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, 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 BOLTWORKS, AND A LIST OF RECOMMENDED MANUFACTURERS FOR MAGAZINE DOORS. THE GOVERNMENT WILL PROVIDE THE INTERNAL LOCKING DEVICE (ILD): 1
   - A. DoD LOCK PROGRAM: https://www.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 NAVY 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 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)
       31K (CPS CONTAINER EACH)
       2,000 PSF (UNIFORM)
     - d. MECHANICAL ROOM FLOOR: 150 PSF (UNIFORM)
3. WIND DESIGN DATA:
   - A. DESIGN WIND SPEED: 210 MPH
   - B. EXPOSURE: "C"
   - C. 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
5. SNOW DESIGN DATA:
   - A. GROUND SNOW LOAD: 45
   - B. EXPOSURE FACTOR: 1.0 PSF
   - C. IMPORTANCE FACTOR: 1.10
   - D. THERMAL FACTOR: 1.2
6. EXPLOSIVE SAFETY DESIGN LOADS:
   - A. EXPLOSIVE 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 - DESIGNED CRITERIA: CONTAINERIZED LONG WEAPONS STORAGE EARTH COVERED MAGAZINES, DATED NOVEMBER 2019:

MEMBER	PEAK PRESSURE	IMPULSE	DURATION
HEAD WALL AND DOOR	301 PSI	2,119 PSI-MS	14.08 MS ROOF
	176.3 PSI	1,640 PSI-MS	18.60 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 w/ 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 SOG AND FOUNDATION PREPARATION. SEE PROJECT SPECIFICATIONS FOR SPECIFIC REQUIREMENTS.
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 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.
11. ALL ROUGHENED SURFACES IN CONCRETE MUST BE MADE WITH A MINIMUM AMPLITUDE OF 1/4 INCH.
12. SEE SHEET S-002 FOR LIGHTWEIGHT CONCRETE MIX DESIGN FOR HIGH SECURITY MAGAZINE DOOR.

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. 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.

STRUCTURAL STEEL (CONT):

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 UNLESS APPROVED IN WRITING BY THE CONTRACTING OFFICER.
10. GROUT BELOW BASE PLATES WITH NON-SHRINK GROUT WITH COMPRESSIVE STRENGTH, f'c = 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.

STRUCTURAL ABBREVIATIONS:

AB	ANCHOR BOLT	INTERM	INTERMEDIATE
ADD'L	ADDITIONAL	JT	JOINT
AFG	ABOVE FINISHED GRADE	LLH	LONG LEG HORIZONTAL
ALT	ALTERNATE	LLV	LONG LEG VERTICAL
APPROX	APPROXIMATE	LONGIT	LONGITUDINAL
ARCH	ARCHITECTURAL	MAX	MAXIMUM
BM	BEAM	MECH	MECHANICAL
BOT	BOTTOM	MANUF, MFR	MANUFACTURER
CI	CAST IRON	MIN	MINIMUM
CIP	CAST-IN-PLACE	MISC	MISCELLANEOUS
CJ	CONSTRUCTION JOINT	NIC	NOT IN CONTRACT
CLJ	CONTROL JOINT	NS	NEAR SIDE
CLR	CLEAR (ANCE)	NTS	NOT TO SCALE
COL	COLUMN	OC	ON CENTER
CONC	CONCRETE	OF	OUTSIDE FACE
CONN	CONNECTION	OH	OPPOSITE HAND
CJP	COMPLETE JOINT PENETRATION	OPNG	OPENING
CONSTR	CONSTRUCTION	PJ	PANEL JOINT
CONT	CONTINUOUS	PCJ	PARTIAL CONTROL JOINT
DBA	DEFORMED BAR ANCHOR	PL	PLATE
DBL	DOUBLE	PN	PART NUMBER
DET	DETAIL	RAD	RADIUS
DIA	DIAMETER	REINF	REINFORCEMENT
DIM	DIMENSION	REQ'D	REQUIRED
DIST	DISTANCE	SCHED	SCHEDULE
DWG	DRAWING	SECT	SECTION
EA	EACH	SHT	SHEET
EF	EACH FACE	SIM	SIMILAR
EJ	EXPANSION JOINT	SOG	SLAB-ON-GRADE
EQ	EQUAL	SPA	SPACE
ES	EACH SIDE	SPECS	SPECIFICATIONS
EXT	EXTERIOR	SQ	SQUARE
FDN	FOUNDATION	SS	STAINLESS STEEL
FL	FLOOR	STD	STANDARD
FIN	FINISH	STIFF	STIFFENER
FIN FL	FINISH FLOOR	STRUCT	STRUCTURAL
FS	FAR SIDE	T	TOP
FT	FOOT OR FEET	TBD	TO BE DETERMINED
FTG	FOOTING	TEMP	TEMPERATURE STEEL
GA	GAUGE	THK	THICK
GI	GALVANIZED IRON	THRU	THROUGH
HAS	HEADED ANCHOR STUD	TOS	TOP OF SLAB, TOP OF STEEL
HORIZ, (H)	HORIZONTAL	TYP	TYPICAL
HSS	HOLLOW STRUCTURAL SECTION	UNO	UNLESS NOTED OTHERWISE
IF	INSIDE FACE	VERT, (V)	VERTICAL
INFO	INFORMATION	W/	WITH

