P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY

SITE

NAVAL SUBMARINE BASE NEW LONDON, GROTON, CONNECTICUT

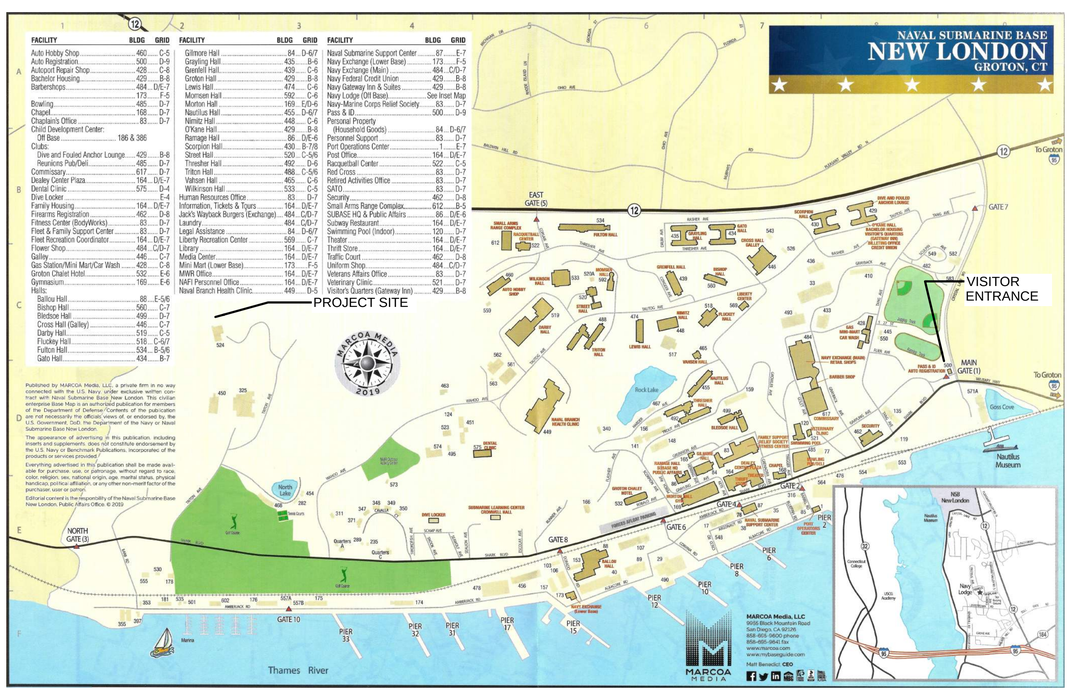
NAVAL FACILITIES ENGINEERING COMMAND MID-ATLANTIC

NAVFAC FACILITIES ENGINEERING AND ACQUISITION DIVISION (FEAD)

FINAL DESIGN

6/23/2025

VICINITY MAP



FACILITY	BLDG	GRID
Auto Hobby Shop	460	C-5
Auto Registration	500	D-9
Autoport Repair Shop	428	C-8
Bachelor Housing	429	B-8
Barbershops	484	D/E-7
	173	F-5
Bowling	485	D-7
Chapel	168	D-7
Chaplain's Office	83	D-7
Child Development Center:		
Off Base	186 & 386	
Clubs:		
Dive and Fouled Anchor Lounge	429	B-8
Reunions Pub/Deli	485	D-7
Commissary	617	D-7
Dealey Center Plaza	164	D/E-7
Dental Clinic	575	D-4
Dive Locker		E-4
Family Housing	164	D/E-7
Firearms Registration	492	D-8
Fitness Center (BodyWorks)	83	D-7
Fleet & Family Support Center	83	D-7
Fleet Recreation Coordinator	164	D/E-7
Flower Shop	484	C/D-7
Galley	446	C-7
Gas Station/Mini Mart/Car Wash	428	C-8
Groton Chalet Hotel	532	E-6
Gymnasium	169	E-6
Halls:		
Ballou Hall	88	E-5/6
Bishop Hall	560	C-7
Bledsoe Hall	499	D-7
Cross Hall (Galley)	446	C-7
Darby Hall	519	C-5
Fluckey Hall	518	C-5/7
Fulton Hall	534	B-5/6
Gato Hall	434	B-7

FACILITY	BLDG	GRID
Gillmore Hall	84	D-6/7
Grayling Hall	435	B-6
Grenfell Hall	439	C-6
Groton Hall	429	B-8
Lewis Hall	474	C-6
Morrison Hall	592	C-6
Morton Hall	169	E/D-6
Nautilus Hall	455	D-6/7
Nimitz Hall	448	C-6
O'Kane Hall	429	B-8
Ramage Hall	86	D/E-6
Scorpion Hall	430	B-7/8
Street Hall	520	C-5/6
Thresher Hall	492	D-6
Tilton Hall	488	C-5/6
Vahsen Hall	465	C-5
Wilkinson Hall	533	C-5
Human Resources Office	83	D-7
Information, Tickets & Tours	164	D/E-7
Jack's Wayback Burgers (Exchange)	484	C/D-7
Laundry	484	C/D-7
Legal Assistance	84	D-6/7
Liberty Recreation Center	569	C-7
Library	164	D/E-7
Media Center	164	D/E-7
Mini Mart (Lower Base)	173	F-5
MWR Office	164	D/E-7
NAFI Personnel Office	164	D/E-7
Naval Branch Health Clinic	449	D-5

FACILITY	BLDG	GRID
Naval Submarine Support Center	87	E-7
Navy Exchange (Lower Base)	173	F-5
Navy Exchange (Main)	484	C/D-7
Navy Federal Credit Union	429	B-8
Navy Gateway Inn & Suites	429	B-8
Navy Lodge (Off Base)	See Inset Map	
Navy-Marine Corps Relief Society	83	D-7
Pass & ID	500	D-9
Personal Property (Household Goods)	84	D-6/7
Personnel Support	83	D-7
Port Operations Center		E-7
Post Office	164	D/E-7
Racquetball Center	522	C-5
Red Cross	83	D-7
Retired Activities Office	83	D-7
SATO	83	D-7
Security	462	D-8
Small Arms Range Complex	612	B-5
SUBASE HQ & Public Affairs	86	D/E-6
Subway Restaurant	164	D/E-7
Swimming Pool (Indoor)	120	D-7
Theater	164	D/E-7
Thrift Store	164	D/E-7
Traffic Court	462	D-8
Uniform Shop	484	C/D-7
Veterans Affairs Office	83	D-7
Veterinary Clinic	521	D-7
Visitor's Quarters (Gateway Inn)	429	B-8

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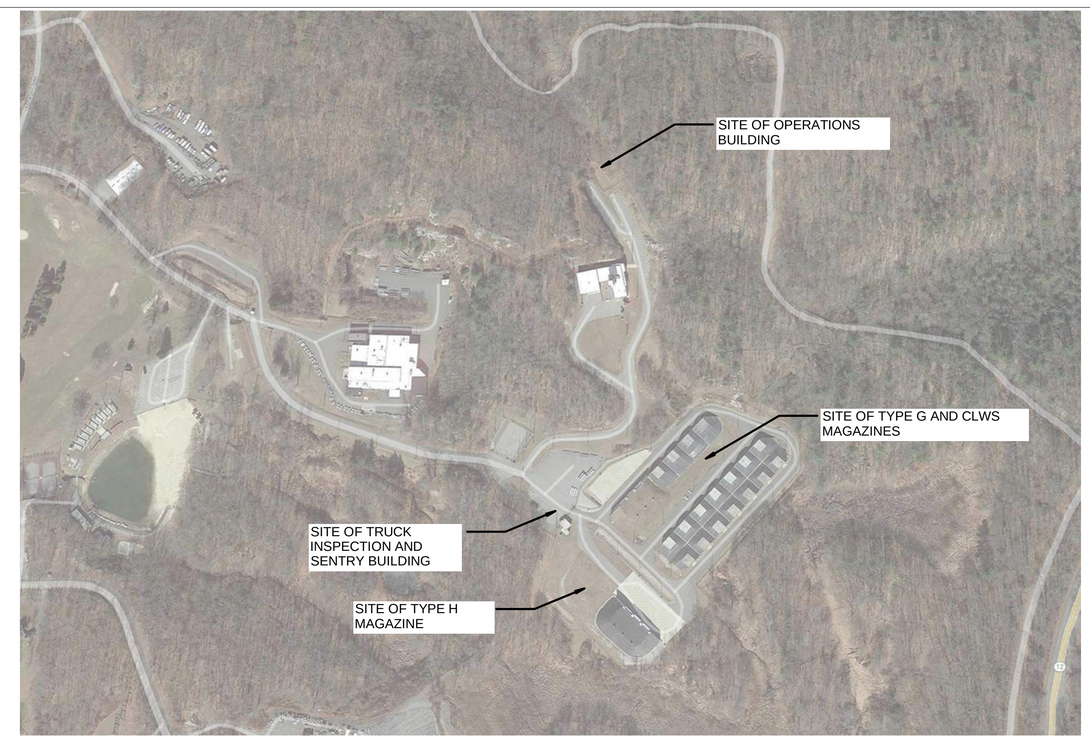
LOCATION MAP



SYM	DESCRIPTION	DATE	APPR

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SATISFACTORY TO DATE 05/27/2025

DES	MD	DRW MD	CHK RC
PM/DM	SMS/CWJ		
BRANCH MANAGER	NEK		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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

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

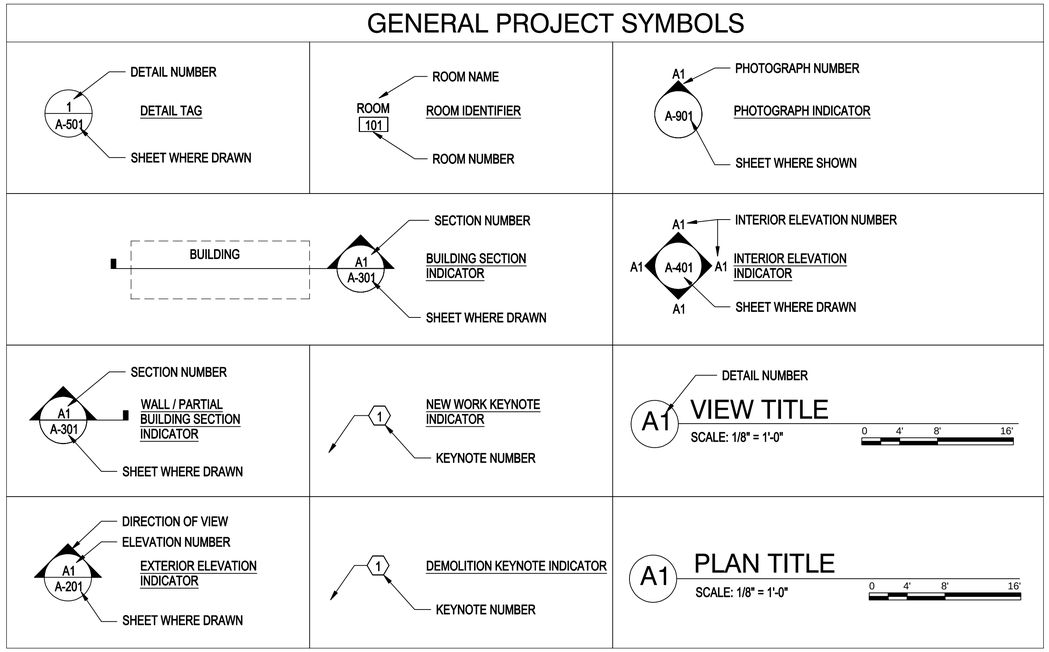
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
COVER SHEET

SCALE:	AS NOTED
EPROJECT NO.:	1667770
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12893807
SHEET	1 OF 152

G-001

FILE NAME: C:\pw_workdir\dms003\jmg_mcadic\d1503110\SITE-G-001 - COVER SHEET.dwg LAYOUT NAME: Layout PLOTTED: Thursday, June 19, 2025 - 12:47pm USER: wcxd4j

GENERAL PROJECT SYMBOLS



SITE LIST OF SHEETS

SHEET NO. NO.	SHEET NO. SHEET	NAVFAC DWG NO.	SHEET TITLE
GENERAL			
1	G-001	12893807	COVER SHEET
2	G-002	12893808	SHEET INDEX
3	GC101	12893809	CONSTRUCTION PHASING PLAN - PHASE 1
4	GC102	12893810	CONSTRUCTION PHASING PLAN - PHASE 2
5	GC103	12893811	CONSTRUCTION PHASING PLAN - PHASE 3
HAZARDOUS MATERIAL			
6	HD101	12893812	TYPICAL MAGAZINE STORAGE BUILDING A94-A111
7	HD102	12893813	FIRST FLOOR BUILDING 393
8	HD103	12893814	FIRST FLOOR PLAN BUILDING 524
9	HD104	12893815	SECOND FLOOR PLAN BUILDING 524
10	H-101	12893816	LAND USE CONTROL PLAN HAZMAT
11	H-102	12893817	LAND USE CONTROL PLAN HAZMAT
GEOTECHNICAL			
12	B-101	12893818	GROUND IMPROVEMENTS PLAN
13	B-102	12893819	TOP OF BEDROCK ELEVATIONS
14	B-501	12893820	ROCK FALL PROTECTION MESH DETAILS
15	BB101	12893821	BORING LOCATION PLAN
16	BB301	12893822	BORING LOGS
17	BB302	12893823	BORING LOGS
18	BB303	12893824	BORING LOGS
19	BB304	12893825	BORING LOGS
20	BB305	12893826	BORING LOGS
21	BB306	12893827	BORING LOGS
22	BB307	12893828	BORING LOGS
23	BB308	12893829	BORING LOGS
CIVIL			
24	V-100	12893830	EXISTING CONDITIONS PLAN - OVERALL CIVIL
25	V-101	12893831	EXISTING CONDITIONS PLAN - AREA A CIVIL
26	V-102	12893832	EXISTING CONDITIONS PLAN - AREA B CIVIL
27	V-103	12893833	EXISTING CONDITIONS PLAN - AREA C CIVIL
28	C-001	12893834	GENERAL NOTES & LEGEND CIVIL
29	C-002	12893835	VICINITY MAP & HAUL ROUTE CIVIL
30	C-003	12893836	OVERALL SITE KEY MAP CIVIL
31	C-004	12893837	EROSION & SEDIMENT CONTROL - GENERAL NOTES CIVIL
32	C-100	12893838	INITIAL EROSION AND SEDIMENT CONTROL PLAN - OVERALL CIVIL
33	C-101	12893839	INITIAL EROSION AND SEDIMENT CONTROL PLAN - AREA A CIVIL
34	C-102	12893840	INITIAL EROSION AND SEDIMENT CONTROL PLAN - AREA B CIVIL
35	C-103	12893841	INITIAL EROSION AND SEDIMENT CONTROL PLAN - AREA C CIVIL
36	C-104	12893842	INITIAL EROSION AND SEDIMENT CONTROL PLAN - AREA D CIVIL
37	C-105	12893843	INITIAL EROSION AND SEDIMENT CONTROL PLAN - AREA E CIVIL
38	C-110	12893844	FINAL EROSION AND SEDIMENT CONTROL PLAN - OVERALL CIVIL
39	C-111	12893845	FINAL EROSION AND SEDIMENT CONTROL PLAN - AREA A CIVIL
40	C-112	12893846	FINAL EROSION AND SEDIMENT CONTROL PLAN - AREA B CIVIL
41	C-113	12893847	FINAL EROSION AND SEDIMENT CONTROL PLAN - AREA C CIVIL
42	C-114	12893848	FINAL EROSION AND SEDIMENT CONTROL PLAN - AREA D CIVIL
43	C-115	12893849	FINAL EROSION AND SEDIMENT CONTROL PLAN - AREA E CIVIL
44	C-501	12893850	EROSION AND SEDIMENT CONTROL DETAILS CIVIL
45	C-502	12893851	EROSION AND SEDIMENT CONTROL DETAILS CIVIL
46	C-503	12893852	EROSION AND SEDIMENT CONTROL DETAILS CIVIL
47	CD100	12893853	DEMOLITION PLAN - OVERALL CIVIL
48	CD101	12893854	DEMOLITION PLAN - AREA A CIVIL
49	CD102	12893855	DEMOLITION PLAN - AREA B CIVIL
50	CD103	12893856	DEMOLITION PLAN - AREA C CIVIL
51	CD901	12893857	DEMOLITION PHOTOS - OPS BUILDING CIVIL
52	CD902	12893858	DEMOLITION PHOTOS - OPS BUILDING CIVIL
53	CD903	12893859	DEMOLITION PHOTOS - OPS BUILDING CIVIL
54	CD904	12893860	DEMOLITION PHOTOS - SENTRY BUILDING CIVIL
55	CD905	12893861	DEMOLITION PHOTOS - SENTRY BUILDING CIVIL
56	CD906	12893862	DEMOLITION PHOTOS - MAGAZINES CIVIL
57	CD907	12893863	DEMOLITION PHOTOS - MAGAZINES CIVIL
58	CD908	12893864	DEMOLITION PHOTOS - MAGAZINES CIVIL
59	CD909	12893865	DEMOLITION PHOTOS - MAGAZINES CIVIL
60	CD910	12893866	DEMOLITION PHOTOS - MAGAZINES CIVIL
61	CS100	12893867	SITE LAYOUT PLAN - OVERALL
62	CS101	12893868	SITE LAYOUT PLAN - AREA A
63	CS102	12893869	SITE LAYOUT PLAN - AREA B
64	CS103	12893870	SITE LAYOUT PLAN - AREA C
65	CS501	12893871	SITE & PAVING DETAILS
66	CS502	12893872	SITE & PAVING DETAILS
67	CS503	12893873	SITE & PAVING DETAILS
68	CS504	12893874	SITE & PAVING DETAILS
69	CG100	12893875	GRADING AND DRAINAGE PLAN - OVERALL
70	CG101	12893876	GRADING AND DRAINAGE PLAN - AREA A
71	CG102	12893877	GRADING AND DRAINAGE PLAN - AREA B
72	CG103	12893878	GRADING AND DRAINAGE PLAN - AREA C
73	CG201	12893879	STORMWATER PROFILES
74	CG202	12893880	STORMWATER PROFILES
75	CG203	12893881	STORMWATER PROFILES
76	CG210	12893882	ROADWAY PROFILE

SITE LIST OF SHEETS

SHEET NO. NO.	SHEET NO. SHEET	NAVFAC DWG NO.	SHEET TITLE
77	CG301	12893883	SITE SECTIONS
78	CG302	12893884	SITE SECTIONS
79	CG303	12893885	SITE SECTIONS
80	CG304	12893886	SITE SECTIONS
81	CG305	12893887	SITE SECTIONS
82	CG401	12893888	ENLARGED GRADING PLANS & SECTIONS
83	CG402	12893889	ENLARGED GRADING PLANS & SECTIONS
84	CG403	12893890	ENLARGED GRADING PLANS & SECTIONS
85	CG501	12893891	GRADING & DRAINAGE DETAILS
86	CG502	12893892	GRADING & DRAINAGE DETAILS
87	CG503	12893893	GRADING & DRAINAGE DETAILS
88	CG504	12893894	GRADING & DRAINAGE DETAILS
89	CG505	12893895	GRADING & DRAINAGE DETAILS
90	CG506	12893896	GRADING & DRAINAGE DETAILS
91	CG507	12893897	GRADING & DRAINAGE DETAILS
92	CG508	12893898	GRADING & DRAINAGE DETAILS
93	CG509	12893899	GRADING & DRAINAGE DETAILS
94	CU100	12893900	UTILITY PLAN - OVERALL
95	CU101	12893901	UTILITY PLAN - AREA A
96	CU102	12893902	UTILITY PLAN - AREA B
97	CU103	12893903	UTILITY PLAN - AREA C
98	CU201	12893904	WATERLINE PROFILES
99	CU210	12893905	SANITARY SEWER PROFILES
100	CU501	12893906	UTILITY DETAILS
101	CU502	12893907	UTILITY DETAILS
LANDSCAPE			
102	LS101	12893908	LANDSCAPE - AREA A
103	LS102	12893909	LANDSCAPE - AREA B
104	LS103	12893910	LANDSCAPE - AREA C
105	LS501	12893911	LANDSCAPE - DETAILS
ELECTRICAL			
106	E-001	12893912	ELECTRICAL GENERAL NOTES
107	E-002	12893913	ELECTRICAL ABBREVIATIONS
108	E-003	12893914	ELECTRICAL SYMBOLS
109	ED101	12893915	ELECTRICAL SITE DEMOLITION PLAN - AREA A
110	ED102	12893916	ELECTRICAL SITE DEMOLITION PLAN - AREA B
111	ED103	12893917	ELECTRICAL SITE DEMOLITION PLAN - AREA C
112	ED104	12893918	ELECTRICAL SITE DEMOLITION PLAN - AREA D
113	ED105	12893919	ELECTRICAL SITE DEMOLITION PLAN - AREA E
114	ED601	12893920	MV SINGLE LINE DIAGRAM - DEMOLITION
115	ES101	12893921	ELECTRICAL SITE PLAN - AREA A
116	ES102	12893922	ELECTRICAL SITE PLAN - AREA B
117	ES103	12893923	ELECTRICAL SITE PLAN - AREA C
118	ES104	12893924	ELECTRICAL SITE PLAN - AREA D
119	ES105	12893925	ELECTRICAL SITE PLAN - AREA E
120	E-501	12893926	ELECTRICAL DETAILS
121	E-502	12893927	ELECTRICAL DETAILS
122	E-503	12893928	ELECTRICAL DETAILS
123	E-504	12893929	ELECTRICAL DETAILS
124	E-601	12893930	MEDIUM VOLTAGE SINGLE LINE DIAGRAM
125	E-602	12893931	LOW VOLTAGE DUCTBANK DIAGRAM
126	E-701	12893932	LIGHTING FIXTURE AND CONTROLS SCHEDULES
TELECOMMUNICATIONS			
127	TS001	12893933	TELECOMMUNICATIONS SYMBOLS AND NOTES
128	TD101	12893934	TELECOMMUNICATIONS DEMO SITE PLAN - AREA A
129	TD102	12893935	TELECOMMUNICATIONS DEMO SITE PLAN - AREA B
130	TD103	12893936	TELECOMMUNICATIONS DEMO SITE PLAN - AREA C
131	TD104	12893937	TELECOMMUNICATIONS DEMO SITE PLAN - AREA D
132	TD105	12893938	TELECOMMUNICATIONS DEMO SITE PLAN - AREA E
133	TS100	12893939	TELECOM SITE PLAN - OVERALL
134	TS101	12893940	TELECOMMUNICATIONS SITE PLAN - AREA A
135	TS102	12893941	TELECOMMUNICATIONS SITE PLAN - AREA B
136	TS103	12893942	TELECOMMUNICATIONS SITE PLAN - AREA C
137	TS104	12893943	TELECOMMUNICATIONS SITE PLAN - AREA D
138	TS105	12893944	TELECOMMUNICATIONS SITE PLAN - AREA E
139	TS106	12893945	TELECOMMUNICATIONS SITE PLAN - AREA F
140	TS107	12893946	TELECOMMUNICATIONS SITE PLAN - AREA G
141	TS108	12893947	TELECOMMUNICATIONS SITE PLAN - AREA H
142	TS109	12893948	TELECOMMUNICATIONS SITE PLAN - AREA I
143	TS110	12893949	TELECOMMUNICATIONS SITE PLAN - AREA J
144	TS111	12893950	TELECOMMUNICATIONS SITE PLAN - AREA K
SECURITY			
145	TY001	12893952	SECURITY SYMBOLS AND NOTES
146	TY100	12893953	SECURITY SITE PLAN - OVERALL
147	TY101	12894327	SECURITY SITE PLAN - AREA A
148	TY102	12894354	SECURITY SITE PLAN - AREA B
149	TY103	12894355	SECURITY SITE PLAN - AREA C
150	TY104	12894328	SECURITY SITE PLAN - AREA D
151	TY501	12894356	SECURITY DETAIL
152	TY601	12898113	SECURITY DIAGRAM

