDS
○CO	PROP CLEANOUT
EL	ELEVATION

811
Know what's below.
Call before you dig.

NOTES:

1. PAVEMENT MARKINGS TO BE PER NCDOT 1087, PAINT COMPOSITION
2. SEE SHEET C-005 & C-006 FOR FURTHER INFORMATION ON WATER LINE
3. WALKS AND DRIVEWAY TO BE PER NCDOT 2018 STANDARD SPECIFICATION SECTION 848
4. SEE SHEET C-008 TO C-013 FOR DETAILS
5. MOUNT TYPE "E" SIGN ON A SINGLE "U" PER NCDOT 2018 STANDARD DWG. NO. 904.50.
6. RESERVED PARKING SIGN SHALL BE PLACED AT 5 FT. ABOVE PARKING SURFACE AND MINIMUM OF 2.5 FT. FROM WHEEL STOP.

0 10 20 Feet

BID DOCUMENTS

SEAL: Digitally signed by Michael J. Mastronicola, PE Date: 2022.11.14 17:02:16 -04'00'

DESIGNED BY: NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS
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RALEIGH, NORTH CAROLINA 27601
PHONE: 919/707-4540 FAX 919/715-0399

JDB Engineering Building Partnerships
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Garner, NC 27529
(919) 594-6710 NCBELS C-4947

DRAWING TITLE / DESCRIPTION: SITE PLAN

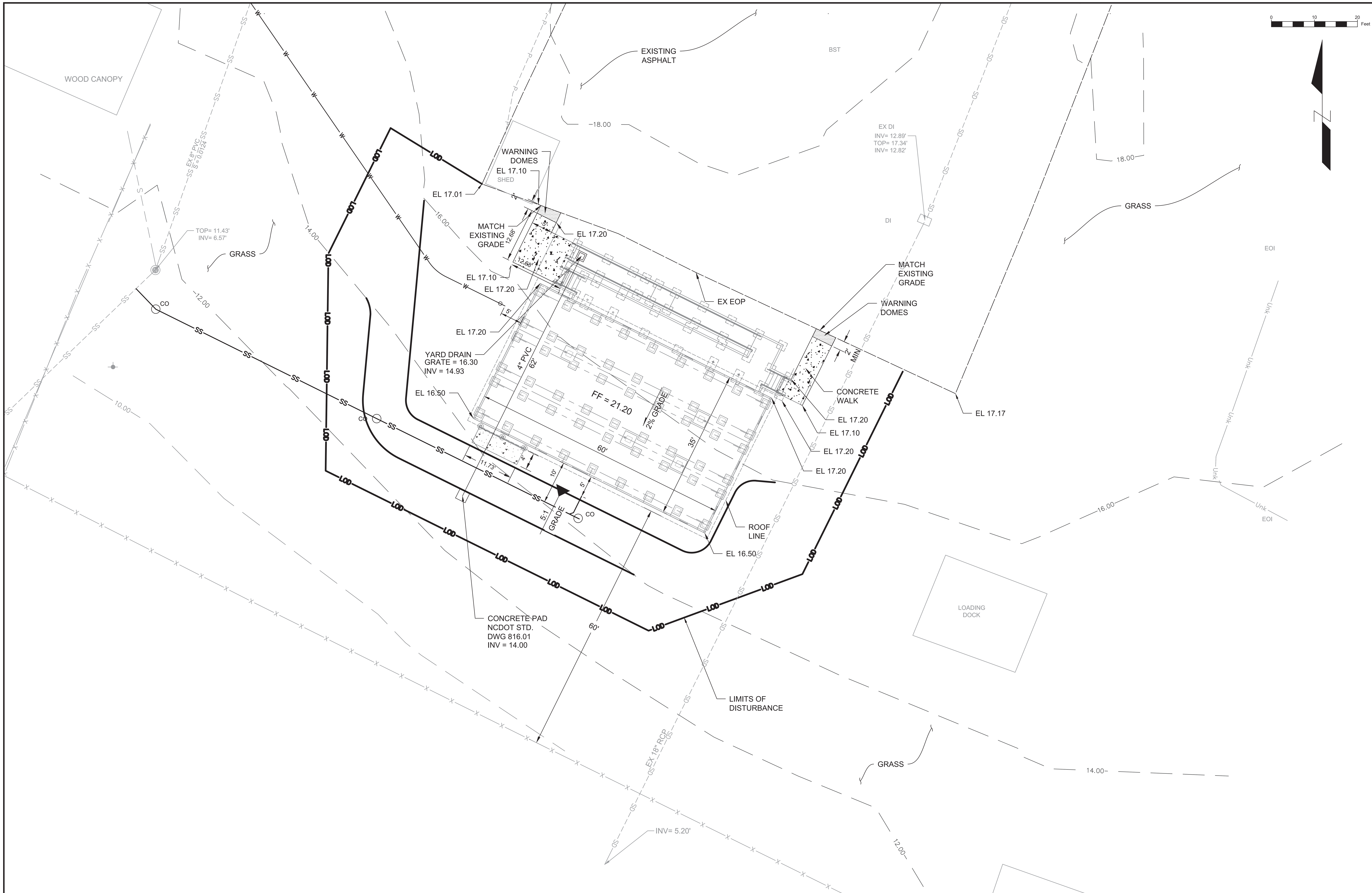
PROJECT TITLE: Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A
ASSET NUMBER: CO.# SITE.# BLDG.#
XX - XX - XX

REVISIONS
NO.	DATE

DATE ISSUED: 11/10/22
DRAWN BY: JHD
CHECKED BY: MJM

SHEET NO.
C-002
SHEET 02 OF 09



NOTES:

1. YARD DRAINS TO BE GREY DOCK STORM DRAIN FSD - 3017 - 20BKIT- 6 OR STORM DRAIN FSD-3017 20" LARGE ROUND CATCH BASIN WITH BLACK GRATE KIT 20" LARGE ROUND CATCH BASIN WITH GRATE KIT OR EQUIVALENT
2. SEE SHEET C-005 & C-006 FOR FURTHER INFORMATION ON WATER LINE

811
Know what's below. Call before you dig.

BID DOCUMENTS

SEAL:

Digitally signed by Michael J. ... PE
Date: 2024.01.17 17:08:... -04'00'

DESIGNED BY:
NCDOT FACILITIES DESIGN UNIT
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STATE OF NORTH CAROLINA ★ DEPARTMENT OF TRANSPORTATION

Engineering
Building Partnerships
1401 Aversboro Road Suite 215
Garner, NC 27529
(919) 594-6710 NCBELS C-4947

DRAWING TITLE / DISCRIPTION:
GRADING

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

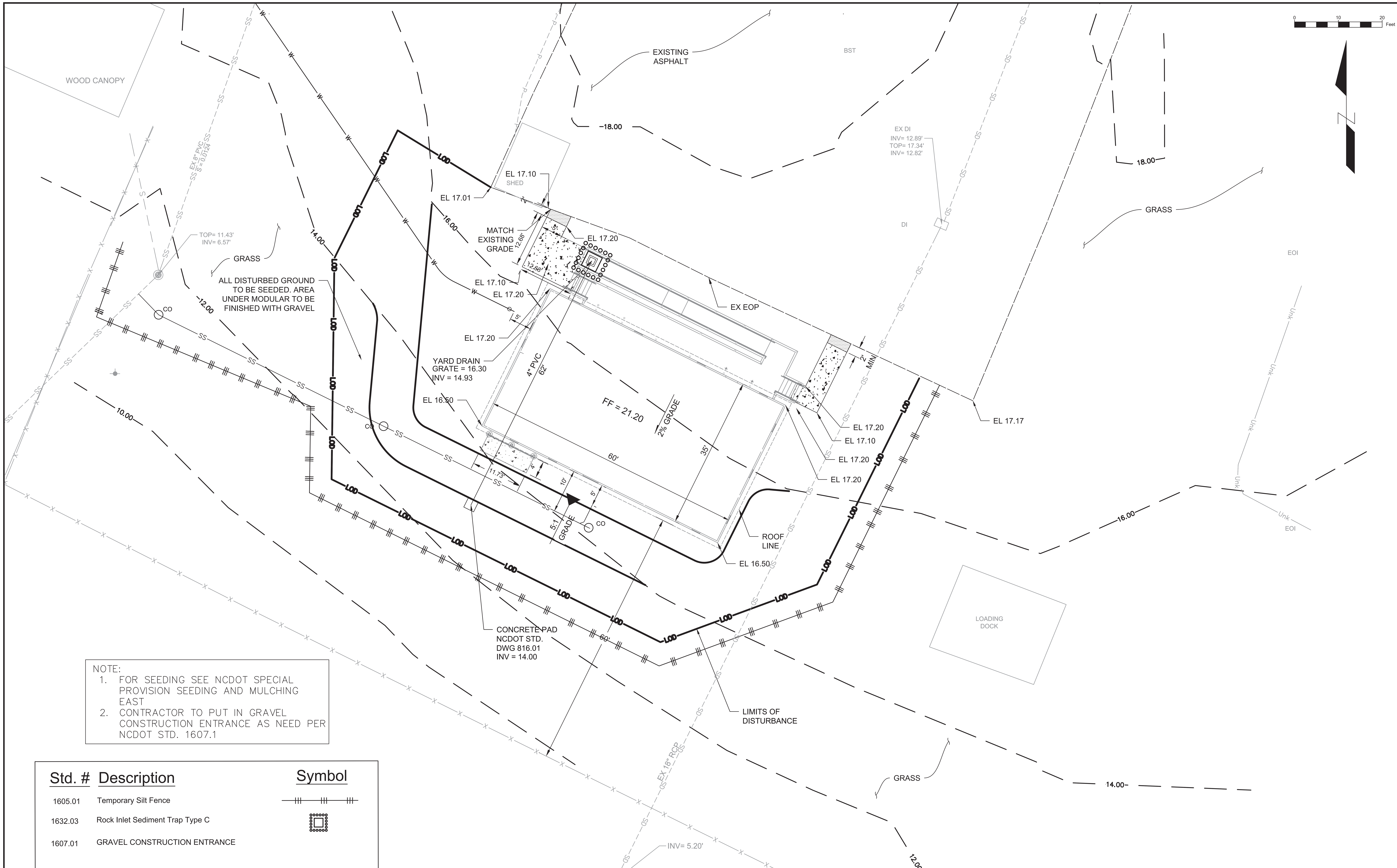
STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:
CO.# SITE.# BLDG.#
XX - XX - XX

REVISIONS NO.	DATE

DATE ISSUED: 11/10/22
DRAWN BY: JHD
CHECKED BY: MJM

SHEET NO.
C-003
SHEET 03 OF 09



NOTE:
1. FOR SEEDING SEE NCDOT SPECIAL PROVISION SEEDING AND MULCHING EAST
2. CONTRACTOR TO PUT IN GRAVEL CONSTRUCTION ENTRANCE AS NEED PER NCDOT STD. 1607.1

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1632.03	Rock Inlet Sediment Trap Type C	
1607.01	GRAVEL CONSTRUCTION ENTRANCE	

STABILIZATION TIME FRAMES

SITE AREA DESCRIPTION	STABILIZATION	TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES GREATER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

JOE HENRY DIAL
LEVEL IIIA NAME

4236
LEVEL IIIA CERTIFICATION NO

811
Know what's below. Call before you dig.

BID DOCUMENTS

SEAL: Michael J. Mastrolica, PE — Digitally signed by Michael J. Mastrolica, PE Date: 2022.11.14 17:09:20-04'00'

DESIGNED BY:
NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS
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Engineering
Building Partnerships
1401 Aversboro Road Suite 215
Garner, NC 27529
(919) 594-6710 NCBELS C-4947

DRAWING TITLE / DESCRIPTION:
EROSION CONTROL

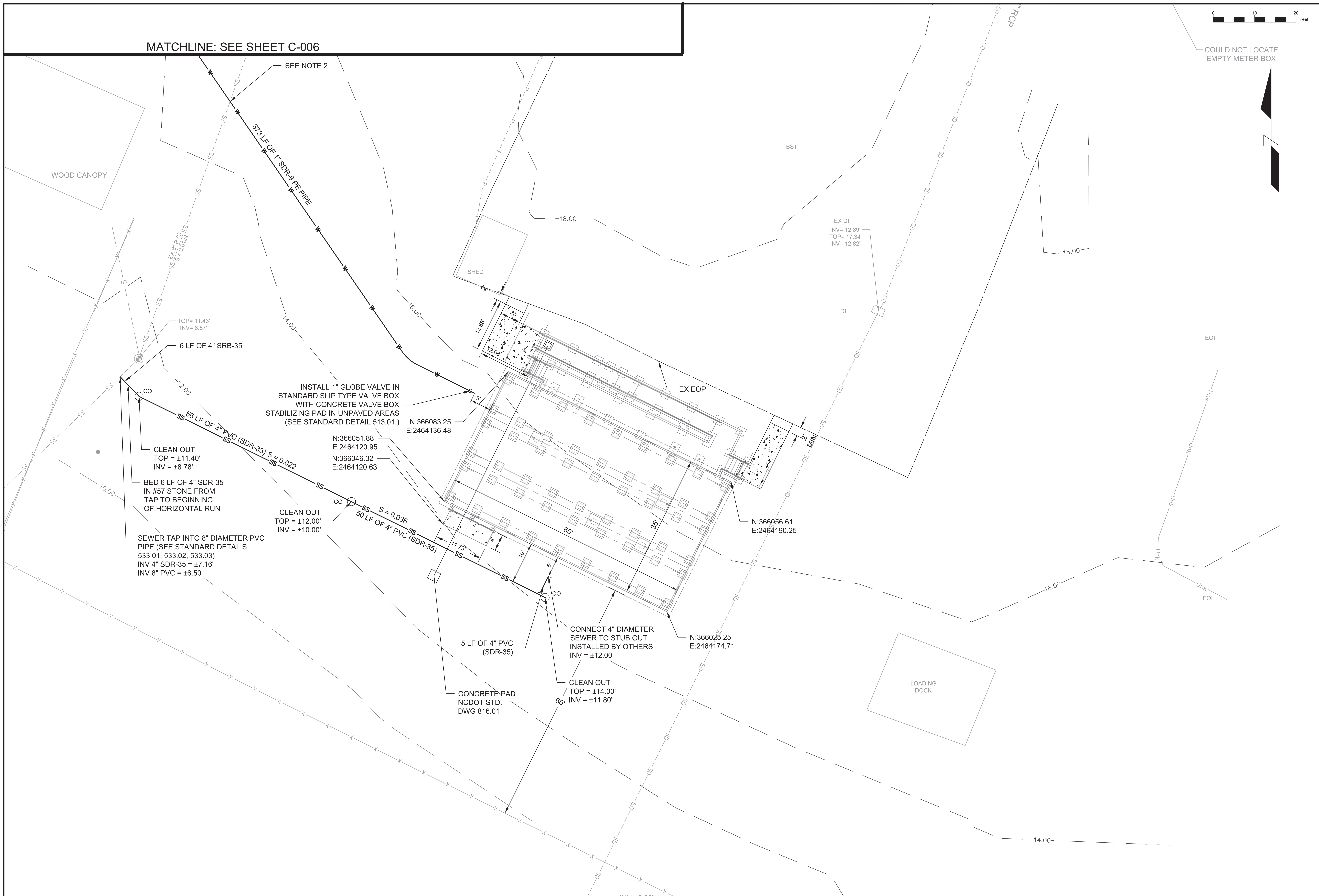
PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A
ASSET NUMBER: CO.# SITE.# BLDG.#
XX - XX - XX

REVISIONS NO.	DATE

DATE ISSUED: 11/10/22
DRAWN BY: JHD
CHECKED BY: MJM

SHEET NO.
C-004
SHEET 04 OF 09



NOTES:

1. ALL ELEVATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
2. SEE NOTES SHEET AND STANDARD DETAIL 512.04 FOR CROSSING OF THE EXISTING SANITARY LINE WITH THE PROPOSED WATER LINE. THE TOP OF THE SEWER IS AT APPROXIMATELY ELEVATION 7.87'.

BID DOCUMENTS

SEAL:

Michael J. Mastrolucia, PE
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DRAWING TITLE / DISCRIPTION:
SANITARY AND WATER SERVICES

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:

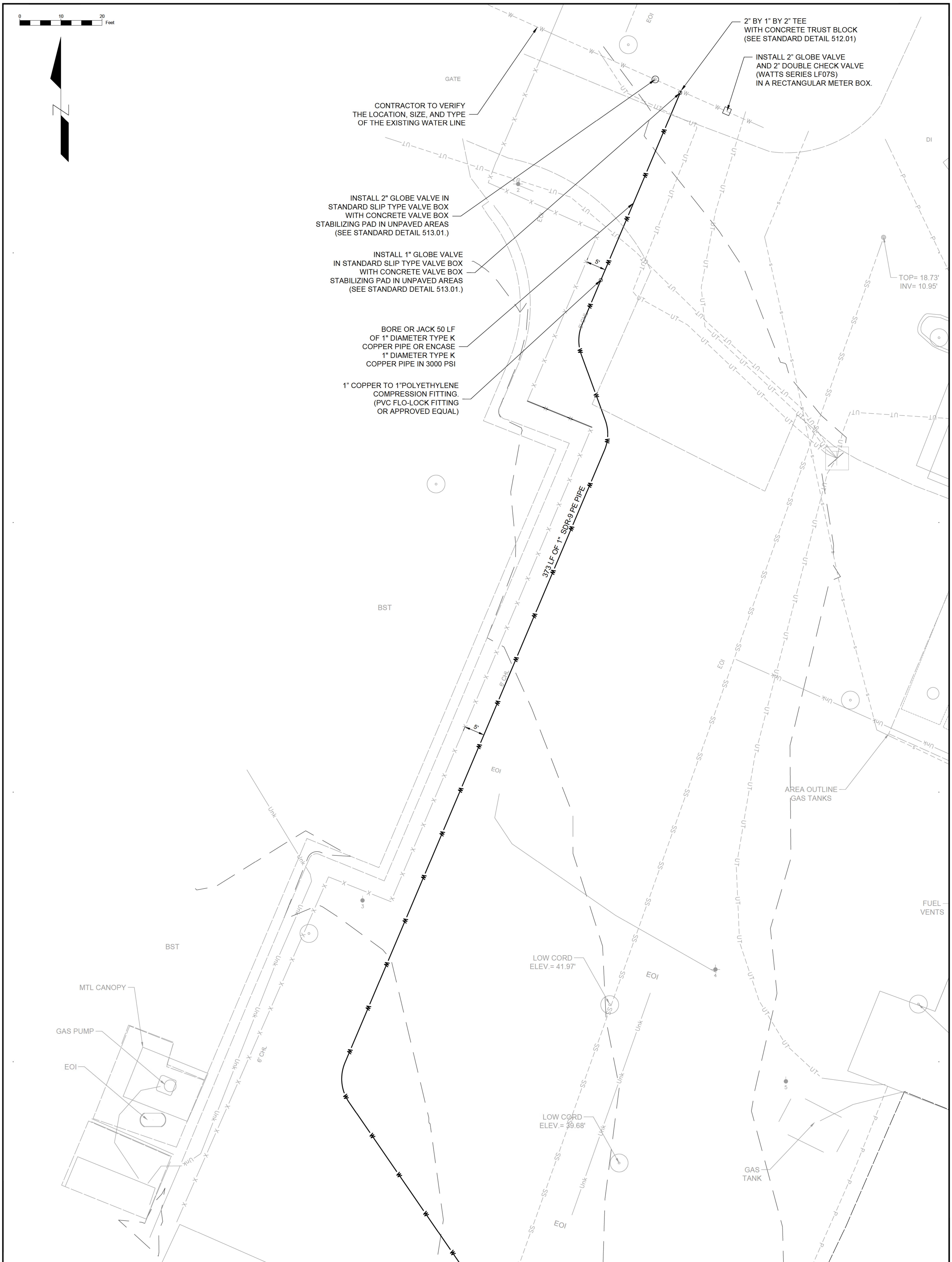
CO.#	SITE.#	BLDG.#
XX	XX	XX

REVISIONS

NO.	DATE

DATE ISSUED: 11/10/22
DRAWN BY: JHD
CHECKED BY: MJM

SHEET NO.
C-005
SHEET 05 OF 09



MATCHLINE: SEE SHEET C-005

SHEET NO. C-006 SHEET 06 OF 09 DATE ISSUED: 11/10/22 DRAWN BY: JHD CHECKED BY: MJM REVISIONS NO. DATE	STATE CONSTRUCTION ID.# 21-23168-01A ASSET NUMBER: CO.# SITE.# BLDG.# XX - XX - XX	PROJECT TITLE: Modular Building Replacement for the Traffic Signals Office NCDOT HIGHWAY DIVISION 3 299 Wilmington Highway Jacksonville, North Carolina 28540	DRAWING TITLE / DESCRIPTION: WATER SERVICE	Engineering Building Partnerships 1401 Aversboro Road Suite 215 Garner, NC 27529 (919) 594-6710 NCBELS C-4947	DESIGNED BY: NCDOT FACILITIES DESIGN UNIT ARCHITECT & ENGINEERS 1 SOUTH WILMINGTON STREET RALEIGH, NORTH CAROLINA 27601 PHONE: 919/707-4540 FAX 919/715-0399

SEAL:
BID DOCUMENTS

GENERAL NOTES:

1) WATER DISTRIBUTION SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 02510 OF THE CITY OF JACKSONVILLE STANDARD SPECIFICATIONS.

2) SANITARY SEWER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 02530 OF THE CITY OF JACKSONVILLE STANDARD SPECIFICATIONS.

3) FOR TRENCHING, BACKFILLING, AND COMPACTION OF THE WATER DISTRIBUTION SYSTEM AND AND THE SANITARY SEWER SYSTEM SEE SECTION 02275 OF THE CITY OF JACKSONVILLE STANDARD SPECIFICATIONS.

4) THE ENGINEER OF RECORD WILL APPROVE MATERIALS NOT SPECIFIED ON THE PLANS BUT DEEMED EQUAL, ON A CASE-BY-CASE BASIS. THE CONTRACTOR WILL SUBMIT DOCUMENTATION AND SAMPLES OF MATERIALS. NEW MATERIALS APPROVED FOR THE WATER DISTRIBUTION SYSTEM WILL BE INCORPORATED INTO THE PLANS AFTER APPROVAL.

5) MINIMUM COVER: UNLESS SHOWN OTHERWISE ON THE CONSTRUCTION DOCUMENTS, PROVIDE MINIMUM TRENCH DEPTH INDICATED BELOW TO MAINTAIN A MINIMUM COVER OVER THE TOP OF THE INSTALLED ITEM. MINIMUM COVER ON PIPE IS MEASURED PERPENDICULAR FROM TOP OF PIPE OR FITTINGS TO ORIGINAL GROUND OR PROPOSED FINISHED GRADE AS APPLICABLE AND SHALL BE PER TABLE 2275.1, BELOW. WHERE THE MINIMUM COVER IS NOT PROVIDED, EITHER USE DUCTILE IRON PIPE OR ENCASE THE PIPE(S) IN CONCRETE AS INDICATED. PROVIDE CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.

6) THE CONTRACTOR WILL COORDINATE WITH THE JACKSONVILLE RESIDENT ENGINEER, DANIEL WAUGH, AT (910) 467-0520 TO DETERMINE THE APPROPRIATE TIME TO TEMPORARY SHUT DOWN THE WATER SERVICE TO THE FACILITY PRIOR TO TAPPING INTO THE EXISTING WATER LINE.

WATER DISTRIBUTION NOTES:

1) THE ELEVATION OF THE BOTTOM OF THE WATER LINE SHALL BE AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

2) THE WATER LINES SHALL BE CONSTRUCTED TO CROSS OVER SANITARY SEWERS AND STORM SEWERS WHENEVER POSSIBLE AND SHALL BE LAID TO PROVIDE A VERTICAL SEPARATION OF AT LEAST 18 INCHES BETWEEN THE BOTTOM ELEVATION OF THE WATER LINE AND THE TOP OF THE SANITARY SEWER OR STORM SEWER (SEE STANDARD DETAIL 512.04 AND STANDARD DETAIL C07.02)

3) WATER LINES SHALL BE CONSTRUCTED TO PROVIDE AT LEAST 3 FEET OF HORIZONTAL SEPARATION FROM OTHER UTILITIES WHENEVER POSSIBLE. THE DISTANCE SHALL BE MEASURED EDGE-TO-EDGE. FOR ASBESTOS CEMENT LINES, PROVIDE A MINIMUM OF 5 FEET OF CLEAR HORIZONTAL SEPARATION.

4) WHENEVER IT IS NECESSARY FOR ANOTHER UTILITY TO CROSS A WATER MAIN, A 12-INCH VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN THE LINES. WHEN LOCAL CONDITIONS PREVENT A 12-INCH VERTICAL SEPARATION, PROVIDE ADEQUATE STRUCTURAL SUPPORT FOR THE UTILITY TO PREVENT EXCESSIVE DEFLECTION OF THE JOINTS, WHICH CAN RESULT IN SETTLING ON AND/OR BREAKING THE WATER LINE.

5) FOR 1-INCH AND 2-INCH WATER SERVICES, TYPE K COPPER AND HIGH-DENSITY POLYETHYLENE PIPE SHALL BE USED.

6) COPPER SERVICE: TYPE K COPPER, SOFT DRAWN; COMPLY WITH ASTM B-88, STANDARD SPECIFICATION FOR SEAMLESS COPPER WATER TUBE, FS WW-T-799 (2-INCH AND SMALLER PIPE). SERVICES SHALL BE 1-INCH AND SHALL BE ONE CONTINUOUS RUN FROM MAIN TO METER WITH NO JOINTS OR COUPLINGS IN BETWEEN. 3/4" SERVICES ARE NOT PERMITTED. ON THESE WATER SERVICES, THE FITTINGS SHALL BE BRASS AWWA C-800, FLARED COPPER TYPE FITTINGS. ANY SOLDER USED IN CONNECTION WITH WATER SERVICE LINES SHALL CONTAIN LESS THAN 0.2% LEAD. SEE STANDARD DETAIL 515.01.

