US Army Corps
of Engineers®
Wilmington District

PN87447 SOF SUPPLY SUPPORT ACTIVITY

FORT LIBERTY, NORTH CAROLINA

RTA SET

CONTRACT NO.: W912PM23XXXX
SOLICITATION NO: W912PM23R0002
AWARD DATE: TBD

US Army Corps
of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: S. SURRATT
DRAWN BY: S. SURRATT
CHECKED BY: R. BECKWITH
SUBMITTED BY: T. MURPHY
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ISSUE DATE: 7-AUGUST-2023
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U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403

PN87447 SOF SUPPLY SUPPORT ACTIVITY
FORT LIBERTY, NORTH CAROLINA

COVER SHEET

SHEET ID
G-000

RTA SET

US Army Corps
of Engineers ®
WILMINGTON DISTRICT

Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231

CAPE FEAR ENGINEERING

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY

PROJECT 87447



SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
ISSUE DATE: AUGUST 2023

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031221 8/1/23 BRUCE A. ENGLISH

NORTH CAROLINA REGISTERED ARCHITECT 14646 STEVEN A. SCHMAN 8/4/2023

STATE OF MARYLAND STEVEN A. FISHER 23591 PROFESSIONAL ENGINEER 8/4/23

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032832 J.H. KIM 08-04-23

STATE OF MARYLAND CRAIG ALAN HOSELTON No. 22099 PROFESSIONAL ENGINEER

BICSI DAVID A. ALKINS BICSI DIS 118764 Expires 10-31-23 RCDD

STATE OF MARYLAND CHRISTOPHER M. CARLSON 36031 PROFESSIONAL ENGINEER 08/04/23

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
DRAWN BY: SJ
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SIZE: ANSI D
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SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
COVER SHEET

SHEET ID
G-001

READY TO ADVERTISE

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US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY

PROJECT 87447

DRAWING LIST

NORTH CAROLINA REGISTERED 14646 ARCHITECT KOMM SEAL 4/7/2023

SHEET ID

G-002

READY TO ADVERTISE

WAREHOUSE/ADMIN OCCUPANT LOAD SCHEDULE

ROOM NAME	ROOM NUMBER	AREA	LOAD FACTOR (SF/PERSON)	OCCUPANCY USE	OCCUPANT LOAD
VEST	101	46 SF	150	BUSINESS	1
CORR	102	192 SF	150	BUSINESS	2
OFFICE	103	121 SF	150	BUSINESS	1
OFFICE	104	125 SF	150	BUSINESS	1
OFFICE	105	130 SF	150	BUSINESS	1
OFFICE	106	159 SF	150	BUSINESS	2
CUSTOMER SERVICE / WAITING	107	165 SF	15	ASSEMBLY	11
STOCK CONTROL OFFICE	108	369 SF	150	BUSINESS	3
PBO OFFICE	109	128 SF	150	BUSINESS	1
PBO OFFICE	110	122 SF	150	BUSINESS	1
CORR	111	166 SF	150	BUSINESS	2
COPY	112	81 SF	150	BUSINESS	1
CONF ROOM	113	355 SF	15	ASSEMBLY	24
OPEN OFFICE	114	509 SF	150	BUSINESS	4
JAN	115	41 SF	500	BUSINESS	1
CORR	116	453 SF	150	BUSINESS	3
VEST	117	47 SF	150	BUSINESS	1
BREAK ROOM	118	221 SF	15	ASSEMBLY	15
MOTHERS	119	59 SF	150	BUSINESS	1
SIPR	120	88 SF	300	STORAGE	1
VENDOR / ESS	121	82 SF	300	BUSINESS	1
STORAGE FILE	122	127 SF	150	STORAGE	1
SHOWER	123	51 SF	150	BUSINESS	1
WOMEN'S	124	164 SF	150	BUSINESS	2
MEN'S	125	164 SF	150	BUSINESS	2
SHOWER	126	56 SF	150	BUSINESS	1
MECH/PLUMB	127	300 SF	500	STORAGE	1
ELECTRICAL	128	168 SF	500	STORAGE	2
WAREHOUSE	129	9472 SF	500	STORAGE	34
VAULT	130	272 SF	150	STORAGE	2
TELECOM	131	145 SF	500	STORAGE	1
LOCKABLE STORAGE	132	418 SF	500	STORAGE	2
STORAGE CAGE	133	739 SF	500	STORAGE	2
PBO STORAGE CAGE	133B	496 SF	500	STORAGE	1
GIP WAREHOUSE	134	3459 SF	500	STORAGE	12
CUSTOMER SERVICE AREA	135	292 SF	15	BUSINESS	20
RESTROOM	136	65 SF	150	BUSINESS	1
CLS OFFICE	137	410 SF	150	BUSINESS	3
STORAGE CAGE	138	391 SF	500	STORAGE	2
				WAREHOUSE/ADMIN BUILDING TOTAL	168

COVERED STORAGE OCCUPANT LOAD SCHEDULE

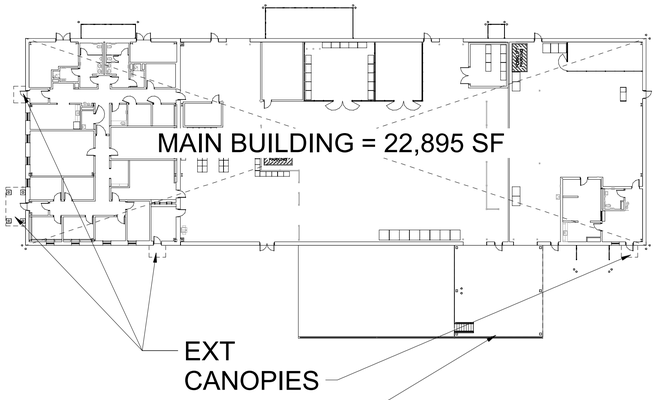
COVERED STORAGE FACILITY 1	N/A	4,200 SF	500	STORAGE	9
COVERED STORAGE FACILITY 2	N/A	2,100 SF	500	STORAGE	5

MAIN BUILDING
22,895 SF
EXT CANOPIES / 2
120 SF
COVERED EXTERIOR LOADING DOCK / 2
719 SF

TOTAL
23,734 SF

TOTAL ALLOWABLE MAIN BUILDING SF
23,840 SF

EXT CANOPIES TOTAL = 239 SF



A1 BUILDING SF TOTAL CALCULATIONS
1/32" = 1'-0"

SPRINKLER APPLICATION DENSITY

AREA	NUMBER	WATER DENSITY (GPM/SQFT)
VEST	101	0.1
CORR	102	0.1
OFFICE	103	0.1
OFFICE	104	0.1
OFFICE	105	0.1
OFFICE	106	0.1
CUSTOMER SERVICE / WAITING	107	0.1
STOCK CONTROL OFFICE	108	0.1
PBO OFFICE	109	0.1
PBO OFFICE	110	0.1
CORR	111	0.1
COPY	112	0.1
CONF ROOM	113	0.1
OPEN OFFICE	114	0.1
JAN	115	0.2
CORR	116	0.1
VEST	117	0.1
BREAK ROOM	118	0.1
MOTHERS	119	0.1
SIPR	120	0.2
VENDOR / ESS	121	0.2
STORAGE FILE	122	0.2
SHOWER	123	0.1
WOMEN'S	124	0.1
MEN'S	125	0.1
SHOWER	126	0.1
MECH/PLUMB	127	0.2
ELECTRICAL	128	0.2
WAREHOUSE	129	0 *
VAULT	130	0.2
TELECOM	131	0.2
LOCKABLE STORAGE	132	0.2
STORAGE CAGE	133	0 *
PBO STORAGE CAGE	133B	0 *
GIP WAREHOUSE	134	0 *
CUSTOMER SERVICE AREA	135	0.1
RESTROOM	136	0.1
CLS OFFICE	137	0.1
STORAGE CAGE	138	0 *

*STORAGE HAZARD AREAS PROTECTED WITH SPECIAL APPLICATION SPRINKLERS (ESFR). REFER TO FIRE PROTECTION DRAWINGS FOR DESIGN CRITERIA

MEANS OF EGRESS - COVERED STORAGE 1

BUILDING CODE: NFPA 101 & UFC 3-600-01

OCCUPANT LOAD PER TABLE 7.3.1.2 - FIRST FLOOR	9	
	REQUIRED	PROVIDED
FLOOR EGRESS WIDTH IN INCHES	44"	N/A
DOOR WIDTH IN INCHES	32"	44"
MINIMUM NUMBER OF EXITS - FENCED AREA	2	2
MAXIMUM EXIT TRAVEL DISTANCE	200'(S)	47' - 9"
MAXIMUM COMMON PATH OF TRAVEL	100'(S)	0' - 0"
MAXIMUM DEAD END	100'(S)	0' - 0"

MEANS OF EGRESS - COVERED STORAGE 2

BUILDING CODE: NFPA 101 & UFC 3-600-01

OCCUPANT LOAD PER TABLE 7.3.1.2 - FIRST FLOOR	5	
	REQUIRED	PROVIDED
FLOOR EGRESS WIDTH IN INCHES	44"	N/A
DOOR WIDTH IN INCHES	32"	N/A
MINIMUM NUMBER OF EXITS - FENCED AREA	2	N/A
MAXIMUM EXIT TRAVEL DISTANCE	200'(S)	20' - 0"
MAXIMUM COMMON PATH OF TRAVEL	50'(S)	0' - 0"
MAXIMUM DEAD END	50'(S)	0' - 0"

BUILDING CODE SUMMARY - WAREHOUSE/ADMIN

BUILDING CODE	INTERNATIONAL BUILDING CODE (IBC 2018)	
TYPE OF CONSTRUCTION	TYPE IIB NON COMBUSTIBLE/UNPROTECTED FULLY SPRINKLERED	
OCCUPANCY	MIXED USE NON-SEPARATED: STORAGE (S-1) / BUSINESS (B)	
	ALLOWABLE	PROVIDED
STORIES	4	1
HEIGHT	75'-0"	39'-9"
FIRST FLOOR AREA	70,000 SF	24,163 SF

BUILDING CODE SUMMARY - COVERED STORAGE

BUILDING CODE	INTERNATIONAL BUILDING CODE (IBC 2018)	
TYPE OF CONSTRUCTION	TYPE IIB NON COMBUSTIBLE/UNPROTECTED NOT SPRINKLERED	
OCCUPANCY	STORAGE (S-1)	
	ALLOWABLE	PROVIDED
STORIES	2	1
HEIGHT	55'-0"	22'-4"
FIRST FLOOR AREA	17,500 SF	4,200 SF & 2,100 SF

FIRE RESISTIVE REQUIREMENTS WAREHOUSE/ADMIN AND COVERED STORAGE

BUILDING CODE: IBC 2018 & UFC 3-600-01

	REQUIRED (HR)	PROVIDED (HR)
STRUCTURAL FRAME	0	0
BEARING WALL (EXTERIOR)	0	0
BEARING WALL (INTERIOR)	0	0
NON-BEARING PARTITION	0	0
ROOF CONSTRUCTION	0	0
FIRE RATED ROOF CONSTRUCTION SUPPORT	0	0

MEANS OF EGRESS - WAREHOUSE/ADMIN

BUILDING CODE: NFPA 101 & UFC 3-600-01

OCCUPANT LOAD PER TABLE 7.3.1.2 - FIRST FLOOR	168	
	REQUIRED	PROVIDED
FLOOR EGRESS WIDTH IN INCHES	44"	44"
DOOR WIDTH IN INCHES	32"	36"
MINIMUM NUMBER OF EXITS - ADMIN AREA	2	2
MINIMUM NUMBER OF EXITS - SSA WAREHOUSE AREA	2	4
MINIMUM NUMBER OF EXITS - CUSTOMER ISSUE WAREHOUSE	2	3
MAXIMUM EXIT TRAVEL DISTANCE	400'(S)/300'(B)	144' - 6"
MAXIMUM COMMON PATH OF TRAVEL	100'(S)/100'(B)	40' - 0"
MAXIMUM DEAD END	100'(S)50'(B)	6' - 10"

APPLICABLE CODES AND GUDELINES

- NFPA 101, LIFE SAFETY CODE
- IBC, INTERNATIONAL BUILDOING CODE
- UFC 1-200-02, HIGH PERFORMANCE AND SUSTAINABLE BUILDING REQUIREMENTS
- UFC 3-101-01, ARCHITECTURE
- UFC 3-110-03, ROOFING
- UFC 3-120-10, INTERIOR DESIGN
- UFC 3-201-01, CIVIL ENGINEERING AND LANDSCAPE ARCHITECTURE
- UFC 3-210-10, LOW IMPACT DEVELOPMENT
- UFC 3-220-01, GEOTECHNICAL ENGINEERING
- UFC 3-301-01, STRUCTURAL ENGINEERING
- UFC 3-401-01, MECHANICAL ENGINEERING
- UFC 3-410-01, HEATING, VENTILATING AND AIR CONDITIONING
- UFC 3-420-01, PLUMBING SYSTEMS
- UFC 3-501-01, ELECTRICAL ENGINEERING
- UFC 3-520-01, INTERIOR ELECTRICAL SYSTEMS
- UFC 3-530-01, INTERIOR AND EXTERIOR LIGHTING SYSTEMS AND CONTROLS
- UFC 3-580-01, TELECOMMUNICATIONS BUILDING CABLING SYSTEMS PLANNING AND DESIGNS
- UFC 3-600-01, FIRE PROTECTION ENGINEERING FOR FACILITIES
- UFC 4-010-01, DOD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS
- UFC 4-010-06, CYBERSECURITY OF FACILITY-RELATED CONTROL SYSTEMS
- UFC 4-021-01, DESIGN O&M: MASS NOTIFICATION SYSTEMS

GENERAL SHEET NOTES

1. THIS DRAWING IS FOR REFERENCE USE ONLY AND IS NOT PART OF THE CONSTRUCTION CONTRACT. ALL INFORMATION CONTAINED ON THIS DRAWING IS EXPLICITLY CALLED OUT FOR ELSEWHERE IN THE CONSTRUCTION CONTRACT.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: NA
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69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

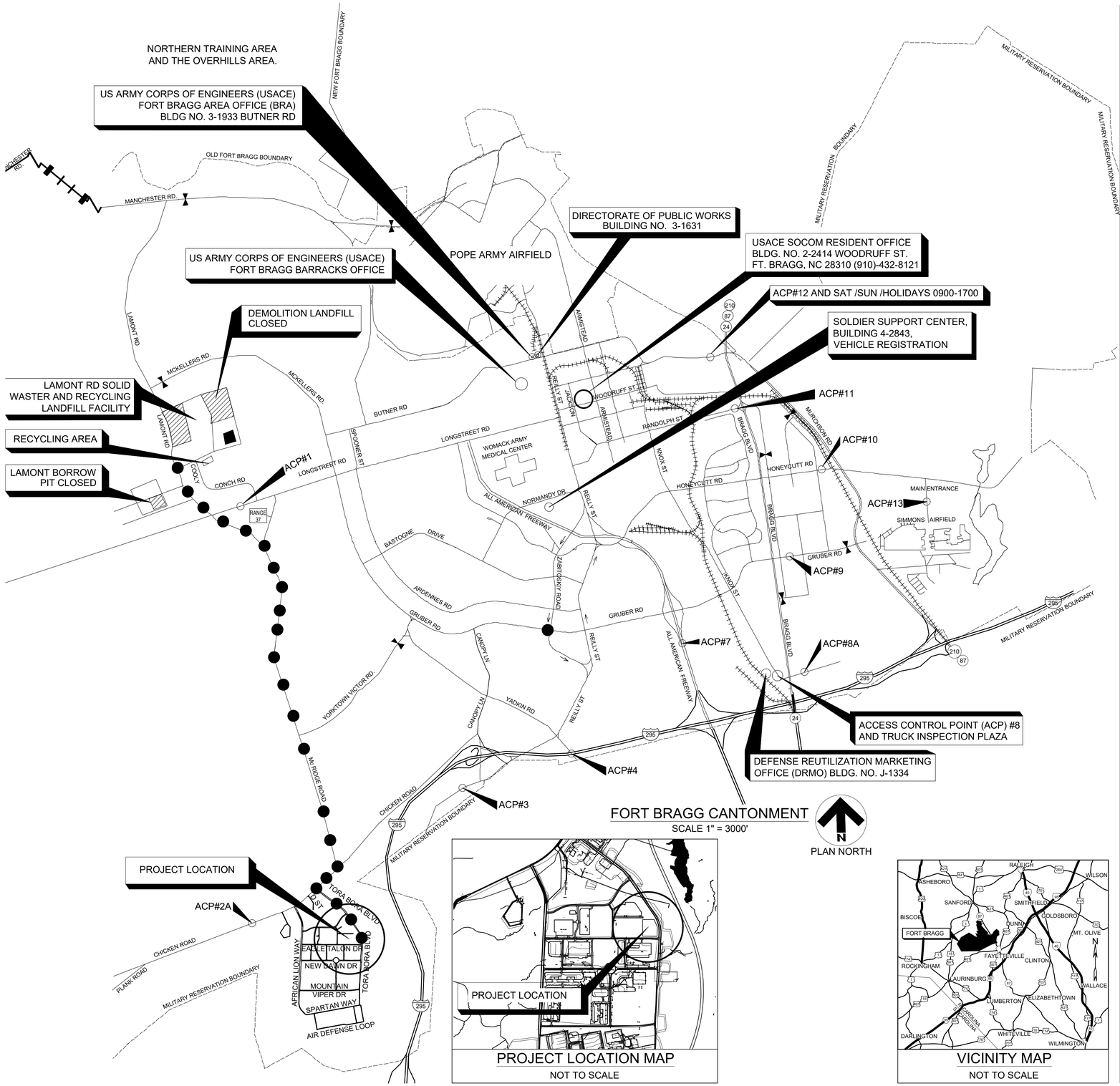
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
CODE COMPLIANCE SUMMARY

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHRADER

SHEET ID
G-003

READY TO ADVERTISE



GENERAL NOTES:

1. THE FORT BRAGG LAMONT CONSTRUCTION AND DEMOLITION (C&D) LANDFILL IS CLOSED AND WILL NOT BE ACCEPTING ANY C&D WASTE.

2. THE MUNICIPAL SOLID WASTE (MSW) TRANSFER STATION AT THE LAMONT LANDFILL FACILITY IS CLOSED AND WILL NOT EXCEPT MSW AT THE FACILITY.

3. ALL CONTRACTORS SHALL USE A STATE CERTIFIED C&D LANDFILL OR SUB TITLE "D"LANDFILL OFF FORT BRAGG FOR THE DISPOSAL OF C&D WASTE, WASTE AND MSW.

4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN DATA OF ALL WASTE DISPOSED (C&D, AND MSW) AND ALL MATERIALS RECYCLED OFF FORT BRAGG. SEE SPECIFICATIONS FOR FORMS AND REPORTING REQUIREMENTS.

5. THE LAMONT LANDFILL FACILITY RECYCLING AREA WILL ACCEPT RECYCLABLES ITEMS.

CONCRETE, BRICK AND BLOCK
- SHALL BE NO LARGER THAN 2' BY 2' PIECES OR EQUIVALENT
- SHALL BE MINIMAL AMOUNT OF DIRT IN LOAD
- SHALL HAVE NO REBAR PROTRUDING OUT OF THE CONCRETE

TREES, LIMBS AND STUMPS
- SHALL BE CUT TO 6 FEET OR LESS IN LENGTH
- IF THE TREE HAS A LARGE DIAMETER (EXAMPLE 3 FT. DIA.) IT SHALL BE CUT TO LENGTHS OF 3 FEET OR LESS
- SHALL BE MINIMAL AMOUNT OF DIRT IN LOAD OR IN STUMP ROOTS
- WILL EXCEPT GROUND WOOD CHIPS
- NO TRASH IN LOAD

PALLETS
- SERVICEABLE AND NON-SERVICEABLE PALLETS

SCRAP STEEL
- NO ITEMS REQUIRING DEMILITARIZED ACCEPTED
- NO ITEMS WITH LIQUIDS IN THEM

SCRAP ALUMINUM
- NO ITEMS REQUIRING DEMILITARIZED ACCEPTED
- NO ITEMS WITH LIQUIDS IN THEM

CARDBOARD TO BE RECYCLED
- A 40 YARD DUMPSTER IS AVAILABLE FOR CARDBOARD
- ALSO CARDBOARD CAN BE TAKEN TO THE FORT BRAGG RECYCLING CENTER AT BLDG 3-1240, BUTNER AND REILLY ROAD
- SHALL BE CLEAN OF TRASH, PLASTICS, STYROFOAM, WOOD, METAL, ETC.

6. CONTACT YOUR GOVERNMENT REPRESENTATIVE OR THE SOLID WASTE/RECYCLING PROGRAM AT 977-2502, 396-3372 OR 432-6412 FOR ADDITIONAL GUIDANCE.

7. STATE LAW AND FORT BRAGG REGULATIONS REQUIRES COVERING OF LOADS OF WASTE OR RECYCLABLES TO PREVENT LITTER.

8. ALL WASTE OR RECYCLABLE MATERIAL LOADS ARE SUBJECT TO BE INSPECTED OF THEIR CONTENTS WHILE BEING PRESENT ON FORT BRAGG.

9. ALL RECYCLABLE MATERIALS GENERATED FROM A CONSTRUCTION OR DEMOLITION JOB IS PROPERTY OF THE GOVERNMENT UNLESS THE CONTRACT SPECIFIES THAT THE CONTRACT CAN OBTAIN THE MATERIALS. ITEMS SUCH AS HVAC UNITS (FREON REMOVED), AIR HANDLERS, PIPING, METALS BEAMS, MOTORS, VALVES, COPPER WIRE, ETC. THESE TYPES OF ITEMS SHALL BE TRANSPORTED TO THE DPW RECYCLING CENTER (BUTNER AND REILLY ROAD) OR THE RECYCLING AREA AT THE LAMONT LANDFILL FACILITY.

10. ALL ASPHALT PAVEMENT (INCLUDING MILLED) SHALL BE DISPOSED OF OFF INSTALLATION AT CONTRACTOR'S EXPENSE.

11. ALL SUITABLE AND NONSUITABLE MATERIALS SHALL BE DISPOSED OF OFF INSTALLATION AT CONTRACTOR'S EXPENSE.

POST ACCESS CONTROL POINT (ACP) PLAN & SECURITY NOTES:

FORT BRAGG WILL BE USING THE AUTOMATED INSTALLATION ENTRY SYSTEM (AIE). THE PROCESS OF ACCESSING THE BASE IS EXPLAINED IN SPECIFICATIONS SECTION 01 14 00, PARAGRAPH 1.4., PASSES.

INFO AND HOURS FOR ACP'S CAN BE FOUND AT WWW.BRAGG.ARMY.MIL/DIRECTORATES/DES/PAGES/DEFAULT.ASPX.

ALL VEHICLES ARE SUBJECT TO SEARCH, REGARDLESS OF MEANS OF ENTRY;AUTOMATED INSTALLATION ENTRY, TEMPORARY PASS, OR NEITHER. ALL CONTRACTOR'S COMMERCIAL OR PRIVATELY OWNED VEHICLES REQUIRE REGISTRATION.

ALL COMMERCIAL VEHICLES MUST ACCESS THE TRUCK PLAZA ON KNOX STREET. THE INSTALLATIONS DEFINITION FOR A COMMERCIAL VEHICLE IS:

ANY VEHICLE AS LARGE AS OR LARGER THAN AN ENCLOSED 15-PASSENGER VAN (NOT USED FOR PASSENGER TRANSPORTATION) OR ANY COMPANY VEHICLE PULLING AN ENCLOSED TRAILER OF ANY SIZE, AND ALL CIVILIAN FUEL TRUCKS. THIS INCLUDES U-HAUL TRUCKS, UPS/FEDEX DELIVERY VEHICLES, ETC. THE ONLY EXCEPTION TO THIS DEFINITION APPLIES TO ACTIVE DUTY MILITARY CAC CARD HOLDERS ONLY IF THE VEHICLE CAN SAFELY NEGOTIATE THE LANE AT FPCON NORMAL OR A.

IT IS A CRIME UNDER 18 USC 795 TO PHOTOGRAPH DEFENSE INSTALLATIONS WITHOUT FIRST OBTAINING THE PERMISSION OF THE COMMANDING OFFICER OF THE MILITARY INSTALLATION. IT IS ALSO A CRIME UNDER 18 USC 797 TO REPRODUCE, PUBLISH, SELL OR GIVE AWAY ANY PHOTOGRAPH, PICTURE OR GRAPHIC REPRESENTATION OF A DEFENSE INSTALLATION WITHOUT FIRST OBTAINING THE PERMISSION OF THE COMMANDING OFFICER OF THE MILITARY INSTALLATION.

FORT BRAGG IS DESIGNATED AS A RESTRICTED AREA. RESTRICTED AREA POSTING RESTRICTS PERSONS GAINING ACCESS TO MILITARY INSTALLATIONS FROM CONDUCTING IMAGERY SURVEILLANCE, PHOTOGRAPHY AND VIDEO RECORDING WITHOUT THE INSTALLATION COMMANDERS CONSENT.

THE INTRODUCTION OF WEAPONS, AMMUNITION, EXPLOSIVES OR OTHER PROHIBITED ITEMS AND PHOTOGRAPHY ON FORT BRAGG IS PROHIBITED WITHOUT SPECIFIC AUTHORIZATION FROM THE COMMANDER.

LEGEND:

ACP	ACCESS CONTROL POINT	95	INTERSTATE ROUTE
	MAJOR ROADS	101	U. S. ROUTE
	STREETS	87	STATE ROUTE
	RAILROADS		LAKES
	INSTALLATION BOUNDARIES		
	HAUL ROAD (RECYCLING, COMMERCIAL VEHICLE ACCESS)		
	ROAD CLOSED WITH GATES OR BARRIERS		

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
USACE	AUGUST 2023
DRAWN BY:	SOLICITATION NO.:
USACE	W912PM22R0015
CHECKED BY:	CONTRACT NO.:
XXX	W912DR-19-D-0004
SUBMITTED BY:	FIRST TITLE:
WRA	
SCALE:	SECOND TITLE:
ANSI D	

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

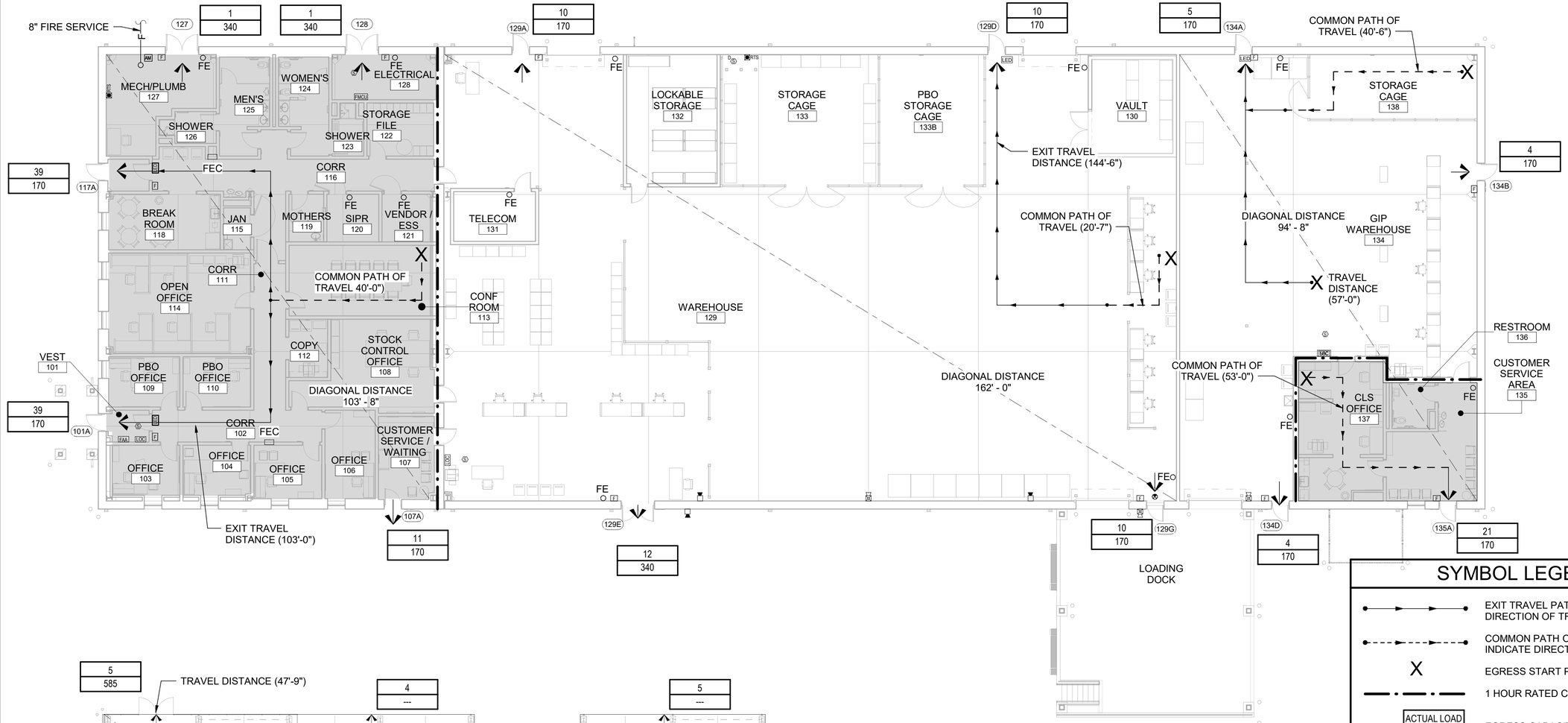
LOCATION MAP AND VICINITY MAP

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN E. SCHMIDT

SHEET ID

G-004

READY TO ADVERTISE



D1 LIFE SAFETY PLAN - SOF SSA WAREHOUSE
3/32" = 1'-0"

B1 LIFE SAFETY PLAN - COVERED STORAGE 1 & 2
1/16" = 1'-0"

PLAN NORTH
TRUE N

SYMBOL LEGEND

- EXIT TRAVEL PATH (ARROWS INDICATE DIRECTION OF TRAVEL)
- COMMON PATH OF TRAVEL (ARROWS INDICATE DIRECTION OF TRAVEL)
- X — EGRESS START POINT
- 1 HOUR RATED CONSTRUCTION
- ACTUAL LOAD / CAPACITY — EGRESS CAPACITY
- BUILDING EXIT LOCATION
- FE/FEC — FIRE EXTINGUISHER/ FIRE EXTINGUISHER CABINET
- F — FIRE ALARM MANUAL PULL STATION
- S — SMOKE DETECTOR
- FMCU — FIRE ALARM / MASS NOTIFICATION CONTROL UNIT
- FIRE ALARM / MASS NOTIFICATION SPEAKER
- FAA — FIRE ALARM ANNUNCITOR PANEL
- EXIT SIGN
- LED — MNS TEXT ANNOUNCMENT SIGN

GRAPHIC SCALE

0 4' 8' 12 20'
0 8' 16' 32'

GENERAL SHEET NOTES

1. THIS DRAWING IS FOR REFERENCE USE ONLY AND IS NOT PART OF THE CONSTRUCTION CONTRACT. ALL INFORMATION CONTAINED ON THIS DRAWING IS EXPLICITLY CALLED OUT FOR ELSEWHERE IN THE CONSTRUCTION CONTRACT.
2. ENTIRE BUILDING IS PROTECTED WITH AN AUTOMATIC SPRINKLER SYSTEM.
3. ALL FIRE EXTINGUISHER CABINETS SEMI-RECESSED.

OCCUPANCY LEGEND

- BUSINESS OCCUPANCY
- STORAGE OCCUPANCY (NO HATCH OR SHADDING)

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: SAB
DRAWN BY: SAB
CHECKED BY: FPH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

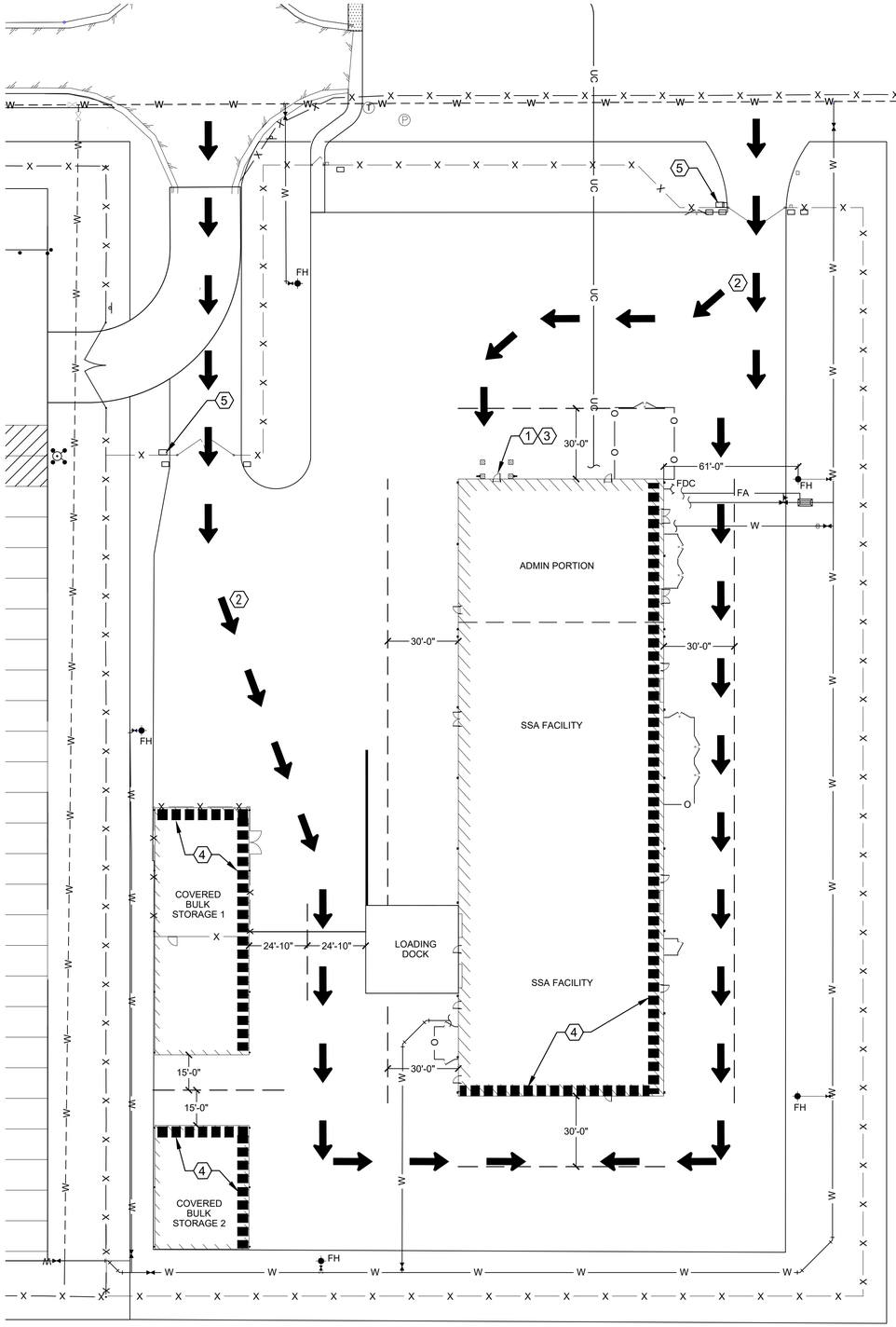
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FIRST FLOOR LIFE SAFETY PLAN

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN A. SCHMIDT
10/4/2023

SHEET ID
G-101

READY TO ADVERTISE



A1 CODE COMPLIANCE SITE PLAN
SCALE: 1"= 30'

GENERAL NOTES

1. THIS DRAWING IS FOR REFERENCE USE ONLY AND IS NOT PART OF THE CONSTRUCTION CONTRACT. ALL INFORMATION CONTAINED ON THIS DRAWING IS EXPLICITLY CALLED OUT FOR ELSEWHERE IN THE CONSTRUCTION CONTRACT.

SHEET KEYNOTES

1. INTENDED FIRE DEPARTMENT MAIN ENTRANCE TO THE FACILITY.
2. EMERGENCY VEHICLE ACCESS IN ACCORDANCE WITH NFPA 1 18.2.3.2.2.1. PROVIDES ACCESS TO ALL POINTS OF THE EXTERIOR OF THE FACILITY WITHIN 450'.
3. PROVIDE KNOX BOX, MOUNTED NEXT TO THE INTENDED FIRE DEPARTMENT MAIN ENTRANCE DOOR FOR EMERGENCY ACCESS TO THE FACILITY.
4. AERIAL APPARATUS EMERGENCY ACCESS IS REQUIRED FOR TWO SIDES OF THE BUILDING WITH ONE SIDE GIVING ACCESS TO THE ENTIRE LENGTH OF THE BUILDING.
5. PROVIDE KNOX BOX, MOUNTED NEXT TO THE GATE ENTRANCE FOR EMERGENCY ACCESS TO THE FACILITY YARD.

SHEET LEGEND

- WATER LINE
- WATER LINE VALVE
- FIRE HYDRANT
- EMERGENCY ACCESS
- FIRE DEPARTMENT CONNECTION
- IMAGINARY PROPERTY LINE
- BUILDING AERIAL APPARATUS ACCESS
- FENCE

PLAN NORTH
TRUE N

GRAPHIC SCALE

0 30' 60'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: SAB
DRAWN BY: SAB
CHECKED BY: FPH
SUBMITTED BY: WYZA
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W9122DR-19-D-0004
FIRST TITLE:
SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
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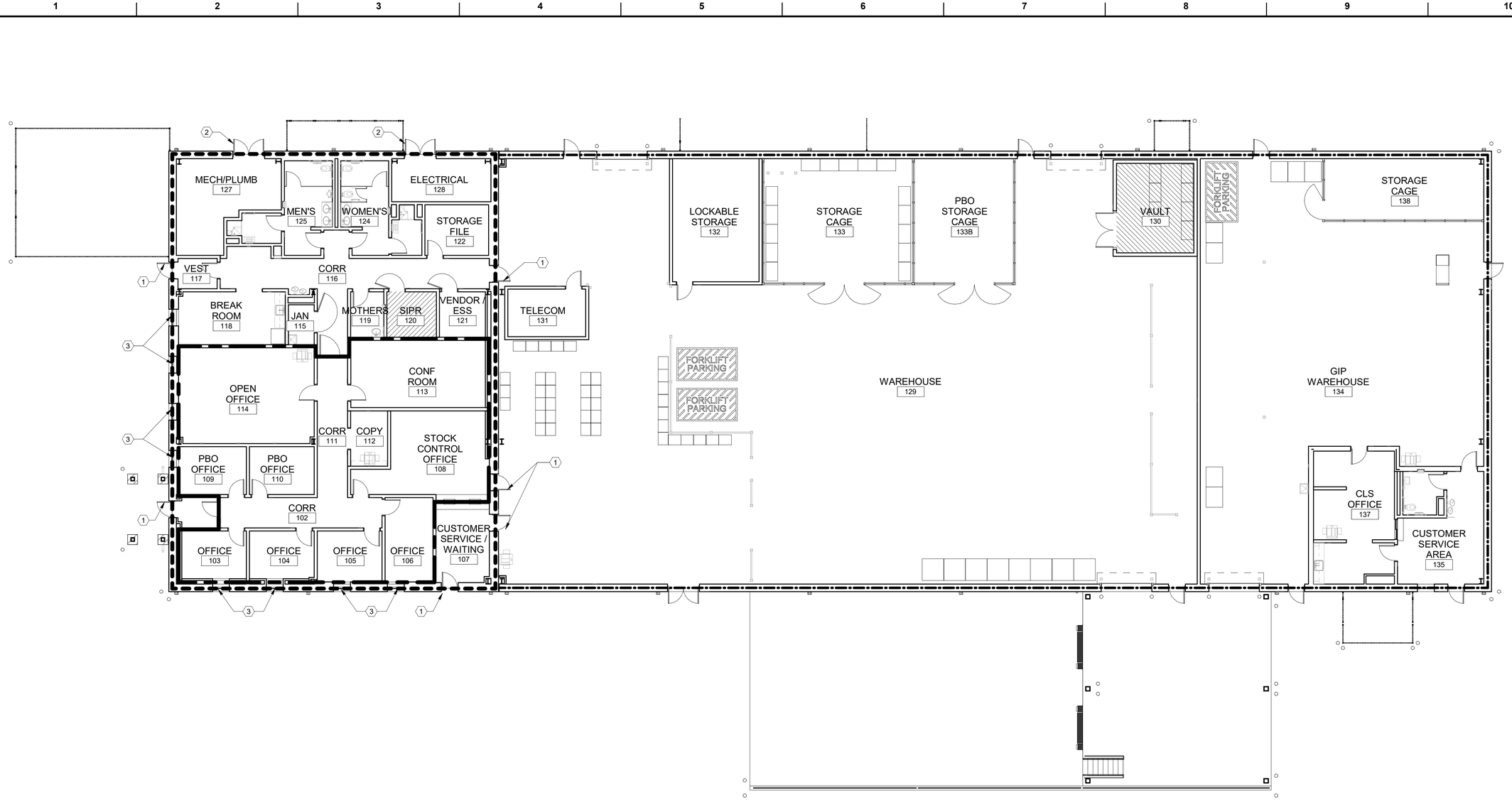
CODE COMPLIANCE SITE PLAN

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN A. WYZYKOWSKI 8/4/2023

SHEET ID
G-102

READY TO ADVERTISE

PLOT DATE: 8/2/2023 2:51:04 PM PAGE SETUP: — PLOT STYLE: AECSTEBANDW.CTB PAPER SIZE: ANSI FULL BLEED D (22.00 X 34.00 INCHES)
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B4 FLOOR PLAN - SECURITY BOUNDARIES

3/32" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. A PORTION OF THE BUILDING IS CONSIDERED AN INHABITED BUILDING AND IS REQUIRED TO PROVIDE A LOW LEVEL OF PROTECTION FROM IDENTIFIED EXTERNAL BLAST THREATS.
2. A PORTION OF THE BUILDING IS CONSIDERED LOW OCCUPANCY AS DEFINED BY UFC 4-010-01, AND IS EXEMPT FROM THE MINIMUM STANDARDS.
3. BUILDING CONSTRUCTION FOR THE INHABITED BUILDING PORTION MUST IMPLEMENT RECOMMENDATIONS IN APPENDIX B OF UFC 4-010-01 AS REQUIREMENTS FOR DESIGN FOR BLAST RESISTANCE.
4. THE CONTRACTOR MUST LOCATE AND INSTALL SITE FEATURES IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.
5. BLAST ANALYSIS FOR THE BUILDING MUST USE STANDOFF DISTANCES SHOWN ON DRAWINGS CS-101 AND CS-102
6. SEE CS-101 AND CS-102 FOR SITE INFORMATION AND LAYOUT.

SHEET KEYNOTES

1. BLAST RATED DOOR
2. BLAST RATED DOUBLE DOOR W/ REMOVABLE MULLION
3. BLAST RATED FIXED WINDOW (FIRST FLOOR)

SHEET LEGEND

CONSTRUCTION FOR THE INHABITED BUILDING PORTION MUST PROVIDE A LOW LEVEL OF PROTECTION FROM IDENTIFIED EXTERNAL BLAST THREATS

CONSTRUCTION FOR THE LOW OCCUPANCY PORTION OF THE BUILDING IS EXEMPT FROM COMPLIANCE WITH THE MINIMUM STANDARDS IN CHAPTER 3 OF UFC 4-010-01

CONSTRUCTED AS A CONTROLLED ACCESS AREA - NOT OPEN STORAGE

ELECTRONIC SECURITY SYSTEM TO COMPLY WITH AR380

ELECTRONIC SECURITY SYSTEM TO COMPLY WITH AR-190-11

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: DB
DRAWN BY: DL
CHECKED BY: CD
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
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US ARMY CORPS OF ENGINEERS
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
SECURITY BOUNDARIES

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMITT

SHEET ID
G-103

READY TO ADVERTISE

CIVIL GENERAL NOTES:

1. REFER TO THE PROJECT SPECIFICATIONS IN ALL SITUATIONS. BRING CONFLICTS BETWEEN PROJECT SPECIFICATIONS AND PLANS TO THE ATTENTION OF THE CONTRACTING OFFICER AND/OR ENGINEER FOR RESOLUTION. ALL MATERIALS AND WORKMANSHIP MUST CONFORM TO THE PROJECT SPECIFICATIONS.
2. EXISTING UTILITY INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. LOCATION, VERIFICATION, SUPPORT AND PROTECTION OF ALL ABOVE GROUND AND UNDERGROUND UTILITIES TO REMAIN IN PLACE, INCLUDING ANY UTILITIES NOT INDICATED ON CONTRACT DRAWINGS IS REQUIRED. ANY CONFLICTS OR DISCREPANCIES MUST BE BROUGHT TO THE CONTRACTING OFFICER'S AND/OR ENGINEER'S ATTENTION IMMEDIATELY. CAPE FEAR ENGINEERING HAS NOT PHYSICALLY LOCATED ANY UNDERGROUND UTILITIES.
3. PRIOR TO ANY EXCAVATION, CONTRACTOR MUST HAVE THE EXISTING UNDERGROUND LINES MARKED ON THE GROUND SURFACE IN THE AREAS OF CONSTRUCTION. POTHOLE AND PHYSICALLY VERIFY DEPTH AND LOCATION OF ALL UTILITY LINES IN THE WORK AREA THAT REQUIRE COORDINATION WITH WORK ITEMS. POTHOLE VERIFICATION MUST BE DONE WELL IN ADVANCE OF ACTUAL WORK SO THAT POTENTIAL UTILITY CONFLICTS CAN BE VERIFIED AND RESOLVED WITHOUT CAUSING SCHEDULE DELAYS.
4. PROTECT ALL EXISTING STRUCTURES, TREES, PAVEMENT, UTILITIES, AND OTHER PROPERTY UNLESS THEY ARE TO BE DEMOLISHED. ANY PROPERTY NOT AUTHORIZED FOR REMOVAL, BUT DAMAGED BY THE CONTRACTOR MUST BE RESTORED BY THE CONTRACTOR TO THEIR PRE-CONSTRUCTION CONDITION OR BETTER AT NO ADDITIONAL EXPENSE TO THE OWNER.
5. MAKE EVERY EFFORT TO SAVE PROPERTY IRONS, MONUMENTS, OTHER PERMANENT POINTS AND LINES OF REFERENCE AND CONSTRUCTION STAKES. PROPERTY IRONS, MONUMENTS, AND OTHER PERMANENT POINTS OF REFERENCE DESTROYED BY THE CONTRACTOR MUST BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. WORK PERFORMED UNDER THIS CONTRACT MUST NOT IMPACT THE OPERATION OF ANY ADJACENT PROPERTIES UNLESS A UTILITY OUTAGE HAS BEEN APPROVED IN ADVANCE.
7. SEQUENCE WORK AS NECESSARY TO ENSURE THAT ALL UTILITY SERVICES, INCLUDING FIRE HYDRANTS, REMAIN OPERATIONAL DURING CONSTRUCTION.
8. RESTORE ANY ACCESS ROADS AND STAGING AREAS USED BACK TO THEIR PRE-CONSTRUCTION CONDITION OR BETTER. VEGETATE ALL DISTURBED AREAS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
9. TAKE ADEQUATE PROTECTIVE MEASURES TO ENSURE THAT EXISTING PAVEMENT SURFACES ARE NOT DAMAGED FROM TRACKED CONSTRUCTION EQUIPMENT OR ANY OTHER POSSIBLE SOURCE WHEN EQUIPMENT IS BEING MOVED. REPAIR ANY PAVED AREAS DAMAGED DURING CONSTRUCTION TO THEIR PRE-CONSTRUCTION CONDITION OR BETTER.
10. EXISTING PAVEMENTS AND ALL OTHER AREAS ADJACENT TO THE SITE MUST BE KEPT CLEAN AT ALL TIMES. DO NOT ALLOW BUILD UP OF SOIL, MUD, DUST OR OTHER DEBRIS.
11. CONTRACTOR IS RESPONSIBLE FOR ALL SURVEYING AND STAKING TO COMPLETE THE WORK.
12. ANY AND ALL MATERIAL QUANTITIES INDICATED ON THIS PLAN SET ARE FOR REFERENCE ONLY. CONTRACTOR MUST VERIFY ALL MATERIAL QUANTITIES SHOWN.
13. KEEP REDLINE MARK-UPS OF ANY CHANGES MADE FROM THE APPROVED PLAN AND PROVIDE COPY OF REDLINES TO ENGINEER UPON PROJECT COMPLETION.
14. THERE ARE NO KNOWN WETLANDS OR SURFACE WATERS LOCATED WITHIN THE PROJECT BOUNDARY.
15. CONTRACTOR SHALL SUBMIT GARRISON COMMANDER'S POSTING DOCUMENT AND TRAFFIC CONTROL PLANS SIGNED (SEALED BY NC PE TO THE GARRISON COMMANDER'S OFFICE IN ACCORDANCE WITH FORT LIBERTY INSTALLATION DESIGN GUIDE (IDG).

EXISTING CONDITION NOTES:

1. SEE SHEET VF100 THROUGH VF103 FOR EXISTING CONDITIONS AND SURVEY INFORMATION.

OFFSITE BORROW AREA NOTES

1. CONTRACTOR IS RESPONSIBLE FOR ENSURING OFFSITE BORROW AREA HAS AN APPROVED EROSION CONTROL PERMIT AND APPROPRIATE MEASURES IN PLACE PRIOR TO LAND DISTURBING ACTIVITY.
2. NO BORROW MATERIALS ARE AVAILABLE ON GOVERNMENT PROPERTY.

DEMOLITION PLAN NOTES:

1. LOCATE UNDERGROUND UTILITIES AND COORDINATE DEMOLITION AND / OR RELOCATION WORK. SPECIFICALLY TAKE EXTRA CAUTIONARY MEASURES TO PREVENT DISRUPTION OF ANY TELECOM FIBER IN THE PROJECT AREA. ONCE LOCATED IN THE FIELD, POSITIVE VERIFICATION BY POTHOLING IS REQUIRED. REPORT ANY CONFLICTS OR DISCREPANCIES TO ENGINEER.
2. LIMITS OF DEMOLITION AND DIMENSIONS ARE SHOWN FOR GENERAL REFERENCE. CONTRACTOR MUST BE RESPONSIBLE FOR REMOVAL OF ALL ITEMS, INCLUDING ALL EXCAVATED MATERIALS NECESSARY TO COMPLETE WORK WITHIN THIS CONTRACT.
3. WHERE ASPHALT/CONCRETE DEMOLITION IS REQUIRED, USE A SAW CUT AT THE LIMITS OF DEMOLITION OR NEAREST JOINT TO OBTAIN A CLEAN VERTICAL EDGE.
4. DEDICATED DEMOLITION AND OTHER WASTE AREAS/EARTHEN MATERIAL STOCKPILES MUST BE LOCATED AT LEAST 50' FROM STORMDRAINS OR STREAMS.
5. REPORT ANY UNSUITABLE SOILS, CONTAMINATED SOILS, AND BURIED CONCRETE AND DEBRIS TO THE CONTRACTING OFFICER.
6. CONTRACTOR MUST PROVIDE TEMPORARY THRUST BLOCKS AND TEMPORARILY CAP WATERLINES FOR SEQUENCING OF WATERLINE DEMOLITION AND INSTALLATION OF NEW TEES AND FITTINGS.
7. CONTRACTOR MUST SEQUENCE DEMOLITION OF STORM AND SANITARY SEWER TO ENSURE ALL SYSTEMS REMAIN ONLINE DURING WORK. CONTRACTOR MUST PROVIDE TEMPORARY CAPS AND PLUGS FOR SEQUENCING OF DEMOLITION AND NEW WORK.
8. UNDERGROUND UTILITIES SHOWN ON THE DEMOLITION PLANS MAY EXTEND FURTHER THAN SHOWN. CONTRACTOR IS RESPONSIBLE FOR COMPLETE REMOVAL OF UTILITIES WITHIN THE ENTIRE PROJECT SITE UNLESS OTHERWISE NOTED.

DPW - CIVIL-TRAFFIC ENGINEERING NOTES:

1. THE PROJECT DESIGN-WORKMANSHIP-MATERIAL TYPE-INSTALLATION SHALL COMPLY WITH THE DIRECTORATE OF PUBLIC WORKS - TRAFFIC ENGINEERING INSTALLATION DESIGN GUIDELINES, REVISED JUNE 2021 AND ALL RELATIVE FHWA-NCDOT POLICIES.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL PEDESTRIAN AND VEHICULAR TRAFFIC DETOURS AND MUST USE APPROPRIATE SIGNAGE AND BARRICADES IN ACCORDANCE WITH ALL BASE, STATE, AND FEDERAL REQUIREMENTS.
3. ALL ROAD AND LANE CLOSURES MUST BE REQUESTED AND APPROVED BY THE CONTRACTING OFFICER PRIOR TO CLOSING OF ANY ROADWAYS.
4. ALL ROAD CLOSURES MUST BE SUBMITTED TO THE CONTRACTING OFFICER A MINIMUM OF 15 DAYS PRIOR TO THE REQUIRED DATE OF CLOSURE AND MUST INCLUDE A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH MUTCD AND EM 385-1-1.
5. ALL TRAFFIC CONTROL METHODS AND DEVICES, BOTH TEMPORARY AND PERMANENT, MUST BE IN ACCORDANCE WITH FORT LIBERTY TRAFFIC ENGINEERING INSTALLATION DESIGN GUIDELINES REVISED 2021.
6. USE THE COLOR WHITE FOR ALL PAVEMENT MARKINGS AND SYMBOLS UNLESS OTHERWISE NOTED.
7. DO NOT LOCATE PAVEMENT MARKING SYMBOLS AS TO ENCROACH INTO INTERSECTION AREAS.
8. DO NOT PLACE PAVEMENT MARKING SYMBOLS ACROSS TRANSVERSE EXPANSION JOINTS ON PORTLAND CONCRETE PAVEMENTS UNLESS APPROVED BY THE ENGINEER.
9. CONFORM ALL SYMBOLS TO THE NCDOT STANDARDS AND PROJECT SPECIFICATIONS AND DETAILS.
10. SEE SIGNAGE & PAVEMENT MARKINGS ON SITE PLAN AND DETAIL SHEETS.
11. ON ASPHALT SURFACES PAVEMENT MARKINGS SHALL BE THERMOPLASTIC MATERIAL (HOT APPLIED ALKY/MALEIC TYPE OR COLD APPLIED HEATED IN PLACE THERMOPLASTIC MATERIAL). ON CONCRETE POLYUREA OR COLD APPLIED HEATED IN PLACE THERMOPLASTIC SHOULD BE USED. ALL MARKINGS TO BE NCDOT APPROVED LISTED ON THEIR QPL.
12. ANY EXISTING PAVEMENT MARKINGS IN THE VICINITY OF THE PROJECT LIMITS THAT ARE DAMAGED DURING CONSTRUCTION MUST BE REPAIRED OR REPLACED TO THE CONTRACTING OFFICER'S SATISFACTION.

SIDEWALK AND PAVING NOTES:

1. COMPLY WITH THE CURRENT NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES UNLESS OTHERWISE NOTED.
2. INSTALL EXPANSION JOINT WITH THICKENED EDGE WHERE CONCRETE PAVEMENT ABUTS BUILDINGS, MANHOLES, INLETS, AND OTHER STRUCTURES IN THE PAVEMENT UNLESS NOTED OTHERWISE.
3. FREE CONCRETE PAVEMENT EDGES THAT ABUT GRAVEL OR ASPHALT PAVEMENT AREAS MUST BE THICKENED.
4. CONSTRUCTION JOINTS MUST BE USED AT THE END OF EACH DAY'S PLACING OPERATIONS AND WHEN CONCRETE PLACEMENT IS INTERRUPTED FOR 30 MINUTES OR LONGER.
5. ODD SHAPED SLABS (WHERE L:W RATIO IS GREATER THAN 1.25) AND SLABS WITH PENETRATIONS (FOR UTILITIES, BASINS, BOLLARDS, ETC) MUST BE REINFORCED WITH WWF (6X6-W2.1X2.1) IN CENTER OF SLAB.
6. REFER TO PROJECT SPECIFICATIONS FOR SPACING AND DIMENSIONS OF ALL CONSTRUCTION AND EXPANSION JOINTS.

STORMWATER AND GRADING NOTES:

1. NO INSTALLATION OF IMPERVIOUS SURFACES IN EXCESS OF 10,000 SF MUST BE DONE PRIOR TO OBTAINING APPROVAL FROM NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ANY DESIGN CHANGES REQUIRED BY NCDEQ ARE INCORPORATED INTO THE CONSTRUCTION DOCUMENTS.
2. ALL CUT OR FILL SLOPES MUST BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
3. DURING CONSTRUCTION, PERFORM GRADING IN A MANNER AND SEQUENCE THAT WILL PROVIDE PROPER DRAINAGE AT ALL TIMES.
4. ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
5. FOR ALL NEW BUILDINGS, PROVIDE A MINIMUM 5% SLOPE AWAY FROM THE BUILDING FOR THE FIRST 10-FEET AND ASSURE THAT FINISHED FLOOR ELEVATIONS ARE A MINIMUM OF 6-INCHES ABOVE THE ADJACENT SITE GRADE IN NON-PAVED AREAS.
6. ALL STORM PIPE MUST BE CLASS III REINFORCED CONCRETE PIPE (RCP), UNLESS OTHERWISE NOTED ON THE PLANS.
7. UPON THE COMPLETION OF CONSTRUCTION AND SITE STABILIZATION, ALL NEW PIPES AND EXISTING PIPES IMPACTED BY CONSTRUCTION MUST BE CLEANED TO REMOVE ALL ACCUMULATED SILT, SEDIMENT AND DEBRIS.
8. ALL STORM PIPE ENTERING STRUCTURES (NEW AND EXISTING) MUST BE CUT FLUSH TO INSIDE OF THE BOX AND GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATER TIGHT; MAXIMUM PROTRUSION MUST BE 6 INCHES.
9. ALL STORMWATER STRUCTURES IN PAVED AREAS MUST BE FLUSH WITH PAVEMENT AND BE HEAVY-DUTY TRAFFIC RATED.

GENERAL UTILITY NOTES:

1. ALL UTILITY MATERIALS, CONSTRUCTION, TESTING AND WORKMANSHIP MUST CONFORM TO THE PROJECT SPECIFICATIONS, UFC STANDARDS, AND MUST MEET OR EXCEED NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY AND FORT LIBERTY DEPARTMENT OF PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
2. A NORTH CAROLINA LICENSED UTILITY CONTRACTOR MUST PERFORM ALL UTILITY WORK INVOLVED IN CONSTRUCTING THIS PROJECT.
3. COORDINATE WITH THE UTILITY PROVIDERS FOR REQUIRED UTILITY ADJUSTMENTS AND/OR RELOCATIONS.
4. ISOLATE ALL NEW PIPING FROM EXISTING PIPING UNTIL ALL NEW PIPING HAS BEEN TESTED, CERTIFIED TO UTILITY PROVIDER AND ACCEPTED FOR SERVICE.
5. FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITY LINES PRIOR TO THE INSTALLATION OF ANY NEW LINES.
6. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF UTILITIES. IF NOT, CONTRACTOR MUST ENSURE THAT MINIMUM COVER REQUIREMENTS ARE MET AND THAT UTILITIES ARE ADEQUATELY PROTECTED.
7. ADJUST ALL UTILITY STRUCTURE RIM ELEVATIONS AS NECESSARY TO MATCH FINAL ELEVATIONS.
8. NOTIFY THE UTILITY PROVIDER'S INSPECTORS AND CONTRACTING OFFICER, AND ENGINEER AT LEAST 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE AND/OR BEGINNING UTILITY LINE INSTALLATION.
9. NOTIFY AND RECEIVE APPROVAL FROM THE UTILITY PROVIDER'S INSPECTORS AND CONTRACTING OFFICER AT LEAST 15 DAYS PRIOR TO ANY UTILITY DISRUPTIONS.
10. REFER TO INTERIOR PLUMBING DRAWINGS FOR TIE-IN OF ALL UTILITIES. ANY DISCREPANCIES MUST BE BROUGHT TO ENGINEER'S ATTENTION IMMEDIATELY.
11. THE UTILITY DRAWINGS DO NOT SHOW EVERY OFFSET, TRANSITION, AND FITTING THAT MAY BE REQUIRED. DETERMINE AND PROVIDE FITTINGS AND CONCRETE THRUST BLOCKS NECESSARY FOR COMPLETION OF THE SYSTEM.
12. NATURAL GAS SERVICE TO BUILDINGS WILL BE DESIGNED AND INSTALLED BY PIEDMONT NATURAL GAS (PNG). GAS LINES MUST HAVE A MINIMUM 3' OF COVER.
13. PROVIDE EXTERIOR CORROSION PROTECTION ON UNDERGROUND METALLIC PIPE LINES UNLESS OTHERWISE NOTED.
14. ALL UNDERGROUND UTILITIES MUST BE INSTALLED A MINIMUM OF 5 FEET FROM NEW OR EXISTING STRUCTURES.

WATER NOTES:

1. A NCDEQ WATER EXTENSION PERMIT IS REQUIRED FOR THIS PROJECT. NO WATERLINE SHALL BE CONNECTED TO THE EXISTING SYSTEM PRIOR TO THE PERMIT APPROVAL. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ANY DESIGN CHANGES REQUIRED BY NCDEQ ARE INCORPORATED INTO THE CONSTRUCTION DOCUMENTS.
2. ALL BACKFLOW PREVENTION ASSEMBLIES AND METERS MUST BE LOCATED WITHIN THE BUILDING MECHANICAL ROOMS UNLESS LOCATED OTHERWISE ON PLANS.
3. MINIMUM UTILITY SEPARATIONS
   - SANITARY SEWER - 10-FEET (LATERALLY)
     - 18-INCHES (VERTICAL - WATER OVER SEWER)
   - STORM SEWER - 18-INCHES (VERTICAL)
4. WHERE A WATER MAIN PASSES OVER A SEWER, AND THE VERTICAL SEPARATION IS LESS THAN 18" OR WHERE WATER PASSES UNDER SEWER, THE SEWER AND WATERMAIN MUST BOTH BE DUCTILE IRON PIPE FOR A DISTANCE OF 10' ON EACH SIDE OF THE CROSSING (20' LENGTH CENTERED AT CROSSING - NO JOINTS).
4. ALL WATERLINES MUST HAVE A MINIMUM OF 36-INCHES OF COVER FROM FINISHED GRADE, UNLESS DUCTILE IRON IS SPECIFIED.
5. ALL WATERLINES MUST HAVE A MINIMUM OF 18-INCHES OF SEPARATION BETWEEN UNDERGROUND POWER AND COMMUNICATION LINES. COORDINATE WITH THE SITE ELECTRICAL/COMMUNICATIONS CONTRACTOR.
6. WHERE A WATERLINE PASSES UNDER A STORM DRAIN PIPE, THE WATERLINE MUST MAINTAIN A MINIMUM OF 18-INCHES OF VERTICAL SEPARATION FOR A DISTANCE OF 10' ON EACH SIDE OF THE CROSSING (20' LENGTH CENTERED AT CROSSING - NO JOINTS).
7. ALL WATERLINES MUST HAVE A MINIMUM OF 18-INCHES OF SEPARATION FROM GAS LINES. COORDINATE WITH SITE GAS CONTRACTOR.
8. THRUST BLOCKS MEETING REQUIREMENTS OF A5/C-506 ARE REQUIRED AT BOTH ENDS OF 8" WATER LOOP, AT ALL FIRE HYDRANTS, AND ALL TEES/FITTINGS.

SANITARY SEWER NOTES:

1. A NCDEQ SEWER PERMIT IS REQUIRED FOR THIS PROJECT. NO SEWER CAN BE CONNECTED TO THE EXISTING SYSTEM PRIOR TO THE PERMIT APPROVAL. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ANY DESIGN CHANGES REQUIRED BY NCDEQ ARE INCORPORATED INTO THE CONSTRUCTION DOCUMENTS.
2. ALL CLEANOUT SYMBOLS SHOWN REPRESENT THE LOCATION OF SURFACE ACCESS POINTS. CONTRACTOR MUST LOCATE WYE APPROPRIATELY BASED ON PIPE SIZE AND PIPE DEPTH.
3. MAXIMUM DISTANCE BETWEEN CLEANOUTS ON SERVICE LINES IS 100-FEET. CLEANOUTS MUST BE PLACED AT VERTICAL AND HORIZONTAL CHANGES OF DIRECTION.
4. MANHOLES AND CLEANOUTS LOCATED IN PAVEMENT, CONCRETE OR OTHER TRAFFIC AREAS MUST BE SET FLUSH TO FINISHED GRADE AND BE HEAVY-DUTY TRAFFIC RATED (HS-20).
5. MANHOLES AND CLEANOUTS IN UNPAVED AND NON-TRAFFIC AREAS MUST BE SET 1-INCH ABOVE FINISHED GRADE.
6. ALL SEWER LINES MUST HAVE A MINIMUM OF 36-INCHES OF COVER FROM FINISHED GRADE UNLESS DUCTILE IRON PIPE.
7. MINIMUM UTILITY SEPARATIONS:
   - WATER - SEE WATER NOTES
   - STORM SEWER - 24-INCHES VERTICAL
8. ALL SEWER LINES MUST HAVE A MINIMUM OF 18-INCHES OF SEPARATION FROM UNDERGROUND POWER AND COMMUNICATION LINES. COORDINATE WITH SITE ELECTRICAL/COMMUNICATION CONTRACTOR.
9. ALL SEWER LINES MUST HAVE A MINIMUM OF 18-INCHES OF SEPARATION FROM GAS LINES. COORDINATE WITH PIEDMONT NATURAL GAS (PNG).

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MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

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NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL GENERAL NOTES

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038615 — 08/04/23

SHEET ID
C-001

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EROSION CONTROL NOTES:

1. TOTAL DISTURBED AREA IS 4.37 AC.
2. NO DISTURBANCE IS TO BE DONE PRIOR TO OBTAINING APPROVAL FROM NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ).
3. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN ACCORDANCE WITH THE NORTH CAROLINA SEDIMENTATION AND EROSION CONTROL DESIGN MANUAL (LATEST EDITION).
4. DIMENSIONS AND GRADES SHOWN ON THE PLANS MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER IN WRITING IF DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES.
5. PROVIDE POSITIVE DRAINAGE AWAY FROM THE SITE AT ALL TIMES.

SEQUENCE OF LAND DISTURBANCE:

1. PRECONSTRUCTION CONFERENCE TO BE HELD PRIOR TO THE BEGINNING OF WORK.
2. DETERMINE AND MARK LIMITS OF DISTURBANCE. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AND TEMPORARY SILT FENCE AND SILT FENCE ROCK OUTLETS.
3. PROVIDE STORMDRAIN INLET PROTECTION AT EXISTING INLETS.
4. INSTALL TEMPORARY DIVERSION DITCHES AND CHECK DAMS.
5. CONSTRUCT STRUCTURAL SCMS INCLUDING BUT NOT LIMITED TO SEDIMENT TRAPS, SEDIMENT BASINS, OUTLET STRUCTURES, AND SKIMMER DEWATERING DEVICES.
6. INSTALL NEW STORM DRAIN STRUCTURES, OUTLET STRUCTURES AND PIPES, PROVIDE INLET PROTECTION AT NEW STORM DRAIN INLETS.
7. BRING SITE TO FINAL GRADE. SPREAD STOCKPILED TOPSOIL OVER DISTURBED AREAS AFTER VERTICAL CONSTRUCTION IS COMPLETE.
8. INSPECT AND MAINTAIN ALL EROSION CONTROL DEVICES EVERY 7 DAYS AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1.0" OR GREATER).
9. PLACE TEMPORARY SEEDING, INCLUDING MULCHING AND CRIMPING, IN ALL AREAS THAT ARE TO BE LEFT IDLE FOR MORE THAN 14 DAYS.
10. PERMANENT GRASS MUST BE INSTALLED PER PROJECT SPECIFICATIONS FOR ALL AREAS AT FINAL GRADE AND IN SEASON. FERTILIZE, WATER AND REPLACE TO ESTABLISH A VIGOROUS STAND OF GRASS. TEMPORARY IRRIGATION MAY BE REQUIRED UNTIL GRASS IS FULLY ESTABLISHED.
11. AFTER COMPLETION OF CONSTRUCTION AND THE SITE IS STABILIZED, REMOVE ALL ACCUMULATED SEDIMENT FROM SILT FENCE AND OTHER EROSION CONTROL MEASURES. GRASS THESE AREAS IMMEDIATELY AND REMOVE ALL EROSION CONTROL MEASURES.
12. REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM WET SWALE. RESHAPE WET SWALE AS NECESSARY TO RESTORE DESIGN GEOMETRY. INSTALL FINAL LAYER OF TOPSOIL AND WETLAND PLANTINGS. REMOVE TEMPORARY SKIMMER AND INSTALL FINAL DRAWDOWN PIPE WITH WIRE SCREEN. PROVIDE PERMANENT SODDING FOR ALL AREAS NOT RECEIVING WETLAND PLANTS.
13. CONTRACTOR IS RESPONSIBLE FOR TRANSPORTING SEDIMENT OFFSITE AND DISPOSING OF SEDIMENT IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

SELF-INSPECTION REPORT FOR LAND DISTURBING ACTIVITY AS REQUIRED BY NCGS 113A-54.1 15A NCAC 04B .0131 SELF-INSPECTIONS

WHERE INSPECTIONS ARE REQUIRED BY G.S. 113A-54.1(E), THE FOLLOWING APPLY:

(1) THE PERSON WHO PERFORMS THE INSPECTION SHALL MAKE A RECORD OF THE SITE INSPECTION BY DOCUMENTING THE FOLLOWING ITEMS:
- (A) ALL OF THE EROSION AND SEDIMENTATION CONTROL MEASURES, PRACTICES AND DEVICES, AS CALLED FOR IN A CONSTRUCTION SEQUENCE CONSISTENT WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING BUT NOT LIMITED TO SEDIMENTATION CONTROL BASINS, SEDIMENTATION TRAPS, SEDIMENTATION PONDS, ROCK DAMS, TEMPORARY DIVERSIONS, TEMPORARY SLOPE DRAINS, ROCK CHECK DAMS, SEDIMENT FENCE OR BARRIERS, ALL FORMS OF INLET PROTECTION, STORM DRAINAGE FACILITIES, ENERGY DISSIPATERS, AND STABILIZATION METHODS OF OPEN CHANNELS, HAVE INITIALLY BEEN INSTALLED AND DO NOT SIGNIFICANTLY DEVIATE (AS DEFINED IN SUB-ITEM (1)(E) OF THIS RULE) FROM THE LOCATIONS, DIMENSIONS AND RELATIVE ELEVATIONS SHOWN ON THE APPROVED EROSION AND SEDIMENTATION PLAN. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY INITIALING AND DATING EACH MEASURE OR PRACTICE SHOWN ON A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT THAT LISTS EACH MEASURE, PRACTICE OR DEVICE SHOWN ON THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. THIS DOCUMENTATION IS REQUIRED ONLY UPON THE INITIAL INSTALLATION OF THE EROSION AND SEDIMENTATION CONTROL MEASURES, PRACTICES AND DEVICES AS SET FORTH BY THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR IF THE MEASURES, PRACTICES AND DEVICES ARE MODIFIED AFTER INITIAL INSTALLATION;
- (B) THE COMPLETION OF ANY PHASE OF GRADING FOR ALL GRADED SLOPES AND FILLS SHOWN ON THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN, SPECIFICALLY NOTING THE LOCATION AND CONDITION OF THE GRADED SLOPES AND FILLS. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY INITIALING AND DATING A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT; THE LOCATION OF TEMPORARY OR PERMANENT GROUND COVER, AND THAT THE INSTALLATION OF THE GROUND COVER DOES NOT SIGNIFICANTLY DEVIATE (AS DEFINED IN SUB-ITEM (1)(E) OF THIS RULE) FROM THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY INITIALING AND DATING A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT;
- (C) THAT MAINTENANCE AND REPAIR REQUIREMENTS FOR ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES, PRACTICES AND DEVICES HAVE BEEN PERFORMED. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT (THE GENERAL STORM WATER PERMIT MONITORING FORM MAY BE USED TO VERIFY THE MAINTENANCE AND REPAIR REQUIREMENTS); AND
- (D) ANY SIGNIFICANT DEVIATIONS FROM THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN, CORRECTIVE ACTIONS REQUIRED TO CORRECT THE DEVIATION AND COMPLETION OF THE CORRECTIVE ACTIONS. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY INITIALING AND DATING A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT. A SIGNIFICANT DEVIATION MEANS AN OMISSION, ALTERATION OR RELOCATION OF AN EROSION OR SEDIMENTATION CONTROL MEASURE THAT PREVENTS THE MEASURE FROM PERFORMING AS INTENDED.

(2) THE DOCUMENTATION, WHETHER ON A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR AN INSPECTION REPORT, SHALL INCLUDE THE NAME, ADDRESS, AFFILIATION, TELEPHONE NUMBER, AND SIGNATURE OF THE PERSON CONDUCTING THE INSPECTION AND THE DATE OF THE INSPECTION. ANY RELEVANT LICENSES AND CERTIFICATIONS MAY ALSO BE INCLUDED. ANY DOCUMENTATION OF INSPECTIONS THAT OCCUR ON A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN SHALL OCCUR ON A SINGLE COPY OF THE PLAN AND THAT PLAN SHALL BE MADE AVAILABLE ON THE SITE. ANY INSPECTION REPORTS SHALL ALSO BE MADE AVAILABLE ON THE SITE.

(3) THE INSPECTION SHALL BE PERFORMED DURING OR AFTER EACH OF THE FOLLOWING PHASES OF A PLAN:
- (A) INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL MEASURES;
- (B) CLEARING AND GRUBBING OF EXISTING GROUND COVER;
- (C) COMPLETION OF ANY PHASE OF GRADING OF SLOPES OR FILLS THAT REQUIRES PROVISION OF TEMPORARY OR PERMANENT GROUND COVER PURSUANT TO G.S. 113A-57(2);
- (D) COMPLETION OF STORM DRAINAGE FACILITIES;
- (E) COMPLETION OF CONSTRUCTION OR DEVELOPMENT; AND
- (F) QUARTERLY UNTIL THE ESTABLISHMENT OF PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION OR UNTIL THE FINANCIALLY RESPONSIBLE PARTY HAS CONVEYED OWNERSHIP OR CONTROL OF THE TRACT OF LAND FOR WHICH THE EROSION AND SEDIMENTATION CONTROL PLAN HAS BEEN APPROVED AND THE AGENCY THAT APPROVED THE PLAN HAS BEEN NOTIFIED. IF THE FINANCIALLY RESPONSIBLE PARTY HAS CONVEYED OWNERSHIP OR CONTROL OF THE TRACT OF LAND FOR WHICH THE EROSION AND SEDIMENTATION CONTROL PLAN HAS BEEN APPROVED, THE NEW OWNER OR PERSON IN CONTROL SHALL CONDUCT AND DOCUMENT INSPECTIONS QUARTERLY UNTIL THE ESTABLISHMENT OF PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION.

G.S. 113A-57 NO LAND-DISTURBING ACTIVITY SUBJECT TO THIS ARTICLE SHALL BE UNDERTAKEN EXCEPT IN ACCORDANCE WITH THE FOLLOWING MANDATORY REQUIREMENTS:

(1) PERMANENT GROUNDCOVER FOR ALL DISTURBED AREAS SHALL BE PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING THE COMPLETION OF CONSTRUCTION OR DEVELOPMENT (FINAL GRADE).

(2) THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

ALL PERIMETER DIKES, DITCHES, SWALES, PERIMETER SLOPES OR SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS.

MAINTENANCE DURING ESTABLISHMENT PERIOD

MAINTENANCE OF THE SEEDED AREAS SHALL INCLUDE PROTECTING EMBANKMENTS AND DITCHES FROM SURFACE EROSION; MAINTAINING EROSION CONTROL MATERIALS AND MULCH; PROTECTING INSTALLED AREAS FROM TRAFFIC; MOWING; WATERING; AND POST-FERTILIZATION.

MOWING

A. TURF AREAS: TURF AREAS SHALL BE MOWED TO A MINIMUM 3 INCH HEIGHT WHEN THE TURF IS A MAXIMUM 4 INCHES HIGH. CLIPPINGS SHALL BE REMOVED WHEN THE AMOUNT CUT PREVENTS SUNLIGHT FROM REACHING THE GROUND SURFACE.
B. EROSION CONTROL AREAS: EROSION CONTROL AREAS SHALL BE MOWED TO A MINIMUM 4 INCH HEIGHT WHEN THE PLANTS ARE A MAXIMUM 8 INCHES HIGH. CLIPPINGS SHALL BE REMOVED WHEN THE AMOUNT CUT PREVENTS SUNLIGHT FROM REACHING THE GROUND SURFACE.

POST-FERTILIZATION

AFTER THE PERMANENT GRASS HAS BEEN ACCEPTED, AND BETWEEN THE DATES OF APRIL 15 AND OCTOBER 15, APPLY 425 POUNDS OF FERTILIZER PER ACRE.

REPAIR OR REINSTALL

UNSATISFACTORY STAND OF GRASS PLANTS AND MULCH SHALL BE REPAIRED OR REINSTALLED, AND ERODED AREAS SHALL BE REPAIRED UNTIL A SATISFACTORY STAND OF GRASS RESULTS.

6.06 TEMPORARY CONSTRUCTION ENTRANCE/EXIT:

CONSTRUCTION SPECIFICATIONS

1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS OR AS REQUIRED AND SMOOTH IT.
3. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
4. USE GEOTEXTILE FABRIC TO IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.
5. WHERE CONSTRUCTION ENTRANCES CROSS EXISTING DRAINAGE SWALES OR OTHER FEATURES, INSTALL TEMPORARY TRAFFIC-RATED CULVERTS UNDERNEATH ENTRANCE TO MAINTAIN EXISTING DRAINAGE.

MAINTENANCE

MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2 INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

6.12 SODDING

CONSTRUCTION SPECIFICATIONS

1. SELECT APPROPRIATE SPECIES OF SOD BASED ON CONTRACT DOCUMENTS.
2. USE ONLY HIGH QUALITY SOD OF KNOWN GENETIC ORIGIN, FREE OF NOXIOUS WEEDS, DISEASE, AND INSECT PROBLEMS. IT SHOULD APPEAR HEALTHY AND VIGOROUS AND CONFORM TO THE FOLLOWING SPECIFICATIONS:
- SOD SHOULD BE MACHINE CUT AT A UNIFORM DEPTH OF 1 TO 2 INCHES (EXCLUDING SHOOT GROWTH AND THATCH).
- SOD SHOULD NOT BE CUT IN EXCESSIVELY WET OR DRY WEATHER.
- SECTIONS OF SOD SHOULD BE A STANDARD SIZE AS DETERMINED BY THE SUPPLIER, UNIFORM, AND UNTORN.
- SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT, AND RETAIN THEIR SIZE AND SHAPE WHEN LIFTED BY ONE END.
- HARVEST, DELIVERY, AND INSTALLATION OF SOD SHOULD TAKE PLACE WITHIN A PERIOD OF 36 HOURS.

SOIL PREPARATION

TEST SOIL TO DETERMINE THE EXACT REQUIREMENTS FOR LIME AND FERTILIZER. SOIL TESTS MAY BE CONDUCTED BY THE STATE SOIL SCIENTIST OR A REPUTABLE COMMERCIAL LABORATORY.

INSTALL TOPSOIL AS REQUIRED BY CONTRACT DOCUMENTS. SPREAD SOIL AMENDMENTS EVENLY ACROSS THE AREA TO BE SODDED AND INCORPORATE INTO THE TOP 4 TO 8 INCHES OF SOIL BY DISKING, HARROWING, OR OTHER EFFECTIVE MEANS.

PRIOR TO LAYING SOD, CLEAR THE SOIL OF TRASH, DEBRIS, ROOTS, BRANCHES, STONES, AND CLODS LARGER THAN 2 INCHES IN DIAMETER. FILL LOW OR LEVEL LOW SPOTS IN ORDER TO AVOID STANDING WATER. RAKE OR HARROW THE SITE TO ACHIEVE A SMOOTH AND LEVEL FINAL GRADE.

COMPLETE SOIL PREPARATION BY ROLLING OR CULTIPACKING TO FIRM THE SOIL. AVOID USING HEAVY EQUIPMENT ON THE AREA, PARTICULARLY WHEN THE SOIL IS WET AS THIS MAY CAUSE EXCESSIVE COMPACTION, AND MAKE IT DIFFICULT FOR THE SOD TO TAKE ROOT.

SOD INSTALLATION

1. MOISTENING THE SOD AFTER IT IS UNROLLED HELPS MAINTAIN ITS VIABILITY. STORE IT IN THE SHADE DURING INSTALLATION.
2. RAKE THE SOIL SURFACE TO BREAK THE CRUST JUST BEFORE LAYING SOD. DURING THE SUMMER, LIGHTLY IRRIGATE THE SOIL, IMMEDIATELY BEFORE LAYING THE SOD TO COOL THE SOIL, REDUCE ROOT BURNING, AND DIE BACK.
3. DO NOT SOD ON GRAVEL, FROZEN SOILS, OR SOILS THAT HAVE BEEN TREATED RECENTLY WITH STERILANTS OR HERBICIDES.
4. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE PERPENDICULAR TO THE DIRECTION OF FLOW WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. STAGGER STRIPS IN A BRICK-LIKE PATTERN. BE SURE THAT THE SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHTLY TO PREVENT VOIDS. USE A KNIFE OR SHARP SPADE TO TRIM AND FIT IRREGULARLY SHAPED AREAS.
5. INSTALL STRIPS OF SOD WITH THEIR LONGEST DIMENSION PERPENDICULAR TO THE SLOPE. ON SLOPES 3:1 INCH AND GREATER, OR WHENEVER EROSION MAY BE A PROBLEM, SECURE SOD WITH PEGS OR STAPLES.
6. AS SODDING OF CLEARLY DEFINED AREAS IS COMPLETED, ROLL SOD TO PROVIDE FIRM CONTACT BETWEEN THE ROOTS AND SOIL.
7. AFTER ROLLING, IRRIGATE UNTIL THE SOIL IS WET 4 INCHES BELOW THE SOD.
8. KEEP SODDED AREAS MOIST TO A DEPTH OF 4 INCHES UNTIL THE GRASS TAKES ROOT. THIS CAN BE DETERMINED BY GENTLY TUGGING ON THE SOD - RESISTANCE INDICATES THAT ROOTING HAS OCCURRED.
9. MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2-3 WEEKS.

MAINTENANCE

AFTER THE FIRST WEEK, WATER AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE IN THE ROOT ZONE AND PREVENT DORMANCY OF THE SOD. DO NOT REMOVE MORE THAN ONE-THIRD OF THE SHOOT IN ANY MOWING. GRASS HEIGHT SHOULD BE MAINTAINED BETWEEN 2 TO 3 INCHES UNLESS OTHERWISE SPECIFIED. AFTER THE FIRST GROWING SEASON, ESTABLISHED SOD REQUIRES FERTILIZATION, AND MAY ALSO REQUIRE LIME. FOLLOW SOIL TEST RECOMMENDATIONS.

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MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
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SOLICITATION NO.: W912PM22R0015
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FIRST TITLE:
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FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL GENERAL NOTES

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038615 — 08/04/23

SHEET ID
C-002

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6.14 MULCHING:

CONSTRUCTION SPECIFICATIONS
SELECT A MATERIAL BASED ON SITE AND PRACTICE REQUIREMENTS, AVAILABILITY OF MATERIAL, LABOR, AND EQUIPMENT.

BEFORE MULCHING, COMPLETE THE REQUIRED GRADING, INSTALL SEDIMENT CONTROL PRACTICES, AND PREPARE AREA FOR MULCH INSTALLATION.

ORGANIC MULCHES ARE EFFECTIVE WHERE THEY CAN BE TACKED SECURELY TO THE SURFACE. PROVIDE SUITABLE MEANS OF ANCHORING MULCH.

SPREAD MULCH UNIFORMLY BY HAND, OR WITH A MULCH BLOWER. WHEN SPREADING MULCH BY HAND, DIVIDE THE AREA TO BE MULCHED INTO SECTIONS OF APPROXIMATELY 1,000 SF AND PLACE 70-90 LBS OF STRAW (1 ½ TO 2 BALES) IN EACH SECTION TO FACILITATE UNIFORM DISTRIBUTION. AFTER SPREADING MULCH, NO MORE THAN 25% OF THE GROUND SURFACE SHOULD BE VISIBLE.

CHEMICAL MULCHES MAY BE EFFECTIVE FOR SOIL STABILIZATION IF USED BETWEEN MAY 1 AND JUNE 15, OR SEPT. 15 AND OCT. 15, PROVIDED THAT THEY ARE USED ON SLOPES NO STEEPER THAN 4:1, AND THAT PROPER SEEDBED PREPARATION HAS BEEN ACCOMPLISHED, INCLUDING SURFACE ROUGHENING WHERE REQUIRED.

MAINTENANCE
INSPECT ALL MULCHES PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR RILL EROSION, DISLOCATION OR FAILURE. WHERE EROSION IS OBSERVED, APPLY ADDITIONAL MULCH. IF WASHOUT OCCURS, REPAIR THE SLOPE GRADE, AND REINSTALL MULCH. CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.

6.15 RIP-RAP OUTLET PROTECTION:

CONSTRUCTION SPECIFICATIONS

SUBGRADE PREPARATION
PREPARE THE SUBGRADE FOR RIP-RAP AND CLOTH FILTER TO THE REQUIRED LINES AND GRADES SHOWN ON THE PLANS. COMPACT ANY FILL MATERIAL REQUIRED IN THE SUBGRADE TO A DENSITY APPROXIMATING THAT OF THE SURROUNDING UNDISTURBED MATERIAL OR OVERFILL DEPRESSIONS WITH RIP-RAP. REMOVE BRUSH, TREES, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. CUT THE SUBGRADE SUFFICIENTLY DEEP THAT THE FINISHED GRADE OF THE RIP-RAP WILL BE AT THE ELEVATION OF THE SURROUNDING AREA. CHANNELS SHOULD BE EXCAVATED SUFFICIENTLY TO ALLOW PLACEMENT OF THE RIP-RAP IN A MANNER SUCH THAT THE FINISHED INSIDE DIMENSIONS AND GRADE OF THE RIP-RAP MEET THE DESIGN SPECIFICATIONS.

SAND AND GRAVEL FILTER BLANKET
PLACE THE FILTER BLANKET IMMEDIATELY AFTER THE GROUND FOUNDATION IS PREPARED. FOR GRAVEL, SPREAD FILTER STONE IN A UNIFORM LAYER TO THE SPECIFIED DEPTH. WHERE MORE THAN ONE LAYER OF FILTER MATERIAL IS USED, SPREAD THE LAYERS WITH MINIMAL MIXING.

SYNTHETIC FILTER FABRIC
PLACE THE CLOTH FILTER DIRECTLY ON THE PREPARED FOUNDATION. OVERLAP THE EDGES BY AT LEAST 12 INCHES AND SPACE ANCHOR PINS EVERY 3 FT ALONG THE OVERLAP. BURY THE UPSTREAM END OF THE CLOTH A MINIMUM OF 12 INCHES BELOW GROUND AND WHERE NECESSARY, BURY THE LOWER END OF THE CLOTH TO OVERLAP WITH THE NEXT SECTION AS REQUIRED.

TAKE CARE NOT TO DAMAGE THE CLOTH WHEN PLACING RIP-RAP. IF DAMAGE OCCURS REMOVE THE RIP-RAP, AND REPAIR THE SHEET BY ADDING ANOTHER LAYER OF FILTER MATERIAL WITH A MINIMUM OVERLAP OF 12 INCHES AROUND THE DAMAGED AREA. IF EXTENSIVE DAMAGE IS SUSPECTED, REMOVE AND REPLACE THE ENTIRE SHEET.

WHERE LARGE STONES ARE USED OR MACHINE PLACEMENT IS DIFFICULT, A 4 INCH LAYER OF FINE GRAVEL OR SAND MAY BE NEEDED TO PROTECT THE FILTER CLOTH.

STONE PLACEMENT
PLACEMENT OF RIP-RAP SHOULD FOLLOW IMMEDIATELY AFTER PLACEMENT OF THE FILTER. PLACE RIP-RAP SO THAT IT FORMS A DENSE, WELL GRADED MASS OF STONE WITH A MINIMUM OF VOIDS. THE DESIRED DISTRIBUTION OF STONES THROUGHOUT THE MASS MAY BE OBTAINED BY SELECTIVE LOADING AT THE QUARRY, AND CONTROLLED DUMPING DURING FINAL PLACEMENT. PLACE RIP-RAP TO ITS FULL THICKNESS IN ONE OPERATION. DO NOT PLACE RIP-RAP BY DUMPING THROUGH CHUTES OR OTHER METHODS THAT CAUSE SEGREGATION OF STONE SIZES. TAKE CARE NOT TO DISLODGE THE UNDERLYING BASE OR FILTER WHEN PLACING THE STONES.
THE TOE OF THE RIP-RAP SLOPE SHOULD BE KEYED TO A STABLE FOUNDATION AT ITS BASE. THE TOE SHOULD BE EXCAVATED TO A DEPTH OF ABOUT 1.5 TIMES THE DESIGN THICKNESS OF THE RIP-RAP, AND SHOULD EXTEND HORIZONTALLY FROM THE SLOPE.

THE FINISHED SLOPE SHOULD BE FREE OF POCKETS OF SMALL STONES OR CLUSTERS OF LARGE STONES. HAND PLACING MAY BE NECESSARY TO ACHIEVE THE PROPER DISTRIBUTION OF STONE SIZES TO PRODUCE A RELATIVELY SMOOTH, UNIFORM SURFACE. THE FINISHED GRADE OF THE RIP-RAP SHOULD BLEND WITH THE SURROUNDING AREA. NO OVERFALL OR PROTRUSION OF RIP-RAP SHOULD BE APPARENT.

MAINTENANCE
IN GENERAL, ONCE A RIP-RAP INSTALLATION HAS BEEN PROPERLY DESIGNED AND INSTALLED IT REQUIRES VERY LITTLE MAINTENANCE. RIP-RAP SHOULD BE INSPECTED PERIODICALLY FOR SCOUR OR DISLODGED STONES. CONTROL OF WEED AND BRUSH GROWTH MAY BE NEEDED IN SOME LOCATIONS.

6.20 TEMPORARY DIVERSIONS

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENT.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.
5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.

MAINTENANCE
INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

6.30 GRASS LINED CHANNELS (GL):

CONSTRUCTION SPECIFICATIONS
1. REMOVE ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREAS AND DISPOSE OF PROPERLY.
2. EXCAVATE THE CHANNEL, AND SHAPE IT TO NEAT LINES AND DIMENSIONS SHOWN ON THE PLANS PLUS A 0.2-FOOT OVERCUT AROUND THE CHANNEL PERIMETER TO ALLOW FOR BULKING DURING SEEDBED PREPARATIONS AND SOD BUILDUP.
3. REMOVE AND PROPERLY DISPOSE OF ALL EXCESS SOIL SO THAT THE SURFACE WATER MAY ENTER THE CHANNEL FREELY.
4. THE PROCEDURE USED TO ESTABLISH GRASS IN THE CHANNEL WILL DEPEND ON THE SEVERITY OF THE CONDITIONS AND SELECTION OF SPECIES. PROTECT THE CHANNEL WITH MULCH OR A TEMPORARY LINER TO WITHSTAND ANTICIPATED VELOCITIES DURING THE ESTABLISHMENT PERIOD.

MAINTENANCE
DURING THE ESTABLISHMENT PERIOD, CHECK GRASSED LINED SWALES AFTER EVERY RAINFALL. AFTER GRASS IS ESTABLISHED, PERIODICALLY CHECK THE CHANNEL; CHECK IT AFTER EVERY HEAVY RAINFALL EVENT. IMMEDIATELY MAKE REPAIRS. IT IS PARTICULARLY IMPORTANT TO CHECK THE CHANNEL OUTLET AND ALL ROAD CROSSINGS FOR BANK STABILITY AND EVIDENCE OF PIPING OR SCOUR HOLES. REMOVE ALL SIGNIFICANT SEDIMENT ACCUMULATIONS TO MAINTAIN THE DESIGNED CARRYING CAPACITY. KEEP THE GRASS IN A HEALTHY, VIGOROUS CONDITION AT ALL TIMES, SINCE IT IS THE PRIMARY EROSION PROTECTION FOR THE CHANNEL.

6.41 OUTLET STABILIZATION STRUCTURE:

CONSTRUCTION SPECIFICATIONS
1. ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN IN THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
2. THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
3. FILTER CLOTH, WHEN USED, MUST MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER CLOTH OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP SO THE TOP LAYER IS ABOVE THE DOWNSTREAM LAYER A MINIMUM OF 1 FOOT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER CLOTH.
4. RIPRAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER.
5. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.
6. RIPRAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. IT SHOULD BE HARD, ANGULAR, HIGHLY WEATHER-RESISTANT AND WELL GRADED.
7. CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFILL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
8. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.
9. IMMEDIATELY AFTER CONSTRUCTION,STABILIZE ALL DISTURBED AREASWITH VEGETATION (PRACTICES 6.10, TEMPORARY SEEDING, AND 6.11, PERMANENT SEEDING).

MAINTENANCE
INSPECT RIPRAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1 INCH AND GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

6.51 HARDWARE CLOTH AND GRAVEL INLET PROTECTION

CONSTRUCTION SPECIFICATIONS
1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5 FOOT STEEL POSTS 2 FEET DEEP INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 2 FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NCDOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUND COVER.

MAINTENANCE
INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1 INCH AND GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

6.55 ROCK PIPE INLET PROTECTION

CONSTRUCTION SPECIFICATIONS
1. CLEAR THE AREA OF ALL DEBRIS THAT MIGHT HINDER EXCAVATION AND DISPOSAL OF SPOIL.
2. INSTALL THE CLASS B OR CLASS 1 RIP-RAP IN A SEMI-CIRCLE AROUND THE PIPE INLET. THE STONE SHOULD BE BUILT HIGHER ON EACH END WHERE IT TIES TO THE EMBANKMENT. THE MINIMUM CREST WIDTH OF THE RIP-RAP SHOULD BE 3 FEET, WITH A MINIMUM BOTTOM WIDTH OF 11 FEET. THE MINIMUM HEIGHT SHOULD BE 2 FEET, BUT ALSO 1 FOOT LOWER THAN THE SHOULDER OF THE EMBANKMENT OR DIVERSIONS.
3. A 1 FOOT THICK LAYER OF NCDOT #5 OR #57 STONE SHOULD BE PLACED ON THE OUTSIDE SLOPE OF THE RIP-RAP.
4. THE SEDIMENT STORAGE AREA SHOULD BE EXCAVATED AROUND THE OUTSIDE OF THE STONE HORSESHOE 18 INCHES BELOW NATURAL GRADE.
5. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, FILL DEPRESSION AND ESTABLISH FINAL GRADING ELEVATIONS, COMPACT AREA PROPERLY, AND STABILIZE WITH GROUND COVER.

MAINTENANCE
INSPECT ROCK PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1 INCHES OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.

CHECK THE STRUCTURE FOR DAMAGE. ANY RIP-RAP DISPLACED FROM THE STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.

AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER.

6.60 TEMPORARY SEDIMENT TRAP

CONSTRUCTION SPECIFICATIONS
1. CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNT OF ORGANIC MATTER, AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA.
2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9-INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6-INCHES TO ALLOW FOR SETTLEMENT.
3. CONSTRUCT THE OUTLET SECTION IN THE EMBANKMENT. PROTECT THE CONNECTION BETWEEN THE RIPRAP AND THE SOIL FROM PIPING BY USING FILTER FABRIC OR A KEYWAY CUTOFF TRENCH BETWEEN THE RIPRAP STRUCTURE AND SOIL. PLACE THE FILTER FABRIC BETWEEN THE RIPRAP AND THE SOIL. EXTEND THE FABRIC ACROSS THE SPILLWAY FOUNDATION AND SIDES TO THE TOP OF THE DAM; OR EXCAVATE A KEYWAY TRENCH ALONG THE CENTER LINE OF THE SPILLWAY FOUNDATION EXTENDING UP THE SIDES TO THE HEIGHT OF THE DAM. THE TRENCH SHOULD BE AT LEAST 2 FEET DEEP AND 2 FEET WIDE WITH 1:1 SLOPES.
4. CLEAR THE POND AREA BELOW THE ELEVATION OF THE CREST OF THE SPILLWAY TO FACILITATE SEDIMENT CLEANOUT.
5. ALL CUT AND FILL SLOPES SHOULD BE 2:1 OR FLATTER.
6. ENSURE THAT STONE (DRAINAGE) SECTION OF THE EMBANKMENT HAS A MINIMUM BOTTOM WIDTH OF 3 FEET AND MAXIMUM SIDE SLOPES OF 1:1 THAT EXTEND TO THE BOTTOM OF THE SPILLWAY SECTION.
7. CONSTRUCT THE MINIMUM FINISHED STONE SPILLWAY BOTTOM WIDTH, AS SHOWN ON THE PLANS, WITH 2:1 SIDE SLOPES EXTENDING TO THE TOP OF THE OVER FILLED EMBANKMENT. KEEP THE THICKNESS OF THE SIDES OF THE SPILLWAY OUTLET STRUCTURE TO A MINIMUM OF 21 INCHES. THRU WEIR MUST BE LEVEL AND CONSTRUCTED TO GRADE TO ASSURE DESIGN CAPACITY.
8. MATERIAL USED IN THE STONE SECTION SHOULD BE A WELL-GRADED MIXTURE OF STONE WITH D50 SIZE OF 9 INCHES (CLASS B EROSION CONTROL STONE IS RECOMMENDED) AND MAXIMUM STONE SIZE OF 14 INCHES. THE STONE MAY BE MACHINE PLACED AND THE SMALLER STONES WORKED INTO THE VOIDS OF THE LARGER STONES. THE STONE SHOULD BE HARD, ANGULAR, AND HIGHLY WEATHER-RESISTANT.
9. DISCHARGE INLET WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT-LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE TRAP EFFICIENCIES.
10. ENSURE THAT THE STONE SPILLWAY OUTLET SECTION EXTENDS DOWNSTREAM PAST THE TOE OF THE EMBANKMENT UNTIL STABLE CONDITIONS ARE REACHED AND OUTLET VELOCITY IS ACCEPTABLE FOR THE RECEIVING STREAM. KEEP THE EDGES OF THE STONE OUTLET SECTION FLUSH WITH THE SURROUNDING GROUND, AND SHAPE TO CENTER TO CONFINE THE OUTFLOW STREAM.
11. DIRECT EMERGENCY BYPASS TO NATURAL, STABLE AREAS. LOCATE BYPASS OUTLETS SO THAT FLOW WILL NOT DAMAGE THE EMBANKMENT.
12. STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL AND DOWNSTREAM FROM THE TRAP IMMEDIATELY AFTER CONSTRUCTION.
13. SHOW THE DISTANCE FROM THE TOP OF THE SPILLWAY TO THE SEDIMENT CLEANOUT LEVEL (1 THE DESIGN DEPTH) ON THE PLANS AND MARK IT IN THE FIELD.
14. INSTALL POROUS BAFFLES AS SPECIFIED.

MAINTENANCE
INSPECT TEMPORARY SEDIMENT TRAPS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1 INCH AND GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT, AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA, AND REPLACE THE PART OF THE GRAVEL FACING THAT IS IMPAIRED BY SEDIMENT.

CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.5 FEET BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIPRAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED.

AFTER ALL SEDIMENT PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS, AND STABILIZE PROPERLY.

US Army Corps of Engineers®

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CHECKED BY: MTH
SUBMITTED BY:
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL GENERAL NOTES

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. [illegible]
08/04/23

SHEET ID
C-003

READY TO ADVERTISE

6.62 TEMPORARY SILT FENCE (SF):

CONSTRUCTION SPECIFICATIONS

MATERIALS
1. USE A SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFIN OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS OF ASTM D 6461. SYNTHETIC FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT AT TEMPERATURE RANGE OF 0 TO 120° F.

2. ENSURE THE POSTS FOR SEDIMENT FENCES ARE 1.25 LB/LINEAR FT STEEL WITH A MINIMUM LENGTH OF 5 FT. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.

3. FOR REINFORCEMENT OF STANDARD STRENGTH FILTER FABRIC, USE WIRE FENCE WITH A MINIMUM 14 GAUGE AND A MAXIMUM MESH SPACING OF 6-INCHES.

CONSTRUCTION
1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.

2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24-INCHES ABOVE THE GROUND SURFACE (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).

3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORTED POST WITH A MINIMUM 4 FEET OF OVERLAP TO THE NEXT POST.

4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE A MINIMUM 50 POUND TENSILE STRENGTH.

5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS AT A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.

6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO THE POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE A MINIMUM 50 POUND TENSILE STRENGTH.

7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.

9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.

10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MAINTENANCE
INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

SHOULD THE FABRIC OF THE SILT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

6.63 ROCK DAM:

CONSTRUCTION SPECIFICATIONS
1. CLEAR THE AREAS UNDER THE EMBANKMENT AND STRIP ROOTS AND OTHER OBJECTIONABLE MATERIAL.

2. COVER THE FOUNDATION AREA INCLUDING THE ABUTMENTS WITH EXTRA-STRENGTH FILTER FABRIC BEFORE BACKFILLING WITH ROCK. IF A CUTOFF TRENCH IS REQUIRED, EXCAVATE AT CENTER LINE OF DAM, EXTENDING ALL THE WAY UP THE EARTH ABUTMENTS. APPLY FILTER FABRIC UNDER THE ROCKFILL EMBANKMENT FROM THE UPSTREAM EDGE OF THE DAM TO THE DOWNSTREAM EDGE OF THE APRON. OVERLAP FILL MATERIAL A MINIMUM OF 1 FOOT AT ALL JOINTS, WITH THE UPSTREAM STRIP LAID OVER THE DOWNSTREAM STRIP.

3. CONSTRUCT THE EMBANKMENT WITH WELL-GRADED ROCK AND GRAVEL TO THE SIZE AND DIMENSIONS SHOWN ON THE DRAWINGS. IT IS IMPORTANT THAT ROCK ABUTMENTS BE AT LEAST 2 FEET HIGHER THAN THE SPILLWAY CREST AND AT LEAST 1 FOOT HIGHER THAN THE DAM, ALL THE WAY TO THE DOWNSTREAM TOE, TO PREVENT SCOUR AND EROSION AT THE ABUTMENTS.

4. SEDIMENT-LADEN WATER FROM THE CONSTRUCTION SITE SHOULD BE DIVERTED TOWARDS THE DAM.

5. CONSTRUCT THE ROCK DAM BEFORE THE BASIN AREA IS CLEARED TO MINIMIZE SEDIMENT YIELD FROM THE CONSTRUCTION OF THE BASIN. IMMEDIATELY STABILIZE ALL AREAS DISTURBED DURING CONSTRUCTION OF THE DAM.

MAINTENANCE
CHECK SEDIMENT DAMS AFTER EACH RAINFALL. REMOVE SEDIMENT AND RESTORE ORIGINAL VOLUME WHEN SEDIMENT ACCUMULATES TO ABOUT ONE-HALF THE DESIGN VOLUME. SEDIMENT SHOULD BE PLACED ABOVE THE DAM AND ADEQUATELY STABILIZED.

CHECK THE STRUCTURE FOR EROSION, PIPING, AND ROCK DISPLACEMENT WEEKLY AND AFTER EVERY SIGNIFICANT (1 INCHES OR GREATER) RAINSTORM AND REPAIR IMMEDIATELY.

REMOVE THE STRUCTURE AND ANY UNSTABLE SEDIMENT IMMEDIATELY AFTER THE CONSTRUCTION SITE HAS BEEN PERMANENTLY STABILIZED. SMOOTH DAM SITE TO BLEND WITH SURROUNDING AREA AND STABILIZE. ALL WATER AND SEDIMENTS SHOULD BE REMOVED FROM THE BASIN PRIOR TO DAM REMOVAL. SEDIMENTS SHOULD BE REPLACED IN DESIGNATED DISPOSAL AREAS AND NOT ALLOWED TO FLOW INTO STREAMS OR DRAINAGE WAYS DURING STRUCTURE REMOVAL.

6.64 SKIMMER SEDIMENT BASIN:

CONSTRUCTION SPECIFICATIONS
1. CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW THE BASIN AS NEEDED.

2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9 INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.

3. SHAPE THE BASIN TO THE SPECIFIED DIMENSIONS. PREVENT THE SKIMMING DEVICE FROM SETTLING INTO THE MUD BY EXCAVATING A SHALLOW PIT UNDER THE SKIMMER OR PROVIDING A LOW SUPPORT UNDER THE SKIMMER OF STONE OR TIMBER.

4. PLACE THE BARREL (TYPICALLY 4-INCH SCH 40 PVC) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4 INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM THE FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES. PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.

5. ASSEMBLE THE SKIMMER FOLLOWING MANUFACTURER'S INSTRUCTIONS, OR AS DESIGNED.

6. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.

7. EARTHEN SPILLWAYS - INSTALL THE SPILLWAY IN UNDISTURBED SOIL TO THE GREATEST EXTENT POSSIBLE. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADES, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SPILLWAY. THE SPILLWAY SHOULD BE LINED WITH LAMINATED PLASTIC OR IMPERMEABLE GEOTEXTILE FABRIC. THE FABRIC MUST BE WIDE AND LONG ENOUGH TO COVER THE BOTTOM AND SIDES AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES MAY BE SECURED WITH 8-INCH STAPLES OR PINS. THE FABRIC MUST BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO THE STABLE GROUND. THE WIDTH OF THE FABRIC MUST BE ONE PIECE, NOT JOINED OR SPLICED; OTHERWISE WATER CAN GET UNDER THE FABRIC. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH MAY BE USED. THE UPPER SECTION(S) SHOULD OVERLAP THE LOWER SECTION(S) SO THAT WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC IN A TRENCH WITH STAPLES OR PINS.

8. INLETS - DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE TRAP EFFICIENCY.

9. EROSION CONTROL - CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION.

10. INSTALL POROUS BAFFLES AS SPECIFIED.

11. AFTER ALL OF THE SEDIEMNT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED. REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. BRING THE BASIN AREA TO FINAL GRADE AND STABILIZE PROPERLY.

MAINTENANCE
INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1 INCH AND GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. PULL THE SKIMMER TO ONE SIDE SO THAT SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.

REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH THEM OR AROUND THEM.
IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE OF THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO REMOVE THE DEBRIS.

IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.

CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.

FREEZING WATER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

6.65 POROUS BAFFLES:

CONSTRUCTION SPECIFICATIONS
1. GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FROM FRONT TO BACK AND SIDE TO SIDE.

2. INSTALL THE COIR FIBER BAFFLES IMMEDIATELY UPON EXCAVATION OF THE BASINS.

3. INSTALL POSTS ACROSS THE WIDTH OF THE SEDIMENT TRAP (PRACTICE 6.62, SEDIMENT FENCE).

4. STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24 INCHES AND SPACED A MAXIMUM OF 4 FEET APART. THE TOP OF THE FABRIC SHOULD BE A MINIMUM OF 6 INCHES HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE A MINIMUM OF 2 INCHES LOWER THAN THE TOP OF THE EARTHEN EMBANKMENT.

5. INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISCHARGE POINT. BASINS LESS THAN 20 FEET IN LENGTH MAY USE 2 BAFFLES.

6. WHEN USING POSTS, ADD A SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE CONTROL MEASURE TO PREVENT SAGGING.

7. ATTACH A 9 GAUGE HIGH TENSION WIRE STRAND TO THE STEEL POSTS AT A HEIGHT OF 6 INCHES ABOVE THE SPILLWAY ELEVATION WITH PLASTIC TIES OR WIRE FASTENERS TO PREVENT SAGGING. IF THE TEMPORARY SEDIMENT BASIN WILL BE CONVERTED TO A PERMANENT STORMWATER BASIN OF A GREATER DEPTH, THE BAFFLE HEIGHT SHOULD BE BASED ON THE POOL DEPTH DURING USE AS A TEMPORARY SEDIMENT BASIN.

8. EXTEND 9 GAUGE MINIMUM HIGH TENSION WIRE STRAND TO THE SIDE OF BASIN OR INSTALL STEEL T-POSTS TO ANCHOR BAFFLE TO SIDE OF BASIN AND SECURE TO VERTICAL END POSTS AS SHOWN IN FIGURE 6.65B.

9. DRAPE THE COIR FIBER MAT OVER THE WIRE STRAND MOUNTED AT A HEIGHT OF 6 INCHES ABOVE THE SPILLWAY ELEVATION. SECURE THE COIR FIBER MAT TO THE WIRE STRAND WITH PLASTIC TIES OR WIRE FASTENERS. ANCHOR THE MATTING TO THE SIDES AND FLOOR OF THE BASIN WITH 12-INCH WIRE STAPLES, APPROXIMATELY 1 FEET. APART, ALONG THE BOTTOM AND SIDES OF THE BASIN.

10. DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.

11. ADJUSTMENTS MAY BE REQUIRED IN THE STAPLING REQUIREMENTS TO FIT INDIVIDUAL SITE CONDITIONS.

MAINTENANCE
INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL EVENT. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF OF THE DESIGN STORAGE DEPTH.

AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.

6.83 STONE CHECK DAM:

CONSTRUCTION SPECIFICATIONS
1. PLACE STONE TO THE LINES AND DIMENSIONS SHOWN IN THE PLAN ON A FILTER FABRIC FOUNDATION.

2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW NATURAL GROUND LEVEL WHERE THE DAM ABUTS THE CHANNEL BANKS.

3. EXTEND STONE AT LEAST 1.5 FEET BEYOND THE DITCH BANK TO KEEP WATER FROM CUTTING AROUND THE ENDS OF THE CHECK DAM.

4. SET SPACING BETWEEN DAMS TO ASSURE THAT THE ELEVATION AT THE TOP OF THE LOWER DAM IS THE SAME AS THE TOE ELEVATION OF THE UPPER DAM.

5. PROTECT THE CHANNEL AFTER THE LOWEST CHECK DAM FROM HEAVY FLOW THAT COULD CAUSE EROSION.

6. MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.

7. ENSURE THAT OTHER AREAS OF THE CHANNEL, SUCH AS CULVERT ENTRANCES BELOW THE CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

MAINTENANCE
INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1 INCHES OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.

ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, ADDITIONAL MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIP-RAP LINER IN THAT PORTION OF THE CHANNEL.

REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

PUMPED WATER FILTER BAG:

CONSTRUCTION SPECIFICATIONS

THE PUMPED WATER FILTER BAG CAN BE USED TO FILTER PUMPED WATER DURING CONSTRUCTION OF DRILLED PIERS, FOOTING EXCAVATION OR CULVERT CONSTRUCTION.

MATERIALS
1. USE FILTER FABRIC AND SEDIMENT CONTROL STONE THAT IS CLEAN AND WITHOUT DEBRIS.

2. USE A PUMPED WATER FILTER BAG THAT IS A WATER PERMEABLE GEOTEXTILE BAG THAT TRAPS SAND, SILT AND FINES AS SEDIMENT-LADEN WATER IS PUMPED INTO IT.

3. PROVIDE PUMPED WATER FILTER BAG CONSTRUCTED TO A MINIMUM SIZE OF 10 FEET X 15 FEET MADE FROM A NONWOVEN GEOTEXTILE. PROVIDE A SEWN-IN 8" (MAXIMUM) SPOUT FOR RECEIVING PUMP DISCHARGE.THE SEAMS SHALL HAVE A MINIMUM WIDE WIDTH STRENGTH OF 60 LB/IN IN ACCORDANCE WITH ASTM D4884.

4. THE PUMPED WATER FILTER BAG GEOTEXTILE SHALL PROVIDE RESISTANCE TO UV DEGRADATION MEETING TABLE 1639-1, NCDOT 2012 STANDARD SPECIFICATIONS, SECTION 1639

CONSTRUCTION
1. INSTALL THE FILTER FABRIC, STONE AND PUMPED WATER FILTER BAG(S) ON LEVEL GROUND.

2. CONSTRUCT THE PUMPED WATER FILTER BAG(S) SUCH THAT IT IS PORTABLE AND CAN BE USED ADJACENT TO EACH DRILLED PIER, FOOTING AND/OR CULVERT, AS REQUIRED BY THE PROJECT COMMITMENTS. PUMP DISCHARGE HOSES WILL BE ATTACHED TO THE PUMPED WATER FILTER BAG(S) TO DIVERT RUNOFF OR PUMPED EFFLUENT DIRECTLY INTO THE PUMPED WATER FILTER BAG(S). THE SECOND SLEEVE OR SPOUT OF THE BAG, IF PRESENT, MAY BE USED TO CONNECT MORE THAN ONE PUMPED WATER FILTER BAG IN SERIES AS DIRECTED. IF NOT USED IN THIS MANNER, THE SLEEVE SHALL BE TIED OFF TIGHTLY TO ALLOW THE BAG TO CONTAIN THE EFFLUENT AND FORCE IT TO FILTER THROUGH THE SIDES OF THE PUMPED WATER FILTER BAG. PLACE THE PUMPED WATER FILTER BAG(S) SO THE INCOMING RUNOFF OR PUMPED EFFLUENT FLOWS INTO AND THROUGH IT WITHOUT CAUSING EROSION TO ADJACENT SLOPES OR STREAMBANKS. IN AREAS OF TURBIDITY AND WATER QUALITY CONCERN, PLACE THE PUMPED WATER FILTER BAG(S) UP GRADE AND DIRECT ITS RUNOFF INTO A SEDIMENT CONTROL MEASURE BEFORE BEING ALLOWED TO DISCHARGE INTO JURISDICTIONAL WATERS.

MAINTENANCE
1. REPLACE AND DISPOSE OF THE PUMPED WATER FILTER BAG(S) WHEN IT IS 3/4 FULL OF SEDIMENT OR WHEN IT IS IMPRACTICAL FOR THE BAG TO FILTER THE SEDIMENT OUT AT A REASONABLE FLOW RATE.

2. PROVIDE A SUFFICIENT QUANTITY OF BAGS TO CONTAIN SILT FROM PUMPED EFFLUENT DURING CONSTRUCTION OF DRILLED PIERS, FOOTING EXCAVATION AND CULVERT CONSTRUCTION.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SIZE: ANSI D
SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD. SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL GENERAL NOTES

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
C-004

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LEGEND:

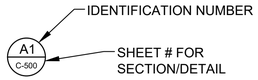
	EXISTING FEATURES:	DEMOLISHED FEATURES:
PROJECT BOUNDARY		
BUILDING		
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
GRAVEL		
CONCRETE PAD/SIDEWALK		
CONCRETE CURB AND GUTTER		
SIGN		
PAVEMENT MARKING		
FENCE	X X X	X X X
GATE		
GUY WIRE(S)		
BOLLARD		
WATERLINE	W	
FIRE HYDRANT		
WATERLINE VALVE		
SANITARY SEWER LINE	SS	
SANITARY SEWER MANHOLE	S	
SANITARY SEWER CLEANOUT	CO	
UNDERGROUND COMM	UC	
COMM MANHOLE	C	
COMM HAND HOLE	H	
UNDERGROUND ELECTRIC	UP	
OVERHEAD ELECTRIC	OE	
ELECTRIC MANHOLE	E	
LIGHT POLE	LP	
POWER POLE	PP	
TRANSFORMER	T	
TELEPHONE PEDESTAL	T PED	
GAS LINE	G	
STORM PIPE	SD	
DROP INLET / CATCH BASIN	CB	CB
UTILITY FILLED WITH FLOWABLE FILL		
CONTOURS	7	
SURVEY BENCHMARK	BM-XXX	
FORCE MAIN	FM	
TREE LINE		
POST INDICATOR VALVE		
SILT FENCE		
WATER METER	W	
SITE VEGETATION		
TOE OF DITCH		
TEMPORARY BENCHMARK		
RIP RAP		

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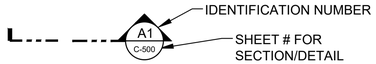
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BUILDING	
BUILDING SETBACK	
HEAVY DUTY CONCRETE PAVEMENT	
CONCRETE SIDEWALK	
BOLLARD	
DOUBLE SWING GATE	
CHAIN LINK FENCE	X X X
PARKING STRIPING	
SIGN	
LIGHT POLE	
WATER LINE	W
FDC	
PIPE BENDS AND TEES	
WATERLINE VALVE	
POST INDICATOR VALVE	
FIRE HYDRANT	
SANITARY SEWER LINE	SS
FORCEMAIN SEWER	FM
SANITARY SEWER MANHOLE	S
SANITARY SEWER CLEANOUT	CO
UNDERGROUND COMM LINE	UC
UNDERGROUND POWER	UP
UNDERGROUND GAS LINE	G
STORMDRAIN PIPE	SD
ROOF DRAIN LINE	RD
STORMDRAIN INLET	
ROOF DRAIN CLEANOUT	CO
STORMDRAIN JUNCTION BOX	D
FLARED END SECTION	
STORMWATER CONTROL MEASURE	
PROPOSED CONTOURS	7
SPOT ELEVATIONS	9.70EX 9.40
TEMPORARY CONS. ENTRANCE	
SILT FENCE	
INLET PROTECTION	
SKIMMER	
TEMPORARY DIVERSION	
LIMITS OF DISTURBANCE	LOD
FIRE ALARM	FA LOD
TEMPORARY SLOPE DRAIN	TSD TSD
WATER METER	W
ARCHITECTURAL BOLLARD/GUARD POST	B

SYMBOL LEGEND:

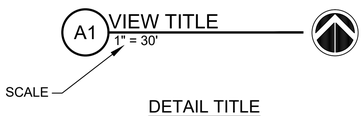
DETAIL REFERENCE



SECTION



VIEW TITLE



DETAIL TITLE



ABBREVIATIONS

ASUS	AMERICAN STATES UTILITY SERVICES
A/C	AIR CONDITIONER
ATFP	ANTI TERRORISM FORCE PROTECTION
BLDG	BUILDING
BMP	BEST MANAGEMENT PRACTICE
BW	BOTTOM OF WALL
C&G	CURB AND GUTTER
CB	CATCH BASIN
CC	CONCRETE CURB
CFE	CAPE FEAR ENGINEERING
CI	CURB DROP INLET
CJ	CONTRACTION JOINT
CLF	CHAIN LINK FENCE
CMH	COMMUNICATION MANHOLE
COMM	COMMUNICATIONS
CONC	CONCRETE
D/B	DESIGN/BUILD
DCJ	DOWELED CONSTRUCTION JOINT
DI	DROP INLET
DPW	DEPARTMENT OF PUBLIC WORKS
DUMP	DUMPSTER
E	EAST
EHH	ELECTRICAL HANDHOLE
EG	EXISTING GAS
EJ	EXPANSION JOINT
ELEC	ELECTRIC
EMH	ELECTRICAL MANHOLE
EL	ELEVATION
FA	FIRE ALARM
FDC	FIRE DEPARTMENT CONNECTION
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FL	FLOW LINE
FW	FIREWATER
GFGI	GOVERNMENT FURNISHED, GOVERNMENT INSTALLED
HW	HEAD WALL
IE	INVERT ELEVATION
LP	LIGHT POLE
LSA	LANDSCAPE STONE
MAT	MATERIAL
MH	MANHOLE
MOF	METAL ORNAMENTAL FENCE
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTH
NCDEQ	NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY
NCDOT	NORTH CAROLINA DIVISION OF TRANSPORTATION
NE	NORTHEAST
NIC	NOT IN CONTRACT
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NW	NORTHWEST
PNG	PIEDMONT NATURAL GAS
PP	POWER POLE
PT	PHYSICAL TRAINING
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
S	SOUTH
SCM	STORMWATER CONTROL MEASURE
SDMH	STORM DRAIN MANHOLE
SE	SOUTHEAST
SEP	SEPARATION
SMH	SANITARY SEWER MANHOLE
SUS	SANDHILLS UTILITY SERVICES
STA	STATION
STY	STORY
SW	SOUTHWEST
TC	TOP OF CURB
TD	TRENCH DRAIN
TE	THICKENED EDGE
TEJ	THICKENED EDGE EXPANSION JOINT
THH	TELECOMMUNICATION HANDHOLE
TMH	TELECOMMUNICATION MANHOLE
TRANS	TRANSFORMER
TSB	TEMPORARY SEDIMENT BASIN
TSD	TEMPORARY SLOPE DRAIN
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UNK	UNKNOWN
W	WEST
W/BW	WITH BARBED WIRE
WL	WATERLINE
WV	WATER VALVE
WW	WING WALL

US Army Corps of Engineers®

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FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
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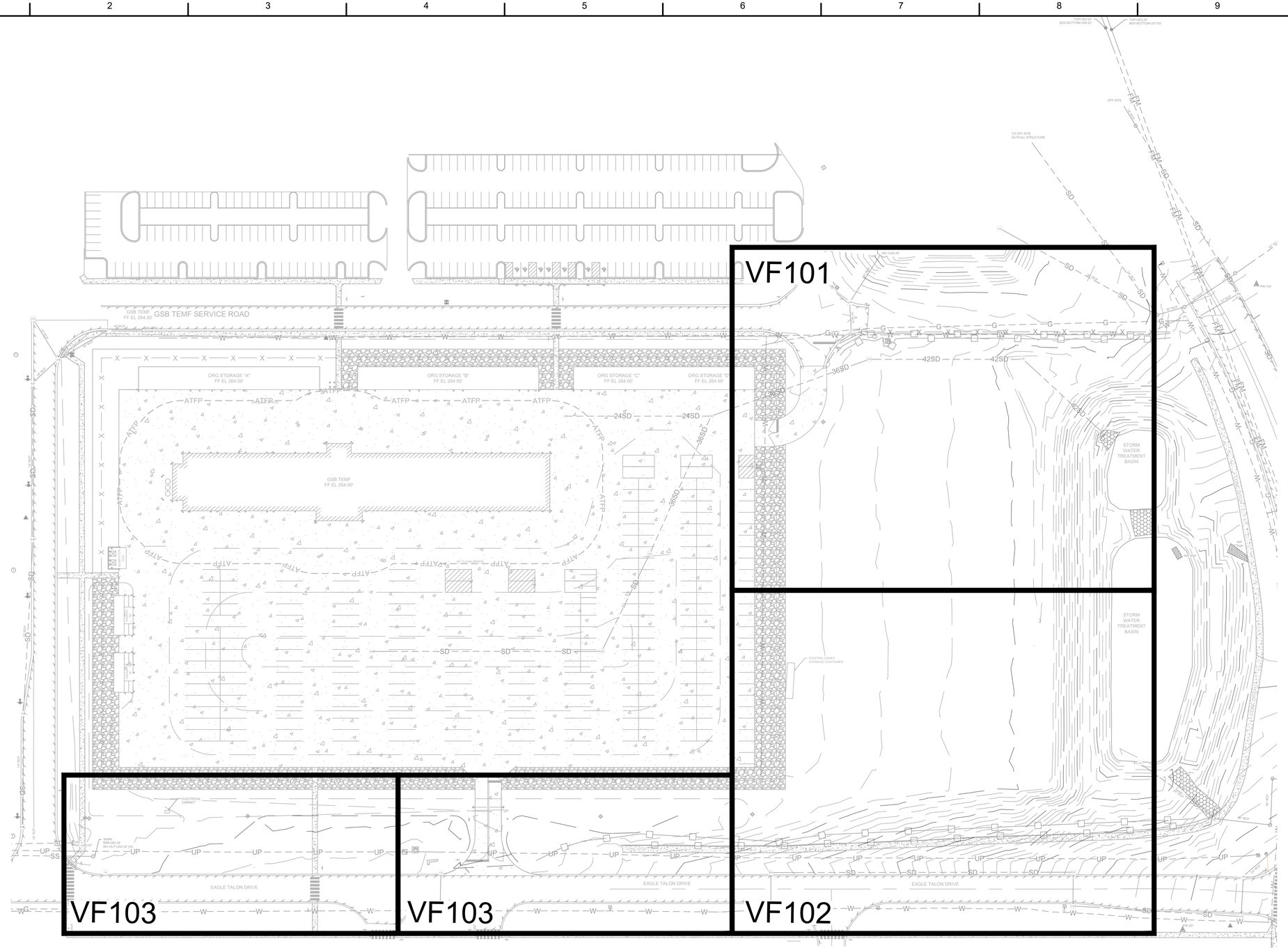
CIVIL GENERAL NOTES

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. HOLT
08/04/23

SHEET ID

C-005

READY TO ADVERTISE



A1 CIVIL EXISTING CONDITIONS SHEET INDEX
1" = 60'

60' 0 60' 120'
1 INCH = 60 FEET

US Army Corps of Engineers®

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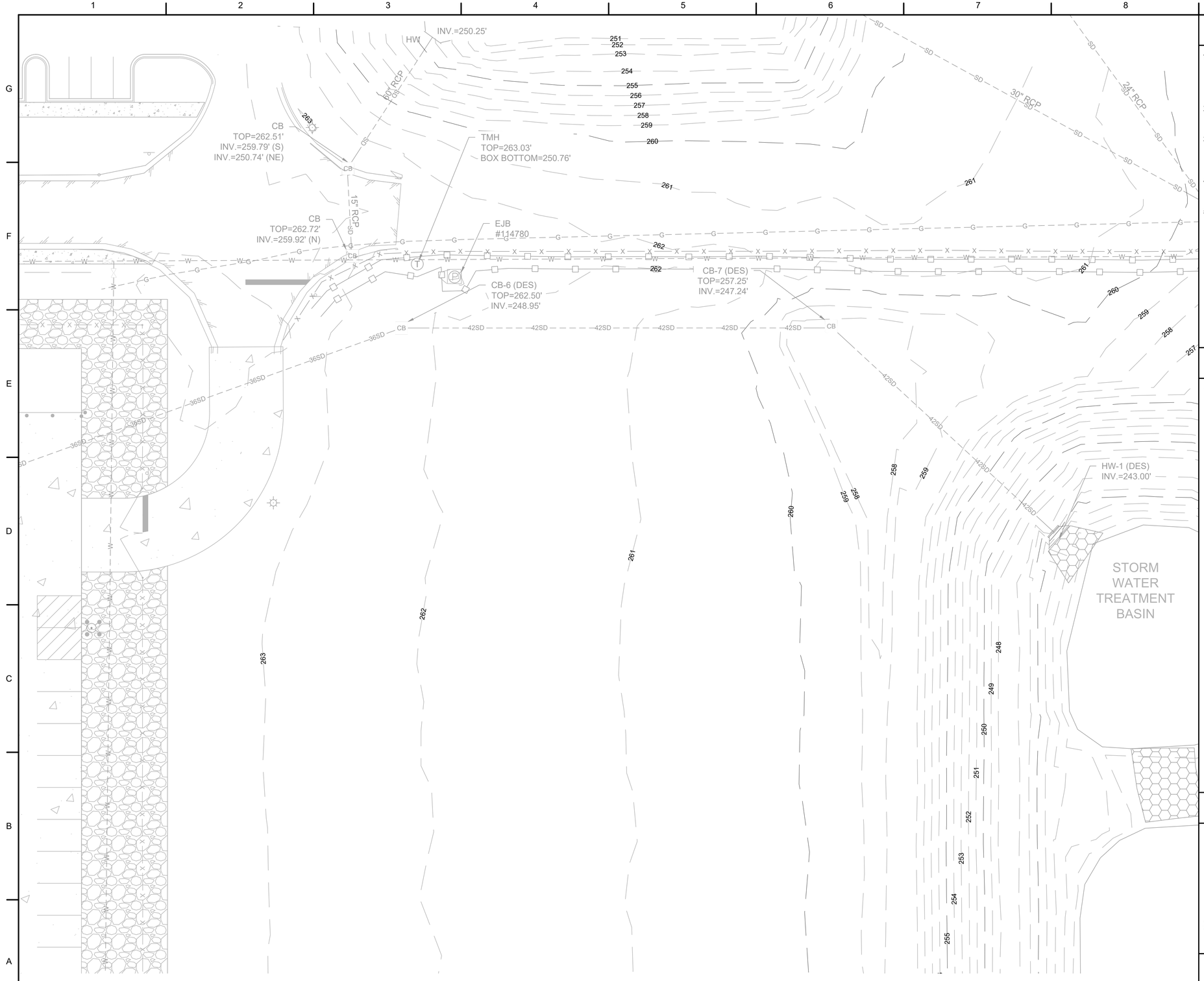
FORT LIBERTY, NORTH CAROLINA
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PROJECT 87447

CIVIL EXISTING CONDITIONS SHEET INDEX

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
VF100

READY TO ADVERTISE



A1 CIVIL EXISTING CONDITIONS PLAN
1" = 20'

SURVEY CONTROL DATA

1. HORIZONTAL CONTROL BASED ON NAD83, U.S. SURVEY FEET. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
2. VERTICAL CONTROL BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD 88), U.S. SURVEY FEET.
3. EXISTING CONDITIONS BASED ON AVAILABLE SITE INFORMATION INCLUDING A COMBINATION OF EXISTING CONDITIONS SURVEY AND INSTALLATION MAPS.
4. THERE ARE NO KNOWN WETLANDS WITHIN THE PROJECT AREA.
5. THE 100-YEAR FLOOD BOUNDARY IS NOT WITHIN OR NEAR THE PROJECT LIMITS.

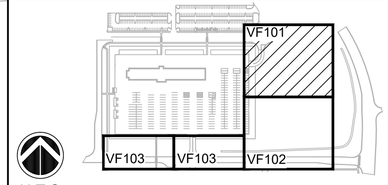
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IRS	IRS

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IRS	IRS

SHEET KEYNOTES

1. SEE SHEET C-001 TO C-005 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.

KEYPLAN



20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

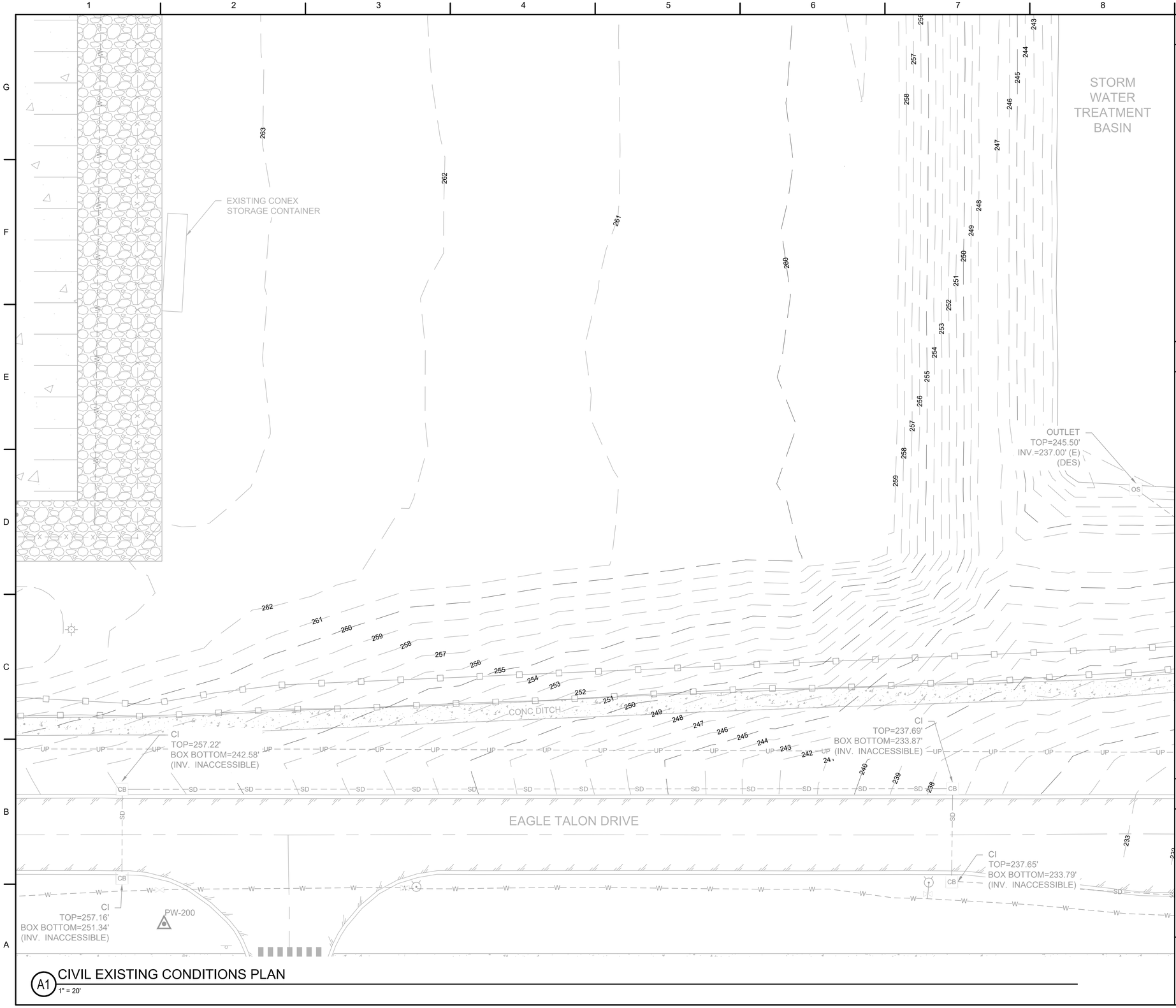
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL EXISTING CONDITIONS PLAN

NORTH CAROLINA PROFESSIONAL SEAL 039615 ENGINEER 08/04/23

SHEET ID
VF101

READY TO ADVERTISE



A1 CIVIL EXISTING CONDITIONS PLAN
1" = 20'

SURVEY CONTROL DATA

1. HORIZONTAL CONTROL BASED ON NAD83, U.S. SURVEY FEET. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
2. VERTICAL CONTROL BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD 88), U.S. SURVEY FEET.
3. EXISTING CONDITIONS BASED ON AVAILABLE SITE INFORMATION INCLUDING A COMBINATION OF EXISTING CONDITIONS SURVEY AND INSTALLATION MAPS.
4. THERE ARE NO KNOWN WETLANDS WITHIN THE PROJECT AREA.
5. THE 100-YEAR FLOOD BOUNDARY IS NOT WITHIN OR NEAR THE PROJECT LIMITS.

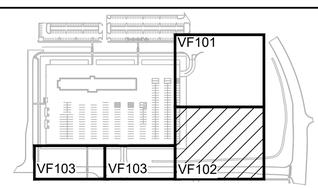
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E: 1992487.74	1991952.81
EL: 256.40	257.88
IRS	IRS

PW - 101	PW - 201
N: 484536.09	484420.26
E: 1992611.73	1992403.79
EL: 228.36	231.89
IRS	IRS

SHEET KEYNOTES

1. SEE SHEET C-001 TO C-005 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
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NC LICENSE #NC-1621

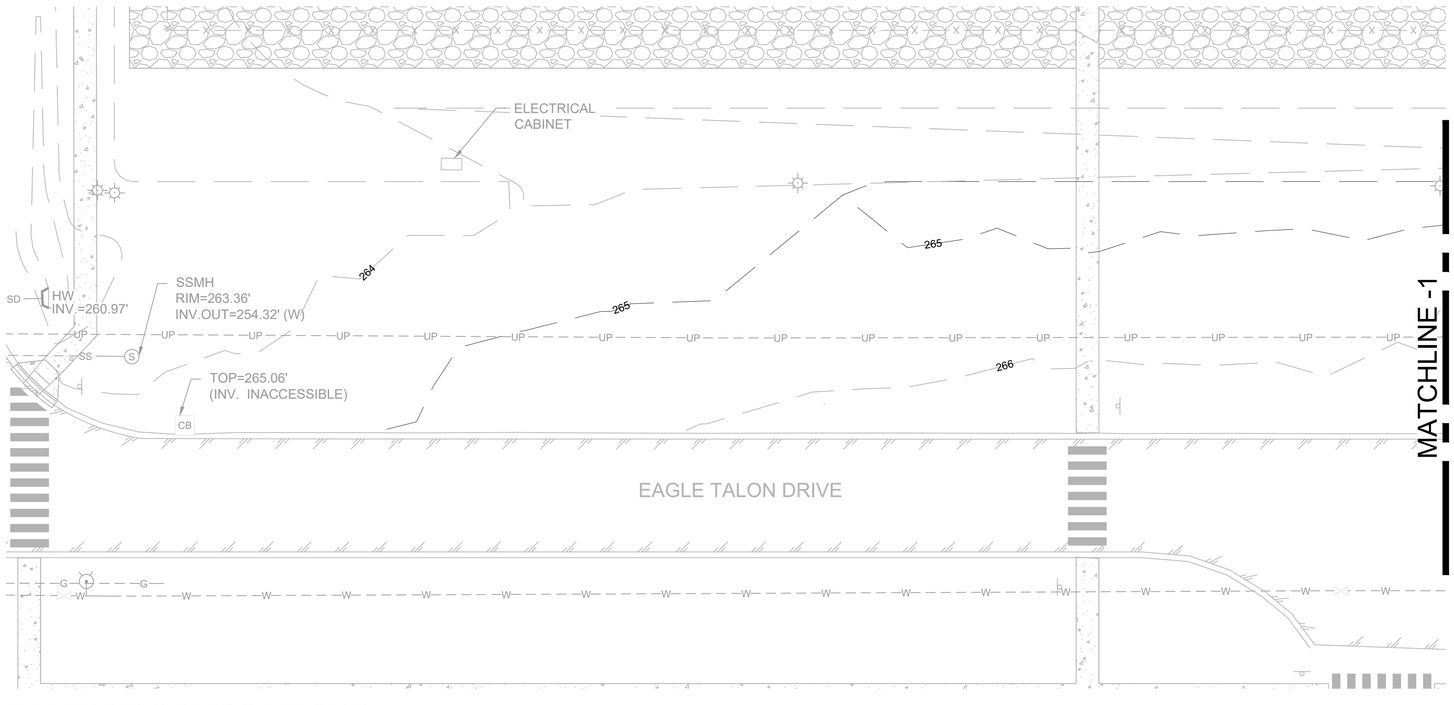
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL EXISTING CONDITIONS PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23
T

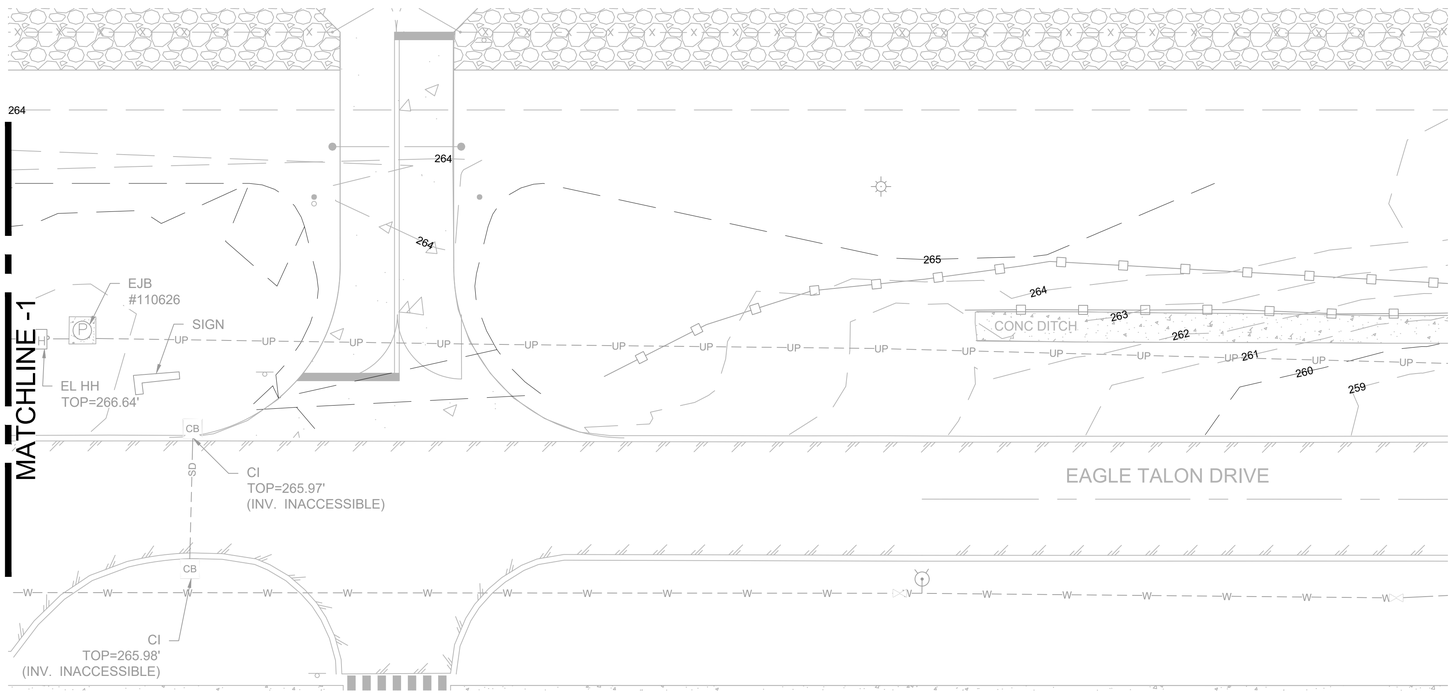
SHEET ID
VF102

READY TO ADVERTISE



D1 CIVIL EXISTING CONDITIONS PLAN

1" = 20'



A1 CIVIL EXISTING CONDITIONS PLAN

1" = 20'

SURVEY CONTROL DATA

1. HORIZONTAL CONTROL BASED ON NAD83, U.S. SURVEY FEET. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
2. VERTICAL CONTROL BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD 88), U.S. SURVEY FEET.
3. EXISTING CONDITIONS BASED ON AVAILABLE SITE INFORMATION INCLUDING A COMBINATION OF EXISTING CONDITIONS SURVEY AND INSTALLATION MAPS.
4. THERE ARE NO KNOWN WETLANDS WITHIN THE PROJECT AREA.
5. THE 100-YEAR FLOOD BOUNDARY IS NOT WITHIN OR NEAR THE PROJECT LIMITS.

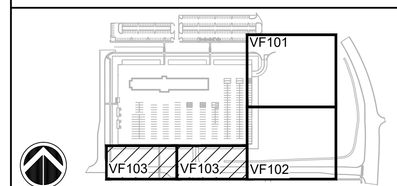
PW - 100	PW - 200
N: 485154.18	484429.84
E: 1992487.74	1991952.81
EL: 256.40	257.88
IRS	IRS

PW - 101	PW - 201
N: 484536.09	484420.26
E: 1992611.73	1992403.79
EL: 228.36	231.89
IRS	IRS

SHEET KEYNOTES

1. SEE SHEET C-001 TO C-005 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.

KEYPLAN



N.T.S.

20' 0 20' 40'

1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

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FIRST TITLE:
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

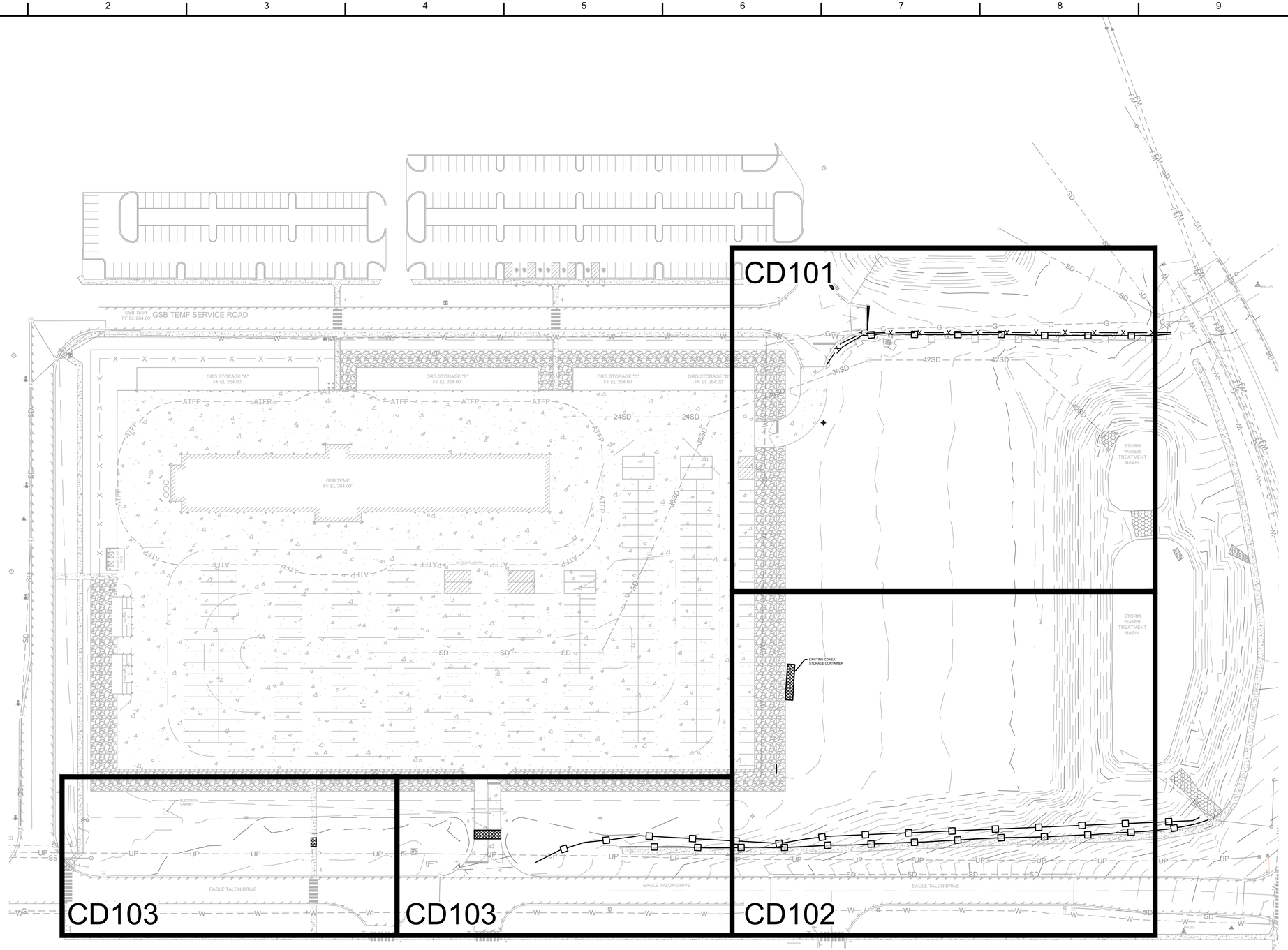
CIVIL EXISTING CONDITIONS PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23
KEVIN L. HOLLOWAY

SHEET ID

VF103

READY TO ADVERTISE



A1 CIVIL DEMOLITION SHEET INDEX
1" = 60'

60' 0 60' 120'
1 INCH = 60 FEET

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
SIZE: ANSI D
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
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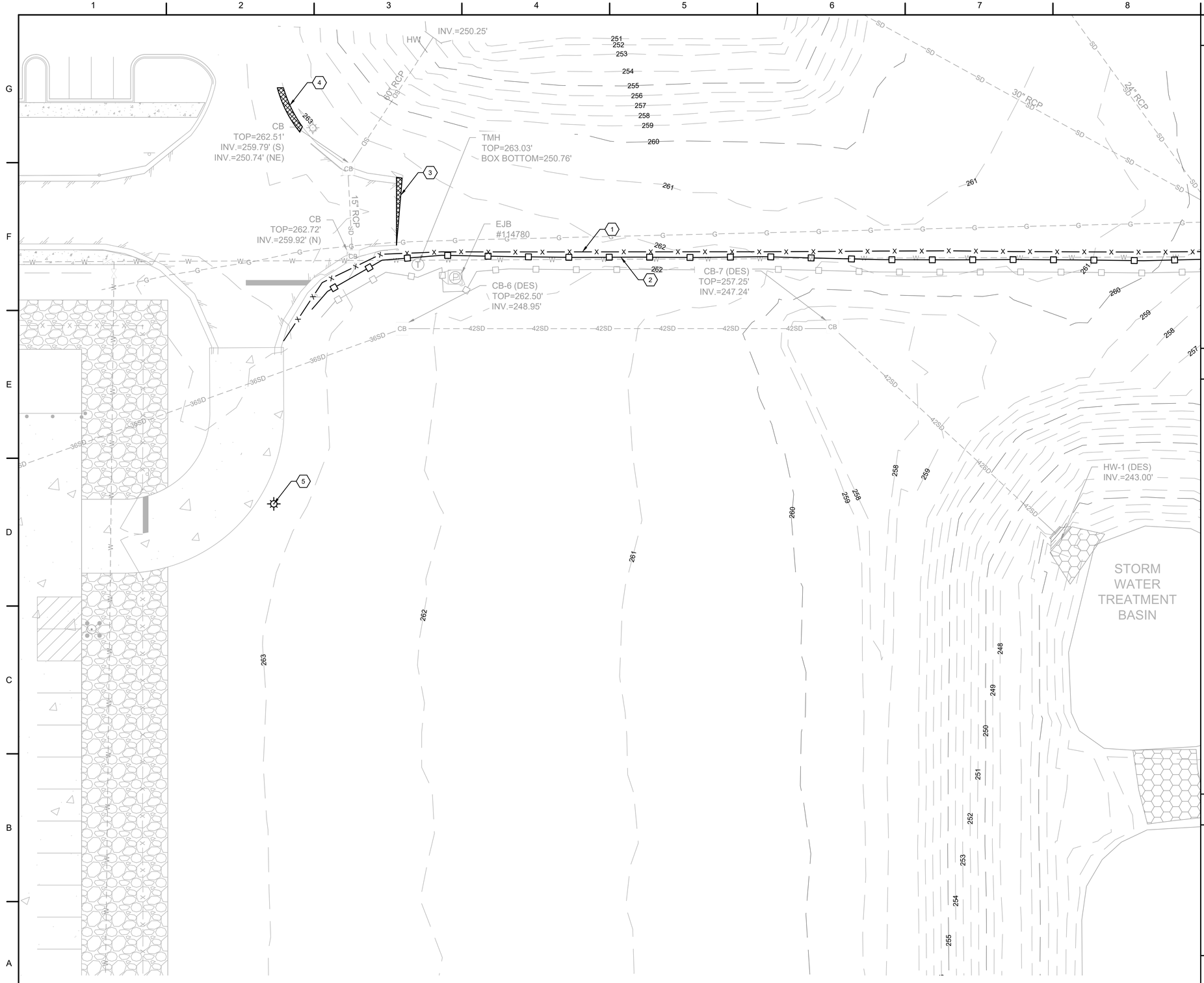
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL DEMOLITION SHEET INDEX

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
CD100

READY TO ADVERTISE



A1 CIVIL DEMOLITION PLAN
1" = 20'

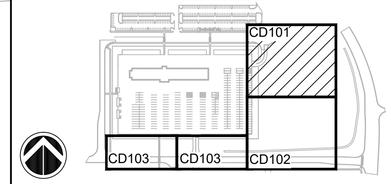
GENERAL SHEET NOTES

1. SEE SHEETS VF100 - VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001 - C-004 FOR GENERAL NOTES.
3. SEE SHEET C-005 FOR LEGEND AND ABBREVIATIONS.
4. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY. NOT ALL KEYNOTES ARE APPLICABLE TO EVERY SHEET.

SHEET KEYNOTES

1. REMOVE EXISTING CHAINLINK FENCE
2. EXISTING SILT FENCE TO BE REMOVED BY OTHERS
3. SAW CUT EXISTING ASPHALT TO PROVIDE CLEAN PAVING EDGE
4. REMOVE EXISTING CURB AS NEEDED FOR PEDESTRIAN CROSSWALK
5. RELOCATE LIGHT POLE

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
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US ARMY CORPS OF ENGINEERS
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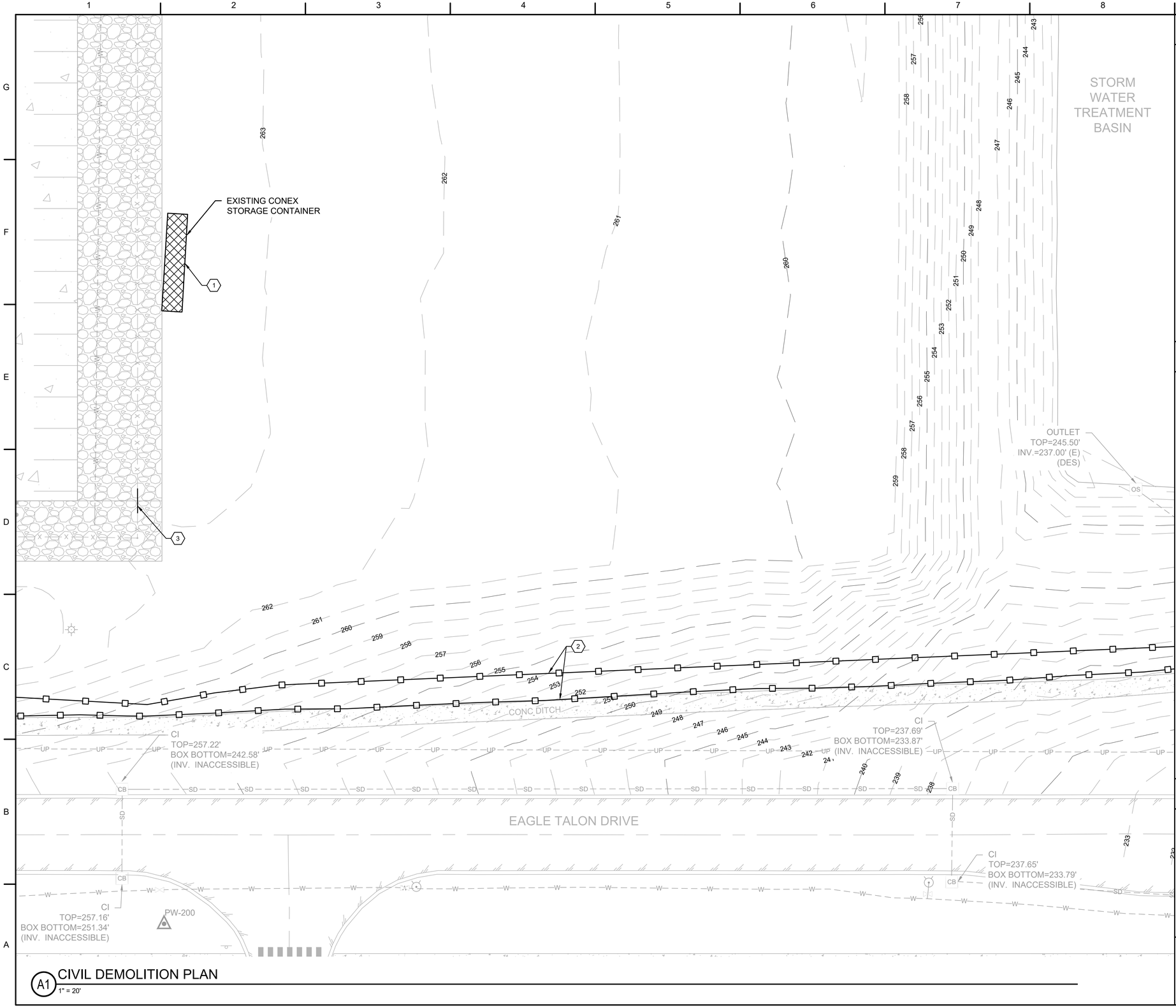
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL DEMOLITION PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. HOLLAND
08/04/23

SHEET ID
CD101

READY TO ADVERTISE



A1 CIVIL DEMOLITION PLAN
1" = 20'

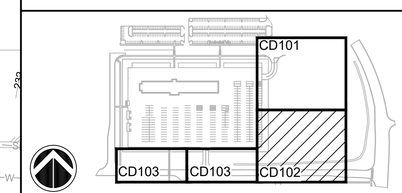
SURVEY CONTROL DATA

1. SEE SHEETS VF100 - VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001 - C-004 FOR GENERAL NOTES.
3. SEE SHEET C-005 FOR LEGEND AND ABBREVIATIONS.
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5. RELOCATE LIGHT POLE

KEYPLAN



20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
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SOLICITATION NO.: W912PM22R0015
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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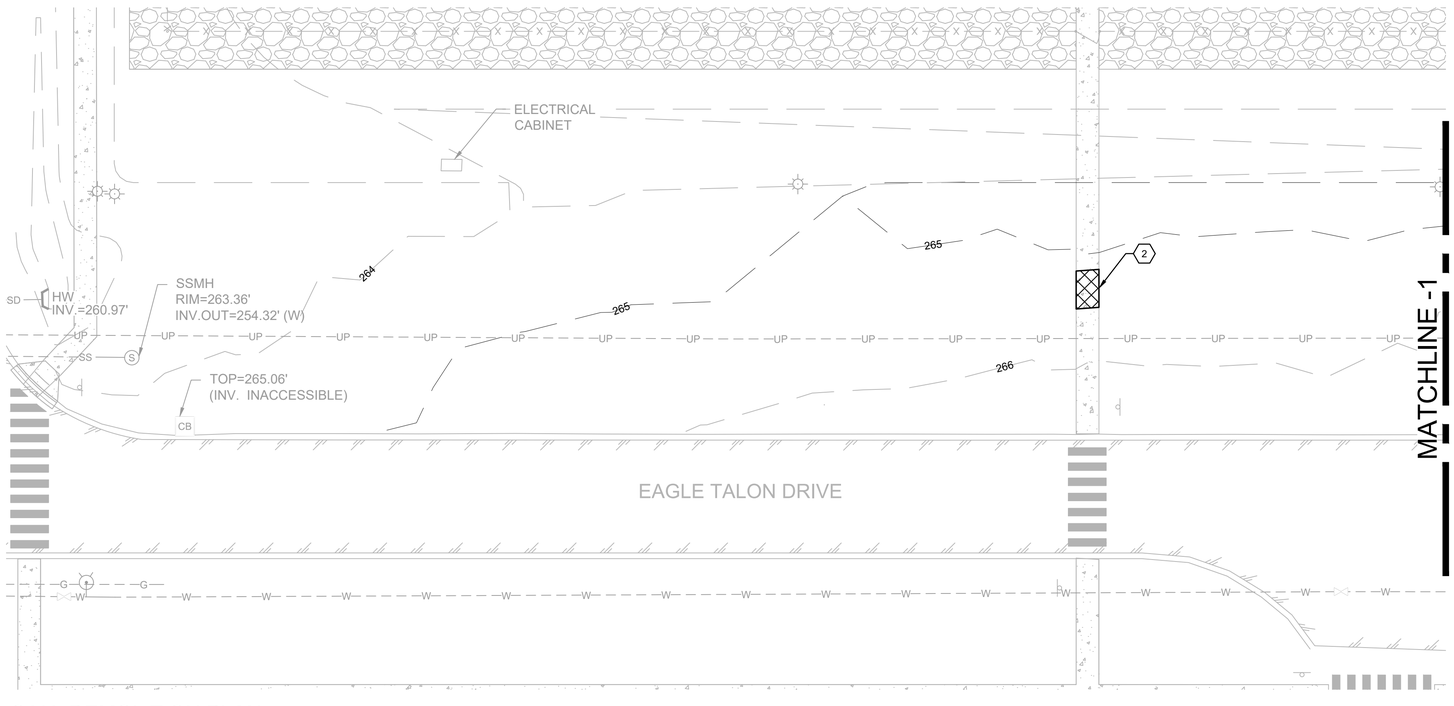
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL DEMOLITION PLAN

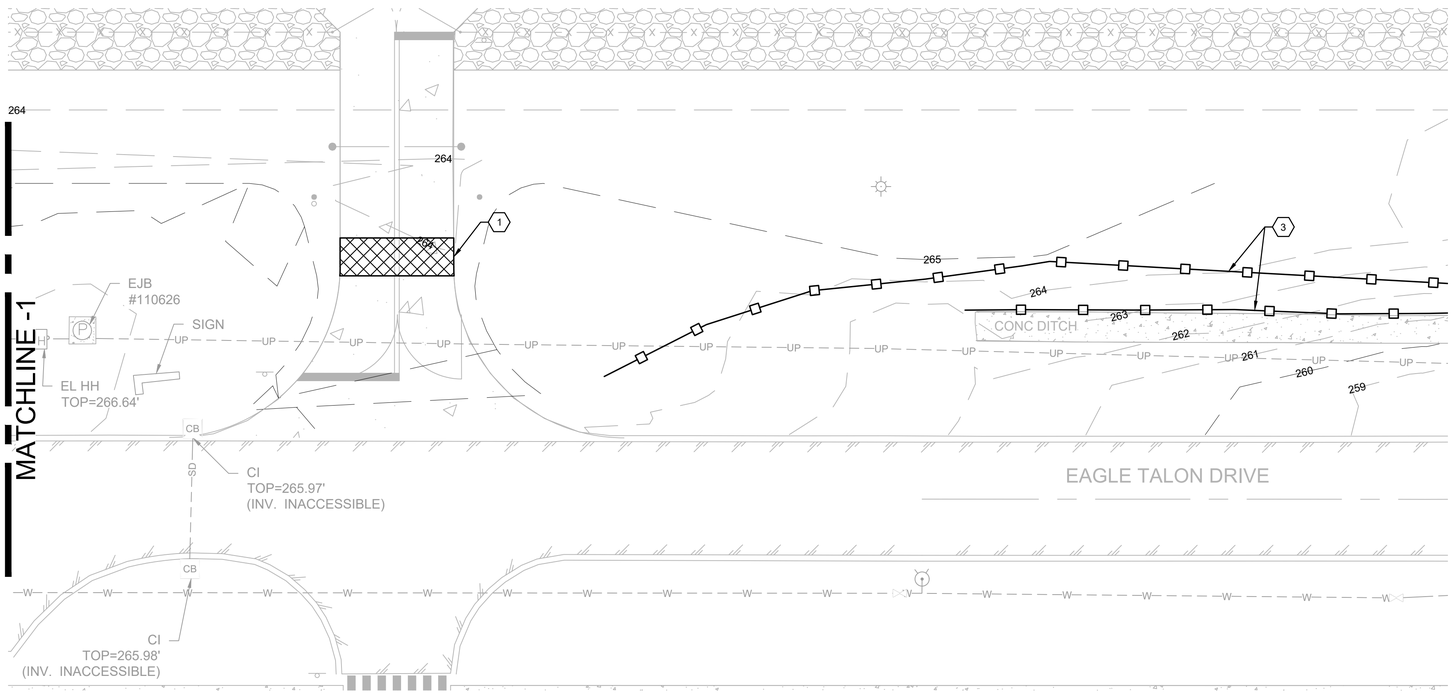
NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
CD102

READY TO ADVERTISE



D1 CIVIL DEMOLITION PLAN
1" = 20'



A1 CIVIL DEMOLITION PLAN
1" = 20'

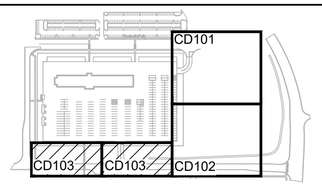
SURVEY CONTROL DATA

1. SEE SHEETS VF100 - VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001 - C-004 FOR GENERAL NOTES.
3. SEE SHEET C-005 FOR LEGEND AND ABBREVIATIONS.
4. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY. NOT ALL KEYNOTES ARE APPLICABLE TO EVERY SHEET.

SHEET KEYNOTES

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2. EXISTING SILT FENCE TO BE REMOVED BY OTHERS
3. SAW CUT EXISTING ASPHALT TO PROVIDE CLEAN PAVING EDGE
4. REMOVE EXISTING CURB AS NEEDED FOR PEDESTRIAN CROSSWALK
5. RELOCATE LIGHT POLE

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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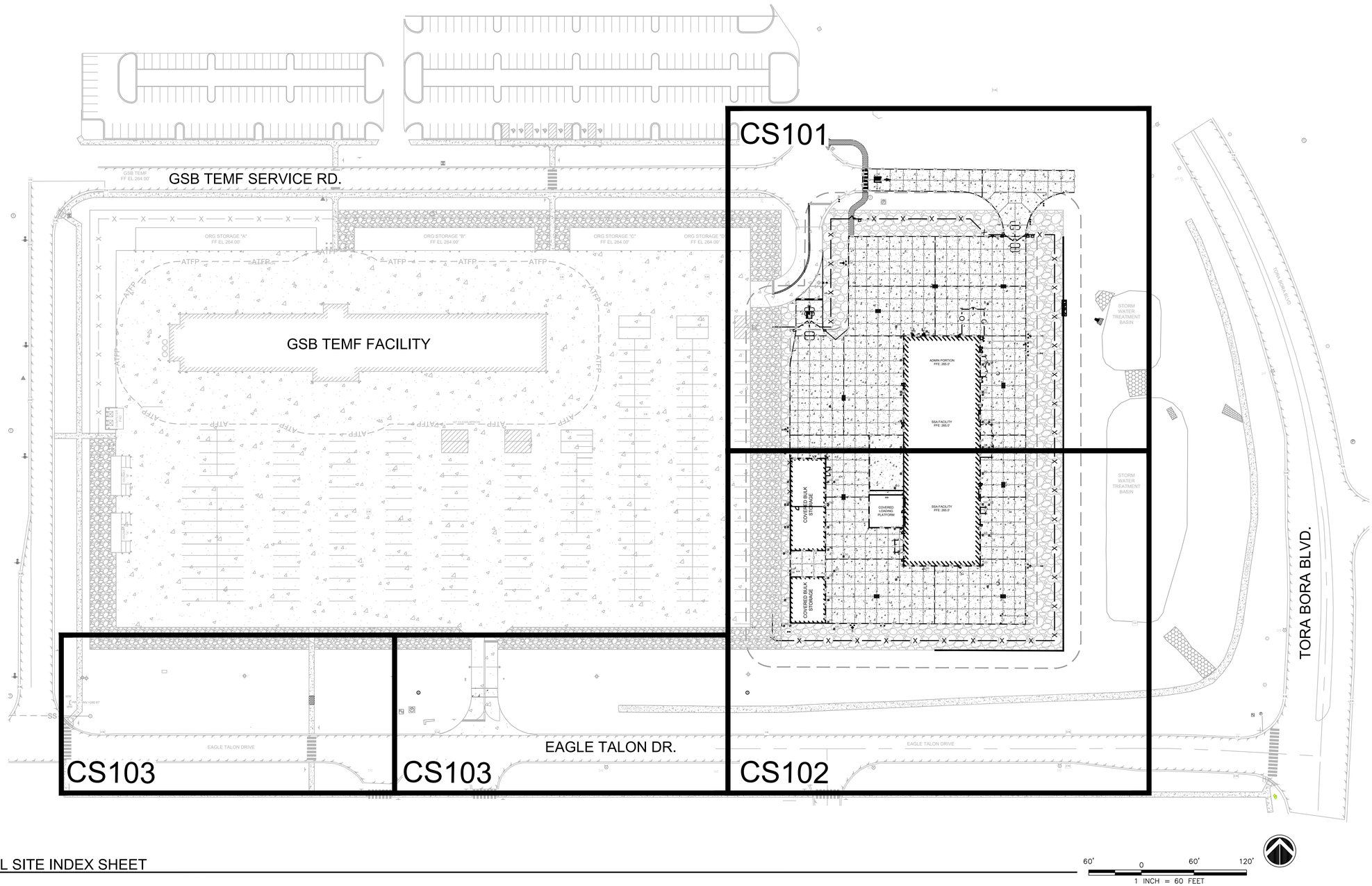
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL DEMOLITION PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23
KEVIN L. HOLLOWAY

SHEET ID
CD103

READY TO ADVERTISE



A1 CIVIL SITE INDEX SHEET
1" = 60'

60' 0 60' 120'
1 INCH = 60 FEET

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
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WILMINGTON, NORTH CAROLINA 28403-1343

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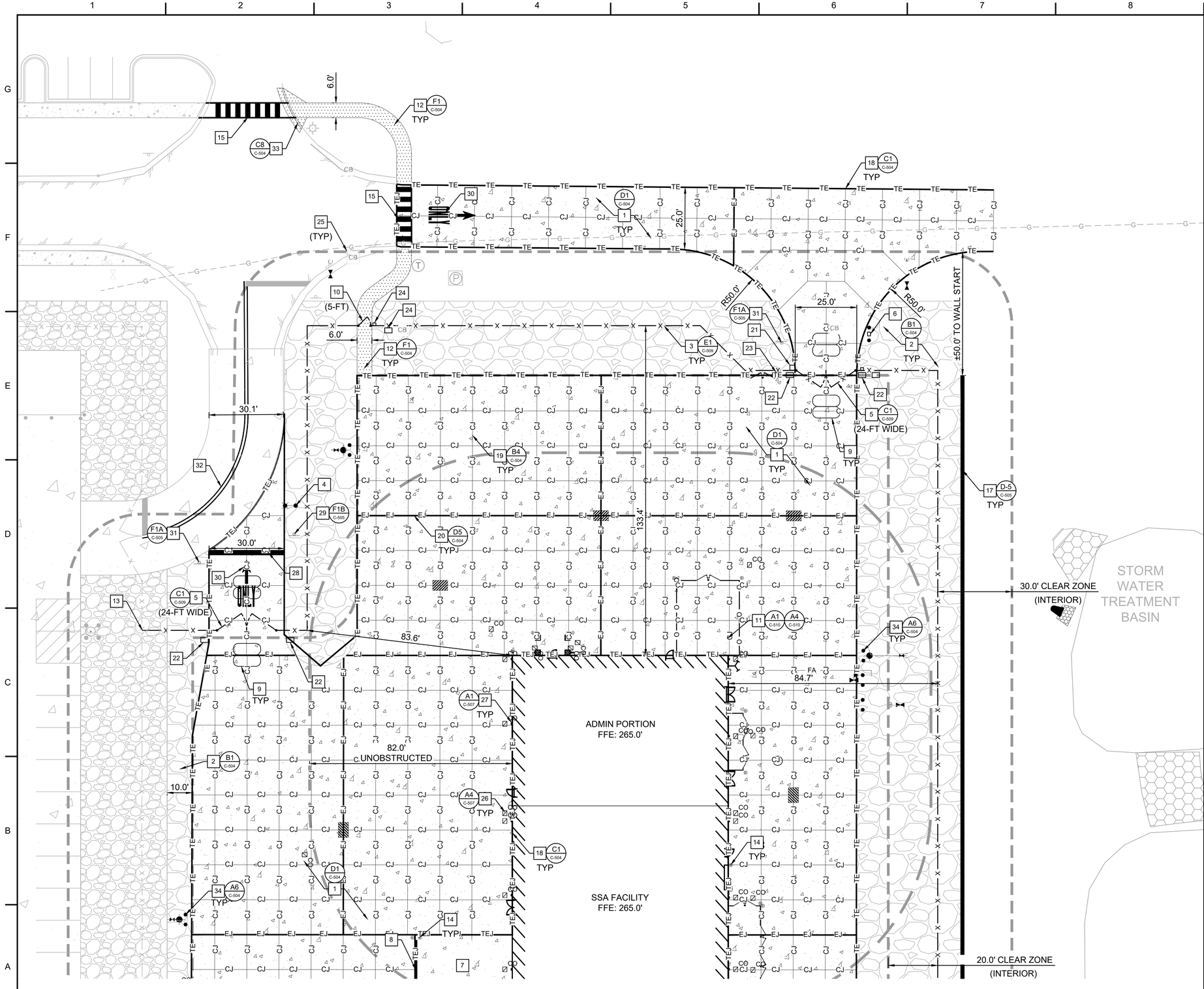
FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL SITE INDEX SHEET

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER 08/04/23

SHEET ID
CS100

READY TO ADVERTISE



A1 CIVIL SITE PLAN
1" = 20'

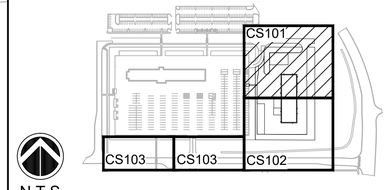
GENERAL SHEET NOTES

1. SEE SHEETS VF101-VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
3. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
4. UNDERGROUND UTILITIES NOT SHOWN FOR CLARITY. SEE SHEETS CU101-CU103 FOR PROPOSED.
5. UNOBSTRUCTED SPACE HAS BEEN PROVIDED AT 82 FEET TO SUPPORT DESIGNED BUILDING BLAST RESISTANCE.
6. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY. NOT ALL KEYNOTES ARE APPLICABLE TO EVERY SHEET.
7. CONCRETE JOINING PLAN IS SHOWN FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR PROVIDING DETAILED PLACEMENT SCHEDULE AND JOINING FOR REVIEW.
8. ODD SHAPED SLABS (LENGTH TO WIDTH RATIO GREATER THAN 1.5) SHALL BE REINFORCED WITH WELDED FIBER FABRIC. (SEE DETAIL D1 ON SHEET C-504)
9. BLAST ANALYSIS FOR THE BUILDING IS BASED STANDOFF DISTANCES SHOWN ON DRAWINGS CS101 & CS102. ANY CHANGES TO THOSE DISTANCES MUST BE APPROVED BY GOVERNMENT BEFORE BEING IMPLEMENTED.

SHEET KEYNOTES

1. HEAVY-DUTY CONCRETE
2. PERIMETER GRAVEL
3. HIGH SECURITY FENCING
4. RELOCATED LIGHT POLE
5. ACCESS GATES OPERATED WITH CARD READER
6. DUAL-HEIGHT CARD READER STANCHION WITH GUARD POSTS. SEE DETAIL F9/S-008 FOR CARD READER STANCHION FOUNDATION
7. DEPRESSED LOADING DOCK
8. RETAINING WALLS FOR LOADING DOCK
9. VEHICLE DETECTION LOOPS RECESSED IN PAVEMENT. COORDINATE OPERATION WITH GATE OPERATORS
10. PEDESTRIAN SWING GATE WITH INTEGRAL CLOSER AND ELECTRIC STRIKE
11. FENCED MECHANICAL YARD
12. CONCRETE SIDEWALK
13. TIE TO EXISTING FENCE AT FENCE POST
14. GUARD POST/BUILDING BOLLARD - SEE ARCHITECTURAL
15. CROSSWALK PER NCDOT STD. DETAIL 1205.07 DETAIL C
16. DUMPSTER ENCLOSURE
17. SEGMENTED BLOCK RETAINING WALL
18. THICKENED EDGE (TE) & THICKENED EDGE EXPANSION JOINT (TEJ)
19. SAWED CONTRACTION JOINT (CJ)
20. EXPANSION JOINT (EJ)
21. KNOX BOX FOR FIRE/EMV ACCESS
22. SWING GATE OPERATOR ON CONCRETE PAD - SEE DETAIL F6/S-008 FOR PAD DETAIL. COORDINATE OPERATION WITH CARD READER AND VEHICLE DETECTION LOOPS.
23. ACS ENCLOSURE FOR CARD READER STANCHION AT GATE. SEE DETAIL A8/S-008 FOR ENCLOSURE DETAIL AND FOUNDATIONS.
24. SINGLE HEIGHT - CARD READER STANCHION. SEE DETAIL F9/S-008
25. EXISTING STORM INLET (SEE SHEET VF101 FOR ADDITIONAL INFORMATION).
26. ROOF DRAIN CLEANOUT
27. ROOF DRAIN
28. STOP BAR PER NCDOT STD. DETAIL 1205.01
29. STOP SIGN
30. STRAIGHT ARROW (NCDOT DTL 1205.08) WITH "ONLY" LETTERING (NCDOT DTL 1205.08)
31. DO NOT ENTER SIGN
32. DOUBLE YELLOW CENTERLINE PER NCDOT STD. DETAIL 1205.01
33. HANDICAP RAMP FOR ROLL CURB
34. PROTECTIVE BOLLARD

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

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DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
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SOLICITATION NO.: W912PM22R0015
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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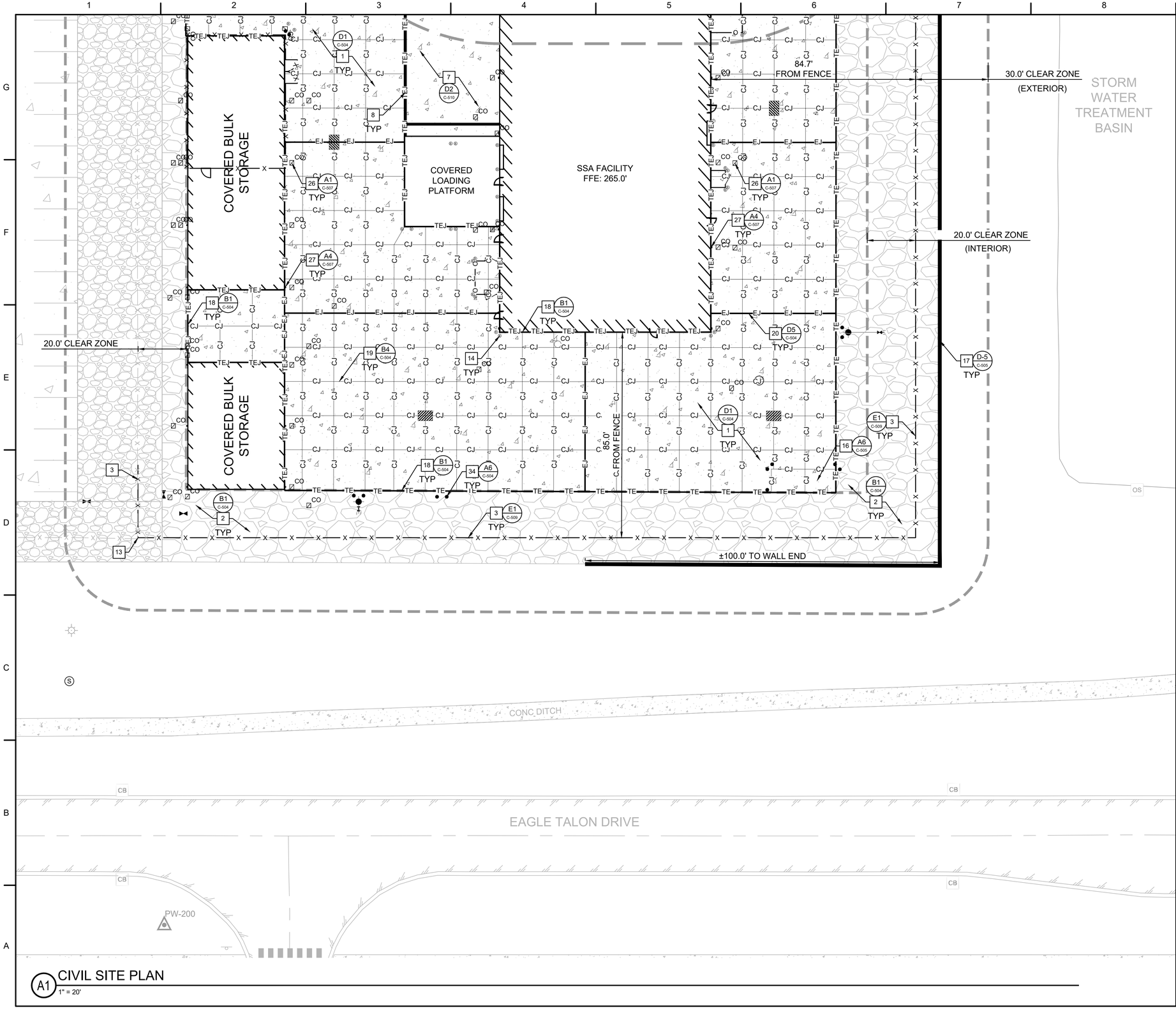
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 8/447

CIVIL SITE PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
CS101

READY TO ADVERTISE



A1 CIVIL SITE PLAN
1" = 20'

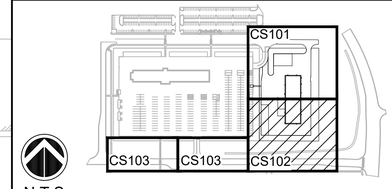
GENERAL SHEET NOTES

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2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
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8. ODD SHAPED SLABS (LENGTH TO WIDTH RATIO GREATER THAN 1.5) SHALL BE REINFORCED WITH WELDED FIBER FABRIC. (SEE DETAIL D1 ON SHEET C-504)
9. BLAST ANALYSIS FOR THE BUILDING IS BASED STANDOFF DISTANCES SHOWN ON DRAWINGS CS101 & CS102. ANY CHANGES TO THOSE DISTANCES MUST BE APPROVED BY GOVERNMENT BEFORE BEING IMPLEMENTED.

SHEET KEYNOTES

1. HEAVY-DUTY CONCRETE
2. PERIMETER GRAVEL
3. HIGH SECURITY FENCING
4. RELOCATED LIGHT POLE
5. ACCESS GATES OPERATED WITH CARD READER
6. DUAL-HEIGHT CANTILEVER STANCHION WITH GUARD POSTS. SEE DETAIL F9/S-008 FOR CARD READER STANCHION FOUNDATION
7. DEPRESSED LOADING DOCK
8. RETAINING WALLS FOR LOADING DOCK
9. VEHICLE DETECTION LOOPS RECESSED IN PAVEMENT. COORDINATE OPERATION WITH GATE OPERATORS
10. PEDESTRIAN SWING GATE WITH INTEGRAL CLOSER AND ELECTRIC STRIKE
11. FENCED MECHANICAL YARD
12. CONCRETE SIDEWALK
13. TIE TO EXISTING FENCE AT FENCE POST
14. GUARD POST/BUILDING BOLLARD - SEE ARCHITECTURAL
15. CROSSWALK PER NCDOT STD. DETAIL 1205.07 DETAIL C
16. DUMPSTER ENCLOSURE
17. SEGMENTED BLOCK RETAINING WALL
18. THICKENED EDGE (TE) & THICKENED EDGE EXPANSION JOINT (TEJ)
19. SAWED CONTRACTION JOINT (CJ)
20. EXPANSION JOINT (EJ)
21. KNOX BOX FOR FIRE/EMV ACCESS
22. SWING GATE OPERATOR ON CONCRETE PAD - SEE DETAIL F6/S-008 FOR PAD DETAIL. COORDINATE OPERATION WITH CARD READER AND VEHICLE DETECTION LOOPS.
23. ACS ENCLOSURE FOR CARD READER STANCHION AT GATE. SEE DETAIL A8/S-008 FOR ENCLOSURE DETAIL AND FOUNDATIONS.
24. SINGLE HEIGHT - CARD READER STANCHION. SEE DETAIL F9/S-008
25. EXISTING STORM INLET (SEE SHEET VF101 FOR ADDITIONAL INFORMATION).
26. ROOF DRAIN CLEANOUT
27. ROOF DRAIN
28. STOP BAR PER NCDOT STD. DETAIL 1205.01
29. STOP SIGN
30. STRAIGHT ARROW (NCDOT DTL 1205.08) WITH "ONLY" LETTERING (NCDOT DTL 1205.08)
31. DO NOT ENTER SIGN
32. DOUBLE YELLOW CENTERLINE PER NCDOT STD. DETAIL 1205.01
33. HANDICAP RAMP FOR ROLL CURB
34. PROTECTIVE BOLLARD

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SIZE: ANSI D
SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD. SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

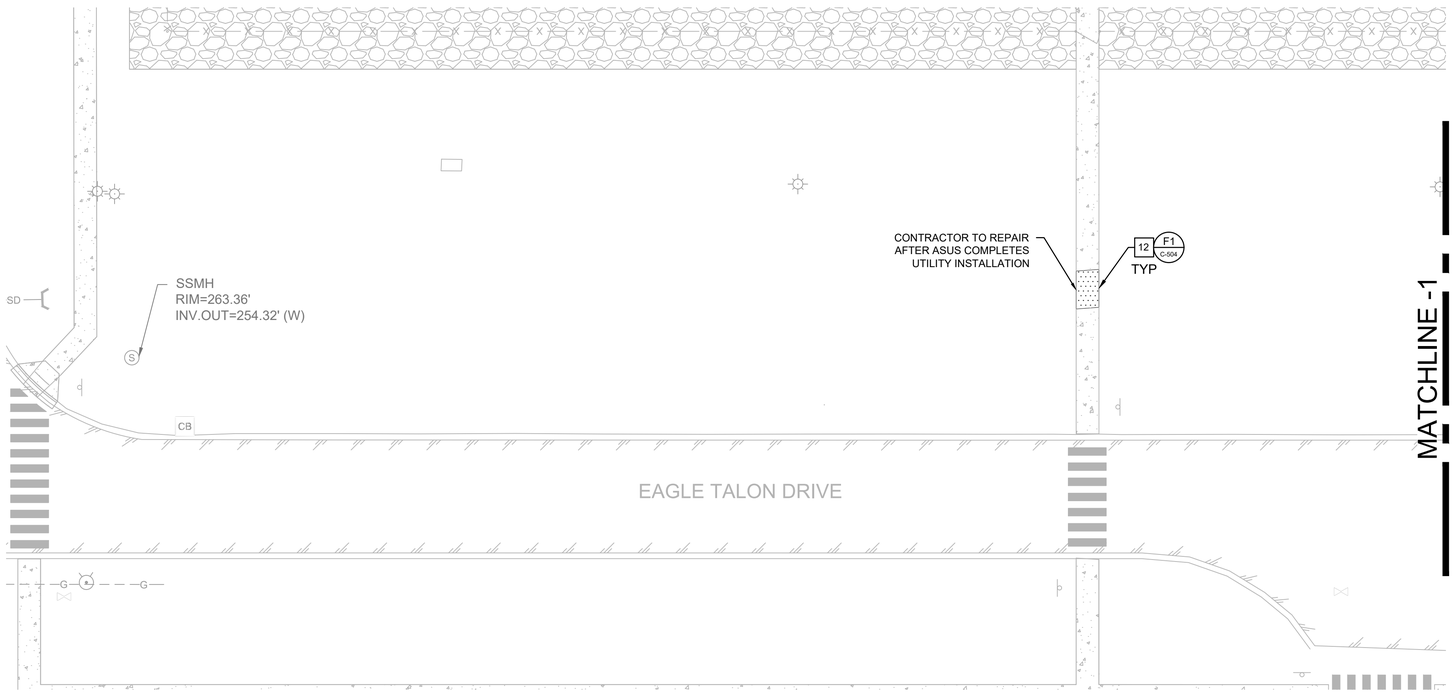
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 8/447

CIVIL SITE PLAN

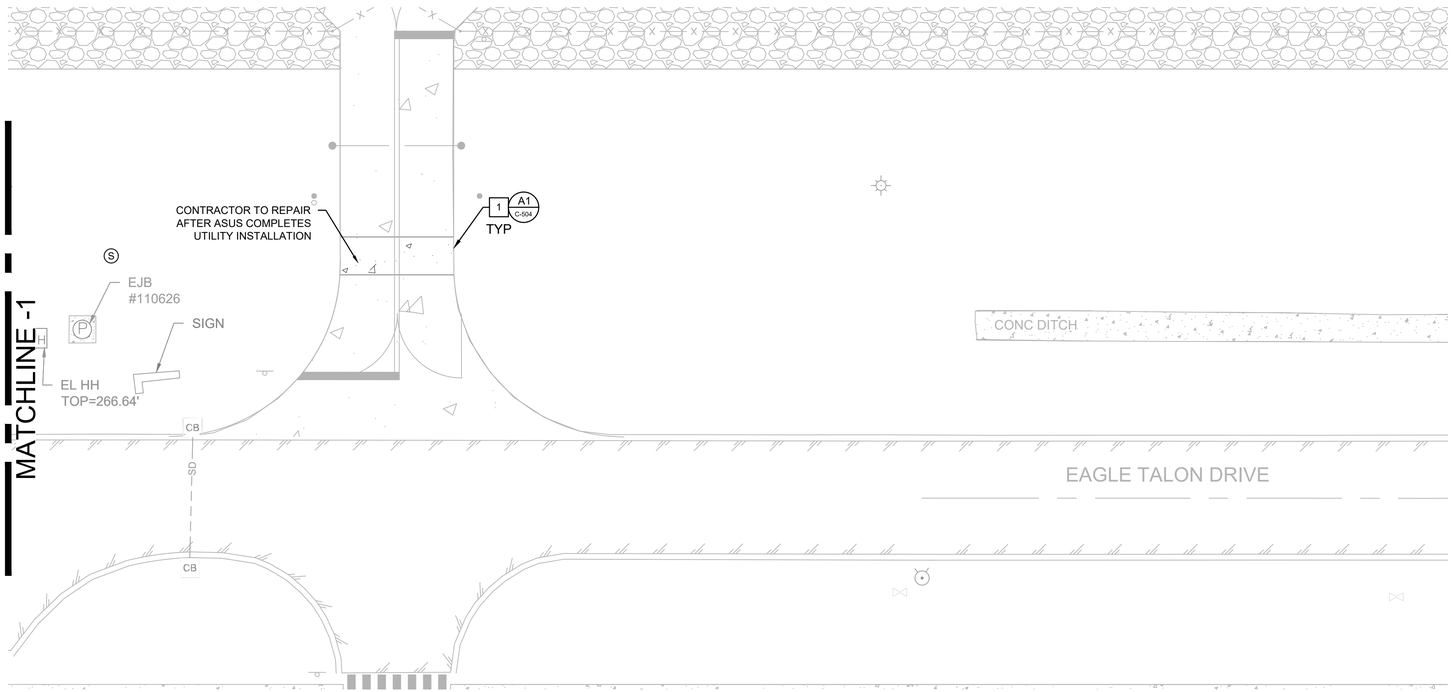
NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. HOLT
08/04/23

SHEET ID
CS102

READY TO ADVERTISE



D1 CIVIL SITE PLAN
1" = 20'



A1 CIVIL SITE PLAN
1" = 20'

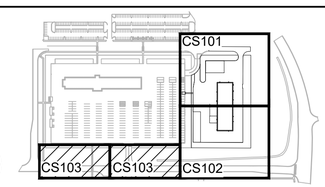
GENERAL SHEET NOTES

1. SEE SHEETS VF101-VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
3. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
4. UNDERGROUND UTILITIES NOT SHOWN FOR CLARITY. SEE SHEETS CU101-CU103 FOR PROPOSED.
5. UNOBSTRUCTED SPACE HAS BEEN PROVIDED AT 82 FEET TO SUPPORT DESIGNED BUILDING BLAST RESISTANCE.
6. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY. NOT ALL KEYNOTES ARE APPLICABLE TO EVERY SHEET.
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KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
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US ARMY CORPS OF ENGINEERS
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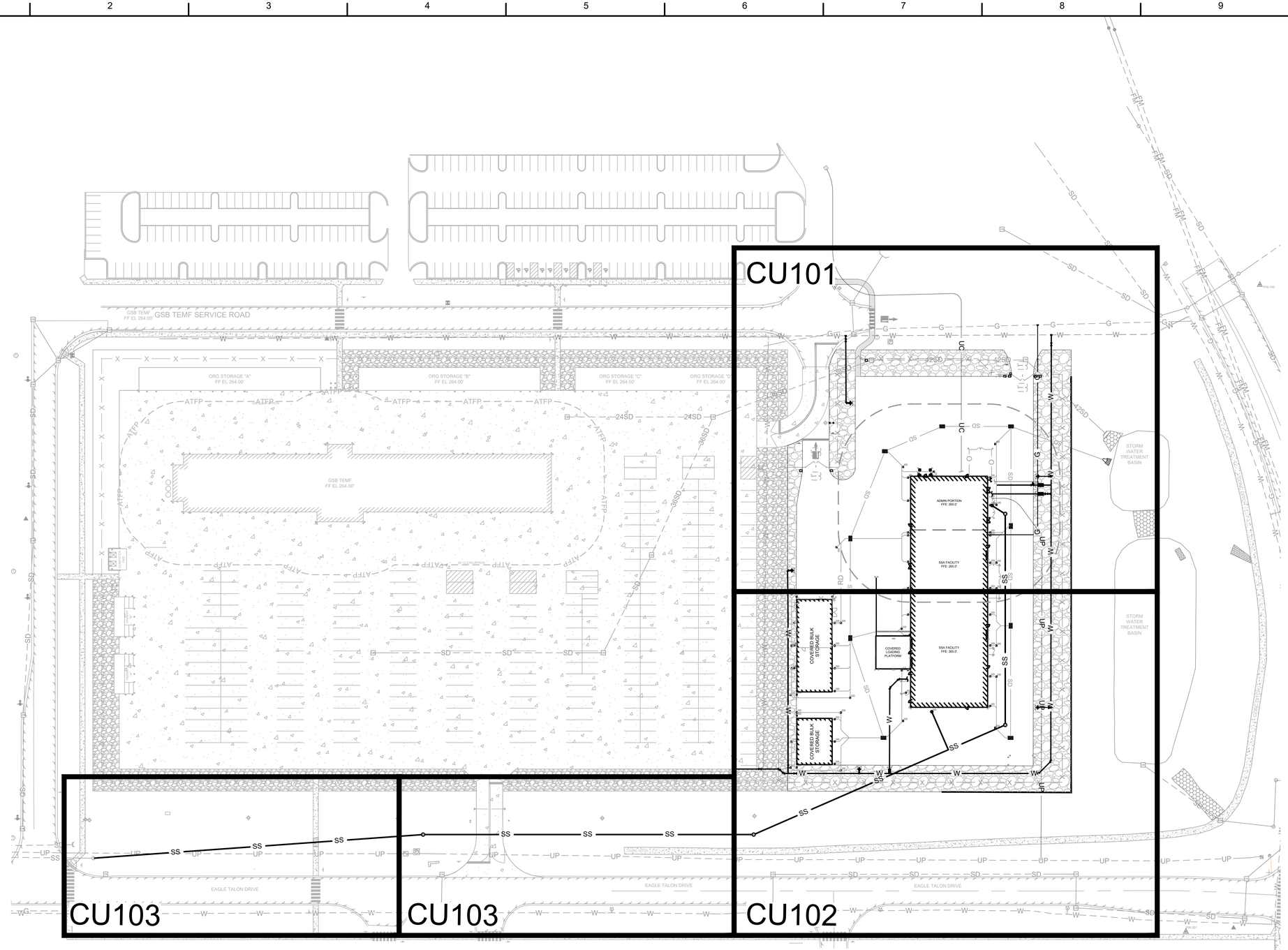
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL SITE PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23
T. [illegible]

SHEET ID
CS103

READY TO ADVERTISE



A1 CIVIL UTILITY INDEX SHEET
1" = 60'

60' 0 60' 120'
1 INCH = 60 FEET

US Army Corps of Engineers®

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DESIGNED BY: KLH
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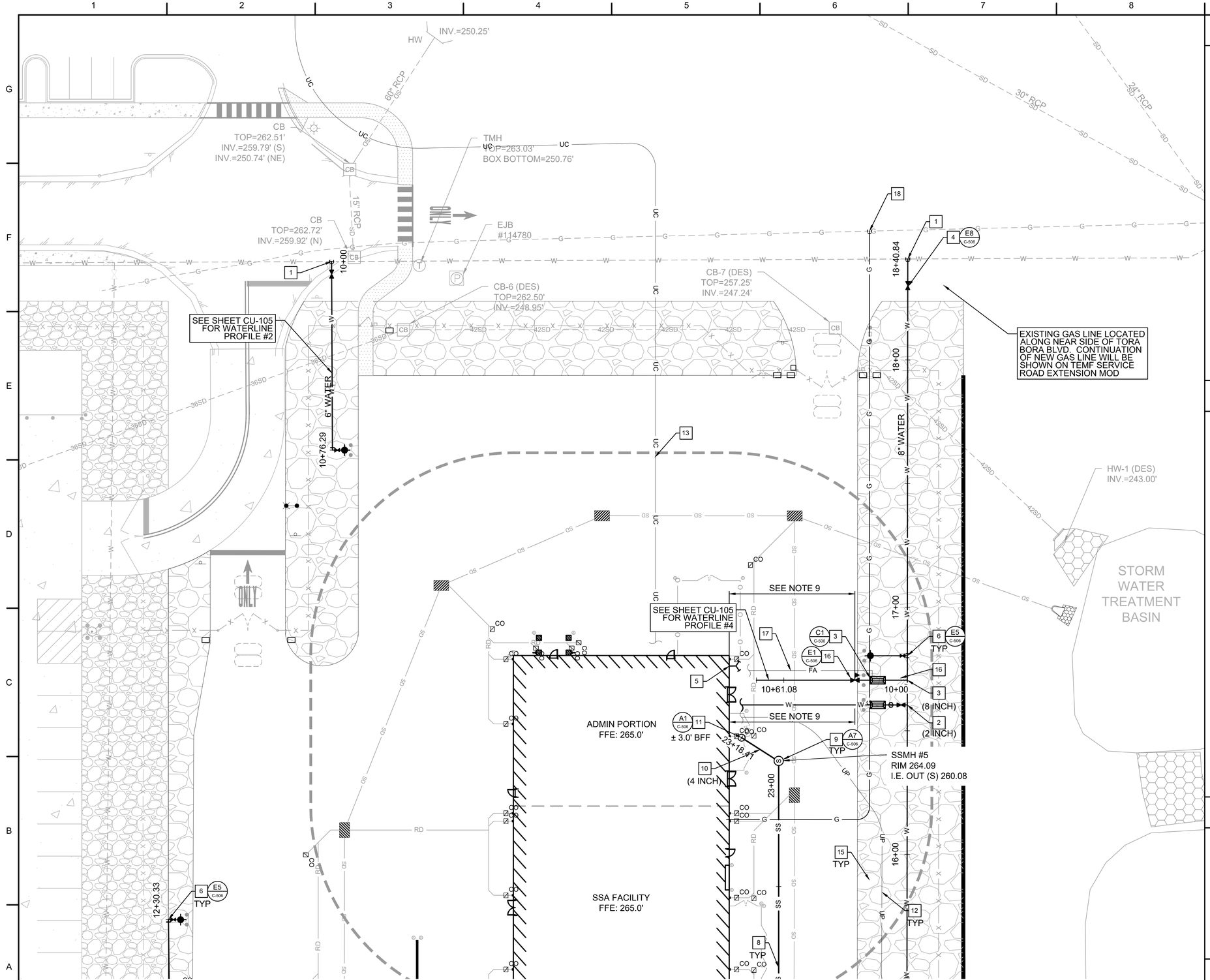
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL UTILITY INDEX SHEET

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
CU100

READY TO ADVERTISE



A1 CIVIL UTILITY PLAN
1" = 20'

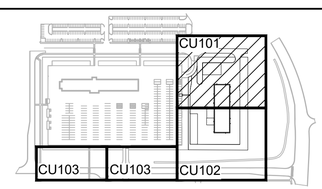
GENERAL SHEET NOTES

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2. SEE SHEETS C-001-C-005 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
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5. NATURAL GAS DISTRIBUTION SYSTEM IS TO BE INSTALLED BY PIEDMONT NATURAL GAS AND IS SHOWN FOR GENERAL REFERENCE AND COORDINATION ONLY. PIEDMONT NATURAL GAS SHALL COORDINATE WITH SITE CONTRACTOR TO ENSURE NO CONFLICTS.
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9. CONTRACTOR RESPONSIBLE FOR INSTALLING FIRE LINE FROM PIV TO BUILDING AND DOMESTIC SERVICE FROM BACKFLOW PREVENTER TO BUILDING. COORDINATE POINT OF CONNECTION WITH ASUS.