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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SATISFACTORY TO DATE 05/27/2025

DES	MD	DRW	MD	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	NEK				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

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

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893808
SHEET 2 OF 152

G-002

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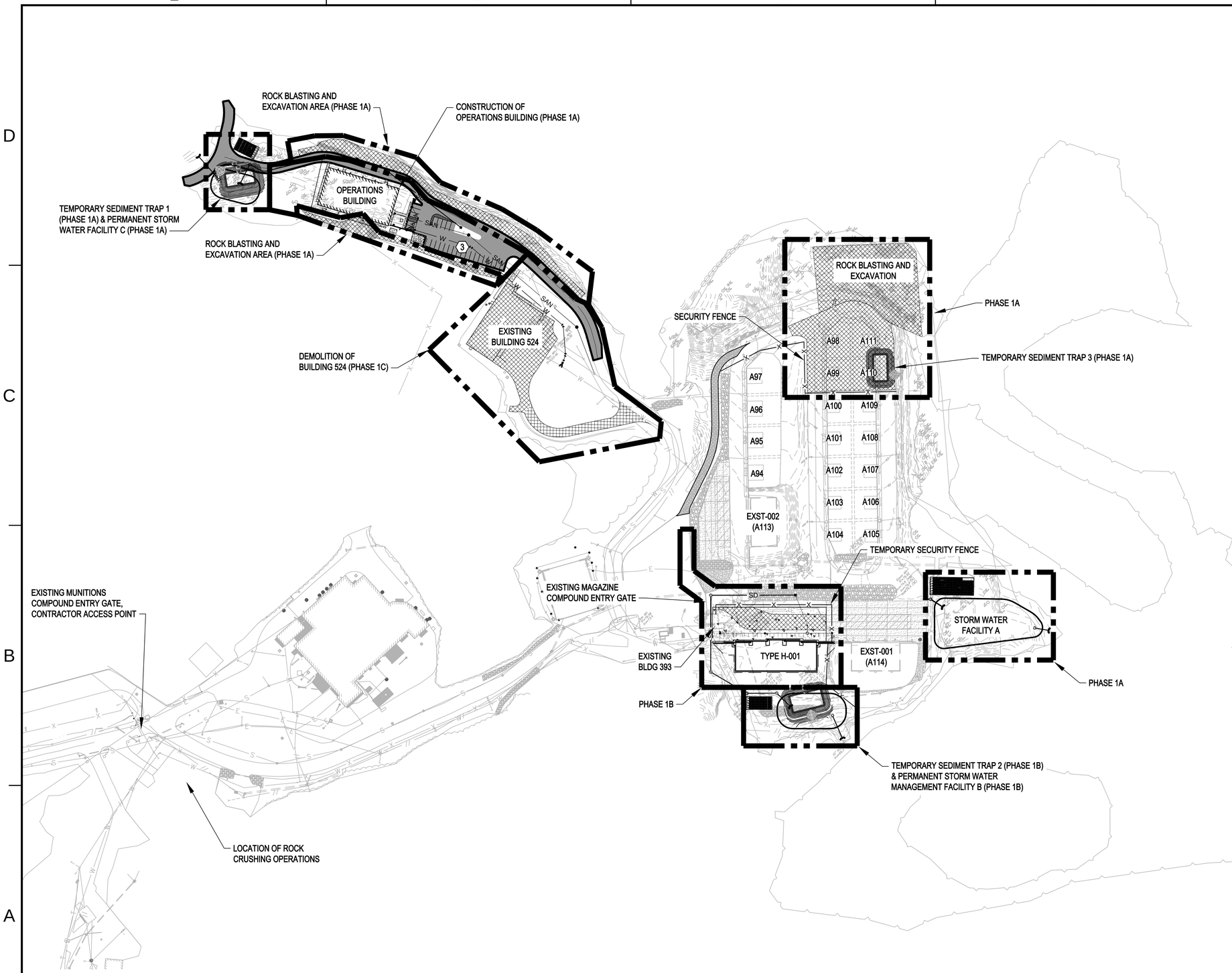


A1 CONSTRUCTION PHASING PLAN - PHASE 1

1" = 100'

GENERAL SHEET NOTES

1. REFER TO SHEETS C-001 TO C-004 FOR ADDITIONAL NOTES, EROSION CONTROL SEQUENCING, CONTRACTOR LAY DOWN AREA, AND SITE ACCESS.
2. REFER TO SHEETS CD100 TO CD103 FOR SITE DEMOLITION INFORMATION.
3. REFER TO SHEETS CS100 TO CS103 FOR SITE LAYOUT INFORMATION.
4. REFER TO SHEETS CG100 TO CG103 FOR SITE GRADING AND DRAINAGE INFORMATION.
5. REFER TO SHEETS CU100 TO CU103 FOR SITE UTILITY INFORMATION.
6. MAINTAIN ACCESS AND FUNCTIONALITY OF MAGAZINES TO REMAIN DURING PHASE 1 OPERATIONS INCLUDING POWER, SECURITY FEATURES, GROUNDING GRID, AND INTRUSION DETECTION SYSTEM.
7. TEMPORARY SECURITY FENCE MUST BE INSTALLED PRIOR TO DEMOLITION OF EXISTING PERIMETER FENCE AND BE FULLY GROUNDED AND BONDED.
8. CONTRACTOR MUST IMMEDIATELY CEASE BLASTING, EXCAVATION, DEMOLITION, CONSTRUCTION ACTIVITIES, AND VACATE THE SITE AT THE REQUEST OF SECURITY FORCES, MUNITIONS STAFF, OR CONTRACTING OFFICER TO FACILITATE NORMAL OPERATIONS AND SECURITY DRILLS ON SITE. CONSTRUCTION AND DEMOLITION ACTIVITIES, INCLUDING SITE ACCESS, WILL ONLY BE ALLOWED TO RESUME UPON VERBAL APPROVAL OF SECURITY FORCES, MUNITIONS STAFF, OR THE CONTRACTING OFFICER.
9. THE GOVERNMENT WILL MAINTAIN ACCESS CONTROL TO ACTIVE MAGAZINES (MAGAZINES NOT SCHEDULED FOR DEMOLITION DURING PHASE 1). DO NOT BLOCK THE ENTRANCE TO OR OTHERWISE IMPEDE GOVERNMENT ACCESS TO ACTIVE MAGAZINES. THE CONTRACTOR WILL NOT HAVE FREE ACCESS TO ACTIVE MAGAZINES FOR THE DURATION OF CONSTRUCTION.
10. CONTRACTOR EMPLOYEES, INCLUDING SUBCONTRACTORS, MUST COMPLETE EXPLOSIVE SAFETY TRAINING PRIOR TO SITE ACCESS.
11. EQUIPMENT FUELING WITHIN THE MUNITIONS COMPOUND IS STRICTLY PROHIBITED, FUELING MUST ONLY OCCUR WITHIN THE CONTRACTOR LAY DOWN AND STAGING AREA.
12. SUBMIT LIST OF SPARK PRODUCING EQUIPMENT, OR EQUIPMENT UTILIZING PROPANE GAS, TO THE CONTRACTING OFFICER FOR APPROVAL PRIOR TO USE ON SITE.

PHASING NOTES

PHASE 1A

1. PROVIDE TEMPORARY CONSTRUCTION ACCESS AND SECURITY FENCING TO ENSURE A SECURE PERIMETER AROUND EXISTING MAGAZINES TO REMAIN IN PLACE DURING PHASE 1 OPERATIONS (MAGAZINES A94-A97, A-100-A104, A105-A109, A113, AND A114). REFER TO CIVIL DETAIL A1/CS504 FOR SECURITY FENCING INFORMATION.
2. DEMOLISH EXISTING MAGAZINES A98, A99, A110, AND A111 INCLUDING ASSOCIATED PAVEMENTS AND UTILITIES. INSTALL TEMPORARY SEDIMENT TRAPS 1 AND 3
3. ROCK BLASTING AND EXCAVATION FOR OPERATIONS BUILDING AND NEAR MAGAZINES A98, A99, A110, AND A111.
4. CONSTRUCT PERMANENT STORM WATER FACILITY A EAST OF EXST-001 (A114). MAINTAIN TREATMENT CHAMBERS OFFLINE UNTIL FINAL SITE STABILIZATION.
5. OPERATIONS BUILDING CONSTRUCTION INCLUDING SITE PREPARATION, DRAINAGE INFRASTRUCTURE, UTILITY INSTALLATION, ACCESS ROAD, AND PARKING LOT. CONVERT TEMPORARY SEDIMENT TRAP 1 TO PERMANENT STORM WATER FACILITY. MAINTAIN TREATMENT CHAMBERS OFFLINE UNTIL FINAL SITE STABILIZATION.
6. TRANSFER OF PERSONNEL TO OPERATIONS BUILDING.

PHASE 1B

1. INSTALL TEMPORARY SEDIMENT TRAP 2. REROUTE AND DEMOLISH EXISTING UTILITIES NECESSARY TO CONSTRUCT TYPE H MAGAZINE.
2. SITE PREPARATION, UTILITY INSTALLATION, AND CONSTRUCTION OF TYPE H MAGAZINE. CONVERT TEMPORARY SEDIMENT TRAP 2 TO PERMANENT STORM WATER FACILITY. MAINTAIN TREATMENT CHAMBERS OFFLINE UNTIL FINAL SITE STABILIZATION.

PHASE 1C

1. DEMOLITION OF EXISTING BUILDING 524, UTILITIES, AND PAVEMENTS.

GRAPHIC SCALE

1"=100' 0' 100' 200'

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

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

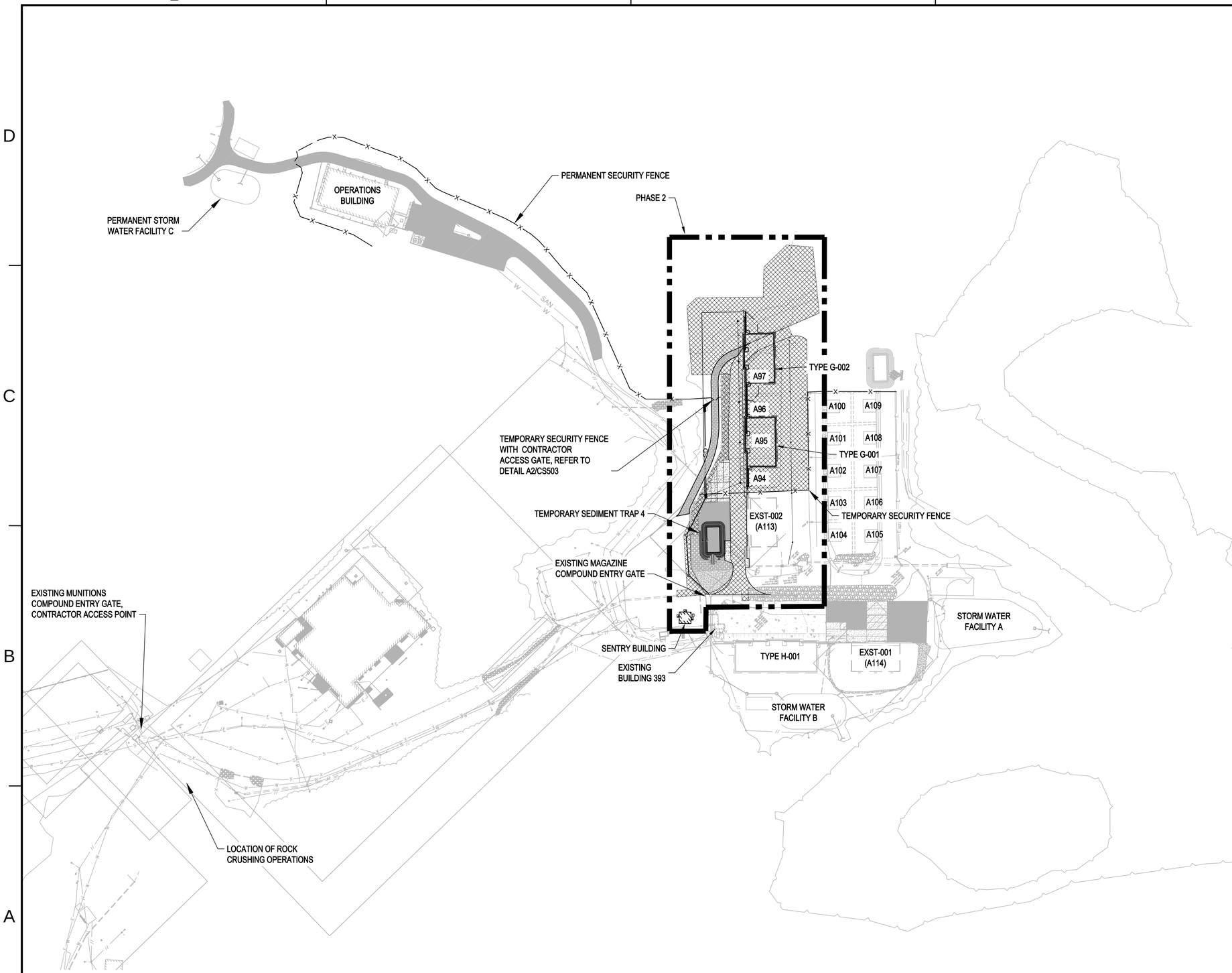
SATISFACTORY TO DATE 05/27/2025

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
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
CONSTRUCTION PHASING PLAN
PHASE 1

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893809
SHEET 3 OF 152
GC101

FILE NAME: C:\pw_workdir\dms0033\pw_wrodcj\d1503110\P1102_GC101.dwg LAYOUT NAME: GC101 – CONSTRUCTION PHASING PLAN – PHASE 1 PLOTTED: Thursday, June 19, 2025 – 12:49pm USER: wrodcj



A1 CONSTRUCTION PHASING PLAN - PHASE 2

1" = 100'

GENERAL SHEET NOTES

1. REFER TO SHEETS C-001 TO C-004 FOR ADDITIONAL NOTES, EROSION CONTROL SEQUENCING, CONTRACTOR LAY DOWN AREA, AND SITE ACCESS.
2. REFER TO SHEETS CD100 TO CD103 FOR SITE DEMOLITION INFORMATION.
3. REFER TO SHEETS CS100 TO CS103 FOR SITE LAYOUT INFORMATION.
4. REFER TO SHEETS CG100 TO CG103 FOR SITE GRADING AND DRAINAGE INFORMATION.
5. REFER TO SHEETS CU100 TO CU103 FOR SITE UTILITY INFORMATION.
6. MAINTAIN ACCESS AND FUNCTIONALITY OF NEWLY CONSTRUCTED MAGAZINES AND MAGAZINES TO REMAIN DURING PHASE 2 OPERATIONS INCLUDING POWER, SECURITY FEATURES, GROUNDING GRID, AND INTRUSION DETECTION SYSTEM.
7. TEMPORARY SECURITY FENCE MUST BE INSTALLED PRIOR TO DEMOLITION OF EXISTING PERIMETER FENCE AND BE FULLY GROUNDED AND BONDED.
8. CONTRACTOR MUST IMMEDIATELY CEASE BLASTING, EXCAVATION, DEMOLITION, CONSTRUCTION ACTIVITIES, AND VACATE THE SITE AT THE REQUEST OF SECURITY FORCES, MUNITIONS STAFF, OR CONTRACTING OFFICER TO FACILITATE NORMAL OPERATIONS AND SECURITY DRILLS ON SITE. CONSTRUCTION AND DEMOLITION ACTIVITIES, INCLUDING SITE ACCESS, WILL ONLY BE ALLOWED TO RESUME UPON VERBAL APPROVAL OF SECURITY FORCES, MUNITIONS STAFF, OR THE CONTRACTING OFFICER.
9. THE GOVERNMENT WILL MAINTAIN ACCESS CONTROL TO ACTIVE MAGAZINES (MAGAZINES NOT SCHEDULED FOR DEMOLITION DURING PHASE 1). THE CONTRACTOR WILL NOT BLOCK THE ENTRANCE TO OR OTHERWISE IMPEDE GOVERNMENT ACCESS TO ACTIVE MAGAZINES. THE CONTRACTOR WILL NOT HAVE FREE ACCESS TO ACTIVE MAGAZINES FOR THE DURATION OF CONSTRUCTION.
10. CONTRACTOR EMPLOYEES, INCLUDING SUBCONTRACTORS, MUST COMPLETE EXPLOSIVE SAFETY TRAINING PRIOR TO SITE ACCESS.
11. EQUIPMENT FUELING WITHIN THE MUNITIONS COMPOUND IS STRICTLY PROHIBITED, FUELING MUST ONLY OCCUR WITHIN THE CONTRACTOR LAY DOWN AND STAGING AREA.
12. SUBMIT LIST OF SPARK PRODUCING EQUIPMENT, OR EQUIPMENT UTILIZING PROPANE GAS, TO THE CONTRACTING OFFICER FOR APPROVAL PRIOR TO USE ON SITE.

PHASING NOTES

PHASE 2

1. MAINTAIN TEMPORARY CONSTRUCTION ACCESS AND PROVIDE TEMPORARY SECURITY FENCING TO ENSURE A SECURE PERIMETER AROUND EXISTING MAGAZINES TO REMAIN IN PLACE DURING PHASE 2 OPERATIONS (A100-A104, A105-A109, A113, A114, AND TYPE H-001). REFER TO CIVIL DETAIL A1/CS504 FOR SECURITY FENCING INFORMATION.
2. DEMOLISH PAVEMENT WEST OF EXST-002 (A113), INSTALL TEMPORARY SEDIMENT TRAP 4.
3. DEMOLISH EXISTING MAGAZINES A94, A95, A96, AND A97 INCLUDING ASSOCIATED PAVEMENTS AND UTILITIES.
4. ROCK BLASTING AND EXCAVATION FOR TYPE G MAGAZINES NEAR MAGAZINES A94, A95, A96, AND A97.
5. CONSTRUCT TYPE G MAGAZINES (TYPE G-001 AND TYPE G-002) ADJACENT TO EXST-002 (A113), INCLUDING ASSOCIATED PAVEMENTS AND UTILITIES. REPLACE EXST-002 GROUND RING DURING PAVEMENT DEMOLITION AND REPLACEMENT ASSOCIATED WITH TYPE G MAGAZINE CONSTRUCTION.
6. SITE PREPARATION, INCLUDING UTILITY INSTALLATION, AND CONSTRUCTION OF SENTRY BUILDING. INSTALLATION OF POWER AND TELECOMMUNICATIONS EQUIPMENT AND INTRUSION DETECTION SYSTEM IN SENTRY BUILDING.

GRAPHIC SCALE

1"=100' 0' 100' 200'

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
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ARLINGTON, VIRGINIA 22201
571.218.1000
FAX: 571.218.1600

A/E INFO

APPROVED FOR COMMANDER NAVFAC

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

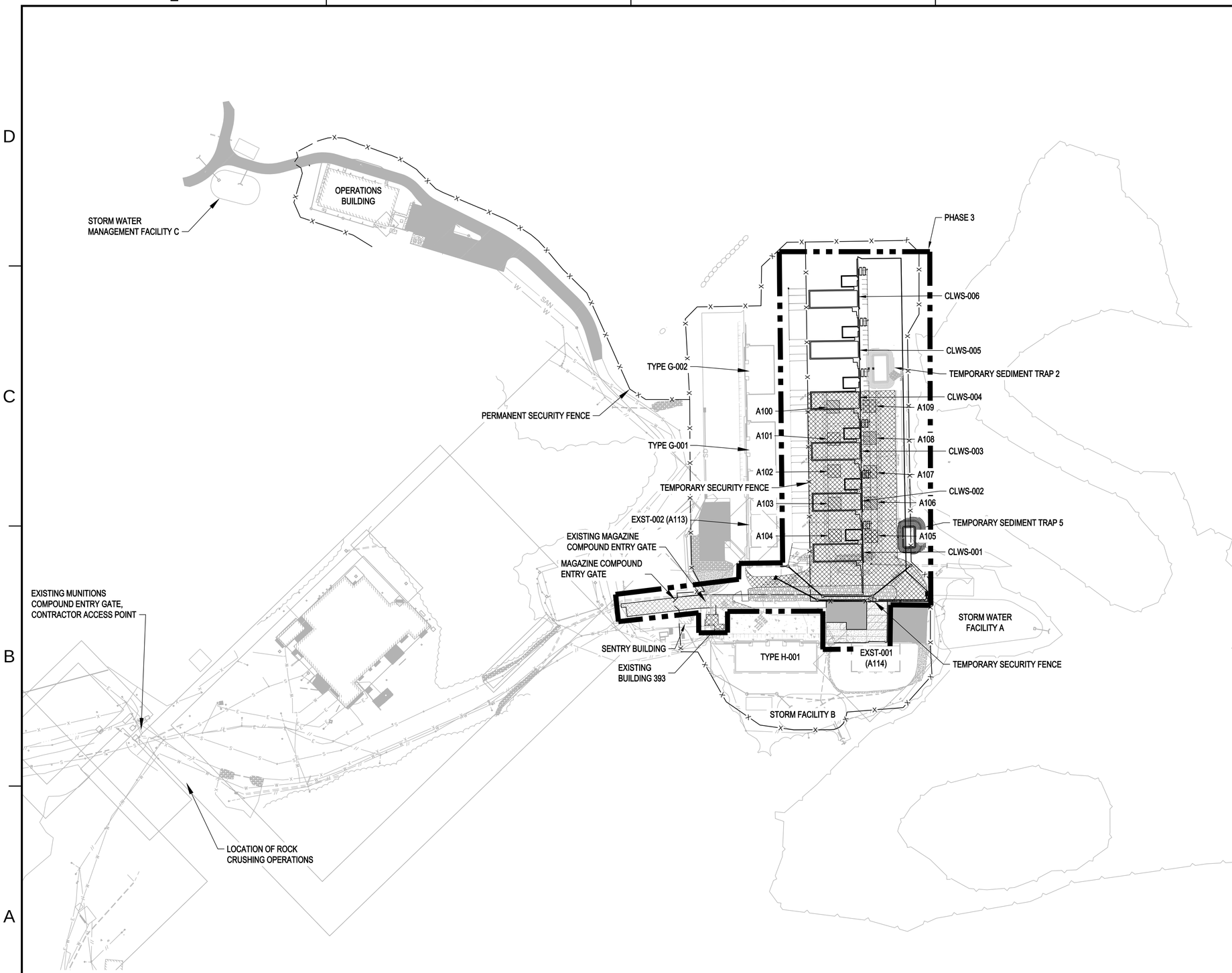
SATISFACTORY TO DATE 05/27/2025

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
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CONSTRUCTION PHASING PLAN
PHASE 2

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893810
SHEET 4 OF 152
GC102

FILE NAME: C:\pw_workdir\pw0033\proj_wrocdc\d1503110\P1102_GC102.dwg LAYOUT NAME: GC102 – CONSTRUCTION PHASING PLAN – PHASE 2 PLOTTED: Thursday, June 19, 2025 – 12:50pm USER: wrocdcj



A1 CONSTRUCTION PHASING PLAN - PHASE 3

1" = 100'

GENERAL SHEET NOTES

1. REFER TO SHEETS C-001 TO C-004 FOR ADDITIONAL NOTES, EROSION CONTROL SEQUENCING, CONTRACTOR LAY DOWN AREA, AND SITE ACCESS.
2. REFER TO SHEETS CD100 TO CD103 FOR SITE DEMOLITION INFORMATION.
3. REFER TO SHEETS CS100 TO CS103 FOR SITE LAYOUT INFORMATION.
4. REFER TO SHEETS CG100 TO CG103 FOR SITE GRADING AND DRAINAGE INFORMATION.
5. REFER TO SHEETS CU100 TO CU103 FOR SITE UTILITY INFORMATION.
6. MAINTAIN ACCESS AND FUNCTIONALITY OF MAGAZINES CONSTRUCTED DURING PHASE 1 AND 2 OPERATIONS INCLUDING POWER, SECURITY FEATURES, GROUNDING GRID, AND INTRUSION DETECTION SYSTEM.
7. TEMPORARY SECURITY FENCE MUST BE INSTALLED PRIOR TO DEMOLITION OF EXISTING PERIMETER FENCE AND BE FULLY GROUNDED AND BONDED.
8. CONTRACTOR MUST IMMEDIATELY CEASE BLASTING, EXCAVATION, DEMOLITION, CONSTRUCTION ACTIVITIES, AND VACATE THE SITE AT THE REQUEST OF SECURITY FORCES, MUNITIONS STAFF, OR CONTRACTING OFFICER TO FACILITATE NORMAL OPERATIONS AND SECURITY DRILLS ON SITE. CONSTRUCTION AND DEMOLITION ACTIVITIES, INCLUDING SITE ACCESS, WILL ONLY BE ALLOWED TO RESUME UPON VERBAL APPROVAL OF SECURITY FORCES, MUNITIONS STAFF, OR THE CONTRACTING OFFICER.
9. THE GOVERNMENT WILL MAINTAIN ACCESS CONTROL TO ACTIVE MAGAZINES (MAGAZINES CONSTRUCTED DURING PHASE 1 AND 2). THE CONTRACTOR WILL NOT BLOCK THE ENTRANCE TO OR OTHERWISE IMPEDE GOVERNMENT ACCESS TO ACTIVE MAGAZINES. THE CONTRACTOR WILL NOT HAVE FREE ACCESS TO ACTIVE MAGAZINE FOR THE DURATION OF CONSTRUCTION.
10. CONTRACTOR EMPLOYEES, INCLUDING SUBCONTRACTORS, MUST COMPLETE EXPLOSIVE SAFETY TRAINING PRIOR TO SITE ACCESS.
11. EQUIPMENT FUELING WITHIN THE MUNITIONS COMPOUND IS STRICTLY PROHIBITED, FUELING MUST ONLY OCCUR WITHIN THE CONTRACTOR LAY DOWN AND STAGING AREA.
12. SUBMIT LIST OF SPARK PRODUCING EQUIPMENT, OR EQUIPMENT UTILIZING PROPANE GAS, TO THE CONTRACTING OFFICER FOR APPROVAL PRIOR TO USE ON SITE.