7) HIGH DENSITY POLYETHYLENE PIPE SHALL BE PE 3408 PIPE MEETING ASTM D2737 *STANDARD SPECIFICATION FOR POLYETHYLENE (PE) PLASTIC TUBING* OR ASTM D2239 STANDARD *SPECIFICATION FOR POLYETHYLENE (PE) PLASTIC PIPE (SIDR-PR) BASED ON CONTROLLED INSIDE DIAMETER,* NSF-14, AND AWWA C901 *STANDARD FOR POLYETHYLENE (PE) PRESSURE PIPE AND TUBING, 1/2" THROUGH 3" FOR WATER SERVICE,* 160 PSI PRESSURE RATING, SDR 9 FOR 1 INCH THROUGH 2 INCH PIPE. FITTINGS SHALL BE BRONZE AWWA C-800 COMPRESSION FITTINGS WITH SOLID STAINLESS-STEEL INSERTS. PIPE SHALL BE UV STABILIZED FOR PROTECTION FROM SUNLIGHT DETERIORATION AND SHALL HAVE A MINIMUM LIFE EXPECTANCY OF 50 YEARS. SEE STANDARD DETAIL 515.01.

8) NON-METALLIC UNDERGROUND WARNING TAPE: NON-METALLIC UNDERGROUND WARNING TAPE SHALL BE LEAD FREE VIRGIN GRADE ROT RESISTANT POLYETHYLENE MANUFACTURED IN ACCORDANCE WITH ESI 12-23. MINIMUM ELONGATION SHALL BE 350% IN THE MACHINE DIRECTION AND 300% IN THE TRANSVERSE DIRECTION. SOIL TOLERANCE RANGE TO BE PH 2.5 TO PH 11.0. MINIMUM TAPE THICKNESS SHALL BE 0.1-mm WITH A BASE COLOR OF BLUE. MINIMUM WIDTH TO BE 2 INCHES. THE TEXT SHALL INCLUDE THE WORDING "CAUTION WATER LINE BELOW" REPEATED ALONG THE LENGTH OF THE TAPE. UNDERGROUND WARNING TAPE IS TO BE PLACED 8 TO 12 INCHES BELOW THE FINISHED GRADE DIRECTLY ABOVE PVC LINES DURING BACKFILL PROCEDURE.

9) TEN GAUGE SINGLE STRAND BARE COPPER WIRE SHALL BE INSTALLED ALONG THE TOP OF ALL NON-METALLIC PIPE. ELECTRICAL CONDUCTIVITY ALONG THE PIPE SHALL BE CONTINUOUS AND UNINTERRUPTED BETWEEN VALVE BOXES. CLAMPS USED TO BOND WIRE TO CONDUCTOR TO METAL (IN INSTANCES WHERE BOTH PVC AND DUCTILE IRON ARE USED IN THE SAME RUN OF PIPE) SHALL BE HEAVY-DUTY STAINLESS STEEL APPROVED BY THE PUBLIC SERVICES DIRECTOR. A SUFFICIENT EXCESS LENGTH OF WIRE SHALL BE LEFT IN EACH VALVE BOX TO PROVIDE AT LEAST A 2-FOOT LENGTH OF WIRE ABOVE FINISHED GRADE.

10) ADJUSTABLE VALVE BOXES SHALL BE US MADE GRAY CAST IRON OF THE DIMENSIONS SHOWN IN STANDARD DETAIL 513.01 *(STANDARD SLIP TYPE VALVE BOX DETAIL)* OF THESE SPECIFICATIONS. LIDS SHALL BE HEAVY-DUTY TRAFFIC WEIGHT WITH THE WORD "WATER" CAST INTO THE LID. PROVIDE CAST-IRON TELESCOPING SLIP TYPE TOP SECTION OF LENGTH REQUIRED FOR DEPTH OF BURIAL OF VALVE AND BOTTOM SECTION WITH BASE OF SIZE TO FIT OVER VALVE. VALVE BOXES SHALL BE COATED INSIDE AND OUT WITH ASPHALT. ACCEPTABLE VALVE BOXES ARE: SIGMA CORPORATION MODEL V-8459, CAPITOL FOUNDRY OF VIRGINIA, INC. MODEL VB-FCWA-#3435.

11) THRUST BLOCKING: THRUST BLOCKING MUST BE INSTALLED AT ALL FITTINGS AND CHANGES IN DIRECTION OF THE PIPELINE. THRUST BLOCKS SHALL BE CONSTRUCTED FROM 3000 PSI CONCRETE (AT 28 DAYS) AND POURED AGAINST AN UNDISTURBED EARTH TRENCH WALL. CONCRETE THRUST BLOCKING SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DETAIL 512.01. CONCRETE ANCHORS MAY BE UNFORMED BUT MINIMUM DIMENSIONS MUST BE MAINTAINED. ALL FITTINGS AND PIPE SHALL BE WRAPPED IN PLASTIC PRIOR TO INSTALLATION OF CONCRETE TO ENSURE THAT BOLTS AND NUTS ARE FREE OF CONCRETE AND DEBRIS TO ALLOW ACCESSIBILITY FOR FUTURE REPAIRS. WHEN SOFT, MUCKY, UNSUITABLE, OR UNSTABLE SOILS ARE ENCOUNTERED, THRUST SHALL BE RESISTED BY RUNNING TIE RODS TO SOLID FOUNDATIONS BY REMOVING THE SOFT MATERIALS AND REPLACING IT WITH BALLAST OF SUFFICIENT SIZE AND WEIGHT TO RESIST THRUST.

12.) IF METER BOX MUST BE LOCATED IN DRIVEWAY, A TRAFFIC RATED BOX AND COVER SHALL BE USED EQUAL TO OR EXCEEDING THE "BCF" SERIES RECTANGULAR METER BOX WITH DUCTILE IRON TOP AND READER HATCH AS MANUFACTURED BY MID-STATES PLASTICS, INC. STERLING, KY PART NUMBER MSBCF1118-12 OR APPROVED EQUAL. THE METER BOX SHALL BE HIGH-DENSITY POLYETHYLENE ONE-PIECE MOLDED CONSTRUCTION, ULTRAVIOLET LIGHT AND CHEMICAL RESISTANT AS WELL AS UNAFFECTED BY FREEZING AND MOISTURE. THE BOX, WITH DUCTILE IRON COVER, SHALL BE ABLE TO BEAR A 20,000 LB LOAD IN A WHEEL LOAD (H-20) STYLE TEST. THE BOX SHALL BE BLACK ON THE EXTERIOR TO PREVENT UV DEGRADATION AND BRIGHT WHITE ON THE INTERIOR TO REFLECT LIGHT AND PERMIT EASE OF METER READING AND SERVICE. THE BOX SHALL HAVE REMOVABLE PRE-CUT PIPE ENTRY AREAS LOCATED ON THE CENTER OF EACH END (SHORT SIDE) OF THE BOX FOR SINGLE METER INSTALLATIONS. THE BOX SHALL BE DESIGNED IN A WAY TO BE SECURELY STACKABLE.

SANITARY SEWER NOTES:

1) SEWER LINES SHALL BE CONSTRUCTED TO CROSS BELOW WATER LINES WHENEVER POSSIBLE AND SHALL BE LAID TO PROVIDE A VERTICAL SEPARATION OF AT LEAST 18 INCHES BETWEEN THE BOTTOM ELEVATION OF THE WATER LINE AND THE TOP OF THE SEWER.

2) PIPE FOR 4-INCH AND 6-INCH SERVICE CONNECTIONS SHALL BE SCHEDULE 40 SOLID WALL PVC PIPE WITH SOLVENT CEMENT WELD JOINTS. IN-LINE WYES SHALL BE USED FOR ALL SERVICE CONNECTIONS TO NEW LINES. CONNECTIONS TO EXISTING MAINS SHALL BE MADE BY THE USE OF AN APPROVED SADDLE WITH STAINLESS STEEL BAND. USE OF SADDLES FOR SERVICE CONNECTIONS SHALL BE APPROVED BY THE PUBLIC SERVICES DIRECTOR ON A CASE- BY-CASE BASIS. (SEE STANDARD DETAIL C07.02)

3) PVC PIPE FOR SEWER SERVICES AND FITTINGS SHALL BE MINIMUM SCHEDULE 40 SOLVENT CEMENT. THE SERVICE SHALL INCLUDE THE IN-LINE WYE, BENDS, LONG SWEEP ELBOW, AND CLEAN-OUT STACK PROVIDED WITH A BRASS CLEAN-OUT PLUG. SEE STANDARD DETAIL 533.03.

4) SERVICE SADDLES: SEWER PIPE SADDLES SHALL BE ROMAC INDUSTRIES, INC. CB-4.80 (6-INCH THROUGH 12-INCH) OR CB-4.80LS (14-INCH THROUGH 24-INCH), GENECO U 40 OR E40 GASKETED BELL TO ACCEPT SCHEDULE 40 OR APPROVED EQUAL. SEE STANDARD DETAILS 533.01 AND 533.02.

Table 2275.1

Minimum Cover *above top* of Main Pipe Lines

Utility	Condition: Subject to vehicular traffic	Condition: NOT subject to vehicular traffic	Condition: With Concrete Encasement
Sanitary Sewer	36[b] inches (use DIP if < 36 inches of cover)	24[b] inches (use DIP if < 36 inches of cover)	As Designed
Sewer Services	At depth shown on plans but no less than 36[b] inches	At depth shown on plans but no less than 12[b] inches	As Designed
Water Distribution	36[a] inches	36[a] inches	18 inches (see paragraph C, regarding encasement)
Water services	30[a] inches	30[a] inches	As Designed
Storm Drainage	As designed but no less than 12[c] inches for reinforced concrete pipe	As designed	As Designed

A MINIMUM/MAXIMUM COVER FOR WATER PIPE: THE ENGINEER OF RECORD MUST APPROVE ALL INSTALLATIONS OF WATER MAINS WITH LESS THAN 36 INCHES OF COVER OR GREATER THAN 60 INCHES OF COVER.

B MINIMUM/MAXIMUM COVER FOR SEWER PIPE: THE ENGINEER OF RECORD MUST APPROVE ALL INSTALLATIONS OF SEWER LINES WITH 36 INCHES OF COVER OR LESS OR WITH GREATER THAN 18 FEET OF COVER. DUCTILE IRON PIPE IS REQUIRED WHERE DEPTH OF PIPE EXCEEDS 12 FEET OR THE LINE IS PLACED IN FILL.

MINIMUM/MAXIMUM COVER FOR STORM DRAINAGE PIPE: THE ENGINEER OF RECORD MUST APPROVE ALL INSTALLATIONS OF STORM DRAINAGE LINES IN AREAS SUBJECT TO TRAFFIC LOAD WITH LESS THAN 12 INCHES OF COVER OR WITH GREATER THAN 12 FEET OF COVER. THE PIPE CLASS, TRENCH WIDTH, AND/OR THE BEDDING CLASS SHALL BE MODIFIED FOR THE DEPTHS EXCEEDING 12 FEET OF COVER TO ACCOMMODATE THE EXTRA DEPTH/LOADS. PIPE SUBJECT TO VEHICULAR TRAFFIC SHALL BE REINFORCED CONCRETE PIPE. NO PLAIN CONCRETE PIPE IS PERMITTED IN TRAFFIC AREAS.

C WATER LINES THAT HAVE NO MORE THAN 24 INCHES OF COVER BELOW THE ORIGINAL FLOW LINE OF A DITCH OR CULVERT CROSSING MAY BE REQUIRED BY THE ENGINEER OF RECORD TO BE ENCASED IN CONCRETE FOR A LENGTH OF AT LEAST 5 FEET BEYOND EACH SIDE OF THE DITCH OR CULVERT.

BID DOCUMENTS

SEAL: Michael J. Mastroluca, PE — Digitally signed by Michael J. Mastroluca, PE Date: 2022.11.04 17:04:47-04'00'

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JJb Engineering
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1401 Aversboro Road Suite 215
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DRAWING TITLE / DISCRIPTION: NOTES

PROJECT TITLE: Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER: CO.# SITE.# BLDG.# XX - XX - XX

REVISIONS NO.	DATE

DATE ISSUED: 11/10/22
DRAWN BY: JHD
CHECKED BY: MJM

SHEET NO. C-007

TEST PRESSURE = 150 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	DIMENSIONS (Ft.) "H"	DIMENSIONS (Ft.) "T"	VOLUME. CONCRETE CU. YD.
<4 INCHES	11 1/4°	---	---	---	---
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.00	1.00	2.50	0.09
	TEE	1.00	1.00	2.00	0.07
4 INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.00	1.00	2.50	0.09
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	1.50	1.50	2.50	0.15
	90°	2.00	2.00	3.00	0.28
	TEE	2.00	2.00	2.50	0.23
8 INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.00	2.00	2.75	0.25
	90°	3.00	2.00	3.00	0.39
	TEE	3.00	2.00	2.50	0.32
12 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	2.00	2.00	3.00	0.28
	45°	3.00	2.50	3.00	0.47
	90°	4.50	3.00	3.50	0.94
	TEE	4.50	3.00	3.00	0.81
16 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	3.00	3.50	0.84
	90°	6.50	3.50	3.50	1.54
	TEE	6.50	3.50	3.00	1.32

TEST PRESSURE = 200 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	DIMENSIONS (Ft.) "H"	DIMENSIONS (Ft.) "T"	VOLUME. CONCRETE CU. YD.
<4 INCHES	11 1/4°	1.00	1.00	1.00	0.04
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
4 INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.50	1.50	2.50	0.15
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	1.50	1.50	2.50	0.15
	90°	2.50	2.00	3.00	0.33
	TEE	2.50	2.00	2.50	0.28
8 INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.00	2.00	2.50	0.23
	90°	4.00	2.00	3.00	0.50
	TEE	4.00	2.00	2.50	0.42
12 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	2.50	3.00	0.61
	90°	5.50	3.00	3.50	1.13
	TEE	5.50	3.00	3.00	0.97
16 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	4.00	2.00	3.00	0.50
	45°	5.50	3.00	3.50	1.13
	90°	7.50	4.00	3.50	2.01
	TEE	7.50	4.00	3.00	1.72

CHART NOTES:

1. IF BLOCKING EXCAVATION IS IN LIGHTLY COMPACTED FILL AREAS, OR IN AREAS WHERE BOULDERS OR STUMPS HAVE BEEN REMOVED, BLOCKING SIZE MUST BE RE-SIZED FOR THE SPECIFIC LOCATION/CIRCUMSTANCE BY A NC LICENSED PROFESSIONAL ENGINEER.
2. BLOCKING SIZES SHOWN IN THESE TABLES ASSUME THE FOLLOWING:
   A. BLOCKING IS CONSTRUCTED IN RESIDUAL SOILS AS SHOWN IN DETAIL
   B. SOIL BEARING PRESSURE = 2000 PSF
   C. VELOCITY OF FLOW = 15 FPS
3. THIS DETAIL NOT APPLICABLE TO REDUCING BENDS.
4. NEITHER THE WEIGHT OF THE CONCRETE BLOCKING NOR FRICTION BETWEEN CONCRETE BLOCKING AND SOIL WAS ADDED INTO BLOCKING SIZES COMPUTATION. THEREFORE, BLOCKING SIZE IS CONSERVATIVE.

Jacksonville NC — Camp Lejeune — MCAS New River — A Caring Community

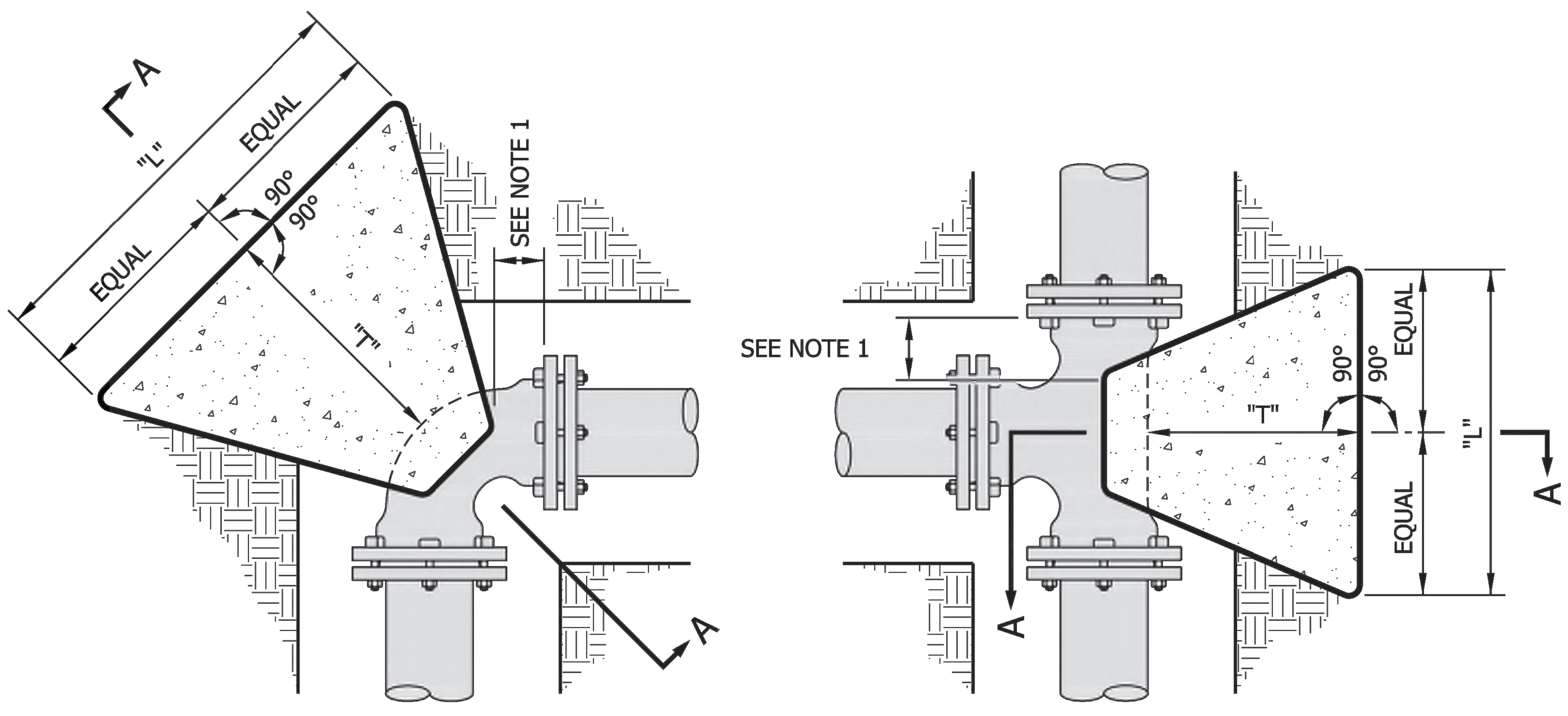
Public Services Department
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.jacksonvillenc.gov

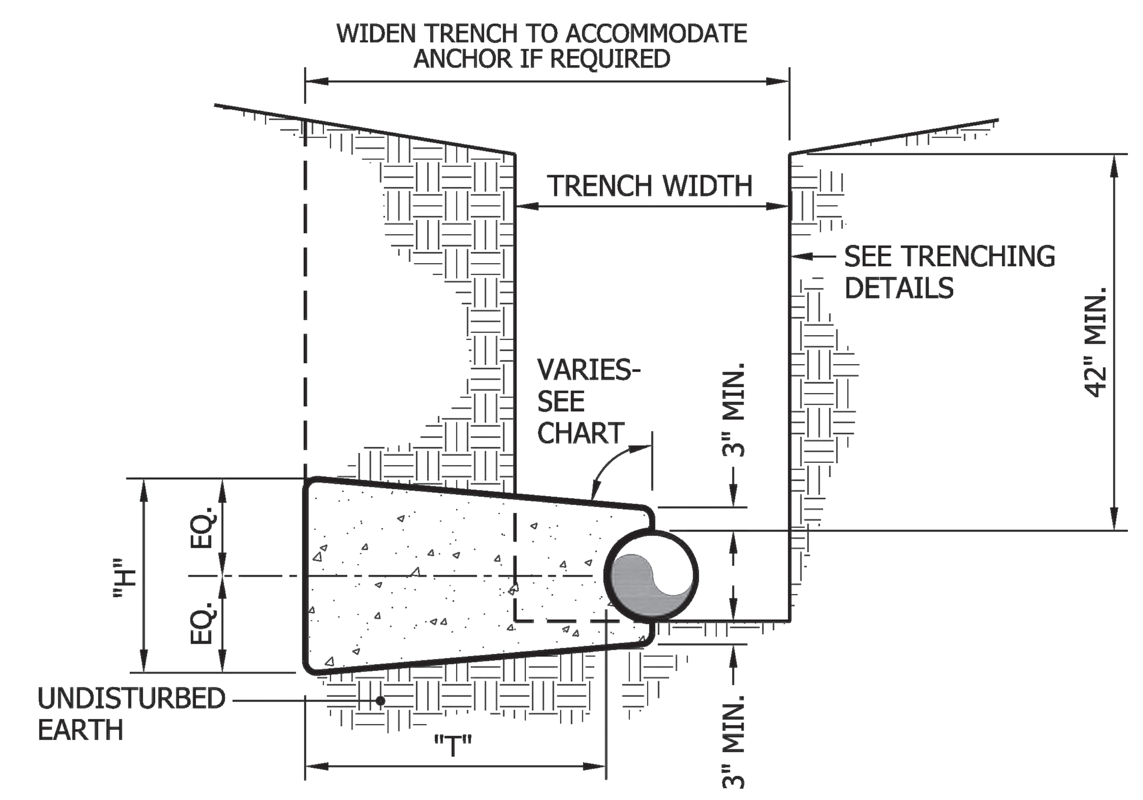
BLOCKING DETAIL for HORIZONTAL BENDS AND TEE

SCALE: Not To Scale | DETAIL # 512.01 | REVISION DATE: Jan, 2016 | SHEET #: 2 of 2



FOR ALL BEND FITTINGS

FOR TEE FITTING



SECTION A-A

NOTES:

1. CONCRETE BLOCKING IS TO BE FORMED TO ENSURE ACCESSIBILITY TO FITTINGS AND POURED AGAINST UNDISTURBED EARTH.
2. FITTINGS ARE TO BE COMPLETELY WRAPPED WITH PLASTIC, PRIOR TO POURING CONCRETE.
3. CONCRETE TO BE MINIMUM 3,000 PSI. @ 28 DAYS.
4. WHEN SACKRETE IS TO BE USED, IT SHALL BE PROPERLY MIXED PER MANUFACTURER SPECIFICATIONS.

