



**US Army Corps
of Engineers**
Savannah District

FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR) FY23, PN 96182 VOLUME 1 - SITE

SOLICITATION NO.: W912HN-24-B-3002

CONTRACT NO.: -

ISSUE DATE: NOVEMBER 2023



**US Army Corps
of Engineers®**

MARK	DESCRIPTION	DATE

DESIGNED BY: J. HAIKE	ISSUE DATE: NOVEMBER 2023
	SOLICITATION NO.: W912HN-24-B-3002
	CONTRACT NO.: -
	CATEGORY CODE: 178-85-01
DRAWN BY: J. DEACON	FILE NAME: -
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SUBMITTED BY: J. DEACON	
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U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
FY23, PN 96182
VOLUME 1 - SITE
COVER SHEET

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDEXED ON THIS SHEET.

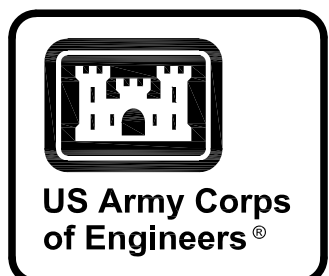
REVIEWED BY:* DEACON.JENNIFER.HERRIG.1597032648 Digitally signed by DEACON.JENNIFER.HERRIG.1597032648 Date: 2023.12.04 14:48:28 -05'00'	12/4/23
QUALITY CONTROL/PE/A	DATE
APPROVAL RECOMMENDED:* DIXON.KATHRYN.TEN EYCK.1267610769 Digitally signed by DIXON.KATHRYN.TEN EYCK.1267610769 Date: 2023.12.04 15:10:53 -05'00'	12/4/23
DESIGN BRANCH, CHIEF	DATE
APPROVED:* BATH.STEVEN.M.1058162643 Digitally signed by BATH.STEVEN.M.1058162643 Date: 2023.12.04 15:55:37 -05'00'	12/4/23
ENGINEERING DIVISION, CHIEF	DATE

* THIS PROJECT WAS DESIGNED BY THE U.S. ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT. INDIVIDUALS WHOSE SIGNATURES AND REGISTRATION DESIGNATIONS APPEAR ON THESE DOCUMENTS ARE OPERATING WITHIN THE SCOPE OF THEIR EMPLOYMENT. SIGNATURES ARE REQUIRED BY ER 1110-1-8152.

SHEET ID
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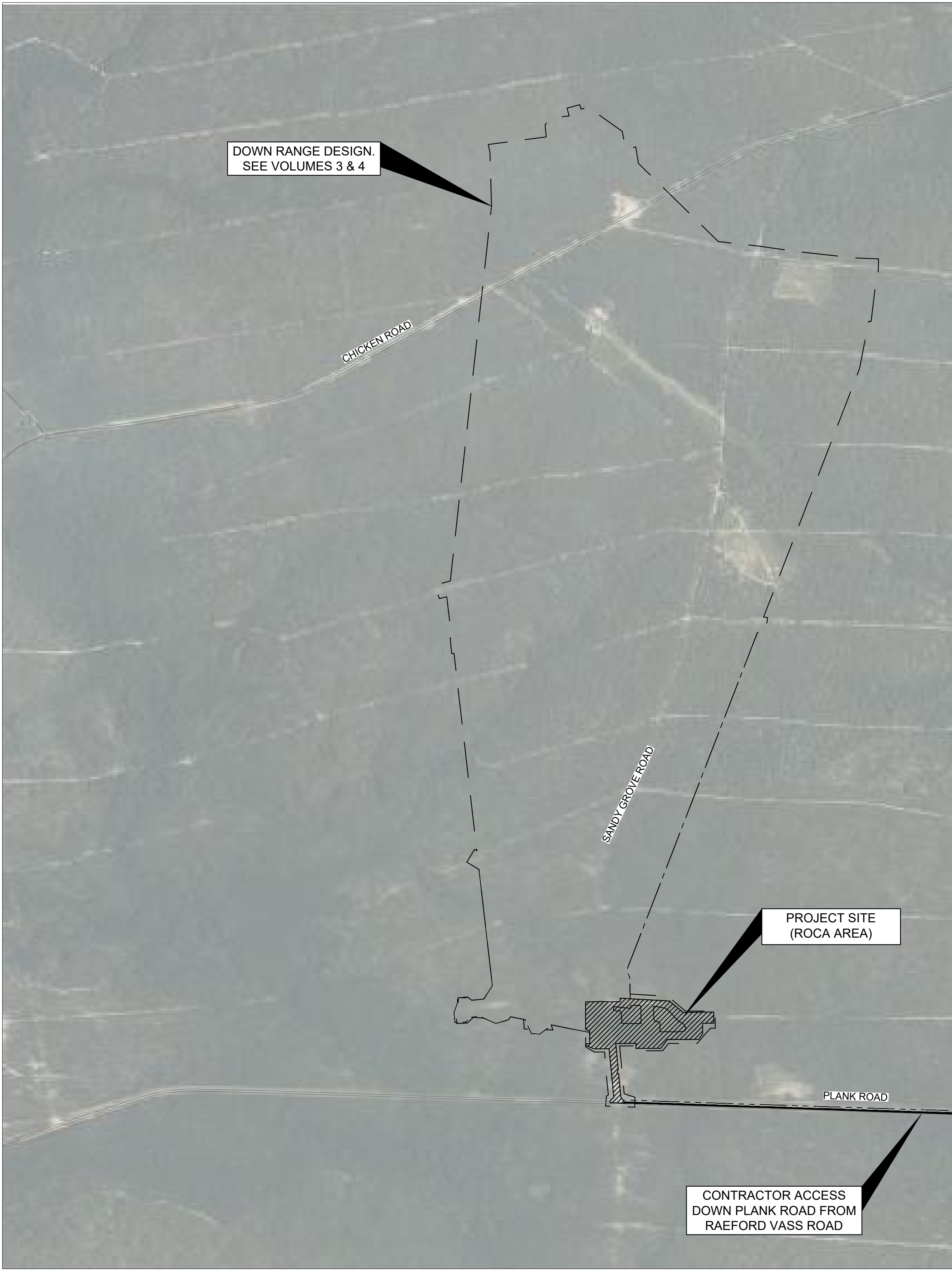


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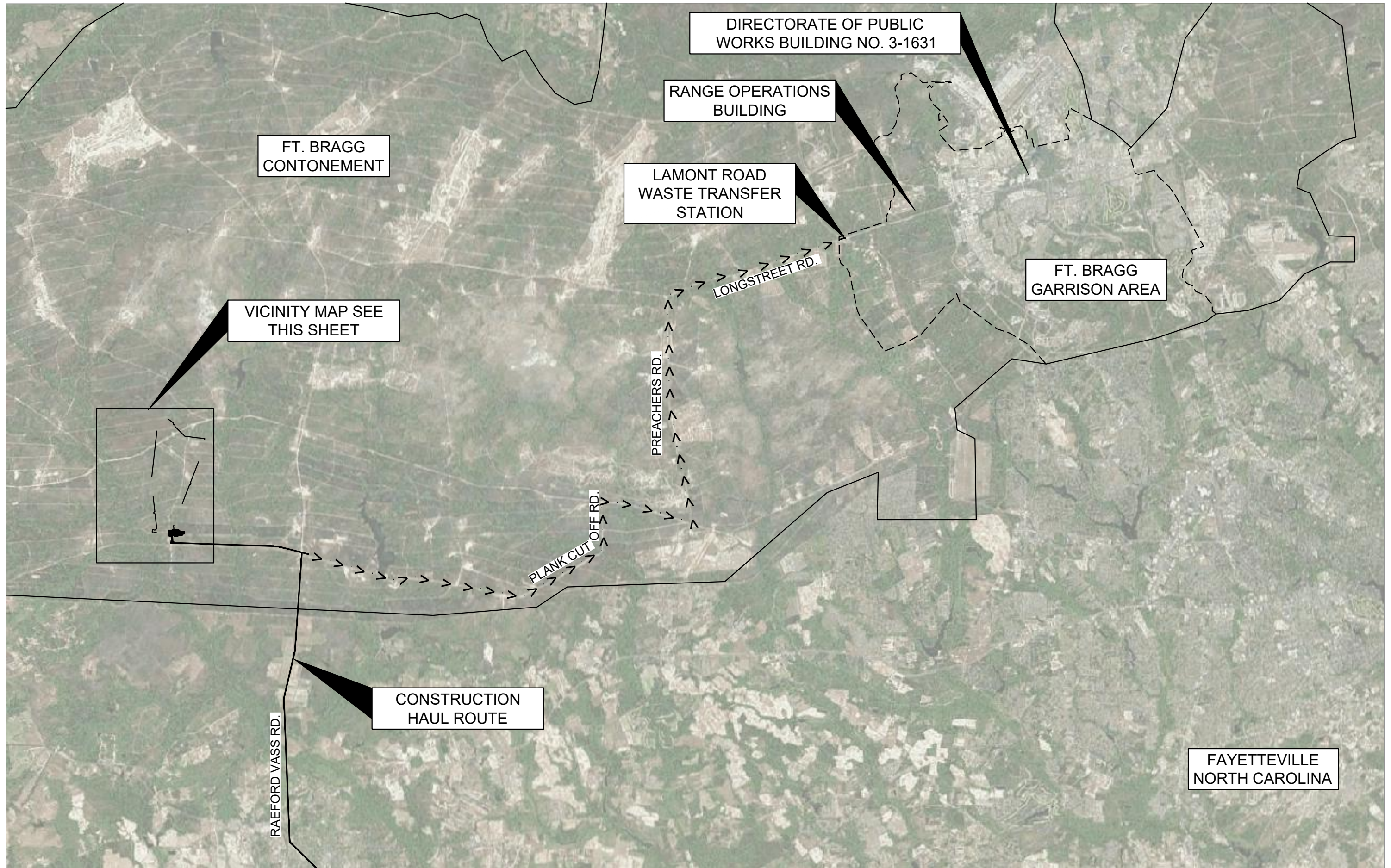
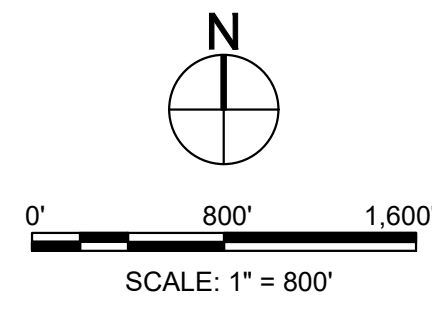
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U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE SAVANNAH, GA 31401					
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FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTTR) FY23, PN 96182 VOLUME 1 - SITE	INDEX OF DRAWINGS
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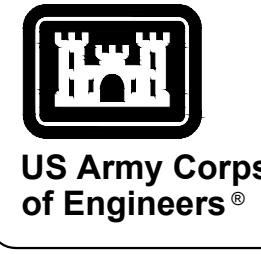
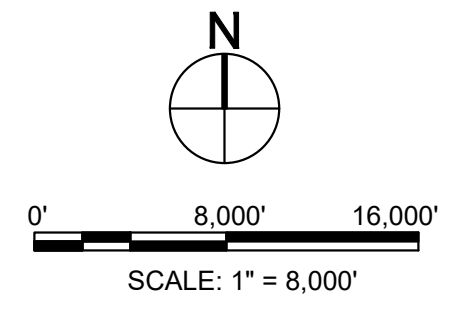
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VICINITY MAP



LOCATION MAP



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: G. OKREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OKREN	SCALE: 1/8" = 100'
DRAWN BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF) FY23, PN 96182 VOLUME 1 - SITE	CIVIL SITE LOCATION AND VICINITY MAPS
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SHEET ID GC101



US Army Corps of Engineers

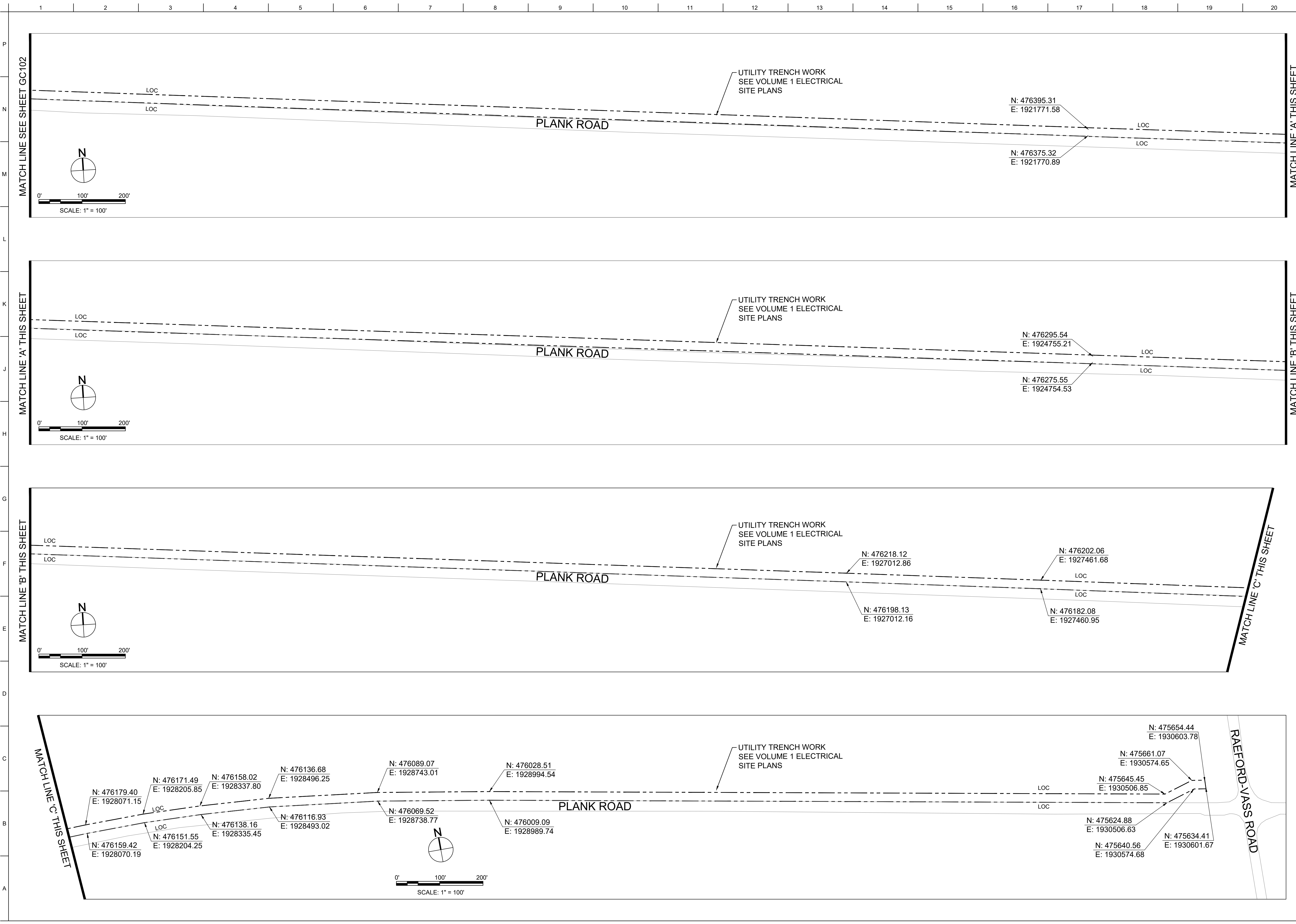

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R. RADTKE	CONTRACT NO.:
J. DEACON	CATEGORY CODE: 178-85-01
ANS/D	SIZE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
CONSTRUCTION LIMITS - SITE

SHEET ID
GC102

**US Army Corps
of Engineers®**

MARK	DESCRIPTION	DATE

DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSREN	SCALE: 1" = 100'
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
ANS/D	SIZE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

CIVIL SITE
CONSTRUCTION LIMITS - UTILITY

SHEET ID
GC103

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DEMOLITION AND REMOVAL NOTES:

- 1.) INITIAL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO PERFORMING ANY LAND DISTURBING ACTIVITIES OR REMOVALS.
- 2.) TOPSOIL SHALL BE SPREAD 4 INCHES THICK ON AREAS IDENTIFIED TO BE GRASSED OR LANDSCAPED TOPSOIL MAY NOT BE PILED HIGHER THAN 5 FT IF STOCKPILED ON SITE. CONTRACTOR SHALL TEST THE TOPSOIL FOR SUITABILITY OF THE ESTABLISHMENT OF THE SPECIFIED TURF AND LANDSCAPING. APPROVED SOIL AMENDMENTS SHALL BE ADDED TO MAINTAIN SOIL SUITABILITY.
- 3.) PAVEMENTS TO BE REMOVED SHALL BE SAW CUT ALONG THE EDGE OF REMOVAL TO PROVIDE A SMOOTH TIE IN OF NEW PAVEMENT. ALL PAVEMENT DEMOLISHED SHALL BE REMOVED. DEMOLISHED PAVEMENT CANNOT BE REUSED AS BASE COURSE MATERIAL.
- 4.) THE LIMITS OF CONSTRUCTION ARE SHOWN ON THE CIVIL PLAN SHEETS. THE LIMITS OF CONSTRUCTION AS SHOWN SHALL BE NOT BE ADJUSTED WITHOUT PRIOR APPROVAL OF THE CONTRACTING OFFICER'S REPRESENTATIVE (COR).
- 5.) TEMPORARY STOCKPILE LOCATIONS OF EXCAVATED MATERIALS FROM THE INSTALLATION OF UTILITIES SHALL BE COORDINATED WITH THE COR.
- 6.) BACKFILL OF THE EXCAVATED AREAS SHALL BE AS SPECIFIED IN SPECIFICATION SECTION 31 00 00, 'EARTHWORK'.

STAGING / LAY DOWN AREAS:

- 1.) CONTRACTOR STAGING / LAYDOWN AREA WILL BE WITHIN THE CONSTRUCTION LIMITS. SEE SHEET GC102.
- 2.) TEMPORARY FENCING IS NOT REQUIRED TO PROTECT BASE PERSONNEL DURING CONSTRUCTION DUE TO THE REMOTENESS OF THE SITE. TEMPORARY FENCING SHOULD BE USED TO PROTECT MATERIALS, AND PARTIALLY CONSTRUCTED AREAS UNTIL PERMANENT FENCING CAN BE INSTALLED TO PROTECT EQUIPMENT, MATERIAL, AND COMPLETED WORK FROM VANDALISM AND THEFT.

GRADING AND STORM DRAINAGE NOTES:

- 1.) ALL EXCAVATION SHALL BE PERFORMED SO THAT THE SITE AND THE AREA IMMEDIATELY SURROUNDING THE SITE WHICH AFFECTS OPERATIONS SHALL BE CONTINUALLY AND EFFECTIVELY DRAINED DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE DE-WATERING AS REQUIRED SO THAT ALL FOOTING EXCAVATIONS ARE ACCOMPLISHED IN THE DRY. ALL FOOTING EXCAVATIONS SHALL REMAIN DRY AND FIRM UNTIL THE FOOTINGS ARE IN PLACE AND BACKFILLED. DE-WATERING OF ANY SURFACE WATER, GROUND WATER TABLE, AND OR ANY PERCHED WATER CONDITION WHICH MAY BE ENCOUNTERED DURING EXCAVATIONS SHALL BE ACCOMPLISHED BY ANY ACCEPTABLE MEANS AS APPROVED BY THE CONTRACTING OFFICER. SEE PARAGRAPHS ON DRAINAGE AND DE-WATERING OF EARTHWORK SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. ALL DE-WATERING EFFLUENT SHALL BE PUMPED THROUGH A SILT BAG AND INTO A SEDIMENT BASIN, BEFORE LEAVING SITE.
- 2.) ALL FILL AND CUT SLOPES SHALL BE NO STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- 3.) SEE FINAL EROSION CONTROL SHEETS AND GRASSING SPECIFICATION FOR PERMANENT GRASSING ON SLOPES 3 HORIZONTAL TO 1 VERTICAL OR STEEPER.
- 4.) THE CONTRACTOR SHALL COORDINATE ALL GRADING OPERATIONS WITH OTHER UTILITIES TO BE INSTALLED. WHERE EARTHWORK CUT IS TO BE ACCOMPLISHED, ALL NEW UTILITIES SHALL BE CONSTRUCTED WITH THE REQUIRED COVER AND COORDINATION WITH PRIVATIZED UTILITIES OF OTHER DISCIPLINES.
- 5.) CONTRACTOR SHALL VERIFY ALL LOCATIONS AND ELEVATION OF UNDERGROUND DRAINAGE AND UTILITIES PRIOR TO CONSTRUCTION.
- 6.) FINISHED FLOOR ELEVATIONS ARE SHOWN ON THE DRAWINGS.

TOPOGRAPHIC SURVEY:

- 1.) TOPOGRAPHIC SURVEY WAS PERFORMED USING AERIAL LIDAR SURVEY. SEE VF SHEETS IN VOLUME 3 FOR SURVEY METADATA AND CONTROL USED.

UTILITY NOTES:

- 1.) REMOVAL, REPLACEMENT, RELOCATION, AND/OR MODIFICATION TO EXISTING UTILITIES, MAINTAINED BY A PRIVATIZED UTILITY COMPANY, WILL BE COMPLETED BY THAT PRIVATIZED UTILITY COMPANY.

UTILITY PROVIDERS:

- 1.) COMMUNICATION: DEPARTMENT OF PUBLIC WORKS (DPW)
- 2.) ELECTRIC: SANDHILLS UTILITY SERVICE (SUS) JOHN JONES (910) 396-4286
- 3.) NATURAL GAS: PIEDMONT NATURAL GAS JAMES COOK (910) 396-6368
- 4.) SEWER AND WATER: AMERICAN STATES UTILITY SERVICES (ASUS) NATHAN HURST (910) 908-4447
- 5.) STORM DRAIN: DEPARTMENT OF PUBLIC WORKS (DPW) RICK AKERS

GENERAL NOTES:

- 1.) PROJECT SHALL COMPLY WITH ALL UFC, ABA/ADA, IBC, NFPA, AND FORT BRAGG DESIGN GUIDELINES, REQUIREMENTS, CODES, AND REGULATIONS.



US Army Corps of Engineers®

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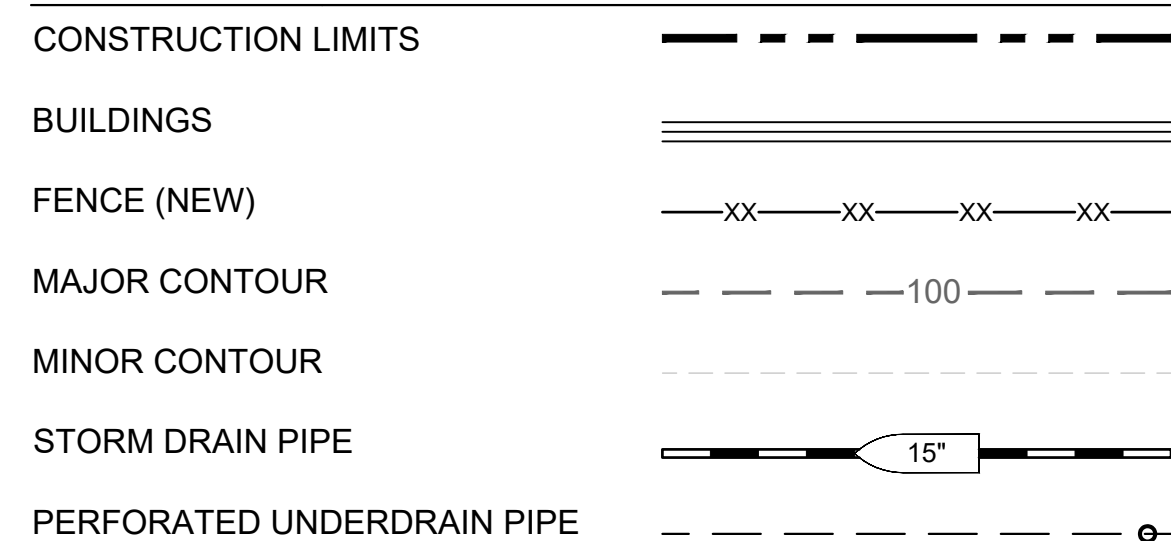
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U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF) FY23, PN 96182 VOLUME 1 - SITE CIVIL SITE GENERAL NOTES
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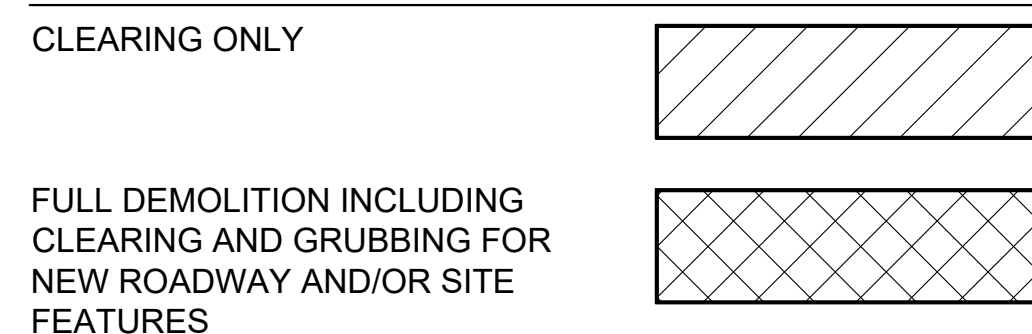
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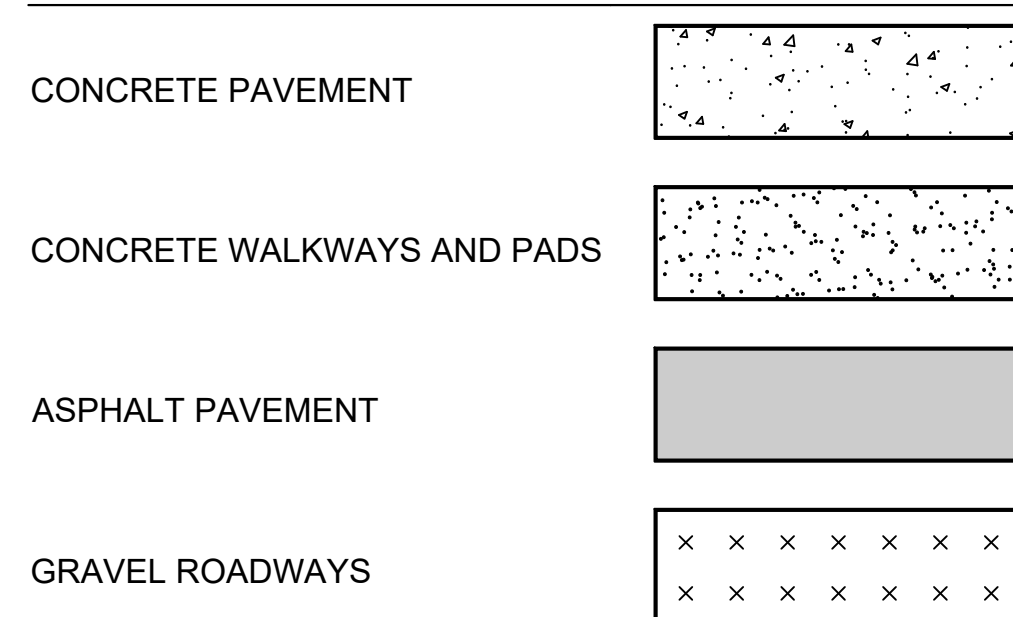
LINE TYPES



DEMOLITION SYMBOLS



PROPOSED SITE WORK

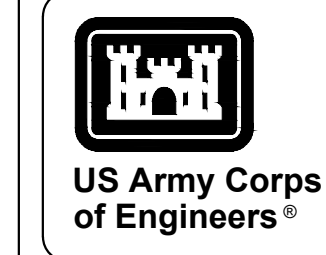


PROPOSED SYMBOLS



ABBREVIATIONS

AC	ASPHALT CONCRETE	IE	INVERT ELEVATION
ATFP	ANTI TERRORISM FORCE PROTECTION	LOC	LIMITS OF CONSTRUCTION
BC	BEGINNING OF CURVE	LOD	LIMITS OF DISTURBANCE
BIO	BIO RETENTION AREA	LP	LOW POINT
BM	BENCHMARK	MP	MULTI-PURPOSE POND
BMP	BEST MANAGEMENT PRACTICE	NIC	NOT IN CONTRACT
BOC	BACK OF CURB	NTP	NOTICE TO PROCEED
BRK LN	STORM WATER BREAK LINE	PI	POINT OF INTERSECTION
BRK PT	STORM WATER BREAK POINT	POB	POINT OF BEGINNING
BS	BOTTOM OF STAIRS	POC	POINT ON CURVE
BTM	BOTTOM	POD	POINT OF DEMARCATION
CGS	CURB, GUTTER, SIDEWALK	POE	POINT OF ENDING
CMP	CORRUGATED METAL PIPE	PVMT	PAVEMENT
COR	CONTRACTING OFFICER'S REPRESENTATIVE	RCP	REINFORCED CONCRETE PIPE
CP	CONTROL POINT	RR	RAILROAD
CR	CROWN	SDMH	STORM DRAIN MANHOLE
DBH	DIAMETER AT BREAST HEIGHT	SSCO	SANITARY SEWER CLEANOUT
DFAC	DINING FACILITY	SSMH	SANITARY SEWER MANHOLE
DI	DRAIN INLET	SS	SANITARY SEWER
DPW	DIRECTORATE OF PUBLIC WORKS	STD	STANDARD
EC	END OF CURVE	STR	STORM STRUCTURE
ECB	EROSION CONTROL BLANKET	TC	TOP OF CONCRETE
ELEV	ELEVATION	TP	TOP OF PAVEMENT
EP	EDGE OF PAVEMENT	TS	TOP OF STAIRS
FF	FINISHED FLOOR	TW	TOP OF WALK / WALL
FG	FINISHED GRADE	XSECT	CROSS SECTION
FH	FIRE HYDRANT ASSEMBLY		
FL	FLOW LINE		
FP	FINISHED PAD		
H/C	HANDICAP		



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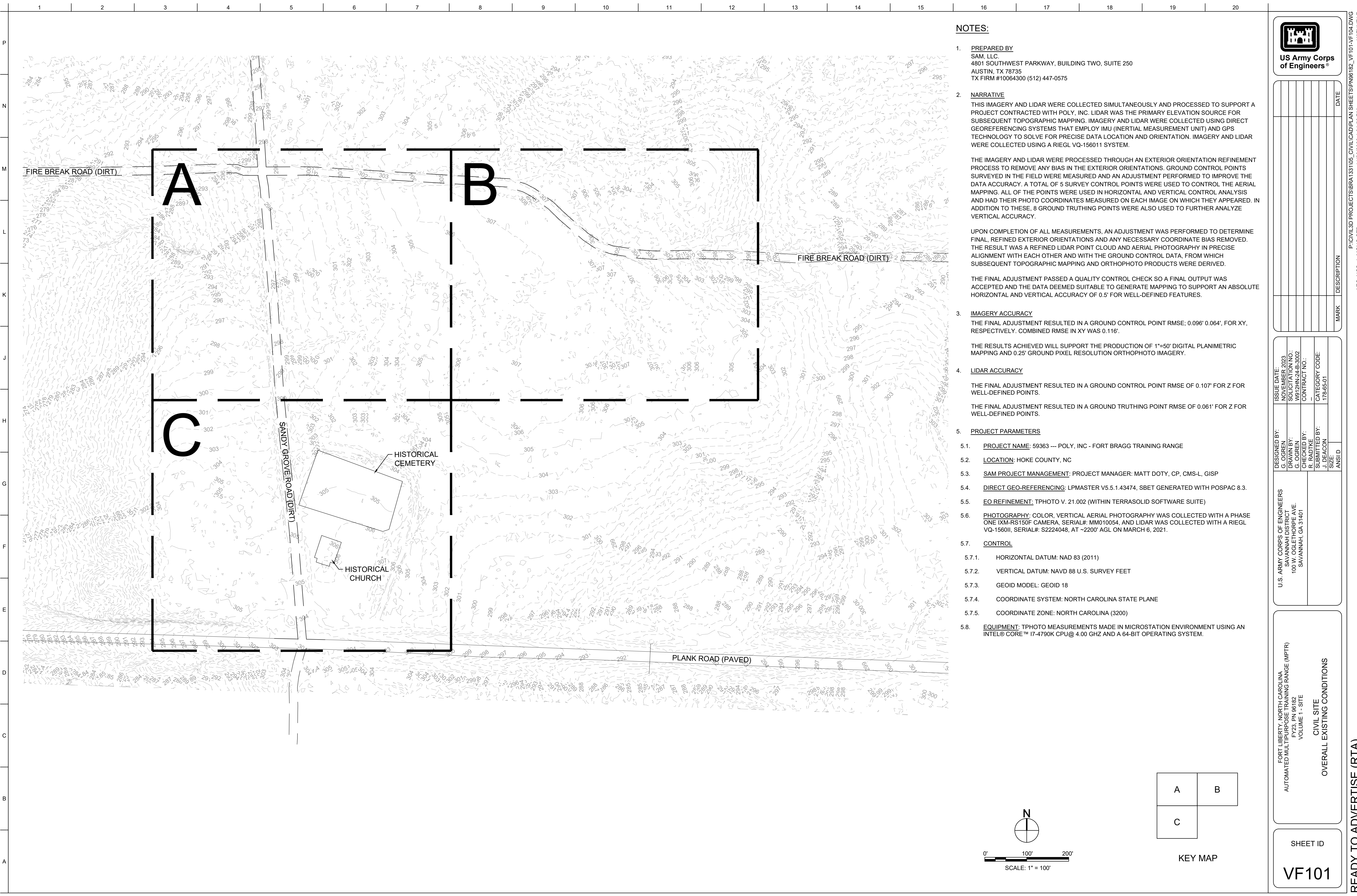
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FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

CIVIL SITE
SYMBOLS AND ABBREVIATIONS

SHEET ID
GC105



NOTES:

1. **PREPARED BY**
 SAM, LLC.
 4801 SOUTHWEST PARKWAY, BUILDING TWO, SUITE 250
 AUSTIN, TX 78735
 TX FIRM #10064300 (512) 447-0575
2. **NARRATIVE**
 THIS IMAGERY AND LIDAR WERE COLLECTED SIMULTANEOUSLY AND PROCESSED TO SUPPORT A PROJECT CONTRACTED WITH POLY, INC. LIDAR WAS THE PRIMARY ELEVATION SOURCE FOR SUBSEQUENT TOPOGRAPHIC MAPPING. IMAGERY AND LIDAR WERE COLLECTED USING DIRECT GEOREFERENCING SYSTEMS THAT EMPLOY IMU (INERTIAL MEASUREMENT UNIT) AND GPS TECHNOLOGY TO SOLVE FOR PRECISE DATA LOCATION AND ORIENTATION. IMAGERY AND LIDAR WERE COLLECTED USING A RIEGL VQ-156011 SYSTEM.

 THE IMAGERY AND LIDAR WERE PROCESSED THROUGH AN EXTERIOR ORIENTATION REFINEMENT PROCESS TO REMOVE ANY BIAS IN THE EXTERIOR ORIENTATIONS. GROUND CONTROL POINTS SURVEYED IN THE FIELD WERE MEASURED AND AN ADJUSTMENT PERFORMED TO IMPROVE THE DATA ACCURACY. A TOTAL OF 6 SURVEY CONTROL POINTS WERE USED TO CONTROL THE AERIAL MAPPING. ALL OF THE POINTS WERE USED IN HORIZONTAL AND VERTICAL CONTROL ANALYSIS AND HAD THEIR PHOTO COORDINATES MEASURED ON EACH IMAGE ON WHICH THEY APPEARED. IN ADDITION TO THESE, 8 GROUND TRUTHING POINTS WERE ALSO USED TO FURTHER ANALYZE VERTICAL ACCURACY.

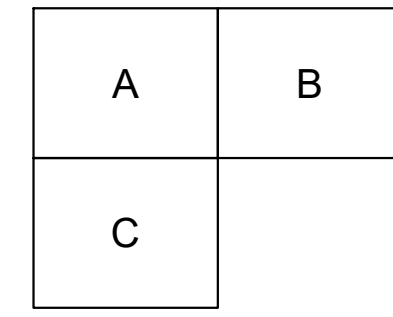
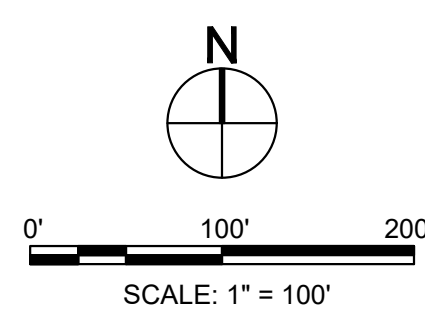
 UPON COMPLETION OF ALL MEASUREMENTS, AN ADJUSTMENT WAS PERFORMED TO DETERMINE FINAL, REFINED EXTERIOR ORIENTATIONS AND ANY NECESSARY COORDINATE BIAS REMOVED. THE RESULT WAS A REFINED LIDAR POINT CLOUD AND AERIAL PHOTOGRAPHY IN PRECISE ALIGNMENT WITH EACH OTHER AND WITH THE GROUND CONTROL DATA, FROM WHICH SUBSEQUENT TOPOGRAPHIC MAPPING AND ORTHOPHOTO PRODUCTS WERE DERIVED.

 THE FINAL ADJUSTMENT PASSED A QUALITY CONTROL CHECK SO A FINAL OUTPUT WAS ACCEPTED AND THE DATA DEEMED SUITABLE TO GENERATE MAPPING TO SUPPORT AN ABSOLUTE HORIZONTAL AND VERTICAL ACCURACY OF 0.5' FOR WELL-DEFINED FEATURES.
3. **IMAGERY ACCURACY**
 THE FINAL ADJUSTMENT RESULTED IN A GROUND CONTROL POINT RMSE; 0.096' 0.064', FOR XY, RESPECTIVELY. COMBINED RMSE IN XY WAS 0.116'.

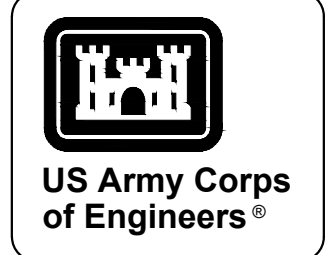
 THE RESULTS ACHIEVED WILL SUPPORT THE PRODUCTION OF 1"-50' DIGITAL PLANIMETRIC MAPPING AND 0.25' GROUND PIXEL RESOLUTION ORTHOPHOTO IMAGERY.
4. **LIDAR ACCURACY**

 THE FINAL ADJUSTMENT RESULTED IN A GROUND CONTROL POINT RMSE OF 0.107' FOR Z FOR WELL-DEFINED POINTS.

 THE FINAL ADJUSTMENT RESULTED IN A GROUND TRUTHING POINT RMSE OF 0.061' FOR Z FOR WELL-DEFINED POINTS.
5. **PROJECT PARAMETERS**
 - 5.1. **PROJECT NAME:** 59363 -- POLY, INC - FORT BRAGG TRAINING RANGE
 - 5.2. **LOCATION:** HOKE COUNTY, NC
 - 5.3. **SAM PROJECT MANAGEMENT:** PROJECT MANAGER: MATT DOTY, CP, CMS-L, GISP
 - 5.4. **DIRECT GEO-REFERENCING:** LPMaster V5.5.1.43474, SBET GENERATED WITH POSPAC 8.3.
 - 5.5. **EO REFINEMENT:** TPhoto V. 21.002 (WITHIN TERRASOLID SOFTWARE SUITE)
 - 5.6. **PHOTOGRAPHY:** COLOR, VERTICAL AERIAL PHOTOGRAPHY WAS COLLECTED WITH A PHASE ONE IxiM-RS150F CAMERA, SERIAL#: MM010054, AND LIDAR WAS COLLECTED WITH A RIEGL VQ-156011, SERIAL#: S2224048, AT ~2200' AGL ON MARCH 6, 2021.
 - 5.7. **CONTROL**
 - 5.7.1. HORIZONTAL DATUM: NAD 83 (2011)
 - 5.7.2. VERTICAL DATUM: NAVD 88 U.S. SURVEY FEET
 - 5.7.3. GEOID MODEL: GEOID 18
 - 5.7.4. COORDINATE SYSTEM: NORTH CAROLINA STATE PLANE
 - 5.7.5. COORDINATE ZONE: NORTH CAROLINA (3200)
 - 5.8. **EQUIPMENT:** TPhoto MEASUREMENTS MADE IN MICROSTATION ENVIRONMENT USING AN INTEL® CORE™ I7-4790K CPU@ 4.00 GHZ AND A 64-BIT OPERATING SYSTEM.



KEY MAP



DATE	DESCRIPTION	MARK

DESIGNED BY: G. OSBEN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSBEN	DATE: NOV 24 2023
SUBMITTED BY: J. DEACON	CONTRACT NO.:
ANS/D	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
 SAVANNAH DISTRICT
 100 W. OGLETHORPE AVE.
 SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE

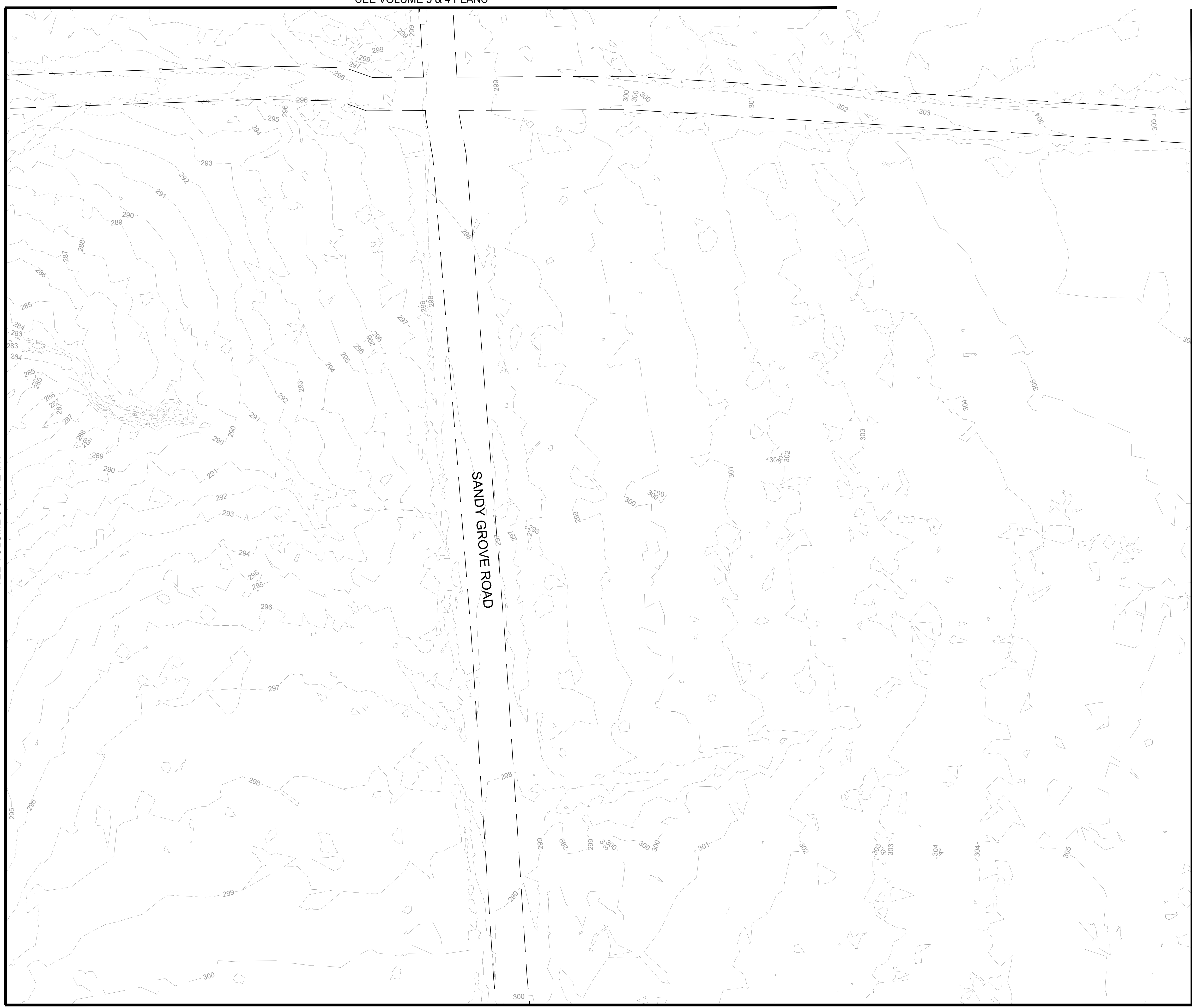
CIVIL SITE
 OVERALL EXISTING CONDITIONS

SHEET ID
VF101

SEE VOLUME 3 & 4 PLANS

SEE VOLUME 3 & 4 PLANS

P
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D
C
B
A



MATCH LINE SEE SHEET VF104

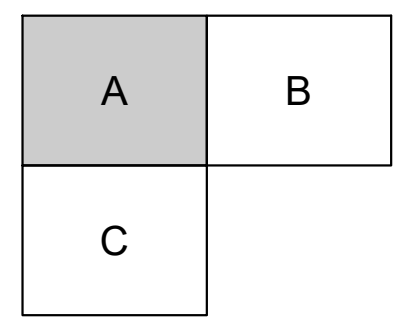
GENERAL NOTES

- 1.) SEE VOLUME 1 SHEETS GC103 AND GC104 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- 2.) TOPOGRAPHIC SURVEY WAS PERFORMED USING AERIAL LIDAR SURVEY. SEE VF101 FOR SURVEY METADATA AND CONTROL USED.

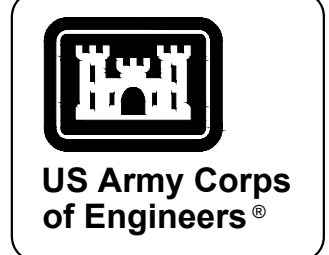
MATCH LINE SEE SHEET VF103



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



KEY MAP



MARK	DESCRIPTION	DATE

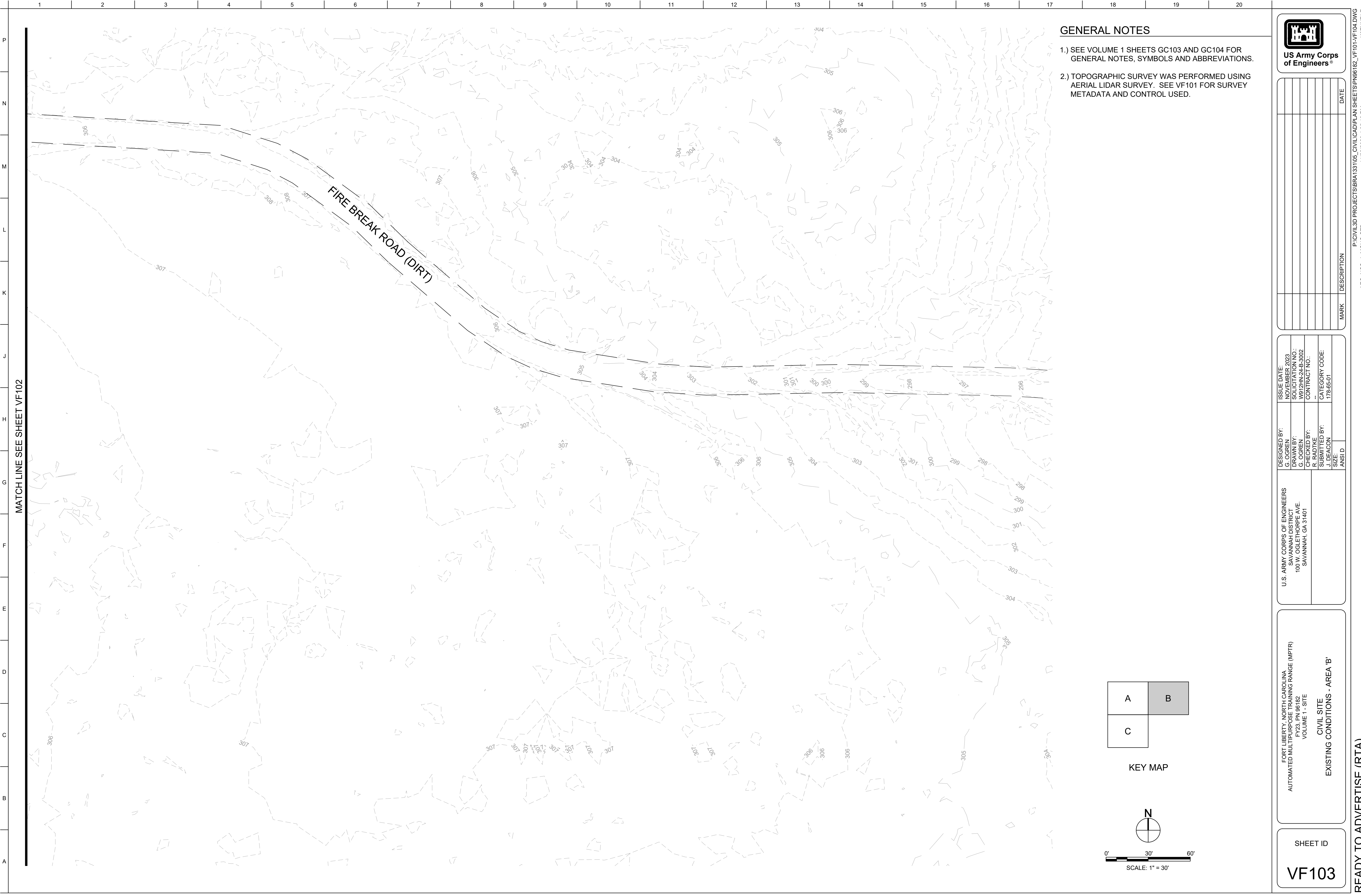
DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSREN	DATE: NOV 24 2023
R. RADTKE	CONTRACT NO.:
J. DEACON	CATEGORY CODE: 178-85-01
ANS/D	SIZE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

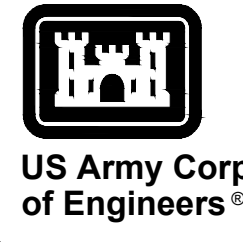
CIVIL SITE
EXISTING CONDITIONS - AREA 'A'

SHEET ID
VF102



GENERAL NOTES

- 1.) SEE VOLUME 1 SHEETS GC103 AND GC104 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- 2.) TOPOGRAPHIC SURVEY WAS PERFORMED USING AERIAL LIDAR SURVEY. SEE VF101 FOR SURVEY METADATA AND CONTROL USED.



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MARK	DESCRIPTION	DATE

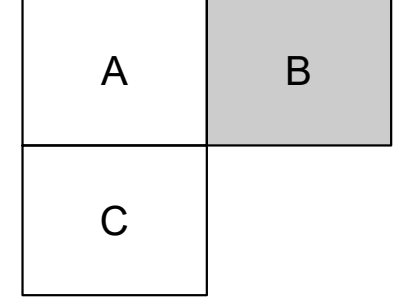
DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSREN	DRAWN BY: W. PHILIP
CHECKED BY: R. RADTKE	CONTRACT NO.:
SIZE: ANSI D	CATEGORY CODE: 178-65-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

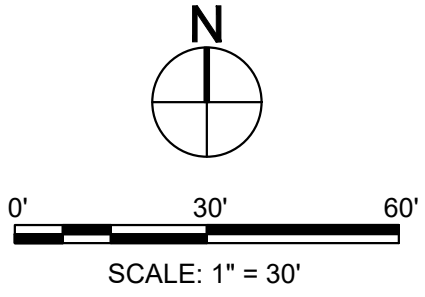
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

CIVIL SITE
EXISTING CONDITIONS - AREA 'B'

SHEET ID
VF103



KEY MAP



MATCH LINE SEE SHEET VF102

MATCH LINE SEE SHEET VF102

GENERAL NOTES

- SEE VOLUME 1 SHEETS GC103 AND GC104 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- TOPOGRAPHIC SURVEY WAS PERFORMED USING AERIAL LIDAR SURVEY. SEE VF101 FOR SURVEY METADATA AND CONTROL USED.



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MARK	DESCRIPTION	DATE

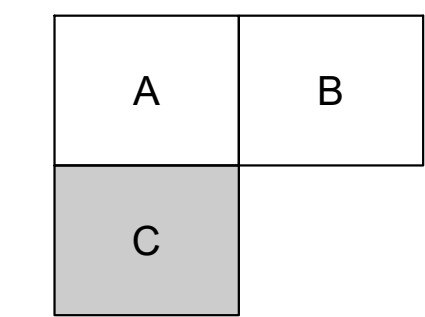
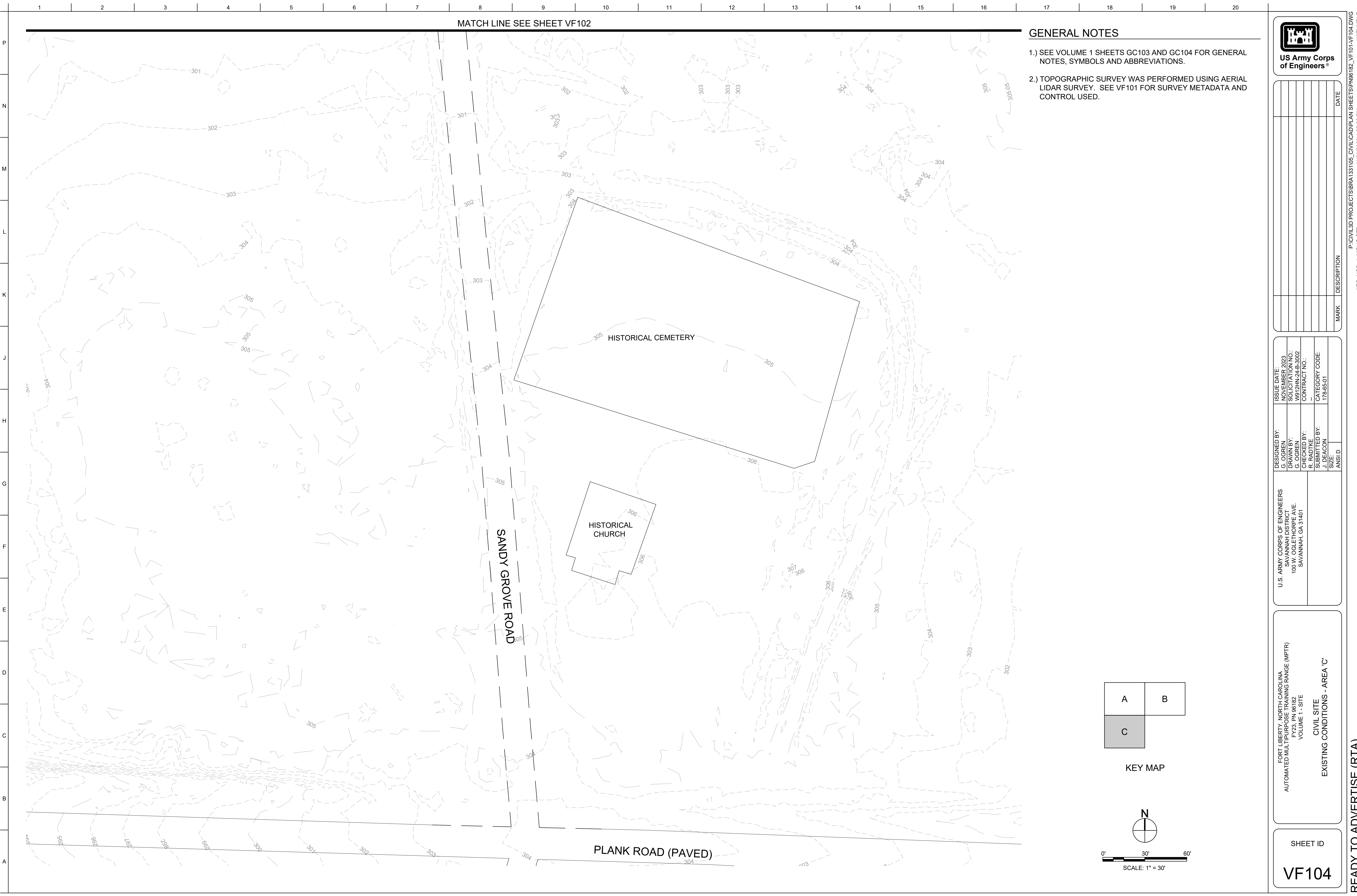
DESIGNED BY: G. OSBORN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSBORN	DATE: NOV 24 2023
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
ANSID	SIZE

U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401

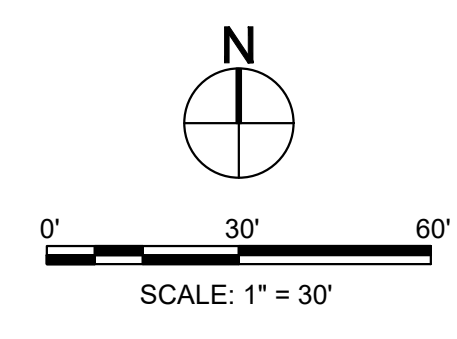
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

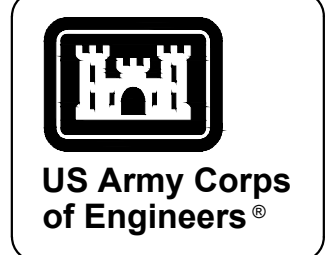
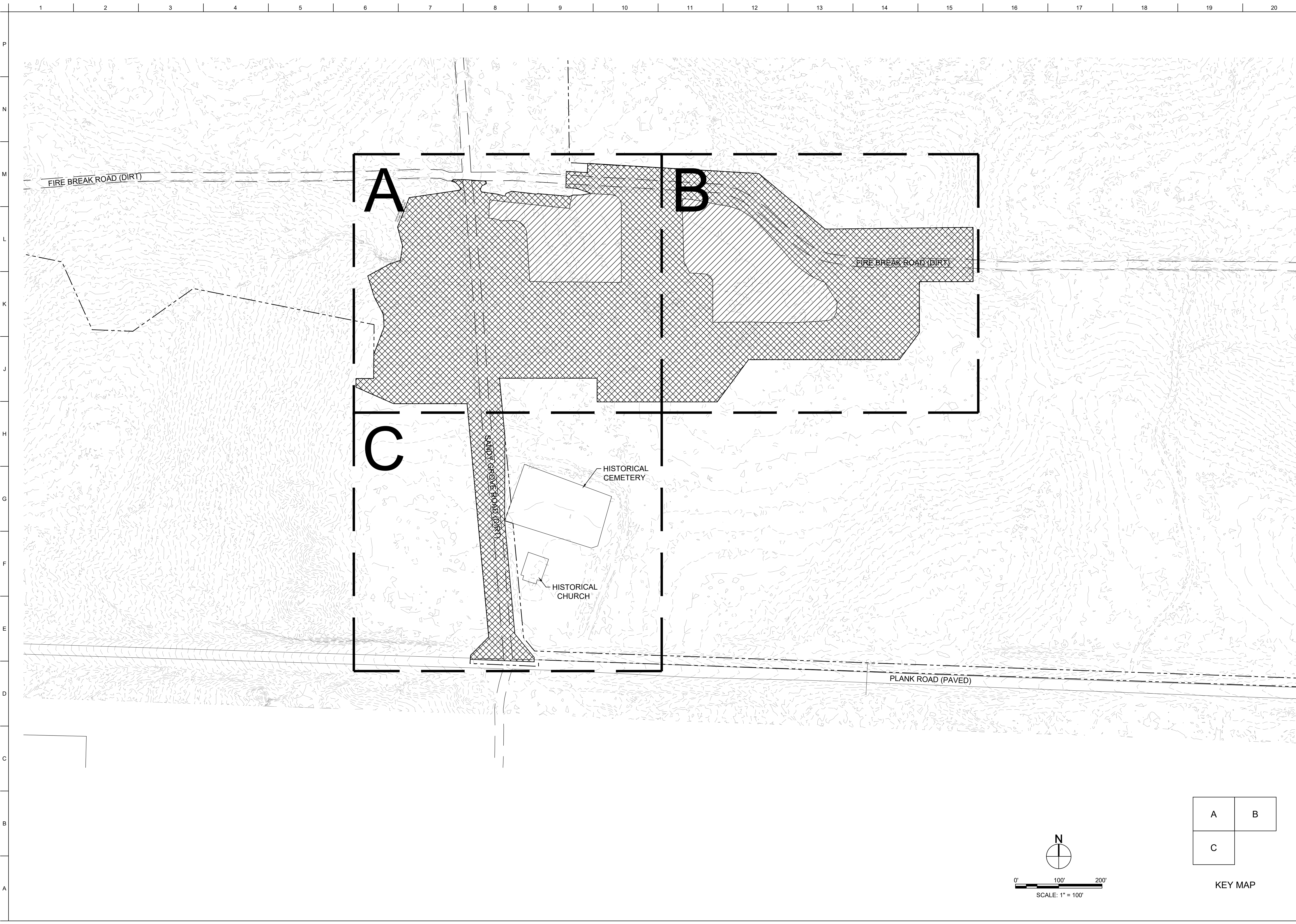
CIVIL SITE
EXISTING CONDITIONS - AREA 'C'

SHEET ID
VF104



KEY MAP





US Army Corps of Engineers®

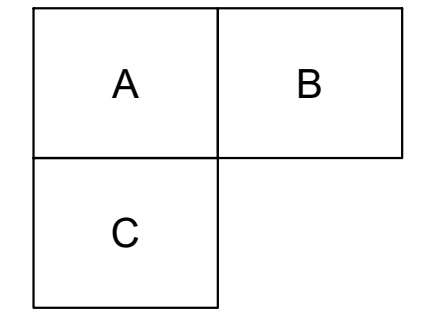
MARK	DESCRIPTION	DATE

DESIGNED BY: G. OGBEN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OGBEN	SCALE: AS SHOWN
SUBMITTED BY: R. RADTKE	CONTRACT NO.:
ANS/D	CATEGORY CODE: 178-65-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

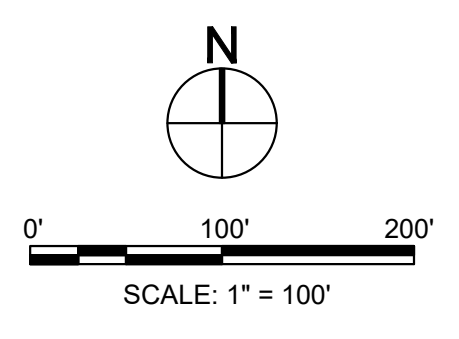
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

CIVIL SITE
OVERALL DEMOLITION PLAN

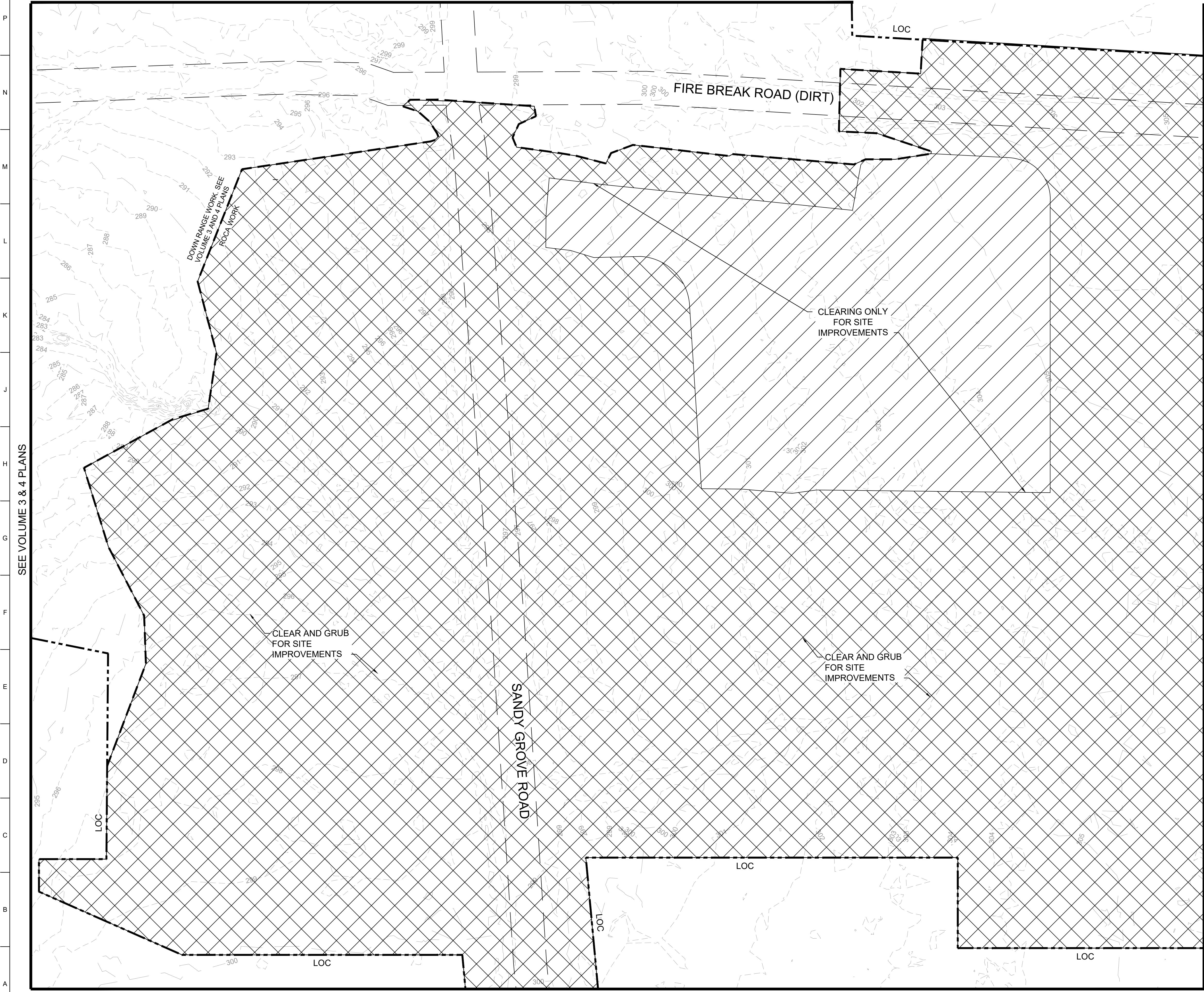
SHEET ID
CD101



KEY MAP



SEE VOLUME 3 & 4 PLANS



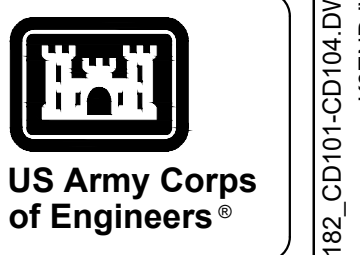
SEE VOLUME 3 & 4 PLANS

MATCH LINE SEE SHEET CD103

MATCH LINE SEE SHEET CD104

GENERAL NOTES

- 1.) SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
- 2.) DEMOLITION MAY COMMENCE UPON SATISFACTORY INSTALLATION OF INITIAL EROSION CONTROL MEASURES AND AS ACCEPTABLE BY THE COR.
- 3.) SEE VOLUME PLANS 1 AND 2 FOR NEW ELECTRICAL SITE AND MECHANICAL EQUIPMENT IN THE ROCA AREA.
- 4.) ALL MERCHANTABLE TIMBER TO BE REMOVED PRIOR TO CONSTRUCTION.

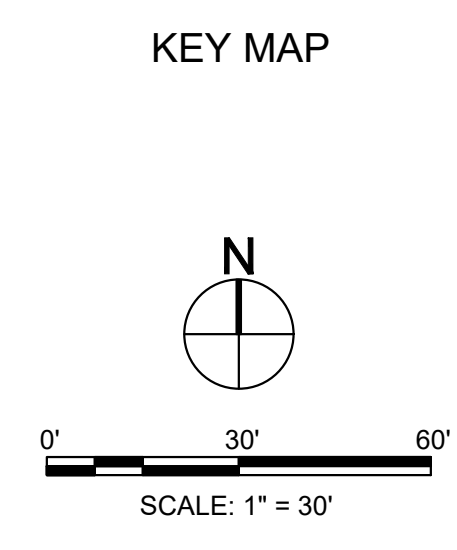
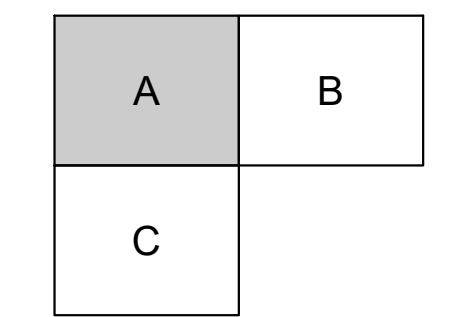


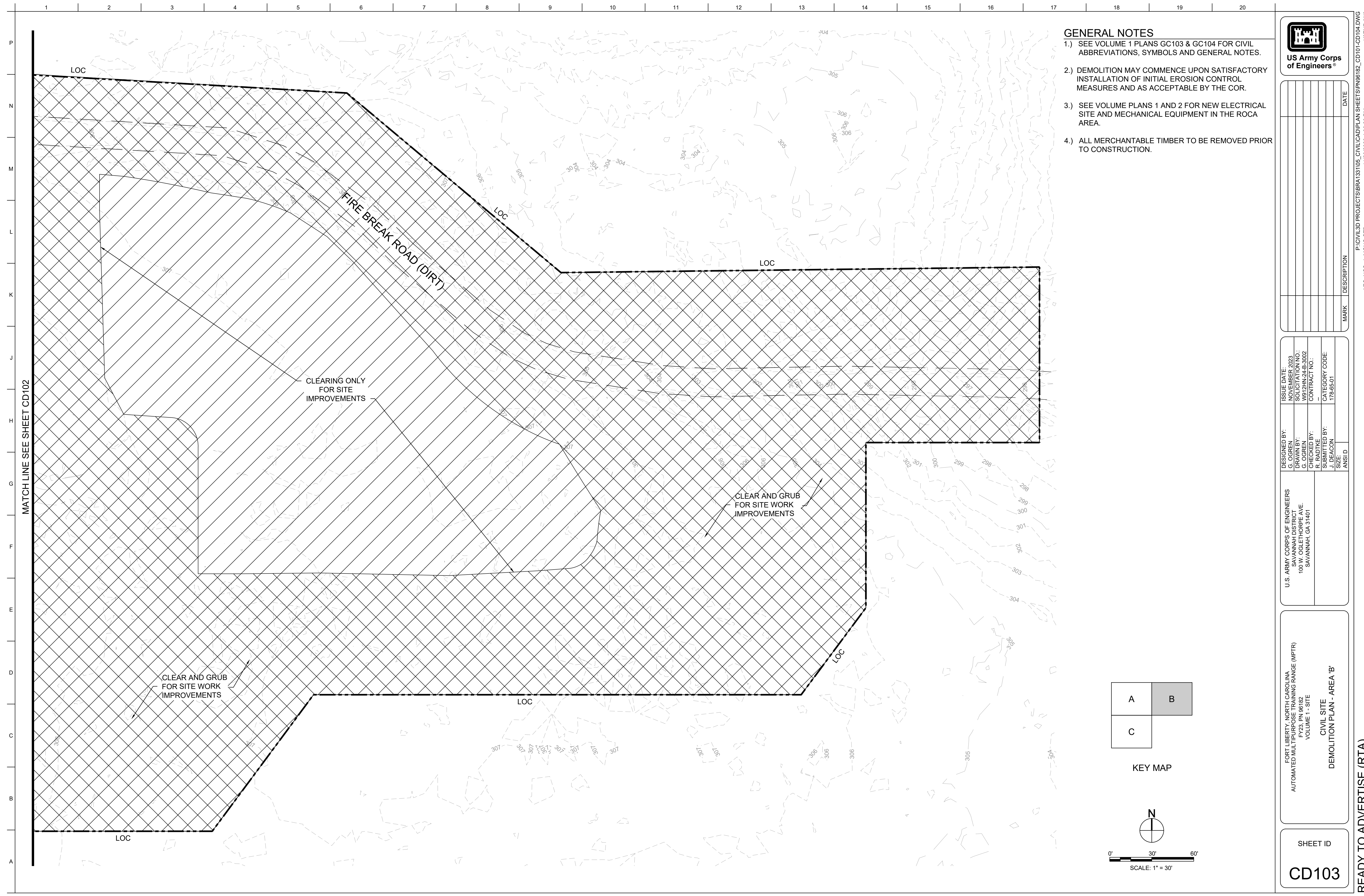
MARK	DESCRIPTION	DATE

DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSREN	PROJECT NO. & DATE: W91PH4248 3002
CONTRACT NO.:	CONTRACT NO.:
R. RADTKE	CATEGORY CODE: 178-85-01
J. DEACON	SIZE: ANSI D
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF) FY23, PN 96182 VOLUME 1 - SITE	CIVIL SITE DEMOLITION PLAN - AREA 'A'
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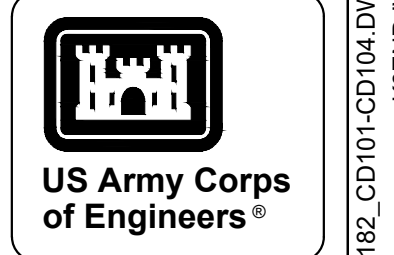
SHEET ID
CD102





GENERAL NOTES

- 1.) SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
- 2.) DEMOLITION MAY COMMENCE UPON SATISFACTORY INSTALLATION OF INITIAL EROSION CONTROL MEASURES AND AS ACCEPTABLE BY THE COR.
- 3.) SEE VOLUME PLANS 1 AND 2 FOR NEW ELECTRICAL SITE AND MECHANICAL EQUIPMENT IN THE ROCA AREA.
- 4.) ALL MERCHANTABLE TIMBER TO BE REMOVED PRIOR TO CONSTRUCTION.



MARK	DESCRIPTION	DATE

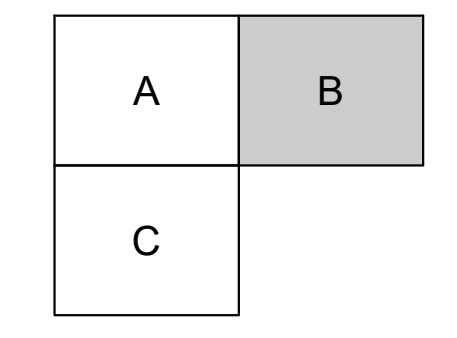
DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OSREN	DATE: NOV 24 2023
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-65-01
ANSID	SIZE

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

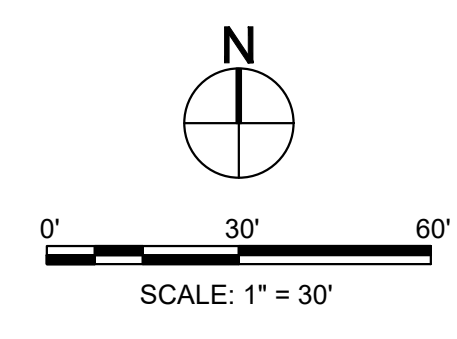
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

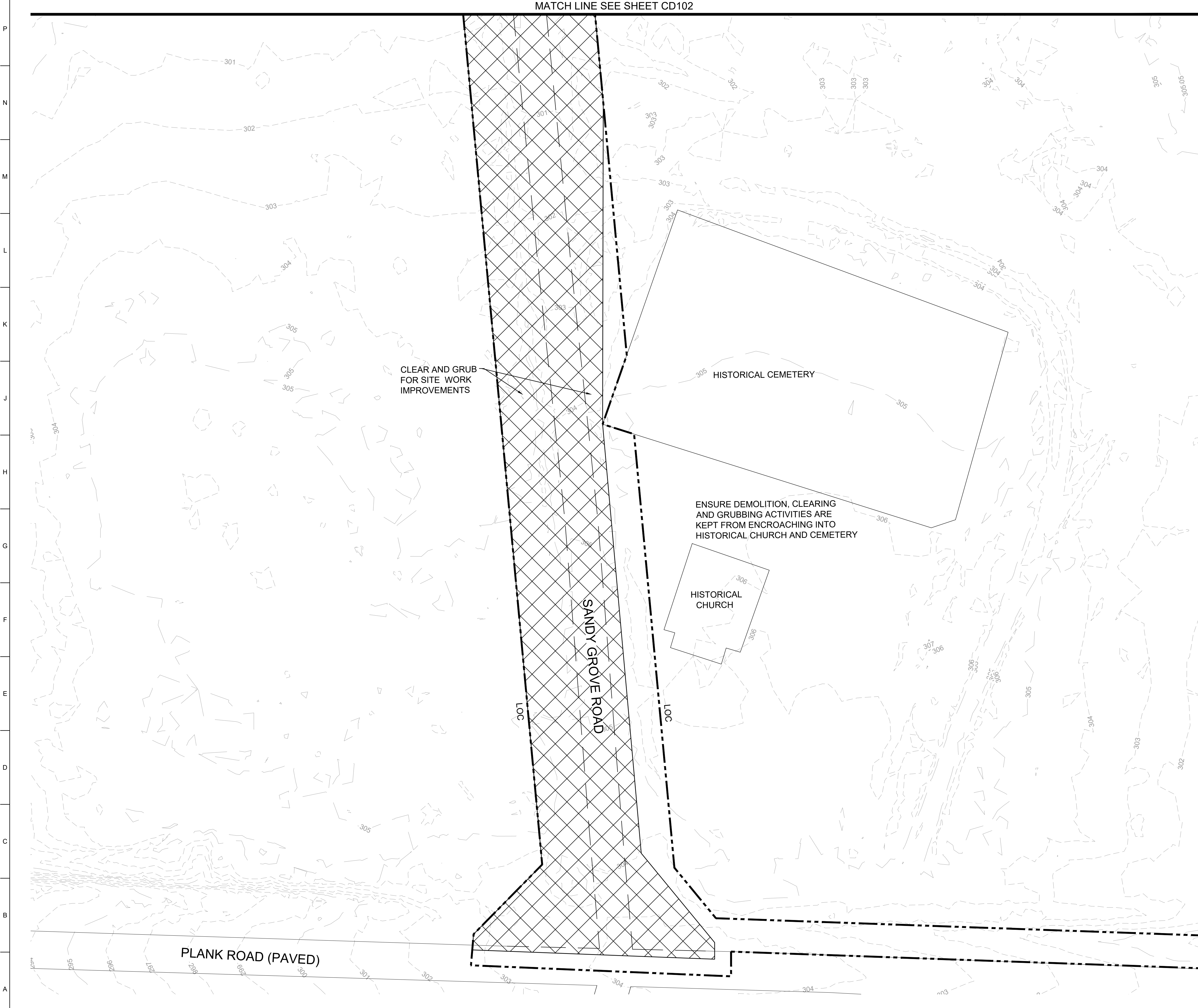
CIVIL SITE
DEMOLITION PLAN - AREA 'B'

SHEET ID
CD103



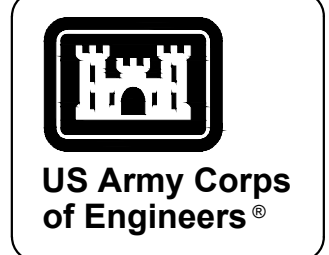
KEY MAP





GENERAL NOTES

- 1.) SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
- 2.) DEMOLITION MAY COMMENCE UPON SATISFACTORY INSTALLATION OF INITIAL EROSION CONTROL MEASURES AND AS ACCEPTABLE BY THE COR.
- 3.) SEE VOLUME PLANS 1 AND 2 FOR NEW ELECTRICAL SITE AND MECHANICAL EQUIPMENT IN THE ROCA AREA.
- 4.) ALL MERCHANTABLE TIMBER TO BE REMOVED PRIOR TO CONSTRUCTION.
- 5.) SAWCUT ASPHALT AND CONCRETE TO FULL DEPTH AT THE NEAREST JOINT TO PREVENT CRACKING AND ENABLE A CLEAN CONNECTION FOR REPLACEMENT.