PHASING NOTES

PHASE 3

1. PROVIDE TEMPORARY CONSTRUCTION ACCESS AND SECURITY FENCING TO ENSURE A SECURE PERIMETER AROUND EXISTING MAGAZINES TO REMAIN IN PLACE DURING PHASE 3 OPERATIONS (A113, A114, TYPE H-001, TYPE G-001, AND TYPE G-002). REFER TO CIVIL DETAIL A1/CS504 FOR SECURITY FENCING INFORMATION.
2. DEMOLISH EXISTING PAVEMENT EAST OF MAGAZINE A105 AND INSTALL TEMPORARY SEDIMENT TRAP 5.
3. DEMOLISH EXISTING MAGAZINES A100 TO A104 AND A105 TO A109 INCLUDING ASSOCIATED PAVEMENTS AND UTILITIES.
4. CONSTRUCT SIX (6) CLWS MAGAZINES INCLUDING UTILITIES AND ASSOCIATED PAVEMENT. ENSURE TYPE H MAGAZINE IS COMPLETE AND OPERATIONAL AND EXST-001 IS EMPTY PRIOR TO DEMOLITION AND REPLACEMENT OF EXST-001 CONCRETE APRON. REPLACE EXST-001 GROUND RING DURING PAVEMENT DEMOLITION AND REPLACEMENT.
5. DEMOLISH EXISTING BUILDING 393 INCLUDING ASSOCIATED UTILITIES AND PAVEMENTS. ENSURE POWER EQUIPMENT AND INTRUSION DETECTION SYSTEM HAVE BEEN RELOCATED AND ARE OPERATIONAL PRIOR TO DEMOLITION OF BUILDING 393.

GRAPHIC SCALE

1"=100' 0' 100' 200'

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
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ARLINGTON, VIRGINIA 22201
571.218.1000
FAX: 571.218.1600
A/E INFO

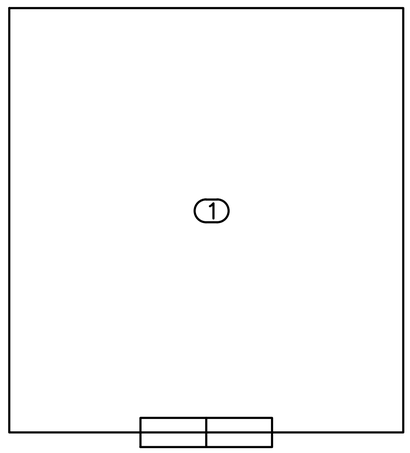
APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLON FEAD DIRECTOR NEW LONDON, GROTON, CT
SATISFACTORY TO DATE 05/27/2025

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
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
CONSTRUCTION PHASING PLAN
PHASE 3

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893811
SHEET 5 OF 152
GC103

FILE NAME: C:\pw_work\dir0037\wcjj_wcoodcj\d1503110\P1102_GC103.dwg LAYOUT NAME: GC103 – CONSTRUCTION PHASING PLAN – PHASE 3 PLOTTED: Thursday, June 19, 2025 – 12:56pm USER: wcoodcj



HAZARDOUS MATERIAL SHEET NOTES:

1. BUILDINGS A94 –A111 ARE SCHEDULED FOR DEMOLITION. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2. BASED UPON LABORATORY TESTING, NONE OF THE MATERIALS IDENTIFIED AS ASBESTOS–CONTAINING MATERIAL (ACM) WITHIN THE BUILDINGS. THE LABORATORY RESULTS ARE CONTAINED IN THE HAZARDOUS MATERIALS SURVEY REPORT FOR THIS PROJECT. ANY MATERIALS SUSPECTED OF BEING ASBESTOS–CONTAINING MATERIAL AND NOT IDENTIFIED IN THE HAZARDOUS MATERIALS SURVEY REPORT MUST BE TESTED BEFORE BEING DISTURBED. CONTACT THE CONTRACTING OFFICER FOR FURTHER INSTRUCTIONS BEFORE TESTING AND/OR REMOVING ANY SUSPECT MATERIAL. ANY ACM MUST BE REMOVED PROPERLY IN ACCORDANCE WITH THE ASBESTOS ABATEMENT SPECIFICATION.
3. BASED UPON THE AGE OF THE BUILDINGS, ALL PAINTED MATERIALS ARE ASSUMED TO BE LEAD–CONTAINING PAINT (LCP). WHILE THERE IS NO ABATEMENT OF PAINT PLANNED, THE CONTRACTOR MUST BE AWARE OF THE LCP DURING THE RENOVATION ACTIVITIES. THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) CONTRUCTION STANDARDS MUST BE OBSERVED.
4. BASED UPON THE FINDINGS, THE BUILDINGS MAY CONTAIN POTENTIAL HAZARDOUS MATERIALS AND/OR UNIVERSIAL WASTE (BULBS, PCB–CONTAINING BALLASTS, MERCURY–CONTAINING THERMOSTATS, ETC). THE FINDINGS ARE CONTAINED IN THE HAZARDOUS MATERIALS SURVEY REPORT FOR THIS PROJECT. ANY MATERIALS SUSPECTED OF BEING HAZARDOUS SHOULD BE REMOVED AND HANDLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. PERFORM ALL WORK ACCORDING TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

SYM	DESCRIPTION	DATE	APPR

SHEET IS FOR INFORMATION ONLY

SEAL

Jacobs
1100 NORTH GLEBE ROAD
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571.218.1000
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A/E INFO

APPROVED

FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

DES	DRW	CHK

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

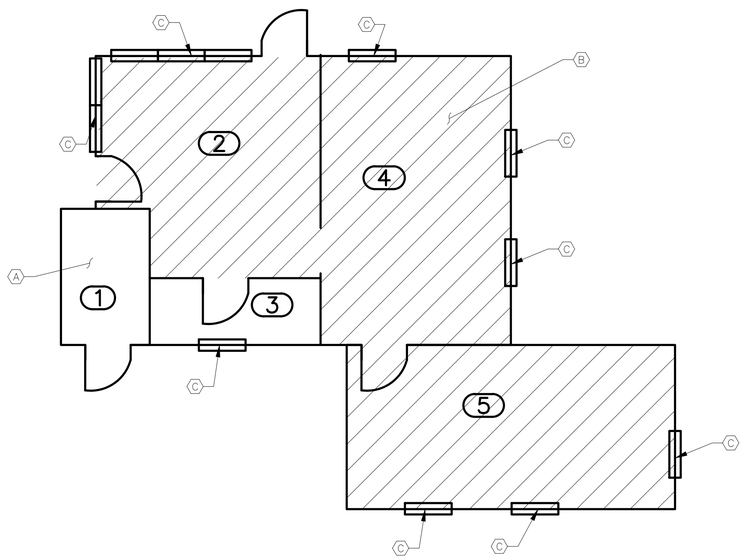
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC

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
BUILDING A94-A111
TYPICAL MAGAZINE STORAGE

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.
12893812
SHEET 6 OF 152
HD101

FILE NAME: C:\pw_workdir\dms003\jdiney.corum@jacobs.com\d1503110\P1102_HD101.dwg LAYOUT NAME: HD101 PLOTTED: Wednesday, June 18, 2025 – 9:13am USER: CORUMJL



HAZARDOUS MATERIAL SHEET NOTES:

1. BUILDING 393 IS SCHEDULED FOR DEMOLITION. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

2. BASED UPON LABORATORY TESTING, THREE (3) OF THE MATERIALS WERE IDENTIFIED AS ASBESTOS–CONTAINING MATERIAL (ACM) WITHIN THE BUILDING. THE LABORATORY RESULTS ARE CONTAINED IN THE HAZARDOUS MATERIALS SURVEY REPORT FOR THIS PROJECT. ANY MATERIALS SUSPECTED OF BEING ASBESTOS–CONTAINING MATERIAL AND NOT IDENTIFIED IN THE HAZARDOUS MATERIALS SURVEY REPORT MUST BE TESTED BEFORE BEING DISTURBED. CONTACT THE CONTRACTING OFFICER FOR FURTHER INSTRUCTIONS BEFORE TESTING AND/OR REMOVING ANY SUSPECT MATERIAL. ANY ACM MUST BE REMOVED PROPERLY IN ACCORDANCE WITH THE ASBESTOS ABATEMENT SPECIFICATION.

ASBESTOS–CONTAINING MATERIAL (ACM)			
CODE	MATERIAL DESCRIPTION	LOCATION	APPROXIMATE QUANTITY
A	ASPHALTIC ROOFING MATERIAL	EXTERIOR ROOF	756 SQFT
B	VINYL FLOOR TILE AND FLOOR ADHESIVE	ROOMS 2, 4, AND 5	642 SF (4 LAYERS)
C	WINDOW SILLS	ROOMS 2, 4, AND 5	18 SF (12 WINDOWS)

3. BASED UPON THE AGE OF THE BUILDING, ALL PAINTED MATERIALS ARE ASSUMED TO BE LEAD–CONTAINING PAINT (LCP). WHILE THERE IS NO ABATEMENT OF PAINT PLANNED, THE CONTRACTOR MUST BE AWARE OF THE LCP DURING THE RENOVATION ACTIVITIES. THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) CONTRUCTION STANDARDS MUST BE OBSERVED.

4. BASED UPON THE FINDINGS, THE BUILDING MAY CONTAIN POTENTIAL HAZARDOUS MATERIALS AND/OR UNIVERSIAL WASTE (BULBS, PCB–CONTAINING BALLASTS, MERCURY–CONTAINING THERMOSTATS, ETC). THE FINDINGS ARE CONTAINED IN THE HAZARDOUS MATERIALS SURVEY REPORT FOR THIS PROJECT. ANY MATERIALS SUSPECTED OF BEING HAZARDOUS SHOULD BE REMOVED AND HANDLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. 5. PERFORM ALL WORK ACCORDING TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

0 2.5' 5' 10'

SCALE: 1"= 5'–0"

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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SEAL

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

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

DES	DRW	CHK

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
BUILDING 393
FIRST FLOOR

SCALE: AS NOTED

EPROJECT NO.: 1667770

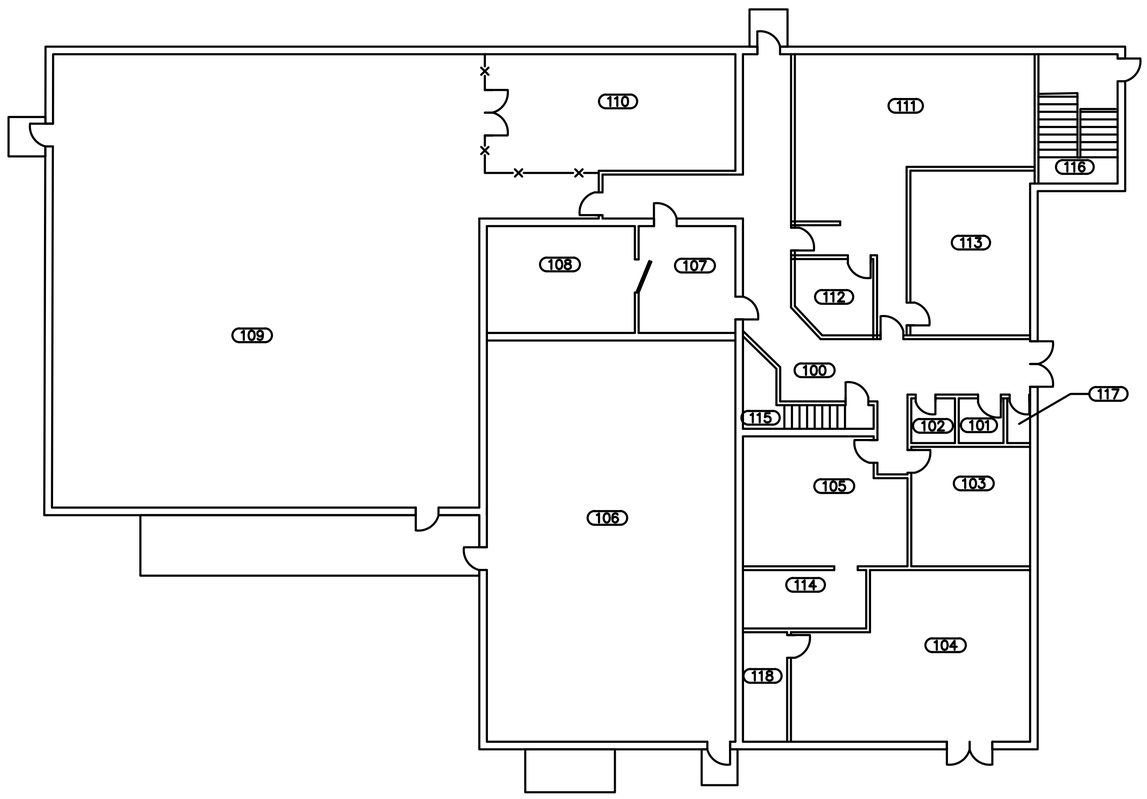
CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12893813

SHEET 7 OF 152

HD102

FILE NAME: C:\pw_workdir\dem003\jdinay.conume@jacobs.com\d1503110\P1102_HD102.dwg LAYOUT NAME: HD102 PLOTTED: Wednesday, June 18, 2025 – 9:13am USER: CORUMJ



HAZARDOUS MATERIAL SHEET NOTES:

1. BUILDING 524 IS SCHEDULED FOR DEMOLITION. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2. BASED UPON LABORATORY TESTING, NONE OF THE MATERIALS IDENTIFIED AS ASBESTOS–CONTAINING MATERIAL (ACM) WITHIN THE BUILDING. THE LABORATORY RESULTS ARE CONTAINED IN THE HAZARDOUS MATERIALS SURVEY REPORT FOR THIS PROJECT. ANY MATERIALS SUSPECTED OF BEING ASBESTOS–CONTAINING MATERIAL AND NOT IDENTIFIED IN THE HAZARDOUS MATERIALS SURVEY REPORT MUST BE TESTED BEFORE BEING DISTURBED. CONTACT THE CONTRACTING OFFICER FOR FURTHER INSTRUCTIONS BEFORE TESTING AND/OR REMOVING ANY SUSPECT MATERIAL. ANY ACM MUST BE REMOVED PROPERLY IN ACCORDANCE WITH THE ASBESTOS ABATEMENT SPECIFICATION.
3. BASED UPON THE AGE OF THE BUILDING, ALL PAINTED MATERIALS ARE ASSUMED TO BE LEAD–CONTAINING PAINT (LCP). WHILE THERE IS NO ABATEMENT OF PAINT PLANNED, THE CONTRACTOR MUST BE AWARE OF THE LCP DURING THE RENOVATION ACTIVITIES. THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) CONTRUCTION STANDARDS MUST BE OBSERVED.
4. BASED UPON THE FINDINGS, THE BUILDING MAY CONTAIN POTENTIAL HAZARDOUS MATERIALS AND/OR UNIVERSAL WASTE (BULBS, PCB–CONTAINING BALLASTS, MERCURY–CONTAINING THERMOSTATS, ETC). THE FINDINGS ARE CONTAINED IN THE HAZARDOUS MATERIALS SURVEY REPORT FOR THIS PROJECT. ANY MATERIALS SUSPECTED OF BEING HAZARDOUS SHOULD BE REMOVED AND HANDLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. PERFORM ALL WORK ACCORDING TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

0 5' 10' 20'

SCALE: 1"= 10'-0"

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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A/E INFO

APPROVED

FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

DES	DRW	CHK

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
BUILDING 524
FIRST FLOOR PLAN

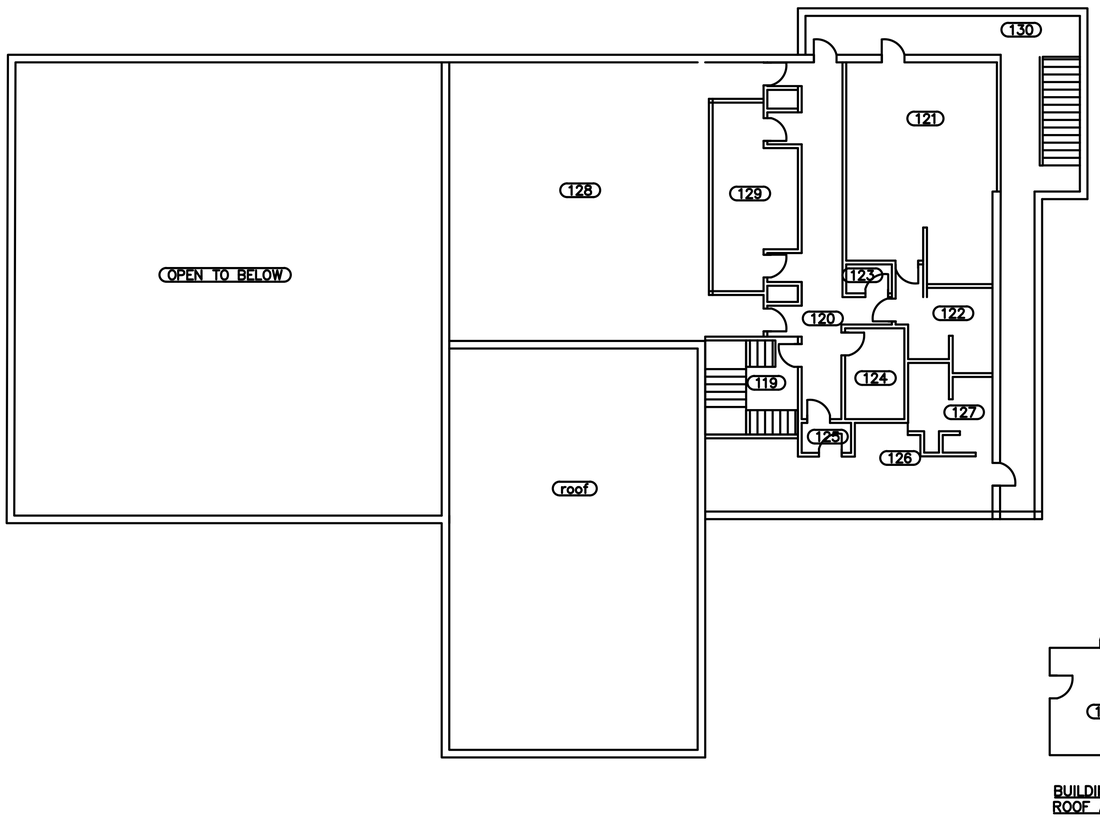
SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12893814

SHEET 8 OF 152

HD103

FILE NAME: C:\pw_workdir\den0033\jcney.com\um@jacobs.com\d1503110\P1102_HD103.dwg LAYOUT NAME: HD103 PLOTTED: Wednesday, June 18, 2025 - 9:42am USER: CORUML



HAZARDOUS MATERIAL SHEET NOTES:

1. BUILDING 524 IS SCHEDULED FOR DEMOLITION. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2. BASED UPON LABORATORY TESTING, NONE OF THE MATERIALS IDENTIFIED AS ASBESTOS–CONTAINING MATERIAL (ACM) WITHIN THE BUILDING. THE LABORATORY RESULTS ARE CONTAINED IN THE HAZARDOUS MATERIALS SURVEY REPORT FOR THIS PROJECT. ANY MATERIALS SUSPECTED OF BEING ASBESTOS–CONTAINING MATERIAL AND NOT IDENTIFIED IN THE HAZARDOUS MATERIALS SURVEY REPORT MUST BE TESTED BEFORE BEING DISTURBED. CONTACT THE CONTRACTING OFFICER FOR FURTHER INSTRUCTIONS BEFORE TESTING AND/OR REMOVING ANY SUSPECT MATERIAL. ANY ACM MUST BE REMOVED PROPERLY IN ACCORDANCE WITH THE ASBESTOS ABATEMENT SPECIFICATION.
3. BASED UPON THE AGE OF THE BUILDING, ALL PAINTED MATERIALS ARE ASSUMED TO BE LEAD–CONTAINING PAINT (LCP). WHILE THERE IS NO ABATEMENT OF PAINT PLANNED, THE CONTRACTOR MUST BE AWARE OF THE LCP DURING THE RENOVATION ACTIVITIES. THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) CONTRUCTION STANDARDS MUST BE OBSERVED.
4. BASED UPON THE FINDINGS, THE BUILDING MAY CONTAIN POTENTIAL HAZARDOUS MATERIALS AND/OR UNIVERSIAL WASTE (BULBS, PCB–CONTAINING BALLASTS, MERCURY–CONTAINING THERMOSTATS, ETC). THE FINDINGS ARE CONTAINED IN THE HAZARDOUS MATERIALS SURVEY REPORT FOR THIS PROJECT. ANY MATERIALS SUSPECTED OF BEING HAZARDOUS SHOULD BE REMOVED AND HANDLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. PERFORM ALL WORK ACCORDING TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

0 5' 10' 20'

SCALE: 1"= 10'–0"

SYM	DESCRIPTION	DATE	APPR

SHEET IS FOR INFORMATION ONLY

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

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

SATISFACTORY TO DATE 05/27/2025

DES	DRW	CHK

PM/DM SMS/CWJ

BRANCH MANAGER

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

BUILDING 524
SECOND FLOOR PLAN

SCALE: AS NOTED

EPROJECT NO.: 1667770

CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12893815

SHEET 9 OF 152

HD104

FILE NAME: C:\pw_workdir\jenl003\jolney.conum@jacobs.com\d1503110\P1102_HD104.dwg LAYOUT NAME: HD104 PLOTTED: Wednesday, June 18, 2025 – 9:23am USER: CORUMJL

A1 LAND USE CONTROL PLAN
1" = 100'

GENERAL SHEET NOTES

A. ANY SITE CONSTRUCTION WORKERS THAT COME IN CONTACT WITH IMPACTED SOIL AND GROUNDWATER MUST BE 40-HR HAZWOPER TRAINED AND 8-HR REFRESHER TRAINED. CERTIFICATES OF TRAINED PERSONNEL MUST BE PROVIDED WITHIN THE ENVIRONMENTAL PROTECTION PLAN.