Public Services Department
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

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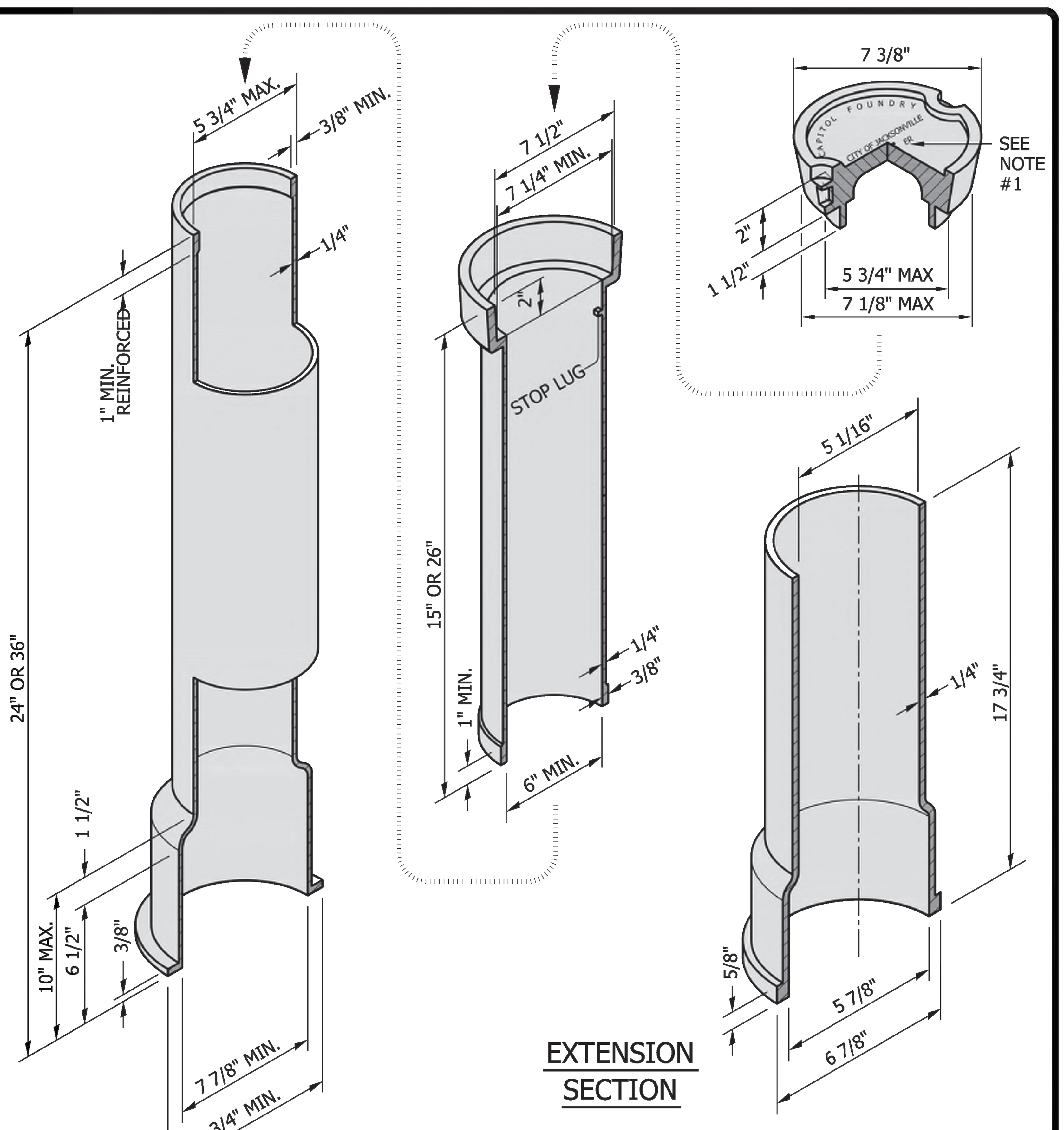
BLOCKING DETAIL for HORIZONTAL BENDS AND TEE

SCALE: Not To Scale | DETAIL # 512.01 | REVISION DATE: Jan, 2016 | SHEET #: 1 of 2



EXTENSION SECTION

PART	MANUFACTURER MODEL / Cat. No.
VALVE BOX & LID	CAPITOL FOUNDRY OF VIRGINIA,INC./VB-FCWA - # 3435

NOTES:

1. USE HEAVY DUTY TRAFFIC LID MARKED "WATER" (OR "SEWER" IF APPLICABLE).
2. VALVE BOX FINISH: ASPHALT COATED

Public Services Department
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
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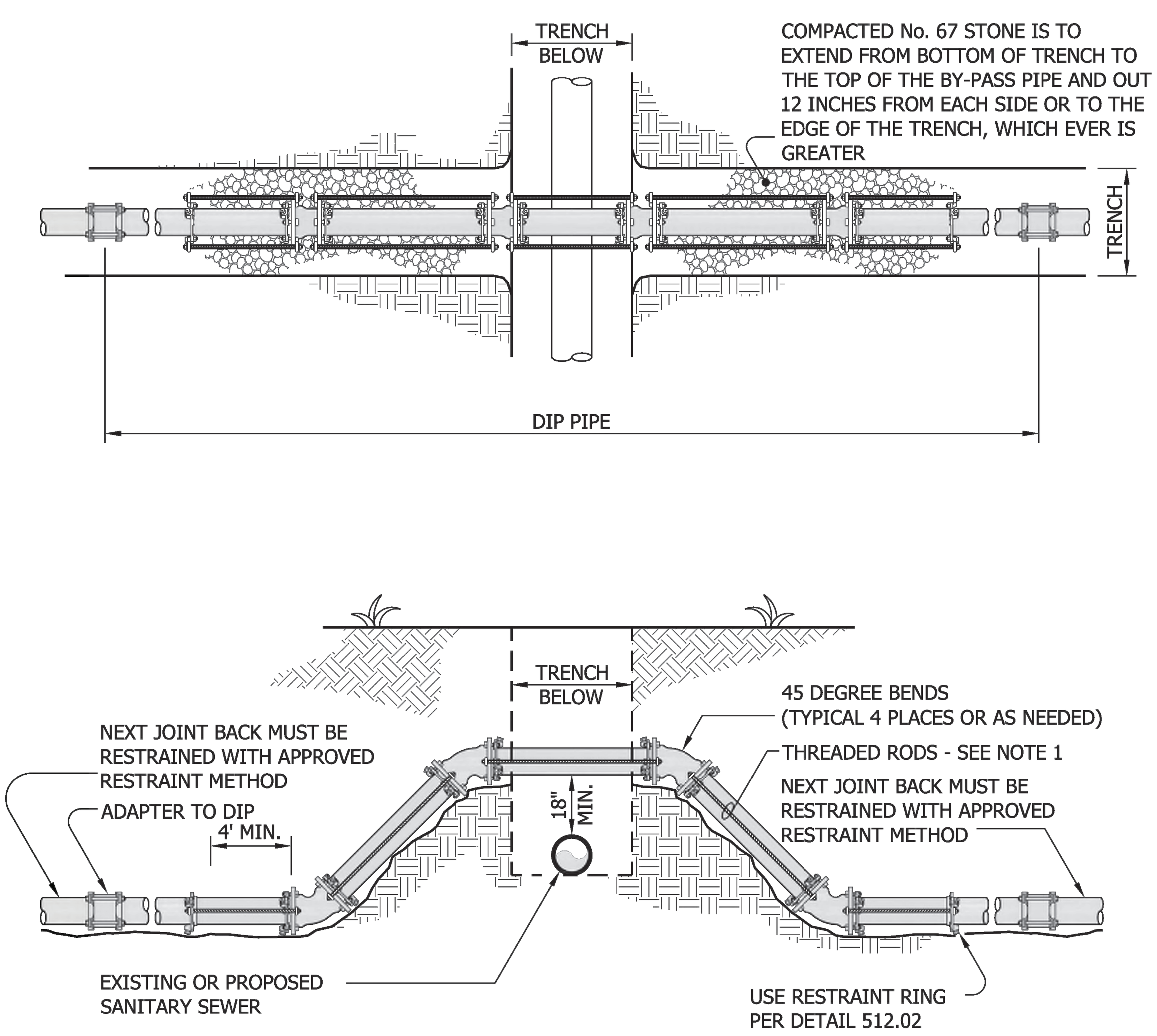
STANDARD SLIP TYPE VALVE BOX DETAIL

SCALE: Not To Scale | DETAIL # 513.01 | REVISION DATE: Jan, 2016 | SHEET #: 1 of 1



NOTES:

1. SEE DETAIL 512.07 FOR TIE ROD DIAMETERS AND NUMBERS OF RODS.
2. THE BYPASS IS TO BE ASSEMBLED ABOVE GROUND FIRST.
3. RECORD ALL AS-BUILT LENGTHS USING THE CENTER LINES OF THE PIPES OR BENDS AS REFERENCE POINTS.
4. ADAPTERS VARY IN TYPE ACCORDING TO THE MATERIAL OF THE EXISTING WATER MAIN.
5. USE OF GRIP RINGS IN LIEU OF RESTRAINT FLANGE SYSTEM SHALL BE PERMITTED ON A CASE BY CASE BASIS BY THE PUBLIC SERVICES DIRECTOR.

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WATER BYPASS for DEEPLY BURIED WATER LINES

SCALE: Not To Scale | DETAIL # 512.04 | REVISION DATE: Jan, 2016 | SHEET #: 1 of 1

C-008
SHEET 08 OF 09

DATE ISSUED: 11/10/22
DRAWN BY: JHD
CHECKED BY: MJM
SHEET NO.

REVISIONS
NO. DATE

ASSET NUMBER:
CO.# SITE.# BLDG.#
XX - XX - XX

STATE CONSTRUCTION
ID.# 21-23168-01A

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

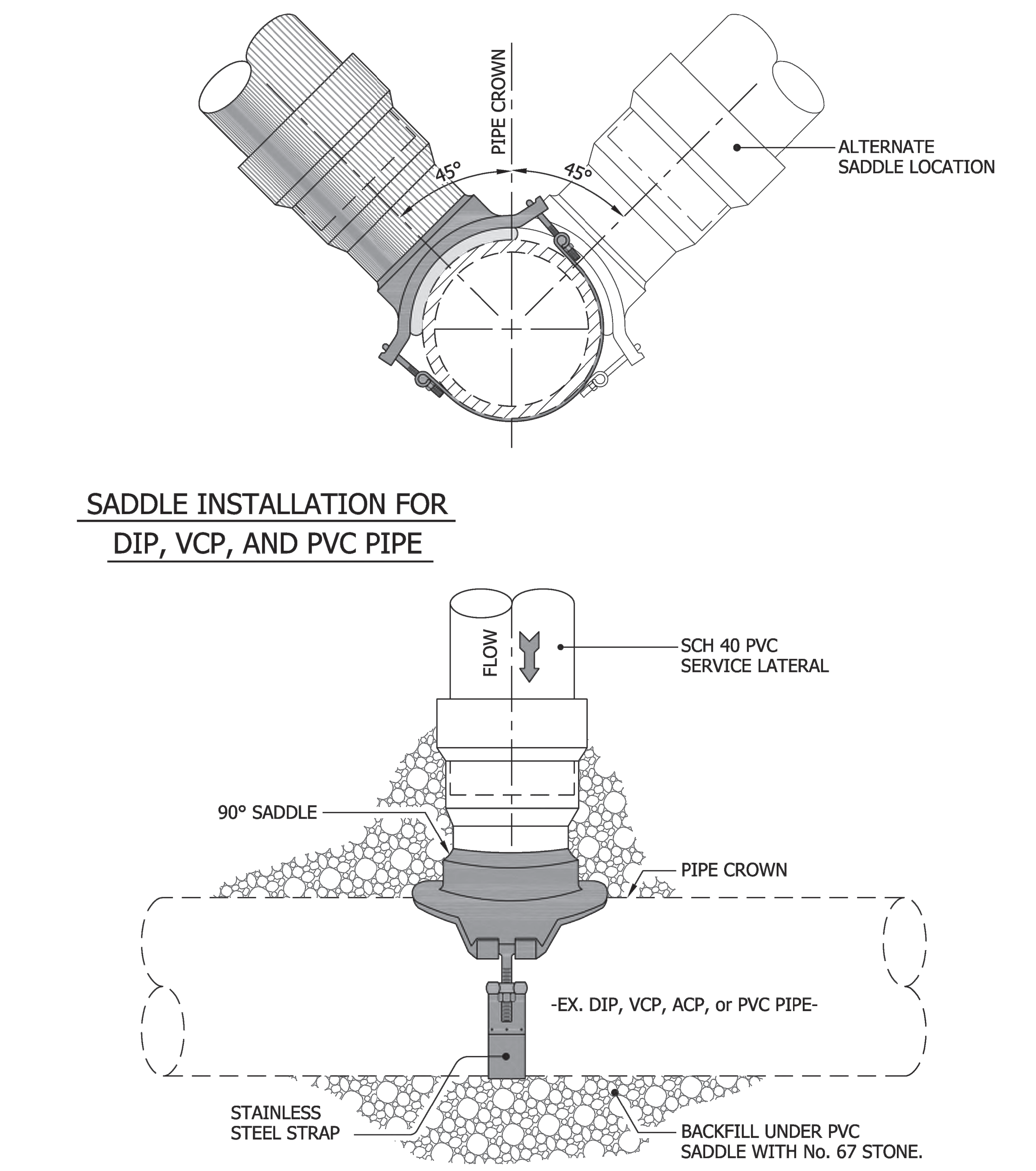
DRAWING TITLE / DISCRIPTION:
WATER DETAILS

JJB Engineering
Building Partnerships
1401 Aversboro Road Suite 215
Garner, NC 27529
(919) 594-6710 NCBELS C-4947

DESIGNED BY:
NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS
1 SOUTH WILMINGTON STREET
RALEIGH, NORTH CAROLINA 27601
PHONE: 919/707-4540 FAX 919/715-0399

SEAL:
STATE OF NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION

BID DOCUMENTS



SADDLE INSTALLATION FOR DIP, VCP, AND PVC PIPE

NOTES:

1. EXISTING MAINS ONLY - NEW CONSTRUCTION MUST USE IN-LINE WYE.
2. UNIVERSAL SADDLES ARE NOT PERMITTED.

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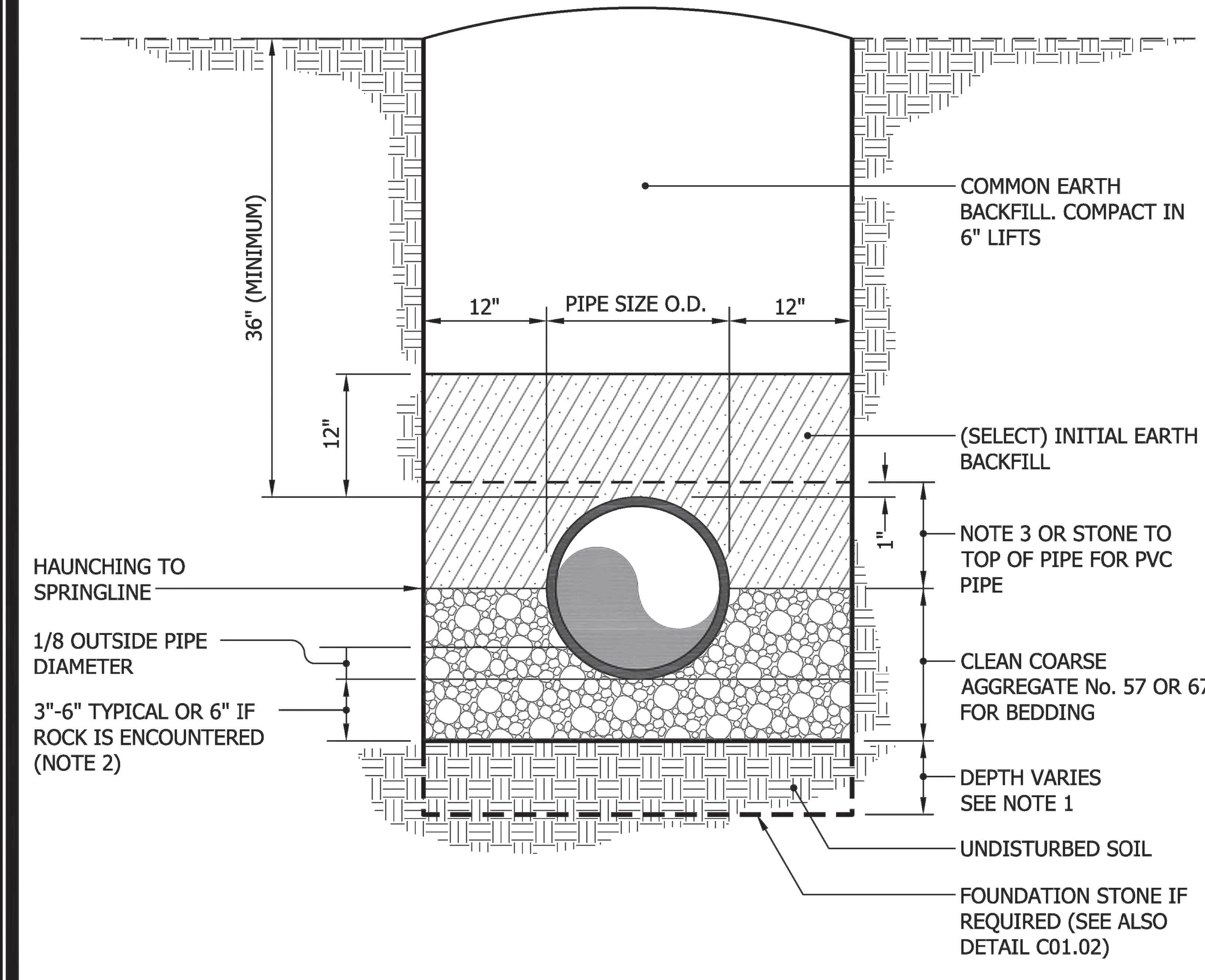
TYPICAL LATERAL SADDLE DETAIL

SCALE: Not To Scale	DETAIL # 533.01
REVISION DATE: Jan, 2016	SHEET #: 1 of 1



NOTES:

1. FOUNDATION STONE SHALL BE REQUIRED WHEN SOIL CONDITIONS ARE UNSUITABLE.
2. AN ADDITIONAL 1 INCH DEPTH OF BEDDING MATERIAL WILL BE REQUIRED FOR EACH ADDITIONAL 2 FEET OF TRENCH DEPTH IN EXCESS OF 16 FEET UP TO A MAXIMUM OF 12 INCHES.
3. HAUNCHING FOR DEPTH FLEXIBLE WALL PIPE (C900 PVC, AND SDR35) SHALL BE OUTSIDE PIPE DIAMETER + 1 INCH. HAUNCHING SHALL BE THOROUGHLY COMPACTED NO. 57 OR 67 STONE.

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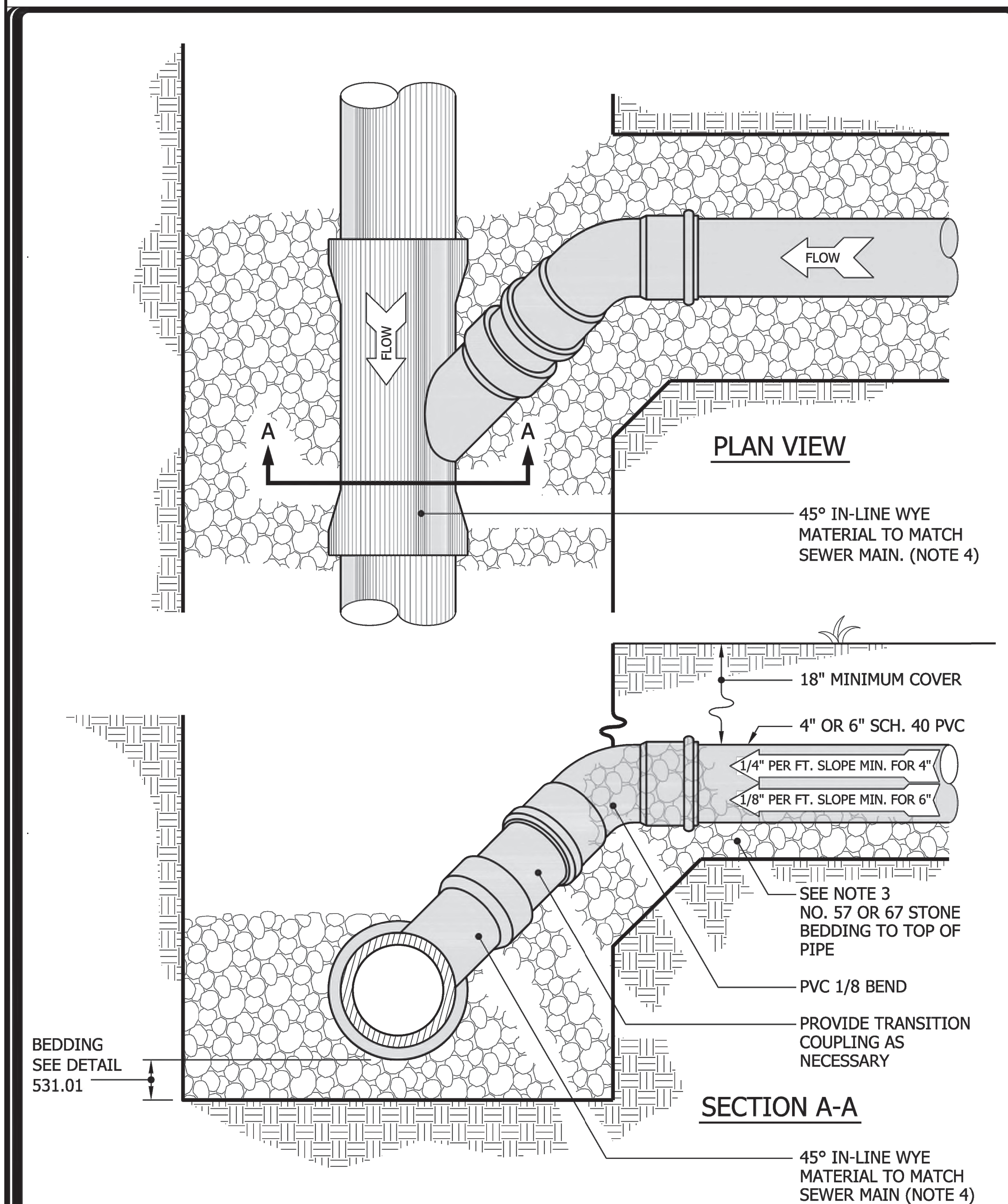
SANITARY SEWER LINE TRENCH DETAIL

SCALE: Not To Scale	DETAIL # 531.01
REVISION DATE: Jan, 2016	SHEET #: 1 of 1



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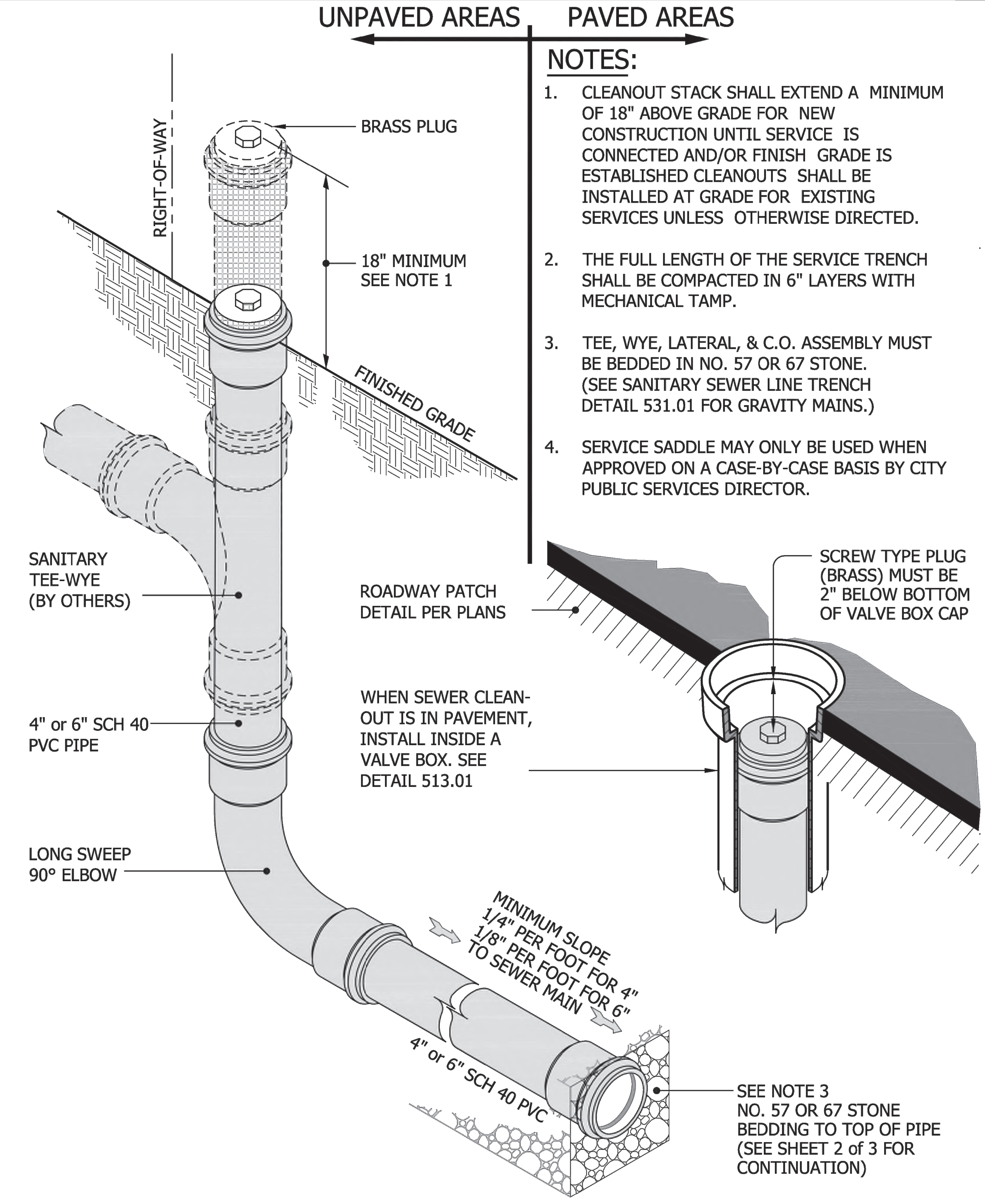
TYPICAL PVC SEWER LATERAL CLEANOUT WITH IN-LINE WYE

SCALE: Not To Scale	DETAIL # 533.03
REVISION DATE: Jan, 2016	SHEET #: 2 of 3



NOTES:

1. CLEANOUT STACK SHALL EXTEND A MINIMUM OF 18" ABOVE GRADE FOR NEW CONSTRUCTION UNTIL SERVICE IS CONNECTED AND/OR FINISH GRADE IS ESTABLISHED CLEANOUTS SHALL BE INSTALLED AT GRADE FOR EXISTING SERVICES UNLESS OTHERWISE DIRECTED.
2. THE FULL LENGTH OF THE SERVICE TRENCH SHALL BE COMPACTED IN 6" LAYERS WITH MECHANICAL TAMP.
3. TEE, WYE, LATERAL, & C.O. ASSEMBLY MUST BE BEDDED IN NO. 57 OR 67 STONE. (SEE SANITARY SEWER LINE TRENCH DETAIL 531.01 FOR GRAVITY MAINS.)
4. SERVICE SADDLE MAY ONLY BE USED WHEN APPROVED ON A CASE-BY-CASE BASIS BY CITY PUBLIC SERVICES DIRECTOR.

Public Services Department
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
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TYPICAL PVC SEWER LATERAL CLEANOUT WITH IN-LINE WYE

SCALE: Not To Scale	DETAIL # 533.03
REVISION DATE: Jan, 2016	SHEET #: 1 of 3

SHEET NO.
C-009
SHEET 09 OF 09

DATE ISSUED: 11/10/22
DRAWN BY: JHD
CHECKED BY: MJM

REVISIONS
NO. DATE

STATE CONSTRUCTION ID.# 21-23168-01A
ASSET NUMBER: CO.# SITE.# BLDG.#
XX - XX - XX

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

DRAWING TITLE / DISCRIPTION:
SANITARY SEWER DETAILS

Engineering
Building Partnerships
1401 Aversboro Road Suite 215
Garner, NC 27529
(919) 594-6710 NCBELS C-4947

DESIGNED BY:
NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS
1 SOUTH WILMINGTON STREET
RALEIGH, NORTH CAROLINA 27601
PHONE: 919/707-4540 FAX 919/715-0399

SEAL:
Digitally signed by Michael J. Mastrocola PE Date: 2022.11.14

BID DOCUMENTS

STRUCTURAL NOTES

I. GENERAL

1. DESIGN CODES

NORTH CAROLINA BUILDING CODE, 2018 EDITION
(AMENDED 2015 INTERNATIONAL BUILDING CODE)

ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
(ACI 318-14)

ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

2. DESIGN LOADS

ULTIMATE DESIGN WIND SPEED: 139 MPH, EXPOSURE C

GROUND SNOW LOAD 10 PSF

BUILDING OCCUPANCY CATEGORY II
IMPORTANCE FACTOR 1.0
Ss = 0.153
S1 = 0.072
SITE CLASS E (SEE GEOTECHNICAL REPORT)
Sds = 0.256
Sd1 = 0.168
SEISMIC DESIGN CATEGORY C

3. DETAILED SHOP DRAWINGS SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. THE FOLLOWING SHALL BE SUBMITTED AT A MINIMUM: CONCRETE MIX DESIGN, GROUND ANCHORS, AND GALVANIZED HANGERS, STRAPS, AND POST BASES.

