CONTAINERIZED LONG WEAPONS STORAGE (CLWS) DOUBLE BAY NAVY EARTH COVERED MAGAZINE
STANDARD DRAWINGS

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DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD (DDESB) APPROVAL NOTES:

DO NOT REMOVE THESE NOTES WHEN PREPARING CONSTRUCTION DRAWINGS FOR SITE ADAPTATION.

1. THIS STANDARD IS APPROVED BY THE DEPARTMENT OF DEFENSE EXPLOSIVE SAFETY BOARD (DDESB) AS A 7-BAR EARTH COVERED MAGAZINE AND MAY BE SITED AS AN EXPOSED SITE MAGAZINE FROM OTHER POTENTIAL EXPLOSION SITES STORING UP TO 500,000 LBS HAZARD DIVISION 1.1 EXPLOSIVES.
2. THE DESIGN AND DETAILING OF THIS STANDARD MAGAZINE FOR BLAST LOADING IS THE SOLE RESPONSIBILITY OF THE GOVERNMENT. THE GOVERNMENT IS THE ENGINEER OF RECORD FOR THE BLAST DOOR.
3. ANY DEVIATION FROM THESE STANDARD DRAWINGS, EXCEPT FOR FOUNDATION MODIFICATIONS, WITHOUT THE WRITTEN APPROVAL FROM THE DEPARTMENT OF DEFENSE EXPLOSIVE SAFETY BOARD (DDESB) MAY REQUIRE THE MAGAZINE TO BE CONSIDERED AN UNDEFINED MAGAZINE AND MAY SEVERELY RESTRICT THE ALLOWABLE STORAGE CAPACITY.
4. THE SITE ADAPT ENGINEER IS THE ENGINEER OF RECORD FOR THE SITE ADAPT PROCESS.

APPR'R | DATE | SYM | DESCRIPTION

NAVFAC

SEAL

A/E INFO

APPROVED for the

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES JAF | DRW SFF | CHK TPH

PM/OM

BRANCH MANAGER

CHIEF ENG/ARCH

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

TITLE SHEET

SCALE: AS NOTED

EPROJECT NO.: 164487

CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12914696

SHEET 1 OF 62

G-001

DRAWFORM REVISION: 25 AUGUST 2020

GENERAL:

1. THESE CONSTRUCTION DOCUMENTS ARE CONSTRUCTION STANDARDS FOR THE NAVY CLWS DOUBLE BAY STANDARD MAGAZINES AND HAVE BEEN SITE ADAPTED BY THE DOR.

2. ALL MATERIALS AND WORKMANSHIP MUST CONFORM TO THE DRAWINGS AND SPECIFICATIONS.

3. EQUIPMENT PENETRATION OPENINGS AND LOCATIONS WHEN INDICATED ON DRAWINGS ARE FOR INFORMATION ONLY AND MUST BE VERIFIED WITH THE APPROPRIATE DRAWING AND/OR EQUIPMENT SUPPLIER BEFORE CONSTRUCTION.
   A. SEE STRUCTURAL AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS REQUIRED FOR DUCT WORK, PIPES AND PIPE SLEEVES.
   B. OPENINGS OR POCKETS LARGER THAN 6 INCHES NOT INDICATED IN STRUCTURAL DRAWINGS MUST NOT BE PLACED WITHOUT WRITTEN NOTIFICATION OF THE CONTRACTING OFFICER.
   C. OPENINGS OR PENETRATIONS OF ANY SIZE IN BLAST–RESISTING STRUCTURAL COMPONENTS (BLAST DOOR, HEADER BEAM, HEADWALL, PILASTERS, INFILL WALLS, ROOF PANEL, SIDE WALLS, REAR WALL) THAT ARE UNPLANNED OR NOT SHOWN IN THE DRAWINGS ARE NOT PERMITTED TO BE CONSTRUCTED WITHOUT PRIOR APPROVAL FROM THE CONTRACTING OFFICER.

4. THE STRUCTURAL DRAWINGS SHOW ONLY THE BASIC STRUCTURAL SYSTEM. REFER TO OTHER DRAWINGS FOR ORNAMENTS, GROOVES, CLIPS, GROUNDS, SLAB DEPRESSIONS, CURBS, EQUIPMENT PADS, PENETRATIONS, NON–BEARING WALLS AND OTHER NON–STRUCTURAL ITEMS.

5. GENERAL NOTES AND STANDARD DETAILS MUST BE USED WHERE APPLICABLE, UNLESS NOTED OTHERWISE. NOTES AND DETAILS ON THE DRAWINGS MUST TAKE PRECEDENCE OVER GENERAL NOTES AND STANDARD DETAILS. WHERE CONFLICTS ARISE BETWEEN DRAWINGS AND SPECIFICATIONS, MOST STRINGENT WILL GOVERN. CONTACT THE CONTRACTING OFFICER IN WRITING FOR CLARIFICATION BEFORE PROCEEDING WITH WORK.

6. ALL OMISSIONS AND/OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE CONTRACT DOCUMENTS MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER IN WRITING BEFORE PROCEEDING WITH ANY WORK INVOLVED.

7. DIMENSIONS MUST NOT BE SCALED FROM THE PLANS, SECTIONS AND/OR DETAILS OF THE STRUCTURAL DRAWINGS.

8. COORDINATE WITH THE CONTRACTING OFFICER FOR PROCUREMENT AND INSTALLATION OF INTERNAL LOCKING DEVICE (ILD), BOLTWORKS, AND THE DISTRIBUTION OF KEY SETS FOR EACH MAGAZINE DOOR. THE ILD MUST BE PROCURED WITH TWO UNIQUE KEYS IN ORDER TO OPERATE THE BOLTWORKS.

9. CONTACT THE DoD LOCK PROGRAM FOR DIRECTIONS ON HOW TO PROCURE THE INTERNAL LOCKING DEVICE (ILD), BOLTWORKS, AND A LIST OF RECOMMENDED MANUFACTURERS FOR MAGAZINE DOORS:
   A. DoD LOCK PROGRAM: https://navfac.navy.mil/go/locks
   B. EMAIL: ILD_Field_Support@navy.mil
   C. ILD SUPPORT HOTLINE: 805–982–5625.
   D. DoD LOCK PROGRAM TECHNICAL SUPPORT HOTLINE: 800–290–7607 OR 805–982–1212.

10. COORDINATE WITH THE CONTRACTING OFFICER FOR THE CONNECTION OF THE BALANCED MAGNETIC SWITCH (BMS) ON THE DOOR AND THE ILD, WHICH MUST BE INSTALLED AND CONNECTED TO THE INTRUSION DETECTION SYSTEM (IDS) BY NAVAL INFORMATION WARFARE CENTER.

DESIGN CRITERIA:

1. THE STRUCTURAL DESIGN AND CONSTRUCTION MUST COMPLY WITH THE FOLLOWING GOVERNMENT STANDARDS:
   - UFC 1–200–01, "DESIGN: GENERAL BUILDING REQUIREMENTS"
   - FC 1–300–09N, "NAVY AND MARINE CORPS DESIGN PROCEDURES"

2. DESIGN LOADS:
   THE FOLLOWING LOADS WERE USED AS BASIS OF DESIGN:

A. DEAD LOADS:	ACTUAL WEIGHT
a. SOIL:	110–120 PCF
B. LIVE LOADS:	
a. CANOPY ROOF:	20 PSF
b. ROOF:	100 PSF
c. MAGAZINE FLOOR:	32K (HS 20–44 AXLE) 70.5K (SIDELOADER AXLE) 15K (FORKLIFT AXLE) 32K (CPS CONTAINER EACH) 2 STACKED CONTAINERS 1 IN CONCURRENCE WITH SIDE–LOADER 1,250 PSF (UNIFORM)
d. MECHANICAL ROOM FLOOR:	150 PSF (UNIFORM)

3. WIND DESIGN DATA:

A. DESIGN WIND SPEED:	210 MPH
B. WIND SPEED (ALLOWABLE STRESS DESIGN):	163 MPH
C. EXPOSURE:	"C"
D. RISK CATEGORY:	III

4. SEISMIC DESIGN DATA:

A. RISK CATEGORY:	III
B. IMPORTANCE FACTOR:	1.25
C. SEISMIC DESIGN CATEGORY:	D
D. SITE SEISMICITY:	S_S = 2.79g S_1 = 0.68g
E. SITE CLASS:	D

DESIGN CRITERIA (CONT.)

5. SNOW DESIGN DATA:

A. GROUND SNOW LOAD:	45 PSF
B. EXPOSURE FACTOR:	1.0
C. IMPORTANCE FACTOR:	1.10
D. THERMAL FACTOR:	1.2

6. EXPLOSIVES SAFETY DESIGN LOADS:
   A. EXPLOSIVES SAFETY DESIGN LOADS FOR DOOR AND ROOF OF MAGAZINES ARE PRESCRIBED BY NAVFAC EXWC. DESIGN GUIDANCE IS PROVIDED BY UFC 3–340–02 2008.

   B. TRIANGULAR PULSE LOAD VALUES BASED ON NAVFAC EXWC TECHNICAL REPORT TR–NAVFAC EXWC–SH–2202, BASIS OF DESIGN FOR EXPLOSIVE SAFETY FOR UPDATED TO NAVY TYPE C AND TYPE D EARTH–COVERED MAGAZINES AND NAVY MODULAR MAGAZINE, DATED SEPTEMBER 2021:

MEMBER	PEAK PRESSURE	IMPULSE	DURATION
HEAD WALL AND DOOR	249 PSI	2,084 PSI–MS	16.7 MS
ROOF	142 PSI	1,626 PSI–MS	22.9 MS

   C. APPROVED LOCATION AND STORAGE CAPACITY OF EACH ECM MUST BE DETERMINED BY THE SAFETY OFFICER BASED ON ORIENTATION AND PROXIMITY RELATIVE TO NEARBY FACILITIES/MAGAZINES.

CONSTRUCTION PROCEDURES & SAFETY REQUIREMENTS:

1. THE CONTRACT STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHOD OF CONSTRUCTION. PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKERS OR OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES MUST INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, ETC.

2. THE CONTRACTOR MUST ENGAGE PROPERLY QUALIFIED PERSONS TO DETERMINE WHERE AND HOW TEMPORARY PRECAUTIONARY MEASURES MUST BE USED DURING CONSTRUCTION. THE CONTRACTOR MUST ALSO PROVIDE THEIR OWN THIRD–PARTY INSPECTOR TO REVIEW AND VERIFY INSTALLATION OF ALL TEMPORARY PRECAUTIONARY MEASURES.

3. THE CONTRACTOR MUST SUPERVISE AND DIRECT THE WORK SO AS TO MAINTAIN RESPONSIBILITY FOR COORDINATING THE WORK OF ALL TRADES AND THE CHECKING OF ALL DIMENSIONS. ALL DISCREPANCIES MUST BE CALLED TO THE ATTENTION OF THE CONTRACTING OFFICER AND MUST BE RESOLVED BEFORE PROCEEDING WITH THE WORK.

4. THE CONTRACTOR MUST COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE, FEDERAL, AND INTERNATIONAL LAWS, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND REGULATIONS ADOPTED PURSUANT THERETO.

5. CONSTRUCTION LOADS INCLUDING MATERIALS MUST NOT EXCEED THE DESIGN LIVE LOAD. PROVIDE ADEQUATE SHORING, RESHORING AND/OR BRACING WHERE REQUIRED.

FOUNDATIONS:

1. THE FOUNDATIONS HAVE BEEN DESIGNED USING THE FOLLOWING ALLOWABLE BEARING PRESSURES:

A. DEAD PLUS LIVE LOAD:	4,000 PSF
B. TOTAL DESIGN LOAD (INCLUDING WIND OR SEISMIC, TRANSIENT LOAD FACTOR = 1.33):	5,300 PSF
C. BLAST DESIGN LOAD (DYNAMIC INCREASE FACTOR = 2.5):	10,000 PSF

2. EARTH COVER MATERIAL TO BE USED AS MAGAZINE COVER AND WITHIN THE EMBANKMENT IS TO BE NON–EXPANSIVE, FREE OF DELETERIOUS MATERIAL AND MEET THE FOLLOWING CHARACTERISTICS:

A. ALLOWABLE WET SOIL DENSITY:	110 – 120 PCF.
B. ASTM D2487 CLASSIFICATION: SM, SM–SC, SC.	
C. ASTM D1140 MATERIAL FINER THAN #200 SIEVE (0.075MM) –MIN. 25%: MAX. 50%.	
D. MAXIMUM PARTICLE SIZE:	1 INCH
E. ASTM D4318: MAX LIQUID LIMIT = 35, MAX PLASTICITY INDEX = 12.	
F. REQUIREMENTS FOR EARTH COVER ECMS IN ACCORDANCE WITH DEFENSE EXPLOSIVES SAFETY REGULATION (DESR) 6055.09.	

3. RETAINING WALLS HAVE BEEN DESIGNED USING THE FOLLOWING CRITERIA.

A. PASSIVE EQUIVALENT FLUID PRESSURE:	300 PSF/FT
B. AT–REST LATERAL PRESSURE WITH/ 2:1 BACKFILL (RESTRAINED):	
• WITHOUT SEISMIC:	32 PSF/ FT
• WITH SEISMIC:	68 PSF/ FT
C. CANTILEVERED WALL LATERAL PRESSURE (UNRESTRAINED):	
• WITHOUT SEISMIC:	40 PSF/ FT
• WITH SEISMIC:	102 PSF/ FT
D. FRICTION FACTOR BETWEEN SOIL AND CONCRETE PLACED AGAINST SOIL:	0.35
E. FRICTION FACTOR BETWEEN SOIL AND CONCRETE PLACED AGAINST FORMWORK:	0.25
F. MINIMUM SOIL COHESIVE STRENGTH:	500 PSF

4. SAND MATERIAL USED AS A FREE–DRAINING LAYER AT THE EXTERIOR CONCRETE SURFACES AT THE ROOF PANEL, ENDWALL, AND SIDEWALLS MUST MEET MINIMUM REQUIREMENTS FOR ECMS IN ACCORDANCE WITH DEFENSE EXPLOSIVES SAFETY REGULATION (DESR) 6055.09.

5. STRUCTURAL DRAWINGS INDICATE GENERAL SLAB ON GRADE AND FOUNDATION PREPARATION. SEE PROJECT SPECIFICATIONS FOR SPECIFIC REQUIREMENTS.

FOUNDATIONS (CONT.):

6. ALL FILLING, BACKFILLING AND COMPACTING MUST BE PER PROJECT SPECIFICATION. COMPACTION OF SOILS ON TOP OF MAGAZINE MUST BE PERFORMED WITH HAND COMPACTION TOOLS ONLY.

7. EXPANSIVE SOILS MUST NOT BE USED FOR BACKFILL OR FILL. BACKFILL AT RETAINING WALLS MUST CONFORM TO THE PROJECT SPECIFICATIONS.

8. ALL EXCAVATIONS MUST BE PROPERLY BACKFILLED. DO NOT PLACE BACKFILL BEHIND RETAINING WALLS BEFORE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH. CONTRACTOR MUST BRACE OR PROTECT ALL BUILDING AND PIT WALLS BELOW GRADE FROM LATERAL LOADS UNTIL ATTACHING FLOORS ARE COMPLETELY IN PLACE AND HAVE ATTAINED FULL STRENGTH. CONTRACTOR MUST PROVIDE FOR DESIGN, PERMITS AND INSTALLATION OF SUCH BRACING.

9. CONTRACTOR MUST PROVIDE FOR DE–WATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER AND SEEPAGE.

10. CONTRACTOR MUST PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEETING, AND SHORING REQUIRED TO SAFELY RETAIN THE EARTH BANKS.

11. EXCAVATION FOR FOUNDATIONS MUST BE APPROVED BY THE CONTRACTING OFFICER PRIOR TO PLACING THE REINFORCING AND CONCRETE.

12. SHALLOW FOOTING FOUNDATIONS MUST BE PLACED AND INSTALLED IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS PREPARED FOR THE PROJECT.

13. FOUNDATION BACKFILL AND UTILITY TRENCH BACKFILL WITHIN BUILDING AREA MUST BE MECHANICALLY COMPACTED IN LAYERS PER THE SPECIFICATIONS TO THE APPROVAL OF THE CONTRACTING OFFICER. FLOODING WILL NOT BE PERMITTED.

14. NEW FOUNDATIONS MUST BEAR ON APPROVED, UNDISTURBED, NATURAL SUBGRADE SOILS OR ON PROPERLY COMPACTED AND APPROVED FILL MATERIALS PLACED DIRECTLY ABOVE APPROVED SUBGRADES AS INDICATED IN CONSTRUCTION DRAWINGS AND SPECIFICATIONS.

CAST-IN-PLACE CONCRETE:

1. THE DESIGN AND CONSTRUCTION OF REINFORCED CONCRETE MUST CONFORM TO THE ACI BUILDING CODE (ACI 318) AND THE FOLLOWING CODES AND STANDARD SPECIFICATIONS:

A. CONCRETE MIXING:	ASTM C94
B. CONCRETE PLACEMENT:	ASTM C304

2. MATERIAL MUST CONFORM TO ALL OF THE FOLLOWING STANDARD SPECIFICATIONS, LATEST EDITION:

A. PORTLAND CEMENT:	ASTM C150, TYPE I OR II
B. CONCRETE AGGREGATES:	ASTM C33
C. REINFORCING STEEL:	ASTM A615 DEFORMED BARS (GRADE 60) ASTM A706 GRADE 60 IS NOT EQUIVALENT AND IS NOT ACCEPTABLE
D. WELDED WIRE FABRIC (SHEET TYPE, ROLL TYPE NOT ACCEPTABLE):	ASTM A1064

3. CONCRETE MUST ATTAIN THE FOLLOWING 28–DAY COMPRESSIVE STRENGTHS, UNLESS OTHERWISE INDICATED:

A. ALL STRUCTURAL CONCRETE:	5,000 PSI
B. LEAN CONCRETE:	3,000 PSI

4. CHLORIDES OR CHLORIDE SALTS ARE NOT ALLOWED IN THE CONCRETE MIXES.

5. ALL REINFORCING STEEL DETAILING AND PLACEMENT MUST CONFORM TO THE ACI DETAILING MANUAL PUBLICATION SP–66, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI–318, AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" ACI–315. PROVIDE ADEQUATE BOLSTERS, HI–CHAIRS, SUPPORT BARS, ETC., TO MAINTAIN SPECIFIED COVER FOR THE ENTIRE LENGTH OF ALL REINFORCING. SECURE ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS IN POSITION PRIOR TO PLACING CONCRETE.

6. WELDING OF REINFORCING STEEL IS PROHIBITED.

7. MINIMUM CONCRETE PROTECTION (COVER) FOR REINFORCEMENT MUST BE PROVIDED AS FOLLOWS UNLESS SPECIFICALLY CALLED OUT OTHERWISE IN PLANS AND DETAILS:

A. CONCRETE PLACED AGAINST EARTH:	3 INCH
B. CONCRETE PLACED AGAINST FORM AND LATER EXPOSED TO EARTH OR WEATHER:	2 INCH
C. COLUMNS AND BEAMS (FROM TIE OR STIRRUP):	2 INCH
D. SLAB EXPOSED TO WEATHER OR GROUND:	2 INCH
E. SLABS AND WALLS (NOT EXPOSED TO WEATHER OR TO WEATHER FOR GROUND):	3/4 INCH

8. PROJECTING CORNERS OF BEAMS, WALLS, COLUMNS, ETC., MUST BE FORMED WITH 3/4 INCH CHAMFER, UNLESS OTHERWISE NOTED.

9. PROVIDE SLEEVES FOR ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT. CORING IN CONCRETE IS NOT PERMITTED EXCEPT AS SHOWN. NOTIFY THE STRUCTURAL ENGINEER AND CONTRACTING OFFICER IN ADVANCE IF THE FIELD CONDITIONS DO NOT REFLECT THE CONDITIONS SHOWN ON THE DRAWINGS.

10. CONDUIT OR PIPE SIZE (O.D.) MUST NOT EXCEED 30 PERCENT OF SLAB THICKNESS AND MUST BE PLACED BETWEEN THE TOP AND BOTTOM REINFORCING UNLESS SPECIFICALLY DETAILED OTHERWISE. CONCENTRATIONS OF CONDUITS OR PIPES MUST BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED.

CAST-IN-PLACE CONCRETE (CONT.):

11. ALL ROUGHENED SURFACES IN CONCRETE MUST BE MADE WITH A MINIMUM AMPLITUDE OF 1/4 INCH.

12. SEE SHEET S–003 FOR LIGHTWEIGHT CONCRETE MIX DESIGN FOR HIGH SECURITY MAGAZINE DOOR.

13. VERTICAL CONCRETE ELEMENTS, SUCH AS COLUMNS AND PILASTERS, AND HORIZONTAL CONCRETE ELEMENTS, SUCH AS HEADER BEAMS AND HEADWALL, ARE GOOD CANDIDATES FOR SELF CONSOLIDATING CONCRETE (SCC). THE CONTRACTOR SHALL CONSIDER THE USE OF SCC FOR THESE ELEMENTS AND/OR ADDITIONAL ELEMENTS IN WHICH REBAR CONGESTION OR ADEQUATE VIBRATORY CONSOLIDATION IS A CONCERN.

STRUCTURAL STEEL:

1. DETAIL, FABRICATE, AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS," LATEST EDITION.

2. CONTRACTOR MUST REVIEW AND APPROVE STRUCTURAL STEEL SHOP DRAWINGS PRIOR TO SUBMITTAL TO THE CONTRACTING OFFICER. DO NOT BEGIN FABRICATION PRIOR TO THE COMPLETION OF THE SHOP DRAWING REVIEW PROCESS.

3. FURNISH STRUCTURAL STEEL THAT IS NEW, CLEAN, STRAIGHT, AND CONFORMING TO THE FOLLOWING STANDARD SPECIFICATION, LATEST EDITION:
   A. STRUCTURAL STEEL WIDE FLANGE: ASTM A992
   B. STRUCTURAL STEEL CHANNELS, ANGLES, S–SHAPES, AND PLATES: ASTM A992 OR ASTM A572, GRADE 50
   C. HOLLOW STRUCTURAL STEEL SECTIONS: ASTM A500, GRADE C
   D. ANCHOR BOLTS: ASTM F1554 (GRADE SPECIFIED AS REQUIRED)
   E. HIGH STRENGTH BOLTS: ASTM F3125 GRADE A325
   F. HEADED STUD ANCHORS: ASTM A29 (TYPE B)
   G. STAINLESS STEEL: ASTM A240, TYPE 304
   H. SUBSTITUTIONS OF STEEL SHAPES IS NOT PERMITTED.

4. STRUCTURAL STEEL MUST CONFORM TO THE FOLLOWING PROPERTIES OR COATINGS:
   A. ALL WELDMENT AND EMBEDMENTS FABRICATED FOR THE DOOR JAMB, HEAD, LOCKING PILASTER, AND TRENCH MUST BE MADE OF TYPE 304 STAINLESS STEEL PER ASTM A240.
   B. ALL DOOR STRUCTURAL STEEL MUST BE PRIMED AND PAINTED AFTER FABRICATION. REFER TO DOOR COATINGS NOTES ON S–003.
   C. ALL OTHER STRUCTURAL STEEL INCLUDING CANOPY FRAMING MUST BE HOT DIP GALVANIZED PER ASTM A123 AND COATED A MINIMUM DRY FILM THICKNESS (DFT) OF 12 MILS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
      a. PRIMER COAT: SOLVENT–BASED TWO COMPONENT EPOXY ANTI–CORROSIVE PRIMER (3–5 MILS), MPI (THE MASTER PAINTERS INSTITUTE) #101.
      b. INTERMEDIATE COAT: HIGH SOLIDS EPOXY COATING (3–5 MILS). MPI #108.
      c. TOP COAT: HIGH SOLIDS POLYURETHANE COATING (3–5 MILS). MPI #72.
   D. GALVANIZE STRUCTURAL STEEL AFTER FABRICATION WHERE PRACTICAL. REPAIR DAMAGED GALVANIZED COATING USING ASTM A780 ZINC–RICH PAINT. FIELD CUTTING OF ANY HOT–DIP GALVANIZED HARDWARE IS NOT PERMITTED.

5. REPAIR ABRADED AND RUSTED SHOP PAINT WITH SAME PAINT AS SPECIFIED IN STRUCTURAL STEEL NOTE 4C.

6. WELDING MUST COMPLY WITH THE "STRUCTURAL WELDING CODE – STEEL" (AWS D1.1) AND THE "STRUCTURAL WELDING CODE – STAINLESS STEEL" (AWS D1.6). WELD ELECTRODES MUST BE E70XX FOR STEEL AND E308L FOR STAINLESS STEEL. PASSIVATION OF STAINLESS STEEL WELDS MUST BE PERFORMED PER ASTM A380. UNLESS OTHERWISE NOTED, MINIMUM WELD SIZE MUST BE 1/4 INCH CONTINUOUS FILLET WELD.

7. UNLESS OTHERWISE NOTED WELD ALL SHOP CONNECTIONS AND BOLT ALL FIELD CONNECTIONS. THE FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF ALL CONNECTIONS UNLESS OTHERWISE DETAILED.

8. DO NOT CUT OR BURN HOLES IN STRUCTURAL STEEL WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER.

9. SPLICING OF STRUCTURAL STEEL IS NOT PERMITTED WITH THE EXCEPTION OF THE WT MEMBERS SUPPORTING THE TOP OF THE DOOR AND NON–BLAST RESISTING COMPONENTS OR FOR MEMBERS APPROVED IN WRITING BY THE CONTRACTING OFFICER.

10. GROUT BELOW BASE PLATES WITH NON–SHRINK GROUT WITH MINIMUM COMPRESSIVE STRENGTH: 5,000 PSI

11. COAT ALL STRUCTURAL STEEL EXPOSED TO SOIL WITH TWO COATS OF COAL TAR EPOXY. EPOXY MUST MEET THE REQUIREMENTS OF PAINT SPECIFIC SSPC–PAINT 16.

12. BLAST DOOR AND COMPONENTS MUST MEET THE FOLLOWING TOLERANCES:
   A. BLAST DOOR MUST HAVE A TOTAL MAX FLATNESS TOLERANCE OF ±1/4" VERTICALLY AND HORIZONTALLY.
   B. TRENCHES AND DOOR GUIDE RAIL MUST HAVE A ±1/4" MAX DIFFERENTIAL TOLERANCE PER EVERY 37'–0".
   C. SECURITY PILASTER AND ALL OTHER VERTICAL AND HORIZONTAL DOOR BEARING SURFACES MUST HAVE A ±1/4" MAX TOTAL TOLERANCE.

APPR			
DATE			
DESCRIPTION			
SYM			

NAVFAC

A/E INFO

APPROVED Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	– –
BRANCH MANAGER	– –
CHIEF ENG/ARCH	– –
FIRE PROTECTION	– –

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

GENERAL NOTES – 1

SCALE: NONE

EPROJECT NO.: 164487

CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12914697

SHEET 2 OF 62

S-001

DRAWFORM REVISION: 25 AUGUST 2020

SPECIAL INSPECTION SCHEDULE/ VERIFICATION

ITEM	EXTENT OF INSPECTION[1]	REFERENCE	COMMENT/ SCOPE
CONCRETE CONSTRUCTION			
REINFORCING STEEL PLACEMENT	P	ACI 318: 26.6.2	INSPECT SIZE, SPACING, COVER, POSITIONING AND GRADE OF REINFORCING STEEL. VERIFY THAT REINFORCING BARS ARE FREE OF FORM OIL OR OTHER DELETERIOUS MATERIALS. INSPECT BAR LAPS AND MECHANICAL SPLICES. VERIFY THAT BARS ARE ADEQUATELY TIED AND SUPPORTED ON CHAIRS OR BOLSTERS.
CONCRETE PLACEMENT	C	AC1 318: 26.5.2	INSPECT PLACEMENT OF CONCRETE. VERIFY THAT CONCRETE CONVEYANCE AND DEPOSITING AVOIDS SEGREGATION OR CONTAMINATION. VERIFY THAT CONCRETE IS PROPERLY CONSOLIDATED.
SAMPLING AND TESTING OF CONCRETE	C	ASTM C 172 ASTM C 31 ACI 318: 26.12	TEST CONCRETE COMPRESSIVE STRENGTH, SLUMP, AIR-CONTENT AND TEMPERATURE
CURING AND PROTECTION	P	ACI 318: 26.5.3-26.5.5	INSPECT CURING, COLD WEATHER PROTECTIONS AND HOT WEATHER PROTECTION PROCEDURES.
FORMWORK	P	ACI 318: 26.11	INSPECT FLATWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.
DOOR CONSTRUCTION			
FABRICATOR CERTIFICATION/ QUALITY CONTROL PROCEDURES	S		REVIEW OF FABRICATOR'S QUALITY CONTROL PROCEDURES OR AISC CERTIFICATION.
FABRICATION INSPECTION	P		INSPECT IN-PLACE FABRICATION, OR REVIEW FABRICATOR'S APPROVED INDEPENDENT INSPECTION AGENCY'S REPORTS
SHOP DEMONSTRATION	C		SEE BLAST DOOR NOTES
SPECIAL ITEMS RELATED TO THE OTHER EXPLOSIVES SAFETY RELATED ITEMS			
REBAR FARADAY-SHIELD	P	DWG EG101; E-501; E-504	INSPECT REINFORCING STEEL TO ENSURE ELECTRICAL CONTINUITY BETWEEN THE CAP, WALLS, SLAB AND FOUNDATION THROUGH CRIMPED CONNECTIONS. DOCUMENT CONNECTIONS WITH PHOTOS AND CONTINUITY TEST. ALL CRIMPED CONNECTIONS MUST BE INSPECTED PRIOR TO CONCRETE PLACEMENT.
ECM GROUNDING	P	DWGS EG101; E-501; E-504	VISUALLY INSPECT TO ENSURE ECM FOUNDATION IS BONDED TO THE GROUNDING SYSTEM. DOCUMENT WITH PHOTOS.
GROUNDING SYSTEM	P	DWGS EG101; E-501; E-504, DA PAM 385-64, 16-30.	VISUALLY INSPECT GROUNDING SYSTEM CONDUCTORS TO ENSURE NO DAMAGE, BREAKAGE, OR CORROSION HAS OCCURED TO THE CONDUCTORS DURING INSTALL AND BEFORE EARTH BURIAL DOCUMENT WITH PHOTOS.
INDIVIDUAL BONDS	P	DWGS EG101; E-501; E-504, NFPA 780, 8.9 DA PAM 385-64, 16-30.	INSPECT ALL BONDS FOR LOOSE CONNECTIONS THAT MIGHT RESULT IN HIGH-RESISTANCE CONNECTIONS.
LPS COMPONENTS	P	NFPA 780, 8.9 DA PAM 385-64, 16-30.	INSPECT LPS COMPONENTS FOR SECURE MOUNTING AND PROTECTION AGAINST ACCIDENTAL MECHANICAL DISPLACEMENT.
LPS TESTING	S	NFPA 780, 8.9 DA PAM 385-64, 16-31.	PERFORM BONDING TEST ACROSS EACH BOND, AND AN EARTH ELECTRODE TEST OF THE LPS.
EARTH COVER	P	DWGS S-103	INSPECT DEPTH GAUGES ON ROOF PRIOR TO EARTH COVER PLACEMENT FOR SIZE AND STABILITY. INSPECT EARTH COVER DEPTH AND SLOPE TO ENSURE A 2'-0" MINIMUM IS PROVIDED ABOVE STRUCTURE.
DOOR CONTACT POINTS	C	DWGS S-205, S-507 AND S-508	INSPECT BEARING SURFACE AT TOP OF DOOR FRAME AND THE TRENCH AT THE BOTTOM OF THE DOOR
MISCELLANEOUS EMBEDDED AND ATTACHED ITEMS (DOORS, FRAMES, TRENCHES, ETC)	P		INSPECT EMBEDDED AND ATTACHED ITEMS TO ENSURE THEY ARE BONDED TO THE GROUNDING SYSTEM. DOCUMENT WITH PHOTOS.
ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC CHAPTER 17			
STEEL CONSTRUCTION	P	IBC SEC 1705.2	
CONCRETE CONSTRUCTION	C	IBC SEC 1705.3	
SOILS	C	IBC SEC 1705.6	
DRIVEN DEEP FOUNDATIONS	P	IBC SEC 1705.7	
CAST-IN-PLACE DEEP FOUNDATIONS	P	IBC SEC 1705.8	
HELICAL PILE FOUNDATIONS	P	IBC SEC 1705.9	
FABRICATED ITEMS	P	IBC SEC 1705.11	
SPECIAL INSPECTIONS FOR WIND RESISTANCE	P	IBC SEC 1705.12	
SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE	P	IBC SEC 1705.13	
TESTING FOR SEISMIC RESISTANCE	P	IBC SEC 1705.14	
ADDITIONAL SPECIAL INSPECTIONS			
TOLERANCES	C	SEE SPECS	

SPECIAL INSPECTION NOTES:

1. INSPECTION INTERVALS ARE AS FOLLOWS:
   - C – CONTINUOUS: THE FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED.
   - P – PERIODIC: THE PART-TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK.
   - S – SUBMITTAL
2. STRUCTURAL TEST AND SPECIAL INSPECTIONS ARE BASED ON CHAPTER 17 OF THE IBC, UFC 3-301-01 AND UFC 4-420-01.
3. CONTRACTOR MUST HIRE A QUALIFIED INSPECTIONS AND TESTING AGENCY TO PERFORM SPECIAL INSPECTIONS AND TESTING IN ACCORDANCE WITH THE IBC. SUBMIT INSPECTION REPORTS TO THE CONTRACTING OFFICER FOR EACH DAY SPECIAL INSPECTIONS AND TESTING ARE PERFORMED.
4. THE SPECIAL INSPECTIONS LISTED IN THIS TABLE ARE TO BE USED IN CONJUNCTION WITH ALL SPECIAL INSPECTION REQUIREMENTS PER THE IBC SHOWN.
5. SPECIAL INSPECTIONS MUST BE PERFORMED BY AN INDEPENDENT THIRD PARTY DURING CONSTRUCTION ON THE TYPES OF WORK LISTED UNDER SECTION 1705 OF THE IBC REQUIRING VERIFICATION AND INSPECTION. THE CONTRACTING OFFICER MUST ATTEND ALL OBSERVATIONS. THESE INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS DEFINED IN SECTION 110. THE INSPECTING AGENCY MUST PROVIDE REPORTS OF THE SPECIAL INSPECTIONS DIRECTLY TO THE GOVERNMENT.

STRUCTURAL ABBREVIATIONS:

AB	ANCHOR BOLT
ADD'L	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ACI	AMERICAN CONCRETE INSTITUTE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
BM	BEAM
BMS	BALANCED MAGNETIC SWITCH
BOT	BOTTOM
CI	CAST IRON
CIP	CAST-IN-PLACE
CL	CENTER LINE
CJ	CONSTRUCTION JOINT
CLJ	CONTROL JOINT
CLR	CLEAR (ANCE)
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CJP	COMPLETE JOINT PENETRATION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONT'D	CONTINUED
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DEG	DEGREE
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DIST	DISTANCE
DWG	DRAWING
EA	EACH
ECM	EARTH COVERED MAGAZINE
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELECT	ELECTRICAL
EOR	ENGINEER OF RECORD
EQ	EQUAL
ES	EACH SIDE
ETC	ETCETERA
EXT	EXTERIOR
FDN	FOUNDATION
FL	FLOOR
FIN	FINISH
FIN FL	FINISH FLOOR
FS	FAR SIDE
FT	FOOT OR FEET
FTG	FOOTING
GA	GAUGE
GI	GALVANIZED IRON
GFCI	GROUND-FAULT CIRCUIT INTERRUPTERS
HAS/HSA	HEADED ANCHOR STUD
HK	HOOK
HORIZ, (H)	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
HSA	HEADED STUD ANCHOR
IDS	INTRUSION DETECTION SYSTEM
INFO	INFORMATION
INTERM	INTERMEDIATE
ILD	INTERNAL LOCKING DEVICE
IBC	INTERNATIONAL BUILDING CODE
IF	INSIDE FACE
IN	INCH
INTERM	INTERMEDIATE
LP	LOW POINT
JT	JOINT
lb	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONGIT	LONGITUDINAL
MAX	MAXIMUM
MECH	MECHANICAL
MANUF, MFR	MANUFACTURER
MPH	MILES PER HOUR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
NIC	NOT IN CONTRACT
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
oz	OUNCES
OF	OUTSIDE FACE
OH	OPPOSITE HAND
OPNG	OPENING
PJ	PANEL JOINT
PJP	PARTIAL JOINT PENETRATIONS
PL	PLATE
PN	PART NUMBER
PCF	POUNDS PER CUBIC FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
RAD	RADIUS
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
SCH/SCHED	SCHEDULE
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SOG	SLAB-ON-GRADE
SPA	SPACE
SPECS	SPECIFICATIONS
SQ	SQUARE
STL	STEEL
SS	STAINLESS STEEL
STD	STANDARD
STIFF	STIFFENER
STRUCT	STRUCTURAL
T	TOP
TBD	TO BE DETERMINED
TEMP	TEMPERATURE STEEL
THK	THICK
THRU	THROUGH
TOC	TOP OF CONCRETE
TOS	TOP OF SLAB, TOP OF STEEL
TYP	TYPICAL
UFC	UNIFIED FACILITIES CRITERIA
UNO	UNLESS NOTED OTHERWISE
VERT, (V)	VERTICAL
W/	WITH
WT	WIDE FLANGE TEE SECTION

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES JAF	DRW SFF	CHK TPH
PM/DM		--
BRANCH MANAGER		--
CHIEF ENG/ARCH		--
FIRE PROTECTION		--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

GENERAL NOTES – 2

SCALE: NONE
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914698
SHEET 3 OF 62

S-002

DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSE\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-002.dwg LAYOUT NAME: S-002 – GENERAL NOTES – 2 PLOTTED: Tuesday, September 24, 2024 – 10:07am USER: leslie.corsino

LIGHTWEIGHT CONCRETE:

1. THE FOLLOWING MIX DESIGN AND CONCRETE MATERIAL PROPERTIES MUST BE USED FOR THE LIGHTWEIGHT CONCRETE LAYER IN THE HIGH SECURITY DOOR:

LIGHTWEIGHT CONCRETE MIX DESIGN				
MATERIAL	AMOUNT	UNIT	SPECIFIC GRAVITY	ASTM
LIGHTWEIGHT AGGREGATE	1530	lb	1.38	C331
CEMENT TYPE II	721	lb	3.15	C150
WATER	315	lb	1	C1602
SILICA FUME	82	lb	2.2	C1240
SUPERPLASTICIZER – TYPE A	8	oz*	1.27	C494
SYNTHETIC FIBERS – TYPE III	0.70	lb	0.855	C1116
TOTAL VOLUME	27	ft^3		
oz*/ 100lb OF CEMENTITIOUS MATERIAL				

LIGHTWEIGHT CONCRETE MATERIAL PROPERTY REQUIREMENTS			
PROPERTY	AMOUNT	UNIT	ASTM
SLUMP	2 1/4"	in	C143
MINIMUM DENSITY – UNIT WEIGHT	115	lb/ ft^3	C138
STRENGTH (28 DAY MINIMUM)	4000	psi	C39

2. LIGHTWEIGHT AGGREGATES MUST BE DRY.

3. ADJUST WATER AMOUNT TO +/– 0.5 lb SO THAT MIX HOLDS SHAPE WHEN FORMED INTO A BALL IN THE HAND.

4. MIX CAN BE SPLIT FOR VOLUME NEEDED.

5. MIX PROCEDURE:
   A. WEIGH OUT ALL MATERIALS.
   B. IN A SEPARATE CONTAINER, COMBINE AND MIX HALF OF WATER, PLASTICIZER AND ALL FIBERS.
   C. IN ANOTHER SEPARATE CONTAINER, COMBINE AND MIX SILICA FUME AND CEMENT.
   D. POUR WATER WITH PLASTICIZER AND ALL FIBERS INTO MIXER.
   E. POUR LIGHTWEIGHT FINE AGGREGATE INTO MIXER.
   F. SLOWLY ADD SILICA FUME AND CEMENT TO MIXER.
   G. ADD REMAINING WATER ADJUSTING AS NECESSARY (NOTE 3).
   H. ALLOW TO MIX FOR AT LEAST 10 MINUTES.
   I. WHEN MIX IS READY, POUR INTO DOOR CAVITIES OVER REBAR, TO PRESCRIBED DEPTH, ENSURE MIX FILLS ALL AREAS BEHIND REBAR, INTERNAL VIBRATE AS NECESSARY, NO VOIDS ALLOWED.

6. ALLOW CONCRETE TO CURE FOR 14 DAYS BEFORE MOVING DOOR. THE 4X RED OAK AND EXTERIOR PLATES SHALL NOT BE INSTALLED OVER THE CONCRETE UNTIL TWO OF THE FOLLOWING THREE CONDITIONS OCCUR.
   A. THE MOISTURE CONTENT ON THE SURFACE OF THE CONCRETE IS LESS THAN OR EQUAL TO 4.0 PERCENT AS MEASURED BY AN IMPEDANCE TEST PER ASTM F2659.
   B. THE IN–SITU RELATIVE HUMIDITY INSIDE THE CONCRETE IS LESS THAN OR EQUAL TO 75.0 PERCENT AS MEASURED PER ASTM F2170.
   C. 28 DAYS HAVE PASSED SINCE POURING THE CONCRETE.

7. QUESTIONS CAN BE REFERRED TO NAVFAC EXWC DOD LOCK PROGRAM, AND SECURITY, ENGINEERING DIV SH22.

STEEL DECK:

1. THE DESIGN, FABRICATION, ERECTION OF METAL DECKING MUST BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE SDI SPECIFICATIONS AND THE SDI DIAPHRAGM MANUAL

2. STEEL ROOF DECK AND SIDING IS 1 1/2" x 18 GAUGE FACTORY–FINISHED DESIGNED FOR THE DEAD AND LIVE LOADS INDICATED.

3. STEEL ROOF DECK AND SIDING MUST BE ATTACHED TO SUPPORTS WITH #14 STAINLESS STEEL SCREWS AT EA VALLEY (MINIMUM 5 PER PANEL) PROVIDE AISI 304 STAINLESS STEEL SEALING CAPS WITH BONDED NEOPRENE WASHER OVER EACH FASTENER. USE 1/4–INCH BUTYL TAPE TO SEAL LAPS.

4. THE PLANS INDICATE DECK SPAN DIRECTION.

5. SUSPENDED CEILINGS, LIGHT FIXTURES, DUCTS, AND OTHER UTILITIES MUST NOT BE SUPPORTED FROM THE STEEL DECK.

6. STEEL DECK MUST CONFORM TO THE COATINGS FOR STRUCTURAL STEEL PROVIDED ON SHEET S–001.

MECHANICAL MATERIALS

1. LOUVERS MUST BE CONSTRUCTED OF 16 GAUGE GALVANIZED STEEL WITH 4" DEEP FRAME. BLADES MUST BE 16 GAGE GALVANIZED STEEL POSITIONED AT APPROXIMATELY 37.5 DEGREES DOWN FROM THE HORIZONTAL AND SPACED APPROXIMATELY 6" ON CENTER. SCREEN MUST BE 19 GAUGE GALVANIZED 1/4" MESH. APPROXIMATELY 50% FREE AREA.

2. VENTILATORS MUST BE CONSTRUCTED OF MINIMUM 24 GAUGE GALVANIZED STEEL AND MUST BE DESIGNED FOR A SUSTAINED WIND SPEED OF 132 MPH.

3. FIRE DAMPER FUSIBLE LINKS MUST HAVE A MELTING POINT OF 160 TO 165 DEGREES FAHRENHEIT. BREAKING STRENGTH MUST BE SUITABLE FOR LOADS IMPOSED BY COUNTERWEIGHTS.

4. PIPE FLANGE GASKETS MUST BE OF NON–ASBESTOS MATERIAL IN ACCORDANCE WITH ASME B16.21. GASKETS MUST BE FLAT, 1/16 INCH THICK, AND CONTAIN ARAMID FIBERS BONDED WITH STYRENE BUTADIENE RUBBER. FLANGE FASTENERS MUST BE TYPE 316 STAINLESS STEEL.

5. PROVIDE A DIELETRIC INSULATOR WHEREVER DISSIMILAR METALS CONTACT EACH OTHER.

6. PIPES UTILIZED FOR AIR MOVEMENT BETWEEN THE MECHANICAL ROOM AND MAGAZINE MUST BE ASTM A312 TP316 STAINLESS STEEL. PIPE FLANGES MUST BE IN ACCORDANCE WITH ASTM B16.5 AND ASTM A182 F316 STAINLESS STEEL.

7. DUCTWORK SHALL BE G90 GALVANIZED SHEET METAL CONSTRUCTED TO THE LATEST VERSION OF SMACNA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE, 4TH EDITION, FOR PRESSURE CLASS +2.0 INCHES OF WATER COLUMN AND SEAL CLASS A.

DOOR COATINGS:

1. ALL COATINGS AND INSTALLATION OF COATINGS MUST COMPLY WITH:
   A. UFGS – 09 97 13.27.
   B. SHOP COATINGS: SSPC (THE SOCIETY OF PROTECTIVE COATINGS) QP3.
   C. FIELD COATINGS: SSPC QP1 + QS1.
   D. COLOR: LIGHT GRAY.

2. SURFACE PREPARATION:
   A. REMOVE SLAG FROM ALL WELDING SURFACES PRIOR TO CLEANING IN ACCORDANCE WITH NACE SP0178.
   B. SOLVENT CLEAN SURFACE TO BE COATED PRIOR TO ABRASIVE BLASTING IN ACCORDANCE WITH SSPC SP1.
   C. DRY ABRASIVE BLAST TO NEAR WHITE FINISH IN ACCORDANCE WITH SSPC SP10. BLAST PROFILE MUST BE 1–3 MILS TOOTH HEIGHT.

3. PAINT SYSTEMS:
   A. TOTAL COATING DRY FILM THICKNESS (DFT): 12 MILS.
   B. PRIMER COAT: ABRASION RESISTANT INORGANIC ZINC SILICATE PRIMER (3–5 MILS). SSPC PAINT 20, TYPE IC, LEVEL 1, WITH AT LEAST 85% ZINC IN DRY FILM.
   C. INTERMEDIATE COAT: HIGH SOLIDS EPOXY COATING (3–5 MILS). MPI #108.
   D. TOP COAT: HIGH SOLIDS POLYURETHANE COATING (3–5 MILS). MPI #72.

4. ALL SURFACES OF ALL DOOR COMPONENTS MUST BE SOLVENT CLEANED, DRY ABRASIVE BLASTED, AND ZINC RICH PRIMER COATED. PRIOR TO FULLY ASSEMBLING OR FABRICATING DOOR, CLEAN AND PRIMER SURFACES THAT WILL BECOME INACCESSIBLE AFTER DOOR IS ASSEMBLED. THE DOOR MUST NOT BE GALVANIZED. EPOXY INTERMEDIATE AND POLYURETHANE TOP COATS MUST BE APPLIED TO ALL EXTERIOR SURFACES OF THE FULLY–ASSEMBLED DOOR.

ELECTRICAL BONDING & GROUNDING

1. ALL STEEL LOUVERS, VENTILATORS, GUARDRAILS DOORS AND FRAMES MUST BE ELECTRICALLY BONDED TO THE MAGAZINE REINFORCING CAGE.

2. ALL STRUCTURAL AND MISCELLANEOUS ITEMS EMBEDDED IN CONCRETE MUST BE ELECTRICALLY BONDED TO THE REINFORCING CAGE BY WIRE TIES.

3. THE REINFORCING CAGE MUST BE MADE ELECTRICALLY CONTINUOUS BY WIRE TIES AT A MINIMUM OF 48 INCH ON CENTERS IN EVERY DIRECTION, REFER TO DETAIL A1 ON DRAWING E–504.

4. ALL WALLS AND CONSTRUCTION JOINTS MUST BE ELECTRICALLY BONDED. SEE THE ELECTRICAL DRAWINGS FOR DETAILS.

5. ALL STRUCTURAL STEEL AND REINFORCING STEEL MUST BE GROUNDED TO THE SECONDARY GROUND. SEE THE ELECTRICAL DRAWINGS FOR DETAILS.

6. BURIED OR EMBEDDED ITEMS MUST BE DOCUMENTED WITH PHOTOS AT INTERVALS OF 20 FEET.

PLUMBING MATERIALS

1. FLOOR DRAIN FIXTURES MUST CONSIST OF A CAST IRON BODY, NICKEL BRONZE ADJUSTABLE TOP, 6" ROUND STRAINER, FLASHING COLLAR, SURFACE MEMBRANE CLAMP. PROVIDE WITH DEEP SEAL TRAP AND BARRIER–TYPE TRAP SEAL PROTECTION DEVICE CONFORMING TO ASSE 1072 WHERE CONNECTING TO SANITARY SEWER SYSTEM.

2. UNDERGROUND DRAINAGE PIPING MUST CONSIST ASTM D2665 SCH 40 PVC SOLID CORE PIPING WITH DWV PATTERN FITTINGS. PERFORATED DRAIN PIPING MUST INCLUDE 1/2" DIAMETER HOLES SPACED 5" O.C. IN TWO ROWS 120 DEGREES APART PER ASTM D2729. ALL PERFORATED DRAIN PIPING MUST BE INSTALLED WITH HOLES FACING DOWN.

3. PREFABRICATED TRENCH DRAINS MUST BE 6" WIDE, SHALLOW, PRECAST POLYESTER CONCRETE CHANNEL OF INTERLOCKING DESIGN. 3" OUTLETS. DUCTILE IRON EDGE RAIL AND EXTRA HEAVY DUTY, DIN19580 LOAD CLASS E DUCTILE IRON SLOTTED TOP GRATE FASTENED TO RAIL. GRATE SLOTS MUST BE NO WIDER THAN 1/4" OR PROVIDE STAINLESS STEEL MESH SCREEN FASTENED TO BOTTOM OF GRATES. MESH OPENINGS MUST BE NO LARGER THAN 1/4" TO MITIGATE RODENT ENTRY.

BLAST DOOR NOTES:

1. THE BLAST DOOR MANUFACTURER MUST BE SOLELY RESPONSIBLE FOR INSTALLATION AND ERECTION OF THE BLAST DOOR.

2. THE DOOR MANUFACTURER MUST COMMENCE A SHOP DEMONSTRATION OF EACH DOOR IN THE PRESENCE OF A GOVERNMENT OFFICIAL, CONSISTING OF A SUCCESSFUL CYCLE OF OPENING AND CLOSING THE DOOR BY CONTROLS, OPENING AND CLOSING OF TRENCH PLATES BY DOOR PLOWS AND ALIGNMENT OF DOOR IN SECURITY PILASTER. DEMONSTRATION MUST BE A MINIMUM OF HALF THE LENGTH OF THE DOOR TRAVEL. DEMONSTRATION MUST ALSO INCLUDE MANUAL OPERATION OF BLAST DOOR IN BOTH DIRECTIONS. UPON SATISFACTION OF THE GOVERNMENT OFFICIAL REVIEWING THE DOOR DEMONSTRATION(S) AND RECEIPT OF GOVERNMENT APPROVAL LETTER, THE MANUFACTURER WILL BE RELEASED FROM DEMONSTRATING ADDITIONAL DOORS.

3. THE DOOR MANUFACTURER MUST COMMENCE A FIELD DEMONSTRATION OF EACH DOOR IN THE PRESENCE OF A GOVERNMENT OFFICIAL, CONSISTING OF A SUCCESSFUL CYCLE OF OPENING AND CLOSING THE DOOR BY CONTROLS, OPENING AND CLOSING OF TRENCH PLATES BY DOOR PLOWS, LOCKING AND UNLOCKING DOOR, AND ALIGNMENT OF DOOR IN SECURITY PILASTER.

4. THE BLAST DOOR MANUFACTURER MUST HAVE A MINIMUM OF 10 YEARS OF EXPERIENCE IN THE DESIGN, CONSTRUCTION AND INSTALLATION OF DOORS WEIGHING A MINIMUM OF 30 KIPS, CONSISTING OF BOTTOM ROLLING DOORS AND LARGE HEAVY DOORS SUCH AS MAGAZINE BLAST DOORS AND/OR NUCLEAR CONTAINMENT DOORS. THE BLAST DOOR MANUFACTURER MUST SUBMIT PROOF OF EXPERIENCE TO THE CONTRACTING OFFICER FOR APPROVAL BY NAVFAC EXWC AND NAVFAC ATLANTIC. A MINIMUM OF 5 EXAMPLES MUST BE SUBMITTED.

5. PROVIDE STEEL PLATE BOTTOM WHEELS HAVING A MINIMUM TREAD DIAMETER AS REQUIRED FOR THE ACTUAL WHEEL LOADING. CONSTRUCTION WHEEL ASSEMBLES TO PERMIT REMOVAL OF THE WHEEL WITHOUT REMOVING THE DOOR LEAF FOR ITS POSITION ON THE RAIL.

6. THE GENERAL CONTRACTOR MUST SELECT A SINGLE SUPPLIER TO PROVIDE A COMPLETE BLAST DOOR SYSTEM INCLUDING BUT NOT LIMITED TO THE BLAST DOOR AND ALL OF ITS ASSOCIATED COMPONENTS AND HARDWARE, RAIL, TRENCH, TRENCH COVER ASSEMBLY, PLOW AND EMBEDDED PLATES.

7. PROVIDE A HAND RELEASE ON THE DESIGNED BRAKING SYSTEM TO RELEASE THE BRAKE WHEN IT BECOMES NECESSARY TO MANUALLY MOVE THE DOOR. PROVIDE AN AUTOMATIC RESET TYPE HAND RELEASE SO THAT THE BRAKE WILL BE OPERABLE DURING SUBSEQUENT ELECTRICAL OPERATIONS OF THE DOOR.

8. BLAST DOOR MANUFACTURER MUST PROVIDE A COMPLETE BLAST DOOR MANUAL THAT INCLUDES MAINTENANCE AND STEP BY STEP INSTRUCTIONS OF WHEEL REMOVAL.

9. THE PLOW/TRENCH COVER ASSEMBLY ALONG WITH THE WHEEL/MOTOR ASSEMBLY ARE NOTIONAL AND SHOWN FOR BIDDING PURPOSES AND MAY VARY BASED ON THE DOOR MANUFACTURER'S APPROVED DESIGN.

NOTES TO DESIGNER – REMOVE THESE NOTES WHEN PREPARING CONSTRUCTION DRAWINGS FOR SITE ADAPTION:

1. EDIT UFGS 01 45 35 "SPECIAL INSPECTIONS" IN ACCORDANCE WITH UFC 3–301–01 "STRUCTURAL ENGINEERING" AND INCORPORATE ADDITIONAL ITEMS IDENTIFIED IN APPENDIX C OF UFC 4–420–01.

2. SITE PARAMETERS FOR WIND AND SEISMIC LOADS INDICATED IN THE DESIGN CRITERIA NOTES SECTION OF SHEET S–001 ARE BASED ON A SITE LOCATION OF GUAM. IF THE LOCAL CONDITIONS FOR THE PROJECT SITE REQUIRE MORE STRINGENT WIND AND/OR SEISMIC PARAMETERS, THE DESIGN CRITERIA AND STRUCTURAL DESIGN MUST BE REVISED ACCORDINGLY.

3. THESE DRAWINGS ARE TO BE UTILIZED IN CONJUNCTION WITH ALL DoD REQUIREMENTS FOR SITE ADAPTATIONS. EXAMPLES INCLUDE, BUT ARE NOT LIMITED TO, PHYSICAL SECURITY, CIVIL, FOUNDATIONS, AND SPECIFICATIONS. ANY DEVIATION FROM THE STANDARD DRAWINGS FOR THE MAGAZINE STRUCTURE ITSELF (ROOF, WALLS, EARTH COVER, HEADER BEAM, PILASTER, BLAST DOOR, ETC) WITHOUT THE WRITTEN APPROVAL FROM THE DEPARTMENT OF DEFENSE EXPLOSIVE SAFETY BOARD (DDESB) MAY RESULT IN THE MAGAZINE TO BE CONSIDERED AN UNDEFINED MAGAZINE AND MAY SEVERELY RESTRICT STORAGE CAPACITY.

4. NEW SHEETS MUST BE ADDED AS NECESSARY BY THE SITE ADAPT ENGINEER FOR LANGUAGE TRANSLATIONS.

5. THE MAGAZINE ROOF SLAB, SIDE/REAR WALLS, AND RETAINING WALLS IN THIS STANDARD DESIGN HAVE BEEN DESIGNED FOR THE BACKFILL SOIL PARAMETERS AND SOIL TYPES INDICATED IN THE FOUNDATIONS SECTION OF THE GENERAL NOTES ON SHEET S–001. AVAILABLE SOILS FOR A GIVEN PROJECT SITE MAY VARY. THE SITE–ADAPT ENGINEER MUST SPECIFY BACKFILL SOIL MATERIALS THAT WILL MEET FOUNDATION CRITERIA INDICATED IN THE GENERAL NOTES WHENEVER POSSIBLE. IF LOCAL SOILS MEETING SPECIFIED REQUIREMENTS ARE NOT AVAILABLE, SEE NOTES TO DESIGNER #8.

6. THE DESIGNER OF RECORD MUST PERFORM A GEOTECHNICAL INVESTIGATION ON SITE TO CONFIRM THE SOIL CONDITION PRIOR TO COMMENCING FOUNDATION WORK. THE FOUNDATION DESIGN AND CRITERIA MUST BE MODIFIED TO REFLECT SOIL CONDITIONS AND SITE SPECIFIC SOIL CONDITIONS AND ALLOWABLE BEARING PRESSURE AS DETERMINED BY THE SITE ADAPTATION GEOTECHNICAL REPORT.

7. THE SITE ADAPT ENGINEER MUST CONDUCT A SITE–SPECIFIC GEOTECHNICAL INVESTIGATION FOR EACH MAGAZINE INSTALLATION. THE SITE ADAPT ENGINEER MUST COORDINATE THE FOUNDATION SYSTEMS, SELECTION OF FILL, SUBGRADE PREPARATION, AND COMPACTION REQUIREMENTS SHOWN IN THE STANDARD DRAWINGS WITH THE RECOMMENDATIONS FROM THE GEOTECHNICAL REPORT AND IMPLEMENT THEM INTO THE DRAWINGS AND SPECIFICATIONS.

8. SPECIFIED EARTH COVER MATERIALS IN THE FOUNDATION GENERAL NOTES ON SHEET S–001 ARE MORE STRINGENT THAN WHAT IS REQUIRED BY DESR 6055.09 AND WHAT HAS BEEN SPECIFIED FOR PREVIOUS MAGAZINE DESIGNS. THE SITE ADAPT ENGINEER MUST EVALUATE THE LOCAL AVAILABILITY OF SPECIFIED EARTH COVER MATERIALS. THE SITE ADAPT ENGINEER MAY SELECT ALTERNATIVE EARTH COVER MATERIALS, BUT THE MATERIAL MUST AT LEAST MEET REQUIREMENTS OF DESR 6055.09 AND THE MAGAZINE STRUCTURE MUST BE EVALUATED AS PART OF THE SITE ADAPT DESIGN FOR SPECIFIC SOIL PROPERTIES. THE ALTERNATIVE EARTH COVER MATERIAL SELECTED BY THE SITE ADAPT ENGINEER MUST STILL FALL IN THE 110–120 PCF DENSITY RANGE.

9. THE MAGAZINE SIDE WALLS AND RETAINING WALLS AND CONNECTIONS HAVE BEEN DESIGNED FOR 2:1 SLOPE. THIS SLOPE CANNOT BE CHANGED UNLESS CALCULATIONS ARE PERFORMED TO ANALYZE ALL AFFECTED ELEMENTS. IF ANY ELEMENT IS MODIFIED, ENDORSEMENTS AND APPROVAL ARE REQUIRED FROM NAVFAC ATLANTIC, NAVFAC EXWC, NOSSA, AND DDESB.

10. PROVIDE WEATHERSTRIPPING SYSTEM AT PERIMETER OF BLAST DOOR REGARDLESS OF WHETHER OR NOT MAGAZINE IS TO BE EQUIPPED WITH ENVIRONMENTAL CONTROLS.

11. FOR THE GROUNDING REEL AND CABLE ASSEMBLY THE DOR MUST PROVIDE SPECIFICATIONS. THE GROUNDING CABLE MUST MOVE WITH THE DOOR AND MUST NOT HAVE INTERFERENCES WHILE TRAVELING. THE DOR MUST REQUIRE THE CONTRACTOR TO PROVIDE A DELEGATED DESIGN WITH SHOP DRAWINGS AND CALCULATIONS SUBMITTAL PACKAGES.

12. PROVIDE BOTH LEADING AND TRAILING EDGE DOOR BUMPERS. THE BUMPERS ARE TO BE A DELEGATED DESIGN.

13. FLOOR FLATNESS AND FLOOR LEVELNESS MUST BE SPECIFIED IN THE CONCRETE SPECIFICATION. AT A MINIMUM, SPECIFY: FLOOR FLATNESS (FF) 35 MINIMUM; FLOOR LEVELNESS (FL) 25 MINIMUM. HOWEVER, DOR MUST DECIDE IF A MORE STRINGENT VALUE IS NEEDED.

APPR | DATE | DESCRIPTION | SYM

NAVFAC

SEAL

A/E INFO

APPROVED: Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM –.–
BRANCH MANAGER –.–
CHIEF ENG/ARCH –.–
FIRE PROTECTION –.–

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

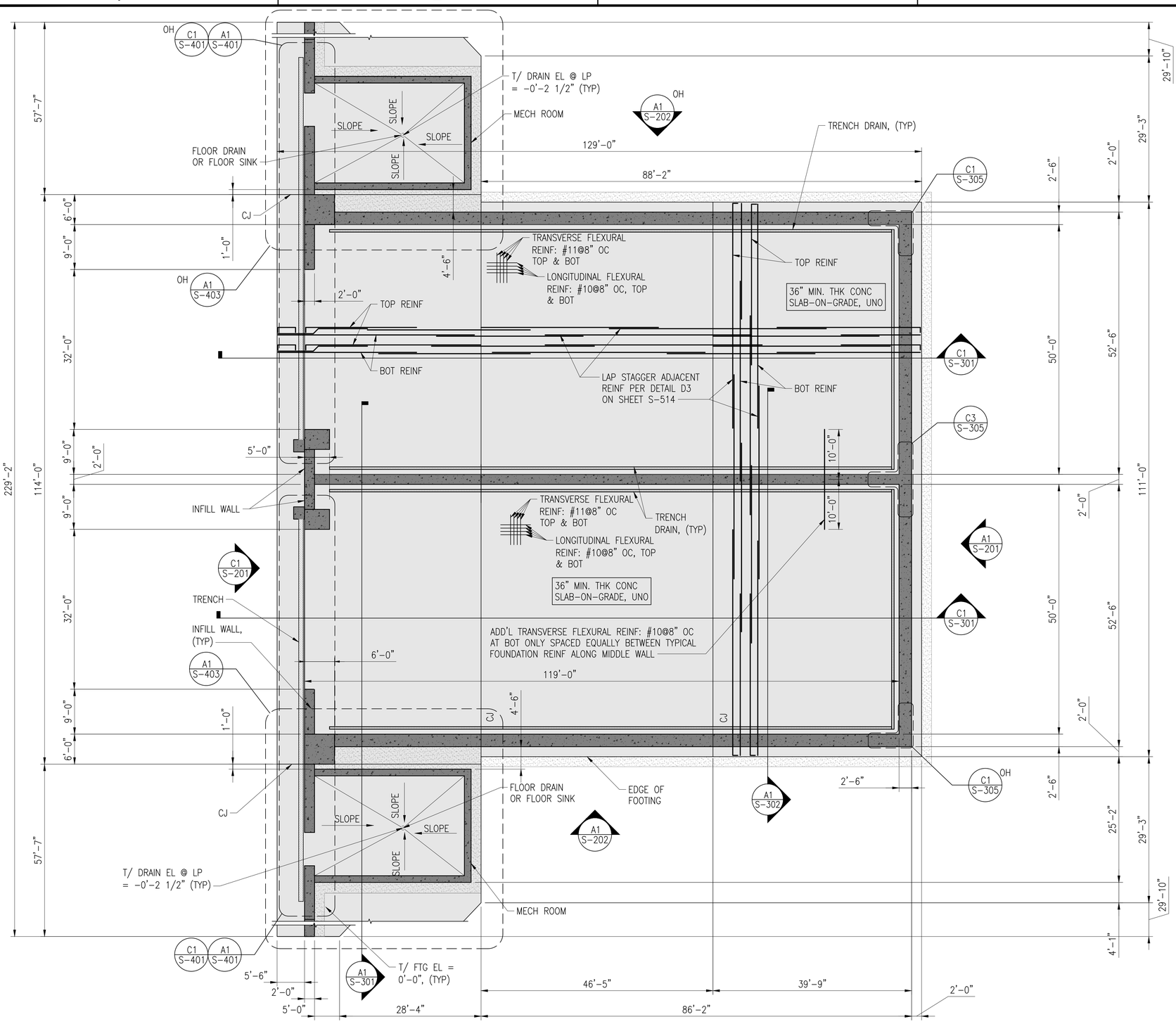
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

GENERAL NOTES – 3

SCALE:	NONE
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914699
SHEET	4 OF 62

S-003

DRAWFORM REVISION: 25 AUGUST 2020



A1 FOUNDATION FLOOR PLAN
SCALE: 3/32" = 1'-0"

GENERAL SHEET NOTES

1. ALL ELEVATIONS ARE IN REFERENCE TO A DATUM ELEVATION OF 0'-0" FOR THE MAGAZINE FINISHED FLOOR ELEVATION. SEE CIVIL DRAWINGS FOR ACTUAL ELEVATIONS.
2. SEE SHEETS S-001 THROUGH S-003 FOR GENERAL (AND ADDITIONAL) NOTES.
3. ALL REINFORCING STEEL MUST BE CONTINUOUSLY BONDED AND GROUNDED PER S-003 AND A1/E-504
4. SLAB-ON-GRADE MUST BE MOIST CURED FOR A MINIMUM OF 14 DAYS.
5. SLAB-ON-GRADE CONSTRUCTION JOINTS ARE INDICATED AS "CJ" ON PLAN. SEE STANDARD DETAIL ON S-514 FOR CONSTRUCTION JOINT DETAILS.
6. BLAST DOOR IS NOT SHOWN FOR CLARITY.
7. SEE SHEET S-302 FOR ARRANGEMENT OF SLAB REINFORCEMENT AND FOR SIDEWALL REINFORCEMENT SIZE, SPACING, AND ARRANGEMENT.
8. SEE SHEET S-105 FOR FOUNDATION DRAINAGE FLOOR PLAN.
9. SEE S-403 FOR MECHANICAL ROOM DIMENSIONS.
10. DRAWING CONFIGURATION OF THE MAGAZINE IS MIRRORED ABOUT THE CENTERLINE OF THE MIDDLE WALL. ELEVATIONS, SECTIONS AND DETAILS SHOWN IN THE DRAWING AS OPPOSITE HAND (OH) INDICATE A MIRROR CONDITION CORRESPONDING TO ELEMENT ON OPPOSITE SIDE OF THE MAGAZINE.

NOTES TO DESIGNER: (REMOVE WHEN PREPARING DRAWINGS FOR SITE ADAPTATION)

1. THE MECHANICAL ROOM LENGTH SHOWN ON SHEET S-403 IS A MINIMUM VALUE, AND THE SITE DESIGNER MUST DETERMINE FINAL LENGTH (PLAN LEFT – RIGHT DIMENSION TOWARDS BACK WALL OF MAGAZINE) BASED ON THE SITE REQUIREMENTS. THE LENGTH OF THE MECHANICAL ROOM MUST NOT EXCEED 40'-0", AND THE WIDTH MAY NOT BE MODIFIED.
2. COORDINATE FINAL LOCATION OF FLOOR DRAINS/FLOOR SINKS WITH EQUIPMENT LAYOUT. FINAL PIPING CONFIGURATION AND TERMINATION POINT MUST BE DETERMINED BY SITE ADAPT DESIGNER.
3. STANDARD DESIGN FEATURES COMPONENTS TO PROVIDE THE MAGAZINE WITH NATURAL VENTILATION, AND PROVISIONS FOR INSTALLATION OF AN OPTIONAL MECHANICAL HVAC SYSTEM. IF A MECHANICAL HVAC SYSTEM IS REQUIRED, GRAVITY VENTILATORS AND DUCTWORK ASSOCIATED WITH THE NATURAL VENTILATION SYSTEM MAY BE REMOVED OR OMITTED, AND THE VENTILATOR OPENINGS SEALED. STRUCTURAL FEATURES RELATED TO NATURAL VENTILATION SYSTEMS MUST BE PROVIDED REGARDLESS OF SYSTEM USED.
4. FIRE DAMPERS SHOWN IN THE STANDARD DESIGN MAY BE OMITTED FROM THE DESIGN IF NOT REQUIRED BY THE USING AGENCY/AUTHORITY.
5. PROVISIONS FOR ROUTING AND PENETRATIONS OF PIPING, DUCTWORK, FLUES, AND CONDUITS REQUIRED FOR THE INSTALLATION OF OUTDOOR HVAC EQUIPMENT OR OTHER UTILITIES RELATED TO THE ADDITION OF HVAC (PRESENT OR ANTICIPATED FUTURE) MUST BE BY THE SITE-ADAPT ENGINEER.
6. TIE CIVIL PAVEMENT TO MAGAZINE SLABS SO THERE IS NO DIFFERENTIAL MOVEMENT OR SETTLEMENT.

GRAPHIC SCALES

SCALE: 3/32" = 1'-0"

0 8' 16' 32'

APPR'R | DATE | SYM | DESCRIPTION

NAVFAC

SEAL

A/E INFO

APPROVED for DES

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH
PM/DM					--
BRANCH MANAGER					--
CHIEF ENG/ARCH					--
FIRE PROTECTION					--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

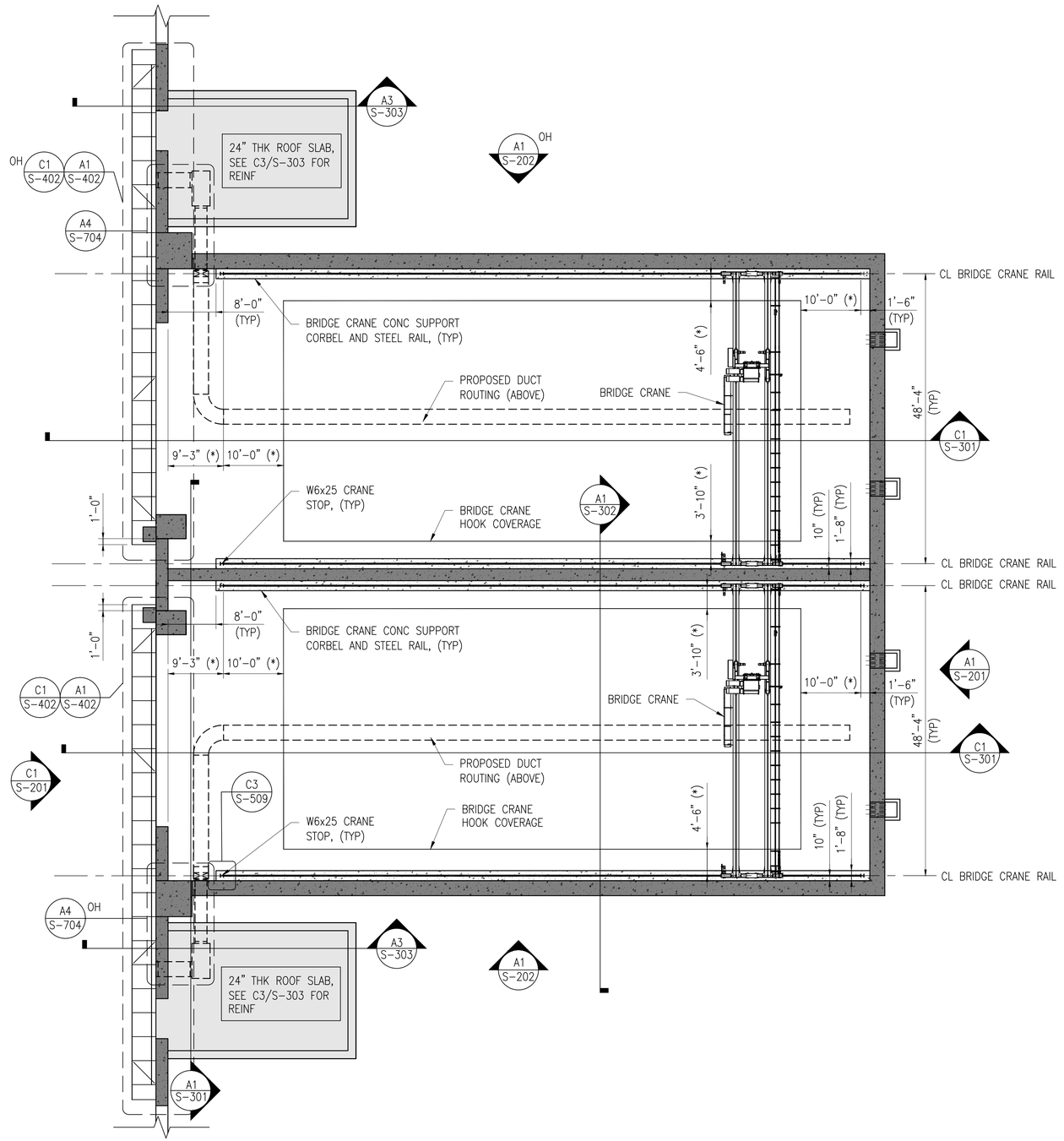
FOUNDATION FLOOR PLAN

SCALE: 3/32" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.: 12914700
SHEET 5 OF 62

S-101

DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: i:\DCSE\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_083224\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-101.dwg LAYOUT NAME: S-101 - FOUNDATION FLOOR PLAN PLOTTED: Tuesday, September 24, 2024 - 10:08am USER: leslie.corsino



A1 BRIDGE CRANE AND CANOPY FRAMING PLAN

SCALE: 3/32" = 1'-0"

GENERAL SHEET NOTES

1. ALL ELEVATIONS ARE IN REFERENCE TO A DATUM ELEVATION OF 0'-0" FOR THE MAGAZINE FINISHED FLOOR ELEVATION. SEE CIVIL DRAWINGS FOR ACTUAL ELEVATIONS.