B. REFER TO SPECIFICATION SECTION 01 57 19 FOR REQUIREMENTS RELATED TO WORK WITHIN THE CULTURAL RESOURCES, SPECIES SPECIFIC HABITAT, AND WETLAND BOUNDARIES.

LAND USE CONTROL

SITE 2A - AREA A LANDFILL AND SITE 2B - AREA A WETLAND

C. ENSURE GROUNDWATER EXTRACTED FROM SITES 2A AND 2B DURING GROUNDWATER MONITORING OR CONSTRUCTION DEWATERING ACTIVITIES IS HANDLED, STORED, AND DISPOSED IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATORY REQUIREMENTS.

SITE 3 - AREA A DOWNSTREAM WATERCOURSES/OVER BANK DISPOSAL AREA

D. ENSURE GROUNDWATER EXTRACTED FROM SITE 3 DURING CONSTRUCTION DEWATERING ACTIVITIES IS HANDLED, STORED, AND DISPOSED IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATORY REQUIREMENTS.

E. ENSURE CONSTRUCTION OF NEW OCCUPIED BUILDINGS IS EVALUATED FOR VAPOR INTRUSION RISK AND APPROPRIATE PROVISIONS AND MITIGATION ARE IMPLEMENTED, IF REQUIRED.

F. GROUND DISTURBING ACTIVITIES THAT EXCAVATE, BREACH, OR PENETRATE THE CONCRETE ENCAPSULATED SOIL (GROUND DISTURBING ACTIVITY, TO INCLUDE SUBSURFACE EXCAVATION, SUBSURFACE PENETRATION OF THE SOIL [BORINGS], AND DEWATERING, REQUIRES THE EXPRESS, PRIOR PERMISSION OF THE NSB NLON ER PROGRAM MANAGER).

LEGEND

- LOD — LIMITS OF DISTURBANCE
- CULTURE RESOURCE SURVEY BOUNDARY LINE, REFER TO SPECIFICATION 01 57 19
- VEGETATION BOUNDARY LINE
- SPECIES SPECIFIC HABITAT BOUNDARY LINE, REFER TO SPECIFICATION SECTION 01 57 19
- WETLAND AREA
- LAND USE CONTROL AREA
- POL COMPLIANCE FEATURE, UNDERGROUND FUEL OIL TANK
- WASTEWATER COMPLIANCE FEATURE, EXISTING SANITARY SERVICE LINE ABANDONED IN PLACE
- AIR COMPLIANCE FEATURE, NOT IDENTIFIED AND NOT WITHIN LIMITS OF DISTURBANCE, SHOWN FOR REFERENCE ONLY
- HAZARDOUS MATERIAL/HAZARDOUS WASTE COMPLIANCE FEATURE, NOT IDENTIFIED AND NOT WITHIN LIMITS OF DISTURBANCE, SHOWN FOR REFERENCE ONLY

GRAPHIC SCALE

1"=100' 0' 100' 200'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

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SEAL

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

A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLON FEAD DIRECTOR NEW LONDON, GROTON, CT
SATISFACTORY TO DATE 05/27/2025

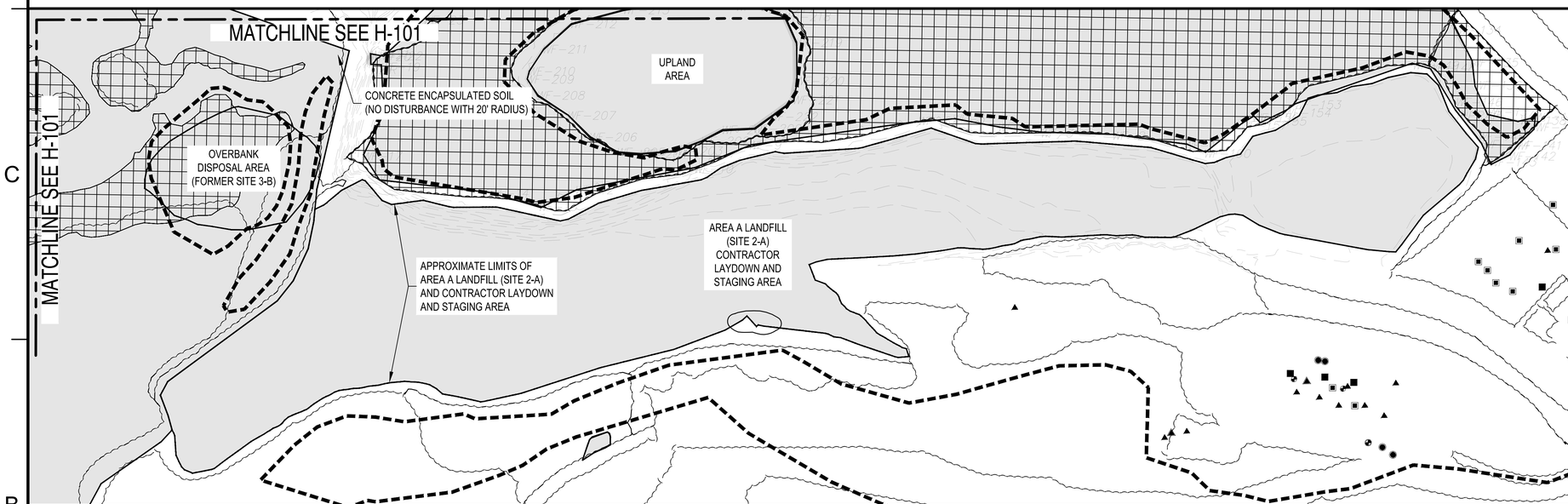
DES	JC	DRW	NM	CHK	RC
PM/DM	SMS/CWJ				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	JWJ				
FIRE PROTECTION	HPN				

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
MID-ATLANTIC
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT
P-1102 WEAPONS MAGAZINE & ORDNANCE OPERATIONS FACILITY
SITE
HAZMAT
LAND USE CONTROL PLAN

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
NAVAL STATION - NORFOLK, VA

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893815
SHEET 10 OF 152
H-101

FILE NAME: C:\pw_workdir\dem0031\jdiney.corum@jacobs.com\d1503110\P1102_H-101.dwg LAYOUT NAME: H-101 HAZMAT LAND USE CONTROL PLAN PLOTTED: Wednesday, June 18, 2025 – 8:53am USER: CORUMJ



A1 LAND USE CONTROL PLAN
1" = 100'

GENERAL SHEET NOTES

A. ANY SITE CONSTRUCTION WORKERS THAT COME IN CONTACT WITH IMPACTED SOIL AND GROUNDWATER MUST BE 40-HR HAZWOPER TRAINED AND 8-HR REFRESHER TRAINED. CERTIFICATES OF TRAINED PERSONNEL MUST BE PROVIDED WITHIN THE ENVIRONMENTAL PROTECTION PLAN.

B. REFER TO SPECIFICATION SECTION 01 57 19 FOR REQUIREMENTS RELATED TO WORK WITHIN THE CULTURAL RESOURCES, SPECIES SPECIFIC HABITAT, AND WETLAND BOUNDARIES.

C. COMPLIANCE FEATURES SHOWN HAVE NOT BEEN IDENTIFIED AND ARE NOT WITHIN THE LIMITS OF DISTURBANCE, SHOWN FOR REFERENCE ONLY.

LAND USE CONTROL

SITE 2A - AREA A LANDFILL AND SITE 2B - AREA A WETLAND

D. ENSURE GROUNDWATER EXTRACTED FROM SITES 2A AND 2B DURING GROUNDWATER MONITORING OR CONSTRUCTION DEWATERING ACTIVITIES IS HANDLED, STORED, AND DISPOSED IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATORY REQUIREMENTS.

SITE 3 - AREA A DOWNSTREAM WATERCOURSES/OVER BANK DISPOSAL AREA

E. ENSURE GROUNDWATER EXTRACTED FROM SITE 3 DURING CONSTRUCTION DEWATERING ACTIVITIES IS HANDLED, STORED, AND DISPOSED IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATORY REQUIREMENTS.

F. ENSURE CONSTRUCTION OF NEW OCCUPIED BUILDINGS IS EVALUATED FOR VAPOR INTRUSION RISK AND APPROPRIATE PROVISIONS AND MITIGATION ARE IMPLEMENTED, IF REQUIRED.

G. GROUND DISTURBING ACTIVITIES THAT EXCAVATE, BREACH, OR PENETRATE THE CONCRETE ENCAPSULATED SOIL (GROUND DISTURBING ACTIVITY, TO INCLUDE SUBSURFACE EXCAVATION, SUBSURFACE PENETRATION OF THE SOIL [BORINGS], AND DEWATERING, REQUIRES THE EXPRESS, PRIOR PERMISSION OF THE NSB NLON ER PROGRAM MANAGER).

LEGEND

- LOD — LIMITS OF DISTURBANCE
- CULTURE RESOURCE SURVEY BOUNDARY LINE, REFER TO SPECIFICATION SECTION 01 57 19
- VEGETATION BOUNDARY LINE
- SPECIES SPECIFIC HABITAT BOUNDARY LINE, REFER TO SPECIFICATION SECTION 01 57 19
- WETLAND AREA
- LAND USE CONTROL AREA
- POL COMPLIANCE FEATURE
- WASTEWATER COMPLIANCE FEATURE
- AIR COMPLIANCE FEATURE
- HAZARDOUS MATERIAL/HAZARDOUS WASTE COMPLIANCE FEATURE
- TOXIC SUBSTANCE COMPLIANCE FEATURE
- DRINKING WATER COMPLIANCE FEATURE
- SOLID WASTE COMPLIANCE FEATURE

GRAPHIC SCALE

1"=100' 0' 100' 200'

PLAN NORTH

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

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SEAL

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A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLON FEAD DIRECTOR NEW LONDON, GROTON, CT
SATISFACTORY TO DATE 05/27/2025

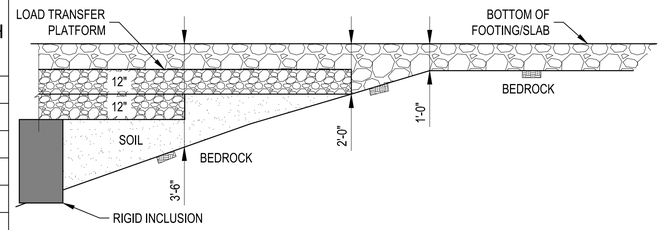
DES JC	DRW NM CHK RC
PM/DM	SMS/CWJ
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	JWJ
FIRE PROTECTION	HPN

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND - MID-ATLANTIC
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
HAZMAT
LAND USE CONTROL PLAN

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893817
SHEET 11 OF 152
H-102

FILE NAME: C:\pw_workdir\dem003\jdiney.conume@jacobs.com\d1503110\P1102_H-102.dwg LAYOUT NAME: H-102 HAZMAT LAND USE CONTROL PLAN PLOTTED: Wednesday, June 18, 2025 - 8:54am USER: CORNUM

STRUCTURE	HATCHED FOUNDATION AREA (SF)	RI SPACING (LF)	EST LENGTH (LF)	UNHATCHED ADJACENT AREA (SF)	RI SPACING (LF)	EST LENGTH (LF)
TYPE G-001	8,427	5	15	6,403	7.5	15
TYPE G-002	1,814	5	10	2,302	7.5	10
CLWS-001	7,175	5	20	8,050	7.5	20
CLWS-002	6,675	5	20	6,125	7.5	20
CLWS-003	6,675	5	15	6,125	7.5	15
CLWS-004	6,675	5	20	6,125	7.5	20
CLWS-005	7,000	5	15	6,350	7.5	15
SENTRY BLDG	600	7.5	20	1,400	7.5	20

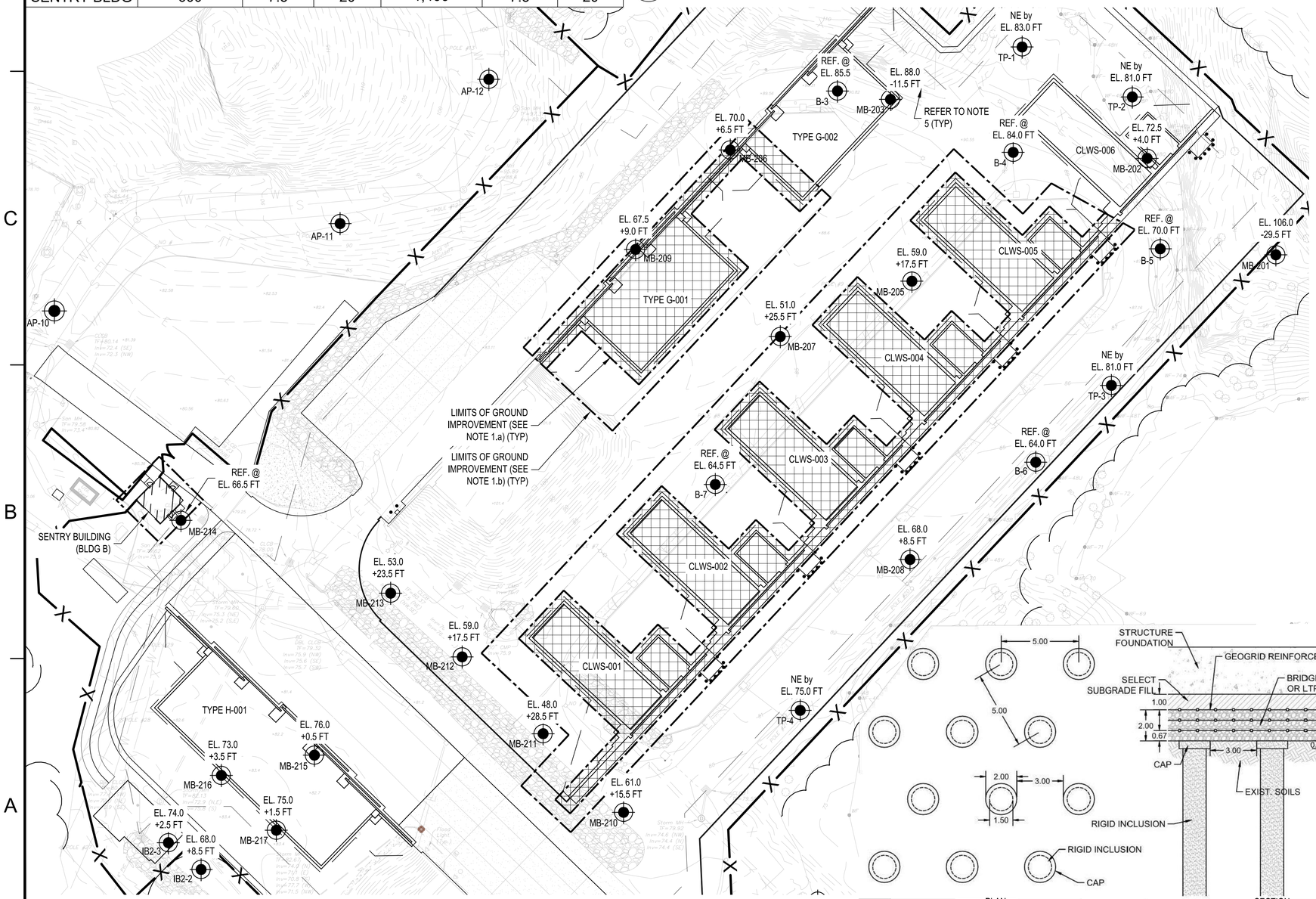


NOTES:

1. PROVIDE A TRANSITION ZONE FOR THE LOAD TRANSFER PLATFORM AT LOCATIONS WHERE THE SUBGRADE CHANGES FROM SOIL TO BEDROCK.
2. CONSTRUCT THE TRANSITION ZONE BY EXTENDING THE GEOGRID REINFORCED LOAD TRANSFER PLATFORM WITH TWO LAYERS OF GEOGRID TO WHERE TOP OF ROCK IS ENCOUNTERED AT A DEPTH OF 2 FT BELOW BOTTOM OF FOOTING/SLAB. WHERE DEPTH TO TOP OF BEDROCK IS ENCOUNTERED AT A DEPTH OF 3.5 FT BELOW BOTTOM OF FOOTING/SLAB, CONSTRUCT LOAD TRANSFER MAT WITH THREE LAYERS OF GEOGRID TO MATCH REST OF LOAD TRANSFER PLATFORM OVER THE RIGID INCLUSIONS.
3. CONSTRUCT SLAB BASE COURSE AND LOAD TRANSFER PLATFORM PER SPECIFICATIONS.

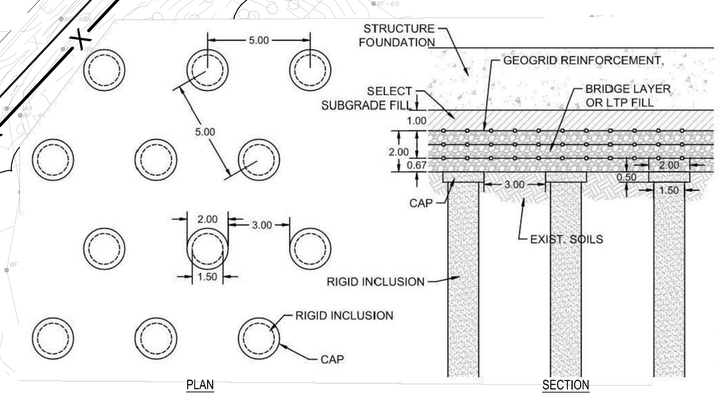
D2 LOAD TRANSFER PLATFORM TRANSITION DETAIL

NTS



A1 GROUND IMPROVEMENTS PLAN

1" = 40'



A3 RIGID INCLUSIONS DETAIL

NTS

GENERAL SHEET NOTES

1. MINIMUM AREAS OF REQUIRED GROUND IMPROVEMENT ARE REPRESENTED BY AREAS SHOWN ON THIS PLAN.

   1.a. CROSS-HATCHED FOUNDATION AREAS REQUIRE RIGID INCLUSIONS AT MAXIMUM 5-FOOT TRIANGULAR SPACING, EXTENDING 5-FEET HORIZONTALLY BEYOND FOUNDATIONS AS A MINIMUM.

   1.b. UNHATCHED ADJACENT AREAS REQUIRE RIGID INCLUSIONS AT MAXIMUM 7.5-FOOT TRIANGULAR SPACING FOR EARTH EMBANKMENT SUPPORT, AND AS TRANSITION AREAS FROM THE 5-FOOT SPACING GROUND IMPROVEMENT AREAS TO THE OUTSIDE EDGE OF THE GROUND IMPROVEMENT AREAS, EXTENDING 15-FEET HORIZONTALLY BEYOND THE EDGE OF STRUCTURE FOUNDATION AS A MINIMUM.

2. PROVIDE RIGID INCLUSIONS THROUGH EXISTING FILL AND UNDERLYING SOFT SOILS AND INTO DENSE GRANULAR DEPOSITS OR TO TOP OF BEDROCK TO ACHIEVE THE FOLLOWING ALLOWABLE DESIGN LOADS PER RIGID INCLUSION:

   2.a. CLWS MAGAZINE AREAS: 150 KIPS

   2.b. TYPE G MAGAZINES: 100 KIPS

   2.c. SENTRY BUILDING: 75 KIPS

3. A LOAD TRANSFER PLATFORM CONSISTING OF 2-FEET OF SELECT GRANULAR FILL WITH 3-LAYERS OF BX1500 GEOGRID (OR SIMILAR) MUST BE CONSTRUCTED BETWEEN THE TOP OF THE RIGID INCLUSIONS AND BOTTOM OF FOUNDATIONS AND SLABS, REFER TO DETAIL A3 THIS SHEET.

4. ESTIMATED AVERAGE LENGTH OF RIGID INCLUSIONS BELOW EACH STRUCTURE IS LISTED IN TABLE, THIS SHEET, ALONG WITH ESTIMATED MINIMUM SQUARE FEET AREA COVERED BY GROUND IMPROVEMENT, FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE FOR DEVELOPING ITS OWN ESTIMATES.

5. ELEVATION OF TOP OF BEDROCK ENCOUNTERED AT THE BORING LOCATIONS IN VICINITY OF GROUND IMPROVEMENTS IS PRESENTED ON THE PLAN AT THE BORING LOCATIONS, ALONG WITH DEPTH ABOVE (-) OR BELOW (+) ELEVATION 76.5 FT TO TOP OF BEDROCK, FOR INFORMATION. DETERMINE FINAL TOP ELEVATION OF RIGID INCLUSIONS BELOW STRUCTURES, AND REQUIRED LENGTH OF RIGID INCLUSIONS. "REF" INDICATES REFUSAL ENCOUNTERED AT ELEVATION NOTED.

6. DESIGN RIGID INCLUSIONS AND LOAD TRANSFER PLATFORM TO PROVIDE 4 KSF ALLOWABLE DESIGN BEARING CAPACITY WITH FACTOR OF SAFETY OF 3, AND MEETING SETTLEMENT CRITERIA SPECIFIED.

7. PERFORM WORK RELATED TO RIGID INCLUSIONS AND LOAD TRANSFER PLATFORM IN ACCORDANCE WITH UFGS SPECIFICATION SECTION 31 66 13 RIGID INCLUSIONS. GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN AGGREGATE WORKING PLATFORM IN ALL AREAS REQUIRING RIGID INCLUSIONS USING CRUSHED ROCK OR IMPORTED STRUCTURAL FILL MATERIAL.

8. PERFORM WORK RELATED TO EARTHWORK IN ACCORDANCE WITH UFGS SPECIFICATION SECTION 31 00 00.

9. FOR SOIL STABILIZATION AREAS OUTSIDE OF LOAD TRANSFER PLATFORM SHOWN ON THIS PLAN, PERFORM WORK RELATED TO SOIL STABILIZATION IN ACCORDANCE WITH UFGS SPECIFICATION SECTION 31 05 19.13 GEOTEXTILES FOR EARTHWORK.