SHEET KEYNOTES

1. CONNECT TO EXISTING WATERLINE. INSTALL FITTINGS AS REQUIRED. (BY ASUS)
2. DOMESTIC SERVICE LINE, GATE VALVE, METER, AND BACKFLOW PREVENTER IN HOTBOX ENCLOSURE. (SIZE VARIES) (BY ASUS)
3. 8" FIRE SERVICE LINE WITH PIV AND BACKFLOW PREVENTER IN HOT BOX ENCLOSURE (BY ASUS)
4. GATE VALVE (SIZE VARIES) (BY ASUS)
5. WALL MOUNTED FIRE DEPARTMENT CONNECTION (FDC)
6. FIRE HYDRANT ASSEMBLY COMPLETE (BY ASUS)
7. CONNECT NEW SANITARY SEWER SERVICE LINE TO EXISTING SANITARY SEWER MANHOLE (BY ASUS)
8. SANITARY SEWER GRAVITY MAIN (BY ASUS)
9. SANITARY SEWER MANHOLE (BY ASUS)
10. SANITARY SEWER SERVICE (BY ASUS)
11. SANITARY SEWER CLEANOUT (BY ASUS)
12. ELECTRIC/POWER LINE (BY ASUS)
13. COMMUNICATIONS LINE (BY ASUS)
14. PVC WATER MAIN (BY ASUS)
15. NEW GAS SERVICE. CONNECT TO EXISTING MAIN ALONG EAGLE TALON DRIVE. (BY PIEDMONT NATURAL GAS)
16. POST INDICATOR VALVE (PIV) (BY ASUS)
17. UG CONDUIT (SCHED. 80 PVC) FOR FIRE ALARM CIRCUIT ROUTING TO PIV AND BACKFLOW PREVENTER.
18. CONNECT UNDERGROUND GAS SERVICE LINE TO EXISTING UNDERGROUND GAS MAIN (BY PIEDMONT NATURAL GAS)

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D
DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

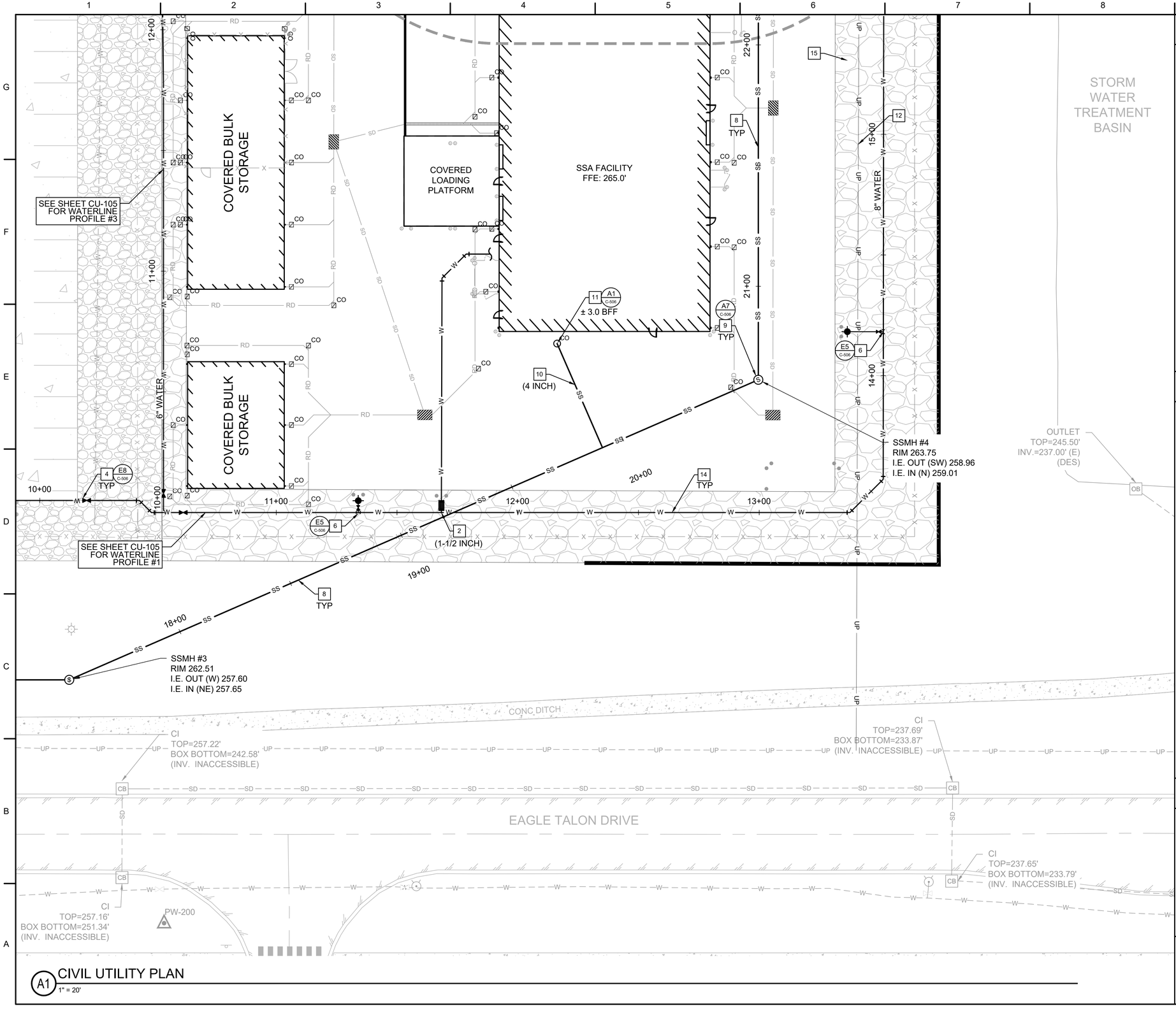
FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL UTILITY PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. HARRIS
08/04/23

SHEET ID
CU101

READY TO ADVERTISE



A1 CIVIL UTILITY PLAN
1" = 20'

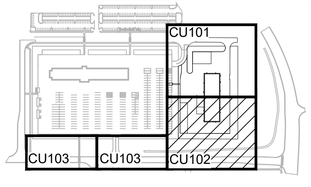
GENERAL SHEET NOTES

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2. SEE SHEETS C-001-C-005 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
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5. NATURAL GAS DISTRIBUTION SYSTEM IS TO BE INSTALLED BY PIEDMONT NATURAL GAS AND IS SHOWN FOR GENERAL REFERENCE AND COORDINATION ONLY. PIEDMONT NATURAL GAS SHALL COORDINATE WITH SITE CONTRACTOR TO ENSURE NO CONFLICTS.
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SHEET KEYNOTES

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3. 8" FIRE SERVICE LINE WITH PIV AND BACKFLOW PREVENTER IN HOT BOX ENCLOSURE (BY ASUS)
4. GATE VALVE (SIZE VARIES) (BY ASUS)
5. WALL MOUNTED FIRE DEPARTMENT CONNECTION (FDC)
6. FIRE HYDRANT ASSEMBLY COMPLETE (BY ASUS)
7. CONNECT NEW SANITARY SEWER SERVICE LINE TO EXISTING SANITARY SEWER MANHOLE (BY ASUS)
8. SANITARY SEWER GRAVITY MAIN (BY ASUS)
9. SANITARY SEWER MANHOLE (BY ASUS)
10. SANITARY SEWER SERVICE (BY ASUS)
11. SANITARY SEWER CLEANOUT (BY ASUS)
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15. NEW GAS SERVICE. CONNECT TO EXISTING MAIN ALONG EAGLE TALON DRIVE. (BY PIEDMONT NATURAL GAS)
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18. CONNECT UNDERGROUND GAS SERVICE LINE TO EXISTING UNDERGROUND GAS MAIN (BY PIEDMONT NATURAL GAS)

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
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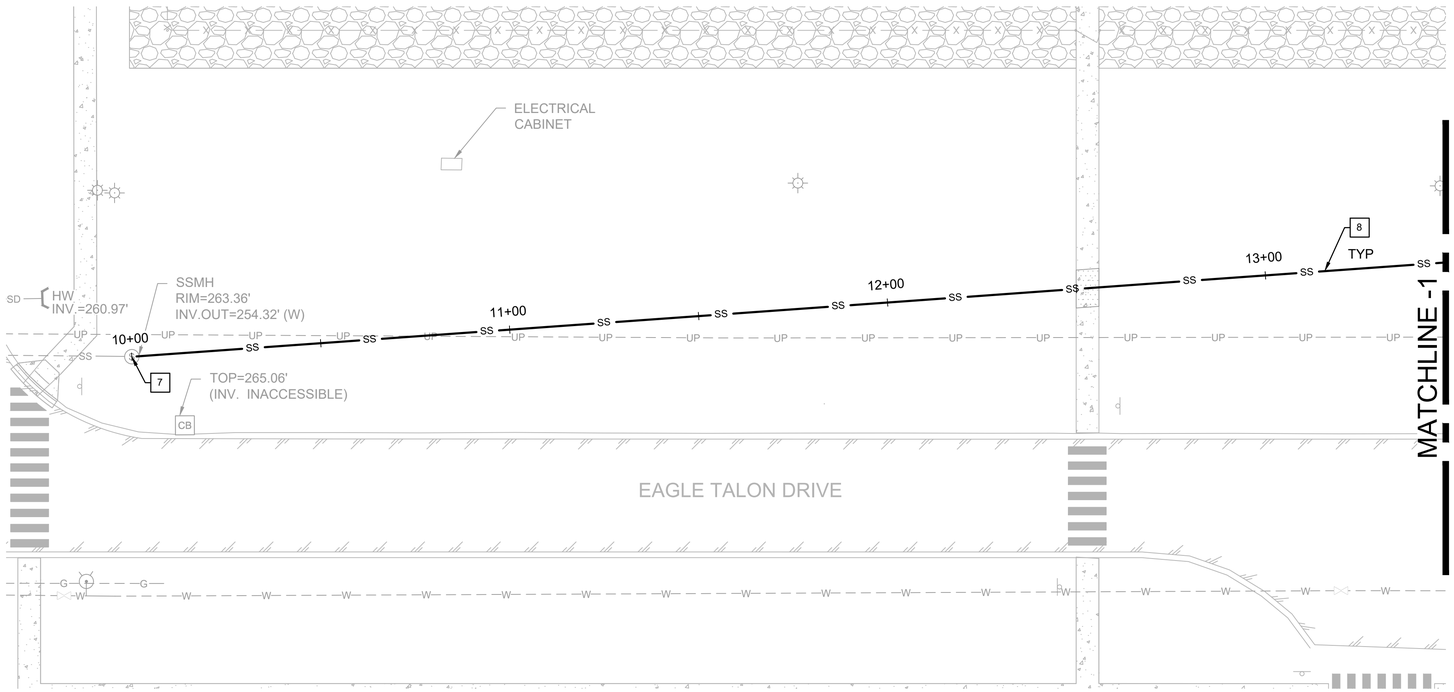
FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL UTILITY PLAN

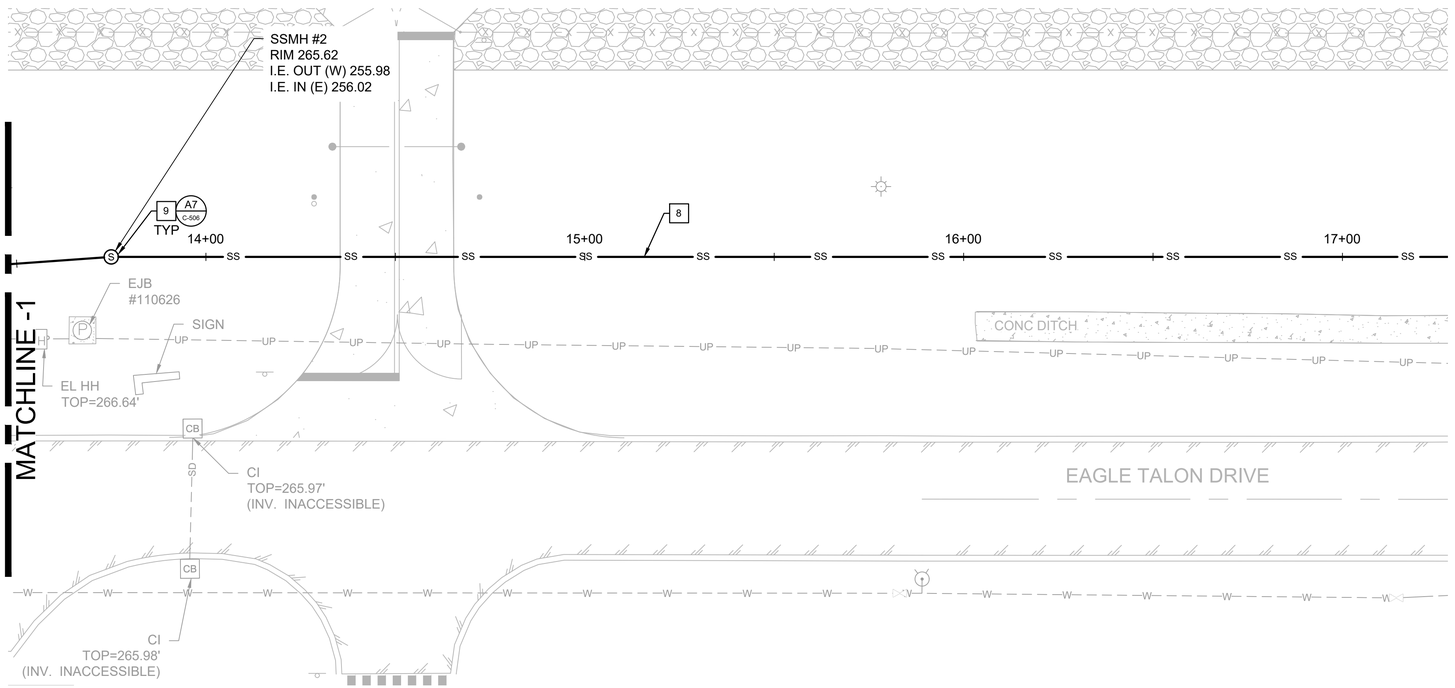
NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER 08/04/23 M. T. H.

SHEET ID
CU102

READY TO ADVERTISE



D1 CIVIL UTILITY PLAN
1" = 20'



A1 CIVIL UTILITY PLAN
1" = 20'

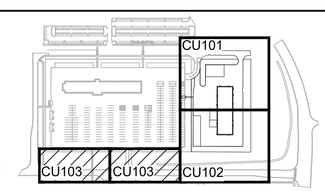
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KEYPLAN



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WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

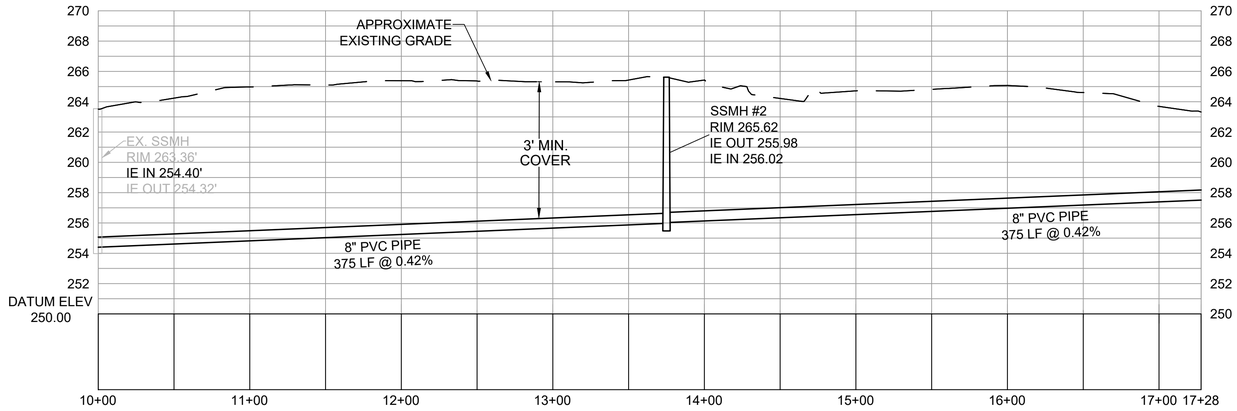
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL UTILITY PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
09/04/23

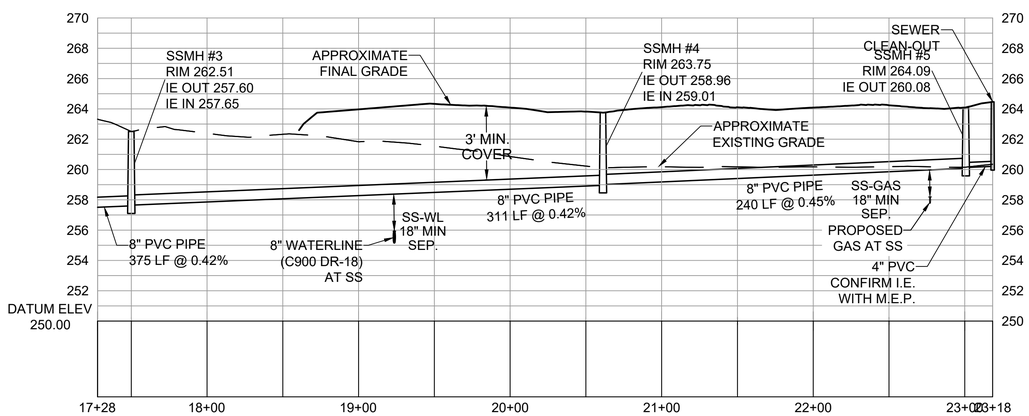
SHEET ID
CU103

READY TO ADVERTISE



D1 CIVIL SEWER PROFILE

HORIZONTAL : 1" = 50'
VERTICAL : 1" = 5'



A1 CIVIL SEWER PROFILE

HORIZONTAL : 1" = 50'
VERTICAL : 1" = 5'

PLAN
NORTH

5' 0 5' 10
50' 0 50' 100'

HORIZONTAL: 1 INCH = 50 FEET
VERTICAL: 1 INCH = 5 FEET

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD. SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

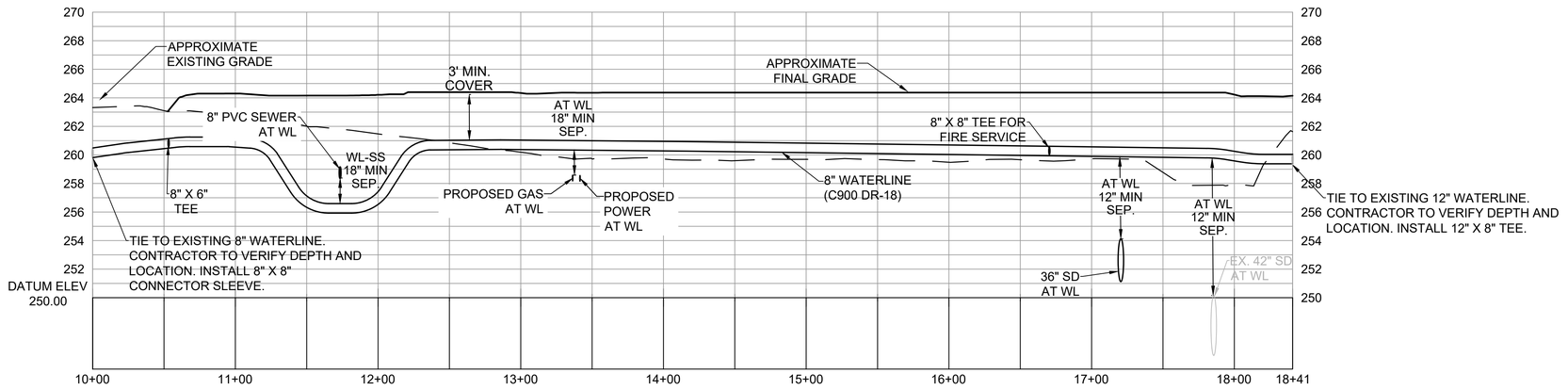
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL UTILITY PROFILES

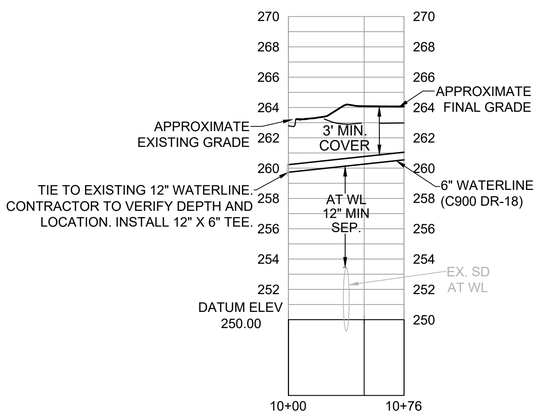
NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. KEY
08/04/23

SHEET ID
CU104

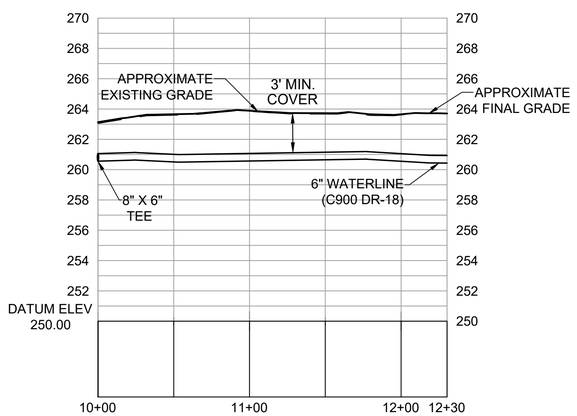
READY TO ADVERTISE



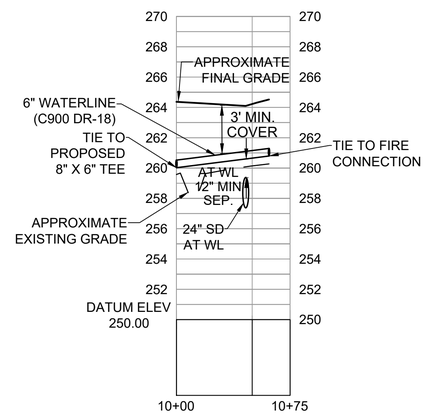
WATERLINE PROFILE #1



WATERLINE PROFILE #2



WATERLINE PROFILE #3



WATERLINE PROFILE #4

A1 CIVIL WATER PROFILE

HORIZONTAL : 1" = 50'
VERTICAL : 1" = 5'

PLAN
NORTH

5' 0 5' 10
50' 0 50' 100'

HORIZONTAL: 1 INCH = 50 FEET
VERTICAL: 1 INCH = 5 FEET

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
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NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

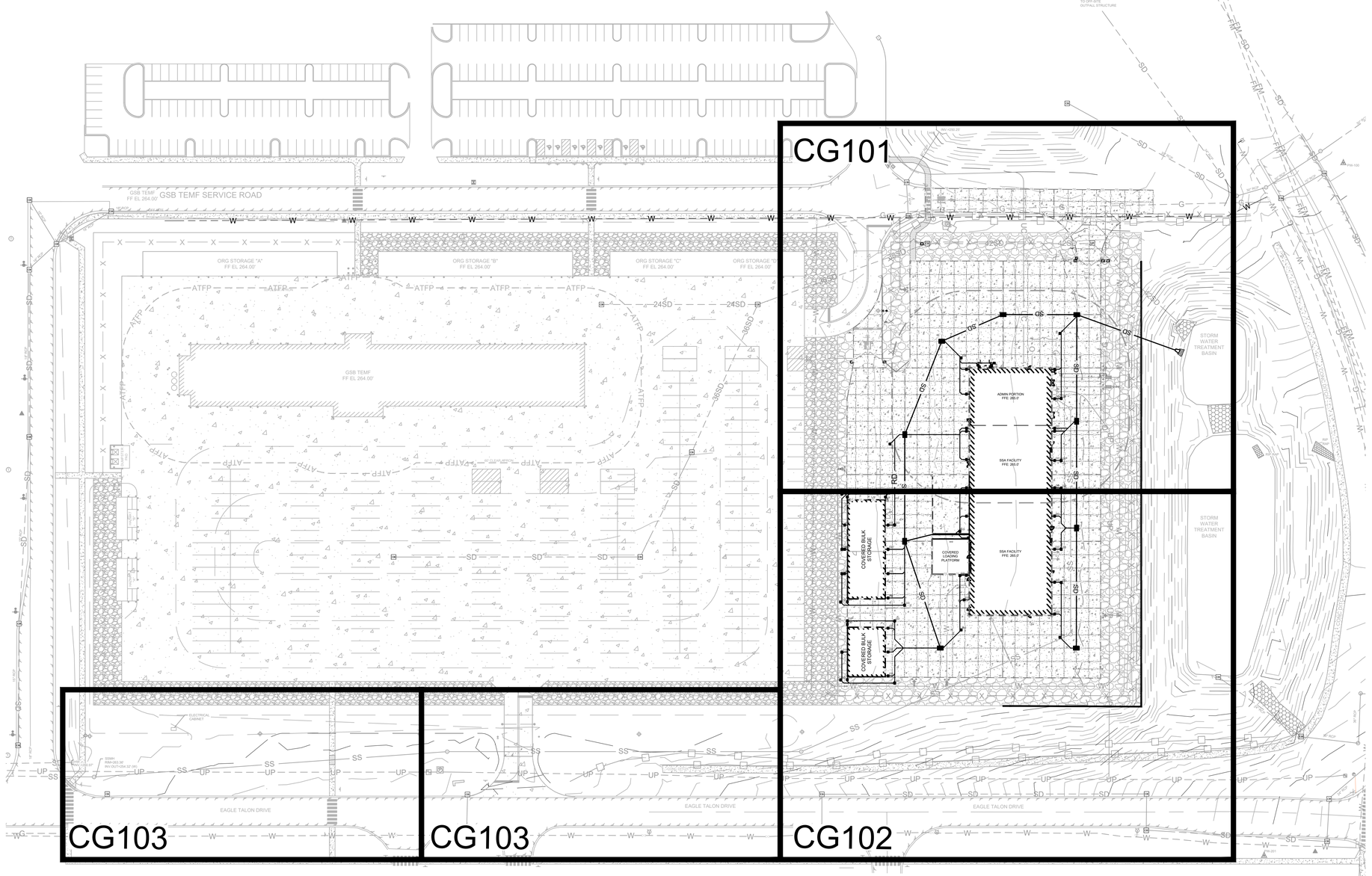
CIVIL UTILITY PROFILES

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. HOLT
08/04/23

SHEET ID

CU105

READY TO ADVERTISE



A1 CIVIL GRADING SHEET INDEX
1" = 60'

60' 0 60' 120'
1 INCH = 60 FEET

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL GRADING SHEET INDEX

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
CG100

READY TO ADVERTISE

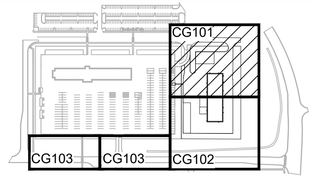
GENERAL SHEET NOTES

1. SEE SHEET VF101-VF103 FOR EXISTING CONDITIONS INFORMATION.
2. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
3. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY.

SHEET KEYNOTES

1. STORMDRAIN INLET
2. STORMDRAIN (SIZE VARIES)
3. FLARED END SECTION
4. EXISTING STORMWATER CONTROL MEASURE (SCM)
5. TRENCH DRAIN
6. SEGMENTAL BLOCK RETAINING WALL
7. CONVERT EXISTING STRUCTURE TO TRAFFIC RATED AND ADJUST RIM TO MATCH NEW FINISHED GRADE.
8. ROOF DRAIN CLEANOUT
9. ROOF DRAIN
10. ROOF DRAIN COLLECTION SYSTEM - PER NC PLUMBING CODE

KEYPLAN



N.T.S.

20' 0 20' 40'

1 INCH = 20 FEET

PLAN NORTH

A1 CIVIL GRADING PLAN

1" = 20'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
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LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

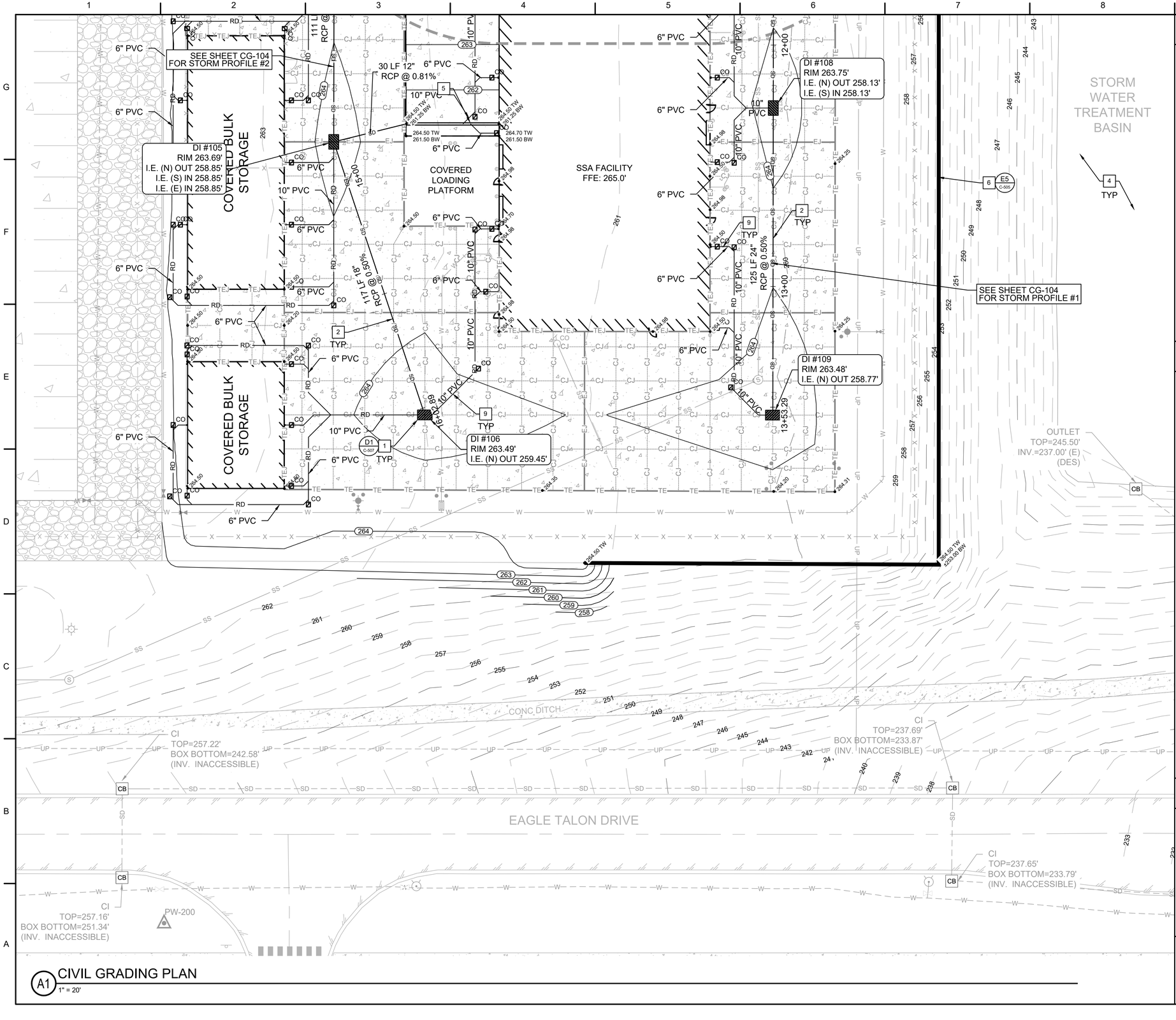
CIVIL GRADING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
06/04/24

SHEET ID

CG101

READY TO ADVERTISE



A1 CIVIL GRADING PLAN
1" = 20'

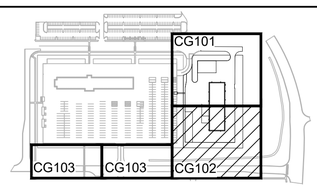
GENERAL SHEET NOTES

1. SEE SHEET VF101-VF103 FOR EXISTING CONDITIONS INFORMATION.
2. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
3. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY.

SHEET KEYNOTES

1. STORMDRAIN INLET
2. STORMDRAIN (SIZE VARIES)
3. FLARED END SECTION
4. EXISTING STORMWATER CONTROL MEASURE (SCM)
5. TRENCH DRAIN
6. SEGMENTAL BLOCK RETAINING WALL
7. CONVERT EXISTING STRUCTURE TO TRAFFIC RATED AND ADJUST RIM TO MATCH NEW FINISHED GRADE.
8. ROOF DRAIN CLEANOUT
9. ROOF DRAIN
10. ROOF DRAIN COLLECTION SYSTEM - PER NC PLUMBING CODE

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
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ISSUE DATE: AUGUST 2023
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FIRST TITLE:
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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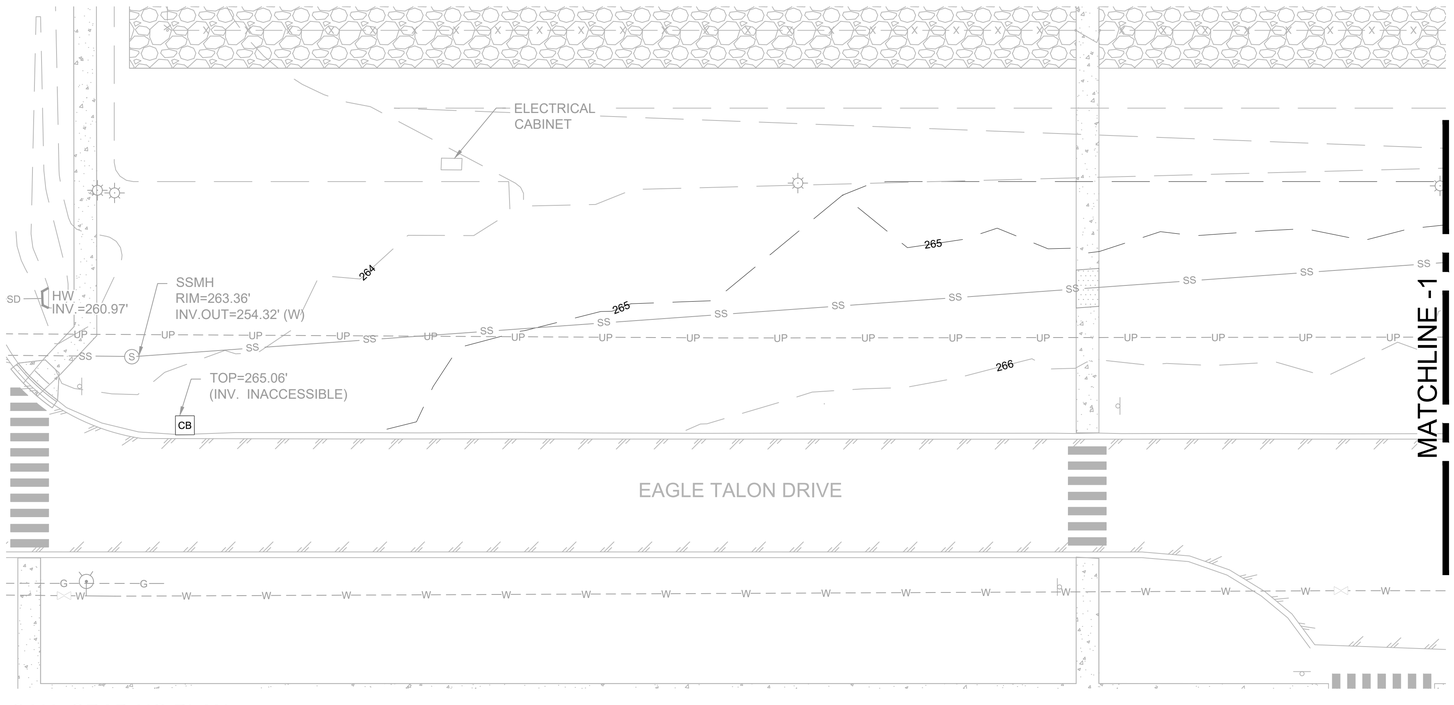
FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL GRADING PLAN

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038615 MATTHEW T. HOLLAND
08/04/23

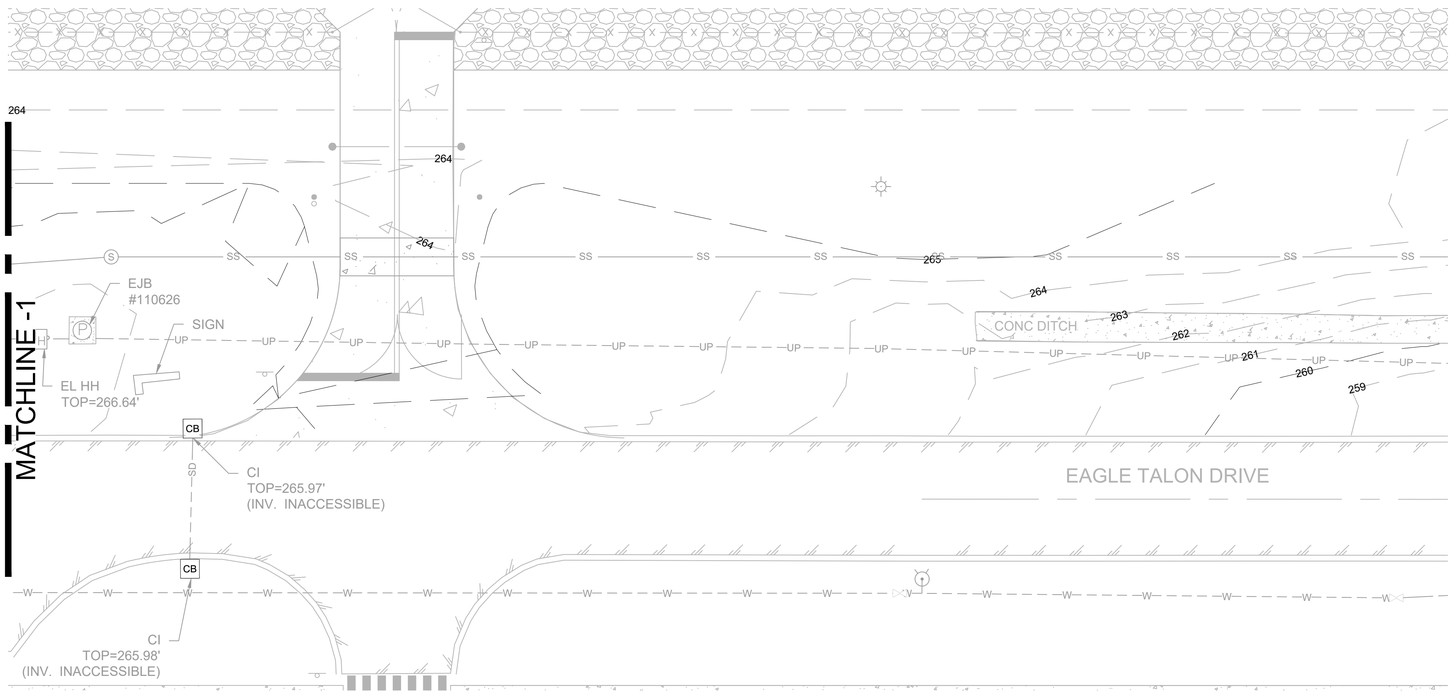
SHEET ID
CG102

READY TO ADVERTISE



D1 CIVIL GRADING PLAN

1" = 20'



A1 CIVIL GRADING PLAN

1" = 20'

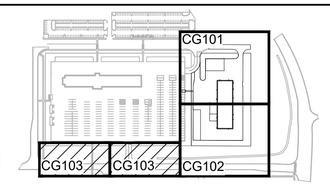
GENERAL SHEET NOTES

1. SEE SHEET VF101-VF103 FOR EXISTING CONDITIONS INFORMATION.
2. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
3. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY.

SHEET KEYNOTES

1. STORMDRAIN INLET
2. STORMDRAIN (SIZE VARIES)
3. FLARED END SECTION
4. EXISTING STORMWATER CONTROL MEASURE (SCM)
5. TRENCH DRAIN
6. SEGMENTAL BLOCK RETAINING WALL
7. CONVERT EXISTING STRUCTURE TO TRAFFIC RATED AND ADJUST RIM TO MATCH NEW FINISHED GRADE.
8. ROOF DRAIN CLEANOUT
9. ROOF DRAIN
10. ROOF DRAIN COLLECTION SYSTEM - PER NC PLUMBING CODE

KEYPLAN



N.T.S.

20' 0 20' 40'

1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

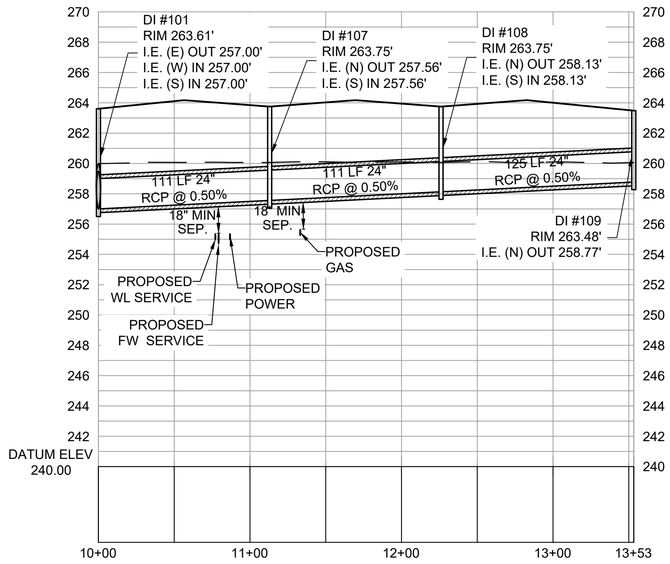
CIVIL GRADING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID

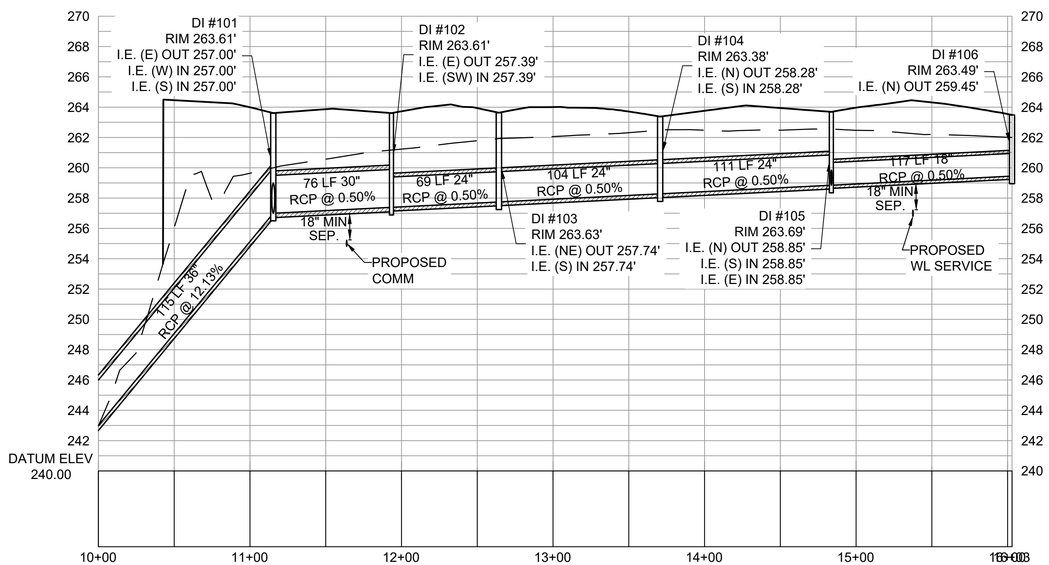
CG103

READY TO ADVERTISE



D1 CIVIL STORM PROFILE #1

HORIZONTAL : 1" = 50'
VERTICAL : 1" = 5'



A1 CIVIL STORM PROFILE #2

HORIZONTAL : 1" = 50'
VERTICAL : 1" = 5'

PLAN NORTH

5' 0 5' 10
50' 0 50' 100'

HORIZONTAL: 1 INCH = 50 FEET
VERTICAL: 1 INCH = 5 FEET

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

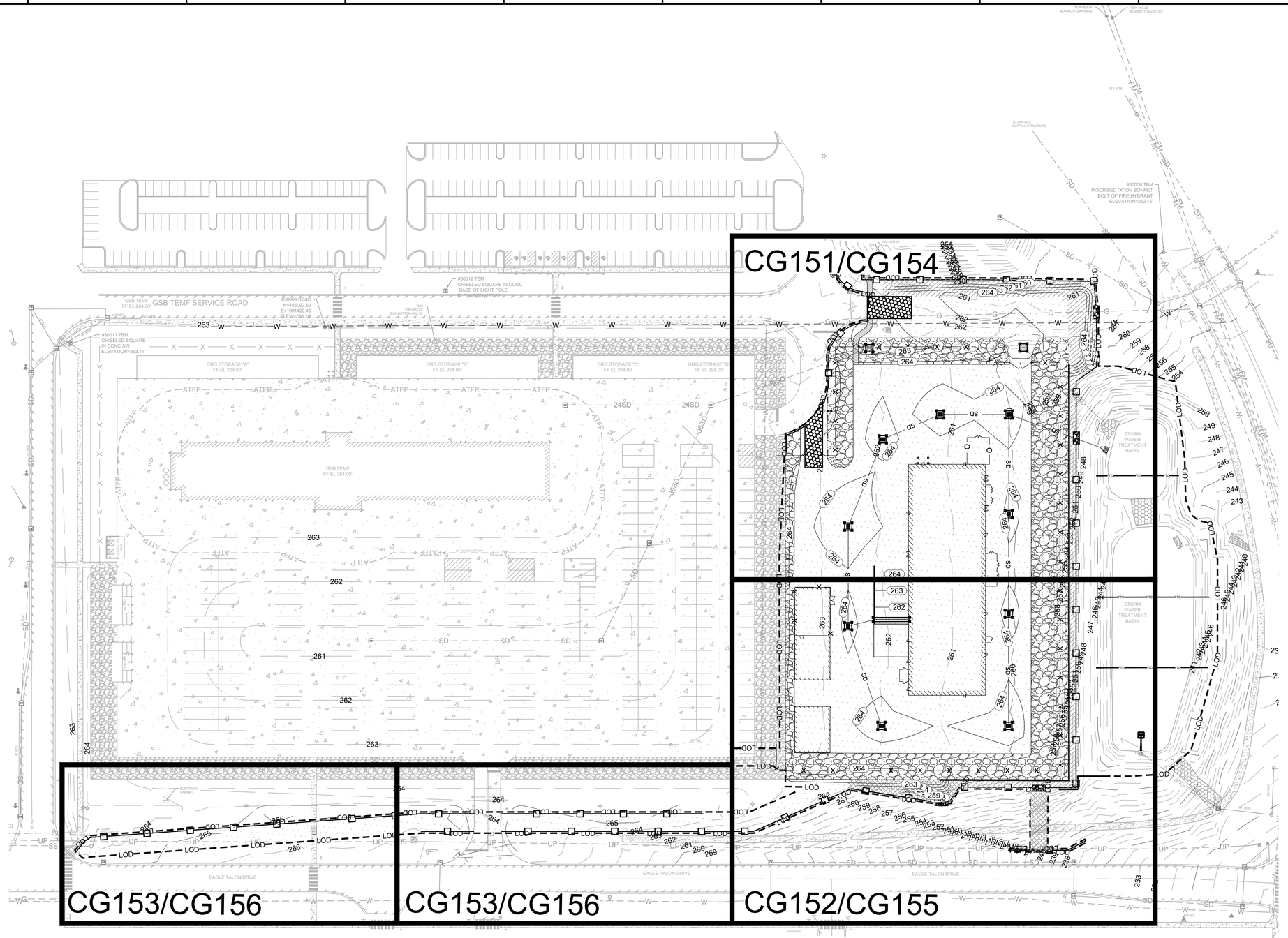
CIVIL STORMDRAIN PROFILES

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. HOLLOWAY
08/04/23

SHEET ID

CG104

READY TO ADVERTISE



A1 CIVIL EROSION CONTROL SHEET INDEX
1" = 60'

60' 0 60' 120'
1 INCH = 60 FEET

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
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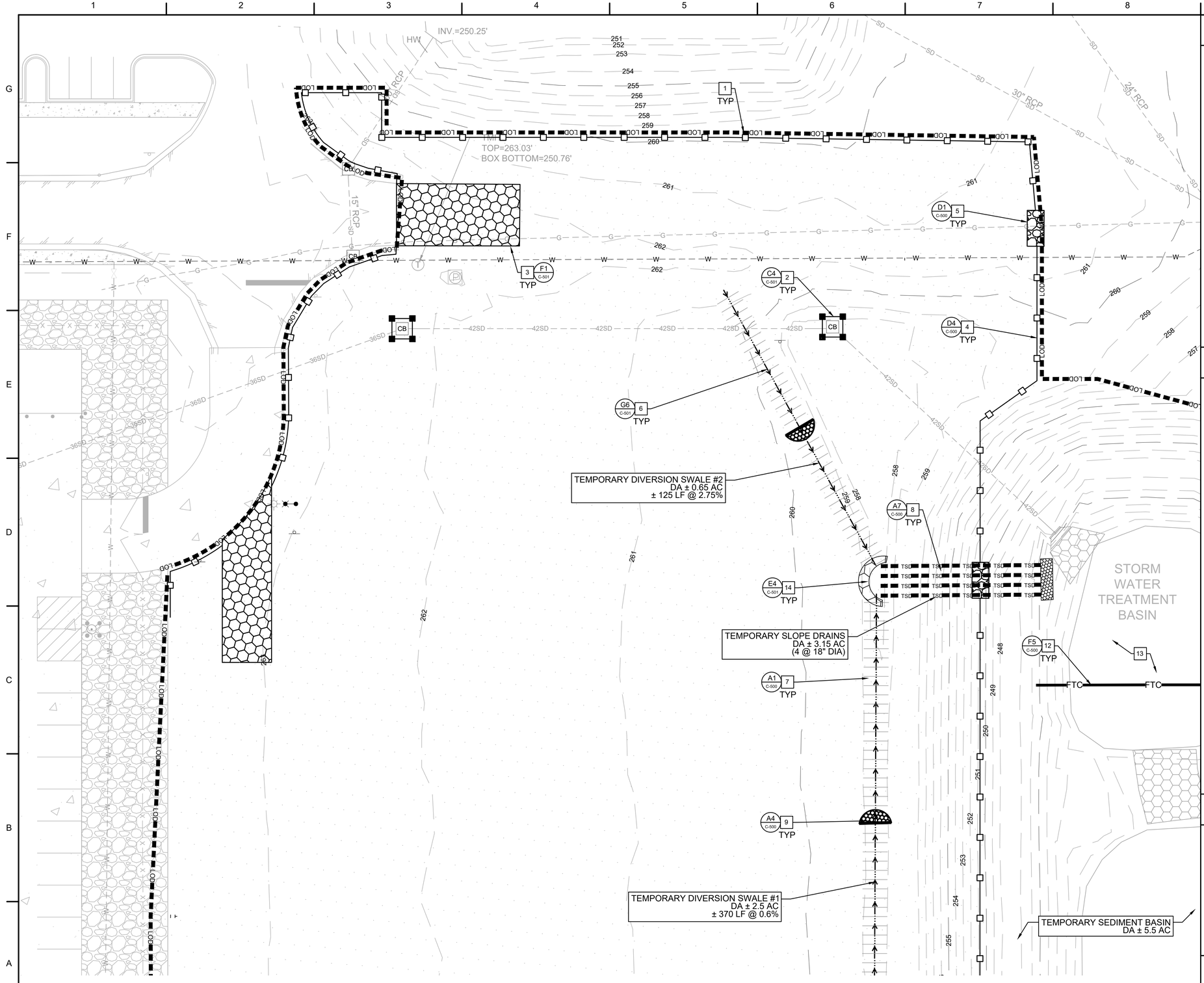
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 67447

CIVIL EROSION CONTROL SHEET INDEX

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
CG150

READY TO ADVERTISE



A1 CIVIL EROSION CONTROL PLAN
1" = 20'

GENERAL SHEET NOTES

1. SEE SHEETS VF101-VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
3. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
4. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY. NOT ALL KEYNOTES ARE APPLICABLE TO EVERY SHEET.
5. EXISTING WET POND TO BE UTILIZED AS SEDIMENT BASIN FOR EROSION CONTROL.
   - 5.1. BAFFLE AND SKIMMER SHOULD BE INSTALLED AS INDICATED ON THE EROSION CONTROL PLAN.
   - 5.2. SEE SHEET C-004 FOR GENERAL MAINTENANCE REQUIREMENTS FOR SEDIMENT BASINS.
   - 5.3. AFTER SITE IS STABILIZED REMOVE ALL ACCUMULATED SEDIMENT FROM POND AND ENSURE DESIGN DEPTHS OF WET POND ARE RESTORED.
   - 5.4. STABILIZE/VEGETATE POND SLOPES AS REQUIRED.
   - 5.5. REMOVE BAFFLE AND SKIMMER ONCE SITE HAS BEEN FULLY STABILIZED. RE-INSTALL WET POND DRAWDOWN ORIFICE WITH MODIFICATIONS. SEE SHEET C-500.

SHEET KEYNOTES

1. LIMITS OF DISTURBANCE
2. INLET PROTECTION
3. CONSTRUCTION ENTRANCE
4. SILT FENCE
5. SILT FENCE ROCK OUTLET
6. TEMPORARY DIVERSION SWALE
7. TEMPORARY CHANNEL LINER
8. TEMPORARY SLOPE DRAIN
9. ROCK CHECK DAMN
10. INSTALL SKIMMER DEWATERING DEVICE ON EX. OUTLET STRUCTURE
11. RIP-RAP OUTLET PROTECTION
12. FLOATING TURBIDITY CURTAIN
13. EX. WET POND CONVERTED TO TEMPORARY SEDIMENT BASIN
14. ROCK PIPE INLET PROTECTION
15. SINGLE NET BLANKET FOR SLOPE STABILIZATION
16. SEGMENTAL BLOCK RETAINING WALL
17. PERIMETER GRAVEL
18. ONCE SITE IS FULLY STABILIZED RE-INSTALL DRAWDOWN ORIFICE WITH MODIFICATIONS.

A7 C-501 — REQUIRED GROUNDCOVER TIMES (SEE SEQUENCE OF LAND DISTURBANCE NOTES ON SHEET C-002 AND VEGETATION SCHEDULE DETAIL

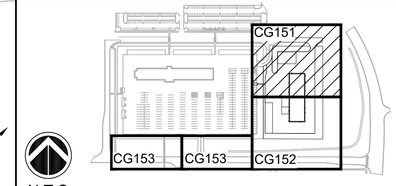
7 DAY MAXIMUM

14 DAY MAXIMUM

D1 C-502 — 7 DAY MAXIMUM — SINGLE NET BLANKET FOR SLOPE STABILIZATION

E1 C-501 — SPOIL STORAGE BERMS SHALL BE LOCATED BY THE CONTRACTOR AS NEEDED FOR CONSTRUCTION SEQUENCE/PHASING AND SHALL BE ENCLOSED IN A DOUBLE ROW OF TEMPORARY SILT FENCE.

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
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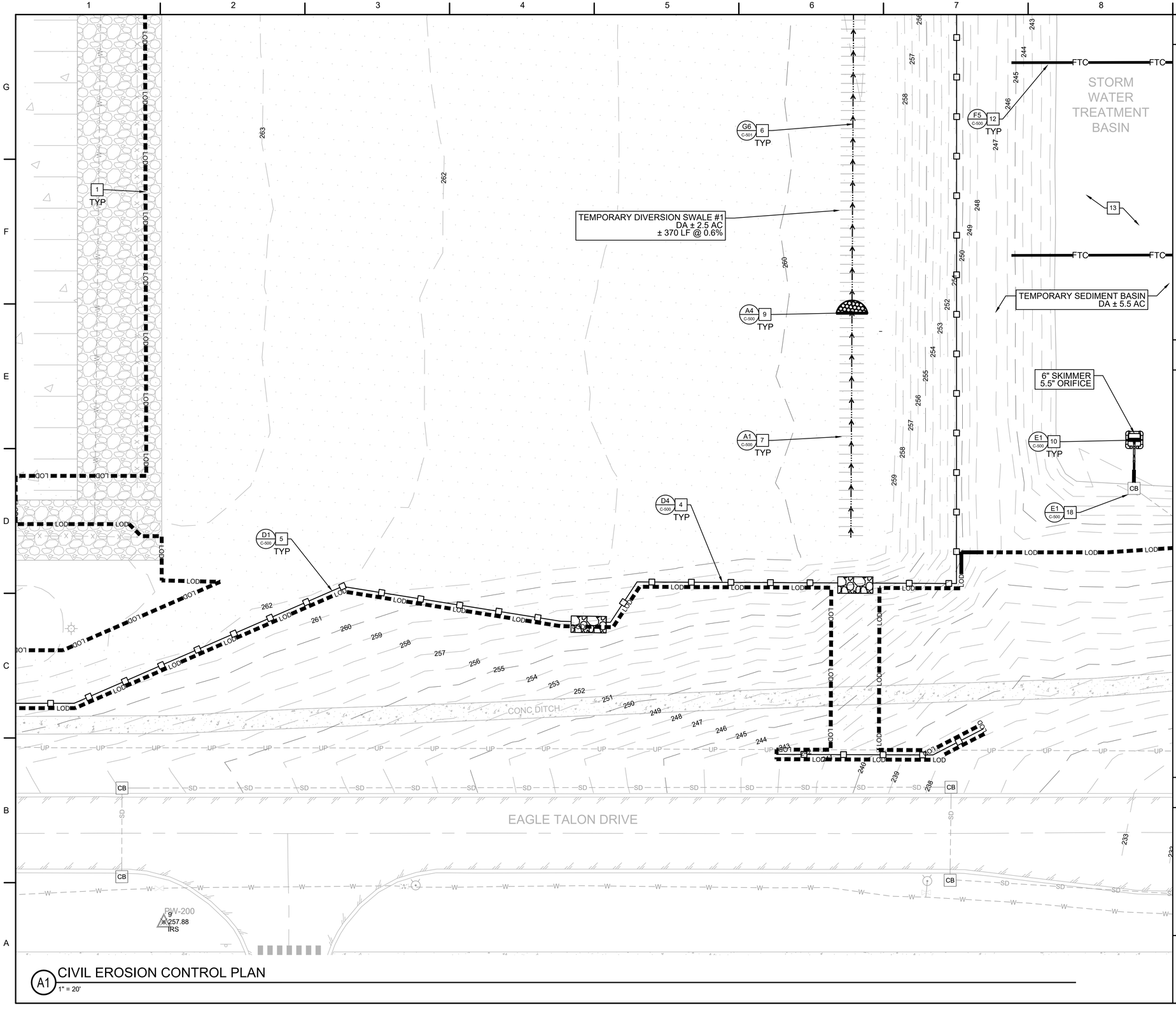
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL INITIAL EROSION CONTROL PLAN

NORTH CAROLINA PROFESSIONAL SEAL 039615 ENGINEER MATTHEW T. HOLT
08/04/23

SHEET ID
CG151

READY TO ADVERTISE



A1 CIVIL EROSION CONTROL PLAN
1" = 20'

GENERAL SHEET NOTES

1. SEE SHEETS VF101-VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
3. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
4. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY. NOT ALL KEYNOTES ARE APPLICABLE TO EVERY SHEET.
5. EXISTING WET POND TO BE UTILIZED AS SEDIMENT BASIN FOR EROSION CONTROL.
   - 5.1. BAFFLE AND SKIMMER SHOULD BE INSTALLED AS INDICATED ON THE EROSION CONTROL PLAN.
   - 5.2. SEE SHEET C-004 FOR GENERAL MAINTENANCE REQUIREMENTS FOR SEDIMENT BASINS.
   - 5.3. AFTER SITE IS STABILIZED REMOVE ALL ACCUMULATED SEDIMENT FROM POND AND ENSURE DESIGN DEPTHS OF WET POND ARE RESTORED.
   - 5.4. STABILIZE/VEGETATE POND SLOPES AS REQUIRED.
   - 5.5. REMOVE BAFFLE AND SKIMMER ONCE SITE HAS BEEN FULLY STABILIZED. RE-INSTALL WET POND DRAWDOWN ORIFICE WITH MODIFICATIONS. SEE SHEET C-500.

SHEET KEYNOTES

1. LIMITS OF DISTURBANCE
2. INLET PROTECTION
3. CONSTRUCTION ENTRANCE
4. SILT FENCE
5. SILT FENCE ROCK OUTLET
6. TEMPORARY DIVERSION SWALE
7. TEMPORARY CHANNEL LINER
8. TEMPORARY SLOPE DRAIN
9. ROCK CHECK DAMN
10. INSTALL SKIMMER DEWATERING DEVICE ON EX. OUTLET STRUCTURE
11. RIP-RAP OUTLET PROTECTION
12. FLOATING TURBIDITY CURTAIN
13. EX. WET POND CONVERTED TO TEMPORARY SEDIMENT BASIN
14. ROCK PIPE INLET PROTECTION
15. SINGLE NET BLANKET FOR SLOPE STABILIZATION
16. SEGMENTAL BLOCK RETAINING WALL
17. PERIMETER GRAVEL
18. ONCE SITE IS FULLY STABILIZED RE-INSTALL DRAWDOWN ORIFICE WITH MODIFICATIONS.

A7 C-501 — REQUIRED GROUNDCOVER TIMES (SEE SEQUENCE OF LAND DISTURBANCE NOTES ON SHEET C-002 AND VEGETATION SCHEDULE DETAIL

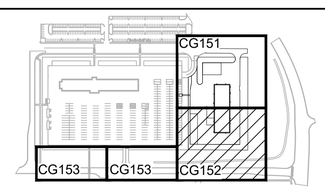
7 DAY MAXIMUM

14 DAY MAXIMUM

D1 C-502 — 7 DAY MAXIMUM — SINGLE NET BLANKET FOR SLOPE STABILIZATION

E1 C-501 — SPOIL STORAGE BERMS SHALL BE LOCATED BY THE CONTRACTOR AS NEEDED FOR CONSTRUCTION SEQUENCE/PHASING AND SHALL BE ENCLOSED IN A DOUBLE ROW OF TEMPORARY SILT FENCE.

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

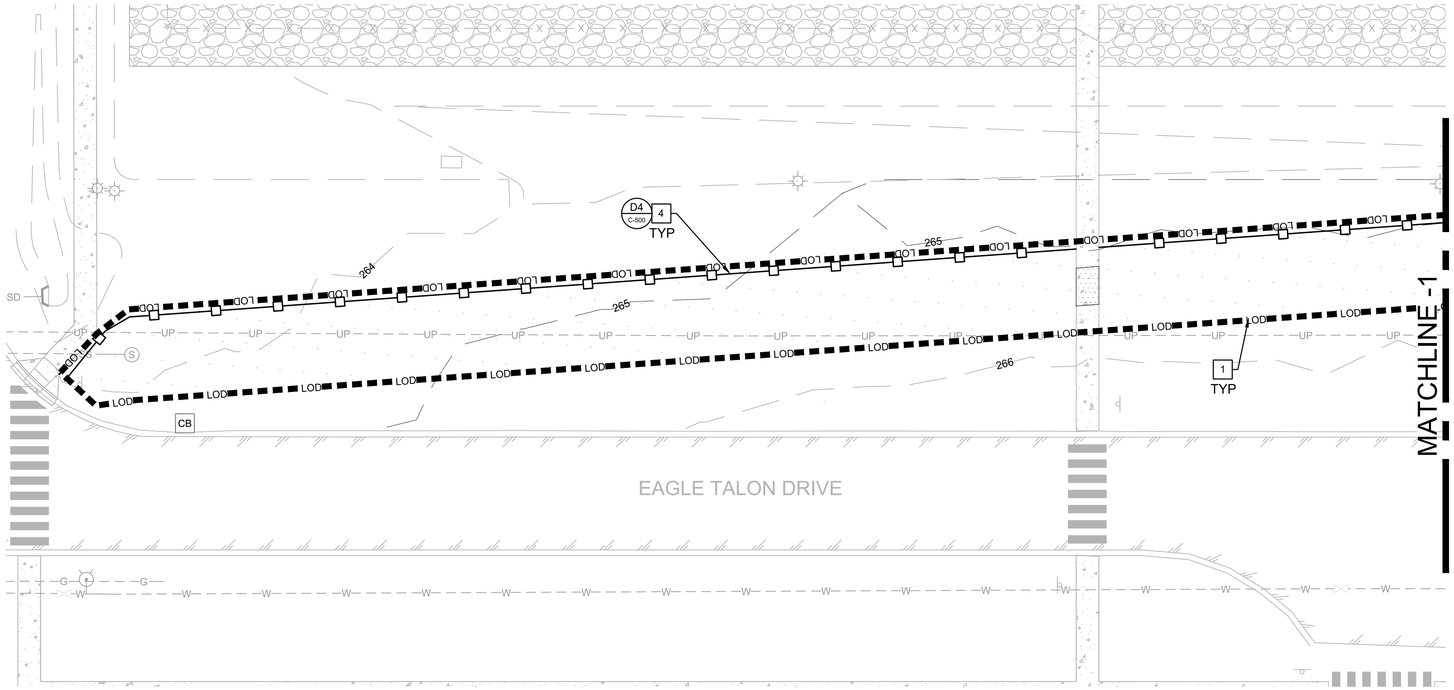
FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

CIVIL INITIAL EROSION CONTROL PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23
MICHAEL T. HOLLAND

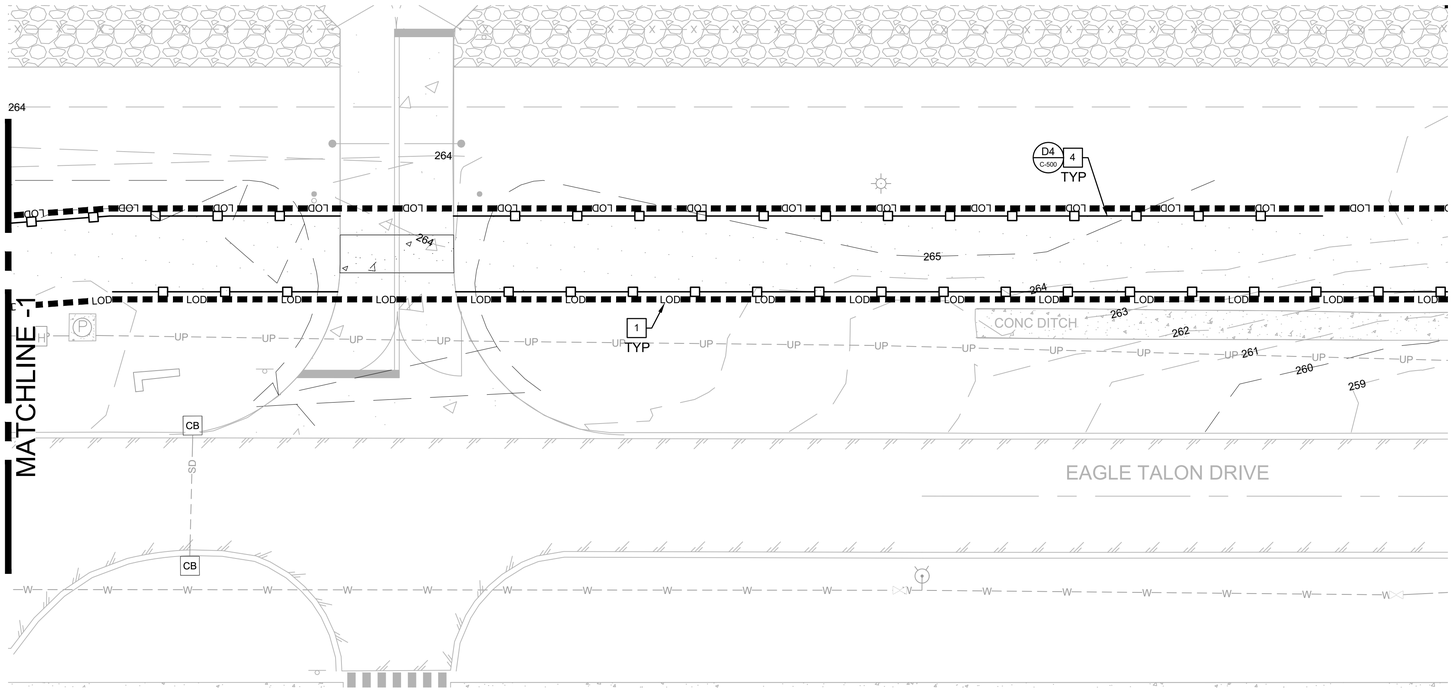
SHEET ID
CG152

READY TO ADVERTISE



D1 CIVIL EROSION CONTROL PLAN

1" = 20'



A1 CIVIL EROSION CONTROL PLAN

1" = 20'

GENERAL SHEET NOTES

1. SEE SHEETS VF101-VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
3. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
4. ALL KEYNOTES PROVIDED ON SHEETS FOR CONSISTENCY. NOT ALL KEYNOTES ARE APPLICABLE TO EVERY SHEET.
5. EXISTING WET POND TO BE UTILIZED AS SEDIMENT BASIN FOR EROSION CONTROL.
   - 5.1. BAFFLE AND SKIMMER SHOULD BE INSTALLED AS INDICATED ON THE EROSION CONTROL PLAN.
   - 5.2. SEE SHEET C-004 FOR GENERAL MAINTENANCE REQUIREMENTS FOR SEDIMENT BASINS.
   - 5.3. AFTER SITE IS STABILIZED REMOVE ALL ACCUMULATED SEDIMENT FROM POND AND ENSURE DESIGN DEPTHS OF WET POND ARE RESTORED.
   - 5.4. STABILIZE/VEGETATE POND SLOPES AS REQUIRED.
   - 5.5. REMOVE BAFFLE AND SKIMMER ONCE SITE HAS BEEN FULLY STABILIZED. RE-INSTALL WET POND DRAWDOWN ORIFICE WITH MODIFICATIONS. SEE SHEET C-500.

SHEET KEYNOTES

1. LIMITS OF DISTURBANCE
2. INLET PROTECTION
3. CONSTRUCTION ENTRANCE
4. SILT FENCE
5. SILT FENCE ROCK OUTLET
6. TEMPORARY DIVERSION SWALE
7. TEMPORARY CHANNEL LINER
8. TEMPORARY SLOPE DRAIN
9. ROCK CHECK DAMN
10. INSTALL SKIMMER DEWATERING DEVICE ON EX. OUTLET STRUCTURE
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12. FLOATING TURBIDITY CURTAIN
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A7 C-501 — REQUIRED GROUNDCOVER TIMES (SEE SEQUENCE OF LAND DISTURBANCE NOTES ON SHEET C-002 AND VEGETATION SCHEDULE DETAIL

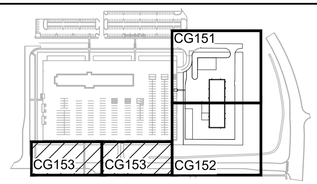
7 DAY MAXIMUM

14 DAY MAXIMUM

D1 C-502 — 7 DAY MAXIMUM — SINGLE NET BLANKET FOR SLOPE STABILIZATION

E1 C-501 — SPOIL STORAGE BERMS SHALL BE LOCATED BY THE CONTRACTOR AS NEEDED FOR CONSTRUCTION SEQUENCE/PHASING AND SHALL BE ENCLOSED IN A DOUBLE ROW OF TEMPORARY SILT FENCE.

KEYPLAN



N.T.S.

20' 0 20' 40'

1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
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SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
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SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 8/447

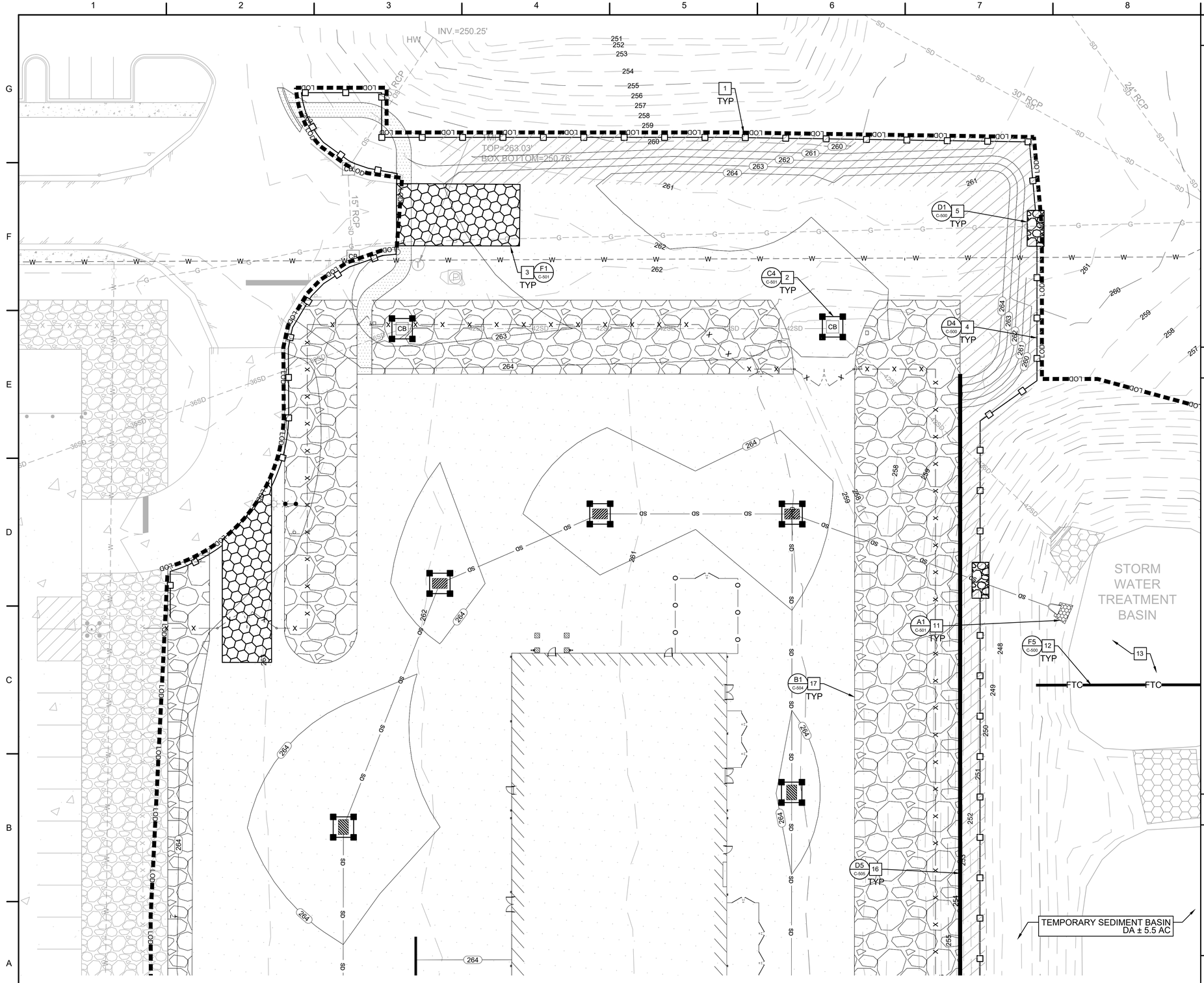
CIVIL INITIAL EROSION CONTROL PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23
MICHAEL T. HUNT

SHEET ID

CG153

READY TO ADVERTISE



A1 CIVIL EROSION CONTROL PLAN
1" = 20'

GENERAL SHEET NOTES

1. SEE SHEETS VF101-VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
3. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT ALL EXISTING UTILITIES IN AND AROUND THE PROJECT AREA.
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   - 5.2. SEE SHEET C-004 FOR GENERAL MAINTENANCE REQUIREMENTS FOR SEDIMENT BASINS.
   - 5.3. AFTER SITE IS STABILIZED REMOVE ALL ACCUMULATED SEDIMENT FROM POND AND ENSURE DESIGN DEPTHS OF WET POND ARE RESTORED.
   - 5.4. STABILIZE/VEGETATE POND SLOPES AS REQUIRED.
   - 5.5. REMOVE BAFFLE AND SKIMMER ONCE SITE HAS BEEN FULLY STABILIZED. RE-INSTALL WET POND DRAWDOWN ORIFICE WITH MODIFICATIONS. SEE SHEET C-500.

SHEET KEYNOTES

1. LIMITS OF DISTURBANCE
2. INLET PROTECTION
3. CONSTRUCTION ENTRANCE
4. SILT FENCE
5. SILT FENCE ROCK OUTLET
6. TEMPORARY DIVERSION SWALE
7. TEMPORARY CHANNEL LINER
8. TEMPORARY SLOPE DRAIN
9. ROCK CHECK DAMN
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A7 C-501 — REQUIRED GROUNDCOVER TIMES (SEE SEQUENCE OF LAND DISTURBANCE NOTES ON SHEET C-002 AND VEGETATION SCHEDULE DETAIL

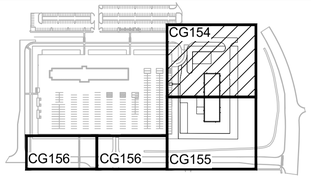
7 DAY MAXIMUM

14 DAY MAXIMUM

D1 C-502 — 7 DAY MAXIMUM — SINGLE NET BLANKET FOR SLOPE STABILIZATION

E1 C-501 — SPOIL STORAGE BERMS SHALL BE LOCATED BY THE CONTRACTOR AS NEEDED FOR CONSTRUCTION SEQUENCE/PHASING AND SHALL BE ENCLOSED IN A DOUBLE ROW OF TEMPORARY SILT FENCE.

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

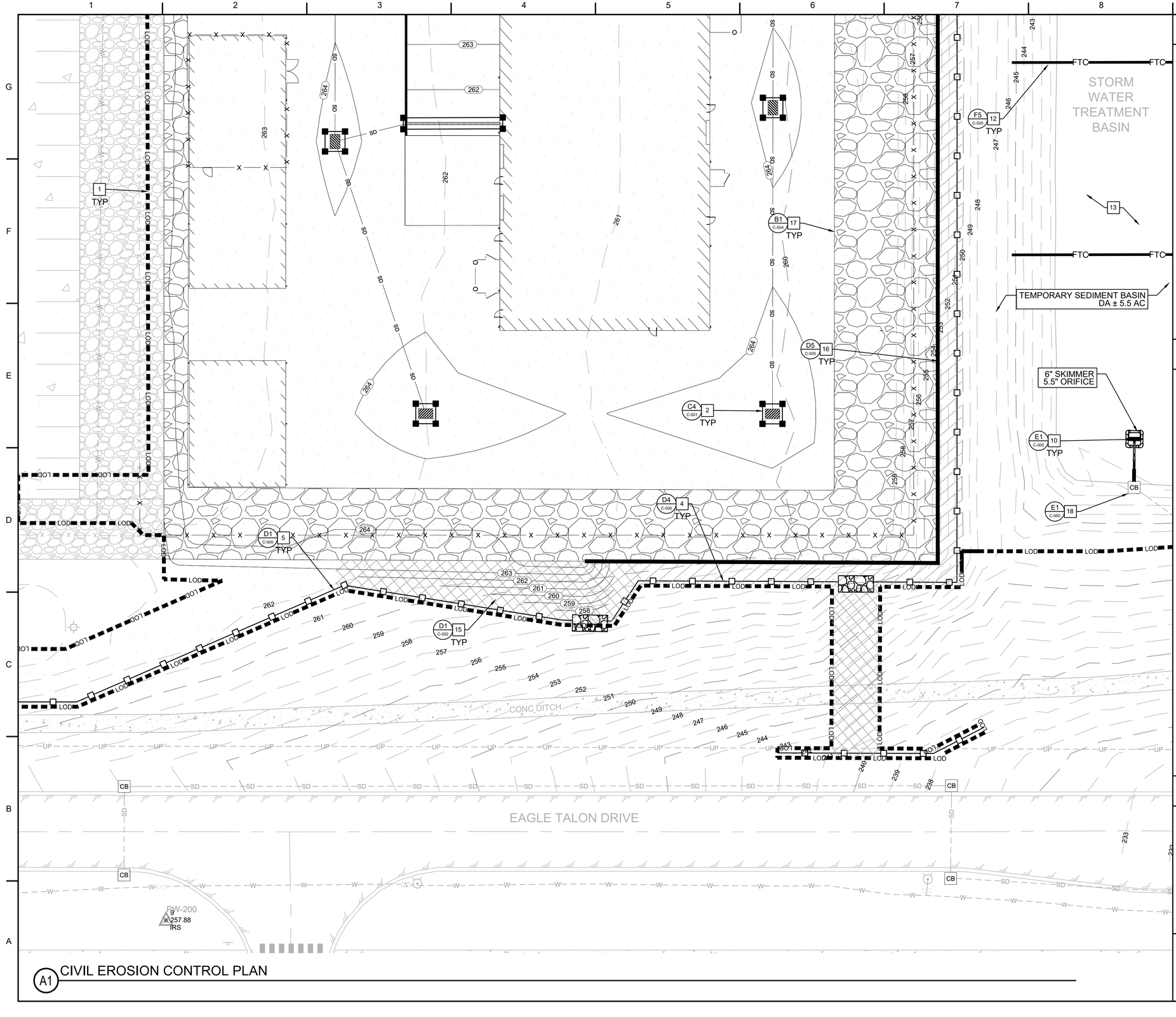
CIVIL FINAL EROSION CONTROL PLAN

NORTH CAROLINA PROFESSIONAL SEAL 039615 ENGINEER 08/04/23

SHEET ID

CG154

READY TO ADVERTISE



A1 CIVIL EROSION CONTROL PLAN

GENERAL SHEET NOTES

1. SEE SHEETS VF101-VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
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SHEET KEYNOTES

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2. INLET PROTECTION
3. CONSTRUCTION ENTRANCE
4. SILT FENCE
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A7 C-501 — REQUIRED GROUNDCOVER TIMES (SEE SEQUENCE OF LAND DISTURBANCE NOTES ON SHEET C-002 AND VEGETATION SCHEDULE DETAIL

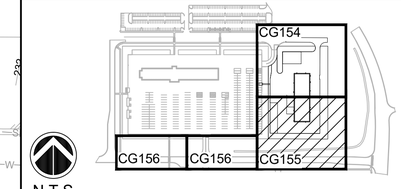
7 DAY MAXIMUM

14 DAY MAXIMUM

D1 C-502 — 7 DAY MAXIMUM — SINGLE NET BLANKET FOR SLOPE STABILIZATION

E1 C-501 — SPOIL STORAGE BERMS SHALL BE LOCATED BY THE CONTRACTOR AS NEEDED FOR CONSTRUCTION SEQUENCE/PHASING AND SHALL BE ENCLOSED IN A DOUBLE ROW OF TEMPORARY SILT FENCE.

KEYPLAN



N.T.S.

20' 0 20' 40'
1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD. SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

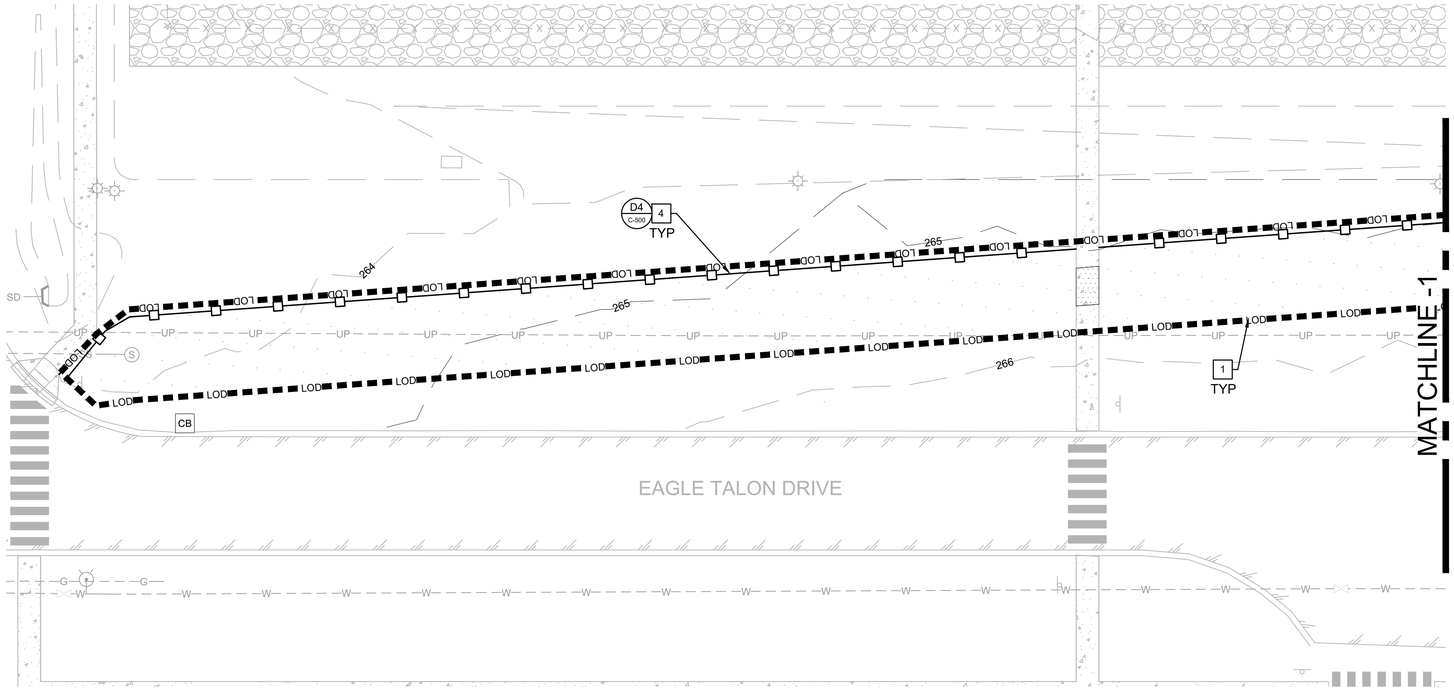
CIVIL FINAL EROSION CONTROL PLAN

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 039615 MATTHEW T. HOLT 08/04/23

SHEET ID

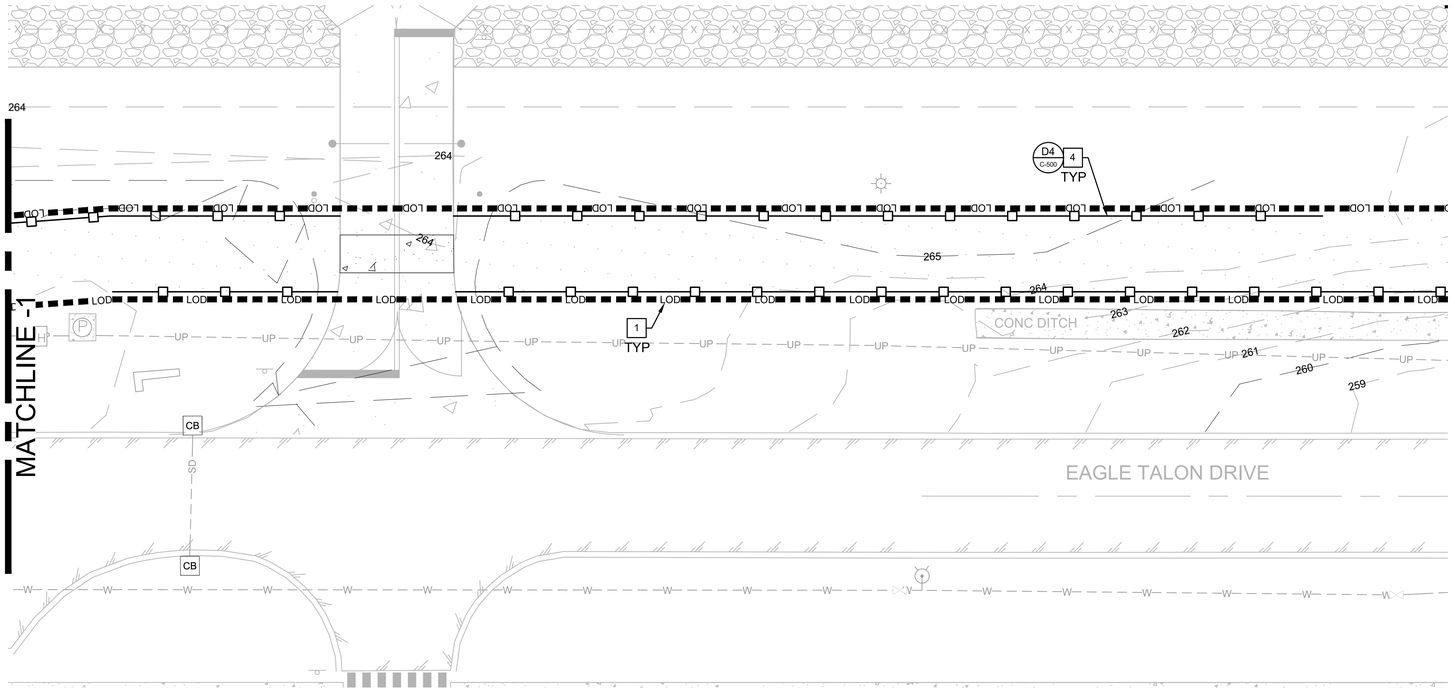
CG155

READY TO ADVERTISE



D1 CIVIL EROSION CONTROL PLAN

1" = 20'



A1 CIVIL EROSION CONTROL PLAN

1" = 20'

GENERAL SHEET NOTES

1. SEE SHEETS VF101-VF103 FOR EXISTING CONDITIONS.
2. SEE SHEETS C-001-C-005 FOR GENERAL NOTED, LEGEND AND ABBREVIATIONS.
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   - 5.1. BAFFLE AND SKIMMER SHOULD BE INSTALLED AS INDICATED ON THE EROSION CONTROL PLAN.
   - 5.2. SEE SHEET C-004 FOR GENERAL MAINTENANCE REQUIREMENTS FOR SEDIMENT BASINS.
   - 5.3. AFTER SITE IS STABILIZED REMOVE ALL ACCUMULATED SEDIMENT FROM POND AND ENSURE DESIGN DEPTHS OF WET POND ARE RESTORED.
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SHEET KEYNOTES

1. LIMITS OF DISTURBANCE
2. INLET PROTECTION
3. CONSTRUCTION ENTRANCE
4. SILT FENCE
5. SILT FENCE ROCK OUTLET
6. TEMPORARY DIVERSION SWALE
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A7 C-501 — REQUIRED GROUNDCOVER TIMES (SEE SEQUENCE OF LAND DISTURBANCE NOTES ON SHEET C-002 AND VEGETATION SCHEDULE DETAIL

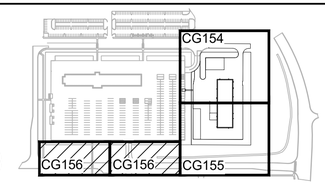
7 DAY MAXIMUM

14 DAY MAXIMUM

D1 C-502 — 7 DAY MAXIMUM — SINGLE NET BLANKET FOR SLOPE STABILIZATION

E1 C-501 — SPOIL STORAGE BERMS SHALL BE LOCATED BY THE CONTRACTOR AS NEEDED FOR CONSTRUCTION SEQUENCE/PHASING AND SHALL BE ENCLOSED IN A DOUBLE ROW OF TEMPORARY SILT FENCE.

KEYPLAN



N.T.S.

20' 0 20' 40'

1 INCH = 20 FEET

PLAN NORTH

US Army Corps of Engineers®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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CAPE FEAR ENGINEERING, INC.
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 8/447

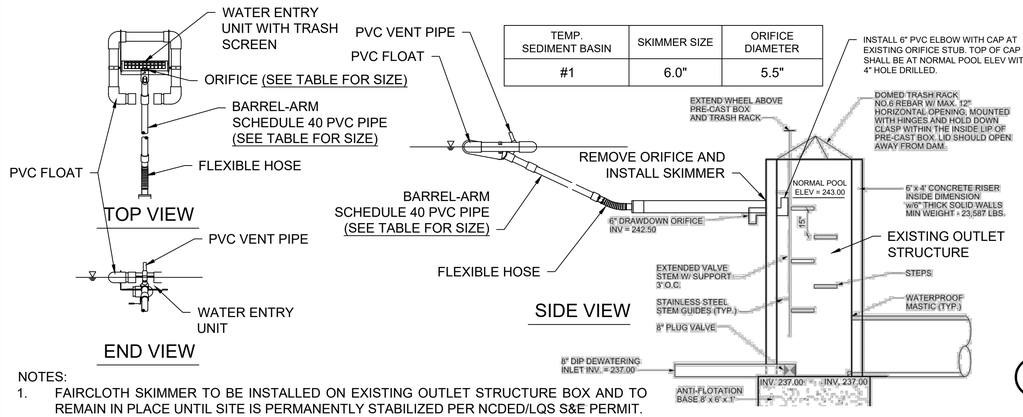
CIVIL FINAL EROSION CONTROL PLAN

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID

CG156

READY TO ADVERTISE

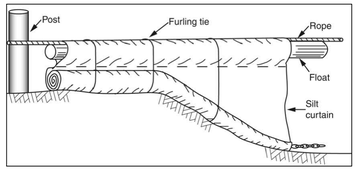


TEMP. SEDIMENT BASIN	SKIMMER SIZE	ORIFICE DIAMETER
#1	6.0"	5.5"

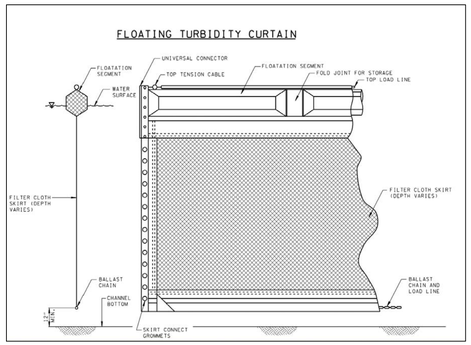
NOTES:
1. FAIRCLOTH SKIMMER TO BE INSTALLED ON EXISTING OUTLET STRUCTURE BOX AND TO REMAIN IN PLACE UNTIL SITE IS PERMANENTLY STABILIZED PER NCDED/LQS S&E PERMIT.
2. REMOVE SKIMMER ONCE SITE HAS BEEN STABILIZED AND RE-INSTALL PERMANENT DRAWDOWN ORIFICE.

E1 FAIRCLOTH SKIMMER
NOT TO SCALE

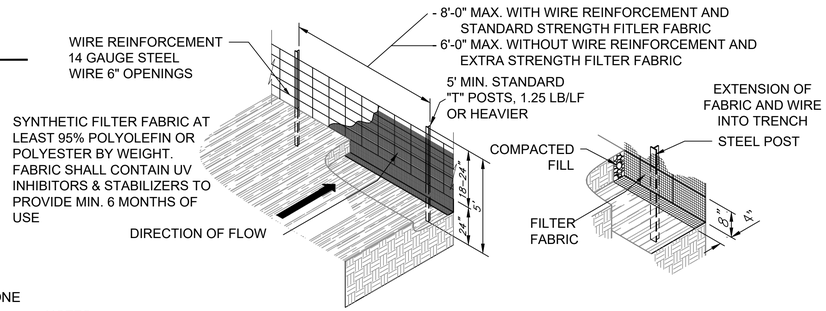
PHYSICAL PROPERTIES OF TURBIDITY CURTAIN FABRIC	
PHYSICAL PROPERTY	MINIMUM REQUIREMENT
THICKNESS, MILS	45
WEIGHT, OZ. / SQ. YD.	18
GRAB TENSILE STRENGTH, LBS.	300
UV INHIBITOR	MUST BE INCLUDED
APPARENT OPENING SIZE (AOS)	FINER THAN OR EQUAL TO #70 U.S. STANDARD SIEVE

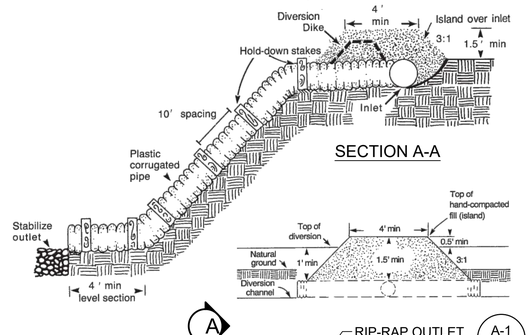


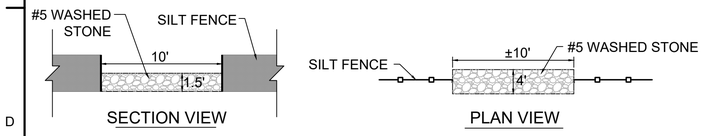
F5 FLOATING TURBIDITY CURTAIN
NOT TO SCALE



NOTES
1. DESIGN OF CURTAIN AND ANCHORAGE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. FLOATING TURBIDITY CURTAINS SHALL MEET OR EXCEED PERFORMANCE SPECIFICATIONS OF POROUS BAFFLES IN ACCORDANCE WITH SECTION 6.5 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL.
3. FABRIC SHOULD BE MADE OF A NON-DETERIORATING MATERIAL, SUCH AS PLASTIC OR NYLON.
4. MINIMUM 12" GAP BETWEEN SKIRT BOTTOM AND CHANNEL BOTTOM TO PREVENT ACCUMULATED SEDIMENT FROM PULLING TOP OF CURTAIN BELOW WATER SURFACE.
5. FLOATING TURBIDITY CURTAINS SHALL BE MAINTAINED IN ACCORDANCE WITH SECTION 6.65 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL.



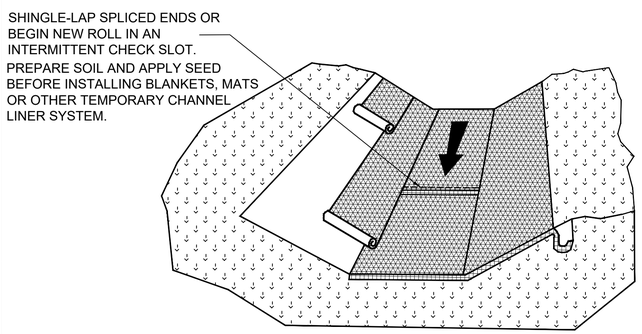




D1 SILT FENCE ROCK OUTLET
NOT TO SCALE

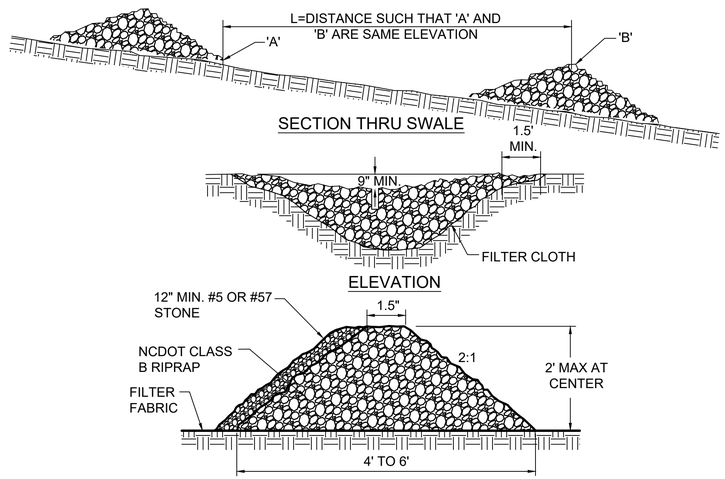
NOTES:
1. ALL SILT FENCE MATERIAL SHALL MEET OR EXCEED ASTM D 6461
2. SILT FENCE SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.62 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE SHEET C-004 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.

D4 TEMPORARY SILT FENCE
NOT TO SCALE



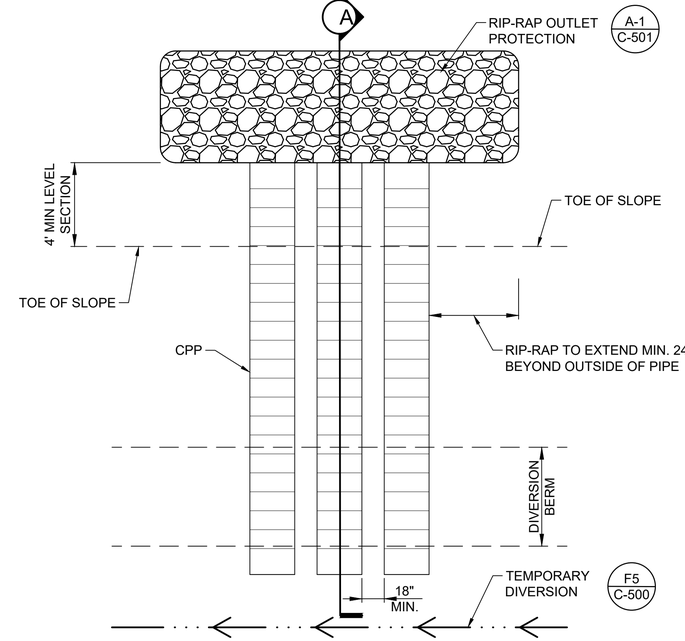
NOTES:
1. CHANNEL LINER MUST BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.30 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE SHEET C-002 AND C-003 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.
2. IN LIEU OF INSTALLING CHANNEL LINER, CONTRACTOR MAY INSTALL PERMANENT SOD. (IN SEASON AND PER PROJECT SPECIFICATIONS)
3. DESIGN VELOCITIES EXCEEDING 2FT/SEC REQUIRE TEMPORARY BLANKETS, MATS OR SIMILAR LINES TO PROTECT SEED AND SOIL UNTIL VEGETATION BECOMES ESTABLISHED,
4. GRASS-LINED CHANNELS WITH DESIGN VELOCITIES EXCEEDING 6FT/SEC SHOULD INCLUDE TURF REINFORCEMENT MATS.

A1 TEMPORARY CHANNEL LINER
NOT TO SCALE



NOTES:
1. STONE CHECK DAM SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.83 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE SHEET C-004 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.
2. CONTRACTOR SHALL INSTALL CHECK DAMS AS INDICATED ON PLANS AND ADDITIONAL CHECK DAMS AS REQUIRED BASED ON SPACING REQUIREMENTS SHOWN ABOVE
3. CONTRACTOR SHALL PLACE CHECK DAM STONE OVER CHANNEL BANKS TO KEEP WATER FROM CUTTING AROUND DAM.

A4 STONE CHECK DAM (IN SWALE)
NOT TO SCALE



NOTE:
1. TEMPORARY SLOPE DRAIN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.32 OF THE NCDENR EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE SHEETS C-002 THROUGH C-004 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.

PLAN VIEW

A7 TEMPORARY SLOPE DRAIN (TSD)
NOT TO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

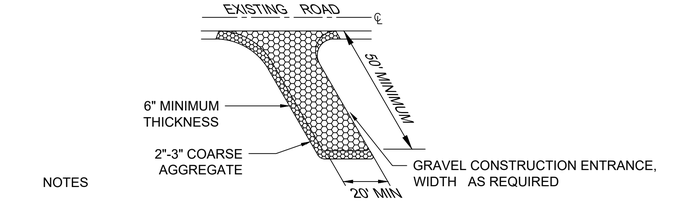
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

EROSION CONTROL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
C-500

READY TO ADVERTISE

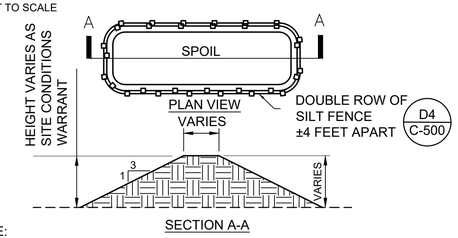


NOTES

1. FILTER FABRIC UNDERLAY SHALL BE INSTALLED BETWEEN STONE AND SOIL FOUNDATION.
2. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.06 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE SHEET C-002 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.

F1 TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE

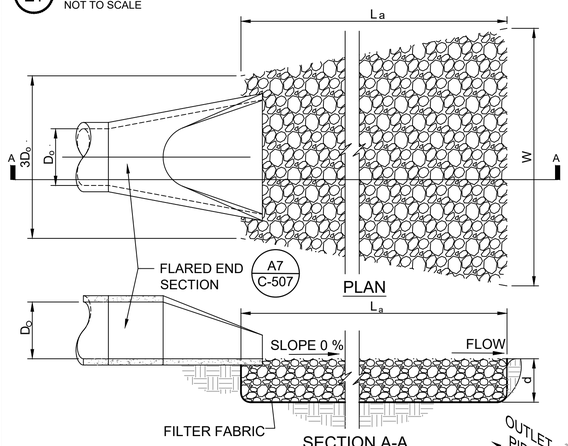


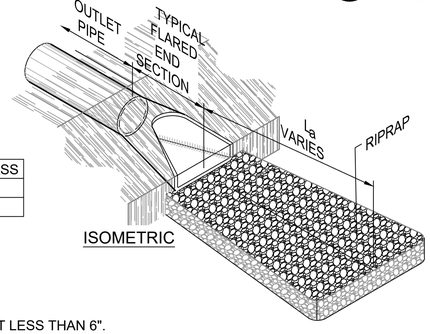
NOTE:

1. CONTRACTOR SHALL LOCATE STOCKPILES AS NEEDED FOR CONSTRUCTION SEQUENCE/PHASING.
2. STOCKPILES MUST BE LOCATED AT LEAST 50-FEET FROM STORMDRAINS, WETLANDS AND STREAMS.

E1 SPOIL STORAGE BERM

NOT TO SCALE





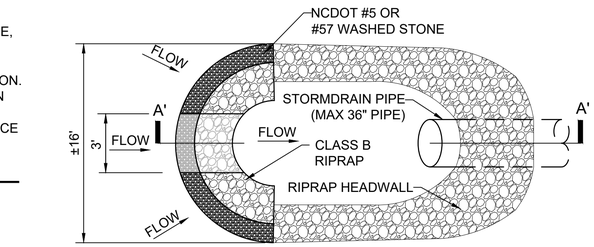
STRUCT. ID	D_o (IN.)	L_a (FT.)	W(FT.)	d (IN.)	CLASS
TSD	(4) 18"	SEE A7 ON C-500		12	B
FES #100	36"	18	9	12	B

NOTES:

1. SEE APPROPRIATE SCHEDULE FOR DIMENSIONS
2. L_a IS THE LENGTH OF THE RIPRAP APRON.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.
5. RIP RAP SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.41 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE SHEET C-003 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.

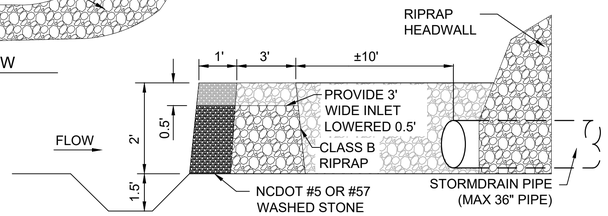
A1 RIP-RAP OUTLET/INLET PROTECTION

NOT TO SCALE



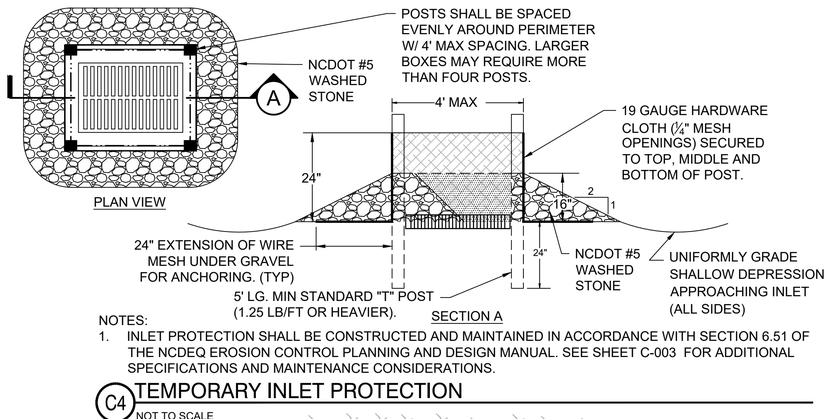
NOTES:

1. ROCK PIPE INLET PROTECTION SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.55 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE SHEET C-003 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.



E4 ROCK PIPE INLET PROTECTION

NOT TO SCALE

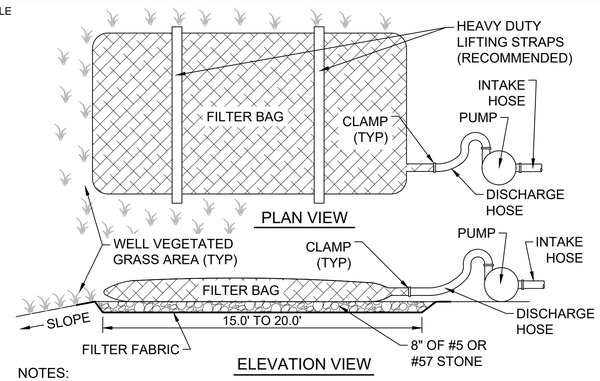


NOTES:

1. INLET PROTECTION SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.51 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE SHEET C-003 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.

C4 TEMPORARY INLET PROTECTION

NOT TO SCALE

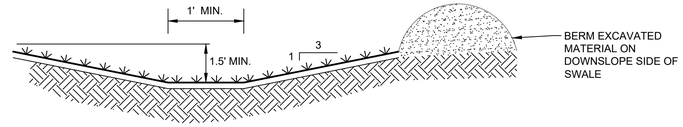


NOTES:

1. WOOD PALLETS MAY BE USED IN LIEU OF STONE AND GEOTEXTILE AS DIRECTED.
2. SEE SHEET C-004 AND 2012 NCDOT STANDARD SPECIFICATIONS, SECTION 1639, FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.

A4 PUMPED WATER FILTER BAG

NOT TO SCALE



NOTE: INSPECT TEMPORARY DIVERSION ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA IS PROTECTED IS PERMANTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

G6 TEMPORARY DIVERSION SWALE

NOT TO SCALE

SEEDING SCHEDULE

FORT LIBERTY SPECIFICATION (REV. 7, OCT 2013):

1. APPLY FERTILIZER/LIME AT RATES AS DETERMINED BY LABORATORY SOIL ANALYSIS OF SOILS AT THE JOB SITE. IN THE ABSENCE OF THE SOIL ANALYSIS, APPLY SOIL AMENDMENTS AT THE RATES INDICATED IN STEPS 2 AND 3.
2. AREA WILL BE TILLED TO 4" DEPTH
3. APPLY LIME AT 70 POUNDS PER 1000 SQUARE FEET, OR 1.5 TONS PER ACRE.
4. APPLY 10-20-20 FERTILIZER AT A RATE OF 850 POUNDS PER ACRE OR 20 POUNDS PER 1000 SQUARE FEET. THE FERTILIZER SHOULD BE EITHER SLOW TIME RELEASE OR APPLIED IN TWO APPLICATIONS. HALF AT TIME OF PLANTING AND SECOND HALF AFTER PERMANENT SEED GERMINATES.
5. THE LIME AND FERTILIZER WILL BE WORKED INTO THE TOP 2 TO 4 INCHES OF SOIL PRIOR TO SEEDING.
6. SEED MIX RATE:

PERMANENT SEEDING
"COOL SEASON": PLANTED BETWEEN 1 SEPTEMBER AND FEBRUARY 28
50 POUNDS PER ACRE KENTUCKY 31 TALL FESCUE (FESTUCA ARUNDINACEA).
25 POUNDS PER ACRE COMMON BERMUDA (CYNODON DACTYLON). HULLED
25 POUNDS PER ACRE COMMON BERMUDA (CYNODON DACTYLON). UNHULLED

"WARM SEASON": PLANTED BETWEEN 1 MARCH AND 31 AUGUST
50 POUNDS PER ACRE KENTUCKY 31 TALL FESCUE (FESTUCA ARUNDINACEA)
50 POUNDS PER ACRE COMMON BERMUDA (CYNODON DACTYLON). HULLED

PERMANENT SODDING

PERMANENT SODDING: ZOYSIA GRASS SOD SHALL BE PROVIDED FOR THE FIRST FIVE FEET OUTSIDE SIDEWALKS, PARKING AREAS, AND FROM THE FACE OF BUILDINGS.

TEMPORARY SEEDING
"COOL SEASON": PLANTED BETWEEN 1 SEPTEMBER AND FEBRUARY 28
120 POUNDS PER ACRE WINTER WHEAT (TRITICUM SPELTA).

"WARM SEASON": PLANTED BETWEEN 1 MARCH AND 31 AUGUST
65 POUNDS PER ACRE GERMAN (SETARIA ITALICA), BROWN TOP (SETARIA ITALICA), OR FOX TAIL MILLET (BRACHIARIA RAMOSUM)

STRAW MULCH: APPLY 4,000 POUNDS PER ACRE. THE GROUND SHOULD BE COMPLETELY COVERED WITH NO BARE SPOT LARGER THAN A QUARTER, THEN TACKED WITH EMULSIFIED ASPHALT OR BY CRIMPING THE STRAW INTO THE GROUND. EMULSIFIED ASPHALT SHALL BE APPLIED AT A RATE HEAVY ENOUGH THAT ENTIRE AREA APPEARS BLACK IN COLOR, WITH PARTICULAR ATTENTION TO THE EDGES OF THE AREA, CREST RIDGES, AND BANKS TO PREVENT WIND DAMAGE.

HYDROSEEDING: HYDROSEEDING SHALL ONLY BE ALLOWABLE ON SLOPES STEEPER THAN 1 HORIZONTAL TO 1 VERTICAL. STEPS 1 THROUGH 4 MUST BE COMPLETED PRIOR TO HYDROSEEDING. HYDROSEEDING SHOULD BE APPLIED IN TWO APPLICATIONS. THE FIRST APPLICATION WILL CONSIST OF 1/3 OF THE MULCH AND 2/3 OF THE SEED AND THE SECOND APPLICATION WILL CONSIST 2/3 OF THE MULCH AND 1/3 OF THE SEED. THE MULCH WILL INCLUDE A TACKIFIER AND WILL BE APPLIED AT A RATE OF 2,000 POUNDS PER ACRE OR THE MANUFACTURERS' RECOMMENDATION, WHICHEVER IS HIGHER.

EXEMPTIONS: SPECIAL USE AREAS, SUCH AS WETLANDS, RIPARIAN AREAS, FLOOD PLAINS, GENERAL OFFICER QUARTERS AND THE HISTORIC DISTRICT. CONTACT THE FORT LIBERTY WATER MANAGEMENT BRANCH (WMB) AT 910-396-2301/2823/2897 WHEN SEEDING THESE AREAS.

UPON COMPLETION OF THE PROJECT, PRIOR TO LEAVING THE SITE, THE WATER MANAGEMENT BRANCH SHALL NOTIFY THE PROJECT POINT OF CONTACT: MR. JACK WILSON AT 396-2301/2823/97, EXTENSION 224.

NPDES STABILIZATION TIMEFRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER 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

NOTE: TEMPORARY SEEDING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.10 AND PERMANENT SEEDING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.11 OF THE NCDENR EROSION CONTROL PLANNING AND DESIGN MANUAL. SODDING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.12 OF THE NCDENR EROSION CONTROL PLANNING AND DESIGN MANUAL AND PROJECT SPECIFICATIONS. SEE SHEET C-002 THROUGH C-004 FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.

A7 VEGETATION/STABILIZATION SCHEDULE

NOT TO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

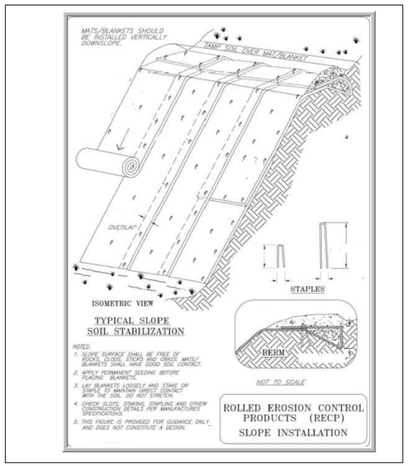
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 8/447

EROSION CONTROL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER 08/04/23 MATTHEW T. HOWARD

SHEET ID
C-501

READY TO ADVERTISE



D1 SINGLE NET BLANKET RECP

NOT TO SCALE

NOTES:

1. SINGLE NET BLANKET OR APPROVED EQUAL RECP SHALL BE USED TO STABILIZE SLOPES AS NOTED ON PLANS.
2. RECP SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.17 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6).
	• Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY: FIRST TITLE:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
SIZE: ANSI D
SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

EROSION CONTROL DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038615 08/04/23

SHEET ID
C-502

READY TO ADVERTISE

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	**Stabilize within this many calendar days after ceasing land disturbance**	**Timeframe variations**
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

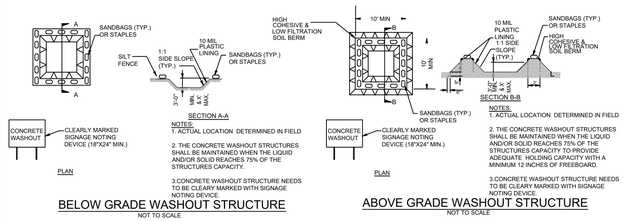
PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
SIZE: ANSI D
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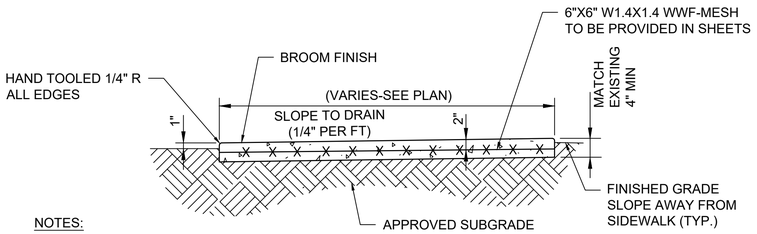
FORT LIBERTY; NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

EROSION CONTROL DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038615 08/04/23 MATTHEW T. HOLLIS

SHEET ID
C-503

READY TO ADVERTISE

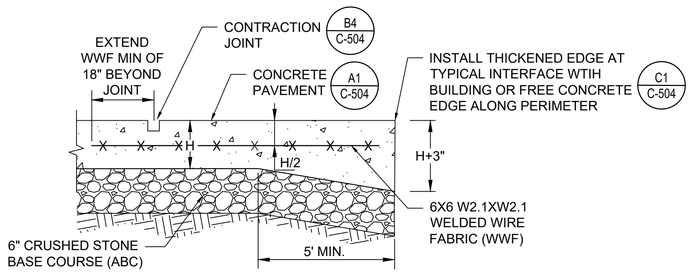


NOTES:

1. EXPANSION, CONTRACTION AND CONSTRUCTION JOINTS SHALL BE INSTALLED PER PROJECT SPECIFICATIONS (SEE DETAIL F4 THIS SHEET)
2. CONCRETE COMPRESSIVE STRENGTH SHALL BE PER SPECIFICATIONS.

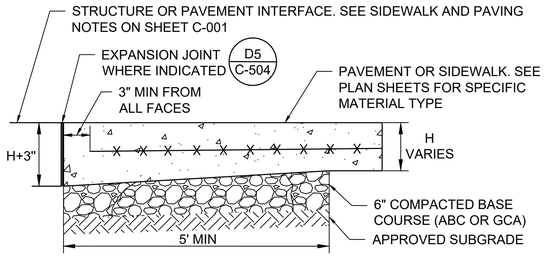
F1 CONCRETE SIDEWALK/STOOP

NOT TO SCALE



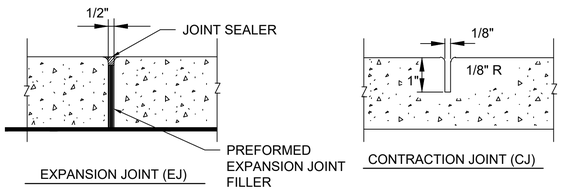
D1 REINFORCED CONCRETE PAVEMENT SECTION

NOT TO SCALE



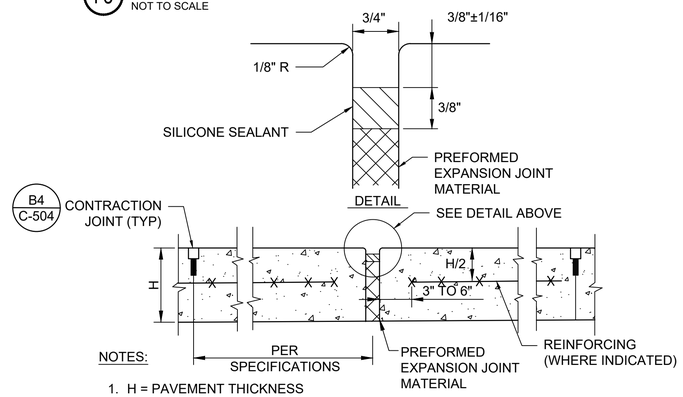
C1 THICKENED EDGE(TE)(TEJ)

NOT TO SCALE



F5 TYPICAL CONCRETE WALK JOINTS

NOT TO SCALE

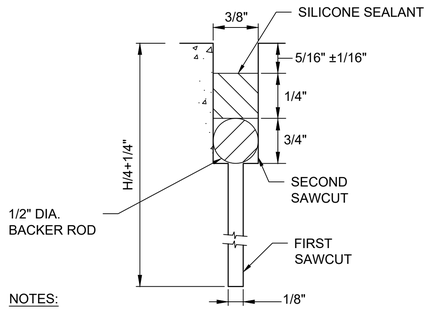


NOTES:

1. H = PAVEMENT THICKNESS
2. JOINT SPACING SHALL SHALL BE INSTALLED PER PROJECT SPECIFICATIONS.

D5 EXPANSION JOINT (EJ)

NOT TO SCALE

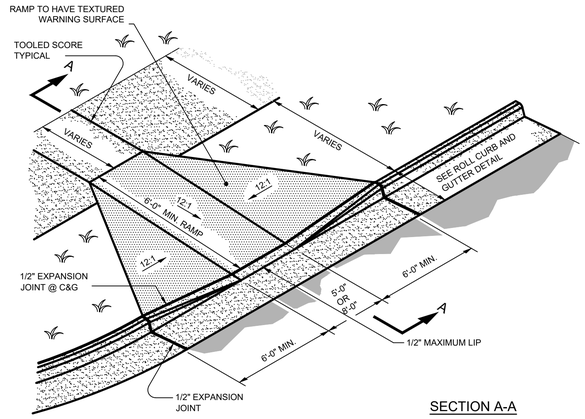


NOTES:

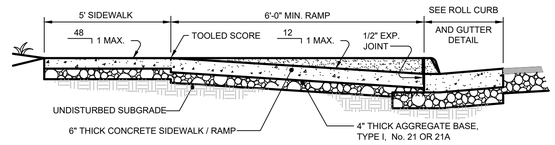
1. H = PAVEMENT THICKNESS
2. JOINT SPACING SHALL SHALL BE INSTALLED PER PROJECT SPECIFICATIONS

B4 SAWED CONTRACTION JOINT (CJ)

NOT TO SCALE



SECTION A-A

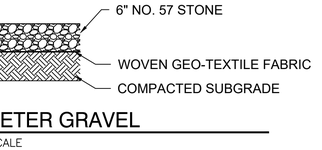


NOTES:

1. CROSS AND SIDE RAMPS SHALL NOT EXCEED A SLOPE OF 12:1. CROSS AND SIDE RAMPS SHALL BE 3,000 P.S.I. CONCRETE WITH SLIP RESISTANT INTEGRAL DETECTABLE WARNING SURFACE WITH AN EXPOSED AGGREGATE FINISH.
2. CURB RAMPS ARE TO BE LOCATED WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT-OF-WAY OF A ROADWAY CROSSES AS SHOWN ON PLANS OR AS DIRECTED BY ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES, EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC.

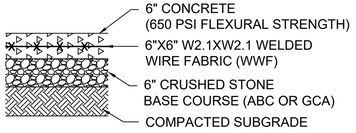
C8 HANDICAP RAMP FOR ROLL CURB

NOT TO SCALE



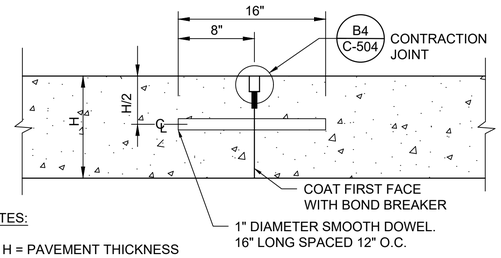
B1 PERIMETER GRAVEL

NOT TO SCALE



A1 HEAVY DUTY CONCRETE

NOT TO SCALE

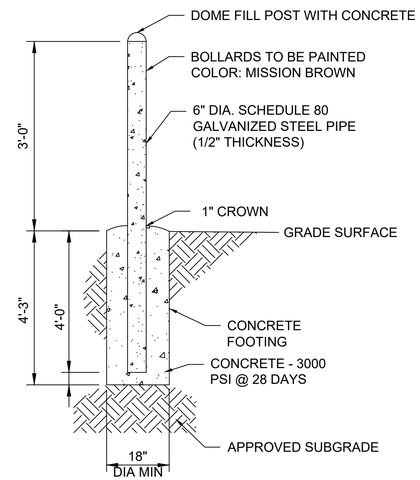


NOTES:

1. H = PAVEMENT THICKNESS
2. JOINT SPACING SHALL SHALL BE INSTALLED PER PROJECT SPECIFICATIONS

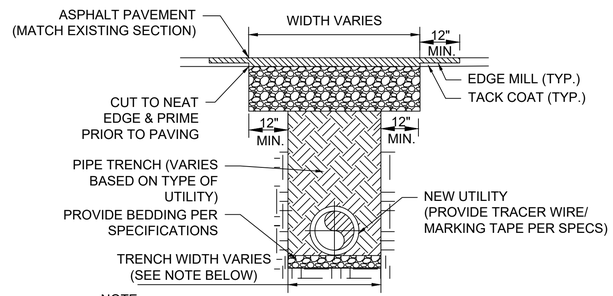
A3 DOWELED CONSTRUCTION JOINT (DCJ)

NOT TO SCALE



C8 6" PROTECTIVE BOLLARD

NOT TO SCALE



NOTE:
TRENCH WIDTH VARIES BASED ON TYPE, SIZE AND DEPTH OF UTILITY. CONTRACTOR MUST PROVIDE A TRENCH WIDTH REQUIRED FOR COMPLETE INSTALLATION PER SPECIFICATIONS. THE MINIMUM TRENCH WIDTH FOR ANY OPEN CUT IS 5 FEET.

A8 CUTTING AND REPLACING PAVEMENT

NOT TO SCALE

US Army Corps of Engineers®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
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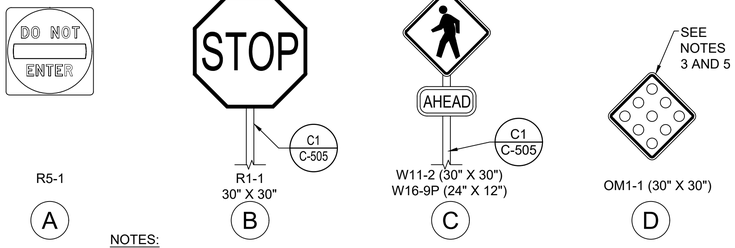
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 8/447

SITE DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038615 08/04/23

SHEET ID
C-504

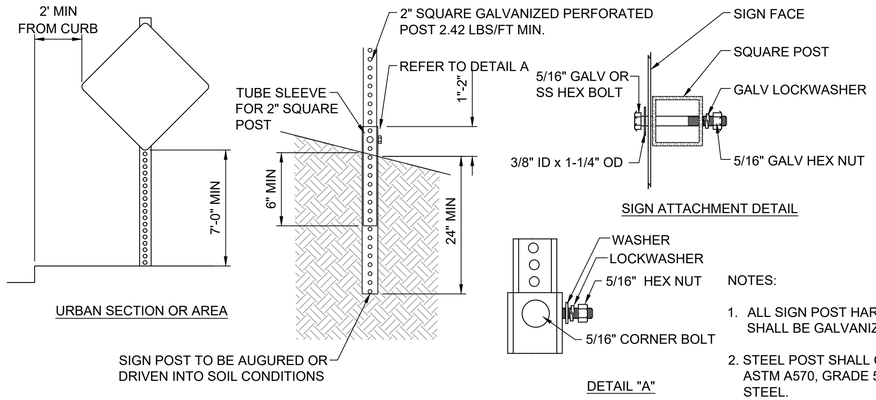
READY TO ADVERTISE



R5-1 (A) | R1-1 30" X 30" (B) | W11-2 (30" X 30") W16-9P (24" X 12") (C) | OM1-1 (30" X 30") (D)

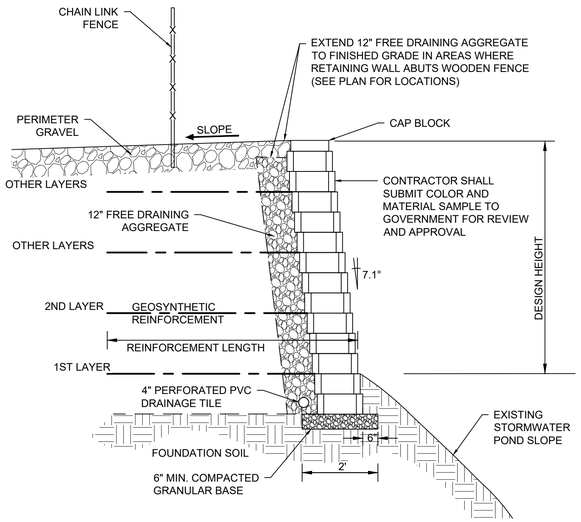
NOTES:
1. ANY ROAD/STREET SIGNS LOCATED INSIDE THE ROAD CLEAR ZONE (EXCLUDING PARKING LOTS) SHALL BE INSTALLED USING BREAKAWAY SIGN POSTS.
2. FOR HANDICAP PARKING SPACES THAT ARE NOT VAN ACCESSIBLE, OMIT SIGN R7-8p FROM THE PARKING SPACE SIGNAGE.
3. SIGNS TO BE MADE OF HIGH INTENSITY, TYPE 3 OR GREATER REFLECTIVE SHEETING.
4. MATERIAL TO BE NCDOT APPROVED, LISTED ON THEIR QPL.
5. SIGN SHALL BE CENTERED ON EACH SWING GATE ON BOTH SECURED AND UNSECURED SIDES.

F1 SIGN DETAILS
NOT TO SCALE



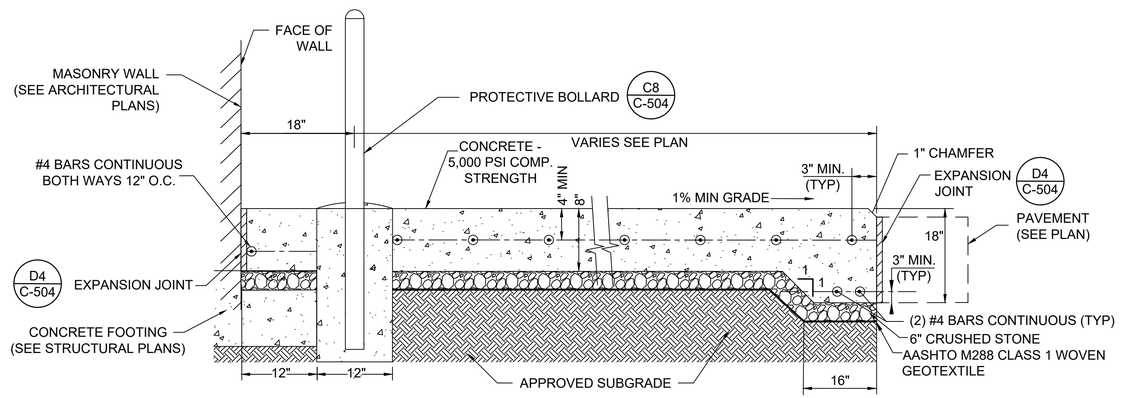
NOTES:
1. ALL SIGN POST HARDWARE SHALL BE GALVANIZED TO ASTM A-653.
2. STEEL POST SHALL CONFORM TO ASTM A570, GRADE 50 FOR STRUCTURAL STEEL.

C1 TYPICAL GROUND MOUNT SIGN SUPPORT
NOT TO SCALE

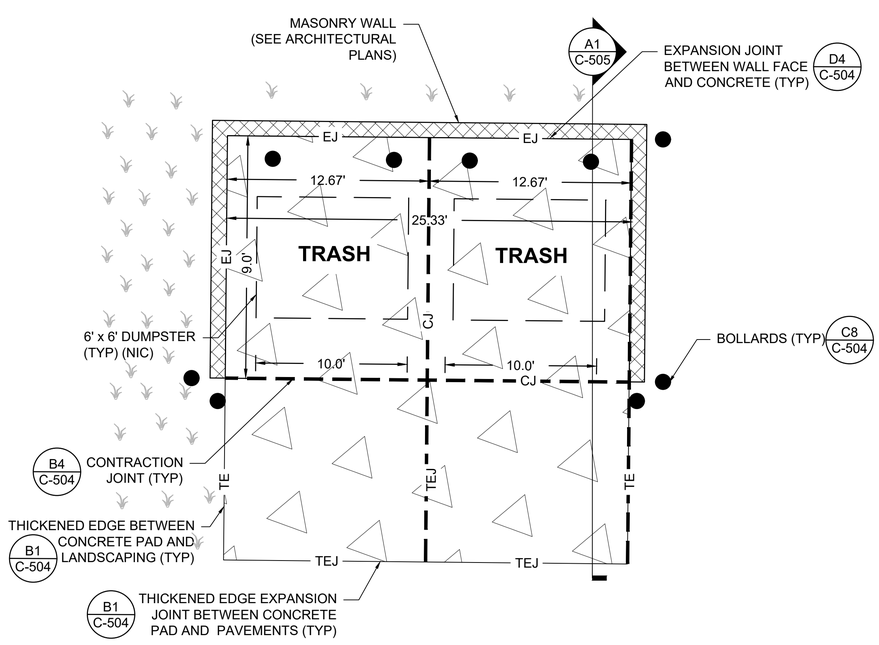


NOTES:
1. BACKFILL MATERIALS AND COMPACTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION AND THE PROJECT GEOTECH REPORT.
2. RETAINING WALL SECTION IS SHOWN FOR GENERAL REFERENCE/COORDINATION ONLY. CONTRACTOR SHALL PROVIDE WALL DESIGN DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA.
3. IN LIEU OF SEGMENTAL BLOCK WALL, CONTRACTOR MAY SUBMIT ALTERNATIVE CAST-IN-PLACE WALL DESIGN SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA.

D5 SEGMENTAL BLOCK RETAINING WALL
NOT TO SCALE



A1 DUMPSTER PAD SECTION
NOT TO SCALE



1. EXPANSION AND CONTRACTION JOINTS SHALL BE INSTALLED PER PROJECT SPECIFICATIONS

A6 DUMPSTER PAD DETAIL
NOT TO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

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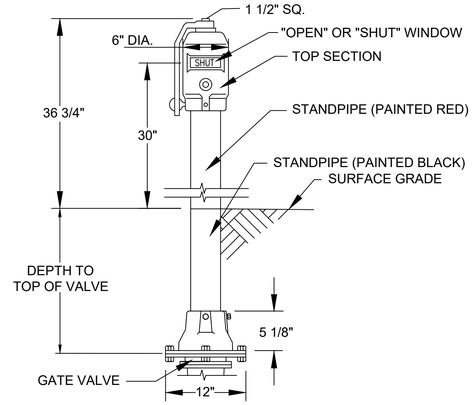
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 8/447

SITE DETAILS

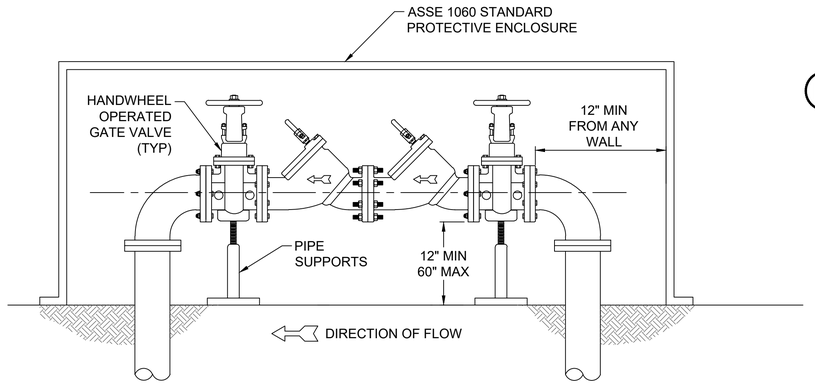
NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER 08/04/23

SHEET ID
C-505

READY TO ADVERTISE



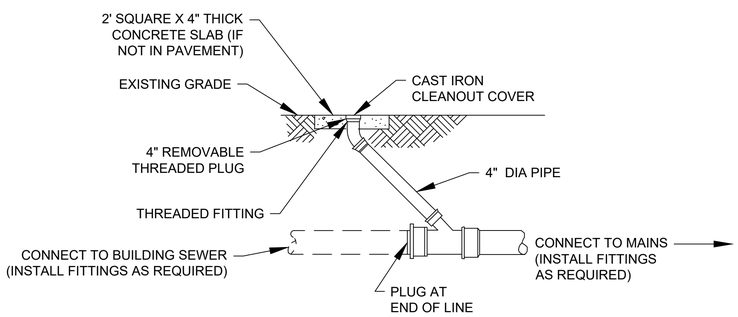
E1 POST INDICATOR VALVE
NOT TO SCALE



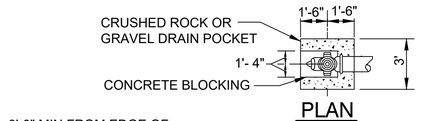
OUTDOOR INSTALLATION

NOTE:
1. BACKFLOW PREVENTER AND HOT BOX ENCLOSURE MATERIALS AND INSTALLATION SHALL BE PER PROJECT SPECIFICATIONS.
2. PROVIDE PROTECTIVE BOLLARDS AS REQUIRED FOR PROTECTION.
3. BACKFLOW ASSEMBLY AND ENCLOSURE PROVIDED AND INSTALLED BY OTHERS (ASUS).

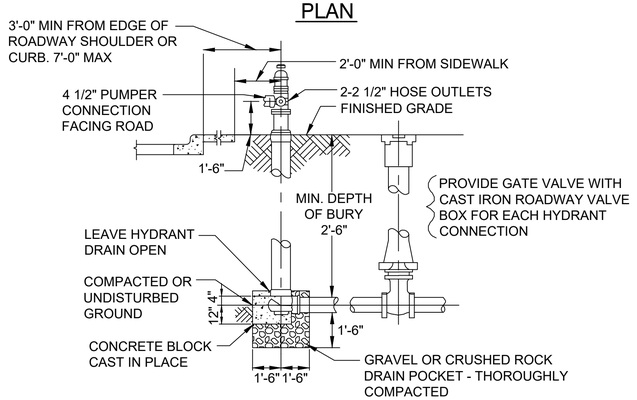
C1 6" DOUBLE CHECK VALVE BACKFLOW PREVENTER AND ENCLOSURE
NOT TO SCALE



A1 CLEANOUT/SERVICE
NOT TO SCALE

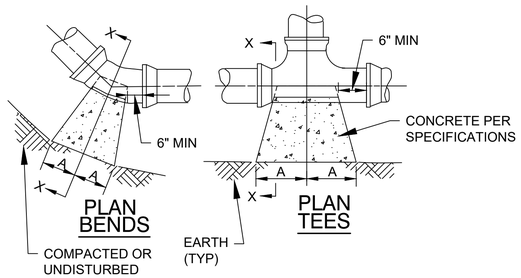


PLAN



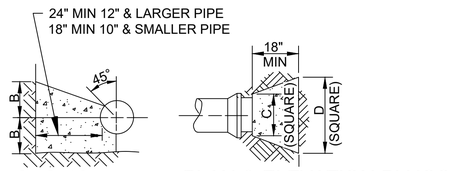
NOTE:
1. HYDRANTS SHALL BE PAINTED WITH AT LEAST ONE COAT OF PRIMER AND TWO COATS OF ENAMEL PAINT. COLOR TO BE PER PROJECT SPECIFICATIONS.
2. IN LOCATIONS WHERE PROTECTIVE BOLLARDS ARE USED PROVIDE A MINIMUM 24" CLEARANCE, AND MUST NOT BLOCK HYDRANT CONNECTIONS.

E5 FIRE HYDRANT
NOT TO SCALE



PLAN BENDS

PLAN TEES



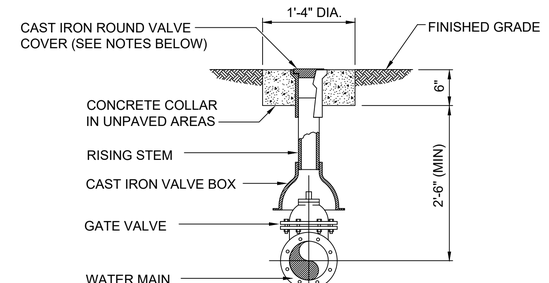
SECTION X-X BENDS & TEES

PLAN & ELEVATION PLUGS

SIZE	1/4 BENDS		1/8 BENDS		1/16 BENDS		TEES		PLUGS	
	A	B	A	B	A	B	A	B	C	D
4"&6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
14"	35"	24"	19"	24"	12"	20"	22"	27"	18"	48"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

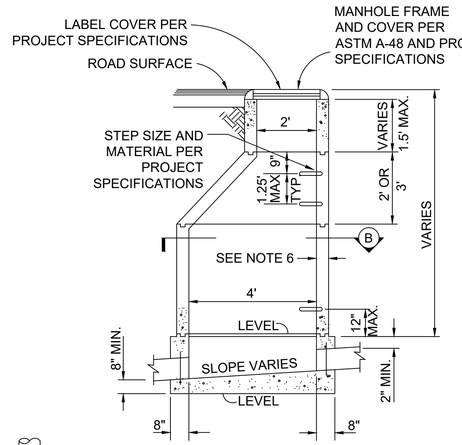
NOTE:
SHALL BE INSTALLED PER PROJECT SPECIFICATIONS

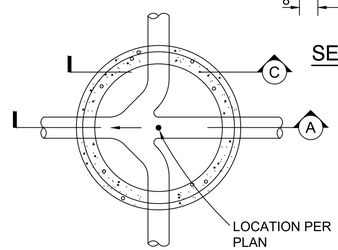
A5 THRUST BLOCKS
NOT TO SCALE



NOTES:
1. VALVE COVERS ON FIRE SERVICE LINES SHALL BE STAMPED 'FIRE' AND PAINTED RED.
2. VALVE COVERS ON DOMESTIC SERVICE LINES AND MAIN LINES SHALL BE STAMPED 'WATER'.

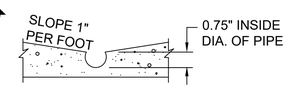
E8 GATE VALVE
NOT TO SCALE





SECTION A

SECTION B



SECTION C-C

NOTES:
1. MANHOLE FRAME AND ALL JOINTS SHALL BE SET IN MORTAR.
2. ALL PRECAST COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-478M EXCEPT STEP SPACING.
3. VERTICAL WALL OF CONE SHALL BE ON THE UPSTREAM SIDE OF THE MANHOLE.
4. APPROVED WATER STOP REQUIRED FOR PIPE CONNECTIONS.
5. FLEXIBLE PIPE JOINTS SHALL BE REQUIRED WITHIN 12" OF INSIDE FACE OF MANHOLE.
6. 5" THICK FOR REINFORCED WALL SECTIONS, 6" THICK FOR UNREINFORCED WALL SECTIONS.
7. MANHOLE COVERS SUBJECT TO TRAFFIC LOADS SHALL BE HS-20 TRAFFIC RATED.
8. ALL MANHOLES WITH RIM ELEVATION BELOW THE 100-YR FLOOD ELEVATION MUST HAVE WATERTIGHT MANHOLE COVERS.

A7 SEWER MANHOLE
NOT TO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY: MTH
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

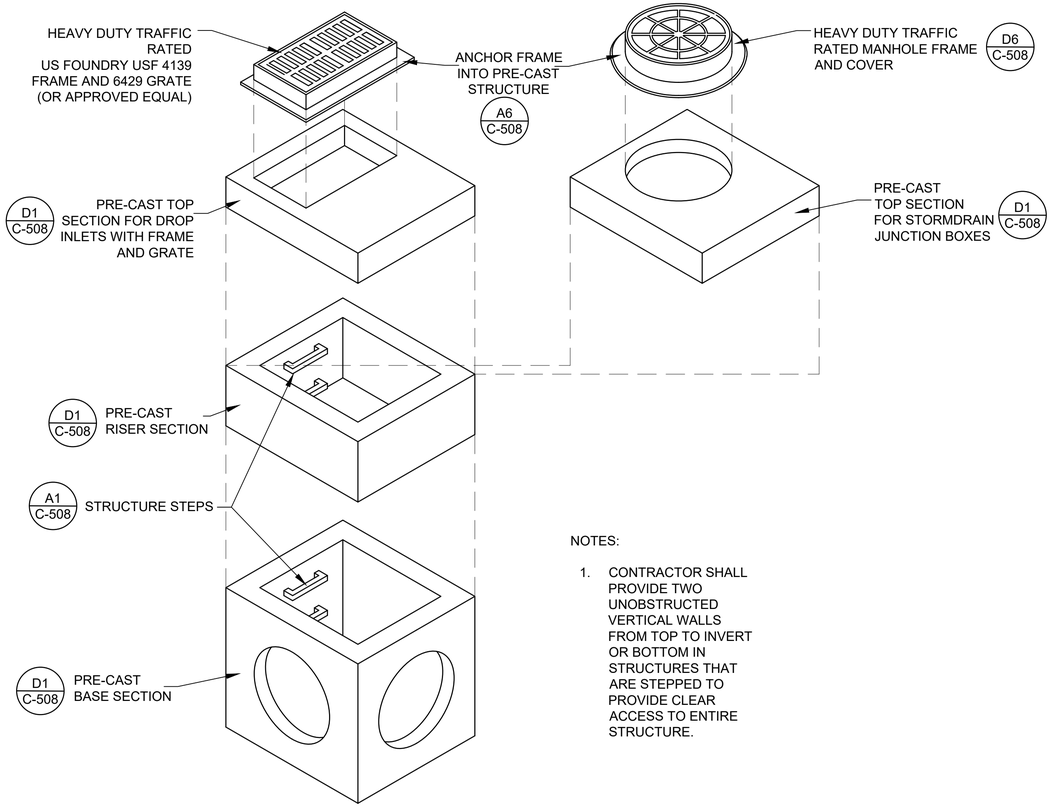
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

UTILITY DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
C-506

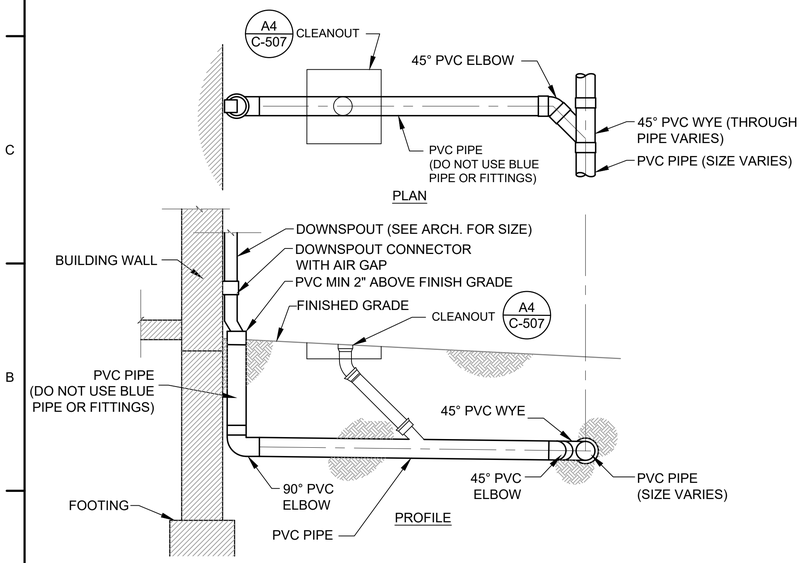
READY TO ADVERTISE



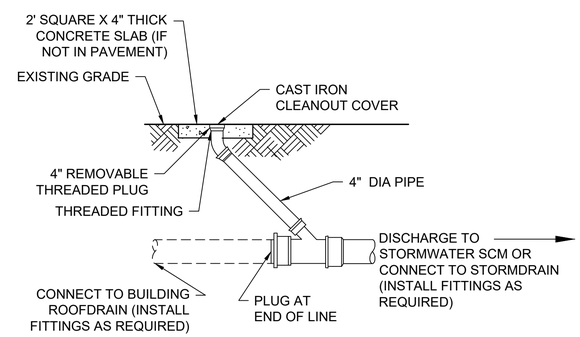
NOTES:

1. CONTRACTOR SHALL PROVIDE TWO UNOBSTRUCTED VERTICAL WALLS FROM TOP TO INVERT OR BOTTOM IN STRUCTURES THAT ARE STEPPED TO PROVIDE CLEAR ACCESS TO ENTIRE STRUCTURE.

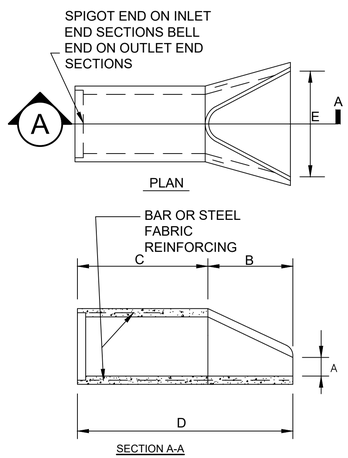
D1 TYPICAL STORMDRAIN STRUCTURE
NOT TO SCALE



A1 TYPICAL ROOFDRAIN
NOT TO SCALE



A4 STORMDRAIN CLEANOUT
NOT TO SCALE



END SECTION DIMENSIONS					
DIA	A	B	C	D	E
12"	4"	2'-0"	2'-0"	4'-0"	2'-0"
15"	6"	2'-3"	1'-9"	4'-0"	2'-6"
18"	9"	2'-3"	1'-9"	4'-0"	3'-0"
24"	9 1/2"	3'-7"	2'-6"	6'-1"	4'-0"
30"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"
36"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"
42"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"
48"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"
54"	2'-3"	5'-5"	2'-9 1/4"	8'-2 1/4"	7'-6"
60"	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"

A7 FLARED END SECTION (FES)
NOT TO SCALE

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WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
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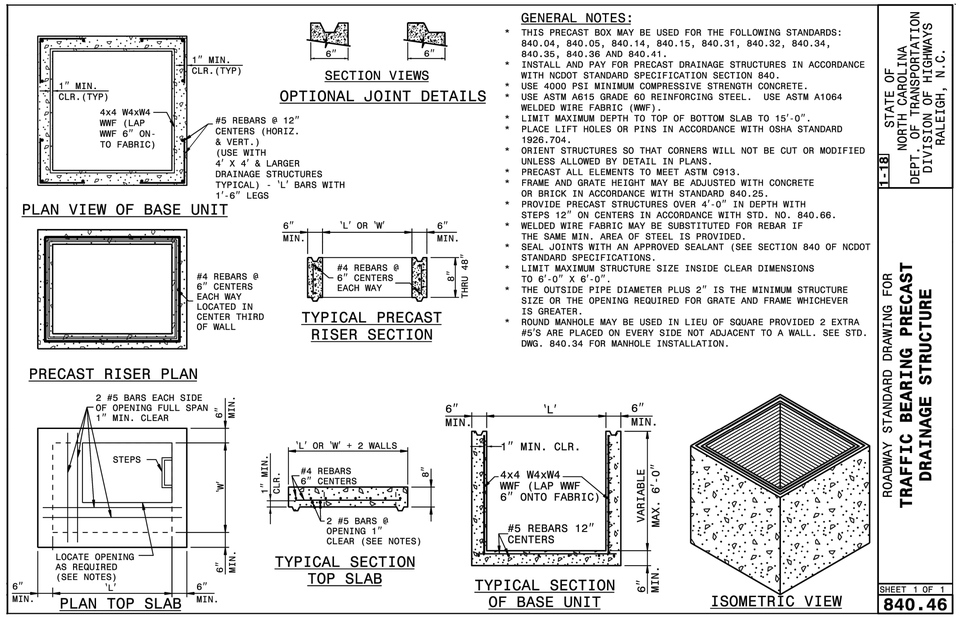
FORT LIBERTY: NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

STORMDRAIN DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
08/04/23

SHEET ID
C-507

READY TO ADVERTISE



GENERAL NOTES:

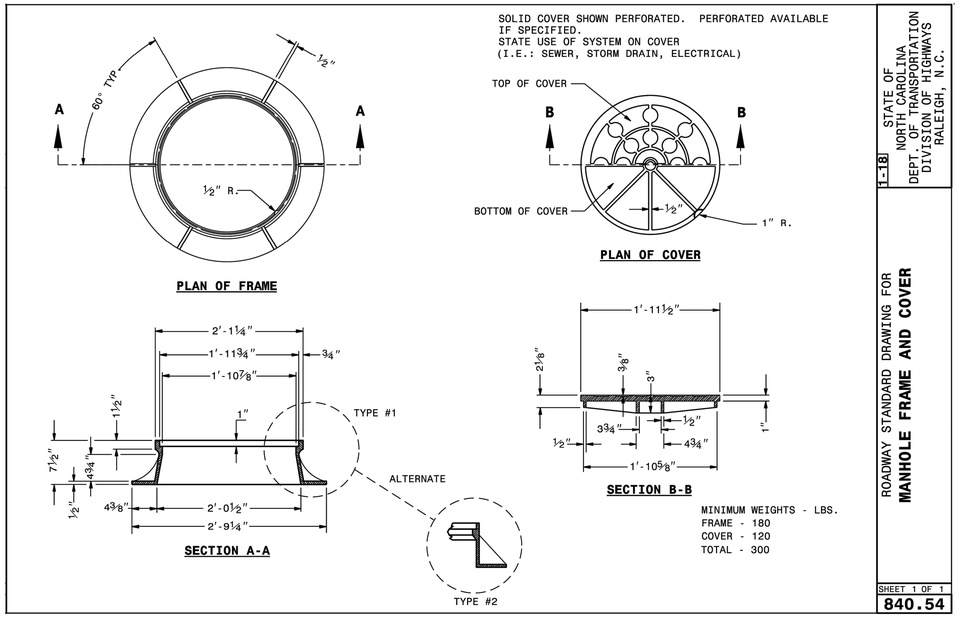
* THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.04, 840.05, 840.14, 840.15, 840.31, 840.32, 840.34, 840.35, 840.36 AND 840.41.
* INSTALL AND PAY FOR PRECAST DRAINAGE STRUCTURES IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATION SECTION 840.
* USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.
* USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1064 WELDED WIRE FABRIC (WWF).
* LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB TO 15'-0".
* PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
* ORIENT STRUCTURES SO THAT CORNERS WILL NOT BE CUT OR MODIFIED UNLESS ALLOWED BY DETAIL IN PLANS.
* PRECAST ALL ELEMENTS TO MEET ASTM C913.
* FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
* PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR IF THE SAME MIN. AREA OF STEEL IS PROVIDED.
* SEAL JOINTS WITH AN APPROVED SEALANT (SEE SECTION 840 OF NCDOT STANDARD SPECIFICATIONS.
* LIMIT MAXIMUM STRUCTURE SIZE INSIDE CLEAR DIMENSIONS TO 6'-0" X 6'-0".
* THE OUTSIDE PIPE DIAMETER PLUS 2" IS THE MINIMUM STRUCTURE SIZE OR THE OPENING REQUIRED FOR GRATE AND FRAME WHICHEVER IS GREATER.
* ROUND MANHOLE MAY BE USED IN LIEU OF SQUARE PROVIDED 2 EXTRA #5'S ARE PLACED ON EVERY SIDE NOT ADJACENT TO A WALL. SEE STD. DWG. 840.34 FOR MANHOLE INSTALLATION.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-18

ROADWAY STANDARD DRAWING FOR
TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE

SHEET 1 OF 1
840.46

D1 PRECAST DRAINAGE STRUCTURE
NOT TO SCALE

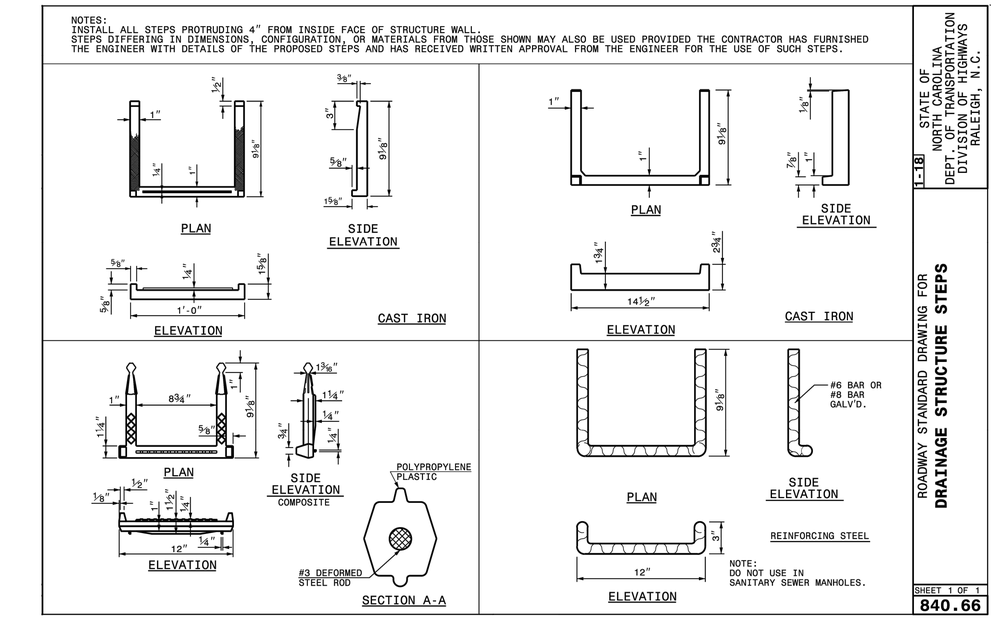


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-18

ROADWAY STANDARD DRAWING FOR
MANHOLE FRAME AND COVER

SHEET 1 OF 1
840.54

D6 MANHOLE FRAME AND COVER
NOT TO SCALE

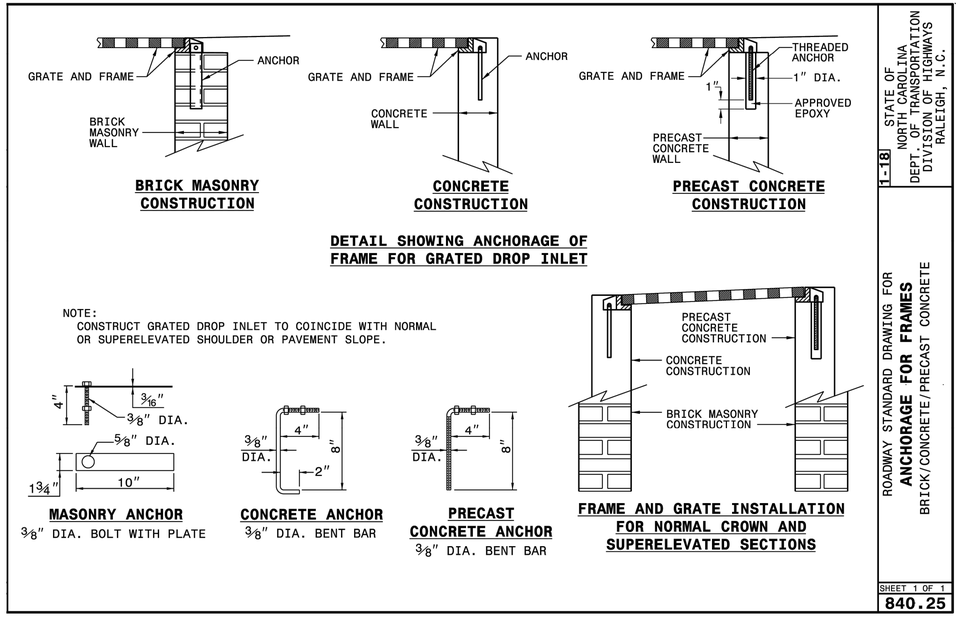


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-18

ROADWAY STANDARD DRAWING FOR
DRAINAGE STRUCTURE STEPS

SHEET 1 OF 1
840.66

A1 DRAINAGE STRUCTURE STEPS
NOT TO SCALE



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-18

ROADWAY STANDARD DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840.25

A6 NCDOT ANCHORAGE FOR FRAMES
NOT TO SCALE

US Army Corps of Engineers®

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ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
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SIZE: ANSI D
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD. SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

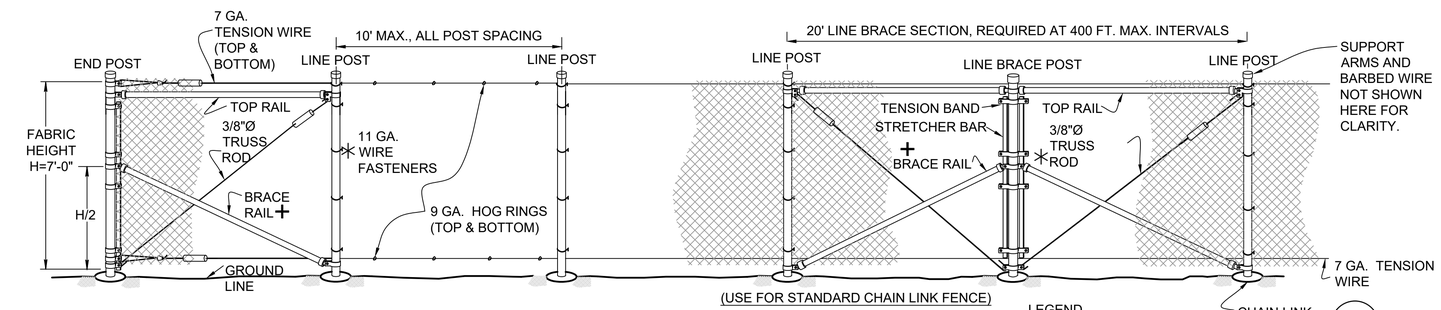
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

STORMDRAIN DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER MATTHEW T. HOWARD
08/04/23

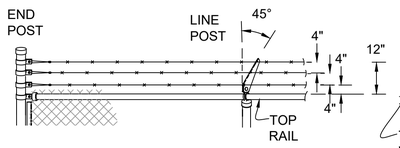
SHEET ID
C-508

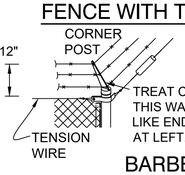
READY TO ADVERTISE



(USE FOR STANDARD CHAIN LINK FENCE)

FENCE WITH TOP TENSION WIRE





BARBED WIRE TOP

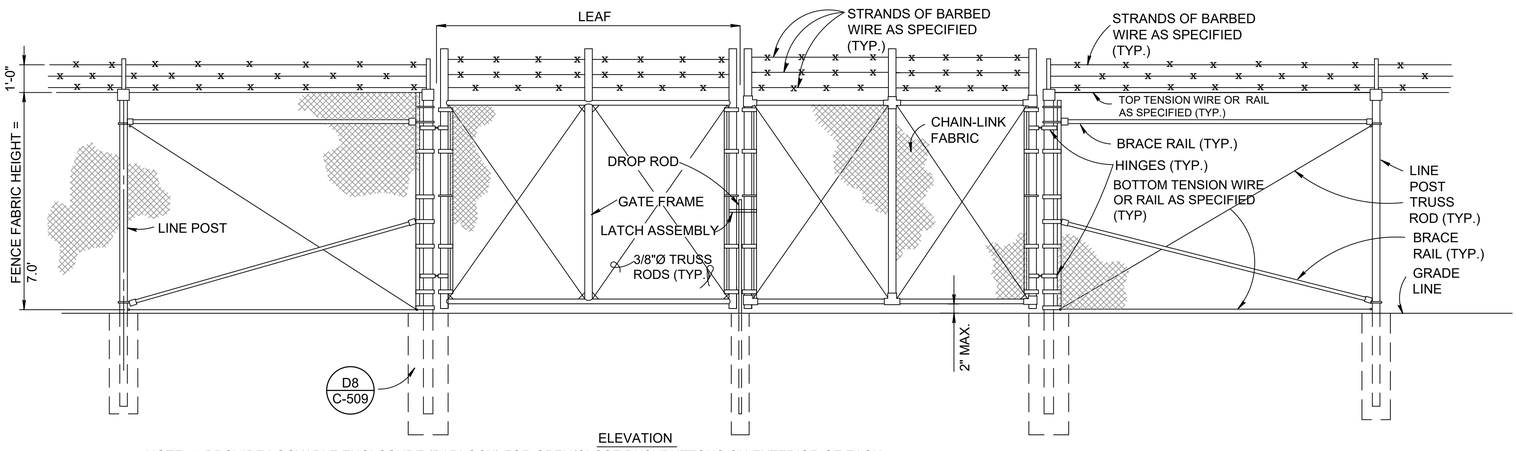
PROVIDE SINGLE ARM OUTRIGGER WITH 1 ARM SLOPED OUTWARDS AT 45°. PROVIDE 3 STRANDS BARBED WIRE. BARBED WIRE OVER GATES SHALL NOT BE SLOPED.

LEGEND

- ✳ ATTACH FABRIC TO ALL FENCE & GATE STRUCTURES AT 12" INTERVALS VERTICALLY & AT 20" HORIZONTALLY.
- TIGHTENER OR TURNBUCKLE SYMBOL,
- ▼ TYPE OF LINE POST (ROUND PIPE OR ROLL-FORMED STEEL) SHALL BE AT THE OPTION OF THE CONTRACTOR UNLESS OTHERWISE SHOWN ON THE PLANS.
- \+ BRACE RAIL WILL NOT BE REQUIRED FOR 36",42" OR 48" FABRIC HEIGHTS. BRACE RAIL FOR FENCE WITH ROLL-FORMED STEEL ELEMENTS IS 12" BELOW THE TOP RAIL.

E1 CHAIN LINK FENCE DETAIL

NOT TO SCALE

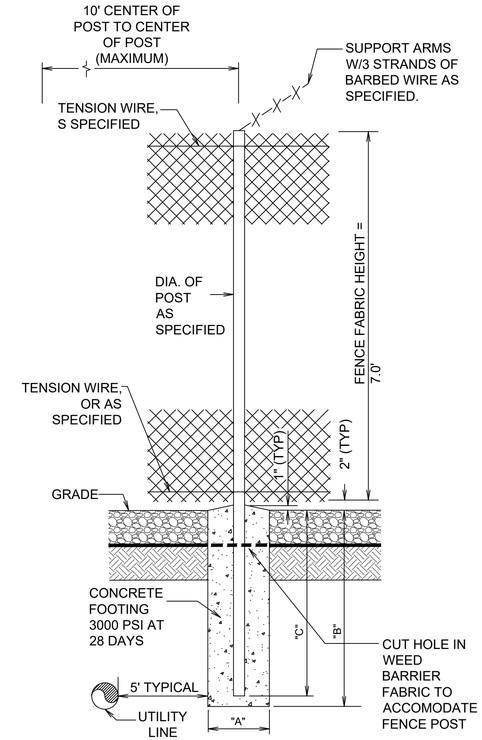


ELEVATION

NOTE: 1. PROVIDE LOCKABLE ENCLOSURE (PADLOCK) FOR OPEN/CLOSE PUSHBUTTONS ON EXTERIOR OF EACH VEHICULAR GATE.

C1 DOUBLE SWING GATE (TYPE FE7 FENCE)

NOT TO SCALE



D8 CHAIN LINK FENCE FOUNDATION

NOT TO SCALE

GENERAL NOTES

1. CHAIN LINK FENCE SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATIONS. ATTACH SUPPORT ARMS AT EACH POST WITH SCREW. FENCE SHALL BE GROUNDED PER SPECIFICATIONS. SEE SECTION 33 71 02.00 20 AND 32 31 13.53
2. CHAIN LINK FABRIC SHALL BE 2" MESH NO. 9 GAGE GALVANIZED OR ALUMINUM COATED WIRE SECURELY FASTENED TO TENSION WIRE, LINE POSTS, RAILS, BRACES AND STRETCHER BARS SPACED AS SHOWN HEREON. WIRE FASTENERS AND TIE CLIPS SHALL BE NO. 11 GAGE (W&M) GALVANIZED STEEL WIRE OR NO. 7 GAGE (B&S) ALUMINUM WIRE,
3. STEEL POSTS, RAILS AND GATE FRAMES SHALL CONFORM TO THE PROJECT SPECIFICATIONS.
4. AT THE CONTRACTOR'S OPTION, PIPE USED FOR FENCE CONSTRUCTION SHALL CONFORM TO THE DIMENSIONS AND WEIGHTS FOR EITHER "ORDINARY PIPE" OR "ALTERNATIVE PIPE". "ALTERNATIVE PIPE" SHALL BE HIGH STRENGTH STEEL PIPE MEETING THE REQUIREMENTS OF FED. SPEC. RR-F-191/3C.
5. TENSION WIRE SHALL BE CONTINUOUS BETWEEN END OR CORNER POST AND LINE BRACE POST. A TURNBUCKLE OR OTHER APPROVED TIGHTENING DEVICE SHALL BE USED FOR EACH CONTINUOUS SPAN OF TENSION WIRE.
6. TENSION WIRE SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
7. CONCRETE FOOTINGS SHALL HAVE TOPS CROWNED AT GROUND LEVEL AND SHALL BE CLASS B. SEE SPECIFICATION SECTION 32 31 13.53 FOR DETAILS.
8. TERMINATION OF FENCE AT BRIDGES OR OTHER STRUCTURES SHALL BE AS SHOWN ON PLANS.
9. CHAIN LINK FABRIC SHALL BE TWISTED AND BARBED ON THE TOP AND BOTTOM SELVAGE.
10. FENCE MAY BE CONSTRUCTED WITH EITHER ROUND PIPE OR ROLL-FORMED STEEL COMPONENTS. THE CONTRACTOR SHALL STATE THE TYPE OF CONSTRUCTION AND TYPE OF LINE POST TO BE USED THROUGHOUT THE PROJECT, AT THE PRECONSTRUCTION CONFERENCE.
11. ATTACH SUPPORT ARMS AT EACH POST SCREW
12. FENCE SHALL BE POSTED WITH SIGNS MEASURING APPROXIMATELY TWELVE INCHES BY EIGHTEEN INCHES IN SIZE WITH PROPORTIONATE LETTERING ALONG THE PERIMETER AT INTERVAL NOT TO EXCEED 100 FEET. SIGNS WILL BE PLACED SO AS NOT TO OBSCURE THE NECESSARY LINES OF VISION FOR SECURITY FORCE PERSONNEL.

SIGNS WILL READ AS FOLLOWS:

WARNING
RESTRICTED
AREA
KEEP OUT
AUTHORIZED
PERSONNEL
ONLY

13. ALL WORDS EXCEPT "WARNING" WILL BE BLACK TEXT ON A WHITE BACKGROUND WITH ONLY THE WORD "WARNING" IN RED TEXT.
14. FENCE WILL CROSS MULTIPLE UTILITY LINES, MULTIPLE TIMES. USE CAUTION AND HAVE ALL UTILITIES LOCATED AND MARKED BEFORE INSTALLING FENCE.

US Army Corps of Engineers®

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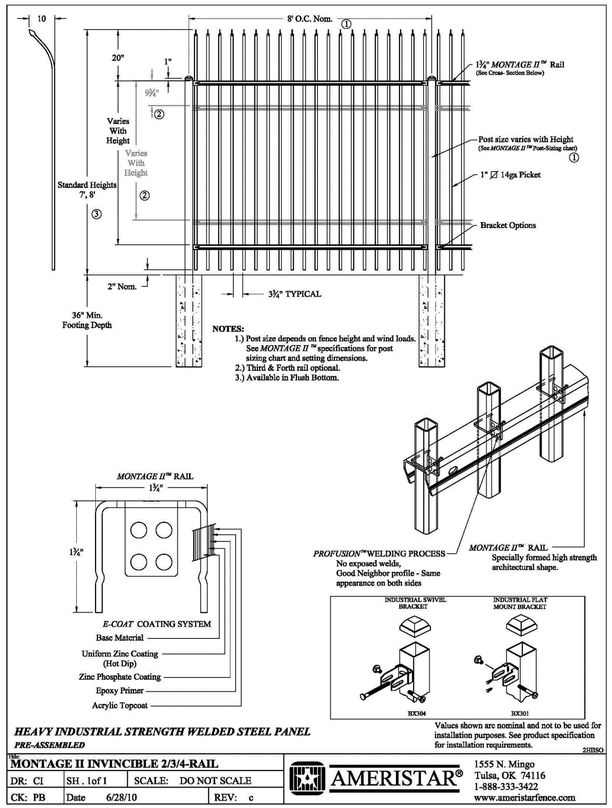
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

FENCE DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038615 08/04/23 MATTHEW T. HOLLOWAY

SHEET ID
C-509

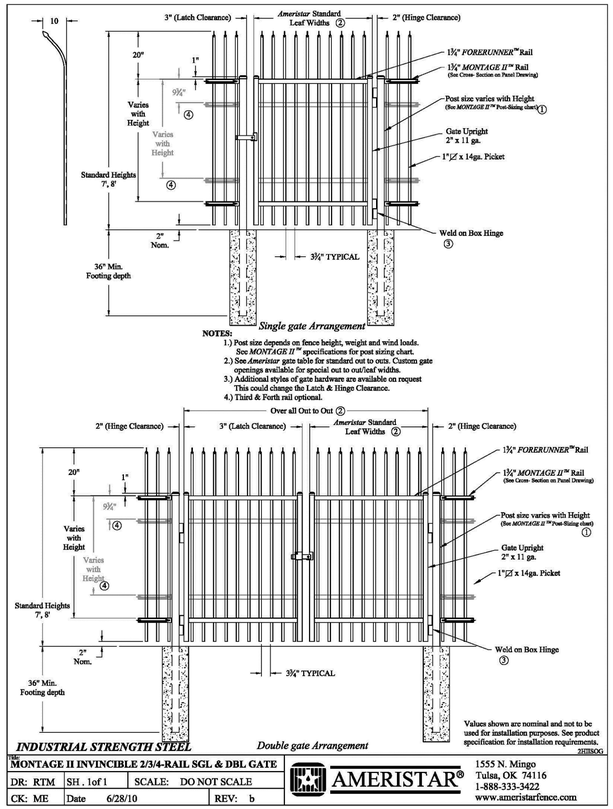
READY TO ADVERTISE



TITLE: MONTAGE II INVINCIBLE 2/3/4-RAIL			
DR: CI	SH . 1of 1	SCALE: DO NOT SCALE	
CK: PB	Date 6/28/10		REV: c

AMERISTAR®
1555 N. Mingo
Tulsa, OK 74116
1-888-333-3422
www.ameristarfence.com

A1 ORNAMENTAL FENCING ELEVATION
NOT TO SCALE



TITLE: MONTAGE II INVINCIBLE 2/3/4-RAIL SGL & DBL GATE			
DR: RTM	SH . 1of 1	SCALE: DO NOT SCALE	
CK: ME	Date 6/28/10		REV: b

AMERISTAR®
1555 N. Mingo
Tulsa, OK 74116
1-888-333-3422
www.ameristarfence.com

A4 ORNAMENTAL FENCE SWING GATE
NOT TO SCALE

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LELAND, NC 28451
NC LICENSE #NC-1621

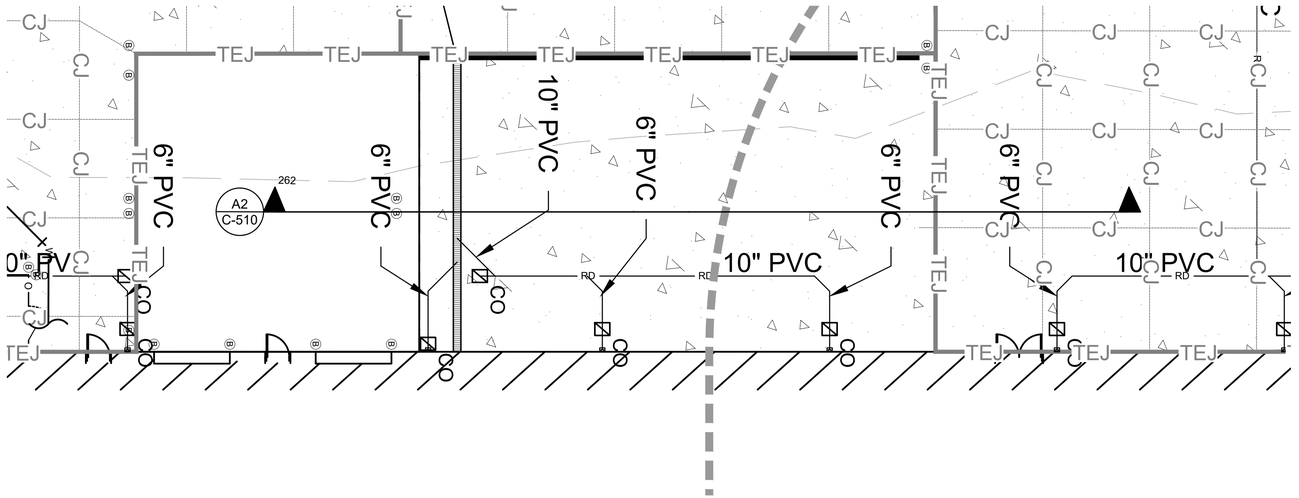
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

FENCE DETAILS

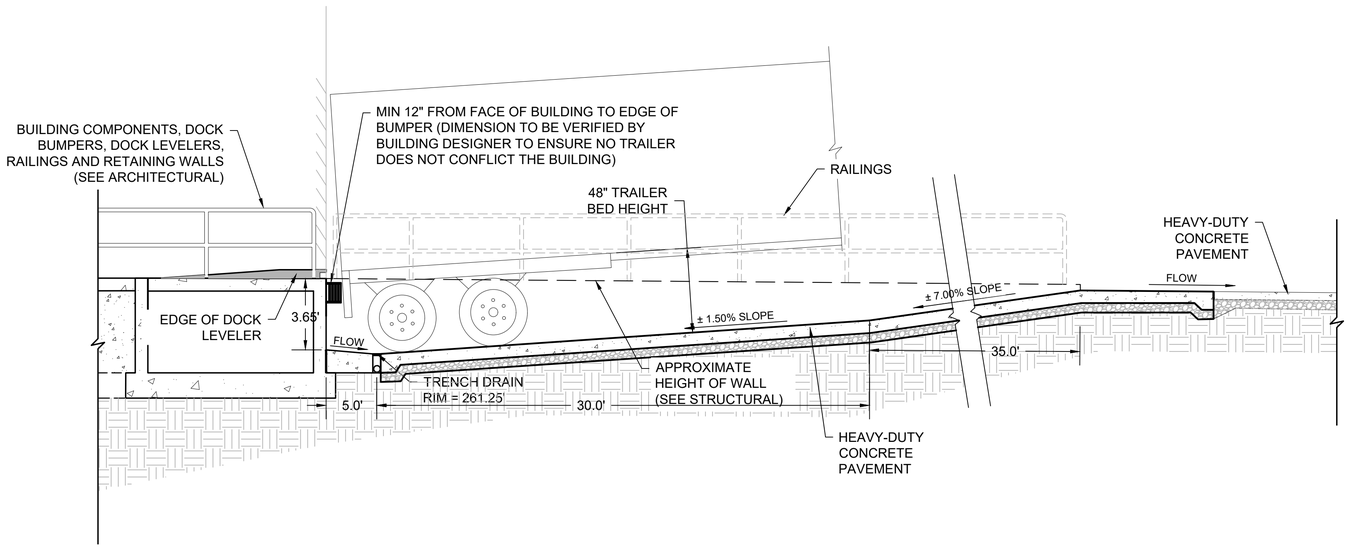
NORTH CAROLINA PROFESSIONAL SEAL 038615 ENGINEER
06/04/2024

SHEET ID
C-510

READY TO ADVERTISE



D2 LOADING DOCK PLAN
NOT TO SCALE



A2 LOADING DOCK SECTION A-A
NOT TO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: KLH
DRAWN BY: ELB,JRG,MKM
CHECKED BY: MTH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE:
SECOND TITLE:
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CAPE FEAR ENGINEERING, INC.
151 POOLE RD, SUITE 100
LELAND, NC 28451
NC LICENSE #NC-1621

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

LOADING DOCK DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038615 MATTHEW T. HOLT
08/04/23

SHEET ID
C-511

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GENERAL STRUCTURAL NOTES

GENERAL

1. FIELD VERIFY DIMENSIONS, LOCATIONS AND ELEVATIONS SHOWN ON DRAWINGS FOR EXISTING STRUCTURES. BRING DISCREPANCIES TO THE ATTENTION OF THE CONTRACTING OFFICER BEFORE PROCEEDING WITH THE WORK.
2. COORDINATE ACTIVITIES WITH THE CONTRACTING OFFICER.
3. NOT ALL OPENINGS IN THE STRUCTURAL WORK ARE SHOWN. REVIEW DRAWINGS FROM OTHER DISCIPLINES AND COORDINATE OPENINGS AND EMBEDDED ITEMS SUCH AS SLEEVES, ANCHORS, CONDUITS, ETC. INCORPORATED INTO THE STRUCTURAL WORK.
4. THE SPECIAL INSPECTION PROGRAM AND SPECIAL INSPECTOR WILL BE PROCURED AND FUNDED BY THE GOVERNMENT. COORDINATE APPLICABLE ACTIVITIES AND SCHEDULE WITH THE CONTRACTING OFFICER, SPECIAL INSPECTOR, AND THE STATEMENT OF SPECIAL INSPECTIONS INCLUDED IN THE SPECIFICATIONS.
5. THE DRAWINGS SHOW THE FINAL CONDITION OF THE STRUCTURES. PROVIDE MEANS TO STABILIZE THE STRUCTURES DURING TEMPORARY CONDITIONS.
6. THE SIZES AND LOCATIONS OF EQUIPMENT PADS AND PEDESTALS, AS WELL AS EQUIPMENT-RELATED FLOOR AND WALL OPENINGS, ARE DEPENDENT ON THE ACTUAL EQUIPMENT PROVIDED. VERIFY AND COORDINATE SUCH ITEMS. DO NOT ALTER DIMENSIONS ON THESE DRAWINGS WITHOUT APPROVAL OF THE ENGINEER. STRUCTURAL DRAWINGS MAY NOT SHOW ALL EQUIPMENT PADS AND OTHER EQUIPMENT SUPPORTS REQUIRED. REFER TO DRAWINGS BY OTHER DISCIPLINES.
7. EQUIPMENT WEIGHTS INDICATED ON THE DRAWINGS ARE BASED ON BASIS-OF-DESIGN PRODUCTS. NOTIFY THE CONTRACTING OFFICER IF ACTUAL EQUIPMENT WEIGHTS EXCEED THOSE SHOWN.
8. SCALES NOTED ON THE DRAWINGS ARE FOR GENERAL INFORMATION ONLY. DO NOT OBTAIN DIMENSIONAL INFORMATION FROM DIRECT SCALING OF THE DRAWINGS.

SHALLOW FOUNDATIONS AND SLABS-ON-GROUND

1. DESIGN OF SHALLOW FOUNDATIONS AND SLABS-ON-GROUND IS IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT BY TERRACON CONSULTANTS INC, DATED JUNE 17, 2022.
2. SHALLOW FOUNDATIONS, (SUCH AS COLUMN SPREAD FOOTINGS AND WALL STRIP FOOTINGS) MUST BEAR UPON UNDISTURBED SOIL OR COMPACTED ENGINEERED FILL WITH A MINIMUM ALLOWABLE NET BEARING CAPACITY OF 2000 PSF. VERIFY THE SPECIFIED MINIMUM ALLOWABLE BEARING CAPACITY AT EACH FOOTING IN ACCORDANCE WITH SPECIAL INSPECTIONS.
3. SHALLOW FOUNDATION ELEVATIONS SHOWN ON THE DRAWINGS ARE MINIMUM EXCAVATION DEPTHS. EXCAVATE FURTHER AS REQUIRED TO REMOVE UNSATISFACTORY SOILS TO A LAYER WITH THE MINIMUM SPECIFIED ALLOWABLE BEARING CAPACITY. WHERE REQUIRED, PROVIDE COMPACTED ENGINEERED FILL TO ACHIEVE THE REQUIRED SUBGRADE ELEVATIONS. NOTIFY THE CONTRACTING OFFICER OF ANY CONDITIONS THAT REQUIRE CHANGES IN FOUNDATION ELEVATIONS.
4. PLACE SHALLOW FOUNDATIONS ON THE SAME DAY THAT THE BEARING SURFACE IS INSPECTED BY THE SPECIAL INSPECTOR. ANY BEARING SURFACE NOT PLACED ON THE SAME DAY OF INITIAL INSPECTION MUST BE RE-INSPECTED BY THE SPECIAL INSPECTOR ON THE DAY CONCRETE IS PLACED.
5. KEEP EXCAVATIONS DRY.
6. REMOVE UNSATISFACTORY SOILS BELOW SLABS-ON-GROUND TO A COMPETENT SOIL STRATUM AND REPLACE WITH COMPACTED ENGINEERED FILL.
7. PROVIDE A 6" LAYER OF OPEN-GRADED COARSE AGGREGATE / POROUS FILL / CAPILLARY WATER BARRIER AND A 15-MIL VAPOR RETARDER BENEATH INTERIOR SLABS-ON-GROUND. SUBGRADE FOR SLABS-ON-GROUND MUST BE INSPECTED AND APPROVED BY THE SPECIAL INSPECTOR BEFORE PLACING ANY CONCRETE OR OPEN-GRADED COARSE AGGREGATE / POROUS FILL / CAPILLARY WATER BARRIER.
8. REFER TO OTHER DISCIPLINES' DRAWINGS FOR WORK INCORPORATED IN, OR COORDINATED WITH, FOUNDATION AND SLAB-ON-GROUND WORK.
9. THERE IS NO MINIMUM DEPTH BELOW GRADE FOR THE BOTTOM OF FOUNDATIONS FOR FROST PROTECTION.

