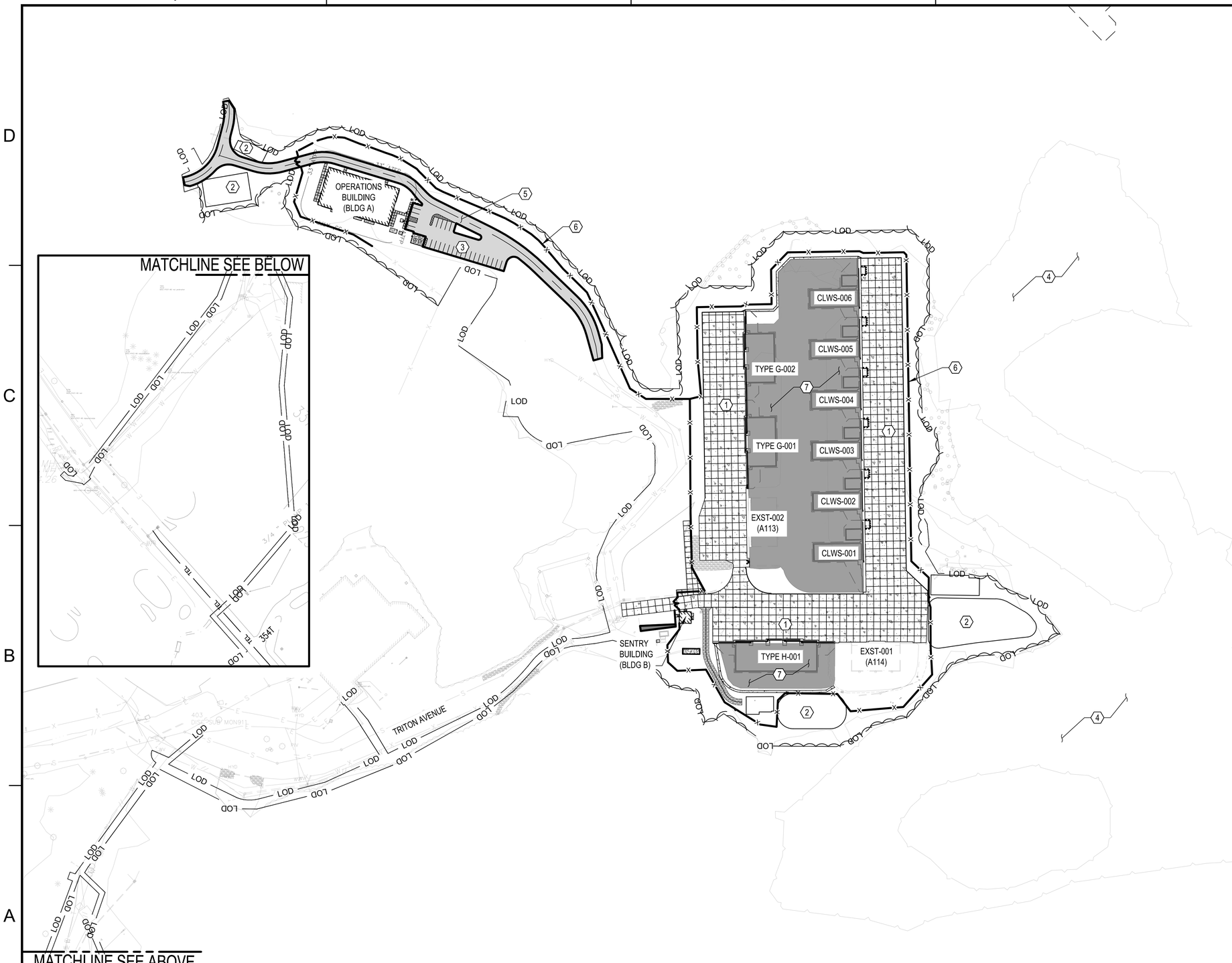


A1 SITE LAYOUT PLAN - OVERALL
1" = 100'

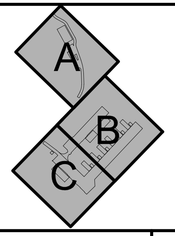
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR ADDITIONAL NOTES.
2. REFER TO CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. REFER TO CU100-CU103 FOR SITE UTILITY INFORMATION
4. REFER TO CG100-CG103 FOR SITE GRADING AND DRAINAGE INFORMATION
5. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS
6. CONFIRM MECHANICAL EQUIPMENT PAD SIZES BASED ON PURCHASED EQUIPMENT, PRIOR TO CONSTRUCTION. PROVIDE EQUIPMENT PADS AS PART OF SITE WORK. REFER TO STRUCTURAL DRAWINGS FOR PAD DETAILS.
7. MAINTAIN MIN 20' CLEARING OF VEGETATION OUTSIDE OF FENCE LINE.

KEYED NOTES

1. CONCRETE PAVEMENT
2. STORMWATER MANAGEMENT AREA
3. POV PARKING
4. DELINEATED WETLAND AREAS
5. ASPHALT PAVEMENT
6. CHAIN LINK PERIMETER SECURITY FENCE
7. SHADED AREA DENOTES APPROXIMATE LIMITS OF EPDM ROOFING MEMBRANE OVER MAGAZINE EARTH COVER, REFER TO A1/S-520S

KEYPLAN



GRAPHIC SCALE

1"=100' 0' 100' 200'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT
JOSHUA D. CORUM
36275
LICENSED PROFESSIONAL ENGINEER
9/23/25
SEAL

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

A/E INFO

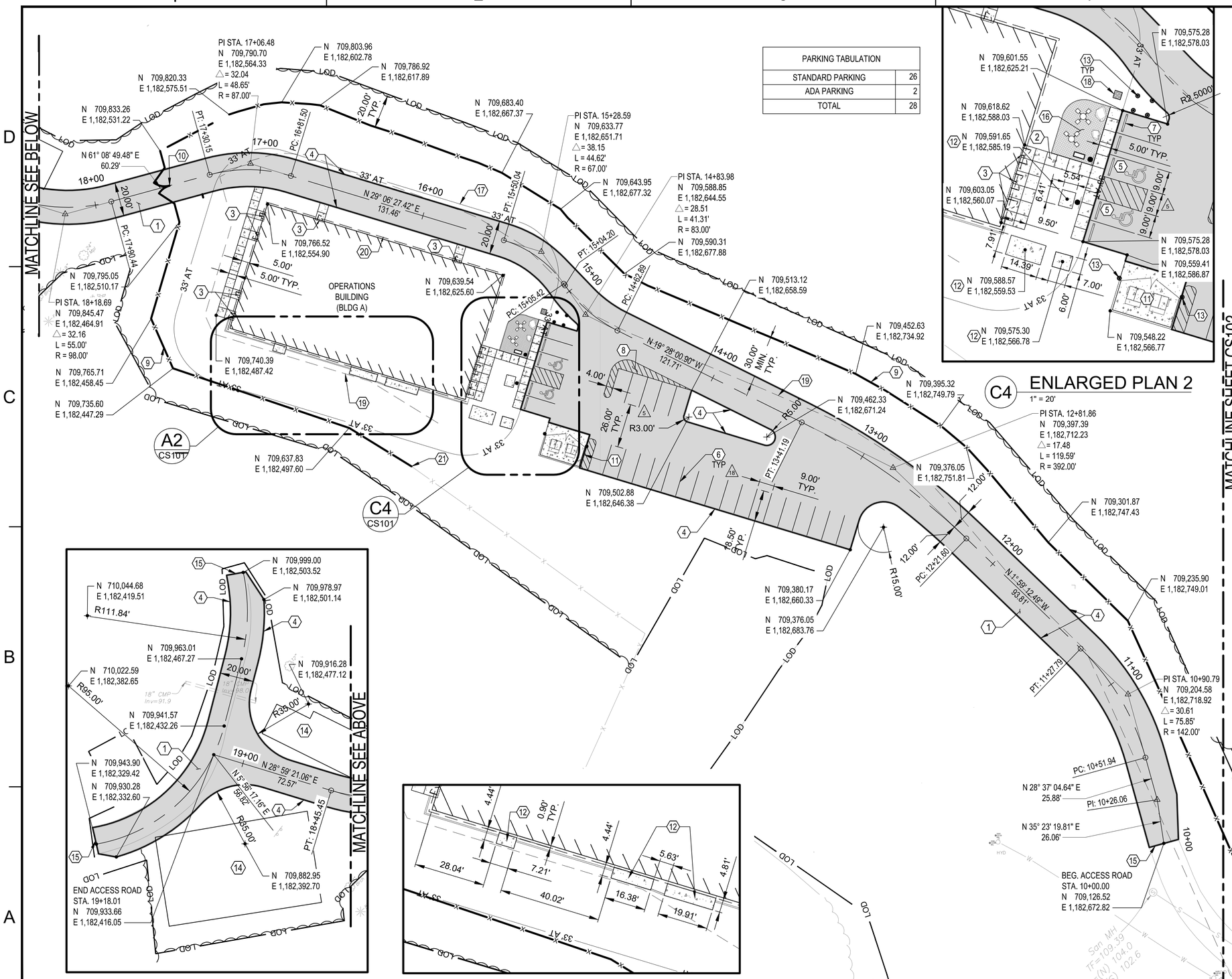
APPROVED
FOR COMMANDER NAVFAC 8/14/2025
ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLOD FEAD DIRECTOR NEW LONDON, GROTEN, CT
SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.
12893867
SHEET 61 OF 152
CS100

FILE NAME: C:\pw_workdir\dms0033\jdoney.corum@jacobs.com\d0919642\P1102_CS100.dwg LAYOUT NAME: CS100 SITE LAYOUT & PAVING PLAN PLOTTED: Tuesday, June 17, 2025 – 1:07pm USER: CORUMJ



A1 SITE LAYOUT PLAN - AREA A
1" = 30'

PARKING TABULATION	
STANDARD PARKING	26
ADA PARKING	2
TOTAL	28

C4 ENLARGED PLAN 2
1" = 20'

A1 SITE LAYOUT PLAN - AREA A
1" = 30'

A2 ENLARGED PLAN 1
1" = 20'

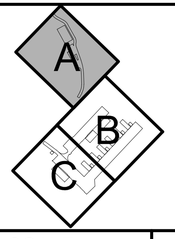
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR ADDITIONAL NOTES.
2. SEE CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. SEE CU100-CU103 FOR SITE UTILITY INFORMATION
4. SEE CG100-CG103 FOR SITE GRADING AND DRAINAGE INFORMATION
5. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS
6. CONFIRM MECHANICAL AND ELECTRICAL EQUIPMENT PAD SIZES BASED ON PURCHASED EQUIPMENT, PRIOR TO CONSTRUCTION. PROVIDE EQUIPMENT PADS AS PART OF SITE WORK. REFER TO STRUCTURAL DRAWINGS FOR PAD DETAILS. COORDINATES PROVIDED ARE TO CENTER OF PAD.
7. MAINTAIN MIN 20' CLEARING OF VEGETATION OUTSIDE OF FENCE LINE. MAINTAIN MIN 30' CLEAR ZONE FROM BUILDINGS AND OTHER OBSTRUCTIONS INSIDE OF FENCE LINE.
8. COORDINATES PROVIDED ON STRUCTURES ARE TO OUTSIDE FACE OF WALL.

KEYED NOTES

1. ASPHALT PAVEMENT, REFER TO C1/CS502
2. CONCRETE SIDEWALK, REFER TO C1/CS503
3. SIDEWALK-BUILDING SLAB INTERFACE, REFER TO D2/CS504
4. UNCURBED PAVEMENT EDGE
5. ADA ACCESSIBLE PARKING STALL(S), REFER TO A1/CS502
6. PARKING STALLS - 90 DEGREE, REFER TO C4/CS502
7. PRECAST CONCRETE WHEEL STOP, REFER TO A4/CS502
8. HATCHED PAVEMENT MARKING ISLAND W/ 4" WIDE STRIPING, REFER TO C3/CS502
9. HIGH-SECURITY CHAIN-LINK FENCE, REFER TO CS504
10. MANUAL SWING GATE (22' OPENING), REFER TO A2/CS503
11. DUMPSTER & RECYCLING CONTAINER PAD AND ENCLOSURE, REFER TO C3/CS503
12. EQUIPMENT PAD, REFER TO STRUCTURAL DETAILS
13. BOLLARD, REFER TO C2/CS503
14. STORM WATER MANAGEMENT AREA, REFER TO SHEET CG401
15. CONNECT TO EXISTING PAVEMENT, REFER TO C2/CS502
16. OUTDOOR SEATING AREA, REFER TO LANDSCAPE PLANS
17. 33' UNOBSTRUCTED SPACE
18. 3' x 3' x 4" GRAVEL SPLASH PAD FOR AUTO FLUSH VALVE
19. 30' PERIMETER FENCE INTERIOR CLEAR ZONE
20. EDGE OF BUILDING FOUNDATION
21. CONNECT PERIMETER FENCE TO EXISTING FENCE

KEYPLAN



GRAPHIC SCALE
1"=30' 0' 30' 60'

PLAN NORTH

SCALE:	AS NOTED
EPROJECT NO.:	1667770
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12893868
SHEET	62 OF 152

CS101

APPR. DATE DESCRIPTION SYM

NAVFAC

STATE OF CONNECTICUT JOSHUA D. CORUM 36275 LICENSED PROFESSIONAL ENGINEER 9/23/25 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 8/14/2025

ACTIVITY
APPROVED BY LCDR ELIZABETH OLKOEDE NAVFAC NLOO FEAD DIRECTOR NEW LONDON, GROTEN, CT

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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

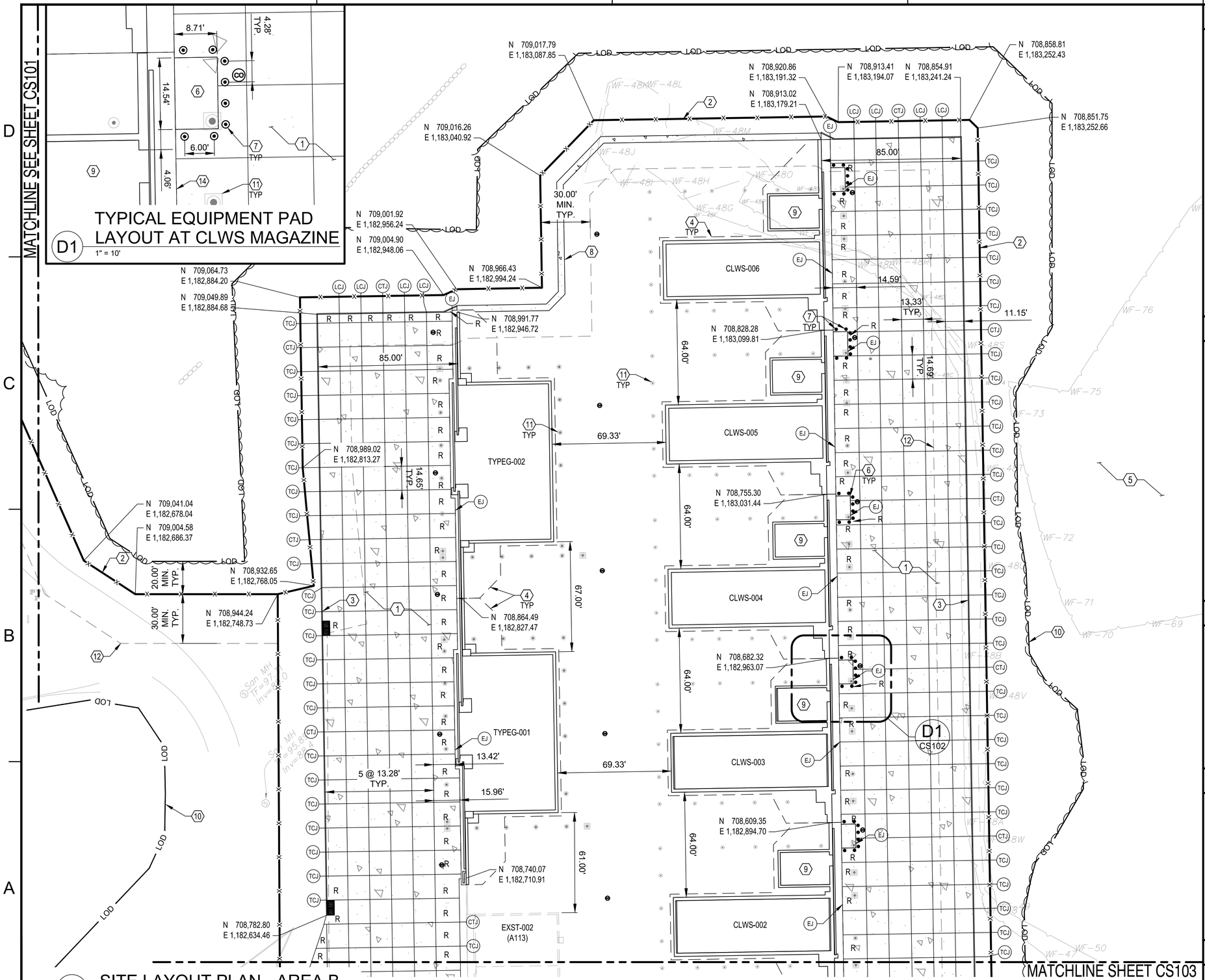
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
SITE LAYOUT PLAN - AREA A

FILE NAME: C:\pw_workdir\dms0033\jdiney.corum@jacobs.com\d0919642\P1102_CS101.dwg LAYOUT NAME: CS101 SITE LAYOUT & PAVING PLAN PLOTTED: Tuesday, June 17, 2025 – 1:08pm USER: CORUMJ

TYPICAL EQUIPMENT PAD LAYOUT AT CLWS MAGAZINE

D1 1" = 10'



A1 SITE LAYOUT PLAN - AREA B

1" = 30'

GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR ADDITIONAL NOTES.
2. SEE CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. SEE CU100-CU103 FOR SITE UTILITY INFORMATION
4. SEE CG100-CG103 FOR SITE GRADING AND DRAINAGE INFORMATION
5. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS
6. CONFIRM MECHANICAL AND ELECTRICAL EQUIPMENT PAD SIZES BASED ON PURCHASED EQUIPMENT, PRIOR TO CONSTRUCTION. PROVIDE EQUIPMENT PADS AS PART OF SITE WORK. REFER TO STRUCTURAL DRAWINGS FOR PAD DETAILS.
7. MAINTAIN MIN 20' CLEARING OF VEGETATION OUTSIDE OF FENCE LINE. MAINTAIN MIN 30' CLEAR ZONE FROM BUILDINGS AND OTHER OBSTRUCTIONS INSIDE OF FENCE LINE.
8. COORDINATES PROVIDED ON MAGAZINES ARE TO OUTSIDE FACE OF WING WALL.
9. COORDINATES PROVIDED ON CURB ARE TO INSIDE FACE OF CURB AT FLOW LINE.

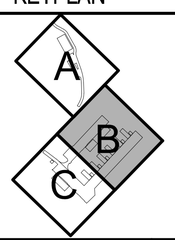
KEYED NOTES

1. CONCRETE PAVEMENT, REFER TO C1/CS501
2. HIGH-SECURITY CHAIN-LINK FENCE, REFER TO A1/CS504
3. CONCRETE CURB, REFER TO A4/CS501
4. EDGE OF STRUCTURE FOUNDATION
5. DELINEATED WETLAND AREAS
6. EQUIPMENT PAD, REFER TO STRUCTURAL DETAILS
7. BOLLARD, REFER TO C2/CS503
8. PARABOLIC CONCRETE CHANNEL, REFER TO A4/CG509
9. CLWS MECHANICAL ROOM
10. LIMITS OF DISTURBANCE
11. ELECTRICAL GROUND TEST WELL, REFER TO ELECTRICAL TYPE G SHEET E-103 AND CLWS E-102B
12. 30' INTERIOR PERIMETER CLEAR ZONE

PAVEMENT LEGEND

R	ODD-SHAPED CONCRETE SLAB REINFORCEMENT, REFER TO A1/CS501
TCJ	TRANSVERSE CONTRACTION JOINT, REFER TO C3/CS501
LCJ	LONGITUDINAL CONTRACTION JOINT, REFER TO C3/CS501
CTJ	TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT, REFER TO C3/CS501
EJ	EXPANSION JOINT WITH THICKENED EDGE, REFER TO C2/CS501

KEYPLAN



GRAPHIC SCALE

1"=30' 0' 30' 60'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25 — 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 8/14/2025

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

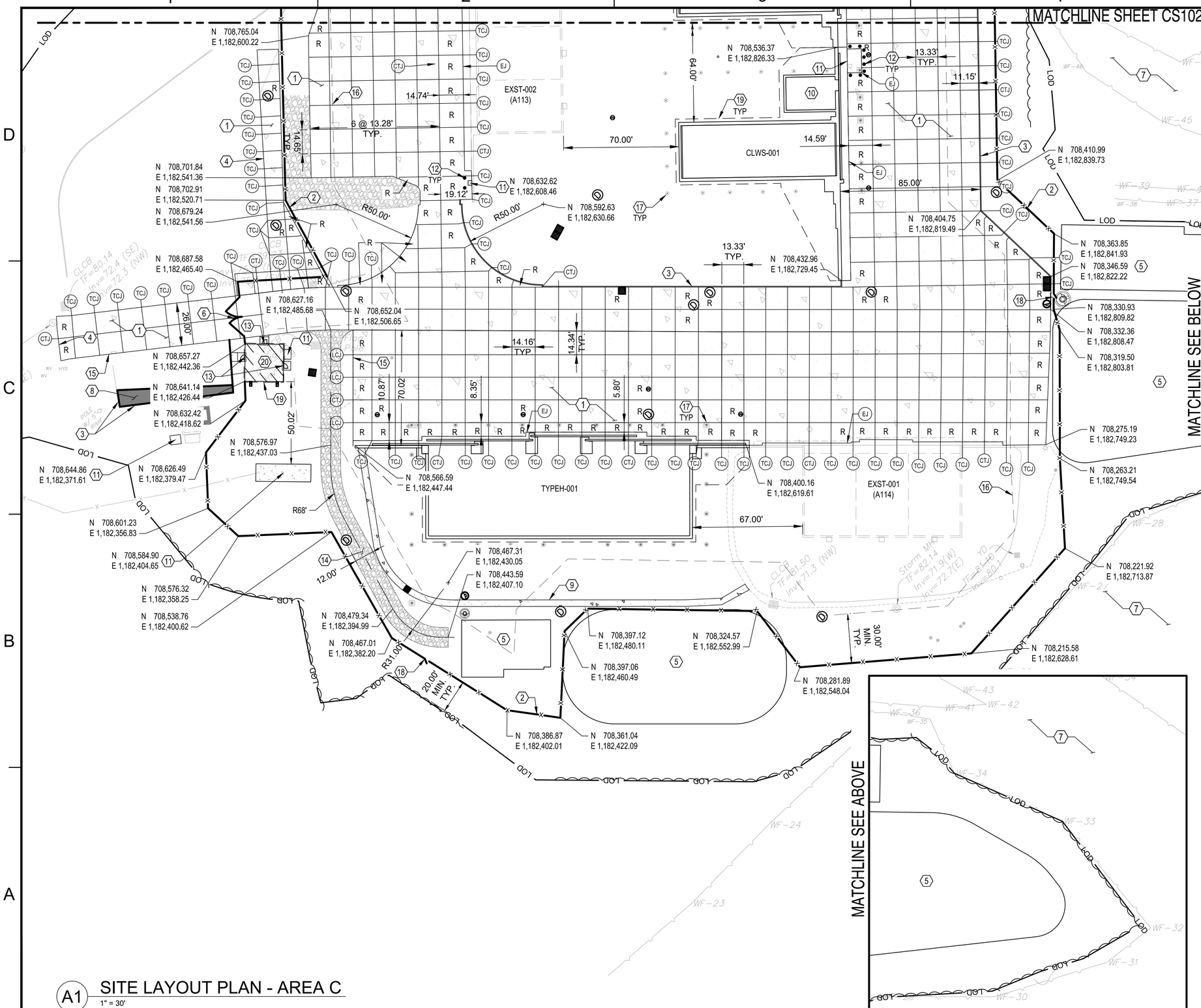
SATISFACTORY TO DATE 05/27/2025

DES JC	DRW NM	CHK RC	
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION - NORFOLK, VA
DEPARTMENT OF THE NAVY
MID-ATLANTIC
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
SITE LAYOUT PLAN - AREA B

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893869
SHEET 63 OF 152
CS102

FILE NAME: C:\pw_work\dn\den0031\ojoney.corum@jacobs.com\d0919642\P1102_CS102.dwg LAYOUT NAME: CS102 SITE LAYOUT & PAVING PLAN PLOTTED: Tuesday, June 17, 2025 – 1:09pm USER: CORUMJ



A1 SITE LAYOUT PLAN - AREA C

1" = 30'

GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR ADDITIONAL NOTES.
2. SEE CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. SEE CU100-CU103 FOR SITE UTILITY INFORMATION
4. SEE CG100-CG103 FOR SITE GRADING AND DRAINAGE INFORMATION
5. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS
6. CONFIRM MECHANICAL AND ELECTRICAL EQUIPMENT PAD SIZES BASED ON PURCHASED EQUIPMENT, PRIOR TO CONSTRUCTION. PROVIDE EQUIPMENT PADS AS PART OF SITE WORK. REFER TO STRUCTURAL DRAWINGS FOR PAD DETAILS. COORDINATES PROVIDED ARE TO CENTER OF PAD.
7. MAINTAIN MIN 20' CLEARING OF VEGETATION OUTSIDE OF FENCE LINE. MAINTAIN MIN 30' CLEAR ZONE FROM BUILDINGS AND OTHER OBSTRUCTIONS INSIDE OF FENCE LINE.
8. COORDINATES PROVIDED ON MAGAZINES ARE TO OUTSIDE FACE OF WING WALL AND TO OUTSIDE FACE OF WALL ON SENTRY BUILDING.
9. COORDINATES PROVIDED ON CURB ARE TO INSIDE FACE AT FLOW LINE.

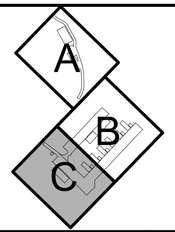
KEYED NOTES

1. CONCRETE PAVEMENT, REFER TO C1/CS501
2. HIGH-SECURITY CHAIN-LINK FENCE, REFER TO A1/CS504
3. CONCRETE CURB, REFER TO A4/CS501
4. CONCRETE TO ASPHALT TRANSITION, REFER TO A3/CS501
5. STORM WATER MANAGEMENT AREA
6. 26' MANUALLY OPERATED DOUBLE SWING-GATE, REFER TO A2/CS503
7. DELINEATED WETLAND AREAS
8. ASPHALT PAVEMENT, REFER TO C1/CS502
9. PARABOLIC CONCRETE CHANNEL, REFER TO A4/CG509
10. CLWS MECHANICAL ROOM
11. EQUIPMENT PAD, REFER TO STRUCTURAL DETAILS
12. BOLLARD, REFER TO C2/CS503
13. SIDEWALK-BUILDING SLAB INTERFACE, REFER TO D2/CS504
14. GRAVEL STORM WATER MANAGEMENT ACCESS, REFER TO D1/CS504
15. EDGE OF CONCRETE PAVEMENT
16. 30' INTERIOR PERIMETER CLEAR ZONE
17. ELECTRICAL GROUND TEST WELL, REFER TO TYPE H AND CLWS ELECTRICAL SHEETS E-103 AND E-102B
18. PEDESTRIAN GATE, REFER TO A5/CS503
19. EDGE OF STRUCTURE FOUNDATION
20. SENTRY BUILDING (BUILDING B)

PAVEMENT LEGEND

R	ODD-SHAPED CONCRETE SLAB REINFORCEMENT, REFER TO A1/CS501
TCJ	TRANSVERSE CONTRACTION JOINT, REFER TO C3/CS501
LCJ	LONGITUDINAL CONTRACTION JOINT, REFER TO C3/CS501
CTJ	TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT, REFER TO C3/CS501
EJ	EXPANSION JOINT WITH THICKENED EDGE, REFER TO C2/CS501

KEYPLAN



GRAPHIC SCALE

1"=30' 0' 30' 60'

PLAN NORTH

APPR.	DATE	DESCRIPTION	SYM

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

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

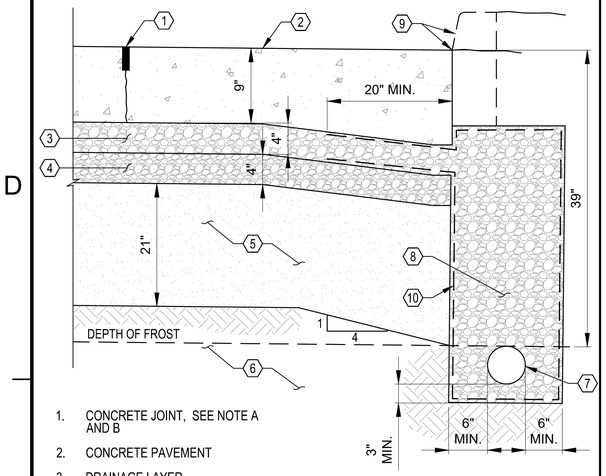
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION - NORFOLK, VA

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
SITE LAYOUT PLAN - AREA C

SCALE:	AS NOTED
EPROJECT NO.:	1667770
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12893870
SHEET	64 OF 152

CS103

FILE NAME: C:\pw_worldir\dms003\jdiney.corum@jacobs.com\d0919642\P1102_CS103.dwg LAYOUT NAME: CS103 SITE LAYOUT & PAVING PLAN PLOTTED: Tuesday, June 17, 2025 – 1:10pm USER: CORUMJ



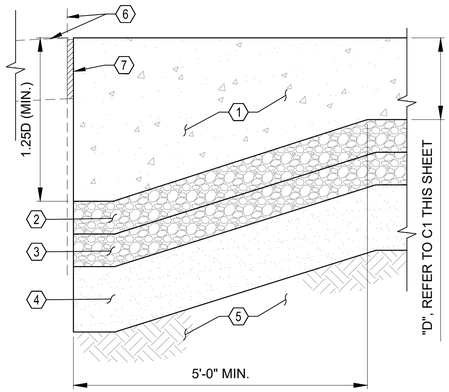
1. CONCRETE JOINT, SEE NOTE A AND B
2. CONCRETE PAVEMENT
3. DRAINAGE LAYER
4. SEPARATION LAYER
5. NON-FROST SUSCEPTIBLE FILL
6. SUBGRADE
7. 8" PERFORATED DRAIN PIPE, REFER TO GRADING PLAN SHEETS
8. BACKFILL, RAPID DRAINING MATERIAL
9. CURB OR EDGE OF PAVEMENT
10. FILTER FABRIC

NOTES:

A. REFER TO C3 AND C4, THIS SHEET FOR JOINT CONSTRUCTION
B. PROVIDE PRE-MOLDED JOINT FILLER
C. PROVIDE A THICKENED EDGE AROUND PERIMETER OF SLAB, REFER TO DETAIL C2 THIS SHEET.
D. PROVIDE MAXIMUM JOINT SPACING OF 15'.

CONCRETE PAVEMENT SECTION (C1)

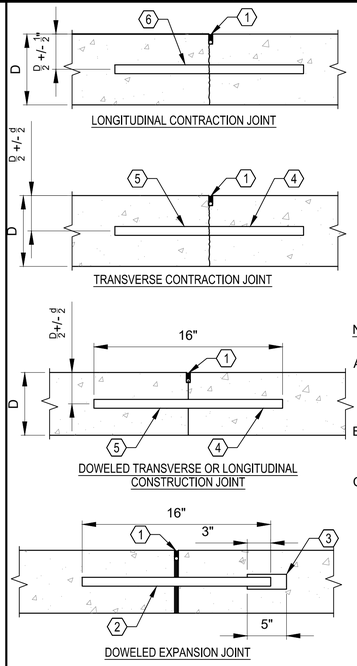
SCALE: NTS — CS102 CS501 CS103



1. CONCRETE PAVING
2. DRAINAGE LAYER
3. SEPARATION LAYER
4. NON-FROST SUSCEPTIBLE MATERIAL
5. COMPACTED SUB-GRADE
6. CONCRETE GUTTER, ASPHALT TRANSITION / PERIMETER OF SLAB, OR BUILDING
7. PREFORMED JOINT FILLER, REFER TO DETAIL C4 THIS SHEET

CONCRETE PAVING THICKENED EDGE ISOLATION JOINT (C2)

SCALE: NTS — CS501 CS501



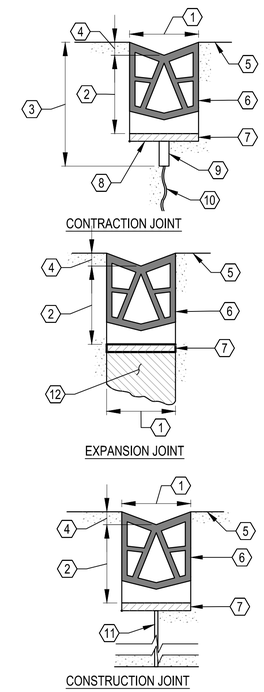
1. PAVEMENT JOINT SEALING, REFER TO DETAIL C4/CS501
2. 1" DIA. DOWEL SPACED 12" O.C.
3. PLASTIC EXPANSION SLEEVE
4. PAINT AND LIGHTLY OIL ONE END OF DOWEL
5. EITHER ONE PIECE OR THREADED SPLIT-TYPE DOWEL MAY BE USED
6. 5/8" Ø DEFORMED STEEL TIE BARS 30" LONG AND SPACED 30" ON CENTERS. USED ONLY IN JOINTS 15' OR LESS FROM FREE EDGES OF PAVED AREAS GREATER THAT 100' IN WIDTH

NOTES:

A. FOR SILICONE SEALANTS, USE MANUFACTURER'S SHAPE FACTOR.
B. d DENOTES DOWEL DIAMETER
C. DEVELOP AND SUBMIT A JOINT LAYOUT PLAN SHOP DRAWING TO THE CONTRACTING OFFICER FOR APPROVAL

TYPICAL CONCRETE PAVEMENT JOINTS (C3)

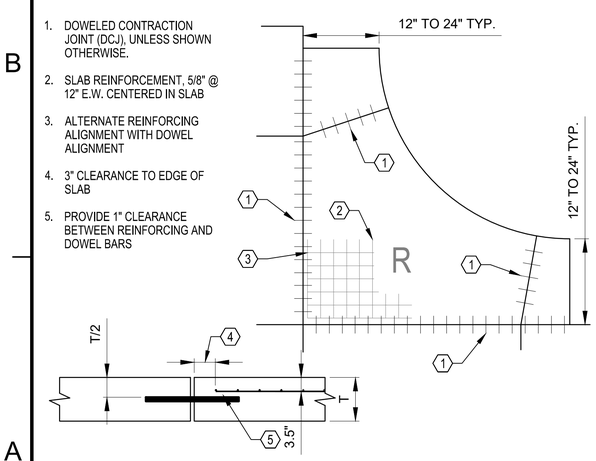
SCALE: NTS — CS501 CS501



1. WIDTH OF SEALANT RESERVOIR = 1/2" MIN., 5/8" MAX.
2. DEPTH OF SEALANT = 1/2"
3. DEPTH OF INITIAL SAWCUT = 1/4 SLAB THICKNESS.
4. 1/8" TO 1/4" BELOW TOP OF PAVEMENT.
5. PAVEMENT SURFACE.
6. PRE-MOLDED JOINT SEALER.
7. SEPARATING TAPE.
8. JOINT BOTTOM.
9. INITIAL SAWCUT.
10. CRACK.
11. BUTT JOINT.
12. PREFORMED JOINT MATERIAL.

JOINT SEALANT DETAIL (C4)

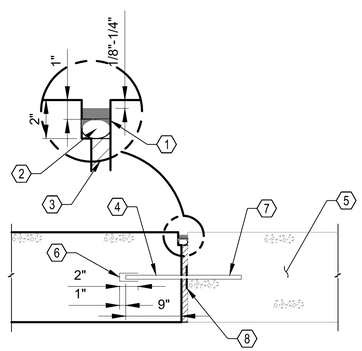
SCALE: NTS — CS501 CS501



1. DOWELED CONTRACTION JOINT (DCJ), UNLESS SHOWN OTHERWISE.
2. SLAB REINFORCEMENT, 5/8" @ 12" E.W. CENTERED IN SLAB
3. ALTERNATE REINFORCING ALIGNMENT WITH DOWEL ALIGNMENT
4. 3" CLEARANCE TO EDGE OF SLAB
5. PROVIDE 1" CLEARANCE BETWEEN REINFORCING AND DOWEL BARS

ODD-SHAPED CONCRETE SLAB REINFORCEMENT (A1)

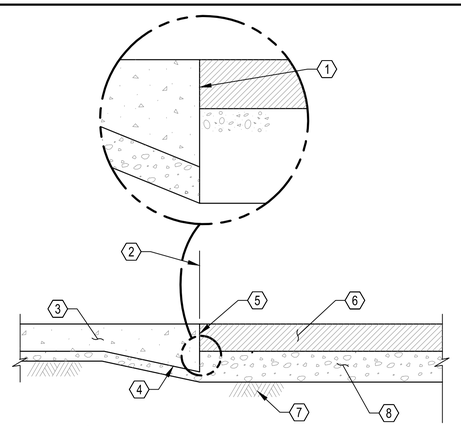
SCALE: NTS — CS102 CS501



1. 1/2" JOINT SEALER
2. BACKER ROD
3. 1/4" FIBERBOARD
4. 1.25" DIA. x 18" SMOOTH STEEL DOWEL BARS LUBRICATE THIS HALF OF DOWEL
5. EXISTING CONCRETE PAVEMENT
6. EXPANSION CAP
7. GANG-DRILL HOLES FOR DOWELS AT 12" CENTERS. CLEAN HOLES WITH COMPRESSED AIR AND PLACE NON-SHRINK GROUT AT BACK OF HOLE BEFORE DOWEL INSERTION.
8. 3.25" DIA. x .08" THICK NYLON OR PLASTIC GROUT RETENTION DISK

CONCRETE TO EXISTING CONCRETE CONNECTION (A2)

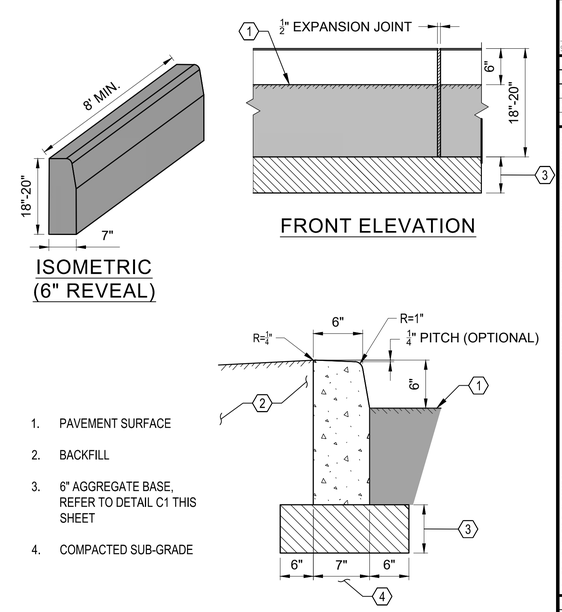
SCALE: NTS — CS102 CS501



1. SAW CUT ASPHALT PAVEMENT
2. EDGE OF CONCRETE, REFER TO PLAN SHEETS
3. CONCRETE PAVEMENT
4. PROVIDE THICKENED EDGE, SEE DETAIL C2 THIS SHEET
5. TACK COAT EDGE OF EXISTING PAVEMENT
6. ASPHALT PAVEMENT
7. COMPACTED SUBGRADE
8. AGGREGATE BASE COURSE

CONCRETE TO ASPHALT TRANSITION (A3)

SCALE: NTS — CS102 CS501



1. PAVEMENT SURFACE
2. BACKFILL
3. 6" AGGREGATE BASE, REFER TO DETAIL C1 THIS SHEET
4. COMPACTED SUB-GRADE

CONCRETE CURB (A4)

SCALE: NTS — CS102 CS501

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 — 8/14/2025

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

SATISFACTORY TO — DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

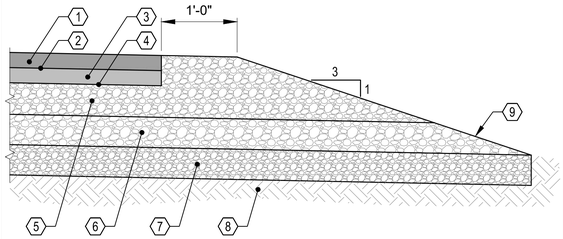
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA

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

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
SITE & PAVING DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893871
SHEET 65 OF 152
CS501

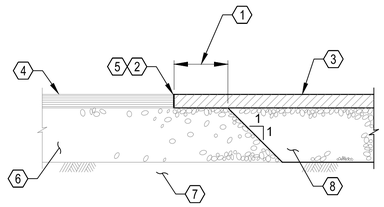
FILE NAME: C:\pw_work\dr\dcs003\jdiney.corum@jacobs.com\d0919642\P1102_CS501.dwg LAYOUT NAME: CS501 SITE & PAVING DETAILS PLOTTED: Tuesday, June 17, 2025 - 1:11pm USER: CORUMJ



1. 2" AC SURFACE COURSE
2. TACK COAT
3. 2" AC BASE COURSE
4. PRIME COAT
5. 5" AGGREGATE BASE COURSE
6. 4" DRAINAGE LAYER
7. 4" SEPARATION LAYER
8. COMPACTED SUB-GRADE
9. DAYLIGHT DRAINAGE LAYER

ASPHALT PAVEMENT SECTION (C1)

SCALE: NTS — CS101 | CS502



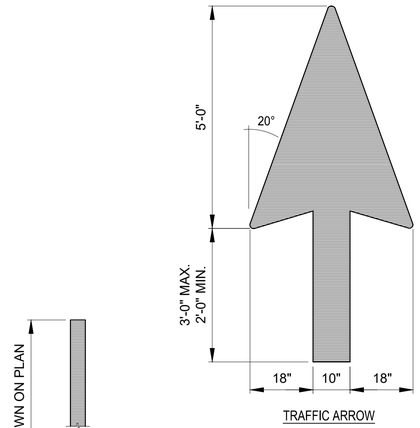
NOTES:

PAINT EDGE OF EXISTING ASPHALT WITH TACK COAT PRIOR TO PAVING. CRACK SEAL JOINT AFTER PAVING OPERATION HAS BEEN COMPLETED.

