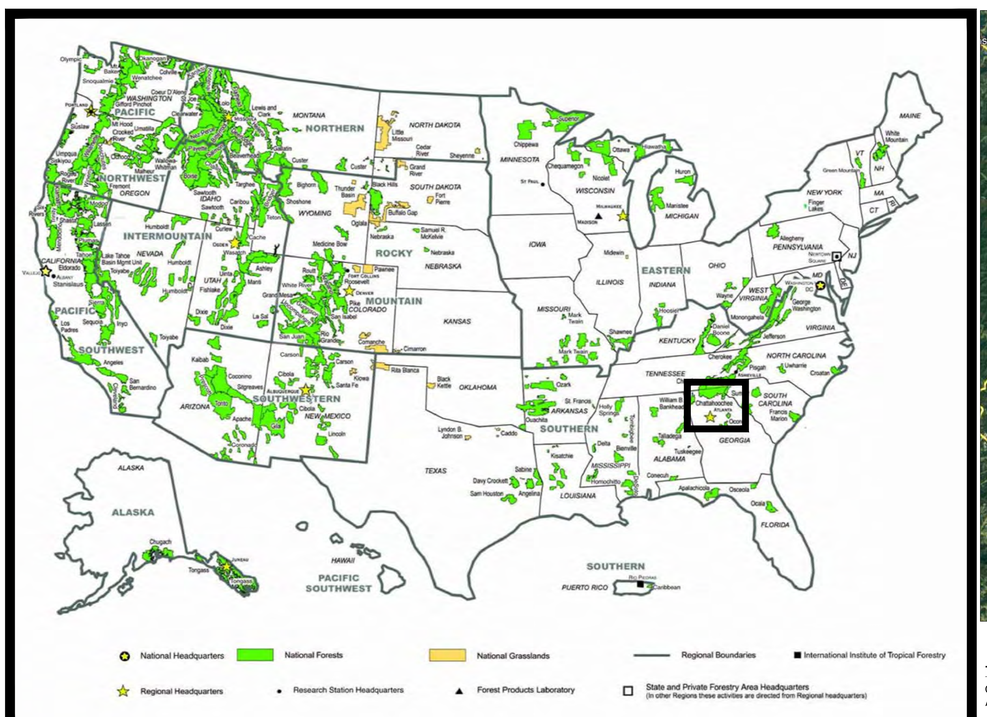
United States Department of Agriculture
Forest Service