4. FOUNDATION INFORMATION SHOWN IS DESIGNED TO SUPPORT THE MAXIMUM REACTIONS IMPOSED BY A STANDARD MODULAR BUILDING. THE MAXIMUM LOAD PER PIER HAS BEEN ASSUMED TO BE NO GREATER THAN 6000 LBS. CONTACT THE ENGINEER PRIOR TO CONSTRUCTION IF THE LOAD PER PIER EXCEEDS 6000 LBS.

5. ENGINEER'S SEAL APPLIES TO STRUCTURAL COMPONENTS ONLY AND DOES NOT CERTIFY ARCHITECTURAL LAYOUT OR DIMENSIONAL ACCURACY.

6. ROSS LINDEN ENGINEERS PC ASSUMES NO LIABILITY FOR CHANGES OR MODIFICATIONS MADE TO THESE DRAWINGS BY OTHERS, OR FOR CONSTRUCTION METHODS, OR FOR ANY DEVIATION FROM THESE DRAWINGS.

II. CONCRETE

1. UNLESS OTHERWISE NOTED, CONCRETE SHALL HAVE THE FOLLOWING STRENGTH AND SLUMP REQUIREMENTS:
3,000 PSI 28-DAY COMPRESSIVE STRENGTH, MAX. 5" SLUMP

2. ALL CONCRETE SHALL BE MOIST CURED PER ACI 301 OR CURED WITH AN APPROVED CURING COMPOUND. CONTRACTOR SHALL VERIFY THAT THE CURING COMPOUND IS COMPATIBLE WITH FLOOR COVERING ADHESIVES, COATINGS, OR TOPPINGS TO BE USED. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI PRIOR TO SETTING PIERS.

3. UNLESS OTHERWISE NOTED, ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL, CONFORMING TO ASTM A-615, GRADE 60, DEFORMED.

4. UNLESS OTHERWISE NOTED, ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL SHALL CONFORM TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES. (ACI 315)

5. ALL BAR SPLICES SHALL BE CLASS "B" TENSION SPLICES PER ACI 318-08, UNLESS OTHERWISE SHOWN.

6. ALL SPREAD FOOTINGS BEARING ON NATIVE SOIL OR STRUCTURAL FILL ARE DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 1,000 PSF. A GEOTECHNICAL REPORT BY TERRACON CONSULTANTS, INC. DATED 12 MARCH 2021 HAS BEEN USED AS THE BASIS OF THIS DESIGN. A GEOTECHNICAL REPRESENTATIVE SHALL INSPECT ALL FOOTING EXCAVATIONS TO CONFIRM ALLOWABLE BEARING PRESSURES. THE SITE SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT. SOIL SHALL BE COMPACTED BENEATH FOUNDATIONS IN ACCORDANCE WITH THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT IN ORDER TO ACHIEVE THE MINIMUM ALLOWABLE BEARING PRESSURE AND TO MINIMIZE SETTLEMENT.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE.

III. MASONRY

1. MASONRY CONSTRUCTION SHALL COMPLY WITH ACI 530.1-02/ASCE 6-02: "SPECIFICATION FOR MASONRY STRUCTURES."

2. ASSUMED MASONRY PROPERTIES: UNIT COMPRESSIVE STRENGTH 1900 PSI, TYPE S MORTAR, PARTIAL GROUT, RUNNING BOND.

IV. TIE-DOWN STRAPS AND GROUND ANCHORS

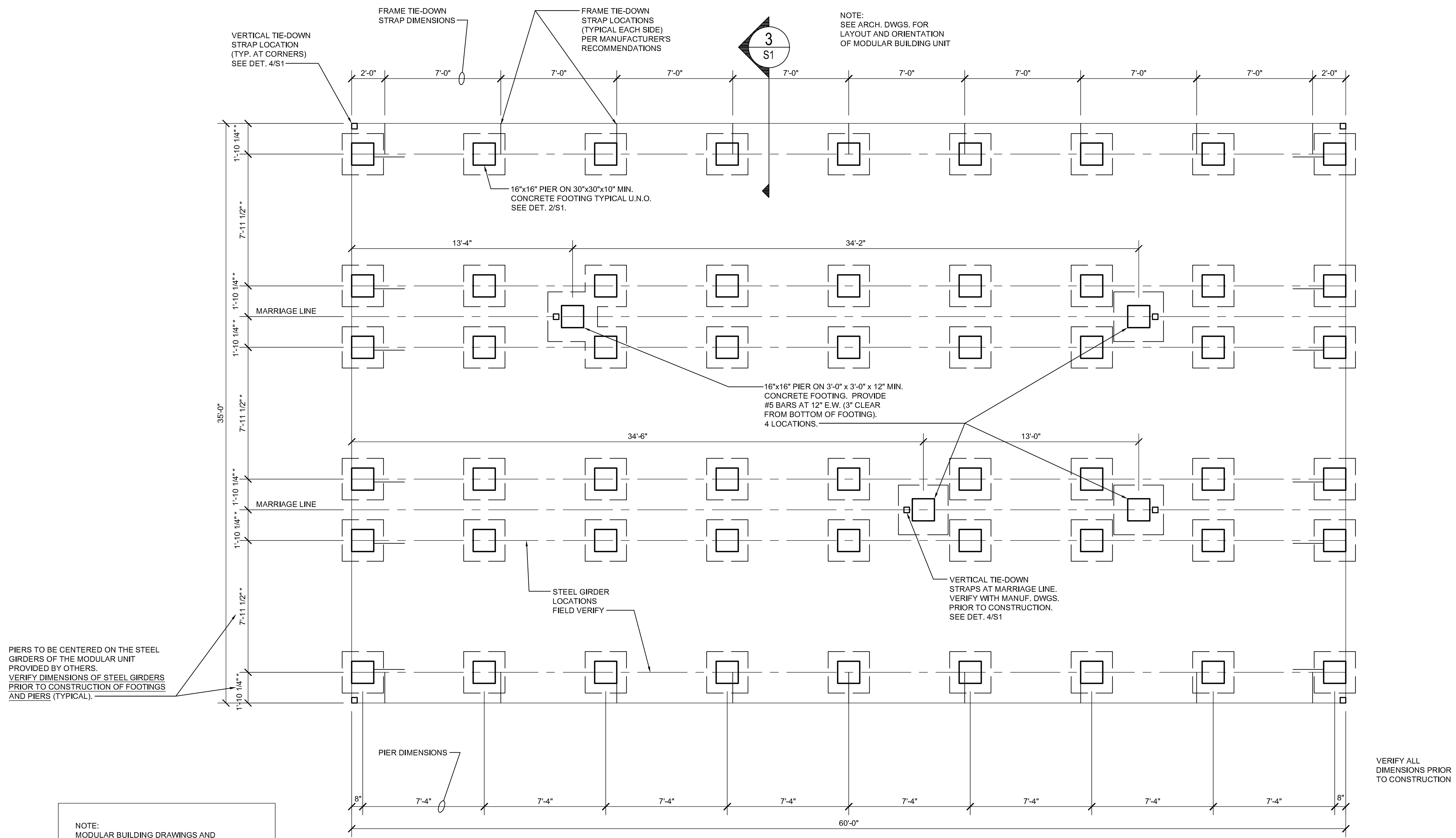
1. TIE-DOWN STRAPS SHALL BE 1 1/4" x 0.035" TYPE-1, FINISH B, GRADE 1 ZINC-COATED STEEL STRAPPING CERTIFIED BY A REGISTERED ENGINEER OR ARCHITECT AS CONFORMING TO THE REQUIREMENTS OF ASTM D3953-91. TIE-DOWN STRAPS AND CONNECTING HARDWARE SHALL HAVE A 3150 LB MINIMUM WORKING CAPACITY (ALLOWABLE TENSION).

2. GROUND ANCHORS SHALL HAVE A 3150 LB MINIMUM WORKING CAPACITY (ALLOWABLE UPLIFT), AND SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. DESIGN OF GROUND ANCHORS, INCLUDING SHAFT LENGTH, NUMBER, DIAMETER, ETC. SHALL BE SPECIFIED BY THE ANCHOR MANUFACTURER FOR THE ACTUAL SOIL TYPE AT THE SITE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE ANCHOR MANUFACTURER WITH THE REQUIRED SOIL TYPE INFORMATION. A GEOTECHNICAL REPRESENTATIVE SHALL BE HIRED BY THE CONTRACTOR AS NEEDED FOR THIS PURPOSE.

V. WOOD

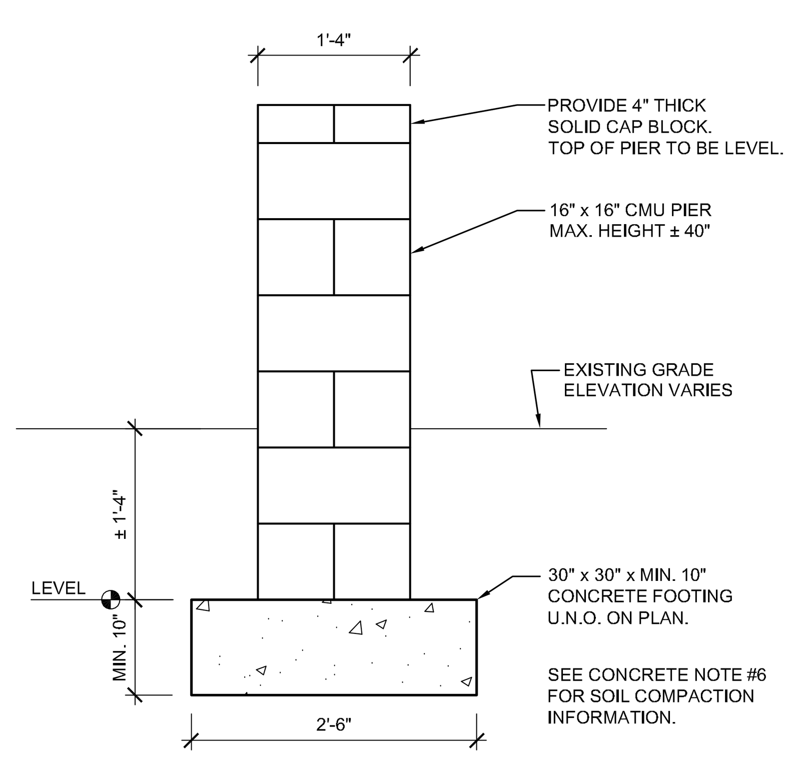
1. ALL FRAMING LUMBER SHALL BE #2 SOUTHERN YELLOW PINE (SYP) TREATED IN ACCORDANCE WITH AWPA C22 WITH THE FOLLOWING MINIMUM DESIGN PROPERTIES:
Fb = 800 PSI   Fv = 175 PSI   E = 1.4E6 PSI

2. ALL NAILS AND OTHER FASTENERS SHALL BE GALVANIZED STEEL.

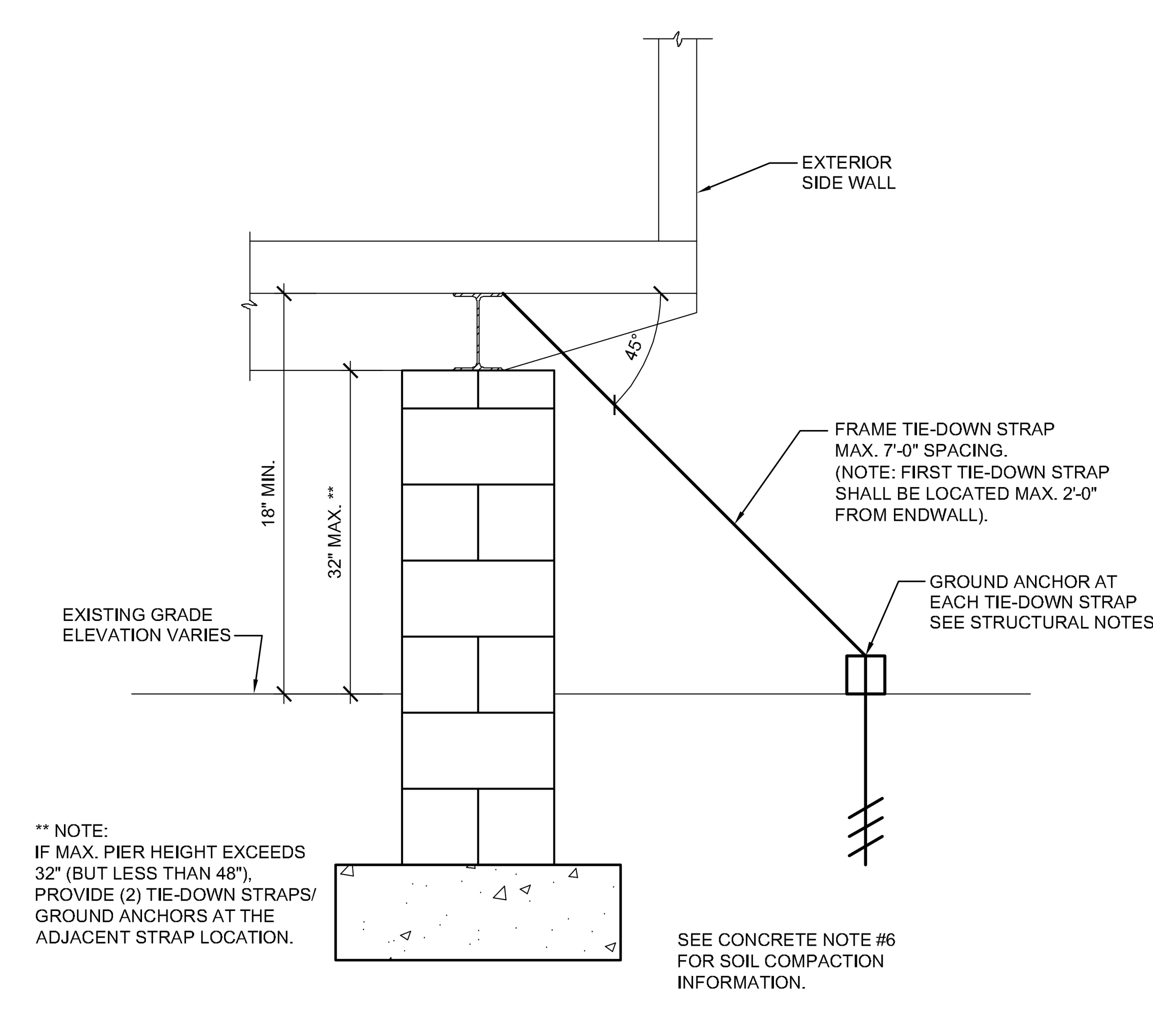


NOTE:
MODULAR BUILDING DRAWINGS AND SPECIFICATIONS SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

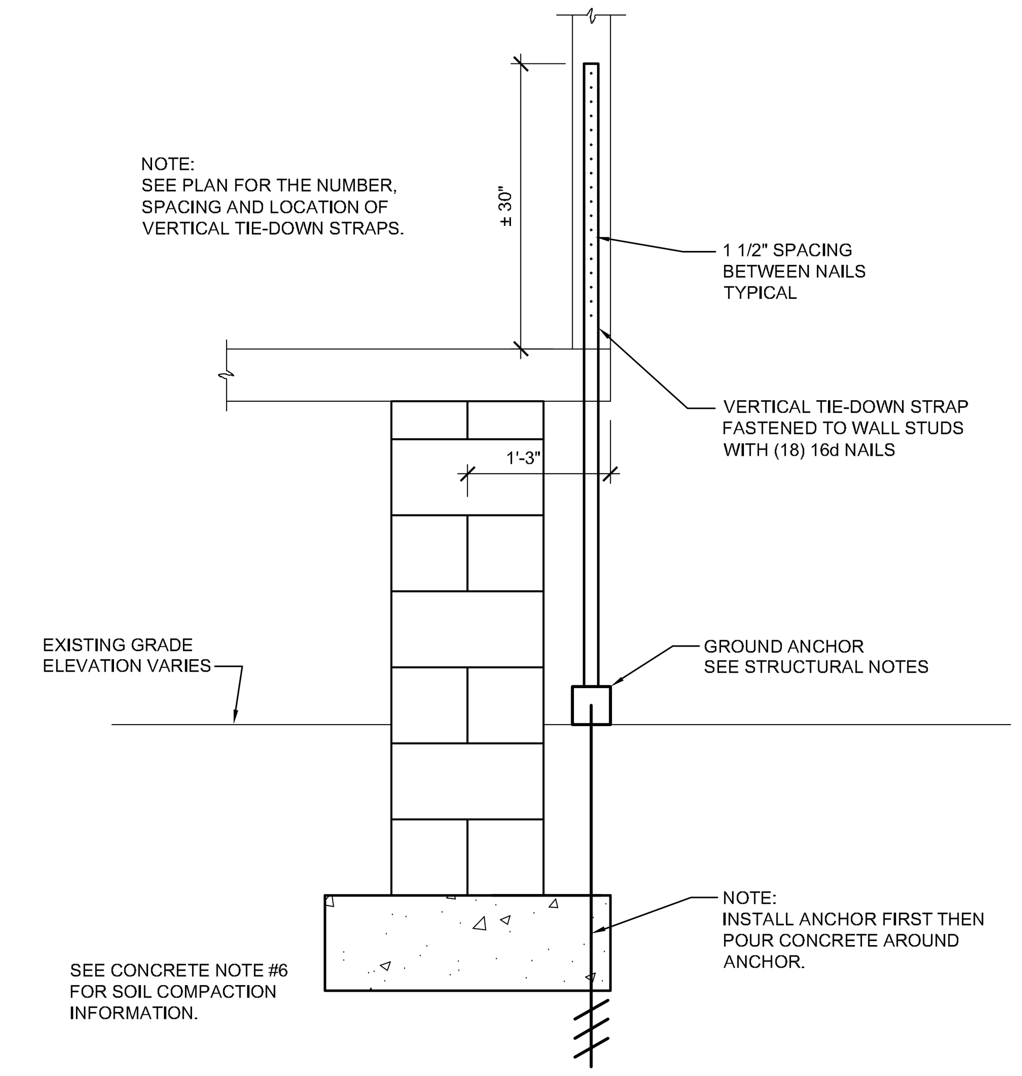
1 FOUNDATION PLAN - MODULAR BUILDING
S1 1/4" = 1'-0"



2 TYPICAL PIER AND FOOTING
S1 3/4" = 1'-0"



3 DETAIL - FRAME TIE-DOWN STRAP
S1 3/4" = 1'-0"



4 DETAIL - VERTICAL TIE-DOWN STRAP
S1 3/4" = 1'-0"

BID DOCUMENTS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25539 BRIAN M. ROSS 11-10-2022
SEAL NOT VALID UNLESS SIGNED AND DATED

DESIGNED BY:
NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS
1 SOUTH WILMINGTON STREET
RALEIGH, NORTH CAROLINA 27601
PHONE: 919/707-4540 FAX 919/715-0399

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONSULTANT:
ROSS LINDEN
ENGINEERS PC
709 W. JONES STREET RALEIGH, NC 27603
TEL 919.832.5680 FAX 919.832.5675
WWW.ROSSLINDEN.COM NC LICENSE NO. C-2364

DRAWING TITLE / DESCRIPTION:
MODULAR BUILDING FOUNDATION PLAN AND DETAILS

PROJECT TITLE:
Modular Office Replacement for NCDOT Signal Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

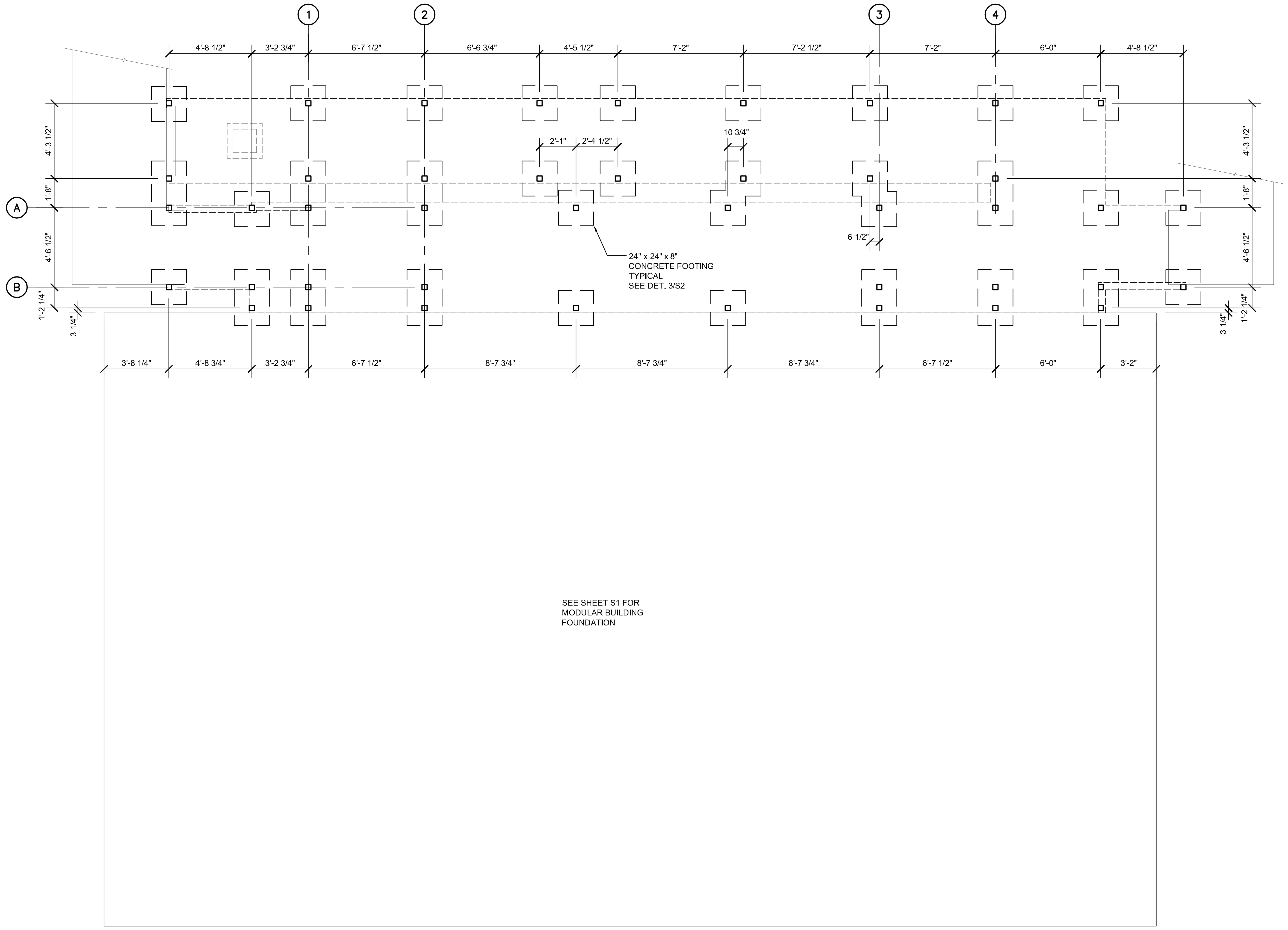
STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:		
CO.#	SITE #	BLDG.#
XX	XX	XX

REVISIONS	
NO.	DATE

DATE ISSUED: 11/10/2022
DRAWN BY: BR
CHECKED BY: BR
SHEET NO.