1. SAW CUT 2' MIN. JUST PRIOR TO PAVING
2. EDGE OF EXISTING PAVEMENT
3. PAVEMENT
4. EXISTING PAVEMENT
5. CRACK SEAL TYP., SEE NOTE
6. EXISTING AGGREGATE BASE COURSE
7. PREPARED COMPACTED SUB-GRADE
8. AGGREGATE BASE COURSE

ASPHALT TO EXISTING ASPHALT CONNECTION (C2)

SCALE: NTS — CS101 | CS502

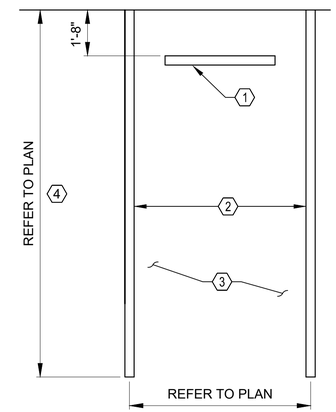


NOTE:

1. USE YELLOW PAINT ON CONCRETE SURFACES; USE NON-REFLECTIVE WHITE PAINT ON ALL OTHER SURFACE TYPES.

PAVEMENT MARKING (C3)

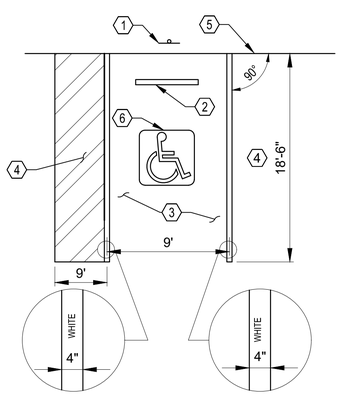
SCALE: NTS — CS101 | CS502 CS103



1. PRECAST CONC. WHEEL STOP
2. 4" WHITE STRIPE
3. AC PAVEMENT SURFACE
4. DISTANCE MEASURES FROM EDGE OF PAVEMENT OR FACE OF CURB

PARKING STALL STRIPING (C4)

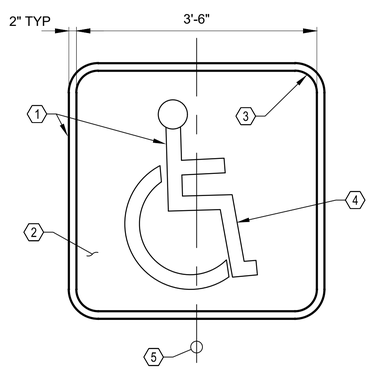
SCALE: NTS — CS101 | CS502



1. PROVIDE ADA SIGN PER DETAIL B5/CS503
2. PRECAST CONCRETE WHEEL STOP, SEE DETAIL C5/CS503
3. PAVEMENT
4. ADA ACCESS ISLE BLUE PAINTED STRIPES
5. FENCE
6. PROVIDE INTERNATIONAL ADA SYMBOL ON THE SURFACE OF EACH PARKING SPACE. SEE DETAIL C3/CS503

ADA PARKING STALL STRIPING (A1)

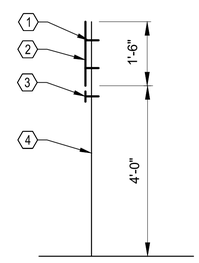
SCALE: NTS — CS101 | CS502



1. 2 COATS OF TRAFFIC PAINT, WHITE
2. BACKGROUND, 2 COATS OF TRAFFIC PAINT, MEDIUM BLUE
3. 3" RADIUS
4. 4" WIDE, TYP
5. ℄ PARKING STALL

ADA SYMBOL (A2)

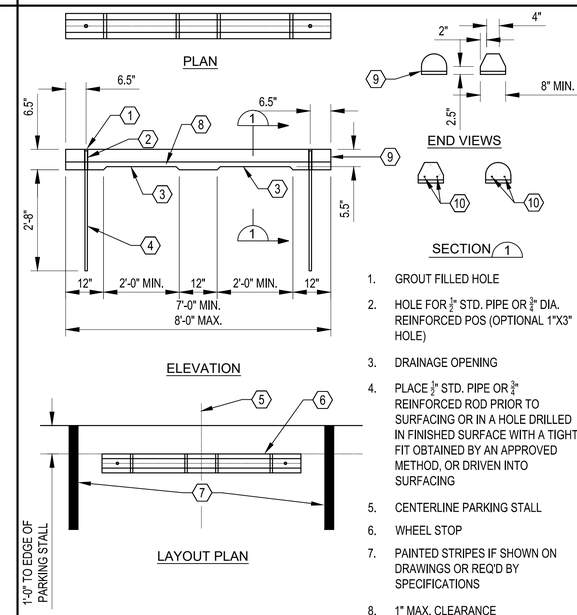
SCALE: NTS — CS501 | CS502



1. MOUNTING BRACKET
2. SIGN WORDING LAYOUT AND MATERIAL PER LOCAL CITY AND/OR STATE CODE.
3. VAN ACCESSIBLE SIGN, AS REQ'D
4. CHAINLINK FENCE

ADA SIGN AND MOUNTING (A3)

SCALE: NTS — CS501 | CS502



1. GROUT FILLED HOLE
2. HOLE FOR $\frac{3}{8}$" STD. PIPE OR $\frac{3}{4}$" DIA. REINFORCED POS (OPTIONAL 1"X3" HOLE)
3. DRAINAGE OPENING
4. PLACE $\frac{3}{8}$" STD. PIPE OR $\frac{3}{4}$" REINFORCED ROD PRIOR TO SURFACING OR IN A HOLE DRILLED IN FINISHED SURFACE WITH A TIGHT FIT OBTAINED BY AN APPROVED METHOD, OR DRIVEN INTO SURFACING
5. CENTERLINE PARKING STALL
6. WHEEL STOP
7. PAINTED STRIPES IF SHOWN ON DRAWINGS OR REQ'D BY SPECIFICATIONS
8. 1" MAX. CLEARANCE
9. $\frac{\text{orig}}{\text{rad}}$" TOOLED EDGE (TYP.)
10. 2-#3 BARS

PRECAST CONCRETE WHEEL STOP (A4)

SCALE: NTS — CS501 | CS502

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 — 8/14/2025

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

SATISFACTORY TO — DATE: 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

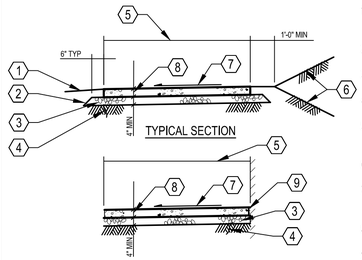
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC

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

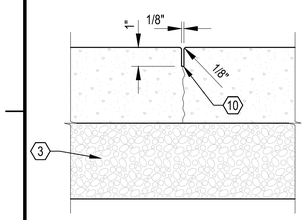
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
SITE & PAVING DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893872
SHEET 66 OF 152
CS502

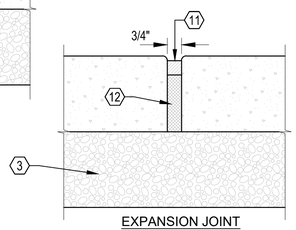
FILE NAME: C:\pw_work\dir\jdcorum\d0919642\P1102_CS502.dwg LAYOUT NAME: CS502 SITE & PAVING DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:12pm USER: CORUMJ



1. FINISH GRADE, SLOPE AS SHOWN ON GRADING PLANS
2. 1:1, TYP
3. BASE COURSE
4. PREPARED SUB-GRADE
5. REFER TO PLAN SHEETS FOR WIDTH DIMENSION
6. 2:1 MAX SLOPE
7. SLOPE 1/4"/FT OR AS SHOWN ON GRADING PLANS
8. SEE NOTE B
9. 1/2" PJF (WHERE AGAINST STRUCTURE)
10. TOOLED JOINT
11. JOINT SEALER
12. PRE-MOLDED EXPANSION JOINT FILLER



CONTRACTION JOINT



EXPANSION JOINT

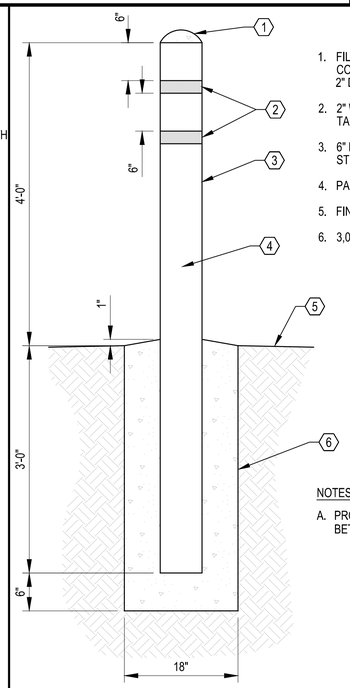
NOTES:

A. PROVIDE LONGITUDINAL CONTRACTION JOINT AT MIDPOINT ON SIDEWALKS 8 FEET AND WIDER.

B. CONCRETE DEPTH FOR STANDARD SIDEWALKS MUST BE NOMINAL 4" MINIMUM, THICKNESS IN DRIVEWAY MUST BE 6" MINIMUM.

CONCRETE SIDEWALK (C1)

SCALE: NTS — CS101 | CS503



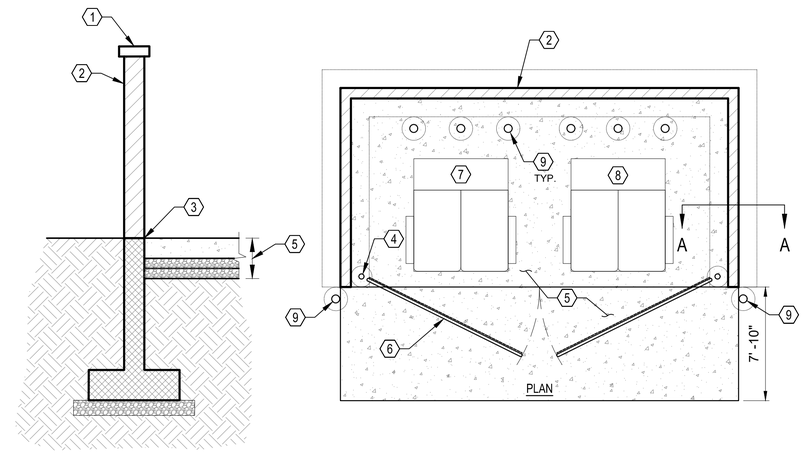
1. FILL PIPE WITH 3,000 PSI CONCRETE, 2" DOME
2. 2" WIDE WHITE REFLECTIVE TAPE
3. 6" DIAMETER SCHEDULE 40 STEEL PIPE
4. PAINT BOLLARD YELLOW
5. FINISHED GRADE
6. 3,000 PSI CONCRETE FOOTING

NOTES:

A. PROVIDE MAX. 6'-0" CLEAR SPACING BETWEEN BOLLARDS.

TYPICAL BOLLARD (C2)

SCALE: NTS — CS101 | CS503



SECTION A-A

PLAN

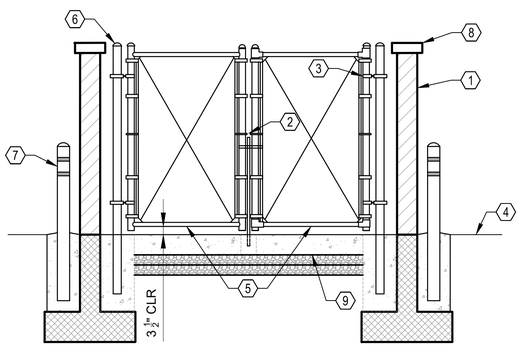
1. 4" x 12" PRECAST CONCRETE COPING CAP
2. ENCLOSURE WALL, REFER TO C2 & C4/S-401
3. PREFORMED JOINT FILLER (TYP.)
4. GATE POST AND HINGE, REFER TO DETAIL A2 THIS SHEET
5. 9" PCCP SLAB ON 4" DRAINAGE LAYER AND 4" SEPARATION LAYER
6. CHAIN LINK GATE W/ LOCKING DEVICE REFER TO DETAIL A1/CS503
7. FRONT LOAD DUMPSTER (8 YARD CAPACITY)
8. RECYCLE CONTAINER
9. PIPE BOLLARD, REFER TO DETAIL C2 THIS SHEET

NOTES:

A. MATCH ENCLOSURE WALL TO BUILDING EXTERIOR, REFER TO ARCHITECTURAL DRAWINGS FOR COLOR.

DUMPSTER ENCLOSURE (C3)

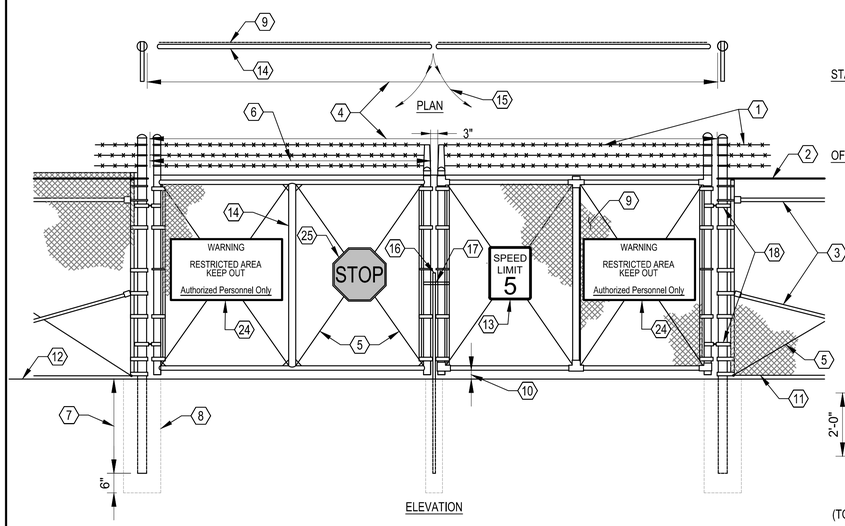
SCALE: NTS — CS101 | CS503



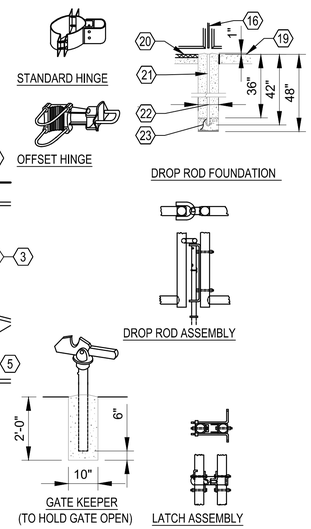
1. ENCLOSURE WALL, REFER TO DETAILS C2 & C4/S-401
2. LOCK KEEPER & GUIDE
3. HINGE - TYP, SEE DETAIL A2 THIS SHEET
4. FINISHED GRADE
5. 2 - CHAIN LINK SWING GATES
6. GATE POST, REFER TO DETAIL A2 THIS SHEET
7. BOLLARD, REFER TO DETAIL C2 THIS SHEET
8. 4" x 12" PRECAST CONCRETE COPING CAP
9. CONCRETE SLAB, REFER TO DETAIL C3 THIS SHEET

CHAIN LINK GATE (A1)

SCALE: NTS — CS101 | CS503



ELEVATION



1. 3-STRAND BARBED WIRE
2. TOP TENSION WIRE OR RAIL AS SPECIFIED (TYP)
3. BRACE RAIL (TYP)
4. GATE OPENING
5. TRUSS ROD (TYP)
6. LEAF
7. 3'-10" FOR POSTS 8 5/8" O.D.
   3'-4" FOR POSTS 6 5/8" O.D.
   3'-0" MIN. FOR POSTS ≤ 4" O.D.
8. 16" DIA. MIN. FOR GATE POSTS ≤ 4" O. D.
   24" DIA. FOR GATE POSTS OVER 4" O.D.
9. CHAIN-LINK FABRIC
10. 2" MIN; 2" MAX FOR FENCES
11. BOTTOM TENSION WIRE
12. FINISHED GRADE
13. 24" x 30" R2-1 "SPEED LIMIT 5" SIGN
14. GATE FRAME
15. DIRECTION GATE SWING (TYP.)
16. 1/2" DIA DROP ROD, INDUSTRY STND
17. LATCH ASSEMBLY
18. HINGES (TYP)
19. PCCP SURFACE
20. AC PAVED SURFACE
21. 1" ID STEEL PIPE
22. 6" DIA CONC
23. SAND/GRAVEL
24. RESTRICTED AREA SIGN, REFER TO D4/CS504
25. 30" x 30" R1-1 "STOP" SIGN

NOTES:

A. FOR NON-SENSORED FENCES, DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPE OF FENCE SECTIONS AND METHODS OF INSTALLATION THAT COMPLY WITH THE SPECIFICATIONS.

B. SWING GATES MUST BE CONSTRUCTED WITH DROP RODS, PADLOCKS, LATCH ASSEMBLY AND GATE KEEPERS UNLESS NOTED OTHERWISE.

C. GATE FRAMES MUST MEET THE MINIMUM REQUIREMENTS OF ASTM F900 1.90" NOMINAL (ROUND) OR 2.00" NOMINAL (SQUARE). GATE FRAMES MUST BE OF WELDED CONSTRUCTION OR MUST BE ASSEMBLED USING HEAVY FITTINGS. AT CONTRACTOR'S OPTION A WELDED HORIZONTAL BRACE MAY BE USED IN LIEU OF TRUSS RODS TO BRACE WELDED GATE FRAMES. CONTRACTOR IS RESPONSIBLE FOR THE RIGID CONSTRUCTION OF GATES SUPPLIED.

D. GATES MUST BE DESIGNATED AS FOLLOWS:

FENCE TYPE	- FE5, FE6, ETC.
FENCE HEIGHT	- INCHES
TYPE OPENING	- SO (SINGLE) - DO (DOUBLE)
HINGE	- RA (STANDARD) - HO (OFFSET)
OPENING	- FEET (CLEAR OPENING BETWEEN GATE POSTS)
EXAMPLES:	FE6-84-DO-RA-24 FE5-48-SO-HO-6

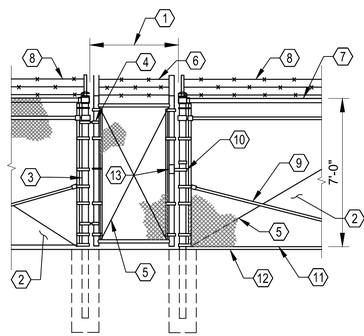
E. COMPLETE AND SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL

GATE POST SCHEDULE

GATE LEAF WIDTH (NOMINAL)	OUTSIDE DIMENSION (NOMINAL)
6' OR LESS	2.875" OD 2.5" SQ
6' TO 12'	4.0" OD
12' TO 18'	6.625" OD
MORE THAN 18'	8.625" OD

MANUAL DOUBLE SWING GATE (A2)

SCALE: NTS — CS101 CS103 | CS503



1. 3'-0" GATE OPENING
2. FENCE FABRIC
3. GATE POST
4. HINGE
5. TRUSS ROD
6. VERTICAL BARBED WIRE APRON
7. TOP RAIL
8. 3 STRANDS OF BARBED WIRE BOTH EXTENSION ARMS
9. BRACE RAIL
10. LATCH
11. BOTTOM TENSION WIRE
12. GRADE LINE
13. CYPHER STYLE-BUTTON LOCK

PEDESTRIAN GATE (A5)

SCALE: NTS — CS103 | CS503

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 8/14/2025

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

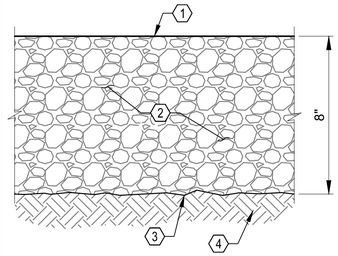
SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893873
SHEET 67 OF 152
CS503

FILE NAME: C:\pw_work\dr\dm003\jdoney.corum@jacobs.com\d0919642\P1102_CS503.dwg LAYOUT NAME: CS503 SITE & PAVING DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:14pm USER: CORUMJ



1. FINISH GRADE
2. AGGREGATE SURFACE
3. GEOTEXTILE
4. PREPARED SUBGRADE

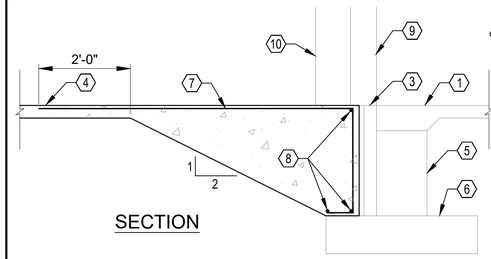
NOTE:

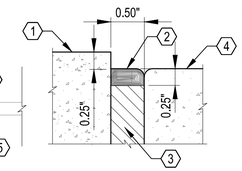
A. PROVIDE GRAVEL SURFACE IN AREAS SHOWN ON DRAWINGS.

GRAVEL SURFACING (D1)

SCALE: NTS

C-102 CS103 | CS504





1. BUILDING SLAB, REFER TO STRUCTURAL DRAWINGS
2. JOINT SEALANT, REFER TO C4/CS501
3. REFER TO A1/A-503 FOR DOOR SILL DETAIL @ ORDNANCE OPERATIONS BUILDING AND A1/A-501 FOR SENTRY BUILDING
4. SIDEWALK, REFER TO C1/CS503
5. STEM WALL
6. STRUCTURAL FOOTING
7. #4 @ 16" O.C.
8. (3) - #4 CONTINUOUS
9. OUTSIDE FACE OF STRUCTURAL WALL
10. OUTSIDE FACE OF BUILDING WALL

SIDEWALK-BUILDING SLAB INTERFACE AT EXTERIOR DOORS (D2)

SCALE: NTS

CS101 CS103 | CS504

NOTE:

1. PROVIDE RESTRICTED AREA SIGN ON GATES AND EVERY 100 LINEAR FEET ALONG FENCE LINE.

WARNING

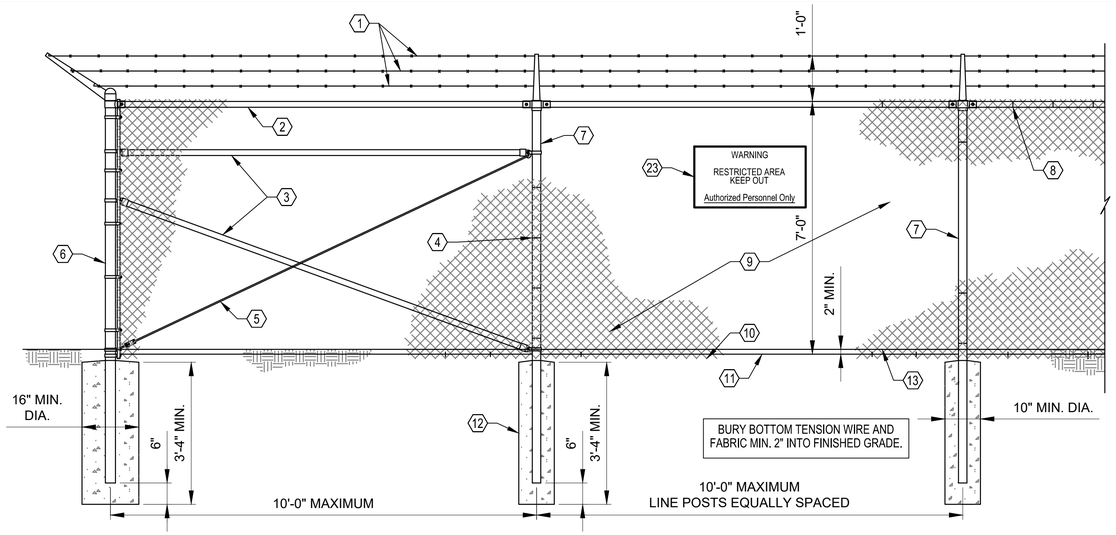
RESTRICTED AREA
KEEP OUT

Authorized Personnel Only

RESTRICTED AREA SIGN (D4)

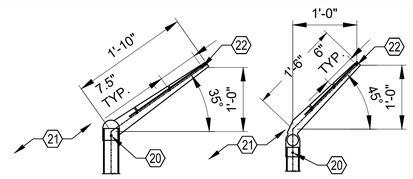
SCALE: NTS

CS101 CS102 CS103 | CS504



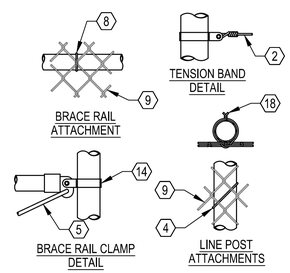
CHAIN-LINK SECURITY FENCE DETAIL

NTS

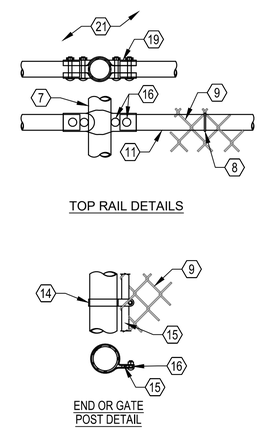


EXTENSION ARM DETAILS

NTS



FASTENING DETAILS



NOTES:

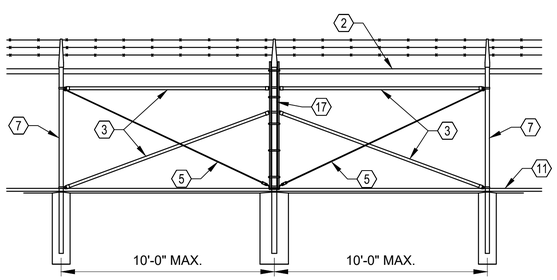
A. WIRE TIES, RAILS, POSTS, AND BRACES MUST BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC MUST BE PLACED ON THE SIDE OPPOSITE THE SECURE AREA.

B. ONLY 9-GAGE GALVANIZED STEEL TIE WIRES MUST BE USED FOR FASTENING THE FENCE FABRIC TO FENCE POSTS AND RAILS.16-GAGE, STAINLESS STEEL TIE WIRES MUST BE USED FOR FASTENING FENCE FABRIC TO TENSION WIRES. HOG RINGS IS NOT BE ALLOWED ON SENSORED FENCES.

C. BOTTOM RAIL MUST BE ATTACHED TO DOUBLE RAIL ENDS USING 3/8"" CARRIAGE BOLTS. ADDITIONAL HOLES MUST BE DRILLED THROUGH THE BOTTOM RAIL ENDS TO ENSURE THAT CARRIAGE BOLTS PASS THROUGH THE BOTTOM RAIL.

D. REFER TO A4/E-501 FOR GROUNDING INFORMATION.

1. 3-STRAND BARBED-WIRE APRON ON EXTENSION ARMS
2. TOP RAIL
3. BRACE RAIL
4. 9-GAGE STEEL TIE WIRES, 15" O.C. MAX & W/IN 4" FROM TOP & BOTTOM OF FABRIC
5. TRUSS ROD (3/8" MIN. DIA.)
6. CORNER, END, OR PULL POST
7. LINE POST
8. 9-GAGE STEEL TIE WIRES (TYP.), 12" O.C. MAX.
9. CHAIN-LINK FABRIC (9 GAGE, 2" MESH)
10. BOTTOM OF FABRIC
11. BOTTOM TENSION WIRE
12. CONCRETE BASE
13. GRADE LINE
14. TENSION BAND (15" O.C. MAX. & W/IN 4" FROM TOP & BOTTOM OF FABRIC)
15. TENSION BAR TO ENGAGE EACH FABRIC LINK
16. 3/8" CARRIAGE BOLT W / PEENED THREADS
17. PULL POST
18. ENDS TWISTED AT LEAST THREE FULL TURNS
19. DOUBLE RAIL END
20. 3/8" PLAIN PIN RIVETED FLUSH (TYP.)
21. SECURE SIDE
22. LOCK PIN, TYP.
23. RESTRICTED AREA SIGN, REFER TO D4 THIS SHEET



NOTE:

PROVIDE BRACE PANEL WHENEVER STRAIGHT RUNS EXCEED 500 FEET.

BRACE PANEL DETAIL

NTS

FENCE LEGEND:

TYPE FE5 - CHAIN-LINK FENCE WITHOUT BARBED-WIRE APRON
TYPE FE6 - CHAIN-LINK FENCE W/BARBED-WIRE ON SINGLE OUTRIGGER
TYPE FE7 - CHAIN-LINK FENCE W/BARBED-WIRE ON DOUBLE OUTRIGGER
TYPE FE8 - CHAIN-LINK FENCE W/BARBED-WIRE AND BARBED-TAPE ON DOUBLE OUTRIGGER
TR - FENCE WITH TOP RAIL AND TENSION WIRE AT BOTTOM
TBR - FENCE WITH TOP AND BOTTOM RAILS
TWB - TENSION WIRE TOP AND BOTTOM
TWBR - FENCE WITH TOP TENSION WIRE AND BOTTOM RAIL
FINAL NUMBER IS FABRIC WIDTH IN INCHES.

EXAMPLES:

FE6-TR-72 - CHAIN-LINK SECURITY FENCE WITH BARBED-WIRE ON SINGLE OUTRIGGER, TOP RAIL, AND 72 INCH FABRIC WIDTH.

FE5-TWB-84 - CHAIN-LINK SECURITY FENCE WITH NO APRON, TOP AND BOTTOM TENSION WIRE, AND 84 INCH FABRIC WIDTH.

STEEL POST SCHEDULE	
USE AND SECTION	MIN OUTSIDE DIMENSIONS (NOMINAL)
CORNER, END & PULL POSTS	
TUBULAR - ROUND	2.375" O.D.
LINE POSTS	
TUBULAR - ROUND	1.90" O.D.
BOTTOM & BRACE RAILS	
TUBULAR - ROUND	1.66" O.D.
TUBULAR - SQUARE	1.50" SQ.
H-SECTION	1.625" x 1.50"
C-SECTION (ROLL-FORMED)	1.625" x 1.25"

HIGH-SECURITY CHAIN LINK FENCE (A1)

SCALE: NTS

CS101 CS102 CS103 | CS504

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25 — 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 — 8/14/2025

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

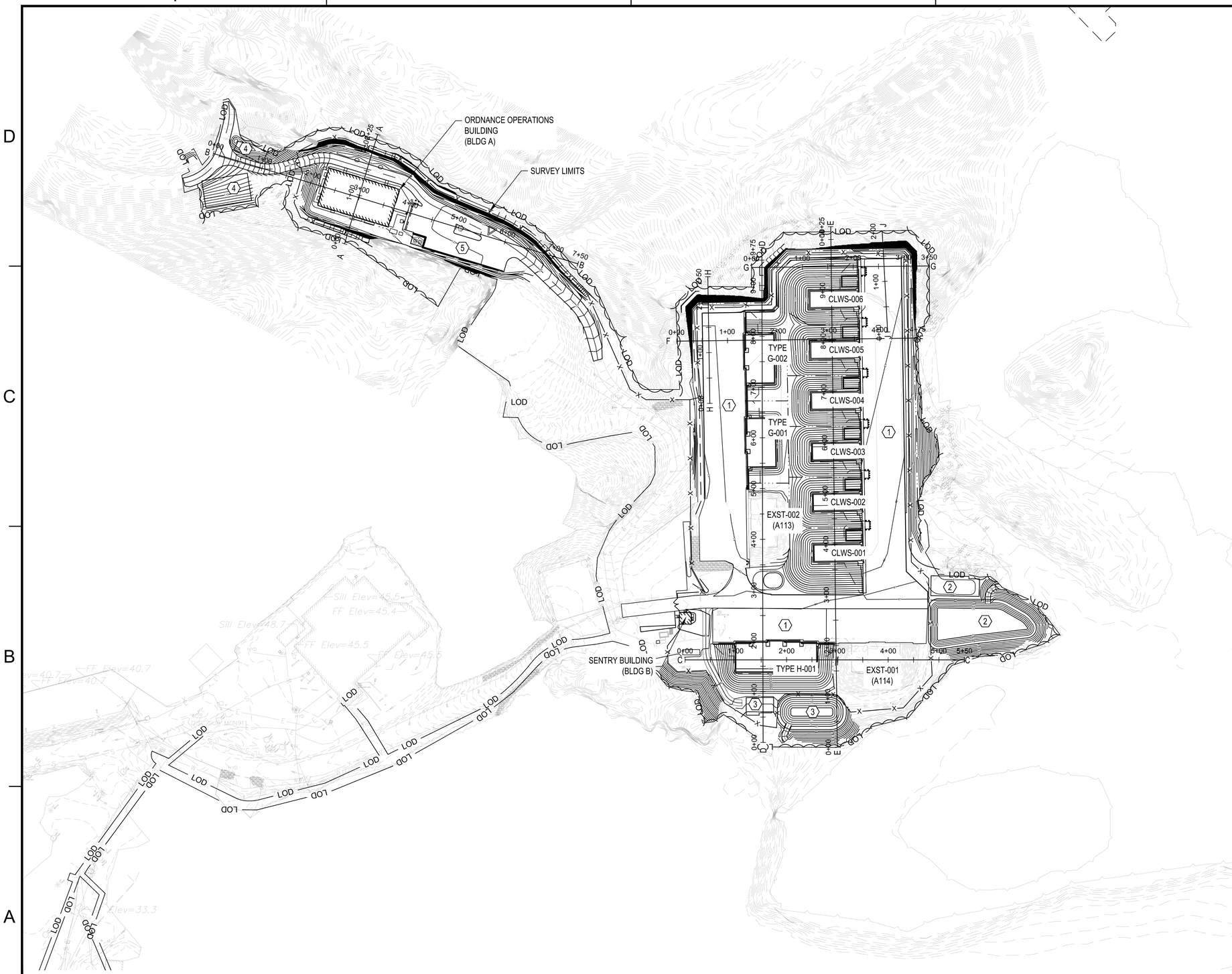
SATISFACTORY TO — DATE: 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

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

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893874
SHEET 68 OF 152
CS504

FILE NAME: C:\pw_work\dc\jdenl033\jciney.corum@jacobs.com\d0919f42\P1102_CS504.dwg LAYOUT NAME: CS504 SITE & PAVING DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:16pm USER: CORUMJ



A1 GRADING AND DRAINAGE PLAN - OVERALL

1" = 100'

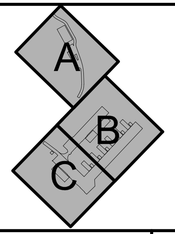
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. REFER TO SHEETS C-004 TO C-113 FOR EROSION AND SEDIMENT CONTROL INFORMATION.
2. REFER TO CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. REFER TO CS100-C2103 FOR SITE LAYOUT INFORMATION
4. REFER TO CU100-CU103 FOR UTILITY LAYOUT INFORMATION
5. REFER TO CG201-CG203 FOR STORM SEWER PROFILE INFORMATION
6. REFER TO CG301-CG304 FOR SITE SECTIONS

KEYED NOTES

1. CONCRETE APRON
2. STORMWATER MANAGEMENT AREA A
3. STORMWATER MANAGEMENT AREA B
4. STORMWATER MANAGEMENT AREA C
5. POV PARKING

KEYPLAN



GRAPHIC SCALE

1"=100' 0' 100' 200'

PLAN NORTH

STM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

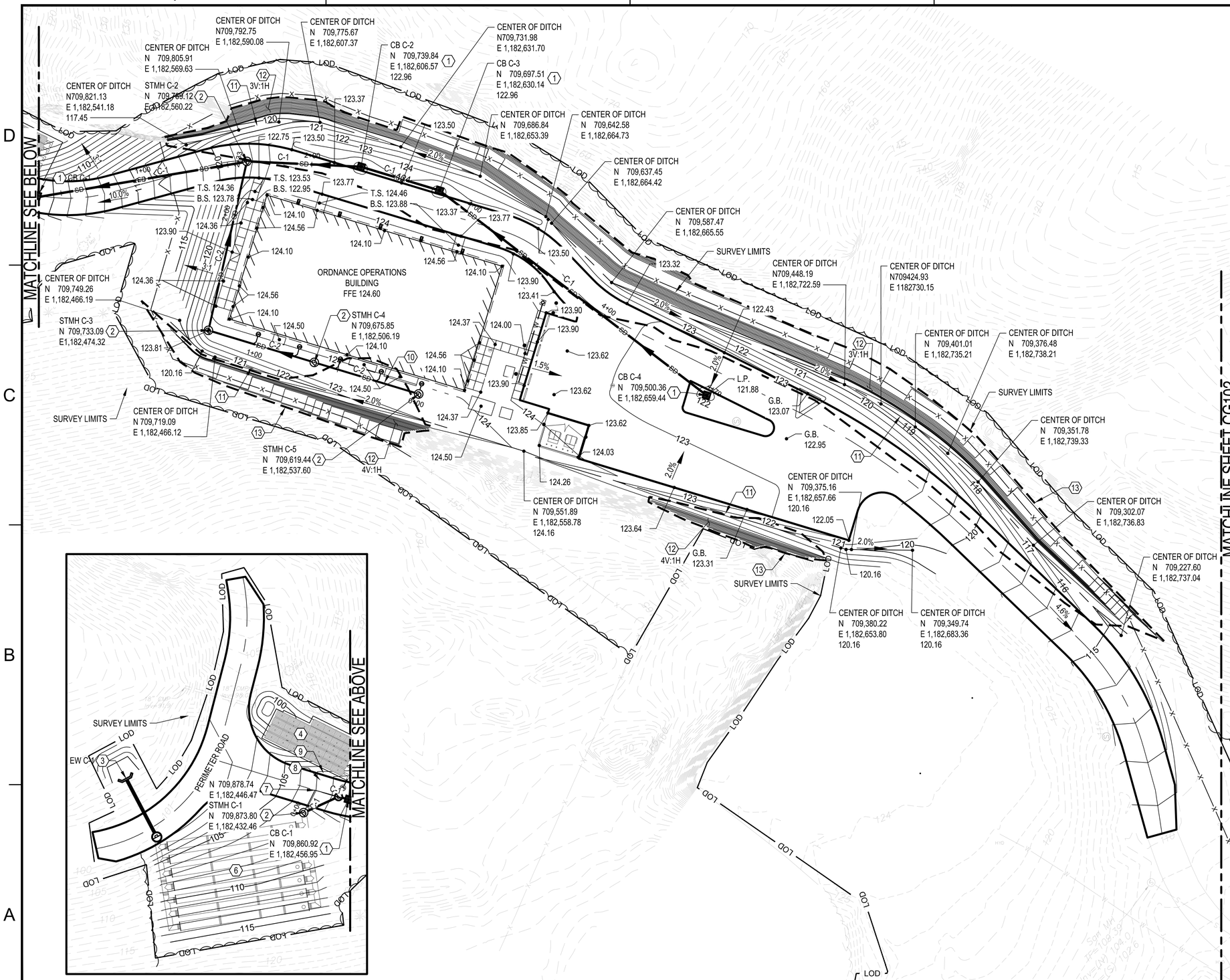
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
MID-ATLANTIC
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
GRADING AND DRAINAGE PLAN - OVERALL

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893875
SHEET 69 OF 152

CG100

FILE NAME: C:\pw_work\d\{den003}\jdesy.corum@jacobs.com\d0919642\P1102_CG100.dwg LAYOUT NAME: CG100 GRADING AND DRAINAGE PLAN PLOTTED: Tuesday, June 17, 2025 - 12:31pm USER: CORUMJ

ORIGINAL



A1 GRADING AND DRAINAGE PLAN - AREA A

1" = 30'

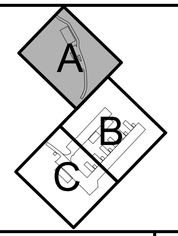
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. REFER TO SHEETS C-004 TO C-113 FOR EROSION AND SEDIMENT CONTROL INFORMATION.
2. REFER TO CD100-CD103 FOR SITE DEMOLITION INFORMATION.
3. REFER TO CS100-C2103 FOR SITE LAYOUT INFORMATION.
4. REFER TO CU100-CU103 FOR UTILITY LAYOUT INFORMATION.
5. REFER TO CG201-CG203 FOR STORM SEWER PROFILE INFORMATION.
6. REFER TO CG301-CG304 FOR SITE SECTIONS.
7. COORDINATES ARE TO CENTER OF STRUCTURE FOR AREA DRAINS AND MANHOLES AND CENTER OF STRUCTURE AT CURB LINE FOR COMBINATION INLETS.