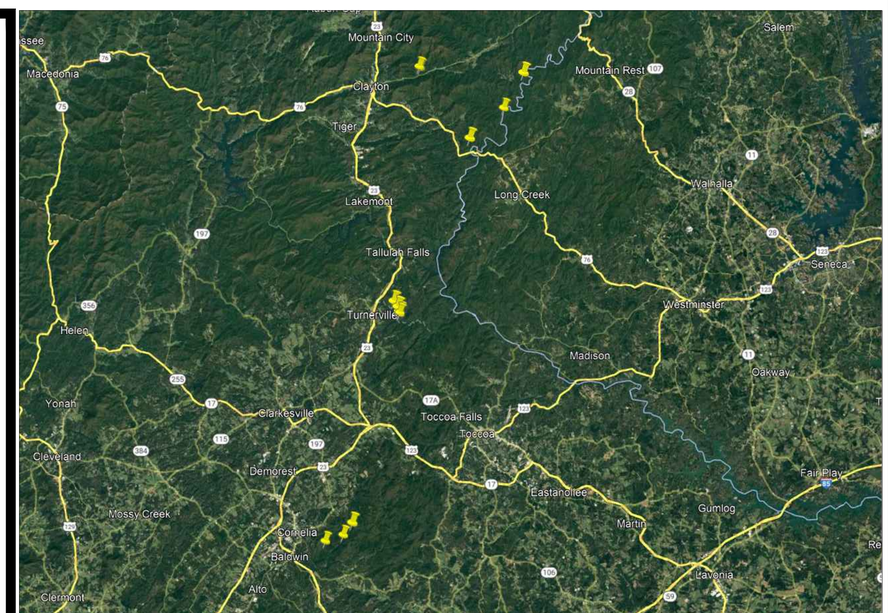
R8 SOUTHERN REGION
CHATTAHOOCHEE--OCONEE NATIONAL FORESTS

LOCATED IN MULTIPLE COUNTIES THROUGHOUT GEORGIA

2020 TROPICAL STROM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT



FOREST LOCATION



VICINITY MAP

TRAVEL DIRECTIONS:

CLAYTON, GA, IS THE MOST POPULATED TOWN WITH FIVE SITES IN THAT AREA. TURNERVILLE, GA IS THE NEAREST TOWN THAT HAS FOUR SITES IN THAT AREA AND CORNILA/BALDWIN, GA, HAS THREE SITES IN THAT AREA. THESE BRIDGES ARE LOCATED WITHIN A 40 MILE RADIUS OF CLAYTON, GA.

PROJECT LOCATION COORDINATES		
PROJECT	LATITUDE	LONGITUDE
BECKY BRANCH TRAIL BRIDGE M.P. 18.84	34.883501	-83.352097
BERTRAM NATIONAL TRAIL FILL SLOPE EMBANKMENT FAILURE	34.883472	-83.352058
DICKS CREEK TRAIL BRIDGE M.P. 9.25	34.868767	-83.247064
LICK LOG CREEK TRAIL BRIDGE M.P. 6.79	34.841958	-83.270822
POLE CREEK TRAIL BRIDGE M.P. 0.75	34.819064	-83.309432
PANTHER CREEK EMBANKMENT FAILURE	34.6799399	-83.4005051

PROJECT LOCATION COORDINATES		
PROJECT	LATITUDE	LONGITUDE
PANTHER CREEK TRAIL BRIDGE M.P. 2.1	34.6802290	-83.4014235
PANTHER CREEK TRAIL BRIDGE M.P. 1.93	34.6847502	-83.4027689
PANTHER CREEK TRAIL BRIDGE M.P. 1.38	34.6892004	-83.4060632
SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8	34.50769	-83.47340
LAKE RUSSELL TRAIL BRIDGE M.P. 0.10	34.498868	-83.483375
LAKE RUSSELL TRAIL BRIDGE M.P. 2.18	34.485576	-83.500331

UTILITIES PROTECTION CENTER
GEORGIA811
www.Georgia811.com
Know what's below. Call before you dig.
THREE WORKING DAYS BEFORE YOU DIG
(GEORGIA - 1-800-282-7411)

GEORGIA REGISTERED PROFESSIONAL ENGINEER WALLACE L HATHORNE
2/19/2023

DESIGN BY:

ENGINEER — DATE

RECOMMENDED BY:

ROADS, BRIDGES, AND DAMS ENGINEER — DATE

ENGINEERING STAFF OFFICER — DATE

DISTRICT RANGER — DATE

APPROVED:

FOREST SUPERVISOR — DATE

DWG SHEET NO.
G-101

SHEET
1 OF 59

TITLE

SHEET	SUBSHEET	SHEET TITLE
1	G-101	TITLE SHEET
2	G-102	DRAWING INDEX SHEET
3	G-103	OVERALL PROJECT MAP
4	G-104	ABBREVIATION & SYMBOL LEGEND
5	G-105	GENERAL NOTES
6	G-106	BECKY BRANCH EMBANKMENT FAILURE ESTIMATE OF QUANTITIES
7	G-107	BECKY BRANCH TRAIL BRIDGE M.P. 18.84 ESTIMATE OF QUANTITIES CONT. 1
8	G-108	DICKS CREEK TRAIL BRIDGE M.P. 9.25 ESTIMATE OF QUANTITIES CONT. 2
9	G-109	LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 ESTIMATE OF QUANTITIES CONT. 3
10	G-110	POLE CREEK TRAIL BRIDGE M.P. 0.75 ESTIMATE OF QUANTITIES CONT. 4
11	G-111	LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 ESTIMATE OF QUANTITIES CONT. 5
12	G-112	LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 ESTIMATE OF QUANTITIES CONT. 6
13	G-113	SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 ESTIMATE OF QUANTITIES CONT. 7
14	G-114	PANTHER CREEK TRAIL FILL SLOPE EMBANKMENT FAILURE ESTIMATE OF QUANTITIES CONT. 8
15	G-115	PANTHER CREEK TRAIL BRIDGE M.P. 2.1, M.P. 1.93, ESTIMATE OF QUANTITIES CONT. 9
16	G-116	PANTHER CREEK TRAIL BRIDGE M.P. 1.38 ESTIMATE OF QUANTITIES CONT.10
17	S-100	BECKY BRANCH EMBANKMENT FAILURE AND BECKY BRANCH TRAIL BRIDGE M.P. 18.4 OVERALL SITE PLAN
18	S-101	BECKY BRANCH EMBANKMENT FAILURE
19	S-102	BECKY BRANCH EMBANKMENT FAILURE VERTICAL PROFILE
20	S-103	BECKY BRANCH TRAIL BRIDGE M.P. 18.84 SITE PLAN AND VERTICAL PROFILE
21	S-104	BECKY BRANCH TRAIL BRIDGE M.P. 18.84 APPROACH CROSS SECTIONS
22	S-105	DICKS CREEK TRAIL BRIDGE M.P. 9.25 SITE PLAN AND VERTICAL PROFILE
23	S-106	DICKS CREEK TRAIL BRIDGE M.P. 9.25 APPROACH CROSS SECTIONS
24	S-107	LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 OVERALL SITE PLAN
25	S-108	LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 SITE PLAN AND VERTICAL PROFILE
26	S-109	LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 APPROACH CROSS SECTIONS
27	S-110	POLE CREEK TRAIL BRIDGE M.P. 0.75 ACCESS POINT