2. SEE SHEETS S-001 THROUGH S-003 FOR GENERAL (AND ADDITIONAL) NOTES.

3. DIMENSIONS, ELEVATIONS, OR OTHER INFORMATION DESIGNATED WITH AN (*) MUST BE VERIFIED WITH SELECTED EQUIPMENT DIMENSION, REQUIRED CLEARANCES AND HOOK HEIGHTS.

4. BRIDGE CRANE MUST COMPLY WITH UFGS 41 22 13.14 AND MEET THE FOLLOWING REQUIREMENTS.
   - A. 25 TON CAPACITY
   - B. DOUBLE BOX GIRDER SYSTEM
   - C. MAXIMUM WHEEL LOAD = 37K
   - D. MAXIMUM TOTAL WEIGHT = 50K
   - E. MAXIMUM HOIST AND TROLLEY WEIGHT = 10K
   - F. MINIMUM WHEEL SPACING = 6FT
   - G. CMAA 70 CLASS D SERVICE
   - H. HOOK AND CRANE CLEARANCE REQUIREMENTS ON THIS SHEET AND ON A1/ S-302

5. BRIDGE CRANE RAIL MUST BE CONSTRUCTED TO RUNWAY TOLERANCES IN ACCORDANCE WITH CMAA SPECIFICATION #70. SEE DETAIL A1 AND A3 ON SHEET S-305. RAIL SPLICES AND SPLICE CONNECTIONS TO BE SELECTED AND LOCATED BY BRIDGE CRANE RAIL MANUFACTURER.

6. BRIDGE CRANE HOOK MUST BE SIZED TO APPROPRIATELY INTERFACE WITH CROSBY SHACKLE G213/S213, NOMINAL – SIZE 1 3/4", WORKING LOAD LIMIT 25 TON.

NOTES TO DESIGNER: (REMOVE WHEN PREPARING DRAWINGS FOR SITE ADAPTATION)

1. BRIDGE CRANE IS OPTIONAL. HOWEVER, ALL SUPPORTING MEMBERS FOR CRANE (CORBEL AND RAILS) ARE NOT.

2. PROPOSED DUCT ROUTING WITHIN THE MAGAZINE IS INTENDED FOR USE WITH ACTIVE HVAC SYSTEMS ONLY (NOT WITH NATURAL VENTILATION).

3. DOR MUST VERIFY THE REQUIREMENT OF INSTALLING AN INSULATED LINK, WHICH IS INSTALLED BETWEEN THE BRIDGE CRANE HOOK AND THE HOOK BLOCKS AS ONE OF THE BRIDGE CRANE REQUIREMENTS PER NAVSEA OP 5 VOLUME 1, SECTION 10-6.1.

GRAPHIC SCALES

SCALE: 3/32" = 1'-0" 0 8' 16' 32'

NO.	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED for Navy

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

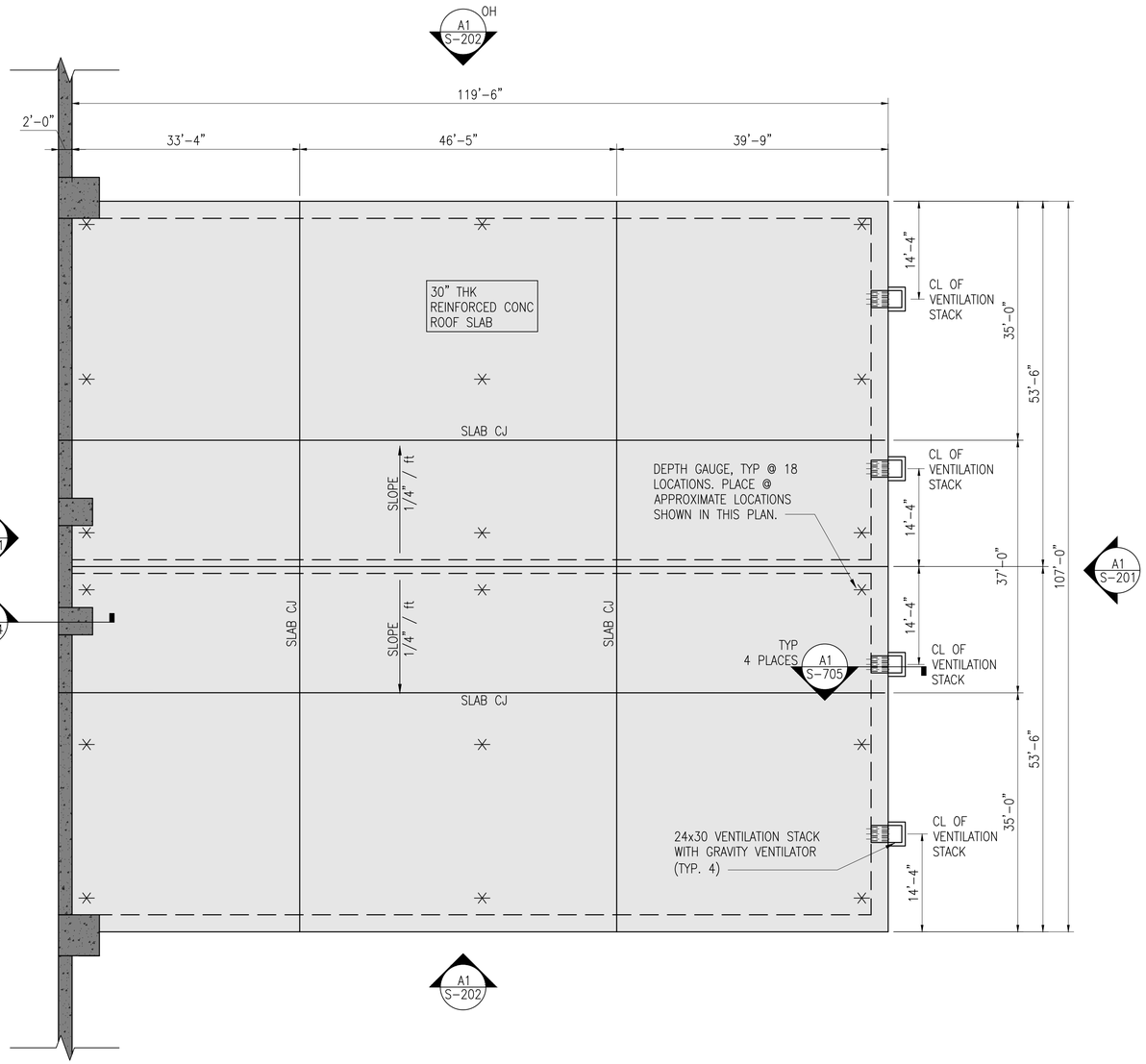
BRIDGE CRANE AND CANOPY FRAMING PLAN

SCALE:	3/32" = 1'-0"
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914701
SHEET	6 OF 62

S-102

DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSES\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-102.dwg LAYOUT NAME: S-102 - BRIDGE CRANE AND CANOPY FRAMING PLAN PLOTTED: Tuesday, September 24, 2024 - 10:08am USER: leslie.corsino



A1 ROOF FRAMING PLAN
SCALE: 3/32" = 1'-0"

GENERAL SHEET NOTES

1. ALL ELEVATIONS ARE IN REFERENCE TO A DATUM ELEVATION OF 0'-0" FOR THE MAGAZINE FINISHED FLOOR ELEVATION. SEE CIVIL DRAWINGS FOR ACTUAL ELEVATIONS.
2. SEE SHEETS S-001 THROUGH S-003 FOR GENERAL (AND ADDITIONAL) NOTES.
3. ALL REINFORCING STEEL MUST BE CONTINUOUSLY BONDED AND GROUNDED PER S-003 AND A1/E-504.
4. CONCRETE SLAB MUST BE MOIST CURED FOR A MINIMUM OF 14 DAYS.
5. SEE S-514 FOR CONCRETE SLAB CONSTRUCTION JOINT DETAILS.
6. SEE SHEET S-104 FOR ROOF SLAB REINFORCEMENT SIZE, SPACING, ARRANGEMENT AND LOCATION OF LAP SPLICES.
7. SEE SHEET S-302 FOR ARRANGEMENT OF SLAB REINFORCEMENT AND FOR SIDEWALL REINFORCEMENT, SIZE, SPACING.

GRAPHIC SCALES
SCALE: 3/32" = 1'-0"
0 8' 16' 32'

APPR | DATE | DESCRIPTION | SYM

NAVFAC

A/E INFO

APPROVED: Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE
DES JAF | DRW SFF | CHK TPH
PM/DM
BRANCH MANAGER
CHIEF ENG/ARCH
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

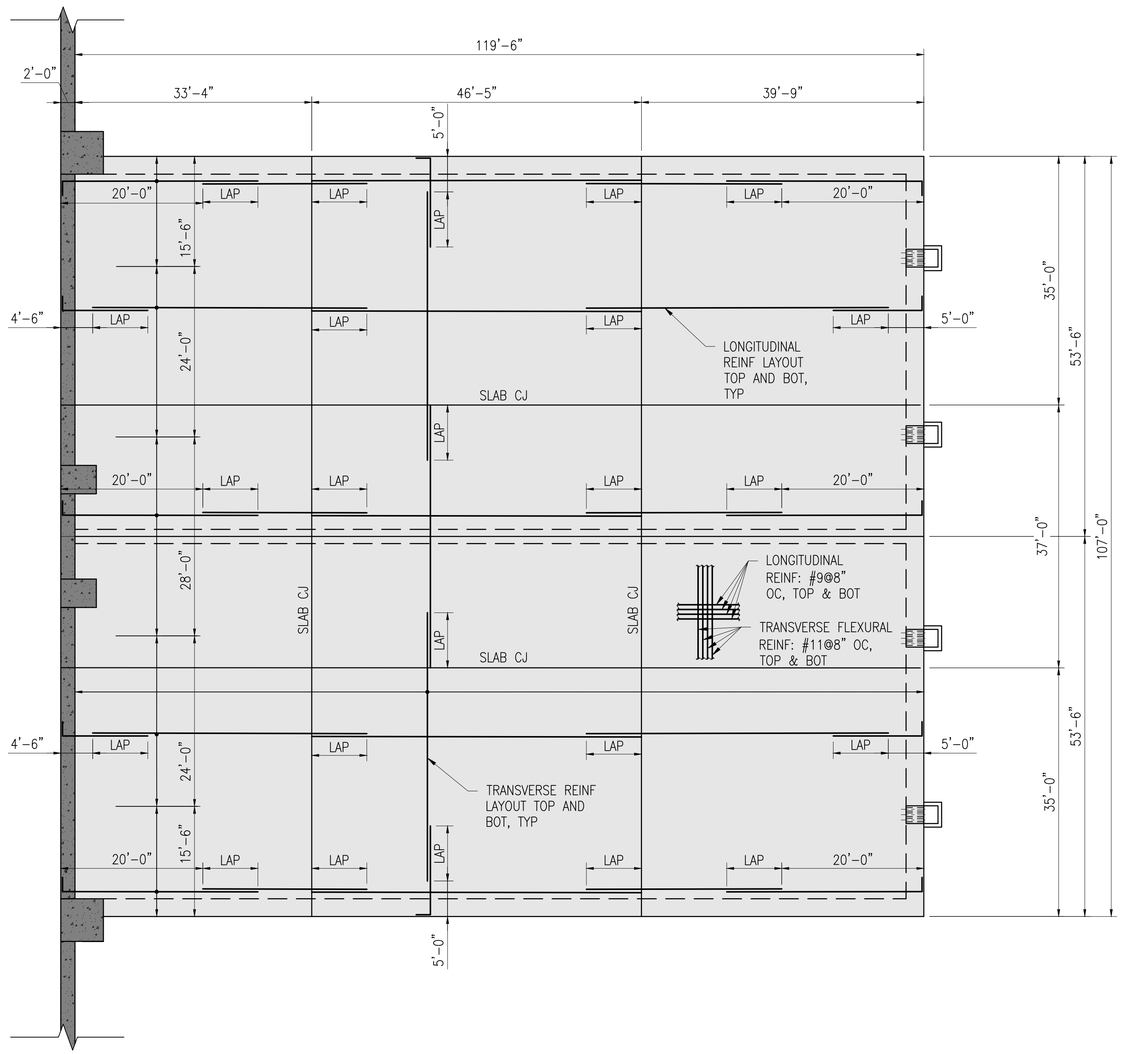
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ROOF FRAMING PLAN

SCALE: 3/32" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.: 12914702
SHEET 7 OF 62

S-103

DRAWFORM REVISION: 25 AUGUST 2020



A1 ROOF REINFORCING PLAN
SCALE: 3/32" = 1'-0"

GENERAL SHEET NOTES

1. ALL ELEVATIONS ARE IN REFERENCE TO A DATUM ELEVATION OF 0'-0" FOR THE MAGAZINE FINISHED FLOOR ELEVATION. SEE CIVIL DRAWINGS FOR ACTUAL ELEVATIONS.
2. SEE SHEETS S-001 THROUGH S-003 FOR GENERAL (AND ADDITIONAL) NOTES.
3. ALL REINFORCING STEEL MUST BE CONTINUOUSLY BONDED AND GROUNDED PER S-003 AND A1/E-504.
4. CONCRETE SLAB MUST BE MOIST CURED FOR A MINIMUM OF 14 DAYS.
5. SEE S-514 FOR CONCRETE SLAB CONSTRUCTION JOINT DETAILS.
6. SEE SHEET S-302, S-303 FOR ARRANGEMENT OF SLAB REINFORCEMENT AND FOR SIDEWALL REINFORCEMENT, SIZE, SPACING AND ARRANGEMENT.

GRAPHIC SCALES
SCALE: 3/32" = 1'-0"
0 8' 16' 32'

APPR | DATE | SYM | DESCRIPTION

NAVFAC

SEAL

A/E INFO

VERIFIED: Forbes
FOR COMMANDER NAVFAC 24SEP2024
ACTIVITY
SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH
PM/DM					-.-
BRANCH MANAGER					-.-
CHIEF ENG/ARCH					-.-
FIRE PROTECTION					-.-

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

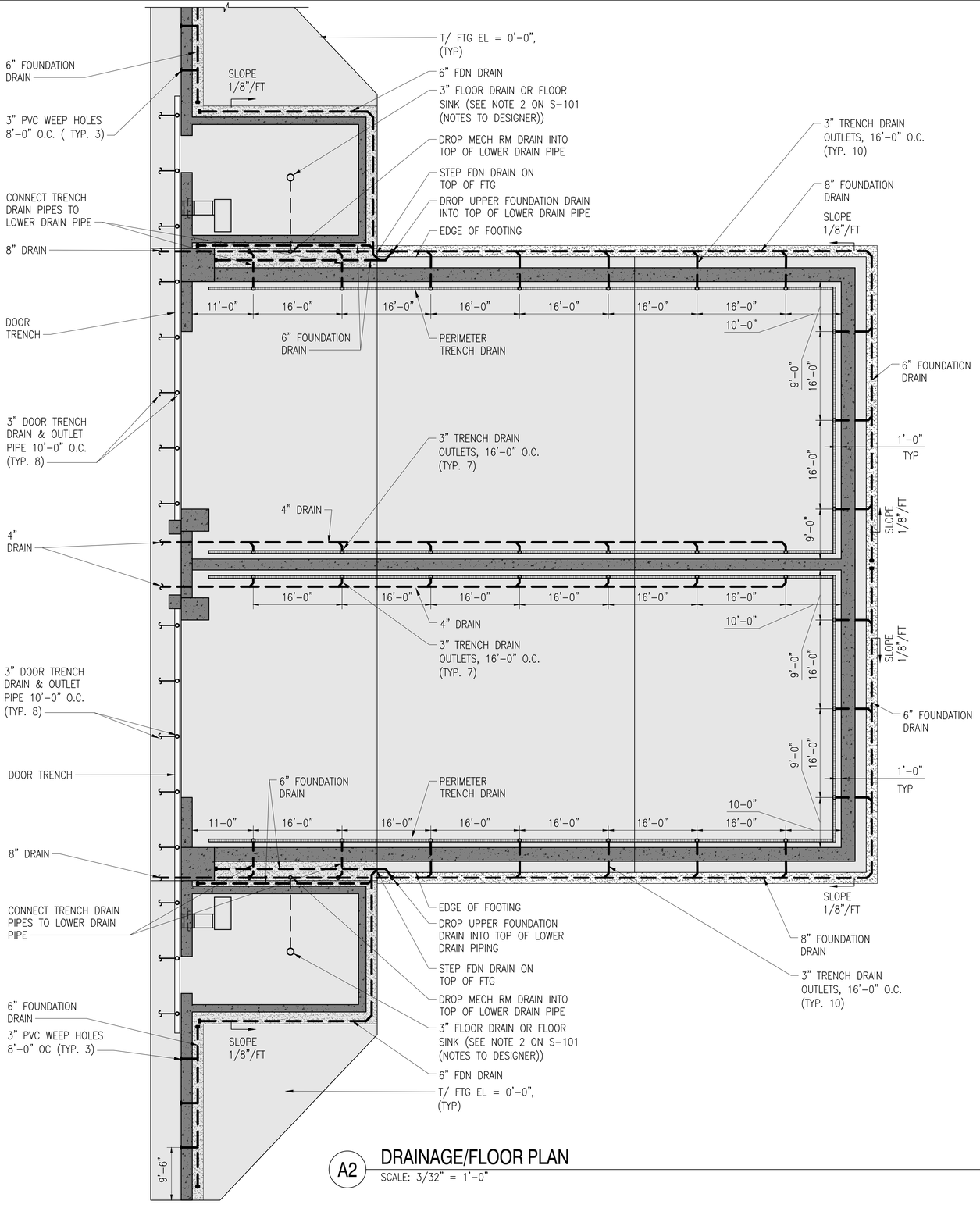
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ROOF REINFORCING PLAN

SCALE: 3/32" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914703
SHEET 8 OF 62

S-104

DRAWFORM REVISION: 25 AUGUST 2020



A2 DRAINAGE/FLOOR PLAN

SCALE: 3/32" = 1'-0"

GENERAL SHEET NOTES

1. ALL ELEVATIONS ARE IN REFERENCE TO A DATUM ELEVATION OF 0'-0" FOR THE MAGAZINE FINISHED FLOOR ELEVATION. SEE CIVIL DRAWINGS FOR ACTUAL ELEVATIONS.
2. SEE SHEETS S-001 THROUGH S-003 FOR GENERAL (AND ADDITIONAL) NOTES.
3. FINAL PIPING CONFIGURATION AND TERMINATION POINTS PER SITE-ADAPT ENGINEER.
4. SEE S-707 FOR ISOMETRIC DRAINAGE DETAIL.

GRAPHIC SCALES

SCALE: 3/32" = 1'-0"

0 8' 16' 32'

APPR	DATE	DESCRIPTION	SYM

NAVFAC

SEAL

A/E INFO

APPROVED: Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	---
BRANCH MANAGER	---
CHIEF ENG/ARCH	---
FIRE PROTECTION	---

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

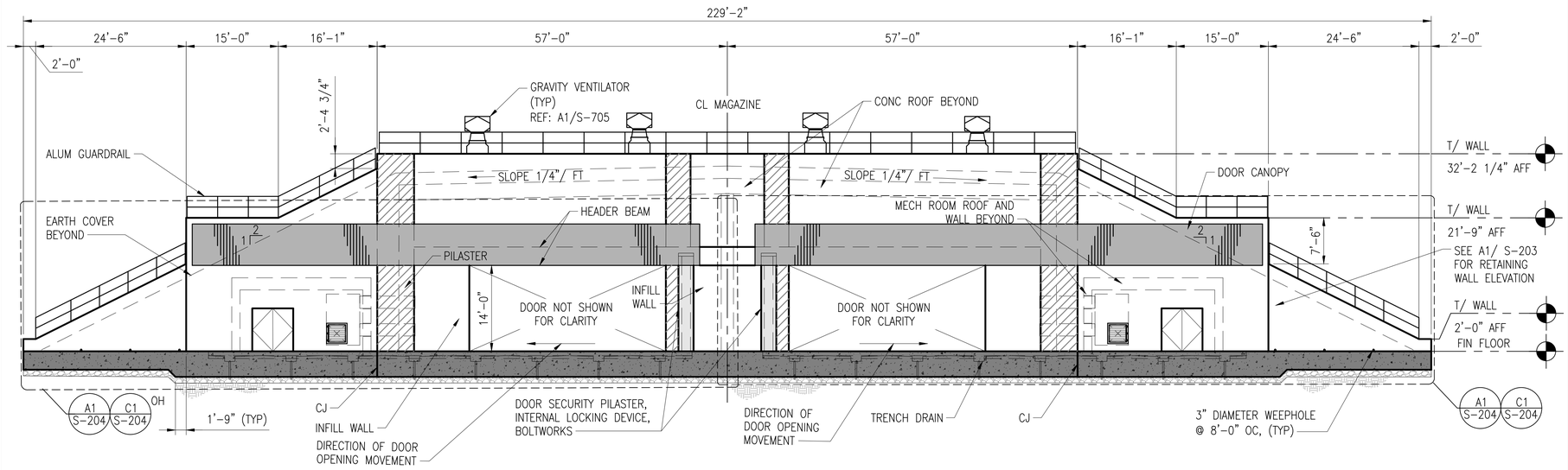
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

FOUNDATION DRAINAGE PLAN

SCALE:	3/32" = 1'-0"
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914704
SHEET	9 OF 62

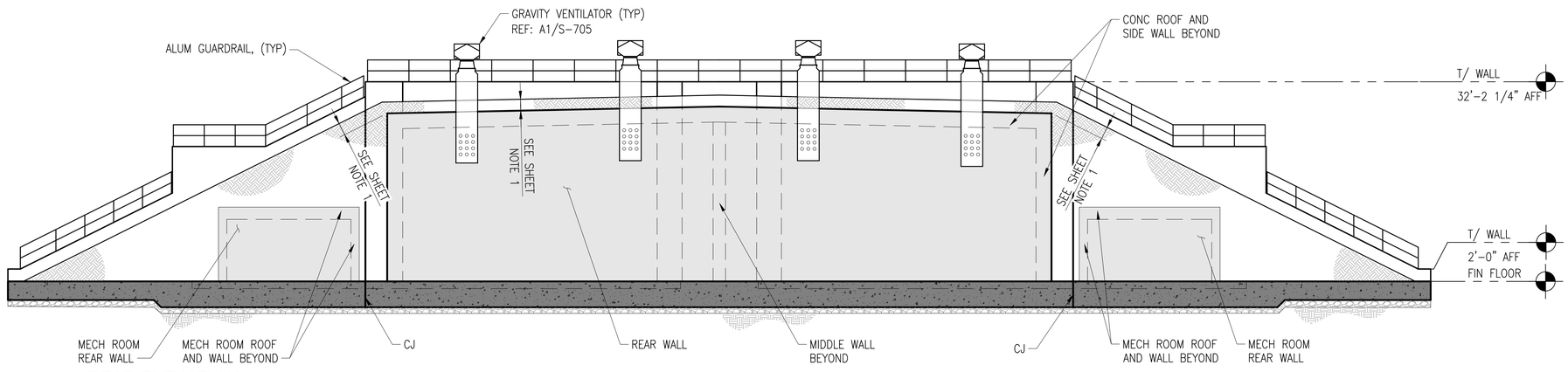
S-105

DRAWFORM REVISION: 25 AUGUST 2020



C1 **FRONT ELEVATION**

SCALE: 3/32" = 1'-0"



A1 **REAR ELEVATION**

SCALE: 3/32" = 1'-0"

GENERAL SHEET NOTES

1. PROVIDE 2'-0" -0"/+ 2" OF FILL (MINIMUM OF 1'-6" OF EARTH COVER MATERIAL PLUS 6" OF SAND MATERIAL AS REQUIRED PER FOUNDATION GENERAL NOTES ON S-001) TO ANY EXTERIOR EDGE OF THE MAGAZINE (ROOF PANEL, SIDE WALL, REAR WALL).

GRAPHIC SCALES

SCALE: 3/32" = 1'-0" 0 8' 16' 32'

APPR'D | DATE | SYM | DESCRIPTION

NAVFAC

SEAL

A/E INFO

APPROVED for Bids

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/OM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

BUILDING ELEVATIONS - 1

SCALE:	3/32" = 1'-0"
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914705
SHEET	10 OF 62

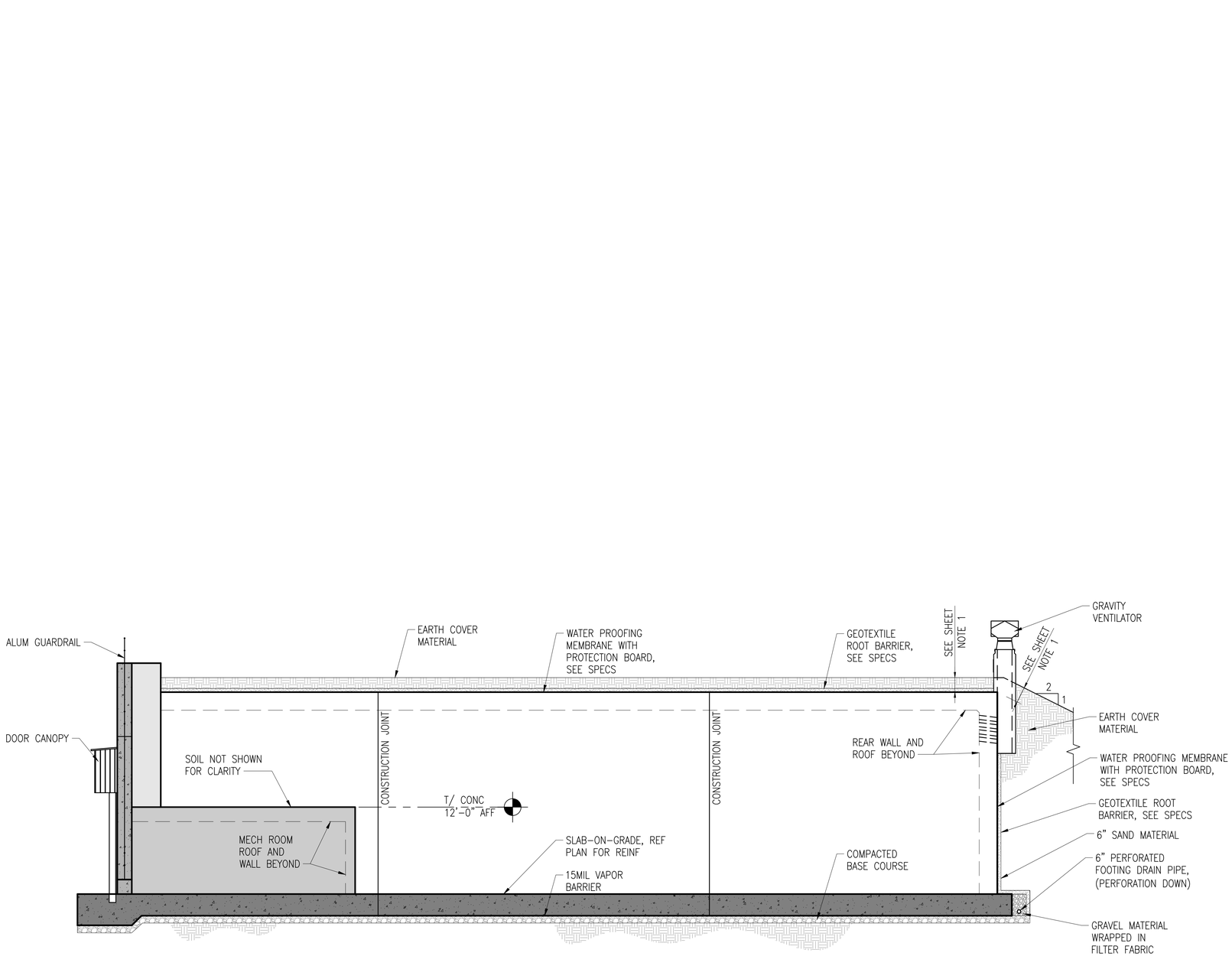
S-201

DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSE\Magazines\BCL\WSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-201.dwg LAYOUT NAME: S-201 - BUILDING ELEVATIONS - 1 PLOTTED: Tuesday, September 24, 2024 - 10:09am USER: leslie.corsino

GENERAL SHEET NOTES

1. PROVIDE 2'-0" -0"/+2" OF FILL (MINIMUM OF 1'-6" OF EARTH COVER MATERIAL PLUS 6" OF SAND MATERIAL AS REQUIRED PER FOUNDATION GENERAL NOTES ON S-001) TO ANY EXTERIOR EDGE OF THE MAGAZINE (ROOF PANEL, SIDE WALL, REAR WALL).



A1 SIDE ELEVATION
SCALE: 1/8" = 1'-0"

GRAPHIC SCALES

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

0 4' 8' 16'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED for Bids
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/OM --
BRANCH MANAGER --
CHIEF ENG/ARCH --
FIRE PROTECTION --

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

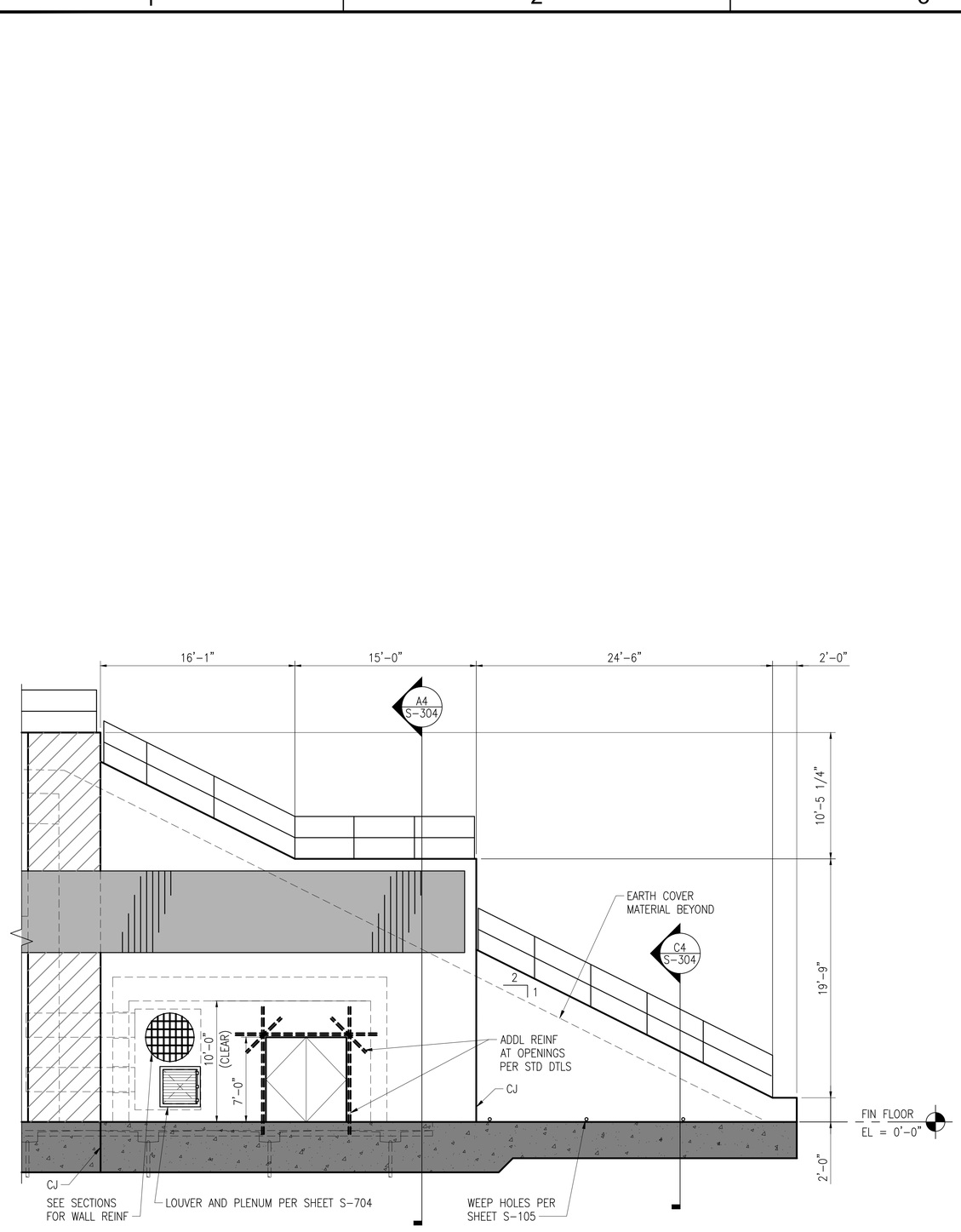
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

BUILDING ELEVATIONS - 2

SCALE: 1/8" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914706
SHEET 11 OF 62

S-202

DRAWFORM REVISION: 25 AUGUST 2020



A1 RETAINING WALL ELEVATION

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

GENERAL SHEET NOTES

1. PROVIDE 2'-0" -0"/+2" OF FILL (MINIMUM OF 1'-6" OF EARTH COVER MATERIAL PLUS 6" OF SAND MATERIAL AS REQUIRED PER FOUNDATION GENERAL NOTES ON S-001) TO ANY EXTERIOR EDGE OF THE MAGAZINE (ROOF PANEL, SIDE WALL, REAR WALL).

GRAPHIC SCALES

SCALE: 3/16" = 1'-0" 0 4' 8' 16'

APPR | DATE | SYM | DESCRIPTION

NAVFAC

SEAL

A/E INFO

ARCHITECT/ENGINEER

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES JAF | DRW SFF | CHK TPH

PM/DM

BRANCH MANAGER

CHIEF ENG/ARCH

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

RETAINING WALL ELEVATIONS

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

EPROJECT NO.: 164487

CONSTR. CONTR. NO.

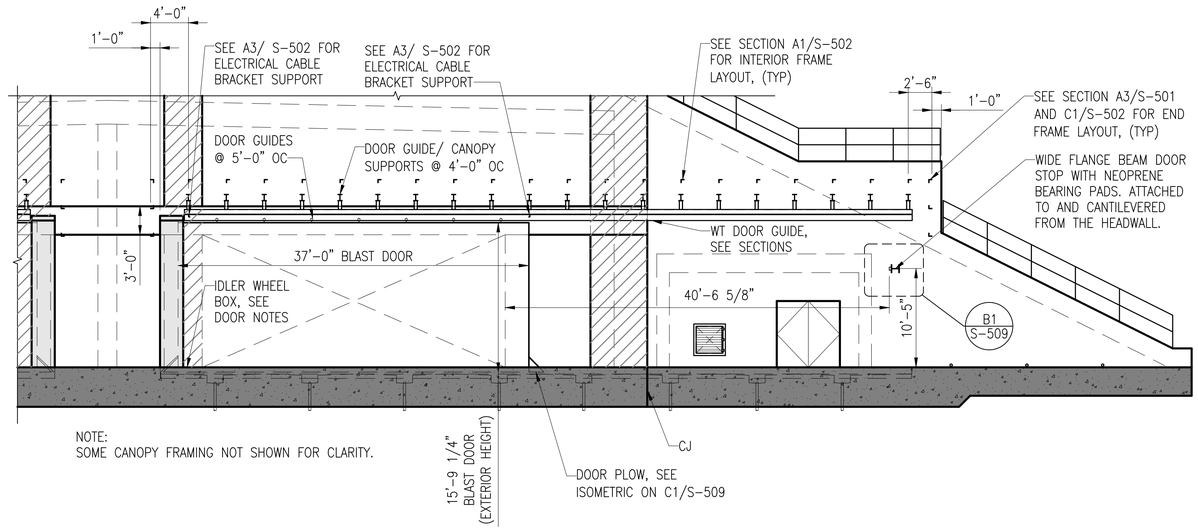
NAVFAC DRAWING NO.
12914707

SHEET 12 OF 62

S-203

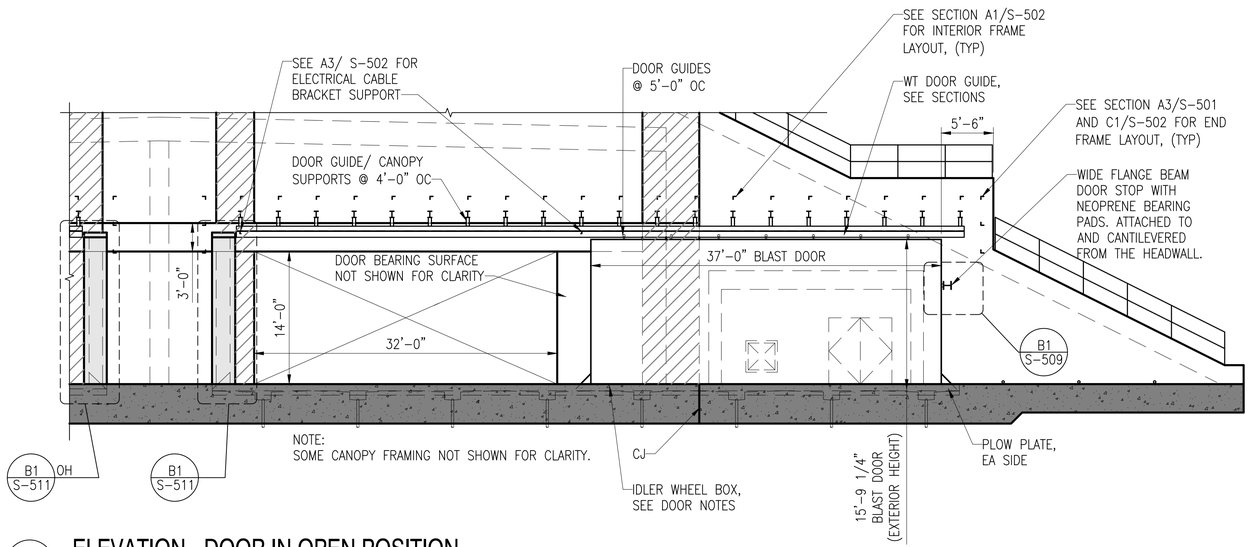
DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSE\Magazines\BCLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-203.dwg LAYOUT NAME: S-203 - RETAINING WALL ELEVATIONS PLOTTED: Tuesday, September 24, 2024 - 10:09am USER: leslie.corsino



C1 ELEVATION - DOOR IN CLOSED POSITION

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



A1 ELEVATION - DOOR IN OPEN POSITION

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

GENERAL SHEET NOTES

1. THE MAGAZINE BLAST DOOR MUST BE A SLIDING STEEL DOOR SUPPORTED FROM THE BOTTOM OF THE DOOR BY WHEELS LOCATED AT EACH END OF THE DOOR.
2. DOOR SYSTEM WILL BE TRACTION DRIVEN. THE LEADING EDGE (DOOR OPENING) WHEEL BOX CONTAINS BOTH A WHEEL AND A CHAIN DRIVEN POWER SYSTEM. THE TRAILING EDGE WHEEL BOX IS NOT POWERED AND ONLY CONTAINS AN IDLER WHEEL.
3. DOOR SYSTEM MUST INCLUDE A HAND-CRANKED MANUAL PULL SYSTEM OVERRIDE INCLUDING CHAIN DISENGAGEMENT THAT IS CAPABLE OF BOTH OPENING AND CLOSING THE DOOR SYSTEM.
4. DOOR MFR MUST SUBMIT A COMPLETE OPERATIONS & MAINTENANCE MANUAL TO THE CONTRACTING OFFICER FOR APPROVAL AND MUST ALSO SUBMIT A FINAL APPROVED OPERATIONS & MAINTENANCE MANUAL FOR RECORD.

GRAPHIC SCALES

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

0 4' 8' 16'

APPR	DATE	DESCRIPTION	SYM

NAVFAC

SEAL

A/E INFO

APPROVED
FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

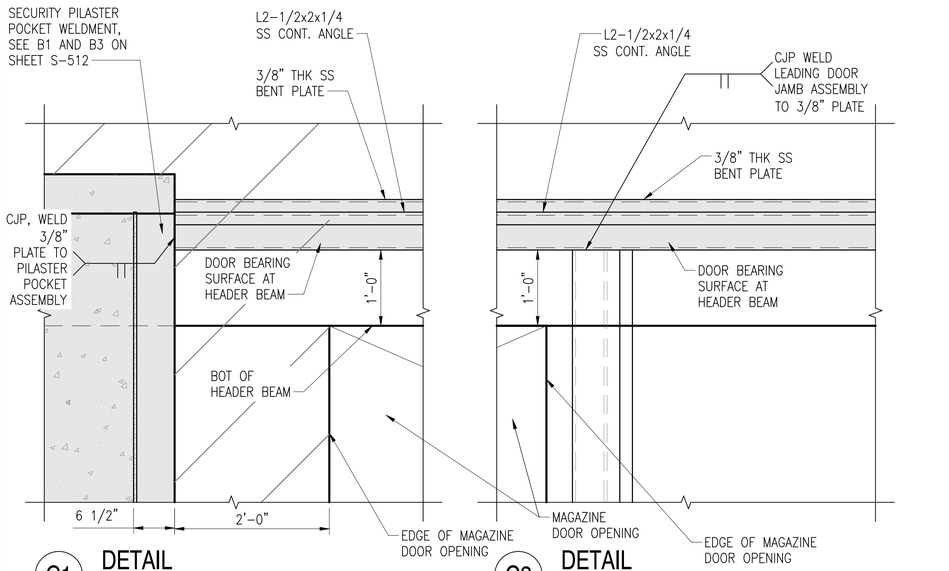
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

FRONT WALL PARTIAL ELEVATIONS

SCALE:	1/8" = 1'-0"
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914708
SHEET	13 OF 62

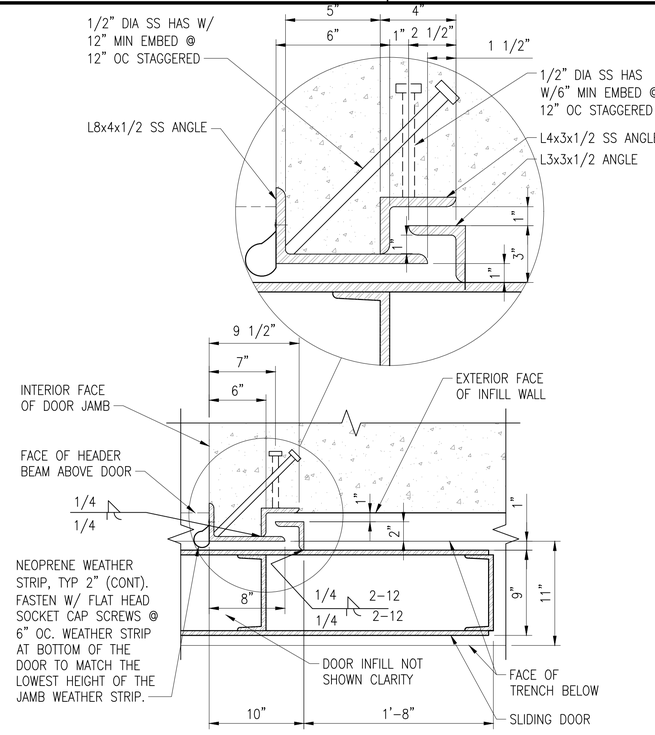
S-204

DRAWFORM REVISION: 25 AUGUST 2020

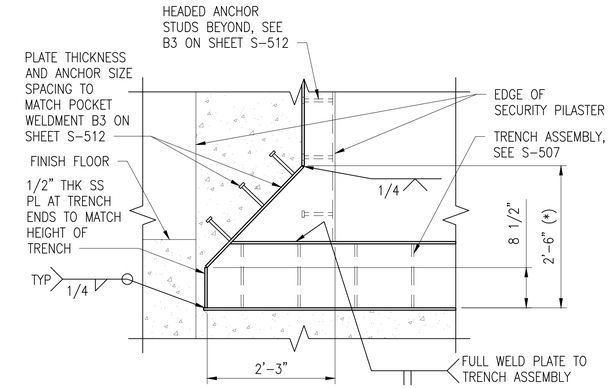


C1 **DETAIL**
SCALE: 1" = 1'-0"

C2 **DETAIL**
SCALE: 1" = 1'-0"

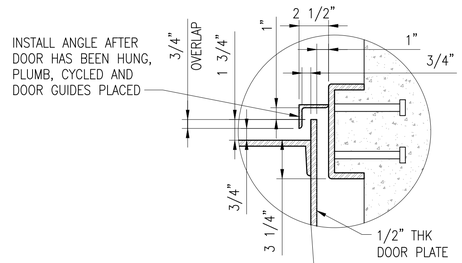


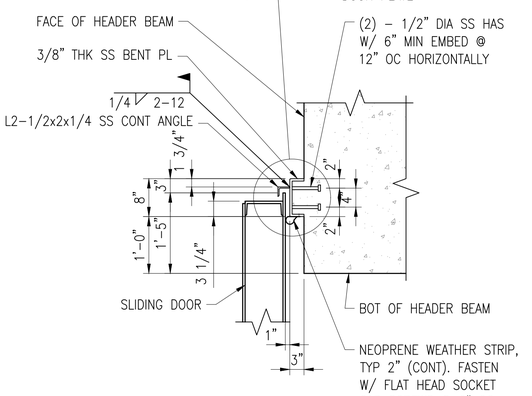
C3 **LEADING DOOR EDGE JAMB DETAIL**
SCALE: 1 1/2" = 1'-0"



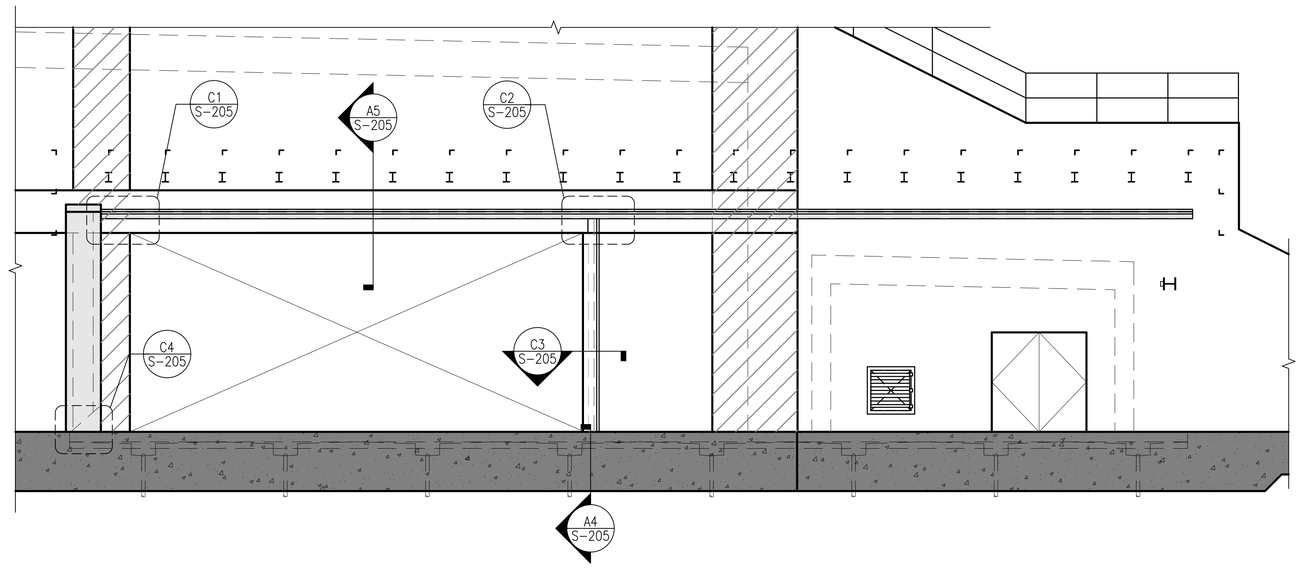
1. DIMENSIONS NOTED WITH AN (*) MUST BE COORDINATED BY THE DOOR MANUFACTURER ENSURING THE DOOR SYSTEM PERFORMS PER THE BLAST DOOR NOTES ON SHEET S-003.
2. SEE SHEETS S-507, S-508, S-511 AND S-512 FOR INFORMATION NOT SHOWN.

C4 **SECURITY PILASTER POCKET AT DOOR PLOW**
SCALE: 3/4" = 1'-0"



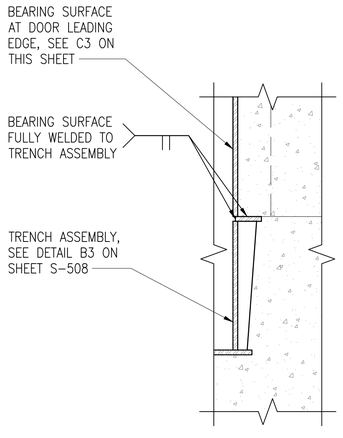


A5 **SECTION**
SCALE: 3/4" = 1'-0"



NOTE:
SOME CANOPY FRAMING NOT SHOWN FOR CLARITY.

A1 **ELEVATION - DOOR BEARING SURFACES**
SCALE: 3/16" = 1'-0"



A4 **LEADING DOOR JAMB AT TRENCH**
SCALE: 1 1/2" = 1'-0"

GRAPHIC SCALES

SCALE: 3/16" = 1'-0" — 0 4' 8' 16'
SCALE: 3/4" = 1'-0" — 0 1' 2' 4'
SCALE: 1" = 1'-0" — 0 6" 1' 2'
SCALE: 1 1/2" = 1'-0" — 0 6" 1' 2'

APPR	DATE	SYM	DESCRIPTION

NAVFAC

SEAL

A/E INFO
Jacobs/Parsons

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM
BRANCH MANAGER
CHIEF ENG/ARCH
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

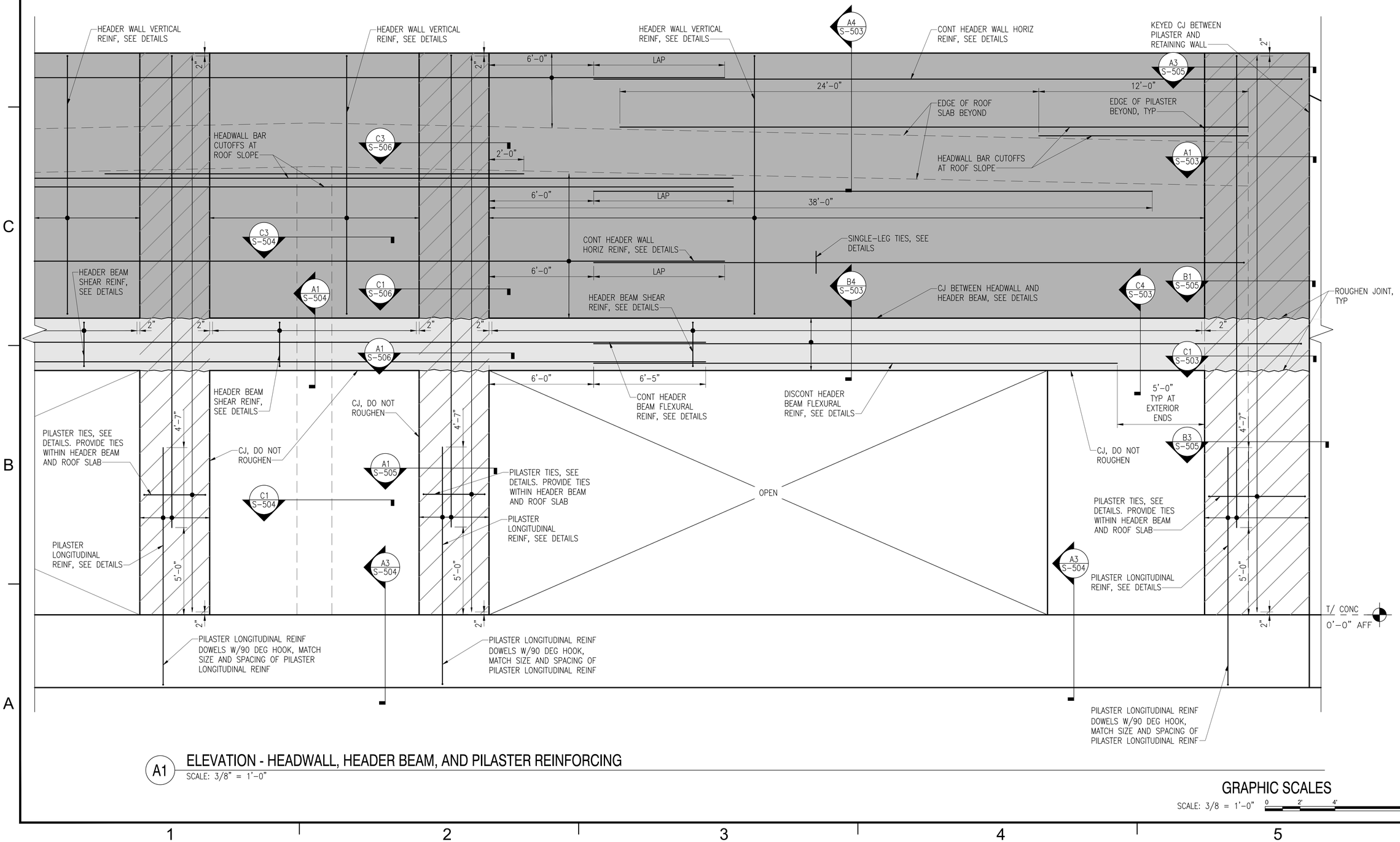
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

FRONT WALL PARTIAL ELEVATION AND DETAILS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914709
SHEET 14 OF 62

S-205

DRAWFORM REVISION: 25 AUGUST 2020



A1 ELEVATION - HEADWALL, HEADER BEAM, AND PILASTER REINFORCING

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

GRAPHIC SCALES

SCALE: 3/8 = 1'-0"

0 2' 4' 8'

APPR	DATE	DESCRIPTION	SYM

NAVFAC

SEAL

A/E INFO

APPROVED: Forbes
FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

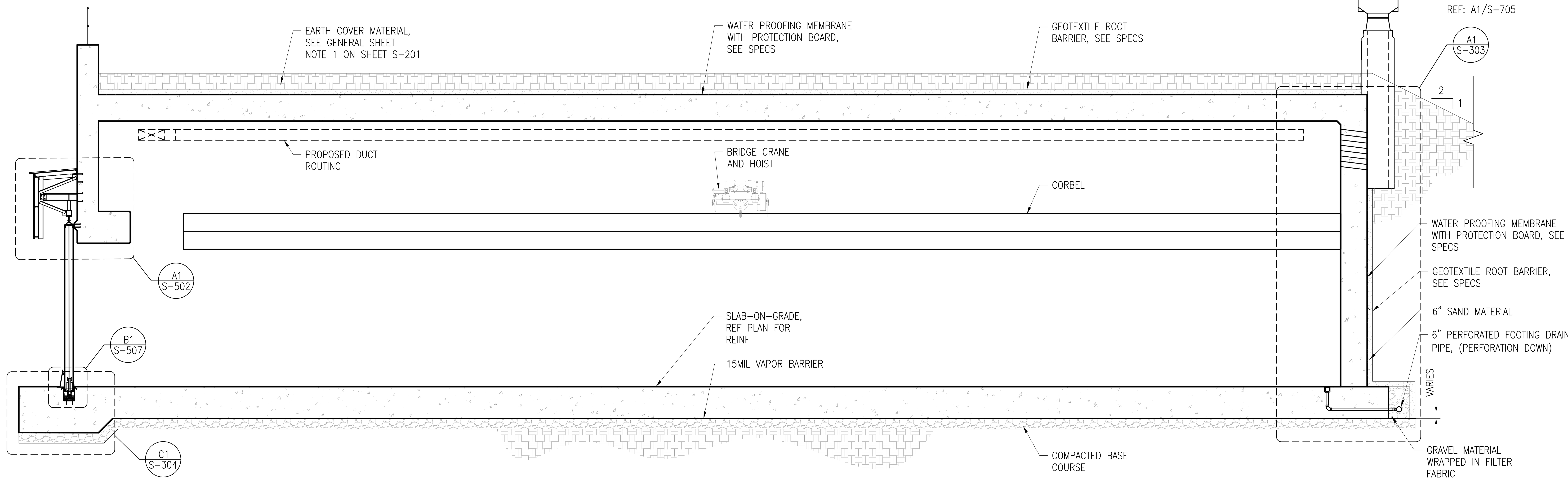
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

HEADWALL, HEADER BEAM, AND PILASTER REINF EL

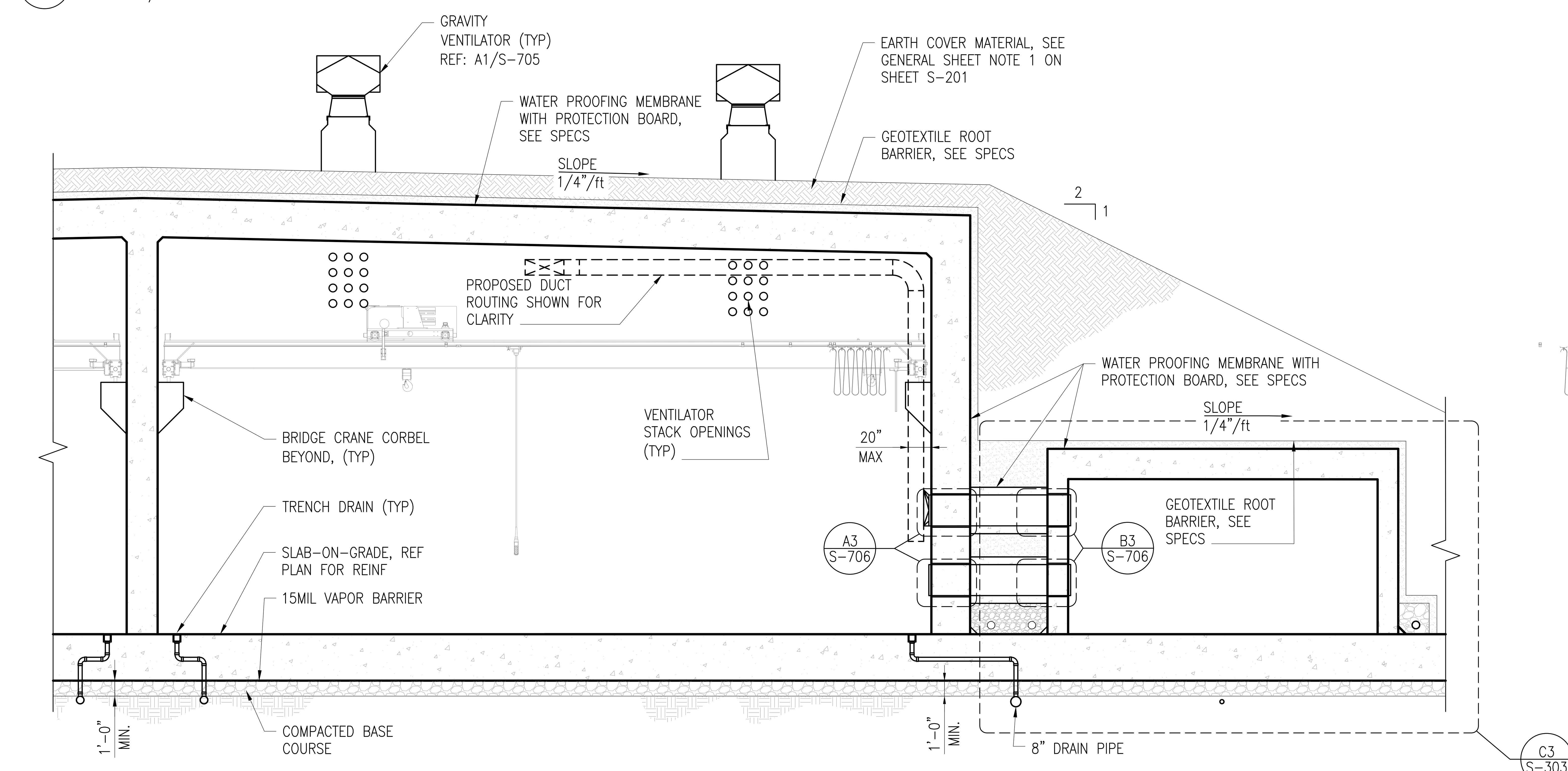
SCALE:	3/8" = 1'-0"
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914710
SHEET	15 OF 62

S-206

DRAWFORM REVISION: 25 AUGUST 2020



C1 SECTION
SCALE: 3/16" = 1'-0"



A1 SECTION
SCALE: 3/16" = 1'-0"

GRAPHIC SCALES
SCALE: 3/16" = 1'-0" 0 4' 8' 16'

APPROVED William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES JAF	DRW SFF	CHK TPH
PM/DM		--
BRANCH MANAGER		--
CHIEF ENG/ARCH		--
FIRE PROTECTION		--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

BUILDING SECTIONS

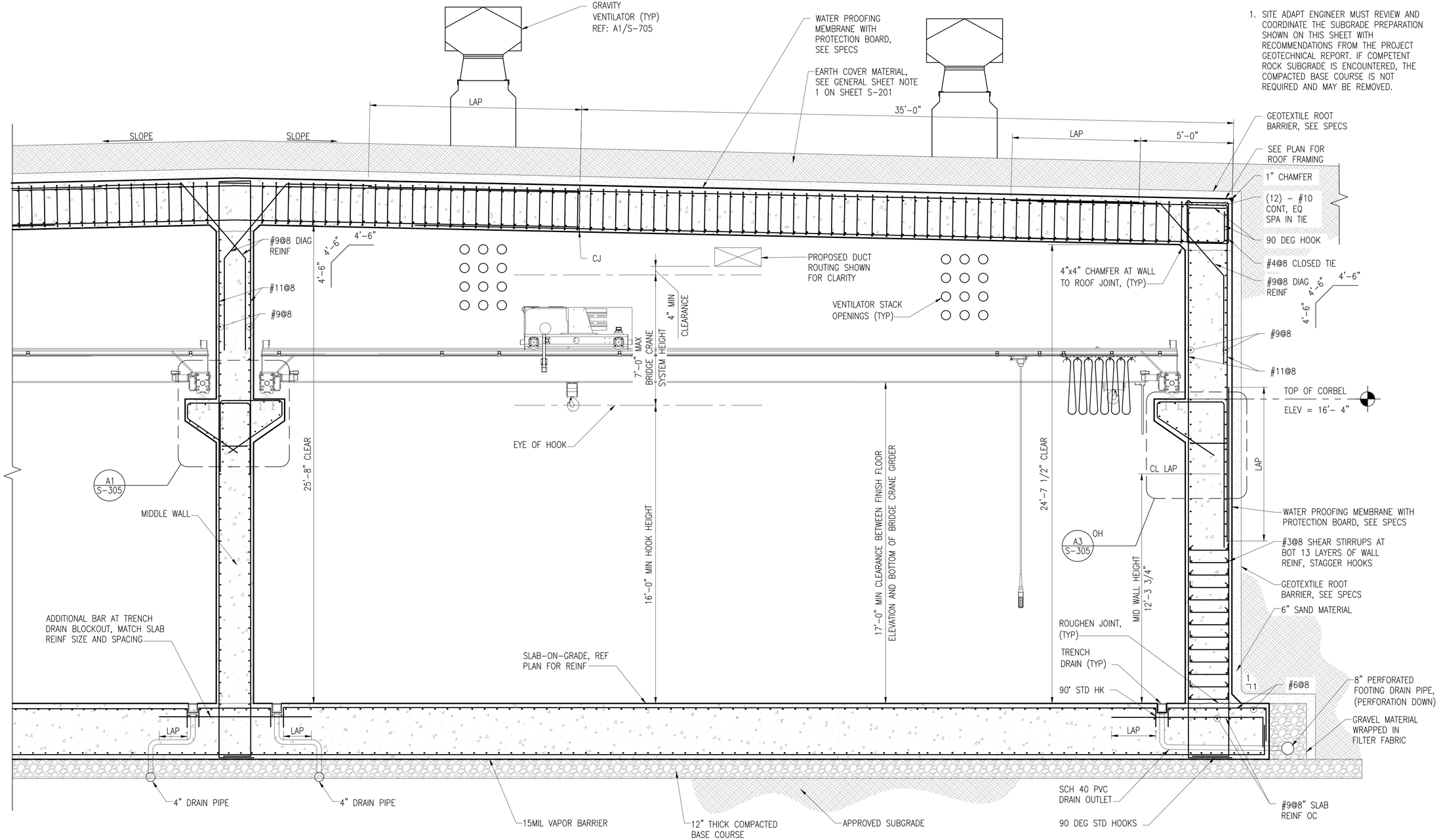
SCALE: 3/16" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914711
SHEET 16 OF 62

S-301

DRAWFORM REVISION: 25 AUGUST 2020

NOTES TO DESIGNER (REMOVE WHEN PREPARING DRAWINGS FOR SITE ADAPTION):

1. SITE ADAPT ENGINEER MUST REVIEW AND COORDINATE THE SUBGRADE PREPARATION SHOWN ON THIS SHEET WITH RECOMMENDATIONS FROM THE PROJECT GEOTECHNICAL REPORT. IF COMPETENT ROCK SUBGRADE IS ENCOUNTERED, THE COMPACTED BASE COURSE IS NOT REQUIRED AND MAY BE REMOVED.