KEYED NOTES

1. SINGLE CATCH BASIN, REFER TO A1/CG502
2. STORM MANHOLE, REFER TO B1/CG501
3. END WALL, REFER TO A3/CG502
4. UNDERGROUND WATER QUALITY TREATMENT CHAMBER SYSTEM C, REFER TO SHEETS CG403 AND CG506
5. STORM CLEAN-OUT, REFER TO C3/CU501
6. UNDERGROUND DETENTION SYSTEM, REFER TO SHEETS CG403 AND CG507
7. FLOW DIVERSION STRUCTURE, REFER TO C1/CG508
8. HYDRODYNAMIC SEPARATOR, REFER TO C3/CG508
9. 6" HDPE DRAIN PIPE @ 0.8%
10. ROOF DRAIN HEADER PIPE, REFER TO A4/CG501 FOR ROOF DRAIN CONNECTION
11. GRASS LINED CHANNEL, REFER TO A2/CG508
12. ROCK CUT, REFER TO A1/CG509
13. APPROXIMATE LIMITS OF ROCK EXCAVATION & BLASTING

KEYPLAN



GRAPHIC SCALE

1"=30' 0' 30' 60'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25 — 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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

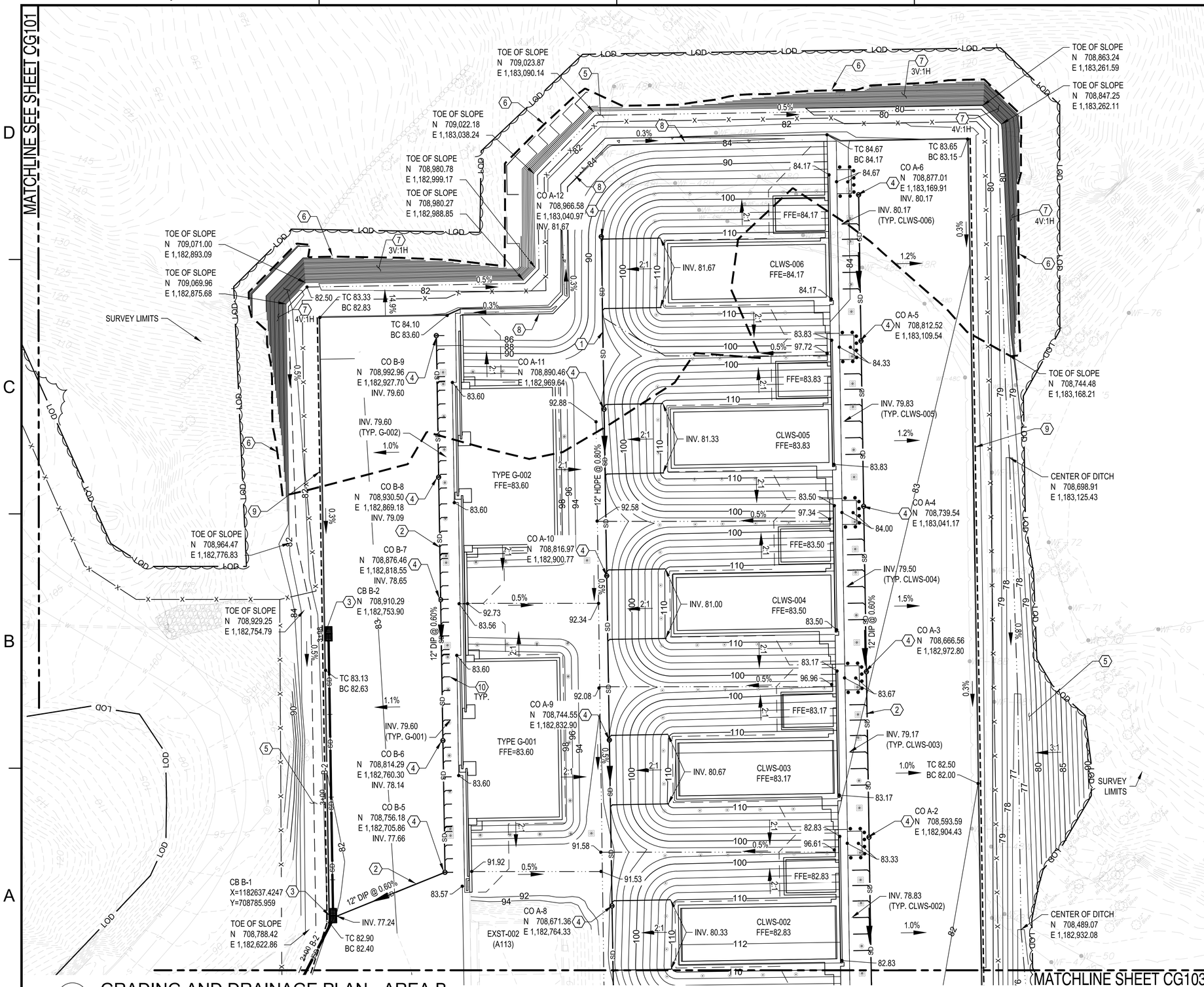
DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
MID-ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
GRADING AND DRAINAGE PLAN - AREA A

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893876
SHEET 70 OF 152

CG101

FILE NAME: C:\pw_workdir\dms0031\jdiney.corum@jacobs.com\d0919642\P1102_CG101.dwg LAYOUT NAME: CG101 GRADING AND DRAINAGE PLAN PLOTTED: Tuesday, June 17, 2025 – 12:32pm USER: CORUMJL



A1 GRADING AND DRAINAGE PLAN - AREA B

1" = 30'

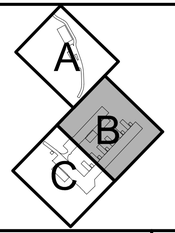
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. REFER TO SHEETS C-004 TO C-113 FOR EROSION AND SEDIMENT CONTROL INFORMATION.
2. REFER TO CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. REFER TO CS100-C2103 FOR SITE LAYOUT INFORMATION
4. REFER TO CU100-CU103 FOR UTILITY LAYOUT INFORMATION
5. REFER TO CG201-CG203 FOR STORM SEWER PROFILE INFORMATION
6. REFER TO CG301-CG304 FOR SITE SECTIONS
7. EARTH COVER OVER MAGAZINES AND ROCK CUT SHOWN WITH 2' CONTOUR INTERVAL FOR CLARITY.
8. FINISHED FLOOR ELEVATIONS FOR MAGAZINES IS REFERENCED TO LOW POINT OF FLOOR SLAB, REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
9. COORDINATES ARE TO CENTER OF STRUCTURE FOR AREA DRAINS AND MANHOLES AND CENTER OF STRUCTURE AT CURB LINE FOR COMBINATION INLETS.

KEYED NOTES

1. FOUNDATION DRAIN HEADER PIPE, REFER TO A2/CG501
2. MAGAZINE DOOR TRENCH DRAIN HEADER PIPE, REFER TO A2/CG501
3. DOUBLE STORM CATCH BASIN, REFER TO A1/CG503
4. STORM CLEAN-OUT, REFER TO C3/CU501
5. RIPRAP DRAINAGE CHANNEL, REFER TO A1/CG508
6. APPROXIMATE LIMITS OF ROCK EXCAVATION & BLASTING
7. ROCK CUT, REFER TO A1/CG509
8. PARABOLIC CONCRETE CHANNEL, REFER TO A4/CG509
9. 8" PVC PERFORATED PAVEMENT EDGE SUB-DRAIN, REFER TO C1/CS501
10. REFER TO PLUMBING FOR CONTINUATION

KEYPLAN



GRAPHIC SCALE

1"=30' 0' 30' 60'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

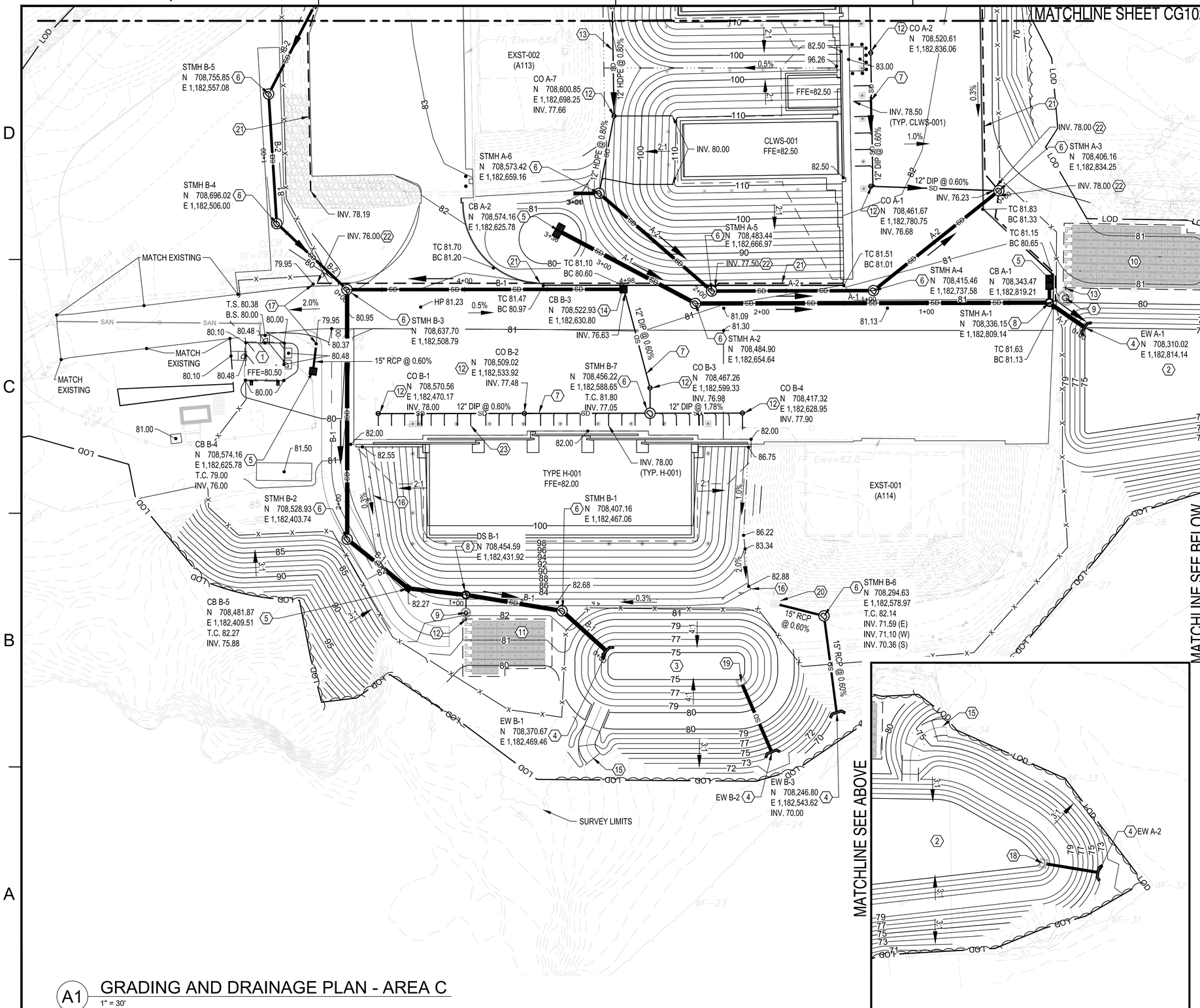
SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
DEPARTMENT OF THE NAVY
MID-ATLANTIC
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
SITE
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
CIVIL
GRADING AND DRAINAGE PLAN - AREA B

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893877
SHEET 71 OF 152
CG102

FILE NAME: C:\pw_work\dms\jcorum@jacobs.com\d0919642\P1102_CG102.dwg LAYOUT NAME: CG102 GRADING AND DRAINAGE PLAN PLOTTED: Tuesday, June 17, 2025 - 12:35pm USER: CORUMJ



A1 GRADING AND DRAINAGE PLAN - AREA C

1" = 30'

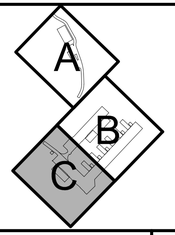
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. REFER TO SHEETS C-004 TO C-113 FOR EROSION AND SEDIMENT CONTROL INFORMATION.
2. REFER TO CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. REFER TO CS100-C2103 FOR SITE LAYOUT INFORMATION
4. REFER TO CU100-CU103 FOR UTILITY LAYOUT INFORMATION
5. REFER TO CG201-CG203 FOR STORM SEWER PROFILE INFORMATION
6. REFER TO CG301-CG304 FOR SITE SECTIONS
7. EARTH COVER OVER MAGAZINES SHOWN WITH 2' CONTOUR INTERVAL FOR CLARITY.
8. FINISHED FLOOR ELEVATIONS FOR MAGAZINES IS REFERENCED TO LOW POINT OF FLOOR SLAB, REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
9. COORDINATES ARE TO CENTER OF STRUCTURE FOR AREA DRAINS AND MANHOLES AND CENTER OF STRUCTURE AT CURB LINE FOR COMBINATION INLETS.

KEYED NOTES

1. SENTRY BUILDING (BUILDING B)
2. STORM WATER DETENTION POND A, REFER TO SHEET CG401
3. STORM WATER DETENTION AREA B, REFER TO SHEET CG402
4. END WALL, REFER TO A3/CG502
5. DOUBLE CATCH BASIN, REFER TO A1/CG503
6. STORM MANHOLE, REFER TO B1/CG501
7. MAGAZINE DOOR TRENCH DRAIN HEADER PIPE, REFER TO A2/CG501
8. FLOW DIVERSION STRUCTURE, REFER TO C1/CG508
9. HYDRODYNAMIC SEPARATOR, REFER TO C3/CG508
10. UNDERGROUND WATER QUALITY TREATMENT CHAMBER SYSTEM A, REFER TO SHEET CG504
11. UNDERGROUND WATER QUALITY TREATMENT CHAMBER SYSTEM B, REFER TO SHEET CG505
12. STORM SEWER CLEAN-OUT, REFER TO C3/CU501
13. FOUNDATION DRAIN HEADER PIPE, REFER TO A2/CG501
14. SINGLE CATCH BASIN, REFER TO A1/CG502
15. EMERGENCY SPILLWAY, REFER TO C4/CG509
16. PARABOLIC CONCRETE CHANNEL, REFER TO A4/CG509
17. ADJUST CASTING TO FINISHED GRADE ELEVATION
18. OUTLET STRUCTURE A, REFER TO SHEET CG401
19. OUTLET STRUCTURE B, REFER TO SHEET CG402
20. RECONFIGURE CATCH BASIN FOR DISCHARGE TO STMH B-6
21. 8" PVC PERFORATED PAVEMENT EDGE SUB-DRAIN, REFER TO C1/CS501
22. CONNECT PAVEMENT EDGE SUB-DRAIN TO DRAINAGE STRUCTURE, REFER TO C2/CU501
23. REFER TO PLUMBING FOR CONTINUATION

KEYPLAN



GRAPHIC SCALE

1"=30' 0' 30' 60'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25 — 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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

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

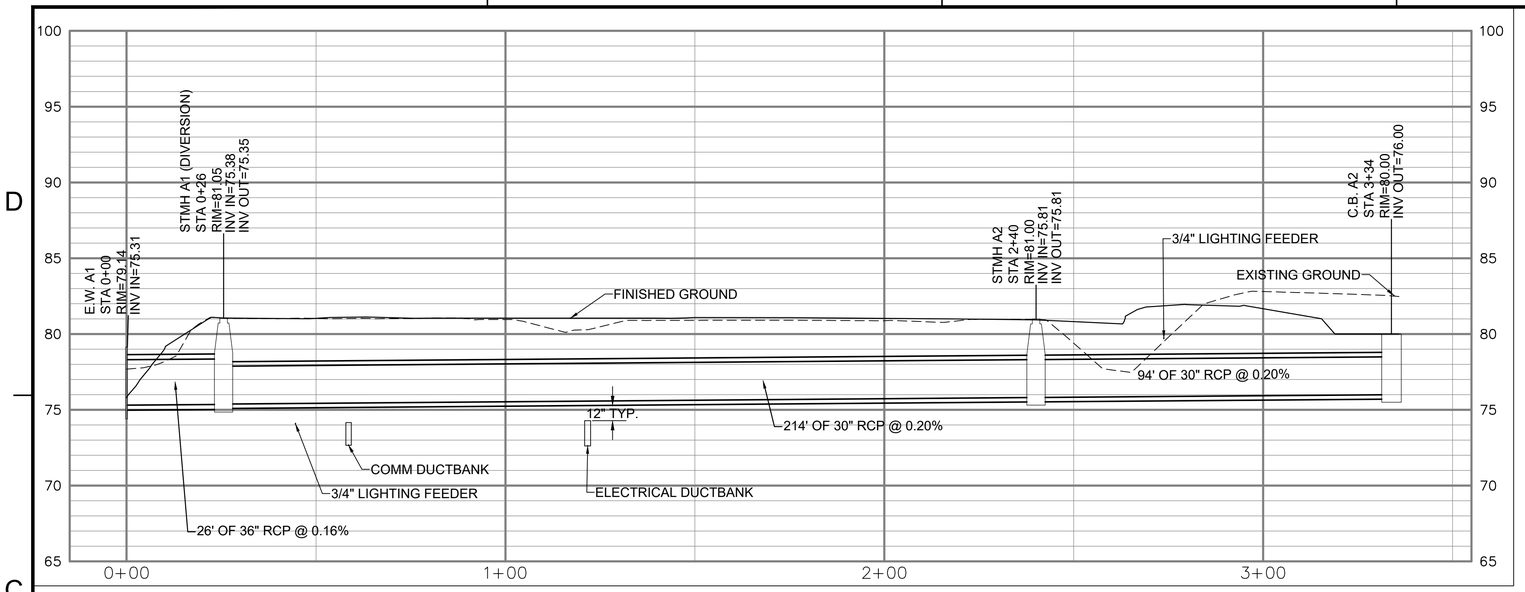
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION - NORFOLK, VA

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
GRADING AND DRAINAGE PLAN - AREA C

SCALE:	AS NOTED
EPROJECT NO.:	1667770
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12893878
SHEET	72 OF 152

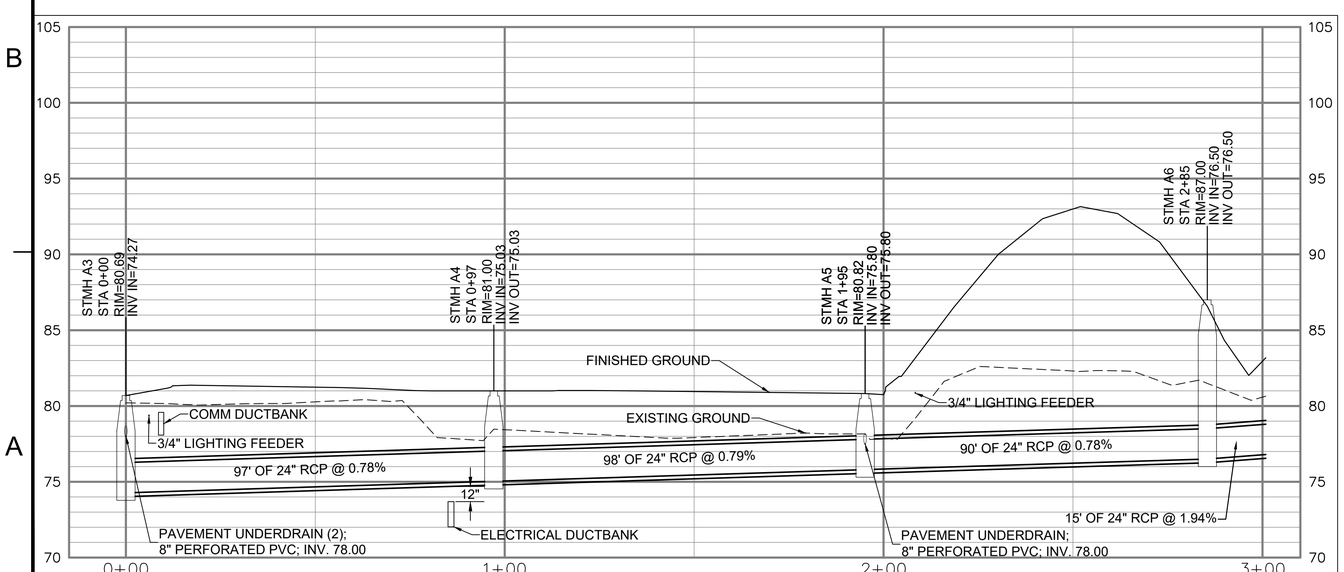
CG103

FILE NAME: C:\pw_work\dms\jdm0033\joney.corum@jacobs.com\d0919642\P1102_CG103.dwg LAYOUT NAME: CG103 GRADING AND DRAINAGE PLAN PLOTTED: Tuesday, June 17, 2025 – 12:38pm USER: CORUMJ



C1 STORM DRAIN A-1 PROFILE STA 0+00 TO 3+36

1"=5' VERTICAL; 1"=20' HORIZONTAL



A1 STORM DRAIN A-2 PROFILE STA 0+00 TO 3+01

1" = 5' VERTICAL; 1"=20' HORIZONTAL

GENERAL NOTES

A. ALL REINFORCED CONCRETE PIPE TO BE CLASS III UNLESS NOTED OTHERWISE.

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

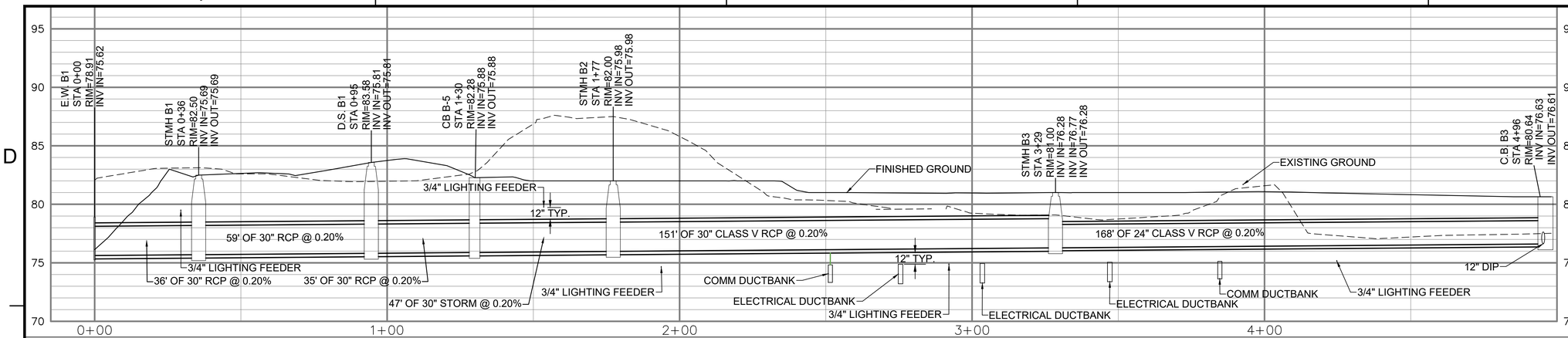
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
MID-ATLANTIC

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
STORMWATER PROFILES

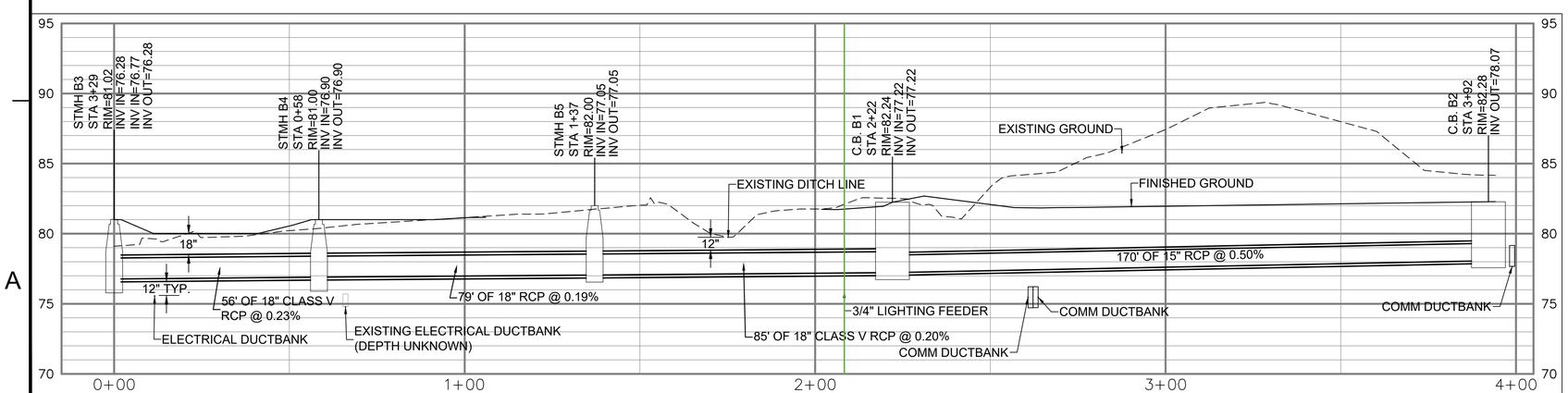
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893879
SHEET 73 OF 152
CG201

FILE NAME: C:\pw_workdir\dms003\jdiney.corum@jacobs.com\d0919642\P1102_CG201.dwg LAYOUT NAME: CG201 STORMWATER PROFILES PLOTTED: Tuesday, June 17, 2025 - 12:40pm USER: CORUMJ



C1 STORM DRAIN B-1 PROFILE STA 0+00 TO 4+87

1"=5' VERTICAL; 1"=20' HORIZONTAL



A1 STORM DRAIN B-2 PROFILE STA 0+00 TO 3+98

1"=5' VERTICAL; 1"=20'=HORIZONTAL

GENERAL NOTES

A. ALL REINFORCED CONCRETE PIPE TO BE CLASS III UNLESS NOTED OTHERWISE.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM					SMS/CWJ
BRANCH MANAGER					DLB
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

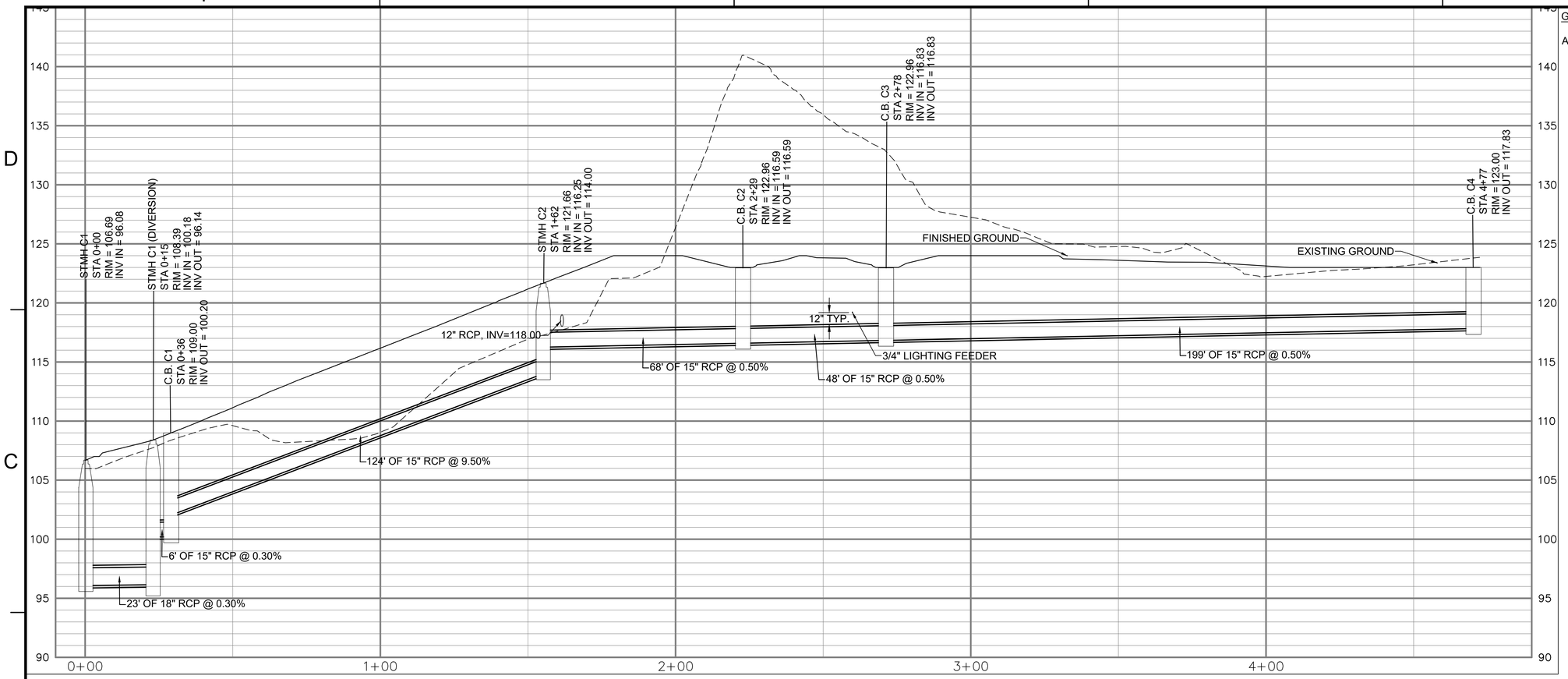
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
STORMWATER PROFILES

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

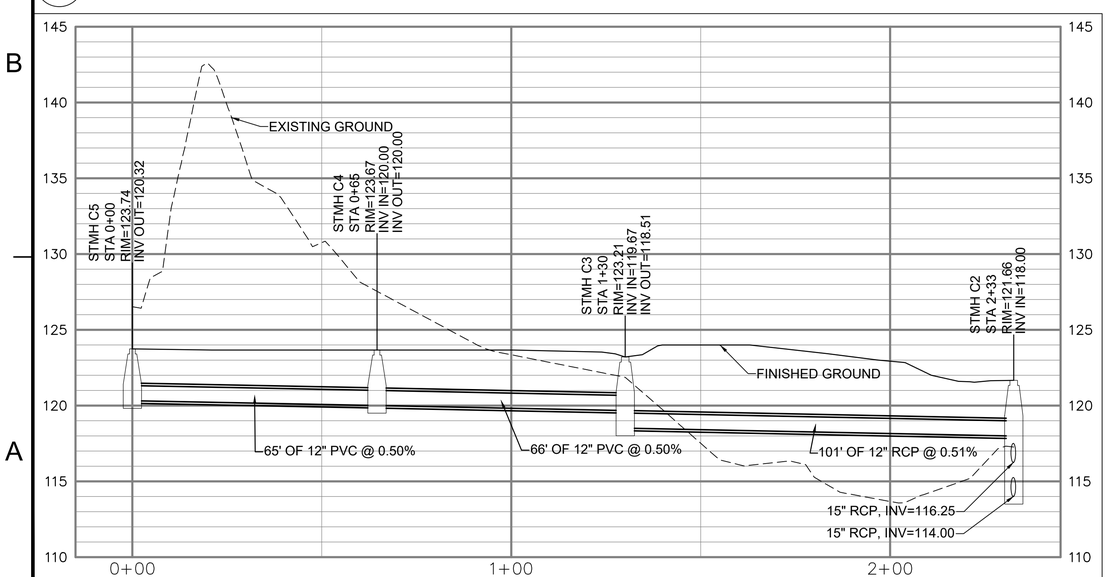
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893880
SHEET 74 OF 152
CG202

FILE NAME: C:\pw_work\dr\dev003\jdiney.corum@jacobs.com\d0919642\P1102_CG202.dwg LAYOUT NAME: CG202 STORMWATER PROFILES PLOTTED: Tuesday, June 17, 2025 – 12:41pm USER: CORUMJ



B1 STORM DRAIN C-1 PROFILE STA 0+00 TO 4+79

1"=5' VERTICAL; 1"=20' HORIZONTAL



A1 STORM DRAIN C-2 PROFILE STA 0+00 TO 2+33

1"=5' VERTICAL; 1"=20' HORIZONTAL

GENERAL NOTES

A. ALL REINFORCED CONCRETE PIPE TO BE CLASS III UNLESS NOTED OTHERWISE.

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

PM/DM	SMS/CWJ
BRANCH MANAGER	DLB
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

SITE

CIVIL

STORMWATER PROFILES

SCALE: AS NOTED

EPROJECT NO.: 1667770

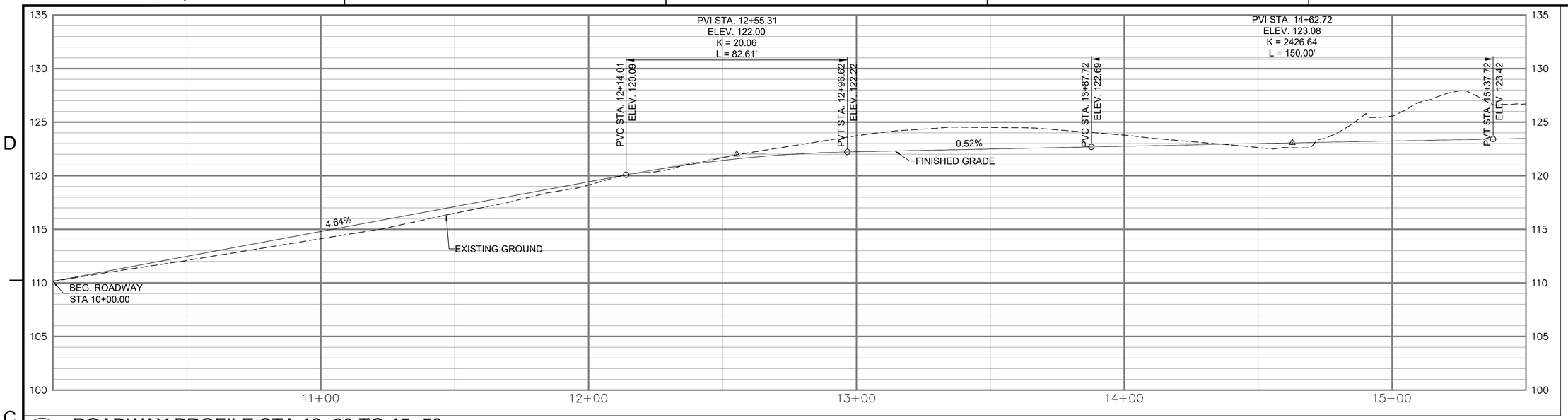
CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12893881

SHEET 75 OF 152

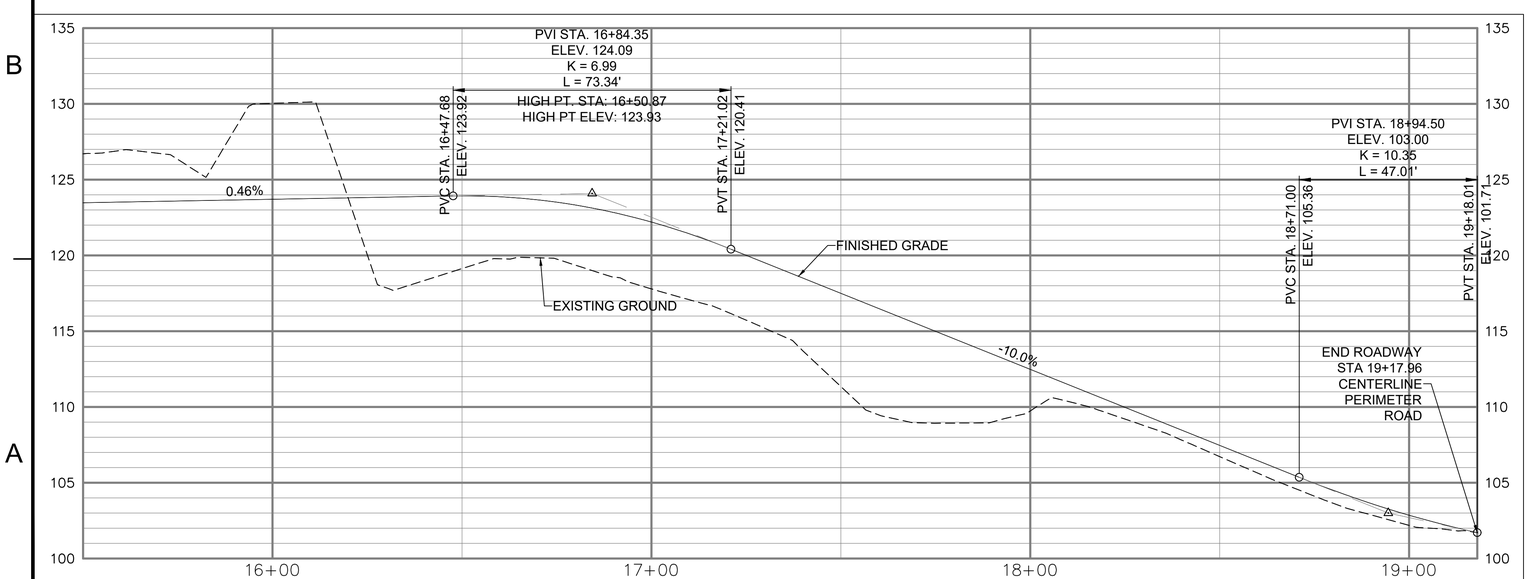
CG203

FILE NAME: C:\pw_work\dc\jdey.corum\d0919642\P1102_CG203.dwg LAYOUT NAME: CG203 STORMWATER PROFILES PLOTTED: Tuesday, June 17, 2025 - 12:42pm USER: CORUMJ



C1 ROADWAY PROFILE STA 10+00 TO 15+50

1" = 5' VERTICAL; 1"=20' HORIZONTAL



A1 ROADWAY PROFILE STA 15+50 TO 19+18

1"=5' VERTICAL; 1"=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

STM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT
JOSHUA D. CORUM
36275
LICENSED
PROFESSIONAL ENGINEER
6/23/25
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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