28	S-111	POLE CREEK TRAIL BRIDGE M.P. 0.75 SITE PLAN AND VERTICAL PROFILE
29	S-112	POLE CREEK TRAIL BRIDGE M.P. 0.75 APPROACH CROSS SECTIONS
30	S-113	LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 ACCESS POINT
31	S-114	LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 SITE PLAN AND VERTICAL PROFILE
32	S-115	LAKE RUSSELL TRAIL BRIDGE M.P 0.10 ACCESS POINT AND STAGING AREA

TITLE

SHEET	SUBSHEET	SHEET TITLE
33	S-116	LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 SITE PLAN AND VERTICAL PROFILE
34	S-117	LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 APPROACH CROSS SECTIONS
35	S-118	SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 SITE PLAN AND VERTICAL PROFILE
36	S-119	SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 APPROACH CROSS SECTIONS
37	S-120	PANTHER CREEK TRAIL ACCESS POINT AND STAGING AREA
38	S-121	PANTHER CREEK TRAIL EMBANKMENT FAILURE SITE PLAN
39	S-122	PANTHER CREEK TRAIL EMBANKMENT FAILURE REPAIR DETAILS
40	S-123	PANTHER CREEK TRAIL BRIDGE M.P. 2.1 SITE PLAN AND VERTICAL PROFILE
41	S-124	PANTHER CREEK TRAIL BRIDGE M.P. 2.1 APPROACH CROSS SECTIONS
42	S-125	PANTHER CREEK TRAIL BRIDGE M.P. 1.93 DEMOLITION PLAN
43	S-126	PANTHER CREEK TRAIL BRIDGE M.P. 1.93 SITE PLAN AND VERTICAL PROFILE
44	S-127	PANTHER CREEK TRAIL BRIDGE M.P. 1.93 APPROACH CROSS SECTIONS
45	S-128	PANTHER CREEK TRAIL BRIDGE M.P. 1.38 SITE PLAN AND VERTICAL PROFILE
46	D-101	6'-9 13/16" OUT-TO-OUT WIDTH TRAIL BRIDGE DETAILS
47	D-102	4'-4 1/8" OUT-TO-OUT WIDTH TRAIL BRIDGE DETAILS
48	D-103	TRAIL BRIDGE RIPRAP ARMOR DETAILS
49	D-104	REINFORCED ABUTMENT
50	D-105	GABION ABUTMENT
51	D-106	CONCRETE LEVELING PAD ON BEDROCK DETAILS
52	D-107	BEARING SHOE AND DIAPHRAGM CONNECTION DETAILS
53	D-108	FILL SLOPE FAILURE GABION BASKET DETAILS
54	D-109	SILT FENCE DETAILS
55	D-110	TRAIL BRUSHING AND MOWING & TREE REMOVAL DETAIL
56	D-111	SEEDING AND MULCHING DETAILS
57	D-112	BECKY BRANCH EMBANKMENT REPAIR TRAIL GUARDRAIL DETAIL
58	D-113	GABION BASKET APPROACH DETAIL
59	D-114	GROUTED RIPRAP DETAIL