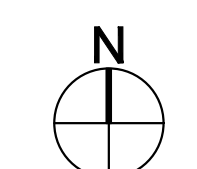
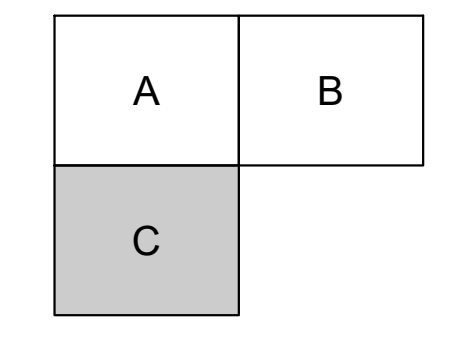


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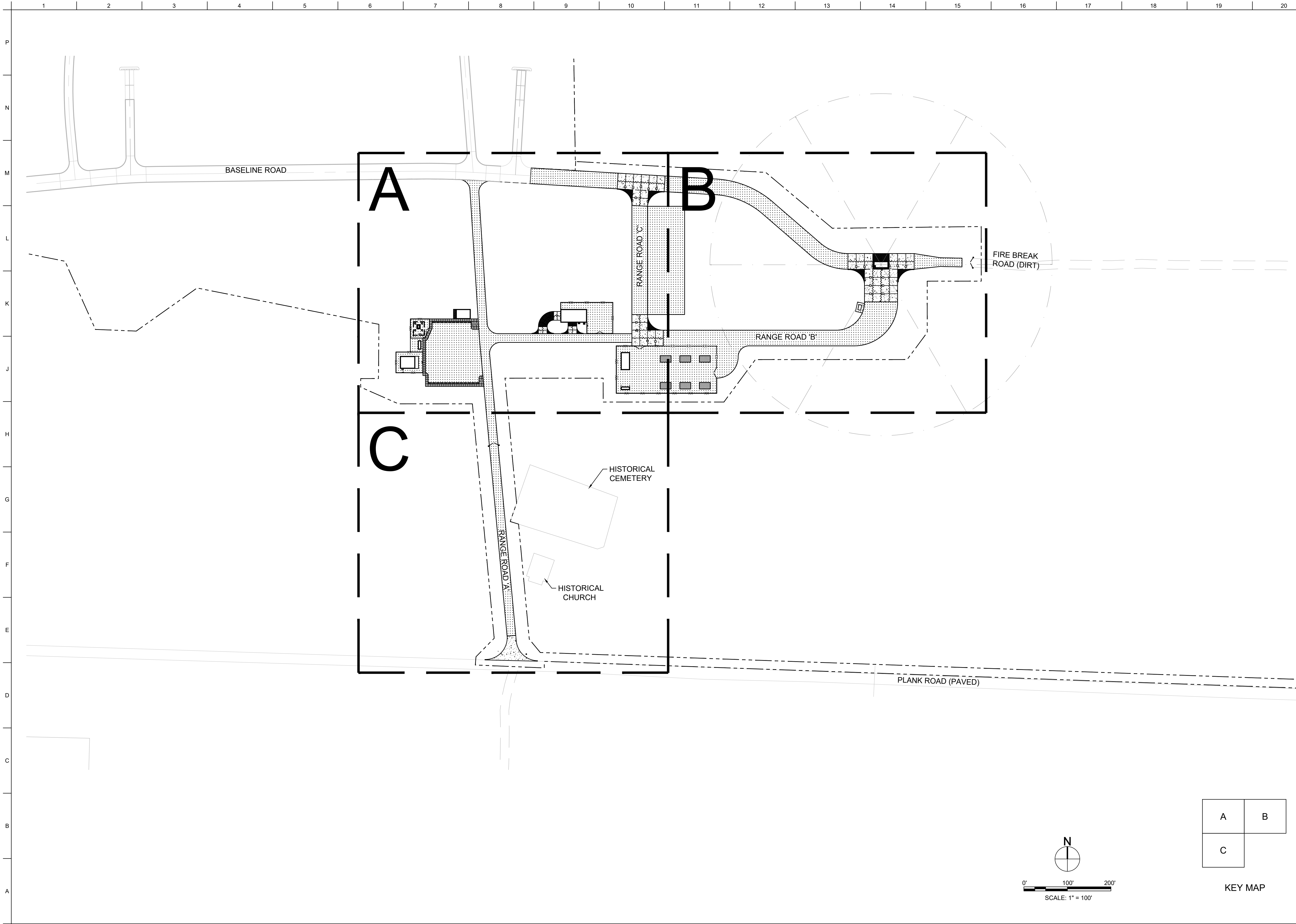
DESIGNED BY: G. O'GREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. O'GREN	PROJECT NO. / CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF) FY23, PN 96182 VOLUME 1 - SITE CIVIL SITE DEMOLITION PLAN - AREA 'C'
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SHEET ID CD104

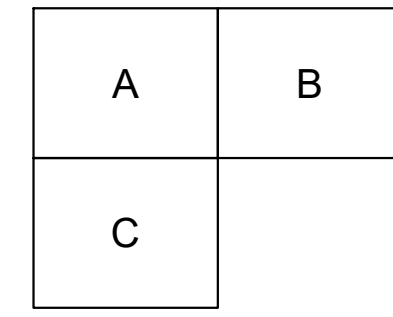
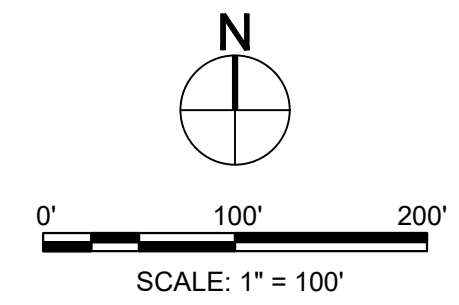


SCALE: 1" = 30'

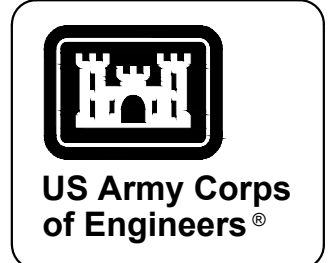


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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



KEY MAP



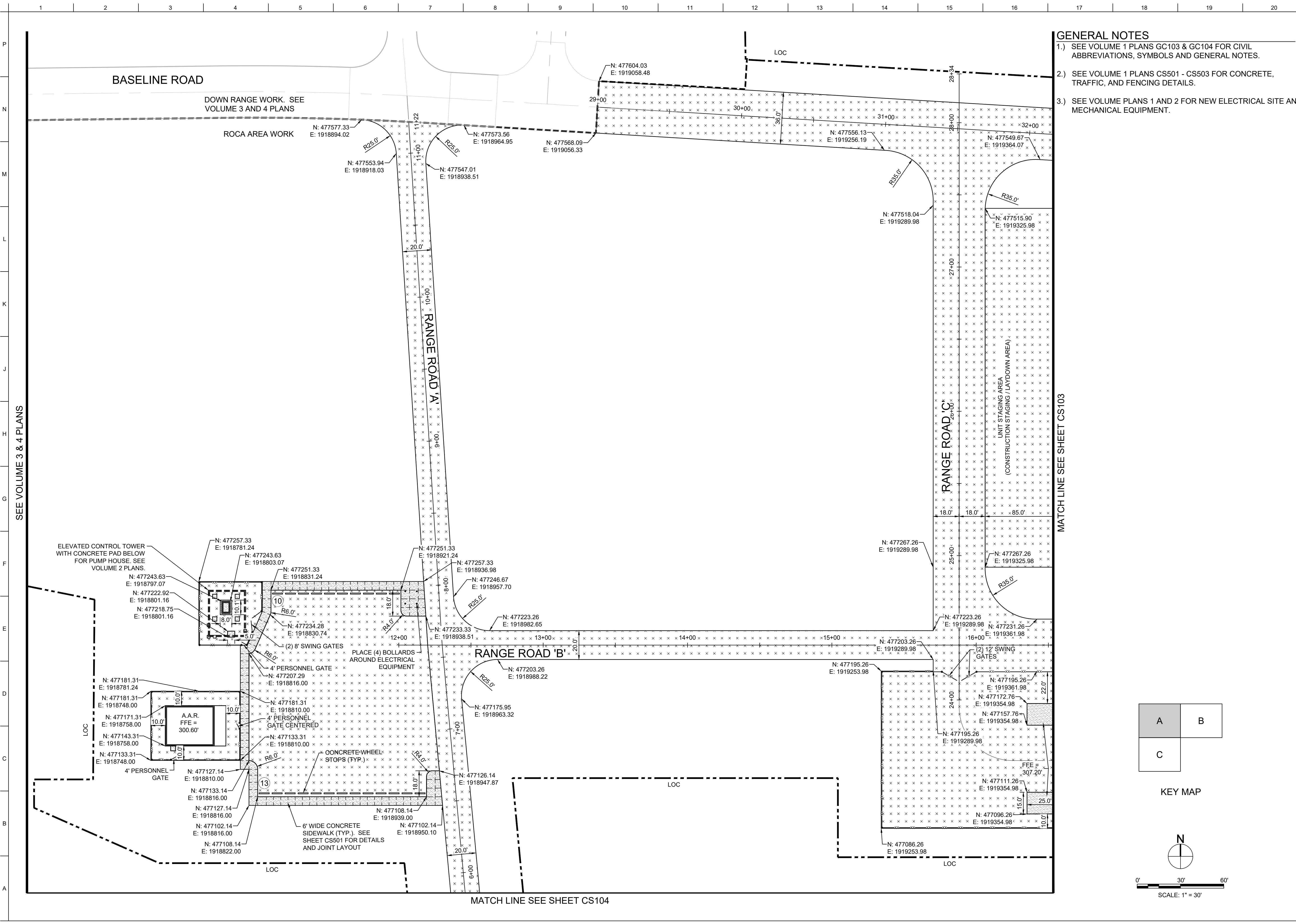
US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

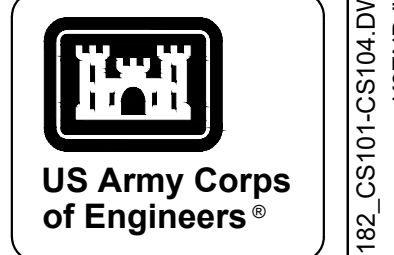
DESIGNED BY: G. OSKREY	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSKREY	SCALE: AS SHOWN
SUBMITTED BY: J. DEACON	CONTRACT NO.: --
ANS/D	CATEGORY CODE: 178-65-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
FY23, PN 96182
VOLUME 1 - SITE
CIVIL SITE
OVERALL LAYOUT PLAN

SHEET ID
CS101



- GENERAL NOTES**
- SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
 - SEE VOLUME 1 PLANS CS501 - CS503 FOR CONCRETE, TRAFFIC, AND FENCING DETAILS.
 - SEE VOLUME PLANS 1 AND 2 FOR NEW ELECTRICAL SITE AND MECHANICAL EQUIPMENT.



MARK	DESCRIPTION	DATE

DESIGNED BY: J. O'RENIG, O.GREN	ISSUE DATE: NOVEMBER 2023
DRAWN BY: D. O'RENIG, O.GREN	WORK PLAN NO. & DATE: WP19A124 & 3002
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

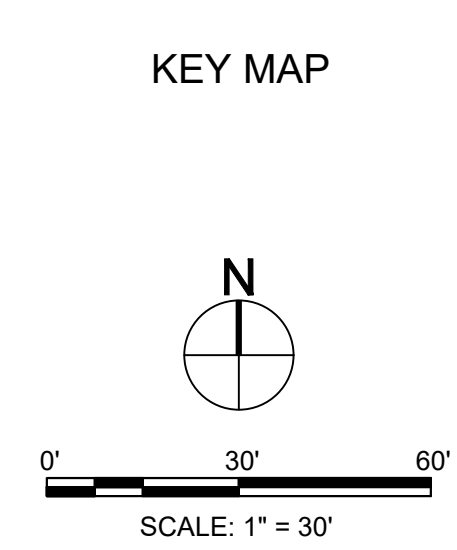
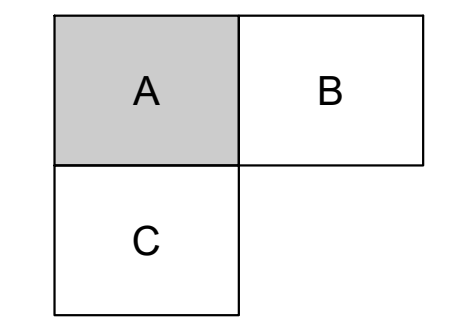
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTTR)
FY23, PN 96182
VOLUME 1 - SITE
CIVIL SITE
LAYOUT - AREA 'A' BASEBID

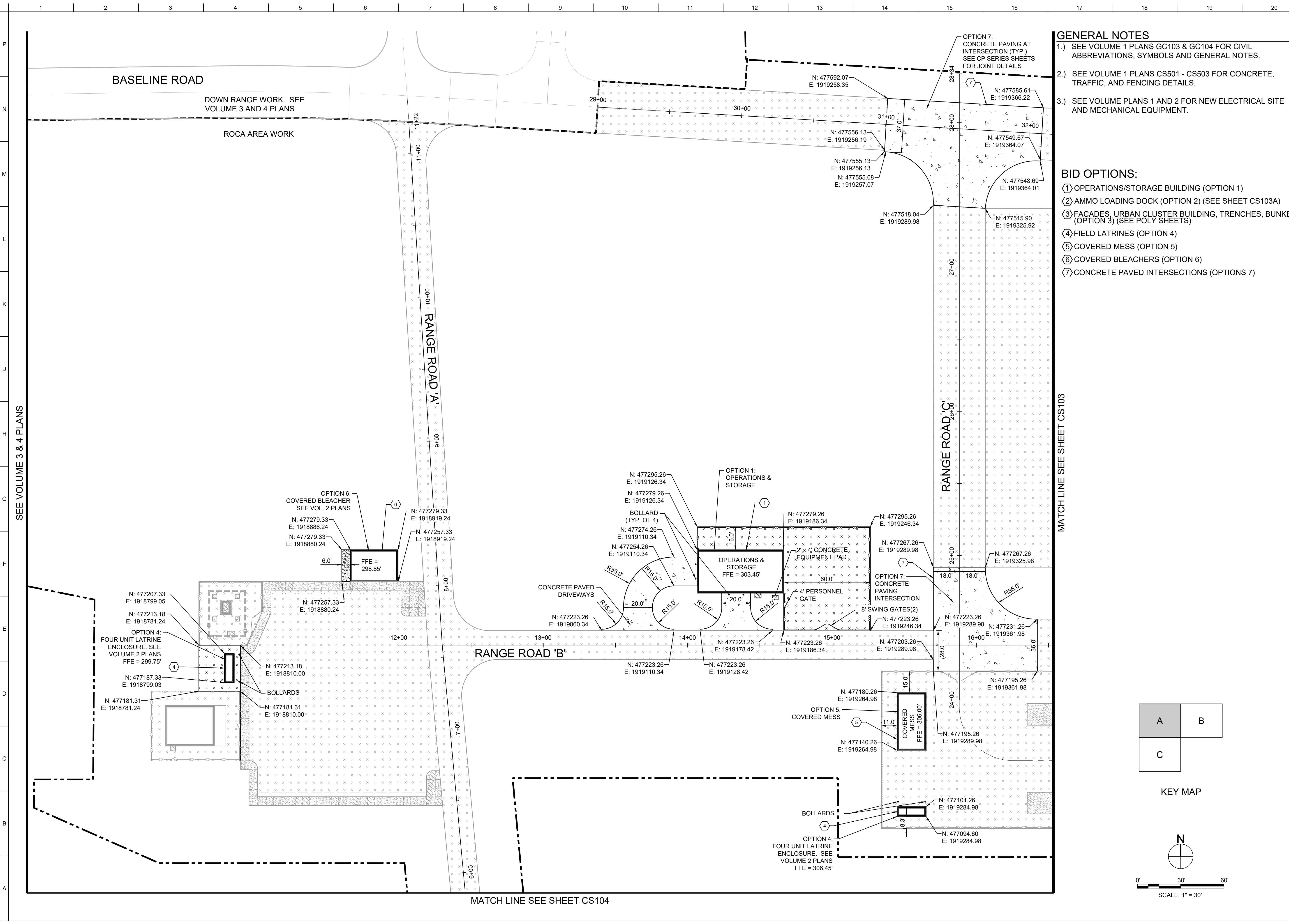
SHEET ID
CS102

MATCH LINE SEE SHEET CS103

SEE VOLUME 3 & 4 PLANS

MATCH LINE SEE SHEET CS104





GENERAL NOTES

- SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
- SEE VOLUME 1 PLANS CS501 - CS503 FOR CONCRETE, TRAFFIC, AND FENCING DETAILS.
- SEE VOLUME PLANS 1 AND 2 FOR NEW ELECTRICAL SITE AND MECHANICAL EQUIPMENT.

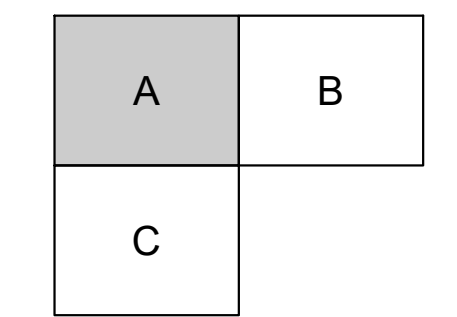
BID OPTIONS:

- ① OPERATIONS/STORAGE BUILDING (OPTION 1)
- ② AMMO LOADING DOCK (OPTION 2) (SEE SHEET CS103A)
- ③ FACADES, URBAN CLUSTER BUILDING, TRENCHES, BUNKERS (OPTION 3) (SEE POLY SHEETS)
- ④ FIELD LATRINES (OPTION 4)
- ⑤ COVERED MESS (OPTION 5)
- ⑥ COVERED BLEACHERS (OPTION 6)
- ⑦ CONCRETE PAVED INTERSECTIONS (OPTIONS 7)

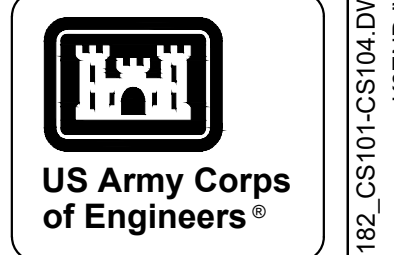
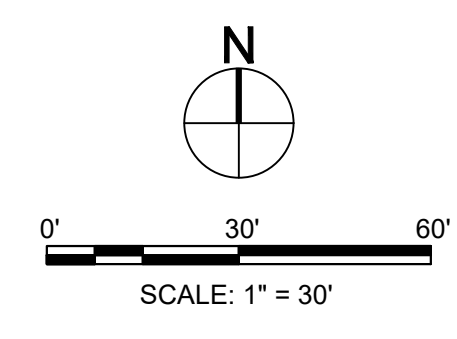
SEE VOLUME 3 & 4 PLANS

MATCH LINE SEE SHEET CS103

MATCH LINE SEE SHEET CS104



KEY MAP



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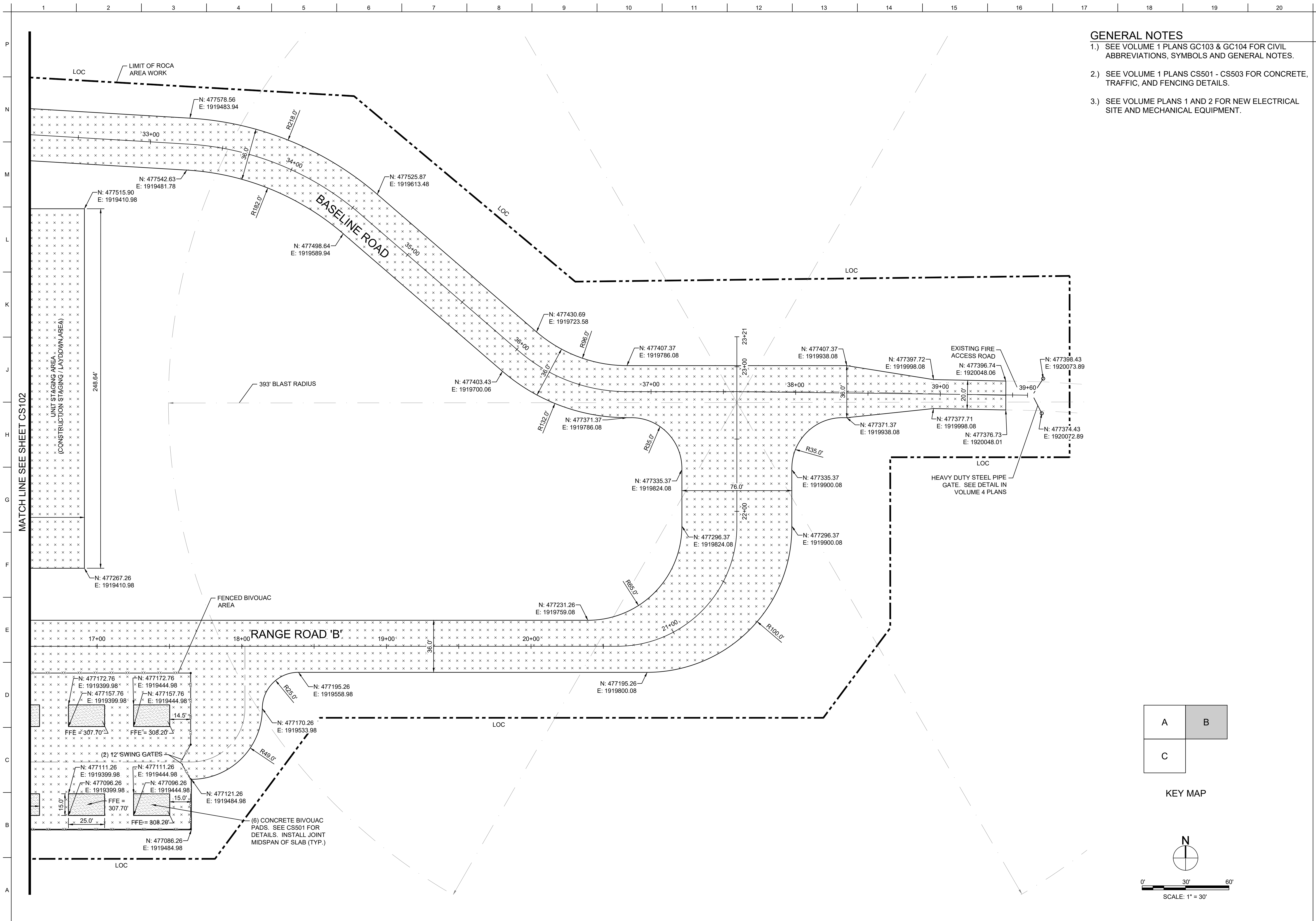
MARK	DESCRIPTION	DATE

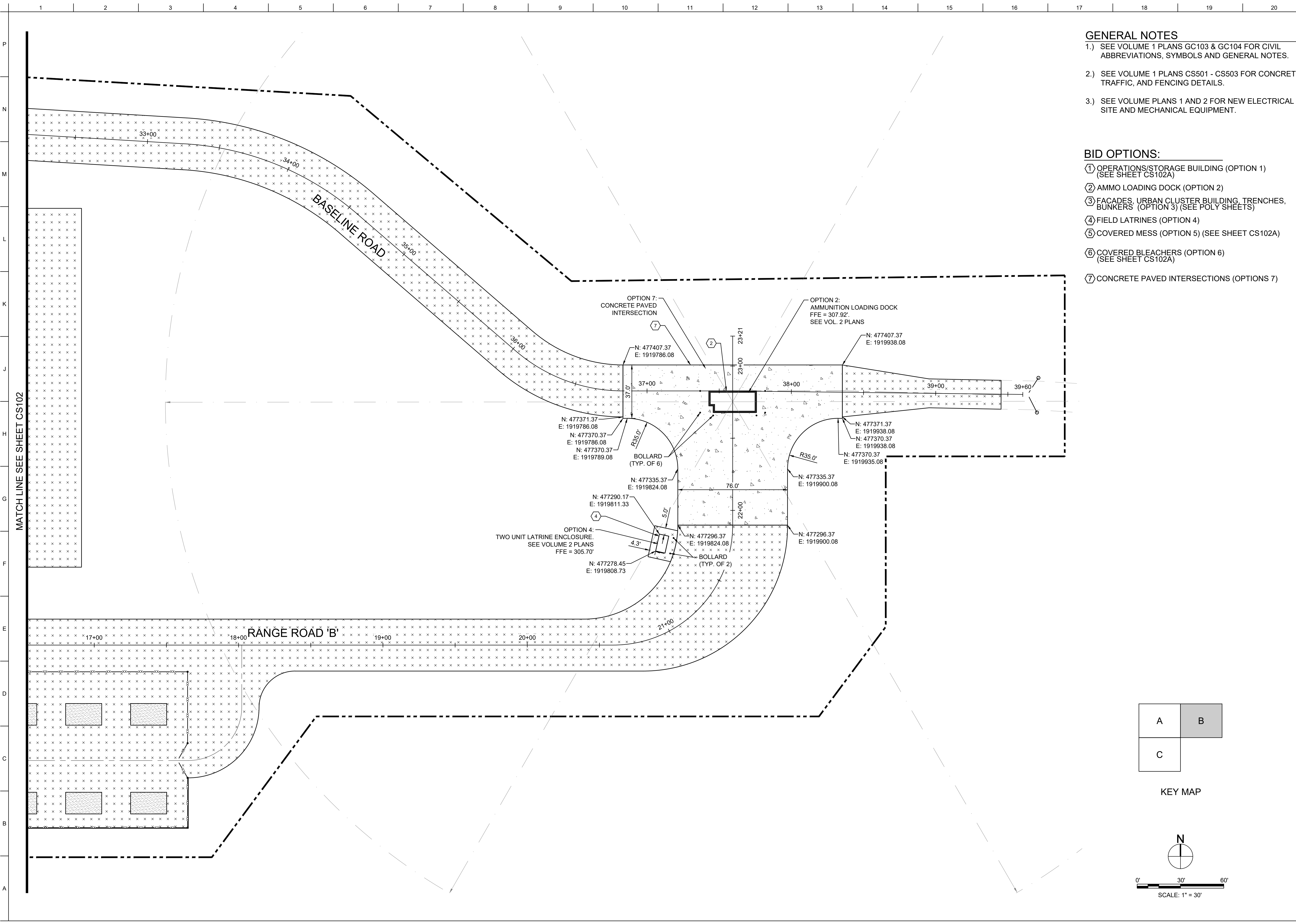
DESIGNED BY: J. O'REN, COREN	ISSUE DATE: NOVEMBER 2023
DRAWN BY: D. O'REN, COREN	SCALE: AS SHOWN
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-65-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
CIVIL SITE
LAYOUT - AREA 'A' OPTIONS

SHEET ID
CS102A



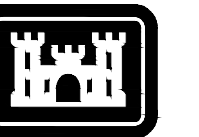


GENERAL NOTES

- SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
- SEE VOLUME 1 PLANS CS501 - CS503 FOR CONCRETE, TRAFFIC, AND FENCING DETAILS.
- SEE VOLUME PLANS 1 AND 2 FOR NEW ELECTRICAL SITE AND MECHANICAL EQUIPMENT.

BID OPTIONS:

- OPERATIONS/STORAGE BUILDING (OPTION 1) (SEE SHEET CS102A)
- AMMO LOADING DOCK (OPTION 2)
- FACADES, URBAN CLUSTER BUILDING, TRENCHES, BUNKERS (OPTION 3) (SEE POLY SHEETS)
- FIELD LATRINES (OPTION 4)
- COVERED MESS (OPTION 5) (SEE SHEET CS102A)
- COVERED BLEACHERS (OPTION 6) (SEE SHEET CS102A)
- CONCRETE PAVED INTERSECTIONS (OPTIONS 7)



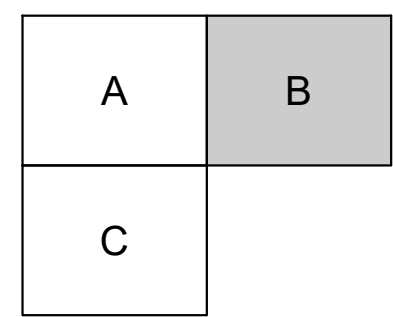
US Army Corps of Engineers®

DESIGNED BY: J. O'REN, O'REN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: O'REN, O'REN	NO. OF SHEETS: 10/11/24/28/30/32
R. RADTKE	CONTRACT NO.:
J. DEACON	CATEGORY CODE: 178-85-01
ANS/D	SIZE:

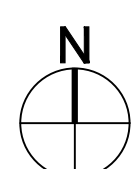
U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

CIVIL SITE
LAYOUT - AREA 'B' OPTIONS



KEY MAP



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

SHEET ID
CS103A

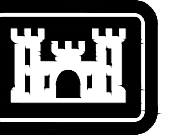
READY TO ADVERTISE (RTA)

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MATCH LINE SEE SHEET CS102

GENERAL NOTES

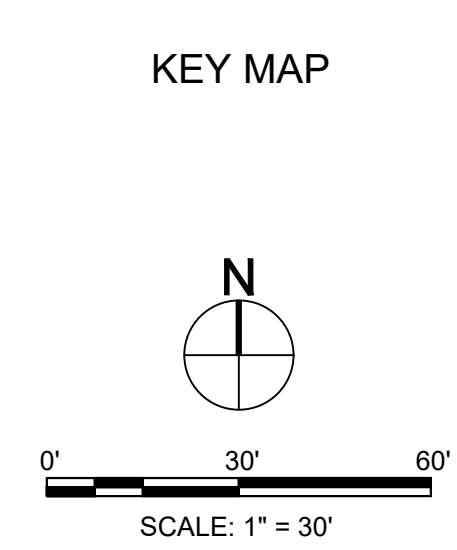
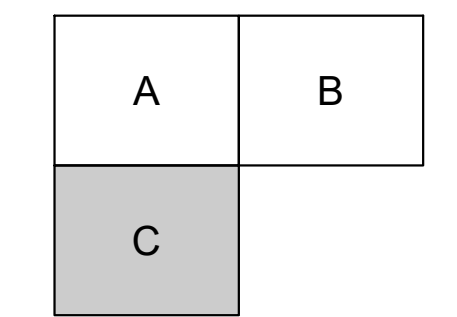
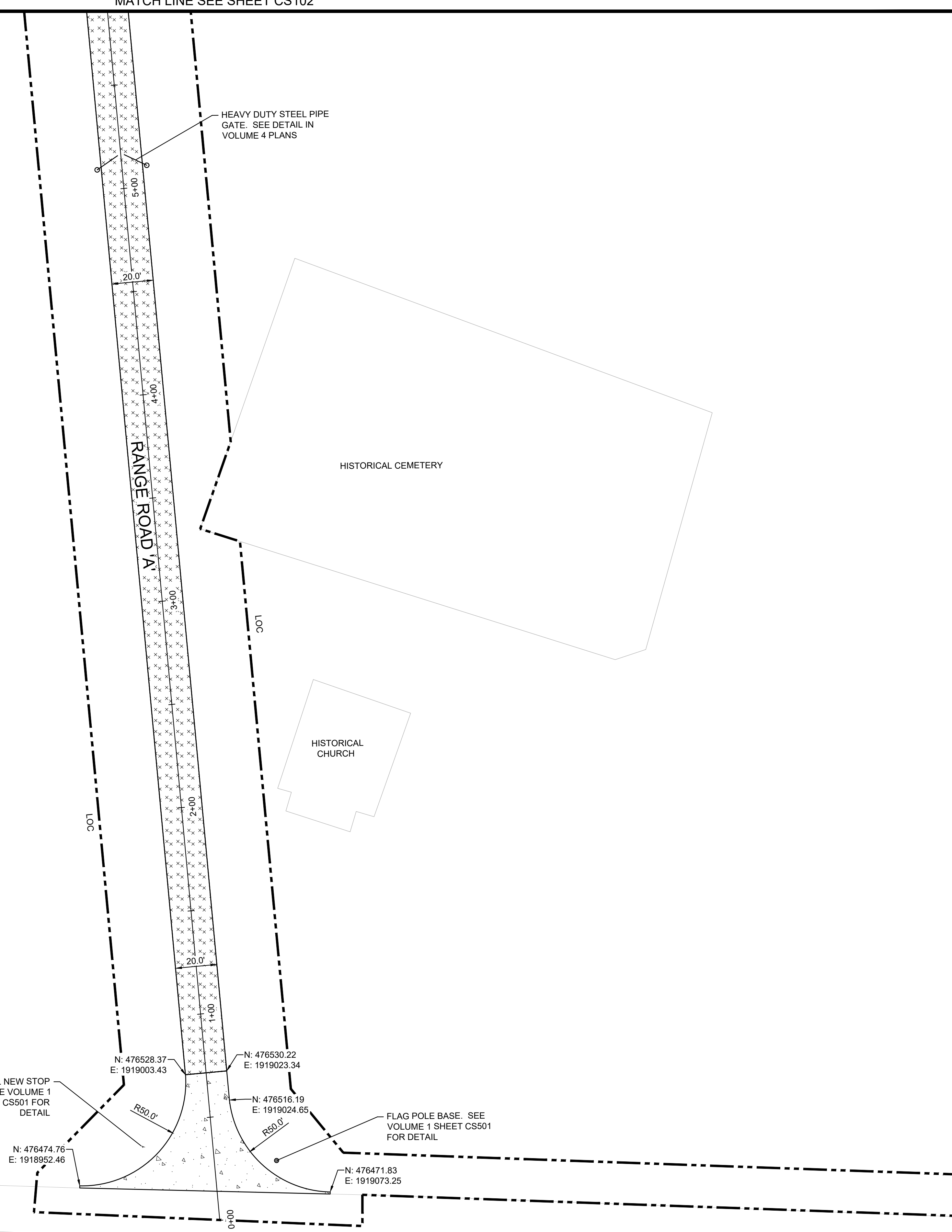
- 1.) SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
- 2.) SEE VOLUME 1 PLANS CS501 - CS503 FOR CONCRETE, TRAFFIC, AND FENCING DETAILS.
- 3.) SEE VOLUME PLANS 1 AND 2 FOR NEW ELECTRICAL SITE AND MECHANICAL EQUIPMENT.

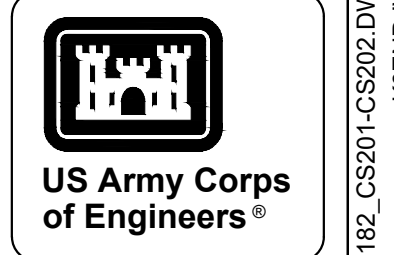
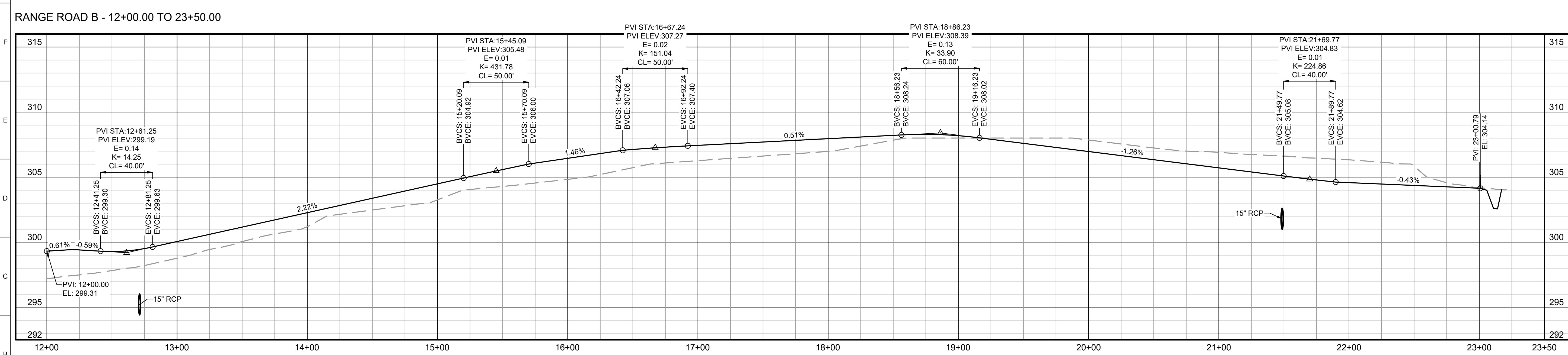
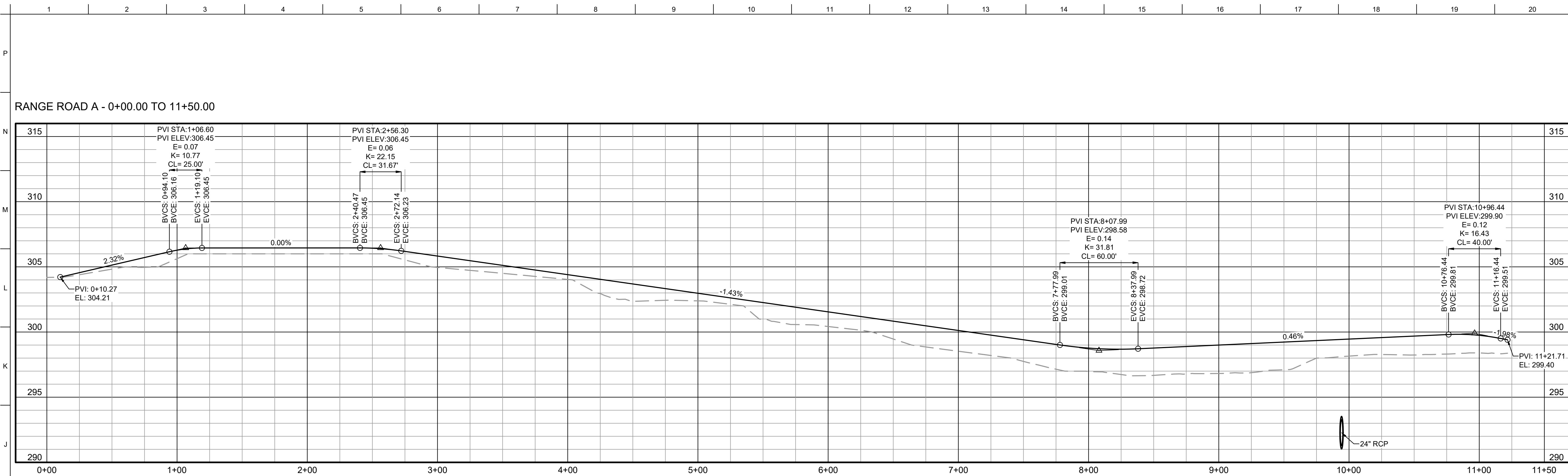


US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: J. OGREN, CGREN DRAWN BY: J. OGREN, CGREN CHECKED BY: R. RADTKE SUBMITTED BY: J. DEACON	ISSUE DATE: NOVEMBER 2023 PROJECT NO. & DATE: W191P1434 3002 CONTRACT NO.: -- CATEGORY CODE: 178-65-01		
		U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	
		FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF) FY23, PN 96182 VOLUME 1 - SITE CIVIL SITE LAYOUT - AREA 'C'	
		SHEET ID CS104	





DATE	DESCRIPTION	MARK

DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSREN	SCALE: AS SHOWN
SUBMITTED BY: R. RADTKE	CONTRACT NO.:
ANSID:	CATEGORY CODE: 178-85-01

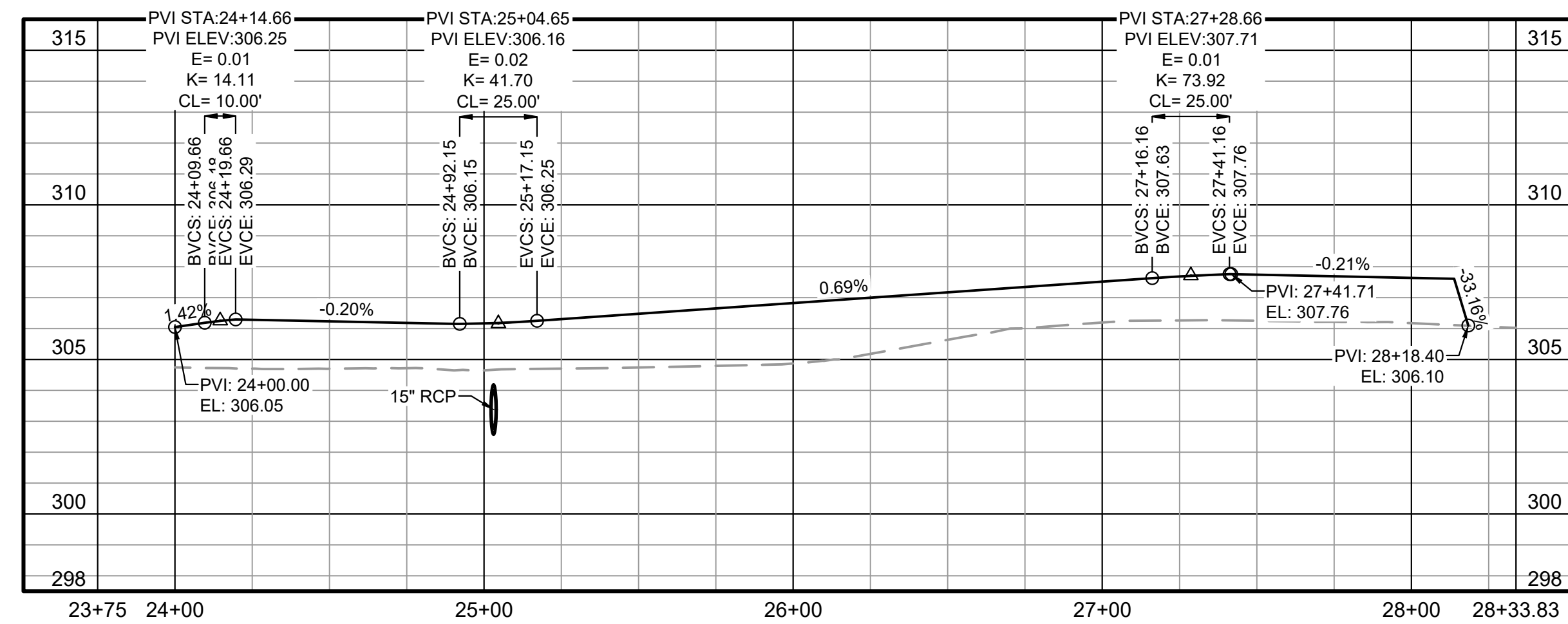
U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

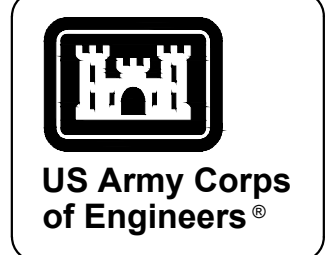
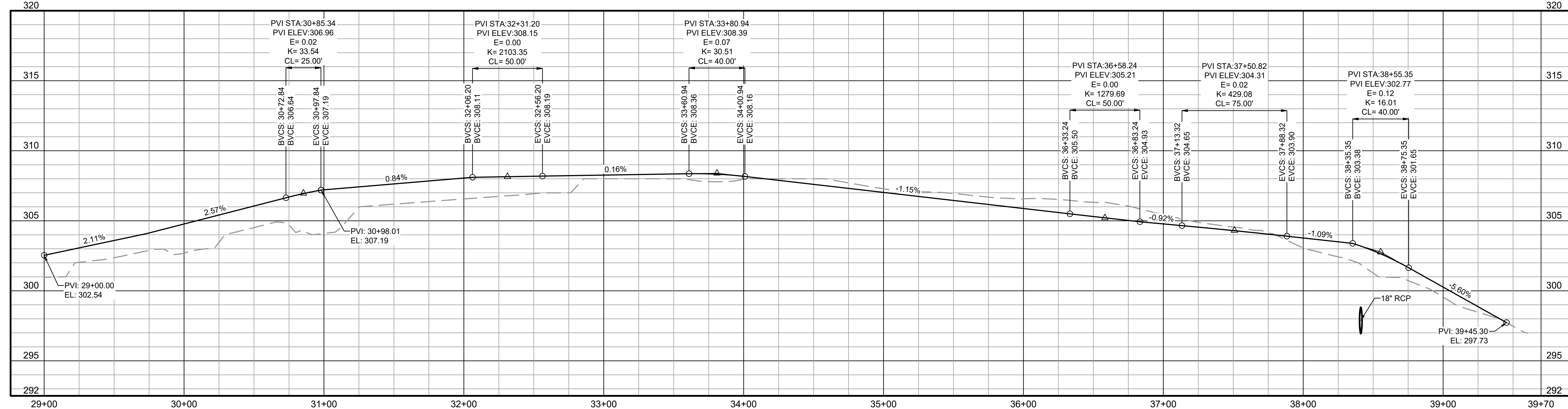
CIVIL SITE
ROADWAY PROFILES - 1

SHEET ID
CS201

RANGE ROAD C - 23+75.00 TO 28+33.83



BASELINE ROAD - 29+00.00 TO 39+70.00



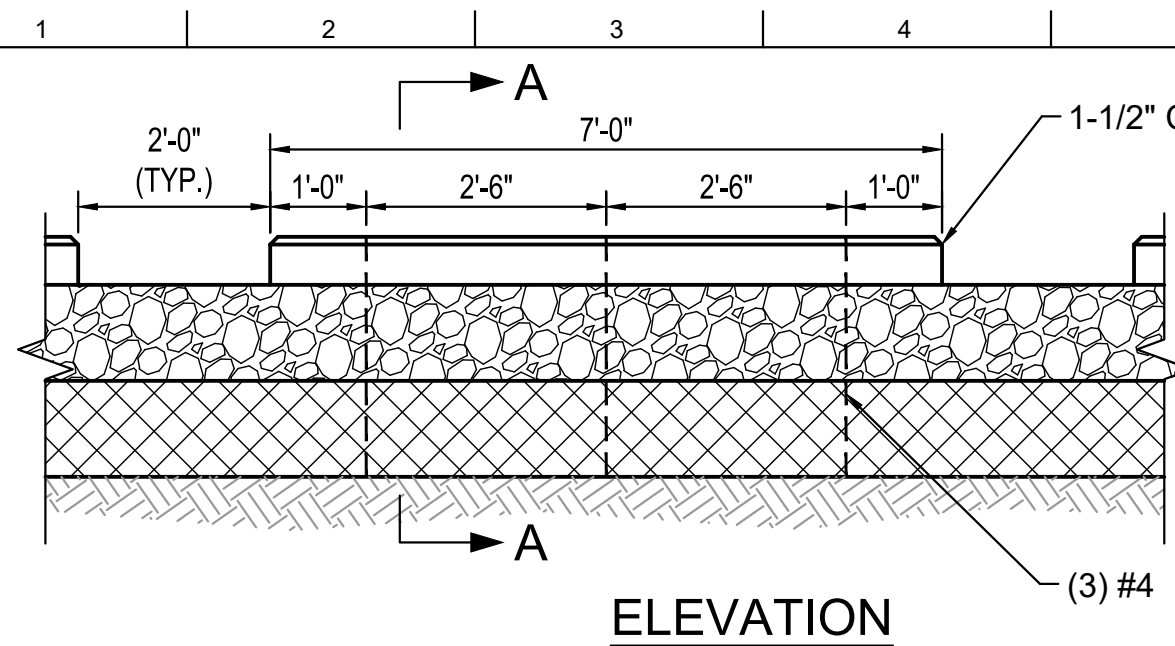
MARK	DESCRIPTION	DATE

DESIGNED BY: G. O'GREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. O'GREN	PROJECT NO.: W91P1A1248 3002
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

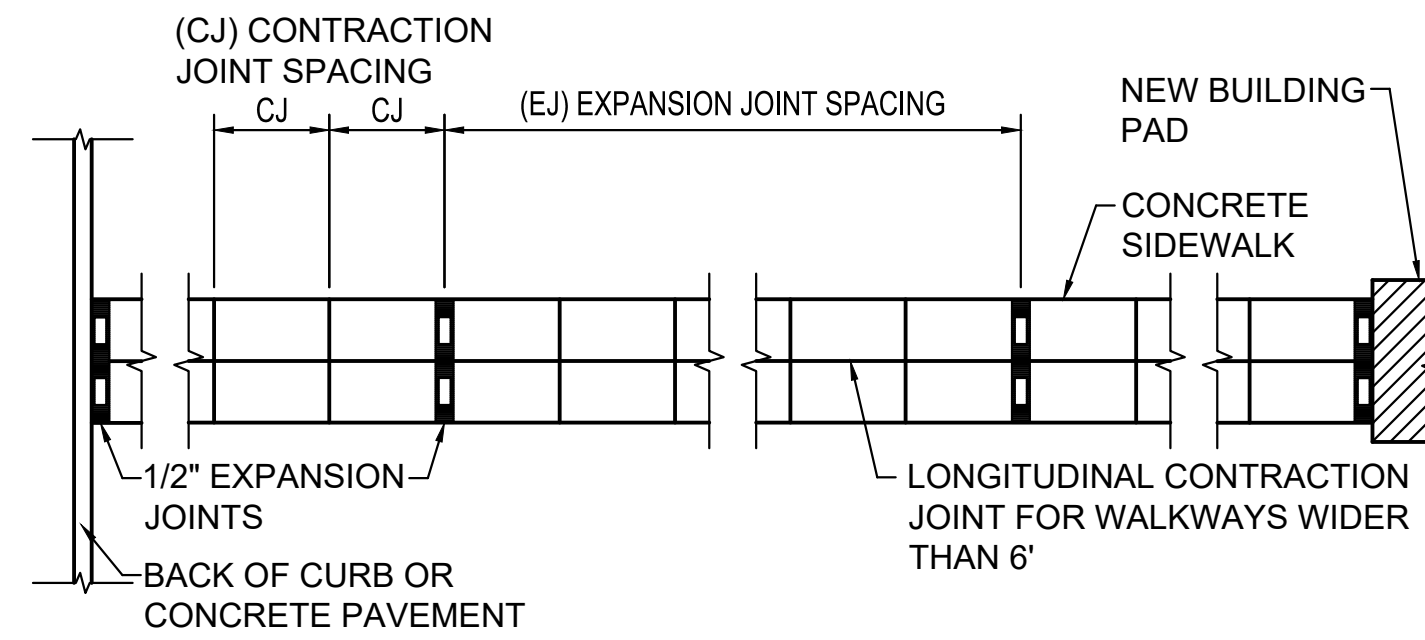
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
VOLUME 1 - SITE
CIVIL SITE
ROADWAY PROFILES - 2

SHEET ID
CS202



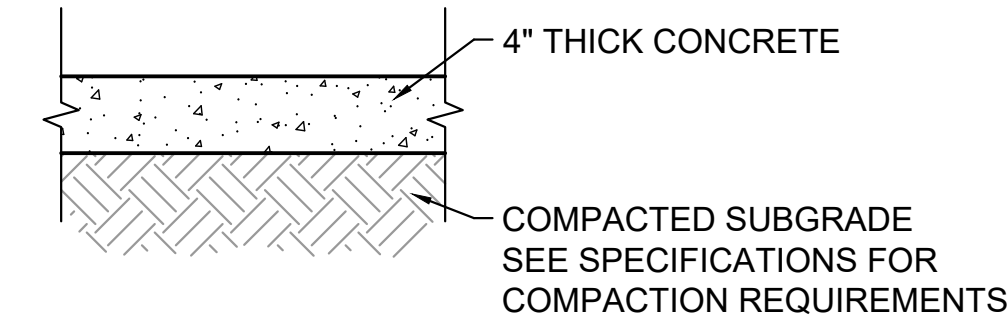
ELEVATION

- NOTES:**
 1.) ATTACHMENT OF THE WHEEL STOPS SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
 2.) WHEEL STOPS SHALL BE PLACED 28.5 INCHES FROM THE END OF THE PARKING TO THE CENTER OF THE WHEEL STOP.



JOINT SPACING FOR CONCRETE SIDEWALKS

SIDEWALK WIDTH	CONTRACTION JOINT SPACING	EXPANSION JOINT SPACING
4 FT.	4 FT.	48 FT.
5 FT.	5 FT.	48 FT.
6 FT.	6 FT.	48 FT.

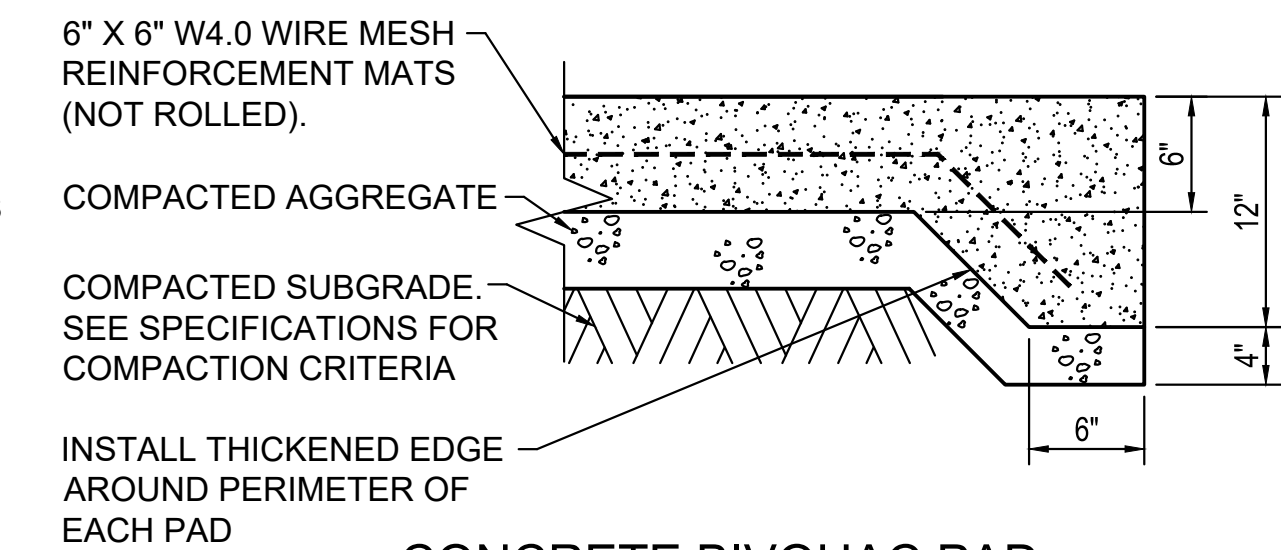


STANDARD JOINT LAYOUT FOR CONCRETE SIDEWALKS
NO SCALE

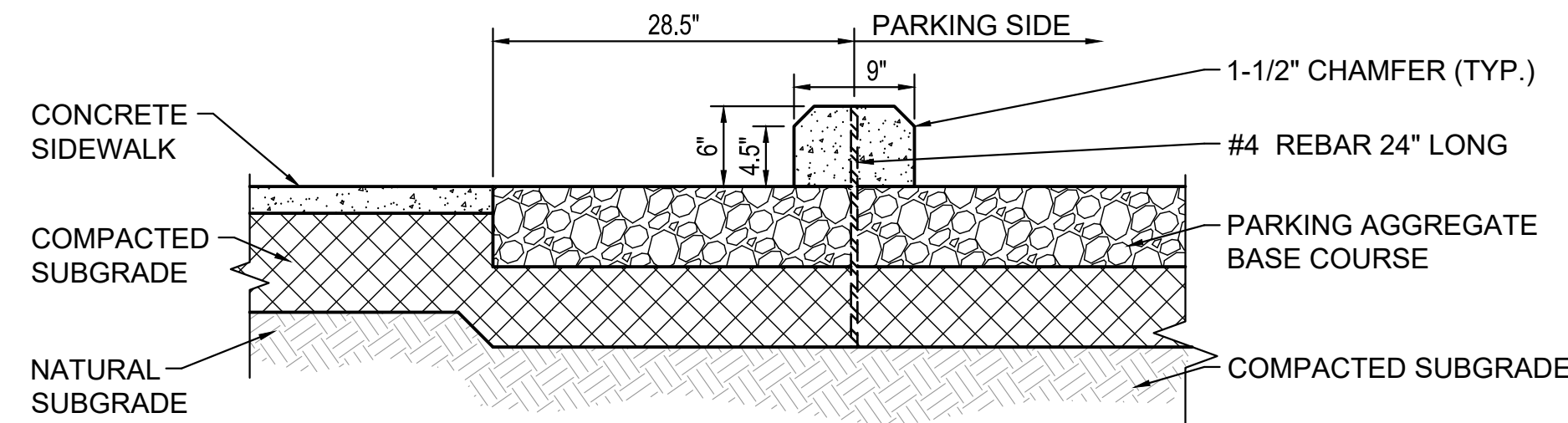
SIDEWALK SECTION

GENERAL NOTES FOR CONCRETE WALKS

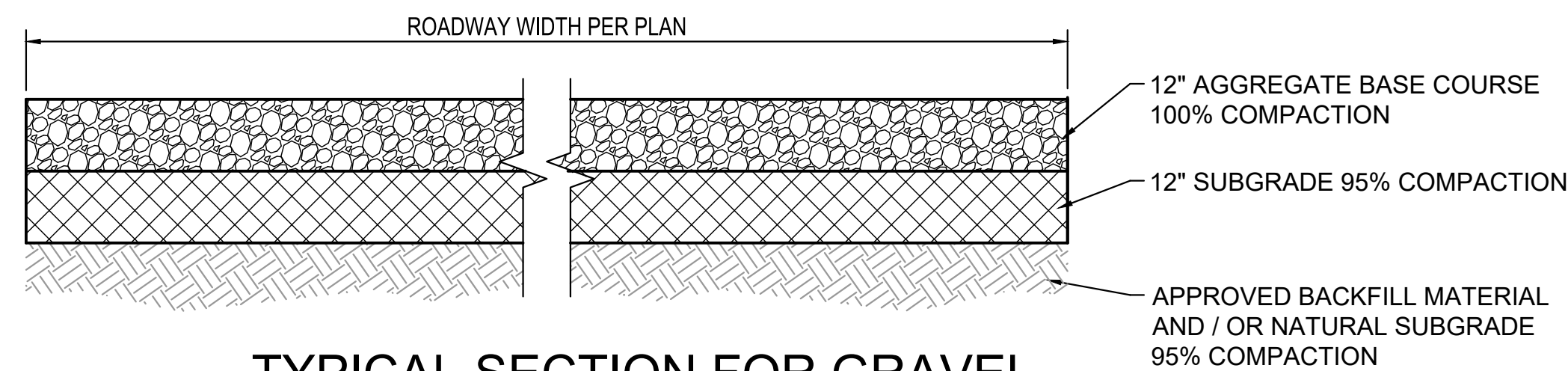
- 1.) SIDEWALKS SHALL HAVE A MINIMUM THICKNESS OF 4".
- 2.) CONTRACTION JOINTS SHALL BE FORMED (OR SAWCUT) TO A DEPTH EQUAL TO 1/4 OF THE THICKNESS OF THE SIDEWALK AND EDGED WITH 1/8 RADIUS.
- 3.) 1/2" EXPANSION JOINT MATERIAL SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 50 FEET AND WHERE WALKS ABUT OTHER CONCRETE STRUCTURES SUCH AS: PARALLEL AND ABUTTING CURB AND GUTTER OR ADJACENT TO BITUMINOUS PAVEMENT.
- 4.) TRANSVERSE SLOPES ON SIDEWALKS SHALL BE 1/4" PER FT.
- 5.) CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI.



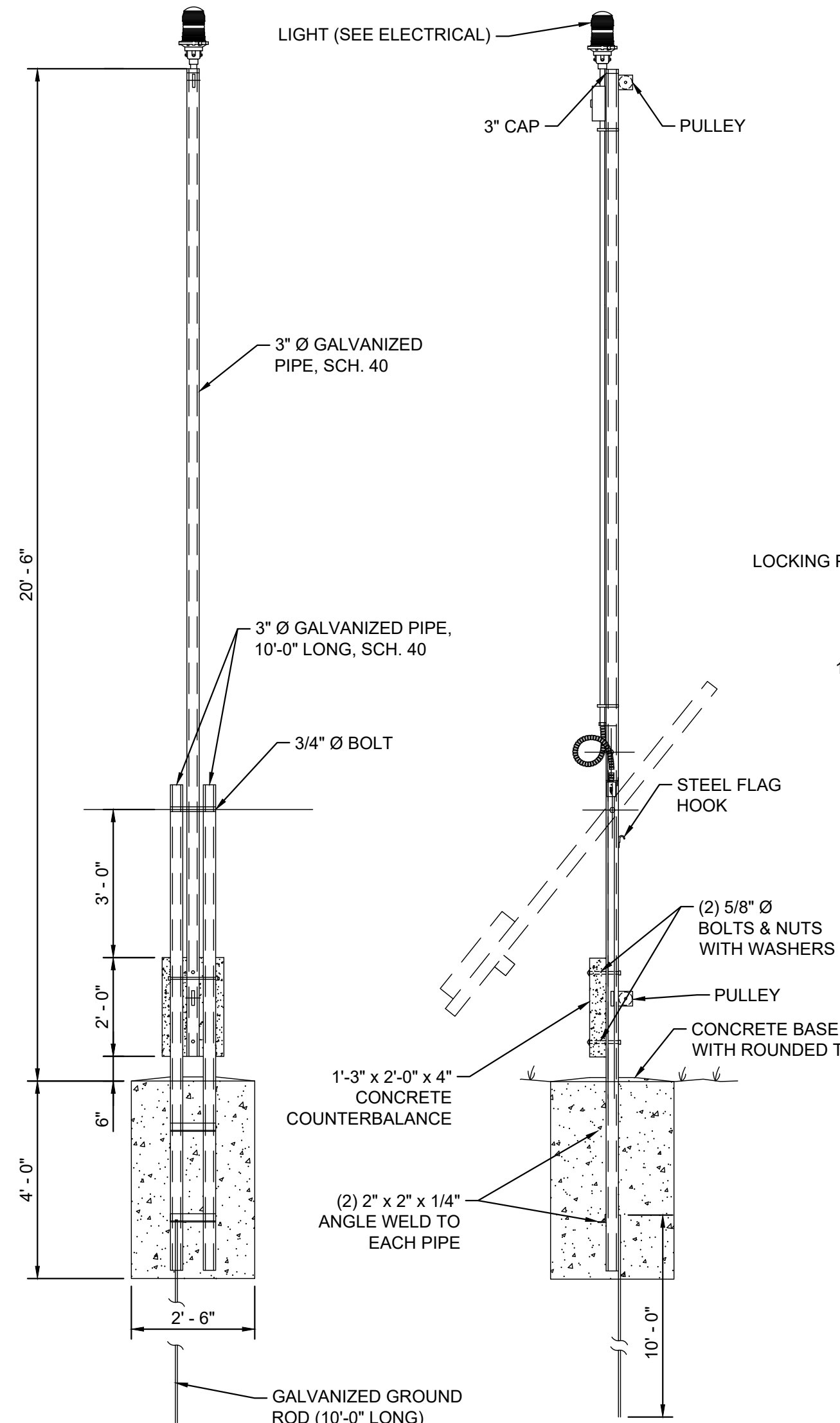
CONCRETE BIVOJAC PAD
NO SCALE



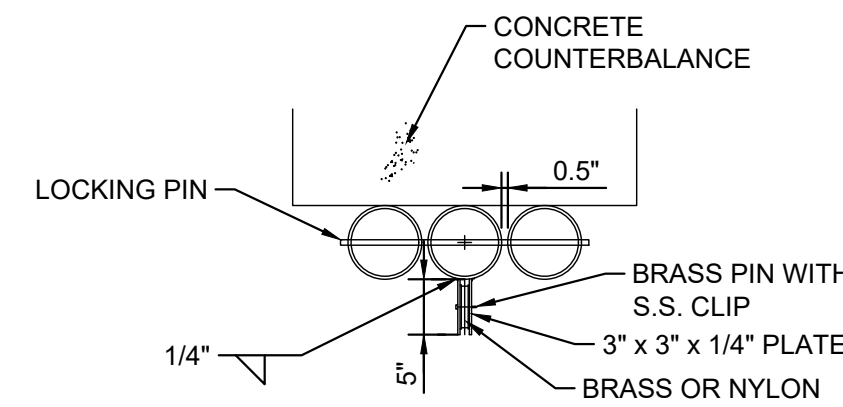
SECTION A - A
WHEEL STOP
NO SCALE



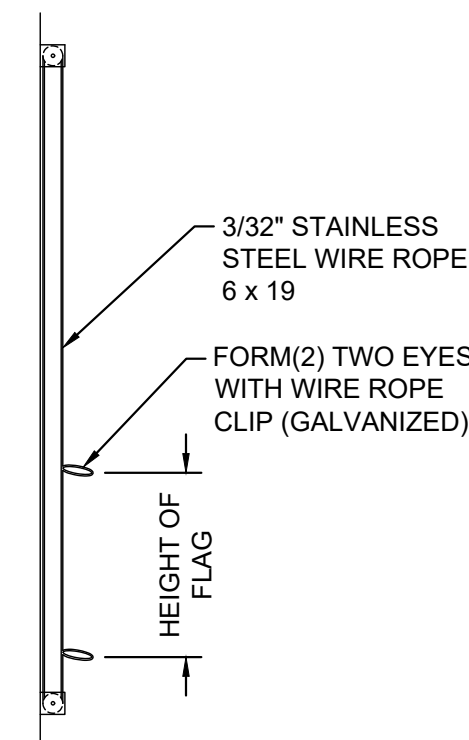
TYPICAL SECTION FOR GRAVEL AREAS AND ROADWAYS
NO SCALE



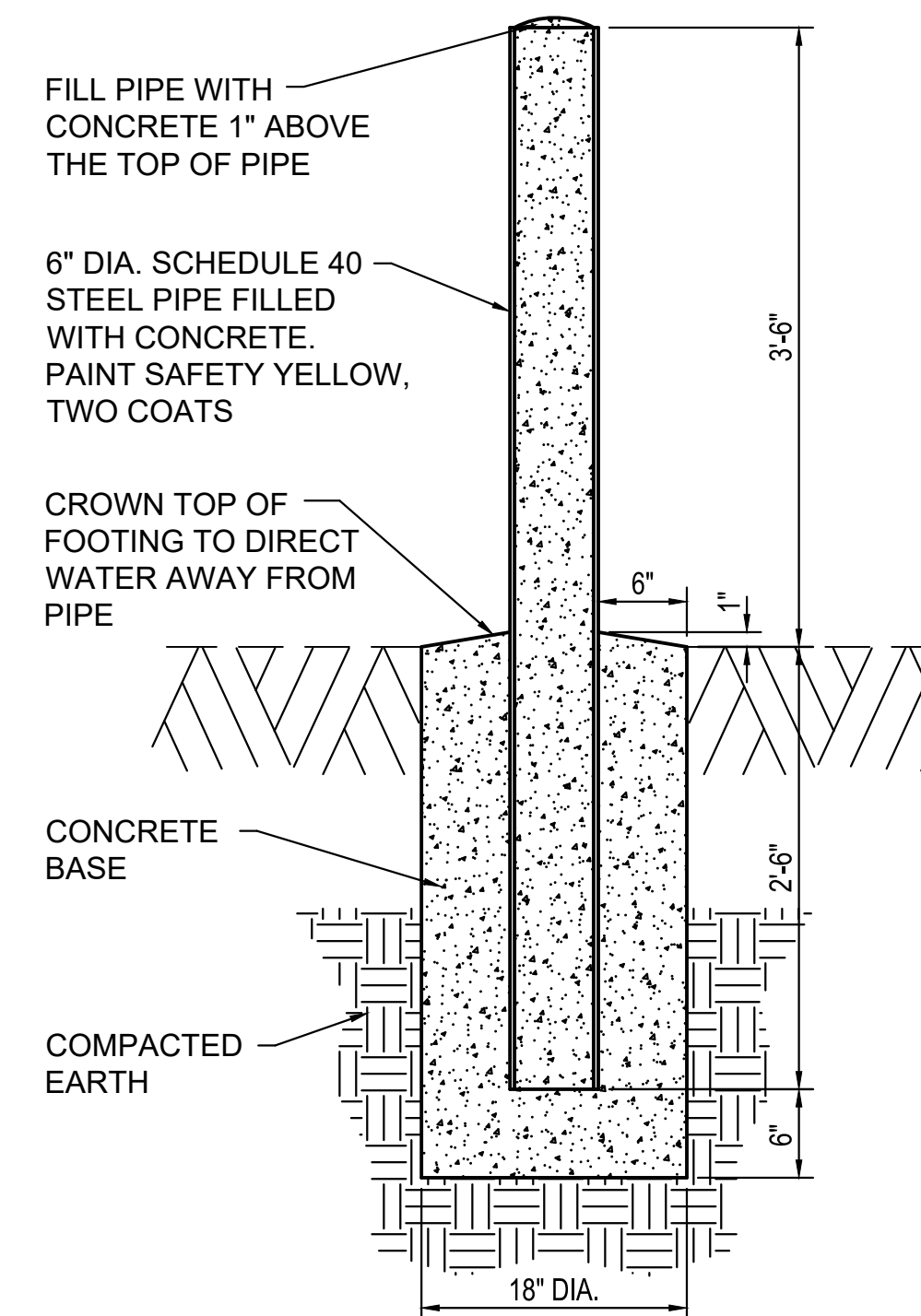
FLAGPOLE ELEVATIONS AND DETAILS
N.T.S.



PULLEY
N.T.S.

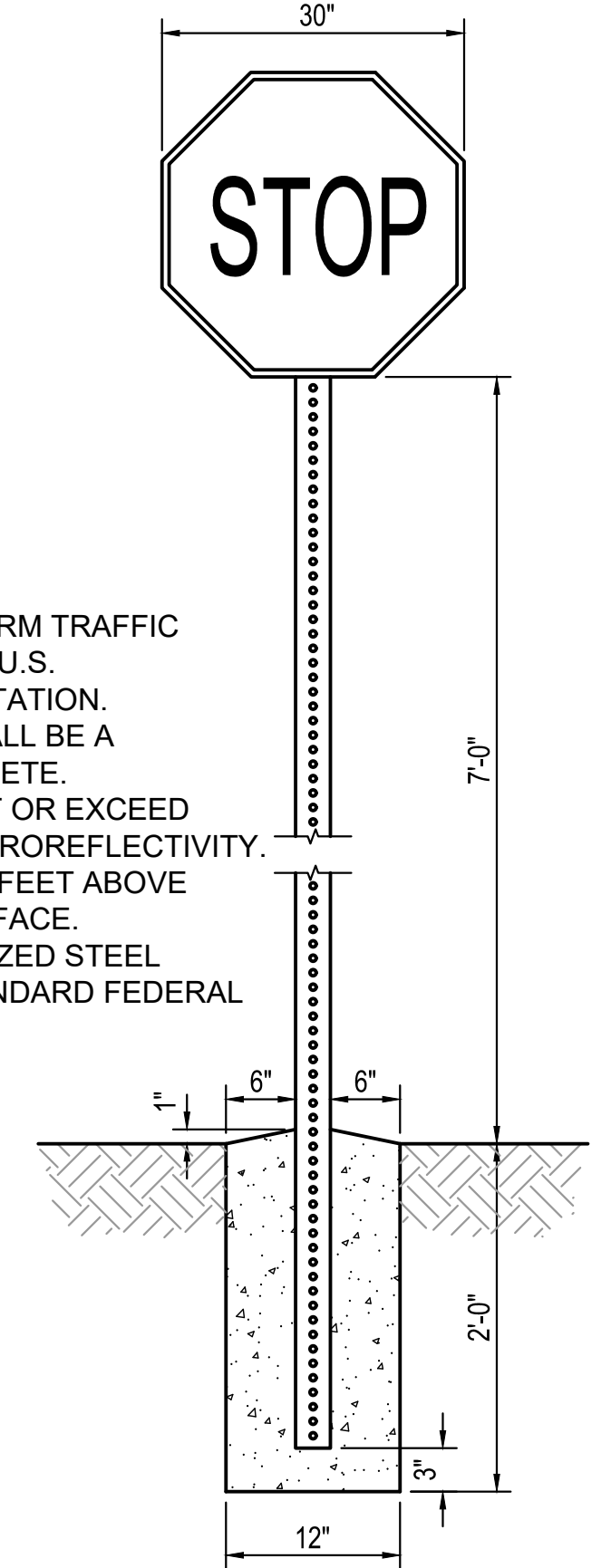


HALYARD
N.T.S.

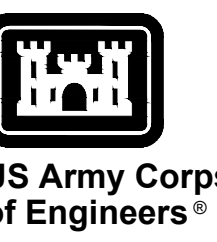


BOLLARD
NO SCALE

- NOTES:**
 1.) REFER TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), U.S. DEPARTMENT OF TRANSPORTATION.
 2.) CONCRETE FOUNDATION SHALL BE A MINIMUM OF 3,000 PSI CONCRETE.
 3.) SIGNS/MARKERS SHALL MEET OR EXCEED MUTCD STANDARDS FOR RETROREFLECTIVITY.
 4.) SIGNS SHALL BE MOUNTED 7 FEET ABOVE GRADE TO BOTTOM OF SIGN FACE.
 5.) POSTS TO BE 2" X 2" GALVANIZED STEEL SQUARE POST, PAINTED STANDARD FEDERAL COLOR 20059 BROWN.



R1-1 STOP SIGN
NO SCALE



US Army Corps of Engineers®

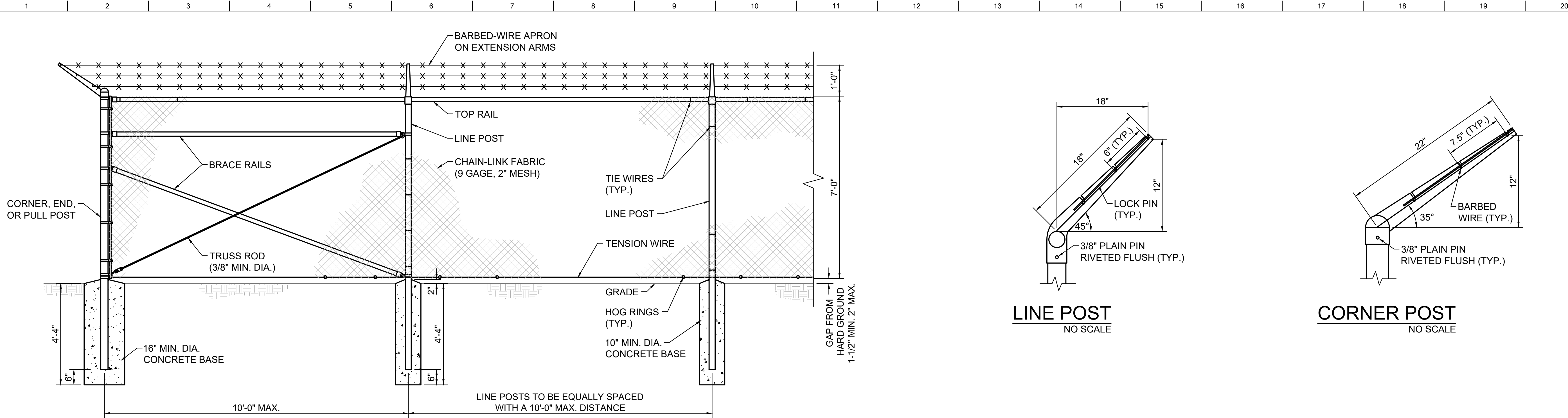
MARK	DESCRIPTION	DATE

DESIGNED BY: G. O'GREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. O'GREN	PROJECT NO. / CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-65-01
ANS/D	SIZE

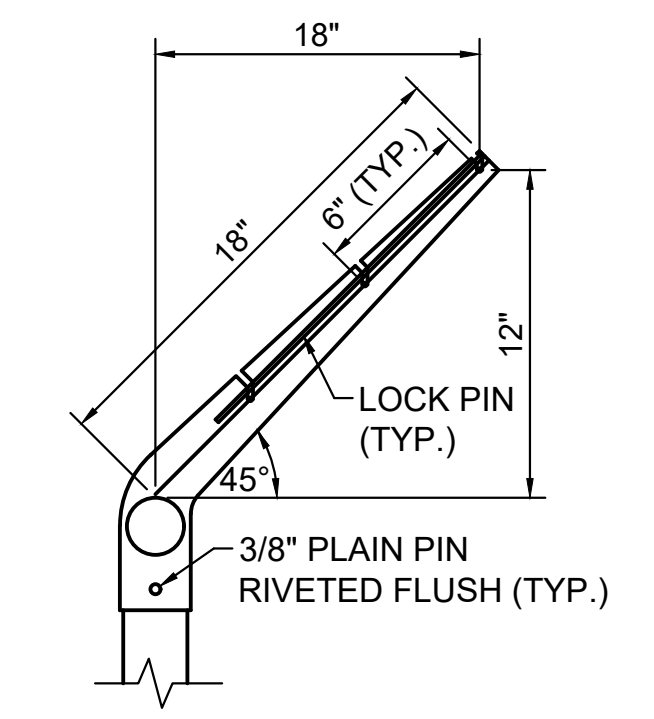
U.S. ARMY CORPS OF ENGINEERS
 SAVANNAH DISTRICT
 100 W. OGLETHORPE AVE.
 SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE
 CIVIL SITE LAYOUT DETAILS

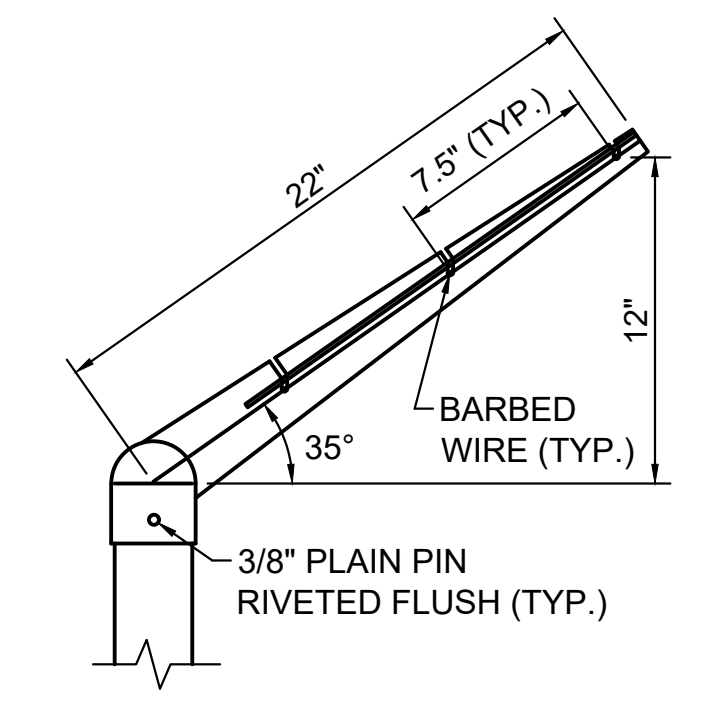
SHEET ID
CS501



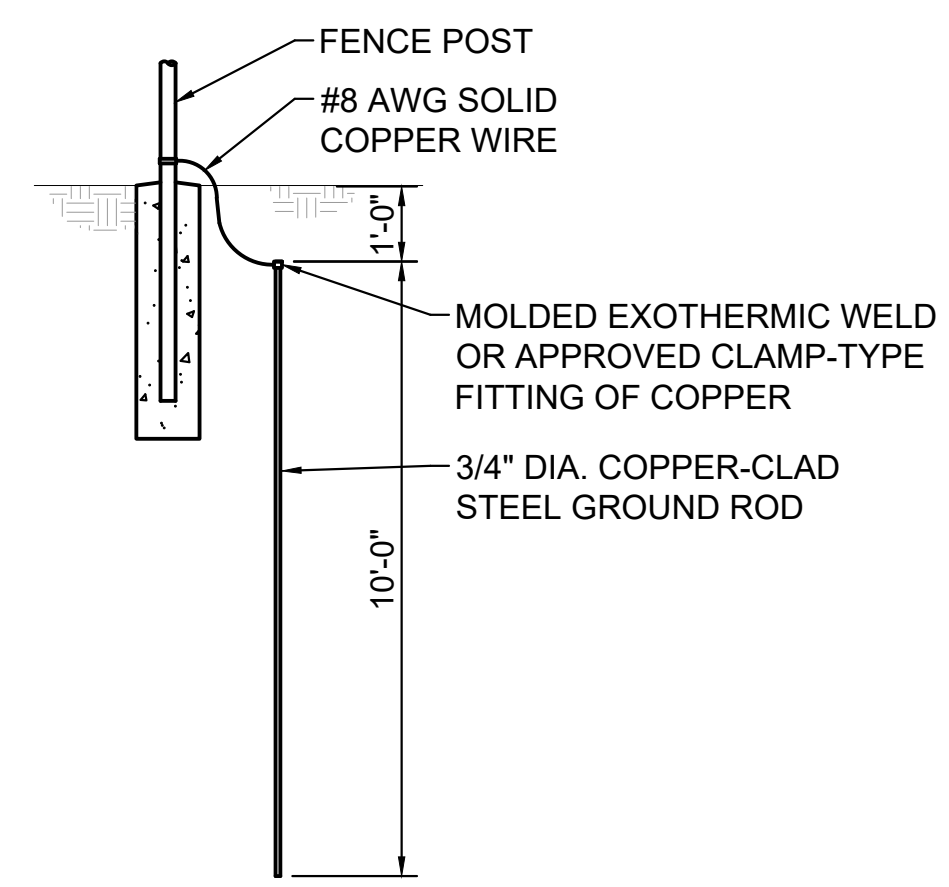
FE-6 CHAIN-LINK SECURITY FENCE
NO SCALE



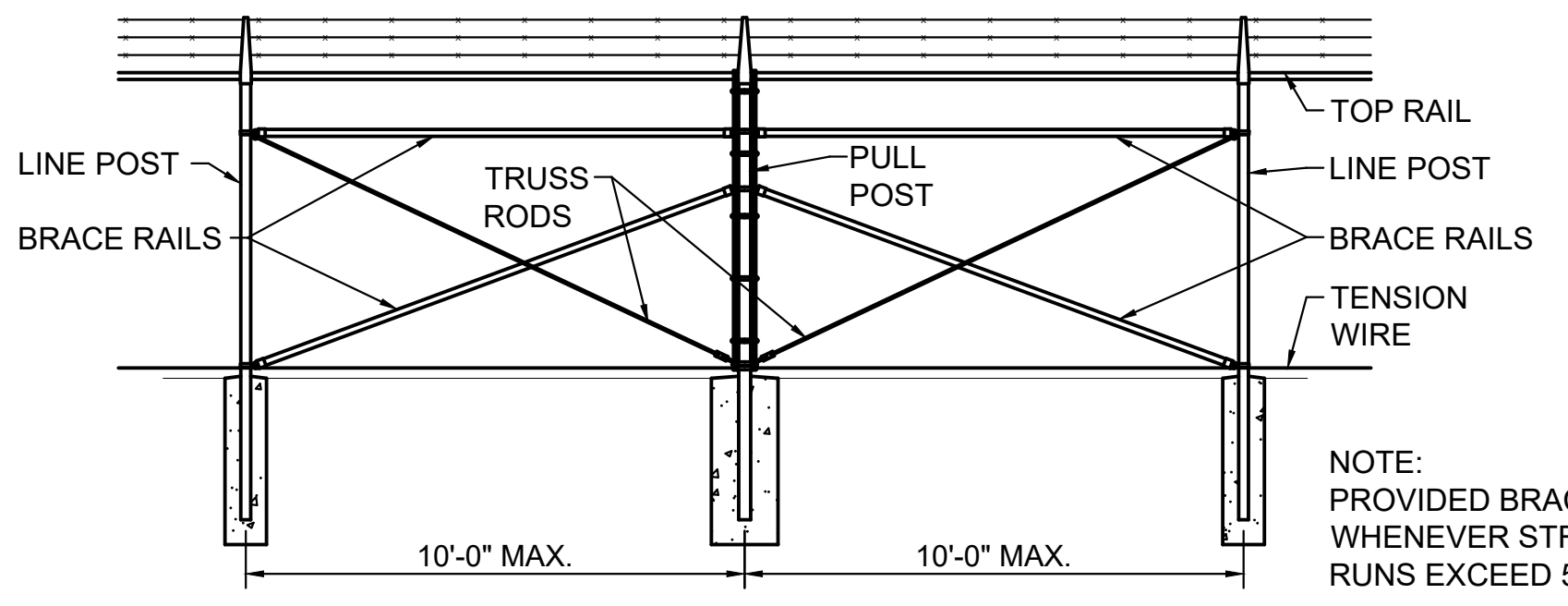
LINE POST
NO SCALE



CORNER POST
NO SCALE



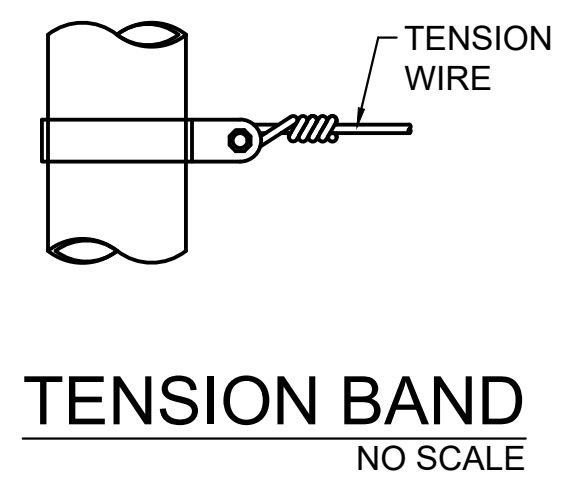
GROUNDING ROD
NO SCALE



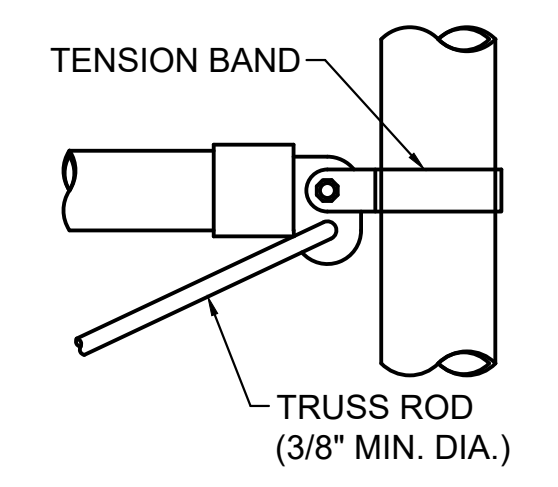
BRACE PANELS
NO SCALE

USE AND SECTION	FABRIC WIDTH 72" OR LESS		FABRIC WIDTH 84" TO 96"		FABRIC WIDTH 108" & OVER	
CORNER, END & PULL POSTS						
TUBULAR - ROUND	2.38"	O.D.	2.88"	O.D.	4.00"	O.D.
TUBULAR - SQUARE	2.00"	SQ.	2.50"	SQ.	3.00"	SQ.
C-SECTION (ROLL-FORMED)	3.50" X 3.50"		3.50" X 3.50"			
LINE POSTS						
TUBULAR - ROUND	1.90"	O.D.	2.38"	O.D.	2.88"	O.D.
H-SECTION	2.25" X 1.70"		2.25" X 1.70"		2.25" X 1.70"	
C-SECTION (ROLL-FORMED)	1.88" X 1.63"		2.25" X 1.70"			
TOP, BOTTOM & BRACE RAILS						
TUBULAR - ROUND	1.66" O.D.					
TUBULAR - SQUARE	1.50" SQ.					
H-SECTION	1.63" X 1.50"					
C-SECTION (ROLL-FORMED)	1.63" X 1.25"					

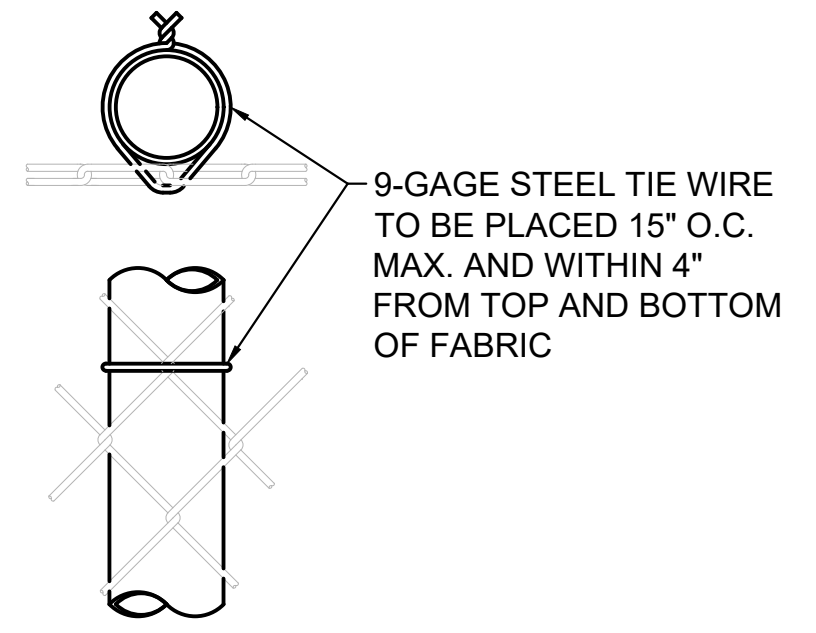
- NOTES:**
- 1.) DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION THAT COMPLY WITH THE SPECIFICATIONS.
 - 2.) WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN LINK FABRIC SHALL BE PLACED ON THE SIDE OPPOSITE THE SECURE AREA.
 - 3.) C-SECTION POSTS SHALL BE INSTALLED SO THAT THE VOID INSIDE THE POST IS COMPLETELY FILLED WITH CONCRETE UP TO THE TOP OF THE FOUNDATION.