THESE DRAWINGS ARE AN EXACT REPLICA OF THE STANDARD MAGAZINE TYPE "CLWS" PROVIDED BY NAVFAC. THE DESIGN WILL BE SITE ADAPTED AND MODIFIED TO MEET THE SPECIFIC GEOTECHNICAL AND LOADING CONDITIONS SPECIFIC TO NAVAL SUBMARINE BASE NEW LONDON, GROTON, CONNECTICUT.

ORIGINAL STANDARD DRAWING IS NAVFAC DRAWING NUMBER 12877611 SHT 2 OF 51

SYM	DESCRIPTION	DATE	APPR
1	REVISIONS FOR AMENDMENT	05/19/2026	

NAVFAC

SEAL

Jacobs
1100 NORTH GLEBE ROAD
SUITE 500
ARLINGTON, VIRGINIA 22201
571.218.1000
FAX: 571.218.1600

A/E INFO

APPROVED
FOR COMMANDER NAVFAC 6/8/2026

ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLOD FEAD DIRECTOR NEW LONDON, GROTEN, CT

SATISFACTORY TO DATE 05/27/2025

DES	DRW	CHK
JAF	SFF	TPH

PM/DM	SMS/CWJ
BRANCH MANAGER	NEK
CHIEF ENG/ARCH	JWJ
FIRE PROTECTION	HPN

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION- NORFOLK, VA

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
CLWS MAGAZINE

GENERAL NOTES - 1

SCALE:	NONE
EPROJECT NO.:	1667770
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12894246
SHEET	3 OF 77

S-001

FILE NAME: C:\pw_work\P\jacob03\jacob\d1495963\S-001.dwg LAYOUT NAME: S-001 PLOTTED: Thursday, May 21, 2026 - 1:01pm USER: BODEBA

GENERAL:

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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, PARAPET BEAM, PILASTERS, ROOF PANEL, SIDE WALLS, REAR WALL, INTERIOR COLUMNS) 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.

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   A. DoD LOCK PROGRAM: https://www.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 NIWC.

DESIGN CRITERIA:

1. THE STRUCTURAL DESIGN AND CONSTRUCTION MUST COMPLY WITH THE FOLLOWING GOVERNMENT STANDARDS:

   A. UFC 1-200-01, "DESIGN: GENERAL BUILDING REQUIREMENTS"
   B. 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 PCF
B. LIVE LOADS	
a. CANOPY ROOF	20 PSF
b. MAGAZINE AND MECHANICAL ROOM ROOF	100 PSF
c. MAGAZINE FLOOR	1,250 PSF (UNIFORM) 32K (HS20-44 AXLE) 15K (FORKLIFT AXLE) 31K (CPS CONTAINER EACH) - TWO (2) STACKED CPS CONTAINERS - ONE (1) CPS CONTAINER IN CONCURRENCE WITH TRUCK TRAILER HS20-44 AXLE - ONE (1) CPS CONTAINER IN CONCURRENCE WITH FORKLIFT
d. MECHANICAL ROOM FLOOR	150 PSF (UNIFORM)

3. WIND DESIGN DATA

A. ULTIMATE 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:	Ss = 2.79g, S1 = 0.68g
E. SITE CLASS:	D

DESIGN CRITERIA: (CONTINUED)

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 WITH CHANGE 2, 1 SEPT 2014.