PLAN NORTH

GRAPHIC SCALE

1"=40' 0' 40' 80'

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — PAUL J. MURPHY — LICENSED PROFESSIONAL ENGINEER — No. 29935

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

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

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

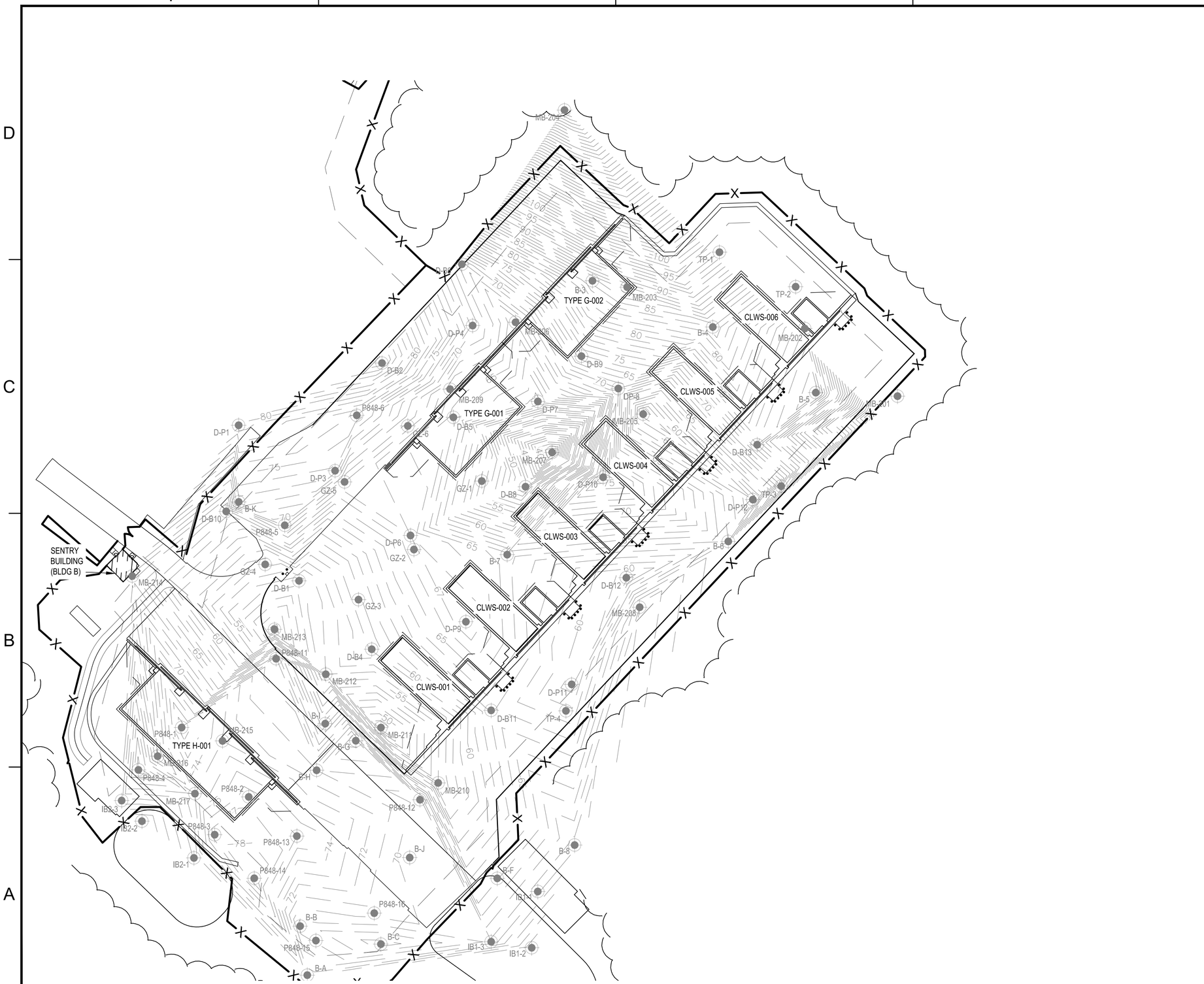
SATISFACTORY TO DATE 05/27/2025

DES	PM	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
GROUND IMPROVEMENTS PLAN

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893818
SHEET 12 OF 152
B-101

FILE NAME: C:\pw_work\dr\den003\jdiney.consult@jacobs.com\d0919642\P1102_B-101.dwg LAYOUT NAME: B-101 GROUND IMPROVEMENTS PLAN PLOTTED: Tuesday, June 17, 2025 - 9:53am USER: CORUMAL



A1 TOP OF BEDROCK ELEVATIONS

1" = 50'

GENERAL SHEET NOTES

1. TOP OF BEDROCK ELEVATION CONTOURS ARE BASED ON INTERPRETATION OF AVAILABLE BORING LOGS AND LINEAR INTERPOLATION BETWEEN BORING LOCATIONS. THIS DATA IS PROVIDED FOR INFORMATION ONLY.
2. ACTUAL TOP OF BEDROCK ELEVATIONS BETWEEN BORING LOCATIONS MAY DIFFER FROM WHAT HAS BEEN ESTIMATED AND SHOWN ON THIS PLAN.
3. REFER TO BB DRAWINGS AND SPECIFICATIONS FOR BORING LOGS FROM RECENT AND HISTORIC STUDIES.

PLAN NORTH

GRAPHIC SCALE

1"=50' 0' 50' 100'

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT PAUL J. MURPHY LICENSED No. 29935 PROFESSIONAL ENGINEER

Jacobs
1100 NORTH GLEBE ROAD
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ARLINGTON, VIRGINIA 22201
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A/E INFO

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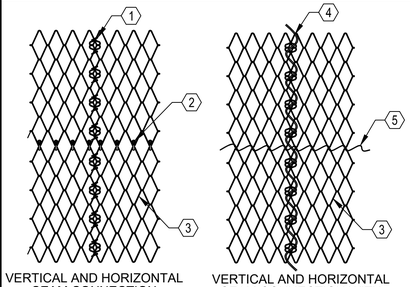
ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLON FEAD DIRECTOR NEW LONDON, GROTON, CT
SATISFACTORY TO DATE 05/27/2025

DES	PM	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
TOP OF BEDROCK ELEVATIONS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893819
SHEET 13 OF 152
B-102

FILE NAME: C:\pw_workdir\dem0033\jciney.corum@jacobs.com\d0919642\P1102_B-102.dwg LAYOUT NAME: B-102 TOP OF BEDROCK ELEVATIONS PLOTTED: Tuesday, June 17, 2025 - 9:56am USER: CORUML



VERTICAL AND HORIZONTAL SEAM CONNECTION WITH CLIPS AND SHACKLES

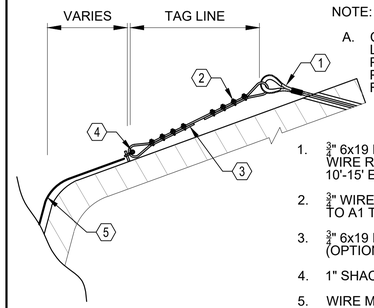
VERTICAL AND HORIZONTAL SEAM CONNECTION WITH 1/4" SEAM ROPE

1. PROVIDE 2-T3 CLIPS PER MESH OPENING
2. PROVIDE 1-3/8" SHACKLE PER MESH OPENING
3. WIRE MESH
4. $\frac{1}{4}$" VERTICAL SEAM ROPE THROUGH EACH MESH OPENING
5. $\frac{1}{4}$" HORIZONTAL SEAM ROPE OR LOOSE SPIRAL

SEAM CONNECTION ALTERNATIVES (D1)

SCALE: NTS

CG101 B-501
CG102



NOTE:

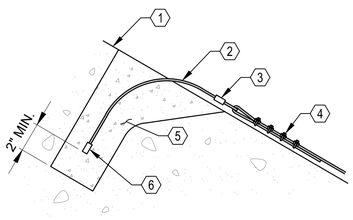
A. COORDINATE ANCHOR LOCATIONS WITH PERIMETER FENCE POST LOCATIONS IN FIELD.

1. $\frac{3}{4}$" 6x19 IWRC DOUBLE LEG WIRE ROPE ANCHOR 10'-15' EMBEDMENT DEPTH
2. $\frac{3}{4}$" WIRE ROPE CLIP, REFER TO A1 THIS SHEET
3. $\frac{3}{4}$" 6x19 IWRC TAG LINE (OPTIONAL)
4. 1" SHACKLE (TYP.)
5. WIRE MESH

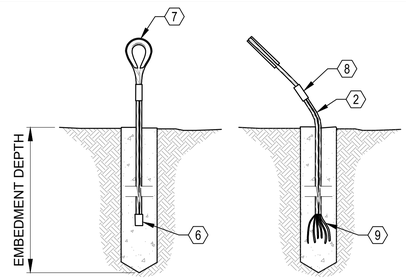
ANCHOR / MESH ATTACHMENT (D2)

SCALE: NTS

CG101 B-501
CG102



WIRE ROPE ANCHOR



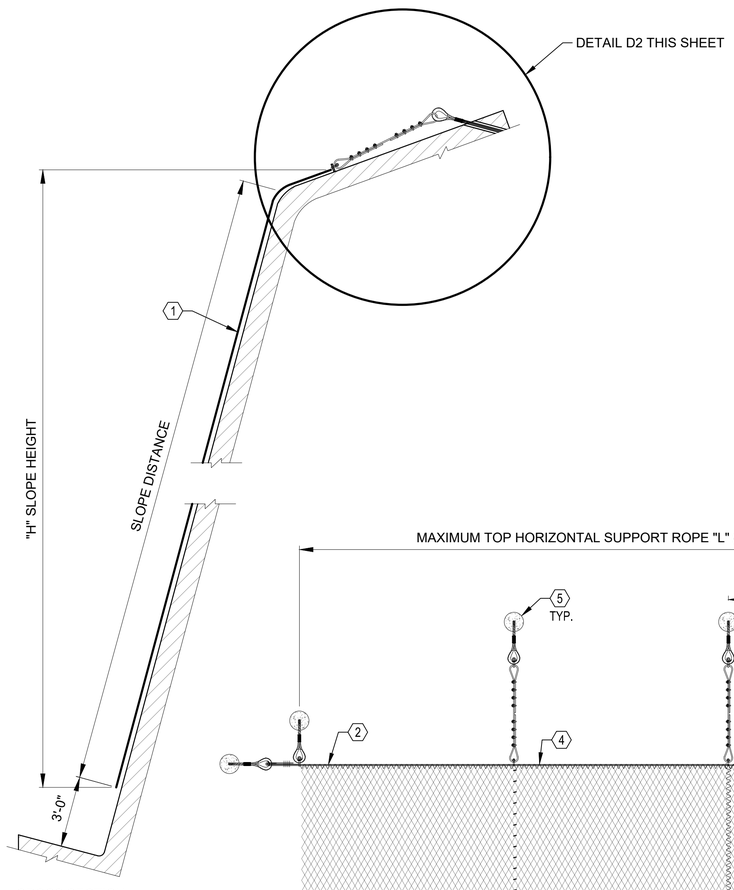
DOUBLE LEG 3/4" WIRE ROPE ANCHOR

1. EXISTING GROUND SURFACE
2. $\frac{3}{4}$" DIA. 6x19 IWRC GALVANIZED WIRE ROPE
3. FERULE
4. WIRE ROPE CLIP, REFER TO A1 THIS SHEET
5. GROUT
6. BOTTOM FERULE (OPTIONAL)
7. THIMBLE
8. STOP SLEEVE
9. STANDARD SPLAYED END

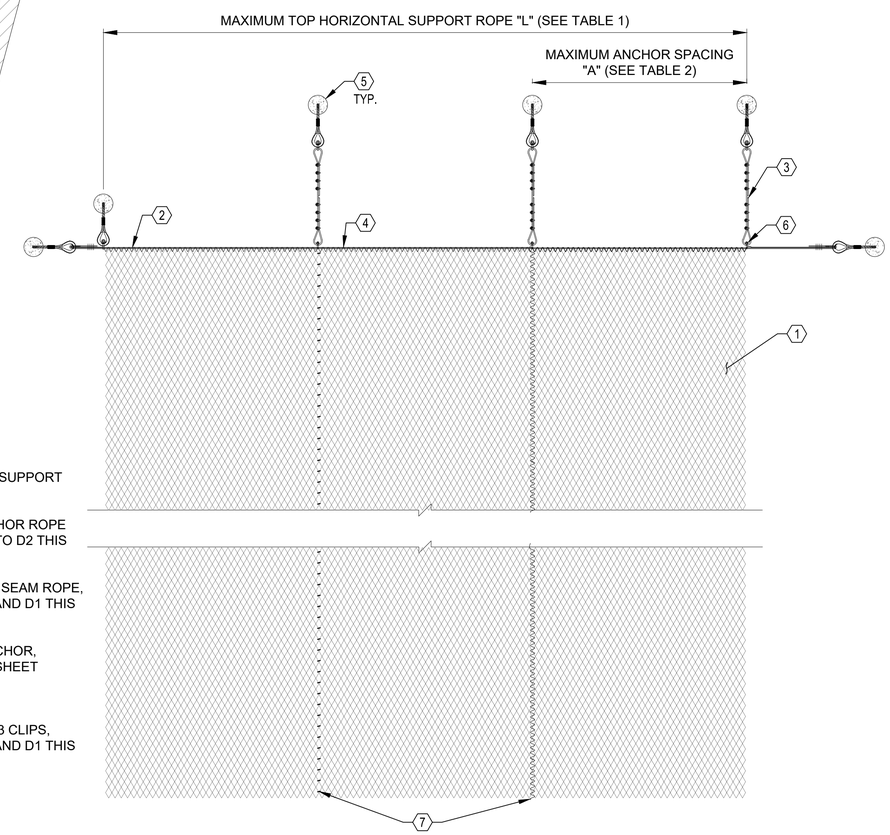
WIRE ROPE ANCHOR DETAILS (C1)

SCALE: NTS

CG101 B-501
CG102



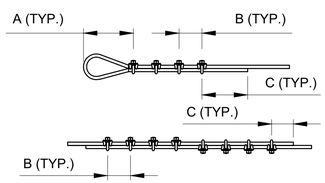
CROSS SECTION



1. WIRE MESH
2. 3/4" 6x19 IWRC TOP SUPPORT ROPE
3. 3/4" 6x19 IWRC ANCHOR ROPE (TAG LINE), REFER TO D2 THIS SHEET
4. 1/4" 7x19 IWRC TOP SEAM ROPE, REFER TO NOTE C AND D1 THIS SHEET
5. 3/4" WIRE ROPE ANCHOR, REFER TO C1 THIS SHEET
6. 1" SHACKLES
7. $\frac{1}{4}$" SEAM ROPE OR T3 CLIPS, REFER TO NOTE C AND D1 THIS SHEET

FRONT SLOPE ELEVATION

1"=40' 0' 40' 80'



NOTE:

A. DISTANCES A, B, C, AND TORQUE NOTED IN THE WIRE ROPE TERMINATION AND SPLICING DETAIL TO COMPLY WITH MANUFACTURERS SPECIFICATIONS.

B. WIRE MESH TO BE ALLOYED HIGH STRENGTH CARBON STEEL WIRE WITH A MINIMUM TENSILE STRENGTH OF 256 KSI AND ZN/AL HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A1007 (LEVEL 3 DRAWN ZN5AL WIRE).

C. WIRE ROPE TO BE 7X19 OR 6X19 CONSTRUCTION (OR EQUIVALENT), IWRC, GRADE EIP AND GALVANIZED IN ACCORDANCE WITH FEDERAL SPECIFICATION RR-W-410, ASTM A1023.

D. MISCELLANEOUS HARDWARE REQUIREMENTS: WIRE ROPE CLIPS IN ACCORDANCE WITH FED SPEC FF-C-450, TYPE 1, CLASS 1 AND HOT-DIP ZINC GALVANIZED ACCORDING TO ASTM A153/ A153M. THIMBLES IN ACCORDANCE WITH FED SPEC FF-T-276B AND HOT-DIP ZINC GALVANIZED ACCORDING TO ASTM A153/ A153M.

WIRE ROPE TERMINATION AND SPLICING DETAIL (A1)

SCALE: NTS

CG101 B-501
CG102

TABLE 1	
MAX LENGTH FOR TOP HORIZONTAL SUPPORT ROPE VS. SLOPE HEIGHT FOR WIRE MESH	
SLOPE HEIGHT H (FT)	MAX LENGTH L (FT)
50	150
100	75

TABLE 2	
	MAXIMUM ANCHOR SPACING
H (FT)	A (FT)
0-100	50

NOTES:

A. MAXIMUM ANCHOR SPACING ESTIMATED AS PER TABLE 2 FOR A MINIMUM ALLOWABLE ANCHOR CAPACITY OF 20,000 LBS. PER WA-RD612.1 WIRE MESH (MUHUNTHAN ET AL., 2005).

B. MAXIMUM TOP SUPPORT ROPE LENGTH NOTED IN TABLE 1. ATTACHED TO MESH WITH 1/4" SEAM ROPE.

C. MESH PANELS TO BE VERTICALLY SEAMED WITH (2X) T3 CLIPS OR 1/4" SEAM ROPE THROUGH EACH MESH OPENING.

D. WHEN SYSTEM HAS HORIZONTAL SEAMS USE 3/8" SHACKLES OR 1/4" SEAM ROPE OR LOOSE SPIRALS THROUGH EACH MESH OPENING TO CONNNECT MESH PANELS.

ROCK FALL PROTECTION MESH (A2)

SCALE: NTS

CG101 B-501
CG102

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT PAUL J. MURPHY LICENSED No. 29935 PROFESSIONAL ENGINEER

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

A/E INFO

APPROVED:
FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

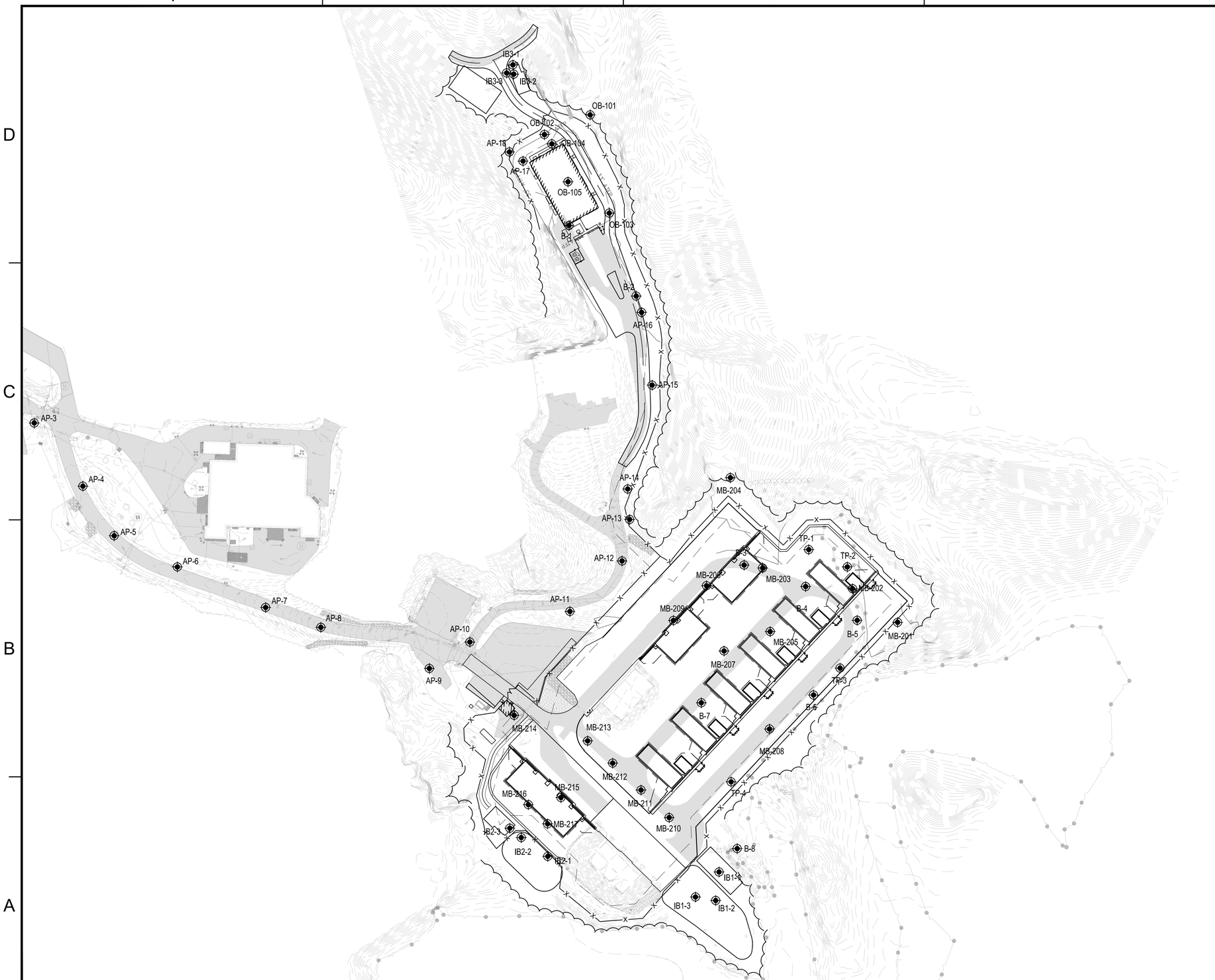
DES PM	DRW NM	CHK RC	
PM/DM	SMS/CWJ		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	JWJ		
FIRE PROTECTION	HPN		

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
ROCK FALL PROTECTION MESH DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893820
SHEET 14 OF 152

B-501

FILE NAME: C:\pw_work\dc\jdenf033\jciney.corum@jacobs.com\d0919642\P1102_B-501.dwg LAYOUT NAME: B-501 ROCK FALL PROTECTION MESH DETAILS PLOTTED: Tuesday, June 17, 2025 - 9:57am USER: CORUML



A1 BORING LOCATION PLAN

1" = 100'

GENERAL SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. REFER TO SHEETS BB301 TO BB308 FOR BORING LOGS.
3. REFER TO SHEET B-101 FOR GROUND IMPROVEMENTS PLAN.

PLAN NORTH

GRAPHIC SCALE

1"=100' 0' 100' 200'

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT PAUL J. MURPHY No. 29935 LICENSED PROFESSIONAL ENGINEER

Jacobs
1100 NORTH GLEBE ROAD
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A/E INFO

APPROVED
FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

DES PM	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

BORING LOCATION PLAN

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893821
SHEET 15 OF 152

BB101

FILE NAME: C:\pw_workdir\pw003\\oriny.corum@jacobs.com\d0919642\P1102_BB101.dwg LAYOUT NAME: BB101 Boring Location Plan PLOTTED: Tuesday, June 17, 2025 – 10:00am USER: CORUMJ

BORING LOG NO. AP-1

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.406304° Longitude: -72.089509°
Approximate Surface Elev.: 34 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
5.0	29+/-	***Boring Terminated at 5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-23-2023	Boring Completed: 06-23-2023
Drill Rig: CME-55	Driller: Geologic
Project No.: JD195305A	

BORING LOG NO. AP-2

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.405866° Longitude: -72.088844°
Approximate Surface Elev.: 40 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
5.0	35+/-	***Boring Terminated at 5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-23-2023	Boring Completed: 06-23-2023
Drill Rig: CME-55	Driller: Geologic
Project No.: JD195305A	

BORING LOG NO. AP-3

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.405608° Longitude: -72.088439°
Approximate Surface Elev.: 40 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
4.0	36+/-	***Drilling Refusal at 4 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-23-2023	Boring Completed: 06-23-2023
Drill Rig: CME-55	Driller: Geologic
Project No.: JD195305A	

BORING LOG NO. AP-4

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.405259° Longitude: -72.088080°
Approximate Surface Elev.: 42 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
5.0	37+/-	***Boring Terminated at 5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-23-2023	Boring Completed: 06-23-2023
Drill Rig: CME-55	Driller: Geologic
Project No.: JD195305A	

BORING LOG NO. AP-5

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404988° Longitude: -72.087854°
Approximate Surface Elev.: 44 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
0.3	43+/-	**ASPHALT = 3 IN.**
5.0	39+/-	***Boring Terminated at 5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-14-2022	Boring Completed: 06-14-2022
Drill Rig: CME 55	Driller: Geologic
Project No.: JD195305A	

BORING LOG NO. AP-6

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404822° Longitude: -72.087393°
Approximate Surface Elev.: 46 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
0.3	45.5+/-	**ASPHALT = 4 IN.**
5.0	41+/-	***Boring Terminated at 5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-14-2022	Boring Completed: 06-14-2022
Drill Rig: CME 55	Driller: Geologic
Project No.: JD195305A	

BORING LOG NO. AP-7

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404599° Longitude: -72.086755°
Approximate Surface Elev.: 54 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
0.3	53.7+/-	**ASPHALT = 3 IN.**
2.0	52+/-	***Drilling Refusal at 2 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-14-2022	Boring Completed: 06-14-2022
Drill Rig: CME 55	Driller: Geologic
Project No.: JD195305A	

BORING LOG NO. AP-8

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404492° Longitude: -72.086348°
Approximate Surface Elev.: 62 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
0.3	61.7+/-	**ASPHALT = 4 IN.**
5.0	57+/-	***Boring Terminated at 5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-14-2022	Boring Completed: 06-14-2022
Drill Rig: CME 55	Driller: Geologic
Project No.: JD195305A	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_JD195305A P1102 MAGAZINE & - REV1.GPJ TERRACON_DATATEMPLATE.GDT 11/3/22

APPR.	DATE	DESCRIPTION	SYM.