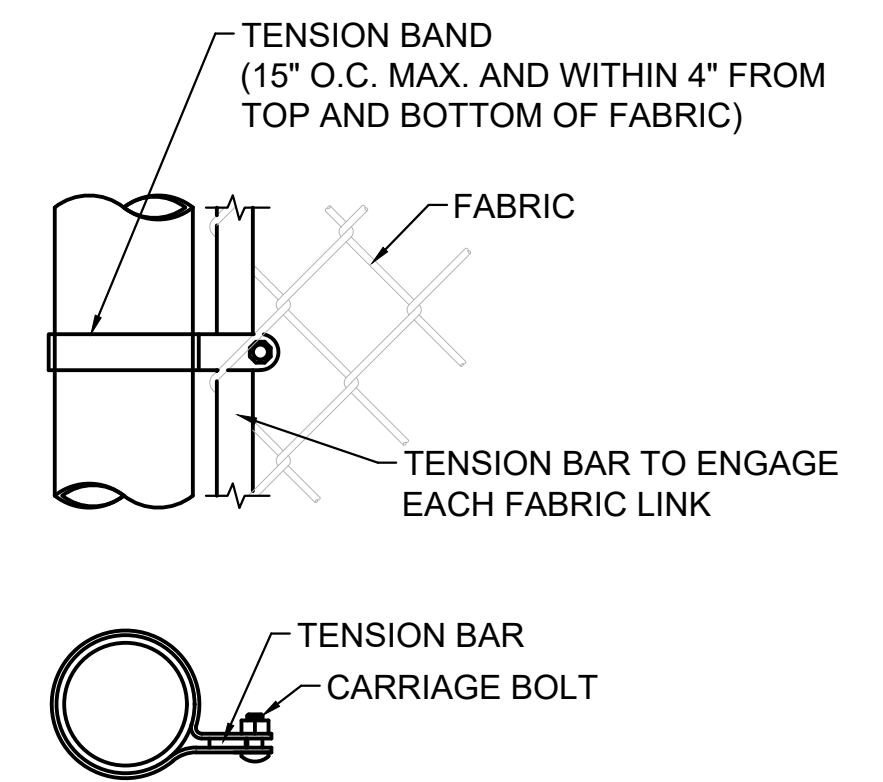
TENSION BAND
NO SCALE



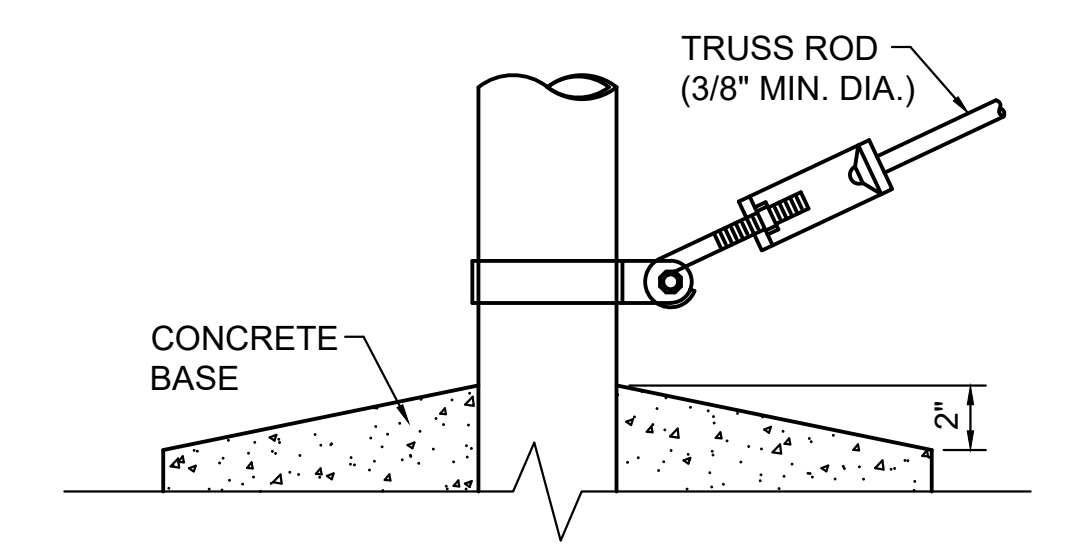
ROUND POST CONNECTIONS
NO SCALE



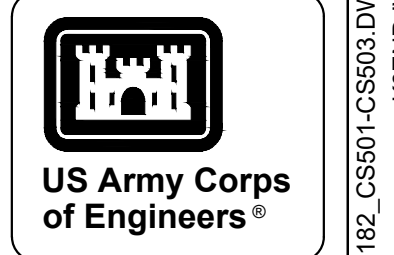
END OR GATE POST
NO SCALE



TOP OR BRACE RAIL ATTACHMENT
NO SCALE



TRUSS ROD AND BAND
NO SCALE

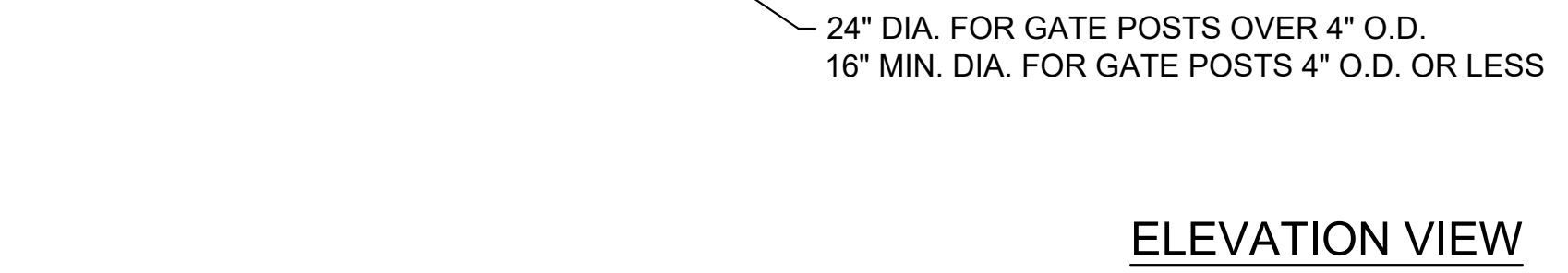
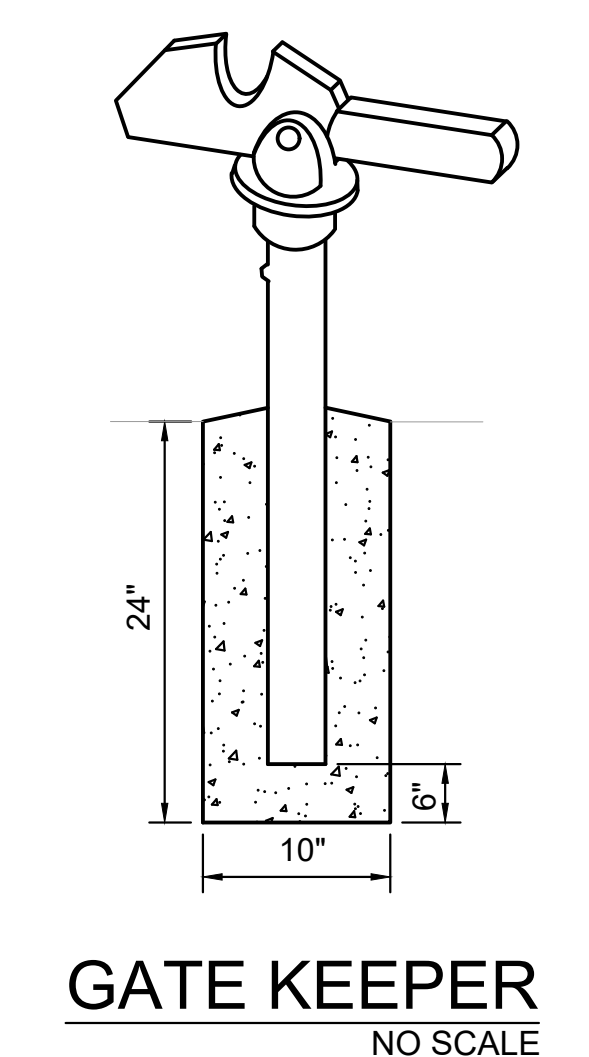
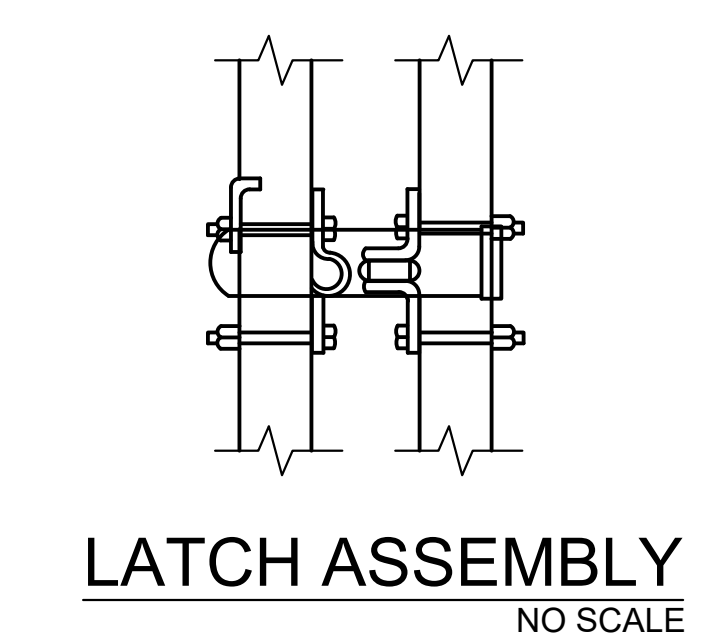
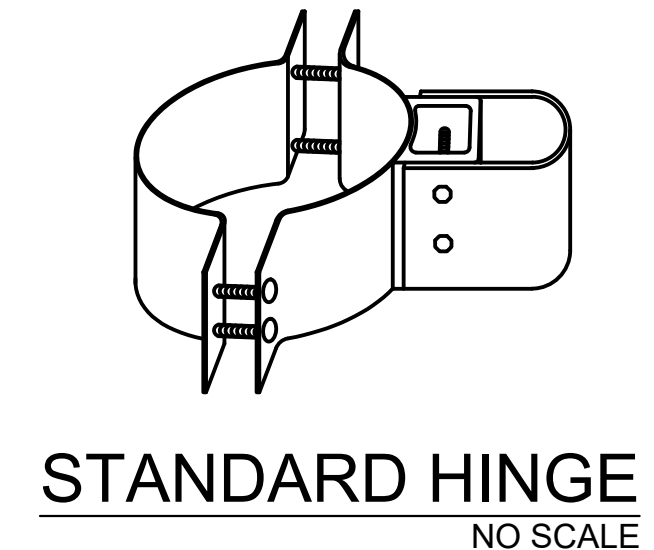
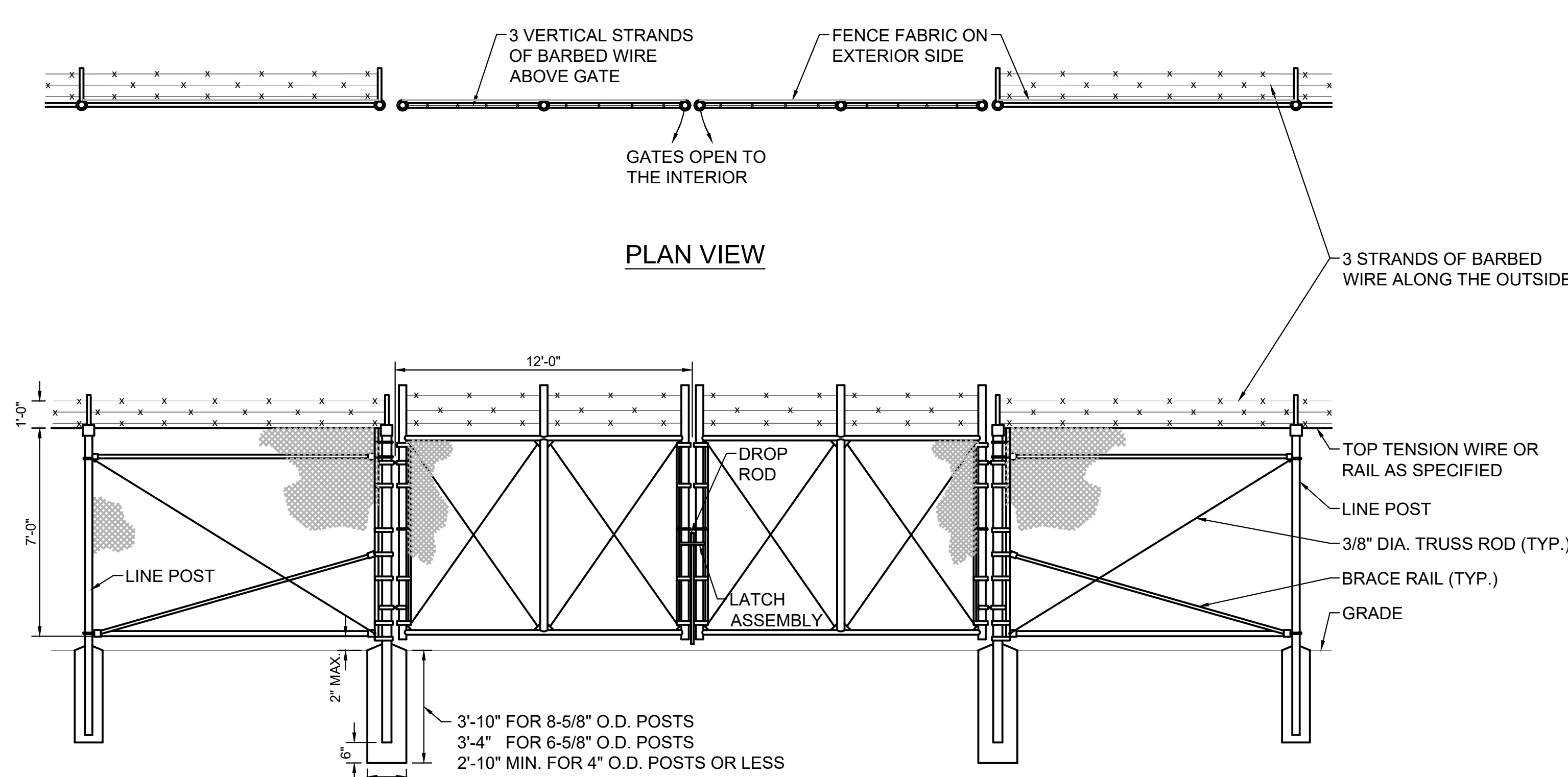


MARK	DESCRIPTION	DATE

DESIGNED BY: G. OKEN	ISSUE DATE: NOVEMBER 2023	ANS/D
CHECKED BY: C. OSBORN	DATE: NOV 24 2023	
SUBMITTED BY: R. RADTKE	CONTRACT NO.:	
SIZE: J. DEACON	CATEGORY CODE: 178-85-01	
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401		

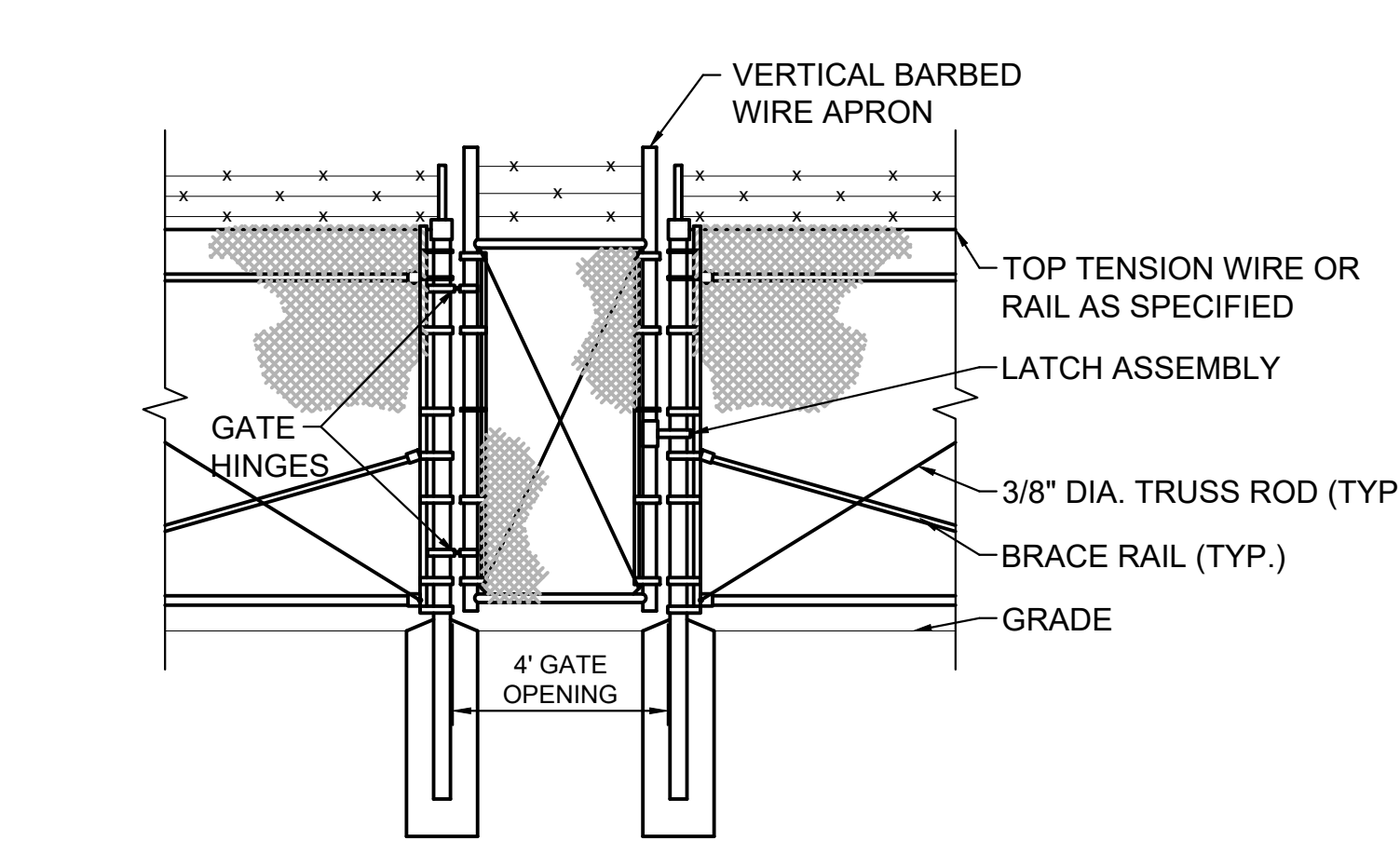
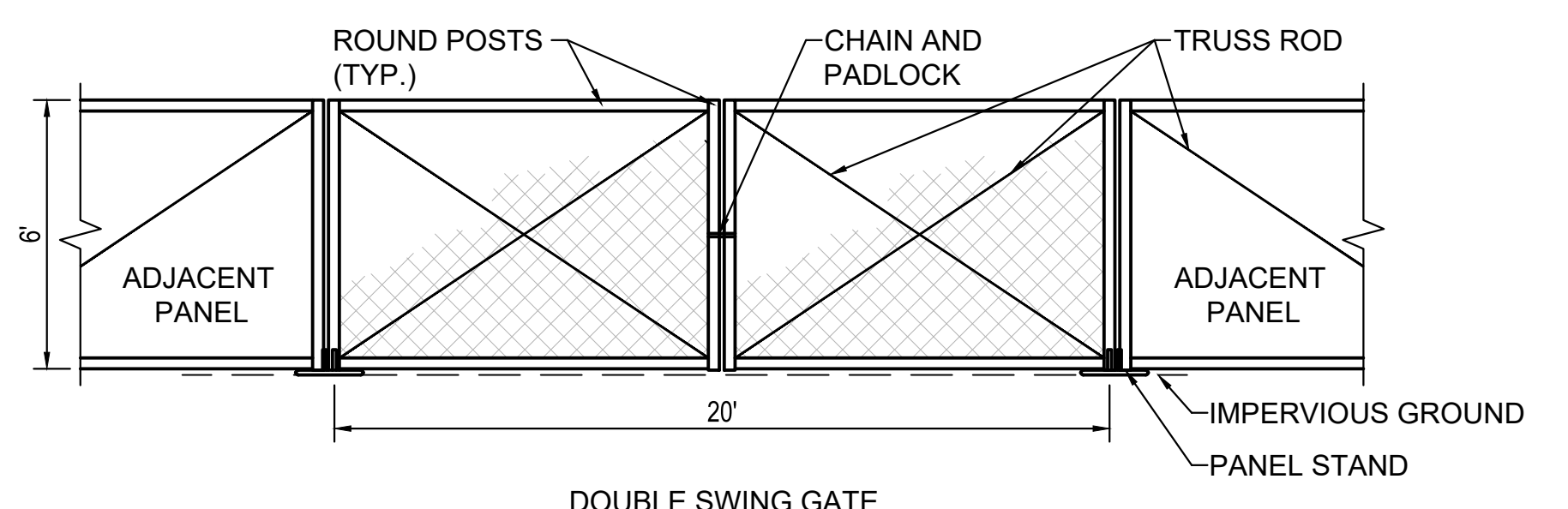
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
CIVIL SITE
FENCING DETAILS 1

SHEET ID
CS502



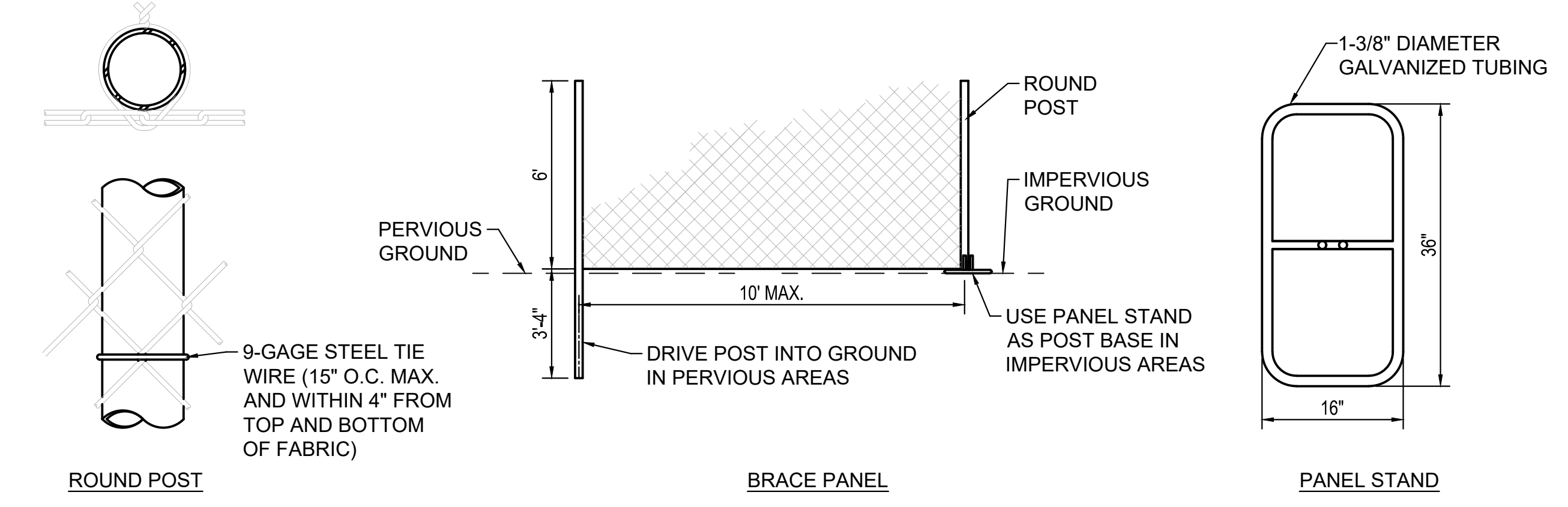
GATE POST SCHEDULE	
GATE LEAF WIDTH (NOMINAL)	OUTSIDE DIMENSION (NOMINAL)
MORE THAN 12' TO 18'	6.625" O.D.

DOUBLE SWING GATE FOR TYPE FE-6 FENCE
NO SCALE



PERSONNEL ACCESS GATE
NO SCALE

- NOTES:**
- 1.) DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION.
 - 2.) SWING GATES SHALL BE CONSTRUCTED WITH DROP RODS, PAD LOCKS, LATCH ASSEMBLY, AND GATE KEEPERS EXCEPT AS NOTED.
 - 3.) ALL GATE FRAMES SHALL BE A MINIMUM 1.9" NOMINAL (ROUND) OR 2.0" NOMINAL (SQUARE). GATE FRAMES SHALL BE OF WELDED CONSTRUCTION OR SHALL BE ASSEMBLED USING HEAVY FITTINGS. AT CONTRACTOR'S OPTION A WELDED HORIZONTAL BRACE MAY BE USED IN LIEU OF TRUSS RODS TO BRACE ALL WELDED GATE FRAMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER RIGID CONSTRUCTION OF ALL GATES SUPPLIED.
 - 4.) GATE SHALL BE DESIGNED AS FOLLOWS:
 FENCE TYPE FE6
 FENCE HEIGHT 84 INCHES
 GATE OPENING SINGLE (SO)
 HINGES RA (STANDARD)
 OPENING 4 FEET (CLEAR OPENING BETWEEN GATE POSTS)



6' TEMPORARY CONSTRUCTION FENCE
NO SCALE

US Army Corps of Engineers

DESIGNED BY: G. OSBEN
 CHECKED BY: C. OSBEN
 SUBMITTED BY: J. DEACON

ISSUE DATE: NOVEMBER 2023
 WORK ORDER NO.: W019A1248 3002
 CONTRACT NO.:
 CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
 SAVANNAH DISTRICT
 100 W. OGLETHORPE AVE.
 SAVANNAH, GA 31401

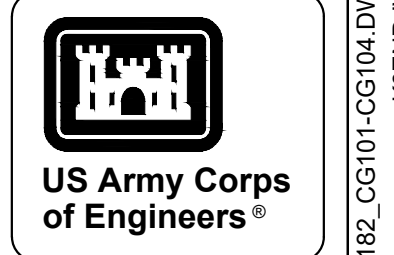
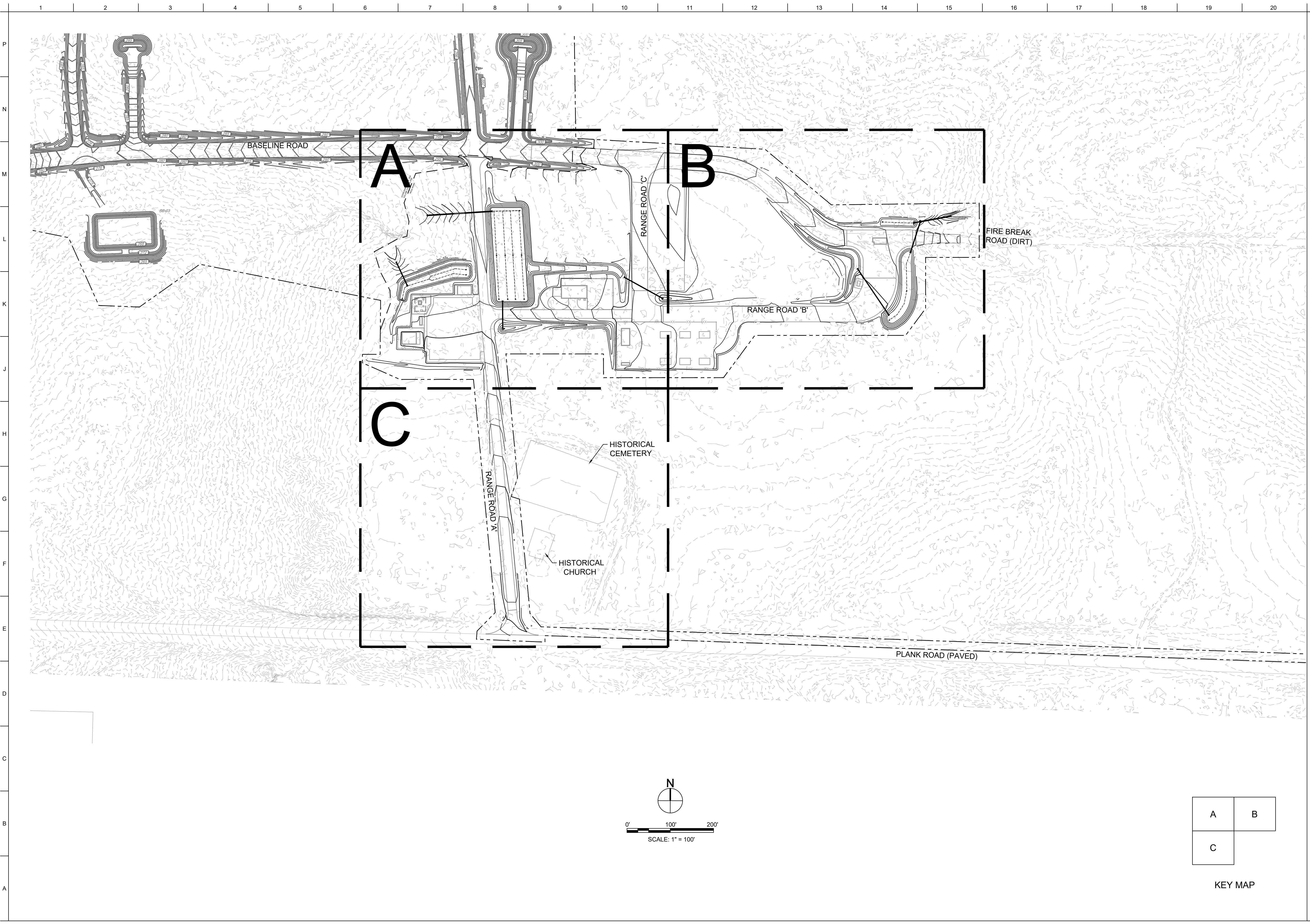
FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE

CIVIL SITE
 FENCING DETAILS 2

SHEET ID
CS503

READY TO ADVERTISE (RTA)

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US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

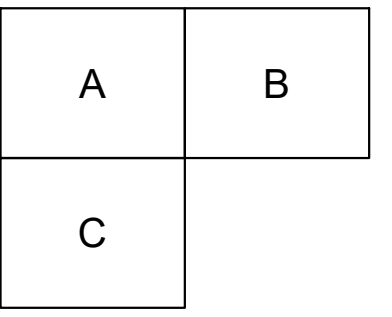
DESIGNED BY: NOVEMBER 2023	ISSUE DATE: NOVEMBER 2023
DRAWN BY: G. O'GREN	PROJECT NO.:
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
ANS/D SIZE	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

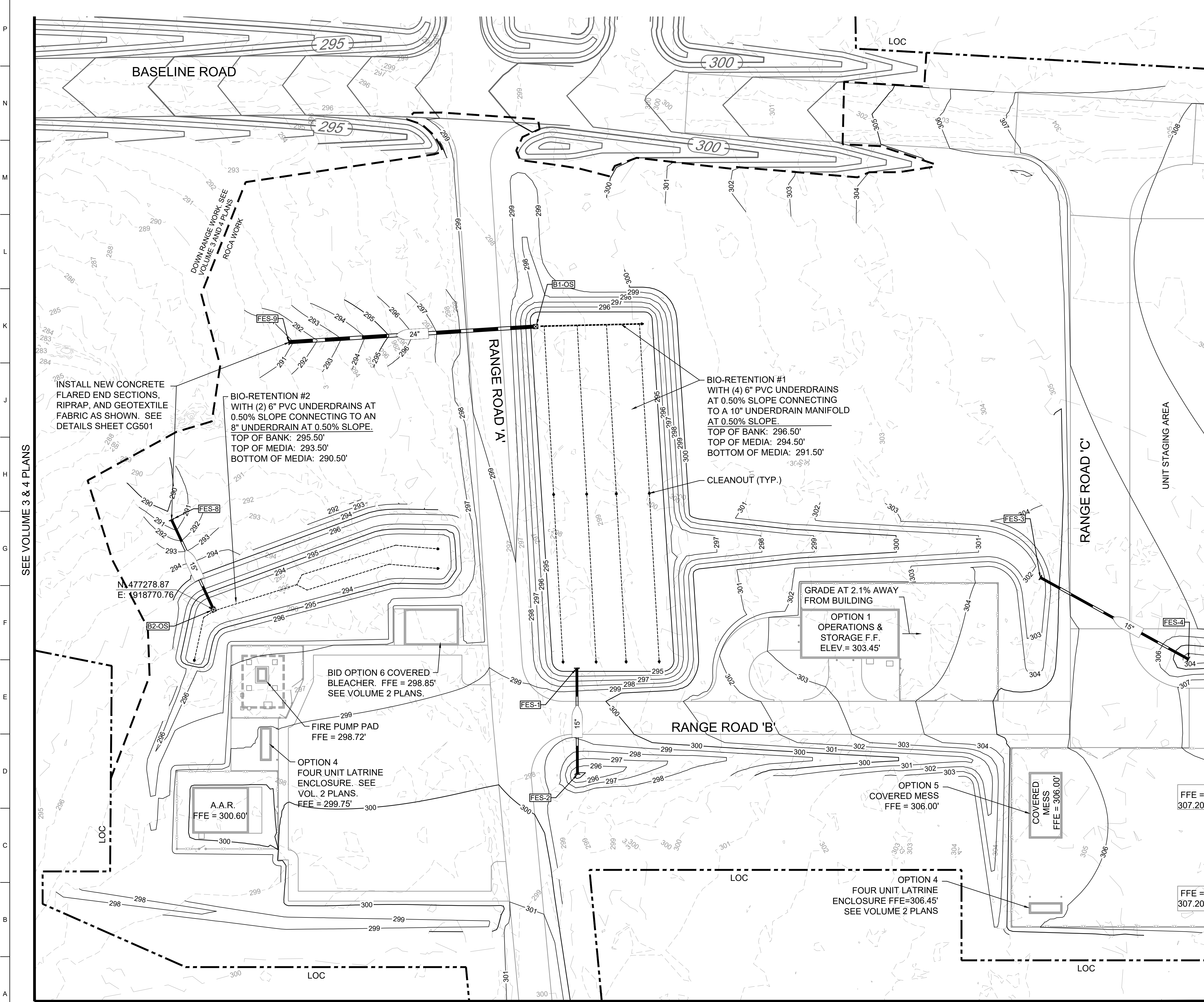
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

OVERALL GRADING PLAN

SHEET ID
CG101



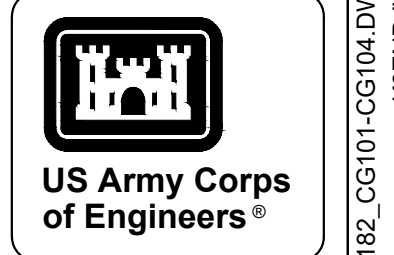
KEY MAP



GENERAL NOTES
1.) SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.

STORM STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
B1-OS	3' X 3' GRATED OUTLET N: 477450.54 E: 1918965.96 RIM: 295.50 INV OUT (FES-9): 291.41
B2-OS	2' X 2' GRATED OUTLET N: 477278.87 E: 1918770.76 RIM: 294.50 INV OUT (FES-8): 290.29

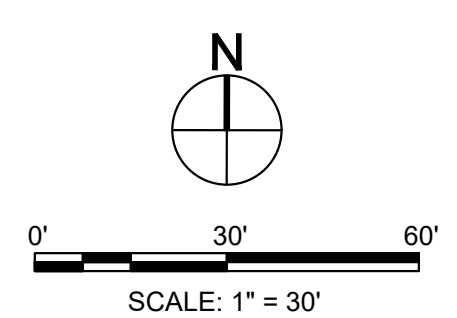
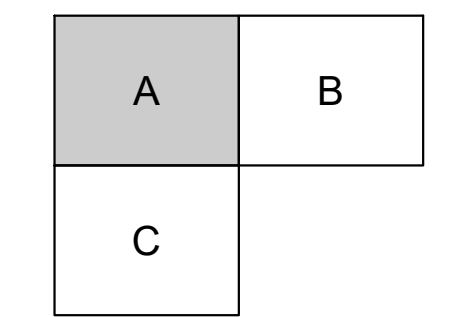
STORM STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
FES-1	FES N: 477243.47 E: 1918990.89 INV IN (FES-2): 294.40
FES-2	FES N: 477179.00 E: 1918991.24 INV OUT (FES-1): 294.80
FES-3	FES N: 477298.37 E: 1919271.72 INV IN (FES-4): 302.18
FES-4	FES N: 477248.76 E: 1919361.59 INV OUT (FES-3): 303.60
FES-8	FES N: 477333.43 E: 1918745.22 INV IN (B2-OS): 290.06
FES-9	FES N: 477441.05 E: 1918816.26 INV IN (B1-OS): 290.82



MARK	DESCRIPTION	DATE

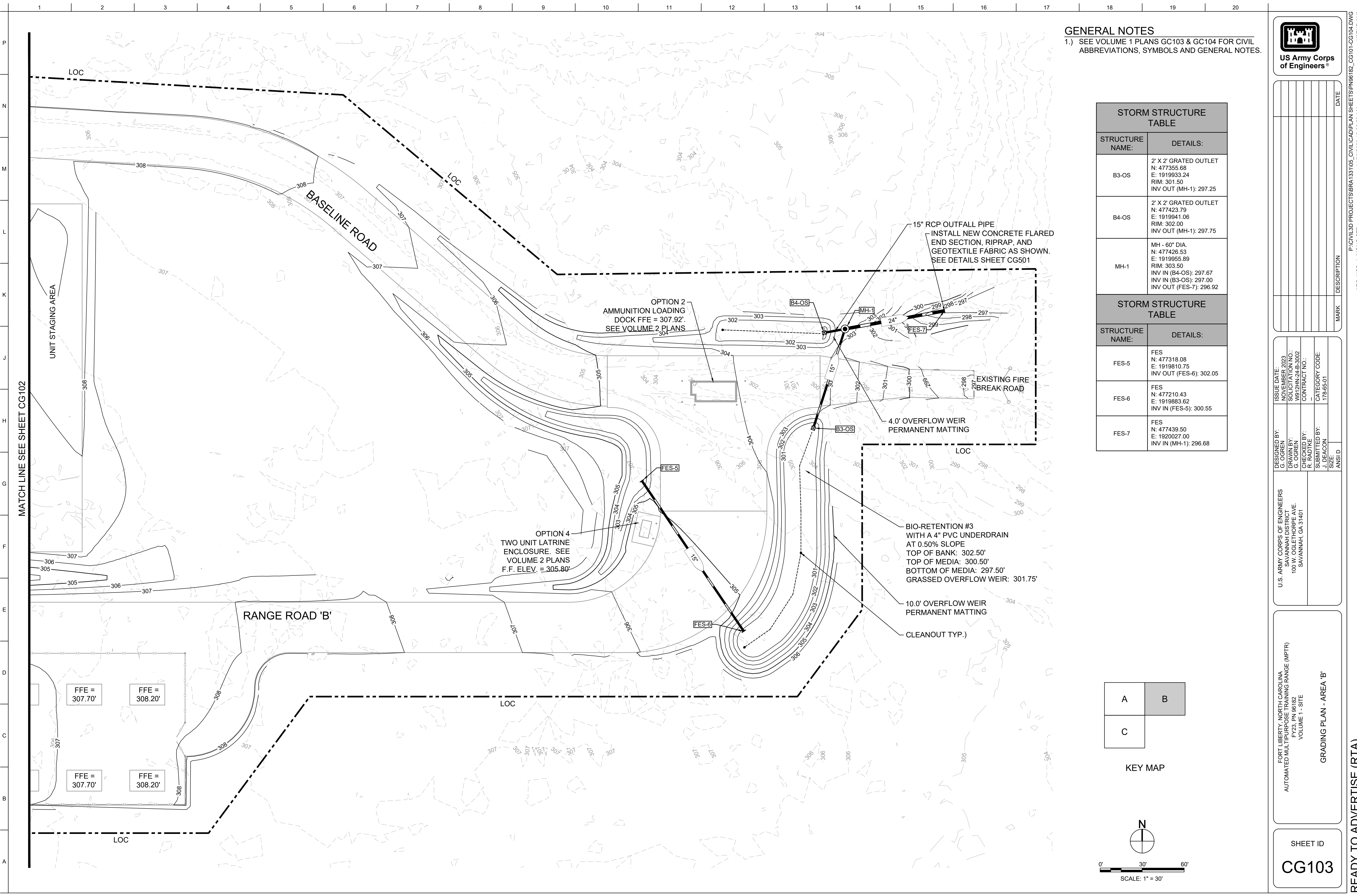
DESIGNED BY: G. OGBURN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. RADTKE	NO. PLAN: 24.3002
SUBMITTED BY: J. DEACON	CONTRACT NO.:
SIZE: ANSI D	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401



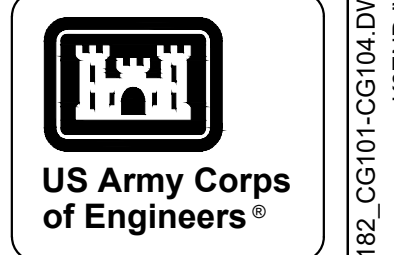
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
GRADING PLAN - AREA 'A'

SHEET ID
CG102



MATCH LINE SEE SHEET CG102

GENERAL NOTES
 1.) SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.



DATE	DESCRIPTION	MARK

STORM STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
B3-OS	2' X 2' GRATED OUTLET N: 477355.68 E: 1919933.24 RIM: 301.50 INV OUT (MH-1): 297.25
B4-OS	2' X 2' GRATED OUTLET N: 477423.79 E: 1919941.06 RIM: 302.00 INV OUT (MH-1): 297.75
MH-1	MH - 60" DIA. N: 477426.53 E: 1919955.89 RIM: 303.50 INV IN (B4-OS): 297.67 INV IN (B3-OS): 297.00 INV OUT (FES-7): 296.92
STORM STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
FES-5	FES N: 477318.08 E: 1919810.75 INV OUT (FES-6): 302.05
FES-6	FES N: 477210.43 E: 1919883.62 INV IN (FES-5): 300.55
FES-7	FES N: 477439.50 E: 1920027.00 INV IN (MH-1): 296.68

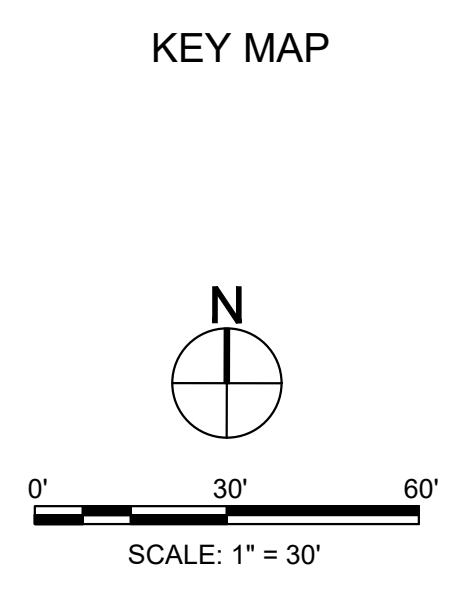
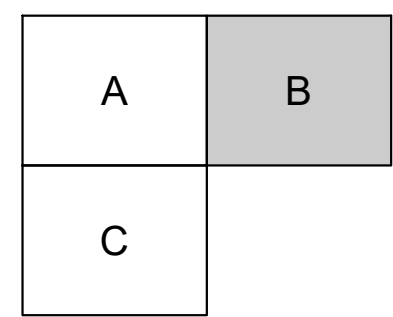
DESIGNED BY: NOVEMBER 2023	ISSUE DATE: NOVEMBER 2023
DRAWN BY: G. OGBEN	DATE PLOTTED: NOV 24 2023
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
ANSI D	SIZE

U.S. ARMY CORPS OF ENGINEERS
 SAVANNAH DISTRICT
 100 W. OGLETHORPE AVE.
 SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE

GRADING PLAN - AREA B'

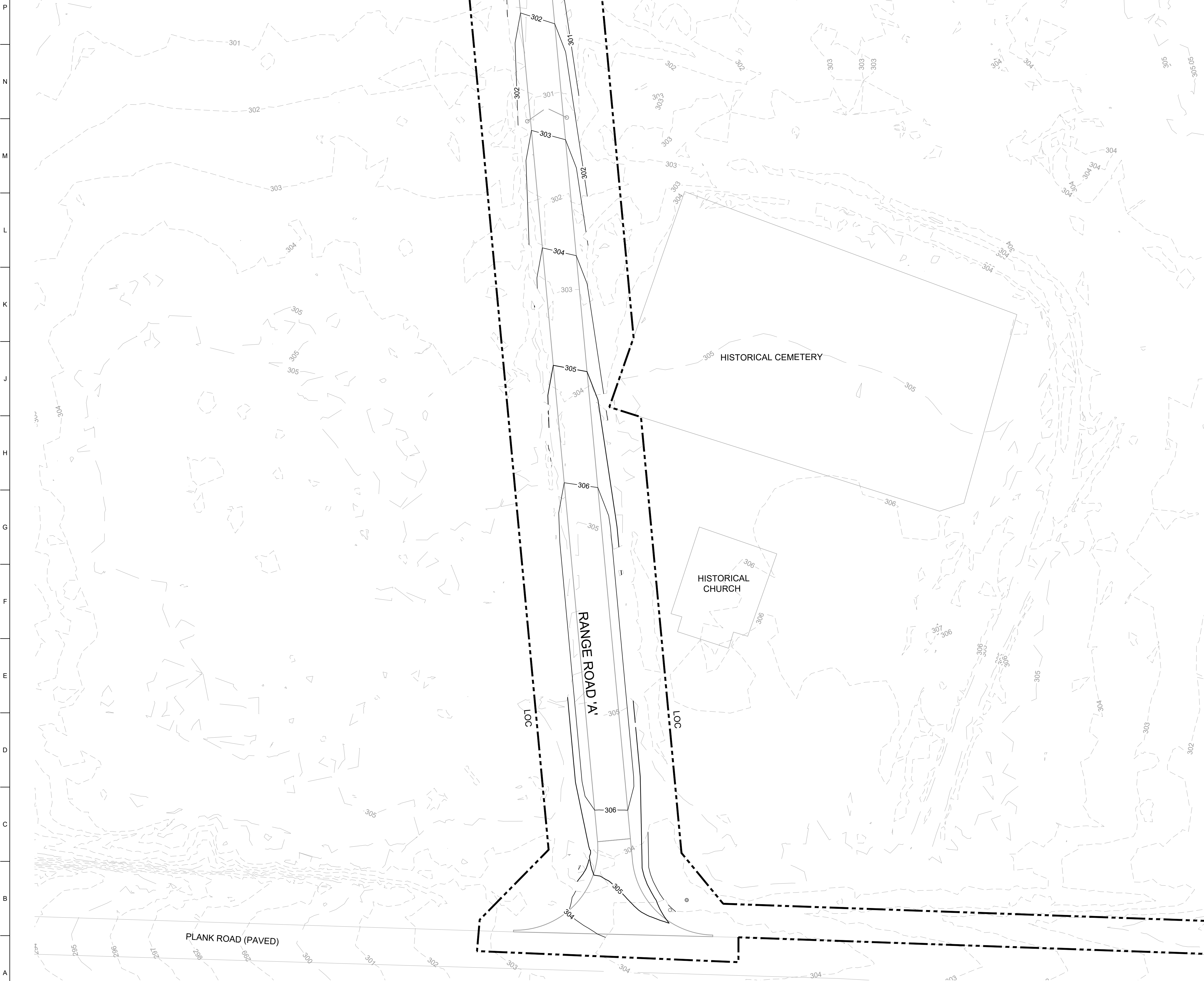
SHEET ID
CG103



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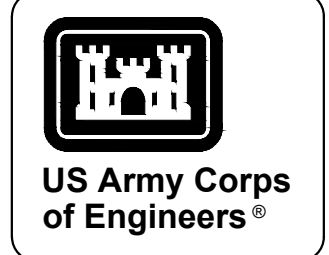
READY TO ADVERTISE (RTA)

MATCH LINE SEE SHEET CG102



GENERAL NOTES

- SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.

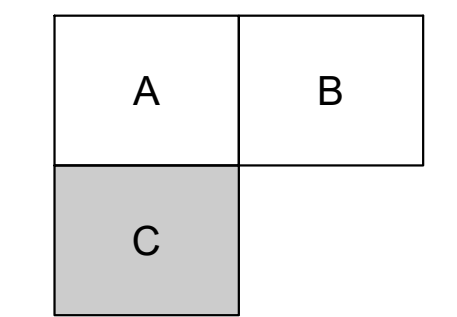


MARK	DESCRIPTION	DATE

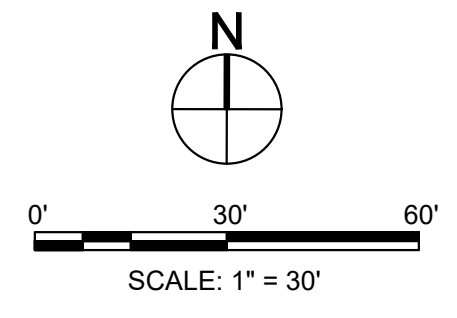
DESIGNED BY: NOVEMBER 2023	ISSUE DATE:
DRAWN BY: G. O'GREN	NOVEMBER 2023
CHECKED BY: R. RADTKE	WSP: 10/24/2023
SUBMITTED BY: J. DEACON	CONTRACT NO.:
SIZE: ANSI D	CATEGORY CODE: 178-65-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

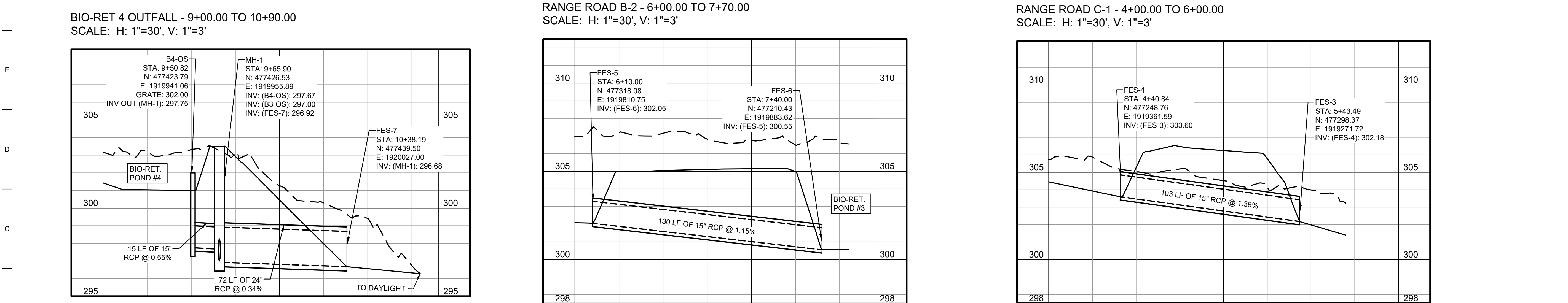
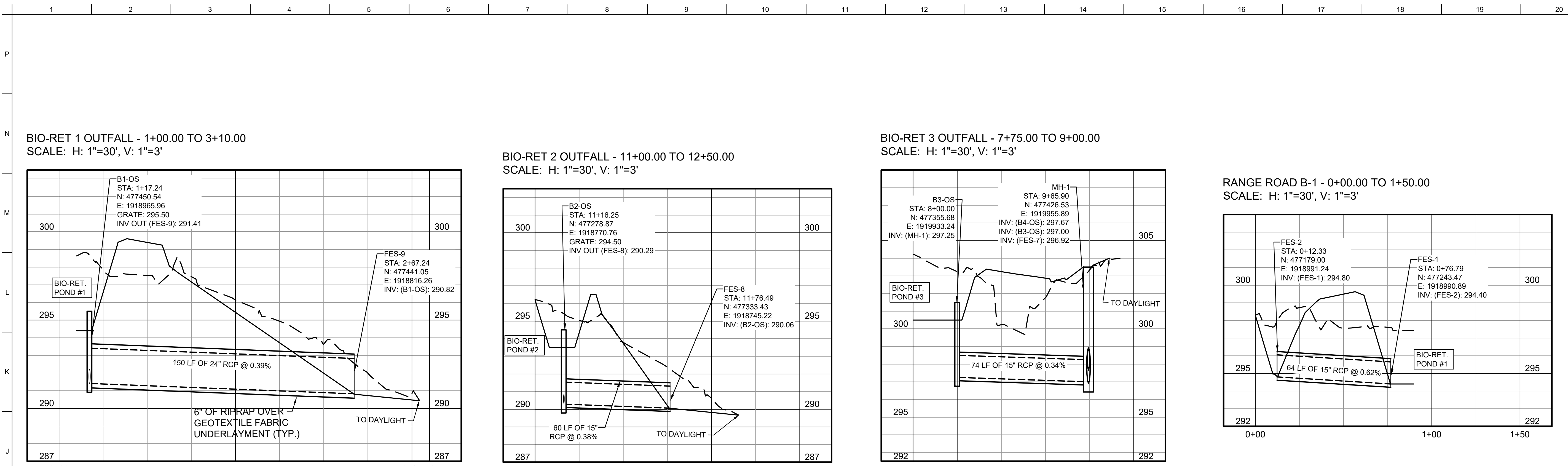
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
GRADING PLAN - AREA 'C'

SHEET ID
CG104



KEY MAP





**US Army Corps
of Engineers**

MARK	DESCRIPTION	DATE

DESIGNED BY: G. OSBEN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSBEN	PROJECT NO.: W913A24 24 3002
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
ANS/D	SIZE:

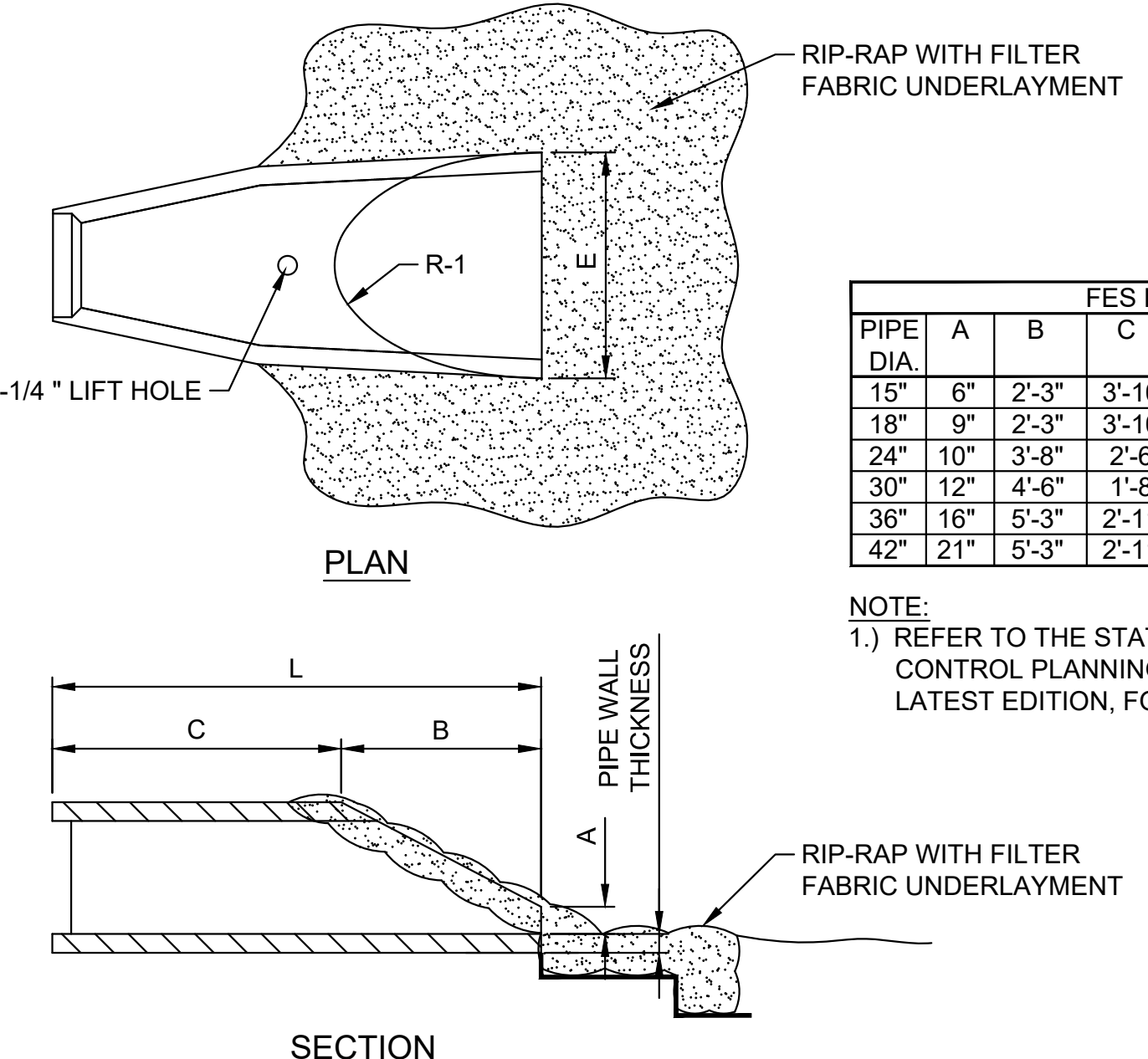
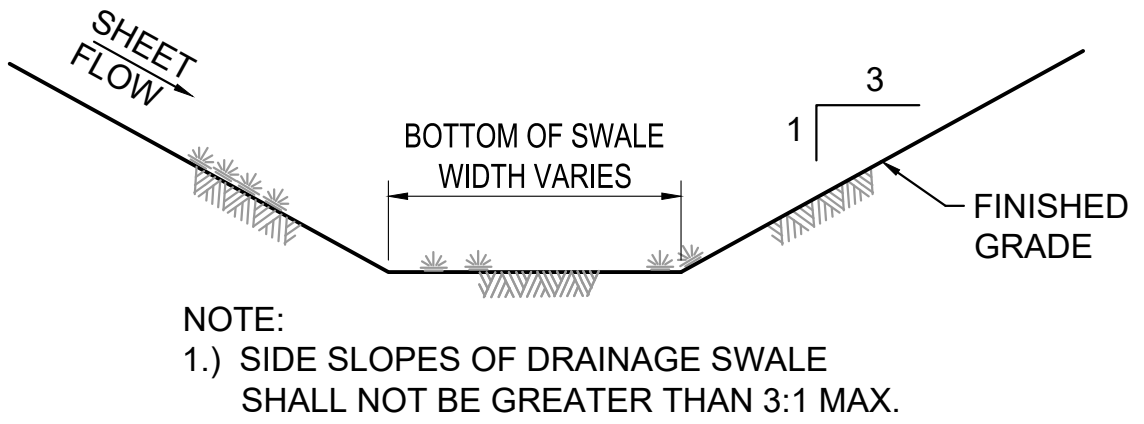
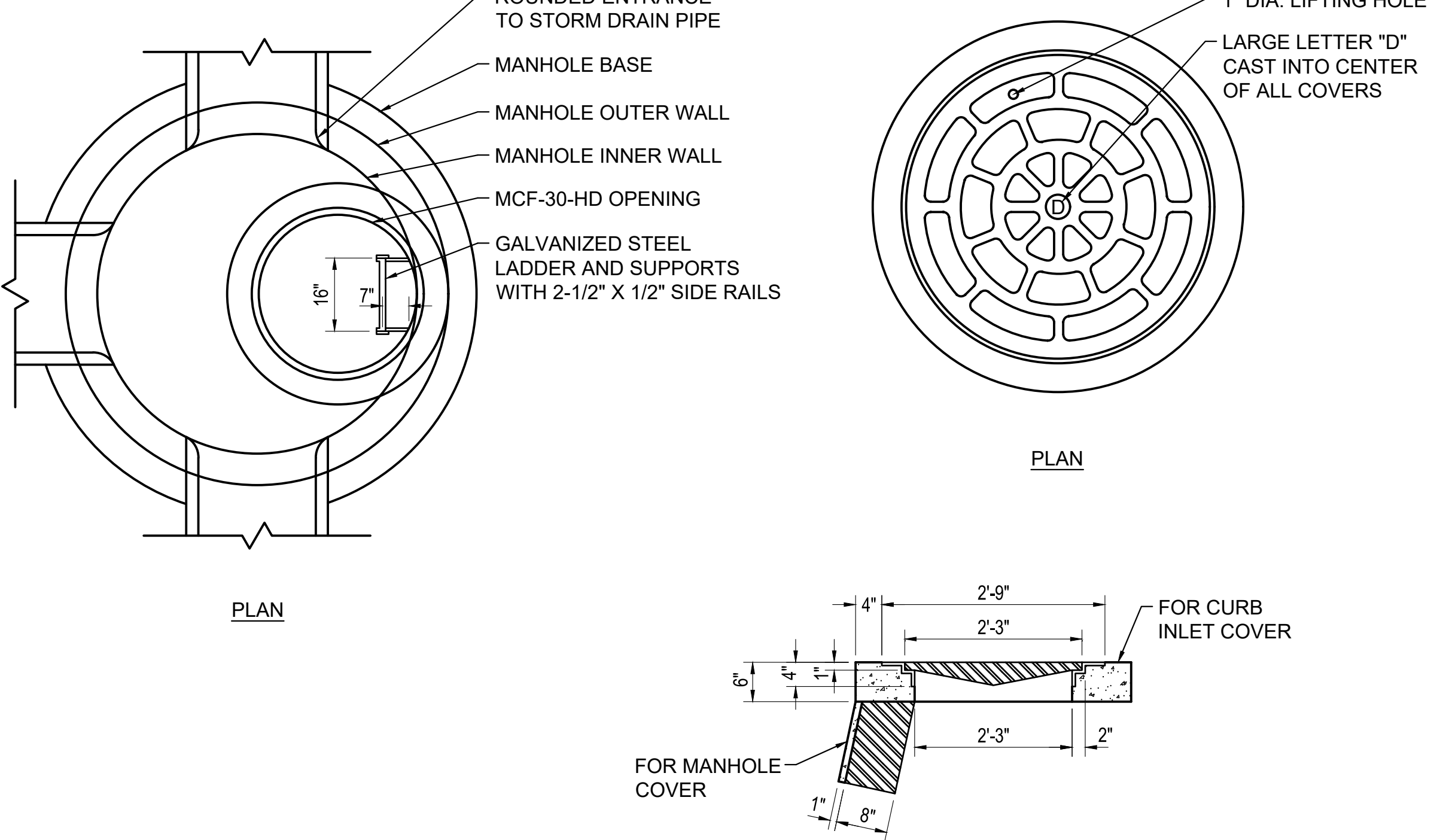
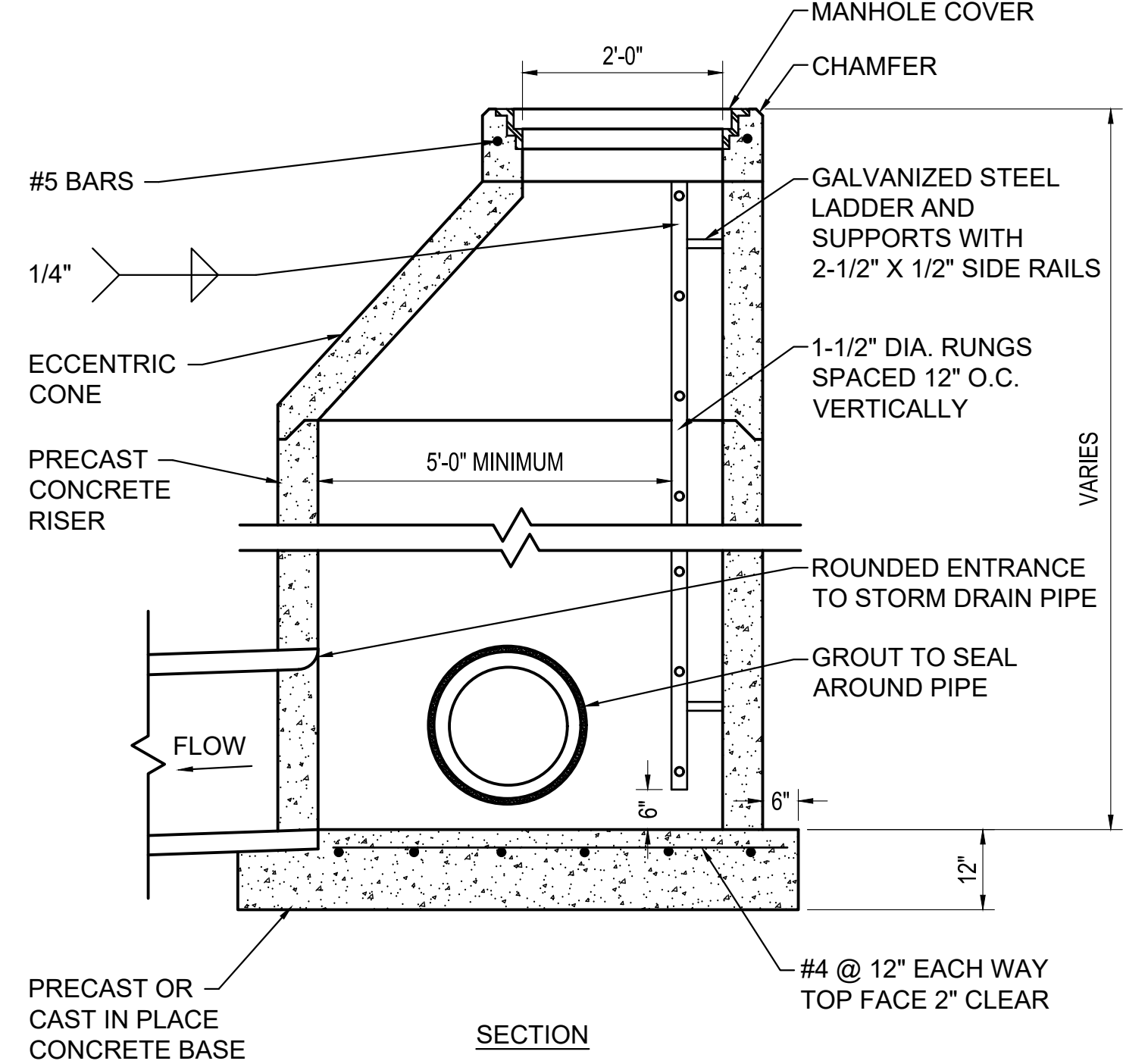
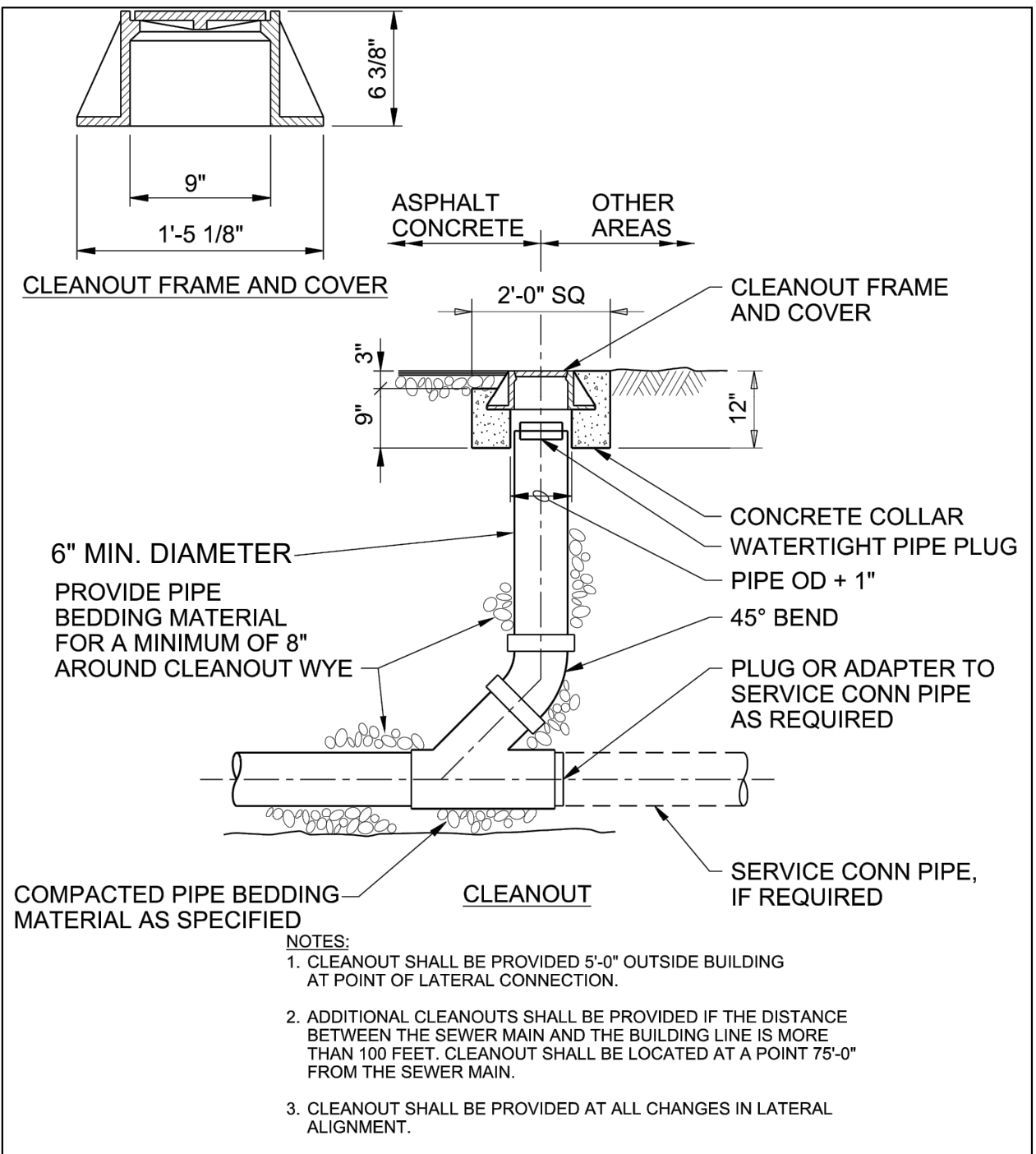
U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
FY23, PN 96182
VOLUME 1 - SITE

CIVIL SITE
STORM DRAINAGE PROFILES

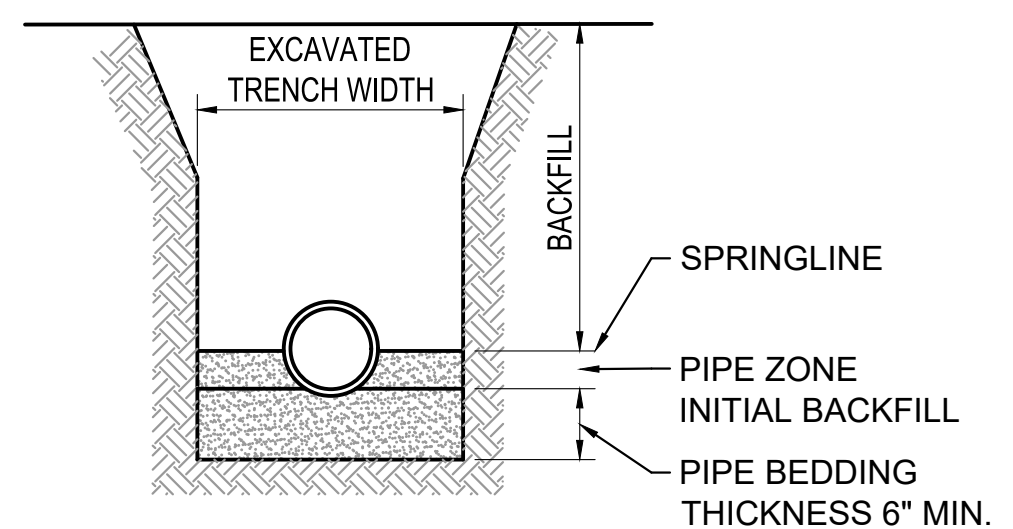
SHEET ID
CG201

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READY TO ADVERTISE (RTA)

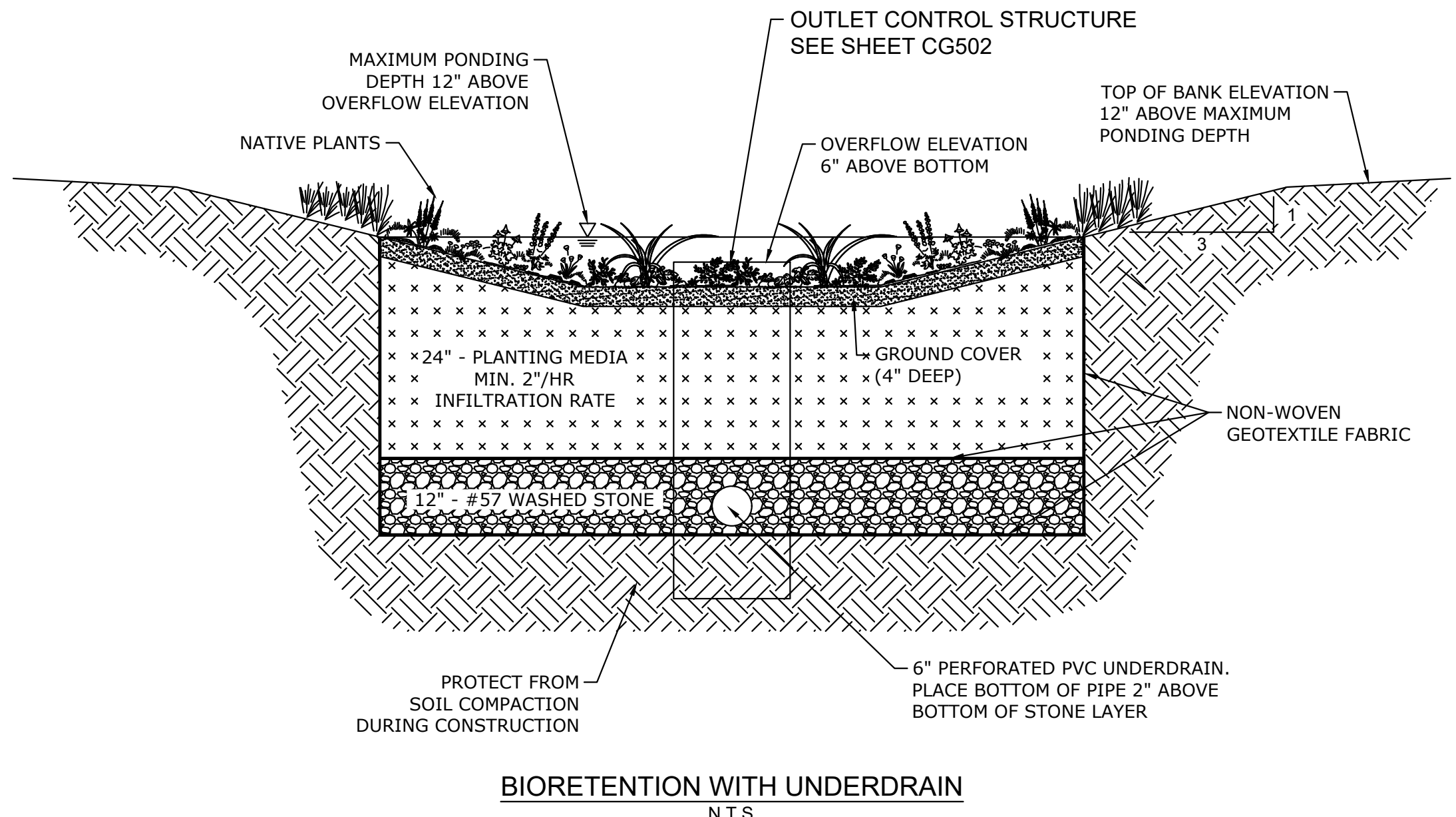


PIPE DIA.	FES DIMENSIONS					
	A	B	C	L	E	R-1
15"	6"	2'-3"	3'-10"	6'-1"	2'-6"	1'-0"
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"	1'-4"
24"	10"	3'-8"	2'-6"	6'-2"	4'-0"	1'-5"
30"	12"	4'-6"	1'-8"	6'-2"	5'-0"	1'-6"
36"	16"	5'-3"	2'-11"	8'-2"	6'-0"	2'-0"
42"	21"	5'-3"	2'-11"	8'-2"	6'-6"	2'-4"

NOTE:
1.) REFER TO THE STATE EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, LATEST EDITION, FOR REQUIRED RIPRAP SIZE.



NOTES:
1.) PROVIDE BEDDING IN ACCORDANCE WITH THE SPECIFICATIONS.
2.) 30" MIN. TRENCH WIDTH FOR ALL PLASTIC AND METAL PIPES UP TO AND INCLUDING 18" INNER DIAMETER. FOR PLASTIC AND METAL PIPES OVER 18" INNER DIAMETER, THE TRENCH SHALL BE A MIN. OF 24" WIDE PLUS THE OUTER DIAMETER.
3.) ALL CONCRETE PIPES AND DUCT BANKS SHALL HAVE A MIN. TRENCH WIDTH OF 36" PLUS THE OUTER DIAMETER OF THE PIPE OR WIDTH OF CONCRETE DUCT BANK.