CONCRETE

1. PROVIDE NORMAL-WEIGHT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS, UNLESS NOTED OTHERWISE:
   A. CIVIL SITE CONCRETE, INTERIOR EQUIPMENT PADS AND DUCTBANKS: 3000 PSI
   B. ALL OTHER CONCRETE: 5000 PSI
2. EXTERIOR CONCRETE MUST BE AIR ENTRAINED.
3. DETAIL AND CONSTRUCT REINFORCED CONCRETE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE", AND AS SPECIFIED HEREIN.
4. DETAIL REINFORCING STEEL IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AND ACI SP-66, "ACI DETAILING MANUAL."
5. PROVIDE REINFORCING STEEL CONFORMING TO ASTM A615, GRADE 60, DEFORMED BARS. REINFORCING STEEL REQUIRING WELDABILITY MUST CONFORM TO ASTM A706, GRADE 60, DEFORMED BARS.
6. PROVIDE WELDED WIRE REINFORCEMENT CONFORMING TO ASTM A1064. LAP ENDS ONE MESH SPACING PLUS 8 INCHES.
7. UNLESS NOTED OTHERWISE ON THE DRAWINGS, PROVIDE CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH OR FILL: 3"
   B. CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH EARTH; FILL; OR SHEET MEMBRANE WATERPROOFING: 2"
   C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH; FILL; OR SHEET MEMBRANE WATERPROOFING:
      1. SLABS AND WALLS: 3/4"
      2. BEAMS, COLUMNS, AND PEDESTALS: 1-1/2"
8. SUBMIT REINFORCING STEEL DETAILS AND JOINT LAYOUT (SHOP DRAWINGS) AND RECEIVE APPROVAL FROM THE CONTRACTING OFFICER BEFORE PROCEEDING WITH FABRICATION.
9. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS NOTED OTHERWISE.
10. DETAIL ALL SPLICES AND STANDARD HOOKS FOR REINFORCING BARS NOT DIMENSIONED ON THE DRAWINGS AS TABULATED IN THIS DRAWING SET.
11. PROVIDE JOINTS ONLY AS DETAILED ON THE DRAWINGS AND ON APPROVED SHOP DRAWINGS. DO NOT PROVIDE ADDITIONAL JOINTS NOR OMIT ANY JOINTS EXCEPT BY WRITTEN AUTHORIZATION FROM THE CONTRACTING OFFICER. APPROVED ADDITIONAL JOINTS MUST NOT RESULT IN ADDITIONAL EXPENSE TO THE GOVERNMENT.
12. CONTROL JOINTS SHOWN ON PLANS INDICATE REQUIRED LOCATIONS OF CRACK CONTROL IN THE SLAB-ON-GROUND. A CONTROL JOINT MAY BE EITHER A CONSTRUCTION JOINT OR CONTRACTION JOINT PER THE TYPICAL DETAILS.

CONCRETE (CONTINUED)

13. PROVIDE CONSTRUCTION JOINT INTERFACE CLEAN AND FREE OF LAITANCE. WHERE INDICATED ON THE DRAWINGS, INTENTIONALLY ROUGHEN CONSTRUCTION JOINTS TO A FULL AMPLITUDE OF 1/4 INCH. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, CONSTRUCTION JOINTS MUST BE PREWETTED AND STANDING WATER REMOVED.
14. OPENINGS SHOWN ON THE STRUCTURAL DRAWINGS ARE PRINCIPAL OPENINGS. REVIEW DRAWINGS FROM OTHER DISCIPLINES AND COORDINATE OPENINGS AND EMBEDDED ITEMS SUCH AS SLEEVES, ANCHORS, CONDUIT, ETC. INCORPORATED INTO THE CONCRETE WORK.
15. SIZE AND LOCATE ANCHOR BOLTS AND EQUIPMENT PADS OR PEDESTALS TO SUIT EQUIPMENT FURNISHED.
16. COLD WEATHER PLACEMENT OF CONCRETE MUST BE IN ACCORDANCE WITH ACI 306R, ACI 306.1, AND THE SPECIFICATIONS.
17. HOT WEATHER PLACEMENT OF CONCRETE MUST BE IN ACCORDANCE WITH ACI 305R, ACI 305.1, AND THE SPECIFICATIONS.

CONCRETE MASONRY

1. CONSTRUCT MASONRY IN ACCORDANCE WITH THE MASONRY SOCIETY TMS 402, (2016) "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" AND TMS 602 (2016) "SPECIFICATION FOR MASONRY STRUCTURES".
2. PROVIDE HOLLOW LIGHTWEIGHT LOAD-BEARING CONCRETE MASONRY UNITS MEETING THE REQUIREMENTS OF ASTM C90.
3. PROVIDE MORTAR CONFORMING TO THE REQUIREMENTS OF ASTM C-270, TYPE M OR S. CEMENT USED FOR MORTAR MUST BE PORTLAND CEMENT.
4. PROVIDE GROUT CONFORMING TO THE REQUIREMENTS OF ASTM C476 FINE GROUT, WITH A MINIMUM COMPRESSIVE STRENGTH EQUAL TO OR GREATER THAN THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY (F'm) BUT NOT LESS THAN 2,000 PSI AT 28 DAYS.
5. PROVIDE CONCRETE MASONRY WITH A MINIMUM COMPRESSIVE STRENGTH (F'm) OF 2,000 PSI. PROVIDE CONCRETE MASONRY UNITS WITH A SPECIFIED MINIMUM NET AREA COMPRESSIVE STRENGTH OF 2,000 PSI.
6. PROVIDE REINFORCING STEEL CONFORMING TO ASTM A615, GRADE 60, DEFORMED BARS. REINFORCING STEEL REQUIRING WELDABILITY MUST CONFORM TO ASTM A706, GRADE 60, DEFORMED BARS.
7. UNLESS NOTED OTHERWISE ON THE DRAWINGS, PROVIDE MASONRY COVER FOR REINFORCING STEEL AS FOLLOWS:
   A. MASONRY FACE EXPOSED TO EARTH, FILL, OR WEATHER:
      1. BARS LARGER THAN #5: 2"
      2. #5 BARS AND SMALLER: 1-1/2"
   B. MASONRY FACE NOT EXPOSED TO EARTH, FILL, OR WEATHER: 1-1/2"
8. FULLY GROUT CELLS CONTAINING REINFORCING STEEL, CELLS IN CONTACT WITH EARTH OR FILL, AND THE BOTTOM COURSE OF WALLS. FULLY GROUT OTHER CELLS AS INDICATED.
9. LAY MASONRY IN RUNNING BOND AND INTERLOCK MASONRY AT WALL INTERSECTIONS, UNLESS OTHERWISE NOTED.
10. REINFORCE MORTAR JOINTS OF MASONRY WALLS WITH HORIZONTAL JOINT REINFORCING AT 16" ON CENTER MAXIMUM. PROVIDE 9 GAUGE LADDER-TYPE HORIZONTAL JOINT REINFORCING CONFORMING TO ASTM A1064.
11. PROVIDE CONTINUOUS BOND BEAMS AT THE TOP OF WALLS, AT BEARING ELEVATIONS, AND AT OTHER LOCATIONS SPECIFIED ON THE DRAWINGS.

STRUCTURAL STEEL

1. FABRICATE AND ERECT STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), "STEEL CONSTRUCTION MANUAL – 15TH EDITION".
2. SUBMIT ERECTION PLANS AND SHOP DETAILS AND RECEIVE APPROVAL FROM THE CONTRACTING OFFICER BEFORE PROCEEDING WITH FABRICATION.
3. PROVIDE STRUCTURAL STEEL WIDE-FLANGE SHAPES CONFORMING TO ASTM A992. HSS MEMBERS CONFORMING TO ASTM A500 GRADE C, PIPE CONFORMING TO ASTM A53 GRADE B, AND ALL OTHER MEMBERS CONFORMING TO ASTM A36 UNLESS OTHERWISE NOTED.
4. PROVIDE ANCHOR RODS CONFORMING TO ASTM F1554, GRADE 55 WITH SUPPLEMENTARY REQUIREMENT S-1 (WELDABLE) AND NUTS CONFORMING TO ASTM A563, GRADE DH (HEAVY HEX). PROVIDE DOUBLE NUTS SPUN TIGHT AGAINST WASHER AT ANCHOR ROD END EMBEDDED IN CONCRETE.
5. MILL BOTTOM OF ALL COLUMNS AND FINISH TOP OF ALL BASE PLATES IN ACCORDANCE WITH AISC SPECIFICATIONS. WELD BASE PLATES TO BOTTOM OF COLUMNS.
6. HOT-DIP GALVANIZE EXTERIOR STEEL AND CONNECTIONS, LOOSE LINTELS AND SHELF ANGLES AT EXTERIOR WALLS, AND AT LOCATIONS INDICATED PER ASTM A123 AND A153, UNLESS OTHERWISE INDICATED. WHERE NO COATING SYSTEM OR GALVANIZATION IS SPECIFIED, PROVIDE A SHOP PRIMER COATING.
7. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 ZINC-RICH PAINT FOR GALVANIZING DAMAGED BY HANDLING, TRANSPORTING, CUTTING, WELDING, OR BOLTING. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED. COATING THICKNESS OF ZINC-RICH PAINT MUST BE 50% GREATER THAN THE SURROUNDING GALVANIZED COATING THICKNESS, BUT NOT TO EXCEED 4.0 MILS.
8. EMBRITTLEMENT MITIGATION BY THERMAL TREATMENT OF HOT-DIP GALVANIZED STEEL MEMBERS WITH COLD BEND RADII OF LESS THAN THREE TIMES THE MEMBER THICKNESS MUST BE PERFORMED BY SUBCRITICAL ANNEALING IN ACCORDANCE WITH ASTM A143, PRIOR TO GALVANIZATION. THERMALLY TREAT ALL HSS SQUARE AND RECTANGULAR SECTIONS. SUBMIT PROPOSED THERMAL TREATMENT PROCEDURE TO THE CONTRACTING OFFICER FOR APPROVAL PRIOR TO TREATMENT.
9. PROVIDE A CONTINUOUS SEAL WELDED 1/4" THICK CAP PLATE FOR HSS MEMBERS, UNLESS NOTED OTHERWISE.
10. ALL STRUCTURAL STEEL EXPOSED TO PUBLIC VIEW, AND STEEL INDICATED AS AESS 3 ON THE DRAWINGS, IS ARCHITECTURALLY EXPOSED STRUCTURAL STEEL, CATEGORY AESS 3.
11. FIELD MODIFICATION OF THE STRUCTURAL STEEL IS NOT PERMITTED WITHOUT APPROVAL FROM THE CONTRACTING OFFICER.
12. WELD IN COMPLIANCE WITH AMERICAN WELDING SOCIETY, AWS D1.1, "STRUCTURAL WELDING CODE".

STRUCTURAL STEEL CONNECTIONS

1. DESIGN AND DETAIL STEEL CONNECTIONS IN ACCORDANCE WITH AISC 360-16, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS RCSC, "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", AND THE SPECIFICATIONS.
2. DESIGN CONNECTIONS FOR THE FORCES INDICATED ON THE DRAWINGS. ALL LOADS SHOWN ON THE DRAWINGS ARE CALCULATED PER IBC LOAD AND RESISTANCE FACTOR DESIGN (LRFD) LOAD COMBINATIONS, UNLESS NOTED OTHERWISE.
3. FORCES INDICATED ON THE DRAWINGS ACT CONCURRENTLY, UNLESS NOTED OTHERWISE.
4. CONNECTIONS, UNLESS FULLY DETAILED ON THE DRAWINGS, MUST BE DESIGNED AND DETAILED BY A LICENSED PROFESSIONAL ENGINEER. SUBMIT STAMPED AND SIGNED SHOP DRAWINGS AND CALCULATIONS, FOR APPROVAL BY THE CONTRACTING OFFICER.
5. UNLESS FULLY DETAILED, DETAILS AND SECTIONS ON THE DRAWINGS INDICATE GENERAL CRITERIA FOR DESIGN AND DETAILING OF CONNECTIONS. DETAILS DO NOT CONVEY COMPLETE CONNECTOR SIZES, PLATE SIZES, WELD SIZES, NUMBER OF BOLTS, OR ANY OTHER SPECIFIC INFORMATION THAT IS OBTAINED THROUGH DESIGNING AN INDIVIDUAL CONNECTION FOR A GIVEN SET OF LOADS. THESE DETAILS DO NOT SHOW ERECTION AIDS. PROVIDE ERECTION AIDS AS REQUIRED AND REMOVE THEM AFTER WORK IS COMPLETE.
6. SET CONNECTION WORK POINT AT INTERSECTION OF CONNECTING MEMBER CENTERLINES FOR CONNECTION DESIGN AND DETAILING, UNLESS OTHERWISE NOTED. DESIGN AND DETAIL GUSSET PLATES IN ACCORDANCE WITH THE UNIFORM FORCE METHOD, SUCH THAT MOMENTS DO NOT EXIST ON THE GUSSET-TO-BEAM, GUSSET-TO-COLUMN, NOR BEAM-TO-COLUMN INTERFACES.
7. PROVIDE HIGH-STRENGTH BOLTS THAT CONFORM TO ASTM F3125, GRADE A325. BOLTED CONNECTIONS MUST HAVE A MINIMUM OF TWO BOLTS, UNLESS NOTED OTHERWISE. PROVIDE COMPRESSIBLE-WASHER-TYPE DIRECT-TENSION INDICATOR WASHERS CONFORMING TO ASTM F959 OR TENSION-CONTROL BOLTS CONFORMING TO ASTM F3125 GRADE F1852 TYPE 1 FOR PRETENSIONED AND SLIP-CRITICAL JOINTS. PROVIDE WASHERS CONFORMING TO ASTM F436 FOR OVERSIZED AND SHORT-SLOTTED HOLES. PROVIDE 5/16" THICK PLATE WASHERS CONFORMING TO ASTM A36 FOR LONG-SLOTTED HOLES.
8. HIGH-STRENGTH BOLTS MUST BE INSTALLED AS PRETENSIONED JOINTS PER RCSC, "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", EXCEPT WHERE SNUG-TIGHTENED JOINTS ARE SPECIFICALLY PERMITTED ON THE DRAWINGS, OR WHERE SLIP-CRITICAL JOINTS ARE REQUIRED.
9. PROVIDE HOT-DIP GALVANIZED BOLTS, WASHERS, AND NUTS IN ACCORDANCE WITH ASTM A153 WHEN INSTALLED IN CONTACT WITH GALVANIZED STEEL MEMBERS.
10. PROVIDE SLIP-CRITICAL CONNECTIONS FOR MEMBERS WITH A SPECIFIED "AXX" DESIGN LOAD AND WHERE OTHERWISE INDICATED ON DRAWINGS.
11. WHERE DRAWINGS CALL FOR BOLTS TO BE HAND-TIGHTENED ONLY, HAND-TIGHTEN BOLT WITH SPUD WRENCH AND THEN BACK-OFF 1/4 TURN. DEFORM BOLT THREADS TO PREVENT NUT FROM BACKING OFF.
12. PERFORM WELDED CONNECTIONS WITH CLASS E-70 SERIES ELECTRODES. WELDING MUST CONFORM TO THE REQUIREMENTS OF THE STRUCTURAL WELDING CODE, ANSI/AWS D1.1. DO NOT USE WELD SIZES SMALLER THAN 3/16 INCH FILLET, UNLESS NOTED OTHERWISE. WELD SIZES SHOWN ON THE DRAWINGS ARE CONSIDERED EFFECTIVE WELD SIZES AND MUST BE INCREASED IN ACCORDANCE WITH AWS D1.1 AS REQUIRED BY GAPS OR SKEWS BETWEEN COMPONENTS.
13. USE RUNOFF TABS AT ALL BEVEL AND FULL PENETRATION WELDS. REMOVE RUNOFF TABS AND GRIND SMOOTH AFTER WELD IS COMPLETED, WHERE EXPOSED TO VIEW IN COMPLETED CONSTRUCTION .
14. REMOVE WELD BACK UP BARS AND GRIND SMOOTH AFTER WELD IS COMPLETED.

STEEL JOISTS

1. DESIGN, FABRICATE, AND ERECT STEEL JOISTS ACCORDING TO THE SPECIFICATIONS, LOAD TABLES AND WEIGHT TABLES FOR STEEL JOISTS AND JOIST GIRDERS, THE STEEL JOIST INSTITUTE STANDARDS AND SPECIFICATIONS, AND OSHA REGULATIONS.
2. SUBMIT ERECTION PLANS, DETAILS, AND CALCULATIONS AND RECEIVE APPROVAL BEFORE PROCEEDING WITH FABRICATION.
3. DESIGN JOISTS FOR LOADS ON THE GENERAL NOTES SHEET AND JOIST LOADING DIAGRAMS. ALL LOADS ARE UNFACTORED. SPECIAL JOISTS WITH NON-UNIFORM LOADING CONDITIONS MUST BE DESIGNED BY THE JOIST MANUFACTURER'S ENGINEER. SUBMIT CALCULATIONS STAMPED AND SIGNED BY A LICENSED PROFESSIONAL ENGINEER, FOR APPROVAL BY THE CONTRACTING OFFICER.
4. SPECIAL JOISTS THAT REQUIRE A SPECIFIC ORIENTATION MUST BE TAGGED AT ONE END. DEFINE LOCATION OF THE TAGGED END ON THE ERECTION DRAWINGS.
5. DESIGN JOIST SEATS FOR AN ASD-LEVEL LATERAL ROLL-OVER FORCE OF 2.6 KIPS IN ADDITION TO ALL SPECIFIED DESIGN LOADS.
6. UNLESS NOTED OTHERWISE, DRAWINGS SHOW STEEL JOISTS AND BRIDGING SCHEMATICALLY ONLY. COORDINATE ACTUAL JOIST MEMBER SIZES, CONFIGURATIONS, AND BRIDGING SIZES AND LOCATIONS WITH THE STEEL JOIST FABRICATOR.
7. JOIST BRIDGING MUST BE DESIGNED BY THE MANUFACTURER. PROVIDE REQUIRED TOP AND BOTTOM CHORD BRIDGING SIZES AND SPACING PER JOIST MANUFACTURER'S REQUIREMENTS. ANCHOR ENDS OF ALL BRIDGING LINES TERMINATING AT WALL OR BEAMS.
8. COORDINATE BRIDGING LOCATIONS WITH OTHER DISCIPLINES' DRAWINGS.
9. REINFORCE STEEL JOISTS PER THE TYPICAL DETAIL IN THE DRAWINGS WHERE SUBJECT TO CONCENTRATED LOADS.
10. COMPLY WITH OSHA REQUIREMENTS AND STEEL JOIST INSTITUTE RECOMMENDATIONS CONCERNING ERECTION STABILITY BRACING AND OTHER TEMPORARY ERECTION STABILITY REQUIREMENTS.

STEEL DECK

1. FABRICATE AND ERECT STEEL DECK IN ACCORDANCE WITH THE STEEL DECK INSTITUTE SDI, "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS-NO.31".
2. FABRICATE STEEL ROOF DECK CONFORMING TO ASTM A653 AND STEEL DECK TO BE PAINTED CONFORMING TO ASTM A1008. PROVIDE G90 GALVANIZED COATING FOR STEEL ROOF DECK.
3. PROVIDE STEEL DECK WITH THE MINIMUM PROPERTIES INDICATED IN THE DRAWINGS.
4. SUBMIT ERECTION PLANS AND SHOP DRAWINGS AND RECEIVE APPROVAL FROM THE CONTRACTING OFFICER BEFORE PROCEEDING WITH FABRICATION AND ERECTION.
5. DO NOT STAGGER STEEL DECK END LAPS.

STEEL DECK (CONTINUED)

6. LAP ROOF DECK ENDS A MINIMUM OF 2 INCHES. BUTT COMPOSITE DECK ENDS OVER SUPPORTS.
7. ANCHOR STEEL DECK UNITS TO SUPPORTING MEMBERS, INCLUDING PERIMETER SUPPORT STEEL AND/OR WALLS, BY WELDING OR MECHANICAL FASTENERS, TO PROVIDE LATERAL STABILITY TO THE TOP FLANGE OF STEEL MEMBERS.
8. PROVIDE STEEL DECK FASTENERS TO STEEL MEMBERS PER THE NOTES INDICATED ON THE DRAWINGS.
9. FIELD WELD DECK IN ACCORDANCE WITH AWS D1.3 "STRUCTURAL WELDING CODE-SHEET METAL".
10. PROVIDE OPENINGS, SLEEVES, ETC. AS INDICATED ON THE DRAWINGS FOR ALL TRADES, OR AS REQUIRED BY THE SPECIFICATIONS. REINFORCE DECK AS REQUIRED BY THE TYPICAL STRUCTURAL DETAILS.
11. DO NOT DAMAGE STEEL DECK DURING CONSTRUCTION ACTIVITIES. REPLACE DAMAGED DECK AT NO ADDITIONAL COST TO THE GOVERNMENT.
12. DECK SELECTION IS BASED ON A MINIMUM OF A TWO-SPAN CONDITION.
13. DO NOT HANG ANY LOAD DIRECTLY FROM STEEL ROOF DECK WITHOUT APPROVAL FROM THE MANUFACTURER AND THE CONTRACTING OFFICER.
14. COMPOSITE DECK HANGER TABS LOADS MUST NOT EXCEED 300 LBS PER HANGER TAB. DISTRIBUTE HANGER LOADS SUCH THAT TOTAL HANGING MEP LOAD DOES NOT EXCEED THAT SPECIFIED IN THE DESIGN LOADS.
15. PROVIDED HEADED SHEAR STUD DIAMETER AND QUANTITY AS INDICATED ON THE DRAWINGS. HEADED SHEAR STUDS MUST EXTEND A MINIMUM OF 1 ½ INCHES ABOVE THE TOP OF STEEL DECK WITH A MINIMUM CLEAR COVER OF ½ INCH FROM THE TOP OF SLAB.
16. PLACE CONCRETE SLABS ON DECK AT THE CONSTANT ELEVATIONS INDICATED ON THE DRAWINGS. ADDITIONAL CONCRETE VOLUME TO ACCOUNT FOR DEFLECTION OF THE SUPPORTING DECK AND FRAMING MUST BE CONSIDERED WHEN BIDDING THE PROJECT. CONCRETE SLABS ON DECK MUST MEET THE SPECIFIED FLOOR FLATNESS F(F) CRITERIA.

DELEGATED DESIGN

1. DESIGN AND DETAILING RESPONSIBILITY FOR THE FOLLOWING ENGINEERED SYSTEMS AND COMPONENTS IS DELEGATED TO A QUALIFIED PROFESSIONAL ENGINEER, SELECTED AND HIRED BY THE CONTRACTOR. THESE SYSTEMS AND COMPONENTS INCLUDE, BUT ARE NOT LIMITED TO:
   A. STRUCTURAL STEEL CONNECTIONS, EXCEPT THOSE FULLY DETAILED ON THE DRAWINGS
   B. STEEL JOISTS
   C. STAIRS, LANDINGS, AND ASSOCIATED CONNECTIONS
   D. PRE-ENGINEERED STRUCTURES
   E. TEMPORARY SUPPORT OF EXCAVATION AND STRUCTURES
   F. CONCRETE FORMWORK AND SHORING
   G. WINDOWS AND DOORS LOCATED IN THE BUILDING ENVELOPE, ALONG THE BUILDING EXPANSION JOINT, AND WHERE INDICATED
   H. COLD-FORMED STEEL ROOF TRUSSES
2. DELEGATED ENGINEERED SYSTEMS AND COMPONENTS MUST SATISFY 2018 IBC LOAD COMBINATIONS.
3. COORDINATE WITH THE CONTRACT DOCUMENTS FOR PROFESSIONAL LICENSURE AND SEALING REQUIREMENTS, DESIGN CRITERIA, DETAILS OF THE SYSTEMS AND COMPONENTS, SUBMITTAL REQUIREMENTS, AND CALCULATION REQUIREMENTS.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: B. KRELL
DRAWN BY: B. KRELL
CHECKED BY: B. ENGLISH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

NORTH CAROLINA
SEAL
031221
ENGINEER
BRUCE A. ENGLISH
01/11/23

CODES AND STANDARDS

CODES AND STANDARDS

1. UNIFIED FACILITIES CRITERIA UFC 1-200-01, "DoD BUILDING CODE", DATED 8 OCTOBER 2019, WITH CHANGE 1 DATED 1 OCTOBER 2020.

2. UNIFIED FACILITIES CRITERIA UFC 3-301-01, "STRUCTURAL ENGINEERING," DATED 1 OCTOBER 2019.

3. UNIFIED FACILITIES CRITERIA UFC 4-010-01 "DOD MINIMUM ANTITERRORISM CRITERIA FOR BUILDINGS," DATED 12 DECEMBER 2018, WITH CHANGE 1 DATED 19 AUGUST 2020.

4. INTERNATIONAL BUILDING CODE IBC (2018).

5. AMERICAN INSTITUTE OF STEEL CONSTRUCTION AISC-360 (2016) "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"

6. STEEL DECK INSTITUTE (SDI):
   - A. ANSI/RD, "STANDARD FOR STEEL ROOF DECK"
   - B. SDI-C, "STANDARD FOR COMPOSITE STEEL FLOOR DECK SLABS"
   - C. SDI-QA/QC, "STANDARD FOR QUALITY CONTROL AND QUALITY ASSURANCE FOR INSTALLATION OF STEEL DECK"

7. STEEL JOIST INSTITUTE (SJI):
   - A. SJI-JG, "STANDARD SPECIFICATION FOR JOIST GIRDERS"
   - B. SJI-K, "STANDARD SPECIFICATION FOR OPEN WEB STEEL JOISTS, K-SERIES"
   - C. SJI-LH/DLH, "STANDARD SPECIFICATION FOR LONGSPAN STEEL JOISTS, LH-SERIES AND DEEP LONGSPAN STEEL JOISTS, DLH-SERIES"

8. AMERICAN CONCRETE INSTITUTE ACI-318 (2014), "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

9. THE MASONRY SOCIETY TMS-402-16 (2016), "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" AND TMS 602/16 (2016), "SPECIFICATION FOR MASONRY STRUCTURES".

10. AMERICAN SOCIETY OF CIVIL ENGINEERS ASCE 7 (2016), "MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES"

11. AMERICAN WELDING SOCIETY AWS D1.1 (2015), "STRUCTURAL WELDING CODE - STEEL"

DESIGN LOADS AND CRITERIA

ALL LOADS INDICATED BELOW ARE UNFACTORED

1. RISK CATEGORY:
   - A. ADMIN AND WAREHOUSE: III
   - B. COVERED STORAGE PEMB: II

2. DEAD LOADS:
   - A. STRUCTURES: ACTUAL WEIGHT
   - B. SUPERIMPOSED DEAD LOAD:
     - a. ROOF: 23 PSF (ADMIN), 20 PSF (WAREHOUSE)
     - b. SUPERIMPOSED DEAD LOAD INCLUDES COMBINED WEIGHT OF ALL PERMANENT NON-STRUCTURAL COMPONENTS SUPPORTED BY THE FRAMING, INCLUDING MEP COMPONENTS, ROOFING, FLOOR AND CEILING FINISHES, AND SPRINKLERS.

3. LIVE LOADS:
   - A. FIRST FLOOR SLAB:
     - a. ADMIN: 100 PSF
     - b. WAREHOUSE AND LOADING DOCK: 250 PSF OR FORKLIFT WHEEL LOAD
   - B. STAIRS AND LANDINGS: 100 PSF

4. ROOF LIVE LOAD: 20 PSF OR 300 LB CONCENTRATED LOAD

5. ROOF SNOW LOAD:
   - A. GROUND SNOW LOAD (Pg): 10 PSF
   - B. EXPOSURE FACTOR (Ce): 0.9
   - C. THERMAL FACTOR (Ct):
     - a. ADMIN AND WAREHOUSE: 1.0
     - b. LOADING DOCK AND PEMB: 1.2
   - D. SNOW LOAD IMPORTANCE FACTOR (Is): 1.1
   - E. FLAT ROOF SNOW LOAD (Pf):
     - a. ADMIN AND WAREHOUSE: 6.9 PSF
     - b. LOADING DOCK AND PEMB: 8.3 PSF
   - F. MINIMUM SNOW LOAD (Pm): 11 PSF (ALL STRUCTURES)
   - G. RAIN-ON-SNOW SURCHARGE: 5 PSF (ALL STRUCTURES)
   - H. SNOW DRIFT: PER ASCE 7-16

6. WIND LOAD:
   - A. ULTIMATE WIND SPEED (Vult): 129 MPH
   - B. ENCLOSURE CATEGORY:
     - a. ADMIN AND WAREHOUSE: ENCLOSED
     - b. LOADING DOCK AND PEMB: OPEN
   - C. NOMINAL WIND SPEED (Vasd): 100 MPH
   - D. EXPOSURE CATEGORY: C
   - E. INTERNAL PRESSURE COEFFICIENT:
     - a. ADMIN AND WAREHOUSE: +/- 0.18
     - b. LOADING DOCK AND PEMB: 0
   - F. COMPONENTS AND CLADDING: PER ASCE 7-16

7. SEISMIC LOAD:
   - A. SEISMIC IMPORTANCE FACTOR (Ie): 1.25
   - B. MAXIMUM EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS: Ss=0.154g
   - C. MAXIMUM EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT ONE-SECOND: S1=0.072g
   - D. SITE CLASSIFICATION: D
   - E. SITE SEISMIC COEFFICIENT: Fa=1.6; Fv=2.4
   - F. SPECTRAL RESPONSE COEFFICIENTS: SDS = 0.164; SD1 = 0.115
   - G. SEISMIC DESIGN CATEGORY: B
   - H. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
   - I. BASIC SEISMIC FORCE RESISTING SYSTEM:
     - a. ADMIN AND PEMB: STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE, EXCLUDING CANTILEVER COLUMN SYSTEMS
     - b. WAREHOUSE: ORDINARY REINFORCED MASONRY SHEAR WALLS (EW), STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE, EXCLUDING CANTILEVER COLUMN SYSTEMS (NS)
     - c. LOADING DOCK CANOPY: STEEL ORDINARY CANTILEVER COLUMN SYSTEMS
   - J. RESPONSE MODIFICATION FACTOR, (R):
     - a. ADMIN AND PEMB: 3
     - b. WAREHOUSE: 2 (EW), 3 (NS)
     - c. LOADING DOCK: 1.25
   - K. SEISMIC RESPONSE COEFFICIENT (Cs):
     - a. ADMIN AND PEMB: 0.069
     - b. WAREHOUSE: 0.103 (EW), 0.069 (NS)
     - c. LOADING DOCK CANOPY: 0.164
   - L. DESIGN BASE SHEAR:
     - a. ADMIN: 78 KIPS
     - b. PEMB: 3 KIPS
     - c. WAREHOUSE: 202 KIPS (EW), 135 KIPS (NS)
     - d. LOADING DOCK CANOPY: 3 KIPS

8. ANTITERRORISM FORCE/PROTECTION
   - A. DESIGN APPROACH IS IN COMPLIANCE WITH DESIGN GUIDANCE IN UFC 4-010-01 DOD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS, APPENDIX B. DESIGN RECOMMENDATIONS IN APPENDIX B MUST BE APPLIED AS DESIGN REQUIREMENTS FOR THIS PROJECT.
   - B. AS DETERMINED BY THE SEPA PROCEDURE EXECUTED IN COMPLIANCE WITH UFC-4-020-01 BY USACE, THIS FACILITY REQUIRES COUNTERMEASURES ABOVE THE MINIMUM REQUIREMENTS IN UFC 4-010-01 CHAPTER 3.
   - C. ATFP LOADING DESIGN CRITERIA IS:
     - a. EW1 AT A STANDOFF DISTANCE TO THE HIGH SECURITY FENCING.
     - b. EW2 AT A STANDOFF DISTANCE TO THE EDGE OF THE UNOBSTRUCTED SPACE.
     - c. SEE CS-101 AND CS-102 FOR STANDOFF DISTANCES AND OTHER RELATED REQUIREMENTS.
   - D. THE ADMINISTRATION PORTION OF THE BUILDING (NORTH OF THE BUILDING EXPANSION JOINT) IS DESIGNATED AS AN INHABITED BUILDING; THE PERIMETER AND FLAT ROOF OF WHICH IS A BLAST RESISTANT BOUNDARY AND MUST PROVIDE A LOW LEVEL OF PROTECTION.
   - E. THE BUILDING ENVELOPE OF THE WAREHOUSE PORTION OF THE BUILDING (SOUTH OF THE BUILDING EXPANSION JOINT) IS CONSIDERED LOW OCCUPANCY AND IS, THEREFORE, EXEMPT FROM REQUIREMENTS IN UFC 4-010-01, CHAPTER 3 FOR BLAST-RESISTANCE.
   - F. STRUCTURAL DESIGN FOR THE ADMINISTRATION PORTION OF THE BUILDING'S CLADDING AND FRAMING FOR OPENINGS HAS IMPLEMENTED DYNAMIC ANALYSIS IN COMPLIANCE WITH UFC 4-010-01, APPENDIX B, FOR AN INHABITED BUILDING. DELEGATED DESIGN FOR WINDOWS AND DOORS LOCATED ON THE BLAST RESISTANT BOUNDARY THAT REQUIRE COMPLIANCE WITH UFC 4-010-01 MUST BE COORDINATED WITH THE FRAMING SHOWN ON THE DRAWINGS. IF THE DELEGATED DESIGN CALCULATIONS FOR WINDOWS AND/OR DOORS REQUIRE A CHANGE IN THE FRAMING FOR THE OPENINGS IN ORDER TO COMPLY WITH APPENDIX B, UFC 4-010-01, THAT ADDITIONAL COST AND DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR.

STRUCTURAL ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE
AIA	AMERICAN INSTITUTE OF ARCHITECTS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASWG	AMERICAN STEEL WIRE GAUGE
AWG	AMERICAN WIRE GAGE
AWS	AMERICAN WELDING SOCIETY
ARCH	ARCHITECT
BO	BOTTOM OF
BOT	BOTTOM
BOS	BOTTOM OF STEEL
CLR	CLEAR
CL	CENTER LINE
COL	COLUMN
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUE, CONTINUOUS
CONN	CONNECT, CONNECTION
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CSI	CONSTRUCTION SPECIFICATION INSTITUTE
CU FT	CUBIC FEET
CU IN	CUBIC INCH
CU YD	CUBIC YARD
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
DR	DRAIN
DWG	DRAWING
EA	EACH
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRIC, ELECTRICAL
ELEV	ELEVATOR
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
FS	FAR SIDE
FT	FOOT/FEET
FTG	FOOTING
GALV	GALVANIZE/GALVANIZED
HORIZ	HORIZONTAL
HP	HIGH POINT
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IF	INSIDE FACE
JT	JOINT
LF	LINEAR FOOT
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
LSV	LONG SIDE VERTICAL
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OPNG	OPENING
OPP	OPPOSITE
PART	PARTIAL
PERP	PERPENDICULAR
REF	REFERENCE
REINF	REINFORCE/REINFORCEMENT/REINFOR
REQD	REQUIRE/REQUIRED
SDI	STEEL DECK INSTITUTE
SECT	SECTION
SIM	SIMILAR
SQ	SQUARE
STIFF	STIFFENER
SYMM	SYMMETRICAL
T&B	TOP AND BOTTOM
TO	TOP OF
TOC	TOP OF CONCRETE
TOG	TOP OF GRATING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
WP	WORKING POINT
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH

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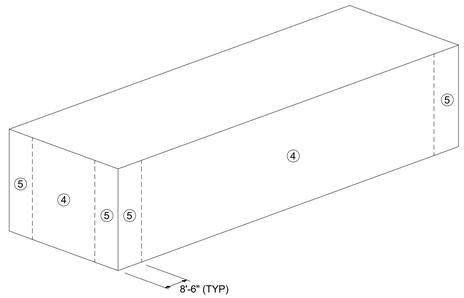
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CHECKED BY: B. ENGLISH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
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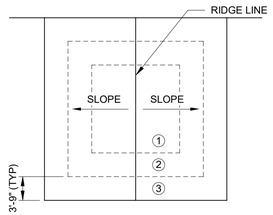
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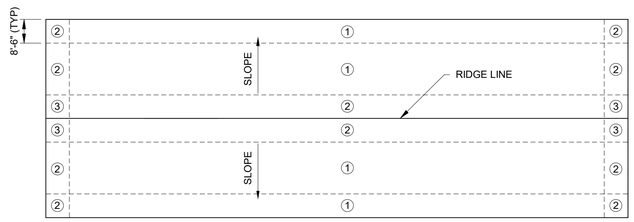
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WALLS



LOADING DOCK ROOF



HIGH ROOF

LRFD WIND LOADS ON WALLS - COMPONENTS AND CLADDING

ZONE	EFFECTIVE AREA (SF)	(+) PRESSURE TOWARD WALLS (PSF)	(-) PRESSURE AWAY FROM WALLS (PSF)
4	10	36	-39
4	50	33	-36
4	200	30	-32
4	>500	27	-30
5	10	36	-48
5	50	33	-41
5	200	30	-34
5	>500	27	-30

LRFD WIND LOADS ON ROOFS - COMPONENTS AND CLADDING

ZONE	EFFECTIVE AREA (SF)	DOWNWARD PRESSURE (+) (PSF)	UPLIFT PRESSURE (-) (PSF)
1	<=10	31	-33
1	30	31	-33
1	>60	31	-33
2	<=10	48	-50
2	30	48	-50
2	>60	31	-33
3	<=10	62	-90
3	30	48	-50
3	>60	31	-33

LRFD WIND LOADS ON ROOFS - COMPONENTS AND CLADDING

ZONE	EFFECTIVE AREA (SF)	DOWNWARD PRESSURE (+) (PSF)	UPLIFT PRESSURE (-) (PSF)
1	<=2	30	-73
1	20	22	-73
1	50	19	-44
1	>100	16	-23
2	<=2	30	-106
2	10	24	-106
2	100	16	-58
2	>250	16	-40
3	<=2	30	-126
3	10	24	-126
3	50	19	-84
3	>100	16	-66

5000 PSI CONCRETE

	LAP SPLICE LENGTH				MINIMUM TENSION EMBEDMENT			
BAR SIZE	SLAB AND WALL		BEAM		STD 90 HOOK		STD 180 HOOK	
ENGLISH	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	ldh	12db	ldh	4db
#3	12"	13"	12"	13"	6"	5"	6"	3"
#4	17"	22"	17"	22"	6"	6"	6"	3"
#5	25"	32"	25"	32"	8"	8"	8"	3"
#6	34"	44"	34"	44"	9"	9"	9"	3"
#7	54"	70"	49"	63"	11"	11"	11"	4"
#8	67"	87"	56"	72"	12"	12"	12"	4"
#9	81"	105"	63"	81"	14"	14"	14"	5"
#10	97"	126"	71"	92"	16"	16"	16"	6"
#11	114"	147"	78"	102"	17"	17"	17"	6"

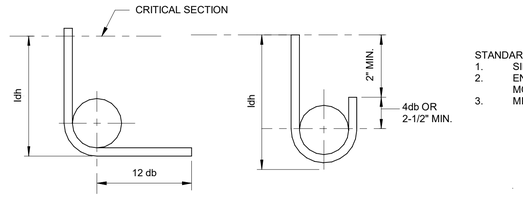
LAP SPLICE NOTES:

CONCRETE: NORMAL WEIGHT CONCRETE, CLASS B LAP SPLICES

SLAB AND WALL: 6" MINIMUM BAR SPACING WITH CONCRETE COVER = 1.5" CLEAR

BEAM: MINIMUM CLEAR SPACING BETWEEN BARS = 1.5db (BAR DIAMETER). MINIMUM CONCRETE COVER = 1.5" CLEAR. MINIMUM STIRRUP #4@12" PROVIDED.

TOP BAR: HORIZONTAL REINFORCING PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST BELOW THE DEVELOPMENT LENGTH OR SPLICE



STANDARD 180° AND 90° END HOO

STANDARD HOOK NOTES:
1. SIDE COVER: MORE THAN 2.5"
2. END COVER (90 DEGREE HOOK): MORE THAN 2"
3. MINIMUM COVER TO TAIL = 2"

C2 COMPONENTS AND CLADDING WIND LOAD ON WALLS AND ROOFS
SCALE: NTS

C7 CONCRETE TENSION LAP SPLICE AND STANDARD HOOK LENGTH (
SCALE: NTS

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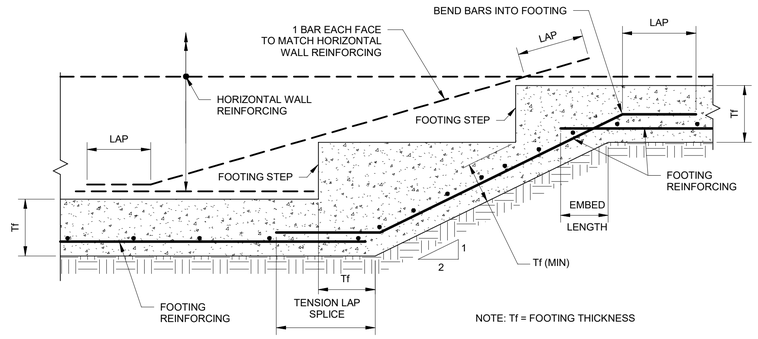
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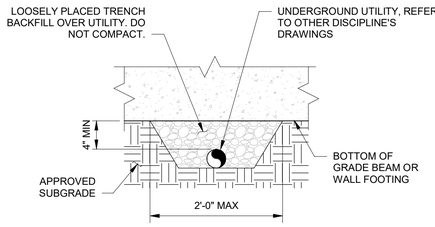
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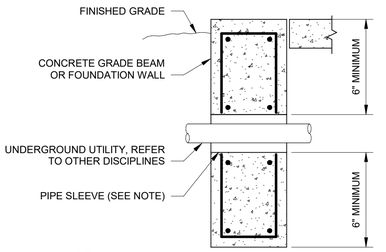
F1 TYPICAL CONCRETE STEPPED FOOTING DETAIL

SCALE: NTS



F5 TYPICAL UTILITY UNDER FOUNDATION WALL

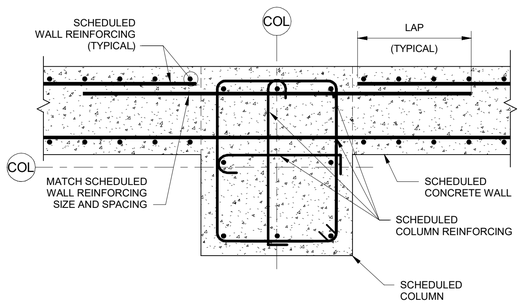
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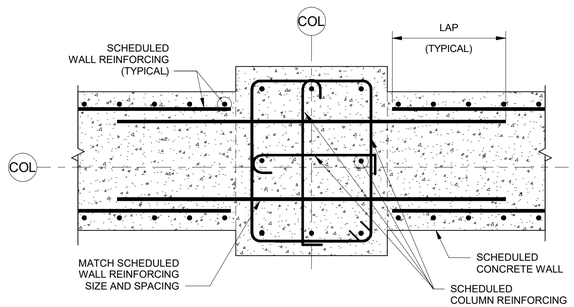
NOTE:
PROVIDE PVC SLEEVE WITH INTERIOR DIAMETER EQUAL TO OUTSIDE DIAMETER OF PIPE OR CONDUIT + 1" MINIMUM. ARRANGE VERTICAL REINFORCING TO MAINTAIN 2" CLEAR COVER AT SLEEVE. DO NOT CONFLICT WITH TOP OR BOTTOM TENSION REINFORCING. COORDINATE LOCATION OF SLEEVES WITH OTHER DISCIPLINES.

F8 TYPICAL UTILITY SLEEVE THROUGH FOUNDATION WALL

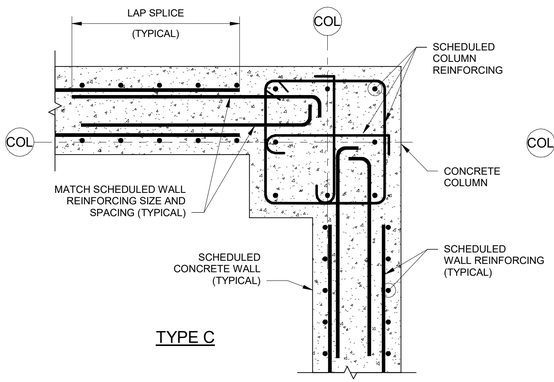
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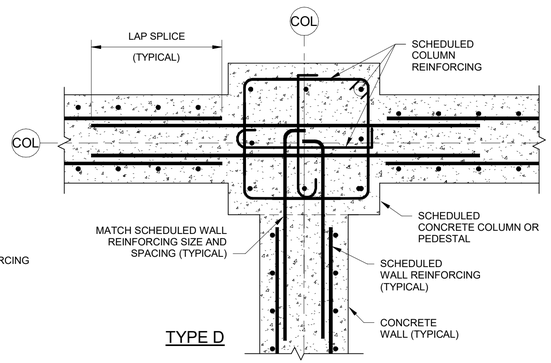
TYPE A



TYPE B



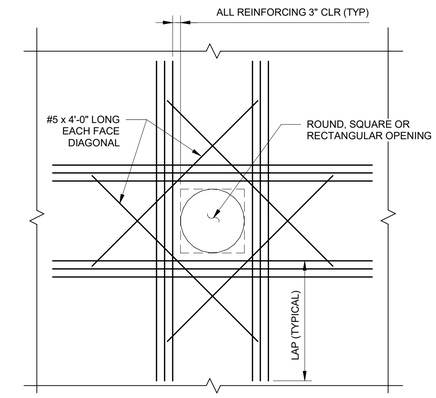
TYPE C



TYPE D

D1 COLUMN PEDESTAL AND FOUNDATION WALL INTERSECTION DETAILS

SCALE: NTS



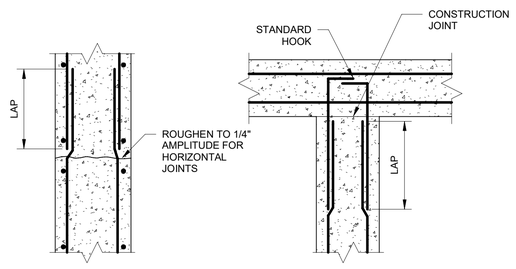
NOTE:

FOR OPENINGS LESS THAN 12" DIAMETER, NO ADDITIONAL REINFORCING IS REQUIRED PROVIDED NO REINFORCING IS INTERRUPTED BY THE OPENING.

PROVIDE ADDITIONAL REINFORCING, (MINIMUM OF ONE-HALF THE NUMBER OF PRINCIPAL BARS INTERRUPTED BY THE OPENING) ON EACH SIDE AND EACH FACE OF THE OPENING.

A1 TYPICAL ADDITIONAL REINFORCING AROUND OPENINGS

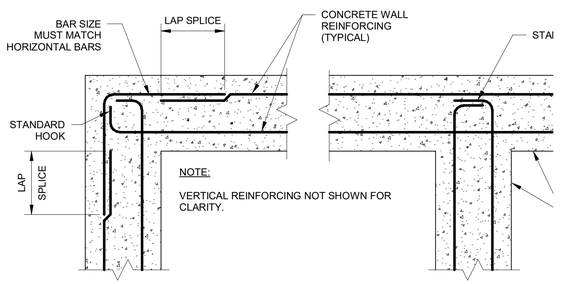
SCALE: NTS



VERTICAL OR HORIZONTAL JOINT AT TEE INTERSECTION

A4 TYPICAL CONSTRUCTION JOINTS IN WALLS

SCALE: NTS



A7 TYPICAL HORIZONTAL REINFORC DETAILS AT WALL INTERSECTION

SCALE: NTS

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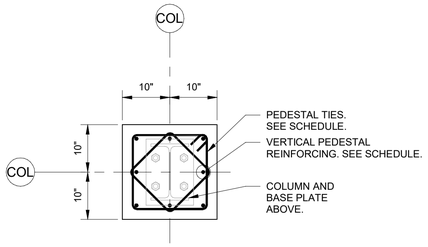
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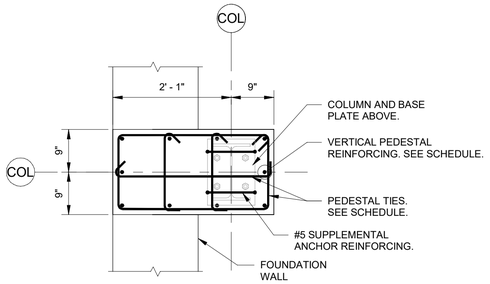
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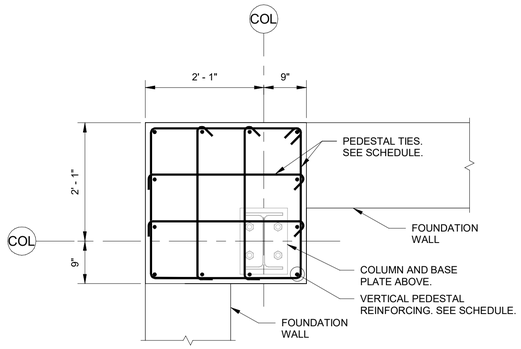
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8/1/25



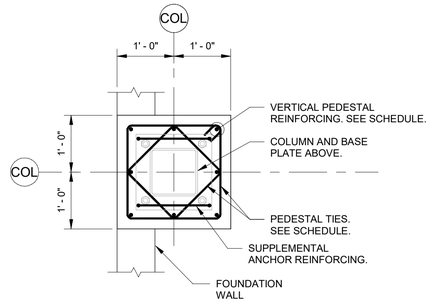
F1 PEDESTAL DETAIL - P1
3/4" = 1'-0"



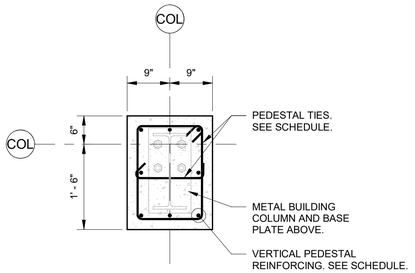
F3 PEDESTAL DETAIL - P2
3/4" = 1'-0"



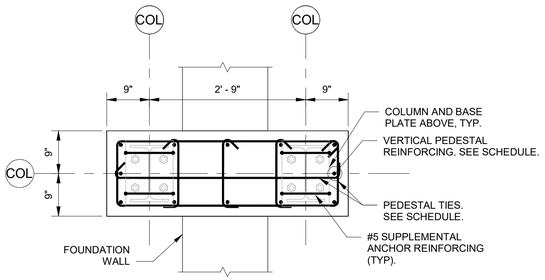
F6 PEDESTAL DETAIL - P3
3/4" = 1'-0"



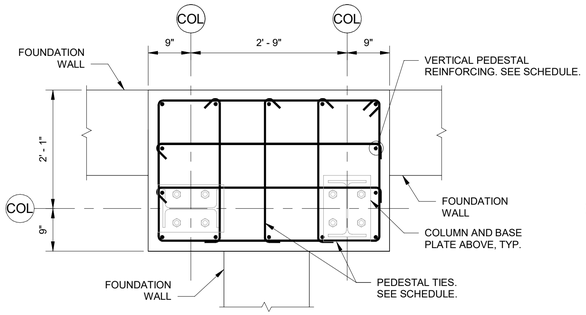
F9 PEDESTAL DETAIL - P4
3/4" = 1'-0"



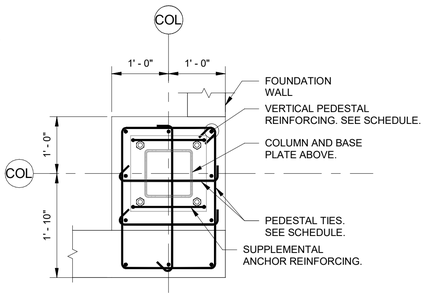
D1 PEDESTAL DETAIL - P5
3/4" = 1'-0"



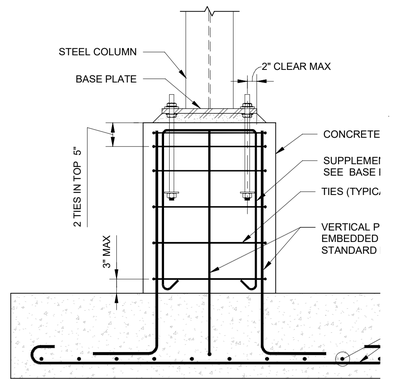
D3 PEDESTAL DETAIL - P6
3/4" = 1'-0"



D6 PEDESTAL DETAIL - P7
3/4" = 1'-0"



D9 PEDESTAL DETAIL - P8
3/4" = 1'-0"



B8 TYPICAL COLUMN PEDESTAL
SCALE: NTS

US Army Corps of Engineers ®

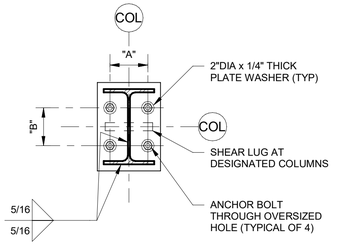
MARK	DESCRIPTION	DATE

DESIGNED BY: B. KRELL
DRAWN BY: B. KRELL
CHECKED BY: B. ENGLISH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SECOND TITLE
SIZE: ANSI D

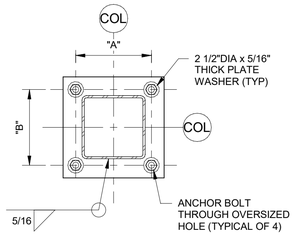
US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

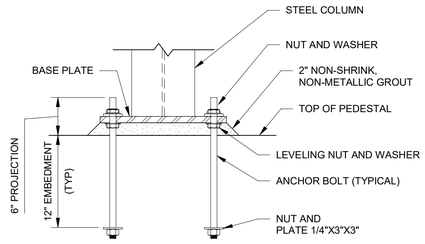
NORTH CAROLINA
SEAL
031221
BRUCE A. ENGLISH
01/11/23



PLAN (W-SHAPE)



PLAN (HSS)

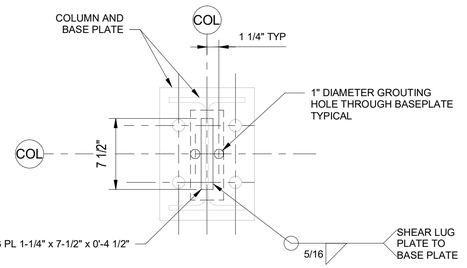


SECTION

BASE PLATE SCHEDULE

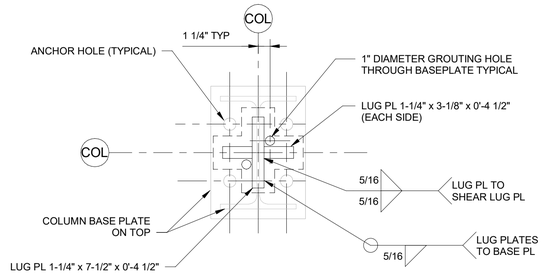
TYPE	COL SHAPE	BASE PLATE	BOLT SPACING "A"	BOLT SPACING "B"	ANCHOR DIA	COMMENTS
TYPE 1	W12	14"x10"x1"	6"	6"	3/4"	-
TYPE 2	W12	14"x10"x1"	6"	6"	3/4"	SEE ONE WAY SHEAR LUG DETAIL
TYPE 3	W12	14"x10"x1"	6"	6"	3/4"	SEE TWO WAY SHEAR LUG DETAIL
TYPE 4	HSS	16"x16"x1"	12"	12"	7/8"	PROVIDE #5 SUPPLEMENTAL ANCHOR REINFORCING

E1 TYPICAL BASE PLATE AND ANCHOR ROD DETAILS

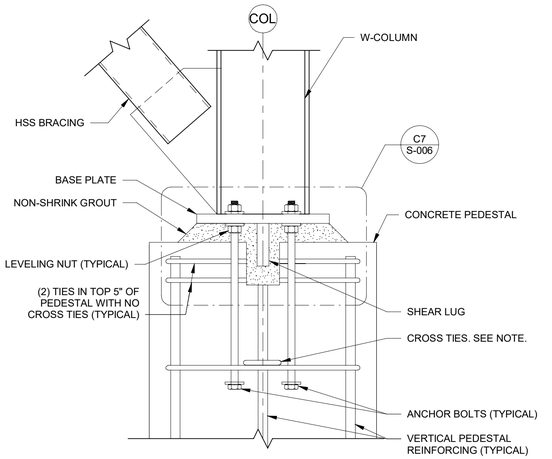


W-COLUMN

E5 ONE WAY SHEAR LUG PLATE PLAN DETAIL

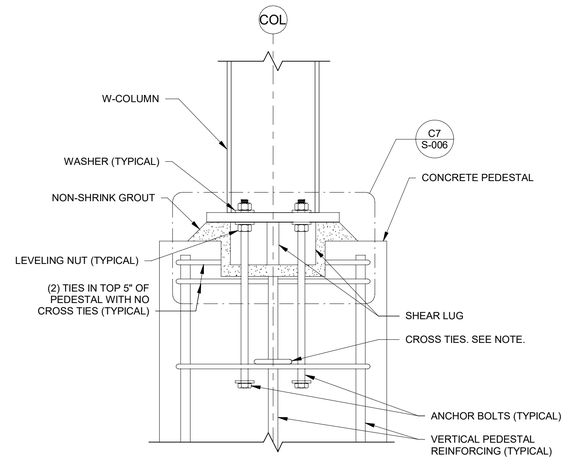


E8 TWO WAY SHEAR LUG PLATE PLAN DETAIL



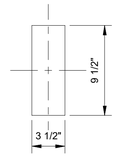
NOTES:
1. SEE PEDESTAL PLAN DETAILS FOR REINFORCING SIZE AND SPACING. CROSS TIES TO BEGIN BELOW THE SHEAR LUG AT COLUMNS WITH CROSS TIES AND SHEAR LUG PLATES.
2. ORIENT ONE WAY SHEAR LUG PLATE SUCH THAT THE LONGEST DIMENSION OF THE SHEAR LUG IS PERPENDICULAR TO THE COLUMN LINE OF THE HSS BRACING.

C1 ONE WAY SHEAR LUG PLATE ELEVATION

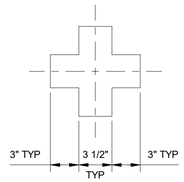


NOTE:
SEE PEDESTAL PLAN DETAILS FOR REINFORCING SIZE AND SPACING. CROSS TIES TO BEGIN BELOW THE SHEAR LUG AT COLUMNS WITH CROSS TIES AND SHEAR LUG PLATES.

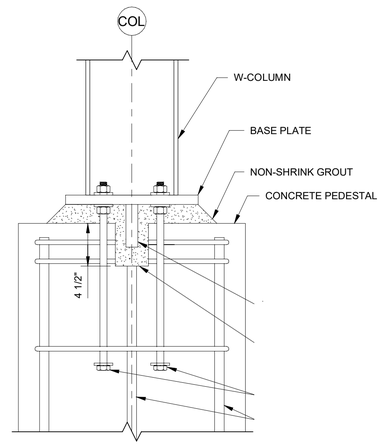
C4 TWO WAY SHEAR LUG PLATE ELEVATION



ONE WAY BOX OUT PLAN



TWO WAY BOX OUT PLAN



NOTES:
1. ORIENT ONE WAY SHEAR LUG BOX OUT S
DIMENSION IS PERPENDICULAR TO THE C
BRACING.

SECTION

C7 SHEAR LUG GROUT BOX OUT

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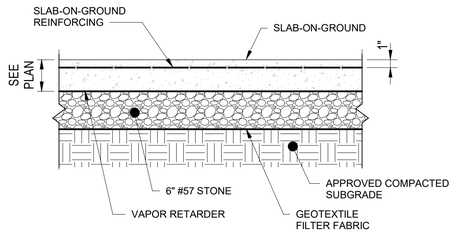
MARK	DESCRIPTION	DATE

DESIGNED BY: B. KRELL
DRAWN BY: B. KRELL
CHECKED BY: B. ENGLISH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
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FIRST TITLE
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

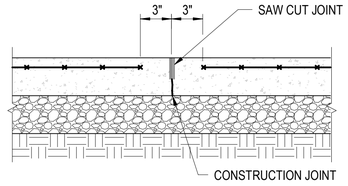
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

NORTH CAROLINA
SEAL
031221
BRUCE A. ENGLISH
8/11/23



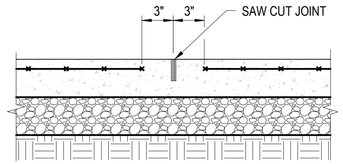
F1 TYPICAL SLAB-ON-GROUND

SCALE: NTS



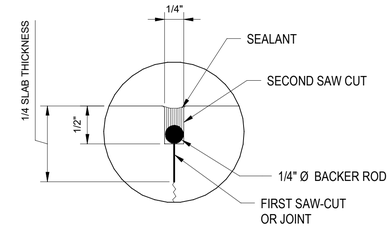
F3 TYPICAL SLAB-ON-GROUND CONSTRUCTION JOINT

SCALE: NTS



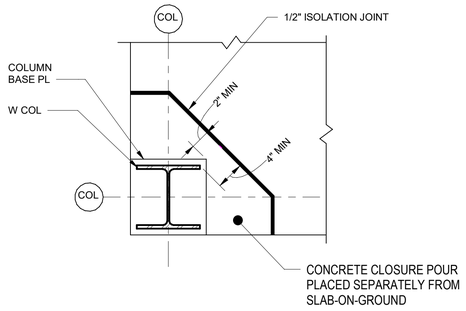
F6 TYPICAL SLAB-ON-GROUND CONTRACTION JOINT

SCALE: NTS



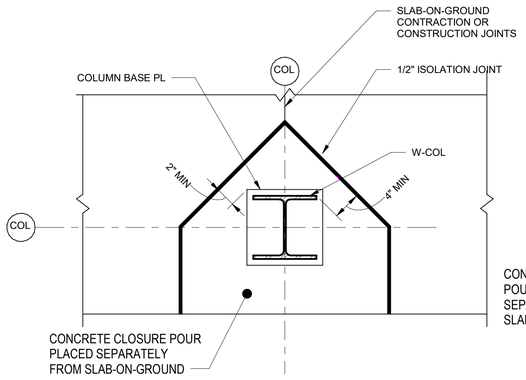
F8 TYPICAL SAW CUT JOINT DETAIL

SCALE: NTS



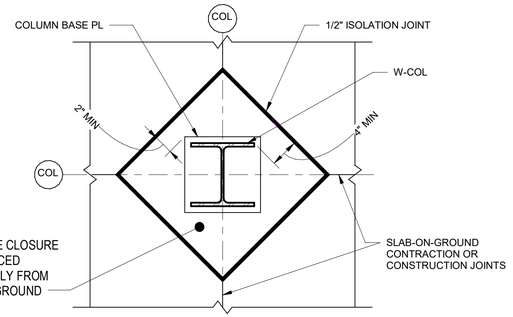
D1 TYPICAL ISOLATION JOINT AT CORNER COLUMN

SCALE: NTS



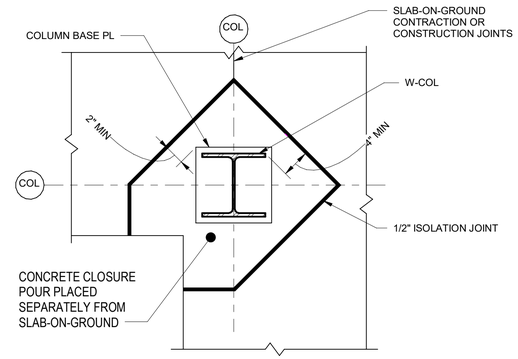
D3 TYPICAL ISOLATION JOINT AT EXTERIOR COLUMN

SCALE: NTS



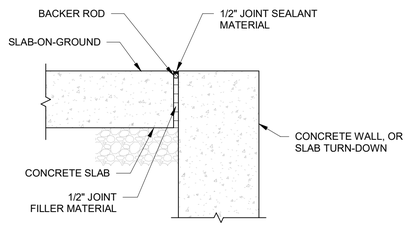
D6 TYPICAL ISOLATION JOINT AT INTERIOR COLUMN

SCALE: NTS



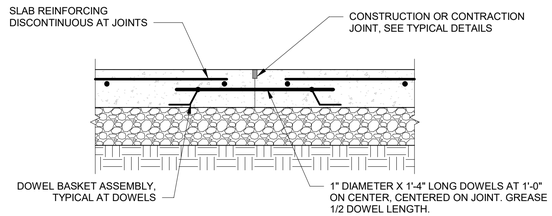
D8 TYPICAL ISOLATION JOINT AT RE-ENTRANT CORNER COLUMN

SCALE: NTS



B1 TYPICAL ISOLATION JOINT AT SLAB AND WALL DETAIL

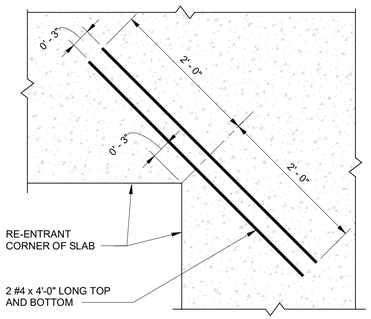
SCALE: NTS



NOTE: DETAIL APPLIES FOR ALL 8" THICK SLABS.

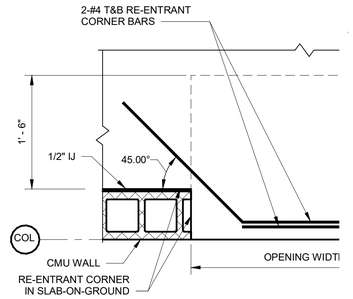
B3 TYPICAL DOWELED JOINT

SCALE: NTS



B6 TYPICAL REINFORCING AT RE-ENTRANT SLAB CORNERS

SCALE: NTS



B8 TYPICAL RE-ENTRANT REINFORCING AT WAL

SCALE: NTS

US Army Corps of Engineers ®

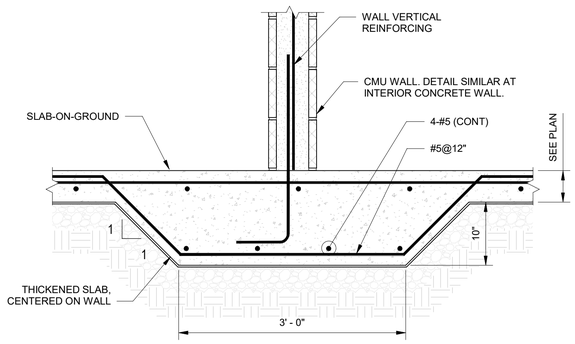
MARK	DESCRIPTION	DATE

DESIGNED BY: B. KRELL	ISSUE DATE: AUGUST 2023
DRAWN BY: B. KRELL	SOLICITATION NO.: W912PM22R0015
CHECKED BY: B. ENGLISH	CONTRACT NO.: W912PM-19-D-0004
SUBMITTED BY:	FIRST TITLE
SIZE: ANSI D	SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

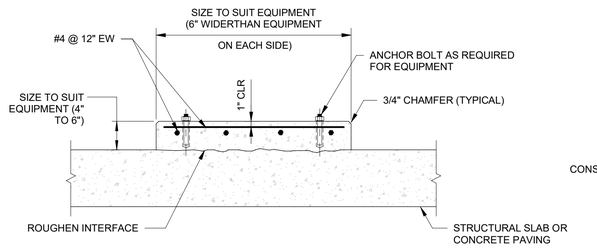
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

NORTH CAROLINA
SEAL
031221
BRUCE A. ENGLISH



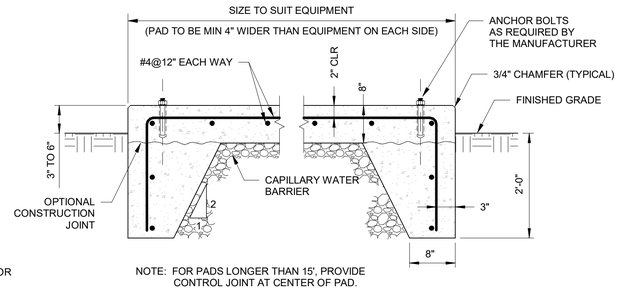
F1 TYPICAL THICKENED SLAB AT CMU WALL DETAIL

SCALE: NTS



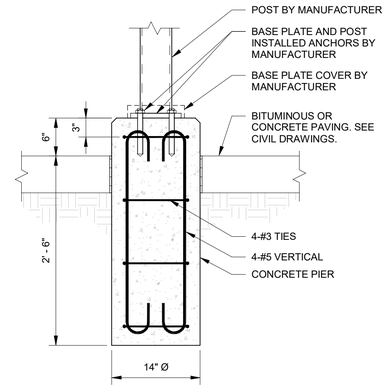
F4 TYPICAL EQUIPMENT SUPPORT AT CONCRETE SLAB DETAIL

SCALE: NTS



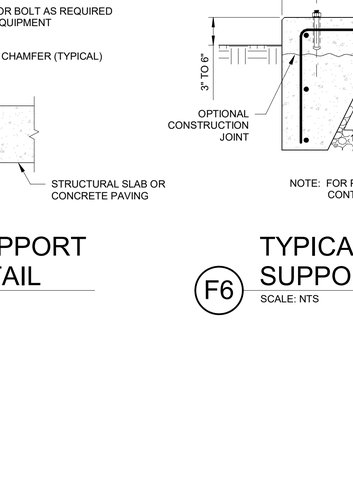
F6 TYPICAL EXTERIOR EQUIPMENT SUPPORT DETAIL

SCALE: NTS



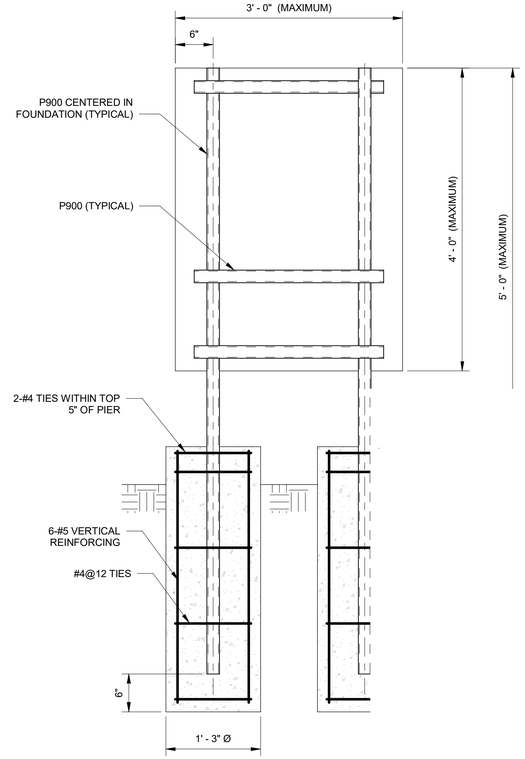
F9 TYPICAL STANCHION BASE

SCALE: NTS



A5 TYPICAL BOLLARD

SCALE: NTS



NOTE:
1. PART NUMBERS INDICATED ARE UNISTRUT APPROVED EQUAL PRODUCTS MAY BE USE FOR APPROVAL.
2. EMBED ALL VERTICAL MEMBERS IN CONCR MEMBERS MUST BE LOCATED WITHIN THE
3. COORDINATE GEOMETRY OF THE EXTERIC FURNISHED.

A8 TYPICAL ENCLOS

SCALE: NTS

US Army Corps of Engineers ®

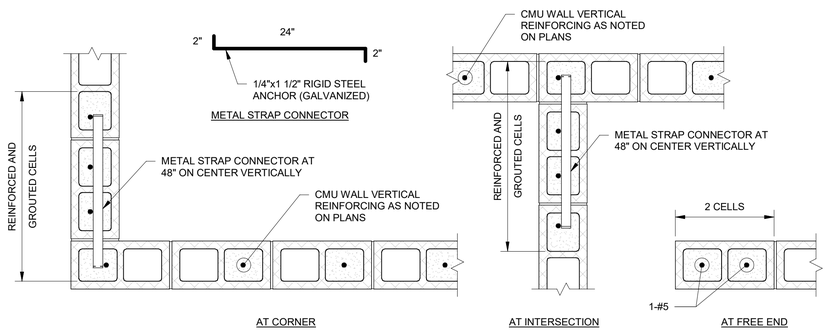
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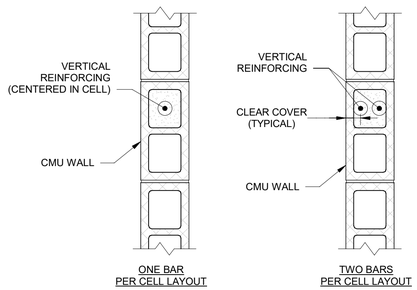
NORTH CAROLINA
SEAL
031221
8/11/23
BRUCE A. ENGLISH



NOTE:
MASONRY WALLS MUST BE INTERLOCKED AT INTERSECTIONS. USE METAL STRAP CONNECTIONS AS A ALTERNATIVE ONLY WHEN INTERLOCKING MASONRY WALLS IS NOT POSSIBLE.

E1 TYPICAL CMU WALL REINFORCING DETAILS

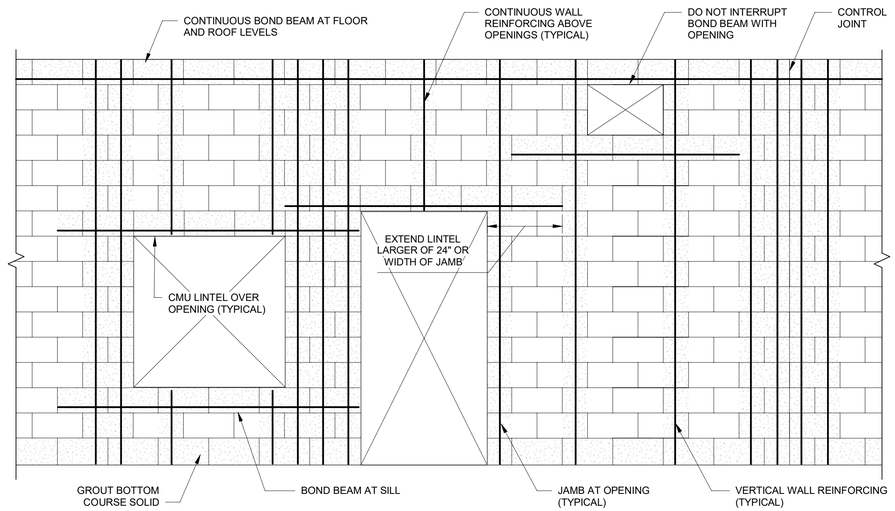
SCALE: NTS



NOTE:
USE BAR POSITIONERS TO PROPERLY POSITION VERTICAL REINFORCING IN CMU WALL CELLS

E5 TYPICAL CMU WALL VERTICAL REINFORCING LAYOUT DETAIL

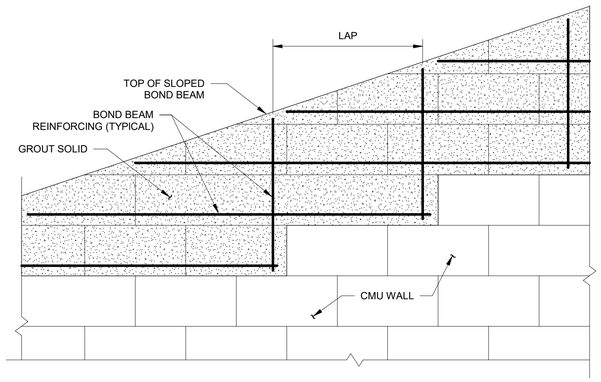
SCALE: NTS



NOTE: PROVIDE REBAR DOWELS AT BASE OF WALL PER TYPICAL DETAIL.

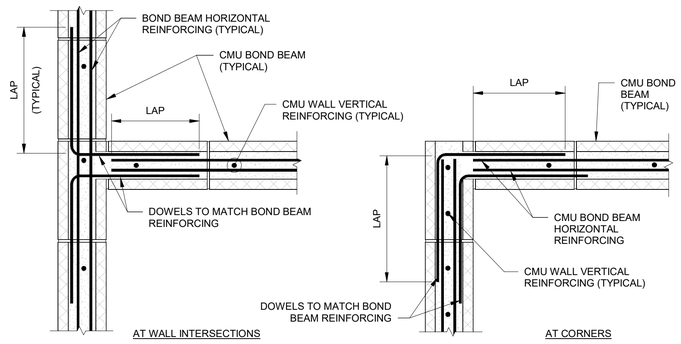
E7 TYPICAL CMU WALL REINFORCING

SCALE: NTS



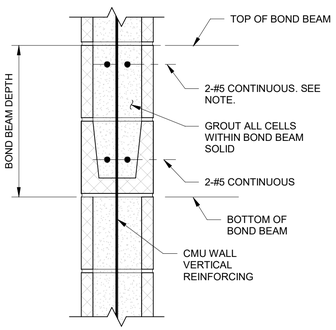
C1 TYPICAL SLOPED CMU BOND BEAM

SCALE: NTS



C4 TYPICAL CMU BOND BEAM REINFORCING DETAIL

SCALE: NTS



NOTE: TOP LAYER OF REINFORCING IS NOT REQUIRED FOR 8" BOND BEAMS.

C7 TYPICAL CMU BOND BEAM DETAIL

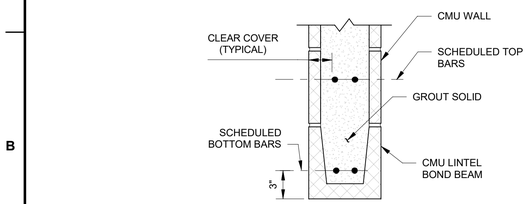
SCALE: NTS

CMU TENSION LAP SPLICE

BAR SIZE	8" CMU		10" CMU	
	A	B	A	B
#3	16"	19"	16"	19"
#4	21"	34"	21"	34"
#5	26"	45"	26"	45"
#6	43"	54"	40"	54"
#7	60"	63"	46"	63"

NOTES:
1. A= ONE BAR PER CELL, B= TWO BARS PER CELL. REFER TO "TYPICAL CMU WALL VERTICAL REINFORCING LAYOUT DETAIL."
2. BARS SPLICED BY NON-CONTACT LAP SPLICES MUST NOT BE SPACED FARTHER THAN ONE-FIFTH THE REQUIRED LENGTH OF LAP NOR MORE THAN 8"
3. f'm = 2,000 psi
4. GRADE 60 REI

C9 CMU SPL

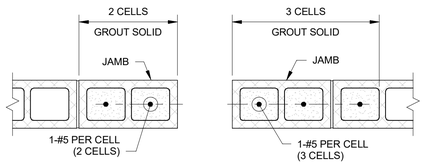


CLEAR SPAN (FT)	DEPTH (IN)	BOTTOM BARS	TOP BARS
UP TO 2'-6"	8	2-#5	-
2'-7" TO 7-0"	16	2-#6	2-#5
7'-1" TO 14'-0"	24	2-#6	2-#6

NOTE: PROVIDE LINTEL BEARING WIDTH EQUAL TO LARGER OF JAMB WIDTH OR 24".

A1 TYPICAL CMU LINTEL DETAIL

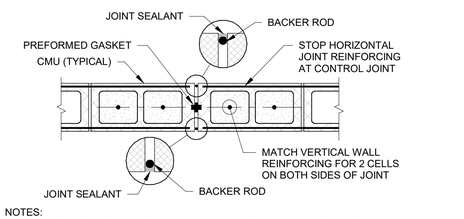
SCALE: NTS



NOTES:
1. PROVIDE TYPE A FOR OPENINGS UP TO 5'-0" WIDE.
2. PROVIDE TYPE B FOR OPENINGS BETWEEN 5'-0" AND 10'-0" WIDE.

A3 TYPICAL CMU JAMB DETAIL

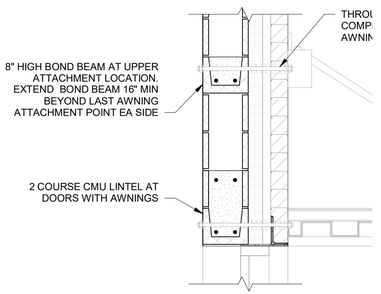
SCALE: NTS



NOTES:
1. STOP HORIZONTAL BOND BEAM REINFORCING AT THE CONTROL JOINT.
2. LOCATE CONTROL JOINTS MINIMUM OF 2'-0" AWAY FROM OPENINGS IN CONCRETE MASONRY AND AT A MAXIMUM OF 40' ON CENTER. SUBMIT CMU CONTROL JOINT PLAN FOR APPROVAL.

A5 TYPICAL CMU WALL CONTROL JOINT DETAIL

SCALE: NTS



A8 TYPICAL SECTION

SCALE: NTS

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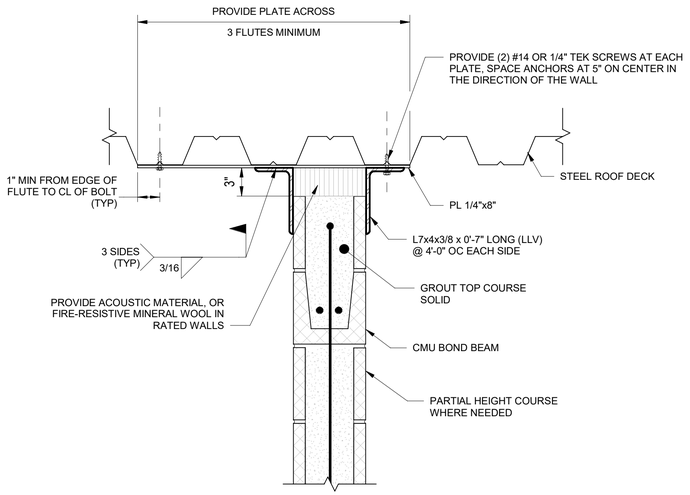
MARK	DESCRIPTION	DATE

DESIGNED BY: B. KRELL
DRAWN BY: B. KRELL
CHECKED BY: B. ENGLISH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
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WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

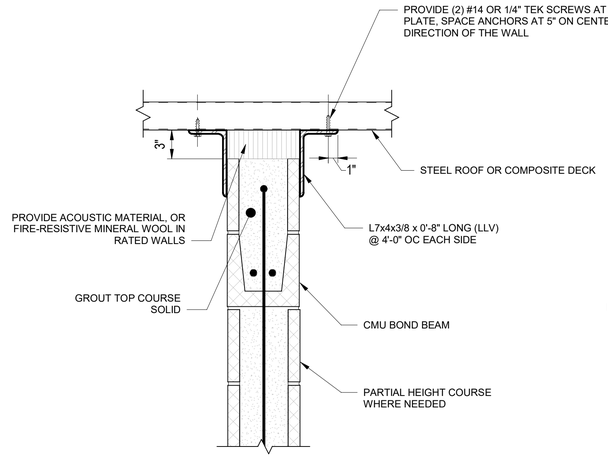
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BALTIMORE, MARYLAND 21231

NORTH CAROLINA SEAL 031221 2/11/22 BRUCE A. ENGLISH



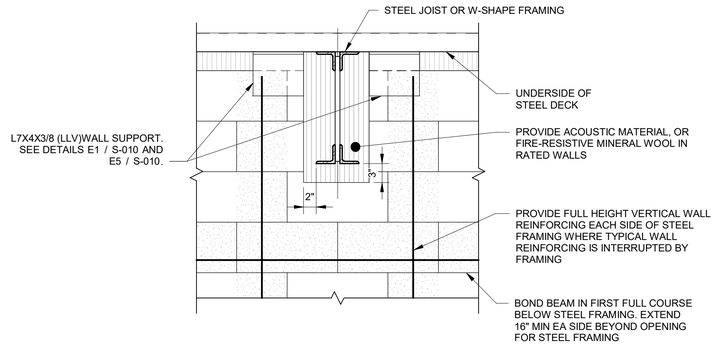
E1 TYPICAL TOP OF NON-BEARING CMU WALL CONNECTION TO STEEL DECK WITH FLUTES PARALLEL TO WALL

SCALE: NTS

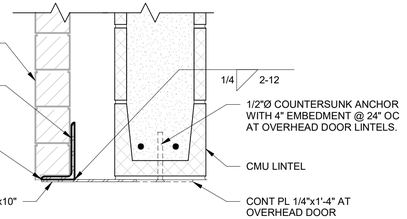


E5 TYPICAL TOP OF NON-BEARING CMU WALL CONNECTION TO STEEL DECK WITH FLUTES PERPENDICULAR TO WALL

SCALE: NTS



E8 TYPICAL TOP OF NON-BEARING CMU WALL PERPENDICULAR TO STEEL FRAMING

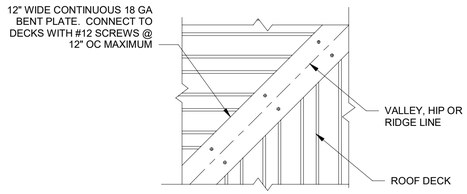


NOTE:
1. LOOSE LINTEL MUST BE HOT-DIP GALVANIZED.
2. PROVIDE LINTEL SIZE WITH MINIMUM BEARING LENGTH INDICATED BELOW.

OPENING WIDTH	ANGLE	MIN BEARING
UP TO 2'-6"	L3-1/2X3-1/2X5/16	4"
2'-7" TO 6'-4"	L3-1/2X3-1/2X5/16	6"
6'-5" TO 11'-4"	L6X3-1/2X5/16 (LLV)	8"

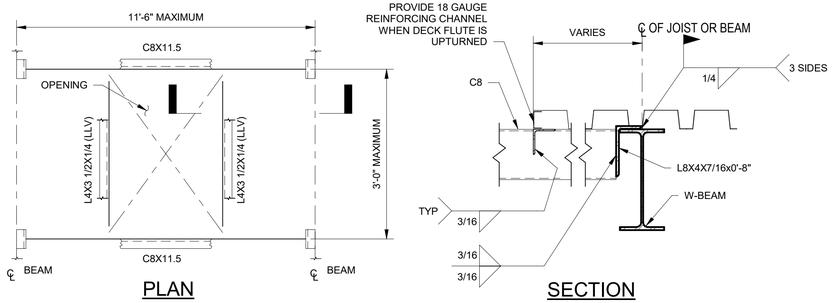
C2 TYPICAL LOOSE LINTEL DETAIL

SCALE: NTS



C4 TYPICAL BENT PLATE AT HIPS, VALLEYS, AND RIDGES

SCALE: NTS

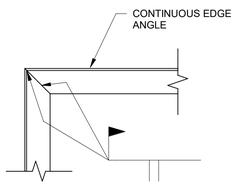


NOTE:

1. SIZE ROOF OPENINGS TO SUIT THE EQUIPMENT FURNISHED. COORDINATE WITH SUBMITTED AND APPROVED MECHANICAL EQUIPMENT CUT SHEETS.

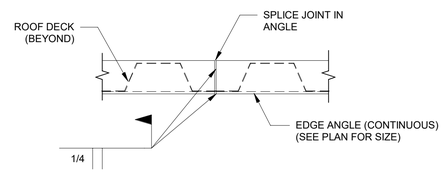
C7 TYPICAL FRAME AT ROOF PENETRATION

SCALE: NTS



A2 TYPICAL EDGE ANGLE SPLICE DETAIL - CORNER

SCALE: NTS



A4 TYPICAL ROOF DECK EDGE ANGLE SPLICE DETAIL

SCALE: NTS

MINIMUM REQUIRED STEEL DECK PROPERTIES					
DEPTH (IN), GAUGE	DESIGN THICKNESS (IN)	I(Pos) (IN^4/FT)	I(Neg) (IN^4/FT)	S(Pos) (IN^3/FT)	S(Ne (IN^3/I
3" TYPE N, 18 GAUGE	0.0474	1.238	1.430	0.688	0.74

A7 MINIMUM REQUIRED STEEL DECK PROPE

SCALE: NTS

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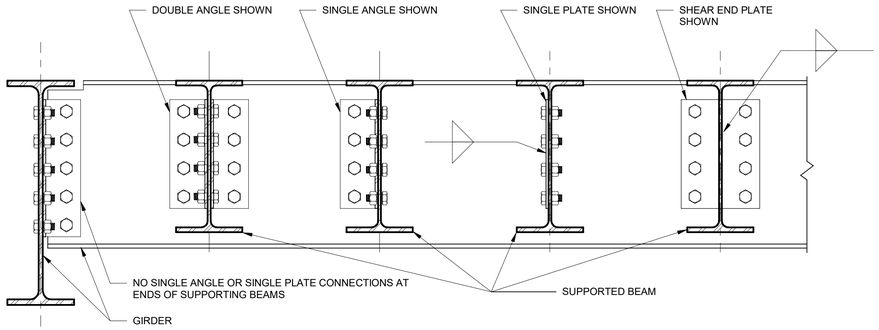
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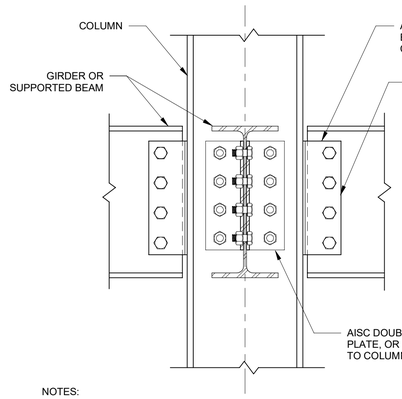


NOTES:

1. SUPPORTED BEAMS PRIMARILY SUPPORT DISTRIBUTED LOADS FROM SLABS OR DECKING. STANDARD AISC DOUBLE ANGLE, SINGLE ANGLE, SINGLE PLATE OR SHEAR END PLATE CONNECTIONS MAY BE USED FOR SUPPORTED BEAMS UNLESS NOTED OTHERWISE.
2. GIRDERS SUPPORT POINT LOADS FROM ONE OR MORE SUPPORTED BEAMS OR FROM COLUMNS BEING TRANSFERRED FROM ABOVE. GIRDERS MAY BE SUPPORTED BY COLUMNS OR BY OTHER GIRDERS. STANDARD AISC DOUBLE ANGLE OR SHEAR END PLATE CONNECTIONS MAY BE USED FOR GIRDER CONNECTIONS. SINGLE ANGLE AND SINGLE PLATE CONNECTIONS ARE NOT PERMITTED UNLESS NOTED OTHERWISE.
3. WELDED/BOLTED OR BOLTED/BOLTED CONNECTIONS PER AISC ARE PERMITTED.
4. REFER TO STEEL CONNECTION BOLT SCHEDULE FOR MINIMUM REQUIRED NUMBER OF BOLTS FOR GIVEN BEAM SIZES.

E1 TYPICAL BEAM TO BEAM SHEAR CONNECTION DETAIL

SCALE: NTS



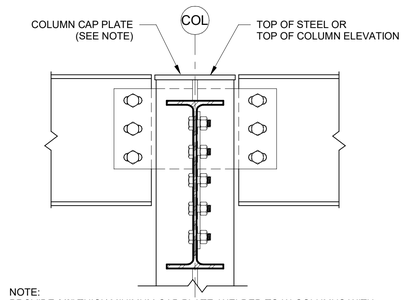
STEEL CONNECTION BOLT SCHEDULE	
NOMINAL BEAM DEPTH (IN)	MINIMUM NUMBER OF BOLTS
8-10	2
12-14	3
16-18	4
21-24	6

NOTES:

1. SUPPORTED BEAMS PRIMARILY SUPPORT DISTRIBUTED LOADS FROM SLABS OR DECKING. STANDARD AISC DOUBLE ANGLE, SINGLE ANGLE, SINGLE PLATE OR SHEAR END PLATE CONNECTIONS MAY BE USED FOR SUPPORTED BEAMS UNLESS NOTED OTHERWISE.
2. GIRDERS SUPPORT POINT LOADS FROM ONE OR MORE SUPPORTED BEAMS OR FROM COLUMNS BEING TRANSFERRED FROM ABOVE. GIRDERS MAY BE SUPPORTED BY COLUMNS OR BY OTHER GIRDERS. STANDARD AISC DOUBLE ANGLE OR SHEAR END PLATE CONNECTIONS MAY BE USED FOR GIRDER CONNECTIONS. SINGLE ANGLE AND SINGLE PLATE CONNECTIONS ARE NOT PERMITTED UNLESS NOTED OTHERWISE.
3. WELDED/BOLTED OR BOLTED/BOLTED CONNECTIONS PER AISC ARE PERMITTED.
4. REFER TO STEEL CONNECTION BOLT SCHEDULE FOR MINIMUM REQUIRED NUMBER OF BOLTS FOR GIVEN BEAM SIZES.

E5 TYPICAL BEAM TO COLUMN SHEAR CONNECTION DETAIL

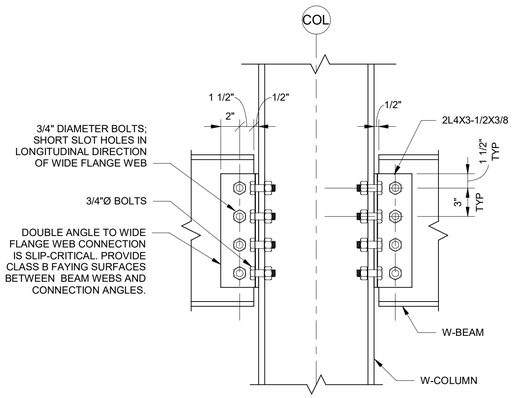
SCALE: NTS



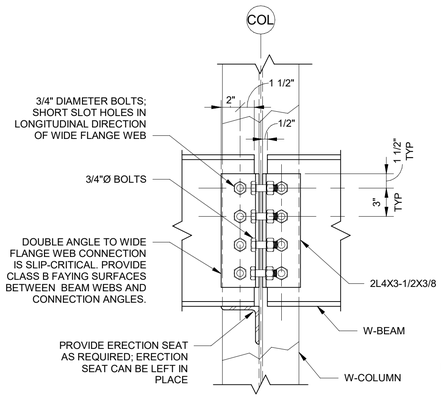
NOTE:
PROVIDE 3/8" THICK MINIMUM CAP PLATE, WELDED TO W-COLUMNS WITH 3/16" FILLET WELD AT EACH FLANGE, 1/4" FILLET WELD ALL AROUND FOR HSS POSTS AND COLUMNS.

E9 TYPICAL COLUMN CAP PLATE DETAIL

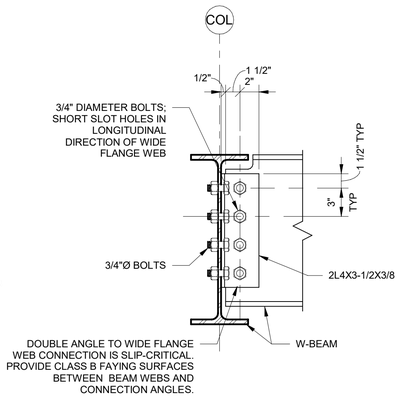
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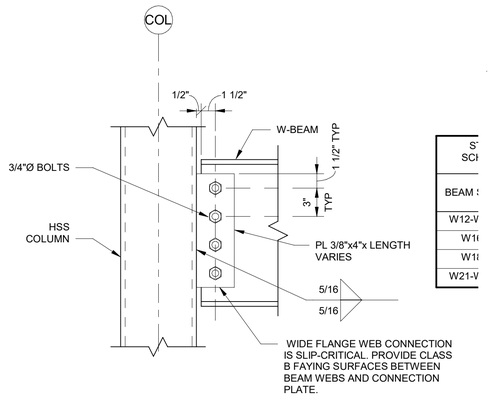
WIDE FLANGE BEAM TO COLUMN FLANGE CONNECTION



WIDE FLANGE BEAM TO COLUMN WEB CONNECTION



WIDE FLANGE BEAM TO WIDE FLANGE BEAM CONNECTION



| S
SCH	
BEAM S	
W12-V	
W1(	
W1(	
W21-V	

WIDE FLANGE BEAM TO HSS COLUMN CONNECTION

NOTES:
1. REFER TO "STEEL CONNECTION BOLT SCHEDULE - LATERAL BEAMS" FOR MINIMUM REQUIRED NUMBER OF BOLTS FOR GIVEN BEAM SIZES.
2. BEAMS FRAMING INTO THE COLUMN WEB ARE NOT SHOWN FOR CLARITY IN THE WIDE FLANGE BEAM TO COLUMN FLANGE CONNECTION DETAIL.

A1 TYPICAL LATERAL SYSTEM CONNECTION DETAILS

SCALE: NTS

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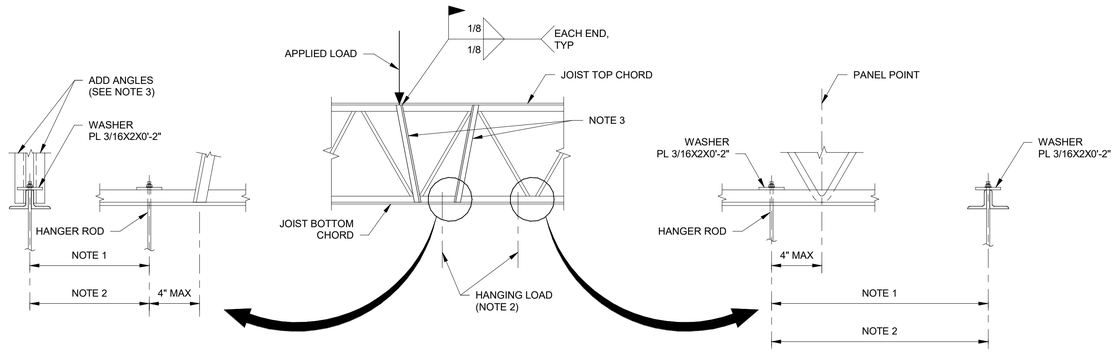
MARK	DESCRIPTION	DATE

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BETWEEN PANEL POINTS

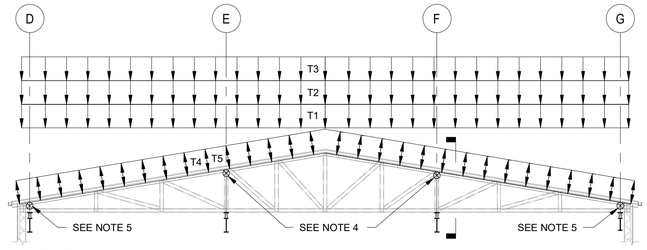
AT PANEL POINTS

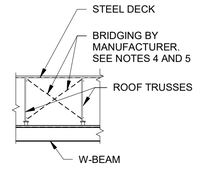
NOTES:

1. HANGER RODS - SEE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS.
2. POSITION HANGER RODS ON JOIST CENTERLINE BETWEEN BOTTOM CHORD ANGLES. "C" CLAMP CONNECTIONS ARE NOT ALLOWED.
3. WHERE CONCENTRATED LOADS ARE APPLIED TO TOP CHORDS OR HUNG FROM BOTTOM CHORDS BETWEEN PANEL POINTS, REINFORCE JOIST WITH DOUBLE ANGLES AS REQUIRED BY JOIST MANUFACTURER.
4. THIS DETAIL OCCURS WHERE APPLIED OR HANGING LOADS EXCEED 100 POUNDS. COORDINATE FINAL DESIGN REQUIREMENTS WITH JOIST MANUFACTURER.

E2 TYPICAL JOIST REINFORCING FOR CONCENTRATED LOADS

SCALE: NTS





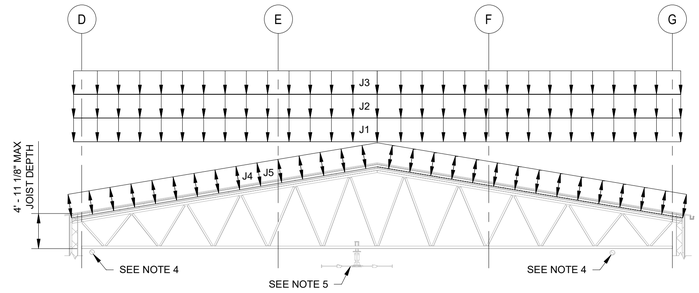
SECTION

NOTES:

1. COLD-FORMED STEEL ROOF TRUSSES (BY MANUFACTURER) BEARING ON STEEL BEAMS AT GRID LINES D, E, F, AND G.
2. POSITIVE AND NEGATIVE PRESSURE VALUES ACT TOWARD AND AWAY FROM THE ROOF SURFACE, RESPECTIVELY.
3. REFER TO ROOF LOADS TABLE BELOW FOR LOAD TYPE AND MAGNITUDES.
4. PROVIDE BRIDGING, CROSS BRACING, OR DESIGN BEARING CONNECTION TO STEEL BEAMS FOR ROLLOVER FORCE ALONG GRIDS 'E' AND 'F' FOR AN UNFACTORED WIND LOAD PERPENDICULAR TO THE TRUSSES OF 110 PLF. APPLICABLE ASD OR LRFD LOAD FACTORS MUST BE APPLIED BY THE DELEGATED DESIGNER.
5. PROVIDE BRIDGING, CROSS BRACING, OR DESIGN BEARING CONNECTION TO STEEL BEAMS FOR ROLLOVER FORCE ALONG GRIDS 'D' AND 'G' FOR AN UNFACTORED WIND LOAD PERPENDICULAR TO THE TRUSSES OF 30 PLF. APPLICABLE ASD OR LRFD LOAD FACTORS MUST BE APPLIED BY THE DELEGATED DESIGNER.
6. CONNECTIONS BETWEEN COLD-FORMED STEEL ROOF TRUSSES AND STRUCTURAL SUPPORTS TO RESIST ALL FORCES IS THE RESPONSIBILITY OF THE DELEGATED DESIGN ENGINEER.

F7 ADMIN ROOF TRUSS LOADING DIAGRAM

3/32" = 1'-0"



NOTES:

1. SLOPED LONG-SPAN STEEL JOISTS (BY MANUFACTURER) MUST BE SPACED AT 8'-0" ON CENTER MAXIMUM AND BEAR ON CMU WALLS.
2. POSITIVE AND NEGATIVE PRESSURE VALUES ACT TOWARD AND AWAY FROM THE ROOF SURFACE, RESPECTIVEL
3. REFER TO ROOF LOAD TABLE BELOW FOR LOAD TYPE AND MAGNITUDES. LOADS INDICATED FOR SLOPED LONG-S JOISTS ARE BASED ON AN 8'-0" SPACING.
4. FIRE PROTECTION PIPING. REFER TO FIRE PROTECTION DRAWINGS.
5. DESTRATIFICATION FANS. BASIS OF DESIGN WEIGHT IS 350 LBS. REFER TO MECHANICAL DRAWINGS FOR LAYOU
6. CONNECTIONS BETWEEN JOISTS AND STRUCTURAL SUPPORTS TO RESIST ALL FORCES IS THE RESPONSIBILITY O DELEGATED DESIGN ENGINEER.

E7 WAREHOUSE LONG SPAN JOIST LOADING DIAG

ROOF LOAD TABLE			
MARK	**LOAD TYPE**	**MAGNITUDE**	**COMMENTS**
T1	DEAD	23 PSF	-
T2	LIVE	20 PSF	-
T3	SNOW	11 PSF	-
T4	WIND	16 PSF	-
T5	WIND	-	SEE NOTE 2
J1	DEAD	160 PLF	-
J2	LIVE	160 PLF	-
J3	SNOW	88 PLF	-
J4	WIND	128 PLF	-
J5	WIND	-	SEE NOTE 2

NOTES:

1. LOADS INDICATED IN THE ROOF LOAD TABLE ARE UNFACTORED. APPLICABLE ASD OR LRFD FACTORS AND LOAD COMBINATIONS MUST BE APPLIED BY THE DELEGATED DESIGNER FOR COLD-FORMED STEEL ROOF TRUSSES AND LONGSPAN STEEL JOISTS.
2. REFER TO THE COMPONENTS AND CLADDING WIND LOAD TABLES AND DIAGRAMS ON SHEET S-003 FOR APPLICABLE ZONE WIND UPLIFT PRESSURE MAGNITUDES AND LOCATIONS.

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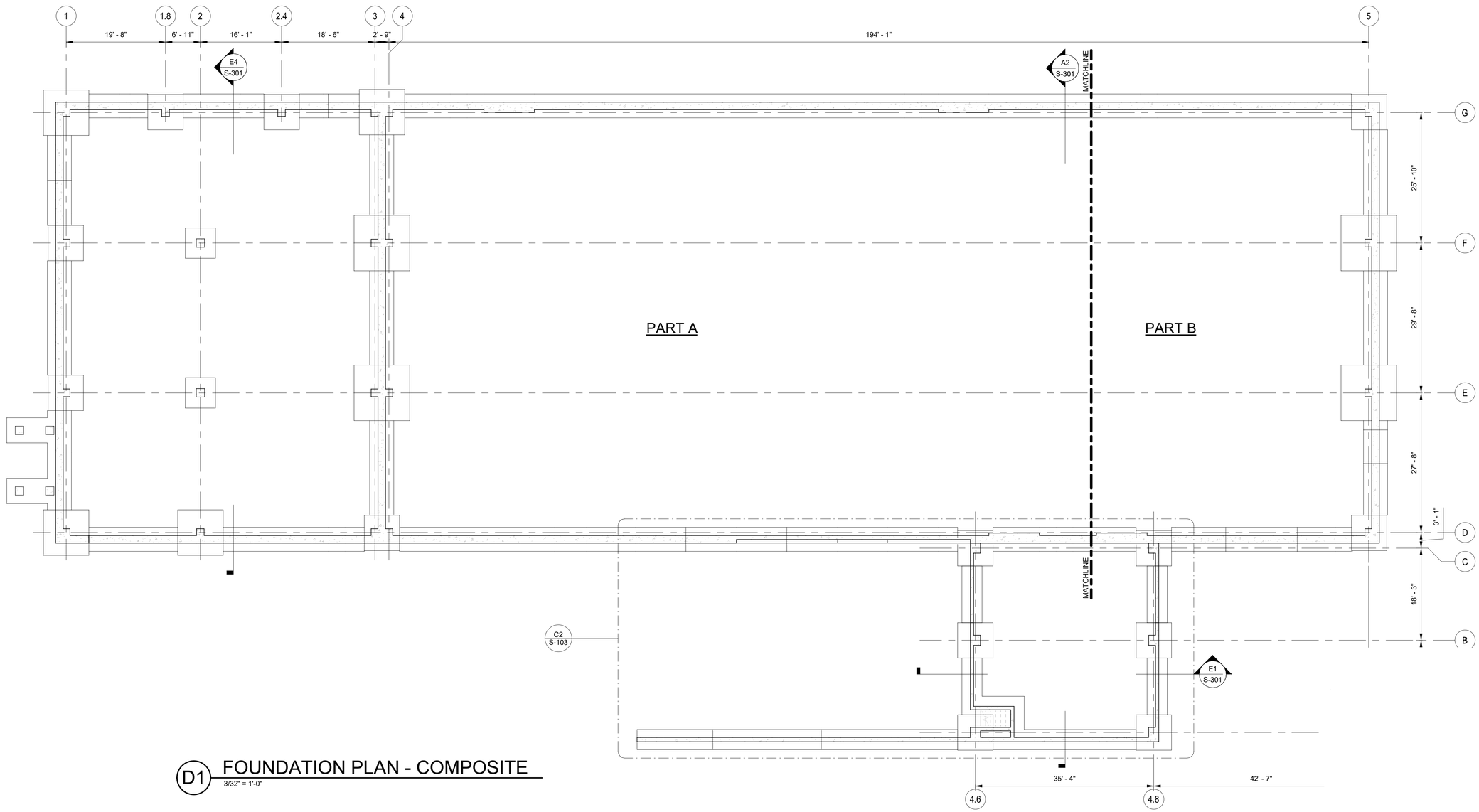
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D1 FOUNDATION PLAN - COMPOSITE

3/32" = 1'-0"

GENERAL SHEET NOTES

1. THIS DRAWING IS FOR REFERENCE ONLY. SEE PART PLANS ON S-102 THROUGH S-103 FOR ALL INFORMATION NOT SHOWN.

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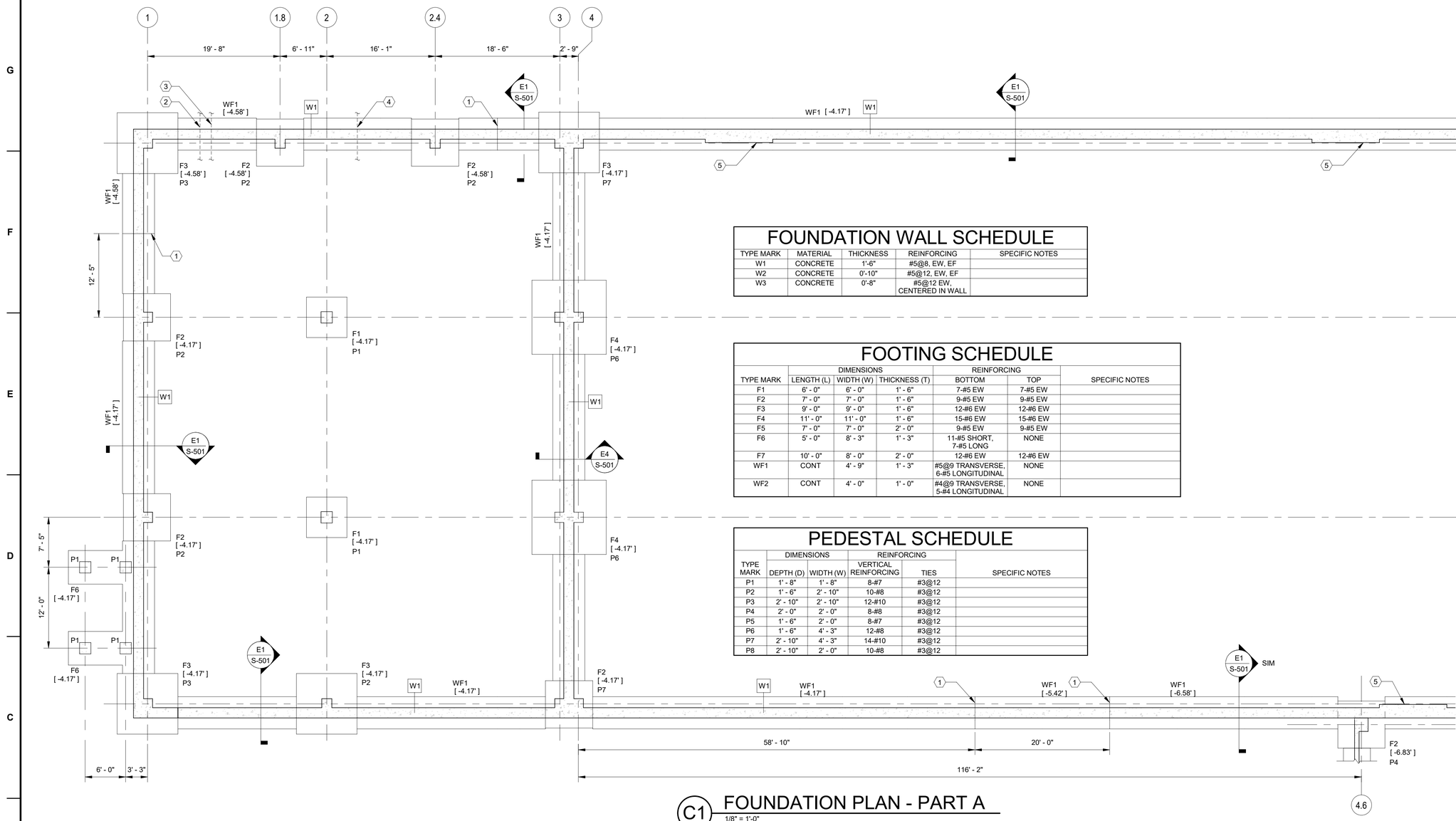
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FOUNDATION WALL SCHEDULE

TYPE MARK	MATERIAL	THICKNESS	REINFORCING	SPECIFIC NOTES
W1	CONCRETE	1'-6"	#5@8, EW, EF	
W2	CONCRETE	0'-10"	#5@12, EW, EF	
W3	CONCRETE	0'-8"	#5@12 EW, CENTERED IN WALL	

FOOTING SCHEDULE

TYPE MARK	DIMENSIONS			REINFORCING		SPECIFIC NOTES
	LENGTH (L)	WIDTH (W)	THICKNESS (T)	BOTTOM	TOP	
F1	6' - 0"	6' - 0"	1' - 6"	7-#5 EW	7-#5 EW	
F2	7' - 0"	7' - 0"	1' - 6"	9-#5 EW	9-#5 EW	
F3	9' - 0"	9' - 0"	1' - 6"	12-#6 EW	12-#6 EW	
F4	11' - 0"	11' - 0"	1' - 6"	15-#6 EW	15-#6 EW	
F5	7' - 0"	7' - 0"	2' - 0"	9-#5 EW	9-#5 EW	
F6	5' - 0"	8' - 3"	1' - 3"	11-#5 SHORT, 7-#5 LONG	NONE	
F7	10' - 0"	8' - 0"	2' - 0"	12-#6 EW	12-#6 EW	
WF1	CONT	4' - 9"	1' - 3"	#5@9 TRANSVERSE, 6-#5 LONGITUDINAL	NONE	
WF2	CONT	4' - 0"	1' - 0"	#4@9 TRANSVERSE, 5-#4 LONGITUDINAL	NONE	

PEDESTAL SCHEDULE

TYPE MARK	DIMENSIONS		REINFORCING		SPECIFIC NOTES
	DEPTH (D)	WIDTH (W)	VERTICAL REINFORCING	TIES	
P1	1' - 8"	1' - 8"	8-#7	#3@12	
P2	1' - 6"	2' - 10"	10-#8	#3@12	
P3	2' - 10"	2' - 10"	12-#10	#3@12	
P4	2' - 0"	2' - 0"	8-#8	#3@12	
P5	1' - 6"	2' - 0"	8-#7	#3@12	
P6	1' - 6"	4' - 3"	12-#8	#3@12	
P7	2' - 10"	4' - 3"	14-#10	#3@12	
P8	2' - 10"	2' - 0"	10-#8	#3@12	

C1 FOUNDATION PLAN - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS S-001 THROUGH S-003 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS, DESIGN LOADS, AND CODES AND STANDARDS.
2. REFER TO SHEETS S-003 THROUGH S-011 FOR TYPICAL STRUCTURAL DETAILS.

SHEET KEYNOTES

1. STEP WALL FOOTING
2. 8" FIRE PROTECTION LINE
3. 2" DOMESTIC WATER LINE
4. 4" SANITARY LINE SLEEVED THROUGH FOUNDATION WALL
5. 6" ADDITIONAL FOUNDATION WALL THICKNESS AT OVERHEAD DOORS.

SHEET LEGEND

[-X.XX']	BOTTOM OF WALL OR SPREAD FOOTING
FX	FOOTING TYPE
PX	PEDESTAL TYPE
WX	WALL TYPE

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DRAWN BY: B. KRELL
CHECKED BY: B. ENGLISH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
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FOOTING SCHEDULE

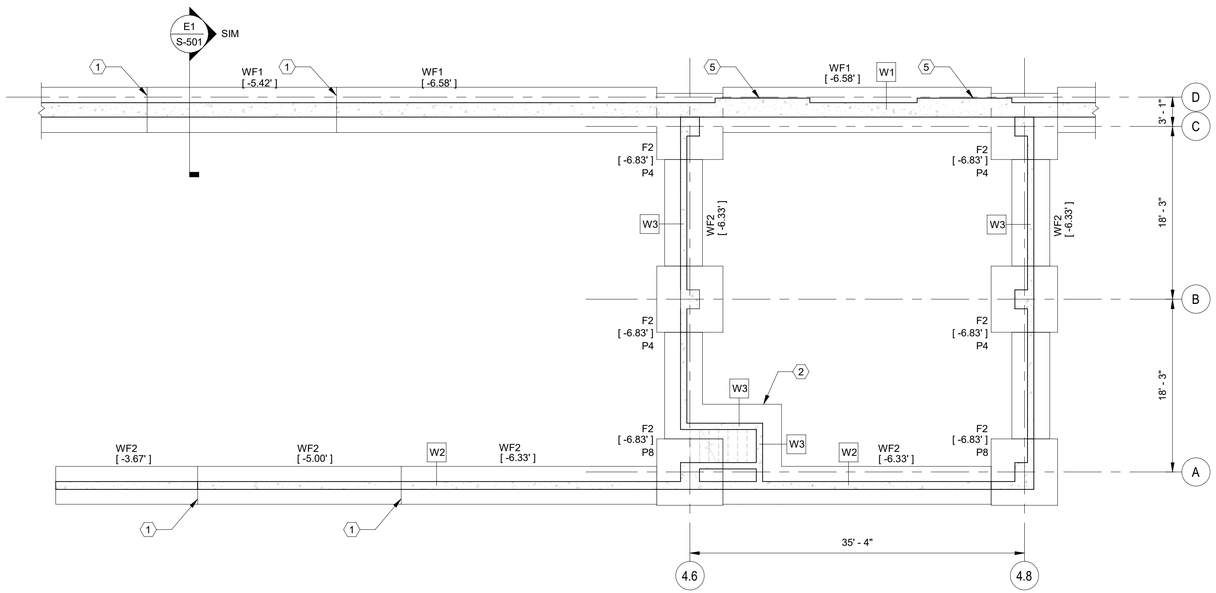
TYPE MARK	DIMENSIONS			REINFORCING		SPECIFIC NOTES
	LENGTH (L)	WIDTH (W)	THICKNESS (T)	BOTTOM	TOP	
F1	6' - 0"	6' - 0"	1' - 6"	7-#5 EW	7-#5 EW	
F2	7' - 0"	7' - 0"	1' - 6"	9-#5 EW	9-#5 EW	
F3	9' - 0"	9' - 0"	1' - 6"	12-#6 EW	12-#6 EW	
F4	11' - 0"	11' - 0"	1' - 6"	15-#6 EW	15-#6 EW	
F5	7' - 0"	7' - 0"	2' - 0"	9-#5 EW	9-#5 EW	
F6	5' - 0"	8' - 3"	1' - 3"	11-#5 SHORT, 7-#5 LONG	NONE	
F7	10' - 0"	8' - 0"	2' - 0"	12-#6 EW	12-#6 EW	
WF1	CONT	4' - 9"	1' - 3"	#5@9 TRANSVERSE, 6-#5 LONGITUDINAL	NONE	
WF2	CONT	4' - 0"	1' - 0"	#4@9 TRANSVERSE, 5-#4 LONGITUDINAL	NONE	

FOUNDATION WALL SCHEDULE

TYPE MARK	MATERIAL	THICKNESS	REINFORCING	SPECIFIC NOTES
W1	CONCRETE	1'-6"	#5@8, EW, EF	
W2	CONCRETE	0'-10"	#5@12, EW, EF	
W3	CONCRETE	0'-8"	#5@12 EW, CENTERED IN WALL	

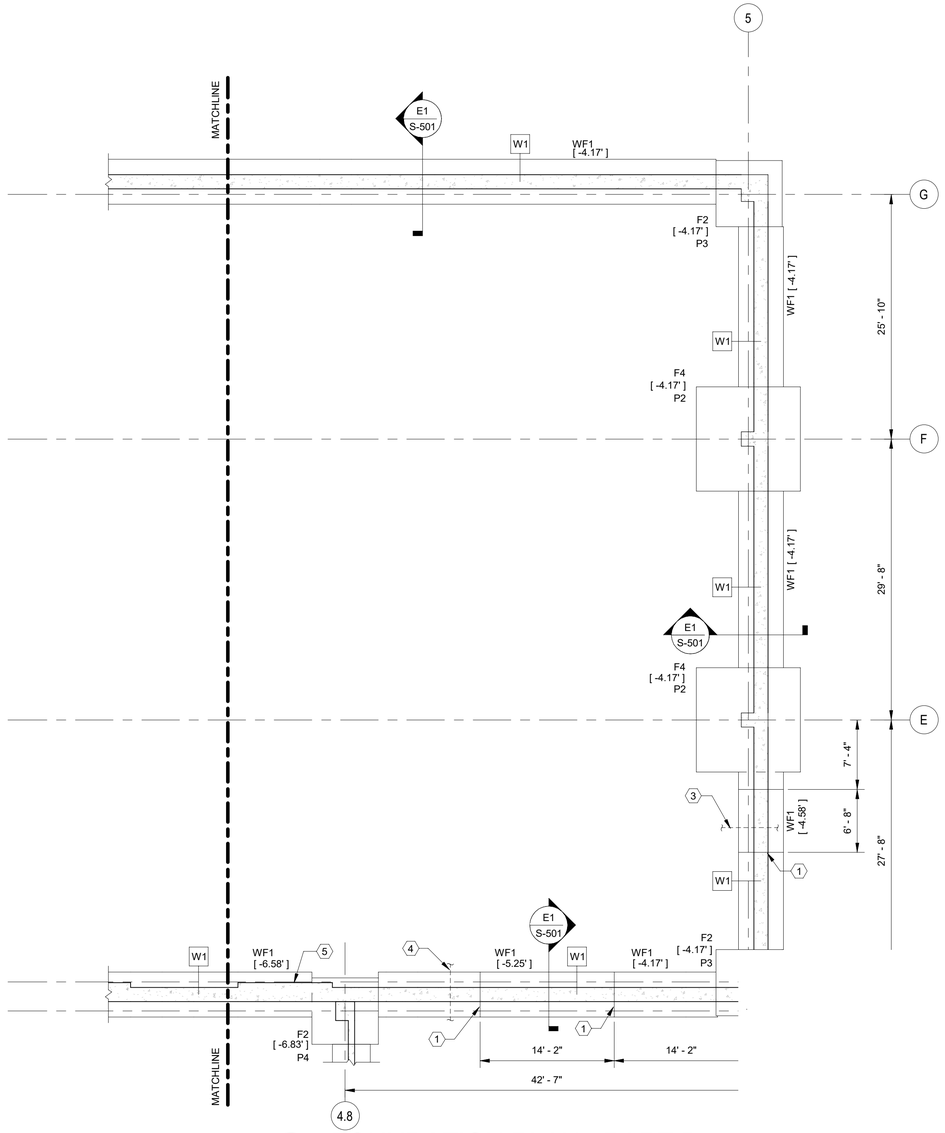
PEDESTAL SCHEDULE

TYPE MARK	DIMENSIONS		REINFORCING		SPECIFIC NOTES
	DEPTH (D)	WIDTH (W)	VERTICAL REINFORCING	TIES	
P1	1' - 8"	1' - 8"	8-#7	#3@12	
P2	1' - 6"	2' - 10"	10-#8	#3@12	
P3	2' - 10"	2' - 10"	12-#10	#3@12	
P4	2' - 0"	2' - 0"	8-#8	#3@12	
P5	1' - 6"	2' - 0"	8-#7	#3@12	
P6	1' - 6"	4' - 3"	12-#8	#3@12	
P7	2' - 10"	4' - 3"	14-#10	#3@12	
P8	2' - 10"	2' - 0"	10-#8	#3@12	



C2 FOUNDATION PLAN - LOADING DOCK

1/8" = 1'-0"



C7 FOUNDATION PLAN - PART B

1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS S-001 THROUGH S-003 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS, DESIGN LOADS, AND CODES AND STANDARDS.
2. REFER TO SHEETS S-003 THROUGH S-011 FOR TYPICAL STRUCTURAL DETAILS.
3. REFER TO S-102 FOR ADDITIONAL FOUNDATION PLAN SPECIFIC NOTES AND FOOTING, FOUNDATION WALL AND PEDESTAL SCHEDULES.

SHEET KEYNOTES

1. STEP WALL FOOTING
2. 12" THICK FOOTING REINFORCED WITH #5@12 EACH WAY UNDER EXTERIOR STAIR. EXTEND FOOTING 2'-0" BEYOND INTERIOR FACE OF STAIR WALLS. PLACE MONOLITHICALLY WITH ADJACENT COLUMN AND WALL FOOTINGS.
3. 4" SANITARY LINE.
4. 1 1/4" DOMESTIC WATER LINE.
5. 6" ADDITIONAL FOUNDATION WALL THICKNESS AT OVERHEAD DOORS.

SHEET LEGEND

[-X.XX']	BOTTOM OF WALL OR SPREAD FOOTING
FX	FOOTING TYPE
PX	PEDESTAL TYPE
WX	WALL TYPE

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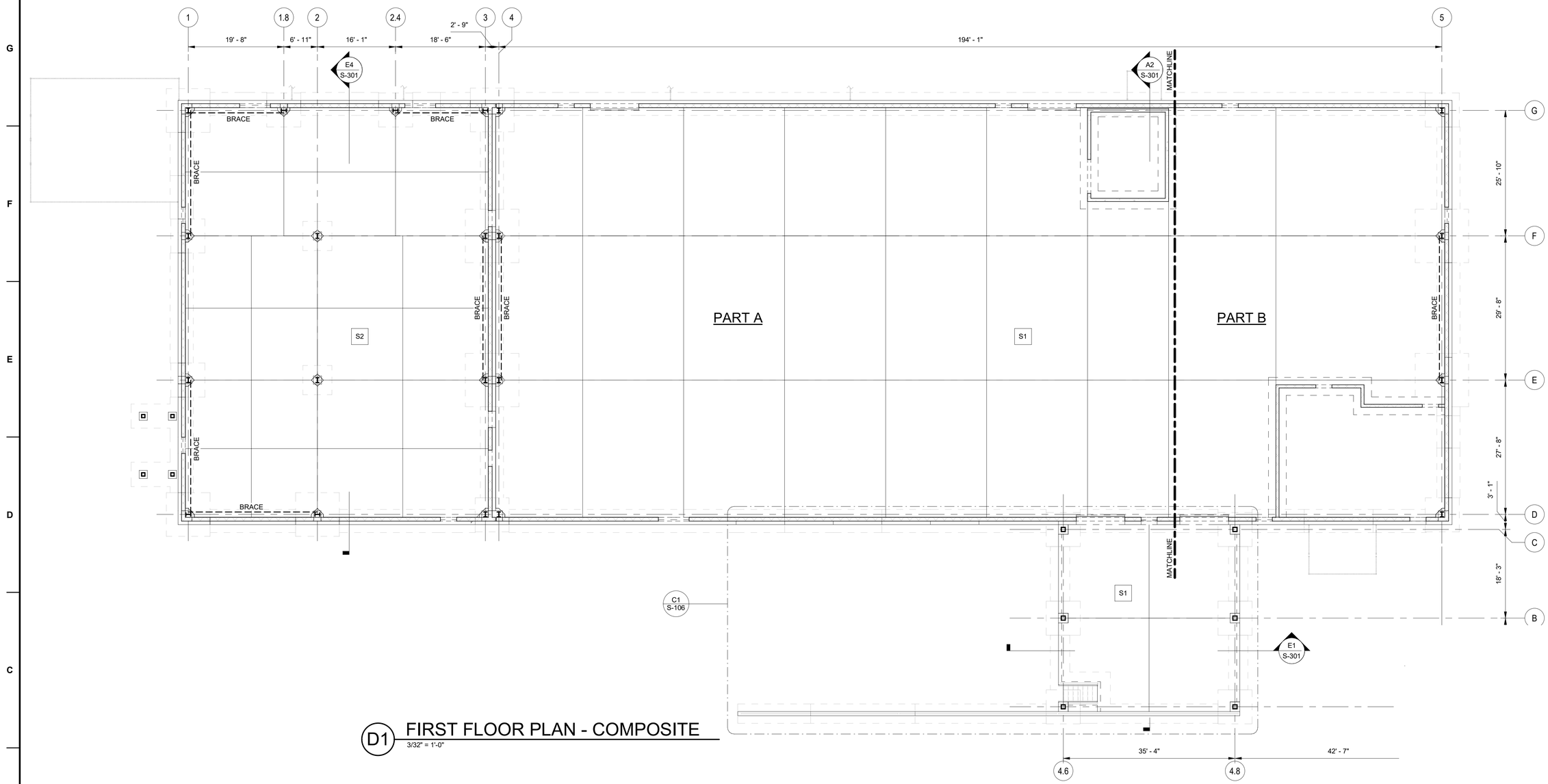
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CHECKED BY: B. ENGLISH
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D1 FIRST FLOOR PLAN - COMPOSITE

3/32" = 1'-0"

GENERAL SHEET NOTES

1. THIS DRAWING IS FOR REFERENCE ONLY. SEE PART PLANS ON S-105 THROUGH S-106 FOR ALL INFORMATION NOT SHOWN.

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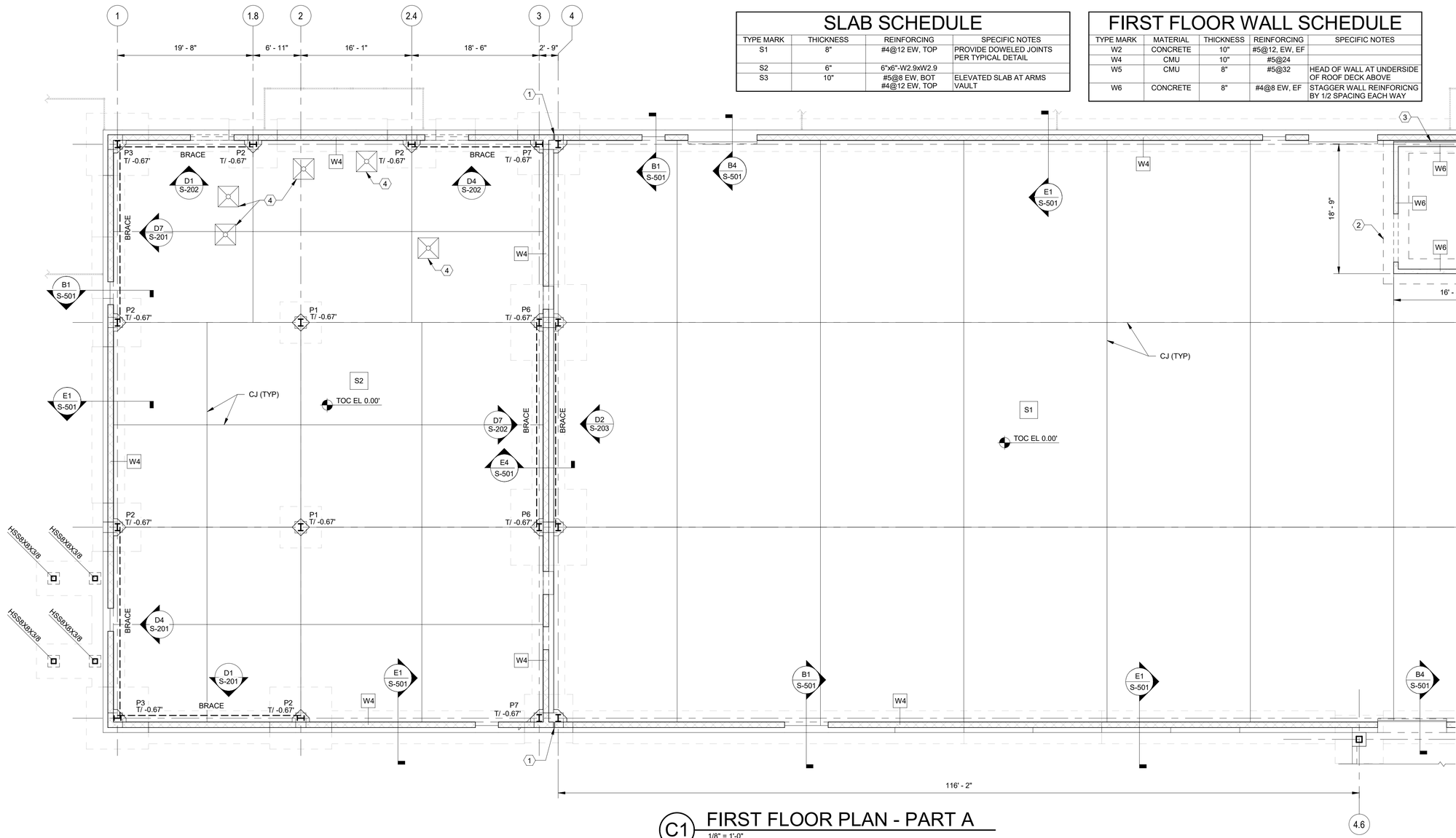
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SLAB SCHEDULE

TYPE MARK	THICKNESS	REINFORCING	SPECIFIC NOTES
S1	8"	#4@12 EW, TOP	PROVIDE DOWELED JOINTS PER TYPICAL DETAIL
S2	6"	6"x6"-W2.9xW2.9	
S3	10"	#5@8 EW, BOT #4@12 EW, TOP	ELEVATED SLAB AT ARMS VAULT

FIRST FLOOR WALL SCHEDULE

TYPE MARK	MATERIAL	THICKNESS	REINFORCING	SPECIFIC NOTES
W2	CONCRETE	10"	#5@12, EW, EF	
W4	CMU	10"	#5@24	
W5	CMU	8"	#5@32	HEAD OF WALL AT UNDERSIDE OF ROOF DECK ABOVE
W6	CONCRETE	8"	#4@8 EW, EF	STAGGER WALL REINFORICNG BY 1/2 SPACING EACH WAY



C1 FIRST FLOOR PLAN - PART A
1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS S-001 THROUGH S-003 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS, DESIGN LOADS, AND CODES AND STANDARDS.
2. REFER TO SHEETS S-003 THROUGH S-011 FOR TYPICAL STRUCTURAL DETAILS.
3. LOCATE CONTROL JOINTS IN CMU WALLS MINIMUM OF 2'-0" AWAY FROM OPENINGS AND AT A MAXIMUM OF 40' ON CENTER. SUBMIT CMU CONTROL JOINT PLAN FOR APPROVAL
4. PROVIDE CONSTRUCTION/CONTROL JOINTS IN SLAB-ON GROUND AS INDICATED ON PLANS. SLAB CRACK CONTROL JOINTS ON PLAN (CJ) CAN BE EITHER CONSTRUCTION JOINTS OR A CONTRACTION JOINTS.
5. PROVIDE 1/2" ISOLATION JOINT, BACKER ROD, AND SEALANT BETWEEN SLABS-ON-GROUND AND FOUNDATION WALLS.

SHEET KEYNOTES

1. BUILDING EXPANSION JOINT
2. THICKENED SLAB BELOW INTERIOR CMU AND CONC WALLS, TYPICAL.
3. PLACE CONCRETE WALL PRIOR TO CONSTRUCTION OF MASONRY WALL TO AVOID LOADING OF WET CONCRETE ON MASONRY WALL. OTHERWISE, PROVIDE SHORING FOR THE MASONRY WALL AS REQUIRED.
4. SLOPE 3'-0" X 3'-0" AREA AT 1/8" PER FOOT TO DEPRESSED FLOOR DRAINS . SEE PLUMBING DRAWINGS FOR LOCATIONS.

SHEET LEGEND

SX	SLAB TYPE
	INDICATES TOP OF SLAB ELEVATION
SLOPE	INDICATES FLOOR SLOPE FROM HIGH TO LOW POINT
PX	PEDESTAL TYPE
T/ X.XX'	TOP OF PEDESTAL OR WALL ELEVATION
WX	WALL TYPE

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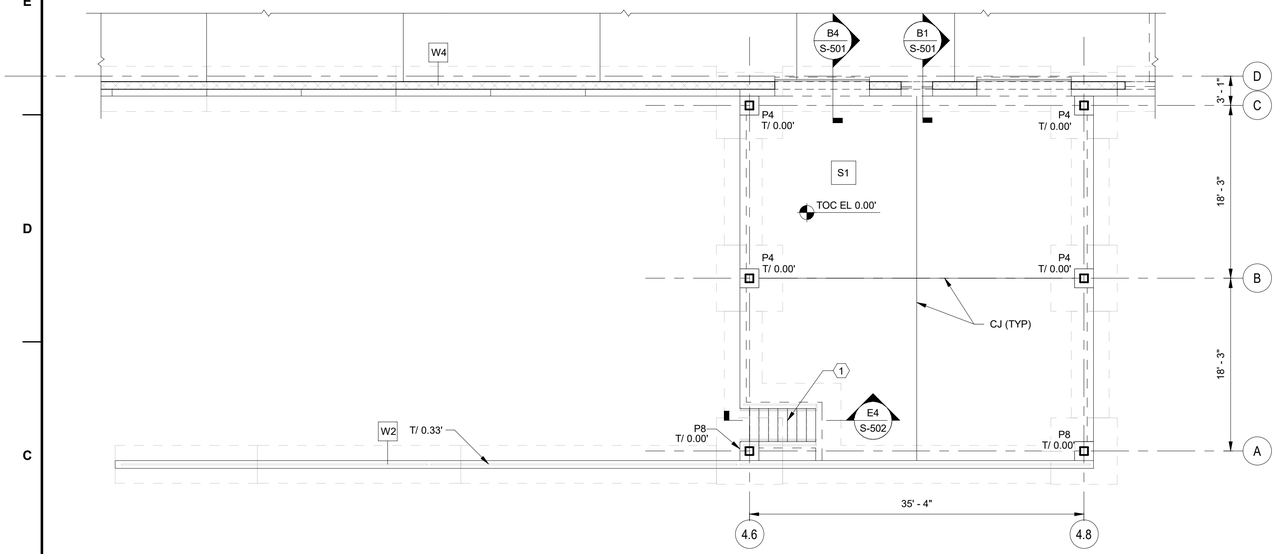
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FIRST FLOOR WALL SCHEDULE

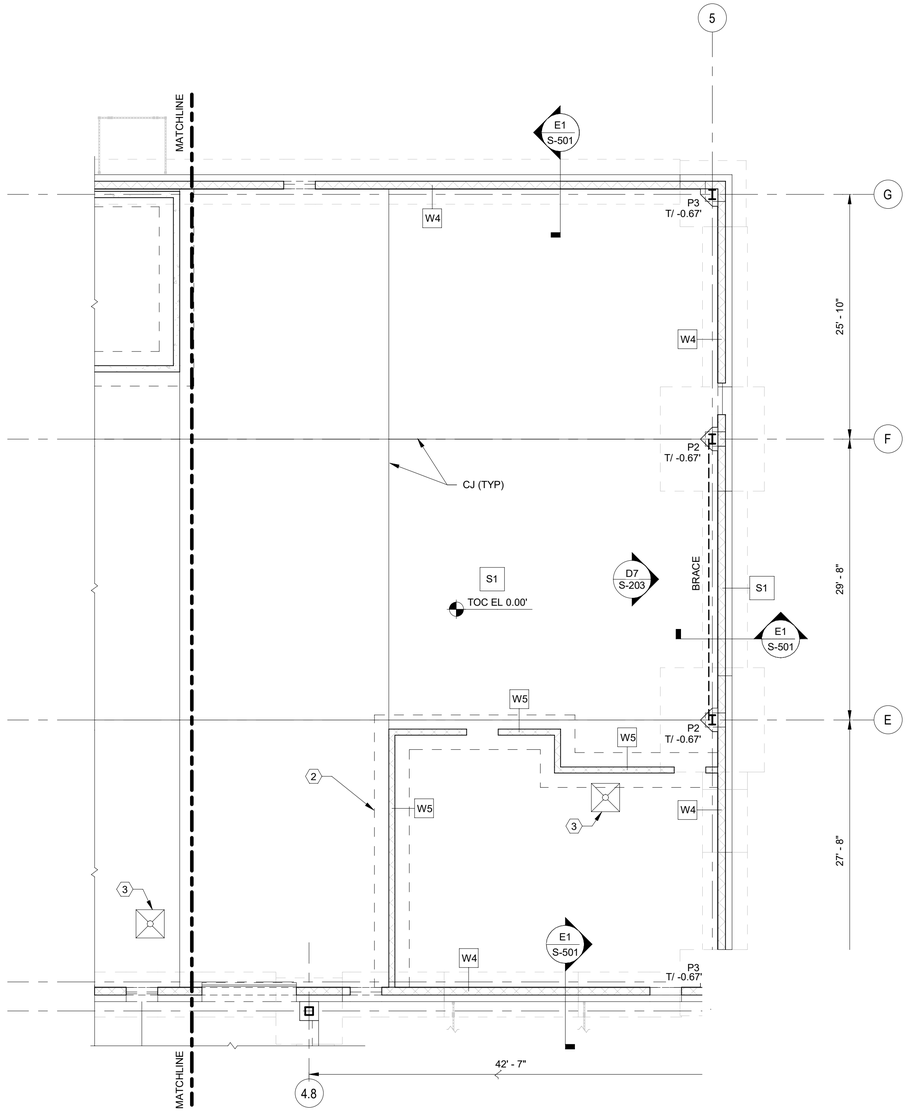
TYPE MARK	MATERIAL	THICKNESS	REINFORCING	SPECIFIC NOTES
W2	CONCRETE	10"	#5@12, EW, EF	
W4	CMU	10"	#5@24	
W5	CMU	8"	#5@32	HEAD OF WALL AT UNDERSIDE OF ROOF DECK ABOVE
W6	CONCRETE	8"	#4@8 EW, EF	STAGGER WALL REINFORICNG BY 1/2 SPACING EACH WAY

SLAB SCHEDULE

TYPE MARK	THICKNESS	REINFORCING	SPECIFIC NOTES
S1	8"	#4@12 EW, TOP	PROVIDE DOWELED JOINTS PER TYPICAL DETAIL
S2	6"	6"x6"-W2.9xW2.9	
S3	10"	#5@8 EW, BOT #4@12 EW, TOP	ELEVATED SLAB AT ARMS VAULT



C1 FIRST FLOOR PLAN - LOADING DOCK
1/8" = 1'-0"



C7 FIRST FLOOR PLAN - PART B
1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS S-001 THROUGH S-003 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS, DESIGN LOADS, AND CODES AND STANDARDS.
2. REFER TO SHEETS S-003 THROUGH S-011 FOR TYPICAL STRUCTURAL DETAILS.
3. REFER TO S-105 FOR ADDITIONAL FIRST FLOOR PLAN SPECIFIC NOTES.

SHEET KEYNOTES

1. CAST-IN-PLACE CONCRETE STAIR-ON-GRADE LOCATED BETWEEN STAIR WALLS
2. THICKENED SLAB BELOW INTERIOR CMU AND CONC WALLS, TYPICAL.
3. SLOPE 3'-0" X 3'-0" AREA AT 1/8" PER FOOT TO DEPRESSED FLOOR DRAINS . SEE PLUMBING DRAWINGS FOR LOCATIONS.

SHEET LEGEND

[-X.XX']	BOTTOM OF WALL OR SPREAD FOOTING
FX	FOOTING TYPE
PX	PEDESTAL TYPE
WX	WALL TYPE
T/ X.XX'	TOP OF PEDESTAL OR WALL ELEVATION
SX	SLAB TYPE
	INDICATES TOP OF SLAB ELEVATION
SLOPE	INDICATES FLOOR SLOPE FROM HIGH TO LOW POINT

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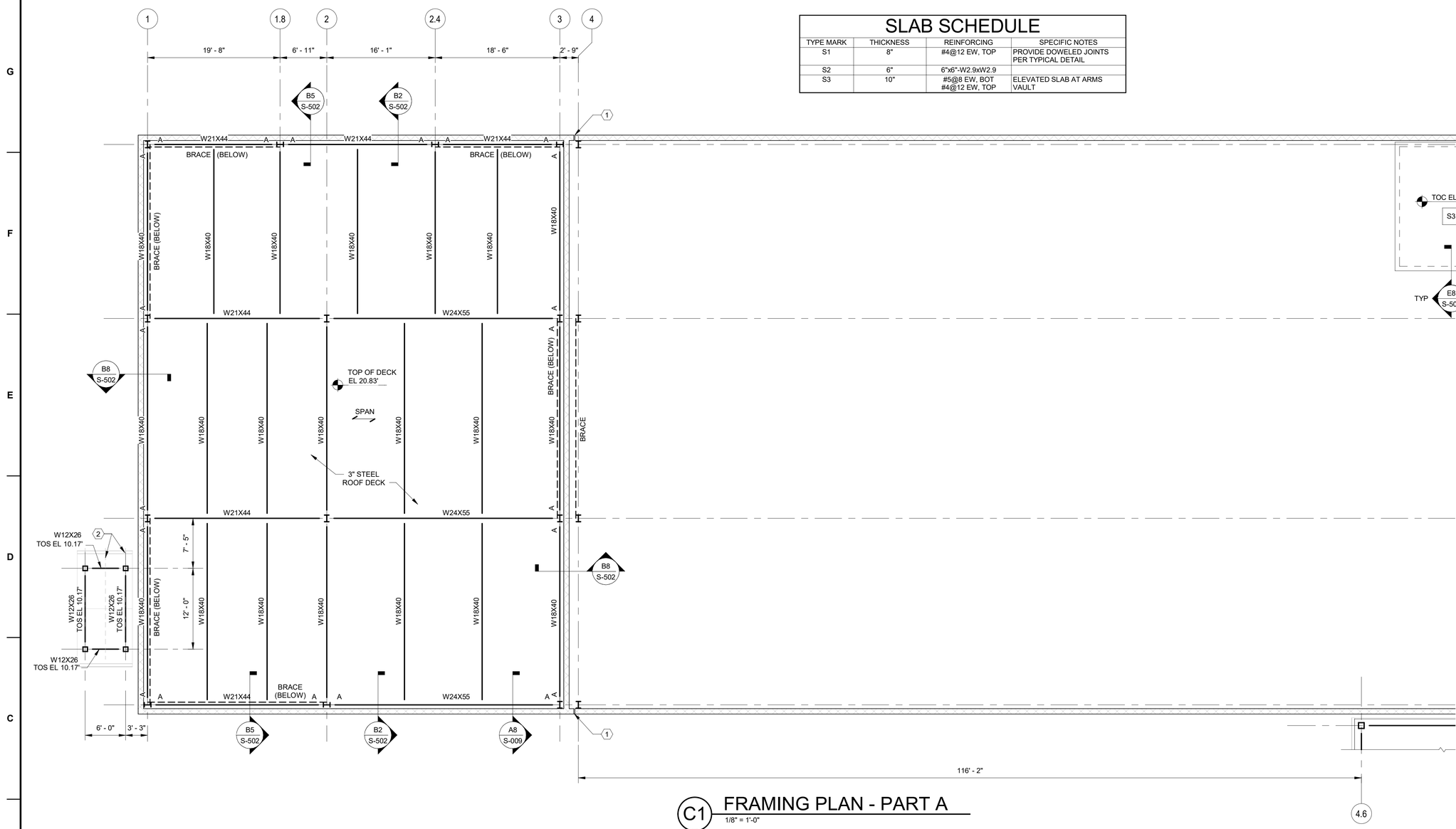
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SLAB SCHEDULE

TYPE MARK	THICKNESS	REINFORCING	SPECIFIC NOTES
S1	8"	#4@12 EW, TOP	PROVIDE DOWELED JOINTS PER TYPICAL DETAIL
S2	6"	6"x6"-W2.9xW2.9	
S3	10"	#5@8 EW, BOT #4@12 EW, TOP	ELEVATED SLAB AT ARMS VAULT



C1 FRAMING PLAN - PART A
1/8" = 1'-0"

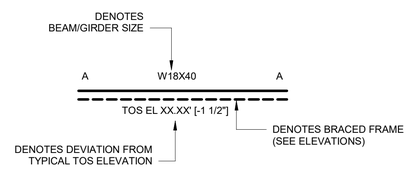
GENERAL SHEET NOTES

1. REFER TO SHEETS S-001 THROUGH S-003 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS, DESIGN LOADS, AND CODES AND STANDARDS.
2. REFER TO SHEETS S-003 THROUGH S-011 FOR TYPICAL STRUCTURAL DETAILS.
3. TOP OF STEEL FRAMING OVER ADMIN IS 20.58' UNLESS OTHERWISE NOTED.
4. FASTEN STEEL DECK WITH 5/8" DIAMETER PUDDLE WELDS AT A 24/4 PATTERN AT DECK SUPPORTS AND PERIMETER. PROVIDE 1/4" OR #14 SCREWS AT 12" ON CENTER MAXIMUM ALONG SIDELAPS.
5. SPACE BEAMS EQUALLY BETWEEN GRID LINES, UNLESS OTHERWISE NOTED.

SHEET KEYNOTES

1. BUILDING EXPANSION JOINT
2. COLD-FORMED STEEL ROOF TRUSSES (BY MANUFACTURER) AT COVERED ENTRY.

SHEET BEAM LEGEND



A INDICATES A CONNECTION DESIGNED AS PART OF THE LATERAL FORCE RESISTING SYSTEM. SEE TYPICAL LATERAL SYSTEM CONNECTION DETAILS IF NOT SPECIFICALLY DETAILED.

SHEET LEGEND

S1 SLAB TYPE

INDICATES TOP OF SLAB OR DECK ELEVATION

SPAN INDICATES SPAN DIRECTION OF STEEL DECK

LRFD DESIGN SHEAR FORCES

MEMBER	SHEAR (KIPS)
W18	10
W21	40
W24	45

VERTICAL SHEAR FORCES FOR CONNECTION DESIGN ARE TABULATED IN THE TABLE ABOVE. TABULATED SHEAR FORCES WERE DETERMINED USING LOAD AND RESISTANCE FACTOR DESIGN (LRFD) LOAD COMBINATIONS.

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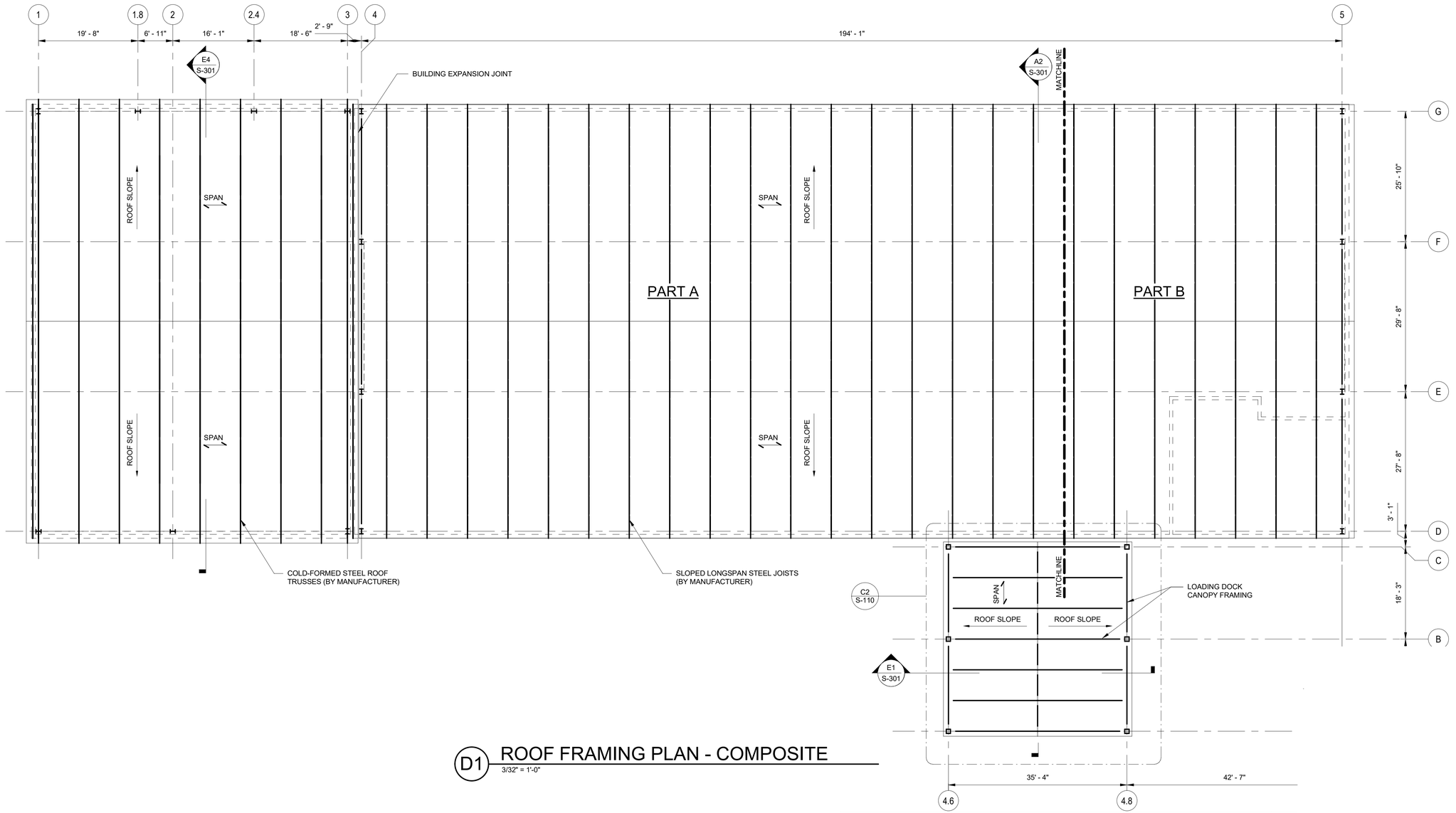
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D1 ROOF FRAMING PLAN - COMPOSITE

3/32" = 1'-0"

GENERAL SHEET NOTES

1. THIS DRAWING IS FOR REFERENCE ONLY. SEE PART PLANS ON S-109 THROUGH S-110 FOR ALL INFORMATION NOT SHOWN.

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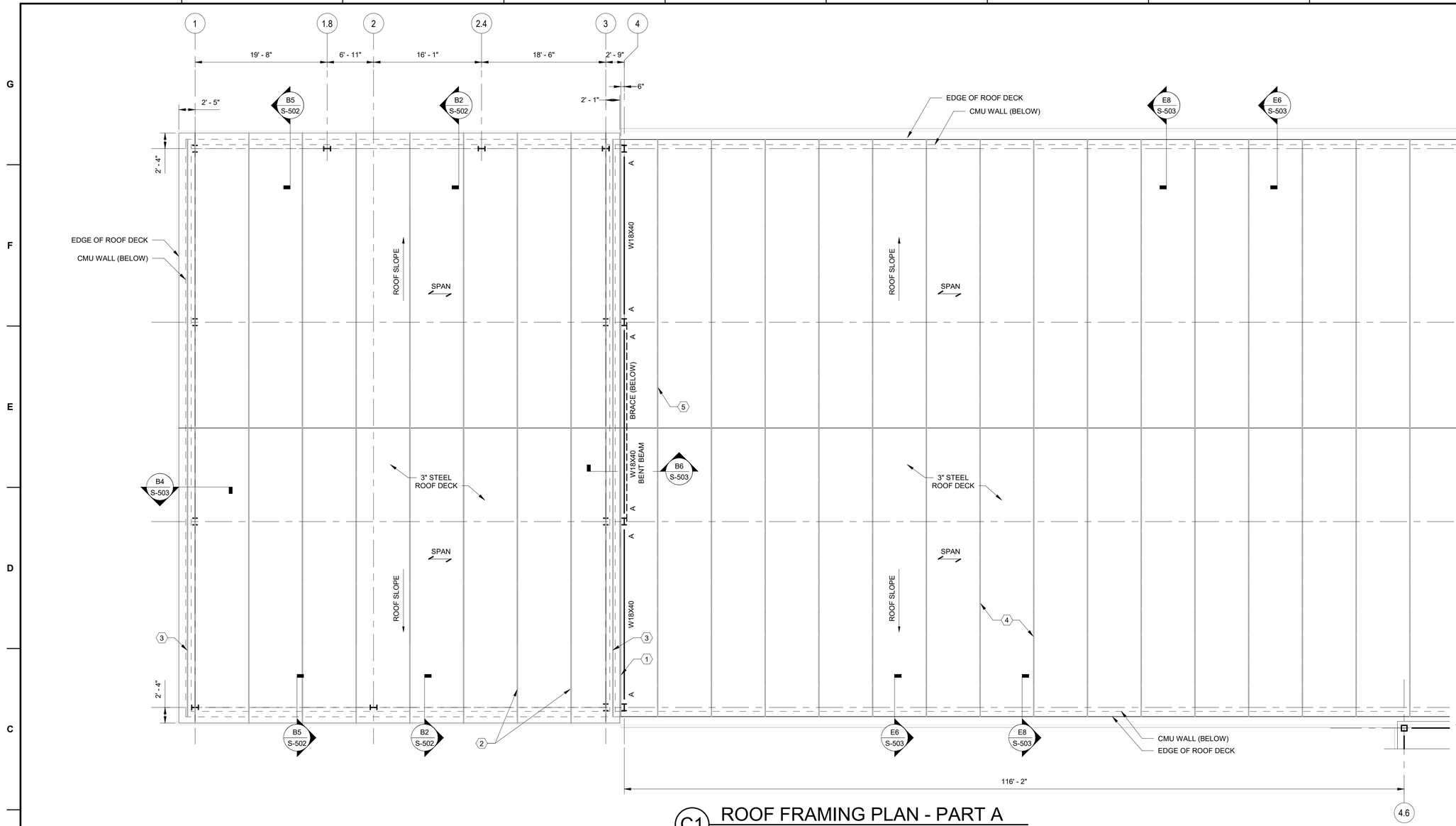
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C1 ROOF FRAMING PLAN - PART A

1/8" = 1'-0"

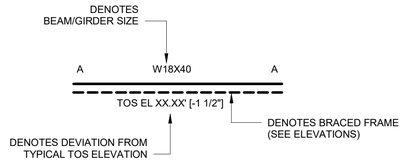
GENERAL SHEET NOTES

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2. REFER TO SHEETS S-003 THROUGH S-011 FOR TYPICAL STRUCTURAL DETAILS.
3. PROVIDE 3", 18 GAUGE TYPE N STEEL ROOF DECK SPANNING BETWEEN COLD-FORMED STEEL ROOF TRUSSES AND LONGSPAN STEEL JOISTS
4. FASTEN STEEL ROOF DECK WITH #14 OR 1/4" SCREWS AT A 24/4 PATTERN AT COLD-FORMED STEEL ROOF TRUSSES AND WITH 5/8" PUDDLE WELDS AT A 24/4 PATTERN TO LONGSPAN STEEL JOISTS AND LOADING DOCK STEEL FRAMING. PROVIDE #14 OR 1/4" SCREWS AT 12" ON CENTER MAXIMUM ALONG SIDELAPS.

SHEET KEYNOTES

1. BUILDING EXPANSION JOINT
2. COLD-FORMED STEEL ROOF TRUSSES (BY MANUFACTURER) BEARING ON STEEL BEAMS AT GRIDS D,E, F AND G @ 8'-0" OC MAX.
3. ENDWALL COLD-FORMED STEEL ROOF TRUSS (BY MANUFACTURER) ABOVE CMU WALL ALONG GRIDS 1 AND 3.
4. SLOPED LONGSPAN STEEL JOISTS (BY MANUFACTURER) BEARING ON CMU WALLS AT 8'-0" OC MAX.
5. PROVIDE 1/2 STANDARD CAMBER FOR LONGSPAN STEEL JOISTS ADJACENT COLUMN LINES 4 AND 5.

SHEET BEAM LEGEND



A INDICATES A CONNECTION DESIGNED AS PART OF THE LATERAL FORCE RESISTING SYSTEM. SEE TYPICAL LATERAL SYSTEM CONNECTION DETAILS IF NOT SPECIFICALLY DETAILED.

SHEET LEGEND

ROOF SLOPE — INDICATES ROOF SLOPE FROM HIGH TO LOW POINT

SPAN — INDICATES SPAN DIRECTION OF STEEL DECK

LRFD DESIGN SHEAR FORCES

MEMBER	SHEAR (KIPS)
W10	10
W16	10
W18	16

VERTICAL SHEAR FORCES FOR CONNECTION DESIGN ARE TABULATED IN THE TABLE ABOVE. TABULATED SHEAR FORCES WERE DETERMINED USING LOAD AND RESISTANCE FACTOR DESIGN (LRFD) LOAD COMBINATIONS.

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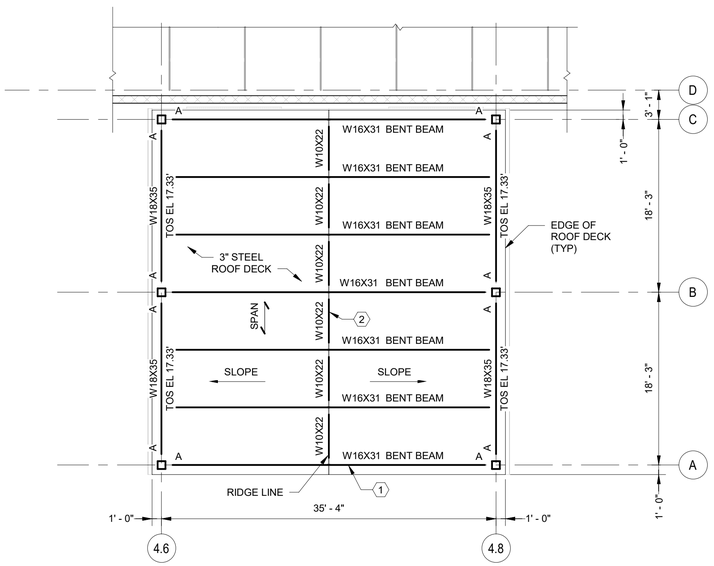
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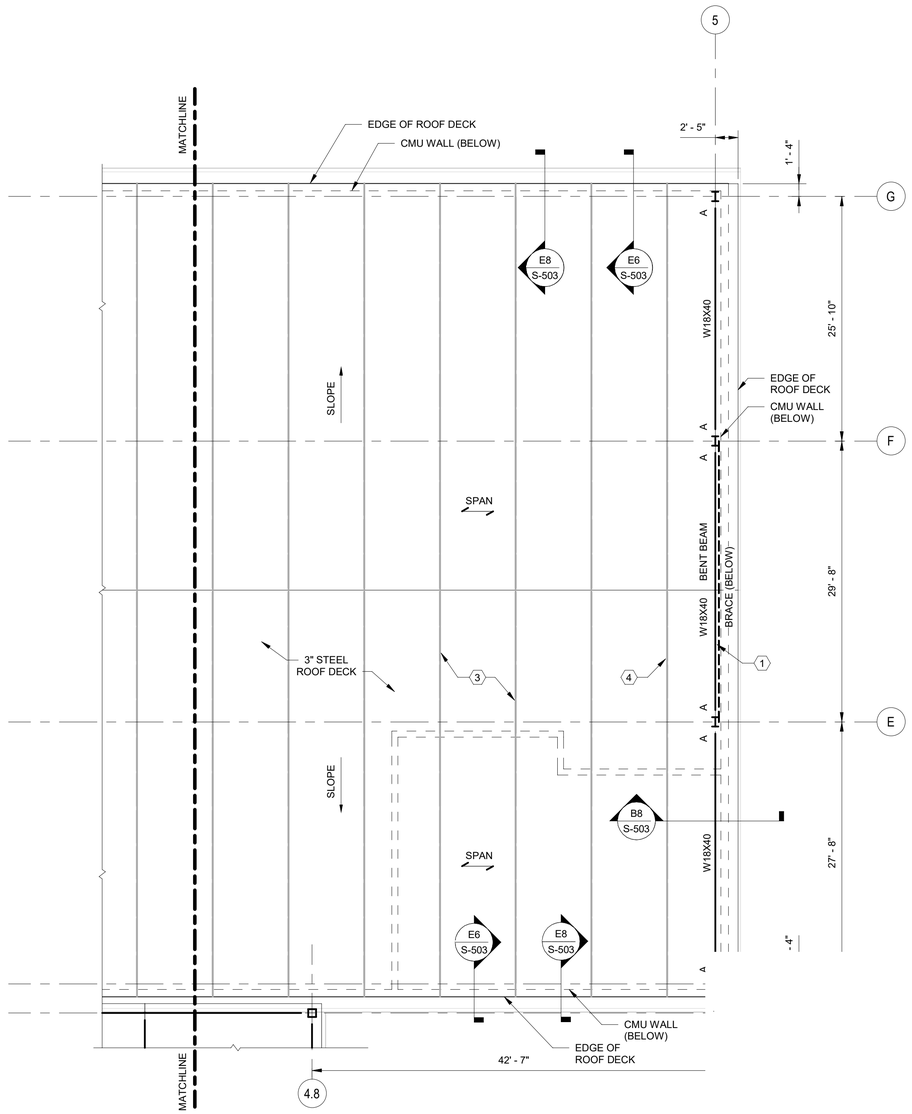
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SEAL
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8/11/23
BRUCE A. ENGLISH



C2 ROOF FRAMING PLAN - LOADING DOCK

1/8" = 1'-0"



C7 ROOF FRAMING PLAN -PART B

1/8" = 1'-0"

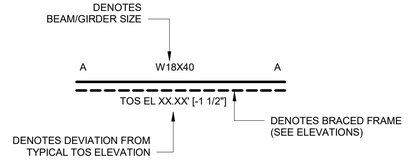
GENERAL SHEET NOTES

1. REFER TO SHEETS S-001 THROUGH S-003 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS, DESIGN LOADS, AND CODES AND STANDARDS.
2. REFER TO SHEETS S-003 THROUGH S-011 FOR TYPICAL STRUCTURAL DETAILS.
3. REFER TO S-109 FOR ADDITIONAL ROOF FRAMING PLAN SPECIFIC NOTES.

SHEET KEYNOTES

1. BENT BEAM FOLLOWS SLOPE OF GABLE ROOF ON EACH SIDE OF RIDGE. AT RIDGE, MITER BEAM ENDS AND PROVIDE A BEAM SPLICE WITH AN ALL-AROUND FULL PENETRATION WELD TO CREATE A CONTINUOUS BENT BEAM SPANNING BETWEEN GRIDS ON EACH SIDE OF RIDGE (TYPICAL FOR BENT BEAMS).
2. PROVIDE BENT PLATE ON TOP OF RIDGE BEAM TO SUPPORT THE ROOF RIDGE (TYPICAL FOR RIDGE BEAMS).
3. SLOPED LONGSPAN STEEL JOISTS (BY MANUFACTURER) BEARING ON CMU WALLS AT 8'-0" OC MAX.
4. PROVIDE 1/2 STANDARD CAMBER FOR LONGSPAN STEEL JOISTS ADJACENT COLUMN LINES 4 AND 5.

SHEET BEAM LEGEND



A INDICATES A CONNECTION DESIGNED AS PART OF THE LATERAL FORCE RESISTING SYSTEM. SEE TYPICAL LATERAL SYSTEM CONNECTION DETAILS IF NOT SPECIFICALLY DETAILED.

SHEET LEGEND

ROOF SLOPE — INDICATES ROOF SLOPE FROM HIGH TO LOW POINT

SPAN — INDICATES SPAN DIRECTION OF STEEL DECK

LRFD DESIGN SHEAR FORCES

MEMBER	SHEAR (KIPS)
W10	10
W16	10
W18	16

VERTICAL SHEAR FORCES FOR CONNECTION DESIGN ARE TABULATED IN THE TABLE ABOVE. TABULATED SHEAR FORCES WERE DETERMINED USING LOAD AND RESISTANCE FACTOR DESIGN (LRFD) LOAD COMBINATIONS.

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MARK	DESCRIPTION	DATE

DESIGNED BY: B. KRELL
DRAWN BY: B. KRELL
CHECKED BY: B. ENGLISH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
SECOND TITLE
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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FOOTING SCHEDULE

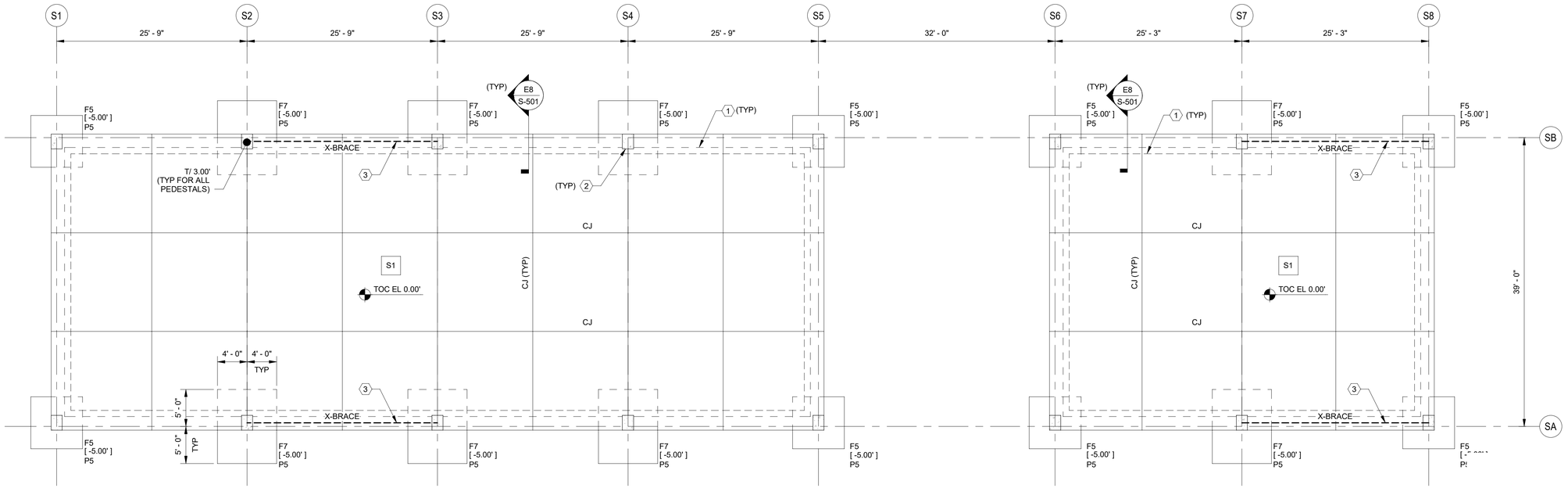
TYPE MARK	DIMENSIONS			REINFORCING		SPECIFIC NOTES
	LENGTH (L)	WIDTH (W)	THICKNESS (T)	BOTTOM	TOP	
F1	6' - 0"	6' - 0"	1' - 6"	7-#5 EW	7-#5 EW	
F2	7' - 0"	7' - 0"	1' - 6"	9-#5 EW	9-#5 EW	
F3	9' - 0"	9' - 0"	1' - 6"	12-#6 EW	12-#6 EW	
F4	11' - 0"	11' - 0"	1' - 6"	15-#6 EW	15-#6 EW	
F5	7' - 0"	7' - 0"	2' - 0"	9-#5 EW	9-#5 EW	
F6	5' - 0"	8' - 3"	1' - 3"	11-#5 SHORT, 7-#5 LONG	NONE	
F7	10' - 0"	8' - 0"	2' - 0"	12-#6 EW	12-#6 EW	
WF1	CONT	4' - 9"	1' - 3"	#5@9 TRANSVERSE, 6-#5 LONGITUDINAL	NONE	
WF2	CONT	4' - 0"	1' - 0"	#4@9 TRANSVERSE, 5-#4 LONGITUDINAL	NONE	

PEDESTAL SCHEDULE

TYPE MARK	DIMENSIONS		REINFORCING		SPECIFIC NOTES
	DEPTH (D)	WIDTH (W)	VERTICAL REINFORCING	TIES	
P1	1' - 8"	1' - 8"	8-#7	#3@12	
P2	1' - 6"	2' - 10"	10-#8	#3@12	
P3	2' - 10"	2' - 10"	12-#10	#3@12	
P4	2' - 0"	2' - 0"	8-#8	#3@12	
P5	1' - 6"	2' - 0"	8-#7	#3@12	
P6	1' - 6"	4' - 3"	12-#8	#3@12	
P7	2' - 10"	4' - 3"	14-#10	#3@12	
P8	2' - 10"	2' - 0"	10-#8	#3@12	

SLAB SCHEDULE

TYPE MARK	THICKNESS	REINFORCING	SPECIFIC NOTES
S1	8"	#4@12 EW, TOP	PROVIDE DOWELED JOINTS PER TYPICAL DETAIL
S2	6"	6"x6"-W2.9xW2.9	
S3	10"	#5@8 EW, BOT #4@12 EW, TOP	ELEVATED SLAB AT ARMS VAULT



C2 FOUNDATION PLAN - COVERED STORAGE

1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS S-001 THROUGH S-003 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS, DESIGN LOADS, AND CODES AND STANDARDS.
2. REFER TO SHEETS S-003 THROUGH S-011 FOR TYPICAL STRUCTURAL DETAILS.
3. FOUNDATION SYSTEM IS DESIGNED TO SUPPORT A PRE-ENGINEERED METAL BUILDING (PEMB) SUPERSTRUCTURE. COORDINATION OF THE FOUNDATION DESIGN WITH THE FINAL SUPERSTRUCTURE DESIGN BY THE PEMB MANUFACTURER MAY REQUIRE REVISIONS TO SUPPORT FINAL DESIGN LOADS.
4. PEMB SUPERSTRUCTURE IS A DELEGATED DESIGN TO THE CONTRACTOR. SUBMIT A FULL FRAMING DESIGN MEETING ALL GEOMETRY AND LOAD REQUIREMENTS INDICATED IN THE CONSTRUCTION DOCUMENTS. SUBMIT SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA FOR REVIEW AND APPROVAL.
5. DESIGN PEMB STRUCTURE FOR THE LOAD CRITERIA INDICATED IN THE CONSTRUCTION DOCUMENTS.

SHEET KEYNOTES

1. PROVIDE TURN DOWN SLAB EDGES AROUND ENTIRE PERIMETER OF SLAB-ON-GROUND. TURN DOWN HAS 2'-0" WIDTH AND 1'-6" DEPTH.
2. PROVIDE ISOLATION JOINT AROUND ALL PEDESTALS.
3. LOCATION OF CROSS-BRACING FOR PEMB SUPERSTRUCTURE (DESIGN BY PEMB MANUFACTURER'S ENGINEER).

SHEET LEGEND

[-X.XX']	BOTTOM OF WALL OR SPREAD FOOTING
FX	FOOTING TYPE
PX	PEDESTAL TYPE
WX	WALL TYPE
T/ X.XX'	TOP OF PEDESTAL OR WALL ELEVATION
SX	SLAB TYPE
	INDICATES TOP OF SLAB ELEVATION
SLOPE	INDICATES FLOOR SLOPE FROM HIGH TO LOW POINT

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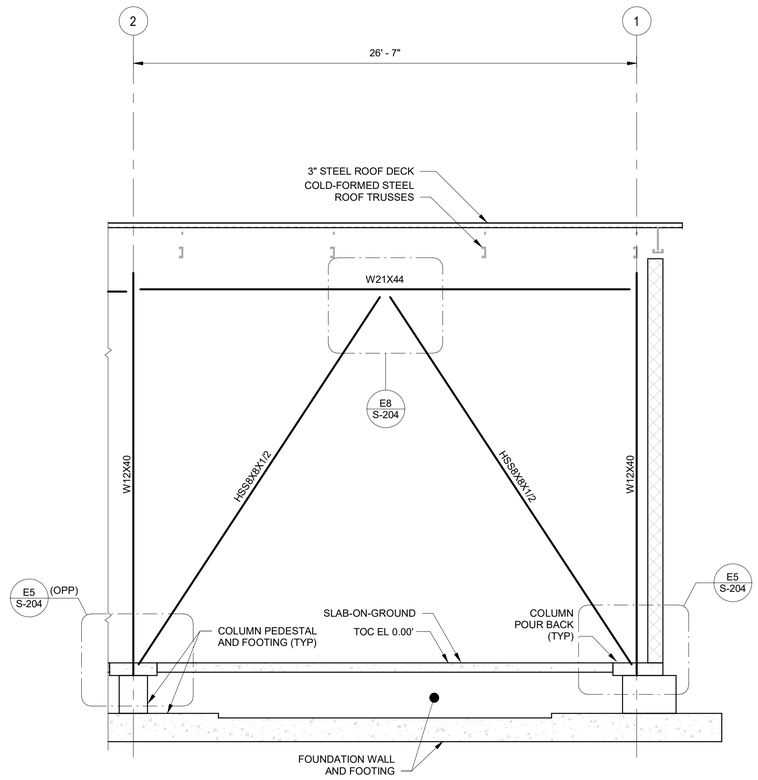
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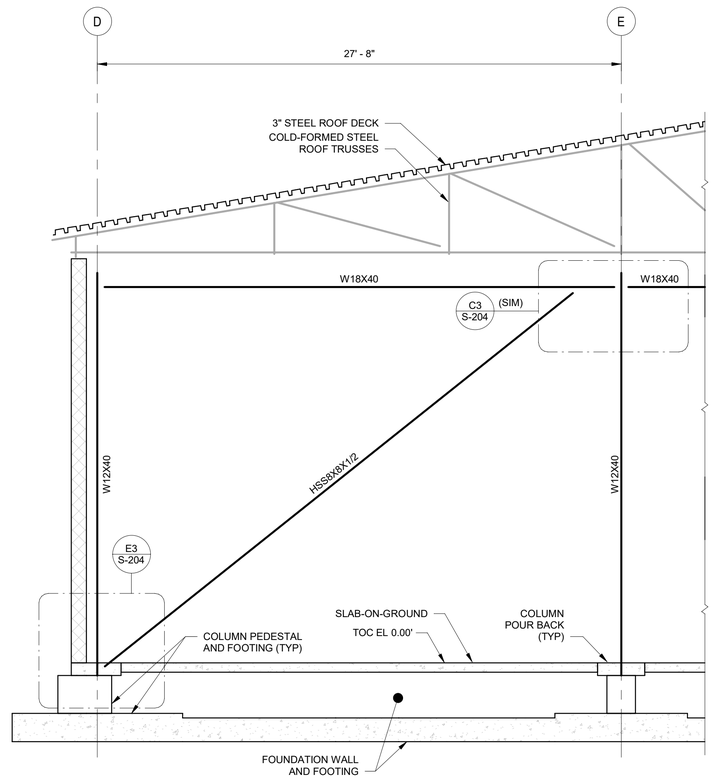
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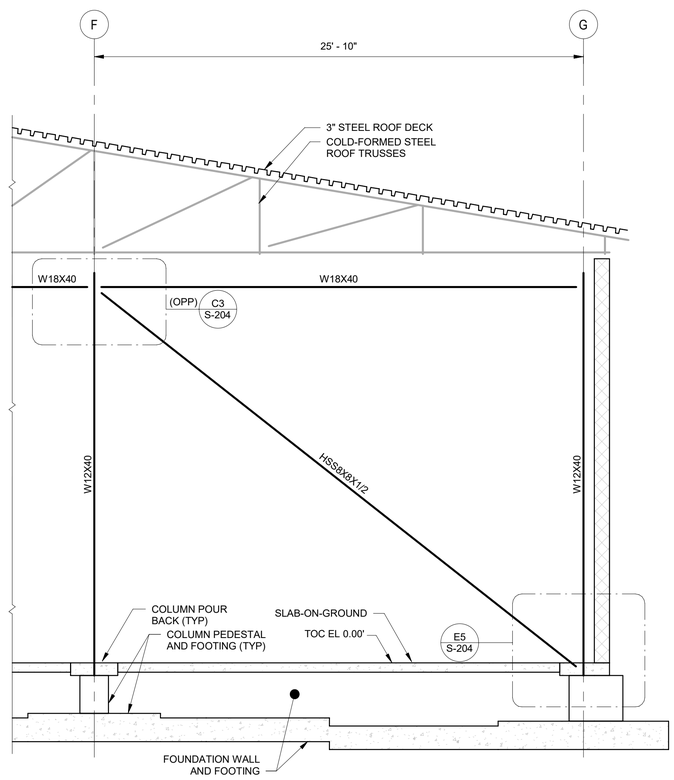
BRACED FRAME ELEVATION
ALONG GRID LINE D

D1 1/4" = 1'-0"



BRACED FRAME ELEVATION
ALONG GRID LINE 1

D4 1/4" = 1'-0"



BRACED FRAME ELEVATION
ALONG GRID LINE 1

D7 1/4" = 1'-0"

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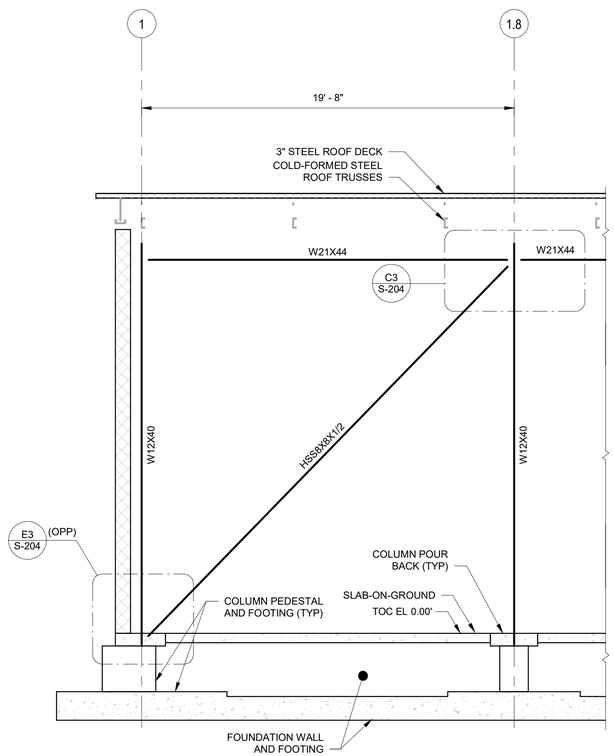
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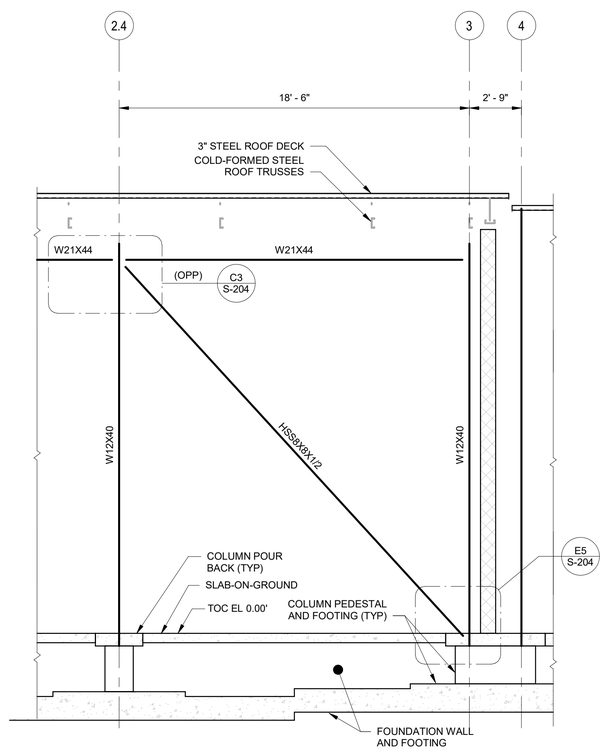
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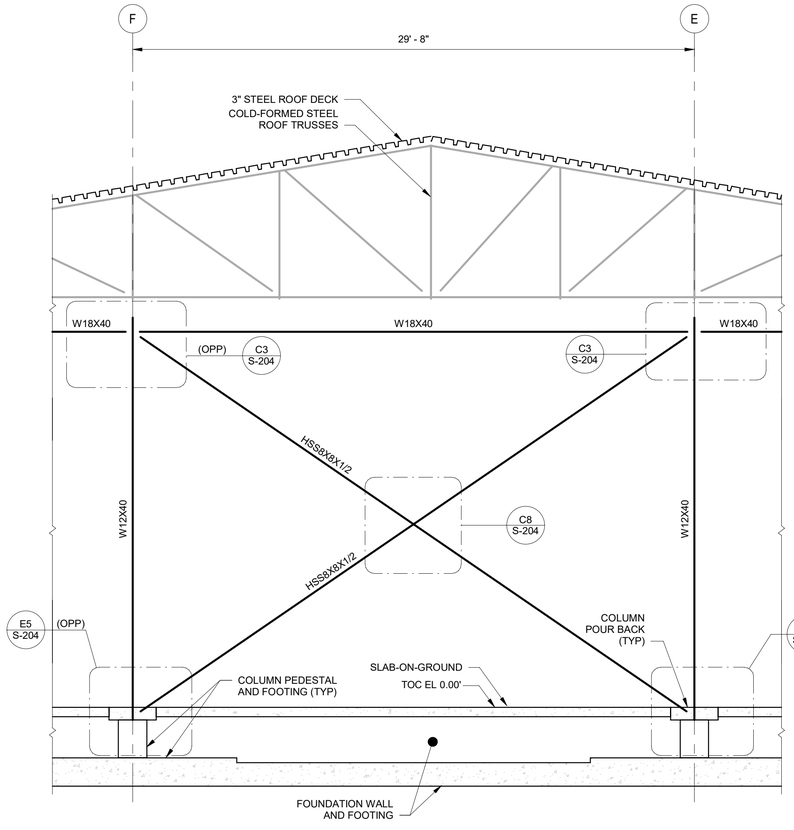
D1 BRACED FRAME ELEVATION ALONG GRID LINE G

1/4" = 1'-0"



D4 BRACED FRAME ELEVATION ALONG GRID LINE G

1/4" = 1'-0"



D7 BRACED FRAME ELEVATION ALONG GRID LINE 3

1/4" = 1'-0"

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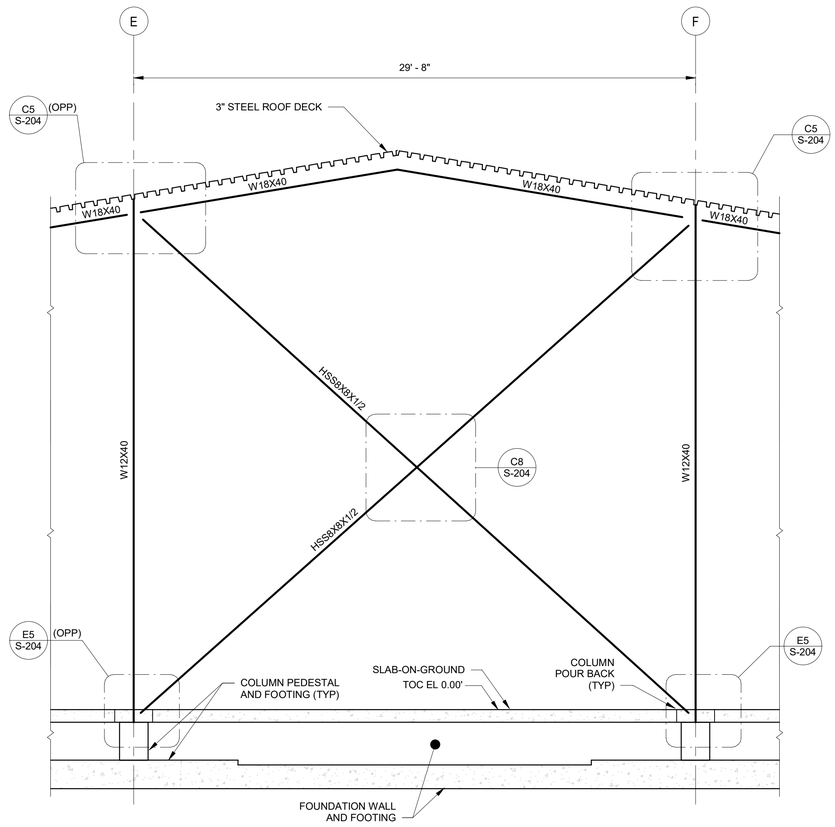
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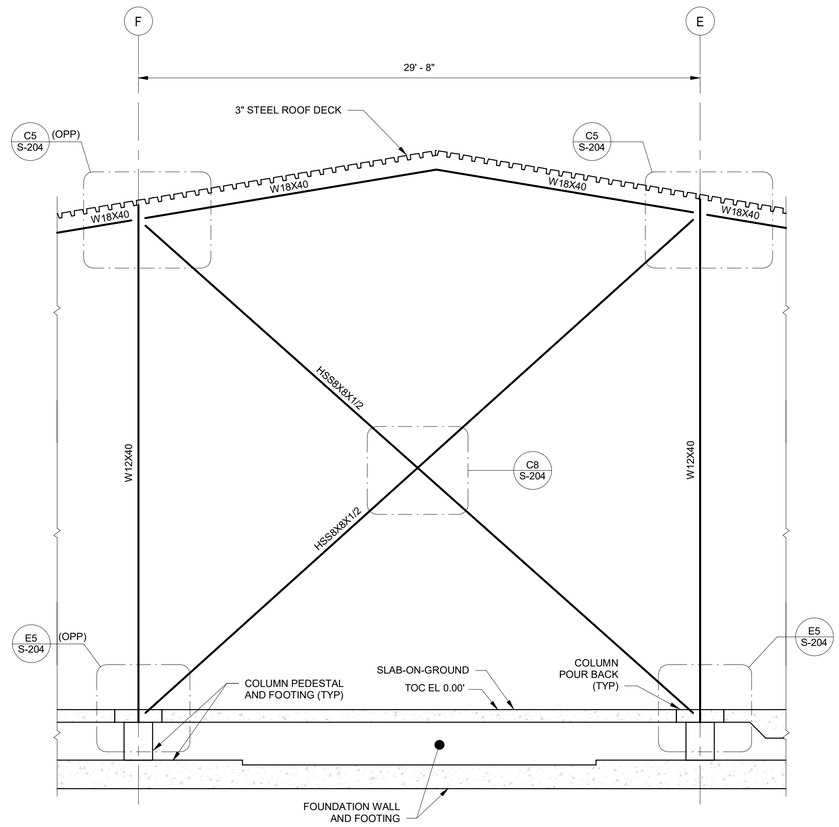
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BRACED FRAME ELEVATION
ALONG GRID LINE 4

D2 1/4" = 1'-0"



BRACED FRAME ELEVATION
ALONG GRID LINE 5

D7 1/4" = 1'-0"

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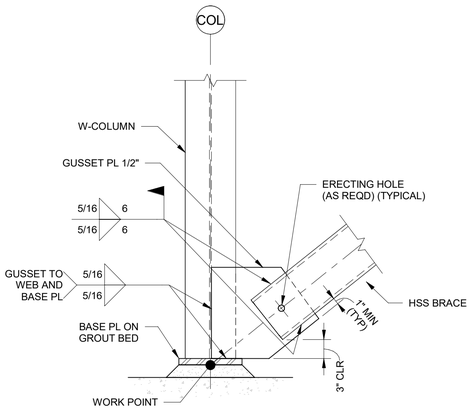
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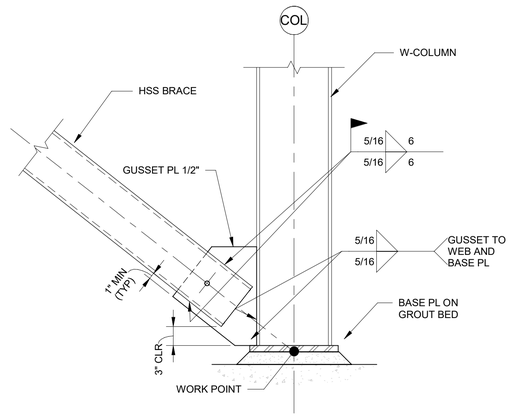
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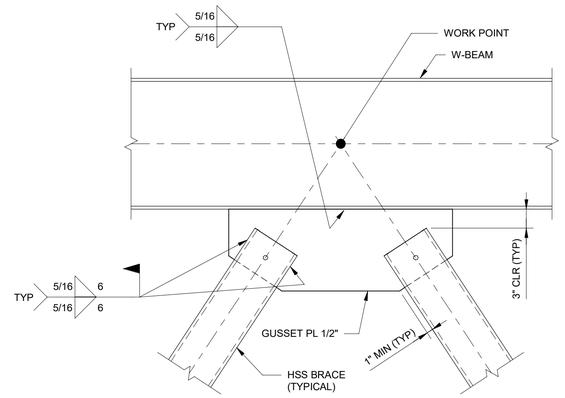
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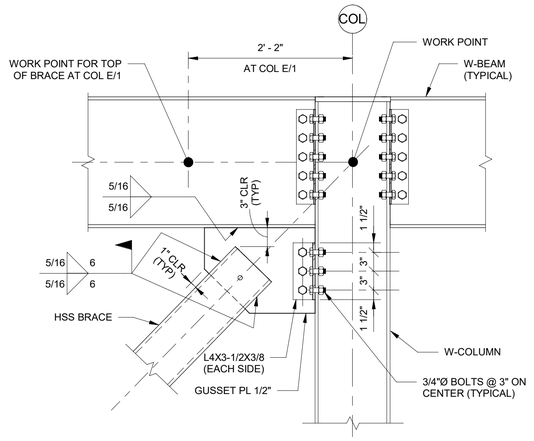
E3 DETAIL
1" = 1'-0"



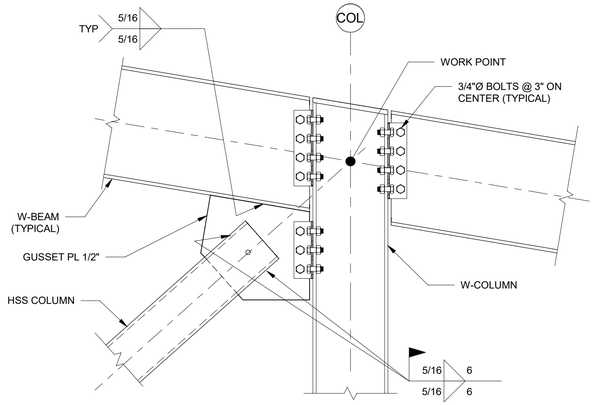
E5 DETAIL
1" = 1'-0"



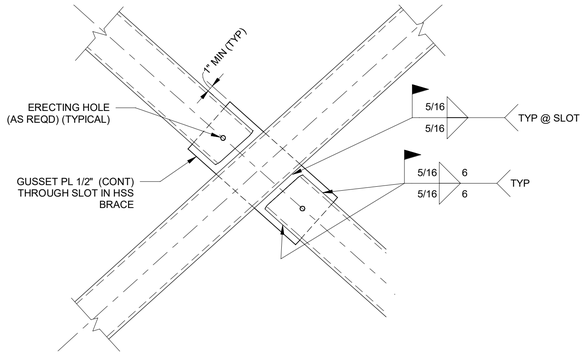
E8 DETAIL
1" = 1'-0"



C3
S-204
DETAIL
1" = 1'-0"



C5 DETAIL
1" = 1'-0"



C8 DETAIL
1" = 1'-0"

GENERAL SHEET NOTES

1. PROVIDE HSS BRACE MEMBERS WITH SLOTTED ENDS AT GUSSET PLATES.
2. PROVIDE 1/2" GAP BETWEEN FACE OF COLUMN FLANGE OR WEB AND THE END OF BEAMS AND GUSSET PLATES, EXCEPT AT COLUMN BASE BRACE CONNECTIONS.
3. PROVIDE NUMBER OF BOLTS, BOLT SPACING AND EDGE DISTANCES COMPLYING WITH TYPICAL LATERAL SYSTEM CONNECTION DETAILS, UNLESS OTHERWISE NOTED.
4. BOLTED CONNECTIONS ARE SLIP-CRITICAL. PROVIDE CLASS B FAYING SURFACES AT ALL BOLTED CONNECTIONS TO BEAM WEBS OR GUSSET PLATES.
5. PROVIDE HORIZONTAL SHORT-SLOTTED HOLES IN BEAM WEBS. PROVIDE OVERSIZED HOLES IN GUSSET PLATES.
6. REFER TO TYPICAL LATERAL SYSTEM CONNECTION DETAILS FOR INFORMATION NOT SHOWN IN THESE DETAILS.