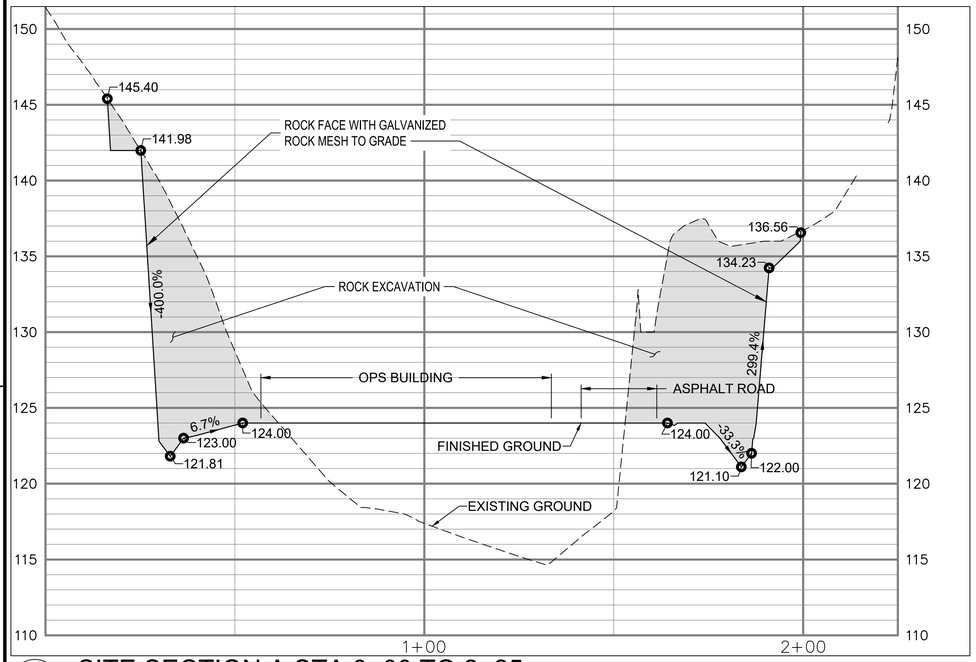
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC

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

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
ROADWAY PROFILE

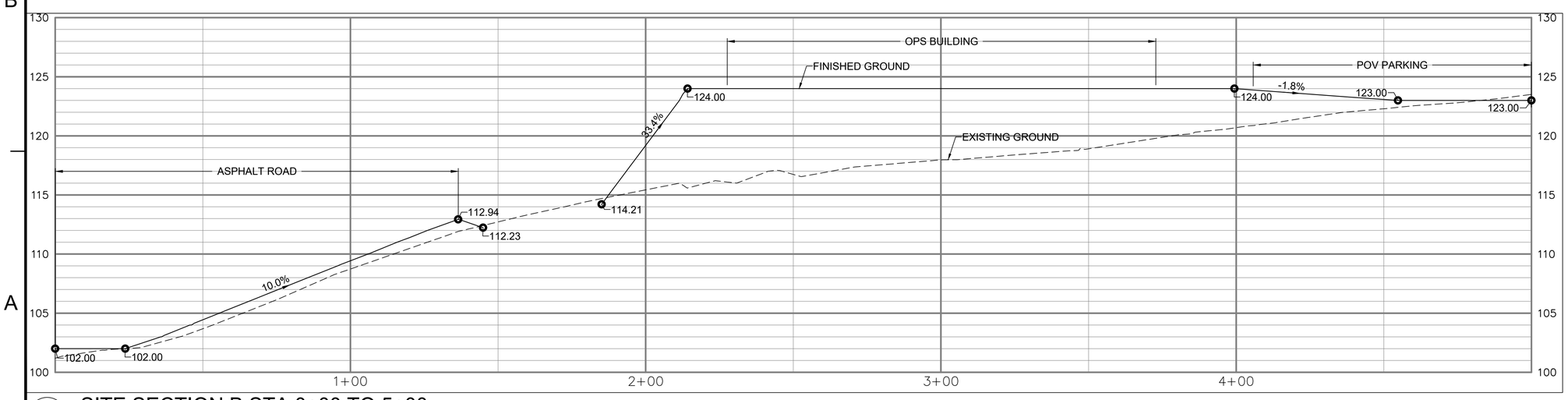
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.
12893882
SHEET 76 OF 152
CG210

FILE NAME: C:\pw_workdir\dms003\jcorum@jacobs.com\d0919642\P1102_CG210.dwg LAYOUT NAME: CG210 SITE SECTIONS PLOTTED: Tuesday, June 17, 2025 – 12:44pm USER: CORUMJ



C1 SITE SECTION A STA 0+00 TO 2+25

1" = 5' VERTICAL; 1"=20' HORIZONTAL



A1 SITE SECTION B STA 0+00 TO 5+00

1"=5' VERTICAL; 1"=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

STM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · 6/23/25 · LICENSED PROFESSIONAL ENGINEER

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

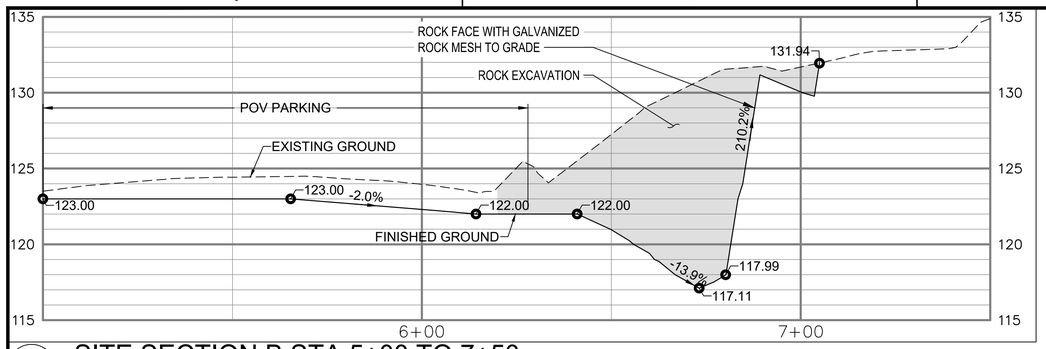
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC

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
SITE
CIVIL
SITE SECTIONS

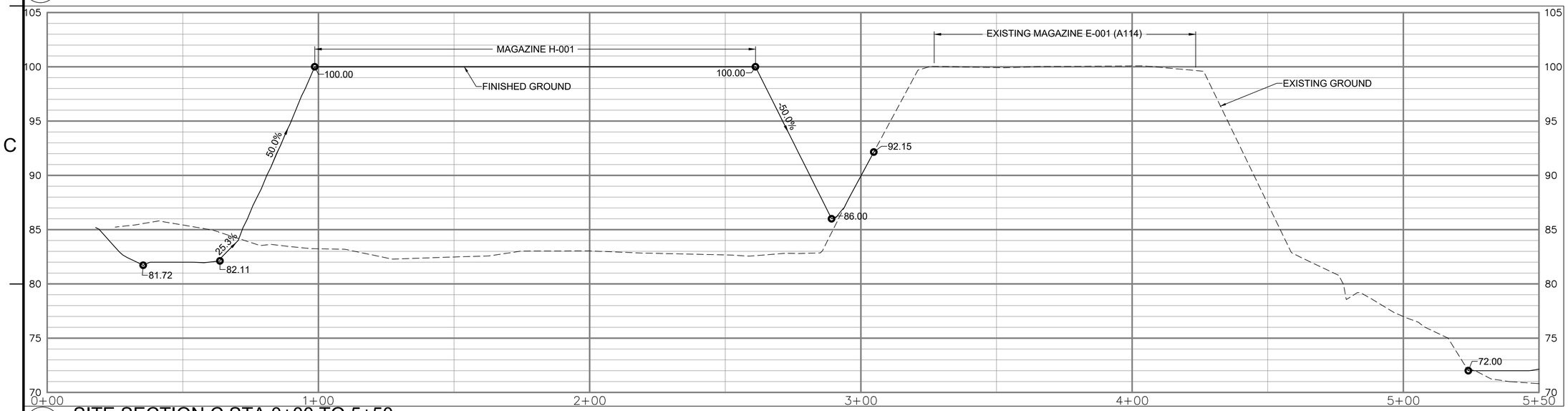
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893883
SHEET 77 OF 152
CG301

FILE NAME: C:\pw_workdir\dms003\jdiney.corum@jacobs.com\d0919642\P1102_CG301.dwg LAYOUT NAME: CG301 SITE SECTIONS PLOTTED: Tuesday, June 17, 2025 – 12:45pm USER: CORUMJ



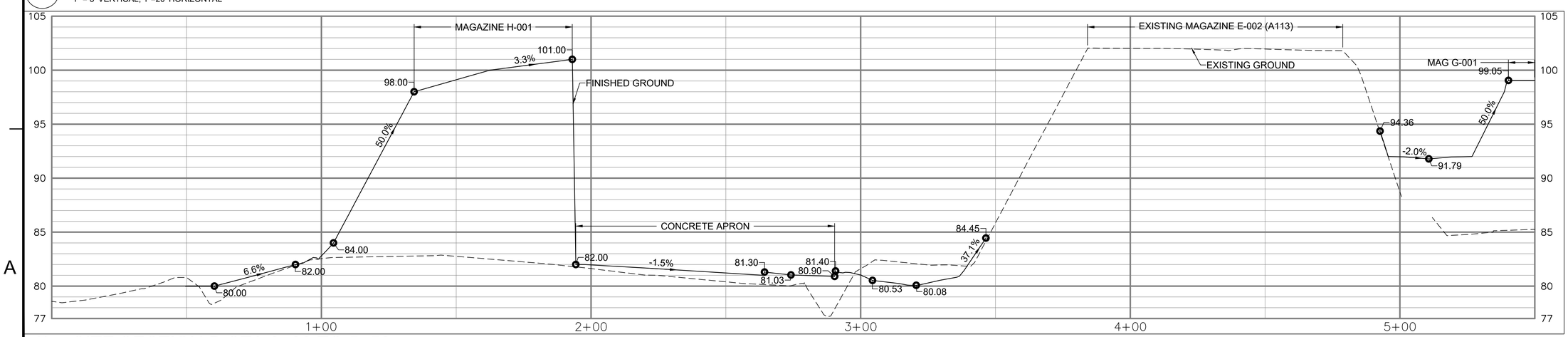
D1 SITE SECTION B STA 5+00 TO 7+50

1"=5' VERTICAL; 1'=20' HORIZONTAL



B1 SITE SECTION C STA 0+00 TO 5+50

1" = 5' VERTICAL; 1"=20' HORIZONTAL



A1 SITE SECTION D STA 0+00 TO 5+50

1" = 5' VERTICAL; 1"=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT
JOSHUA D. CORUM
36275
LICENSED PROFESSIONAL ENGINEER
6/23/25
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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

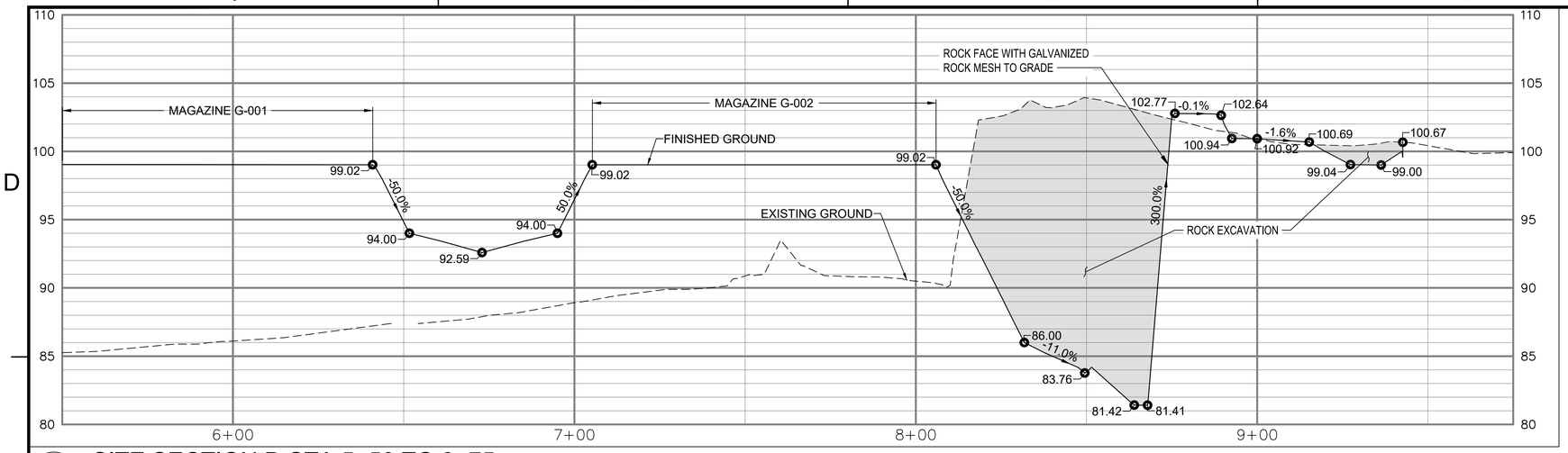
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
MID-ATLANTIC

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
SITE SECTIONS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893884
SHEET 78 OF 152

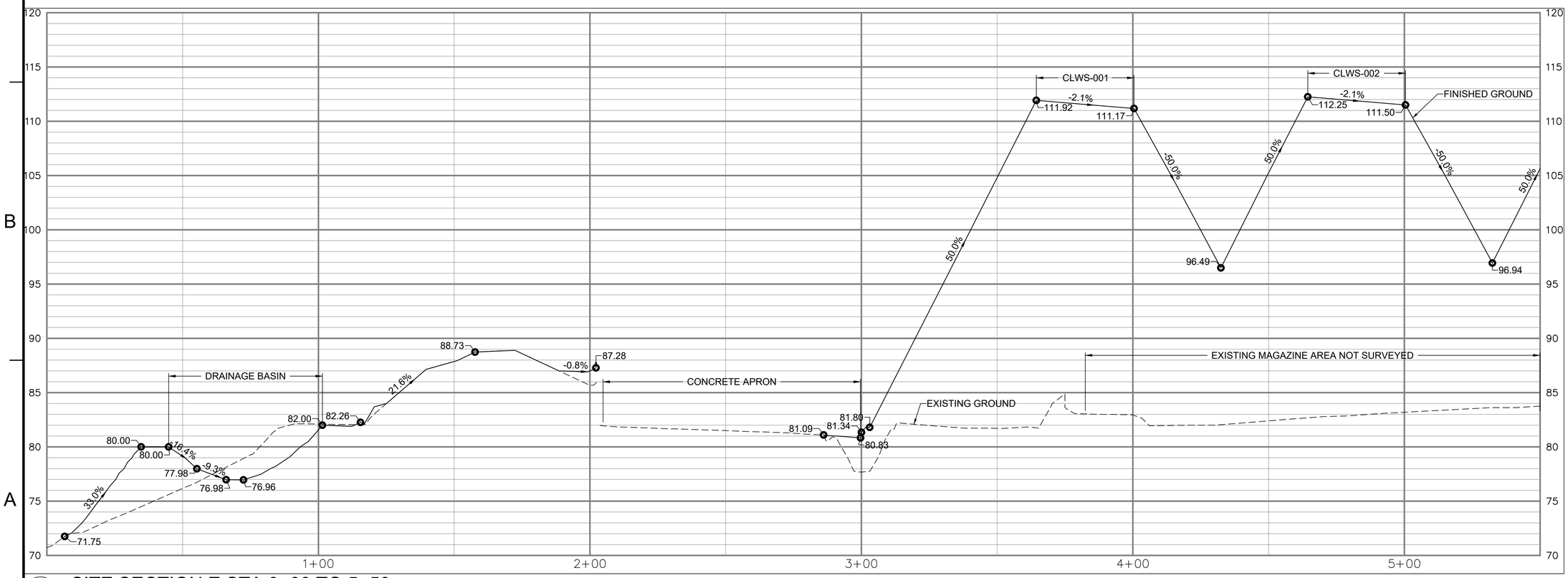
CG302

FILE NAME: C:\pw_workdir\dmr003\jdiney.corum@jacobs.com\d0919642\P1102_CG302.dwg LAYOUT NAME: CG302 SITE SECTIONS PLOTTED: Tuesday, June 17, 2025 - 12:46pm USER: CORUMJ



C1 SITE SECTION D STA 5+50 TO 9+75

1"=5' VERTICAL; 1"=20' HORIZONTAL



A1 SITE SECTION E STA 0+00 TO 5+50

1"=5' VERTICAL; 1"=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES JC	DRW NM	CHK RC	
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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

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

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT

P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE

CIVIL
SITE SECTIONS

SCALE: AS NOTED

EPROJECT NO.: 1667770

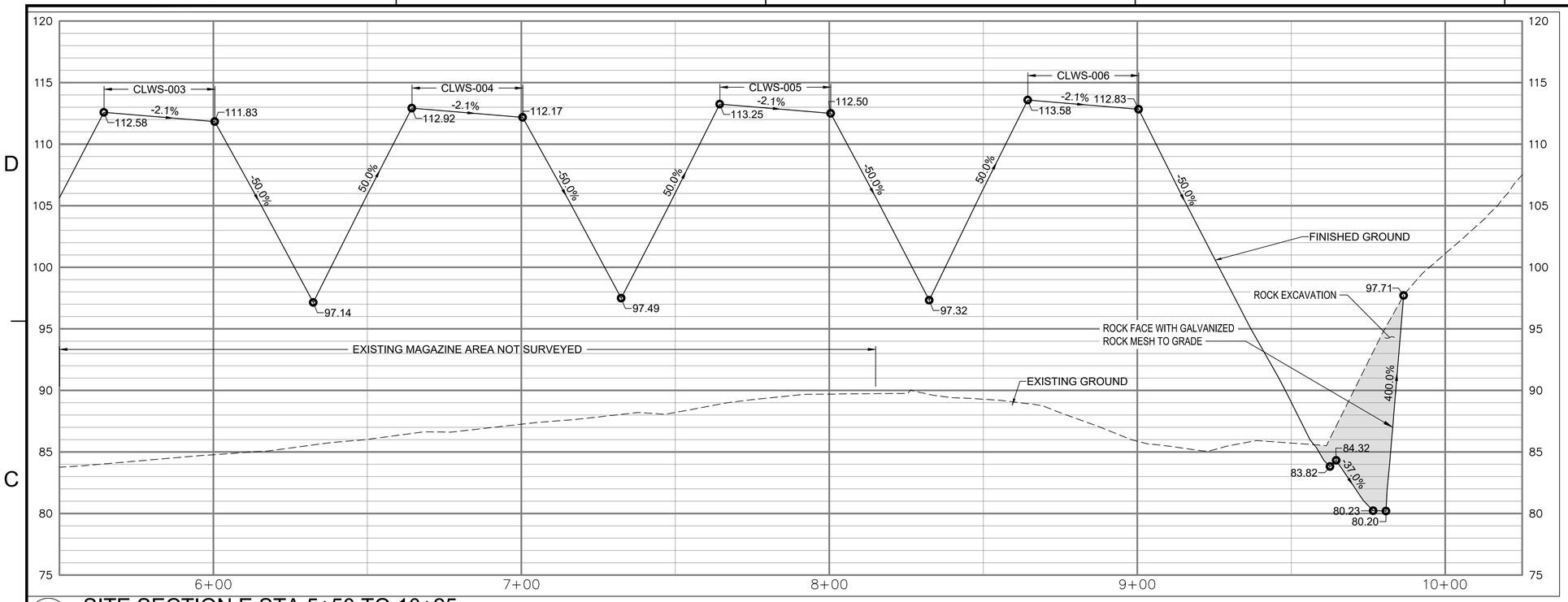
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12893885

SHEET 79 OF 152

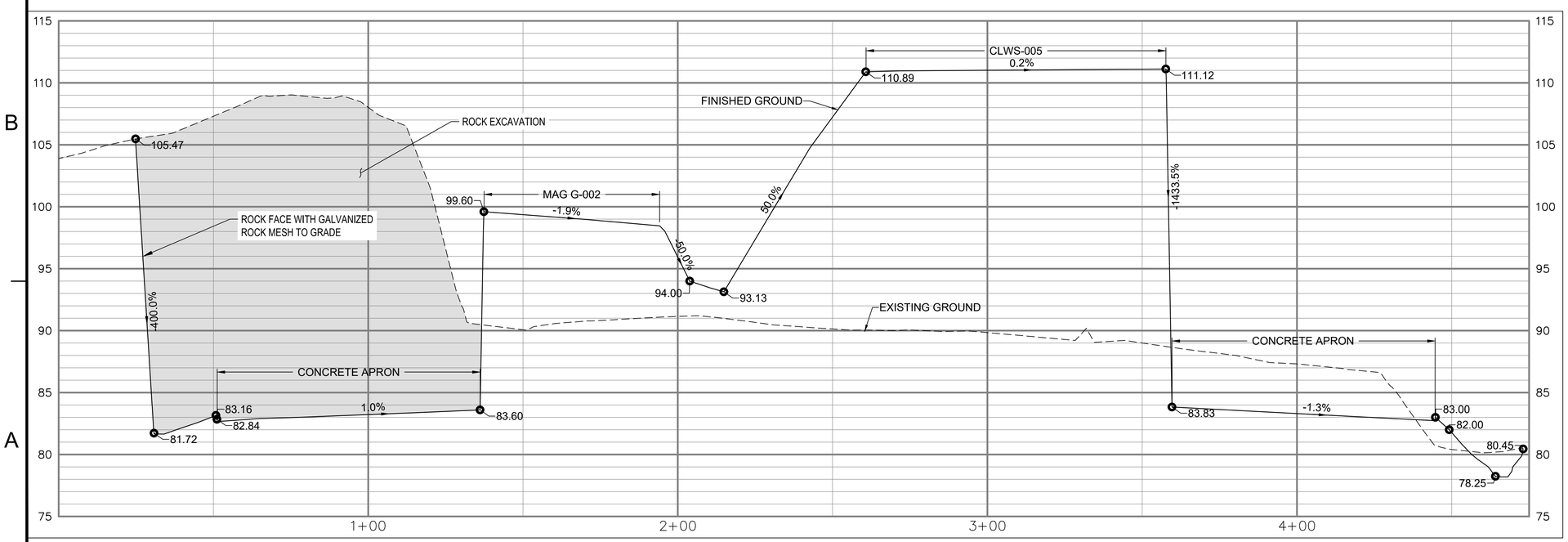
CG303

FILE NAME: C:\pw_workdir\dms003\joiney.corum@jacobs.com\d0919642\P1102_CG303.dwg LAYOUT NAME: CG303 SITE SECTIONS PLOTTED: Tuesday, June 17, 2025 - 12:47pm USER: CORUML



C1 SITE SECTION E STA 5+50 TO 10+25

1" = 5' VERTICAL; 1"=20' HORIZONTAL



A1 SITE SECTION F STA 0+00 TO 4+75

1" = 5' VERTICAL; 1"=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

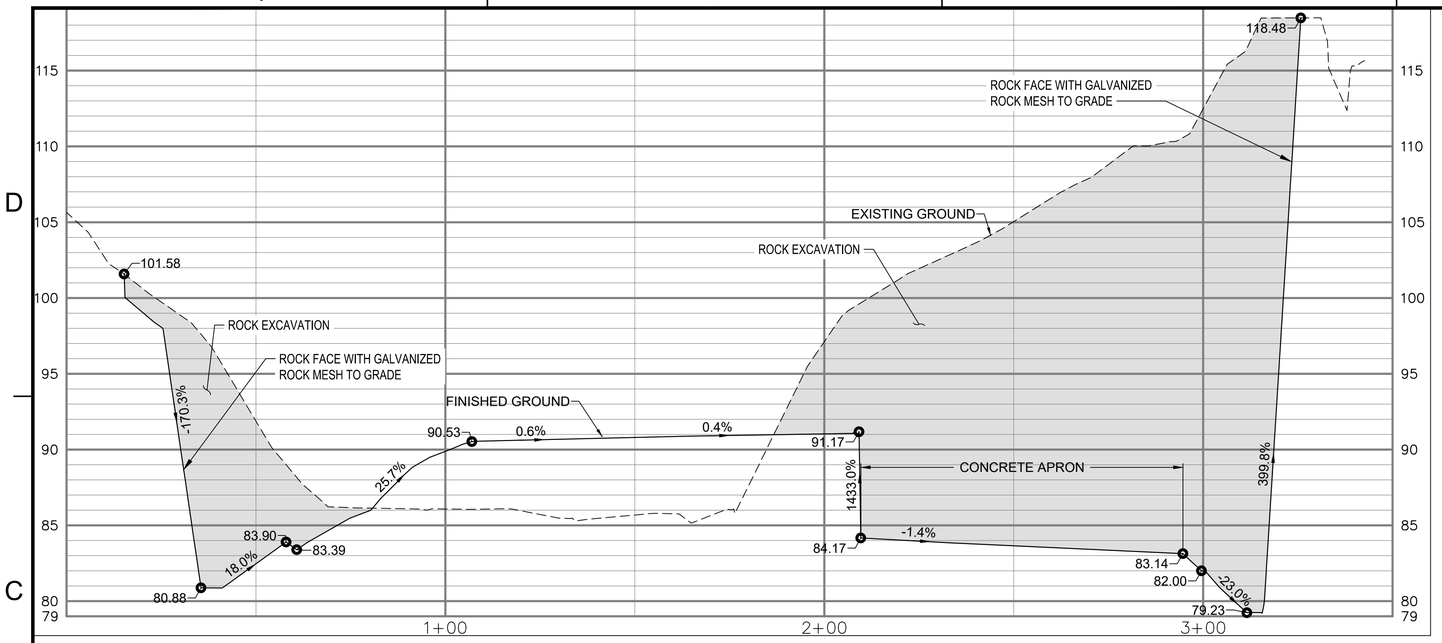
PM/DM	SMS/CWJ
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	JWJ
FIRE PROTECTION	HPN

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

SCALE:	AS NOTED
EPROJECT NO.:	1667770
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12893886
SHEET	80 OF 152

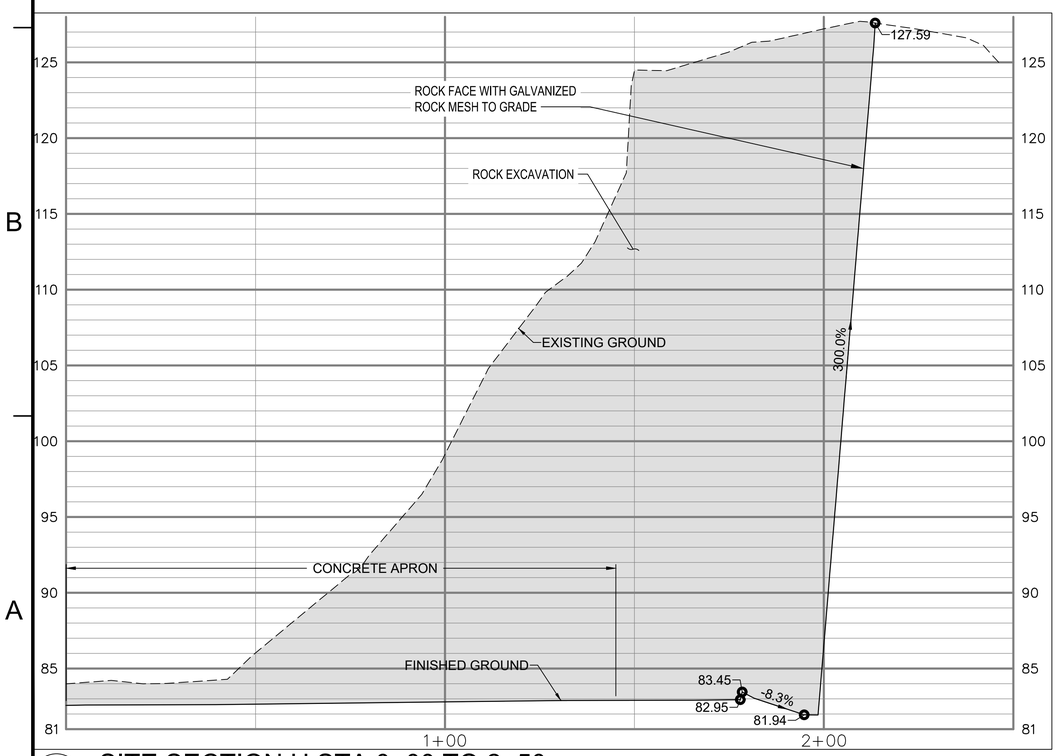
CG304

FILE NAME: C:\pw_workdir\dms003\jdoney.corum@jacobs.com\d0919642\P1102_CG304.dwg LAYOUT NAME: CG304 SITE SECTIONS PLOTTED: Tuesday, June 17, 2025 - 12:49pm USER: CORUMJ



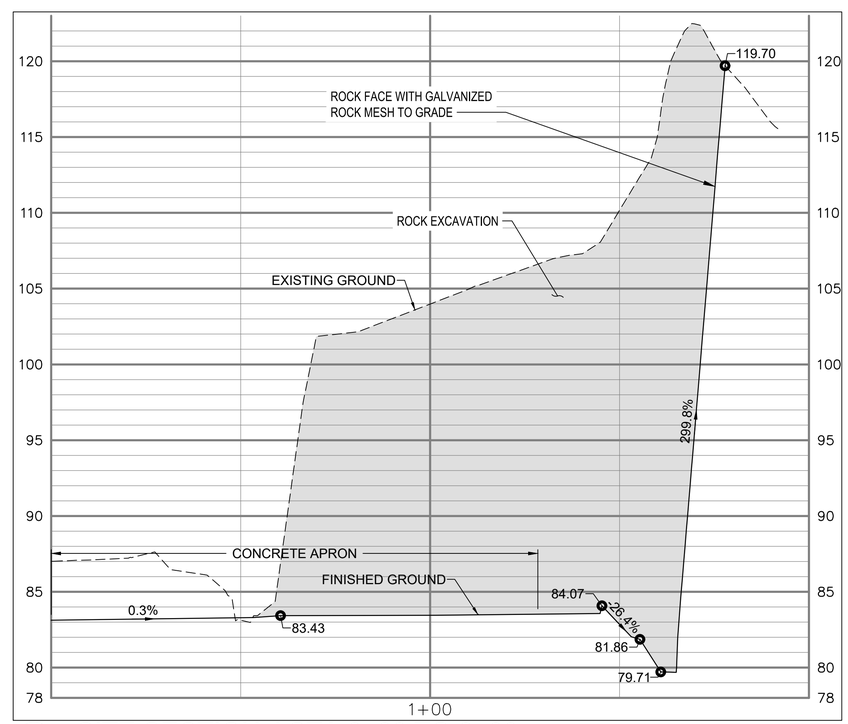
C1 SITE SECTION G STA 0+00 TO 3+50

1"=5' VERTICAL; 1"=20' HORIZONTAL



A1 SITE SECTION H STA 0+00 TO 2+50

1"=5' VERTICAL; 1'=20' HORIZONTAL



A3 SITE SECTION J STA 0+00 TO 2+00

1"=5' VERTICAL; 1'=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

STM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

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

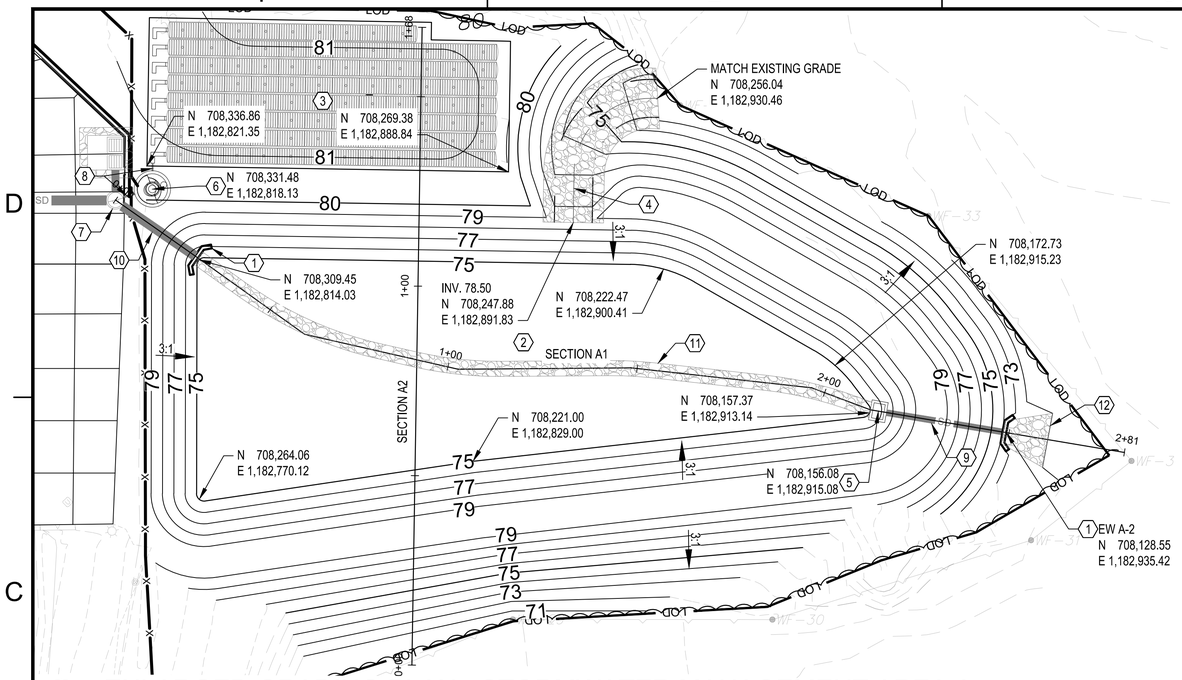
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION - NORFOLK, VA

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

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893887
SHEET 81 OF 152

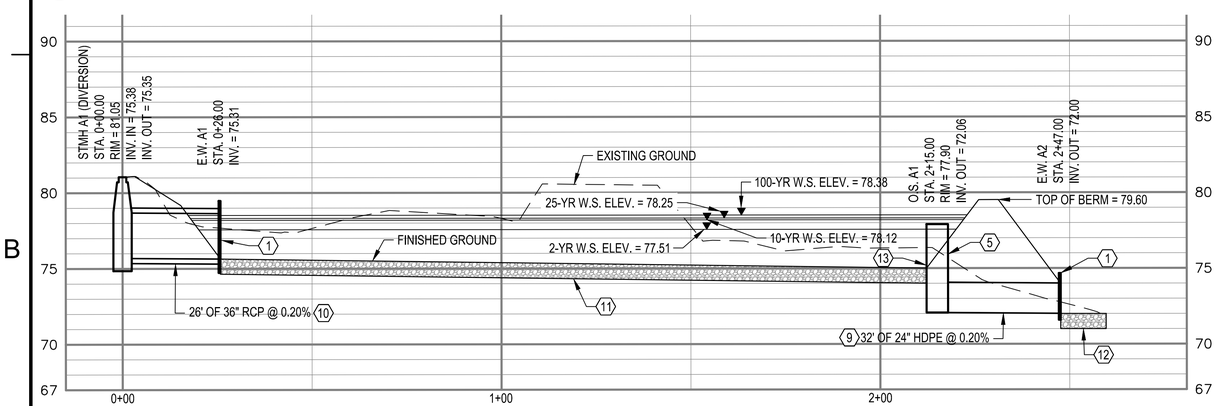
CG305

FILE NAME: C:\pw_workdir\dms003\jdriney.corum@jacobs.com\d0919642\P1102_CG305.dwg LAYOUT NAME: CG305 SITE SECTIONS PLOTTED: Tuesday, June 17, 2025 – 12:50pm USER: CORUMJ



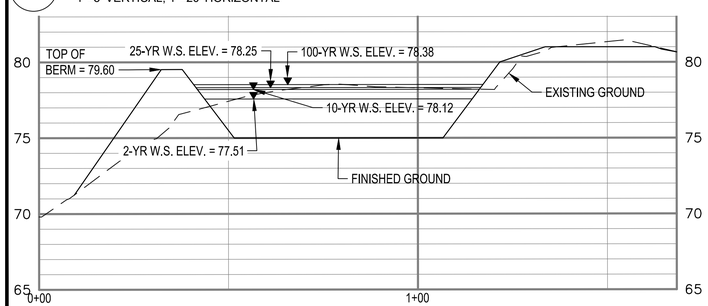
C1 ENLARGED GRADING PLAN - STORMWATER MANAGEMENT AREA A

1" = 20'



B1 STORMWATER MANAGEMENT AREA A - SECTION A1 STA 0+00 TO 2+81

1"=5' VERTICAL; 1"=20' HORIZONTAL



A1 STORMWATER MANAGEMNT AREA A - SECTION A2 STA 0+00 TO 1+68

1"=5' VERTICAL; 1"=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. REFER TO SHEETS C-004 TO C-113 FOR EROSION AND SEDIMENT CONTROL INFORMATION.

KEYED NOTES

1. END WALL, REFER TO A3/CG502
2. STORM WATER MANAGEMENT AREA A
3. STORM WATER TREATMENT CHAMBER SYSTEM 1, REFER TO CG504
4. EMERGENCY SPILLWAY, REFER TO C4/CG509
5. OUTLET STRUCTURE, REFER TO A3/CG508
6. HYDRO SEPARATOR, REFER TO C3/CG508
7. DIVERSION STORM MANHOLE, REFER TO C1/CG508
8. 12" HDPE STORM DRAIN
9. 24" HDPE STORM DRAIN
10. 36" RCP STORM DRAIN
11. RIPRAP PILOT CHANNEL, REFER TO A3/CG509
12. RIPRAP OUTLET PROTECTION, REFER TO EROSION CONTROL SHEETS
13. 4.5" DIAMETER LOW FLOW ORIFICE, INVERT 75.00

GRAPHIC SCALE

1"=20' 0' 10' 20' 40'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

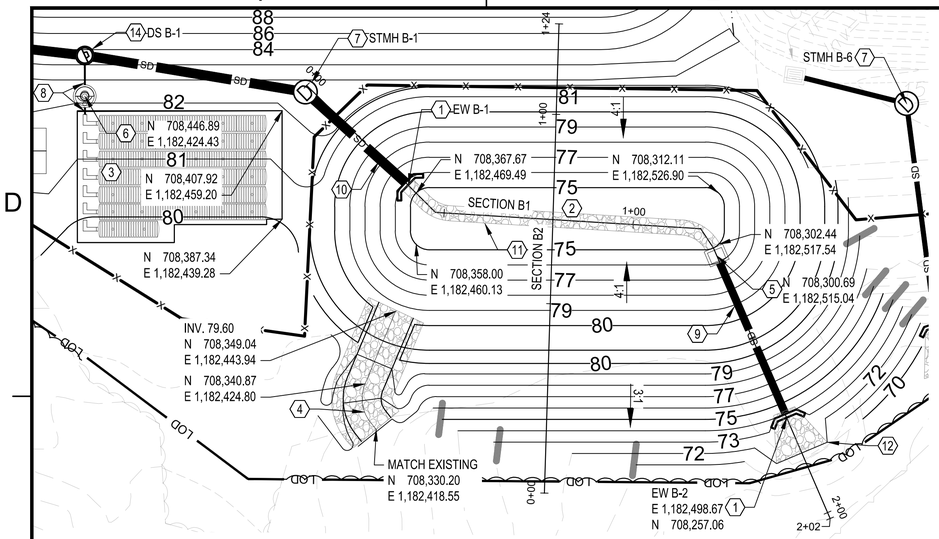
SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
MID-ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
ENLARGED GRADING PLANS & SECTIONS

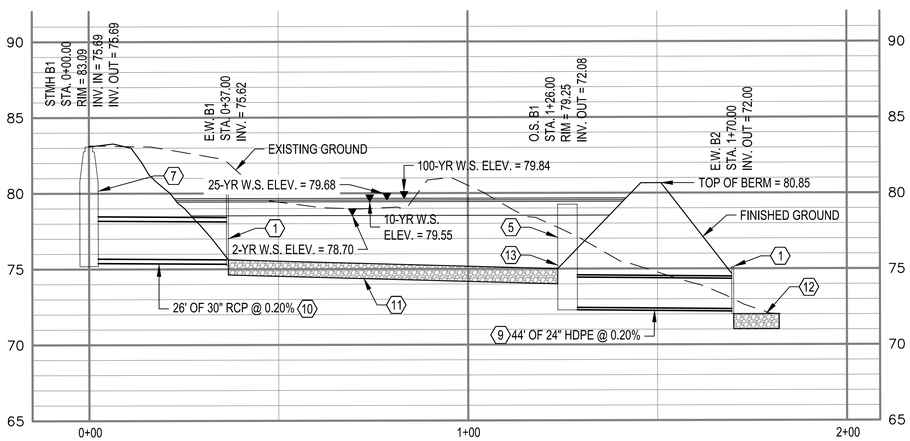
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893888
SHEET 82 OF 152
CG401

FILE NAME: C:\pw_work\d\jdar0037\joney.corum@jacobs.com\d0919642\P1102_CG401 ENLARGED GRADING PLAN LAYOUT NAME: CG401 PLOTTED: Tuesday, June 17, 2025 – 12:52pm USER: CORUMJ



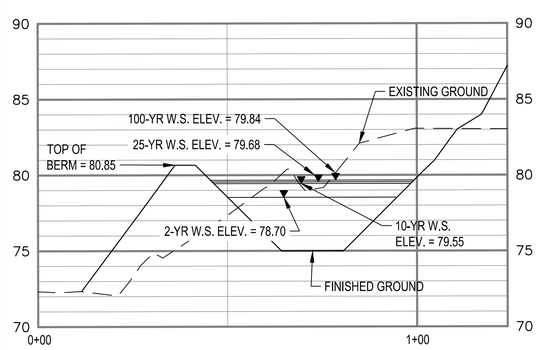
C1 ENLARGED GRADING PLAN - STORM MANAGEMENT AREA B

1" = 20'



B1 STORMWATER MANAGEMENT AREA B - SECTION B1 STA 0+00 TO 2+02

1"=5' VERTICAL; 1"=20' HORIZONTAL



A1 STORMWATER MANAGEMENT AREA B - SECTION B2 STA 0+00 TO 1+24

1"=5' VERTICAL; 1"=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. REFER TO SHEETS C-004 TO C-113 FOR EROSION AND SEDIMENT CONTROL INFORMATION.