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER NO. 18756 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

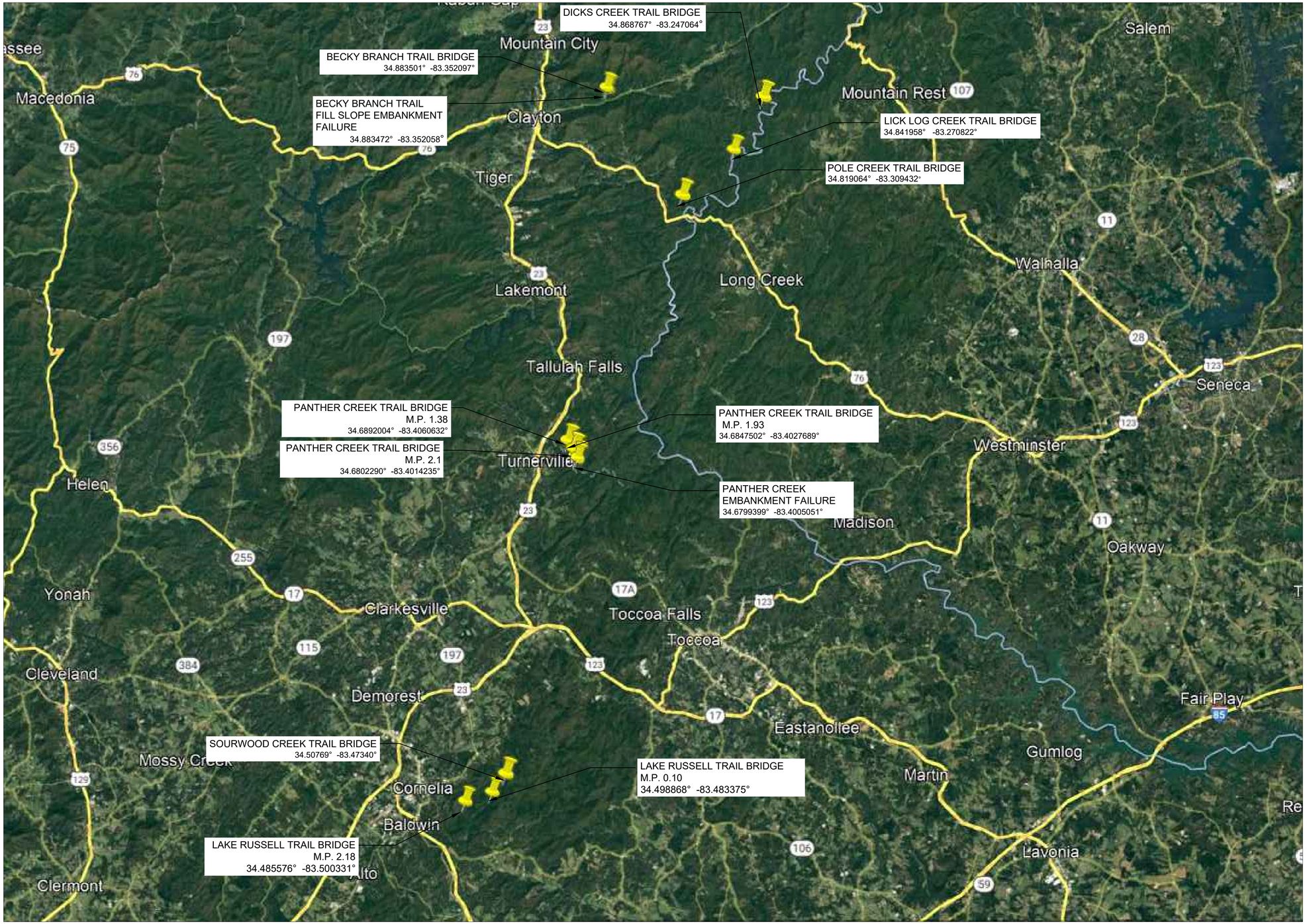
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