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MEMBER	PEAK PRESSURE	IMPULSE	DURATION
DOOR AND HEADER BEAM	249 PSI	2,084 PSI-M S	16.7 M S
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ROOF PARAPET	108 PSI	1,508 PSI-M S	27.9 M S

   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 -MIN. 25%: MAX. 50%
   D. MAXIMUM PARTICLE SIZE: 1"
   E. ASTM D4318: MAX LIQUID LIMIT = 35, MAX PLASTICITY INDEX = 12.
   F. REQUIREMENTS FOR EARTH COVERM FOR ECMS MUST BE IN ACCORDANCE WITH DEFENSE EXPLOSIVES SAFETY REGULATION (DESR) 6055.09 AND UFC 4-420-01.

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):	
a. WITHOUT SEISMIC:	33 PSF / FT
b. WITH SEISMIC	71 PSF / FT
C. CANTILEVERED WALL LATERAL PRESSURE (UNRESTRAINED):	
a. WITHOUT SEISMIC:	40 PSF / FT
b. 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

FOUNDATIONS: (CONTINUED)

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. FOOTINGS MUST HAVE A MINIMUM WIDTH OF 24 INCHES AND A MINIMUM BOTTOM DEPTH OF 24 INCHES BELOW ADJACENT GRADE. STRUCTURAL DRAWINGS INDICATE GENERAL SLAB ON GRADE AND FOUNDATION PREPARATION. SEE PROJECT SPECIFICATIONS FOR SPECIFIC REQUIREMENTS.

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

7. 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.

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

9. 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.

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

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

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

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

14. 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.

15. 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	ACI 304

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 ONLY, 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.

CAST-IN-PLACE CONCRETE: (CONTINUED)

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 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 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.

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

12. SEE SHEET S-002 FOR LIGHTWEIGHT CONCRETE MIX DESIGN FOR HIGH SECURITY MAGAZINE DOOR.

13. VERTICAL CONCRETE ELEMENTS LIKE COLUMNS AND PILASTERS, AS WELL AS HORIZONTAL MEMBERS LIKE HEADER BEAMS AND PARAPET BEAMS, ARE GOOD CANDIDATES FOR SELF CONSOLIDATED 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 ABBREVIATIONS:

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

THESE DRAWINGS ARE AN EXACT REPLICA OF THE STANDARD MAGAZINE TYPE "G" PROVIDED BY NAVFAC. THE DESIGN WILL BE SITE ADAPTED AND MODIFIED TO MEET THE SPECIFIC GEOTECHNICAL AND LOADING CONDITIONS SPECIFIC TO NAVAL SUBMARINE BASE NEW LONDON, GROTON, CONNECTICUT.

SYM	DESCRIPTION	DATE	APPR
1	REVISIONS FOR AMENDMENT	05/19/2026	

NAVFAC

SEAL

Jacobs
1100 NORTH GLEBE ROAD
SUITE 500
ARLINGTON, VIRGINIA 22201
571.218.1000
FAX: 571.218.1600

A/E INFO

APPROVED
FOR COMMANDER NAVFAC 6/8/2026

ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLOD FEAD DIRECTOR NEW LONDON, GROTEN, CT

SATISFACTORY TO DATE 05/27/2025

DES	FJ	DRW	MR	CHK	DW

PM/DM	SMS/CWJ
BRANCH MANAGER	NEK
CHIEF ENG/ARCH	JWJ
FIRE PROTECTION	HPN

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION - NORFOLK, VA
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
TYPE G MAGAZINE
GENERAL STRUCTURAL NOTES