KEYED NOTES

1. END WALL, REFER TO A3/CG502
2. STORM WATER MANAGEMENT AREA B
3. STORM WATER TREATMENT CHAMBER SYSTEM 2, REFER TO CG505
4. EMERGENCY SPILLWAY, REFER TO C4/CG509
5. OUTLET STRUCTURE, REFER TO A3/CG508
6. HYDRODYNAMIC SEPARATOR, REFER TO C3/CG508
7. STORM MANHOLE, REFER TO B1/CG501
8. 8" HDPE STORM DRAIN
9. 24" HDPE STORM DRAIN
10. 30" RCP STORM DRAIN
11. RIPRAP PILOT CHANNEL, REFER TO A3/CG509
12. RIPRAP OUTLET PROTECTION, REFER TO EROSION CONTROL SHEETS
13. 6.5" DIAMETER LOW FLOW ORIFICE, INVERT 75.00
14. FLOW DIVERSION STRUCTURE, REFER TO C1/CG508

GRAPHIC SCALE

1"=20' 0' 10' 20' 40'

PLAN NORTH

STM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

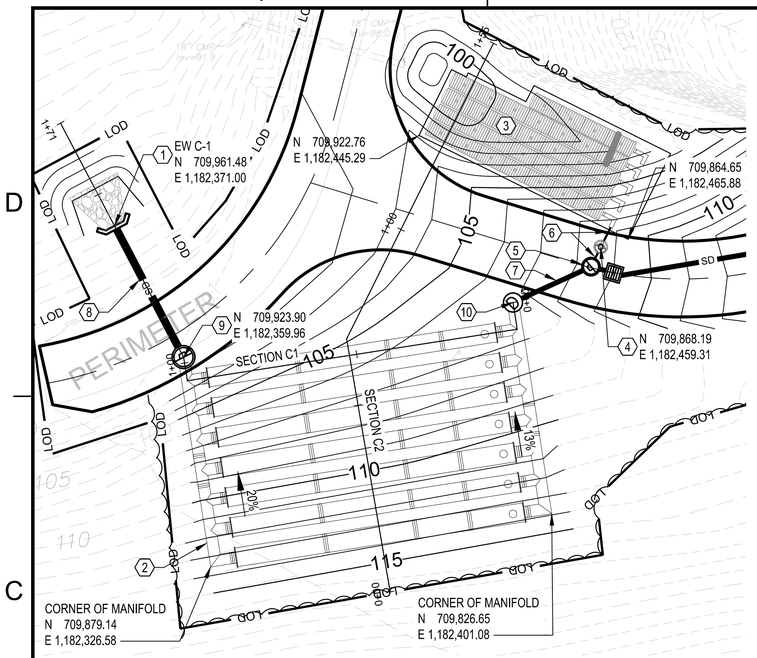
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
ENLARGED GRADING PLANS & SECTIONS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893889
SHEET 83 OF 152
CG402

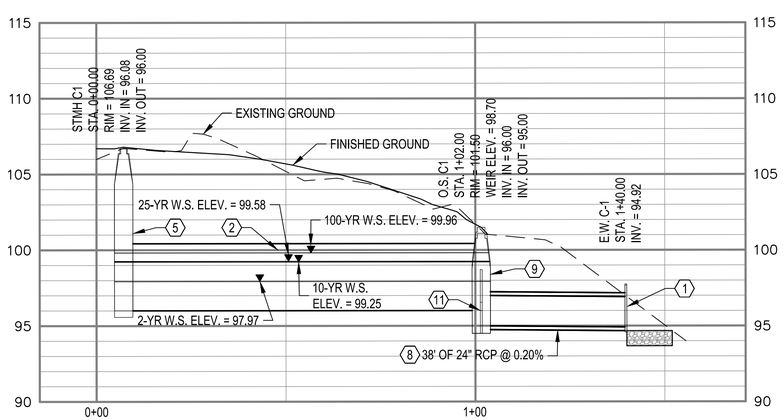
FILE NAME: C:\pw_work\d\jdoe003\joiney.corum@jacobs.com\d0919642\P1102_CG402.dwg LAYOUT NAME: CG402 ENLARGED GRADING PLAN PLOTTED: Tuesday, June 17, 2025 - 12:53pm USER: CORUMJ

ORIGINAL



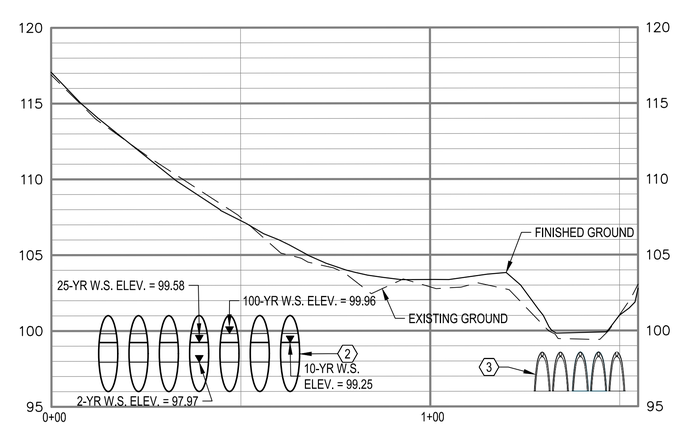
C1 ENLARGED GRADING PLAN - STORMWATER MANAGEMENT AREA C

1" = 20'



A1 SECTION C1 STA 0+00 TO 1+71

1"=5' VERTICAL; 1"=20' HORIZONTAL



A2 SECTION C2 STA 0+00 TO 1+55

1"=5' VERTICAL; 1"=20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. REFER TO SHEETS C-004 TO C-113 FOR EROSION AND SEDIMENT CONTROL INFORMATION.

KEYED NOTES

1. END WALL, REFER TO A3/CG502
2. UNDERGROUND DETENTION CHAMBER SYSTEM AREA C, REFER TO CG507
3. STORM WATER TREATMENT CHAMBER SYSTEM 3, REFER TO CG506
4. HYDRODYNAMIC SEPARATOR C, REFER TO C3/CG508
5. DIVERSION MANHOLE, REFER TO C1/CG508
6. 6" HDPE STORM DRAIN
7. 18" HDPE STORM DRAIN
8. 24" RCP STORM DRAIN, COORDINATE WITH SECURITY FORCES ON INSTALLATION OF PIPE UNDER PERIMETER SECURITY FENCE
9. OUTLET STRUCTURE C, REFER TO A1/CG507
10. STORM WATER MANHOLE, REFER TO B1/CG501
11. 6.5" LOW FLOW ORIFICE, INV. 96.00

GRAPHIC SCALE

1"=20' 0' 10' 20' 40'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · 6/23/25 · LICENSED PROFESSIONAL ENGINEER

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 8/14/2025

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

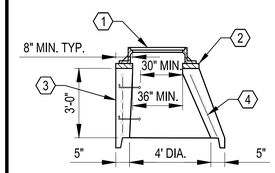
SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

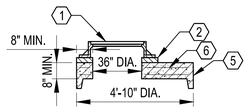
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION - NORFOLK, VA
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
ENLARGED GRADING PLANS & SECTIONS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893890
SHEET 84 OF 152
CG403

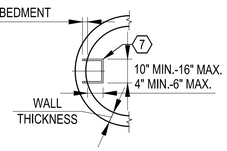
FILE NAME: C:\pw_work\dms\jdm0033\joincy.corum@jacobs.com\d0919f42\P1102_CG403.dwg LAYOUT NAME: CG403 ENLARGED GRADING PLAN PLOTTED: Tuesday, June 17, 2025 - 12:55pm USER: CORUMJ



ECCENTRIC CONE SECTION



FLAT SLAB TOP FOR RISER SECTION



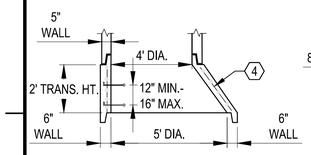
STEP DETAIL

GENERAL NOTES:

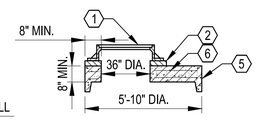
1. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE.

2. SEE DETAIL C4 THIS SHEET FOR MANHOLE FRAME AND COVER DETAIL.

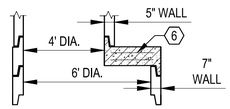
1. FRAME AND COVER (SEE NOTE 2)
2. ADJUST TO GRADE WITH MAX. OF 4 COURSES OF BRICK OR GRADE RINGS
3. PRECAST REINFORCED CONCRETE MANHOLE ECCENTRIC CONE
4. WELDED WIRE FABRIC
5. FLATTOP
6. REINFORCEMENT
7. COPOLYMER POLYPROPYLENE PLASTIC STEP WITH METAL CORE
8. OPENINGS AROUND OUTSIDE OF PIPE MUST BE SEALED WITH RESILIENT CONNECTOR
9. LIFTING HOLES (TYP.), FILL WITH MORTAR
10. PRECAST REINFORCED CONCRETE TONGUE AND GROOVE RISERS.
11. BUTYL RUBBER JOINT SEAL
12. KNOCKOUTS FOR PIPES MIN. 4" FROM TOP & BOTTOM OF BASE OR RISER (TYPICAL)
13. CONCRETE INVERT, REFER TO PLAN SHEETS



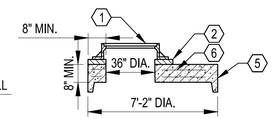
TRANSITION SECTION



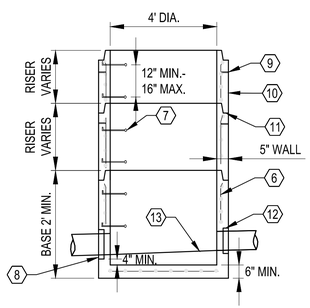
FLAT SLAB TOP FOR RISER SECTION



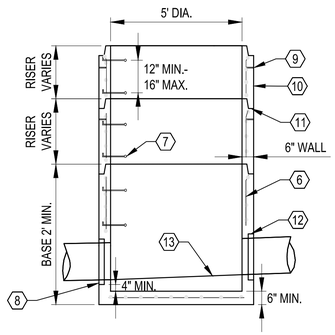
REDUCER SECTION



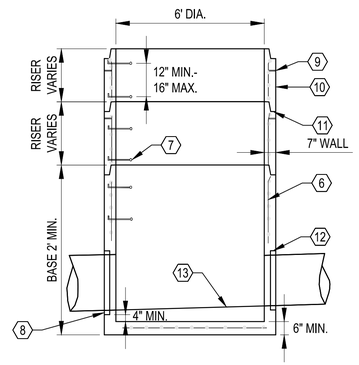
FLAT SLAB TOP FOR RISER SECTION



4' DIA. REINFORCED PRECAST CONCRETE MANHOLE SECTION



5' DIA. REINFORCED PRECAST CONCRETE MANHOLE SECTION

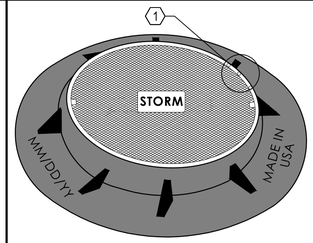


6' DIA. REINFORCED PRECAST CONCRETE MANHOLE SECTION

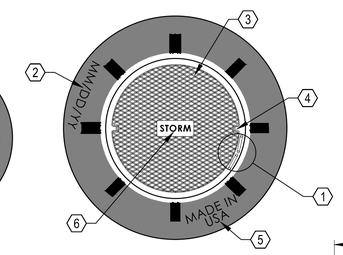
PRECAST CONCRETE MANHOLE (B1)

SCALE: NTS

CG101 CG501
CG102
CG103

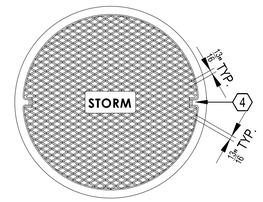


MANHOLE FRAME AND COVER

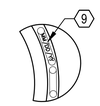


PLAN

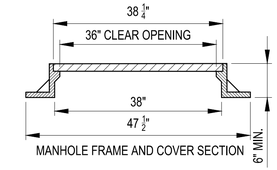
PROVIDE EXTRA HEAVY DUTY FRAME AND COVER MEETING AASHTO M306 PROOF LOAD FOR MANHOLES LOCATED WITHIN MAGAZINE CONCRETE APRONS.



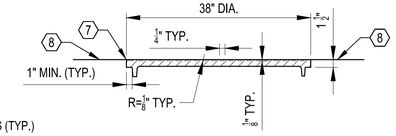
MANHOLE COVER PLAN



DETAIL "A"



MANHOLE FRAME AND COVER SECTION



MANHOLE COVER SECTION

1. SEE DETAIL "A"
2. 3/8" NUMBERS CASTING DATE: MM/DD/YY (TYP.)
3. NON-SKID DIAMOND PATTERN, SEE DETAIL
4. PICK HOLE (TYP.)
5. 1/2" LETTERS
6. 2" IMPRINT LETTERS (TYP.)
7. DIAMOND TREAD SET FLUSH WITH ROADWAY
8. ROADWAY
9. CASTING IMPRINT MM/DD/YY

MANHOLE FRAME AND COVER (C4)

SCALE: NTS

CG101 CG501
CG102
CG103

1. 4,000 PSI CONCRETE SPLASH BLOCK
2. FINISHED GRADE
3. STRUCTURE WALL
4. DOWNSPOUT

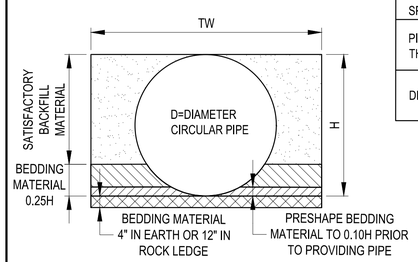
PRECAST CONCRETE SPLASH BLOCK (A1)

SCALE: NTS

CG101 CG501
CG103

TRENCH WIDTH (TW) CHART

PIPE OR DRAINAGE STRUCTURE	TRENCH WIDTH
PIPE OR PIPE-ARCH WITH NOMINAL INSIDE HORIZONTAL SPAN LESS THAN 30"	2' GREATER THAN NOMINAL INSIDE HORIZONTAL SPAN
PIPE WITH DIAMETER GREATER THAN OR EQUAL TO 30"	3' GREATER THAN NOMINAL INSIDE HORIZONTAL SPAN
DRAINAGE STRUCTURES	2' BEYOND EXTERIOR OR FOUNDATION WALLS

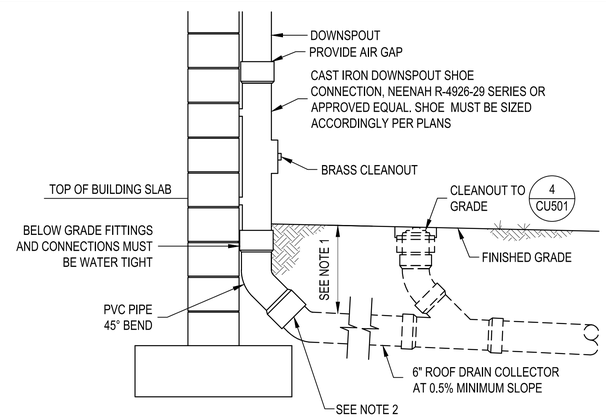


PIPE TRENCH FOR PIPES LESS THAN 48"

DRAINAGE TRENCH EXCAVATION (A2)

SCALE: NTS

CG101 CG501
CG102
CG103



NOTES:

1. FOR DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.
2. A WATERTIGHT CONNECTION MUST BE MAINTAINED WITH TRANSITION FROM DUCTILE IRON TO OTHER PIPE MATERIAL.
3. DOWNSPOUT COLLECTOR DRAIN MUST BE INSTALLED BEFORE DOWNSPOUTS ARE INSTALLED ON BUILDING. GENERAL CONTRACTOR MUST BE RESPONSIBLE FOR DOWNSPOUT COLLECTORS, GUTTERS, DOWNSPOUTS, BOOTS AND DRAINS.
4. LOCATIONS OF DOWNSPOUT COLLECTORS SHOWN ON THE PLAN ARE APPROXIMATE.

DOWNSPOUT CONNECTION (A4)

SCALE: NTS

CG101 CG501

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25 — 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 — 8/14/2025

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

SATISFACTORY TO — DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

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

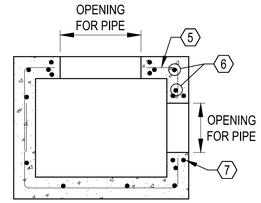
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893891
SHEET 85 OF 152

CG501

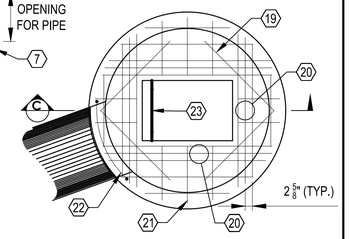
FILE NAME: C:\pw_workdir\dms0035\joiney.corum@jacobs.com\d0919642\P1102_CG501.dwg LAYOUT NAME: CG501 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 – 12:56pm USER: CORUMJ

GENERAL NOTES:

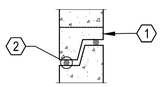
1. WELDED WIRE FABRIC WITH AN AREA GREATER THAN REINFORCING SHOWN MAY BE SUBMITTED FOR APPROVAL.
2. REINFORCEMENT MUST HAVE A MINIMUM CLEAR COVER OF 2 INCHES, EXCEPT FOR BENEATH BOTTOM REINFORCEMENT IN TOP SLABS, WHERE MINIMUM MAY BE 1½ INCHES.
3. INCREASE WALL THICKNESS OF CATCH BASINS OVER 10 FEET DEEP TO 12 INCHES. INSIDE DIMENSIONS MUST REMAIN THE SAME. THE 12 INCH THICKNESS MUST START AFTER FIRST 10 FEET.
4. RISERS MAY BE PREFABRICATED WITH PIPE OPENINGS IN FOUR WALLS. PROVIDE REQUIRED REINFORCING AROUND PIPE OPENINGS. RISERS USED WHERE A PIPE OPENING IS TO REMAIN IN PLACE MUST BE FORMED UP WITH BRICK.
5. RISERS MUST NEVER HAVE CORNER PIPE ENTRIES. USE ROUND STRUCTURES WHEN PIPES CANNOT ALIGN WITH A RECTANGULAR STRUCTURE KNOCKOUT.
6. PROVIDE SHRINKAGE AND TEMPERATURE REINFORCEMENT IN TOPS OF SLABS. TOTAL AREA OF REINFORCEMENT PROVIDED MUST BE AT LEAST 0.125 SQUARE INCHES PER FOOT IN EACH DIRECTION. MAXIMUM SPACING OF THIS REINFORCEMENT MUST NOT EXCEED 18 INCHES.
7. FOR CATCH BASIN TOPS, REFER TO DETAIL C3 THIS SHEET.



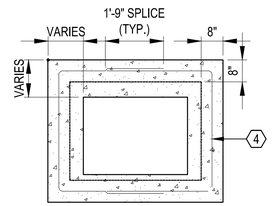
TYPICAL SECTION THROUGH RISER WITH OPENING



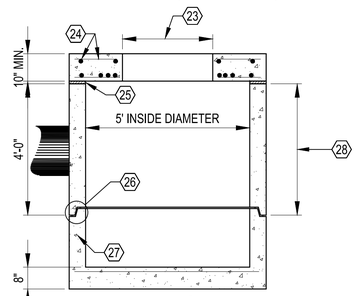
PLAN (REFER TO NOTE 7)


SHIP LAP JOINT DETAIL (FOR USE WITH ROUND STRUCTURES ONLY)

BUTYL RUBBER JOINT DETAIL

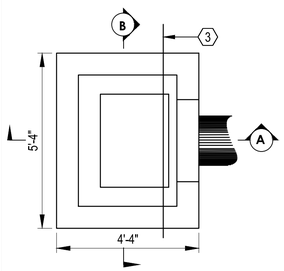


REDUCER SECTION (TYP.)

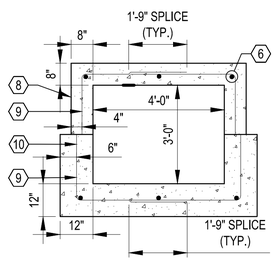


SECTION C

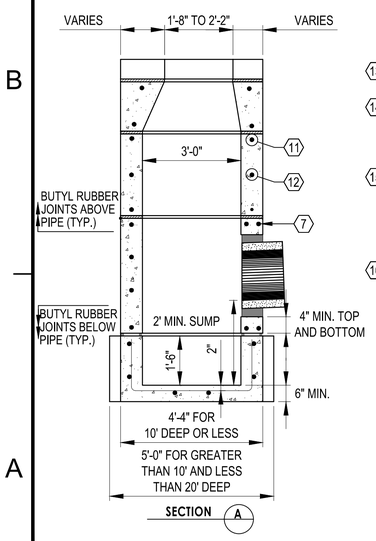
PRECAST CONCRETE ROUND STRUCTURE (REFER TO NOTE 5)



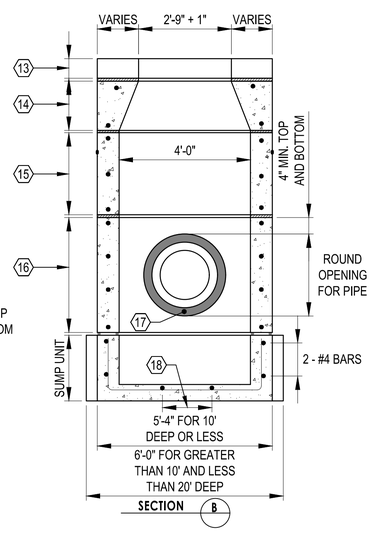
PLAN



RISER SECTION (TYP.)



SECTION A



SECTION B

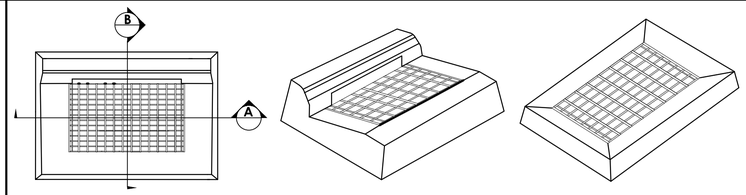
PRECAST CONCRETE CATCH BASIN (UNDER 10' DEEP SHOWN)

1. 2" MINIMUM AT KNOCKOUTS FOR PIPES
2. BUTYL RUBBER EACH FACE
3. CURB LINE
4. #4 BARS TOP AND BOTTOM
5. MAINTAIN SPACING OF CIRCUMFERENTIAL STEEL AT KNOCKOUTS (CUT TO FIT)
6. PLACE VERTICAL STEEL TO HOLD CIRCUMFERENTIAL STEEL IN POSITION DURING CASTING (TYP.)
7. 2 - #4 BARS AROUND ENTIRE OPENING, 1 EACH FACE (TYP.)
8. CATCH BASINS 10' DEEP OR LESS
9. MINIMUM CIRCUMFERENTIAL STEEL AREA MUST BE 0.20 SQUARE INCHES PER FOOT
10. CATCH BASINS GREATER THAN 10' AND LESS THAN 20' DEEP (REFER TO NOTE 3)
11. #4 BAR TOP AND BOTTOM OF RISER
12. FOR MINIMUM CIRCUMFERENTIAL STEEL REFER TO RISER SECTION
13. SPACER 2" MIN. TO 6" MAX. MUST BE PRECAST WITH REQUIRED REINFORCING
14. REDUCER 6", 8", 12", 18" 2 - #4 BARS TOP AND BOTTOM OF SECTION. FOR 18" REDUCER ADD 1 ADDITIONAL #4 BAR AT MID-HEIGHT.
15. RISER 24", 30", 36", 42", AND 48"
16. RISER 24", 30", 36", 42", AND 48" WITH OPENINGS
17. 6" MIN. CLEARANCE AROUND ENTIRE OUTER DIAMETER OF PIPE SIZE AT OPENING
18. 2 - #4 BARS EVENLY SPACED BOTH DIRECTIONS
19. 4 ADDITIONAL #4 X 3' LONG TOP AND BOTTOM AROUND OPENING
20. 3 - #5 BOTTOM (TYP.)
21. #5 AT 12' ON BOTTOM (TYP.)
22. PROVIDE 1 - #4 BAR AROUND ENTIRE OPENING MIDDLE OF WALL (TOP AND BOTTOM LEGS CURVED)
23. FOR THIS DIMENSION REFER TO REDUCER DIMENSIONS IN SECTIONS A AND B
24. REFER TO NOTE 6
25. BUTYL JOINT
26. REFER TO SHIP LAB JOINT DETAIL
27. MINIMUM WALL THICKNESS MUST BE $\frac{1}{12}$ INSIDE DIAMETER
28. CIRCUMFERENTIAL REINFORCEMENT TOTAL AREA PER LINEAR FOOT MUST NOT BE LESS THAN 0.0025 TIMES INSIDE DIAMETER IN INCHES

PRECAST CONCRETE CATCH BASIN (A1)

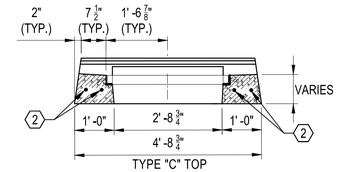
SCALE: NTS

CG101 CG502 CG103

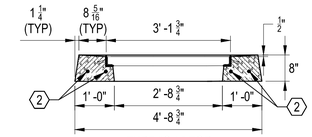

TYPE "C" TOP PLAN

TYPE "C" TOP

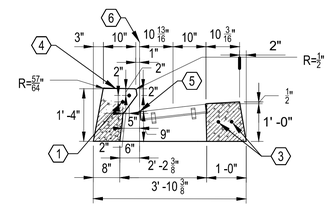
TYPE "C-L" TOP



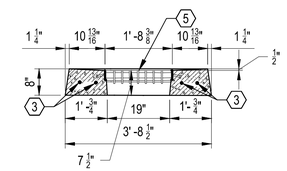
TYPE "C" TOP SECTION A



TYPE "C-L" TOP SECTION C



TYPE "C" TOP FOR 6" CONCRETE CURB SECTION B

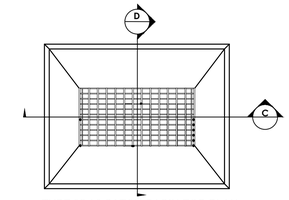


TYPE "C-L" TOP SECTION D

GENERAL NOTES:

1. SEE SHEET HW-586_08, FOR CATCH BASIN FRAMES AND GRATES AND HW-586_09 FOR CATCH BASIN LOCK DOWN TOPS.
2. SEE SHEET HW-586_01, CATCH BASIN AND DROP INLET TYPES "C" AND "C-L" TO DETERMINE THE TOP OF FRAME DEPRESSION AT THE GUTTER.
3. BARS MUST HAVE A MINIMUM 2" COVER.
4. MANUFACTURING DIMENSIONAL TOLERANCE TABLE

DIMENSION (D)	ALLOWABLE TOLERANCE
D < 5"	± ¼"
5" < D < 10"	± ½"
D > 10"	± 1"

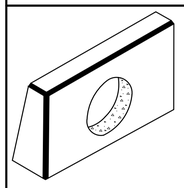

TYPE "C-L" CATCH BASIN TOP PLAN

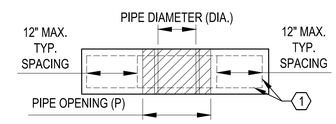
1. 2-#4 BARS 4'-0" LONG
2. 2-#4 BARS 3'-2" LONG
3. 2-#4 BARS 4'-2" LONG
4. PITCH $\frac{57}{64}$" PER FT.
5. TOP OF THE FRAME
6. CURB LINE

CATCH BASIN TOPS (C3)

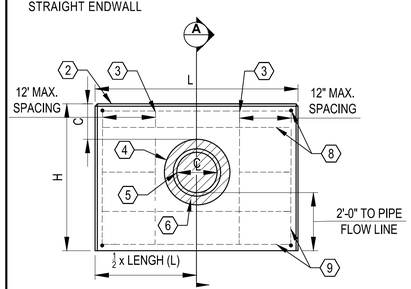
SCALE: NTS

CG101 CG502 CG103

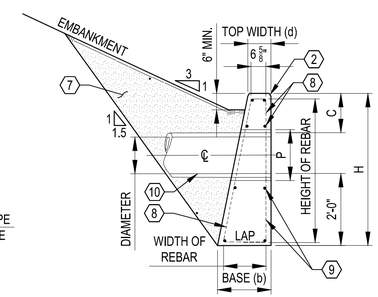

STRAIGHT ENDWALL



PLAN



FRONT ELEVATION



SECTION A

GENERAL NOTES:

1. PIPE OPENING DIMENSIONS ARE NOMINAL (SEE CHART)*.
2. REINFORCING BARS MUST HAVE 3' COVER MIN.
3. TIE REINFORCING BARS, DO NOT WELD.
4. WET SETTING OF STEEL IS NOT PERMITTED.
5. REINFORCING STEEL MUST CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60 AND MUST BE GALVANIZED IN ACCORDANCE WITH ASTM A767, CLASS I.

1. NO. 4 BENT BARS, SEE CHART BELOW
2. 1" CHAMFER EXPOSED EDGES
3. NO. 4 BAR 3" FROM PIPE OPENING
4. PIPE OPENING (P)
5. PIPE DIAMETER (DIA.)
6. GROUT PIPE OPENINGS
7. PERVIOUS STRUCTURAL BACKFILL
8. NO. 4 BARS (3" MIN. COVER), SEE CHART BELOW
9. HORIZONTAL AND VERTICAL BARS MUST HAVE MAX. 12" SPACING. STOP BOTH HORIZONTAL AND VERTICAL BARS 3" FROM PIPE OPENING.
10. FLOW LINE

STANDARD ENDWALL DIMENSIONS

PIPE DIAMETER (DIA.)	CLEARANCE (C)	*PIPE OPENINGS (P)	CONCRETE TOTAL HEIGHT (H)	LENGTH (L)	TOP WIDTH (d)	BASE (b)	VOL. C.Y.	PIPE DIAMETER (DIA.)	REINFORCING STEEL: NO. 4 BENT BARS	REINFORCING STEEL: NO. 4 BARS - (NOMINAL LENGTH)	REINFORCING STEEL: HEIGHT OF REBAR	REINFORCING STEEL: WIDTH OF REBAR
IN.	IN.	IN.	FT-IN.	FT-IN.	FT-IN.	FT-IN.		IN.	EA.	EA.	FT-IN.	FT-IN.
12"	14"	20"	4'-6"	4'-6"	1'-3"	2'-0"	1.10	12"	4	10 - (4'-0")	4'-0"	1'-5 1/4"
15"	14"	24"	4'-9"	5'-6"	1'-3"	2'-0"	1.39	15"	6	12 - (5'-0")	4'-3"	1'-5 1/4"
18"	14"	26"	5'-0"	6'-6"	1'-3"	2'-0"	1.75	18"	6	12 - (6'-0")	4'-6"	1'-6 1/4"
24"	14"	32"	5'-6"	8'-6"	1'-6"	2'-3"	2.87	24"	8	12 - (8'-0")	5'-0"	1'-7 1/4"
30"	12"	42"	6'-0"	10'-6"	1'-9"	2'-3"	3.98	30"	8	14 - (10'-0")	5'-6"	1'-8 1/4"

ENDWALLS (A3)

SCALE: NTS

CG101 CG502 CG102 CG103

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25 — 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 — 8/14/2025

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

SATISFACTORY TO — DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
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 — SITE — CIVIL — GRADING & DRAINAGE DETAILS

SCALE: AS NOTED

EPROJECT NO.: 1667770

CONSTR. CONTR. NO.

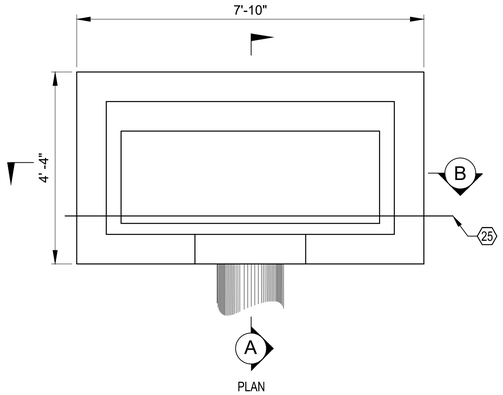
NAVFAC DRAWING NO. 12893892

SHEET 86 OF 152

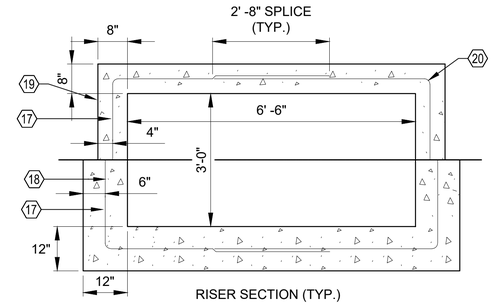
CG502

FILE NAME: C:\pw_workdir\dms003\jbiney.corum@jacobs.com\d0919642\P1102_CG502.dwg LAYOUT NAME: CG502 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 – 12:57pm USER: CORUMJ

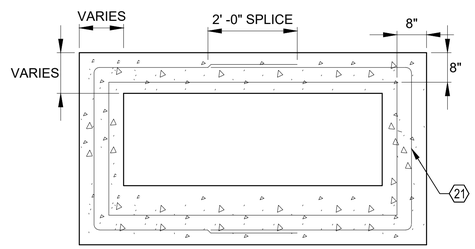
1. 4'-4" FOR 10' DEEP OR LESS
2. 5'-0" FOR GREATER THAN 10' AND LESS THAN 20' DEEP, FOR 20' DEPTH AND GREATER, REFER TO GENERAL NOTE 4
3. 4" MIN. TOP AND BOTTOM
4. 4 - #5 BARS EVENLY SPACED BOTH DIRECTIONS
5. 2 - #4 BARS AROUND ENTIRE KNOCKOUT (1 EACH FACE) (TYP.)
6. FOR MINIMUM CIRCUMFERENTIAL STEEL SEE RISER SECTION
7. #6 BARS TOP AND BOTTOM OF RISER
8. 2' MIN. SUMP
9. 6" MIN. CLEARANCE AROUND ENTIRE OUTER DIAMETER OF PIPE SIZE AT OPENING
10. RISER 24", 30", 36", 42", 48" WITH OPENINGS
11. RISER 24", 30", 36", 42", 48"
12. REDUCERS 6" , 8" , 12" , 18" 2 - #5 BARS SPACED AS SHOWN, FOR 18" REDUCER ADD 1-ADD'L #5 BARS AT MID-HEIGHT
13. SPACER 2" MIN. TO 6" MAX. MUST BE CONCRETE MASONRY UNITS OR PRECAST WITH REQUIRED REINFORCING
14. 4" MIN. TOP AND BOTTOM
15. SQUARE OPENING FOR PIPE
16. 2 - #6 BARS
17. MINIMUM CIRCUMFERENTIAL STEEL AREA MUST BE 0.44 SQUARE INCHES PER FOOT
18. CATCH BASINS GREATER THAN 10' AND LESS THAN 20' DEEP (SEE GENERAL NOTE 3 AND 4)
19. CATCH BASINS 10' DEEP OR LESS
20. PLACE VERTICAL STEEL TO HOLD CIRCUMFERENTIAL STEEL IN POSITION DURING CASTING (TYP.)
21. #5 BARS TOP AND BOTTOM (MIDDLE OF RISER WALL)
22. OPENING FOR PIPE
23. MAINTAIN SPACING OF CIRCUMFERENTIAL STEEL AT OPENING (CUT TO FIT)
24. 2 - #4 BARS AROUND ENTIRE OPENING (1 EACH FACE) (TYP.)
25. GUTTER LINE



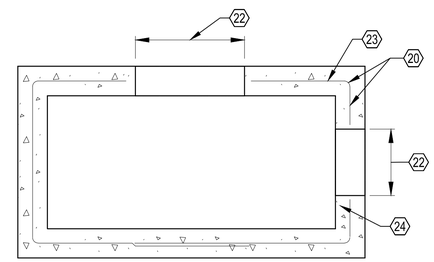
PLAN



RISER SECTION (TYP.)



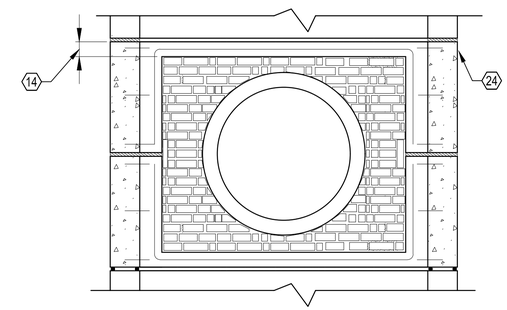
REDUCER SECTION (TYP.)