A1 SECTION

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

GRAPHIC SCALES

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

APPR	DATE	DESCRIPTION	SYM

NAVFAC

SEAL

A/E INFO

APPROVED for this activity

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM --

BRANCH MANAGER --

CHIEF ENG/ARCH --

FIRE PROTECTION --

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

WALL SECTIONS - 1

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

EPROJECT NO.: 164487

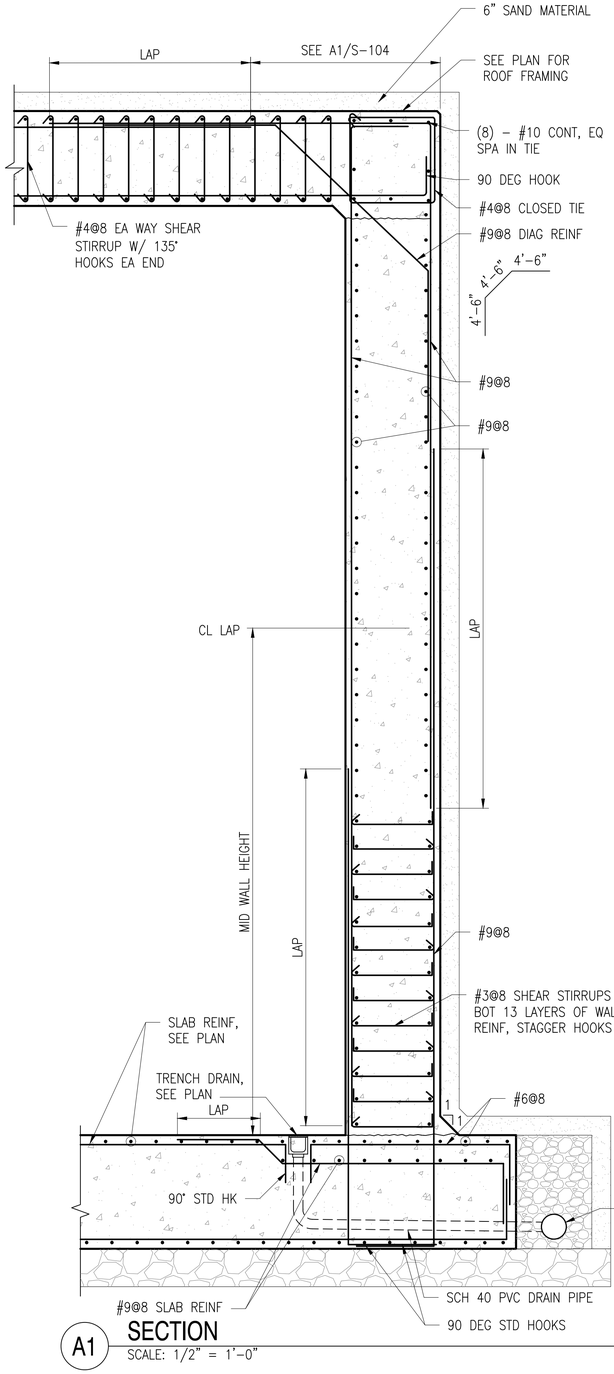
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12914712

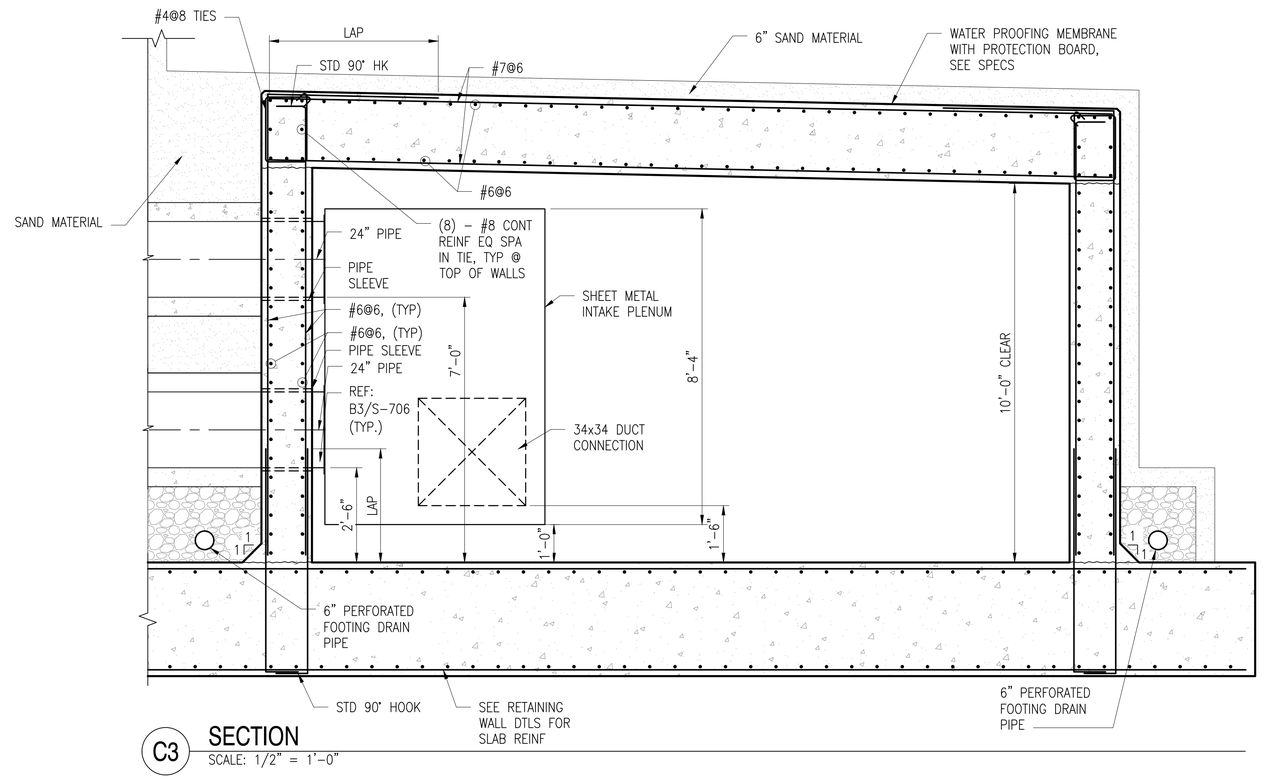
SHEET 17 OF 62

S-302

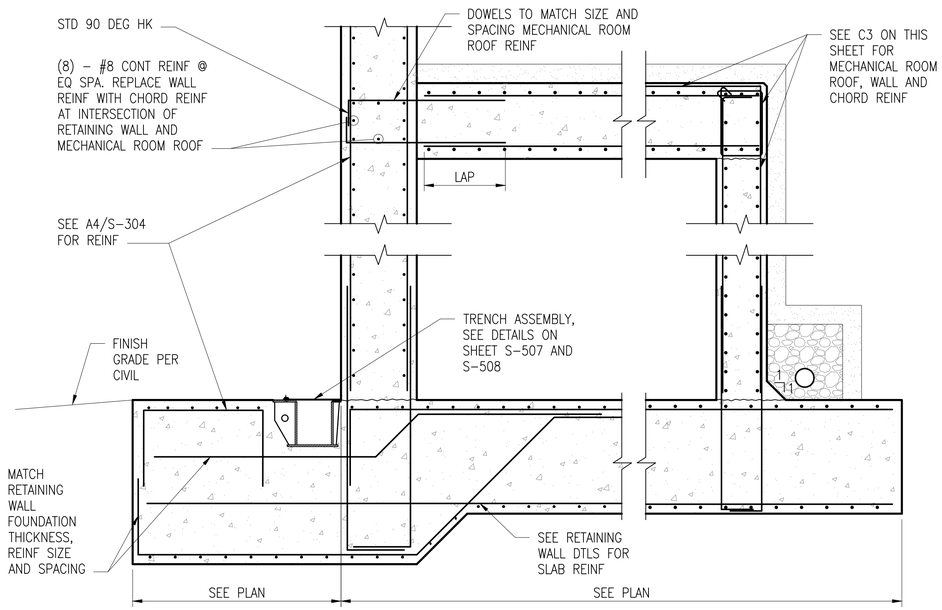
DRAWFORM REVISION: 25 AUGUST 2020



A1 **SECTION**
SCALE: 1/2" = 1'-0"



C3 **SECTION**
SCALE: 1/2" = 1'-0"



A3 **SECTION**
SCALE: 1/2" = 1'-0"

GRAPHIC SCALES
SCALE: 1/2" = 1'-0"
0 1' 2' 4'

APPR	DATE	DESCRIPTION	SYM

NAVFAC

A/E INFO

APPROVED for public release
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE
DES JAF | DRW SFF | CHK TPH
PM/DM
BRANCH MANAGER
CHIEF ENG/ARCH
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

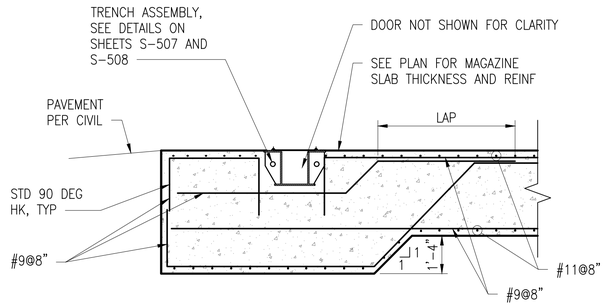
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

WALL SECTIONS – 2

SCALE: 1/2" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914713
SHEET 18 OF 62

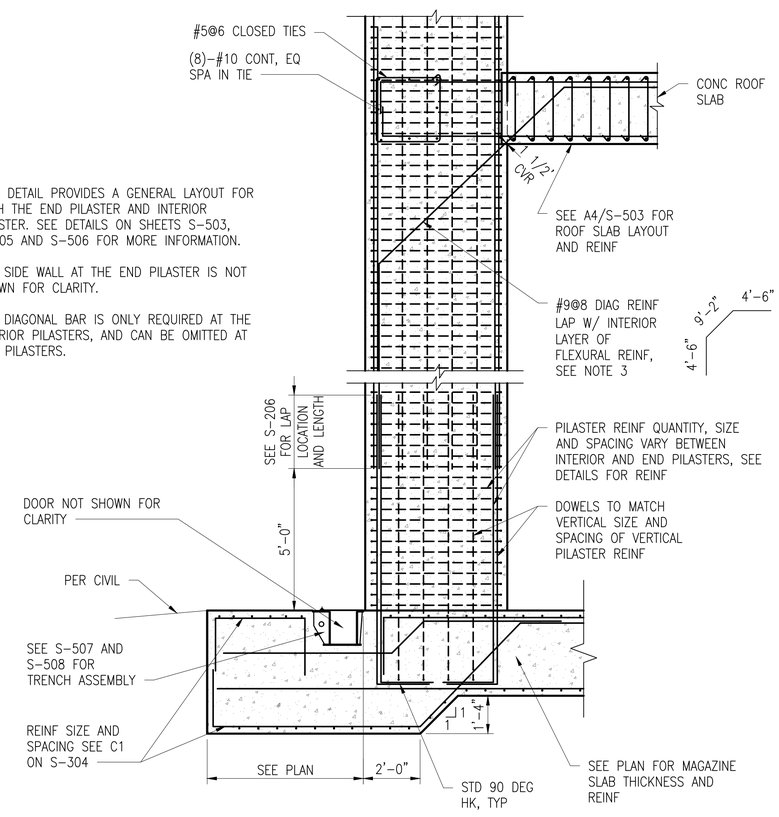
S-303

DRAWFORM REVISION: 25 AUGUST 2020



C1 REINF. AT MAGAZINE DOOR / TRENCH

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

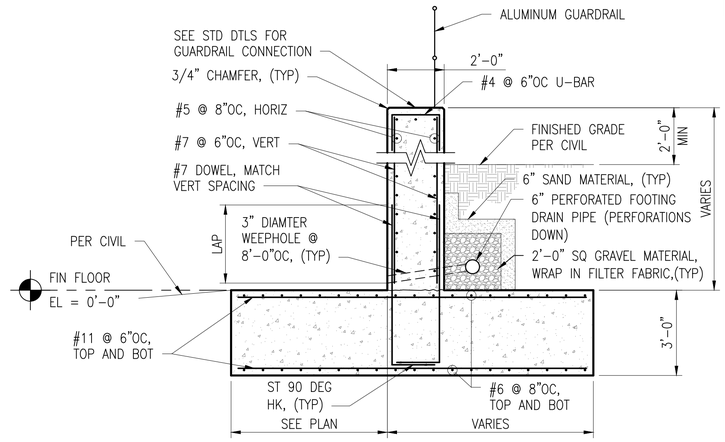


NOTES;

1. THIS DETAIL PROVIDES A GENERAL LAYOUT FOR BOTH THE END PILASTER AND INTERIOR PILASTER. SEE DETAILS ON SHEETS S-503, S-505 AND S-506 FOR MORE INFORMATION.
2. THE SIDE WALL AT THE END PILASTER IS NOT SHOWN FOR CLARITY.
3. THE DIAGONAL BAR IS ONLY REQUIRED AT THE INTERIOR PILASTERS, AND CAN BE OMITTED AT END PILASTERS.

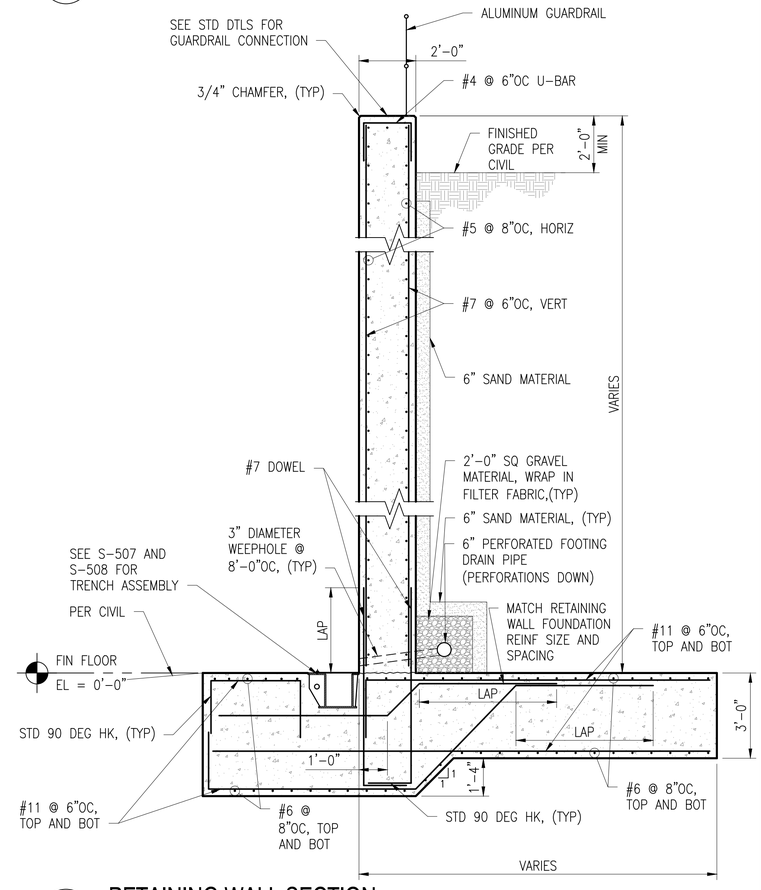
A1 BLAST PILASTER REINFORCEMENT SECTION

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



C4 RETAINING WALL SECTION

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



A4 RETAINING WALL SECTION

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

GRAPHIC SCALES

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

0 2' 4' 8'

APPR'
DATE
DESCRIPTION
SYM

NAVFAC

SEAL

A/E INFO

APPROVED for Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH
PM/DM					
BRANCH MANAGER					
CHIEF ENG/ARCH					
FIRE PROTECTION					

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

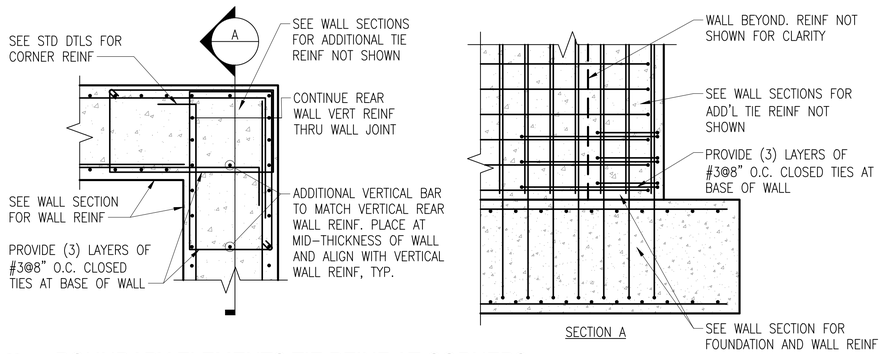
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

WALL SECTIONS – 3

SCALE: 3/8" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914714
SHEET 19 OF 62

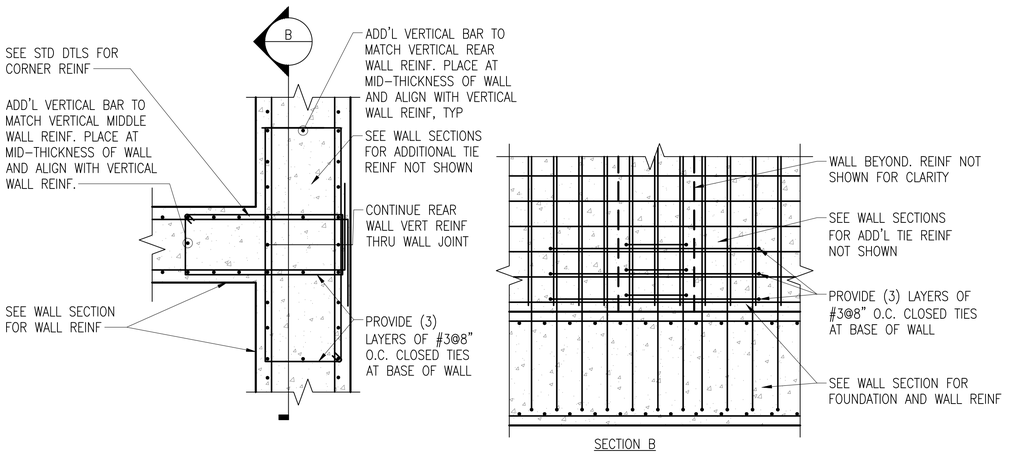
S-304

DRAWFORM REVISION: 25 AUGUST 2020



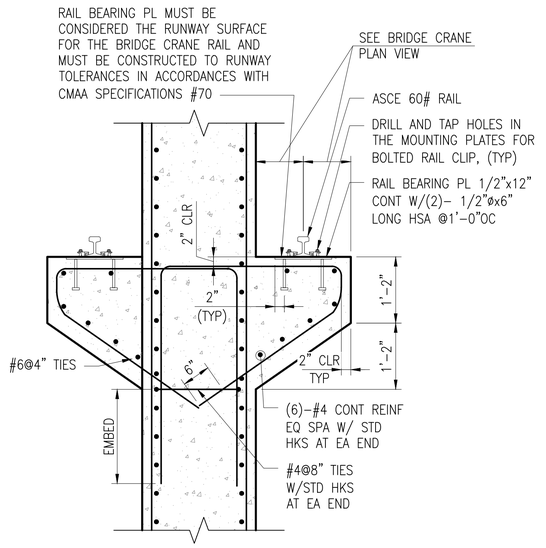
C1 BOUNDARY ELEMENTS TIE REINF AT CORNERS

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



C3 BOUNDARY ELEMENTS TIE REINF AT INTERSECTIONS

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

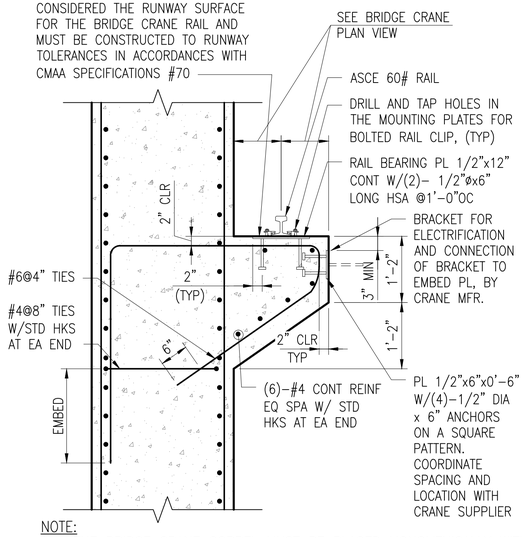


NOTE:

1. THE BRIDGE CRANE CORBEL MUST BE PLACED MONOLITHICALLY WITH THE CONCRETE SIDEWALLS.

A1 BRIDGE CRANE CONTINUOUS CORBEL DETAIL

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



NOTE:

1. THE BRIDGE CRANE CORBEL MUST BE PLACED MONOLITHICALLY WITH THE CONCRETE SIDEWALLS.
2. EMBED PLATES FOR ELECTRIFICATION ARE DESIGNED TO SUPPORT 200 POUNDS AT A MAXIMUM DISTANCE OF 1'-6" FROM THE FACE OF THE CORBEL, AND MUST BE PLACED ON BOTH SIDEWALL CORBELS.

A3 BRIDGE CRANE CONTINUOUS CORBEL DETAIL

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

GRAPHIC SCALES

SCALE: 1/2" = 1'-0" 0 1' 2' 4'

SCALE: 3/4" = 1'-0" 0 1' 2' 4'

APPR	DATE	DESCRIPTION	SYM

NAVFAC

SEAL

A/E INFO

APPROVED/DATE

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	---
BRANCH MANAGER	---
CHIEF ENG/ARCH	---
FIRE PROTECTION	---

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

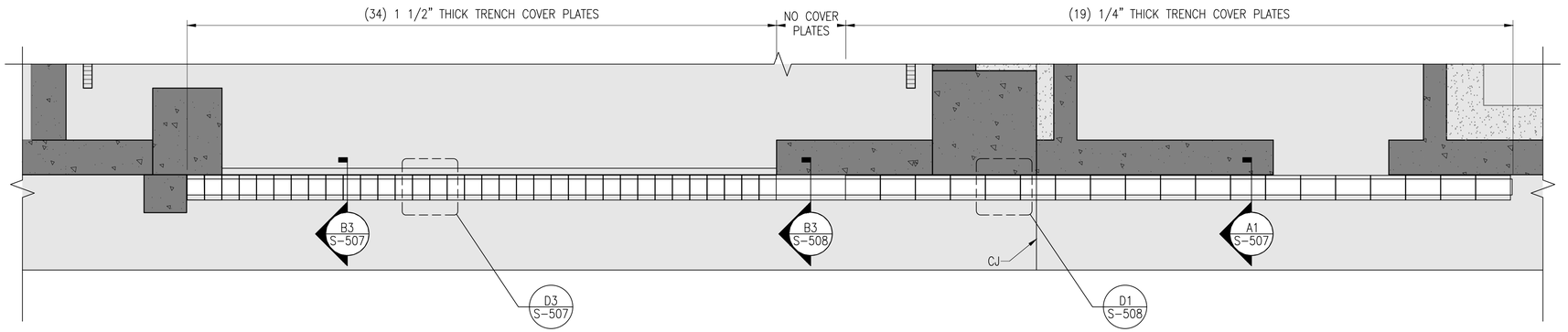
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

BRIDGE CRANE CORBELS AND BOUNDARY ELEMENTS

SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914715
SHEET	20 OF 62

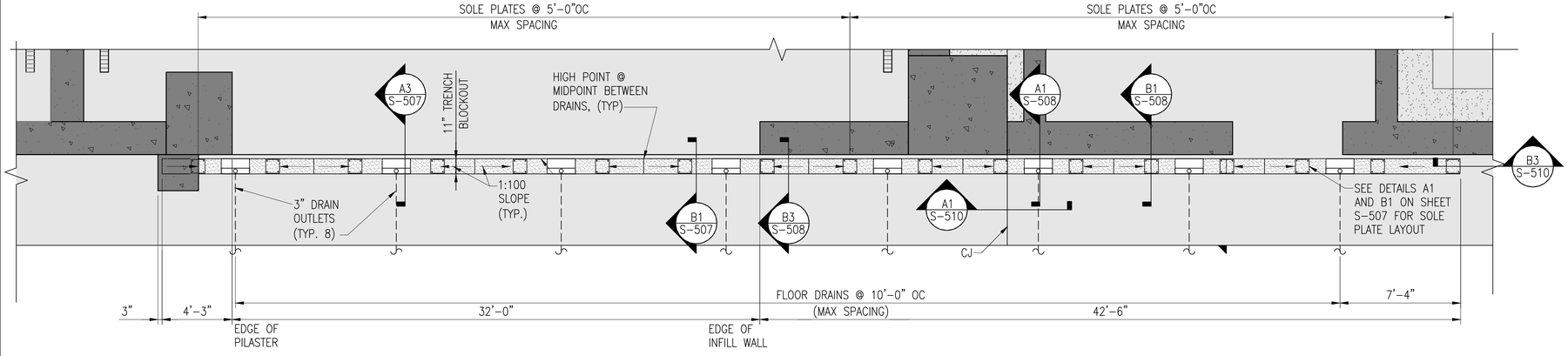
S-305

DRAWFORM REVISION: 25 AUGUST 2020



C1 TRENCH COVER LAYOUT PLAN

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



NOTE:
SEE DETAIL D1 ON SHEET S-507 FOR TRENCH ASSEMBLY AND WELDMENT.

A1 TRENCH LAYOUT PLAN

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

GENERAL SHEET NOTES

1. TRENCH COVER PLATES MUST BE FABRICATED TO BE ABLE TO BE LIFTED AUTOMATICALLY BY A DOOR PLOW LOCATED AT THE TRAILING AND LEADING EDGES OF THE SLIDING BLAST DOOR. TRENCH PLATE FABRICATOR MUST COORDINATE LOCATION AND ORIENTATION OF CAM GUIDES FOR THE TRENCH PLATES WITH THE BLAST DOOR FABRICATOR SUCH THAT THERE IS A SEAMLESS INTERFACE WITH THE DOOR PLOW SYSTEM AND THE TRENCH PLATES.
2. FINAL TERMINATION OF DOOR TRENCH DRAINS MUST BE AS DETERMINED BY THE SITE-ADAPT ENGINEER.
3. ASCE 60# RAIL MUST EXTEND THE ENTIRE LENGTH OF TRENCH WITH A 2" GAP AT THE ENDS. RAIL SPLICES AND SPLICE CONNECTIONS TO BE SELECTED BY RAIL MFR, AND TO BE LOCATED AT THE CENTER LINE BETWEEN TWO TRENCH BLOCKOUTS. SEE S-507 FOR MORE INFORMATION ABOUT LOCATION/ALIGNMENT OF RAIL.
4. TRENCH ASSEMBLY AND TRENCH COVER PLATES TO BE PROVIDED AT EACH MAGAZINE BAY. ONLY ONE CONDITION SHOWN IN THIS DETAIL. ORIENTATION OF THE TRENCH ASSEMBLY AND TRENCH COVERS IN OTHER BAY TO BE SYMMETRIC ABOUT THE MIDDLE WALL OF THE MAGAZINE.

GRAPHIC SCALES

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

0 2' 4' 8'

APPR	DATE	SYM	DESCRIPTION

NAVFAC

SEAL

A/E INFO

APPROVED: Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM --
BRANCH MANAGER --
CHIEF ENG/ARCH --
FIRE PROTECTION --

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

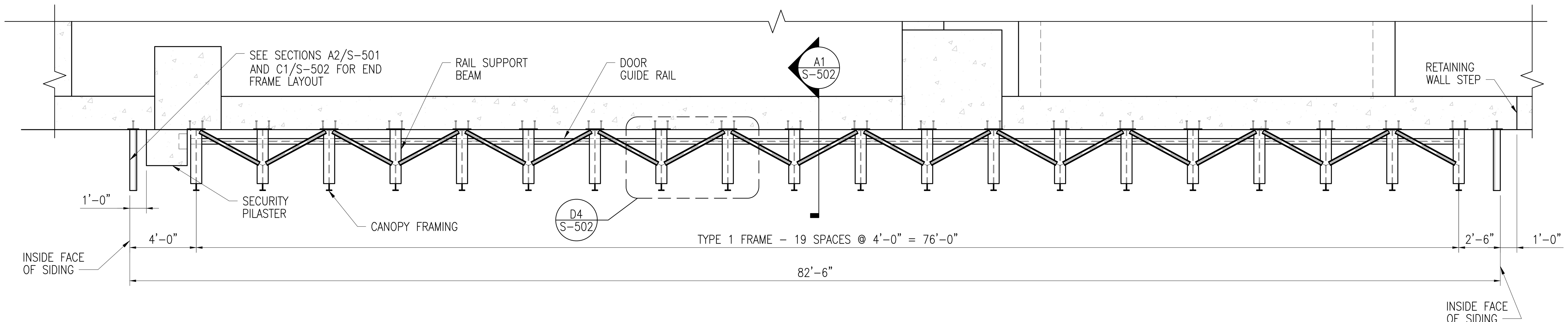
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ENLARGED TRENCH PLAN

SCALE: 1/4" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914716
SHEET 21 OF 62

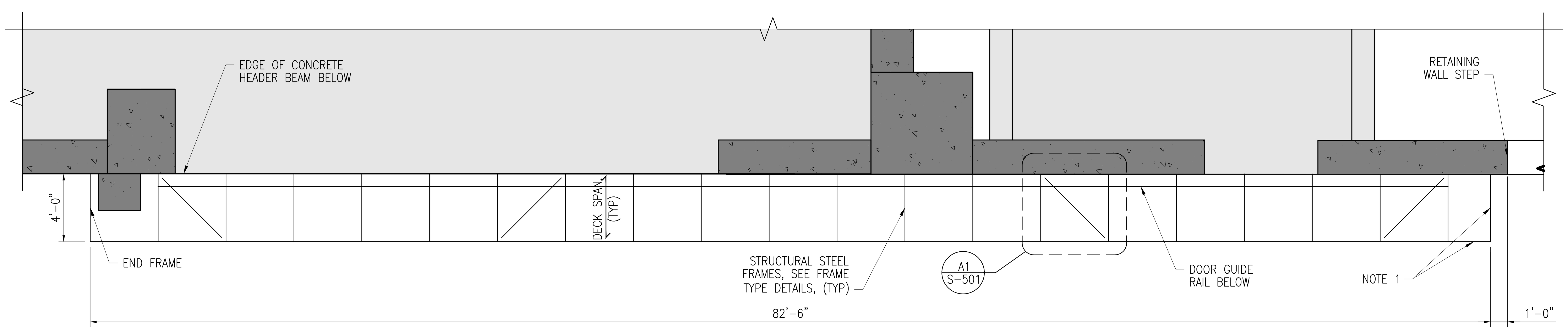
S-401

DRAWFORM REVISION: 25 AUGUST 2020



C1 ENLARGED DOOR RAIL SUPPORT FRAMING PLAN

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



A1 ENLARGED CANOPY FRAMING PLAN

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

GENERAL SHEET NOTES

1. STEEL DECK MUST BE INSTALLED FOR ROOF AND SIDING OF CANOPY STRUCTURE. REFERENCE S-003 FOR STEEL DECK REQUIREMENTS.

GRAPHIC SCALES

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED William Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES JAF	DRW SFF	CHK TPH

PM/DM	--
BRANCH MANAGER	--
CHIEF ENG/ARCH	--
FIRE PROTECTION	--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

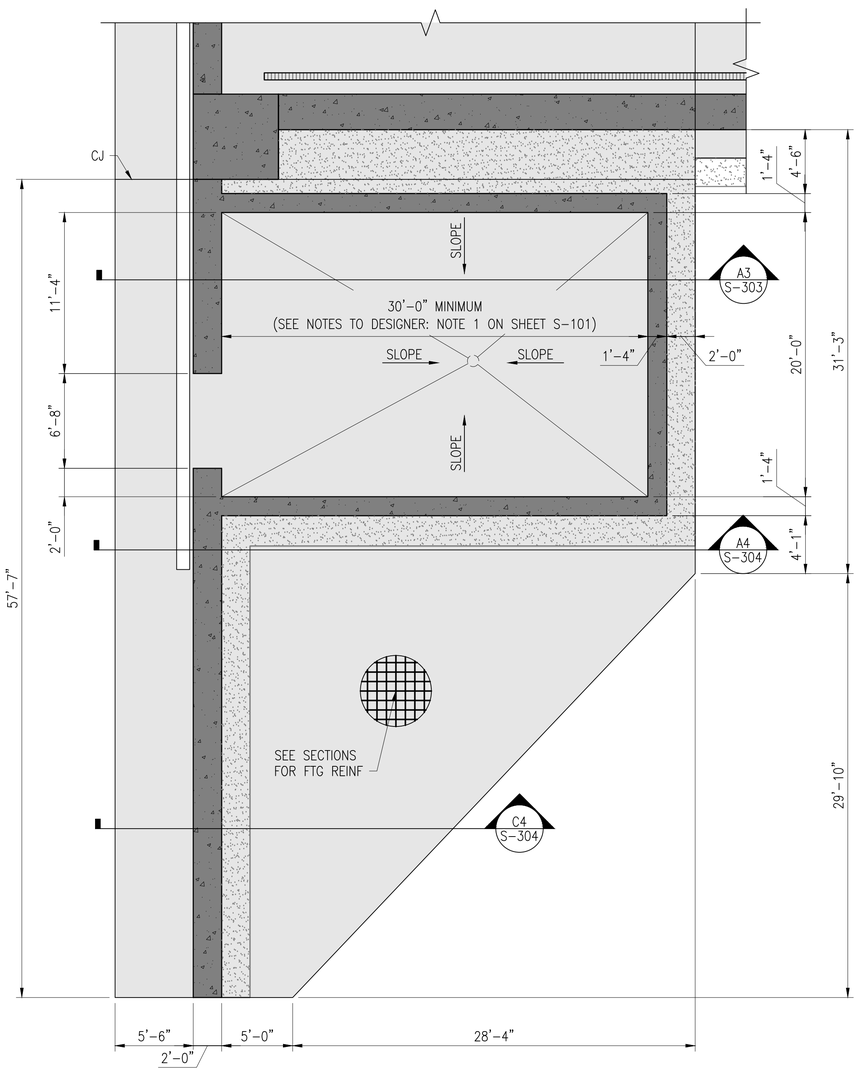
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ENLARGED CANOPY FRAMING PLAN

SCALE: 1/4" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914717
SHEET 22 OF 62

S-402

DRAWFORM REVISION: 25 AUGUST 2020



A1 RETAINING WALL FOUNDATION (MECHANICAL ROOM)
SCALE: 3/16" = 1'-0"

GRAPHIC SCALES
SCALE: 3/16" = 1'-0"
0 4' 8' 16'

NO.	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

ARCHITECT/engineer
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM
BRANCH MANAGER
CHIEF ENG/ARCH
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

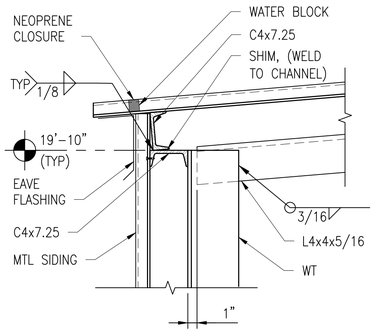
ENLARGED PLAN VIEW RETAINING WALL

SCALE: 3/16" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914718
SHEET 23 OF 62

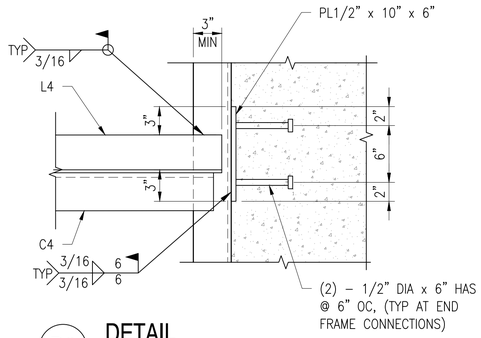
S-403

DRAWFORM REVISION: 25 AUGUST 2020

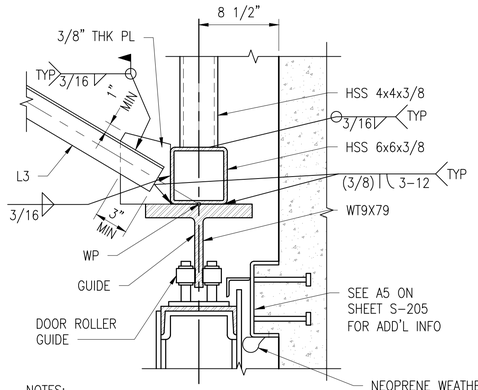
FILE NAME: L:\DCSE\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-403.dwg LAYOUT NAME: S-403 - ENLARGED PLAN VIEW RETAINING WALL PLOTTED: Tuesday, September 24, 2024 - 10:11:am USER: leslie.corsino



D1 **DETAIL**
SCALE: 1 1/2" = 1'-0"

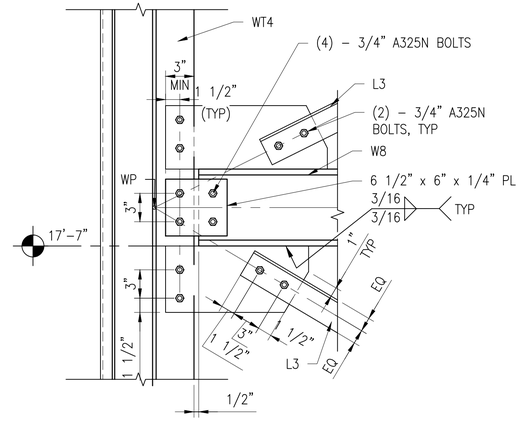


D3 **DETAIL**
SCALE: 1 1/2" = 1'-0"

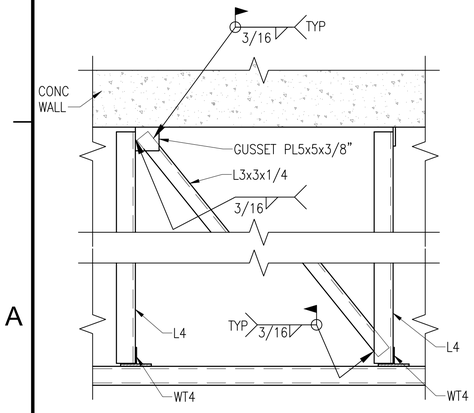


NOTES:
DOOR ROLLER GUIDE MUST HAVE A 9 KIP MINIMUM LATERAL LOAD CAPACITY. WELD DOOR ROLLER GUIDE PER MANUFACTURER'S RECOMMENDATIONS.

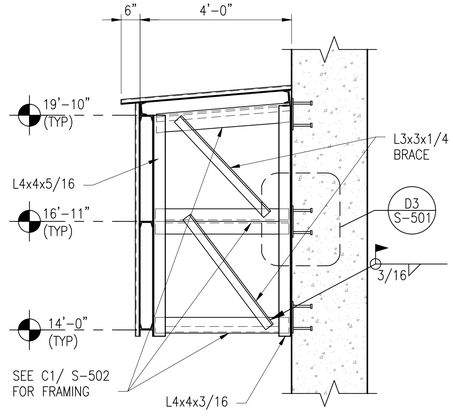
B1 **ENLARGE DETAIL**
SCALE: 1 1/2" = 1'-0"



B3 **DETAIL**
SCALE: 1 1/2" = 1'-0"



A1 **DETAIL**
SCALE: 3/4" = 1'-0"



A3 **SECTION**
SCALE: 1/2" = 1'-0"

GRAPHIC SCALES

SCALE: 1/2" = 1'-0" 0 1' 2' 4'

SCALE: 3/4" = 1'-0" 0 1' 2' 4'

SCALE: 1 1/2" = 1'-0" 0 6" 1' 2'

NO.	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED: Forbes
FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH
PM/DM					--
BRANCH MANAGER					--
CHIEF ENG/ARCH					--
FIRE PROTECTION					--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

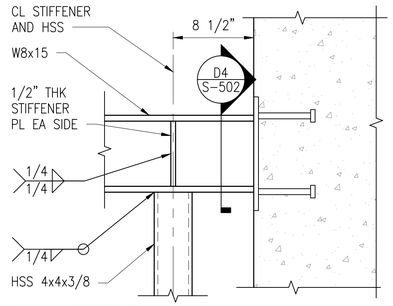
DOOR GUIDE AND CANOPY DETAILS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914719
SHEET 24 OF 62

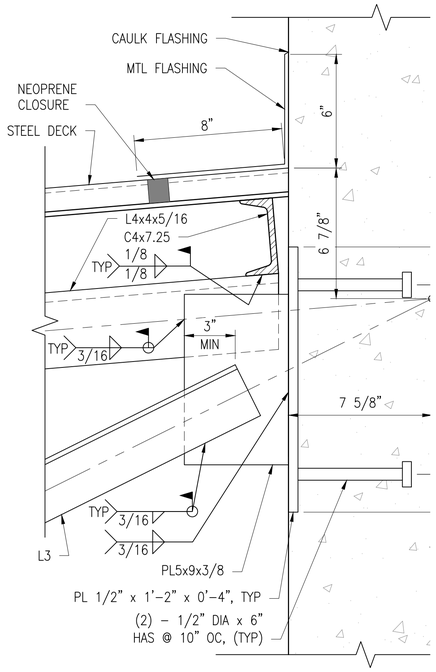
S-501

DRAWFORM REVISION: 25 AUGUST 2020

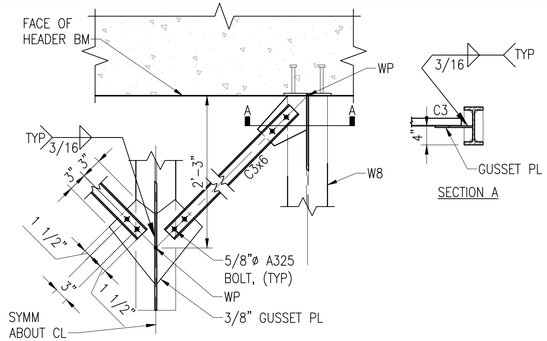
FILE NAME: J:\DCSES\Magazines\@CLWS\Magazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-501.dwg LAYOUT NAME: S-501 - DOOR GUIDE AND CANOPY DETAILS PLOTTED: Tuesday, September 24, 2024 - 10:11am USER: leslie.corsino



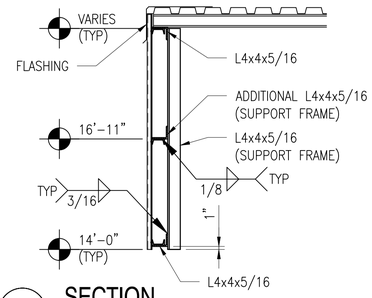
D1 **DETAIL**
SCALE: 1 1/2" = 1'-0"



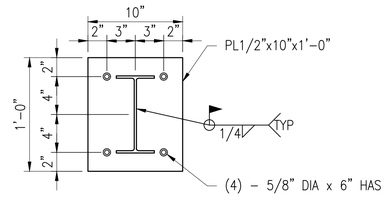
D2 **DETAIL**
SCALE: 3" = 1'-0"



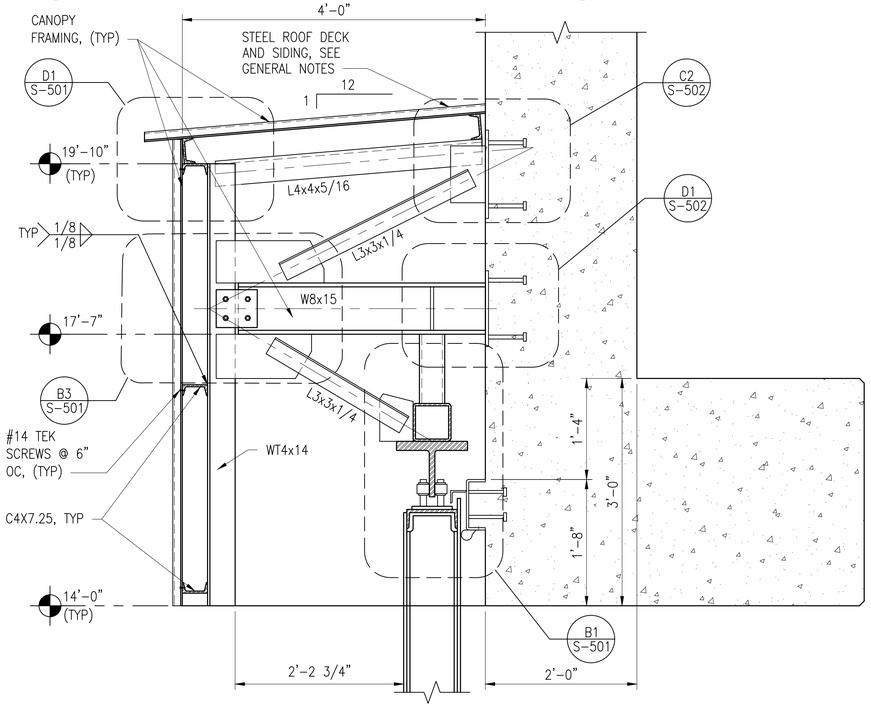
D4 **DETAIL**
SCALE: 3/4" = 1'-0"



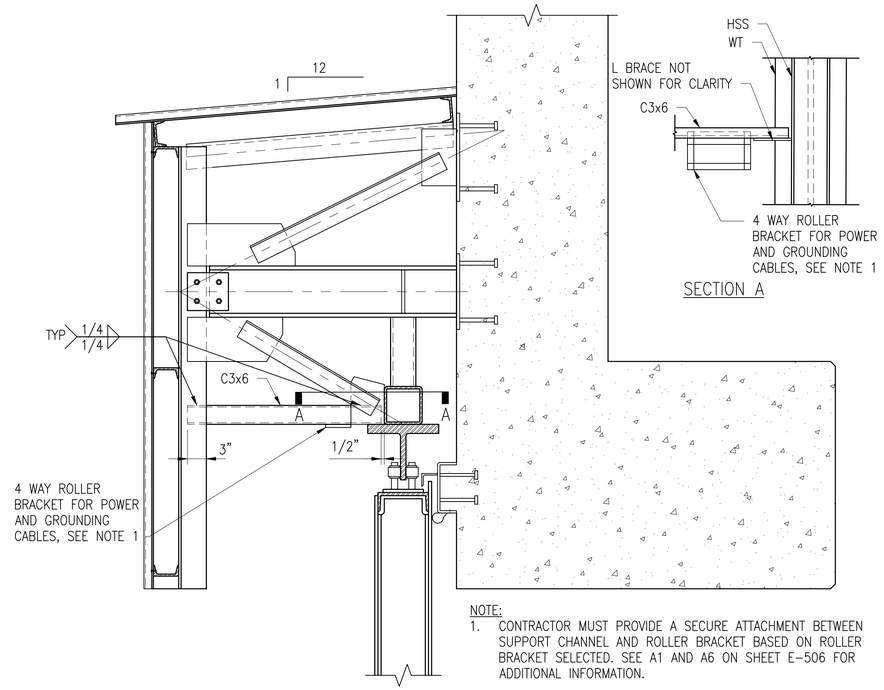
C1 **SECTION**
SCALE: 1/2" = 1'-0"



C4 **SECTION**
SCALE: 1 1/2" = 1'-0"



A1 **SECTION**
SCALE: 1" = 1'-0"



A3 **SECTION**
SCALE: 1" = 1'-0"

NOTE:
1. CONTRACTOR MUST PROVIDE A SECURE ATTACHMENT BETWEEN SUPPORT CHANNEL AND ROLLER BRACKET BASED ON ROLLER BRACKET SELECTED. SEE A1 AND A6 ON SHEET E-506 FOR ADDITIONAL INFORMATION.
2. SEE DETAIL A1 ON THIS SHEET FOR INFORMATION NOT REPEATED.

GRAPHIC SCALES

SCALE: 1/2" = 1'-0" — 0 1' 2' 4'
SCALE: 3/4" = 1'-0" — 0 1' 2' 4'
SCALE: 1" = 1'-0" — 0 6" 1' 2'
SCALE: 1 1/2" = 1'-0" — 0 6" 1' 2'
SCALE: 3" = 1'-0" — 0 3" 6" 1'

APPR			
DATE			
DESCRIPTION			
SYM			

NAVFAC

SEAL

A/E INFO

APPROVED forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM
BRANCH MANAGER
CHIEF ENG/ARCH
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

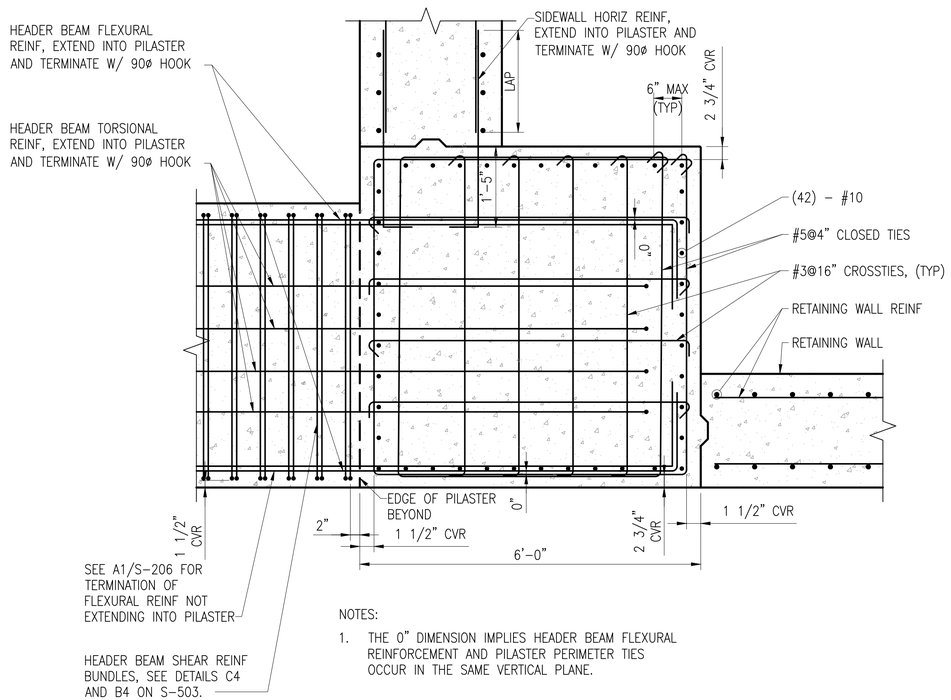
DOOR GUIDE AND CANOPY DETAILS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914720
SHEET 25 OF 62

S-502

DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSES\Magazines\MCLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-502.dwg LAYOUT NAME: S-502 - DOOR GUIDE AND CANOPY DETAILS PLOTTED: Tuesday, September 24, 2024 - 10:11am USER: leslie.corsino

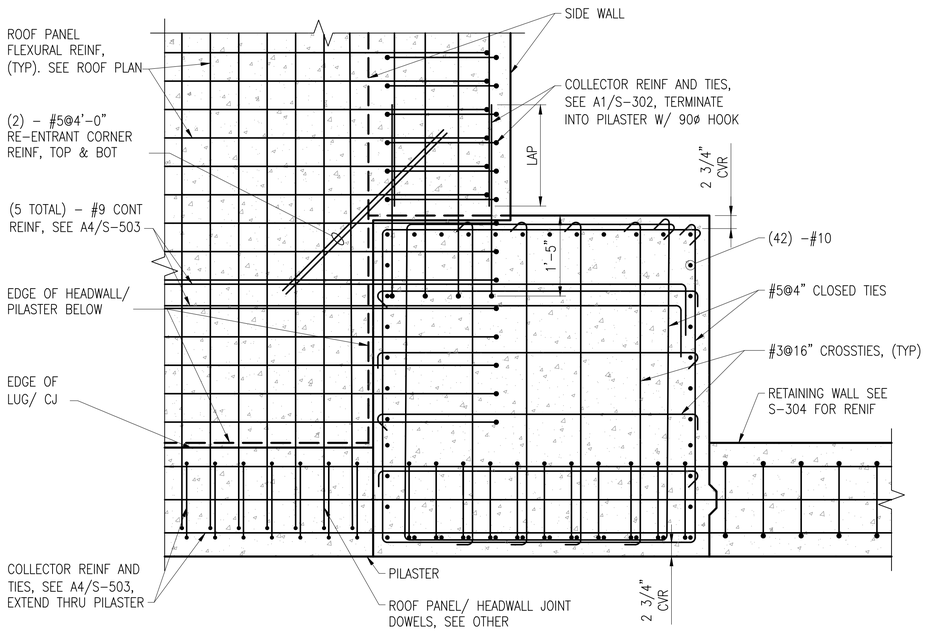


NOTES:

1. THE 0" DIMENSION IMPLIES HEADER BEAM FLEXURAL REINFORCEMENT AND PILASTER PERIMETER TIES OCCUR IN THE SAME VERTICAL PLANE.

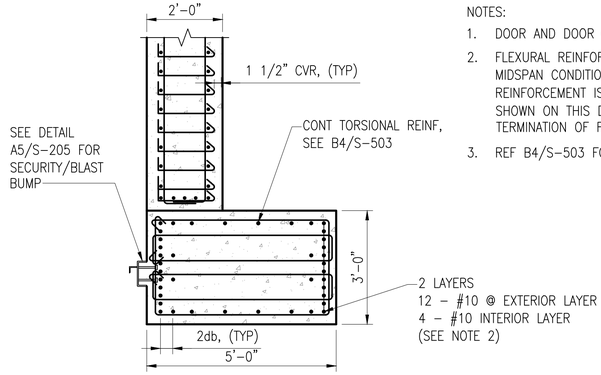
C1 END PILASTER - THRU HEADER BEAM

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



A1 END PILASTER - THRU ROOF SLAB

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

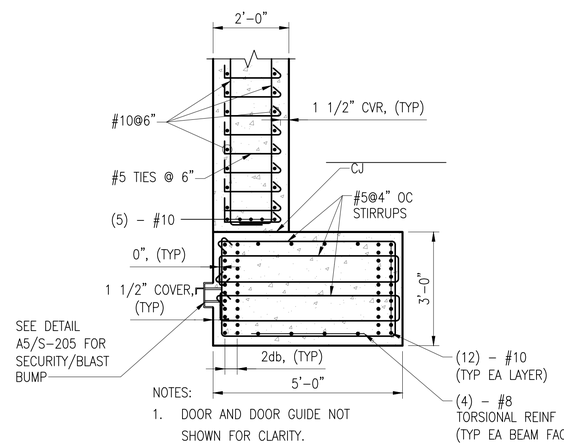


NOTES:

1. DOOR AND DOOR GUIDE NOT SHOWN FOR CLARITY.
2. FLEXURAL REINFORCEMENT SHOWN IS CONTINUOUS FROM MIDSPAN CONDITION (B4/S-503). REMAINING FLEXURAL REINFORCEMENT IS TERMINATED (C1/S-503) AND NOT SHOWN ON THIS DETAIL. SEE DETAIL A1/S-206 FOR TERMINATION OF FLEXURAL REINFORCEMENT.
3. REF B4/S-503 FOR INFORMATION NOT REPEATED.

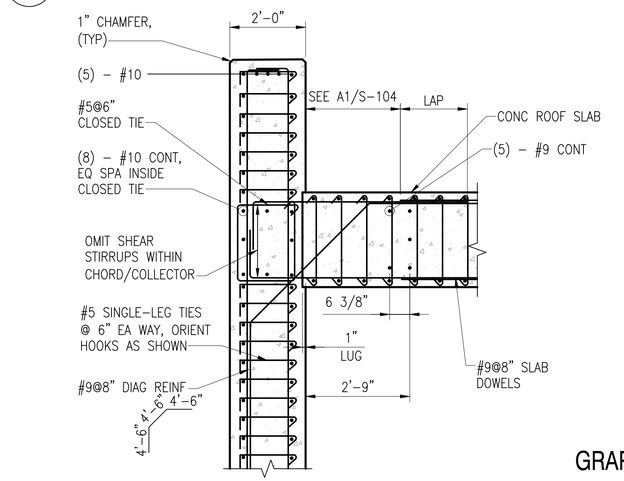
C4 HEADER BEAM AT END PILASTERS

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



B4 HEADER BEAM MIDSPAN

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



A4 SECTION

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

GRAPHIC SCALES

SCALE: 1/2" = 1'-0" 0 1' 2' 4'

SCALE: 3/4" = 1'-0" 0 1' 2' 4'

APPR			
DATE			
DESCRIPTION			
SYM			

SEAL

A/E INFO

APPROVED: Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	--
BRANCH MANAGER	--
CHIEF ENG/ARCH	--
FIRE PROTECTION	--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

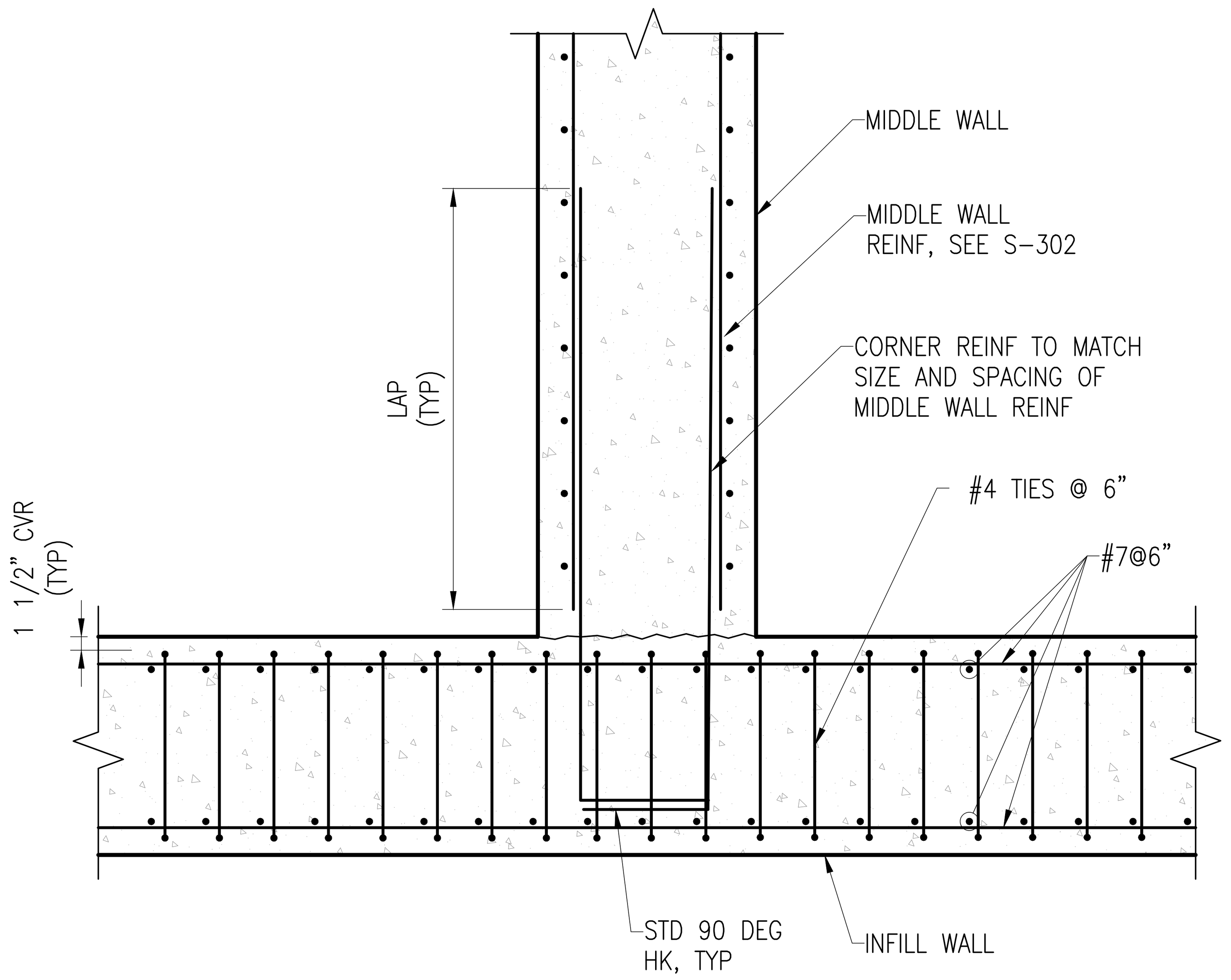
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

PILASTER AND BOUNDARY ELEMENTS REINF DETAILS

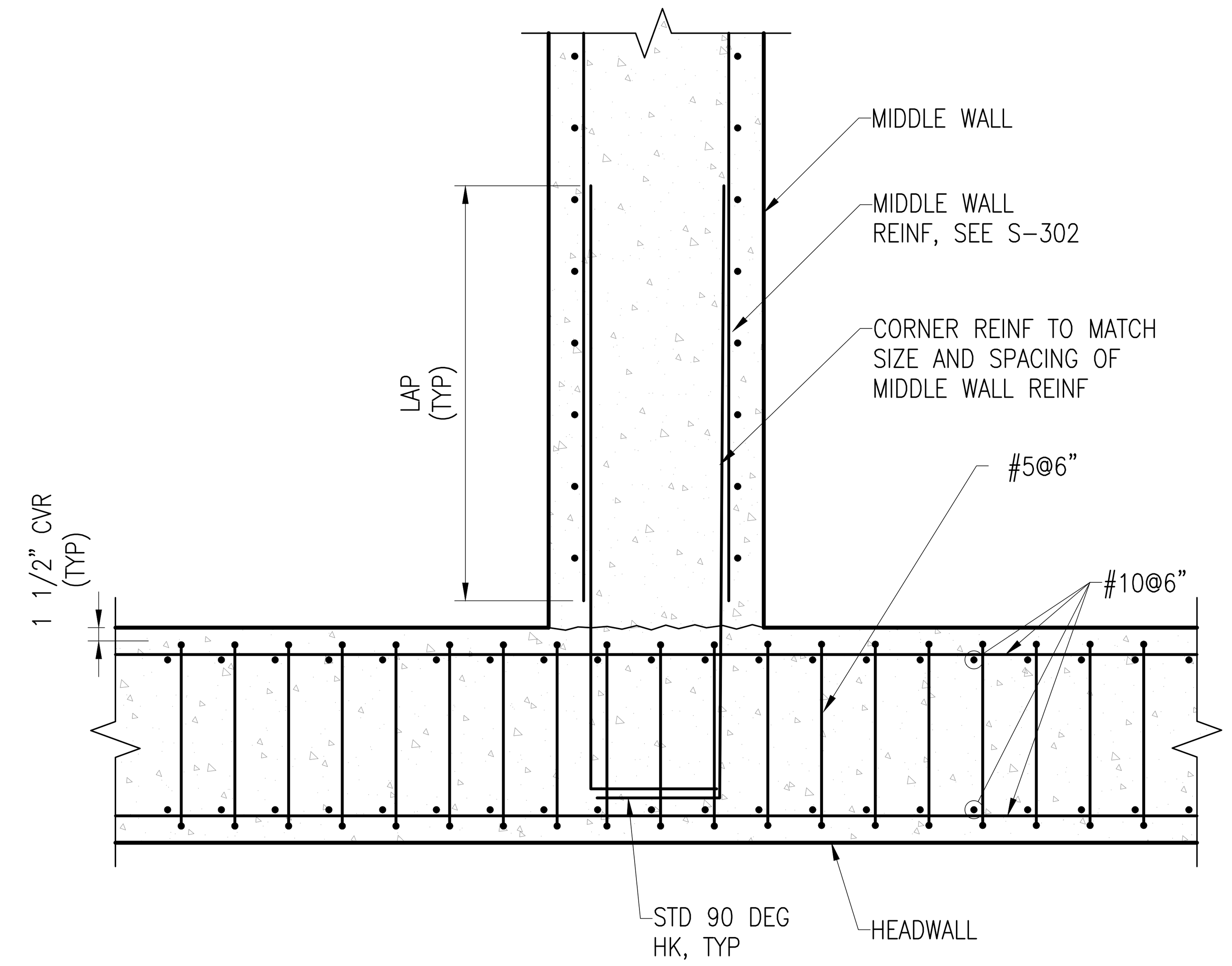
SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914721
SHEET	26 OF 62

S-503

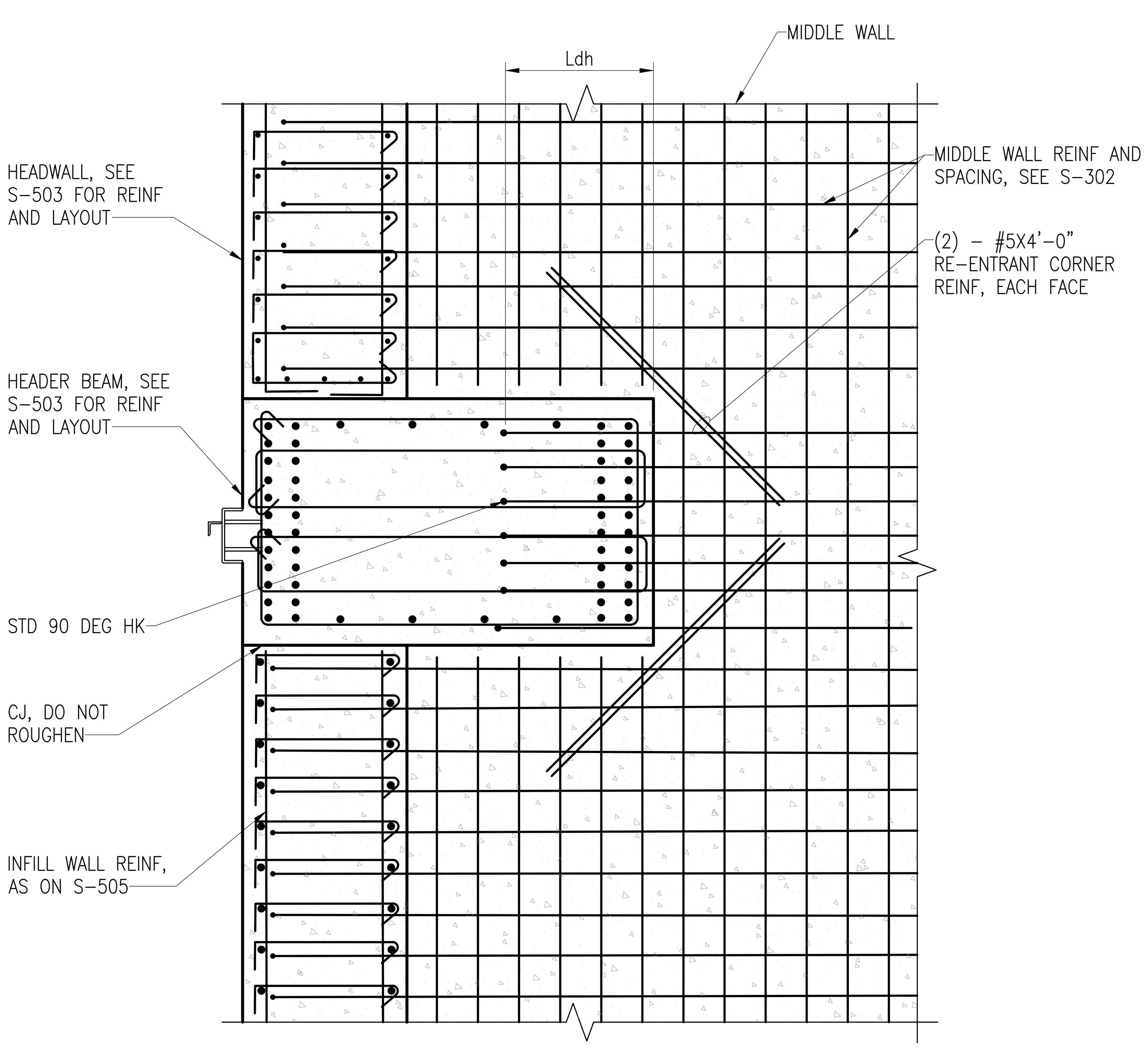
DRAWFORM REVISION: 25 AUGUST 2020



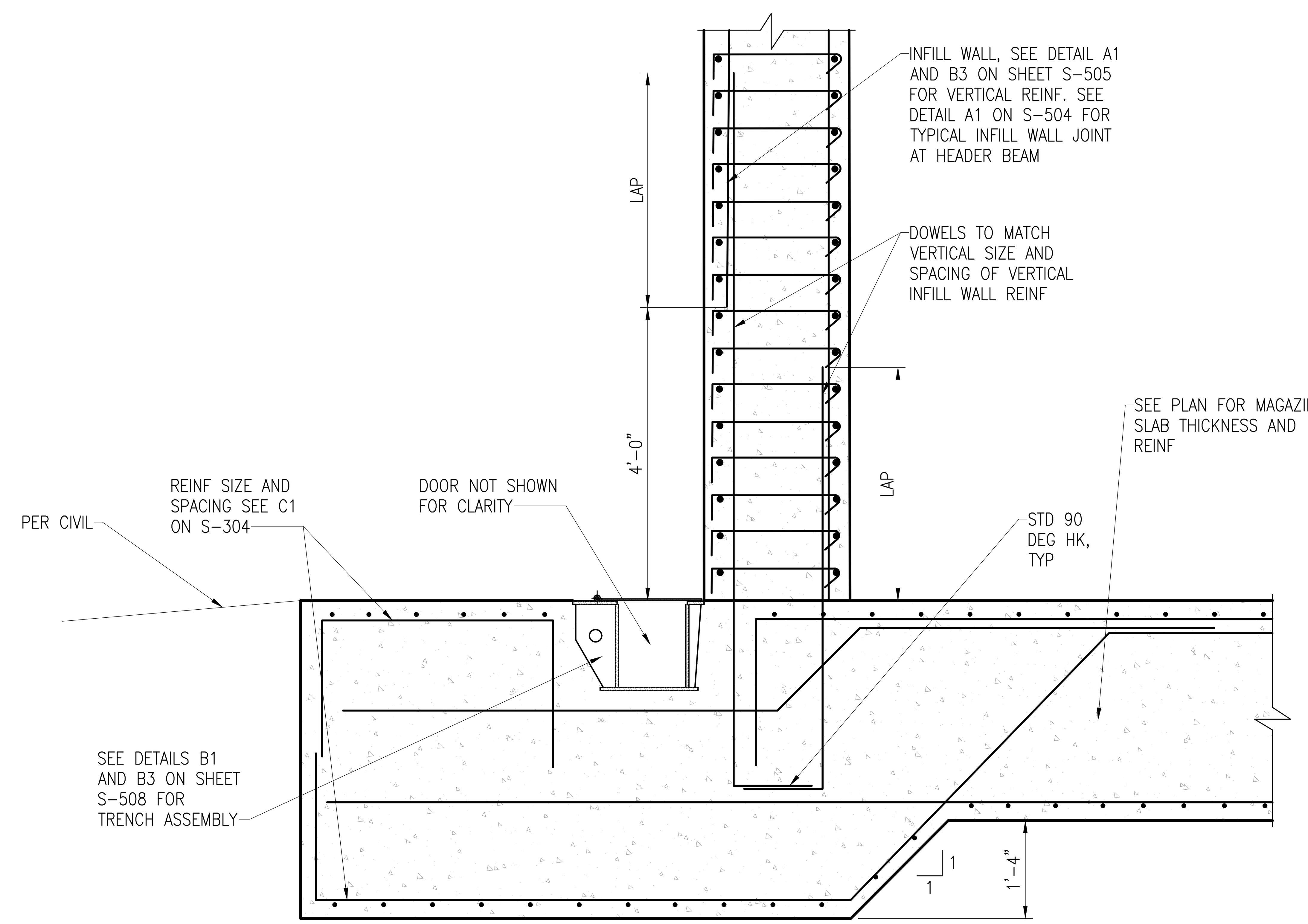
C1 INFILL WALL AND MIDDLE WALL INTERSECTION DETAIL
SCALE: 3/4" = 1'-0"



C3 HEADWALL AND MIDDLE WALL INTERSECTION DETAIL
SCALE: 3/4" = 1'-0"



A1 HEADER BEAM AND MIDDLE WALL INTERSECTION DETAIL
SCALE: 3/4" = 1'-0"



A3 INFILL WALL FOUNDATION CONNECTION DETAIL
SCALE: 3/4" = 1'-0"

GRAPHIC SCALES
SCALE: 3/4" = 1'-0" 0 1' 2' 4'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES JAF	DRW SFF	CHK TPH
PM/DM	--
BRANCH MANAGER	--
CHIEF ENG/ARCH	--
FIRE PROTECTION	--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

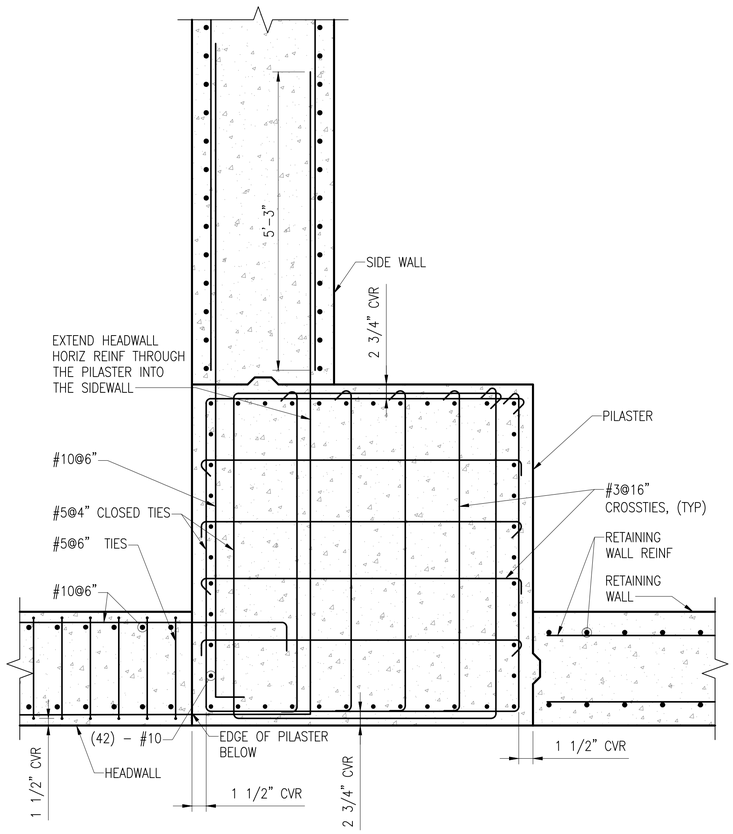
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

INFILL WALL AND MIDDLE WALL DETAILS

SCALE:	3/4" = 1'-0"
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914722
SHEET	27 OF 62

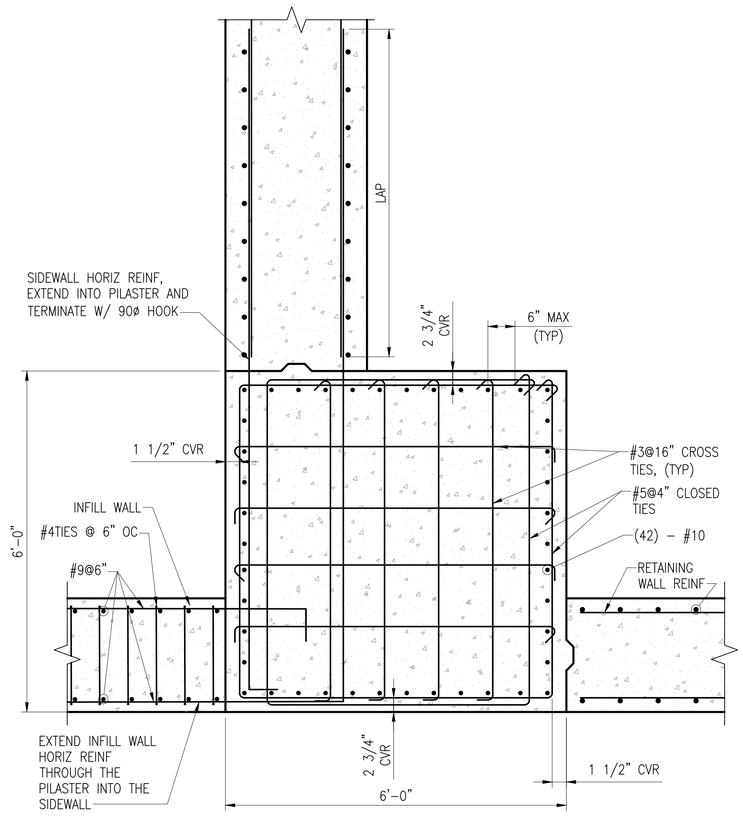
S-504

DRAWFORM REVISION: 25 AUGUST 2020



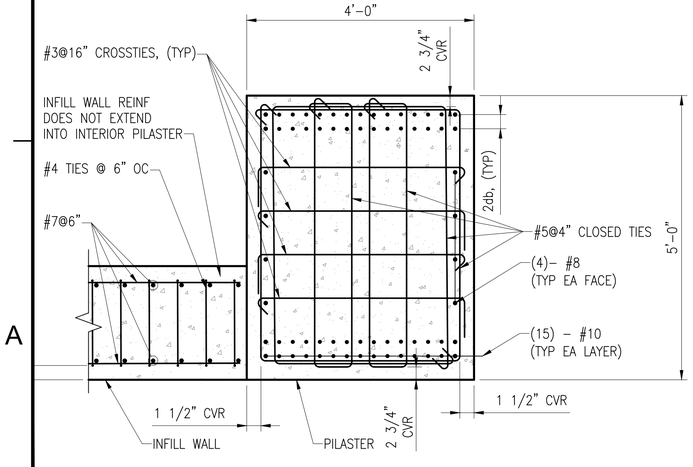
B1 END PILASTER - ABOVE HEADER BEAM (@HEADWALL)

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



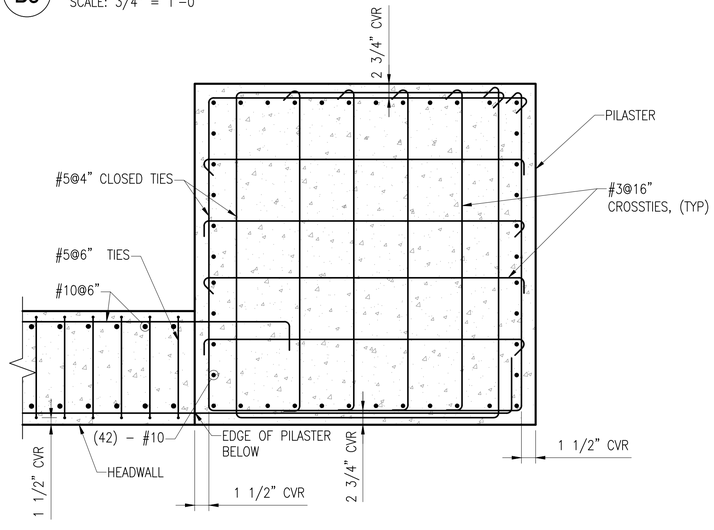
B3 END PILASTER - BELOW HEADER BEAM

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



A1 INTERIOR PILASTER BELOW HEADER BEAM

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



A3 END PILASTER - ABOVE ROOF SLAB

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

GRAPHIC SCALES

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

0 1' 2' 4'

APPR	DATE	DESCRIPTION	SYM

NAVFAC

SEAL

A/E INFO

APPROVED for the Commander

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

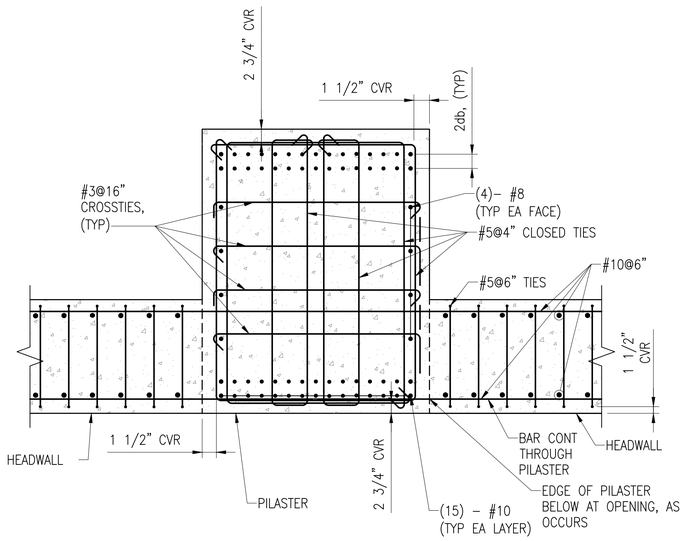
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

PILASTER REINF DETAILS

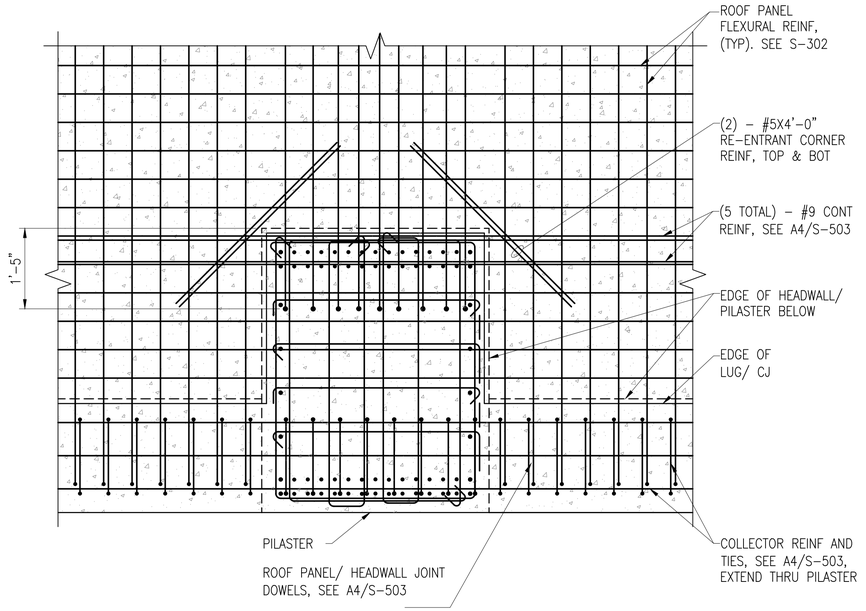
SCALE:	3/4" = 1'-0"
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914723
SHEET	28 OF 62

S-505

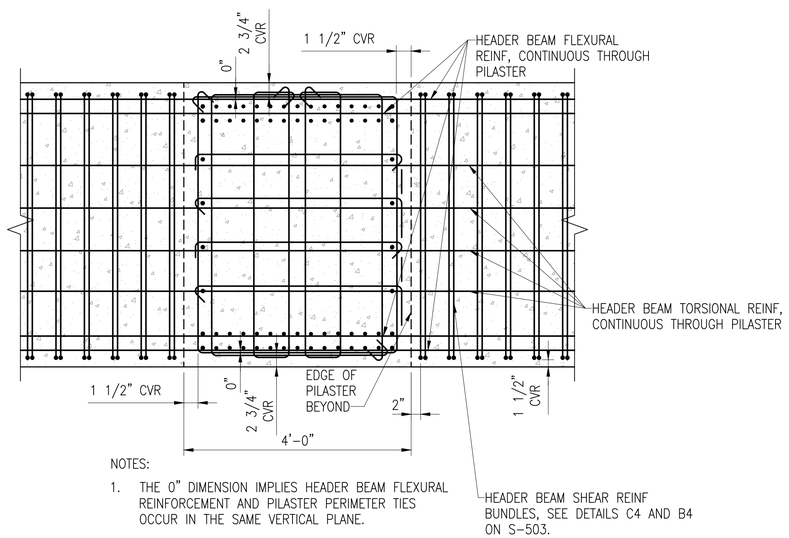
DRAWFORM REVISION: 25 AUGUST 2020



C1 **INTERIOR PILASTER - ABOVE HEADER BEAM**
SCALE: 3/4" = 1'–0"



C3 **INTERIOR PILASTER - THROUGH ROOF SLAB**
SCALE: 3/4" = 1'–0"



NOTES:

1. THE 0" DIMENSION IMPLIES HEADER BEAM FLEXURAL REINFORCEMENT AND PILASTER PERIMETER TIES OCCUR IN THE SAME VERTICAL PLANE.