SCALE: NOT TO SCALE
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12894155
SHEET 3 OF 91
S-001

FILE NAME: C:\pw_workdir\dms0033\prj_bodeba\d1710459\S-001.dwg LAYOUT NAME: S-001 - GENERAL STRUCTURAL NOTES PLOTTED: Thursday, May 21, 2026 - 1:04pm USER: BODEBA

GENERAL:

1. THESE CONSTRUCTION DOCUMENTS ARE CONSTRUCTION STANDARDS FOR THE NAVY TYPE H STANDARD MAGAZINES AND HAVE BEEN SITE ADAPTED BY THE EOR.

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, PARAPET BEAM, PILASTERS, ROOF PANEL, SIDE WALLS, REAR WALL, INTERIOR COLUMNS) 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. DIMENSIONS PROVIDED WITHIN BRACKETS ARE IN UNITS OF MILLIMETERS ROUNDED TO THE NEAREST INTEGER NUMBER.

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.

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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 –MIN. 25%: MAX. 50%
   D. MAXIMUM PARTICLE SIZE: 1"
   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):	
a. WITHOUT SEISMIC:	33 PSF / FT
b. WITH SEISMIC	71 PSF / FT
C. CANTILEVERED WALL LATERAL PRESSURE (UNRESTRAINED):	
a. WITHOUT SEISMIC:	40 PSF / FT
b. 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.

FOUNDATIONS: (CONTINUED)

5. FOOTINGS MUST HAVE A MINIMUM WIDTH OF 24 INCHES AND A MINIMUM BOTTOM DEPTH OF 24 INCHES BELOW ADJACENT GRADE.

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

7. 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.

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

9. 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.

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

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

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

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

14. 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.

15. 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	ACI 304

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	C33
C. REINFORCING STEEL (GRADE 60) ASTM A706 GRADE 60 IS NOT EQUIVALENT AND IS NOT ACCEPTABLE.	ASTM A615 DEFORMED BARS
D. WELDED WIRE FABRIC (SHEET TYPE ONLY, 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 GROUND).	3/4 INCH

CAST-IN-PLACE CONCRETE: (CONTINUED)

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 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.

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

12. SEE SHEET S–002 FOR LIGHTWEIGHT CONCRETE MIX DESIGN FOR HIGH SECURITY MAGAZINE DOOR.

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

STRUCTURAL ABBREVIATIONS:

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

THESE DRAWINGS ARE AN EXACT REPLICA OF THE STANDARD MAGAZINE TYPE "H" PROVIDED BY NAVFAC. THE DESIGN WILL BE SITE ADAPTED AND MODIFIED TO MEET THE SPECIFIC GEOTECHNICAL AND LOADING CONDITIONS SPECIFIC TO NAVAL SUBMARINE BASE NEW LONDON, GROTON, CONNECTICUT.

SYM	DESCRIPTION	DATE	APPR
1	REVISIONS FOR AMENDMENT	05/19/2026	

NAVFAC

SEAL

Jacobs
1100 NORTH GLEBE ROAD
SUITE 500
ARLINGTON, VIRGINIA 22201
571.218.1000
FAX: 571.218.1600

A/E INFO

APPROVED
FOR COMMANDER NAVFAC 6/8/2026

ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLOD FEAD DIRECTOR NEW LONDON, GROTEN, CT

SATISFACTORY TO DATE 05/27/2025

DES	FJ	DRW	MR	CHK	DW
PM/DM	SMS/CWJ				
BRANCH MANAGER	NEK				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION - NORFOLK, VA
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
TYPE H MAGAZINE

GENERAL STRUCTURAL NOTES

SCALE: NOT TO SCALE
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12921234
SHEET 3 OF 85
S-001

FILE NAME: C:\pw_work\dr\den003\proj_ho\dsha\t1707377\S-001.dwg LAYOUT NAME: S-001 – GENERAL STRUCTURAL NOTES PLOTTED: Thursday, May 21, 2026 – 1:08pm USER: BODBEA