S1

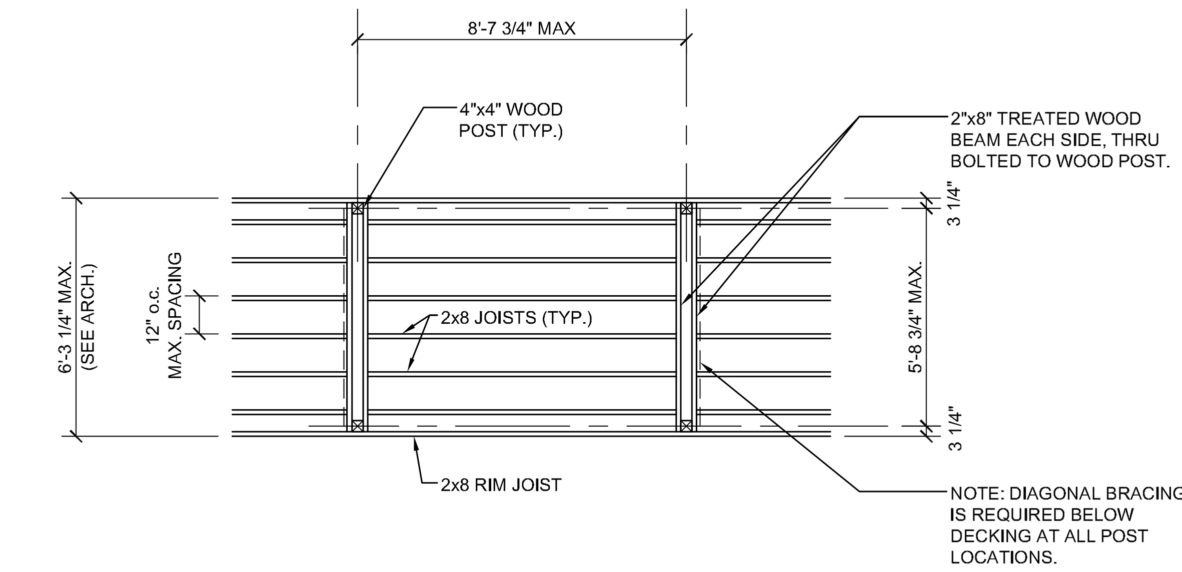


1 FOUNDATION PLAN - RAMP AND STAIRS

S2

1/4" = 1'-0"

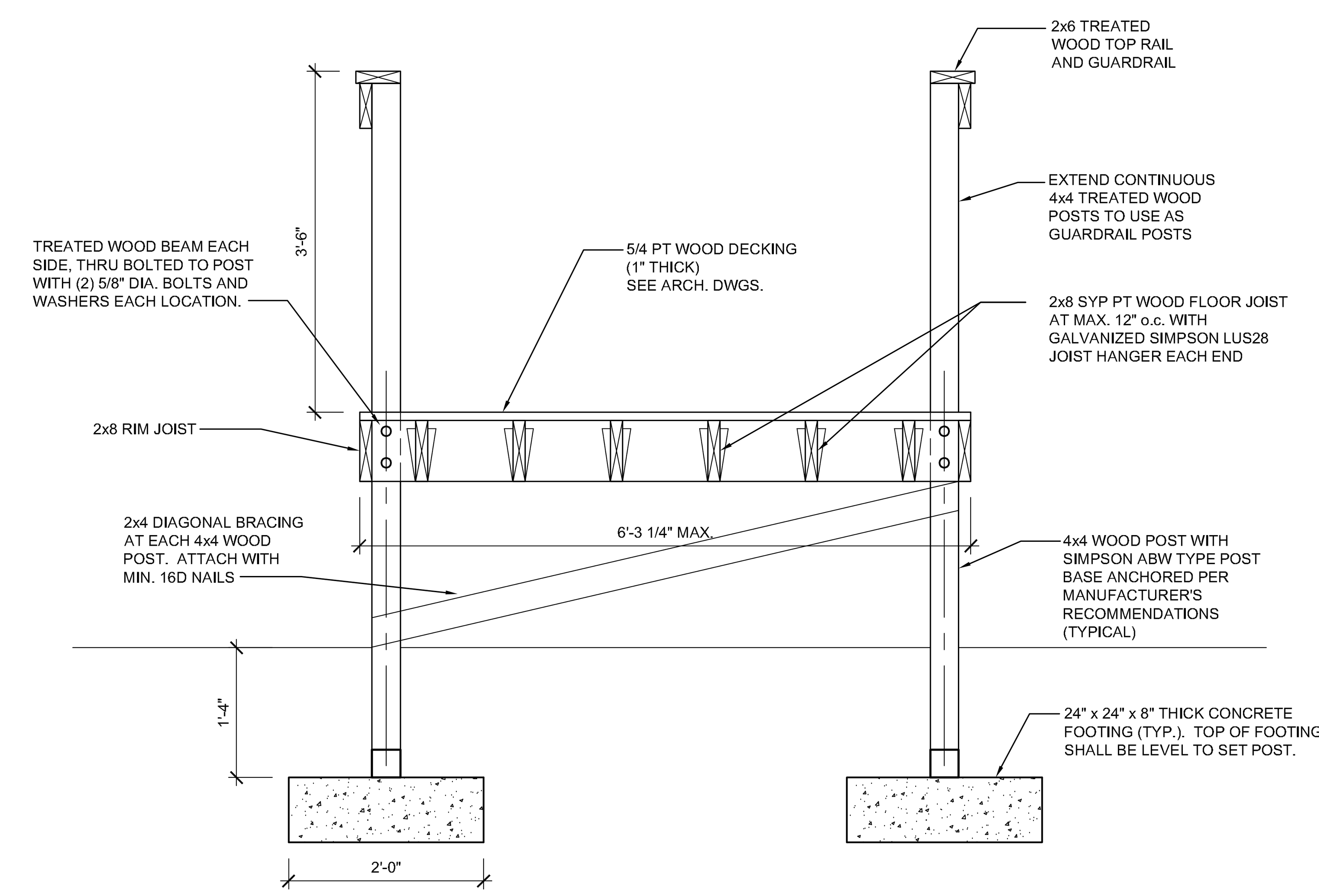
SEE 1/A1 FOR INFO NOT SHOWN



2 TYP. FRAMING PLAN - WOOD RAMPS AND LANDINGS

S2

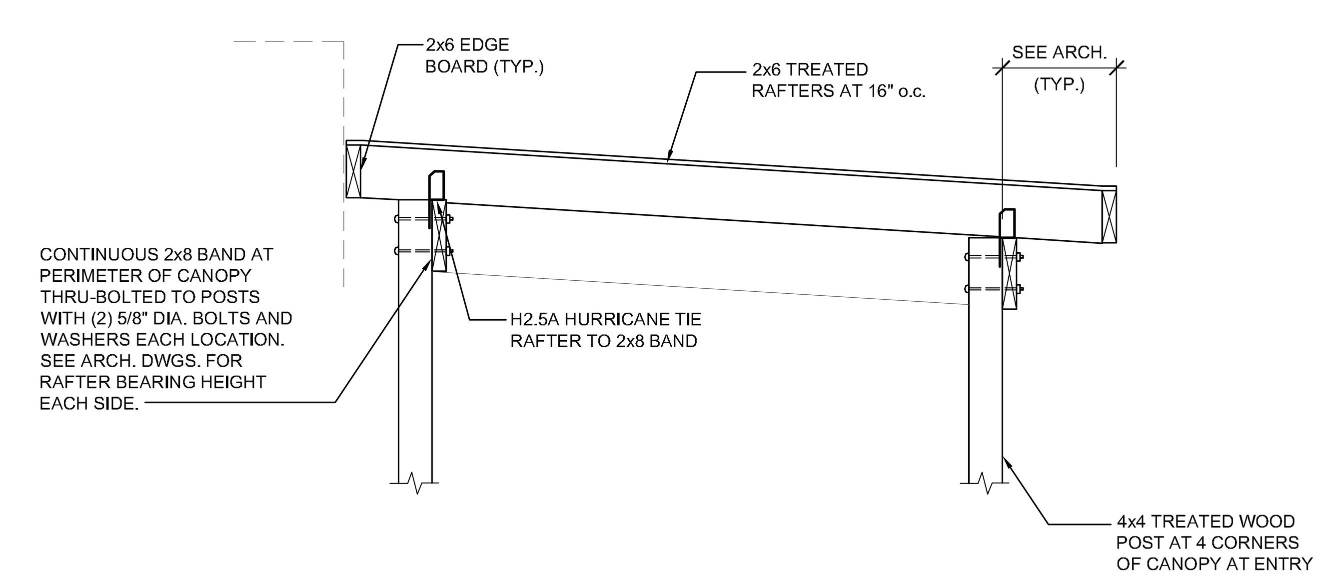
1/4" = 1'-0"



3 SECTION - TYP. WOOD RAMP AND LANDING

S2

3/4" = 1'-0"



4 SECTION - TYP. SMALL CANOPY ROOF

S2

3/4" = 1'-0"

BID DOCUMENTS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25539 BRIAN M. ROSS 11-10-2022

SEAL NOT VALID UNLESS SIGNED AND DATED

DESIGNED BY:

NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS

1 SOUTH WILMINGTON STREET
RALEIGH, NORTH CAROLINA 27601
PHONE: 919/707-4540 FAX 919/715-0399

CONSULTANT:

ROSS LINDEN
ENGINEERS PC
709 W. JONES STREET RALEIGH, NC 27603
TEL 919.832.5680 FAX 919.832.5675
WWW.ROSSLINDEN.COM NC LICENSE NO. C-2364

DRAWING TITLE / DESCRIPTION:

TYPICAL RAMP AND LANDING FRAMING PLAN AND DETAILS

PROJECT TITLE:

Modular Office Replacement for NCDOT Signal Office

NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:

CO.#	SITE.#	BLDG.#
XX	XX	XX

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NO.	DATE

DATE ISSUED: 11/10/2022
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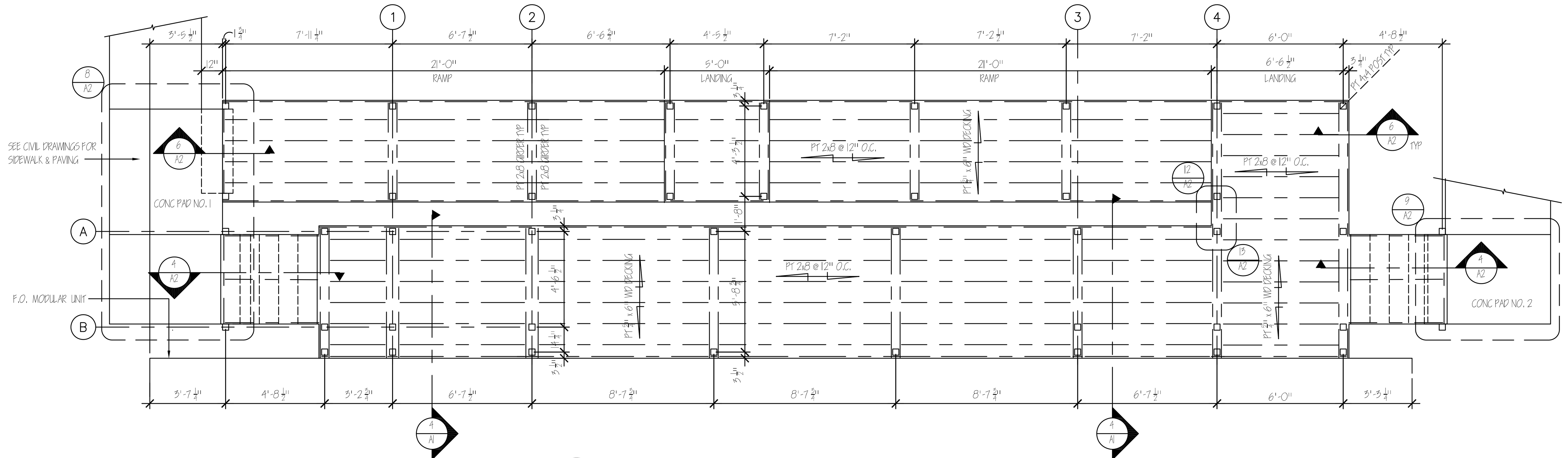
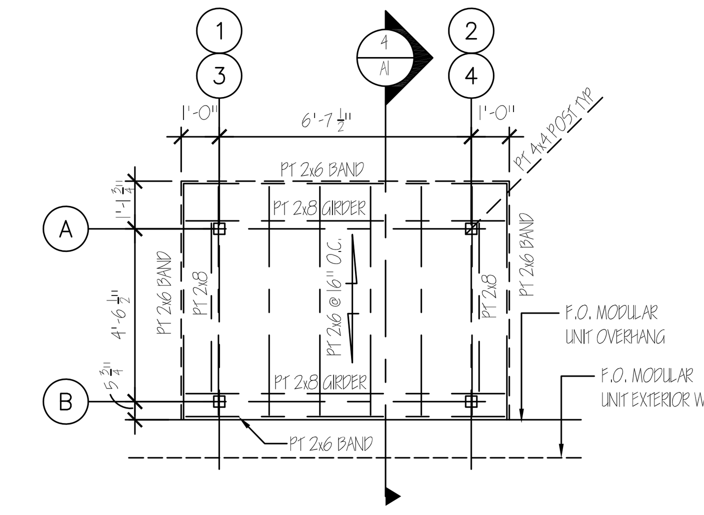
SHEET NO.

S2



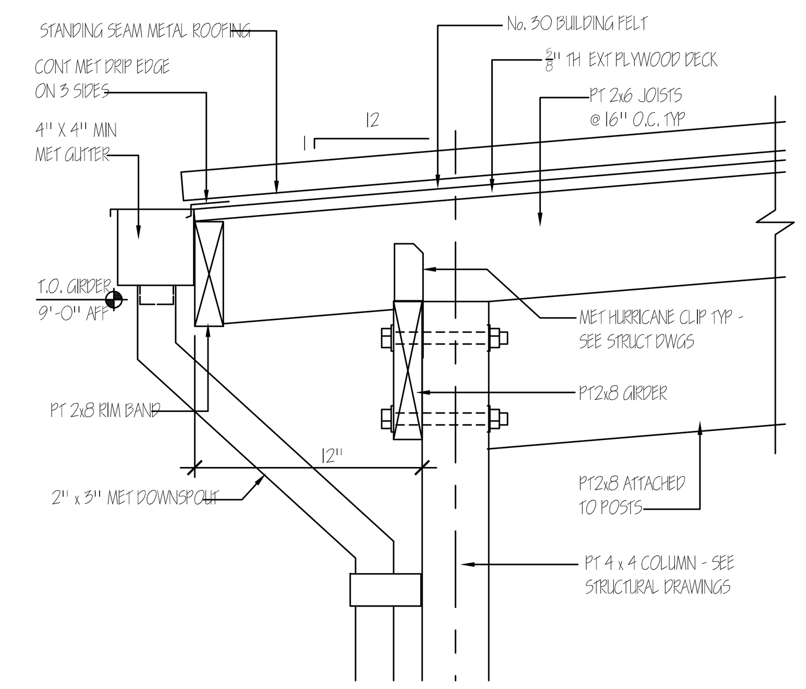
2 / A1 DECK / RAMP FRAMING PLAN
SCALE: ⅛" = 1'-0"



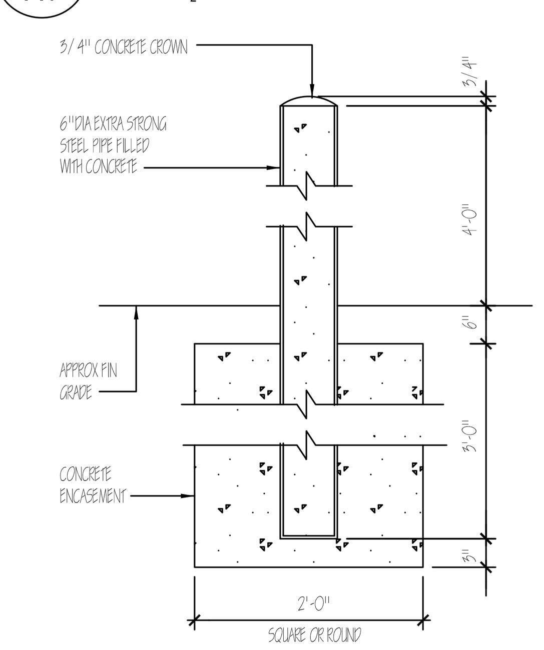
3 / A1 CANOPY FRAMING PLAN
SCALE: ¼" = 1'-0"

GENERAL NOTES:

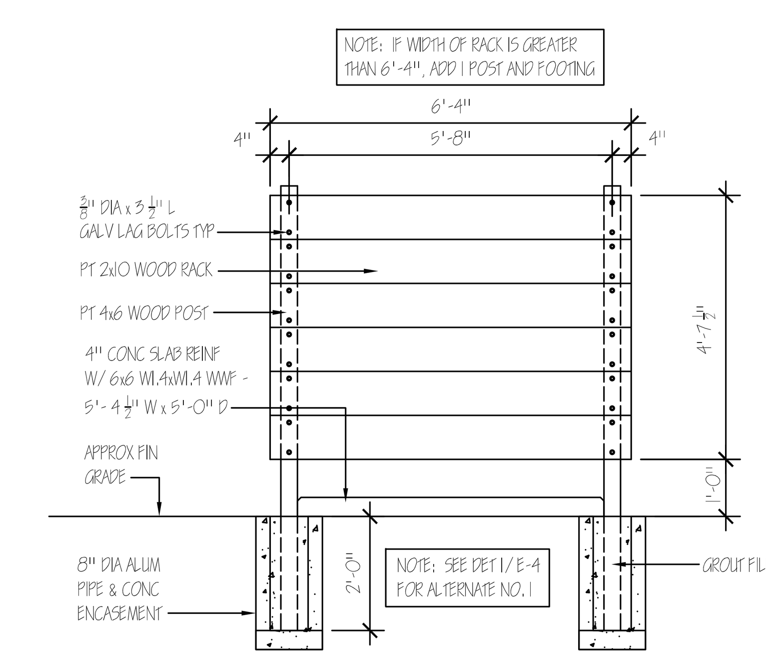
1. THIS MODULAR OFFICE IS NEW AND WILL HAVE AN NCDOI CERTIFICATION. SEE DRAWING G1. NO INTERIOR CHANGES WILL BE MADE UNDER THIS CONTRACT.
2. EXCEPT FOR THE MODULAR UNITS, ALL WOOD COMPONENTS SHALL BE PRESERVATIVE TREATED. SEE STRUCTURAL DRAWINGS FOR LUMBER SIZES, SPECIES, BRACING, ATTACHMENTS, ETC.
3. GC SHALL PROVIDE THE COMPLETE MODULAR OFFICE UNIT ASSEMBLY. TRANSPORT TO AND SET-UP OF MODULAR OFFICE UNITS ON THE NCDOT JACKSONVILLE MAINTENANCE YARD WILL BE PERFORMED AS WORK OF THIS CONTRACT AND WILL INCLUDE ANCHORAGE.
4. CONNECTION OF ALL UTILITIES TO MODULAR OFFICE SHALL BE PERFORMED UNDER THIS CONTRACT. SEE CIVIL, PLUMBING, AND ELECTRICAL DRAWINGS.
5. PROVIDE SKIRTING TO MATCH MATERIAL AND FINISH OF THE EXTERIOR WALLS OF THE MODULAR UNITS.
6. METAL ROOFING MATERIALS SHALL MATCH MODULAR OFFICE METAL WALL PANELS FOR MATERIAL, GAUGE, AND COLOR.
7. AS AN ALTERNATIVE DECK AND RAMP CONSTRUCTION, CONTRACTOR MAY USE PT WD 2x8 JOISTS @ 16" O.C. AND PT WD 2x6 DECKING.
8. PROVIDE MINIMUM 6 MIL POLYETHYLENE MOISTURE BARRIER OVER ENTIRE CRAWLSPACE.



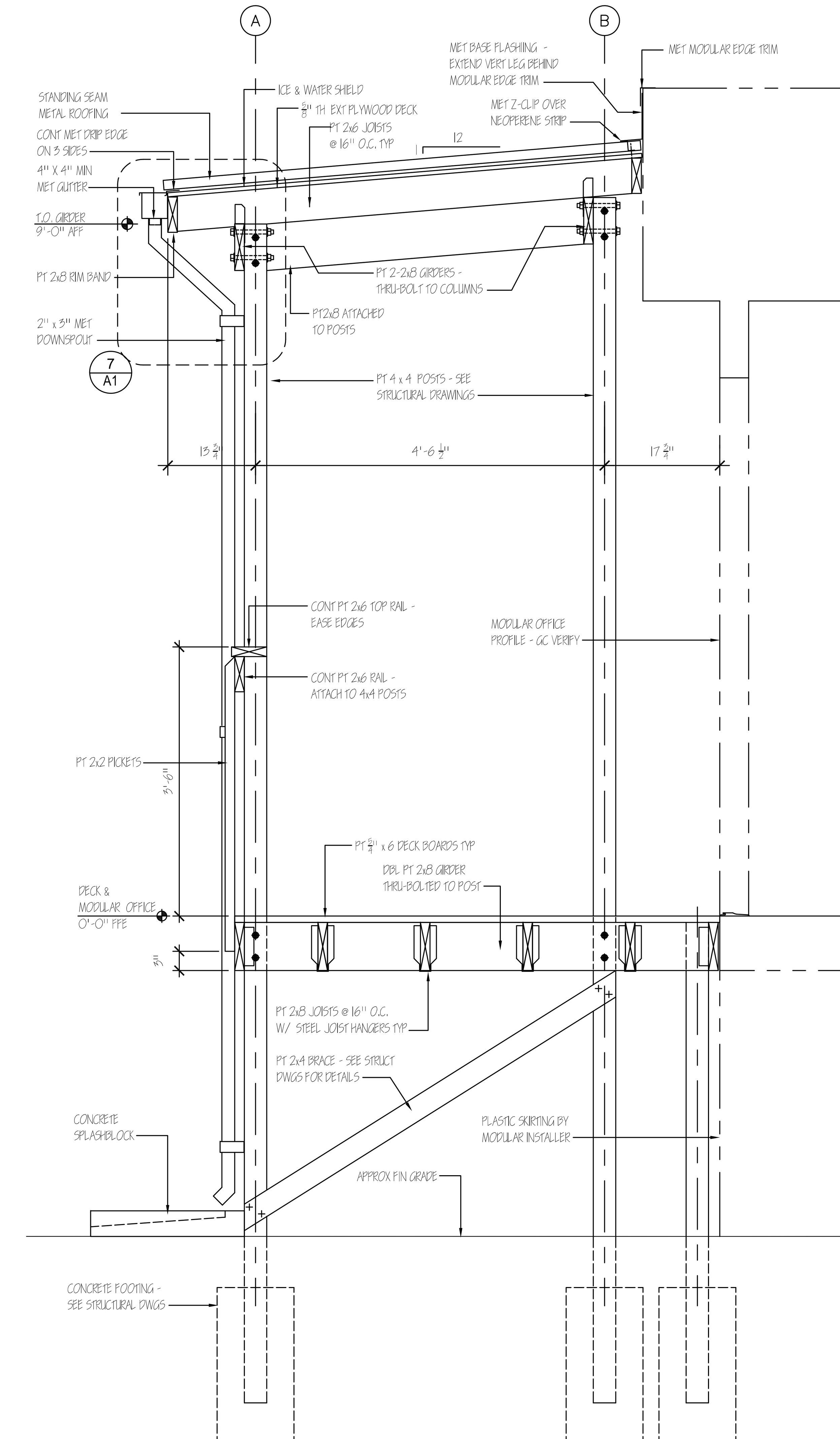
7 / A1 CANOPY DETAIL
SCALE: 1½" = 1'-0"



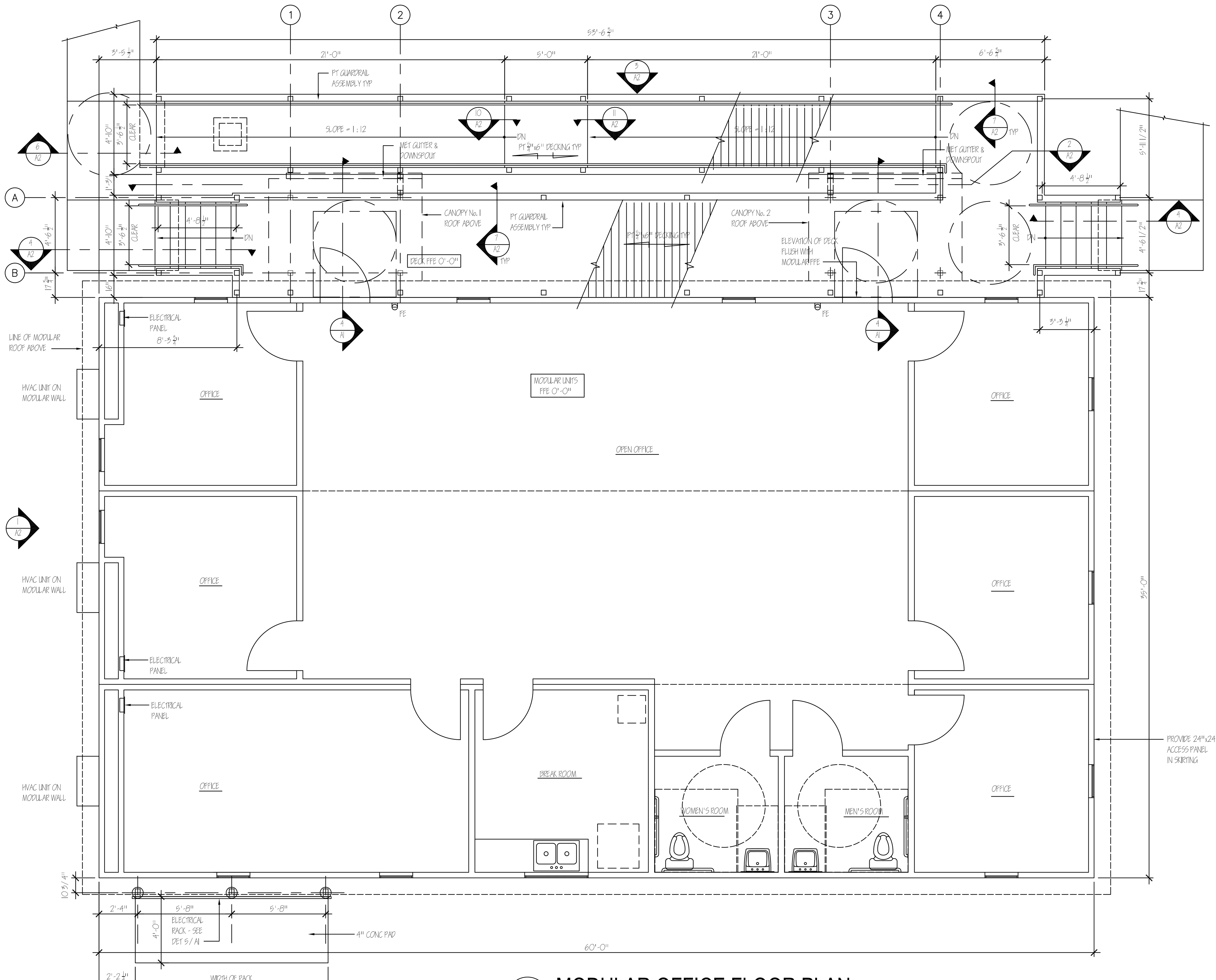
6 / A1 BOLLARD DETAIL
SCALE: ½" = 1'-0"



5 / A1 ELECTRICAL DEVICE RACK
SCALE: ½" = 1'-0"



4 / A1 ENTRANCE CANOPY SECTION
SCALE: ½" = 1'-0"



1 / A1 MODULAR OFFICE FLOOR PLAN
SCALE: ⅛" = 1'-0"

0 2' 4' 8'

PLAN NORTH

BID DOCUMENTS

MARK DOUGLAS GIBSON REGISTERED ARCHITECT 5121 NORTH CAROLINA KNIGHTDALE, N.C. 11-14-21

NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS
1 SOUTH WILMINGTON STREET
RALEIGH, NORTH CAROLINA 27601
PHONE: 919/707-4540 FAX 919/715-0399

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

MODULAR OFFICE FLOOR PLAN, RAMP FRAMING PLAN, & DETAILS

Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 WILMINGTON HIGHWAY
JACKSONVILLE, NORTH CAROLINA 28540

STATE CONSTRUCTION ID.# 21-23168-01A

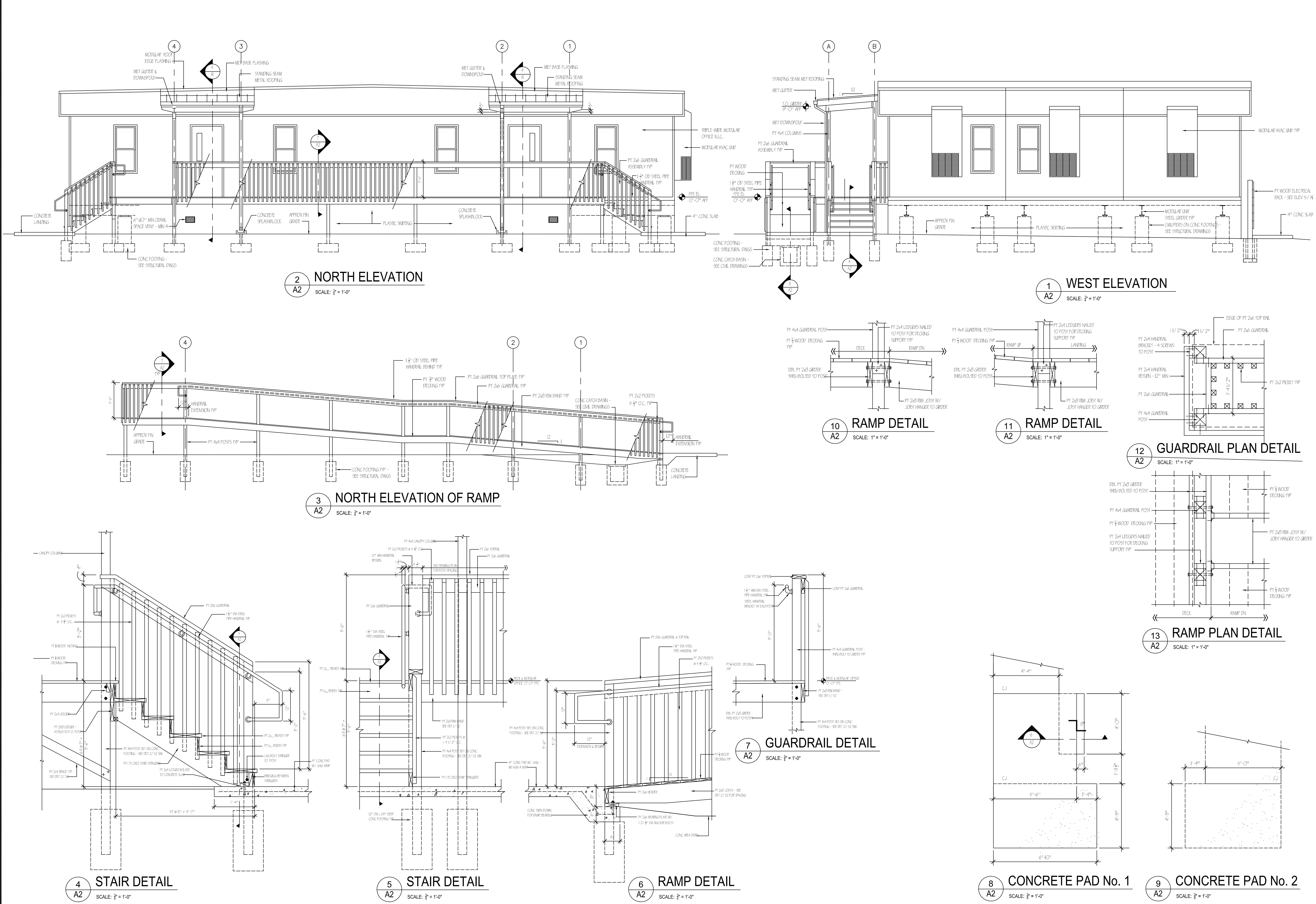
ASSET NUMBER:

CO.#	SITE.#	BLDG.#
XX	XX	XX

REVISIONS

NO.	DATE

DATE ISSUED: 4/8/2022
DRAWN BY:
CHECKED BY:
SHEET NO.
A1



BID DOCUMENTS

MARK DOUGLAS GIBSON
REGISTERED ARCHITECT
5121
NORTH CAROLINA
KNIGHTDALE, N.C.