A1 **INTERIOR PILASTER - THROUGH HEADER BEAM**
SCALE: 3/4" = 1'–0"

GRAPHIC SCALES
SCALE: 3/4" = 1'–0"
0 1' 2' 4'

NO.	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED
for Commander
FOR COMMANDER NAVFAC 24SEP2024
ACTIVITY
SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

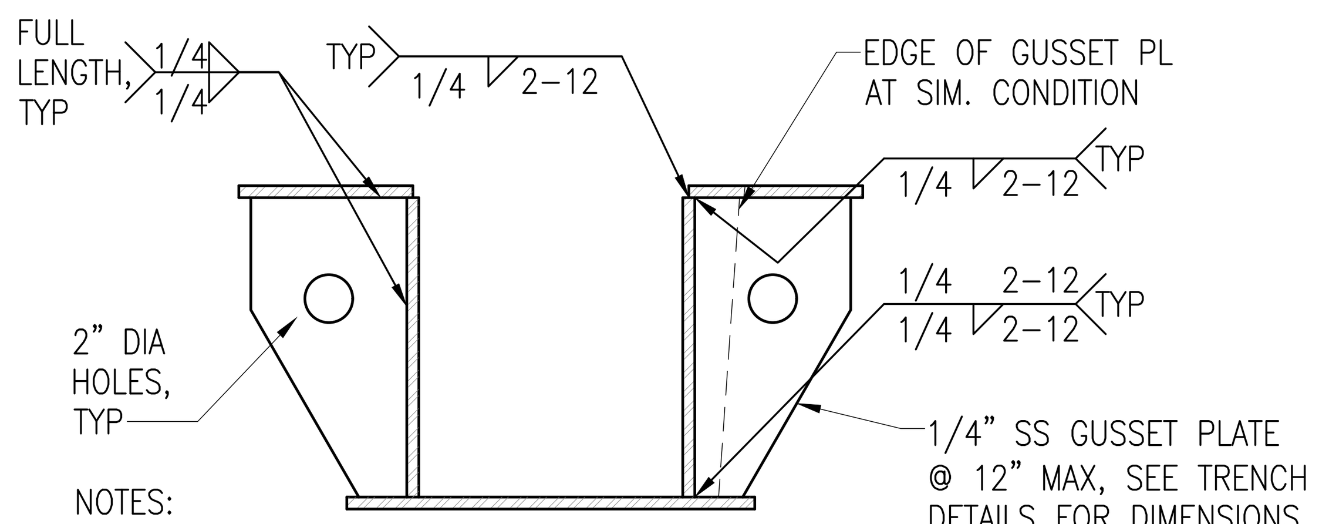
INTERIOR PILASTER DETAILS

SCALE:	3/4" = 1'–0"
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914724
SHEET	29 OF 62

S-506

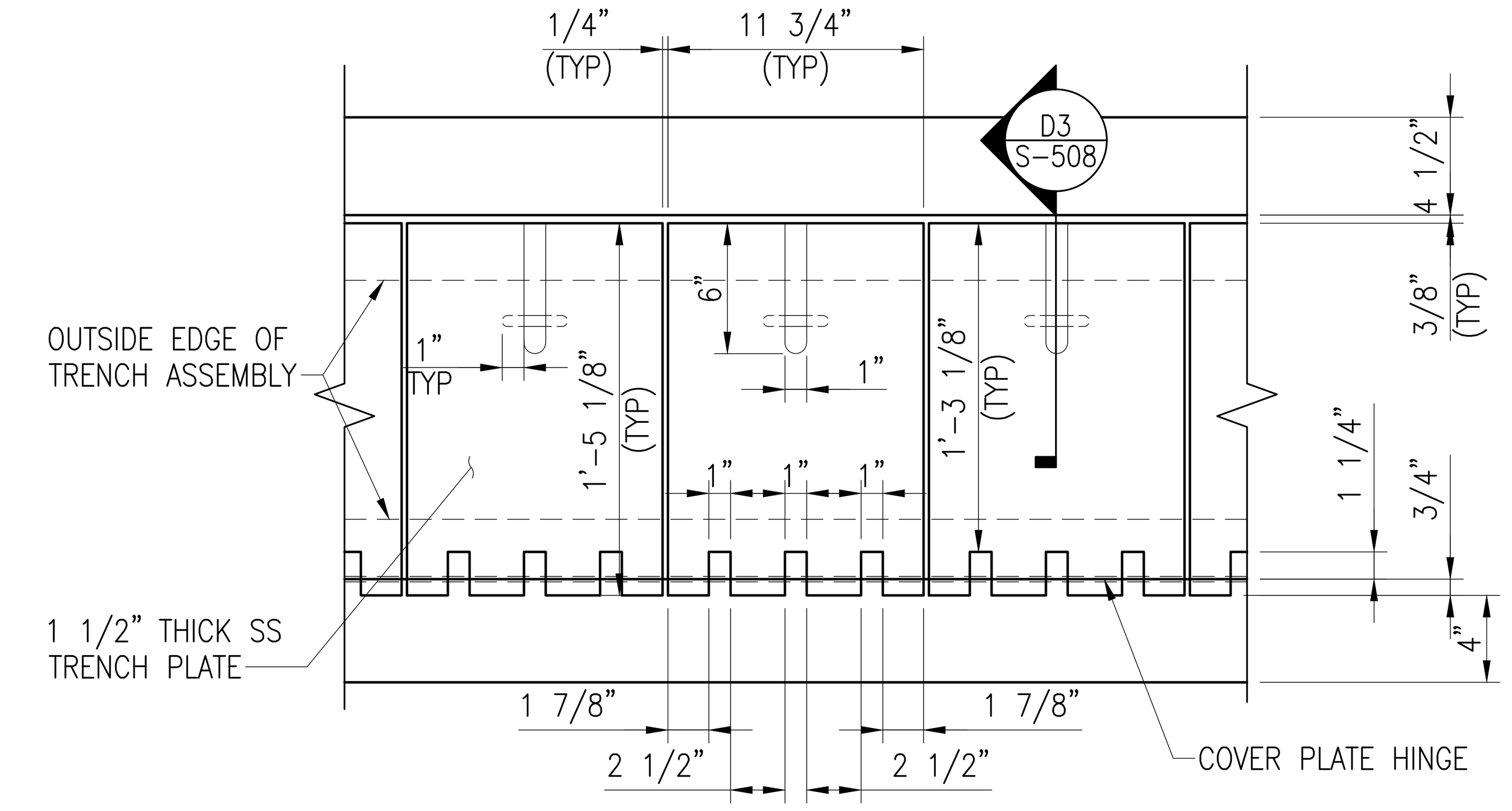
DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSE\Magazines\BC\MSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-506.dwg LAYOUT NAME: S-506 - INTERIOR PILASTER DETAILS PLOTTED: Tuesday, September 24, 2024 - 10:12am USER: leslie.corsino

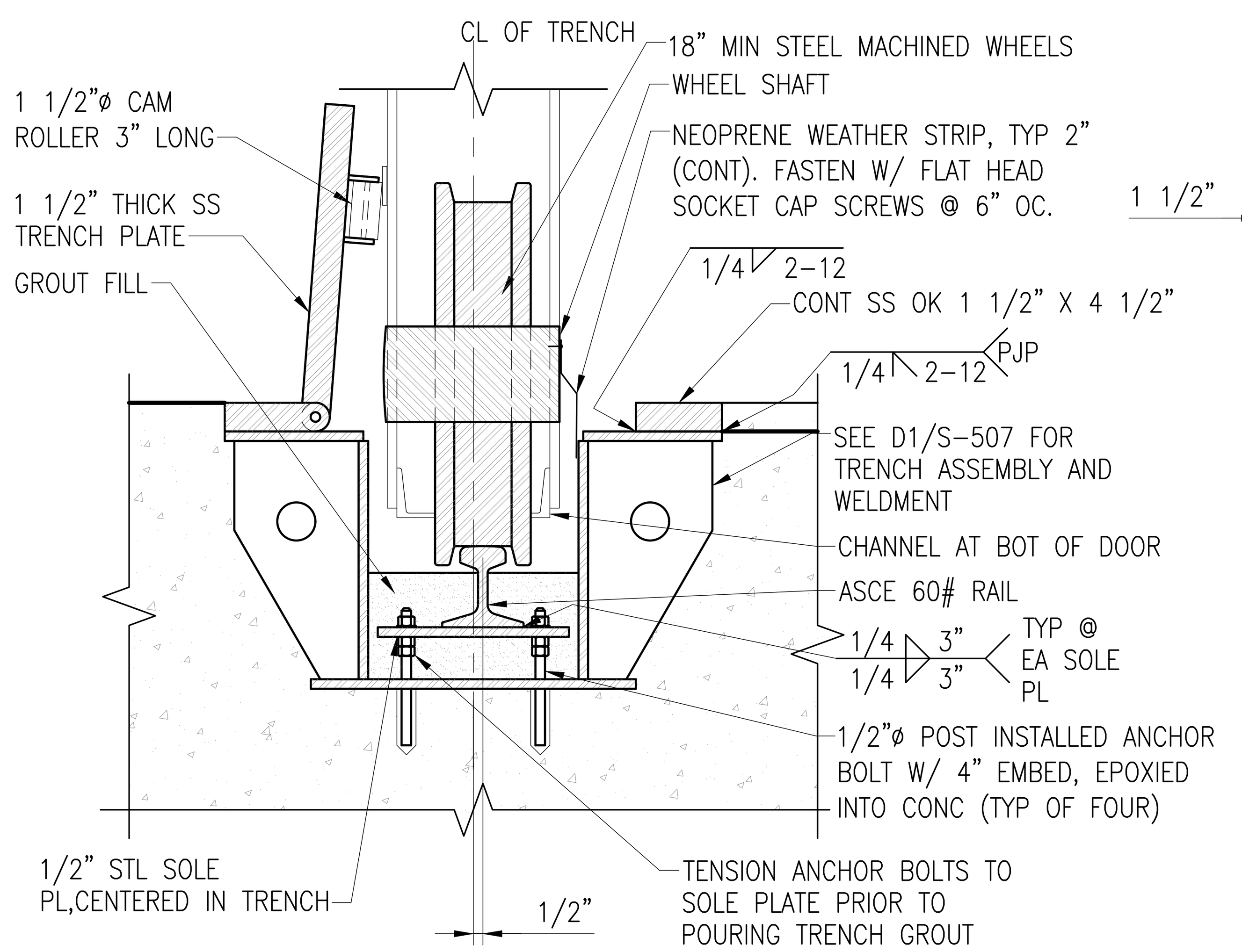


NOTES:
1. ALL TRENCH PLATES ARE 1/2" THK SS, UNO.
2. SEE TRENCH DETAILS FOR OVERALL SIZE OF TRENCH PLATE ASSEMBLY.
3. TRENCH PL MFR TO PROVIDE OVERSIZE BOLT HOLES ON TRENCH BOTTOM PL FOR ACCESS OF SOLE PL ANCHOR BOLTS TO CONC.

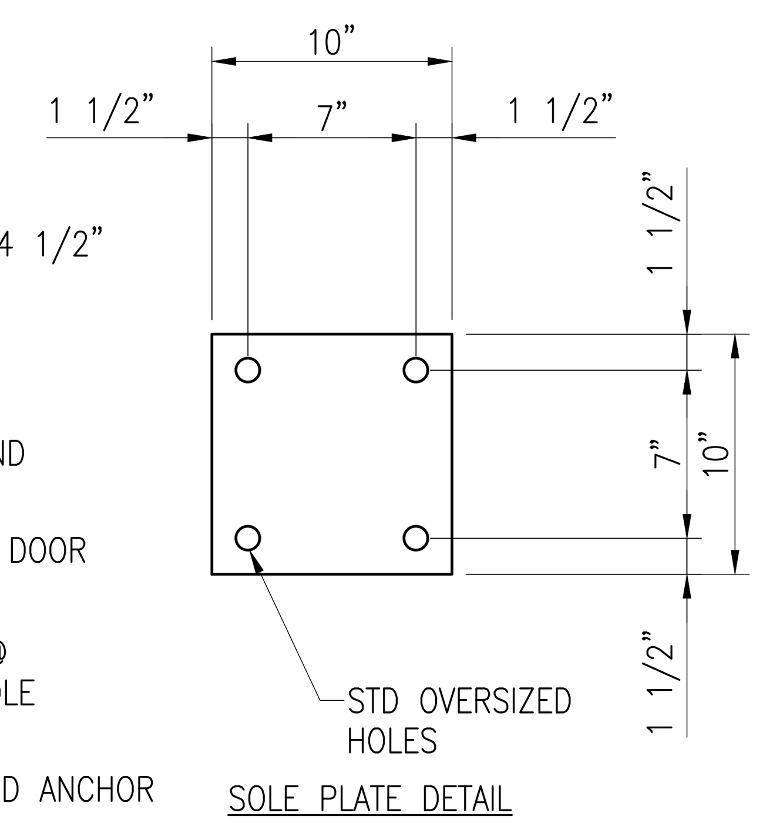
D1 — TRENCH ASSEMBLY AND WELDMENT
SCALE: 1 1/2" = 1'-0"



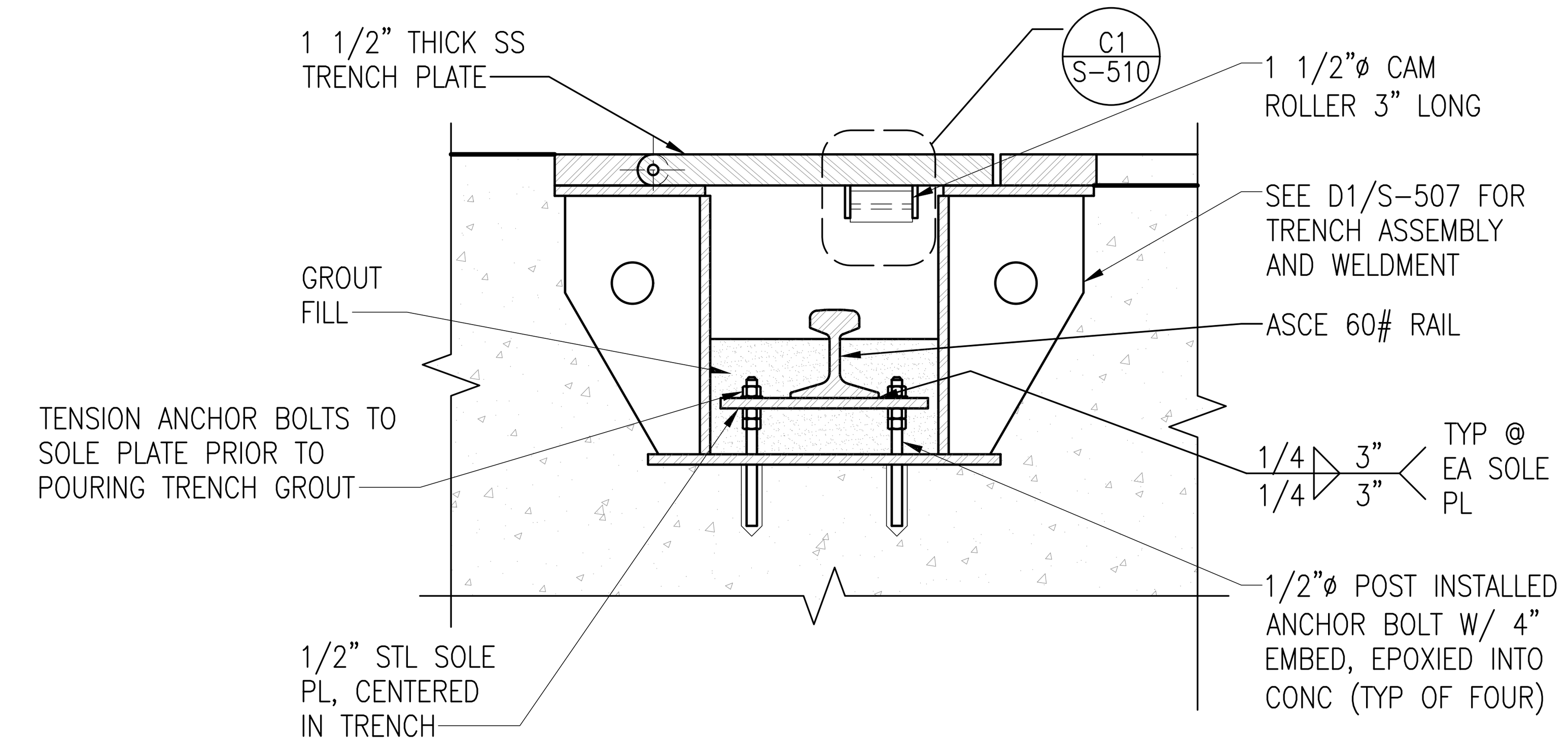
D3 — TRENCH COVER PLATE AT MAGAZINE DOOR
SCALE: 1 1/2" = 1'-0"



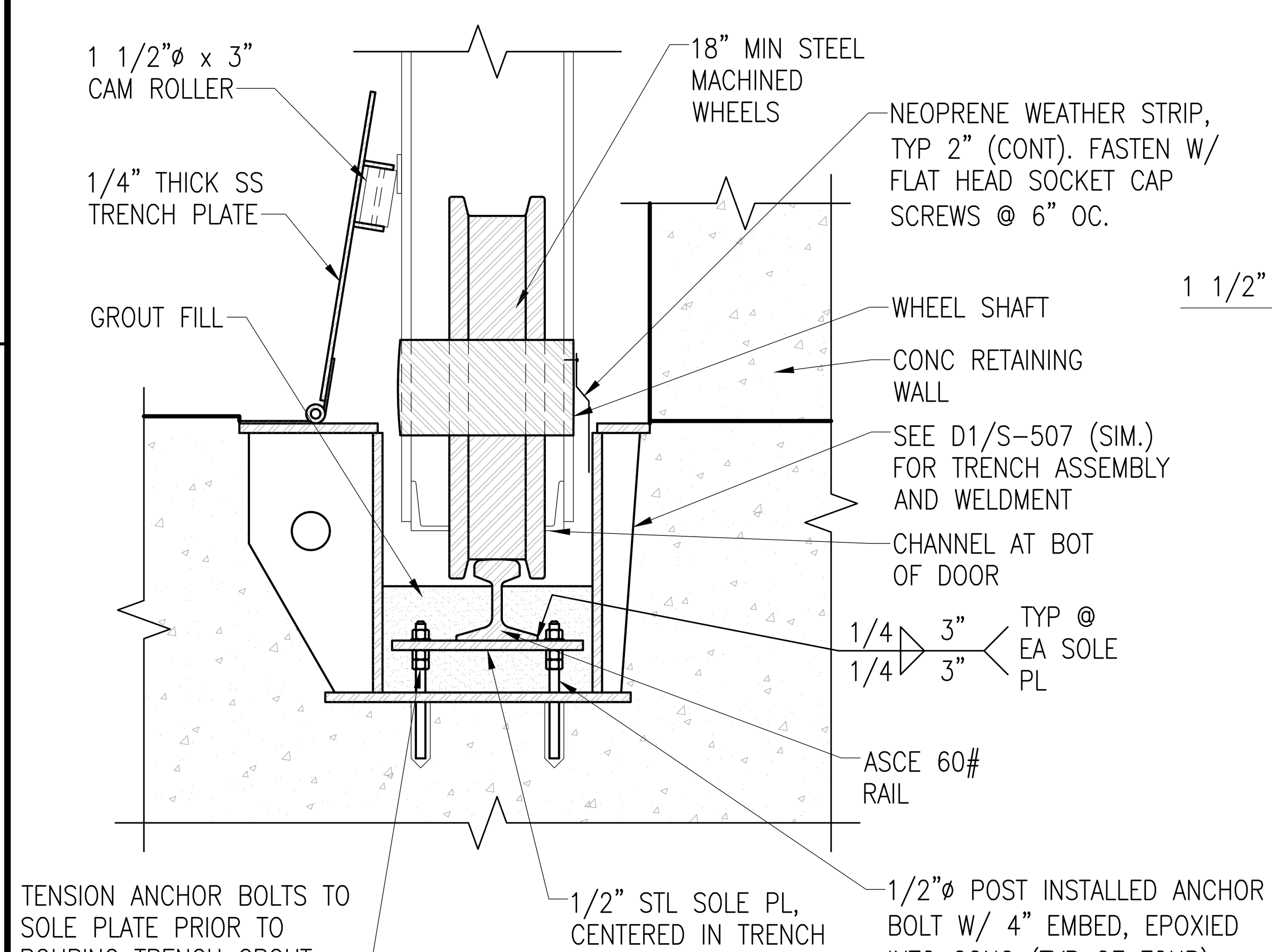
B1 — TRENCH AT MAGAZINE WITH OPEN COVER PLATE
SCALE: 1 1/2" = 1'-0"



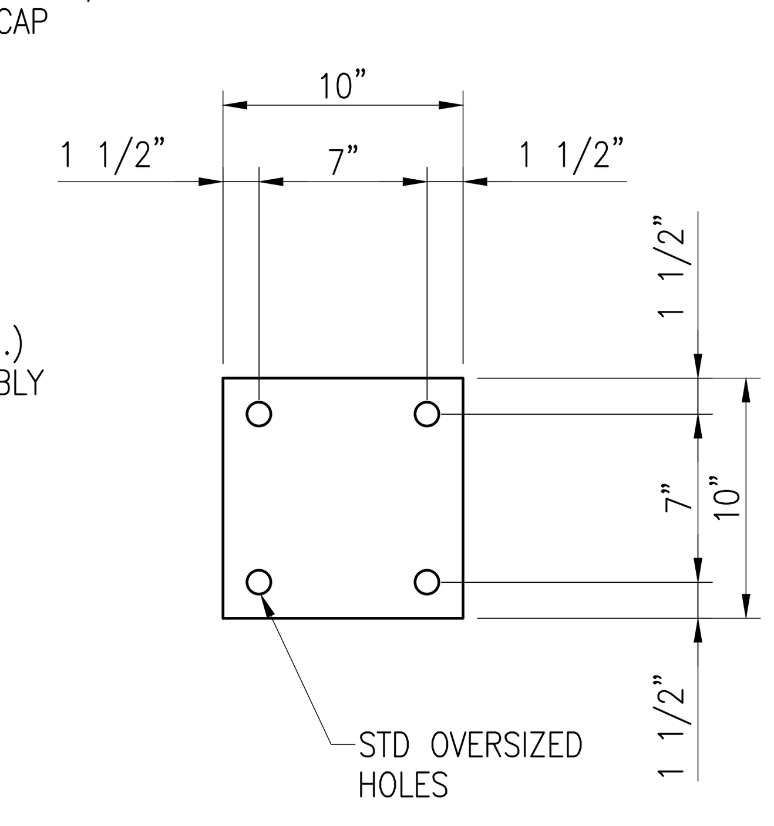
SOLE PLATE DETAIL



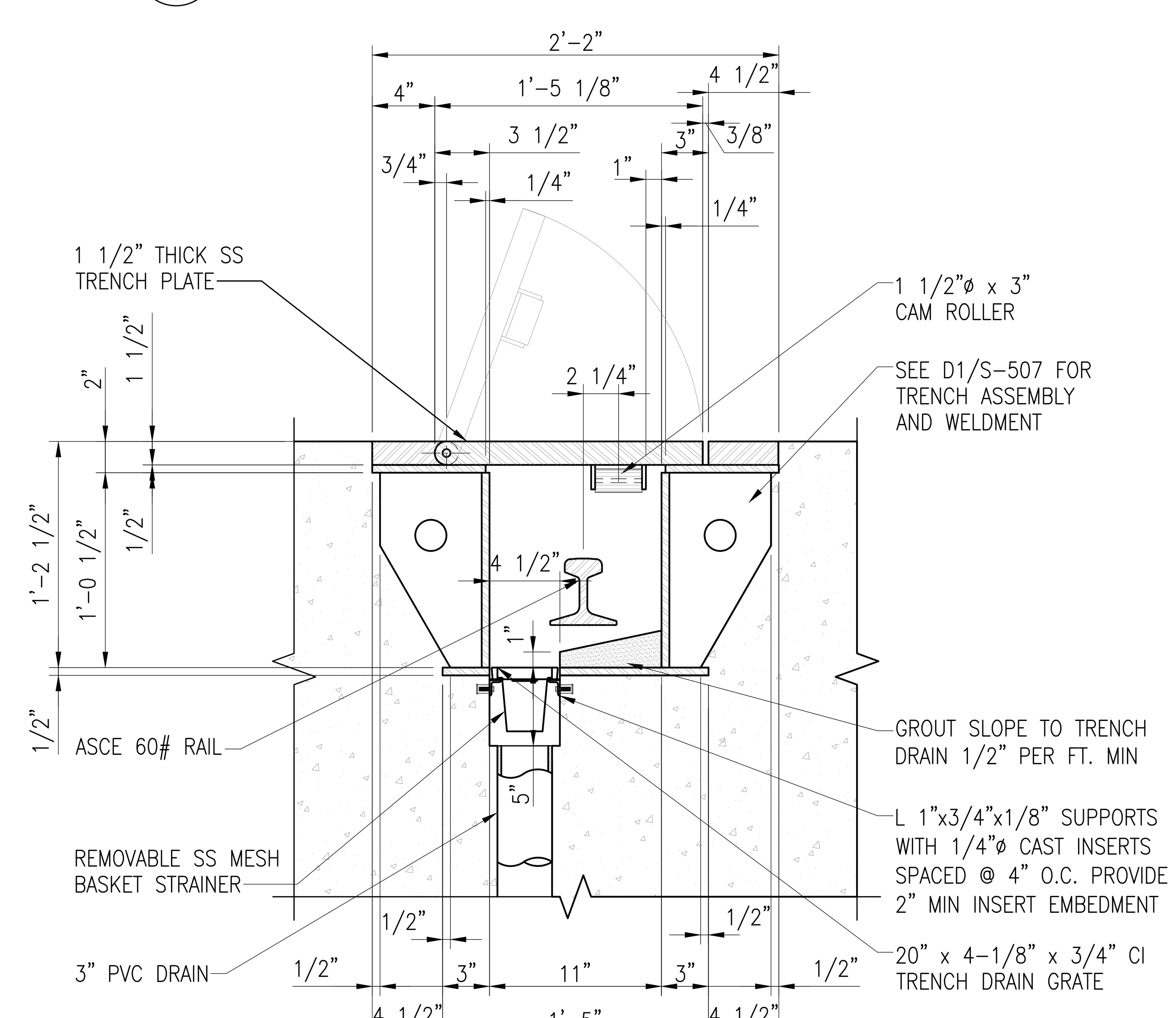
B3 — TRENCH AT MAGAZINE WITH CLOSED COVER
SCALE: 1 1/2" = 1'-0"



A1 — TRENCH AT RETAINING WALL
SCALE: 1 1/2" = 1'-0"

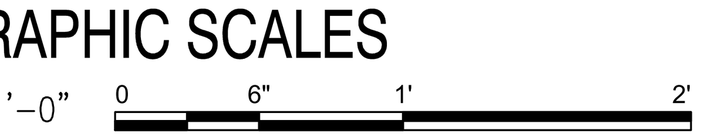


SOLE PLATE DETAIL



A3 — TRENCH AT MAGAZINE AT DRAIN
SCALE: 1 1/2" = 1'-0"

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



SYM	DESCRIPTION	DATE	APPR

SEAL

A/E INFO

William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES JAF	DRW SFF	CHK TPH
PM/DM		--
BRANCH MANAGER		--
CHIEF ENG/ARCH		--
FIRE PROTECTION		--

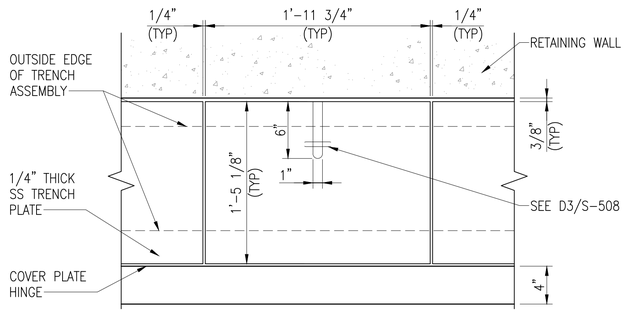
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

DOOR, TRENCH AND COVER DETAILS

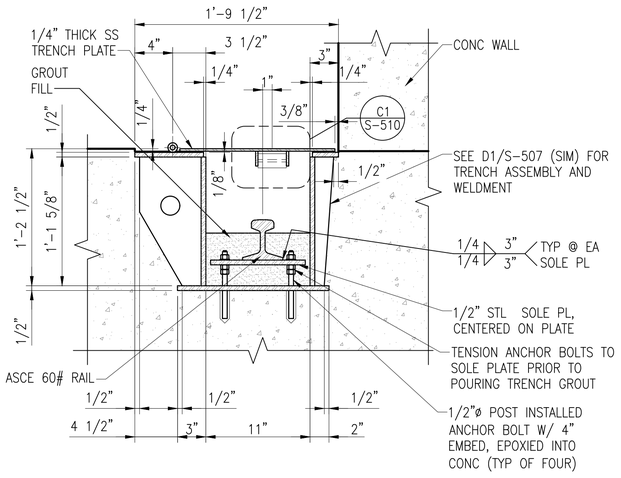
SCALE: 1 1/2" = 1'-0"
EPROJECT NO. 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914725
SHEET 30 OF 62
S-507

DRAWFORM REVISION: 25 AUGUST 2020



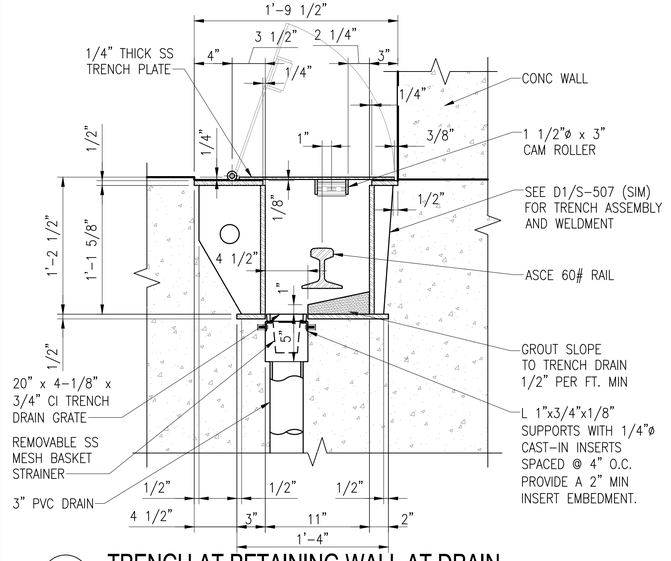
D1 TRENCH COVER PLATE AT RETAINING WALL

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



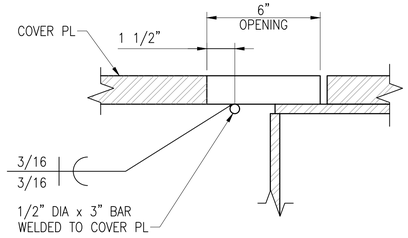
B1 TRENCH AT RETAINING WALL WITH CLOSED COVER

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



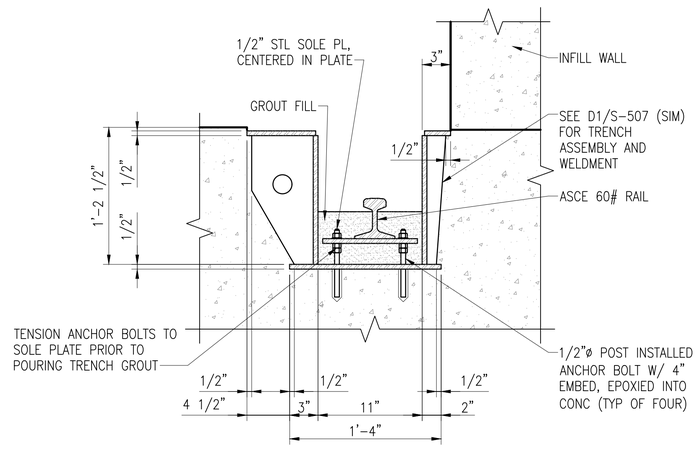
A1 TRENCH AT RETAINING WALL AT DRAIN

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



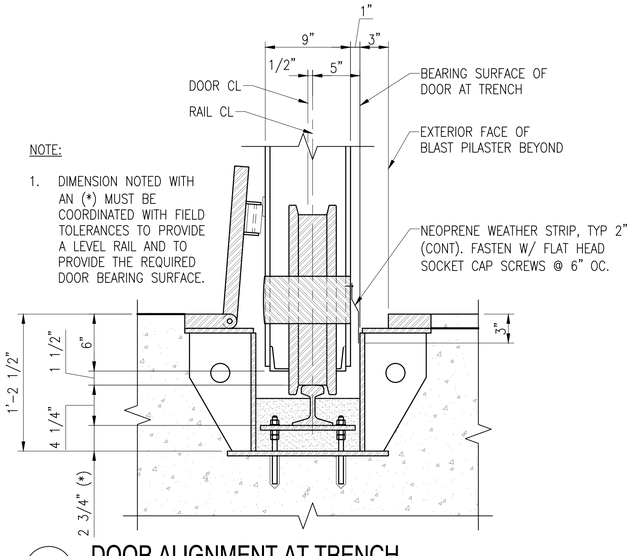
D3 DETAIL - TRENCH PLATE MANUAL LIFT

SCALE: 3" = 1'-0"



B3 TRENCH AT INFILL WALL WITHOUT COVER

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



A3 DOOR ALIGNMENT AT TRENCH

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

GRAPHIC SCALES

SCALE: 1 1/2" = 1'-0" 0 6" 1' 2'

SCALE: 3" = 1'-0" 0 3" 6" 1'

APPR	
DATE	
SYM	DESCRIPTION

NAVFAC

SEAL

A/E INFO

APPROVED for Parties

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH
PM/DM					--
BRANCH MANAGER					--
CHIEF ENG/ARCH					--
FIRE PROTECTION					--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

DOOR, TRENCH AND COVER DETAILS

SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914726
SHEET	31 OF 62

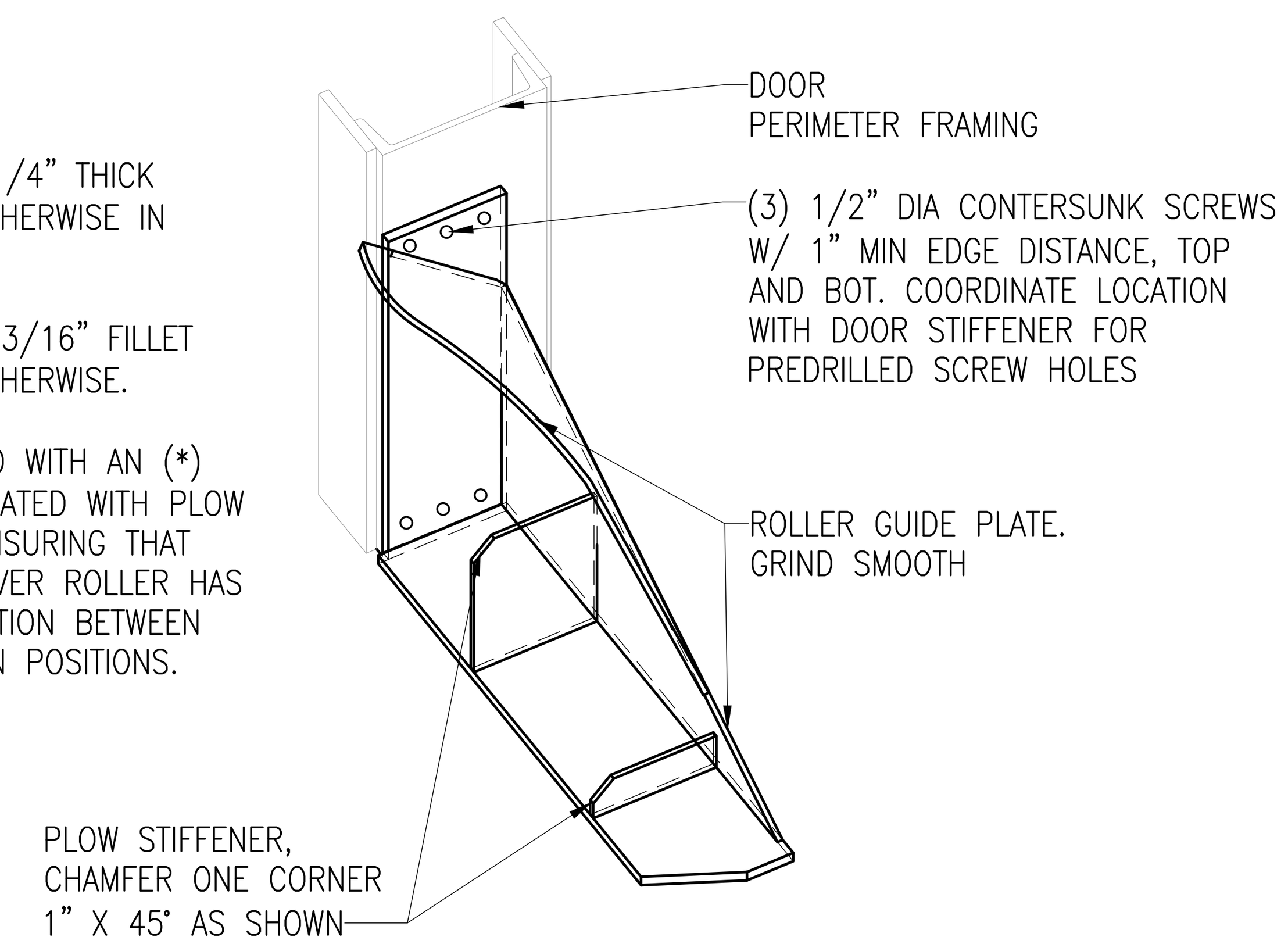
S-508

DRAWFORM REVISION: 25 AUGUST 2020

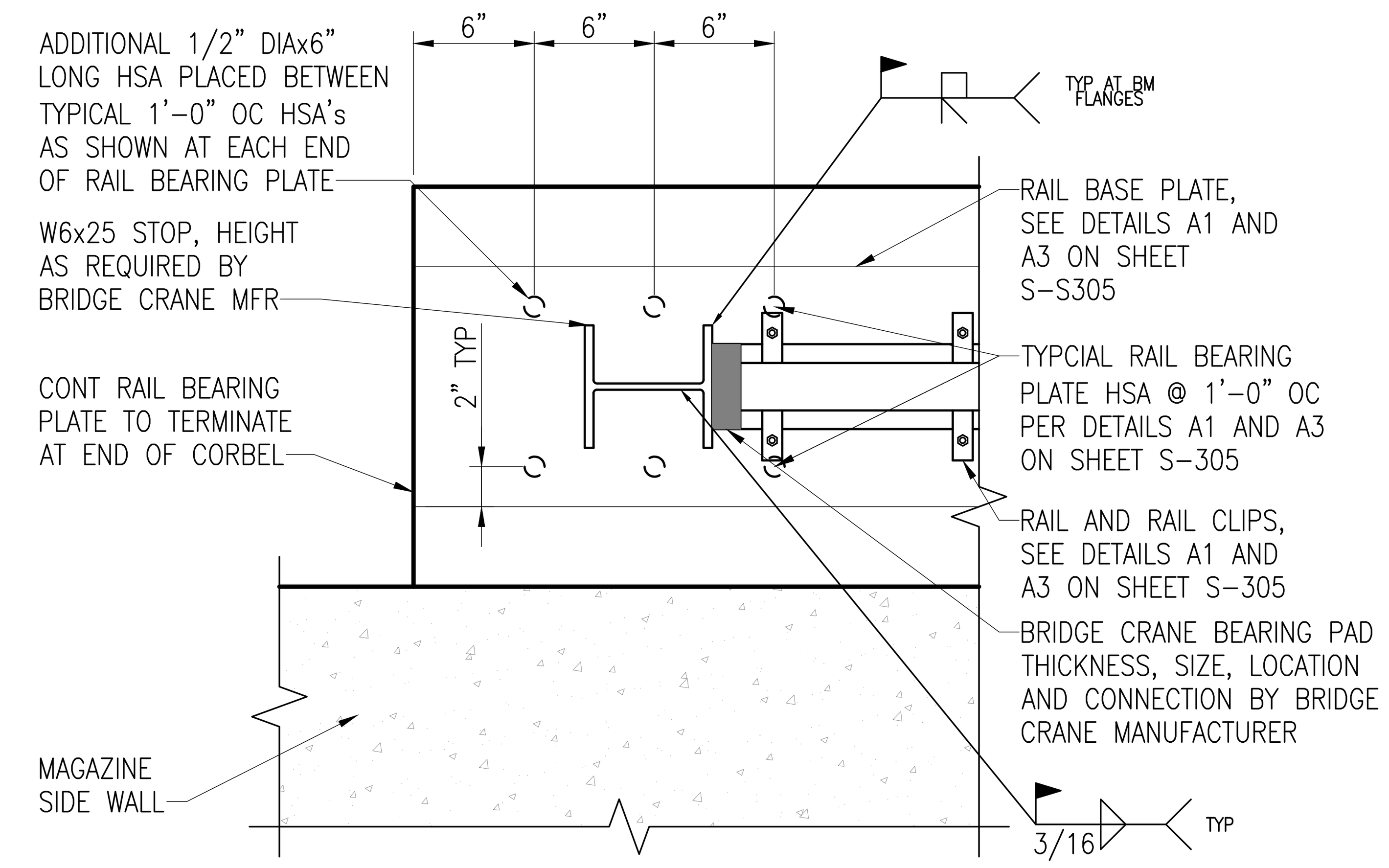
FILE NAME: i:\DCSE\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_083224\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-508.dwg LAYOUT NAME: S-508 - DOOR TRENCH AND COVER DETAILS PLOTTED: Tuesday, September 24, 2024 - 10:12am USER: leslie.corsino

GENERAL PLOW NOTES:

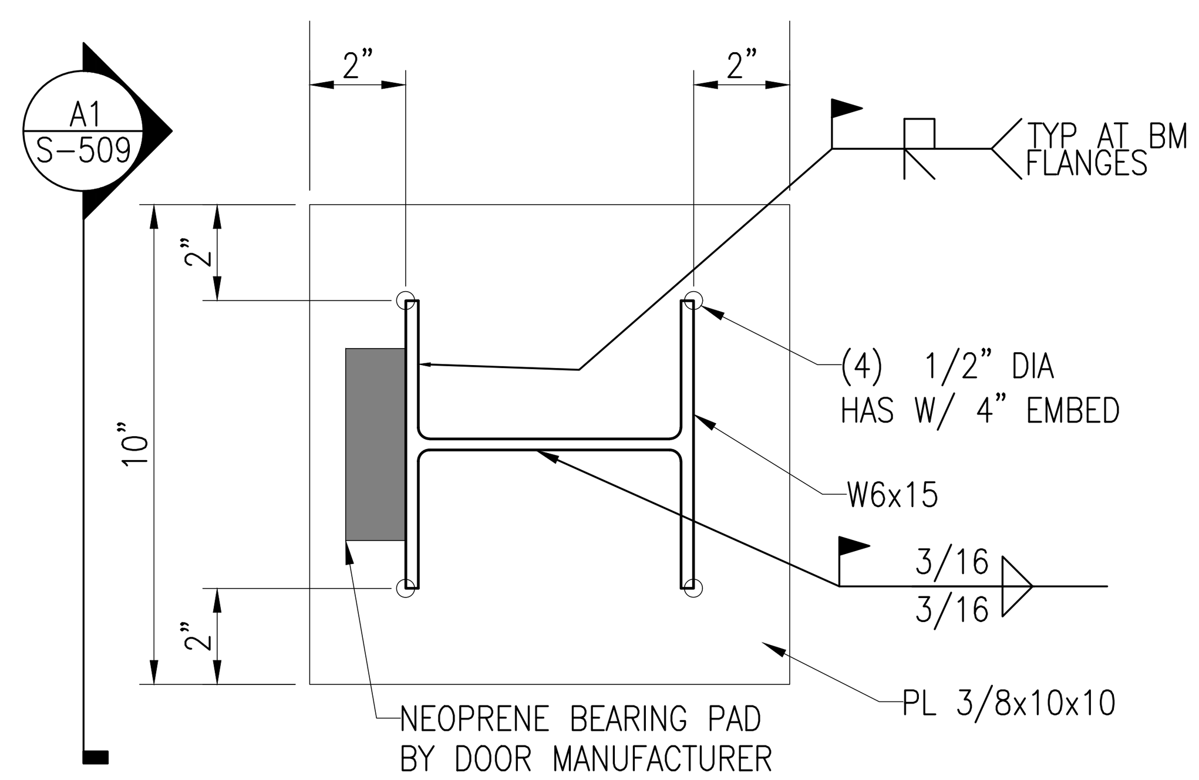
1. ALL PLATES ARE 1/4" THICK UNLESS NOTED OTHERWISE IN DETAILS.
2. WELD ALL JOINTS 3/16" FILLET UNLESS NOTED OTHERWISE.
3. DIMENSIONS NOTED WITH AN (*) MUST BE COORDINATED WITH PLOW MANUFACTURER ENSURING THAT DOOR TRENCH COVER ROLLER HAS A SMOOTH TRANSITION BETWEEN CLOSED AND OPEN POSITIONS.



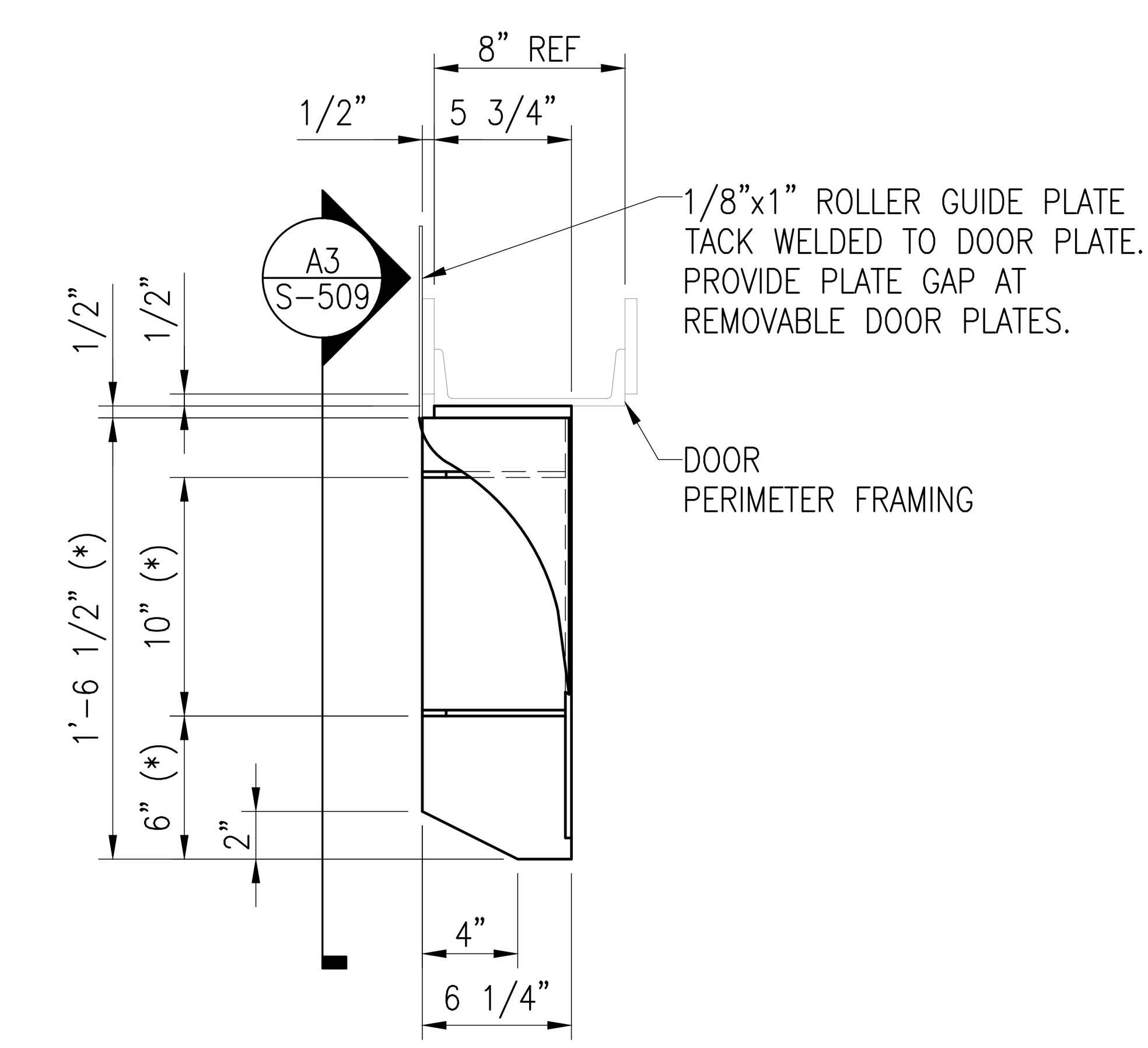
C1 DETAIL - PLATE PLOW ISOMETRIC VIEW
SCALE: 1 1/2" = 1'-0"



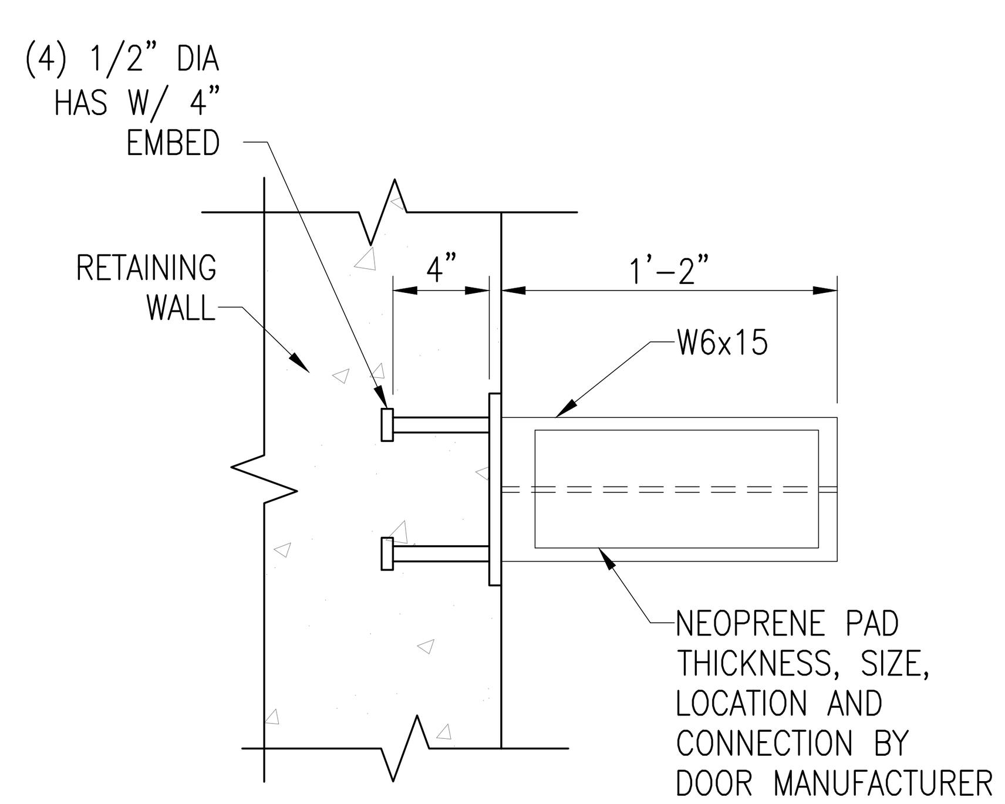
C3 BRIDGE CRANE RAIL STOP
SCALE: 1 1/2" = 1'-0"



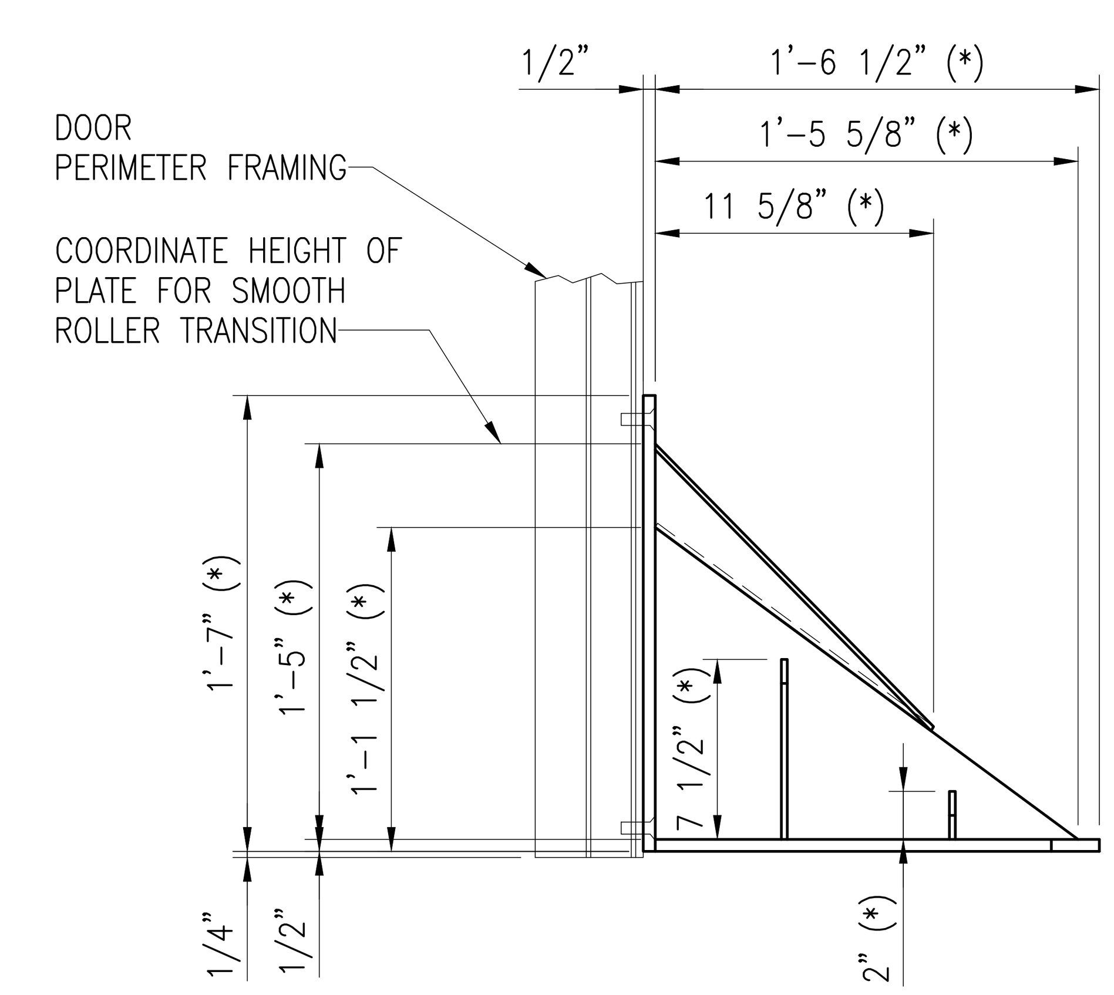
B1 DETAIL - DOOR STOP
SCALE: 3" = 1'-0"



B3 DETAIL - PLATE PLOW PLAN
SCALE: 1 1/2" = 1'-0"



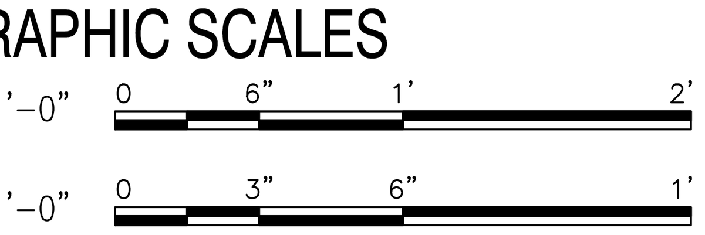
A1 SECTION - DOOR STOP
SCALE: 1 1/2" = 1'-0"



A3 DETAIL - PLATE PLOW SIDE ELEVATION
SCALE: 1 1/2" = 1'-0"

GRAPHIC SCALES

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



SCALE: 3" = 1'-0"

APPROVED	William Forbes (signature)
FOR COMMANDER NAVFAC	24 SEP 2024
ACTIVITY	
SATISFACTORY TO	DATE
DES JAF	DRW SFF / CHK TPH
PM/DM	--
BRANCH MANAGER	--
CHIEF ENG/ARCH	--
FIRE PROTECTION	--

A/E INFO

SEAL

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

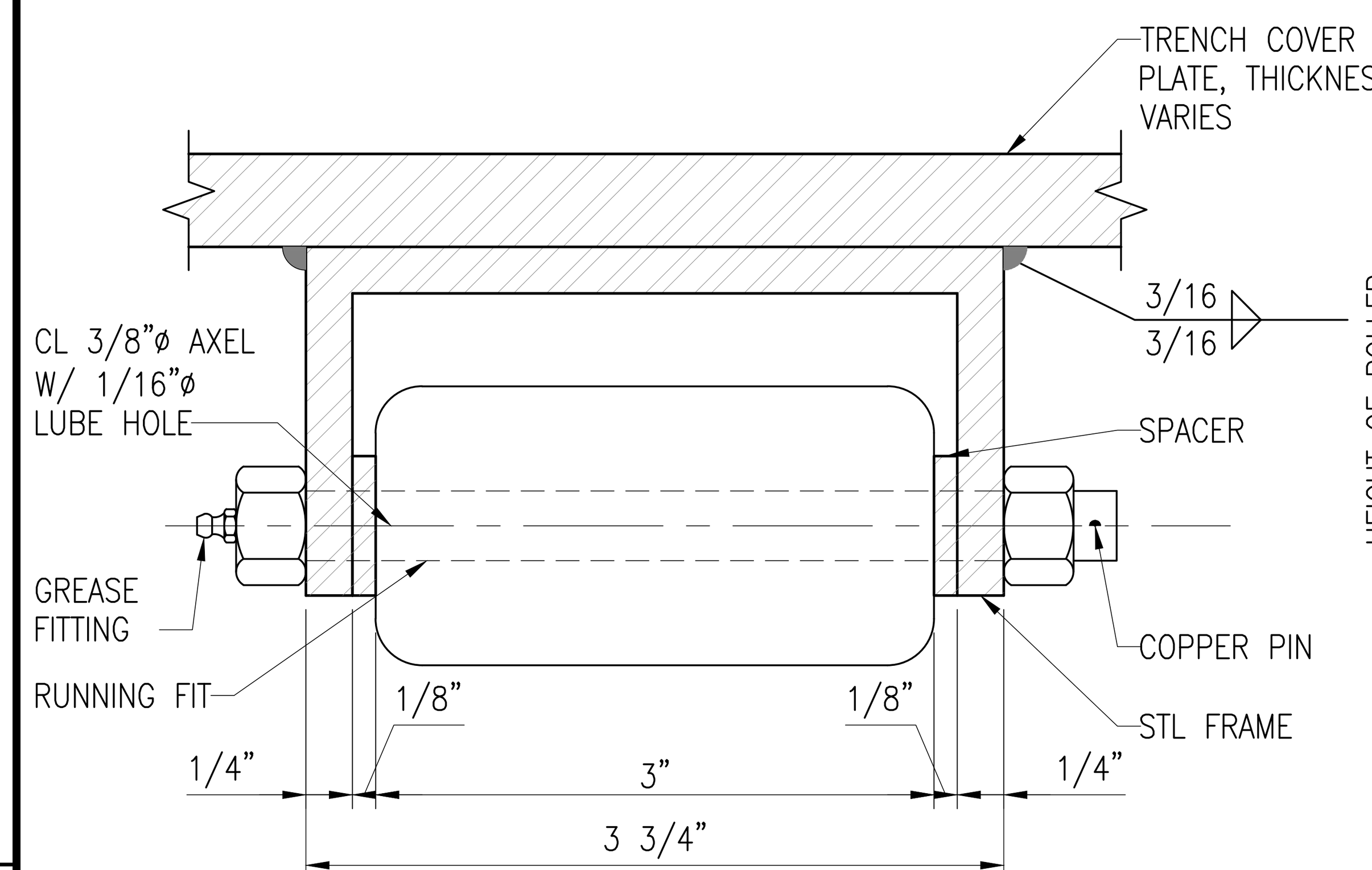
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

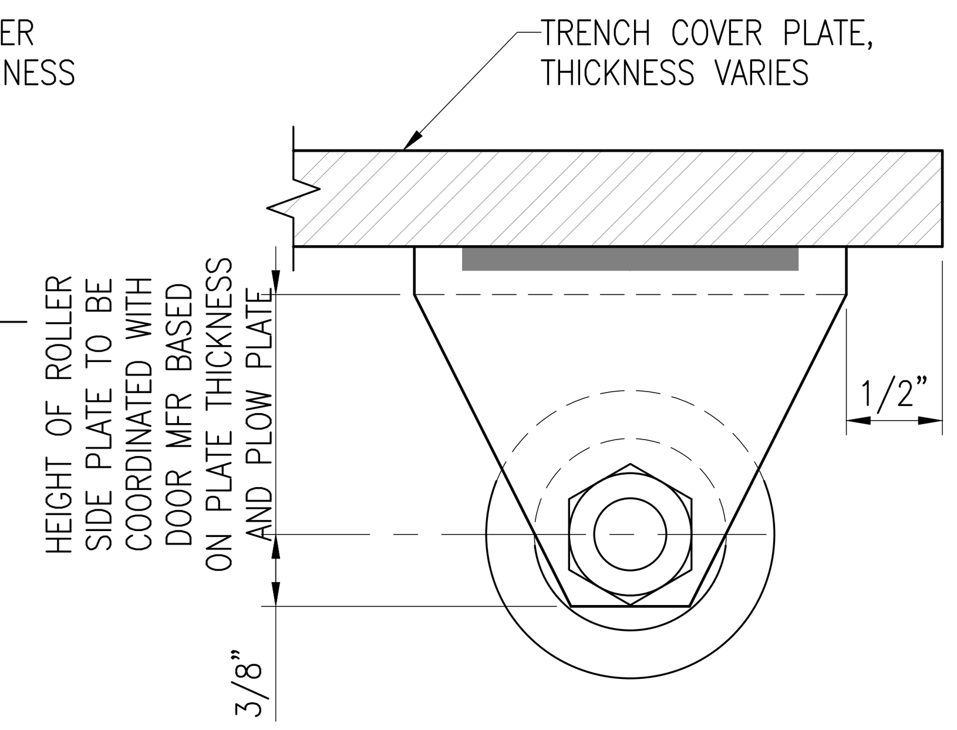
DOOR STOP, PLOW AND TRENCH COVER ROLLER DETAILS

SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914727
SHEET	32 OF 62

S-509

DRAWFORM REVISION: 25 AUGUST 2020



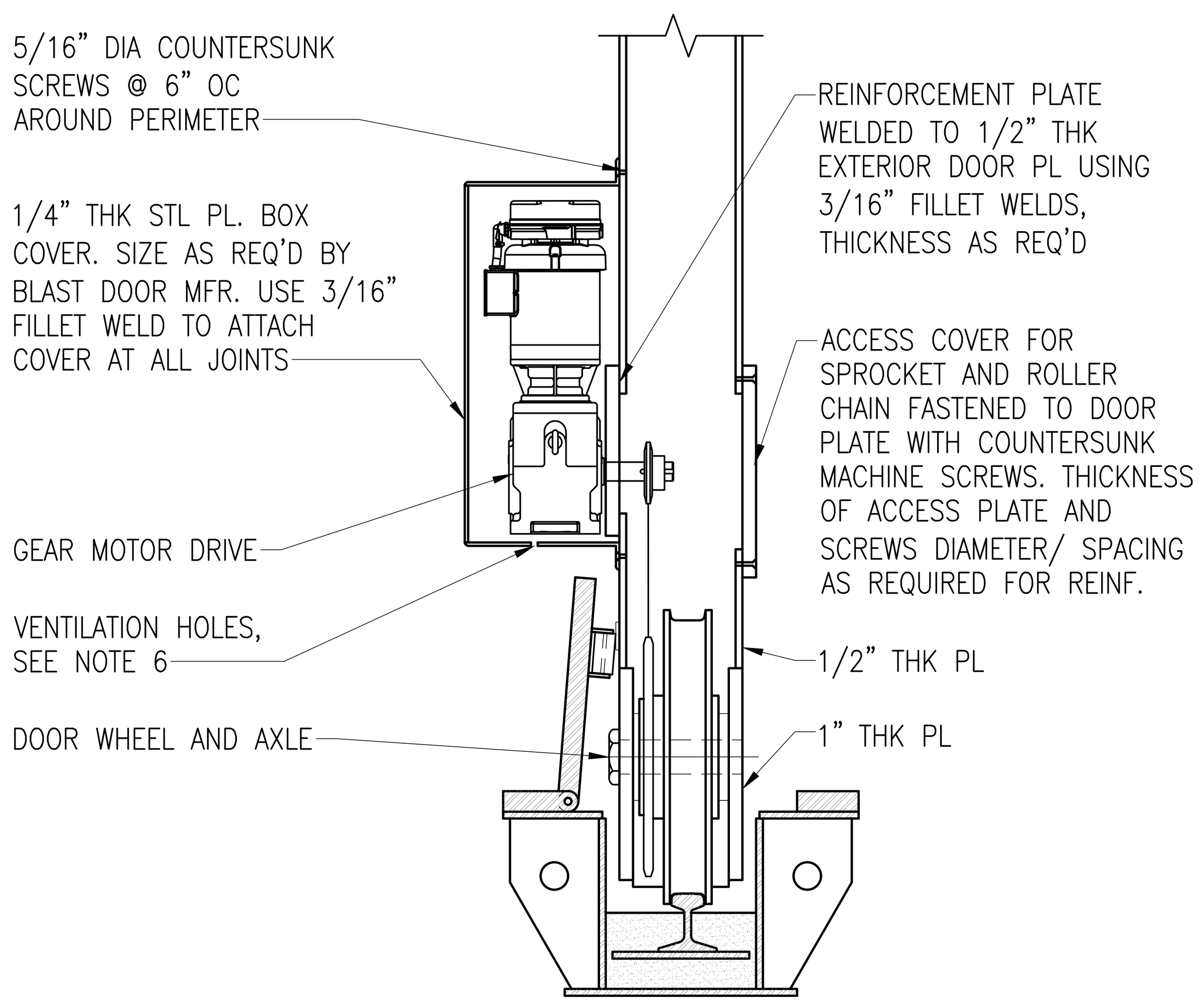


ASSEMBLY DESIGN/MANUFACTURING NOTES:

1. ASSEMBLY SHOWN IS NOTIONAL AND IT IS FOR BIDDING PURPOSES. ASSEMBLY MAY VARY BASED ON DOOR MANUFACTURER'S DESIGN.

C1 TYPICAL TRENCH COVER ROLLER

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

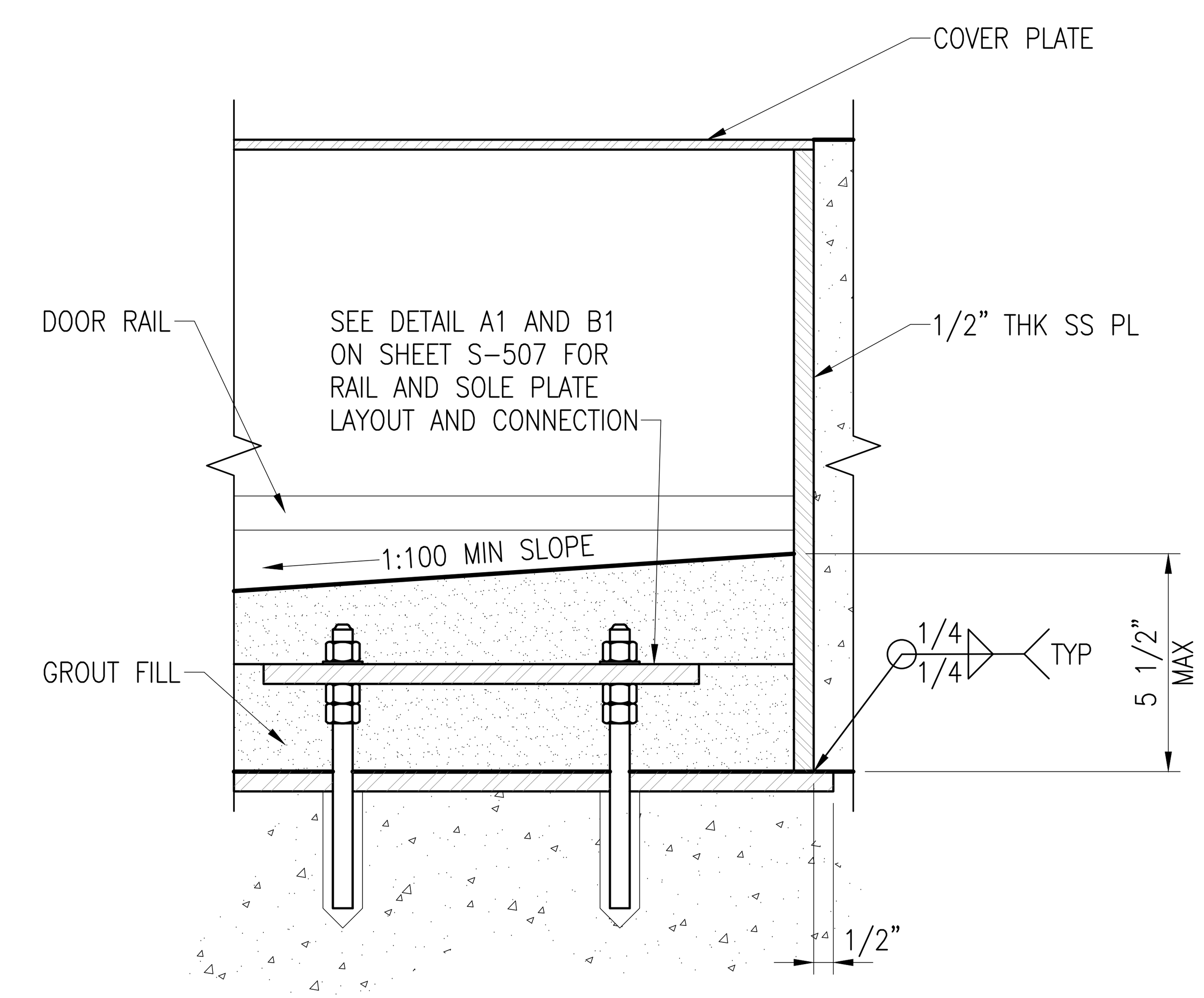


DESIGN/MANUFACTURING NOTES:

1. MOTOR INSTALLATION SHOWN IS NOTIONAL AND IS FOR BIDDING PURPOSES AND MAY VARY BASED ON DOOR MANUFACTURER'S APPROVED DESIGN.
2. DOOR MANUFACTURER'S DESIGN MUST ALLOW FOR MAINTENANCE OF THE MOTOR ASSEMBLY AND ITS COMPONENTS, INCLUDING REMOVAL OF AND REPLACEMENT OF THE MOTOR ASSEMBLY.
3. USE STANDARD PARTS AS MUCH AS POSSIBLE.
4. ACCESS TO THE MOTOR ASSEMBLY IS NOT NECESSARILY LIMITED TO ONE SIDE OF THE DOOR. IF ACCESS TO BOTH SIDES OF THE DOOR IS USED, IT MUST BE SHOWN THAT THE WHEEL LOAD PATH THROUGH THE SUPPORTING PLATES IS ADEQUATE.
5. A MOTOR ASSEMBLY MOUNTED INTERNAL TO THE DOOR IS PREFERRED; HOWEVER, A MOTOR ASSEMBLY MOUNTED ON THE EXTERIOR OF THE DOOR MAY BE ACCEPTABLE IF APPROVED.
6. DOOR MANUFACTURER MUST PROVIDE COOLING OF THE OF THE GEAR MOTOR IF FOUND NECESSARY.