NAVFAC

STATE OF CONNECTICUT — PAUL J. MURPHY — LICENSED PROFESSIONAL ENGINEER — No. 29935

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APPROVED
FOR COMMANDER NAVFAC

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

SATISFACTORY TO	DATE	05/27/2025	
DES	PM	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

BORING LOGS

SCALE:	AS NOTED
EPROJECT NO.:	1667770
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12893822
SHEET	16 OF 152

BB301

FILE NAME: C:\pw_workdir\dms003\jdriney.corum@jacobs.com\d0919642\P1102_BB301.dwg LAYOUT NAME: BB301 BORING LOGS PLOTTED: Tuesday, June 17, 2025 - 10:02am USER: CORUML

BORING LOG NO. AP-9

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 39.064540° Longitude: -77.451171°
Approximate Surface Elev.: 78 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
5.0	73+/-	*Boring Terminated at 5 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Boring Started: 06-14-2022 | Boring Completed: 06-14-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

BORING LOG NO. AP-10

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404415° Longitude: -72.085270°
Approximate Surface Elev.: 81 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
5.0	76+/-	*Boring Terminated at 5 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Boring Started: 06-13-2022 | Boring Completed: 06-13-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

BORING LOG NO. AP-11

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404579° Longitude: -72.084536°
Approximate Surface Elev.: 92 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
0.3	91.7+/-	ASPHALT = 2 IN.
	91.5+/-	*Drilling Refusal at 0.3 Foot*

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash.
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Boring Started: 06-13-2022 | Boring Completed: 06-13-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

BORING LOG NO. AP-12

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404851° Longitude: -72.084161°
Approximate Surface Elev.: 99 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
0.3	98.7+/-	ASPHALT = 3.5 IN.
2.5	96.5+/-	*Drilling Refusal at 2.5 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Boring Started: 06-13-2022 | Boring Completed: 06-13-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

BORING LOG NO. AP-13

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.405078° Longitude: -72.084113°
Approximate Surface Elev.: 104 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
3.5	100.5+/-	*Drilling Refusal at 3.5 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Boring Started: 06-14-2022 | Boring Completed: 06-13-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

BORING LOG NO. AP-14

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.405239° Longitude: -72.084128°
Approximate Surface Elev.: 106 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
0.3	105.7+/-	ASPHALT = 3 IN.
5.0	101+/-	*Boring Terminated at 5 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Boring Started: 06-14-2022 | Boring Completed: 06-13-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

BORING LOG NO. AP-15

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.406815° Longitude: -72.083937°
Approximate Surface Elev.: 122 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
3.0	119+/-	*Drilling Refusal at 3 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Boring Started: 06-13-2022 | Boring Completed: 06-13-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

BORING LOG NO. AP-16

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.406215° Longitude: -72.084021°
Approximate Surface Elev.: 130 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description
0.3	129.7+/-	ASPHALT = 4 IN.
5.0	125+/-	*Boring Terminated at 5 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Boring Started: 06-13-2022 | Boring Completed: 06-13-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT: GEO SMART LOG-NO WELL_ JD195305A P-1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 11/3/22

APPR.	DATE	DESCRIPTION	SYM

NAVFAC

STATE OF CONNECTICUT — PAUL J. MURPHY — LICENSED PROFESSIONAL ENGINEER

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

A/E INFO

APPROVED
FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

DES	PM	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
BORING LOGS

SCALE:	AS NOTED
EPROJECT NO.:	1667770
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12893823
SHEET	17 OF 152

BB302

FILE NAME: C:\pw_workdir\dms003\jdriney.corum@jacobs.com\d0919642\P1102_BB302.dwg LAYOUT NAME: BB302 BORING LOGS PLOTTED: Tuesday, June 17, 2025 - 10:03am USER: CORUML

BORING LOG NO. AP-17

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.407032° Longitude: -72.084886°
Approximate Surface Elev.: 122 (ft.) +/-

DEPTH	ELEVATION (Ft.)
7.5	114.5+/-

Drilling Refusal at 7.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-13-2022 | Boring Completed: 06-13-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. AP-18

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.407082° Longitude: -72.084977°
Approximate Surface Elev.: 123 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
9.5	113.5+/-

Drilling Refusal at 9.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-13-2022 | Boring Completed: 06-13-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. B-1

Page 1 of 1

PROJECT: P-1102 Magazine Recapitalization
CLIENT: Jacobs Arlington, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4067° Longitude: -72.0848°
Approximate Surface Elev.: 126 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
0.5	125.5+/-
0.8	125+/-
7.5	118.5+/-

ASPHALT
CRUSHED STONE
FILL - POORLY GRADED SAND WITH GRAVEL (SP), with cobbles, medium to coarse, gray brown, moist, dense medium dense

Auger Refusal at 7.5 Feet

Depth	Recovery (in.)	Field Test Results
1	16	20-20-20-20 N=40
5	16	19-16-13-10 N=29
	10	7-3-7-6 N=10

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic
Samples obtained using a 2" O.D. split spoon sampler

Advancement Method: 2-1/4 hollow stem augers
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Notes:

WATER LEVEL OBSERVATIONS
Dry during drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 05-14-2020 | Boring Completed: 05-14-2020
Drill Rig: CME-850X | Driller: P. Michaud
Project No.: JD195305

BORING LOG NO. B-2

Page 1 of 1

PROJECT: P-1102 Magazine Recapitalization
CLIENT: Jacobs Arlington, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4063° Longitude: -72.0841°
Approximate Surface Elev.: 125 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
0.5	124.5+/-
0.8	124+/-
15.0	110+/-
17.0	108+/-
20.0	105+/-

ASPHALT
CRUSHED STONE
FILL - POORLY GRADED SAND WITH SILT (SP-SM), fine to coarse, gray brown, moist, very dense
with cobbles
FILL - SILTY SAND WITH GRAVEL (SM), medium to coarse, yellow brown, moist, medium dense
POORLY GRADED SAND WITH GRAVEL (SP), coarse, gray brown, moist, very dense

Auger and Spoon Refusal at 10 Feet

Depth	Recovery (in.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
5	8	50/5"		
	16	6-6-13-13 N=19	8	NP
	0	20-50/1"		
10		50/1"		

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic
Samples obtained using a 2" O.D. split spoon sampler

Advancement Method: 2-1/4 hollow stem augers
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Notes:

WATER LEVEL OBSERVATIONS
Dry during drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 05-14-2020 | Boring Completed: 05-14-2020
Drill Rig: CME-850X | Driller: P. Michaud
Project No.: JD195305

BORING LOG NO. B-3

Page 1 of 1

PROJECT: P-1102 Magazine Recapitalization
CLIENT: Jacobs Arlington, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4048° Longitude: -72.0833°
Approximate Surface Elev.: 91 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
0.5	90.5+/-
1.0	90+/-
6.5	85.5+/-

ASPHALT
CRUSHED STONE
FILL - POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), fine to medium, brown, moist, dense, with cobbles

Auger Refusal at 5.5 Feet

Depth	Recovery (in.)	Field Test Results
5	16	12-20-30-50/2" N=50

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic
Samples obtained using a 2" O.D. split spoon sampler

Advancement Method: 2-1/4 hollow stem augers
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Notes:

WATER LEVEL OBSERVATIONS
Dry during drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 05-14-2020 | Boring Completed: 05-14-2020
Drill Rig: CME-850X | Driller: P. Michaud
Project No.: JD195305

BORING LOG NO. B-4

Page 1 of 1

PROJECT: P-1102 Magazine Recapitalization
CLIENT: Jacobs Arlington, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4047° Longitude: -72.0828°
Approximate Surface Elev.: 90 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
11.0	85+/-
16.0	84+/-

FILL - POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), fine to coarse, brown gray, moist, medium dense
with cobbles
SILTY SAND WITH GRAVEL (SM), coarse, brown, moist, very dense

Auger Refusal at 6 Feet

Depth	Recovery (in.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
5	18	11-12-11-11 N=23		
	16	12-9-11-20 N=20	10	NP
	0	50/4"		

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic
Samples obtained using a 2" O.D. split spoon sampler

Advancement Method: 2-1/4 hollow stem augers
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Notes:

WATER LEVEL OBSERVATIONS
Dry during drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 05-14-2020 | Boring Completed: 05-14-2020
Drill Rig: CME-850X | Driller: P. Michaud
Project No.: JD195305

BORING LOG NO. B-5

Page 1 of 1

PROJECT: P-1102 Magazine Recapitalization
CLIENT: Jacobs Arlington, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4045° Longitude: -72.0825°
Approximate Surface Elev.: 88 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
0.5	87.5+/-
1.0	87+/-
10.0	78+/-
18.0	70+/-

ASPHALT
CRUSHED STONE
FILL - POORLY GRADED SAND WITH SILT (SP-SM), fine to medium, brown gray, moist, medium dense
with cobbles
FILL - SILTY SAND WITH GRAVEL (SM), medium to coarse, brown gray, moist, medium dense
very loose
with cobbles
SILT WITH SAND (ML), fine, dark gray, soft, contains organics and root fragments

Auger Refusal at 18 Feet

Depth	Recovery (in.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
5	16	11-14-10-9 N=24		
	12	9-14-13-13 N=27		
	6	9-15-9-4 N=24		
	8	1-1-1-1 N=2		
10	22	1-1-1-1 N=2	59	46-35-11
15	8	1-1-1-1 N=2		

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic
Samples obtained using a 2" O.D. split spoon sampler

Advancement Method: 2-1/4 hollow stem augers
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Notes:

WATER LEVEL OBSERVATIONS
6 feet while drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 05-14-2020 | Boring Completed: 05-14-2020
Drill Rig: CME-850X | Driller: P. Michaud
Project No.: JD195305

BORING LOG NO. B-6

Page 1 of 1

PROJECT: P-1102 Magazine Recapitalization
CLIENT: Jacobs Arlington, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4041° Longitude: -72.0828°
Approximate Surface Elev.: 85 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
0.5	84.5+/-
1.0	84+/-
14.0	71+/-
21.0	64+/-

ASPHALT
CRUSHED STONE
FILL - POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM), coarse, gray brown, moist, medium dense
loose
with cobbles
SILTY SAND WITH GRAVEL (SM), medium to coarse, gray, moist, loose

Auger Refusal at 21 Feet

Depth	Recovery (in.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
5	18	6-7-6-6 N=13	4	NP
	12	6-7-6-5 N=13		
	8	1-2-2-1 N=4		
	6	1-2-6-12 N=8		
10	6	3-2-2-2 N=4		
15	6	2-2-4-4 N=6		

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic
Samples obtained using a 2" O.D. split spoon sampler

Advancement Method: 2-1/4 hollow stem augers
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Notes:

WATER LEVEL OBSERVATIONS
5 feet while drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 05-14-2020 | Boring Completed: 05-14-2020
Drill Rig: CME-850X | Driller: P. Michaud
Project No.: JD195305

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_JD195305 NEW LONDON.GPJ TERRACON_DATATEMPLATE.GDT 7/24/20

SYM	DESCRIPTION	DATE	APPR.

NAVFAC

STATE OF CONNECTICUT — PAUL J. MURPHY — LICENSED PROFESSIONAL ENGINEER — No. 29935

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

A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
APPROVED BY LCDR ELIZABETH OLOKODE NAVFAC NLON FEAD DIRECTOR NEW LONDON, GROTON, CT
SATISFACTORY TO DATE 05/27/2025

DES	PM	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
BORING LOGS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893824
SHEET 18 OF 152
BB303

FILE NAME: C:\pw_workdir\{den003\}oliney.corum@jacobs.com\{d0919642\}P1102_BB303.dwg LAYOUT NAME: BB303 BORING LOGS PLOTTED: Tuesday, June 17, 2025 – 10:04am USER: CORUML

BORING LOG NO. B-7

Page 1 of 1

PROJECT: P-1102 Magazine Recapitalization
CLIENT: Jacobs Arlington, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4041° Longitude: -72.0838°
Approximate Surface Elev.: 83 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.1	82.5+/-	**ASPHALT**
1.0	82+/-	**CRUSHED STONE**
		FILL - POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), fine to coarse, brown gray, moist, very dense medium dense
		dense, with cobbles
		medium dense
18.0	74+/-	
		ELASTIC SILT (MH), dark gray, moist, soft, contains roots
18.5	64.5+/-	***Auger Refusal at 18.5 Feet***

Sample	Recovery (in.)	Field Test Results	Water Content (%)	LL-PL-PI
12		15-35-18-20 N=53		
16		16-15-13-20 N=28		
18		10-15-16-10 N=31		
16		10-10-12-5 N=22		
22		1-1-1-1 N=2	64	56-36-20
22		1-1-1-1 N=2		

Stratification lines are approximate. In-situ, the transition may be gradual.
Samples obtained using a 2" O.D. split spoon sampler
Hammer Type: Automatic

Advancement Method: 2-1/4 hollow stem augers
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.

WATER LEVEL OBSERVATIONS
5 feet while drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 05-14-2020 | Boring Completed: 05-14-2020
Drill Rig: CME-850X | Driller: P. Michaud
Project No.: JD195305

BORING LOG NO. B-8

Page 1 of 1

PROJECT: P-1102 Magazine Recapitalization
CLIENT: Jacobs Arlington, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4033° Longitude: -72.0833°
Approximate Surface Elev.: 81 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.6	80.5+/-	**ASPHALT**
1.1	80+/-	**CRUSHED STONE**
		FILL - POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) medium to coarse, brown, moist, dense medium dense
7.0	74+/-	**FILL - POORLY GRADED SAND WITH GRAVEL (SP)**, fine to coarse, brown gray, moist, medium dense
10.0	71+/-	
		SILTY SAND (SM), coarse, brown, moist, very dense
11.5	69.5+/-	***Auger Refusal at 11.5 Feet***

Sample	Recovery (in.)	Field Test Results	Water Content (%)	LL-PL-PI
10		13-17-17-13 N=34		
14		10-9-9-7 N=18	7	NP
10		4-7-6-7 N=13		
6		6-6-7-7 N=13		
9		12-50/3"		

Stratification lines are approximate. In-situ, the transition may be gradual.
Hammer Type: Automatic

Advancement Method: 2-1/4 hollow stem augers
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
See Supporting Information for explanation of symbols and abbreviations.
Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.

WATER LEVEL OBSERVATIONS
7 feet while drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 05-14-2020 | Boring Completed: 05-14-2020
Drill Rig: CME-850X | Driller: P. Michaud
Project No.: JD195305

BORING LOG NO. IB1-1

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4031°85° Longitude: -72.083454°
Approximate Surface Elev.: 80 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.3	80+/-	**TOPSOIL = 3 IN.**
0.6	79+/-	**FILL - SILTY SAND**, fine grained, dark yellow gray, moist, medium dense
6.0	74+/-	**FILL - CLAYEY SAND**, fine to medium grained, dark gray, moist, medium dense
		SILT WITH SAND (ML), fine to medium grained, gray, moist, stiff
		ELASTIC SILT WITH SAND (MH), fine to medium grained, dark gray, moist, medium stiff, contains organic material
16.0	64+/-	black dark gray, soft
		Boring Terminated at 16 Feet

Sample	Recovery (in.)	Field Test Results	RQD (%)	N60	Water Content (%)	LL-PL-PI	UCS (psi)
8		4-6-7-5 N=13		15			
10		5-6-7-6 N=13		15			
20		13-6-6-4 N=10		12			
24		3-3-3-4 N=6		7			
18		3-3-3-2 N=5		7			
24		2-1-1-1 N=2		2			
24		2-1-1-2 N=2		5			
		3-2-2-3 N=4					

Stratification lines are approximate. In-situ, the transition may be gradual.
Hammer Type: Automatic

Advancement Method: 3.25" ID HSA
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.
Elevations were interpolated from a topographic site plan.

WATER LEVEL OBSERVATIONS
Not encountered during drilling
Not encountered upon completion

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-15-2022 | Boring Completed: 06-15-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. IB1-2

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.4030°10" Longitude: -72.083478°
Approximate Surface Elev.: 80 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.3	79.5+/-	**TOPSOIL = 4 IN.**
4.0	76+/-	**SILT WITH SAND (ML)**, fine grained, dark brown gray, moist, medium stiff
5.3	74.5+/-	**WEATHERED ROCK - SANDY SILT (ML)**, fine grained, dark brown gray, moist, hard
		Auger Refusal at 5.3 Feet

Sample	Recovery (in.)	Field Test Results	RQD (%)	N60	Water Content (%)	LL-PL-PI	UCS (psi)
16		3-3-3-3 N=6		7			
18		2-2-3-3 N=5		6			
12		1-2-50/4"					

Stratification lines are approximate. In-situ, the transition may be gradual.
Hammer Type: Automatic

Advancement Method: 3.25" ID HSA
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.
Elevations were interpolated from a topographic site plan.

WATER LEVEL OBSERVATIONS
Not encountered during drilling
Not encountered upon completion

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-15-2022 | Boring Completed: 06-15-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. IB1-3

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403028° Longitude: -72.083622°
Approximate Surface Elev.: 78 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.3	77.5+/-	**TOPSOIL = 4 IN.**
2.0	76+/-	**SANDY SILT WITH GRAVEL (ML)**, fine to coarse grained, dark brown gray, moist, medium stiff
6.0	72+/-	**SILT WITH SAND (ML)**, fine grained, dark brown gray, moist, soft
8.0	70+/-	black and brown, contains organic material
8.5	69+/-	**SILTY SAND WITH GRAVEL (SM)**, fine to coarse grained, orange brown, moist, hard
		WEATHERED ROCK - SANDY SILT WITH GRAVEL (ML), fine to coarse grained, orange brown and gray, moist, hard
		Auger Refusal at 8.8 Feet

Sample	Recovery (in.)	Field Test Results	RQD (%)	N60	Water Content (%)	LL-PL-PI	UCS (psi)
4		4-3-3-3 N=6		7			
24		3-2-2-3 N=4		5			
12		1-1-2-3 N=3		4			
14		4-11-38-22 N=49		57			
18		28-50/4"					

Stratification lines are approximate. In-situ, the transition may be gradual.
Hammer Type: Automatic

Advancement Method: 3.25" ID HSA
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.
Elevations were interpolated from a topographic site plan.

WATER LEVEL OBSERVATIONS
Not encountered during drilling
Not encountered upon completion

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-15-2022 | Boring Completed: 06-15-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. IB2-1

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403246° Longitude: -72.084705°
Approximate Surface Elev.: 82 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.2	82+/-	**TOPSOIL = 2 IN.**
4.0	78+/-	**FILL - SILTY SAND WITH GRAVEL**, fine to coarse grained, light gray, moist, dense dark gray
8.0	74+/-	**SILTY SAND (SM)**, fine to medium grained, brown, moist, medium dense, micaceous dense
10.0	72+/-	
10.5	71+/-	**WEATHERED ROCK - POORLY GRADED GRAVEL (GP)**, coarse grained, light gray, moist, dense, micaceous
		Auger Refusal at 10.9 Feet

Sample	Recovery (in.)	Field Test Results	RQD (%)	N60	Water Content (%)	LL-PL-PI	UCS (psi)
20		6-10-30-46 N=40	47				
18		31-21-27-19 N=48	56				
14		15-11-9-10 N=20	23				
12		8-9-30-31 N=39	46				
14		8-9-30-31 N=39	37				
2		20-20-12-16 N=32					
		15-50/9"					

Stratification lines are approximate. In-situ, the transition may be gradual.
Hammer Type: Automatic

Advancement Method: 3.25" ID HSA
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.
Elevations were interpolated from a topographic site plan.

WATER LEVEL OBSERVATIONS
Not encountered during drilling
Not encountered upon completion

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-15-2022 | Boring Completed: 06-15-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. IB2-2

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403350° Longitude: -72.084955°
Approximate Surface Elev.: 82 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.2	82+/-	**TOPSOIL = 2 IN.**
8.0	74+/-	**FILL - SILTY SAND WITH GRAVEL**, fine to medium grained, gray, moist, dense, micaceous brown, medium dense
10.5	72+/-	**LEAN CLAY WITH SAND (CL)**, fine to medium grained, dark gray, moist, hard, micaceous
		SILTY SAND (SM), fine to medium grained, light brown and gray, moist, dense, micaceous medium dense
14.0	68+/-	**WEATHERED ROCK - SILTY SAND (SM)**, fine to medium grained, dark gray, moist, very dense, micaceous
15.3	66.5+/-	***Boring Terminated at 15.3 Feet***

Sample	Recovery (in.)	Field Test Results	RQD (%)	N60	Water Content (%)	LL-PL-PI	UCS (psi)
22		7-15-18-16 N=33		39			
12		13-10-20-50/4" N=30		35			
11		20-13-12-15 N=25		29			
4		9-9-9-8 N=18		21			
14		3-9-24-16 N=33		39			
16		9-10-11-16 N=21		25			
18		10-9-9-9 N=18		21			
14		9-9-50/4"					

Stratification lines are approximate. In-situ, the transition may be gradual.
Hammer Type: Automatic

Advancement Method: 3.25" ID HSA
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.
Elevations were interpolated from a topographic site plan.

WATER LEVEL OBSERVATIONS
Not encountered during drilling
Not encountered upon completion

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-15-2022 | Boring Completed: 06-15-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. IB2-3

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403454° Longitude: -72.084972°
Approximate Surface Elev.: 82 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.2	82+/-	**TOPSOIL = 2 IN.**
0.2	80+/-	**FILL - SILTY SAND WITH GRAVEL**, fine to medium grained, brown, moist, medium dense, micaceous
8.0	74+/-	**SILTY SAND (SM)**, fine to medium grained, gray, moist, dense, micaceous brown, medium dense very dense
11.3	70.5+/-	**WEATHERED ROCK - SILTY SAND WITH GRAVEL (SM)**, fine to medium grained, gray, moist, very dense, micaceous light gray
		Auger Refusal at 11.3 Feet

Sample	Recovery (in.)	Field Test Results	RQD (%)	N60	Water Content (%)	LL-PL-PI	UCS (psi)
20		4-8-17-25 N=25		29			
14		17-22-18-11 N=38		44			
15		8-11-11-15 N=22		26			
17		10-20-34-42 N=54		63			
14		29-40-50/4"					
15		21-34-50/4"					

Stratification lines are approximate. In-situ, the transition may be gradual.
Hammer Type: Automatic

Advancement Method: 3.25" ID HSA
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.
Elevations were interpolated from a topographic site plan.

WATER LEVEL OBSERVATIONS
Not encountered during drilling
Not encountered upon completion

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-15-2022 | Boring Completed: 06-15-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT

APPR.	DATE	DESCRIPTION	SYM.