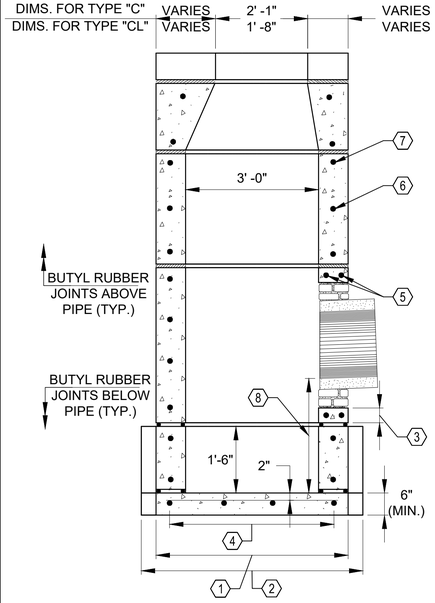
TYPICAL SECTION THROUGH SINGLE RISER WITH OPENINGS

GENERAL NOTES:

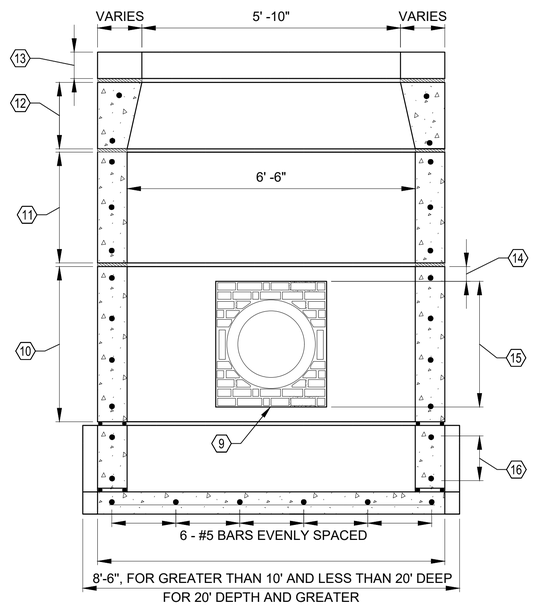
1. WELDED WIRE FABRIC WITH AN AREA GREATER THAN REINFORCING SHOWN MAY BE SUBMITTED FOR APPROVAL.
2. REINFORCEMENT MUST HAVE A MINIMUM CLEAR COVER OF 2 INCHES EXCEPT FOR BENEATH BOTTOM REINFORCEMENT IN TOP SLABS, WHERE MINIMUM MAY BE 1½ INCHES.
3. WALL THICKNESS OF CATCH BASINS OVER 10 FEET DEEP MUST BE INCREASED TO 12 INCHES. INSIDE DIMENSIONS MUST REMAIN THE SAME. 12 INCH THICKNESS MUST START AFTER THE FIRST 10 FEET.
4. BASES AND RISERS AT A DEPTH OF 20 FEET AND GREATER MUST BE DESIGNED BY THE CONTRACTOR AND WORKING DRAWINGS MUST BE SUBMITTED TO THE GOVERNMENT FOR REVIEW.
5. RISERS MAY BE PREFABRICATED WITH PIPE OPENINGS IN FOUR WALLS. REQUIRED REINFORCING AROUND PIPE OPENINGS MUST BE PROVIDED.
6. RISERS MUST NEVER HAVE CORNER PIPE ENTRIES. ROUND STRUCTURES MUST BE USED WHEN PIPES CANNOT ALIGN WITH A RECTANGULAR STRUCTURE KNOCKOUT.
7. FOR CATCH BASIN TOPS, REFER TO DETAIL A3 THIS SHEET.



DOUBLE RISER OPENING (TYP.)
PIPES GREATER THAN 24" OUTSIDE DIAMETER

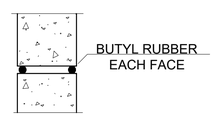


SECTION A



SECTION B

PRECAST CONCRETE TYPE "C" AND "C-L" DOUBLE GRATE TYPE II CATCH BASIN
(UNDER 10' DEEP SHOWN)



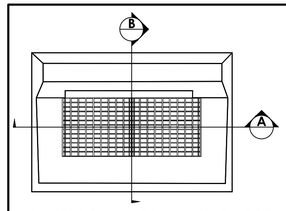
BUTYL RUBBER JOINT

PRECAST DOUBLE CONCRETE CATCH BASIN

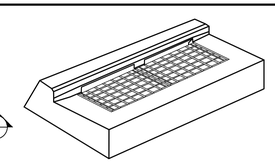
SCALE: NTS

A1

CG102 CG503
CG103



TYPE "C" DOUBLE GRATE TYPE II TOP PLAN

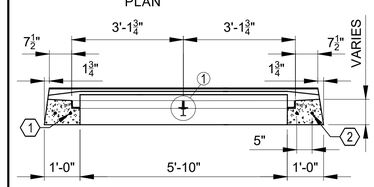

TYPE "C" DOUBLE GRATE TYPE II TOP

GENERAL NOTES:

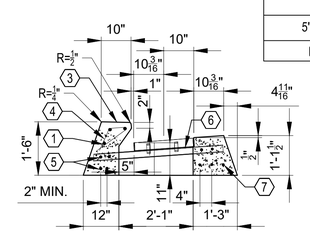
1. SEE SHEET HW-586_08 FOR CATCH BASIN FRAMES AND GRATES, AND HW-586_09 CATCH BASIN LOCK DOWN TOPS.
2. SEE SHEET HW-586_03 CATCH BASIN TOPS (TYPE "C" AND "C-L") FOR DOUBLE GRATE TYPE II, TO DETERMINE THE TOP OF FRAME AT THE GUTTER.
3. BARS MUST HAVE A MINIMUM 2" COVER.
4. MANUFACTURING DIMENSIONAL TOLERANCE TABLE.
5. ENSURE MIN. 2" OF COVER ON ALL REINFORCING STEEL.

ANY DIMENSION	ALLOWABLE TOLERANCE
D<5"	$\pm\frac{1}{4}$"
5"<D<10"	$\pm\frac{1}{2}$"
D>10"	±1"

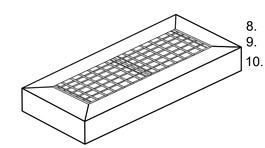
1. #4 BARS (TYP.)
2. #4 BARS EACH SIDE, 3'-10" LONG
3. PITCH $\frac{1}{4}$" PER FT.
4. #3 STIRRUPS, 9" O.C. (TYP.)
5. #4 BARS, 7'-4" LONG
6. S4 x 9.5 x 3' - 6" LONG
7. 5-#4 BARS 7'-4" LONG (TYP.)
8. S4X9.5X3'-9"
9. S4X9.5
10. 2L 3½" x 2½" x ½"

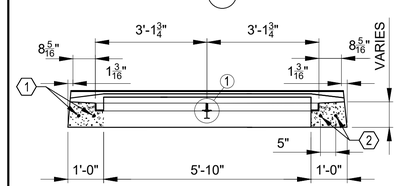


TYPE "C" DOUBLE GRATE TYPE II TOP
SECTION A

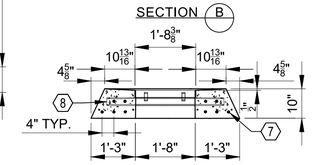


TYPE "C" DOUBLE GRATE TYPE II TOP FOR 6" CONCRETE CURB
SECTION B

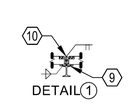

TYPE "C-L" DOUBLE GRATE TYPE II TOP



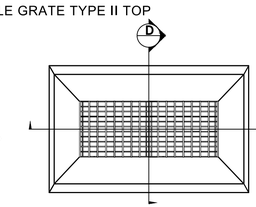
TYPE "C-L" DOUBLE GRATE TYPE II TOP
SECTION C



TYPE "C-L" DOUBLE GRATE TYPE II TOP
SECTION D



DETAIL 1



TYPE "C-L" DOUBLE GRATE TYPE II TOP PLAN

DOUBLE CATCH BASIN TOPS

SCALE: NTS

A3

CG102 CG503
CG103

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

PM/DM	SMS/CWJ
BRANCH MANAGER	DLB
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

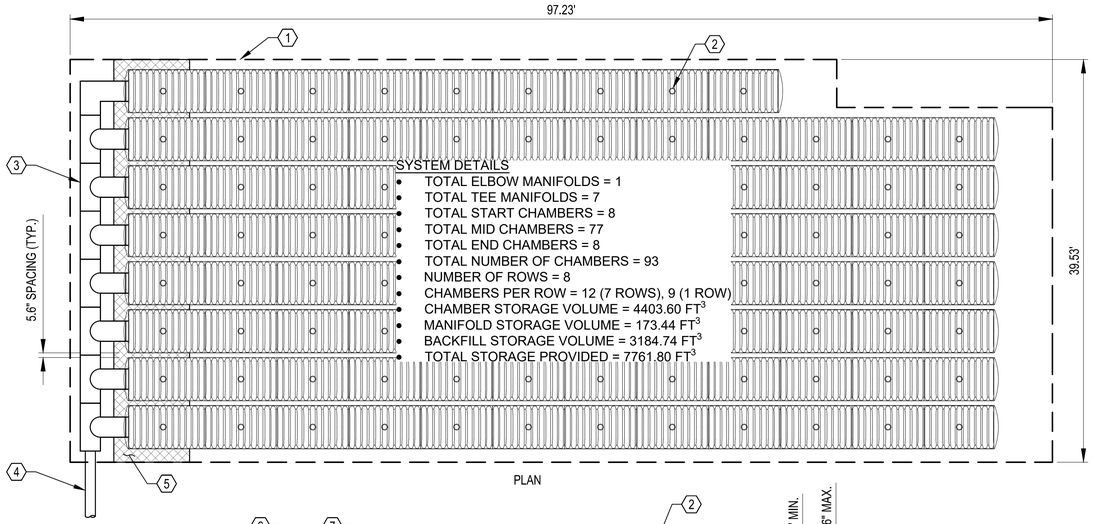
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE

CIVIL
GRADING & DRAINAGE DETAILS

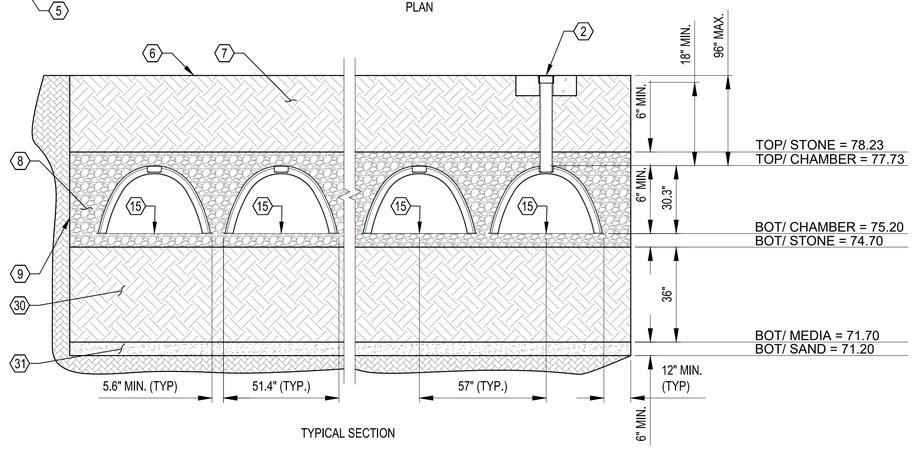
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893893
SHEET 87 OF 152

CG503

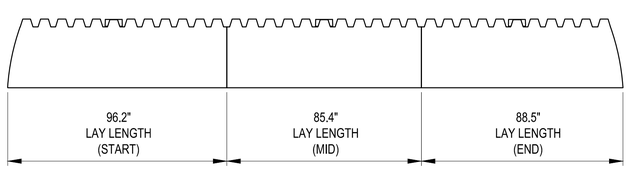
FILE NAME: C:\pw_workdir\pw003\joriny.corum@jacobs.com\d0919642\P1102_CG503.dwg LAYOUT NAME: CG503 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 - 12:58pm USER: CORUML



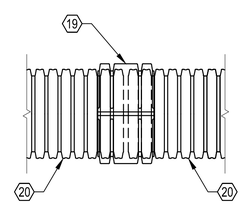
PLAN



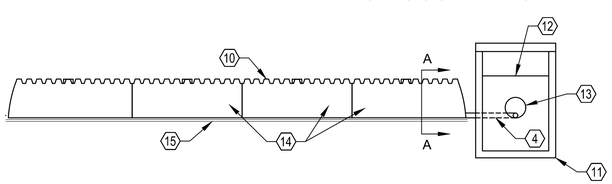
TYPICAL SECTION



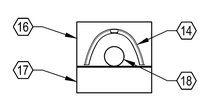
TYPICAL ARCH SEGMENT ELEVATION



HDPE SPLIT COUPLER

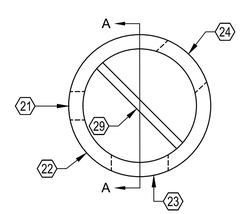


CONTAINMENT ROW ELEVATION

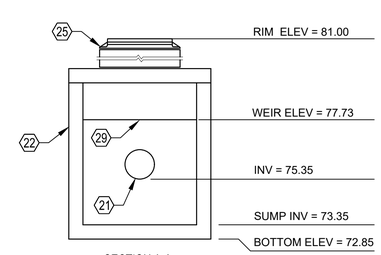


SECTION A-A

1. PERIMETER OF STONE BACKFILL
2. INSPECTION PORT, REFER TO DETAIL THIS SHEET
3. 24" HDPE MANIFOLD
4. 12" HDPE INLET PIPE FROM FLOW DIVERSION STRUCTURE, REFER TO DIVERSION MANHOLE DETAIL THIS SHEET
5. SCOUR PROTECTION NETTING, TYP. INLET PIPES
6. FINISHED GRADE, REFER TO SHEET CG103
7. SELECT BACKFILL AS SPECIFIED
8. FREE DRAINING GRANULAR MATERIAL, REFER TO NOTE 7
9. NON-WOVEN POLYPRENE GEOTEXTILE WITH MIN. FLOW RATE OF 110 GALLONS/MIN./SQ. FT. (SIDES ONLY)
10. CONTAINMENT ROW
11. DIVERSION MANHOLE WITH SUMP, REFER TO DIVERSION MANHOLE DETAIL, THIS SHEET
12. OVERFLOW WEIR INVERT AT TOP OF CONTAINMENT ROW ELEVATION
13. INLET PIPE
14. DETENTION/RETENTION CHAMBERS
15. 2 LAYERS NON-WOVEN POLYPRENE GEOTEXTILE UNDER ROW, MIN. FLOW RATE OF 110 GALLONS/MIN./SQ. FT.
16. LIMIT OF COMPACTED STONE BACKFILL
17. LIMIT OF COMPACTED STONE BASE
18. INLET PIPE FROM DIVERSION STRUCTURE
19. HDPE SPLIT COUPLER, SECURE WITH MANUFACTURER PROVIDED ZIP TIES
20. HDPE PIPE
21. OPENING FOR 12" PIPE TO MANIFOLD
22. 48" MANHOLE STRUCTURE
23. INLET PIPE FROM STORM SEWER
24. OUTLET PIPE TO DETENTION POND
25. MANHOLE FRAME AND COVER
26. 4" SCH. 40 PVC RISER
27. CAST IRON RING AND COVER
28. CONCRETE COLLAR
29. 4" THICK WEIR
30. INFILTRATION MEDIA. INFILTRATION RATE: 1.5 TO 4.0 IN/HR
31. CLEAN CONSTRUCTION SAND LAYER



PLAN



SECTION A-A

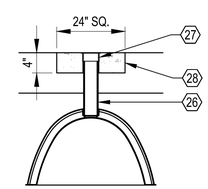
NOTE:

1. REFER TO DETAIL C1/CG508 FOR ADDITIONAL INFORMATION

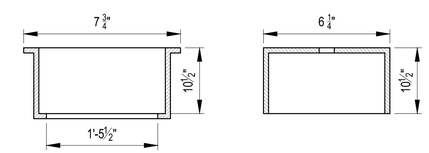
DIVERSION MANHOLE

GENERAL NOTES

1. VERIFY ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS AND INLETS.
2. PRIOR TO PROVIDING CHAMBER SYSTEM, CONDUCT A PRE-CONSTRUCTION MEETING WITH THE CONTRACTING OFFICER AND MANUFACTURER OF THE SYSTEM.
3. PROVIDE CHAMBERS, PIPE, AND FITTING MATERIAL OF CORRUGATED HDPE IN ACCORDANCE WITH THE SPECIFICATIONS.
4. PROVIDE FITTINGS DESIGNED TO PROTRUDE 6" INTO THE END OF THE INLET CHAMBERS.
5. PROVIDE HDPE SPLIT COUPLERS TO CONNECT MANIFOLD TEE AND ELBOW JOINT, REFER TO DETAIL THIS SHEET.
6. PROVIDE BACKFILL MATERIAL THAT IS FREE-DRAINING ANGULAR WASHED STONE 3/4" - 2" PARTICLE SIZE. PLACE MATERIAL IN 8"-10" MAXIMUM LIFTS. WORK MATERIAL INTO CHAMBER SPACING BY MEANS OF SHOVEL-SLICING, RODDING, AIR-TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED COMPLETE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND APPROVED BY THE CONTRACTING OFFICER. PLACE BACKFILL SO THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF CHAMBERS IN THE SYSTEM DURING BACKFILL OPERATIONS. ADVANCE BACKFILL ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO ENSURE NO DIFFERENTIAL LOADING ON SYSTEM COMPONENTS. MINIMUM CHAMBER SPACING MUST BE MAINTAINED. COMPACT STONE EMBEDMENT MATERIAL TO 95% STANDARD PROCTOR. COMPACT GRANULAR BACKFILL MATERIAL TO 90% STANDARD PROCTOR.
7. PROVIDE EQUIPMENT TO PLACE AND COMPACT BACKFILL TO ENSURE NO DISTORTION, DAMAGE, OR DISPLACEMENT OF CHAMBERS OCCURS. PROVIDE MINIMUM COVER FOR EQUIPMENT, AND MAINTAIN BALANCED LOADING ON CHAMBERS DURING BACKFILL OPERATIONS.
8. THOROUGHLY REVIEW MANUFACTURER'S INSTALLATION GUIDE PRIOR TO SYSTEM INSTALLATION AND CONFIRM TEMPORARY LOADING GUIDELINES.
9. PROVIDE A UNIFORM AND STABLE SUB-GRADE PRIOR TO PLACEMENT OF BEDDING MATERIAL. REMOVE UNSATISFACTORY MATERIALS AND REPLACE WITH SELECT MATERIAL TO SUB-GRADE INDICATED. PROVIDE SELECT MATERIAL AS SPECIFIED AND LIGHTLY COMPACT TO ENSURE MINIMUM INFILTRATION RATE OF 0.3 INCHES PER HOUR.
10. EXTEND SCOUR PROTECTION NETTING 1'-0" BEYOND OUTSIDE EDGE OF INLET CHAMBERS.
11. COVER OPEN VOID SPACES GREATER THAN $\frac{3}{4}$" ON CHAMBERS WITH NON-WOVEN GEOTEXTILE TO PREVENT INFILTRATION OF BACKFILL MATERIAL.
12. PROVIDE INFILTRATION MEDIA COMPRISED OF A WELL BLENDED, HOMOGENOUS MIXTURE OF CLEAN CONSTRUCTION SAND, 70 TO 85 PERCENT, AND SANDY LOAM, 15 TO 30 PERCENT, WITH LESS THAN 5 PERCENT CLAY CONTENT TO ENSURE INFILTRATION RATES INDICATED.
13. UTILIZE LIGHT EARTH-MOVING EQUIPMENT TO EXCAVATE INFILTRATION CHAMBER AREA. SCARIFY OR TILL BOTTOM OF EXCAVATION TO ELIMINATE SMEARING OF SOIL RESULTING FROM EXCAVATION OPERATIONS. DO NOT OVER COMPACT INFILTRATION MEDIA TO ENSURE LISTED INFILTRATION RATES ARE MET.



INSPECTION PORT



RING AND COVER DETAIL

STORM WATER TREATMENT CHAMBER SYSTEM 1

SCALE: NTS

A1
CG103 CG504

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

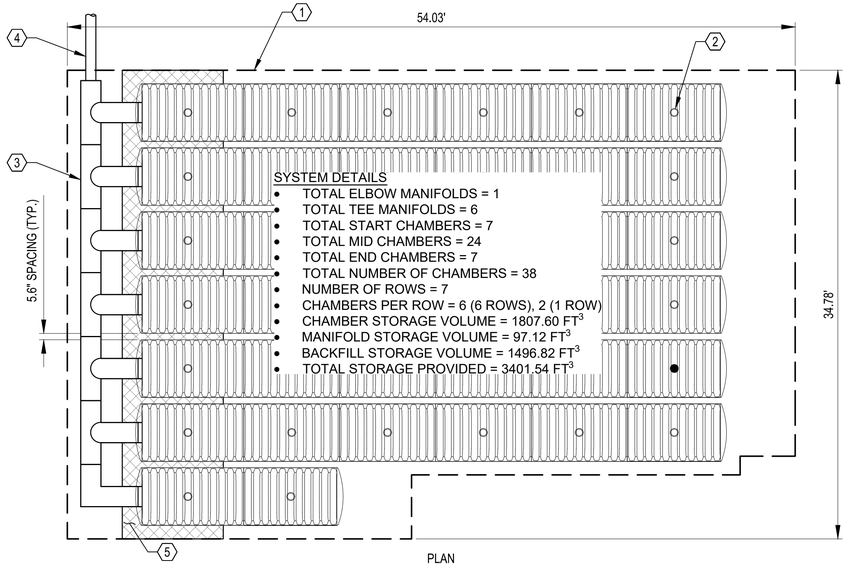
DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

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
SITE
CIVIL
GRADING & DRAINAGE DETAILS

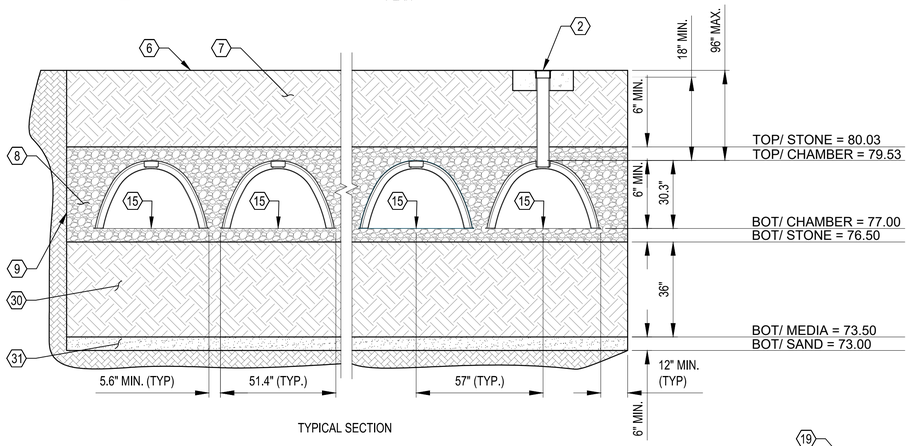
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893894
SHEET 88 OF 152

CG504

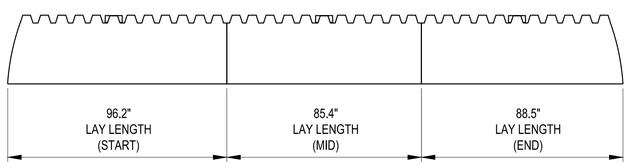
FILE NAME: C:\pw_workdir\{dm0033}\jcrney.corum@jacobs.com\d0919642\P1102_CG504.dwg LAYOUT NAME: CG504 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:00pm USER: CORUMJ



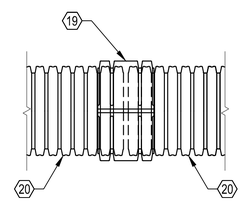
PLAN



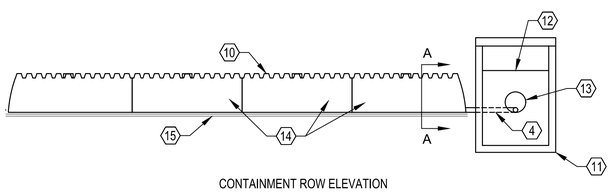
TYPICAL SECTION



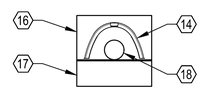
TYPICAL ARCH SEGMENT ELEVATION



HDPE SPLIT COUPLER



CONTAINMENT ROW ELEVATION



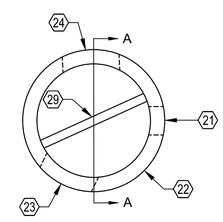
SECTION A-A

STORM WATER TREATMENT CHAMBER SYSTEM 2

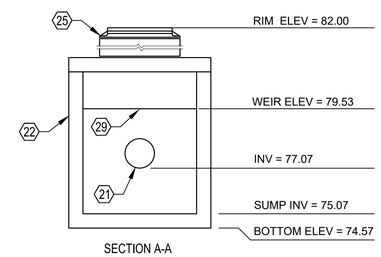
SCALE: NTS

A1
CG103 CG505

1. PERIMETER OF STONE BACKFILL.
2. INSPECTION PORT, REFER TO DETAIL THIS SHEET.
3. 18" HDPE MANIFOLD.
4. 8" HDPE INLET PIPE FROM FLOW DIVERSION STRUCTURE, REFER TO DIVERSION MANHOLE DETAIL THIS SHEET.
5. SCOUR PROTECTION NETTING, TYP. INLET PIPES.
6. FINISHED GRADE, REFER TO SHEET CG103.
7. SELECT BACKFILL AS SPECIFIED.
8. FREE DRAINING GRANULAR MATERIAL, REFER TO NOTE 7.
9. NON-WOVEN POLYPRENE GEOTEXTILE WITH MIN. FLOW RATE OF 110 GALLONS/MIN./SQ. FT.
10. CONTAINMENT ROW
11. DIVERSION MANHOLE WITH SUMP, REFER TO DIVERSION MANHOLE DETAIL, THIS SHEET
12. OVERFLOW WEIR INVERT AT TOP OF CONTAINMENT ROW ELEVATION
13. INLET PIPE
14. DETENTION/RETENTION CHAMBERS
15. 2 LAYERS NON-WOVEN GEOTEXTILE UNDER ROW, MIN. FLOW RATE OF 110 GALLONS/MIN./SQ. FT.
16. LIMIT OF COMPACTED STONE BACKFILL
17. LIMIT OF COMPACTED STONE BASE
18. INLET PIPE FROM DIVERSION STRUCTURE
19. HDPE SPLIT COUPLER, SECURE WITH MANUFACTURER PROVIDED ZIP TIES
20. HDPE PIPE
21. OPENING FOR 8" PIPE TO MANIFOLD
22. 48" MANHOLE STRUCTURE
23. INLET PIPE FROM STORM SEWER
24. OUTLET PIPE TO DETENTION POND
25. MANHOLE FRAME AND COVER
26. 4" SCH. 40 PVC RISER
27. CAST IRON RING AND COVER
28. CONCRETE COLLAR
29. 4" THICK WEIR
30. INFILTRATION MEDIA. INFILTRATION RATE: 1.0 TO 3.0 IN/HR
31. CLEAN CONSTRUCTION SAND LAYER



PLAN



SECTION A-A

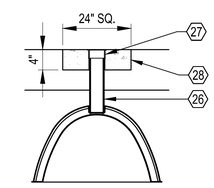
NOTE:

1. REFER TO DETAIL C1/CG508 FOR ADDITIONAL INFORMATION

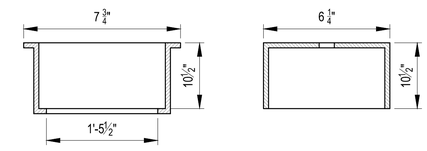
DIVERSION MANHOLE

GENERAL NOTES

1. VERIFY ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS.
2. PRIOR TO PROVIDING CHAMBER SYSTEM, CONDUCT A PRE-CONSTRUCTION MEETING WITH THE CONTRACTING OFFICER AND MANUFACTURER OF THE SYSTEM.
3. PROVIDE CHAMBERS, PIPE, AND FITTING MATERIAL OF CORRUGATED HDPE.
4. PROVIDE FITTINGS DESIGNED TO PROTRUDE 6" INTO THE END OF THE INLET CHAMBERS.
5. PROVIDE HDPE SPLIT COUPLERS TO CONNECT MANIFOLD TEE AND ELBOW JOINT, REFER TO DETAIL THIS SHEET.
6. PROVIDE BACKFILL MATERIAL THAT IS FREE-DRAINING ANGULAR WASHED STONE 3/4" - 2" PARTICLE SIZE. PLACE MATERIAL IN 8"-10" MAXIMUM LIFTS. WORK MATERIAL INTO CHAMBER SPACING BY MEANS OF SHOVEL-SLICING, RODDING, AIR-TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED COMPLETE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND APPROVED BY THE CONTRACTING OFFICER. PLACE BACKFILL SO THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF CHAMBERS IN THE SYSTEM DURING BACKFILL OPERATIONS. ADVANCE BACKFILL ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO ENSURE NO DIFFERENTIAL LOADING ON SYSTEM COMPONENTS. MINIMUM CHAMBER SPACING MUST BE MAINTAINED. COMPACT STONE EMBEDMENT MATERIAL TO 95% STANDARD PROCTOR. COMPACT GRANULAR BACKFILL MATERIAL TO 90% STANDARD PROCTOR.
7. PROVIDE EQUIPMENT TO PLACE AND COMPACT BACKFILL TO ENSURE NO DISTORTION, DAMAGE, OR DISPLACEMENT OF CHAMBERS OCCURS. PROVIDE MINIMUM COVER FOR EQUIPMENT, AND MAINTAIN BALANCED LOADING ON CHAMBERS DURING BACKFILL OPERATIONS.
8. THOROUGHLY REVIEW MANUFACTURER'S INSTALLATION GUIDE PRIOR TO SYSTEM INSTALLATION AND CONFIRM TEMPORARY LOADING GUIDELINES.
9. PROVIDE A UNIFORM AND STABLE SUB-GRADE PRIOR TO PLACEMENT OF BEDDING MATERIAL. REMOVE UNSATISFACTORY MATERIALS AND REPLACE WITH SELECT MATERIAL TO SUB-GRADE INDICATED. PROVIDE SELECT MATERIAL AS SPECIFIED AND LIGHTLY COMPACT TO ENSURE MINIMUM INFILTRATION RATE OF 0.3 INCHES PER HOUR.
10. EXTEND SCOUR PROTECTION NETTING 1'-0" BEYOND OUTSIDE EDGE OF INLET CHAMBERS.
11. COVER OPEN VOID SPACES GREATER THAN $\frac{3}{4}$" ON CHAMBERS WITH NON-WOVEN GEOTEXTILE TO PREVENT INFILTRATION OF BACKFILL MATERIAL.
12. UTILIZE LIGHT EARTH-MOVING EQUIPMENT TO EXCAVATE INFILTRATION CHAMBER AREA. SCARIFY OR TILL BOTTOM OF EXCAVATION TO ELIMINATE SMEARING OF SOIL RESULTING FROM EXCAVATION OPERATIONS.



INSPECTION PORT



RING AND COVER DETAIL

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 8/14/2025

ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLOD FEAD DIRECTOR NEW LONDON, GROTEN, CT
SATISFACTORY TO DATE 05/27/2025

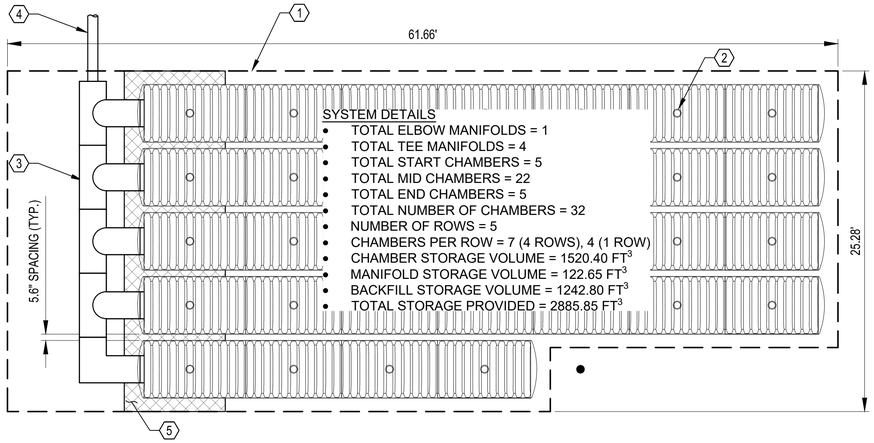
DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

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
SITE
CIVIL
GRADING & DRAINAGE DETAILS

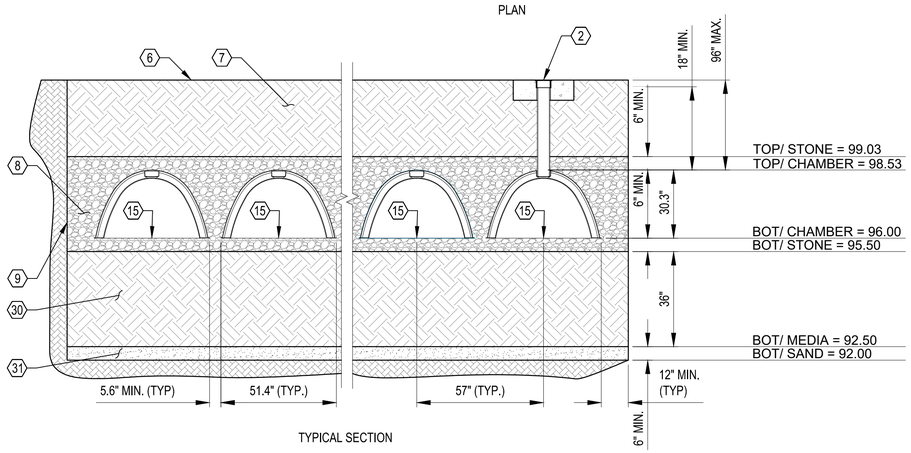
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.
12893895
SHEET 89 OF 152

CG505

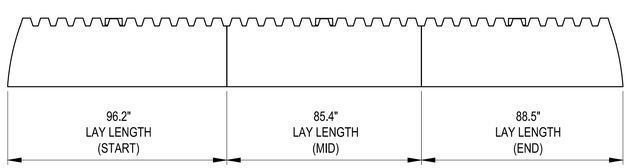
FILE NAME: C:\pw_work\dr\dsr0037\joney.corum@jacobs.com\d0919642\P1102_CG505.dwg LAYOUT NAME: CG505 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 - 1:00pm USER: CORUMJ



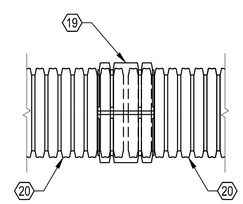
PLAN



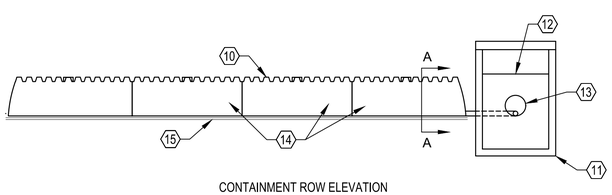
TYPICAL SECTION



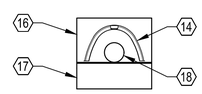
TYPICAL ARCH SEGMENT ELEVATION



HDPE SPLIT COUPLER

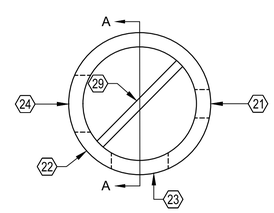


CONTAINMENT ROW ELEVATION

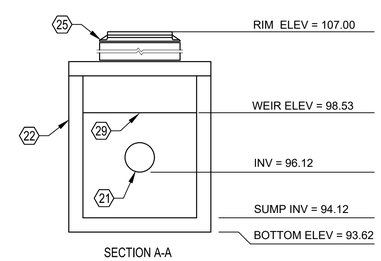


SECTION A-A

1. PERIMETER OF STONE BACKFILL.
2. INSPECTION PORT, REFER TO DETAIL THIS SHEET.
3. 24" HDPE MANIFOLD.
4. 6" HDPE INLET PIPE FROM FLOW DIVERSION STRUCTURE, REFER TO DIVERSION MANHOLE DETAIL THIS SHEET.
5. SCOUR PROTECTION NETTING, TYP. INLET PIPES.
6. FINISHED GRADE, REFER TO SHEET CG101.
7. SELECT BACKFILL.
8. FREE DRAINING GRANULAR MATERIAL, REFER TO NOTE 7.
9. NON-WOVEN POLYPRENE GEOTEXTILE WITH MIN. FLOW RATE OF 110 GALLONS/MIN./SQ. FT.
10. CONTAINMENT ROW
11. DIVERSION MANHOLE WITH SUMP, REFER TO DIVERSION MANHOLE DETAIL, THIS SHEET
12. OVERFLOW WEIR INVERT AT TOP OF CONTAINMENT ROW ELEVATION
13. INLET PIPE
14. DETENTION/RETENTION CHAMBERS
15. 2 LAYERS NON-WOVEN GEOTEXTILE UNDER ROW, MIN. FLOW RATE OF 110 GALLONS/MIN./SQ. FT.
16. LIMIT OF COMPACTED STONE BACKFILL
17. LIMIT OF COMPACTED STONE BASE
18. INLET PIPE FROM DIVERSION STRUCTURE
19. HDPE SPLIT COUPLER, SECURE WITH MANUFACTURER PROVIDED ZIP TIES
20. HDPE PIPE
21. OPENING FOR 6" PIPE TO MANIFOLD
22. 48" MANHOLE STRUCTURE
23. INLET PIPE FROM STORM SEWER
24. OUTLET PIPE TO DETENTION POND
25. MANHOLE FRAME AND COVER
26. 4" SCH. 40 PVC RISER
27. CAST IRON RING AND COVER
28. CONCRETE COLLAR
29. 4" THICK WEIR
30. INFILTRATION MEDIA. INFILTRATION RATE: 1.0 TO 3.0 IN/HR
31. CLEAN CONSTRUCTION SAND LAYER



PLAN



SECTION A-A

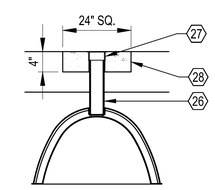
NOTE:

1. REFER TO DETAIL C1/CG508 FOR ADDITIONAL INFORMATION

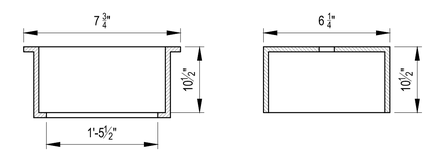
DIVERSION MANHOLE

GENERAL NOTES

1. VERIFY ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS.
2. PRIOR TO PROVIDING CHAMBER SYSTEM, CONDUCT A PRE-CONSTRUCTION MEETING WITH THE CONTRACTING OFFICER AND MANUFACTURER OF THE SYSTEM.
3. PROVIDE CHAMBERS, PIPE, AND FITTING MATERIAL OF CORRUGATED HDPE.
4. PROVIDE FITTINGS DESIGNED TO PROTRUDE 6" INTO END OF INLET CHAMBERS.
5. PROVIDE HDPE SPLIT COUPLERS TO CONNECT MANIFOLD TEE AND ELBOW JOINT, REFER TO DETAIL THIS SHEET.
6. PROVIDE BACKFILL MATERIAL THAT IS FREE-DRAINING ANGULAR WASHED STONE 3/4" - 2" PARTICLE SIZE. PLACE MATERIAL IN 8"-10" MAXIMUM LIFTS. WORK MATERIAL INTO CHAMBER SPACING BY MEANS OF SHOVEL-SLICING, RODDING, AIR-TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED COMPLETE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND APPROVED BY THE CONTRACTING OFFICER. PLACE BACKFILL SO THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF CHAMBERS IN THE SYSTEM DURING BACKFILL OPERATIONS. ADVANCE BACKFILL ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO ENSURE NO DIFFERENTIAL LOADING ON SYSTEM COMPONENTS. MINIMUM CHAMBER SPACING MUST BE MAINTAINED. COMPACT STONE EMBEDMENT MATERIAL TO 95% STANDARD PROCTOR. COMPACT GRANULAR BACKFILL MATERIAL TO 90% STANDARD PROCTOR.
7. PROVIDE EQUIPMENT TO PLACE AND COMPACT BACKFILL TO ENSURE NO DISTORTION, DAMAGE, OR DISPLACEMENT OF CHAMBERS OCCURS. PROVIDE MINIMUM COVER FOR EQUIPMENT, AND MAINTAIN BALANCED LOADING ON CHAMBERS DURING BACKFILL OPERATIONS.
8. THOROUGHLY REVIEW MANUFACTURER'S INSTALLATION GUIDE PRIOR TO SYSTEM INSTALLATION AND CONFIRM TEMPORARY LOADING GUIDELINES.
9. PROVIDE A UNIFORM AND STABLE SUB-GRADE PRIOR TO PLACEMENT OF BEDDING MATERIAL. REMOVE UNSATISFACTORY MATERIALS AND REPLACE WITH SELECT MATERIAL TO SUB-GRADE INDICATED. PROVIDE SELECT MATERIAL AS SPECIFIED AND LIGHTLY COMPACT TO ENSURE MINIMUM INFILTRATION RATE OF 0.3 INCHES PER HOUR.
10. EXTEND SCOUR PROTECTION NETTING 1'-0" BEYOND OUTSIDE EDGE OF INLET CHAMBERS.
11. COVER OPEN VOID SPACES GREATER THAN $\frac{3}{4}$" ON CHAMBERS WITH NON-WOVEN GEOTEXTILE TO PREVENT INFILTRATION OF BACKFILL MATERIAL.
12. UTILIZE LIGHT EARTH-MOVING EQUIPMENT TO EXCAVATE INFILTRATION CHAMBER AREA. SCARIFY OR TILL BOTTOM OF EXCAVATION TO ELIMINATE SMEARING OF SOIL RESULTING FROM EXCAVATION OPERATIONS.