US Army Corps of Engineers®

ISSUE DATE: NOVEMBER 2023
DESIGNED BY: G. OKREN
CHECKED BY: G. OKREN
SUBMITTED BY: J. DEACON

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

CIVIL SITE
STORM DRAINAGE DETAILS - 1

MARK DESCRIPTION

DATE

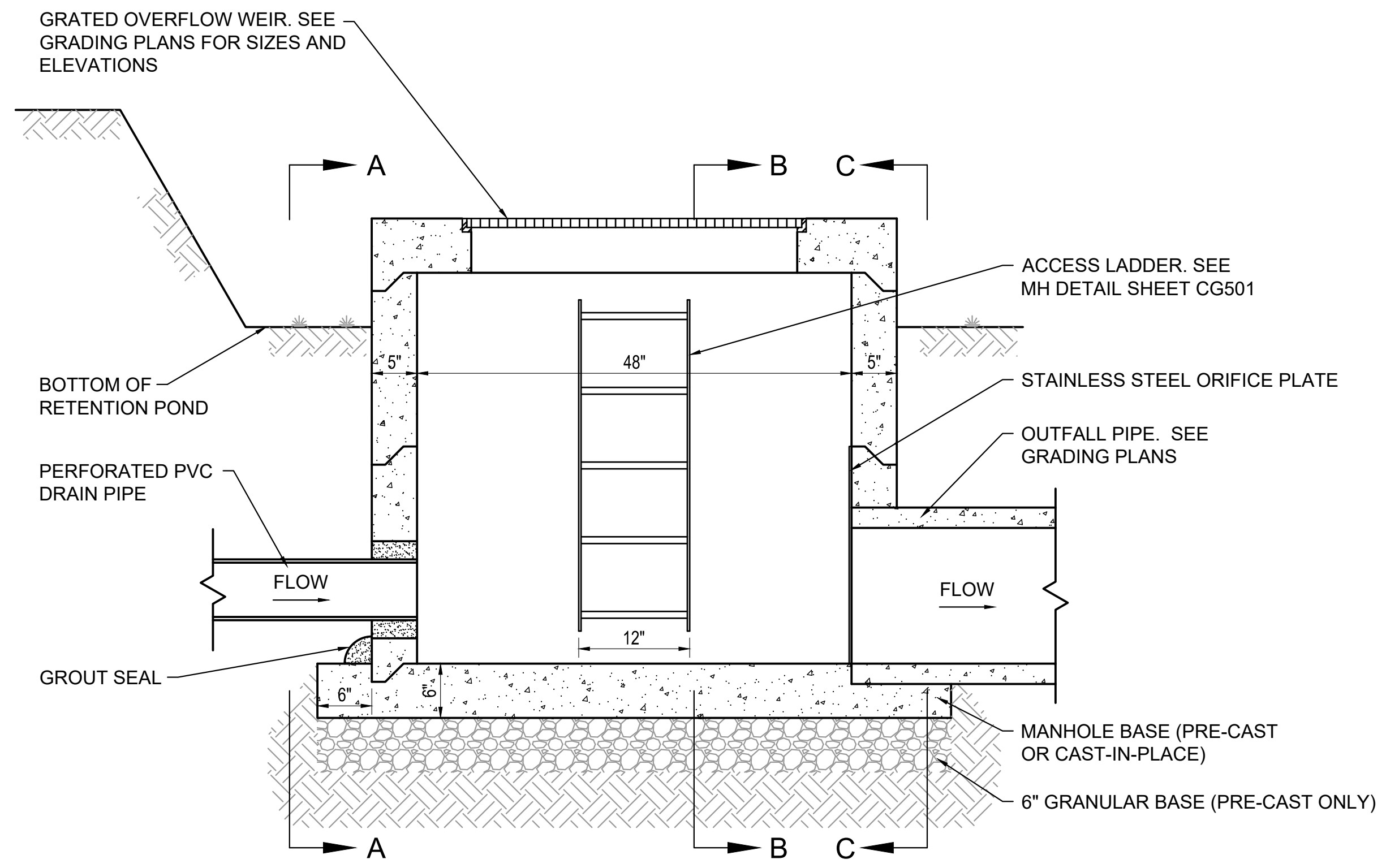
SHEET ID
CG501

READY TO ADVERTISE (RTA)

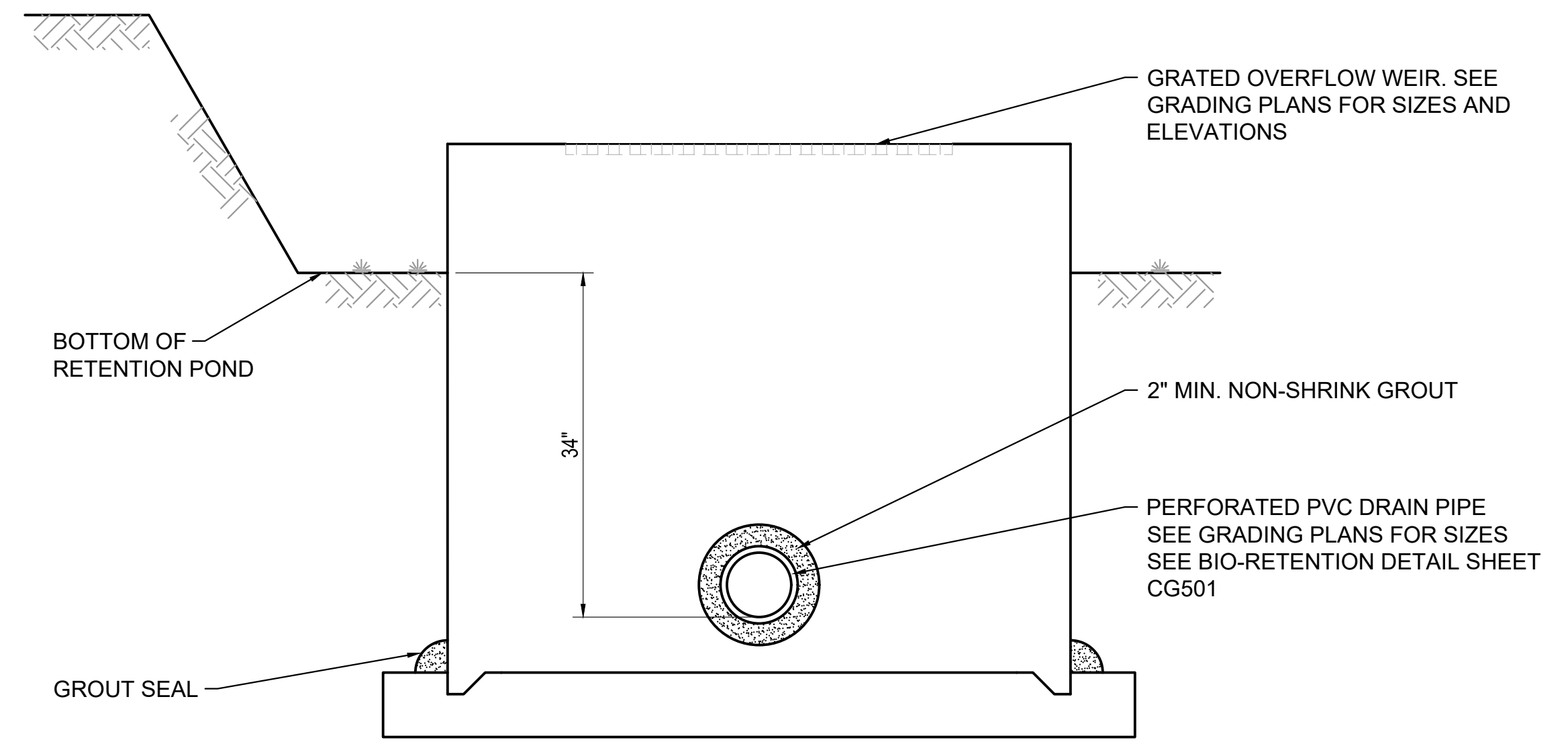
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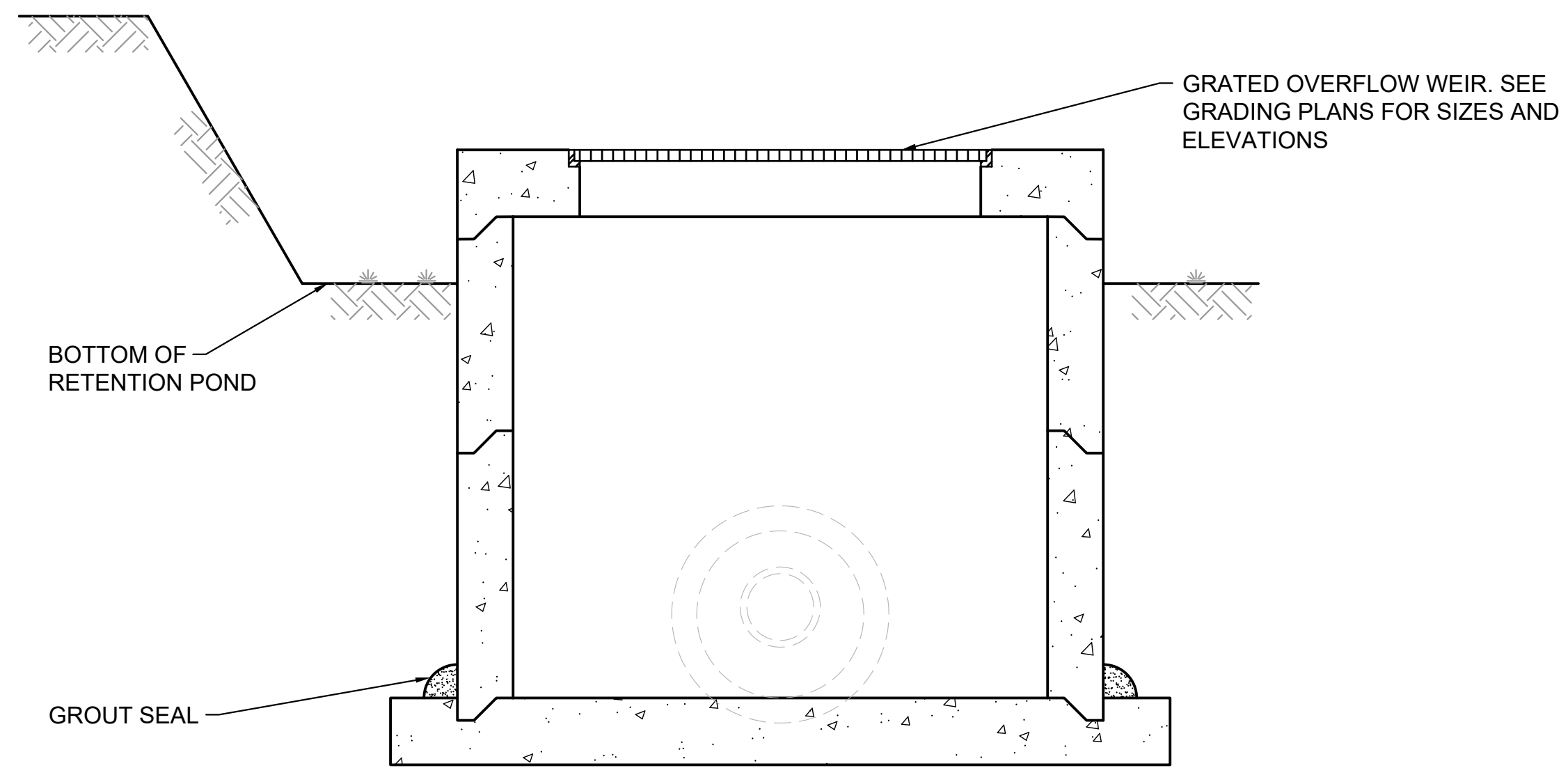
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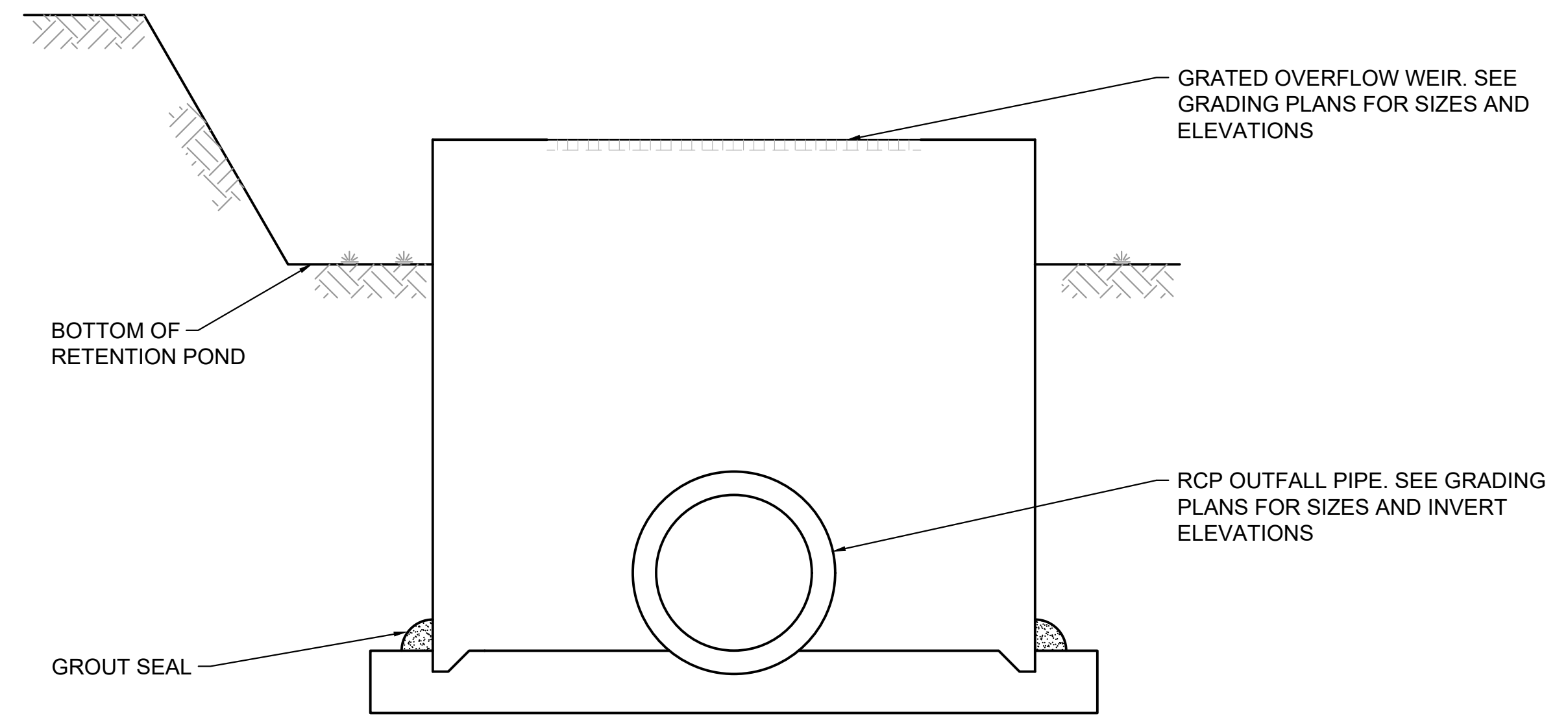
OUTLET CONTROL STRUCTURE
NO SCALE



SECTION A - A
NO SCALE



SECTION B - B
NO SCALE



SECTION C - C
NO SCALE



US Army Corps
of Engineers®

MARK	DESCRIPTION	DATE

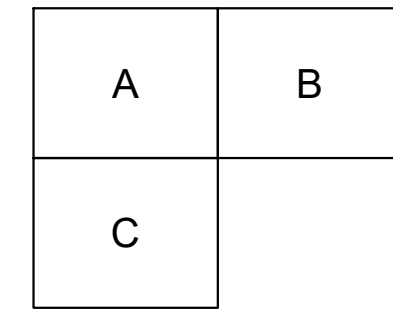
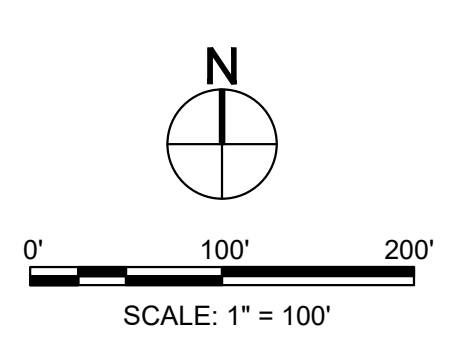
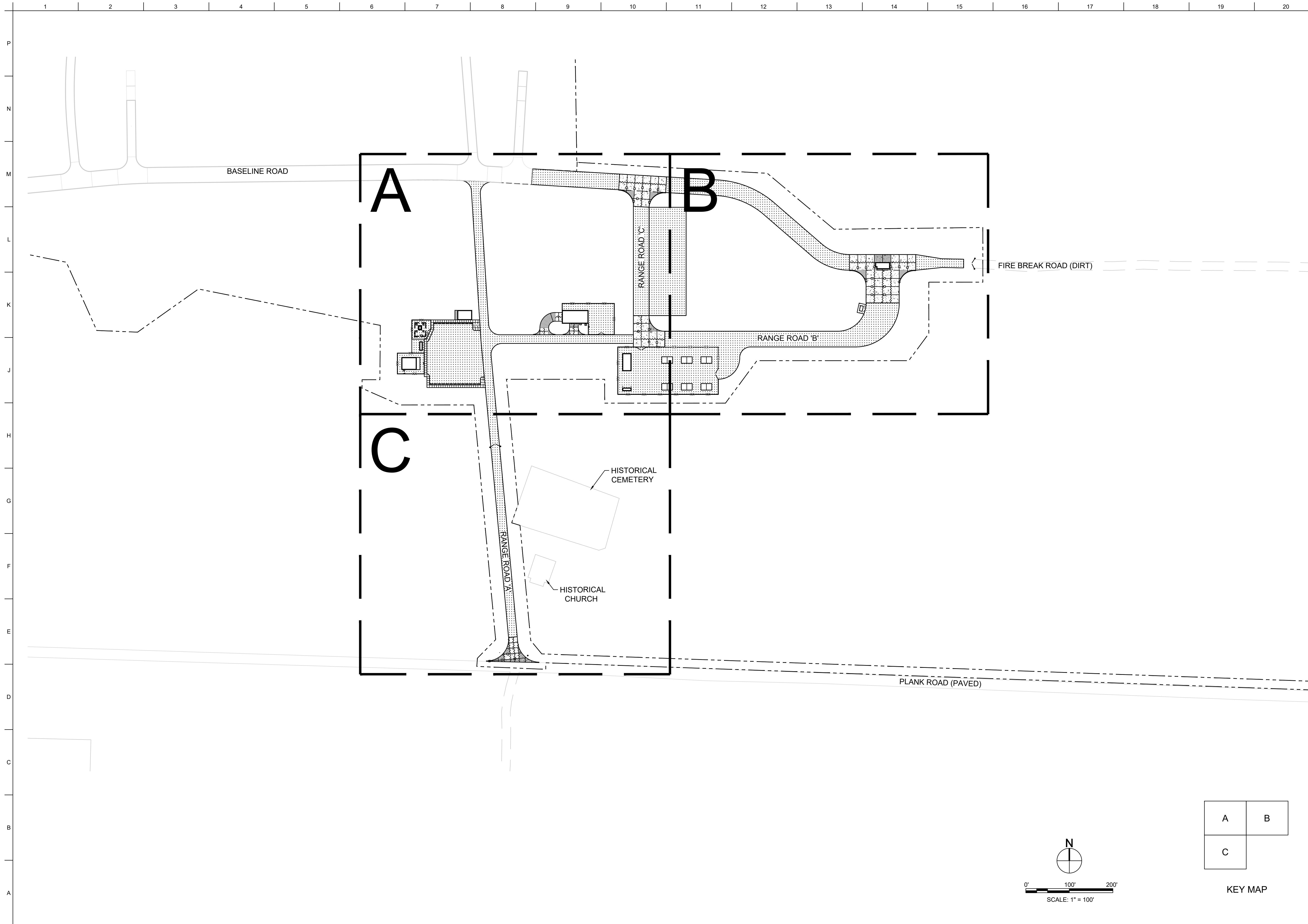
DESIGNED BY: G. OGBEN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OGBEN	PROJECT NO.: W819A1248.3002
SUBMITTED BY: R. RADTKE	CONTRACT NO.:
ANSI D SIZE: J. DEACON	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

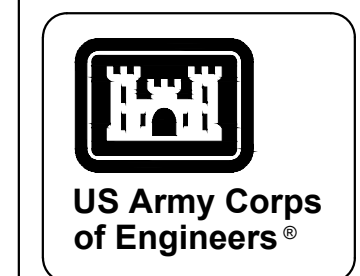
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

CIVIL SITE
OUTLET CONTROL STRUCTURE

SHEET ID
CG502



KEY MAP



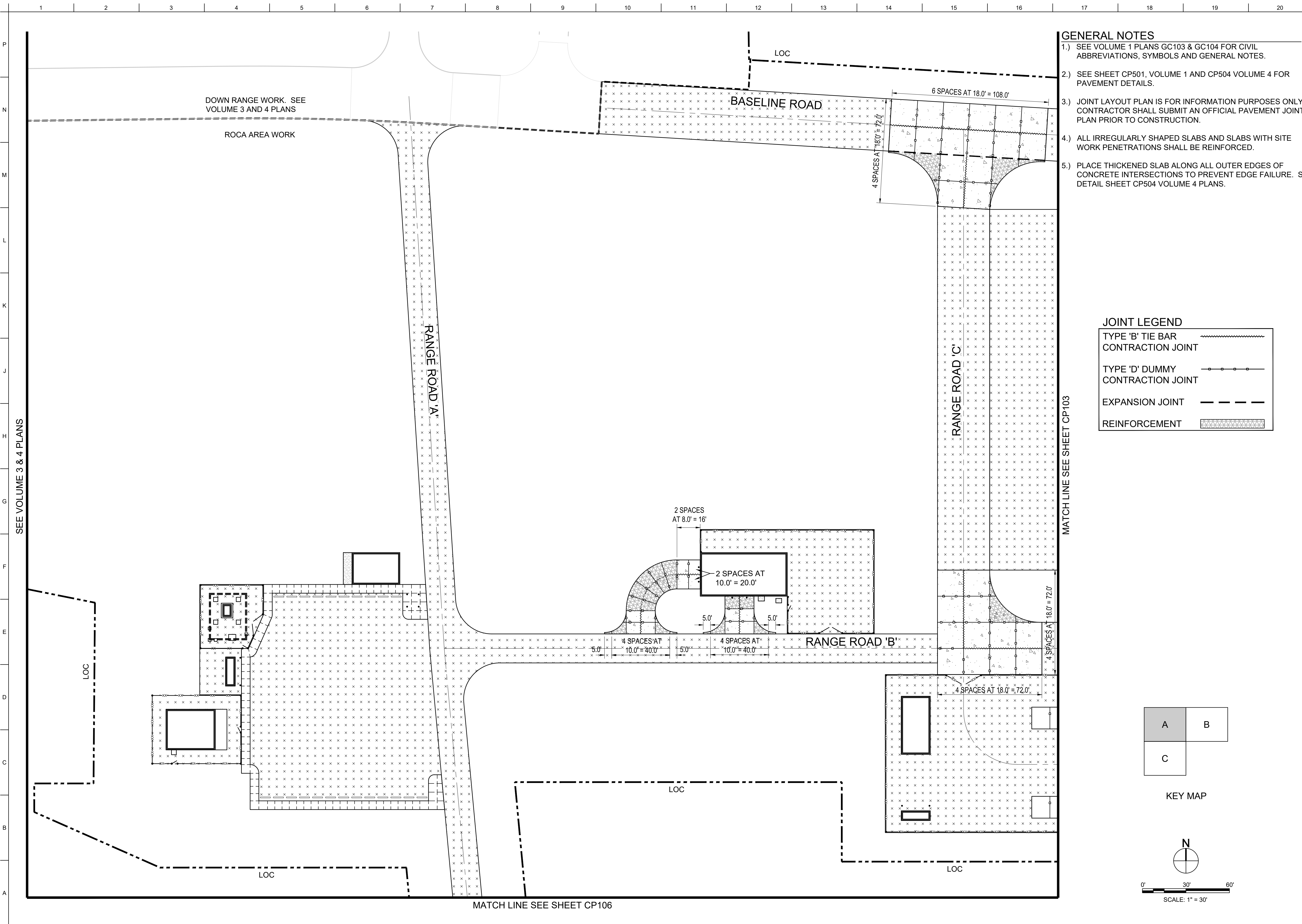
US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

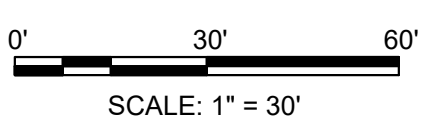
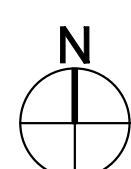
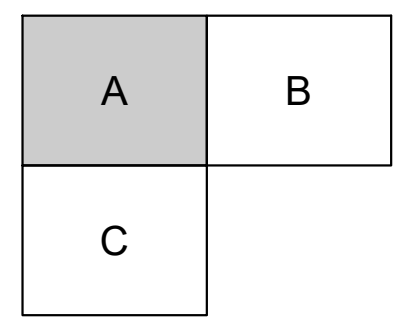
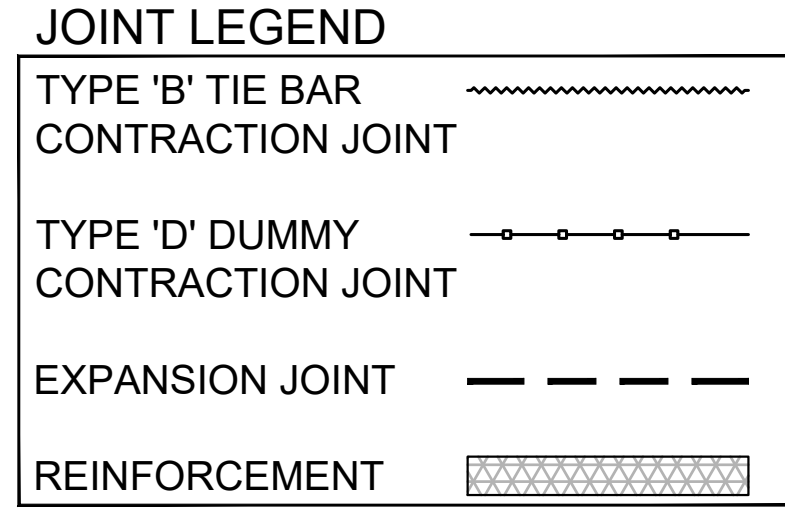
DESIGNED BY: G. OSKEN		ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OSKEN		PROJECT NO. / CONTRACT NO.:
SUBMITTED BY: J. DEACON		CATEGORY CODE: 178-85-01
ANS/D		
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401		

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE
 CIVIL SITE
 OVERALL PAVEMENT JOINT PLAN

SHEET ID
CP101



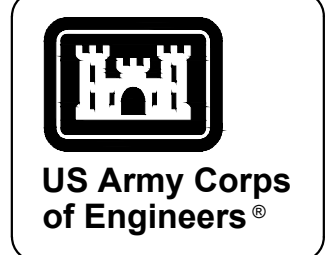
- ### GENERAL NOTES
- SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
 - SEE SHEET CP501, VOLUME 1 AND CP504 VOLUME 4 FOR PAVEMENT DETAILS.
 - JOINT LAYOUT PLAN IS FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL SUBMIT AN OFFICIAL PAVEMENT JOINT PLAN PRIOR TO CONSTRUCTION.
 - ALL IRREGULARLY SHAPED SLABS AND SLABS WITH SITE WORK PENETRATIONS SHALL BE REINFORCED.
 - PLACE THICKENED SLAB ALONG ALL OUTER EDGES OF CONCRETE INTERSECTIONS TO PREVENT EDGE FAILURE. SEE DETAIL SHEET CP504 VOLUME 4 PLANS.



MATCH LINE SEE SHEET CP103

SEE VOLUME 3 & 4 PLANS

MATCH LINE SEE SHEET CP106

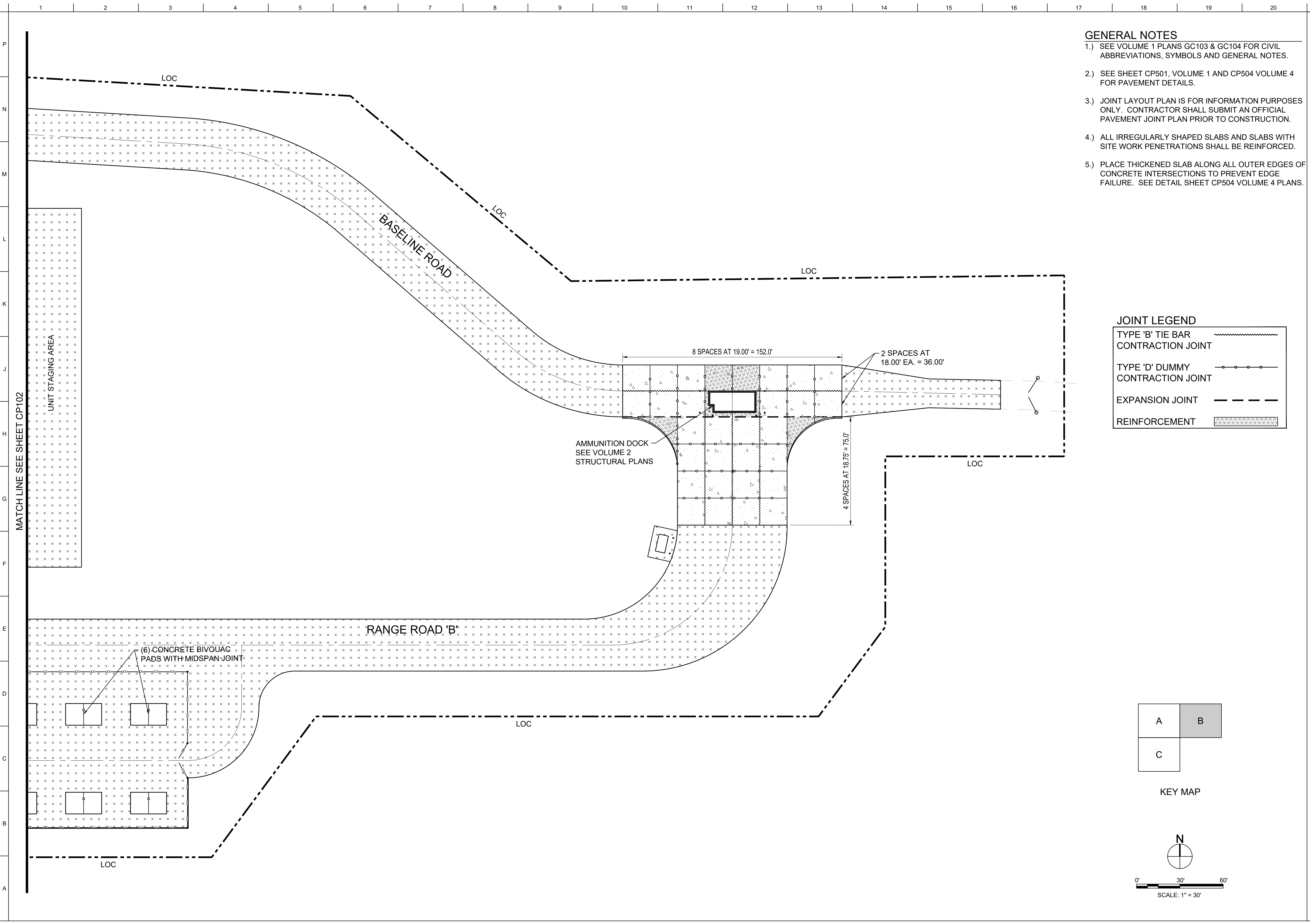


MARK	DESCRIPTION	DATE

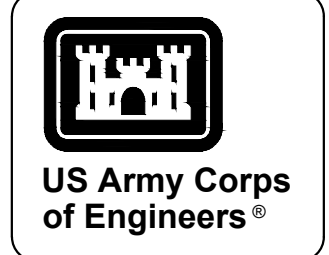
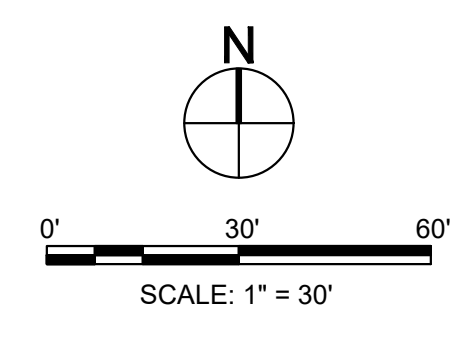
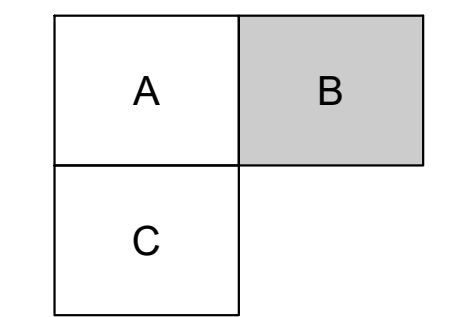
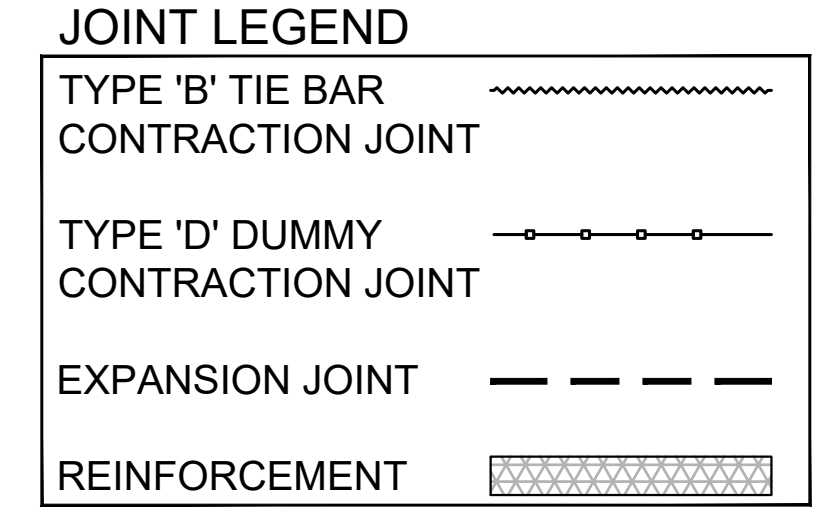
DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OSREN	DATE: NOV 24 2023
SUBMITTED BY: R. RADTKE	CONTRACT NO.:
ANS/D	CATEGORY CODE: 178-65-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
CIVIL SITE
PAVEMENT JOINT PLAN - AREA 'A'

SHEET ID
CP102



- GENERAL NOTES**
- 1.) SEE VOLUME 1 PLANS GC103 & GC104 FOR CIVIL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.
 - 2.) SEE SHEET CP501, VOLUME 1 AND CP504 VOLUME 4 FOR PAVEMENT DETAILS.
 - 3.) JOINT LAYOUT PLAN IS FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL SUBMIT AN OFFICIAL PAVEMENT JOINT PLAN PRIOR TO CONSTRUCTION.
 - 4.) ALL IRREGULARLY SHAPED SLABS AND SLABS WITH SITE WORK PENETRATIONS SHALL BE REINFORCED.
 - 5.) PLACE THICKENED SLAB ALONG ALL OUTER EDGES OF CONCRETE INTERSECTIONS TO PREVENT EDGE FAILURE. SEE DETAIL SHEET CP504 VOLUME 4 PLANS.



MARK	DESCRIPTION	DATE

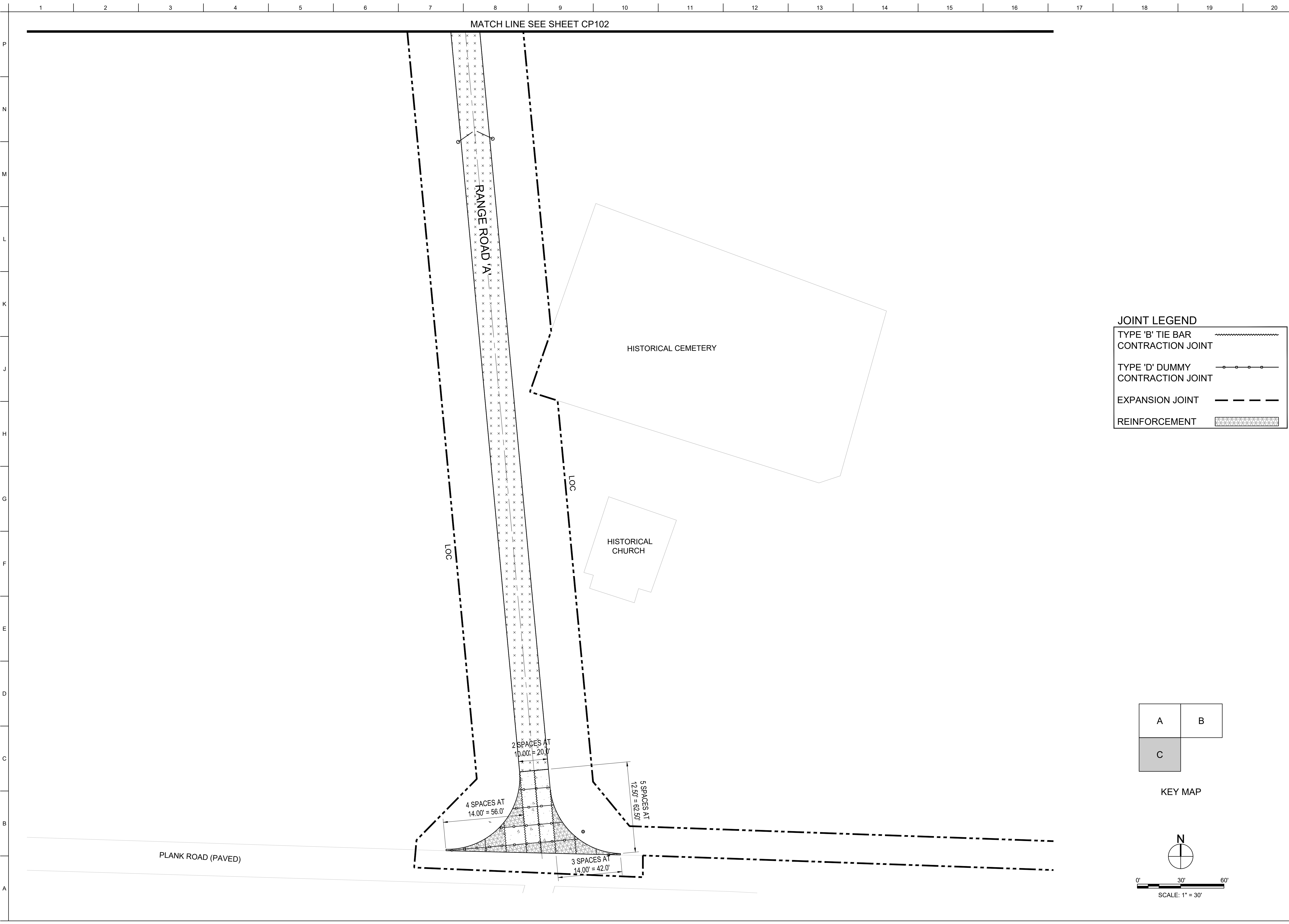
DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. RADTKE	WBS PLAN NO.: W91PH248 3002
SUBMITTED BY: J. DEACON	CONTRACT NO.:
SIZE: ANSI D	CATEGORY CODE: 178-65-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

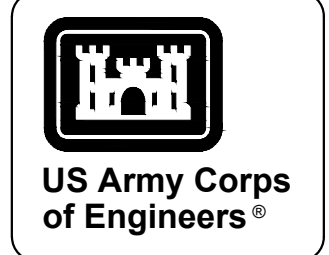
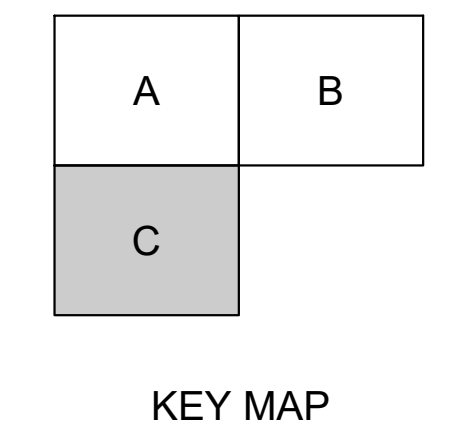
CIVIL SITE
PAVEMENT JOINT PLAN - AREA 'B'

SHEET ID
CP103



JOINT LEGEND

TYPE 'B' TIE BAR CONTRACTION JOINT	
TYPE 'D' DUMMY CONTRACTION JOINT	
EXPANSION JOINT	
REINFORCEMENT	



MARK	DESCRIPTION	DATE

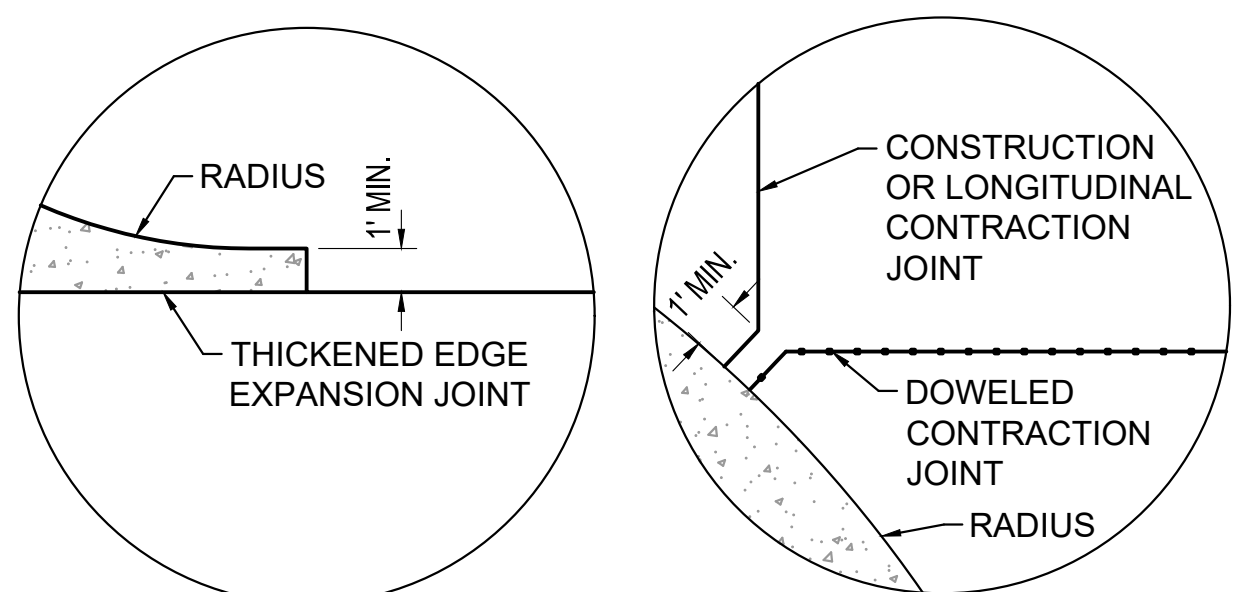
DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OSREN	WORK PLAN NO.: WPTPLAN248.3002
CONTRACT NO.:	CONTRACT NO.:
REVISIONS:	REVISIONS:
DATE:	DATE:
SCALE:	SCALE:
ANSI D:	ANSI D:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

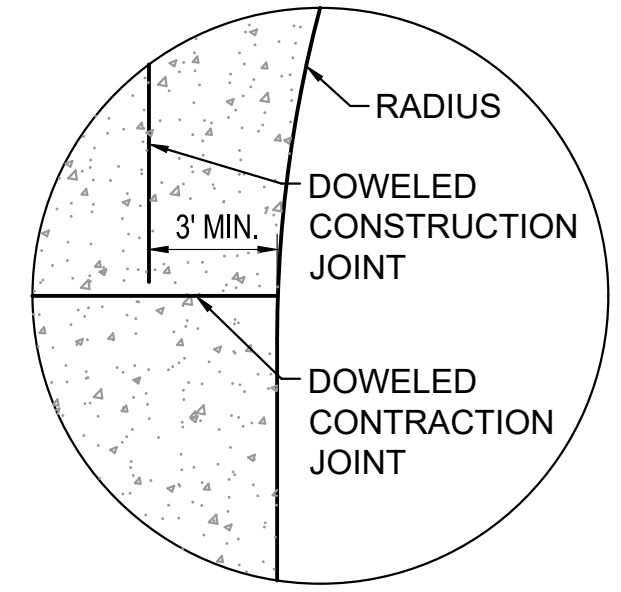
CIVIL SITE
PAVEMENT JOINT PLAN - AREA 'C'

SHEET ID
CP104



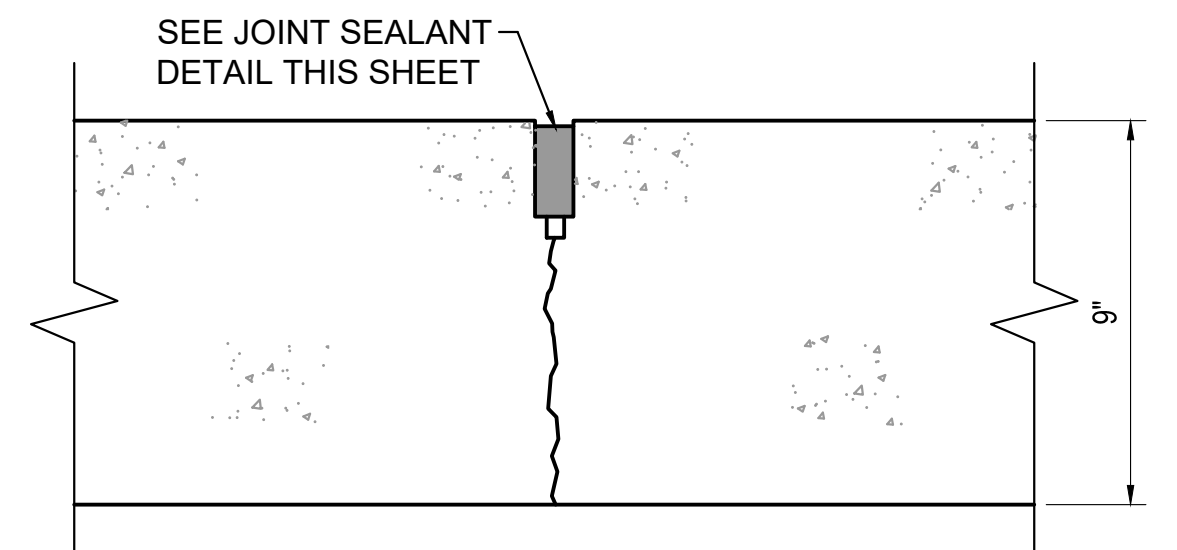
DETAIL A

DETAIL B

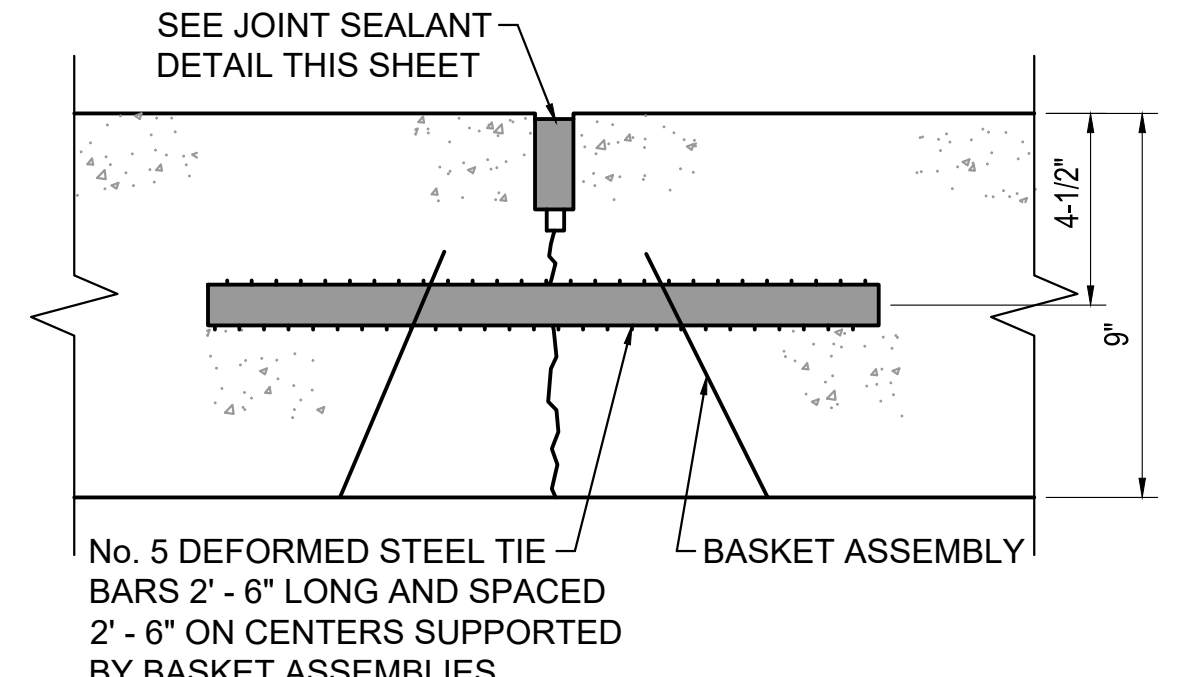


DETAIL C

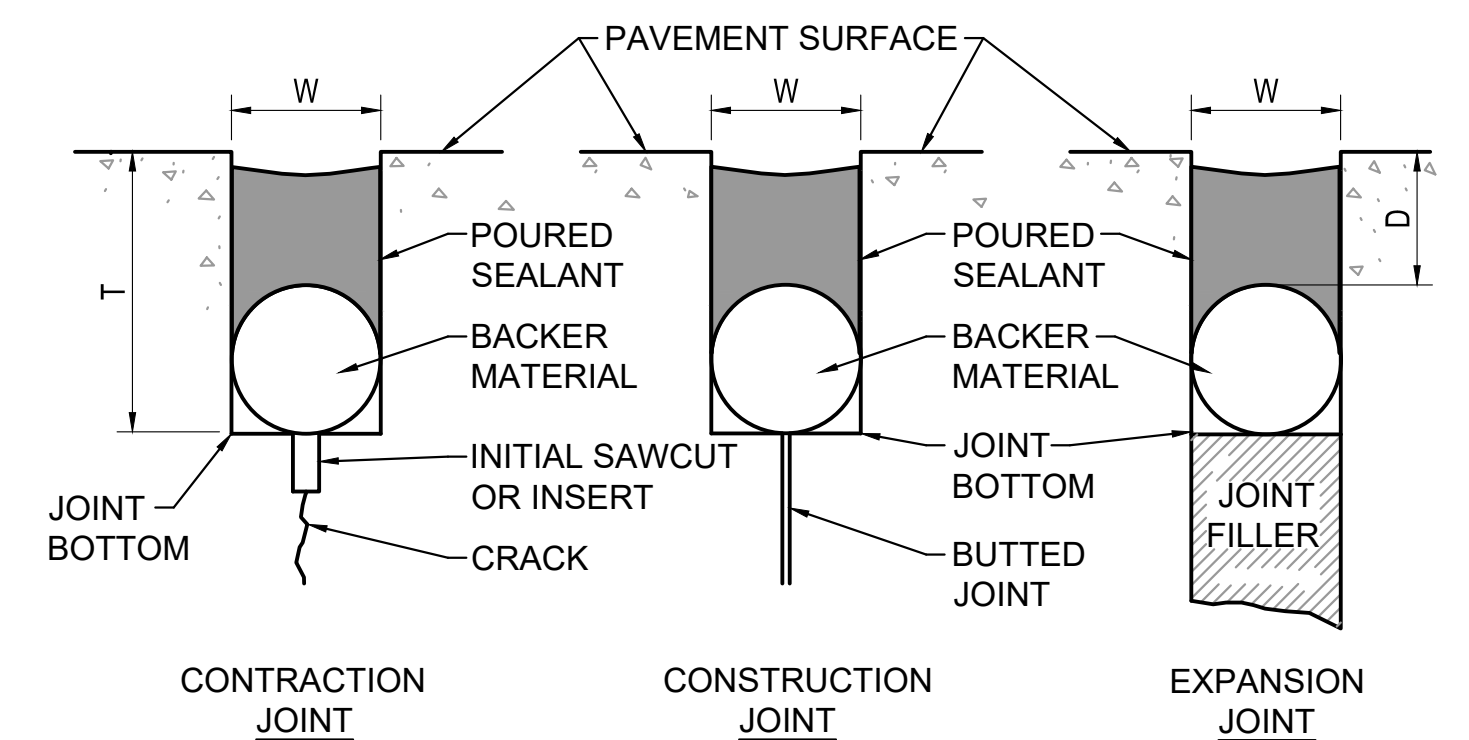
RADIAL CONCRETE PAVEMENT DETAILS
NO SCALE



TYPE 'D' DUMMY CONTRACTION JOINT
NO SCALE

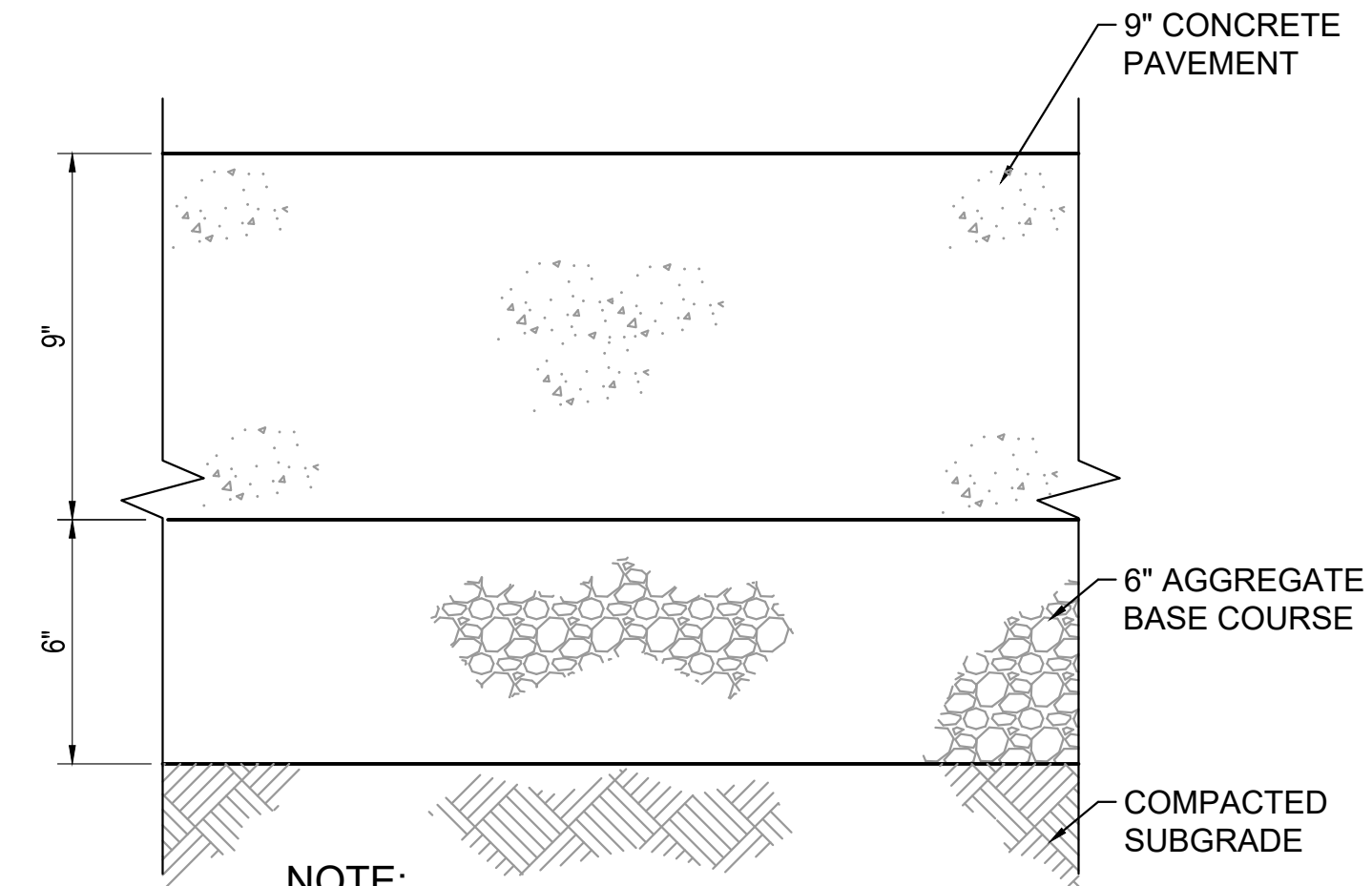


TYPE 'B' TIE BAR CONTRACTION JOINT
NO SCALE



- NOTES:**
1. DEPTH (D) OF SEALANT EQUAL 1 TO 1.5 TIMES THE WIDTH (W) OF THE SEALANT RESERVOIR.
 2. WIDTH (W) OF SEALANT RESERVOIR IS 1/2" - 1/8" (±) FOR CONTRACTION AND CONSTRUCTION JOINTS AND 3/4" - 1/8" (±) FOR EXPANSION JOINTS.
 3. DEPTH OF INITIAL SAWCUT (T).
 4. TOP OF SEALANT WILL BE 1/4" BELOW TOP OF PAVEMENT.

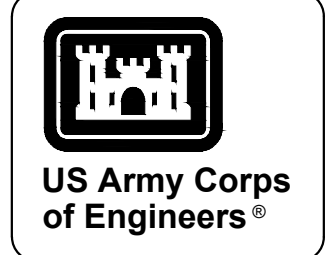
POURED JOINT SEALANT DETAILS FOR RIGID PAVEMENT WITH BACKER MATERIAL
NO SCALE



NOTE:
1.) USE THICKENED EDGE ALONG OUTSIDE ROADWAY EDGES.

CONCRETE PAVEMENT SECTION
NO SCALE

GENERAL NOTES
1.) SEE SHEET CP504 VOLUME 4 FOR PAVEMENT DETAILS NOT SHOWN HERE.

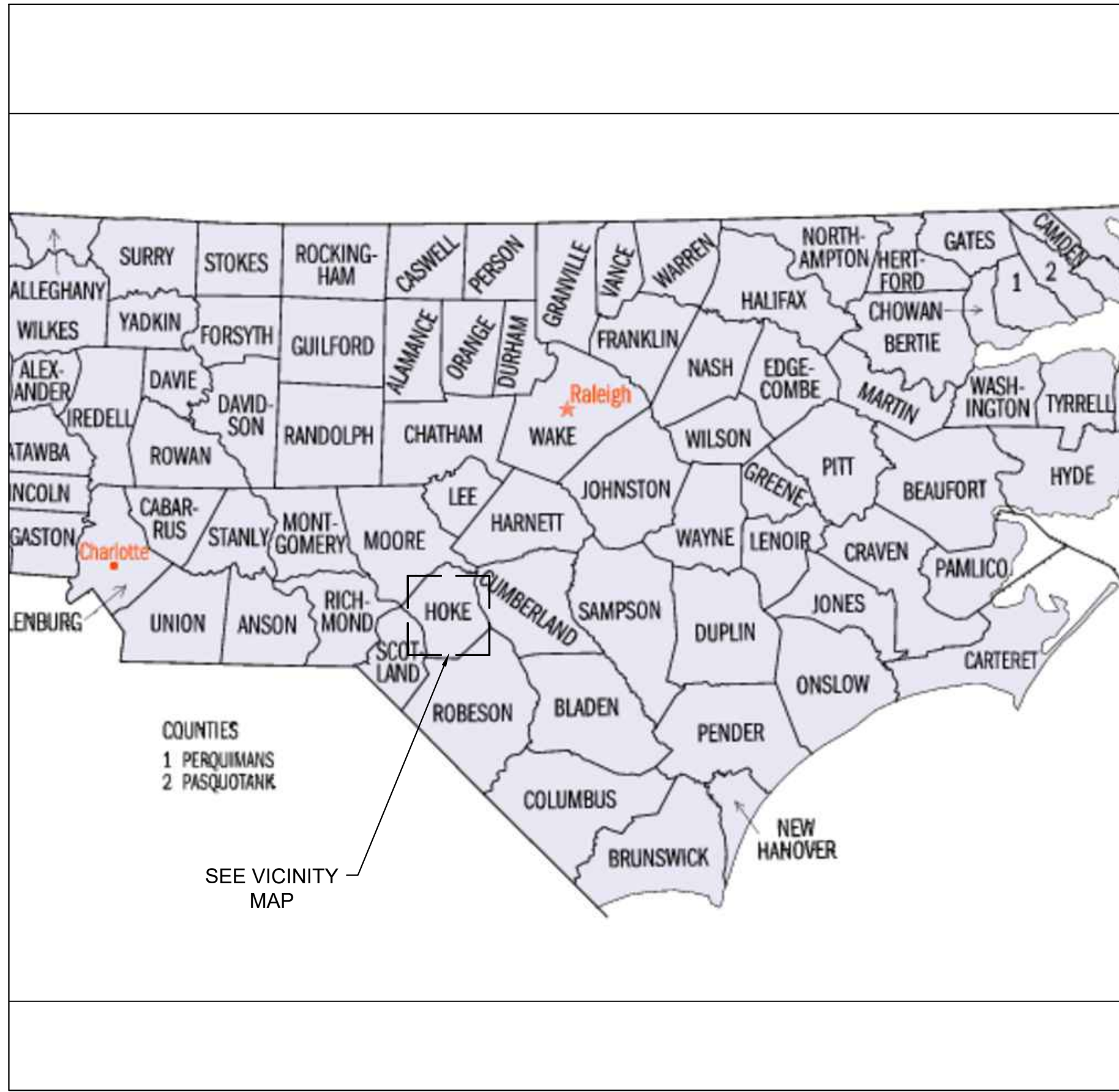


MARK	DESCRIPTION	DATE

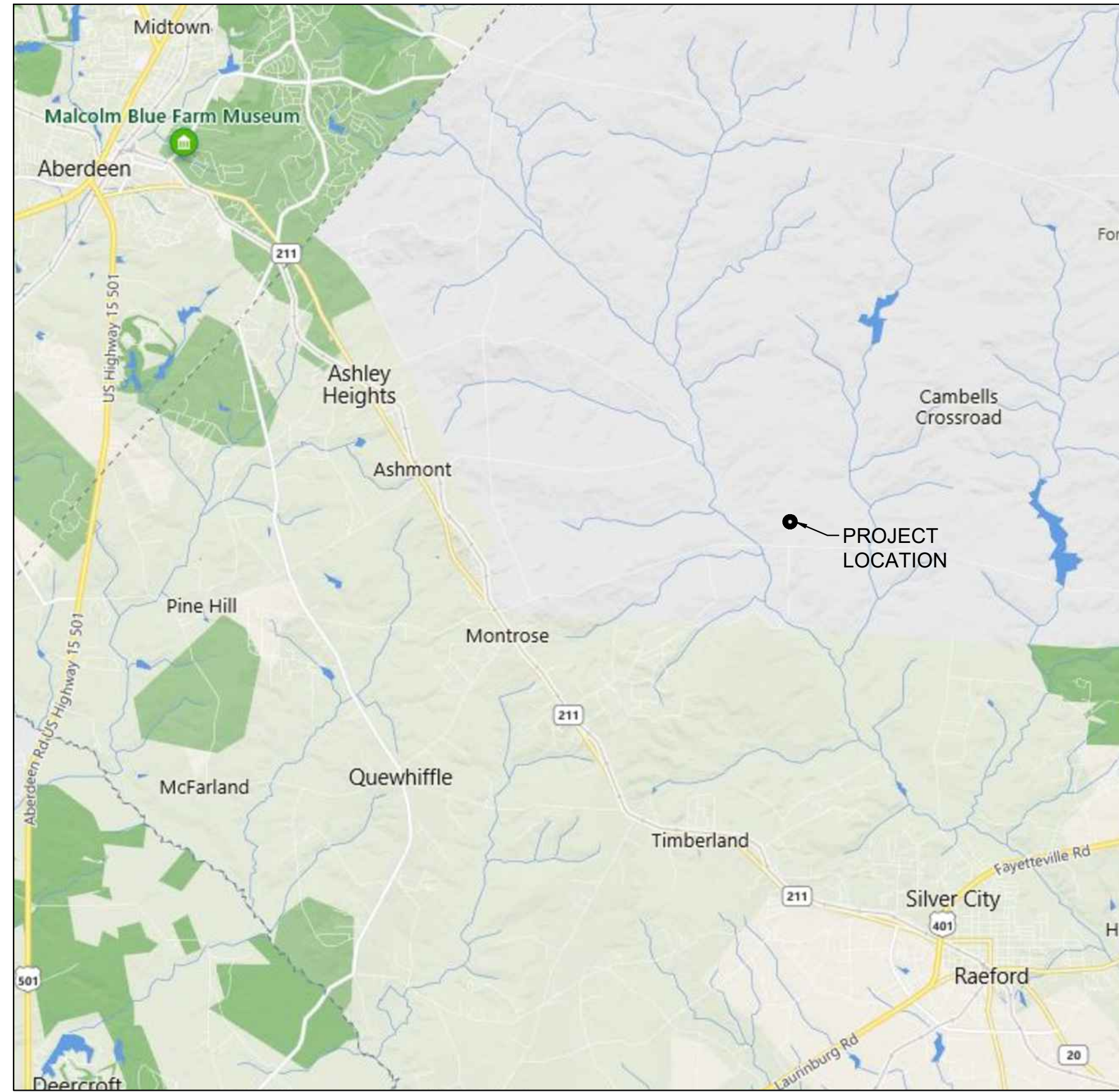
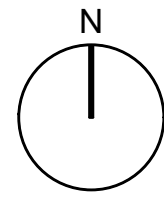
DESIGNED BY: G. OSKEN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OSKEN	DATE: NOVEMBER 2023
SUBMITTED BY: R. RADTKE	CONTRACT NO.: 178-85-01
SIZE: ANSI D	CATEGORY CODE: 178-85-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR) FY23, PN 96182 VOLUME 1 - SITE	CIVIL SITE PAVEMENT DETAILS
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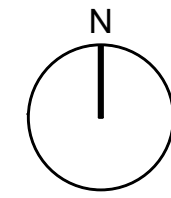
SHEET ID
CP501



NC COUNTY MAP
NO SCALE



VICINITY MAP
NO SCALE

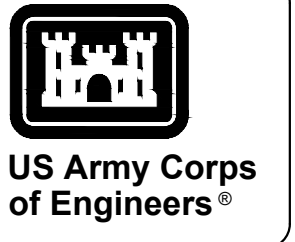


CONTACT INFORMATION		
OWNER / DEVELOPER OWNER	OPERATOR CONTRACTOR	DESIGN PROFESSIONAL PROJECT ENGINEER
DIRECTOR OF PUBLIC WORKS KENNETH V. MCMILAN (910) 907-5325	USACE RESIDENT ENGINEER	RACHEL RADTKE, P.E. (912) 652-5507 KENNETH SANDERS, P.E. POLY INC. (334) 793-4700

PROJECT INFORMATION AND DATA:

- 1.) PROJECT DESCRIPTION
THE PROJECT IS LOCATED IN HOKE COUNTY, NORTH CAROLINA.
CONSTRUCTION CONSISTS OF A NEW RANGE OPERATIONS AND CONTROL AREA (ROCA)
 - 2.) TOTAL SITE AREA: 724 ACRES
TOTAL DISTURBED AREA: 722 ACRES
ROCA AREA (VOL. 1) 19 ACRES
DOWN RANGE AREA (VOL. 3&4) 703 ACRES
 - 3.) EXISTING CONDITIONS: UNDEVELOPED
 - 4.) PREDOMINANT HYDROLOGIC SOIL GROUP: B
 - 5.) STORM WATER MANAGEMENT CONSIDERATIONS: ROCK BIO-RETENTION
 - 6.) EXISTING CONTOURS OBTAINED BY: LIDAR SURVEY PROVIDED BY POLY INC.
 - 7.) DEBRIS DISPOSAL: ALL CONSTRUCTION RELATED DEBRIS WILL BE HAULED AWAY TO A STATE APPROVED LANDFILL.
 - 8.) FLOOD PLAIN ZONE: THE PROPERTY DOES NOT LIE WITHIN A FLOOD HAZARD ZONE PER US FIRM MAP# 3710940600J & 3710942700J DATED 16 & 17 OCTOBER 2006.
 - 9.) FACILITY NAME: AUTOMATED MULTIPURPOSE TRAINING RANGE RANGE OPERATIONS AND CONTROL AREA (ROCA)
 - 10.) PROJECT NUMBER: 96182
- IDENTIFY THE PROJECT RECEIVING WATERS AND DESCRIBE ALL ADJACENT AREAS INCLUDING STREAMS, LAKES, RESIDENTIAL AREAS, WETLANDS, ETC. WHICH MAY BE AFFECTED.
- ROCKFISH CREEK

EMD APPROVAL: _____ REVIEWER CERTIFICATION No. _____



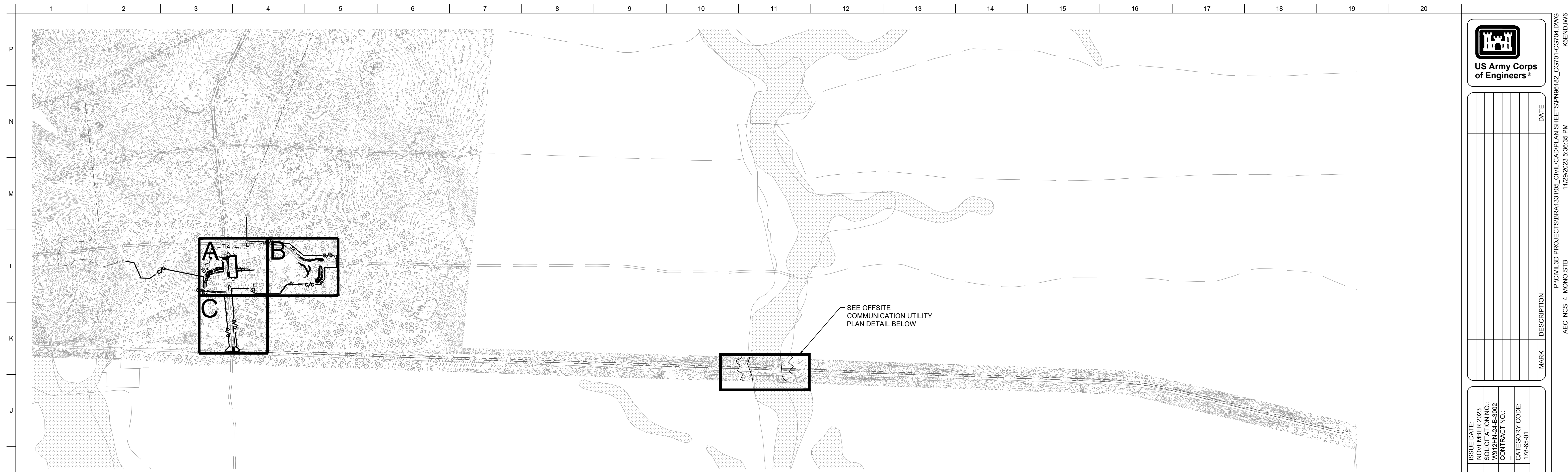
MARK	DESCRIPTION	DATE

DESIGNED BY: G. OSBEN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: G. OSBEN	NO. OF SHEETS: 108
PREPARED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
E&SC COVER

SHEET ID
CG700



OVERALL EROSION CONTROL PLAN VIEW
(INCLUDES OVERALL OF ONSITE AND OFFSITE TRENCHING AND DIRECTIONAL BORING UTILITY WORK)



OFFSITE COMMUNICATION UTILITY PLAN DETAIL

* USE FOR DIRECTIONAL BORING STREAM CROSSING EROSION CONTROL DETAILS AND OFFSITE UTILITY TRENCH TYPICAL DETAILS (INITIAL, INTERMEDIATE & FINAL PHASE)



MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
G. OGBEN	NOVEMBER 2023
C. OGBEN	NOVEMBER 2023
C. OGBEN	NOVEMBER 2023
R. RADTKE	CONTRACT NO.:
J. DEACON	CATEGORY CODE:
ANS/D	178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
E&SC OVERALL

SHEET ID

CG701

- GENERAL NOTES**
- SEE SHEET CG719A FOR E&SC LEGEND.
 - ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.

PROJECT LOCATION INFORMATION:

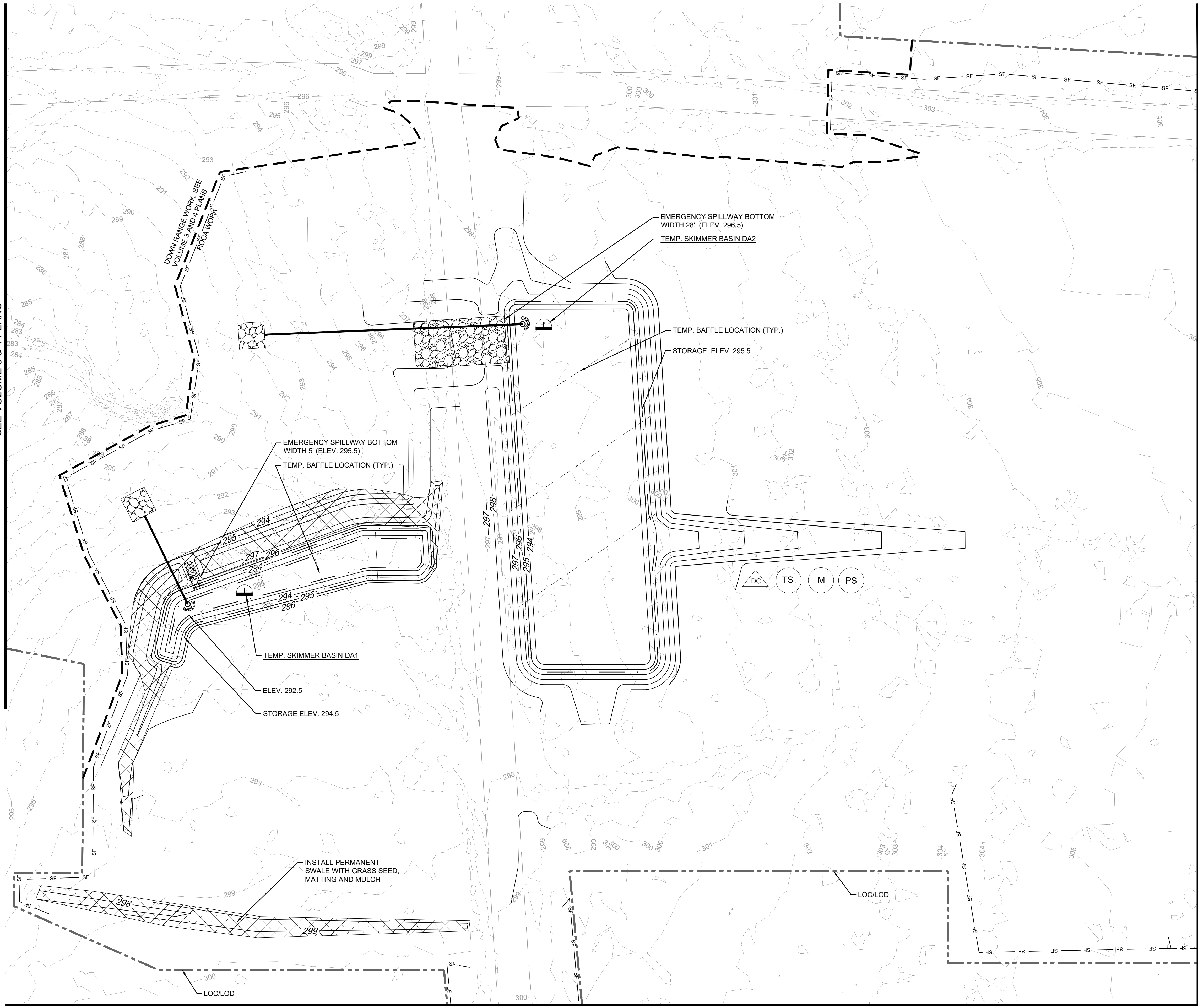
- SITE DRAINS TO ROCK FISH AND JUNIPER CREEKS WHICH FALL WITHIN THE CAPE FEAR RIVER BASIN.

OFFSITE COMMUNICATION LINE UTILITY WORK:

- OFFSITE COMMUNICATION LINE AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED WITHIN THE LIMITS OF DISTURBANCE (LOD) SHOWN ON PLANS. SILT FENCE SHALL BE INSTALLED WITHIN LOD PARALLEL TO THE UTILITY LINE TRENCHES AT THE BASE OF THE SLOPE IF DISTURBED AREA (TRENCHES, HANDHOLD HOLES, AND OTHER EXPOSED EARTH) CAN NOT BE BACKFILLED TO FINISH GRADE WITHIN 24HRS. ALL TRENCHED AREAS SHALL BE GRASS SEEDED AND MULCHED WITHIN 7 DAYS OF LAND DISTURBANCE ACTIVITY.

SEE EROSION CONTROL LEGEND ON SHEET CG700A.

SEE VOLUME 3 & 4 PLANS



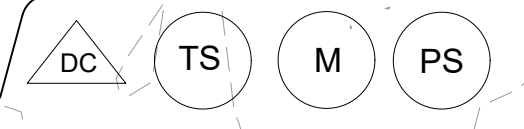
MATCH LINE SEE SHEET CG704

NOTES

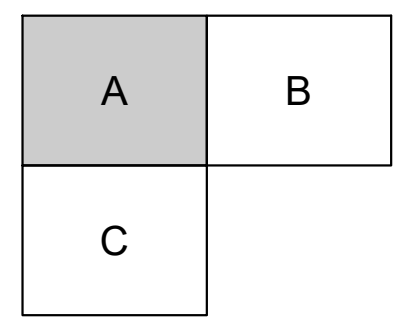
- 1.) SEE SHEET CG719A FOR E&SC LEGEND.
- 2.) ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.
- 3.) SEE SHEETS CG712 & CG774-776. FOR TEMPORARY SEDIMENT SKIMMER BASIN DETAILS.

E&SC LEGEND:

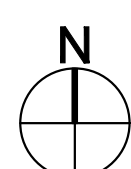
- DUST CONTROL
- MULCHING
- TEMPORARY SEEDING
- PERMANENT SEEDING
- TEMP. SEDIMENT SKIMMER BASIN
- SEDIMENT FENCE
- MATTING
- GRAVEL OVERFLOW OR FILTER RING
- POROUS BAFFLES (SEE DETAIL SHEET CG754)



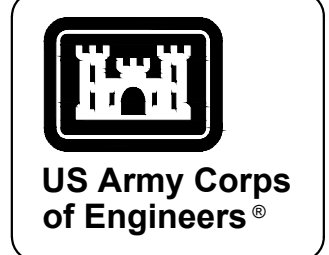
MATCH LINE SEE SHEET CG703



KEY MAP



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



MARK	DESCRIPTION	DATE

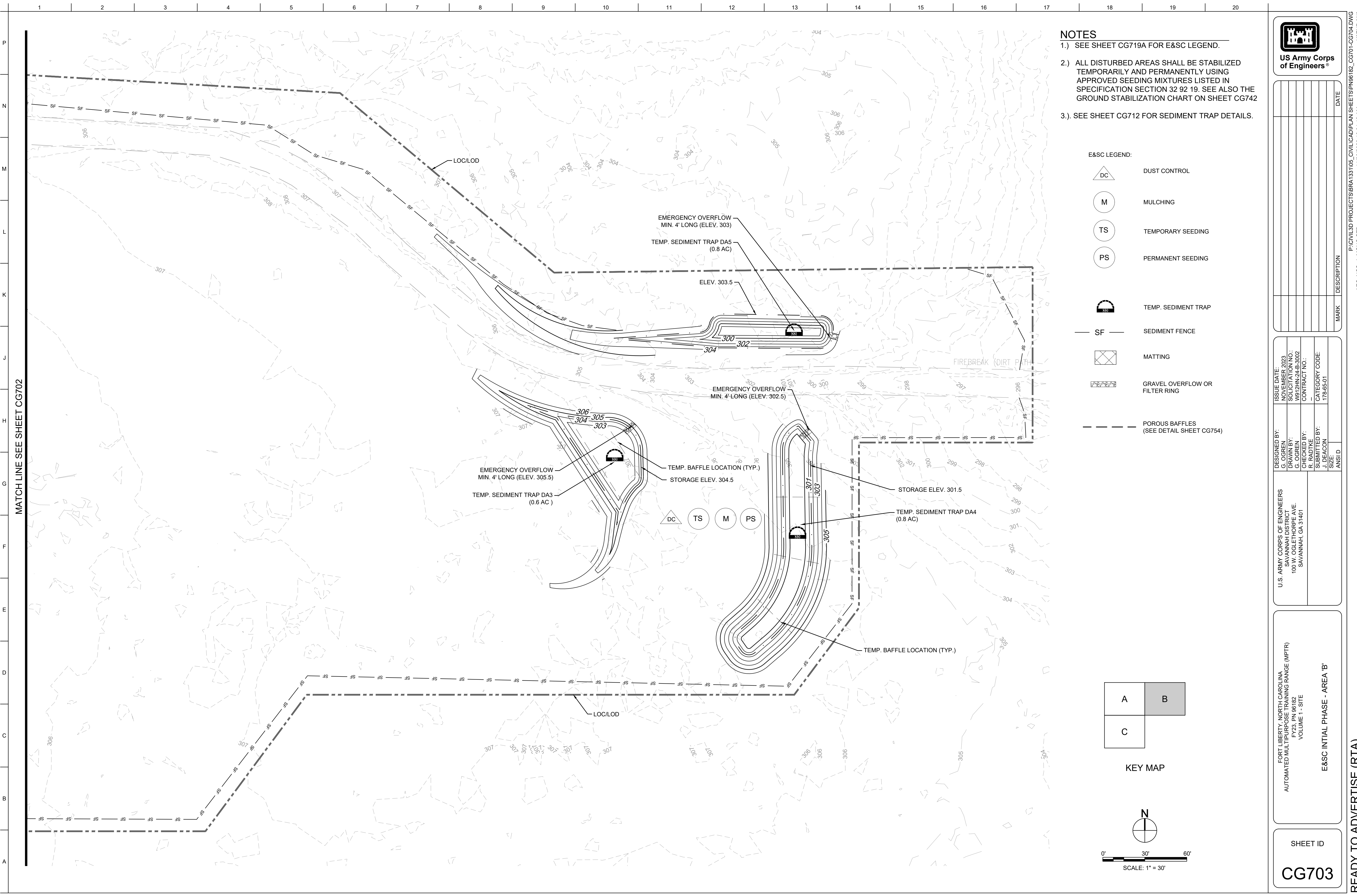
DESIGNED BY: G. OSREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OSREN	NO. OF PLANS: 3002
SUBMITTED BY: R. RADTKE	CONTRACT NO.:
SIZE: J. DEACON	CATEGORY CODE: 178-85-01
ANS/D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

E&SC INTIAL PHASE - AREA 'A'

SHEET ID
CG702

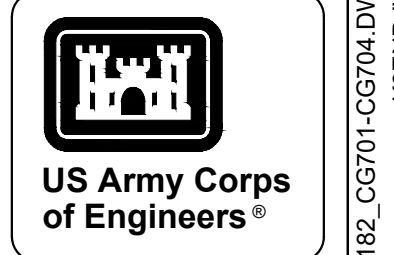


NOTES

- 1.) SEE SHEET CG719A FOR E&SC LEGEND.
- 2.) ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742
- 3.) SEE SHEET CG712 FOR SEDIMENT TRAP DETAILS.