NAVFAC

STATE OF CONNECTICUT — PAUL J. MURPHY — LICENSED PROFESSIONAL ENGINEER — No. 29935

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

A/E INFO

APPROVED
FOR COMMANDER NAVFAC

ACTIVITY
APPROVED BY LCDR ELIZABETH OLIKOIDE NAVFAC NLON FEAD DIRECTOR NEW LONDON, GROTON, CT

SATISFACTORY TO | DATE 05/27/2025

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

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

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893825
SHEET 19 OF 152
BB304

BORING LOG NO. IB3-1

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.407552° Longitude: -72.084953°

Approximate Surface Elev.: 100 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description	DEPTH (ft.)	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	99.7	TOPSOIL = 4 IN.									
		SILTY SAND WITH GRAVEL (SM), fine to medium grained, brown, moist, dense, micaceous dark gray, medium dense			24	8-15-17-14 N=32		37			
					24	8-12-8-10 N=20		23			
					18	17-8-7-7 N=15		18			
		light brown	10		18	11-11-17-16 N=28		33			
					24	9-10-15-19 N=25		29			
					4	8-13-15-19 N=28		34			
14.0	86+/-	light gray, very dense			24	22-23-42-36 N=65		99			
		SILTY GRAVEL WITH SAND (GM), fine to coarse grained, brown, moist, very dense			24	31-25-28-29 N=53		62			
16.0	84+/-	Boring Terminated at 16 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 3.25" ID HSA

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered during drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-03-2022 | Boring Completed: 06-03-2022

Drill Rig: CME 55 | Driller: Terracon

Project No.: JD195305A

BORING LOG NO. IB3-2

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.407510° Longitude: -72.084949°

Approximate Surface Elev.: 98 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description	DEPTH (ft.)	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	97.5+/-	TOPSOIL = 4 IN.									
		SILTY SAND WITH GRAVEL (SM), fine to medium grained, gray, moist, medium dense, micaceous			18	5-8-7-10 N=15	18				
					12	6-5-5-4 N=10	12				
		CLAYEY SAND (SC), fine to medium grained, brown, moist, medium dense, micaceous			12	2-3-3-5 N=6	7				
8.0	92+/-	loose	10		18	4-7-8-5 N=15	18				
		SILTY SAND WITH GRAVEL (SM), fine grained, light brown, moist, medium dense, micaceous			12	3-5-16-18 N=21	13				
		fine to medium grained, brown			24	4-5-6-11 N=11	25				
		very dense			24	3-5-16-18 N=21	30				
16.0	82+/-	Boring Terminated at 16 Feet			24	9-10-16-21 N=26	62				
						23-24-35-18 N=53					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 3.25" ID HSA

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered during drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-03-2022 | Boring Completed: 06-03-2022

Drill Rig: CME 55 | Driller: Terracon

Project No.: JD195305A

BORING LOG NO. IB3-3

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.407518° Longitude: -72.084953°

Approximate Surface Elev.: 97 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description	DEPTH (ft.)	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	96.7+/-	TOPSOIL = 4 IN.									
		SANDY SILT (ML), fine to medium grained, brown, moist, very stiff			19	11-8-18-24 N=26		30			
		hard			18	23-19-14-8 N=33		39			
6.0	91+/-	medium stiff			6	5-2-4-5 N=6		7			
		WEATHERED ROCK - SILTY SAND WITH GRAVEL (SM), fine to coarse grained, dark brown, moist, very dense	10		18	8-9-50/4" 14-39-38-28 N=77		90			
					18	26-25-36-30 N=81		71			
		dark brown and pink			24	11-40-37-49 N=77		90			
15.0	82+/-	Boring Terminated at 15 Feet			12	42-50					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 3.25" ID HSA

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Not encountered during drilling

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-03-2022 | Boring Completed: 06-03-2022

Drill Rig: CME 55 | Driller: Terracon

Project No.: JD195305A

BORING LOG NO. MB-201

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.404521° Longitude: -72.082158°

Approximate Surface Elev.: 108 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description	DEPTH (ft.)	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	107.7+/-	TOPSOIL = 3 IN.									
0.6	106+/-	SANDY SILT (ML), fine to medium grained, light brown, moist, very soft			16	0-0-1-1 N=1		1			
7.0	101+/-	GRANITE, mottled pink gray to white, highly fractured, highly weathered, strong, Core Run #1			31		32				
12.0	96+/-	GRANITE, mottled pink gray to white, moderately fractured, slightly weathered, strong, Core Run #2 Point Load Index (Is) = 6,07			57		77			20,123	
17.0	91+/-	GRANITE, mottled pink gray to white, moderately fractured, slightly weathered, strong, Core Run #3			60		88				
22.0	86+/-	GRANITE, mottled pink gray to white, moderately fractured, slightly weathered, strong, Core Run #4 Point Load Index (Is) = 7,47			60		97				
27.0	81+/-	GRANITE, mottled pink gray to white, moderately fractured, moderately weathered, strong, Core Run #5			60		53				
32.0	76+/-	GRANITE, mottled pink gray to white, moderately fractured, slightly weathered, very strong, Core Run #6, Point Load Index (Is) = 6,12			60		88				
37.0	71+/-	GRANITE, mottled pink gray to white, moderately fractured, slightly weathered, very strong, Core Run #7			60		100			20,635	
42.0	66+/-	GRANITE, mottled pink gray to white, moderately fractured, slightly weathered, very strong, Core Run #8, Point Load Index (Is) = 9,03			55		92				
47.0	61+/-	GRANITE, mottled pink gray to white, slightly fractured, slightly weathered, very strong, Core Run #9			60		90				
		Boring Terminated at 47 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-23-2022 | Boring Completed: 06-23-2022

Drill Rig: Renegade | Driller: Terracon

Project No.: JD195305A

BORING LOG NO. MB-202

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.404702° Longitude: -72.082495°

Approximate Surface Elev.: 87 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description	DEPTH (ft.)	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.2	87+/-	TOPSOIL = 2 IN.			8	1-4-5-6 N=9		11			
		FILL - SILTY SAND WITH GRAVEL, fine to medium grained, brown, moist, loose medium dense			12	3-4-5-8 N=12		14			
6.0	81+/-	dark gray, loose			6	3-2-3-2 N=5		6	21.9	36-30-6	
		ELASTIC SILT (MH), dark gray, moist, very soft			12	1-2-1-0 N=1		1			
		soft			24	1-1-1-1 N=2		2			
12.0	75+/-				24	1-1-1-1 N=2		2			
		SILT WITH SAND (ML), fine grained, brown, soft	10		12	1-1-1-0 N=2		0	41.4	27-23-4	
14.5	72.5+/-				6	0-0-2-5 N=0					
		GRANITE, mottled pink gray and white, slightly fractured, slightly weathered, strong, Core Run #1			60	6-50/0"	97				
19.5	67.5+/-										
		GRANITE, mottled pink gray and white, moderately to slightly fractured, slightly weathered, strong, Core Run #2			55		92				
24.5	62.5+/-	Point Load Index (Is) = 4,96	20								
		Boring Terminated at 24.5 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-23-2022 | Boring Completed: 06-25-2022

Drill Rig: DT0 | Driller: Terracon

Project No.: JD195305A

BORING LOG NO. MB-203

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.404811° Longitude: -72.083142°

Approximate Surface Elev.: 92 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description	DEPTH (ft.)	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.1	91.9+/-	ASPHALT = 4 IN.									
0.4	91.6+/-	AGGREGATE BASE COURSE = 2 IN.			10	5-5-7-15 N=12		14			
0.9	91.1+/-	FILL - SILTY SAND WITH GRAVEL, fine to coarse grained, brown, moist, medium dense			0	50/1"					
		WEATHERED ROCK - SILTY SAND WITH GRAVEL (SM), fine to coarse grained, moist, very dense			58		55				
8.9	83+/-		10								
		GRANITE, pink gray and black, intensely to highly fractured, moderately weathered, very strong, Core Run #1			60		95				
14.0	78+/-										
		Boring Terminated at 14 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-23-2022 | Boring Completed: 06-23-2022

Drill Rig: CME 55 | Driller: Geologic

Project No.: JD195305A

BORING LOG NO. MB-204

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.405307° Longitude: -72.083372°

Approximate Surface Elev.: 137 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description	DEPTH (ft.)	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.2	137+/-	TOPSOIL = 2 IN.			0	50/0"					
		GRANITE, pink black and white, highly to moderately fractured, slightly weathered, very strong, Core Run #1			60		92				
5.0	132+/-	GRANITE, black and pink, moderately to slightly fractured, slightly weathered, very strong, Core Run #2			60		95				
10.0	127+/-	Point Load Index (Is) = 5,83			60		78				
		GRANITE, pink black and white, highly to moderately fractured, slightly weathered, very strong, Core Run #3			60		93				
15.0	122+/-	GRANITE, pink gray and white, slightly fractured, slightly weathered, very strong, Core Run #4			60		85				
20.0	117+/-	Point Load Index (Is) = 7,96			60		93				
		GRANITE, pink black and gray, slightly fractured, slightly weathered, very strong, Core Run #5			60		97				
25.0	112+/-	GRANITE, pink gray and white, slightly fractured, slightly weathered, very strong, Core Run #6, Point Load Index (Is) = 8,21			60		100				
30.0	107+/-	GRANITE, pink gray and white, slightly fractured, slightly weathered, very strong, Core Run #7									
35.0	102+/-	GRANITE, gray black and pink, slightly fractured, slightly weathered, very strong, Core Run #8 Point Load Index (Is) = 8,94									
40.0	97+/-	Boring Terminated at 40 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-23-2022 | Boring Completed: 06-23-2022

Drill Rig: Renegade | Driller: Terracon

Project No.: JD195305A

BORING LOG NO. MB-205

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.404470° Longitude: -72.083082°

Approximate Surface Elev.: 88 (ft.) +/-

DEPTH	ELEVATION (ft.)	Description	DEPTH (ft.)	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	87.7+/-	ASPHALT = 4 IN.			8	15-24-24 N=48	56				
0.6	87.4+/-	AGGREGATE BASE COURSE = 2 IN.			18	24-37-28-34 N=65	76				
7.0	81+/-	FILL - SILTY SAND WITH GRAVEL, fine to coarse grained, light green to gray, moist, dense black to dark gray, very dense			16	17-24-35-44 N=63	74				
		GRANITE BOULDER, pink to gray			2	50/2"					
12.0	76+/-		10		0	50/0"					
14.0	74+/-	DRIVE AND WASH FROM 12-14 FT TO NEXT SAMPLE			14	1-2-2-4 N=4	5	59.3	53-38-15		
		SANDY ELASTIC SILT (MH), fine grained, black, moist, soft			18	10-15-14-15 N=29	34				
19.0	69+/-	SILTY SAND (SM), fine to coarse grained, gray, wet, medium dense			10	15-26-37 N=63	74				
		very dense	20		1	50/3"					
26.0	59+/-				0	50/0"					
31.0	57+/-	WEATHERED ROCK - SILTY SAND (SM), fine to coarse grained, gray, wet, very dense			60		85				
		GRANITE, black to white, highly fractured, slightly weathered, very strong, Core Run #1 Point Load Index (Is) = 6,15									
36.0	52+/-	GRANITE, pink black and white, moderately fractured, slightly weathered, very strong, Core Run #2			60		93			6,402	
41.0	47+/-	Boring Terminated at 41 Feet	30								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-21-2022 | Boring Completed: 06-23-2022

Drill Rig: CME 55 | Driller: Geologic

Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - JD195305A P1102 MAGAZINE & - REV1.GPJ - TERRACON_DATATEMPLATE.GDT 10/19/22

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

STM	DESCRIPTION	DATE	APPR

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

DES	PM	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

BORING LOGS

SCALE: AS NOTED

EPROJECT NO.: 1667770

CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12893826

SHEET 20 OF 152

BB305

FILE NAME: C:\pw_workdir\{ceo003\}ceo003\{d0919642\}P1102_BB305.dwg LAYOUT NAME: BB305 BORING LOGS PLOTTED: Tuesday, June 17, 2025 - 10:08am USER: CORUML

BORING LOG NO. MB-206

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.40471° Longitude: -72.093549°
Approximate Surface Elev.: 89 (Ft.) +/-

Elevation (Ft.)	Description
89.3	ASPHALT = 4 IN.
88.8	AGGREGATE BASE COURSE = 2 IN.
86.8	FILL - SILTY SAND WITH GRAVEL, fine to coarse grained, light brown, moist, medium dense
	loose
	medium dense
78.5	SILT WITH SAND (ML), fine grained, dark gray, moist, soft
	wet
70	WEATHERED ROCK - SILTY SAND (SM), fine to coarse grained, light brown, moist, very dense
65	GRANITE, light yellow, highly fractured, moderately weathered, very strong, Core Run #1
60	GRANITE, light yellow and gray, intensely fractured, moderately weathered, strong, Core Run #2
55	Point Load Index (Is) = 7.92
	Boring Terminated at 34 Feet

Depth (Ft.)	Recovery (In.)	Field Test Results	RQD (%)	N60	Water Content (%)	Atterberg Limits LL-PL-PI	UCS (psi)
10	10	7-10-12-21 N=22		26			
	10	10-10-15-18 N=25		29			
	8	6-6-12-10 N=18		21			
	8	6-3-3-2 N=6		7			
	0	12-10-5-5 N=15		18			
	4	2-3-1-2 N=3		4			
	8	1-1-1-1 N=2		2	40.2	NP	
	8	1-1-1-6 N=2		2			
20	6	20-50/3"					
		50/0"					
	60			43			
30	60			38			

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
Boring Started: 06-24-2022 | Boring Completed: 06-24-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: JD195305A-P1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 10/18/22

BORING LOG NO. MB-207

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404359° Longitude: -72.083413°
Approximate Surface Elev.: 86 (Ft.) +/-

Elevation (Ft.)	Description
86.3	TOPSOIL = 3 IN.
85.8	FILL - SILTY SAND WITH GRAVEL, fine grained, light brown, moist, loose
	fine to medium grained, very dense
	light yellow brown, dense
	fine to coarse grained, mottled brown white and gray, moist
76	FILL - POORLY GRADED SAND WITH GRAVEL, medium to coarse grained, mottled brown gray and orange, moist, medium dense
72	ELASTIC SILT (MH), dark gray, moist, soft
	very soft
61	SILTY SAND (SM), fine grained, light brown, moist, dense
56	SILTY GRAVEL WITH SAND (GM), fine to coarse grained, mottled brown orange to gray, moist, dense
51	WEATHERED ROCK - SILT WITH SAND (ML), fine to medium grained, mottled brown orange to black, moist, hard, micaceous
46	WEATHERED ROCK - SILTY GRAVEL (GM), fine to medium grained, brown black to light gray, moist, very dense, micaceous
41	WEATHERED ROCK - POORLY GRADED SAND WITH GRAVEL (SP), medium to coarse grained, mottled brown orange to white, moist, very dense
36	GRANITE, light white gray to black, highly fractured, moderately weathered, strong, Core Run #1
31	Point Load Index (Is) = 1.42
	GRANITE, light white gray to black, intensely fractured, highly weathered, medium strong, Core Run #2
26	*Boring Terminated at 60 Feet*

Depth (Ft.)	Recovery (In.)	Field Test Results	RQD (%)	N60	Water Content (%)	Atterberg Limits LL-PL-PI	UCS (psi)
	12	3-3-5-5 N=8		9			
	6	7-50/1"					
	18	15-22-28-24 N=50		58			
	18	17-18-41-41 N=59		69			
	18	21-27-22-22 N=49		57			
	9	11-7-4-5 N=11		13			
	16	7-8-5-3 N=13		15			
	18	3-1-3-3 N=4		5			
20	24	0-0-0-0 N=0		0	69.8	64-44-20	
	12	4-12-28-25 N=40		47			
	17	22-22-22-34 N=44		51			
	4	50/4"					
	4	50/4"					
	2	50/2"					
	49		48				
30	38		20				

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
Boring Started: 06-27-2022 | Boring Completed: 06-28-2022
Drill Rig: CME 55 | Driller: Terracon
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: JD195305A-P1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 10/18/22

BORING LOG NO. MB-208

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403939° Longitude: -72.083091°
Approximate Surface Elev.: 84 (Ft.) +/-

Elevation (Ft.)	Description
83.5	ASPHALT = 6 IN.
80	FILL - POORLY GRADED SAND , medium to coarse grained, light brown, moist, medium dense
78	FILL - SILTY SAND WITH GRAVEL, fine to coarse grained, light brown, moist, medium dense
	POORLY GRADED SAND WITH GRAVEL (SP), medium to coarse grained, gray, moist, medium dense
	loose
68	GRANITE, gray with light red, highly to moderately fractured, moderately weathered, strong, Core Run #1
63	GNEISS, gray, moderately fractured, slightly weathered, very strong, Core Run #2 Point Load Index (Is) = 5.66
58	*Boring Terminated at 26 Feet*

Depth (Ft.)	Recovery (In.)	Field Test Results	RQD (%)	N60	Water Content (%)	Atterberg Limits LL-PL-PI	UCS (psi)
	11	6-6-9-9 N=15		18			
	14	6-8-9-14 N=17		20			
	14	15-9-8-9 N=17		20			
	13	9-10-13-12 N=23		27			
	24	13-9-8-7 N=17		20			
	24	6-4-5-3 N=9		11			
	9	7-2-5-5 N=7		8			
	7	5-3-3-4 N=6		7			
20	60		88				
	60		97				

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
Boring Started: 06-21-2022 | Boring Completed: 06-21-2022
Drill Rig: CME 55 | Driller: Terracon
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: JD195305A-P1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 10/18/22

BORING LOG NO. MB-209

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404530° Longitude: -72.083785°
Approximate Surface Elev.: 86 (Ft.) +/-

Elevation (Ft.)	Description
85.5	ASPHALT = 8 IN.
84.5	FILL - SILTY SAND, medium to coarse grained, brown to black, moist, very dense
82	GRANITE BOULDER, gray and light brown
	FILL - POORLY GRADED SAND WITH GRAVEL, medium to coarse grained, mottled gray brown, moist, medium dense
	loose
76	FAT CLAY WITH SAND (CH), dark gray, moist, very soft, contains organic material
72	SILTY GRAVEL (GM), dark gray, moist, very loose, contains organic material
67.5	SILTY SAND (SM), fine to medium grained, light brown, moist, medium dense
66	WEATHERED ROCK - SILTY SAND (SM), fine to coarse grained, light brown, moist, very dense
64.5	GRANITE, orange black to white, highly to intensely fractured, slightly weathered, strong, Core Run #1
61	GNEISS, black white, highly to intensely fractured, highly weathered, medium strong, Core Run #1
56	GNEISS, brown black, moderately fractured, slightly weathered, strong, Core Run #2 Point Load Index (Is) = 4.36
51	GRANITE, pink black to white, highly to intensely fractured, slightly weathered, strong, Core Run #3
	Boring Terminated at 35 Feet

Depth (Ft.)	Recovery (In.)	Field Test Results	RQD (%)	N60	Water Content (%)	Atterberg Limits LL-PL-PI	UCS (psi)
	4	50/4"					
	2	6-6-5-7 N=11		13			
	12	8-3-3-3 N=6		7			
	10	0-0-0-1 N=0		0			
	2	0-0-0-0 N=0		0	30.3	52-42-10	
	4	0-0-0-0 N=0		0			
	18	0-0-0-14 N=0		12			
		2-4-6-9 N=10					
	11	6-50/5"					
20							
	37			13			
	60			82			
30	36			12			

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
Boring Started: 06-27-2022 | Boring Completed: 06-27-2022
Drill Rig: Renegade | Driller: Terracon
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: JD195305A-P1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 10/18/22

BORING LOG NO. MB-210

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403458° Longitude: -72.083821°
Approximate Surface Elev.: 80 (Ft.) +/-

Elevation (Ft.)	Description
79.5	ASPHALT = 4 IN.
79.1	AGGREGATE BASE COURSE = 2 IN.
78	FILL - SILTY SAND WITH GRAVEL, fine to coarse grained, brown to gray, moist, dense
	dark gray to black, medium dense
	ELASTIC SILT (MH), dark gray to black, moist, soft
	very soft,
	black, soft
68	SANDY LEAN CLAY (CL), fine grained, light green, moist, stiff
	very stiff
61	WEATHERED ROCK - SILTY SAND (SM), fine to coarse grained, brown, moist, very dense
56	GNEISS, black gray to pink, moderately fractured, slightly weathered, very strong, Core Run #1
51	Point Load Index (Is) = 5.16
48	GNEISS, black gray to pink, moderately fractured, slightly weathered, very strong, Core Run #2
	Boring Terminated at 34 Feet

Depth (Ft.)	Recovery (In.)	Field Test Results	RQD (%)	N60	Water Content (%)	Atterberg Limits LL-PL-PI	UCS (psi)
10	10	15-20-20 N=40		47			
	15	15-7-3-3 N=10		12			
	24	1-1-1-1 N=2		2			
	24	1-1-1-1 N=2		2	69.8	64-46-18	
	24	0-0-0-0 N=0		0			
	24	2-2-2-3 N=4		5			
	18	3-9-7-8 N=12		14			
	18	7-7-15-24 N=22		26			
20	16	47-87-42-37 N=109		127			
	0	50/0"					
	53			75			
30	60			68			

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
Boring Started: 06-21-2022 | Boring Completed: 06-21-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: JD195305A-P1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 10/18/22

BORING LOG NO. MB-211

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403609° Longitude: -72.084028°
Approximate Surface Elev.: 82 (Ft.) +/-

Elevation (Ft.)	Description
81.5	ASPHALT = 6 IN.
81.5	AGGREGATE BASE COURSE = 2 IN.
78	FILL - SILTY SAND WITH GRAVEL, fine to coarse grained, light brown and gray, moist, medium dense
	ELASTIC SILT (MH), dark gray and dark brown, moist, soft
	very soft
	soft
	very soft
63	SILTY SAND (SM), fine grained, light gray and light brown, moist, medium dense
53	SILTY SAND WITH GRAVEL (SM), fine to coarse grained, light gray, moist, dense
48	GRANITE, gray white and black, moderately fractured, slightly weathered, strong, Core Run #1
43	GRANITE, gray white and black, moderately fractured, slightly weathered, strong, Core Run #2 Point Load Index (Is) = 4.87
38	*Boring Terminated at 44 Feet*

Depth (Ft.)	Recovery (In.)	Field Test Results	RQD (%)	N60	Water Content (%)	Atterberg Limits LL-PL-PI	UCS (psi)
	24	4-8-8-8 N=16		19			
	24	4-4-6-8 N=10		12			
	18	1-1-1-1 N=2		2			
	24	1-1-1-1 N=2		2			
	24	1-1-1-1 N=2		0			
	2	0-0-0-0 N=0		2			
	24	1-1-1-1 N=2		0			
	24	0-0-0-0 N=0		0			
		0-0-0-1 N=0					
20	15	10-10-5-5 N=15		18			
	12	4-5-5-5 N=10		12			
	12	15-17-25-26 N=42		49			
	0	50/0"					
	49		65				
40	59		80				

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
Boring Started: 06-16-2022 | Boring Completed: 06-16-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: JD195305A-P1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 10/18/22

BORING LOG NO. MB-212

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403749° Longitude: -72.084330°
Approximate Surface Elev.: 83 (Ft.) +/-

Elevation (Ft.)	Description
82.5	ASPHALT = 6 IN.
82.1	AGGREGATE BASE COURSE = 2 IN.
79.5	FILL - SILTY SAND, fine to coarse grained, light brown to black, moist, dense
	ELASTIC SILT (MH), dark gray, dry, medium stiff, contains organic material
	soft
	very soft
64	SILTY SAND (SM), fine grained, light gray brown, moist, medium dense
59	WEATHERED ROCK - SILTY SAND WITH GRAVEL (SM), fine to medium grained, light gray, moist, very dense
56	GRANITE, gray white and black, moderately fractured, slightly weathered, strong, Core Run #1
51	GRANITE, gray white and black, moderately fractured, slightly weathered, strong, Core Run #2
46	*Boring Terminated at 37 Feet*