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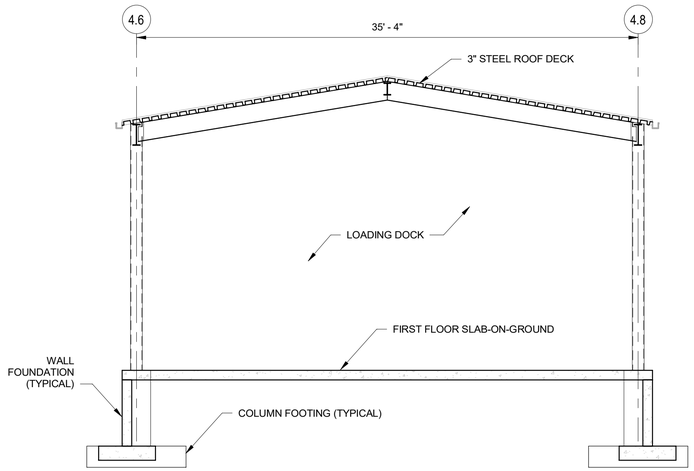
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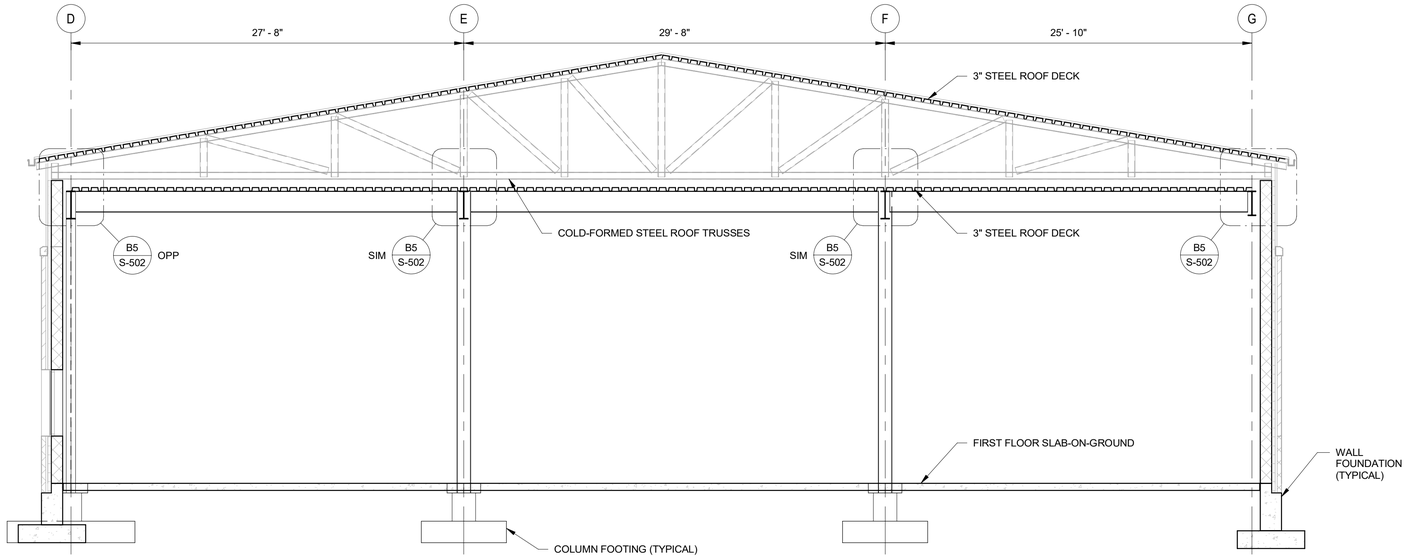
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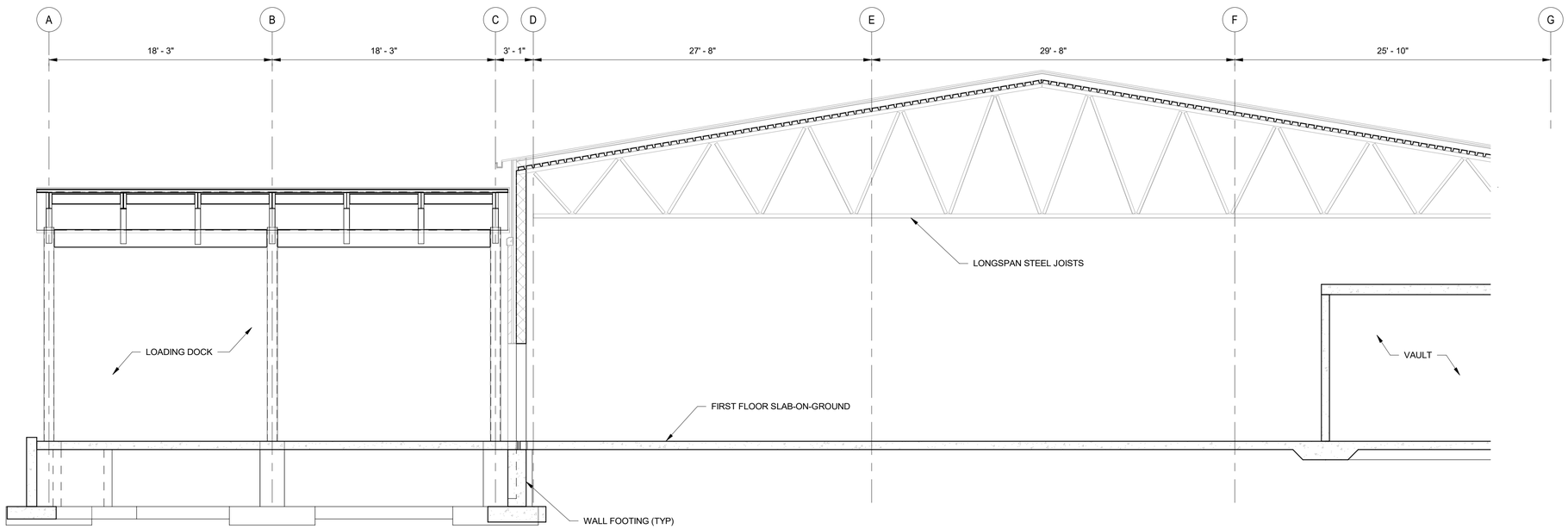
E1 CROSS SECTION - LOADING DOCK

3/16" = 1'-0"



E4 CROSS SECTION - ADMIN

3/16" = 1'-0"



A2 CROSS SECTION - WAREHOUSE

3/16" = 1'-0"

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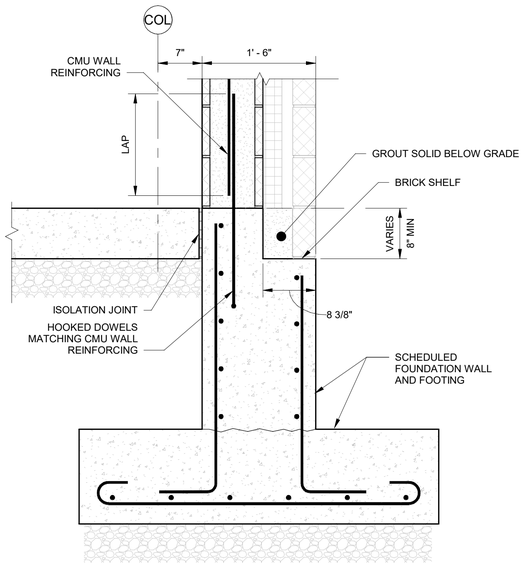
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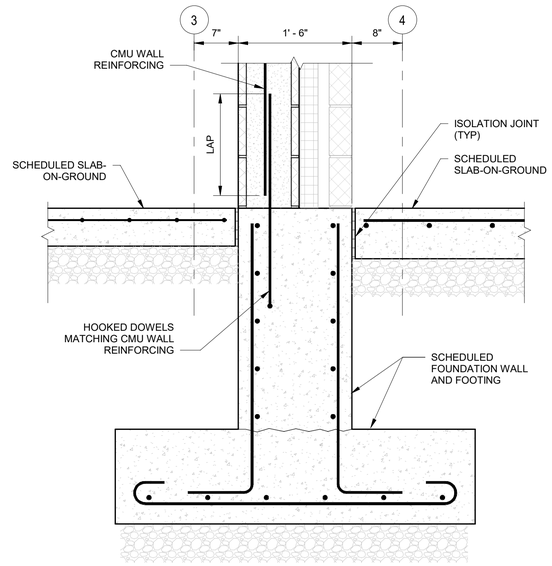
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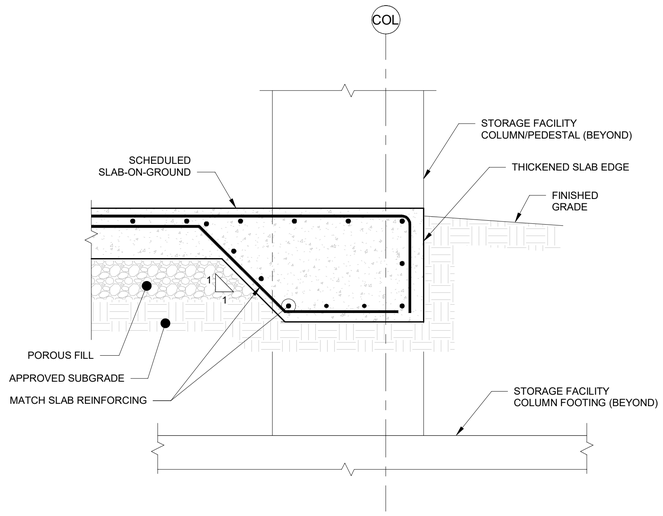




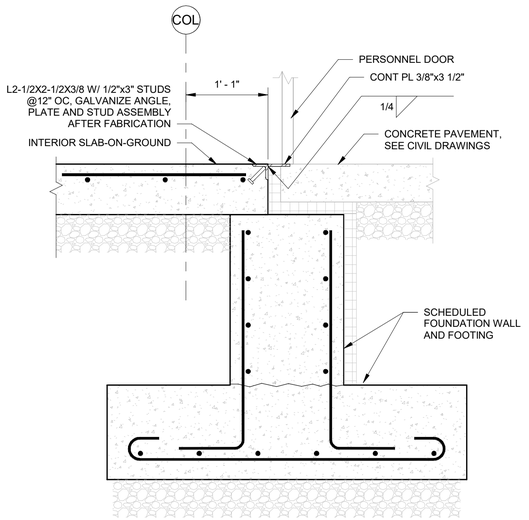
E1 SECTION
1" = 1'-0"



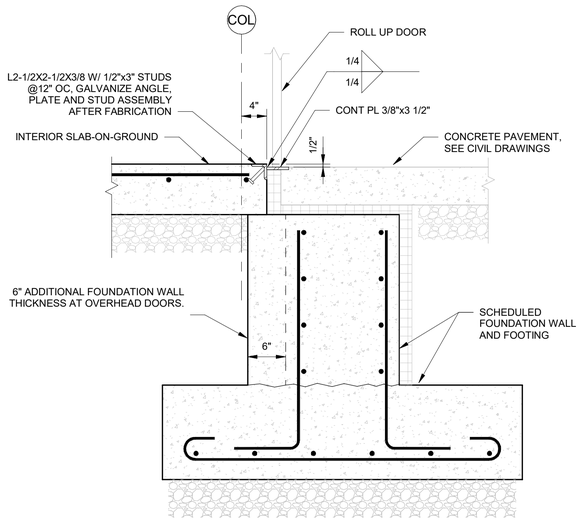
E4 SECTION
1" = 1'-0"



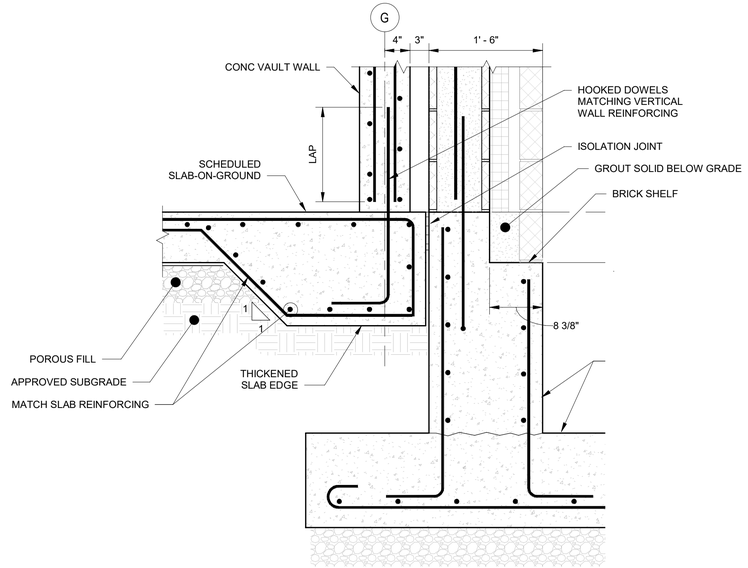
E8 SECTION
1" = 1'-0"



B1 SECTION AT PERSONNEL DOORS
1" = 1'-0"



B4 SECTION AT OVERHEAD DOORS
1" = 1'-0"



B8 SECTION
1" = 1'-0"

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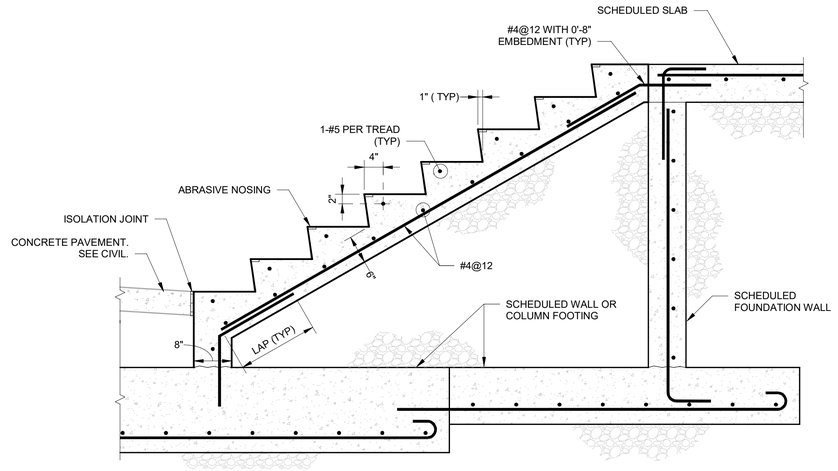
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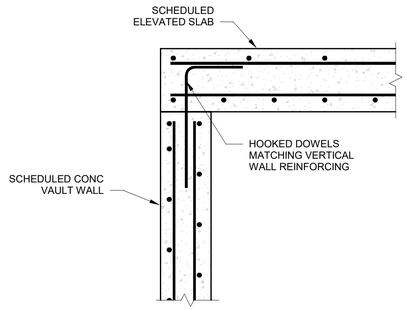
MARK	DESCRIPTION	DATE

DESIGNED BY: B. KRELL
DRAWN BY: B. KRELL
CHECKED BY: B. ENGLISH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SECOND TITLE

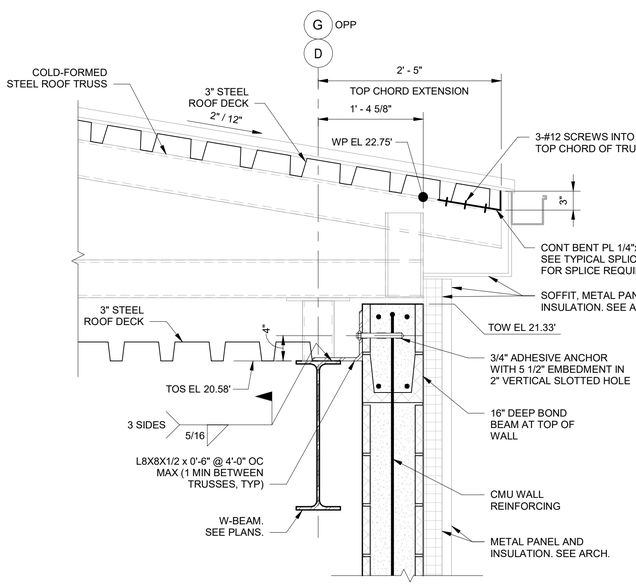
NORTH CAROLINA
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031221
8/11/23
BRUCE A. ENGLISH



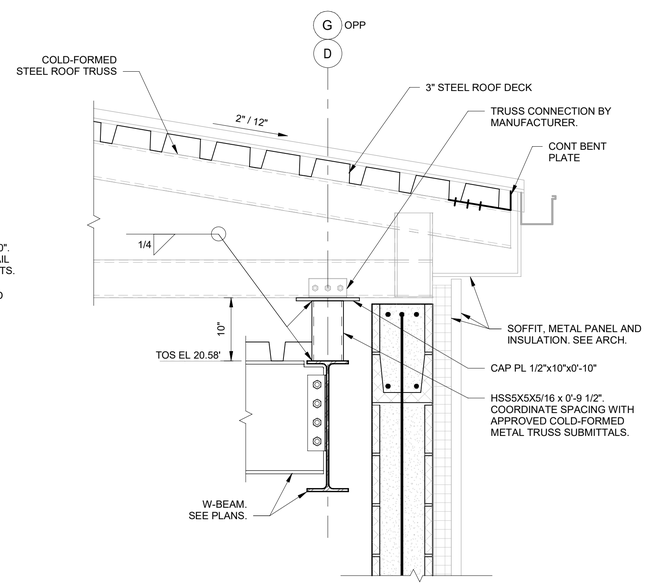
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3/4" = 1'-0"



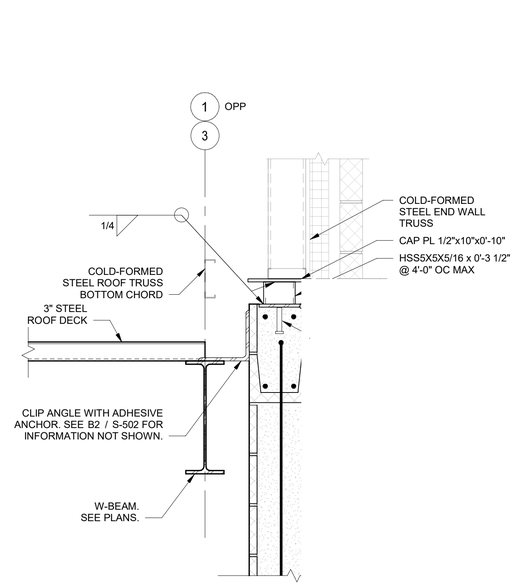
E8 SECTION
1" = 1'-0"



B2 SECTION
1" = 1'-0"



B5 SECTION
1" = 1'-0"



B8 SECTIO
1" = 1'-0"

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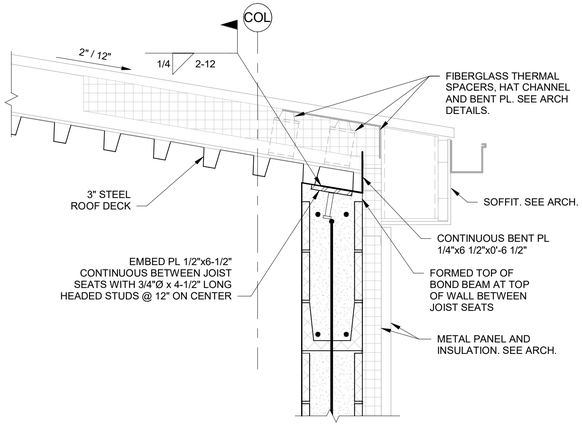
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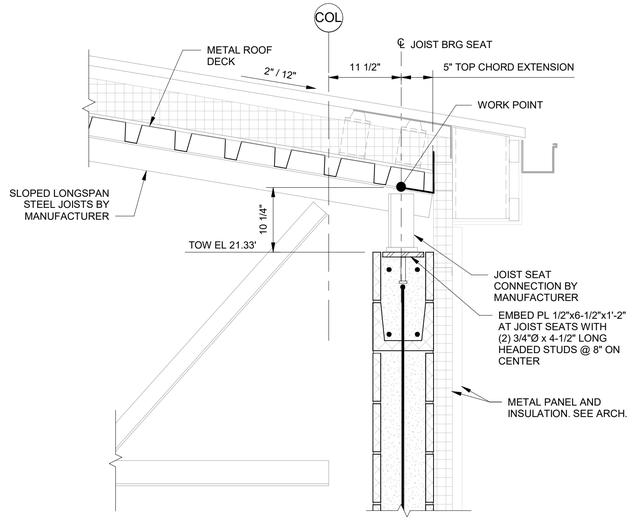
US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
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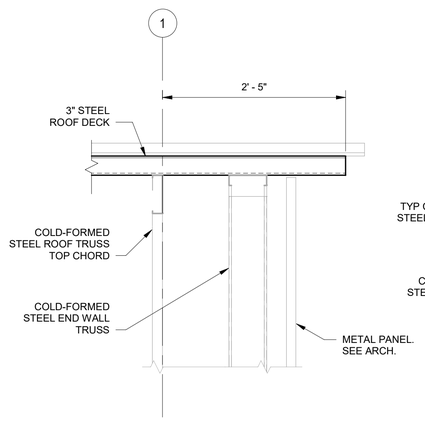
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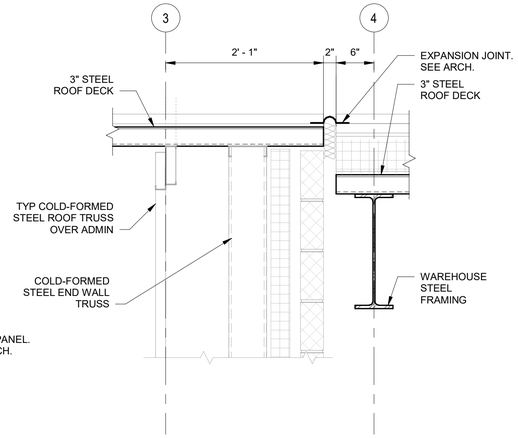
E6 SECTION
1" = 1'-0"



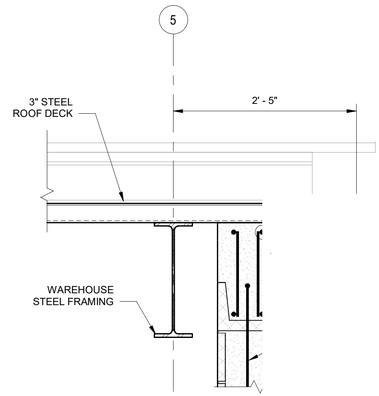
E8 SECTION
1" = 1'-0"



B4 SECTION
1" = 1'-0"



B6 SECTION
1" = 1'-0"



B8 SECTION
1" = 1'-0"

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GRAPHICAL COLUMN SCHEDULE

TOS ADMIN																								TOS ADMIN
20' - 7"	HSS10X10X3/8	HSS10X10X3/8	HSS10X10X3/8	HSS10X10X3/8	HSS10X10X3/8	HSS10X10X3/8	W12X40	HSS8X8X3/8	HSS8X8X3/8	W12X40	W12X40	W12X40	W12X40	W12X40	HSS8X8X3/8	HSS8X8X3/8	W12X40	W12X40	W12X40	W12X40	W12X40	W12X40	W12X40	20' - 7"
TOC FIRST FLOOR																								TOC FIRST FLOOR
0' - 0"	P8	P8	P4	P4	P4	P4	P3	P1	P1	P2	P7	P7	P3	P2	P1	P1	P1	P6	P6	P2	P2	P1	P6	P6	P2	P3	0' - 0"
COLUMN LOCATION	A-4.6	A-4.8	B-4.6	B-4.8	C-4.6	C-4.8	D-1	D(8'-3")-1(-3'-3")	D(8'-3")-1(-9'-3")	D-2	D-3	D-4	D-5	E-1	E(-7'-5")-1(-3'-3")	E(-7'-5")-1(-9'-3")	E-2	E-3	E-4	E-5	F-1	F-2	F-3	F-4	F-5	G-1	
BASE PLATE TYPE	TYPE 4	TYPE 4	TYPE 4	TYPE 4	TYPE 4	TYPE 4	TYPE 3	TYPE 4	TYPE 4	TYPE 2	TYPE 1	TYPE 1	TYPE 1	TYPE 1	TYPE 4	TYPE 4	TYPE 1	TYPE 2	TYPE 2	TYPE 2	TYPE 1	TYPE 1	TYPE 2	TYPE 2	TYPE 2	TYPE 3	

GRAPHICAL COLUMN SCHEDULE

TOS ADMIN						TOS ADMIN
20' - 7"	W12X40	W12X40	W12X40	W12X40	W12X40	20' - 7"
TOC FIRST FLOOR						TOC FIRST FLOOR
0' - 0"	P2	P2	P7	P7	P3	0' - 0"
COLUMN LOCATION	G-1.8	G-2.4	G-3	G-4	G-5	
BASE PLATE TYPE	TYPE 1	TYPE 1	TYPE 2	TYPE 1	TYPE 1	

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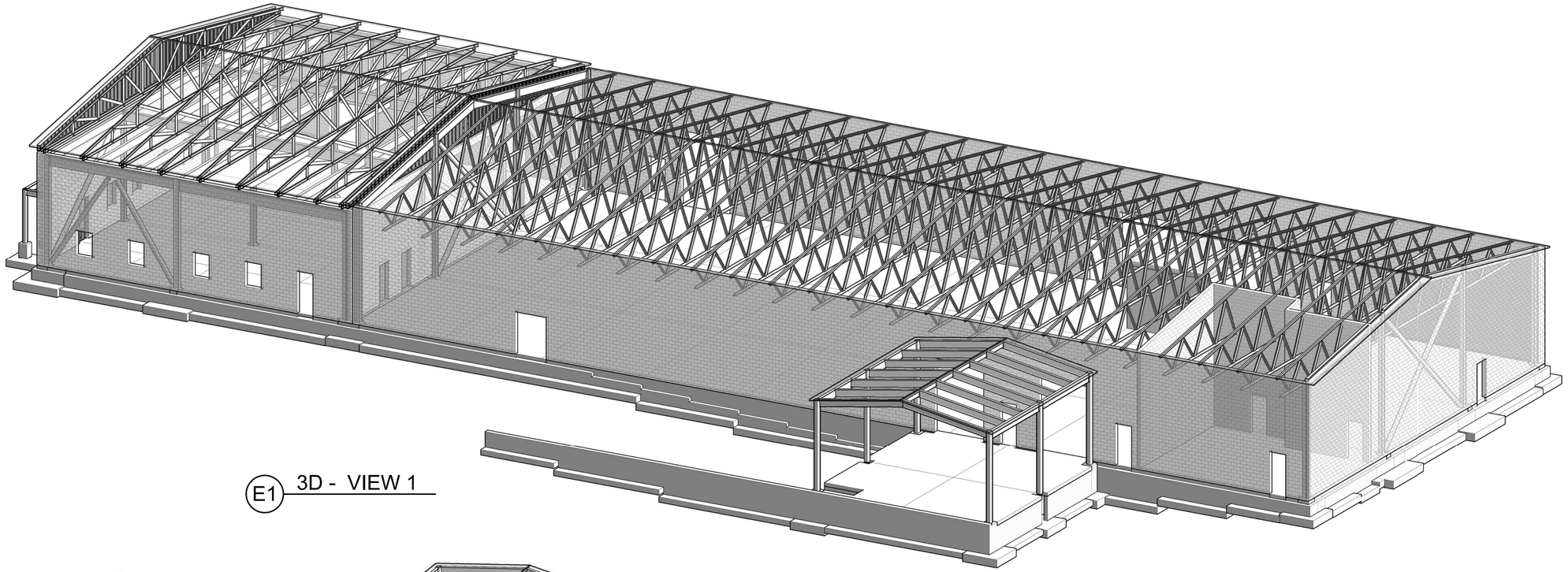
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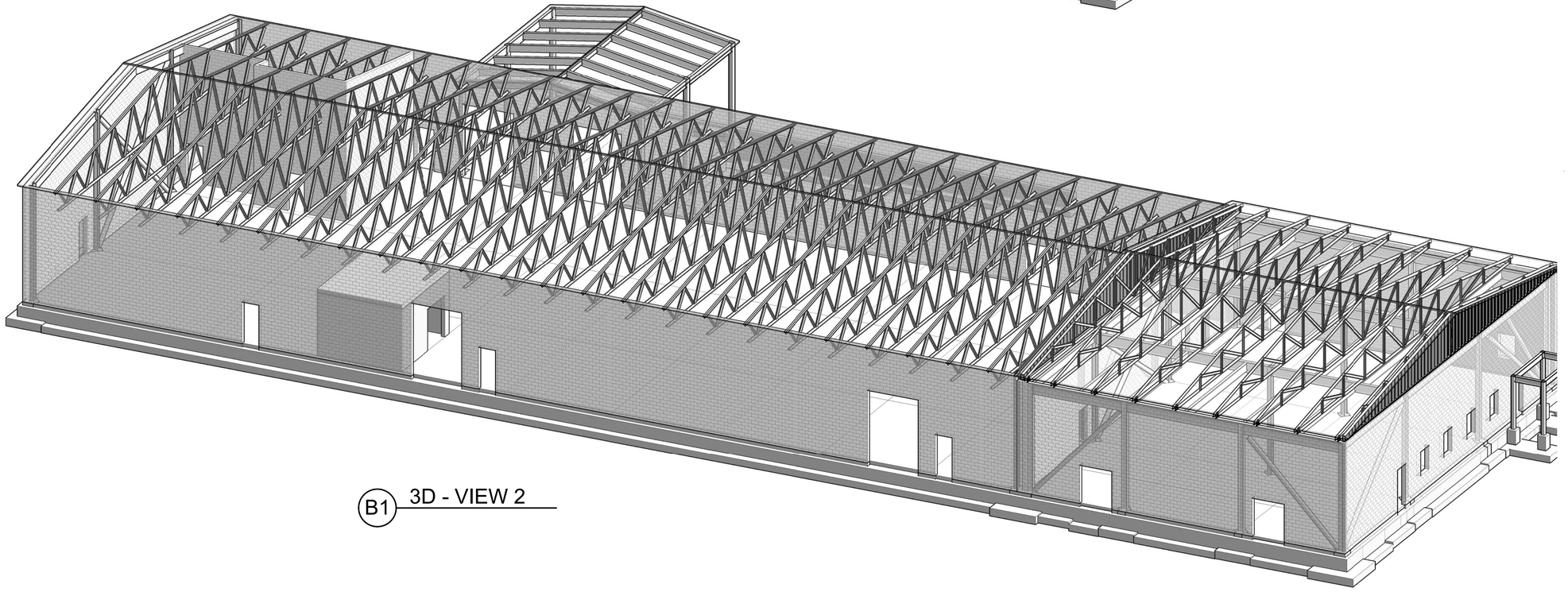
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E1 3D - VIEW 1



B1 3D - VIEW 2

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DRAWING ABBREVIATIONS

A ----------
A LABEL CLASS A DOOR
A/C AIR CONDITION
A/C UNIT AIR CONDITIONING UNIT
A/E ARCHITECT/ENGINEER
AB ANCHOR BOLT
ACC ACCESSIBLE
ACS AUTOMATIC CONTROL SYSTEM
ACS DR ACCESS DOOR
ACS PNL ACCESS PANEL
ACT ACOUSTICAL CEILING TILE
ADA AMERICANS WITH DISABILITIES ACT
ADMIN ADMINISTRATION
AFC ABOVE FINISHED COUNTER
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
AFS ABOVE FINISHED SLAB
AGGR AGGREGATE
AHU AIR HANDLING UNIT
AIB AIR INFILTRATION BARRIER
ALT ALTERNATE
ALUM ALUMINUM
ANOD ANODIZE
APC ACOUSTICAL PANEL CEILING
APPROX APPROXIMATE
AR AS REQUIRED
ARCH ARCHITECT
ASC ABOVE SUSPENDED CEILING
ASSY ASSEMBLY
ATC ACOUSTICAL TILE CEILING
AVG AVERAGE
AW ARCHITECTURAL WOODWORK
AWT ACOUSTICAL WALL TREATMENT

B ----------
B LABEL CLASS B DOOR
BALC BALCONY
BB BASEBOARD
BC BOOKCASE
BD BOARD
BDRY BOUNDARY
BFF BELOW FINISH FLOOR
BHMA BUILDER'S HARDWARE MANUFACTURER'S ASSOCIATION
BLDG BUILDING
BLKG BLOCKING
BLT IN BUILT-IN
BN BULLNOSE
BOS BOTTOM OF STEEL
BOT BOTTOM
BP BUILDING PAPER
BRKT BRACKET
BSMT BASEMENT
BTWN BETWEEN
BUR BUILT-UP ROOFING

C ----------
C CONC CAST CONCRETE
C LABEL CLASS C DOOR
CAB CABINET
CATW CATWALK
CAV CAVITY
CBB CEMENTITIOUS (BACKER) BOARD
CD CONSTRUCTION DOCUMENTS
CDW CHILLED DRINKING WATER
CEM PLAS CEMENT PLASTER
CER CERAMIC
CF CONTRACTOR FURNISHED
CF/CI CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CFE CONTRACTOR FURNISHED EQUIPMENT
CFLG COUNTERFLASHING
CFM CUBIC FEET PER MINUTE
CFMF COLD-FORMED METAL FRAMING
CFS CUBIC FEET PER SECOND
CG CORNER GUARD
CI CAST IRON
CIP CAST-IN-PLACE
CJ CONTROL JOINT
CL CENTER LINE
CLG CEILING
CLG DIFF CEILING DIFFUSER
CLG HT CEILING HEIGHT
CLL COLUMN LINE
CLO CLOSET
CLR COLOR
CLRM CLASSROOM
CMU CONCRETE MASONRY UNIT
CNDS CONDENSATE
CDR CARD READER
CO CLEANOUT
COL COLUMN
COMM COMMUNICATION
CONC CONCRETE
CONC FLR CONCRETE FLOOR
CONF CONFERENCE
CONT CONTINUE
COORD COORDINATE
CORR CORRIDOR
CP CONCRETE PIPE
CPT CARPET
CR CONTROL ROOM
CS CAST STONE
CSWK CASEWORK
CT CERAMIC TILE
CTB CERAMIC TILE BASE
CTF CERAMIC TILE FLOOR
CTR CENTER
CU FT CUBIC FEET
CW CASEMENT WINDOW

D ----------
D DEPTH
D LABEL CLASS D DOOR
DBL DOUBLE
DEMO DEMOLITION
DEPT DEPARTMENT
DET DETAIL
DIA DIAMETER
DIR DIRECTION
DIST DISTANCE
DOC DOCUMENT
DR DOOR
DS DOWNSPOUT

E ----------
E LABEL CLASS E DOOR
EA EACH
EF EACH FACE
EIFS EXTERIOR INSULATION AND FINISH SYSTEM
EJ EXPANSION JOINT
ES EACH SIDE
EL ELEVATION
ELEV ELEVATOR
ENTR ENTRANCE
EPS EXPANDED POLYSTYRENE BOARD (INSULATION)
EQ EQUAL
EWC ELECTRIC WATER COOLER
EXP EXPOSED
EXT EXTERIOR
EXT EXTINGUISHER
EXT GR EXTERIOR GRADE

F ----------
FA FIRE ALARM
FAAP FIRE ALARM ANNUNCIATOR PANEL
FAS BD FASCIA BOARD
FC BRK FACE BRICK
FCO FLOOR CLEANOUT
FD FLOOR DRAIN
FDTN FOUNDATION
FE FIRE EXTINGUISHER
FEC FIRE EXTINGUISHER CABINET
FED FEDERAL
FF FINISH FACE
FF EL FINISH FLOOR ELEVATION
FF INSUL FOIL BACKED INSULATION
FGL FIBERGLASS
FH FIRE HOSE
FHP FULL HEIGHT PARTITION
FIN FINISH
FIN BS FINISH BOTH SIDES
FIN FLR FINISH FLOOR
FIN GR FINISH GRADE
FIXT FIXTURE
FLDG FOLDING
FLEX FLEXIBLE
FLG FLOORING
FLMT FLUSH MOUNT
FLR FLOOR
FM FACTORY MUTUAL
FOC FACE OF CONCRETE
FOM FACE OF MASONRY
FR FIRE RESISTANT
FRG FIBER REINFORCED GYPSUM
FRMG FRAMING
FRP FIBERGLASS REINFORCED PLASTIC
FRT FIRE RETARDANT TREATED
FRTW FIRE RETARDANT TREATED WOOD
FS FEDERAL SPECIFICATION
FSTNR FASTENER
FT FEET
FTG FOOTING
FWC FABRIC WALLCOVERING

G ----------
G NATURAL GAS
GALV GALVANIZED
GB GRAB BAR
GFCI GOVERNMENT FURNISHED CONTRACTOR INSTALLED
GFGI GOVERNMENT INSTALLED GOVERNMENT INSTALLED
GFRG GLASS-FIBER-REINFORCED GYPSUM
GLZ GLAZING
GR FL GROUND FLOOR
GUT GUTTER
GYP BD GYPSUM BOARD
GYP PLAS GYPSUM PLASTER

H ----------
HB HOSE BIBB
HDPE HIGH DENSITY POLYETHYLENE
HDW HARDWARE
HDWD HARDWOOD
HEPA HIGH EFFICIENCY PARTICULATE AIR (FILTER)
HM HOLLOW METAL
HMD HOLLOW METAL DOOR
HORIZ HORIZONTAL
HT HEIGHT
HYDR HYDRAULIC

I ----------
IBC INTERNATIONAL BUILDING CODE
INSUL INSULATION
INT INTERIOR
ILO IN LIEU OF

J ----------
JAN JANITOR

K ----------
KPD KEYPAD
KIT KITCHEN
KPL KICKPLATE

L ----------
LAM LAMINATE
LAV LAVATORY
LBR LUMBER
LBS POUND
LDG LANDING
LF LINEAR FEET (FOOT)
LIB LIBRARY
LIN LINEAR
LKR LOCKER
LOC LOCATION
LT LIGHT
LVDR LOUVER DOOR
LVR LOUVER

M ----------
MACH RM MACHINE ROOM
MATL MATERIAL
MAX MAXIMUM
MC MOISTURE CONTENT
MD METAL DECK
MECH MECHANICAL
MECH RM MECHANICAL ROOM
MEMB MEMBRANE
MF MILL FINISH
MFR MANUFACTURER
MID MIDDLE
MIL STD MILITARY STANDARD
MIN MINIMUM, MINUTE
MIRR MIRROR
MISC MISCELLANEOUS
MLDG MOLDING (MOULDING)
MO MASONRY OPENING
MOD MODIFY
MB MOISTURE BARRIER
MTG MOUNTING
MTL METAL
MVBL MOVABLE
MWP MEMBRANE WATERPROOFING

N ----------
N NORTH
NA NOT APPLICABLE
NFPA NATIONAL FIRE PROTECTION ASSOCIATION
NIC NOT IN CONTRACT
NO NUMBER
NOM NOMINAL
NP NO PAINT
NRC NOISE REDUCTI

O ----------
OA OVERALL
OC ON CENTER
OD OUTSIDE DIAMETER
OFD OVERFLOW DRAIN
OFF OFFICE
OGL OBSCURE GLASS
OPH OPPOSITE HAND
OPNG OPENING
OPP OPPOSITE
OPQ OPAQUE
OWSJ OPEN WEB STEEL JOIST
OPR OPERABLE
ORD OVERFLOW ROOF DRAIN
ORIG ORIGINAL

P ----------
PA PUBLIC ADDRESS
PAR PARAPET
PAT PATTERN
PB PULL BOX
PBD PARTICLEBOARD
PCC PRECAST CONCRETE
PCF POUNDS PER CUBIC FOOT
PCT PERCENT
PERF PERFORATED
PERIM PERIMETER
PH PHASE
PIL PILASTER
PL PROPERTY LINE
PL GL PLATE GLASS
PLAM PLASTIC LAMINATE
PLAS PLASTER
PLBG PLUMBING
PLG PILING
PLYWD PLYWOOD
PNL PANEL
PP PL PUSH/PULL PLATE
PR PAIR
PRCST PRECAST
PRKG PARKING
PS CONC PRESTRESSED CONCRETE
PSF POUNDS PER SQUARE FOOT
PSI POUNDS PER SQUARE INCH
PT PRESSURE TREATED
PTD PAPER TOWEL DISPENSER
PTDR PAPER TOWEL DISPENSER AND RECEPTACLE
PTN PARTITION
PWR POWER

Q ----------
QT QUARRY TILE
QTY QUANTITY

R ----------
RB RESILIENT BASE
RBM REINFORCED BRICK MASONRY
RBR RUBBER
RC REINFORCED CONCRETE
RCP REFLECTED CEILING PLAN
RD ROOF DRAIN
RDG INS RIGID INSULATION, SOLID
REC RECESSED
REC ROOM RECREATION ROOM
REF REFERENCE
REM REMOVABLE
REP REPAIR
REPL REPLACE
REQ REQUIRE
REQD REQUIRED
RESIL RESILIENT
REST RESTROOM
RF RESILIENT FLOORING
RFG ROOFING
RH ROOF HATCH
RHR RIGHT HAND REVERSE
RL ROOF LEADER
RLG RAILING
RM ROOM
RO ROUGH OPENING
RSD ROLLING STEEL DOOR
RV ROOF VENT
RVL REVEAL

S ----------
SB SPLASH BLOCK
SCHED SCHEDULE
SD SMOKE DETECTOR
SF SQUARE FOOT (FEET)
SFTWD SOFTWOOD
SGL SINGLE
SHT MTL FLASH (FLASHING) SHEET METAL
SHTHG SHEATHING
SHV SHELVING
SIM SIMILAR
SJ SCORED JOINT
SKLT SKYLIGHT
SLNT SEALANT
SMK SMOKE
SMLS SEAMLESS
SP EL SPOT ELEVATION
SPEC SPECIFICATION
SQ SQUARE
SQ IN SQUARE INCH
SQ YD SQUARE YARD
SST STAINLESS STEEL
ST STAIRS
STD STANDARD
STL JST STEEL JOIST
STL RF DK STEEL ROOF DECK
STOR STORAGE
STR STRINGERS
STRB/HRN STROBE/HORN
SUB FL SUBFLOOR
SV SHEET VINYL
SW SIDEWALK

T ----------
T TREAD
T/S TUB/SHOWER
TC TERRA COTTA
TD TRENCH DRAIN
TEL TELEPHONE
TEMP TEMPORARY
TER TERRAZZO
TFF TOP OF FINISH FLOOR
THK THICKNESS
TK BD TACKBOARD
TMPD GL TEMPERED GLASS
TN TRUE NORTH
TOF TOP OF FOOTING
TOM TOP OF MASONRY
TOP TOP OF PARAPET
TOPO TOPOGRAPHY
TOS TOP OF SLAB
TRANS TRANSOM
TRTD TREATED
TV TELEVISION

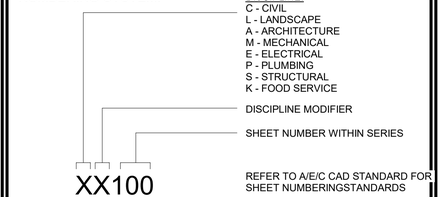
U ----------
UNO UNLESS NOTED OTHERWISE

CODES AND STANDARDS

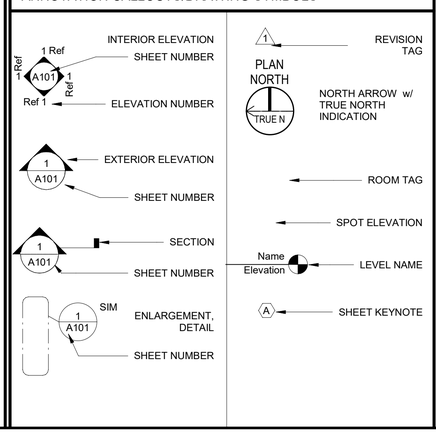
1. UNIFIED FACILITIES CRITERIA UFC 1-200-01, "DoD BUILDING CODE", DATED 8 OCTOBER 2019, WITH CHANGE 1 DATED 1 OCTOBER 2020.
2. UNIFIED FACILITIES CRITERIA UFC 3-101-01, "ARCHITECTURE", DATED 16 DECEMBER 2020, WITH CHANGE 1 DATED 5 JANUARY 2021.
3. UNIFIED FACILITIES CRITERIA UFC 3-110-03, "ROOFING", DATED 1 MAY 2012, WITH CHANGE 5 DATED 12 JUNE 2020.
4. UNIFIED FACILITIES CRITERIA UFC 3-120-01, "DESIGN: SIGN STANDARDS", DATED 1 MARCH 2014, WITH CHANGE 3 DATED 12 DECEMBER 2017.
5. UNIFIED FACILITIES CRITERIA UFC 3-120-10, "INTERIOR DESIGN", DATED 16 MAY 2018, WITH CHANGE 2 DATED 15 JUNE 2021.
6. UNIFIED FACILITIES CRITERIA UFC 3-190-06, "PROTECTIVE COATINGS AND PAINT", DATED 1 MARCH 2021.
7. UNIFIED FACILITIES CRITERIA UFC 4-020-01, "DoD SECURITY ENGINEERING FACILITIES PLANNING MANUAL", DATED 11 SEPTEMBER 2008.
8. UNIFIED FACILITIES CRITERIA UFC 4-026-01, "DESIGN TO RESIST FORCED ENTRY", DATED 4 MARCH 2020.
9. UNIFIED FACILITIES CRITERIA UFC 4-215-01, "ARMORIES AND ARMED ROOMS", DATED 1 DECEMBER 2014.
10. INTERNATIONAL BUILDING CODE IBC (2018).
11. ABA - ARCHITECTURAL BARRIER ACTS

INDEX OF DRAWINGS

NUMBERING SYSTEM:



ANNOTATION CALLOUTS/DRAWING SYMBOLS



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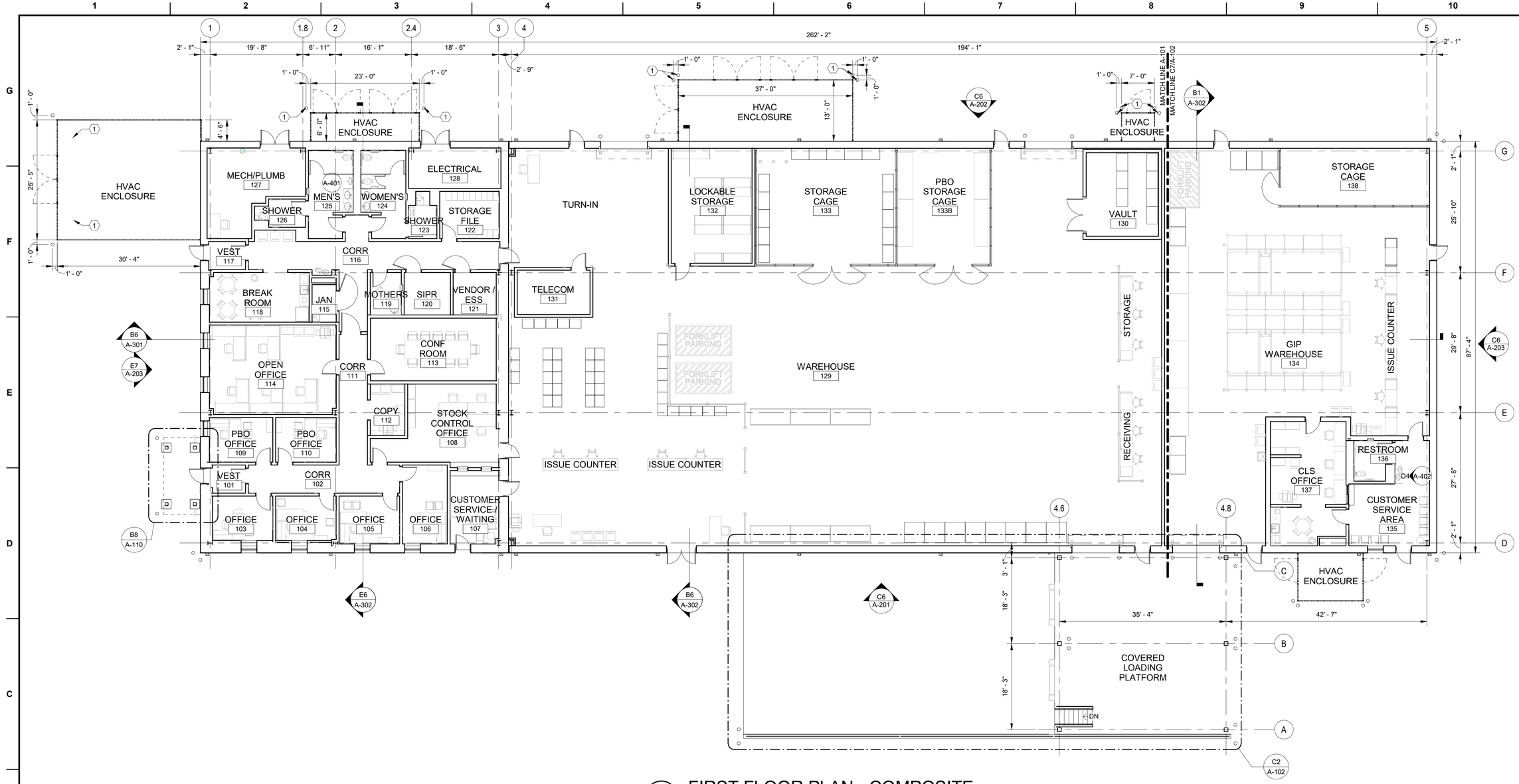
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

GENERAL ARCHITECTURAL NOTES

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN E. STARTZMAN SCHMIDT

SHEET ID
A-001

READY TO ADVERTISE



B5 FIRST FLOOR PLAN - COMPOSITE
3/32" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. SEE CIVIL DRAWINGS FOR HVAC ENCLOSURE FENCING DETAILS.
2. SEE CIVIL DRAWINGS FOR EXTERIOR BOLLARD DETAILS AT PERIMETER OF SITE.

SHEET KEYNOTES

1 METAL BOLLARDS - SEE STRUCTURAL DRAWINGS FOR DETAIL

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 12 20'

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MARK	DESCRIPTION	DATE

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CHECKED BY: EBS
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
SECOND TITLE
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

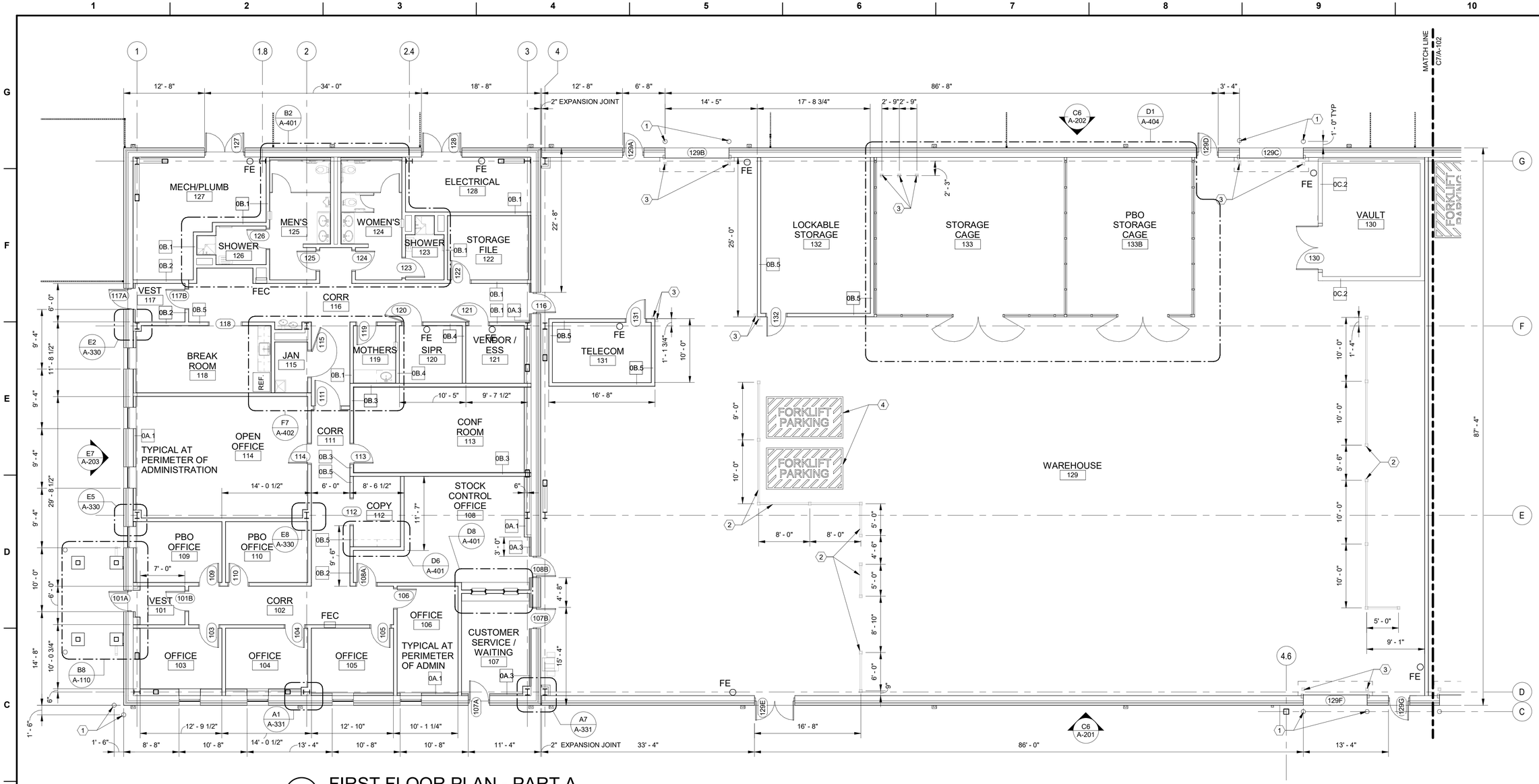
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
COMPOSITE PLAN

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN E. SCHMID

SHEET ID
A-100

READY TO ADVERTISE



B2 FIRST FLOOR PLAN - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. INTERIOR PARTITIONS 0B.2 UNLESS OTHERWISE NOTED
2. SEE ENLARGED PLANS FOR ADDITIONAL PARTITION TAGS
3. NO WALL FURRING (0A.1) PROVIDED ON EXTERIOR WALLS IN ROOMS MECH/PLUMB 127 & ELECTRICAL 128

SHEET KEYNOTES

1 METAL BOLLARDS - SEE STRUCTURAL DRAWINGS FOR DETAIl A5/S-008

2 PRE-MANUFACTURED METAL POSTS & GUARDRAIL SYSTEM FOR FORKLIFT IMPACT RESISTANCE, COMPLY WITH MANUFACTURER'S ATTACHMENT DETAILS FOR SURFACE MOUNTED SLAB ATTACHMENT. 4" SQUARE X 43" HIGH POSTS WITH 9" SQUARE BASE PLATES WITH ANCHORS & 11 GA. FORMED STEEL DOUBLE RAILS (TOP & BOTTOM).

3 PRE-MANUFACTURED METAL POSTS (WITHOUT RAILS) FOR FORKLIFT IMPACT RESISTANCE, COMPLY WITH MANUFACTURER'S ATTACHMENT DETAILS FOR SURFACE MOUNTED SLAB ATTACHMENT. 4" SQUARE X 43" HIGH POSTS WITH 9" SQUARE BASE PLATES WITH ANCHORS.

4 PAINT FORKLIFT PARKING AREA ON SLAB, COORDINATE SIZE AND LAYOUT WITH OWNER.

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

PLAN NORTH
TRUE N

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
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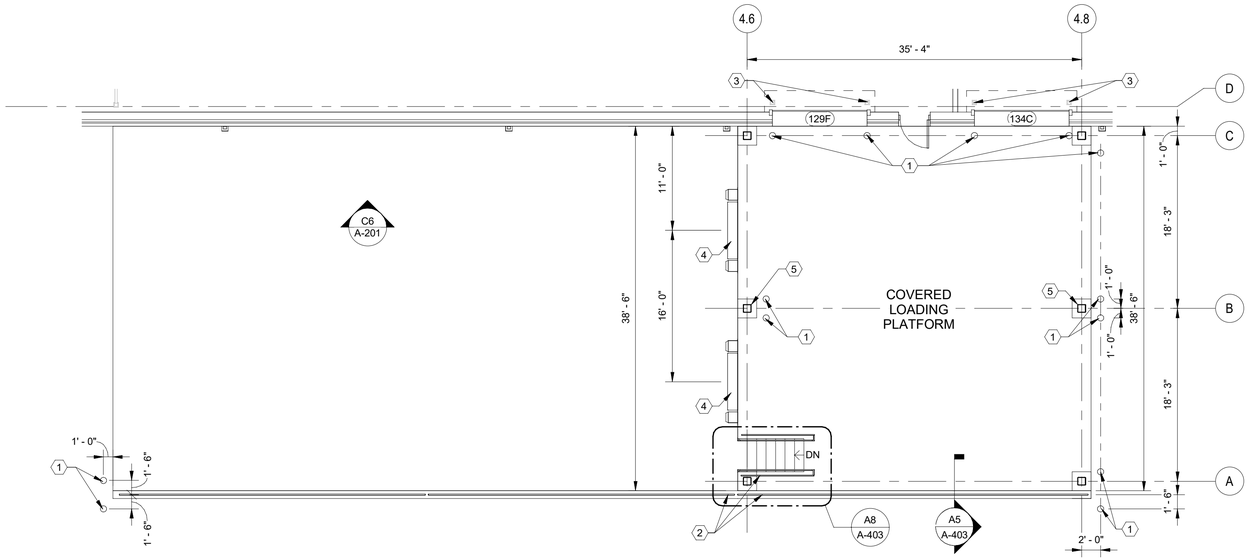
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FLOOR PLAN - PART A

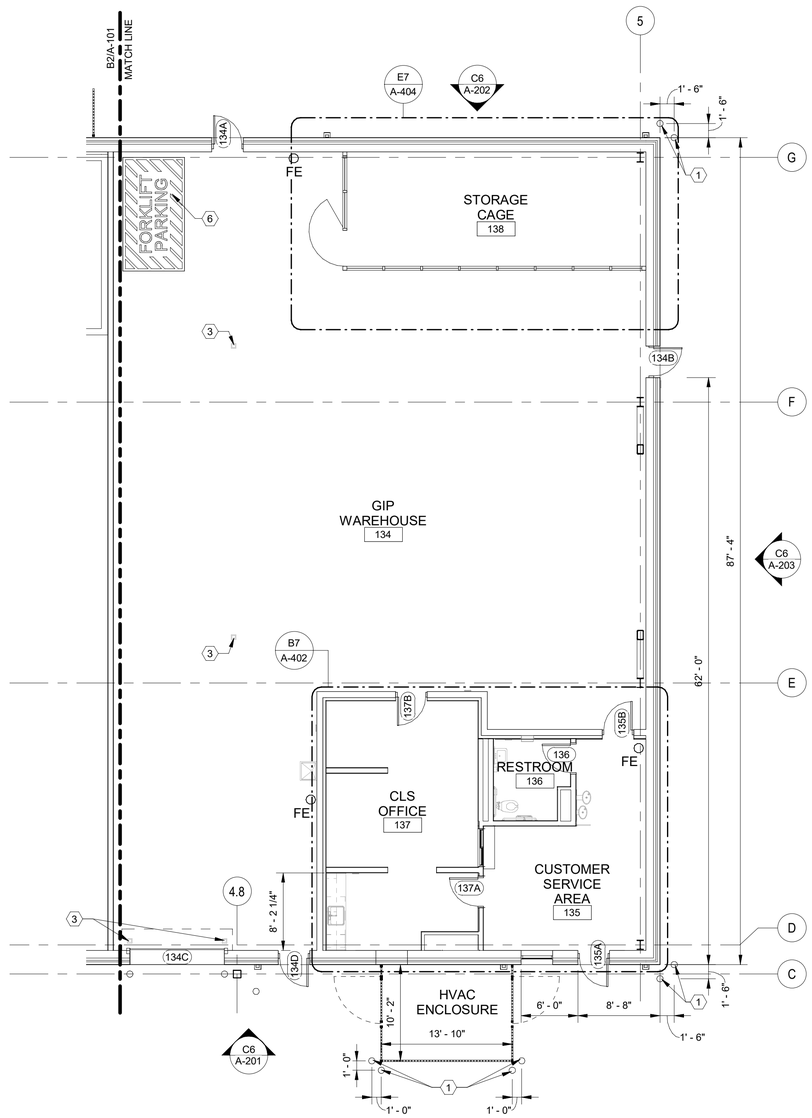
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMIDT

SHEET ID
A-101

READY TO ADVERTISE



C2 FIRST FLOOR PLAN - LOADING DOCK
1/8" = 1'-0"



C7 FIRST FLOOR PLAN - PART B
1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. SEE ENLARGED PLANS FOR ADDITIONAL PARTITION TAGS

SHEET KEYNOTES

1 METAL BOLLARDS - METAL BOLLARDS - SEE STRUCTURAL DRAWINGS FOR DETAIL A5/S-008

2 METAL GUARDRAILS - HIGH PERFORMANCE COATING.

3 PRE-MANUFACTURED METAL POSTS (WITHOUT RAILS) FOR FORKLIFT IMPACT RESISTANCE, COMPLY WITH MANUFACTURER'S ATTACHMENT DETAILS FOR SURFACE MOUNTED SLAB ATTACHMENT. 4" SQUARE X 43" HIGH POSTS WITH 9" SQUARE BASE PLATES WITH ANCHORS.

4 PRE-MANUFACTURED MECHANICAL EDGE DOCK LEVELER WITH BUMPERS AND HANDLE FOR MANUAL ADJUSTMENT.

5 PAINT ALL EXPOSED STRUCTURAL METAL FRAMING WITH HIGH PERFORMANCE COATING, TYP.

6 PAINT FORKLIFT PARKING AREA ON SLAB, COORDINATE SIZE AND LAYOUT WITH OWNER.

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

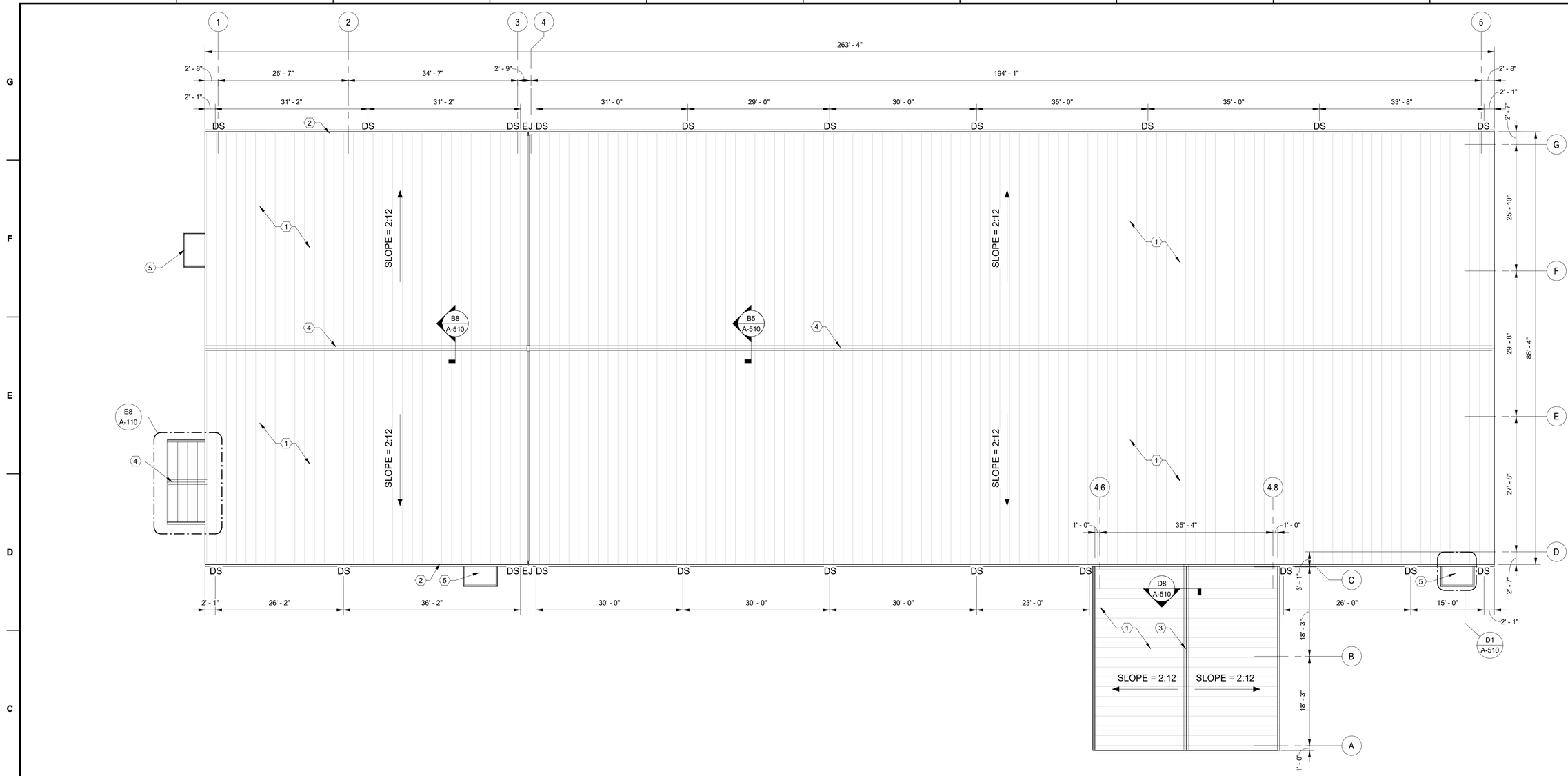
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FLOOR PLAN - PART B & LOADING DOCK

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN SCHMIDT HAMAN

SHEET ID
A-102

READY TO ADVERTISE



A5 ROOF PLAN - COMPOSITE
3/32" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

SHEET KEYNOTES

1 STANDING SEAM METAL ROOF
2 METAL GUTTERS & DOWNSPOUTS
3 ROOF RIDGE
4 VENTED ROOF RIDGE
5 METAL CANOPY

DS METAL DOWNSPOUT, PROVIDE METAL DOWNSPOUT BOOT AT ALL DOWNSPOUT LOCATIONS
EJ EXPANSION JOINT

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 12 20'

US Army Corps of Engineers ®

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SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

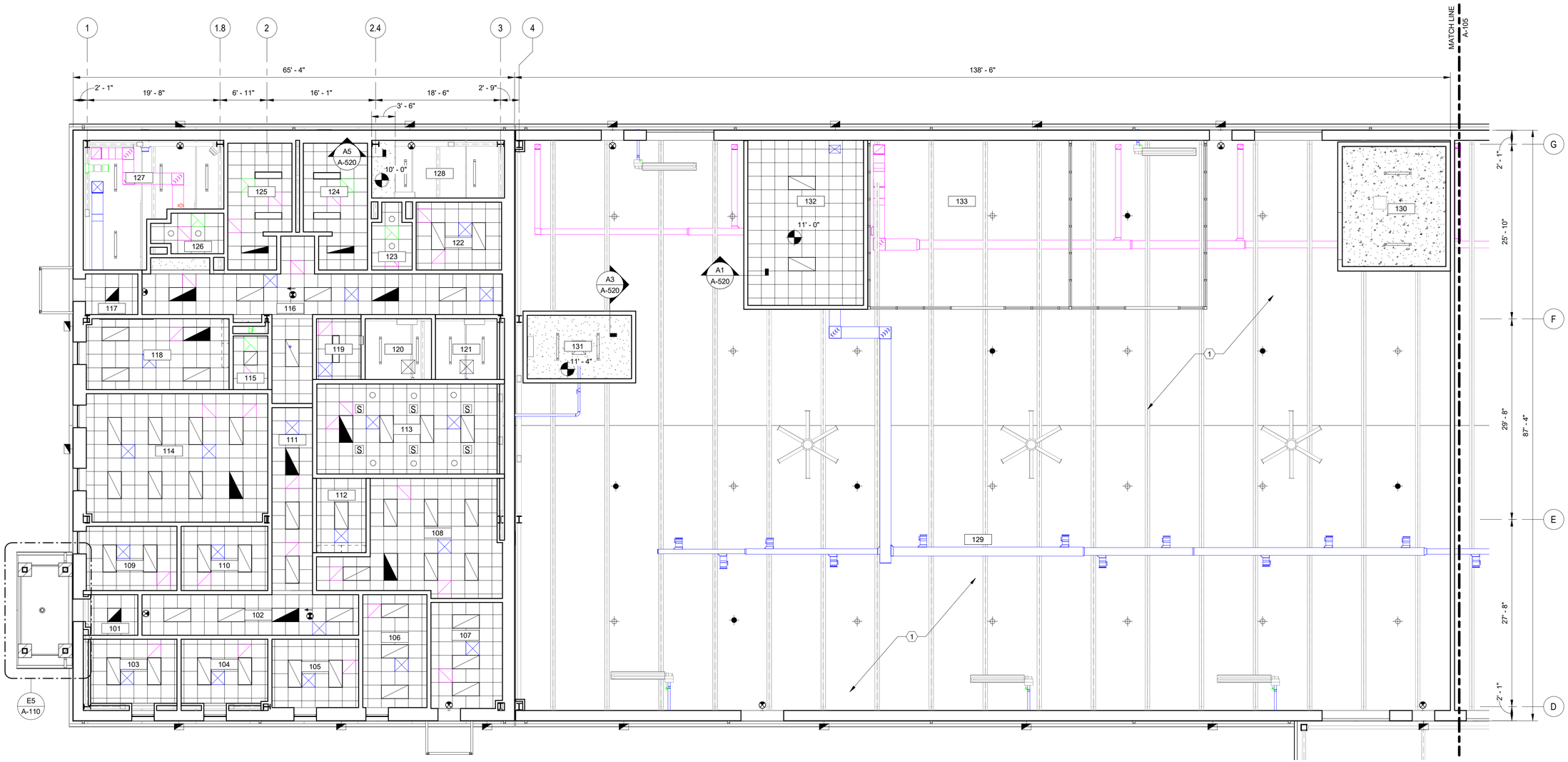
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
COMPOSITE ROOF PLAN

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMITZMAN SCHMITZ

SHEET ID
A-103

READY TO ADVERTISE



B2 FIRST FLOOR RCP - PART A

1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. CEILING HEIGHTS ARE 9'-0" A.F.F., TYPICAL - UNLESS NOTED OTHERWISE.
2. HI-BAY LIGHTS REQUIRED AT WAREHOUSE AND CUSTOMER ISSUE BAY - MINIMUM 16'-0" CLEAR A.F.F.
3. CONCRETE SLAB ON METAL DECK ABOVE ROOMS SECURE VAULT 130 & TELECOM 131
4. SEE ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE TYPES - EL101, EL102 & EL701
5. SEE MECHANICAL M101 FOR DIFFUSER LOCATION COORDINATION.
6. SEE I601 FOR CEILING FINISHES.

SHEET KEYNOTES

1 EXPOSED STRUCTURE ABOVE WAREHOUSE

SHEET LEGEND

- LINEAR PENDANT LIGHT
- PENDANT LIGHTING FIXTURE
- 2' X 4' RECESSED LIGHTING FIXTURE
- 1' X 4' RECESSED LIGHTING FIXTURE
- 1' X 4' LINEAR BOX LIGHTING FIXTURE
- RECESSED CAN LIGHTING FIXTURE

LIGHTING FIXTURES WITH A SOLID BLACK INFILL REPRESENT EMERGENCY FIXTURES - SEE ELECTRICAL DRAWINGS

- OPEN CEILING
- ACOUSTICAL CEILING TILE
- GYPSUM BOARD CEILING
- ELEVATED CONCRETE SLAB

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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WILMINGTON, NORTH CAROLINA 28403-1343

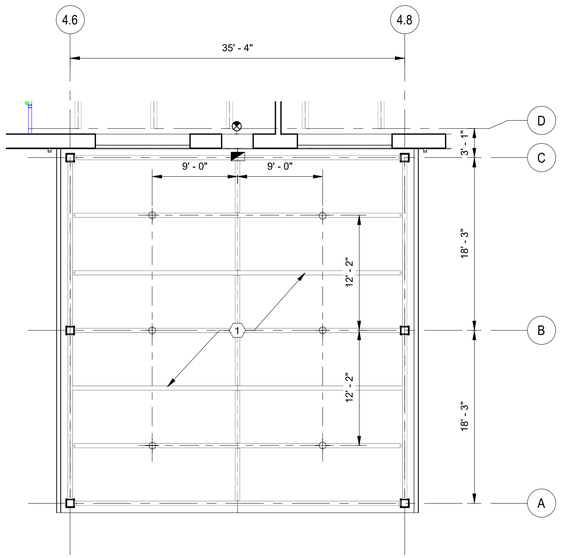
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
REFLECTED CEILING PLANS - PART A

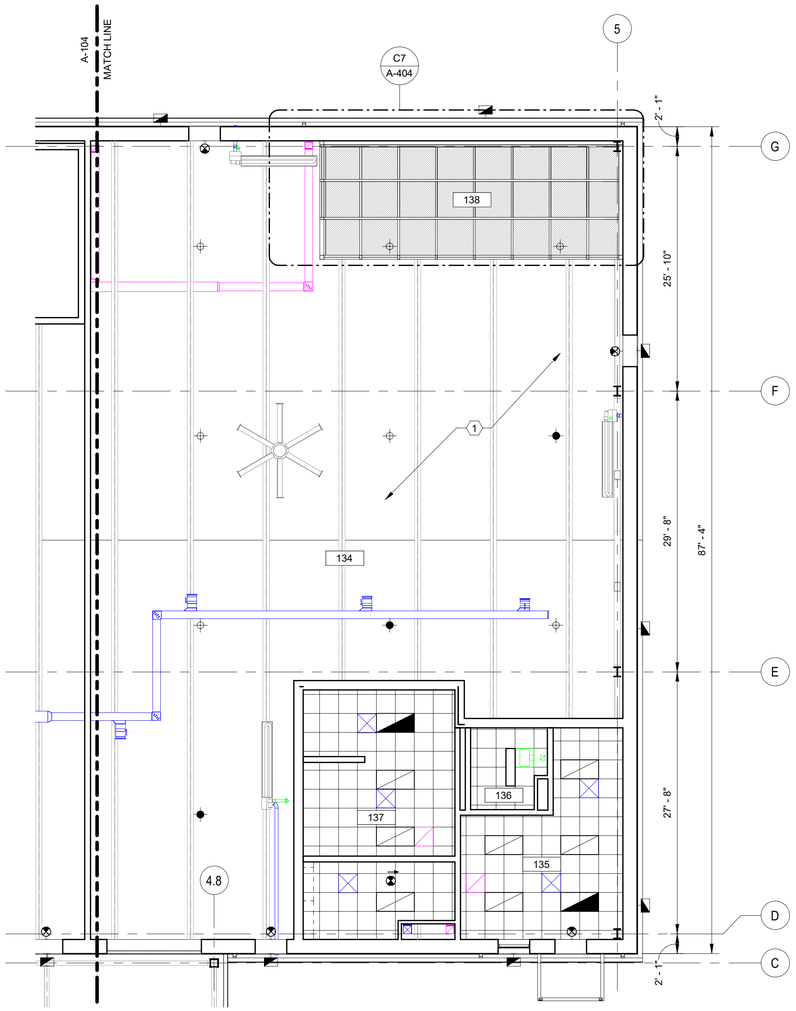
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN E. SCHMITZMAN

SHEET ID
A-104

READY TO ADVERTISE



C4 FIRST FLOOR RCP - LOADING DOCK
1/8" = 1'-0"



C5 FIRST FLOOR RCP - PART B
1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. CEILING HEIGHTS ARE 9'-0" A.F.F., TYPICAL - UNLESS NOTED OTHERWISE.
2. HI-BAY LIGHTS REQUIRED AT WAREHOUSE AND CUSTOMER ISSUE BAY - MINIMUM 16'-0" CLEAR A.F.F.
3. SEE ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE TYPES.
4. SEE MECHANICAL FOR DIFFUSER LOCATIONS.
5. SEE I-601 FOR CEILING FINISHES.

SHEET KEYNOTES

1 EXPOSED STRUCTURE ABOVE WAREHOUSE AND LOADING DOCK

SHEET LEGEND

- LINEAR PENDANT LIGHT
- PENDANT LIGHTING FIXTURE
- 2' X 4' RECESSED LIGHTING FIXTURE
- 1' X 4' RECESSED LIGHTING FIXTURE
- 1' X 4' LINEAR BOX LIGHTING FIXTURE
- RECESSED CAN LIGHTING FIXTURE

LIGHTING FIXTURES WITH A SOLID BLACK INFILL REPRESENT EMERGENCY FIXTURES - SEE ELECTRICAL DRAWINGS

- OPEN CEILING
- ACOUSTICAL CEILING TILE
- GYPSUM BOARD CEILING
- TOP OF STORAGE CAGE

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
SECOND TITLE
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

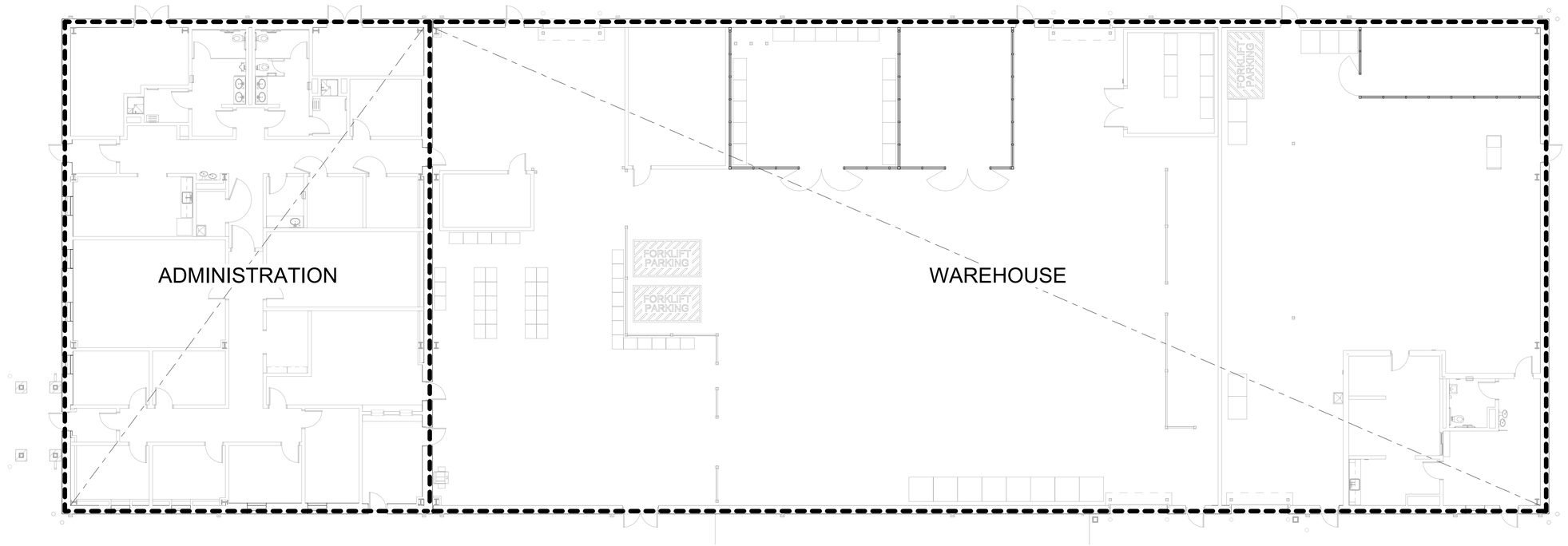
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

REFLECTED CEILING PLAN - PART B

NORTH CAROLINA REGISTERED 14646 ARCHITECT SCOTT E. SCHMIDT 8/4/2023

SHEET ID
A-105

READY TO ADVERTISE



C4 FIRST FLOOR AIR BARRIER PLAN - COMPOSITE
3/32" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

THE AIR BARRIER FOR THE PROJECT IS PROVIDED BY THE SPRAY FOAM INSULATION - SEE WALL SECTIONS & SPECIFICATION SECTION 07 27 36 SPRAY FOAM AIR BARRIER FOR MORE INFORMATION. COMMISSIONING AND TESTING REQUIREMENTS FOR THE AIR BARRIER SYSTEM ARE LOCATED IN SPECIFICATION SECTION 01 91 00.15 10 & 07 05 23 RESPECTIVELY

SHEET KEYNOTES

SHEET LEGEND

AIR BARRIER LOCATION

GRAPHIC SCALE

0 4' 8' 12 20'

US Army Corps of Engineers ®

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SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

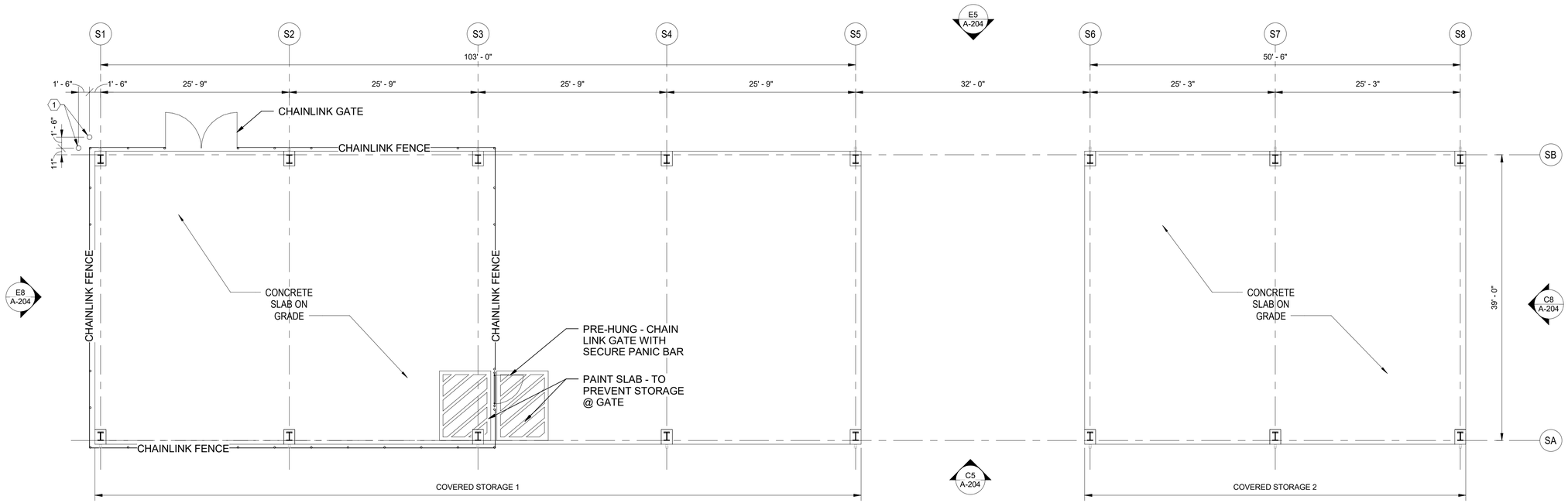
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
AIR BARRIER PLAN

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMIDT

SHEET ID
A-106

READY TO ADVERTISE



C4 FLOOR PLAN - COVERED STORAGE 1 & 2

1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES	SHEET KEYNOTES	SHEET LEGEND	GRAPHIC SCALE
	1 METAL BOLLARDS - SEE STRUCTURAL DRAWINGS FOR DETAIL		0 4' 8' 16'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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WILMINGTON, NORTH CAROLINA 28403-1343

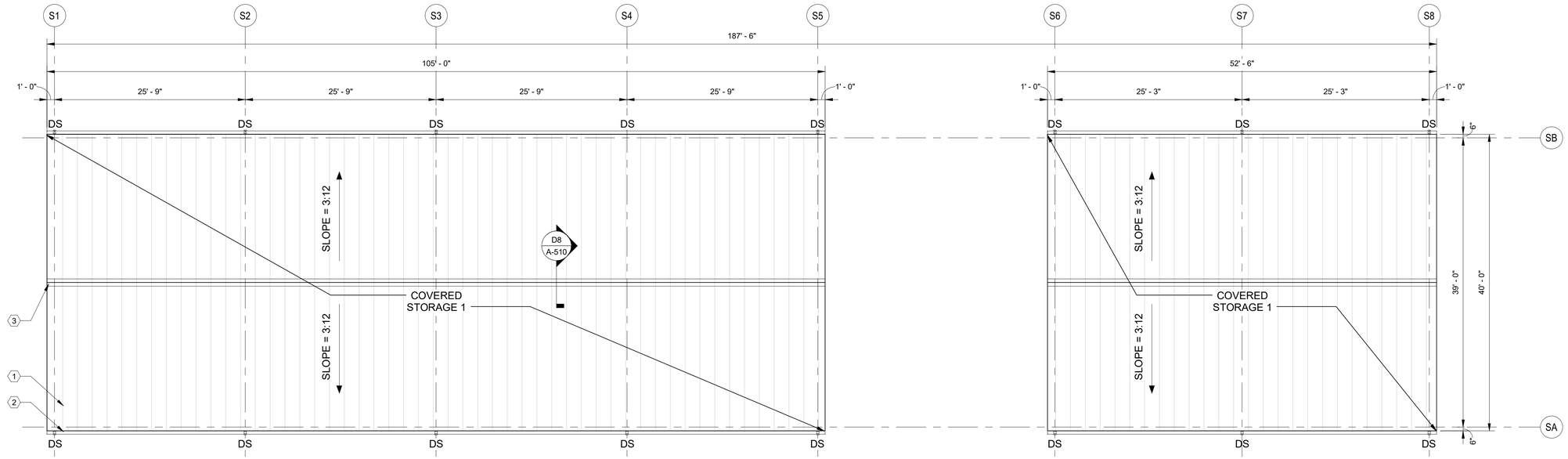
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FLOOR PLAN - COVERED STORAGE

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMITZMAN

SHEET ID
A-107

READY TO ADVERTISE



C4 ROOF PLAN - COVERED STORAGE 1 & 2

1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

SHEET KEYNOTES

1 STANDING SEAM METAL ROOF
2 METAL GUTTERS & DOWNSPOUTS
3 ROOF RIDGE

DS METAL DOWNSPOUT, PROVIDE METAL DOWNSPOUT BOOT AT ALL DOWNSPOUT LOCATIONS

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

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US ARMY CORPS OF ENGINEERS
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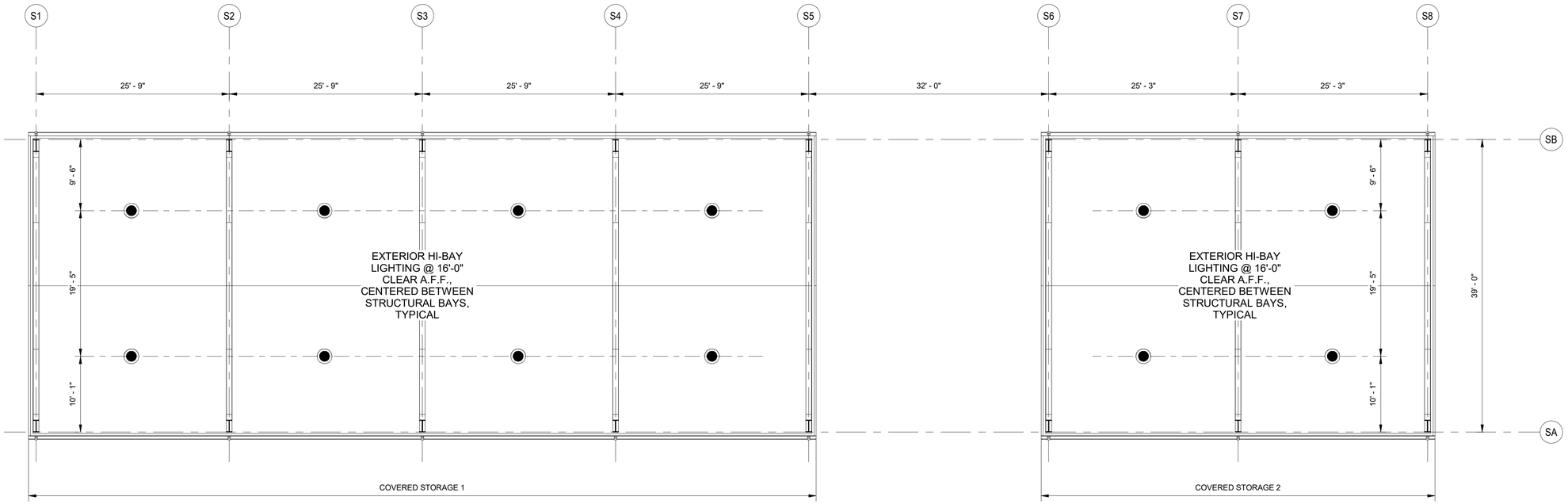
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ROOF PLAN - COVERED STORAGE

NORTH CAROLINA REGISTERED 14646 ARCHITECT LICENSED SCOTT A. MAY

SHEET ID
A-108

READY TO ADVERTISE



C4 REFLECTED CEILING PLAN - COVERED STORAGE 1 & 2

1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

SHEET KEYNOTES

SHEET LEGEND

EXTERIOR HI-BAY LIGHTING

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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WILMINGTON, NORTH CAROLINA 28403-1343

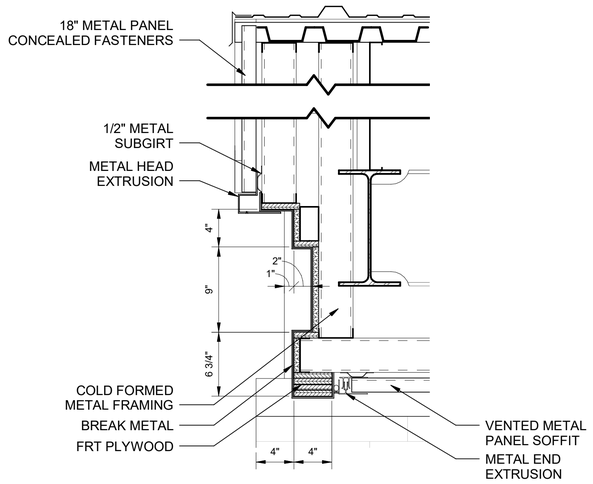
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
REFLECTED CEILING PLAN - COVERED STORAGE

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN M. KOMMATZMAN

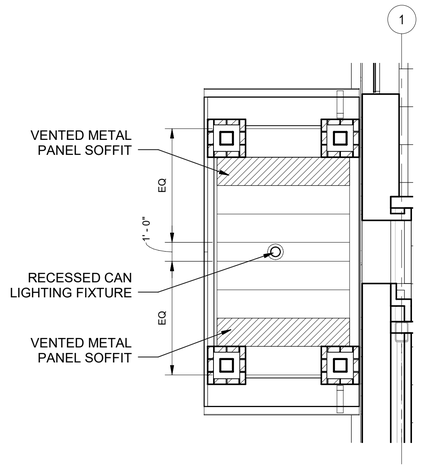
SHEET ID
A-109

READY TO ADVERTISE



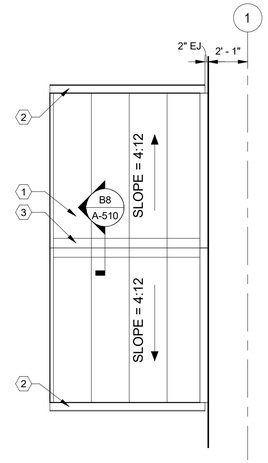
E3 SECTION DETAIL

1 1/2" = 1'-0"



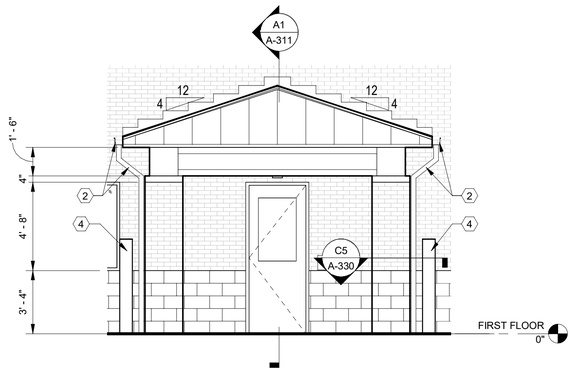
E5 ENLARGED RCP - ENTRANCE CANOPY

1/4" = 1'-0"



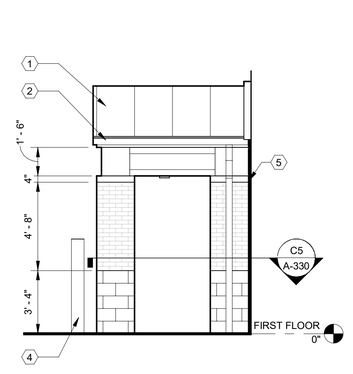
E8 ROOF PLAN - ENTRANCE CANOPY

1/4" = 1'-0"



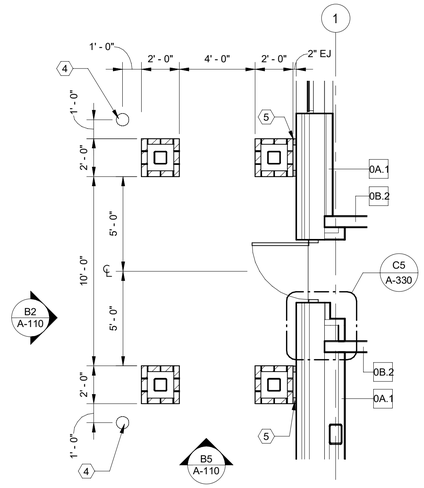
B2 NORTH ELEVATION - ENTRANCE CANOPY

1/4" = 1'-0"



B5 WEST ELEV - ENTRANCE CANOPY

1/4" = 1'-0"



B8 ENLARGED PLAN - ENTRANCE CANOPY

1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1 STANDING SEAM METAL ROOF
2 METAL GUTTERS & DOWNSPOUTS
3 ROOF RIDGE
4 METAL BOLLARDS - METAL BOLLARDS - SEE STRUCTURAL DRAWINGS FOR DETAIL
5 2" PREFORMED EXPANDING FOAM JOINT SEALS, TYP

SHEET LEGEND

GRAPHIC SCALE

0 2' 4' 8'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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WILMINGTON, NORTH CAROLINA 28403-1343

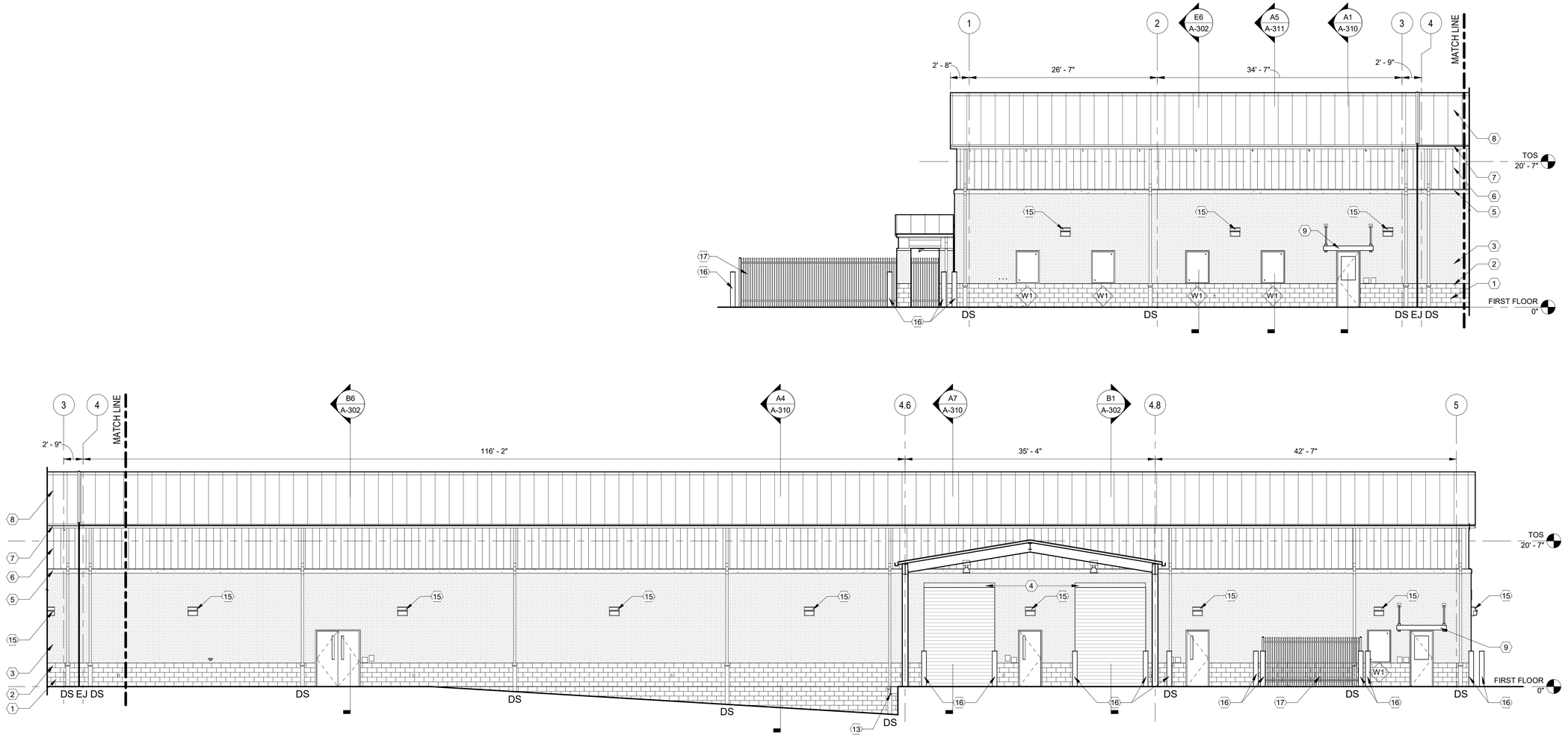
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ENTRANCE CANOPY PLANS, ELEVATIONS & DETAILS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN SCHMITZ MAY 4, 2023

SHEET ID
A-110

READY TO ADVERTISE



C6 BUILDING ELEVATION - WEST

1/8" = 1'-0"

GENERAL SHEET NOTES

1. ALL DOORS ON EXTERIOR PERIMETER OF ADMINISTRATION BUILDING ARE RATED FOR LOW-LEVEL BLAST PROTECTION.
2. ALL EXTERIOR WINDOWS ARE RATED FOR LOW-LEVEL BLAST PROTECTION.
3. SEE SHEET A-605 FOR WINDOW AND LOUVER SCHEDULE.
4. PAINT ALL EXPOSED MISCELLANEOUS METAL, TYPICAL

SHEET KEYNOTES

1 SMOOTH FACE CMU - ADAMS 4310
2 SPLIT FACE CMU - ADAMS 4310 (TOP COURSE)
3 FACE BRICK - PALMETTO 1.25 GREYSTONE
4 FACE BRICK, SOLDIER COURSE - PALMETTO 1.25 GREYSTONE
5 CAST STONE - LIMESTONE
6 METAL WALL PANELS: PAINT - FS-23617 (BEIGE)
7 METAL GUTTER
8 EXPOSED FASTENER METAL PANEL ROOF - COLOR SELECTION GREATER THAN OR EQUAL TO SOLAR REFLECTIVE INDEX 82
9 PRE-MANUFACTURED METAL AWNING
10 PRE-ENGINEERED STEEL FRAMING ON CONCRETE PEDESTALS
11 CHAINLINK PERIMETER FENCE
12 CHAINLINK GATE
13 DOCK LEVELER
14 METAL GUARD RAIL - HIGH PERFORMANCE COATING
15 WALL MOUNTED EXTERIOR LIGHTS, TYP
16 METAL BOLLARDS, TYP - SEE STRUCTURAL DRAWINGS FOR DETAILS
17 METAL PICKET FENCE - SEE CIVIL DRAWINGS

DS METAL DOWNSPOUT, PROVIDE METAL DOWNSPOUT BOOT AT ALL DOWNSPOUT LOCATIONS
EJ EXPANSION JOINT

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
DRAWN BY: BTF
CHECKED BY: EBS
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

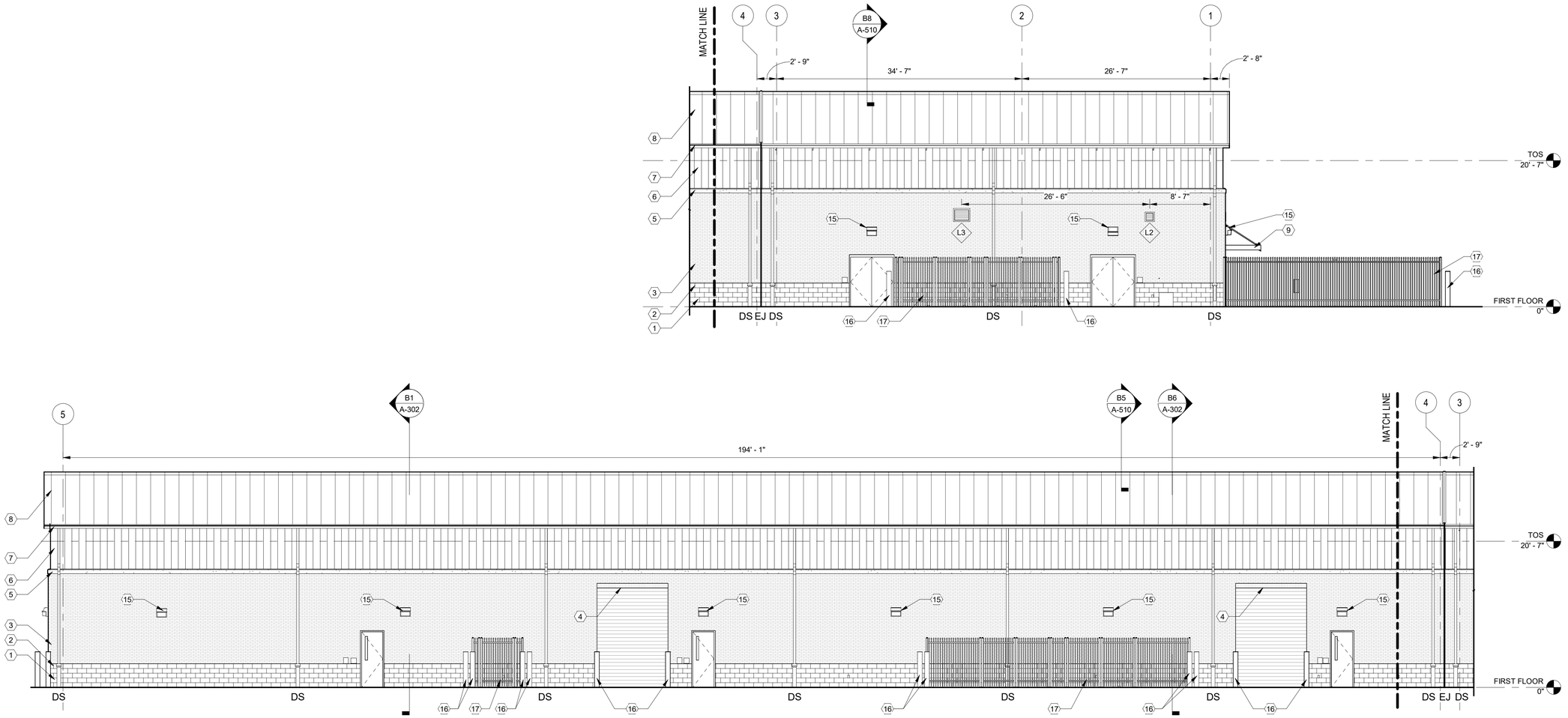
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
BUILDING ELEVATIONS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN M. SCHMELZMAN 4/7/2023

SHEET ID
A-201

READY TO ADVERTISE



C6 BUILDING ELEVATION - EAST
1/8" = 1'-0"

GENERAL SHEET NOTES

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EJ EXPANSION JOINT

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

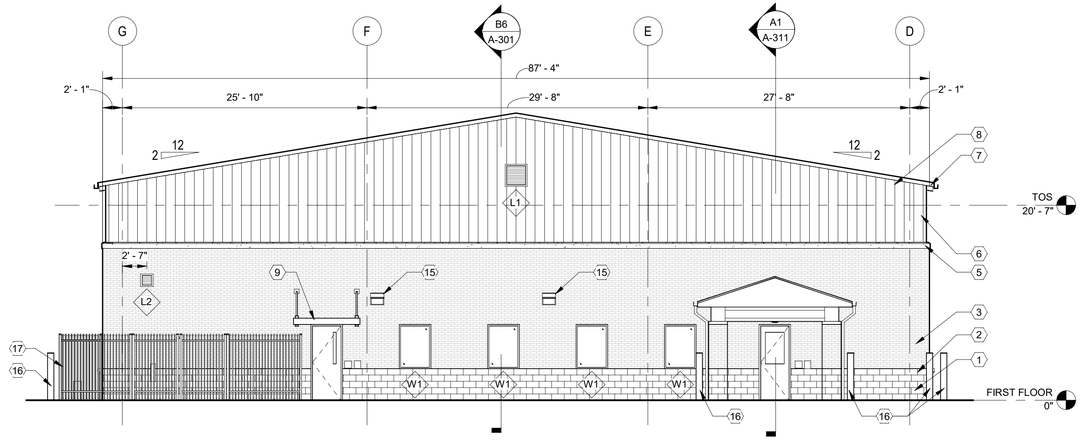
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
BUILDING ELEVATIONS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN M. SZYMANSKI 8/4/2023

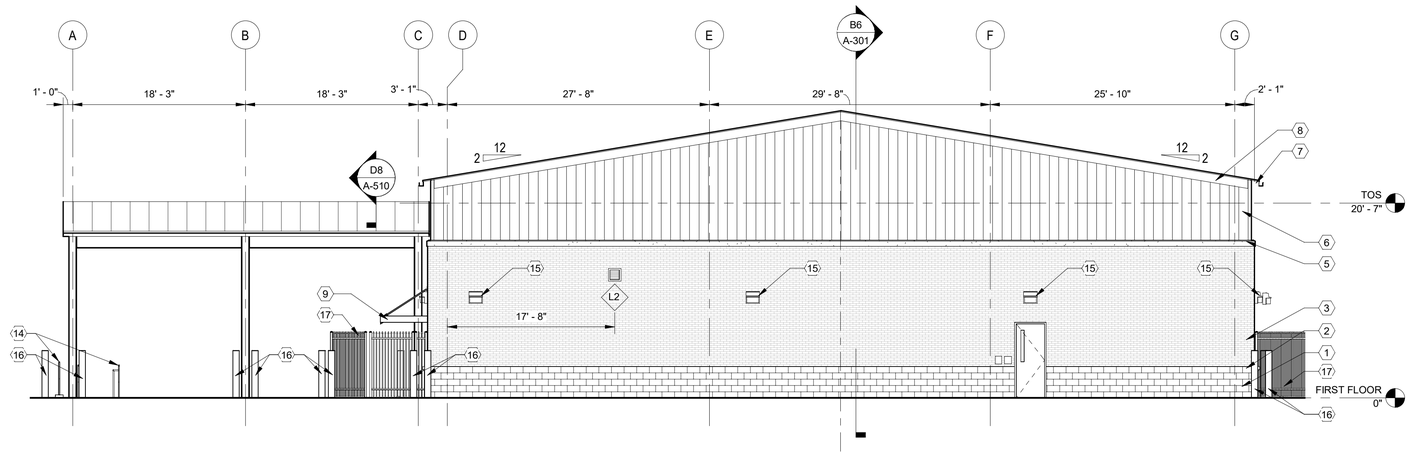
SHEET ID
A-202

READY TO ADVERTISE



E7 BUILDING ELEVATION - NORTH

1/8" = 1'-0"



C6 BUILDING ELEVATION - SOUTH

1/8" = 1'-0"

GENERAL SHEET NOTES

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EJ EXPANSION JOINT

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

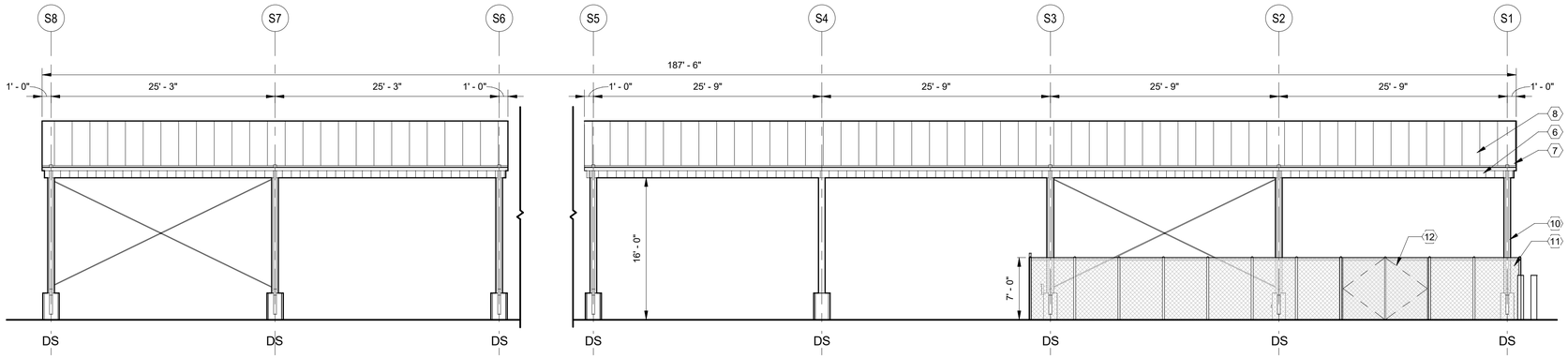
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
BUILDING ELEVATIONS

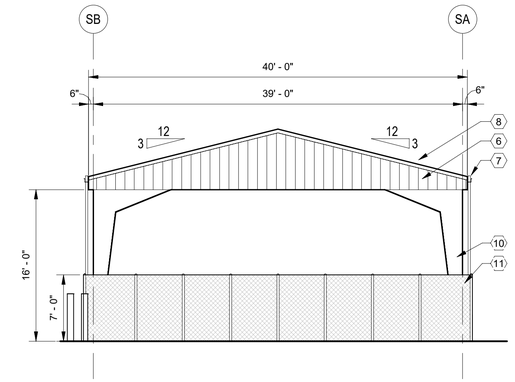
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMITZMAN

SHEET ID
A-203

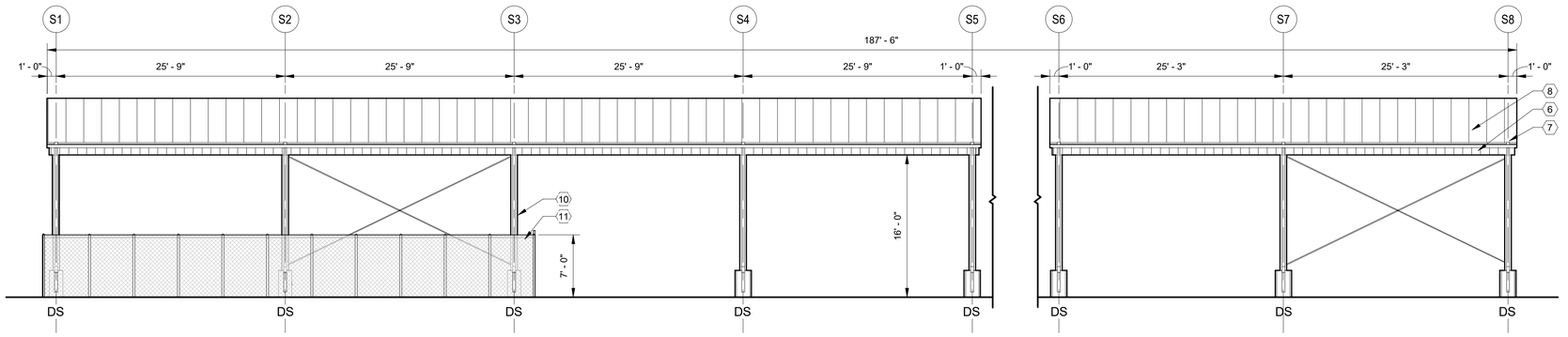
READY TO ADVERTISE



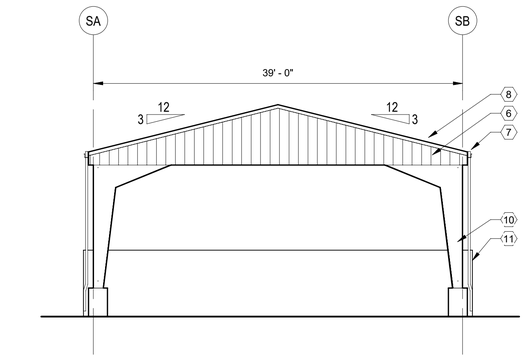
E5 COVERED STORAGE ELEVATION - EAST
1/8" = 1'-0"



E8 COVERED STORAGE ELEV - NORTH
1/8" = 1'-0"



C5 COVERED STORAGE ELEVATION - WEST
1/8" = 1'-0"



C8 COVERED STORAGE ELEV - SOUTH
1/8" = 1'-0"

GENERAL SHEET NOTES

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17 METAL PICKET FENCE - SEE CIVIL DRAWINGS

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SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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SUBMITTED BY:
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

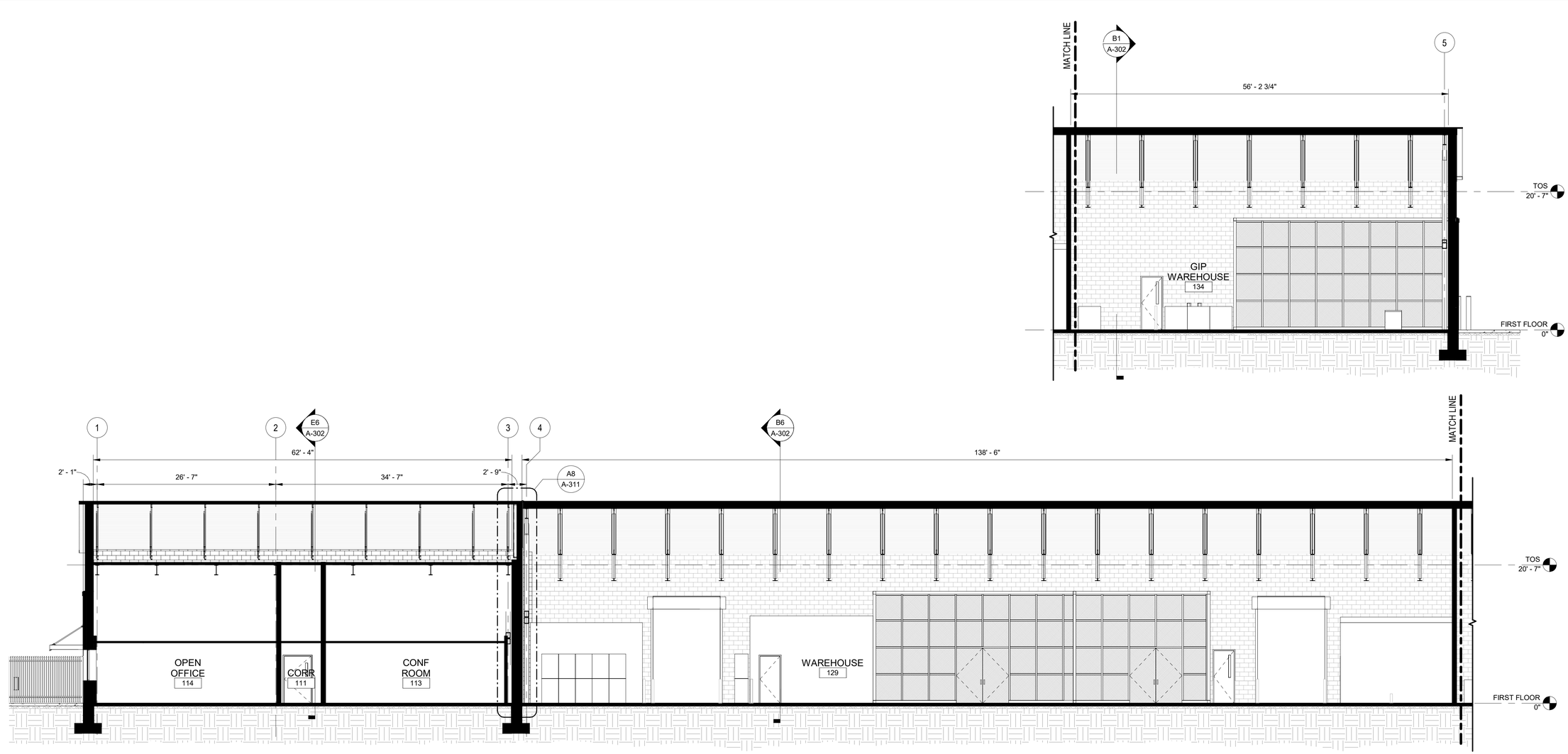
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

BUILDING ELEVATIONS - COVERED STORAGE

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN C. SCHMITZMAN

SHEET ID
A-204

READY TO ADVERTISE



B6 BUILDING SECTION - LONGITUDINAL

1/8" = 1'-0"

SHEET LEGEND

- METAL DECK
- GROUND
- CMU
- STORAGE CAGE

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
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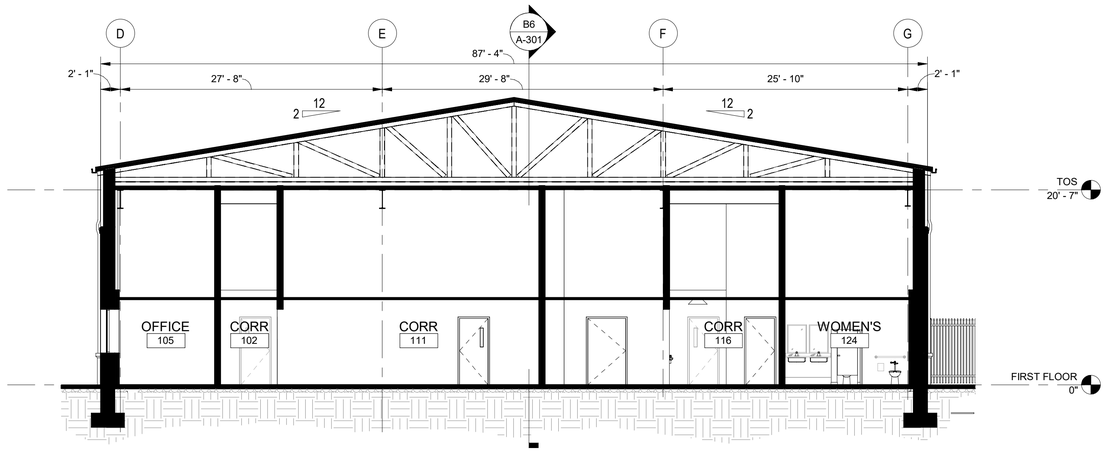
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
BUILDING SECTIONS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN B. SCHMITZMAN 10/4/2023

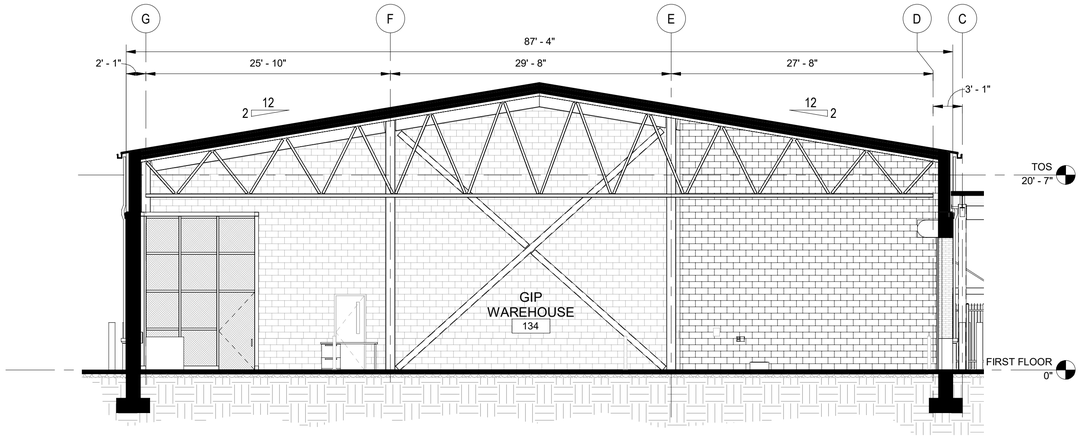
SHEET ID
A-301

READY TO ADVERTISE



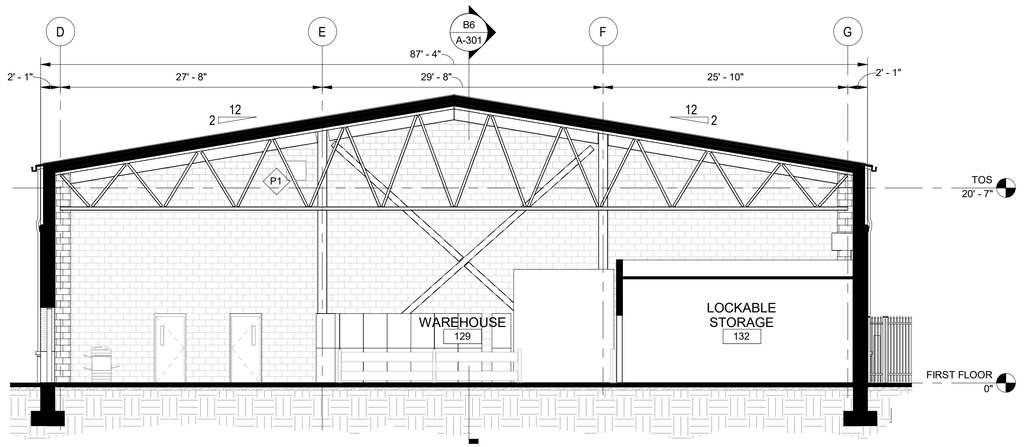
E6 BUILDING SECTION - TRANSVERSE - ADMINISTRATION

1/8" = 1'-0"



B1 BUILDING SECTION - TRANSVERSE - GIP WAREHOUSE

1/8" = 1'-0"



B6 BUILDING SECTION - TRANSVERSE - WAREHOUSE

1/8" = 1'-0"

SHEET LEGEND

- METAL DECK
- GROUND
- CMU
- STORAGE CAGE

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

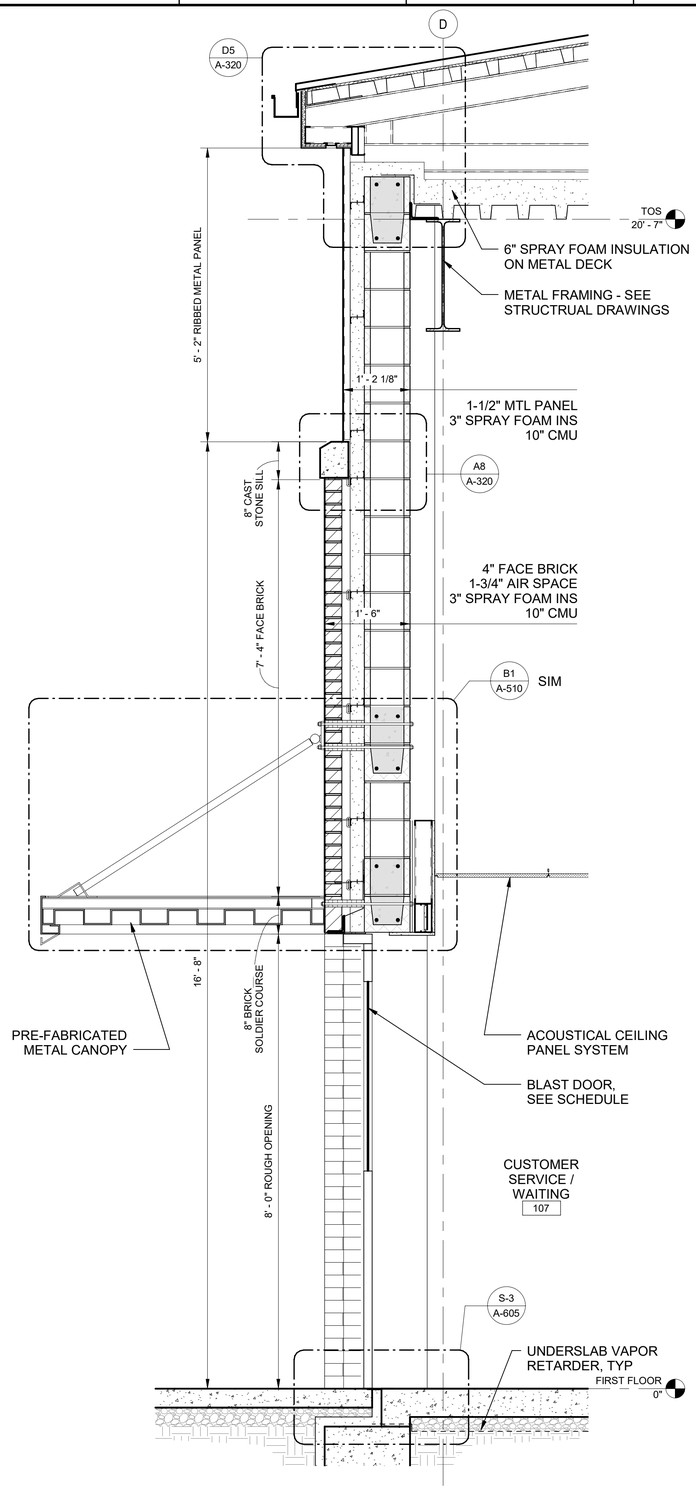
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
BUILDING SECTIONS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN B. SCHMIDT

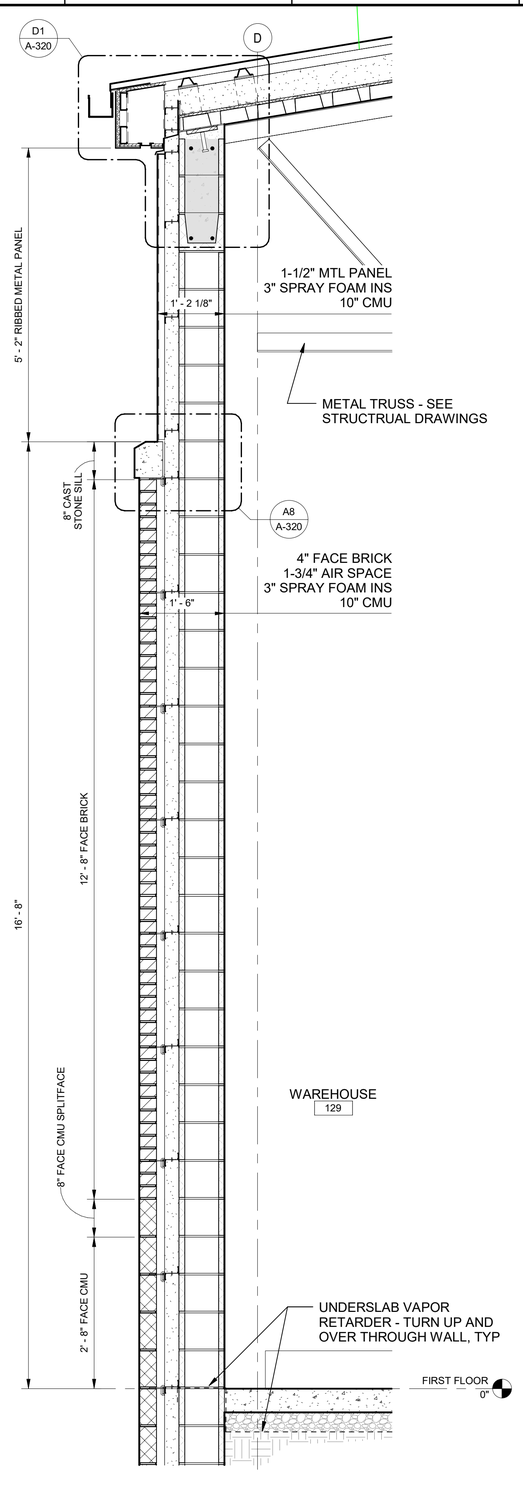
SHEET ID
A-302

READY TO ADVERTISE



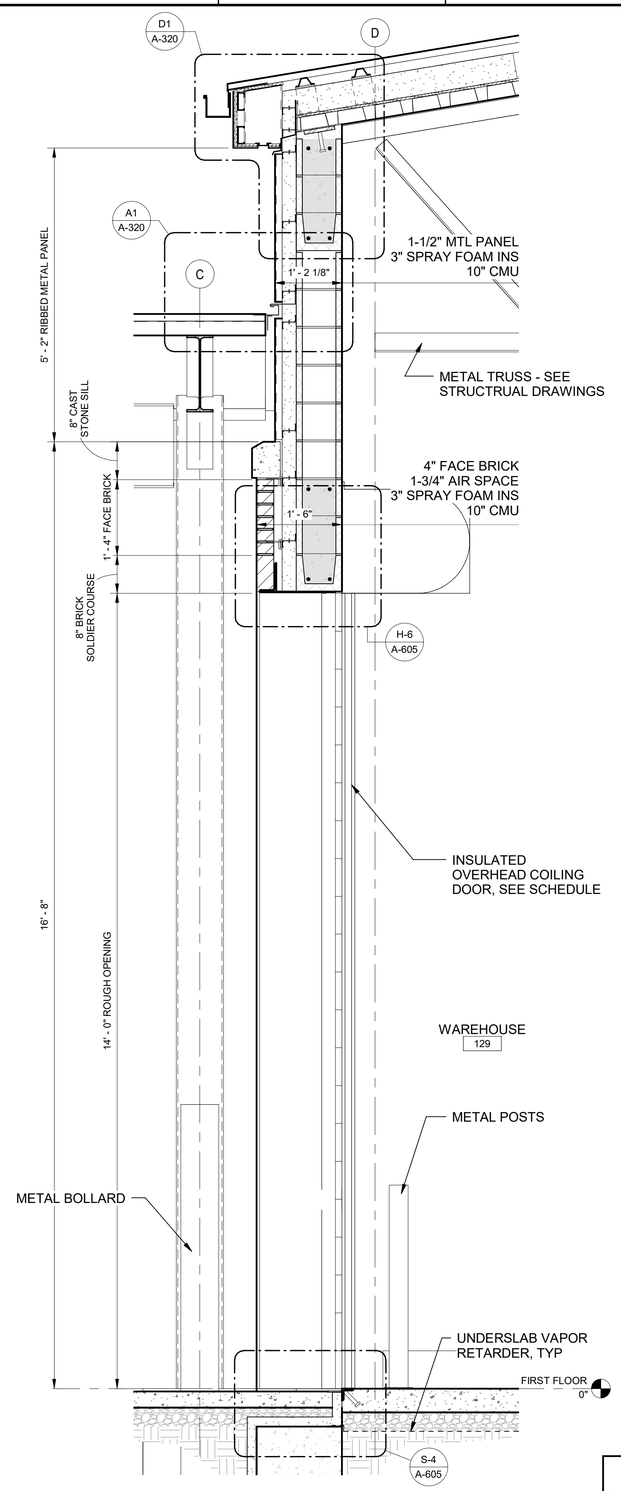
A1 WALL SECTION - ADMINISTRATION

3/4" = 1'-0"



A4 WALL SECTION - WAREHOUSE

3/4" = 1'-0"



A7 WALL SECTION - WAREHOUSE

3/4" = 1'-0"

GRAPHIC SCALE

0 6" 1' 2' 3'

US Army Corps of Engineers ®

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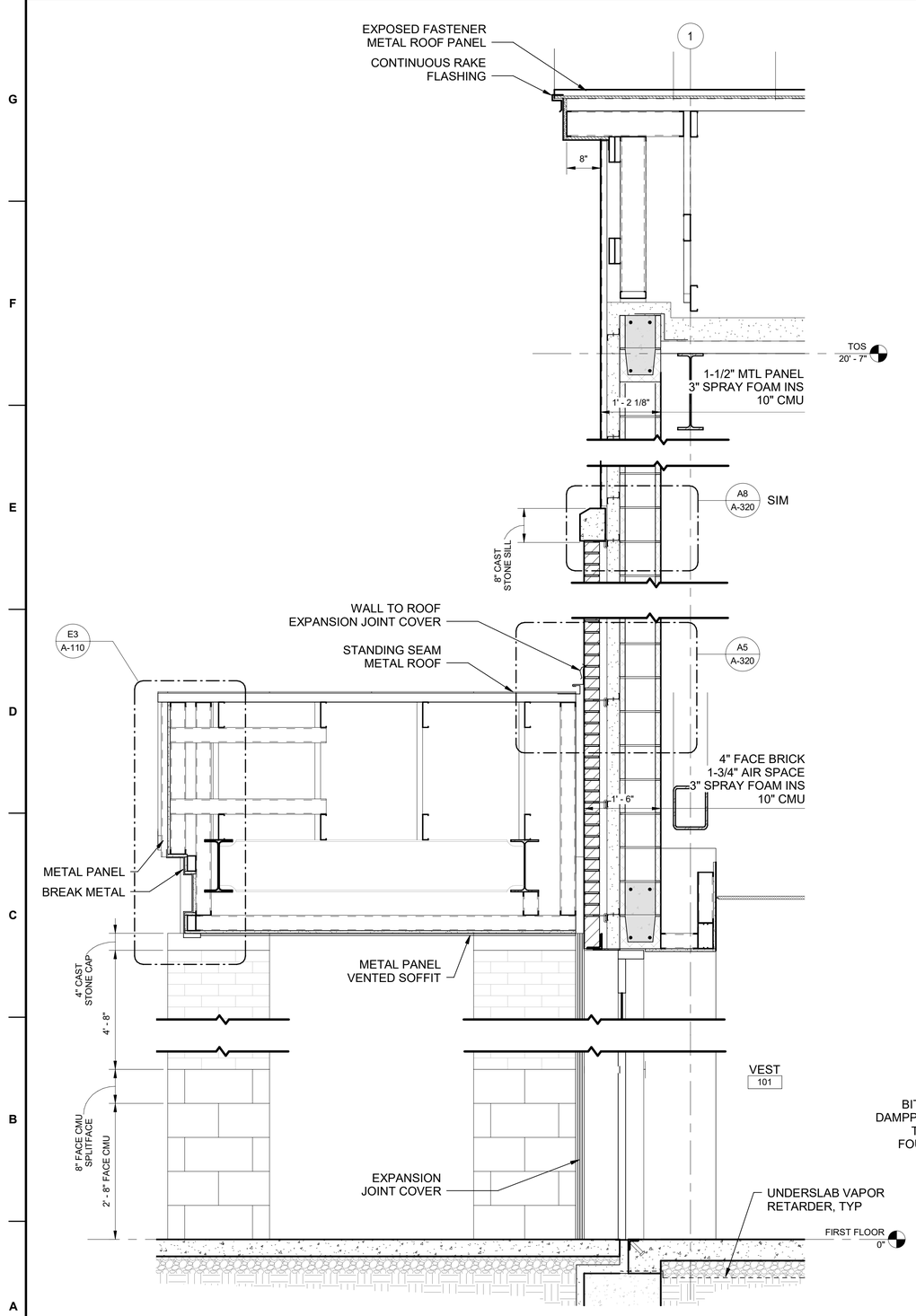
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
WALL SECTIONS

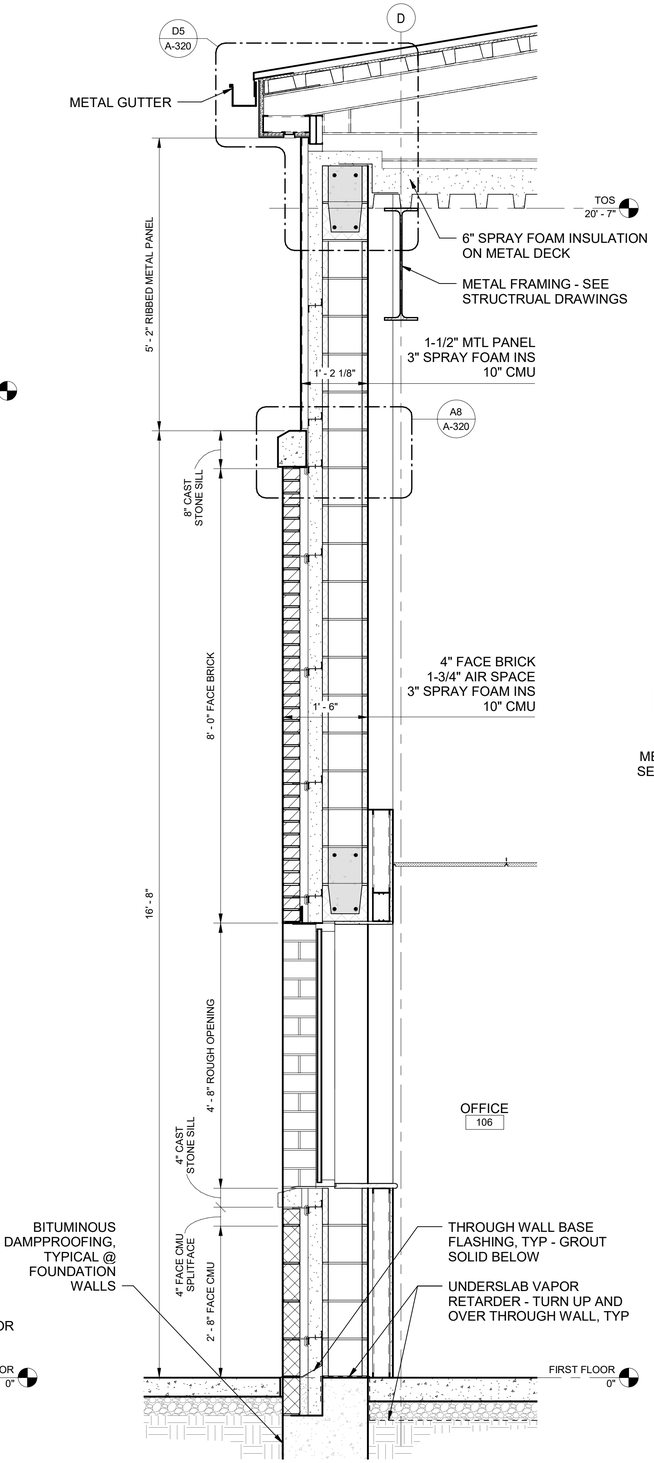
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN J. SCHMIDT

SHEET ID
A-310

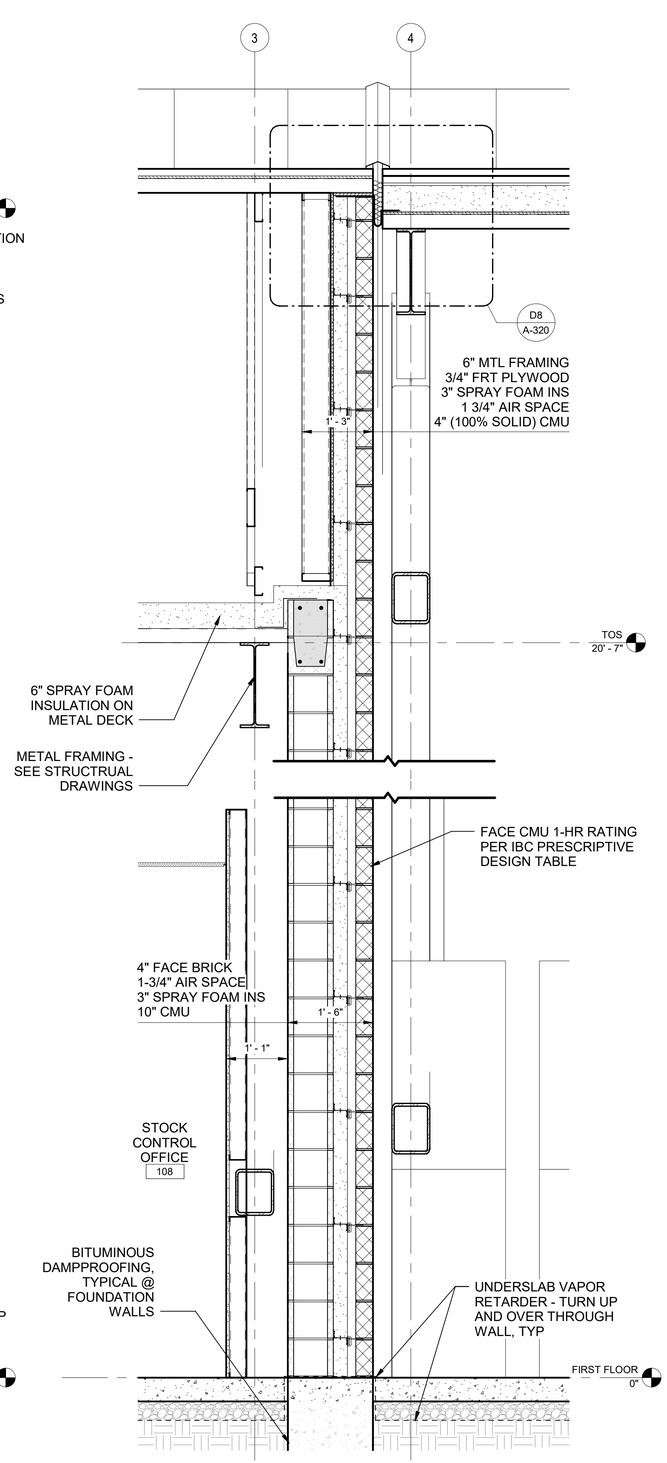
READY TO ADVERTISE



A1 WALL SECTION - ADMINISTRATION
3/4" = 1'-0"



A5 WALL SECTION - ADMINISTRATION
3/4" = 1'-0"



A8 WALL SECTION - ADMIN / WAREHOUSE
3/4" = 1'-0"

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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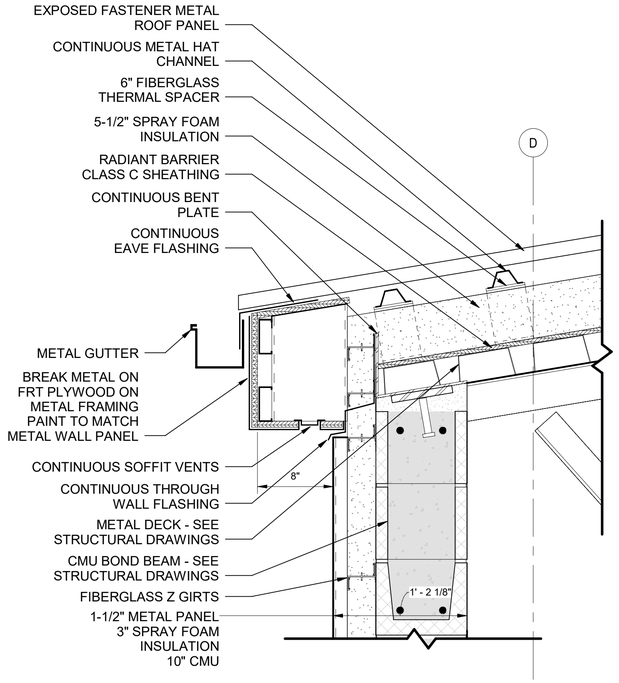
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BALTIMORE, MARYLAND 21231

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PROJECT 87447
WALL SECTIONS

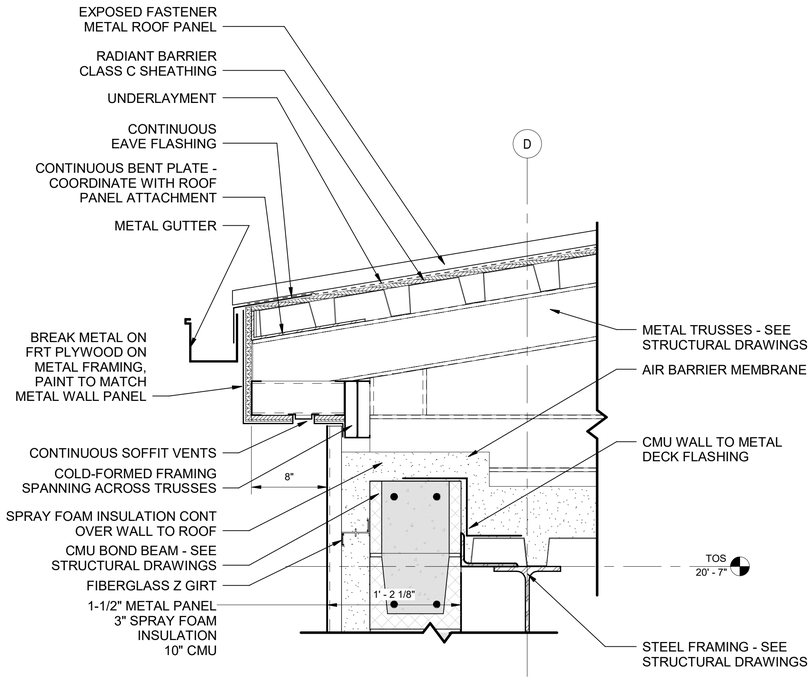
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN M. SCHMIDT 8/4/2023

SHEET ID
A-311

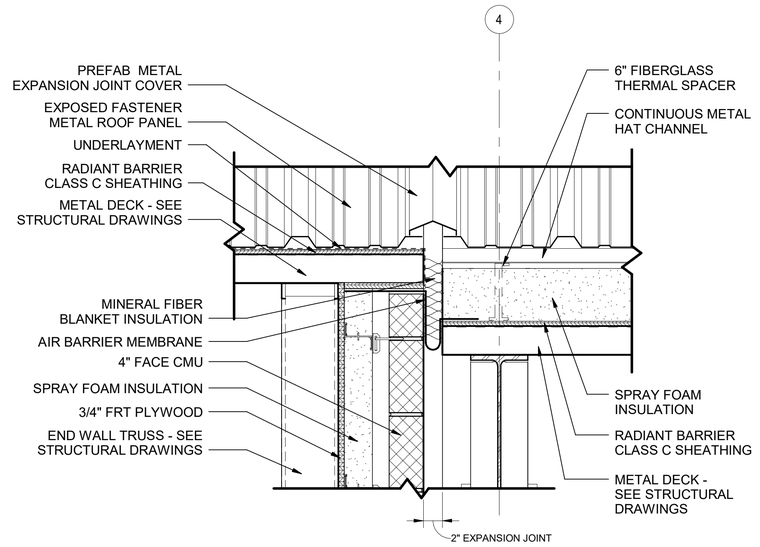
READY TO ADVERTISE



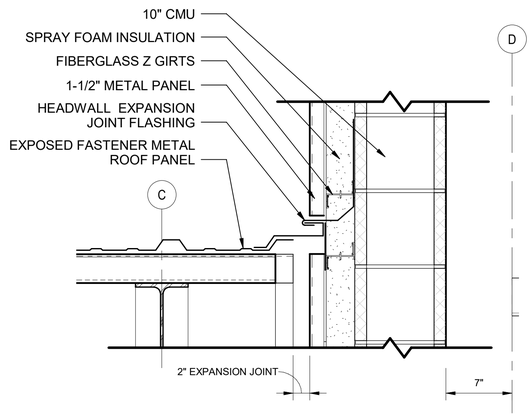
D1 SECTION DETAIL
1 1/2" = 1'-0"



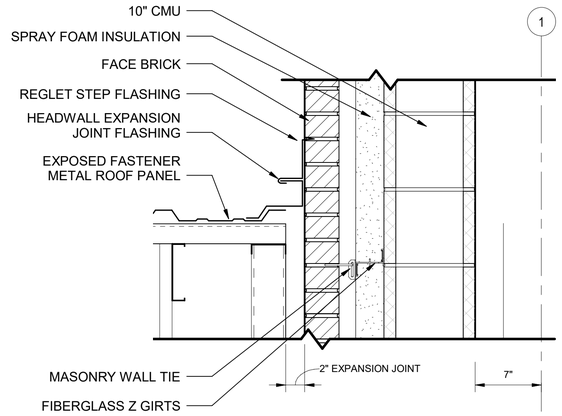
D5 SECTION DETAIL
1 1/2" = 1'-0"



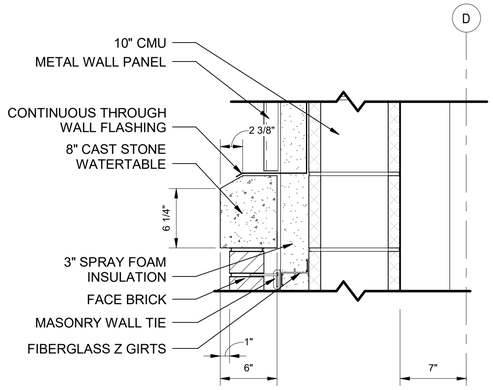
D8 SECTION DETAIL
1 1/2" = 1'-0"



A1 SECTION DETAIL
1 1/2" = 1'-0"



A5 SECTION DETAIL
1 1/2" = 1'-0"



A8 SECTION DETAIL
1 1/2" = 1'-0"

GRAPHIC SCALE
0 3" 6" 1' 1' 6"

US Army Corps of Engineers ®

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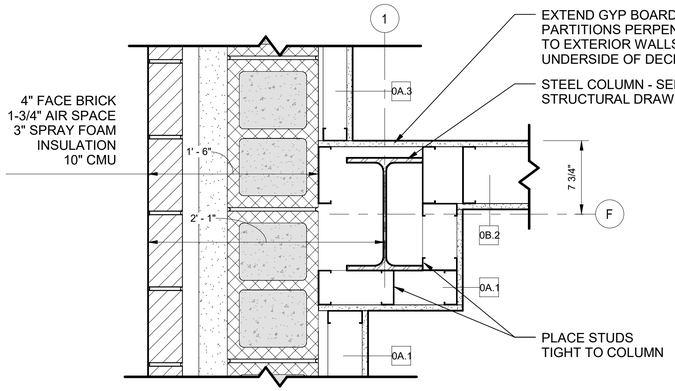
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
WALL DETAILS

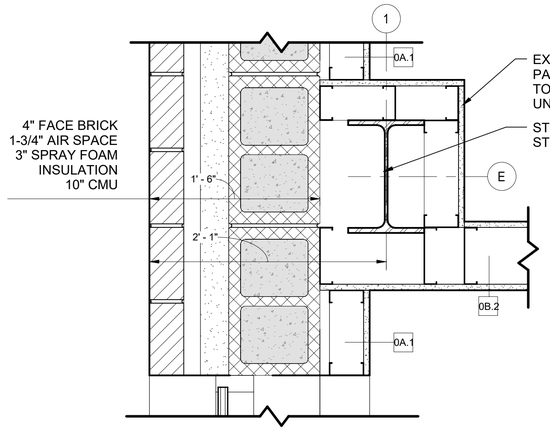
NORTH CAROLINA REGISTERED 14646 ARCHITECT SCOTT A. STAMAN

SHEET ID
A-320

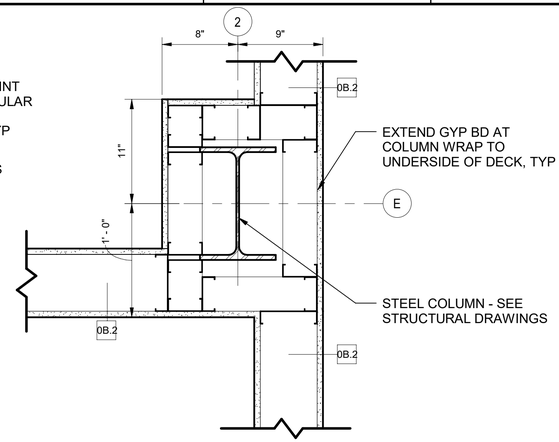
READY TO ADVERTISE



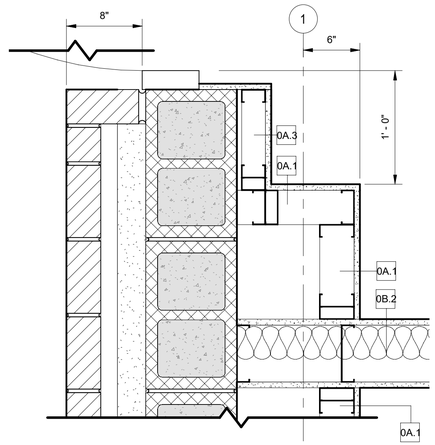
E2 PLAN DETAIL
1 1/2" = 1'-0"



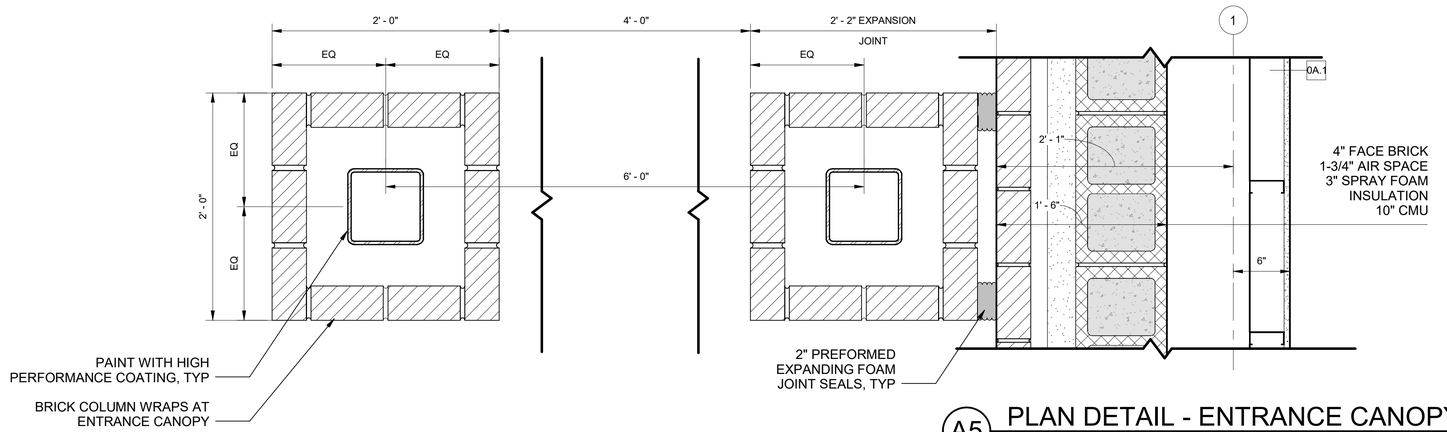
E5 PLAN DETAIL
1 1/2" = 1'-0"



E8 PLAN DETAIL
1 1/2" = 1'-0"



C5 PLAN DETAIL - ENTRANCE CANOPY
1 1/2" = 1'-0"



A5 PLAN DETAIL - ENTRANCE CANOPY
1 1/2" = 1'-0"

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
DRAWN BY: BTF
CHECKED BY: EBS
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SECOND TITLE
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

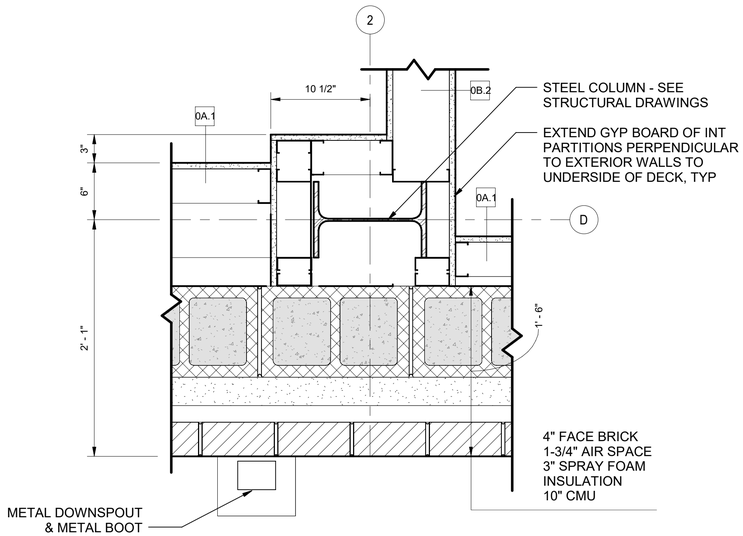
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PLAN DETAILS

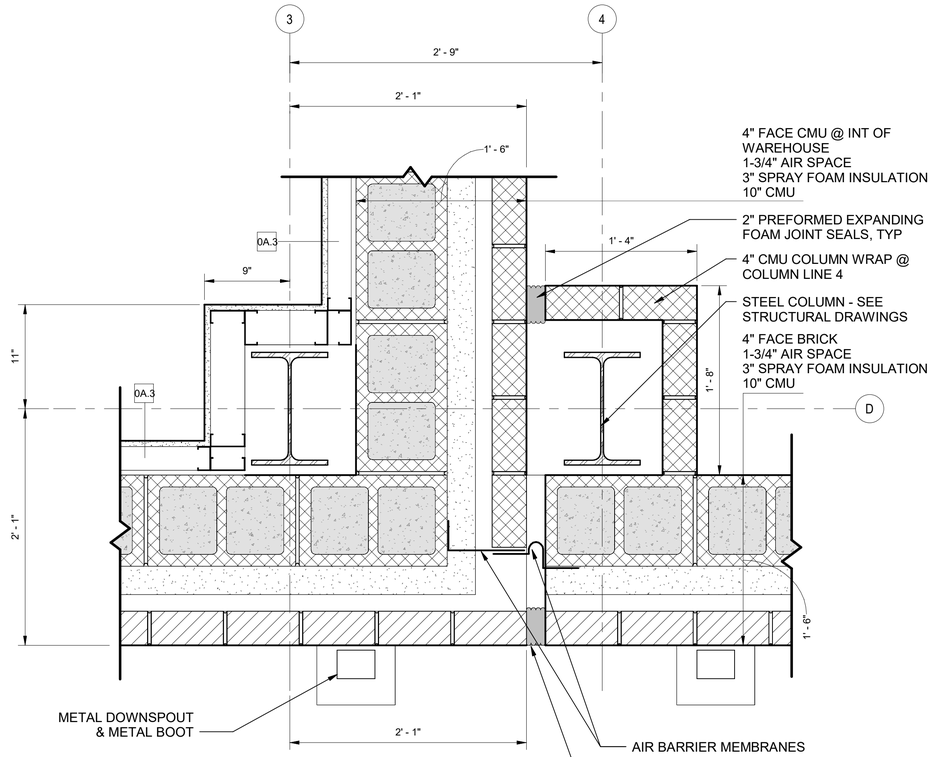
NORTH CAROLINA REGISTERED 14646 ARCHITECT TERENCE E. SCHMITZMAN 10/4/2023

SHEET ID
A-330

READY TO ADVERTISE



A1 PLAN DETAIL
1 1/2" = 1'-0"



A7 PLAN DETAIL
1 1/2" = 1'-0"

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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WILMINGTON, NORTH CAROLINA 28403-1343

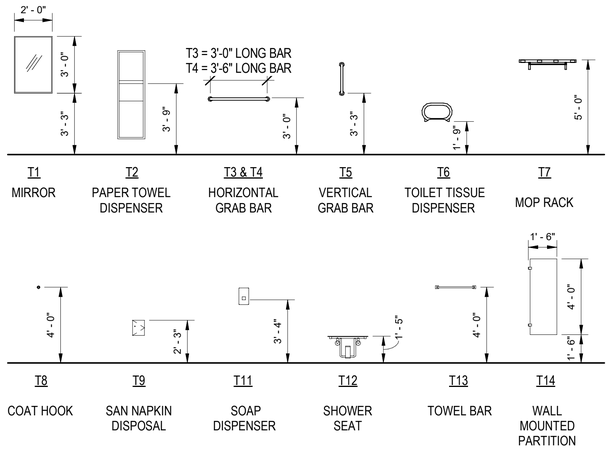
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PLAN DETAILS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN D. SCHLOSSMAN

SHEET ID
A-331

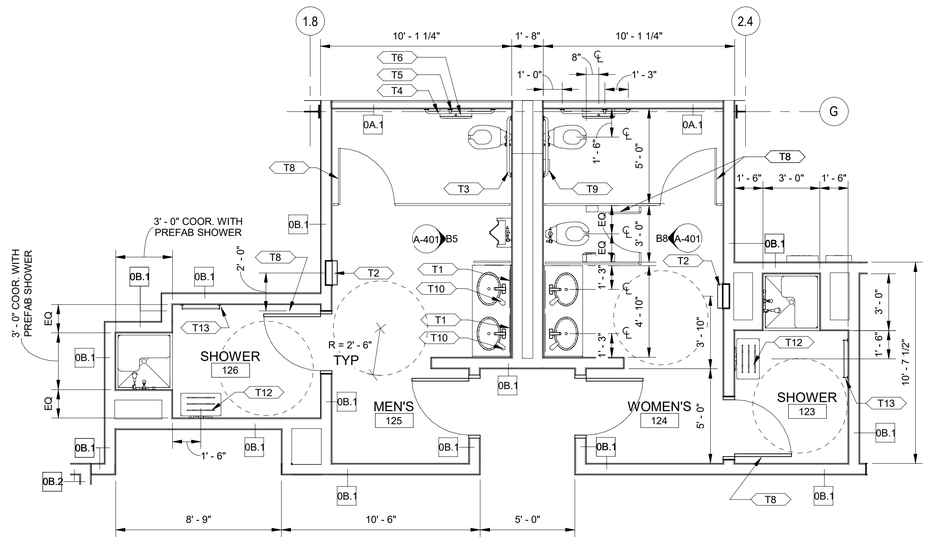
READY TO ADVERTISE



TOILET ACCESSORIES ELEVATION

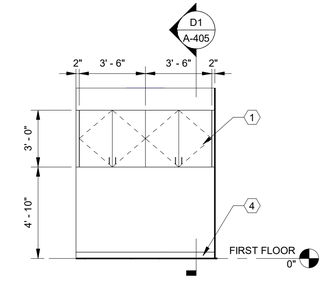
1/4" = 1'-0"

TOILET ACCESSORY SCHEDULE	
TYPE MARK	DESCRIPTION
T1	MIRROR - 2'-0" x 3'-0" WITH FRAME
T2	TRASH / PAPER TOWEL - RECESSED
T3	36" GRAB BAR
T4	42" GRAB BAR
T5	18" GRAB BAR
T6	TOILET PAPER DISPENSER
T7	MOP RACK
T8	COAT HOOK
T9	SANITARY NAPKIN DISPOSAL - SURFACE MOUNTED
T10	SOAP DISPENSER - COUNTER AUTOMATIC
T11	SOAP DISPENSER - SURFACE MOUNTED
T12	SHOWER SEAT
T13	TOWEL BAR
T14	WALL MOUNTED PARTITION



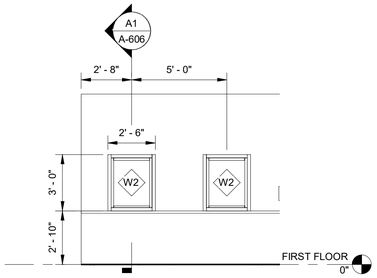
B2 ENLARGED PLAN - RESTROOMS

1/4" = 1'-0"



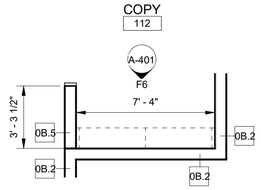
F6 INT ELEV - COPY 112

1/4" = 1'-0"



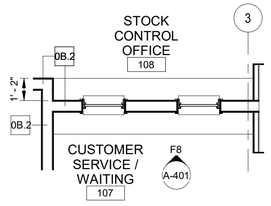
F8 INT ELEV - CUSTOMER SERVICE / WAITING

1/4" = 1'-0"



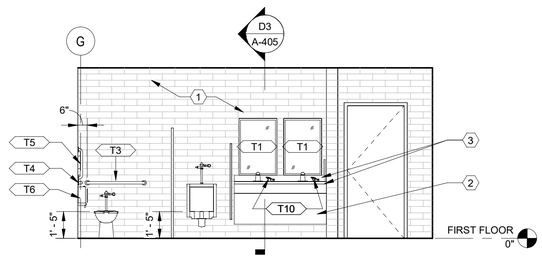
D6 ENLARGED PLAN - COPY

1/4" = 1'-0"



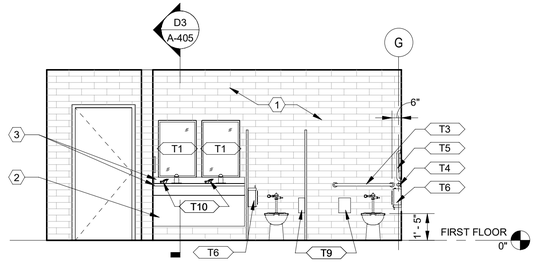
D8 ENLARGED PLAN - CUSTOMER SERVICE / WAITING

1/4" = 1'-0"



B5 INT ELEVATION - MEN'S 125

1/4" = 1'-0"



B8 INT ELEVATION - WOMEN'S 124

1/4" = 1'-0"

GENERAL SHEET NOTES

1. ALL WALLS TO BE PAINTED PT-1 UNLESS OTHERWISE NOTED.
2. SEE SHEET I-601 FOR FINISH LIST, FINISH SCHEDULE AND DETAILS.
3. SEE SHEET P-601 FOR PLUMBING FIXTURES.

SHEET KEYNOTES

1 CERAMIC WALL TILE, CWT-1
2 PLASTIC LAMINATE, PLAM-2
3 SOLID SURFACE, SS-1
4 ACCENT PAINT, PT-2
5 SCHEDULED WALL BASE, RB-1

SHEET LEGEND

GRAPHIC SCALE

0 2' 4' 8'

US Army Corps of Engineers ®

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BTF	W912PM22R0015
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SIZE: ANSI D	SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

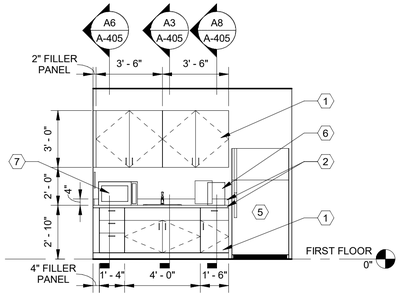
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ENLARGED PLANS, ELEVATIONS & DETAILS

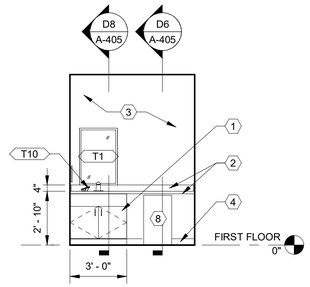
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN BRYAN SCHMIDT

SHEET ID
A-401

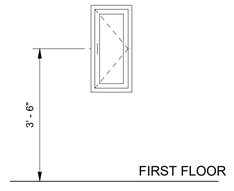
READY TO ADVERTISE



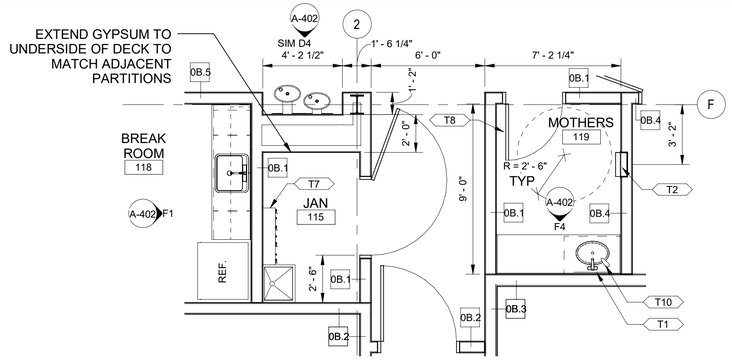
F1 INT ELEV - BREAK ROOM 118
1/4" = 1'-0"



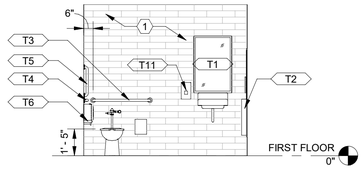
F4 INT ELEVATION - MOTHERS 119
1/4" = 1'-0"



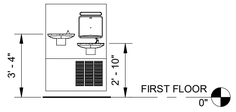
F6 TYPICAL FEC - ELEV
1/2" = 1'-0"



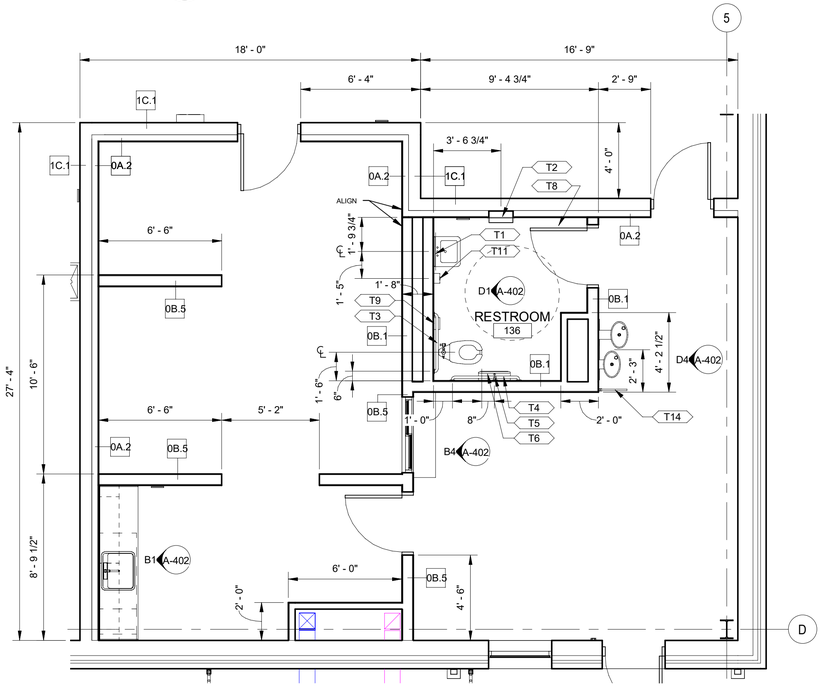
F7 ENLARGED PLAN - BREAK ROOM & MOTHERS
1/4" = 1'-0"



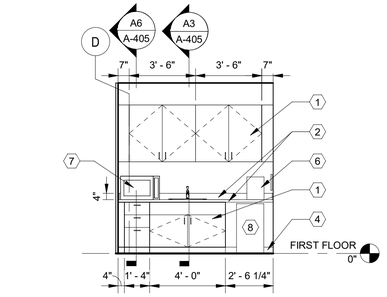
D1 INT ELEVATION - RR 136
1/4" = 1'-0"



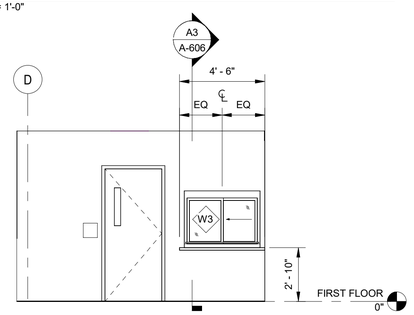
D4 INT ELEVATION - DRINKING FOUNTAIN WITH BOTTLE FILLER
1/4" = 1'-0"



B7 ENLARGED PLAN - GIP ADMINISTRATION
1/4" = 1'-0"



B1 INT ELEV - CLS OFFICE
1/4" = 1'-0"



B4 INT- ELEV - CLS OFFICE TRANSACTION WINDOW
1/4" = 1'-0"

GENERAL SHEET NOTES

1. ALL WALLS TO BE PAINTED PT-1 UNLESS OTHERWISE NOTED.
2. SEE SHEET A-401 FOR TOILET ACCESSORY SCHEDULE AND ELEVATIONS.
3. SEE SHEET P-601 FOR PLUMBING FIXTURES.

SHEET KEYNOTES

1 PLASTIC LAMINATE, PLAM-2
2 SOLID SURFACE, SS-1
3 ACCENT PAINT, PT-2
4 SCHEDULED WALL BASE, RB-1
5 REFRIGERATOR, AC-04
6 COFFEE MAKER, AC-05
7 MICROWAVE, AC-06
8 UNDERCOUNTER REFRIGERATOR, AC-07

SHEET LEGEND

GRAPHIC SCALE

0 1' 2' 4'
0 2' 4' 8'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
DRAWN BY: BTF
CHECKED BY: EBS
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

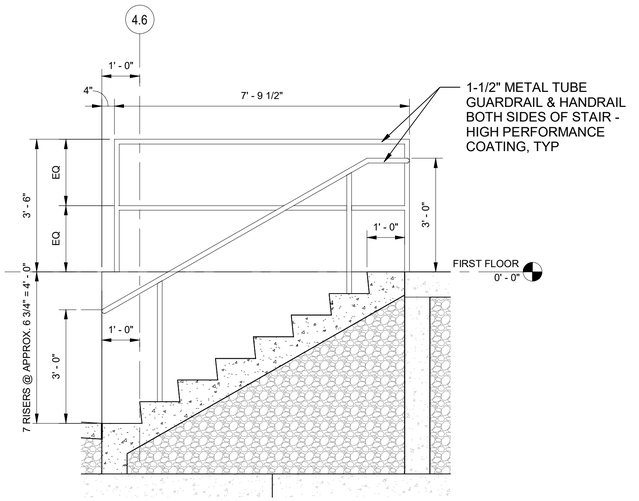
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

ENLARGED PLANS, ELEVATIONS & DETAILS

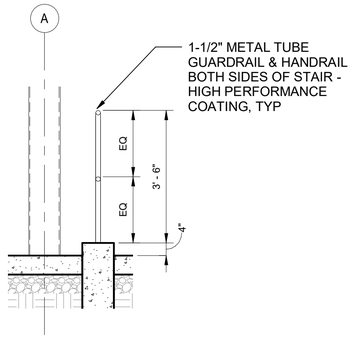
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHWARTZMAN

SHEET ID
A-402

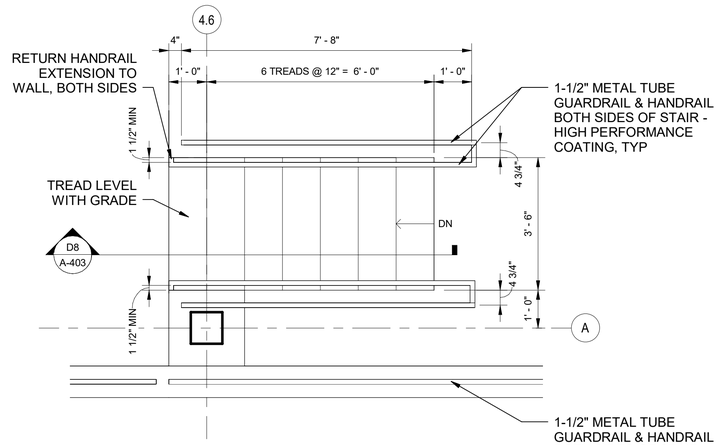
READY TO ADVERTISE



D8 SECTION - STAIR
1/2" = 1'-0"



A5 LOADING DOCK GUARDRAIL DETAIL
1/2" = 1'-0"



A8 ENLARGED PLAN - STAIR
1/2" = 1'-0"

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

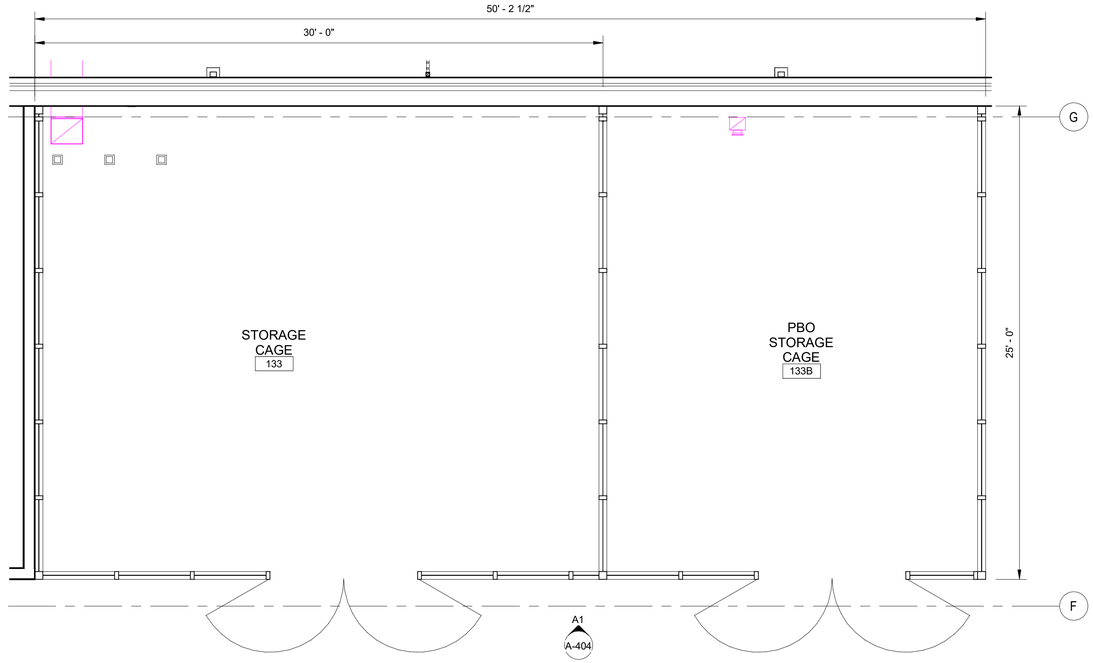
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ENLARGED STAIR PLANS, ELEVATIONS & DETAILS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN M. ZAMAN
10/4/2023

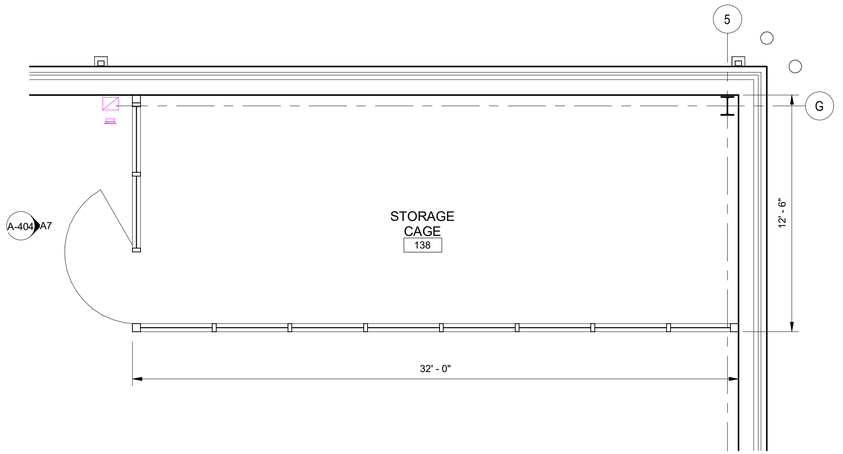
SHEET ID
A-403

READY TO ADVERTISE



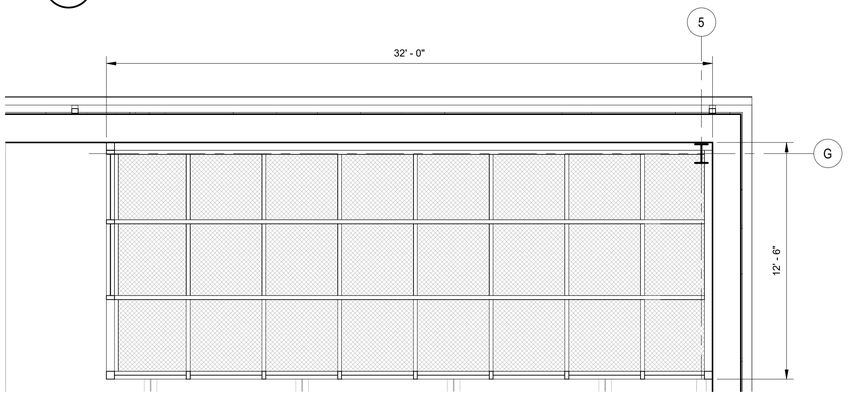
D1 ENLARGED PLAN - WAREHOUSE STORAGE CAGE

1/4" = 1'-0"



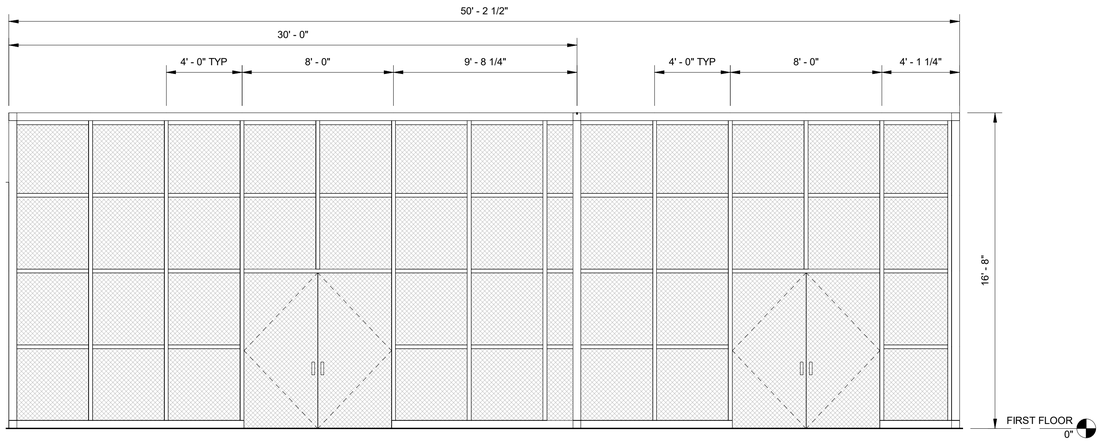
E7 ENLARGED PLAN - GIP WAREHOUSE STORAGE CAGE

1/4" = 1'-0"



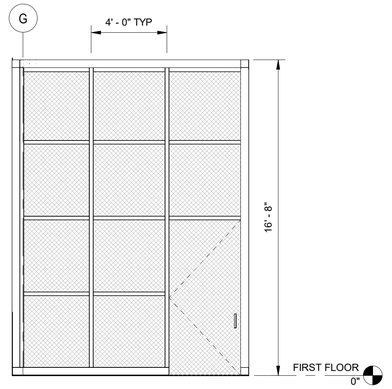
C7 ENLARGED RCP - GIP WAREHOUSE SECURITY CAGE

1/4" = 1'-0"



A1 INT ELEV - WAREHOUSE STORAGE CAGE

1/4" = 1'-0"



A7 INT ELEV - GIP WAREHOUSE STORAGE CAGE

1/4" = 1'-0"

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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801 SOUTH CAROLINE STREET
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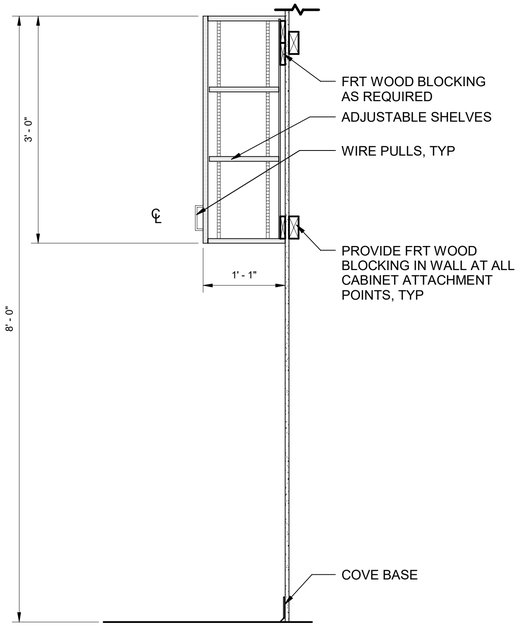
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

ENLARGED STORAGE CAGE PLANS, ELEVATIONS & DETAILS

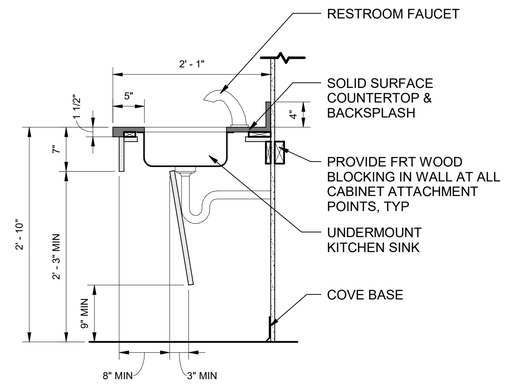
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN A. SCHMIDT, AIA

SHEET ID
A-404

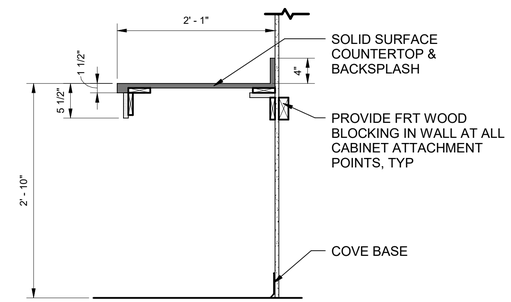
READY TO ADVERTISE



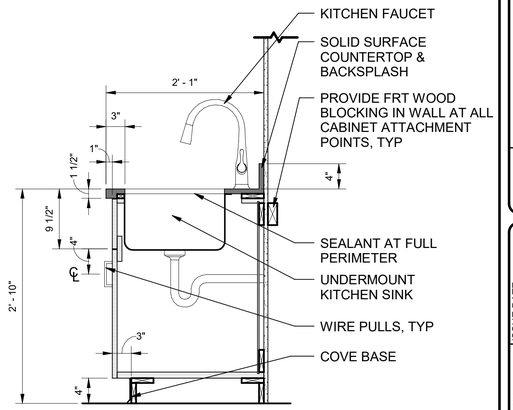
D1 MILLWORK - SECTION DETAIL
1" = 1'-0"



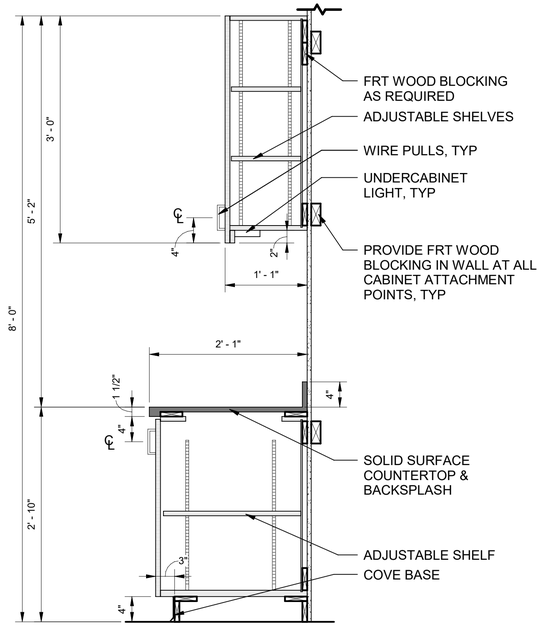
D3 MILLWORK - SECTION DETAIL
1" = 1'-0"



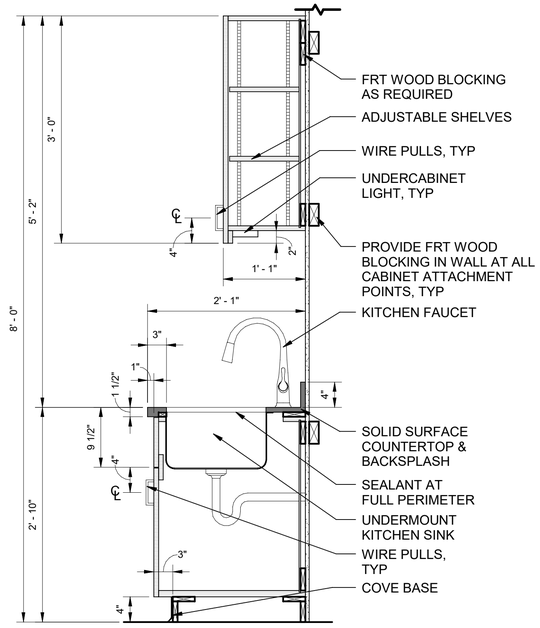
D6 MILLWORK - SECTION DETAIL
1" = 1'-0"



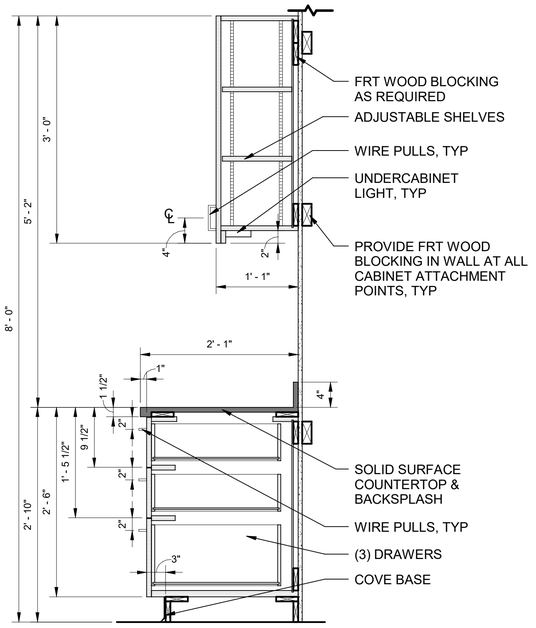
D8 MILLWORK - SECTION DETAIL
1" = 1'-0"



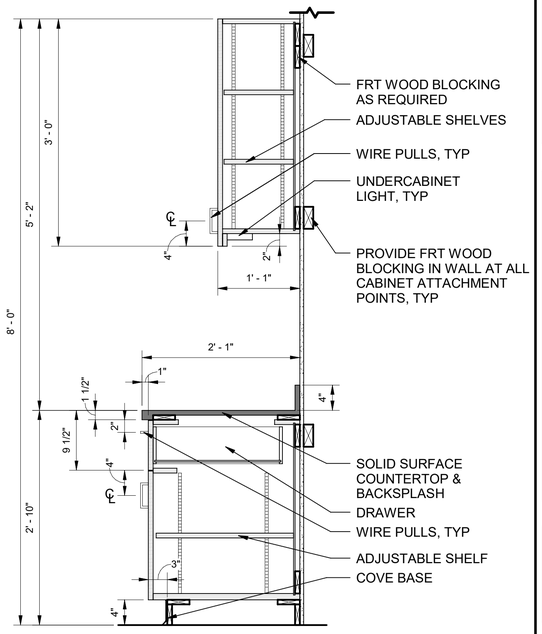
A1 MILLWORK - SECTION DETAIL
1" = 1'-0"



A3 MILLWORK - SECTION DETAIL
1" = 1'-0"



A6 MILLWORK - SECTION DETAIL
1" = 1'-0"



A8 MILLWORK - SECTION DETAIL
1" = 1'-0"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF	ISSUE DATE: AUGUST 2023
DRAWN BY: BTF	SOLICITATION NO.: W912PM22R0015
CHECKED BY: EBS	CONTRACT NO.: W912PM-19-D-0004
SUBMITTED BY:	FIRST TITLE
SIZE: ANSI D	SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

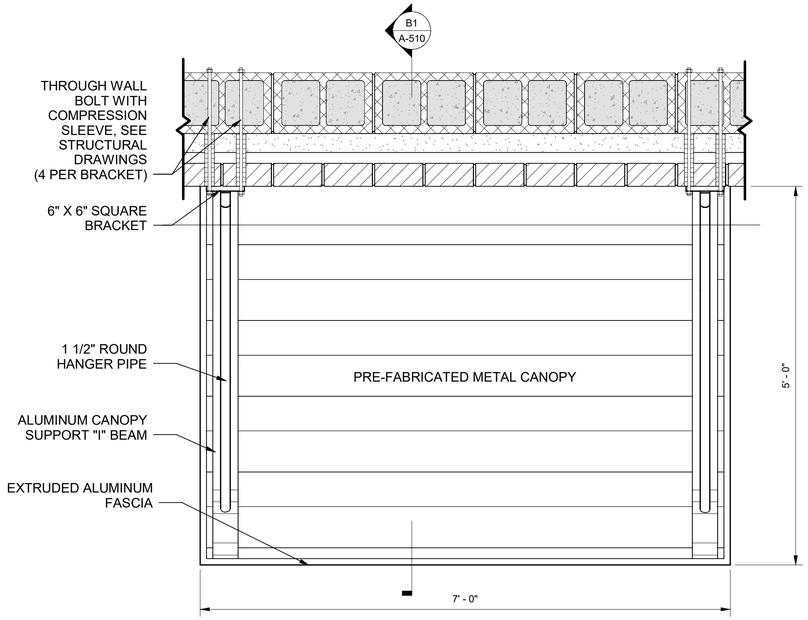
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
MILLWORK SECTIONS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN J. SCHROEDER

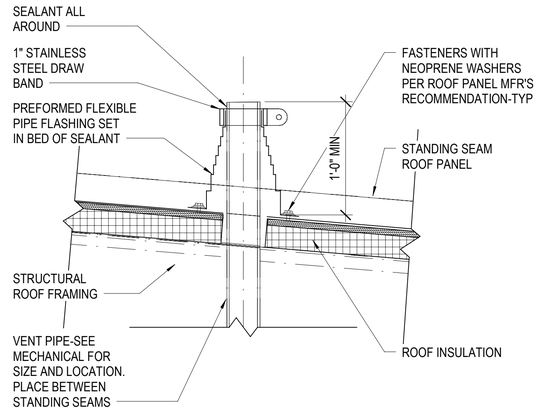
SHEET ID
A-405

READY TO ADVERTISE



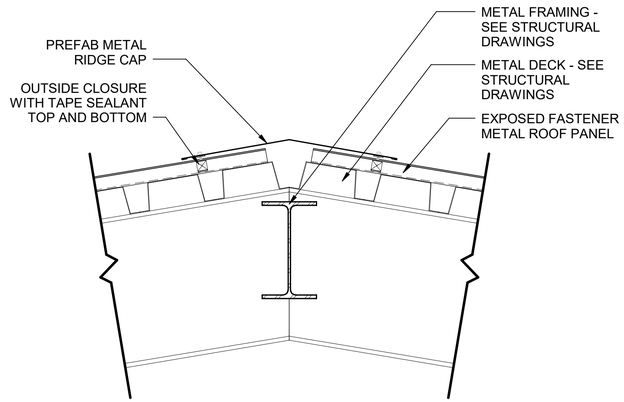
D1 CANOPY PLAN DETAIL

1" = 1'-0"



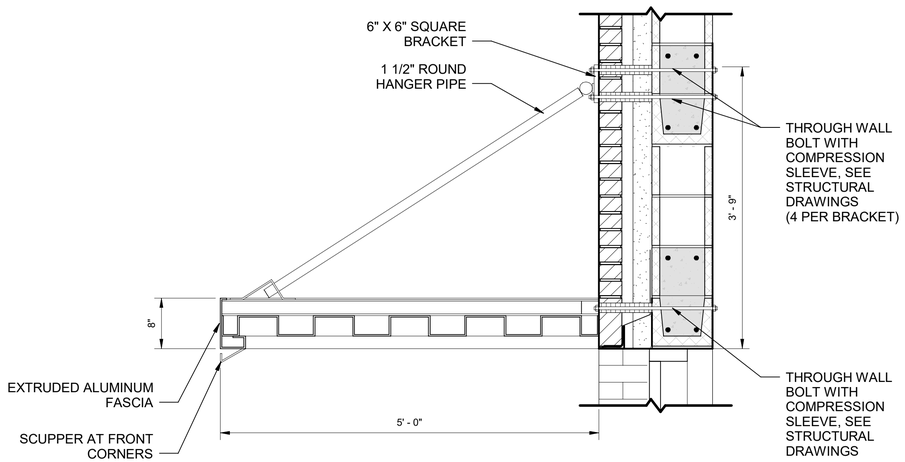
D5 VENT PIPE FLASHING DETAIL

1 1/2" = 1'-0"



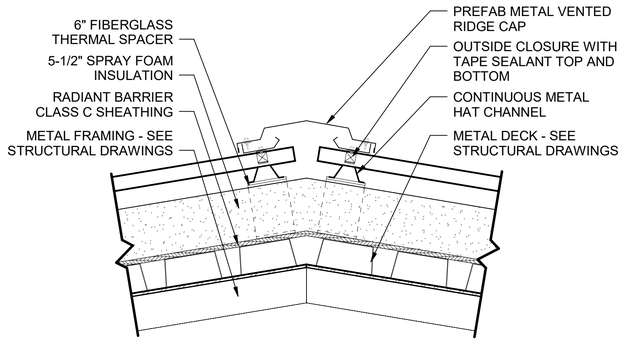
D8 RIDGE DETAIL - NON-VENTED

1 1/2" = 1'-0"



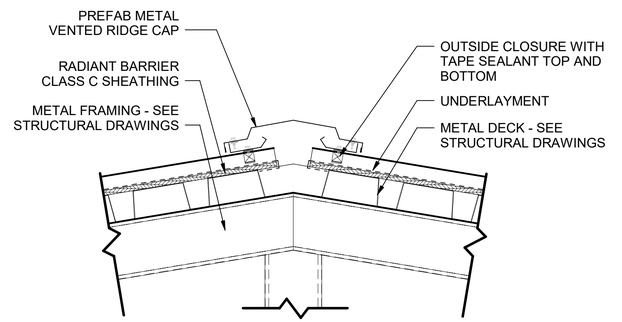
B1 CANOPY SECTION DETAIL

1" = 1'-0"



B5 VENTED RIDGE DETAIL - WAREHOUSE

1 1/2" = 1'-0"



B8 VENTED RIDGE DETAIL - ADMIN

1 1/2" = 1'-0"

GRAPHIC SCALE

0 6" 1' 2'

0 3" 6" 1' 1' 6"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
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CHECKED BY: EBS
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ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SECOND TITLE
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

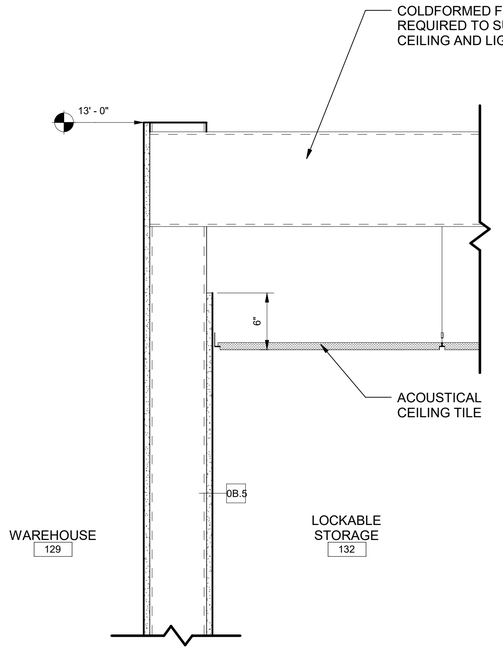
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ROOF AND METAL CANOPY DETAILS

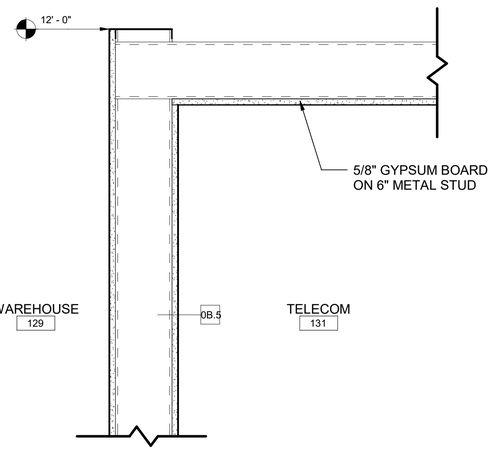
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN J. SCHMIDT 4/14/2023

SHEET ID
A-510

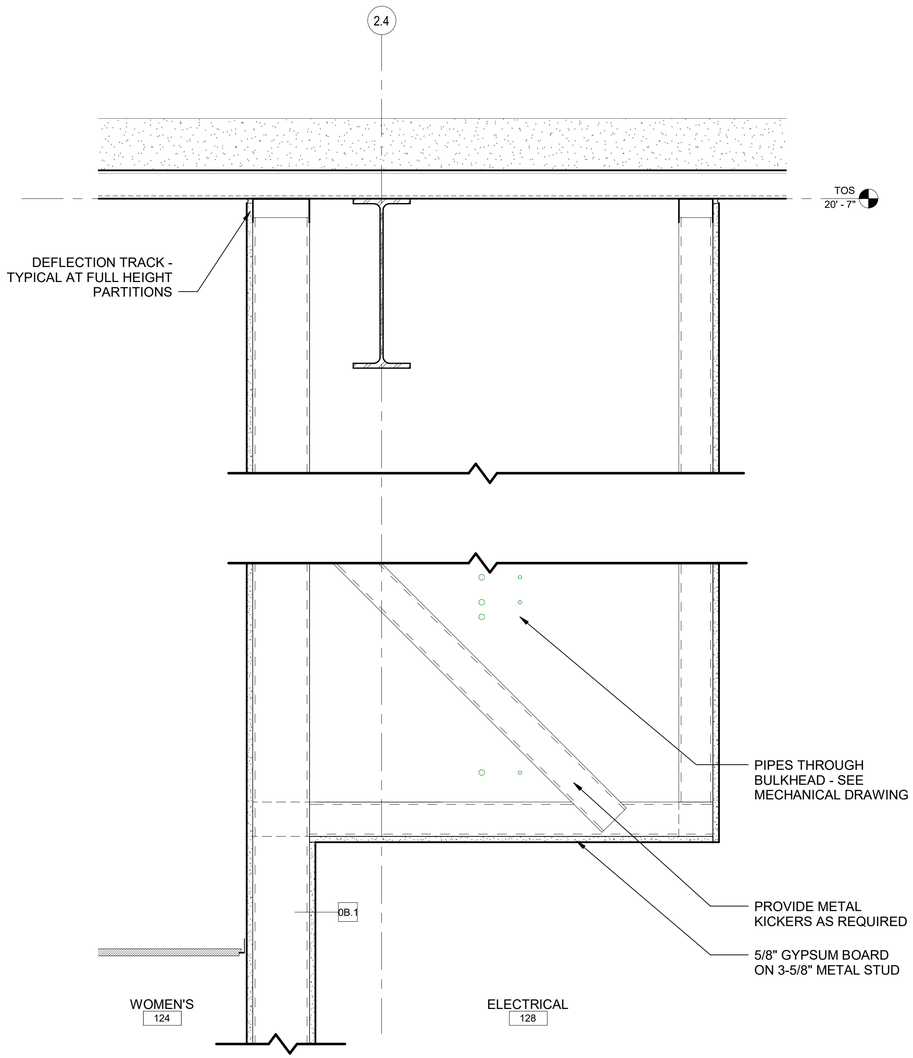
READY TO ADVERTISE



A1 CEILING DETAIL
1 1/2" = 1'-0"



A3 CEILING DETAIL
1 1/2" = 1'-0"



A5 CEILING DETAIL
1 1/2" = 1'-0"

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
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SOLICITATION NO.: W912PM22R0015
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FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

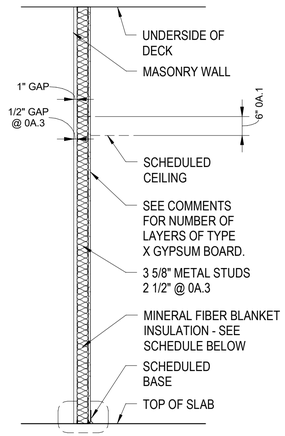
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

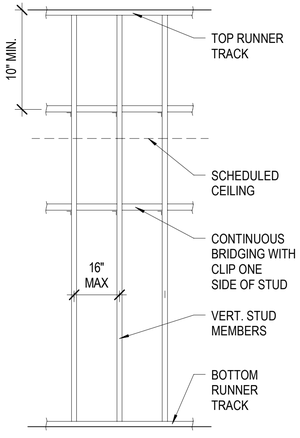
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
CEILING DETAILS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN E. SCHMITZMAN

SHEET ID
A-520

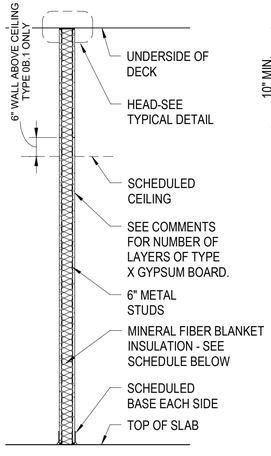
READY TO ADVERTISE

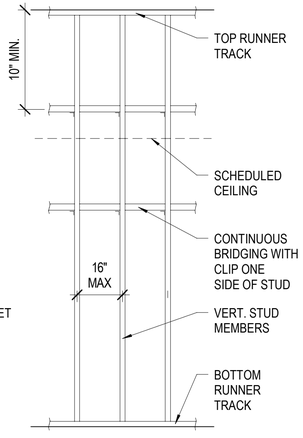




TYPE MARK	PARTITION PROPERTIES				
	INSULATION	FIRE-RATING	UL NUMBER	STC RATING	COMMENTS
0A.1	NONE	NOT RATED	N/A	N/A	(1) LAYER 5/8" TYPE X GYPSUM BOARD ON 1 SIDE
0A.2	R-13	NOT RATED	N/A	N/A	(1) LAYER 5/8" TYPE X GYPSUM BOARD ON 1 SIDE
0A.3	NONE	NOT RATED	N/A	N/A	TYPICAL WALL FURRING @ BLAST RATED DOORS

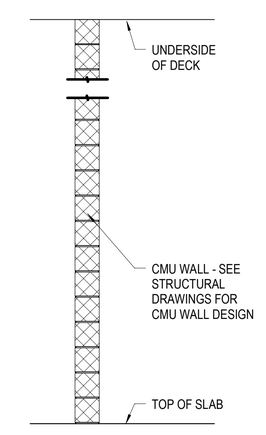
A INTERIOR PARTITION TYPE



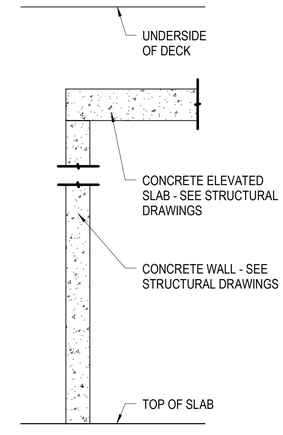


TYPE MARK	PARTITION PROPERTIES				
	INSULATION	FIRE-RATING	UL NUMBER	STC RATING	COMMENTS
0B.1	N/A	NOT RATED	N/A	N/A	(1) LAYER 5/8" TYPE X GYP BD ON BOTH SIDES
0B.2	PER STC REQ	NOT RATED	N/A	49	(1) LAYER 5/8" TYPE X GYP BD ON BOTH SIDES
0B.3	PER STC REQ	NOT RATED	N/A	50	(1) LAYER 5/8" 1 SIDE & 2 LAYERS 5/8" OTHER SIDE, TYPE X GYP
0B.4	N/A	NOT RATED	N/A	N/A	COMPLIES WITH AR 380-5
0B.5	N/A	NOT RATED	N/A	N/A	6" ABOVE CEILING UNLESS NOTED OTHERWISE

B INTERIOR PARTITION TYPE



1C.1



0C.2

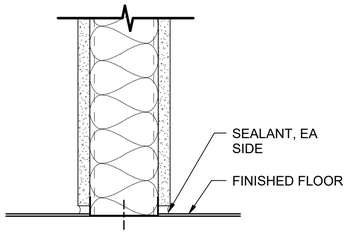
TYPE MARK	PARTITION PROPERTIES				
	INSULATION	FIRE-RATING	UL NUMBER	STC RATING	COMMENTS
1C.1	NONE	1 HOUR	U-905	N/A	8" CMU - SEE STRUCTURAL DRAWINGS
0C.2	NONE	N/A	N/A	N/A	8" CONCRETE WALL - SEE STRUCTURAL DRAWINGS

C INTERIOR PARTITION TYPE

GENERAL SHEET NOTES

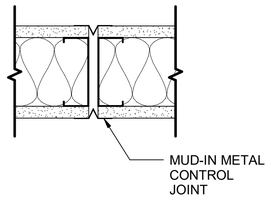
1. AT ALL CERAMIC WALL TILE LOCATIONS, SUBSTITUTE TYPE 'X' GYPSUM BOARD WITH REGULAR WATER RESISTANT GYPSUM BACKING BOARD, SEE FINISH SCHEDULE FOR CERAMIC TILE LOCATIONS.