NCDOT FACILITIES DESIGN UNIT
ARCHITECT & ENGINEERS
1 SOUTH WILMINGTON STREET
RALEIGH, NORTH CAROLINA 27601
PHONE 919/707-4540 FAX 919/715-0399

STAIRS, RAMPS, & CANOPIES FRAMING PLANS & DETAILS

Modular Building Replacement for the Traffic Signals Office

NCDOT HIGHWAY DIVISION 3
299 WILMINGTON HIGHWAY
JACKSONVILLE, NORTH CAROLINA 28540

STATE CONSTRUCTION ID.# 21-23168-01A

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CO.#	SITE#	BLDG.#
XX	XX	XX

REVISIONS

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DATE ISSUED: 4/8/2022
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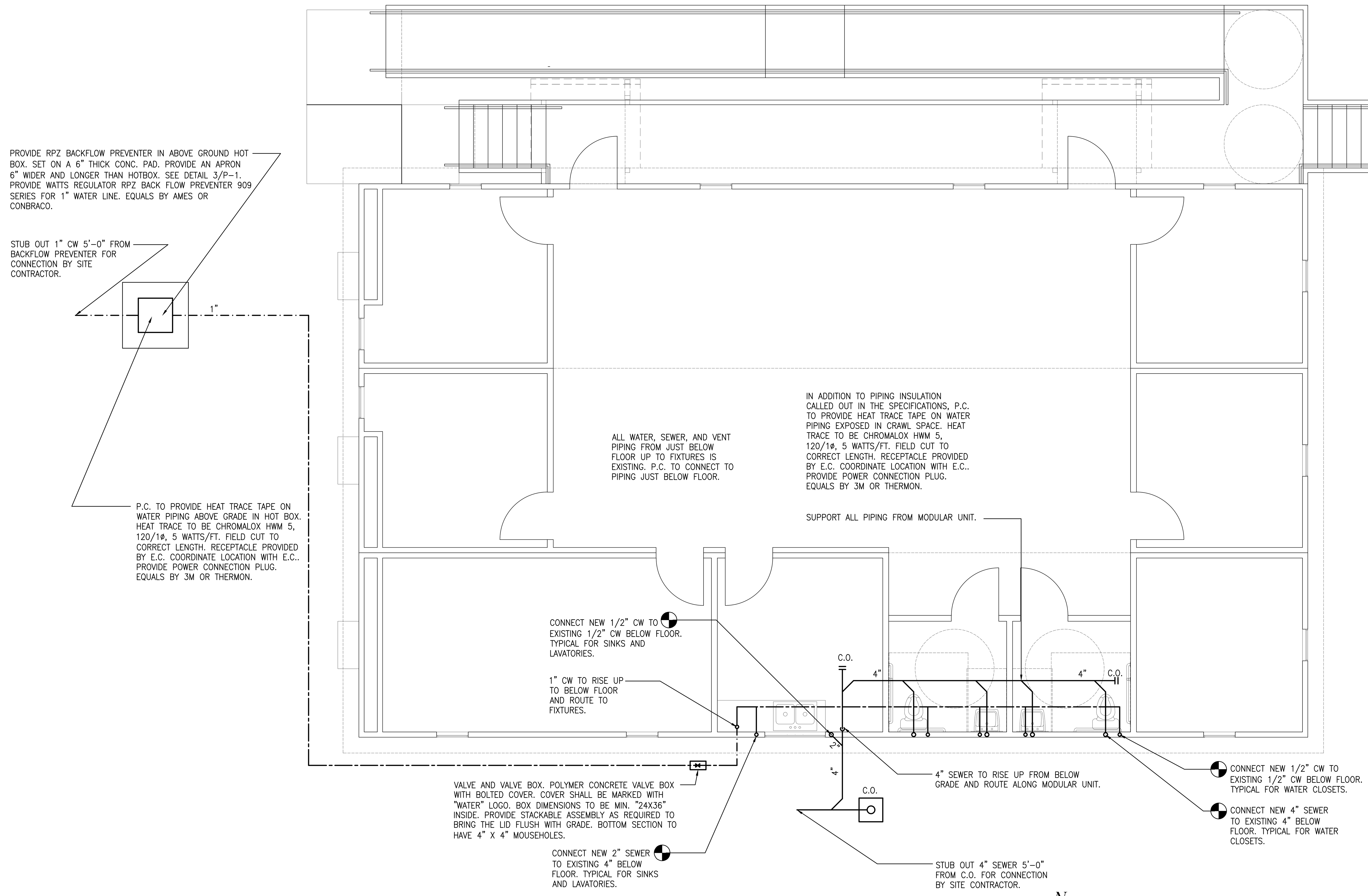


1 / P-1 PLUMBING FLOOR PLAN

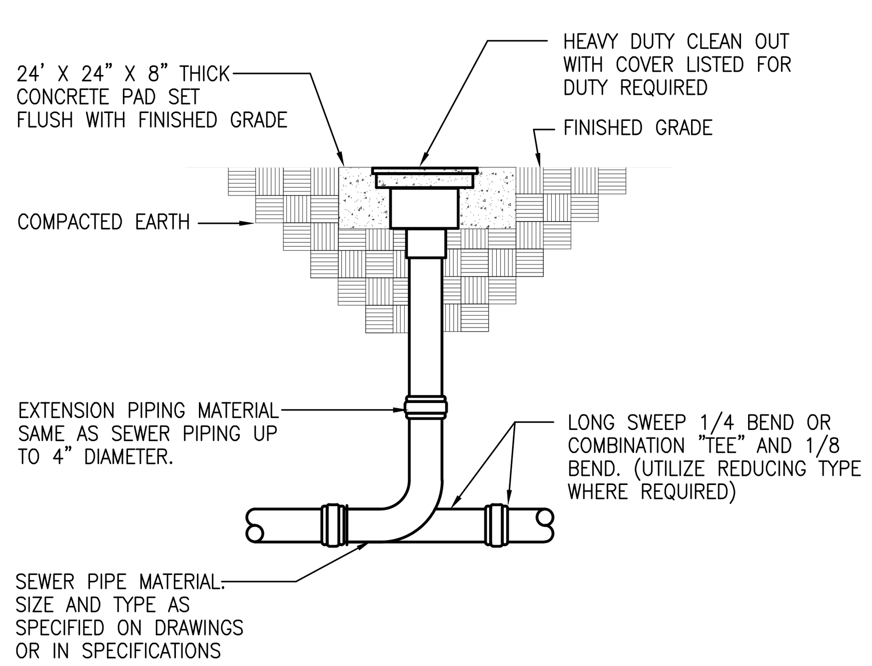
1/4" = 1'-0"

PLUMBING SYMBOL SCHEDULE

(solid line)	NEW SANITARY SEWER
(dash-dot line)	COLD WATER PIPING BELOW GRADE
(dash-dot line)	COLD WATER PIPING ABOVE GRADE
(dash-dot line)	NEW HOT WATER PIPING
(dashed line)	NEW VENT PIPING
G	GAS PIPING
(valve symbol)	BALL VALVE
C.O.	CLEANOUT
P-1	PLUMBING FIXTURE IDENTIFICATION
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
WH	WATER HEATER

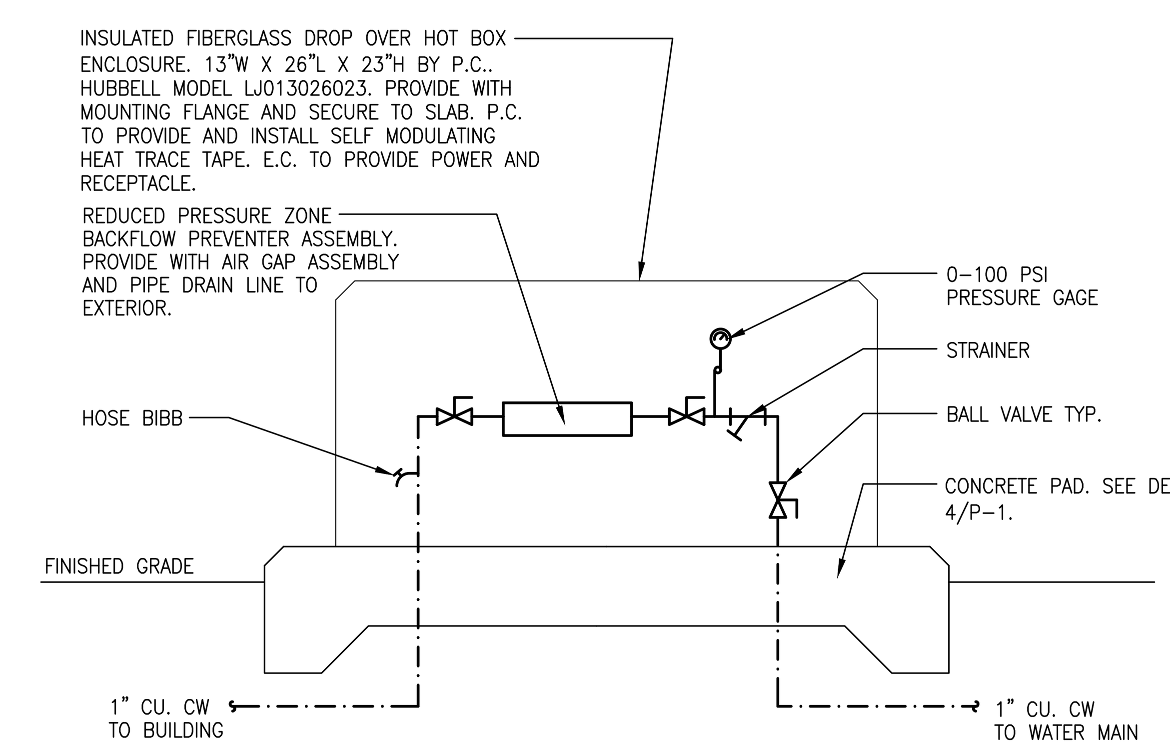
PLUMBING NOTES

1. INSULATE ALL WATER PIPING ABOVE GRADE. SEE SPECIFICATIONS.
2. ROUTE ALL NEW WATER PIPING BELOW MODULAR UNITS.
3. ROUTE ALL SANITARY SEWER BELOW MODULAR UNITS.
4. WATER PIPING SHALL BE COPPER. SEE SPECIFICATIONS.
5. SANITARY SEWER SHALL BE SCH. 40 PVC.
6. PROVIDE PIPE SLEEVES AT ALL PIPE PENTRATIONS.
7. PROVIDE ESCUTCHEONS AT ALL PIPE PENETRATIONS.
8. ALL PIPE SIZES INDICATED ON DRAWINGS. SUPPORT PIPE FROM FLOOR JOISTS. COORDINATE WITH OTHER TRADES PRIOR TO INSTALLATION.
9. TEST WATER PIPING TO 100 PSI.
10. TEST DRAIN PIPING TO 10 FT. HEAD.
11. REFER TO ARCHITECTURAL DRAWINGS PRIOR TO ROUGHING-IN PLUMBING FIXTURES. COORDINATE ROUGH-IN LOCATIONS WITH G.C. THE APPROVE MODULAR CONSTRUCTION PLANS, INCLUDING THE LOCATION OF THE APPROVED LABEL SHALL BE SUBMITTED TO THE STATE CONSTRUCTION OFFICE.
12. COORDINATE LOCATION OF ALL EQUIPMENT, FIXTURES, AND PIPING WITH OTHER TRADES.
13. DRAWINGS AND RISER DIAGRAMS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO SHOW EVERY ELL, TEE, ETC. PROPER CONNECTION SHALL BE MADE AT ALL FIXTURES AND EQUIPMENT.
14. ALL WIRING, CONDUIT, AND SWITCHES FOR PLUMBING EQUIPMENT SHALL BE BY THE ELECTRICAL CONTRACTOR.



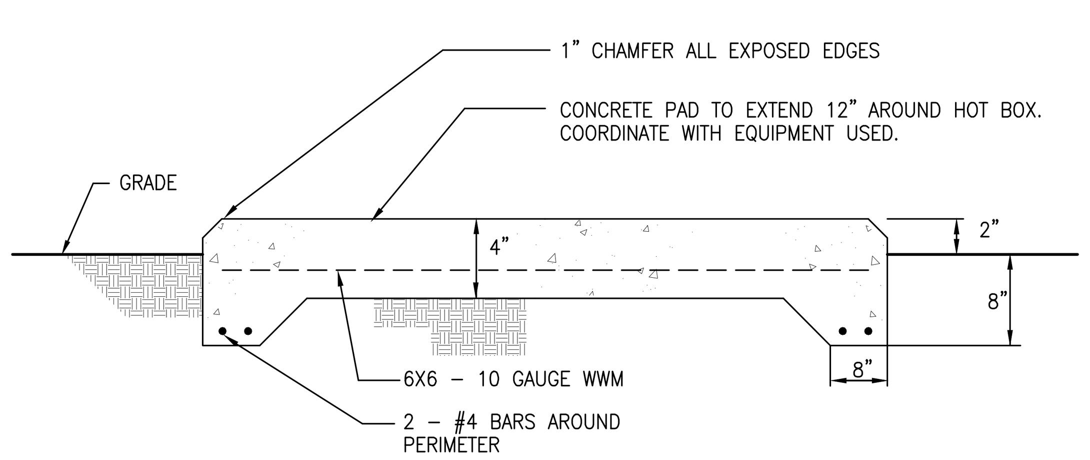
2 / P-1 EXTERIOR CLEANOUT DETAIL

NTS



3 / P-1 DOMESTIC WATER RISER DETAIL

NTS



4 / P-1 CONCRETE PAD DETAIL

NTS

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NORTH CAROLINA PROFESSIONAL SEAL 11654 ENGINEER RONALD E. PLEDGER

11/10/2022

#1566 LD6312

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWING TITLE / DESCRIPTION:
PLUMBING FLOOR PLAN & PLUMBING DETAILS

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:

CO.#	SITE.#	BLDG.#
XX	XX	XX

REVISIONS

NO.	DATE

DATE ISSUED: 11/10/22
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CHECKED BY: REP

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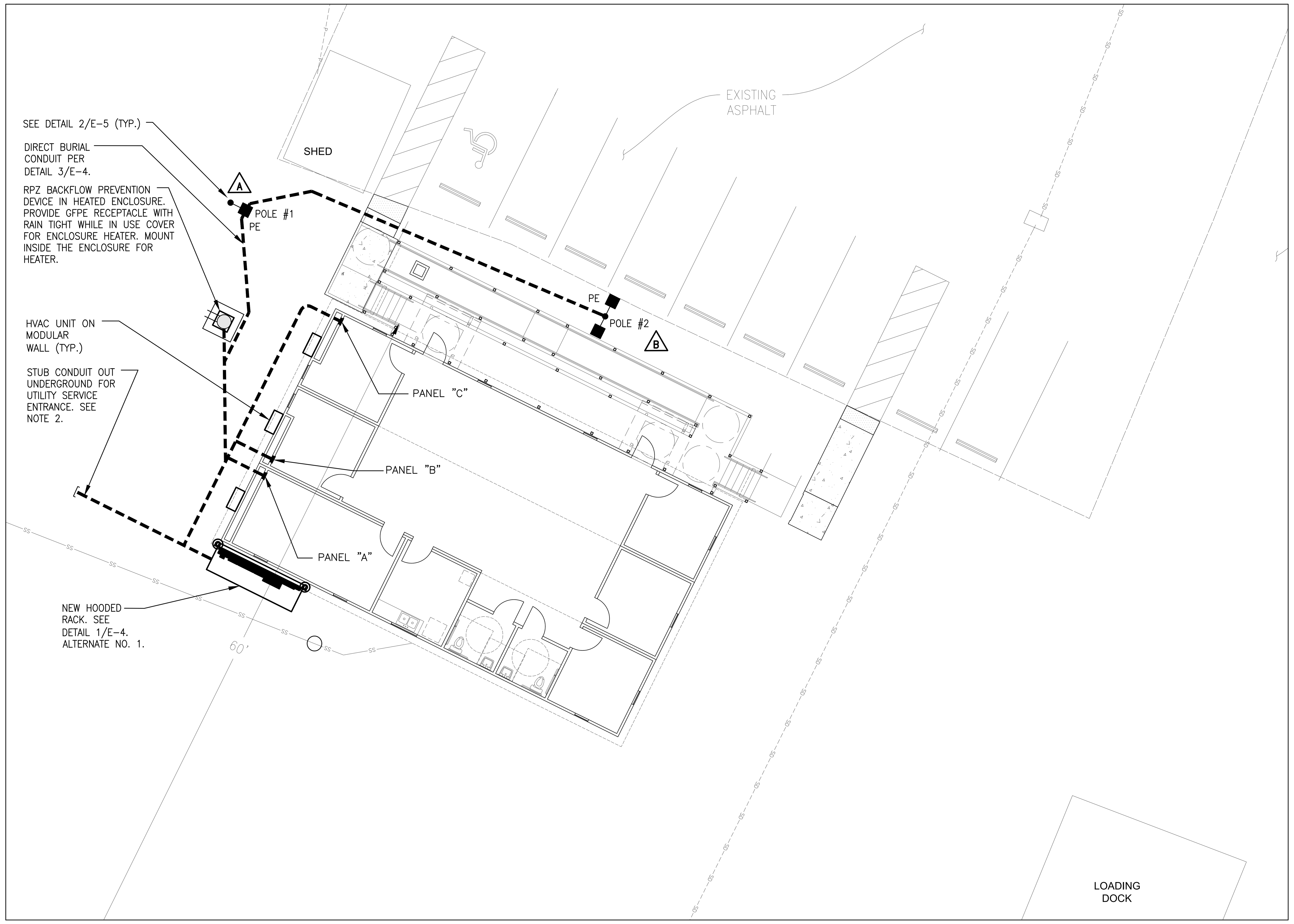
P-1



1
E-1
SITE PLAN – ELECTRICAL INSTALLATION
SCALE: 1"=10'-0"

N

ELECTRICAL LEGEND

NEW LIGHTS
EXISTING LIGHTS TO REMAIN
EXISTING LIGHTS TO BE REMOVED
DIRECT BURIAL UNDERGROUND CONDUIT
NEW WIRE & CONDUIT
WORK AREA
EXISTING WIRE AND CONDUIT
EXISTING WIRE AND CONDUIT TO BE REMOVED. REMOVE WIRE COMPLETELY. REMOVE CONDUIT ABOVE GRADE. ABANDON CONDUIT BELOW GRADE.
EXISTING EQUIPMENT TO REMAIN
EXISTING EQUIPMENT TO BE RELOCATED
NEW EQUIPMENT
EXISTING EQUIPMENT TO BE REMOVED
1 — CONDUIT AND CABLE IDENTIFICATION
AH — CIRCUIT HOME RUN W/ ONE UNGROUNDED ONE NEUTRAL & ONE GROUNDING CONDUCTOR
EXISTING MANHOLE
USB — NEW RECEPTACLE WITH USB PORTS
FLOOR MOUNTED BOX WITH DUPLEX RECEPTACLES & FLUSH COVER.
NEW RECEPTACLE
GFPE RTWIU WP — RECEPTACLE – WEATHERPROOF GROUND FAULT INTERRUPTING RAIN TIGHT WHILE IN USE COVER
$° — WALL MOUNTED OCCUPANCY SENSOR ON/OFF SWITCH
CEILING MOUNTED OCCUPANCY SENSOR
EXISTING 208 VAC RECEPTACLE TO BE REMOVED
¢ — WALL MOUNTED WIRED WALL CONTROLLER FOR CEILING FAN

EXISTING RECEPTACLE TO BE REMOVED
EXISTING RECEPTACLE TO REMAIN
NEW TELEPHONE OUTLET
1 — CONDUIT AND CABLE IDENTIFICATION
A — LIGHTING FIXTURE IDENTIFICATION
GFPE — GROUND FAULT CURRENT INTERRUPTING
EXISTING LIGHT SWITCH TO BE REMOVED
$ — SINGLE POLE LIGHTING SWITCH
$3 — THREE WAY LIGHTING SWITCH
$M — OCCUPANCY SENSOR
$M3 — THREE WAY OCCUPANCY SENSOR
S — EXISTING LIGHTING SWITCH TO REMAIN
AH — CIRCUIT HOME RUN W/ ONE UNGROUNDED ONE NEUTRAL & ONE GROUNDING CONDUCTOR
HD SAFETY SWITCH
JB — JUNCTION BOX
F — FLOW SWITCH
TS — TAMPER SWITCH
20 — CIRCUIT BREAKER AND AMPERAGE
REFER TO LIGHTING FIXTURE SCHEDULE ON SHEET E-2
QUAD RECEPTACLES – 2 DUPLEX OUTLETS 2 GANG BOX
230 VOLT RECEPTACLE
L.S.O.S — LINE SIDE OF LOCAL SWITCH
C — NEW CABLE TV OUTLET
C — EXISTING CABLE TV OUTLET TO BE REMOVED
EXISTING TELEPHONE OUTLET TO BE REMOVED
NEW FLOOR BOX RECEPTACLE.

GENERAL ELECTRICAL NOTES:

1. ALL WORK SHALL CONFORM TO THE 2020 EDITION OF THE NATIONAL ELECTRIC CODE, OSHA, NATIONAL ELECTRIC SAFETY CODE, AND ALL APPLICABLE STATE CODES.
2. ELECTRICAL WORK SHALL BEGIN AT THE UTILITY SERVICE ENTRANCE. CONTRACTOR SHALL COORDINATE & PAY ALL UTILITY CHARGES FOR NEW SERVICE ENTRANCE. COORDINATE WITH THE LOCAL UTILITY.
3. UTILIZE EMT CONDUIT IN CONCEALED SPACES ABOVE GRADE AND ABOVE CEILINGS. CONDUIT LARGER THAN 2-1/2" SHALL BE RIGID GALVANIZED STEEL. CONDUIT 2-1/2" & BELOW MAY BE EMT. USE RIGID GALVANIZED CONDUIT EXTERIOR ABOVE GRADE. USE SCH 40 PVC CONDUIT BELOW GRADE. CONCEAL ALL CONDUIT WITHIN BUILDING STRUCTURE.
4. WIRING DEVICES SHALL BE MOUNTED AS FOLLOWS UNLESS SPECIFIED OTHERWISE:
   A. RECEPTACLES, OUTLETS, ETC. – 18" TO BOTTOM OF BOX UNLESS NOTED OTHERWISE.
   B. SWITCHES – 48" TO TOP OF BOX
5. ALL WIRING DEVICES SHALL BE IVORY WITH STAINLESS STEEL COVERS. ALL WIRING DEVICES SHALL BE 20 AMPERE RATED INDUSTRIAL SPECIFICATION GRADE.
6. PROVIDE PULL WIRE IN SPARE CONDUITS. USE COUPLING AND PLUG TO CAP UNDERGROUND STUB UPS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
8. CIRCUIT BREAKER INTERRUPTING RATINGS SHALL BE AS FOLLOWS:
   230 VAC
   LESS THAN 400 – 10,000 AIC
   400 – 800 – 25,000 AIC
9. ALL WIRE TO BE COPPER. ALL INSULATION TO BE THHN/THWN.
10. VOLTAGE: SYSTEM VOLTAGE IS 120/230 VAC SINGLE PHASE 3 WIRE.
11. MAINTAIN SEPARATION AND ISOLATE NEUTRAL AND EQUIPMENT GROUNDING BEYOND SERVICE ENTRANCE.
12. ELECTRICAL CONTRACTOR SHALL COORDINATE LUG SIZES FOR PANELS AND SERVICE ENTRANCE EQUIPMENT TO MATCH WIRE SIZES SPECIFIED.
13. MOUNT EXTERIOR LIGHTING FIXTURES ABOVE FINISHED GRADE AS DESIGNATED.
14. PANELBOARDS SHALL BE SQUARE D, CUTLER HAMMER, OR GENERAL ELECTRIC SERIES A. LOADCENTERS ARE NOT ACCEPTABLE.
15. PROVIDE TAMPER RESISTANT RECEPTACLES FOR ALL NEW RECEPTACLES.