DRAWING INDEX SHEET

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-102
DRAWN B. B.	
CHECKED W.L.H	SHEET 2 OF 59
PROJECT NO.	



USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L. Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

OVERALL PROJECT MAP

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com

ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-103
DRAWN B. B.	
CHECKED W.L.H	
PROJECT NO.	SHEET 3 OF 59

ABBREVIATIONS

Δ	TOTAL CENTRAL ANGLE
Δc	CURVE CENTRAL ANGLE
Ø-DIA.	DIAMETER
Θs	SPIRAL CENTRAL ANGLE
ABUT.	ABUTEMENT
AB	AGGREGATE BASE
ABDN	ABANDONED
ABUT	ABUTMENT
ACP	ACRE, ASPHALT CONCRETE (PAVEMENT)
ACP	ASBESTOS CEMENT PIPE
ACM	ASBESTOS CONTAINING MATERIAL
AD	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ADT	AVERAGE DAILY TRAFFIC
AGG	AGGREGATE
AH	AHEAD
ALGN	ALIGNMENT
APPR	APPROACH
ARV	AIR RELEASE VALVE
ASB	AGGREGATE SUBBASE
ASPH	ASPHALT
BC	BEGIN CURVE
BEG	BEGIN
BFP	BACK FLOW PREVENTER
BK	BACK
BLDC	BUILDING CORNER
BLDG	BUILDING
BM	BENCHMARK
BMP	BEST MANAGEMENT PRACTICES
BOD	BOTTOM OF DOCK
BOL	BOLLARD
BP	BALANCE POINT
BOP	BEGINNING OF PROJECT
BR	BRIDGE
BRG	BEARING
BSW	BACK OF SIDEWALK
BVC	BEGIN VERTICAL CURVE
BW	FINISHED GRADE AT BOTTOM OF WALL
℄	CENTERLINE
C	CONCRETE OR CIVIL
CB	CATCH BASIN
CC	CENTER TO CENTER
C TO C	CENTER TO CENTER
C&G	CURB AND GUTTER
CG&SW	CURB, GUTTER, & SIDEWALK
CI	CAST IRON OR CURB INLET
CIP	CAST IRON PIPE
CLR	CLEAR
CLSM	CONTROLLED LOW-STRENGTH MATERIAL
CMN	COMMUNICATION
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT (OR CONTRACTING OFFICER)
COL	COLUMN
CONC	CONCRETE
CONF	CONFORM TO EXISTING
CONN	CONNECTION
CONST	CONSTRUCTION OR CONSTRUCT
CONSTR JT	CONSTRUCTION JOINT
CONT	CONTINUOUS
COR	CONTRACTING OFFICER REPRESENTATIVE
CS	CURVE TO SPIRAL
CTRS	CENTERS
CU	CUBIC
CY	CUBIC YARD
D	DELTA (CURVE), OR DIAMETER
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY
DEMO	DEMOLISH
DET	DETAIL
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET, DUCTILE IRON
DIAPH.	DIAPHRAGM
DIP	DUCTILE IRON PIPE
DIST	DISTANCE
DOM	DOMESTIC
DSY	DOUBLE SOLID YELLOW
DW	DOMESTIC WATER
DWG	DRAWING
E	EASTING COORDINATE
e.	SUPERELEVATION RATE
EC	END CURVE
EG	EXISTING GRADE
ELEV	ELEVATION OR ELEVATION W/H #
ELEC	ELECTRICAL
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EOS	EDGE OF SHOULDER
EOT	EDGE OF TRAVEL WAY
EP	ENDING OF PROJECT
EQ OR eq.	EQUATION
ER	EDGE OF ROAD
ESAL	EQUIVALENT SINGLE AXLE LOAD
ETW	EDGE OF TRAVELED WAY
EVA	EMERGENCY VEHICLE ACCESS
EVC	END VERTICAL CURVE
EW	EDGE OF WATER
EXC	EXCAVATION
EXP JT	EXPANSION JOINT
EXT	EXISTING
FA	FIRE ALARM
F/C,FC	FACE OF CURB
FD	FOUND
FDC	FIRE DEPARTMENT CONNECTION
FF,FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FIN	FINISH
FIPT	FEMALE IRON PIPE THREAD
FL	FLOW LINE, FLANGE
FLG	FLANGE
FM	FLOWMETER
FOUND	FOUNDATION
FRD	FOREST ROAD DESIGNATION