APPLIES TO ALL SMOKE BARRIER PARTITIONS AND/OR PARTITIONS WITH SOUND ATTENUATION INSULATION



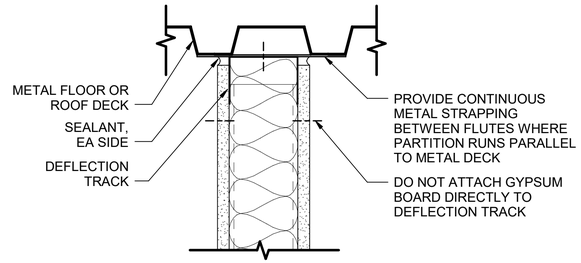
A3 PARTITION BASE DETAIL
3" = 1'-0"

NOTES:
1. PROVIDE CONTROL JOINTS IN GYP BD PARTITIONS EVERY 30' OC.
2. AT DOORS IN GYP BD GREATER THAN 30' IN LENGTH, PROVIDE A CONTROL JOINT AT 1 CORNER OF EVERY DOOR FRAME FROM THE FRAME HEAD TO THE FULL HEIGHT OF THE PARTITION.



A6 PARTITION DTL @ CONTROL JOINT
3" = 1'-0"

ALLOW 1-1/2" OF VERTICAL MOVEMENT PARALLEL TO DECK CONDITION SHOWN; PERPENDICULAR TO DECK CONDITION SIMILAR



A8 PARTITION HEAD DETAIL - NON-RATED
3" = 1'-0"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
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ISSUE DATE: AUGUST 2023
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

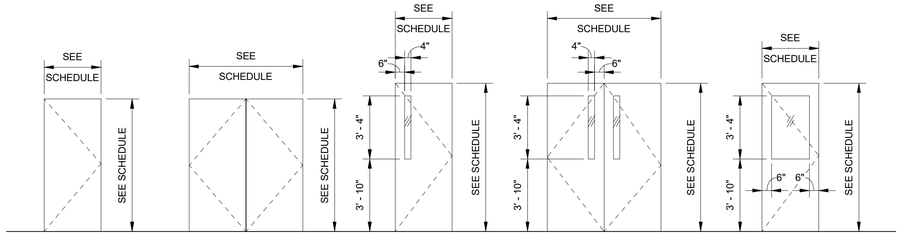
WHITTMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

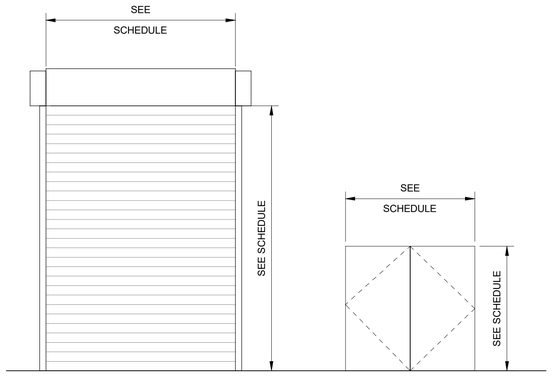
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PARTITION TYPES

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN EDWARD SCHMIDT

SHEET ID
A-601

READY TO ADVERTISE



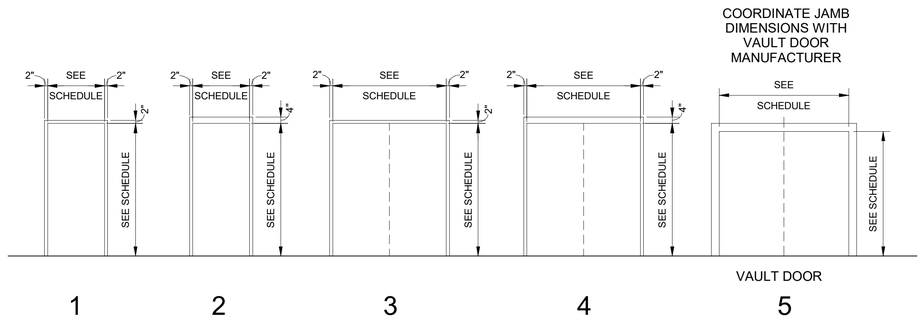


DOOR TYPES

1/4" = 1'-0"

DOOR NO.	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR TYPE	DOOR MATERIAL	FRAME TYPE	FRAME MATERIAL	FIRE RATING	STC RATING	Head	Jamb	Sill	Hardware	Comments
101A	3' - 0"	7' - 10"	C	STEEL	1	STEEL			H4	J4	S3	001	1,2,4,8
101B	3' - 0"	7' - 0"	B	WOOD	1	HM			H1	J1	S1	111	9
103	3' - 0"	7' - 0"	B	WOOD	1	HM		25	H1	J1	S1	107	9
104	3' - 0"	7' - 0"	B	WOOD	1	HM		25	H1	J1	S1	107	9
105	3' - 0"	7' - 0"	B	WOOD	1	HM		25	H1	J1	S1	107	9
106	3' - 0"	7' - 0"	B	WOOD	1	HM		25	H1	J1	S1	107	9
107A	3' - 0"	7' - 10"	C	STEEL	1	STEEL			H4	J4	S3	001	1,2,4,8
107B	3' - 0"	7' - 0"	B	STEEL	2	STEEL	45 MIN		H4	J4	S3	001A	1,4,8
108A	3' - 0"	7' - 0"	B	WOOD	1	HM			H1	J1	S1	107	9
108B	3' - 0"	7' - 0"	B	STEEL	2	STEEL	45 MIN		H4	J4	S3	112	1,4,8
109	3' - 0"	7' - 0"	B	WOOD	1	HM		25	H1	J1	S1	107	9
110	3' - 0"	7' - 0"	B	WOOD	1	HM		25	H1	J1	S1	107	9
111	4' - 0"	7' - 0"	B	WOOD	1	HM			H1	J1	S1	003	9
112	4' - 0"	7' - 0"			1	HM			H2	J2	S2	--	FRAME ONLY
113	3' - 0"	7' - 0"	B	WOOD	1	HM		30	H1	J1	S1	107	9
114	3' - 0"	7' - 0"	B	WOOD	1	HM			H1	J1	S1	107	9
115	4' - 0"	7' - 0"	A	HM	3	HM			H1	J1	S1	103	
116	3' - 0"	7' - 0"	B	STEEL	2	STEEL	45 MIN		H4	J4	S3	001A	1,4,8
117A	3' - 0"	7' - 10"	B	STEEL	1	STEEL			H4	J4	S3	001	1,2,4,8
117B	3' - 0"	7' - 0"	B	WOOD	1	HM			H1	J1	S1	111	9
118	5' - 0"	7' - 0"			1	HM			H2	J2	S2	--	FRAME ONLY
119	3' - 0"	7' - 0"	A	WOOD	1	HM			H1	J1	S1	107	
120	3' - 0"	7' - 0"	A	HM	1	HM			H1	J1	S1	110	
121	3' - 0"	7' - 0"	A	HM	1	HM			H1	J1	S1	003	
122	3' - 0"	7' - 0"	A	WOOD	1	HM			H1	J1	S1	106	
123	3' - 0"	7' - 0"	A	WOOD	1	HM			H1	J1	S1	104	
124	3' - 0"	7' - 0"	A	WOOD	1	HM			H1	J1	S1	102	
125	3' - 0"	7' - 0"	A	WOOD	1	HM			H1	J1	S1	102	
126	3' - 0"	7' - 0"	A	WOOD	1	HM			H1	J1	S1	104	
127	6' - 0"	7' - 0"	AA	STEEL	4	STEEL			H5	J5	S3	002	4,3
128	6' - 0"	7' - 0"	AA	STEEL	4	STEEL			H5	J5	S3	002	4,3
129A	3' - 0"	7' - 10"	B	STEEL	2	STEEL			H5	J5	S3	001	8
129B	10' - 0"	14' - 0"	D		--				H6	J6	S4	004	
129C	10' - 0"	14' - 0"	D		--				H6	J6	S4	004	
129D	3' - 0"	7' - 10"	B	STEEL	2	STEEL			H5	J5	S3	001	8
129E	6' - 0"	7' - 10"	BB	STEEL	3	STEEL			H5	J5	S3	005	8
129F	10' - 0"	14' - 0"	D		--				H6	J6	S4	004	
129G	3' - 0"	7' - 10"	B	STEEL	1	STEEL			H5	J5	S3	001	8
130	6' - 10"	6' - 7"	EE	Conform with FS AA-D-600, Class 5A	5	Conform with FS AA-D-600, Class 5A						004	VAULT DOOR, COORDINATE WITH MANUFACTURERS INSTALLATION DETAILS
131	3' - 0"	7' - 0"	A	HM	2	HM			H1	J1	S1	106	
132	3' - 0"	7' - 0"	A	HM	2	HM			H1	J1	S1	101	
134A	3' - 0"	7' - 10"	B	STEEL	2	STEEL			H5	J5	S3	001	8
134B	3' - 0"	7' - 10"	B	STEEL	1	STEEL			H5	J5	S3	001	8
134C	10' - 0"	14' - 0"	D		--				H6	J6	S4	004	
134D	3' - 0"	7' - 10"	B	STEEL	1	STEEL			H5	J5	S3	001	8
135A	3' - 0"	7' - 10"	C	STEEL	1	STEEL			H4	J4	S3	001	8
135B	3' - 0"	7' - 0"	B	HM	2	HM	45 MIN		H3	J3	S1	109	9
136	3' - 0"	7' - 0"	A	HM	1	HM			H1	J1	S1	108	
137A	3' - 0"	7' - 0"	B	HM	1	HM			H1	J1	S1	107	9
137B	3' - 0"	7' - 0"	B	HM	2	HM	45 MIN		H3	J3	S1	107	9

1. DOOR ASSEMBLIES MUST BE DYNAMICALLY DESIGNED FOR BLAST LOADING AND RESPONSE AS INDICATED IN PROJECT SPECIFICATIONS AND UFC 4-010-01, APPENDIX B.
2. GLAZING IN DOOR ASSEMBLIES MUST BE DYNAMICALLY DESIGNED FOR BLAST LOADING AND RESPONSE AS INDICATED IN PROJECT SPECIFICATIONS AND UFC 4-010-01, APPENDIX B.
3. BLAST RESISTANT DOOR ASSEMBLIES W/REMOVABLE CENTER MULLION
4. CMU WALLS (INCLUDING GROUTING/REBAR AROUND OPENINGS) ON THE BLAST RESISTANT BOUNDARY HAVE BEEN DESIGNED TO PROVIDE A LOW LEVEL OF PROTECTION PER UFC 4-010-01 FOR THE DESIGNATED THREAT. DETAILING FOR THE WINDOW/DOOR FRAME CONNECTION TO THE CMU HAS NOT BEEN DESIGNED OR DETAILED ON THESE DOCUMENTS. ALL ANCHORAGE, EMBEDDED STEEL, ANCHORED PLATES OR MEMBERS, AND/OR OTHER SUPPORT AND/OR CONNECTING ELEMENTS USED TO CONNECT THE WINDOW/DOOR TO THE CMU ARE THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DESIGNED AND DETAILED BY THE CONTRACTOR FOR THE BLAST LOADING AND RESPONSE INDICATED.
5. SEE SHEET A-604 & A-605 FOR DOOR HEAD, JAMB AND SILL DETAILS.
6. PAINT DOORS AND FRAMES, SEE SHEET I-601.
7. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION ON WOOD & METAL DOORS AND DOOR HARDWARE
8. GLAZING IGU-1, SEE GLAZING SPECIFICATIONS
9. GLAZING GU-1, SEE GLAZING SPECIFICATIONS



FRAME TYPES

1/4" = 1'-0"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
DRAWN BY: BTF
CHECKED BY: EBS
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

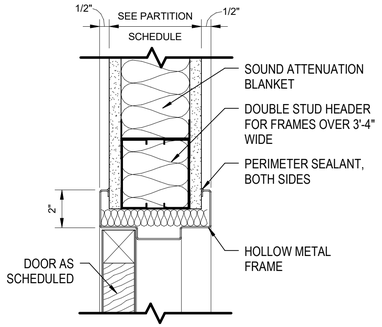
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
DOOR TYPES AND SCHEDULE

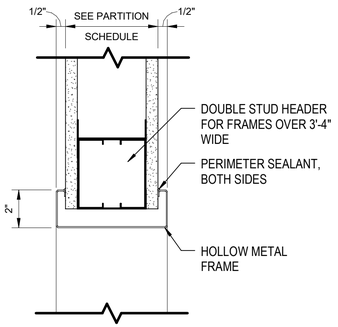
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMITZMAN

SHEET ID
A-603

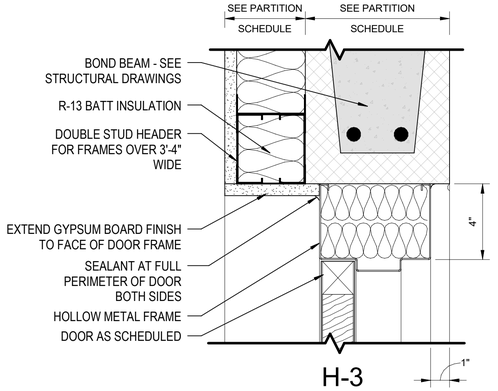
READY TO ADVERTISE



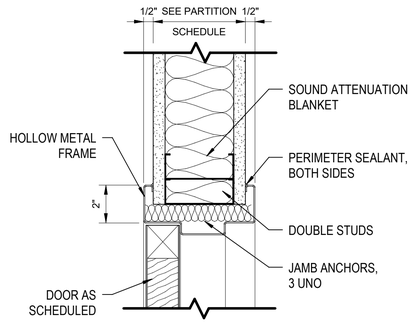
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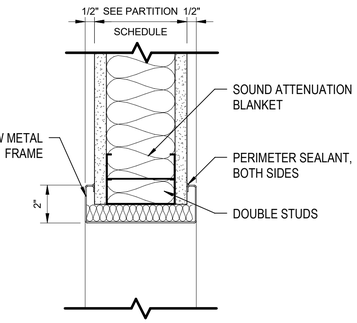
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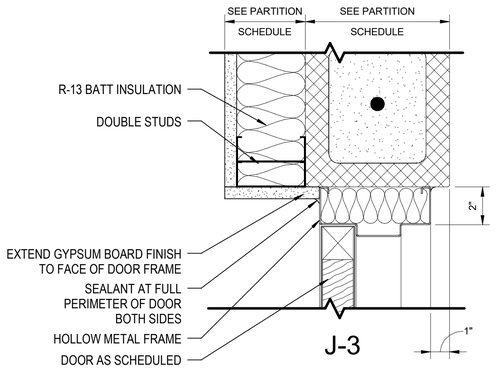
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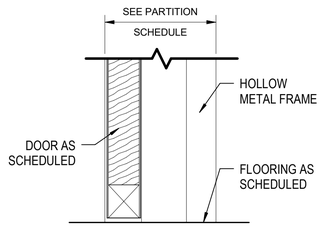
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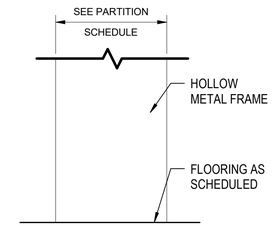
J-1



J-3



S-1



S-2

GRAPHIC SCALE

0 3" 6" 1' 1' 6"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

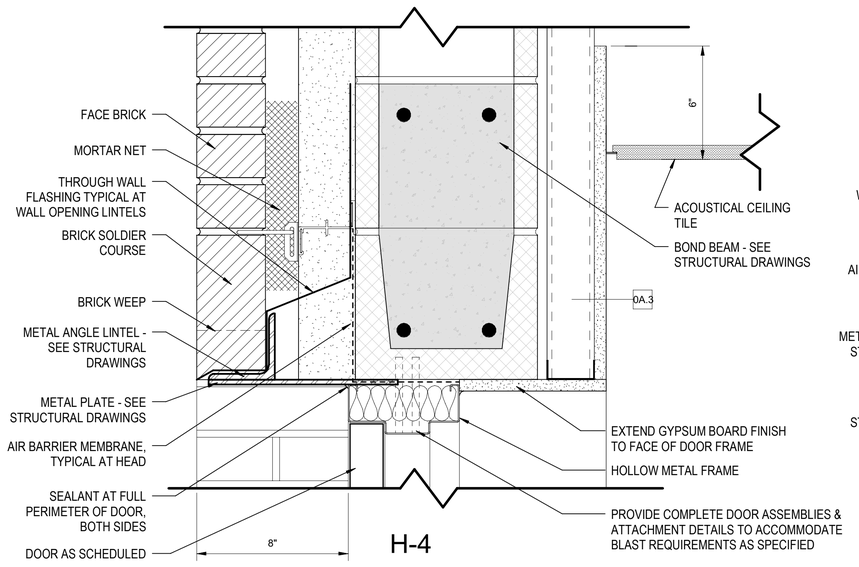
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
INTERIOR DOOR DETAILS

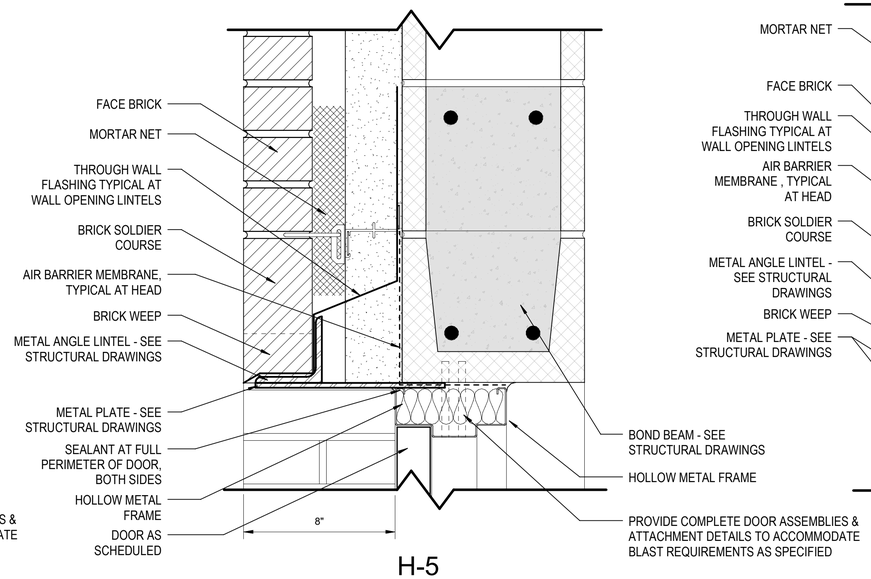
STATE OF NORTH CAROLINA REGISTERED 14646 ARCHITECT SCOTT A. STAHAN

SHEET ID
A-604

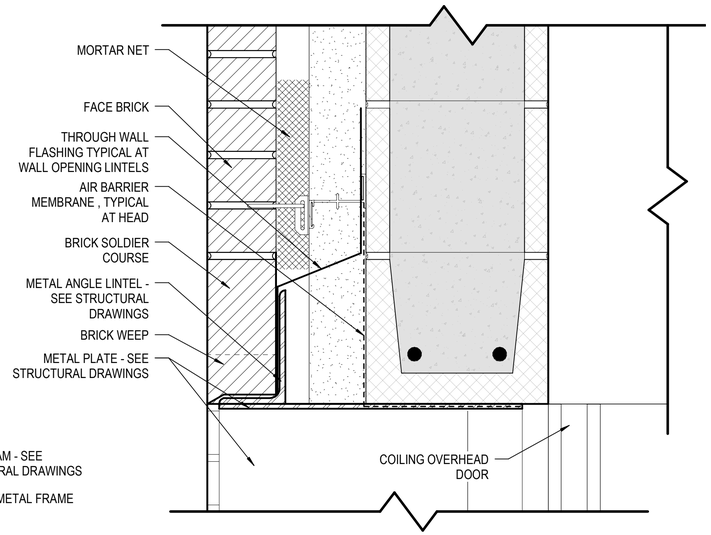
READY TO ADVERTISE



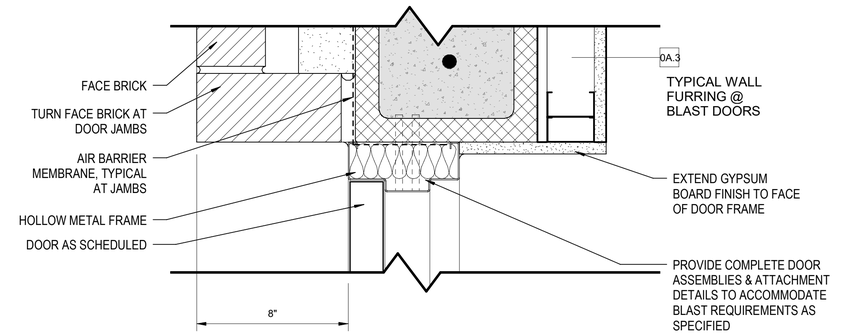
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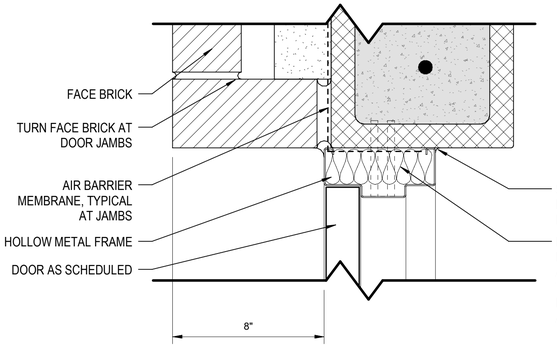
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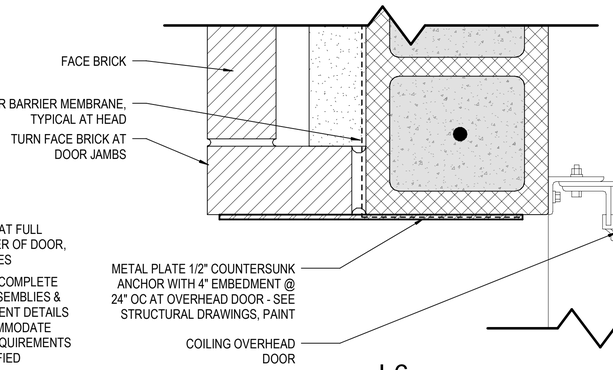
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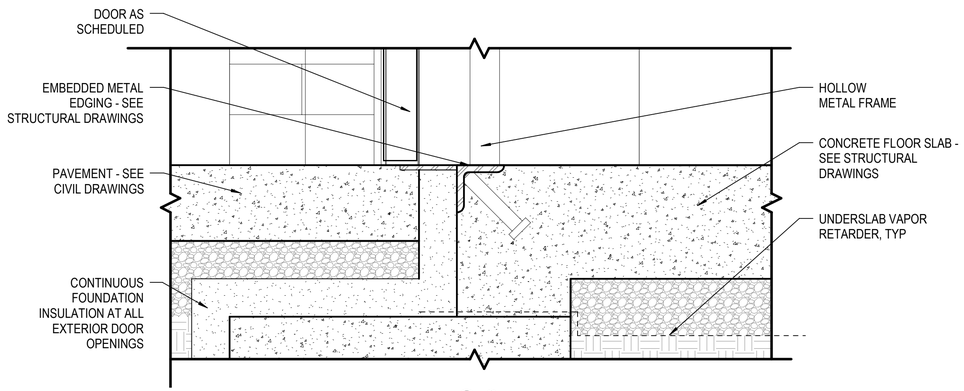
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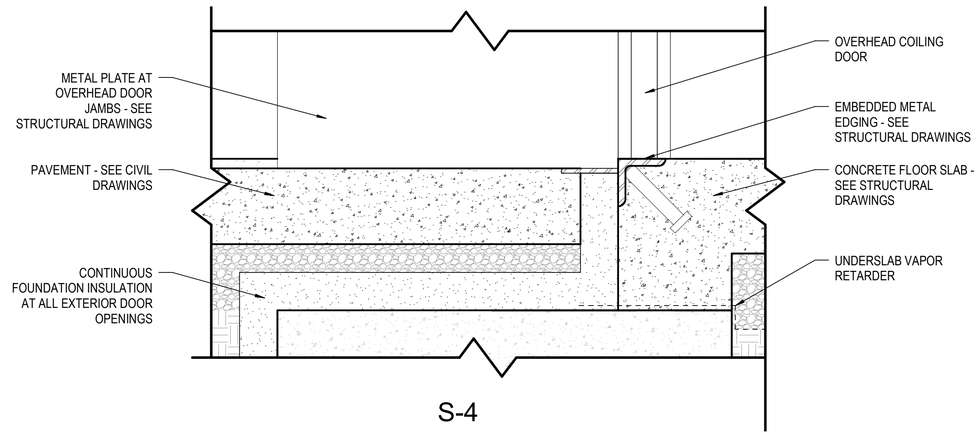
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J-6



S-3



S-4

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
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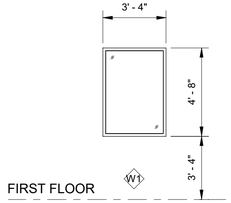
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
EXTERIOR DOOR DETAILS

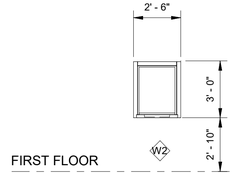
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN J. SCHMIDT 4/24/2023

SHEET ID
A-605

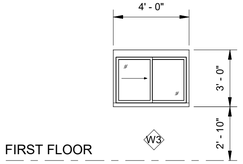
READY TO ADVERTISE



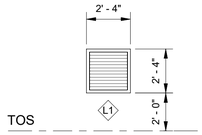
BLAST-RESISTANT WINDOWS

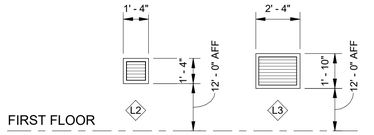


PREFABRICATED TRANSACTION WINDOW W/ DEAL TRAY

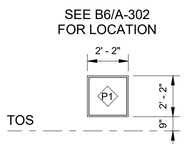


PREFABRICATED TRANSACTION WINDOW





LOUVERS

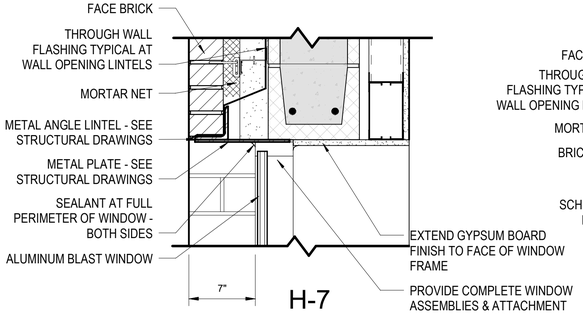


FIRE RATED ACCESS PANEL

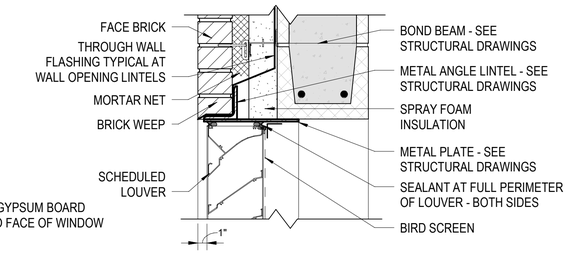
NOTES:
1. WINDOW ASSEMBLIES MUST BE DYNAMICALLY DESIGNED FOR BLAST LOADING AND RESPONSE AS INDICATED IN PROJECT SPECIFICATIONS AND UFC 4-010-01, APPENDIX B.
2. FOR BLAST-RESISTANT WINDOWS THE INTERIOR PANE MUST CONSIST OF LAMINATED GLASS WITH A THICKNESS OF NO LESS THAN 1/4" CONSISTING OF TWO NOMINAL 1/8 INCH GLASS PANES BONDED TOGETHER WITH A MINIMUM OF A 0.030 INCH INTERLAYER OF MATERIAL DESIGN FOR BLAST RESISTANCE.
3. CMU WALLS (INCLUDING GROUTING/REBAR AROUND OPENINGS) ON THE BLAST RESISTANT BOUNDARY HAVE BEEN DESIGNED TO PROVIDE A LOW LEVEL OF PROTECTION PER UFC 4-010-01 FOR THE DESIGNATED THREAT. DETAILING FOR THE WINDOW/DOOR FRAME CONNECTION TO THE CMU HAS NOT BEEN DESIGNED OR DETAILED ON THESE DOCUMENTS. ALL ANCHORAGE, EMBEDDED STEEL, ANCHORED PLATES OR MEMBERS, AND/OR OTHER SUPPORT AND/OR CONNECTING ELEMENTS USED TO CONNECT THE WINDOW/DOOR TO THE CMU ARE THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DESIGNED AND DETAILED BY THE CONTRACTOR FOR THE BLAST LOADING AND RESPONSE INDICATED.
4. PROVIDE AN ADDITIONAL PANE OF 3/16" LOE 366 CLEAR GLAZING SEPARATED WITH SPACER FROM THE BLAST GLAZING TO INCREASE THERMAL PERFORMANCE.

WINDOW AND LOUVER TYPES
1/4" = 1'-0"

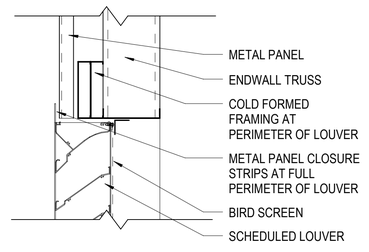
TYPE	DETAILS HEAD	JAMB	SILL	GLAZING	COMMENTS
L1	H9	J9	S9	--	FLANGED LOUVER
L2	H8	J8	S8	--	
L3	H8	J8	S8	--	
P1	--	--	--	--	FIRE RATED PANEL
W1	H7	J7	S7	IGU-1	
W2	--	--	--	--	PREFAB WINDOW - SEE A1/A-606
W3	--	--	--	--	PREFAB WINDOW - SEE A3/A-606



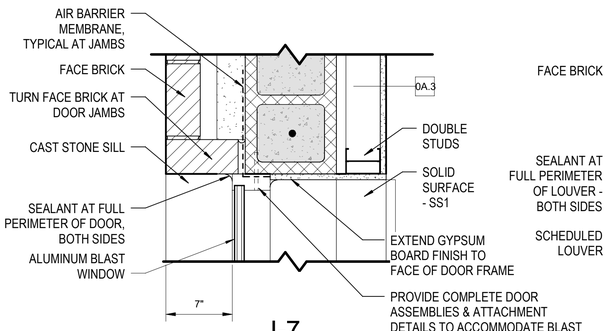
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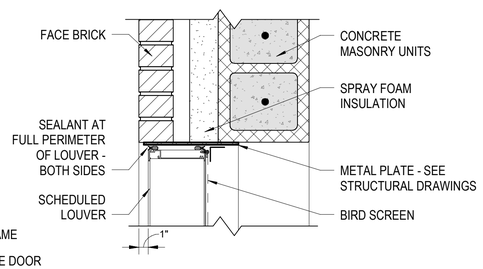
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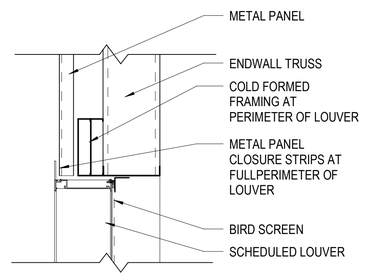
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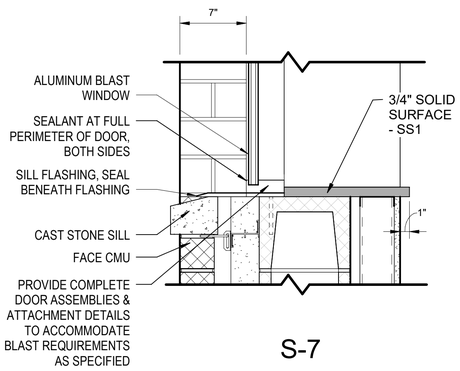
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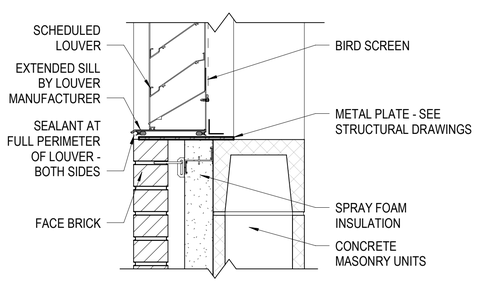
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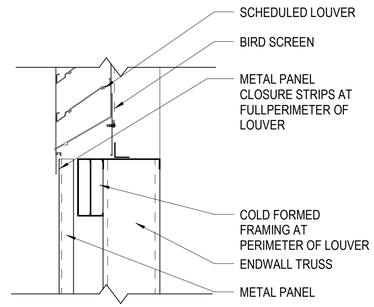
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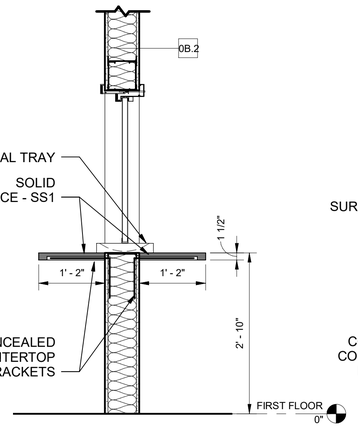
S-7



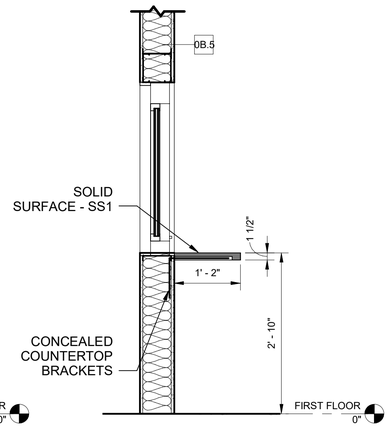
S-8



S-9



TRANSACTION WINDOW - SECTION DETAIL
A1
3/4" = 1'-0"



SLIDING WINDOW - SECTION DETAIL
A3
3/4" = 1'-0"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: BTF
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

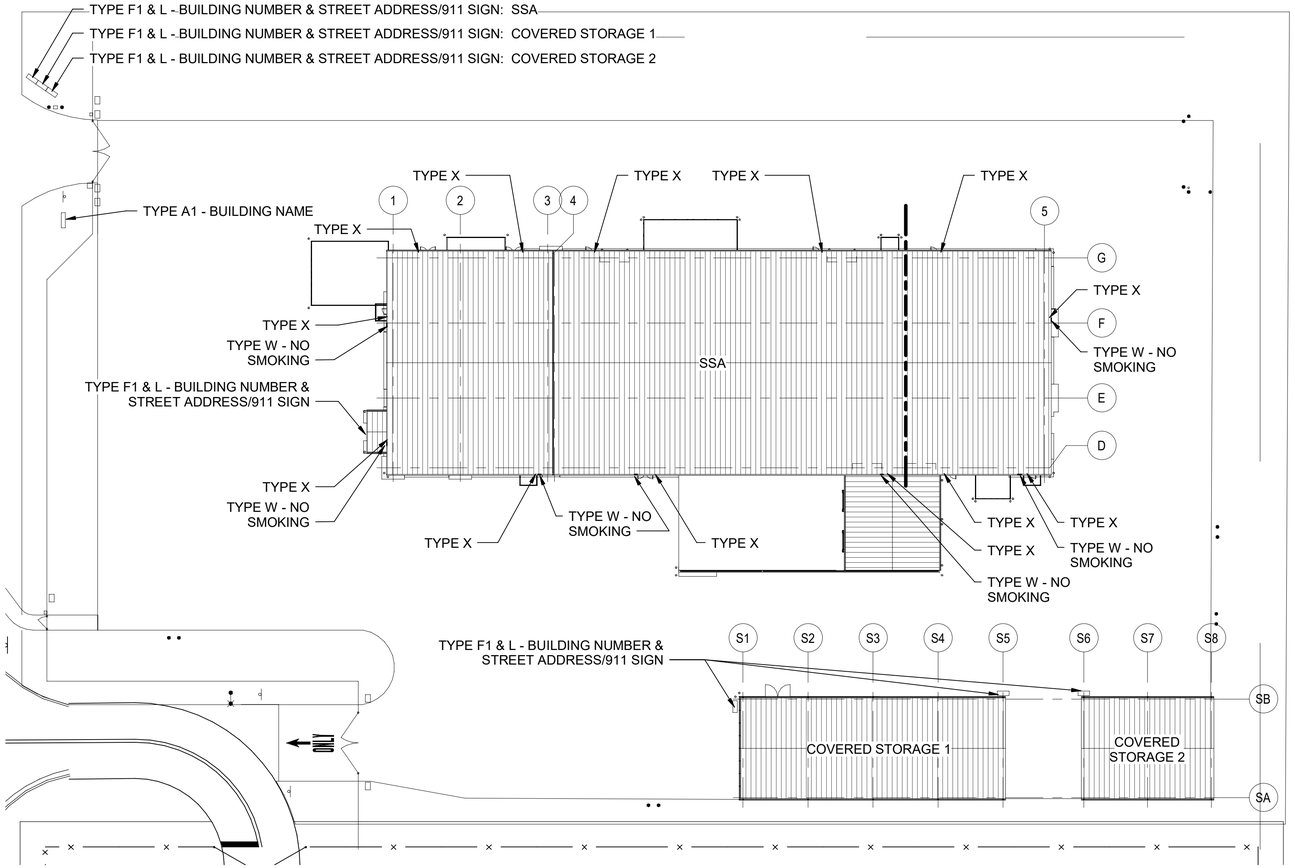
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
WINDOW TYPES, SCHEDULE AND DETAILS

NORTH CAROLINA REGISTERED 14646 ARCHITECT SEAL 5/24/2023

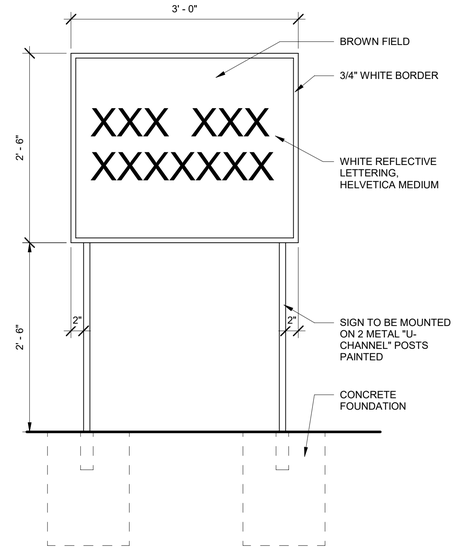
SHEET ID
A-606

READY TO ADVERTISE

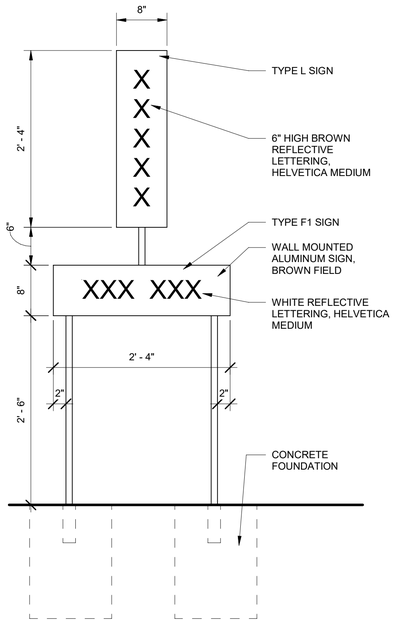
NOTES:
1. ALL SIGNAGE INCLUDING SUPPORTING POSTS SHALL BE FS-20059 (MISSION BROWN).
2. TEXT HEIGHT AND CONTENT TO BE AS DIRECTED BY OWNER.
3. FINAL SIGNAGE LOCATIONS TO BE CONFIRMED WITH OWNER.
4. ALL SIGNAGE MUST COMPLY WITH FB IDG, SECTION 10 14 00 EXTERIOR SIGNAGE REQUIREMENTS.



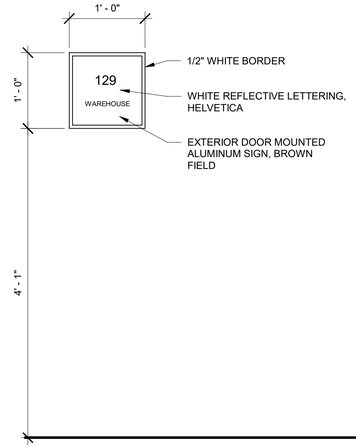
A1 SIGNAGE SITE PLAN
1" = 30'-0"



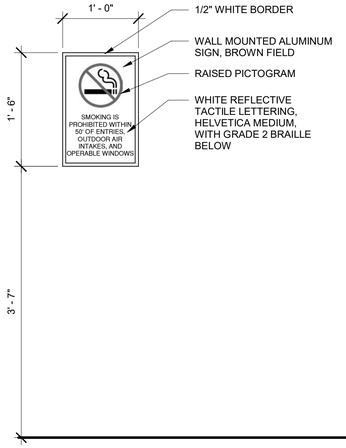
TYPE A1



TYPE F1 & L
(BUILDING NUMBER)



TYPE X
(EXTERIOR DOORS)



TYPE W
(DIRECTION, NO SMOKING)

A7 SIGNAGE DETAILS
1" = 1'-0"

US Army Corps of Engineers ®

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DESIGNED BY: Designer
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CHECKED BY: Checker
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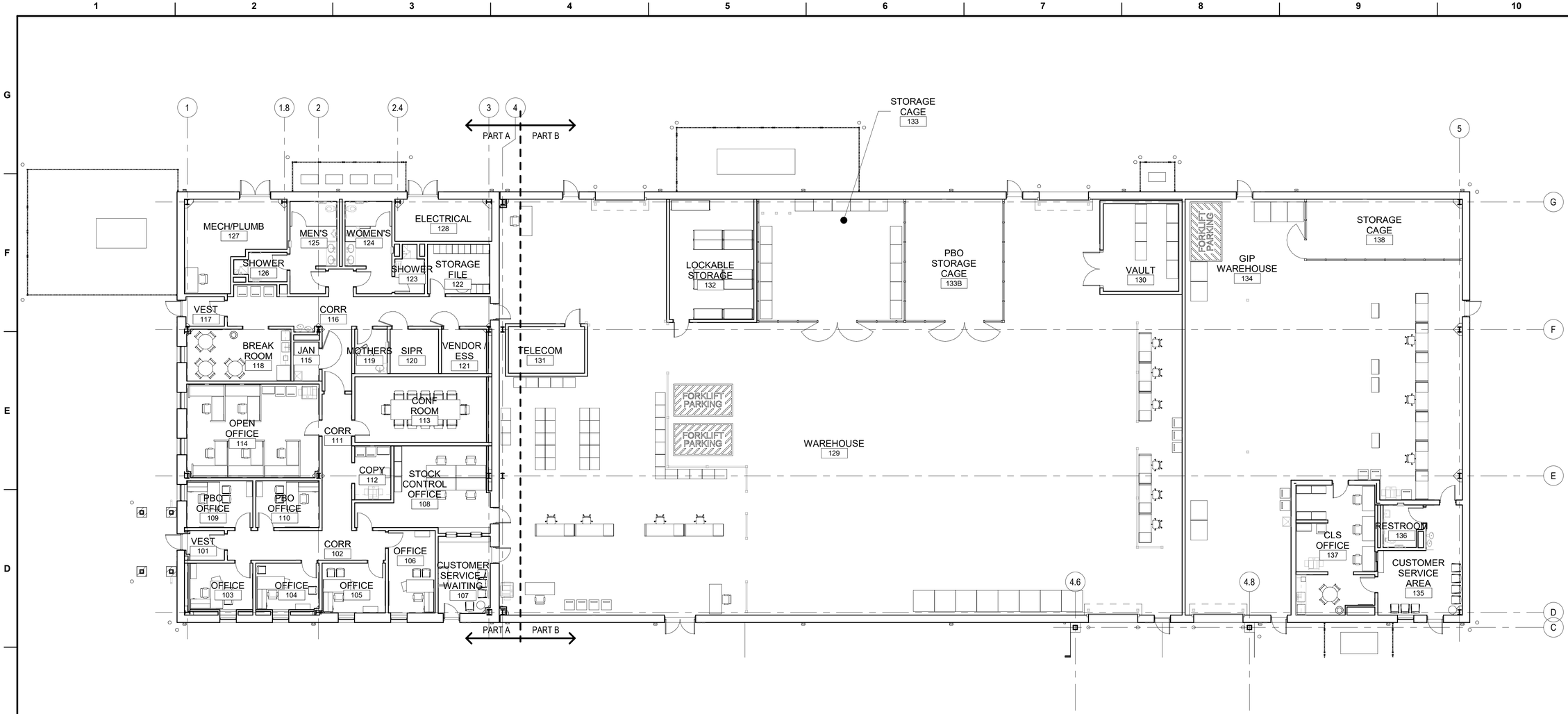
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
EXTERIOR BUILDING SIGNAGE

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMIDT

SHEET ID
A-701

READY TO ADVERTISE



C1 FIRST FLOOR FURNITURE PLAN - COMPOSITE

3/32" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO PARTIAL PLANS ON SHEETS I-101 AND I-102 FOR MORE INFORMATION.
2. REFER TO EQUIPMENT PLANS FOR LOCATIONS OF BOLTED-DOWN, CONTRACTOR INSTALLED EQUIPMENT ITEMS FOR COORDINATION.

SHEET KEYNOTES

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 12 20'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: CAS
DRAWN BY: CAS
CHECKED BY: FAH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

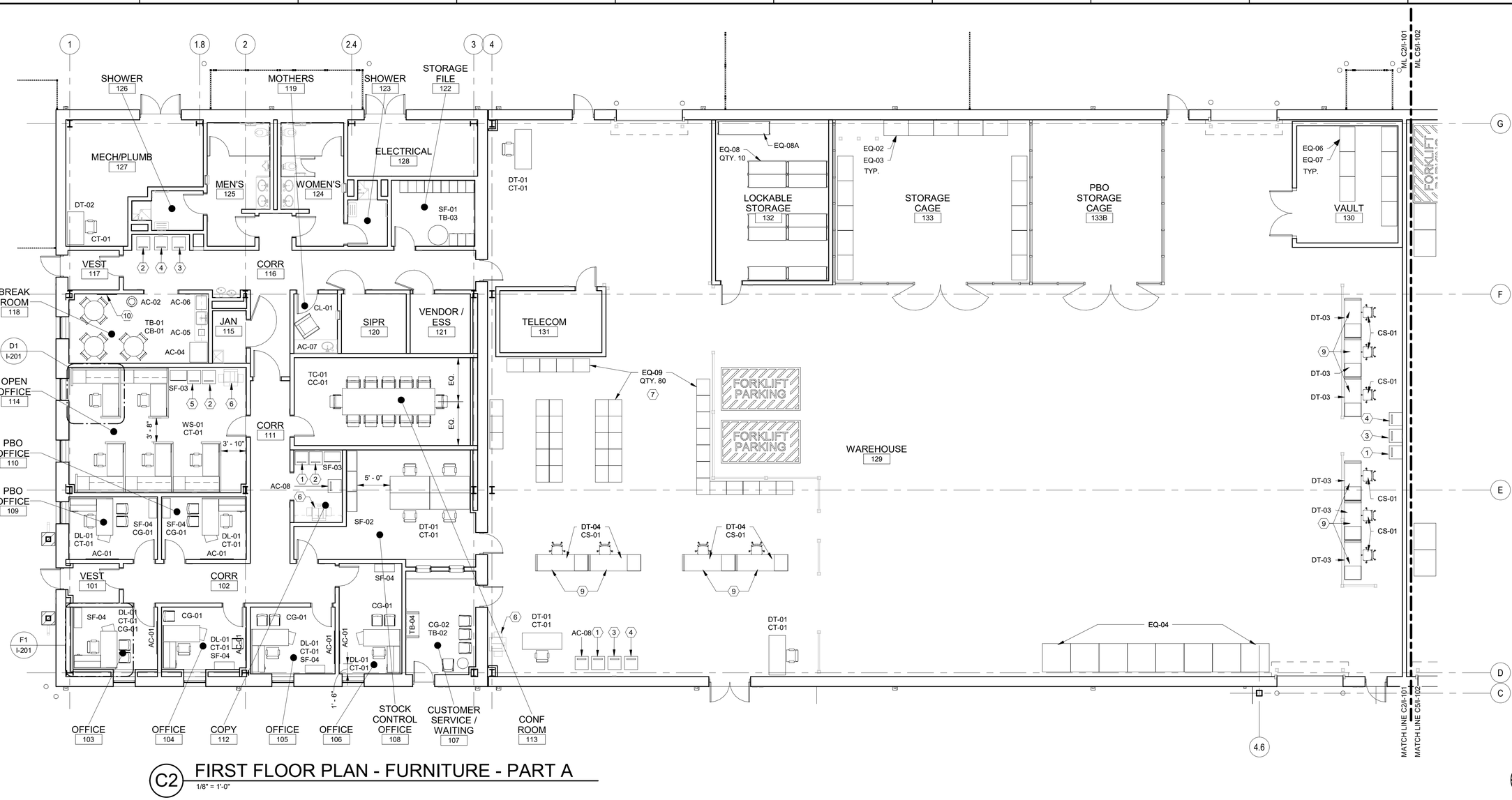
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FIRST FLOOR PLAN - FURNITURE - COMPOSITE

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN KOLMAN SCHMIDT
10/4/2023

SHEET ID
I-100

READY TO ADVERTISE



C2 FIRST FLOOR PLAN - FURNITURE - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. FURNITURE PLACEMENT PLANS SHOWN FOR INFORMATION ONLY.
2. REFER TO EQUIPMENT PLANS FOR LOCATIONS OF BOLTED-DOWN, CONTRACTOR INSTALLED EQUIPMENT ITEMS FOR COORDINATION.
3. REFER TO INTERIOR ELEVATIONS FOR ADDITIONAL SYSTEMS FURNITURE INFORMATION.
4. INSTALL WHITEBOARDS CENTERED ON DESIGNATED WALL UNLESS OTHERWISE NOTED. PROVIDE BLOCKING IN WALL AT ALL WHITEBOARD LOCATIONS.
5. QUANTITIES SHOWN ON FURNITURE & EQUIPMENT SCHEDULE INCLUDES BOTH PART A AND PART B.

SHEET KEYNOTES

1. TRASH BIN, GFGI
2. RECYCLE, PAPER, GFGI
3. RECYCLE, PLASTIC, GFGI
4. RECYCLE, ALUMINUM, GFGI
5. SHREDDER, GFGI
6. MULTI-FUNCTION DEVICE, GFGI
7. EQ-09 OPEN SHELF UNITS ARE STACKED TWO-HIGH.
8. NOT USED
9. GROMMET LOCATION TO BE COORDINATED WITH FLOOR BOXES. REFER TO ELECTRICAL AND TELECOMMUNICATIONS DRAWINGS FOR LOCATION OF FLOOR BOXES.
10. 24"H X 36"W TACKBOARD WITH ALUMINUM TRIM, CFCI.

SHEET LEGEND

FURNITURE & EQUIPMENT SCHEDULE

CODE	ITEM DESCRIPTION	QUANTITY
AC-01	GLASS MARKER BOARD	6
AC-02	TRASH BIN	2
AC-04	REFRIGERATOR	1
AC-05	COFFEE MAKER	2
AC-06	MICROWAVE	2
AC-07	UNDER COUNTER FRIDGE	2
AC-08	EWASTE RECYCLE BIN	2
CB-01	BREAK ROOM CHAIR	16
CC-01	CONFERENCE CHAIR	12
CG-01	PRIVATE OFFICE GUEST CHAIR	12
CG-02	WAITING GUEST CHAIR	12
CL-01	RECLINER W/OTTOMAN	1
CS-01	STOOL	13
CT-01	TASK CHAIR	22
DL-01	L-SHAPED PRIVATE OFFICE	6
DT-01	30X72 WORK DESK	7
DT-02	30X60 WORK DESK	4
DT-03	INDUSTRIAL WORKBENCH	13
DT-04	INDUSTRIAL WORKBENCH	4
EQ-02	59" DRAWER CABINET - BASE	15
EQ-03	59" OVERHEAD CABINET	15

FURNITURE & EQUIPMENT SCHEDULE

CODE	ITEM DESCRIPTION	QUANTITY
EQ-04	BATTERY CONTAINMENT PALLET	8
EQ-06	59" DRAWER CABINET, HEAVY STORAGE	7
EQ-07	21"H OVERHEAD CABINET	7
EQ-08	BULK STORAGE SHELVING UNIT	10
EQ-08A	BULK STORAGE SHELVING UNIT	1
EQ-09	OPEN SHELF UNIT	80
EQ-13	WIRE BIN STORAGE	7
SF-01	VERTICAL FILES	12
SF-02	LATERAL FILES	8
SF-03	STORAGE CABINET	2
SF-03A	STORAGE CABINET	4
SF-04	BOOKCASE	6
TB-01	BREAK ROOM TABLE	4
TB-02	WAITING SIDE TABLE	2
TB-03	END TABLE	1
TB-04	CONSOLE TABLE	1
TC-01	CONFERENCE TABLE	1
WS-01	7X7 WORKSTATION	5

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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WILMINGTON DISTRICT
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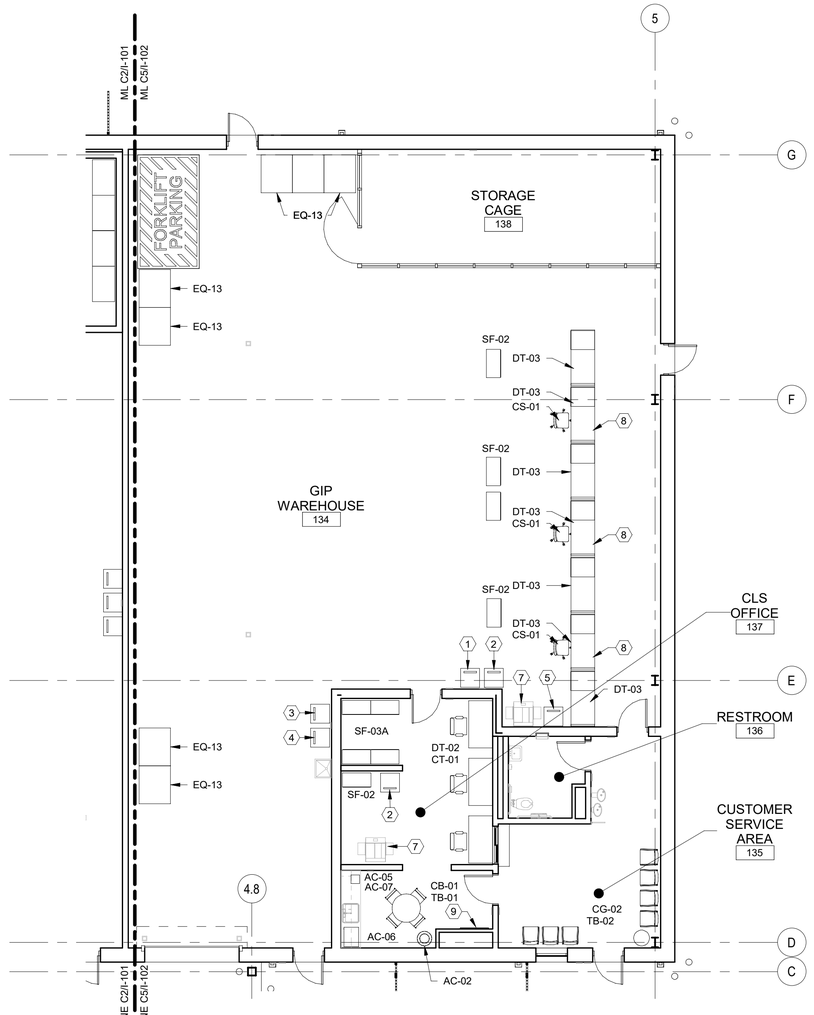
WHITMAN, REQUARDT & ASSOCIATES, LLP
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FIRST FLOOR PLAN - FURNITURE - PART A

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHOOLMAN

SHEET ID
I-101

READY TO ADVERTISE



C5 FIRST FLOOR PLAN - FURNITURE - PART B

1/8" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. FURNITURE PLACEMENT PLANS SHOWN FOR INFORMATION ONLY.
2. REFER TO EQUIPMENT PLANS FOR LOCATIONS OF BOLTED-DOWN, CONTRACTOR INSTALLED EQUPMENT ITEMS FOR COORDINATION.
3. REFER TO INTERIOR ELEVATIONS FOR ADDITIONAL SYSTEMS FURNITURE INFORMATION.
4. INSTALL WHITEBOARDS CENTERED ON DESIGNATED WALL UNLESS OTHERWISE NOTED. PROVIDE BLOCKING IN WALL AT ALL WHITEBOARD LOCATIONS.
5. QUANTITIES SHOWN ON FURNITURE & EQUIPMENT SCHEDULE INCLUDES BOTH PART A AND PART B.

SHEET KEYNOTES

(#)

1. TRASH BIN, GFGI
2. RECYCLE, PAPER, GFGI
3. RECYCLE, PLASTIC, GFGI
4. RECYCLE, ALUMINUM, GFGI
5. LOCKABLE CABINET
6. NOT USED.
7. MULTIFUNCTION DEVICE, GFGI
8. GROMMET LOCATION TO BE COORDINATED WITH FLOOR BOXES. REFER TO ELECTRICAL AND TELECOMMUNICATIONS DRAWINGS FOR LOCATION OF FLOOR BOXES.
9. 24"H X 36"W TACKBOARD WITH ALUMINUM TRIM, CFCI.

SHEET LEGEND

FURNITURE & EQUIPMENT SCHEDULE

CODE	ITEM DESCRIPTION	QUANTITY
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FURNITURE & EQUIPMENT SCHEDULE

CODE	ITEM DESCRIPTION	QUANTITY
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EQ-08A	BULK STORAGE SHELVING UNIT	1
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TB-02	WAITING SIDE TABLE	2
TB-03	END TABLE	1
TB-04	CONSOLE TABLE	1
TC-01	CONFERENCE TABLE	1
WS-01	7X7 WORKSTATION	5

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0 4' 8' 12 20'

US Army Corps of Engineers ®

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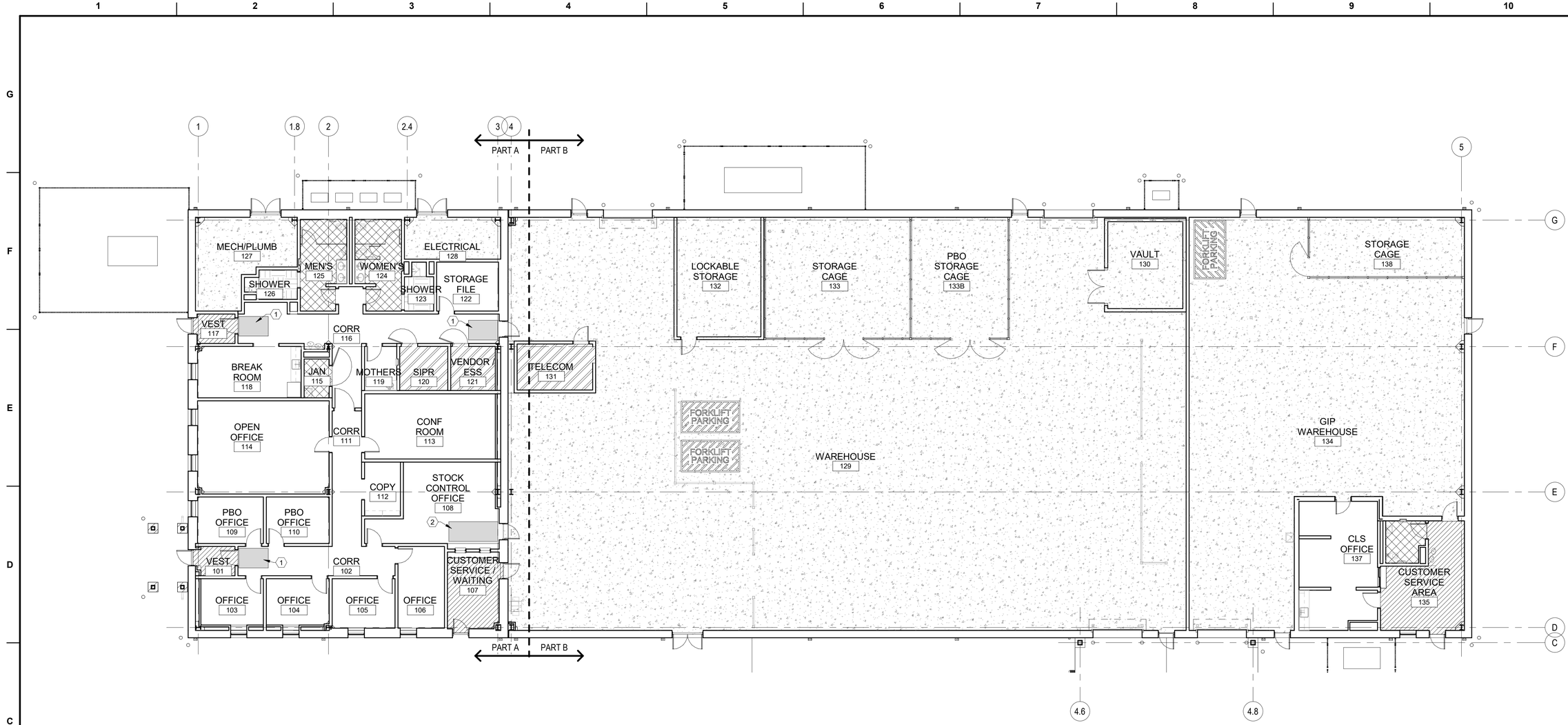
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FIRST FLOOR PLAN - FURNITURE - PART B

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN A. SCHOLTZMAN

SHEET ID
I-102

READY TO ADVERTISE



C1 FIRST FLOOR PLAN - FINISH - COMPOSITE

3/32" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO PARTIAL PLANS ON SHEETS I-104 AND I-105 FOR MORE INFORMATION.

SHEET KEYNOTES

(#)

(1) 48" X 72" WALK-OFF MAT, WO-2

(2) 48"W X 120"L WALK-OFF MAT, WO-2

SHEET LEGEND

- LUXURY VINYL TILE, LVT-1
- WALK-OFF CARPET, WO-1
- PORCELAIN FLOOR TILE, PFT-1
- PORCELAIN FLOOR TILE, PFT-2
- STATIC DISSIPATIVE TILE, SDT-1
- RESINOUS FLOORING, SC

GRAPHIC SCALE

0 4' 8' 12 20'

US Army Corps of Engineers ®

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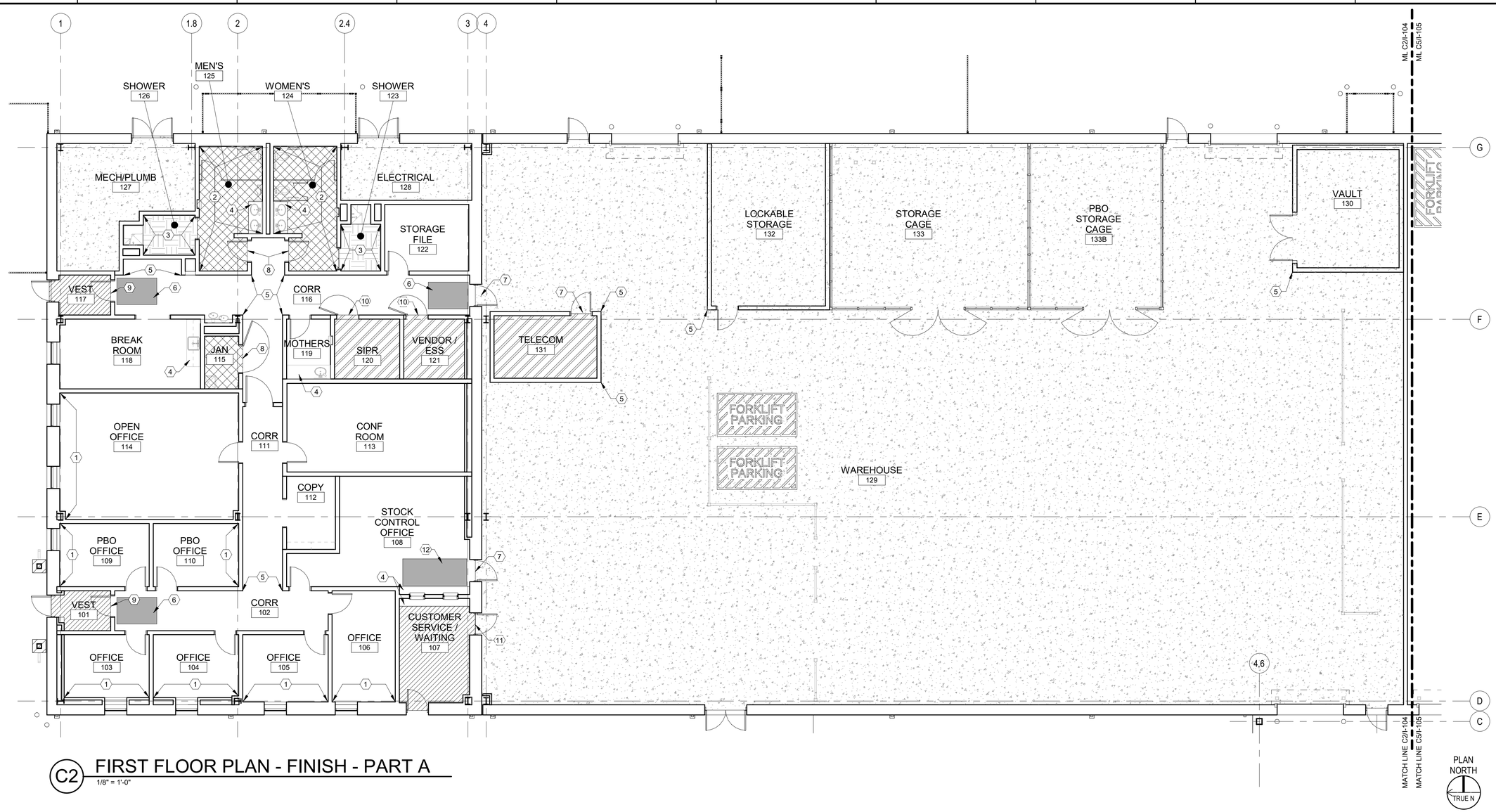
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FIRST FLOOR PLAN - FINISH - COMPOSITE

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN C. SCHMITZMAN
10/4/2023

SHEET ID
I-103

READY TO ADVERTISE



C2 FIRST FLOOR PLAN - FINISH - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. PROVIDE CORNER GUARDS AT ALL OUTSIDE CORNERS OF GYPSUM BOARD WALLS.
2. FLOORING TO BE LVT-1 UNLESS OTHERWISE NOTED.
3. REFER TO FINISH SCHEDULE, INTERIOR ELEVATIONS, AND MILLWORK DETAILS FOR ADDITIONAL FINISH INFORMATION.
4. ELECTRICAL RECEPTACLES AND FACE PLATES ARE TO BE STAINLESS STEEL.
5. PROVIDE SCHEDULED FLOOR TRANSITIONS AT CENTER OF DOOR OR OPENING UNLESS INDICATED OTHERWISE. REFER TO SHEET I-601 FOR TRANSITION DETAILS.
6. PROVIDE AB-1, 1" HORIZONTAL BLINDS AT EXTERIOR WINDOWS.
7. WALL PAINT TO BE PT-1 UNLESS OTHERWISE NOTED.
8. REFER TO SHEET I-601 FOR TRANSITION DETAILS.
9. WINDOW SILLS TO BE SS-1 SOLID SURFACE.

SHEET KEYNOTES

(#)

1. ACCENT PAINT, PT-2
2. CERAMIC WALL TILE, CWT-1
3. CERAMIC WALL TILE, CWT-2
4. SOLID SURFACE COUNTER, SS-1
5. FLOOR TO FINISHED CEILING CORNER GUARD, CG-1
6. 48" X 72" WALK-OFF MAT, WO-2
7. TRANSITION TS-2
8. TRANSITION TS-3
9. TRANSITION TS-1
10. TRANSITION TS-4
11. TRANSITION TS-5
12. 48"W X 120"L WALK-OFF MAT, WO-2

SHEET LEGEND

- LUXURY VINYL TILE, LVT-1
- WALK-OFF CARPET, WO-1
- PORCELAIN FLOOR TILE, PFT-1
- PORCELAIN FLOOR TILE, PFT-2
- STATIC DISSIPATIVE TILE, SDT-1
- RESINOUS FLOORING, SC

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

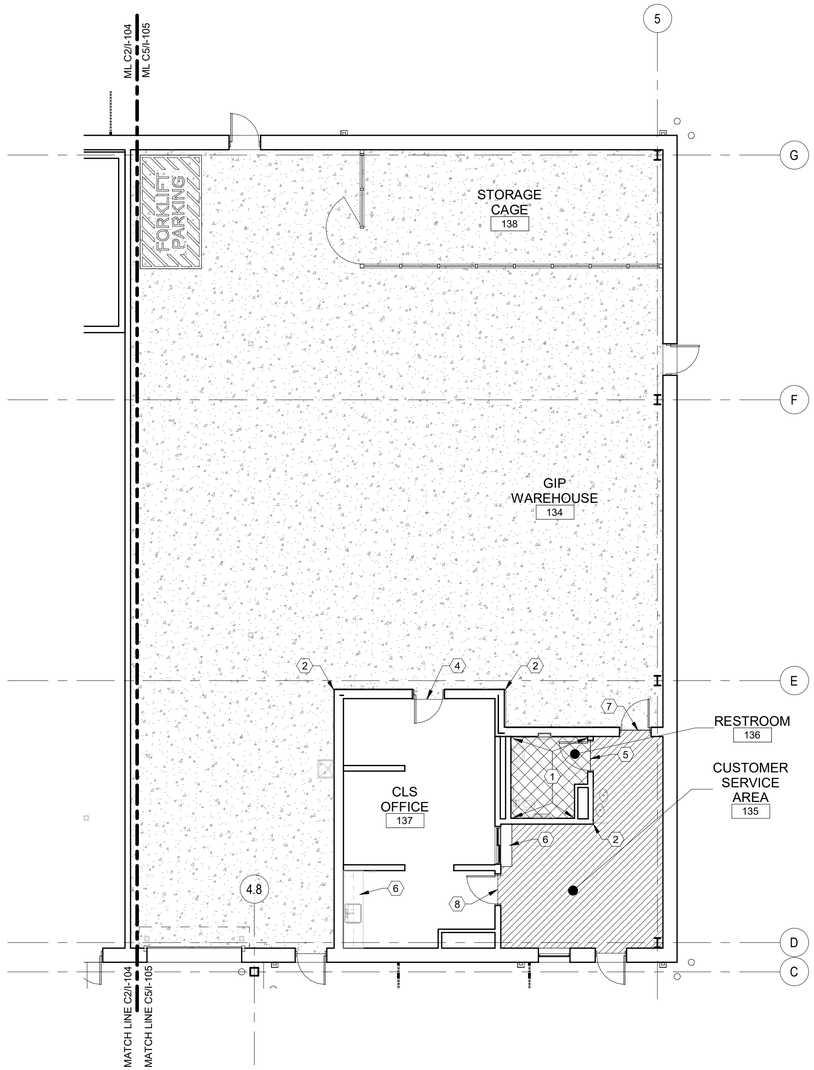
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FIRST FLOOR PLAN - FINISH - PART A

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN E. SCHMITZMAN

SHEET ID
I-104

READY TO ADVERTISE



C5 FIRST FLOOR PLAN - FINISH - PART B

1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. PROVIDE CORNER GUARDS AT ALL OUTSIDE CORNERS OF GYPSUM BOARD WALLS.
2. FLOORING TO BE LVT-1 UNLESS OTHERWISE NOTED.
3. REFER TO FINISH SCHEDULE, INTERIOR ELEVATIONS, AND MILLWORK DETAILS FOR ADDITIONAL FINISH INFORMATION.
4. ELECTRICAL RECEPTACLES AND FACE PLATES ARE TO BE STAINLESS STEEL.
5. PROVIDE SCHEDULED FLOOR TRANSITIONS AT CENTER OF DOOR OR OPENING UNLESS INDICATED OTHERWISE. REFER TO SHEET I-601 FOR TRANSITION DETAILS.
6. PROVIDE AB-1, 1" HORIZONTAL BLINDS AT EXTERIOR WINDOWS.
7. WALL PAINT TO BE PT-1 UNLESS OTHERWISE NOTED.
8. REFER TO SHEET I-601 FOR TRANSITION DETAILS.
9. WINDOW SILLS TO BE SS-1 SOLID SURFACE.

SHEET KEYNOTES

#	
1	CERAMIC WALL TILE, CWT-1
2	FLOOR TO FINISHED CEILING CORNER GUARD, CG-1
3	NOT USED
4	TRANSITION TS-2
5	TRANSITION TS-3
6	SOLID SURFACE COUNTER, SS-1
7	TRANSITION TS-4
8	TRANSITION TS-1

SHEET LEGEND

- LUXURY VINYL TILE, LVT-1
- WALK-OFF CARPET, WO-1
- PORCELAIN FLOOR TILE, PFT-1
- PORCELAIN FLOOR TILE, PFT-2
- STATIC DISSIPATIVE TILE, SDT-1
- RESINOUS FLOORING, SC

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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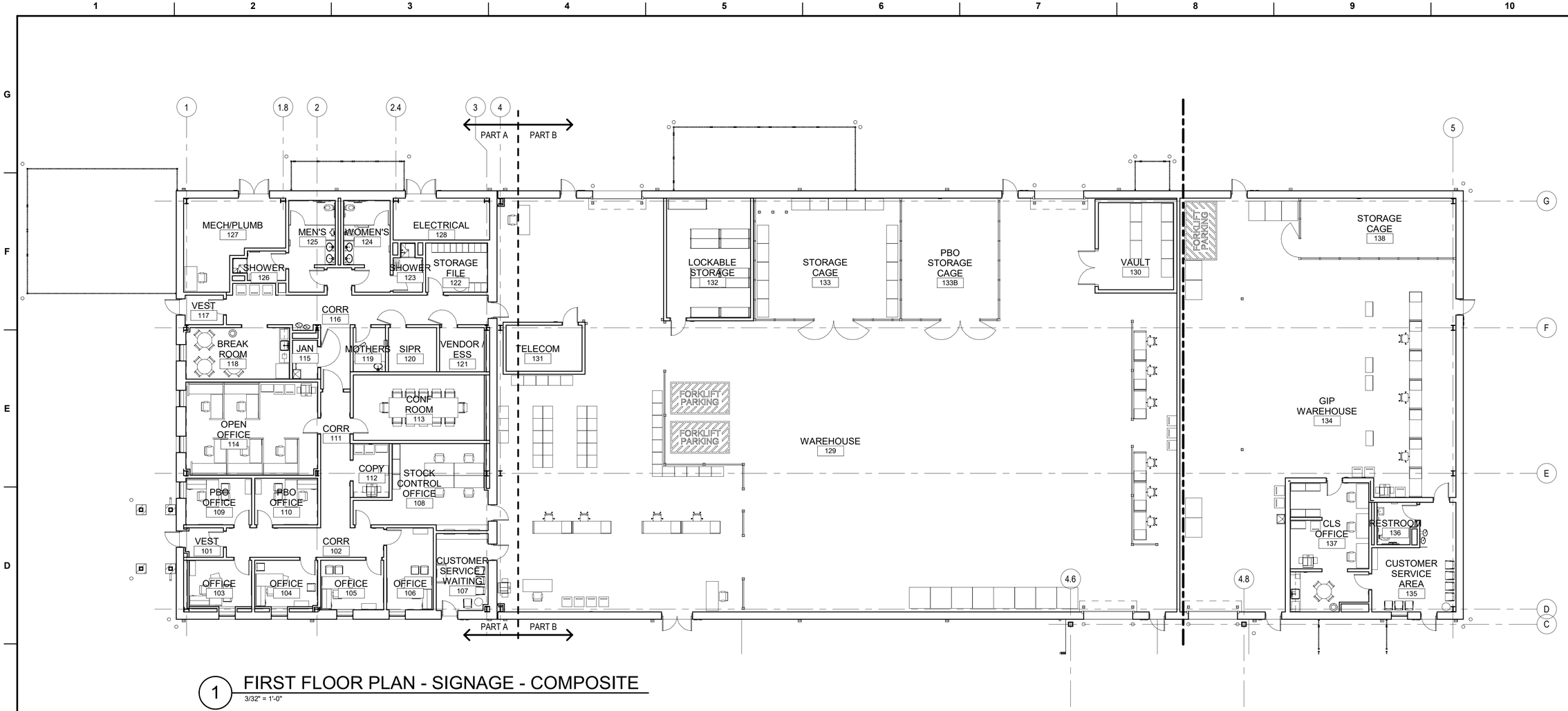
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FIRST FLOOR PLAN - FINISH - PART B

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN H. SCHWARTZMAN

SHEET ID
I-105

READY TO ADVERTISE



1 FIRST FLOOR PLAN - SIGNAGE - COMPOSITE

3/32" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO PARTIAL PLANS ON SHEETS I-107 AND I-108 FOR MORE INFORMATION.

SHEET KEYNOTES

#	

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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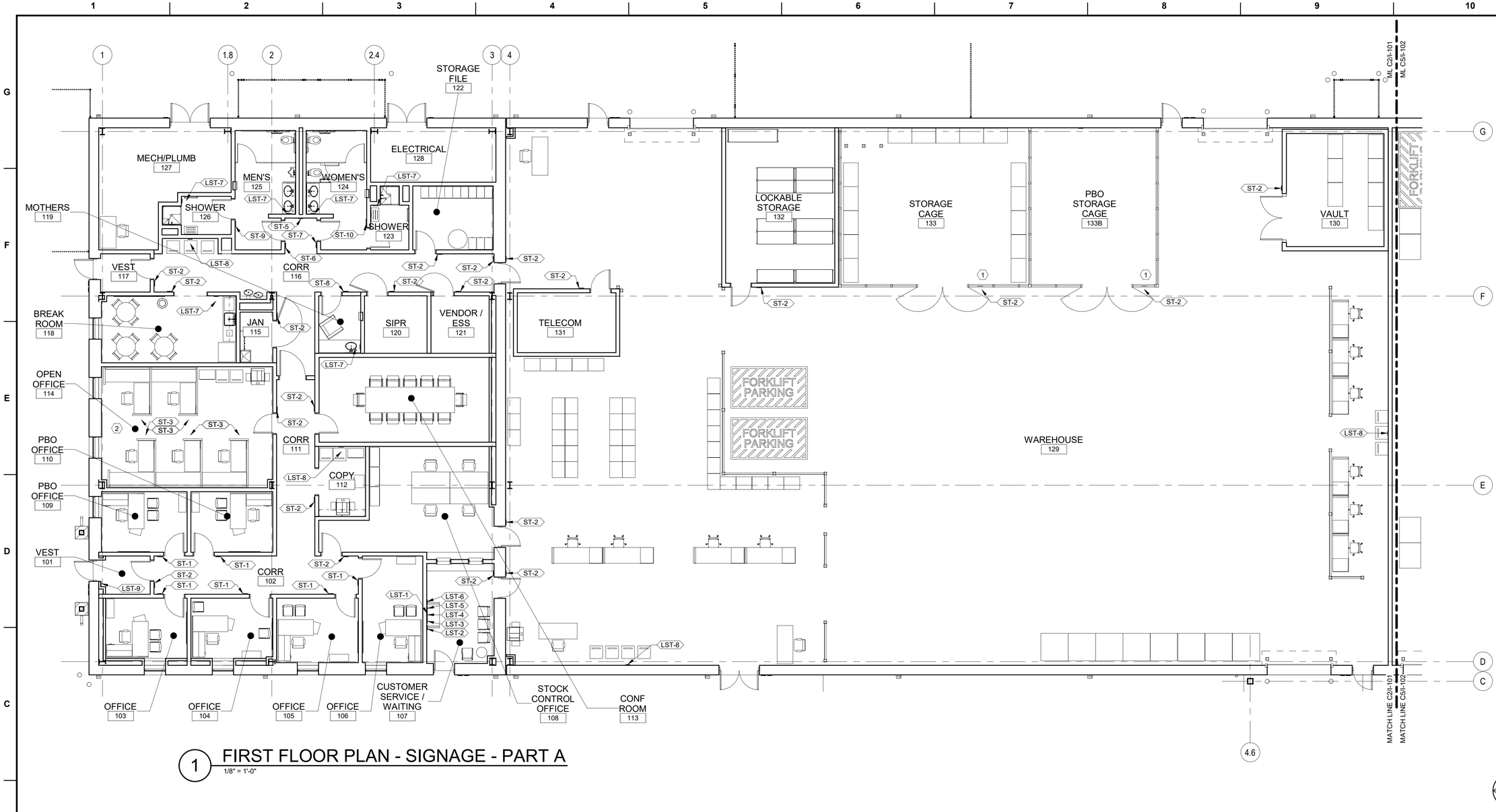
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PROJECT 87447
FIRST FLOOR PLAN - SIGNAGE - COMPOSITE

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN K. ZAMAN 5/31/2023

SHEET ID
I-106

READY TO ADVERTISE



1 FIRST FLOOR PLAN - SIGNAGE - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET I-501 FOR SIGNAGE DETAILS, SIGNAGE SCHEDULE AND MOUNTING HEIGHTS.
2. REFER TO SHEET I-502 FOR LEED SIGNAGE DETAILS AND SIGNAGE SCHEDULE.
3. REFER TO SHEET A-701 FOR EXTERIOR SIGNAGE PLAN AND DETAILS.

SHEET KEYNOTES

SIGNAGE MOUNTED ON CAGE.

SIGN TYPE ST-3 PIN-MOUNTED ON EACH WORKSTATION PANEL.

SHEET LEGEND

ST-1	PRIVATE OFFICE SIGNAGE
ST-2	CONFERENCE ROOM SIGNAGE
ST-3	WORKSTATION ID
ST-5	UNISEX RESTROOM
ST-6	MEN'S RESTROOM
ST-7	WOMEN'S RESTROOM
ST-8	MOTHER'S ROOM
ST-9	MEN'S SHOWER
ST-10	WOMEN'S SHOWER

LST-1	LARGE LEED CREDIT SUMMARY SIGN
LST-2	WATER EFFICIENCY
LST-3	ENERGY AND ATMOSPHERE
LST-4	MATERIALS AND RESOURCES
LST-5	INDOOR ENVIRONMENTAL QUALITY
LST-6	INNOVATION IN DESIGN
LST-7	THINK GREEN SAVE WATER
LST-8	RECYCLING SAVES RESOURCES

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

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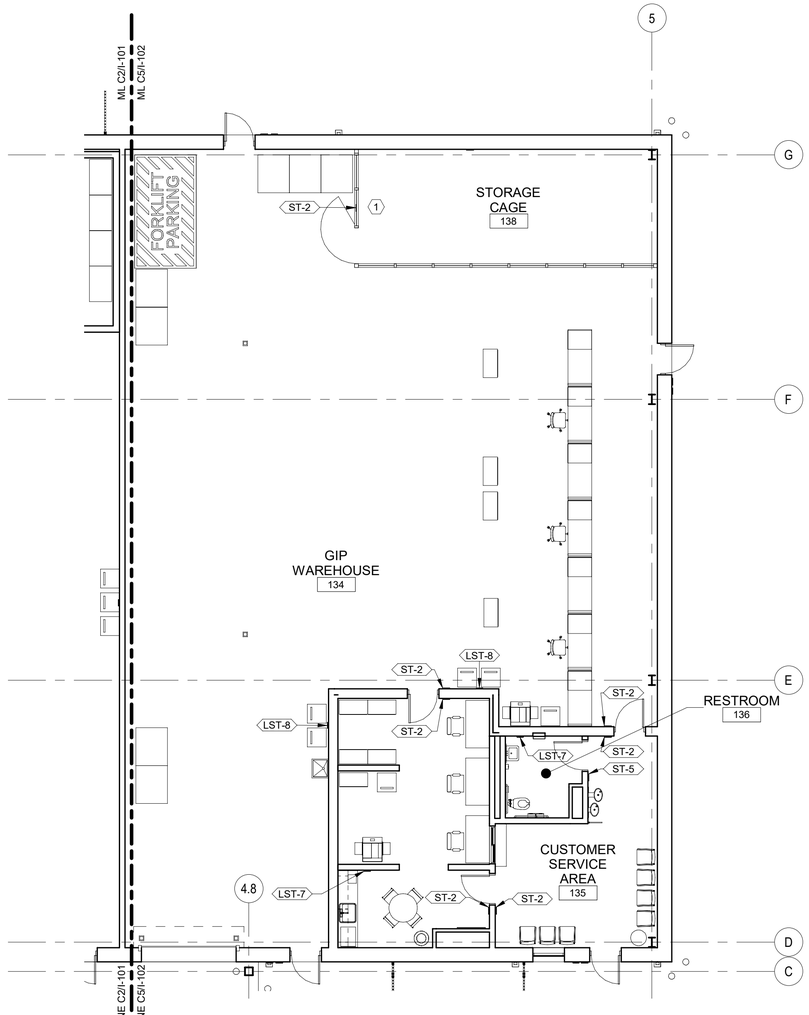
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PROJECT 87447
FIRST FLOOR PLAN - SIGNAGE - PART A

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEVEN H. SCHMIDT

SHEET ID
I-107

READY TO ADVERTISE



1 FIRST FLOOR PLAN - SIGNAGE - PART B
1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET I-501 FOR SIGNAGE DETAILS, SIGNAGE SCHEDULE AND MOUNTING HEIGHTS.
2. REFER TO SHEET I-502 FOR LEED SIGNAGE DETAILS AND SIGNAGE SCHEDULE.
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SHEET KEYNOTES

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LST-4	MATERIALS AND RESOURCES
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LST-7	THINK GREEN SAVE WATER
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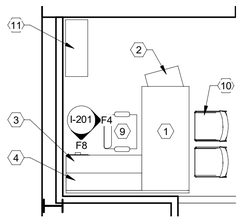
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FIRST FLOOR PLAN - SIGNAGE - PART B

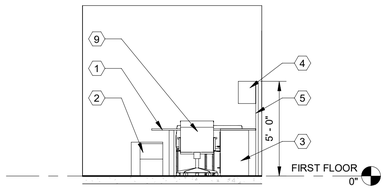
NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN A. SCHMITZMAN 8/4/2023

SHEET ID
I-108

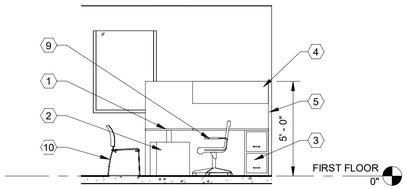
READY TO ADVERTISE



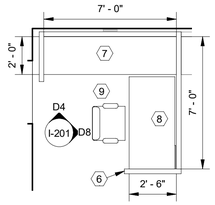
F1 DL-01 PRIVATE OFFICE TYPICAL - PLAN VIEW
1/4" = 1'-0"



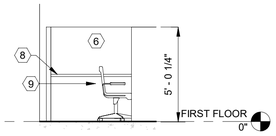
F4 DL-01 PRIVATE OFFICE TYPICAL - WEST ELEVATION
1/4" = 1'-0"



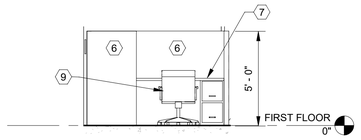
F8 DL-01 PRIVATE OFFICE TYPICAL - NORTH ELEVATION
1/4" = 1'-0"



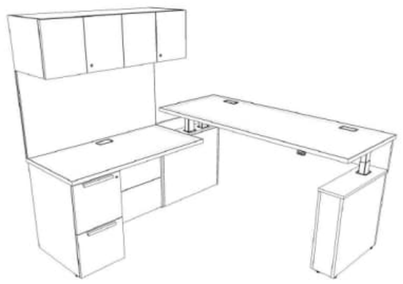
D1 WS-01 WORKSTATION TYPICAL - PLAN VIEW
1/4" = 1'-0"



D4 WS-01 WORKSTATION TYPICAL - NORTH ELEVATION
1/4" = 1'-0"



D8 WS-01 WORKSTATION TYPICAL - EAST ELEVATION
1/4" = 1'-0"



B1 DL-01 PRIVATE OFFICE ISOMETRIC VIEW
3" = 1'-0"



B4 WS-01 WORKSTATION ISOMETRIC VIEW
3" = 1'-0"

GENERAL SHEET NOTES

1. SEE SHEETS I-101 AND I-102 FOR FURNITURE PLANS.
2. SYSTEMS FURNITURE POWER REQUIREMENTS: 8 WIRE SYSTEM, 3 CIRCUITS, 3 SEPARATE NEUTRALS. COORDINATE WITH ELECTRICAL.

SHEET KEYNOTES

#	
1	72"W X 30"D HEIGHT ADJUSTABLE WORKSURFACE W/FRONT HALF-HEIGHT MODESTY PANEL
2	24"D MOBILE BOX/BOX/FILE STORAGE PEDESTAL
3	48"W X 24"D WOOD VENEER WORKSUFACE WITH FIXED FILE/FILE STORAGE PEDESTAL
4	48"W WOOD VENEER OVERHEAD STORAGE UNIT WITH FLIPPER DOORS AND UNDER CABINET LED LIGHTING
5	FULL WIDTH TACKBOARD PANEL
6	60"H MONOLITHIC FABRIC PANELS
7	84"W X 24"D LAMINATE WORKSURFACE WITH FIXED 24"W FIXED FILE/FILE STORAGE PEDESTAL
8	46"W X 29"W LAMINATE HEIGHT ADJUSTABLE WORKSURFACE
9	TASK CHAIR, CT-01
10	GUEST CHAIR, CG-01
11	BOOKCASE, SF-04

SHEET LEGEND

GRAPHIC SCALE

0 2' 4' 8'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: CAS
DRAWN BY: DLM
CHECKED BY: FAH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

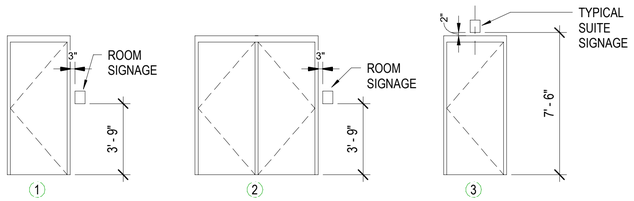
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
INTERIOR ELEVATIONS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN SCHMIDT

SHEET ID
I-201

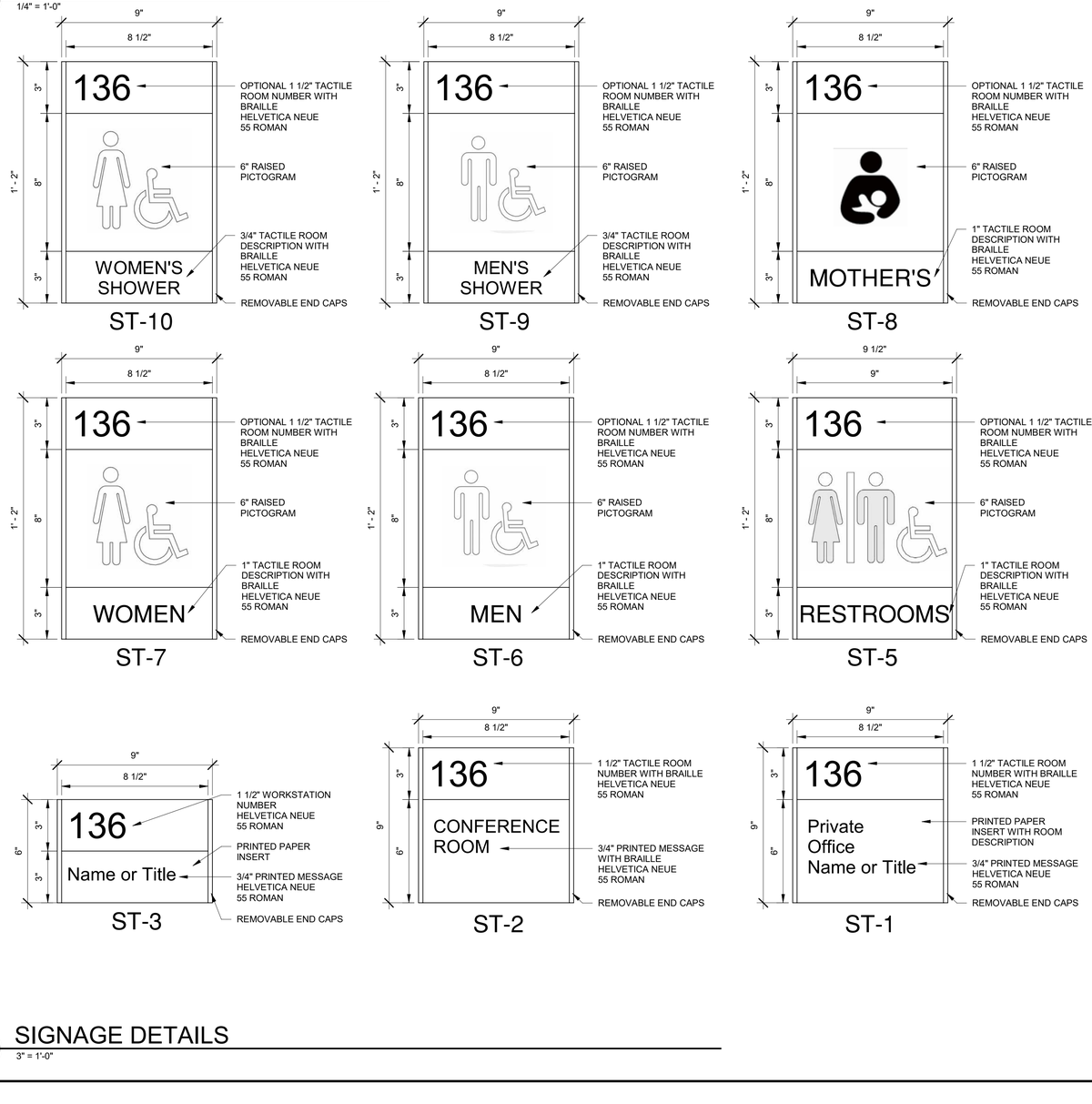
READY TO ADVERTISE



NOTE 1: SIGNAGE TO BE MOUNTED ON LATCH SIDE AT SINGLE DOORS, RIGHT SIDE OF DOUBLE DOORS.
NOTE 2: MOUNT ON NEAREST ADJACENT WALL PER ADA WHEN WALL SPACE ON SIDE OF DOOR IS NOT AVAILABLE.
NOTE 3: MOUNT TACTILE SIGNS SUCH THAT THE BASELINE OF THE LOWEST RAISED LETTERS ARE AT 48" AFF AND THE BASELINE OF THE UPPER MOST RAISED LETTER IS AT 60"AFF.
NOTE 4: SUITE SIGNAGE TO BE MOUNTED ABOVE DOOR, AND CENTERED. 2" ABOVE DOOR FRAME. BOTTOM EDGE OF SIGN MOUNTED 90" AFF.

F1 SIGNAGE MOUNTING DETAILS

1/4" = 1'-0"



A1 SIGNAGE DETAILS

3" = 1'-0"

GENERAL SHEET NOTES

1. MOUNT SIGNAGE ON NEAREST ADJACENT WALL PER ADA WHEN WALL SPACE ON SIDE OF DOOR IS NOT AVAILABLE.
2. ALL EXACT SIGN LOCATIONS ARE SUBJECT TO APPROVAL AT PRE-INSTALLATION WALK-THOUGH PRIOR TO MOUNTING OF SIGNS.
3. SIGNAGE TO BE MOUNTED ON LATCH SIDE AT SINGLE DOORS, RIGHT SIDE OF DOUBLE DOORS.
4. REFER TO SHEETS I-107 AND I-108 FOR SIGNAGE LOCATIONS.
5. SIGNAGE SHOWING ON PLANS THAT ARE NOT LISTED IN SIGNAGE SCHEDULE ARE REQUIRED AS SHOWN ON THE PLANS.
6. REFER TO SHEET A-701 FOR EXTERIOR BUILDING SIGNAGE PLAN AND SIGNAGE DETAILS.
7. SIGN TYPE ST-4 NOT USED.

SIGNAGE SCHEDULE

ROOM NUMBER	ROOM NAME	SIGN TYPE	MARK	DESCRIPTION
101	VEST	ST-2	VESTIBULE	
103	OFFICE	ST-1	PRIVATE OFFICE	
104	OFFICE	ST-1	PRIVATE OFFICE	
105	OFFICE	ST-1	PRIVATE OFFICE	
106	OFFICE	ST-1	PRIVATE OFFICE	
107	CUSTOMER SERVICE / WAITING	ST-2	CUSTOMER SERVICE WAITING AREA	
108	STOCK CONTROL OFFICE	ST-2	STOCK CONTROL OFFICE	
108	STOCK CONTROL OFFICE	ST-2	STOCK CONTROL OFFICE	
109	PBO OFFICE	ST-1	PRIVATE OFFICE	
110	PBO OFFICE	ST-1	PRIVATE OFFICE	
112	COPY	ST-2	COPY/ PRINT ROOM	
113	CONF ROOM	ST-2	CONFERENCE ROOM	
114	OPEN OFFICE	ST-2	OPEN OFFICE	
114	OPEN OFFICE	ST-3	WORKSTATION ID - NAME/NUMBER	
114	OPEN OFFICE	ST-3	WORKSTATION ID - NAME/NUMBER	
114	OPEN OFFICE	ST-3	WORKSTATION ID - NAME/NUMBER	
114	OPEN OFFICE	ST-3	WORKSTATION ID - NAME/NUMBER	
114	OPEN OFFICE	ST-3	WORKSTATION ID - NAME/NUMBER	
115	JAN	ST-2	JANITOR'S CLOSET	
116	CORR	ST-2	CORRIDOR	
116	CORR	ST-5	RESTROOMS	MALE, FEMALE, & HANDICAP PICTOGRAMS
117	VEST	ST-2	VESTIBULE	
118	BREAK ROOM	ST-2	BREAK ROOM	
119	MOTHERS	ST-8	MOTHER'S ROOM	MOTHER WITH CHILD PICTOGRAM
120	SIPR	ST-2	SIPR ROOM	
121	VENDOR / ESS	ST-2	COMMUNICATIONS/ EF ROOM	
122	STORAGE FILE	ST-2	STORAGE ROOM	
123	SHOWER	ST-10	WOMEN'S SHOWER ROOM	FEMALE & HANDICAP PICTOGRAMS
124	WOMEN'S	ST-7	WOMEN'S RESTROOM	FEMALE & HANDICAP PICTOGRAMS
125	MEN'S	ST-6	MEN'S RESTROOM	MALE & HANDICAP PICTOGRAMS
126	SHOWER	ST-9	MEN'S SHOWER ROOM	MALE & HANDICAP PICTOGRAMS
129	WAREHOUSE	ST-2	WAREHOUSE	
129	WAREHOUSE	ST-2	WAREHOUSE	
130	VAULT	ST-2	VAULT	
131	TELECOM	ST-2	TELECOMMUNICATION ROOM	
132	LOCKABLE STORAGE	ST-2	LOCKABLE STORAGE	
133	STORAGE CAGE	ST-2	STORAGE CAGE	
133B	PBO STORAGE CAGE	ST-2	PBO STORAGE CAGE	
134	GIP WAREHOUSE	ST-2	GIP WAREHOUSE	
134	GIP WAREHOUSE	ST-2	GIP WAREHOUSE	
135	CUSTOMER SERVICE AREA	ST-2	CUSTOMER SERVICE AREA	
135	CUSTOMER SERVICE AREA	ST-2	CUSTOMER SERVICE AREA	
136	RESTROOM	ST-5	UNISEX RESTROOM	MALE, FEMALE, & HANDICAP PICTOGRAMS
137	CLS OFFICE	ST-2	CLS OFFICE	
137	CLS OFFICE	ST-2	CLS OFFICE	
138	STORAGE CAGE	ST-2	STORAGE CAGE	

GRAPHIC SCALE

0 3" 6" 9"

0 2' 4' 8'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: CAS
DRAWN BY: AMA
CHECKED BY: FAH
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
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WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
SIGNAGE SCHEDULE AND DETAILS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN EDWARD SCHMIDT

SHEET ID
I-501

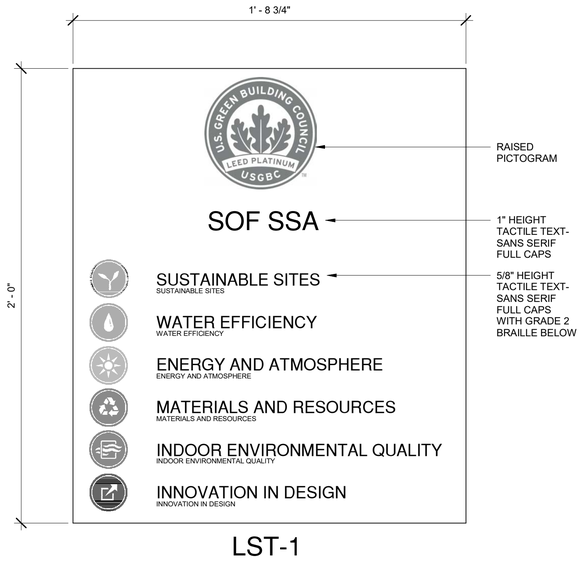
READY TO ADVERTISE

GENERAL SHEET NOTES

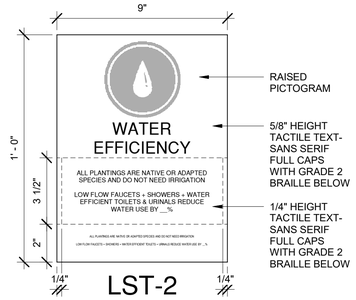
1. MOUNT SIGNAGE ON NEAREST ADJACENT WALL PER ADA WHEN WALL SPACE ON SIDE OF DOOR IS NOT AVAILABLE.
2. ALL EXACT SIGN LOCATIONS ARE SUBJECT TO APPROVAL AT PRE-INSTALLATION WALK-THOUGH PRIOR TO MOUNTING OF SIGNS.
3. LEED SIGNAGE TO BE MOUNTED AS INDICATED ON SIGNAGE DRAWINGS.
4. REFER TO SHEETS I-107 AND I-108 FOR SIGNAGE LOCATIONS.
5. LEED SIGNAGE TEXT TO BE CONFIRMED DURING CONSTRUCTION AFTER LEED CREDITS HAVE BEEN FINALIZED.
6. MOUNT SIGNS AS INDICATED ON F1/I-501 SIGNAGE MOUNTING DETAILS.
7. SIGNAGE SHOWING ON PLANS THAT ARE NOT LISTED IN SIGNAGE SCHEDULE ARE REQUIRED AS SHOWN ON THE PLANS.

LEED SIGNAGE SCHEDULE

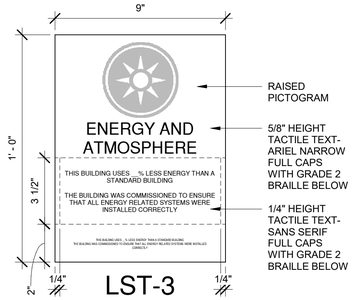
ROOM NUMBER	ROOM NAME	SIGN TYPE
107	CUSTOMER SERVICE / WAITING	LST-1
107	CUSTOMER SERVICE / WAITING	LST-3
107	CUSTOMER SERVICE / WAITING	LST-2
107	CUSTOMER SERVICE / WAITING	LST-4
107	CUSTOMER SERVICE / WAITING	LST-5
107	CUSTOMER SERVICE / WAITING	LST-6
112	COPY	LST-8
116	CORR	LST-8
118	BREAK ROOM	LST-7
119	MOTHERS	LST-7
123	SHOWER	LST-7
124	WOMEN'S	LST-7
125	MEN'S	LST-7
126	SHOWER	LST-7
129	WAREHOUSE	LST-8
129	WAREHOUSE	LST-8
134	GIP WAREHOUSE	LST-8
134	GIP WAREHOUSE	LST-8
136	RESTROOM	LST-7
137	CLS OFFICE	LST-7



LST-1



LST-2

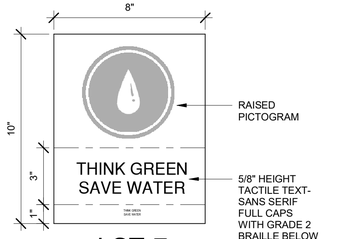


LST-3

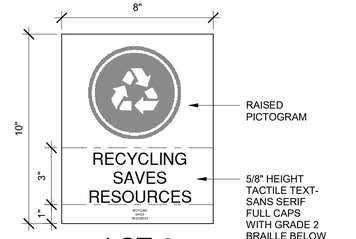
LST-4

LST-5

LST-6



LST-7



LST-8

A2 INTERIOR PANEL SIGNAGE - LEED

3" = 1'-0"

GRAPHIC SCALE

0 3" 6" 9"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: CAS
DRAWN BY: CAS
CHECKED BY: CAS
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
LEED SIGNAGE DETAILS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN C. SCHLOTZMAN

SHEET ID
I-502

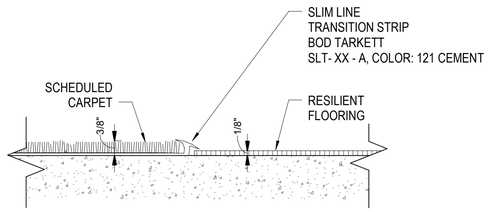
READY TO ADVERTISE

INTERIOR FINISH LIST

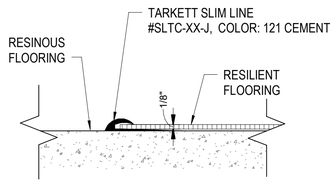
DESIGNATION	MANUFACTURER	DESCRIPTION	COMMENTS
FLOOR			
LVT-1	TARKETT	LUXURY VINYL TILE; STYLE: EVENT, COLOR: TRAVERTINE ETR TOSCANO 7212 QU, SIZE: 12" X 36" X .120" THICK, INSTALLATION: GLUE DOWN	
PFT-1	DALTILE	PORCELAIN FLOOR TILE; COLLECTION: VOLUME 1.0, COLOR: REVERB ASH VL74, SIZE: 12" X 24" X 5/16" THICK, FINISH: MATTE, DCOF WET: ≥ 0.42	
PFT-2	DALTILE	PORCELAIN FLOOR TILE: COLLECTION: COLOR WHEEL MOSAIC, STYLE: 2" X 2" MOSAIC DOT MOUNTED, SHAPE: STRAIGHT JOINT, COLOR: MATTE ARCTIC WHITE 0790, THICKENESS: 1/4", FINISH: MATTE, DCOF WET: ≥ 0.42	
SC	STONHARD	RESINOUS FLOORING; STYLE: STONCLAD GS, COLOR: MUSHROOM	
SDT-1	TARKETT	STATIC DISSAPTIVE TILE; STYLE: IQ GRANIT SD, COLOR: FLANNEL BLANKET 0722, SIZE: 24" X 24", THICKNESS: 2mm	
WO-1	TARKETT	WALK-OFF CARPET; STYLE: ABRASIVE ACTION II 02578, COLOR: WINTER GRAY 1910, SIZE: 24" X 24" X 0.115" THICK, GAUGE: 1/12"	VESTIBULE
WO-2	MATS INC	WALK-OFF MAT; STYLE: 3M NOMAD CARPET MATTING 5000, COLOR: BLACK-GREY, SIZE: 48" X 72"	LOOSE-LAID MAT WITH BLACK VINYL TRIM
BASE			
PFT-3	DALTILE	PORCELAIN WALL BASE; COLLECTION: VOLUME 1.0, STYLE: COVE BASE P-36C9TB, COLOR: REVBERN ASH VL74, SIZE: 6" X 12", FINISH: MATTE	
RB-1	TARKETT	RUBBER WALL BASE; STYLE: 4" COVE BASE, COLOR: 121 CEMENT; PROFILE: STRAIGHT @ CARPET, COVE @ RESILIENT	
WALL			
CG-1	CONSTRUCTION SPECIALTIES	CORNER GUARD; ACROVYN, SSM-20, PEARL #934, THICKNESS: 0.040"	
CWT-1	DALTILE	CERAMIC WALL TILE; STYLE: COLOR WHEEL LINEAR, COLOR: BISCUIT K175, SIZE: 4" X 16", INSTALLATION: RUNNING BOND, SHEEN: SEMI-GLOSS	WET WALLS SHALL HAVE A 4'-0" HIGH CERAMIC TILE WAINSCOT
CWT-2	DALTILE	CERAMIC WALL TILE; COLLECTION: COLOR WHEEL LINEAR, COLOR: MATTE ARCTIC WHITE 0790, SIZE: 4" X 8", INSTALLATION: RUNNING BOND, SHEEN: SEMI-GLOSS	WET WALLS SHALL HAVE A 4'-0" HIGH CERAMIC TILE WAINSCOT
PT-1	PPG	GENERAL WALL PAINT; COLOR: COMMERCIAL WHITE PPG1025-1, FS-27886, FINISH: EGGSHELL SHEEN	
PT-2	PPG	ACCENT WALL PAINT; COLOR: STORM'S COMING PPG1008-2, FS-16400, FINISH: EGGSHELL SHEEN	
CEILING			
ACT-1	ARMSTRONG CEILING	ACOUSTICAL CEILING TILE; ULTIMA LAY-IN AND TEGULAR, SIZE: 24" X 24" X 0.75", COLOR: WHITE; SUSPENSION GRID: 15/16" PRELUDE; COLOR: WHITE	
ACT-2	ARMSTRONG CEILING	ACOUSTICAL CEILING TILE; VL PERFORATED #869; SIZE: 24" X 24" X 5/8"; COLOR: WHITE; SQUARE LAY-IN; SUSPENSION SYSTEM: 15/16" PRELUDE PLUS XL ALUMINUM GRID; COLOR: WHITE	VINYL-FACED MEMBRANE FOR WET AREAS
ACT-3	ARMSTRONG CEILING	ACOUSTICAL CEILING TILE; CERAMAGUARD FINE FISSURED PERFORATED, 15/16" SQUARE LAY-IN #607; SIZE: 24" X 24" X 5/8"; COLOR: WHITE; SQUARE LAY-IN; SUSPENSION SYSTEM: 15/16" PRELUDE PLUS XL ALUMINUM GRID; COLOR: WHITE	FACTORY-APPLIED PLASTIC PAINT FINISH, HUMIDITY/SAG RESISTANCE FOR SHOWER ROOMS
PT-4	PPG	GYP CEILING PAINT; COLOR: GYPSUM PPG1006-1, FS-37885, FINISH: FLAT SHEEN	
PT-5	PPG	GYP CEILING PAINT; COLOR: ARTILLERY PPG-1008-6, FS-36250, FINISH: FLAT SHEEN	EXPOSED STRUCTURES
MILLWORK			
PLAM-1	-	NOT USED	
PLAM-2	FORMICA	PLASTIC LAMINATE; CREAM SOFTWOOD 4923-NG, NATURAL GRAIN	
SS-1	CORIAN	SOLID SURFACE COUNTER; COLOR: WHITE JASMINE, THICKNESS: 1/2"	
DOORS AND FRAMES			
PT-3	PPG	METAL DOOR AND ALL DOOR FRAMES; COLOR: PAINT DOOR AND FRAME TO MATCH WALL, FINISH: SEM-GLOSS SHEEN	
WD-1	PPG	CUSTOM GRADE RED OAK, RIFT CUT WITH CLEAR FINISH	
BLINDS			
AB-1	HUNTER DOUGLAS	HORIZONTAL LOUVER BLINDS; STYLE: CL62 1" ALUMINUM HORIZONTAL BLINDS, COLOR: 974 PEARL, SIZE: 1" x 1" x .024"	

INTERIOR FINISH SCHEDULE

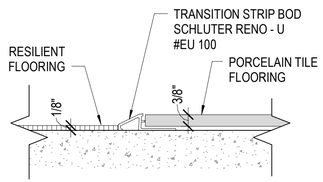
ROOM NUMBER	ROOM NAME	FLOOR FINISH	BASE FINISH	WALL FINISH				CEILING	
				NORTH	SOUTH	EAST	WEST	FINISH	HEIGHT
101	VEST	WO-1	RB-1	PT-1	PT-1	PT-1	PT-1	PT-4	9' - 0"
102	CORR	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
103	OFFICE	LVT-1	RB-1	PT-1	PT-2	PT-1	PT-1	ACT-1	9' - 0"
104	OFFICE	LVT-1	RB-1	PT-1	PT-2	PT-1	PT-1	ACT-1	9' - 0"
105	OFFICE	LVT-1	RB-1	PT-1	PT-2	PT-1	PT-1	ACT-1	9' - 0"
106	OFFICE	LVT-1	RB-1	PT-1	PT-2	PT-1	PT-1	ACT-1	9' - 0"
107	CUSTOMER SERVICE / WAITING	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
108	STOCK CONTROL OFFICE	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
109	PBO OFFICE	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-2	ACT-1	9' - 0"
110	PBO OFFICE	LVT-1	RB-1	PT-1	PT-1	PT-2	PT-1	ACT-1	9' - 0"
111	CORR	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
112	COPY	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
113	CONF ROOM	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
114	OPEN OFFICE	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-2	ACT-1	9' - 0"
115	JAN	PFT-1	PFT-3	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
116	CORR	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
117	VEST	WO-1	RB-1	PT-1	PT-1	PT-1	PT-1	PT-4	9' - 0"
118	BREAK ROOM	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
119	MOTHERS	LVT-1	RB-1	PT-1	PT-2	PT-1	PT-1	ACT-2	9' - 0"
120	SIPR	SDT-1	RB-1	PT-1	PT-1	PT-1	PT-1	EXPOSED / PT-5	
121	VENDOR / ESS	SDT-1	RB-1	PT-1	PT-1	PT-1	PT-1	EXPOSED / PT-5	
122	STORAGE FILE	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
123	SHOWER	PFT-2	PFT-3	CWT-2	CWT-2	CWT-2	CWT-2	ACT-3	9' - 0"
124	WOMEN'S	PFT-1	PFT-3	CWT-1	CWT-1	CWT-1	CWT-1	ACT-2	9' - 0"
125	MEN'S	PFT-1	PFT-3	CWT-1	CWT-1	CWT-1	CWT-1	ACT-2	9' - 0"
126	SHOWER	PFT-2	PFT-3	CWT-2	CWT-2	CWT-2	CWT-2	ACT-3	9' - 0"
127	MECH/PLUMB	SC	RB-1	PT-1	PT-1	PT-1	PT-1	EXPOSED / PT-5	
128	ELECTRICAL	SC	RB-1	PT-1	PT-1	PT-1	PT-1	EXPOSED / PT-5	10' - 0"
129	WAREHOUSE	SC	RB-1	PT-1	PT-1	PT-1	PT-1	EXPOSED / PT-5	
130	VAULT	SC	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
131	TELECOM	SDT-1	RB-1	PT-1	PT-1	PT-1	PT-1	EXPOSED / PT-5	11' - 4"
132	LOCKABLE STORAGE	SC	RB-1	PT-1	PT-1	PT-1	PT-1	PT-5	11' - 0"
133	STORAGE CAGE	SC	RB-1	PT-1	-	-	-	EXPOSED / PT-5	
133B	PBO STORAGE CAGE	SC	RB-1	PT-1	-	-	-	EXPOSED / PT-5	
134	GIP WAREHOUSE	SC	RB-1	PT-1	PT-1	PT-1	PT-1	EXPOSED / PT-5	
135	CUSTOMER SERVICE AREA	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
136	RESTROOM	PFT-1	PFT-3	CWT-1	CWT-1	CWT-1	CWT-1	ACT-2	9' - 0"
137	CLS OFFICE	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"
138	STORAGE CAGE	SC	RB-1	PT-1	-	PT-1	-	EXPOSED / PT-5	9' - 0"



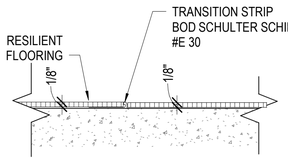
TS - 1 CARPET TO RESILIENT



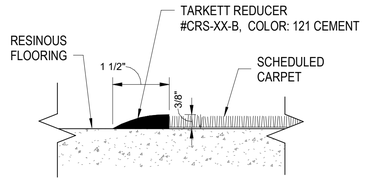
TS - 2 CONCRETE TO RESILIENT



TS - 3 RESILIENT TO PORCELAIN



TS - 4 RESILIENT TO STATIC DISSIPATIVE TILE



TS - 5 CONCRETE TO CARPET

A2 TRANSITION DETAILS

6" = 1'-0"

GENERAL SHEET NOTES

1. THE MANUFACTURER'S NAMES AND THEIR PRODUCTS REFERENCED INDICATE THE COLOR, TEXTURE, AND PATTERN REQUIRED FOR THE MATERIALS LISTED. THE PRODUCTS FURNISHED SHALL MEET THE COLOR, TEXTURE, AND PATTERN INDICATED AS WELL AS THE MATERIAL QUALITY AND PERFORMANCE SPECIFIED IN THE APPLICABLE TECHNICAL SPECIFICATION SECTION. THE USE OF MANUFACTURER'S NAMES AND PRODUCTS DO NOT PRECLUDE THE USE OF OTHER MANUFACTURER'S PRODUCTS OF APPROVED EQUAL COLOR, TEXTURE, AND PATTERN AS LONG AS ALL REQUIREMENTS IN THE TECHNICAL SECTIONS ARE MET.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: CAS
DRAWN BY: CAS
CHECKED BY: FAH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

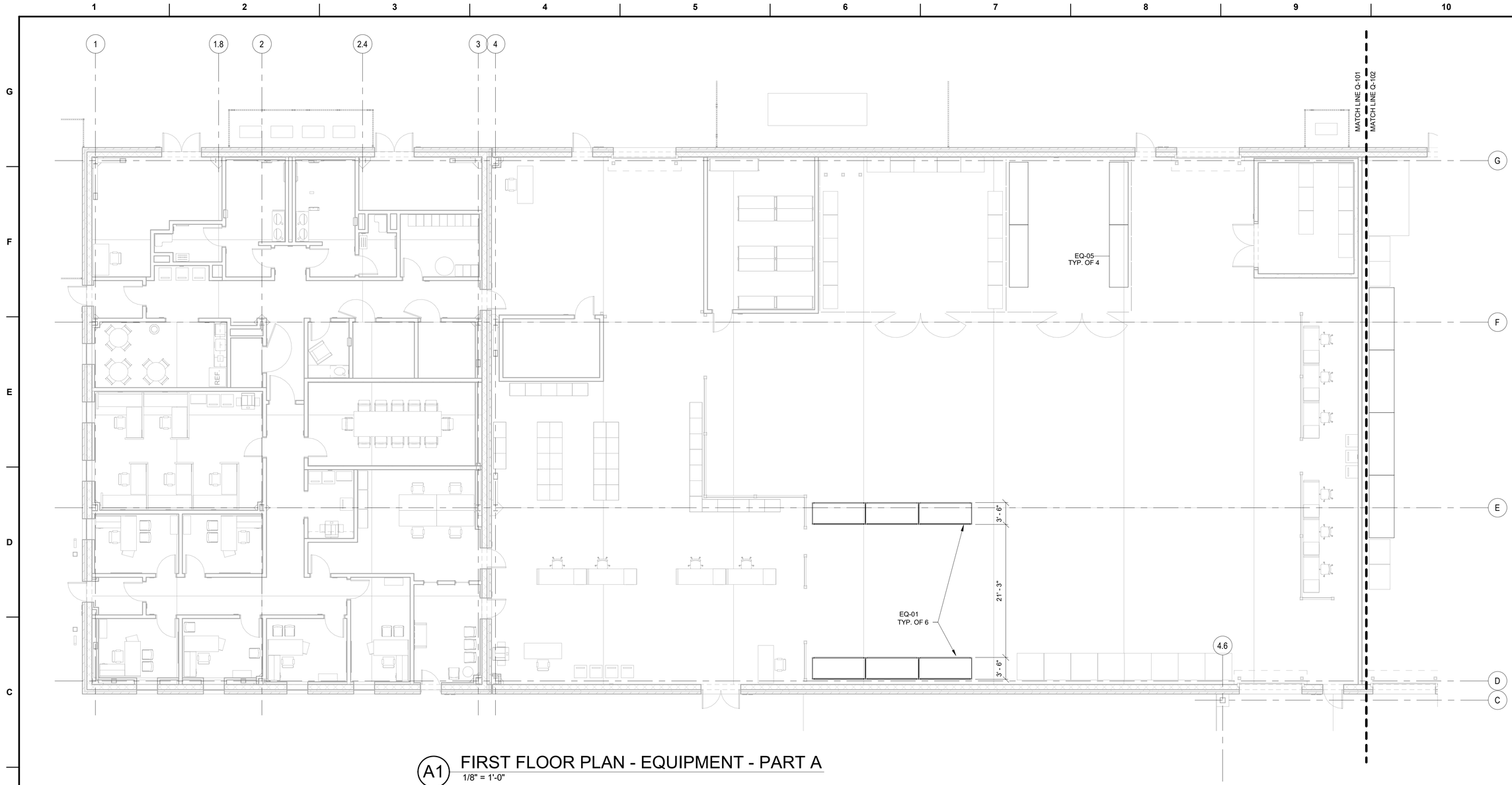
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FINISH LIST, FINISH SCHEDULE AND TRANSITION DETAILS

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN C. SCHLOSSMAN

SHEET ID
I-601

READY TO ADVERTISE



A1 FIRST FLOOR PLAN - EQUIPMENT - PART A

1/8" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. EQUIPMENT LAYOUTS INDICATE GENERAL LOCATION OF EQUIPMENT. UNLESS SPECIFICALLY DIMENSIONED, EQUIPMENT SHALL BE INSTALLED IN GENERAL LOCATION INDICATED IN A MANNER WHICH AVOIDS CONFLICTS WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL FIXTURES.
2. EQUIPMENT SHOWN ON THESE DRAWINGS ARE BASED ON SPECIFICATIONS. MODIFICATIONS AND/OR SUBSTITUTIONS OF SAID EQUIPMENT IS SUBJECT TO COMPLETE COORDINATION BY CONTRACTOR OF CONNECTIONS, SERVICES, OPENING SIZES, AND ANY OTHER CONSTRUCTION RELATED REQUIREMENTS.
3. REFER TO EQUIPMENT SCHEDULE FOR LIST OF EQUIPMENT.
4. VERIFY AND COORDINATE ALL STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING REQUIREMENTS OF EQUIPMENT WITH APPROVED MANUFACTUER PRIOR TO INSTALLATION.

SHEET KEYNOTES

EQUIPMENT SCHEDULE

EQUIPMENT SCHEDULE

CODE	DESCRIPTION	QUANTITY
EQ-01	8' PALLET RACK UNIT	6
EQ-05	10' PALLET RACK, 36" WIDE	4
EQ-10	8' PALLET RACK UNIT, WIDE DECKING	4
EQ-11	PALLET STACKING SYSTEM	1
EQ-12	WIRE BIN STORAGE	36

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: RDS
DRAWN BY: TGS
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SUBMITTED BY:
ISSUE DATE: AUGUST 2023
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69 DARLINGTON AVENUE
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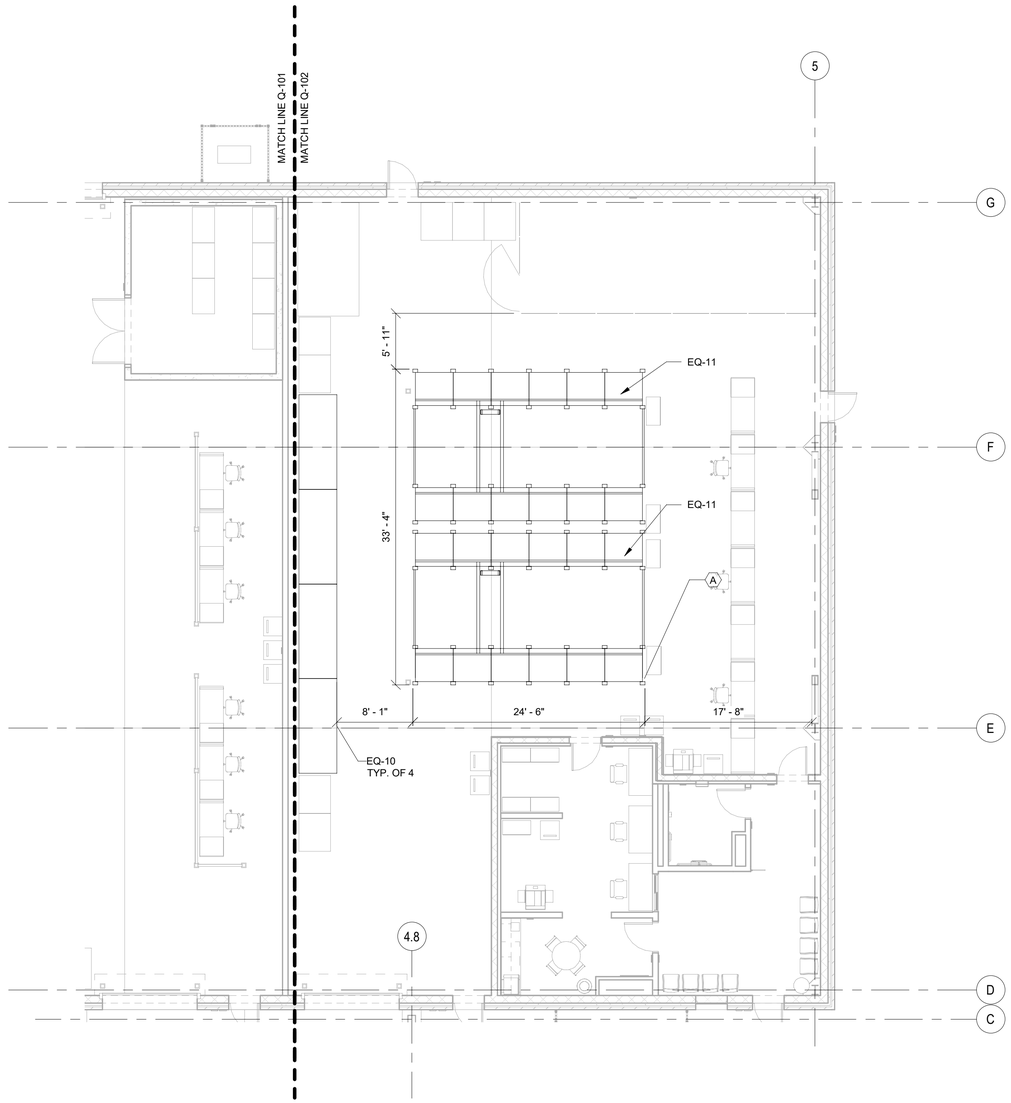
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
FLOOR PLAN - EQUIPMENT - PART A

REGISTERED ARCHITECT
NORTH CAROLINA
14646
STEPHEN G. CHAMBERS
9/14/2023

SHEET ID
Q-101

READY TO ADVERTISE



B1 FIRST FLOOR PLAN - EQUIPMENT - PART B

1/8" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. EQUIPMENT LAYOUTS INDICATE GENERAL LOCATION OF EQUIPMENT. UNLESS SPECIFICALLY DIMENSIONED, EQUIPMENT SHALL BE INSTALLED IN GENERAL LOCATION INDICATED IN A MANNER WHICH AVOIDS CONFLICTS WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL FIXTURES.
2. EQUIPMENT SHOWN ON THESE DRAWINGS ARE BASED ON SPECIFICATIONS. MODIFICATIONS AND/OR SUBSTITUTIONS OF SAID EQUIPMENT IS SUBJECT TO COMPLETE COORDINATION BY CONTRACTOR OF CONNECTIONS, SERVICES, OPENING SIZES, AND ANY OTHER CONSTRUCTION RELATED REQUIREMENTS.
3. REFER TO EQUIPMENT SCHEDULE ON SHEET Q-101 FOR LIST OF EQUIPMENT.
4. VERIFY AND COORDINATE ALL STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING REQUIREMENTS OF EQUIPMENT WITH APPROVED MANUFACTUER PRIOR TO INSTALLATION.

SHEET KEYNOTES

(A) EQ-12 LOCATED ON EQ-11 PALLET DECKS

SHEET LEGEND

GRAPHIC SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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69 DARLINGTON AVENUE
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

FLOOR PLAN - EQUIPMENT - PART B

NORTH CAROLINA REGISTERED 14646 ARCHITECT STEPHEN G. SCHMITZMAN 8/4/2023

SHEET ID

Q-102

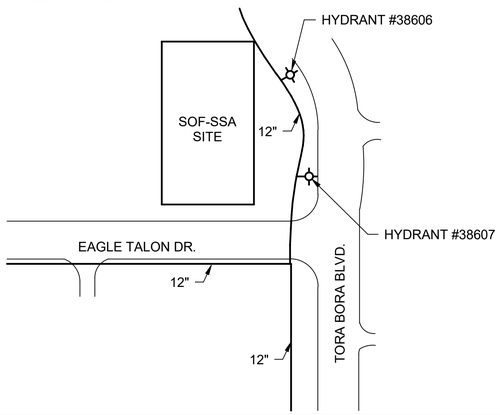
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FIRE PROTECTION LEGEND

SP	WET SPRINKLER SYSTEM MAIN PIPING
DSP	DRY SPRINKLER SYSTEM MAIN PIPING
D	DRAIN PIPING
F	FIRE SUPPLY MAIN PIPING
FDC	FIRE DEPARTMENT CONNECTION SUPPLY PIPING
N	NITROGEN PRESSURIZATION SUPPLY PIPING
	PIPE UP
	PIPE DN
	SPRINKLER MAIN WITH END CAP
	PIPE CONTINUATION
	OS&Y VALVE WITH TAMPER SWITCH
	CHECK VALVE
	RISER CHECK VALVE
	INSPECTOR TEST VALVE
	WATER FLOW SWITCH
	BALL VALVE
	PRESSURE GAUGE
N	NITROGEN CHARGED DRY PIPE VALVE
	FLOAT VALVE
	STRAINER
	AIR FILTER
	PRESSURE REGULATOR VALVE
	SOLENOID VALVE
	GAS SAMPLING PORT
	FIRE DEPARTMENT CONNECTION
	BACKFLOW PREVENTER TEST CONNECTION
	RISER
	FIRE HOSE VALVE
PIV	POST INDICATING CONTROL VALVE
TS	TAMPER SWITCH
WF	FLOW SWITCH
PS	PRESSURE SWITCH
HL	HI/LO NITROGEN SUPERVISORY SWITCH
	VALVE IN VERTICAL PIPING

SITE WATER SUPPLY

HYDRANT FLOW TEST DATA:
DATE: 03 AUGUST 2022
GAUGE/STATIC HYDRANT: #38607; FLOW/RESIDUAL HYDRANT: #38606
STATIC PRESSURE: 120 PSI; RESIDUAL PRESSURE: 119 PSI; FLOW: 856 GPM
SOURCE: FT BRAGG - ASUS



FIRE PROTECTION ABBREVIATIONS

ABV	ABOVE
AFF	ABOVE FINISH FLOOR
ADD	ADDENDUM
ADJ	ADJACENT
AHJ	AUTHORITY HAVING JURISDICTION
ALT	ALTERNATE
APPD	APPROVED
BSMT	BASEMENT
BEL	BELOW
BET	BETWEEN
BOT	BOTTOM
BN	BULLNOSE
CI	CAST IRON
CLG	CEILING
CH	CEILING HEIGHT
CL	CENTER LINE
C TO C	CENTER TO CENTER
CLO	CLOSET
CLOS	CLOSURE
COL	COLUMN
CONST	CONSTRUCTION
CONT	CONTINUE, CONTINUOUS, CONTINUATION
CONTR	CONTRACTOR
CJT	CONTROL JOINT
COORD	COORDINATE, COORDINATED
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CORR	CORRIDOR
CR	CORROSION RESISTANT
DEPT	DEPARTMENT
DEG	DEGREE
DTL	DETAIL
DIAG	DIAGRAM,DIAGONAL
DIAM,DIA	DIAMETER
DIM	DIMENSION
D.I.P.	DUCTILE IRON PIPE
DIST	DISTANCE
DN	DOWN
D	DRAIN
EA	EACH
ED	EDITION
EL	ELBOW
EMR	ELEVATOR MACHINE ROOM
EQ	EQUAL
ESCT	ESCUTCHEON
EXST	EXISTING
EXP	EXPANSION
EX	EXISTING
F	FIRE SUPPLY
FA	FIRE ALARM
FDC	FIRE DEPARTMENT CONNECTION
FE	FIRE EXTINGUISHER
FHV	FIRE HOSE VALVE
FEC	FIRE EXTINGUISHER CABINET
F.L.	FLANGE
FPRG	FIREPROOFING
FSP	FIRE STANDPIPE
FT	FEET, FOOT
FXD	FIXED
GA	GAUGE,GAGE
GALV	GALVANIZED
GP	GALVANIZED PIPE
GPM	GALLONS PER MINUTE
GD	GRADE, GRADING
GWB	GYPSUM DRYWALL
HP	HORSE POWER
HT	HEIGHT
HORZ	HORIZONTAL
HR	HOUR
HVLS	HIGH VOLUME LOW SPEED (FAN)
HYD	HYDRAULIC
IN (")	INCH
INCL	INCLUDE
INFO	INFORMATION
LG	LENGTH, LONG
LB	POUND
MAINT	MAINTENANCE
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPERAGE
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
M.J.	MECHANICAL JOINT
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOM	NOMINAL
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO	NUMBER
NST	NATIONAL STANDARD THREAD
OC	ON CENTER
OPP	OPPOSITE
OPH	OPPOSITE HAND
OA	OVERALL (DIM)
OH	OVERHEAD
OPG	OPENING
OS&Y	OUTSIDE SCREW AND YOKE
PSI	POUNDS PER SQUARE INCH
PT	PUMP TEST
PTD	PAINTED
R	RISER
RCD	REFER TO CIVIL DRAWINGS
REF	REFERENCE
RELOC	RELOCATE
REM	REMOVE
REQD	REQUIRED
REV	REVISION
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RX	REMOVE EXISTING
SCH	SCHEDULE
SIM	SIMILAR
SL	SLAB
S	SOUTH
SP	SPRINKLER
STP	STANDPIPE
SPEC	SPECIFICATION
SQ	SQUARE
SYM	SYMMETRICAL
TYP	TYPICAL
UFC	UNIFIED FACILITIES CRITERIA
U.G.	UNDER GROUND
UON	UNLESS OTHERWISE NOTED
UL	UNDERWRITERS LABORATORIES
VAC	VOLTS ALTERNATING CURRENT
V	VALVE
VIF	VERIFY IN FIELD
VERT	VERTICAL
W	WEST, WIDTH
W/	WITH

GENERAL FIRE PROTECTION NOTES

1. SCOPE OF WORK - PROVIDE AUTOMATIC SPRINKLER SYSTEM TO PROVIDE COMPLETE SPRINKLER COVERAGE THROUGHOUT THE PN 87447 SOF-SSA WAREHOUSE BUILDING. PROVIDE A WET PIPE TYPE SYSTEM THROUGHOUT THE INTERIOR HEATED PORTIONS AND A DRY PIPE TYPE SYSTEM FOR THE EXTERIOR LOADING DOCK AREA. DESIGN AND INSTALL SYSTEMS IN COMPLIANCE WITH THE REQUIREMENTS OF NFPA 13, STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS, 2019 EDITION; UFC 3-600-01, FIRE PROTECTION ENGINEERING FOR FACILITIES, CHANGE 6 MAY 2021 AND PROJECT SPECIFICATIONS.
2. PROVIDE A HYDRAULICALLY CALCULATED SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13 AS AMENDED BY UFC 3-600-01 WITH THE FOLLOWING DESIGN CRITERIA:

   WET SYSTEM LIGHT HAZARD: 0.1 GPM/SQ FT OVER THE MOST HYDRAULICALLY REMOTE 1,500 SQ FT. WITH A MINIMUM SPRINKLER K FACTOR OF 5.6 AND HOSE DEMAND OF 250 GPM.

   WET SYSTEM ORDINARY HAZARD : 0.2 GPM/SQ FT OVER THE MOST HYDRAULICALLY REMOTE 2,500 SQ FT WITH A MINIMUM SPRINKLER K FACTOR OF 8.0 AND A HOSE DEMAND OF 250 GPM.

   DRY SYSTEM ORDINARY HAZARD: 0.2 GPM/SQ FT OVER THE MOST HYDRAULICALLY REMOTE 3,500 SQ FT WITH A MINIMUM SPRINKLER K FACTOR OF 8.0 AND A HOSE DEMAND OF 250 GPM.

   STORAGE HAZARD: NFPA 13 TABLE 23.6.1, ESFR PROTECTION, MAXIMUM ROOF/STORAGE HEIGHT 30FT/25FT, 12 SPRINKLERS FLOWING, MINIMUM K FACTOR 16.8, MINIMUM PRESSURE 35 PSI AND A HOSE DEMAND OF 250 GPM.

   SPRINKLER DESIGN AREAS INDICATED ABOVE FOR LIGHT AND ORDINARY HAZARD ARE MINIMUMS BASED ON CEILING OR ROOF HEIGHT UP TO AND INCLUDING 30 FT. DESIGN AREA REDUCTIONS FOR THE USE OF QUICK RESPONSE SPRINKLERS PER NFPA 13 ARE NOT PERMITTED.
3. CONSTRUCTION (SHOP) DRAWINGS AND CALCULATIONS MUST BE PREPARED BY, OR PREPARED UNDER THE IMMEDIATE SUPERVISION OF THE QFPE. THE QFPE MUST AFFIX THEIR PROFESSIONAL ENGINEERING STAMP WITH SIGNATURE TO THE SHOP DRAWINGS, CALCULATIONS AND MATERIAL DATA SHEETS, INDICATING APPROVAL PRIOR TO SUBMITTING THE FIRE EXTINGUISHING SYSTEM SHOP DRAWINGS TO THE DFPE. THE QFPE MUST MONITOR THE INSTALLATION OF THE FIRE PROTECTION SYSTEMS AND CERTIFY IN WRITING THAT THE FIRE PROTECTION SYSTEMS HAVE BEEN CONSTRUCTED AND OPERATE AS INTENDED IN THE DESIGN PLANS AND SPECIFICATIONS.
4. SPRINKLER DESIGN MUST BE APPROVED BY THE AHJ AND THE DESIGNER OF RECORD PRIOR TO INSTALLATION.
5. PROVIDE PIPE AND FITTING INSTALLATION IN ACCORDANCE WITH NFPA 13.
6. PROVIDE SYSTEM LOW POINT DRAINAGE IN ACCORDANCE WITH NFPA 13. PROVIDE BALL VALVES FOR DRAIN CONNECTION AND PROVIDE PIPING TO SPILL OVER CLOSEST FLOOR DRAIN.
7. WORK INCLUDING INSTALLATION AND TESTING MUST BE DONE IN ACCORDANCE WITH NFPA 13. HYDROSTATIC, FLUSHING AND PRESSURE TESTING MUST BE COMPLETED AND DOCUMENTED IN THE PRESENCE OF THE QFPE AND THE FIRE MARSHAL. UPON COMPLETION OF FLUSH AND HYDROSTATIC TEST ALL DOCUMENTS MUST BE FORWARDED TO THE AHJ. COMPLETE ACCESS MUST BE PROVIDED IN ALL AREAS AND FOR ALL PARTS OF THE SPRINKLER SYSTEM FOR SYSTEM INSPECTION AND HYDROSTATIC TESTING. HYDROSTATIC TESTING AND SYSTEM INSPECTION MUST COMPLETED PRIOR TO PIPE PAINTING.
8. WRITTEN DIMENSIONS ON DRAWINGS MUST TAKE PRECEDENCE OVER SCALED DIMENSIONS.
9. PROVIDE PIPE AND FITTINGS WITH A CR RATIO OF 1 OR GREATER. PLAIN END FITTINGS ARE NOT PERMITTED.
10. PROVIDE MINIMUM SCHEDULE 40 BLACK STEEL PIPE WITH FURNACE BUTT-WELDS, ASTM A53, TYPE F, FOR ALL PIPING 2-IN AND SMALLER FOR WET SYSTEMS AND ALL SIZES FOR DRY SYSTEMS.
11. PROVIDE THREADED CAST IRON FITTINGS AND COUPLINGS FOR ALL PIPING LESS THAN 2-IN.
12. PROVIDE MINIMUM SCHEDULE 10 PIPE WITH FURNACE BUTT-WELDS, ASTM A53, TYPE F, FOR ALL WET SYSTEM PIPING 2 1/2-IN AND LARGER. PIPE THREADING OF SCHEDULE 10 PIPE IS NOT PERMITTED.
13. GROOVED TYPE FITTINGS AND COUPLINGS ARE PERMITTED ON PIPE SIZES 2-IN AND LARGER. PROVIDE ALL GROOVED TYPE COUPLINGS AND FITTINGS FROM THE SAME MANUFACTURER.
14. THE USE OF GALVANIZED PIPE IS PROHIBITED EXCEPT EXTERIOR TRIM AND DRAINS.
15. PROVIDE PIPE HANGERS AS REQUIRED PER NFPA 13 CHAPTER 9. MAXIMUM DISTANCE BETWEEN HANGERS: 15 FT FOR STEEL PIPE 1-1/2 IN AND LARGER. MAXIMUM DISTANCE BETWEEN HANGERS: 12 FT FOR STEEL PIPING LESS THAN 1-1/2 IN.
16. PROVIDE SURGE-RESTRAINT TYPE HANGERS WHERE REQUIRED BY NFPA 13.
17. PROVIDE MULTI DISCIPLINE COORDINATION AND FIELD VERIFICATION OF WORK BEFORE DESIGN AND INSTALLATION.
18. NECESSARY CONNECTIONS TO FIRE ALARM SYSTEM MUST BE MADE AND COORDINATED WITH THE FIRE ALARM SYSTEM DESIGN. SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED IN THE PRESENCE OF THE AHJ.
19. PENETRATION OF FIRE- RATED ASSEMBLIES MUST BE SEALED WITH AN UNDERWRITER'S LABORATORIES, INC. LISTED THROUGH-STOP PENETRATION SYSTEM APPROPRIATE FOR THE RATING OF THE WALL PENETRATED.
20. PROVIDE POSITIVE DRAINAGE FOR ALL SPRINKLER PIPING, INCLUDING INSPECTOR'S TEST CONNECTION AND PROVIDE DRAINAGE BACK TO THE SYSTEM RISER OR TO AN APPROVED AUXILIARY DRAIN. DRAINS MUST BE HARD-PIPED TO THE EXTERIOR TO SPILL OVER CONCRETE SPLASH BLOCK OR HARD PAVED SURFACE.
21. DRY SPRINKLER SYSTEM PIPE MUST BE SLOPED IN ACCORDANCE WITH NFPA 13.
22. PROVIDE QUICK RESPONSE TYPE SPRINKLERS IN ALL AREAS AS PERMITTED BY NFPA 13.
23. PROVIDE CENTER OF TILE SPRINKLER INSTALLATION IN AREAS WITH ACOUSTICAL TILE CEILINGS.
24. PROVIDE ORDINARY TEMPERATURE RATED SPRINKLERS UNLESS OTHERWISE REQUIRED BY NFPA 13.
25. THE USE OF FLEXIBLE SPRINKLER CONNECTIONS IS PROHIBITED.
26. SUPPLY VALVES MUST BE EQUIPPED WITH A VALVE SUPERVISORY SWITCH IN ACCORDANCE WITH NFPA 13.
27. WATER SUPPLY DATA PROVIDED IS FOR REFERENCE AND BIDDING PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR A SEPARATE CURRENT HYDRANT FLOW TEST CONDUCTED IN ACCORDANCE WITH NFPA 291 AS AMENDED BY UFC 3-600-01 FOR USE IN DEVELOPING SHOP DRAWING HYDRAULIC CALCULATIONS.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: SAB
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WILMINGTON DISTRICT
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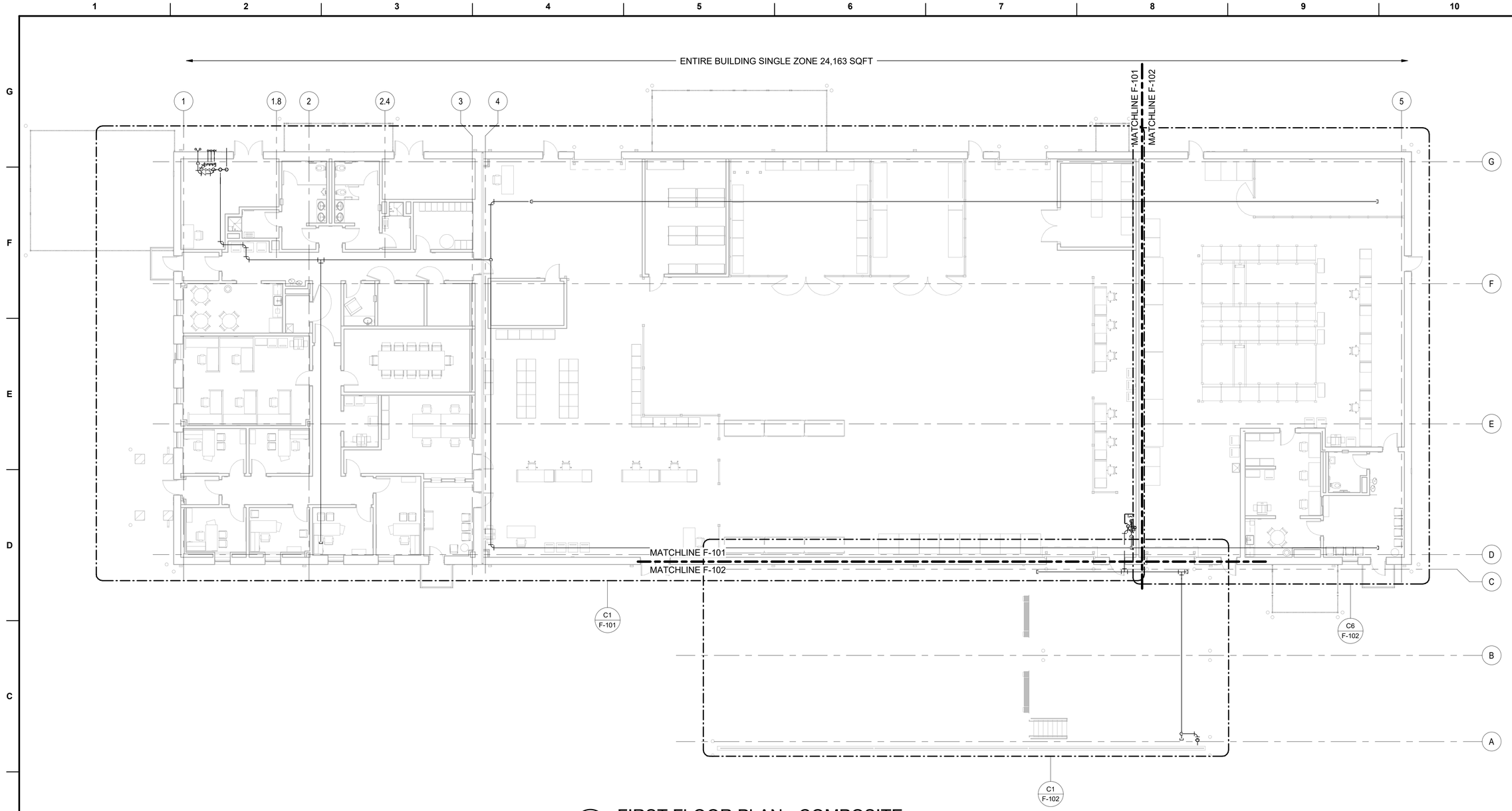
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SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
LEGEND, ABBREVIATIONS, AND GENERAL NOTES

STATE OF MARYLAND — KEVIN G. GAGE — 25337 — PROFESSIONAL ENGINEER
8/4/25

SHEET ID
F-001

READY TO ADVERTISE



A1 FIRST FLOOR PLAN - COMPOSITE
3/32" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET F-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

GRAPHIC SCALE

0 4' 8' 12 20'

US Army Corps of Engineers ®

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SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
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SIZE: ANSI D
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US ARMY CORPS OF ENGINEERS
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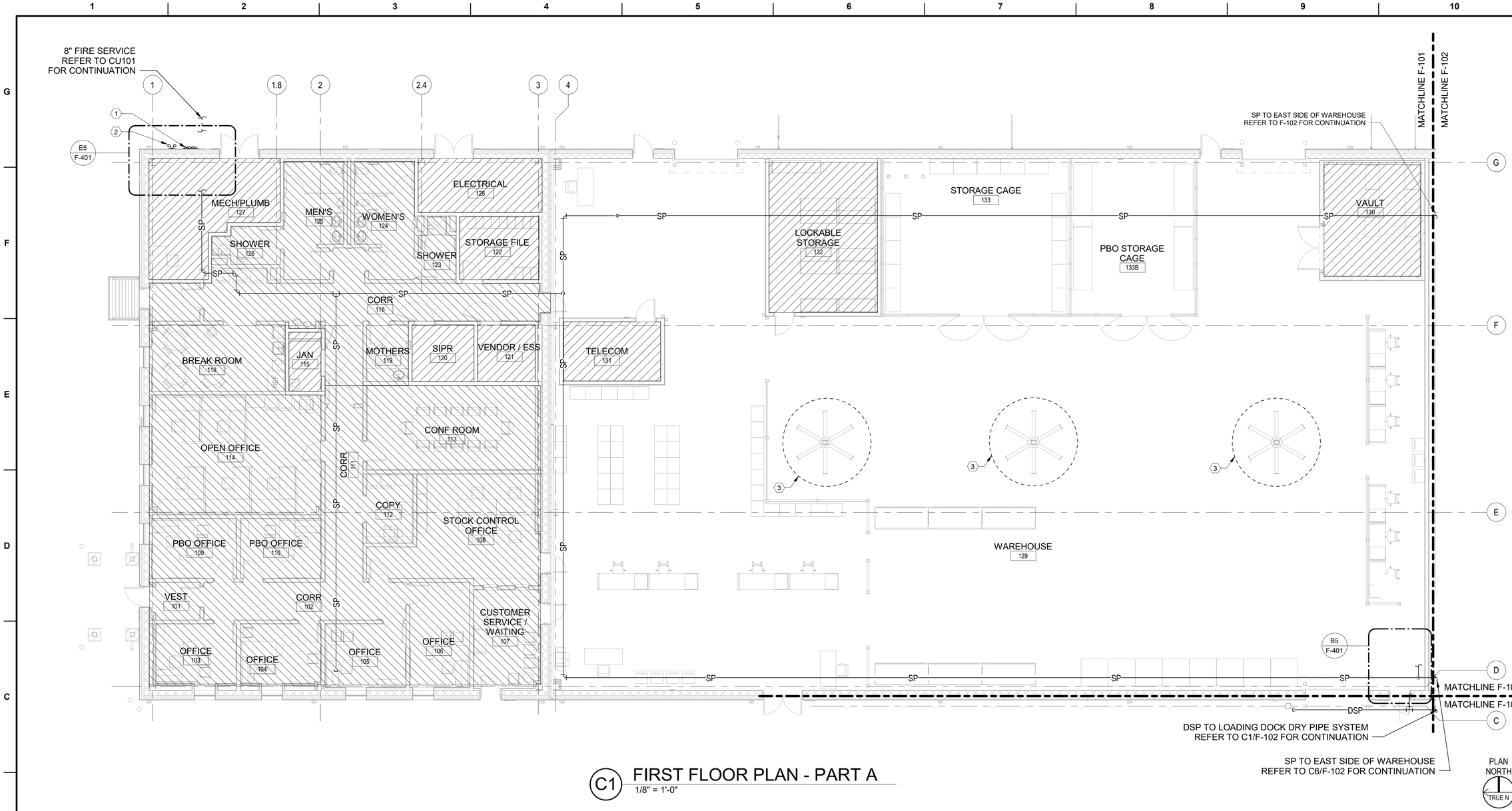
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
COMPOSITE PLAN

8/4/25

SHEET ID
F-100

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C1 FIRST FLOOR PLAN - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET F-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. SPRINKLER SYSTEM DEVICES, PIPING, AND EQUIPMENT ARE SHOWN IN GENERAL LOCATIONS AND REFLECT DESIGN INTENT ONLY. PROVIDE FINAL COORDINATED EQUIPMENT AND SPRINKLER LOCATIONS AND SIZING BASED ON HYDRAULIC CALCULATIONS.
3. PROVISIONS FOR AIR VENTING MUST BE PROVIDED FOR MAIN SYSTEM ZONES PER SECTION 8.16.6 OF NFPA 13.

SHEET KEYNOTES

1. BACKFLOW PREVENTER TEST HEADER. PROVIDE ONE 2 1/2" HOSE VALVE FOR EACH INCREMENT OF 250 GPM SPRINKLER SYSTEM DEMAND OR FRACTION OF.
2. 4 X 2 1/2" 2 1/2" PROJECTING TYPE FIRE DEPARTMENT CONNECTION. PROVIDE WALL PLATE WITH LETTERING "AUTOSPKR".
3. PROVIDE SPRINKLER SPACING AROUND HVLS FAN IN ACCORDANCE WITH NFPA 13 19.2.7. SPRINKLER FLOW SWITCH SHALL BE PROGRAMMED TO SHUT DOWN THE FAN UPON ACTIVATION.

HAZARD LEGEND

LIGHT HAZARD

ORDINARY HAZARD

(NO HATCH) STORAGE HAZARD
- RACK STORAGE
- GROUP A PLASTICS
- 22 FEET HIGH

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

US Army Corps of Engineers ®

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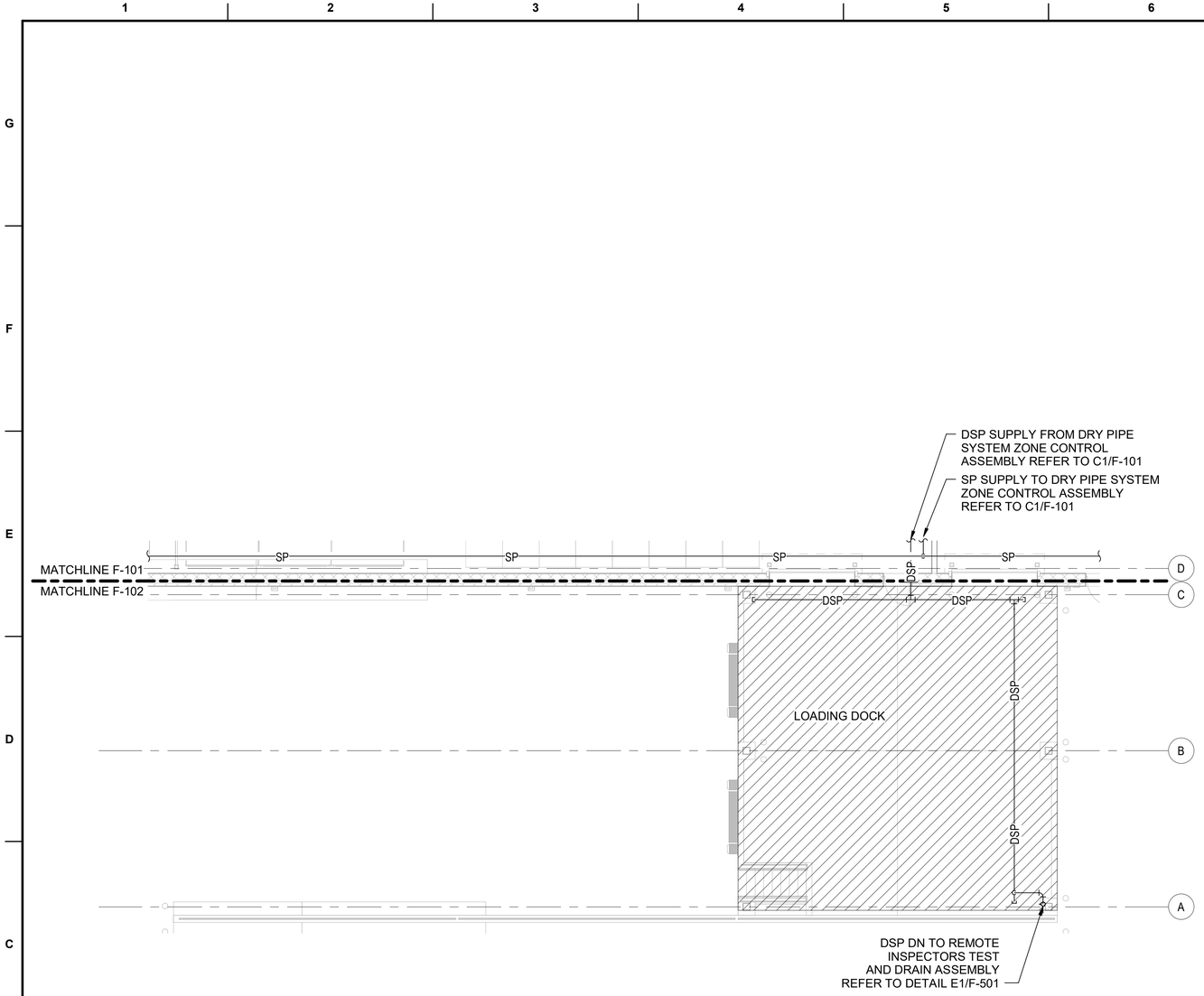
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PROJECT 87447
FIRST FLOOR PLAN - PART A

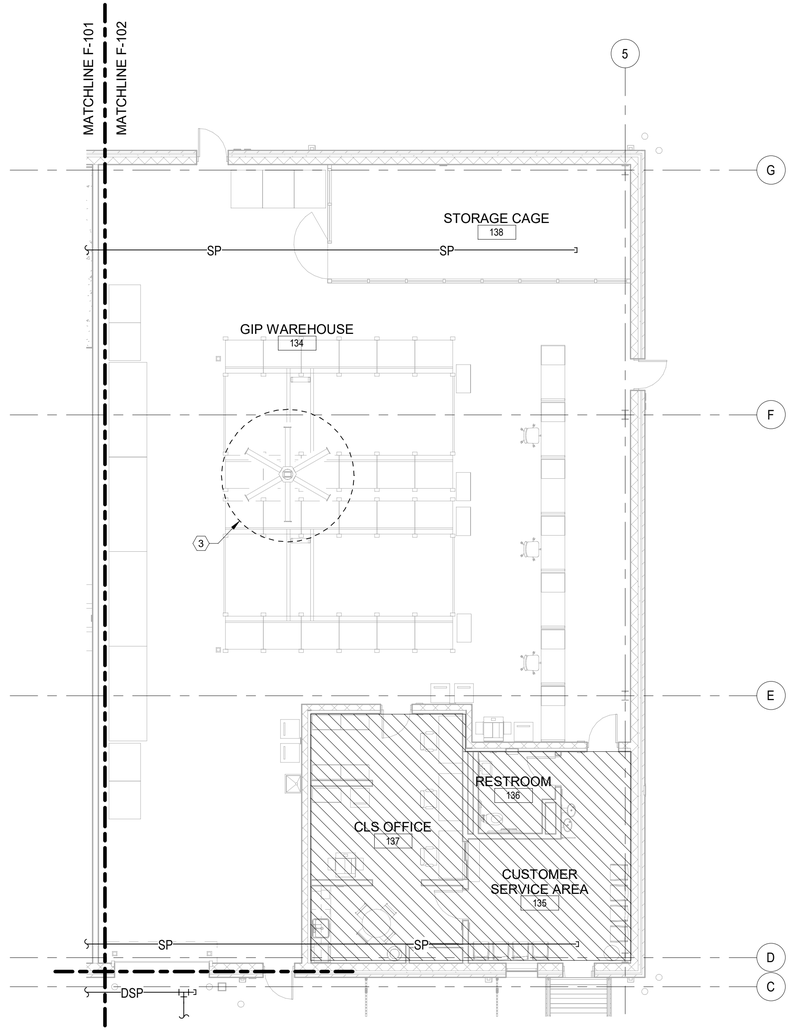
STATE OF MARYLAND · FRANCIS P. HOLLAND · 35537 · PROFESSIONAL ENGINEER
8/24/25

SHEET ID
F-101

READY TO ADVERTISE



C1 FIRST FLOOR PLAN - LOADING DOCK
1/8" = 1'-0"



C6 FIRST FLOOR PLAN - PART B
1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET F-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
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3. PROVISIONS FOR AIR VENTING MUST BE PROVIDED FOR MAIN SYSTEM ZONES PER SECTION 8.16.6 OF NFPA 13.

SHEET KEYNOTES

1. PROVIDE DRY PIPE SPRINKLER PROTECTION IN LOADING DOCK AREA.
2. PROVIDE NITROGEN GENERATION PRESSURIZATION SYSTEM FOR LOADING DOCK DRY PIPE SYSTEM MAINTENANCE PRESSURE.
3. PROVIDE SPRINKLER SPACING AROUND HVLS FAN IN ACCORDANCE WITH NFPA 13 19.2.7. SPRINKLER FLOW SWITCH SHALL BE PROGRAMMED TO SHUT DOWN THE FAN UPON ACTIVATION.

HAZARD LEGEND

LIGHT HAZARD

ORDINARY HAZARD

(NO HATCH) STORAGE HAZARD
- RACK STORAGE
- GROUP A PLASTICS
- 22 FEET HIGH

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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PROJECT 87447
FIRST FLOOR PLAN - PART B

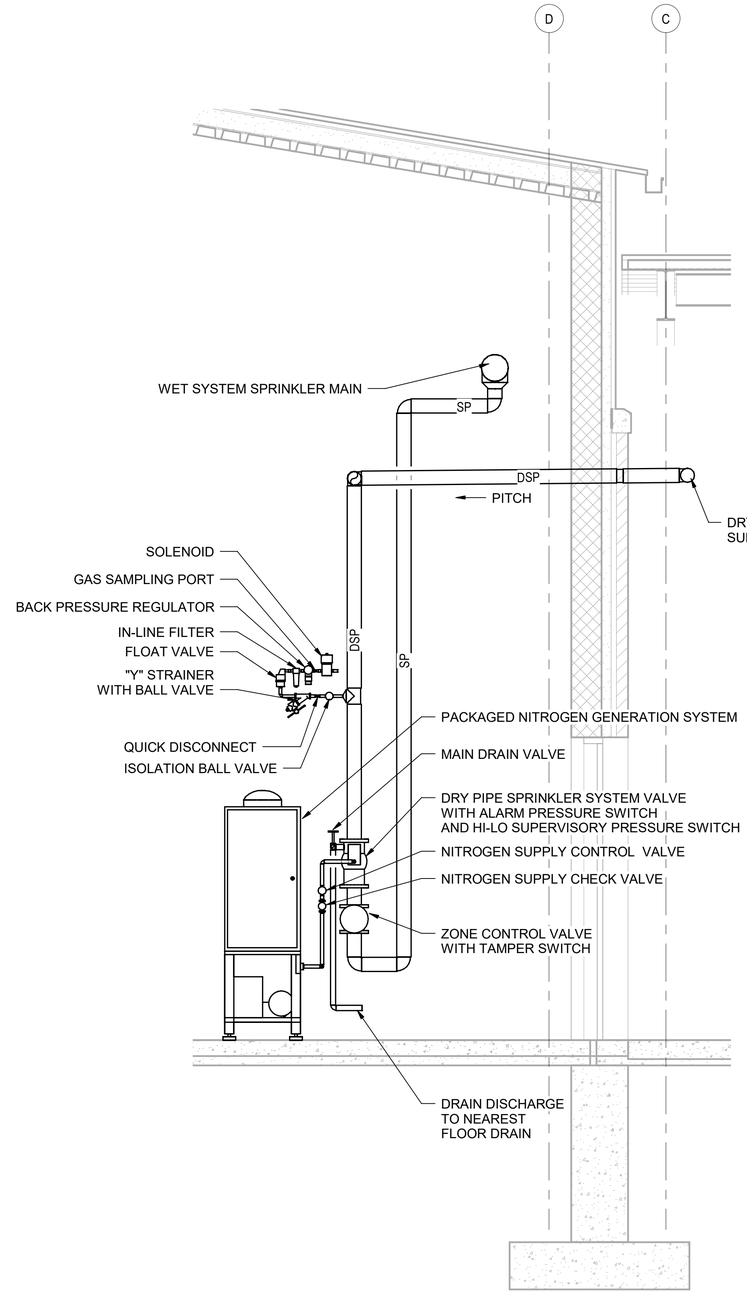
STATE OF MARYLAND
STEVEN A. KOSIK
39351
PROFESSIONAL ENGINEER
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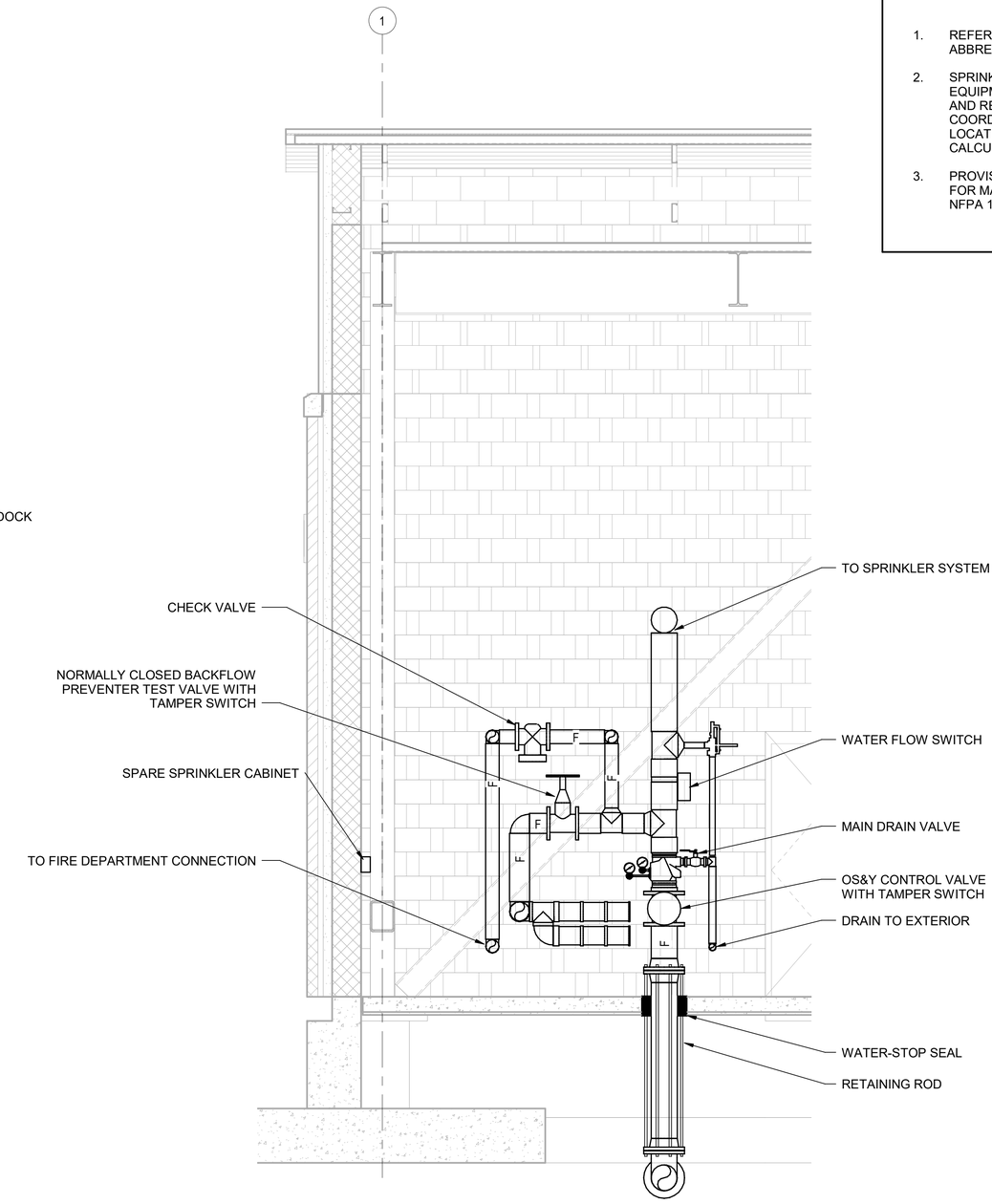
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3. PROVISIONS FOR AIR VENTING MUST BE PROVIDED FOR MAIN SYSTEM ZONES PER SECTION 8.16.6 OF NFPA 13.