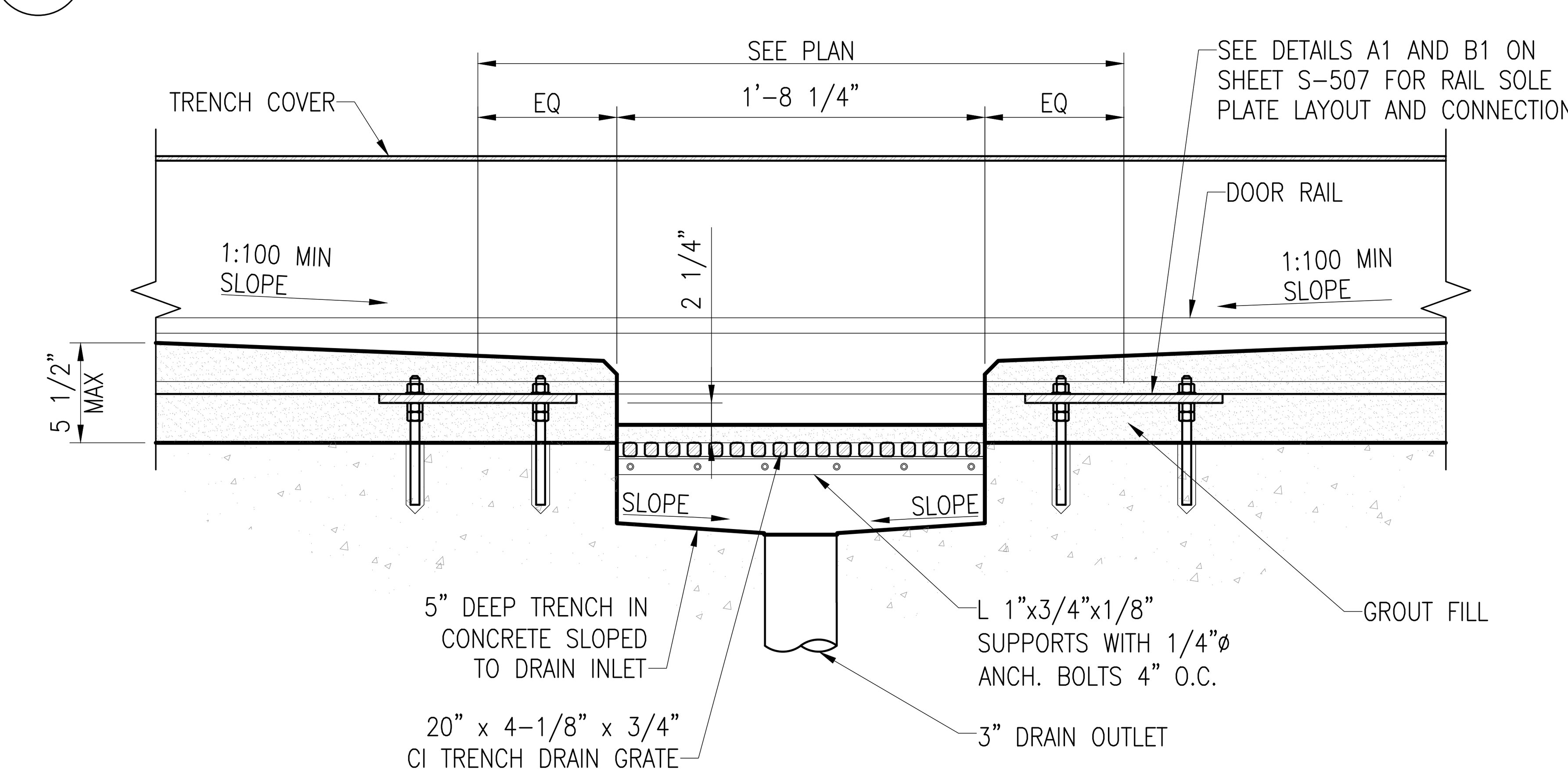
B1 DETAIL - DOOR ALTERNATIVE DRIVE ARRANGEMENT

SCALE: 1" = 1'-0"



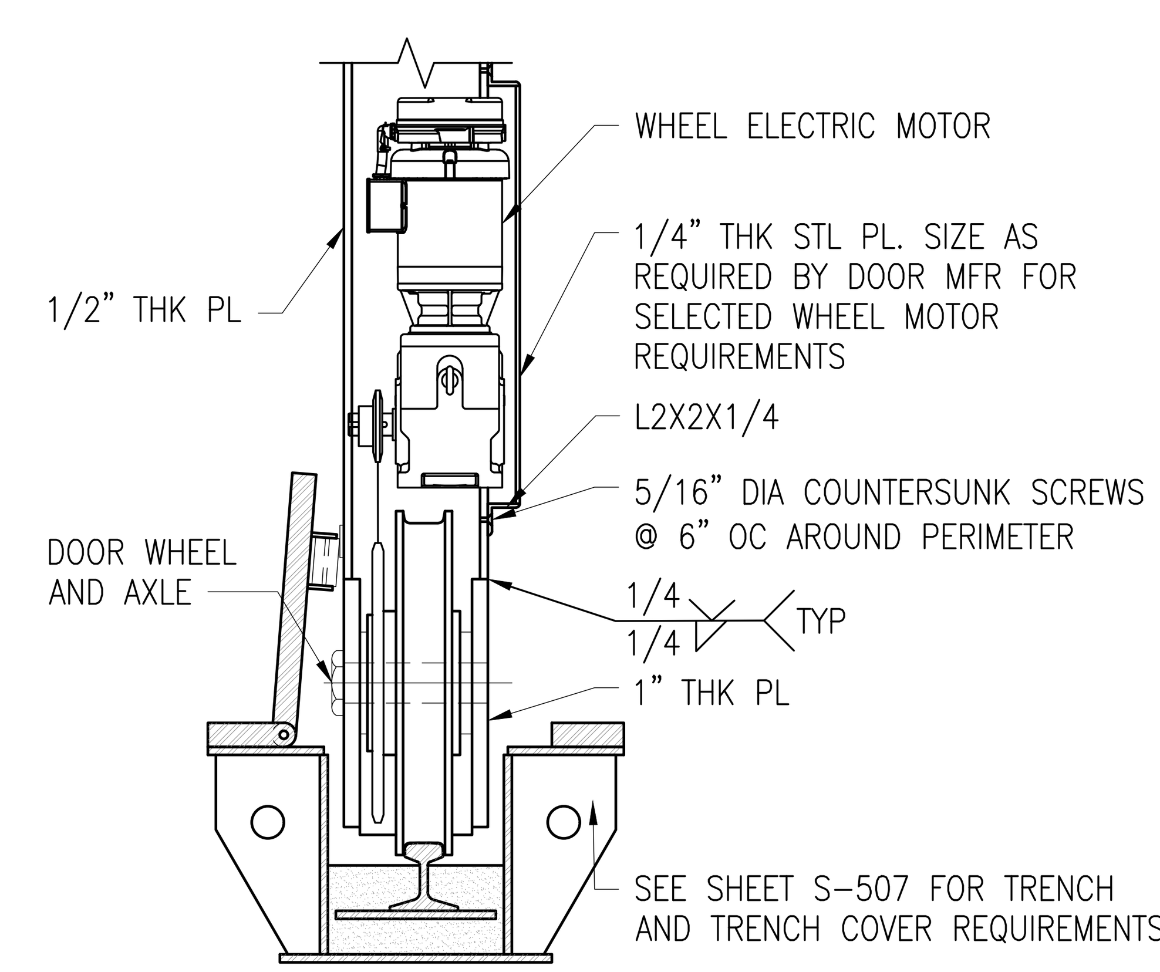
B3 DETAIL - TRENCH END PLATE

SCALE: 3" = 1'-0"



A1 TRENCH DRAIN BLOCKOUT

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



A3 DETAIL - DOOR WHEEL

SCALE: 1" = 1'-0"

DESIGN/MANUFACTURING NOTES:

1. MOTOR INSTALLATION SHOWN IS NOTIONAL AND IS FOR BIDDING PURPOSES AND MAY VARY BASED ON DOOR MANUFACTURER'S APPROVED DESIGN.
2. DOOR MANUFACTURER'S DESIGN MUST ALLOW FOR MAINTENANCE OF THE MOTOR ASSEMBLY AND ITS COMPONENTS, INCLUDING REMOVAL OF AND REPLACEMENT OF THE MOTOR ASSEMBLY.
3. USE STANDARD PARTS AS MUCH AS POSSIBLE.
4. ACCESS TO THE MOTOR ASSEMBLY IS NOT NECESSARILY LIMITED TO ONE SIDE OF THE DOOR. IF ACCESS TO BOTH SIDES OF THE DOOR IS USED, IT MUST BE SHOWN THAT THE WHEEL LOAD PATH THROUGH THE SUPPORTING PLATES IS ADEQUATE.
5. A MOTOR ASSEMBLY MOUNTED INTERNAL TO THE DOOR IS PREFERRED; HOWEVER, A MOTOR ASSEMBLY MOUNTED ON THE EXTERIOR OF THE DOOR MAY BE ACCEPTABLE IF APPROVED.
6. SEE DETAIL B1 ON SHEET S-510 FOR ALTERNATIVE DOOR DRIVE ARRANGEMENT.
7. DOOR MANUFACTURER MUST PROVIDE COOLING OF THE GEAR MOTOR IF FOUND NECESSARY.

GRAPHIC SCALES

SCALE: 1" = 1'-0" 0 6" 1' 2'

SCALE: 1 1/2" = 1'-0" 0 6" 1' 2'

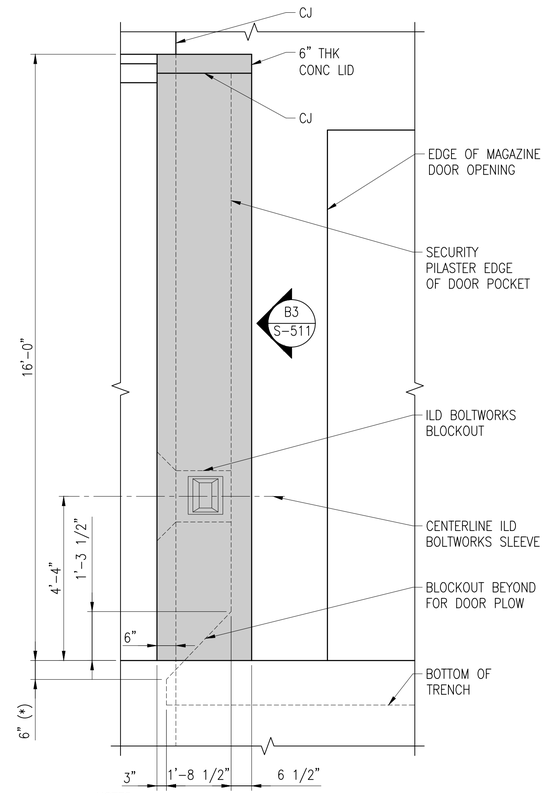
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

DOOR STOP, PLOW AND TRENCH COVER ROLLER DETAILS

DES	JAF
DRW	SFF
CHK	TPH
SCALE:	AS NOTED
EPROJECT NO:	164487
NAVFAC DRAWING NO	12914728
SHEET	33 OF 62

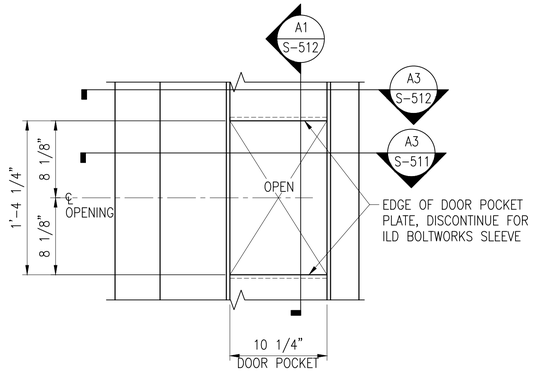
S-510



NOTES:
1. DIMENSIONS NOTED WITH AN (*) MUST BE COORDINATED BY THE DOOR MANUFACTURER ENSURING THE DOOR SYSTEM PERFORMS PER THE BLAST DOOR NOTES ON SHEET S-003

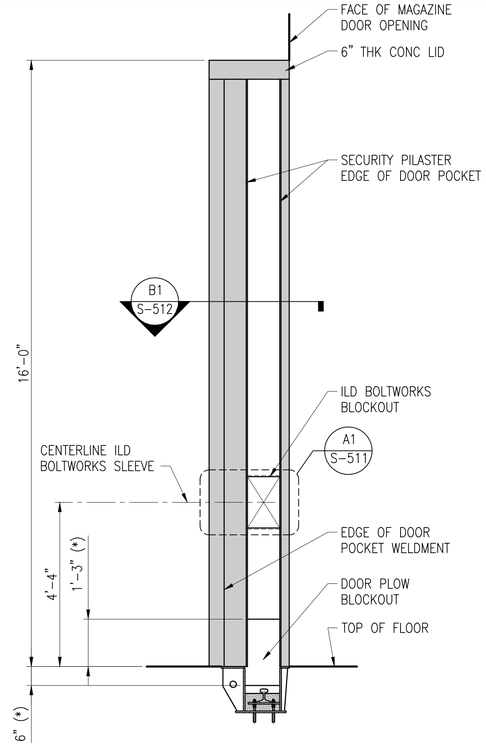
B1 SECURITY PILASTER ELEVATION FROM FRONT OF MAGAZINE

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



A1 ILD BOLTWORKS BLOCKOUT

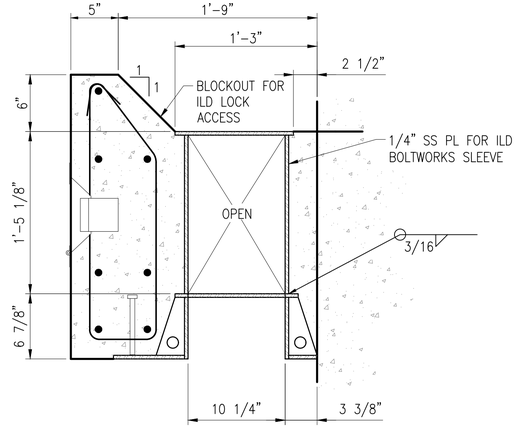
SCALE: 1 1/2" = 1'-0"



NOTES:
1. DIMENSIONS NOTED WITH AN (*) MUST BE COORDINATED BY THE DOOR MANUFACTURER ENSURING THE DOOR SYSTEM PERFORMS PER THE BLAST DOOR NOTES ON SHEET S-003.

B3 SECURITY PILASTER ELEVATION

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



A3 SECURITY PILASTER PLAN

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

GRAPHIC SCALES

SCALE: 1/2" = 1'-0" 0 1' 2' 4'

SCALE: 1 1/2" = 1'-0" 0 6" 1' 2'

APPR	
DATE	
DESCRIPTION	
SYM	

SEAL

A/E INFO

VERSION: Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

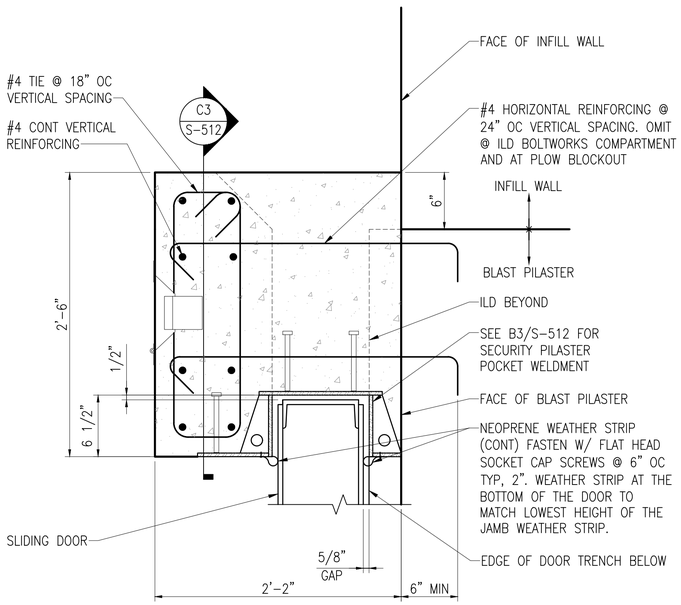
SECURITY PILASTER DETAILS

SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914729
SHEET	34 OF 62

S-511

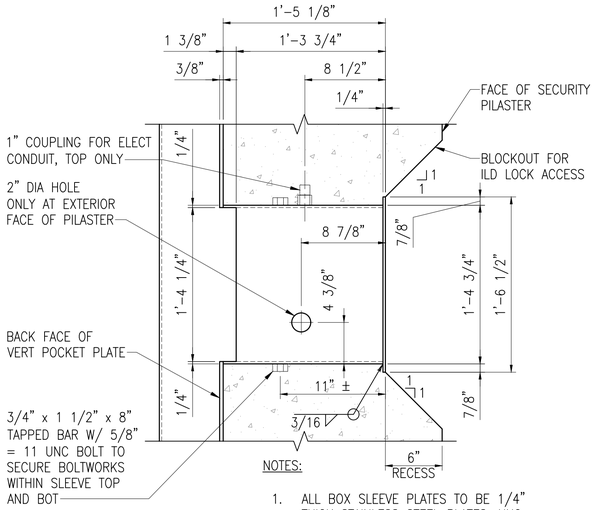
DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSE\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-511.dwg LAYOUT NAME: S-511 - SECURITY PILASTER DETAILS PLOTTED: Tuesday, September 24, 2024 - 10:13am USER: leslie.corsino



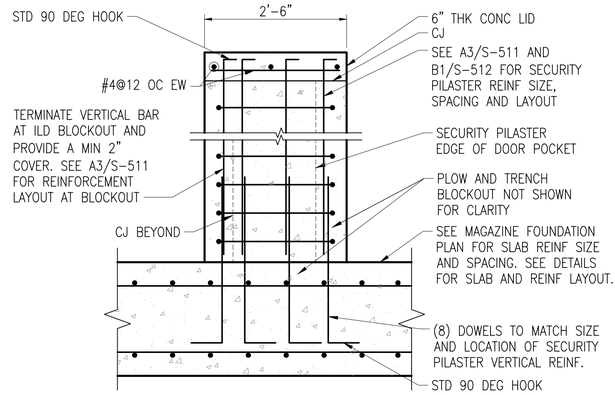
B1 SECTION - TYP SECURITY PILASTER

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



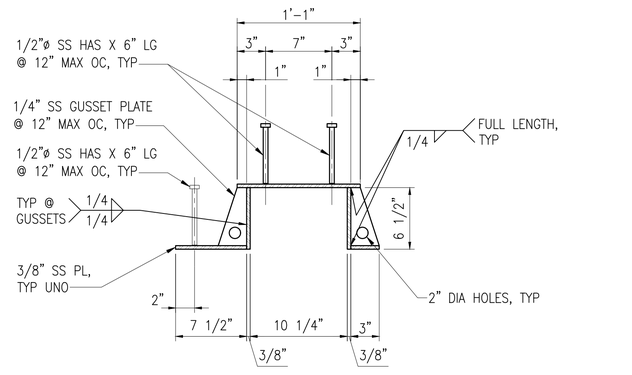
A1 DETAIL - ILD BOLTWORKS SLEEVE

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



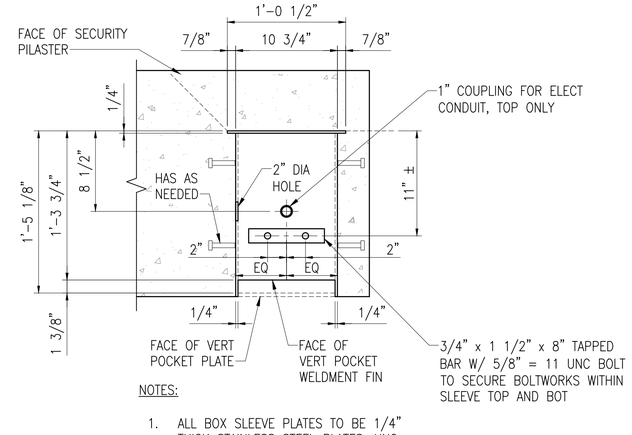
C3 SECURITY PILASTER REINFORCEMENT

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



B3 DETAIL - TYP SECURITY PILASTER POCKET WELDMENT

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



A3 DETAIL - ILD BOLTWORKS SLEEVE (TOP VIEW)

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

GRAPHIC SCALES

SCALE: 3/4" = 1'-0" 0 1' 2' 4'

SCALE: 1 1/2" = 1'-0" 0 6" 1' 2'

NO.	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED: Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

SECURITY PILASTER DETAILS

SCALE: AS NOTED

EPROJECT NO.: 164487

CONSTR. CONTR. NO.

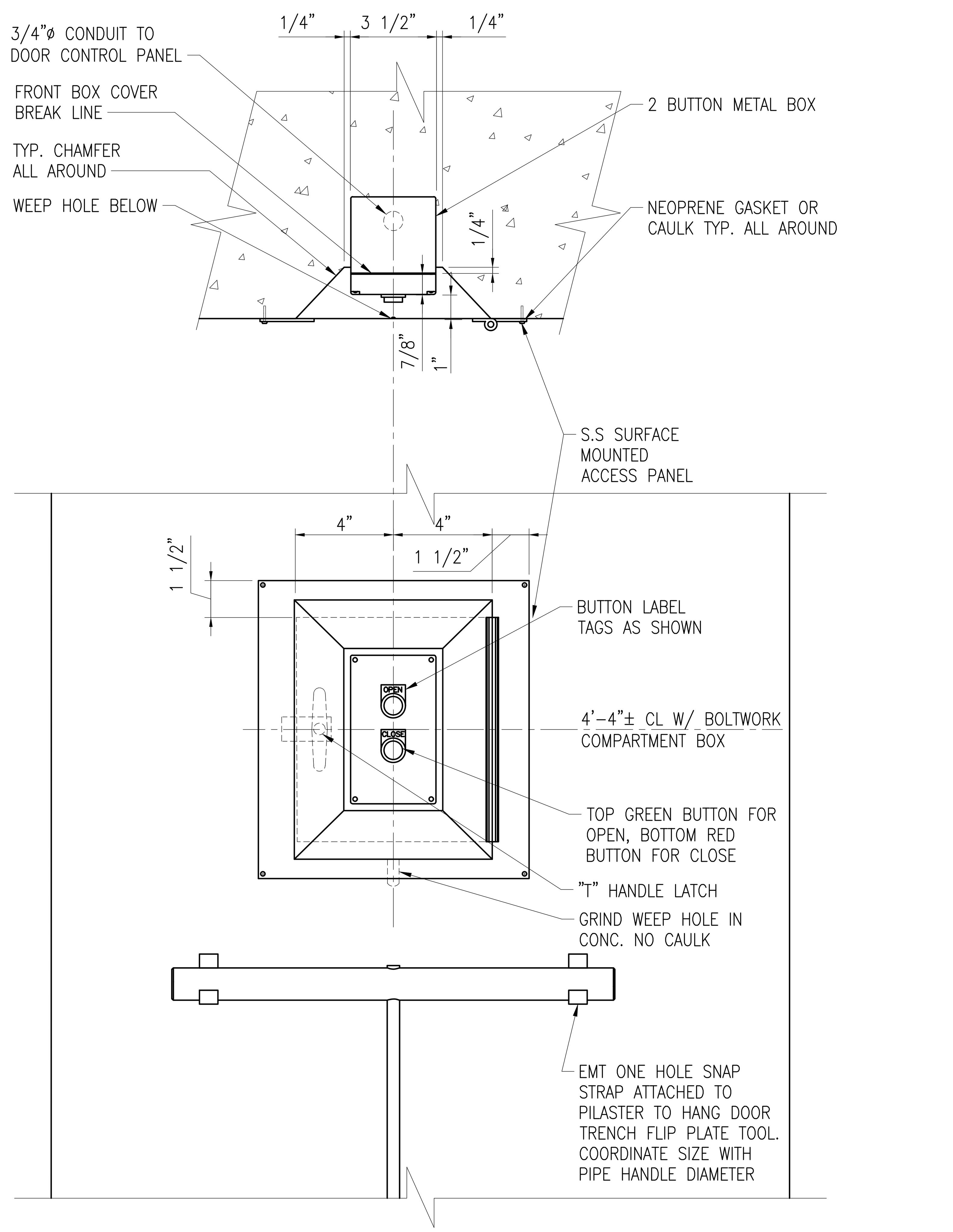
NAVFAC DRAWING NO.
12914730

SHEET 35 OF 62

S-512

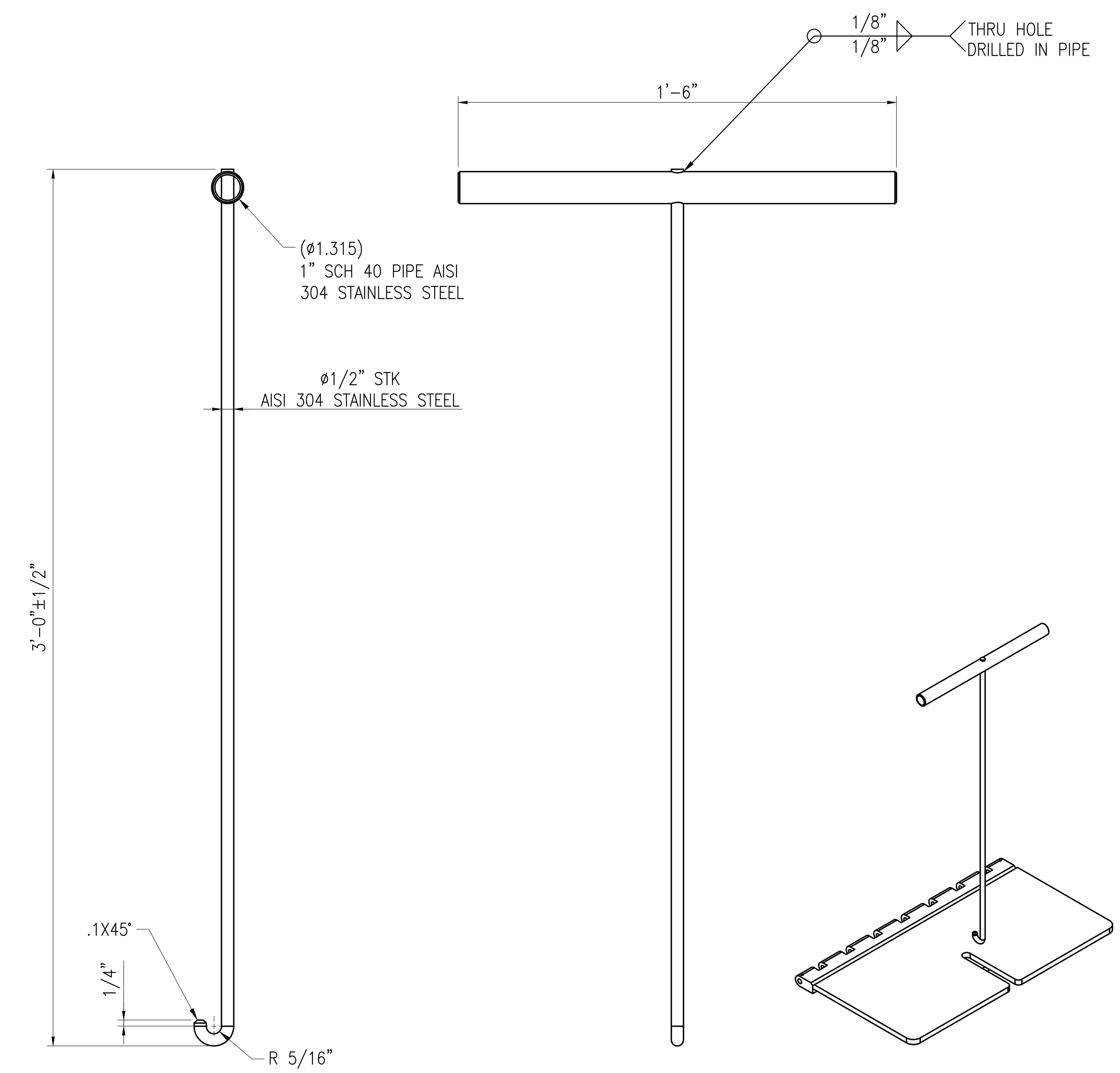
DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: i:\DCSE\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-512.dwg LAYOUT NAME: S-512 - SECURITY PILASTER DETAILS PLOTTED: Tuesday, September 24, 2024 - 10:13am USER: leslie.corsino



A1 — 2 BUTTON DOOR CONTROL CAST INTO CONC. PILASTER W/ ACCESS DOOR

SCALE: 3" = 1'-0"



A4 — TRENCH COVER PLATE FLIPPING TOOL (SUPPLY TWO FOR EACH MAGAZINE)

SCALE: 3" = 1'-0"

GRAPHIC SCALES

SCALE: 3" = 1'-0" 0 3" 6" 1'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED William Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES JAF	DRW SFF	CHK TPH
PM/DM		--
BRANCH MANAGER		--
CHIEF ENG/ARCH		--
FIRE PROTECTION		--

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

MISCELLANEOUS DETAILS

SCALE: 3" = 1'-0"
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914731
SHEET 36 OF 62

S-513

DRAWFORM REVISION: 25 AUGUST 2020

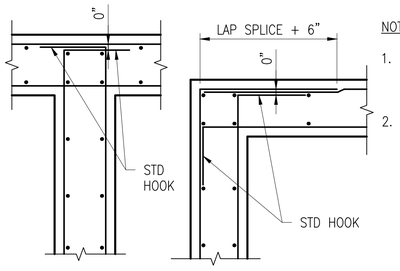
MINIMUM TENSION LAP SPLICE LENGTHS ("$1.3l_d$")			MINIMUM EMBEDMENT LENGTHS FOR STANDARD END HOOKS ("l_{dh}")	
BAR SIZE	f' = 5,000 PSI			
	TOP BARS	OTHER BARS	BAR SIZE	f' ≥ 5,000 PSI
#3	31.2	31.2	#3	6
#4	36.9	31.2	#4	8
#5	46.1	35.5	#5	10
#6	55.4	42.6	#6	12
#7	80.7	62.1	#7	13
#8	92.3	71.0	#8	15
#9	104.1	80.1	#9	17
#10	117.2	90.1	#10	19
#11	130.1	100.1	#11	22

NOTES:

1. IF CONCRETE COVER IS NOT GREATER THAN THE DIAMETER OF THE BAR OR THE CENTER TO CENTER SPACING IS NOT GREATER THAN (3) BAR DIAMETERS, THEN VALUES MUST BE INCREASED BY 50%. ALL LAPS ARE TYPICAL TENSION LAP SPLICES U.N.O. ON PLANS OR DETAILS.
2. "TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12 INCH DEPTH OF CONCRETE CAST BELOW THEM.
3. LAPS SPLICES AND EMBEDMENT LENGTHS SHOWN IN THIS DETAIL ARE BASED ON A DYNAMIC INCREASE FACTOR = 1.29. LAPS FOR REINFORCEMENT IN STRUCTURAL COMPONENTS NOT RELATED TO BLAST DESIGN (WING WALLS, FOUNDATIONS, SLAB-ON-GRADE) MAY BE REDUCED BY THE DYNAMIC INCREASE FACTOR. LAP SPLICES FOR REINFORCEMENT IN BLAST COMPONENTS (HEADER BEAM, HEADWALL, INFILL WALLS, ROOF SLAB, SIDE/ END WALLS, PILASTERS) MAY NOT BE REDUCED BY THE DYNAMIC INCREASE FACTOR.

C1 REINFORCING SPLICE SCHEDULE

SCALE: NONE

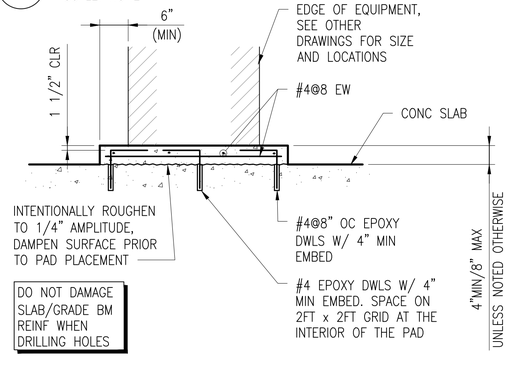


NOTES:

1. ALL HOOKS MUST BE STD 90 DEGREE HOOKS UNO.
2. SEE DRAWINGS FOR ADDITIONAL HORIZONTAL BARS. STAGGER BETWEEN TYPICAL REINF SPACING, EXTEND TO 1/5 OF DISTANCE TO NEAREST ADJACENT WALL IN EACH DIRECTION, UNO.

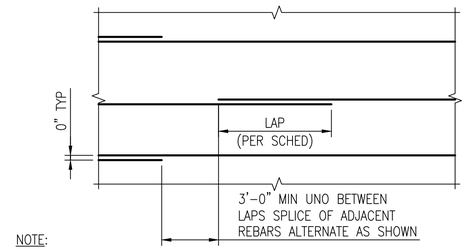
B1 WALL REINFORCEMENT AT CORNERS AND INTERSECTONS

SCALE: NONE



A1 TYPICAL MISCELLANEOUS HOUSEKEEPING PAD (INTERIOR)

SCALE: NONE

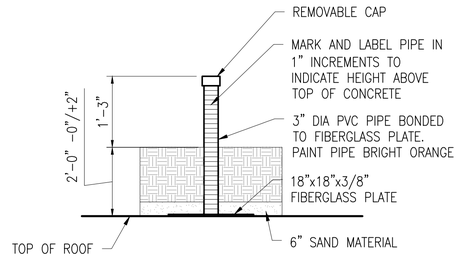


NOTE:

1. APPLIES TO FOUNDATION SLABS (BOTH DIRECTIONS) AND WALLS (HORIZONTAL ONLY), UNO.

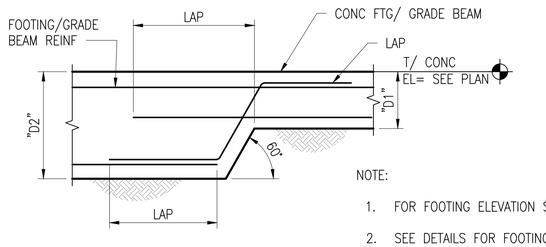
D3 REINFORCING SPLICE

SCALE: NONE



C3 DEPTH GAUGE DETAIL

SCALE: NONE

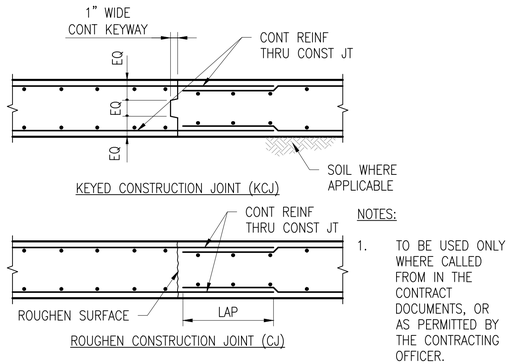


NOTE:

1. FOR FOOTING ELEVATION SEE SHEET S-201.
2. SEE DETAILS FOR FOOTING REINFORCEMENT AND LAYOUT.

B3 TYPICAL BOTTOM STEP FOOTING / GRADE BEAM

SCALE: NONE



NOTES:

1. TO BE USED ONLY WHERE CALLED FROM IN THE CONTRACT DOCUMENTS, OR AS PERMITTED BY THE CONTRACTING OFFICER.

A3 CONSTRUCTION JOINT DETAIL

SCALE: NONE

NO.	DESCRIPTION	DATE	APPR

NAVFAC

A/E INFO

APPROVED: W. Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH
PM/DM					--
BRANCH MANAGER					--
CHIEF ENG/ARCH					--
FIRE PROTECTION					--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

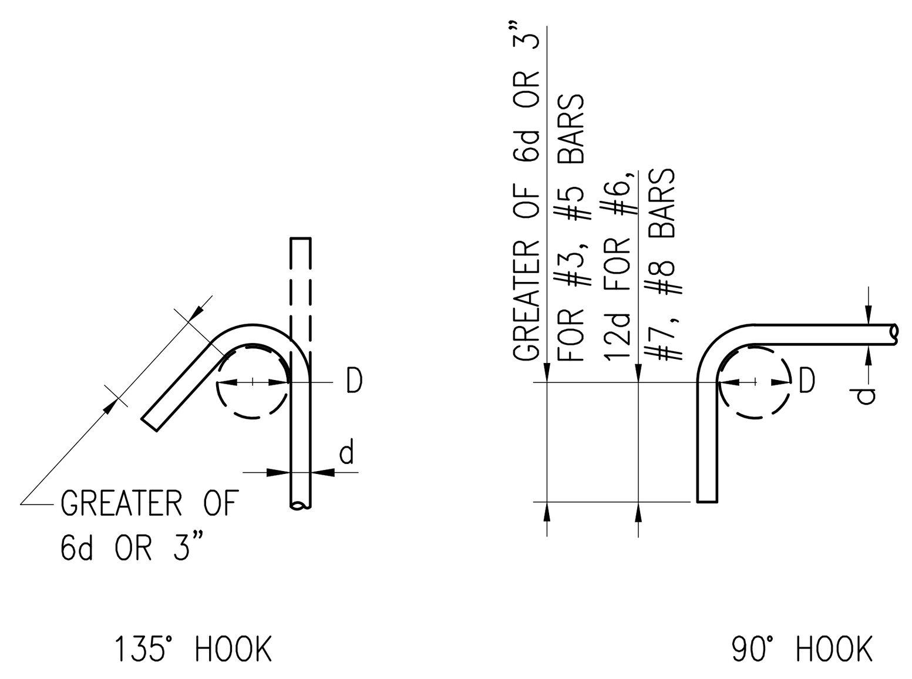
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

STANDARD DETAILS

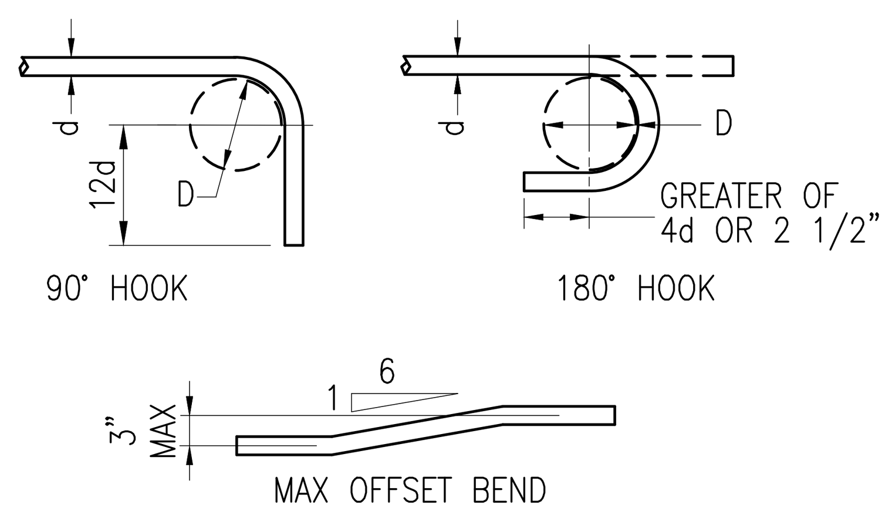
SCALE: NONE
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914732
SHEET 37 OF 62

S-514

DRAWFORM REVISION: 25 AUGUST 2020



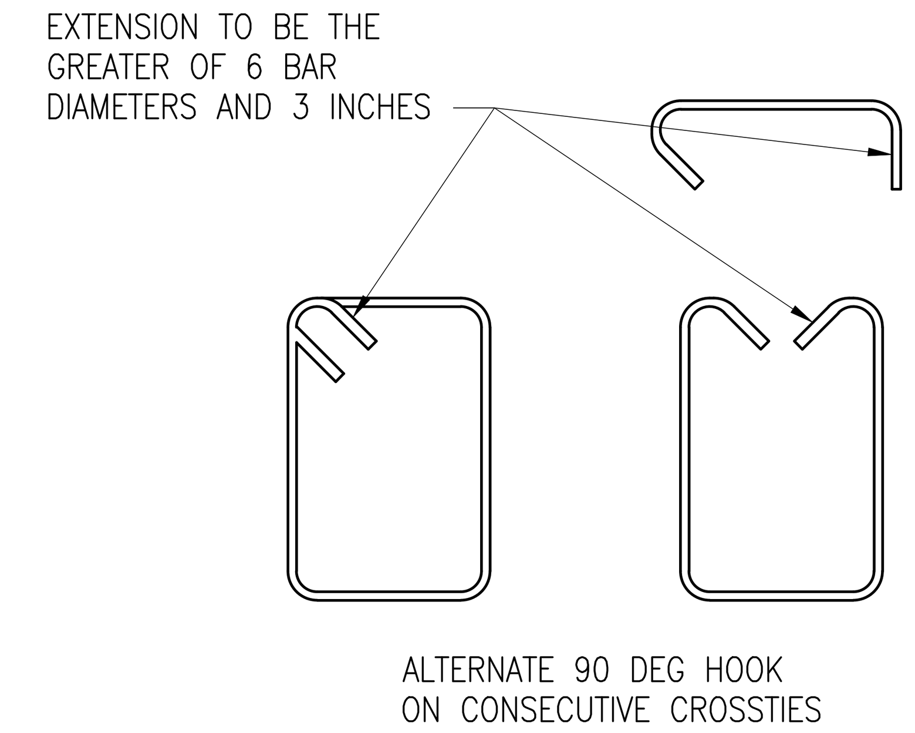
BAR SIZE	D
#3	1.5
#4	2
#5	2.5
#6	4.5
#7	5.25
#8	6



BAR SIZE	D
#3	2.25
#4	3
#5	3.75
#6	4.5
#7	5.25
#8	6
#9	9.5
#10	11
#11	12

NOTES:
D = FINISHED INSIDE BEND DIAMETER
d = BAR DIAMETER

C1 HOOK DIMENSIONS
SCALE: NONE



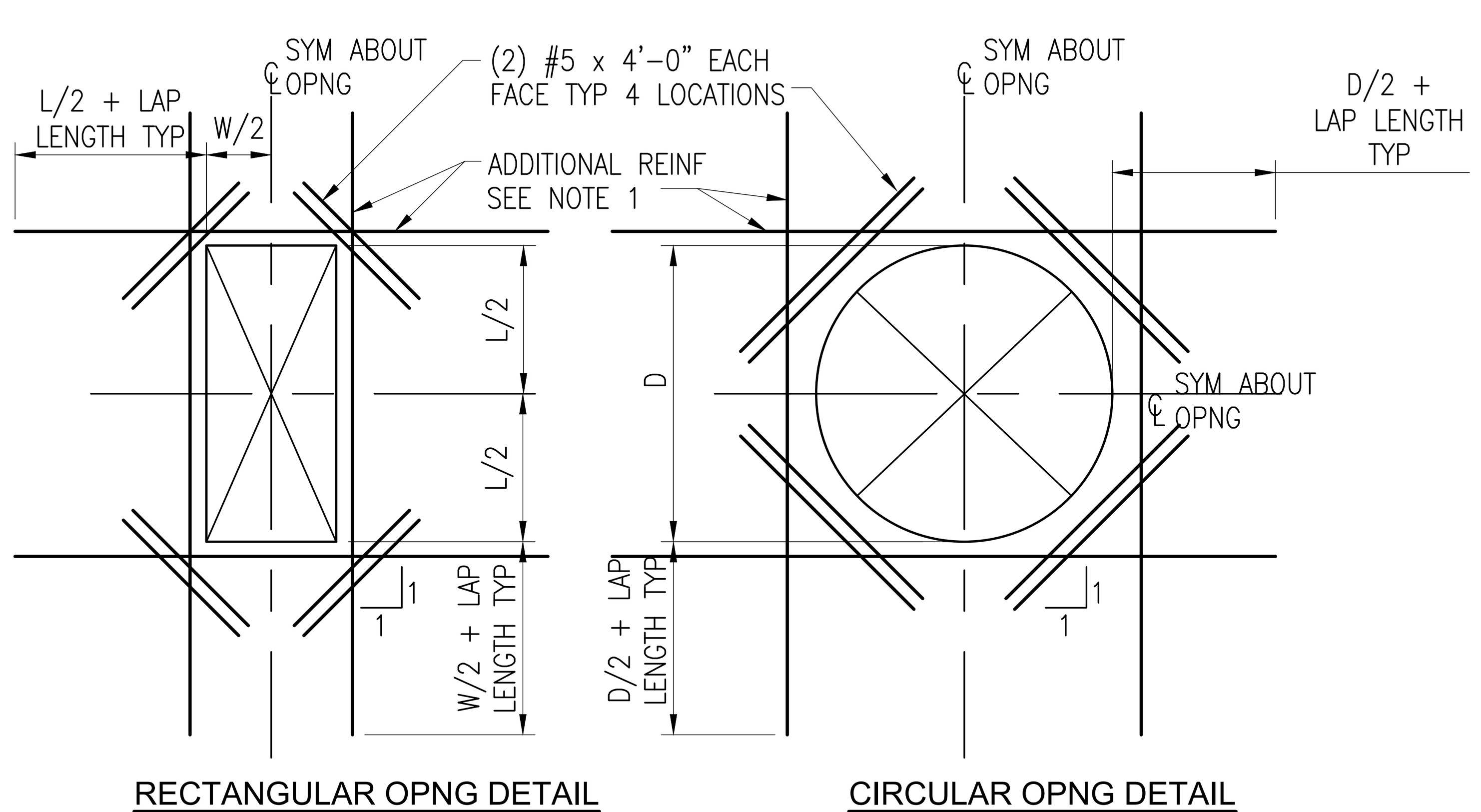
NOTE:

1. THIS IS A GENERAL DETAIL ONLY, UNO, AND THE STIRRUPS FOR THE HEADER BEAM PILASTER, HEADWALL AND ROOF MUST BE BENT AS SHOWN IN THEIR CORRESPONDING DETAILS.
2. USING A U STIRRUP WITH A CROSS–TIE INSTEAD OF A CLOSED TIE IS ACCEPTABLE FOR BEAMS ONLY, PER ACI 318–19 PARAGRAPH 9.7.7.

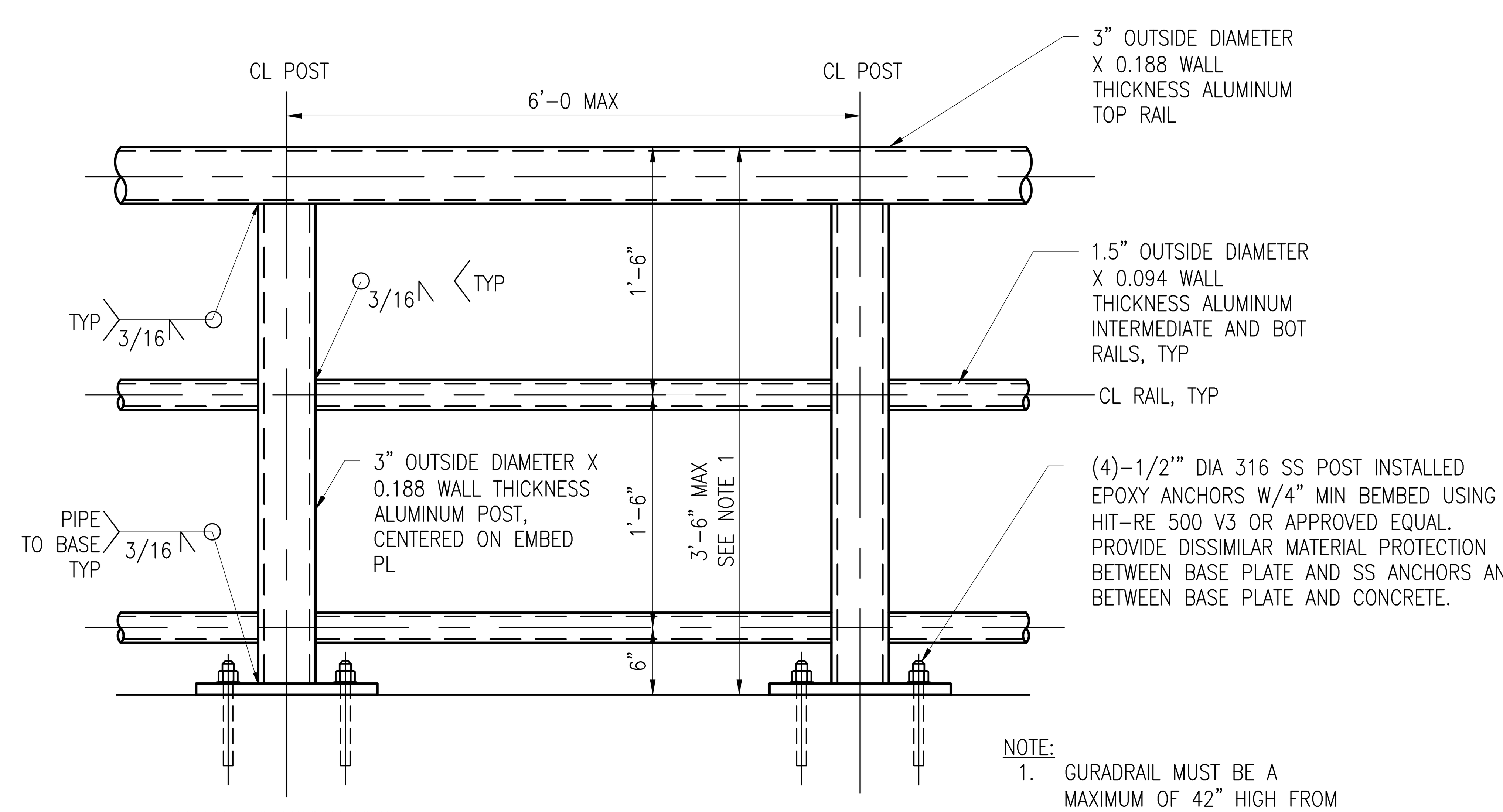
D4 SEISMIC HOOP CLOSED STIRRUP/ TIE DETAIL
SCALE: NONE

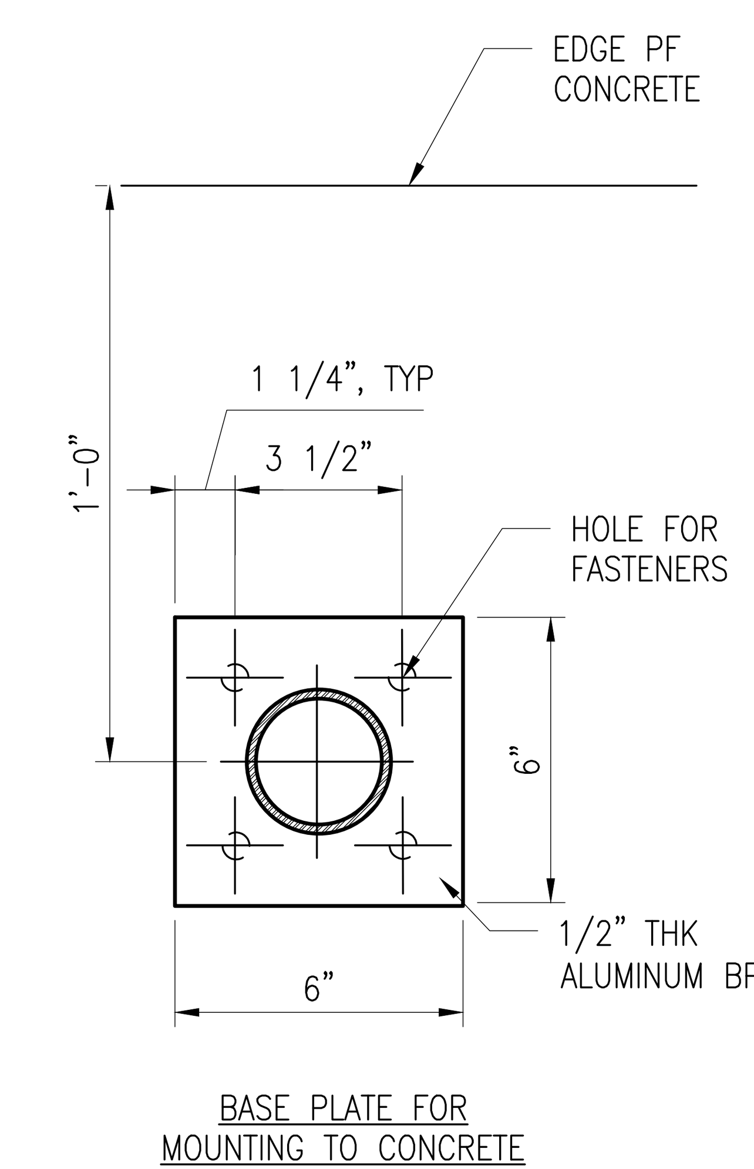
NOTES:

1. PROVIDE ADDITIONAL REINFORCING THE SAME SIZE AS DISCONTINUOUS REINFORCEMENT AT OPENING. QUANTITY OF REINFORCING IN EACH DIRECTION MUST BE EQUAL TO OR ONE GREATER THAN THE NUMBER OF DISCONTINUOUS BARS. PLACE 1/2 OF ADDITIONAL REINFORCING BARS EACH SIDE OF OPENING, PLACE ADDITIONAL REINFORCEMENT AT 3" OC (TYPICAL BOTH DIRECTIONS AND ALL LAYERS OF REINFORCEMENT). START FIRST BAR 2" CLEAR TO OPENING.
2. EXTEND ADDITIONAL REINFORCING BEYOND EDGE OF OPENING AS SHOWN. ADDITIONAL BARS MAY TERMINATE AT THE END OF THE WALL OR INTO THE SLAB WITH A STANDARD HOOK WHERE THE LENGTH OF THE WALL OR SLAB WILL NOT PERMIT BARS TO EXTEND AS SHOWN.
3. TYPICAL WALL OR SLAB REINFORCING NOT SHOWN FOR CLARITY. TERMINATE TYPICAL REINFORCING 2" CLEAR TO OPENING.
4. ADDITIONAL REINFORCING AS SHOWN IS REQUIRED IN ANY CASE FOR SLABS, WALLS, AND FOUNDATIONS WHERE THE OPENING SIZE IS GREATER THAN THE SPACING OF REINFORCING IN EITHER DIRECTION MINUS 4" OF CONCRETE COVER (2" COVER EACH SIDE OF OPENING).



A1 EXTRA REINFORCING AROUND OPENINGS
SCALE: NONE





NOTE:
1. GURADRAIL MUST BE A MAXIMUM OF 42" HIGH FROM TOC TO TOP RAIL.

A3 ALUMINUM GUARDRAIL DETAIL
SCALE: NONE

SYM | DESCRIPTION | DATE | APPR

SEAL

A/E INFO

APPROVED William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES JAF	DRW SFF	CHK TPH

PM/DM	--
BRANCH MANAGER	--
CHIEF ENG/ARCH	--
FIRE PROTECTION	--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

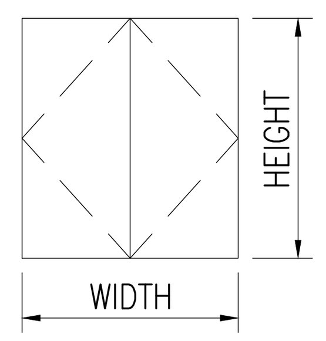
STANDARD DETAILS

SCALE:	NONE
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914733
SHEET	38 OF 62

S-515

DOOR SCHEDULE										
DOOR TYPE	SIZE			MATERIAL	FINISH	SIZE			HARDWARE	U_VALUE
	HEIGHT	WIDTH	THICKNESS			HEAD	JAMB	SILL		
B	15'-11" INT. 15'-9 1/4" EXT.	37'-0"	0'-9"	STEEL	PAINT				2	PER FACILITY DESIGN STANDARD
A	6'-8"	6'-0"	0'-1 3/4"	INSULATED HOLLOW METAL	PAINT				1	

NOTE: TYPE A DOOR SHALL BE A DOUBLE EGRESS DOOR – RHR (RIGHT HAND REVERSE).

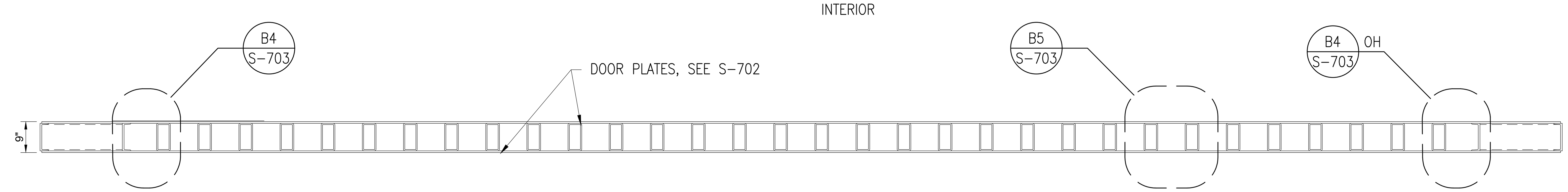


TYPE 'A'

TYPE 'B': SLIDING BLAST DOOR FOR OPENING SEE SHEET C1/ S-201

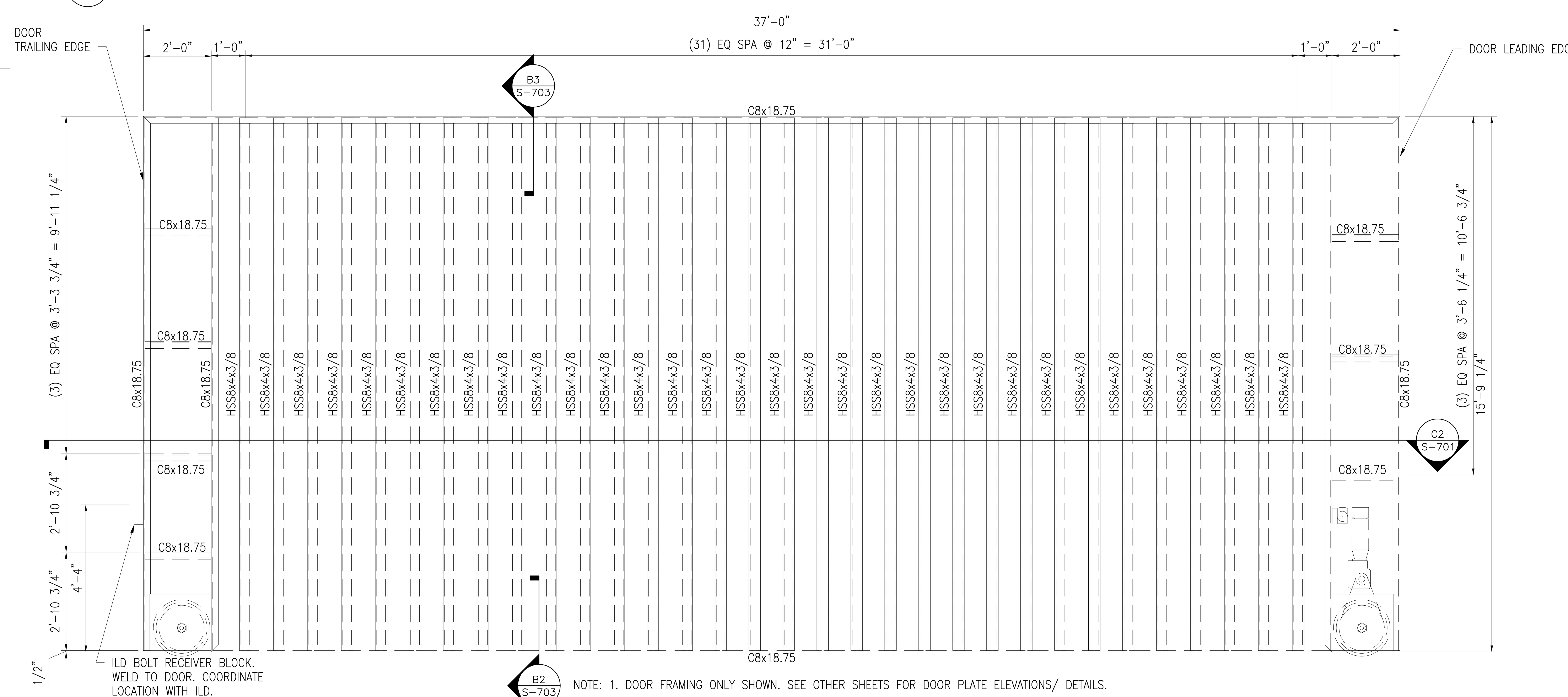
C1 DOOR LEGEND

SCALE: NONE



C2 DOOR FRAMING SECTION

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



NOTE: 1. DOOR FRAMING ONLY SHOWN. SEE OTHER SHEETS FOR DOOR PLATE ELEVATIONS/ DETAILS.

A2 DOOR FRAMING ELEVATION

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

HW SET #1	
DOOR: TYPE A	
QTY	HARDWARE
6	HINGE (A5111) FULL MORTISE W/ MODIFIED NON-REMOVABLE PIN
2	EXIT DEVICE (FF-L-2890B)
1	CYLINDER W/ EXTERNAL LEVER COMPATIBLE W/ EXIT DEVICE
1	ELECTRIC STRIKE (E09391)
1	ELECTRIC STRIKE (E09391)
2	KICK PLATE (J102)
2	OVERHEAD STOP (C01541)
1	REMOVABLE ASTRAGAL
1	THRESHOLD (J35100)
1	HEAD GASKET (R0Y164)
1	JAMB GASKET (R0Y164)
1	RAIN DRIP (R0Y976)
1	SWEEP (R0Y416)
1	BALANCE MAGNETIC SWITCH (UL 634 HSS)
1	INTERNAL LOCKING DEVICE (ILD)
1	INTRUSION DETECTION SYSTEM (IDS)

HW SET #2	
DOOR: TYPE B	
QTY	HARDWARE
1	INTERNAL LOCKING DEVICE (ILD)
1	INTRUSION DETECTION SYSTEM (IDS)
1	SWITCH (UL 634 HSS)
REFER TO DETAILS FOR SPECIFIC GASKETING AND FABRICATED ELEMENTS.	

GENERAL NOTES:

1. ALL FINISHES, BHMA 630; 626.
2. LOCKSETS AND LATCHES MUST COMPLY WITH (ANSI/ BHMA A156.13, SERIES 1000, OPERATIONAL GRADE 1, SECURITY GRADE (L) (2) (AND) (ANSI/ BHMA A156.2, SERIES 4000, GRADE L).
3. COORDINATE ALL HARDWARE SECURITY REQUIREMENTS WITH THE SERVICE AND INSTALLATION SECURITY PERSONNEL.
4. ALL HIGH SECURITY ILDs ARE GFCI.

A1 DOOR HARDWARE SCHEDULE

SCALE: NONE

GRAPHIC SCALES

SCALE: 1/2" = 1'-0" 0 1' 2' 4'

SYM | DESCRIPTION | DATE | APPR

NAVFAC

A/E INFO

APPROVED William Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES JAF | DRW SFF | CHK TPH

PM/DM --

BRANCH MANAGER --

CHIEF ENG/ARCH --

FIRE PROTECTION --

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

DOOR ELEVATION, NOTES AND SCHEDULES

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

EPROJECT NO.: 164487

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12914734

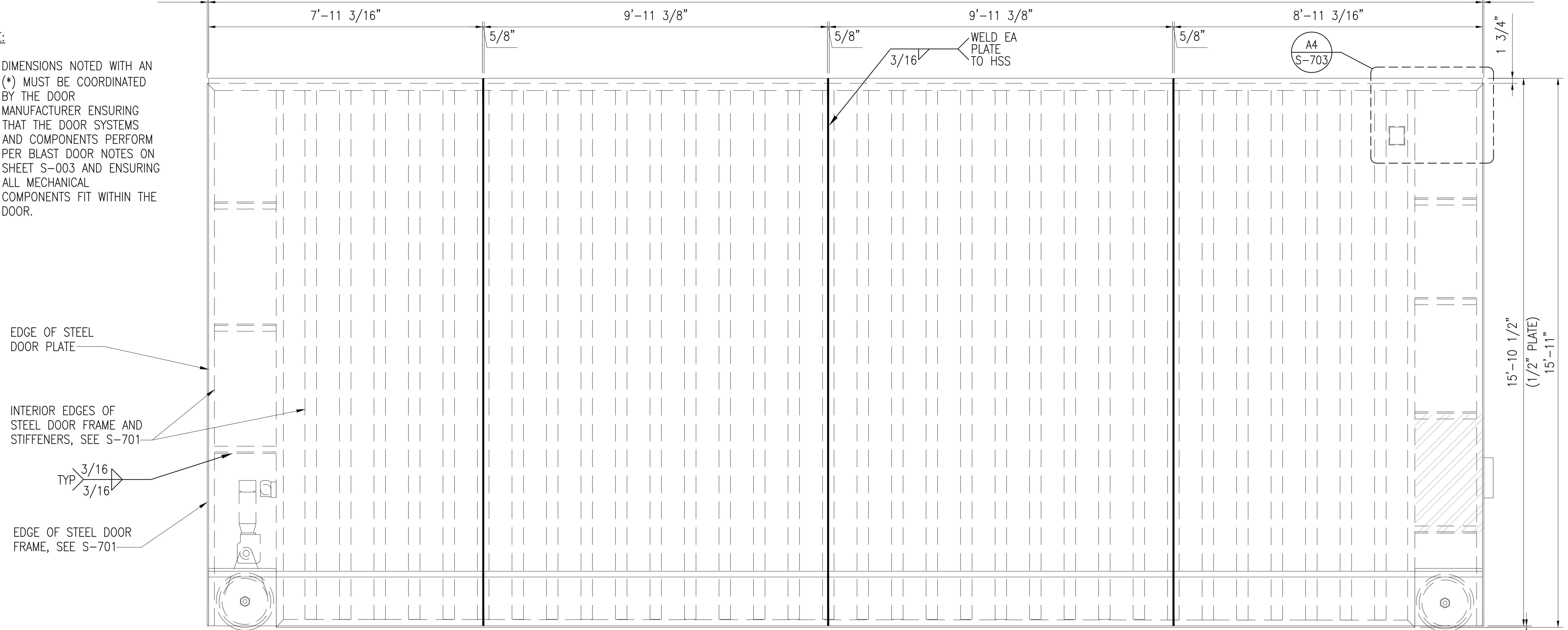
SHEET 39 OF 62

S-701

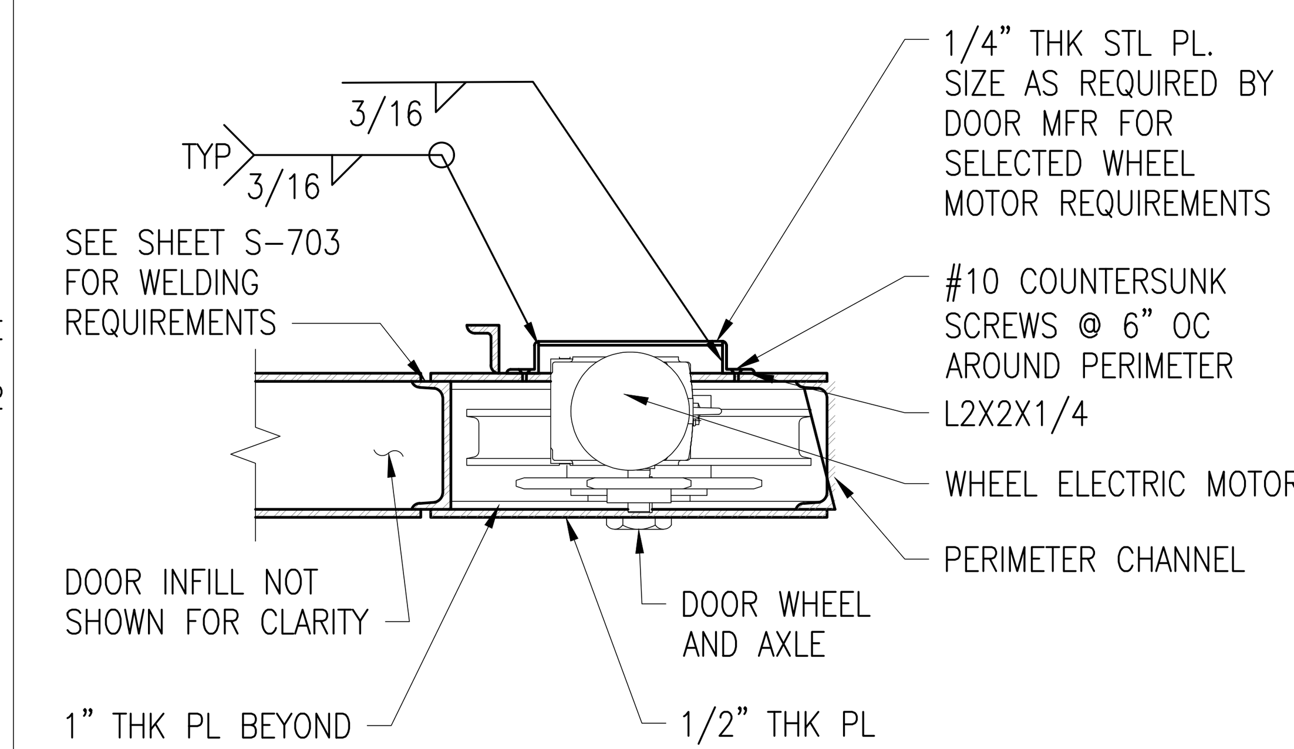
DRAWFORM REVISION: 25 AUGUST 2020

NOTE:

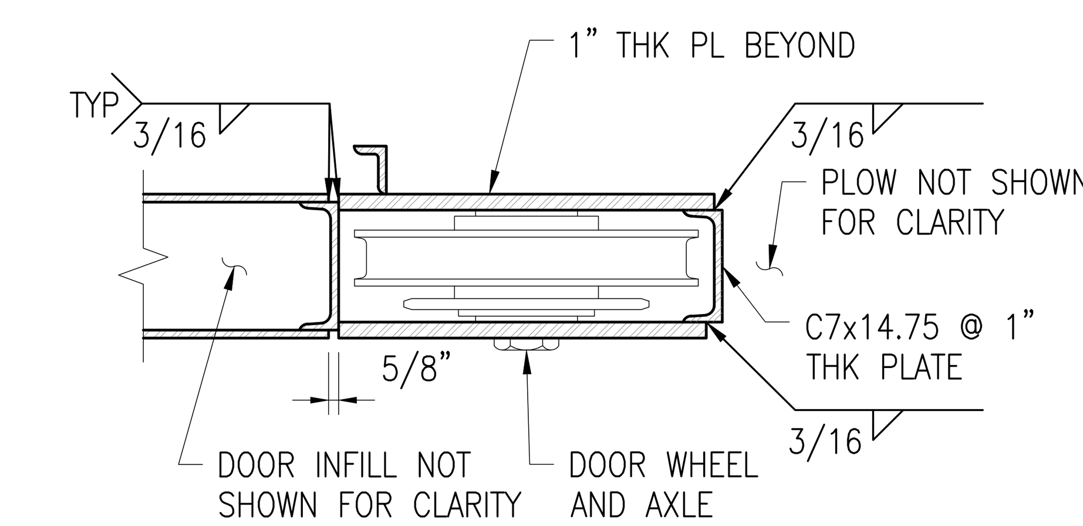
1. DIMENSIONS NOTED WITH AN (*) MUST BE COORDINATED BY THE DOOR MANUFACTURER ENSURING THAT THE DOOR SYSTEMS AND COMPONENTS PERFORM PER BLAST DOOR NOTES ON SHEET S-003 AND ENSURING ALL MECHANICAL COMPONENTS FIT WITHIN THE DOOR.