FS	FINISHED SURFACE
FT	FOOT, FEET
FTG	FOOTING
FW	FIRE WATER
G	GAS, GROUND ELEVATION
GA	GAGE(GAUGE)
GALV.	GALVANIZED
GB	GRADE BREAK
GI	GALVANIZED IRON
GRD, G	GROUND
GV	GATE VALVE
HDWL	HEADWALL
HEX	HEXAGON
HMA	HOT MIX ASPHALT
HMAC	HOT MIX ASPHALT CONCRETE
HORIZ	HORIZONTAL
HT	HEIGHT
HP	HIGH POINT
HW	HIGH WATER
ID	INSIDE DIAMETER
I.E.	INVERT ELEVATION
INST	INSTALL
IRR	IRRIGATION
JP	JOINT POLE
JT	JOINT TRENCH
KM	KILOMETER
L	LEFT
L=	LENGTH (CURVE)
LF	LINEAR FEET
LAT	LATERAL OR LATTITUDE
LAM	LAMINATION
LIP	LIP OF GUTTER
LOD	LIMITS OF DISTURBANCE
LONG	LONGITUDINAL
LP	LIGHT POLE, LOW POINT
LPSM	LUMPSOME
LS	LANDSCAPE OR LENGTH OF SPIRAL
LSA	LANDSCAPE ARCHITECT
LT	LEFT
LW	LOW WATER
MA	MEDICAL AIR
MAX	MAXIMUM
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MH	MANHOLE
MIN.	MINIMUM
MIPT	MALE IRON PIPE THREAD
MJ	MECHANICAL JOINT
ML	MAIN LINE
MP	MILE POST
MPVC	MIDPOINT OF VERTICAL CURVE
MON	MONUMENT
N	NORTHING COORDINATE
(N)	NEW
NC	NORMAL CROWN
NFSR	NATIONAL FOREST SYSTEM ROAD
NIC	NOT IN CONTRACT
NMSA	NORMAL MAXIMUM SIZE AGGREGATE
NTE	NOT TO EXCEED
NTS	NOT TO SCALE
O TO O	OUT TO OUT
OC	ON CENTER
OD	OUTSIDE DIAMETER
OG	ORIGINAL GROUND
OHE	OVERHEAD ELECTRIC
OHWM	ORDINARY HIGH WATER MARK
OVERALL HP	OVERALL HIGH POINT
OVERALL LP	OVERALL LOW POINT
(P)	PROPOSED
PB	PULL BOX
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PCS	POINT OF CURVE TO SPIRAL
PI	POINT OF INTERSECTION
PL	PLATE
POC	POINT ON CURVE
POS	POINT ON SPIRAL
POT	POINT ON TANGENT
PS	POINT OF TANGENT TO SPIRAL
PSC	POINT OF SPIRAL TO CURVE
PST	POINT OF SPIRAL TO TANGENT
PT	POINT ON TANGENT
PED	PEDESTRIAN
PERF	PERFORATED
PH	POTHOLE
POC	POINT ON CURVE
POI	POINT OF INTERSECTION
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PRV	PRESSURE REDUCING VALVE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PWR	PARTIALLY WEATHERED ROCK
R	RADIUS OR RANGE
R=	RADIUS (CURVE)
RC	RELATIVE COMPACTION
RCP	REINFORCED CONCRETE PIPE
RECP	ROLLED EROSION CONTROL PRODUCT
RDWY	ROADWAY
REINF	REINFORCEMENT
REQD	REQUIRED
RJ	RESTRAINED JOINT
RP	RADIUS POINT
RSS	REINFORCED SOIL SLOPE
RT	RIGHT
RTE	ROUTE
R/W	RIGHT OF WAY
S	SOUTH
SADT	SEASONAL AVERAGE DAILY TRAFFIC
SEC	SECTION
SC	POINT OF SPIRAL TO CURVE
SD	STORM DRAIN
SHLDR	SHOULDER
SPA	SPACING,SPACES OR SPACED
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
SRS	POINT OF SPIRAL TO REVERSE SPIRAL
SS	POINT OF SPIRAL TO SPIRAL(NO CURVE)
ST	POINT OF SPIRAL TO TANGENT
STA	STATION
STD	STANDARD
STGR	STRINGER
STIFF	STIFFENER
STL	STEEL
STRUC	STRUCTURAL
STS	POINT OF SPIRAL TO TANGENT SPIRAL
S/W	SIDEWALK
SYM	SYMMETRICAL
T	TANGENT DISTANCE OR TOWNSHIP
TBM	TEMPORARY BENCH MARK
THD	THREAD
TS	POINT OF TANGENT TO SPIRAL
TW	TRAVELED WAY
TYP	TYPICAL
USFS	- UNITED STATES FOREST SERVICE
V	DESIGN SPEED
VC	- VERTICAL CURVE
VPH	VEHICLES PER HOUR
VPI	VERTICAL POINT OF INTERSECTION
W	WEST