Ronald E. Pledger
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NORTH CAROLINA PROFESSIONAL SEAL 11654 ENGINEER RONALD E. PLEDGER
11/10/2022

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWING TITLE / DESCRIPTION:
ELECTRICAL SITE PLAN / GENERAL NOTES / LEGEND

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:
CO.# SITE.# BLDG.#
XX - XX - XX

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NO.	DATE

DATE ISSUED: 11/10/22
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E-1

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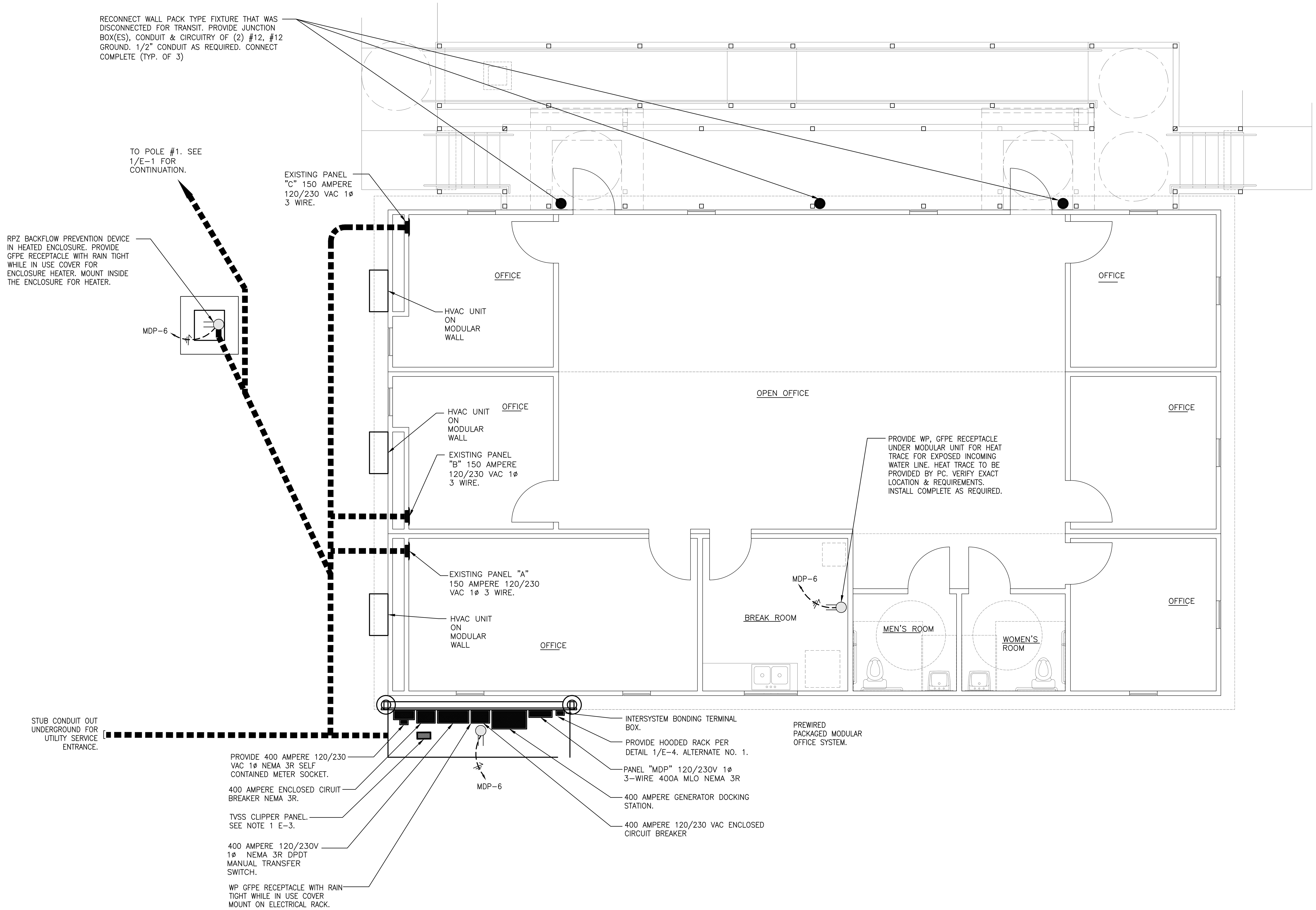

1/E-2 FLOOR PLAN – ELECTRICAL INSTALLATION

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

Ronald E. Pledger

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NORTH CAROLINA PROFESSIONAL SEAL 11654 ENGINEER RONALD E. PLEDGER

11/10/2022

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWING TITLE / DESCRIPTION:
ELECTRICAL
FLOOR PLAN

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:

CO.#	SITE.#	BLDG.#
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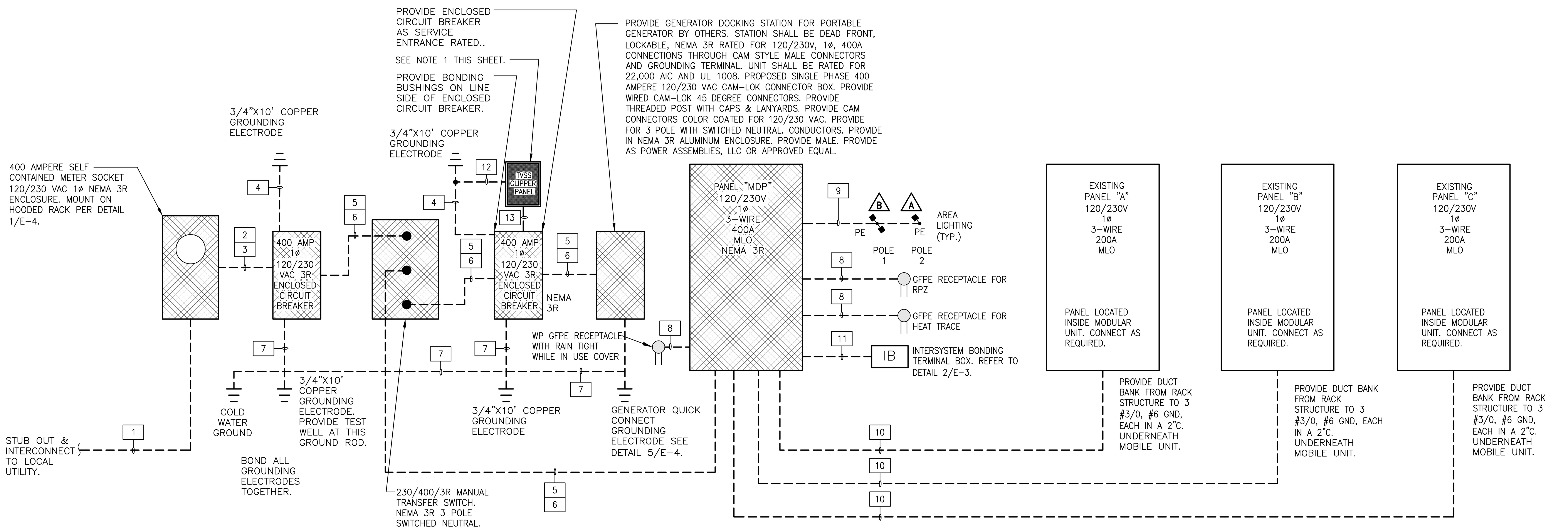
SHEET NO.
E-2



1 / E-3 ELECTRICAL ONE LINE DIAGRAM

NTS

NOTE 1

A MAIN BREAKER TVSS CLIPPER STYLE SURGE PROTECTIVE DEVICE SHALL BE INCLUDED TO MOUNT ABOVE THE MAIN ENCLOSED CIRCUIT BREAKER. FEATURES SHALL INCLUDE THE FOLLOWING:

1. HYBRID FILTER, 50 DB ATTENUATION AT 100 KHZ.
2. THERMO DYNAMIC FUSING.
3. LOW LET THROUGH VOLTAGE RATINGS.
4. 3 PHASE SURGE CAPABILITY PER PHASE SHALL BE 120 KA, L-G 60 KA, L-N 60 KA.
5. PROVIDE AS THOR SYSTEMS INC. 804-355-1100 OR APPROVED EQUAL.

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE:

ENERGY CODE: ☒ PRESCRIPTIVE ☐ PERFORMANCE

ASHRAE 90.1: ☒ PRESCRIPTIVE ☐ PERFORMANCE

LIGHTING SCHEDULE (EACH FIXTURE TYPE)

	A	B	EXISTING INTERIOR LIGHTING
LAMP TYPE REQUIRED IN FIXTURE	LED	LED	LED
NUMBER OF LAMPS IN FIXTURE	1	1	1
BALLAST TYPE USED IN FIXTURE	EL	EL	EL
NUMBER OF BALLASTS IN FIXTURE	1	1	1
TOTAL WATTAGE PER FIXTURE	55	55	55
TOTAL FIXTURES	2	2	30
TOTAL WATTS	110	110	1,650

TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED (WHOLE BUILDING OR SPACE BY SPACE): 1.3W/2,037 SQFT = 2,648 WATTS ALLOWED (TOTAL WATTS = 1,650 WATTS)

ADDITIONAL PRESCRIPTIVE COMPLIANCE

- ☐ 506.2.1 MORE EFFICIENT MECHANICAL EQUIPMENT
- ☒ 506.2.2 REDUCED LIGHTING POWER DENSITY
- ☐ 506.2.3 ENERGY RECOVERY VENTILATION SYSTEMS
- ☐ 506.2.4 HIGHER EFFICIENCY SERVICE WATER HEATING
- ☐ 506.2.5 ON-SITE SUPPLY OF RENEWABLE ENERGY
- ☐ 506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS

DESIGNER STATEMENT:

TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE ELECTRICAL SYSTEM AND EQUIPMENT REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE, VOLUME X-ENERGY.

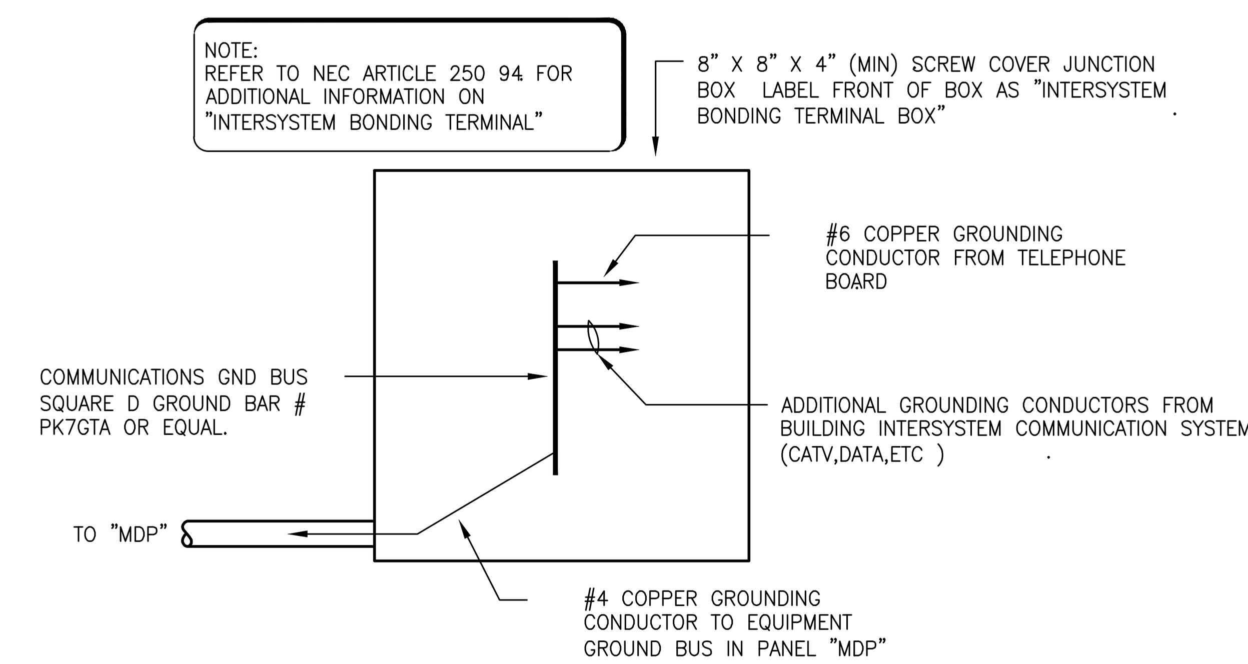
SIGNED: Ronald E. Pledger

NAME: RONALD E. PLEDGER

TITLE: ELECTRICAL ENGINEER

ELECTRICAL LOAD SUMMARY

	CONNECTED
HVAC	10.5KW
RECEPTACLES	5.5KW
LIGHTING / VENTILATION	1.2KW
SINGLE MOD. UNIT	17.2KW
AREA LIGHTING	0.22KW
(3) MODULAR UNITS	51.6KW
TOTAL	51.82KW



2 / E-3 INTERSYSTEM BONDING TERMINAL BOX DETAIL

NTS

CONDUIT AND CABLE SCHEDULE

1	4" SPARE CONDUIT FOR LOCAL UTILITY PROVIDER
2	2-3/0 AWG CU. THHN/THWN UNGROUNDED CONDUCTORS 1-3/0 AWG CU. THHN/THWN NEUTRAL CONDUCTOR 2" CONDUIT IN PARALLEL WITH CONDUIT #3
3	2-3/0 AWG CU. THHN/THWN UNGROUNDED CONDUCTORS 1-3/0 AWG CU. THHN/THWN NEUTRAL CONDUCTOR 2" CONDUIT IN PARALLEL WITH CONDUIT #2
4	1-2/0 AWG CU. THHN/THWN GROUNDING CONDUCTOR 3/4" CONDUIT
5	2 3/0 AWG CU. THHN/THWN UNGROUNDED CONDUCTOR 1 3/0 AWG CU. THHN/THWN NEUTRAL CONDUCTOR 1 #3 AWG CU. THHN/THWN GROUNDING CONDUCTOR 2" CONDUIT IN PARALLEL WITH 6
6	2 3/0 AWG CU. THHN/THWN UNGROUNDED CONDUCTOR 1 3/0 AWG CU. THHN/THWN NEUTRAL CONDUCTOR 1 #3 AWG CU. THHN/THWN GROUNDING CONDUCTOR 2" CONDUIT IN PARALLEL WITH 5
7	1-2/0 AWG CU. THHN/THWN GROUNDING CONDUCTOR 3/4" CONDUIT
8	1 #12 AWG CU. THHN/THWN UNGROUNDED CONDUCTOR 1 #12 AWG CU. THHN/THWN NEUTRAL CONDUCTOR 1 #12 AWG CU. THHN/THWN GROUNDING CONDUCTOR 3/4" CONDUIT
9	1 #10 AWG Cu THHN/THWN UNGROUNDED CONDUCTOR 1 #10 AWG Cu THHN/THWN NEUTRAL CONDUCTOR 1 #10 AWG Cu THHN/THWN GROUNDING CONDUCTOR 3/4" CONDUIT
10	2 3/0 AWG Cu THHN/THWN UNGROUNDED CONDUCTOR 1 3/0 AWG Cu THHN/THWN NEUTRAL CONDUCTOR 1 #6 AWG Cu THHN/THWN GROUNDING CONDUCTOR 2" CONDUIT
11	1-#4 AWG CU. THHN/THWN GROUNDING CONDUCTOR 3/4" CONDUIT
12	1 - #6 AWG CU THHN/THWN GROUNDING ELECTRODE CONDUCTOR 3/4" CONDUIT
13	1 - #6 AWG CU THHN/THWN GROUNDING CONDUCTOR 3/4" CONDUIT

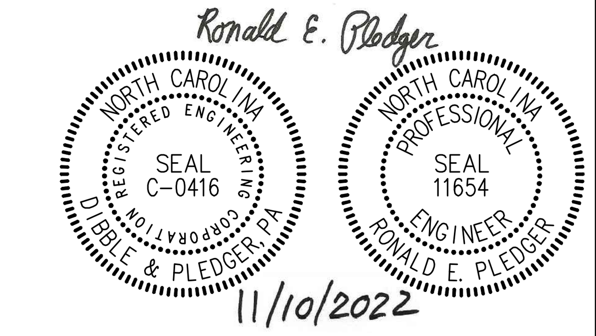
LIGHTING FIXTURE SCHEDULE

(ALL NEW FIXTURES SHALL BE UL LABELED)
(ALL FIXTURES SHALL BE SUPPLIED WITH LAMPS)
PROVIDE THIRD PARTY LISTING FOR LAMP & POLES.

A — LED SHOEBOX SHARP CUTOFF LUMINAIRE. PROVIDE AS LED CL1 AREA LIGHTS 4" SQUARE STRAIGHT ARM TO ATTACH TO SLIPFITTER TENON TOP. TYPE III WIDE LIGHT DISTRIBUTION. 48 HIGH BRIGHTNESS LED'S, 12,171 LUMENS. 55 WATTS. 120 VAC 4000K DARK BRONZE FINISH. PROVIDE 30FT. ROUND TAPER BRONZE ALUMINUM POLE. PROVIDE INTEGRAL PE. USE SPAULDING (USA 48L-3-3K-5W-DB OR EQUAL BY HUBBELL OR KIM.

B — SAME AS "A" ABOVE EXCEPT DOUBLE HEADS.

Ronald E. Pledger



11/10/2022

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DRAWING TITLE / DISCRIPTION:
ONE LINE DIAGRAM - ELECTRICAL
ELECTRICAL DETAILS & SCHEDULES

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

STATE CONSTRUCTION ID.# 21-23168-01A

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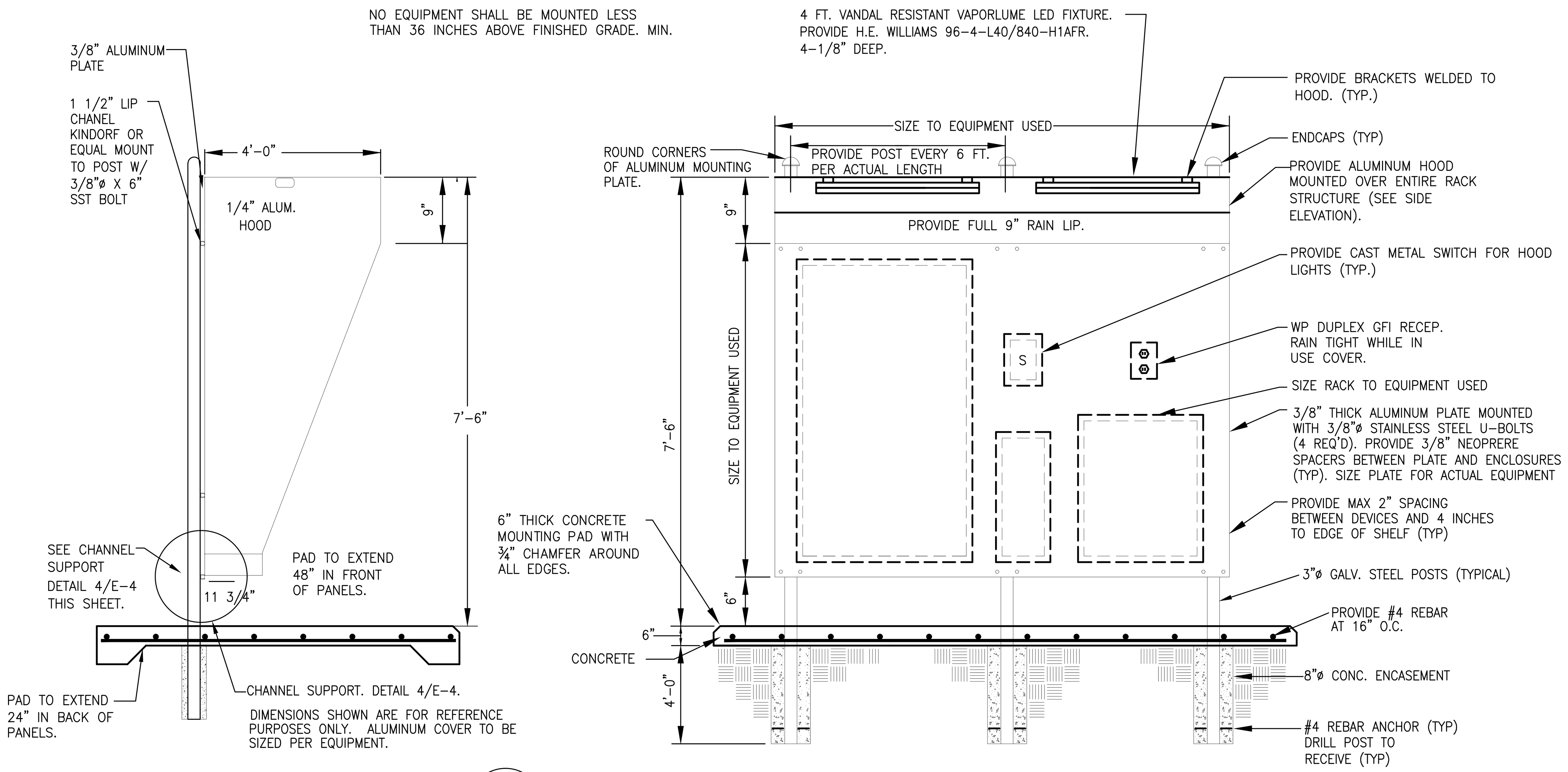
SHEET NO.