E&SC LEGEND:

- DUST CONTROL
- MULCHING
- TEMPORARY SEEDING
- PERMANENT SEEDING
- TEMP. SEDIMENT TRAP
- SEDIMENT FENCE
- MATTING
- GRAVEL OVERFLOW OR FILTER RING
- POROUS BAFFLES (SEE DETAIL SHEET CG754)



MARK	DESCRIPTION	DATE

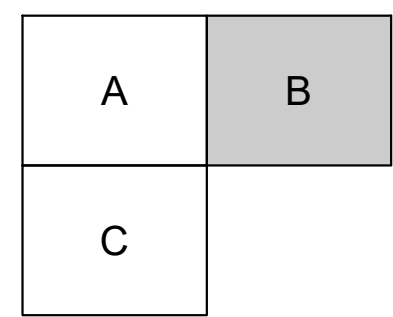
DESIGNED BY: G. O'GRIEN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. O'GRIEN	DATE: NOV 24 2023
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

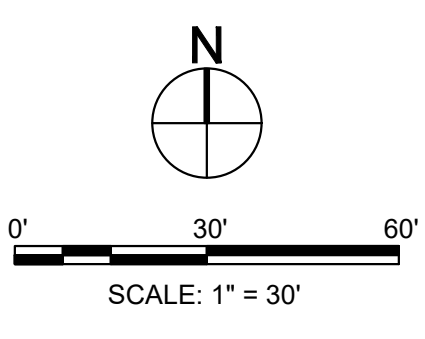
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

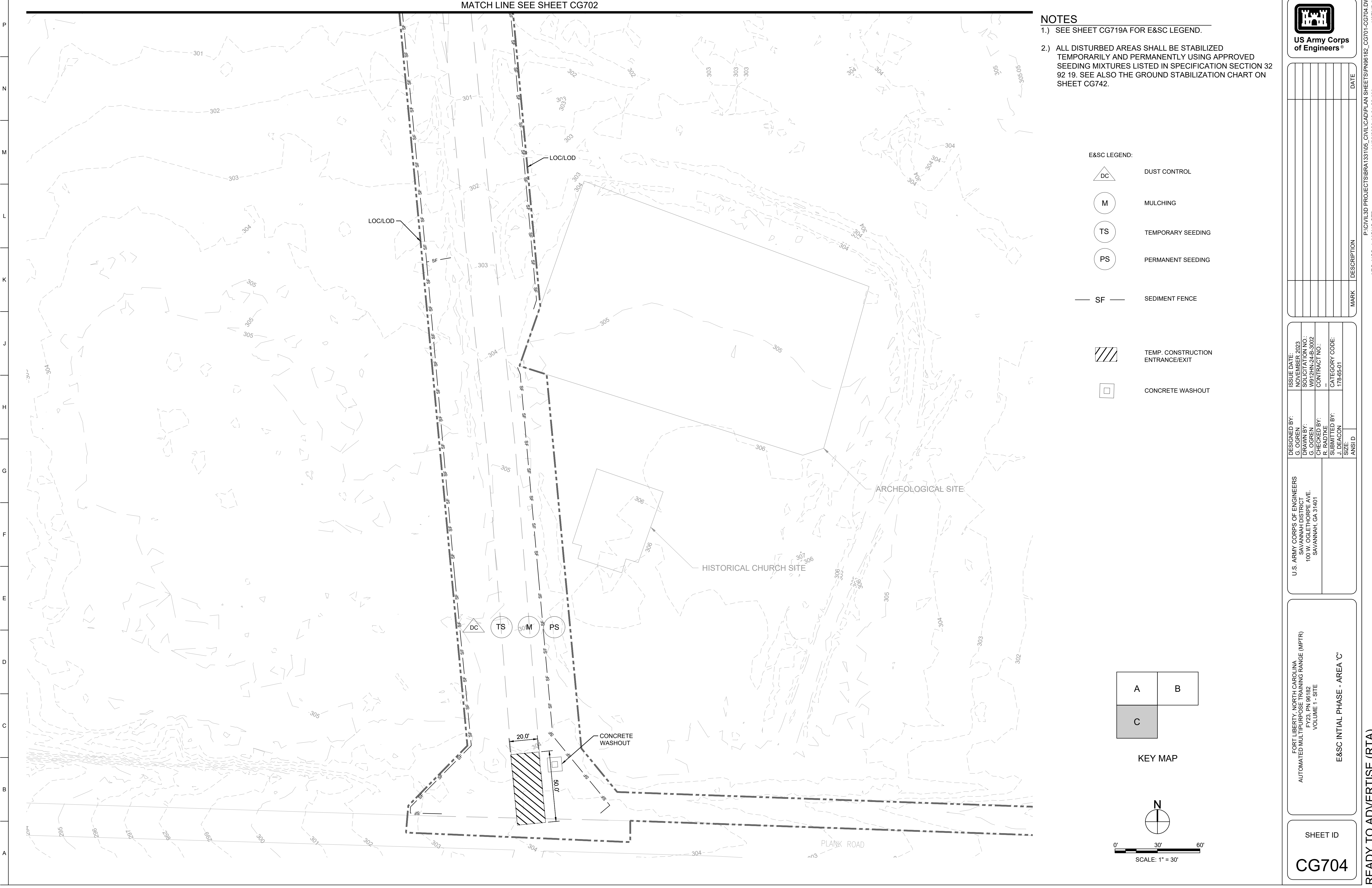
E&SC INITIAL PHASE - AREA 'B'

SHEET ID
CG703



KEY MAP

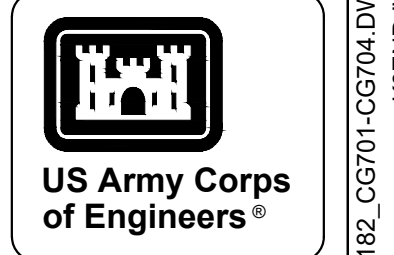
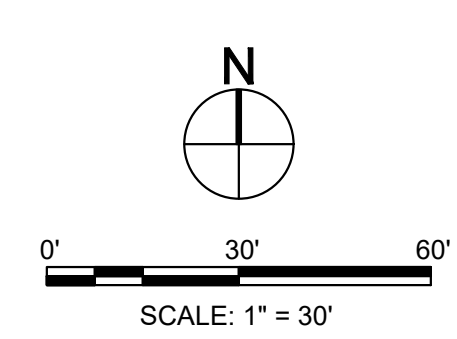
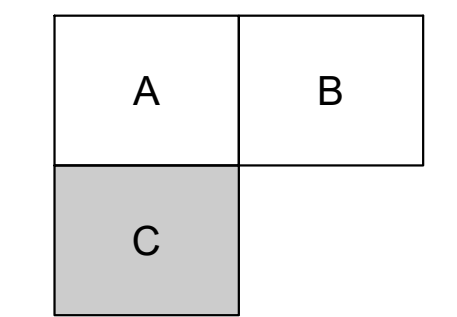




MATCH LINE SEE SHEET CG702

- NOTES**
- SEE SHEET CG719A FOR E&SC LEGEND.
 - ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.

- E&SC LEGEND:**
- DC DUST CONTROL
 - M MULCHING
 - TS TEMPORARY SEEDING
 - PS PERMANENT SEEDING
 - SF SEDIMENT FENCE
 - TEMP. CONSTRUCTION ENTRANCE/EXIT
 - CONCRETE WASHOUT



MARK	DESCRIPTION	DATE

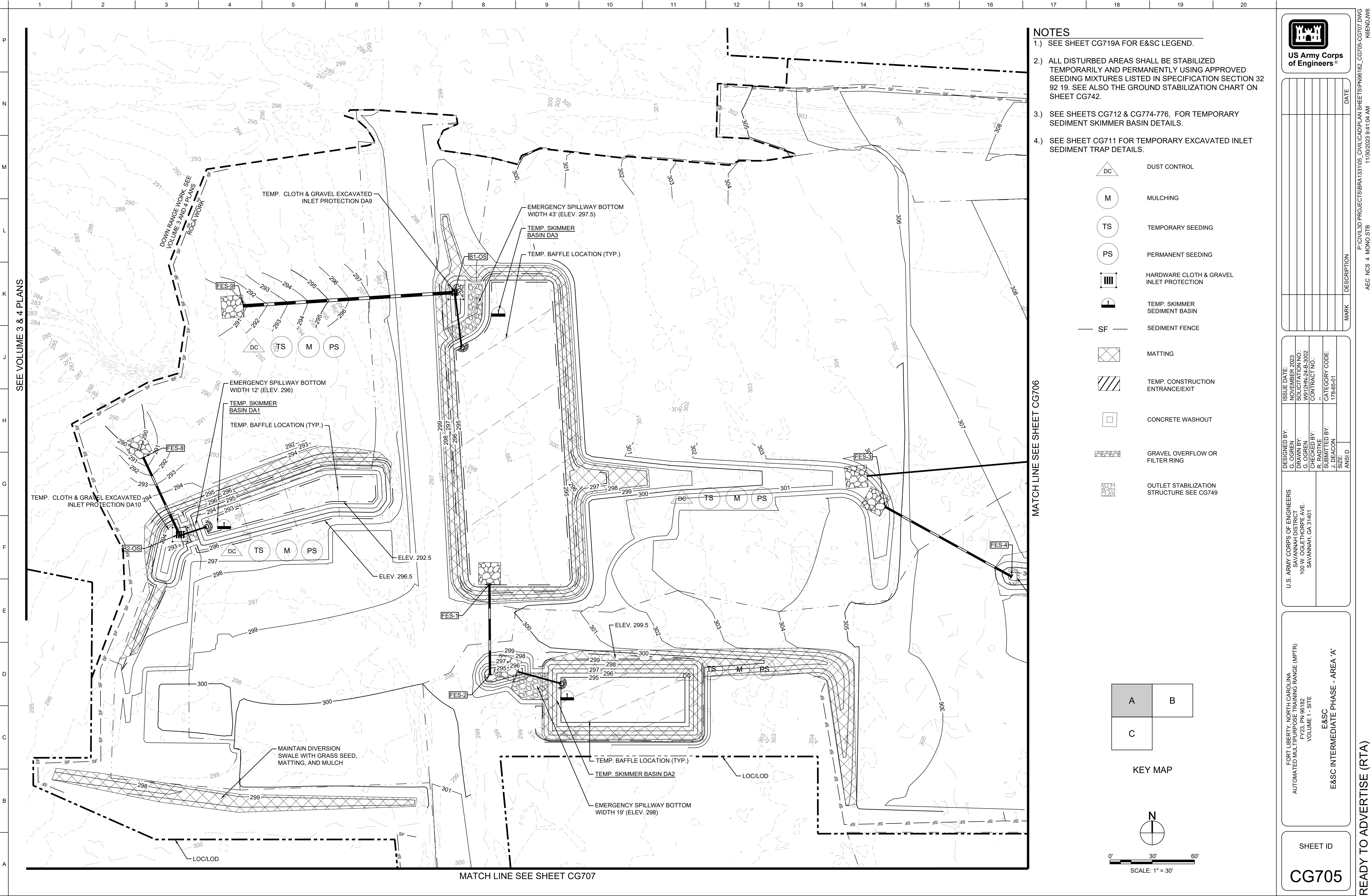
DESIGNED BY: G. OKEN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. OSBORN	NO. OF SHEETS: 10/24/24 3002
SUBMITTED BY: R. RADTKE	CONTRACT NO.:
SIZE: ANSI D	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

E&SC INITIAL PHASE - AREA 'C'

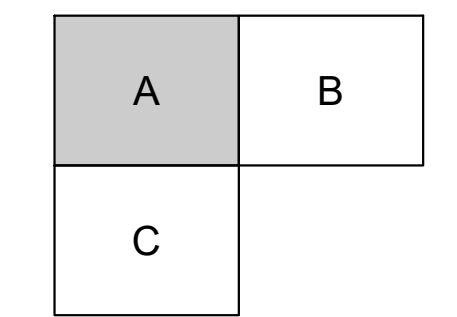
SHEET ID
CG704



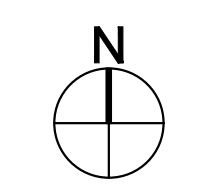
NOTES

- 1.) SEE SHEET CG719A FOR E&SC LEGEND.
- 2.) ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.
- 3.) SEE SHEETS CG712 & CG774-776. FOR TEMPORARY SEDIMENT SKIMMER BASIN DETAILS.
- 4.) SEE SHEET CG711 FOR TEMPORARY EXCAVATED INLET SEDIMENT TRAP DETAILS.

	DUST CONTROL
	MULCHING
	TEMPORARY SEEDING
	PERMANENT SEEDING
	HARDWARE CLOTH & GRAVEL INLET PROTECTION
	TEMP. SKIMMER SEDIMENT BASIN
	SEDIMENT FENCE
	MATTING
	TEMP. CONSTRUCTION ENTRANCE/EXIT
	CONCRETE WASHOUT
	GRAVEL OVERFLOW OR FILTER RING
	OUTLET STABILIZATION STRUCTURE SEE CG749



KEY MAP

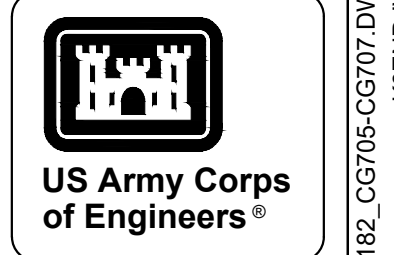


SCALE: 1" = 30'

MATCH LINE SEE SHEET CG706

MATCH LINE SEE SHEET CG707

SEE VOLUME 3 & 4 PLANS



MARK	DESCRIPTION	DATE

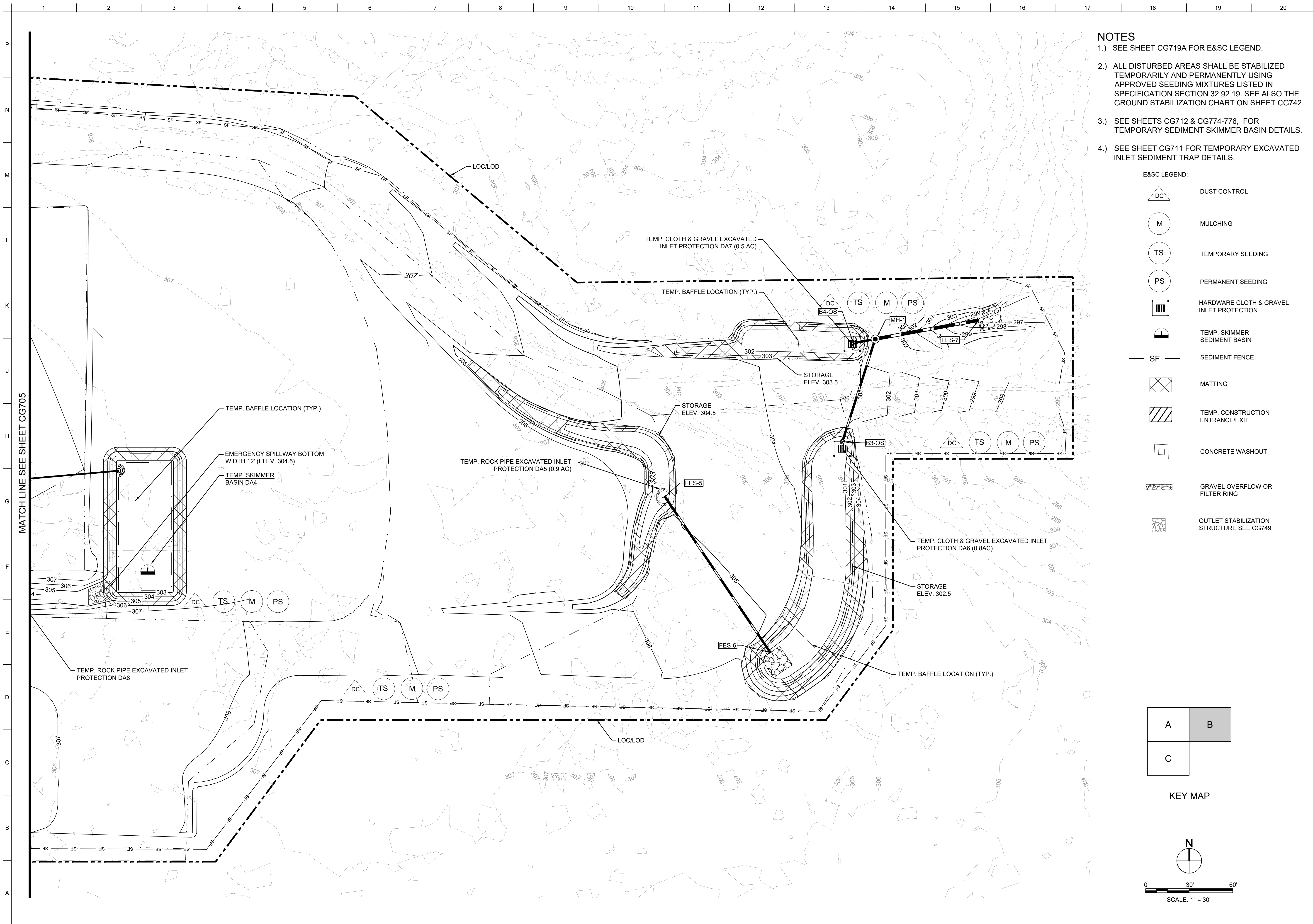
DESIGNED BY: G. OSKREY	ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. RADTKE	NO. OF SHEETS: 48
SUBMITTED BY: J. DEACON	CONTRACT NO.:
SIZE:	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

E&SC
E&SC INTERMEDIATE PHASE - AREA 'A'

SHEET ID
CG705

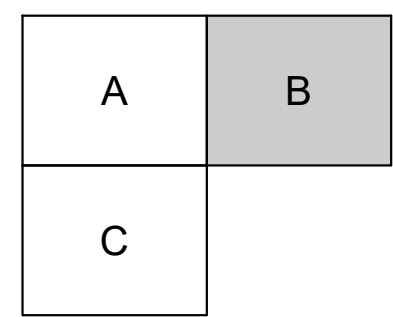


MATCH LINE SEE SHEET CG705

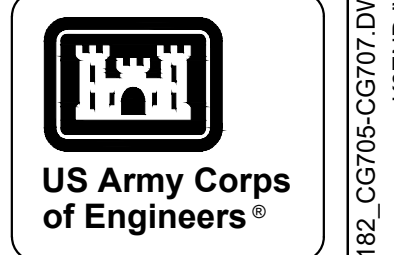
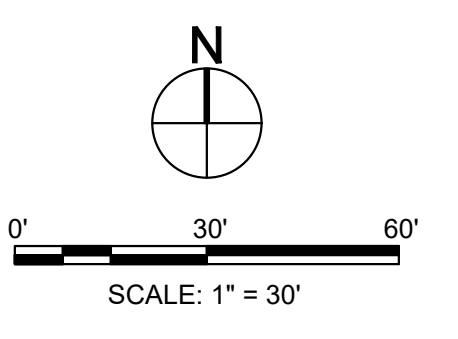
- NOTES**
- 1.) SEE SHEET CG719A FOR E&S LEGEND.
 - 2.) ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.
 - 3.) SEE SHEETS CG712 & CG774-776. FOR TEMPORARY SEDIMENT SKIMMER BASIN DETAILS.
 - 4.) SEE SHEET CG711 FOR TEMPORARY EXCAVATED INLET SEDIMENT TRAP DETAILS.

E&S LEGEND:

	DUST CONTROL
	MULCHING
	TEMPORARY SEEDING
	PERMANENT SEEDING
	HARDWARE CLOTH & GRAVEL INLET PROTECTION
	TEMP. SKIMMER SEDIMENT BASIN
	SEDIMENT FENCE
	MATTING
	TEMP. CONSTRUCTION ENTRANCE/EXIT
	CONCRETE WASHOUT
	GRAVEL OVERFLOW OR FILTER RING
	OUTLET STABILIZATION STRUCTURE SEE CG749



KEY MAP



MARK	DESCRIPTION	DATE

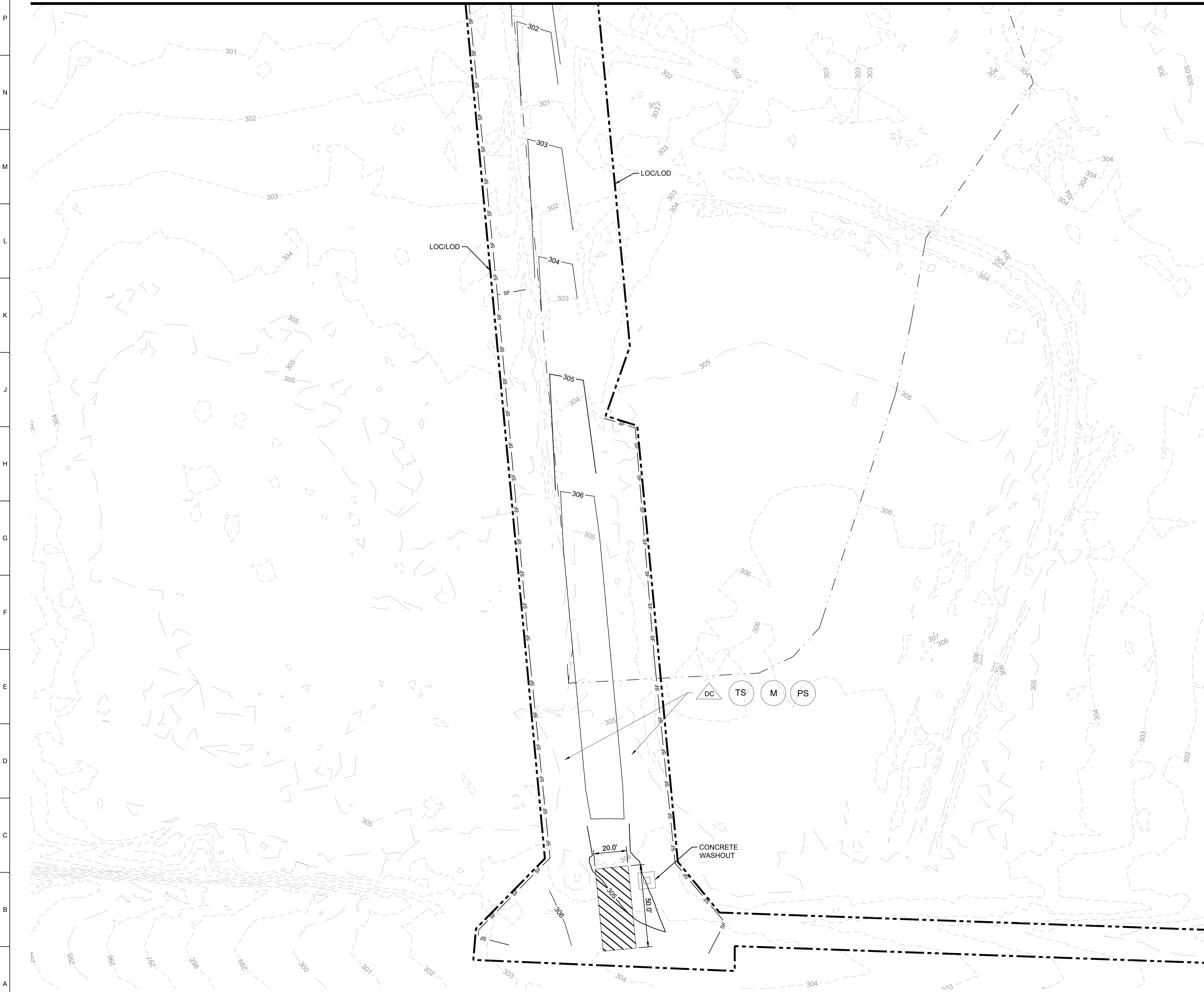
DESIGNED BY: G. O'GREN	ISSUE DATE: NOVEMBER 2023
CHECKED BY: C. O'GREN	DATE: NOV 24 2023
CONTRACT NO.: 	CONTRACT NO.:
CATEGORY CODE: 178-85-01	ANSI D:
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

E&S
E&S INTERMEDIATE PHASE - AREA 'B'

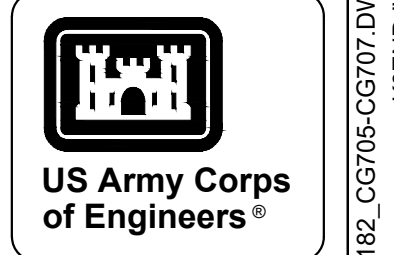
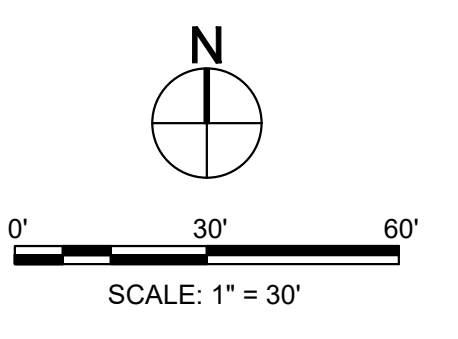
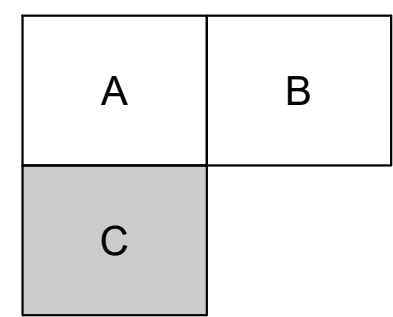
SHEET ID
CG706

MATCH LINE SEE SHEET CG705



NOTES
1.) SEE SHEET CG719A FOR E&SC LEGEND.
2.) ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.

- E&SC LEGEND:
- DC DUST CONTROL
 - M MULCHING
 - TS TEMPORARY SEEDING
 - PS PERMANENT SEEDING
 - SF SEDIMENT FENCE
 - TEMP. CONSTRUCTION ENTRANCE/EXIT
 - CONCRETE WASHOUT



MARK	DESCRIPTION	DATE

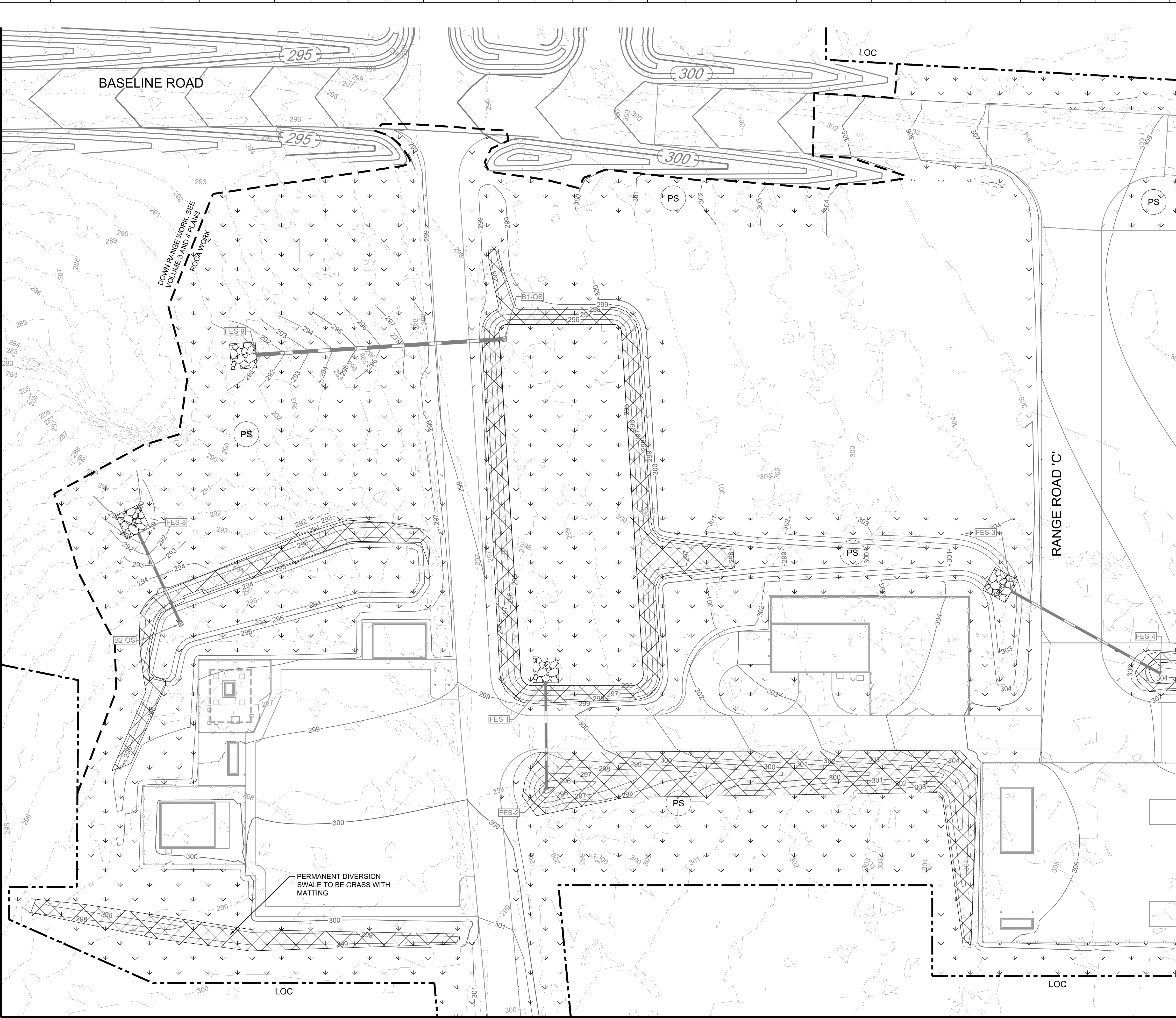
DESIGNED BY: G. OSKREY	ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. RADTKE	NO. OF SHEETS: 14 OF 14
CONTRACT NO.:	CONTRACT NO.:
CATEGORY CODE: 178-85-01	ANSI D

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
FY23, PN 96182
VOLUME 1 - SITE

E&SC
E&SC INTERMEDIATE PHASE - AREA 'C'

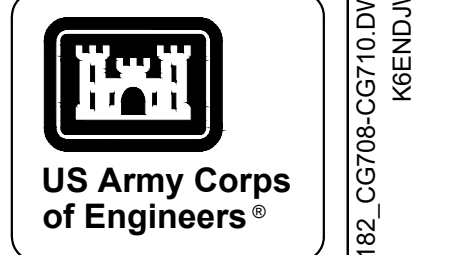
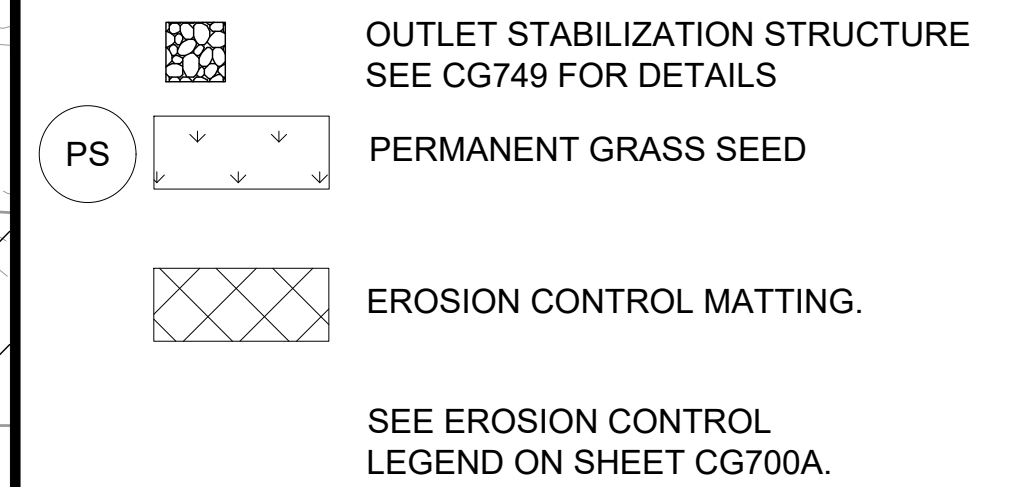
SHEET ID
CG707



SEE VOLUME 3 & 4 PLANS

MATCH LINE SEE SHEET CG709

- ### NOTES
- SEE SHEET CG719A FOR E&S LEGEND.
 - ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.

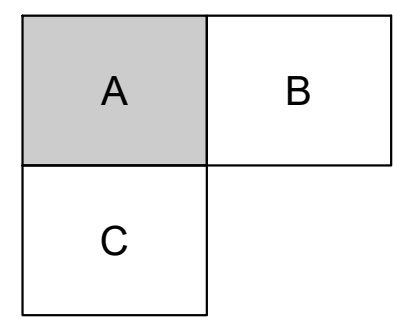


MARK	DESCRIPTION	DATE

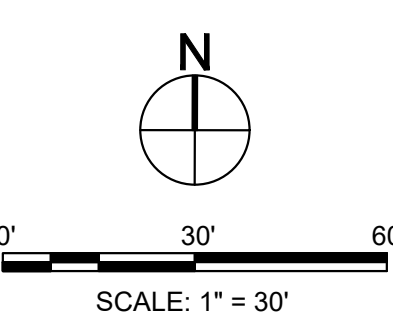
DESIGNED BY: G. MUSE	ISSUE DATE: NOVEMBER 2023
	DRAWN BY: G. MUSE
	CHECKED BY: R. RADTKE
	SUBMITTED BY: J. DEACON
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	PROJECT NO.: W91PH248 3002
	CONTRACT NO.:
	CATEGORY CODE: 178-85-01
	SIZE: ANSI D

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

E&S FINAL PHASE - AREA 'A'

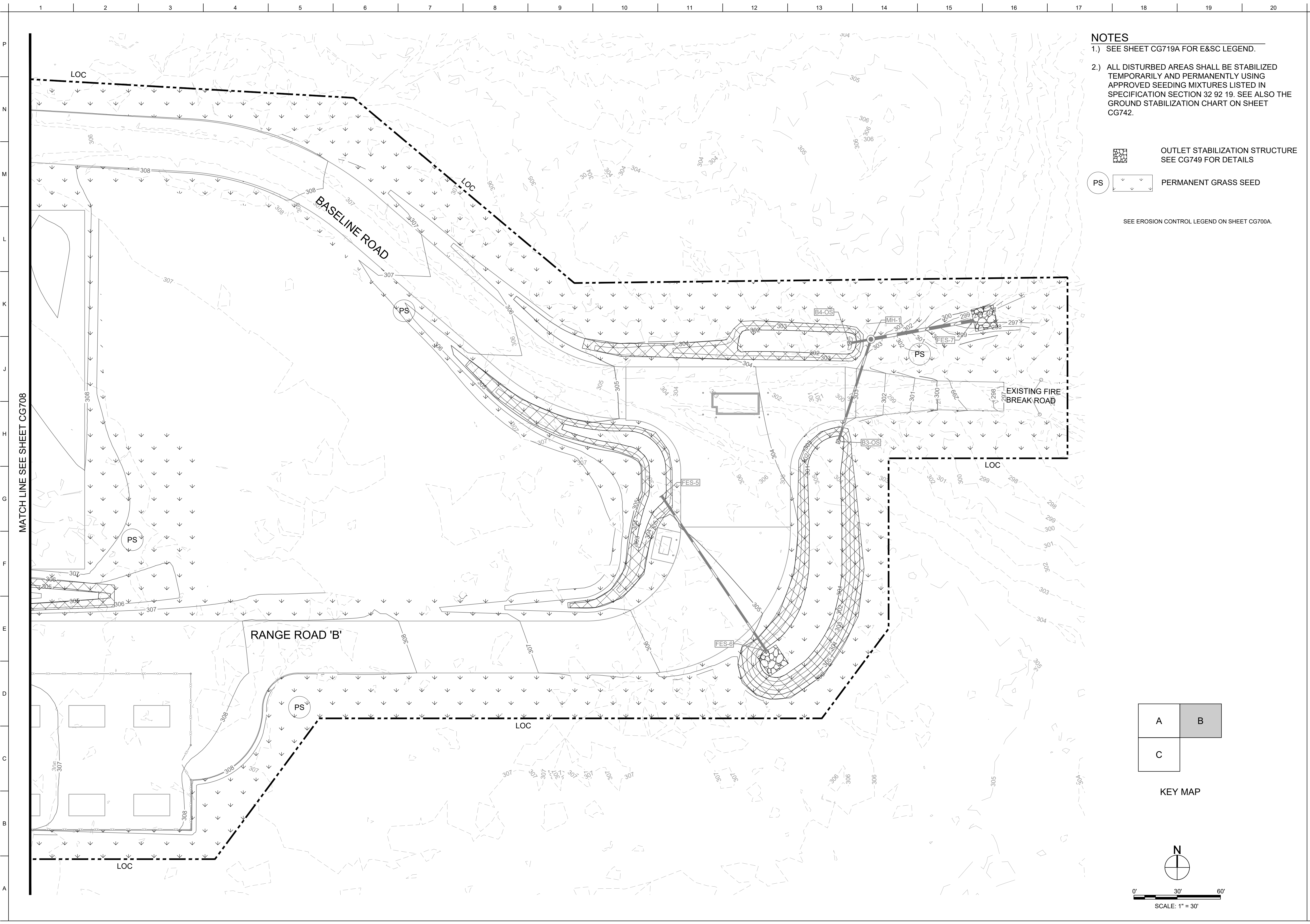


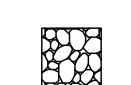
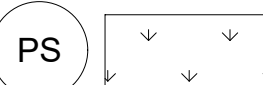
KEY MAP

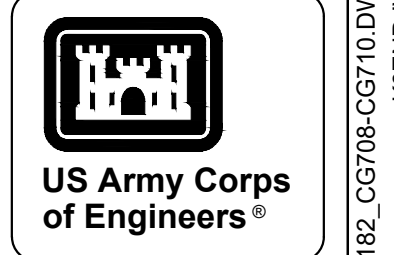


SHEET ID
CG708

MATCH LINE SEE SHEET CG710



- NOTES**
- SEE SHEET CG719A FOR E&SC LEGEND.
 - ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.
-  OUTLET STABILIZATION STRUCTURE
SEE CG749 FOR DETAILS
-  PERMANENT GRASS SEED
- SEE EROSION CONTROL LEGEND ON SHEET CG700A.



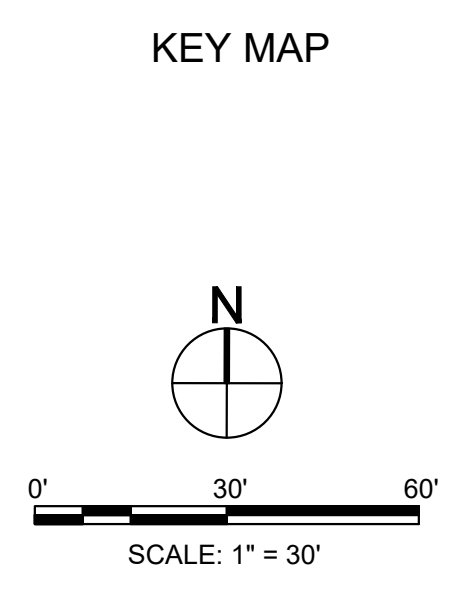
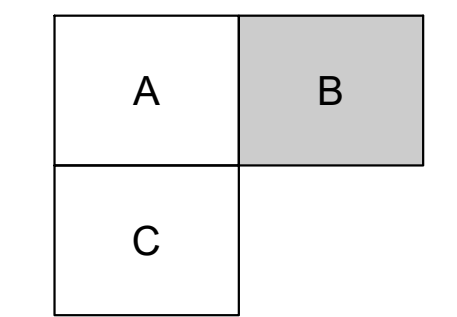
MARK	DESCRIPTION	DATE

DESIGNED BY: G. MUSE	ISSUE DATE: NOVEMBER 2023
DRAWN BY: G. MUSE	NO. OF SHEETS: 148 OF 148
CHECKED BY: R. RADTKE	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
SIZE: ANSI D	
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
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E&SC FINAL PHASE - AREA 'B'

SHEET ID
CG709

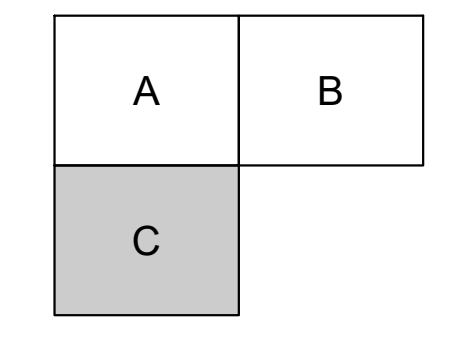
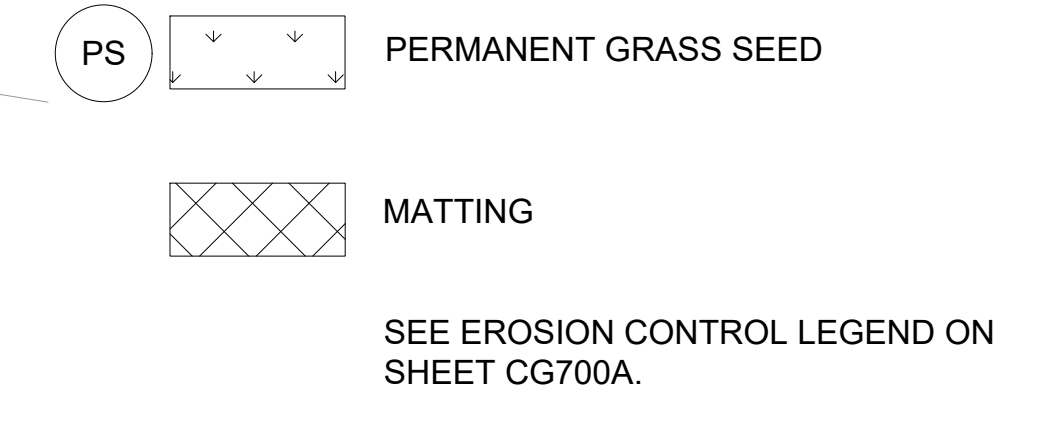


MATCH LINE SEE SHEET CG708

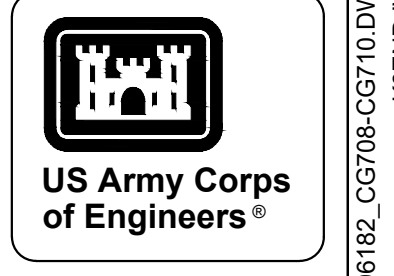
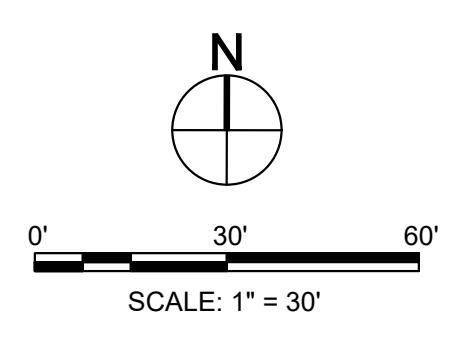
MATCH LINE SEE SHEET CG708

NOTES

- 1.) SEE SHEET CG719A FOR E&S LEGEND.
- 2.) ALL DISTURBED AREAS SHALL BE STABILIZED TEMPORARILY AND PERMANENTLY USING APPROVED SEEDING MIXTURES LISTED IN SPECIFICATION SECTION 32 92 19. SEE ALSO THE GROUND STABILIZATION CHART ON SHEET CG742.



KEY MAP



MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
DRAWN BY:	NOVEMBER 2023
CHECKED BY:	W01P04246 3002
SIZE:	CONTRACT NO.:
ANS/D	178-85-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

E&S FINAL PHASE - AREA C'

SHEET ID
CG710

EXCAVATED DROP INLET SEDIMENT STORAGE CALCULATIONS (INTERMEDIATE PHASE E&PC PLANS ONLY)

Excavated Inlet Sediment Storage Calcs - Intermediate Phase (<1 AC)

Drainage

Area ID:

DA5
 1 Drainage Area = 0.9 ac
 2 Required sediment storage = 1800 cf/ac* drainage area
 Required sediment storage = 1800 cf/ac* 0.9 ac
Required sediment storage = 1620.0 cf
 3 Assume excavation depth (minimum of 1.5 ft.) = 1.5 ft
 4 Assumes slope of sides (shall not be steeper than 2:1) = 2:1
 5 Determine required surface area

Provided Storage:
 A1 3155
 A2 1134 CF CY
 (A1+A2) x 0.5 x D = 3217 119.1

$SA_{min} = \frac{\text{Required sediment storage}}{\text{excavation depth}}$
 $SA_{min} = \frac{1620.0 \text{ cf}}{1.5 \text{ ft}}$
 $SA_{min} = 1080.0 \text{ sf}$

6 Assume shape of excavation and determine dimensions.
 (A rectangular shape with 2:1 length to width ratio is recommended)
 Shape: irregular
 Dimensions: l = N/A ft w = N/A ft diameter (if applicable) = ___ ft

DA6
 1 Drainage Area = 0.8 ac
 2 Required sediment storage = 1800 cf/ac* drainage area
 Required sediment storage = 1800 cf/ac* 0.8 ac
Required sediment storage = 1440.0 cf
 3 Assume excavation depth (minimum of 1.5 ft.) = 1.5 ft
 4 Assumes slope of sides (shall not be steeper than 2:1) = 2:1
 5 Determine required surface area

Provided Storage:
 A1 5794
 A2 3987 CF CY
 (A1+A2) x 0.5 x D = 7336 271.7

$SA_{min} = \frac{\text{Required sediment storage}}{\text{excavation depth}}$
 $SA_{min} = \frac{1440.0 \text{ cf}}{1.5 \text{ ft}}$
 $SA_{min} = 960.0 \text{ sf}$

6 Assume shape of excavation and determine dimensions.
 (A rectangular shape with 2:1 length to width ratio is recommended)
 Shape: irregular

DA7
 1 Drainage Area = 0.5 ac
 2 Required sediment storage = 1800 cf/ac* drainage area
 Required sediment storage = 1800 cf/ac* 0.5 ac
Required sediment storage = 900.0 cf
 3 Assume excavation depth (minimum of 1.5 ft.) = 1.5 ft
 4 Assumes slope of sides (shall not be steeper than 2:1) = 2:1
 5 Determine required surface area

Provided Storage:
 A1 2465
 A2 1192 CF CY
 (A1+A2) x 0.5 x D = 2743 101.6

$SA_{min} = \frac{\text{Required sediment storage}}{\text{excavation depth}}$
 $SA_{min} = \frac{900.0 \text{ cf}}{1.5 \text{ ft}}$
 $SA_{min} = 600.0 \text{ sf}$

6 Assume shape of excavation and determine dimensions.
 (A rectangular shape with 2:1 length to width ratio is recommended)
 Shape: rectangular
 Dimensions: l = 115 ft w = 25 ft diameter (if applicable) = ___ ft

DA8
 1 Drainage Area = 0.1 ac
 2 Required sediment storage = 1800 cf/ac* drainage area
 Required sediment storage = 1800 cf/ac* 0.1 ac
Required sediment storage = 180.0 cf
 3 Assume excavation depth (minimum of 1.5 ft.) = 1.5 ft
 4 Assumes slope of sides (shall not be steeper than 2:1) = 2:1
 5 Determine required surface area

Provided Storage:
 A1 1164
 A2 304 CF CY
 (A1+A2) x 0.5 x D = 1468 54.4

$SA_{min} = \frac{\text{Required sediment storage}}{\text{excavation depth}}$
 $SA_{min} = \frac{180.0 \text{ cf}}{1.5 \text{ ft}}$
 $SA_{min} = 120.0 \text{ sf}$

6 Assume shape of excavation and determine dimensions.
 (A rectangular shape with 2:1 length to width ratio is recommended)
 Shape: rectangular
 Dimensions: l = 70 ft w = 16 ft diameter (if applicable) = ___ ft

DA9
 1 Drainage Area = 0.1 ac
 2 Required sediment storage = 1800 cf/ac* drainage area
 Required sediment storage = 1800 cf/ac* 0.1 ac
Required sediment storage = 180.0 cf
 3 Assume excavation depth (minimum of 1.5 ft.) = 1.5 ft
 4 Assumes slope of sides (shall not be steeper than 2:1) = 2:1
 5 Determine required surface area

Provided Storage:
 A1 308
 A2 795 CF CY
 (A1+A2) x 0.5 x D = 1103 40.9

$SA_{min} = \frac{\text{Required sediment storage}}{\text{excavation depth}}$
 $SA_{min} = \frac{180.0 \text{ cf}}{1.5 \text{ ft}}$
 $SA_{min} = 120.0 \text{ sf}$

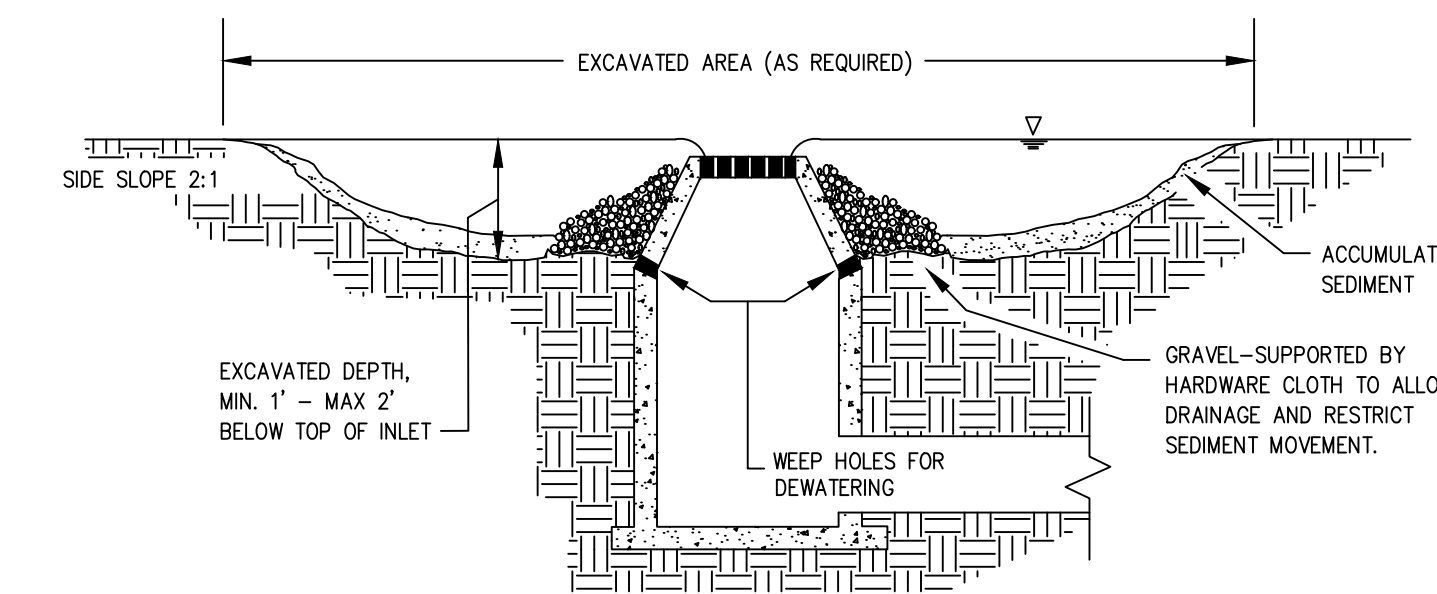
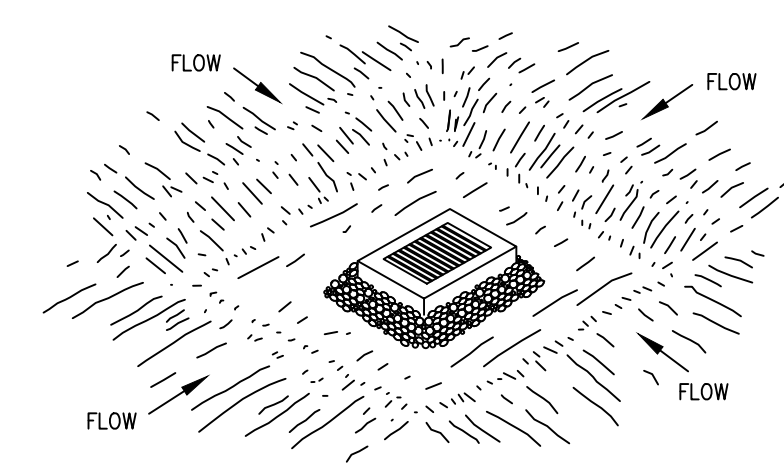
6 Assume shape of excavation and determine dimensions.
 (A rectangular shape with 2:1 length to width ratio is recommended)
 Shape: rectangular
 Dimensions: l = 70 ft w = 17 ft diameter (if applicable) = ___ ft

DA10
 1 Drainage Area = 0.2 ac
 2 Required sediment storage = 1800 cf/ac* drainage area
 Required sediment storage = 1800 cf/ac* 0.2 ac
Required sediment storage = 360.0 cf
 3 Assume excavation depth (minimum of 1.5 ft.) = 1.5 ft
 4 Assumes slope of sides (shall not be steeper than 2:1) = 2:1
 5 Determine required surface area

Provided Storage:
 A1 818
 A2 113 CF CY
 (A1+A2) x 0.5 x D = 698.3 25.9

$SA_{min} = \frac{\text{Required sediment storage}}{\text{excavation depth}}$
 $SA_{min} = \frac{360.0 \text{ cf}}{1.5 \text{ ft}}$
 $SA_{min} = 240.0 \text{ sf}$

6 Assume shape of excavation and determine dimensions.
 (A rectangular shape with 2:1 length to width ratio is recommended)
 Shape: rectangular
 Dimensions: l = 40 ft w = 18 ft diameter (if applicable) = ___ ft



- GENERAL NOTES:**
- CLEAR THE AREA OF ALL DEBRIS THAT MIGHT HINDER EXCAVATION AND DISPOSAL OF SPOIL.
 - GRADE THE APPROACH OF THE INLET UNIFORMLY.
 - PROTECT WEEP HOLES BY GRAVEL.
 - WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, SEAL WEEP HOLES, FILL THE EXCAVATED BASIN WITH STABLE SOIL TO FINAL GRADING ELEVATIONS, COMPACT THE FILL PROPERLY AND STABILIZE.

TYPICAL EXCAVATED DROP INLET PROTECTION DETAIL

ROCK PIPE INLET PROTECTION DETAIL

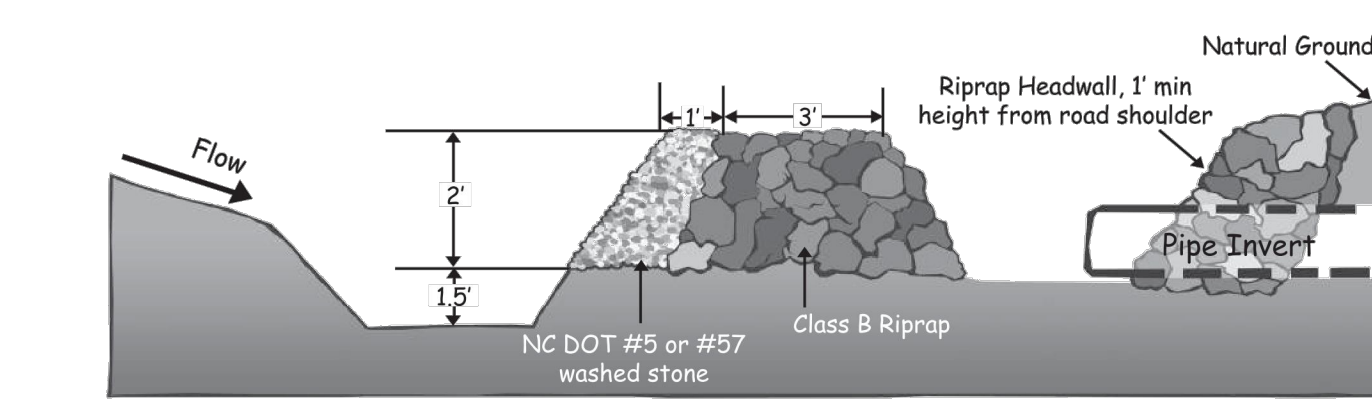
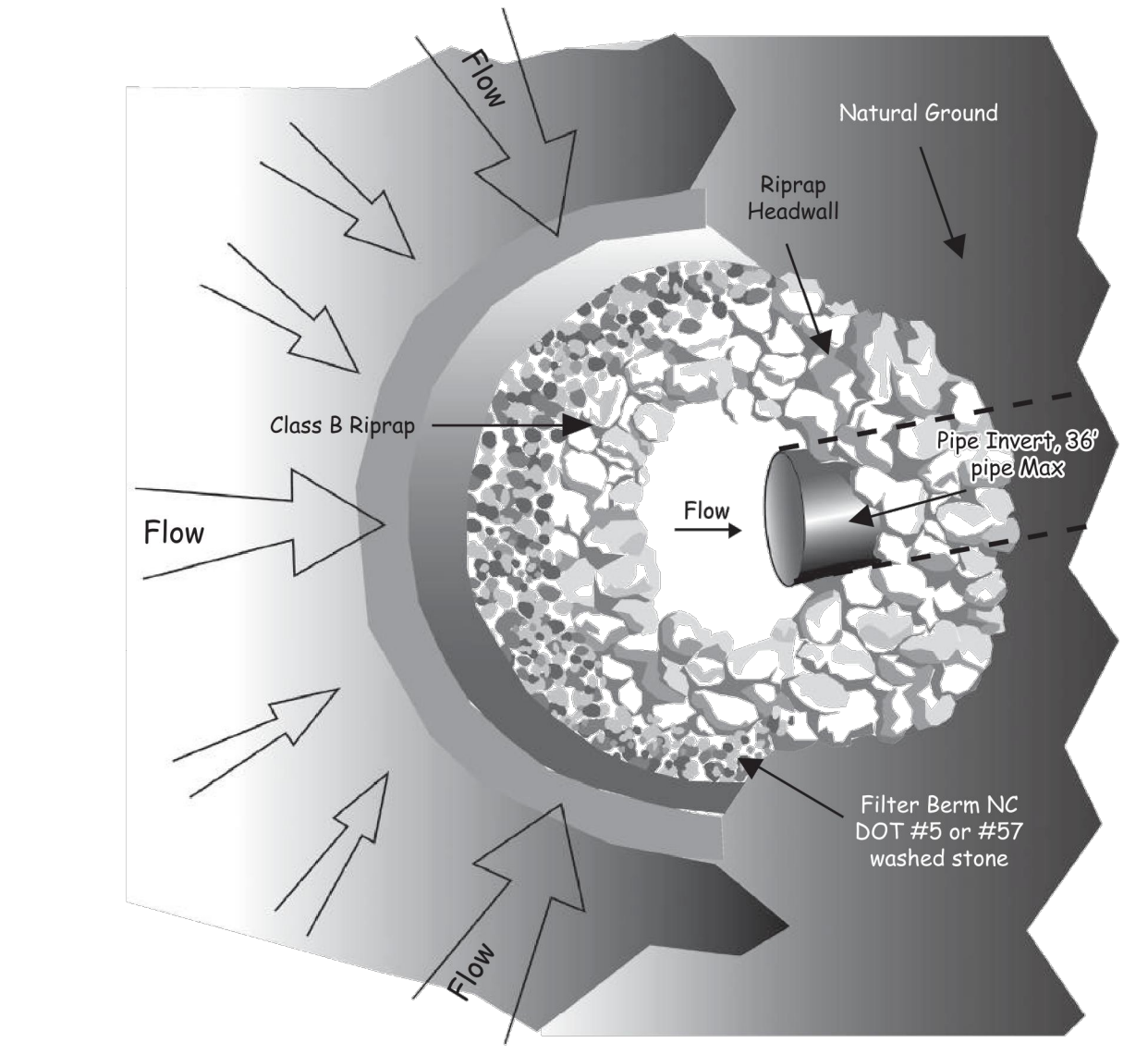
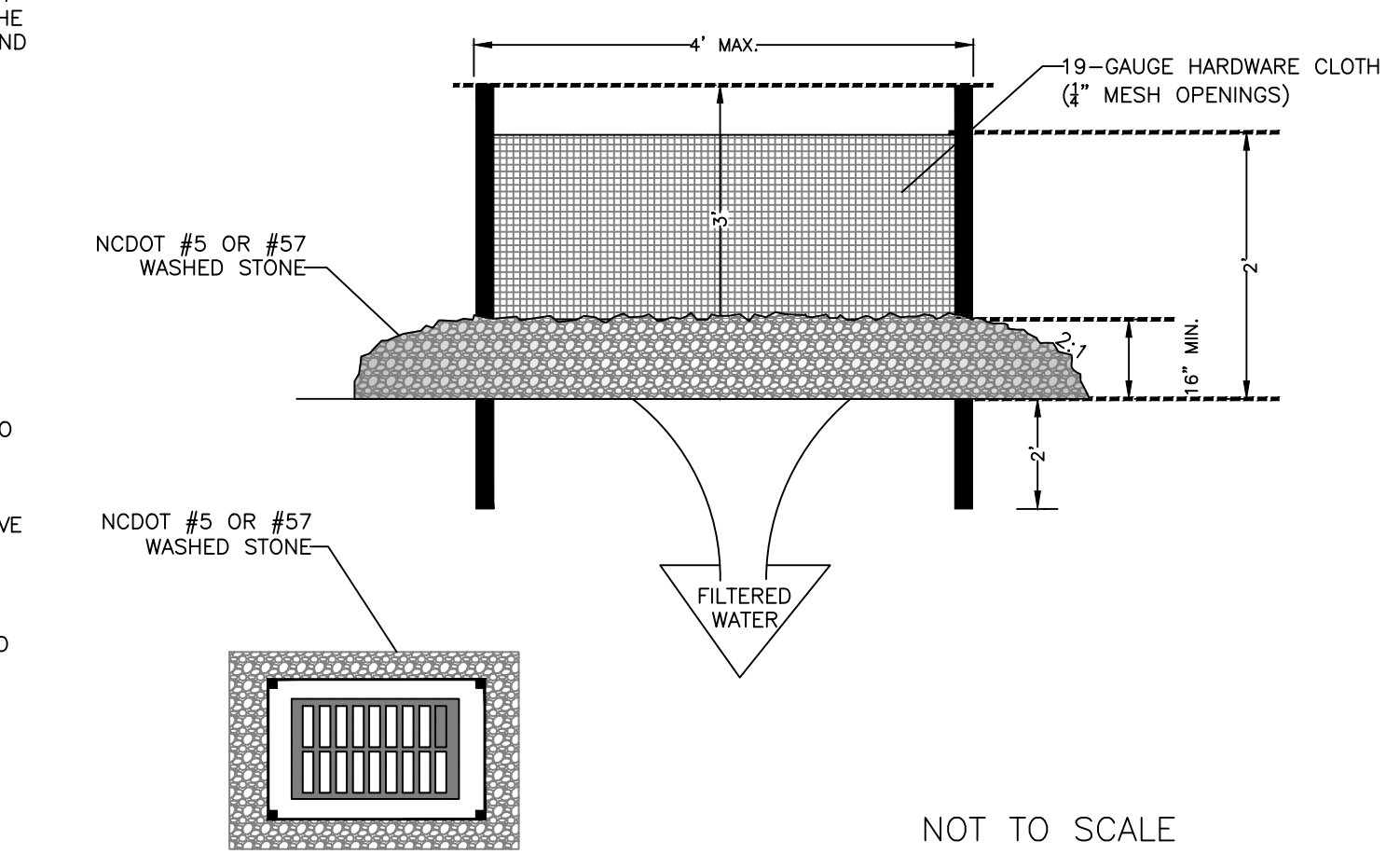


Figure 6.55a Rock pipe inlet protection plan view and cross-section view

GENERAL NOTES:

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



HARDWARE CLOTH AND GRAVEL INLET PROTECTION

US Army Corps of Engineers®

ISSUE DATE	DESCRIPTION	MARK	DATE
NOVEMBER 2023			
NOVEMBER 2023			
NOVEMBER 2023			
NOVEMBER 2023			

DESIGNED BY: G. MUSE	CHECKED BY: R. RADTKE	SUBMITTED BY: J. DEACON	ANS/D
ISSUE DATE: NOVEMBER 2023	DESIGNED BY: G. MUSE	ISSUE DATE: NOVEMBER 2023	ANS/D
NOVEMBER 2023	NOVEMBER 2023	NOVEMBER 2023	NOVEMBER 2023
NOVEMBER 2023	NOVEMBER 2023	NOVEMBER 2023	NOVEMBER 2023
NOVEMBER 2023	NOVEMBER 2023	NOVEMBER 2023	NOVEMBER 2023

U.S. ARMY CORPS OF ENGINEERS
 SAVANNAH DISTRICT
 100 W. OGLETHORPE AVE.
 SAVANNAH, GA 31401

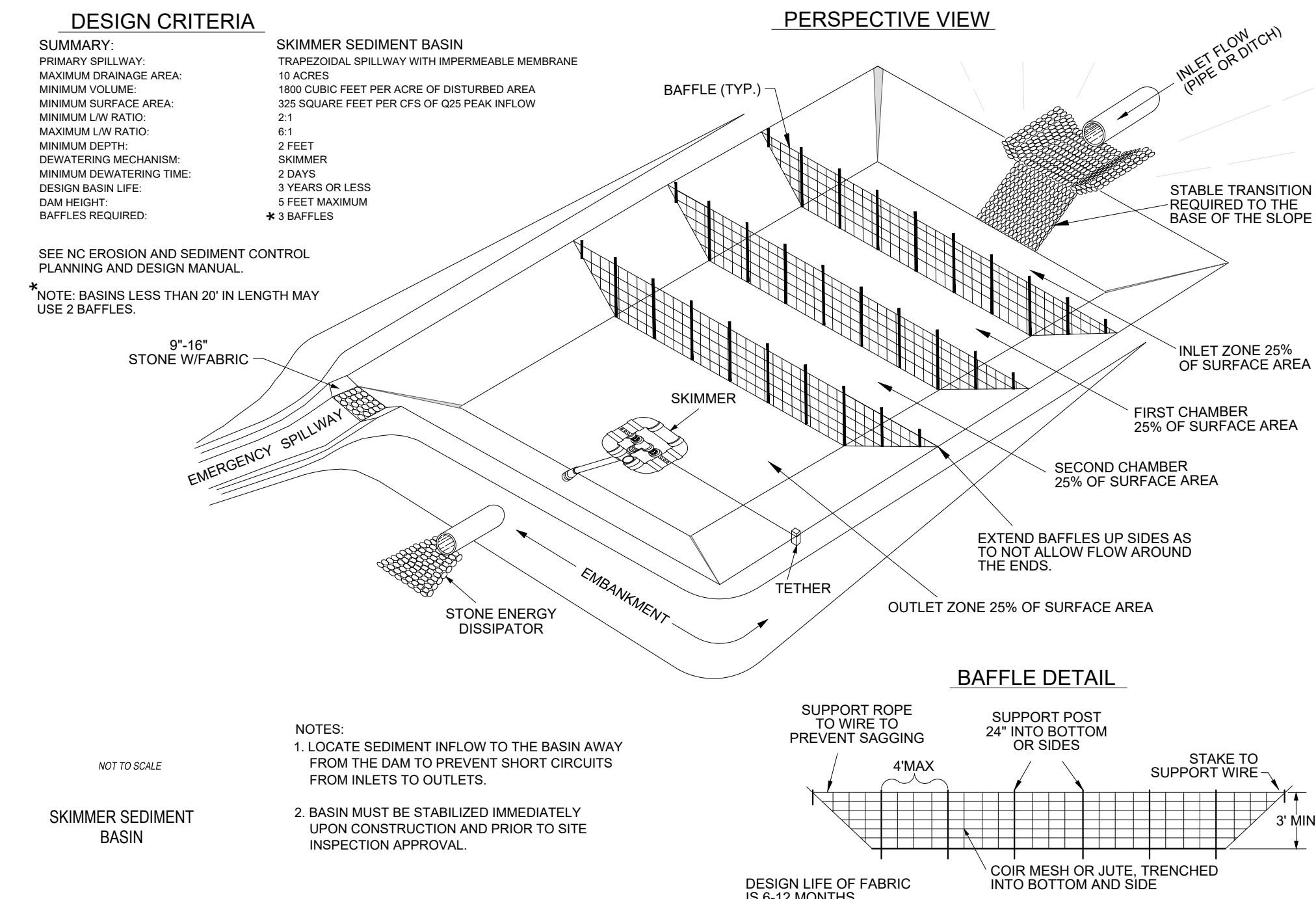
FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE

E&SC DETAILS

SHEET ID
CG711

OUTLET STABILIZATION

CULVERT No.	d (IN)	FLOW RATE (CFS)	VELOCITY (ft/s)	TAILWATER CONDITION	La (FT)	W1 (FT)	W2 (FT)	d50 (IN)	D (IN)	DEFINED CHANNEL
FES-9	24	16.6	5.29	MINIMAL	13	6	15	6	12.13	NO
FES-8	15	1.6	1.30	MINIMAL	8	3.8	9.25	3	6	NO
FES-7	15	3.3	3.31	MINIMAL	8.5	3.75	9.25	3	6	NO
FES 1	15	3.5	4.51	YES	6	3.75	3.65	6	6	NO
FES 3	15	0.8	3.95	MINIMAL	8.5	NOTE 7	NOTE 7	6	6	YES
FES 6	15	1.2	5.22	YES	6	NOTE 7	NOTE 7	6	6	YES
DA1 INITIAL	2	0.03	1.37	MINIMAL	4	0.50	4.16	1.25	6	NO
DA2 INITIAL	8	0.95	3.13	MINIMAL	4	2.00	4.66	1.25	6	NO
DA2 INTERMEDIATE	3	0.07	1.65	MINIMAL	4	0.75	4.25	1.25	6	NO
DA4 INTERMEDIATE	4	0.15	1.89	MINIMAL	4	1.00	4.33	1.25	6	NO

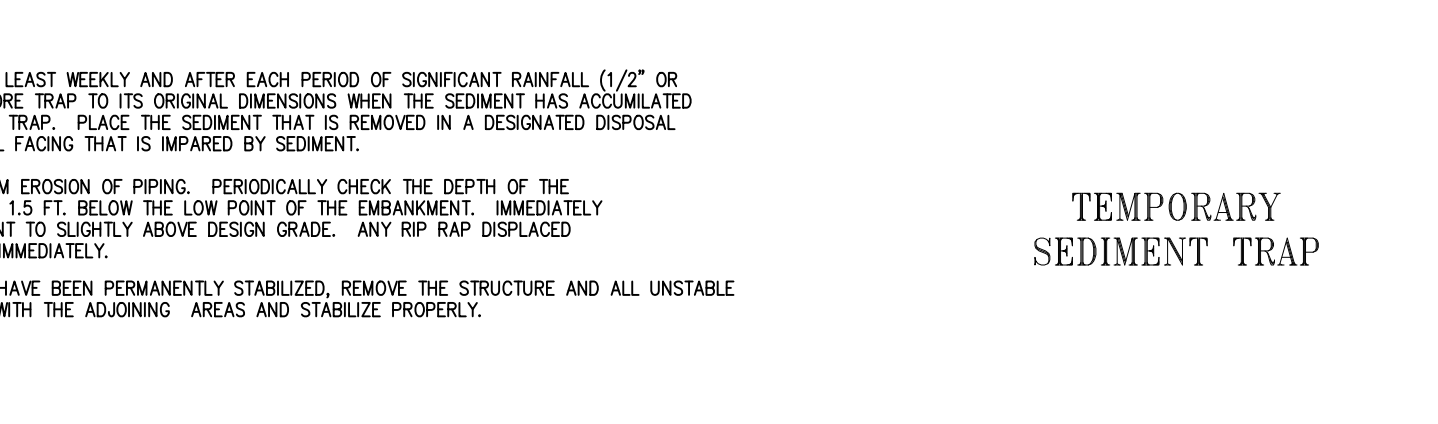
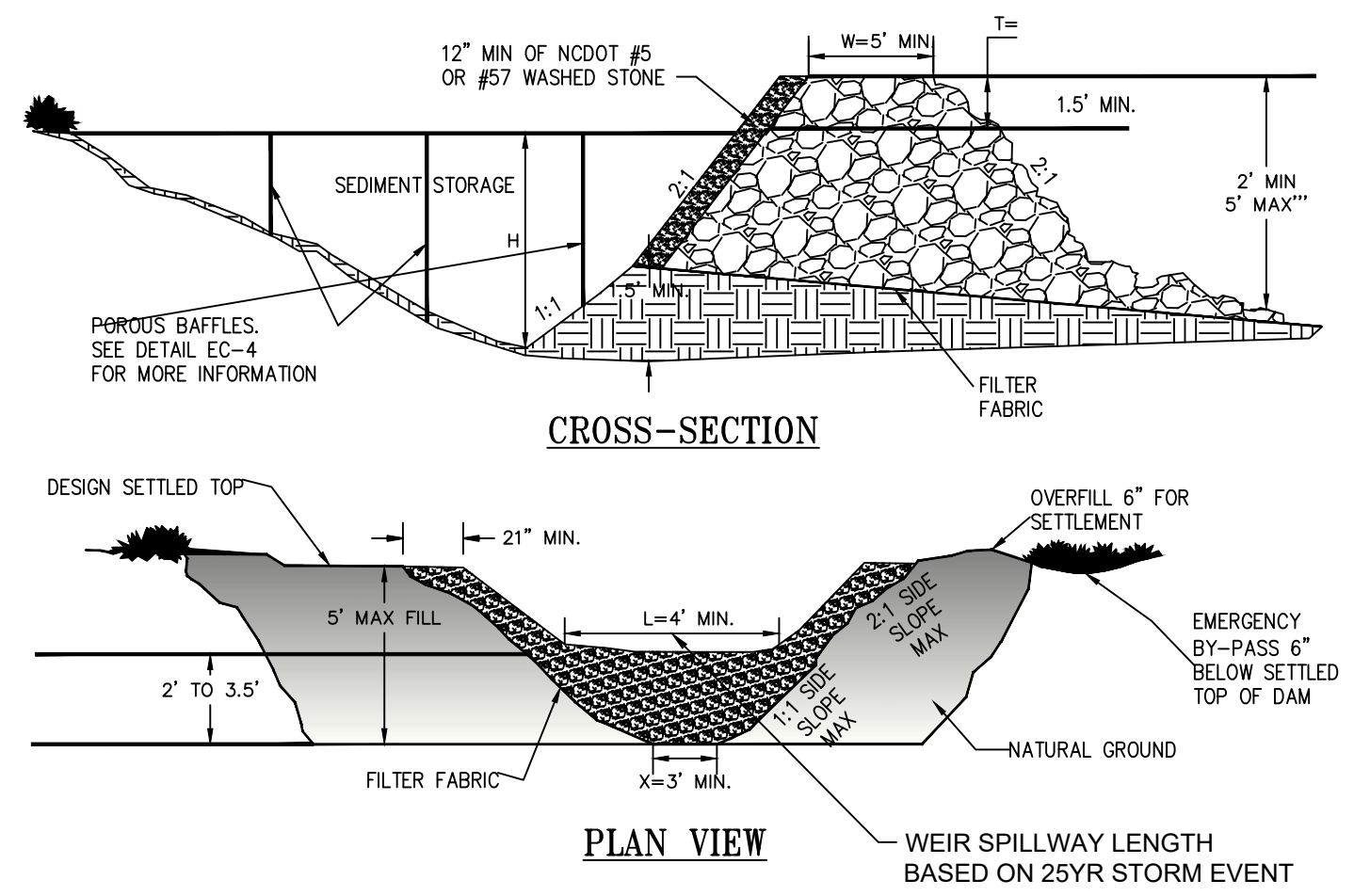


NOTES:

- ALL PRACTICES SHALL BE IN ACCORDANCE WITH THE NORTH CAROLINA "EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL" LATEST EDITION. SEDIMENT AND EROSION CONTROL SHALL BE STRICTLY ENFORCED
- d=PIPE DIAMETER
- La = APRON LENGTH
- W1 = WIDTH OF THE APRON AT THE PIPE OUTLET
- W2 = DOWNSTREAM WIDTH OF THE APRON
- D50 = AVERAGE STONE DIAMETER
- D = RIPRAP DEPTH
- FOR PIPES DISCHARGING DIRECTLY INTO WELL-DEFINED CHANNELS, THE APRON SHALL EXTEND ACROSS THE CHANNEL BOTTOM AND UP THE CHANNEL BANKS TO THE TOP OF THE BANK.
- PROVIDE INLET STABILIZATION ON THE INLET SIDE OF ALL CULVERTS. INLET STABILIZATION SHALL BE THE SAME SIZE AND SPECIFICATIONS AS THE OUTLET PROTECTION, EXCEPT THAT La SHALL BE HALF THE LENGTH.
- SEE DETAILS ON SHEET CG771

TEMPORARY SEDIMENT TRAP DESIGN CRITERIA

DRAINAGE AREA (ACRES)	< 1 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MIN. SEDIMENT STORAGE VOLUME REQUIRED	3600 (CU. FT. PER AC. OF DISTURBED)
SURFACE AREA REQUIRED	435 (SQ. FT. PER CFS Q10)
POROUS BAFFLES REQUIRED	3
SPILLWAY WEIR LENGTH	4.0 FT. MINIMUM



SEDIMENT STORAGE TRAP CALCULATIONS (INITIAL PHASE <1AC DRAINAGE AREA)

Category	DA1	DA2	DA3	DA4
Disturbed Area (AC)	1.50	5.89	1.70	2.42
Req'd Storage (CF)	2700.0	10602.0	3060.0	4356.0
Req'd Cleanout Vol. (CF)	1350.0	5301.0	1530.0	2178.0
Provided Storage (CF)	11001.0	36609.0	7760.0	14604.0
Provided Cleanout Storage (CF)	5500.5	18304.5	3880.0	7302.0
Bottom of Basin Elev. (FT)	292.50	294.00	292.50	295.00
Clean-Out Elev. (FT)	294.09	295.33	294.09	297.59
Riser Crest Elevation (FT)	N/A	N/A	N/A	N/A
Skimmer Size (IN)	2	8	2.5	6
Skimmer Orifice Diameter (IN)	1	1.5	1	1.25
Emergency Spillway Crest Elev. (FT)	295.5	296.5	295	298
Emergency Spillway Bottom Width (FT)	5	28	12	19
Emergency Spillway Length (FT)	8	20	5	5
Emergency Spillway Exit Channel Length (FT)	2	25	5.5	9
Emergency Spillway Lining Material	RIP-RAP	RIP-RAP	RIP-RAP	RIP-RAP
Emergency Spillway Embankment Slope (Se, %)	3:1	3:1	3:1	3:1
Emergency Spillway Outlet Channel Slope (So, %)	2:1	40:1	2:1	2:1
Emergency Spillway Head (Hp, FT)	0.17	0.41	0.21	0.42
Freeboard (FT)	1.33	1.09	1.29	1.08
Top of Berm Constructed Elev. (FT)	297.10	298.10	296.60	299.60
Top of Berm Settled Elev. (FT)	297.00	298.00	296.50	297.00
Top of Berm Width (FT)	8	8	5	5
Outlet Pipe Diameter (IN)	2	8	2.5	6
Outlet Pipe Length (FT)	54	135	20	32
Outlet Pipe Invert Elev. (FT)	292.5	294.0	292.5	295.0
Outlet Pipe Outlet Invert Elev. (FT)	292.3	293.6	292.45	294.9
Core Trench Depth (FT)	2	2	2	2
Core Trench Side Slopes (H:V)	1:1	1:1	1:1	1:1
Core Trench Bottom Width (FT)	4	4	4	4
Riser Diameter (IN)	N/A	N/A	N/A	N/A
Concrete Antifloatation Block Width (FT)	N/A	N/A	N/A	N/A
Concrete Antifloatation Block Length (FT)	N/A	N/A	N/A	N/A
Concrete Antifloatation Block Depth (FT)	N/A	N/A	N/A	N/A
Antiseep Collar Width (FT)	4	4	4	4
Antiseep Collar Length (FT)	4	4	4	4
Basin Bottom Width (FT)	11	67	17	35
Basin Bottom Length (FT)	173	212	125	102
Basin Width at Design Water Elevation (FT)	29	82	35	53
Basin Length at Design Water Elevation (FT)	191	227	143	112
Basin Design Depth (Height of Riser) (FT)	3	2.5	3	2.5
Basin Inflow Rate, 10yr (CFS)	3.36	21.65	9.57	14.59
Basin Inflow Rate, 25yr (CFS)	4.98	29.49	11.87	19.23
Rainfall Intensity, 10yr, 24hr (IN/HR)	0.227	0.227	0.227	0.227
Rainfall Intensity, 25yr, 24hr (IN/HR)	0.271	0.271	0.271	0.271
Composite Curve Number (CN)	60	70	86	75

SEDIMENT SKIMMER BASIN (INITIAL & INTERMEDIATE PHASES)

SEDIMENT BASIN CALCULATIONS

	INITIAL		INTERMEDIATE			
	DA1	DA2	DA1	DA2	DA3	DA4
Disturbed Area (AC)	1.50	5.89	1.70	2.42	3.00	1.70
Req'd Storage (CF)	2700.0	10602.0	3060.0	4356.0	5400.0	3060.0
Req'd Cleanout Vol. (CF)	1350.0	5301.0	1530.0	2178.0	2700.0	1530.0
Provided Storage (CF)	11001.0	36609.0	7760.0	14604.0	38558.0	7920.0
Provided Cleanout Storage (CF)	5500.5	18304.5	3880.0	7302.0	19279.0	3960.0
Bottom of Basin Elev. (FT)	292.50	294.00	292.50	295.00	294.50	302.50
Clean-Out Elev. (FT)	294.09	295.33	294.09	297.59	295.67	304.33
Riser Crest Elevation (FT)	N/A	N/A	N/A	N/A	N/A	N/A
Skimmer Size (IN)	2	8	2.5	6	3	2.5
Skimmer Orifice Diameter (IN)	1	1.5	1	1	1.25	1
Emergency Spillway Crest Elev. (FT)	295.5	296.5	295	298	297.5	304.5
Emergency Spillway Bottom Width (FT)	5	28	12	19	43	12
Emergency Spillway Length (FT)	8	20	5	5	5	8
Emergency Spillway Exit Channel Length (FT)	2	25	5.5	9	2	4.5
Emergency Spillway Lining Material	RIP-RAP	RIP-RAP	RIP-RAP	RIP-RAP	RIP-RAP	RIP-RAP
Emergency Spillway Embankment Slope (Se, %)	3:1	3:1	3:1	3:1	3:1	3:1
Emergency Spillway Outlet Channel Slope (So, %)	2:1	40:1	2:1	2:1	2:1	3:1
Emergency Spillway Head (Hp, FT)	0.17	0.41	0.21	0.42	0.25	0.21
Freeboard (FT)	1.33	1.09	1.29	1.08	1.25	1.29
Top of Berm Constructed Elev. (FT)	297.10	298.10	296.60	299.60	297.10	306.10
Top of Berm Settled Elev. (FT)	297.00	298.00	296.50	297.00	297.00	306.00
Top of Berm Width (FT)	8	8	5	5	5	5
Outlet Pipe Diameter (IN)	2	8	2.5	6	3	4
Outlet Pipe Length (FT)	54	135	20	32	32	176
Outlet Pipe Invert Elev. (FT)	292.5	294.0	292.5	295.0	294.5	302.5
Outlet Pipe Outlet Invert Elev. (FT)	292.3	293.6	292.45	294.9	294.9	302.1
Core Trench Depth (FT)	2	2	2	2	2	2
Core Trench Side Slopes (H:V)	1:1	1:1	1:1	1:1	1:1	1:1
Core Trench Bottom Width (FT)	4	4	4	4	4	4
Riser Diameter (IN)	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Antifloatation Block Width (FT)	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Antifloatation Block Length (FT)	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Antifloatation Block Depth (FT)	N/A	N/A	N/A	N/A	N/A	N/A
Antiseep Collar Width (FT)	4	4	4	4	4	4
Antiseep Collar Length (FT)	4	4	4	4	4	4
Basin Bottom Width (FT)	11	67	17	35	60	39
Basin Bottom Length (FT)	173	212	125	102	212	91
Basin Width at Design Water Elevation (FT)	29	82	35	53	75	54
Basin Length at Design Water Elevation (FT)	191	227	143	112	227	106
Basin Design Depth (Height of Riser) (FT)	3	2.5	3	3	2.5	2.5
Basin Inflow Rate, 10yr (CFS)	3.36	21.65	9.57	14.59	34.63	9.57
Basin Inflow Rate, 25yr (CFS)	4.98	29.49	11.87	19.23	44.90	11.87
Rainfall Intensity, 10yr, 24hr (IN/HR)	0.227	0.227	0.227	0.227	0.227	0.227
Rainfall Intensity, 25yr, 24hr (IN/HR)	0.271	0.271	0.271	0.271	0.271	0.271
Composite Curve Number (CN)	60	70	86	75	86	86

TEMP. DIVERSION CALCULATIONS (SEE CG783 FOR DETAILS)

CI#	DRAINAGE AREA (ACRES)	Q10 (CFS)	LENGTH (FT)	RIDGE WIDTH (FT)	RIDGE HEIGHT (FT)	CHANNEL SHAPE	DEPTH OF FLOW (FT)	CHANNEL BOTTOM WIDTH (FT)	CHANNEL SIDE SLOPES (H:V)	TOP WIDTH (FT)	FREEBOARD (FT)
PERMANENT SWALE OFFSITE AREA	3	1.3	260	23	1	TRAPEZOIDAL	0.2500	4	3':1'	7	0.7500

US Army Corps of Engineers

DATE	DESCRIPTION	MARK

ISSUE DATE: NOVEMBER 2023
 DESIGNED BY: [Redacted]
 DRAWN BY: [Redacted]
 CHECKED BY: [Redacted]
 SUBMITTED BY: J. DEACON
 CATEGORY CODE: 178-85-01
 ANSID: [Redacted]

U.S. ARMY CORPS OF ENGINEERS
 SAVANNAH DISTRICT
 100 W. OGLETHORPE AVE.
 SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE
 E&S DETAILS

SHEET ID
CG712

LEGEND

EXISTING	NEW	
	· · · · ·	DEMOLITION
○-X	●-X	POLE MOUNTED LUMINAIRE
— EPx —		PRIMARY POWER DISTRIBUTION, AERIAL
— EPx —	— EP —	PRIMARY POWER DISTRIBUTION, UNDERGROUND
— ESx —	— ES —	SECONDARY POWER DISTRIBUTION, UNDERGROUND
□	■	PAD MOUNTED TRANSFORMER
□ _J	■ _J	SECTIONALIZING TERMINAL CABINET
□ _S	■ _S	PAD MOUNTED SWITCH
	■	PANELBOARD
○	●	UTILITY POLE
□	■	UTILITY POLE WITH UNDERGROUND RISER
— COMx —	— COM —	UNDERGROUND COMMUNICATIONS LINE
□ _C	■ _C	TELECOMMUNICATIONS MANHOLE
□ _H	■ _H	TELECOMMUNICATIONS HANDHOLE
	— EG —	#1/0 ACSR, LIGHTNING PROTECTION CONDUCTOR, CATENARY TO POLE-MOUNTED AIR TERMINAL(S)
	— · EG — · EG —	CLASS I CONDUCTOR, COPPER, COUNTERPOISE
	⊥●	POLE-MOUNTED AIR TERMINAL WITH #1/0 CU DOWN CONDUCTOR TO GROUND ROD
	→	GUY WIRE AND ANCHOR PIN

SITE GENERAL NOTES

- ALL WORK SHALL BE COORDINATED WITH THE NEW AND EXISTING UTILITIES THAT ARE SHOWN ON THE CIVIL, LANDSCAPE, ENVIRONMENTAL, AND MECHANICAL SITE DRAWINGS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO POWER, COMMUNICATIONS, LIGHTING, STORM DRAINS, SANITARY SEWERS, WATER LINES, STEAM LINES, HIGH TEMP WATER LINES, CHILLED WATER LINES, AND GAS LINES.
- THE LOCATIONS OF NEW AND EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
- THE CONTRACTOR SHALL COORDINATE THE EXACT ROUTING OF THE ELECTRICAL AND COMMUNICATIONS SERVICE DUCTLINES INTO THE BUILDING WITH THE STRUCTURAL FOOTINGS TO AVOID CONFLICT. SEE THE INTERIOR ELECTRICAL POWER AND SIGNAL PLANS FOR THE LOCATION OF THE ELECTRICAL SERVICE ENTRANCE EQUIPMENT AND THE COMMUNICATION HEAD-END EQUIPMENT.
- IDENTIFIED UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR IMMEDIATELY AND AT NO ADDITIONAL COST TO THE GOVERNMENT.