B1 DRY PIPE ZONE RISER SECTION
1/2" = 1'-0"



B6 WAREHOUSE FIRE SERVICE RISER SECTION
1/2" = 1'-0"

GRAPHIC SCALE

0 1' 2' 4'

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SECTIONS

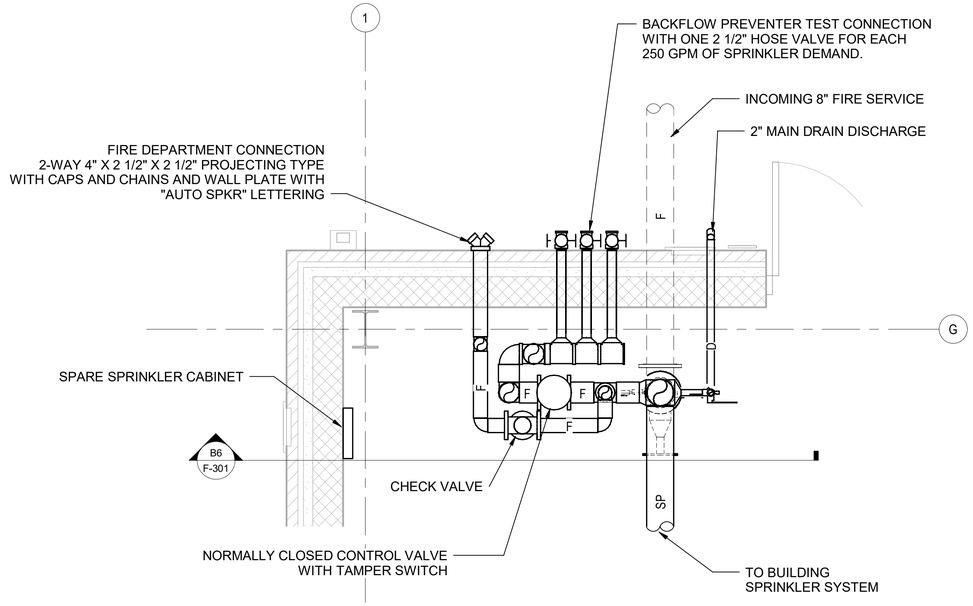
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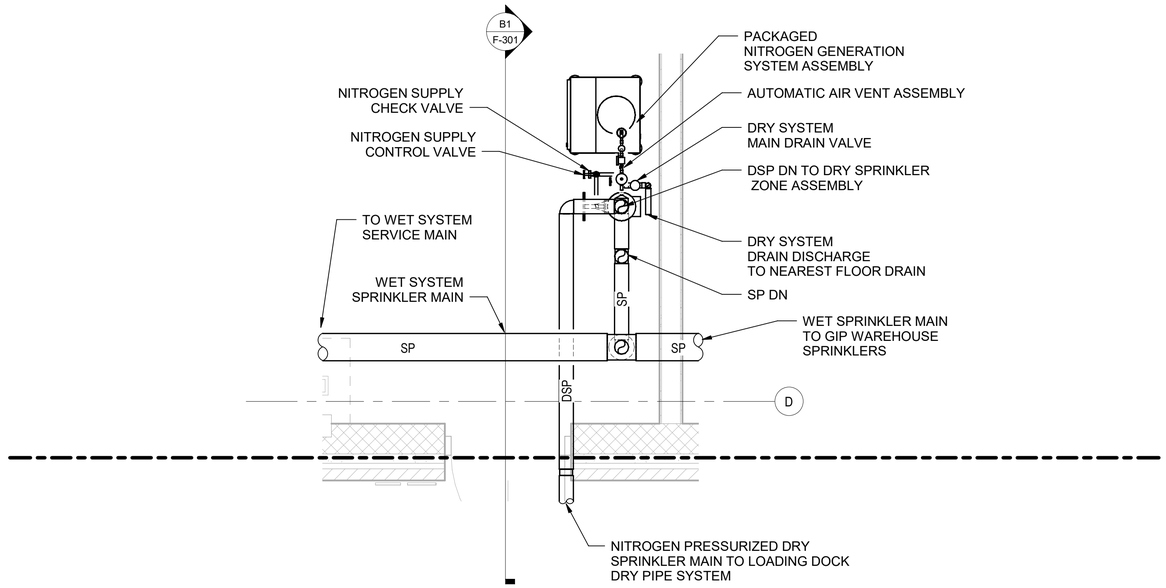
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E5 FIRST FLOOR ENLARGED PLAN - WAREHOUSE

1/2" = 1'-0"



B5 FIRST FLOOR ENLARGED PLAN - WAREHOUSE

1/2" = 1'-0"

GRAPHIC SCALE

0 1' 2' 4'

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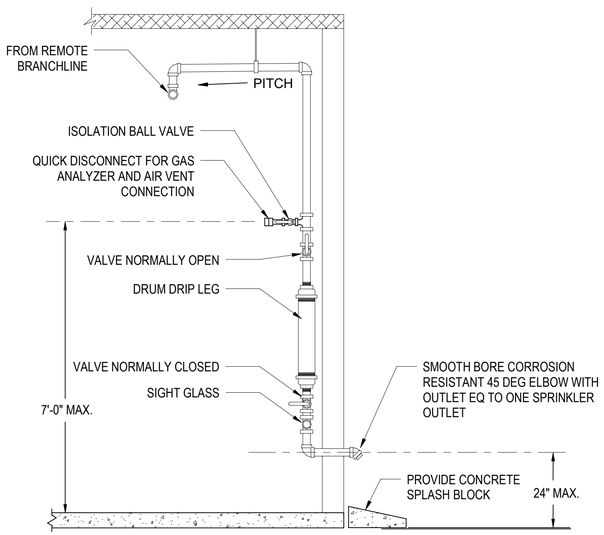
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PROJECT 87447
ENLARGED PLANS

STATE OF MARYLAND — FREDERICK P. HOVEMEYER — 33537 — PROFESSIONAL ENGINEER
8/24/23

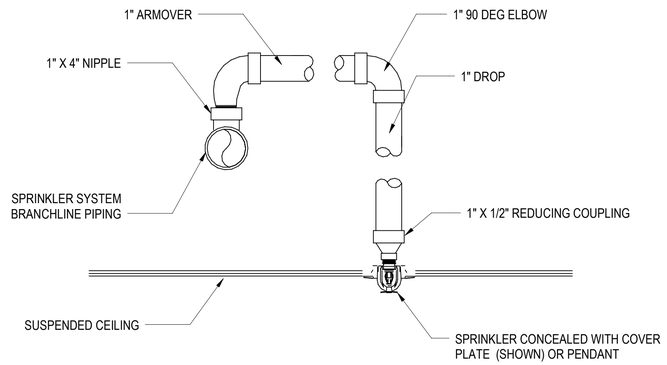
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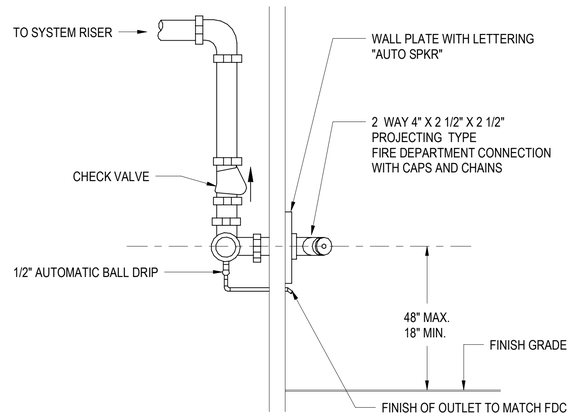
E1 DRY PIPE SYSTEM REMOTE TEST AND DRAIN PIPING DETAIL

NTS



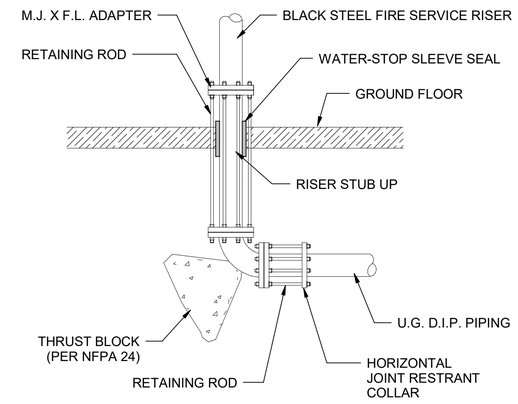
E4 SPRINKLER ARM OVER DETAIL

12" = 1'-0"



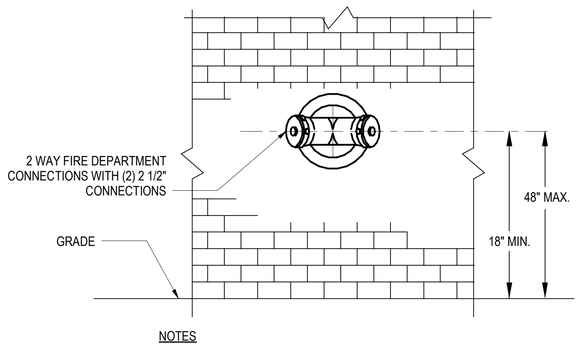
E8 FDC PIPING DETAIL

NTS



B1 UNDERGROUND STUB UP DETAIL

NTS

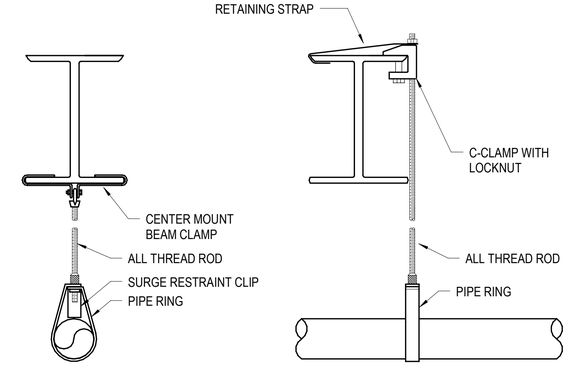


NOTES

1. PROVIDE COORDINATION OF HEIGHT, LOCATION AND THREADS OF FIRE DEPARTMENT CONNECTION WITH LOCAL FIRE DEPARTMENT.

B4 FDC MOUNTING DETAIL

NTS



PIPING PARALLEL TO BEAM

PIPING PERPENDICULAR TO BEAM

B8 PIPE SUPPORT DETAIL

NTS

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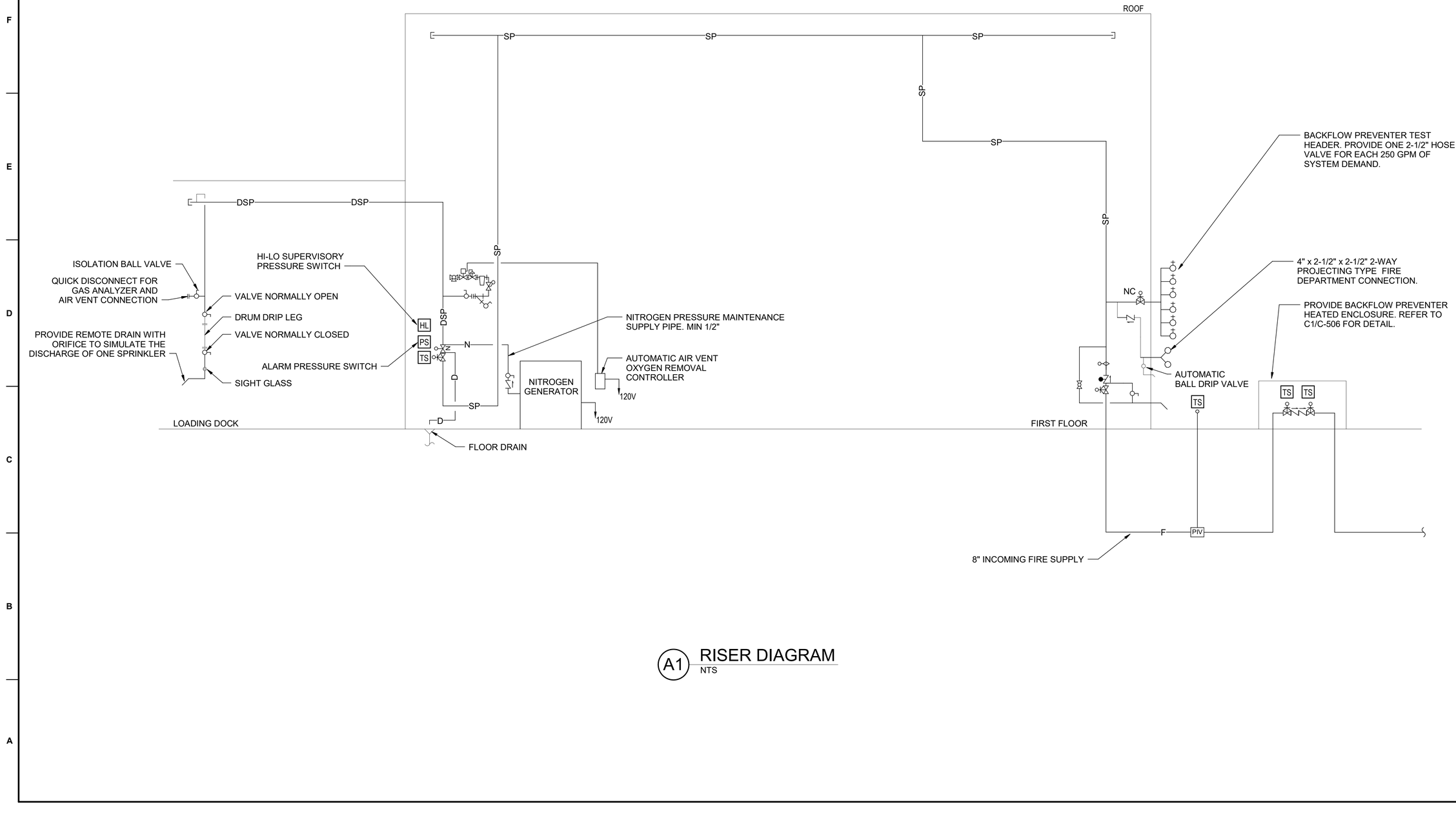
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FORT LIBERTY, NORTH CAROLINA
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DETAILS

STATE OF MARYLAND — KEVIN C. SMITH — 33537 — PROFESSIONAL ENGINEER
8/4/25

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A1 RISER DIAGRAM
NTS

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RISER DIAGRAM

STATE OF MARYLAND — 35524 — PROFESSIONAL ENGINEER
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READY TO ADVERTISE

FIRE ALARM / MASS NOTIFICATION LEGEND

F	FIRE ALARM PULL STATION
S C	CEILING MOUNTED SMOKE DETECTOR
S C/SB	CEILING MOUNTED SMOKE DETECTOR WITH LOW FREQUENCY SOUNDER BASE
S D	DUCT-MOUNTED SMOKE DETECTOR
WF	WATERFLOW SWITCH
PS	PRESSURE SWITCH
HL	HI-LO PRESSURE SUPERVISORY SWITCH
TS	TAMPER SWITCH
AM	ADDRESSABLE INPUT MODULE
AR	ADDRESSABLE RELAY MODULE
XX WP	FIRE ALARM / MNS ALERT STROBE APPLIANCE -SUPERSCRIPT "XX" INDICATES CANDELA RATING -SUBSCRIPT "WP" INDICATES WEATHER PROOF
C,WP	FIRE ALARM / MNS ALERT SPEAKER APPLIANCE -SUBSCRIPT "WP" INDICATES WEATHER PROOF -SUBSCRIPT "C" INDICATES CEILING MOUNTED
C,WP	FIRE ALARM / MNS ALERT SPEAKER/STROBE APPLIANCE -SUBSCRIPT "WP" INDICATES WEATHER PROOF -SUBSCRIPT "C" INDICATES CEILING MOUNTED -SUPERSCRIPT "XX" INDICATES CANDELA RATING
H	FIRE ALARM / MNS ALERT HIGH OUTPUT SPEAKER APPLIANCE
RTS	REMOTE INDICATOR LAMP WITH TEST STATION
FMCU	FIRE ALARM AND MASS NOTIFICATION AUTONOMOUS CONTROL PANEL
GAP	FIRE ALARM GRAPHIC ANNUNCIATOR PANEL
GP	FIRE ALARM GRAPHIC PLAQUE
FTC	FIRE ALARM TERMINAL CABINET
FAA	FIRE ALARM LCD ANNUNCIATOR PANEL
NAC	NOTIFICATION CIRCUIT POWER EXTENDER PANEL
LOC	LOCAL OPERATING CONSOLE
FATP	FIRE ALARM TRANSMITTER PANEL
LED	EMERGENCY LED TEXT SIGN
AMP	VOICE AMPLIFICATION PANEL
MNS	MASS NOTIFICATION TRANSCEIVER PANEL
SS	TRANSIENT SURGE SUPPRESSOR
BATT	BATTERY CABINET
F	ELECTRIC ALARM BELL

FIRE ALARM / MASS NOTIFICATION ABBREVIATIONS

A	AMPERAGE
ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
CFM	CUBIC FEET PER MINUTE
CIS	COMMON INTELLIGIBILITY SCALE
CKT	CIRCUIT
CLG	CEILING
COR	CONTRACTING OFFICER'S REPRESENTATIVE
DACT	DIGITAL ALARM COMMUNICATOR TRANSMITTER
DEG F	DEGREES FAHRENHEIT
EMR	ELEVATOR MACHINE ROOM
FAA	FIRE ALARM ANNUNCIATOR PANEL
FARP	FIRE SUPPRESSION RELEASE PANEL
FATP	FIRE ALARM TRANSPONDER PANEL
FBP	FIRE ALARM BOOSTER PANEL
FDC	FIRE DEPARTMENT CONNECTION
FMCU	FIRE ALARM/MASS NOTIFICATION CONTROL UNIT
FT	FEET
FTC	FIRE ALARM TERMINAL CABINET
FTR	FIRE ALARM RADIO TRANSCEIVER PANEL
GA	GAUGE
GAP	GRAPHIC ANNUNCIATOR PANEL
HT	HEIGHT
HR	HOUR
HVAC	HEATING VENTILATION AND AIR CONDITIONING
IDC	INITIATING DEVICE CIRCUIT
IN	INCHES
LED	LIGHT EMITTING DIODE
LOC	LOCAL OPERATING CONSOLE
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
MNS	MASS NOTIFICATION SYSTEM
NAC	NOTIFICATION APPLIANCE CIRCUIT
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
P/PH	PHASE
QFPE	QUALIFIED FIRE PROTECTION ENGINEER
REF	REFERENCE
REV	REVISION
RM	ROOM
RX	REMOVE EXISTING
SCH	SCHEDULE
SIM	SIMILAR
SLC	SIGNALING LINE CIRCUIT
STI	SPEECH TRANSMISSION INDEX
SQ FT	SQUARE FEET
TS	TAMPER SWITCH
TYP	TYPICAL
UFC	UNITED FACILITIES CRITERIA
UL	UNDERWRITER'S LABORATORIES
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VIF	VERIFY IN FIELD
W/	WITH
WF	WATERFLOW SWITCH
WP	WEATHER PROOF
ZCA	ZONE CONTROL ASSEMBLY

GENERAL FIRE ALARM / MASS NOTIFICATION NOTES

1. SCOPE OF WORK - PROVIDE AN ADDRESSABLE COMBINATION FIRE ALARM / MASS NOTIFICATION SYSTEM WITH OCCUPANT NOTIFICATION, MANUAL SYSTEM ACTIVATION AND SPRINKLER MONITORING CAPABILITIES. ALL WORK MUST COMPLY WITH THE REQUIREMENTS OF NFPA 70, THE NATIONAL ELECTRICAL CODE, 2020 EDITION; NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE, 2019 EDITION; UFC 3-600-01 FIRE PROTECTION ENGINEERING FOR FACILITIES, CHANGE 6 MAY 2021; UFC 4-021-01, DESIGN AND O&M: MASS NOTIFICATION SYSTEMS, CHANGE 1 JANUARY 2010 AND PROJECT SPECIFICATIONS.
2. CONTRACTOR MUST PREPARE AND SUBMIT FIRE ALARM SYSTEM SHOP DRAWINGS IN ACCORDANCE WITH NFPA 72. THE FIRE ALARM SHOP DRAWINGS MUST BEAR THE STAMP OF A QFPE.
3. AFTER THE INSTALLATION OF THE FIRE ALARM SYSTEM IS COMPLETE AND PRIOR TO FINAL AHJ INSPECTIONS THE CONTRACTOR'S QFPE MUST INSPECT AND CERTIFY THE SYSTEM INSTALLATION IN WRITING THAT THE SYSTEM IS READY FOR FINAL INSPECTION.
4. ALL SURFACE MOUNTED DEVICES MUST BE MOUNTED IN COMPATIBLE MANUFACTURER'S BACK BOXES
5. ALL FIRE ALARM WORK MUST BE INSPECTED BY A FIRE PROTECTION ENGINEER, FOR COMPLIANCE WITH NFPA 70, NFPA 72, AND THE CONTRACT DOCUMENTS. ALL SUPERVISORY AND TROUBLE ALERTS MUST BE CLEARED BEFORE SYSTEM IS ACCEPTED.
6. SMOKE DETECTORS MUST NOT BE LOCATED WITHIN 3 FT OF HVAC DIFFUSERS.
7. FIRE ALARM CABLING MUST BE INSTALLED IN MINIMUM 3/4-IN METALLIC RACEWAY. FLEXIBLE CONDUIT IS PERMITTED IN LENGTHS UP TO 6 FT.
8. ALL FIRE ALARM RIGID RACEWAY, JUNCTION BOXES AND, JUNCTION BOX COVERS MUST BE FACTORY PAINTED WITH RED COLOR.
9. THE FOLLOWING WIRING STYLES MUST BE FOLLOWED:

   SIGNALING LINE CIRCUITS (SLC): CLASS B
   INITIATING DEVICE CIRCUITS (IDC): CLASS B
   NOTIFICATION APPLIANCE CIRCUITS: CLASS B
10. T-TAPPING OF NOTIFICATION APPLIANCE CIRCUITS AND SIGNALING LINE CIRCUITS IS NOT PERMITTED.
11. ALL ADDRESSABLE DEVICES MUST BE NEATLY AND CLEARLY MARKED WITH THEIR ADDRESS USING A PRINT LABEL. PROVIDE A MINIMUM OF 3/8" HEIGHT AND VISIBLE FROM THE FLOOR.
12. PROVIDE CLEAR LENS WITH THE DEVICES MARKED "ALERT" FOR ALL FIRE ALARM / MASS NOTIFICATION STROBES AND COMBINATION SPEAKER/STROBES.
13. CONTRACTOR IS RESPONSIBLE FOR SIZING OF CONDUCTORS AND RACEWAY IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC AND NFPA 72.
14. FIRE-RATED ASSEMBLIES THAT ARE PENETRATED MUST BE SEALED WITH A U.L.-LISTED FIRE-RESISTIVE THROUGH-PENETRATION SYSTEM APPROPRIATE FOR THE ASSEMBLY PENETRATED.
15. INSTALLATION AND TERMINATION OF ALL CABLING AND WIRE MUST CONFORM TO MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS.
16. STROBES, SPEAKERS, AND SPEAKER/STROBE APPLIANCES USED WITHIN THE SAME FACILITY MUST BE FROM THE MANUFACTURER'S SAME EQUIPMENT LINE SO THAT THEY MATCH TO THE MAXIMUM EXTENT POSSIBLE. OBTAIN CONTRACTING OFFICER'S APPROVAL PRIOR TO ANY DEVIATIONS.
17. AFTER INSTALLATION OF SYSTEM PROVIDE VERIFICATION OF SPEAKER INTELLIGIBILITY BY MEASUREMENT. AUDIO LEVELS IN ALL AREAS OF THE BUILDING MUST BE PROVIDED WITH A SOUND LEVEL OF 15DB ABOVE NORMAL AMBIENT NOISE.
18. PROVIDE IDENTIFICATION FOR ALL FIRE ALARM JUNCTION BOXES AS INDICATED IN THE PROJECT SPECIFICATIONS.
19. PROVIDE A MANUAL PULL STATION WITHIN 5-FT OF ALL EXITS DOORS MEASURED FROM THE LATCH SIDE OF THE DOOR.
20. THE BASE FIRE ALARM SIGNAL RECEIVING SYSTEM USES MONACO AND HONEYWELL EBI EQUIPMENT. PROVIDE FIRE ALARM TRANSMITTER THAT IS COMPATIBLE WITH THE BASE RECEIVING STATION EQUIPMENT.
21. THE BASE EMPLOYS A FEDERAL SIGNAL BASE-WIDE GIANT VOICE SYSTEM TO TRANSMIT AND RECEIVE MASS NOTIFICATION SIGNALS. PROVIDE A MASS NOTIFICATION TRANSCEIVER THAT IS COMPATIBLE WITH THE FEDERAL SIGNAL SYSTEM.

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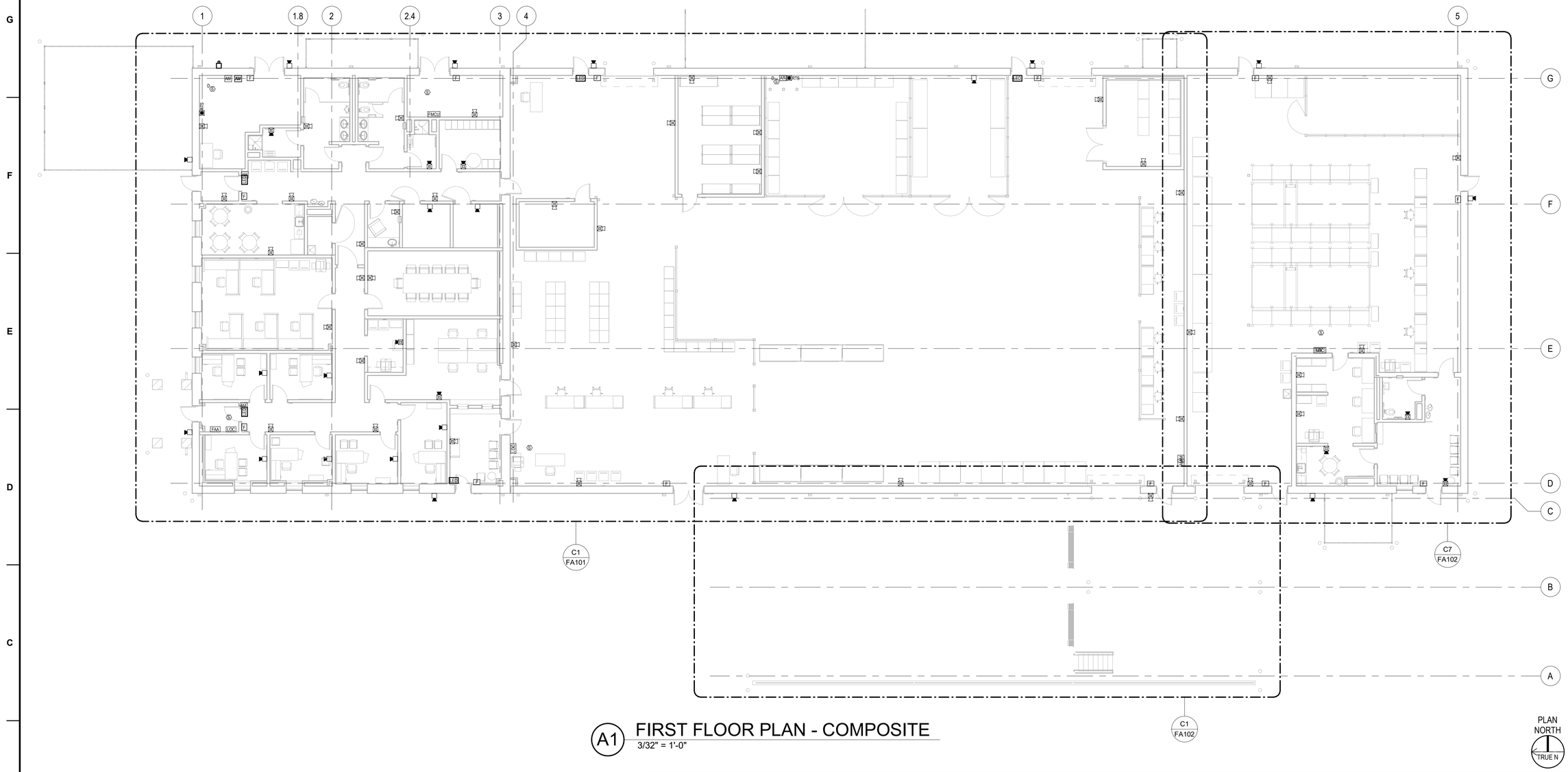
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
LEGEND, ABBREVIATIONS, AND GENERAL NOTES

STATE OF MARYLAND — KEVIN S. GRIFFIN — 33537 — PROFESSIONAL ENGINEER — 8/4/23

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A1 FIRST FLOOR PLAN - COMPOSITE

3/32" = 1'-0"

GENERAL SHEET NOTES	SHEET KEYNOTES	GRAPHIC SCALE
1. REFER TO SHEET FA001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.		0 4' 8' 12 20'

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SAB	AUGUST 2023
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NPA	W912PM22R0015
CHECKED BY:	CONTRACT NO.:
FPH	W912PM-19-D-0004
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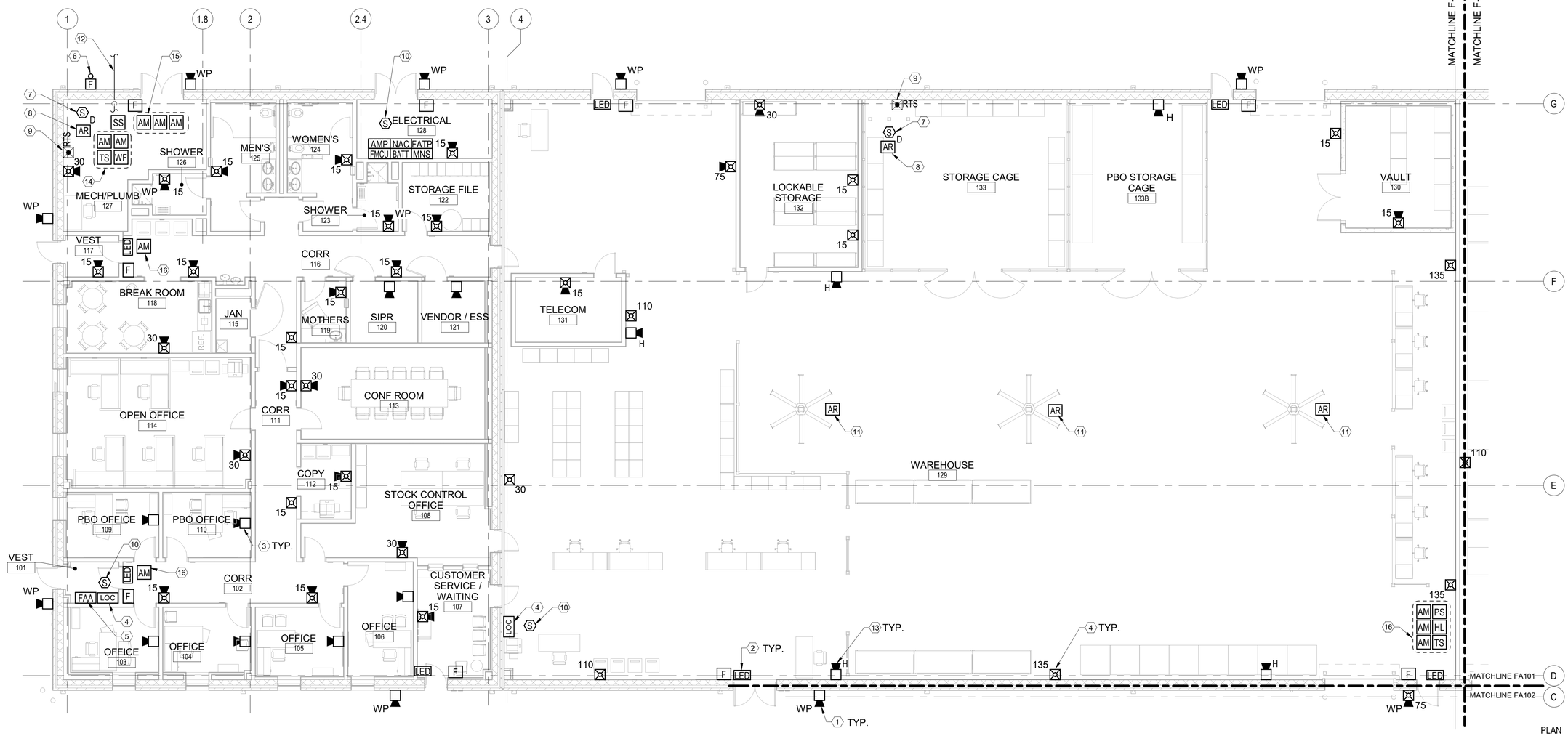
FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
COMPOSITE PLAN

STATE OF MARYLAND · STEVEN A. HUDSON · 33531 · PROFESSIONAL ENGINEER
8/4/23

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C1 FIRST FLOOR PLAN - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET FA001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. DEVICE AND EQUIPMENT QUANTITY AND LOCATIONS INDICATED ARE GENERAL ONLY TO CONVEY DESIGN INTENT. PROVIDE COORDINATED SHOP DRAWINGS WITH FINAL QUANTITY AND LOCATIONS FOR ALL EQUIPMENT AND DEVICES BASED ON ALL REFERENCED CODES AND GUIDELINES.

SHEET KEYNOTES

1. PROVIDE EXTERIOR WEATHER PROOF MNS SPEAKER.
2. PROVIDE MNS LED TEXT EVACUATION/ANNOUNCEMENT SIGN AT BUILDING EXIT.
3. PROVIDE FA/MNS NOTIFICATION SPEAKER.
4. PROVIDE MNS LOCAL OPERATING CONSOLE.
5. PROVIDE FIRE ALARM SYSTEM REMOTE ANNUNCITOR PANEL.
6. PROVIDE EXTERIOR ELECTRIC BELL ABOVE THE AUTOMATIC SPRINKLER SYSTEM FIRE DEPARTMENT CONNECTION. DEVICE MUST BE PROGRAMMED TO ACTIVATE UPON SPRINKLER SYSTEM WATERFLOW.
7. PROVIDE DUCT SMOKE DETECTOR IN ACCORDANCE WITH NFPA 90A AND MANUFACTURERS LISTED GUIDELINES.
8. PROVIDE ADDRESSABLE RELAY MODULE AND FIRE ALARM INTERFACE WITH AIR-HANDLING STARTER FOR AUTOMATIC SHUTDOWN CONTROL.
9. PROVIDE DUCT DETECTOR REMOTE TEST SWITCH.
10. PROVIDE LOCALIZED SMOKE DETECTION ABOVE FIRE ALARM PANEL.
11. PROVIDE ADDRESSABLE RELAY MODULE INTERLOCK WITH HVLS FAN CONTROL TO SHUT DOWN FAN IMMEDIATELY UPON ACTIVATION OF SPRINKLER SYSTEM WATER FLOW.
12. PROVIDE SCHEDULE 80 PVC UNDERGROUND CONDUIT SLC RACEWAY TO EXTERIOR PIV VALVE AND BACKFLOW PREVENTER HEATED ENCLOSURE FOR TAMPER SWITCH MONITORING.
12. PROVIDE HIGH OUTPUT SPEAKER DEVICE.
13. PROVIDE ADDRESSABLE MODULE FOR MONITORING SPRINKLER SYSTEM RISER TAMPER AND FLOW SWITCH.
14. PROVIDE ADDRESSABLE MODULE FOR MONITORING SPRINKLER SERVICE PIV AND BFP TAMPER SWITCHES.
15. PROVIDE ADDRESSABLE MODULE FOR MONITORING SPRINKLER SYSTEM PRESSURE AND TAMPER SWITCHES.
16. PROVIDE ADDRESSABLE MODULE FOR MONITORING HVAC EMERGENCY SHUT DOWN SWITCH.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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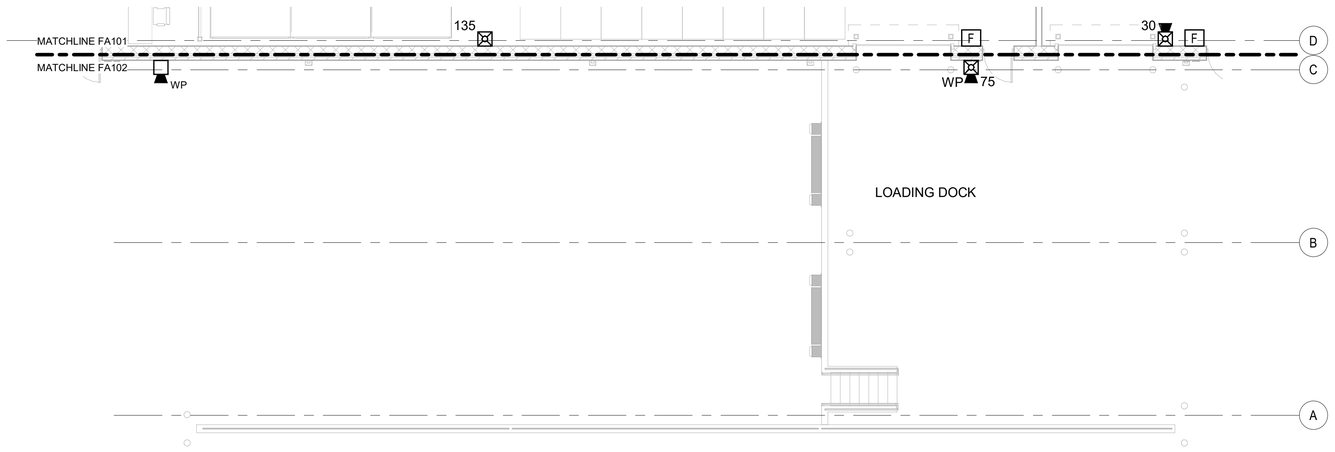
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FIRST FLOOR PLAN - PART A

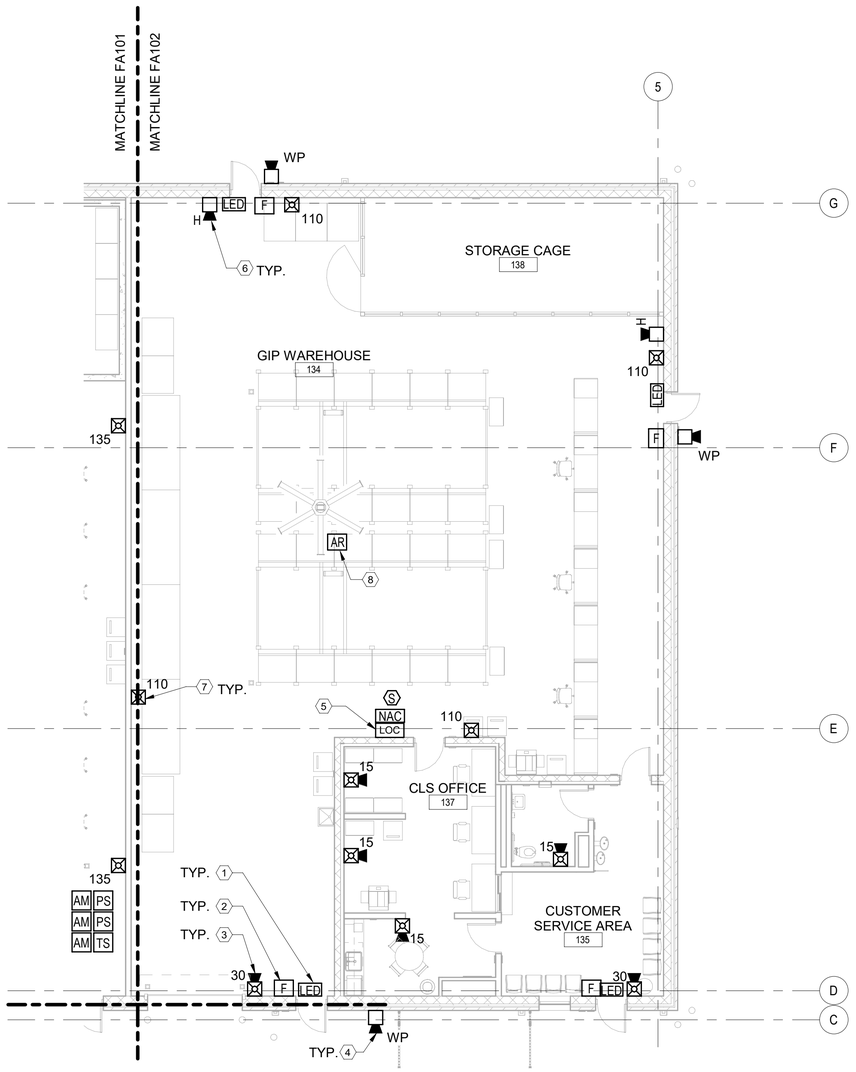
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FRANK P. HOLLIS
21551
PROFESSIONAL ENGINEER
9/14/23

SHEET ID
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C1 FIRST FLOOR PLAN - LOADING DOCK
1/8" = 1'-0"



C7 FIRST FLOOR PLAN - PART B
1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

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SHEET KEYNOTES

1. PROVIDE MNS LED TEXT EVACUATION/ANNOUNCEMENT SIGN AT BUILDING EXIT.
2. PROVIDE MANUAL PULL STATION DEVICE.
3. PROVIDE FIRE ALARM / MNS NOTIFICATION COMBINATION SPEAKER / STROBE.
4. PROVIDE WEATHER PROOF EXTERIOR MNS SPEAKER.
5. PROVIDE MNS LOCAL OPERATING CONSOLE.
6. PROVIDE HIGH OUTPUT SPEAKER DEVICE.
7. PROVIDE FIRE ALARM / MNS STROBE DEVICE.
8. PROVIDE ADDRESSABLE RELAY MODULE INTERLOCK WITH HVLS FAN CONTROL TO SHUT DOWN FAN IMMEDIATELY UPON ACTIVATION OF SPRINKLER SYSTEM WATER FLOW.

GRAPHIC SCALE

0 4' 8' 16'
SCALE: 1/8"=1'-0

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FORT LIBERTY, NORTH CAROLINA
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PROJECT 87447
FIRST FLOOR PLAN - PART B

STATE OF MARYLAND
STEVEN P. HOLLAND
33597
PROFESSIONAL ENGINEER
8/4/23

SHEET ID
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GENERAL SHEET NOTES

1. EMERGENCY MNS MESSAGES (LIVE & PRE-RECORDED) MUST TEMPORARILY OVERRIDE FIRE ALARM EVACUATION MESSAGE.
2. PRE-RECORDED MNS MESSAGE MUST REPEAT FOR 10 MINUTES OR UNTIL MANUALLY RESET.
3. SUPERVISORY CONDITION ONLY OCCURS WHEN MNS SYSTEM IS OVERRIDING FIRE ALARM EVACUATION.

		SYSTEM OUTPUTS																
		DISPLAY CUSTOM ADDRESS ON FMCU	INITIATE GENERAL ALARM CONDITION ON FMCU; ACTUATE COMMON AUDIBLE SIGNAL AT PANEL	INITIATE SUPERVISORY CONDITION ON FMCU; ACTUATE COMMON AUDIBLE SIGNAL AT PANEL	INITIATE TROUBLE CONDITION ON FMCU; ACTUATE COMMON AUDIBLE SIGNAL AT PANEL	TRANSMIT ALARM STATUS TO REMOTE SUPERVISING STATION	TRANSMIT SUPERVISORY STATUS TO REMOTE SUPERVISING STATION	TRANSMIT TROUBLE STATUS TO REMOTE SUPERVISING STATION	ACTIVATE FIRE ALARM / MASS NOTIFICATION SPEAKERS THROUGHOUT BUILDING (EVACUATION MESSAGE W/ T-3 TEMPORAL TONE)	ACTIVATE FIRE ALARM / MASS NOTIFICATION VISIBLE STROBE APPLIANCES THROUGHOUT BUILDING	ACTIVATE LED TEXT SIGN DEVICES THROUGHOUT THE BUILDING WITH "EVACUATE" MESSAGE	ACTIVATE LED TEXT SIGN DEVICES THROUGHOUT THE BUILDING WITH "ANNOUNCEMENT" MESSAGE	SHUT DOWN ASSOCIATED HANDLING UNIT	ACTIVATE FIRE ALARM / MASS NOTIFICATION SPEAKERS THROUGHOUT BUILDING (MNS MESSAGE)	DISABLE NON-EMERGENCY LIVE PAGING FEATURE	MNS SUPERVISORY FIRE ALARM OVERRIDE CONDITION AT FMCU (SEE NOTE 3)	SHUT DOWN HVLS DESTRATIFICATION FANS
SYSTEM INPUTS	FIRE ALARM																	
	MANUAL PULL STATION	●	●			●			●	●	●				●		●
	AREA SMOKE DETECTOR	●	●			●			●	●	●				●		●
	SPRINKLER WATER FLOW SWITCH	●	●			●			●	●	●				●		●
	SPRINKLER DRY SYSTEM HI-LO PRESSURE SWITCH	●			●			●									
	SPRINKLER DRY SYSTEM ALARM PRESSURE SWITCH	●	●			●			●	●	●				●		●
	SPRINKLER VALVE TAMPER SWITCH	●		●			●										
	HVAC EMERGENCY SHUTDOWN SWITCH	●		●			●										
	FIRE ALARM AC POWER FAILURE	●			●			●									
	FIRE ALARM SYSTEM LOW BATTERY	●			●			●									
	OPEN CIRCUIT	●			●			●									
	GROUND/SHORT FAULT	●			●			●									
	NOTIFICATION APPLIANCE CIRCUIT SHORT	●			●			●									
	DUCT-MOUNTED SMOKE DETECTOR	●	●			●			●	●	●		●		●		
	MASS NOTIFICATION																	
	FMCU/LOC EMERGENCY LIVE PAGING (SEE NOTE 1)									●		●		●		●	
	FMCU/LOC EMERGENCY PRE-RECORDED MESSAGE SELECT (SEE NOTES 1 AND 2)									●		●		●		●	
	FMCU/LOC NON-EMERGENCY PRE-RECORDED MESSAGE SELECT (SEE NOTE 2)									●		●		●			
	FMCU/LOC PRE-RECORDED "ALL CLEAR" (SEE NOTE 1)													●			
	WIDE AREA MNS NON-EMERGENCY MESSAGE BROADCAST (SEE NOTE 2)									●		●		●			
	WIDE AREA MNS EMERGENCY MESSAGE BROADCAST (SEE NOTES 1 AND 2)									●		●		●		●	
	NON-EMERGENCY LIVE PAGING									●		●		●			

A1 FIRE ALARM OPERATIONS MATRIX
NTS

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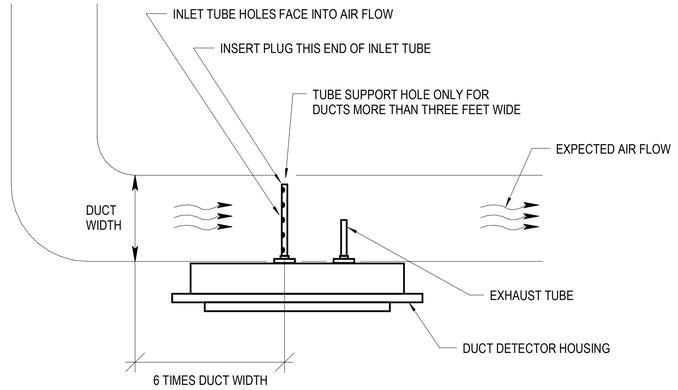
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PROJECT 87447
DETAILS

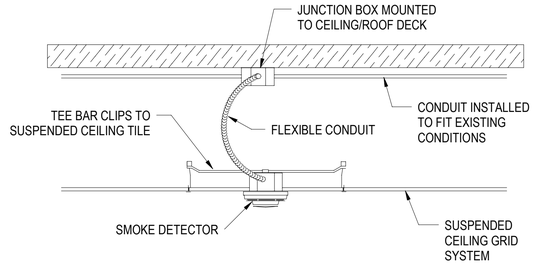
STATE OF MARYLAND · STEVEN F. HOOD · 33951 · PROFESSIONAL ENGINEER
6/4/23

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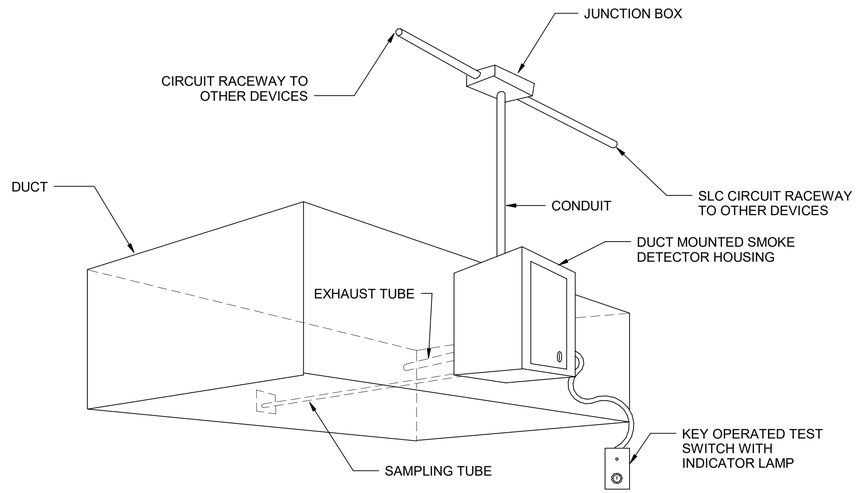
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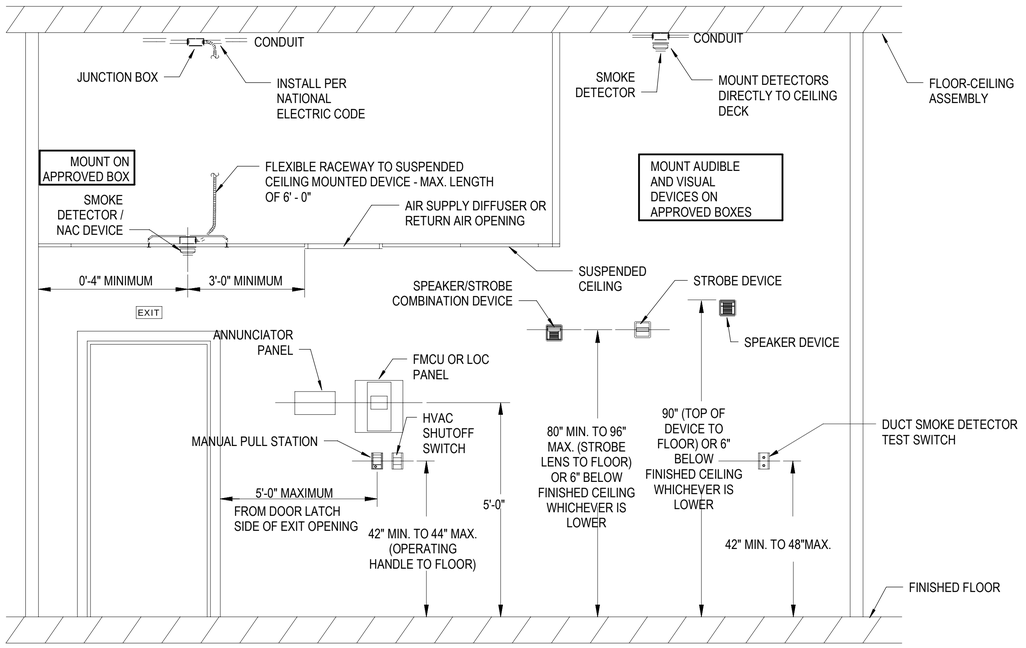
D1 DUCT SMOKE DETECTOR INSTALLATION DETAIL
NTS



D6 SMOKE DETECTOR MOUNTING DETAIL
NTS



A1 DUCT SMOKE DETECTOR MOUNTING DETAIL
NTS



A6 DEVICE MOUNTING DETAIL
NTS

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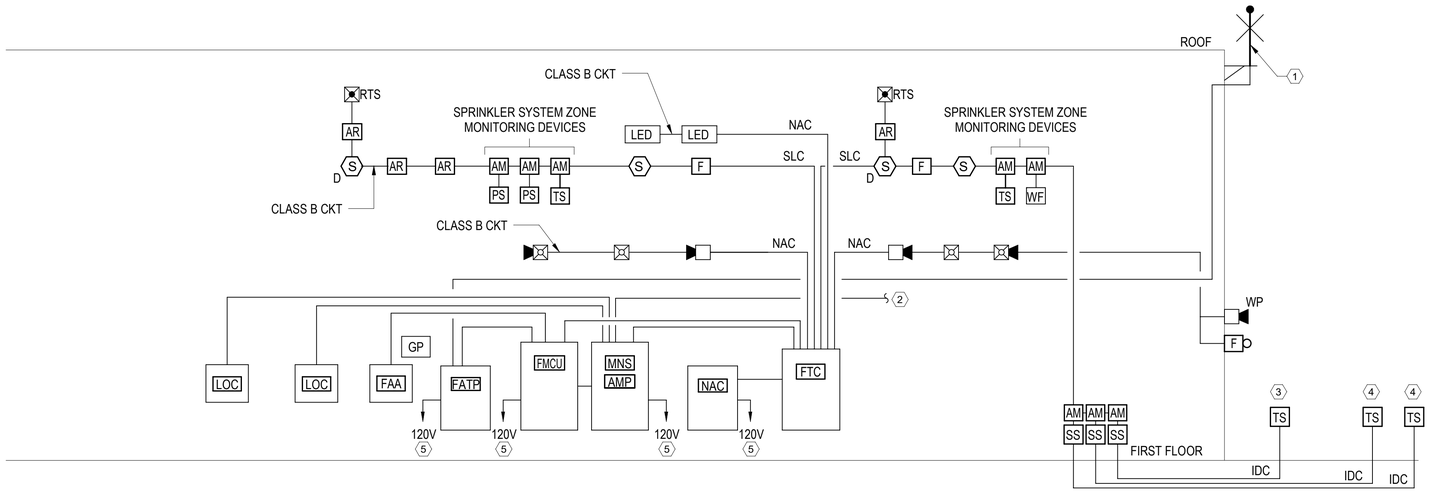
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PROJECT 87447
DETAILS

STATE OF MARYLAND · FRANCIS P. HUGHES · 35537 · PROFESSIONAL ENGINEER
8/24/23

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A1 RISER DIAGRAM
NTS

SHEET KEYNOTES

1. PROVIDE FIRE ALARM TRANSMISSION COMPATIBLE WITH BASE RECEIVING EQUIPMENT.
2. FIBER OPTIC CONNECTION TO EXISTING BASE WIDE MASS NOTIFICATION SYSTEM.
3. EXTERIOR PIV TAMPER SWITCH. REFER TO CIVIL FOR EXACT LOCATION.
4. TAMPER SWITCH FOR BACKFLOW PREVENTER VALVE LOCATED IN EXTERIOR ENCLOSURE. CIVIL FOR EXACT LOCATION.
5. PROVIDE 120V DEDICATED POWER CIRCUIT WITH BREAKER LOCK AND LABELED "FIRE ALARM"

GENERAL SHEET NOTES

1. REFER TO SHEET FA001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. PROVIDE AN ADDRESSABLE FIRE ALARM AND MNS SYSTEM IN ACCORDANCE WITH NFPA 72, UFC 3-600-1, UFC 4-021-1, THE CONTRACT DRAWINGS AND THE SPECIFICATIONS.
3. THE CONTRACTOR MUST TIE INTO THE EXISTING HONEYWELL EBI OR MONACO D21 SYSTEM.
4. THE BASE WIDE MASS NOTIFICATION SYSTEM IS FEDERAL SIGNAL SYSTEMS, THE IN-BUILDING MASS NOTIFICATION SYSTEM MUST INTEGRATE COMPLETELY WITH THE BASE WIDE SYSTEM.

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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
RISER DIAGRAM

STATE OF MARYLAND — KEVIN P. HOLLAND — 33537 — PROFESSIONAL ENGINEER
8/4/25

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PLUMBING LEGEND

- NEW WORK, SHOW DARK AND HEAVY ON NEW WORK DRAWINGS
- CD — CONDENSATE DRAIN
- G — NATURAL GAS
- COLD WATER
- HOT WATER
- HOT WATER CIRCULATING
- SANITARY
- VENT
- PIPE SLEEVE
- TEE TURNED DOWN
- TEE TURNED UP
- PIPING TURNED DOWN
- PIPING TURNED UP
- CAPPED PIPING
- UNION
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- CIRCULATING PUMP
- FLOOR DRAIN
- CO — FLOOR CLEANOUT
- CO — WALL CLEANOUT
- HB — HOSE BIBB
- WH — WALL HYDRANT
- WHA — WATER HAMMER ARRESTOR
- PRESSURE GAUGE
- FS — FLOW SWITCH
- METER
- THERMOMETER
- BALL VALVE
- BALANCING VALVE WITH FLOW TAPS
- STRAINER
- REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY

PLUMBING ABBREVIATIONS

&	AND
@	AT
°F	DEGREE, FAHRENHEIT
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AG	ABOVE GRADE
AP	ACCESS PANEL
BEL	BELOW
BFP	BACKFLOW PREVENTER
BG	BELOW GRADE
BLDG	BUILDING
BTUH	BRITISH THERMAL UNIT PER HOUR
BWV	BACKWATER VALVE
CAP	CAPACITY
CD	CONDENSATE DRAIN
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COR	CONTRACTING OFFICER REPRESENTATIVE
CP	CIRCULATING PUMP
CW	COLD WATER
DEG	DEGREE
DEG F	DEGREE FAHRENHEIT
DF	DRINKING FOUNTAIN
DFU	DRAINAGE FIXTURE UNIT
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
DWGS	DRAWINGS
DWH	DOMESTIC WATER HEATER
EFF	EFFICIENCY
EL	ELEVATION
EQ	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN, FOUNDATION DRAIN
FIN	FINISHED
FL	FLANGED
FLA	FULL LOAD AMPERES
FLR	FLOOR
FS	FLOW SWITCH
FT	FEET
G	NATURAL GAS
GAL	GALLONS
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
H	HEIGHT
HB	HOSE BIBB
HCO	HORIZONTAL CLEANOUT
HD	HEAD
HG	MERCURY
HP	HORSEPOWER
HW	HOT WATER
HWC	HOT WATER CIRCULATING
HWCP	HOT WATER CIRCULATING PUMP
HZ	HERTZ
ID	IDENTIFICATION
IN.	INCH, INCHES
INV	INVERT
KG	KILOGRAM
KW	KILOWATT
L	LENGTH
LAV	LAVATORY
LBS/HR	POUNDS PER HOUR
MAX	MAXIMUM
MBH	1,000 BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MISC	MISCELLANEOUS
mm	MILLIMETER
MTD	MOUNTED
N	NORTH
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
PD	PRESSURE DROP
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH (GAGE)
RD	ROOF DRAIN
RL	RAIN LEADER
RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
RX	REMOVE EXISTING
SFU	SUPPLY FIXTURE UNIT
SM	SQUARE METER
SP	SUMP PUMP
SW	STORM WATER
TDH	TOTAL DEVELOPED HEAD
TEMP	TEMPERATURE
TP	TRAP PRIMER
TW	THERMOMETER WELL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	VENT
V	VOLTS
V-1	VALVE IDENTIFICATION
VB	VACUUM BREAKER
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
W/	WITH
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WPD	WATER PRESSURE DROP
WT	WEIGHT

GENERAL PLUMBING NOTES

1. THE PLUMBING SCOPE OF THIS PROJECT IS TO PROVIDE NEW DOMESTIC WATER, SANITARY AND NATURAL GAS SYSTEMS TO MEET THE BUILDING OCCUPANCY AND ARCHITECTURAL PROGRAMMING.
2. GENERAL NOTES ARE DISCIPLINE SPECIFIC, AND APPLY TO EVERY DRAWING IN THAT DISCIPLINE. DRAWING NOTES APPLY TO ALL WORK SHOWN ON A DRAWING. SPECIFIC NOTES APPLY TO INDIVIDUAL SITUATIONS AND EQUIPMENT.
3. ESTABLISH SLOPES AND INVERT ELEVATIONS BEFORE ANY PIPE IS INSTALLED IN ORDER TO MAINTAIN PROPER SLOPES.
4. COORDINATE INSTALLATION OF PIPING AND EQUIPMENT WITH MECHANICAL, STRUCTURAL, CIVIL, AND ELECTRICAL DISCIPLINES, AS WELL AS OTHER PLUMBING WORK.
5. MAKE PROPER CONNECTIONS TO FIXTURES AND EQUIPMENT. DRAWINGS ARE SCHEMATICS AND ALL BRANCH MAINS, ELBOWS, FITTINGS, AND CONNECTIONS ARE NOT SHOWN.
6. DO NOT RUN PIPING OR LOCATE MECHANICAL EQUIPMENT DIRECTLY ABOVE ELECTRICAL SUBSTATIONS, CABLE TRAYS, TRANSFORMERS, PANEL BOARDS, OR SWITCHGEAR.
7. DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE.
8 PROJECT SCOPE INCLUES LEED BUILDING CERTIFICATION. COORDINATE AND INCORPORATE PLUMBING, MECHANICAL, ELECTRICAL, CONTROLS, AND TESTING AIR BALANCING (TAB) SCOPE WITH OVERALL COMMISSIONING EFFORTS AND TASKS. REFER TO SPECIFICATION 01 91 00.15 10 AND COMMISSIONING PLAN
9 PROVIDE CONDENSATE DRAINAGE FOR EACH ITEM OF EQUIPMENT THAT GENERATES CONDENSATE. REFER TO SPECIFICATIONS 23 07 00 AND 23 30 00 FOR PIPE MATERIAL AND INSULATION TYPE.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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DRAWN BY: JHW
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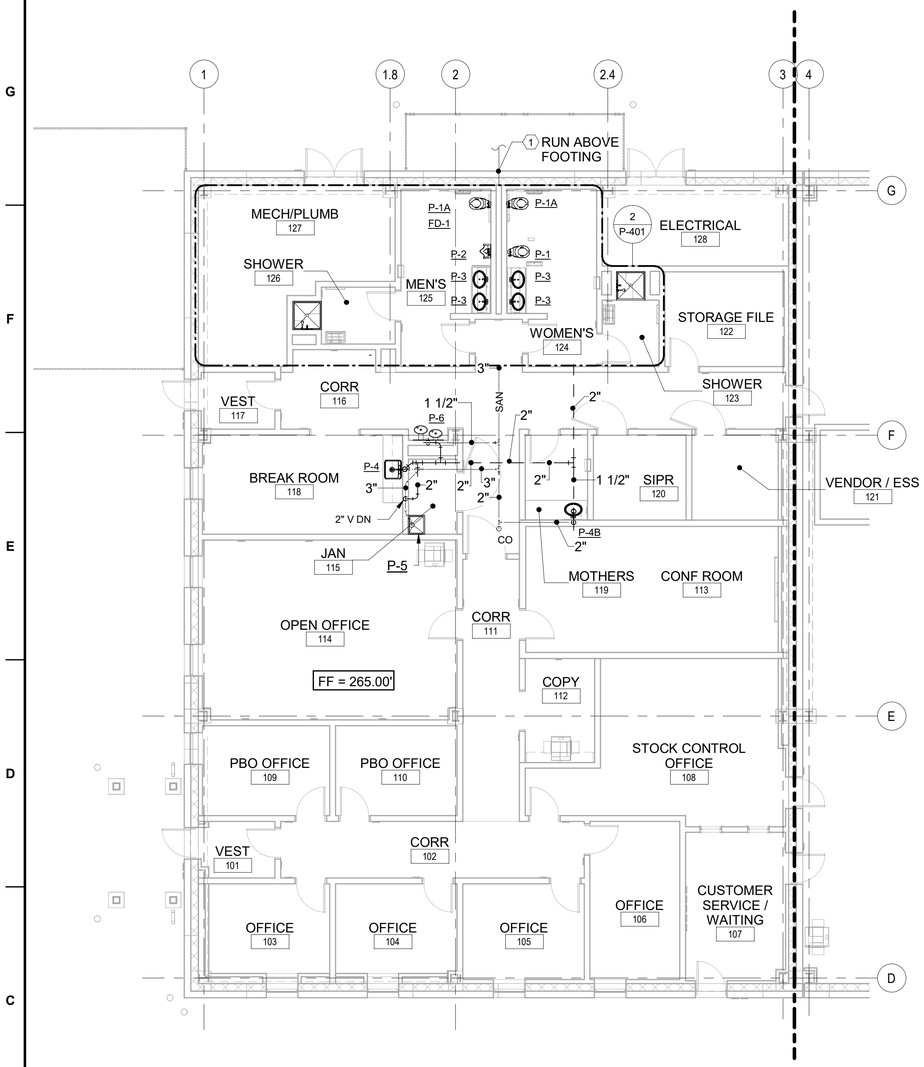
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PLUMBING LEGEND, ABBREVIATIONS, AND GENERAL NOTES

STATE OF MARYLAND · JEFFREY ALAN HOSEY · 22008 · PROFESSIONAL ENGINEER

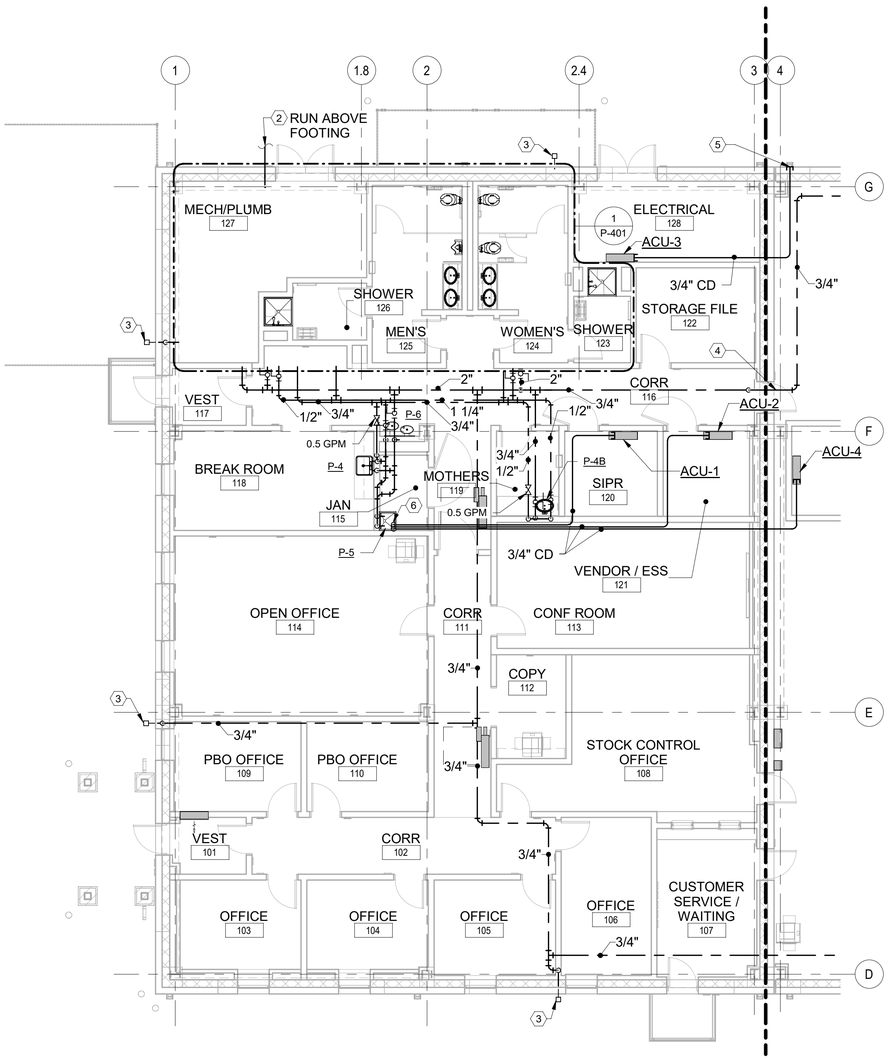
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P-001

READY TO ADVERTISE



C1 PLUMBING SANITARY AND VENT FIRST FLOOR PLAN -PART A

1/8" = 1'-0"



C5 PLUMBING DOMESTIC WATER FIRST FLOOR PLAN -PART A

1/8" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET P-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. SANITARY PIPING RUNS UNDER SLAB AND ALL VENT PIPING RUNS ABOVE SLAB UNLESS NOTED OTHERWISE.

SHEET KEYNOTES

(#)

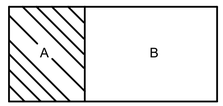
1. 4" SAN. INV. ELEV. = 261.50'. REFER TO CIVIL FOR CONTINUATION.
2. INCOMING 2" DOMESTIC WATER SERVICE. BOP ELEV. = 261.50'. REFER TO CIVIL FOR CONTINUATION.
3. 3/4" NON-FREEZE WALL HYDRANT MOUNTED AT 18" ABOVE GRADE.
4. MAINTAIN 2'-0" CLEARANCE (MINIMUM) ABOVE DOOR AND EXIT SIGN (BOP).
5. CONNECT CONDENSATE DRAIN TO DOWNSPOUT. PROVIDE BACKWATER VALVE AT THE CONENCTION.
6. PROVIDE CONDENSATE DRAIN DOWN TO MOP SINK. TERMINATE DISCHARGE ABOVE FLOOD RIM.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

KEY PLAN



US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: ALM
DRAWN BY: JHW
CHECKED BY: CAH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

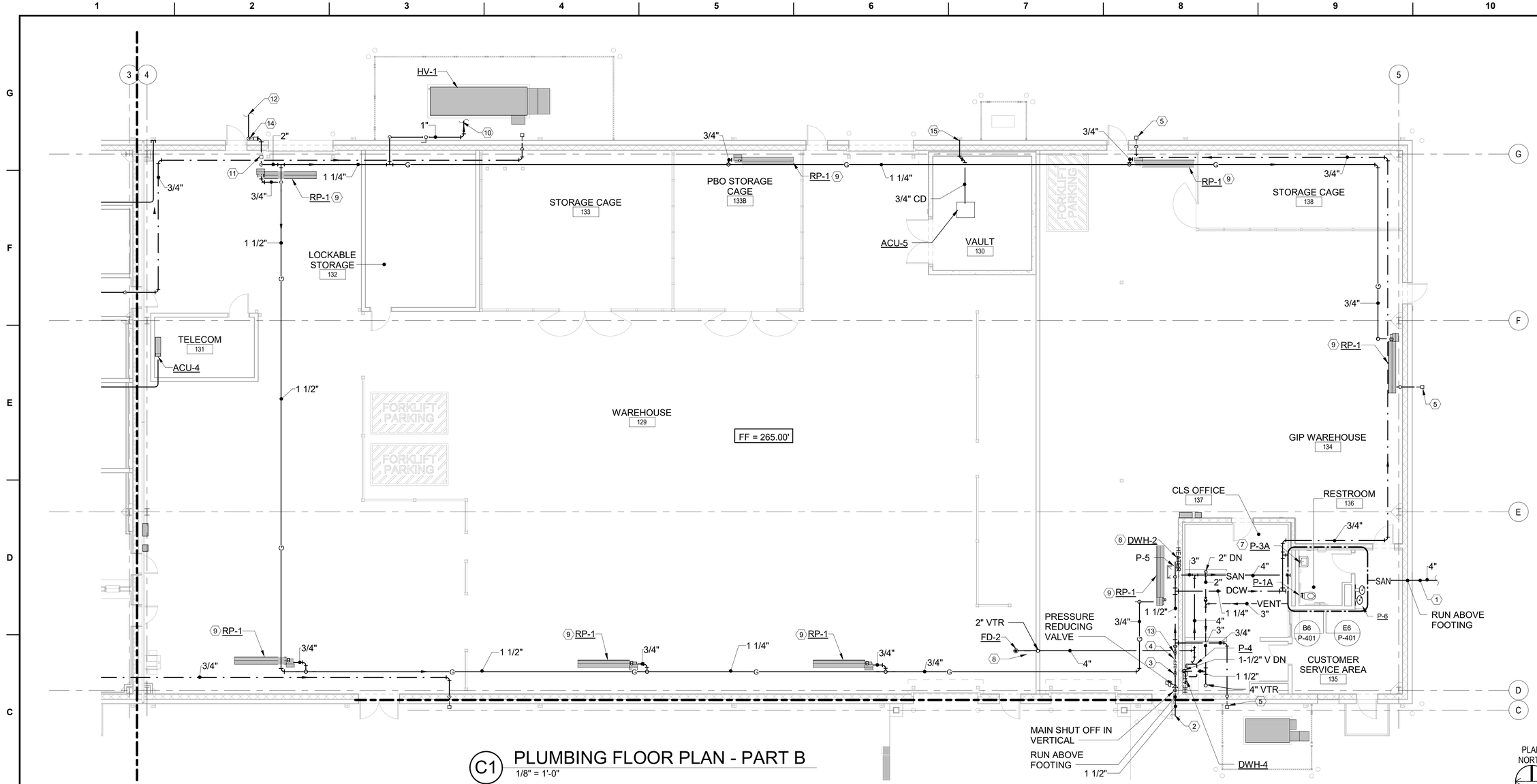
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PLUMBING FLOOR PLAN - PART A

STATE OF MARYLAND
FRANCIS ALAN HOSEY
No. 22095
PROFESSIONAL ENGINEER

SHEET ID
P-101

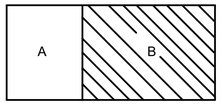
READY TO ADVERTISE



C1 PLUMBING FLOOR PLAN - PART B

1/8" = 1'-0"

KEY PLAN



GENERAL SHEET NOTES

1. REFER TO SHEET P-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. SANITARY PIPING RUNS UNDER SLAB AND ALL VENT PIPING RUNS ABOVE SLAB UNLESS NOTED OTHERWISE.

SHEET KEYNOTES

1. 4" SAN. INV. ELEV. = 261.50'. REFER TO CIVIL FOR CONTINUATION.
2. INCOMING 1-1/4" DOMESTIC WATER SERVICE. BOP ELEV. = 261.50'. REFER TO CIVIL FOR CONTINUATION.
3. 1-1/4" WATER METER WITH BYPASS MOUNTED AT 36" AFF.
4. 1-1/4" REDUCED PRESSURE ZONE BACKFLOW PREVENTER MOUNTED AT 36" AFF. EXTEND FULL SIZE DRAIN FROM BACKFLOW PREVENTER AND TERMINATE THROUGH EXTERIOR WALL AT 18" ABOVE GRADE.
5. 3/4" NON-FREEZE WALL HYDRANT MOUNTED AT 18" ABOVE GRADE.
6. DWH-2 MOUNTED ON WALL ADJACENT TO MOP SINK AT 48" AFF.
7. DWH-3 MOUNTED ON WALL BELOW LAVATORY.
8. FIRE PROTECTION PIPING MAIN IN THIS AREA. REFER TO FIRE PROTECTION F-101.
9. MOUNT GAS-FIRED RADIANT HEATER AT 15' AFF TO BOTTOM OF UNIT. REFER TO F8/P-501 FOR DETAIL.
10. NATURAL GAS TO HV-1 MOUNTED ON GRADE.
11. NATURAL GAS METER FOR DDC/BUILDING AUTOMATION SYSTEMS (BAS) INTEGRATION. REFER TO M-501.
12. 2" NATURAL GAS. REFER TO CIVIL CU-101 FOR NATURAL GAS PIPING.
13. WATER METER FOR DDC/BUILDING AUTOMATION SYSTEMS (BAS) INTEGRATION. REFER TO M-501.
14. NATURAL GAS SERVICE REGULATOR AND METER. NATURAL GAS METER AND REGULATOR PROVIDED BY PIEDMONT NATURAL GAS. METER REGULATOR MUST BE SIZED FOR 415 CFH WITH 2 PSI SERVICE PRESSURE.
15. CONNECT CONDENSATE DRAIN TO DOWNSPOUT. PROVIDE BACKWATER VALVE AT THE CONENCTION.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

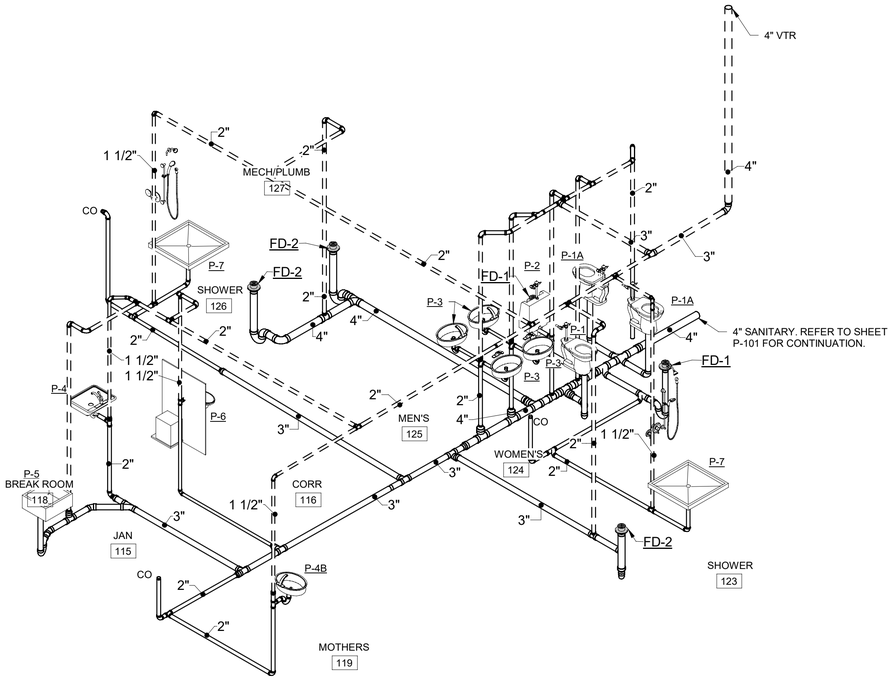
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PLUMBING FLOOR PLAN - PART B

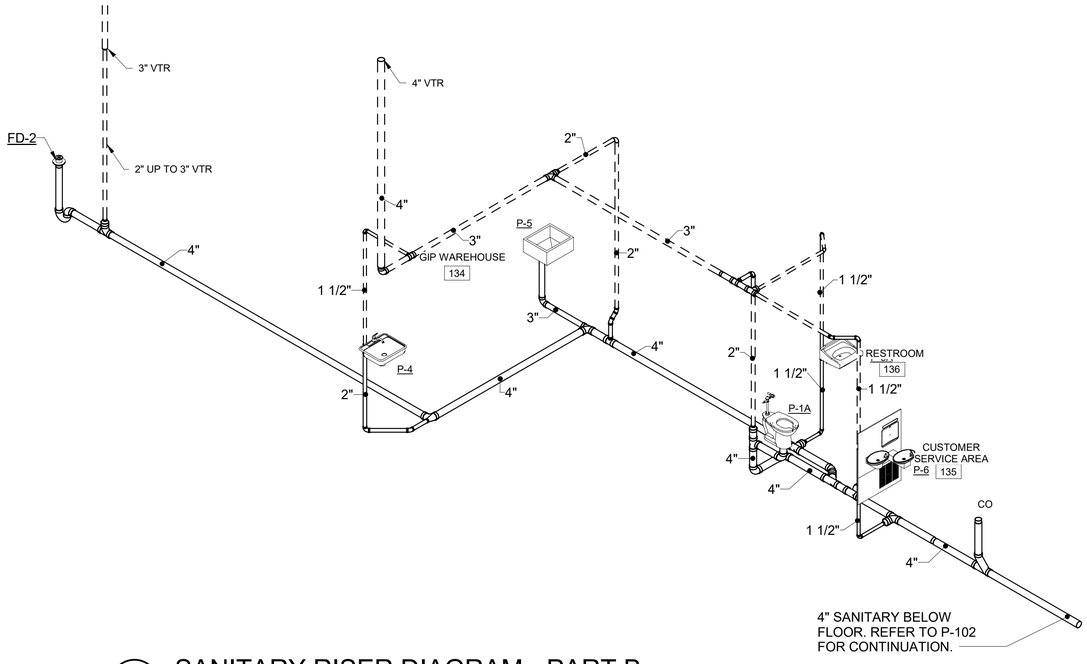
STATE OF MARYLAND — CRAIG ALAN HOSTETTER — No. 22009 — PROFESSIONAL ENGINEER

SHEET ID
P-102

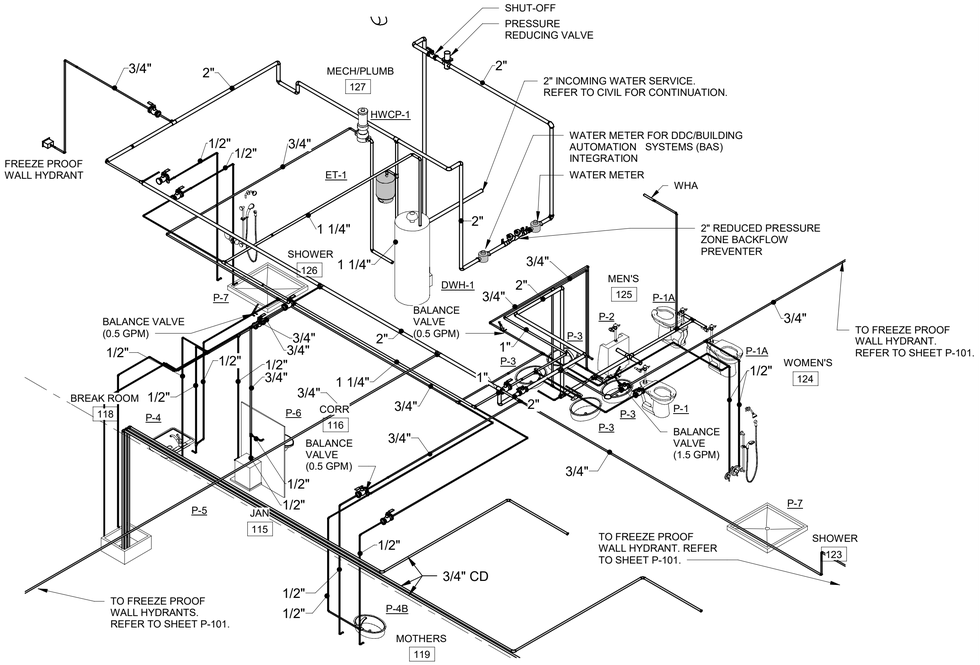
READY TO ADVERTISE



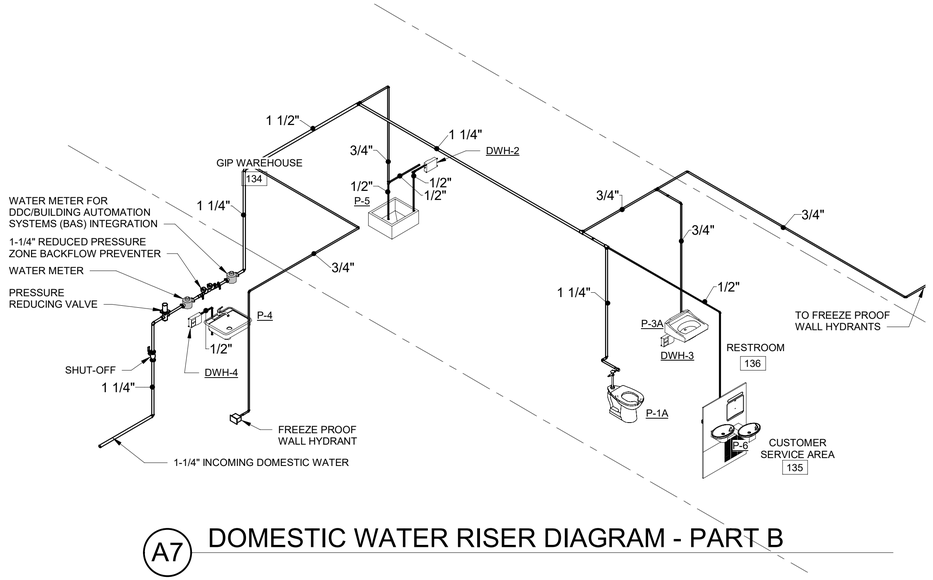
D2 SANITARY RISER DIAGRAM - PART A



A2 SANITARY RISER DIAGRAM - PART B



D7 DOMESTIC WATER RISER DIAGRAM - PART A



A7 DOMESTIC WATER RISER DIAGRAM - PART B

US Army Corps of Engineers ®

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DESIGNED BY: ALM	ISSUE DATE: AUGUST 2023
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

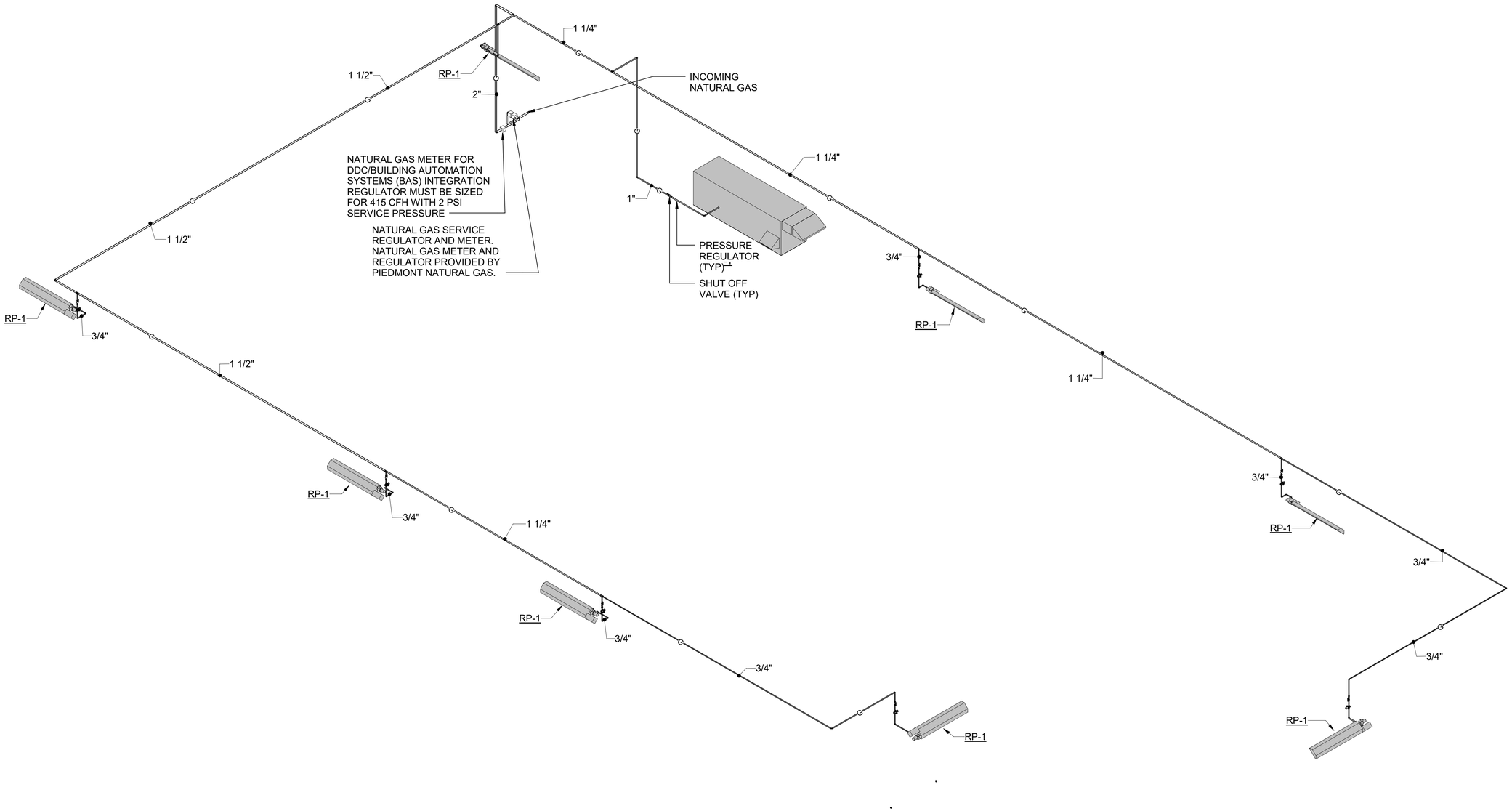
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PLUMBING RISER DIAGRAMS

STATE OF MARYLAND — CRAIG ALAN HOSEIN — No. 22083 — PROFESSIONAL ENGINEER

SHEET ID
P-301

READY TO ADVERTISE



A1 GAS RISER DIAGRAM
NTS

US Army Corps of Engineers ®

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DRAWN BY: TM
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SUBMITTED BY:
ISSUE DATE: AUGUST 2023
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WILMINGTON DISTRICT
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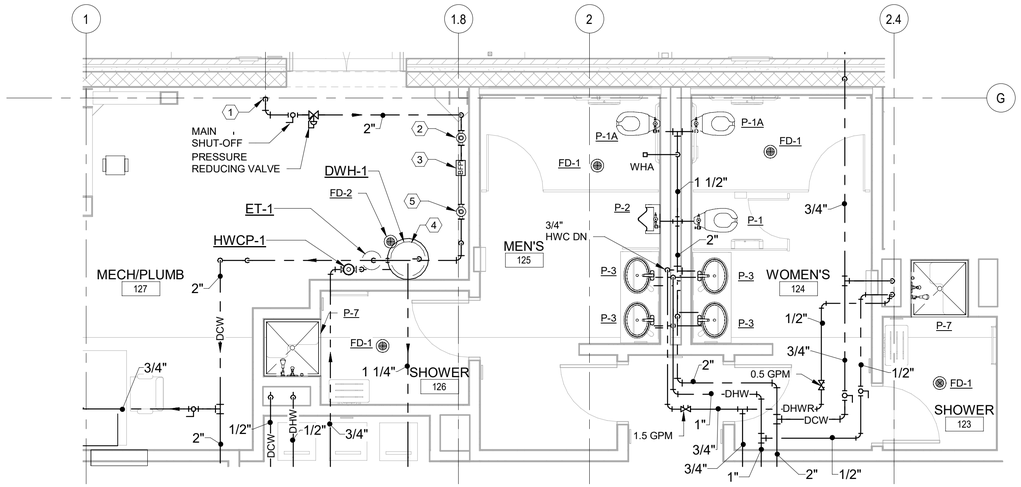
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
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PLUMBING RISER DIAGRAMS

STATE OF MARYLAND
CRAIG ALAN HOSTETTER
No. 22009
PROFESSIONAL ENGINEER

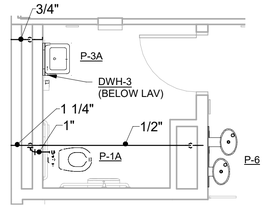
SHEET ID
P-302

READY TO ADVERTISE



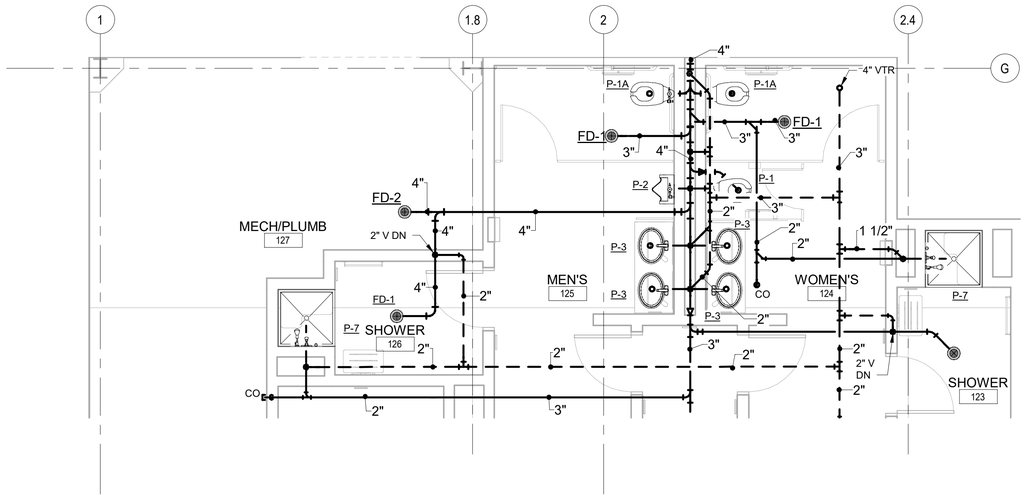
1 MECHANICAL & TOILET RM DOMESTIC WATER PIPING

1/4" = 1'-0"



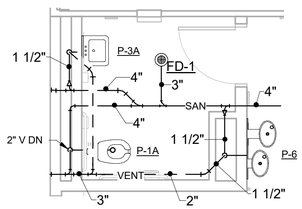
E6 RESTROOM 136 DOMESTIC WATER PIPING

1/4" = 1'-0"



2 MECHANICAL & TOILET RM SANITARY AND VENT PIPING

1/4" = 1'-0"



B6 RESTROOM 136 SANITARY & VENT PIPING

1/4" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET P-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. SANITARY PIPING RUNS UNDER SLAB AND ALL VENT PIPING RUNS ABOVE SLAB UNLESS NOTED OTHERWISE.

(#) SHEET KEYNOTES

1. 2" DOMESTIC WATER SERVICE DN.
2. 2" WATER METER WITH BYPASS MOUNTED AT 36" AFF.
3. 2" REDUCED PRESSURE ZONE BACKFLOW PREVENTER WITH STRAINER MOUNTED AT 36" AFF. EXTEND FULL SIZE DRAIN FROM BACKFLOW PREVENTER AND TERMINATE THROUGH EXTERIOR WALL AT 18" ABOVE GRADE.
4. ELECTRIC WATER HEATER WITH EXPANSION TANK. 1-1/4" TO MV-1 TO SERVE DOMESTIC HOT WATER. REFER TO DETAIL F5/P-501.
5. WATER METER FOR DDC/BUILDING AUTOMATION SYSTEMS (BAS) INTEGRATION. REFER TO M-501.

GRAPHIC SCALE

0 2' 4' 8'

SCALE: 1/4"=1'-0

US Army Corps of Engineers ®

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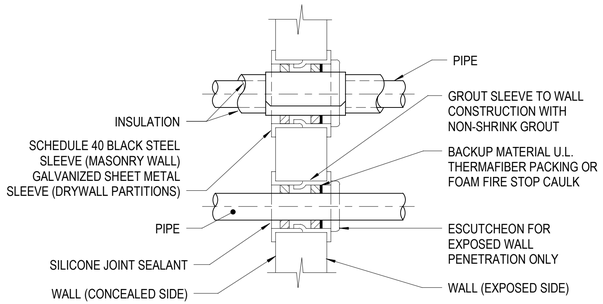
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PLUMBING ENLARGED PLANS

STATE OF MARYLAND
CRAIG ALAN HOSEIN
No. 22004
PROFESSIONAL ENGINEER

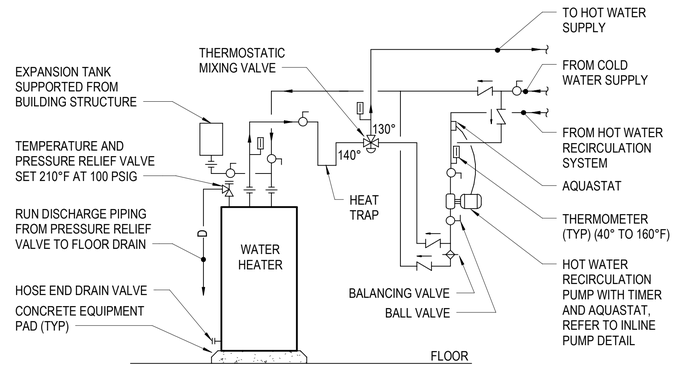
SHEET ID
P-401

READY TO ADVERTISE



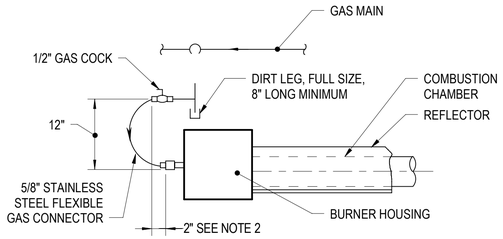
NOTES:
1. AT THE CONTRACTORS' OPTION A U.L. LISTED/APPROVED FIRE STOP PIPE SLEEVE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL.

F1 PIPE SLEEVE THRU WALL
NTS



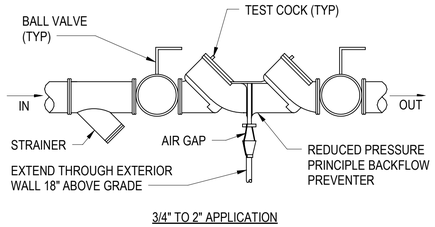
NOTES:
1. REFER TO M-SERIES DRAWINGS FOR CONTROLS AND SEQUENCES OF OPERATION.
2. REFER TO S-SERIES DRAWINGS FOR CONCRETE EQUIPMENT PAD DETAILS.

F5 ELECTRIC DOMESTIC WATER HEATER CONNECTION w/ RECIRC PUMP
NTS



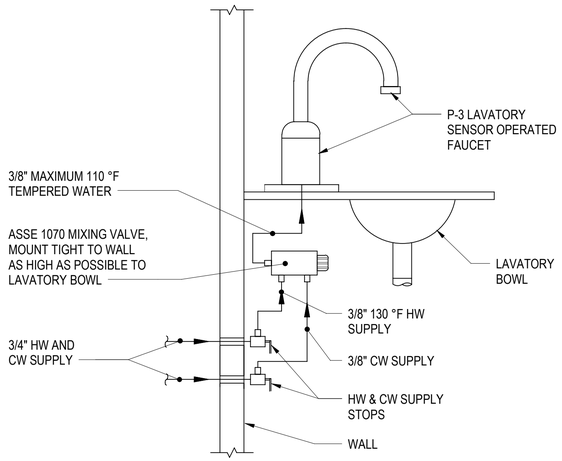
NOTES:
1. GAS COCK MUST BE PARALLEL TO BURNER INLET PIPE.
2. THE 2" DISPLACEMENT AS SHOWN IS FOR THE COLD CONDITION. THIS DISPLACEMENT WILL REDUCE AS THE SYSTEM IS FIRED.

F8 INFRARED BURNER CONNECTION
NTS

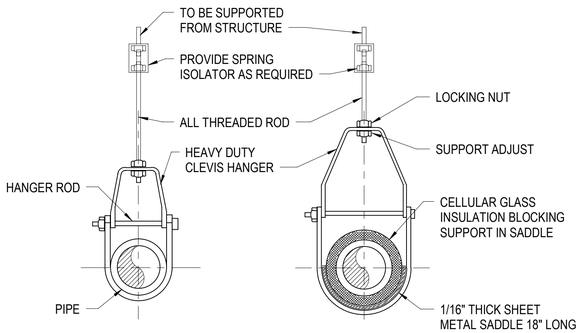


3/4" TO 2" APPLICATION

C1 REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS
NTS



C5 INDIVIDUAL MIXING VALVE INSTALLATION FOR SENSOR OPERATED LAVATORY FAUCET
NTS



A1 TYPICAL PIPE HANGER SUPPORTS
NTS

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PLUMBING DETAILS

STATE OF MARYLAND
JOSHUA ALAN HOESTETTER
No. 22085
PROFESSIONAL ENGINEER

SHEET ID
P-501

READY TO ADVERTISE

PLUMBING FIXTURE SCHEDULE

UNIT ID	DESCRIPTION	CW (IN)	HW (IN)	SAN (IN)	VENT (IN)	WSFU	DFU	NOTES
P-1	WATER CLOSET FLOOR MOUNTED, FLUSH VALVE	1	-	4	2	10	4	SENSOR OPERATED FLUSH VALVE 1.28 GPF (NOTE 1)
P-1A	WATER CLOSET FLOOR MOUNTED, FLUSH VALVE, BARRIER FREE	1	-	4	2	10	4	SENSOR OPERATED FLUSH VALVE 1.28 GPF (NOTE 1)
P-2	URINAL, WALL MOUNTED, BARRIER FREE	3/4	-	2	1 1/2	5	3	SENSOR OPERATED FLUSH VALVE 0.125 GPF (NOTE 1)
P-3	LAVATORY, COUNTER MOUNTED, BARRIER FREE	1/2	1/2	1 1/2	1 1/2	2	1	SENSOR OPERATED FAUCET 0.35 GPM (NOTE 2, 3 & 6)
P-3A	LAVATORY WALL MOUNTED BARRIER FREE	1/2	1/2	1 1/2	1 1/2	2	1	SENSOR OPERATED FAUCET 0.35 GPM (NOTE 2, 3 & 6)
P-4	KITCHENETTE SINK, STAINLESS STEEL, COUNTER MOUNTED	1/2	1/2	2	1 1/2	2	2	SINGLE COMPARTMENT, 1.5 GPM (NOTE 3 & 4)
P-4B	MOTHERS ROOM SINK	1/2	1/2	2	1 1/2	2	2	INTEGRAL BOWL WITH COUNTER TOP, BARRIER FREE (NOTE 3)
P-5	MOP SINK	3/4	3/4	3	1 1/2	3	2	FLOOR MOUNTED 24" X 24"
P-6	ELECTRIC WATER COOLER, BI-LEVEL, BARRIER FREE	1/2	-	1 1/2	1 1/2	0.5	0.5	INTEGRAL AUTOMATIC BOTTLE FILLER
P-7	SHOWER STALL ENCLOSURE (36"x36")	1/2	1/2	2	1 1/2	3	2	1.5 GPM HANDHELD SHOWER HEAD (NOTE 5)

NOTES:

1. SENSOR OPERATED FLUSH VALVE TO BE HARD WIRED.
2. SENSOR OPERATED FAUCET TO BE HARD WIRED.
3. PROVIDE ASSE 1070 INDIVIDUAL MIXING VALVE AT THE FAUCET TO PROVIDE A MAXIMUM HOT WATER TEMPERATURE AT THE OUTLET OF THE FAUCET OF 110°F FOR PUBLIC HANDWASHING SINKS.
4. PROVIDE WITH GARBAGE DISPOSAL IN BREAK ROOM SINK.
5. BARRIER-FREE SHOWER STALL.
6. PRESSURE COMPENSATING NON-AERATING OUTLET FOR LOW-FLOW.

PLUMBING PUMP SCHEDULE

UNIT ID	DESCRIPTION	LOCATION	TYPE	CAPACITY		ELECTRICAL DATA		NOTES
				GPM	HEAD (FT)	HP	VOLTS / PH	
HWCP-1	HOT WATER RECIRCULATION PUMP	MECH/PLUMB 152	IN-LINE	5	25	1/8	115/1	PROVIDE WITH AQUA-STAT AND TIMER CONTROL.

DOMESTIC WATER HEATER SCHEDULE

UNIT ID	LOCATION	HEATER TYPE	HEATING SOURCE	CAPACITY (GALLONS)	HEATING KW	MIN. FLOW (GPM)	RECOVERY @ 100°F (GPH)	VOLTS	PHASE
DWH-1	MECH/PLUMB 127	STORAGE	ELECTRIC	65	12.1	0.5	49	480	3
DWH-2	GIP WAREHOUSE 134	INSTANTANEOUS	ELECTRIC	-	8.3	0.65	-	208	1
DWH-3	RESTROOM 136	INSTANTANEOUS	ELECTRIC	-	4.1	0.35	-	208	1
DWH-4	CLS OFFICE 137	INSTANTANEOUS	ELECTRIC	-	8.3	0.65	-	208	1

EXPANSION TANK SCHEDULE

UNIT ID	TYPE	SERVICE	TANK VOLUME (GALLONS)	MIN. ACCEPTANCE VOLUME (GALLONS)	TANK PRE-CHARGE (PSI)	MAX OPERATING PRESSURE (PSIG)
ET-1	BLADDER	DWH-1	8.0	5.3	55	80

MIXING VALVE SCHEDULE

UNIT ID	LOCATION	MIN. GPM	MAX. GPM	HOT WATER INLET TEMP. (F)	COLD WATER INLET TEMP. (F)	HOT WATER TEMP. (F)	MAX PRESSURE DROP (PSI)
MV-1	MECH/PLUMB 127	1.5	20	140	40	130	5

FLOOR DRAIN SCHEDULE

UNIT ID	DESCRIPTION	SAN (IN)	VENT (IN)	NOTES
FD-1	FLOOR DRAIN		1-1/2	NICKEL BRONZE STRAINER, TRAP SEAL
FD-2	FLOOR DRAIN		2	CAST IRON BODY AND STRAINER, TRAP SEAL

GAS LOAD SUMMARY

QTY	EQUIPMENT	GAS LOAD (MBH)	GAS LOAD TOTAL (MBH)
1	HV-1	200	200
8	RADIANT PANEL RP-1	20	160
	FUTURE FLEXIBILITY (15%)		54
	SUBTOTAL		414

NOTES:

1. COORDINATE WITH GAS PROVIDER (PIEDMONT NATURAL GAS) THROUGH COR, FOR INCOMING GAS SERVICE (2 PSI APPROXIMATELY).
2. COORDINATE WITH GAS PROVIDER (PIEDMONT NATURAL GAS) THROUGH COR, FOR NATURAL GAS REGULATOR SIZING.
3. PROVIDE NATURAL GAS SERVICE OF 2-IN, AT 415 CFH TO ALLOW FUTURE FLEXIBILITY.

US Army Corps of Engineers ®

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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PLUMBING SCHEDULES

STATE OF MARYLAND · DAVID ALAN HOSLEY · No. 22501 · PROFESSIONAL ENGINEER

SHEET ID
P-601

READY TO ADVERTISE

MECHANICAL LEGEND

- TEE TURNED UP
- TEE TURNED DOWN
- PIPING TURNED DOWN
- PIPING TURNED UP
- CAPPED PIPING
- FLEXIBLE PIPE CONNECTION
- FAN
- FAN
- ISOLATION/SHUT-OFF VALVE (REFER TO SPECIFICATION FOR TYPE)
- DIRECTION OF FLOW ARROW
- FLANGED FITTING
- FLOOR DRAIN
- (T) THERMOSTAT/TEMPERATURE SENSOR
- (S) (S) DUCT MOUNTED SMOKE DETECTOR
- HLSPS HIGH LIMIT SPS
- LLSPS LOW LIMIT SPS
- AFMS AIR FLOW MONITORING STATION
- LS LIMIT SWITCH
- DPS DIFFERENTIAL PRESSURE SWITCH
- SPS STATIC PRESSURE SENSOR
- SP ROOM STATIC PRESSURE SENSOR
- TS TEMPERATURE SENSOR
- FS FLOW SWITCH
- OAS OUTSIDE AIR SENSOR
- MOD ATC MOTOR OPERATED CONTROL DAMPER
- FLEXIBLE CONNECTION
- VOLUME DAMPER, HANDLE INDICATES DIRECTION OF FLOW
- AIR FLOW MONITORING STATION
- CEILING DIFFUSER, RECTANGULAR ARROWS INDICATE THROW DIRECTIONS
- RETURN REGISTER OR GRILLE
- 24x12 DIRECTION OF FLOW ARROW (FIRST DIMENSION SHOWN IS TOP)
- U/C DOOR UNDERCUT
- L DOOR LOUVER
- AD DUCT ACCESS DOOR
- R RISE IN ELEVATION RELATIVE TO DIRECTION OF FLOW
- D DROP IN ELEVATION RELATIVE TO DIRECTION OF FLOW
- BDD BACK DRAFT DAMPER
- 450 / 1.25 SUPPLY CFM / VAV BOX ID
- 24x12 SUPPLY OR FRESH AIR DUCT (FIRST DIMENSION SHOWN IS TOP)
- 24x12 RETURN OR EXHAUST DUCT (FIRST DIMENSION SHOWN IS TOP)
- DUCT TURNED UP
- DUCT TURNED DOWN
- FLEXIBLE DUCT
- TRANSITION
- TRANSITION, SQUARE (RECTANGULAR) TO ROUND
- STANDARD BRANCH
- SPIN-IN DUCT FITTING
- SQUARE ELBOW WITH TURNING VANES
- 250 AIR DEVICE TYPE SD-1 AIR QUANTITY (CFM)
- BLANK OFF PORTION OF CEILING DIFFUSERS
- AIR DEVICE TYPE RG-1 AIR QUANTITY (CFM)

ATFP GENERAL NOTES

1. DESIGN AND PROVIDE SUPPORTS AND ANCHORAGE FOR ALL HANGING EQUIPMENT. INCLUDE DETAILS IN SUBMITTALS FOR THE APPLICABLE EQUIPMENT.
2. PROVIDE EQUIPMENT BRACING, IN ACCORDANCE TO UFC 4-010-01, FOR HANGING OVERHEAD EQUIPMENT WEIGHING 31 POUNDS OR MORE. REFER TO S-SERIES DRAWINGS FOR ADDITIONAL REQUIREMENTS REGARDING BRACING.
3. EQUIPMENT MOUNTINGS AND SUPPORT MUST RESIST FORCES OF 0.5 TIMES THE EQUIPMENT WEIGHT IN ANY HORIZONTAL DIRECTION AND 1.5 TIMES THE EQUIPMENT WEIGHT IN THE DOWNWARD DIRECTION. SUBMIT EQUIPMENT BRACING AND DESIGN CALCULATIONS WITH THE EQUIPMENT.

MECHANICAL ABBREVIATIONS

&	AND
@	AT
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MONITORING STATION
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
AS	AIR SEPARATOR
ATC	AUTOMATIC TEMPERATURE CONTROL
AV	AUTOMATIC AIR VENT
BDD	BACK DRAFT DAMPER
BFP	BACKFLOW PREVENTER
BOD	BOTTOM OF DUCT
BTUH	BRITISH THERMAL UNITS PER HOUR
CAP	CAPACITY
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
COR	CONTRACTING OFFICER REPRESENTATIVE
CP	CONDENSATE PUMP
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	FLOW COEFFICIENT
CW	COLD WATER, POTABLE
D	DEPTH
DB	DRY BULB
dB	DECIBELS
DEG F, °F	DEGREE FAHRENHEIT
DIA	DIAMETER
DN	DOWN
DPS	DIFFERENTIAL PRESSURE SWITCH
DWG	DRAWING
DX	DIRECT EXPANSION
EAT, LAT	ENTERING/LEAVING AIR TEMPERATURE
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
EL	ELEVATION
EPO	EMERGENCY POWER OFF
ER	EXHAUST REGISTER
ESP, TSP	EXTERNAL/TOTAL STATIC PRESSURE
ET	EXPANSION TANK
EVAP	EVAPORATOR
EXH	EXHAUST
FD	FLOOR DRAIN
FIN	FINISHED
FLA	FULL LOAD AMPERES
FLR	FLOOR
FM	FACTORY MUTUAL
FPM	FEET PER MINUTE
FPVAV	FAN POWERED VAV BOX
FS	FLOW SWITCH
FT	FEET
G	NATURAL GAS
GAL	GALLONS
GALV	GALVANIZED
H	HIGH
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HP	HORSEPOWER
HT	HEIGHT
HV	HEATING AND VENTILATING UNIT
HZ	HERTZ
IN	INCH
IN HG	INCHES OF MERCURY
INV	INVERT
L	LENGTH
LBS/HR	POUNDS PER HOUR
MAX	MAXIMUM
MBH	1,000 BRITISH THERMAL UNITS (BTU) PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MFS	MAXIMUM FUSE SIZE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MOD	MOTOR OPERATED DAMPER
MTD	MOUNTED
MV	MANUAL AIR VENT
N	NORTH
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
No	NUMBER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTERS
OED	OPEN ENDED DUCT
PD	PRESSURE DROP
PH	PHASE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH (GAGE)
RA	RETURN AIR
RF	RELIEF AIR FAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
S/M	SHEET METAL
S/S	STAINLESS STEEL
SA	SUPPLY AIR
SAF	SUPPLY AIR FAN
SCCR	SHORT-CIRCUIT CURRENT RATING
SD	SUPPLY AIR DIFFUSER
SENS	SENSIBLE COOLING
SG	SUPPLY GRILLE
SP	STATIC PRESSURE
SQ	SQUARE
T	THICKNESS
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
THICK	THICKNESS
TOD	TOP OF DUCT
TW	THERMOMETER WELL
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
W	WIDTH
W.C.	WATER COLUMN
W/	WITH
WB	WET BULB
WG	WATER GAUGE
WH	WALL HYDRANT
WT	WEIGHT

GENERAL MECHANICAL NOTES

1. THE MECHANICAL SCOPE OF THIS PROJECT IS TO PROVIDE AN HVAC SYSTEM CONSISTING OF A PACKAGED HEAT PUMP AIR HANDLER WITH ELECTRIC REHEAT VAV BOXES. WAREHOUSE SPACES WILL BE SERVED BY A HEATING AND VENTILATING UNIT WITH GAS-FIRED HEATING.
2. GENERAL NOTES ARE DISCIPLINE SPECIFIC, AND APPLY TO EVERY DRAWING IN THAT DISCIPLINE. DRAWING NOTES APPLY TO ALL WORK SHOWN ON A DRAWING. SPECIFIC NOTES APPLY TO INDIVIDUAL SITUATIONS AND EQUIPMENT.
3. PERFORM WORK IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL CODES AND STANDARDS ENFORCED BY THE LOCAL REGULATING AUTHORITIES.
4. COMPLETELY EXAMINE THE SITE AND OBSERVE THE CONDITIONS UNDER WHICH THE WORK WILL BE INSTALLED. NO ALLOWANCES WILL BE MADE FOR ERRORS OR OMISSIONS RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLETELY EXAMINE THE SITE.
5. TERMINATE SERVICES AND UTILITIES IN ACCORDANCE WITH LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS.
6. ENSURE THAT ADEQUATE CLEARANCE EXISTS FOR THE INSTALLATION OF ALL WORK SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
7. ENSURE THAT MECHANICAL EQUIPMENT, DUCTWORK, PIPING, VALVES AND ACCESS LOCATIONS HAVE CLEARANCES IN ACCORDANCE TO THE DRAWINGS AND THE MANUFACTURER'S REQUIREMENTS FOR FULL ACCESSIBILITY AND OPERATION OF MECHANICAL SYSTEMS.
8. PERFORM CUTTING AND PATCHING REQUIRED BY THE MECHANICAL WORK, UNLESS OTHERWISE NOTED.
9. REPAIR ANY DAMAGE TO THE BUILDING OR FURNISHINGS RESULTING FROM THE MECHANICAL WORK. ALL PATCHING AND REPAIR WORK SHALL MATCH THE SURROUNDING SURFACE.
10. FIRE-STOP MECHANICAL PENETRATIONS THROUGH FIRE RESISTANCE RATED WALLS, FLOORS AND ASSEMBLIES IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
11. PROVIDE ACCESS PANELS, IN WALLS OR CEILING, OR ACCESS DOORS, IN DUCTWORK, AS INDICATED OR REQUIRED FOR ACCESS TO CONCEALED MECHANICAL EQUIPMENT OR DEVICES.
12. COMPLY WITH SMACNA "HVAC DUCT CONSTRUCTION AND STANDARDS" AND OTHER APPLICABLE STANDARDS INCLUDED IN THE SPECIFICATIONS FOR THE CONSTRUCTION AND SUPPORT OF DUCTWORK, UNLESS OTHERWISE NOTED.
13. ESTABLISH SLOPES AND INVERT ELEVATIONS BEFORE ANY PIPING IS INSTALLED IN ORDER TO MAINTAIN PROPER SLOPES.
14. MAKE PROPER CONNECTION TO FIXTURES AND EQUIPMENT. DRAWINGS ARE SCHEMATIC AND ALL BRANCH MAINS, ELBOWS, AND CONNECTIONS ARE NOT SHOWN.
15. COORDINATE INSTALLATION OF PIPING AND EQUIPMENT WITH MECHANICAL, STRUCTURAL, CIVIL, AND ELECTRICAL DISCIPLINES, AS WELL AS OTHER PLUMBING WORK.
16. DO NOT PROVIDE MECHANICAL EQUIPMENT DIRECTLY ABOVE CONTROL AND VFD PANELS, ELECTRICAL SUBSTATIONS, CABLE TRAYS, TRANSFORMERS, PANEL BOARDS, OR SWITCHGEAR.
17. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
18 LOCATION OF THERMOSTATS AND OTHER WALL MOUNTED CONTROL DEVICES SHALL BE NORMALLY 48" ABOVE FINISHED FLOOR (TO BOTTOM) AND ALIGNED WITH OTHER DEVICES (SWITCHES, RECEPTACLES, ETC.). WHERE DEVICES ARE INDICATED TO BE INSTALLED ON ANY SURFACE OTHER THAN DRYWALL OR CMU, APPROVAL MUST BE OBTAINED FROM THE ARCHITECT.
19. PROJECT SCOPE INCLUES LEED BUILDING CERTIFICATION. COORDINATE AND INCORPORATE PLUMBING, MECHANICAL, ELECTRICAL, CONTROLS, AND TESTING AIR BALANCING (TAB) SCOPE WITH OVERALL COMMISSIONING EFFORTS AND TASKS. REFER TO SPECIFICATION 01 91 00.15 10 AND COMMISSIONING PLAN
20. PIPING AND DUCTWORK FOR THE WAREHOUSE AREA MUST RUN TIGHT TO UNDERSIDE OF STRUCTURE WITH SPACE FOR INSULATION, UNLESS OTHERWISE NOTED.
21. PROVIDE PIPING AND DUCTWORK SO THAT VALVES AND DAMPERS ARE ACCESSIBLE.
22. CERTAIN ITEMS SUCH AS ACCESS DOORS, RISE AND DROPS IN DUCTWORK AND PIPING, ETC. ARE INDICATED ON THE DRAWINGS FOR CLARITY OR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THESE ITEMS AS REQUIRED N THE CONTRACT DRAWINGS AND SPECIFICATIONS.
23. SCHEMATIC AND RISER DIAGRAMS INDICATE FLOW AND OPERATIONAL CONCEPT AS WELL AS GENERAL ARRANGEMENT OF EQUIPMENT. VALVES, PRESSURE GAUGES, ETC. ADDITIONAL VALVES PRESSURE GAUGES ETC. SHALL BE PROVIDED AS SHOWN ON DETAILS AND AS INDICATED IN SPECIFICATIONS.
24. DETAILS WITHOUT SPECIFIC REFERENCES TO A LOCATION SHALL BE APPLIED TO THE GENERAL INSTALLATION OF MECHANICAL WORK.
25 REFER TO P-SERIES SHEETS FOR CONDENSATE DRAIN PIPING.
26 REFER TO P-SERIES SHEETS FOR NATURAL GAS PIPING AND EQUIPMENT.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEB
DRAWN BY: JHW
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ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
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FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403

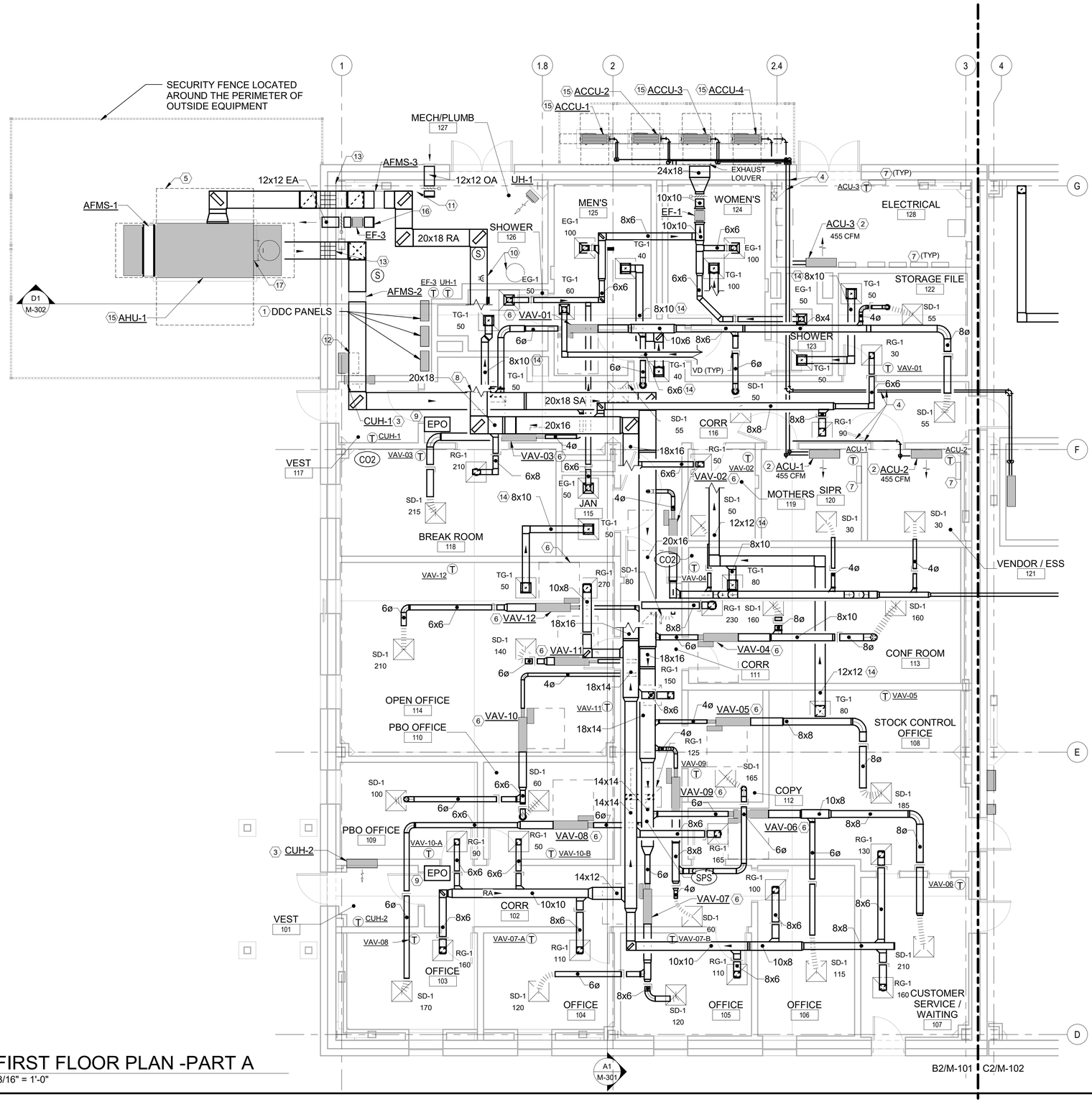
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
LEGEND, ABBREVIATIONS, AND GENERAL NOTES



SHEET ID
M-001

READY TO ADVERTISE



B2 FIRST FLOOR PLAN -PART A
3/16" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET M-001 FOR LEGEND, BBREVIATIONS AND GENERALNOTES.
2. MAINTAIN MANUFACTURERS REQUIRED CLEARANCE FOR SERVICE AND MAINTENANCE AT ALL EQUIPMENT.
3. REFER TO P-SERIES SHEETS FOR NATURAL GAS PIPING AND EQUIPMENT.

SHEET KEYNOTES

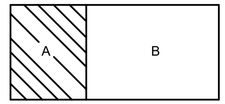
1. PROVIDE DDC PANELS AT LEAST 3'-0" AFF MEASURED FROM BOTTOM OF PANEL. REFER TO E-SERIES AND T-SERIES DRAWINGS FOR POWER AND COMMUNICATION.
2. REFER TO SCHEDULE ON M-701 FOR INDOOR UNIT MOUNTING HEIGHT.
3. PROVIDE CABINET UNIT HEATER AT 12" AFF. TO BOTTOM OF UNIT.
4. SIZE AND PROVIDE REFRIGERANT PIPING, VALVES, AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR EQUIPMENT CONFIGURATION AND LAYOUT.
5. MINIMUM MAINTENANCE AND SERVICE CLEARANCE. REFER TO M-701 FOR UNIT DIMENSIONS.
6. MAINTAIN A MINIMUM OF 42" CLEAR FOR ACCESS TO TERMINAL UNIT (VAV). REFER TO DETAIL C4/M-602.
7. ELECTRICAL EQUIPMENT SHOWN FOR REFERENCE AND COORDINATION PURPOSES ONLY. MAINTAIN 4'-0" CLEARANCE (MIN) ABOVE ELECTRICAL PANELS.
8. 3'-0" DIFFERENCE FROM TOP OF SA DUCT TO BOTTOM OF RA DUCT.
9. EMERGENCY VENTILATION SHUTDOWN SWITCH. REFER TO M-501 FOR SEQUENCE.
10. PLUMBING EQUIPMENT SHOWN FOR REFERENCE AND COORDINATION PURPOSES ONLY.
11. FIRE PROTECTION PIPING MAIN IN THIS AREA. REFER TO SHEET F-101.
12. PROVIDE OPERATOR'S WORKSTATION FOR DDC SYSTEM. REFER TO E-SERIES AND T-SERIES DRAWINGS FOR POWER AND COMMUNICATION.
13. PROVIDE DUCT SECURITY BARS AT STRUCTURAL PENETRATION. REFER TO DETAIL D1/M-601.
14. TRANSFER DUCT. REFER TO DETAIL C8/M-603.
15. PROVIDE MECHANICAL EQUIPMENT ON HOUSEKEEPING CONCRETE PAD. REFER TO DETAIL E1/M-601 AND S-SERIES DRAWINGS.
16. EXHAUST DUCT OPEN. PROVIDE OSHA GUARD BIRDSCREEN AT INLET.
17. SA DUCT ATTACHED TO AHU-1 UNDER CONDENSER FAN. REFER TO M-302.

GRAPHIC SCALE

0 4' 8' 16'

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

KEY PLAN



US Army Corps of Engineers ®

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FIRST TITLE
SECOND TITLE
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

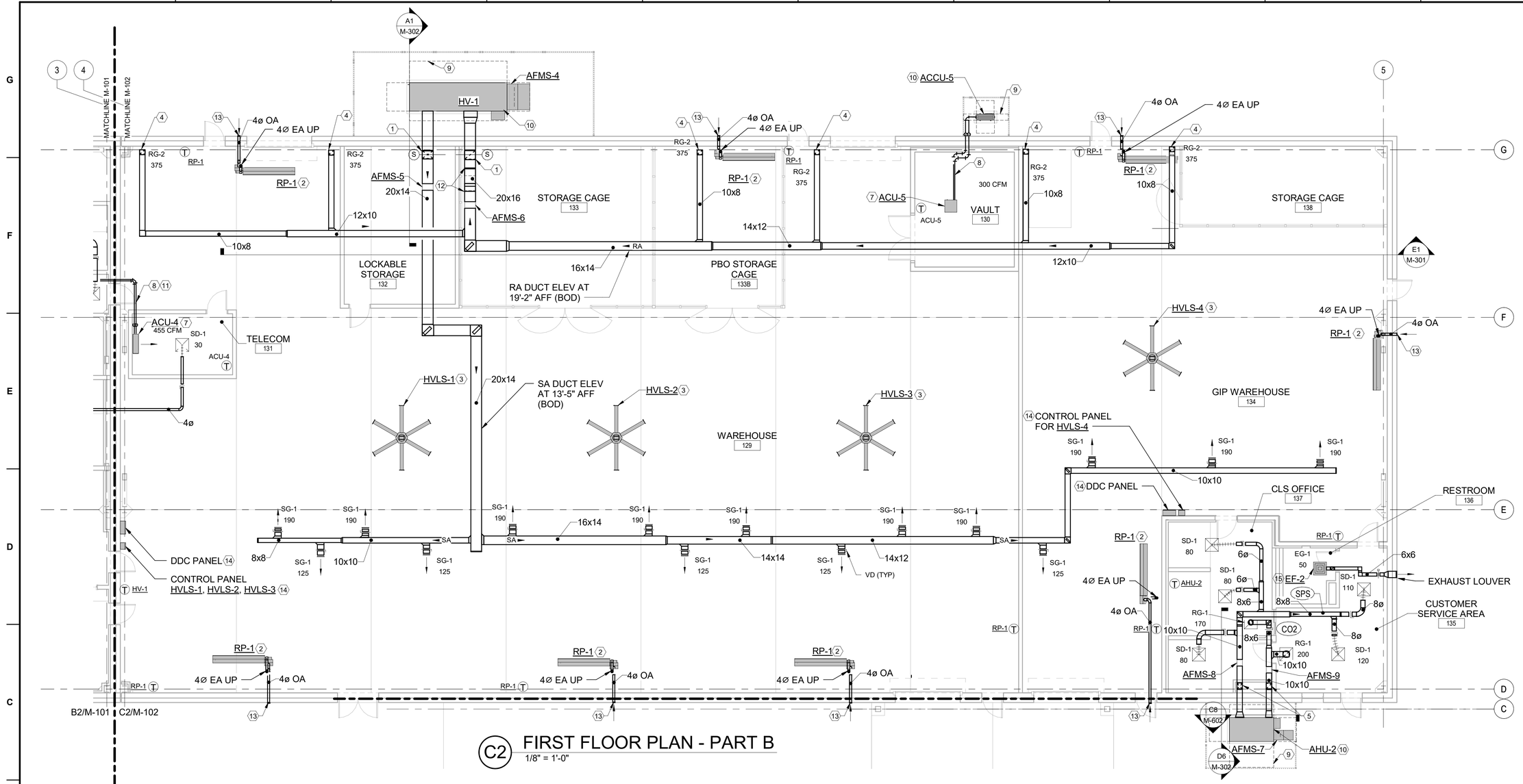
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC FLOOR PLANS - PART A

STATE OF MARYLAND
THOMAS ALAN HASSELL
No. 22009
REGISTERED PROFESSIONAL ENGINEER

SHEET ID
M-101

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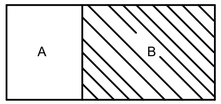
C2 FIRST FLOOR PLAN - PART B

1/8" = 1'-0"

PLAN NORTH

TRUE N

KEY PLAN



GENERAL SHEET NOTES

1. REFER TO SHEET M-001 FOR LEGEND, BBREVIATIONS AND GENERALNOTES.
2. MAINTAIN MANUFACTURER'S REQUIRED CLEARANCE FOR SERVICE AND MAINTENANCE AT ALL EQUIPMENT.
3. REFER TO P-SERIES SHEETS FOR NATURAL GAS PIPING AND EQUIPMENT.

SHEET KEYNOTES

1. 36x24 SA & 40x24 RA DN AT INTERIOR WALL TO HV UNIT.
2. PROVIDE GAS-FIRED RADIANT HEATER AT 15' AFF TO BOTTOM OF UNIT ANGLED AT 45 DEGREES AWAY FROM WALL. REFER TO DETAIL C4/M-603.
3. PROVIDE HVLS FANS AT 14'-6" AFF TO BOTTOM OF FAN. PROVIDE A MINIMUM OF 3'-0" CLEARANCE TO THE BOTTOM OF EQUIPMENT. REFER TO DETAIL E4/M-602.
4. 10x8 RA DN AND TERMINATE AT 12" AFF. PROVIDE AIR DEVICE ON THE VERTICAL - RG-2 AT 375 CFM. BOTTOM OF GRILLE 12" AFF. PROVIDE VOLUME DAMPER ON RISER.
5. PROVIDE 12x12 SA & 14x12 RA FROM AHU-2 WITHIN WALL CHASE. REFER TO ARCHITECTURE SHEET A-102.
6. OA INTAKE EXITS THROUGH SIDE WALL 2'-0" FROM TOP OF RADIANT PANEL. VENT CAP AND THIMBLE ARE REQUIRED FOR A VENT PASSING THROUGH A COMBUSTIBLE WALL.
7. REFER TO SCHEDULE ON M-701 FOR INDOOR UNIT MOUNTING HEIGHT.
8. SIZE AND PROVIDE REFRIGERANT PIPING, VALVES, AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR EQUIPMENT CONFIGURATION AND LAYOUT.
9. MINIMUM MAINTENANCE AND SERVICE CLEARANCE. REFER TO M-701 FOR UNIT DIMENSIONS.
10. PROVIDE MECHANICAL EQUIPMENT ON HOUSEKEEPING CONCRETE PAD. REFER TO STRUCTURAL DRAWINGS FOR CONCRETE EQUIPMENT PAD DETAILS. REFER TO DETAILS C8/M-602 AND E1/M-603, AND S-SERIES DRAWINGS.
11. MAINTAIN 2'-0" CLEARANCE (MINIMUM) ABOVE DOOR AND EXIT SIGN (BOP).
12. RA DUCT CHANGES ELEVATION FROM 16' AFF (BOD) TO 19'-9" AFF (BOD).
13. PROVIDE SIDEWALL CAP FOR COMBUSTION AIR INTAKE.
14. PROVIDE PANELS AT LEAST 3'-0" AFF MEASURED FROM BOTTOM OF PANEL. REFER TO E-SERIES DRAWINGS FOR POWER.
15. EG-1 ATTACHED BELOW EF-2 CEILING MOUNTED FAN.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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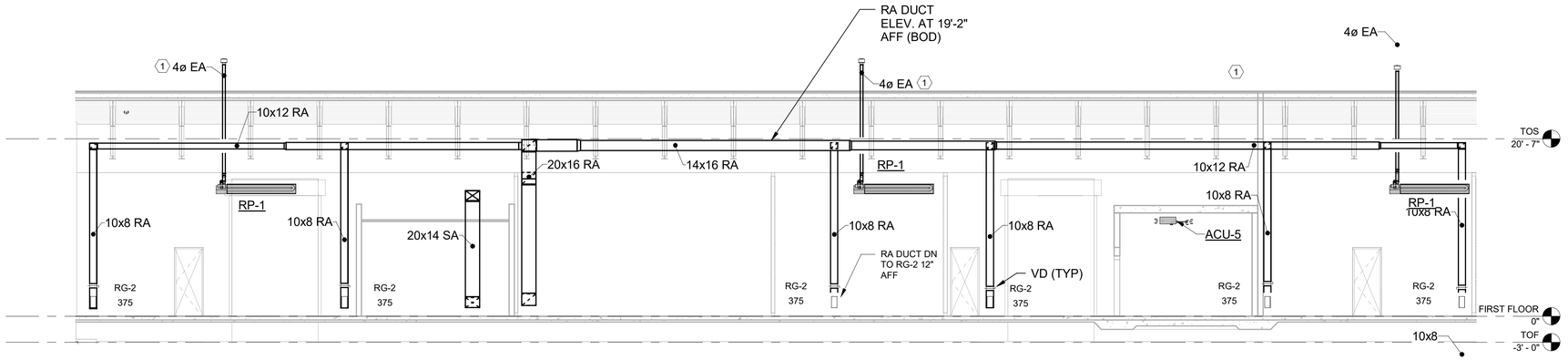
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

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PROJECT 87447
HVAC FLOOR PLAN - PART B

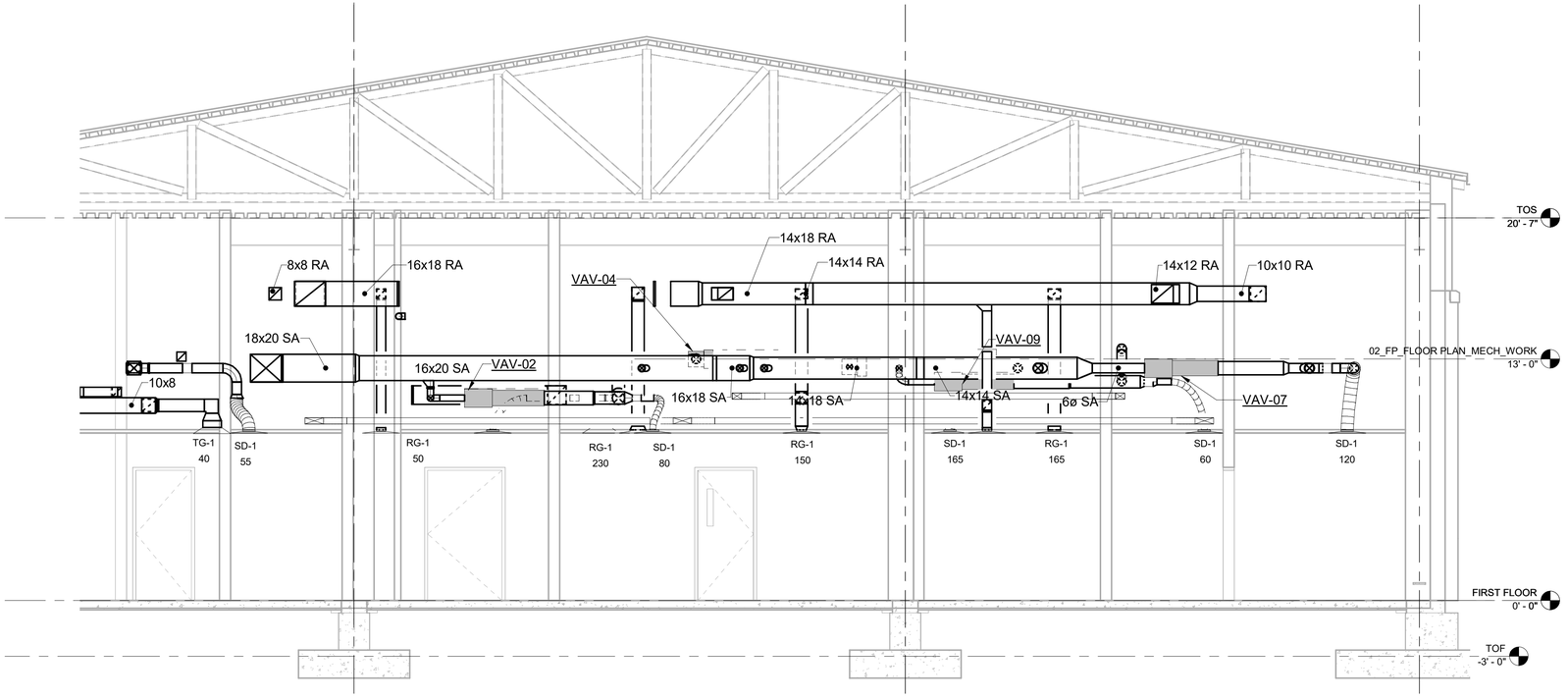
STATE OF MARYLAND
CRAIG ALAN HOSELTON
No. 23093
PROFESSIONAL ENGINEER

SHEET ID
M-102

READY TO ADVERTISE



E1 WAREHOUSE RA DUCT SECTION
1/8" = 1'-0"



A1 CORRIDOR DUCT SECTION
1/4" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. MAINTAIN MANUFACTURER'S REQUIRED CLEARANCE FOR SERVICE AND MAINTENANCE AT ALL EQUIPMENT.

① SHEET KEYNOTES

1. PROVIDE OUTLET VENT CAP FOR EXHAUST AIR. COORDINATE SIZE, TERMINATION TYPE AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR EQUIPMENT CONFIGURATION AND LAYOUT.

US Army Corps of Engineers ®

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WILMINGTON DISTRICT
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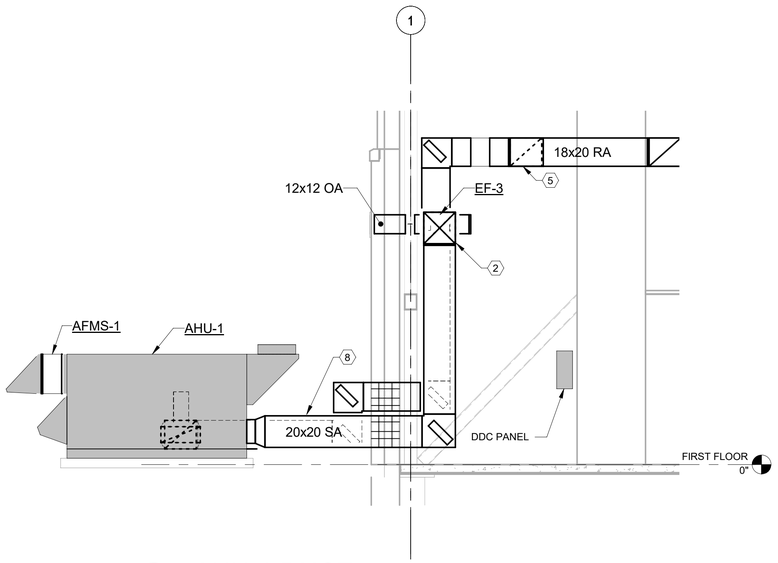
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC BUILDING SECTION

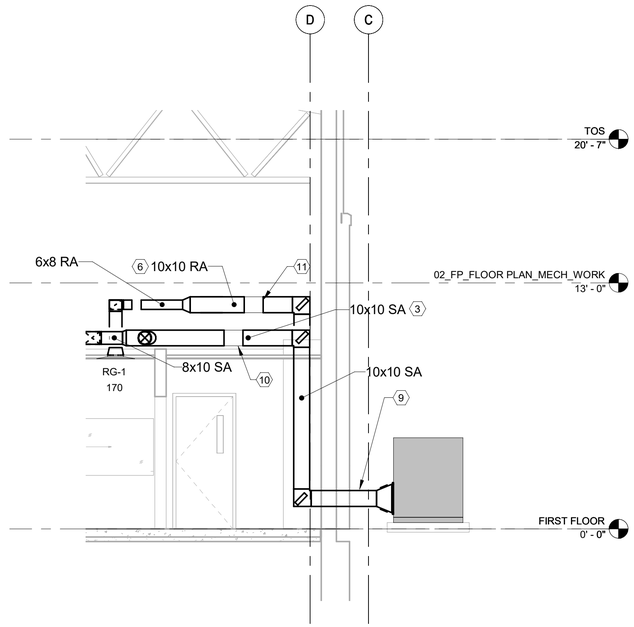
STATE OF MARYLAND
JOSHUA ALAN HOSEIN
PROFESSIONAL ENGINEER

SHEET ID
M-301

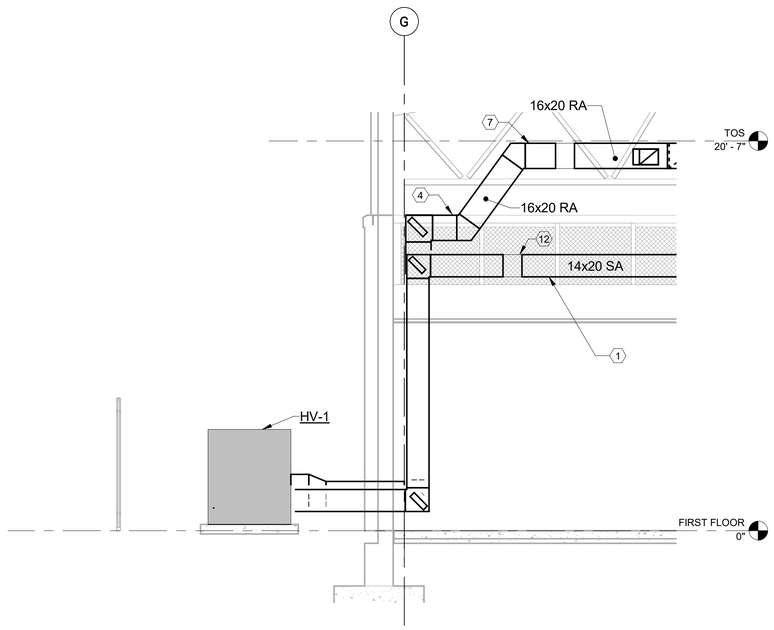
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D1 AHU-1 DUCT
1/4" = 1'-0"



D6 AHU-2 DUCT
1/4" = 1'-0"



A1 HV-1 DUCT
1/4" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. MAINTAIN MANUFACTURER'S REQUIRED CLEARANCE FOR SERVICE AND MAINTENANCE AT ALL EQUIPMENT.

(1) SHEET KEYNOTES

1. SA DUCT ELEV. AT 13'-5" AFF (BOD)
2. SA DUCT ELEV. AT 11'-8" AFF (BOD)
3. SA DUCT ELEV. AT 9'-9" AFF (BOD)
4. RA DUCT ELEV. AT 15'-4" AFF (BOD)
5. RA DUCT ELEV. AT 15'-9" AFF (BOD)
6. RA DUCT ELEV. AT 11'-5" AFF (BOD)
7. RA DUCT ELEV. AT 19'-2" AFF (BOD)
8. 18x20 RA DUCT BEHIND 20x20 SA DUCT.
9. 10x10 RA DUCT BEHIND 10x10 SA DUCT.
10. PROVIDE AFMS-8. REFER TO DETAIL A4/M-602 AND M-702.
11. PROVIDE AFMS-9. REFER TO DETAIL A4/M-602 AND M-702.
12. PROVIDE AFMS-6. REFER TO DETAIL A4/M-602 AND M-702.

US Army Corps of Engineers ®

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SUBMITTED BY:
ISSUE DATE: AUGUST 2023
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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801 SOUTH CAROLINE STREET
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC SECTIONS

STATE OF MARYLAND
CRAIG ALAN HOSELTON
No. 23083
PROFESSIONAL ENGINEER

SHEET ID
M-302

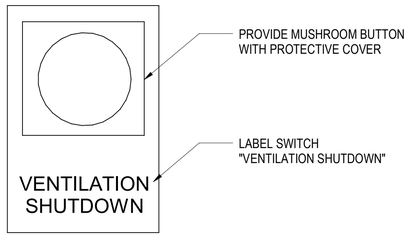
READY TO ADVERTISE

E1 UTILITY METERS
NTS

UTILITY METERS								
POINT I.D. #	POINTS DESCRIPTION	GPM	TOTAL GALLONS	CFH	TOTAL CF	kW	kWH	NOTES
1	WATER METER	X	X					1,2
2	GAS METER			X	X			1,2
3	TOTAL SITE ELECTRIC USE					X	X	1,3
4	ELECTRIC SUBMETER - HVAC					X	X	1,3
5	ELECTRIC SUBMETER - LIGHTING					X	X	1,3
6	ELECTRIC SUBMETER - RECEPTACLES					X	X	1,3

NOTES:

1. PROVIDE A GRAPHIC SCREEN IN THE DDC SYSTEM GUI CONSOLIDATING ENERGY CONSUMPTION DATA FOR ALL METERS LISTED ABOVE.
2. REFER TO PLUMBING DRAWINGS FOR WATER METER LOCATION. REFER TO SPECIFICATION 23 09 13 FOR WATER AND GAS METERS. MONITOR FLOW RATE AND TOTAL CONSUMPTION.
3. REFER TO ELECTRICAL DRAWINGS FOR ELECTRIC METER LOCATIONS. REFER TO SPECIFICATION UNDER DIVISION 26 FOR ELECTRIC METERS. BAS CONNECTION SHALL BE TO MULTI-CIRCUIT METER LOCATED IN MAIN DISTRIBUTION PANEL IN ELECTRICAL 128. COMMUNICATION WITH METER SHALL BE VIA LNS PROTOCOL OVER ETHERNET. MONITOR INSTANTANEOUS kW DEMAND AND TOTAL kWH CONSUMPTION AND REPORT FOR BUILDING AND SUBMETER LEVELS LISTED.



D1 EMERGENCY VENTILCATION SHUTDOWN
NTS

EMERGENCY VENTILATION SHUTDOWN SEQUENCE OF OPERATIONS

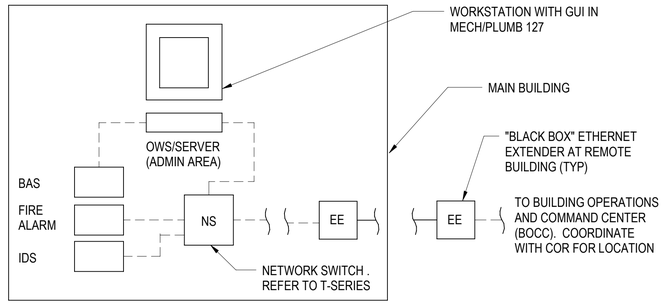
1. PROVIDE EMERGENCY SHUTOFF SWITCHES THAT CAN IMMEDIATELY SHUT DOWN AIR DISTRIBUTION THROUGHOUT THE BUILDING FOR ALL THE SUPPLY AND EXHAUST AIR DISTRIBUTION SYSTEMS INSTALLED, WITH THE EXCEPTION OF ACUs. THE WALL MOUNTED EMERGENCY PUSHBUTTON SWITCHES SHALL BE PROVIDED IN CORRIDOR 102 AND CORRIDOR 116 AS SHOWN ON PLANS.
2. IN THE EVENT OF AN EMERGENCY, THE RED MUSHROOM PUSHBUTTON IS DEPRESSED. THE DDC CONTROL SYSTEM WILL MONITOR THE STATUS OF THIS SWITCH POSITION. WHEN ACTIVATED, THE DDC CONTROLLER WILL UTILIZE ITS REMOTE BROADCAST FUNCTION TO SEND A MESSAGE TO ALL CONTROLLERS OPERATING AIR MOVING EQUIPMENT. THE INDIVIDUAL CONTROLLERS WILL DE-ENERGIZE ALL SUPPLY AND EXHAUST AIR FANS AND CLOSE ALL MOTORIZED DAMPERS IN THE BUILDING ENVELOPE.
3. THE HVAC SYSTEM REMAINS IN THIS STATE UNTIL THE RED PUSHBUTTON IS PULLED BACK OUT FROM ITS EMERGENCY POSITION. AT THAT TIME, THE DDC CONTROL SYSTEM WILL BE RE-ENABLED. MOUNT SWITCH UNDER A CLEAR PROTECTIVE BUTTON COVER.
4. BOCC MUST BE ABLE TO EXECUTE EMERGENCY VENTILATION SHUTDOWN SEQUENCE VIA A CAMPUS-WIDE COMMAND SIGNAL.

CARBON DIOXIDE (CO2) SEQUENCE OF OPERATIONS

GENERAL:

1. IN ACCORDANCE TO LEED V4, IEQc1 ENHANCE IAQ DELIVERY MONITORING, CO2 LEVEL MUST BE MONITORED FOR THE FOLLOWING DENSELY OCCUPIED SPACES:

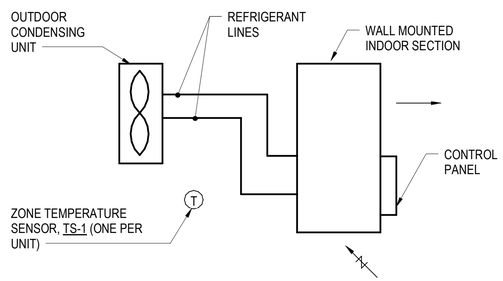
   A. CONF ROOM 113
   B. BREAK ROOM 118
   C. CUSTOMER SERVICE AREA 135
2. SPACE CO2 CONCENTRATION SETPOINT MUST BE 1000 PPM (ADJ). WHEN SPACE CO2 CONCENTRATION RISES ABOVE SETPOINT, GENERATE AN ALARM AT THE DDC AND GUI. WHEN CO2 LEVELS EXCEED 1500 PPM (ADJ), CLEARING ALARM MUST REQUIRE A MANUAL RESET.
3. WHEN SPACE CO2 CONCENTRATION FALLS 20% BELOW SETPOINT FOR 15 MINUTES, ALARM AT THE DDC AND GUI CLEARS.



NOTES:

1. REFER TO SPECIFICATION 25 05 11.01 FOR CYBERSECUTIRY WORK ASSOCIATED WITH DDC INTEGRATION. COORDINATE WITH COR FOR EXISTING CAMPUS-WIDE CONTROLS MANUFACTURER. CONTROLS UNDER THIS PROJECT MUST BE SEAMLESSLY COMPATIBLE MANUFACTURER AS EXISTING BOCC CONTROLS.

E4 DDC NETWORK DIAGRAM
NTS



D4 DX SPLIT SYSTEM UNIT
NTS

DX SPLIT SYSTEM SEQUENCE OF OPERATIONS

GENERAL

1. UNIT MUST OPERATE UNDER PACKAGED CONTROLS TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 75 DEG F.
2. GENERATE AN EQUIPMENT FAILURE ALARM IF THE TEMPERATURE AT TS-1 EXCEEDS 80 DEG F .
3. CONDENSATE PUMPS, PROVIDED WITH UNITS, MUST OPERATE UNDER PACKAGED CONTROL.

DX SPLIT SYSTEM POINTS LIST											
POINTS I.D. #	POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS				SHOWN ON GRAPHIC	NOTES
		BI	AI	BO	AO	AV	BV	TREND	ALARM		
1	UNIT STATUS	X						COV		X	FROM PACKAGED CONTROLS
2	UNIT MODE (COOLING/HEATING)			X				COV	X	X	FROM PACKAGED CONTROLS
3	TS-1, SPACE TEMPERATURE		X			X		10 MINUTES	X	X	

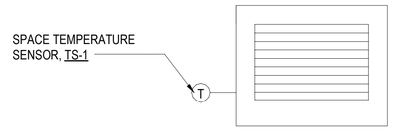


A4 CARBON DIOXIDE (CO2) SENSOR
NTS

CARBON DIOXIDE (CO2) POINTS LIST										
POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS				SHOW ON GRAPHIC
		BI	AI	BO	AO	AV	BV	ALARM	TREND	
1	CO2 SENSOR (PPM) - CONF ROOM 113	X						X	X	X
2	CO2 SENSOR (PPM) - BREAK ROOM 118	X						X	X	X
3	CO2 SENSOR (PPM) - CUSTOMER SERVICE AREA 139	X						X	X	X

DDC SYSTEM GENERAL NOTES

1. THE DIRECT DIGITAL CONTROL (DDC) SYSTEM MUST USE LONWORKS NETWORK SERVICES (LNS) PROTOCOL FOR COMMUNICATION BETWEEN WORKSTATION, CONTROL MODULES. I/O POINTS, SCHEDULES, SETPOINTS,
2. CONTROLLERS MUST INTERFACE WITH THE EXISTING CAMPUS-WIDE CONTROLS SYSTEM TO INCORPORATE THIS PROJECT. UPDATE AND EXPAND THE EXISTING GRAPHIC USER INTERFACE (GUI) WORKSTATION IN THE BUILDING OPERATIONS AND COMMAND CENTER (BOCC) TO INCLUDE GRAPHICS FOR SYSTEMS PROVIDED AS PART OF THIS PROJECT. CONTROL POINTS INDICATED IN THE POINTS LIST AND THEIR ASSOCIATED VALUES MUST BE DISPLAYED ON THE CENTRAL WORKSTATION GUI IN THE BOCC. COORDINATE WITH COR FOR LOCATION OF GUI AT THE BOCC.
3. TRENDS, AND ALARMS MUST BE LNS OBJECTS.
4. PROVIDE OPERATOR WORKSTATION (OWS) WITH GRAPHIC USER INTERFACE (GUI) FOR THE ENTIRE BUILDING. CONTROL POINTS INDICATED IN THE POINTS LIST AND THEIR ASSOCIATED VALUES MUST BE DISPLAYED ON THE CENTRAL WORKSTATION GUI IN MECH/PLUMB 127.
5. WHERE DDC PANELS ARE SHOWN ON THE DRAWINGS, PROVIDE MULTIPLE PANELS AS REQUIRED TO IMPLEMENT THE SEQUENCE OF OPERATIONS AND PROVIDE REQUIRED CONTROL POINTS. EXTEND POWER WIRING TO PANELS FROM NEAREST 120 VOLT PANEL WITH SUITABLE SPARE BREAKERS.
6. ALARMS INDICATED ON THE WORKSTATION COMPUTER GUI MUST BE IN PLAIN ENGLISH AND MUST CLEARLY DESCRIBE THE ALARM CONDITION TO AN OPERATOR WITH NO DDC SYSTEM TRAINING. FOR EXAMPLE, THE ALARM FOR AN AHU FAN FAILURE MUST BE “AHU FAN FAILURE.” NUMERICAL OR CRYPTIC CODE ALARMS ARE NOT ACCEPTABLE. FOR EXAMPLE, ERROR MESSAGES SUCH AS “CRIT 4 ALARM” OR “ERROR 12” ARE NOT ACCEPTABLE.
7. INITIAL SCHEDULE FOR OCCUPIED PERIOD MUST BE 0700 TO 1800 MONDAY THROUGH FRIDAY IN ALL AREAS. MORNING WARM-UP AND COOLDOWN MODES MUST START ACCORDING TO DDC SYSTEM OPTIMIZATION PROGRAM WITH AN INITIAL ALLOWANCE OF 1 HOUR. THE REMAINING HOURS IN THE WEEK WILL BE THE UNOCCUPIED PERIOD.
8. ALL SETPOINTS, TIMERS, DEADBANDS, PID GAINS, ETC., LISTED IN SEQUENCES MUST BE CAPABLE OF ADJUSTMENT BY THE OPERATOR THROUGH THE NORMAL DDC SYSTEM GUI WHETHER INDICATED AS ADJUSTABLE IN THE SEQUENCES OR NOT. SOFTWARE (VIRTUAL) POINTS MUST BE USED FOR THESE VARIABLES. FIXED SCALAR NUMBERS MUST NOT BE EMBEDDED IN PROGRAMS EXCEPT FOR PHYSICAL CONSTANTS (E.G., CONVERSION FACTORS).
9. VALUES FOR ALL POINTS, INCLUDING REAL (HARDWARE) POINTS USED IN CONTROL SEQUENCES SHALL BE CAPABLE OF BEING OVERRIDDEN BY THE OPERATOR (E.G., FOR TESTING AND COMMISSIONING). IF HARDWARE DESIGN PREVENTS THIS FOR HARDWARE POINTS, THEY MUST BE EQUATED TO A SOFTWARE POINT AND THE SOFTWARE POINT MUST BE USED IN ALL SEQUENCES. EXCEPTION: NOT REQUIRED FOR ALL APPLICATION-SPECIFIC CONTROLLER HARDWARE POINTS UNLESS NOTED OTHERWISE.



C8 CONTROL DIAGRAM - UNIT HEATER & CABINET UNIT HEATERS - ELECTRIC
NTS

UNIT HEATER & CABINET UNIT HEATERS, ELECTRIC - SEQUENCE OF OPERATIONS

GENERAL

1. SEQUENCE APPLIES FOR WALL MOUNTED ELECTRIC UNIT HEATER AND ELECTRIC CABINENT UNIT HEATERS.
2. SYSTEM DESCRIPTION: UNIT HEATER MUST PROVIDE HEATING TO THE SPACE WHERE IT IS LOCATED.
3. MODES: UNIT MUST OPERATE IN OCCUPIED AND UNOCCUPIED MODES AS SET BY THE USER THROUGH THE TEMPERATURE SENSOR, TS-1, LOCATED IN THE SPACE.
4. SPACE TEMPERATURE SETPOINTS (ADJUSTABLE):
   HEATING ON: 55 DEG F (OCCUPIED)
   HEATING OFF: 50 DEG F. (UNOCCUPIED)
5. OCCUPIED PERIOD MUST BE 0700 TO 1800 MONDAY THROUGH FRIDAY (ADJ).
6. WHEN SPACE TEMPERATURE FALLS BELOW SETPOINT, AS SENSED BY TS-1, FAN CYCLES ON AND ELECTRIC HEATING COIL IS ENERGIZED.
7. WHEN AIR TEMPERATURE RISES ABOVE SETPOINT, AS SENSED BY TS-1, FAN CYCLES OFF AND ELECTRIC HEATING COIL IS DE-ENERGIZED.
8. UNIT IS DE-ENERGIZED WHEN OUTDOOR AIR TEMPERATURE IS ABOVE 50 DEG F (ADJ).

UNIT HEATER POINTS LIST										
POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS				SHOWN ON GRAPHIC
		BI	AI	BO	AO	AV	BV	TREND	ALARM	
1	SPACE TEMPERATURE		X			X		10 MINUTES	X	X
2	HEATER STATUS	X						COV	X	X

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEB
DRAWN BY: JHW
CHECKED BY: CAH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC CONTROLS

STATE OF MARYLAND — CHARLES ALAN HISSETT — No. 22009 — PROFESSIONAL ENGINEER

SHEET ID
M-501

READY TO ADVERTISE

HV-1 SYSTEM SEQUENCE OF OPERATIONS

GENERAL

1. HV-1 IS A CONSTANT AIR VOLUME PACKAGED HEATING AND VENTILATING UNIT WITH ENERGY RECOVERY WHEEL. THE HV UNIT PROVIDES VENTILATION AIR FOR THE WAREHOUSE. UNIT MUST BE PROVIDED WITH VFD CONTROLLED SUPPLY AND EXHAUST FANS, NATURAL GAS FURNACE, FILTER SECTIONS, AND VFD CONTROLLED ENERGY RECOVERY WHEEL. IN ADDITION, TO THE HV-1, IN THE SPACES VENTILATED THERE ARE FOUR (4) HIGH VOLUME, LOW SPEED (HVLS) FANS PROVIDED FOR DESTRATIFICATION CONTROL AND EVAPORATIVE COOLING.

2. HV-1 MUST BE PROVIDED WITH FACTORY PACKAGED CONTROLS. CONTROLS MUST BE FULLY PROGRAMMABLE, CUSTOMIZABLE, AND LONWROKS COMMUNICATION (NATIVE OR VIA GATEWAY). UNIT CONTROLLER MUST INTERFACE WITH BUILDING DDC AND GUI WORKSTATION. BUILDING WORKSTATION MUST HAVE FULL MONITORING CAPABILITIES FROM THE GUI AT MECH/PLUMB 127 LOCATED IN THE BUILDING.

3. MAINTAIN SYSTEM OA AND EA VALUES, AS SCHEDULED ON M-700 SERIES, THROUGH THE OA MEASUREMENT STATION AFMS-4 AND AFMS-6. THE EXHAUST FAN MUST FOLLOW THE SUPPLY FAN LESS 250 CFM PRESSURIZATION AIR FOR THE WAREHOUSE THROUGH VOLUMETRIC TRACKING.

UNOCCUPIED MODE

1. THE UNIT SHALL BE DE-ENERGIZED DURING UN-OCCUPIED MODE, AND THE OUTDOOR AND EXHAUST AIR DAMPERS SHALL CLOSE.

OCCUPIED MODE

1. THE OUTDOOR AND EXHAUST AIR DAMPERS FULLY OPEN. THE ENERGY RECOVERY BYPASS DAMPER MUST REMAIN CLOSE.

2. THE SUPPLY AND EXHAUST AIR FANS START AND THE VFDs MODULATE TO MAINTAIN DESIGN AIRFLOW AS INDICATED ON EQUIPMENT SCHEDULE.

3. NATURAL GAS CONTROL VALVE MODULATES, AS REQUIRED, TO MAINTAIN SCHEDULED UNIT SUPPLY AIR TEMPERATURE (59 DEG F, ADJ) AS SENSED BY TS-1.

4. ON A DROP IN LOCAL SPACE TEMPERATURE BELOW HEATING SETPOINT, AS SENSED BY ANY LOCAL HVLS FAN TEMPERATURE SENSOR,THE ASSOCIATED HVLS ENERGIZES AND RUN AT CONSTANT SPEED. THE CONTROLLER ASSOCIATED WITH HVLS PROVIDES MANUAL ADJUSTMENT TO FAN SPEED. HVLS RUNS CONTINUOUSLY UNTIL LOCAL SPACE TEMPERATURE EXCEEDS HEATING SETPOINT BY 5 DEG F (ADJ).

5. THROUGH THE VARIABLE SPEED CONTROLLER (VSC) FAN SPEED OF EACH INDIVIDUAL HVLS FAN MUST BE ABLE TO BE INCREASED OR DECREASED, EITHER MANUALLY OR THROUGH THE DDC.

ENERGY RECOVERY WHEEL

PROVIDE MODULATING WHEEL FROST CONTROL TO ALLOW FOR CONTINUOUS OPERATION OF ENERGY RECOVERY WHEEL.

1. HEATING MODE: IF OUTDOOR AIR TEMPERATURE IS LESS THAN RETURN AIR TEMPERATURE, AT TS-5, AND COIL ENTERING AIR TEMPERATURE, AT TS-3, IS BELOW SUPPLY AIR TEMPERATURE SETPOINT, WHEEL SPEED MUST MODULATE TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT, AT TS-1.

AIR TEMPERATURE RESET

NATURAL GAS CONTROL VALVE MODULATES, AS REQUIRED, TO MAINTAIN SCHEDULED UNIT SUPPLY AIR TEMPERATURE (59 DEG F, ADJ) AS SENSED BY TS-1.

ECONOMIZER

1. WHEN OUTDOOR AIR TEMPERATURE IS BETWEEN 60 DEG F AND 70 DEG F (ADJ), ECONOMIZER MUST BE ACTIVE.

2. OUTDOOR AIR DAMPER D-OA REMAINS OPEN. HEATING MUST BE DE-ENERGIZED, BYPASS DAMPER, D-ERW, OPENS FULLY AND ENERGY RECOVERY WHEEL IS DE-ENERGIZED. WHEN ECONOMIZER OPERATION ENDS, BYPASS DAMPER, D-ERW, CLOSES FULLY AND ENERGY RECOVERY WHEEL IS ENERGIZED.

3. WHEN OUTDOOR AIR TEMPERATURE IS ABOVE 70 DEG F (ADJ), END ECONOMIZER AND ENERGIZE ENERGY RECOVERY WHEEL.

SMOKE DETECTORS

1. WHEN EITHER SUPPLY AIR OR RETURN AIR DUCT SMOKE DETECTORS SENSE PRODUCTS OF COMBUSTION, DE-ENERGIZE THE DUCT SMOKE DETECTOR UPON SENSING SMOKE, SHALL DE-ENERGIZE THE SUPPLY AND EXHAUST FANS AND GENERATE AN ALARM TO THE DDC SYSTEM, AT THE GUI CONTROLLER, AND TO THE BUILDING FIRE ALARM SYSTEM. ALARM MUST READ "SMOKE CONDITIONS". THE INTERLOCKS WITH THE SUPPLY AND EXHAUST AIR FANS MUST BE HARDWIRED AND REQUIRE A MANUAL RESET.

SAFETIES AND ALARMS

1. WHEN THE LOW LIMIT STATIC PRESSURE SENSOR SENSES STATIC PRESSURE BELOW THE NEGATIVE 7.0 IN WG. SETPOINT (ADJUSTABLE), DE-ENERGIZE SF-HV, AND EF-HV, GENERATE AN ALARM TO THE DDC SYSTEM AND AT THE GUI. AUTOMATICALLY RESTART SYSTEM AFTER ONE MINUTE DELAY. SECOND FAILURE IN ONE HOUR MUST REQUIRE A MANUAL RESET.

2. HIGH DISCHARGE AIR TEMP: WHEN FURNANCE IS ON AND DISCHARGE TEMPERATURE RISES ABOVE 95°F (ADJ), AN AUDIBLE ALARM MUST BE ISSUED AT THE CONTROLLER.

3. LOW DISCHARGE AIR TEMP: WHEN DISCHARGE TEMPERATURE DROPS BELOW 45°F (ADJ), AN AUDIBLE ALARM MUST BE ISSUED AT THE CONTROLLER AND GENERATE AN ALARM AT GUI.

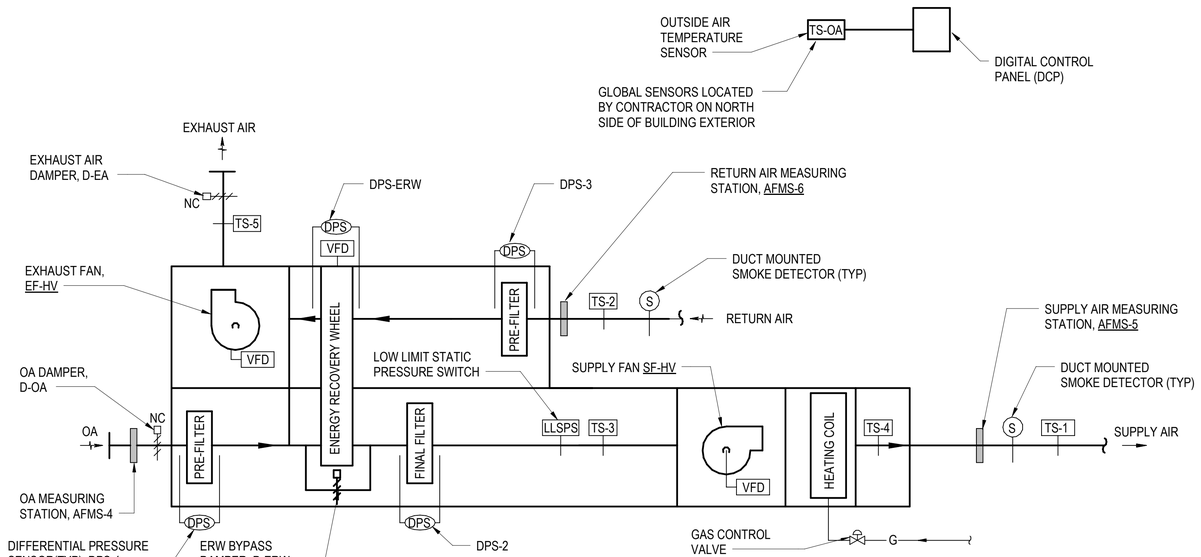
4. FILTER: A PRESSURE SWITCH SENSING FILTER DIFFERENTIAL PRESSURE SHALL INDICATE FILTER DIRTY AT THE CONTROLLER AND BAS.

5. FREEZE PROTECTION: THE UNIT WILL USE ITS INTERNAL PROGRAMING TO PREVENT FROST ACCUMULATION ON THE ENERGY WHEEL. THIS WILL BE DONE BY MONITORING THE EXHAUST AIR TEMPERATURE AND MODULATING THE OUTSIDE AIR BYPASS DAMPER. WHEEL VFD MODULATES WHEEL SPEED TO MAINTAIN PRESSURE ACROSS LESS THAN 0.80-IN W.G. (ADJ). GENERATE "DIRTY ERW ALARM" WHEN PRESSURE EXCEEDS 0.80-IN W.G. (ADJ)

HV-1 AND HVLS- CONTROL POINTS (NOTE 2)

POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS BI	AI	BO	AO	SOFTWARE POINTS AV	BV	TREND	ALARM	SHOWN ON GRAPHIC	NOTES
1	AFMS-4, OUTSIDE AIRFLOW		X			X		X		X	
2	AFMS-5, SUPPLY AIRFLOW		X					X		X	
3	AFMS-6, RETURN AIRFLOW		X			X		X		X	
4	D-EA, EXHAUST AIR DAMPER COMMAND			X				X		X	FROM PACKAGED CONTROLS (NOTE 1)
5	D-EA, EXHAUST AIR DAMPER POSITION (OPEN/CLOSE)	X						X		X	FROM PACKAGED CONTROLS (NOTE 1)
6	D-ERW, BYPASS DAMPER COMMAND			X				X		X	FROM PACKAGED CONTROLS (NOTE 1)
7	D-ERW, BYPASS DAMPER POSITION (OPEN/CLOSE)	X									FROM PACKAGED CONTROLS (NOTE 1)
8	D-OA, OUTISDE AIR DAMPER COMMAND			X				X		X	FROM PACKAGED CONTROLS (NOTE 1)
9	D-OA, OUTSIDE AIR DAMPER POSITION (OPEN/CLOSE)	X						X		X	FROM PACKAGED CONTROLS (NOTE 1)
10	DPS-ERW, ENERGY RECOVERY WHEEL MAINTANANCE REQUIRED	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
11	DPS-1, FILTER MAINTENANCE REQUIRED	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
12	DPS-2, FILTER MAINTENANCE REQUIRED	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
13	DPS-3, FILTER MAINTENANCE REQUIRED	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
14	EF-HV, EXHAUST FAN VFD COMMAND			X				X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
15	EF-HV, EXHAUST FAN VFD SPEED, HZ		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
16	EF-HV, EXHAUST FAN STATUS	X									FROM PACKAGED CONTROLS (NOTE 1)
17	EXHAUST AIR SMOKE DETECTOR	X						X	X	X	
18	HV-1, ENABLE/DISABLE			X				X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
19	LOW LIMIT STATIC PRESSURE SENSOR	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
20	HV-1, GAS CONTROL VALVE COMMAND			X				X		X	FROM PACKAGED CONTROLS (NOTE 1)
21	HV-1, GAS CONTROL VALVE POSITION	X						X		X	FROM PACKAGED CONTROLS (NOTE 1)
22	SF-HV, SUPPLY FAN VFD COMMAND			X				X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
23	SF-HV, SUPPLY FAN VFD SPEED, HZ		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
24	SF-HV, SUPPLY FAN STATUS	X									FROM PACKAGED CONTROLS (NOTE 1)
25	SUPPLY AIR SMOKE DETECTOR	X						X	X	X	
26	TS-1, SUPPLY AIR TEMPERATURE		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
27	TS-2, RETURN AIR TEMPERATURE		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
28	TS-3, SUPPLY AIR TEMPERATURE		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
29	TS-4, HEATING AIR TEMPERATURE		X			X		X		X	FROM PACKAGED CONTROLS (NOTE 1)
30	TS-5, EXHAUTS AIR TEMPERATURE		X								FROM PACKAGED CONTROLS (NOTE 1)
31	TS-OA, OUTSIDE AIR TEMPERATURE		X					X			
32	HVLS-, ENABLE/DISABLE (WAREHOUSE)			X				X	X	X	FROM HVLS PACKAGED CONTROLS (NOTE 1)
33	HVLS-, FAN SPEED (WAREHOUSE)		X					X	X	X	FROM HVLS PACKAGED CONTROLS (NOTE 1)
34	HVLS-, ENABLE/DISABLE (GIP WAREHOUSE)			X				X	X	X	FROM HVLS PACKAGED CONTROLS (NOTE 1)
35	HVLS-, FAN SPEED (GIP WAREHOUSE)		X					X	X	X	FROM HVLS PACKAGED CONTROLS (NOTE 1)
36	HVLS-1 STATUS	X							X	X	FROM HVLS PACKAGED CONTROLS (NOTE 1)
37	HVLS-2 STATUS	X							X	X	FROM HVLS PACKAGED CONTROLS (NOTE 1)
38	HVLS-3 STATUS	X							X	X	FROM HVLS PACKAGED CONTROLS (NOTE 1)
39	HVLS-4 STATUS	X							X	X	FROM HVLS PACKAGED CONTROLS (NOTE 1)

NOTES:
1. DEVICE PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE WITH BAS TRADE PARTNER IF THE SUBMITTED EQUIPMENT CANNOT PROVIDE THIS POINT/DEVICE. BAS TRADE PARTNER MUST PROVIDE POINT AT NO ADDITIONAL COST TO THE GOVERNMENT.
2. COORDINATE WITH EQUIPMENT MANUFACTURER DURING SEQUENCE AND CONTROLS PROGRAMING, AND START-UP.



A1 HV-1 CONTROL SCHEMATIC
NTS

HVLS FAN SYSTEM SEQUENCE OF OPERATIONS

GENERAL

1. UNITS MUST BE PROVIDED WITH STAND ALONE FACTORY PACKAGED THERMOSTATIC CONTROLS. PROVIDE UNITS WITH WALL MOUNTED CONTROL BOX. UNIT CONTROLLER MUST INTERFACE WITH THE BUILDING WORKSTATION. MONITORING CAPABILITIES FOR ALARM ONLY REQUIRED.

OCCUPIED MODE

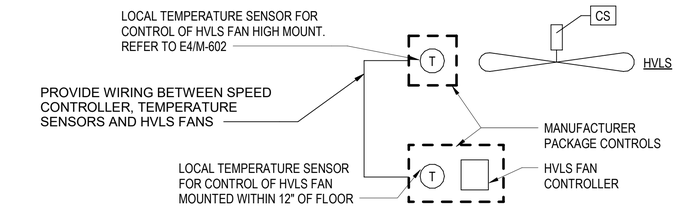
1. WHEN THE SPACE TEMPERATURE IS BELOW 70°F (ADJ), AS MEASURED BY AVERAGING THE TEMPERATURE OF TEMPERATURE SENSORS NEAR FLOOR AND ROOF, THE FAN MAINTAINS MINIMUM SPEED TO PROVIDE DESTRATIFICATION. WHEN THE SPACE TEMPERATURE IS ABOVE 90°F (ADJ), AS MEASURED BY AVERAGING THE TEMPERATURE OF TEMPERATURE SENSORS NEAR FLOOR AND ROOF, THE FAN MAINTAINS MAXIMUM SPEED TO PROVIDE MAXIMUM AIR MOVEMENT. BETWEEN 70°F AND 90°F. THE FAN SPEED IS ADJUSTED LINEARLY BETWEEN MINIMUM AND MAXIMUM SPEED DIRECTLY ROPORTIONAL TO THE SPACE TEMPERATURE.

UNOCCUPIED MODE

1. FANS ARE DISABLED.

ALARM

1. GENERATE A GENERAL TROUBLE ALARM AT THE BAS IF THE UNIT FAILS TO START UPON COMMAND.



A7 HVLS FAN CONTROL DIAGRAM
NTS

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEB
DRAWN BY: JHW
CHECKED BY: CAH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
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US ARMY CORPS OF ENGINEERS
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SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC CONTROLS

STATE OF MARYLAND — CRAIG ALAN HOSTETTER — No. 22009 — REGISTERED PROFESSIONAL ENGINEER

SHEET ID
M-502

READY TO ADVERTISE

AHU-1 SYSTEM SEQUENCE OF OPERATIONS

GENERAL

1. AHU-1 IS A PACKAGED RTU VARIABLE AIR VOLUME SYSTEM WITH WITH DX COOLING, HEAT PUMP TECHNOLOGY WITH SINGLE COMPRESSOR (DIGITAL SCROLL), SUPPLEMENTAL ELECTRIC HEAT, VFD CONTROLLED SUPPLY AND EXHAUST FANS (SF-AHU & EF-AHU), AND FILTER SECTIONS.

2. AHU-1 MUST BE PROVIDED WITH FACTORY PACKAGED CONTROLS. CONTROLS MUST BE FULLY PROGRAMMABLE, CUSTOMIZABLE, AND LONWORKS COMMUNICATION (NATIVE OR VIA GATEWAY). UNIT CONTROLLER MUST INTERFACE WITH BUILDING DDC AND GUI WORKSTATION. BUILDING WORKSTATION MUST HAVE FULL MONITORING CAPABILITIES FROM THE GUI AT MECH/PLUMB 127 LOCATED IN THE BUILDING.

3. AHU-1 OPERATING STATUS AND SCHEDULES, TEMPERATURE SETPOINTS, STATIC PRESSURE SETPOINTS AND EQUIPMENT ALARM CONDITIONS MUST BE MONITORED THROUGH THE DDC SYSTEM . OPERATOR MUST BE ABLE TO PERFORM ALL MONITORING AND ADJUSTING DIRECTLY FROM THE GUI WORKSTATION.

4. ALARM CONTACTS AT VFDS MUST MONITOR OPERATION OF THEIR ASSOCIATED FAN AND MUST ALARM THE DDC SYSTEM UPON DETECTION OF ITS FAN'S FAILURE.

5. METHODS OF CONTROL: AIRFLOW MEASURING STATIONS MUST CONTROL THE OUTDOOR AIR DAMPER (D-OA). STATIC PRESSURE SENSOR MUST CONTROL SUPPLY FAN MOTOR OPERATION.

6. TEMPERATURE SENSORS THROUGH THE DDC SYSTEM MUST MONITOR SYSTEM TEMPERATURES.

7. SYSTEM OPERATION MUST BE FULLY AUTOMATIC WITH MANUAL OVERRIDES.

8. SUPPLY FAN (SF-AHU) CONTROL: WHEN THE DDC SYSTEM CALLS FOR AHU-1 TO START, THE CONTROL SEQUENCE MUST BE ENABLED. THE SF-AHU MUST MODULATE TO MAINTAIN THE STATIC PRESSURE SETPOINT OF 1.0 IN WG (ADJ). UPON A LOSS OF AIRFLOW, THE SF-AHU MUST AUTOMATICALLY RESTART.

9. WHEN AHU-1 IS DE-ENERGIZED, UNIT DAMPERS RETURN TO THEIR NORMAL POSITIONS, FANS STOP, AND HEATING AND COOLING EQUIPMENT DE-ENERGIZES.

10. INITIAL UNIT SUPPLY AIR TEMPERATURES MUST BE AS SHOW, ON EQUIPMENT SCHEDULE, AND ADJ.

OCCUPIED MODE

1. OUTSIDE AIR (OA) DAMPER D-OA AND RETURN AIR (RA) DAMPER D-RA MUST OPEN. WHEN D-OA PROVES TO BE OPEN, SUPPLY FAN SF-AHU AND EXHAUST FAN EF-1 START AND RUN CONTINUOUSLY (UNDER PACKAGED CONTROL FOR SF-AHU). SF-AHU MUST GRADUALLY INCREASE FAN SPEED TO ITS CONTROLLED POSITION. THE DDC SYSTEM MUST MONITOR DUCT STATIC PRESSURE AS MEASURED BY SYSTEM STATIC PRESSURE SENSOR SPS-SA AND CONTROL THE SPEED OF SF-AHU AND POSITION OF D-RA DAMPER TO MAINTAIN STATIC PRESSURE SETPOINT (1.0" WG, ADJ). FINAL CONTROL SETPOINT MUST BE AS DETERMINED BY PROJECT TEST & BALANCE CONTRACTOR AND MUST BE THE LOWEST VALUE REQUIRED FOR EACH VAV BOX TO DELIVER ITS DESIGN FLOW AT SYSTEM MAXIMUM FLOW.

2. DDC SYSTEM MUST OPEN D-OA AND MODULATE THE DAMPER TO MAINTAIN SYSTEM OA FROM FALLING BELOW MINIMUM VALUE, AS SCHEDULED ON M-700 SERIES, THROUGH THE OA MEASUREMENT STATION AFMS-1. WHEN D-OA IS FULLY OPEN AND OA IS STILL BELOW SETPOINT, MODULATE D-RA TOWARDS THE CLOSED POSITION AND ENERGIZE EF-AHU, AS REQUIRED TO MEET OA SETPOINT. SEE AHU EXHAUST FAN AND AIR BALANCE SCHEDULES FOR VALUES AND RANGE.

3. PACKAGED CONTROLS MODULATE COMPRESSOR, AS REQUIRED TO MAINTAIN SCHEDULED UNIT SUPPLY AIR TEMPERATURE (55 DEG F, ADJ) AS SENSED BY TS-1.

4. WHEN SUPPLY AIR TEMPERATURE FALLS BELOW SUPPLY AIR TEMPERATURE SETPOINT, THE PACKAGED CONTROLS SIGNALS AHU-1 TO UTILIZE HEAT PUMP, AS REQUIRED, TO MAINTAIN SCHEDULED UNIT SUPPLY AIR TEMPERATURE (55 DEG F, ADJ). IN CASE OF HEAT PUMP UNABLE TO MEET SUPPLY AIR SETPOINT, MODULATE ELECTRIC HEAT TO MEET TS-1.

5. EXHAUST FAN (EF-1) OPEN DAMPER AND REMAINS ENERGIZED WHENEVER AHU-1 IS ON OCCUPIED MODE. SEE EXHAUST FAN AND AIR BALANCE SCHEDULES FOR VALUES AND RANGE.

UNOCCUPIED MODE

1. THE DDC SYSTEM DE-ENERGIZES, EF-1. PACKAGE CONTROLS DE-ENERGIZE AHU COMPRESSOR AND SF-AHU. D-OA AND D-EA MUST BE FULLY CLOSED, AND D-RA MUST BE FULLY OPEN. WHEN D-RA PROVES TO BE OPEN, SF-AHU MUST BE ENERGIZED WHEN TWO OR MORE VAV BOXES SEND A CALL FOR HEATING OR COOLING.

2. UPON A CALL FOR COOLING, PACKAGED CONTROLS MUST MODULATE COMPRESSOR TO MAINTAIN SCHEDULED SUPPLY AIR TEMPERATURE (55 DEG F, ADJ) AS SENSED BY TS-1.

3. UPON A CALL FOR HEATING, THE PACKAGED CONTROLS SIGNALS AHU-1 TO UTILIZES HEAT PUMP, AS REQUIRED, TO MAINTAIN 80 DEG F SUPPLY AIR TEMPERATURE AS SENSED BY TS-1. IN CASE OF HEAT PUMP UNABLE TO MEET SUPPLY AIR SETPOINT, MODULATE ELECTRIC HEAT TO MEET TS-1.

4. SF-AHU MUST BE DE-ACTIVATED UPON SIGNAL FROM THE DDC SYSTEM THAT VAV ZONES ARE SATISFIED.

5. INTERLOCKED EXHAUST FAN, EF-1, MUST BE OFF.

SUPPLY AIR TEMPERATURE RESET

1. WHEN THE SF-AHU FAN VFD REACHES 50% OF THE TOTAL CAPACITY, SUPPLY AIR TEMPERATURE MUST BE 55 DEG F (ADJ) AND BE RESET UPWARDS USING CRITICAL ZONE RESET. THE % OF MAXIMUM CFM PROVIDED BY EACH ASSOCIATED VAV BOX MUST BE MONITORED AND SA TEMPERATURE RESET UPWARD TO A LIMIT OF 60 DEG F (ADJ) TO MAINTAIN THE MOST OPEN VAV BOX AT 90% OF DESIGN COOLING CFM.

2. AS THE MOST OPEN VAV BOX INCREASES MORE THAN 2 DEG F ABOVE THE OCCUPIED SETPOINT THE SA TEMPERATURE MUST BE RESET DOWNWARD TO A MAXIMUM OF 55 DEG F (ADJ).

3. THE % OF MAXIMUM CUMULATIVE CFM PROVIDED BY SF-AHU MUST BE MONITORED AND ALWAYS BE ABOVE EF-1 AIRFLOW.

4. WHEN STATIC PRESSURE RESET SEQUENCE IS ACTIVATED, SUPPLY AIR TEMPERATURE RESET SEQUENCE MUST ONLY BE ACTIVE WHEN OUTDOOR AIR TEMPERATURES FALL BELOW 60 DEG F (ADJ.) TO MAXIMIZE POTENTIAL FAN ENERGY SAVINGS.

5. TEMPERATURE RESET UPWARDS AND DOWARD MUST BE 1 DEGF FOR EVERY 5 MINUTES (ADJ).

6. IF RETURN AIR RELATIVE HUMIDITY RISES ABOVE 60% AS SENSED BY RETURN AIR DUCT-MOUNTED HUMIDITY SENSOR, OVERRIDE SUPPLY AIR TEMPERATURE SETPOINT TO 55 DEG. F UNTIL MEASURED RELATIVE HUMIDITY DECREASES TO 50%.

ECONOMIZER MODE

1. WHEN THE RA ENTHALPY (CALCULATED FROM THE RA HUMIDITY AND TEMPERATURE SENSORS) IS GREATER THAN THE OA ENTHALPY (CALCULATED FROM THE OA HUMIDITY AND TEMPERATURE SENSORS), THE DDC SYSTEM MUST UTILIZE ENTHALPY ECONOMIZER LOGIC TO MODULATE D-OA OPEN AND D-RA CLOSED TO MAINTAIN SCHEDULED SUPPLY AIR TEMPERATURE SETPOINT (55 DEG F, ADJUSTABLE) AS SENSED BY TS-1.

2. ECONOMIZER CONTROLS MUST OVERRIDE OUTSIDE AIR DAMPER CONTROLS.

3. WHEN D-OA IS FULLY OPEN AND SUPPLY AIR TEMPERATURE INCREASES ABOVE SUPPLY AIR SETPOINT BY 2 DEG F FOR 15 MINUTES, MECHANICAL COOLING MUST BE ENERGIZED TO MODULATE COMPRESSOR TO MAINTAIN SUPPLY AIR SETPOINT.

4. WHEN OUTSIDE AIR ENTHALPY IS GREATER THAN THE RETURN AIR ENTHALPY, D-OA MUST CLOSE TO ITS MINIMUM POSITION, AND COMPRESSOR MUST MODULATE TO MAINTAIN SETPOINT.

5. WHEN D-OA IS AT MINIMUM POSITION AND SUPPLY AIR TEMPERATURE FALLS BELOW SETPOINT BY 2 DEG F FOR 15 MINUTES, ECONOMIZER OPERATION MUST END, COMPRESSOR AND ELECTRIC HEAT MODULATE AS REQUIRED TO MAINTAIN SUPPLY AIR SETPOINT.

6. EXHAUST AIR DAMPER D-EA CLOSES AND EF-AHU DE-ENERGIZES. UNIT SWITCHES BACK TO OCCUPIED MODE.

7. EXHAUST AIR FAN (EF-AHU) CONTROL (ECONOMIZER MODE ONLY): AFTER SF-AHU HAS BEEN STARTED, START EF-AHU. THE EF-AHU MUST MODULATE TO MAINTAIN A FLOW OUTPUT SETPOINT THAT IS EQUAL TO OA REQUIREMENT MINUS THE SUMMATION OF PRESSURIZATION AND EF-1 EXHAUST AIRFLOW, AS INDICATED ON THE AIR BALANCE SCHEDULE.

SAFETIES AND ALARMS

1. GENERATE A GENERAL TROUBLE ALARM AT THE DDC IF THE UNIT FAILS TO START UPON COMMAND.

2. WHEN EITHER SUPPLY AIR OR RETURN AIR DUCT SMOKE DETECTORS SENSE PRODUCTS OF COMBUSTION, DE-ENERGIZE SF-AHU AND EF-AHU, FULLY CLOSE D-OA AND D-RA, GENERATE AN ALARM TO THE DDC SYSTEM AND AT THE GUI. THE INTERLOCKS WITH THE SF-AHU AND EF-AHU MUST BE HARDWIRED AND REQUIRE A MANUAL RESET.

3. WHEN THE SUPPLY AIR DUCT HIGH LIMIT STATIC PRESSURE SENSOR SENSES STATIC PRESSURE EXCEEDING THE 3.0 IN WG. SETPOINT (ADJUSTABLE), DE-ENERGIZE SF-AHU AND EF-AHU. GENERATE AN ALARM TO THE DDC SYSTEM AND AT THE GUI. AUTOMATICALLY RESTART SYSTEM AFTER ONE MINUTE DELAY. SECOND FAILURE IN ONE HOUR MUST REQUIRE A MANUAL RESET.

4. WHEN THE LOW LIMIT STATIC PRESSURE SENSOR SENSES STATIC PRESSURE BELOW THE NEGATIVE 7.0 IN WG. SETPOINT (ADJUSTABLE), DE-ENERGIZE SF-AHU, AND EF-AHU. GENERATE AN ALARM TO THE DDC SYSTEM AND AT THE GUI. AUTOMATICALLY RESTART SYSTEM AFTER ONE MINUTE DELAY. SECOND FAILURE IN ONE HOUR MUST REQUIRE A MANUAL RESET.

5. GENERATE AN ALARM AT THE DDC SYSTEM AND COMMAND AHU TO DE-ENERGIZE UPON DETECTION OF LOW SYSTEM TEMPERATURE (45 DEG F, ADJ) AS SENSED BY TS-1.

6. GENERATE AN ALARM AT THE DDC SYSTEM WHEN DIFFERENTIAL PRESSURE SENSOR, DPS, DETECTS DIRTY FILTER CONDITION (0.50" WG, ADJ).

7. IF EITHER D-OA OR D-EA DO NOT PROVE TO OPEN UPON A CALL FOR HEATING OR COOLING, SF-AHU, AND EF-AHU MUST NOT ENERGIZE AND GENERATE AN ALARM AT THE DDC SYSTEM.

OUTDOOR AIR EMERGENCY ISOLATION

1. AHU-1 MUST BE INCORPORATED INTO THE BUILDING EMERGENCY VENTILATION SHUTDOWN SWITCH PROGRAM. UPON ACTIVATION OF EMERGENCY SHUTDOWN, SHUT DOWN THE SUPPLY AND RETURN FANS, IN ANY MODE OF OPERATION, AND CLOSE OUTDOOR AIR INTAKE AND EXHAUST AIR DAMPERS.

STATIC PRESSURE RESET

1. THE BAS MUST CALCULATE A NEW DUCT STATIC PRESSURE SET POINT EVERY FIVE MINUTES (ADJ.) BASED ON THE NUMBER OF PRESSURE REQUESTS. A PRESSURE REQUEST IS DEFINED AS ANY VAV BOX THAT IS REPORTING AIRFLOW 10% (ADJ.) OR MORE BELOW CURRENT AIRFLOW SETPOINT. IF THE NUMBER OF PRESSURE REQUESTS IS LESS THAN 3 (ADJ), TRIM THE CURRENT STATIC PRESSURE SETPOINT BY 0.05 IN W.G.(ADJ). IF THE NUMBER OF PRESSURE REQUESTS IS EQUAL TO OR EXCEEDS 3 (ADJ), RESPOND BY INCREASING THE SETPOINT BY (0.05 IN W.G) (ADJ) X (# PRESSURE REQUESTS ABOVE 3) (ADJ). THE RESPOND SETPOINT INCREASE SHALL BE LIMITED TO 0.15 IN W.G. (ADJ.) PER FIVE MINUTE (ADJ) ITERATION.

MORNING COOLDOWN/WARM-UP

1. ENABLE MORNING WARMUP WHEN THE AVERAGE OF ZONE TEMPERATURES IS BELOW THE OCCUPIED TEMPERATURE SETPOINT.

2. ENABLE MORNING COOLDOWN WHEN THE AVERAGE OF ZONE TEMPERATURES IS ABOVE THE OCCUPIED ZONE TEMPERATURE SETPOINT.

3. D-OA REMAINS CLOSED AND EF-AHU IS DE-ENERGIZED, SF-AHU MUST MODULATE TO MAINTAIN A CONSTANT 1.0 IN. WG. (ADJ) STATIC PRESSURE AS SENSED BY SUPPLY DUCT STATIC PRESSURE SENSOR SPS-SA.

4. PACKAGED CONTROLS MODULATE COMPRESSOR TO MAINTAIN A 55 DEG F (ADJ) SUPPLY AIR TEMPERATURE, AS SENSED BY TS-1.

5. PACKAGED CONTROLS MODULATE HEAT PUMP TO MAINTAIN A 70 DEG F (ADJ) SUPPLY AIR TEMPERATURE, AS SENSED BY TS-1.

6. WHEN ALL OF THE VAV BOXES ARE WITHIN 2 DEG F OF THE OCCUPIED SETPOINT, THE DDC SYSTEM MUST INITIATE AHU INTO OCCUPIED MODE OF OPERATION.

MORNING COOLDWON/WARM-UP (CONTINUED)

7. MORNING COOLDOWN/WARMUP DURATION MUST BE DETERMINED BY AN OPTIMIZATION SCHEDULE. THE DURATION OF THE MORNING COOLDOWN/WARM-UP PERIOD MUST VARY ACCORDING TO OUTSIDE AIR TEMPERATURE AND SPACE TEMPERATURE SUCH THAT THE SPACE TEMPERATURE FALLS/RISES TO OCCUPIED PERIOD SETPOINT AT THE BEGINNING OF, BUT NOT BEFORE, THE SCHEDULED OCCUPIED PERIOD.

DEHUMIDIFICATION WITH HOT GAS REHEAT MODE

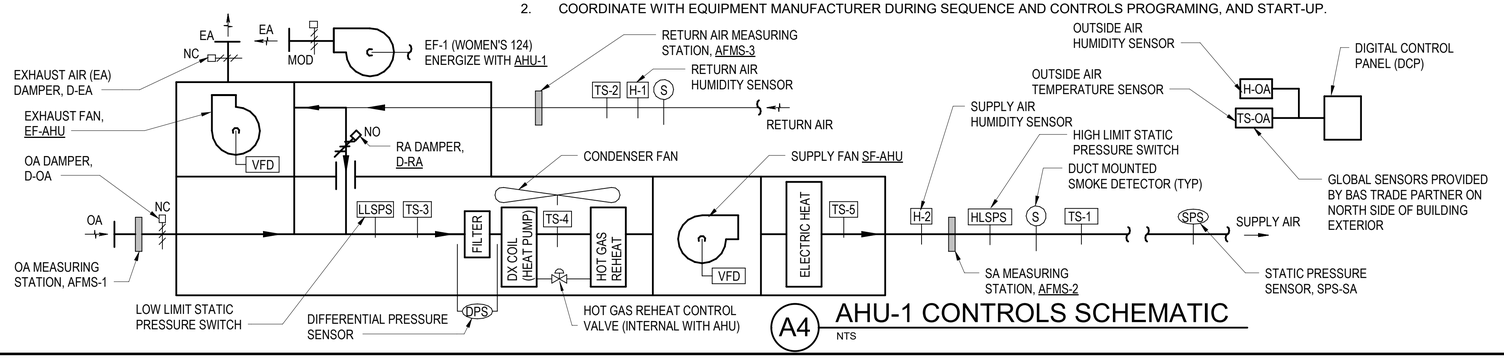
1. DEHUMIDIFICATION OCCURS ONLY WHEN THE OA TEMPERATURE IS ABOVE 40 DEG F (ADJ) OR BELOW 70 DEG F (ADJ). DEHUMIDIFICATION IS NOT ALLOWED IF THERE IS AN ACTIVE CALL FOR HEATING. IF DURING A DEHUMIDIFICATION CYCLE, THERE IS A CALL FOR HEATING, THE DEHUMIDIFICATION CYCLE IS TERMINATED.

2. ON A CALL FOR DEHUMIDIFICATION, THE HOT GAS REHEAT VALVE IS ENERGIZED AND THE COMPRESSOR IS TURNED ON. WHEN THE HUMIDITY CONTROL SETPOINT (55% RH, ADJ) IS SATISFIED, AS SENSED BY H-1, THE VALVE IS DE-ENERGIZED AND THE COMPRESSOR IS TURNED OFF. IN THE EVENT THERE IS A CALL FOR COOLING FROM ANY OF THE ZONES, THE HOT GAS REHEAT VALVE IS DE-ENERGIZED AND THE COMPRESSOR CONTINUES TO RUN.

AHU-1 AND EF-1 CONTROL POINTS (NOTE 2)

POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS BI	AI	BO	AO	SOFTWARE POINTS AV	BV	TREND	ALARM	SHOWN ON GRAPHIC	NOTES
1	AFMS-1, OUTSIDE AIRFLOW		X			X		X	X	X	
2	AFMS-2, SUPPLY AIRFLOW		X			X		X	X	X	
3	AFMS-3, RETURN AIRFLOW		X			X		X	X	X	
4	AHU-, ENABLE/DISABLE			X				X	X	X	
5	AHU-, MECHANICAL COOLING STATUS	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
6	D-EA, EXHAUST AIR DAMPER COMMAND				X			X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
7	D-OA, OUTSIDE AIR DAMPER POSITION		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
8	D-RA, RETURN AIR DAMPER COMMAND				X			X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
9	D-RA, RETURN AIR DAMPER POSITION		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
10	D-OA, OUTISDE AIR DAMPER COMMAND				X			X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
11	D-EA, EXHAUST AIR DAMPER POSITION		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
12	DPS FILTER MAINTENANCE REQUIRED	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
13	EF-1, EXHAUST FAN COMMAND			X							
14	EF-1, EXHAUST FAN STATUS	X						X	X	X	
15	H-1, RETURN AIR HUMIDITY		X					X		X	
16	H-OA, OUTSIDE AIR HUMIDITY		X					X		X	
17	H-2, SUPPLY AIR HUMIDITY		X					X		X	
18	HIGH LIMIT STATIC PRESSURE SENSOR	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
19	LOW LIMIT STATIC PRESSURE SENSOR	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
20	MORNING WARMUP			X				X		X	
21	MORNING COOLDOWN			X				X		X	
22	EF-AHU, EXHAUST AIR FAN VFD COMMAND			X				X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
23	EF-AHU, EXHAUST AIR FAN VFD SPEED, HZ		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
24	EF-AHU, STATUS	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
25	SF-AHU, SUPPLY FAN VFD COMMAND			X				X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
26	SF-AHU, SUPPLY FAN VFD SPEED, HZ		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
27	SF-AHU, STATUS	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
28	SPS-SA, SUPPLY AIR DUCT STATIC PRESSURE SENSOR		X			X		X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
29	SUPPLY AIR SMOKE DETECTOR	X						X	X	X	
30	RETURN AIR SMOKE DETECTOR	X						X	X	X	
31	TS-1, SUPPLY AIR TEMPERATURE		X					X	X	X	
32	TS-2, RETURN AIR TEMPERATURE		X					X		X	
33	TS-3, MIXED AIR TEMPERATURE		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
34	TS-4, DX COIL DISCHARGE AIR TEMPERATURE		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
35	TS-5, ELECTRIC COIL DISCHARGE AIR TEMPERATURE		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
36	TS-OA, OUTSIDE AIR TEMPERATURE		X					X		X	
37	UNOCCUPIED COOLING/HEATING			X				X		X	
38	AHU-, HOT GAS REHEAT STATUS	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
39	EPO, OUTDOOR AIR EMERGENCY ISOLATION	X						X	X	X	

NOTES:
1. DEVICE PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE WITH BAS TRADE PARTNER IF THE SUBMITTED EQUIPMENT CANNOT PROVIDE THIS POINT/DEVICE. BAS TRADE PARTNER MUST PROVIDE POINT AT NO ADDITIONAL COST TO THE GOVERNMENT.
2. COORDINATE WITH EQUIPMENT MANUFACTURER DURING SEQUENCE AND CONTROLS PROGRAMING, AND START-UP.



A4 AHU-1 CONTROLS SCHEMATIC
NTS

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEB
DRAWN BY: JHW
CHECKED BY: CAH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

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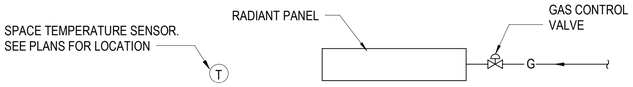
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PROJECT 87447
HVAC CONTROLS

STATE OF MARYLAND
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SHEET ID
M-503

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F1 RADIANT PANEL CONTROLS SCHEMATIC
NTS

GAS-FIRED RADIANT PANEL (RP-1) SEQUENCE OF OPERATIONS

GENERAL:

1. RADIANT PANELS MUST MAINTAIN OCCUPIED SPACE TEMPERATURE SETPOINT OF 59 F (ADJ) AND UNOCCUPIED SPACE TEMPERATURE SETPOINT OF 50 F (ADJ). OCCUPIED AND UNOCCUPIED MODES ARE ADJUSTABLE AND MUST BE PROGRAMMED BY USER THROUGH THE DDC SYSTEM.
2. ON A DROP IN SPACE TEMPERATURE OF 2 F BELOW HEATING DESIGN SETPOINT, AS SENSED BY ASSOCIATED SPACE TEMPERATURE SENSOR, PACKAGED CONTROLS OPEN GAS CONTROL VALVE OPEN, AS REQUIRED, TO MAINTAIN THE SPACE TEMPERATURE AND ENERGIZE RADIANT PANEL. WHEN SPACE TEMPERATURE IS SATISFIED, PACKAGED CONTROLS CLOSE GAS CONTROL VALVE AND DE-ENERGIZE THE RADIANT PANEL.