E-3



1 REMOTE STATION EQUIPMENT PLATFORM
E-4

ALTERNATE NO. 1 – REFER TO 5/A-1 FOR BASE BID REMOTE STATION EQUIPMENT PLATFORM

NTS

LOAD KVA OR KW A	LOAD KVA OR KW B	DESIGNATION TYPED ON DIRECTORY	COND (")	GRND	WIRE SIZE	BRKR RAT'G	CKT NO.	S/N	CKT. NO.	BRKR RAT'G	WIRE SIZE	GRND	COND (")	DESIGNATION TYPED ON DIRECTORY	LOAD KVA OR KW A	LOAD KVA OR KW B
8.82		PANEL A	2"	#6	3/0	200	1		2	200	3/0	#6	2"	PANEL B	8.82	
	8.82						3		4							8.82
8.82		PANEL C	2"	#6	3/0	200	5		6	20	#10	#10	3/4"	RACK RECEPTACLE/HEAT TRACE	0.1	
	8.82						7		8	20	#10	#10	3/4"	AREA LIGHTS		0.22
0.1		HOOD LIGHTS	3/4"	#10	#10	20	9		10					SPACES	–	
	–						11		12							–
–		SPACES					13		14						–	
	–						15		16							–
–							17		18						–	
	–						19		20							–
–							21		22						–	
	–						23		24							–
–							25		26						–	
	–						27		28							–
–							29		30						–	

400 AMPERE MAIN LUG ONLY
120/230 VAC 1 PHASE 3 WIRE 60HZ
FACTORY ASSEMBLED, BOLT-ON BREAKERS, 100% TIN PLATED COPPER BUSSING, SEPARATE NEUTRAL & GROUNDING BUSES, SURFACE MOUNTED NEMA 3R ENCLOSURE

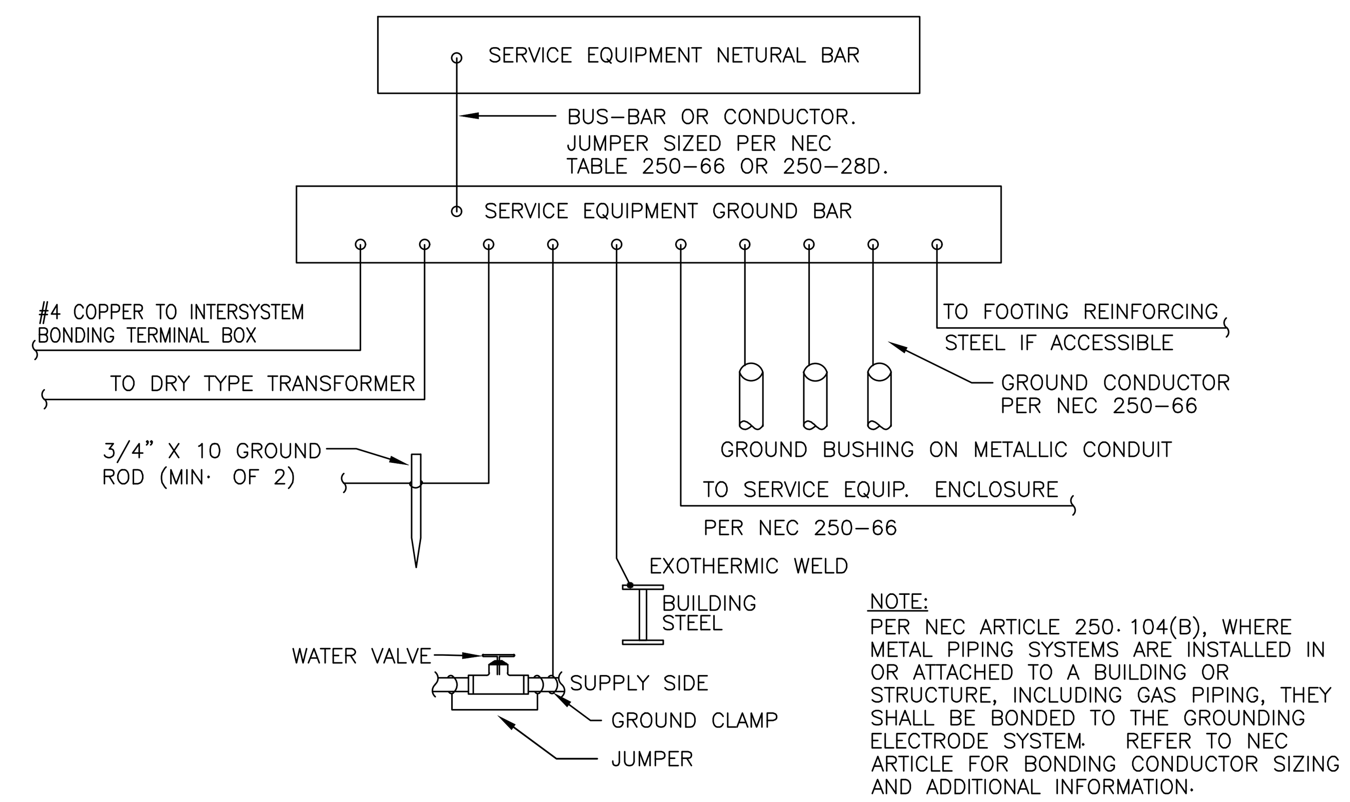
PANEL "MDP"

10,000 AIC INTERRUPTING CAPACITY

A B

*CONNECTED LOAD (KVA)		GROSS		USE		NET
RECEPTACLES	=	16.5 @		70 %	=	11.55
HVAC	=	31.5 @		100 %	=	31.5
LIGHTING/ VENTILATION	=	3.6 @		100 %	=	3.6
AREA LIGHTING	=	.22 @		100 %	=	.22
TOTALS	=	51.82 @		90 %	=	46.87

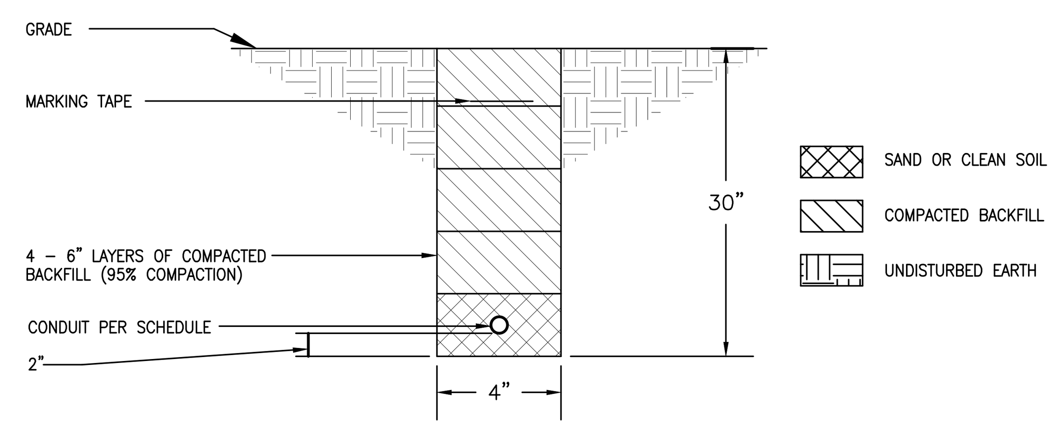
GROSS PHASE TOTALS (KVA) A= 26.66 B= 26.68



NOTE: PER NEC ARTICLE 250.104(B), WHERE METAL PIPING SYSTEMS ARE INSTALLED IN OR ATTACHED TO A BUILDING OR STRUCTURE, INCLUDING GAS PIPING, THEY SHALL BE BONDED TO THE GROUNDING ELECTRODE SYSTEM. REFER TO NEC ARTICLE FOR BONDING CONDUCTOR SIZING AND ADDITIONAL INFORMATION.

2 SERVICE EQUIPMENT GROUNDING DETAIL
E-4

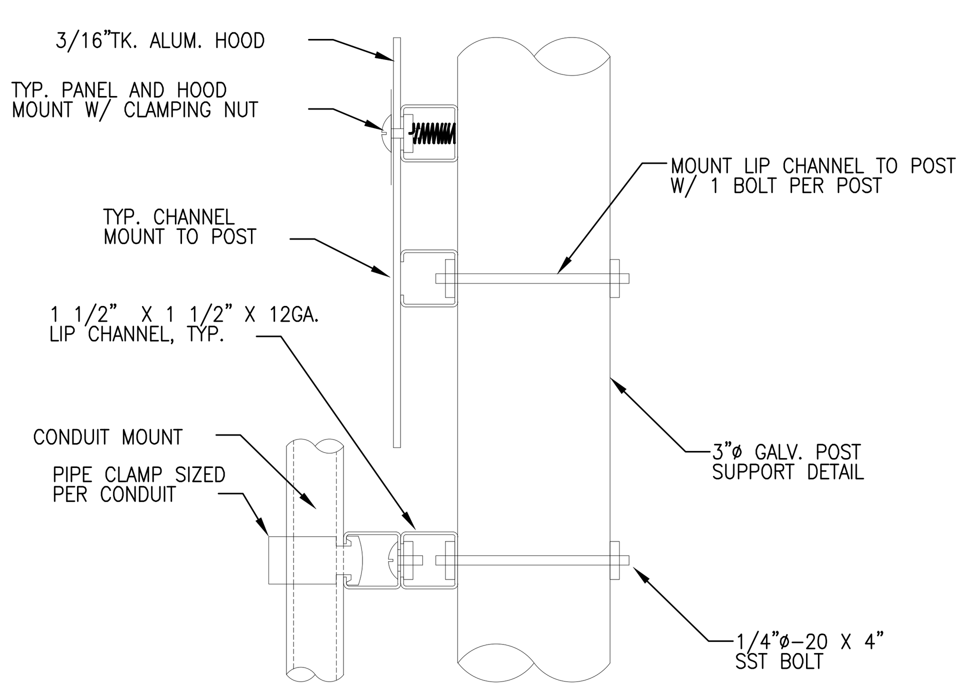
NTS



3 TRENCH DETAIL
E-4

TYPICAL UNDER ASPHAULT OR EARTH

N.T.S.

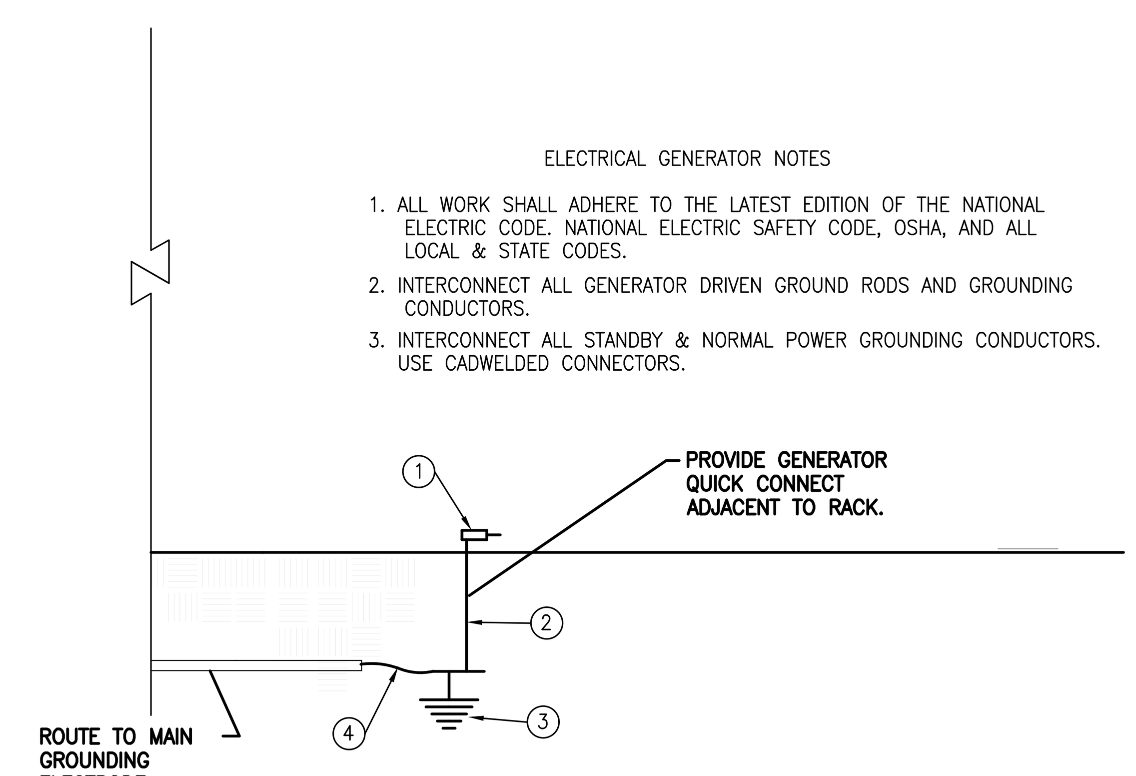


4 CHANNEL SUPPORT DETAIL
E-4

NTS

ELECTRICAL GENERATOR NOTES

1. ALL WORK SHALL ADHERE TO THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE. NATIONAL ELECTRIC SAFETY CODE, OSHA, AND ALL LOCAL & STATE CODES.
2. INTERCONNECT ALL GENERATOR DRIVEN GROUND RODS AND GROUNDING CONDUCTORS.
3. INTERCONNECT ALL STANDBY & NORMAL POWER GROUNDING CONDUCTORS. USE CADWELDED CONNECTORS.



5 GENERATOR CONNECTION DETAIL
E-4

NTS

EQUIPMENT LIST
MOBILE ENGINE/GENERATOR INTERCONNECTION

1. PROVIDE ABOVE GROUND QUICK CONNECT CLAMP TO ENABLE EASY GENERATOR GROUNDING CONNECTION. CONNECT PERMANENTLY TO GROUNDING CONDUCTOR.
2. COPPER WELD ROD FOR CONNECTION DIRECTLY TO GROUND ELECTRODE WIRE AND EXTEND ABOVE GRADE. QUICK CONNECT CLAMP TO BE ABOVE GROUND.
3. PROPOSED 3/4" X 10' COPPER WELD GROUND ROD FOR GROUNDING SERVICE AND PORTABLE GENERATOR. INSTALL 18" AWAY FROM SERVICE AND APPROXIMATELY 12" BELOW GRADE.
4. PROPOSED #4 BARE COPPER GROUNDING WIRE IN 1" RIGID GALVANIZED PVC JACKET CONDUIT. USE BONDING BUSING TO INTERCONNECT CONDUIT AND TRANSFER SWITCH TO GROUNDING SYSTEM.

Ronald E. Pledger

NORTH CAROLINA REGISTERED ENGINEERING CORPORATION SEAL C-0416 DIBBLE & PLEDGER, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 11654 ENGINEER RONALD E. PLEDGER

11/10/2022

#1566 LD6273

ELECTRICAL DESIGN BY:
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BID DOCUMENTS

SEAL

DESIGNED BY:
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWING TITLE / DESCRIPTION:
ELECTRICAL DETAILS & ELECTRICAL SCHEDULES

PROJECT TITLE:
Modular Building Replacement for the Traffic Signals Office
NCDOT HIGHWAY DIVISION 3
299 Wilmington Highway
Jacksonville, North Carolina 28540

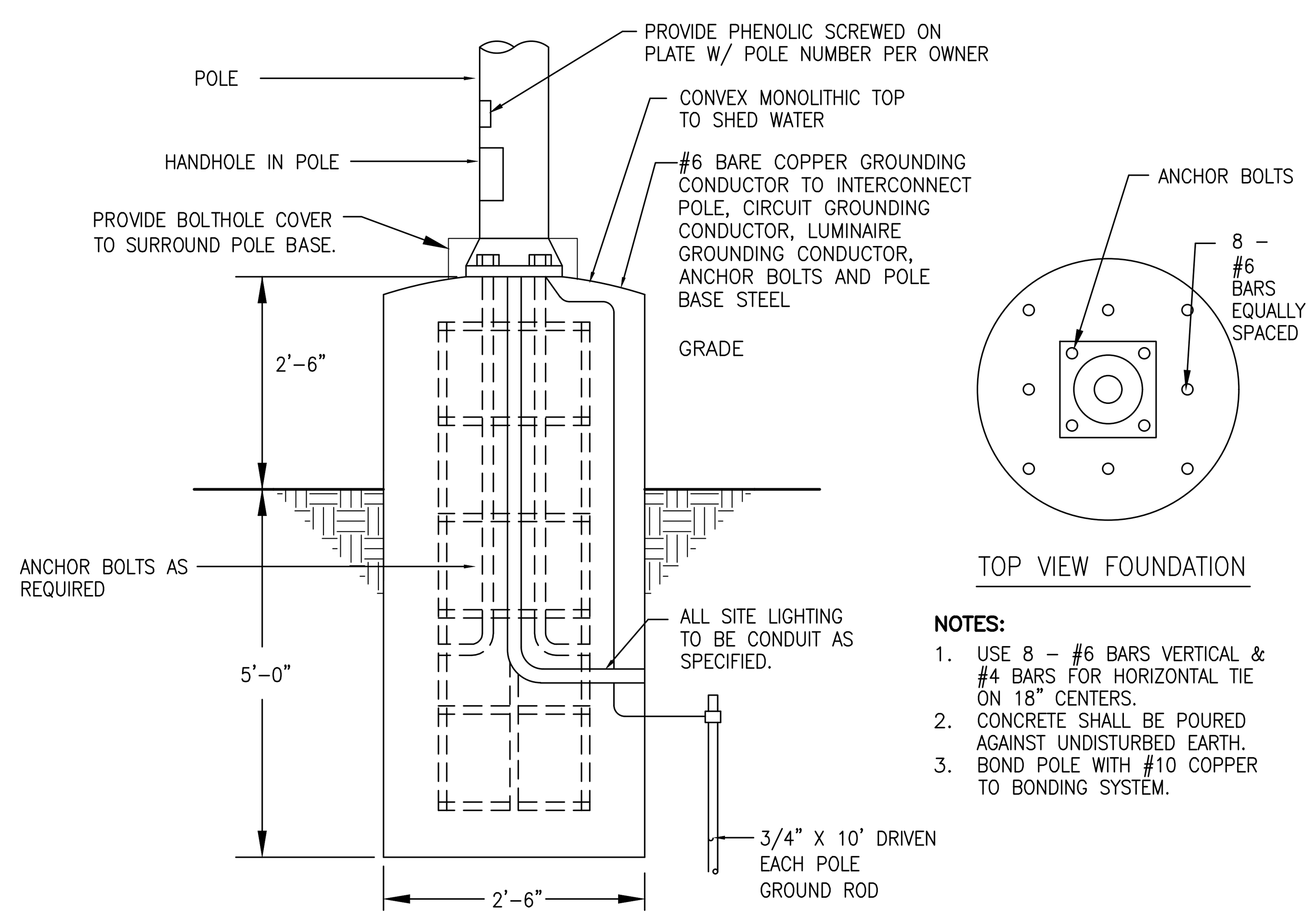
STATE CONSTRUCTION ID.# 21-23168-01A

ASSET NUMBER:
CO.# SITE.# BLDG.#
XX - XX - XX

REVISIONS NO.	DATE

DATE ISSUED: 11/10/22
DRAWN BY: WAW
CHECKED BY: REP

SHEET NO.
E-4



TOP VIEW FOUNDATION

NOTES:
1. USE 8 – #6 BARS VERTICAL & #4 BARS FOR HORIZONTAL TIE ON 18" CENTERS.
2. CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH.
3. BOND POLE WITH #10 COPPER TO BONDING SYSTEM.

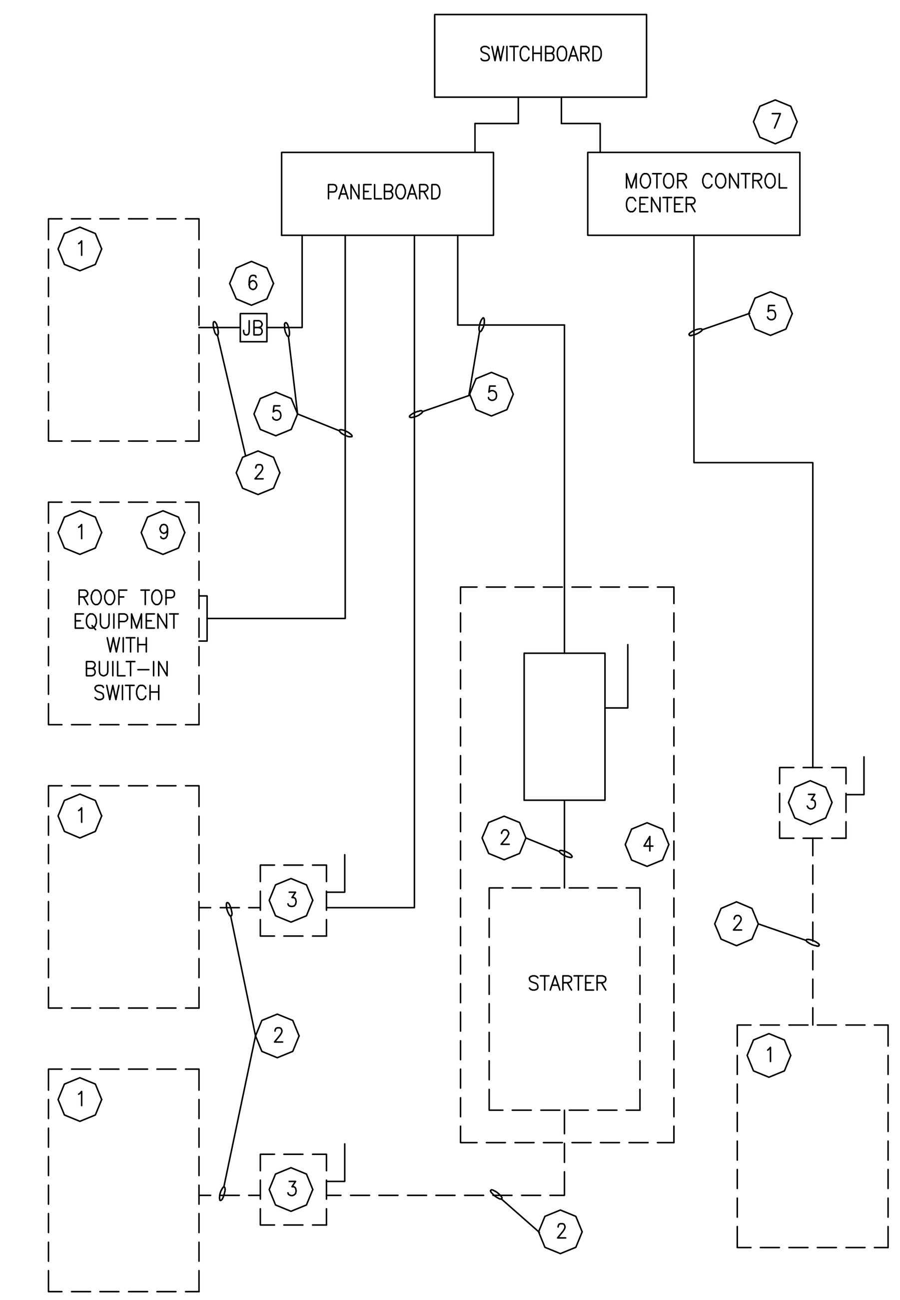
2 / E-5 AREA LIGHTING FIXTURE POLE ANCHOR DETAIL

ABOVE TYPICAL FOR NEW POLE MOUNTED LUMINAIRES.

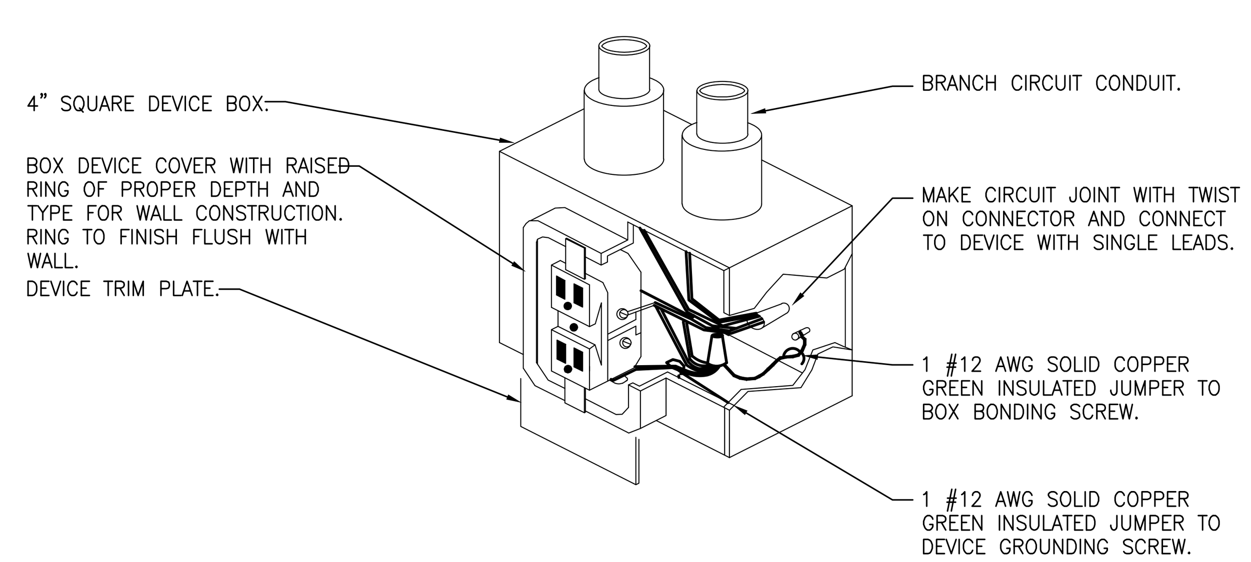
NTS

ELECTRICAL NOTES

1. EQUIPMENT OF TRADES OTHER THAN ELECTRICAL.
2. CONDUIT & WIRING BY HVAC, PLUMBING CONTRACTOR, OR PTHER TRADES.
3. IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY THE EQUIPMENT CONTRACTOR.
4. A COMBINATION STARTER OR VFD MAY BE USED IN LIUE OF A SEPARATE DISCONNECT SWITCH AND STARTER. LOCATE ADJACENT TO EQUIPMENT.
5. FEEDER CIRCUIT WIRING AND CONDUIT IN ELECTRICAL WORK SEE PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES.
6. JUNCTION BOX MAY BE SHOWN ON ELECTRICAL PLANS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS SUPPLIED, A JUNCTION BOX SHALL BE INSTALLEDADJACENT TO THE EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX. LOAD SIDE WIRING WILL BE PROVIDED BY MECHANICAL CONTRACTOR OR OTHER TRADES.
7. PROJECT UTILIZING AN MCC, THE STARTER, CB, OR VFD IN THE MCC ARE PROVIDED BY THE ELECTRICAL CONTRACTOR.
8. IN ALL CASES THE EQUIPMENT CONTRACTOR SHALL MAKE FINAL CONNECTIONS, START UP, AND TEST EQUIPMENT.
9. IF THE ROOF TOP EQUIPMENT IS NOT PROVIDED WITH BUILT IN SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.



ELECTRICAL EQUIPMENT CONNECTION



2 / E-5 RECEPTACLE GROUNDING DETAIL

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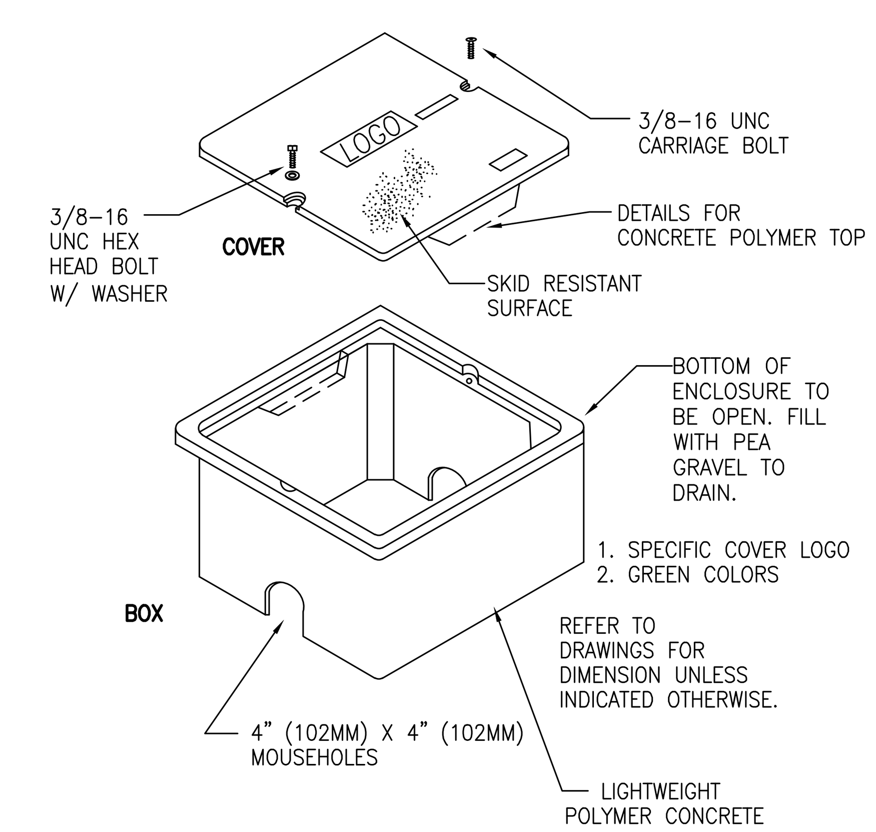

4 / E-5 CONCRETE POLYMER HANDHOLE

NTS

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