SITE TELECOM SCOPE OF WORK NOTES

- ALL SITE TELECOMMUNICATIONS WORK SHALL BE PROVIDED BY THE CONTRACTOR, THIS INCLUDES, BUT IS NOT LIMITED TO: DEMOLITION, NEW WORK, SPLICES, AND TESTING.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE US ARMY INFORMATION SYSTEMS ENGINEERING COMMAND (USAISEC) OUTSIDE PLANT DESIGN AND PERFORMANCE REQUIREMENTS (OSPDDR), AND THE I3A CRITERIA.
- THE CONTRACTOR SHALL STAKE THE ROUTE OF EACH LINE AND INDICATE THE EXACT LOCATION OF NEW DUCTS, DUCT TERMINATIONS, HANDHOLES, AND HANDHOLE ORIENTATIONS FOR APPROVAL BY THE FORT BRAGG NETWORK ENTERPRISE CENTER (NEC POC: KEITH ROGERS (910) 396-4475) AND THE CONTRACTING OFFICER'S REPRESENTATIVE (COR).
- THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE NEC AND THE COR PRIOR TO DEMOLISHING ANY EXISTING COMMUNICATIONS EQUIPMENT, DUCTLINES, OR CABLING AND PRIOR TO BACKFILLING COMMUNICATIONS DUCTLINE TRENCHES.
- COMMUNICATIONS DUCTLINE SPARES SHALL BE CLEANED AND MANDRELLED. MANDRELLING SHALL BE WITNESSED BY REPRESENTATIVES OF THE COR AND NEC.
- NEW COMMUNICATIONS DUCTLINE SPARES SHALL BE SEALED, CAPPED, AND TAGGED. SEALS SHALL BE MECHANICAL TYPE. SPARE DUCTLINES SHALL INCLUDE A PULL STRING.

SITE ELECTRICAL (ROCA) SCOPE OF WORK NOTES

- THESE NOTES REFLECT THE SCOPE OF WORK FOR THE ROCA AND ALONG PLANK ROAD. SEE VOLUME 4, SHEET ES601 FOR SITE ELECTRICAL (DOWNRANGE) SCOPE OF WORK NOTES.
- ALL WORK DONE BY SANDHILLS UTILITY SERVICES (SUS) SHALL BE PERFORMED UNDER A SEPARATE CONTRACT. UNLESS OTHERWISE INDICATED, SUS WILL PROVIDE UNDERGROUND DISTRIBUTION SUCH AS PRIMARY CABLING & CONDUIT, PAD MOUNTED TRANSFORMERS, SECTIONALIZING CABINETS, EQUIPMENT PADS, RISER ASSEMBLIES, PRIMARY CONNECTIONS, ETC. SANDHILLS UTILITY SERVICES (SUS) TO PROVIDE FINAL DETERMINATION OF TRANSFORMER SIZE.
- THE CONTRACTOR SHALL PROVIDE ALL SERVICE ENTRANCE CABLE FROM THE TRANSFORMER(S) TO THE MAIN DISTRIBUTION PANEL(S) (SUS WILL MAKE THE CONNECTIONS AT THE TRANSFORMER). CURRENT RATED TRANSFORMER (CT) METERING WILL BE PROVIDED BY SUS AT THE TRANSFORMER LOCATION.

SITE LIGHTING SCOPE OF WORK NOTES

- ALL SITE LIGHTING SHALL BE PROVIDED BY THE CONTRACTOR.

SITE LIGHTNING PROTECTION SCOPE OF WORK NOTES

- ALL SITE LIGHTNING PROTECTION SHALL BE PROVIDED BY THE CONTRACTOR.

ABBREVIATIONS

A	AMPERE	NO.	NUMBER
AFF	ABOVE FINISHED FLOOR	PH	PHASE
ATC	ASTRONOMICAL TIME CLOCK	R/W	RACEWAY
C	CONDUIT	SUS	SANDHILLS UTILITY SERVICES
CATV	CABLE TELEVISION	TV	TELEVISION
CB	CIRCUIT BREAKER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
CKT	CIRCUIT	TYP	TYPICAL
DTR	DATA TERMINATION RACK	UL	UNDERWRITERS LABORATORY
GFCI	GOVERNMENT FURNISHED CONTRACTOR INSTALLED	UOI	UNLESS OTHERWISE INDICATED
GFGI	GOVERNMENT FURNISHED GOVERNMENT INSTALLED	UON	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT INTERRUPTER	V	VOLT
GFP	GROUND FAULT PROTECTION	WP	WEATHERPROOF
HACR	HEATING AIR CONDITIONING REFRIGERATION		
HP	HORSEPOWER		
HPF	HIGH POWER FACTOR		
HT	HEIGHT		
HZ	HERTZ		
IDS	INTRUSION DETECTION SYSTEM		
KWH	KILOWATT HOUR		
LED	LIGHT EMITTING DIODE		
LVS	LOW VOLTAGE SWITCH		
MCB	MOLDED CASE CIRCUIT BREAKER		
MFR	MANUFACTURER		
MH	MOUNTING HEIGHT		
MLO	MAIN LUGS ONLY		
MMF	MULTI-MISSION FACILITY		
NEC	NETWORK ENTERPRISE CENTER		
NF	NON FUSED		
NIC	NOT IN CONTRACT		

SHEET INDEX

SITE POWER PLANS:	ES101-ES111
SITE TELECOM PLANS:	ES112-ES122
SITE LIGHTING PLANS:	ES123-ES128
SITE LIGHTNING PROTECTION PLANS:	ES129-ES134
SITE DETAILS:	ES501-ES504
SITE DIAGRAMS:	ES601-ES605

LUMINAIRE SCHEDULE

LUMINAIRE MARK	SOURCE TYPE	LUMINAIRE VOLTAGE	LUMINAIRE WATTAGE	INITIAL LUMENS	DISTRIBUTION TYPE	REMARKS
S1	LED	240 V	122 W	15,300	TYPE IV	DARK BRONZE FINISH;
S2	RED LED	240 V	60 W	3,000	FLOOD	DARK BRONZE FINISH; PROVIDE POLE TWIN ARM MOUNT;
OB	INCAN.	240 V	70 W	-	-	INCANDESCENT BULB, RED POLYCARBONATE LENS

POLE SCHEDULE

POLE MARK	MINIMUM POLE HEIGHT (FEET)	S1 LUMINAIRE QUANTITIES	S2 LUMINAIRE QUANTITIES	OB LUMINAIRE QUANTITIES	REMARKS
P1	40	1	2	0	
P2	40	0	0	0	PROVIDE CATENARY CONDUCTORS BETWEEN POLES AS INDICATED
P3	40	1	2	0	PROVIDE CATENARY CONDUCTORS BETWEEN POLES AS INDICATED
P4	24.5	0	0	1	FLAG POLE WITH OBSTRUCTION LIGHT



US Army Corps of Engineers®

DATE	DESCRIPTION	MARK
17AUG2023	REVISED IN ACCORDANCE WITH AMENDMENT 0004	1

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023	U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401
CHECKED BY: H. TAYLOR	DATE: NOV 24 2023	
SUBMITTED BY: R. DAVIS	CONTRACT NO.:	
ANS/D	CATEGORY CODE: 178-85-01	

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
FY23, PN 96182
VOLUME 1 - SITE

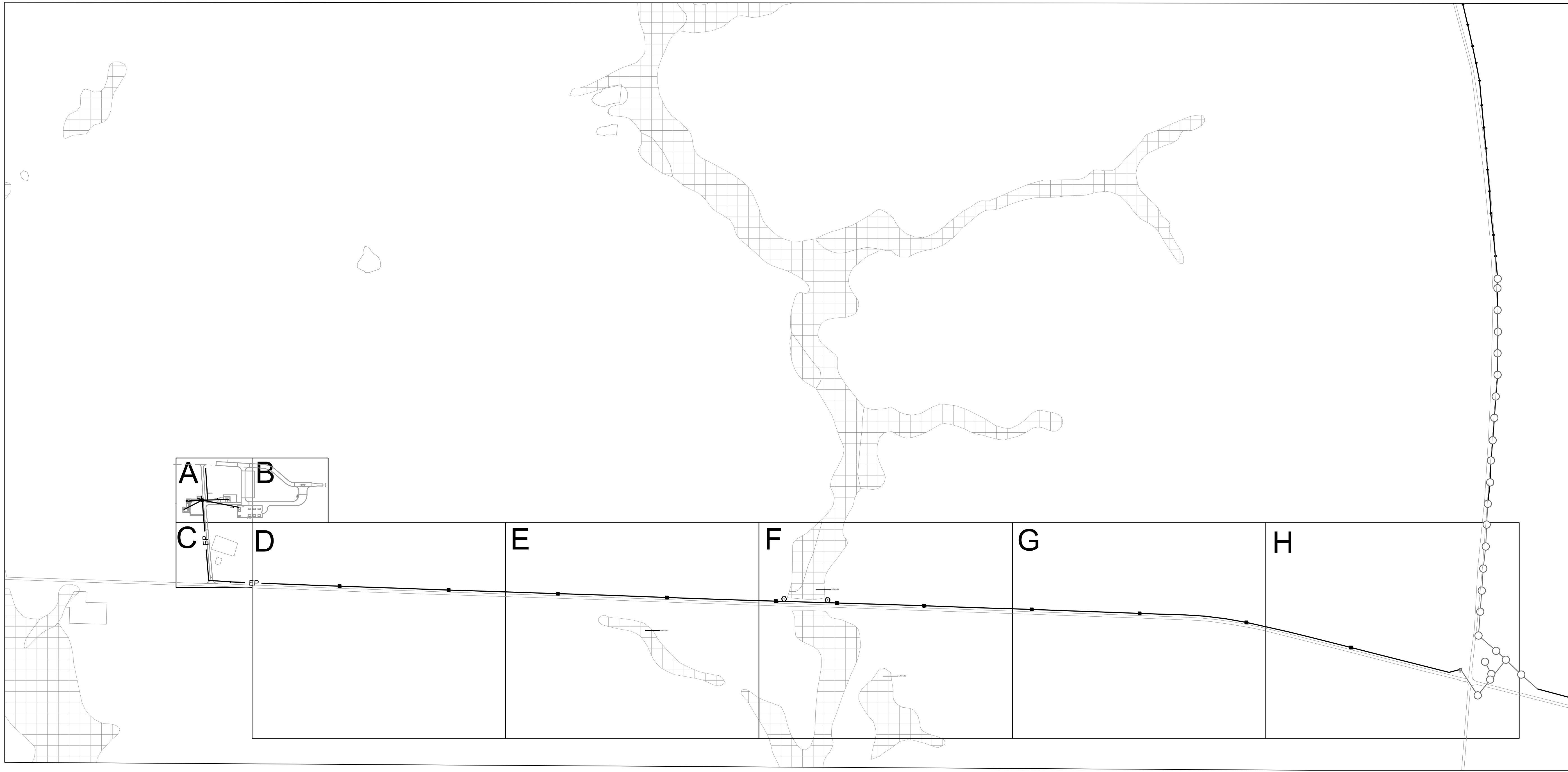
ELECTRICAL SITE LEGEND AND NOTES

SHEET ID

ES001

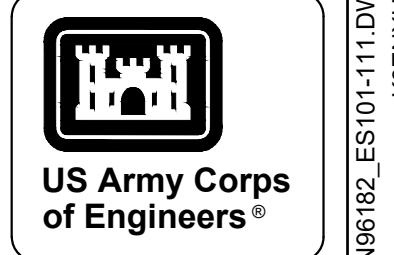
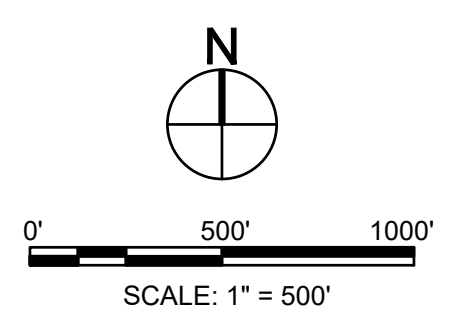
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P
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A



GENERAL SHEET NOTES:

1. A SEPARATE OVERALL PLAN SHALL BE PROVIDED FOR THE DOWNRANGE AREA (VOLUME 4 ES001)
2. THIS OVERALL SITE POWER PLAN CONSISTS OF A ROCA AREA (AREAS "A" - "C") AND A UTILITY AREA (AREAS "D" - "H")



MARK	DESCRIPTION	DATE

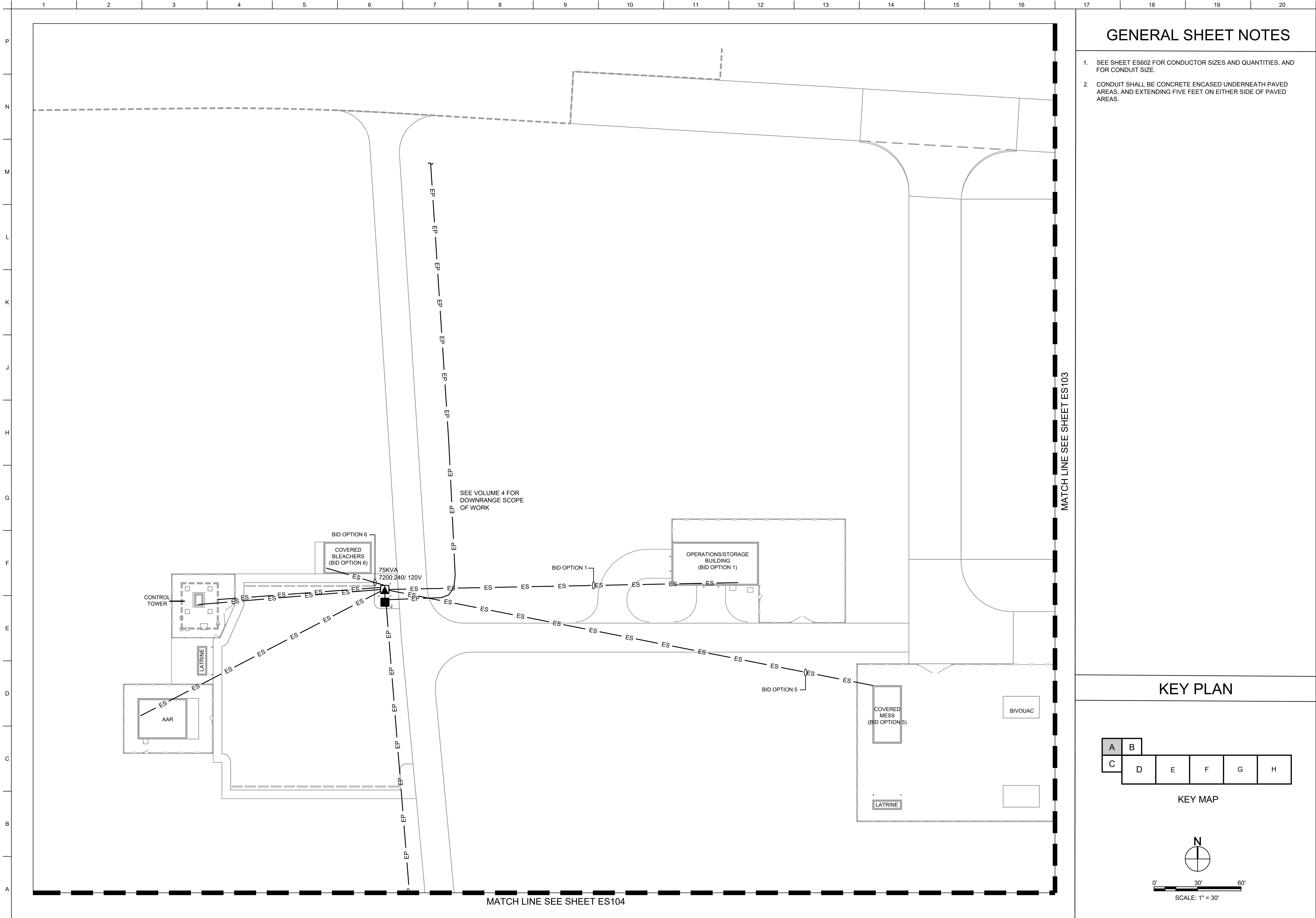
DESIGNED BY: H. TAYLOR		ISSUE DATE: NOVEMBER 2023	
CHECKED BY: H. TAYLOR		SCALE: AS SHOWN	
SUBMITTED BY: J. DEACON		CONTRACT NO.: W91PH22483002	
ANS/D		CATEGORY CODE: 178-65-01	
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401			

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE

SITE POWER PLAN - OVERALL

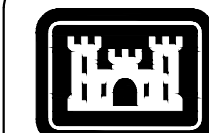
SHEET ID

ES101



GENERAL SHEET NOTES

1. SEE SHEET ES602 FOR CONDUCTOR SIZES AND QUANTITIES, AND FOR CONDUIT SIZE.
2. CONDUIT SHALL BE CONCRETE ENCASED UNDERNEATH PAVED AREAS, AND EXTENDING FIVE FEET ON EITHER SIDE OF PAVED AREAS.



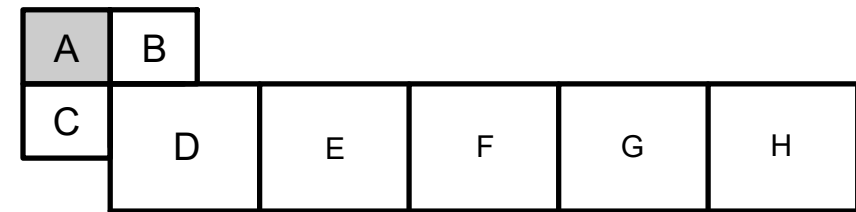
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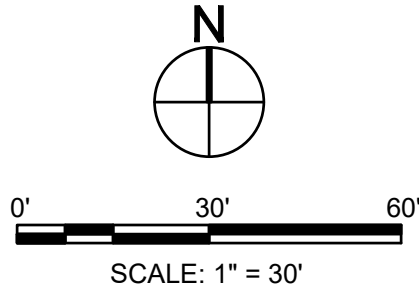
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	DATE: NOVEMBER 2023
APPROVED BY: R. DAVIS	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
ANS/D	SIZE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

KEY PLAN



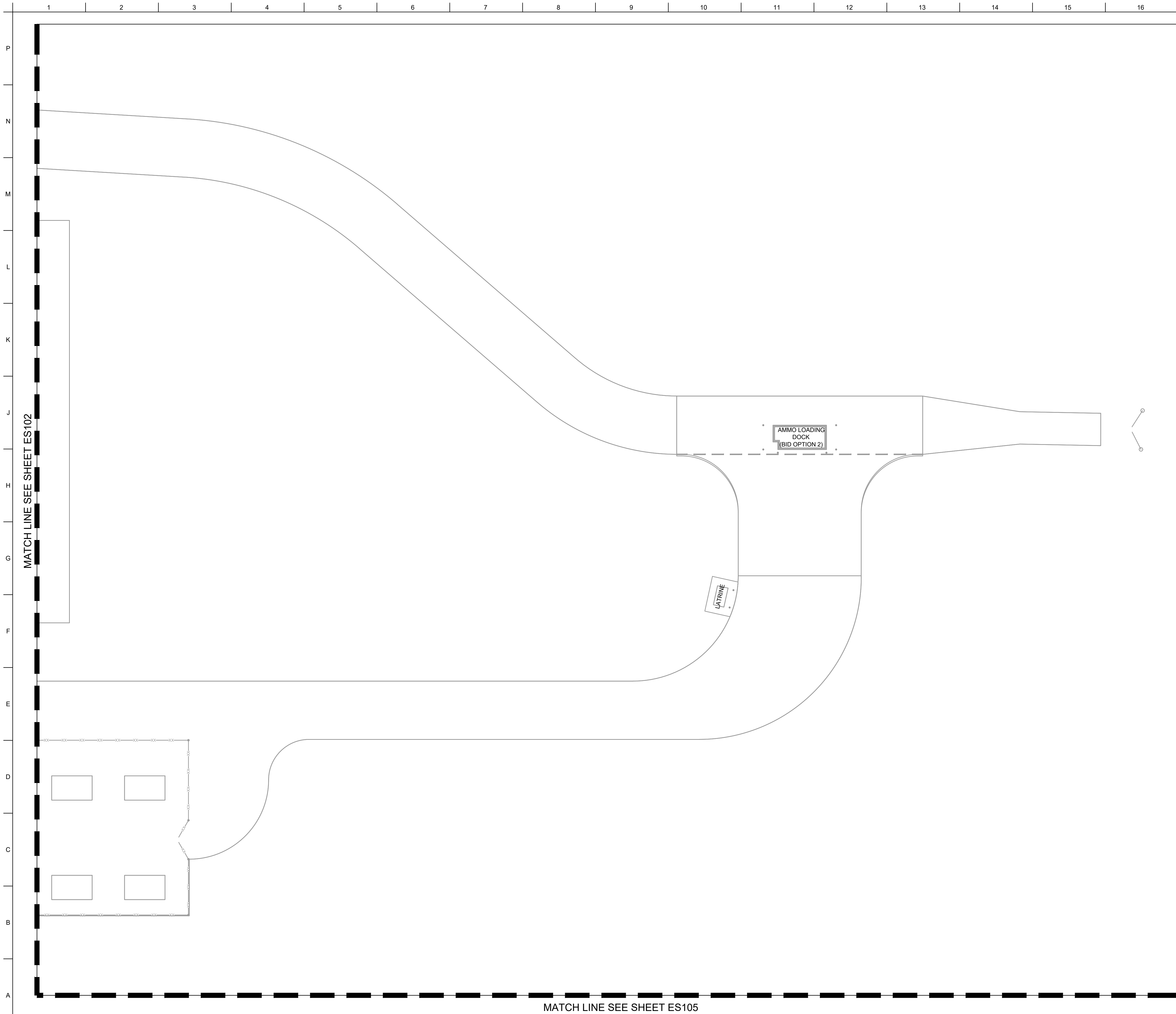
KEY MAP



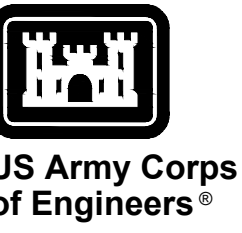
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

SITE POWER PLAN - AREA A

SHEET ID
ES102



GENERAL SHEET NOTES



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MARK	DESCRIPTION	DATE

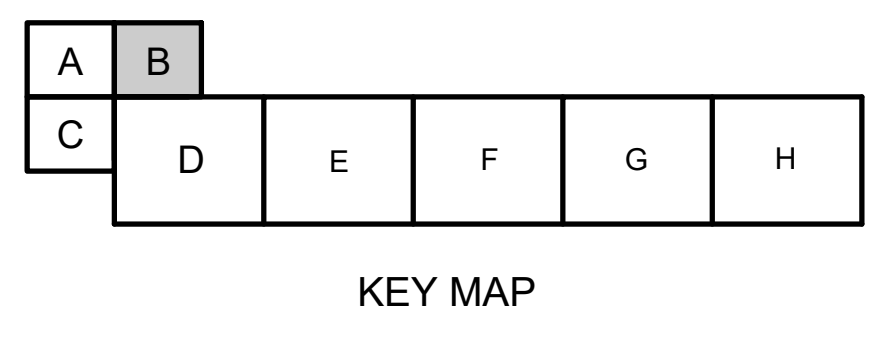
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	DATE: NOVEMBER 24, 2023
SUBMITTED BY: J. DEACON	CONTRACT NO.:
ANSID	CATEGORY CODE: 178-85-01

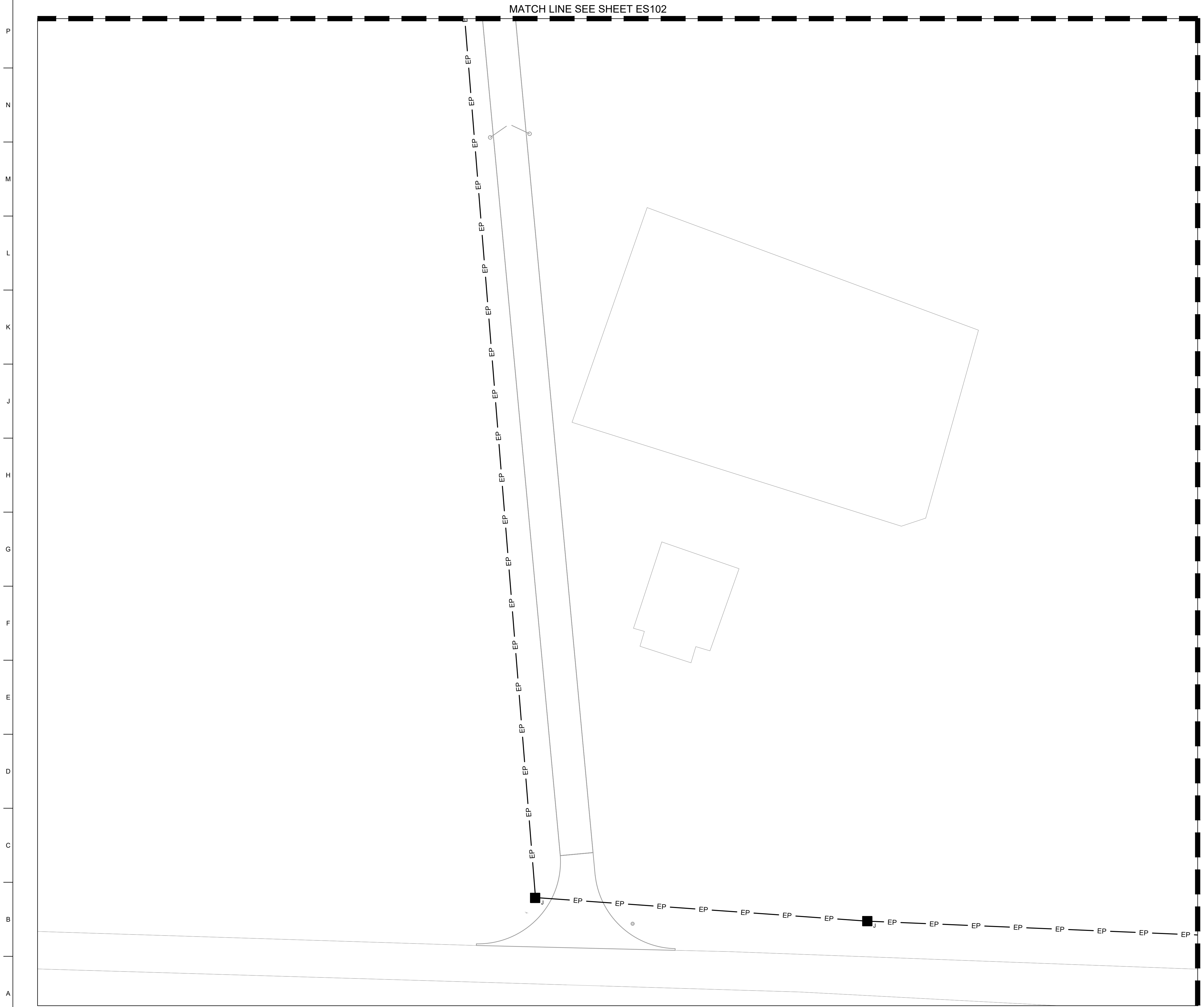
U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
FY23, PN 96182
VOLUME 1 - SITE
SITE POWER PLAN - AREA B

SHEET ID
ES103

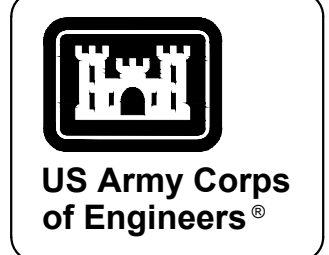
KEY PLAN





GENERAL SHEET NOTES

- CONDUIT SHALL BE CONCRETE ENCASED UNDERNEATH PAVED AREAS, AND EXTENDING FIVE FEET ON EITHER SIDE OF PAVED AREAS.

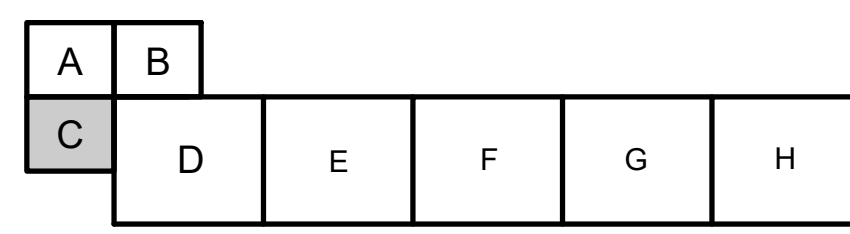


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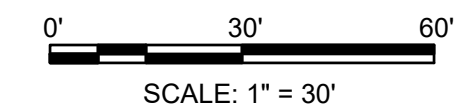
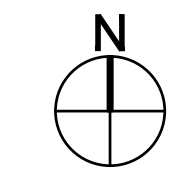
MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR H. TAYLOR CHECKED BY: R. DAVIS J. DEACON SIZE: ANSID		ISSUE DATE: NOVEMBER 2023 SAVANNAH DISTRICT W91PHZ24B3002 CONTRACT NO.: -- CATEGORY CODE: 178-65-01	
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401		U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

KEY PLAN

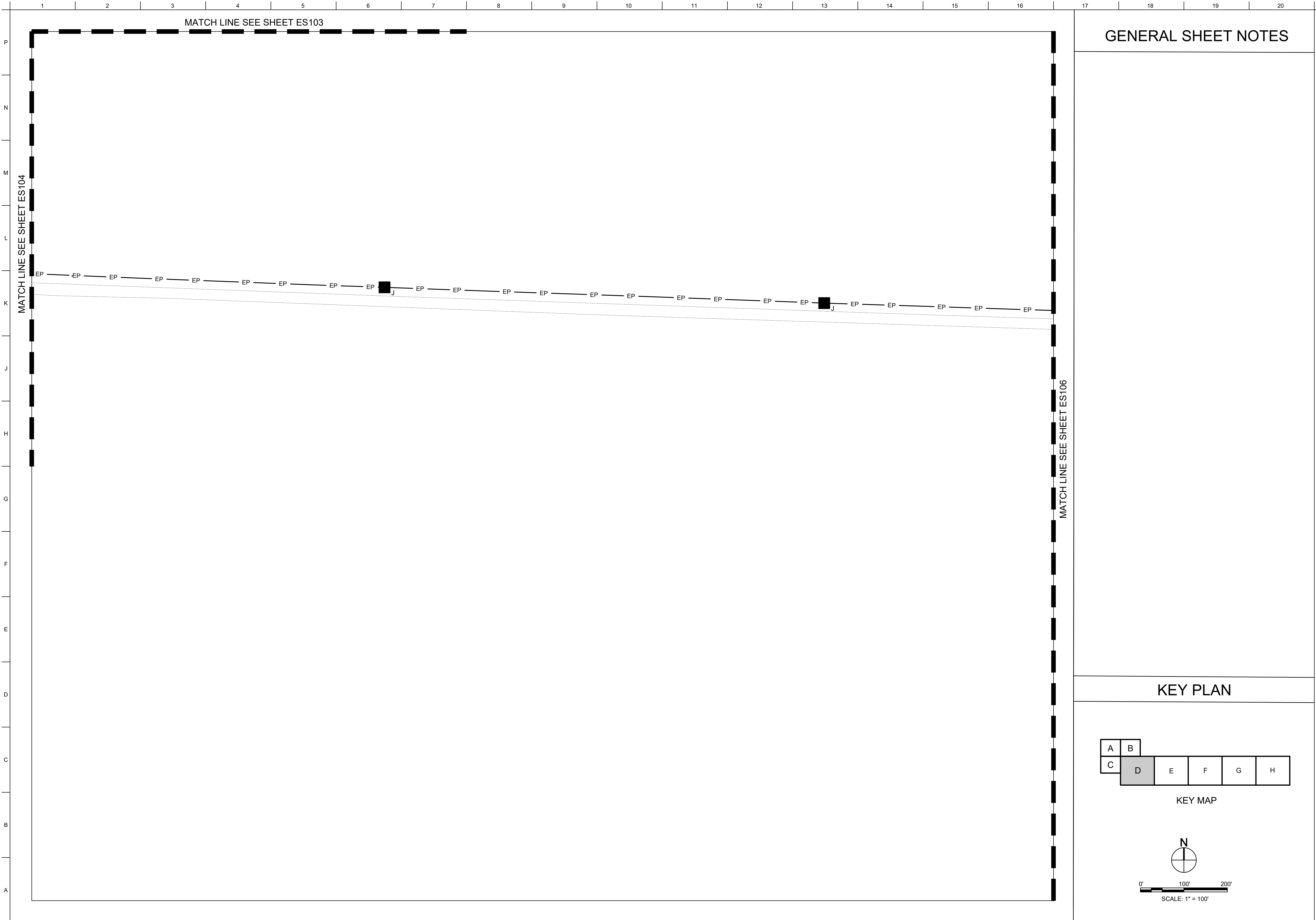


KEY MAP

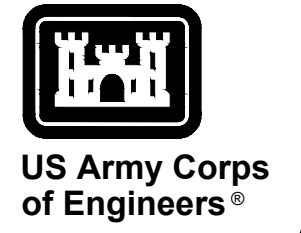


FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE
 SITE POWER PLAN - AREA C

SHEET ID
ES104



GENERAL SHEET NOTES



MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	SCALE: 1" = 100'
CHECKED BY: R. DAVIS	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-65-01
ANS/D SIZE:	

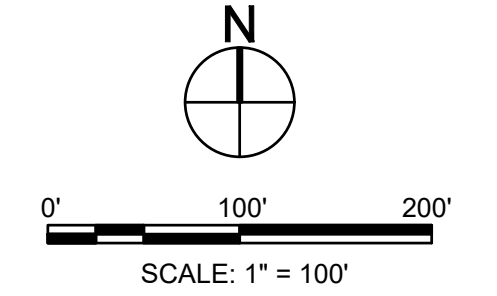
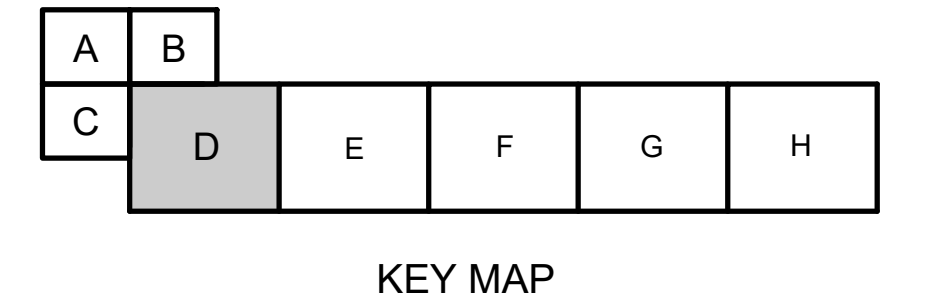
U.S. ARMY CORPS OF ENGINEERS
 SAVANNAH DISTRICT
 100 W. OGLETHORPE AVE.
 SAVANNAH, GA 31401

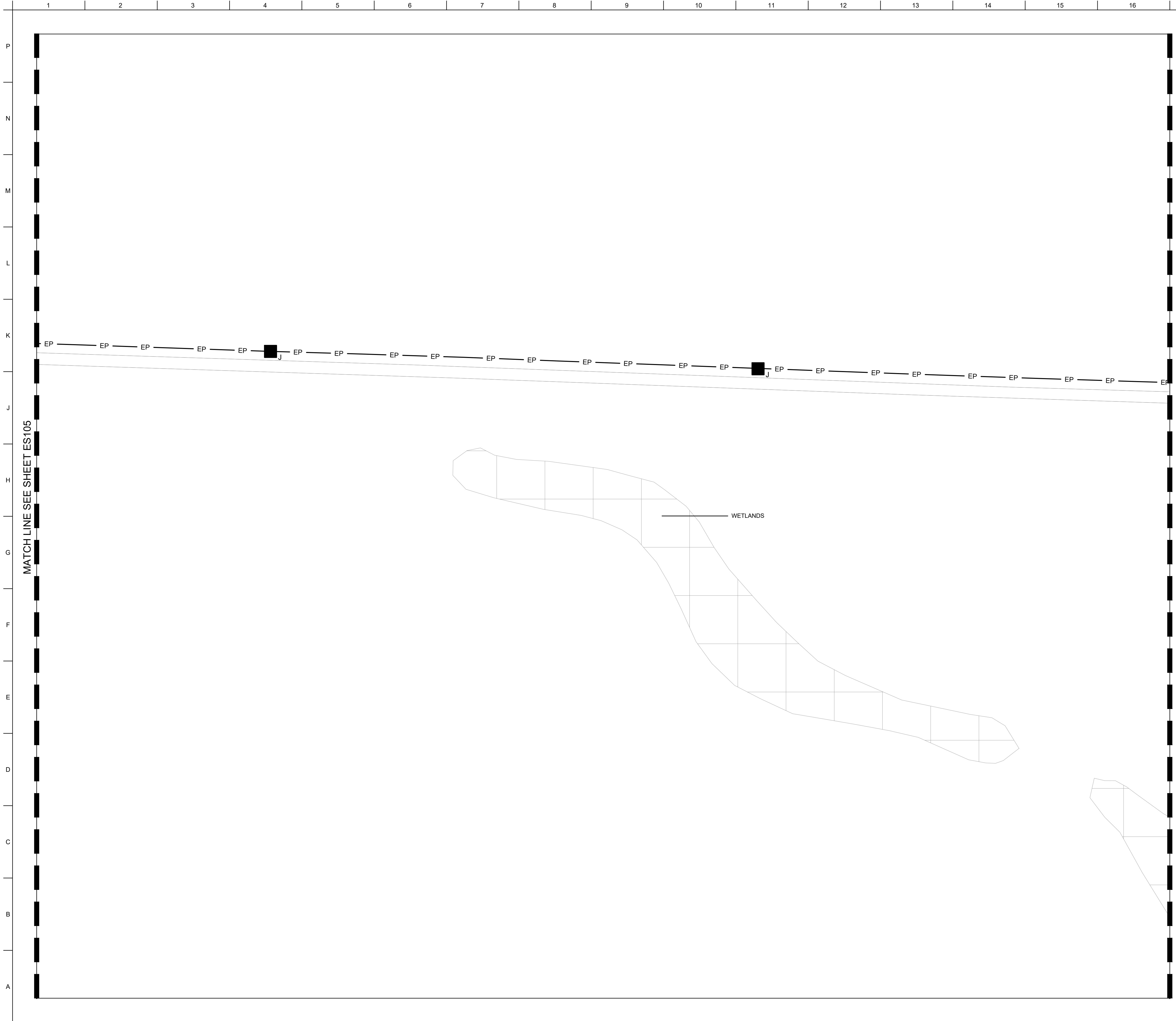
FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE

SITE POWER PLAN - AREA D

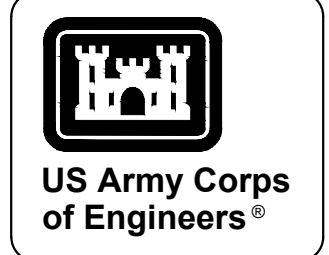
SHEET ID
ES105

KEY PLAN





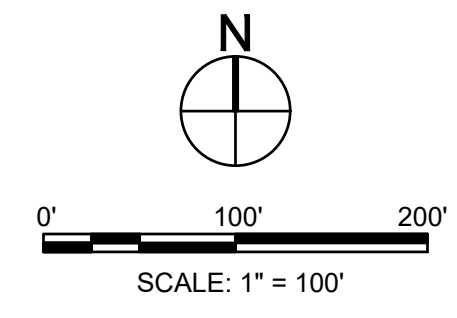
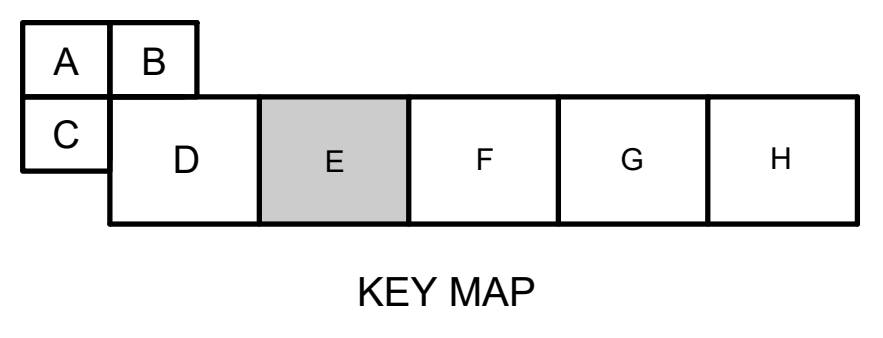
GENERAL SHEET NOTES



MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR		ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. DAVIS		SCALE: 1/8" = 1'-0"
SUBMITTED BY: J. DEACON		CONTRACT NO.: W91PHZ24B3002
ANSID:		CATEGORY CODE: 178-85-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401		

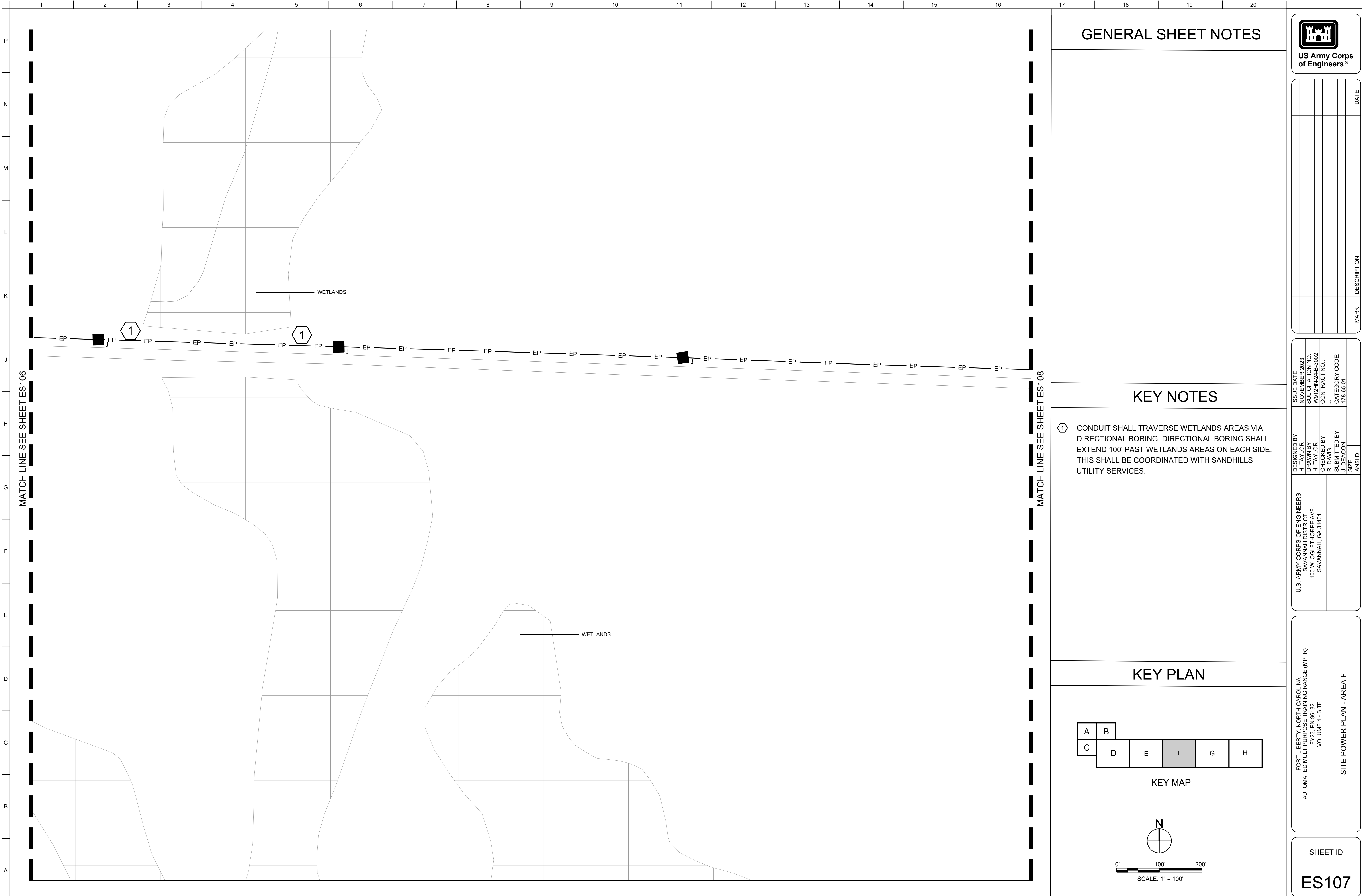
KEY PLAN



FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE

SITE POWER PLAN - AREA E

SHEET ID
ES106

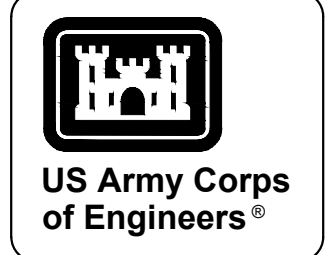
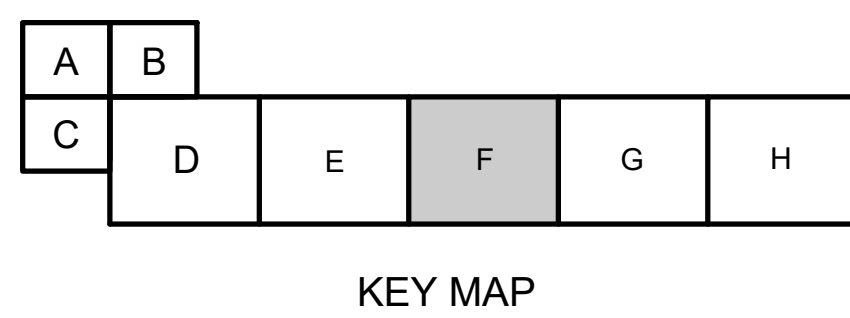


GENERAL SHEET NOTES

KEY NOTES

⬠ CONDUIT SHALL TRAVERSE WETLANDS AREAS VIA DIRECTIONAL BORING. DIRECTIONAL BORING SHALL EXTEND 100' PAST WETLANDS AREAS ON EACH SIDE. THIS SHALL BE COORDINATED WITH SANDHILLS UTILITY SERVICES.

KEY PLAN



MARK	DESCRIPTION	DATE

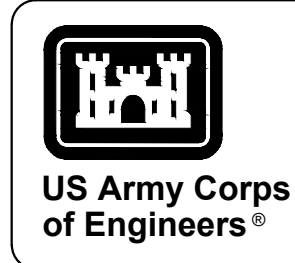
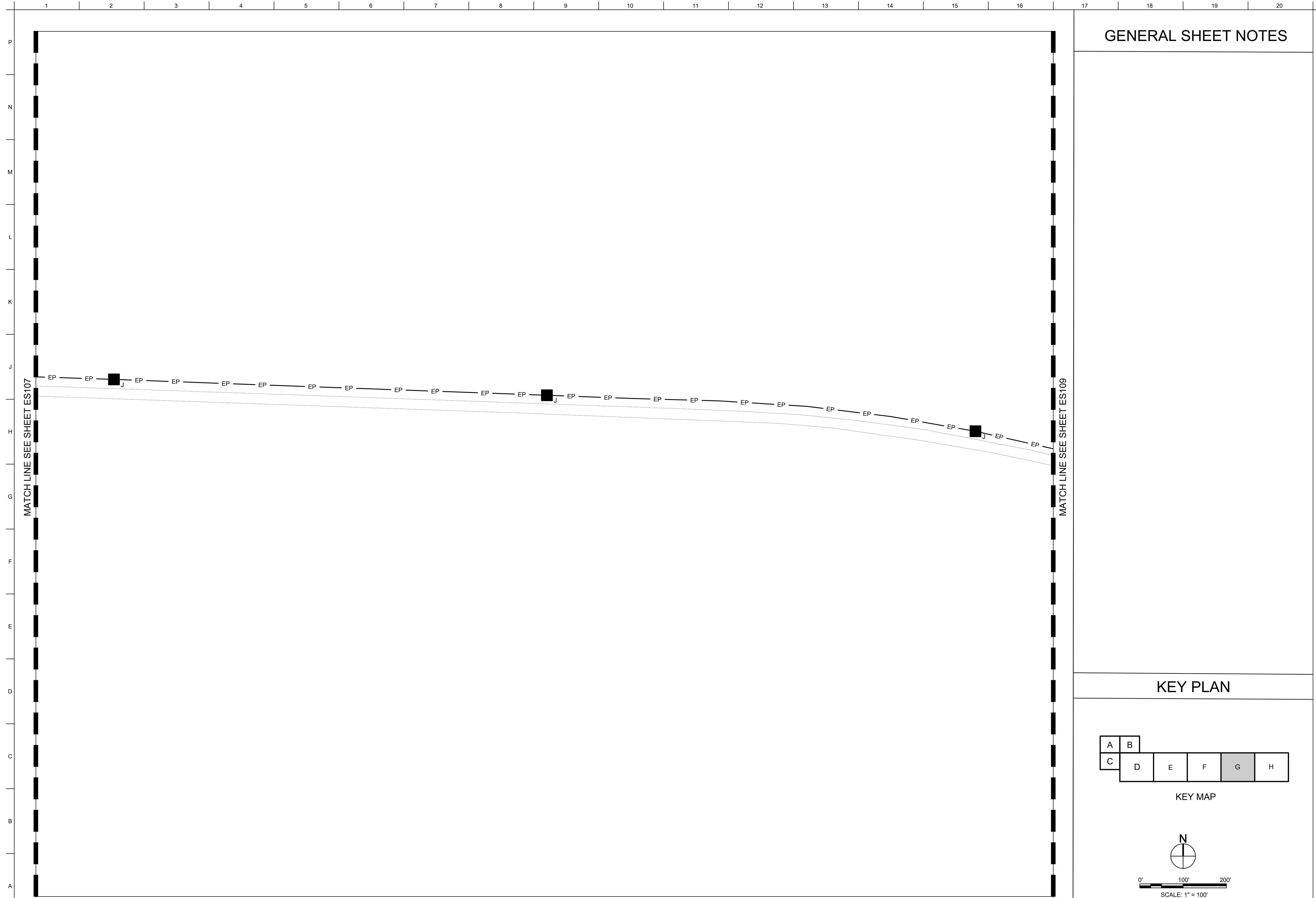
DESIGNED BY:		ISSUE DATE: NOVEMBER 2023
DESIGNED BY: H. TAYLOR		
CHECKED BY:		PROJECT NO.: W81PMA248.3002
CHECKED BY: R. DAVIS		
SUBMITTED BY:		CONTRACT NO.: --
SUBMITTED BY: J. DEACON		
ANS/D		CATEGORY CODE: 178-65-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401		

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

SITE POWER PLAN - AREA F

SHEET ID

ES107



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. DAVIS	WORK ORDER NO.: W019A1248-3002
SUBMITTED BY: J. DEACON	CONTRACT NO.:
ANS/D:	CATEGORY CODE: 178-85-01
SIZE:	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTTR)
FY23, PN 96182
VOLUME 1 - SITE

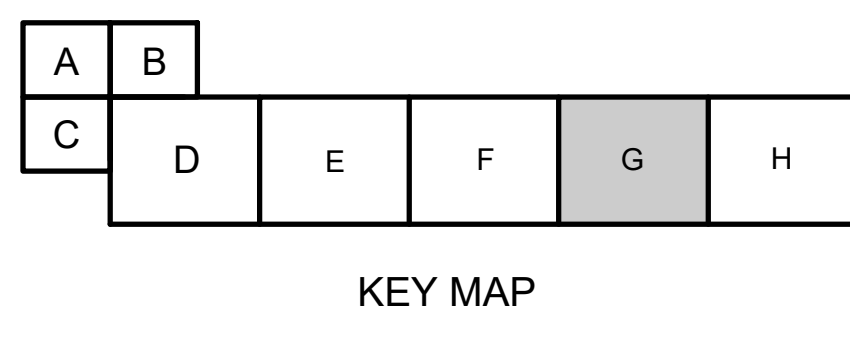
SITE POWER PLAN - AREA G

SHEET ID

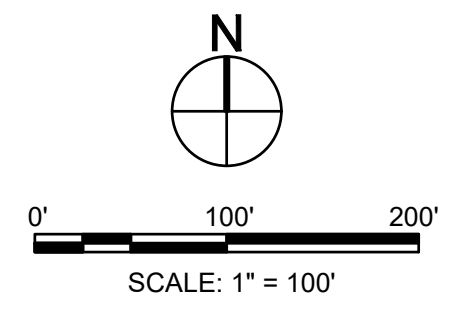
ES108

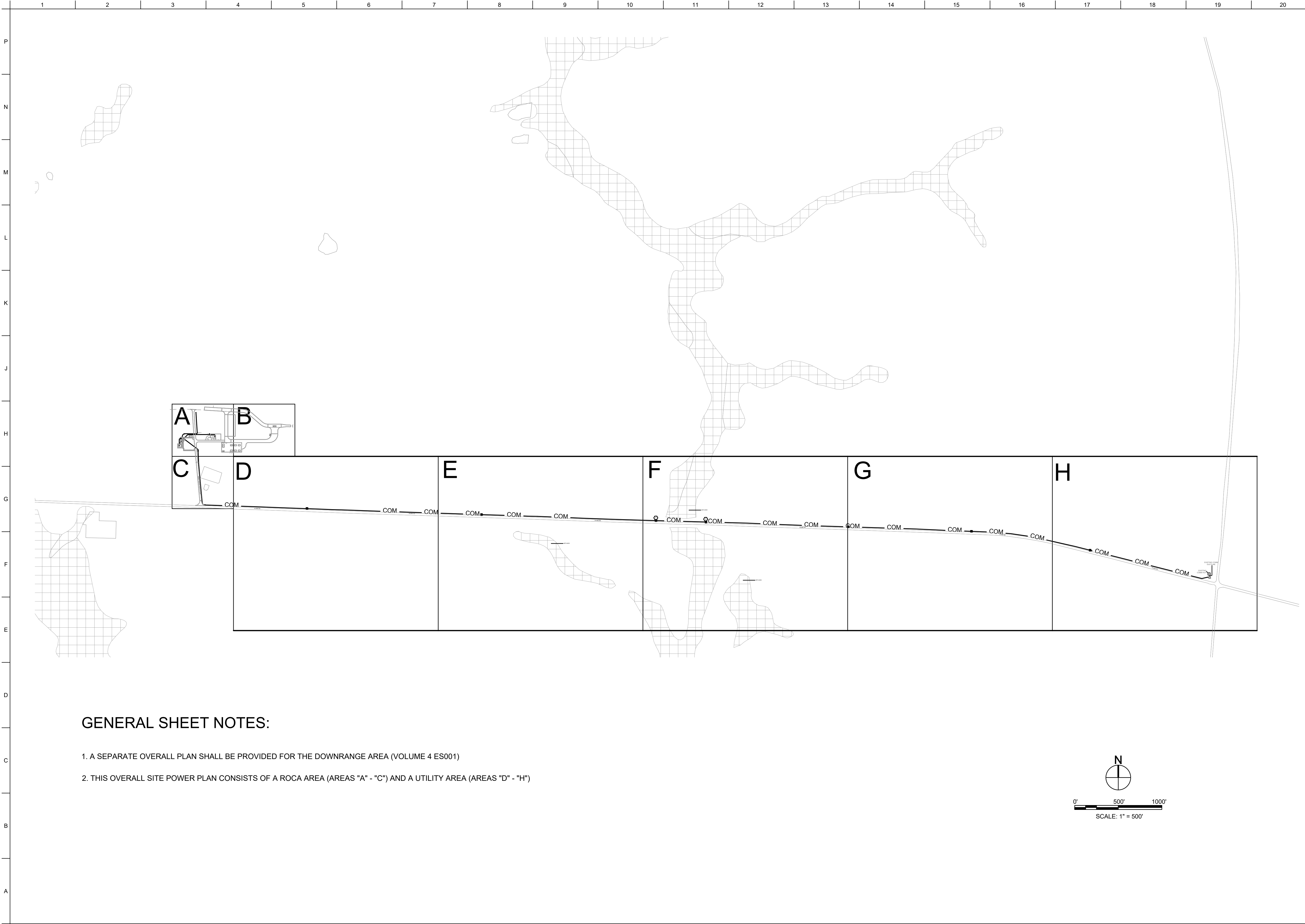
GENERAL SHEET NOTES

KEY PLAN



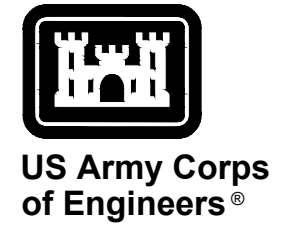
KEY MAP

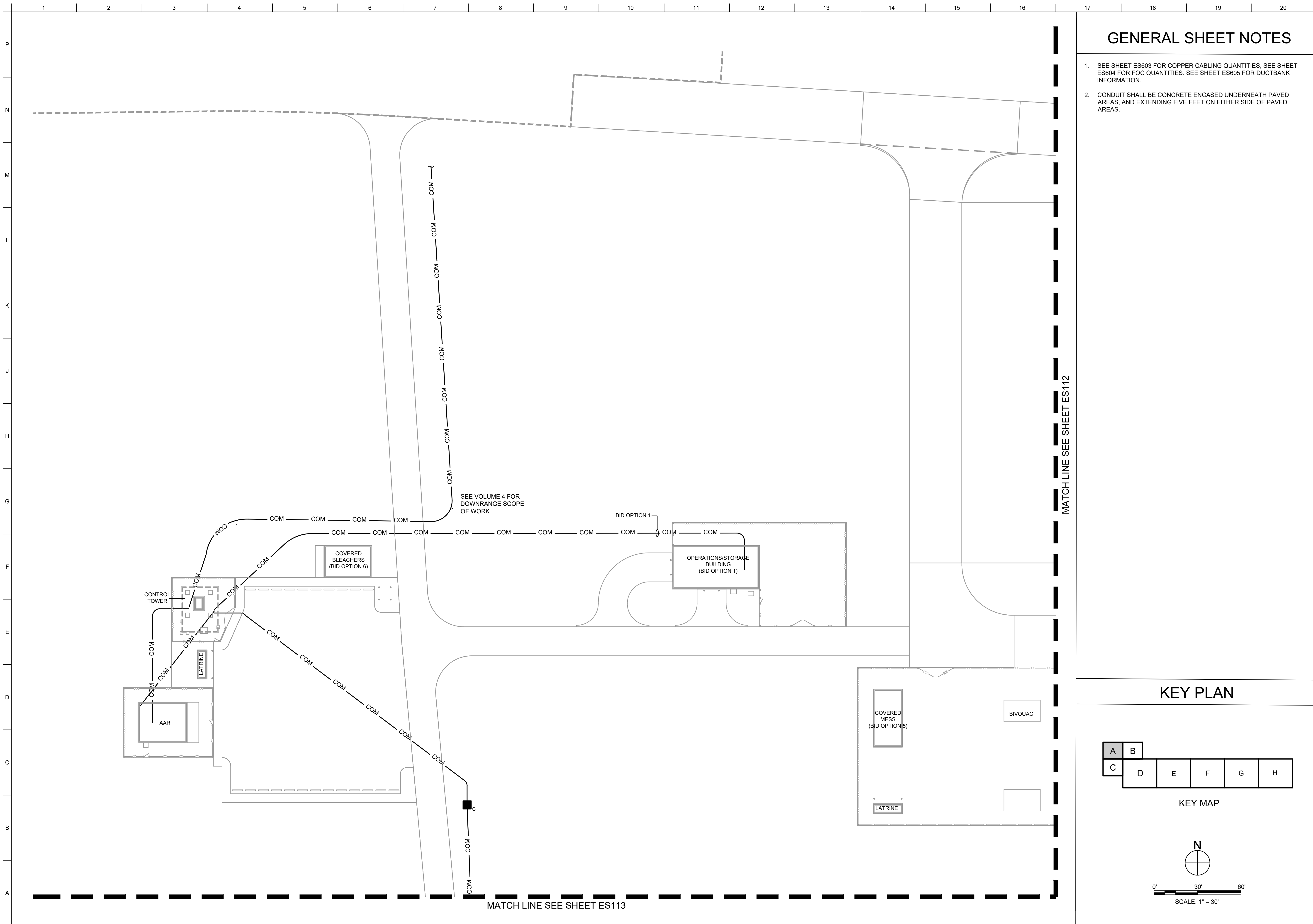




GENERAL SHEET NOTES:

1. A SEPARATE OVERALL PLAN SHALL BE PROVIDED FOR THE DOWNRANGE AREA (VOLUME 4 ES001)
2. THIS OVERALL SITE POWER PLAN CONSISTS OF A ROCA AREA (AREAS "A" - "C") AND A UTILITY AREA (AREAS "D" - "H")

 <p>US Army Corps of Engineers®</p>		
<p>DESIGNED BY: H. TAYLOR H. TAYLOR CHECKED BY: R. DAVIS SUBMITTED BY: J. DEACON SIZE: ANSI D</p>		<p>ISSUE DATE: NOVEMBER 2023 DRAWING NO.: W81PRA2448.3002 CONTRACT NO.: -- CATEGORY CODE: 178-85-01</p>
<p>U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401</p>		<p>MARK</p> <p>DESCRIPTION</p> <p>DATE</p>
<p>FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF) FY23, PN 96182 VOLUME 1 - SITE</p> <p>SITE TELECOMMUNICATIONS PLAN - OVERALL</p>		
<p>SHEET ID</p> <p>ES110</p>		



GENERAL SHEET NOTES

1. SEE SHEET ES603 FOR COPPER CABLING QUANTITIES, SEE SHEET ES604 FOR FOC QUANTITIES. SEE SHEET ES605 FOR DUCTBANK INFORMATION.
2. CONDUIT SHALL BE CONCRETE ENCASED UNDERNEATH PAVED AREAS, AND EXTENDING FIVE FEET ON EITHER SIDE OF PAVED AREAS.



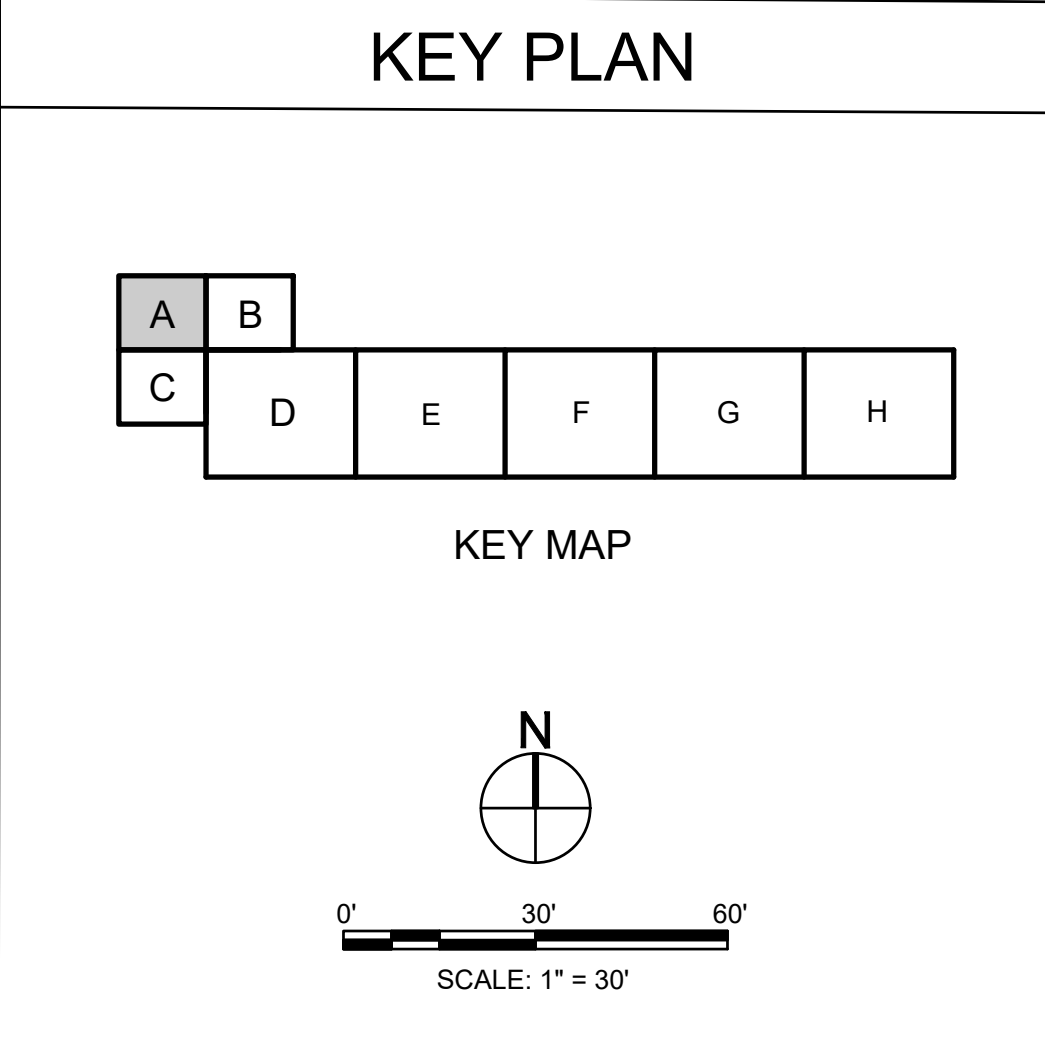
US Army Corps of Engineers
®

MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR CHECKED BY: H. TAYLOR SUBMITTED BY: R. DAVIS SIZE: ANSI D		ISSUE DATE: NOVEMBER 2023 WBS NO. 148.3002 CONTRACT NO.: CATEGORY CODE: 178-65-01	
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401			

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE
 SITE TELECOMMUNICATIONS PLAN - AREA A

SHEET ID
ES111



MATCH LINE SEE SHEET ES112

MATCH LINE SEE SHEET ES113

SEE VOLUME 4 FOR DOWNRANGE SCOPE OF WORK

BID OPTION 1

COVERED BLEACHERS (BID OPTION 6)

OPERATIONS/STORAGE BUILDING (BID OPTION 1)

CONTROL TOWER

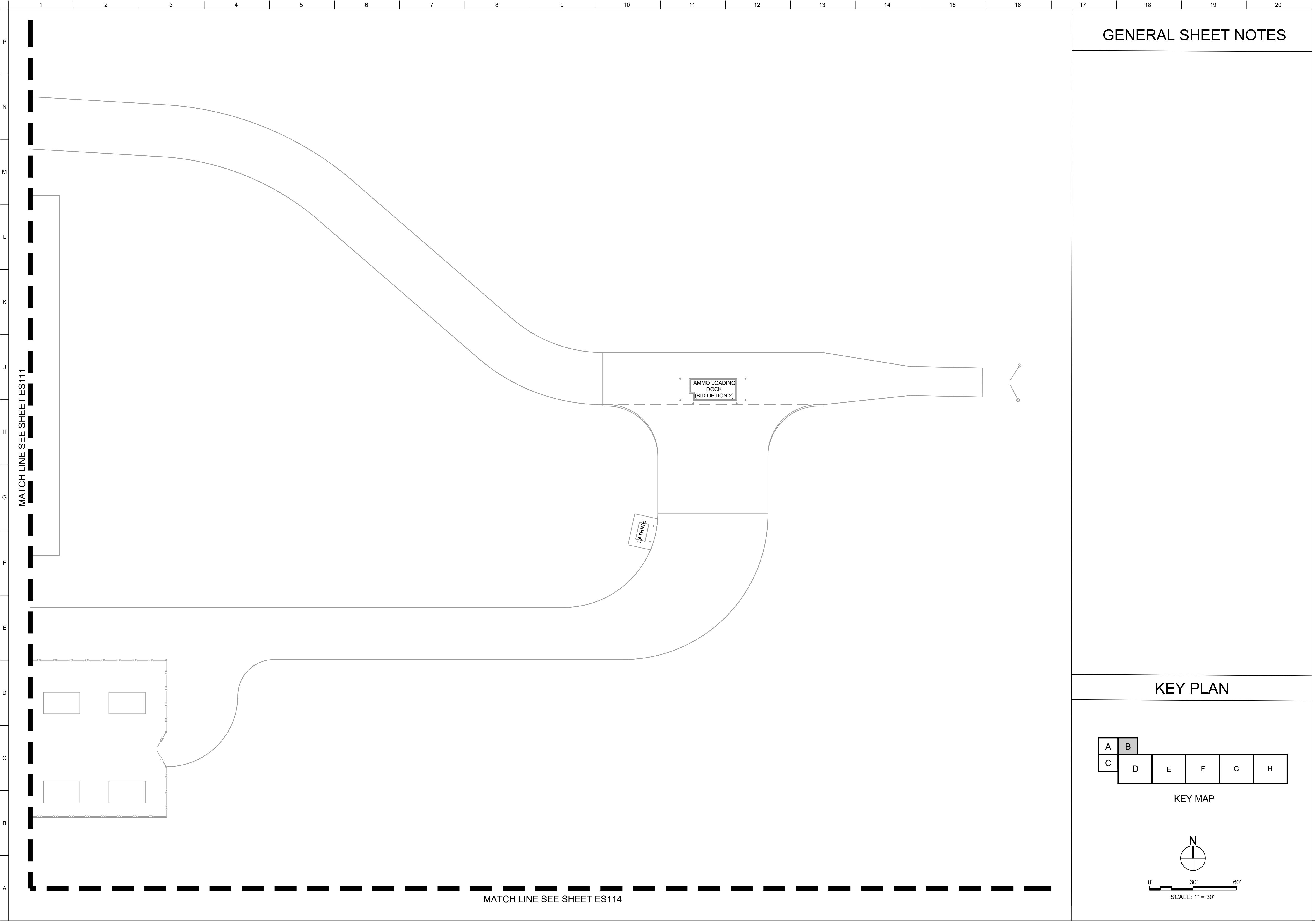
LATRINE

AAR

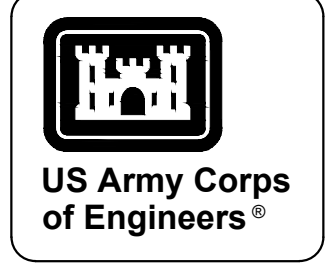
COVERED MESS (BID OPTION 5)

BIVOUAC

LATRINE



GENERAL SHEET NOTES



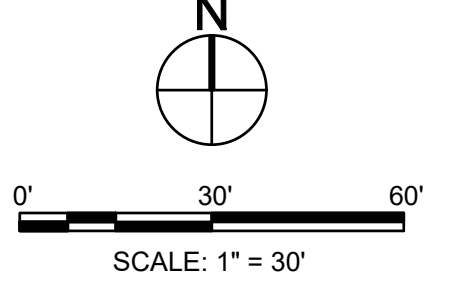
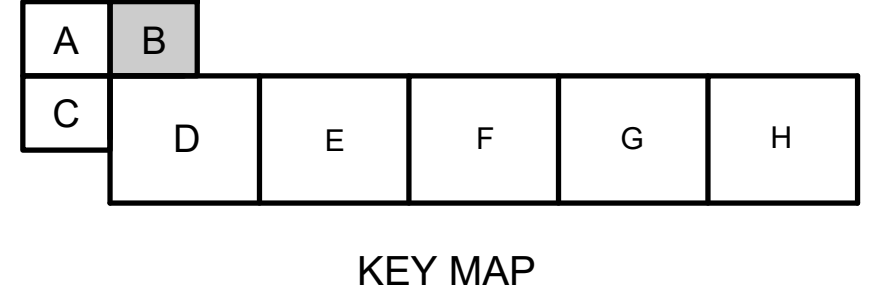
MARK	DESCRIPTION	DATE

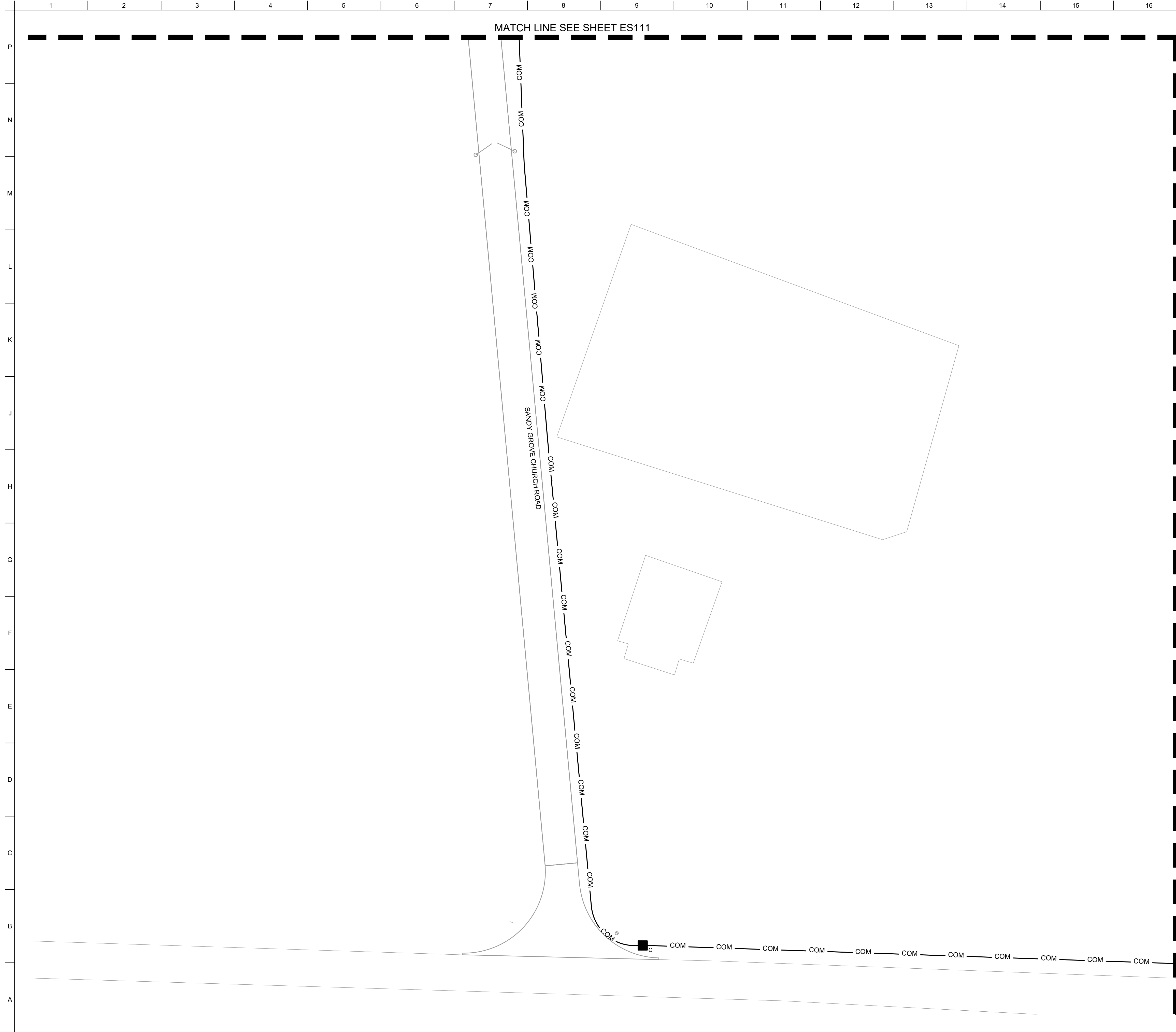
DESIGNED BY: H. TAYLOR H. TAYLOR CHECKED BY: R. DAVIS SUBMITTED BY: J. DEACON SIZE: ANSID	U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	ISSUE DATE: NOVEMBER 2023 PROJECT NO.: W913113130002 CONTRACT NO.: -- CATEGORY CODE: 178-65-01
---	---	---

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE
 SITE TELECOMMUNICATIONS PLAN - AREA B

SHEET ID
ES112

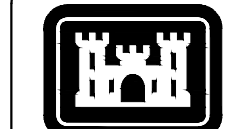
KEY PLAN





GENERAL SHEET NOTES

- SEE SHEET ES603 FOR COPPER CABLING QUANTITIES, SEE SHEET ES604 FOR FOC QUANTITIES, SEE SHEET ES605 FOR DUCTBANK INFORMATION.