ALARMS

1. WHEN HEATER HAS BEEN ENABLED AND SPACE TEMPERATURE REMAINS BELOW TEMPERATURE SEPTOINT FOR LONGER THAN 10 MINUTES (ADJ), AN AUDIBLE ALARM MUST BE ISSUED AT THE CONTROLLER.
2. WHEN HEATER HAS BEEN ENABLED AND STATUS IS NOT CONFIRMED, AN AUDIBLE ALARM MUST BE ISSUED AT THE CONTROLLER.

RADIANT PANEL CONTROL POINTS LIST

POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS BI	AI	BO	AO	SOFTWARE POINTS AV	BV	TREND	ALARM	SHOWN ON GRAPHIC
1	SPACE TEMPERATURE		X			X		10 MINUTES		X
2	HEATER STATUS	X							X	X
3	HEATER ENABLE/DISABLE			X				COV	X	X

DOMESTIC HOT WATER SYSTEM SEQUENCE OF OPERATIONS

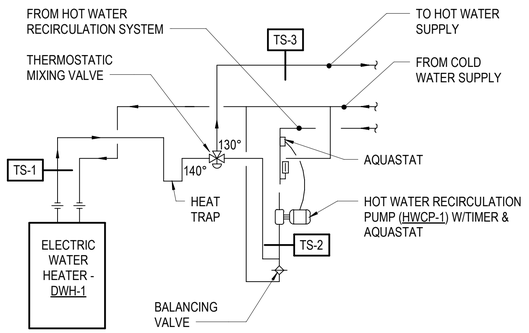
GENERAL:

1. THE DOMESTIC WATER HEATER SYSTEM IS MADE OF ELECTRIC WATER HEATER (DWH-1), MIXING VALVE AND RECIRCULATING HOT WATER PUMP (HWCP-1).
2. THE DOMESTIC WATER HEATER STORAGE TANK MUST BE MAINTAINED AT A MINIMUM OF 140 DEG F, AS SENSED BY TS-1.
3. THE THERMOSTATIC MASTER MIXING VALVE MIXES THE 140 DEG F HOT WATER TO 130 DEG F HOT WATER TO THE DISTRIBUTION SYSTEM, AS SENSED BY TS-3.
4. THE DOMESTIC HOT WATER RECIRCULATION SYSTEM RECIRCULATES THE DOMESTIC HOT WATER FROM THE FARTHEST PLUMBING FIXTURE BACK TO THE WATER HEATER, WITH AN AQUA STAT SET FOR MINIMUM OF 125 DEG F. WHEN DOMESTIC HOT WATER RECIRCULATION SET POINT FALLS BELOW 125 DEG F, ENERGIZE THE RECIRCULATION PUMP AND OPERATE UNTIL SET POINT TEMPERATURE IS ACHIEVED, AS SENSED BY TS-2.
5. LAVATORY FAUCETS AND HAND SINK FAUCETS ARE PROVIDED WITH INDIVIDUAL MIXING VALVES AT EACH FAUCET TO PROVIDE A MAXIMUM WATER TEMPERATURE OF 110°F.

MONITORING AND ALARMS

GENERATE AN ALARM AT THE DDC AND GUI UNDER ANY OF THE FOLLOWING CONDITIONS:

1. HWCP-1 FAILURE TO START/STOP
2. DWH-1 STORAGE TANK TEMPERATURE FALLS BELOW 140 DEG F.
3. HOT WATER DISTRIBUTION SYSTEM TEMPERATURE FALLS BELOW 120 DEG F.



A1 CONTROL DIAGRAM - ELECTRIC DOMESTIC WATER HEATER SYSTEM
NTS

DOMESTIC WATER SYSTEM POINTS LIST

POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS BI	AI	BO	AO	SOFTWARE POINTS AV	BV	TREND	ALARM	SHOW ON GRAPHIC
1	DWH-1 STORAGE TANK TEMPERATURE, TS-1		X			X		X	X	X
2	DWH-1 STATUS	X						X	X	X
3	DOMESTIC HOT WATER DISTRIBUTION SUPPLY TEMPERATURE, TS-3		X			X		X	X	X
4	DOMESTIC HOT WATER RECIRCULATION SYSTEM TEMPERATURE, TS-2		X			X		X	X	X
5	HWCP-1 STATUS	X						X	X	X

VAV BOX SEQUENCE OF OPERATIONS

GENERAL:

1. UNIT DESCRIPTION: VARIABLE AIR VOLUME (VAV) BOX WITH ELECTRIC HEATING COIL.
2. OPERATE VAV BOXES IN OCCUPIED, UNOCCUPIED, MORNING WARM-UP, AND MORNING COOL DOWN MODE BASED ON THE STATUS OF THEIR ASSOICATED AIR HANDLING UNIT.
3. AHU OPERATING STATUS AND SCHEDULES, TEMPERATURE SETPOINTS, STATIC PRESSURE SETPOINTS AND EQUIPMENT ALARM CONDITIONS MUST BE MONITORED AND CONTROLLED THROUGH THE DDC SYSTEM GRAPHICAL USER INTERFACE (GUI) . OPERATOR MUST ALSO BE ABLE TO PERFORM ALL MONITORING AND CONTROL DIRECTLY FROM THE WORKSTATION LOCATED IN MECH/PLUMB 127.
4. ZONE TEMPERATURE SETPOINTS: INITIAL TEMPERATURE SETPOINTS MUST BE AS FOLLOWS FOR ALL ZONES:
   OCCUPIED COOLING (ADJ): 78 DEG F
   OCCUPIED HEATING (ADJ): 68 DEG F
   UNOCCUPIED COOLING: 85 DEG F
   UNOCCUPIED HEATING: 55 DEG F
5. EACH VAV BOX MAXIMUM AND MINIMUM AIRFLOWS MUST BE AS SCHEDULED ON M-701.
6. PROVIDE TEMPERATURE SENSOR, TS-1, WITH SETPOINT ADJUSTMENT AND MANUAL OCCUPANCY OVERRIDE TIMER SWITCH. OVERRIDE TIME MUST BE 30 MINUNTES (ADJ). MANUALLY ADJUSTED OVERRIDE TIMER MUST BE USED TO RESTORE VAV TO OCCUPIED MODE FOR THE TIME PERIOD SELECTED AT THE SWITCH. ONCE THE TIME PERIOD HAS EXPIRED, VAV MUST RETURN TO NORMALLY SCHEDULED OPERATION.
7. PROVIDE TEMPERATURE SENSOR FOR EACH ROOM, TS-#-A AND TS-#B (REFER TO ROOMS WITH TWO TEMPERATURE SENSORS). PROVIDE EACH TEMPERATURE SENSOR WITH SETPOINT ADJUSTMENT AND MANUAL OCCUPANCY OVERRIDE TIMER SWITCH. OVERRIDE TIME MUST BE 30 MINUNTES (ADJ). MANUALLY ADJUSTED OVERRIDE TIMER MUST BE USED TO RESTORE VAV TO OCCUPIED MODE FOR THE TIME PERIOD SELECTED AT THE SWITCH. ONCE THE TIME PERIOD HAS EXPIRED, VAV MUST RETURN TO NORMALLY SCHEDULED OPERATION.

OCCUPIED MODE: (EXCEPT ROOMS LISTED UNDER ROOMS WITH TWO TEMPERATURE SENSORS)

1. THE VAV BOX DAMPER MUST MODULATE BETWEEN THE MINIMUM AIR VOLUME SETPOINT AND THE MAXIMUM AIR VOLUME SETPOINT TO MAINTAIN THE ZONE TEMPERATURE SETPOINT.
2. UPON A FALL IN TEMPERATURE BELOW THE ZONE TEMPERATURE SETPOINT AS DESIGNATED BY ADJUSTABLE (ADJ) TEMPERATURE SENSOR, THE DAMPER MUST MAINTAIN MINIMUM AIRFLOW SETPOINT. UPON A FURTHER FALL IN SPACE TEMPERATURE BELOW THE ZONE TEMPERATURE SETPOINT, THE HEATING COIL MUST ENERGIZE AND MODULATE UNDER SCR CONTROL AS REQUIRED TO MAINTAIN ZONE TEMPERATURE SETPOINT AND TERMINAL UNIT AIR VOLUME MUST INCREASE TO HEATING AIRFLOW SETPOINT.
3. UPON A RISE IN TEMPERATURE ABOVE THE ZONE TEMPERATURE SETPOINT, THE DAMPER MUST MAINTAIN AIRFLOW AT THE SCHEDULED MINIMUM AIRFLOW AND THE HEATING COIL MUST DE-ENERGIZE. UPON A FURTHER RISE IN SPACE TEMPERATURE ABOVE THE ZONE TEMPERATURE SETPOINT, THE DAMPER MODULATES OPEN, AS REQUIRED, TO MAINTAIN ZONE TEMPERATURE SETPOINT AND TERMINAL UNIT AIR VOLUME MUST INCREASE TO ITS MAXIMUM AIRFLOW SETPOINT.

UNOCCUPIED MODE:

1. WHEN THE ASSOCIATED AIR HANDLING UNIT (AHU) IS DE-ENERGIZED, ELECTRIC COIL MUST BE DE-ENERGIZED.
2. WHEN AT LEAST TWO ZONE TEMPERATURES RISE ABOVE UNOCCUPIED COOLING SETPOINT, SEND A CALL FOR COOLING TO THE ASSOCIATED AHU.
3. WHEN AT LEAST TWO ZONE TEMPERATURES FALL BELOW THE UNOCCUPIED HEATING SETPOING, SEND A CALL FOR HEATING TO THE ASSOCIATED AHU.
4. OPERATE THE VAV TERMINAL PER OCCUPIED SEQUENCE TO MAINTAIN UNOCCUPIED ZONE TEMPERATURE SETPOINTS.

OCCUPANCY SENSORS:

1. WHEN THE OCCUPANCY SENSOR SWITCH INDICATES THAT THE SPACE HAS BEEN UNPOPULATED FOR 10 MINUTES CONTINUOUSLY DURING OCCUPIED MODE, HEATING SETPOINT DECREASES BY 2 DEG F (ADJ) AND COOLING SETPOING INCREASES BY 2 DEG F (ADJ).
2. WHEN THE OCCUPANCY SENSOR SWITCH INDICATES THAT THE SPACE HAS BEEN POPULATED FOR 5 MINUTES CONTINUOUSLY, THE HEATING AND COOLING SETPOINTS MUST BE STORED TO THEIR PREVOIUS VALUES.

SAFETY AND ALARMS:

1. HIGH-TEMPERATURE ALARM (OCCUPIED MODE): GENERATE AN ALARM IF ANY ZONE IS 3 DEG F (ADJ), TS-1 AT 81 DEG F, ABOVE COOLING SETPOINT FOR 10 MINUTES.
2. LOW-TEMPERATURE ALARM (OCCUPIED MODE): GENERATE AN ALARM IF ANY ZONE IS 3 DEG F (ADJ), TS-1 AT 65 DEG F, BELOW HEATING SETPOINT FOR 10 MINUTES.
3. SUPPRESS ZONE TEMPERATURE ALARMS WHILE ZONE IS IN WARM-UP OR COOLDOWN MODES.
4. GENERATE AN ALARM AT THE DDC AND GUI WHEN D-1 FAILS TO OPEN/CLOSE.
5. GENERATE AN ALARM AT THE DDC AND GUI WHEN D-1 FAILS TO ENABLE/DISABLE.

MORNING WARMUP MODE:

1. THE DDC SYSTEM MUST INITIALIZE MORNING WARMUP MODE AT A TIME DETERMINE BY THE OPTIMIZATION PROGRAM TO ALLOW SPACES TO BE HEATED TO OCCUPIED SPACE TEMPERATURE BY THE START OF THE OCCUPIED PERIOD.
2. OPEN THE PRIMARY AIR DAMPER TO THE HEATING AIRFLOW AND OPERATE HEATING COIL TO BRING ZONE TEMPERATURE UP TO THE OCCUPIED HEATING SETPOINT.
3. OPERATE UNIT PER OCCUPIED MODE WHEN ZONE TEMPERATURE REACHES OCCUPIED HEATING SETPOINT.
4. CLOSE THE PRIMARY DAMPER IF THE ZONE TEMPERATURE EXCEEDS THE OCCUPIED COOLING SETPOINT WHILE THE ASSOCIATED AIR HANDLING UNIT IS STILL IN MORNING WARMUP MODE.

MORNING COOLDOWN MODE:

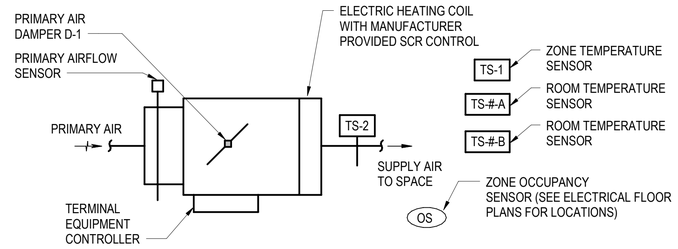
1. THE DDC SYSTEM MUST INITIALIZE MORNING COOLDOWN MODE AT A TIME DETERMINE BY THE OPTIMIZATION PROGRAM TO ALLOW SPACES TO BE COOLED TO OCCUPIED SPACE TEMPERATURE BY THE START OF THE OCCUPIED PERIOD.
2. THE VAV BOX DAMPER MUST BE FULLY OPEN FOR MAXIMUM AIRFLOW TO BRING ZONE TEMPERATURE DOWN TO SETPOINT.
3. INDEX UNITS TO OCCUPIED MODE WHEN SPACE TEMPERATURES REACH THE OCCUPIED SETPOINT.

ROOMS WITH TWO TEMPERATURE SENSORS:

1. PROVIDE A ROOM TEMPERATURE SENSOR FOR EACH OF THE FOLLOWING SPACES SERVED BY A SINGLE VAV BOX:
   A. OFFICE 104 - VAV-07
   B. OFFICE 105 - VAV-07
   C. OFFICE 109 - VAV-10
   D. OFFICE 110 - VAV-10
1. THE VAV BOX SERVING ROOMS WITH TWO TEMPERATURE SENSORS OPERATES BASED ON AVERAGING THE TEMPERATURE AT EACH ROOM TO MEET TEMPERATURE SETPOINT (REFER TO ZONE TEMPERATURE SETPOINTS). TEMPERATURE SETPOINTS MUST BE ADJUSTABLE BY THE DDC VIA THE GUI. THE VAV BOX DAMPER MUST MODULATE BETWEEN THE MINIMUM AIR VOLUME SETPOINT AND THE MAXIMUM AIR VOLUME SETPOINT TO MAINTAIN THEZONE TEMPERATURE SETPOINT.
2. UPON A FALL IN TEMPERATURE BELOW THE ZONE TEMPERATURE SETPOINT AS DESIGNATED BY THE DDC, THE DAMPER MUST MAINTAIN MINIMUM AIRFLOW SETPOINT. UPON A FURTHER FALL IN THE AVERAGE OF SPACE TEMPERATURE BELOW THE ZONE TEMPERATURE SETPOINT, THE HEATING COIL MUST ENERGIZE AND MODULATE UNDER SCR CONTROL AS REQUIRED TO MAINTAIN ZONE TEMPERATURE SETPOINT AND TERMINAL UNIT AIR VOLUME MUST INCREASE TO HEATING AIRFLOW SETPOINT.
3. UPON A RISE IN TEMPERATURE ABOVE THE ZONE TEMPERATURE SETPOINT, THE DAMPER MUST MAINTAIN AIRFLOW AT THE SCHEDULED MINIMUM AIRFLOW AND THE HEATING COIL MUST DE-ENERGIZE. UPON A FURTHER RISE IN THE AVERAGE OF SPACE TEMPERATURE ABOVE THE ZONE TEMPERATURE SETPOINT, THE DAMPER MODULATES OPEN, AS REQUIRED, TO MAINTAIN ZONE TEMPERATURE SETPOINT AND TERMINAL UNIT AIR VOLUME MUST INCREASE TO ITS MAXIMUM AIRFLOW SETPOINT.

VAV BOX WITH ELECTRIC REHEAT CONTROL POINTS LIST

POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS BI	AI	BO	AO	SOFTWARE POINTS AV	BV	ALARM	TREND	SHOW ON GRAPHIC
1	TS-1 ZONE TEMPERATURE		X					X	X	X
2	TS-2 DISCHARGE AIR TEMPERATURE		X						X	X
3	SPACE TEMPERATURE SETPOINT					X			X	X
4	PRIMARY AIRFLOW,		X						X	X
5	PRIMARY AIR DAMPER POSITION, D-1		X					X	X	X
6	PRIMARY AIR DAMPER COMMAND, D-1				X				X	X
7	TS-1 OVERRIDE SWITCH	X							X	X
8	OCCUPANCY SENSOR	X							X	X
9	TS-#-A ROOM TEMPERATURE		X					X	X	X
10	TS-#-B ROOM TEMPERATURE		X					X	X	X
11	TS-#-A OVERRIDE SWITCH	X							X	X
12	TS-#-B OVERRIDE SWITCH	X							X	X
13	HEATING COIL STATUS	X								X
14	HEATING COIL (SCR) ENABLE/DISABLE			X				X		X
15	HEATING COIL (SCR) POSITION		X						X	X
16	INLET VELOCITY PRESSURE		X						X	X



A7 CONTROL DIAGRAM - VAV BOX
NTS

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEB
DRAWN BY: LEB
CHECKED BY: CAH
SUBMITTED BY: FIRST TITLE
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC CONTROLS

STATE OF MARYLAND
JOHN ALAN HOSEY
No. 30302
PROFESSIONAL ENGINEER

SHEET ID
M-504

READY TO ADVERTISE

AHU-2 SYSTEM SEQUENCE OF OPERATIONS

GENERAL

1. AHU-2 IS A PACKAGED RTU WITH DX COOLING, HEAT PUMP TECHNOLOGY WITH SINGLE COMPRESSOR (DIGITAL SCROLL), SUPPLEMENTAL ELECTRIC HEAT, ECM CONTROLLED SUPPLY AND EXHAUST FANS (SF-AHU & EF-AHU), AND FILTER SECTIONS.

2. AHU-2 MUST BE PROVIDED WITH FACTORY PACKAGED CONTROLS. CONTROLS MUST BE FULLY PROGRAMMABLE, CUSTOMIZABLE, AND LONWORKS COMMUNICATION (NATIVE OR VIA GATEWAY). UNIT CONTROLLER MUST INTERFACE WITH BUILDING DDC AND GUI WORKSTATION. BUILDING WORKSTATION MUST HAVE FULL MONITORING CAPABILITIES FROM THE GUI AT MECH/PLUMB 127 LOCATED IN THE BUILDING.

3. SUPPLY FAN (SF-AHU) CONTROL: WHEN THE DDC SYSTEM CALLS FOR AHU-2 TO START, THE CONTROL SEQUENCE MUST BE ENABLED. THE SF-AHU MUST MODULATE TO MAINTAIN THE STATIC PRESSURE SETPOINT OF 0.40 IN WG (ADJ). UPON A LOSS OF AIRFLOW, THE SF-AHU MUST AUTOMATICALLY RESTART.

4. WHEN AHU-2 IS DE-ENERGIZED, UNIT DAMPERS RETURN TO THEIR NORMAL POSITIONS, FANS STOP, AND HEATING AND COOLING EQUIPMENT DE-ENERGIZES.

5. AHU-2 OPERATING STATUS AND SCHEDULES, TEMPERATURE SETPOINTS, STATIC PRESSURE SETPOINTS AND EQUIPMENT ALARM CONDITIONS MUST BE MONITORED THROUGH THE DDC SYSTEM . OPERATOR MUST BE ABLE TO PERFORM ALL MONITORING AND ADJUSTING DIRECTLY FROM THE WORKSTATION LOCATED IN MECH/PLUMB 127.

6. INITIAL TEMPERATURE SETPOINTS MUST BE AS FOLLOWS:
   OCCUPIED COOLING (ADJ): 78 DEG F
   OCCUPIED HEATING (ADJ): 68 DEG F
   UNOCCUPIED COOLING: 85 DEG F
   UNOCCUPIED HEATING: 60 DEG F

7. PROVIDE TEMPERATURE SENSOR, TS-1, WITH MANUAL OCCUPANCY OVERRIDE TIMER SWITCH. OVERRIDE TIME MUST BE 30 MINUNTES (ADJ). MANUALLY ADJUSTED OVERRIDE TIMER MUST BE USED TO RESTORE AHU-2 TO OCCUPIED MODE FOR THE TIME PERIOD SELECTED AT THE SWITCH. ONCE THE TIME PERIOD HAS EXPIRED, AHU-2 MUST RETURN TO NORMALLY SCHEDULED OPERATION.

OCCUPIED MODE

1. OUTSIDE AIR (OA) DAMPER D-OA AND RETURN AIR (RA) DAMPER D-RA MUST OPEN. WHEN D-OA PROVES TO BE OPEN, SUPPLY FAN SF-AHU AND EXHAUST FAN EF-2 START AND RUN CONTINUOUSLY (UNDER PACKAGED CONTROL FOR SF-AHU). SF-AHU MUST GRADUALLY INCREASE FAN SPEED TO ITS CONTROLLED POSITION. THE DDC SYSTEM MUST MONITOR DUCT STATIC PRESSURE AS MEASURED BY SYSTEM STATIC PRESSURE SENSOR SPS-SA AND CONTROL THE SPEED OF SF-AHU AND POSITION OF D-RA DAMPER TO MAINTAIN STATIC PRESSURE SETPOINT (0.40" WG, ADJ). FINAL CONTROL SETPOINT MUST BE AS DETERMINED BY PROJECT TEST & BALANCE CONTRACTOR AND MUST BE THE LOWEST VALUE REQUIRED FOR EACH VAV BOX TO DELIVER ITS DESIGN FLOW AT SYSTEM MAXIMUM FLOW.

2. DDC SYSTEM MUST OPEN D-OA AND MODULATE THE DAMPERS TO MAINTAIN SYSTEM OA FROM FALLING BELOW MINIMUM VALUE, AS SCHEDULED ON M-700 SERIES, THROUGH THE OA MEASUREMENT STATION AFMS-7. WHEN D-OA IS FULLY OPEN AND OA IS STILL BELOW SETPOINT, MODULATE D-RA TOWARDS THE CLOSED POSITION AND ENERGIZE EF-AHU, AS REQUIRED TO MEET OA SETPOINT. SEE AHU EXHAUST FAN AND AIR BALANCE SCHEDULES FOR VALUES AND RANGE.

3. PACKAGED CONTROLS MODULATE COMPRESSOR, AS REQUIRED TO MAINTAIN SCHEDULED UNIT RETURN AIR TEMPERATURE (78 DEG F, ADJ) AS SENSED BY TS-2.

4. WHEN RETURN AIR TEMPERATURE FALLS BELOW SETPOINT, THE PACKAGED CONTROLS SIGNALS AHU-2 TO UTILIZE HEAT PUMP, AS REQUIRED, TO MAINTAIN SCHEDULED UNIT RETURN AIR TEMPERATURE (68 DEG F, ADJ). IN CASE OF HEAT PUMP UNABLE TO MEET SUPPLY AIR SETPOINT, MODULATE ELECTRIC HEAT TO MAINTAIN THE SUPPLY AIR TEMPERATURE SET POINT TO 95 DEG F (ADJ), AS SENSED BY TS-5.

5. DAMPER OPENS AND EXHAUST FAN (EF-2) REMAINS ENERGIZED WHENEVER AHU-2 IS ON OCCUPIED MODE. AFTER SF-AHU HAS BEEN STARTED, START EF-AHU. THE EF-AHU MUST MODULATE TO MAINTAIN A FLOW OUTPUT SETPOINT THAT IS EQUAL TO OA REQUIREMENT MINUS THE SUMMATION OF PRESSURIZATION AND EF-2 EXHAUST AIRFLOW, AS INDICATED ON THE AIR BALANCE SCHEDULE.

DEHUMIDIFICATION WITH HOT GAS REHEAT MODE

1. DEHUMIDIFICATION OCCURS ONLY WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 40 DEG F (ADJ) OR BELOW 70 DEG F (ADJ). DEHUMIDIFICATION IS NOT ALLOWED IF THERE IS AN ACTIVE CALL FOR HEATING . IF DURING A DEHUMIDIFICATION CYCLE, THERE IS A CALL FOR HEATING, THE DEHUMIDIFICATION CYCLE IS TERMINATED.

2. ON A CALL FOR DEHUMIDIFICATION, THE HOT GAS REHEAT VALVE IS ENERGIZED AND THE COMPRESSOR IS TURNED ON. WHEN THE HUMIDITY CONTROL SETPOINT (55% RH, ADJ) IS SATISFIED, AS SENSED BY H-1, THE VALVE IS DE-ENERGIZED AND THE COMPRESSOR IS TURNED OFF. IN THE EVENT THERE IS A CALL FOR COOLING, THE HOT GAS REHEAT VALVE IS DE-ENERGIZED AND THE COMPRESSOR CONTINUES TO RUN.

ECONOMIZER MODE

1. WHEN THE RA ENTHALPY (CALCULATED FROM THE RA HUMIDITY AND TEMPERATURE SENSORS) IS GREATER THAN THE OA ENTHALPY (CALCULATED FROM THE OA HUMIDITY AND TEMPERATURE SENSORS), THE DDC SYSTEM MUST UTILIZE ENTHALPY ECONOMIZER LOGIC TO MODULATE D-OA OPEN AND D-RA CLOSED TO MAINTAIN SCHEDULED RETURN AIR TEMPERATURE SETPOINT (78 DEG F, ADJ) AS SENSED BY TS-2.

2. ECONOMIZER CONTROLS MUST OVERRIDE OUTSIDE AIR DAMPER CONTROLS. HEATING AND COOLING MUST BE DE-ENERGIZED.

3. WHEN D-OA IS FULLY OPEN AND SUPPLY AIR TEMPERATURE INCREASES ABOVE SUPPLY AIR SETPOINT BY 2 DEG F FOR 15 MINUTES, MECHANICAL COOLING MUST BE ENERGIZED TO MODULATE COMPRESSOR TO MAINTAIN SUPPLY AIR SETPOINT.

4. WHEN OUTSIDE AIR ENTHALPY IS GREATER THAN THE RETURN AIR ENTHALPY, D-OA MUST CLOSE TO ITS MINIMUM POSITION, AND COMPRESSOR MUST MODULATE TO MAINTAIN SETPOINT.

5. WHEN D-OA IS AT MINIMUM POSITION AND SUPPLY AIR TEMPERATURE FALLS BELOW SETPOINT BY 2 DEG F FOR 15 MINUTES, ECONOMIZER OPERATION MUST END, COMPRESSOR AND ELECTRIC HEAT MODULATE AS REQUIRED TO MAINTAIN SUPPLY AIR SETPOINT.

6. EXHAUST AIR DAMPER D-EA CLOSES AND EF-AHU DE-ENERGIZES. UNIT SWITCHES BACK TO OCCUPIED MODE.

7. EXHAUST AIR FAN (EF-AHU) CONTROL (ECONOMIZER MODE ONLY): AFTER SF-AHU HAS BEEN STARTED, START EF-AHU. THE EF-AHU MUST MODULATE TO MAINTAIN A FLOW OUTPUT SETPOINT THAT IS EQUAL TO OA REQUIREMENT MINUS THE SUMMATION OF PRESSURIZATION AND EF-2 EXHAUST AIRFLOW, AS INDICATED ON THE AIR BALANCE SCHEDULE

SAFETIES AND ALARMS

1. GENERATE A GENERAL TROUBLE ALARM AT THE DDC IF THE UNIT FAILS TO START UPON COMMAND.

2. WHEN THE SUPPLY AIR DUCT HIGH LIMIT STATIC PRESSURE SENSOR SENSES STATIC PRESSURE EXCEEDING THE 2.0 IN WG. SETPOINT (ADJUSTABLE), DE-ENERGIZE SF-AHU AND EF-AHU, GENERATE AN ALARM TO THE DDC SYSTEM AND AT THE GUI. AUTOMATICALLY RESTART SYSTEM AFTER ONE MINUTE DELAY. SECOND FAILURE IN ONE HOUR MUST REQUIRE A MANUAL RESET.

3. WHEN THE LOW LIMIT STATIC PRESSURE SENSOR SENSES STATIC PRESSURE BELOW THE NEGATIVE 2.0 IN WG. SETPOINT (ADJUSTABLE), DE-ENERGIZE SF-AHU, AND EF-AHU, GENERATE AN ALARM TO THE DDC SYSTEM AND AT THE GUI. AUTOMATICALLY RESTART SYSTEM AFTER ONE MINUTE DELAY. SECOND FAILURE IN ONE HOUR MUST REQUIRE A MANUAL RESET.

4. GENERATE AN ALARM AT THE DDC SYSTEM AND COMMAND AHU TO DE-ENERGIZE UPON DETECTION OF LOW SYSTEM TEMPERATURE (45 DEG F, ADJ) AS SENSED BY TS-1.

5. GENERATE AN ALARM AT THE DDC SYSTEM WHEN DIFFERENTIAL PRESSURE SENSOR, DPS, DETECTS DIRTY FILTER CONDITION (0.50" WG, ADJ).

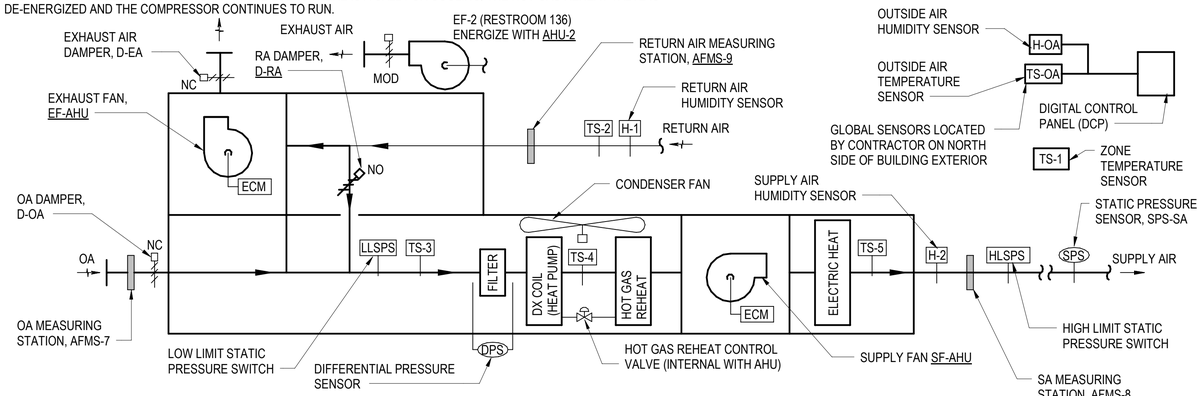
6. IF EITHER D-OA OR D-EA DO NOT PROVE TO OPEN UPON A CALL FOR HEATING OR COOLING, SF-AHU, AND EF-AHU MUST NOT ENERGIZE AND GENERATE AN ALARM AT THE DDC SYSTEM.

UNOCCUPIED MODE

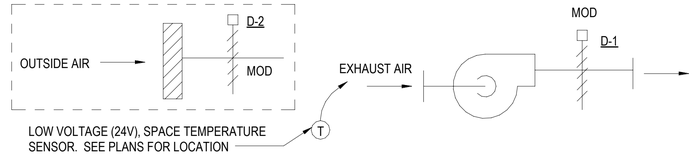
1. DDC MUST MONITOR THE RETURN AIR TEMPERATURE AT TS-2.

2. IF TS-2 TEMPERATURE FALLS BELOW THE SETBACK HEATING SPACE TEMPERATURE SET POINT OF 60 DEG F (ADJ), THE UNIT MUST BE ACTIVATED WITH D-OA AND D-EA FULLY CLOSED AND D-RA FULLY OPEN. THE PACKAGED CONTROLS SIGNALS AHU-2 TO UTILIZE HEAT PUMP, AS REQUIRED, TO MAINTAIN 60 DEG F TEMPERATURE, AS SENSED BY TS-2. IN CASE OF HEAT PUMP IS UNABLE TO MEET TEMPERATURE SETPOINT, MODULATE ELECTRIC HEAT TO MEET TS-2. THE UNIT MUST OPERATE IN THIS MANNER UNTIL TS-2 TEMPERATURE IS AT LEAST 5 DEG F ABOVE THE SETBACK HEATING SPACE TEMPERATURE SET POINT.

3. IF TS-2 TEMPERATURE RISES ABOVE THE SETBACK COOLING SPACE TEMPERATURE SET POINT OF 85 DEG F (ADJ.), THE UNIT MUST BE ACTIVATED WITH D-OA AND D-EA FULLY CLOSED AND D-RA FULLY OPEN. PACKAGED CONTROLS MUST MODULATE COMPRESSOR TO MAINTAIN 85 DEG F AIR (ADJ), AS SENSED BY TS-2. THE UNIT MUST OPERATE IN THIS MANNER UNTIL TS-2 TEMPERATURE IS AT LEAST 5 DEG F BELOW THE SETBACK COOLING SPACE TEMPERATURE SET POINT.



A1 AHU-2 CONTROLS SCHEMATIC
NTS



F8 EXHAUST FAN CONTROL
NTS

EXHAUST FAN SEQUENCE OF OPERATIONS

GENERAL

1. SEE AIR HANDLING UNIT CONTROL SCHEMATICS TO DETERMINE WHICH AHU INDIVDUAL EXHAUST FANS ARE INTERLOCKED WITH.

2. EF-1 AND EF-2: WHEN ASSOCIATED AHU IS IN OCCUPIED MODE, OPEN DAMPER D-1. WHEN D-1 IS PROVEN OPEN BY LIMIT SWITCH (LS), ENERGIZE FAN AND RUN CONTINUOUSLY.

3. EF-3: WHEN SPACE TEMPERATURE EXCEEDS 85 F (ADJ), OPEN DAMPER D-1 AND OUTDOOR AIR DAMPER D-2. WHEN DAMPERS D-1 AND D-2 ARE PROVEN OPEN BY LIMIT SWITCH (LS), ENERGIZE FAN AND RUN CONTINUOUSLY.

4. EF-3: DE-ENERGIZE FAN AND CLOSE DAMPER D-1 AND OUTSIDE AIR DAMPER D-2 WHEN SPACE TEMPERATURE FALLS BELOW 80 F (ADJ).

5. WHEN H-O-A SWITCH IS IN "HAND" POSITION, OPEN DAMPERS D-1 AND D-2 (WHEN APPLICABLE). WHEN DAMPERS D-1 AND D-2 (WHEN APPLICABLE) ARE PROVEN OPEN BY LIMIT SWITCH (LS), ENERGIZE FAN AND RUN CONTINUOUSLY.

GENERAL (CONTINUED)

6. WHEN H-O-A SWITCH IS IN "OFF" POSITION, DE-ENERGIZE FAN AND CLOSE DAMPERS D-1 AND D-2 (WHEN APPLICABLE).

7. EMERGENCY VENTILATION SHUTDOWN SWITCH SHALL SHUTDOWN EXHAUST FANS IN ANY MODE OF OPERATION AND CLOSE OUTDOOR AIR INTAKE AND EXHAUST AIR DAMPERS.

MONITORING AND ALARMS

GENERATE AN ALARM AT THE DDC AND GUI UNDER ANY OF THE FOLLOWING CONDITIONS:

1. EF- FAILURE TO START/STOP. MOD-1 AND MOD-2 FULLY CLOSE.

2. MOD-1 FAILURE TO OPEN/CLOSE.

3. MOD-2 FAILURE TO OPEN/CLOSE.

EXHAUST FAN CONTROL POINTS

POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS BI	AI	BO	AO	SOFTWARE POINTS AV	BV	TREND	ALARM	SHOWN ON GRAPHIC
1	EF- FAN PROOF	X								X
2	EF- FAN S/S			X				COV	X	X
3	MOD-1 EA DAMPER POSITION	X								X
4	MOD-1 EA DAMPER OPEN/CLOSE			X				COV	X	X
5	MOD-2 OA DAMPER POSITION	X								X
6	MOD-2 OA DAMPER OPEN/CLOSE			X				COV	X	X

AHU-2 CONTROL POINTS (NOTE 2)

POINT I.D. #	POINT DESCRIPTION	HARDWARE POINTS BI	AI	BO	AO	SOFTWARE POINTS AV	BV	TREND	ALARM	SHWON ON GRAPHIC	NOTES
1	AFMS-7, OUTSIDE AIRFLOW		X			X		X	X	X	
2	AFMS-8, SUPPLY AIRFLOW		X			X		X	X	X	
3	AFMS-9, RETURN AIRFLOW		X			X		X	X	X	
4	AHU-, ENABLE/DISABLE			X				X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
5	AHU-, MECHANICAL COOLING STATUS	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
6	D-EA, EXHAUST AIR DAMPER COMMAND				X			X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
7	D-EA, EXHAUST AIR DAMPER POSITION		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
8	D-OA, OUTSIDE AIR DAMPER COMMAND				X			X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
9	D-OA, OUTSIDE AIR DAMPER POSITION		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
10	D-RA, RTEURN AIR DAMPER COMMAND				X			X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
11	D-RA, RETRUN AIR DAMPER POSITION		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
12	DPS FILTER MANTENANCE REQUIRED	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
13	EF-2, EXHAUST FAN COMMAND			X							
14	EF-2, EXHAUST FAN STATUS	X									
15	H-1, RETURN AIR HUMIDITY		X					X		X	
16	H-OA, OUTSIDE AIR HUMIDITY		X					X		X	
17	HIGH LIMIT STATIC PRESSURE SENSOR	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
17	H-2, SUPPLY AIR HUMIDITY		X					X		X	
18	LOW LIMIT STATIC PRESSURE SENSOR	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
19	EF-AHU, EXHAUST AIR FAN COMMAND			X				X		X	FROM PACKAGED CONTROLS (NOTE 1)
20	EF-AHU, EXHAUST AIR FAN SPEED, HZ		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
21	EF-AHU, EXHAUST AIR FAN STATUS	X									FROM PACKAGED CONTROLS (NOTE 1)
22	SF-AHU, SUPPLY AIR FAN COMMAND			X				X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
23	SF-AHU, SUPPLY AIR FAN SPEED, HZ		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
24	SF-AHU, SUPPLY AIR FAN STATUS	X									FROM PACKAGED CONTROLS (NOTE 1)
25	SPS-SA, SUPPLY AIR DUCT STATIC PRESSURE SENSOR		X			X		X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
26	TS-1, ZONE TEMPERATURE		X					X	X	X	
27	TS-1, OVERRIDE SWITCH	X									
28	TS-2, RETURN AIR TEMPERATURE		X					X	X	X	FROM PACKAGED CONTROLS (NOTE 1)
29	TS-3, MIXED AIR TEMPERATURE		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
30	TS-4, COOLING COIL DISCHARGE AIR TEMPERATURE		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
31	TS-5, ELECTRIC COIL DISCHARGE AIR TEMPERATURE		X					X		X	FROM PACKAGED CONTROLS (NOTE 1)
32	TS-OA, OUTSIDE AIR TEMPERATURE		X					X		X	
33	AHU-, HOT GAS REHEAT STATUS	X						X	X	X	FROM PACKAGED CONTROLS (NOTE 1)

NOTES:
1. DEVICE PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE WITH BAS TRADE PARTNER IF THE SUBMITTED EQUIPMENT CANNOT PROVIDE THIS POINT/DEVICE. BAS TRADE PARTNER MUST PROVIDE POINT AT NO ADDITIONAL COST TO THE GOVERNMENT.

2. COORDINATE WITH EQUIPMENT MANUFACTURER DURING SEQUENCE AND CONTROLS PROGRAMING, AND START-UP.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEB
DRAWN BY: JHW
CHECKED BY: CAH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

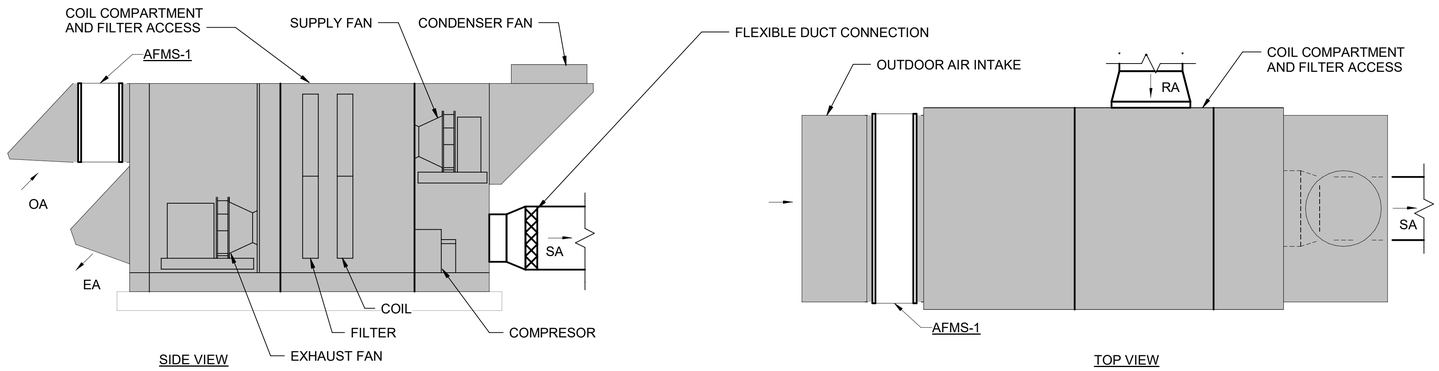
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC CONTROLS

STATE OF MARYLAND — CHRIS ALAN HOSTETTER — No. 22009 — PROFESSIONAL ENGINEER

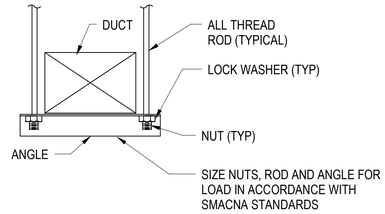
SHEET ID
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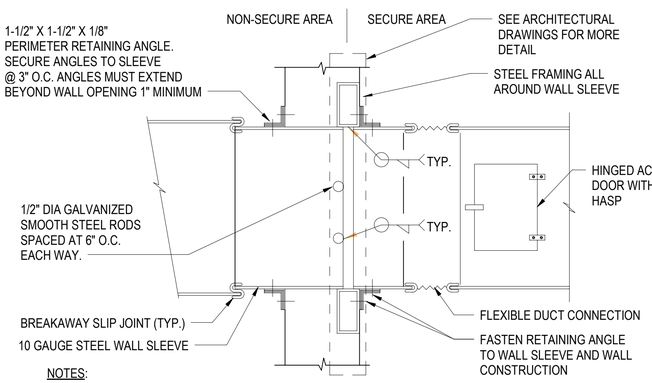


NOTES:
1. REFER TO STRUCTURAL DRAWINGS FOR CONCRETE EQUIPMENT PAD DETAILS.
2. PROVIDE A MINIMUM OF 20-IN STRAIGHT DUCT IN THE OA INTAKE FOR AFMS INSTALLATION.

E1 AHU-1 DETAIL
NTS

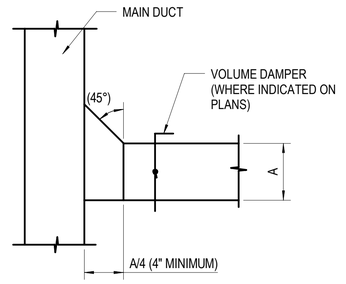


E8 LOWER DUCT ATTACHMENT
NTS

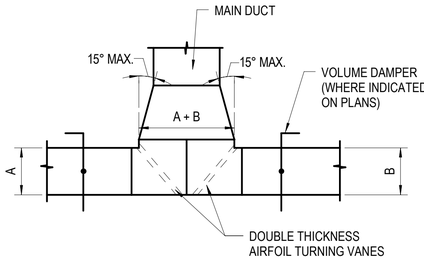


NOTES:
1. EXTEND DUCT INSULATION TO EDGE OF WALL AND VAPOR SEAL COMPLETELY.
2. SECURITY BARS REQUIRED FOR SECURE AREA PENETRATIONS GREATER THAN 96 SQ. IN.

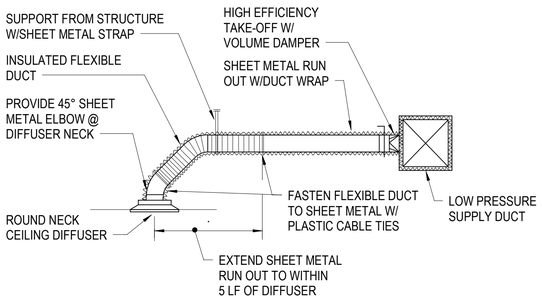
D1 DUCT SECURITY BARS
NTS



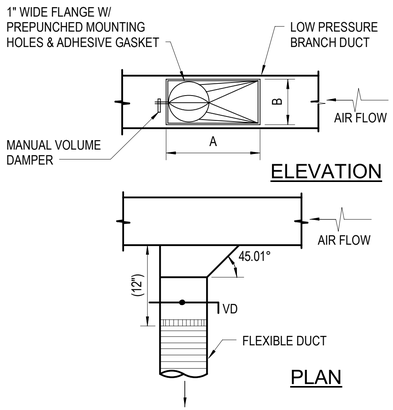
D5 MINOR DUCT BRANCH
NTS



D8 RECTANGULAR ELBOW DUCT TEE
NTS

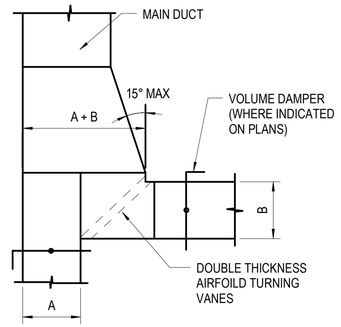


A1 BRANCH DUCT- ROUND NECK DIFFUSER
NTS



SCHEDULES		
NECK SIZE	DUCT OPENING A X B	MINIMUM BRANCH DUCT DEPTH
6"	9"X5"	6"
8"	12"X6"	8"
10"	14"X8"	10"
12"	16"X10"	12"

A5 HIGH EFFICIENCY TAKEOFFS
NTS



A8 MAJOR DUCT BRANCH
NTS

US Army Corps of Engineers ®

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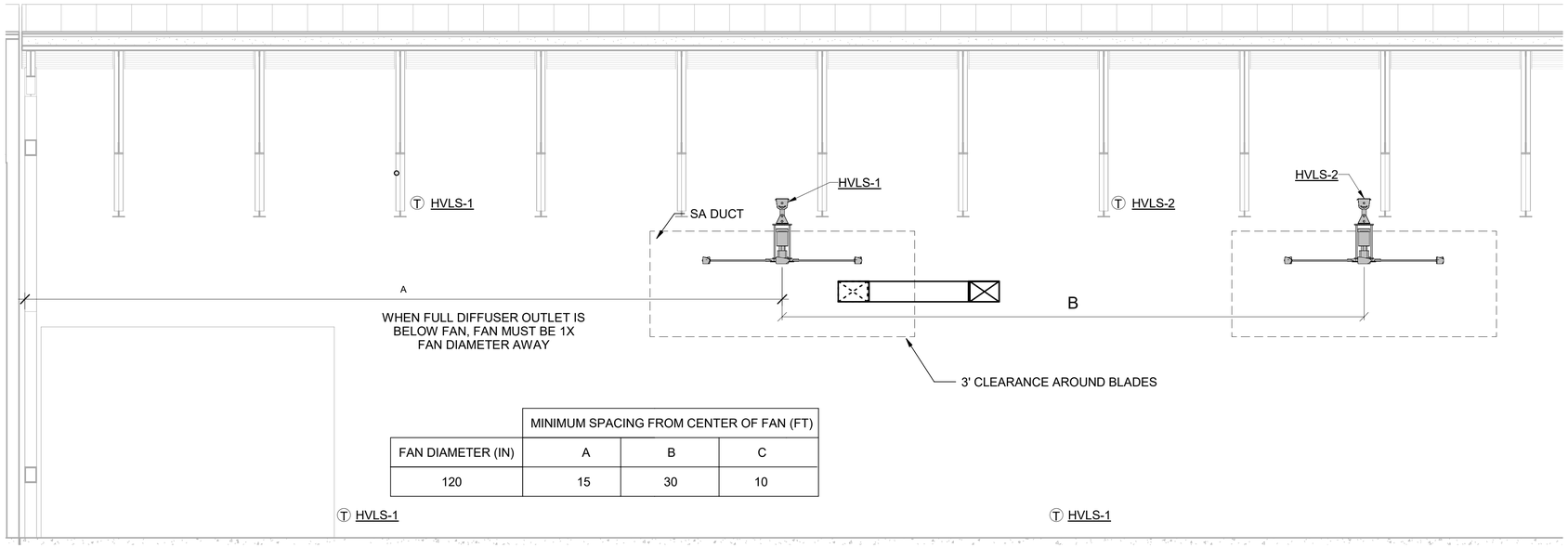
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
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PROJECT 87447
HVAC DETAILS

STATE OF MARYLAND — LEWIS ALAN HOSEY — No. 22009 — PROFESSIONAL ENGINEER

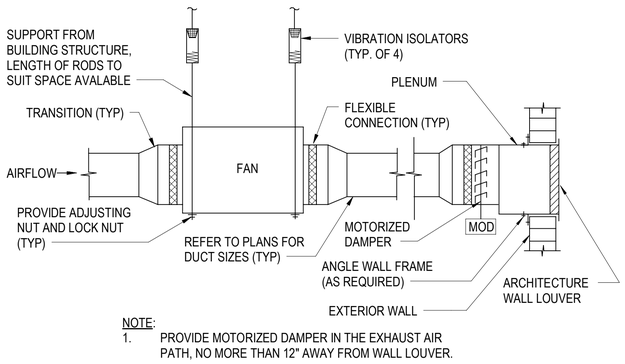
SHEET ID
M-601

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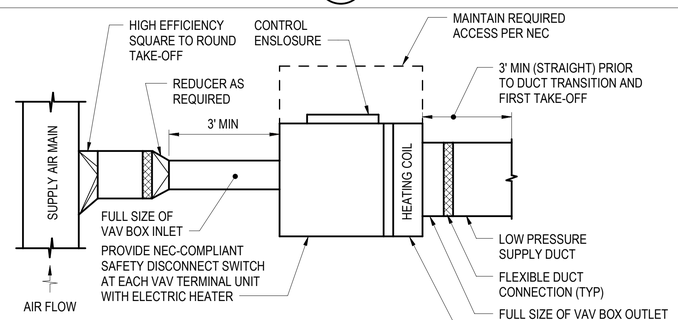
FAN DIAMETER (IN)	MINIMUM SPACING FROM CENTER OF FAN (FT) A	B	C
120	15	30	10

E4 HVLS FAN DETAIL
NTS



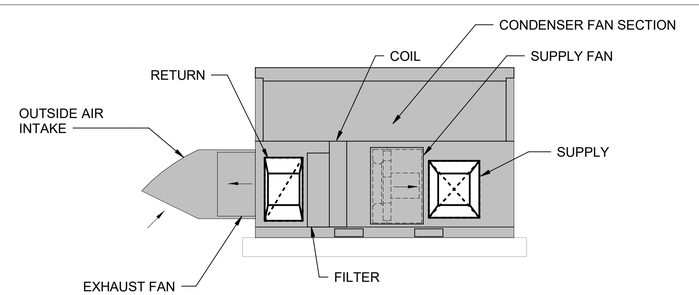
NOTE:
1. PROVIDE MOTORIZED DAMPER IN THE EXHAUST AIR PATH, NO MORE THAN 12" AWAY FROM WALL LOUVER.

C1 CENTRIFUGAL IN-LINE FAN
NTS



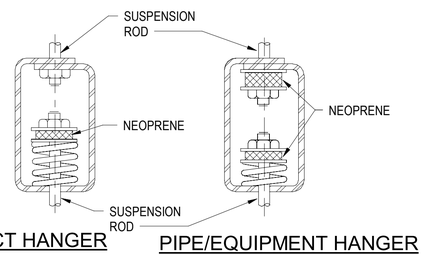
NOTES:
1. REFER TO SCHEDULES FOR INLET AND OUTLET VAV DUCT SIZES.
2. PROVIDE DDC CONTROLLER AT VAV BOX ELEVATION (AFF) AND WITHIN ONE FOOT OF VAV SURROUNDING FOR ACCESS.

C4 VAV BOX WITH ELECTRIC (SCR) REHEAT
NTS

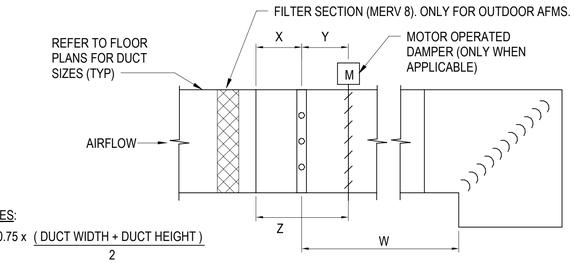


NOTES:
1. REFER TO S-SERIES DRAWINGS FOR CONCRETE EQUIPMENT PAD DETAILS.
2. PROVIDE A MINIMUM OF 20-IN STRAIGHT DUCT IN THE OA INTAKE FOR AFMS INSTALLATION.

C8 AHU-2 DETAIL
NTS

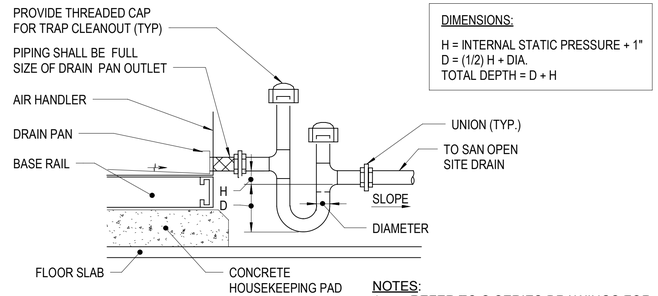


A1 SPRING ISOLATORS
NTS



NOTES:
W = 0.75 x (DUCT WIDTH + DUCT HEIGHT) / 2
X = 12" MINIMUM
Y = 6" MINIMUM
Z = 18" MINIMUM

A4 AIRFLOW MEASURING STATION
NTS



NOTES:
1. REFER TO S-SERIES DRAWINGS FOR CONCRETE EQUIPMENT PAD DETAILS.

A8 DRAW-THRU UNIT A/C CONDENSATE TRAP
NTS

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
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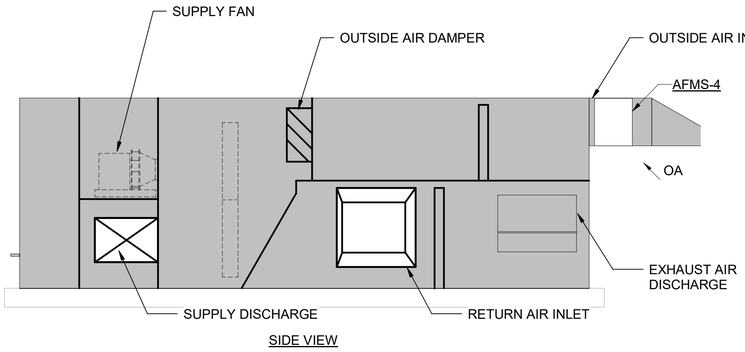
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HVAC DETAILS

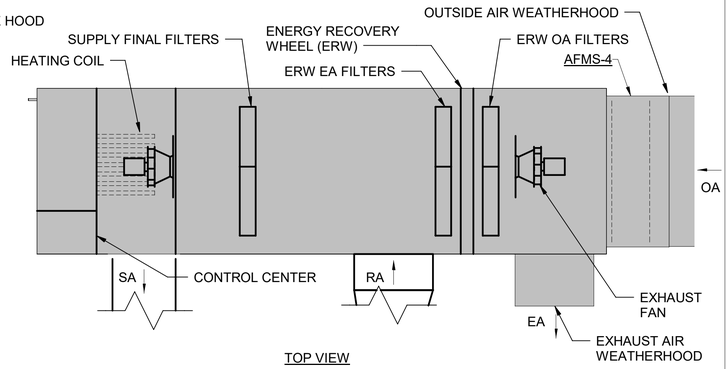
STATE OF MARYLAND
THOMAS ALAN HOSKINS
No. 22009
PROFESSIONAL ENGINEER

SHEET ID
M-602

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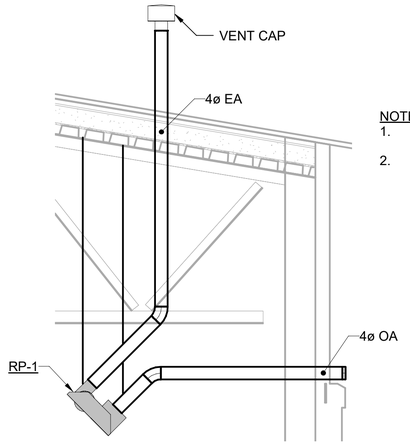
SIDE VIEW



TOP VIEW

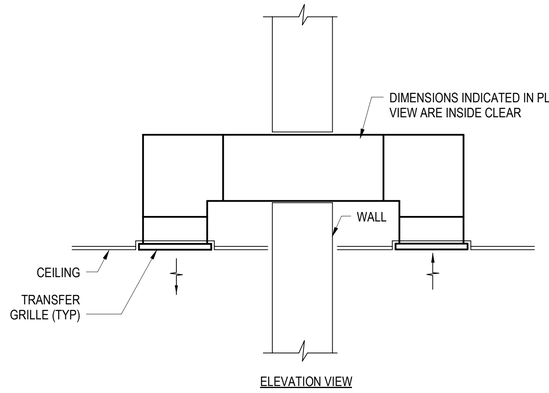
NOTES:
1. REFER TO STRUCTURAL DRAWINGS FOR CONCRETE EQUIPMENT PAD DETAILS.
2. PROVIDE A MINIMUM OF 20-IN STRAIGHT DUCT IN THE OA INTAKE FOR AFMS INSTALLATION.

E1 HV-1 DETAIL
NTS



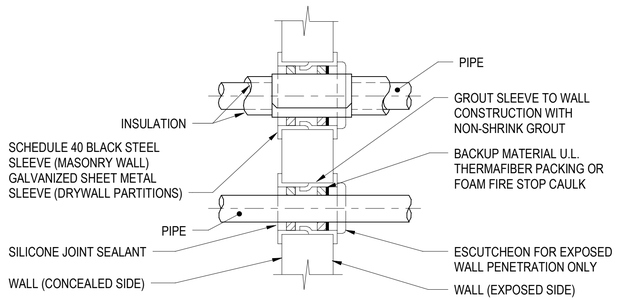
NOTES:
1. SUPPORTED BY HANGER RODS ATTACHED TO CEILING.
2. PROVIDE OUTLET VENT CAP FOR EXHAUST AIR.

C4 RADIANT PANEL DETAIL
NTS



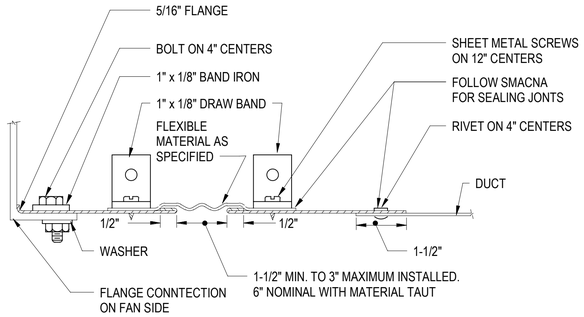
ELEVATION VIEW

C8 DUCTED TRANSFER DETAIL
NTS

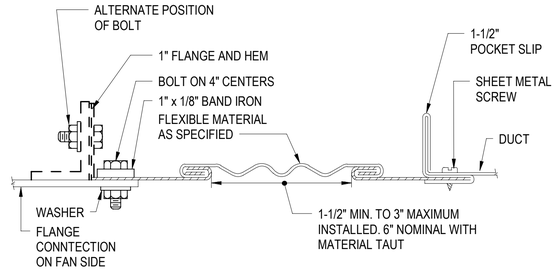


NOTES:
1. AT THE CONTRACTORS' OPTION A U.L. LISTED/APPROVED FIRE STOP PIPE SLEEVE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL.
2. FOR EXISTING POURED CONCRETE WALLS, CORE DRILLED OPENINGS DO NOT REQUIRE PIPE SLEEVES.

A1 PIPE SLEEVE THRU WALL
NTS



A4 ROUND FLEXIBLE CONNECTION
NTS



NOTE:
1. EXAMPLE ABOVE IS FOR TWO DIFFERENT PRESSURE CLASSES. FOLLOW APPRORIATE SEALING REQUIREMENTS PER SMACNA STANDARDS.

A8 RECTANGULAR FLEXIBLE CONNECTION
NTS

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
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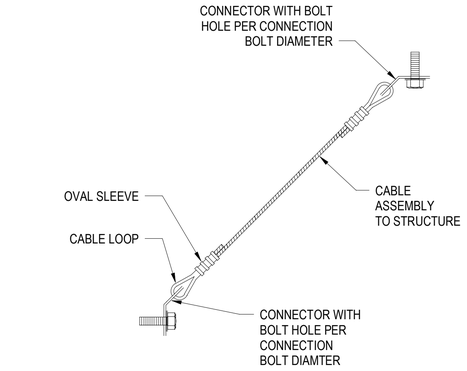
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
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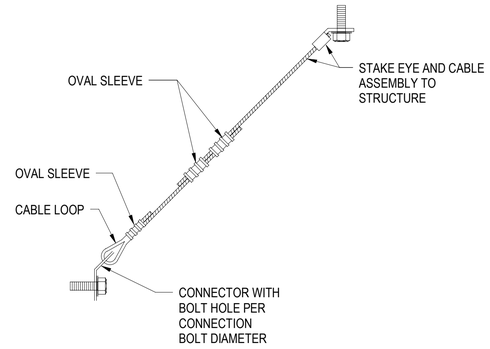
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CRAIG ALAN HOSELTON
No. 23093
PROFESSIONAL ENGINEER

SHEET ID
M-603

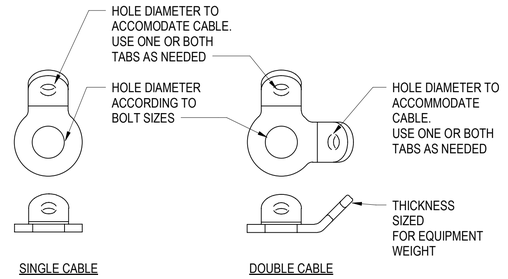
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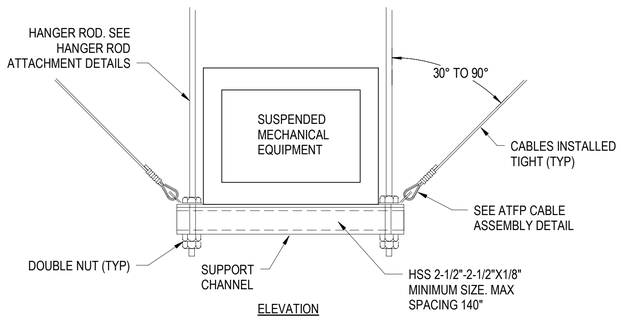
F1 ATFP CABLE BRACING ASSEMBLY DETAIL
NTS

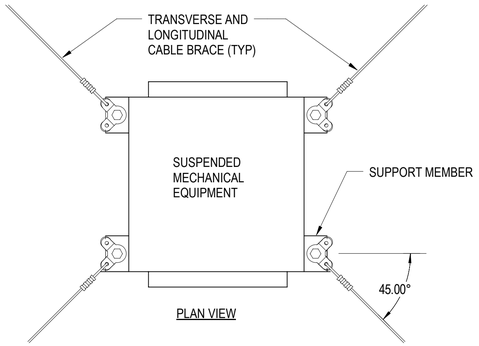


F4 ATFP CABLE BRACING ASSEMBLY DETAIL
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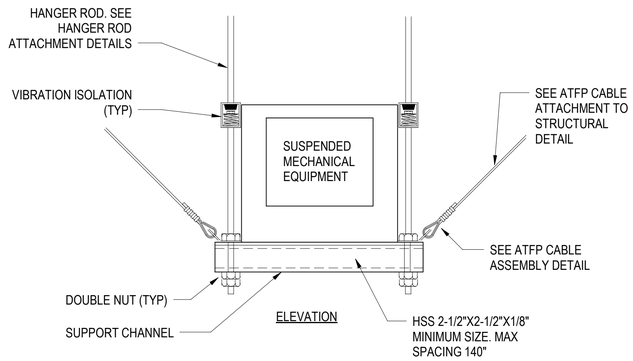


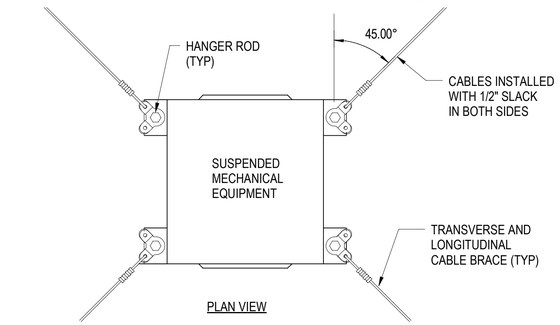
F7 ATFP BRACING CONNECTOR DETAIL
NTS



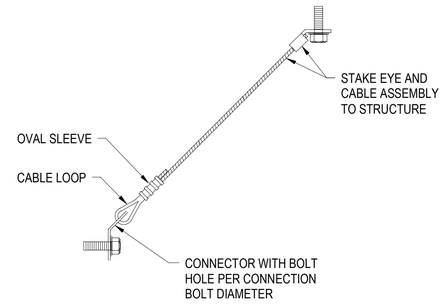


A1 ATFP BRACING FOR SUSPENDED MECH. EQUIP. INTERNAL VIBRATION ISOLATORS
NTS

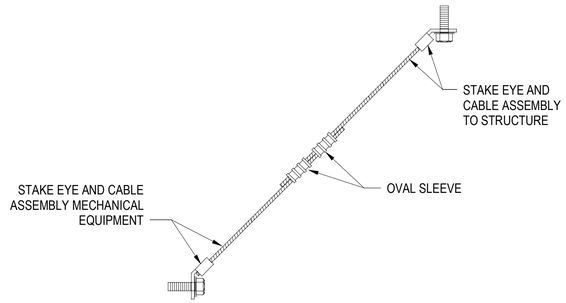




A4 ATFP BRACING FOR SUSPENDED MECH. EQUIP. W/ EXTERNAL VIBRATION ISOLATORS
NTS



C7 ATFP CABLE BRACING ASSEMBLY DETAIL
NTS



A7 ATFP CABLE BRACING ASSEMBLY DETAIL
NTS

US Army Corps of Engineers ®

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FORT LIBERTY, NORTH CAROLINA
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PROJECT 87447
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STATE OF MARYLAND
DERRICK ALAN HOISETH
No. 22008
PROFESSIONAL ENGINEER

SHEET ID
M-604

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HEATING & VENTILATING UNIT

UNIT ID	SERVES	SUPPLY FAN AIRFLOW (CFM)	SUPPLY FAN MIN OA (CFM)	SUPPLY FAN TSP (IN WG)	SUPPLY FAN ESP (IN WG)	SUPPLY FAN RPM	SUPPLY FAN FAN TYPE	SUPPLY FAN ELECTRICAL HP	SUPPLY FAN ELECTRICAL VOLTS	SUPPLY FAN ELECTRICAL PH	EXHAUST FAN AIRFLOW (CFM)	EXHAUST FAN TSP (IN WG)	EXHAUST FAN ESP (IN WG)	EXHAUST FAN RPM	EXHAUST FAN FAN TYPE	EXHAUST FAN ELECTRICAL HP	EXHAUST FAN ELECTRICAL VOLTS	EXHAUST FAN ELECTRICAL PH	GAS-FIRED FURNACE CFM	GAS-FIRED FURNACE INPUT (MBH)	GAS-FIRED FURNACE OUTPUT (MBH)	GAS-FIRED FURNACE EAT (F)	GAS-FIRED FURNACE LAT (F)	GAS-FIRED FURNACE MAX. CAPACITY (MBH)	GAS-FIRED FURNACE MIN. CAPACITY (MBH)	GAS-FIRED FURNACE MIN INLET PRESS. (IN WG)	GAS-FIRED FURNACE EFFICIENCY (%)	GAS-FIRED FURNACE TURNDOWN	FILTERS PRE-FILTER (MERV)	FILTERS FINAL FILTER (MERV)	FILTERS THICK (IN) - EA	ELECTRICAL FLA (A)	ELECTRICAL MCA (A)	ELECTRICAL MOCP (A)	NOTES
HV-1	WAREHOUSE 129 / GIP WAREHOUSE 134	2500	2500	2.73	1.25	1713	PLENUM	3	460	3	2250	2.16	0.75	1588	PLENUM	2	460	3	2500	200	160	22	59	160	10	7	80	16:1	8	13	2	8.5	7.2	15	1,2,3,4, 5,6,7,8

NOTES:

1. INSTALL DUCT SMOKE DETECTORS FURNISHED BY FIRE ALARM CONTRACTOR. SEE FIRE ALARM SHEETS FOR COORDINATION AND DETAILS.
2. PROVIDE MOTORIZED OUTSIDE DAMPER WITH THE OUTDOOR AND EXHAUST AIR DUCT CONNECTIONS. DAMPER SHALL BE LOW LEAK DAMPERS WITH CLASS 1A LEAKAGE.
3. PROVIDE ENERGY RECOVERY WHEEL WITH OUTDOOR AIR MEASURING STATIONS ON THE SUPPLY AND EXHAUST.
4. PROVIDE ENERGY RECOVERY DEVICE WITHIN THE UNIT. SEE ENERGY RECOVERY SCHEDULE.

NOTES (CONTINUED):

5. HEATING IS SCHEDULED FOR PEAK LOADS AND WITHOUT ENERGY RECOVERY DEVICE. PROVIDE HEATING COIL WITHIN THE HVU BASED ON THESE CONDITIONS.
6. UNIT MAXIMUM ALLOWABLE DIMENSIONS ARE 15'-0" LONG BY 4'-4" WIDE BY 6'-0" TALL, INCLUDING A 6-IN HIGH BASE RAIL. CRITICAL CLEARANCES ARE 48" FOR COIL-PULL SIDE AND 42" ALL OTHER SIDES.
7. GAS FURNACE SHALL BE COMPLETELY MODULATING BETWEEN MIN AND MAX CAPACITY.
8. PROVIDE TWO FILTER SECTIONS FOR PRE-FILTERS AND ONE FILTER SECTION FOR FINAL FILTER. REFER TO E1/M-603.

ENERGY RECOVERY SCHEDULE - HEATING ONLY

UNIT ID	AIRFLOW (CFM)	OUTDOOR AIR EAT DB (F)	OUTDOOR AIR EAT WB (F)	SUPPLY AIR SA DB (F)	SUPPLY AIR SA WB (F)	RETURN AIR RA DB (F)	RETURN AIR RA WB (F)	EXHAUST AIR EA DB (F)	EXHAUST AIR EA WB (F)	EFFECTIVENESS SENSIBLE (%)	MAX APD (IN WG)	ELECTRICAL HP	ELECTRICAL VOLTS	ELECTRICAL PH
HV-1	2250	22	18	54	45	72	56	37	32	69	0.77	1	460	3

SPLIT SYSTEM SCHEDULE

UNIT ID	CORRESPONDING OUTDOOR UNIT	LOCATION (INDOOR UNIT)	MOUNTING HEIGHT (FT)	SUPPLY FAN CFM	SUPPLY FAN WATTS	SUPPLY FAN VOLTS / PH	COOLING COIL (DX) TOTAL (MBH)	COOLING COIL (DX) SENSIBLE (MBH)	COOLING COIL (DX) EAT DB (F)	COOLING COIL (DX) EAT WB (F)	HEATING COIL TOTAL (MBH)	HEATING COIL EAT DB (F)	CONDENSING UNIT REFRIGERANT	CONDENSING UNIT RATED CAPACITIES @ 95 DEG OA (MBH)	CONDENSING UNIT NO. OF COMPRESSORS	CONDENSING UNIT RLA / COMPRESSOR	CONDENSING UNIT NO. OF FANS	CONDENSING UNIT FLA / FAN	ELECTRICAL DATA MCA	ELECTRICAL DATA MOCP	ELECTRICAL DATA VOLTS	ELECTRICAL DATA PH	EFFICIENCY (SEER)	SCCR	NOTES
ACU-1	ACCU-1	SIPR 120	9	455	30	208/1	12.0	12	80.0	67.0	0	0	R410A	12	1	7	1	.2	11	28	208	1	21	5	1,2,3,4,5
ACU-2	ACCU-2	VENDOR / ESS 121	9	455	30	208/1	12.0	12	80.0	67.0	0	0	R410A	12	1	7	1	.2	11	28	208	1	21	5	1,2,3,4,5
ACU-3	ACCU-3	ELECTRICAL 128	9	455	30	208/1	12.0	12	80.0	67.0	0	0	R410A	12	1	7	1	.2	11	28	208	1	21	5	1,2,3,4,5
ACU-4	ACCU-4	TELECOM 131	9	455	30	208/1	18.0	18	80.0	67.0	0	0	R410A	18	1	7	1	0.5	11	28	208	1	20	5	1,2,3,4,5
ACU-5	ACCU-5	VAULT 130	10	300	50	208/1	9.0	9	80.0	67.0	7	17	R410A	9	1	6	1	.5	9	15	208	1	22	5	1,2,4,5,6

NOTES:

1. INDOOR UNIT POWER SOURCE COMES FROM OUTDOOR UNIT.
2. PROVIDE INDOOR UNIT WITH VISUAL AND DDC ALARMS FOR UNIT FAILURE AND MONITORING TO INTERFACE BETWEEN PACKAGED CONTROLS AND BAS, VIIA LONWROKS COMMUNICATION (NATIVE OR VIA GATEWAY).
3. WALL MOUNTED INDOOR UNIT.

NOTES (CONITNUED):

4. PROVIDE CONDENSATE REMOVAL PUMP, 5 GPH MAX FLOW AND 33' MAX. DISCHARGE OR APPROVED EQUAL. POWERED WITHIN THE UNIT.
5. MOUNT INDOOR UNIT TIGHT TO THE STRUCTURE ABOVE WHILE MAINTAINING MANUFACTURER'S RECOMMENDED CLEARANCES FOR MAINTENANCE.
6. PROVIDE INDOOR UNIT HUNG FROM CEILING.

AIR HANDLING UNIT SCHEDULE

UNIT ID	SUPPLY FAN AIRFLOW (CFM)	SUPPLY FAN MIN OA (CFM)	SUPPLY FAN TSP (IN WG)	SUPPLY FAN ESP (IN WG)	SUPPLY FAN RPM	SUPPLY FAN MIN FAN DIA. (IN)	SUPPLY FAN FAN TYPE	SUPPLY FAN ELECTRICAL HP	SUPPLY FAN ELECTRICAL VOLTS	SUPPLY FAN ELECTRICAL PH	EXHAUST FAN AIRFLOW (CFM)	EXHAUST FAN ESP (IN WG)	EXHAUST FAN RPM	EXHAUST FAN MIN FAN DIA. (IN)	EXHAUST FAN FAN TYPE	EXHAUST FAN HP	EXHAUST FAN VOLTS	EXHAUST FAN PHASE	COOLING COIL TOTAL (MBH)	COOLING COIL SENSIBLE (MBH)	COOLING COIL EAT DB (F)	COOLING COIL EAT WB (F)	COOLING COIL LAT DB (F)	COOLING COIL LAT WB (F)	COOLING COIL MAX APD (IN WG)	COOLING COIL MAX FACE VEL. (FPM)	HOT-GAS REHEAT TOTAL (MBH)	HOT-GAS REHEAT EAT DB (F)	HOT-GAS REHEAT EAT WB (F)	HOT-GAS REHEAT LAT DB (F)	HOT-GAS REHEAT LAT WB (F)
AHU-1	2100	570	2.30	1.60	1911	14	PLENUM	2.0	460	3	1600	0.25	1919	14	PLENUM	1.5	460	3	86	62	81.8	670.0	55.0	53.7	0.17	210	47	54.6	54.3	75.9	62.4
AHU-2	470	140	1.10	0.65	1237	19	PLENUM	1.0	208	3	370	0.50	919	10	PLENUM	1.0	208	3	20	14	82.6	67.6	55.0	53.8	0.04	100	12	44.7	44.5	70.0	55.6

AIR HANDLING UNIT SCHEDULE (CONTINUED)

UNIT ID	HEATING COIL HEAT PUMP CFM	HEATING COIL HEAT PUMP TOTAL (MBH)	HEATING COIL HEAT PUMP EAT (F)	HEATING COIL HEAT PUMP LAT (F)	HEATING COIL HEAT PUMP MAX APD (IN WG)	HEATING COIL HEAT PUMP MAX FACE VEL. (FPM)	HEATING COIL AUXILARY ELECTRIC COIL CFM	HEATING COIL AUXILARY ELECTRIC COIL TOTAL (KW)	HEATING COIL AUXILARY ELECTRIC COIL EAT (F)	HEATING COIL AUXILARY ELECTRIC COIL LAT (F)	HEATING COIL AUXILARY ELECTRIC COIL MAX APD (IN WG)	FILTERS PRE FILTER THICK (IN)	FILTERS PRE FILTER TYPE	FILTERS PRE FILTER MAX APD (IN WG)	FILTERS FINAL THICK (IN)	FILTERS FINAL TYPE	FILTERS FINAL MAX APD (IN WG)	COMPRESSOR DATA REFRIG.	COMPRESSOR DATA QUANTITY	COMPRESSOR DATA LRA (EACH)	CONDENSER DATA QTY OF FANS	CONDENSER DATA FLA (EACH)	ELECTRICAL MCA (A)	ELECTRICAL MOCP (A)	ELECTRICAL SCCR (KA)	NOTES
AHU-1	2100	32.5	54	69	0.17	210	1265	12	41	71	0.05	2	MERV 8	0.18	4	MERV 13	0.18	R-410A	1	75	1	2	42	45	5	1,2,3,4,5,6
AHU-2	470	20.0	54	94	0.04	100	235	5	41	95	0.05	2	MERV 8	0.35	2	MERV 13	0.35	R-410A	1	12	1	3	40	45	5	1,2,3,5,7

NOTES:

1. PROVIDE DIGITAL SCROLL COMPRESSOR; HEAT PUMP (FOR MORNING WARM-UP/COOLDOWN) AND HOT GAS REHEAT REFRIGERATION CONTROLS.
2. EXHAUST FAN AIRFLOW INDICATES MAXIMUM AIRFLOW DURING ECONOMIZER MODE WHERE CONDITIONING OCCURS WITH 100% OUTSIDE AIR. REFER TO M-500 SERIES FOR ECONOMIZER MODE CONTROLS.
3. ELECTRIC HEATING COIL CAPACITY IS SIZED FOR HEATING AT MINIMUM SUPPLY AIRFLOW.
4. INSTALL DUCT SMOKE DETECTORS FURNISHED BY FIRE ALARM CONTRACTOR. SEE FIRE ALARM SHEETS FOR COORDINATION AND DETAILS.
5. PROVIDE MOTORIZED OUTSIDE DAMPER WITH THE OUTDOOR AND EXHAUST AIR CONNECTIONS. DAMPER SHALL BE LOW LEAK DAMPERS WITH CLASS 1A LEAKAGE.
6. UNIT MAXIMUM ALLOWABLE DIMENSIONS ARE 14'-0" LONG BY 5'-4" WIDE BY 6'-2" TALL, INCLUDING A 8-IN HIGH BASE RAIL. CRITICAL CLEARANCES ARE 56" FOR COIL-PULL SIDE AND 48" ALL OTHER SIDES.
7. UNIT MAXIMUM ALLOWABLE DIMENSIONS ARE 6'-10" LONG BY 3'-10" WIDE BY 4'-2" TALL, INCLUDING A 3-IN HIGH BASE RAIL. CRITICAL CLEARANCES ARE 48" FOR COIL-PULL SIDE AND 36" ALL OTHER SIDES.

VAV SCHEDULE - ELEC REHEAT

UNIT ID	AREA SERVED (ROOMS)	BOX INLET DIA (IN)	BOX OUTLET (IN) WIDTH	BOX OUTLET (IN) HEIGHT	SP LOSS (IN. WG.)	AIRFLOW (CFM) MAX.	AIRFLOW (CFM) MIN.	HEATING COIL HEATING CFM	HEATING COIL CAPACITY (MBH)	HEATING COIL EAT (F)	HEATING COIL LAT (F)	HEATING COIL MAX APD (IN. WG)	HEATING COIL ELECTRICAL DATA VOLTS	HEATING COIL ELECTRICAL DATA PH	HEATING COIL ELECTRICAL DATA KW	NOTES
VAV-01	116/122	6	12	8	0.35	215	150	150	6.6	55	95	0.10	208	1	2	1,2,3
VAV-02	111/119	5	12	8	0.35	220	125	125	4.0	55	84	0.10	208	1	2	1,2,3
VAV-03	118	5	12	8	0.35	215	85	85	2.6	55	83	0.10	208	1	1	1,2,3
VAV-04	113	6	12	8	0.35	320	130	130	3.2	55	78	0.10	208	1	2	1,2,3
VAV-05	108	5	12	8	0.35	185	85	85	2.4	55	81	0.10	208	1	1	1,2,3
VAV-06	106/107	6	12	8	0.35	325	120	120	4.8	55	92	0.10	208	1	2	1,2,3
VAV-07	104/105	5	12	8	0.35	240	85	85	3.5	55	93	0.10	208	1	1	1,2,3
VAV-08	103	4	12	8	0.35	170	70	70	2.5	55	88	0.10	208	1	1	1,2,3
VAV-09	102/112	5	12	8	0.35	225	85	85	2.2	55	79	0.10	208	1	1	1,2,3
VAV-10	109/110	4	12	8	0.35	160	70	70	2.2	55	84	0.10	208	1	1	1,2,3
VAV-11	114	4	12	8	0.35	140	80	80	1.8	55	76	0.10	208	1	1	1,2,3
VAV-12	114	5	12	8	0.35	210	85	85	3.2	55	89	0.10	208	1	1	1,2,3

NOTES:

1. PROVIDE VAV BOX WITH TIME PROPORTIONAL ELECTRIC HEAT CONTROL (SILICON CONTROLLED RECTIFIER - SCR).
2. PROVIDE NEC-COMPLAINT SAFETY DISCONNECT AT EACH HEATING COIL.
3. STATIC PRESSURE LOSS INCLUDES PRESSURE DROP ACROSS ELECTRIC HEATING COIL AND INTERNAL VAV BOX LOSSES.
4. AHU-1 AND VAV SYSTEM OPERATEW W/ 75% OCCUPANCY DIVERSITY.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEB
DRAWN BY: JHW
CHECKED BY: CAH
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC SCHEDULES

STATE OF MARYLAND
CHRIS ALAN WISEMAN
No. 30000
PROFESSIONAL ENGINEER

SHEET ID
M-701

READY TO ADVERTISE

AIR FLOW MEAUSURING STATION SCHEDULE

UNIT ID	SERVICE	MAX AIRFLOW (CFM)	MIN AIRFLOW (CFM)	DUCT WIDTH (IN)	DUCT HEIGHT (IN)	NUMBER OF PROBES	NUMBER OF SENSORS PER PROBE	THERMAL DISPERSION TYPE
AFMS-1	AHU-1 OA	2100	570	60	16	1	8	INSERTION
AFMS-2	AHU-1 SA	2100	1140	20	20	2	3	INSERTION
AFMS-3	AHU-1 RA	1600	590	20	18	2	3	INSERTION
AFMS-4	HV-1 OA	2500	2500	48	30	2	6	INSERTION
AFMS-5	HV-1 SA	2500	2500	20	14	2	2	INSERTION
AFMS-6	HV-1 RA	2250	2250	20	16	2	3	INSERTION
AFMS-7	AHU-2 OA	470	140	12	6	1	1	INSERTION
AFMS-8	AHU-2 SA	470	235	10	10	1	1	INSERTION
AFMS-9	AHU-2 RA	370	135	10	10	1	1	INSERTION

AIR BALANCE SCHEDULE

UNIT ID	SUPPLY AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	UNIT RELIEF / EXHAUST AIR (CFM)	OUTDOOR AIRFLOW (CFM)	PRESSURIZATION AIRFLOW (CFM)	EXHAUST AIRFLOW (CFM)
AHU-1	2100	1540	10	570	210	350
AHU-2	470	370	40	140	50	50
HV-1	2500	2250	2250	2500	250	-

NOTES:
1. REFER TO EF-1 FOR EXHAUST AIRFLOW ON AHU-1 SYSTEM.
2. REFER TO EF-2 FOR EXHAUST AIRFLOW ON AHU-2 SYSTEM.

RADIANT PANEL HEATER SCHEDULE

UNIT ID	SERVES	FUEL	INPUT (MBH)	EMITTER LENGTH (FT)	TUBE DIAMETER (IN)	TYPE	ELECTRICAL				NOTES
							FLA	VOLTS	PH	HZ	
RP-1	WAREHOUSE 129 / GIP WAREHOUSE 134	NATURAL GAS	20	9	3	RADIANT TUBE	3	120	1	60	1,2,3,4,5

NOTES:
1. ALL RADIANT HEATERS MUST BE NATURAL GAS FIRED, VENTED.
2. PROVIDE ACCESSORY THERMOSTAT, VENT TERMINATIONS, AND SIDE REFECTORS.
3. UNITS PLACED IN FRONT OF ROLL UP DOORS MUST BE HORIZONTALLY MOUNTED, AND ALL OTHER PERIMETER UNITS MUST BE 45 DEGREES FROM THE WALL.
4. PROVIDE POST SIGNS SPECIFYING THE MAXIMUM STACKING HEIGHT TO MAINTAIN THE REQUIRED CLEARANCES FROM THE HEATER TO COMBUSTIBLES, AND WARNING SIGNS NOT TO PARK OR PLACE EQUIPMENT OR MATERIALS THAT COULD BE DAMAGED UNDER THE HEATERS COVERAGE.

AIR DEVICE SCHEDULE

Mark	SERVICE	MOUNTING	NECK SIZE (IN)	FACE SIZE (IN)	MIN	MAX	MAX APD (IN. EG)	MAX NC	NOTES
EG-1	EXHAUST GRILLE	SURFACE	6x6	12x12	0	140	0.00		
RG-1	RETURN GRILLE	SURFACE	8	24x24	0	125	0.06	13	STEEL PERFORATED DIFFUSER
RG-1	RETURN GRILLE	SURFACE	10	24x24	126	200	0.06	17	STEEL PERFORATED DIFFUSER
RG-1	RETURN GRILLE	SURFACE	12	24x24	201	315	0.03	12	STEEL PERFORATED DIFFUSER
RG-1	RETURN GRILLE	SURFACE	14	24x24	316	540	0.13	25	STEEL PERFORATED DIFFUSER
RG-2	RETURN GRILLE	DUCT MOUNTED	14x6	14x6	0	375	0.09	26	3/4" BLADE SPACING, PARALEL BLADE, ALUMINUM BORDER
SD-1	SUPPLY DIFFUSER	SURFACE	6	24x24	0	125	0.05	12	SQUARE CEILING DIFFUSER
SD-1	SUPPLY DIFFUSER	SURFACE	8	24x24	126	225	0.05		SQUARE CEILING DIFFUSER
SD-1	SUPPLY DIFFUSER	SURFACE	10	24x24	226	300	0.04	14	SQUARE CEILING DIFFUSER
SG-1	SUPPLY GRILLE	DUCT MOUNTED	12x4	12x4	0	190	0.14	15	DRUM DIFFUSER, ALUMINUM FRAME
TG-1	TRANSFER GRILLE	SURFACE	6	24x24	0	100	0.13	13	STEEL PERFORATED DIFFUSER

DESIGN CONDITIONS SCHEDULE

ROOM DESCRIPTION	OUTSIDE DESIGN CONDITIONS				OCCUPIED HOURS				UNOCCUPIED HOURS			
	SUMMER		WINTER		SUMMER		WINTER		SUMMER		WINTER	
	DB (F)	WB (F)	DB (F)	WB (F)	DB (F)	% RH	DB (F)	% RH	DB (F)	% RH	DB (F)	%RH
ADMINISTRATION AREA	93.4	74.9	22.9	-	78	50	68	-	85	-	55	-
WAREHOUSE AREA	93.4	74.9	22.9	-	AMBIENT	-	55	-	AMBIENT	-	55	-

HIGH VOLUME LOW SPEED FAN SCHEDULE

UNIT ID	AREA SERVED	MOUNTING (FT)	FAN DIA (FT)	FAN COVERAGE RADIUS (FT)	CFM	DRIVE TYPE	RPM	CONTROL METHOD	ELECTRICAL			
									WATTS	VOLTS	HZ	PH
HVLS-1	129	10	10	58	37,625	DIRECT DRIVE	129	DDC/BAS	175	120	60	1
HVLS-2	129	10	10	58	37,625	DIRECT DRIVE	129	DDC/BAS	175	120	60	1
HVLS-3	129	10	10	58	37,625	DIRECT DRIVE	129	DDC/BAS	175	120	60	1
HVLS-4	134	10	10	58	37,625	DIRECT DRIVE	129	DDC/BAS	175	120	60	1

UNIT HEATER SCHEDULE - ELECTRIC

UNIT ID	LOCATION	MOUNTING HEIGHT (FT)	HEAT SOURCE	CAPACITY (KW)	AIRFLOW			ELECTRICAL DATA		NOTES
					CFM	EAT (F)	LAT (F)	VOLTS	PHASE	
UH-1	MECH/PLUMB 127	9	ELECTRIC	3.3	400	55	80	480	3	1

NOTES:
1. PROVIDE MOUNTING BRACKET FOR SINGLE-POINT MOUNTING.

CABINET UNIT HEATER SCHEDULE - ELECTRIC

UNIT ID	AREA SERVED	MOUNTING	CFM	HEAT SOURCE	CAPACITY (KW)	FAN POWER (WATTS)	ELECTRICAL DATA		NOTES
							VOLTS	PH	
CUH-1	VEST 117	VERTICAL CABINET - RECESSED	200	ELECTRIC	2.2	32	208	3	1
CUH-2	VEST 101	VERTICAL CABINET - RECESSED	200	ELECTRIC	2.2	32	208	3	1

NOTES:
1. PROVIDE UNIT-MOUNTED DISCONNECT SWITCH.

EXHAUST FAN SCHEDULE

UNIT ID	TYPE	SERVICE	CFM	ESP (IN. WG)	FAN RPM	ELECTRICAL DATA		
						HP	VOLTS	PHASE
EF-1	CENTRIFUGAL IN-LINE	OFFICE SHOWERS/RESTROOMS	350	0.50	1725	0.10	208	1
EF-2	CEILING MOUNTED	WAREHOUSE RESTROOM 136	50	0.40	900	0.01	120	1
EF-3	CENTRIFUGAL IN-LINE	MECH/PLUMB 127	300	0.15	900	0.10	120	1

DUCT CONSTRUCTION SCHEDULE

SYSTEM ID	DUCT PRESSURE CLASS (IN. WG)	DUCT SEAL CLASS	DUCT LEAK CLASS	REQUIRED (YES/NO)	TEST PRESSURE (IN. WG)
SUPPLY	3	A	6	Y	3
RETURN	2	A	6	Y	2
OUTDOOR AIR INTAKE	2	A	6	Y	2
EXHAUST	2	A	6	Y	2

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEB
DRAWN BY: JHW
CHECKED BY: CAH
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
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CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
HVAC SCHEDULES

STATE OF MARYLAND
JOSHUA ALAN HOSEIN
PROFESSIONAL ENGINEER

SHEET ID
M-702

READY TO ADVERTISE

ELECTRICAL LEGEND

LIGHTING

- LED LIGHTING FIXTURE
- WG — LED INDUSTRIAL TYPE LIGHTING FIXTURE
- LED EMERGENCY LIGHTING FIXTURE
- LED HIGH BAY LIGHTING FIXTURE
- LED EMERGENCY HIGH BAY LIGHTING FIXTURE
- EXIT LIGHTING FIXTURE, ARROW, INDICATES DIRECTION
- EXIT LIGHTING FIXTURE TYPE SYMBOL (SEE LIGHTING FIXTURESCHEDULE ON DRAWING E-X)

SWITCHES

- S — SINGLE POLE SWITCH, 20A, 120-277V
- S_3 — THREE WAY SWITCH, 20A, 120-277V
- S_a — SINGLE POLE SWITCH, 20A, 120-277V, LOWER CASE SUBSCRIPT WHEN USED INDICATES FIXTURES CONTROLLED
- S_D — SINGLE POLE SWITCH, 20A, 120-277V SUBSCRIPT D INDICATES DIMMER, PROVIDE DIMMING DRIVER FOR THE FIXTURES INDICATED TO BE DIMMED.
- S_{OC} — SINGLE POLE SWITCH WITH OCCUPANCY SENSOR. 20A, 120-277V
- OC — OCCUPANCY SENSOR PROVIDE POWER PACK AS REQUIRED.

RECEPTACLES

- SINGLE RECEPTACLE, 20A, 125V AC, MOUNTED 1'-6" AFF (UON)
- DUPLEX CONVENIENCE RECEPTACLE, 20A, 125V AC, MOUNT 1'-6" AFF (UON)
- G — DUPLEX CONVENIENCE RECEPTACLE 20A, 125V AC, SUBSCRIPT "G" INDICATES GFI TYPE, MOUNT 18" AFF (UON)
- SWITCHED DUPLEX CONVENIENCE RECEPTACLE 20A, 125V AC, MOUNT 1'-6" AFF (UON)
- G — DUPLEX CONVENIENCE RECEPTACLE 20A, 125V AC, SUBSCRIPT "G" INDICATES GFI TYPE, MOUNT 12" ABOVE COUNTER (UON)
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE 20A, 125V AC. MOUNT 18" AFF (UON)
- FORKLIFT CHARGER RECEPTACLE 20A, 208V AC.
- SINGLE FLOOR MOUNTED RECEPTACLE 30A, 120V AC.
- QUAD FLOOR MOUNTED RECEPTACLE 20A, 120V AC.

SAFETY SWITCHED/BREAKERS/STARTERS

- $\square^{60}_{3}$ — NON-FUSED DISCONNECT SWITCH, SUBSCRIPT INDICATES AMPACITY AND NUMBER OF POLES
- F $^{15}_{3}$ — FUSED DISCONNECT SWITCH, SUBSCRIPT INDICATES FUSED SIZE 2, NEMA SIZE 1 STARTER (UON)
- 2 ☒ — MAGNETIC MOTOR STARTER, SUBSCRIPT INDICATES NEMA SIZE 2, NEMA SIZE 1 STARTER (UON)
- 2 ☒ 60/3 — MAGNETIC MOTOR STARTER, SUBSCRIPT INDICATES NEMA SIZE 2, NEMA SIZE 1 STARTER UON. 60 = SWITCH SIZE AND 3 = NO. OF POLES. 30 AMPS, 3 POLES (UON).
- S_M — MANUAL MOTOR STARTER SWITCH WITH OVERLOAD. PROVIDE HOA AS REQUIRED.

NOTE TO CONTRACTOR: ALL SYMBOLS MAY NOT APPLY

EQUIPMENT CONNECTION

- M — MOTOR
- H — ELECTRIC UNIT HEATER
- J — JUNCTION BOX
- E — EQUIPMENT CONNECTION AS NOTED
- VAV — VARIABLE AIR VOLUME BOX
- DWH — DOMESTIC WATER HEATER
- CUH — CABINET UNIT HEATER
- 34 — SHOP EQUIPMENT, NUMERAL INDICATES EQUIPMENT NUMBER. SEE EQUIPMENT SCHEDULE ON DWG E-XX FOR DETAIL.
- MOD — MOTOR OPERATED DAMPER
- CP — CONTROL PANEL

GROUNDING

- GROUND ROD, 3/4" DIAMETER X 10'-0" LONG UON
- AIR TERMINAL
- EXISTING HANDHOLE
- G — GROUND CONDUCTOR
- UNDERGROUND DUCTBANK
- HH — HANDHOLE

WIRING

- HPA-1,3,5 — BRANCH CIRCUIT HOMERUN TO PANELBOARD. HPA DENOTES TO PANEL HPA AND NUMERALS IDENTIFY CIRCUIT NUMBERS. ARROWS DENOTE NO. OF CIRCUITS.
- CONDUIT WITH WIRES, #12 AWG + 1#12 AWG GROUND IN 3/4" C. UNLESS OTHERWISE NOTED NUMBER OF CONDUCTORS AS REQUIRED. PROVIDE SEPARATE NEUTRALS FOR ALL SINGLE PHASE CIRCUITS.

OR

- BRANCH CIRCUIT OR FEEDER WIRING IN CONDUIT. NO TICK MARKS INDICATES 2#12 CONDUCTORS AND 1#12 GROUND IN A 3/4"C (UON)
- G — GROUNDING CONDUCTOR (BCSD)
- RACEWAY WITH SEALING FITTING
- BUS DUCT

PANELBOARDS

- ELECTRICAL PANELBOARD (208Y/120V, 3W+G)
- ELECTRICAL PANELBOARD (480y/277V, 3W+G)

MISCELLANEOUS

- 1 — SPECIFIC NOTE NUMBER
- (1) — FEEDER SIZE
- 1i — LIGHTING FIXTURE TYPE MARK
- A / XXX — SECTION NUMBER / DRAWING NUMBER
- A / A6.1 — DETAIL NUMBER / DRAWING NUMBER WHERE SHOWN

- INCOMING LINE
- M — METER
- PT - POTENTIAL TRANSFORMER, NUMERAL DENOTES QUANTITY, STATIONARY TYPE WITH FUSE.
- CT - CURRENT TRANSFORMER, NUMERAL DENOTES QUANTITY.
- 600AF / 800AT — MOLDED CASE CIRCUIT BREAKER AUTOMATIC. 3 POLE UNLESS NOTED. 800 = FRAME SIZE. 600 = TRIP SIZE.
- TRANSFORMER, SIZE AS NOTED ON DRAWING
  - △ PRIMARY CONNECTED DELTA.
  - SECONDARY CONNECTED WYE, NEUTRAL SOLIDLY GROUNDED.
- SPD — TRANSIENT VOLTAGE SURGE SUPPRESSOR
- AUTOMATIC TRANSFER SWITCH

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: RWL
DRAWN BY: EJB
CHECKED BY: IHK
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SECOND TITLE
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ELECTRICAL LEGEND, SCHEMATIC AND WIRING DIAGRAMS

NORTH CAROLINA PROFESSIONAL SEAL 032432 ENGINEER IK KIM
8-04-23

SHEET ID
E-001

READY TO ADVERTISE

GENERAL NOTES

1. INSTALLATION OF ELECTRICAL WORK MUST CONFORM TO THE AHJ'S LATEST ACCEPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL APPLICABLE LOCAL CODES AND QUALITY WORKMANSHIP STANDARDS.
2. DRAWINGS ARE DIAGRAMMATIC. FINAL EQUIPMENT LOCATIONS MUST BE COORDINATED IN THE FIELD AND FIT INTO THE AVAILABLE SPACE IN ACCORDANCE WITH GIVEN WORK SPACE REQUIRED BY CODE AND MAINTENANCE REQUIRED BY THE MANUFACTURER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE EQUIPMENT THAT MEETS THE ABOVE REQUIREMENTS AND NOTIFY THE OWNER/ENGINEER WHEN THE REQUIREMENTS ARE NOT MET.
3. PROVIDE A CONSTRUCTION SCHEDULE, SEQUENCE OF CONSTRUCTION, OUTAGE REQUESTS, AND RESTRICTED AREA ACCESS REQUESTS FOR APPROVAL BY THE OWNER. WORK IN CERTAIN AREAS IS RESTRICTED AND GOVERNED BY EXISTING SECURITY REGULATIONS. ACCESS INTO THESE AREAS REQUIRE APPROVAL. WORK MUST ALLOW FOR DAILY OPERATION OF THE FACILITY WITHOUT INTERRUPTION. WHEN TEMPORARY POWER IS REQUIRED, THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS. CONTRACTOR MUST OBTAIN WRITTEN PERMISSION FROM THE OWNER TO DE-ENERGIZE ANY BUILDING EQUIPMENT OR DISRUPT ANY COMMUNICATION LINE.
4. THE ELECTRICAL CONTRACTOR MUST PROVIDE THE NECESSARY COORDINATION, INSTRUCTIONS AND SUPERVISION NEEDED WHEN WORKING WITH OTHER TRADES.
5. PRIOR TO STARTING DEMOLITION AND/OR NEW WORK, COORDINATE A SITE VISIT TO EXAMINE AND EVALUATE THE EXISTING CONDITIONS AFFECTING THE EXECUTION OF THIS PROJECT. REPORT ANY CONCERNS TO THE OWNER/ENGINEER AT THAT TIME.
6. THE DEMOLITION AND NEW WORK MUST BE EXECUTED IN ACCORDANCE WITH AN APPROVED WORK PLAN, SEQUENCE OF CONSTRUCTION. AND WORK SCHEDULE.
7. DEMOLITION AND NEW WORK SHOWN ON THE DRAWINGS USE DARK THICK-WEIGHTED LINES. EXISTING EQUIPMENT NOT AFFECTED BY THE CONTRACT DRAWINGS ARE SHOWN USING THIN-WEIGHTED LINES.
8. COORDINATE WORK RELATED TO THE ELECTRICAL SERVICE DIRECTLY WITH THE UTILITY COMPANY AND OBTAIN APPROVAL BEFORE INSTALLATION.
9. COORDINATE WORK RELATED TO TELEPHONE SERVICE DIRECTLY WITH THE TELEPHONE COMPANY AND OBTAIN APPROVAL BEFORE INSTALLATION.
10. SUBMIT A LIST OF MAJOR EQUIPMENT INCLUDING LIGHT FIXTURES TO THE ENGINEER FOR REVIEW AND APPROVAL. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT THE PERMISSION OF THE OWNER/ENGINEER IN WRITING. EQUIPMENT MUST BE NEW AND INCLUDE THE MANUFACTURER'S NAME, TRADE NAME AND UL CERTIFICATION.
11. ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT ARE BASED ON EQUIPMENT SPECIFIED. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL SHOP DRAWINGS PRIOR TO ORDERING AND INSTALLING EQUIPMENT.
12. VFDS ARE FURNISHED UNDER DIVISION 16 OR 26 UNLESS OTHERWISE NOTED.
13. ELECTRICAL EQUIPMENT INSTALLED AGAINST CONCRETE OR MASONRY WALLS MUST BE INSTALLED WITHIN A 1/4" SPACE BETWEEN THE EQUIPMENT AND THE MOUNTING SURFACE. SPACERS MUST BE STAINLESS STEEL, PVC OR NYLON.
14. PROVIDE NECESSARY COMPONENTS REQUIRED FOR MAKING FINAL CONNECTIONS OF EQUIPMENT INSTALLED AS PART OF THIS CONTRACT.
15. PANELS SERVING ELECTRONIC EQUIPMENT AND COMPUTERS MUST HAVE 200% RATED NEUTRALS. TRANSFORMERS ASSOCIATED WITH 200% PANELS MUST BE K13-RATED.
16. SERIES-RATED CIRCUIT BREAKERS ARE NOT ALLOWED UNLESS SPECIFICALLY INDICATED ON CONTRACT DRAWINGS.
17. CIRCUIT NUMBERS ARE FOR IDENTIFICATION PURPOSE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS AND CORRECTLY PHASING THE CIRCUITS IN PANELBOARDS.
18. MINIMUM CONDUIT AND WIRE SIZE IS 3/4" AND #12 AWG.
19. DO NOT INSTALL MORE THAN THREE CIRCUITS IN ONE HOMERUN UON.
20. 120V CIRCUITS AND 277V CIRCUITS MUST HAVE SEPERATE NEUTRALS.
21. PROVIDE #10 AWG OR LARGER WIRES TO 120 VOLT RECEPTACLE CIRCUITS WHERE THE LAST RECEPTACLE IS LOCATED 100 FEET OR MORE FROM THE PANELBOARD.
22. PROVIDE PULL STRINGS IN EMPTY CONDUIT TO FACILITATE PULLING OF CABLES IN FUTURE.
23. CONTRACTOR MUST VERIFY DOOR SWINGS BEFORE SETTING SWITCHES. INSTALL SWITCHES ON THE LOCK SIDE OF DOORS 4 FEET AFF, UNLESS OTHERWISE NOTED.
24. CABLE TRAY INSTALLATION MUST BE COORDINATED IN FIELD WITH OTHER TRADES.
25. TRANSFORMERS WINDINGS AND PANEL BUSSES MUST BE COPPER UON.
26. OPENINGS AND PASSAGES FOR CONDUITS OR WIREWAYS THROUGH FLOOR SLABS, FIRE-RATED WALLS, OR PARTITIONS MUST BE PROVIDED WITH UL LISTED FIRE-RATED SLEEVING SYSTEMS.
27. CONDUIT ROUTING, WHEN SHOWN, IS DIAGRAMMATIC AND MUST BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. INTERIOR CONDUITS INCLUDING THOSE EXPOSED, ABOVE SUSPENDED CEILINGS, AND CONCEALED WITHIN FURRED WALLS MUST BE INSTALLED PARALLEL TO BEAMS AND WALLS. CONDUITS INSTALLED IN FINISHED AREAS MUST BE CONCEALED.
28. PROVIDE PULL BOXES AND JUNCTION BOXES, WHEN REQUIRED, IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS THOUGH THESE BOXES MAY NOT BE SHOWN ON THE DRAWINGS. JUNCTION AND PULL BOXES, ASSOCIATED WITH FEEDERS AND BRANCH CIRCUITS, MUST BE LABELED SHOWING THE PANEL AND CIRCUIT NUMBERS ROUTED THROUGH THEM.
29. PROVIDE JUNCTION BOXES WITH NUMBERED TERMINAL STRIPS AND RING TYPE COMPRESSION CONNECTORS WHEN SPLICING CONTROL AND SIGNAL WIRING.
30. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS ARE BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS, APPROVED BY THE ENGINEER, MAY BE MADE BY THE CONTRACTOR AT THEIR EXPENSE TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED.
31. NUMBERS ADJACENT TO EQUIPMENT AND DEVICES INDICATE THE PANEL AND CIRCUIT SERVING THAT EQUIPMENT OR DEVICE. PROVIDE COMPLETE WIRING IN CONDUIT.
32. RECEPTACLES IN SHOP AREA MUST BE 48" AFF. RECEPTACLES AND SWITCHES INDICATED AS FREE STANDING MUST BE INSTALLED ON CHANNELS. RECEPTACLES LOCATED IN MECHANICAL ROOMS, ELECTRICAL ROOMS, JANITOR'S CLOSETS, BATH ROOMS AND WITHIN 6' OF ANY SINKS MUST BE GFI TYPE UON.
33. ELECTRICAL EQUIPMENT LOCATED OUTDOORS MUST HAVE NEMA 4X ENCLOSURE UON.
34. OUTDOOR UNDERGROUND CONCRETE CONDUITS SHALL BE PVC SCHEDULE 40 UON.
35. DIRECT-BURIED UNDERGROUND CONDUITS MUST BE SCHEDULE 80 UON.
36. WIRES: INTERIOR -THHN/THWN-2, UON
37. WIRES: EXTERIOR-XHHN/XHWN-2, UON
38. PROVIDE SYSTEM GROUNDING CONDUCTORS AND EQUIPMENT GROUNDING CONDUCTORS IN ACCORDANCE WITH NEC-250, UON.

DEFINITIONS

FURNISH:	SUPPLY AND DELIVER TO PROJECT SITE, READY FOR UNLOADING UNPACKING,INSTALLATION, AND SIMILAR OPERATIONS.
INSTALL:	UNLOAD, TEMPORARILY STORE, UNPACK, ASSEMBLE, ERECT, PLACE, ANCHOR, APPLY,WORK TO DIMENSION, FINISH, CURE, PROTECT, CLEAN AND SIMILAR OPERATIONS AT PROJECT SITE. PROVIDE:FURNISH AND INSTALL,COMPLETE AND READY FOR INTENDED USE.
WIRING:	CONDUIT AND WIRES / CONDUCTORS.
EXISTING TO REMAIN:	LEAVE EXISTING ITEMS THAT ARE NOT TO BE REMOVED AND THAT ARE NOT OTHERWISE INDICATED TO BE SALVAGED OR REINSTALLED.
REMOVE / DEMOLISH:	DETACH ITEMS FROM EXISTING CONSTRUCTION AND DISPOSE OF THEM OFF-SITE UNLESS INDICATED TO BE SALVAGED OR REINSTALLED.
REMOVE AND SALVAGE:	DETACH ITEMS FROM EXISTING CONSTRUCTION, IN A MANNER TO PREVENT DAMAGE AND DELIVER TO OWNER FOR REUSE.
REMOVE AND REINSTALL:	DETACH ITEMS FROM EXISTING CONSTRUCTION, IN A MANNER TO PREVENT DAMAGE, PREPARE FOR REUSE, AND REINSTALL WHERE INDICATED.

US Army Corps of Engineers ®

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DESIGNED BY: RWL
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SECOND TITLE

US ARMY CORPS OF ENGINEERS
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ELECTRICAL GENERAL NOTES

NORTH CAROLINA PROFESSIONAL SEAL 032832 ENGINEER I. H. KIM
8-04-23

SHEET ID
E-002

READY TO ADVERTISE

ELECTRICAL ABBREVIATIONS

&	AND
A	AMPERE
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	SYMMETRICAL AMPERS INTERRUPTING CAPACITY
AMP	AMPERES
AUX	AUXILIARY
AWG	AMERICAN WIRE GUAGE
BATT	BATTERY
BCSD	BARE COPPER SOFT DRAWN
BKR	BREAKER
BLDG	BUILDING
BSMT	BASEMENT
BT	BUS TIE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
C	CONDUIT ONLY
COMM	COMMUNICATIONS
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
CWT	CAPACITOR WIRE TROUGH
D	DEPTH
DIA	DIAGRAM
DIFF	DIFFERENTIAL
DISC SW	DISCONNECT SWITCH
DIST	DISTRIBUTION
DN	DOWN
DWG	DRAWING
DWT	DOMESTIC WATER HEATER
EA	EACH
EC	EMPTY CONDUIT
EF	EXHAUST FAN
ELEC	ELECTRIC, ELECTRICAL
EM,EMERG	EMERGENCEY
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
EXIST	EXISTING
FDR	FEEDER
FL	FLOOR
FLA	FULL LOAD AMPS
FLOUR	FLUORESCENT
FSS	FUSED SAFETY SWITCH
FVNR	FULL VOLTAGE, NON REVERSING
G, GND	GROUND
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL CONDUIT
HID	HIGH INTENSITY DISCHARGE LTG
HOA	HAND OFF AUTO SELECTOR SWITCH
HP	HORSE POWER
HTR	HEATER
HV	HEATING AND VENTILATING
HZ	FREQUENCY,HERTZ
I.C.	INTERRUPTING CAPACITY
JB	JUNCTION BOX
KA	KILO AMPERES
KAIC	KILO AMPERES INTTERUPTING CAPACITY
KCMIL	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KVAR	KILOVAR (REACTIVE KILO VOL AMPERE)
KW	KILOWATT
KWH	KILOWATT HOUR
LA	LIGHTNING ARRESTER
LC	LOAD CENTER
LO	LOCKOUT
LTG	LIGHTING
MAX	MAXIMUM
MC	MAIN CONTACTOR, MOTOR CONTROLLER
MCA	MINIMUM CONDUCTOR AMPERES
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MDS	MAIN DISTRIBUTION SWITCHBOARD
MECH	MECHCANICAL
MFS	MAXIMUM FUSE SIZE
MG	MOTOR GENERATOR
MH	MOUNTING HEIGHT
MH	MOUNTING HEIGHT,MANHOLE
MIN	MINIMUM
MLO	MAIN LUG ONLY
MOV	MOTOR OPERATED VALVE
N	NEUTRAL
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN, NUMBERS
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFSS	NON-FUSIBLE SAFETY SWITCH
NIC	NOT IN CONTRACT
NO.	NUMBER
NTS	NOT TO SCALE
OC	OVERCURRENT
P	POLE
PB STA	PUSHBUTTON STATION
PCP	PUMP CONTROL PANEL
PM	POWER MONITOR
PNL	PANEL
PRI	PRIMARY
PSI	POUNDS PER SQUARE INCH
PT	POTENTAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
RCPT	RECEPTACLE
REQD	REQUIRED
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RMS	ROOT MEAN SQUARE
SEC	SECONDARY
SPST	SINGLE POLE SINGLE THROW
SSS	SOLID STATE STARTER
SW	SWITCH
SWBD	SWITCHBOARD
SYMM	SYMMETRICAL
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VOLTS,VOLTAGE
VA	VOLT AMPS
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VS	VOLT METER SWITCH
W	WATT
W	WIRE
WP	WEATHERPROOF CONSTRUCTION
WT	WIRE TROUGH
XFMR	TRANSFORMER
Ø	PHASE

US Army Corps of Engineers ®

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SIZE: ANSI D
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SOLICITATION NO.: W912PM22R0015
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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
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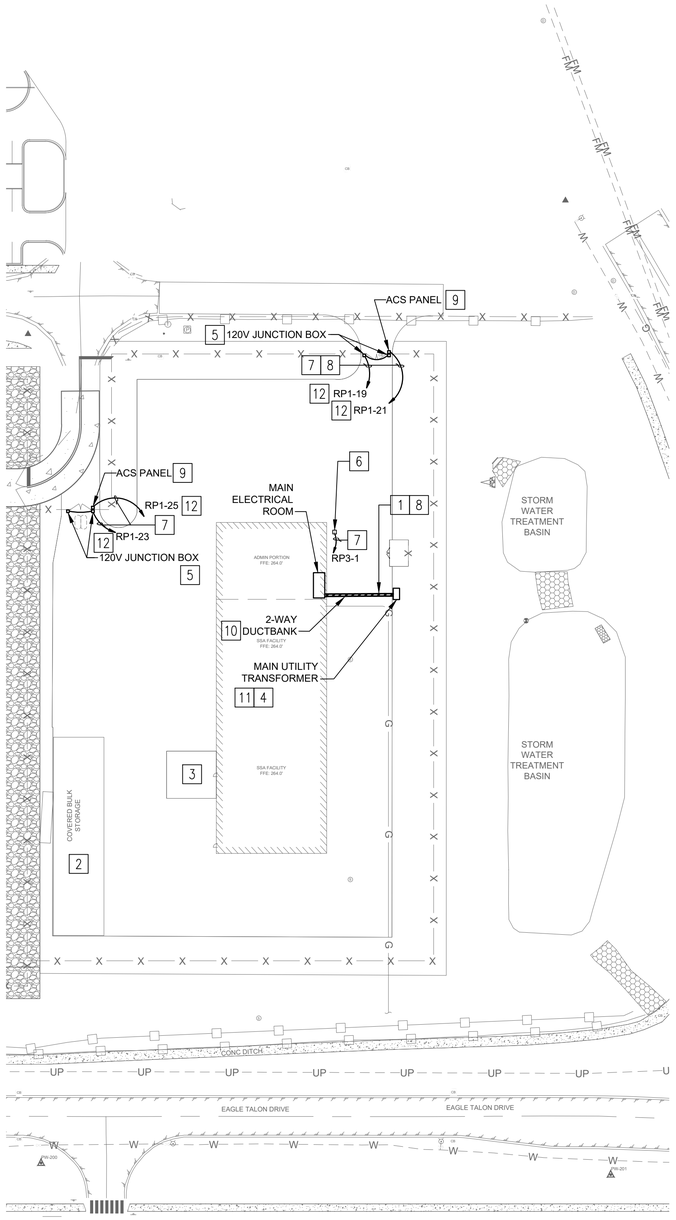
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ELECTRICAL ABBREVIATIONS

NORTH CAROLINA PROFESSIONAL SEAL 032832 ENGINEER I. H. KIM
8-04-23

SHEET ID
E-003

READY TO ADVERTISE



A1 ELECTRICAL SITE PLAN
1" = 60'

GENERAL NOTES

1. SEE DRAWING E-1 FOR LEGEND, SCHEMATICS AND WIRING DIAGRAMS.
2. SEE DRAWING E-2 FOR GENERAL NOTES.
3. SEE DRAWING E-3 FOR ABBREVIATIONS.

SHEET KEYNOTES

1. PROVIDE #8 AWG PE JACKETED TRACER CIRCUIT IN ELECTRICAL DUCTBANK.
2. SEE DRAWING E-301 FOR COVERED STORAGE LIGHTING AND POWER BRANCH CIRCUITS.
3. SEE DRAWING E-301 FOR LOADING DOCK POWER AND LIGHTING BRANCH CIRCUITS.
4. TRANSFORMER PROVIDED BY SANDHILL UTILITY SERVICES (SUS).
5. PROVIDE 120V BRANCH CIRCUIT HOME RUN FOR SWING GATE OPERATOR.
6. PROVIDE NEMA 4X JUNCTION BOX FOR 30A, SINGLE PHASE HEATER BOX. COORDINATE EXACT LOCATION OF JUNCTION BOX WITH FIRE PROTECTION SITE PLAN.
7. 2#10, 1#10G IN 1" DIRECT BURIED, SCHEDULE 80 PVC CONDUIT.
8. CONTRACTOR MUST PROVIDE ALL SECONDARY CONDUIT AND WIRE.
9. PROVIDE 120V BRANCH CIRCUIT HOMERUN FOR ACS PANEL ENCLOSURE.
10. REFER TO DETAIL E1/E-501 FOR 2-WAY DUCTBANK DETAIL.
11. REFER TO DETAIL E4/E-501 FOR PAD MOUNTED TRANSFORMER DETAIL.
12. REFER TO DETAIL C1/E-501 FOR UNDERGROUND CONDUIT INSTALLATION DETAIL.

60' 0 60' 120'
1 INCH = 60 FEET

US Army Corps of Engineers®

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ELECTRICAL		

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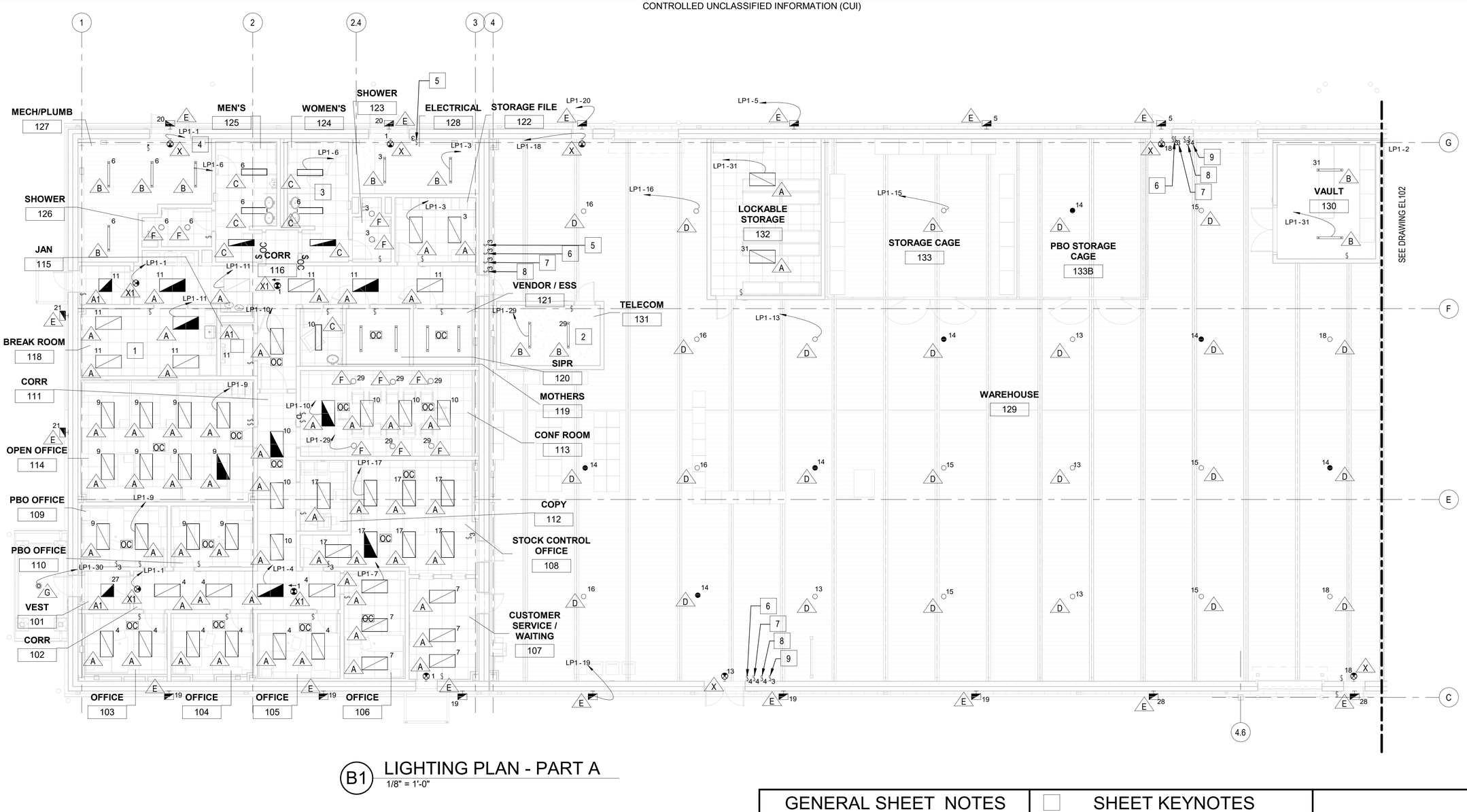
ELECTRICAL SITE PLAN

NORTH CAROLINA PROFESSIONAL SEAL 032832 ENGINEER I. H. KIM
8-02-23

SHEET ID
ES100

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PLOT DATE: 8/2/2023 7:33:37 AM PAGE SETUP: AEC-ANSI D (22X34) PLOT STYLE: AECSTDBANDW.CTB PAPER SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES)
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B1 LIGHTING PLAN - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ALL EMERGENCY LIGHTS SHALL NOT BE SWITCHED OR CONTROLLED BY LIGHTING CONTROL SYSTEM. ALL EMERGENCY LIGHTS SHALL REMAIN ON AS NIGHT LIGHTS.
3. COORDINATE LIGHTING FIXTURE LOCATION WITH ARCHITECTURAL REFLECTED CEILING PLANS.
4. LIGHTING BRANCH CIRCUITS AND ALL HOMERUNS SHALL BE INSTALLED IN EMT CONDUIT, UON.
5. REFER TO SHEETS E-502 AND E-503 FOR LIGHTING FIXTURE DETAILS, AND EL701 FOR LIGHTING FIXTURE SCHEDULE.
6. PROVIDE OCCUPANCY SENSORS WITH LOW VOLTAGE AUXILIARY RELAY TO INTERFACE WITH HVAC CONTROLS.

SHEET KEYNOTES

1. 2X4 LED RECESSED FIXTURE, TYPICAL.
2. 4' LED PENDENT MOUNTED INDUSTRIAL FIXTURE, 9FT AFF, TYPICAL.
3. 1X4 LED SURFACE MOUNTED FIXTURE, 9FT AFF, TYPICAL.
4. EXIT SIGN, TYPICAL.
5. 3-WAY LIGHT SWITCH FOR CIRCUIT 3.
6. 3-WAY/4-WAY LIGHT SWITCH FOR CIRCUIT 13.
7. 3-WAY/4-WAY LIGHT SWITCH FOR CIRCUIT 16.
8. 3-WAY/4-WAY LIGHT SWITCH FOR CIRCUIT 15.
9. 3-WAY/4-WAY LIGHT SWITCH FOR CIRCUIT 18.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

US Army Corps of Engineers ®

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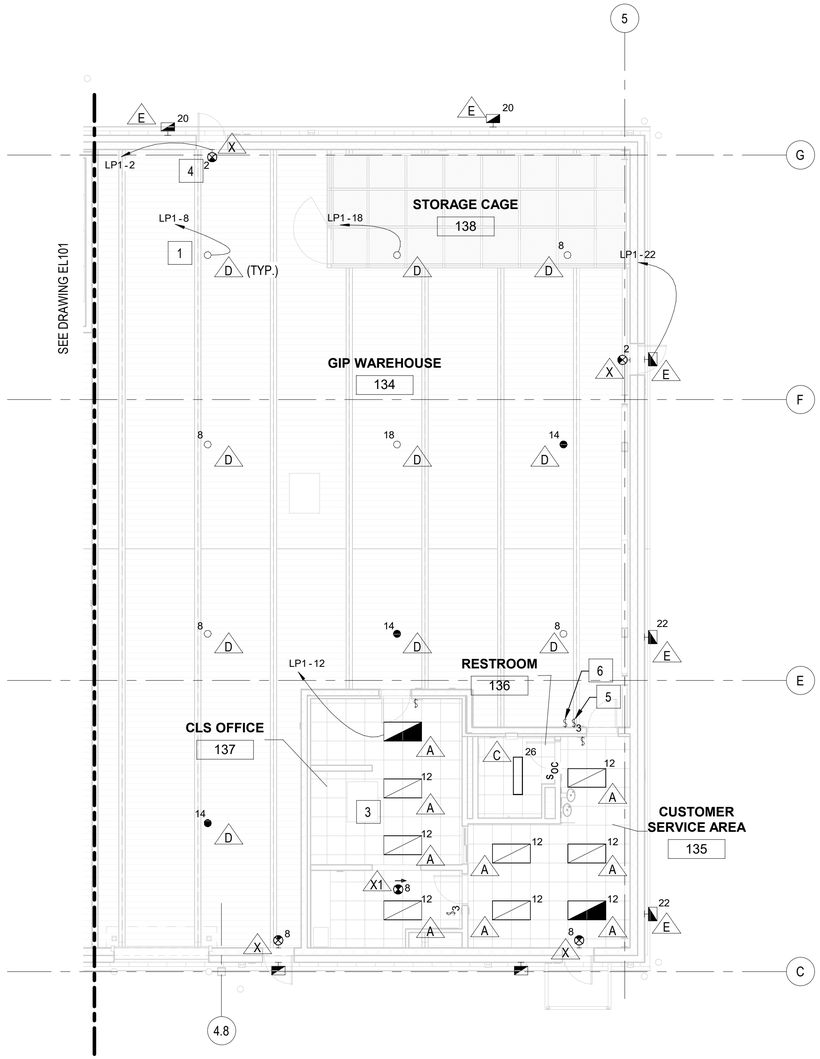
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801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
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PROJECT 87447
LIGHTING PLAN - PART A

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032832 I.H. KIM
8-04-23

SHEET ID
EL101

READY TO ADVERTISE



B4 LIGHTING PLAN - PART B
1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ALL EMERGENCY LIGHTS SHALL NOT BE SWITCHED OR CONTROLLED BY LIGHTING CONTROL SYSTEM. ALL EMERGENCY LIGHTS SHALL REMAIN ON AS NIGHT LIGHTS.
3. COORDINATE LIGHTING FIXTURE LOCATION WITH ARCHITECTURAL REFLECTED CEILING PLANS.
4. LIGHTING BRANCH CIRCUITS AND ALL HOMERUNS SHALL BE INSTALLED IN EMT CONDUIT, UON.
5. REFER TO SHEETS E-502 AND E-503 FOR LIGHTING FIXTURE DETAILS, AND EL701 FOR LIGHTING FIXTURE SCHEDULE.

SHEET KEYNOTES

1. HIGH BAY LED FIXTURE, 19FT AFF. TYPICAL.
2. 4" CEILING MOUNTED FIXTURE, 9FT AFF, TYPICAL.
3. 2X4 LED RECESSED FIXTURE, 9FT AFF, TYPICAL.
4. EXIT SIGN, TYPICAL.
5. 3-WAY LIGHT SWITCH FOR CIRCUIT 18.
6. LIGHT SWITCH FOR CIRCUIT 8.

PLAN NORTH
TRUE N

GRAPHIC SCALE
0 4' 8' 16'
SCALE: 1/8"=1'-0

US Army Corps of Engineers ®

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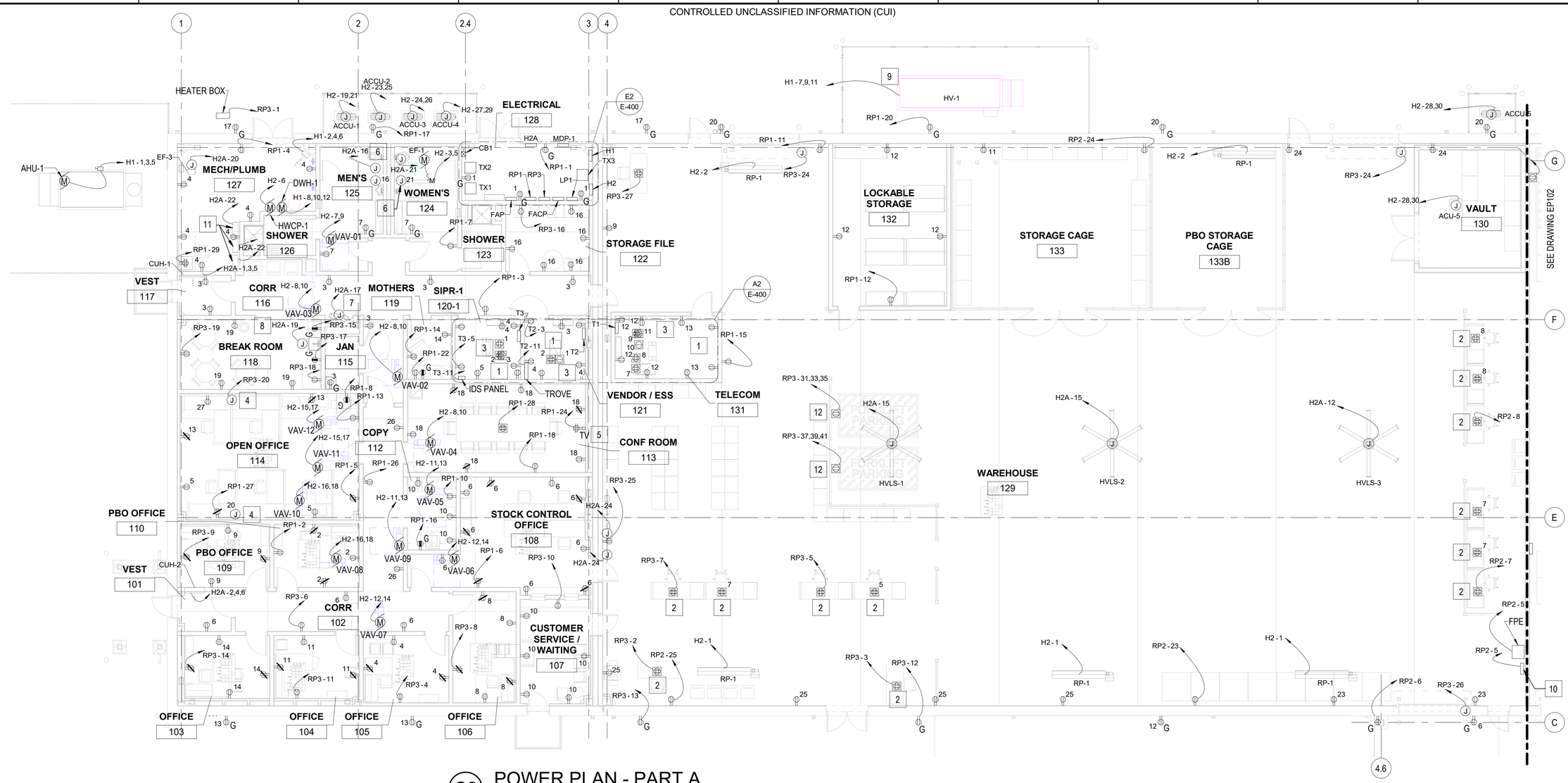
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PROJECT 87447
LIGHTING PLAN - PART B

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032832 ISHAN KIM
8-04-23

SHEET ID
EL102

READY TO ADVERTISE



C2 POWER PLAN - PART A

1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ALL RECEPTACLES SHALL BE MOUNTED 18" AFF UON.
3. RECEPTACLE BRANCH CIRCUITS AND ALL HOMERUNS SHALL BE INSTALLED IN EMT CONDUIT, UON.
4. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEETS M-701 AND M-702 FOR ELECTRICAL REQUIREMENTS.
5. PROVIDE UNDERGROUND CONDUITS TO ALL FLOOR BOXES (UON).

SHEET KEYNOTES

1. PROVIDE RECEPTACLE 6'-0" ON CENTER IN TELECOM ROOMS.
2. FLOOR BOX FOR POWER AND DATA CONNECTIONS.
3. SEE DRAWING E-400 FOR FLOOR MOUNTED RECEPTACLE LAYOUT FOR TELECOM RACKS.
4. JUNCTION BOX TO PROVIDE FIXTURE WHIPS FOR POWER TO BOTH ROWS OF WORKSTATIONS.
5. TELEVISION RECEPTACLE SHALL BE MOUNTED 6' AFF.
6. TRANSFORMERS FOR FENSOR OPERATED FAUCETS AND SENSOR OPERATED FLUSH VALVE.
7. ELECTRIC WATER COOLER. CIRCUIT "H2A-17" SHALL BE CONNECTED TO A GFCI BREAKER.
8. GARBAGE DISPOSAL.

SHEET KEYNOTES

9. HV-1 CONNECTED TO VFD'S AND DISCONNECTING MEANS PROVIDED WITH UNIT.
10. DRY SPRINLKER NITROGEN GENERATION SYSTEM.
11. DDC PANELS 1, 2 AND 3.
12. PROVIDE 250V, 20A, 3-PHASE RECEPTACLE FOR FORKLIFT CHARGER. PROVIDE 3#12, 1#12G IN 3/4"C.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: RWL
DRAWN BY: EJB
CHECKED BY: IHK
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
SUBMITTED BY: FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

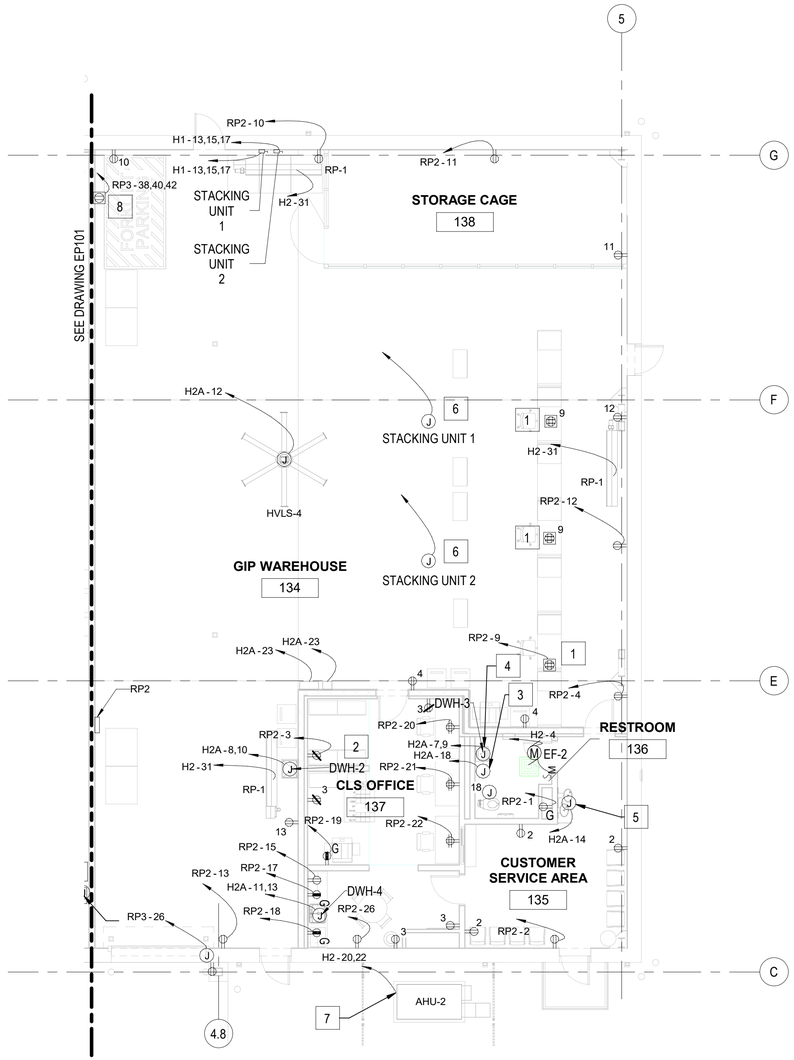
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
POWER PLAN - PART A

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032632 I.H. KIM 8-04-23

SHEET ID
EP101

READY TO ADVERTISE



B4 POWER PLAN - PART B
1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, E-003 AND E-004 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ALL RECEPTACLES SHALL BE MOUNTED 18" AFF UON.
3. RECEPTACLE BRANCH CIRCUITS AND ALL HOMERUNS SHALL BE INSTALLED IN EMT CONDUIT, UON.
4. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEETS M-701 AND M-702 FOR ELECTRICAL REQUIREMENTS.
5. PROVIDE UNDERGROUND CONDUITS TO ALL FLOOR BOXES (UON).

SHEET KEYNOTES

1. FLOOR BOX FOR POWER AND DATA CONNECTIONS.
2. DOMESTIC WATER HEATER 2 (DWH-2).
3. TRANSFORMERS FOR SENSOR OPERATED FAUCETS AND SENSOR OPERATED FLUSH VALVE.
4. DOMESTIC WATER HEATER 3 (DWH-3).
5. ELECTRIC WATER COOLER. CIRCUIT "H2A-14" SHALL BE CONNECTED TO A GFCI BREAKER.
6. CONTRACTOR SHALL ROUTE (2) SETS OF 3/4" RGS CONDUIT OVERHEAD FROM JUNCTION BOX LOCATED AT STACKING UNIT TO DISCONNECT SWITCH LOCATED ON NORTHERN WALL OF GIP WAREHOUSE.
7. AHU-2 COMES EQUIPPED WITH DISCONNECTING MEANS.
8. PROVIDE 250V, 20A, 3-PHASE RECEPTACLE FOR FORKLIFT CHARGER. PROVIDE 3#12, 1#12G IN 3/4"C.

PLAN NORTH
TRUE N

GRAPHIC SCALE
0 4' 8' 16'
SCALE: 1/8"=1'-0

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US ARMY CORPS OF ENGINEERS
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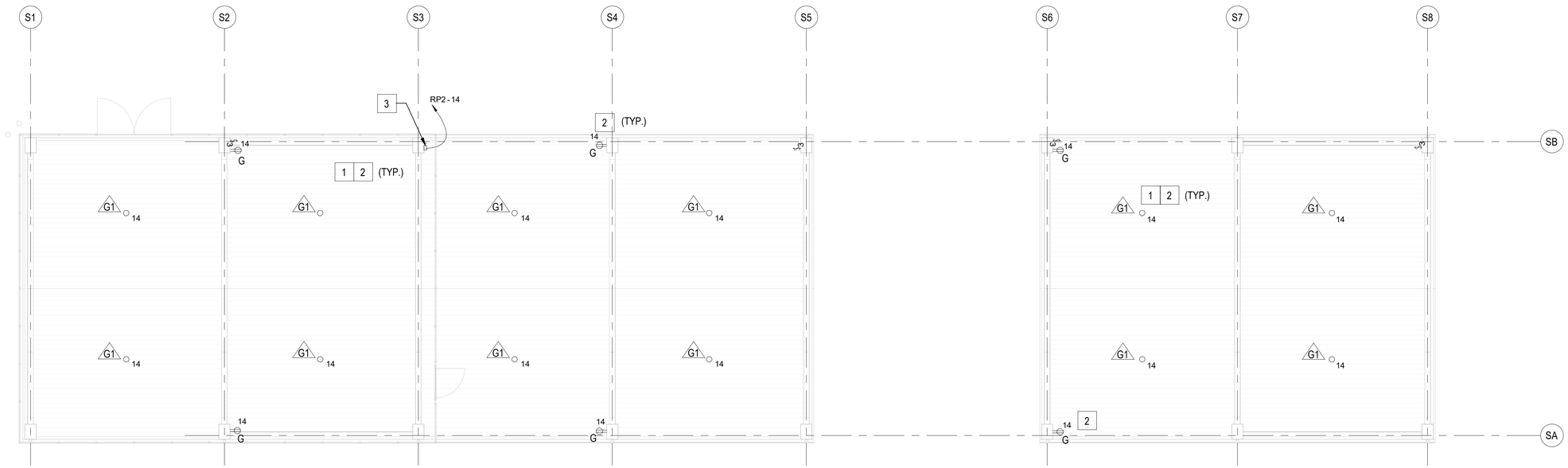
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BALTIMORE, MARYLAND 21231

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SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
POWER PLAN - PART B

NORTH CAROLINA PROFESSIONAL SEAL 032832 ENGINEER J. H. KIM
8-04-23

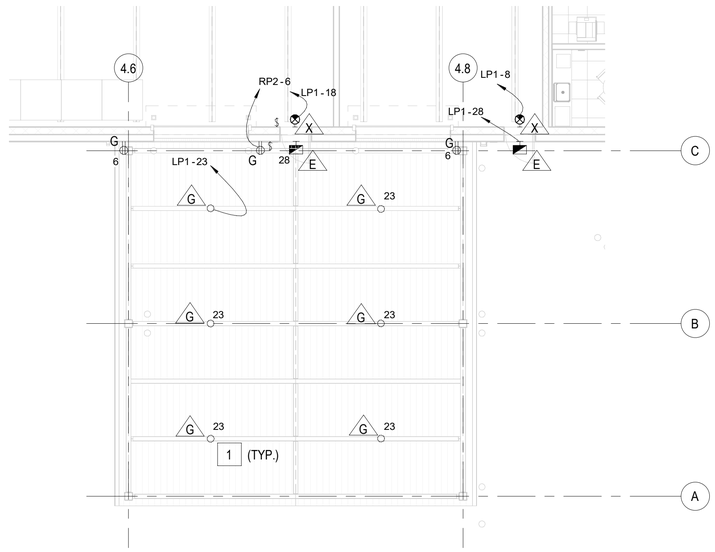
SHEET ID
EP102

READY TO ADVERTISE



D2 COVERED STORAGE LIGHTING/POWER PLAN

1/8" = 1'-0"



A2 LOADING DOCK LIGHTING/POWER PLAN

1/8" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. COORDINATE LIGHTING FIXTURE AND RECEPTACLE LOCATION WITH ARCHITECTURAL REFLECTED CEILING PLANS A-104 AND A-105.
3. LIGHTING AND RECEPTACLE BRANCH CIRCUITS AND ALL HOMERUNS SHALL BE INSTALLED IN RGS CONDUIT, UON.
4. REFER TO SHEETS E-502 AND E-503 FOR LIGHTING FIXTURE DETAILS, AND EL701 FOR LIGHTING FIXTURE SCHEDULE.

SHEET KEYNOTES

1. PENDANT MOUNTED LIGHT MOUNTED 16' AFF. SEE LIGHTING FIXTURE SCHEDULE FOR MANUFACTURERE AND TYPE.
2. PROVIDE 2#10, 1#10G IN 1" PVC SCHEDULE 80 CONDUIT DIRECT BURIED 30" BELOW FINISHED GRADE.
3. PROVIDE 30A, 2-POLE, 240V NON-FUSED DISCONNECT SWITCH IN NEMA 4X ENCLOSURE.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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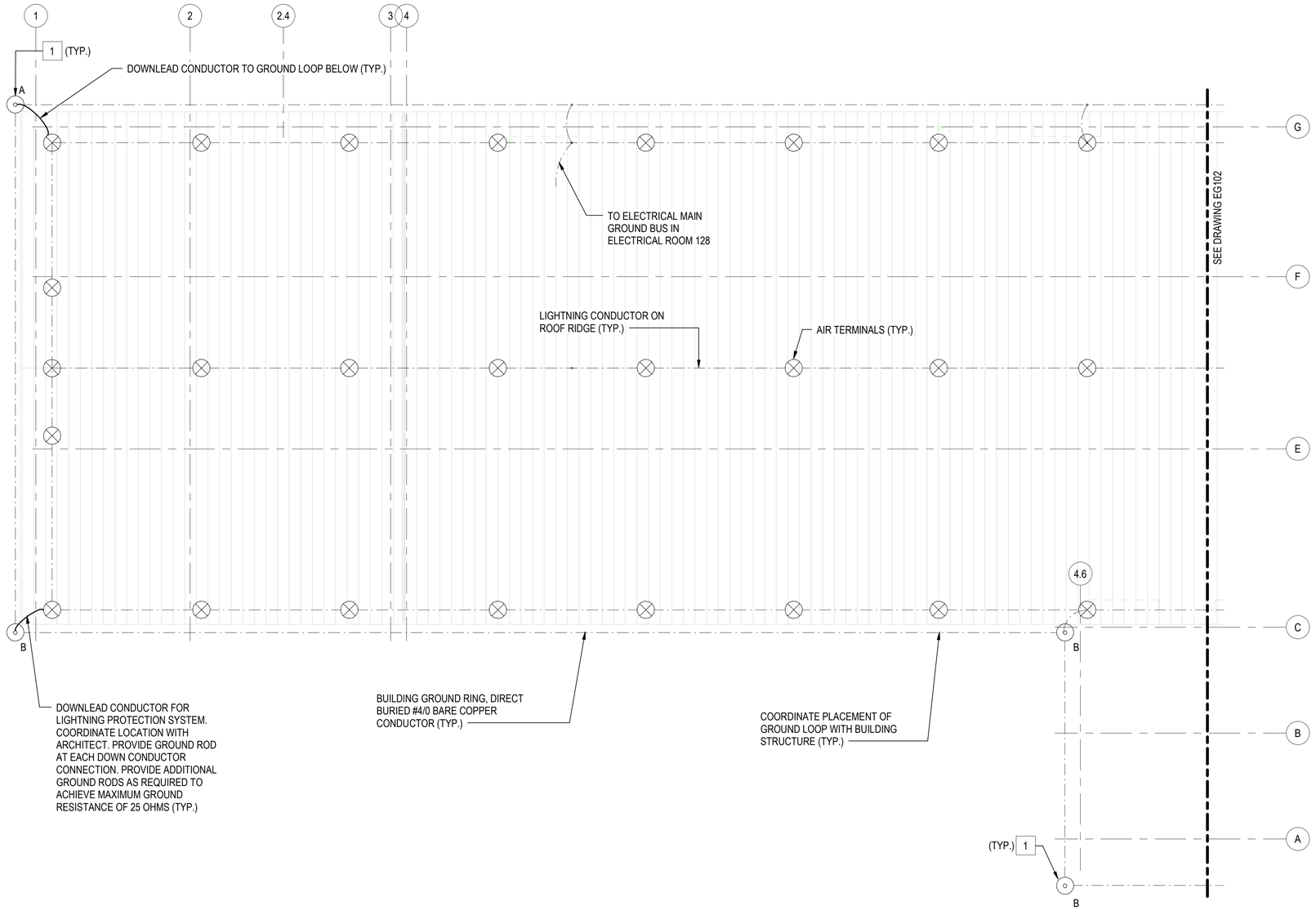
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
COVERED STORAGE/LOADING DOCK POWER & LIGHTING

NORTH CAROLINA PROFESSIONAL SEAL 032432 ENGINEER IHK KIM
8-04-23

SHEET ID
E-301

READY TO ADVERTISE



B1 LIGHTNING PROTECTION PLAN - PART A
3/32" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ENSURE COMPATABILITY OF MATERIALS AT ROOF INCLUDING BOOT, SPECIAL ADHESIVE, SEALS, MOUNTING PADS ETC.
3. NO BENDS OF A CONDUCTOR MUST FORM A FINAL INCLUDED ANGLE OF LESS THAN 90 DEGREES OR A RADIUS OF BEND OF LESS THAN 8"
4. CONDUCTORS MUST INTERCONNECT AIR TERMINALS AND MUST FORM A TWO-WAY PATH FROM EACH AIR TERMINAL HORIZONTALLY OR DOWNWARD TO CONNECTIONS WITH GROUND TERMINALS.
5. LIGHTNING PROTECTION CONDUCTORS MUST BE FASTENED AT NO MORE THAN 3'-0" MAXIMUM SPACING.
6. CONNECTIONS TO GROUND ROD OR GROUND LOOP CONDUCTOR MUST BE MADE AT A POINT NOT LESS THAN 1'-0" BELOW GRADE AND 2'-0" AWAY FROM FOUNDATION WALL.
7. BARE LIGHTNING PROTECTION MATERIALS MUST NOT BE INSTALLED ON ALUMINUM SURFACES.
8. SEAL ENDS OF CONDUIT MOISTURE TIGHT WITH DUCT SEAL OR LEAD WEDGE.
9. CONDUIT, CONDUIT FASTENERS AND MISCELLANEOUS ACCESSORIES MUST BE PROVIDED AND INSTALLED.

1.0. REFER TO GROUNDING DETAILS ON SHEET EG104.

SHEET KEYNOTES

1. SEE DRAWING EG103 FOR GROUND ROD DETAILS.

PLAN NORTH
TRUE N

GRAPHIC SCALE
0 4' 8' 16'
SCALE: 3/32"=1'-0

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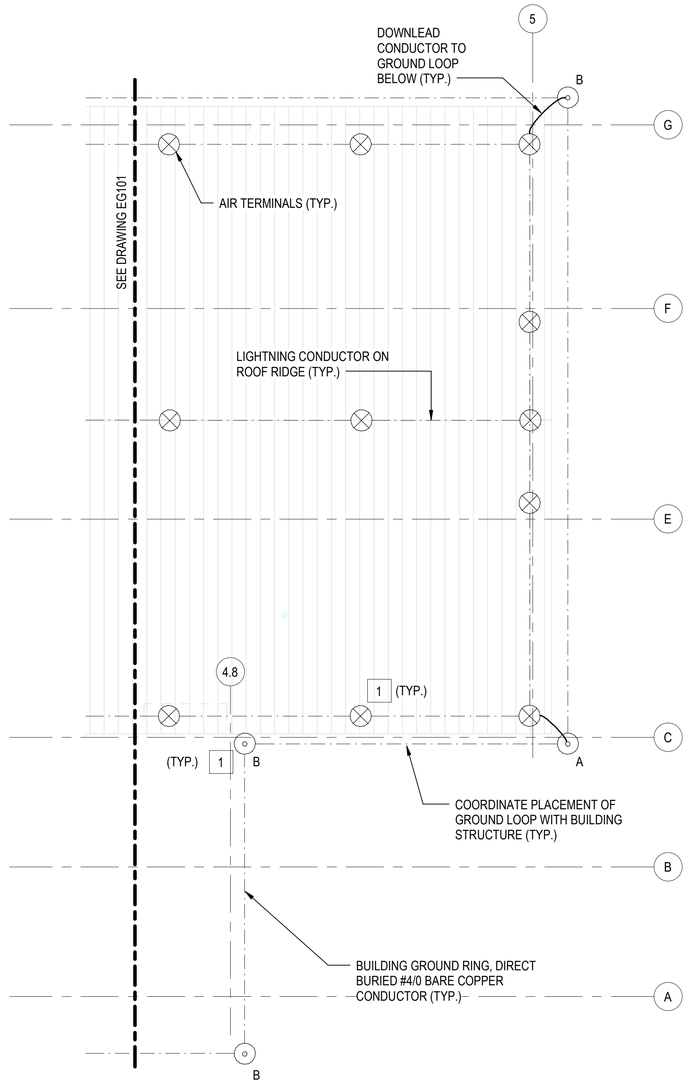
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SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ROOF PLAN - LIGHTNING PROTECTION SYSTEM
A

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032832 I. H. KIM 8-04-23

SHEET ID
EG101

READY TO ADVERTISE



B1 LIGHTNING PROTECTION PLAN - PART B
3/32" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ENSURE COMPATABILITY OF MATERIALS AT ROOF INCLUDING BOOT, SPECIAL ADHESIVE, SEALS, MOUNTING PADS ETC.
3. NO BENDS OF A CONDUCTOR MUST FORM A FINAL INCLUDED ANGLE OF LESS THAN 90 DEGREES OR A RADIUS OF BEND OF LESS THAN 8"
4. CONDUCTORS MUST INTERCONNECT AIR TERMINALS AND MUST FORM A TWO- WAY PATH FROM EACH AIR TERMINAL HORIZONTALLY OR DOWNWARD TO CONNECTIONS WITH GROUND TERMINALS.
5. LIGHTNING PROTECTION CONDUCTORS MUST BE FASTENED AT NO MORE THAN 3'-0" MAXIMUM SPACING.
6. CONNECTIONS TO GROUND ROD OR GROUND LOOP CONDUCTOR MUST BE MADE AT A POINT NOT LESS THAN 1'-0" BELOW GRADE AND 2'-0" AWAY FROM FOUNDATION WALL.
7. BARE LIGHTNING PROTECTION MATERIALS MUST NOT BE INSTALLED ON ALUMINUM SURFACES.
8. SEAL ENDS OF CONDUIT MOISTURE TIGHT WITH DUCT SEAL OR LEAD WEDGE.
9. CONDUIT, CONDUIT FASTENERS AND MISCELLANEOUS ACCESSORIES MUST BE PROVIDED AND INSTALLED.
10. REFER TO GROUNDING DETAILS ON SHEET EG104.

SHEET KEYNOTES

1. SEE DRAWING EG103 FOR GROUND ROD DETAILS.

GRAPHIC SCALE

0 4' 8' 16'
SCALE: 3/32"=1'-0

PLAN NORTH
TRUE N

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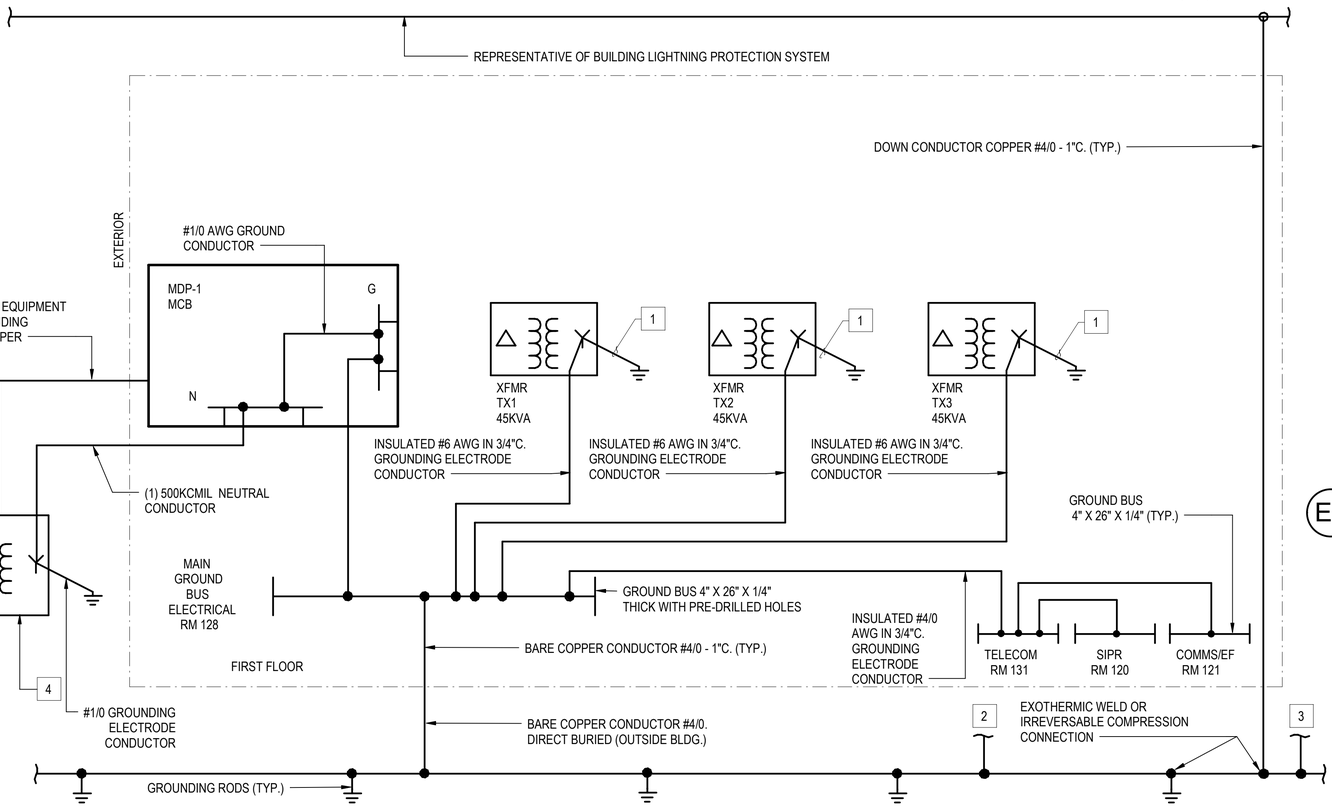
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ROOF PLAN - LIGHTNING PROTECTION SYSTEM
B

NORTH CAROLINA PROFESSIONAL SEAL 032832 ENGINEER
8-04-23

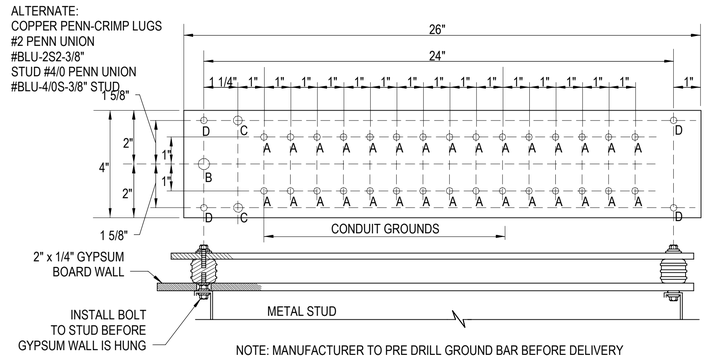
SHEET ID
EG102

READY TO ADVERTISE



D1 GROUNDING RISER DIAGRAM

12" = 1'-0"

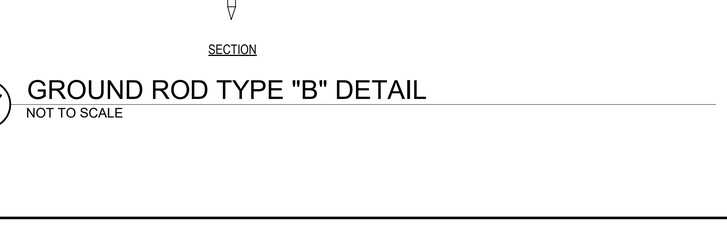


NOTE: MANUFACTURER TO PRE DRILL GROUND BAR BEFORE DELIVERY

NOTE: MOUNTING ARRANGEMENT IS SHOWN FOR GYPSUM BOARD WALL ONLY. PROVIDE MOUNTING ACCESSORIES AS REQUIRED FOR ALL TYPES OF WALL.

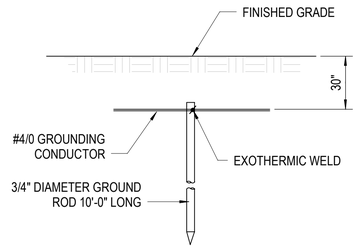
E7 GROUND BUS DETAIL

NONE



C7 GROUND ROD TYPE "A" DETAIL

NOT TO SCALE



A7 GROUND ROD TYPE "B" DETAIL

NOT TO SCALE

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. PROVIDE GROUNDING ELECTRODE CONDUCTOR PER NEC 250.30 AND 250.50.
2. CONNECT GROUNDING BONDING JUMPER TO STRUCTURAL REBAR.
3. CONNECT GROUNDING BONDING JUMPER TO WATER SERVICE PIPE.
4. SEE DETAIL E4/E-501 FOR PAD MOUNT TRANSFORMER DETAIL.

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US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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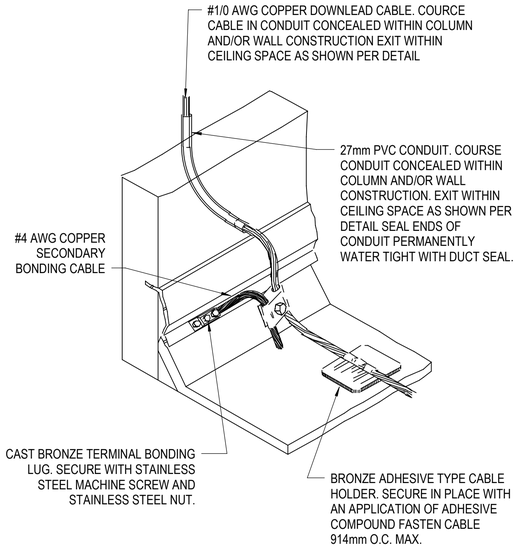
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PROJECT 87447
GROUNDING RISER DIAGRAM

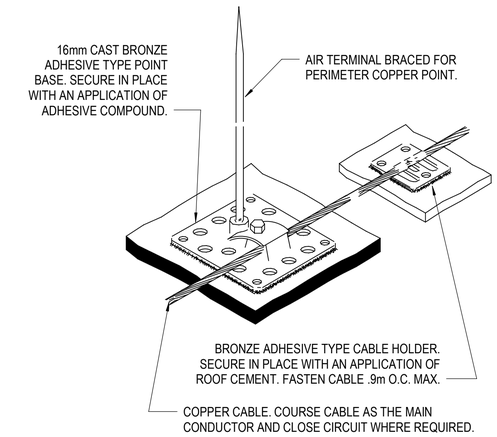
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032632 I.H. KIM
8-04-23

SHEET ID
EG103

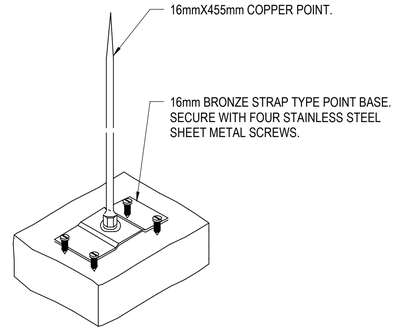
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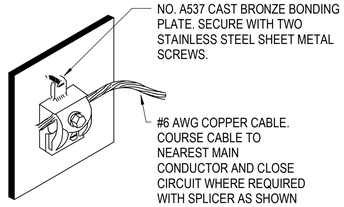
E1 CONCEALED DOWNLEAD AT LOWER ROOF DETAIL
NOT TO SCALE



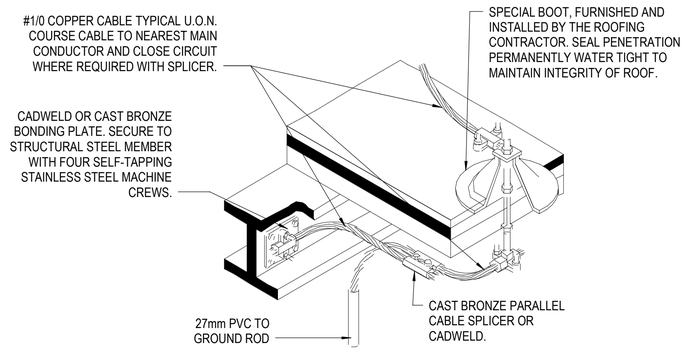
E5 ADHESIVE AIR TERMINAL DETAIL
NOT TO SCALE



E8 EQUIPMENT AIR TERMINAL DETAIL
NOT TO SCALE



B1 TYPICAL EQUIPMENT HOUSING BOND DETAIL
NOT TO SCALE



B5 THROUGH ROOF CABLE TO STEEL CONNECTION DETAIL
NOT TO SCALE

MARK	DESCRIPTION	DATE

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WILMINGTON, NORTH CAROLINA 28403-1343

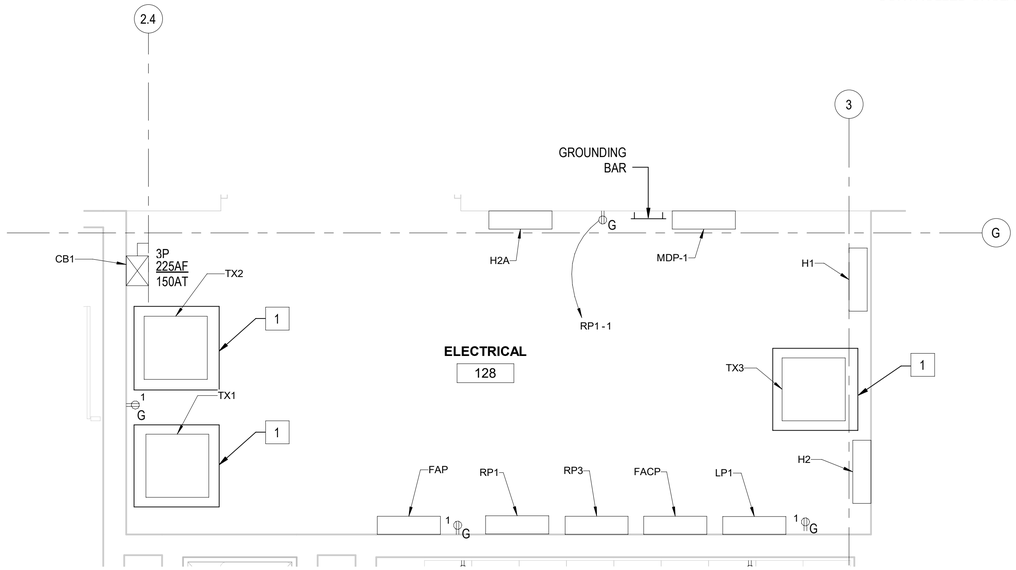
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PROJECT 87447
LIGHTNING PLAN DETAILS

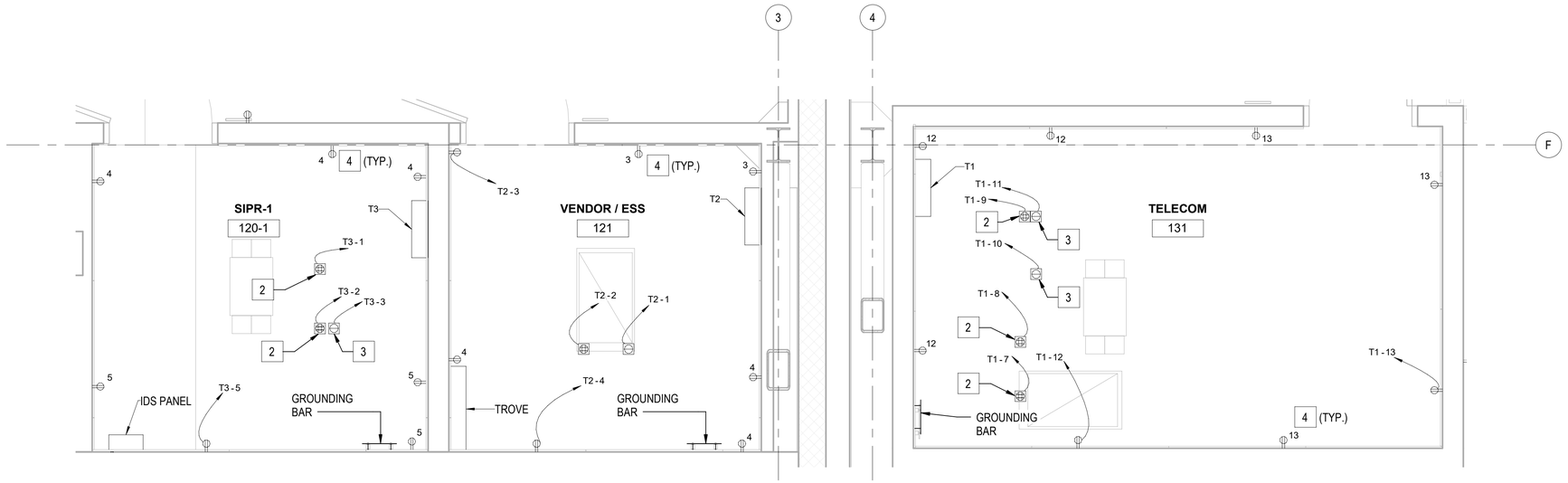
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8-04-23

SHEET ID
EG104

READY TO ADVERTISE



E2 ENLARGED ELECTRICAL PLAN - POWER
1/2" = 1'-0"



A2 ENLARGED TELECOM/SIPR/COMMS/EF PLAN - POWER
1/2" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. PROVIDE 4" THICK CONCRETE EQUIPMENT PAD FOR TRANSFORMERS. CONCRETE PAD SHALL BE MINIMUM 2" BEYOND TRANSFORMER DIMENSIONS.
2. DEDICATED 120V, 20A, NEMA 5-20R FLOOR MOUNTED QUAD RECEPTACLE.
3. DEDICATED 120V, 30A, NEMA L5-30R FLOOR MOUNTED SINGLE RECEPTACLE.
4. PROVIDE RECEPTACLE 6'-0" ON CENTER IN TELECOM ROOMS.

PLAN NORTH
TRUE N

GRAPHIC SCALE
0 1' 2' 4'
SCALE: 1/2"=1'-0

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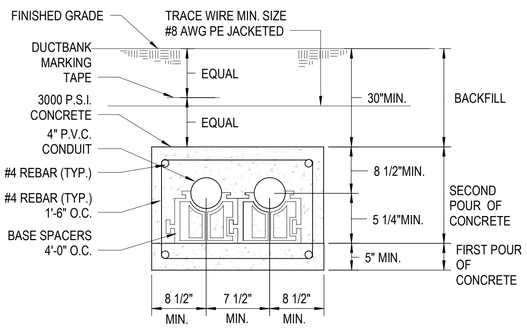
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BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ENLARGED PLAN

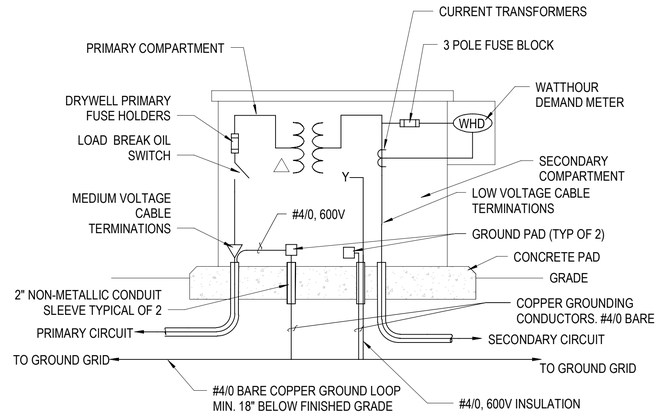
NORTH CAROLINA PROFESSIONAL SEAL 032832 ENGINEER I. K. KIM
8-04-23

SHEET ID
E-400

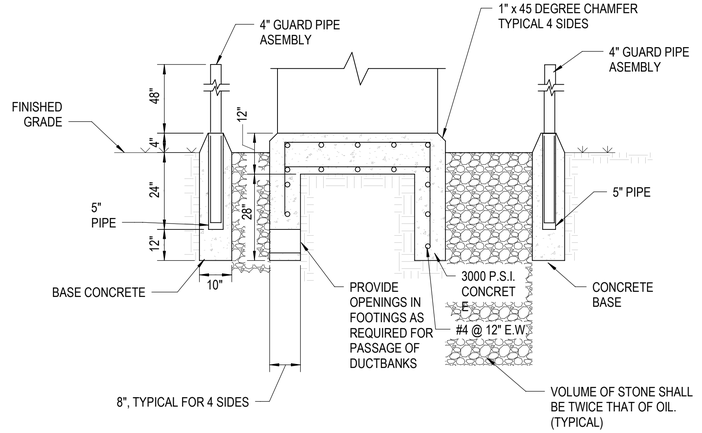
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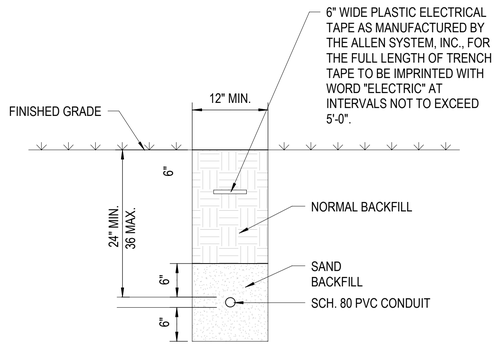
E1 2-WAY DUCTBANK DETAIL
NOT TO SCALE



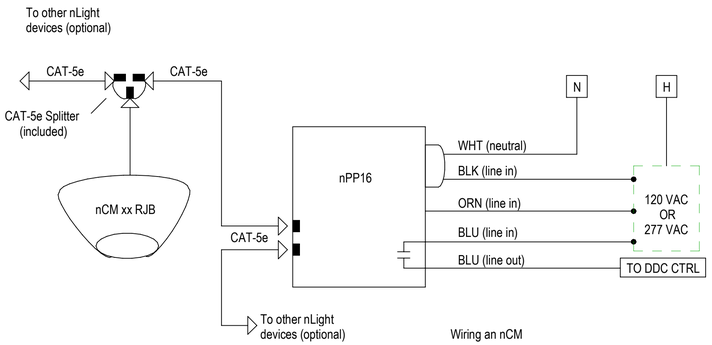
E4 PAD MOUNTED TRANSFORMER DETAIL
NOT TO SCALE



E7 TRANSFORMER PAD ELEVATION
NOT TO SCALE

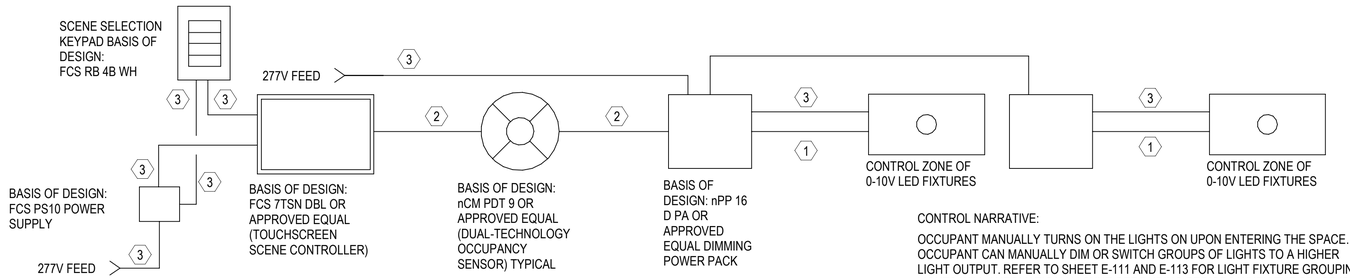


C1 UNDERGROUND CONDUIT INSTALLATION DETAIL
NOT TO SCALE



Wiring an nCM

C4 VAV CONTROL
12" = 1'-0"

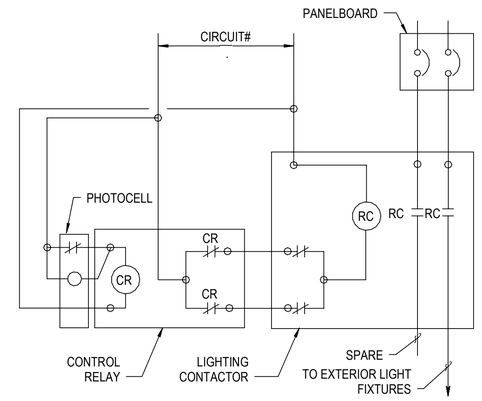


* PROVIDE QUANTITY OF SWITCHES AND OCCUPANCY SENSORS AS INDICATED ON PLANS FOR EACH ROOM OR LIGHTING CONTROL ZONE

CONTROL NARRATIVE:

OCCUPANT MANUALLY TURNS ON THE LIGHTS ON UPON ENTERING THE SPACE. OCCUPANT CAN MANUALLY DIM OR SWITCH GROUPS OF LIGHTS TO A HIGHER LIGHT OUTPUT. REFER TO SHEET E-111 AND E-113 FOR LIGHT FIXTURE GROUPING. LIGHTS WILL AUTOMATICALLY SHUT OFF DURING PERIODS WHEN THE SPACE IS SCHEDULED TO BE UNOCCUPIED USING EITHER (1) A TIME-OF-DAY OPERATED CONTROL DEVICE THAT AUTOMATICALLY TURNS THE LIGHTING OFF AT SPECIFIC PROGRAMMED TIMES OR (2) A SIGNAL FROM ANOTHER AUTOMATIC CONTROL DEVICE OR ALARM/SECURITY SYSTEM.

A1 CONFERENCE ROOM/BRIEFING ROOM LIGHTING CONTROL DIAGRAM
NOT TO SCALE



CONTROL NARRATIVE:

WALL PACK LIGHTS WILL DIM BY 30% OUTSIDE BUSINESS HOURS OR WHEN NO OCCUPANT ACTIVITY HAS BEEN DETECTED FOR 15 MINUTES. EXTERIOR LIGHTS WILL TURN OFF WHEN SUFFICIENT DAYLIGHT IS AVAILABLE.

A8 EXTERIOR LIGHTING CONTROL SCHEMATIC
NOT TO SCALE

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: RWL
DRAWN BY: EJB
CHECKED BY: IHK
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

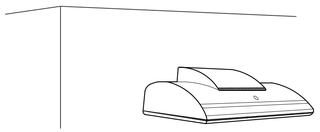
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032832 I. H. KIM 8-04-23

SHEET ID
E-501

READY TO ADVERTISE



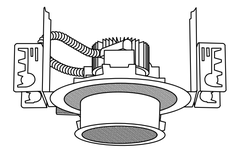
NOTE: THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LUMINAIRE REQUIREMENTS:

1. HOUSING - DIE-CAST OR EXTRUDED ALUMINUM WITH INTEGRAL PASSIVE COOLING MECHANISM. HEAT SINK INCORPORATED DIRECTLY INTO HOUSING OR DRIVER COMPARTMENT.
2. OPTICS - PRECISION MOLDED ACRYLIC LENS WITH TYPE II, III, OR IV DISTRIBUTIONS. BUG UPLIGHT RATING OF U0, WITH GLARE RATING AS DETERMINED BY LIGHTING ZONE INSTALLED.
3. LIGHT SOURCE - SOLID STATE LEDS, 3000K CCT UON, MINIMUM 70 CRI UON, AND MINIMUM EFFICACY OF 80 LUMENS/WATT UON. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DIMMABLE DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, AND < 20% THD. ON-OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE.
5. CERTIFICATION - UL LISTED FOR WET LOCATION, ROHS COMPLIANT. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
6. MOUNTING - SURFACE MOUNTED WITH STAINLESS STEEL MOUNTING HARDWARE.
7. OPTIONS - VARIOUS LIGHT DISTRIBUTIONS. INTEGRAL MOTION SENSOR, PHOTOCELL, BATTERY BACK-UP.

LED WALL PACK

REVISED: NOVEMBER 2020 | LUMINAIRE PLATE: XL-10



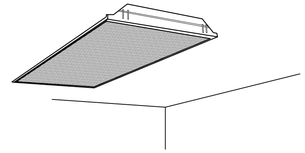
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LUMINAIRE REQUIREMENTS:

1. HOUSING - HEAVY GAUGE COLD ROLLED STEEL AND DIE CAST ALUMINUM WITH POWDER COATING FINISH.
2. OPTICS - ACRYLIC LENS.
3. LIGHT SOURCE - SOLID STATE LEDS, 3000K CCT UON, MINIMUM 80 CRI UON, AND MINIMUM EFFICACY OF 90 LUMENS/WATT UON. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DIMMABLE DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120 OR 277V, THERMAL MANAGEMENT, AND < 20% THD. ON-OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE.
5. CERTIFICATION - UL LISTED FOR DAMP OR WET LOCATION, ROHS COMPLIANT. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
6. MOUNTING - RECESSED IN HARD CEILINGS.
7. OPTIONS - EMERGENCY BATTERY BACK-UP, VARIOUS ACRYLIC OR POLYCARBONATE LENSES, REFLECTORS, LOUVERS AND TRIMS. VARIOUS BEAM ANGLES.

EXTERIOR RECESSED DOWNLIGHT

REVISED: NOVEMBER 2020 | LIGHTING PLATE: XL-11



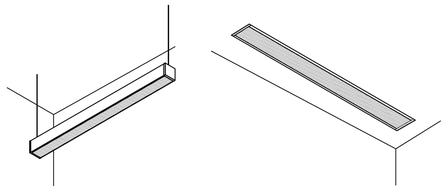
NOTE: THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LUMINAIRE REQUIREMENTS:

1. HOUSING - DIE-FORMED, COLD ROLLED STEEL. SIZE AS INDICATED IN LUMINAIRE SCHEDULE.
2. OPTICS - ACRYLIC OR POLYCARBONATE LENS AS INDICATED IN LUMINAIRE SCHEDULE.
3. LIGHT SOURCE - SOLID STATE LEDS, 3500K CCT UON, MINIMUM 80 CRI UON, AND MINIMUM EFFICACY OF 100 LUMENS/WATT UON. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, AND < 20% THD. ON/OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE.
5. CERTIFICATION - UL LISTED FOR DRY OR DAMP LOCATION, ROHS COMPLIANT, DLC QUALIFIED. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
6. MOUNTING - RECESSED IN HARD OR ACOUSTICAL TILE CEILING.
7. OPTIONS - EDGE-LIT LENS, PRISMATIC LENS. EMERGENCY BATTERY BACK-UP, INTEGRAL OCCUPANCY/VACANCY SENSOR, VARIOUS SIZE AND OUTPUT OPTIONS, SURFACE-MOUNTING KIT.

FLAT LENS LED LUMINAIRE

REVISED: NOVEMBER 2020 | LIGHTING PLATE: NL-2



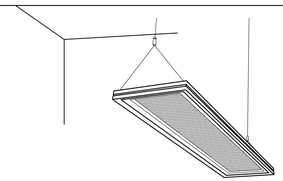
NOTE: THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LUMINAIRE REQUIREMENTS:

1. HOUSING - HEAVY GAUGE COLD ROLLED STEEL, EXTRUDED ALUMINUM, OR DIE CAST ALUMINUM BODY. SIZE AS INDICATED IN LUMINAIRE SCHEDULE.
2. OPTICS - FROSTED ACRYLIC OR POLYCARBONATE LENS. LAMBERTIAN, NARROW, WIDE, OR ASYMMETRIC LIGHT DISTRIBUTION AS INDICATED IN LUMINAIRE SCHEDULE.
3. LIGHT SOURCE - SOLID STATE LEDS, 3500K CCT UON, MINIMUM 80 CRI UON, AND MINIMUM EFFICACY OF 90 LUMENS/WATT UON. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, AND < 20% THD. ON-OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE.
5. CERTIFICATION - UL LISTED FOR DRY OR DAMP LOCATION, ROHS COMPLIANT, DLC QUALIFIED. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
6. MOUNTING - PENDANT, STEM, OR SURFACE MOUNTED WITH STAINLESS STEEL MOUNTING HARDWARE, OR RECESSED IN HARD OR ACOUSTICAL TILE CEILING.
7. OPTIONS - EMERGENCY BATTERY BACK-UP, INTEGRAL OCCUPANCY/VACANCY SENSOR, VARIOUS PROFILE DIMENSIONS AND RUN LENGTHS, AND VARIOUS CLEAR OR FROSTED POLYCARBONATE LENSES, BAFFLES, OR LOUVERS.

LINEAR LED SLOT

REVISED: NOVEMBER 2020 | LIGHTING PLATE: NL-4



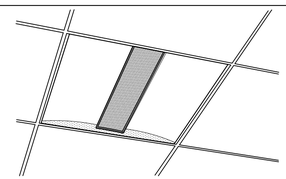
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LUMINAIRE REQUIREMENTS:

1. HOUSING - DIE CAST ALUMINUM FRAME AND HEAT SINK WITH ENAMELED FINISH. SIZE AS INDICATED IN LUMINAIRE SCHEDULE.
2. OPTICS - ACRYLIC OR POLYCARBONATE REFRACTIVE LENS. EDGE-LIT, LAMBERTIAN, NARROW, WIDE, OR ASYMMETRIC LIGHT DISTRIBUTION AS INDICATED IN LUMINAIRE SCHEDULE.
3. LIGHT SOURCE - SOLID STATE LEDS, 3500K CCT UON, MINIMUM 80 CRI UON, AND MINIMUM EFFICACY OF 75 LUMENS/WATT UON. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
4. DRIVER - REPLACEABLE, HIGH-EFFICIENCY DIMMABLE DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, AND < 20% THD. ON-OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE. INTEGRAL TO LUMINAIRE OR REMOTE-LOCATED IN ACCESSIBLE LOCATION.
5. CERTIFICATION - UL LISTED FOR DRY OR DAMP LOCATION, ROHS COMPLIANT, DLC QUALIFIED. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
6. MOUNTING - PENDANT OR STEM MOUNTED WITH STAINLESS STEEL MOUNTING HARDWARE.
7. OPTIONS - EMERGENCY BATTERY BACK-UP, VARIOUS PROFILE DIMENSIONS AND RUN LENGTHS, AND VARIOUS CLEAR OR FROSTED POLYCARBONATE LENSES, BAFFLES, OR LOUVERS.

DIRECT/INDIRECT LED PENDANT

REVISED: NOVEMBER 2020 | LIGHTING PLATE: NL-6



NOTE: THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LUMINAIRE REQUIREMENTS:

1. HOUSING - HEAVY GAUGE COLD ROLLED STEEL OR DIE CAST ALUMINUM. SIZE SHOWN AS INDICATED IN LUMINAIRE SCHEDULE.
2. OPTICS - FROSTED ACRYLIC OR POLYCARBONATE LENS WITH DIE FORMED COLD ROLLED SHEET STEEL REFLECTORS.
3. LIGHT SOURCE - SOLID STATE LEDS, 3500K CCT UON, MINIMUM 80 CRI UON, AND MINIMUM EFFICACY OF 100 LUMENS/WATT UON. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DIMMABLE DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, AND < 20% THD. ON/OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE.
5. CERTIFICATION - UL LISTED FOR DRY OR DAMP LOCATION, ROHS COMPLIANT. DLC QUALIFIED. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
6. MOUNTING - RECESSED IN HARD OR ACOUSTICAL TILE CEILING.
7. OPTIONS - EMERGENCY BATTERY BACK-UP, INTEGRAL OCCUPANCY/VACANCY SENSOR, VARIOUS SIZE AND OUTPUT OPTIONS, SURFACE-MOUNTING KIT.

DIRECT/INDIRECT LED LUMINAIRE

REVISED: NOVEMBER 2020 | LIGHTING PLATE: NL-1

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ELECTRICAL

DESIGNED BY: RWL
DRAWN BY: EJB
CHECKED BY: HHK
SUBMITTED BY: WBA
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912DR-19-D-0004
FIRST TITLE:
SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

DETAILS

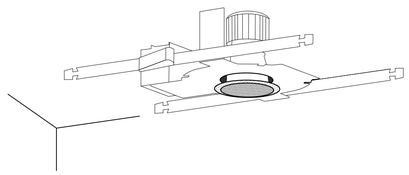
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032832 LEE H. KIM 08-04-23

SHEET ID

E-502

READY TO ADVERTISE

PLOT DATE: 8/2/2023 7:54:03 AM PAGE SETUP: AEC-ANSI D (22X34) PLOT STYLE: AECSTDBANDW.CTB PAPER SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES)
FILENAME: N:\80000-002\CAD\E-502 - DETAILS.DWG



NOTE: THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LUMINAIRE REQUIREMENTS:

1. HOUSING - COLD-ROLLED STEEL OR DIE CAST ALUMINUM, WITH HEAT SINK. APERTURE SIZE AND SHAPE AS INDICATED IN LUMINAIRE SCHEDULE.
2. LIGHT SOURCE - SOLID STATE LEDS, 3500K CCT UON, MINIMUM 80 CRI UON, AND MINIMUM EFFICACY OF 70 LUMENS/WATT UON. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
3. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DIMMABLE DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, AND < 20% THD. ON/OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE.
4. CERTIFICATION - UL LISTED FOR DRY OR DAMP LOCATION, ROHS COMPLIANT. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
5. MOUNTING - RECESSED IN HARD OR ACOUSTICAL TILE CEILING. PROVIDE T-BAR HANGERS FOR INSTALLATION IN ACOUSTICAL TILE CEILINGS OR TABS WHEN MOUNTING IN HARD CEILINGS.
6. OPTIONS - EMERGENCY BATTERY BACK-UP, VARIOUS ACRYLIC OR POLYCARBONATE LENSES, REFLECTORS, LOUVERS AND TRIMS. VARIOUS BEAM ANGLES. IC RATED HOUSING.

FIXED RECESSED DOWNLIGHT

REVISED: NOVEMBER 2020 | LIGHTING PLATE: NL-12



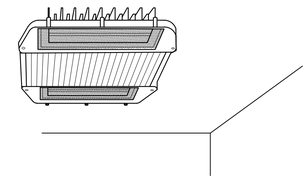
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LUMINAIRE REQUIREMENTS:

1. HOUSING - DIE-CAST ALUMINUM OR HIGH-IMPACT, UV-STABILIZED, INJECTION-MOLDED THERMOPLASTIC.
2. LIGHT SOURCE - SOLID STATE LEDS.
3. DRIVER - INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120/277V, THERMAL MANAGEMENT, AND < 20% THD.
4. CERTIFICATION - NFPA 101, UL LISTED FOR DAMP OR WET LOCATION, AND ROHS COMPLIANT.
5. MOUNTING - SURFACE MOUNTED ON CEILING AND/OR WALL.
6. OPTIONS - RED OR GREEN LETTERING, ONE- OR TWO-SIDED. ELU REMOTE HEAD CAPABILITIES. BATTERY BACKUP.

EXIT SIGN

REVISED: NOVEMBER 2020 | LIGHTING PLATE: NL-28



NOTE: THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LUMINAIRE REQUIREMENTS:

1. HOUSING - HEAVY GAUGE COLD ROLLED STEEL OR CAST ALUMINUM HOUSING.
2. OPTICS - POLYCARBONATE DIFFUSE LENS.
3. LIGHT SOURCE - SOLID STATE LEDS, 3500K CCT UON, MINIMUM 80 CRI UON, AND MINIMUM EFFICACY OF 140 LUMENS/WATT UON. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DIMMABLE DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, AND < 20% THD. ON/OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE.
5. CERTIFICATION - UL LISTED FOR DAMP OR WET LOCATION, ROHS COMPLIANT, DLC QUALIFIED. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
6. MOUNTING - PENDANT, STEM, OR SURFACE MOUNTED WITH STAINLESS STEEL MOUNTING HARDWARE.
7. OPTIONS - INTEGRAL OCCUPANCY SENSOR, EMERGENCY BATTERY BACK-UP, VARIOUS OPTICAL DISTRIBUTIONS.