INSPECTION PORT



RING AND COVER DETAIL

STORM WATER TREATMENT CHAMBER SYSTEM 3

SCALE: NTS

A1
CG101 CG506

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES JC	DRW NM	CHK RC

PM/DM	SMS/CWJ
BRANCH MANAGER	DLB
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

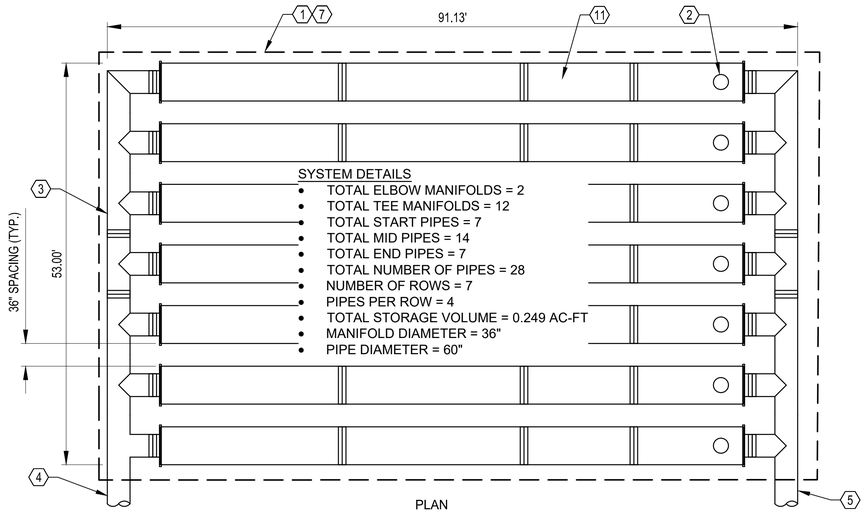
SITE

CIVIL
GRADING & DRAINAGE DETAILS

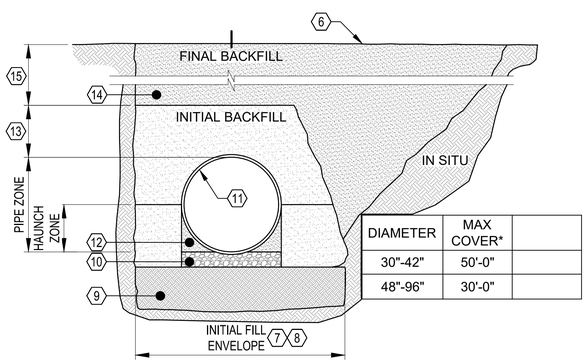
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893896
SHEET 90 OF 152

CG506

FILE NAME: C:\pw_work\P:\jan003\joriny.corum@jacobs.com\d0919642\P1102_CG506 GRADING & DRAINAGE DETAILS.dwg LAYOUT NAME: CG506 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 - 1:01pm USER: CORUMJ

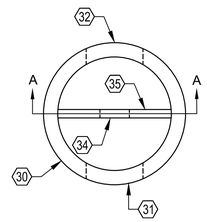


PLAN

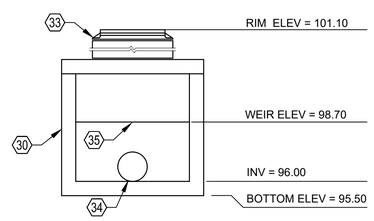


DIAMETER	MAX COVER*
30"-42"	50'-0"
48"-96"	30'-0"

TYPICAL SECTION

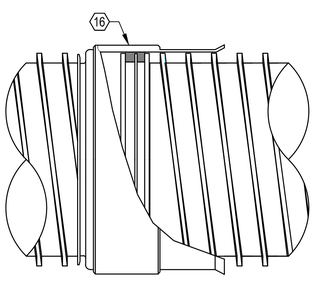


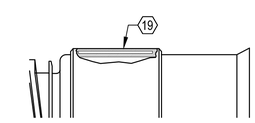
PLAN



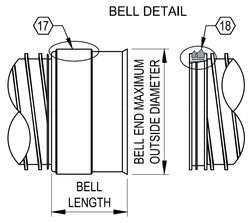
SECTION A-A

OUTLET CONTROL STRUCTURE

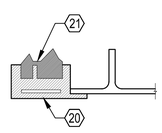




BELL DETAIL



JOINT DETAIL



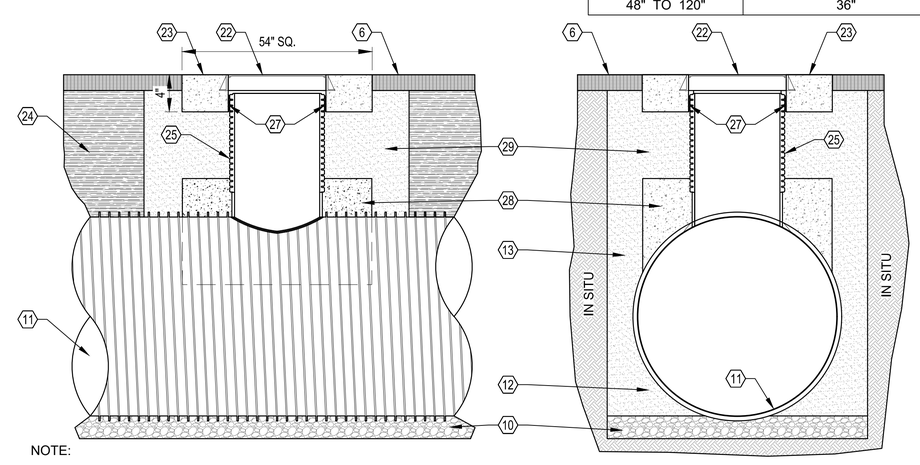
SPIGOT DETAIL

1. PERIMETER OF BACKFILL
2. ACCESS RISER, REFER TO DETAIL THIS SHEET
3. 36" SRPE MANIFOLD
4. 36" SRPE INLET PIPE FROM FLOW DIVERSION STRUCTURE, REFER TO DIVERSION MANHOLE DETAIL SHEET CG506
5. 36" SRPE OUTLET PIPE TO OUTLET CONTROL STRUCTURE, REFER TO OUTLET CONTROL DETAIL THIS SHEET
6. FINISHED GRADE, REFER TO SHEET CG101
7. PROVIDE MINIMUM TRENCH WIDTH TO ALLOW ROOM FOR COMPACTION OF HAUNCH MATERIALS UNDER PIPE. MIN. WIDTH = (1.25 x DIAMETER) + 12"
8. MINIMUM EMBANKMENT WIDTH IS 3 PIPE DIAMETERS BUT NO LESS THAN 2' OUTSIDE OF SPRING LINE
9. TRENCH BOTTOM
10. PIPE BEDDING MATERIAL
11. 60" STEEL REINFORCED POLYETHYLENE (SRPE) PIPE
12. HAUNCH ZONE MATERIAL
13. INITIAL BACKFILL FOR PIPE EMBEDMENT MATERIAL
14. INITIAL BACKFILL ABOVE PIPE. PROVIDE MINIMUM COVER:
    6" MINIMUM FOR PIPE DIAMETERS 30" - 60"
    12" MINIMUM FOR PIPE DIAMETERS 66" - 96"
15. FINAL BACKFILL MATERIAL
16. BELL AND SPIGOT JOINT
17. BELL, REFER TO DETAIL THIS SHEET
18. SPIGOT, REFER TO DETAIL THIS SHEET
19. STEEL REINFORCED POLYETHYLENE BELL
20. STEEL REINFORCED HDPE SPIGOT
21. GASKET
22. METAL PLATE AND FRAME
23. 4,000 PSI CONCRETE COLLAR
24. BACKFILL MATERIAL, AS SPECIFIED
25. 30" DIAMETER HDPE RISER PIPE
26. FINISHED GRADE
27. GASKET MATERIAL TO PREVENT SLAB FROM BEARING ON RISER
28. SEE NOTE 1
29. RISER BACKFILL, CLASS 1 MATERIAL PER ASTM D2321
30. 48" MANHOLE STRUCTURE
31. OPENING FOR INLET PIPE FROM STORAGE MANIFOLD
32. OPENING FOR OUTLET PIPE TO HEADWALL
33. MANHOLE FRAME AND COVER
34. 6.5" DIAMETER ORIFICE
35. 4" THICK WEIR

GENERAL NOTES

1. VERIFY ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS AND INLETS.
2. PRIOR TO PROVIDING CHAMBER SYSTEM CONDUCT A PRE-CONSTRUCTION MEETING WITH THE CONTRACTING OFFICER AND MANUFACTURER OF THE SYSTEM.
3. PROVIDE PIPE AND PIPE FITTINGS AS SPECIFIED.
4. PROVIDE TRENCHING AND BACKFILL AS SPECIFIED.
5. PROVIDE FITTINGS DESIGNED TO PROTRUDE 6" INTO END OF INLET PIPES.
6. PROVIDE COUPLERS TO CONNECT MANIFOLD TEE AND ELBOW JOINT, REFER TO DETAIL THIS SHEET.
7. PROVIDE EQUIPMENT TO PLACE AND COMPACT BACKFILL TO ENSURE NO DISTORTION, DAMAGE, OR DISPLACEMENT OF PIPES OCCURS. PROVIDE MINIMUM COVER FOR EQUIPMENT, AND MAINTAIN BALANCED LOADING ON PIPES DURING BACKFILL OPERATIONS.
8. THOROUGHLY REVIEW MANUFACTURER'S INSTALLATION GUIDE PRIOR TO SYSTEM INSTALLATION AND CONFIRM TEMPORARY LOADING GUIDELINES.
9. PROVIDE A UNIFORM AND STABLE SUB-GRADE PRIOR TO PLACEMENT OF BEDDING MATERIAL. REMOVE UNSATISFACTORY MATERIALS AND REPLACE WITH SELECT MATERIAL TO SUB-GRADE INDICATED. PROVIDE AND COMPACT SELECT MATERIAL AS SPECIFIED.

MAX RISER Ø THAT DOES NOT REQUIRE CONCRETE REINFORCEMENT FOR COVER HEIGHTS OF ≤10'	
MAINLINE DIAMETER	RISER (MAX Ø)
42"	42"
48" TO 120"	36"



NOTE:

1. STABILIZED BACKFILL MATERIAL SUCH AS CLSM OR CEMENT STABILIZED SAND WITH MINIMUM COMPRESSIVE STRENGTH OF 750 PSI.

ACCESS RISER DETAIL

UNDERGROUND DETENTION CHAMBER SYSTEM

SCALE: NTS

A1

CG101 CG507

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA

NAVAL SUBMARINE BASE NEW LONDON

GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
GRADING & DRAINAGE DETAILS

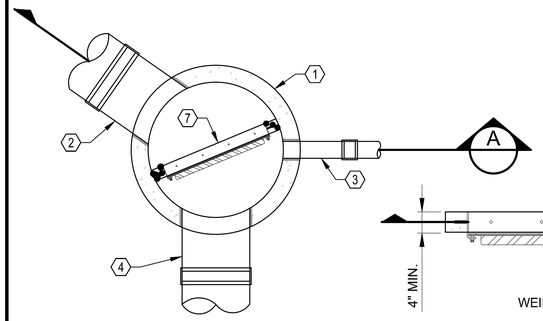
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893897
SHEET 91 OF 152

CG507

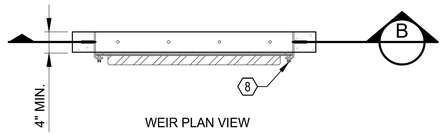
FILE NAME: C:\pw_workdir\dms003\jdiney.corum@jacobs.com\d0919642\P1102_CC507.dwg LAYOUT NAME: CC507 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:02pm USER: CORUMJ

GENERAL NOTES:

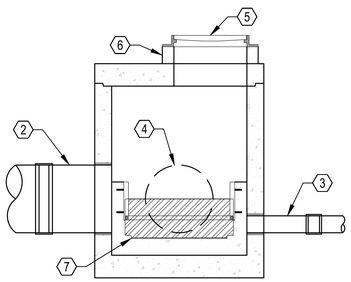
1. PROVIDE PRECAST MANHOLE, FRAME AND COVER, AND PIPING AS SPECIFIED.
2. ADJUST WEIR TO DESIGN ELEVATIONS INDICATED. DO NOT EXCEED 5.0 FT-LBS TORQUE WHEN TIGHTENING SCREWS ON WEIR FRAME. SEAL WEIR TO FRAME WITH RTV SILICONE SEALANT AFTER FINAL ADJUSTMENT.



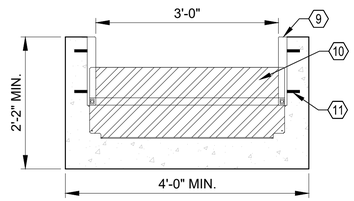
MANHOLE PLAN VIEW



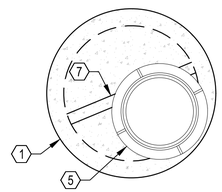
WEIR PLAN VIEW



SECTION A



SECTION B



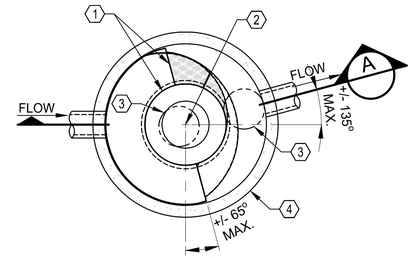
MANHOLE TOP VIEW

1. 48" DIAMETER MANHOLE
2. PEAK FLOW OUTLET PIPE, REFER TO PLAN SHEETS
3. WATER QUALITY FLOW OUTLET PIPE, REFER TO PLAN SHEETS
4. INLET PIPE FROM STORM SEWER, REFER TO PLAN SHEETS
5. 24" DIAMETER FRAME AND COVER
6. GRADE RING, TYP.
7. ADJUSTABLE WEIR, REFER TO WEIR DETAIL THIS SHEET
8. SET SCREW, TYP. REFER TO NOTE 2.
9. WEIR FRAME
10. ADJUSTABLE WEIR PLATE
11. EMBEDMENT ANCHORS, TYP.

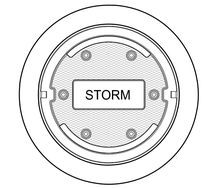
DIVERSION MANHOLE (C1)

SCALE: NTS

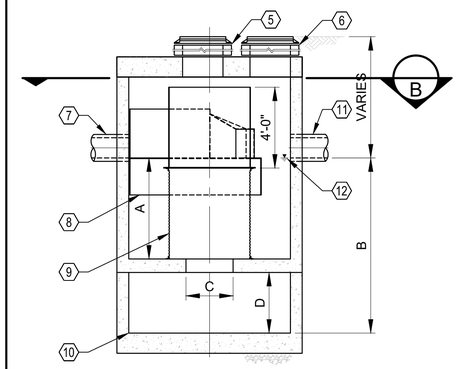
CG101 CG508 CG103



PLAN SECTION B



FRAME AND COVER



SECTION A

NOTE:

1. PROVIDE HYDRODYNAMIC SEPARATOR WITH MINIMUM 80% TOTAL SUSPENDED SOLIDS (TSS) REMOVAL RATE.

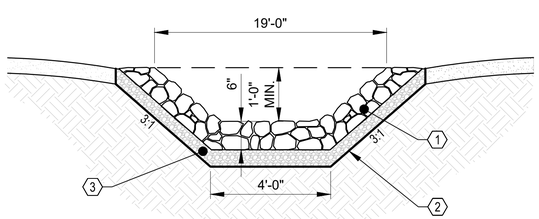
SEPARATOR ID	STRUCTURE DIA.	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D
A	96"	5'-0"	8'-8"	2'-4"	3'-0"
B	60"	2'-7"	5'-3"	1'-9"	2'-0"
C	36"	1'-8"	4'-2"	1'-4"	2'-0"

1. FIBERGLASS OR ALUMINUM INTERNAL COMPONENTS
2. CENTER OF STRUCTURE SCREEN AND SUMP OPENING
3. TOP SLAB ACCESS, REFER TO FRAME AND COVER DETAIL
4. PRECAST MANHOLE STRUCTURE, REFER TO SPECIFICATION 33 40 00
5. GROUT TO FINISHED GRADE
6. GRADE RING, TYP.
7. INLET PIPE FROM DIVERSION STRUCTURE
8. OIL BAFFLE SKIRT
9. SEPARATION SCREEN
10. SOLIDS STORAGE SUMP
11. OUTLET PIPE TO CHAMBER SYSTEM
12. PERMANENT POOL ELEVATION

HYDRODYNAMIC SEPARATOR (C3)

SCALE: NTS

CG101 CG508 CG103



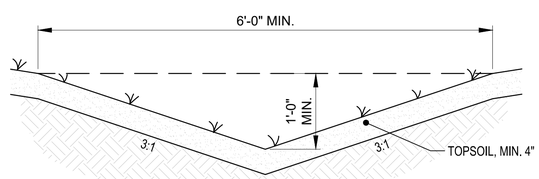
TRAPEZOIDAL
(TYPICAL RIPRAP CHANNEL)

1. RIP RAP, D_{50} = 6" MIN.
2. GEOTEXTILE
3. BEDDING MATERIAL, MIN. 2" THICK

RIP RAP LINED CHANNEL (A1)

SCALE: NTS

CG102 CG508



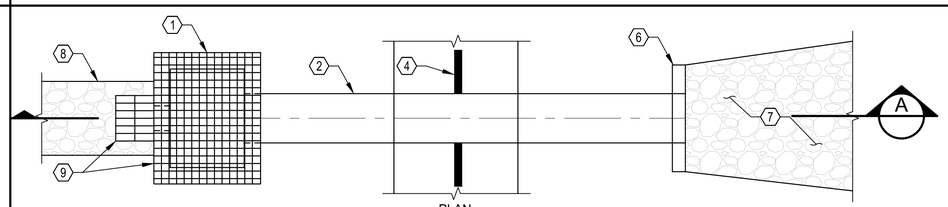
V-CHANNEL
(TYPICAL GRASSED CHANNEL)

1. TOPSOIL

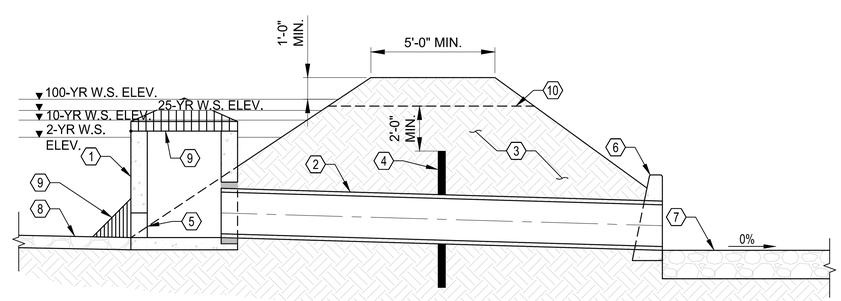
GRASS LINED CHANNEL (A2)

SCALE: NTS

CG101 CG508



PLAN



SECTION A

1. PRECAST CONCRETE OUTLET STRUCTURE, REFER TO A1/CG502
2. HDPE OUTLET PIPE WITH WATERTIGHT JOINTS, AS SPECIFIED
3. EARTH BERM COMPACTED AS SPECIFIED
4. ANTI-SEEP COLLAR WITH WATERTIGHT CONNECTION TO PIPE, EXTEND COLLAR MIN. 2' BEYOND O.D. OF PIPE
5. LOW FLOW ORIFICE
6. PRECAST CONCRETE END WALL
7. RIP RAP OUTLET PROTECTION
8. RIP RAP PILOT CHANNEL
9. TRASH RACK, REFER TO C1 AND C2/CG509
10. EMERGENCY SPILLWAY, REFER TO C4/CG509

NOTE:

1. REFER TO ENLARGED GRADING PLANS CG401 AND CG402 FOR ELEVATIONS.

DRY DETENTION POND OUTLET STRUCTURE (A3)

SCALE: NTS

CG103 CG508 CG401 CG402

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

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

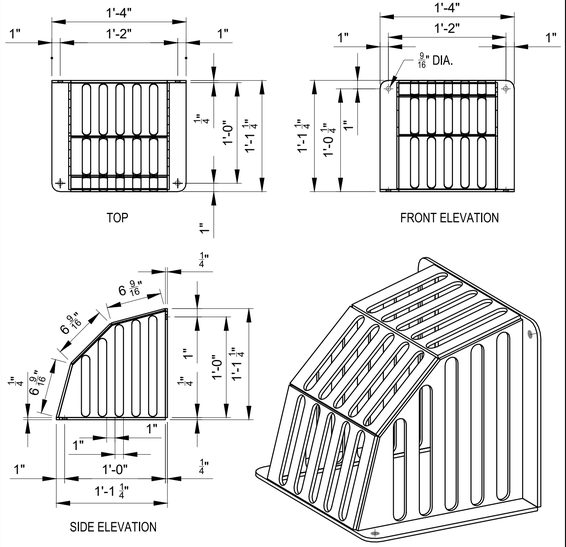
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL STATION - NORFOLK, VA

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
GRADING & DRAINAGE DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893898
SHEET 92 OF 152

CG508

FILE NAME: C:\pw_work\dir\jdcorum\d0919642\P1102_CG508.dwg LAYOUT NAME: CG508 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:04pm USER: CORUMJ

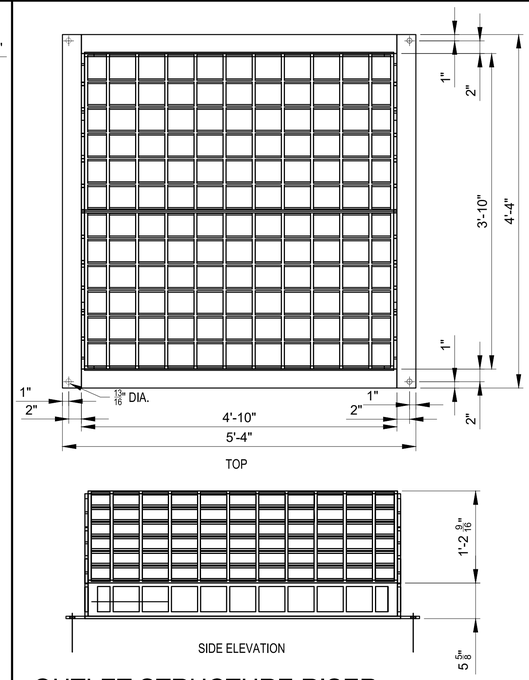


NOTE:

1. PROVIDE TRASH RACK MANUFACTURED FROM HOT DIP GALVENIZED OR 304 STAINLESS STEEL.
2. PROVIDE 304 STAINLESS STEEL WEDGE ANCHOR BOLTS FOR USE IN CONCRETE.

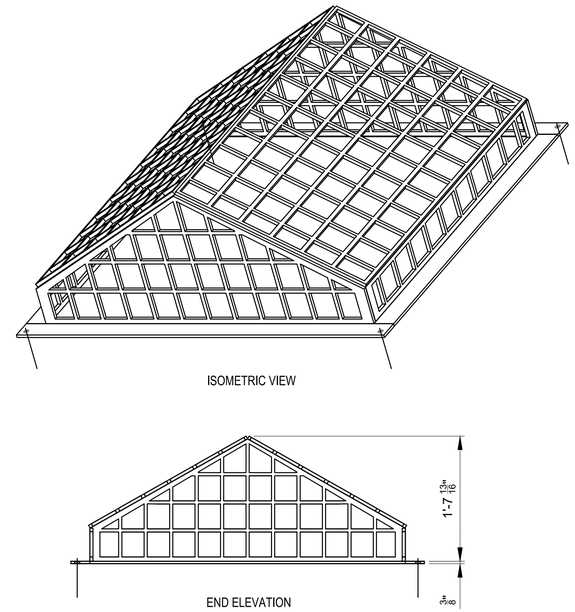
OUTLET STRUCTURE ORIFICE TRASH RACK (C1)

SCALE: NTS — CG508 CG509



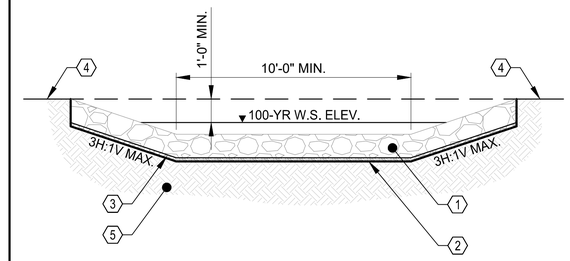
OUTLET STRUCTURE RISER TRASH RACK (C2)

SCALE: NTS — CG508 CG509



NOTE:

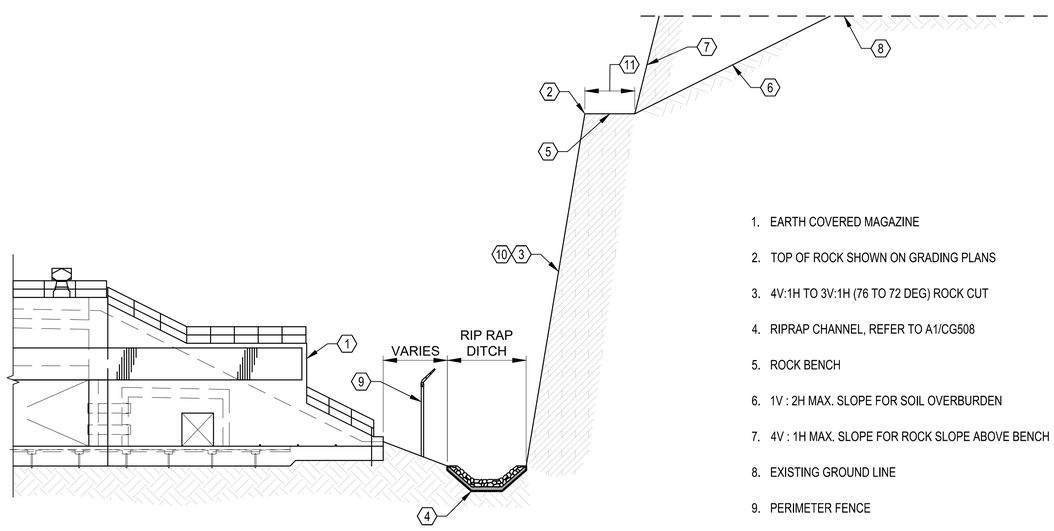
1. PROVIDE TRASH RACK MANUFACTURED FROM HOT DIP GALVENIZED OR 304 STAINLESS STEEL.
2. PROVIDE 304 STAINLESS STEEL WEDGE ANCHOR BOLTS FOR USE IN CONCRETE.



1. 12" OF RIPRAP, D_{50} = 6" MIN.
2. GEOTEXTILE
3. BEDDING MATERIAL, MIN. 2" THICK
4. TOP OF POND EMBANKMENT
5. PREPARED SUBGRADE

EMERGENCY SPILLWAY SECTION (C4)

SCALE: NTS — CG508 CG509



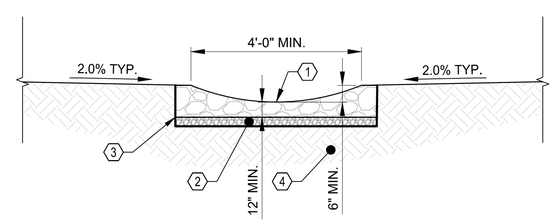
NOTES:

1. EXTENSION OF DESIGN SLOPE IN FIELD IS PERMISSIBLE WITHIN LIMITS SHOWN (2' SHELF ON TOP OF ROCK), WHEN HEIGHT OF ROCK CUT IN FIELD IS LESS THAN THAT SHOWN ON GRADING PLANS.

1. EARTH COVERED MAGAZINE
2. TOP OF ROCK SHOWN ON GRADING PLANS
3. 4V:1H TO 3V:1H (76 TO 72 DEG) ROCK CUT
4. RIPRAP CHANNEL, REFER TO A1/CG508
5. ROCK BENCH
6. 1V : 2H MAX. SLOPE FOR SOIL OVERBURDEN
7. 4V : 1H MAX. SLOPE FOR ROCK SLOPE ABOVE BENCH
8. EXISTING GROUND LINE
9. PERIMETER FENCE
10. ROCK FACE WITH GALVANIZED ROCK MESH TO GRADE
11. 8'-0" OR AS INDICATED ON DRAWINGS

ROCK CUT SECTION (A1)

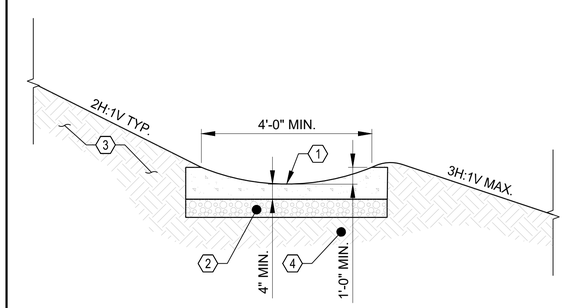
SCALE: NTS — CG101 CG509 CG102



1. RIPRAP CHANNEL, D_{50} = 6" MIN.
2. BEDDING MATERIAL, MIN. 2" THICK
3. GEOTEXTILE
4. PREPARED SUBGRADE

PILOT CHANNEL SECTION (A3)

SCALE: NTS — CG401 CG509 CG402



1. 4,000 PSI PARABOLIC CONCRETE CHANNEL
2. 4" AGGREGATE BASE
3. EARTH COVER OVER MAGAZINE
4. PREPARED SUBGRADE

PARABOLIC CONCRETE CHANNEL (A4)

SCALE: NTS — CG102 CG509 CG103

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25 — 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 — 8/14/2025

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

SATISFACTORY TO — DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL SUBMARINE BASE NEW LONDON
MID-ATLANTIC

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
GRADING & DRAINAGE DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893899
SHEET 93 OF 152
CG509

FILE NAME: C:\pw_work\dl\jdenl023\joiney.corum@jacobs.com\d0919642\P1102_CG509.dwg LAYOUT NAME: CG509 GRADING & DRAINAGE DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:05pm USER: CORUMJ

A1 UTILITY PLAN - OVERALL

1" = 100'

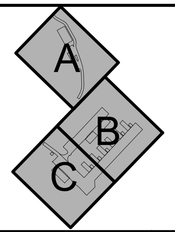
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR ADDITIONAL NOTES.
2. SEE CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. SEE CS100-C2103 FOR SITE LAYOUT INFORMATION
4. SEE CG100-CG103 FOR SITE GRADING AND DRAINAGE INFORMATION
5. SEE TS101TS111 FOR SITE TELECOM INFORMATION
6. SEE ES101-ES105 SITE ELECTRICAL INFORMATION
7. CONFIRM MECHANICAL EQUIPMENT PAD SIZES BASED ON PURCHASED EQUIPMENT, PRIOR TO CONSTRUCTION. PROVIDE EQUIPMENT PADS AS PART OF SITE WORK. REFER TO STRUCTURAL DRAWINGS FOR PAD DETAILS.

KEYED NOTES

1. CONCRETE APRON
2. STORMWATER MANAGEMENT AREA
3. POV PARKING

KEYPLAN



GRAPHIC SCALE

1"=100' 0' 100' 200'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · 6/23/25 · LICENSED PROFESSIONAL ENGINEER

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES JC	DRW NM	CHK RC	
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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

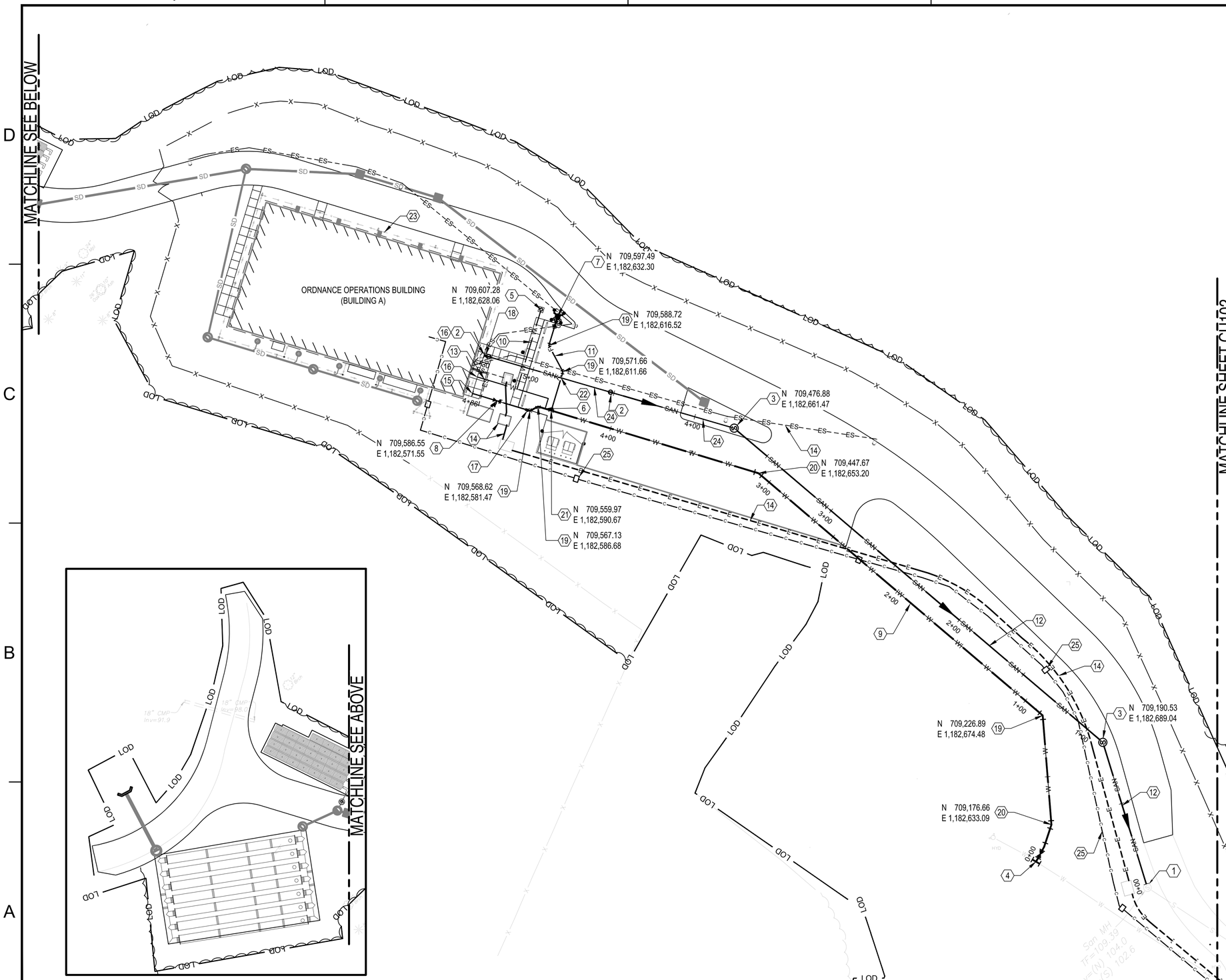
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
MID-ATLANTIC

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
UTILITY PLAN - OVERALL

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893900
SHEET 94 OF 152

CU100

FILE NAME: C:\pw_work\d\dsr0037\jdrey.corum@jacobs.com\d0919642\P1102_CU100.dwg LAYOUT NAME: CU100 UTILITY PLAN – OVERALL PLOTTED: Tuesday, June 17, 2025 – 1:17pm USER: CORUMJ



A1 UTILITY PLAN - AREA A

1" = 30'

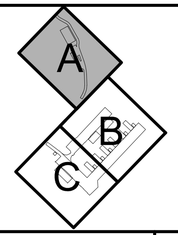
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR ADDITIONAL NOTES.
2. REFER TO CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. REFER TO CS100-C2103 FOR SITE LAYOUT INFORMATION
4. REFER TO CG100-CG103 FOR SITE GRADING AND DRAINAGE INFORMATION
5. REFER TO TS101TS111 FOR SITE TELECOM INFORMATION
6. REFER TO ES101-ES105 SITE ELECTRICAL INFORMATION
7. CONFIRM MECHANICAL EQUIPMENT PAD SIZES BASED ON PURCHASED EQUIPMENT, PRIOR TO CONSTRUCTION. PROVIDE EQUIPMENT PADS AS PART OF SITE WORK. REFER TO STRUCTURAL DRAWINGS FOR PAD DETAILS.
8. COORDINATES ARE TO CENTER OF STRUCTURE OR PIPE FITTING.