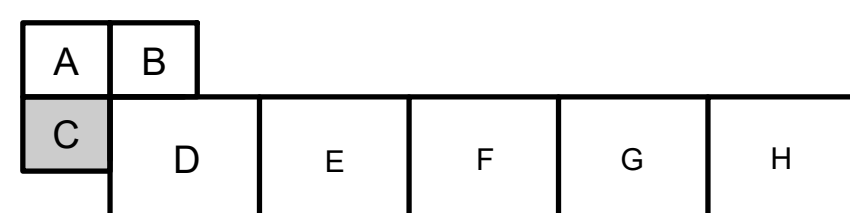
US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	PROJECT NO. / CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
ANS/D	SIZE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

KEY PLAN



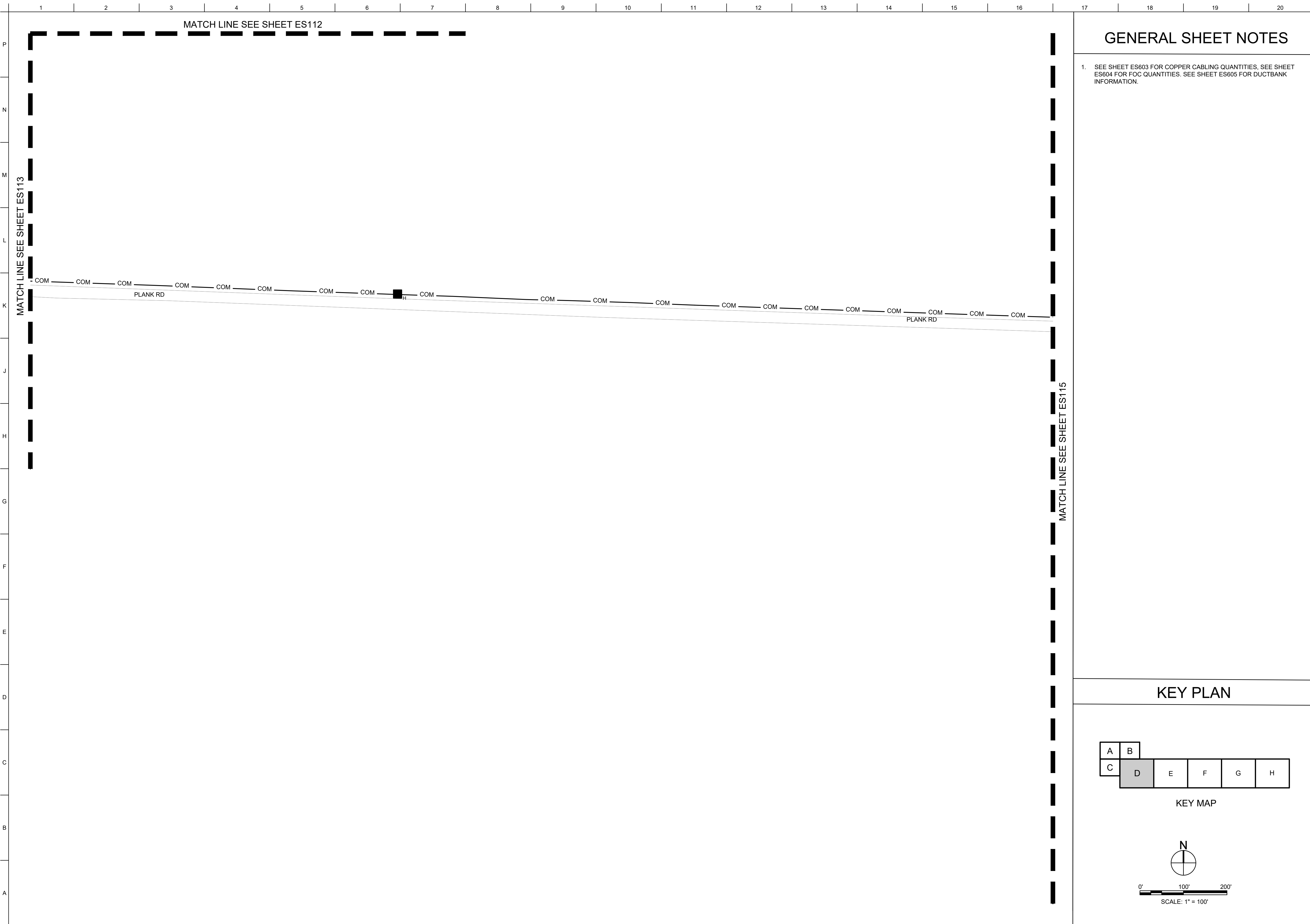
KEY MAP



SCALE: 1" = 30'

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
SITE TELECOMMUNICATIONS PLAN - AREA C

SHEET ID
ES113



GENERAL SHEET NOTES

- SEE SHEET ES603 FOR COPPER CABLING QUANTITIES, SEE SHEET ES604 FOR FOC QUANTITIES. SEE SHEET ES605 FOR DUCTBANK INFORMATION.



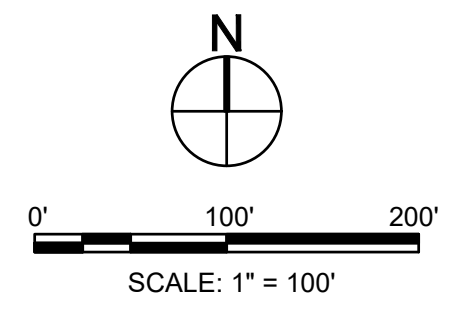
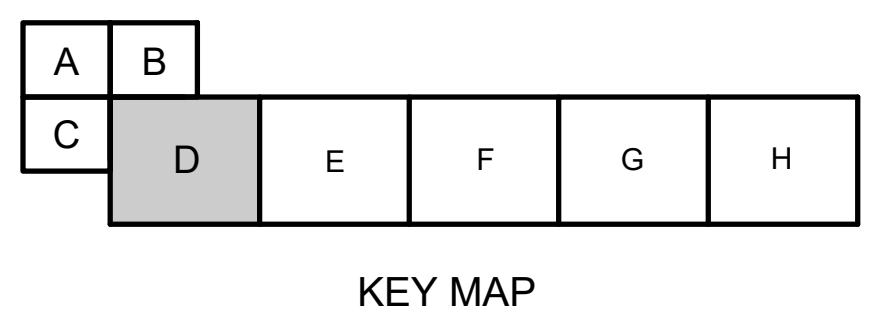
US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	PROJECT NO.: W91PHZ248 3002
SUBMITTED BY: J. DEACON	CONTRACT NO.:
ANSID	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

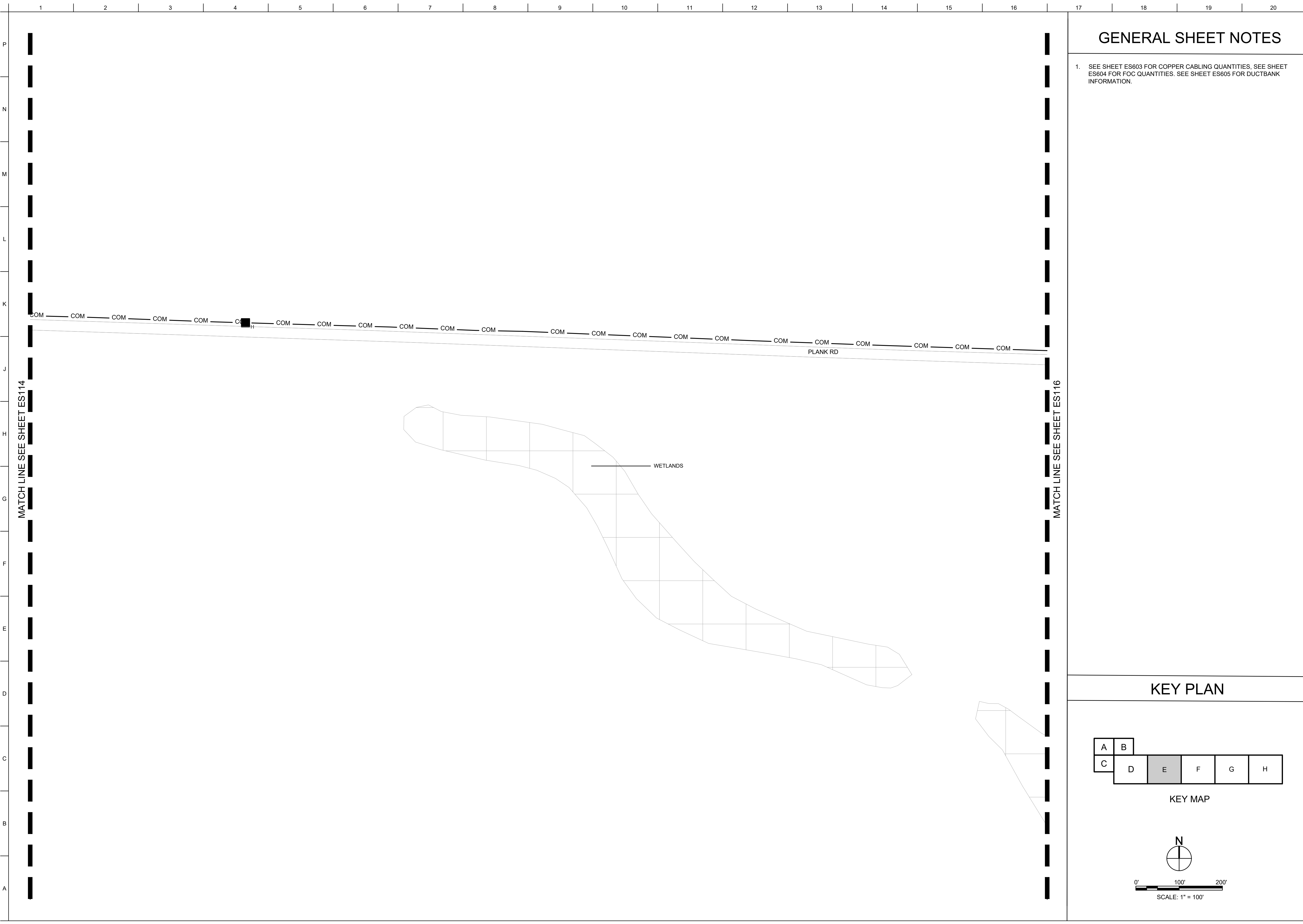
KEY PLAN



FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
FY23, PN 96182
VOLUME 1 - SITE

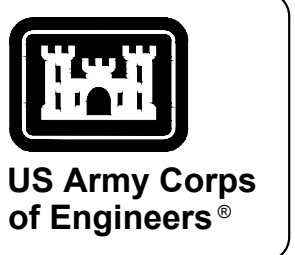
SITE TELECOMMUNICATIONS PLAN - AREA D

SHEET ID
ES114



GENERAL SHEET NOTES

- SEE SHEET ES603 FOR COPPER CABLING QUANTITIES, SEE SHEET ES604 FOR FOC QUANTITIES, SEE SHEET ES605 FOR DUCTBANK INFORMATION.



MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. DAVIS	SCALE: AS SHOWN
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-65-01
ANSID	SIZE

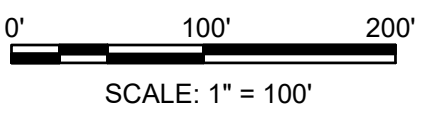
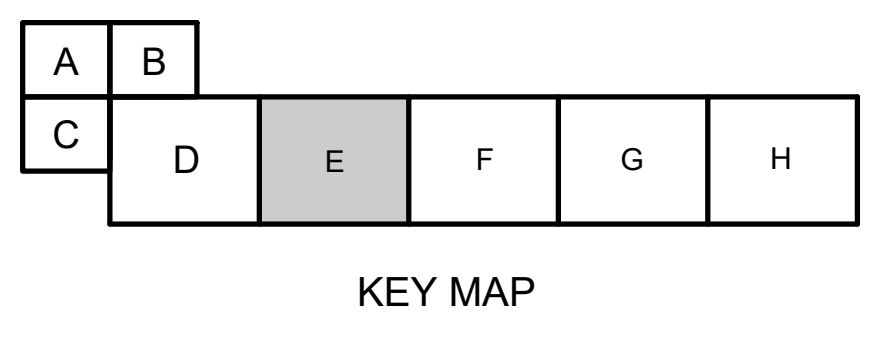
U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

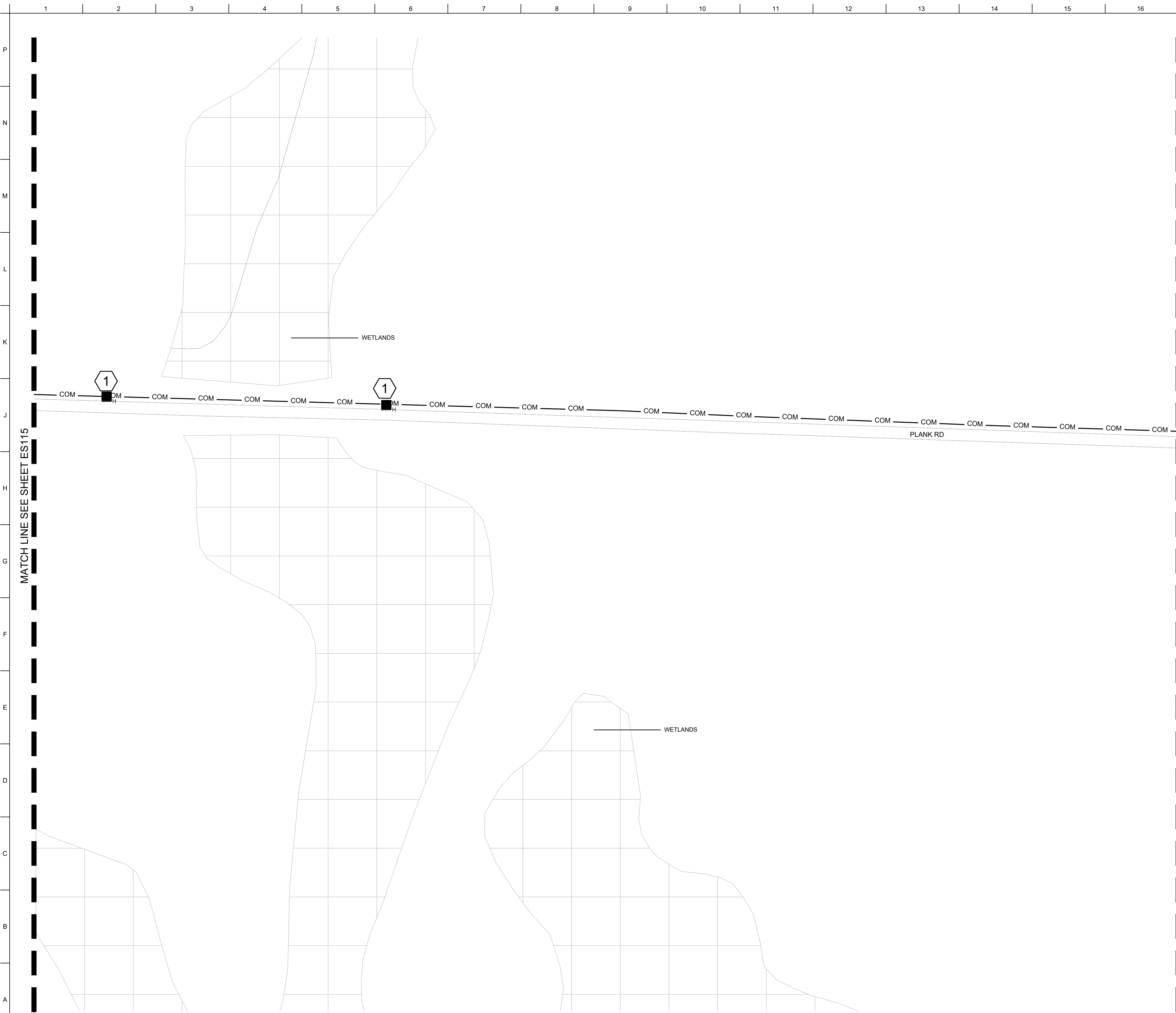
SITE TELECOMMUNICATIONS PLAN - AREA E

SHEET ID
ES115

KEY PLAN



SCALE: 1" = 100'



GENERAL SHEET NOTES

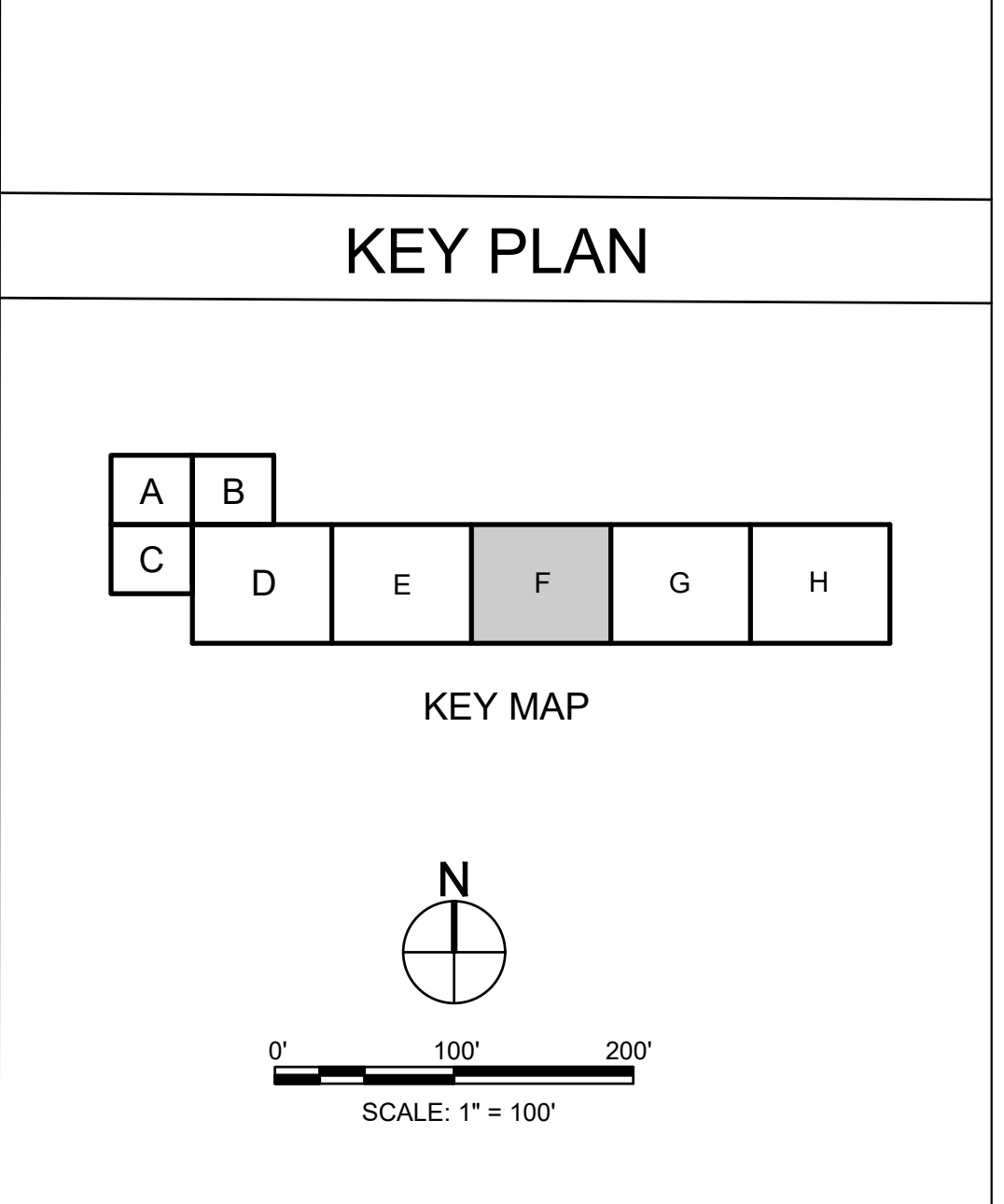
1. SEE SHEET ES603 FOR COPPER CABLING QUANTITIES, SEE SHEET ES604 FOR FOC QUANTITIES. SEE SHEET ES605 FOR DUCTBANK INFORMATION.

US Army Corps of Engineers®
MARK
DESCRIPTION
DATE

KEY NOTES

① CONDUIT SHALL TRAVERSE WETLANDS AREAS VIA DIRECTIONAL BORING. DIRECTIONAL BORING SHALL EXTEND 100' PAST WETLANDS AREAS TO HANDHOLES ON EACH SIDE

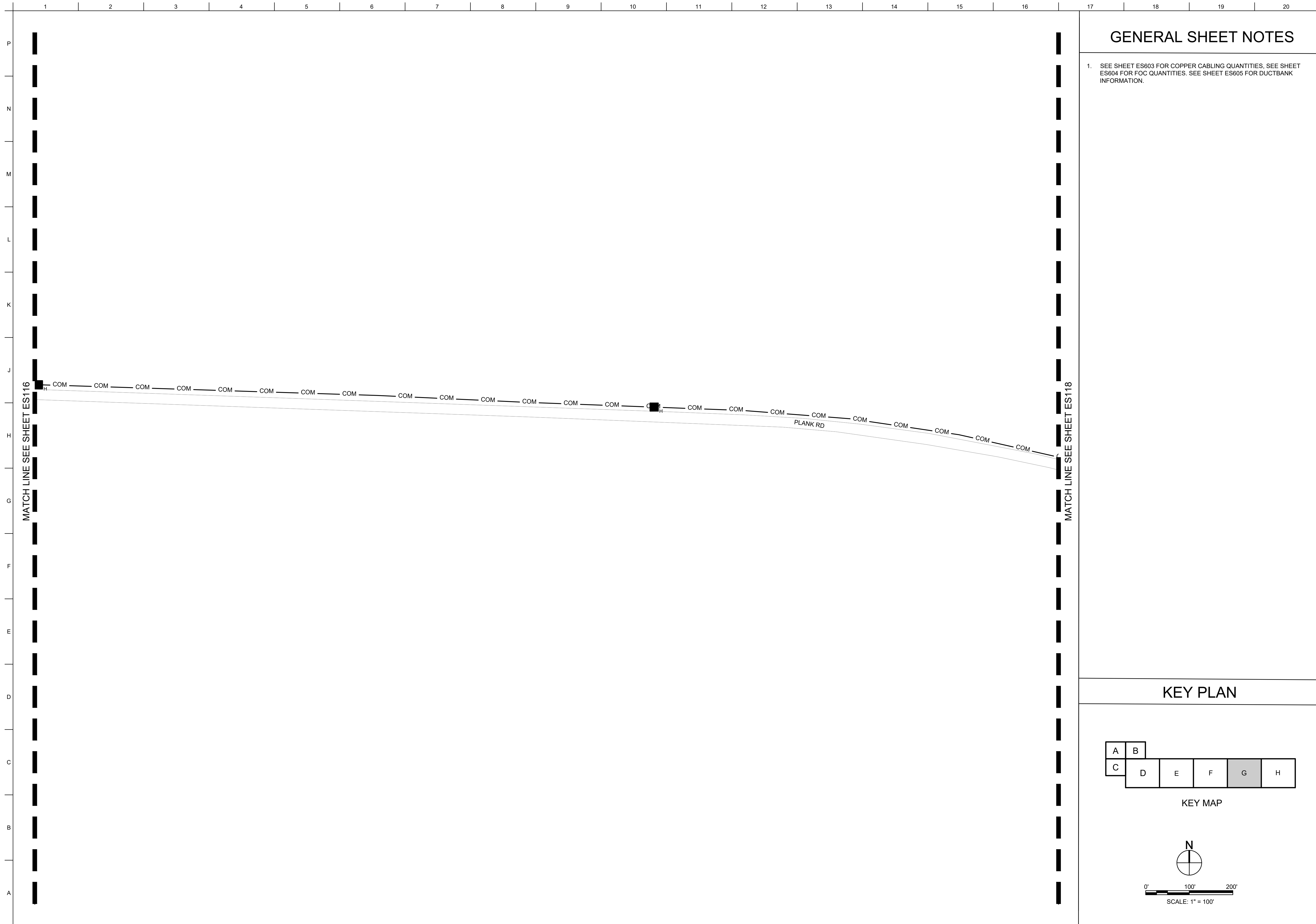
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	DESIGNED BY: H. TAYLOR CHECKED BY: H. TAYLOR R. DAVIS SUBMITTED BY: J. DEACON ANSID	ISSUE DATE: NOVEMBER 2023 CONTRACT NO.: W919M2483002 CATEGORY CODE: 178-65-01
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FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE

SITE TELECOMMUNICATIONS PLAN - AREA F

SHEET ID
ES116



GENERAL SHEET NOTES

1. SEE SHEET ES603 FOR COPPER CABLING QUANTITIES, SEE SHEET ES604 FOR FOC QUANTITIES. SEE SHEET ES605 FOR DUCTBANK INFORMATION.



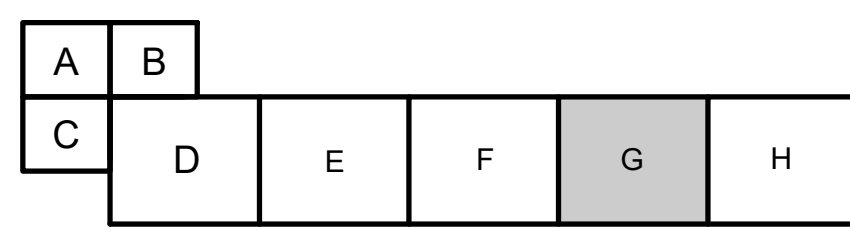
US Army Corps of Engineers[®]

MARK	DESCRIPTION	DATE

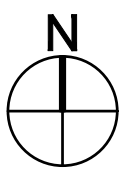
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	SCALE: AS SHOWN
CHECKED BY: R. DAVIS	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
ANSID	SIZE

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

KEY PLAN



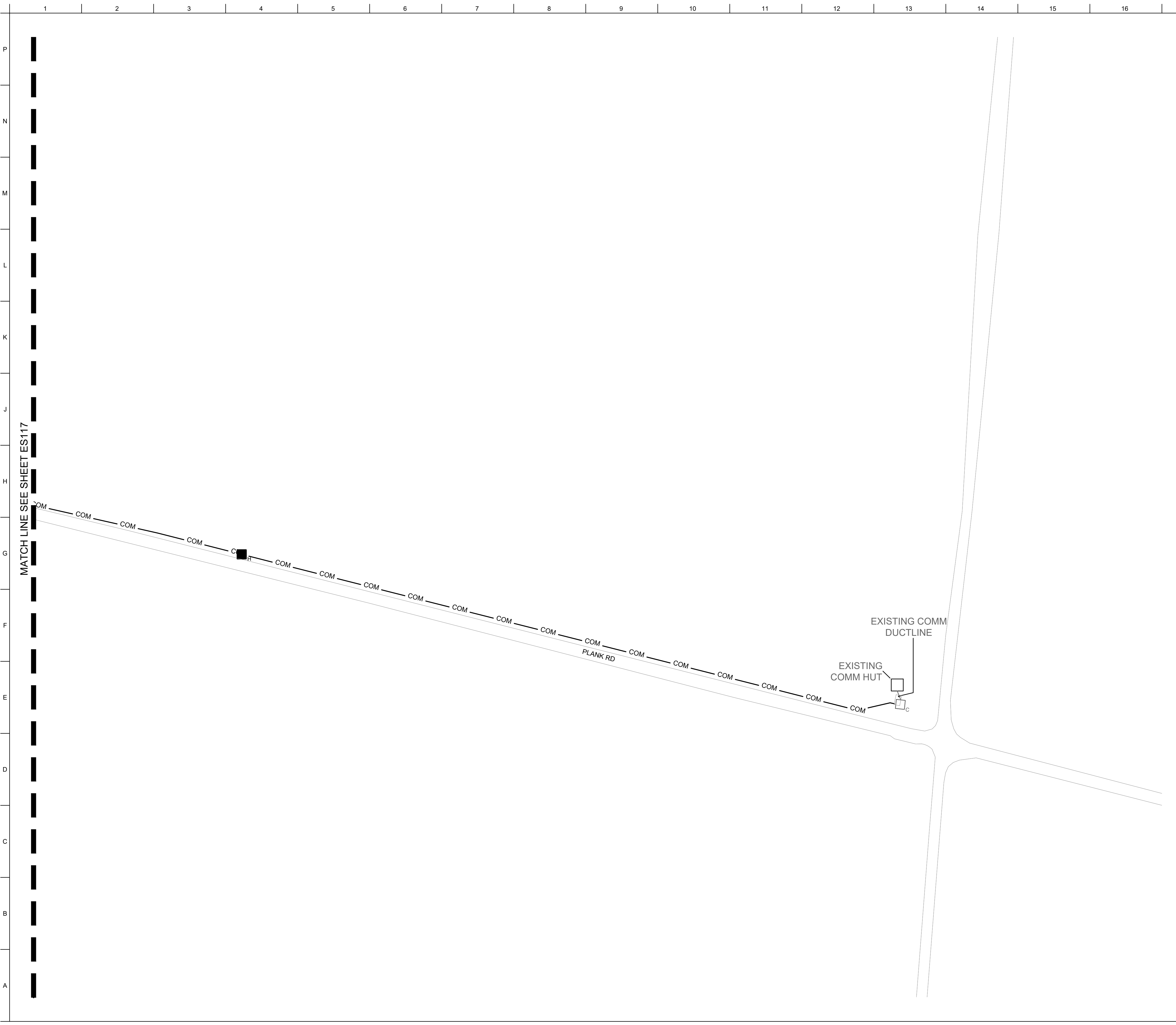
KEY MAP



0' 100' 200'
SCALE: 1" = 100'

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
SITE TELECOMMUNICATIONS PLAN - AREA G

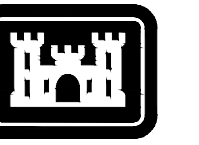
SHEET ID
ES117



MATCH LINE SEE SHEET ES117

GENERAL SHEET NOTES

- SEE SHEET ES603 FOR COPPER CABLING QUANTITIES, SEE SHEET ES604 FOR FOC QUANTITIES. SEE SHEET ES605 FOR DUCTBANK INFORMATION.

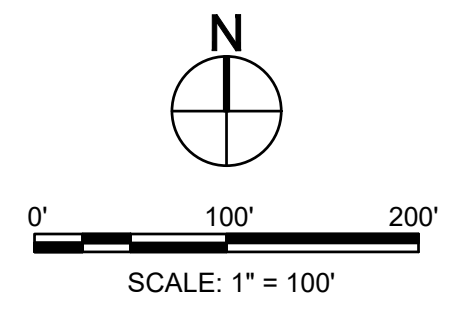
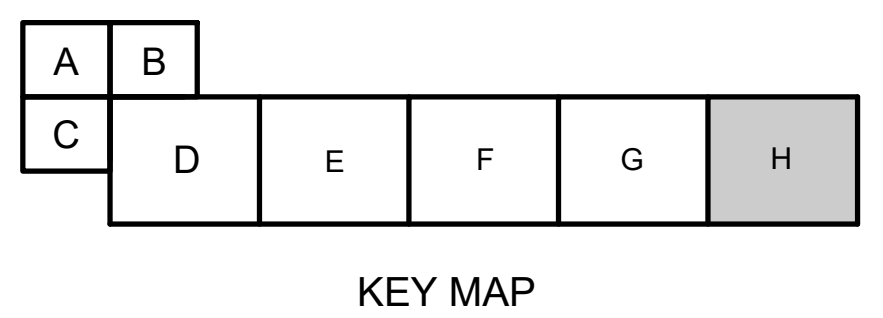


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MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	SCALE: AS SHOWN
CHECKED BY: R. DAVIS	CONTRACT NO.:
SIZE: ANSI D	CATEGORY CODE: 178-65-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

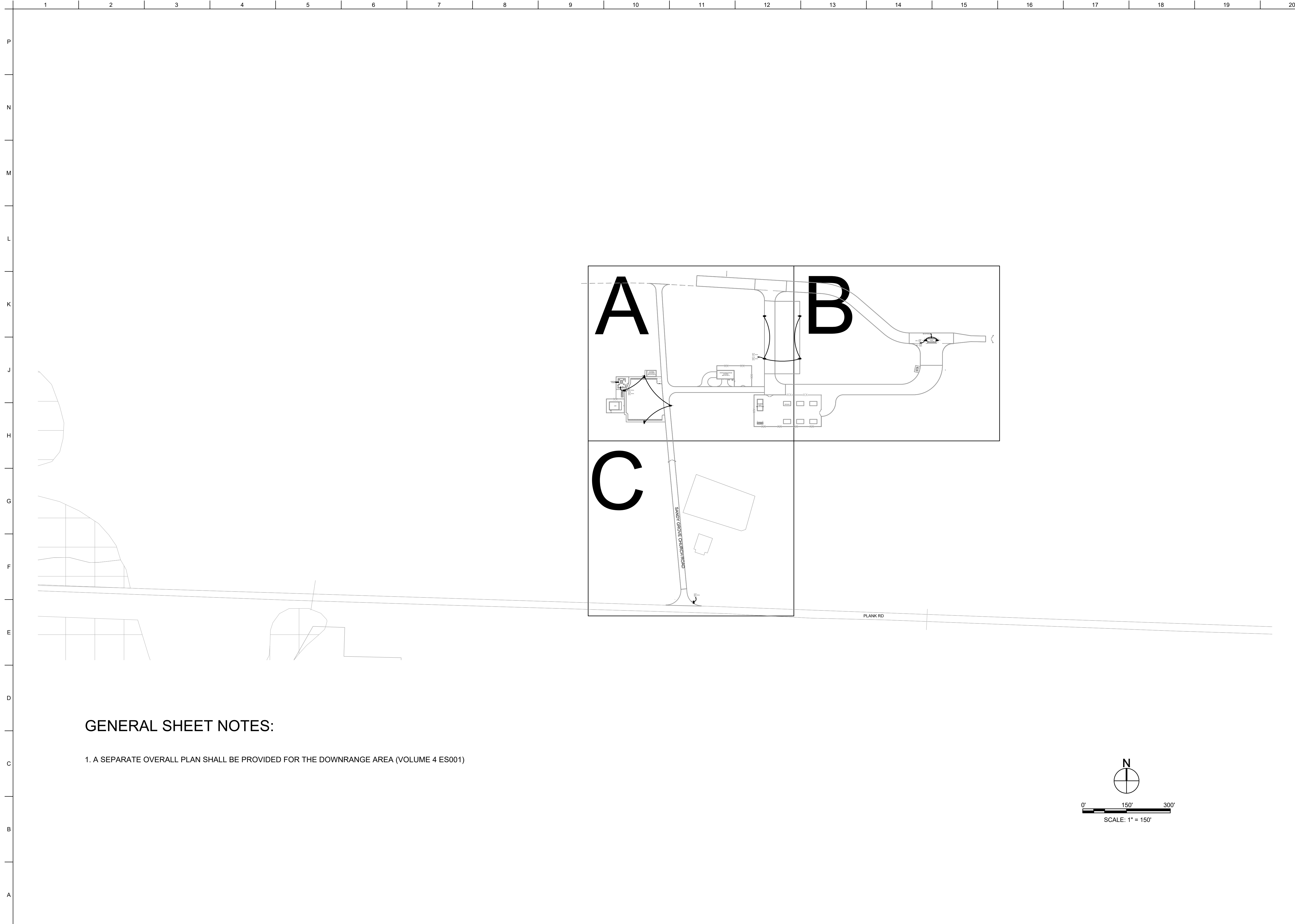
KEY PLAN



FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

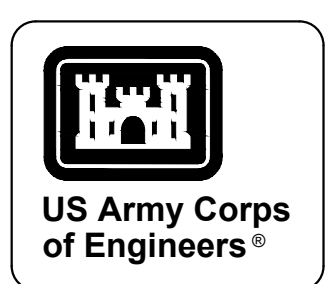
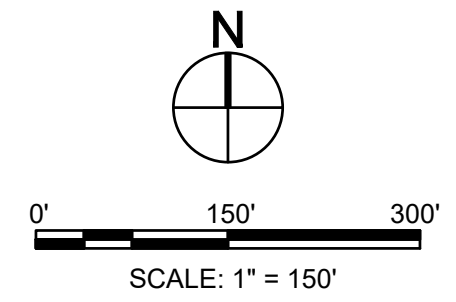
SITE TELECOMMUNICATIONS PLAN - AREA H

SHEET ID
ES118



GENERAL SHEET NOTES:

1. A SEPARATE OVERALL PLAN SHALL BE PROVIDED FOR THE DOWNRANGE AREA (VOLUME 4 ES001)



MARK	DESCRIPTION	DATE

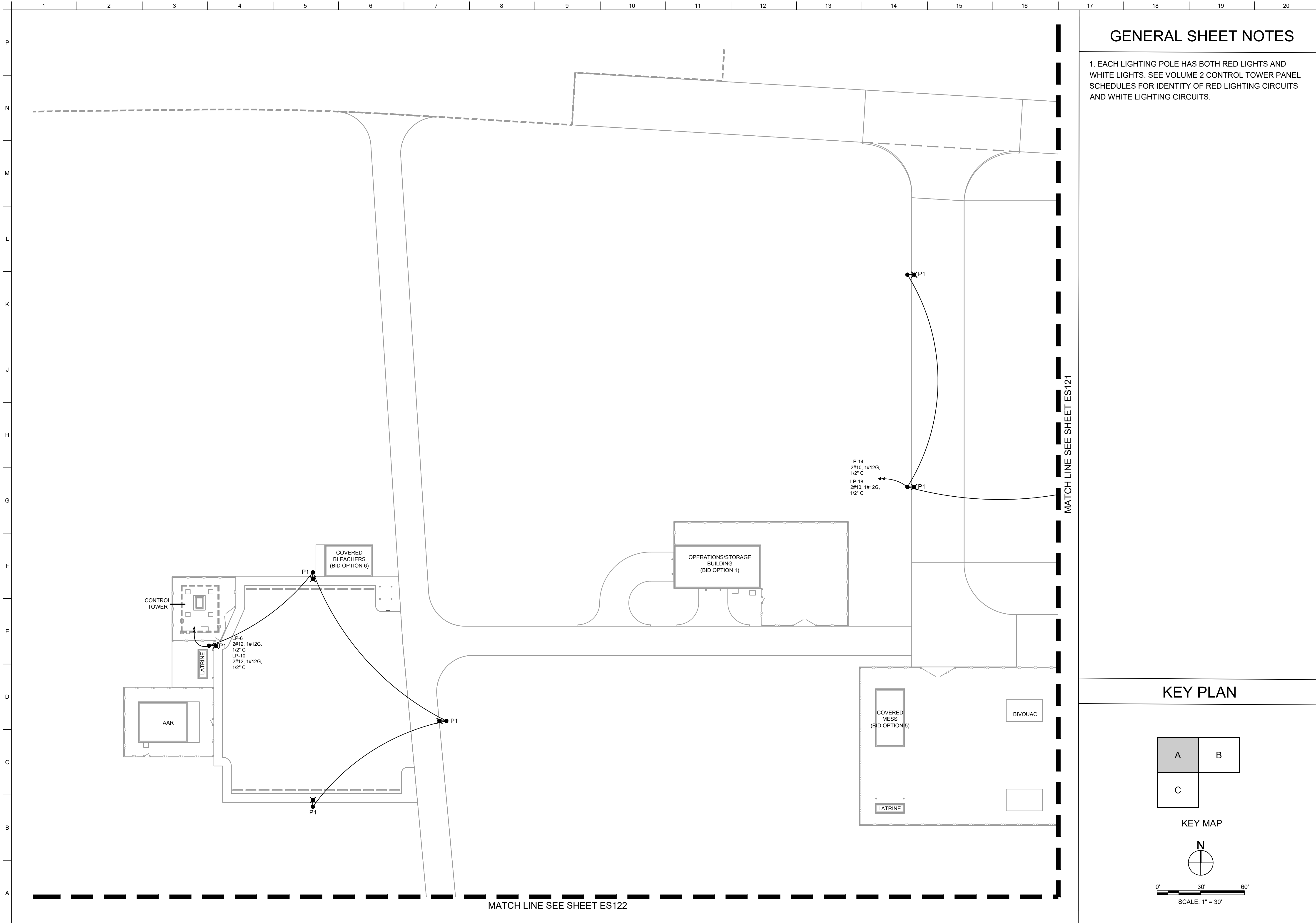
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. DAVIS	PROJECT NO.: W91PH1248-3002
SUBMITTED BY: J. DEACON	CONTRACT NO.:
ANSI D	CATEGORY CODE: 178-85-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

SITE LIGHTING PLAN - OVERALL

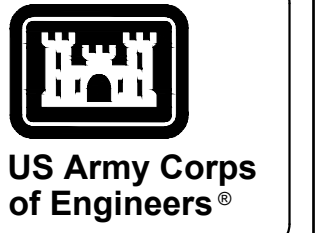
SHEET ID

ES119



GENERAL SHEET NOTES

1. EACH LIGHTING POLE HAS BOTH RED LIGHTS AND WHITE LIGHTS. SEE VOLUME 2 CONTROL TOWER PANEL SCHEDULES FOR IDENTITY OF RED LIGHTING CIRCUITS AND WHITE LIGHTING CIRCUITS.

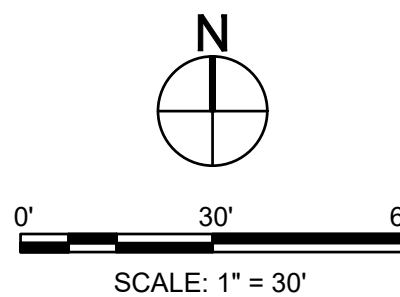
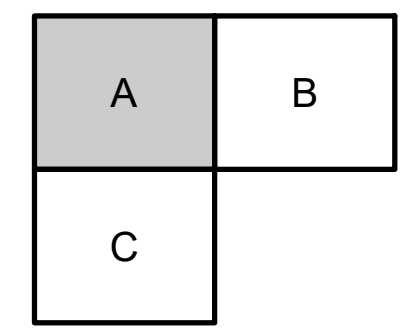


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MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: R. DAVIS	PROJECT NO. / CONTRACT NO.: W81PH2448.3002
ANS/D	CATEGORY CODE: 178-65-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

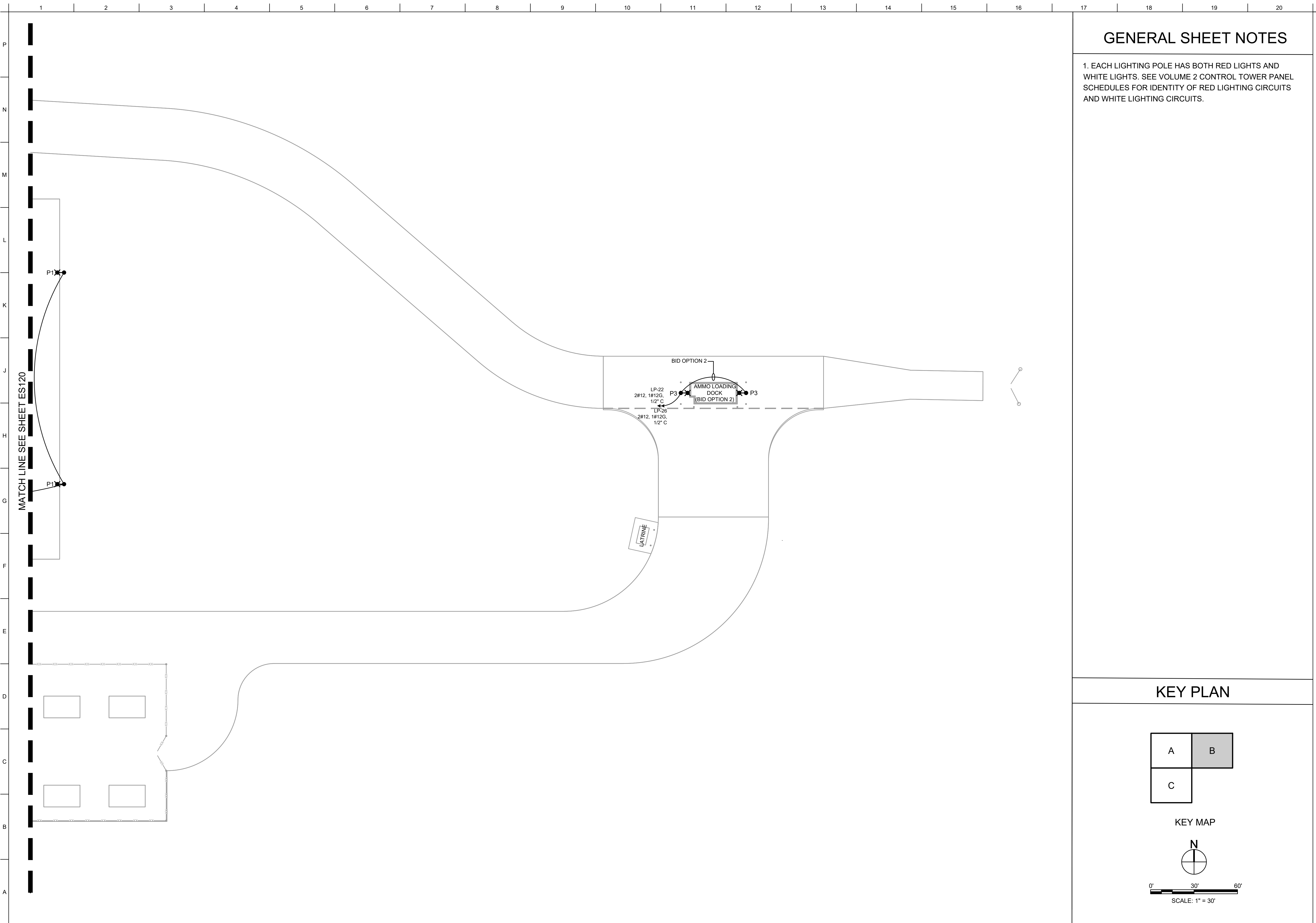
KEY PLAN



FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE

SITE LIGHTING PLAN - AREA A

SHEET ID
ES120



GENERAL SHEET NOTES

1. EACH LIGHTING POLE HAS BOTH RED LIGHTS AND WHITE LIGHTS. SEE VOLUME 2 CONTROL TOWER PANEL SCHEDULES FOR IDENTITY OF RED LIGHTING CIRCUITS AND WHITE LIGHTING CIRCUITS.

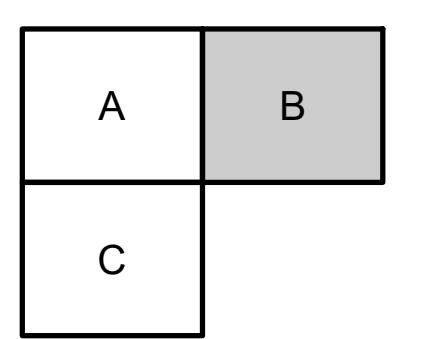


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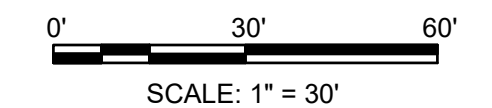
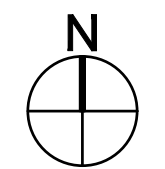
MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	NOVEMBER 2023
SUBMITTED BY: J. DEACON	178-85-01
ANS/D SIZE	
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	
CONTRACT NO.: W89PHZ248.3002	
CATEGORY CODE: 178-85-01	

KEY PLAN



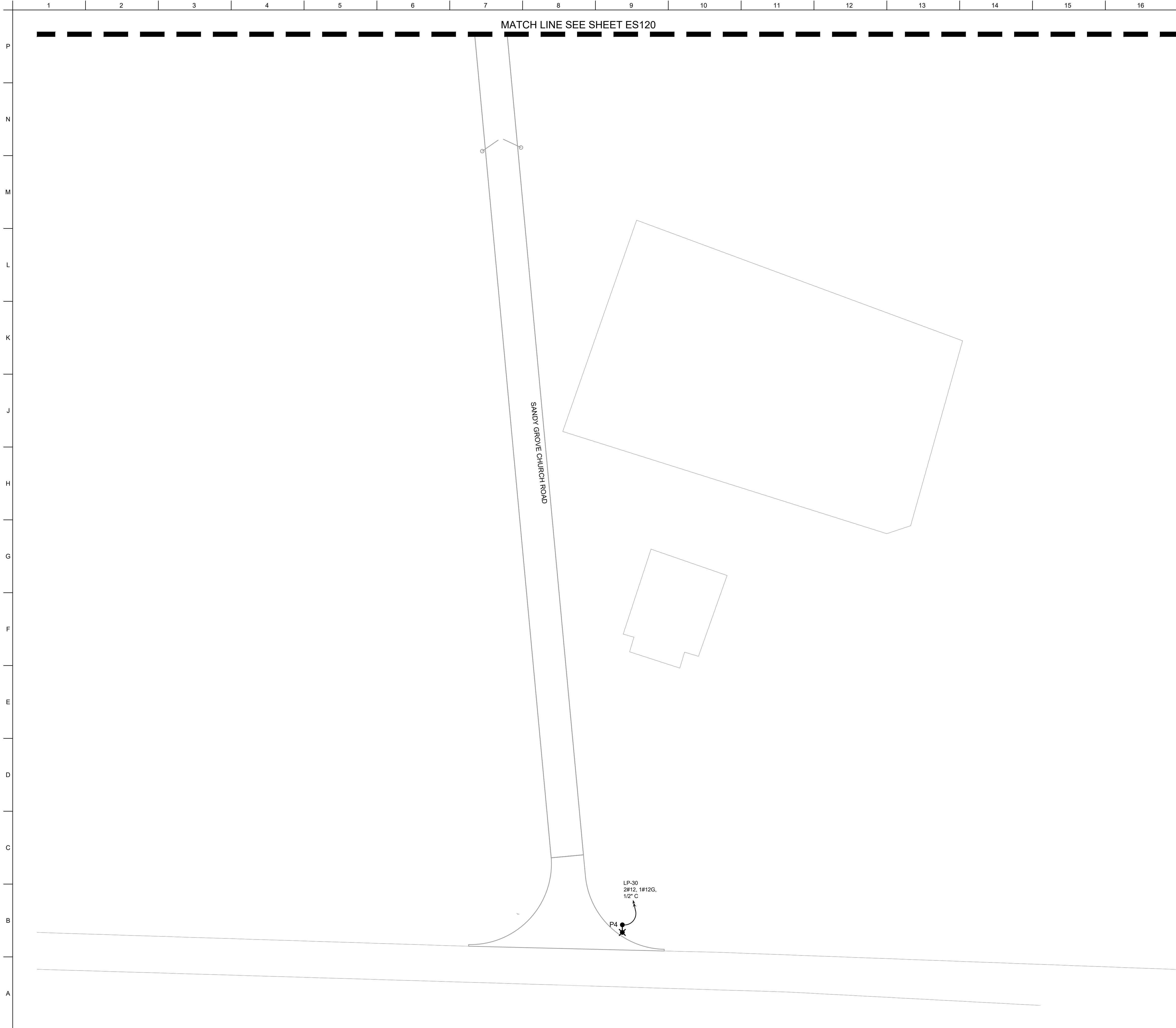
KEY MAP



FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

SITE LIGHTING PLAN - AREA B

SHEET ID
ES121

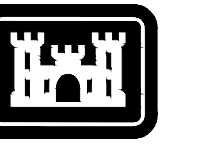


MATCH LINE SEE SHEET ES120

SANDY GROVE CHURCH ROAD

LP-30
2#12, 1#12G,
1/2\"/>

GENERAL SHEET NOTES



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE
1	REVISED IN ACCORDANCE WITH AMENDMENT 0004	17AUG2023

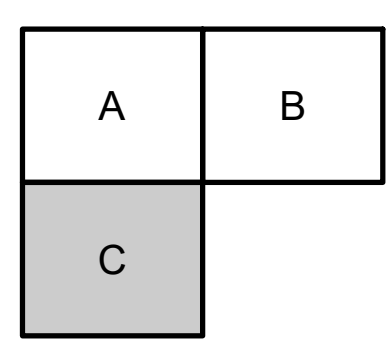
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	PROJECT NO. / CONTRACT NO.: W81PH1248.3002
SUBMITTED BY: R. DAVIS	CATEGORY CODE: 178-65-01
ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

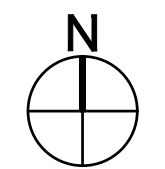
FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

SITE LIGHTING PLAN - AREA C

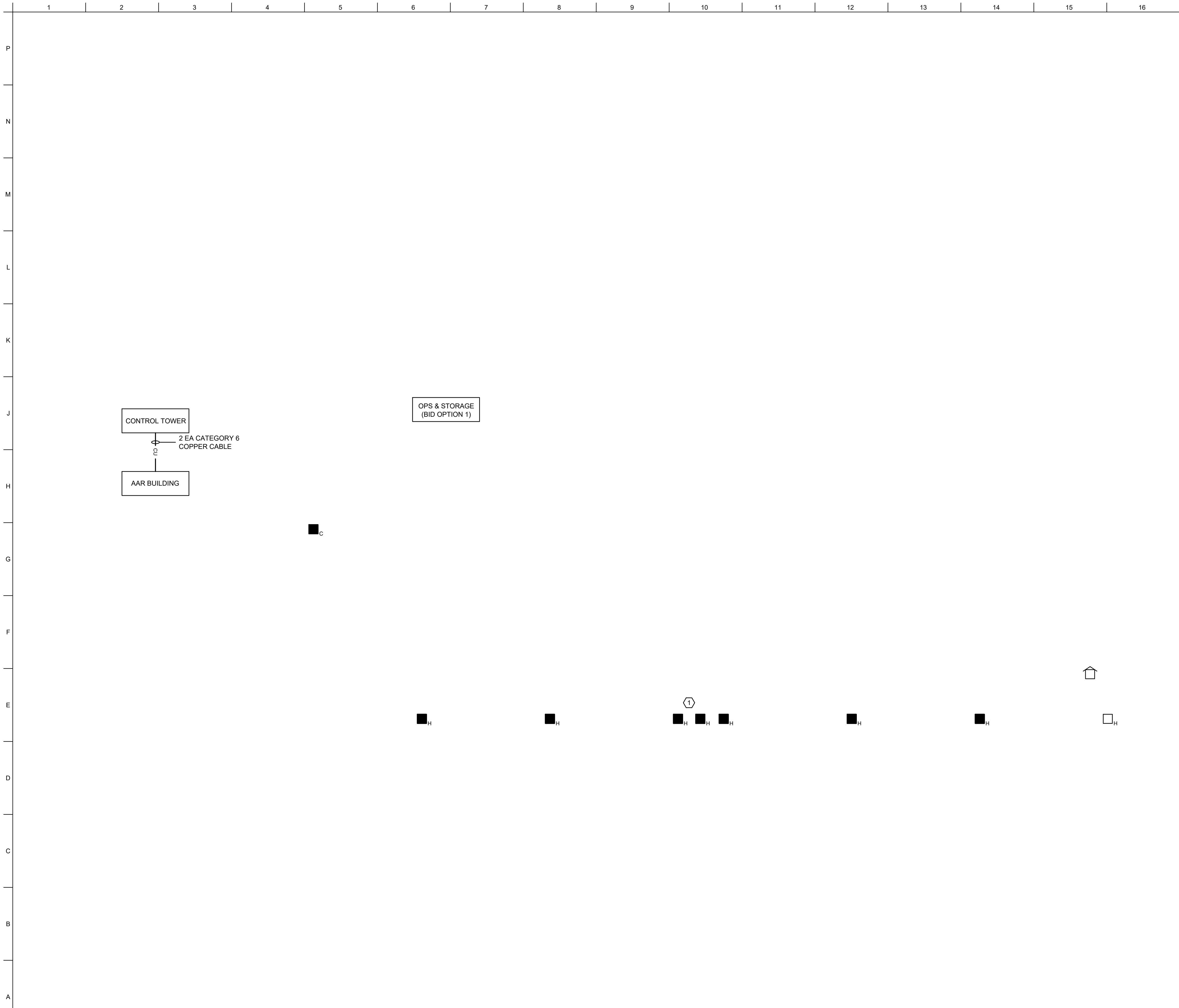
SHEET ID
ES122



KEY MAP

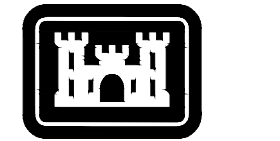


0' 30' 60'
SCALE: 1" = 30'



GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE I3A CRITERIA, NOV 2017 AND THE INSTALLATION DESIGN CRITERIA (IDC) FOR FT. BRAGG SPECIFIC COMMUNICATIONS REQUIREMENTS, AUG 2017.



US Army Corps of Engineers®

KEY NOTES

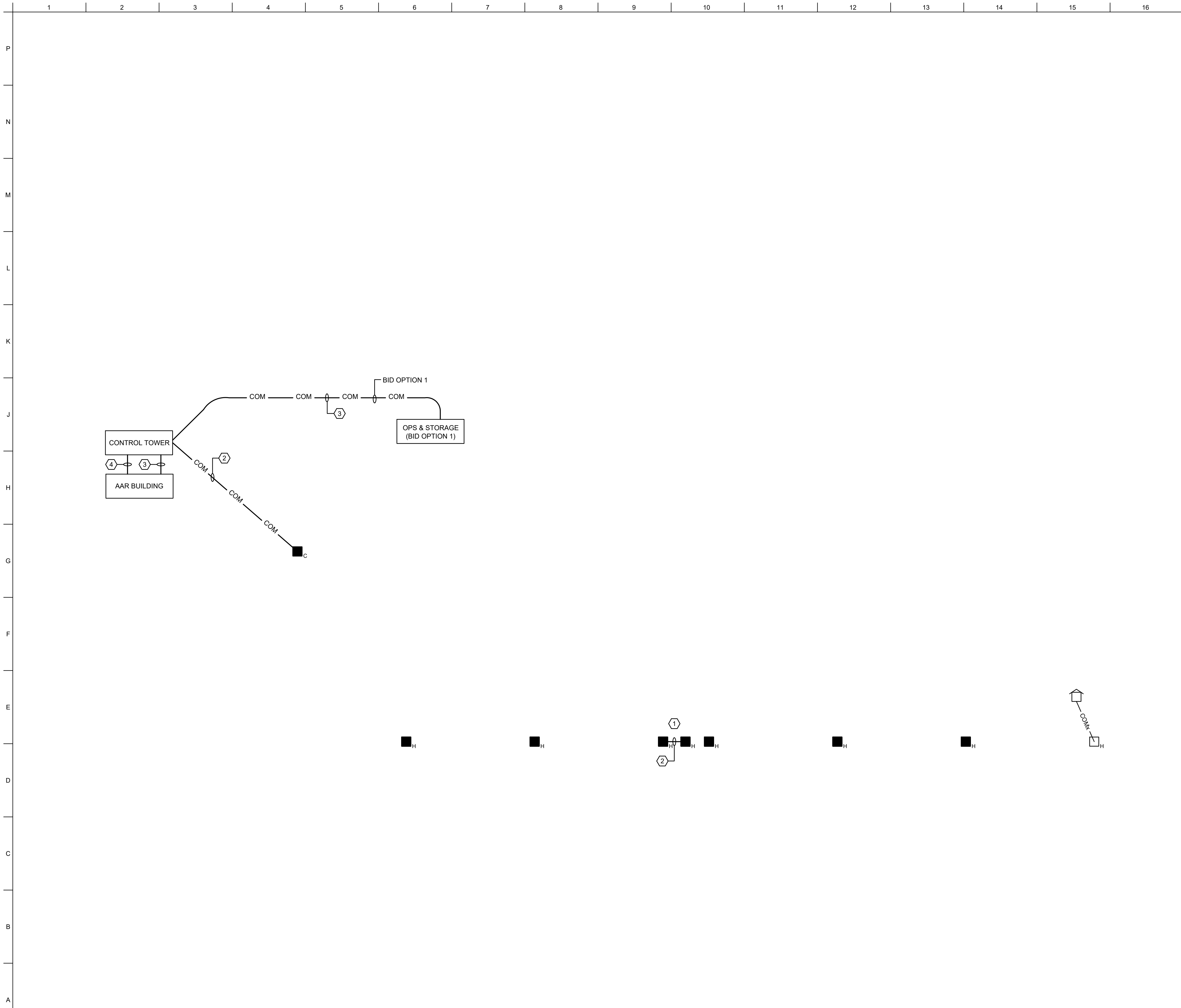
1. DIRECTIONAL BORING SHALL BE REQUIRED WHERE NEW LINES CROSS WETLAND AREAS. DIRECTIONAL BORING SHALL EXTEND 100' PAST WETLANDS AREAS TO HANDHOLES ON EACH SIDE.

MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	SCALE: AS SHOWN
SUBMITTED BY: J. DEACON	CONTRACT NO.:
ANSI D	CATEGORY CODE: 178-85-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE
 TELECOMMUNICATIONS COPPER CABLING
 ONE LINE DIAGRAM

SHEET ID
ES603



GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE I3A CRITERIA, NOV 2017 AND THE INSTALLATION DESIGN CRITERIA (IDC) FOR FT. BRAGG SPECIFIC COMMUNICATIONS REQUIREMENTS, AUG 2017.
2. THE CONTRACTOR SHALL STAKE THE ROUTE OF EACH NEW LINE AND INDICATE THE EXACT LOCATION OF NEW DUCTS, DUCT TERMINATIONS, MANHOLES, AND MANHOLE ORIENTATIONS FOR APPROVAL BY THE FT BRAGG NEC.
3. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE FT BRAGG NEC PRIOR TO BACKFILLING COMMUNICATIONS DUCTLINE TRENCHES.
4. NEW COMMUNICATION DUCTLINES SHALL BE CLEANED AND MANDRELLED, MANDRELLING SHALL BE WITNESSED BY REPRESENTATIVES OF THE COR AND NEC.
5. NEW COMMUNICATIONS DUCTLINE SPARES SHALL BE SEALED, CAPPED, AND TAGGED. SEALS SHALL BE MECHANICAL TYPE. SPARE DUCTLINES SHALL INCLUDE A PULL STRING.
6. NEW COMMUNICATIONS DUCTLINES SHALL BE CONCRETE ENCASED UNDER PAVED AREAS AND EXTENDING 5 FT BEYOND ON BOTH SIDES.
7. COMMUNICATIONS CABLES BETWEEN THE EXISTING HANDHOLE AT THE HUT AND THE ROCA AREA MANHOLE SHALL BE DIRECT BURY.

KEY NOTES

- ① DIRECTIONAL BORING SHALL BE REQUIRED WHERE NEW LINES CROSS WETLANDS AREAS. DIRECTIONAL BORING SHALL EXTEND 100' PAST WETLANDS AREAS TO HANDHOLES ON EACH SIDE.
- ② 2-WAY, 4-INCH TELECOMMUNICATIONS DUCTLINE. ONE CONDUIT SHALL CONTAIN 3 EACH, 3-INCH 3 CELL FABRIC MESH INNERDUCT WITH TRACER WIRE ATTACHED AND PULL STRINGS IN ALL VACANT CELLS. ALL VACANT DUCTS SHALL HAVE A PULL STRING.
- ③ 1-WAY, 4-INCH TELECOMMUNICATIONS DUCTLINE. CONDUIT SHALL CONTAIN 3 EACH, 3-INCH 3 CELL FABRIC MESH INNERDUCT WITH TRACER WIRE ATTACHED AND PULL STRINGS IN ALL VACANT CELLS. ALL VACANT DUCTS SHALL HAVE A PULL STRING.
- ④ 1-WAY, 1-INCH TELECOMMUNICATIONS DUCTLINE TO OUTLET.



MARK	DESCRIPTION	DATE

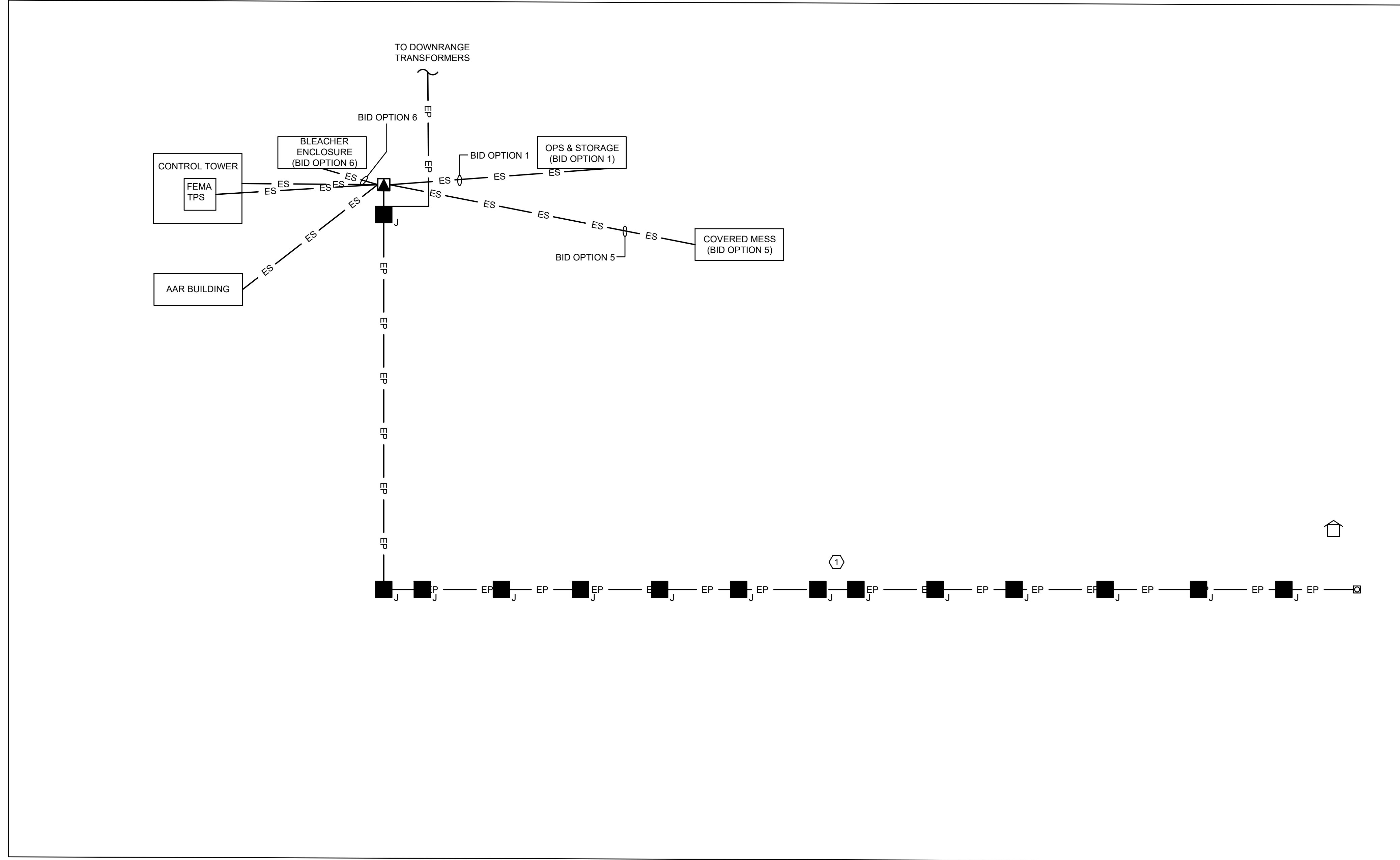
DESIGNED BY: H. TAYLOR CHECKED BY: H. TAYLOR SUBMITTED BY: J. DEACON		ISSUE DATE: NOVEMBER 2023 CONTRACT NO.: W919WZ248 3002 CONTRACT NO.: -- CATEGORY CODE: 178-65-01 SIZE: ANSI D	
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401			

FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE
TELECOMMUNICATIONS DUCT BANK ONE-LINE DIAGRAM

SHEET ID
ES605

1 TELECOMMUNICATIONS DUCT BANK ONE-LINE DIAGRAM

NOT TO SCALE

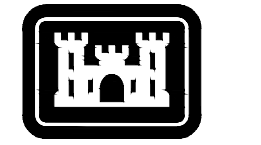


GENERAL NOTES

- SEE SITE ELECTRICAL SCOPE OF WORK NOTES FOR RESPONSIBILITIES OF CONTRACTOR AND UTILITY.

KEY NOTES

- DIRECTIONAL BORING SHALL BE REQUIRED WHERE NEW LINES CROSS WETLAND AREAS. DIRECTIONAL BORING SHALL EXTEND 100' PAST THE EDGE OF ANY WETLANDS AREAS ON BOTH SIDES.



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

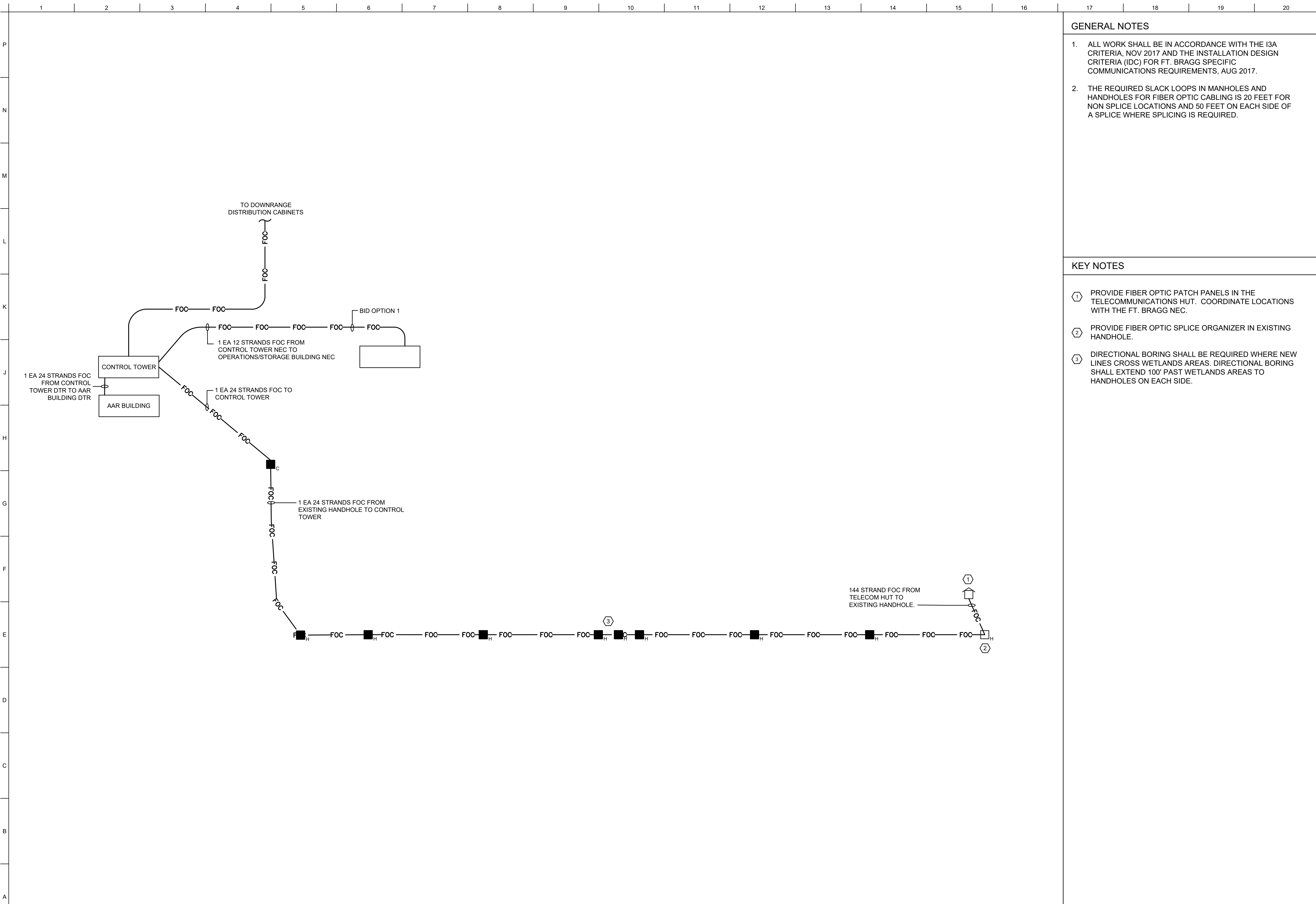
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	SCALE: AS SHOWN
SUBMITTED BY: R. DAVIS	CONTRACT NO.:
SIZE: ANSI D	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTFR)
FY23, PN 96182
VOLUME 1 - SITE

SITE POWER RISER DIAGRAM

SHEET ID
ES601

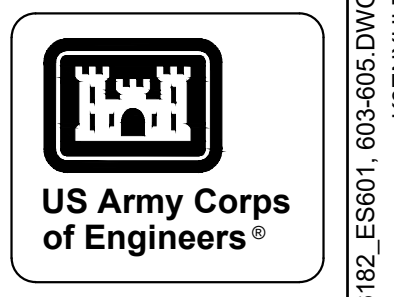


GENERAL NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE I3A CRITERIA, NOV 2017 AND THE INSTALLATION DESIGN CRITERIA (IDC) FOR FT. BRAGG SPECIFIC COMMUNICATIONS REQUIREMENTS, AUG 2017.
- THE REQUIRED SLACK LOOPS IN MANHOLES AND HANDHOLES FOR FIBER OPTIC CABLING IS 20 FEET FOR NON SPLICE LOCATIONS AND 50 FEET ON EACH SIDE OF A SPLICE WHERE SPLICING IS REQUIRED.

KEY NOTES

- PROVIDE FIBER OPTIC PATCH PANELS IN THE TELECOMMUNICATIONS HUT. COORDINATE LOCATIONS WITH THE FT. BRAGG NEC.
- PROVIDE FIBER OPTIC SPLICE ORGANIZER IN EXISTING HANDHOLE.
- DIRECTIONAL BORING SHALL BE REQUIRED WHERE NEW LINES CROSS WETLANDS AREAS. DIRECTIONAL BORING SHALL EXTEND 100' PAST WETLANDS AREAS TO HANDHOLES ON EACH SIDE.



MARK	DESCRIPTION	DATE

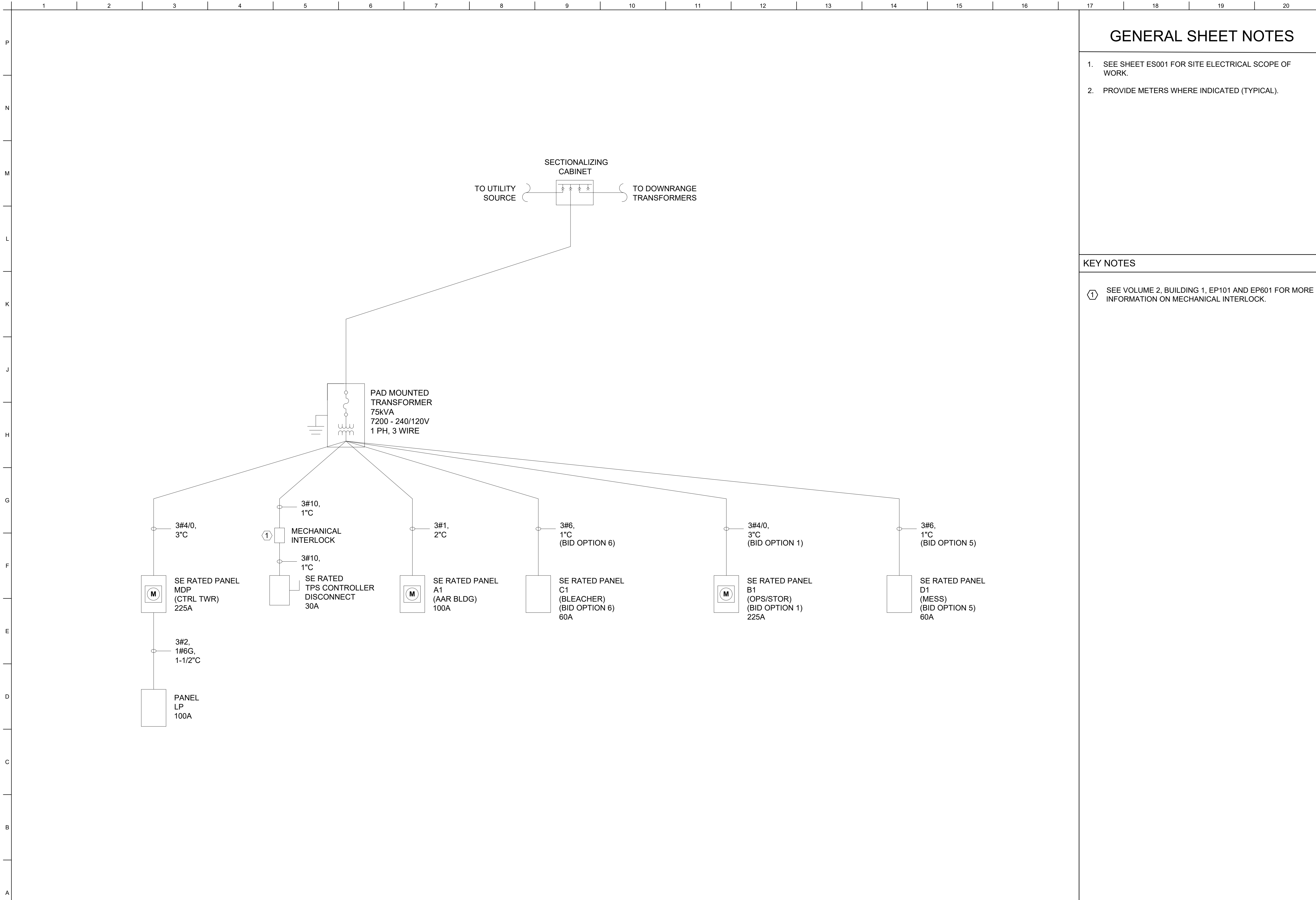
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	NO. OF SHEETS: 10/14
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	CATEGORY CODE: 178-65-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	ANSI D

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE
TELECOMMUNICATIONS FOC CABLING ONE-LINE DIAGRAM

SHEET ID
ES604

1 TELECOMMUNICATIONS FOC CABLING ONE-LINE DIAGRAM

NOT TO SCALE

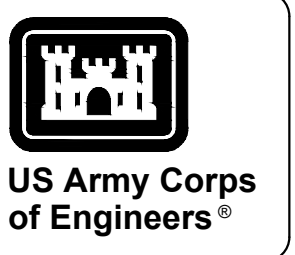


GENERAL SHEET NOTES

1. SEE SHEET ES001 FOR SITE ELECTRICAL SCOPE OF WORK.
2. PROVIDE METERS WHERE INDICATED (TYPICAL).

KEY NOTES

① SEE VOLUME 2, BUILDING 1, EP101 AND EP601 FOR MORE INFORMATION ON MECHANICAL INTERLOCK.