LED INDUSTRIAL HIGH-BAY

REVISED: NOVEMBER 2020 | LIGHTING PLATE: NL-24

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE
ELECTRICAL		

DESIGNED BY: RWL
DRAWN BY: EJB
CHECKED BY: HHK
SUBMITTED BY: WHA
SIZE: ANSI D
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912DR-19-D-0004
FIRST TITLE:
SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447

DETAILS

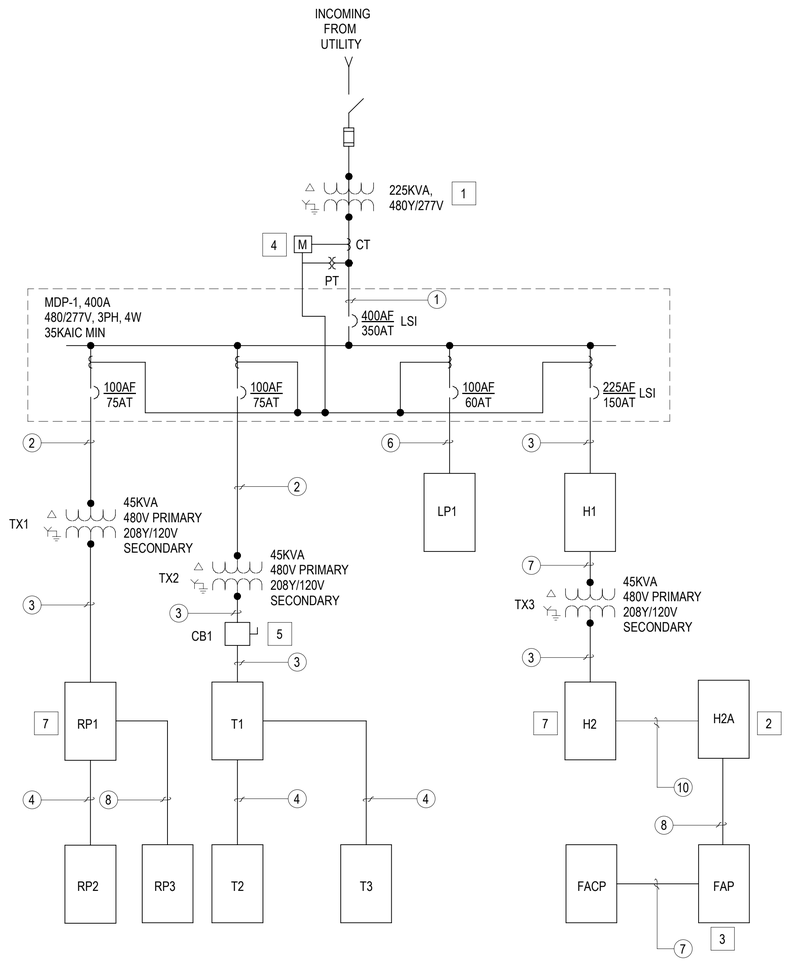
NORTH CAROLINA PROFESSIONAL SEAL 032432 ENGINEER
8-04-23

SHEET ID

E-503

READY TO ADVERTISE

PLOT DATE: 8/2/2023 7:54:44 AM PAGE SETUP: AEC-ANSI D (22X34) PLOT STYLE: AEC/STDBWINDW.CTB PAPER SIZE:ANSI FULL BLEED D (34.00 X 22.00 INCHES)
FILENAME: N:\8000\8002\CADD\E-503 - DETAILS.DWG



C1 ONE-LINE DIAGRAM
NO SCALE

FEEDER SCHEDULE						
NO#	CB TRIP SIZE	NO. SETS	WIRE SIZE	GROUND WIRE SIZE	CONDUIT NO. SIZE INCH (")	REMARKS
1	350 A	1	4#500kcmil	1#3	(2) - 4"	1 SPARE 4" CONDUIT
2	75 A	1	3#3	1#8	(1) - 1 1/4"	
3	150 A	1	4#1/0	1#6	(1) -1 1/2"	
4	60 A	1	4#4	1#10	(1) - 1 1/4"	
5	150 A	1	4#1/0	1#6	(1) -1 1/2"	
6	60 A	1	4#4	1#10	(1) - 1 1/4	
7	75 A	1	3#3	1#8	(1) - 1 1/4"	
8	100 A	1	4#1	1#8	(1) - 1-1/2"	
9	250 A	1	3#250kcmil	1#4	(1) - 3"	
10	125 A	1	4#1/0	1#6	(1) - 2"	

6 PANELBOARD: MDP-1

LOCATION: ELECTRICAL 128
SUPPLY FROM: UTILITY XFMR
MOUNTING: SURFACE
ENCLOSURE: NEMA 1

VOLTAGE: 480/277
PHASE: 3
WIRES: 4

A.I.C. RATING: 35 KAIC
PANEL TYPE: 400 A MCB
BUS RATING: 400 A
MCB RATING: 350 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1				19.1	1.8								2
3	TX1	75 A	3			14.6	2.3			3	75 A	TX2	4
5								16.5	2.6				6
7				11.2	0.0					1	20 A	SPARE	8
9	LP1	100 A	3			9.4	0.0			1	20 A	SPARE	10
11								7.5	0.0	1	20 A	SPARE	12
13	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	14
15	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	16
17	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	18
19				54.0	0.0					1	20 A	SPARE	20
21	H1	150 A	3			49.7	0.0			1	20 A	SPARE	22
23								35.0	0.0	1	20 A	SPARE	24
		TOTAL LOAD:		86097 VA		75864 VA		61573 VA					
		TOTAL AMPS:		319 A		282 A		222 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
LIGHTING	28241 VA	125.00%	35301 VA		
Lighting - Dwelling Unit	100 VA	125.00%	125 VA	TOTAL CONN. LOAD	223531 VA
Power	157013 VA	100.00%	157013 VA	TOTAL EST. LOAD	217584 VA
RECEPTACLE	36000 VA	63.89%	23000 VA	TOTAL CONN. CURRENT	269 A
RECEPTCLE	1440 VA	100.00%	1440 VA	TOTAL EST. DEMAND CURRENT	262 A
Spare	900 VA	100.00%	900 VA		

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, E-003 AND E-004 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ALL WIRE SIZES ARE BASED ON COPPER CONDUCTORS..
3. VOLTAGE, PHASE AND NUMBER OF WIRES ARE INDICATED ON PANEL SCHEDULE. SEE DRAWINGS EP-701, EP-702 AND EP-703.

SHEET KEYNOTES

1. 225KVA TRANSFORMER, AND ALL EQUIPMENT UPSTREAM FROM THE TRANSFORMER SHALL BE PROVIDED BY THE UTILITY COMPANY.
2. FIRE PROTECTION PANEL MUST BE FED FROM LOCK-ON CIRCUIT BREAKER. LOCK-ON CIRCUIT BREAKER MUST HAVE RED OPERATIONG HANDLE SUPPLIED FROM FACTORY. PROVIDE NAMEPLATE WITH THE FOLLOWING INSCRIPTION "FIRE PROTECTION/LIFE SAFETY EQUIPMENT". NAMEPLATE MUST BE RED LAMINATED PLASTIC WITH WHITE CENTER CORE.
3. PAINT DEDICATED PANEL SERVING FIRE PROTECTION AND LIFE SAFETY EQUIPMENT RED. PROVIDE PANEL WITH NAMEPLATE THAT STATES "FIRE PROTECTION/LIFE SAFETY EQUIPMENT". NAMEPLATE MUST BE RED LAMINATED PLASTIC WITH WHITE CENTER CORE.
4. COORDINATE METER REQUIREMENTS AND COMMUNICATION CAPABILITIES WITH THE BMS PROTOCOLS. REFER TO MECHANICAL DRAWING M-501.
5. PROVIDE 3-POLE, 150A ENCLOSURE CIRCUIT BREAKER IN NEMA 1 ENCLOSURE. THE GROUND AND NEUTRAL SHALL BE BONDED FOR A SEPARATELY DERIVED SYSTEM.
6. MDP-1 SHALL BE SERVICE ENTRANCE RATED. GROUND AND NEUTRAL SHALL BE BONDED. SEE DETAIL "D1" ON DRAWING EG103.
7. PANELS H2 AND RP1 SHALL BE EQUIPPED WITH A MEANS FOR BONDING THE GROUND AND NEUTRAL.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: RWL
DRAWN BY: EJB
CHECKED BY: IHK
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ONE-LINE DIAGRAMS

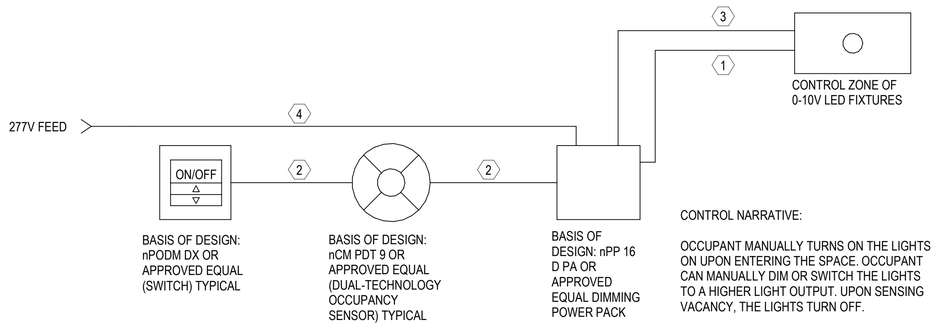
NORTH CAROLINA PROFESSIONAL SEAL 032832 ENGINEER I. H. KIM
8-04-23

SHEET ID
E-601

READY TO ADVERTISE

LIGHTING FIXTURE SCHEDULE

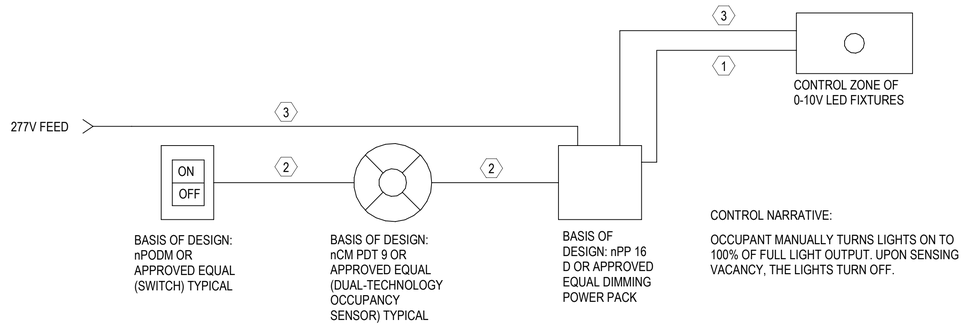
TYPE MARK	DESCRIPTION	MOUNTING	WATTAGE	MANUFACTURER	VOLTS	COMMENTS	DETAILS
A	2x4	RECESSED	25 W	LITHONIA - 2ALL4-30L-MVOLT-LP840	277V	OR APPROVED EQUIVALENT	NL-2/E-502
A1	2x2	RECESSED	29 W	LITHONIA - 2ALL2-33L-MVOLT-LP840	277V	OR APPROVED EQUIVALENT	NL-1/E-502
B	4'	PENDANT	25 W	LITHONIA - ZL1N-L48-3000LM-MVOLT-40K-80CRI	277V	OR APPROVED EQUIVALENT	NL-6/E-502
C	1x4	CEILING	32 W	LITHONIA - SBL4LP840 (CI-254RKU)	277V	OR APPROVED EQUIVALENT	NL-6/E-502
D	13"	PENDANT	92 W	LITHONIA - 12000LM-40K-80CRI	277V	OR APPROVED EQUIVALENT	NL-24/E-502
E	WALL PACK	WALL	24 W	LITHONIA - WPX1-LED-P2-40K-MVOLT-E4WH-DDBXD	277V	OR APPROVED EQUIVALENT	XL-10/E-502
F	4"	CEILING	11 W	LITHONIA - LDN4CYL-35-10-LO4-WR-LSS-MVOLT	277V	OR APPROVED EQUIVALENT	NL-12/E-502
G	10"	RECESSED	25 W	APEX - APX13-NODIM-25W-40K-277-FCL-BLK	277V	OR APPROVED EQUIVALENT	XL-11/E-502
G1	10"	RECESSED	25 W	APEX - APX13-NODIM-25W-40K-120-FCL-BLK	120V	OR APPROVED EQUIVALENT	XL-11/E-502
X	EXIT SIGN DOOR	WALL		LITHONIA - EXRG-EL-M6	277V	OR APPROVED EQUIVALENT	NL-28/E-502
X1	EXIT SIGN	CEILING		LITHONIA - LQM-SW3R-120/277-MB	277V	OR APPROVED EQUIVALENT	NL-28/E-503



* PROVIDE QUANTITY OF SWITCHES, POWER PACKS AND OCCUPANCY SENSORS AS INDICATED ON PLANS FOR EACH ROOM OR LIGHTING CONTROL ZONE

B1 OFFICE LIGHTING SWITCHING CONTROL DIAGRAM

NOT TO SCALE



* PROVIDE QUANTITY OF SWITCHES AND OCCUPANCY SENSORS AS INDICATED ON PLANS FOR EACH ROOM OR LIGHTING CONTROL ZONE

B6 RESTROOM/STORAGE ROOM LIGHTING CONTROL DIAGRAM

NOT TO SCALE

GENERAL SHEET NOTES

1. REFER TO SHEETS E-001, E-002, AND E-003 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. (2) #18 AWG 0-10V DIMMING WIRES.
2. CAT 5 (OR BETTER) CABLE.
3. LINE VOLTAGE WIRING, MAY INCLUDE LOW VOLTAGE CONDUCTOR FOR DIMMING.
4. LINE VOLTAGE WIRING.

US Army Corps of Engineers ®

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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
LIGHTING SCHEDULES



SHEET ID
EL701

READY TO ADVERTISE

PANELBOARD: LP1
LOCATION: ELECTRICAL 128
SUPPLY FROM: MDP-1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1
VOLTAGE: 480/277
PHASE: 3
WIRES: 4
A.I.C. RATING: 10 KAIC
PANEL TYPE: MCB
BUS RATING: 100 A
MCB RATING: 100 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1	EXIT LIGHTS	20 A	1	0.0	0.0					1	20 A	EM. LIGHTING WAREHOUSE 129	2
3	LTG - STORAGE, ELECTRICAL	20 A	1			0.4	1.0			1	20 A	LTG - OFFICE 103,104,105, CORR 116	4
5	LTG - EXT. WALLPACKS TRUE NORTH	20 A	1					0.3	0.6	1	20 A	LTG - MECH/PLUM 127, MENS, WOMENS	6
7	LTG - OFFICE 106, CUST SERV AREA 107	20 A	1	0.6	2.3					1	20 A	LTG - GIP WAREHOUSE	8
9	LTG - PBO PFFICE 109,110, OPEN OFCE...	20 A	1			1.2	1.0			1	20 A	LTG - CORR, MOTHERS, SPIR, COMMS/EF	10
11	LTG - BRK RM 118, VEST 117, CORR 116	20 A	1					0.9	0.9	1	20 A	LTG - CLS OFFICE, CUST SERV AREA	12
13	LTG - WAREHOUSE 129	20 A	1	2.3	4.7					1	20 A	LTG - EMERGENCY WAREHOUSE	14
15	LTG - WAREHOUSE 129	20 A	1			2.8	2.3			1	20 A	LTG - WAREHOUSE 129	16
17	LTG - COPY 112, STOCK CTRL OFCE 108	20 A	1					0.8	1.9	1	20 A	LTG - WAREHOUSE 129	18
19	LTG - EXT. WALLPACKS TRUE WEST	20 A	1	0.6	0.5					1	20 A	LTG - EXT. WALLPACKS TRUE EAST	20
21	LTG - EXT. WALLPACKS TRUE NORTH	20 A	1			0.2	0.3			1	20 A	LTG - EXT. WALLPACKS TRUE SOUTH	22
23	LTG - LOADING DOCK	20 A	1					1.8					24
25					0.1					1	20 A	LTG - RESTROOM 136	26
27	LTG - VEST 101,CORR 116	20 A	1			0.1	0.3			1	20 A	LTG - EXT. WALLPACKS TRUE WEST	28
29	LTG - CONF. RM, SECURE VAULT,...	20 A	1					0.4	0.1	1	20 A	LTG - ENTRANCE CANOPY	30
31	LTG - LOCKABLE STORAGE/VAULT	20 A	1	0.3	0.0					1	20 A	SPARE	32
33	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	34
35	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	36
37	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	38
39	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	40
41	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	42
		TOTAL LOAD:		11224 VA		9370 VA		7480 VA					
		TOTAL AMPS:		42 A		35 A		27 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
LIGHTING	27943 VA	125.00%	34928 VA		
Lighting - Dwelling Unit	100 VA	125.00%	125 VA	TOTAL CONN. LOAD	28041 VA
				TOTAL EST. LOAD	35051 VA
				TOTAL CONN. CURRENT	34 A
				TOTAL EST. DEMAND CURRENT	42 A
				15% SPARE CAPACITY	12 A
				TOTAL DEMAND LOAD	59 A

PANELBOARD: RP1
LOCATION: ELECTRICAL 128
SUPPLY FROM: TX1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1
VOLTAGE: 208/120
PHASE: 3
WIRES: 4
A.I.C. RATING: 35 KAIC
PANEL TYPE: MCB
BUS RATING: 225 A
MCB RATING: 150 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1	REC. ELECTRICAL ROOM 128	20 A	1	0.7	0.7					1	20 A	REC. PBO OFFICE 109, 110	2
3	REC. CORRIDOR 116	20 A	1			1.4	1.3			1	20 A	REC. MECH/PLUMB 127	4
5	REC. OPEN OFFICE 114	20 A	1					0.5	1.8	1	20 A	REC. STOCK CONTROL OFFICE 108	6
7	REC. MENS, WOMENS, STORAGE 122	20 A	1	0.7	0.2					1	20 A	REC. OPEN OFFICE 114	8
9	REC. SECURE STORAGE 132	20 A	1			0.2	0.7			1	20 A	REC. COPY 112	10
11	REC. WAREHOUSE 129	20 A	1					0.4	0.7	1	20 A	REC. LOCKABLE STORAGE 132	12
13	REC. OPEN OFFICE 114	20 A	1	0.5	0.5					1	20 A	REC. MOTHERS 119	14
15	REC. WAREHOUSE 129	20 A	1			0.2	0.2			1	20 A	REC. COPY 112	16
17	REC. EXTERIOR TRUE EAST	20 A	1					0.5	1.3	1	20 A	REC. CONF. ROOM 113	18
19	POWER TO PEDESTRIAN GATE	20 A	1	0.5	0.7					1	20 A	REC. EXTERIOR TRUE EAST	20
21	ACS PANEL PEDESTRIAN GATE	20 A	1			0.5	0.2			1	20 A	REC. MOTHERS 119 REFRIGERATOR	22
23	POWER TO OUTGOING GATE	20 A	1					0.9	0.4	1	20 A	REC. CONF ROOM TV	24
25	ACS PANEL OUTGOING GATE	20 A	1	0.5	0.5					1	20 A	REC. CORR 111	26
27	REC. OPEN OFFICE 114	20 A	1			0.4	0.2			1	20 A	REC. CONF ROOM 113	28
29	RECEPTACLE MECH/PLUMB 127	20 A	1					0.4	0.0	1	20 A	SPARE	30
31	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	32
33	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	34
35	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	36
37				5.2	8.3								38
39	RP2	60 A	3			3.2	6.1			3	100 A	RP3	40
41								4.2	5.5				42
		TOTAL LOAD:		19120 VA		14560 VA		16520 VA					
		TOTAL AMPS:		162 A		121 A		140 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
LIGHTING	300 VA	125.00%	375 VA		
Power	15520 VA	100.00%	15520 VA	TOTAL CONN. LOAD	50200 VA
RECEPTACLE	32040 VA	65.61%	21020 VA	TOTAL EST. LOAD	39255 VA
RECEPTCLE	1440 VA	100.00%	1440 VA	TOTAL CONN. CURRENT	139 A
Spare	900 VA	100.00%	900 VA	TOTAL EST. DEMAND CURRENT	109 A

PANELBOARD: RP2
LOCATION: GIP WAREHOUSE 134
SUPPLY FROM: RP1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1
VOLTAGE: 208/120
PHASE: 3
WIRES: 4
A.I.C. RATING: 10 KAIC
PANEL TYPE: MCB
BUS RATING: 100 A
MCB RATING: 60 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1	REC. RESTROOM 136	20 A	1	0.2	0.7					1	20 A	REC. CUST SERVICE AREA 135	2
3	REC. CLS OFFICE 137	20 A	1			0.9	0.5			1	20 A	REC. GIP WAREHOUSE 134	4
5	FIRE PROTECTION EQUIPMENT	20 A	1					1.5	0.5	1	20 A	REC. LOADING DOCK	6
7	REC.WAREHOUSE FLOOR BOXES	20 A	1	0.5	0.5					1	20 A	REC. WAREHOUSE FLOOR BOXES	8
9	REC. GIP WAREHOUSE FLOOR BOXES	20 A	1			0.5	0.4			1	20 A	REC. GIP WAREHOUSE	10
11	REC. GIP WAREHOUSE	20 A	1					0.4	0.4	1	20 A	REC. GIP WAREHOUSE	12
13	REC. GIP WAREHOUSE	20 A	1	0.4	1.4					1	20 A	REC. COVERED STORAGE AREA	14
15	REC. CLS OFFICE 137 REFRIGERATOR	20 A	1			0.2	0.0			1	20 A	SPARE	16
17	REC. CLS OFFICE 137 COFFEE	20 A	1					0.2	0.2	1	20 A	REC. CLS OFFICE 137 MICROWAVE	18
19	REC. CLS OFFICE 137 COPIER	20 A	1	0.2	0.4					1	20 A	REC. CLS OFFICE 137	20
21	REC. CLS OFFICE 137	20 A	1			0.4	0.4			1	20 A	REC. CLS OFFICE 137	22
23	REC. WAREHOUSE 129	20 A	1					0.5	0.5	1	20 A	REC. WAREHOUSE 129	24
25	REC. WAREHOUSE 129	20 A	1	0.7	0.2					1	20 A	REC. 8-PORT POE SW CLS OFFICE 137	26
27	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	28
29	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	30
		TOTAL LOAD:		5160 VA		3240 VA		4160 VA					
		TOTAL AMPS:		44 A		27 A		36 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
LIGHTING	300 VA	125.00%	375 VA		
Power	3080 VA	100.00%	3080 VA	TOTAL CONN. LOAD	12560 VA
RECEPTACLE	8640 VA	100.00%	8640 VA	TOTAL EST. LOAD	12635 VA
RECEPTCLE	540 VA	100.00%	540 VA	TOTAL CONN. CURRENT	35 A
				TOTAL EST. DEMAND CURRENT	35 A
				15% SPACE CAPACITY	7.2 A
				TOTAL DEMAND LOAD	38.2 A

PANELBOARD: FAP
LOCATION: ELECTRICAL 128
SUPPLY FROM:
MOUNTING: SURFACE
ENCLOSURE: NEMA 1
VOLTAGE: 208/120
PHASE: 3
WIRES: 4
A.I.C. RATING:
PANEL TYPE: MCB
BUS RATING: 100 A
MCB RATING: 100 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1	FATP	20 A	1	0.5	0.5					1	20 A	FMCU	2
3	MNS/AMP	20 A	1			0.5	0.5			1	20 A	NAC	4
5	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	6
7				0.0	0.0					1	20 A	SPARE	8
9	FACP	20 A	3			0.0	0.0			1	20 A	SPARE	10
11								0.0	0.0	1	20 A	SPARE	12
		TOTAL LOAD:		1000 VA		1000 VA		0 VA					
		TOTAL AMPS:		10 A		10 A		0 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Power	2000 VA	100.00%	2000 VA		
				TOTAL CONN. LOAD	2000 VA
				TOTAL EST. LOAD	2000 VA
				TOTAL CONN. CURRENT	6 A
				TOTAL EST. DEMAND CURRENT	6 A
				15% SPACE CAPACITY	12 A
				TOTAL DEMAND LOAD	18 A

US Army Corps of Engineers ®

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SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PANELBOARD SCHEDULES

NORTH CAROLINA PROFESSIONAL SEAL 032432 ENGINEER
8-04-23

SHEET ID
EP701

READY TO ADVERTISE

PANELBOARD: H1

LOCATION: ELECTRICAL 128
SUPPLY FROM: MDP-1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1

VOLTAGE: 480/277
PHASE: 3
WIRES: 4

A.I.C. RATING: 35 KAIC
PANEL TYPE: MCB
BUS RATING: 200 A
MCB RATING: 150 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1				9.7	0.2								2
3	AHU-1	40 A	3			9.7	0.2			3	20 A	UH-1	4
5								9.7	0.2				6
7				0.9	4.0								8
9	HV-1	15 A	3			0.9	4.0			3	20 A	DWH-1	10
11								0.9	4.0				12
13				1.4	0.0					1	20 A	SPARE	14
15	STACKING UNIT 1,& 2	20 A	3			1.4	0.0			1	20 A	SPARE	16
17								1.4	0.0	1	20 A	SPARE	18
19	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	20
21	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	22
23	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	24
25	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	26
27	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	28
29	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	30
31	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	32
33	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	34
35	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	36
37				37.8	0.0					1	20 A	SPARE	38
39	TX3	75 A	3			33.5	0.0			1	20 A	SPARE	40
41								18.8	0.0	1	20 A	SPARE	42
		TOTAL LOAD:		53968 VA		49682 VA		35043 VA					
		TOTAL AMPS:		203 A		188 A		127 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Power	138693 VA	100.00%	138693 VA		
				TOTAL CONN. LOAD	138693 VA
				TOTAL EST. LOAD	138693 VA
				TOTAL CONN. CURRENT	167 A
				TOTAL EST. DEMAND CURRENT	167 A
				15% SPARE CAPACITY	18 A
				TOTAL DEMAND LOAD	86 A

PANELBOARD: H2

LOCATION: ELECTRICAL 128
SUPPLY FROM: TX3
MOUNTING: SURFACE
ENCLOSURE: NEMA 1

VOLTAGE: 208/120
PHASE: 3
WIRES: 4

A.I.C. RATING: 10 KAIC
PANEL TYPE: MCB
BUS RATING: 225 A
MCB RATING: 150 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1	RADIENT PANEL-1 (RP-1) SOUTH	20 A	1	1.4	0.9					1	20 A	RADIENT PANEL-1 (RP-1) NORTH	2
3	EF-1	20 A	2			0.3	0.9			1	20 A	EF-2	4
5								0.3	0.9	1	20 A	HWCP-1	6
7	VAV-1	20 A	2	1.9	1.9					2	20 A	VAV-2, VAV-3, VAV-4	8
9						1.9	1.9						10
11	VAV-5, VAV-9	20 A	2					1.3	2.5	2	20 A	VAV-6, VAV-7	12
13				1.3	2.5								14
15	VAV-11, VAV-12	20 A	2			1.3	1.3			2	20 A	VAV-8, VAV-10	16
17								1.3	1.3				18
19	ACCU-1, ACU-1	20 A	2	0.3	13.3					2	20 A	AHU-2	20
21						0.3	13.3						22
23	ACCU-2, ACU-2	20 A	2					0.5	0.5	2	20 A	ACCU-3, ACU-3	24
25				0.5	0.5								26
27	ACCU-4, ACU-4	20 A	2			0.5	0.5			2	15 A	ACCU-5, ACU-5	28
29								0.5	0.5				30
31	RADIENT PANE-1 (RP-1) GIP WAREHOUSE	20 A	1	0.8	0.0					1	20 A	SPARE	32
33	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	34
35	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	36
37	SPARE	20 A	1	0.0	12.7					3	125 A	H2A	38
39	SPARE	20 A	1			0.0	11.5						40
41	SPARE	20 A	1					0.0	9.5				42
		TOTAL LOAD:		37772 VA		33486 VA		18847 VA					
		TOTAL AMPS:		334 A		298 A		157 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Power	90105 VA	100.00%	90105 VA		
				TOTAL CONN. LOAD	90105 VA
				TOTAL EST. LOAD	90105 VA
				TOTAL CONN. CURRENT	250 A
				TOTAL EST. DEMAND CURRENT	250 A
				15 SPARE CAPACITY	18 A
				TOTAL DEMAND LOAD	114 A

PANELBOARD: T3

LOCATION: SIPR-1 120-1
SUPPLY FROM: T1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1

VOLTAGE: 208/120
PHASE: 3
WIRES: 4

A.I.C. RATING: 10 KAIC
PANEL TYPE: MCB
BUS RATING: 100 A
MCB RATING: 60 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1	REC. 2-QUAD FLOOR BOX SIPR 120	20 A	1	0.2	0.2					1	20 A	REC. 2-QUAD FLOOR BOX SIPR 120	2
3	REC. SINGLE FLOOR BOX SIPR 120	30 A	1			0.2	0.5			1	20 A	REC. WALL. SIPR 120	4
5	REC. WALL SIPR 120	20 A	1					0.7	0.0	1	20 A	SPARE	6
7	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	8
9	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	10
11	IDS PANEL (SIPR 120)	20 A	1					0.5	0.0	1	20 A	SPARE	12
		TOTAL LOAD:		360 VA		720 VA		1220 VA					
		TOTAL AMPS:		3 A		6 A		11 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Power	1040 VA	100.00%	1040 VA		
RECEPTACLE	1260 VA	100.00%	1260 VA	TOTAL CONN. LOAD	2300 VA
				TOTAL EST. LOAD	2300 VA
				TOTAL CONN. CURRENT	6 A
				TOTAL EST. DEMAND CURRENT	6 A
				15% SPACE CAPACITY	7.2 A
				TOTAL DEMAND LOAD	13.2 A

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: RWL
DRAWN BY: EJB
CHECKED BY: IHK
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PANELBOARD SCHEDULES

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032832 I. H. KIM 8-04-23

SHEET ID
EP702

READY TO ADVERTISE

PANELBOARD: T1

LOCATION: TELECOM 131
SUPPLY FROM: CB1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1

VOLTAGE: 208/120
PHASE: 3
WIRES: 4

A.I.C. RATING: 10 KAIC
PANEL TYPE: MCB
BUS RATING: 225 A
MCB RATING: 150 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1				0.4	0.4								2
3	T2	60 A	3			1.3	0.7			3	60 A	T3	4
5								0.5	1.2				6
7	REC. 2-QUAD FLOOR BOX TELECOM 131	20 A	1	0.2	0.2					1	20 A	REC. 2-QUAD FLOOR BOX TELECOM 131	8
9	REC. 2-QUAD FLOOR BOX TELECOM 131	20 A	1			0.2	0.2			1	30 A	REC. SINGLE FLOOR BOX TELECOM 131	10
11	REC. SINGLE FLOOR BOX TELECOM 131	30 A	1					0.2	0.7	1	20 A	REC. WALL TELECOM 131	12
13	REC. WALL TELECOM 131	20 A	1	0.7	0.0					1	20 A	SPARE	14
15	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	16
17	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	18
19	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	20
21	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	22
23	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	24
		TOTAL LOAD:		1800 VA		2340 VA		2620 VA					
		TOTAL AMPS:		15 A		20 A		23 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Power	2800 VA	100.00%	2800 VA		
RECEPTACLE	3960 VA	100.00%	3960 VA	TOTAL CONN. LOAD	6760 VA
				TOTAL EST. LOAD	6760 VA
				TOTAL CONN. CURRENT	19 A
				TOTAL EST. DEMAND CURRENT	19 A
				15% SPACE CAPACITY	18 A
				TOTAL DEMAND LOAD	37 A

PANELBOARD: H2A

LOCATION: ELECTRICAL 128
SUPPLY FROM: H2
MOUNTING: Surface
ENCLOSURE: Type 1

VOLTAGE: 208/120
PHASE: 3
WIRES: 4

A.I.C. RATING: 10 KAIC
PANEL TYPE: MCB
BUS RATING: 250 A
MCB RATING: 125 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1				0.2	0.2								2
3	CUH-1	20 A	3			0.2	0.2			3	20 A	CUH-2	4
5								0.2	0.2				6
7	DWH-2	20 A	2	4.2	2.1					2	20 A	DWH-3	8
9						4.2	2.1						10
11	DWH-4	20 A	2					4.2	1.0	1	20 A	HVLS-3, HVLS-4	12
13				4.2	0.5					1	20 A	WTR COOLER CUST SERVICE AREA 135	14
15	HVLS-1, HVLS-2	20 A	1			1.0	1.0			1	20 A	XFMR FAUCET & FLUSH MEN'S 125	16
17	WATER COOLER CORR 116	20 A	1					0.5	1.0	1	20 A	XFMR FAUCET & FLUSH RESTROOM 136	18
19	GARBAGE DISP BREAK ROOM 118	20 A	1	0.5	0.5					1	20 A	EF-3	20
21	XFMR FAUCET & FLUSH WOMEN'S 124	20 A	1			1.0	1.5			1	20 A	DDC PANELS 1,2,3	22
23	DDC PANEL, HVLS-4 CTRL PNL	20 A	1					1.0	1.0	1	20 A	DDC PANEL 4, HVLS- 1,2,3 CTRL PNL	24
25	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	26
27	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	28
29	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	30
31				0.5	0.0					1	20 A	SPARE	32
33	FACP	100 A	3			0.5	0.0			1	20 A	SPARE	34
35								0.5	0.0	1	20 A	SPARE	36
		TOTAL LOAD:		12683 VA		11533 VA		9483 VA					
		TOTAL AMPS:		108 A		99 A		79 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Power	33700 VA	100.00%	33700 VA		
				TOTAL CONN. LOAD	33700 VA
				TOTAL EST. LOAD	33700 VA
				TOTAL CONN. CURRENT	94 A
				TOTAL EST. DEMAND CURRENT	94 A

PANELBOARD: T2

LOCATION: VENDOR / ESS 121
SUPPLY FROM: T1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1

VOLTAGE: 208/120
PHASE: 3
WIRES: 4

A.I.C. RATING: 10 KAIC
PANEL TYPE: MCB
BUS RATING: 100 A
MCB RATING: 60 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1	REC.SINGLE FLOOR BOX VENDOR/ESS...	20 A	1	0.2	0.2					1	20 A	REC. 2-QUAD FLOOR BOX VENDOR/ESS...	2
3	REC. WALL VENDOR/ESS 121	20 A	1			0.5	0.7			1	20 A	RECEPTACLE VENDOR / ESS 121	4
5	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	6
7	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	8
9	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	10
11	TROVE (VENDOR/ESS 121)	20 A	1					0.5	0.0	1	20 A	SPARE	12
		TOTAL LOAD:		360 VA		1260 VA		500 VA					
		TOTAL AMPS:		3 A		11 A		4 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Power	860 VA	100.00%	860 VA		
RECEPTACLE	1260 VA	100.00%	1260 VA	TOTAL CONN. LOAD	2120 VA
				TOTAL EST. LOAD	2120 VA
				TOTAL CONN. CURRENT	6 A
				TOTAL EST. DEMAND CURRENT	6 A
				15% SPACE CAPACITY	7.2 A
				TOTAL DEMAND LOAD	13.2 A

PANELBOARD: RP3

LOCATION: ELECTRICAL 128
SUPPLY FROM: RP1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1

VOLTAGE: 208/120
PHASE: 3
WIRES: 4

A.I.C. RATING: 10KAIC
PANEL TYPE: MCB
BUS RATING: 100 A
MCB RATING: 100 A

CKT	CIRCUIT DISCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DISCRIPTION	CKT
1	OUTDOOR HEATER BOX	20 A	1	0.5	0.2					1	20 A	REC. FLOOR BOX WAREHOUSE	2
3	REC. FLOOR BOX WAREHOUSE	20 A	1			0.2	0.7			1	20 A	REC. OFFICE 105	4
5	REC. FLOOR BOX WAREHOUSE	20 A	1					0.4	0.7	1	20 A	REC. VEST 101	6
7	REC. FLOOR BOX WAREHOUSE	20 A	1	0.4	0.9					1	20 A	REC. OFFICE 106	8
9	REC. PBO OFFICE 109	20 A	1			0.7	1.1			1	20 A	REC. CUSTOMER SERVICE / WAITING 107	10
11	REC. OFFICE 104	20 A	1					0.7	0.4	1	20 A	REC. SOUTH EXTERIOR	12
13	REC. SOUTH EXTERIOR	20 A	1	0.5	0.7					1	20 A	REC. OFFICE 103	14
15	REC. BREAK ROOM 118 MICROWAVE	20 A	1			0.2	1.1			1	20 A	REC. STORAGE FILE.	16
17	REC. BREAK ROOM 118 COFFEE	20 A	1					0.2	0.2	1	20 A	REC. BREAK ROOM 118 REFRIGERATOR	18
19	REC. BREAK ROOM 118	20 A	1	0.7	1.0					1	20 A	POWER OPEN OFFICE 114	20
21	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	22
23	SPARE	20 A	1					0.0	1.0	1	20 A	OVERHEAD COILING DOORS WRHSE...	24
25	REC. WAREHOUSE 129	20 A	1	0.4	1.0					1	20 A	OVERHEAD COILING DOORS...	26
27	REC. WAREHOUSE 129	20 A	1			0.2	0.0			1	20 A	SPARE	28
29	SPARE	20 A	1					0.0	0.0	1	20 A	SPARE	30
31				0.7	0.0					1	20 A	SPARE	32
33	FORKLIFT CHARGER	20 A	3			0.7	0.0			1	20 A	SPARE	34
35								0.7	0.0	1	20 A	SPARE	36
37				0.7	0.7								38
39	FORKLIFT CHARGER	20 A	3			0.7	0.7			3	20 A	FORKLIFT CHARGER	40
41								0.7	0.7				42
		TOTAL LOAD:		8280 VA		6140 VA		5520 VA					
		TOTAL AMPS:		70 A		52 A		46 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Power	10760 VA	100.00%	10760 VA		
RECEPTACLE	8820 VA	100.00%	8820 VA	TOTAL CONN. LOAD	19940 VA
RECEPTCLE	360 VA	100.00%	360 VA	TOTAL EST. LOAD	19940 VA
				TOTAL CONN. CURRENT	55 A
				TOTAL EST. DEMAND CURRENT	55 A
				15% SPACE CAPACITY	12 A
				TOTAL DEMAND LOAD	44 A

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: RWL
DRAWN BY: EJB
CHECKED BY: IHK
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231

FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
PANELBOARD SCHEDULES

NORTH CAROLINA PROFESSIONAL SEAL 032832 ENGINEER I. H. KIM
8-02-23

SHEET ID
EP703

READY TO ADVERTISE

TELECOMMUNICATIONS LEGEND

W — COMMUNICATIONS OUTLET FOR WALL MOUNTED PHONE, CONSISTING OF (1) GREEN CAT-6 PLENUM RATED 4-PAIR UTP CABLE IN 4" SQUARE BY 2-1/4" DEEP BACK BOX, WITH SINGLE GANG REDUCER RING AND FACEPLATE, EQUIPPED WITH MOUNTING LUGS. INSTALL 1" EMT AND EXTEND BACK TO BLACK CABLE TRAY SYSTEM UNLESS LOCATED IN HIGH BAY AREA. ROUTE CONDUIT IN CONCRETE SLAB FOR OUTLETS IN HIGH BAY AREA. MOUNT BACK BOX AT 48" AFF. TERMINATE CABLE ON CAT-6 RJ-45 JACK IN FACEPLATE AND IN RACK MOUNTED CAT-6 PATCH PANEL IN RESPECTIVE TELECOM ROOM.

WALL MOUNTED COMMUNICATIONS OUTLET CONSISTING OF (3) GREEN, CAT-6 PLENUM RATED 4-PAIR UTP CABLES IN 4-11/16" SQUARE BY 2-1/4" DEEP BACK BOX, WITH SINGLE GANG REDUCER RING AND FACEPLATE. INSTALL 1" EMT AND EXTEND BACK TO BLACK CABLE TRAY SYSTEM UNLESS LOCATED IN HIGH BAY AREA. ROUTE CONDUIT IN CONCRETE SLAB TO TELECOM ROOM 131 FOR OUTLETS IN HIGH BAY AREA. MOUNT BACK BOX AT 18" TO CENTER AFF UON. TERMINATE CABLES ON CAT-6 RJ45 JACKS IN FACEPLATE AND ON CAT-6 PATCH PANELS IN RESPECTIVE TELECOM ROOM.

S — COMMUNICATIONS OUTLET CONSISTING OF (2) RED, CAT-6 PLENUM RATED 4-PAIR UTP CABLES IN 4-11/16" SQUARE BY 2-1/4" DEEP BACK BOX, WITH SINGLE GANG REDUCER RING AND FACEPLATE. INSTALL 1" EMT AND EXTEND BACK TO RED CABLE TRAY SYSTEM. TERMINATE RED CABLES ON CAT-6 RJ45 JACKS IN FACEPLATE AND ON RACK MOUNTED CAT-6 PATCH PANELS IN THE SIPR ROOM.

F — COMMUNICATIONS OUTLET MOUNTED IN SYSTEMS FURNITURE CONSISTING OF (3) GREEN CAT-6 PLENUM RATED 4-PAIR UTP CABLES. ROUTE CABLING THROUGH CABLE WHIP FROM WALL TO SYSTEM FURNITURE. TERMINATE CABLES ON CAT-6 RJ45 JACKS IN FURNITURE FACEPLATE AND ON RACK MOUNTED CAT-6 PATCH PANELS IN RESPECTIVE TELECOM ROOM.

COMMUNICATIONS OUTLET MOUNTED IN FLOOR BOX CONSISTING OF (3) GREEN CAT-6 PLENUM RATED 4-PAIR UTP CABLES. EXTEND (1) 1-1/2" CONDUIT FROM COMMUNICAITONS SIDE OF FLOOR BOX THROUGH FLOOR SLAB AND STUB UP IN SERVING TELECOM ROOM. UTILIZE PVC CONDUIT WHEN RUNNING THROUGH FLOOR SLAB. SEE ELECTRICAL DRAWINGS FOR ANY POWER RELATED REQUIREMENTS. TERMINATE CAT-6 CABLES ON CAT-6 RATED RJ-45 JACKS IN FLOOR BOX MOUNTING PLATE AND ON RACK MOUNTED CAT-6 PATCH PANELS IN RESPECTIVE TELECOM ROOM.

S — COMMUNICATIONS OUTLET MOUNTED IN FLOOR BOX CONSISTING OF (2) RED CAT-6 PLENUM RATED 4-PAIR UTP CABLES. EXTEND (1) 1-1/2" CONDUIT FROM COMMUNICAITONS SIDE OF FLOOR BOX THROUGH FLOOR SLAB AND STUB UP IN SIPR ROOM. UTILIZE PVC CONDUIT WHEN RUNNING THROUGH FLOOR SLAB. SEE ELECTRICAL DRAWINGS FOR ANY POWER RELATED REQUIREMENTS. TERMINATE CAT-6 CABLES ON CAT-6 RATED RJ-45 JACKS IN FLOOR BOX MOUNTING PLATE AND ON RACK MOUNTED CAT-6 PATCH PANELS IN SIPR ROOM.

A — FLOOR BOX FOR AV CABLES. EXTEND (1) 1-1/2" CONDUIT FROM COMMUNICAITONS SIDE OF FLOOR BOX THROUGH FLOOR SLAB AND STUB UP TO DESIGNATED AV OUT. UTILIZE PVC CONDUIT WHEN RUNNING THROUGH FLOOR SLAB AND TRANSISION TO RMC ONCE INSIDE WALL. SEE ELECTRICAL DRAWINGS FOR ANY POWER RELATED REQUIREMENTS. REFER TO AV DIAGRAMS FOR CABLING AND CONNECTONS.

FS — COMMUNICATIONS OUTLET MOUNTED IN SYSTEMS FURNITURE CONSISTING OF (2) RED, CAT-6 PLENUM RATED 4-PAIR UTP CABLES. ROUTE CABLING THROUGH CABLE WHIP FROM WALL TO SYSTEM FURNITURE. TERMINATE CABLES ON CAT-6 RJ45 JACKS IN FURNITURE FACEPLATE AND ON RACK MOUNTED CAT-6 PATCH PANELS IN THE SIPR ROOM.

B — COMMUNICATIONS OUTLET CONSISTING OF (1) GREEN CAT-6 PLENUM RATED 4-PAIR UTP CABLE. TERMINATE CABLES ON CAT-6 RATED RJ-45 JACKS IN SURFACE MOUNT BOX AND ON LAST PORTS OF THE FIRST RACK MOUNTED CAT-6 DATA PATCH PANEL WORKING IN REVERSE. PORTS 48-43 WILL BE USED FOR SPEACIAL CIRCUITS WITH PORT 48 BEING USED FOR THE FACP. COORDINATE INSTALLATION OF SURFACE MOUNT BOX AT DEVICE END WITH RESPECTIVE SYSTEM VENDOR.

COMMUNICATIONS OUTLET FOR WAP MOUNTED ABOVE CEILING TILE CONSISTING OF (2) GREEN CAT-6A PLENUM RATED 4-PAIR UTP CABLES. TERMINATE CABLES ON CAT-6A RATED RJ-45 JACKS IN SURFACE MOUNT BOX AND ON RACK MOUNTED CAT-6A PATCH PANELS IN RESPECTIVE TELECOM ROOM.

COMMUNICATIONS OUTLET FOR WID WAP MOUNTED ABOVE CEILING TILE CONSISTING OF (2) GREEN CAT-6A PLENUM RATED 4-PAIR UTP CABLES. TERMINATE CABLES ON CAT-6A RATED RJ-45 JACKS IN SURFACE MOUNT BOX AND ON RACK MOUNTED CAT-6A PATCH PANELS IN RESPECTIVE TELECOM ROOM.

WA — COMMUNICATIONS OUTLET FOR WAP MOUNTED AT 8' AFF AND ATTACHED TO WALL STUD CONSISTING OF (2) GREEN CAT-6A PLENUM RATED 4-PAIR UTP CABLES. TERMINATE CABLES ON CAT-6A RATED RJ-45 JACKS IN SURFACE MOUNT BOX AND ON RACK MOUNTED CAT-6A PATCH PANELS IN RESPECTIVE TELECOM ROOM. ROUTE CABLING THROUGH CONDUIT EMBEDED IN FLOOR SLAB BACK TO TELECOM ROOM.

WD — COMMUNICATIONS OUTLET FOR WID WAP MOUNTED AT 8' AFF ATTACHED TO WALL STUD CONSISTING OF (2) GREEN CAT-6A PLENUM RATED 4-PAIR UTP CABLES. TERMINATE CABLES ON CAT-6A RATED RJ-45 JACKS IN SURFACE MOUNT BOX AND ON RACK MOUNTED CAT-6A PATCH PANELS IN RESPECTIVE TELECOM ROOM. ROUTE CABLING THROUGH CONDUIT EMBEDED IN FLOOR SLAB BACK TO TELECOM ROOM.

W — CABLE WHIP FOR GREEN CABLING FEEDING COMMUNICATIONS OUTLETS IN SYSTEMS FURNITURE. PROVIDE 4-11/16" SQUARE BY 3-1/8" DEEP BACK BOX, WITH DOUBLE GANG MUD RING FLUSH WITH DRYWALL. INSTALL 2" EMT UP WALL AND EXTEND BACK TO BLACK CABLE TRAY SYSTEM. MOUNT BACK BOX AT 18" TO CENTER AFF UON. PROVIDE COVER PLATE WITH 2" KNOCK OUT GROMMET AND SPLIT LOOM/SPIRAL WRAP FROM WALL PLATE TO SYSTEMS FURNITURE.

S — CABLE WHIP FOR RED CABLING FEEDING COMMUNICATIONS OUTLETS IN SYSTEMS FURNITURE. PROVIDE 4-11/16" SQUARE BY 3-1/8" DEEP BACK BOX, WITH DOUBLE GANG MUD RING FLUSH WITH DRYWALL. INSTALL 2" EMT UP WALL AND EXTEND BACK TO RED CABLE TRAY SYSTEM. MOUNT BACK BOX AT 18" TO CENTER AFF UON. PROVIDE COVER PLATE WITH 2" KNOCK OUT GROMMET AND SPLIT LOOM/SPIRAL WRAP FROM WALL PLATE TO SYSTEMS FURNITURE.

TV — BACK BOX FOR FUTURE CATV CABLING AND OUTLET. PROVIDE 4-11/16" SQUARE BY 3-1/8" DEEP BACK BOX WITH SINGLE GANG REDUCER RINGS FLUSH WITH DRYWALL. INSTALL 1" EMT CONDUIT UP TO ACCESSIBLE CEILING SPACE. MOUNT BACK BOX AT 78" AFF. PROVIDE BLANK COVER PLATE FOR BOX.

HD — BACK BOX FOR FUTURE WALL MOUNTED DISPLAY CABLING AND OUTLET. PROVIDE 4-11/16" SQUARE BY 3-1/8" DEEP BACK BOX WITH DOUBLE GANG MUD RING FLUSH WITH DRYWALL. INSTALL 2" EMT CONDUIT UP TO ACCESSIBLE CEILING SPACE. MOUNT BACK BOX AT 78" AFF. PROVIDE BLANK COVER PLATE FOR BOX.

AV — BACK BOX FOR FUTURE WALL MOUNTED AUDIOVISUAL CABLING AND OUTLET. PROVIDE 4-11/16" SQUARE BY 3-1/8" DEEP BACK BOX WITH DOUBLE GANG MUD RING FLUSH WITH DRYWALL. INSTALL 2" EMT CONDUIT UP TO ACCESSIBLE CEILING SPACE. MOUNT BACK BOX AT 78" AFF. PROVIDE BLANK COVER PLATE FOR BOX.

VC — BACK BOX FOR FUTURE WALL MOUNTED CAMERA CABLING AND OUTLET. PROVIDE 4-11/16" SQUARE BY 3-1/8" DEEP BACK BOX WITH DOUBLE GANG MUD RING FLUSH WITH DRYWALL. INSTALL 2" EMT CONDUIT UP TO ACCESSIBLE CEILING SPACE. MOUNT BACK BOX AT 78" AFF. PROVIDE BLANK COVER PLATE FOR BOX.

S — CEILING MOUNTED 8" SOUND REINFORCEMENT SPEAKER CONNECTED IN LINE TO OTHER SPEAKERS. PROVIDE SPEAKER, CABLE AND CONNECTORS AS REQUIRED. ROUTE SPAKER CABLE THROUGH CEILING TO EACH SPEAKER AND BACK TO AUDIO SOURCE IN AV RACK.

M — MULTI-ELEMENT CEILING MOUNTED MICROPHONE ARRAY. PROVIDE MICROPHONE ARRAY, (1) WHITE CATEGORY 6 FTP CABLE AND CONNECTORS AS REQUIRED. ROUTE MICROPHONE CABLE THROUGH CEILING AND TO AV EQUIPMENT IN AV RACK. TERMINATE CABLE WITH 8P8C PLUG ON BOTH ENDS AND CONNECT TO EQUIPMENT.

7'X2'X3' COMMUNICATIONS CABINET EQUIPPED WITH ROOF MOUNTED FANS AND LOCKABLE DOOR FRONT AND BACK. LOCKS MUST BE CYPHER TYPE .

7' 2-POST EQUIPMENT RACK WITH 19" MOUNTING RAILS. PROVIDE DUAL SIDED 6" VERTICAL WIRED MANAGERS ON BOTH SIDES OF RACK.

4"D X 12"W BLACK WELDED WIRE MESH BASKET TRAY FOR USE IN CORRIDORS AND OPEN OFFICE AREAS ABOVE ACCESSIBLE CEILING TILE.

4"D X 6"W RED WELDED WIRE MESH BASKET TRAY FOR USE IN CORRIDORS AND OPEN OFFICE AREAS ABOVE ACCESSIBLE CEILING TILE.

1"D X 12"W LADDER TRAY FOR USE IN TELECOMMUNICATIONS ROOMS.

SLEEVES TRADE SIZE 4" (UON).

TELECOMMUNICATIONS ABBREVIATIONS

AC	ALTERNATING CURRENT
ACS	ACCESS CONTROL SYSTEM
ACT	ACOUSTICAL CEILING TILE
ADA	AMERICAN WITH DISABILITIES ACT
A/E	ARCHITECT/ENGINEER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AM	AMPLITUDE MODULATION
AMP	AMPERES
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	ACCESS POINT
AP	ACCESS PROVIDER
APC	ANGLE PHYSICAL CONNECTOR
AV	AUDIOVISUAL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BC	BONDING CONDUCTOR
BCT	BONDING CONDUCTOR FOR TELECOMMUNICATIONS
BD	BUILDING DISTRIBUTOR
BEP	BUILDING ENTRANCE PROTECTOR
BER	BIT ERROR RATE
BICSI	BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL
BIM	BUILDING INFORMATION MODELING
BLDG	BUILDING
BMS	BALANCED MAGNETIC SWITCH
BMS	BUILDING MANAGEMENT SYSTEM
BTS	BASE TRANSCEIVER STATION
CAD	COMPUTER AIDED DESIGN
CAN	CAMPUS AREA NETWORK
CAT	CATEGORY
CATV	COMMUNITY ANTENNA TELEVISION
CBC	COUPLED BONDING CONDUCTOR
CCTV	CLOSED CIRCUIT TELEVISION
CD	CAMPUS DISTRIBUTOR
CD	CONSTRUCTION DOCUMENT
CDMA	CODE DIVISION MULTIPLE ACCESS
CELL	CELLULAR
CER	COMMON EQUIPMENT ROOM
CM	COMMUNICATIONS MANHOLE
CMP	COMMUNICATIONS PLENUM
CMR	COMMUNICATIONS RISER
COM	COMMUNICATIONS
COMSAT	COMMUNICATIONS SATELLITE
CP	CONSOLIDATION POINT
CR	CARD READER
CR	COMPUTER ROOM
CRAC	COMPUTER ROOM AIR CONDITIONER
CTR	COMMON TELECOMMUNICATIONS ROOM
DAS	DISTRIBUTED ANTENNA SYSTEM
DB	DECIBEL
DBI	DECIBEL ISOTROPIC
DBM	DECIBEL MILLIWATT
DC	DIRECT CURRENT
DD	DESIGN DEVELOPMENT
DD	DESIGN DOCUMENT
DEMARC	DEMARCATION POINT
DPS	DOOR POSITION SENSOR
DS	DISTRIBUTION SYSTEM
DTF	DISTANCE TO FAULT
DVR	DIGITAL VIDEO RECORDER
DWG	DRAWING
EBC	EQUIPMENT BONDING CONDUCTOR
EF	ENTRANCE FACILITY
EMI	ELECTROMAGNETIC INTERFERENCE
EMR	ELECTROMAGNETIC RADIATION
EMT	ELECTRICAL METALLIC TUBING
EOC	EMERGENCY OPERATIONS CENTER
EP	ENTRANCE PROTECTOR
EPO	EMERGENCY POWER OFF
ER	EQUIPMENT ROOM
ESS	ELECTRONIC SECURITY SYSTEM
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FC	FIBER CONNECTOR
FCC	FEDERAL COMMUNICATIONS COMMISSION
FD	FLOOR DISTRIBUTOR
FM	FREQUENCY MODULATION
FMC	FLEXIBLE METAL CONDUIT
FMT	FLEXIBLE METAL TUBING
FO	FIBER OPTIC
FOV	FIELD OF VIEW
FSL	FREE SPACE LOSS
FSO	FREE SPACE OPTICS
FT	FOOT OR FEET
GND	GROUND
GPON	GIGABIT PASSIVE OPTICAL NETWORK
GPS	GLOBAL POSITIONING SYSTEM
GUI	GRAPHICAL USER INTERFACE
HC	HORIZONTAL CROSS-CONNECT
HD	HEAT DETECTOR
HD	HIGH DEFINITION
HDA	HORIZONTAL DISTRIBUTION AREA
HDMI	HIGH DEFINITION MULTIMEDIA INTERFACE
HDTV	HIGH DEFINITION TELEVISION
HH	HANDHOLE
HVAC	HEATING, VENTILATION, & AIR CONDITIONING
HWM	HORIZONTAL WIRE MANAGER
HZ	HERTZ
IC	INTERMEDIATE CROSS-CONNECT
ID	IDENTIFICATION/IDENTIFIER
ID	INSIDE DIAMETER
ID	INTERMEDIATE DISTRIBUTOR
IDC	INSULATION DISPLACEMENT CONNECTOR
IDF	INTERMEDIATE DISTRIBUTION FRAME
IDS	INTRUSION DETECTION SYSTEM
IG	ISOLATED GROUND
IN	INCH OR INCHES
IP	INTERNET PROTOCOL
IR	INFRARED
ISP	INSIDE PLANT
IT	INFORMATION TECHNOLOGY
ITE	INFORMATION TECHNOLOGY EQUIPMENT
ITS	INFORMATION TECHNOLOGY SYSTEM
JB	JUNCTION BOX
KB	KILOBIT
KHZ	KILOHERTZ
KM	KILOMETER
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVM	KEYBOARD, VIDEO, MOUSE
KW	KILOWATT
LC	LATCHING CONNECTOR
LCD	LIQUID CRYSTAL DISPLAY
LED	LIGHT EMITTING DIODE
LIU	LIGHT INTERFACE UNIT
LMR	LAND MOBILE RADIO
LOS	LINE OF SIGHT
LP	LIGHTNING PROTECTOR
LSZH	LOW SMOKE ZERO HALOGEN
M	METER
MA	MILLIAMP
MAX	MAXIMUM
MB	MEGABIT
MC	MAIN CROSS-CONNECT
MD	MAIN DISTRIBUTOR
MDA	MAIN DISTRIBUTION AREA
MDP	MAIN DISTRIBUTION PANEL
MDU	MULTI-DWELLING UNIT
MH	MAINTENANCE HOLE
MHZ	MEGAHERTZ
MIN	MINIMUM
MM	MULTIMODE
MPO	MULTI-FIBER PUSH ON
MPOE	MINIMUM POINT OF ENTRY
MUTOA	MULTI-USER TELECOMMUNICATION OUTLET ASSEMBLY
MV	MILLIVOLT
MW	MILLIWATT
NE	NORTH EAST
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NESC	NATIONAL ELECTRICAL SAFETY CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NETWORK INTERFACE CARD
NIC	NOT IN CONTRACT
NID	NETWORK INTERFACE DEVICE
NM	NANOMETER
NTS	NOT TO SCALE
NVR	NETWORK VIDEO RECORDER
NW	NORTH WEST
OD	OUTSIDE DIAMETER
OFCP	OPTICAL FIBER CONDUCTIVE PLENUM
OFCR	OPTICAL FIBER CONDUCTIVE RISER
OFNP	OPTICAL FIBER NONCONDUCTIVE PLENUM
OFNR	OPTICAL FIBER NONCONDUCTIVE RISER
OLT	OPTICAL LINE TERMINAL
OM	OPTICAL MULTIMODE
ONT	OPTICAL NETWORK TERMINAL
OS	OPTICAL SINGLEMODE
OSP	OUTSIDE PLANT
OTDR	OPTICAL TIME DOMAIN REFLECTOMETER
PA	PUBLIC ADDRESS
PB	PULL BOX
PBX	PRIVATE BRANCH EXCHANGE
PDS	PROTECTIVE DISTRIBUTION SYSTEM
PDU	POWER DISTRIBUTION UNIT
PE	POLYETHYLENE
PET	PROTECTED ENTRANCE TERMINAL
PM	PROJECT MANAGEMENT/MANAGER
POE	POWER OVER ETHERNET
PON	PASSIVE OPTICAL NETWORKING
POTS	PLAIN OLD TELEPHONE SERVICE
PPE	PERSONAL PROTECTIVE EQUIPMENT
PSI	POUNDS PER SQUARE INCH
PTP	POINT-TO-POINT
PVC	POLYVINYL CHLORIDE
QOS	QUALITY OF SERVICE
RCDD	REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
RF	RADIO FREQUENCY
RFI	RADIO FREQUENCY INTERFERENCE
RFI	REQUEST FOR INFORMATION
RFP	REQUEST FOR PROPOSAL
RFQ	REQUEST FOR QUOTATION
RGB	RED, GREEN, BLUE
RJ	REGISTERED JACK
RM	ROOM
RMC	RIGID METAL CONDUIT
RPP	REMOTE POWER PANEL
RSSI	RECEIVED SIGNAL STRENGTH INDICATOR
RU	RACK UNIT
RX	RECEIVE
SC	SUBSCRIBER CONNECTOR
SCS	STRUCTURED CABLING SYSTEM
SCTP	SCREENED TWISTED-PAIR
SD	SCHEMATIC DESIGN
SE	SOUTH EAST
SEC	SECURE
SFF	SMALL FORM FACTOR
SM	SINGLEMODE
SMA	SUBMINIATURE A
SOW	SCOPE/STATEMENT OF WORK
SP	SERVICE PROVIDER
ST	STRAIGHT TERMINUS
STP	SHIELDED TWISTED-PAIR
SW	SOUTH WEST
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TDR	TECHNOLOGY DISTRIBUTION ROOM
TDR	TECHNOLOGY DISTRIBUTION ROOM
TE	TELECOMMUNICATIONS ENCLOSURE
TEBC	TELECOMMUNICATIONS EQUIPMENT BONDING CONDUCTOR
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TP	TRANSITION POINT
TR	TELECOMMUNICATIONS ROOM
TYP	TYPICAL
UFC	UNIFIED FACILITIES CRITERIA
UHF	ULTRAHIGH FREQUENCY
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
USB	UNIVERSAL SERIAL BUS
UTP	UNSHIELDED TWISTED PAIR
VCSEL	VERTICAL CAVITY SURFACE EMITTING LASER
VDC	VOLTS DIRECT CURRENT
VFL	VISUAL FAULT LOCATOR
VHF	VERY HIGH FREQUENCY
VLAN	VIRTUAL LOCAL AREA NETWORK
VOIP	VOICE OVER INTERNET PROTOCOL
VWM	VERTICAL WIRE MANAGER
WAO(S)	WORK AREA OUTLET(S)
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WCDMA	WIDEBAND CODE DIVISION MULTIPLE ACCESS
WLAN	WIRELESS LOCAL AREA NETWORK
WAO/	WORK AREA OUTLET
WID	WIRELESS INTRUSION DETECTION
ZDA	ZONE DISTRIBUTION AREA
@	AT
µM	MICRON
±	PLUS OR MINUS

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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DRAWN BY: DAA
CHECKED BY: AB
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ISSUE DATE: AUGUST 2023
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CONTRACT NO.: W912PM-15-D-0004
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SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
TELECOMMUNICATIONS LEGEND AND ABBREVIATIONS

BICSI — DAVID A. KUHN — REGISTERED RCDD

SHEET ID
T-001

READY TO ADVERTISE

GENERAL TELECOMMUNICATIONS NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, TERMINATION AND TESTING OF ALL HORIZONTAL CAT-6 AND CAT-6A COPPER, AND FIBER OPTIC CABLING, COPPER AND FIBER OPTIC BACKBONE CABLING, EQUIPMENT RACKS, ASSOCIATED CABLE MANAGEMENT DEVICES AND TERMINATION HARDWARE. THE TELECOMMUNICATIONS WORK MUST BE MANAGED BY A BICSI REGISTER COMMUNICATIONS DISTRIBUTION DESIGNER (RCDD) AND PERFORMED UNDER THE DIRECT SUPERVISION OF A BICSI CERTIFIED TECHNICIAN. ALL SUPERVISORS ASSIGNED TO THE INSTALLATION OF THIS SYSTEM OR ANY OF ITS COMPONENTS MUST HAVE AT MINIMUM THE TCHNICIAN CERTIFICATION FROM BICSI AND INSTALLERS MUST HAVE AT MINIMUM THE LEVEL 1 INSTALLER CERTIFICATION FROM BICSI. ALL SUPERVISORS AND INSTALLED MUST ALSO BE QUALIFIED AND CERTIFIED BY THE MANUFACTURERE TO INSTALL AND TEST THEIR RESPECTIVE PRODUCTS.
2. COMMUNICATIONS WORK MUST BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA 70), APPLICABLE TIA STANDARDS, APPLICABLE LOCAL CODES AND CLIENT STANDARDS INCLUDING BUT NOT LIMITED TO 2017 FORT BRAGG NEC IDC, I3A OSP NOVEMBER 2017, UFC 3-580-01, NEMA VE2, TIA 568.1-E, TIA 568.2-D, TIA 568.3-D, TIA 568.4-D, TIA 569-E, TIA 606-D, AND TIA 607-D.
3. CONTRACTOR MUST VERIFY FIELD CONDITIONS BEFORE STARTING WORK.
4. ALL INDOOR COMMUNICATIONS CABLING MUST BE PLENUM RATED.
5. TERMINATE COMMUNICATIONS OUTLETS UTILIZING T568-A WIRRING SCHEME.
6. THE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL LOCATION OF OUTLETS, CONDUITS, RACEWAYS, AND EQUIPMENT. THE DRAWINGS DO NOT SHOW EVERY NECESSARY OFFSET, JUNCTION BOX, CABLE TRAY TRANSITION, AND ADJUSTMENT. PROVIDE OFFSETS, RACEWAY COMPONENTS, ACCESSORIES, AND ADJUSTMENTS BASED ON COORDINATION WITH OTHER TRADES AND AS REQUIRED.
7. EXAMINE AND REVIEW THE CONTRACT DOCUMENTS OF EACH DISCIPLINE IN ORDER TO COORDINATE THE INSTALLATION WORK. USE DIMENSIONED ARCHITECTURAL AND STRUCTURAL CONTRACT DRAWINGS TO VERIFY THE SPACE NECESSARY FOR LOCATING OUTLETS, RACEWAYS, AND EXACT PLACEMENT OF EQUIPMENT. USE FIELD MEASUREMENTS TO VERIFY DIMENSIONS WHERE AREAS ARE CONGESTED, AND EXACT LOCATION IS CRITICAL FOR INSTALLATION. COORDINATION MUST INCLUDE BUT NOT BE LIMITED TO VERIFYING THE LOCATION AND SIZE OF OPENINGS FOR PENETRATIONS IN FLOORS, WALLS, PARTITIONS, CEILINGS, AND ROOFS WITH THE INSTALLING TRADES; ALLOCATION OF SPACE WITH OTHER TRADES INSTALLING WORK IN CHASES, SHAFTS, CEILING INTERSTITIAL SPACES, AND EQUIPMENT SPACES; AND THE PHASING OF INSTALLATION WORK WITH THAT OF OTHER TRADES.
8. INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE SPECIFICATIONS, AND APPROVED SHOP DRAWINGS. PROVIDE SERVICE AND OPERATING CLEARANCES AROUND THE SIDES OF EACH PIECE OF EQUIPMENT IN ACCORDANCE WITH REGULATORY REQUIREMENTS, MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
9. PROVIDE FACTORY ASSEMBLED UL LISTED PATCH CORDS FOR BOTH ENDS OF EVERY HORIZONTAL COMMUNICATIONS CABLE INSTALLED. COORDINATE COLOR AND LENGTH OF PATCH CORDS WITH CONTRACTING OFFICER.
10. PENETRATIONS MUST BE SEALED WITH AN APPROVED SEALANT OR CONSTRUCTED WITH A UL LISTED PENETRATION DEVICE THAT WILL MAINTAIN THE FIRE, SMOKE AND WATERPROOF RATINGS OF THE TYPE OF CONSTRUCTION BEING PENETRATED. COORDINATE PENETRATION LOCATION REQUIREMENTS WITH ARCHITECTURAL PLANS AND WITH WALL DETAILS.
11. WHEN COMMUNICATIONS OUTLETS ARE LOCATED ON OPPOSITE SIDES OF A SHARED WALL, OFFSET THE BACK BOXES AND CONDUIT HORIZONTALLY TO PREVENT INTERFERENCE WITH INSTALLATION AND ALLOW FOR THE STC RATING OF THE WALL TO BE MAINTAINED.
12. MINIMUM CONDUIT SIZE FOR COMMUNICATIONS OUTLETS IS 1" EMT, UON.
13. CONDUITS MUST BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. UNLESS NOTED OTHERWISE, CONDUITS FEEDING COMMUNICATIONS OUTLETS MUST BE INSTALLED CONCEALED WITHIN THE FINISHED WALLS. OUTLET BOXES MUST BE FLUSH MOUNTED WITHIN FINISHED WALLS.
14. PROVIDE BUSHINGS ON THE ENDS OF COMMUNICATIONS CONDUITS AND IN EACH ENCLOSURE/JUNCTION BOX. PROVIDE PULL STRINGS IN CONDUITS AND ATTACH PULL STRING ENDS TO A NON-MOVABLE ANCHOR.
15. TELECOMMUNICATIONS BONDING BACKBONE CONDUCTORS MUST BE INSULATED, COPPER CONDUCTOR. INSTALL TBB CONDUCTORS IN CONDUIT TO PROVIDE PROTECTION FROM PHYSICAL DAMAGE. WHERE TBB CONDUCTORS ARE INSTALLED IN METALLIC CONDUIT, BOND BOTH END WITH A LISTED BONDING BUSHING. TERMINATE TBB AND GE CONDUCTORS ON TMGB AND TGBS WITH A LISTED TWO-HOLE COMPRESSION CONNECTOR.
16. TELECOMMUNICATIONS PULL BOXES MUST BE IN STRAIGHT SECTIONS OF CONDUIT. DO NOT USE BOXES IN LIEU OF ELBOWS OR BENDS. PROVIDE PULL BOXES WHEN RACEWAY SECTIONS INCLUDE (2) TWO OR MORE 90 DEGREE BENDS OR EQUIVALENT WHEN LENGTH OF RACEWAY SECTION IS GREATER THAN 100 FEET.
17. COMMUNICATIONS ENCLOSURES LOCATED OUTDOORS AND INDOORS IN WET AND DAMP LOCATIONS MUST BE WEATHERPROOF NEMA 4X, STAINLESS STEEL UNLESS OTHERWISE NOTED.
18. FACTORY ELBOWS AND FIELD BENDS MUST HAVE AN INTERNAL RADIUS OF NOT LESS THAN SIX (6) TIMES THE DIAMETER OF THE CONDUIT WHEN CONDUIT IS LESS THAN 2". INTERNAL RADIUS SHALL BE TEN (10) TIMES THE DIAMETER FOR CONDUITS GREATER THAN 2". HARD 90 DEGREE TURNS ARE NOT PERMITTED IN ANY TELECOM CONDUIT.
19. MINIMUM BEND RADIUS FOR 1" CONDUITS IS 12-INCHES.
20. PROVIDE PULL STRINGS IN ALL CONDUITS. SECURE BOTH END TO UNMOVABLE ANCHOR.
21. CONDUITS HAVE BEEN SIZED BASED ON THE NEC, AS WELL AS ANSI/EIA/TIA 569. WHERE INSTALLATION VARIES, INCREASE CONDUITS SIZES ACCORDING TO MAXIMUM NUMBER OF CABLES TO BE SUPPORTED AND IN ACCORDANCE WITH ALLOWABLE FILL RATIO.
22. THE LOCATIONS AND ELEVATIONS OF TECHNOLOGY DEVICES SHOWN ARE SCHEMATIC UNLESS ACTUAL DIMENSIONS ARE NOTED ON THE DRAWINGS. REFER TO THE ARCHITECTURAL PLANS AND OBTAIN THE APPROVAL OF THE OWNER'S REPRESENTATIVE FOR THE ACTUAL LOCATIONS AND ELEVATIONS OF DEVICES.
23. ALL COMMUNICATIONS RACEWAYS AND PATHWAYS MUST MINIMIZE UNNECESSARY CABLE LENGTHS AND MAINTAIN INDUSTRY STANDARD LENGTH LIMITATIONS FOR HORIZONTAL CABLE DISTRIBUTION. BASIC LINK CABLE LENGTH SHALL NOT EXCEED 295-FT (90M) FOR UTP/SCTP CABLE, AND 200-FT (60M) FOR SERIES-6 COAXIAL CABLE. UTILIZE SERIES-11 COAXIAL CABLE OR HARD-LINE COAX AS REQUIRED FOR DISTANCES OVER 200-FT (60M).
24. PROVIDE PROTECTIVE BUSHINGS ON COMMUNICATIONS CONDUITS, IN ENCLOSURES/BOXES, AND WHERE CABLING ROUTES THROUGH METAL STUDS.
25. PROVIDE LOW VOLTAGE CABLES IN CONDUITS, CABLE TRAYS, WIREWAYS OR OTHER APPROVED CABLE SUPPORT/MANAGEMENT DEVICES OR SYSTEMS. THE CONTRACTOR MUST NOT INSTALL CABLING SUPPORTED BY CEILING SYSTEMS (CEILING TILE OR GRID, GYPSUM BOARD, LATH & PLASTER), HVAC DUCTS OR PIPES, LIGHTING FIXTURES, ELECTRICAL CONDUITS OR CABLES, PLUMBING/FIRE PROTECTION PIPES, OR ANY OTHER DEVICES NOT INTENDED FOR THE SUPPORT OF LOW VOLTAGE CABLING.
26. PROVIDE ELECTRICAL METALLIC TUBING (EMT) FOR ALL INDOOR COMMUNICATIONS CONDUIT UON.
27. OUTDOOR EXPOSED CONDUITS MUST BE RIGID GALVANIZED STEEL (RGS).
28. DIRECT BURIED CONDUITS MUST BE SCHEDULE 80 PVC.
29. COMMUNICATIONS CABLING RUNNING THOUGH CONDUIT EMBEDDED IN FLOOR SLAB MUST BE INDOOR/OUTDOOR RATED.
30. VACANT DUCTS MUST BE SEALED WITH MECHANICAL SCREW TYPE, REUSABLE DUCT PLUGS. DUCTS THAT CONTAIN CABLES MUST BE PLUGGEDUSING A WATER BLOCKING FOAM SPECIFICALLY DESIGNED TO PREVENT THE INTRUSION OF WATER AND GASSES THROUGH CONDUITS IN MANHOLES, HAND HOLES, AND CABLE VAULTS AND WILL NOT DETERIORATE THE CABLE JACKET.
31. HOOK AND LOOP TYPE CABLE TIES MUST BE USED TO BUNDLE OR MANAGE CABLES. PLASTIC ZIP TIES ARE NOT PERMITTED.
32. MOUNTING HEIGHTS ARE TO THE CENTERLINE OF THE ENCLOSURES/JUNCTION BOX UNLESS NOTED OTHERWISE.
33. LABEL COMMUNICATIONS CABLING AND HARDWARE PER CURRENT TIA-606 STANDARD AND FORT BRAG IDC 2017.
34. TEST AND CERTIFY INSTALLED TELECOMMUNICATIONS CABLES IN ACCORDANCE WITH SPECIFICATIONS.
35. PROVIDE RED LINED DRAWINGS TO REFLECT BUILT CONDITIONS TO THE GOVERNMENT PROJECT MANAGER UPON COMPLETION OF PROJECT. CONTRACTOR MUST MARK-UP ANY CHANGES FOR CONDUIT ROUTES, PULL BOXES, COMMUNICATIONS OUTLET LOCATIONS, EQUIPMENT ARRANGEMENTS, AND REVISED LABELS.
36. SUBMIT LABELING DRAWINGS OF ALL WAOS TO FORT BRAGG NEC FOR APPROVAL BEFOR PURCHASING OR PRINTING ANY LABELS.
37. MAINTAIN REQUIRED SEPARATION BETWEEN MULTIPLE NETWORK CLASSIFICATIONS INCLUDEING COMMUNICATIONS CABLES, OUTLETS, ENCLOSURES, AND PROCESSING EQUIPMENT BASED ON CLASSIFICATION. COORDINATE SEPARATION REQUIREMENTS WITH THE CONTRACTING OFFICER.
38. PROVIDE SEPARATE CABLE SUPPORT SYSTEM FOR EACH NETWORK CLASSIFICATION.
39. SURFACE MOUNTED CONDUIT, RACEWAY AND OR OUTLET BOXES ARE REQUIRED FOR OUTLETS THAT ARE INSTALLED ON SECURE AREA PERIMETER WALLS. EXPOSED CONDUITS AND RACEWAYS MUST BE INSTALLED PARALLEL TO BEAMS AND WALLS.
40. DEVICES MUST BE JITC AND NIAP PROTECTIVE PROFILE V3.1 COMPLIANT.
41. CABLE TRAY ROUTES ARE DIAGRAMMATIC. COORDINATE SPECIFIC ROUTING WITH OTHER UTILITIES AND COMMUNICATION OUTLET LOCATIONS.
42. PROVIDE A MINIMUM OF 2 CROSS SUPPORTS FOR EVERY SECTION OF TRAY,AND 3 SUPPORTS FOR ANY TRAY SECTION LONGER THAN 5 FEET. LOCATE 2 OF THE SUPPORTS NO MORE THAN 6" FROM EACH END OF THE TRAY SECTION.
43. CABLE TRAYS MUST BE SUPPORTED AT ENDS WHEN TERMINATING AT A WALL AND WITHIN 6" OF THE END WHEN CANTILEVERED.
44. CABLE TRAY SECTIONS MUST ONLY CONNECT AT 90-DEGREE ANGLES. PROVIDE RADIUSED CORNERS OR PROTECTION AT INSIDE CORNERS OF TRAY TO ENSURE CABLES MAINTAIN PROPER BEND RADIUS.
45. TRAYS INSTALLED ABOVE CEILINGS MUST MAINTAIN A MINIMUM OF 6" OF CLEAR SPACE BETWEEN THE CEILING AND BOTTOM OF THE TRAY OR TRAY SUPPORT.
46. MAINTAIN A MINIMUM OF 12" OF CLEAR SPACE ABOVE CABLE TRAYS.
47. DURING CABLE INSTALLATION DO NOT LET UNTERMINATED CABLES OR CABLE SLACK HANG DIRECTLY OVER THE EDGES OR END OF TRAYS.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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DRAWN BY: DAA
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SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
SUBMITTED BY: FIRST TITLE
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SECOND TITLE

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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
GENERAL TELECOMMUNICATIONS NOTES

BICSI
DAVID A. HUFFMAN
REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
EXPIRES: 10/31/2023

SHEET ID
T-002

READY TO ADVERTISE

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS AND SHEET T-002 FOR GENERAL NOTES.
2. SITE PLAN IS DIAGRAMMATIC AND DOES NOT REFLECT ALL LANDSCAPING OR UTILITIES. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
3. INSTALL NEW COPPER AND FIBER CABLES FROM BUILDING THROUGH MANHOLE 10G15 AND SPLICE TO EXISTING CABLES IN MANHOLE 10G13. COORDINATE WITH NEC TO IDENTIFY EXISTING CABLES FOR SPLICING.

EXISTING TELECOM DUCT BANK, SHOWN FOR REFERENCE ONLY

EXISTING TELECOM MANHOLE 10G13. SPLICE COPPER AND FIBER CABLING IN THIS MANHOLE

EXISTING TELECOM DUCT BANK

GSB TEMF SERVICE ROAD

GSB TEMF FF EL 264.00'

#30009 RB&C N=485092.62 E=1991429.46 ELEV=263.18'

#30012 TBM CHISELED SQUARE IN CONC BASE OF LIGHT POLE ELEVATION=265.80'

#30011 TBM CHISELED SQUARE IN CONC SW ELEVATION=263.11'

EXISTING TELECOM MANHOLE 10G14

EXISTING TELECOM DUCT BANK

EXISTING MANHOLE 10G15

1-2" CONCRETE ENCASED CONDUIT FROM ROOM 121 TO GATE FOR REMOTE GATE CONTROL AND A/I PHONE INTERFACE CABLING

20-FOOT RADIUS MIN. ON SWEEPING CONDUIT BEND

4-4" CONCRETE ENCASED DUCT BANK

2-4" CONCRETE ENCASED DUCT BANK CAPPED 5-FT FROM BUILDING PERIMETER

ORG STORAGE "A" FF EL 264.00'

ORG STORAGE "B" FF EL 264.00'

ORG STORAGE "C" FF EL 264.00'

ORG STORAGE "D" FF EL 264.00'

GSB TEMF FF EL 264.00'

EXISTING TELECOM DUCT BANK, SHOWN FOR REFERENCE ONLY

EXISTING TELECOM MANHOLE 10G16. SHOWN FOR REFERENCE ONLY.

EXISTING TELECOM DUCT BANK, SHOWN FOR REFERENCE ONLY

EXISTING TELECOM MANHOLE 10G17. SHOWN FOR REFERENCE ONLY.

EXISTING TELECOM DUCT BANK, SHOWN FOR REFERENCE ONLY

1-2" CONCRETE ENCASED CONDUIT FROM ROOM-121 TO GATE FOR REMOTE GATE CONTROL AND A/I PHONE INTERFACE CABLING

VENDOR/ESS ROOM-121

TELECOM ROOM-131

COVERED BULK STORAGE

SSA FACILITY

EAGLE TALON DRIVE

EAGLE TALON DRIVE

EAGLE TALON DRIVE

CONC DITCH

CONC DITCH

TO OFF-SITE OUTFALL STRUCTURE

PLAN NORTH
TRUE N

GRAPHIC SCALE

0 50' 100'
SCALE: 1" = 50'-0

US Army Corps of Engineers®

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SUBMITTED BY: WHA	FIRST TITLE:
SIZE: ANSI D	SECOND TITLE:

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
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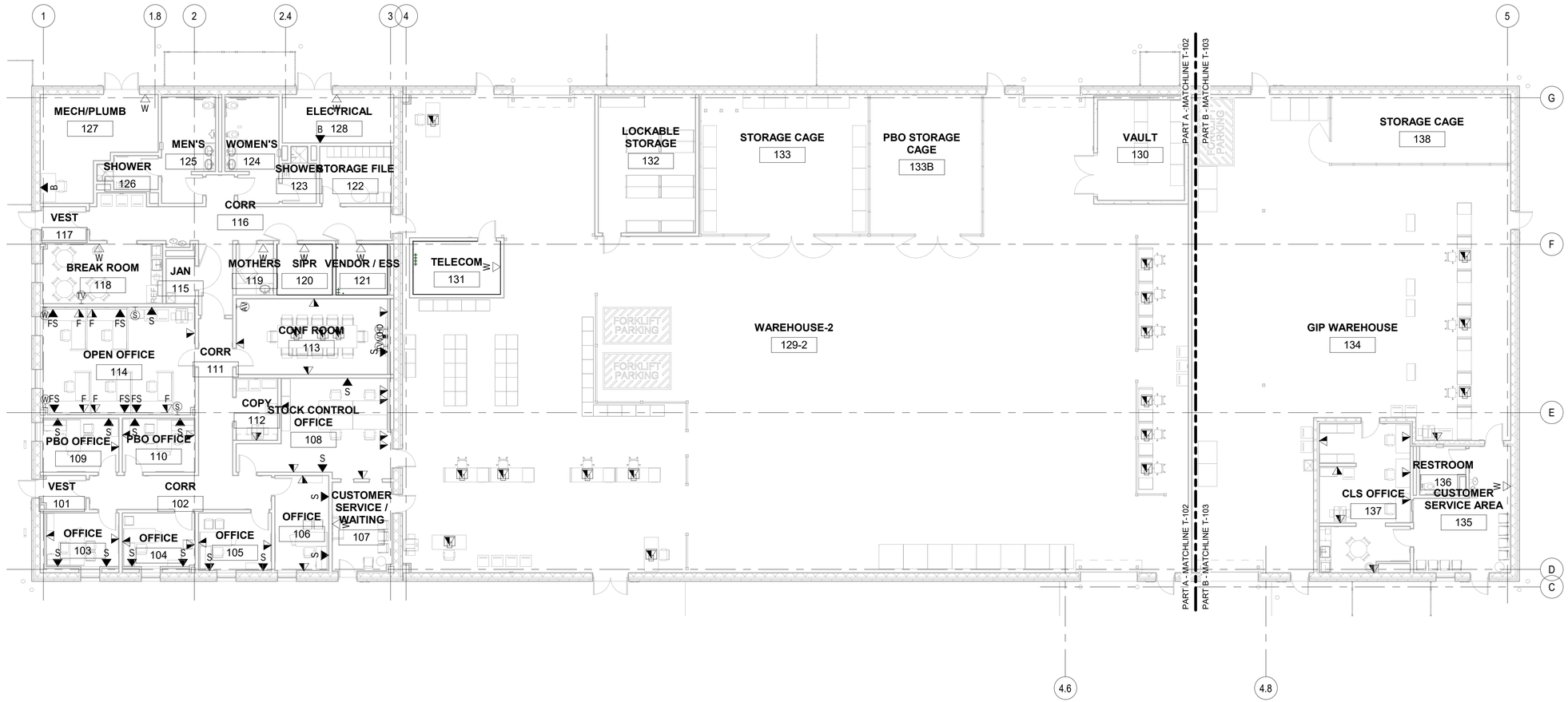
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TELECOMMUNICATIONS SITE PLAN

Bicsi
Dawn A. Anderson
RCDD, NTS, OSP, DCDC
Expires: 10/31/2024

SHEET ID
TS101

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C2 FIRST FLOOR PLAN - COMPOSITE - COMMUNICATIONS OUTLETS

SCALE: 3/32" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. ALL COMMUNICATIONS OUTLETS IN THE HIGH BAY AREA MUST BE FED VIA CONDUIT THAT IS RUN IN THE FLOOR SLAB BACK TO TELECOM ROOM 131.
3. COMMUNICATIONS CABLING RUNNING THOUGH CONDUIT EMBEDDED IN FLOOR SLAB MUST BE INDOOR/OUTDOOR RATED.
4. REFER TO REFLECTED CEILING PLANS FOR CEILING MOUNTED COMMUNICATIONS OUTLETS.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 3/32"=1'-0

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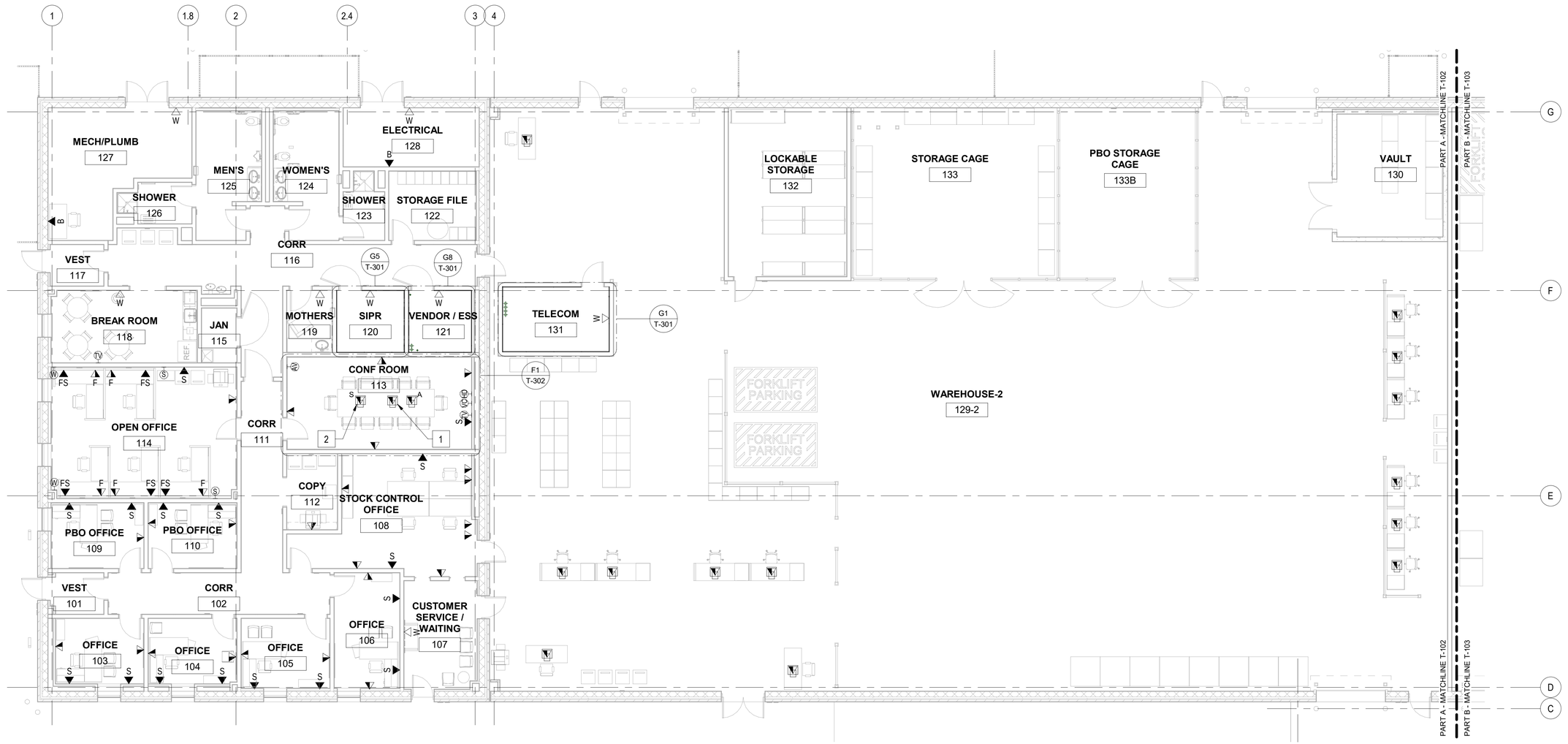
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PROJECT 87447
FIRST FLOOR PLAN - COMPOSITE - COMMUNICATIONS OUTLETS

BICSI
DAVID A. AVILES
RCDD, LEED AP BD+C
EXPIRES: 10/31/2023

SHEET ID
T-101

READY TO ADVERTISE



C3 FIRST FLOOR PLAN - PART A - COMMUNICATIONS OUTLETS

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

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. ALL COMMUNICATIONS OUTLETS IN THE HIGH BAY AREA MUST BE FED VIA CONDUIT THAT IS RUN IN THE FLOOR SLAB BACK TO TELECOM ROOM 131.
3. COMMUNICATIONS CABLING RUNNING THOUGH CONDUIT EMBEDDED IN FLOOR SLAB MUST BE INDOOR/OUTDOOR RATED.
4. REFER TO REFLECTED CEILING PLANS FOR CEILING MOUNTED COMMUNICATIONS OUTLETS.

SHEET KEYNOTES

1. FEED FLOOR BOX VIA CONDUIT IN SLAB FROM TELECOM ROOM 131.
2. FEED FLOOR BOX VIA CONDUIT IN SLAB FROM SIPR ROOM 120.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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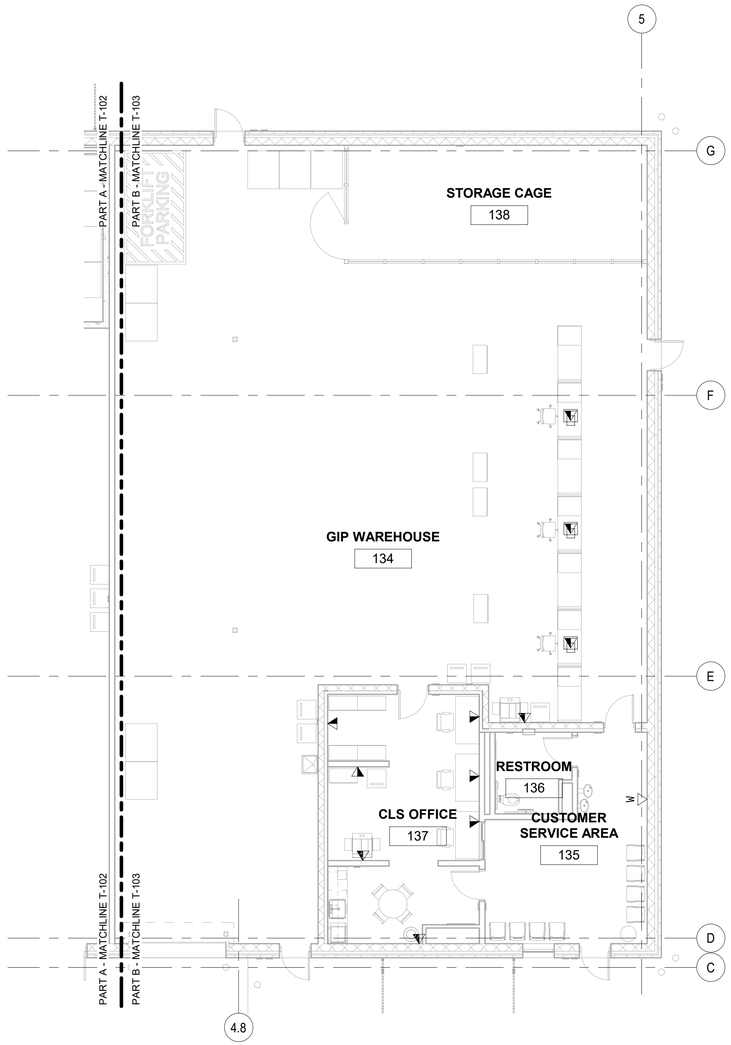
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FIRST FLOOR PLAN - PART A - COMMUNICATIONS OUTLETS

SHEET ID
T-102

READY TO ADVERTISE



FIRST FLOOR PLAN - PART B - COMMUNICATIONS OUTLETS

C3

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

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. ALL COMMUNICATIONS OUTLETS IN THE HIGH BAY AREA MUST BE FED VIA CONDUIT THAT IS RUN IN THE FLOOR SLAB BACK TO TELECOM ROOM 131.
3. COMMUNICATIONS CABLING RUNNING THOUGH CONDUIT EMBEDDED IN FLOOR SLAB MUST BE INDOOR/OUTDOOR RATED.
4. REFER TO REFLECTED CEILING PLANS FOR CEILING MOUNTED COMMUNICATIONS OUTLETS.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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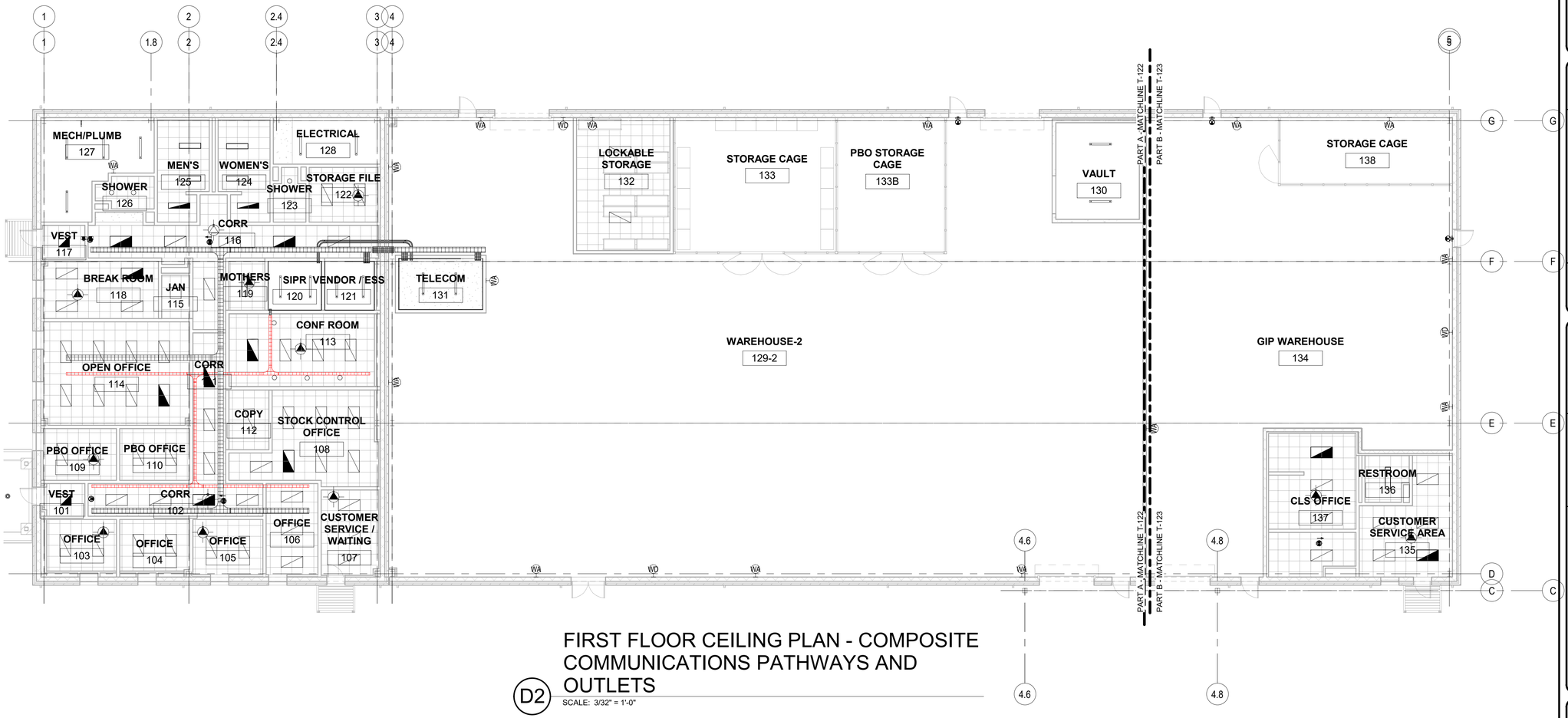
FIRST FLOOR PLAN - PART B - COMMUNICATIONS OUTLETS

BICSI DESIGNER

SHEET ID

T-103

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FIRST FLOOR CEILING PLAN - COMPOSITE COMMUNICATIONS PATHWAYS AND OUTLETS

D2 — SCALE: 3/32" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. ALL COMMUNICATIONS OUTLETS IN THE HIGH BAY AREA MUST BE FED VIA CONDUIT THAT IS RUN IN THE FLOOR SLAB BACK TO TELECOM ROOM 131.
3. COMMUNICATIONS CABLING RUNNING THOUGH CONDUIT EMBEDDED IN FLOOR SLAB MUST BE INDOOR/OUTDOOR RATED.

SHEET KEYNOTES

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 3/32"=1'-0

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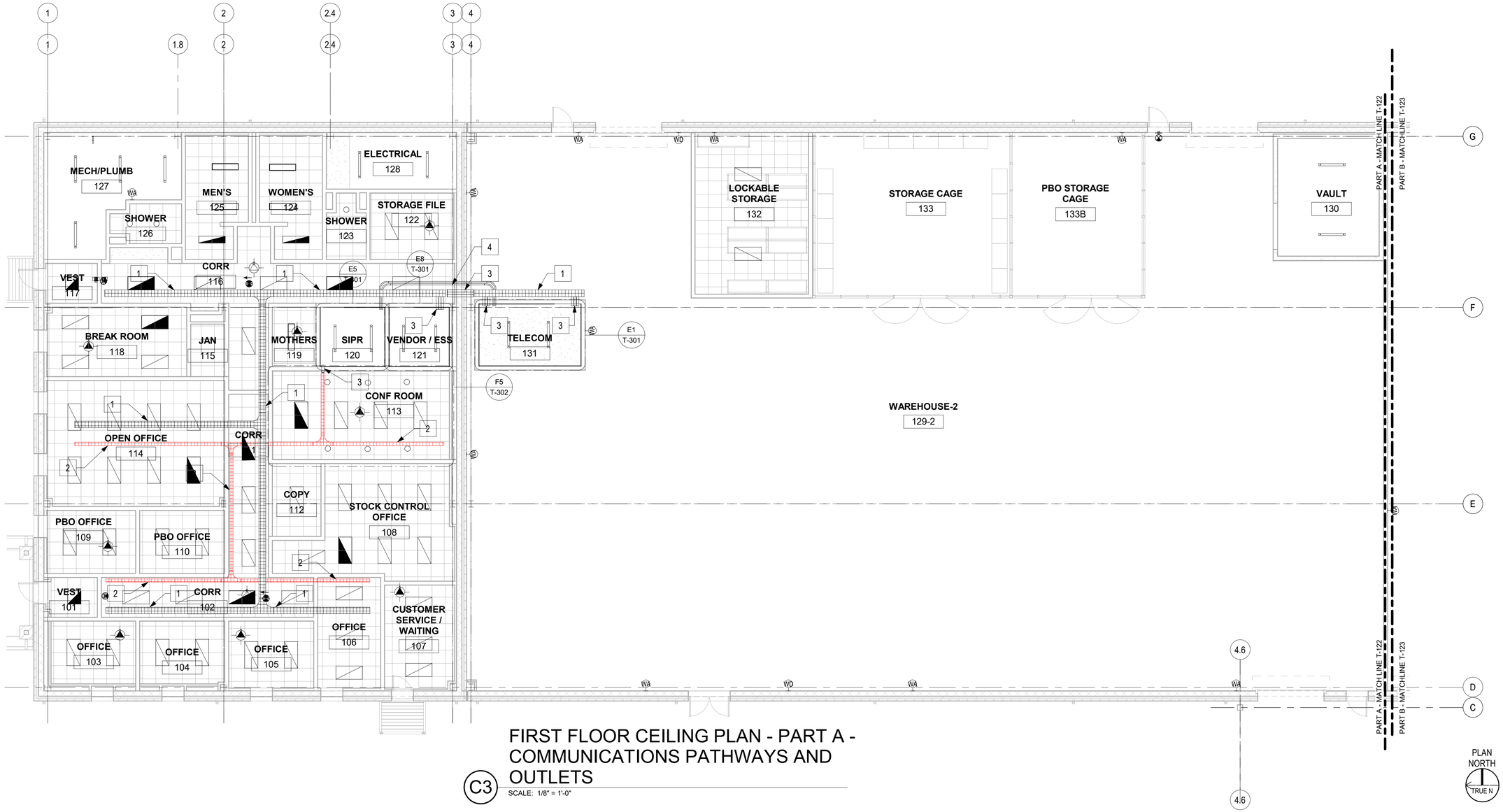
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FIRST FLOOR CEILING PLAN - COMPOSITE - COMMUNICATIONS PATHWAYS AND OUTLETS

DAVID A. BICSI
REGISTERED DISTRIBUTION DESIGNER
NUMBER 165-0122

SHEET ID
T-121

READY TO ADVERTISE



FIRST FLOOR CEILING PLAN - PART A - COMMUNICATIONS PATHWAYS AND OUTLETS

C3

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

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. ALL COMMUNICATIONS OUTLETS IN THE HIGH BAY AREA MUST BE FED VIA CONDUIT THAT IS RUN IN THE FLOOR SLAB BACK TO TELECOM ROOM 131.
3. COMMUNICATIONS CABLING RUNNING THOUGH CONDUIT EMBEDDED IN FLOOR SLAB MUST BE INDOOR/OUTDOOR RATED.
4. COORDINATE MOUNTING HEIGHT AND LOCATIONS OF WAP/WID OUTLETS WITH USASOC PRIOR TO INSTALLATION OF CONDUIT AND CABLING.

SHEET KEYNOTES

1. BLACK WELDED WIRE BASKET TRAY SYSTEM INSTALLED AT 9'-6" AFF TO BOTTOM OF TRAY.
2. RED WELDED WIRE BASKET TRAY SYSTEM INSTALLED AT 10'-10" AFF TO BOTTOM OF TRAY.
3. 4" CABLE SLEEVES, QUANTITY AS ILLUSTRATED.
4. 2" EMT CONDUIT BETWEEN SIPR ROOM 120 AND TELECOM ROOM 131.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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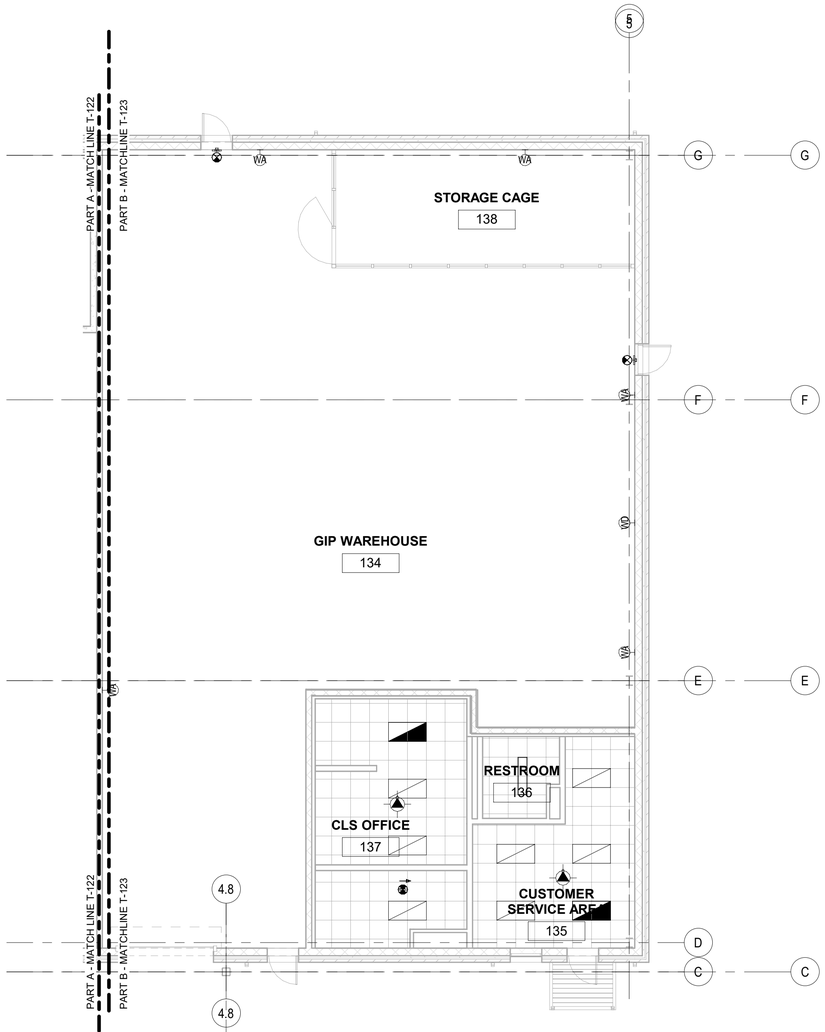
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FIRST FLOOR CEILING PLAN - PART A - COMMUNICATIONS PATHWAYS AND OUTLETS

SHEET ID
T-122

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FIRST FLOOR CEILING PLAN - PART B - COMMUNICATIONS PATHWAYS AND OUTLETS

C3

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

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. ALL COMMUNICATIONS OUTLETS IN THE HIGH BAY AREA MUST BE FED VIA CONDUIT THAT IS RUN IN THE FLOOR SLAB BACK TO TELECOM ROOM 131.
3. COMMUNICATIONS CABLING RUNNING THOUGH CONDUIT EMBEDDED IN FLOOR SLAB MUST BE INDOOR/OUTDOOR RATED.
4. COORDINATE MOUNTING HEIGHT AND LOCATIONS OF WAP/WID OUTLETS WITH USASOC PRIOR TO INSTALLATION OF CONDUIT AND CABLING.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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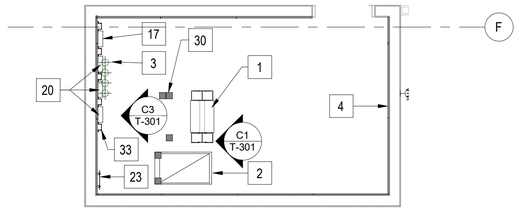
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PROJECT 87447
FIRST FLOOR CEILING PLAN - PART B - COMMUNICATIONS PATHWAYS AND OUTLETS

BICSI DAVID A. ADAMS

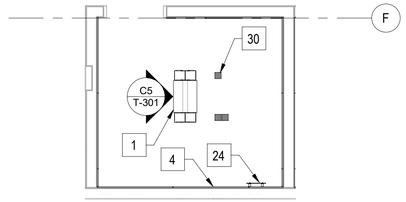
SHEET ID
T-123

READY TO ADVERTISE



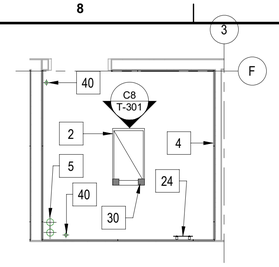
G1 TELECOM ROOM 131 ENLARGED FLOOR PLAN

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



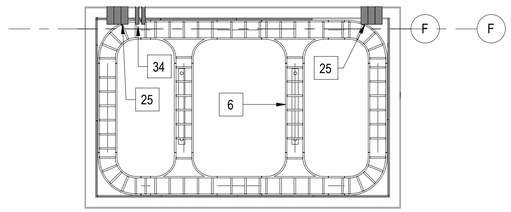
G5 SIPR ROOM 120 ENLARGED FLOOR PLAN

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



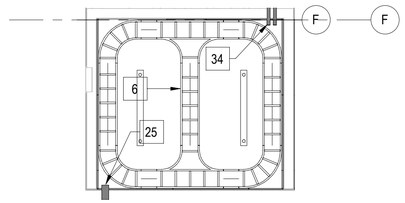
G8 VENDOR/ESS ROOM 121 ENLARGED FLOOR PLAN

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



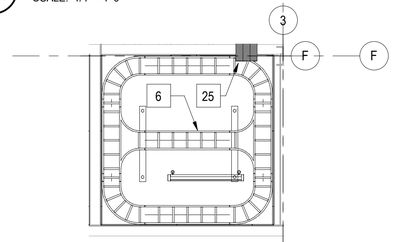
E1 TELECOM ROOM 131 ENLARGED CIELING PLAN

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



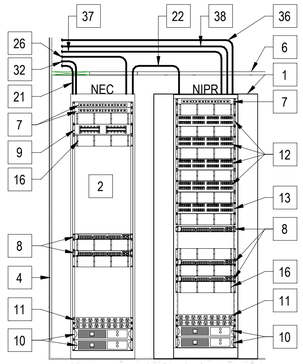
E5 SIPR ROOM 120 ENLARGED CEILING PLAN

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



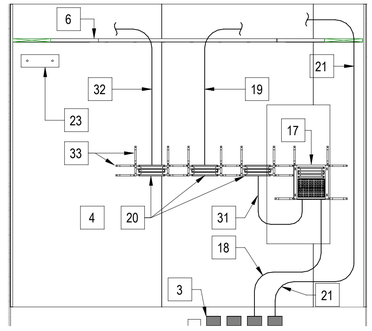
E8 VENDOR/ESS 121 ENLARGED CEILING PLAN

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



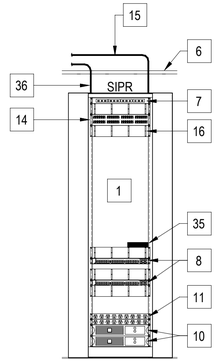
C1 TELECOM ROOM 131 RACK ELEVATIONS

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



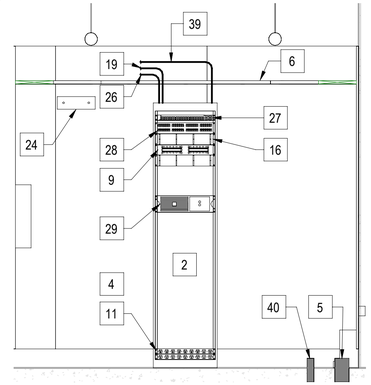
C3 TELECOM ROOM 131 WALL ELEVATION

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



C5 SIPR ROOM 120 RACK ELEVATION

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



C8 VENDOR/ESS 121 WALL AND RACK ELEVATION

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

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. REFER TO SPECIFICATION 27 10 00 REGARDING NEC INSPECTION REQUIREMENTS PRIOR TO PLYWOOD INSTALLATION.
3. THE NEC REQUIRES COVERING NO LESS THAN TWO (2) WALLS WITH TYPE A-C FIRE RATED PLYWOOD 4' X 8', FROM FLOOR TO CEILING. A NEC REPRESENTATIVE SHALL VERIFY AND INITIAL EACH SHEET OF PLYWOOD TO ENSURE THAT IT IS TYPE A-C AND THEN THE PLYWOOD CAN BE MOUNTED VERTICALLY WITH THE "A" SIDE EXPOSED. THE PLYWOOD BACKBOARD SHALL NOT BE PAINTED.
4. THE LAST 6 PORTS (43-48) OF THE FIRST PATCH PANEL IN THE NIPR RACK ARE TO BE RESERVED FOR SPECIAL CIRCUITS. THE CABLING FOR "B" TYPE OUTLETS ARE TO BE TERMINATED ON THESE PORTS.
5. CONTRACTOR MUST VERIFY QUANTITIES FOR TERMINATION HARDWARE BASED ON FINAL CABLE QUANTITIES.

SHEET KEYNOTES

1. 7' 2-POST COMMUNICATIONS RACK WITH 7' X 6" WIDE X 14" DEEP DUAL SIDED VERTICAL WIRE MANAGERS, TYPICAL.
2. 7' X 2' X 3' COMMUNICATIONS/EQUIPMENT CABINET.
3. (4) 4" CONDUITS FROM TELECOM DUCT BANK.
4. 3/4" FIRE RATED A/C GRADE PLYWOOD FLOOR TO CEILING, ALL WALLS TYPICAL, SEE GENERAL NOTES FOR PRE-INSTALLATION REQUIREMENTS.
5. (2) 4" CONDUITS FROM DUCT BANK CAPPED 5' FROM BUILDING PERIMETER.
6. 12" X 1" LADDER TRAY MOUNTED AT 7'-6" AFF.
7. 1U FIBER PANEL WITH LC ADAPTOR PANELS.
8. GFGI NETWORK SWITCH, SHOWN FOR REFERENCE ONLY.
9. RACK MOUNTED 110-BLOCK FOR TERMINATION OF COPPER BACKBONE CABLE.
10. GFGI RACK MOUNTED UPS, SHOWN FOR REFERENCE ONLY.
11. (1) 240/208V, 1-PAHASE POWER STRIP AND (1) 120V 1-PHASE POWER STRIP.
12. 48-PORT CAT-6 PATCH PANEL FOR TERMINATION OF GREEN NETWORK CABLING.
13. 48-PORT CAT-6A PATCH PANEL FOR TERMINATION OF WAP NETWORK CABLING.
14. 48-PORT CAT-6 PATCH PANEL FOR TERMINATION OF RED NETWORK CABLING.
15. RED CATEGORY-6 UTP CABLES TO SIPR OUTLETS.
16. 2U HORIZONTAL WIRE MANAGER WITH DUCT FINGERS AND SNAP-ON COVER, MOUNTED ON FRONT AND BACK, TYPICAL.
17. WALL MOUNTED BUILDING ENTRANCE PROTECTOR FOR INCOMING OSP COPPER CABLE.
18. 50-PAIR CAT-3 OSP COPPER CABLE.
19. 25-PAIR CAT-3 PLENUM TIE CABLE BETWEEN TELECOM ROOM 131 AND VENDOR/ESS ROOM 121.
20. WALL MOUNTED 110-STYLE INTERFACE BLOCK.
21. 12-STRAND SM OSP FIBER CABLE TO FIBER PANEL IN NEC RACK IN TELECOM ROOM 131.
22. GFGI FIBER JUMPER, SHOWN FOR REFERENCE ONLY.
23. TELECOMMUNICATIONS PRIMARY BONDING BUSBAR.
24. TELECOMMUNICATIONS SECONDARY BONDING BUSBAR.
25. 4" CABLE SLEEVE, QUANTITY AS ILLUSTRATED.
26. 12-STRAND SM FIBER BETWEEN NEC RACK AND ESS RACK.
27. ESS POE+ NETWORK SWITCH. SHOWN FOR REFERENCE ONLY.
28. 24-PORT PATCH PANEL FOR ESS DEVICES. SHOWN FOR REFERENCE ONLY.
29. ESS SERVER. SHOWN FOR REFERENCE ONLY.
30. POWER RECEPTACLES SHOWN FOR REFERENCE ONLY. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFO.
31. 50-PAIR TIE CABLE FROM BEP TO INTERFACE BLOCK.
32. 25-PAIR CAT-3 PLENUM TIE CABLE FROM WALL MOUNTED 110-BLOCK TO VOICE GRADE PATCH PANEL IN NEC RACK.
33. CROSS-CONNECT DISTRIBUTION RING, TYPICAL.
34. 2 - 2" CONDUITS BETWEEN TELECOM ROOM 131 AND SIPR ROOM 120.
35. GFGI NETWORK ENCRYPTION DEVICE, SHOWN FOR REFERENCE ONLY.
36. 12-STRAND SM PLENUM FIBER CABLE BETWEEN NIPR RACK AND SIPR RACK.
37. GREEN CATEGORY-6 UTP CABLES TO NIPR OUTLETS.
38. GREEN CATEGORY 6A CABLE TO WAP OUTLETS.
39. CABLING TO ESS DEVICES. SHOWN FOR REFERENCE ONLY.
40. 2" CONDUIT TO VEHICLE/PEDESTRIAN GATE FOR REMOTE GATE CONTROL AND A/I PHONE INTERFACE.

GRAPHIC SCALE

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

0 1' 2' 4'
SCALE: 1/2"=1'-0

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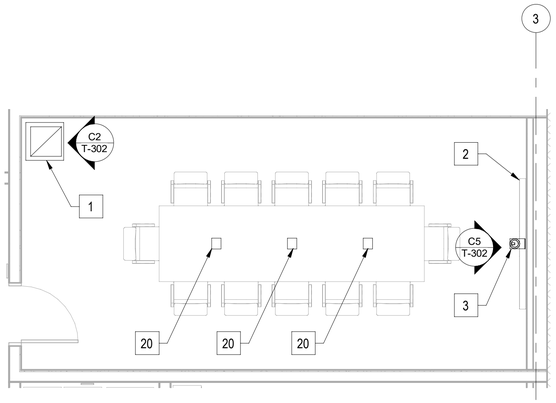
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PROJECT 87447

ENLARGED PLANS AND ELEVATIONS

BICSI DAVID A. ANDERSON RCDD/NTS/OSP DESIGN

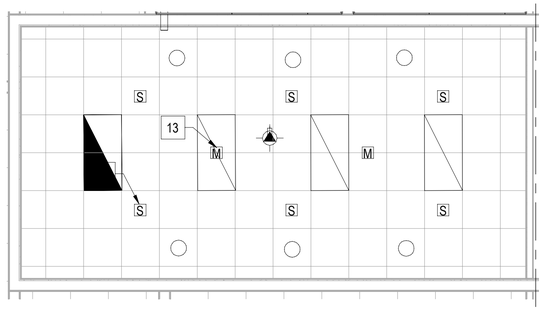
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T-301

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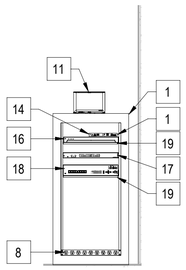
CONFERENCE ROOM 113
AUDIOVISUAL ENLARGED PLAN

F1 SCALE: 1/4" = 1'-0"



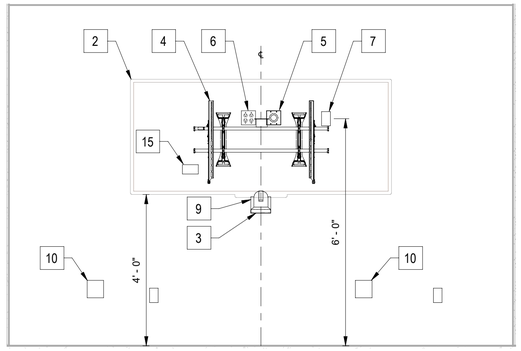
CONFERENCE ROOM 113
AUDIOVISUAL ENLARGED CEILING PLAN

F5 SCALE: 1/4" = 1'-0"



CONFERENCE ROOM 113
AUDIOVISUAL RACK ELEVATION

C2 SCALE: 1/2" = 1'-0"



CONFERENCE ROOM 113
DISPLAY WALL ELEVATION

C5 SCALE: 1/2" = 1'-0"

PLAN NORTH
TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.

SHEET KEYNOTES

1. 24"X24"X48" AV EQUIPMENT RACK.
2. 100" WALL MOUNTED 4K LED DISPLAY WITH VESA COMPLIANT MOUNTING BRACKET.
3. POE, PTZ, VTC CAMERA.
4. VESA STANDARD DISPLAY MOUNTING BRACKET.
5. "HD" TYPE AV BACK BOX AND CONDUIT FOR HDMI CABLING.
6. POWER RECEPTACLE.
7. CONDUIT AND BACK BOX FOR CATV OUTLET. CABLING AND FACEPLATE BY CATV VENDOR.
8. RACK MOUNTED POWER STRIP.
9. "VT" TYPE AV BACK BOX AND CONDUIT FOR VTC CAMERA CABLING.
10. WORK AREA OUTLET; SEE FLOOR PLANS FOR TYPE.
11. WIRED 10" TOUCH SCREEN CONTROL PANEL.
12. 8" CEILING MOUNTED SOUND REINFORCEMENT SPEAKER, TYPICAL.
13. MULTI-ELEMENT CEILING MICROPHONE ARRAY, TYPICAL.
14. HDMI TO HDBASE-T RECEIVER.
15. HDMI TO HDBASE-T TRANSMITTER.
16. GFGI CODEC.
17. 12X8 AUDIO DIGITAL SIGNAL PROCESSOR.
18. 8-INPUT HDCP SCALING PRESENTATION SWITCHER.
19. RACK MOUNTED EQUIPMENT SHELF.
20. TABLE POCKET/PASS-THROUGH FOR NETWORK AND AV CABLING. COORDINATE TABLE POCKET TYPE, SIZE, AND QUANTITY WITH ARCHITECHT AND CONTRACTING OFFICER PRIOR TO PURCHASE.

GRAPHIC SCALE

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

0 1' 2' 4'
SCALE: 1/2"=1'-0

US Army Corps of Engineers ®

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DESIGNED BY: DAA
DRAWN BY: DAA
CHECKED BY: AB
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-19-D-0004
FIRST TITLE
SIZE: ANSI D
SECOND TITLE

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

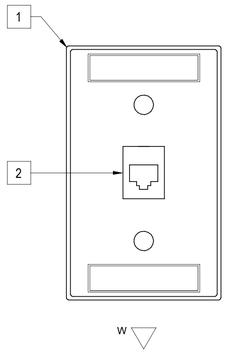
WHITMAN, REQUARDT & ASSOCIATES, LLP
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ENLARGED PLANS AND ELEVATIONS

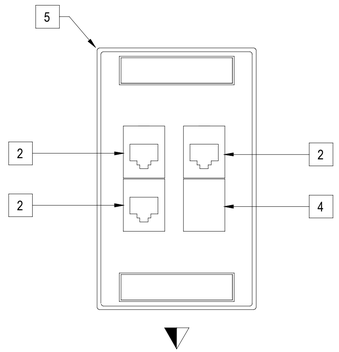
BICSI COMMUNICATIONS DISTRIBUTION DESIGNER
David A. Ferrara
RCDD, LEED AP, ATD, ITSP
Certified Technology Specialist

SHEET ID
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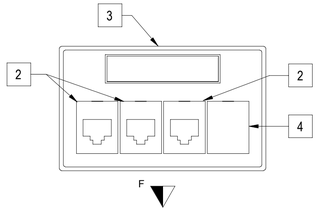
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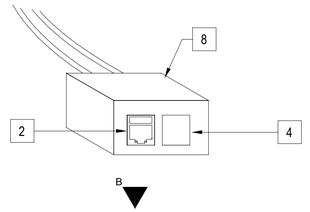
WALL PHONE FACEPLATE DETAIL (F1)
NTS



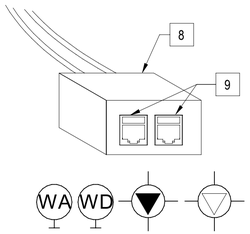
NEC/NIPR FACEPLATE DETAIL (F3)
NTS



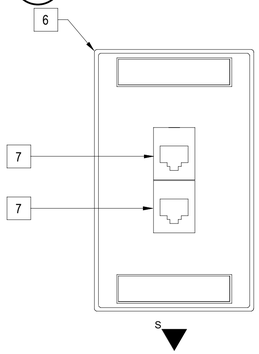
NEC/NIPR FURNITURE OUTLET FACEPLATE DETAIL (F5)
NTS



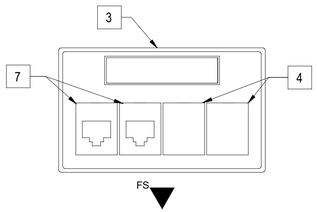
BUILDING INTEGRATTION FACEPLATE DETAIL (F7)
NTS



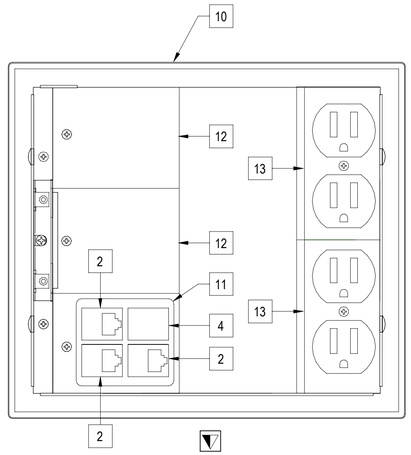
CEILING WAP/WID FACEPLATE DETAIL (F9)
NTS



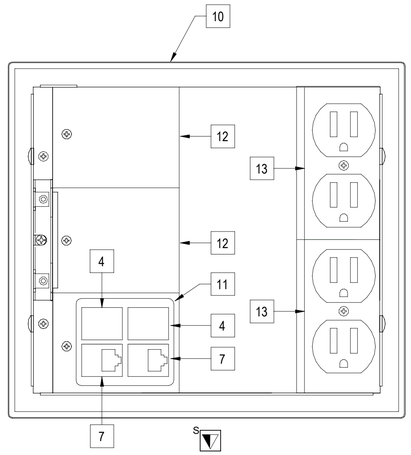
SIPR FACEPLATE DETAIL (D1)
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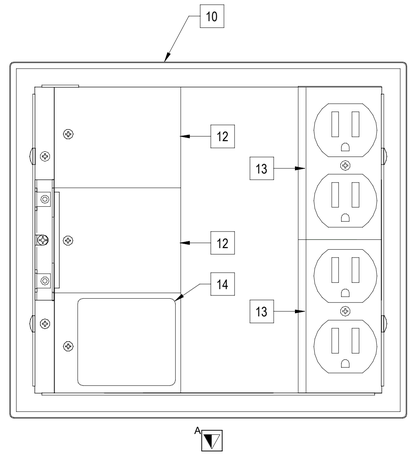
SIPR FURNITURE OUTLET FACEPLATE DETAIL (D3)
NTS



NIPR FLOOR BOX FACEPLATE DETAILS (C5)
NTS



SIPR FLOOR BOX FACEPLATE DETAILS (C7)
SCALE: 1/2" = 1'-0"



AV FLOOR BOX FACEPLATE DETAILS (C9)
SCALE: 1/2" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. FOR "B" OUTLETS, TERMINATE CABLE ON LAST PORTS OF THE FIRST RACK MOUNTED CAT-6 DATA PATCH PANEL WORKING IN REVERSE. PORTS 48-43 WILL BE USED FOR SPEACIAL CIRCUITS WITH PORT 48 BEING USED FOR THE FACP. LABEL FIRE ALARM CIRCUITS "FACP". LABEL UTILITY MONITORING AND CONTROL SYSTEM CIRCUITS "BAS".
3. FOLLOW CURRENT FORT BRAGG LABELING SCHEME PER 2017 FORT BRAGG NEC IDC.

SHEET KEYNOTES

1. SINGLE GANG STAINLESS STEEL FACEPLATE WITH MOUNTING LUGS
2. GREEN CATEGORY 6 RJ-45 JACK
3. 4-PORT SYSTEMS FURNITURE FACEPLATE.
4. BLANK INSERT.
5. 4-PORT SINGLE GANG FACEPLATE.
6. 2-PORT SINGLE GANG FACEPLATE.
7. RED CATEGORY 6 RJ-45 JACK.
8. 2-PORT SURFACE MOUNT BOX.
9. GREEN CATEGORY 6A RJ-45 JACK.
10. FLOOR BOX WITH COMMS AND POWER.
11. COMMUNICATIONS ADAPTOR PLATE.
12. BLANK FILLER PLATE AS REQUIRED.
13. DUPLEX POWER RECEPTACLE.
14. COMMUNICATIONS ADAPTOR PLATE USED AS A PASS THOUGH FOR AV CABLES.

US Army Corps of Engineers ®

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69 DARLINGTON AVENUE
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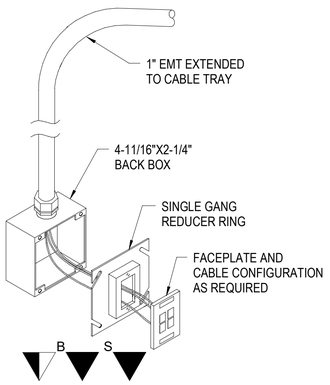
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PROJECT 87447
COMMUNICATIONS OUTLET DETAILS



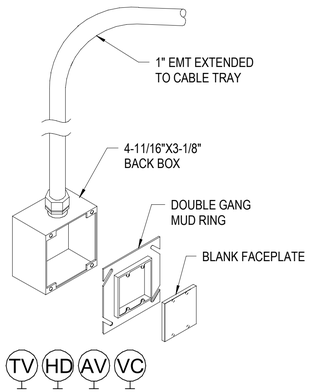
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T-501

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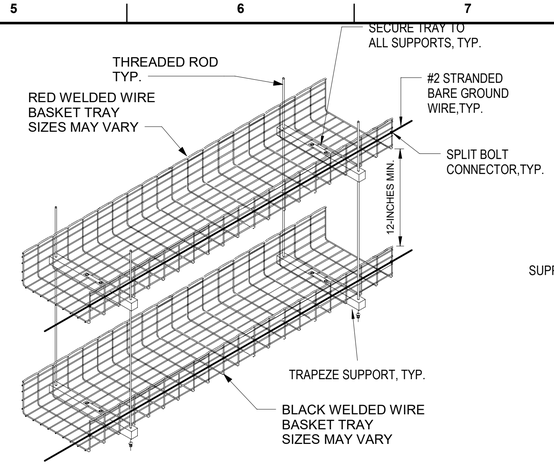
F1 TYPICAL WALL MOUNTED OUTLET BOX DETAIL

SCALE: 1" = 1'-0"



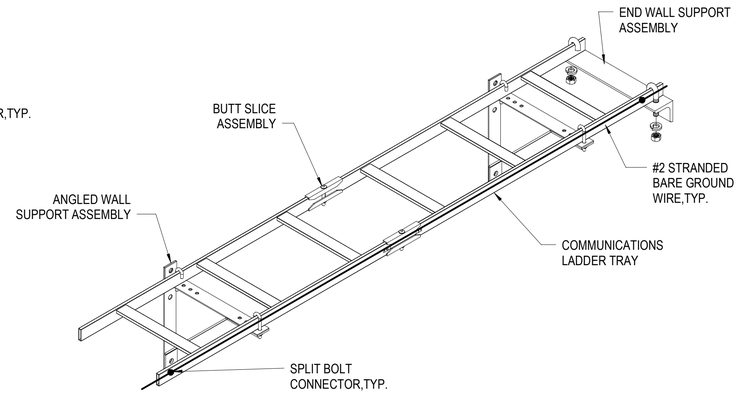
F3 AV WALL MOUNTED OUTLET BOX DETAIL

NTS



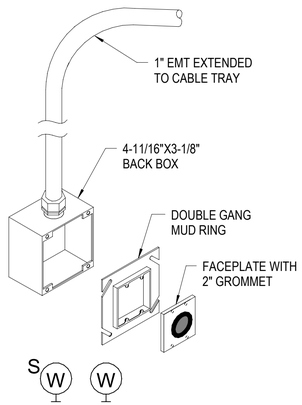
F5 DOUBLE STACK BASKET TRAY MOUNTING DETAIL

NTS



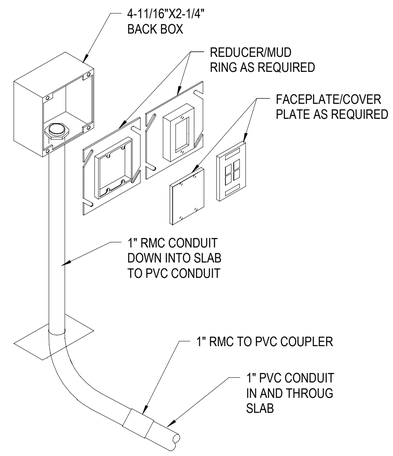
F8 LADDER RACK MOUNTING DETAIL

NTS



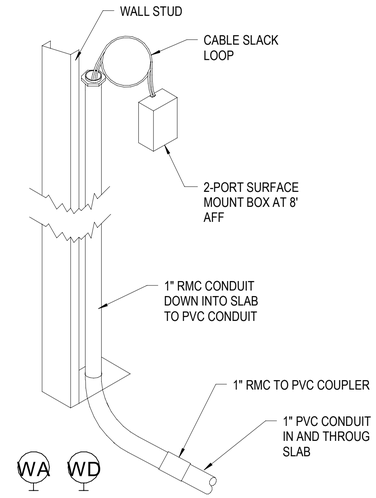
C1 FURNITURE WHIP BACK BOX AND CONDUIT DETAIL

NTS



C4 SLAB FED OUTLET BOX DETAIL

NTS

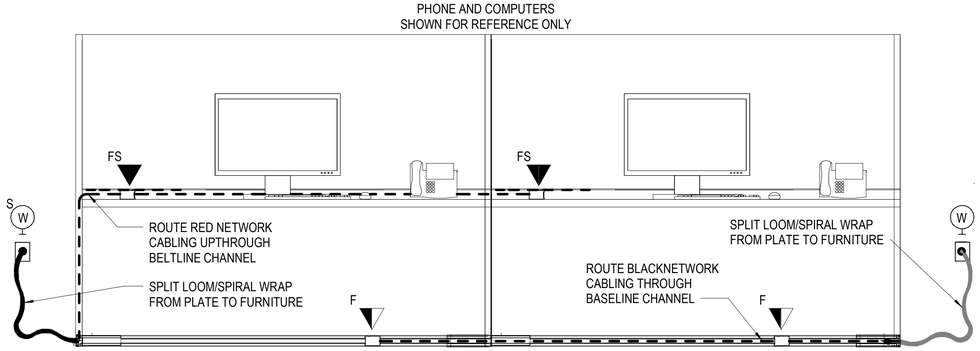


C6 SLAB FED WAP/WID BOX DETAIL

SCALE: 1" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. FOR FURNITURE MOUNTED COMMUNICATIONS OUTLETS, MAINTAIN 2-INCHES OF SEPARATION BETWEEN ALL COMMUNICATIONS CABLING AND ELECTRICAL CONDUITS AND OTHER UTILITIES.



A6 SEC SYSTEMS FURNITURE CABLING

NTS

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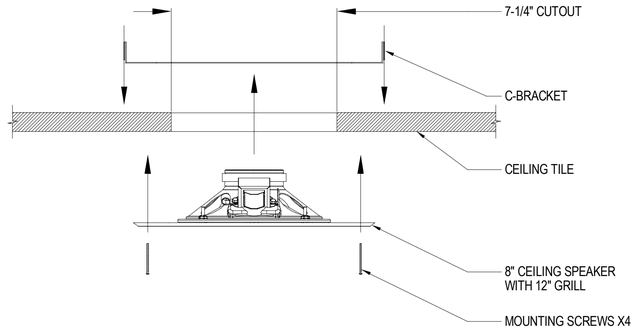
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COMMUNICATIONS PATHWAY DETAILS

SHEET ID

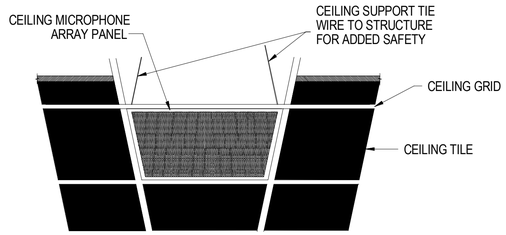
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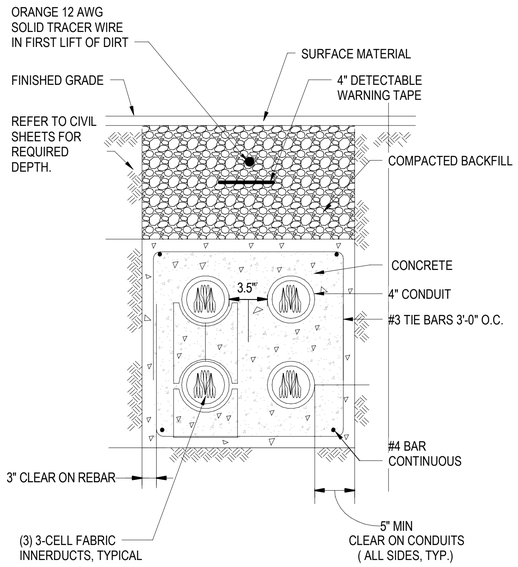
F1 CEILING SPEAKER MOUNTING DETAIL

SCALE: 12" = 1'-0"



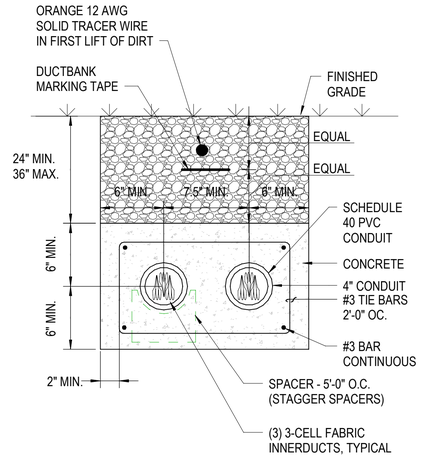
F6 CEILING MICROPHON ARRAY MOUNTING DETAIL

SCALE: 12" = 1'-0"



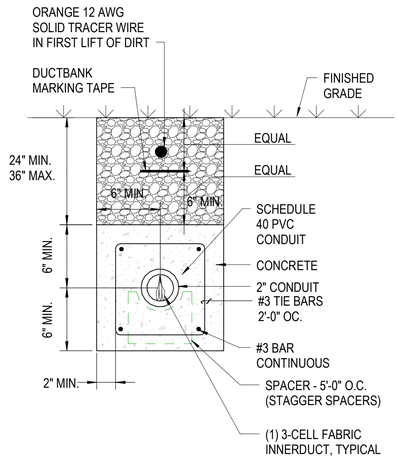
C1 2X2 4-INCH CONCRETE ENCASED DUCT BANK

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



C5 1X2 4-INCH CONCRETE ENCASED DUCT BANK

SCALE: 12" = 1'-0"



C8 1X1 2-INCH CONCRETE ENCASED DUCT BANK

SCALE: 12" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. VACANT DUCTS MUST BE SEALED WITH MECHANICAL SCREW-TYPE, REUSABLE DUCT PLUGS.
3. DUCTS THAT CONTAIN CABLES SHALL BE PLUGGED USING WATER BLOCKING FOAM SPECIFICALLY DESIGNED TO PREVENT THE INTRUSION OF WATER AND GASSES THROUGH CONDUITS IN MANHOLES, HAND HOLES, AND CABLE VAULTS AND WILL NOT DETERIORATE THE CABLE JACKET.

US Army Corps of Engineers ®

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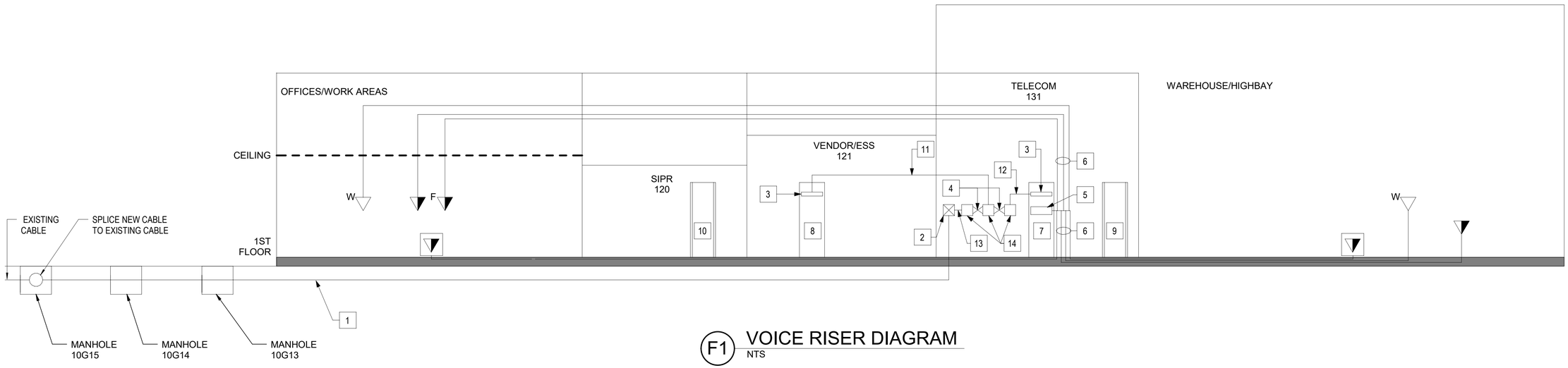
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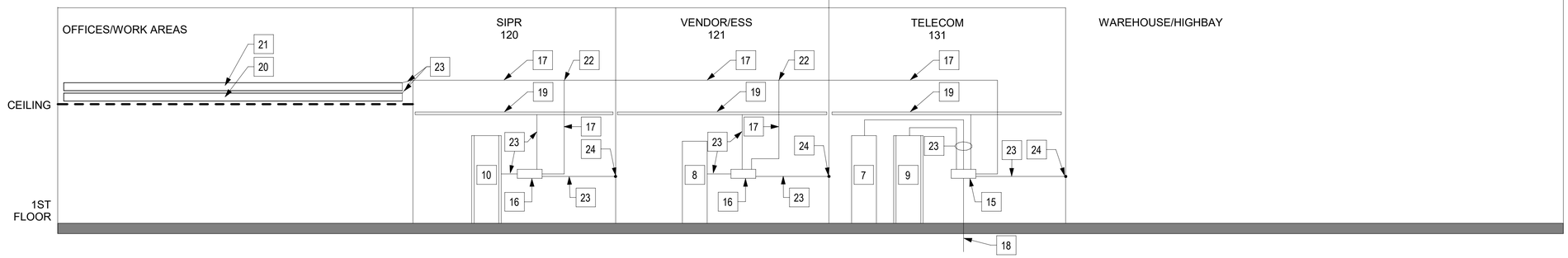
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David A. Ferrell
BICSI DD #58765
Expires 10/31/24

SHEET ID
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F1 VOICE RISER DIAGRAM
NTS



C1 GROUNDING RISER DIAGRAM
NTS

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. DRAWINGS ARE DIAGRAMMATIC AND DO NOT REFLECT ACTUAL EQUIPMENT LAYOUTS, QUANTITIES, OR CABLE ROUTING.

SHEET KEYNOTES

1. 50-PAIR COPPER CABLE FROM SPLICE POINT IN MANHOLE 38Y.
2. 50-PAIR BUILDING ENTRANCE PROTECTOR.
3. VOICE GRADE RACK MOUNTED PATCH PANEL FOR COPPER BACKBONE.
4. VOICE GRADE CROSS CONNECT CABLES, TYPICAL.
5. CATEGORY 6 PATCH PANELS.
6. GREEN CAT 6 4-PAIR CABLES TO WAOS.
7. NEC CABINET.
8. ESS CABINET.
9. 2-POST NIPR RACK.
10. 2-POST SIPR RACK.
11. 25-PAIR COPPER BACKBONE CABLE.
12. 25-PAIR COPPER TIE CABLE FROM RACK MOUNT PANEL TO WALL MOUNTED 110-BLOCK.
13. 50-PAIR COPPER TIE CABLE FROM BEP TO WALL MOUNTED 110-BLOCK.
14. WALL MOUNTED 110-BLOCK FOR COPPER BACKBONE AND TIE CABLES.
15. PRIMARY BONDING BUSBAR.
16. SECONDARY BONDING BUSBAR.
17. BONDING BACKBONE CONDUCTOR, SIZE PER TIA 607-D.
18. CONDUCTOR TO BUILDING MAIN ELECTRICAL GROUND, SIZE PER TIA 607-D.
19. LADDER TRAY.
20. BASKET TRAY (BLACK NETWORK).
21. BASKET TRAY (RED NETWORK).
22. CONNECTION TO BONDING BACKBONE VIA EXOTHERMIC WELD.
23. BONDING JUMPER (6 AWG MINIMUM).
24. BOND TO BUILDING STEEL.

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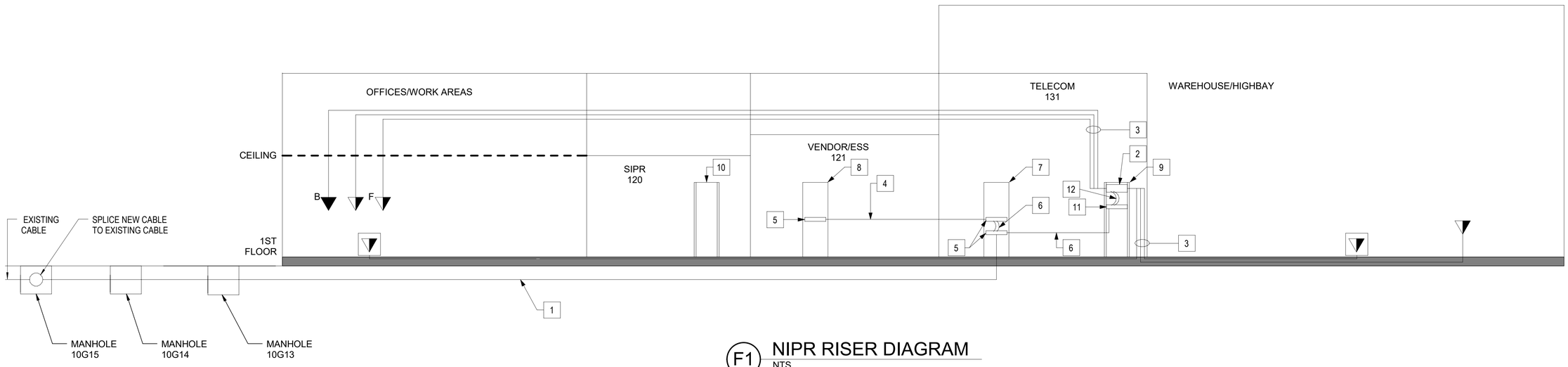
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PROJECT 87447
VOICE AND GROUNDING SYSTEM RISERS

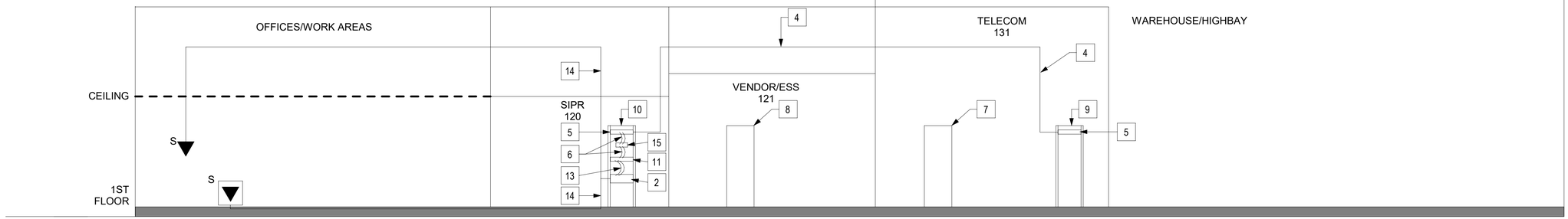
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SHEET ID
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F1 NIPR RISER DIAGRAM
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C1 SIPR RISER DIAGRAM
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GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. DRAWINGS ARE DIAGRAMMATIC AND DO NOT REFLECT ACTUAL EQUIPMENT LAYOUTS, QUANTITIES, OR CABLE ROUTING.

SHEET KEYNOTES

1. 12-STRAND SM NEC FIBER FROM SPLICE POINT IN MANHOLE 38Y.
2. CATEGORY 6 PATCH PANELS.
3. GREEN CAT 6 4-PAIR CABLES TO WAOS.
4. 12-STRAND SM PLENUM RATED BACKBONE CABLE.
5. RACK MOUNTED FIBER OPTIC PATCH PANEL.
6. SM FIBER OPTIC PATCH CORDS AS REQUIRED.
7. NEC CABINET.
8. ESS CABINET.
9. 2-POST NIPR RACK.
10. 2-POST SIPR RACK.
11. GFGI NETWORK SWITCHES.
12. GREEN CATEGORY 6 PATCH CORDS AS REQUIRED.
13. RED CATEGORY 6 PATCH CORDS AS REQUIRED.
14. RED CATEGORY 6 4-PAIR UTP CABLES TO WAOS.
15. TACLANE ENCRYPTION DEVICE, GFGI.

US Army Corps of Engineers ®

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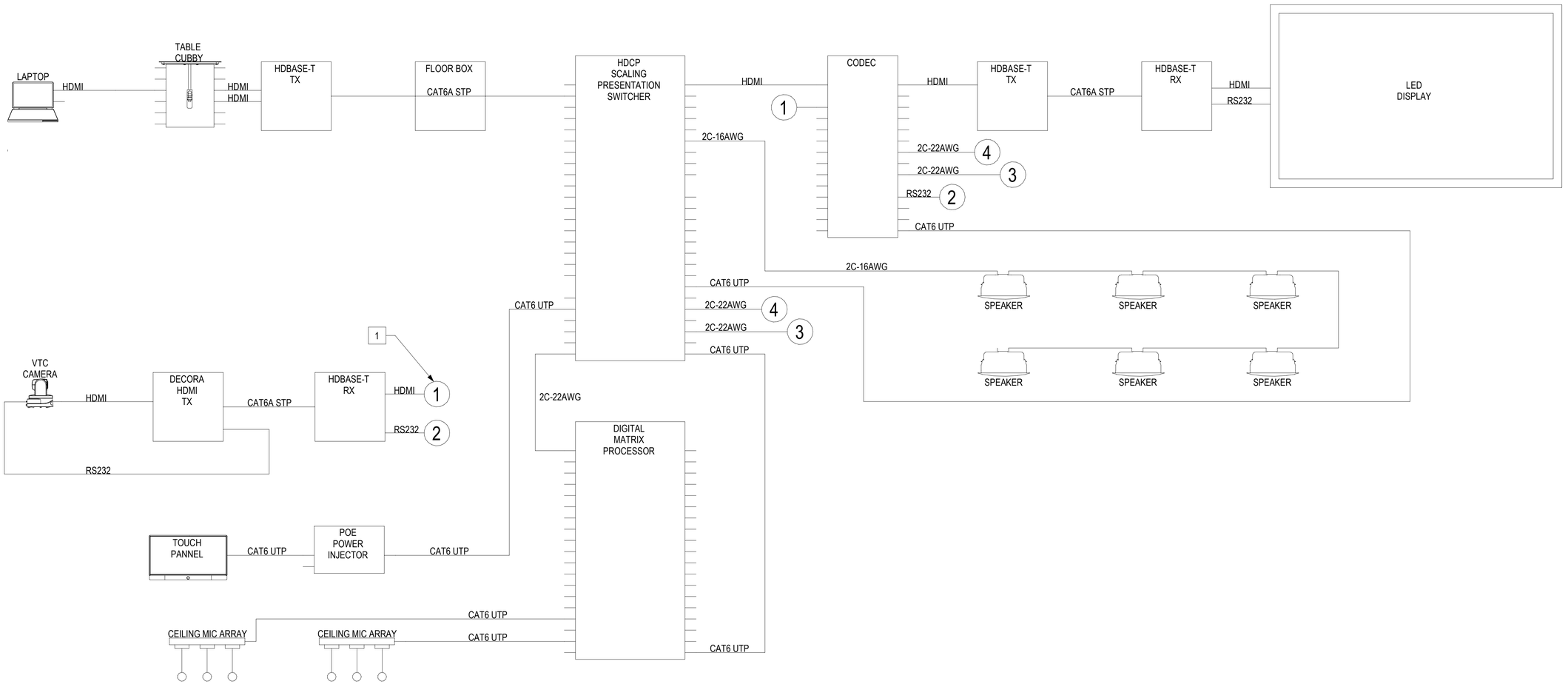
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SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
NETWORK SYSTEM RISERS

BICSI
Dawn A. Hunter
RCDD, NTS, TECH
Expires 10/31/23

SHEET ID
T-602

READY TO ADVERTISE



AUDIOVISUAL SYSTEM SIGNAL FLOW DIAGRAM

C1 SCALE: 1" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SHEET T-001 FOR SYMBOL LEGEND AND ABBREVIATIONS, AND SHEET T-002 FOR GENERAL NOTES.
2. DRAWINGS ARE DIAGRAMMATIC AND DO NOT REFLECT ACTUAL EQUIPMENT LAYOUTS, QUANTITIES, OR CABLE ROUTING.

SHEET KEYNOTES

1. CONNECTION DESIGNATOR, TYPICAL. DEVICE/CABLE CONNECTS TO EQUIPMENT/PORT WITH CORRESPONDING DESIGNATOR.

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AUDIOVISUAL SYSTEM SIGNAL FLOW DIAGRAM

SHEET ID
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ABBREVIATIONS

ACS	ACCESS CONTROL SYSTEM
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
ESS	ELECTRONIC SECURITY SYSTEM(S)
ESS#	ELECTRONIC SECURITY SYSTEM DOOR DETAIL DESIGNATOR
EMT	ELECTRICAL METALLIC TUBING
IDS	INTRUSION DETECTION SYSTEM
JB	JUNCTION BOX
NEC	NATIONAL ELECTRICAL CODE
RGS	RIGID GALVANIZED STEEL
UON	UNLESS OTHERWISE NOTED
AFG	ABOVE FINISHED GRADE

LEGEND

DC	DOOR CONTACT
CR	CARD READER
ES	ELECTRIC DOOR STRIKE
ACP	PANEL FOR ACS
MD	MOTION DETECTOR
X10	LKM 10K X-10 DOOR LOCK
REX	REQUEST TO EXIT MOTION DETECTOR
HSS	HIGH SECURITY SWITCH (SINGLE ALARM)
IDS	ICIDS-V5 REMOTE AREA DATA COLLECTOR (WALL MOUNT)
POE+	24-PORT ESS POWER OVER ETHERNET PLUS MANAGED NETWORK SWITCH (RACK MOUNT)
POE(8)	8-PORT POWER OVER ETHERNET PLUS MANAGED NETWORK SWITCH (WALL MOUNT)
RKP	INTRUSION DETECTION READER KEYPAD
HSS / D	HIGH SECURITY SWITCH (DUAL ALARM)

GENERAL SHEET NOTES

1. THIS CONTRACT INCLUDES THE PROVISION OF ALL ELECTRONIC SECURITY SYSTEM (ESS) EQUIPMENT, CONDUIT, PULL BOXES AND JUNCTION BOXES FOR THE INSTALLATION OF ESS DEVICES, ENCLOSURES AND PANELS. PROVISION OF ESS EQUIPMENT INCLUDES HARDWARE, DEVICES, BRACKETS, PANEL BOARDS, CONTROL WIRING, COMMUNICATIONS CABLING AND ACCESSORIES FOR A COMPLETE AND OPERABLE ESS SYSTEM.
2. COORDINATE AND CONFIRM WITH GOVERNMENT SECURITY REPRESENTATIVE FINAL LOCATION OF ALL ESS DEVICES PRIOR TO INSTALLATION OF INFRASTRUCTURE.
3. PROVIDE PULL STRINGS IN ALL EMPTY CONDUITS TO FACILITATE PULLING OF CABLES.
4. COMPLY WITH AR-380-5 FOR INSTALLATION OF ESS IN SIPR ROOM.
5. PENETRATIONS OF PERIMETER WALLS FOR CONDUITS FOR ESS INFRASTRUCTURE AND DEVICES SHALL BE KEPT TO A MINIMUM.
6. ALL INTERIOR HOME-RUN CONDUIT SHALL BE AT LEAST 1" EMT, UON. INCREASE SIZE OF CONDUIT TO ACCOMODATE AGGREGATION OF CONDUIT RUNS THAT CONNECT TO ACP PANEL. COMPLY WITH NEC, STATE AND LOCAL CODES FOR SIZING OF CONDUIT, JUNCTION BOXES AND ENCLOSURES.
7. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE INSTALLATION OF CONDUIT(S) WITH EXISTING CONDITIONS.
8. PROVIDE AT A MINIMUM A 12-INCH BEND RADIUS IN ALL 1" CONDUITS.
9. PROVIDE PULL BOXES AFTER THE USE OF (2) 90-DEGREE BENDS.
10. ALL CONDUITS SHALL BE ROUTED ABOVE CEILINGS, BELOW FLOORS OR WITHIN WALLS; NO CONDUIT SHALL BE EXPOSED UON.
11. ALL CONDUIT PENETRATIONS THROUGH FIRE RATED PARTITIONS SHALL BE SEALED AS REQUIRED BY CODE.
12. ALL ACP ENCLOSURES/JUNCTION BOXES SHALL BE SURFACE MOUNTED ABOVE THE CEILING UON.
13. ALL ENCLOSURES/JUNCTION BOXES MOUNTED WITHIN FIRE RATED PARTITIONS SHALL MEET THE FIRE RATING OF THE PARTITION AS REQUIRED BY CODE.
14. PROVIDE CONDUIT BUSHINGS IN EACH ENCLOSURE/JUNCTION BOX.
15. COORDINATE THE EXACT LOCATION OF ALL CONDUIT, ENCLOSURES, PULL AND JUNCTION BOXES WITH ARCHITECTURAL, ELECTRICAL AND MECHANICAL PLATES.
16. ALL ENCLOSURES/JUNCTION AND PULL BOXES SHALL BE PROVIDED WITH COVER PLATES, BACK MOUNTING PANELS AND LOCKING MECHANISMS.
17. ENCLOSURES/JUNCTION BOXES LOCATED ABOVE DOORS WITH NO ACCESSIBLE CEILING SHALL BE SECURED WITH TAMPER PROOF SCREWS.
18. CONDUIT ROUTING, BACKBOX, AND JUNCTION/PULL BOX LOCATIONS SHALL BE FIELD VERIFIED AND COORDINATED WITH OTHER DISCIPLINES BY THE CONTRACTOR.
19. LABEL CONDUITS AND TEMRINATION BOXES.
20. PROVIDE CABLE IN CONDUIT FROM DEVICE TO DESTINATION INDICATED ON ONE-LINE DIAGRAMS. CONDUIT IS NOT SHOWN FOR CLARITY. SEE TY201 ONE-LINE DIAGRAMS THAT SHOW CONNECTIVITY.
21. SEE ELECTRICAL SHEETS FOR POWER CONNECTIONS.
22. SEE TELECOMMUNICATIONS SHEETS FOR ESS NETWORK CONNECTIONS.
23. COMPLY WITH AR-190-11 FOR INSTALLATION OF ESS IN SECURE VAULT.
24. PROVIDE ALL IP ADDRESSES, SOFTWARE LICENSES, PROGRAMMING, CONFIGURATION, ALARMS, TESTING AND STARTUP OF THE ACS & IDS SYSTEMS AND DEVICES PER CUSTOMER REQUIREMENTS FOR A COMPLETE AND OPERATIONAL ACCESS CONTROL AND INTRUSION DETECTION SYSTEM.
25. CUSTOMER CYBER SECURITY REPRESENTATIVE MUST WITNESS PERFORMANCE VERIFICATION TESTING OF THE ACS AND IDS SYSTEMS AFTER THEY ARE INSTALLED AND CONNECTED TO THE EXISTING CUSTOMER CYBER SYSTEM. THE CONTRACTOR WILL PROVIDE CERTIFIED, QUALIFIED ICIDS/DAQ SMS TECHNICIANS FOR WARRANTY SUPPORT AT THE PN79439.2 SOF ANNEX. WARRANTY IS TO INCLUDE A COPY OF DAQ STARWATCH SMS SYSTEMS ADMINISTRATOR CERTIFICATION FOR EACH TECHNICIAN THAT WILL BE VALIDATED BY DAQ ELECTRONICS LLC. THE CONTRACTOR WILL OBTAIN AN ICIDS MAINTENANCE AGREEMENT FROM DAQ FOR THIS SITE THAT WILL PROVIDE SOFTWARE UPDATES AND ASSOCIATED DAQ ICIDS LAB SUPPORT.
26. CONTRACTOR TO PROVIDE ESS WORKSTATION. COORDINATE LOCATION AND PROGRAMMING REQUIREMENTS WITH CUSTOMER.

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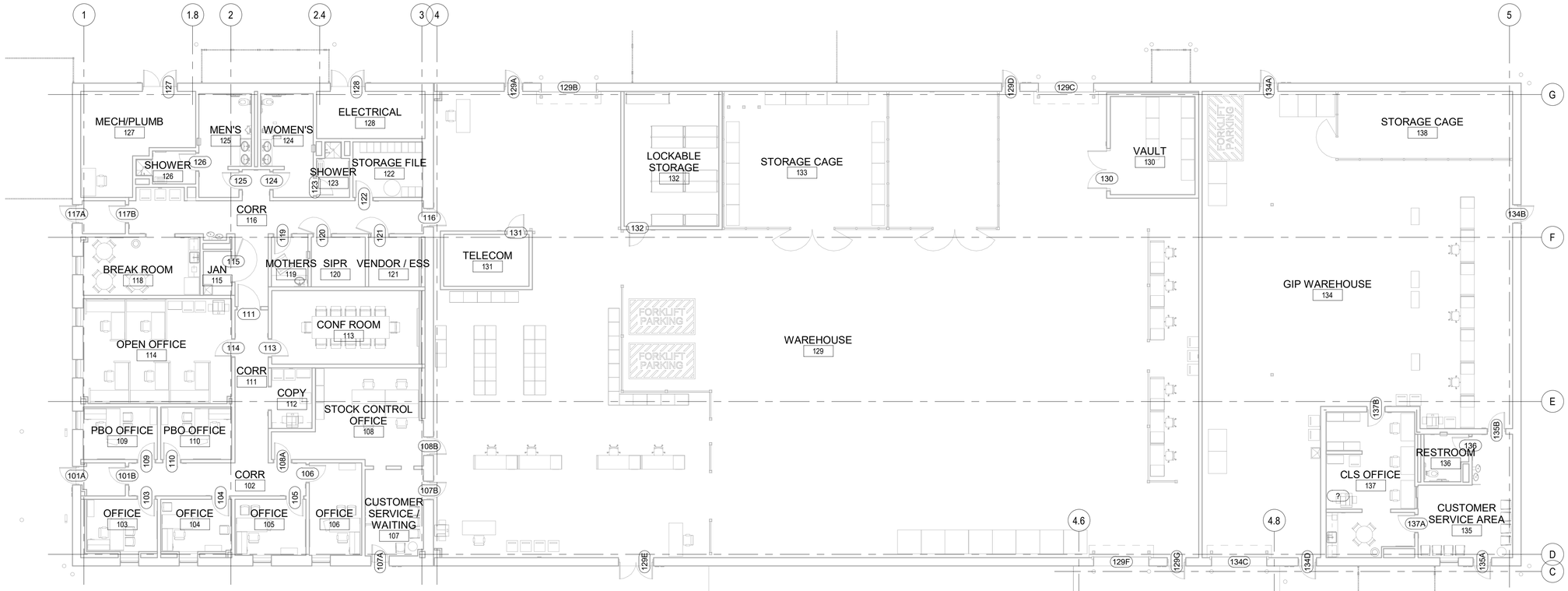
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PROJECT 87447
LEGEND, ABBREVIATIONS AND GENERAL NOTES



SHEET ID
TY001

READY TO ADVERTISE



D5 FIRST FLOOR COMPOSITE PLAN

SCALE: 3/32" = 1'-0"

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET TY001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. REFER TO SHEETS TY102 AND TY103 FOR ESS PART PLANS.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 3/32"=1'-0

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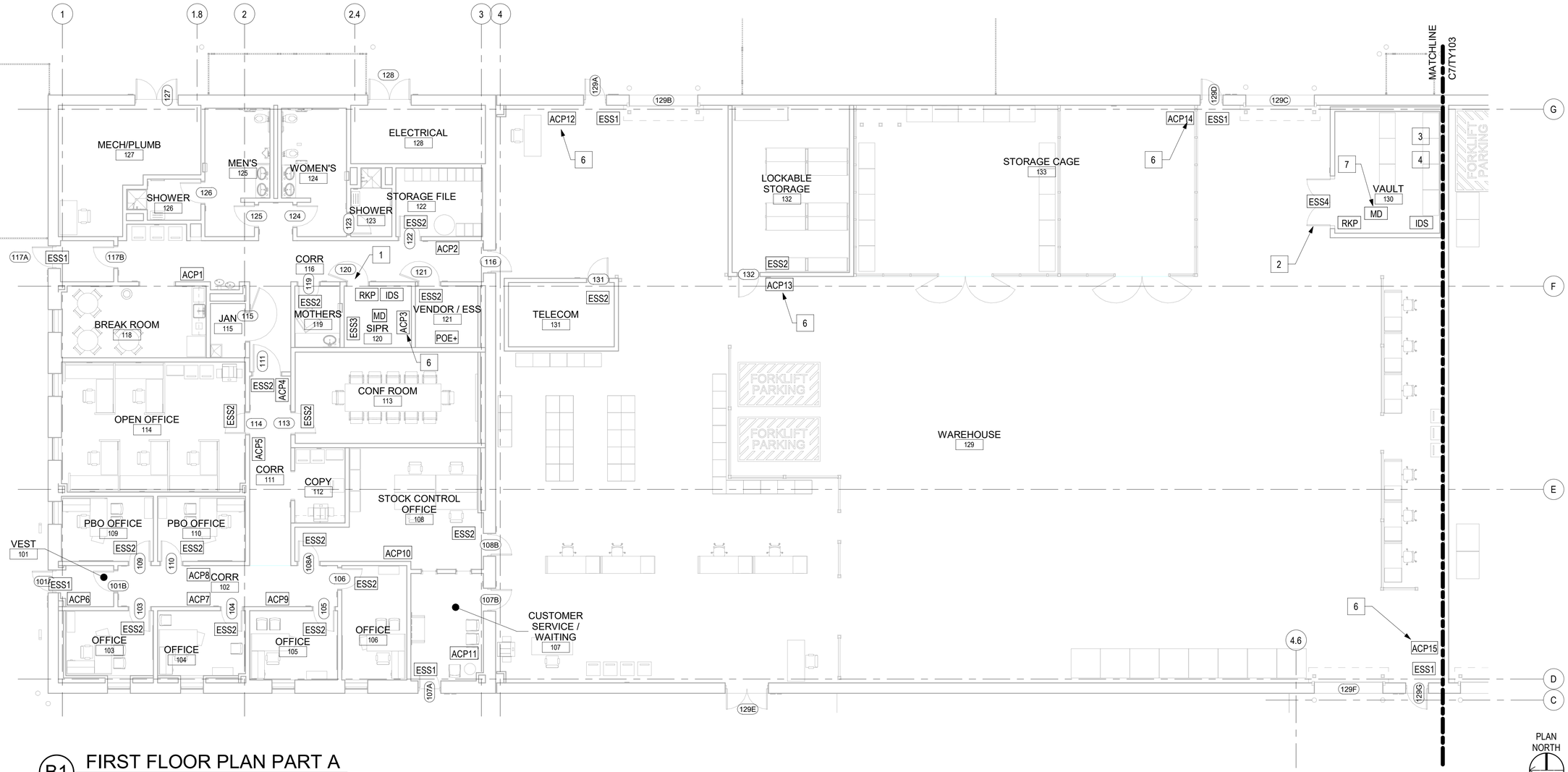
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PROJECT 87447
ELECTRONIC SECURITY SYSTEMS FIRST FLOOR COMPOSITE PLAN

08/04/23

SHEET ID

TY101

READY TO ADVERTISE



B1 FIRST FLOOR PLAN PART A

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

GENERAL SHEET NOTES

1. REFER TO SHEET TY001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. INFRASTRUCTURE LAYOUT DEPICTED IN THESE DRAWINGS ARE BASELINE. MODIFICATION MAY BE NECESSARY DUE TO DOOR OR WALL CONSTRUCTION.
3. PROVIDE PULL STRINGS IN ALL CONDUITS.
4. PROVIDE 3/4" EMT CONDUIT UON.
5. IF ANY DEVIATION FROM DRAWING IS REQUIRED, IT MUST BE APPROVED BY GOVERNMENT SECURITY REPRESENTATIVE.
6. COORDINATE AND CONFIRM WITH GOVERNMENT SECURITY REPRESENTATIVE FINAL LOCATION OF ALL ESS DEVICES PRIOR TO INSTALLATION OF INFRASTRUCTURE AND DEVICES.
7. ALL ACP ENCLOSURES/ JUNCTION BOXES SHALL BE SURFACE MOUNTED ABOVE THE CEILING UON.
8. NUMBERED ACP LOCATIONS PROVIDE POWER AND COMMUNICATION CABLE CONNECTIONS TO DOOR NUMBERS AS SHOWN ON ACP DOOR SCHEDULE - SEE SHEET TY203.

SHEET KEYNOTES

1. FF-L-2890C X-10 TYPE II PEDESTRIAN DOOR PRE-ASSEMBLED LOCKSET (PDPL) MODEL LKM10KHX10S2.
2. S&G MODEL 2937UL GROUP 1 LOCK THAT MEETS REQUIREMENTS OF FF-L-2937.
3. PROVIDE (1") CONDUIT FROM THE VAULT TROUGH TO THE VENDOR/ESS ROOM.
4. PROVIDE 4" X 4" X 24" WIDE VAULT TROUGH ON VAULT INTERIOR WALL. SEE DETAIL A1/TY201.
5. NOT USED.
6. WALL MOUNT ACP 8.5' AFF.
7. CEILING MOUNT.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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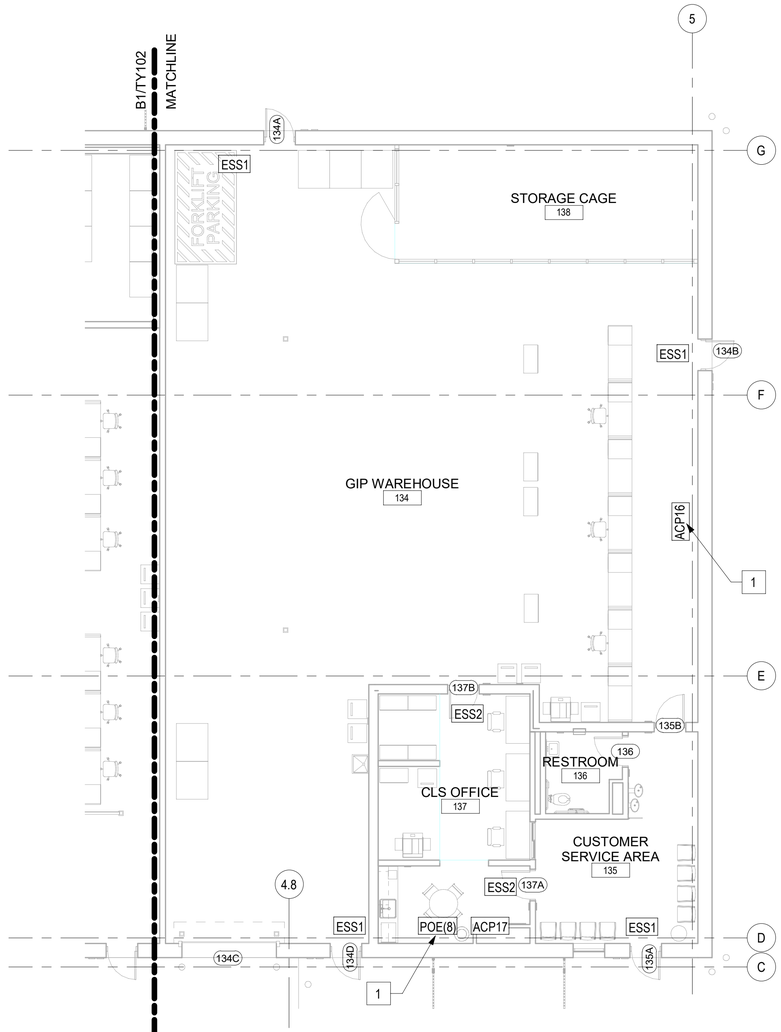
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PROJECT 87447
ELECTRONIC SECURITY SYSTEMS FIRST FLOOR PLAN PART A

08/04/23

SHEET ID
TY102

READY TO ADVERTISE



C7 FIRST FLOOR PLAN PART B

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

PLAN NORTH

TRUE N

GENERAL SHEET NOTES

1. REFER TO SHEET TY001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. INFRASTRUCTURE LAYOUT DEPICTED IN THESE DRAWINGS ARE BASELINE. MODIFICATION MAY BE NECESSARY DUE TO DOOR OR WALL CONSTRUCTION.
3. PROVIDE PULL STRINGS IN ALL CONDUITS.
4. PROVIDE 3/4" EMT CONDUIT UON.
5. IF ANY DEVIATION FROM DRAWING IS REQUIRED, IT MUST BE APPROVED BY GOVERNMENT SECURITY REPRESENTATIVE.
6. COORDINATE AND CONFIRM WITH GOVERNMENT SECURITY REPRESENTATIVE FINAL LOCATION OF ALL ESS DEVICES PRIOR TO INSTALLATION OF INFRASTRUCTURE AND DEVICES.
7. ALL ACP ENCLOSURES/ JUNCTION BOXES SHALL BE SURFACE MOUNTED ABOVE THE CEILING UON.
8. NUMBERED ACP LOCATIONS PROVIDE POWER AND COMMUNICATION CABLE CONNECTIONS TO DOOR NUMBERS AS SHOWN ON ACP DOOR SCHEDULE - SEE SHEET TY203.

SHEET KEYNOTES

1. WALL MOUNT POE+ SWITCH 5' AFF.

GRAPHIC SCALE

0 4' 8' 16'

SCALE: 1/8"=1'-0

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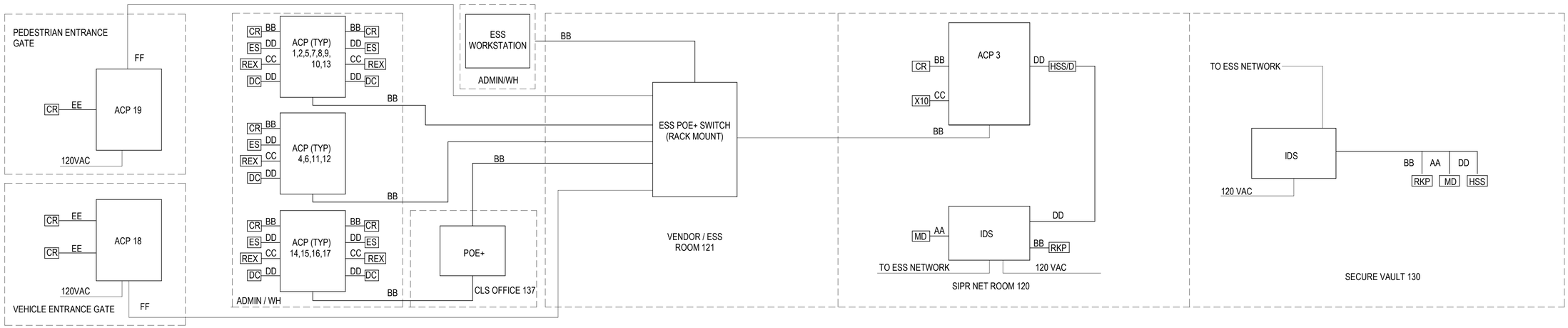
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ELECTRONIC SECURITY SYSTEMS FIRST FLOOR PLAN PART B

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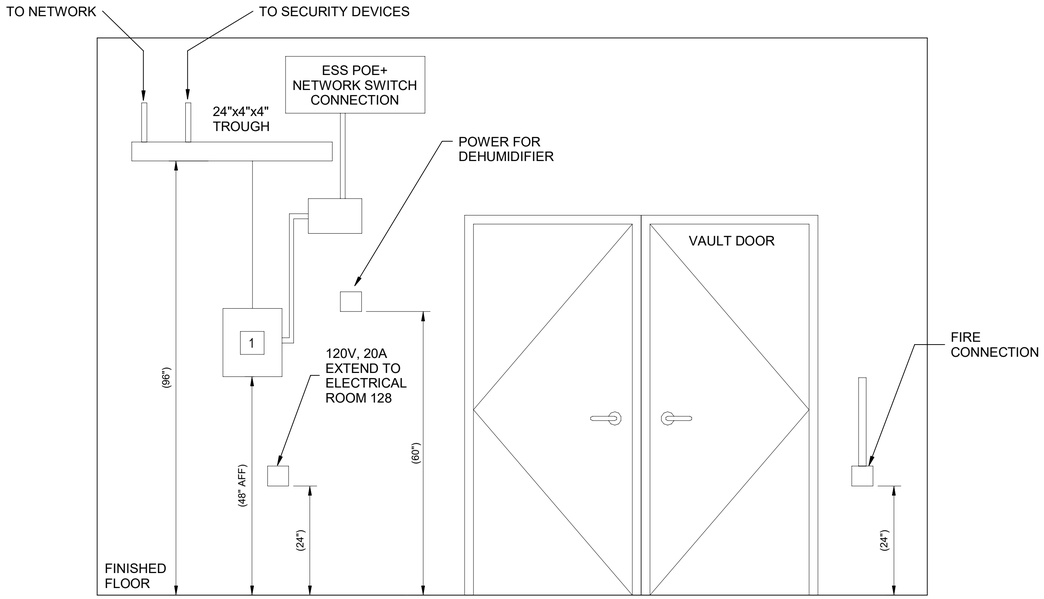


NOTES:

1. POWER FOR ACP INTERIOR LOCATIONS 1-17 PROVIDED BY POE+ SWITCH.
2. SEE TELECOM DRAWINGS FOR ADDITIONAL INFORMATION.
3. CUSTOMER CYBER SECURITY REPRESENTATIVE MUST WITNESS PERFORMANCE VERIFICATION TESTING OF THE ACS AND IDS SYSTEMS AFTER THEY ARE INSTALLED AND CONNECTED TO THE EXISTING CUSTOMER CYBER SYSTEM.

E3 ACCESS CONTROL / INTRUSION DETECTION SYSTEMS - ONE LINE DIAGRAM

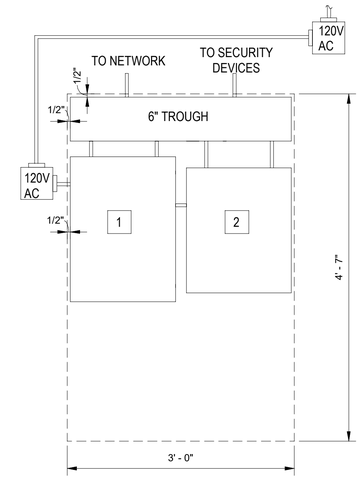
NTS



1 IDS PANEL ENCLOSURE WITH BATTERY BACKUP

A1 SECURE VAULT INFRASTRUCTURE - INTERIOR

SCALE: 12" = 1'-0"



FINISHED FLOOR

1 ACP PANEL ENCLOSURE WITH BATTERY BACKUP

2 IDS PANEL ENCLOSURE WITH A BATTERY BACKUP

A6 ACP/IDS PANEL ELEVATION SIPR NET ROOM 120

SCALE: 1" = 1'-0"

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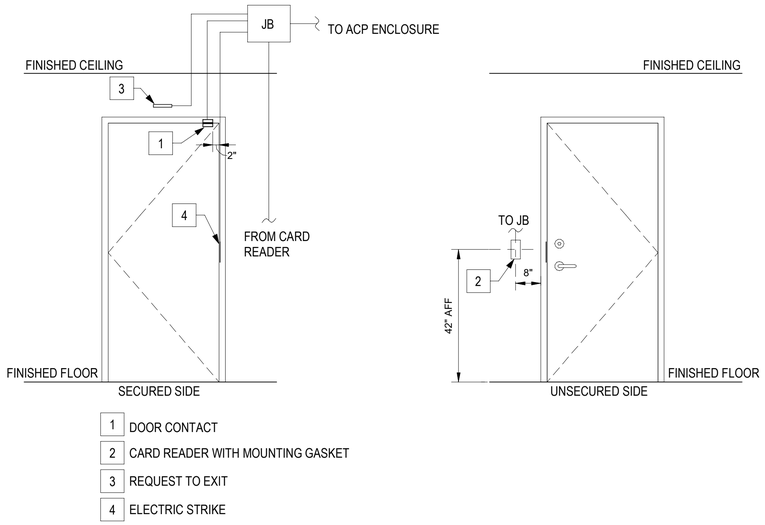
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ELECTRONIC SECURITY SYSTEMS ONE-LINE DIAGRAMS AND DETAILS

08/04/23

SHEET ID
TY201

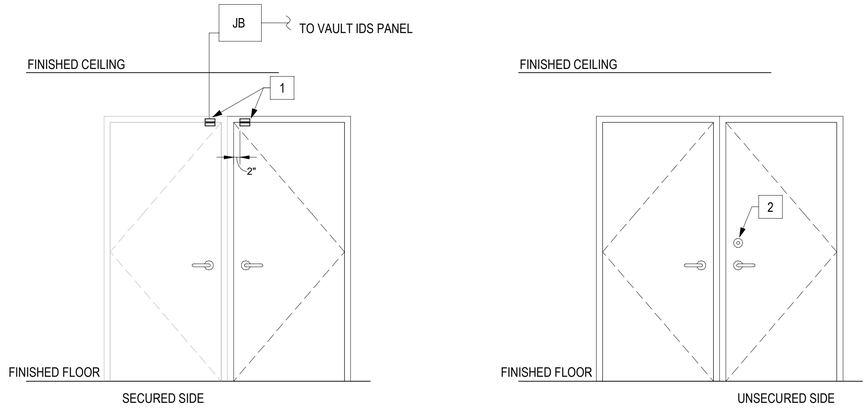
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1 DOOR CONTACT
2 CARD READER WITH MOUNTING GASKET
3 REQUEST TO EXIT
4 ELECTRIC STRIKE

E1 ESS1 BUILDING ENTRANCE DOOR DETAIL - CARD IN ONLY

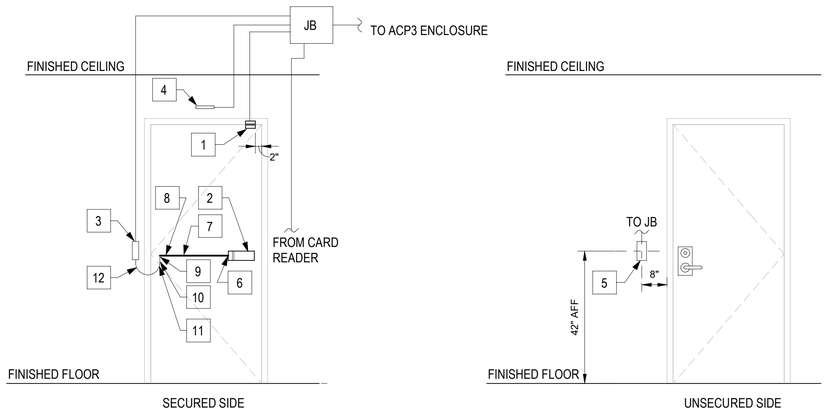
SCALE: 1/2" = 1'-0"



1 HSS
2 S&G MODEL 2937UL GROUP 1 LOCK

E6 ESS4 VAULT DOOR DETAIL

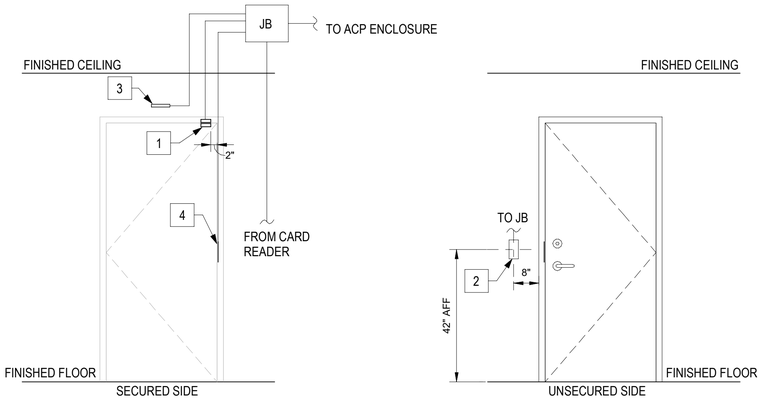
SCALE: 1/2" = 1'-0"



1 HSS
2 LKM10K
3 SINGLE GANG BOX, SURFACE MOUNT
4 REQUEST TO EXIT
5 CARD READER
6 DOOR CORD END CAP
7 STRAIGHT SURFACE METALLIC RACEWAY
8 RACEWAY COUPLER
9 RIGHT ANGLE FITTING
10 RACEWAY ENTRANCE
11 1/2" CABLE BUSHING (TYP 2 PLACES)
12 DOOR CORD

A1 ESS3 ROOM DOOR DETAIL

NTS



1 DOOR CONTACT
2 CARD READER
3 REQUEST TO EXIT
4 ELECTRIC STRIKE

A6 ESS2 INTERIOR DOOR DETAIL - CARD IN ONLY

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

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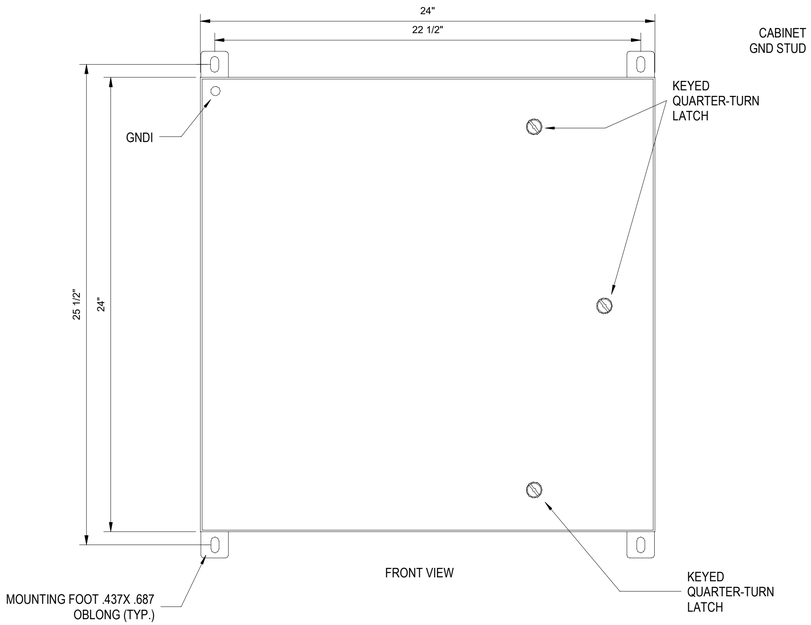
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ELECTRONIC SECURITY SYSTEMS DETAILS

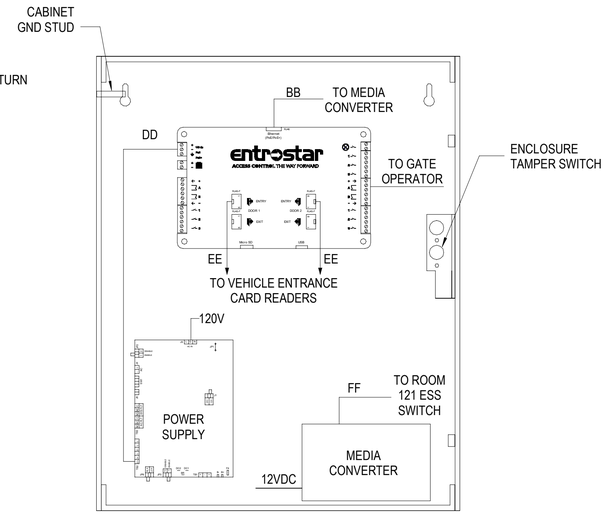
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FRONT VIEW



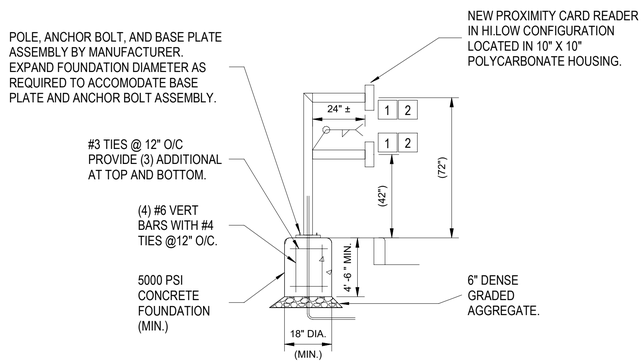
FRONT VIEW
DOOR REMOVED

NOTES:

1. CABINET TYPE: NEMA 4.
2. CABINET MATERIAL: 16 GA, STEEL.
3. CABINET FINISH: LIGHT GRAY SMOOTH POWDER COAT.
4. OPTIONAL MOUNTING FEET ARE SHOWN FOR INFORMATIONAL PURPOSES.
5. INSTALL CABINET GROUND WIRE IN ACCORDANCE WITH NEC REQUIREMENTS.

D1 ACP 18 AND 19 VEHICLE / PEDESTRIAN GATE ENCLOSURE AND EQUIPMENT

SCALE: 3" = 1'-0"



GENERAL NOTES:

1. SEE DRAWING CS101 FOR CARD READER LOCATION.
2. PEDESTRIAN GATE CARD READER MOUNTING STATION REQUIRES SINGLE HEIGHT LOW (42") PEDESTAL ONLY.

KEY NOTES:

1 ALIGN FRONT FACE OF DEVICE WITH BACK OF CURB.

2 DRIP SHIELD SHALL SURROUND ENCLOSURE ON TOP AND BOTH SIDES ONLY.

A1 VEHICLE / PEDESTRIAN GATE CARD READER MOUNTING STATION

NTS

GENERAL SHEET NOTES:

1. SEE DRAWINGS S-008 FOR ENCLOSURE SUPPORT DETAIL.
2. SEE ELECTRICAL SHEETS FOR POWER CONNECTION AND COMMUNICATIONS PATHWAY.

ACP CARD READER SCHEDULE

ACP1	DOORS 117A, 119
ACP2	DOORS 121, 122
ACP3	DOORS 120 (SIPR)
ACP4	DOORS 111
ACP5	DOORS 113, 114
ACP6	DOORS 101A
ACP7	DOORS 103, 104
ACP8	DOORS 109, 110
ACP9	DOORS 105, 106
ACP10	DOORS 108A, 108B
ACP11	DOORS 107A
ACP12	DOORS 129A
ACP13	DOORS 131, 132
ACP14	DOORS 129D, 134A
ACP15	DOORS 129G, 134D
ACP16	DOORS 134B, 135A
ACP17	DOORS 137A, 137B
ACP18	VEHICLE GATE
ACP 19	PEDESTRIAN GATE

ELECTRONIC SECURITY CABLE SCHEDULE

CABLE DESGNATOR	CABLE TYPE	NO. OF CONDUCTORS/PAIRS	BASIS OF DESIGN	NOMINAL OUTER DIAMETER OF CABLE (INCHES)
AA	MULTICONDUCTOR ACCESSORY ACCESS CONTROL CABLE	(4C) 22 AWG	BELDEN 6502UE PLENUM	.14
BB	CATEGORY 6 NETWORK CABLE	(4PAIR) 23 AWG	BELDEN 6663U6 PLENUM	.225
CC	MULTICONDUCTOR ACCESSORY ACCESS CONTROL CABLE	(4C) 18 AWG	BELDEN 6302U3 PLENUM	.18
DD	MULTICONDUCTOR SECURITY CABLE	(2C) 18 AWG	BELDEN 6300UE PLENUM	.15
EE	CATEGORY 6 PREMISE HORIZONTAL CABLE OSP RATED	(4PAIR) 24 AWG	BELDEN OSP6U	.25
FF	INDOOR/OUTDOOR FIBER OPTIC DISTRIBUTION CABLE	(6) 50/125 FIBERS	OCC DX006DALT9QR	.22

ESS EQUIPMENT SCHEDULE

DEVICE	MANUFACTURER BASIS OF DESIGN	MODEL/PART NO	QUANTITY	LOCATION	NOTES
ICIDS-V RADC PANEL	DAQ ELECTRONICS	ACU-07581-002	2	ROOMS 120 & 130	SEE SPECIFICATIONS FOR SPECIFIC REQUIREMENTS.
ACCESS CONTROL PANEL (INTERIOR)	DAQ ELECTRONICS	ENS-PANL-2011	17	————	SEE DRAWINGS FOR ACP LOCATIONS.
ACCESS CONTROL PANEL (EXTERIOR)	DAQ ELECTRONICS	ENS-PANL-2011	2	VEHICLE / PEDESTRIAN GATE ENCLOSURE	PROVIDE NEMA 4X ENCLOSURE FOR EXTERIOR LOCATIONS.
PIVCLASS READER	HID	920PHPTEK0032U	30	————	SEE ACP CARD READER SCHEDULE FOR CARD READER LOCATIONS. PROVIDE WEATHER GASKET AND SUNSHIELD FOR EXTERIOR LOCATIONS.
PIVCLASS READER/KEYPAD	HID	921PHRTE0032W	2	ROOMS 120 & 130	CONNECTS TO ICIDS- PANEL.
PIR REQUEST TO EXIT	BOSCH	DS-160	28	————	COORDINATE REX BODY AND TRIM PLATE COLOR WITH DOOR FINISH.
PIR/MICROWAVE MOTION SENSOR	BOSCH	DS9360	2	ROOMS 120 & 130	WALL MOUNT ROOM 120 CEILING MOUNT IN VAULT ROOM 130.
HIGH SECURITY SWITCH	MAGNASPHERE	HSS-L2S-000	3	ROOMS 120 & 130	PROVIDE GRI 6644 RESISTOR PACKS FOR END OF LINE MONITORING PER CUSTOMER REQUIREMENTS.
RECESSED DOOR CONTACT	INTERLOGIX	1076C	28	————	COORDINATE DOOR CONTACT COLOR WITH DOOR FINISH.
24-PORT UPOE+ MANAGED NETWORK SWITCH	CISCO	C9300-24H-E	1	ROOM 121	POE+ (30 WATTS) ON ALL PORTS. PROVIDE SFP TRANCEIVER MODULE COMPATIBLE WITH MEDIA CONVERTER.
8-PORT POE+ MANAGED NETWORK SWITCH	ETHERWAN	EX19082	1	ROOM 137	WALL MOUNT IN NEMA 1 ENCLOSURE.
MEDIA CONVERTER	ETHERWAN	EL8020V1E	2	VEHICLE / PEDESTRIAN GATE ENCLOSURE	10/100/1000BASE-TX TO 100/1000 SFP MEDIA CONVERTER. PROVIDE (4) SFP FIBER TRANSCEIVER MODULES COMPATIBLE WITH SPECIFIED FIBER OPTIC CABLE FOR COMMUNICATIONS BETWEEN MEDIA CONVERTERS AND 24-PORT UPOE+ SWITCH.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: DB
DRAWN BY: AJM
CHECKED BY: CD
SUBMITTED BY:
ISSUE DATE: AUGUST 2023
SOLICITATION NO.: W912PM22R0015
CONTRACT NO.: W912PM-15-D-0004
FIRST TITLE
SECOND TITLE
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

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FORT LIBERTY, NORTH CAROLINA
SOF SUPPLY SUPPORT ACTIVITY
PROJECT 87447
ELECTRONIC SECURITY SYSTEMS DETAILS AND SCHEDULES

06/04/23

SHEET ID
TY203

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