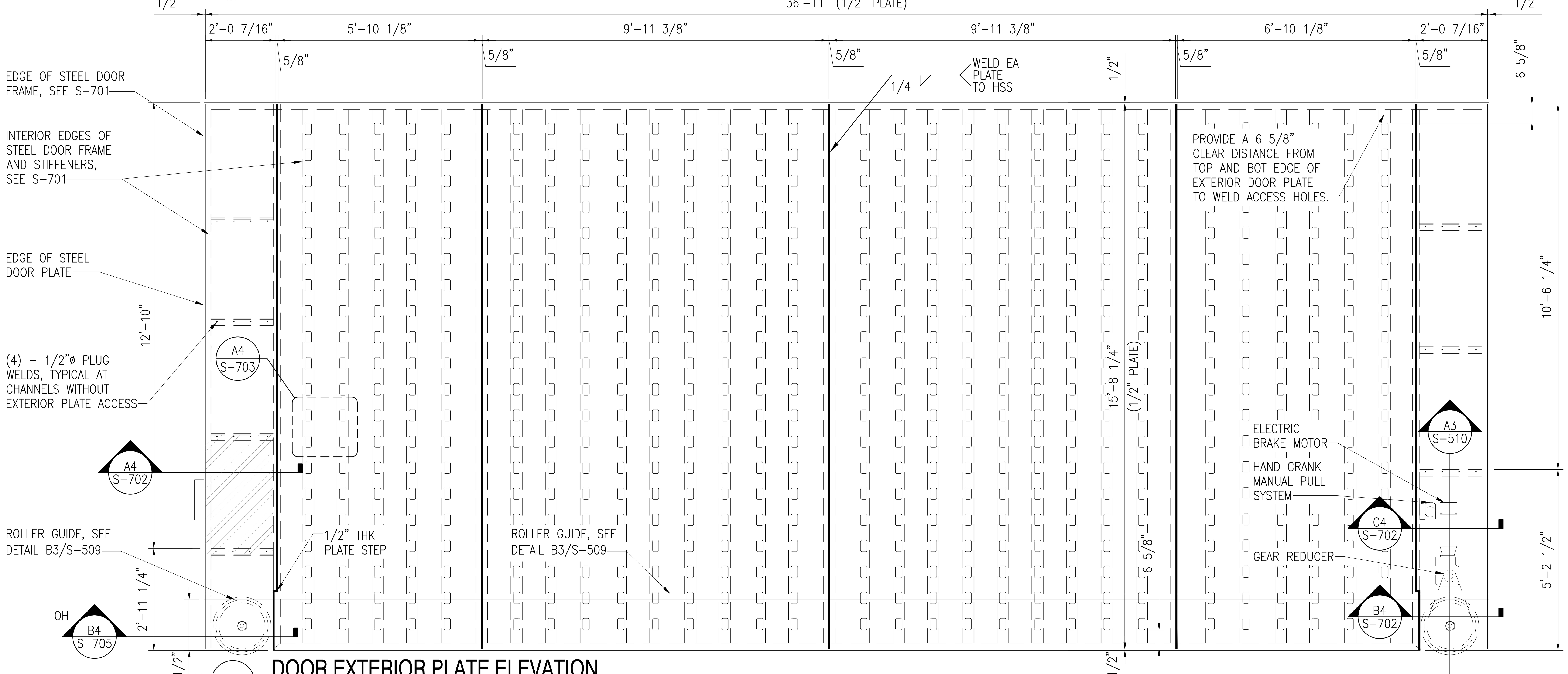
C1 DOOR INTERIOR PLATE ELEVATION
SCALE: 1/2" = 1'-0"



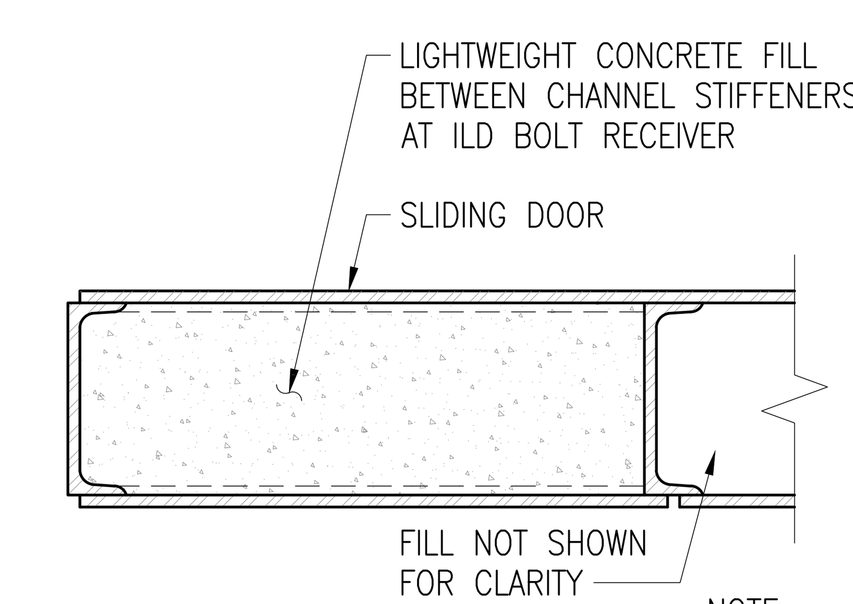
C4 DETAIL - DOOR WHEEL AND WHEEL MOTOR
SCALE: 1" = 1'-0"



B4 DETAIL - DOOR WHEEL
SCALE: 1" = 1'-0"



A1 DOOR EXTERIOR PLATE ELEVATION
SCALE: 1/2" = 1'-0"



NOTE:
1. SEE SHEET S-703 FOR WELDING REQUIREMENTS.

A4 DETAIL - ILD BOLT RECEIVER DOOR FILL
SCALE: 1 1/2" = 1'-0"

GRAPHIC SCALES

SCALE: 1/2" = 1'-0" 0 1' 2' 4'

SCALE: 1" = 1'-0" 0 6" 1' 2'

SCALE: 1 1/2" = 1'-0" 0 6" 1' 2'

A/E INFO

APPROVED William Forbes

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JAF	DRW SFF	CHK TPH
PM/DM		--
BRANCH MANAGER		--
CHIEF ENG/ARCH		--
FIRE PROTECTION		--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

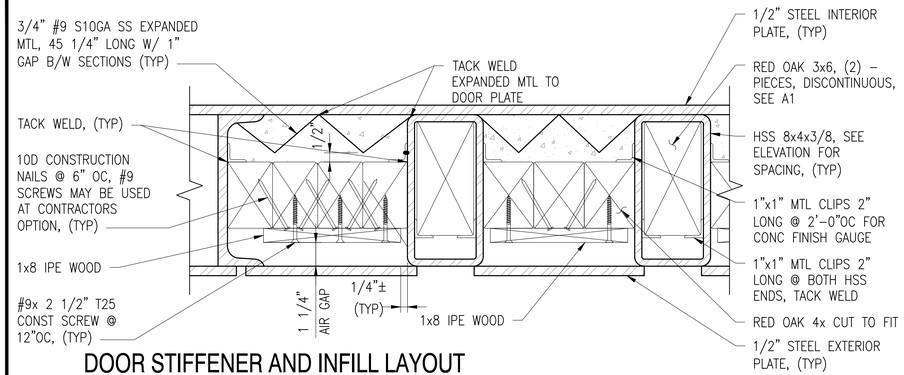
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

DOOR ELEVATION AND DETAILS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914735
SHEET 40 OF 62

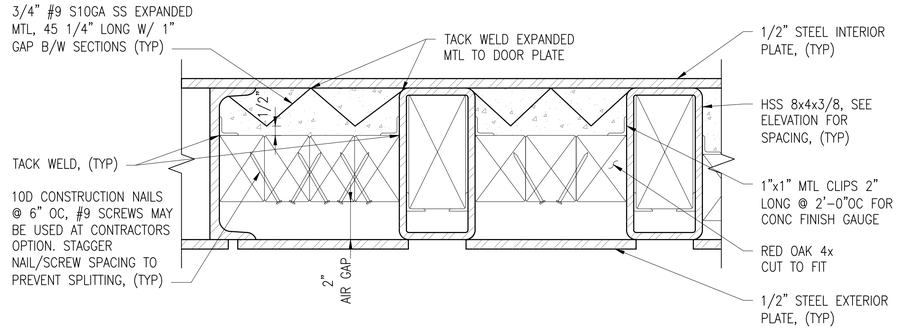
S-702

DRAWFORM REVISION: 25 AUGUST 2020



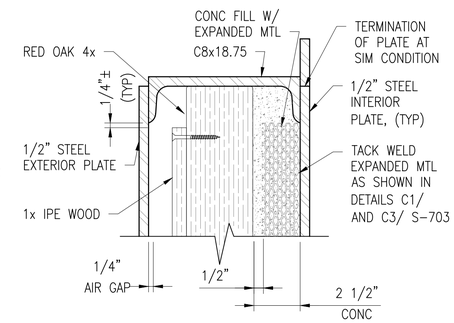
C1 DOOR STIFFENER AND INFILL LAYOUT TOP/ BOTTOM DOOR SECTIONS

SCALE: 3" = 1'-0"



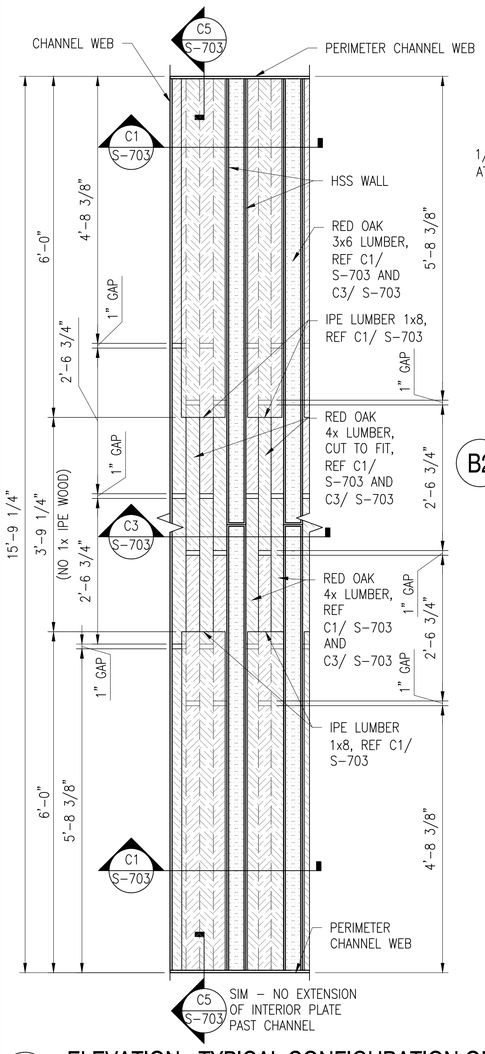
C3 DOOR STIFFENER AND FILL LAYOUT - MIDDLE DOOR SECTION

SCALE: 3" = 1'-0"



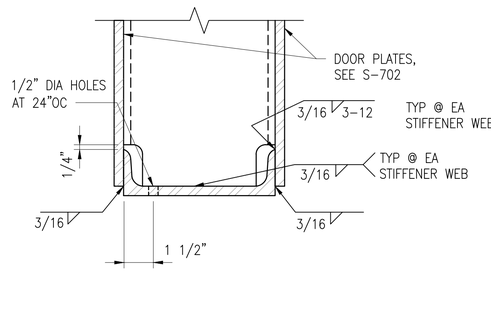
C5 DOOR TOP LAYOUT

SCALE: 3" = 1'-0"



A1 ELEVATION - TYPICAL CONFIGURATION OF DOOR INFILL

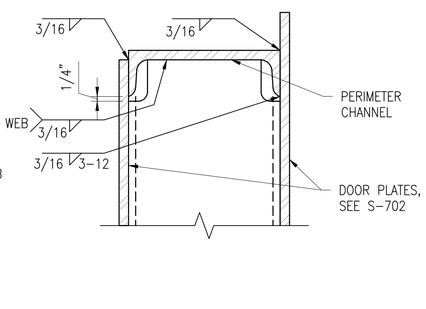
SCALE: 3/4" = 1'-0"



NOTE: DOOR INFILL NOT SHOWN FOR CLARITY.

B2 DETAIL AT BOTTOM OF DOOR

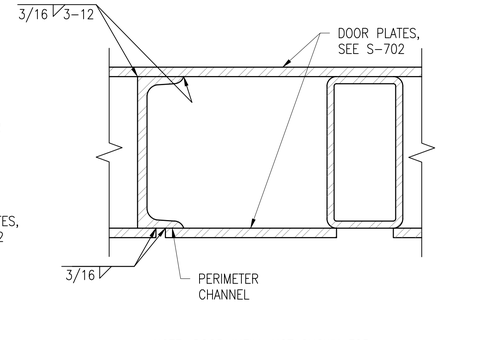
SCALE: 3" = 1'-0"



NOTE: DOOR INFILL NOT SHOWN FOR CLARITY.

B3 DETAIL AT TOP OF DOOR

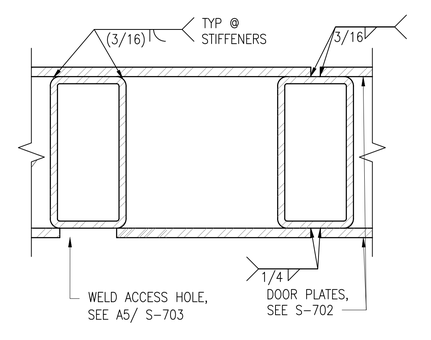
SCALE: 3" = 1'-0"



NOTE: DOOR INFILL NOT SHOWN FOR CLARITY

B4 WELD DETAIL AT DOOR EDGE

SCALE: 3" = 1'-0"



NOTE: DOOR INFILL NOT SHOWN FOR CLARITY

B5 WELD DETAIL AT INTERIOR STIFFENERS

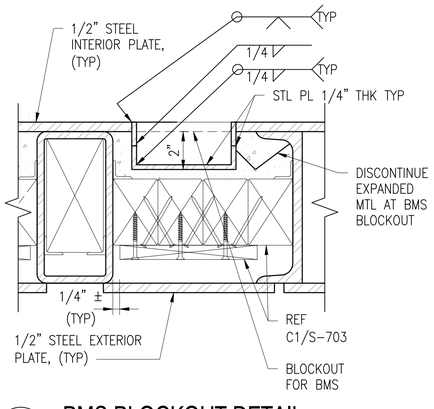
SCALE: 3" = 1'-0"

NOTES TO DESIGNER:

1. WOOD INFILL SHOWN ON THIS SHEET CONSISTS OF RED OAK AND IPE SPECIES. THE WOOD INFILL IS REQUIRED FOR PHYSICAL SECURITY RATING OF THE DOOR, AND RED OAK AND IPE ARE SPECIFIED AS HARDWOODS WITH DESIRABLE TRAITS FOR ENHANCED PHYSICAL SECURITY. THE SITE-ADAPT ENGINEER MAY SELECT ALTERNATIVE HARDWOOD SPECIES IF RED OAK AND/OR IPE ARE NOT READILY AVAILABLE AT THE INSTALLATION SITE. HOWEVER, THE SITE-ADAPT ENGINEER SHOULD CONSIDER HARDWOOD SPECIES WITH SIMILAR MATERIAL PROPERTIES TO RED OAK AND IPE FOR ENHANCED PHYSICAL SECURITY.

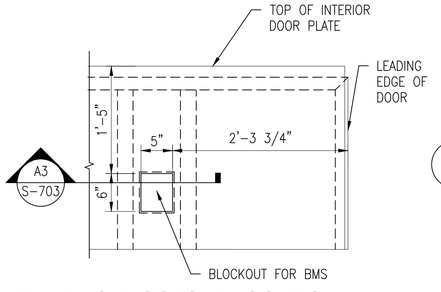
SHEET NOTES:

1. CONCRETE FILLED DOORS REQUIRE WHEELS OFFSET NOMINAL TOWARD THE INTERIOR SIDE OF THE DOOR. DOOR MANUFACTURER MUST VERIFY CENTER OF GRAVITY OF DOOR PRIOR TO FINAL CONSTRUCTION.
2. EXPANDED METAL REINFORCEMENT SHOWN IN THE CONCRETE FILL LAYER INSIDE THE DOOR IN DETAILS C1 AND C3 OF THIS SHEET MUST BE PLACED IN (4) DIFFERENT PIECES OF METAL WITH EQUAL LENGTHS AND PLACED IN THE CONCRETE FILL TO BE DISCONTINUOUS WITHOUT ATTACHING OR LAPPING THE DIFFERENT SEGMENTS TOGETHER. PROVIDE 1" GAP BETWEEN ADJACENT SECTIONS OF EXPANDED METAL REINFORCEMENT, AS INDICATED IN THE DETAILS.



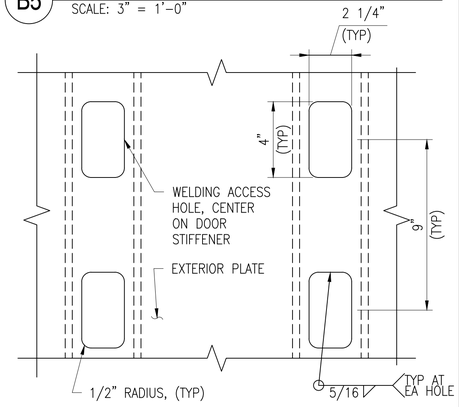
A3 BMS BLOCKOUT DETAIL

SCALE: 3" = 1'-0"



A4 BMS BLOCKOUT LOCATION

SCALE: 1" = 1'-0"



A5 EXTERIOR PLATE TO HSS STIFFENER CONNECTION

SCALE: 3" = 1'-0"

GRAPHIC SCALES

SCALE: 3/4" = 1'-0" 0 1' 2' 4'

SCALE: 1" = 1'-0" 0 6" 1' 2'

SCALE: 3" = 1'-0" 0 3" 6" 1'

APPR	
DATE	
DESCRIPTION	
SYM	
A/E INFO	
APPROVED BY	
FOR COMMANDER NAVFAC	24 SEP 2024
ACTIVITY	
SATISFACTORY TO	DATE
DES JAF	DRW SFF CHK TPH
PM/OM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

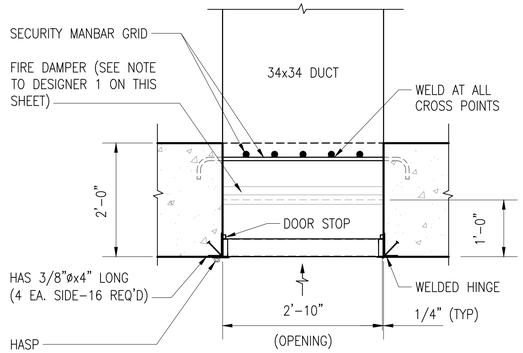
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

DOOR DETAILS

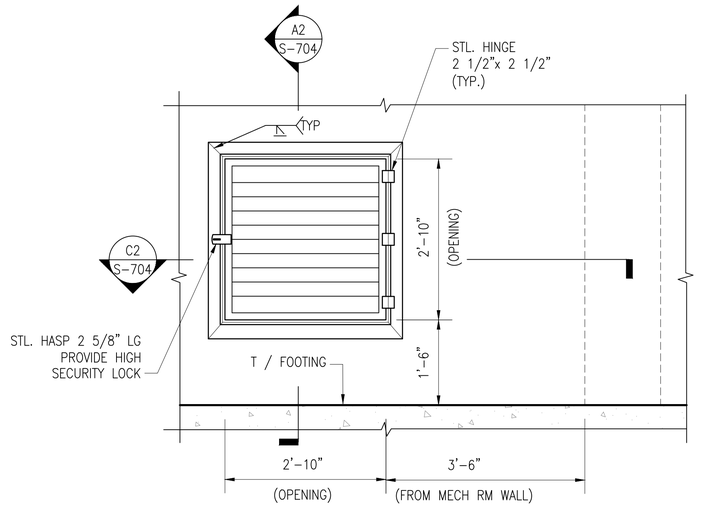
SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914736
SHEET	41 OF 62

S-703

DRAWFORM REVISION: 25 AUGUST 2020



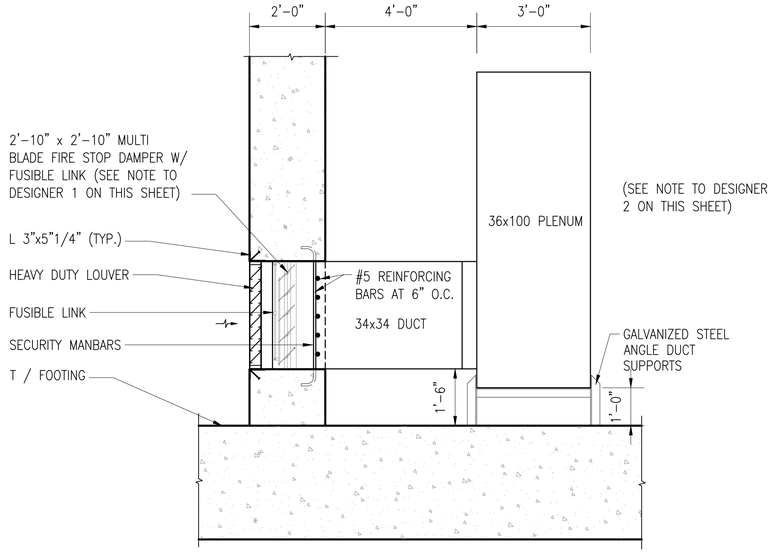
C2 SECTION
SCALE: 3/4" = 1'-0"



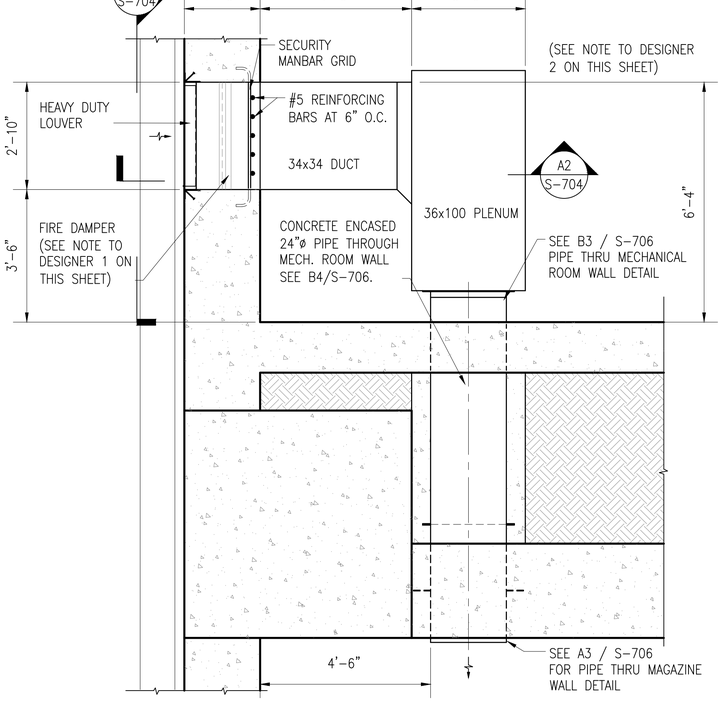
C4 SECTION
SCALE: 3/4" = 1'-0"

NOTES TO DESIGNER

1. PROVIDE SCREENED FIRE DAMPER COMPONENTS ONLY IF REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
2. DUCTWORK SHOWN FOR NATURAL VENTILATION ONLY. IF MECHANICAL HVAC SYSTEMS ARE INSTALLED, INDICATED DUCTWORK SHALL BE ADJUSTED TO ACCOMODATE HVAC SYSTEMS.



A2 SECTION
SCALE: 1/2" = 1'-0"



A4 AIR INTAKE DETAIL
SCALE: 1/2" = 1'-0"

GRAPHIC SCALES
SCALE: 1/2" = 1'-0" (0, 1', 2', 4')

SCALE: 3/4" = 1'-0" (0, 1', 2', 4')

APPR | DATE | DESCRIPTION | SYM

NAVFAC

SEAL

A/E INFO

WARRANT Forbes
FOR COMMANDER NAVFAC 29 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM
BRANCH MANAGER
CHIEF ENG/ARCH
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

AIR INTAKE SECTIONS AND DETAILS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914737
SHEET 42 OF 62

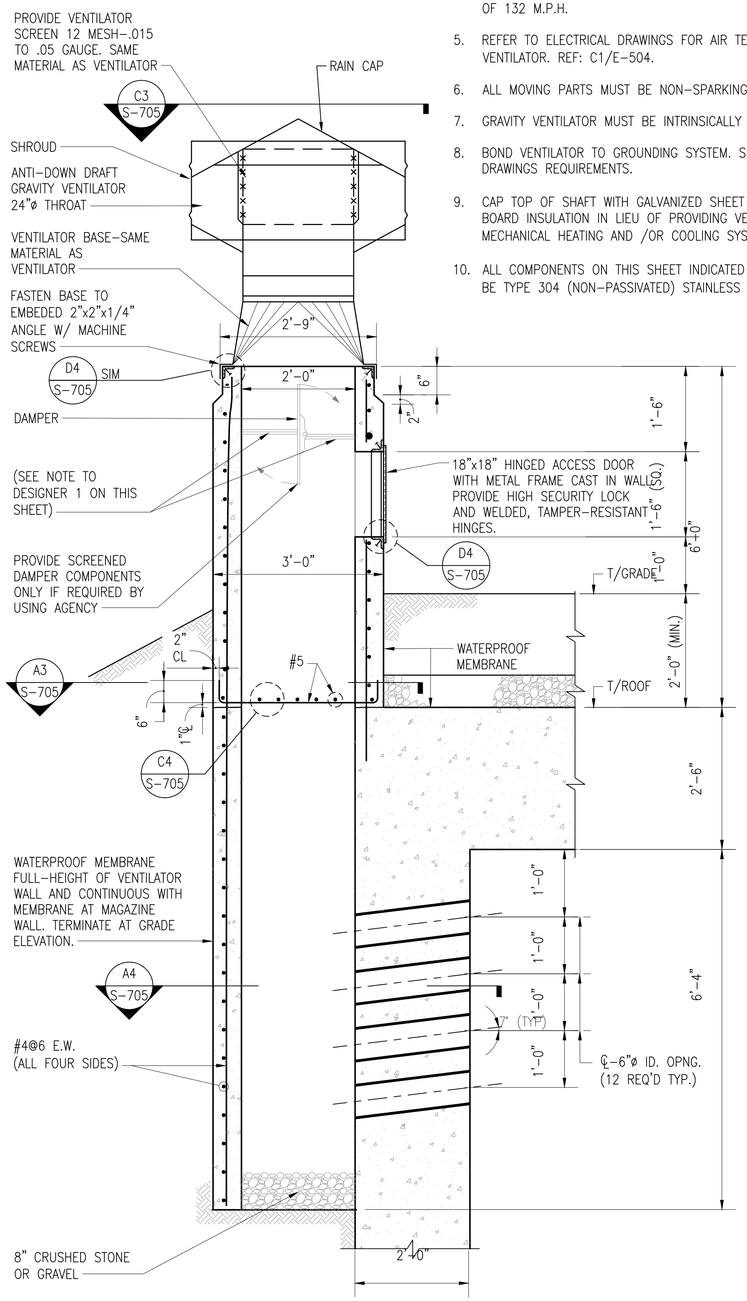
S-704

DRAWFORM REVISION: 25 AUGUST 2020

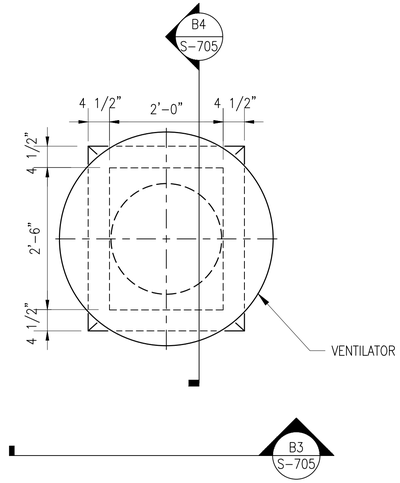
FILE NAME: J:\DOCS\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_080224\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\S-704.dwg LAYOUT NAME: S-704 - AIR INTAKE SECTIONS AND DETAILS PLOTTED: Tuesday, September 24, 2024 - 10:13am USER: leslie.corsino

NOTES TO DESIGNER:
1. PROVIDE SCREENED FIRE DAMPER COMPONENTS ONLY IF REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ).

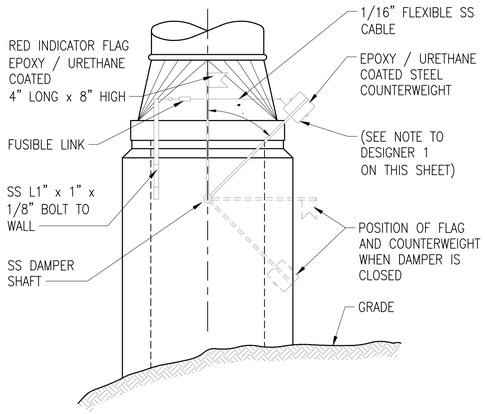
NOTES:
1. ALL DAMPER AND SHAFT ASSEMBLIES MUST OPERATE FREELY AND POSITIVELY.
2. FUSIBLE LINKS MUST HAVE MELTING POINT OF 160° TO 165° F. BREAKING STRENGTH MUST BE SUITABLE FOR LOADS IMPOSED BY COUNTERWEIGHTS.
3. ALL SET SCREWS & MACHINE SCREWS MUST BE STAINLESS STEEL.
4. VENTILATOR MUST BE DESIGNED FOR A SUSTAINED WIND SPEED OF 132 M.P.H.
5. REFER TO ELECTRICAL DRAWINGS FOR AIR TERMINAL LOCATION ON VENTILATOR. REF: C1/E-504.
6. ALL MOVING PARTS MUST BE NON-SPARKING TYPE.
7. GRAVITY VENTILATOR MUST BE INTRINSICALLY SAFE.
8. BOND VENTILATOR TO GROUNDING SYSTEM. SEE ELECTRICAL DRAWINGS REQUIREMENTS.
9. CAP TOP OF SHAFT WITH GALVANIZED SHEET METAL WITH 2" RIGID BOARD INSULATION IN LIEU OF PROVIDING VENTILATOR WHERE A MECHANICAL HEATING AND /OR COOLING SYSTEM IS REQUIRED.
10. ALL COMPONENTS ON THIS SHEET INDICATED TO BE "SS" MUST BE TYPE 304 (NON-PASSIVATED) STAINLESS STEEL.



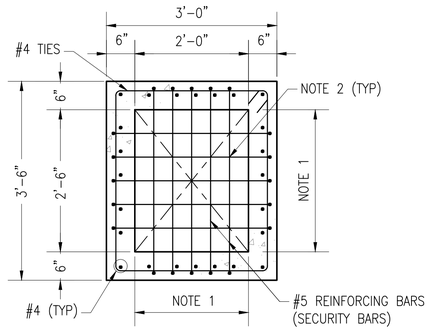
A1 SECTION
SCALE: 3/4" = 1'-0"



C3 DETAIL AT VENTILATOR
SCALE: 3/4" = 1'-0"

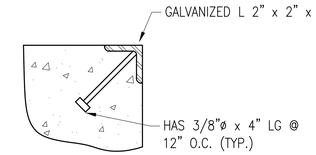


B3 ELEVATION AT VENTILATOR
SCALE: 3/4" = 1'-0"

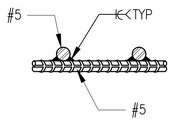


NOTES:
1. 6 EVEN SPACES EACH WAY FOR GRID PATTERN.
2. WELD AT ALL CROSS POINTS.

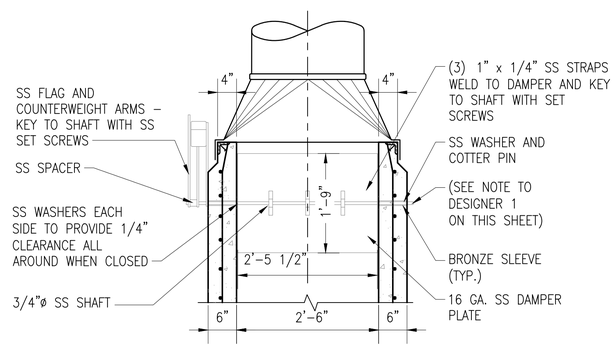
A3 SECTION AT VENTILATOR
SCALE: 3/4" = 1'-0"



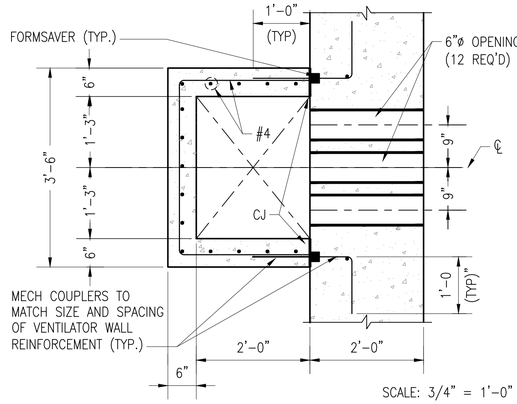
D4 DETAIL
SCALE: 3" = 1'-0"



C4 DETAIL
SCALE: 3" = 1'-0"



B4 SECTION AT VENTILATOR
SCALE: 3/4" = 1'-0"



A4 SECTION AT VENTILATOR
SCALE: 3/4" = 1'-0"

GRAPHIC SCALES
SCALE: 3/4" = 1'-0"
0 1' 2' 4'
SCALE: 3" = 1'-0"
0 3" 6" 1'

			APPR.
			DATE
			DESCRIPTION
			SYM

NAVFAC

SEAL

A/E INFO

Approved for Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

VENTILATOR DETAILS, SECTIONS AND ELEVATIONS

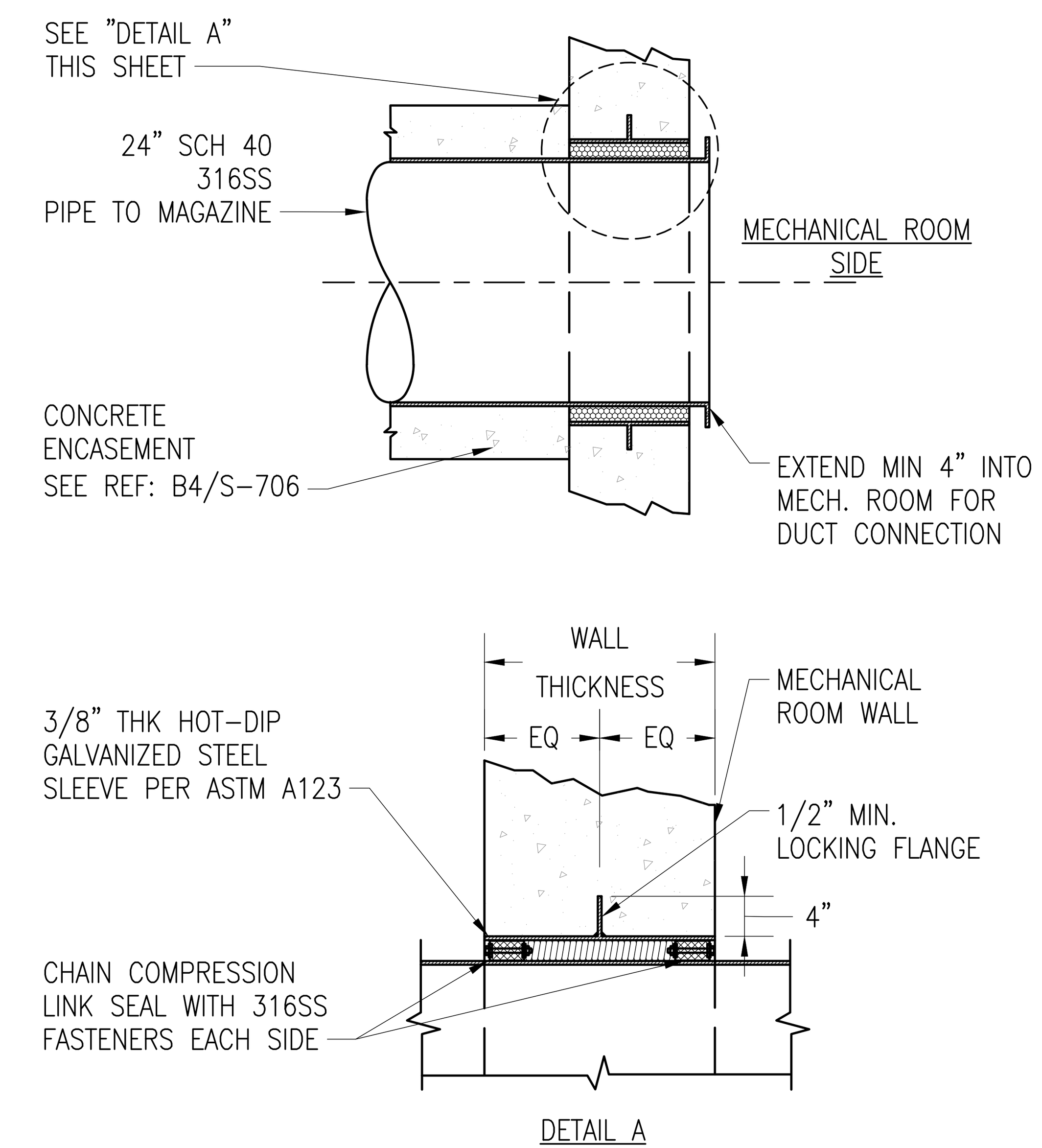
SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914738
SHEET	43 OF 62

S-705

DRAWFORM REVISION: 25 AUGUST 2020

NOTES TO DESIGNER

1. THE NEED FOR A FIRE DAMPER AT MECHANICAL ROOM PENETRATIONS MUST BE DETERMINED BY THE SITE ADAPT ENGINEER.

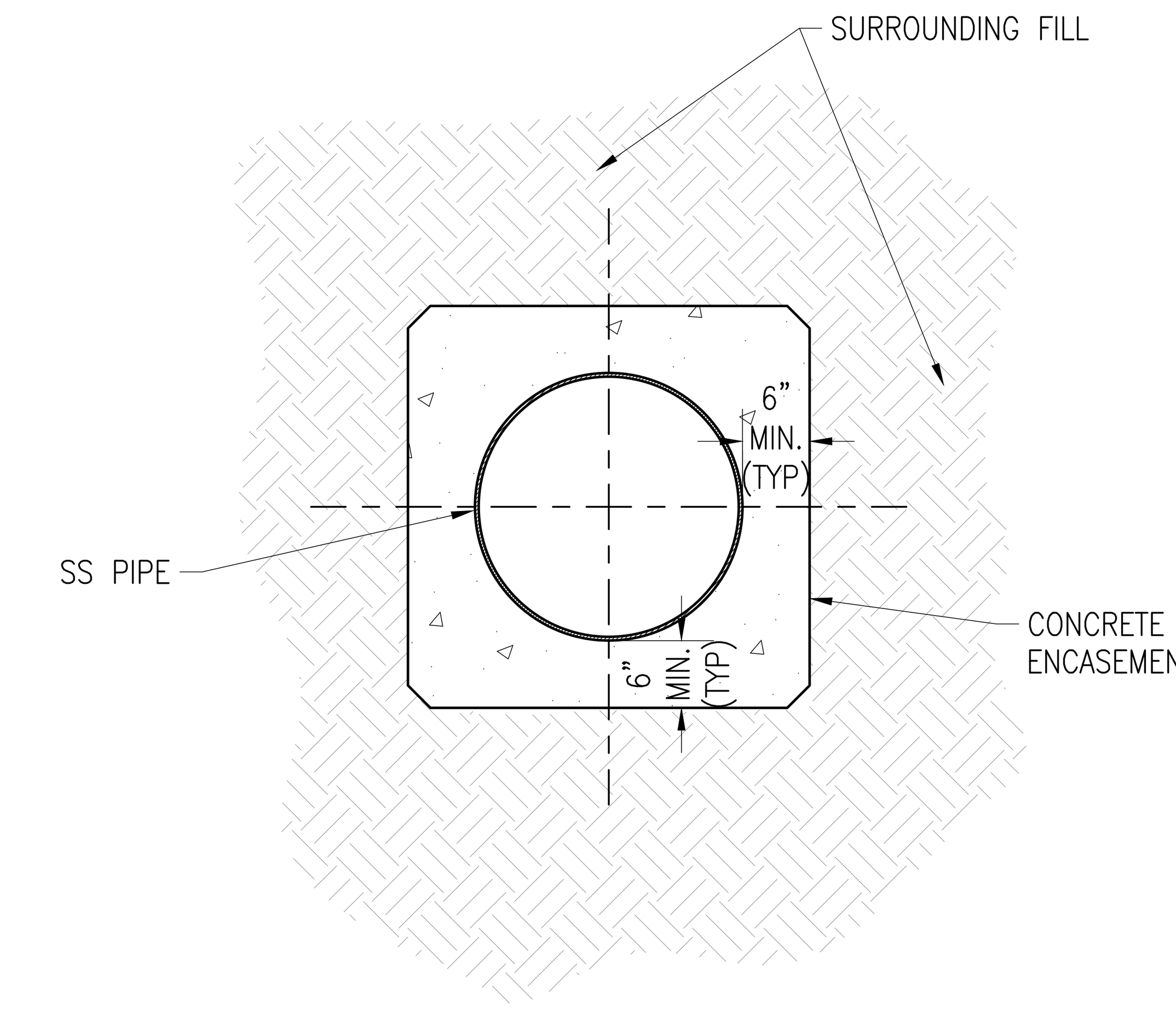


NOTES:

1. ADJUST DESIGN TO INCORPORATE OUT-OF-WALL FIRE DAMPERS IF REQUIRED.
2. OUTER STEEL SLEEVE SIZE TO BE COORDINATED WITH CHAIN COMPRESSION LINK SEAL REQUIREMENTS.
3. INSTALL CONNECTING DUCTWORK AND FITTINGS IN ACCORDANCE WITH DUCTWORK MANUFACTURER'S RECOMMENDATIONS.
4. FILL VOID BETWEEN LINK SEALS WITH MINERAL WOOL.
5. PIPE FLANGES MUST BE WELD NECK TYPE, CONFORMING TO ASME B16.5.

B3 PIPE THRU MECHANICAL ROOM WALL DETAIL

SCALE: NO SCALE

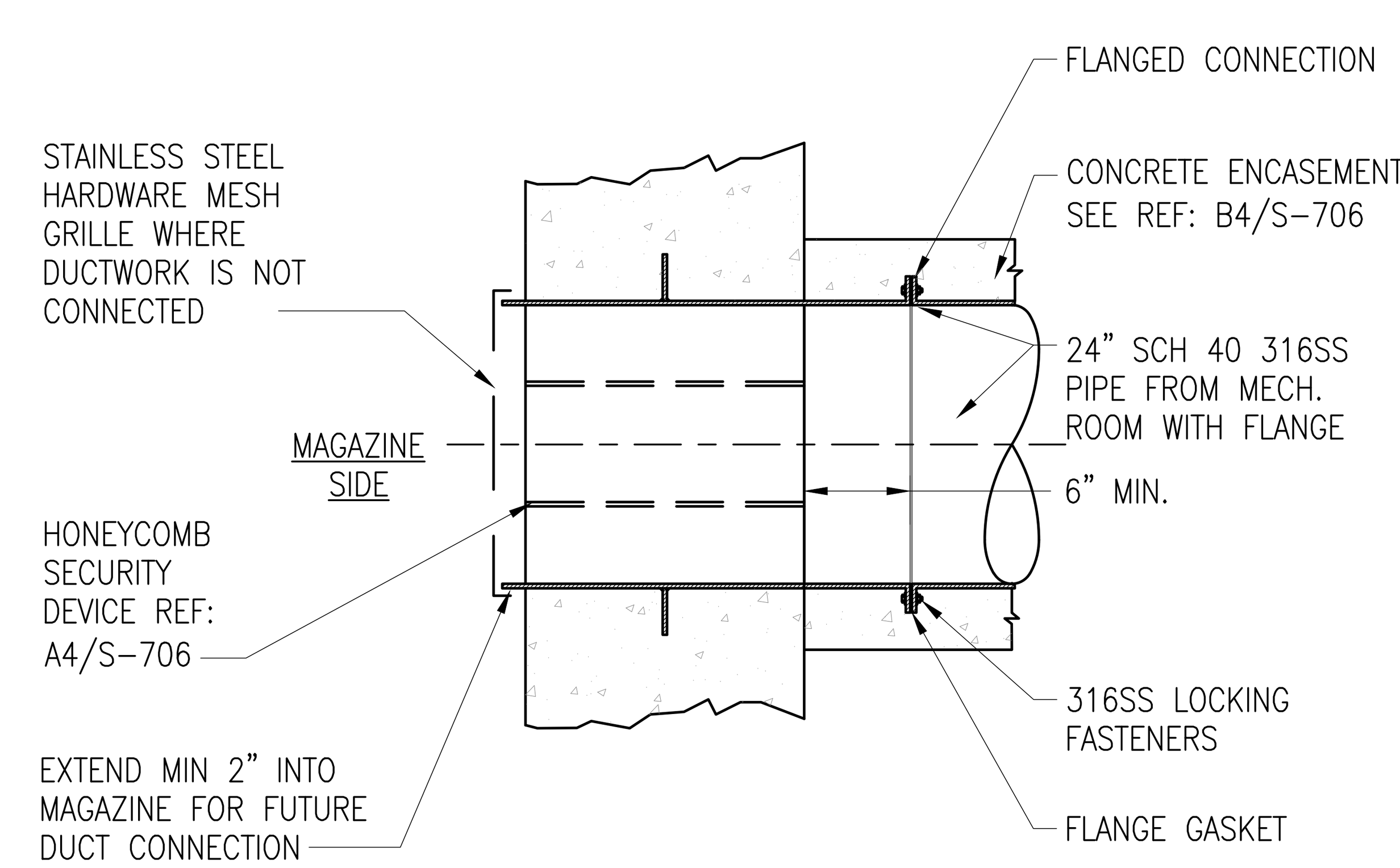


NOTES:

1. DUCTWORK INSTALLED UNDERGROUND MUST BE 24" DIAMETER SCH 40 316SS PIPE.
2. TRENCHES MUST BE PITCHED TO PREVENT THE BUILDUP OF WATER AROUND THE PIPE OR WALL PENETRATIONS.
3. PIPE MUST BE TIED DOWN TO AVOID FLOATING DURING POURING OF CONCRETE ENCASEMENT.
4. CONCRETE MUST NOT BE POURED DIRECTLY ONTO THE PIPE. IT MUST BE POURED IN SUCCESSIVE LAYERS AND TAMPED FIRMLY AROUND THE PIPE.
5. FIELD APPLY BITUMEN COATING TO PIPE PRIOR TO CONCRETE ENCASEMENT.
6. CONCRETE ENCASEMENT TO BE MINIMUM OF 6" THICK.
7. WRAP CONCRETE ENCASED DUCTS IN WATERPROOFING MEMBRANE AND SEAL AGAINST ADJACENT MEMBRANE AT STRUCTURAL PENETRATION POINTS.

B4 CONCRETE ENCASED PIPE DETAIL

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

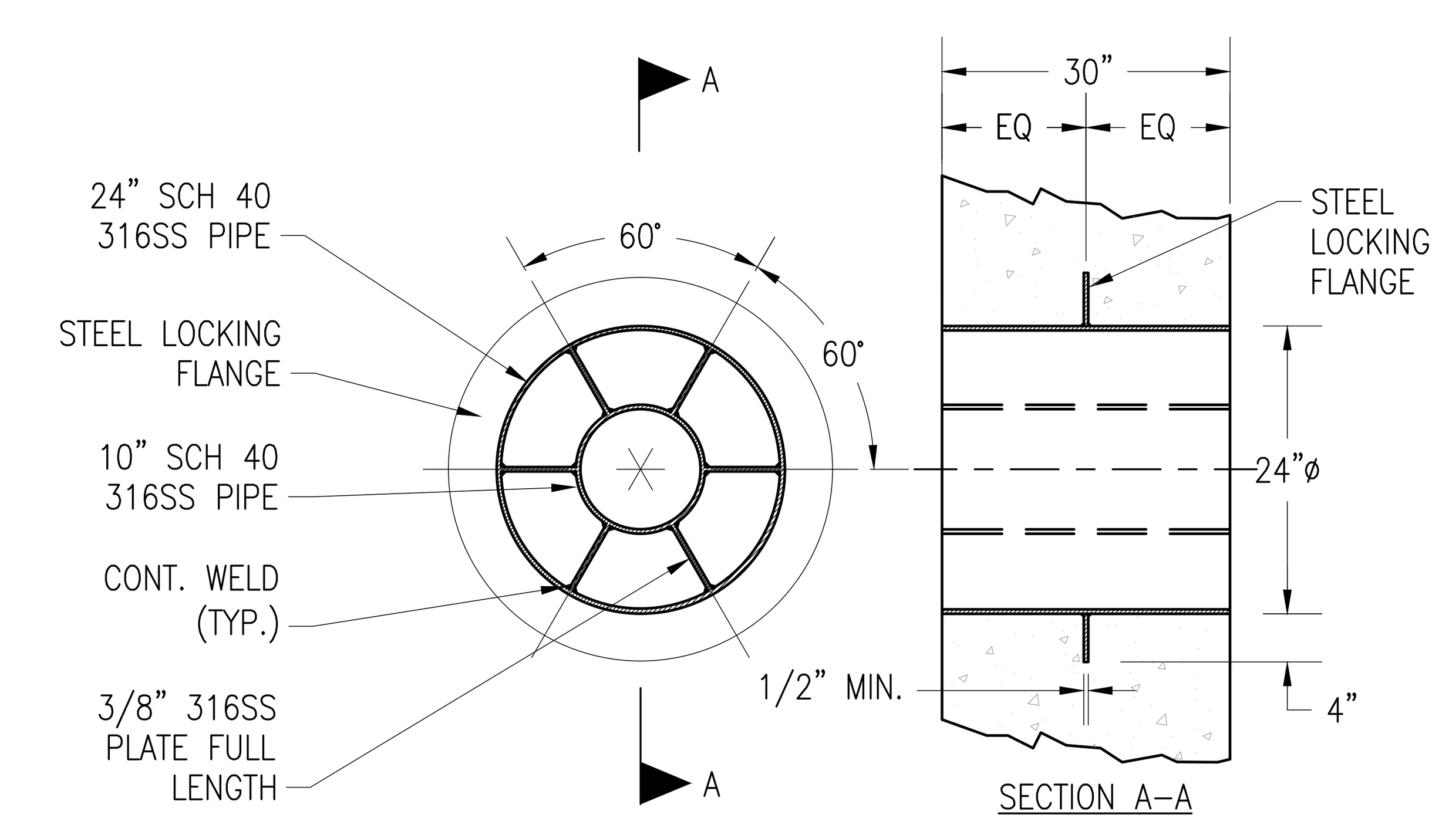


NOTES:

1. PIPE FLANGES MUST BE WELD NECK TYPE, CONFORMING TO ASME B16.5

A3 PIPE THRU MAGAZINE WALL DETAIL

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



NOTES:

1. ASSEMBLY MUST BE FULLY WELDED 316SS.
2. INDIVIDUAL OPENINGS MUST NOT EXCEED 96 SQ. IN. FREE AREA.
3. INNER PIPE MUST BE CENTERED IN OUTER PIPE.
4. FIELD APPLY BITUMEN COATING TO OUTSIDE OF PIPE PRIOR TO CONCRETE ENCASEMENT.

A4 HONEYCOMB SECURITY DEVICE DETAIL

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

GRAPHIC SCALES

SCALE: 3/4" = 1'-0" 0 1' 2' 4'

SYM | DESCRIPTION | DATE | APPR

NAVFAC

SEAL

A/E INFO

William Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES JAF DRW SFF CHK TPH

PM/DM --

BRANCH MANAGER --

CHIEF ENG/ARCH --

FIRE PROTECTION --

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

VAULT PENETRATION DETAILS

SCALE: AS NOTED

EPROJECT NO.: 164487

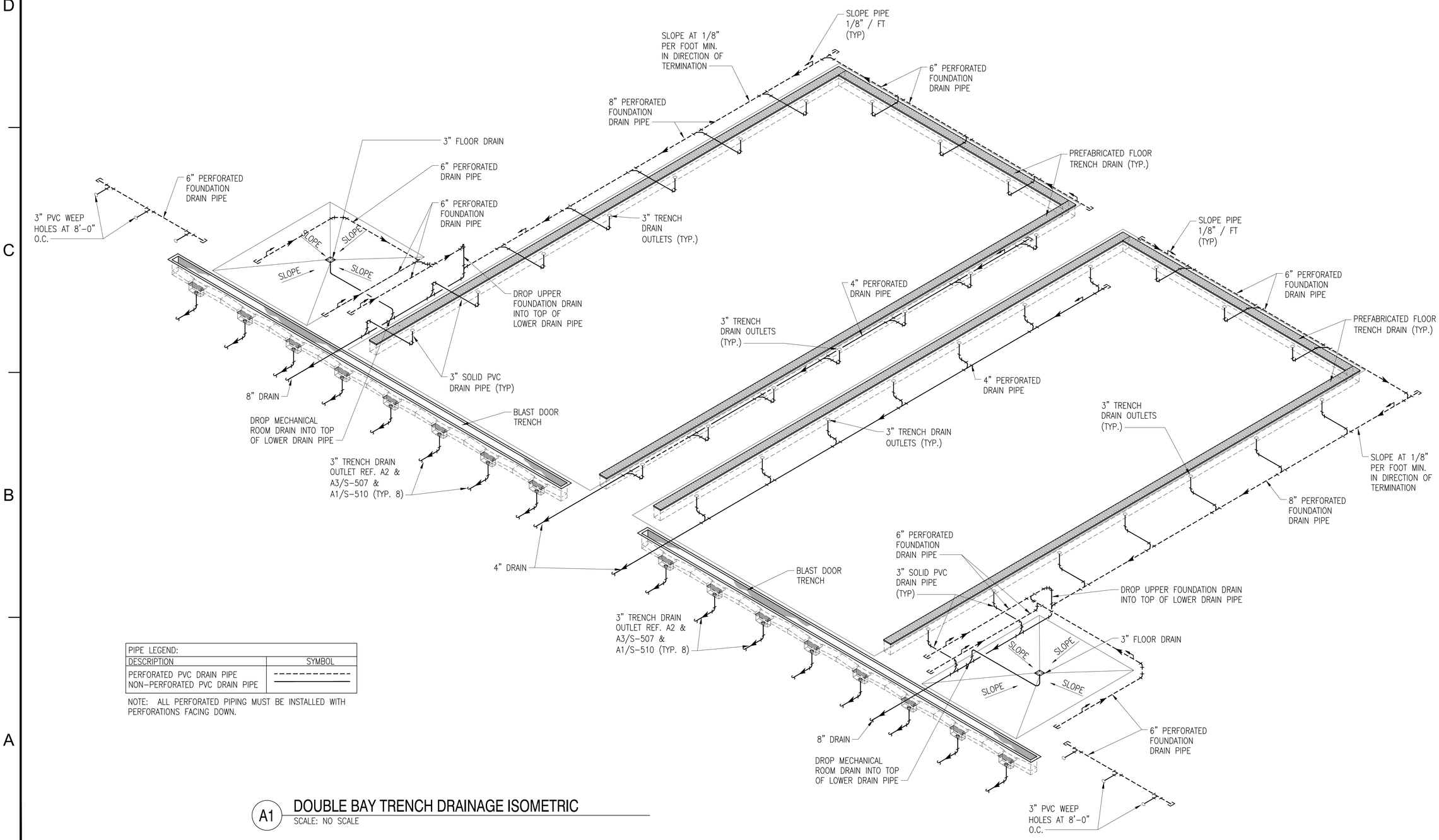
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12914739

SHEET 44 OF 62

S-706

DRAWFORM REVISION: 25 AUGUST 2020



PIPE LEGEND:	
DESCRIPTION	SYMBOL
PERFORATED PVC DRAIN PIPE NON-PERFORATED PVC DRAIN PIPE	- - - - - - - - ————

NOTE: ALL PERFORATED PIPING MUST BE INSTALLED WITH PERFORATIONS FACING DOWN.

A1 DOUBLE BAY TRENCH DRAINAGE ISOMETRIC
SCALE: NO SCALE

APPR	DATE	DESCRIPTION	SYM

NAVFAC

SEAL

A/E INFO

APPROVED Forbes
FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	JAF	DRW	SFF	CHK	TPH
PM/DM					- -
BRANCH MANAGER					- -
CHIEF ENG/ARCH					- -
FIRE PROTECTION					- -

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

DOUBLE BAY TRENCH DRAINAGE ISOMETRIC

SCALE:	NO SCALE
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914740
SHEET	45 OF 62

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DRAWFORM REVISION: 25 AUGUST 2020

ELECTRICAL SYMBOLS & LEGEND

X 20A 3P OR X 100AF 80AT 3P — LOW – VOLTAGE CIRCUIT BREAKER (CB). RATINGS AND NO. OF POLES AS SHOWN. WHEN SPECIFIC TYPE IS REQUIRED, X INDICATES TYPE.

TYPES:
- MCCB – MOLDED CASE
- ICCB – INSULATED CASE
- LVP – LOW – VOLTAGE POWER
- MCP – MOTOR CIRCUIT PROTECTOR (RATING PER CONNECTED LOAD)

CB — SEPARATELY MOUNTED CIRCUIT BREAKER; SEE ELECTRICAL ONE – LINE DIAGRAM OR SCHEDULE FOR DESCRIPTION

GFP — GROUND FAULT PROTECTION

FUSE, SIZE, AND NUMBER OF FUSES AS NOTED

FUSED CUTOUT, CURRENT RATING, FUSE SIZE, AND NUMBER OF POLES AS NOTED

FUSIBLE SWITCH, CURRENT RATING, FUSE SIZE, AND QUANTITY AS NOTED

NON–FUSED SWITCH, CURRENT RATING, AND NUMBER OF POLES AS NOTED

THERMAL OVERLOAD ELEMENT

OL — THERMAL OVERLOAD RELAY CONTACT

DISCONNECT OR SAFETY SWITCH, 30A, 3P, NON–FUSED UNLESS OTHERWISE NOTED

DISCONNECT OR SAFETY SWITCH WITH AUXILIARY CONTACTS, 30A, 3P, NON–FUSED UNLESS OTHERWISE NOTED

7 1/2 OR HP — MOTOR WITH DESIGN HORSEPOWER (WHEN INDICATED)

MOTOR

GENERATOR

ATS — TRANSFER SWITCH, CURRENT RATING, AND NUMBER OF POLES AS NOTED
- ATS – AUTOMATIC
- MTS – MANUAL

TRANSFORMER
- 3–PHASE, 3–WIRE DELTA CONNECTION
- 3–PHASE, 4–WIRE GROUNDED WYE CONNECTION

LP100 208/120V 3Ø,4W — SWITCHBOARD OR PANELBOARD; NAME, VOLTAGE, PHASE, NUMBER OF WIRES WHEN INDICATED

100 KVA — NON–MOTOR LOAD WITH DESIGN KVA, KW, OR AMP

CPT — CONTROL POWER TRANSFORMER (CPT)

VOLTAGE TRANSFORMER (VT OR PT)

CURRENT TRANSFORMER (CT)

WH — UTILITY WATT–HOUR METER PER UTILITY REQUIREMENTS

DMP — DIGITAL METERING PACKAGE

RTM — RUN TIME METER

GROUND

LIGHTNING ARRESTER

SPD — LOW VOLTAGE SURGE PROTECTIVE DEVICE

ELECTRICAL CONNECTION

NO ELECTRICAL CONNECTION

SV OR — SOLENOID VALVE

X Y — CONTROL/RELAY COIL; X INDICATES TYPE, Y INDICATES LOOP NO. WHEN USED

TYPES:
- CR – CONTROL RELAY
- DP – DEFINITE PURPOSE RELAY
- LC – LIGHTING CONTACTOR
- M – MOTOR STARTER
- PC – PHOTO CELL
- TC – TIME CLOCK
- TR – TIMING RELAY

NORMALLY OPEN CONTACT (N.O.)

NORMALLY CLOSED CONTACT (N.C.)

HAND OFF AUTO XOO OOX — 3 POSITION SELECTOR SWITCH, MAINTAINED CONTACTS; UNLESS OTHERWISE NOTED, 2–POSITION SIMILAR

NORMALLY OPEN PUSHBUTTON, MOMENTARY CONTACT UNLESS OTHERWISE NOTED

NORMALLY CLOSED PUSHBUTTON, MOMENTARY CONTACT UNLESS OTHERWISE NOTED

INDICATING LIGHT, X INDICATES LENS COLOR

PUSH TO TEST INDICATING LIGHT, X INDICATES LENS COLOR

LENS COLORS:

R – RED	Y – YELLOW
G – GREEN	W– WHITE
B – BLUE	A – AMBER

T — TRANSFORMER

SS — SELECTOR SWITCH

PUSHBUTTON

CS — CONTROL STATION

CONTROL PANEL INTEGRAL OR PROVIDED WITH ASSOCIATED EQUIPMENT

CONTROL PANEL WITH DISCONNECT SWITCH INTEGRAL OR PROVIDED WITH ASSOCIATED EQUIPMENT

JUNCTION OR PULL BOX

ELECTRICAL EQUIPMENT ENCLOSURE: PANELBOARD, SWITCHBOARD, MOTOR CONTROL CENTER, CONTROL PANEL, OR OTHER EQUIPMENT AS INDICATED

480/277V PANELBOARD

208/120V PANELBOARD

PC — PHOTOCELL

OS — OCCUPANCY SENSOR – CEILING MOUNTED

OS — OCCUPANCY SENSOR – WALL MOUNTED

WALL MOUNTED LUMINAIRE – COMPACT FLUORESCENT OR LED

CEILING/PENDANT MOUNTED LUMINAIRE – FLUORESCENT OR LED

CEILING/PENDANT MOUNTED LUMINAIRE – FLUORESCENT OR LED (NORMAL/EMERGENCY)

WALL/SURFACE MOUNTED LUMINAIRE – FLUORESCENT OR LED (NORMAL/EMERGENCY)

LIGHTING FIXTURE SUBSCRIPTS:
- X – INDICATES FIXTURE TYPE PER LIGHTING FIXTURE SCHEDULE
- Y – INDICATES CIRCUIT NUMBER FROM PANELBOARD
- z – INDICATES CONTROLLING SWITCH (IF REQUIRED)

$ Y X — TOGGLE SWITCH

SUBSCRIPTS:
- X – INDICATES TYPE
  - NONE – SINGLE POLE
  - 3 – THREE–WAY
  - 4 – FOUR–WAY
  - M – TOGGLE SWITCH, HORSEPOWER/MOTOR RATED
  - K – KEY SWITCH
  - TE – MANUAL MOTOR STARTER WITH THERMAL ELEMENT
  - P – PILOT LIGHT
  - L – LIGHTED HANDLE
  - Y – INDICATES CONTROLLING SWITCH (IF REQUIRED)
  - WP – WEATHER PROOF
  - DS – 0–10V DIMMING
  - OS – DUAL TECH OCCUPANCY SENSOR

QUAD–DUPLEX RECEPTACLE, TWO NEMA 5–20R UNDER COMMON COVER PLATE

DUPLEX RECEPTACLE, NEMA 5–20R

SUBSCRIPTS:
- X – INDICATES TYPE
- GFCI – GROUND FAULT CIRCUIT INTERRUPTER
- WP – WEATHER PROOF
- C – CONTROLLED RECEPTACLE, MARKING PER NEC 406.3(E), GREEN
- Y – INDICATES CIRCUIT NUMBER FROM PANELBOARD

SPECIAL DEVICE AND/OR CONNECTION AS NOTED

CONDUIT TURNING UP

CONDUIT TURNING DOWN

HOME RUN TO PANEL, 2 #12, 1 #12G IN 3/4"C UNLESS OTHERWISE NOTED

CIRCUIT RUN BETWEEN DEVICES EXPOSED IN NON–ARCHITECTURALLY FINISHED AREAS; CONCEALED IN ARCHITECTURALLY FINISHED AREAS. CONDUIT AND CONDUCTOR SIZES MUST BE THE SAME AS THE HOMERUN FOR THE CIRCUIT.

CONDUIT RUN BETWEEN DEVICES CONCEALED IN NON–ARCHITECTURALLY FINISHED AREAS OR UNDER FLOOR SLAB. CONDUIT AND CONDUCTOR SIZES MUST BE THE SAME AS THE HOMERUN FOR THE CIRCUIT.

UNDERGROUND CONDUIT

CIRCUIT CONTINUATION

CONDUIT STUBBED OUT AND CAPPED

XX–XXXX — CONDUIT TAG OR CIRCUIT NUMBER – WIRE AND CONDUIT SIZE AS SPECIFIED IN CIRCUIT SCHEDULE ON THE SHEETS

G — GROUNDING CONDUCTOR

E — UNDERGROUND ELECTRICAL DUCT BANK

C — UNDERGROUND COMMUNICATIONS CONCRETE ENCASED DUCT BANK

OHE — OVERHEAD SECONDARY CIRCUIT AND CONDUCTORS

EE — DIRECT BURIED CONDUIT

LP — LIGHTNING PROTECTION CONDUCTOR

GROUND ROD

GROUND TEST WELL

XX — HH: HANDHOLE, MH: MANHOLE

AIR TERMINAL

GROUND CONNECTION

1. THIS IS A STANDARD ELECTRICAL SYMBOLOGY SHEET. NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT.
2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE–EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.

GENERAL NOTES:

1. PROJECT DESIGN AND EXECUTION MUST CONFORM TO THE LATEST VERSIONS OF:
   - (A) NFPA 70 (NATIONAL ELECTRICAL CODE)
   - (B) NESC (NATIONAL ELECTRICAL SAFETY CODE)
   - (C) NFPA 101 (LIFE SAFETY CODE)
   - (D) NFPA 780 (STANDARD FOR INSTALLATION OF LIGHTNING PROTECTION SYSTEMS)
   - (E) NAVSEA OP 5 (AMMUNITION AND EXPLOSIVES SAFETY ASHORE)
   - (F) APPLICABLE LOCAL, STATE AND FEDERAL CODES.
2. CONTRACTOR MUST COORDINATE FINAL LOCATION OF ELECTRICAL EQUIPMENT AND COMPONENTS WITH ALL OTHER TRADES PRIOR TO INSTALLATION. THE CONTRACTOR MUST BE RESPONSIBLE FOR SECURING SPACE REQUIREMENTS FOR ELECTRICAL EQUIPMENT CLEARANCE AND CORRECT ROUGH–IN LOCATIONS OF ELECTRICAL CONNECTIONS.
3. DRAWINGS ARE IN GENERAL DIAGRAMMATIC IN NATURE. FIELD ADJUST CONDUIT AND TRAY ROUTING BASED ON COORDINATION WITH OTHER NEW UTILITIES, STRUCTURES AND EQUIPMENT. NOT ALL COMPONENTS, CONDUITS, AND EQUIPMENT ARE SHOWN IN ALL VIEWS. THE CONTRACTOR MUST MAKE USE OF THE ENTIRE SET OF DRAWINGS, REQUIREMENTS, AND SPECIFICATIONS IN ORDER TO INCLUDE ALL COMPONENTS NECESSARY TO CONSTRUCT A FULLY OPERATIONAL SYSTEM.
6. ALL EQUIPMENT MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S APPROVED, PUBLISHED LITERATURE.
7. ALL UTILITY SERVICES SUCH AS ELECTRIC, TELECOM, SECURITY, INTRUSION DETECTION SYSTEM, FIRE ALARM SYSTEM MUST BE ROUTED UNDERGROUND AT MINIMUM OF 50–FEET AWAY FROM BUILDING FOR SERVICE CONNECTION.
8. ALL CONDUITS MUST BE A RIGID GALVANIZED STEEL CONDUIT (RGS) OR LIQUID–TIGHT, METAL FLEXIBLE CONDUIT. CONDUIT PENETRATIONS THROUGH CONCRETE MUST BE PVC–COATED RIGID GALVANIZED STEEL CONDUIT (PVC–RGS) THROUGH THE LENGTH OF THE PENETRATION, WITH 3" TO 6" AT BOTH PENETRATION ENDS FOR CLEARANCE. CONDUITS PENETRATING UNDERNEATH FOUNDATION IS PROHIBITED. CONDUIT ELBOW PLACEMENT MUST CONSIDER THIS CLEARANCE DURING DESIGN AND INSTALLATION.
9. PROVIDE AND INSTALL THW OR THWN INSULATED CONDUCTORS WITH MINIMUM OF #12 AWG, STRANDED COPPER.
10. ALL NEMA ENCLOSURE RATINGS INDICATED ON DOCUMENTS MAY BE REVISED AS REQUIRED BY THE ENVIRONMENTAL CONDITIONS DURING SITE ADAPTATION PROJECTS.