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MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	SCALE: AS SHOWN
APPROVED BY: R. DAVIS	PROJECT NO.:
SUBMITTED BY: J. DEACON	CONTRACT NO.:
SIZE:	CATEGORY CODE: 178-85-01
ANSID	

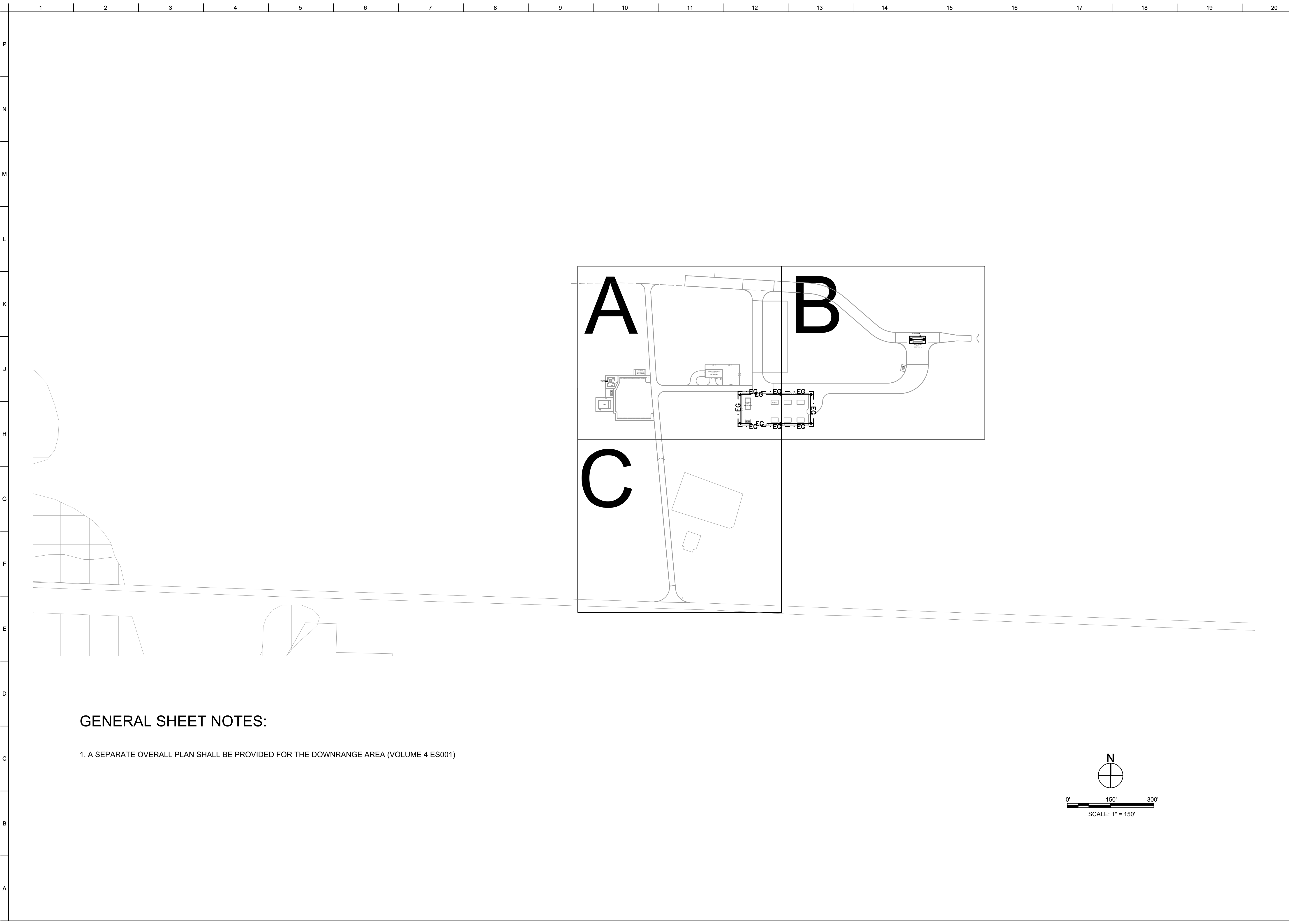
U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

SITE POWER ONE-LINE DIAGRAM

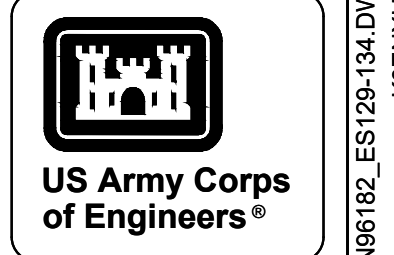
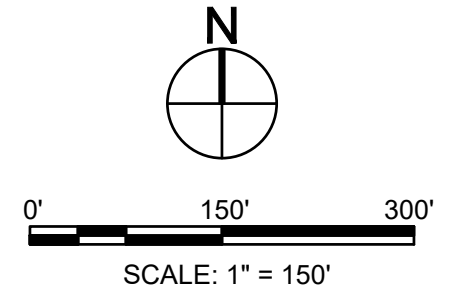
SHEET ID
ES602

1 SITE POWER ONE-LINE DIAGRAM



GENERAL SHEET NOTES:

1. A SEPARATE OVERALL PLAN SHALL BE PROVIDED FOR THE DOWNRANGE AREA (VOLUME 4 ES001)

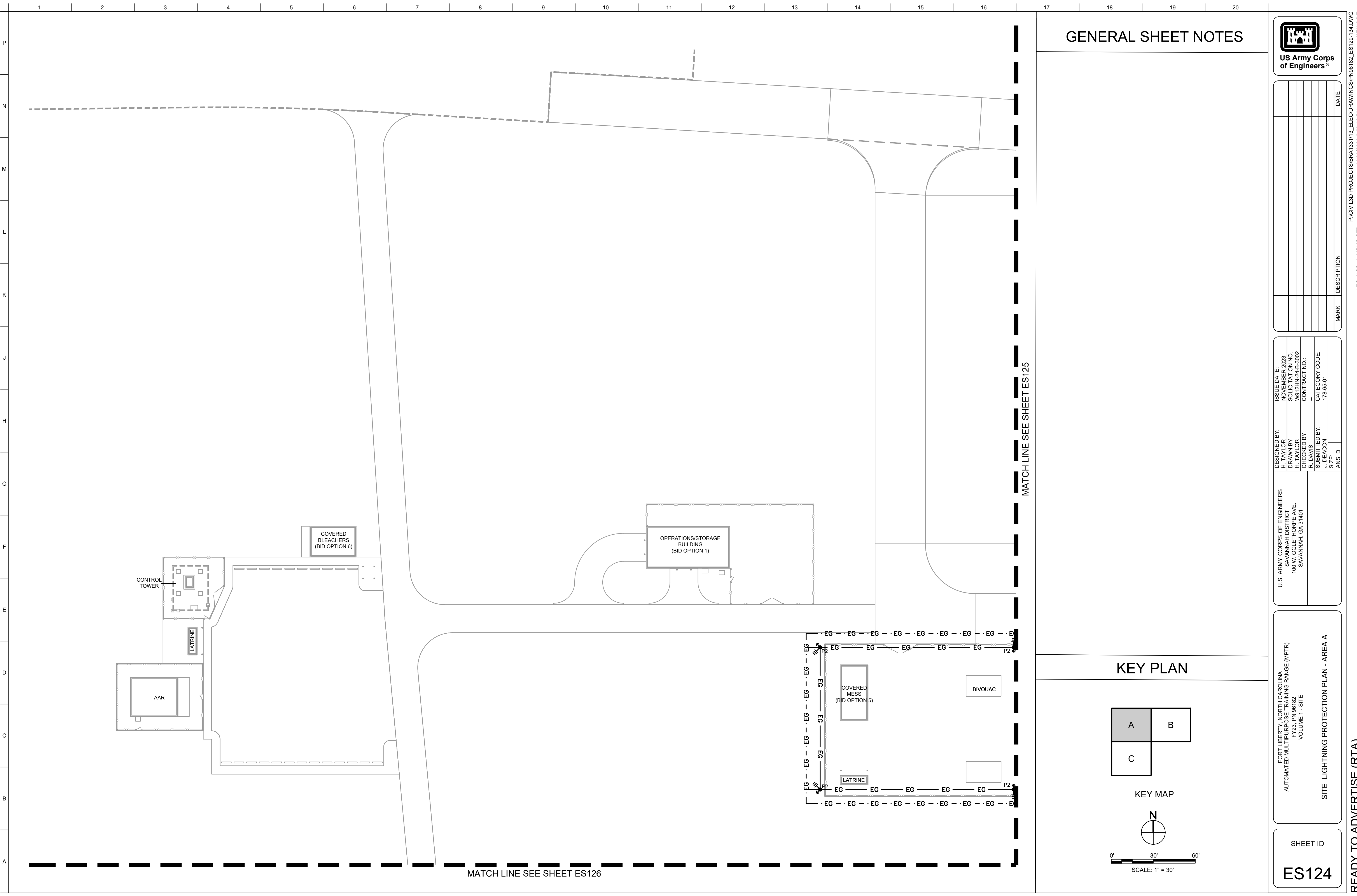


MARK	DESCRIPTION	DATE

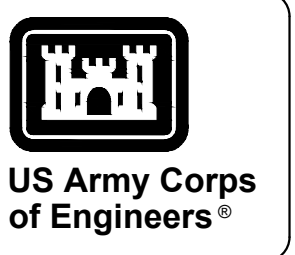
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401		DESIGNED BY: H. TAYLOR H. TAYLOR CHECKED BY: R. DAVIS SUBMITTED BY: J. DEACON SIZE: ANS/D	ISSUE DATE: NOVEMBER 2023 SUPPLEMENT: W91P4A248 3002 CONTRACT NO.: -- CATEGORY CODE: 178-65-01
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FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR)
 FY23, PN 96182
 VOLUME 1 - SITE
 SITE LIGHTNING PROTECTION PLAN - OVERALL

SHEET ID
ES123



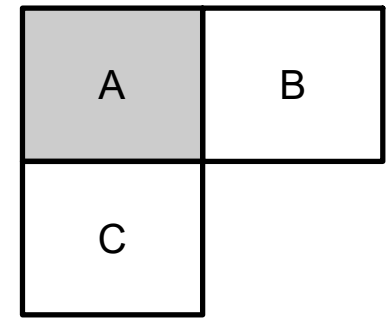
GENERAL SHEET NOTES



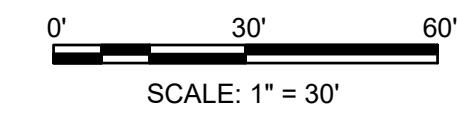
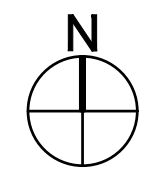
MARK	DESCRIPTION	DATE

U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401	DESIGNED BY: H. TAYLOR H. TAYLOR H. TAYLOR R. DAVIS J. DEACON SIZE: ANSID	ISSUE DATE: NOVEMBER 2023 WORK ORDER NO.: W019H2448.0002 CONTRACT NO.: -- CATEGORY CODE: 178-85-01
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KEY PLAN

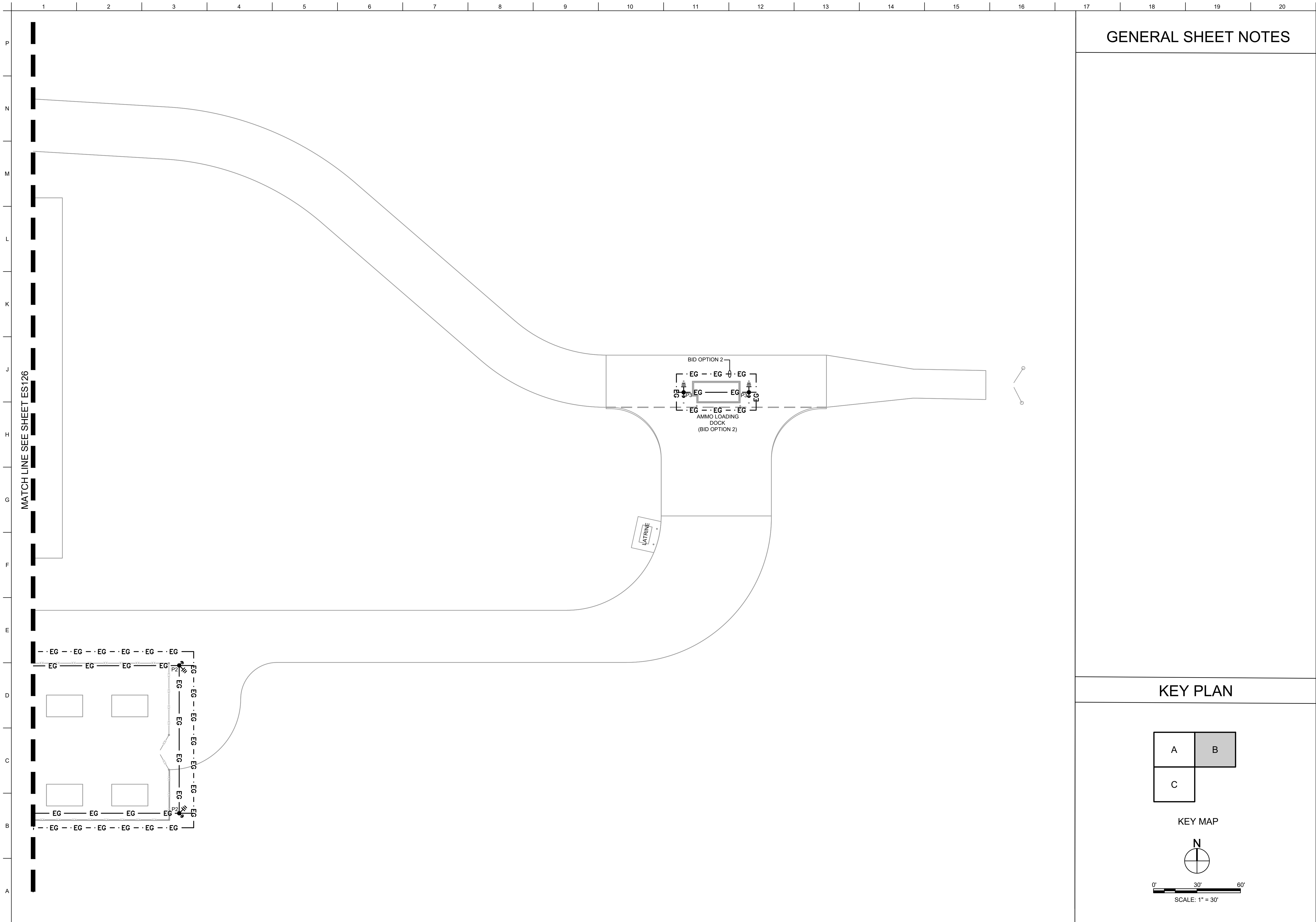


KEY MAP



FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE
 SITE LIGHTNING PROTECTION PLAN - AREA A

SHEET ID
ES124



GENERAL SHEET NOTES

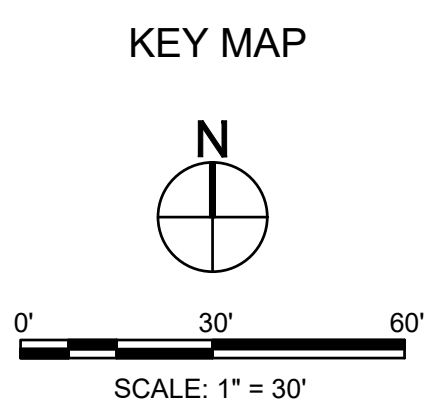
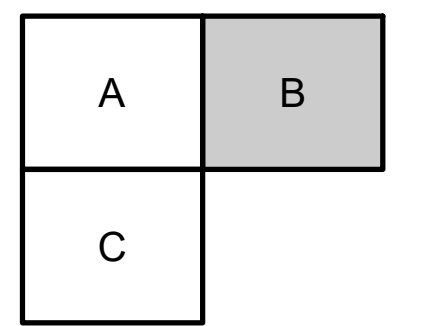


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of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR		ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR		PROJECT NO. / CONTRACT NO.: W91P012483002
SUBMITTED BY: J. DEACON		CATEGORY CODE: 178-85-01
U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVE. SAVANNAH, GA 31401		ANSID

KEY PLAN



FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

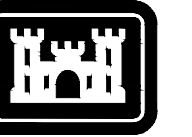
SITE LIGHTNING PROTECTION PLAN - AREA B

SHEET ID

ES125

MATCH LINE SEE SHEET ES124

GENERAL SHEET NOTES



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MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR		ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR		PROJECT NO. / CONTRACT NO.:
SUBMITTED BY: J. DEACON		CATEGORY CODE: 178-85-01
ANS/D	SIZE	

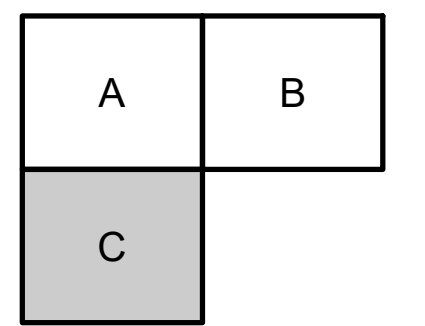
U.S. ARMY CORPS OF ENGINEERS
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100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

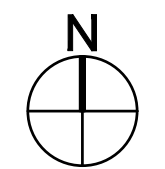
SITE LIGHTNING PROTECTION PLAN - AREA C

SHEET ID
ES126

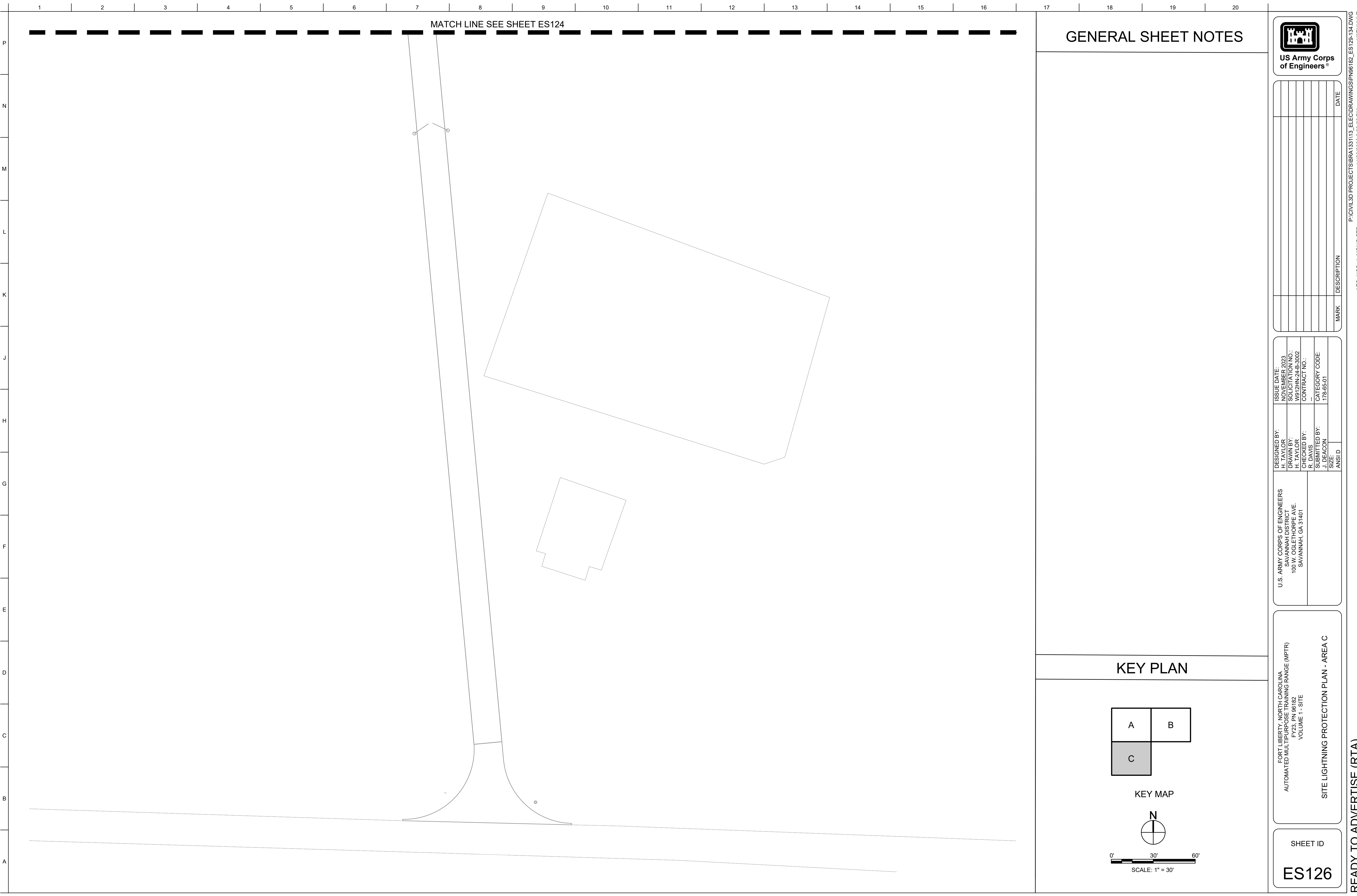
KEY PLAN

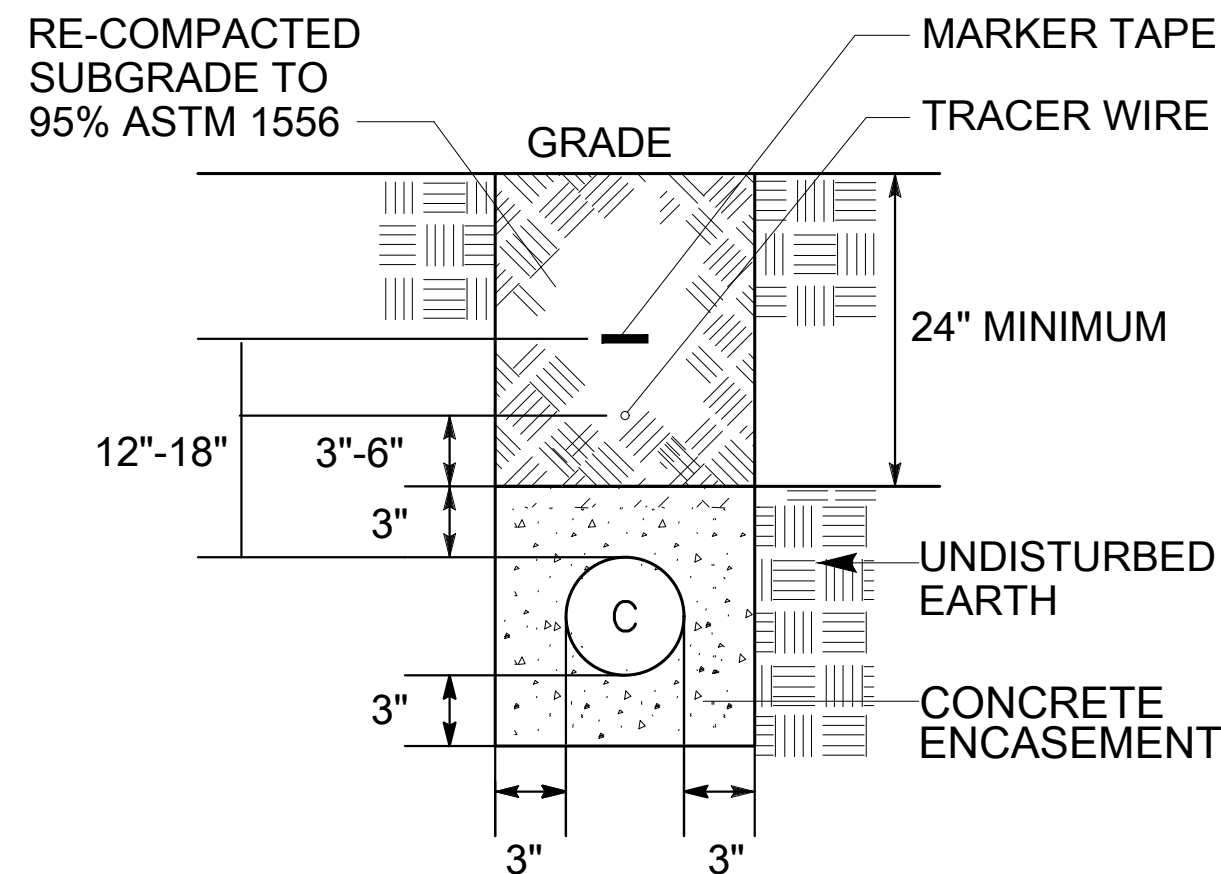


KEY MAP

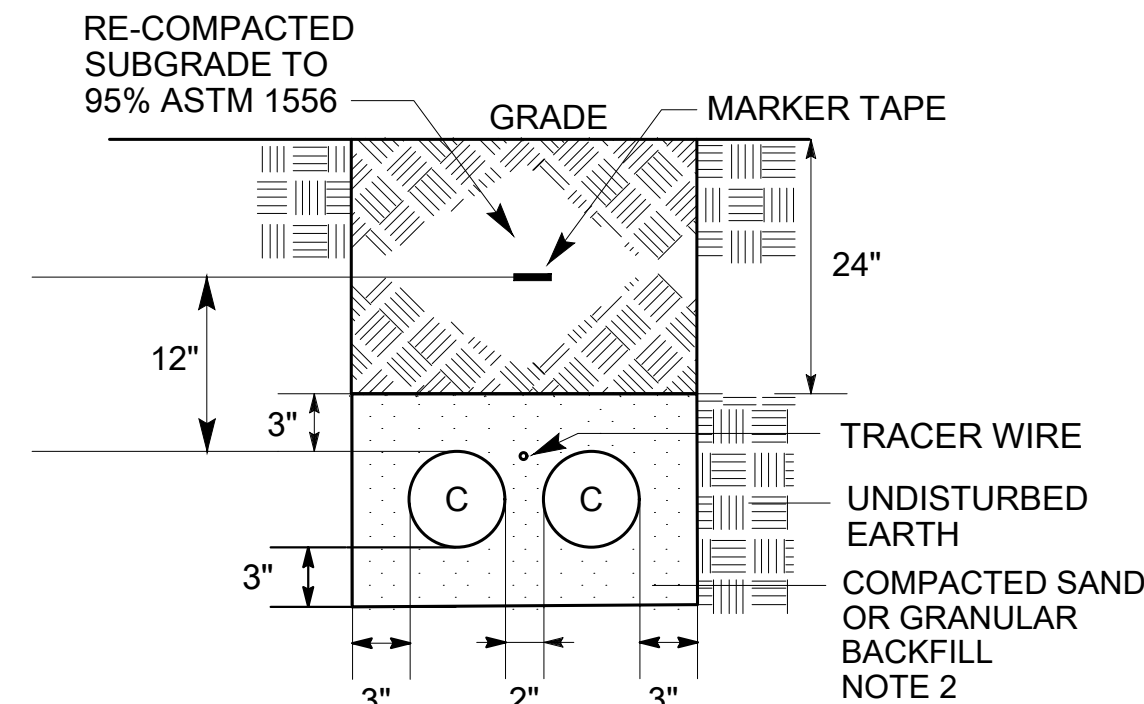


0' 30' 60'
SCALE: 1" = 30'

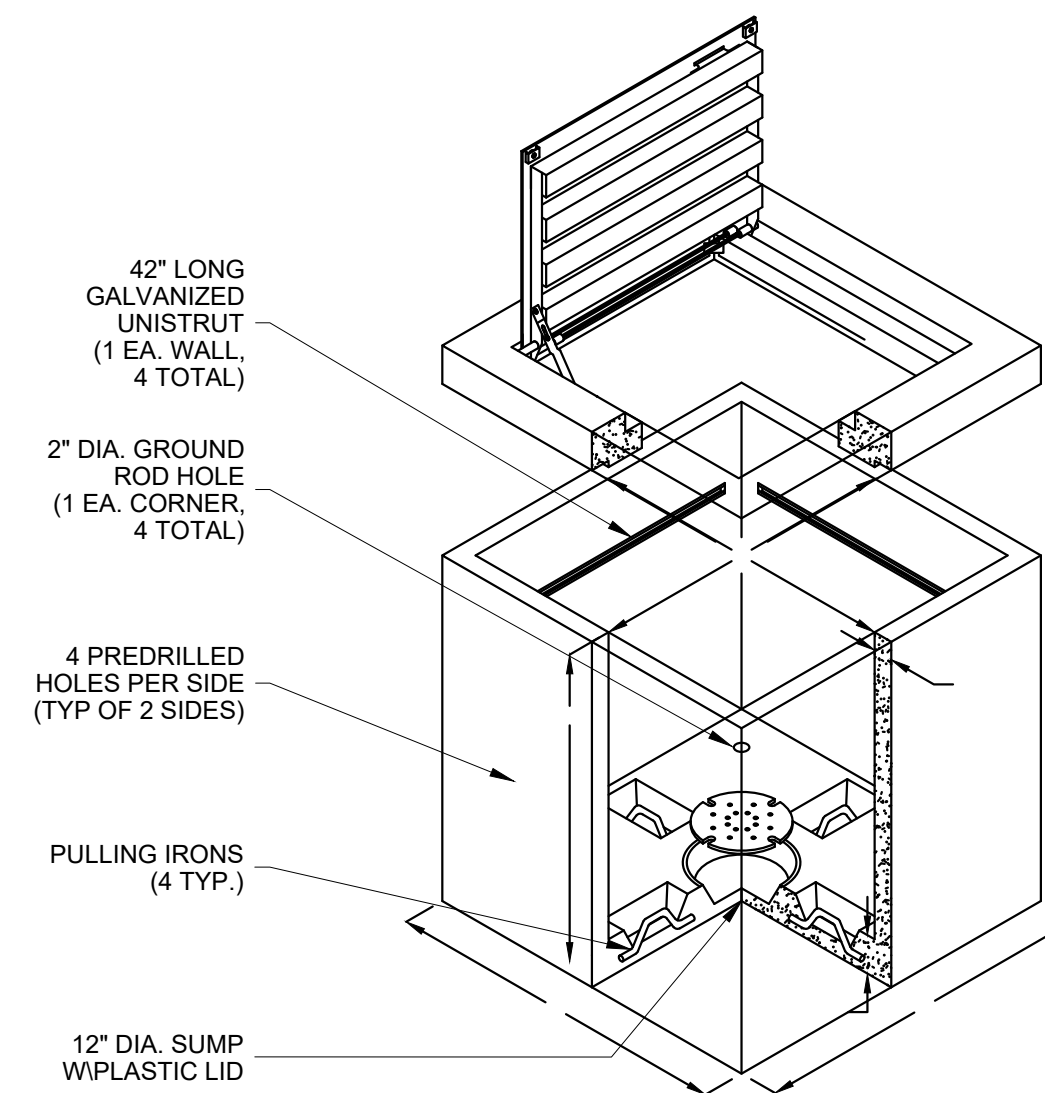




- TELECOM DUCT LINE DETAIL NOTES:
1. DEPTHS SHALL BE MEASURED TO FINISHED GRADE ELEVATIONS.
 2. PROVIDE CONCRETE ENCASEMENT UNDER PAVEMENT.



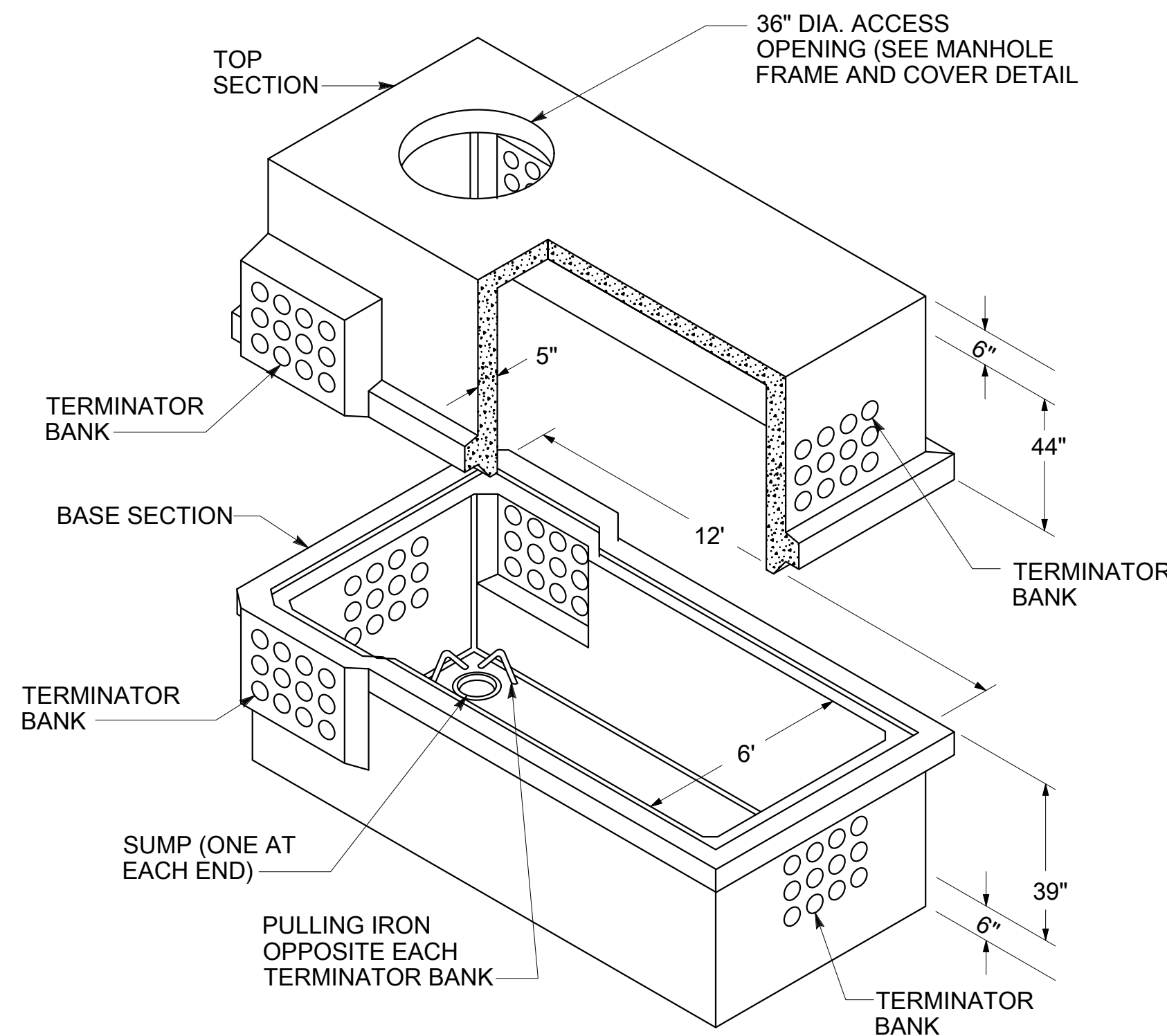
- TELECOM DUCT LINE DETAIL NOTES:
1. DEPTHS SHALL BE MEASURED TO FINISHED GRADE ELEVATIONS.
 2. PROVIDE CONCRETE ENCASEMENT UNDER PAVEMENT.



1 TELECOMMUNICATIONS 1-WAY DUCTBANK

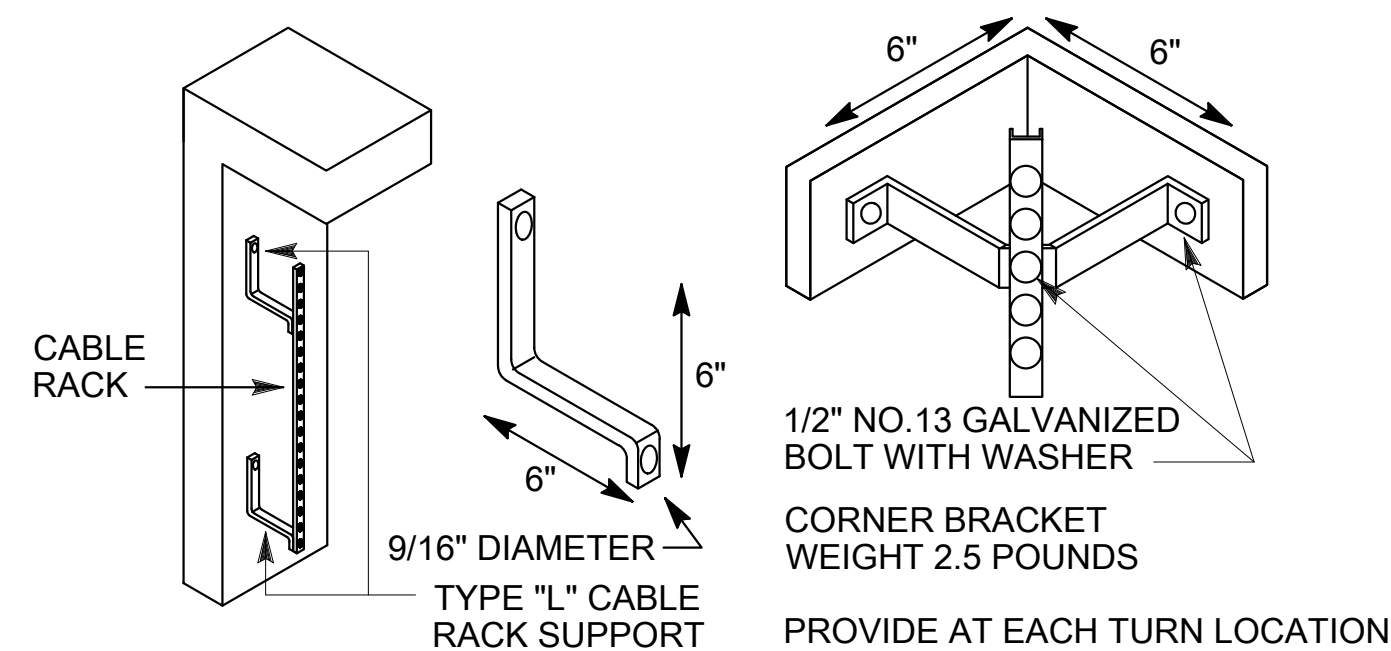
2 TELECOMMUNICATIONS 2-WAY DUCTBANK

3 TELECOMMUNICATIONS HANDHOLE

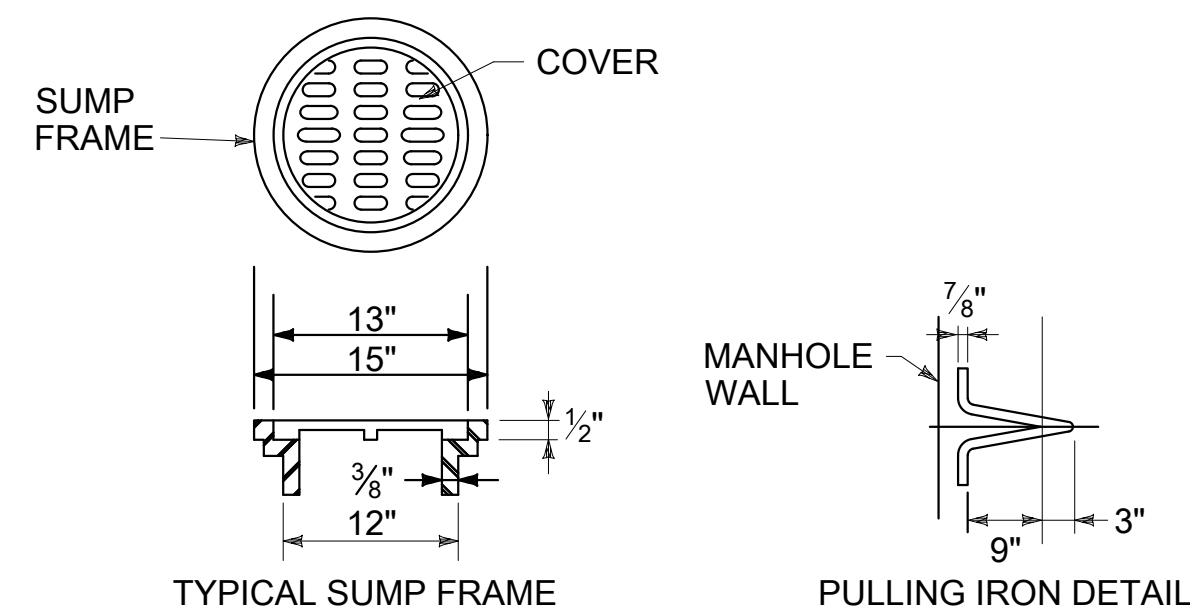


TYPE 38Y-J4 PRECAST COMMUNICATIONS MANHOLE
NOT TO SCALE

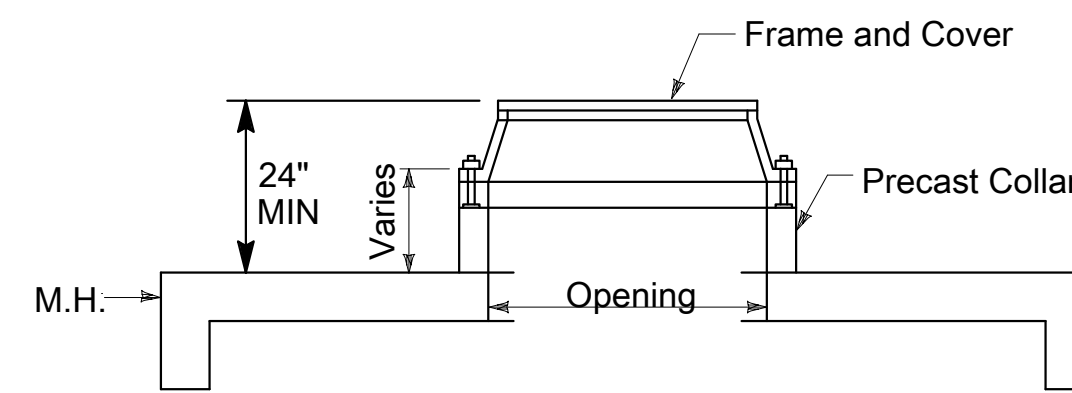
- TELECOMMUNICATIONS MANHOLE DETAIL NOTES:
1. WHERE INDICATED, MANHOLES SHALL HAVE A LOAD RATING OF HS-20 FOR HEAVY VEHICULAR TRAFFIC.



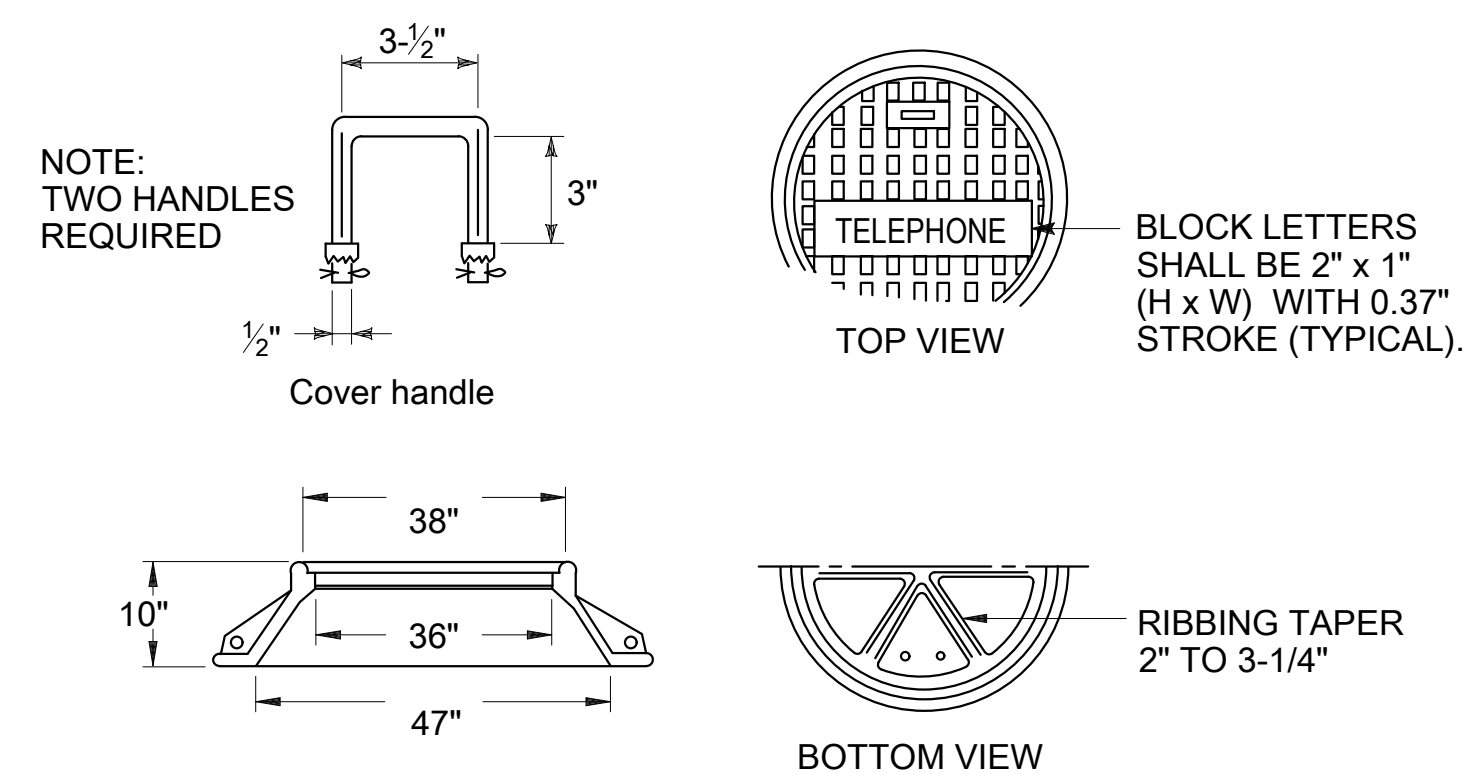
PROVIDE A MINIMUM OF 7 CABLE RACKS ON EACH LONG WALL OF THE MANHOLE. EACH CABLE RACK SHALL HAVE 47 HOLE SPACES MOUNTED VERTICALLY. THREE OF THE CABLE RACKS SHALL BE INSTALLED FLUSH TO THE WALL, AND FOUR SHALL BE INSTALLED WITH STANDOFFS. PROVIDE (4) 7-1/2\"/>



MANHOLE HARDWARE AND ACCESSORIES
NOT TO SCALE



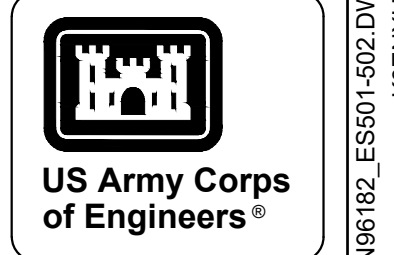
MANHOLE NECK DETAIL
NOT TO SCALE



MANHOLE FRAME AND COVER DETAIL
NOT TO SCALE

- MANHOLE FRAME AND COVER DETAIL NOTES:
1. PROVIDE IDENTIFICATION NUMBER ON TOP OF COVER AND INTERIOR OF COLLAR. COORDINATE ID NUMBER WITH NEC THROUGH THE COR.

4 TELECOMMUNICATIONS MANHOLE DETAIL



MARK	DESCRIPTION	DATE

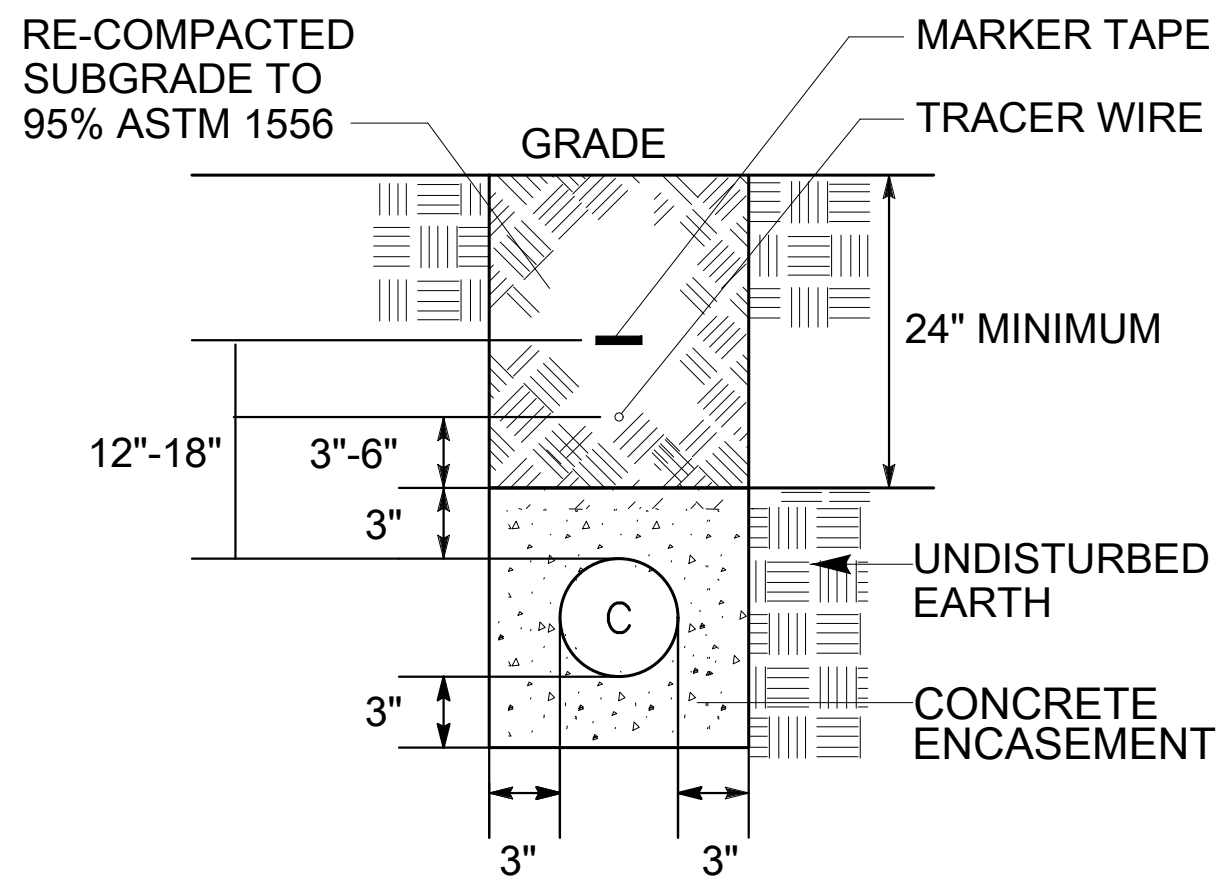
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	SCALE: AS SHOWN
SUBMITTED BY: R. DAVIS	PROJECT NO.:
ANSI/D	CONTRACT NO.:
	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

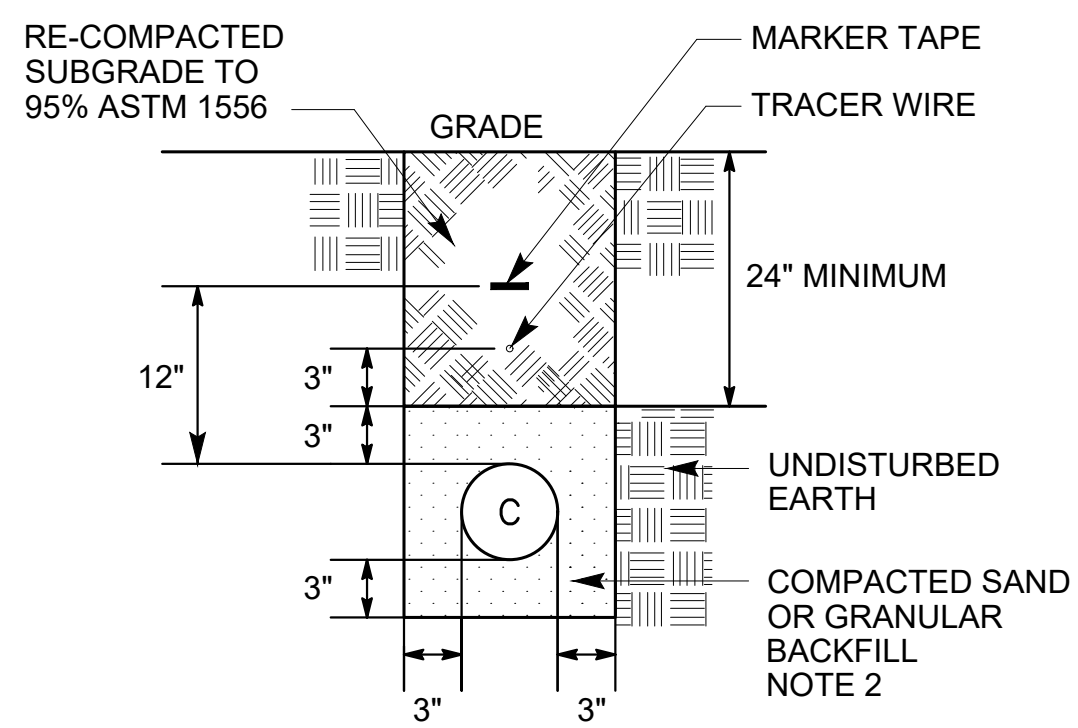
SITE ELECTRICAL DETAILS

SHEET ID
ES502



POWER DUCT LINE DETAIL NOTES:

1. DEPTHS SHALL BE MEASURED TO FINISHED GRADE ELEVATIONS.
2. PROVIDE CONCRETE ENCASEMENT UNDER PAVEMENT.

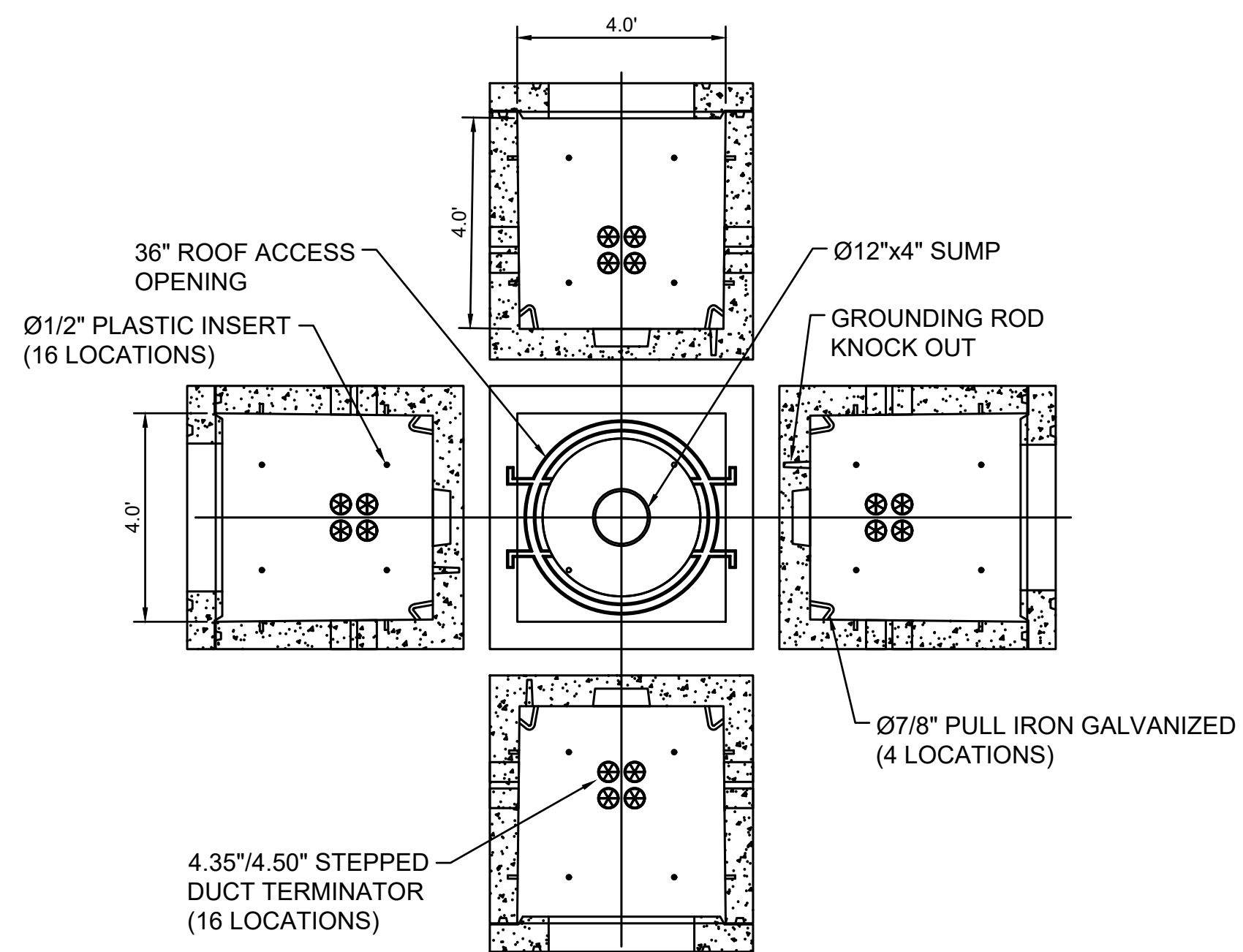
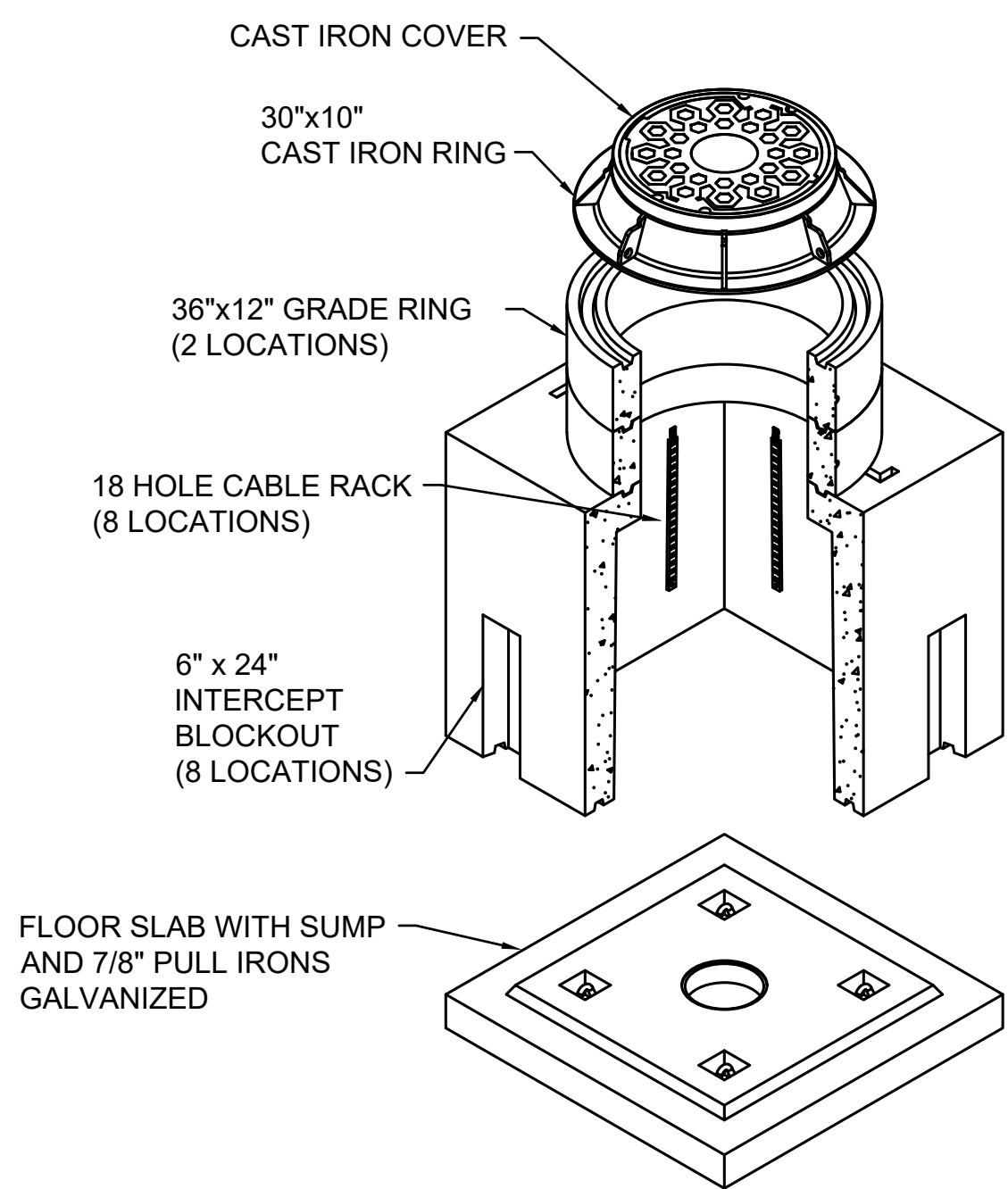


LIGHTING DUCT LINE DETAIL NOTES:

1. DEPTHS SHALL BE MEASURED TO FINISHED GRADE ELEVATIONS.
2. PROVIDE CONCRETE ENCASEMENT UNDER PAVEMENT.

1 SECONDARY POWER 1-WAY DUCTBANK

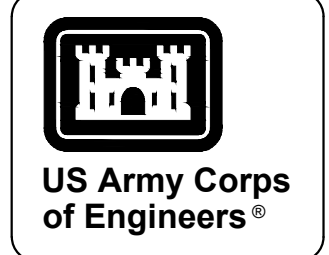
2 LIGHTING DUCT LINE DETAIL



INSIDE FOLD OUT
DETAILED VIEW

MATERIAL LIST	
DESCRIPTION	QTY
4'-0"x4'-0"x4'-0" BASE SECTION RACKED AND PAINTED	1
4'-0"x4'-0"x6.5" BASE SLAB	1
36" x 12" GRADE RINGS (2 QTY)	2

3 POWER HAND HOLE



MARK	DESCRIPTION	DATE

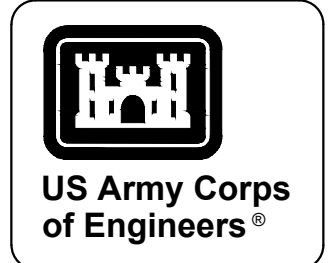
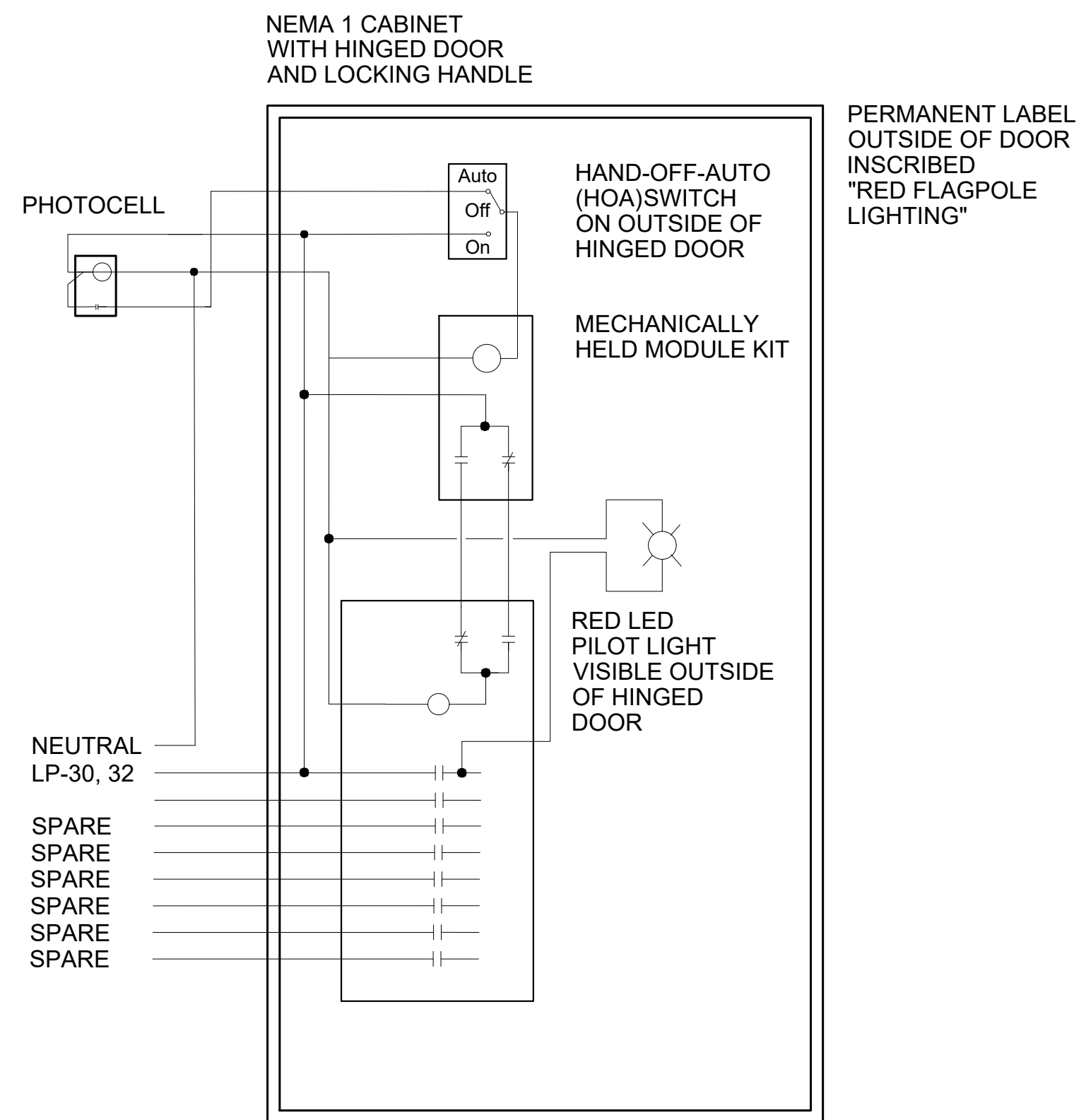
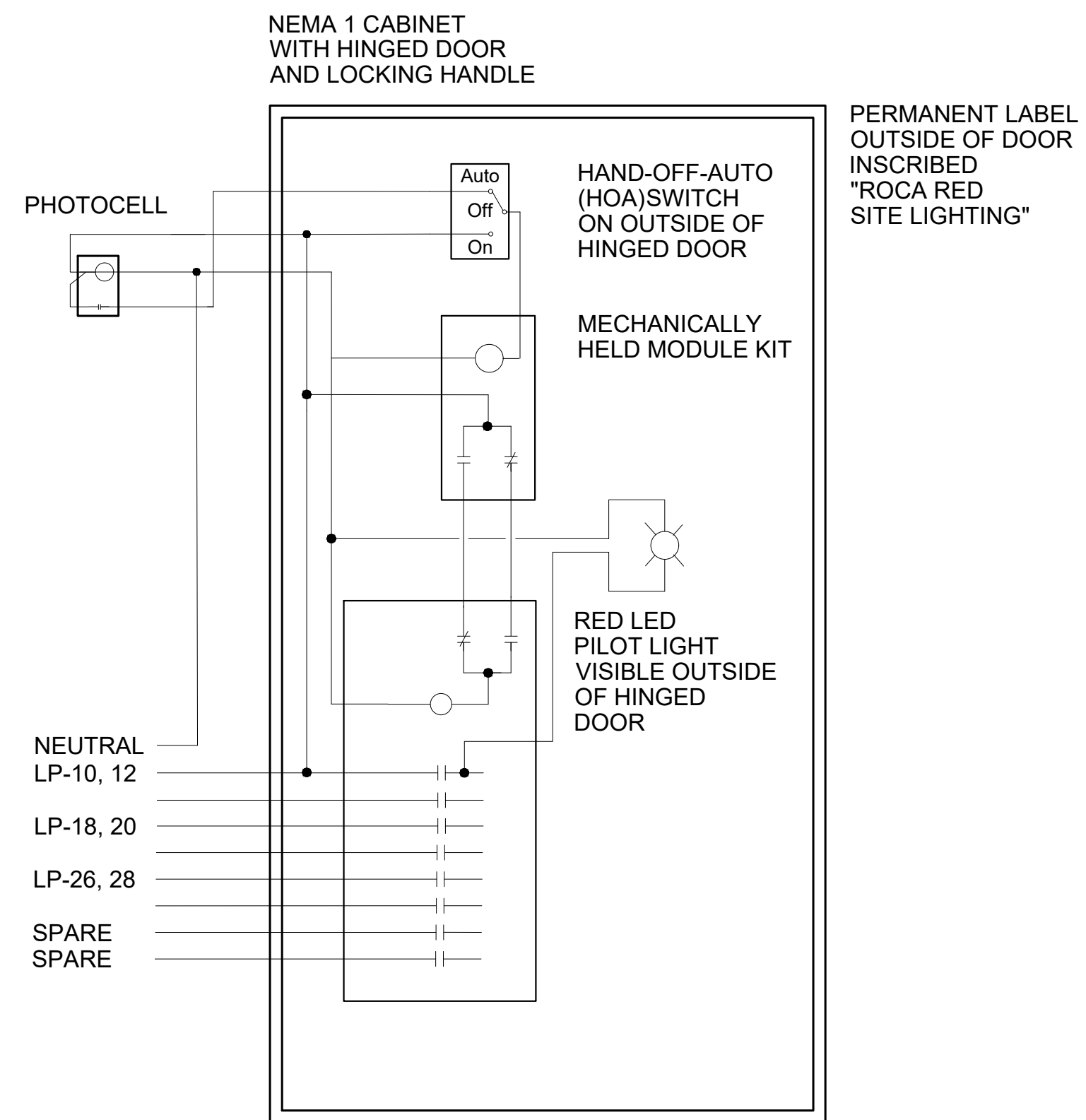
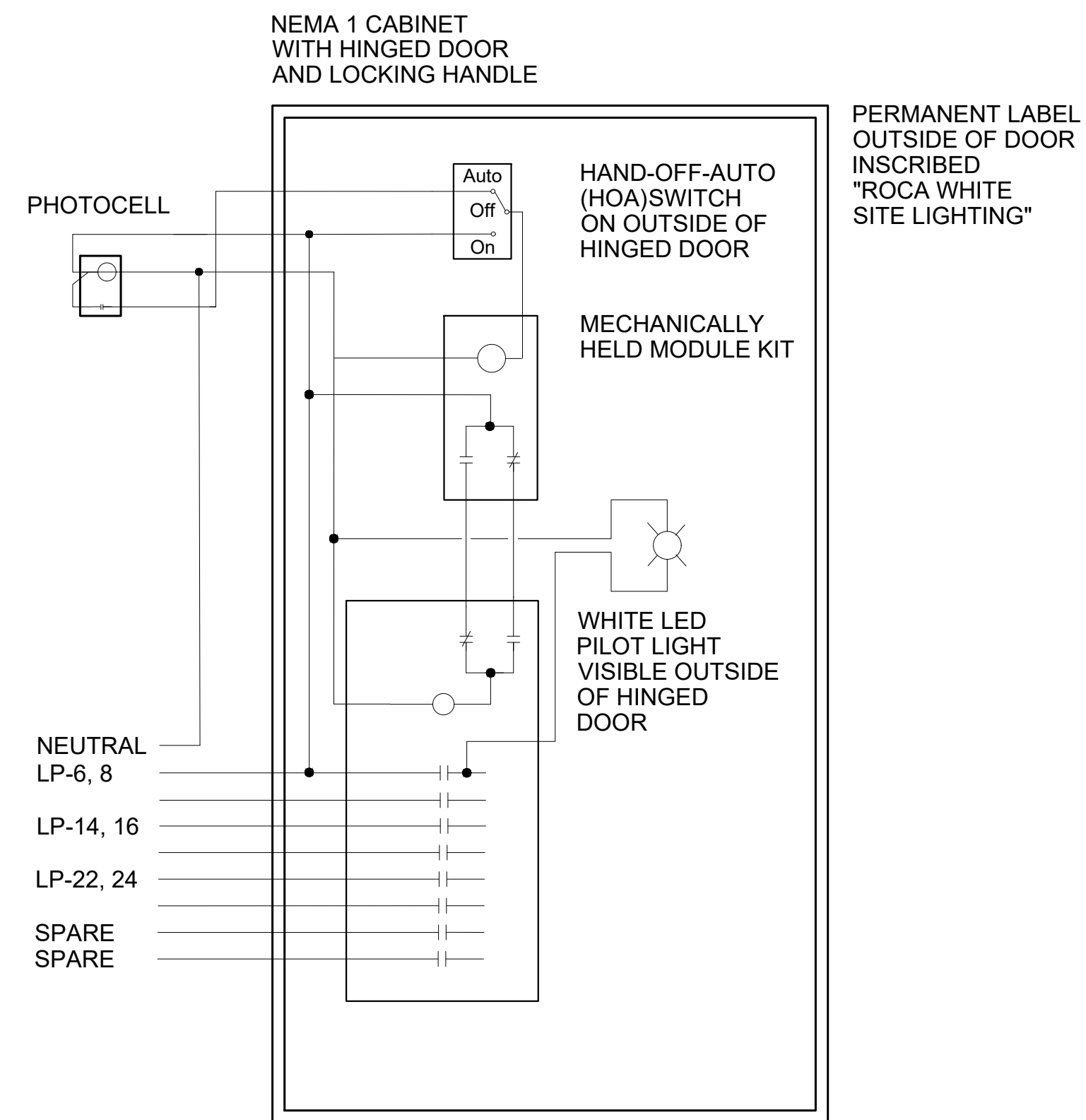
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
CHECKED BY: H. TAYLOR	DESIGNED BY: H. TAYLOR
SUBMITTED BY: J. DEACON	CONTRACT NO.:
SIZE: ANSI D	CATEGORY CODE: 178-85-01

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

SITE ELECTRICAL DETAILS

SHEET ID
ES501



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE
1	REVISED IN ACCORDANCE WITH AMENDMENT 0004	17AUG2023

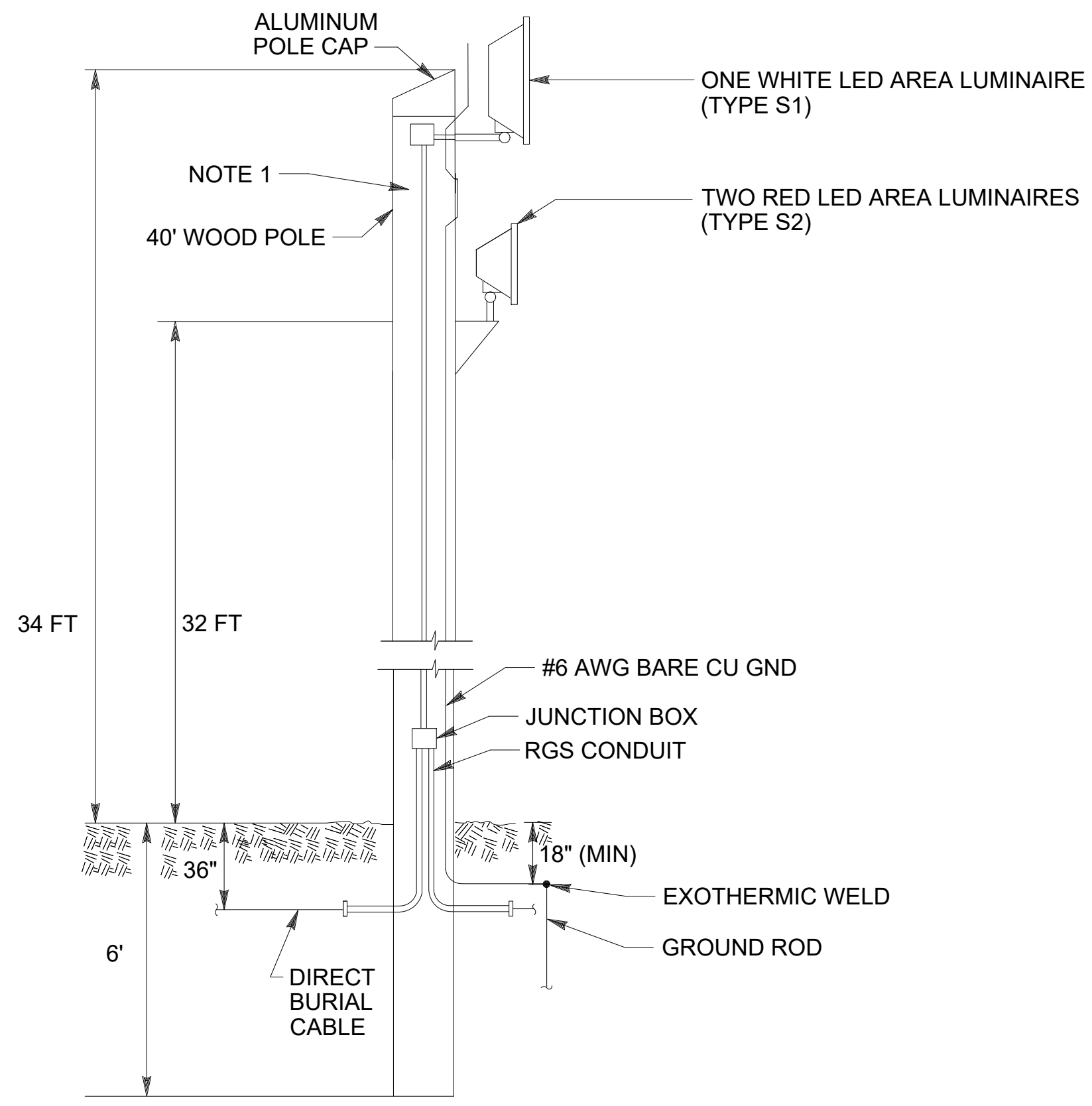
DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
DRAWN BY: M. HAYES	SCALE: AS SHOWN
CHECKED BY: R. DAVIS	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-85-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

FORT LIBERTY, NORTH CAROLINA
AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
FY23, PN 96182
VOLUME 1 - SITE

SITE LIGHTING CONTACTOR DIAGRAMS

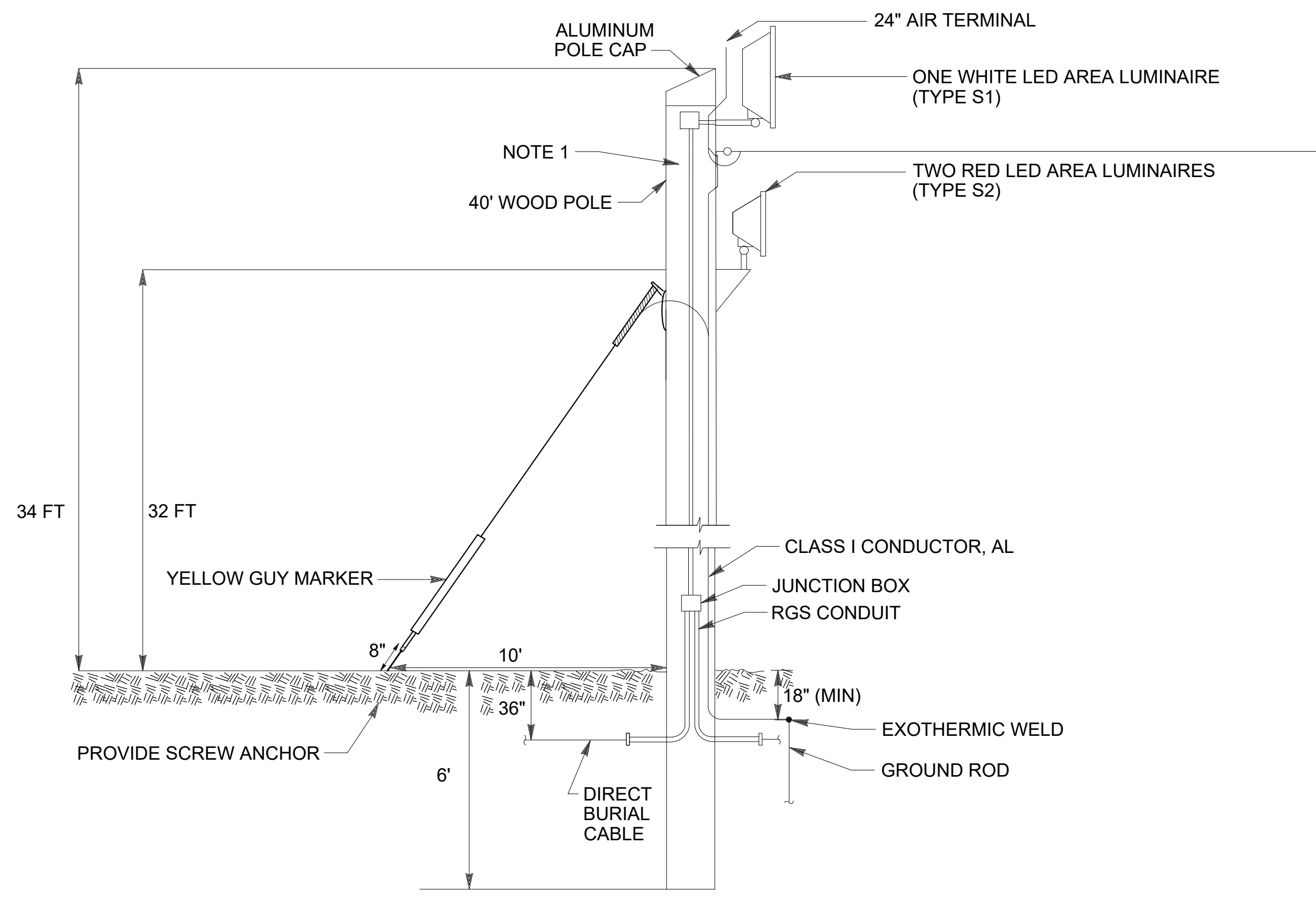
SHEET ID
ES503



LIGHTING POLE DETAIL (P1)
NOT TO SCALE

NOTES:

1. SEE SITE LIGHTING PLANS FOR CONDUCTOR AND CONDUIT SIZES.
2. ALL MATERIALS AND EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR UOI.



LIGHTING POLE DETAIL (P3)
NOT TO SCALE

NOTES:

1. SEE SITE LIGHTING PLANS FOR CONDUCTOR AND CONDUIT SIZES.
2. ALL MATERIALS AND EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR UOI.



US Army Corps of Engineers®

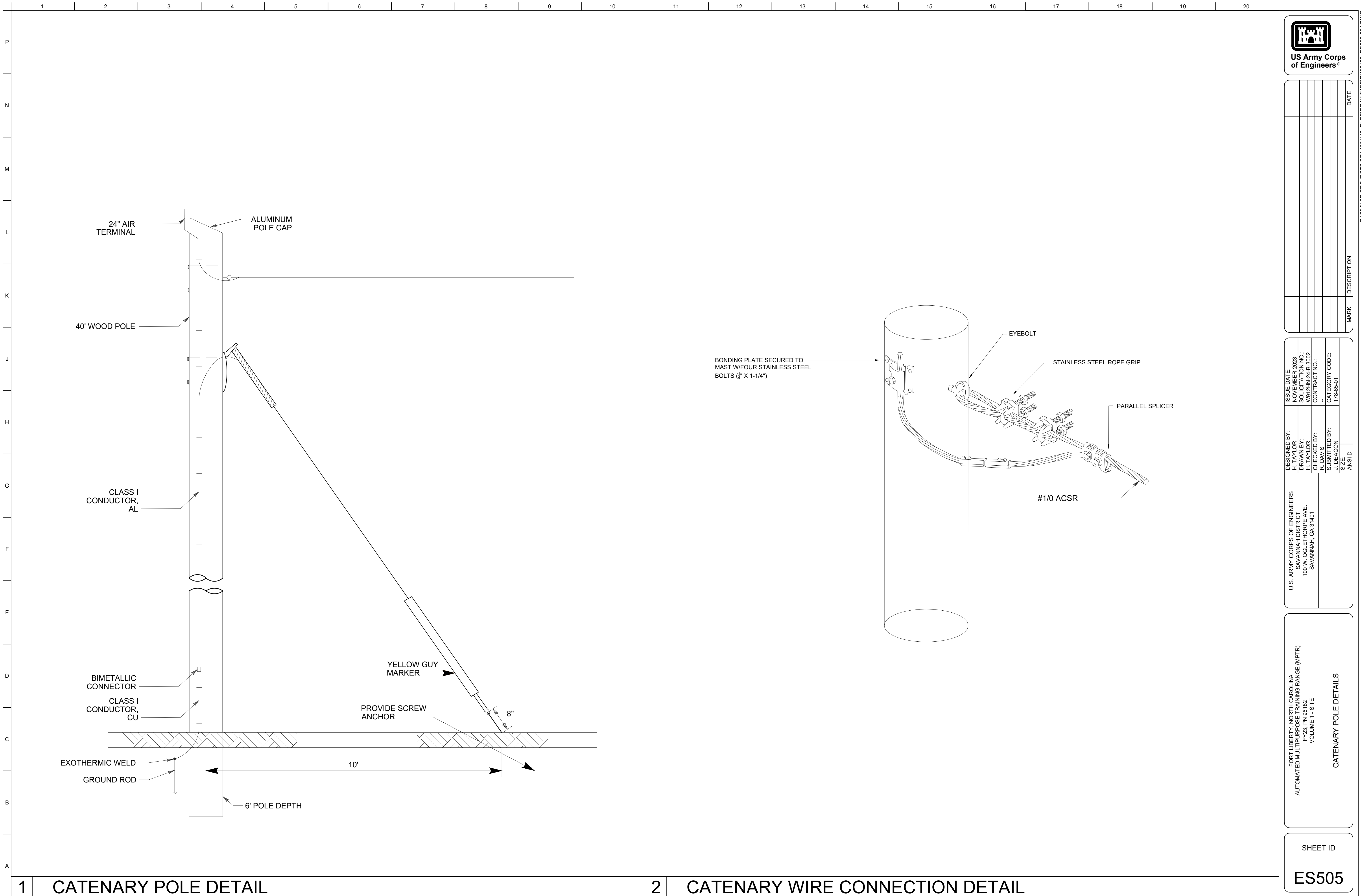
MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR	ISSUE DATE: NOVEMBER 2023
DRAWN BY: R. DAVIS	NO. OF SHEETS: 10
CHECKED BY: R. DAVIS	CONTRACT NO.:
SUBMITTED BY: J. DEACON	CATEGORY CODE: 178-65-01
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVE.
SAVANNAH, GA 31401

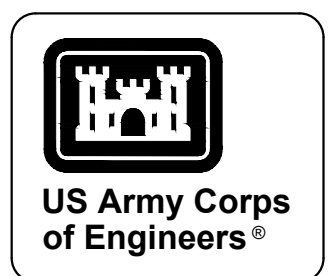
FORT LIBERTY, NORTH CAROLINA AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTR) FY23, PN 96182 VOLUME 1 - SITE	LIGHTING POLE DETAILS
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SHEET ID	ES504
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1 CATENARY POLE DETAIL

2 CATENARY WIRE CONNECTION DETAIL



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: H. TAYLOR
 CHECKED BY: H. TAYLOR
 SUBMITTED BY: R. DAVIS
 J. DEACON

ISSUE DATE: NOVEMBER 2023
 CONTRACT NO.: W9133N-24-3-002
 CATEGORY CODE: 178-85-01
 SIZE: ANS/D

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FORT LIBERTY, NORTH CAROLINA
 AUTOMATED MULTIPURPOSE TRAINING RANGE (MPTF)
 FY23, PN 96182
 VOLUME 1 - SITE

CATENARY POLE DETAILS

SHEET ID
ES505