KEYED NOTES

1. CONNECT TO EXISTING SANITARY MANHOLE, REFER TO C2/CU501
2. SANITARY SEWER CLEAN-OUT, REFER TO C3/CU501
3. SANITARY MANHOLE, REFER TO A1/CU501
4. CONNECT TO EXISTING WATER LINE WITH 10"x10" TEE AND VALVE, REFER TO C1 AND C2/CU502
5. AUTOMATIC FLUSHING SYSTEM (COLD CLIMATE), PROVIDE 3' x 3' x 4" THICK GRAVEL PAD AROUND FLUSHING VALVE, REFER TO A1/CU502
6. CONNECT TO WATER LINE WITH SERVICE CLAMP AND CORPORATION STOP
7. FIRE HYDRANT, REFER TO C5/CU502
8. POST INDICATOR VALVE, REFER TO A2/CU502
9. 10" DIP WATERLINE. WATERLINE A, REFER TO C1/CU201 AND C1/CU501
10. 1" PVC WATERLINE
11. 6" DIP FIRE LINE, REFER TO C1/CU501
12. 8" PVC SANITARY SEWER LINE. SANITARY SEWER B, REFER TO A1/CU210 AND C1/CU501.
13. 2 $\frac{1}{2}$" COPPER WATER LINE
14. ELECTRICAL DUCTBANK AND EQUIPMENT, REFER TO ELECTRICAL DRAWINGS
15. REFER TO FIRE PROTECTION FOR CONTINUATION
16. REFER TO PLUMBING FOR CONTINUATION
17. 10" TO 6" REDUCER
18. 8" TO 4" REDUCER
19. 45° BEND, REFER TO C2/CU502
20. 22.5° BEND, REFER TO C2/CU502
21. 10" x 6" TEE, REFER TO C2/CU502
22. PIPE CONFLICT, REFER TO A3 AND B3/CU502
23. ELECTRICAL GROUNDING LOOP, REFER TO ORDNANCE OPERATIONS BUILDING DRAWING EG101
24. 6" PVC SANITARY SEWER LINE. SANITARY SEWER B, REFER TO A1/CU210 AND C1/CU501.
25. TELECOM LINE AND EQUIPMENT, REFER TO TELECOM DRAWINGS

KEYPLAN



GRAPHIC SCALE

1"=30' 0' 30' 60'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER — 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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
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

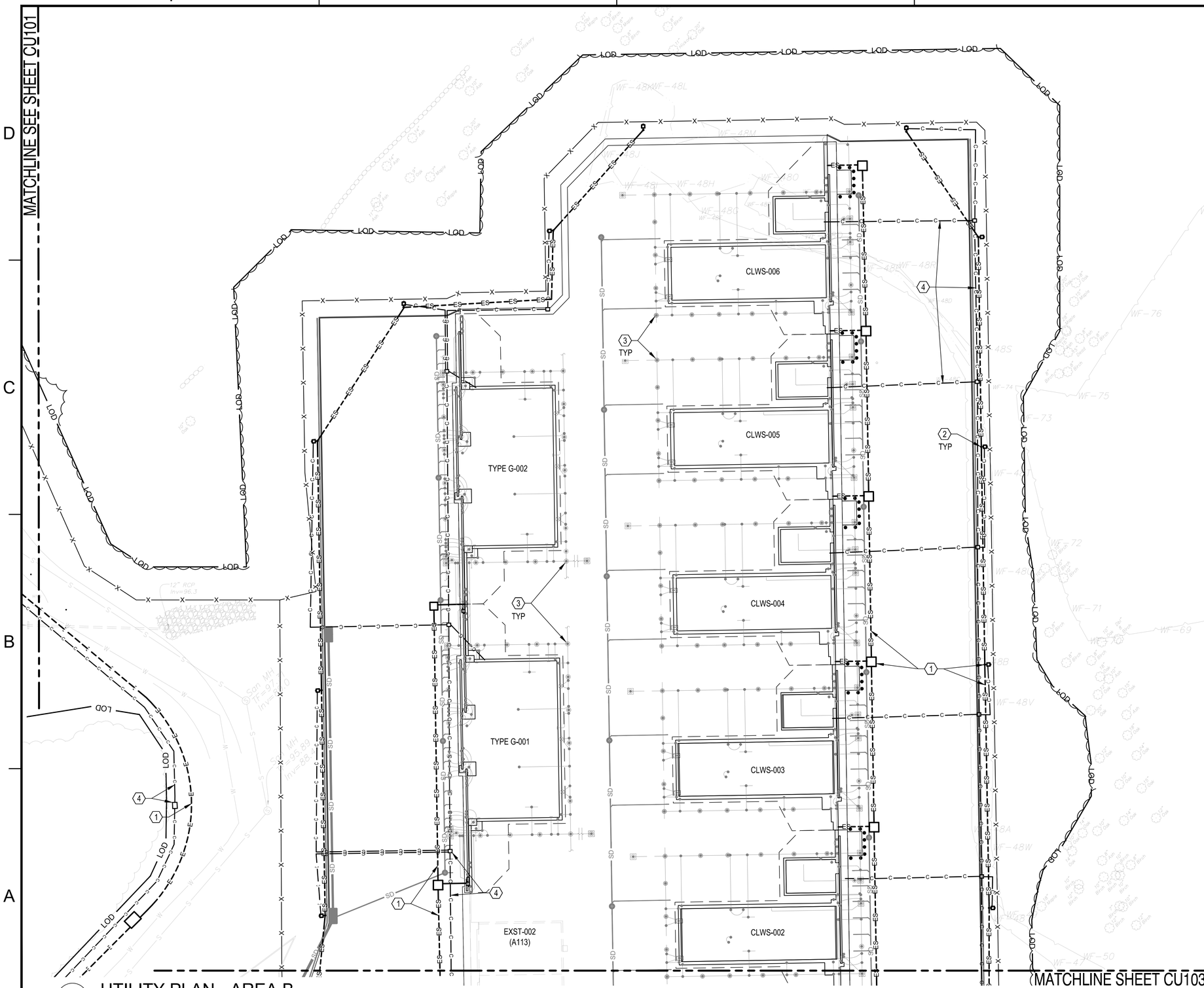
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE

CIVIL
UTILITY PLAN - AREA A

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893901
SHEET 95 OF 152

CU101

FILE NAME: C:\pw_workdir\dms003\jdiney.corum@jacobs.com\d0919642\P1102_CU101 UTILITY PLAN PLOTTED: Tuesday, June 17, 2025 – 1:18pm USER: CORUMJ



A1 UTILITY PLAN - AREA B

1" = 30'

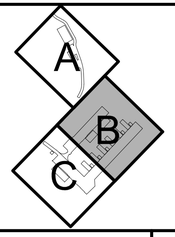
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR ADDITIONAL NOTES.
2. REFER TO CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. REFER TO CS100-C2103 FOR SITE LAYOUT INFORMATION
4. REFER TO CG100-CG103 FOR SITE GRADING AND DRAINAGE INFORMATION
5. REFER TO TS101TS111 FOR SITE TELECOM INFORMATION
6. REFER TO ES101-ES105 SITE ELECTRICAL INFORMATION
7. CONFIRM MECHANICAL EQUIPMENT PAD SIZES BASED ON PURCHASED EQUIPMENT, PRIOR TO CONSTRUCTION. PROVIDE EQUIPMENT PADS AS PART OF SITE WORK. REFER TO STRUCTURAL DRAWINGS FOR PAD DETAILS.

KEYED NOTES

1. ELECTRICAL DUCT BANK AND EQUIPMENT, REFER TO ELECTRICAL DRAWINGS
2. SITE LIGHTING, REFER TO ELECTRICAL DRAWINGS
3. ELECTRICAL GROUND TEST WELL AND GROUND LOOP, REFER TO ELECTRICAL TYPE G SHEET E-103 AND CLWS SHEET E-102B.
4. TELECOM LINE AND EQUIPMENT, REFER TO TELECOM DRAWINGS

KEYPLAN



GRAPHIC SCALE

1"=30' 0' 30' 60'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT
JOSHUA D. CORUM
36275
LICENSED PROFESSIONAL ENGINEER
6/23/25
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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

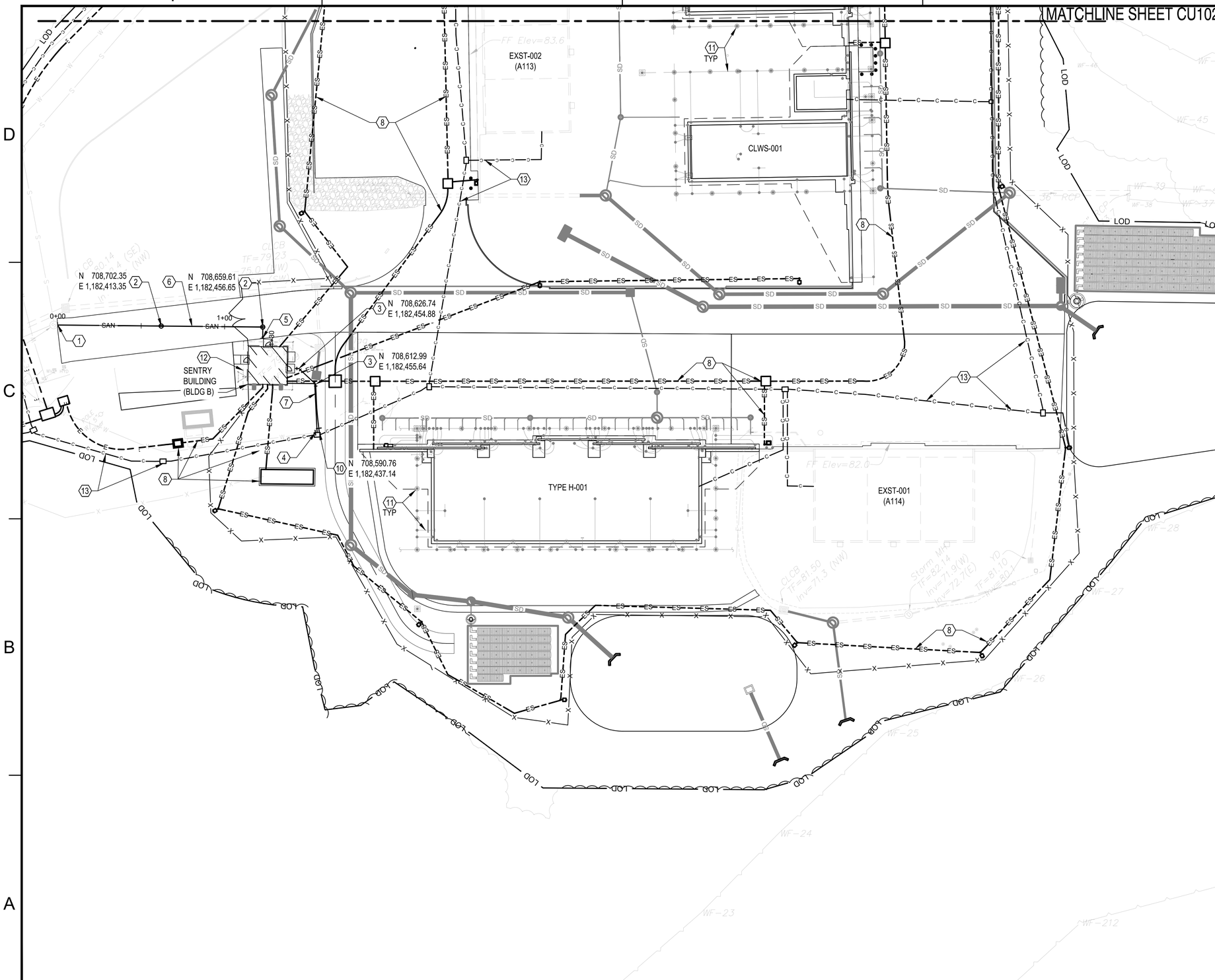
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC

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
SITE
CIVIL
UTILITY PLAN - AREA B

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.
12893902
SHEET 96 OF 152
CU102

FILE NAME: C:\pw_workdir\dms003\jdiney.corum@jacobs.com\d0919642\P1102_CU102.dwg LAYOUT NAME: CU102 UTILITY PLAN PLOTTED: Tuesday, June 17, 2025 - 1:19pm USER: CORUMJ



A1 UTILITY PLAN - AREA C

1" = 30'

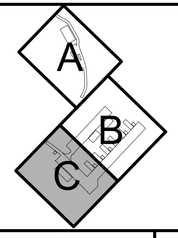
GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR ADDITIONAL NOTES.
2. REFER TO CD100-CD103 FOR SITE DEMOLITION INFORMATION
3. REFER TO CS100-C2103 FOR SITE LAYOUT INFORMATION
4. REFER TO CG100-CG103 FOR SITE GRADING AND DRAINAGE INFORMATION
5. REFER TO TS101-TS111 FOR SITE TELECOM INFORMATION
6. REFER TO ES101-ES105 SITE ELECTRICAL INFORMATION
7. CONFIRM MECHANICAL EQUIPMENT PAD SIZES BASED ON PURCHASED EQUIPMENT, PRIOR TO CONSTRUCTION. PROVIDE EQUIPMENT PADS AS PART OF SITE WORK. REFER TO STRUCTURAL DRAWINGS FOR PAD DETAILS.
8. COORDINATES ARE TO CENTER OF STRUCTURE OR PIPE FITTING.

KEYED NOTES

1. CONNECT TO EXISTING SANITARY MANHOLE, REFER TO C2/CU501
2. SANITARY SEWER CLEAN-OUT, REFER TO C3/CU501
3. 45° BEND
4. CONNECT TO EXISTING WATER LINE WITH 90° BEND
5. 6" TO 4" REDUCER
6. 6" PVC SANITARY SEWER LINE. SANITARY SEWER A, REFER TO C1/CU210 AND C1/CU501.
7. 1 $\frac{1}{2}$" COPPER WATER LINE, REFER TO C1/CU501
8. ELECTRICAL DUCTBANK AND EQUIPMENT, REFER TO ELECTRICAL DRAWINGS
9. REFER TO PLUMBING FOR CONTINUATION
10. 90° BEND
11. ELECTRICAL GROUND TEST WELL AND GROUND LOOP, REFER TO ELECTRICAL TYPE H SHEET E-103 AND CLWS SHEET E-102B.
12. SENTRY BUILDING ELECTRICAL GROUND LOOP, REFER TO SENTRY BUILDING DRAWING EG101
13. TELECOM LINE AND EQUIPMENT, REFER TO TELECOM DRAWINGS

KEYPLAN



GRAPHIC SCALE

1"=30' 0' 30' 60'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25 · 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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

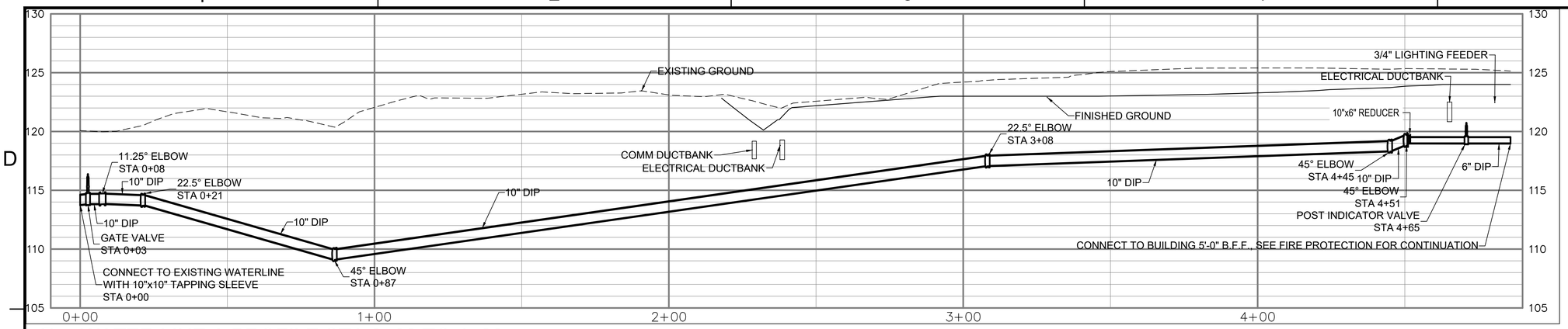
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC

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
SITE
CIVIL
UTILITY PLAN - AREA C

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893903
SHEET 97 OF 152
CU103

FILE NAME: C:\pw_workdir\den003\jdiney.corum@jacobs.com\d0919642\P1102_CU103.dwg LAYOUT NAME: CU103 UTILITY PLAN PLOTTED: Tuesday, June 17, 2025 - 1:20pm USER: CORUMJ



C1 WATER LINE A PROFILE STA 0+00 TO 4+86

1" = 5' VERTICAL; 1" = 20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT
JOSHUA D. CORUM
36275
LICENSED
PROFESSIONAL ENGINEER
6/23/25
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 8/14/2025

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

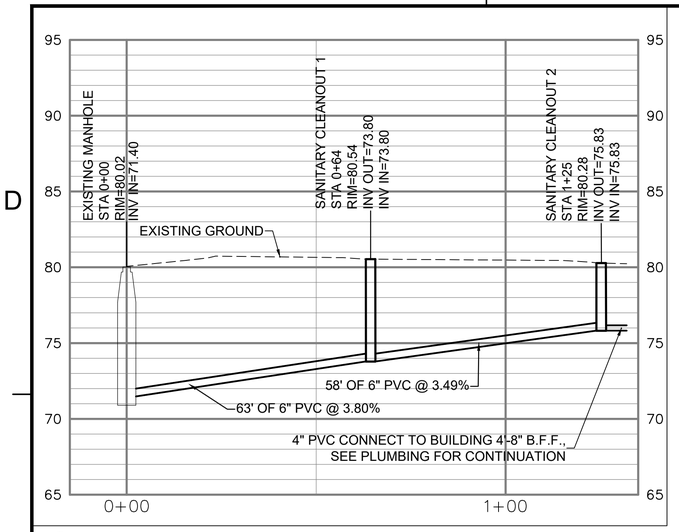
SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
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
SITE
CIVIL
WATERLINE PROFILES

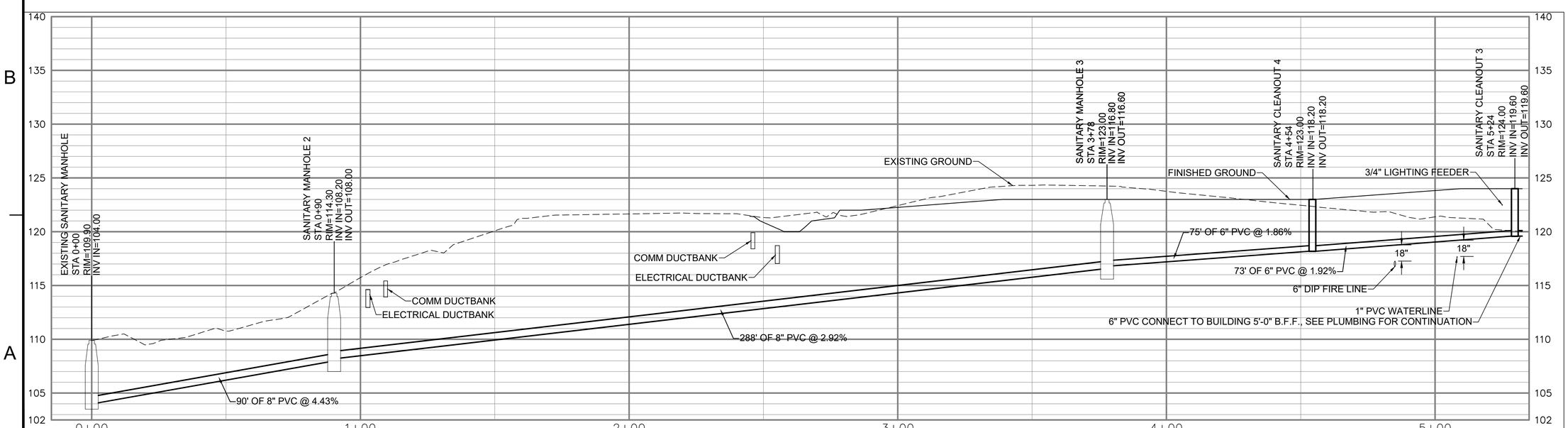
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893904
SHEET 98 OF 152
CU201

FILE NAME: C:\pw_workdir\dms003\jcriney.corum@jacobs.com\d0919642\P1102_CU201.dwg LAYOUT NAME: CU201 WATERLINE PROFILES PLOTTED: Tuesday, June 17, 2025 - 1:21pm USER: CORUMJL



C1 SANITARY SEWER A PROFILE STA 0+00 TO 1+32

1" = 5' VERTICAL; 1" = 20' HORIZONTAL



A1 SANITARY SEWER B PROFILE STA 0+00 TO 5+32

1" = 5' VERTICAL; 1" = 20' HORIZONTAL

VERTICAL SCALE 1"=5' 0' 5' 10'

HORIZONTAL SCALE 1"=20' 0' 10' 20' 40'

STM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT · JOSHUA D. CORUM · 36275 · LICENSED PROFESSIONAL ENGINEER · 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW	NM	CHK	RC

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

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

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
SANITARY SEWER PROFILES

SCALE: AS NOTED

EPROJECT NO.: 1667770

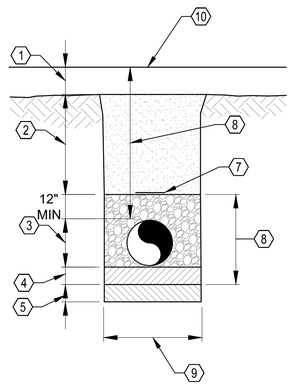
CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12893905

SHEET 99 OF 152

CU210

FILE NAME: C:\pw_work\dms\dms0033\joiney.corum@jacobs.com\d0919642\P1102_CU210.dwg LAYOUT NAME: CU210 SANITARY SEWER PROFILES PLOTTED: Tuesday, June 17, 2025 - 1:22pm USER: CORUMJ



1. SURFACING, OR SURFACE RESTORATION, SEE PLANS
2. BACKFILL TRENCH WITH SATISFACTORY EXCAVATED MATERIAL, REFER TO NOTE
3. PIPE OUTSIDE DIAMTER
4. PIPE BEDDING MATERIAL
5. TRENCH STABILIZATION WHERE REQUIRED
6. DEPTH OF COVER
7. MARKING TAPE
8. SAND BEDDING PIPE ZONE
9. MINIMUM WIDTH = PIPE OD + 1'-6"
10. FINISHED GRADE

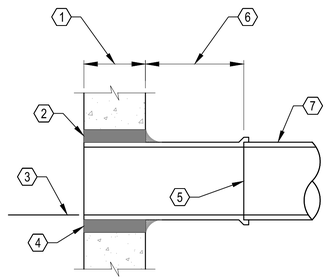
NOTE:

FOR BACKFILL UNDER EXISTING PAVEMENTS, PROVIDE EXCAVATABLE FLOWABLE FILL SPECIFIED.

TYPICAL TRENCH (C1)

SCALE: NTS

CU102 CU501 CU103

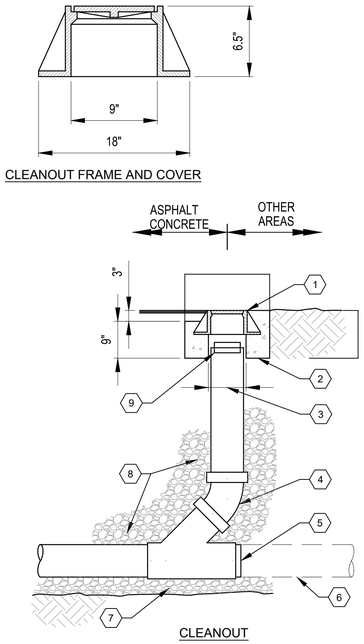


1. EXISTING CONCRETE
2. CORE DRILL HOLE PIPE OD+2.5" ± CLEAN PRIOR TO INSTALLING GROUT AND PIPE
3. INVERT ELEVATION SHOWN ON PLAN
4. SEAL WITH NEOPRENE GASKET
5. FLEXIBLE JOINT REQUIRED. PIPE BELL WITH RUBBER INSERT OR PLAIN END WITH APPROVED FLEX COUPLING
6. PIPE DIA, 8"- 18" MAX
7. PIPE

CONNECTION TO EXISTING MANHOLE (C2)

SCALE: NTS

CU103 CU501

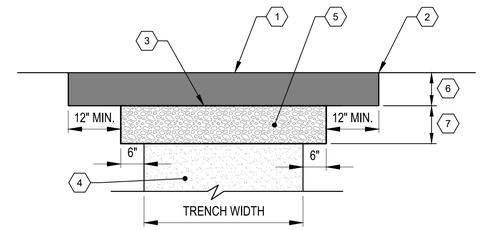


1. CLEANOUT FRAME AND COVER
2. CONCRETE COLLAR
3. PIPE OD + 1"
4. 45° BEND
5. PLUG OR ADAPTER TO SERVICE PIPE
6. SERVICE PIPE
7. PIPE BEDDING MATERIAL AS SPECIFIED
8. PROVIDE PIPE BEDDING MATERIAL FOR A MINIMUM OF 8" AROUND CLEANOUT WYE
9. WATERTIGHT PIPE PLUG

SEWER CLEAN-OUT (C3)

SCALE: NTS

CU102 CU501



NOTES:

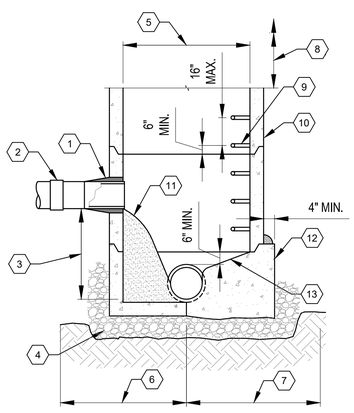
FOR CONNECTION TO EXISTING ASPHALT, SEE DETAIL C2/CS502.

1. ASPHALT SURFACE
2. SAW CUT EXISTING PAVEMENT (TYP.)
3. PRIME COAT
4. EXCAVATABLE FLOWABLE FILL
5. COMPACTED AGGREGATE BASE COURSE
6. MATCH EXISTING PAVEMENT THICKNESS OR 4" MIN.
7. MATCH EXISTING AGGREGATE BASE COURSE THICKNESS OR 5" MIN.

ASPHALT PAVEMENT PATCH (C4)

SCALE: NTS

E-001 CU501

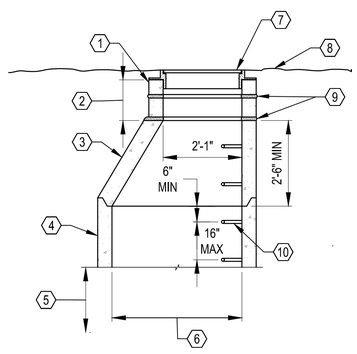


1. FLEXIBLE MANHOLE CONNECTOR
2. PROVIDE JOINT ON PIPE WITHIN 1'-6" OF OUTSIDE FACE OF MANHOLE
3. LESS THAN 2'-0"
4. COMPACTED IMPORTED PIPE BEDDING TO UNDISTURBED EARTH, 6" MIN
5. REFER TO PLAN AND PROFILE SHEETS FOR STRUCTURE DIAMETER
6. PRECAST BASE
7. CAST-IN-PLACE BASE
8. MANHOLE TOP, SEE A2 THIS SHEET
9. MANHOLE STEPS REQUIRED FOR DEPTHS OF 4'-12', PROVIDE LADDER FOR DEPTHS OVER 12'
10. PRECAST MANHOLE SECTIONS
11. GROUT IN EVEN SLOPE FROM FLOW LINE TO FLOW LINE, SEE A2 THIS SHEET
12. POURED OR PRECAST CONC BASE AT CONTRACTORS OPTION
13. SLOPE 2" PER 1'-0"

MANHOLE BASE SECTION - 6" TO 24" PIPE (A1)

SCALE: NTS

CU102 CU103



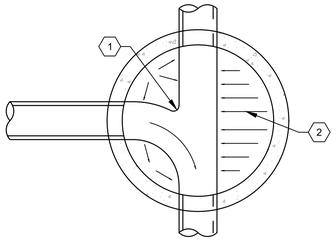
1. PRECAST CONC GRADE RINGS
2. VARIES AS REQD 2" MINIMUM 12" MAXIMUM
3. PRECAST ECCENTRIC CONE
4. PRECAST MANHOLE SECTIONS
5. MANHOLE BASE
6. REFER TO PLAN AND PROFILE SHEETS FOR STRUCTURE DIAMETER
7. MANHOLE FRAME AND COVER, SEE A5 THIS SHEET
8. FINISHED GRADE
9. GROUT
10. MANHOLE STEPS REQUIRED FOR DEPTHS OF 4'-12', PROVIDE LADDER FOR DEPTHS OVER 12'

MANHOLE ECCENTRIC TOP SECTION (A2)

SCALE: NTS

CU102 CU103 CU501

1. INVERT OF CHANNEL CONSTRUCTED TO UNIFORM FLOW LINES WITH GRADUAL TRANSITION SECTIONS
2. SLOPE 2" PER FOOT, TYP

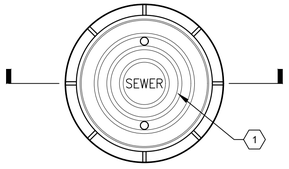


MANHOLE CHANNEL INTERSECTION (A4)

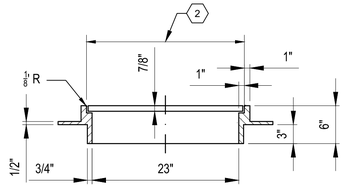
SCALE: NTS

CU102 CU103

1. OPTIONAL LETTERING "STORM"
2. MACHINE TO A TRUE 25"



SOLID COVER



SECTION

MANHOLE FRAME AND COVER (A5)

SCALE: NTS

CU501 CU501

APPR.	
DATE	
DESCRIPTION	
STM	

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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

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

NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CIVIL
UTILITY DETAILS

SCALE: AS NOTED

EPROJECT NO.: 1667770

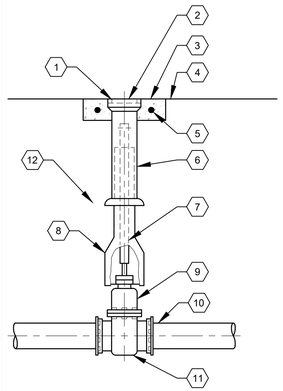
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12893906

SHEET 100 OF 152

CU501

FILE NAME: C:\pw_workdir\dms003\jdiney.corum@jacobs.com\d0919642\P1102_CU501.dwg LAYOUT NAME: CU501 UTILITY DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:23pm USER: CORUMJ



1. SET COVER OF VALVE BOX FLUSH WITH GRADE
2. CAST IRON LID
3. PROVIDE 2'-0" SQ. x 6" THICK CONC. PAD
4. FINISHED GRADE
5. #4 BAR SURROUND
6. CAST IRON VALVE BOX, SLIDING TYPE, UPPER SECTION
7. EXTENSION ROD REQ'D W/ 2" OPERATING NUT 12" BELOW GRADE WHEN VALVE IS OVER 3'-0" BELOW GRADE
8. CAST IRON VALVE BOX, LOWER SECTION
9. GATE VALVE
10. WATER LINE
11. VALVE SIZE AND ENDS AS SPECIFIED
12. COMPACTED BACKFILL, AS SPECIFIED

VALVE BOX

SCALE: NTS

C1 CU101 CU502

THRUST BLOCK NOTES

A. KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES.

B. POUR CONCRETE THRUST BLOCKING AGAINST UNDISTURBED EARTH.

C. REQUIRED VOLUMES OR BEARING AREAS AT FITTINGS MUST BE AS LISTED IN THE TABLE TO CONFORM TO TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES) DETERMINED IN FINAL GEOTECHNICAL REPORT.

D. THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS ARE BASED ON AN ASSUMED TEST PRESSURE OF 200 PSI AND WEIGHT OF CONCRETE = 150 LBS/CU FOOT.

E. BEARING AREAS FOR HORIZONTAL BEND THRUST BLOCKS ARE BASED ON ASSUMED TEST PRESSURE OF 200 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 3000 PSF.

F. THRUST BLOCKS FOR VERTICAL BENDS HAVING DOWNWARD RESULTANT THRUSTS MUST BE THE SAME AS FOR HORIZONTAL BENDS.

G. BEARING AREAS, VOLUMES, AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER THIS STANDARD

H. BEARING AREA OF THRUST BLOCK MUST NOT BE LESS THAN 1.0 SQ. FOOT.

I. CONTRACTOR IS RESPONSIBLE FOR ADJUSTMENTS TO THRUST BLOCK SIZING BASED ON ACTUAL TEST PRESSURES OF THE SYSTEM AND SOIL BEARING CAPACITY OUTLINED IN GEOTECHNICAL REPORT.

BEARING AREA OF THRUST BLOCKS IN SQ. FEET (HORIZONTAL BENDS)

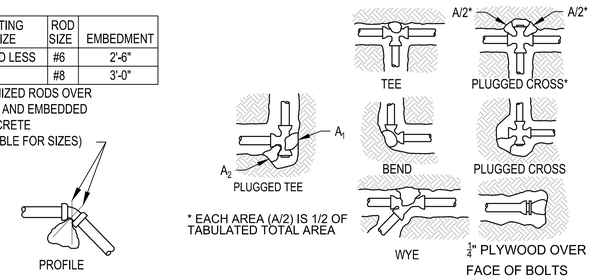
FITTING SIZE	TEE, WYE, PLUG, OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED RUN		BEND ANGLE		
			A_1	A_2	45°	22 1/2°	11 1/4°
4"	1.26	1.78	1.78	1.78	0.96	0.49	0.25
6"	2.83	4.00	4.00	4.00	2.16	1.10	0.55
8"	5.03	7.11	7.11	7.11	3.85	1.96	0.99
10"	7.85	11.11	11.11	11.11	6.01	3.06	1.54
12"	11.31	15.99	15.99	15.99	8.66	4.41	2.22

VOLUME OF THRUST BLOCKS IN CUBIC YARDS (VERTICAL BENDS)

FITTING SIZE	BEND ANGLE		
	45°	22 1/2°	11 1/4°
4"	0.99	0.53	0.27
6"	2.22	1.20	0.41
8"	3.95	2.14	0.73
10"	6.17	3.34	1.13
12"	8.88	4.81	1.63

FITTING SIZE	ROD SIZE	EMBEDMENT
12" AND LESS	#6	2'-6"
14"-16"	#8	3'-0"

GALVANIZED RODS OVER FITTING AND EMBEDDED IN CONCRETE (SEE TABLE FOR SIZES)

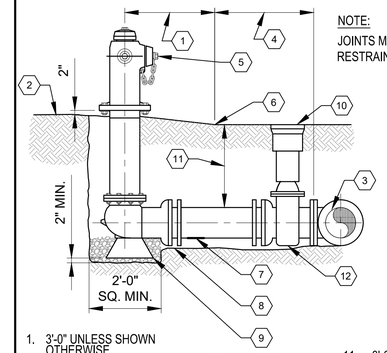


* EACH AREA (A/2) IS 1/2 OF TABULATED TOTAL AREA

THRUST BLOCK NOTES & DETAILS

SCALE: NTS

C2 CU101 CU502



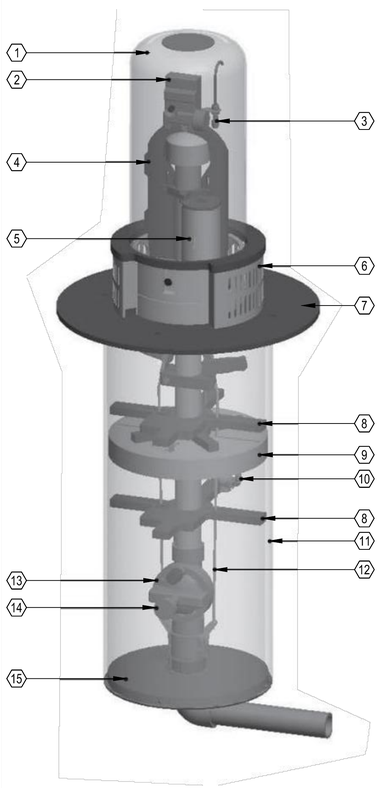
NOTE:
JOINTS MUST BE RESTRAINED.

1. 3'-0" UNLESS SHOWN OTHERWISE
2. FINISHED GRADE
3. WATER MAIN W/ MJ x FLG TEE
4. REFER TO PLAN SHEETS
5. NOZZLE THREADS AS SPECIFIED
6. E.O.P. WHERE APPLICABLE
7. 6" WATER LINE MJ
8. HYDRANT OUTLET
9. PRECAST CONC PIER BLOCK, 1'-4" SQ BASE
10. VALVE BOX
11. 3'-6" MIN.
12. 6" FLG x MJ GATE VALVE

FIRE HYDRANT

SCALE: NTS

C5 CU101 CU502

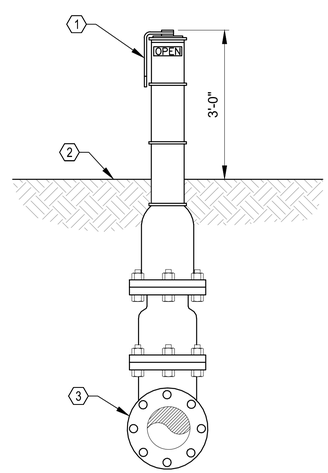


1. UV PROTECTIVE HOUSING
2. CONTROLLER ASSEMBLY
3. SAMPLE VALVE ASSEMBLY
4. RISER ASSEMBLY
5. DECHLORINATION SYSTEM
6. STAINLESS STEEL HOUSING BRACKET
7. SPLASH PAD
8. CENTERING STAR
9. INSULATION STAR SUB-ASSEMBLY
10. FREEZE PROTECTION SYSTEM SUB-ASSEMBLY
11. ASSEMBLY RISER
12. LATCHING RODS $\frac{1}{4}$" X 26"
13. LATCHING SOLENOID SUB-ASSEMBLY
14. CONTROL VALVE SUB-ASSEMBLY
15. BOTTOM PLATE SUB-ASSEMBLY

HYDRANT AUTO-FLUSHER

SCALE: NTS

A1 CU101 CU502

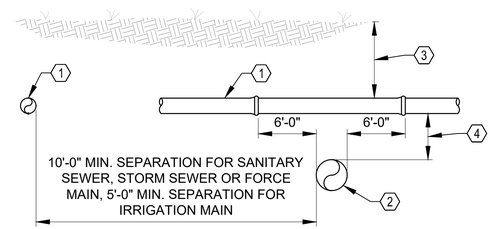


1. OPERATING WRENCH, PADLOCK, AND LOCKING STAPLE
2. FINISHED GRADE
3. MAIN WATER LINE

POST INDICATOR VALVE

SCALE: NTS

A2 CU101 CU502



1. WATER MAIN
2. SANITARY SEWER, STORM SEWER, IRRIGATION MAIN AND FORCE MAIN
3. 2'-6" MINIMUM COVER
4. 1'-6" MINIMUM SEPARATION

NOTES:

A. SEPARATE WATER MAINS FROM STORM SEWER, SANITARY SEWER, NON-POTABLE IRRIGATION MAINS, AND FORCE MAINS BY A MINIMUM CLEAR VERTICAL DISTANCE OF 1'-6" MEASURED BETWEEN THE BOTTOM OF THE UPPER PIPE AND THE TOP OF THE LOWER PIPE. THE 1'-6" MINIMUM VERTICAL SEPARATION DISTANCE DOES NOT APPLY TO SEPARATIONS OF SEWER LATERALS AND POTABLE WATER MAIN PIPELINE INSTALLATIONS. SEPARATE WATER MAINS FROM STORM SEWER, SANITARY SEWER AND FORCE MAINS BY 10'-0", AND FROM IRRIGATION MAINS BY 5'-0" MEASURED HORIZONTALLY BETWEEN OUTSIDE OF PIPES.

B. SUBMIT FOR APPROVAL A DEVIATION FOR CROSSINGS WITH VERTICAL CLEARANCE LESS THAN 1'-6". IF A DEVIATION IS SUBMITTED, THE FOLLOWING MINIMUM STIPULATIONS APPLY: PROVIDE CROSSING USING THICKNESS CLASS 200 AWWA C-900 DR14, PVC (CLASS 16 BAR AWWA C-905, DR 18, PVC FOR PIPES GREATER THAN 12" IN DIAMETER) OR DUCTILE IRON, PRESSURE CLASS C40 PIPE FOR A HORIZONTAL DISTANCE OF 10'-0" ON EACH SIDE OF THE CROSSING. PROVIDE WATER MAIN CONCRETE ENCASEMENT AFTER OBTAINING WRITTEN APPROVAL FROM THE WATER DIRECTOR OR CONTRACTING OFFICER.

C. DO NOT REDUCE 1'-6" CLEAR DISTANCE IN CASES WHERE WATER CROSSES UNDER SEWER LINE.

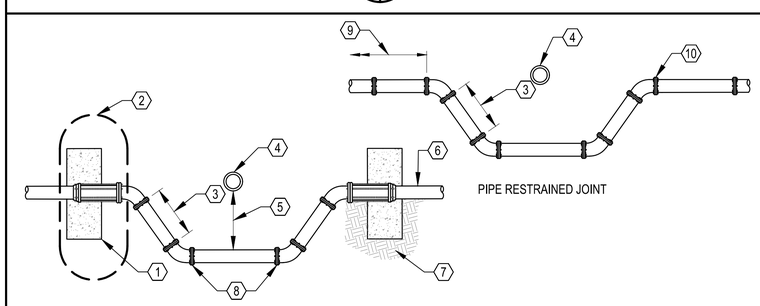
D. PROVIDE WATER MAINS, SANITARY SEWER, STORM SEWER, AND NON-POTABLE IRRIGATION MAINS IN SEPARATE TRENCHES.

E. PROVIDE WATER MAINS CROSSING SANITARY SEWER, INCLUDING FORCE MAIN, OR STORM SEWER, WITH ONE FULL LENGTH OF WATER MAIN CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO WATER JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, ARRANGE PIPES SO THAT WATER MAIN JOINTS ARE AT LEAST 3'-0" FROM JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORM WATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER.

PIPE SEPARATION DETAIL

SCALE: NTS

B3 CU101 CU502



1. ACHIEVE WEIGHT TO WITHSTAND CONCRETE QUANTITY TO FORCE OF PIPE
2. REFER TO THRUST BLOCK DETAIL FOR EXISTING PIPE, DETAIL C2, THIS SHEET
3. LENGTH TO ACHIEVE CLEARANCE
4. ITEM IN CONFLICT
5. 1'-6" MINIMUM
6. EXISTING PIPE
7. UNDISTURBED SOIL
8. RESTRAINED JOINT FITTINGS 45° (TYP)
9. RESTRAIN LENGTH, BASED ON DIAMETER OF PIPE: 4" - 33'-0", 6" - 50'-0", 8" - 67'-0"
10. RESTRAINED JOINT

PIPE CONFLICT DETAIL

SCALE: NTS

A3 CU101 CU502

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — JOSHUA D. CORUM — 36275 — LICENSED PROFESSIONAL ENGINEER — 6/23/25

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 8/14/2025

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

SATISFACTORY TO DATE 05/27/2025

DES	JC	DRW NM	CHK RC
PM/DM			SMS/CWJ
BRANCH MANAGER			DLB
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
SITE
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
CIVIL
UTILITY DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.
12893907
SHEET 101 OF 152

CU502

FILE NAME: C:\pw_workdir\dm0033\jdney.corum@jacobs.com\d0919642\P1102_CU502 UTILITY DETAILS.dwg LAYOUT NAME: CU502 UTILITY DETAILS PLOTTED: Tuesday, June 17, 2025 – 1:24pm USER: CORUMJ