ELECTRICAL ABBREVIATIONS

A	AMPERES OR TRIP AMPERES
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	SYMMETRICAL AMPS INTERRUPTING CAPACITY
AWG	AMERICAN WIRE GAUGE
A/R	AS REQUIRED
ARR.	ARRESTOR
BLDG	BUILDING
BRKT	BRACKET
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CL	CURRENT LIMITING
CO	CONDUIT ONLY
CTL	CONTROL
DC	DIRECT CURRENT
D.T.C.	DATA TERMINAL CABINET
EMCS	ENERGY MONITORING AND CONTROL SYSTEM
FACP	FIRE ALARM CONTROL PANEL
FT	FOOT, FEET
GFCI	GROUND FAULT CIRCUIT INTERRUPTER, 5MA PERSONNEL PROTECTION UNLESS OTHERWISE NOTED.
GND	GROUND
HZ	HERTZ
IAW	IN ACCORDANCE WITH
IG	ISOLATED GROUND
IN	INCH, INCHES
IR	INFRARED
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPS REACTIVE
KWH	KILOWATT HOURS
L–L	LINE TO LINE
L–N	LINE TO NEUTRAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MTD	MOUNTED
MTG	MOUNTING
NAFSEA	NAVAL SEA SYSTEMS COMMAND
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT	NEUTRAL
NOSSA	NAVAL ORDNANCE SAFETY & SECURITY ACTIVITY

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

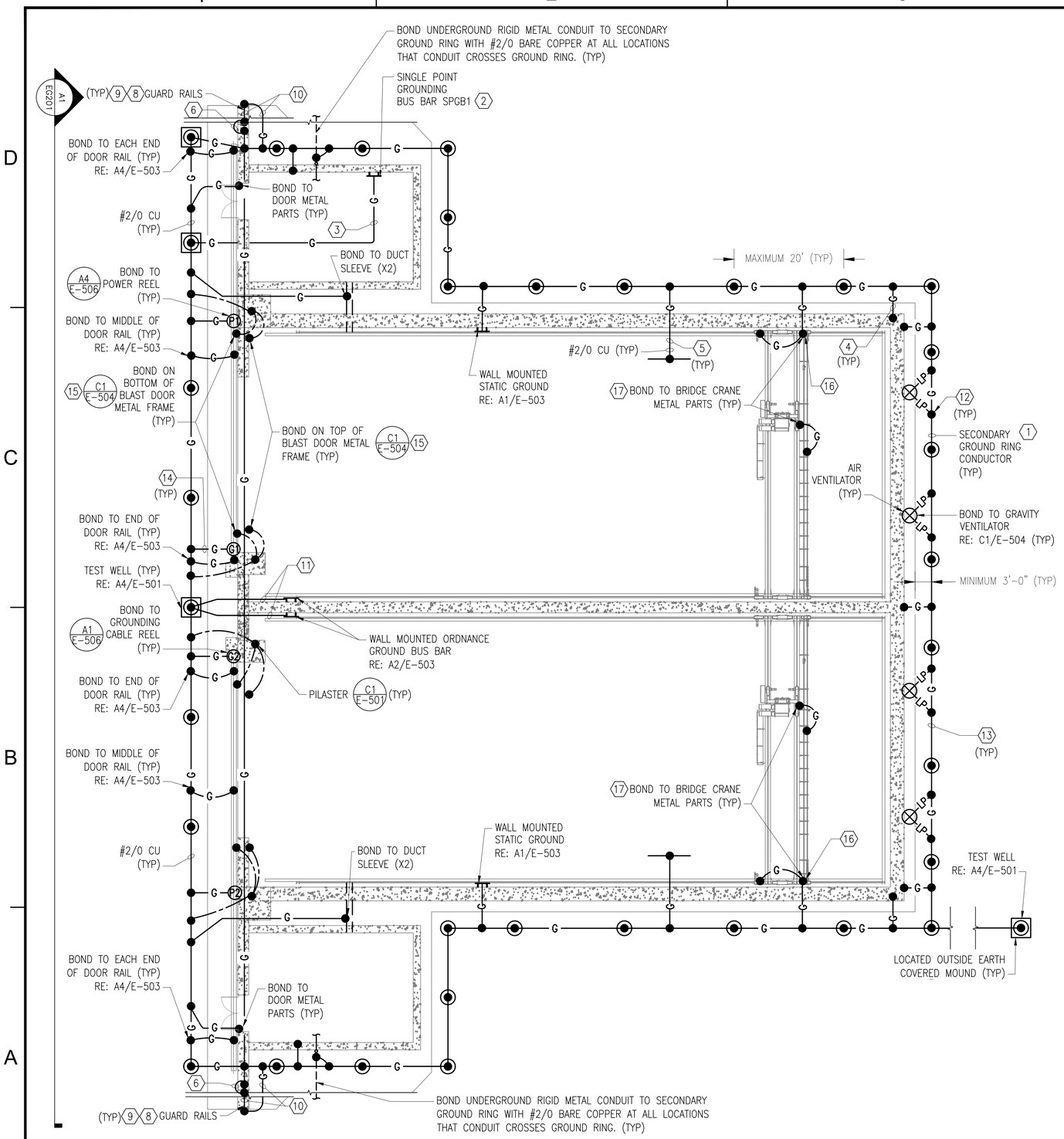
ELECTRICAL SYMBOLS & LEGEND

FOR COMMANDER NAVFAC: William Forbes, 24 SEP 2024

DES KL | DRW FO | CHK PKD

SCALE: AS NOTED
EPROJECT NO.: 164487
NAVFAC DRAWING NO. 12914741
SHEET 46 OF 62

E-001



A1 ELECTRICAL LIGHTNING PROTECTION & GROUNDING PLAN
SCALE: 3/32" = 1'-0"

SHEET NOTES

1. THE TERM 'LIGHTNING PROTECTION SYSTEM' WILL BE REFERRED TO AS 'LPS' HENCEFORTH.
2. THE STANDARD DESIGN DRAWINGS FOR LPS INSTALLATION ARE IN COMPLIANCE WITH NFPA 780 AND AFMAN 32-1065 CRITERIA, AND MANUFACTURED IN ACCORDANCE WITH U.L. 96, IN ACCORDANCE WITH NAVSEA OP 5 OR DESR 6055.09_AFMAN 91-201.
3. CONTRACTOR MUST PROVIDE AN UNDERWRITER'S LABORATORY (UL) LIGHTNING PROTECTION INSPECTION CERTIFICATE FOR ANY FACILITY HAVING A LPS INSTALLATION. ADDITIONALLY, A THIRD PARTY INSPECTION COMPANY MUST CERTIFY THE LPS IS IN COMPLIANCE WITH THE STANDARD DESIGN DRAWINGS AS INDICATED. IN ADDITION, CONTRACTOR MUST NOTIFY CONTRACTING OFFICER FOR NAVFAC TO INSPECT AND CERTIFY THE LPS PRIOR TO COMPLETION. REFER TO S-002 FOR PROCEDURE TESTING AND VERIFICATION REQUIREMENTS.
4. COMPONENTS INDICATED ON THIS SHEET SHOW GENERAL DIRECTION FOR THE LPS COMPONENTS. CONTRACTOR MUST PROVIDE NECESSARY COMPONENTS FOR A COMPLETE LPS.
5. PROVIDE #2/0 BARE COPPER GROUND CONDUCTOR FOR ALL BONDING AND GROUNDING, INCLUDING THE BONDING TO ALL METAL PARTS, INCLUDING GUARDRAILS, DOOR AND DOOR FRAMES, REINFORCEMENT IN FLOOR/WALL, METAL AIR VENTILATOR AND LOUVERS.
6. METAL BODIES WITHIN 6'-0" OF THE LPS MUST BE BONDED TO THE SYSTEM IN ACCORDANCE WITH NFPA 780.
7. REFER TO LPS AND GROUNDING DETAILS ON SHEET E-501, E-502, E-503 FOR ADDITIONAL INFORMATION.
8. ALL GROUNDING CONDUCTORS MUST BE #2/0 BARE COPPER UNLESS NOTED OTHERWISE.
9. ORDNANCE AND STATIC GROUND BUS BARS MUST BE COPPER. INSTALL 30" ABOVE FINISHED FLOOR.
10. METAL GUARD RAILS MUST BE CONSTRUCTED AND WILL SERVE AS STRIKE TERMINATION DEVICES PER NFPA 780 (LATEST REV). GUARD RAILS MUST NOT EXCEED 45" HIGH AND MUST BE IN COMPLIANCE WITH OSHA REG. 1926.502 FALL PROTECTION SYSTEM CRITERIA AND PRACTICES PER 1926.502 (B)(1).
11. THE GROUND RING RESISTANCE TO EARTH MUST BE MAINTAINED AT 25 OHMS OR LESS. IF THIS REQUIREMENT IS NOT ACHIEVABLE, EVEN THROUGH ADDITIONAL GROUND RODS OR GRID CONDUCTOR LOOP, NOTIFY NOSSA/GOVERNMENT FOR ADDITIONAL ACTIONS TO TAKE IN ORDER TO DECREASE THE RESISTANCE TO EARTH AS LOW AS POSSIBLE.
12. ALL BONDING CONNECTIONS MUST NOT EXCEED RESISTANCE OF 1 OHM, INCLUDING AIR TERMINATION SYSTEM, DOWN CONDUCTORS TO LIGHTNING PROTECTION GROUNDING SYSTEM IAW NAFSEA OP5, SECTION 5-4.1.
13. A CATENARY SYSTEM MAY BE PROVIDED IN ADDITION TO FARADAY CAGE SYSTEM UNDER SITE-ADAPTATION. THE SYSTEM MUST BE BONDED BACK TO THE HEADWALL AS REQUIRED. CONTRACTOR MUST SUBMIT CATENARY SYSTEM AND FARADAY CAGE DETAILS FOR APPROVAL PRIOR TO CONSTRUCTION. REFER TO NAVSEA OP 5 FOR PRIMARY GROUNDING SYSTEM OR AFMAN 10-65.
14. THE GROUND GIRDLE/RING MUST BE INSTALLED IN EARTH UNDISTURBED BY EXCAVATION, NOT IN EARTH FILL OR WHOLLY UNDER PAVED AREAS OR ROADWAYS WHERE RAINFALL CANNOT PENETRATE TO KEEP SOIL MOIST.
15. THE STRUCTURAL COMPONENTS OF THE BUILDING MUST BE BONDED BETWEEN THE FLOOR, WALLS AND ROOF. REBAR MUST BE BONDED TOGETHER OR BY ADDING EXTERNAL BONDING GROUND CONDUCTORS BETWEEN COMPONENTS. THE COMPONENTS MUST BE BONDED AT EVERY 5 FEET MAXIMUM INTERVAL IN ACCORDANCE WITH NAVSEA OP5 6-4.1.1.3. REFER TO DETAIL A1/E-504.
16. DOR MUST MODIFY THE STANDARD DESIGN DRAWINGS PER SITE-ADAPTATION.
17. REFER TO GENERAL NOTES ON E-001 FOR ADDITIONAL INFORMATION.
18. LPS WILL BE A FARADAY CAGE TYPE SYSTEM WITH THE STRUCTURAL COMPONENTS OF THE MAGAZINES BONDED TOGETHER AS REQUIRED BY THE NAVSEA OP5 REQUIREMENTS. ADDITIONALLY, 3/16-INCH THICK MINIMUM AND 42-INCH HIGH MAXIMUM METAL GUARDRAILS WILL BE UTILIZED AS STRIKE TERMINATION DEVICES ON THE MAGAZINE HEADWALLS WHICH WILL BE BONDED TO THE SECONDARY GROUND RING AT BOTH ENDS PROVIDING A TWO-WAY PATH TO GROUND.

KEYED NOTES

1. ROUTE #2/0 BARE COPPER GROUNDING CONDUCTOR (BURIED GROUNDING RING) AS INDICATED, AT 30" MIN. BELOW FINISHED GRADE AND MINIMUM 3'-0" FROM FOUNDATION AROUND FACILITY OR AT LEAST 2'-0" FROM THE BUILDING EXTERIOR DRIP LINE. RE: C3/E-501.
2. PROVIDE SINGLE POINT COPPER GROUNDING BUS BAR. COORDINATE EXACT LOCATION PRIOR TO ROUGH-IN. RE: A3/E-501 AND RE: C4/E-501.
3. ROUTE #2/0 BARE COPPER GROUNDING CONDUCTOR FROM SINGLE POINT GROUNDING BUS BAR IN MECHANICAL ROOM TO SECONDARY GROUNDING RING.
4. ROUTE #2/0 BARE COPPER GROUNDING CONDUCTOR FROM REINFORCED STRUCTURAL STEEL TO SECONDARY GROUNDING RING.
5. ROUTE #2/0 BARE COPPER GROUNDING CONDUCTOR FROM FOUNDATION STEEL REBAR TO SECONDARY GROUND RING.
6. ROUTE #2/0 BARE COPPER GROUNDING CONDUCTOR BETWEEN UPPER AND LOWER GUARD RAILS AND SECURE TO HEADWALL. RE: A1/EG201
7. PROVIDE #2/0 BARE COPPER GROUNDING CONDUCTOR FROM STATIC GROUND TO SECONDARY GROUNDING RING AS INDICATED UTILIZING BOLTED CONNECTIONS FOR EASE IN DISCONNECTING DURING TESTING. PERFORM TESTING PER NAVSEA OP5.
8. ALL HEADWALL GUARD RAILS AND ALL ASSOCIATED POSTS MUST BE DRILLED AND TAPPED WITH THREADED STUDS FOR CONNECTION TO COPPER GROUNDING CONDUCTORS WITH #2/0 COPPER WIRE LUGS. ROUTE #2/0 BARE COPPER GROUNDING CONDUCTOR EXPOSED ALONG THE ENTIRE LENGTH OF HEADWALL. PROVIDE BIMETALLIC CONNECTORS AS REQUIRED FOR ATTACHING GUARD RAILS TO DOWN GROUNDING CONDUCTORS. ALL CONNECTORS, DEVICES AND COMPONENTS UTILIZED MUST BE EITHER UL LISTED OR LABELED AND LISTED FOR ITS USE.
9. GUARD RAILS MUST BE ALUMINUM PIPE. THICKNESS MUST NOT BE LESS THAN 3/16" AND MAXIMUM HEIGHT OF 42" (+/-3"). REFER TO ARCHITECTURAL SPECIFICATIONS AND ELEVATIONS ON DETAIL A1/EG201 FOR ADDITIONAL INFORMATION.
10. ROUTE #2/0 BARE COPPER GROUNDING DOWN CONDUCTOR IN A 1" CONDUIT TO SECONDARY GROUNDING ELECTRODE. DOWN CONDUCTOR MUST BE CONTINUOUS AND ON EXTERIOR OF BUILDING.
11. PROVIDE #2/0 NOT IN GREEN INSULATED COPPER GROUNDING CONDUCTOR IN 1" PVC BETWEEN ORDNANCE GROUND BUS BAR UNDER SLAB TO GROUND TEST WELL AS INDICATED UTILIZING BOLTED CONNECTIONS FOR EASE IN DISCONNECTING DURING TESTING. INSULATION MUST BE STRIPPED BARE FROM TERMINATION POINT UP TO THE POINT OF CONCEALMENT IN CONDUIT. PERFORM TESTING PER NAVSEA OP5. PROVIDE A 3"X9" BLACK PLASTIC BACKGROUND LABEL WITH 1" WHITE LETTERS INDICATING "ORDNANCE GROUND" AT EXPOSED LOCATIONS.
12. PROVIDE #2/0 BARE COPPER LIGHTNING PROTECTION DOWN CONDUCTORS TO SECONDARY GROUNDING ELECTRODE.
13. PROVIDE TWO (2) LIGHTNING GROUND CONDUCTORS – #2/0 BARE COPPER AND CONNECT TO AIR TERMINALS AS INDICATED.
14. PROVIDE A #2/0 BONDING CONDUCTOR FROM SECONDARY GROUND RING TO BLAST DOOR'S GROUND REEL. EXTEND #6 GROUND CONDUCTOR THROUGH FLEXIBLE CARRIER TRACK. MAKE BONDING AT FEASIBLE LOCATION TO ALLOW A FULL DOOR OPERATION WITHOUT ANY INTERFERENCES WITH CABLE REEL OPERATION.
15. PROVIDE #2/0 BONDING CONDUCTOR FROM DOOR METAL EQUIPMENT/DEVICES/METAL DOOR FRAME TO BOTTOM OF PILASTER'S REBAR AND BOND TO SECONDARY GROUND RING AS INDICATED.
16. PROVIDE #2/0 BONDING CONDUCTOR FROM BRIDGE CRANE WHEEL TO STRUCTURAL REBAR TO ENSURE THE SYSTEM IS GROUNDED AND BONDED TO SECONDARY GROUNDING RING.
17. NOTE TO DOR, THE EQUIPMENT AND ASSOCIATED ELECTRICAL DEVICES/EQUIPMENT ARE SITE ADAPTATION.

GRAPHIC SCALES
SCALE: 3/32" = 1'-0" 0 8' 16' 32'

NO.	DESCRIPTION	DATE	APPR

NAVFAC

APPROVED FOR COMMANDER NAVFAC: 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE
DES: KL DRW: FO CHK: PKD
PM/DM: ---
BRANCH MANAGER: ---
CHIEF ENG/ARCH: ---
FIRE PROTECTION: ---

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL GROUNDING PLAN

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914742
SHEET 47 OF 62

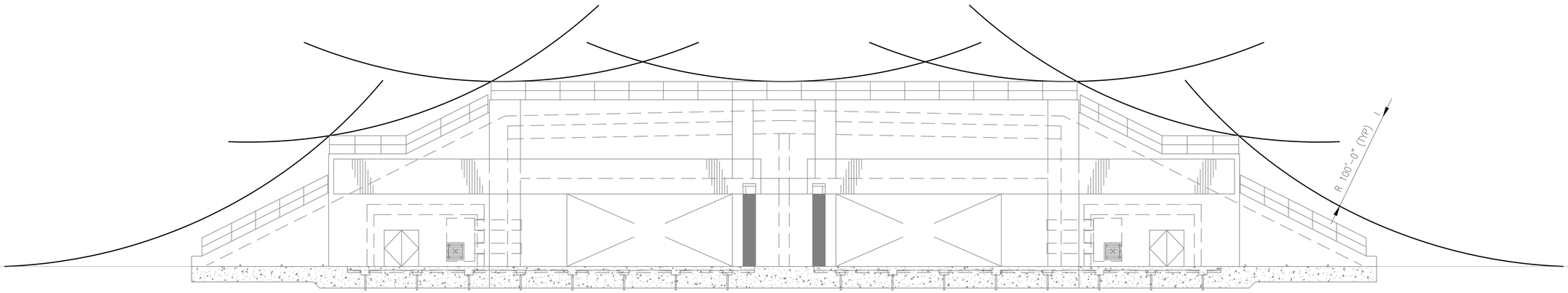
EG101

DRAWFORM REVISION: 25 AUGUST 2020

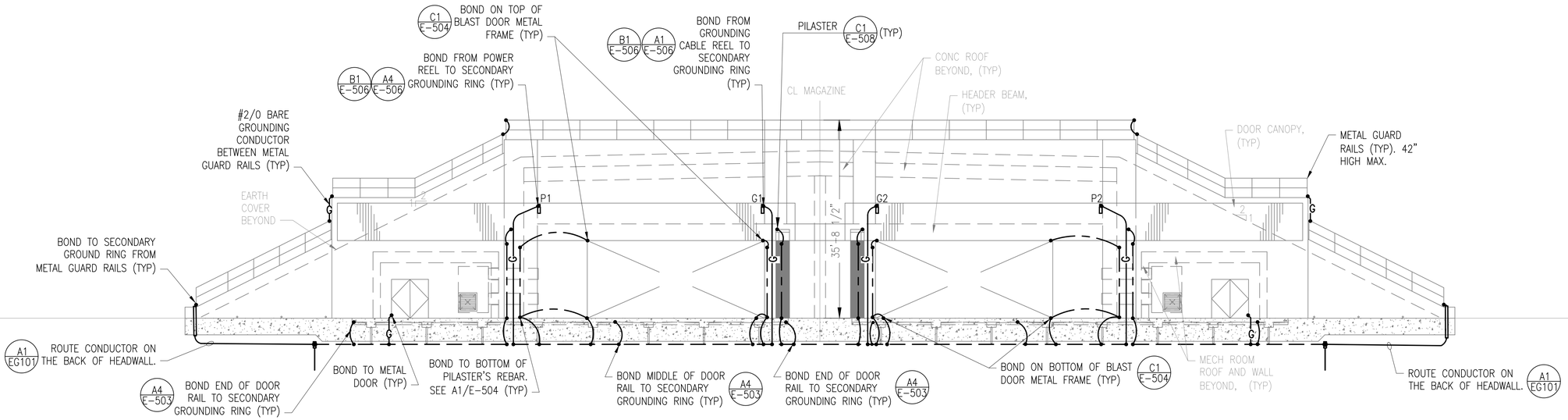
FILE NAME: J:\DCSEL\Magazines\MCLWS\Magazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\EG101.dwg LAYOUT NAME: EG101 - ELECTRICAL GROUNDING PLAN PLOTTED: Tuesday, September 24, 2024 - 10:14am USER: leslie.corsino

SHEET NOTES

1. REFER TO SHEET EG101 AND GENERAL NOTES ON SHEET E-001 FOR ADDITIONAL INFORMATION.
2. LINE WORK ON THIS SHEET ARE #2/0 BARE COPPER GROUNDING CONDUCTORS.



C1 ROLLING SPHERE ANALYSIS - FRONT ELEVATION
SCALE: 3/32" = 1'-0"



A1 GROUNDING PLAN - FRONT ELEVATION
SCALE: 3/32" = 1'-0"

GRAPHIC SCALES
SCALE: 3/32" = 1'-0"
0 8' 16' 32'

NO.	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED: William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE
DES KL DRW FO CHK PKD
PM/DM
BRANCH MANAGER
CHIEF ENG/ARCH
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
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HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL LIGHTNING ZONE PROTECTION ELEVATIONS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914743
SHEET 48 OF 62

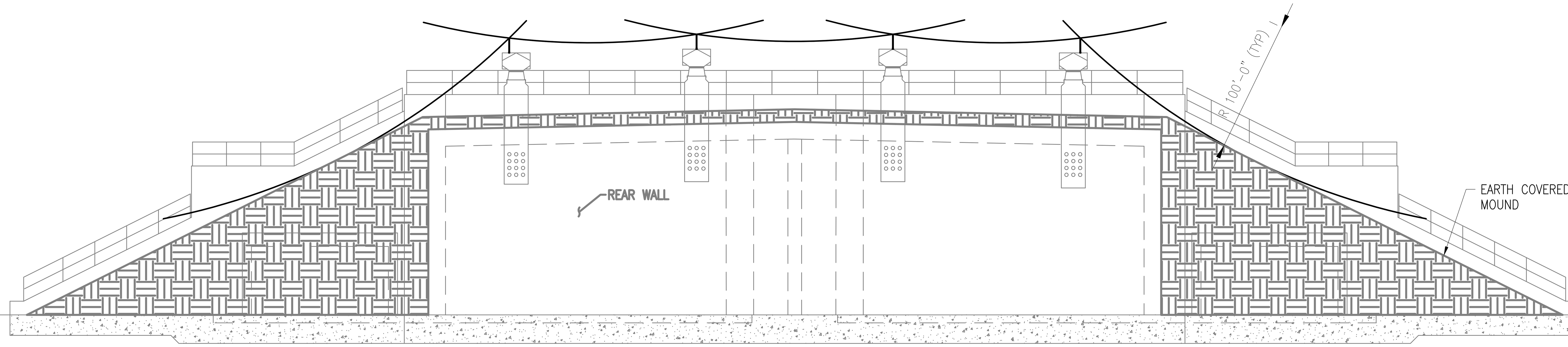
EG201

DRAWFORM REVISION: 25 AUGUST 2020

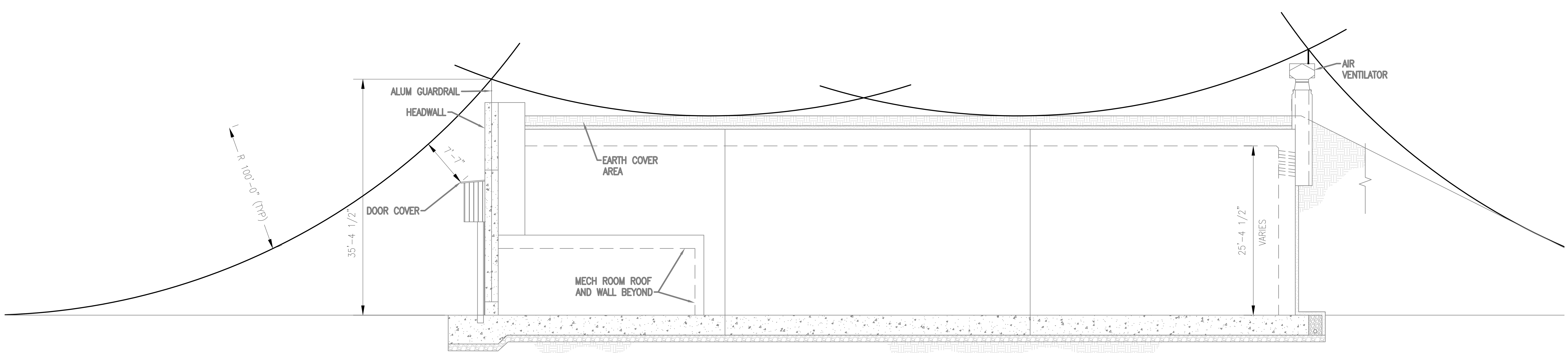
SIDEFLASH – AT HIGHEST POINT OF BUILDING	METAL PARTS (GUARD RAILS)
H – HEIGHT OF PROTECTED STRUCTURE (FT):	35.4
D – SIDEFLASH (D=H/6) (FT):	6.0
NOTES: H – HEIGHT OF THE STRUCTURE OR OBJECT REQUIRING PROTECTION	

SHEET NOTES

1. REFER TO GENERAL NOTES ON E-001 FOR ADDITIONAL INFORMATION.



C1 ROLLING SPHERE ANALYSIS - REAR ELEVATION
SCALE: 3/32" = 1'-0"



A1 ROLLING SPHERE ANALYSIS - SIDE ELEVATION
SCALE: 3/32" = 1'-0"

GRAPHIC SCALES

SCALE: 3/32" = 1'-0" 0 8' 16' 32'

SCALE: 1/8" = 1'-0" 0 4' 8' 16'

APPROVED William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES KL	DRW FO	CHK PKD
PM/DM		--
BRANCH MANAGER		--
CHIEF ENG/ARCH		--
FIRE PROTECTION		--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
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HAMPTON ROADS, VIRGINIA

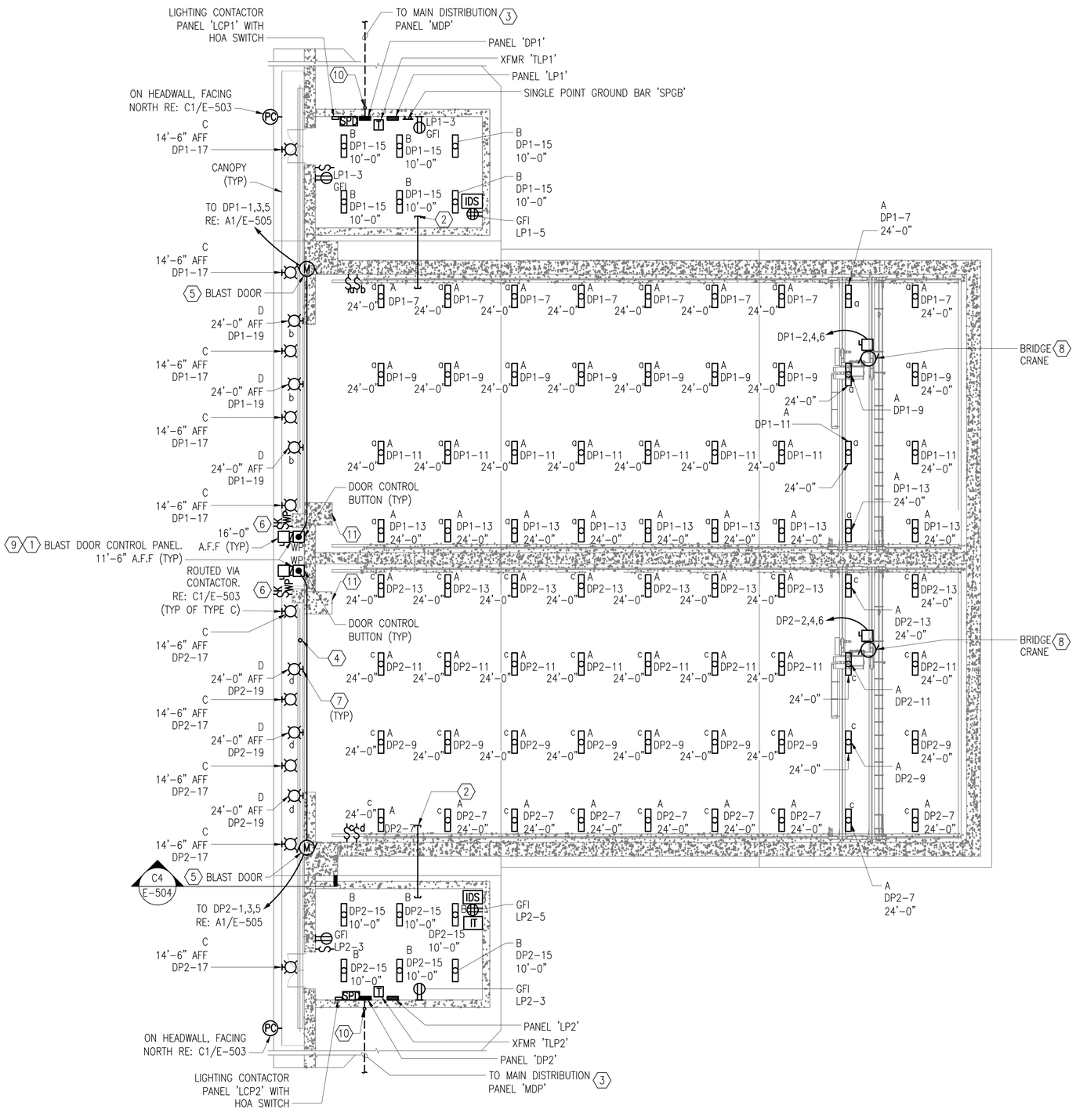
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL LIGHTNING ZONE PROTECTION ELEVATIONS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914744
SHEET 49 OF 62

EG202

DRAWFORM REVISION: 25 AUGUST 2020



A1 **ELECTRICAL FLOOR PLAN**
SCALE: 3/32" = 1'-0"

SHEET NOTES

1. COORDINATE FINAL LOCATIONS OF ALL LIGHTING FIXTURES AND ASSOCIATED LIGHTING CONTROLS WITH OTHER TRADES PRIOR TO ROUGH-IN.
2. ALL CONDUIT MUST BE RIGID GALVANIZED STEEL CONDUIT UNLESS INDICATED OTHERWISE.
3. EXPOSED CONDUITS ON EXTERIOR WALLS MUST BE PROHIBITED.
4. ECM AND MECHANICAL ROOM WILL BE SEPARATE IDS ZONES. PROVIDE DEVICES, CONTROLLERS, AND PROGRAMMING, AS REQUIRED.
5. PROPOSED IDS VENDOR TO PERFORM COVERAGE CALCULATIONS, INCLUDING OBSTRUCTIONS, TO VERIFY QUANTITY AND LOCATION OF MOTION DETECTORS IN THE ECM AND MECHANICAL ROOM. FINAL LOCATIONS AND QUANTITIES OF MOTION DETECTORS TO BE INSTALLED PER IDS VENDOR SHOP DRAWINGS.
6. REFER TO GENERAL NOTES ON E-001 FOR ADDITIONAL INFORMATION.

KEYED NOTES

1. COORDINATE ALL POWER AND CONTROL RACEWAY REQUIREMENTS WITH MANUFACTURER. PROVIDE CONTROL WIRING FOR INTERLOCKS WITH DOOR LIMIT SWITCHES AND MECHANICAL BYPASS FOR DOOR OPERATION.
2. IN ADDITION TO THE CONDUITS REQUIRED FOR RECEPTACLES/LIGHTING/LOW VOLTAGE SYSTEMS/ IDS/CONTROLS/BRIDGE CRANE/BLAST DOOR/EQUIPMENT, PROVIDE ADDITIONAL (1)3/4"C FOR POWER SITE ADAPTATION, (1)1"C FOR FUTURE HVAC CONTROLS AND (3)1-1/2"C SPARES. CONNECT CONDUITS BETWEEN MECHANICAL ROOM AND MAGAZINE AREA AND CAP AT BOTH ENDS.
3. REFER TO ONE-LINE ON SHEET E-601 FOR ADDITIONAL INFORMATION.
4. ROUTE ALL CONDUITS ON SURFACE AS REQUIRED TO AVOID CONDUIT PENETRATIONS ON HEADWALL ABOVE BLAST DOOR.
5. DOOR CONTROLLER MUST BE PROVIDED WITH SAFETY INTERLOCK FEATURE WHEN SENSING MECHANICAL ROOM IN VACANCY MODE. DOOR CONTROL FEATURE MUST INCLUDE A DOOR CONTACT/RELAY INTERLOCKING WITH BLAST DOOR CONTROL SYSTEM AND MECHANICAL DOOR, SO THAT ONCE THE MECHANICAL DOOR IS IN 'OPEN MODE' OR 'UNLOCKED', THE BLAST DOOR CONTROL SYSTEM WILL BE DISABLED FROM MOVING THE BLAST DOOR.
6. PROVIDE A MANUAL OVERRIDE SWITCH TO CONTROL BLAST DOOR. SWITCH MUST BE KEY OPERATED AND LOCATED OUTSIDE THE PILASTER COLUMN WITH WATERPROOF COVER.
7. FIXTURE TYPE 'D' MUST BE CONTROLLED BY SWITCHLEG 'b'.
8. NOTE TO DOR, THE EQUIPMENT AND ASSOCIATED ELECTRICAL DEVICES/EQUIPMENT ARE SITE ADAPTATION. SPECIFY THE LOCAL DISCONNECT SWITCH FOR BRIDGE CRANE TO BE INTEGRAL TO THE EQUIPMENT AND PROVIDED BY VENDOR. OTHERWISE, INDICATE TO PROVIDE LOCAL DISCONNECT SWITCH AND INSTALL WITHIN LINE OF SIGHT AT FLOOR LEVEL PER NFPA 70, PARAGRAPH 610.31.
9. COORDINATE WITH DOOR MANUFACTURER FOR QUANTITY.
10. UNDERGROUND CONDUIT MUST STUB-UP BEFORE PENETRATING THRU WALL FOR CONNECTION TO PANELBOARD.
11. DO NOT MOUNT ELECTRICAL EQUIPMENT ON SURFACE OF THIS PILASTER WALL. PROVIDE 16" CLEARANCE IN FRONT OF WALL AREA.

GRAPHIC SCALES

SCALE: 3/32" = 1'-0" 0 8' 16' 32'

APPR	DATE	DESCRIPTION	SYM

NAVFAC

SEAL

A/E INFO

APPROVED for Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	KL	DRW	FO	CHK	PKD
PM/QM	--				
BRANCH MANAGER	--				
CHIEF ENG/ARCH	--				
FIRE PROTECTION	--				

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

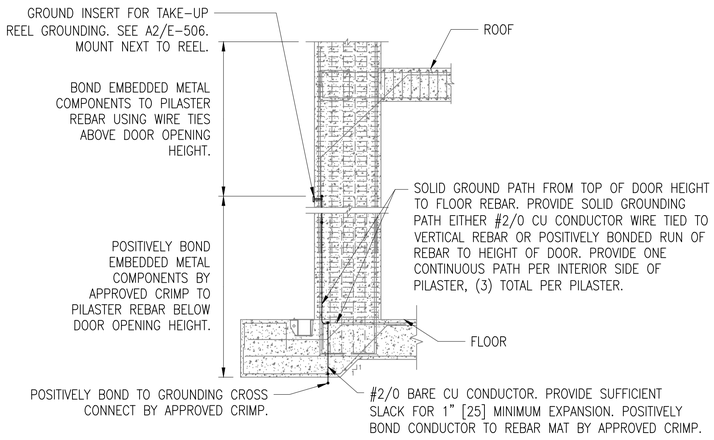
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL FLOOR PLAN

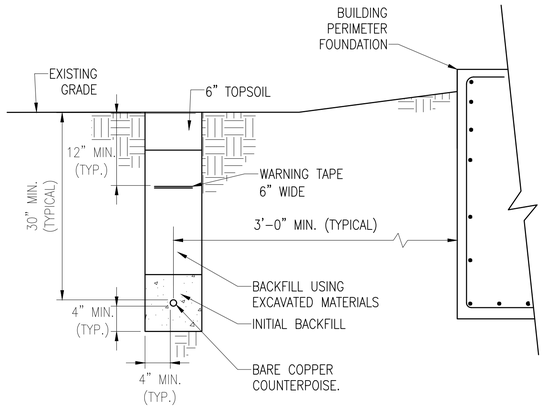
SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914745
SHEET	50 OF 62

E-101

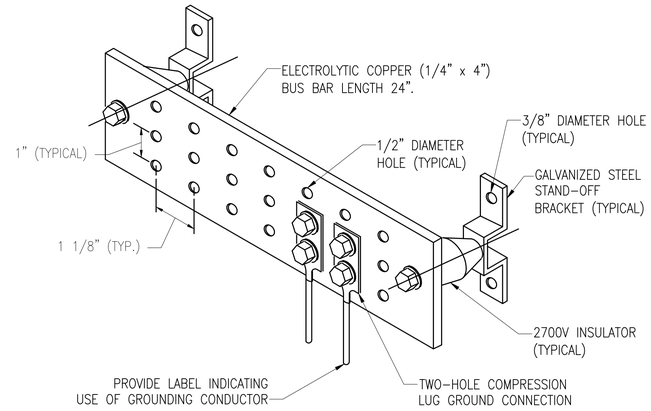
DRAWFORM REVISION: 25 AUGUST 2020



C1 PILASTER GROUNDING AND BONDING DETAIL
SCALE: NO SCALE



C3 TYPICAL GROUND RING INSTALLATION DETAIL
SCALE: NO SCALE



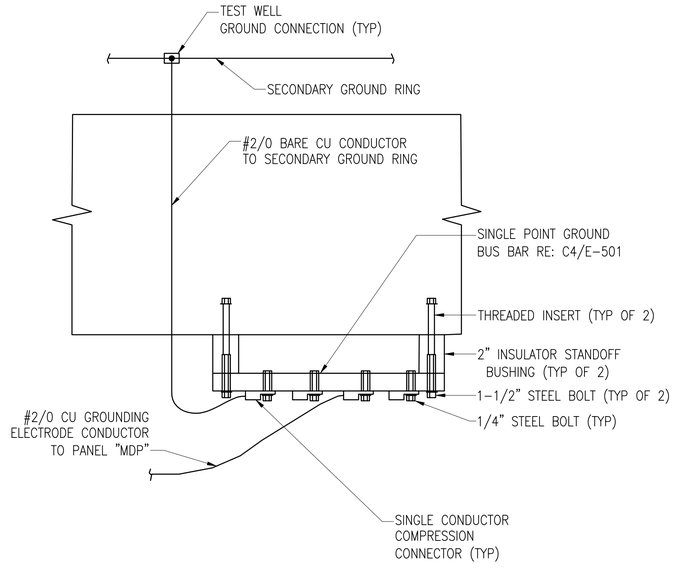
C4 SINGLE POINT GROUNDING BUS BAR (SPGB) DETAIL - TYPICAL
SCALE: NO SCALE

NOTES:
1. PROVIDE SELF-ADHESIVE VINYL LABEL TO AFFIX TO ELECTRICAL EQUIPMENT TO WARN OF ARC FLASH HAZARDS.
2. THE LABEL FORMAT AND TEXT CAN BE MODIFIED PROVIDED THAT THE INFORMATION REQUIRED BY UFC 3-501-01 IS INCLUDED.
3. THE LABEL MUST BE LOCATED ON THE EQUIPMENT TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.
4. THE SIZE OF THE LABEL MUST BE MINIMUM:

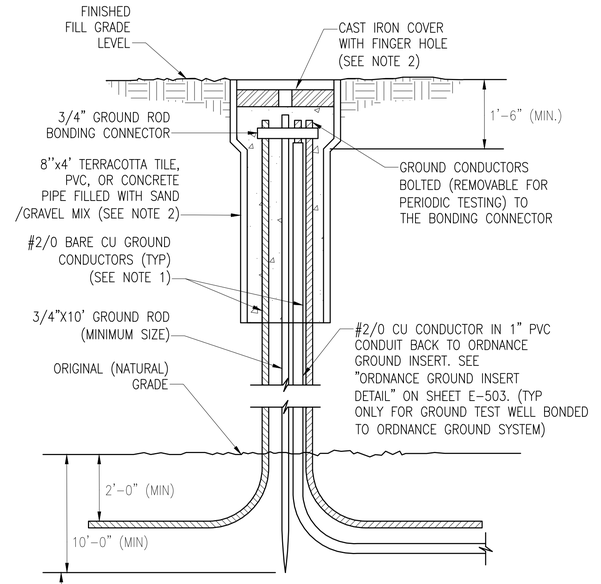
EQUIPMENT TYPE	HEIGHT	WIDTH
INDOOR	2"	3"
OUTDOOR	3"	4.5"

5. A DOWNLOADABLE WINDOWS METAFILE IS AVAILABLE FROM LINK BELOW. TYPE IN THE FOLLOWING ADDRESS IN INTERNET EXPLORER:
http://www.wbdg.org/ccb/NAVGRAPH/arc_flash_warning_labels.zip
6. REFER TO UFC 3-560-01, SECTION 1-12 FOR ADDITIONAL ARC-FLASH LABELS INFORMATION AND REQUIREMENT. ADDITIONAL LABELS CAN BE FOUND WITHIN BASIS OF DESIGN, APPENDIX G – ARC FLASH LABELS

A1 ARC FLASH WARNING LABEL
SCALE: NO SCALE



A3 SINGLE POINT GROUND BUS BAR DETAIL
SCALE: NO SCALE



THE DEPTH OF GROUND ROD BELOW NATURAL GRADE MUST BE SITE ADAPTED TO SUIT LOCAL SOIL CONDITION. AT NO TIME MUST THE MINIMUM DEPTH BE LESS THAN 10'-0".

NOTE 1: MAINTAIN THE GROUND CONDUCTORS ISOLATED FROM THE GROUND ROD UNTIL THE BOND CONNECTION AT THE TOP

NOTE 2: PROVIDE "TRAFFIC RATED" TEST WELL AND COVER FOR PAVED AREAS

A4 GROUND TEST WELL INSTALLATION IN EARTH FILL
SCALE: NO SCALE

APPR'D | DATE | DESCRIPTION | SYM

NAVFAC

SEAL

A/E INFO

APPROVED for public release
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE
DES KL DRW FO CHK PKD
PM/DM
BRANCH MANAGER
CHIEF ENG/ARCH
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL DETAILS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914746
SHEET 51 OF 62

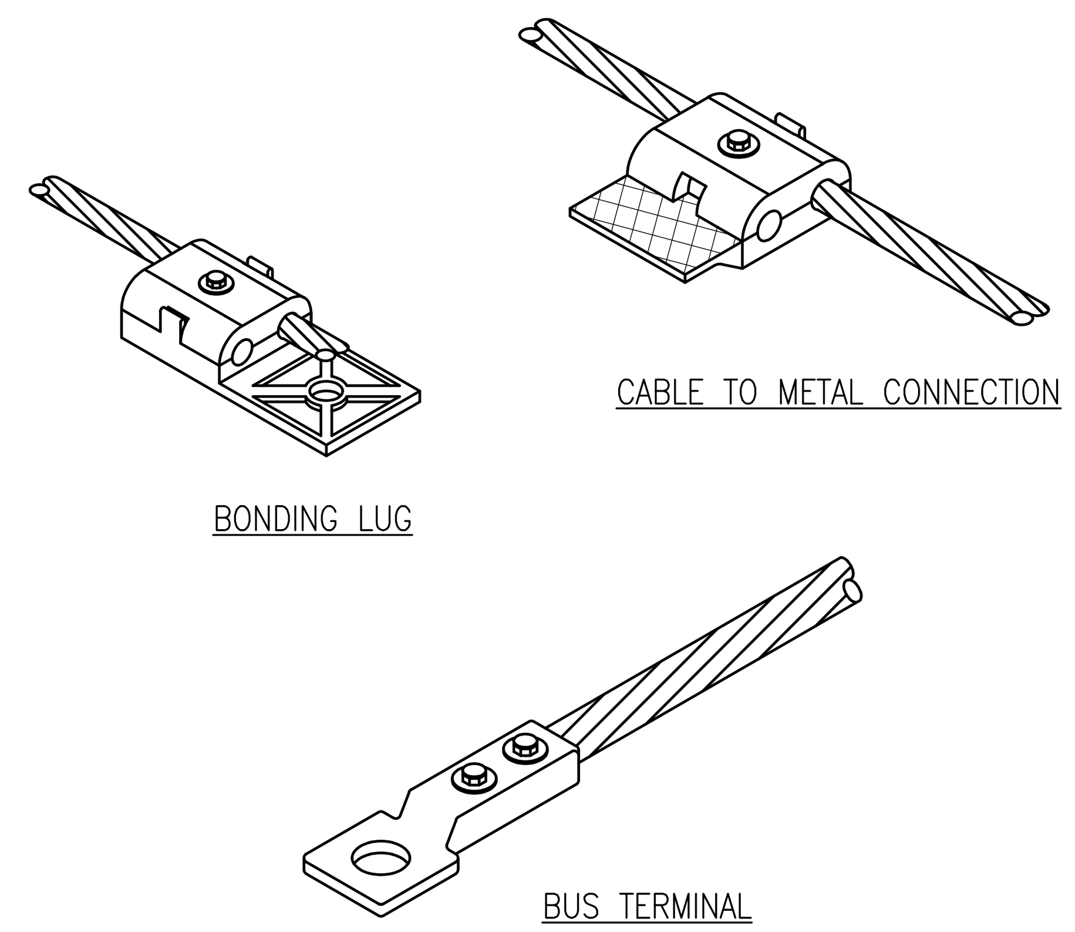
E-501

DRAWFORM REVISION: 25 AUGUST 2020

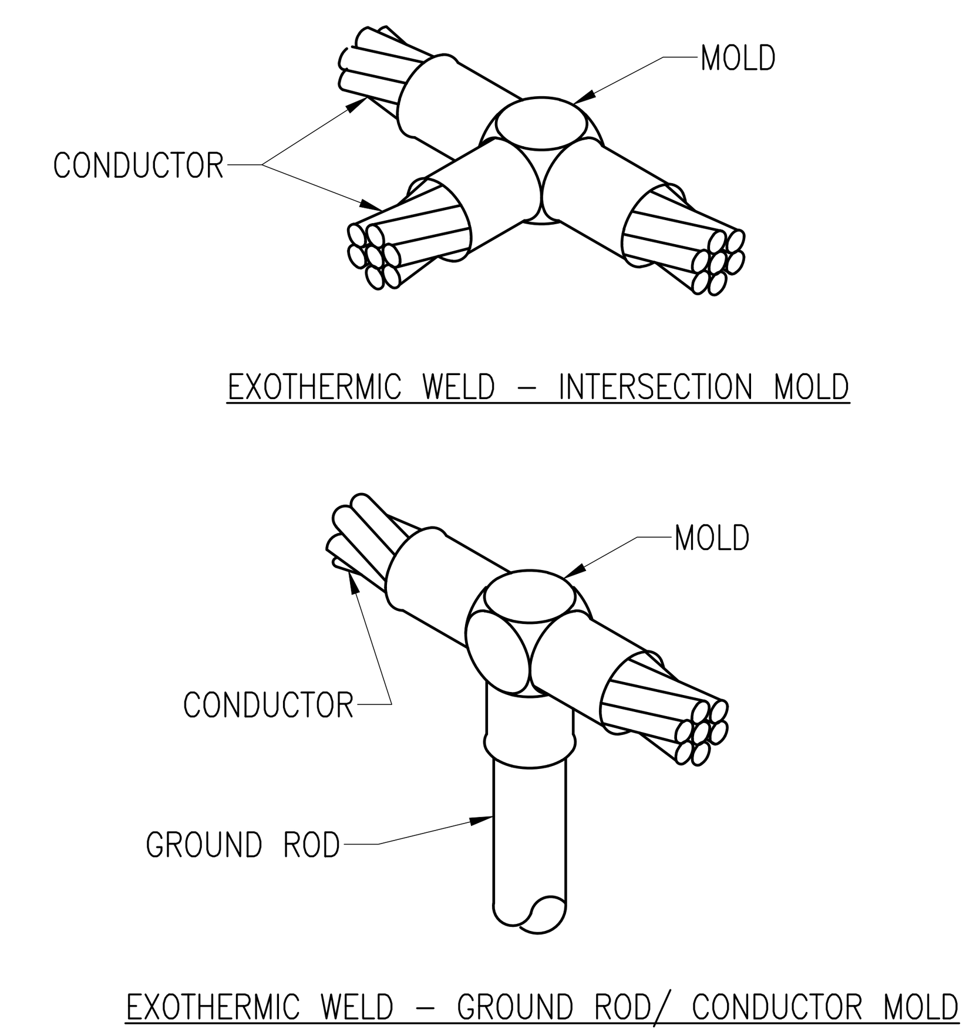
FILE NAME: J:\DCSEL\Magazines\MCLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\E-501.dwg LAYOUT NAME: E-501 - ELECTRICAL DETAILS PLOTTED: Tuesday, September 24, 2024 - 10:14am USER: teslie.corsino

NOTES:

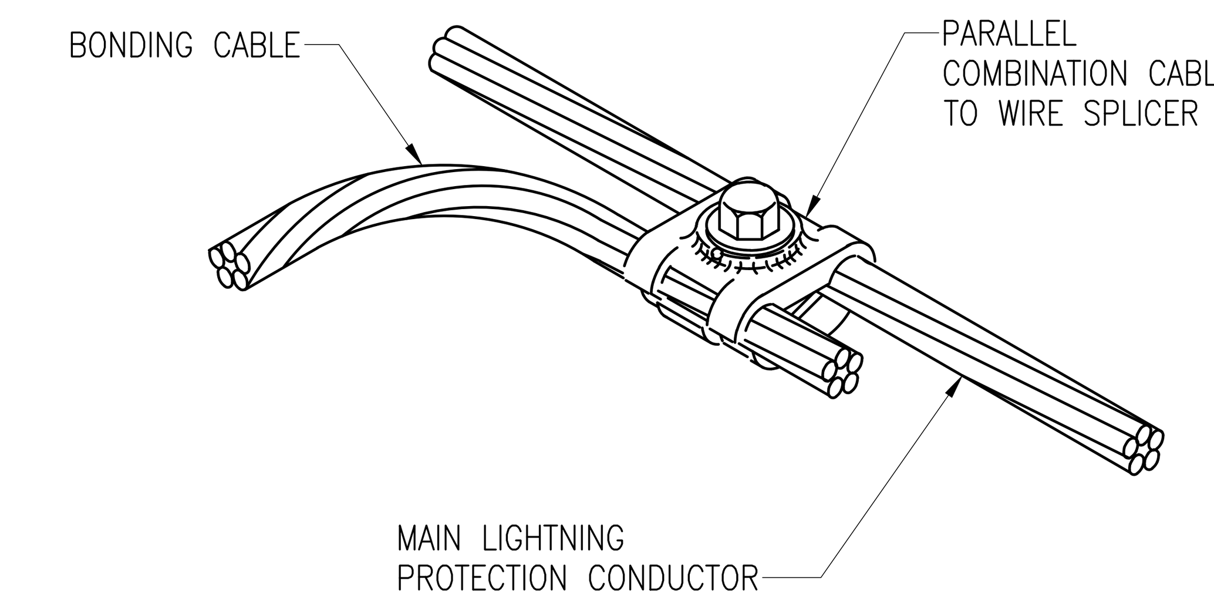
1. PROVIDE EXOTHERMIC WELD OR HIGH COMPRESSION FOR LIGHTNING PROTECTION GROUNDING CONDUCTORS THAT ARE BURIED OR CONCEALED WITHIN STRUCTURE.
2. CABLE SPLICE OR OTHER BONDING CONNECTORS MUST BE INSTALLED PER MANUFACTURER REQUIREMENTS AND WITH AN APPROVED UL96 LISTING.



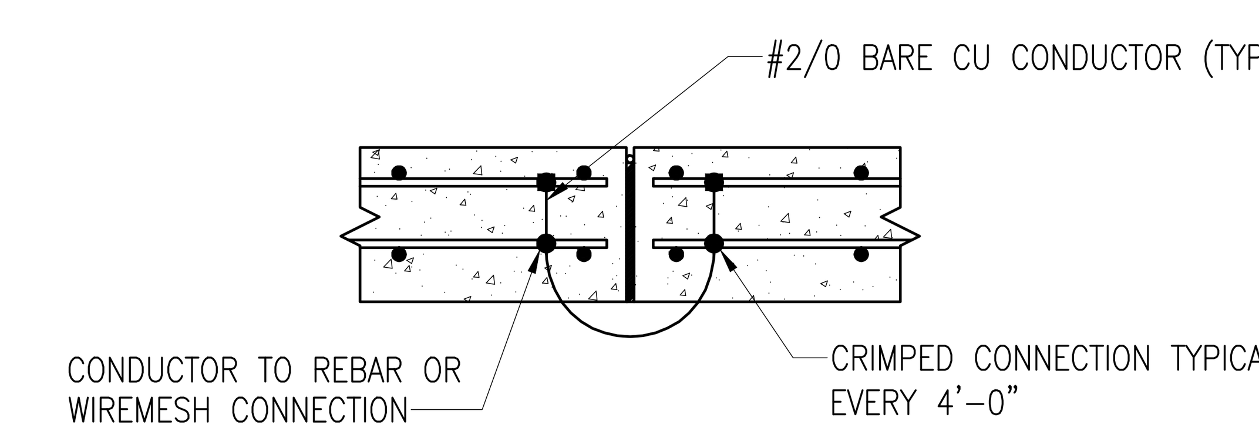
C2 TYPICAL CABLE TERMINATIONS / CONNECTIONS DETAIL
SCALE: NO SCALE



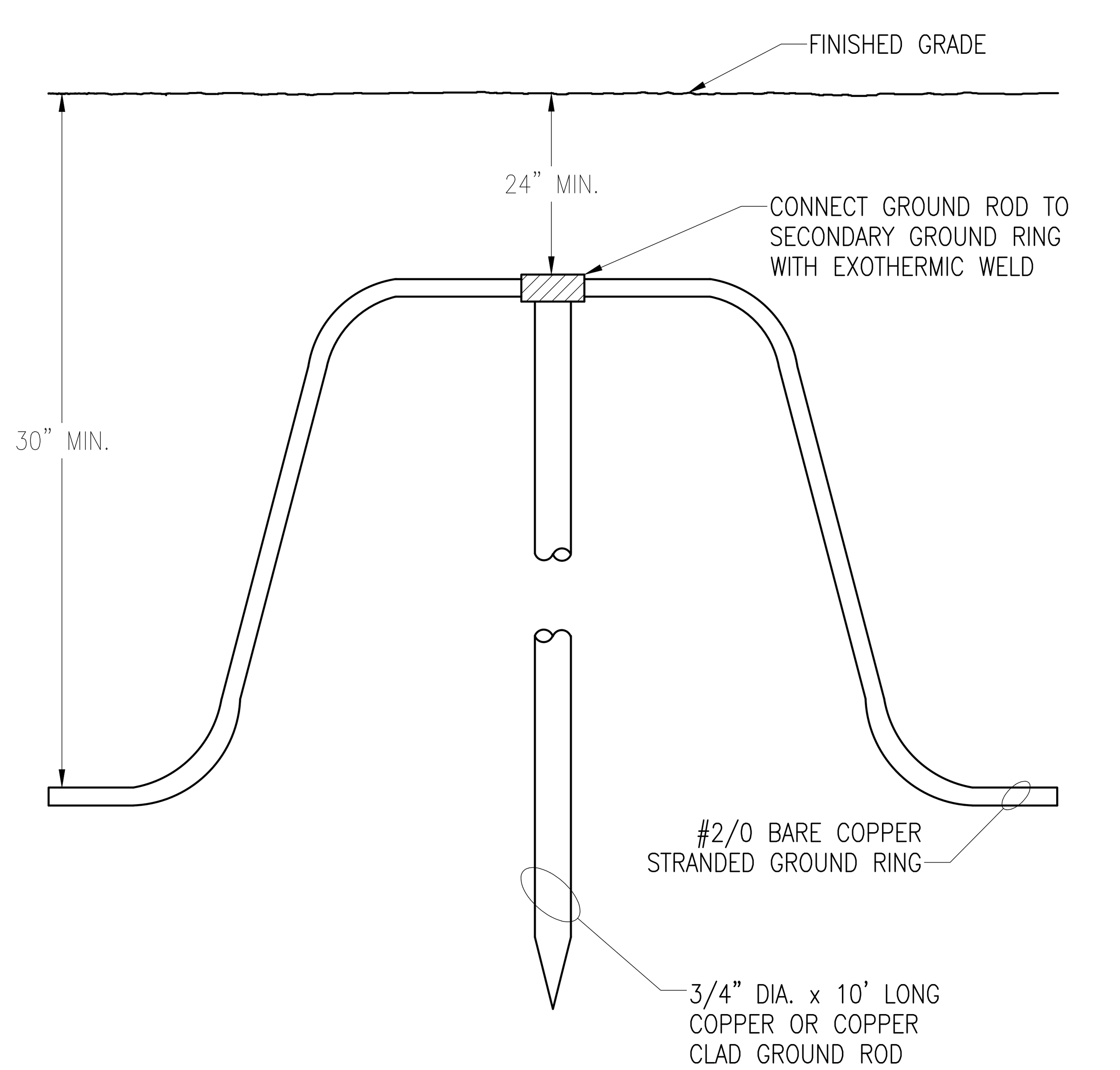
C3 TYPICAL CABLE EXOTHERMIC WELD DETAIL
SCALE: NO SCALE



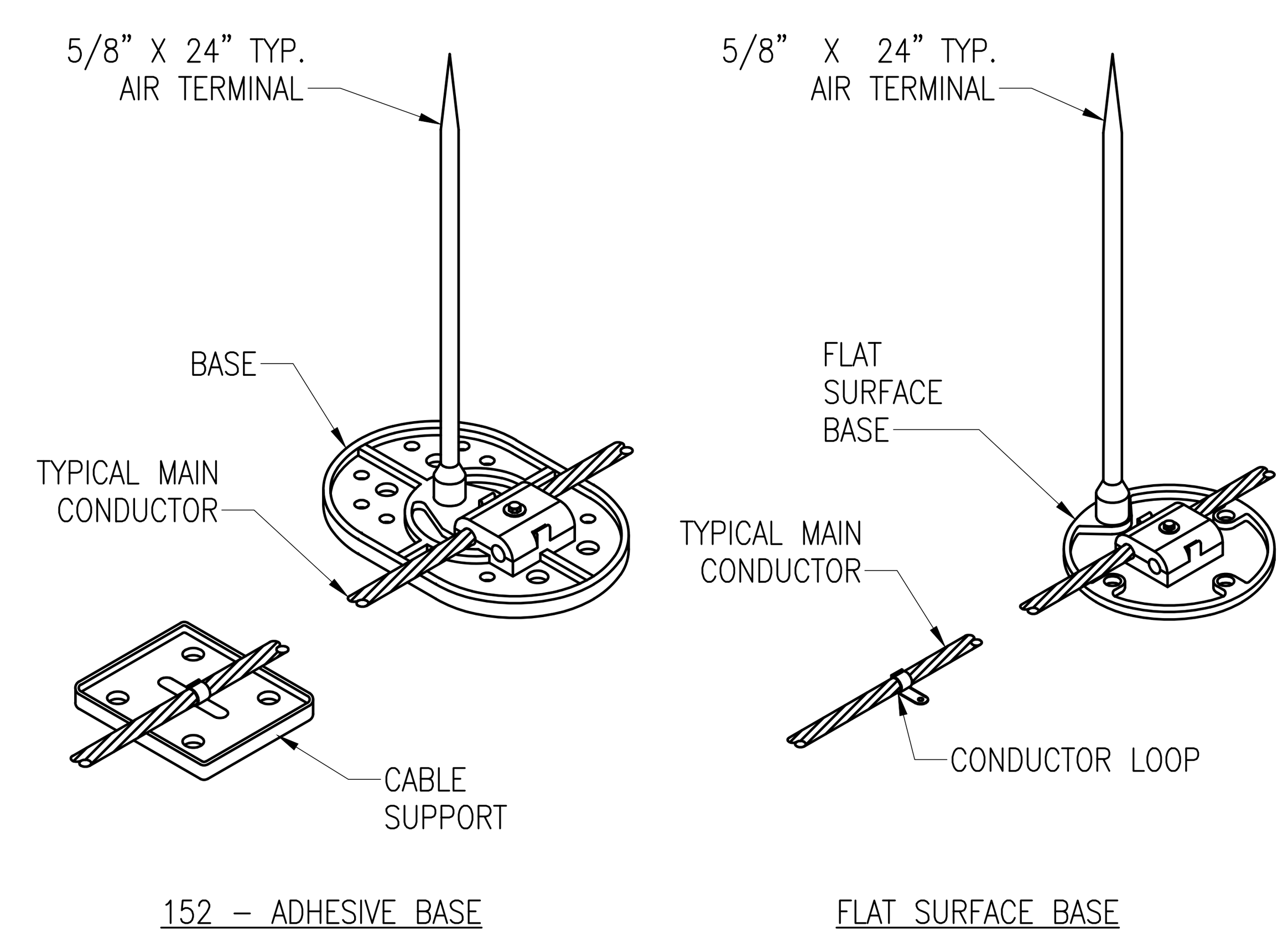
C4 TYPICAL CABLE SPLICE DETAIL
SCALE: NO SCALE



B4 TYPICAL BOND CONNECTION AT EACH CONSTRUCTION JOINT
SCALE: NO SCALE

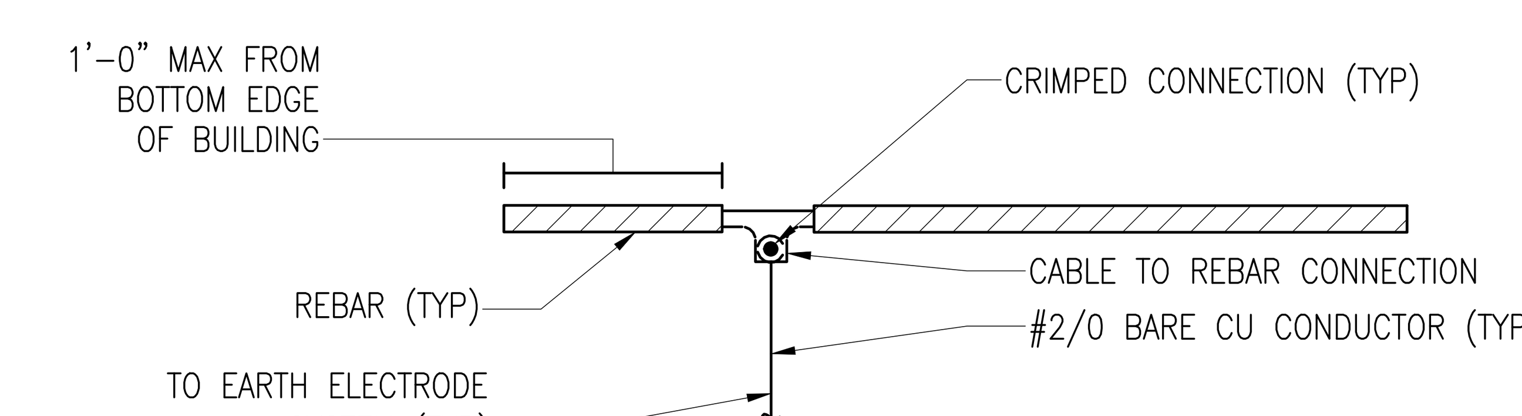


A1 GROUND ROD DETAIL
SCALE: NO SCALE



NOTES:
1. ADHESIVE FASTENERS ARE NOT PERMITTED ON DOWN CONDUCTORS AND CROSS CONDUCTORS.
2. BOLTED CONNECTORS ARE NOT PERMITTED ON DOWN CONDUCTOR OR ROOF CONDUCTORS BONDING, EXCEPT AT AIR TERMINAL OR ALUMINUM OR METAL BODIES FOR BONDING PURPOSES. PROVIDE EXOTHERMIC WELDING OR HIGH COMPRESSION ON THE DOWN CONDUCTORS AND ROOF CONDUCTORS.

A2 TYPICAL VENT MOUNTED AIR TERMINAL DETAIL
SCALE: NO SCALE



A4 GROUNDING REINFORCING STEEL
SCALE: NO SCALE

APPROVED William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024
ACTIVITY
SATISFACTORY TO DATE

DES KL	DRW FO	CHK PKD
PM/DM		--
BRANCH MANAGER		--
CHIEF ENG/ARCH		--
FIRE PROTECTION		--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

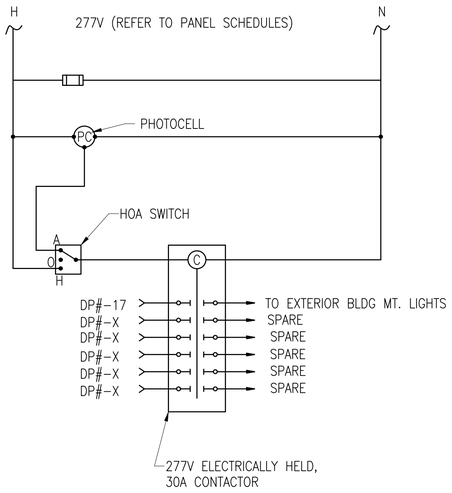
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL DETAILS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914747
SHEET 52 OF 62

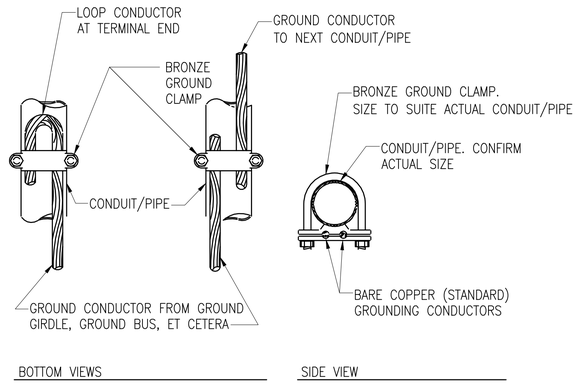
E-502

DRAWFORM REVISION: 25 AUGUST 2020



C1 LIGHTING CONTACTOR PANEL 'LCP#'

SCALE: NO SCALE

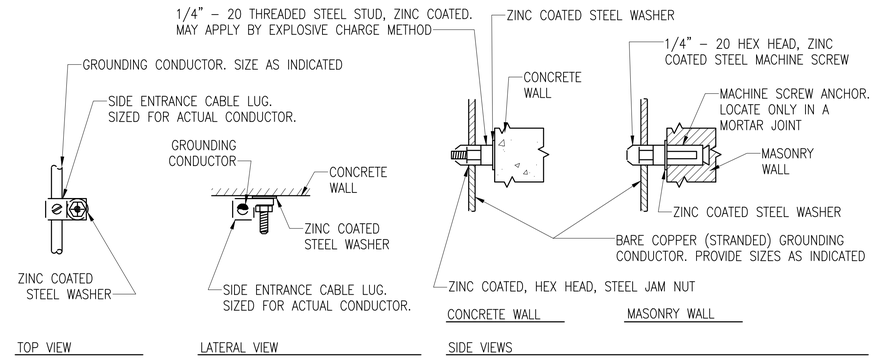


C2 CONDUIT/PIPE GROUND CONNECTION

SCALE: NO SCALE

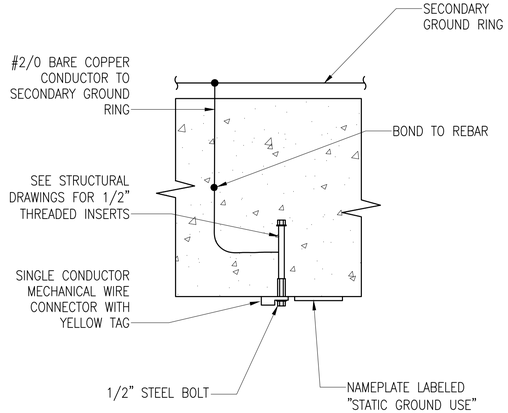
NOTES:

1. CONCEAL GROUNDING CONDUCTORS WHERE POSSIBLE.
2. FOR GROUNDING CONDUCTORS RUN EXPOSED, SUPPORT CONDUCTORS 36" ON CENTERS AND WITHIN 12" OF GROUND CONNECTIONS.
3. PROVIDE WALL FASTENER IN ACCORDANCE WITH THE WALL TYPE SEE "SIDE VIEW DETAILS" FOR REQUIREMENTS.
4. THIS GROUNDING DETAIL IS NOT FOR ORDNANCE GROUNDING SYSTEM.



C4 GROUNDING CONDUCTOR SUPPORT DETAIL (TYPICAL FOR EXPOSED CONDUCTORS)

SCALE: NO SCALE



STATIC GROUND INSERT DETAIL NOTES:

1. PROVIDE A REMOVABLE YELLOW MELAMINE PLASTIC TAG THAT ATTACHES TO THE STATIC GROUND INSERT. THE TAG MUST INCLUDE THE FOLLOWING INFORMATION:

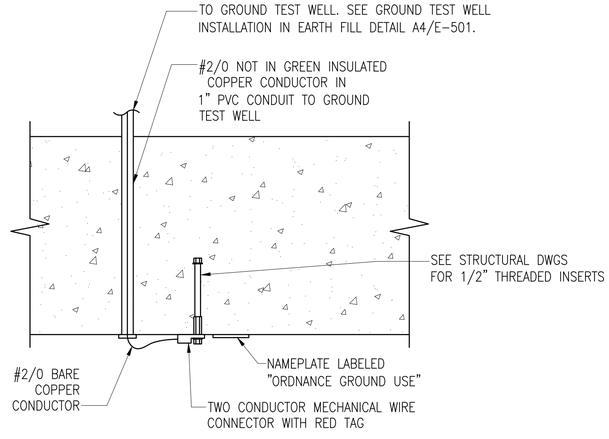
   "NOT IN SERVICE. NO MAINTENANCE REQUIRED.

   INSTALLATION MEETS STATIC/FACILITY GROUND REQUIREMENT PER NAVSEA OP-5. ACTIVITY MUST PERFORM TESTING PER NAVSEA OP-5 AND ENACT MAINTENANCE SCHEDULE WHEN THE STATIC/FACILITY GROUND INSERT IS PLACED IN SERVICE.

   RETAIN THIS TAG TO REATTACH WHEN REMOVED FROM SERVICE."

A1 STATIC GROUND INSERT DETAIL

SCALE: NO SCALE



ORDNANCE GROUND INSERT DETAIL NOTES:

1. PROVIDE A REMOVABLE RED MELAMINE PLASTIC TAG THAT ATTACHES TO THE ORDNANCE GROUND INSERT. THE TAG MUST INCLUDE THE FOLLOWING INFORMATION:

   "NOT IN SERVICE. NO MAINTENANCE REQUIRED.