Depth (Ft.)	Recovery (In.)	Field Test Results	RQD (%)	N60	Water Content (%)	Atterberg Limits LL-PL-PI	UCS (psi)
	5	6-10-20-20 N=30		35			
	10	6-4-2-1 N=6		7			
	24	1-1-1-1 N=2		2			
	8	1-1-1-1 N=2		2			
	12	4-1-1-2 N=2		1			
	24	1-1-0-0 N=1		1			
		1-1-0-0 N=1					
	16	1-1-0-0 N=1		1			
20	18	7-7-8-18 N=15		18			
	12	17-26-50/4"					
	60		92				
30	60		92				

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
Boring Started: 06-16-2022 | Boring Completed: 06-14-2022
Drill Rig: CME 55 | Driller: Geologic
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: JD195305A-P1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 10/18/22

BORING LOG NO. MB-213

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization
CLIENT: Jacobs Government Services Company Virginia Beach, VA
SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403873° Longitude: -72.084419°
Approximate Surface Elev.: 82 (Ft.) +/-

Elevation (Ft.)	Description
81.7	TOPSOIL = 3 IN.
81.2	FILL - SILTY SAND WITH GRAVEL, fine to coarse grained, gray, moist, dense
78	mottled pink orange to gray, loose
	SILT WITH SAND (ML), fine grained, dark gray, moist, medium stiff, contains organic material
	soft
	wet, stiff
63	SILTY SAND (SM), fine grained, gray, wet, medium dense
58	SILTY SAND WITH GRAVEL (SM), medium to coarse grained, dark gray, moist, very dense
53	WEATHERED ROCK - SILTY SAND WITH GRAVEL (SM), fine to coarse grained, dark gray, moist, very dense
49.5	GRANITE, mottled white black with pink, moderately fractured, slightly weathered, strong, Core Run #1
44.5	GRANITE, mottled white black with pink, moderately fractured, slightly weathered, strong, Core Run #2
39.5	*Boring Terminated at 42.5 Feet*

Depth (Ft.)	Recovery (In.)	Field Test Results	RQD (%)	N60	Water Content (%)	Atterberg Limits LL-PL-PI	UCS (psi)
10	10	18-20-18-18 N=38		44			
	7	11-8-3-4 N=9		11			
	12	8-5-1-1 N=6		2			
	12	1-1-1-1 N=2		2			
	20	3-1-1-1 N=2		2			
	24	1-1-1-1 N=2		5			
	12	1-1-3-4 N=4		11			
		2-3-6-8 N=9					
20	14	7-7-9-8 N=16		19			
	16	20-25-30-36 N=55		64			
	0	50/0"					
	4	50/4"					
	56		93				
40	57		82				

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
Boring Started: 06-14-2022 | Boring Completed: 06-13-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: JD195305A-P1102 MAGAZINE & - REV1 GPJ TERRACON_DATATEMPLATE.GDT 10/18/22

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT — PAUL J. MURPHY — LICENSED PROFESSIONAL ENGINEER — No. 29935

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

A/E INFO

APPROVED
FOR COMMANDER NAVFAC

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

DES PM | 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

BORING LOGS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893827
SHEET 21 OF 152
BB306

FILE NAME: C:\pw_workdir\{ent003\{diney.corum@jacobs.com\{d0919642\P1102_BB306.dwg LAYOUT NAME: BB306 BORING LOGS PLOTTED: Tuesday, June 17, 2025 - 10:09am USER: CORUMJ

BORING LOG NO. MB-214

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.404016° Longitude: -72.084941°
Approximate Surface Elev.: 80 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
	80+/-	ASPHALT = 2 IN.							
0.2	78+/-	FILL - SILTY SAND WITH GRAVEL, fine to medium grained, light brown gray, moist, very dense	11	5-10-36-40 N=46		54			
4.0	76+/-	SANDY SILT (ML), fine to medium grained, dark gray, moist, soft	12	20-1-1-2 N=2		2			
		WEATHERED ROCK - SILTY GRAVEL WITH SAND (GM), fine to coarse grained, mottled gray white to black, moist, very dense	24	1-1-1-2 N=2	2	78.1	67-46-21		
10.0	70+/-	ELASTIC SILT (MH), dark gray, moist, soft	24	1-1-1-1 N=2		2			
		ELASTIC SILT WITH SAND (MH), fine grained, dark gray and brown, moist, soft	17	1-1-1-2 N=2		2			
13.5	66.5+/-	*Drilling Refusal at 13.5 Feet*	18						

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-15-2022 | Boring Completed: 06-15-2022
Drill Rig: D70 | Driller: Geologic
Project No.: JD195305A

BORING LOG NO. MB-215

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403568° Longitude: -72.084807°
Approximate Surface Elev.: 82 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	81.5+/-	TOPSOIL = 4 IN.	18	3-15-23-23 N=38		44			
		FILL - SILTY SAND WITH GRAVEL, fine to medium grained, light brown gray, moist, dense	22	32-28-22-25 N=48		56			
6.0	76+/-	WEATHERED ROCK - POORLY GRADED SAND WITH GRAVEL (SP), medium to coarse grained, mottled pink orange to white, moist, dense	12	30-25-15-14 N=40		47			
9.0	73+/-	GNEISS, white black to light pink, intensely to highly fractured, moderately weathered, medium strong, Core Run #1	12	16-15-21-50/5" N=36		42			
		Point Load Index (Is) = 4.02	0	50/0"					
14.0	68+/-	GNEISS, gray white and pink, highly fractured, moderately weathered, strong, Core Run #2	37		22				
19.0	63+/-	*Boring Terminated at 19 Feet*	52		60				

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-14-2022 | Boring Completed: 06-14-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. MB-216

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403525° Longitude: -72.084842°
Approximate Surface Elev.: 83 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	82+/-	TOPSOIL = 2 IN.	12	5-8-8-12 N=16		19			
		FILL - SILTY SAND WITH GRAVEL, medium to coarse grained, gray brown, moist, medium dense very dense medium dense	18	32-36-29-23 N=65		76			
3.5		dark gray, loose	12	9-5-5-4 N=10		12			
6.0	75+/-	POORLY GRADED SAND WITH GRAVEL (SP), medium to coarse grained, light gray, moist, very dense	6	5-4-5-17 N=9		11			
9.0	73+/-	WEATHERED ROCK - SILTY SAND (SM), medium to coarse grained, white gray, moist, very dense	21	35-31-35-37 N=84		75			
14.0	69+/-	GNEISS, white black to pink, intensely to highly fractured, moderately weathered, medium strong, Core Run #1	14	40-36-50/4" 31-30-45-50/2" N=75		88			
18.0	64+/-	Point Load Index (Is) = 1.58	12						
		Boring Terminated at 19 Feet	54		22				

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-16-2022 | Boring Completed: 06-16-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. MB-217

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.403424° Longitude: -72.084709°
Approximate Surface Elev.: 83 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	82.5+/-	TOPSOIL = 4 IN.	2	5-9-28-35 N=37		43			
		SILTY SAND WITH GRAVEL (SM), fine to coarse grained, dark brown gray, moist, dense, micaceous medium dense	18	24-18-13-11 N=28		33			
6.0	75+/-	WEATHERED ROCK - SILTY SAND WITH GRAVEL (SM), fine to coarse grained, dark brown gray, moist, very dense	1	11-10-8-8 N=16		19			
9.0	73+/-	GRANITE, dark gray and light gray, moderately fractured, slightly weathered, strong, Core Run #1	11	7-5-7-8 N=12		14			
15.0	68+/-	*Boring Terminated at 15 Feet*	12	8-7-50/4"					
			53		83				

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-16-2022 | Boring Completed: 06-14-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. OB-101

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.407286° Longitude: -72.084393°
Approximate Surface Elev.: 147 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.4	146.6+/-	TOPSOIL = 5 IN.	12	8-6-2-3 N=8		9			
3.0	144+/-	SILT WITH SAND (ML), fine grained, light brown, moist, medium stiff	18	2-2-4-16 N=6		7			
6.0	141+/-	WEATHERED ROCK - SILTY SAND WITH GRAVEL (SM), fine grained, brown to gray, moist, very dense	16	34-50/2"					
8.0	138+/-	WEATHERED ROCK - SILTY GRAVEL WITH SAND (GM), fine to coarse grained, mottled gray white to black, moist, very dense	2	50/2"					
11.0	136+/-	GRANITE, mottled gray white, intensely to highly fractured, slightly weathered, strong, Core Run #1	0	50/0"					
14.0	133+/-	GNEISS, mottled black gray, intensely to highly fractured, moderately weathered, medium strong, Core Run #1	60		62				
19.0	128+/-	GNEISS, mottled black gray, moderately fractured, slightly weathered, strong, Core Run #2, contains veins of quartz	59		85			8.693	
24.0	123+/-	GNEISS, mottled black gray, moderately to highly fractured, slightly weathered, strong, Core Run #3 Point Load Index (Is) = 7.97	60		52				
29.0	118+/-	GNEISS, mottled black gray, moderately to highly fractured, slightly weathered, strong, Core Run #4 Point Load Index (Is) = 8.15	58		75				
34.0	113+/-	GNEISS, mottled black gray, moderately fractured, slightly weathered, strong, Core Run #5 Point Load Index (Is) = 5.98	60		98			11.324	
39.0	108+/-	GNEISS, mottled black gray, moderately fractured, slightly weathered, strong, Core Run #6	60		83				
		Boring Terminated at 39 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-10-2022 | Boring Completed: 06-10-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. OB-102

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.407180° Longitude: -72.084725°
Approximate Surface Elev.: 114 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	113.7+/-	TOPSOIL = 3 IN.	15	0-19-13-16 N=32		37			
4.0	110+/-	SILT SAND WITH GRAVEL (SM), fine to medium grained, light brown, moist, dense	6	20-8-10-10 N=18		21			
		SILT SAND (SM), fine to medium grained, orange brown, moist, loose medium to coarse grained, dense mottled gray brown to black medium dense	15	5-3-3-3 N=6	7	20.1	NP		
9.0			9	4-18-16-20 N=34	40				
11.0			11	21-17-18-12 N=33	39				
14.0	100+/-	SILT SAND WITH GRAVEL (SM), fine to coarse grained, light brown gray, moist, medium dense	14	10-14-15-16 N=29	34				
19.0			8	17-17-15-17 N=32	37				
23.5	90.5+/-	WEATHERED ROCK - SILT WITH SAND (ML), fine to coarse grained, light gray white, moist, hard, micaceous	15	15-11-15-44 N=26	30				
			8	14-11-13 N=24	28				
			10	12-50/5"					
			4	50/4"					
33.5	80.5+/-	WEATHERED ROCK - SANDY LEAN CLAY WITH GRAVEL (CL), fine to medium grained, light gray white, moist, hard	1	50/1"					
38.5	75.5+/-	GRANITE, light gray green to orange, highly to moderately fractured, slightly weathered, very strong, Core Run #1	60		73				
43.5	70.5+/-	Point Load Index (Is) = 11.13							
		Boring Terminated at 43.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-07-2022 | Boring Completed: 06-10-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. OB-103

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.406749° Longitude: -72.084257°
Approximate Surface Elev.: 126 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	125.7+/-	TOPSOIL = 4 IN.	22	5-5-10-8 N=15		18			
3.0	123+/-	SILT SAND (SM), fine to medium grained, red brown, moist, medium dense	18	9-9-11-12 N=20		23			
5.0	120+/-	SILT SAND WITH GRAVEL (SM), fine to medium grained, mottled brown gray to white, moist, medium dense very dense	18	17-20-38-50/1" N=58		65			
8.0	115+/-	GRANITE, mottled pink gray to white, highly to moderately fractured, moderately weathered, strong, Core Run #1	58		80				
		Boring Terminated at 11 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-21-2022 | Boring Completed: 06-21-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

BORING LOG NO. OB-104

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan
Latitude: 41.407128° Longitude: -72.084677°
Approximate Surface Elev.: 114 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
0.3	113.7+/-	TOPSOIL = 3 IN.	24	5-17-31-31 N=48		56			
		SILT SAND WITH GRAVEL (SM), fine to medium grained, light brown gray, moist, dense medium dense yellow brown	4	17-17-8-9 N=25		29			
10.0	104+/-		12	18-13-10-6 N=23		27			
		SANDY SILT WITH GRAVEL (ML), fine to medium grained, brown, moist, stiff, micaceous very stiff	24	8-8-7-13 N=15		18			
			17	16-14-15-12 N=29		34			
			24	9-7-8-9 N=15		18			
			24	16-24-17-15 N=41		48			
			24	17-15-9-10 N=24		28			
23.5	90.5+/-	WEATHERED ROCK - GRAVELLY SILT WITH SAND (ML), medium to coarse grained, light gray white, moist, hard	24	12-10-10-25 N=20		23			
			18	17-31-47-50/4" N=78		91			
			10	48-50/4"					
			0	50/0"					
43.5	70.5+/-	GRANITE, gray blue, intensely to highly fractured, moderately weathered, medium strong, Core Run #1 Point Load Index (Is) = 0.35	56		28				
48.5	65.5+/-	*Boring Terminated at 48.5 Feet*							

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 4" Drive and Wash
Abandonment Method: Boring backfilled with auger cuttings upon completion.
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).
Elevations were interpolated from a topographic site plan.
Notes:

WATER LEVEL OBSERVATIONS
Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-08-2022 | Boring Completed: 06-08-2022
Drill Rig: D70 | Driller: Terracon
Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - JD195305A P1102 MAGAZINE & - REV1 GPJ - TERRACON_DATATEMPLATE.GDT 10/18/22

				APPR.
				DATE
				DESCRIPTION
				SYM

NAVFAC

STATE OF CONNECTICUT — PAUL J. MURPHY — LICENSED PROFESSIONAL ENGINEER — No. 29935

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

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

DES PM | 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
BORING LOGS

SCALE: AS NOTED
EPROJECT NO.: 1667770
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12893828
SHEET 22 OF 152
BB307

FILE NAME: C:\pw_workdir\{ecd03}\oliney.corum@jacobs.com\{d0919642}P1102_BB307.dwg LAYOUT NAME: BB307 BORING LOGS PLOTTED: Tuesday, June 17, 2025 – 10:11am USER: CORUML

BORING LOG NO. OB-105

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.406919° Longitude: -72.084554°

Approximate Surface Elev.: 118 (ft.) +/-

ELEVATION (Ft.)	DEPTH	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
118+/-	0.0	**TOPSOIL = 2 IN.**										
116+/-	2.0	**GRAVELLY SILT (ML)**, cobbles, mottled orange brown to gray, dry, stiff										
108+/-	10.0	**SILTY SAND WITH GRAVEL (SM)**, fine to medium grained, gray brown, moist, medium dense dense medium to coarse grained, light orange brown	10			10	6-8-5-7 N=11		13			
						8	8-7-7-15 N=14		16			
						16	15-21-21-21 N=42		49			
						18	8-17-22-25 N=39		46			
						10	19-17-17-22 N=34		40			
106+/-	12.0	**WEATHERED ROCK - POORLY GRADED SAND WITH GRAVEL (SP)**, medium to coarse grained, mottled orange gray to brown, moist, very dense				59		80				
101+/-	17.0	**GRANITE**, mottled pink white to gray, moderately fractured, slightly weathered, strong, Core Run #1										
96+/-	22.0	**GRANITE**, mottled pink white to gray, moderately fractured, slightly weathered, strong, Core Run #2, Point Load Index (Is) = 11.82	20			60		85				

Boring Terminated at 22 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash drilling and rock coring.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-13-2022 | Boring Completed: 06-15-2022

Drill Rig: D70 | Driller: Terracon

Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_JD195305A P1102 MAGAZINE & - REV1 GPJ - TERRACON_DATATEMPLATE.GDT 10/19/22

BORING LOG NO. TP-1

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.40449° Longitude: -72.0828°

Approximate Surface Elev.: 88 (Ft.) +/-

ELEVATION (Ft.)	DEPTH	DESCRIPTION	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
88+/-	0.3	**TOPSOIL = 3 IN.**									
85+/-	2.5	**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, fine to coarse grained, gray brown, moist						9,0	NP		
83+/-	5.0	*Boring Terminated at 5 Feet*									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash method.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-22-2022 | Boring Completed: 06-23-2022

Drill Rig: CME 55 | Driller: Geologic

Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_JD195305A P1102 MAGAZINE & - REV1 GPJ - TERRACON_DATATEMPLATE.GDT 10/19/22

BORING LOG NO. TP-2

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.40448° Longitude: -72.0825°

Approximate Surface Elev.: 86 (Ft.) +/-

ELEVATION (Ft.)	DEPTH	DESCRIPTION	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
86+/-	0.3	**TOPSOIL = 2 IN.**									
84+/-	2.0	**FILL - WELL-GRADED SAND WITH SILT AND GRAVEL**, fine to coarse grained, gray brown, moist						16,0	NP		
81+/-	5.0	*Boring Terminated at 5 Feet*									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash method.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-22-2022 | Boring Completed: 06-23-2022

Drill Rig: CME 55 | Driller: Geologic

Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_JD195305A P1102 MAGAZINE & - REV1 GPJ - TERRACON_DATATEMPLATE.GDT 10/19/22

BORING LOG NO. TP-3

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.40443° Longitude: -72.0828°

Approximate Surface Elev.: 86 (Ft.) +/-

ELEVATION (Ft.)	DEPTH	DESCRIPTION	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
86+/-	0.3	**TOPSOIL = 3 IN.**									
84+/-	2.0	**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, fine to coarse grained, gray brown and orange, moist						6,0	NP		
81+/-	5.0	*Boring Terminated at 5 Feet*									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash method.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-22-2022 | Boring Completed: 06-23-2022

Drill Rig: CME 55 | Driller: Geologic

Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_JD195305A P1102 MAGAZINE & - REV1 GPJ - TERRACON_DATATEMPLATE.GDT 10/19/22

BORING LOG NO. TP-4

Page 1 of 1

PROJECT: FDZE1628-P-1102 Magazine Recapitalization

CLIENT: Jacobs Government Services Company Virginia Beach, VA

SITE: 1 Crystal Lake Road Groton, CT

LOCATION See Exploration Plan

Latitude: 41.40436° Longitude: -72.0834°

Approximate Surface Elev.: 80 (Ft.) +/-

ELEVATION (Ft.)	DEPTH	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	RQD (%)	N60	WATER CONTENT (%)	LL-PL-PI	UCS (psi)
79.5+/-	0.5	**ASPHALT = 6 IN.**										
75+/-	5.0	**FILL - SILTY SAND WITH GRAVEL**, fine to coarse grained, gray brown, moist							6,0	NP		

Boring Terminated at 5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: 4" Drive and Wash

Abandonment Method: Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater measurements were not performed due to the introduction of water in drive and wash method.

Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA

Boring Started: 06-22-2022 | Boring Completed: 06-23-2022

Drill Rig: CME 55 | Driller: Geologic

Project No.: JD195305A

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_JD195305A P1102 MAGAZINE & - REV1 GPJ - TERRACON_DATATEMPLATE.GDT 10/19/22

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

FDZE1628-P-1102 Magazine Recapitalization ■ Groton, CT

Terracon Project No. JD195305A

Terracon GeoReport

SAMPLING	WATER LEVEL	FIELD TESTS
Auger Cuttings; Auger Cuttings; Rock Core; Shelby Tube; Standard Penetration Test	Water Initially Encountered; Water Level After a Specified Period of Time; Water Level After a Specified Period of Time; Cave In Encountered	N Standard Penetration Test Resistance (Blows/Ft.); (HP) Hand Penetrometer; (T) Torvane; (DCP) Dynamic Cone Penetrometer; UC Unconfined Compressive Strength; (PID) Photo-Ionization Detector; (OVA) Organic Vapor Analyzer

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			BEDROCK	
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, [tsf]	Standard Penetration or N-Value Blows/Ft.	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1	< 20	Weathered
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4	20 - 29	Firm
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8	30 - 49	Medium Hard
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15	50 - 79	Hard
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30	>79	Very Hard
		Hard	> 4.00	> 30		

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

Geotechnical Data Report

FDZE1628-P-1102 Magazine Recapitalization | Groton, Connecticut

October 28, 2022 | Terracon Project No. JD195305A

Terracon

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N] Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P] Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

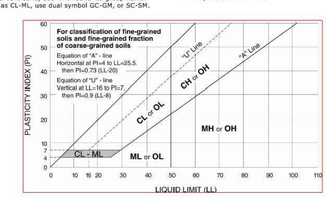
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Geotechnical Data Report

FDZE1628-P-1102 Magazine Recapitalization | Groton, Connecticut

October 28, 2022 | Terracon Project No. JD195305A

Terracon

Rock Classification Notes

WEATHERING	
Term	Description
Fresh	Mineral crystals appear bright; show no discoloration. Features show little or no staining on surfaces. Discoloration does not extend into intact rock.
Slightly weathered	Rock generally fresh except along fractures. Some fractures stained and discoloration may extend <0.5 inches into rock.
Moderately weathered	Significant portions of rock are dull and discolored. Rock may be significantly weaker than in fresh state near fractures. Soil zones of limited extent may occur along some fractures.
Highly weathered	Rock dull and discolored throughout. Majority of rock mass is significantly weaker and has decomposed and/or disintegrated; isolated zones of stronger rock and/or soil may occur throughout.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The rock mass or fabric is still evident and largely intact. Isolated zones of stronger rock may occur locally.

STRENGTH OR HARDNESS		
Description	Field Identification	Uniaxial Compressive Strength, psi
Extremely strong	Can only be chipped with geological hammer. Rock rings on hammer blows. Cannot be scratched with a sharp pick. Hand specimens require several hard hammer blows to break.	>36,000
Very strong	Several blows of a geological hammer to fracture. Cannot be scratched with a 20d common steel nail. Can be scratched with a geologist's pick only with difficulty.	15,000-36,000
Strong	More than one blow of a geological hammer needed to fracture. Can be scratched with a 20d nail or geologist's pick. Gouges or grooves to ¼ inch deep can be excavated by a hard blow of a geologist's pick. Hand specimens can be detached by a moderate blow.	7,500-15,000
Medium strong	One blow of geological hammer needed to fracture. Can be distinctly scratched with 20d nail. Can be grooved or gouged 1/16 in. deep by firm pressure with a geologist's pick point. Can be fractured with single firm blow of geological hammer. Can be excavated in small chips (about 1-in. maximum size) by hard blows of the point of a geologist's pick;	3,500-7,500
Weak	Shallow indent by firm blow with geological hammer point. Can be gouged or grooved readily with geologist's pick point. Can be excavated in pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.	700-3,500
Very weak	Crumbles under firm blow with geological hammer point. Can be excavated readily with the point of a geologist's pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.	150-700

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		Bedding Spacing (May Include Foliation or Banding)	
Description	Spacing	Description	Spacing
Intensely fractured	< 2.5 inches	Laminated	< ½-inch
Highly fractured	2.5 – 8 inches	Very thin	½ – 2 inches
Moderately fractured	8 inches to 2 feet	Thin	2 inches – 1 foot
Slightly fractured	2 to 6.5 feet	Medium	1 – 3 feet
Very slightly fractured	> 6.5 feet	Thick	3 – 10 feet
		Massive	> 10 feet

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	RQD Value (%)
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

STATE OF CONNECTICUT — PAUL J. MURPHY — LICENSED PROFESSIONAL ENGINEER — No. 29935

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

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

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

SATISFACTORY TO DATE 05/27/2025

DES PM | 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

BORING LOGS

SCALE: AS NOTED

EPROJECT NO.: 1667770

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12893829

SHEET 23 OF 152

BB308

FILE NAME: C:\pw_workdir\dms003\dms\0919642\P1102_BB308.dwg LAYOUT NAME: BB308 BORING LOGS PLOTTED: Tuesday, June 17, 2025 – 10:12am USER: CORUML