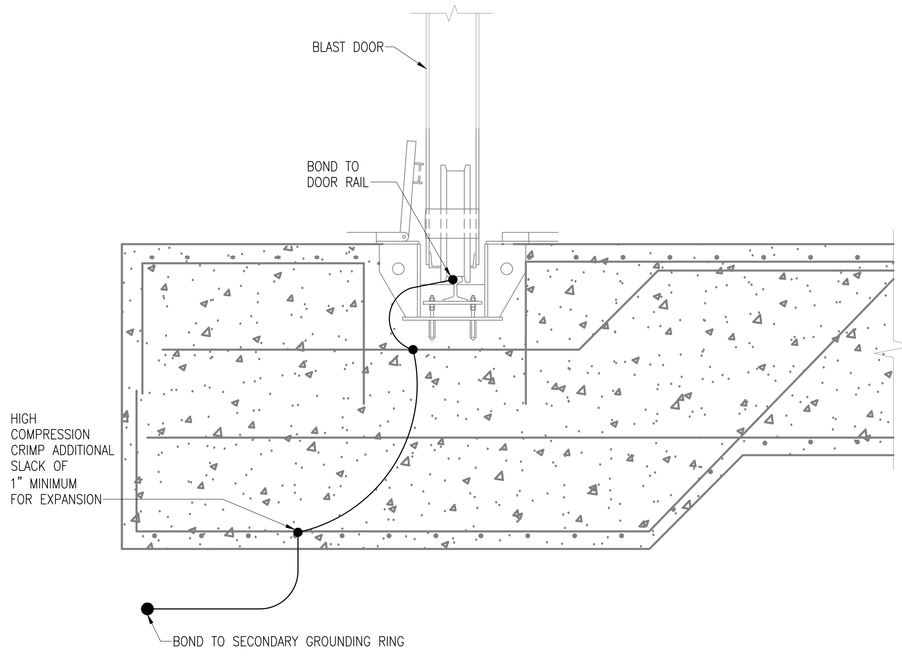
   INSTALLATION MEETS ORDNANCE GROUND REQUIREMENT PER NAVSEA OP-5. ACTIVITY MUST PERFORM TESTING PER NAVSEA OP-5 AND ENACT MAINTENANCE SCHEDULE WHEN THE ORDNANCE GROUND INSERT IS PLACED IN SERVICE.

   RETAIN THIS TAG TO REATTACH WHEN REMOVED FROM SERVICE."

2. MAINTAIN THREADED INSERT ISOLATION. DO NOT ALLOW THE THREADED INSERT TO TOUCH REBAR OR OTHER METALLIC OBJECTS IN THE WALL.

A2 ORDNANCE GROUND INSERT DETAIL

SCALE: NO SCALE



A4 DOOR RAIL BONDING DETAIL (TYPICAL)

SCALE: NO SCALE

APPR			
DATE			
DESCRIPTION			
SYM			

NAVFAC

SEAL

A/E INFO

APPROVED: Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	KL	DRW	FO	CHK	PKD

PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
HAMPTON ROADS, VIRGINIA

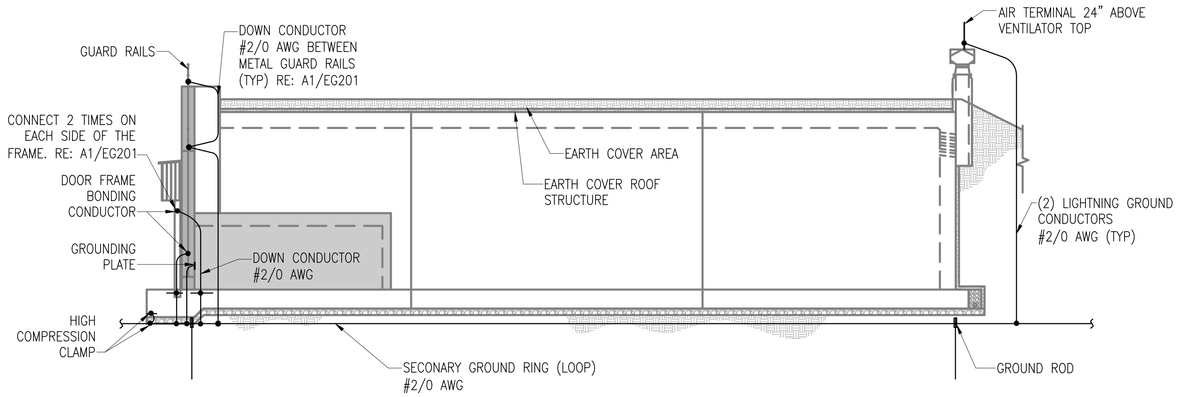
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL DETAILS

SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914748
SHEET	53 OF 62

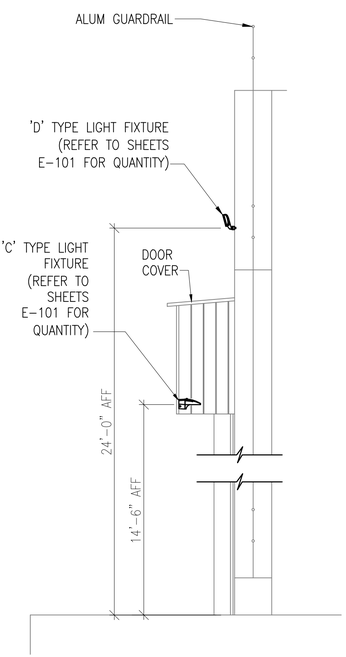
E-503

DRAWFORM REVISION: 25 AUGUST 2020

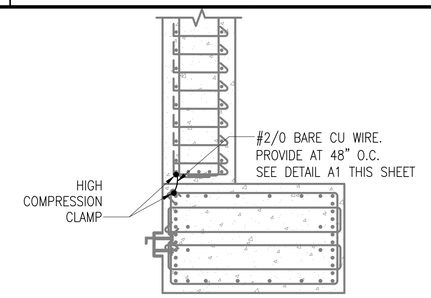


NOTES:
1. FOR MISCELLANEOUS STEEL SHAPES, BOLTED CONNECTOR MAY BE USED.
2. CRIMPED CONNECTORS MAY ALSO BE ANOTHER ALTERNATE CONNECTORS.

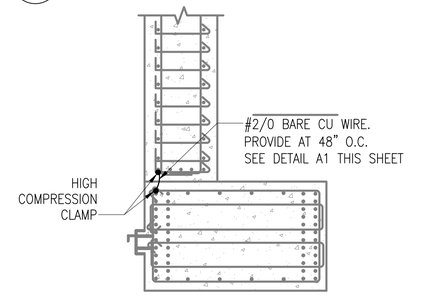
C1 ECM GROUND SECTION (TYPICAL)
SCALE: NO SCALE



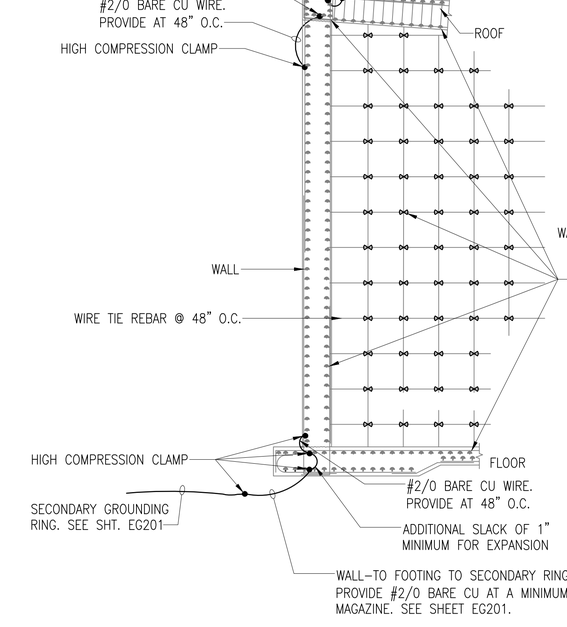
C4 EXTERIOR WALL MOUNTED LIGHTING
SCALE: NO SCALE



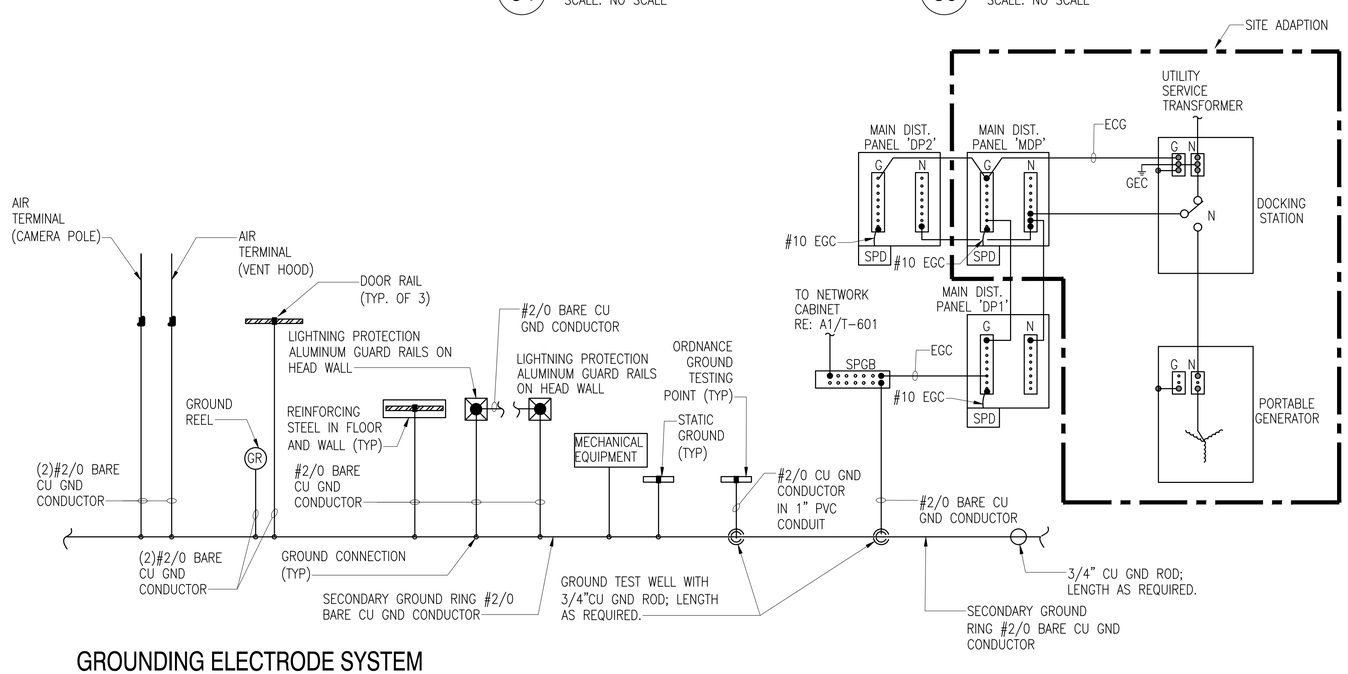
D5 HEADER BEAM END - BONDING DETAIL
SCALE: NO SCALE



C5 HEADER BEAM MIDSPAN - BONDING DETAIL
SCALE: NO SCALE



A1 WALL/FLOOR/ROOF BONDING DETAIL (TYPICAL)
SCALE: NO SCALE



A3 GROUNDING ELECTRODE SYSTEM (TYPICAL FOR EACH MAGAZINE)
SCALE: NO SCALE

APPR	DATE	DESCRIPTION	SYM

NAVFAC

A/E INFO

APPROVED: Forbes
FOR COMMANDER NAVFAC 24 SEP 2021

ACTIVITY

SATISFACTORY TO DATE

DES	KL	DRW	FO	CHK	PKD
PM/DM					--
BRANCH MANAGER					--
CHIEF ENG/ARCH					--
FIRE PROTECTION					--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

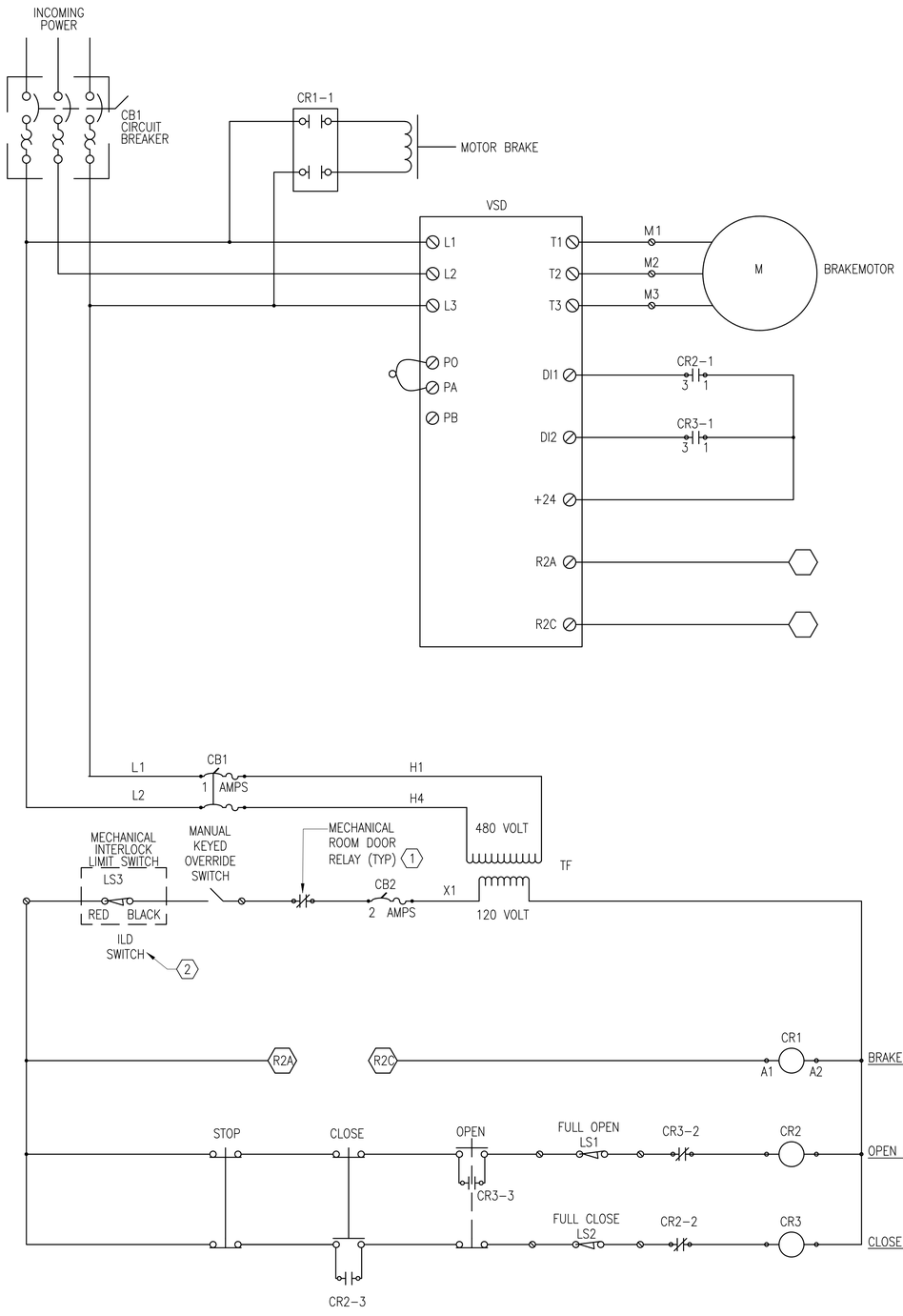
CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL DETAILS

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914749
SHEET 54 OF 62

E-504

DRAWFORM REVISION: 25 AUGUST 2020



A1 DOOR CONTROL DIAGRAM

SCALE: NO SCALE

GENERAL ELECTRICAL NOTES:

1. RIGID METAL CONDUIT TO BE USED.
2. LIQUID TIGHT FLEXIBLE METAL CONDUIT ALLOWED UP TO 3' WHERE NECESSARY.
3. COMPONENTS TO BE NON-HAZARDOUS.

ITEM	DESCRIPTION
ENCLOSURE	NEMA 4/12 ENCLOSURE
VSD	VARIABLE SPEED DRIVE – 2HP
TF	208 X 120 TRANSFORMER
CR1	5 POLE CONTROL RELAY
CR2, CR3	DPDT RELAY
CB1	2P 1AMP CIRCUIT BREAKER
CB2	1P 2AMP CIRCUIT BREAKER
LS1,LS2	LIMIT SWITCHES
EXT. ENCLOSURE	NEMA 4/12 ENCLOSURE
EXT. OPEN PB	OPEN LEGEND
EXT. CLOSE PB	CLOSE LEGEND
LS3	LIMIT SWITCHES LOCATED INSIDE ILD BOLTWORKS

SHEET NOTES

1. THE DOOR CONTROL DIAGRAM IS A TYPICAL DOOR STANDARD DESIGN AND SHOWN AS SCHEMATIC DESIGN ONLY. DOR MUST COORDINATE WITH DOOR MANUFACTURER FOR SPECIFIC DESIGN APPLICABLE TO LOCAL CODES AND ORDINANCES.
2. PROVIDE A MINIMUM NEMA 3R ENCLOSURE FOR ALL ELECTRICAL EQUIPMENT LOCATED OUTDOORS. FOR WET/CORROSION ENVIRONMENT AREA AS DEFINED PER UFC 1-200-01, CHAPTER 4 CORROSION PROTECTION AND CONTROL AND APPENDIX A, DOR MUST SPECIFY CORROSION PROTECTION FOR ENCLOSURES AS DEFINED PER CODE.
3. THIS DETAIL REPRESENTS TO CONTROL EACH DOOR AS INDEPENDENTLY.

⬡ KEYED NOTES

1. THE RELAY WILL BE INTERLOCKED TO CLOSE MECHANICAL DOOR LATCH. RELAY MUST OPEN WHEN MECHANICAL DOOR IS UNLOCKED. DOOR POWER MUST BE DISCONNECTED AND RELEASED THE DOOR CONTROL POWER. THE KEY OVERRIDE SWITCH MUST CONTROL WHEN DOOR POWER DISCONNECTED.
2. THE RELAY WILL BE INTERLOCKED WITH ILD LOCKING SYSTEM SO THAT DOOR POWER WILL BE DISCONNECTED WHEN ILD IS IN 'CLOSE' POSITION OR IN 'LOCKING' POSITION. DESIGN TEAM WILL COORDINATE WITH LOCAL AHJ FOR ADDITIONAL REQUIREMENT ON ILD SYSTEM CONNECTION. REFER TO KEYED NOTE 2/T101 FOR ADDITIONAL INFORMATION.

APPR'R | DATE | DESCRIPTION | SYM

NAVFAC

SEAL

A/E INFO

APPROVED for Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	KL	DRW	FO	CHK	PKD

PM/DM --

BRANCH MANAGER --

CHIEF ENG/ARCH --

FIRE PROTECTION --

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL DETAILS

SCALE: AS NOTED

EPROJECT NO.: 164487

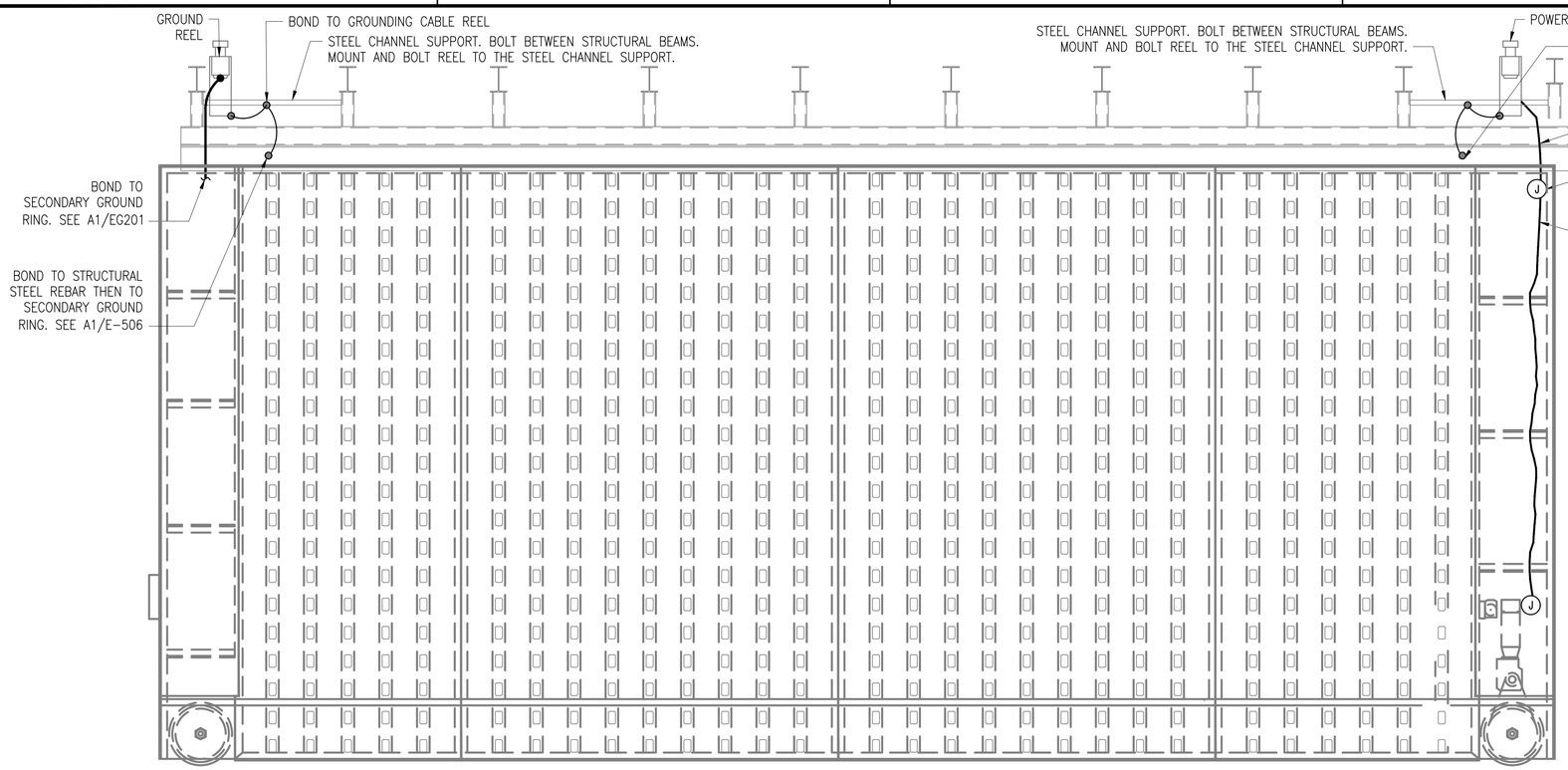
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12914750

SHEET 55 OF 62

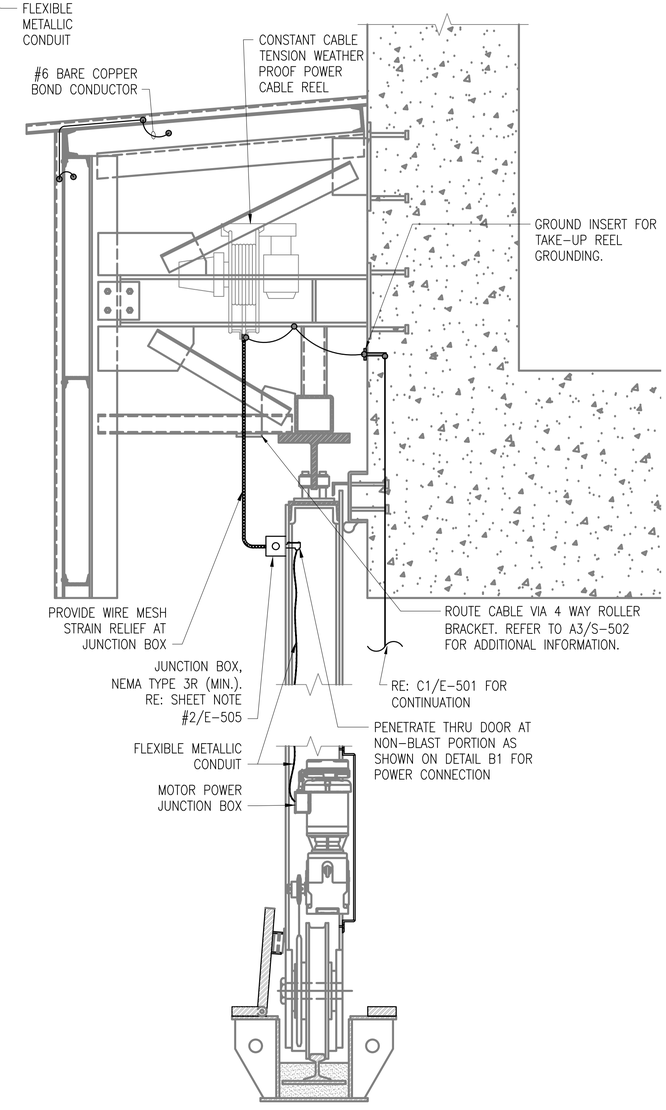
E-505

DRAWFORM REVISION: 25 AUGUST 2020



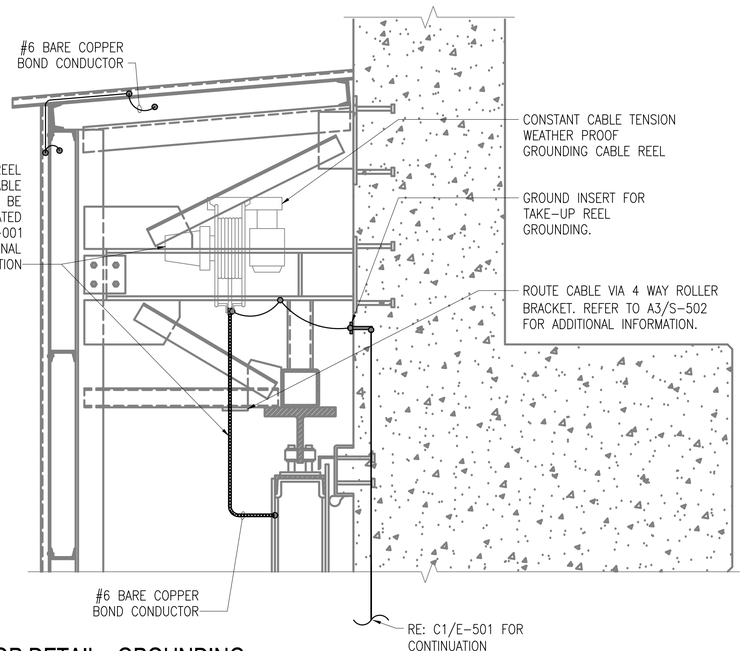
B1 DOOR EXTERIOR PLATE ELEVATION

SCALE: 1" = 1'-0"



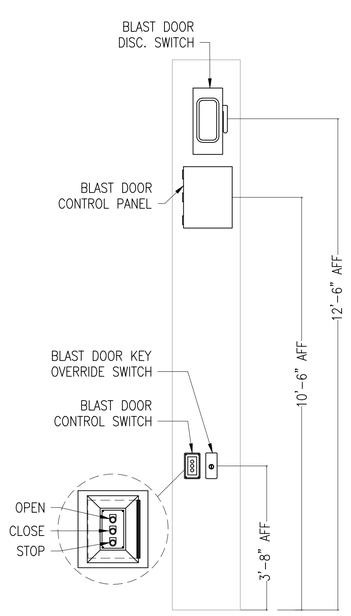
A4 DOOR DETAIL - POWER

SCALE: NO SCALE



A1 DOOR DETAIL - GROUNDING

SCALE: NO SCALE



A3 DOOR CONTROL RISER

SCALE: NO SCALE

GRAPHIC SCALES

SCALE: 1" = 1'-0"

0 6" 1' 2'

APPR	
DATE	
DESCRIPTION	
SYM	

NAVFAC

A/E INFO

APPROVED parties

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES KL DRW FO CHK PKD

PM/DM ---

BRANCH MANAGER ---

CHIEF ENG/ARCH ---

FIRE PROTECTION ---

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL DETAILS

SCALE: AS NOTED

EPROJECT NO.: 164487

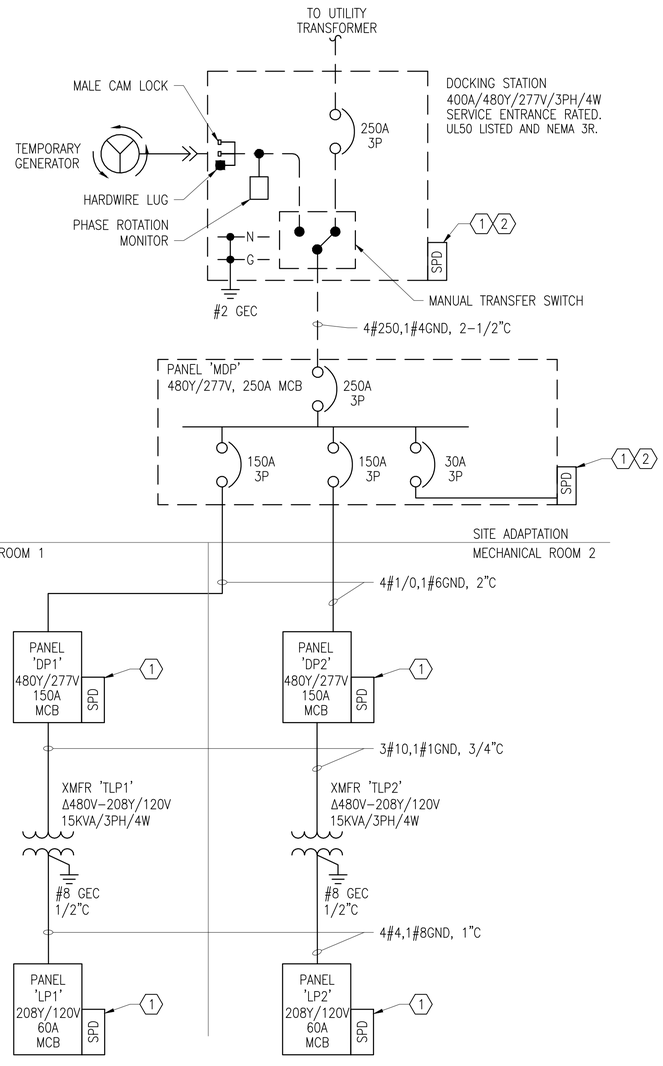
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12914751

SHEET 56 OF 62

E-506

DRAWFORM REVISION: 25 AUGUST 2020



A1 **ELECTRICAL ONE-LINE DIAGRAM**

SCALE: NO SCALE

SERVICE LOAD ANALYSIS

PROJECT:	CLWS – ATLANTIC		
SQ FOOTAGE:	3664		
MAIN DISTRIBUTION:	MDP	480	VOLT

	CONNECTED		DEMAND	
TYPE	AMPACITY	VA	AMPACITY	VA
EQUIPMENT:	9	7,356	9	7,356
RECEPTACLES:	1	720	1	720
LIGHTING:	12	10,044	15	12,555
A/C OR HEATING	0	0	0	0
HEATING	0	0	0	0
CONT. MOTORS	95	78,982	95	78,982
25% LRG MOTOR (BRIDGE CRANE)	–	–	11	9,166
15% SPARE CAPACITY (UFC 3-501-01)	–	–	20	16,317
TOTAL	117	97,102	150	125,095

SERVICE VOLTAGE:	480	VOLTS
SERVICE LOAD AMPACITY:	150	AMPS
SCHEDULED SERVICE AMPACITY:	250	AMPS

SHEET NOTES

1. THE INDICATED FAULT CURRENT RATING ON PANEL SCHEDULES IS MINIMUM REQUIREMENT. DESIGNER MUST DETERMINE THE FINAL EQUIPMENT FAULT CURRENT RATING BASED ON THE MAXIMUM AVAILABLE FAULT CURRENT FROM UTILITY SERVICE TRANSFORMER. PROVIDE HIGHER RATING AS REQUIRED PER SITE ADAPTATIONS.
2. DOCKING STATION AS SHOWN IS PART OF SITE ADAPTATIONS.
3. THE DESIGN STANDARD INDICATES THE POWER DISTRIBUTION SYSTEM FOR CONUS PROJECTS, BUT DEFERRED FOR OCONUS PROJECTS TO THE PROJECT DELIVERY DESIGN TEAMS FOR SITE ADAPTATION AND FURTHER DEVELOPMENT AS NEEDED.
4. ALL ELECTRICAL POWER DISTRIBUTION EQUIPMENT LOCATED OUTSIDE THE EARTH COVER MAGAZINE, INCLUDING DOCKING STATION, MANUAL TRANSFER SWITCH, PORTABLE GENERATOR POWER CONNECTION MUST BE PART OF SITE ADAPTATION AS SHOWN IN DASHED LINETYPE.
5. PROVIDE A MINIMUM NEMA 3R ENCLOSURE FOR ALL ELECTRICAL EQUIPMENT LOCATED OUTDOORS. FOR WET/CORROSION ENVIRONMENT AREA AS DEFINED PER UFC 1-200-01, CHAPTER 4 CORROSION PROTECTION AND CONTROL AND APPENDIX A, DOR MUST SPECIFY CORROSION PROTECTION FOR ENCLOSURES AS DEFINED PER CODE.

KEYED NOTES

1. PROVIDE EXTERNALLY MOUNTED SPD ON LOAD SIDE OF A DEDICATED CIRCUIT BREAKER (BREAKER SIZE AND WIRE SIZE AS RECOMMENDED BY MANUFACTURER). LOCATE AS CLOSE AS PRACTICAL TO THE BREAKER WITH A MAXIMUM LEAD OF 3FT.
2. PROVIDE AN ENCLOSED CIRCUIT BREAKER FOR SPD.

APPR'R | DATE | SYM | DESCRIPTION

NAVFAC

SEAL

A/E INFO

APPROVED for bids

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	KL	DRW	FO	CHK	PKD

PM/DM	--
BRANCH MANAGER	--
CHIEF ENG/ARCH	--
FIRE PROTECTION	--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL ONE-LINE

SCALE:	AS NOTED
EPROJECT NO.:	164487
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12914752
SHEET	57 OF 62

E-601

DRAWFORM REVISION: 25 AUGUST 2020

LIGHTING FIXTURE SCHEDULE

MARK	DESCRIPTION	MOUNTING TYPE/HEIGHT (RE: E-101)	LAMP TYPE	INPUT VA	COLOR TEMPERATURE	CRI	VOLTAGE	LUMINAIRE PLATE NUMBER
A	LED FROSTED POLYCARBONATE ENCLOSURE 15000LM	STEM	LED	116 VA	3500 K	80	MVOLT	NL-11
B	LED FROSTED POLYCARBONATE ENCLOSURE 6000LM	SURFACE	LED	50 VA	3500 K	80	MVOLT	NL-11
C	LED WALL FIXTURE TWO-PIECE DIE-CAST ALUMINUM HOUSING 7000LM	SURFACE	LED	40 VA	3000 K	70	MVOLT	XL-17
D	LED FLOOD LIGHT DIE-CAST ALUMINUM HOUSING 12000LM	WALL	LED	102 VA	3000 K	70	MVOLT	XL-21

LUMINAIRE REQUIREMENTS:

1. HOUSING – FIBERGLASS OR FIBERGLASS-REINFORCED POLYESTER OUTER HOUSING, WITH ALUMINUM COMPONENT TRAY AND HEAT SINK. OPTIONAL LENGTHS OF 4FT OR 8FT.
2. LENS – IMPACT-RESISTANT ACRYLIC OR OPTIONAL POLYCARBONATE, WITH CONTINUOUS CLOSED-CELL POLYURETHANE GASKET, SECURED WITH STAINLESS STEEL OR POLYCARBONATE LATCHES.
3. LIGHT SOURCE – SOLID STATE LEDS WITH MINIMUM 50K HOURS RATED LIFE AT L70, 3500K CCT UON, MINIMUM 80 CRI, MAXIMUM 4-STEP MCADAM ELLIPSE BINNING TOLERANCE FOR COLOR CONSISTENCY, AND MINIMUM EFFICACY OF 100 LUMENS/WATT. 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, < 20% TOTAL HARMONIC DISTORTION. ON-OFF CONTROL, STEP-DIMMABLE OR FULLY DIMMABLE AS INDICATED.
5. CERTIFICATION – UL 1598, WET LOCATION (IP65, IP66, IP67), DLC QUALIFIED, AND ROHS COMPLIANT. COMPLIES WITH LM79, LM80 AND TM21 TESTING STANDARDS. UL 924 WHEN EQUIPPED WITH EMERGENCY BATTERY BACK-UP.
6. MOUNTING – SURFACE-MOUNTED OR SUSPENDED FROM CEILING.
7. OPTIONS – EMERGENCY BACK-UP.
8. 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.

LED ENCLOSED AND GASKETED

REVISED: APRIL 2016	LIGHTING PLATE: NL-11

LUMINAIRE REQUIREMENTS:

1. HOUSING – DIE-CAST OR EXTRUDED ALUMINUM WITH INTEGRAL PASSIVE COOLING MECHANISM. HEAT SINK MUST BE INCORPORATED DIRECTLY INTO HOUSING OR DRIVER COMPARTMENT TO ENSURE MAXIMUM HEAT TRANSFER AND DISSIPATION.
2. FINISH – MULTI-STAGE PRE-TREATMENT, FINISHED WITH BAKED-ON POLYESTER POWDER COAT. FINISH MUST PASS 2500 HOUR SALT SPRAY TEST PER ASTM B117. STANDARD FINISH IS DARK BRONZE, WITH OTHER CUSTOM COLORS AVAILABLE.
3. POWER SUPPLY/LED DRIVER – CLASS 1 DRIVER MUST OPERATE AT 120/277 VOLTS, 50/60 HZ, WITH OTHER VOLTAGES OPTIONAL; POWER FACTOR GREATER THAN 0.9 AND THD LESS THAN 20% AT FULL LOAD. MINIMUM EFFICACY MUST BE 60 LM/W AT MAXIMUM 600mA OPERATING CURRENT.
4. LED OPTICAL ASSEMBLY – PRECISION MOLDED ACRYLIC LENS PROVIDED FOR MULTIPLE HIGH-POWERED LEDS PRODUCING NEMA TYPE III DISTRIBUTION OR AS OTHERWISE INDICATED. BUG UPLIGHT RATING OF U0, WITH GLARE RATING AS DETERMINED BY LIGHTING ZONE INSTALLED. MINIMUM COLOR RENDERING INDEX (CRI) MUST BE 70 FOR CORRELATED COLOR TEMPERATURE (CCT) OF 4000-4500 DEGREES K.
5. CERTIFICATION – UL AND/OR ETL LISTED FOR DAMP OR WET LOCATIONS AS INDICATED, AND RoHS COMPLIANT.
6. OPTIONS – VARIOUS LUMEN OUTPUT RATING AS INDICATED, AND 0-10 VOLT DIMMING DRIVER.
7. OTHER – THE ABOVE SKETCH IS A NON-PROPRIETY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS AND IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER'S PREFERENCE. ALL DIMENSIONS ARE NOMINAL AND VARY PER MANUFACTURER. MANUFACTURER'S PREFERENCE. ALL DIMENSIONS ARE NOMINAL AND VARY PER MANUFACTURER.

LED WALL PACK

REVISED: MARCH 2013	LUMINAIRE PLATE: XL-17

LUMINAIRE REQUIREMENTS:

1. HOUSING – DIE CAST ALUMINUM WITH INTEGRAL PASSIVE COOLING MECHANISM. HEAT SINK MUST BE INCORPORATED DIRECTLY INTO HOUSING TO ENSURE MAXIMUM HEAT TRANSFER AND DISSIPATION.
2. FINISH – MULTI-STAGE PRE-TREATMENT, FINISHED WITH BAKED-ON POLYESTER POWDER COAT. FINISH MUST PASS 2500 HOUR SALT SPRAY TEST PER ASTM B117. DARK BRONZE FINISH COLOR IS STANDARD.
3. POWER SUPPLY/LED DRIVER – CLASS 1 ELECTRONIC DRIVER MUST OPERATE AT 120/277 VOLTS, 50/60 HZ, WITH OTHER VOLTAGES OPTIONAL. POWER FACTOR MUST BE GREATER THAN 0.9 AND THD LESS THAN 20% AT FULL LOAD. MINIMUM EFFICACY MUST BE 60 LM/W AT MAXIMUM 600mA OPERATING CURRENT.
4. LED OPTICAL ASSEMBLY – MULTI-LED ARRAY OPTIMIZED FOR SPECIFIC DISTRIBUTION PATTERN AS INDICATED. MINIMUM COLOR RENDERING INDEX (CRI) OF 70 FOR CORRELEATED COLOR TEMPERATURE OF 4000-4500 DEGREES K.
5. LENS – TEMPERED GLASS IN DIE-CAST ALUMINUM FRAME WITH SILICONE GASKET.
6. SURGE PROTECTION – 6 KV MINIMUM, COMPLIANT WITH ANSI C62.41.2.
7. CERTIFICATION – UL AND/OR ETL LISTED FOR WET LOCATIONS AND 2G VIBRATION STANDARD PER ANSI C136.32. OPTICAL ASSEMBLY MUST BE MINIMUM IP65 PER ANSI/IEC 60529.
8. OPTIONS – FINISH COLOR, OUTPUT DISTRIBUTION TYPE AND TRUNNION OR SLIPFITTER TYPE MOUNTING.
9. OTHER – THE ABOVE SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS AND IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER'S PREFERENCE. ALL DIMENSIONS ARE NOMINAL AND VARY PER MANUFACTURER.

LED FLOOD LUMINAIRE

REVISED: MARCH 2013	LUMINAIRE PLATE: XL-21

SYM | DESCRIPTION | DATE | APPR

NAVFAC

SEAL

A/E INFO

William Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES KL DRW FO CHK PKD

PM/DM --
BRANCH MANAGER --
CHIEF ENG/ARCH --
FIRE PROTECTION --

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL SCHEDULES

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914753
SHEET 58 OF 62

E-602

DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSE\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\E-602.dwg LAYOUT NAME: E-602 – ELECTRICAL SCHEDULES PLOTTED: Tuesday, September 24, 2024 – 10:14am USER: leslie.corsino

PANEL 'DP1'

LOCATION: MECHANICAL ROOM 1 — VOLTAGE: 480/277 V — KAIC: 14 — BUSSING SHALL BE FULLY RATED
MOUNTING: SURFACE — PHASE: 3 P/ 4W — CODES: 0=EQPT, 1=RCPT, 2=LTG, 3=A/C, 4=HEAT
ENCLOSURE: NEMA 1 — SYTLE: NF — BUSSING: 150 A — 5=CONTINUOUS MOTORS, 6=LRGST MOTOR, 7=PANEL
BRKR MTG: BOLT-ON (REF: SQUARE D) — MCB: 150 A — ACCESSORIES: GROUND BUS, 42 SPACE
BREAKERS: 75 DEGREE TERMINALS — MLO: A

CODE	BRKR	CIRCUIT USE	CKT	LOAD	A	B	C	LOAD	CKT	CIRCUIT USE	BRKR	CODE
5	20/3	PWR – BLAST DOOR (2 HP)	1	942	X			12,221	2	PWR – BRIDGE CRANE (25 TON) (NOTE 1)	125/3	5
5			3	942		X		12,221	4			5
5			5	942			X	12,221	6			5
2	20/1	LTG – MAIN MAGAZINE	7	1,044	X			913	8	AIR CURTAIN (5HP)	15/3	0
2	20/1	LTG – MAIN MAGAZINE	9	1,044		X		913	10			0
2	20/1	LTG – MAIN MAGAZINE	11	1,044			X	913	12			0
2	20/1	LTG – MAIN MAGAZINE	13	1,044	X			–	14	SPARE	20/1	
2	20/1	LTG – MECH ROOM	15	300		X		–	16	SPARE	20/1	
2	20/1	LTG – EXTERIOR (TYPE C)	17	162			X	–	18	SPARE	20/1	
2	20/1	LTG – EXTERIOR (TYPE D)	19	204	X			–	20	SPARE	20/1	
2	20/1	LTG – LIGHTING CONTACTOR COIL	21	180		X		–	22	SPARE	20/1	
	20/1	SPARE	23	–			X	–	24	SPARE	20/1	
	20/1	SPARE	25	–	X			–	26	SPARE	20/1	
	20/1	SPARE	27	–		X		–	28	SPARE	20/1	
	20/1	SPARE	29	–			X	–	30	SPARE	20/1	
		SPACE	31	–	X			–	32	SPACE		
		SPACE	33	–		X		–	34	SPACE		
		SPACE	35	–			X	–	36	SPACE		
7	25/3	PANEL 'LP' VIA XFMR 'TLP1'	37	540	X			–	38	SPD	30/3	
7			39	360		X		–	40			
7			41	400			X	–	42			

	EQPT VA	RCPT VA	LTG VA	AC/HEAT VA	MOTORS	CONN VA	FTL VA	PANEL VA	PHASE AMP
PHASE A	1453	0	2292	0	13164	16908		20772	75
PHASE B	913	360	1524	0	13164	15960		19632	71
PHASE C	1313	0	1206	0	13164	15682		19275	70
TOTAL	3678	360	5022	0	39491	48551		59679	

PANEL DEMAND KVA: 59.68 — PANEL DEMAND AMPACITY: 72 AMPS
RESERVE KVA: 11.94 — RESERVE AMPACITY: 11 AMPS
DESIGN KVA: 71.61 — DESIGN AMPACITY: 83 AMPS

NOTE:
*1. THE BRIDGE CRANE IS NOT A STANDARD FEATURE OF THE DESIGN. THEREFORE, THE EQUIPMENT IS PART OF SITE ADAPTATION. D.O.R. MUST UPDATE VOLTAGE/PHASE, DEMAND LOAD, OVERCURRENT PROTECTION DEVICES AND DISCONNECTING MEAN SIZE PER EQUIPMENT SPECIFICATION AND/OR VENDOR'S PROVIDED SHOP DRAWINGS/DATA INFORMATION PER SITE ADAPTATION. UPDATE THE ELECTRICAL PANEL SIZE AS REQUIRED TO MEET CODES.

PANEL 'DP2'

LOCATION: MECHANICAL ROOM 2 — VOLTAGE: 480/277 V — KAIC: 14 — BUSSING SHALL BE FULLY RATED
MOUNTING: SURFACE — PHASE: 3 P/ 4W — CODES: 0=EQPT, 1=RCPT, 2=LTG, 3=A/C, 4=HEAT
ENCLOSURE: NEMA 1 — SYTLE: NF — BUSSING: 150 A — 5=CONTINUOUS MOTORS, 6=LRGST MOTOR, 7=PANEL
BRKR MTG: BOLT-ON (REF: SQUARE D) — MCB: 150 A — ACCESSORIES: GROUND BUS, 42 SPACE
BREAKERS: 75 DEGREE TERMINALS — MLO: A

CODE	BRKR	CIRCUIT USE	CKT	LOAD	A	B	C	LOAD	CKT	CIRCUIT USE	BRKR	CODE
5	20/3	PWR – BLAST DOOR (2 HP)	1	942	X			12,221	2	PWR – BRIDGE CRANE (25 TON) (NOTE 1)	125/3	5
5			3	942		X		12,221	4			5
5			5	942			X	12,221	6			5
2	20/1	LTG – MAIN MAGAZINE	7	1,044	X			913	8	AIR CURTAIN (5HP)	15/3	0
2	20/1	LTG – MAIN MAGAZINE	9	1,044		X		913	10			0
2	20/1	LTG – MAIN MAGAZINE	11	1,044			X	913	12			0
2	20/1	LTG – MAIN MAGAZINE	13	1,044	X			–	14	SPARE	20/1	
2	20/1	LTG – MECH ROOM	15	300		X		–	16	SPARE	20/1	
2	20/1	LTG – EXTERIOR (TYPE C)	17	162			X	–	18	SPARE	20/1	
2	20/1	LTG – EXTERIOR (TYPE D)	19	204	X			–	20	SPARE	20/1	
2	20/1	LTG – LIGHTING CONTACTOR COIL	21	180		X		–	22	SPARE	20/1	
	20/1	SPARE	23	–			X	–	24	SPARE	20/1	
	20/1	SPARE	25	–	X			–	26	SPARE	20/1	
	20/1	SPARE	27	–		X		–	28	SPARE	20/1	
	20/1	SPARE	29	–			X	–	30	SPARE	20/1	
		SPACE	31	–	X			–	32	SPACE		
		SPACE	33	–		X		–	34	SPACE		
		SPACE	35	–			X	–	36	SPACE		
7	25/3	PANEL 'LP' VIA XFMR 'TLP1'	37	540	X			–	38	SPD	30/3	
7			39	360		X		–	40			
7			41	400			X	–	42			

	EQPT VA	RCPT VA	LTG VA	AC/HEAT VA	MOTORS	CONN VA	FTL VA	PANEL VA	PHASE AMP
PHASE A	1453	0	2292	0	13164	16908		20772	75
PHASE B	913	360	1524	0	13164	15960		19632	71
PHASE C	1313	0	1206	0	13164	15682		19275	70
TOTAL	3678	360	5022	0	39491	48551		59679	

PANEL DEMAND KVA: 59.68 — PANEL DEMAND AMPACITY: 72 AMPS
RESERVE KVA: 11.94 — RESERVE AMPACITY: 11 AMPS
DESIGN KVA: 71.61 — DESIGN AMPACITY: 83 AMPS

NOTE:
*1. THE BRIDGE CRANE IS NOT A STANDARD FEATURE OF THE DESIGN. THEREFORE, THE EQUIPMENT IS PART OF SITE ADAPTATION. D.O.R. MUST UPDATE VOLTAGE/PHASE, DEMAND LOAD, OVERCURRENT PROTECTION DEVICES AND DISCONNECTING MEAN SIZE PER EQUIPMENT SPECIFICATION AND/OR VENDOR'S PROVIDED SHOP DRAWINGS/DATA INFORMATION PER SITE ADAPTATION. UPDATE THE ELECTRICAL PANEL SIZE AS REQUIRED TO MEET CODES.

PANEL 'LP1'

LOCATION: MECHANICAL ROOM 1 — VOLTAGE: 120/208 V — KAIC: 22 — BUSSING SHALL BE FULLY RATED
MOUNTING: SURFACE — PHASE: 3 P/ 4W — CODES: 0=EQPT, 1=RCPT, 2=LTG, 3=A/C, 4=HEAT
ENCLOSURE: NEMA 1 — SYTLE: NQOD — BUSSING: 100 A — 5=CONTINUOUS MOTORS, 6=LRGST MOTOR, 7=PANEL
BRKR MTG: BOLT-ON (REF: SQUARE D) — MCB: 60 A — ACCESSORIES: GROUND BUS, 42 SPACE
BREAKERS: 75 DEGREE TERMINALS — MLO: A

CODE	BRKR	CIRCUIT USE	CKT	LOAD	A	B	C	LOAD	CKT	CIRCUIT USE	BRKR	CODE
0	20/1	IDS SYSTEM PANEL	1	360	X			180	2	BLAST DOOR CONTROL PANEL	20/1	0
1	20/1	RECPT – MECH ROOM	3	360		X		–	4	SPARE	20/1	
0	20/1	EQPT – IT CABINET	5	400			X	–	6	SPARE	20/1	
	20/1	SPARE	7	–	X			–	8	SPARE	20/1	
	20/1	SPARE	9	–		X		–	10	SPARE	20/1	
	20/1	SPARE	11	–			X	–	12	SPARE	20/1	
	20/1	SPARE	13	–	X			–	14	SPARE	20/1	
	20/1	SPARE	15	–		X		–	16	SPARE	20/1	
	20/1	SPARE	17	–			X	–	18	SPARE	20/1	
	20/1	SPARE	19	–	X			–	20	SPARE	20/1	
	20/1	SPARE	21	–		X		–	22	SPARE	20/1	
	20/1	SPARE	23	–			X	–	24	SPARE	20/1	
	20/1	SPARE	25	–	X			–	26	SPARE	20/1	
	20/1	SPARE	27	–		X		–	28	SPARE	20/1	
	20/1	SPARE	29	–			X	–	30	SPARE	20/1	
		SPACE	31	–	X			–	32	SPACE		
		SPACE	33	–		X		–	34	SPACE		
		SPACE	35	–			X	–	36	SPACE		
		SPACE	37	–	X			–	38	SPD	30/3	
		SPACE	39	–		X		–	40			
		SPACE	41	–			X	–	42			

	EQPT VA	RCPT VA	LTG VA	AC/HEAT VA	MOTORS	CONN VA	FTL VA	PANEL VA	PHASE AMP
PHASE A	540	0	0	0	0	540		540	5
PHASE B	0	360	0	0	0	360		360	3
PHASE C	400	0	0	0	0	400		400	3
TOTAL	940	360	0	0	0	1300		1300	

PANEL DEMAND KVA: 1.30 — PANEL DEMAND AMPACITY: 4 AMPS
RESERVE KVA: 0.26 — RESERVE AMPACITY: 1 AMPS
DESIGN KVA: 1.56 — DESIGN AMPACITY: 4 AMPS

PANEL 'LP2'

LOCATION: MECHANICAL ROOM 1 — VOLTAGE: 120/208 V — KAIC: 22 — BUSSING SHALL BE FULLY RATED
MOUNTING: SURFACE — PHASE: 3 P/ 4W — CODES: 0=EQPT, 1=RCPT, 2=LTG, 3=A/C, 4=HEAT
ENCLOSURE: NEMA 1 — SYTLE: NQOD — BUSSING: 100 A — 5=CONTINUOUS MOTORS, 6=LRGST MOTOR, 7=PANEL
BRKR MTG: BOLT-ON (REF: SQUARE D) — MCB: 60 A — ACCESSORIES: GROUND BUS, 42 SPACE
BREAKERS: 75 DEGREE TERMINALS — MLO: A

CODE	BRKR	CIRCUIT USE	CKT	LOAD	A	B	C	LOAD	CKT	CIRCUIT USE	BRKR	CODE
0	20/1	IDS SYSTEM PANEL	1	360	X			180	2	BLAST DOOR CONTROL PANEL	20/1	0
1	20/1	RECPT – MECH ROOM	3	360		X		–	4	SPARE	20/1	
0	20/1	EQPT – IT CABINET	5	400			X	–	6	SPARE	20/1	
	20/1	SPARE	7	–	X			–	8	SPARE	20/1	
	20/1	SPARE	9	–		X		–	10	SPARE	20/1	
	20/1	SPARE	11	–			X	–	12	SPARE	20/1	
	20/1	SPARE	13	–	X			–	14	SPARE	20/1	
	20/1	SPARE	15	–		X		–	16	SPARE	20/1	
	20/1	SPARE	17	–			X	–	18	SPARE	20/1	
	20/1	SPARE	19	–	X			–	20	SPARE	20/1	
	20/1	SPARE	21	–		X		–	22	SPARE	20/1	
	20/1	SPARE	23	–			X	–	24	SPARE	20/1	
	20/1	SPARE	25	–	X			–	26	SPARE	20/1	
	20/1	SPARE	27	–		X		–	28	SPARE	20/1	
	20/1	SPARE	29	–			X	–	30	SPARE	20/1	
		SPACE	31	–	X			–	32	SPACE		
		SPACE	33	–		X		–	34	SPACE		
		SPACE	35	–			X	–	36	SPACE		
		SPACE	37	–	X			–	38	SPD	30/3	
		SPACE	39	–		X		–	40			
		SPACE	41	–			X	–	42			

	EQPT VA	RCPT VA	LTG VA	AC/HEAT VA	MOTORS	CONN VA	FTL VA	PANEL VA	PHASE AMP
PHASE A	540	0	0	0	0	540		540	5
PHASE B	0	360	0	0	0	360		360	3
PHASE C	400	0	0	0	0	400		400	3
TOTAL	940	360	0	0	0	1300		1300	

PANEL DEMAND KVA: 1.30 — PANEL DEMAND AMPACITY: 4 AMPS
RESERVE KVA: 0.26 — RESERVE AMPACITY: 1 AMPS
DESIGN KVA: 1.56 — DESIGN AMPACITY: 4 AMPS

NAVFAC

William Forbes
FOR COMMANDER NAVFAC 24 SEP 2024

DES KL — DRW FO — CHK PKD
PM/DM --
BRANCH MANAGER --
CHIEF ENG/ARCH --
FIRE PROTECTION --

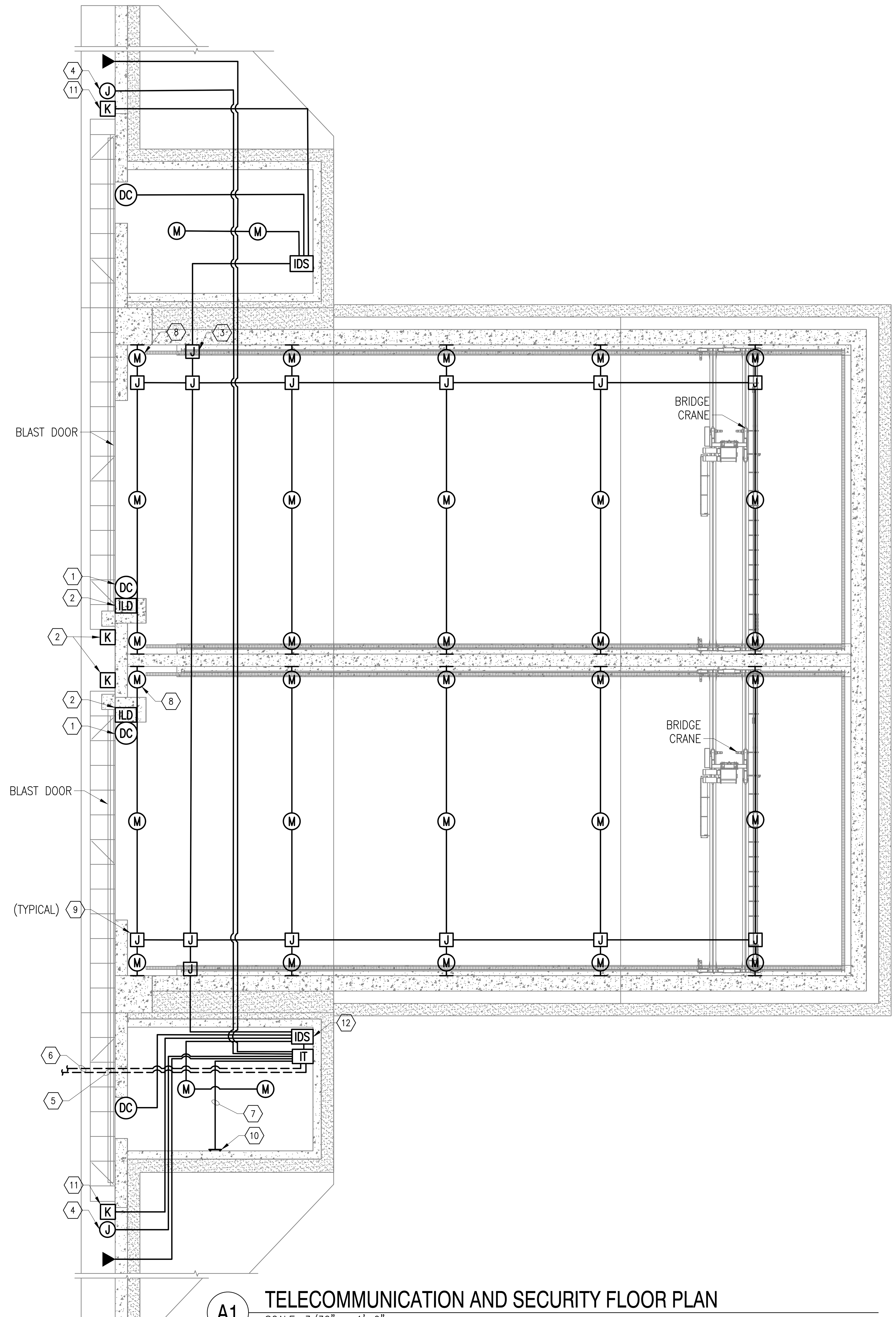
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

ELECTRICAL SCHEDULES

SCALE: AS NOTED
EPROJECT NO.: 164487
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12914754
SHEET 59 OF 62

E-603



A1 TELECOMMUNICATION AND SECURITY FLOOR PLAN

SCALE: 3/32" = 1'-0"

LEGEND

Symbol	Description
DC	HIGH SECURITY BMS DOOR CONTACT
K	KEYPAD
M	MOTION DETECTOR, CEILING MOUNTED
M	MOTION DETECTOR, WALL MOUNTED
J	RECESSED JUNCTION BOX
J	SURFACE JUNCTION BOX
IDS	IDS CONTROLLER
IT	IT CABINET
▼	PHONE OUTLET, SEE DETAIL B3/T501

GENERAL SHEET NOTES

1. ALL CONDUIT MUST BE RIGID GALVANIZED STEEL CONDUIT UNLESS INDICATED OTHERWISE.
2. EXPOSED CONDUITS ON EXTERIOR WALLS IS PROHIBITED.
3. ECMS AND MECHANICAL ROOMS WILL BE SEPARATE IDS ZONES. PROVIDE DEVICES, CONTROLLERS, AND PROGRAMMING, AS REQUIRED.
4. PROPOSED IDS VENDOR TO PERFORM COVERAGE CALCULATIONS, INCLUDING OBSTRUCTIONS, TO VERIFY QUANTITY AND LOCATION OF MOTION DETECTORS IN THE ECMS AND MECHANICAL ROOMS. FINAL LOCATIONS AND QUANTITIES OF MOTION DETECTORS TO BE INSTALLED PER IDS VENDOR SHOP DRAWINGS.
5. ALL CONDUITS WILL BE MINIMUM 1"C UNLESS NOTED OTHERWISE. REFER TO T601 FOR CONDUIT SIZES.
6. CONDUITS WILL BE EXPOSED INSIDE THE MAGAZINE AND MECHANICAL ROOMS UNLESS INDICATED OTHERWISE. LOCATE CONDUITS AS HIGH AS POSSIBLE AND COORDINATE ROUTING WITH OTHER TRADES AND BRIDGE CRANE.

KEYED NOTES

1. DOOR CONTACT FOR ECM DOOR. COORDINATE WITH DOOR MANUFACTURER FOR EXACT LOCATION AND ROUGH-IN REQUIREMENTS. COORDINATE WITH THE CONTRACTING OFFICER FOR THE CONNECTION OF THE BALANCED MAGNETIC SWITCH (BMS) ON THE DOOR.
2. PROVIDE 1" CONDUIT FROM INTERNAL LOCKING DEVICE (ILD) POCKET TO THE IDS PULLBOX IN THE MAGAZINE, SEE RISER DIAGRAM ON T-601. COORDINATE WITH THE CONTRACTING OFFICER FOR THE WIRED CONNECTION OF THE ILD BMS TO THE IDS SYSTEM TO BE DONE BY NIWC.
3. 8"x8"x4" JUNCTION BOX FOR ECM IDS COMPONENTS. PROVIDE 2" PVC-COATED RGC TO MECHANICAL ROOM FOR IDS WIRING.
4. RECESSED ROUGH-IN FOR FUTURE CCTV CAMERA. PROVIDE 1" HOMERUN TO IT CABINET.
5. EXTEND TWO 1-1/2" CONDUITS TO SITE POLE, LOCATION TO BE DETERMINED THROUGH COORDINATION WITH BASE SSO AND COMM SQUADRON, FOR PoE IP CAMERA AND PoE WIRELESS ACCESS POINT. POLE LOCATION AND CONDUIT ROUTE WILL BE LIMITED BY MAXIMUM CABLE LENGTH OF 295' FROM PATCH PANEL TO DEVICE. REFER TO DETAIL B2/T-501 AND A1/T-601.
6. EXTEND TWO 4" CONDUITS TO NEAREST TELECOMM MANHOLE.
7. HOMERUN TO SERVICE GROUNDING BAR.
8. THE FIRST SET OF 3 MOTION DETECTORS WILL BE INSTALLED 3' FROM THE INSIDE FACE OF THE MAGAZINE DOOR. ADDITIONAL SETS OF 3 MOTION DETECTORS WILL BE EVENLY SPACED FOR COVERAGE OF THE INTERIOR SPACE, APPROXIMATELY 30' ON CENTER. MOTION DETECTORS WILL BE LOCATED ABOVE THE BRIDGE CRANE RAILS.
9. SURFACE MOUNT ON BOTTOM OF STRUCTURAL CEILING. J-BOX LOCATIONS AND CONDUIT ROUTING TO BE COORDINATED WITH ALL TRADES AND BRIDGE CRANE TRAVEL.
10. ELECTRICAL SERVICE GROUND BAR. REFER TO E-101.
11. WEATHERPROOF IDS KEYPAD WITH RAIN SHIELD.
12. IDS PANEL AND WIREWAY. REFER TO T-601.

GRAPHIC SCALES

SCALE: 3/32" = 1'-0" — 0, 8', 16', 32'

SYM	DESCRIPTION	DATE	APPR

SEAL

A/E INFO

APPROVED William Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES DWS	DRW ADC	CHK KJD
PM/DM		--
BRANCH MANAGER		--
CHIEF ENG/ARCH		--
FIRE PROTECTION		--

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

TELECOMMUNICATION FLOOR PLAN

SCALE: AS NOTED

EPROJECT NO.: 164487

CONSTR. CONTR. NO.

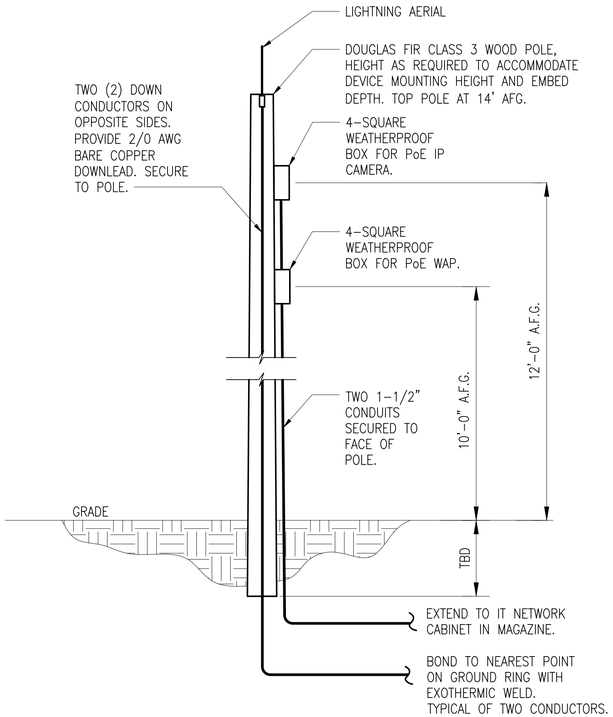
NAVFAC DRAWING NO. 12914755

SHEET 60 OF 62

T-101

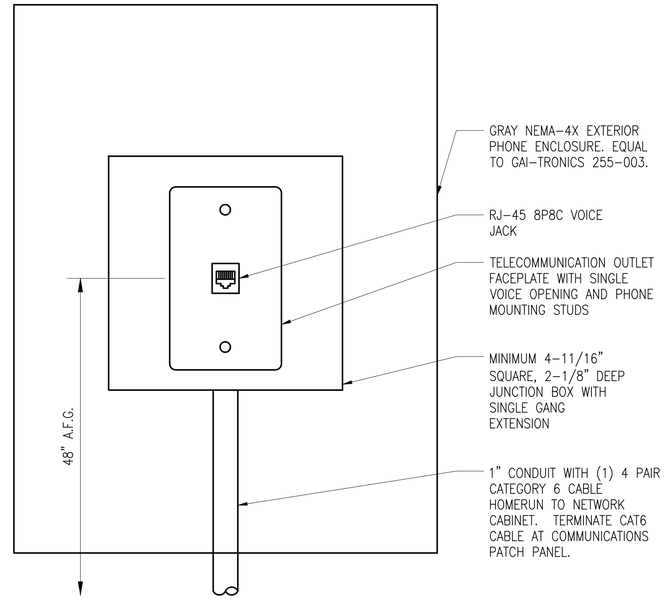
DRAWFORM REVISION: 25 AUGUST 2020

FILE NAME: J:\DCSE\Magazines\@CLWSMagazines_Double Bay\Submittals\100% Final Submittal_082724\CLWS_DOUBLE_BAY_DRWGS_FINAL_SUBMITTAL\T-101.dwg LAYOUT NAME: T-101 - TELECOMMUNICATION FLOOR PLAN PLOTTED: Tuesday, September 24, 2024 - 10:15am USER: leslie.corsino



B2 POLE FOR SITE CAMERA AND WAP

SCALE: NO SCALE



B3 VOICE WALL OUTLET

SCALE: NO SCALE

SYMBOL: ▼

NO.	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED for Forbes

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	DWS	DRW	ADC	CHK	KJD

PM/DM	– –
BRANCH MANAGER	– –
CHIEF ENG/ARCH	– –
FIRE PROTECTION	– –

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

TELECOMMUNICATION DETAILS

SCALE: AS NOTED

EPROJECT NO.: 164487

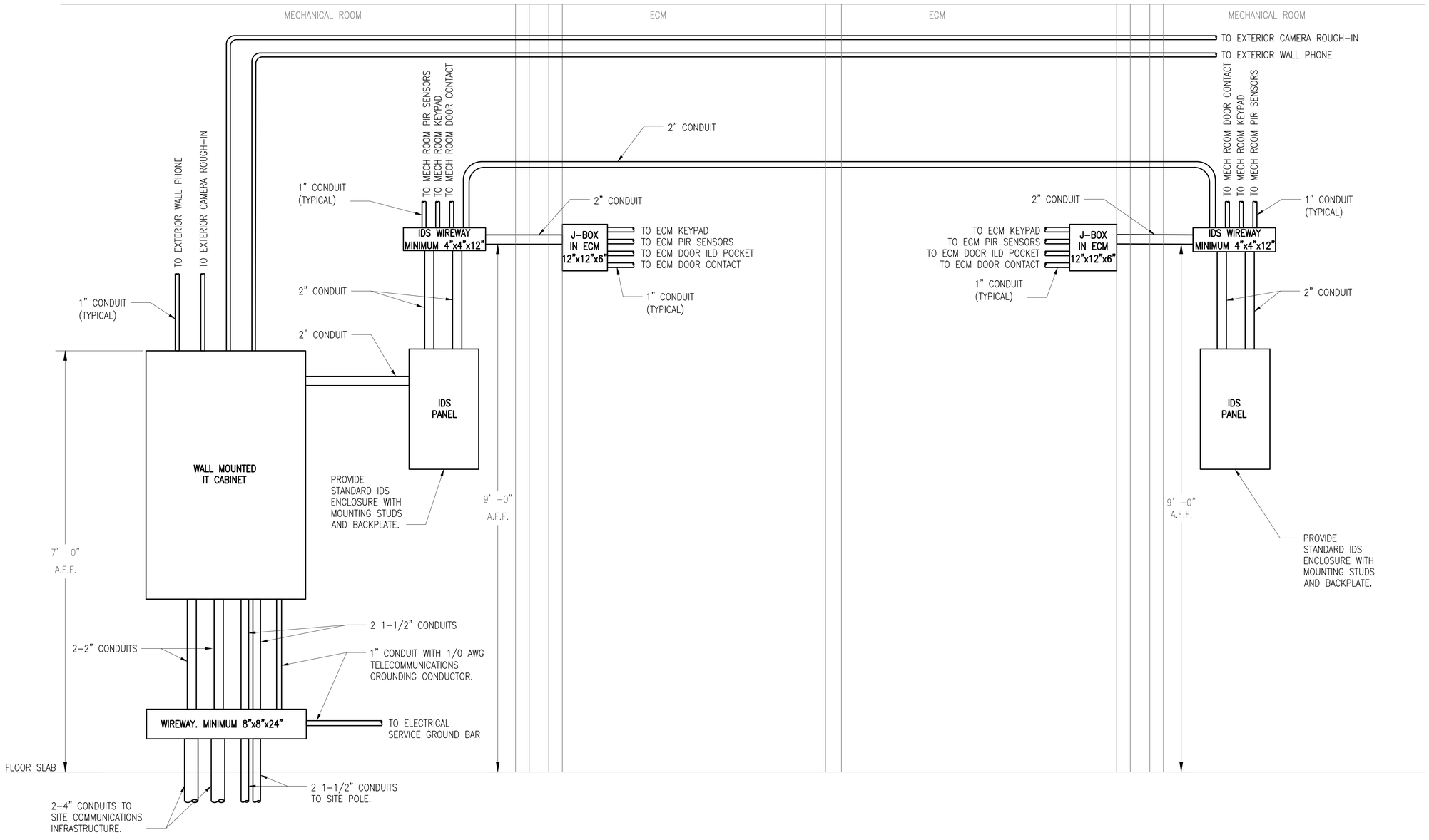
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12914756

SHEET 61 OF 62

T-501

DRAWFORM REVISION: 25 AUGUST 2020



A1 TELECOMMUNICATION AND SECURITY RISER DIAGRAM

SCALE: NO SCALE

NO.	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED for DES

FOR COMMANDER NAVFAC 24 SEP 2024

ACTIVITY

SATISFACTORY TO DATE

DES	DWS	DRW	ADC	CHK	KJD

PM/OM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - ATLANTIC
HAMPTON ROADS, VIRGINIA

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND

CONTAINERIZED LONG WEAPONS STORAGE DOUBLE BAY NAVY EARTH COVERED MAGAZINE

TELECOMMUNICATION AND SECURITY RISER DIAGRAM

SCALE: AS NOTED

EPROJECT NO.: 164487

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12914757

SHEET 62 OF 62

T-601

DRAWFORM REVISION: 25 AUGUST 2020