CIVIL SYMBOLS LEGEND

1 KEYNOTE

1 DEMOLITION NOTE

DETAIL NUMBER

A / C-101

SHEET NUMBER ON WHICH DETAIL APPEARS

DETAIL NUMBER

A

DETAIL INDICATOR

SECTION LETTER

A / C-101

SHEET NUMBER ON WHICH SECTION APPEARS

SECTION INDICATOR

SURVEY TOPO AND SITE IMPROVEMENTS

NEW	EXISTING	
		6" CURB & GUTTER
		EDGE OF AC PAVEMENT
		6" VERTICAL CURB
DW	DW	DOMESTIC WATER MAIN
E	E	ELECTRIC LINE
FW	FW	FIRE WATER MAIN
G	G	GAS LINE
IRR	IRR	IRRIGATION LINE
OH	OH	OVERHEAD WIRES
OHE	OHE	OVERHEAD ELECTRIC
OHT	OHT	OVERHEAD TELEPHONE
RW	RW	RECYCLED WATER
SS	SS	SANITARY SEWER LINE
SD	SD	STORM DRAIN LINE
SL	SL	STREET LIGHT CONDUIT
C	C	TELECOMMUNICATIONS
TEL	TEL	TELEPHONE LINE
TV	TV	TELEVISION LINE
		WATER LINE
UGE	UGE	UNDERGROUND ELECTRIC
		TRENCH DRAIN
		METAL BEAM GUARD RAIL
		SILT FENCE
x	x	CHAIN LINK FENCE
		FLOW LINE
89	89	CONTOUR ELEVATION LINE
		CENTER LINE
		PROPERTY LINE
		MONUMENT LINE
		EASEMENT LINE
TC 24.52 / FG		FINISH GRADE
2.0%	2.0%	SURFACE DRAINAGE SLOPE
x 95.94	x 95.94	SPOT ELEVATION
		GRADE BREAK
		LIMIT OF WORK/GRADING
	IRR	IRRIGATION BOX
GM	GM	GAS METER
G	G	GAS VALVE
WM	WM	WATER METER
W	W	WATER VALVE
		WATER METER OR BFP
		FIRE HYDRANT
		FIRE DEPARTMENT CONNECTION
		WATER TAPPING SADDLE
SSMH	SSMH	SEWER MANHOLE
	SSCO	SEWER CLEANOUT
	SLP	SEWER LAMP HOLE
	SV	SEWER VENT
SDMH	SDMH	STORM DRAIN MANHOLE
CB	CB	CATCH BASIN
CI		CURB INLET
DI	DI	DRAINAGE INLET
TMH	TMH	TELECOMMUNICATIONS MANHOLE

NEW	EXISTING	
SDCO	SDCO	STORM DRAIN CLEANOUT
E	E	ELECTRIC VAULT COVER
PB	PB	PULL BOX
HVE	HVE	HIGH VOLTAGE ELECTRIC
T	T	TELEPHONE MANHOLE
		POWER POLE
GUY	GUY	GUY WIRE & ANCHOR
	JP	JOINT POLE
		STREET LIGHT
		ELECTROLIER
		TRAFFIC SIGNAL
	TS	TRAFFIC SIGNAL
		PEDESTRIAN LIGHT
		PEDESTRIAN PUSH BUTTON
	DET	CROSSWALK DETECTOR
SL	SL	STREET LIGHT PULLBOX
		SIGN (AS NOTED)
		THRUST BLOCK
		CAP
		GATE VALVE
		BUTTERFLY VALVE
		DEMO
		CONTROL POINT
		SIGN (AS NOTED)
		TREE
		SLOPE STAKE LIMITS (TOP OF CUT) (TOE OF FILL) (TRANSITION)
		FENCE
		GATE WITH FENCE
		CATTLEGUARD
		GUARDRAIL
		CONCRETE BARRIER
		RETAINING WALL
		DELINEATORS
		PIPE CULVERT (ARROW SHOWS FLOW)
		PIPE CULVERT WITH END SECTION
		PIPE CULVERT WITH HEADWALL
DI		PIPE CULVERT WITH DROP INLET
		BOX CULVERT
UD	UD	UNDERDRAIN
FO	FO	FIBER OPTIC LINE
FM	FM	FORCE MAIN
STEAM	STEAM	STEAM LINE
P	P	OVERHEAD/ABOVE GROUND UTILITIES
W	W	UNDERGROUND UTILITIES

FM= FORCE MAIN, FO= FIBER OPTIC, G= GAS, IRR= IRRIGATION, O= OIL, P= POWER, SA= SANITARY SEWER, SD= STORM DRAIN, SS= STORM SEWER, STEAM= STEAM, T= TELEPHONE, TV= CATV, W= WATER

POLES (POWER, TELEPHONE, JOINT USE, LIGHTS, SUPPORT W/H ANCHORS)

MISCELLANEOUS UTILITY FEATURES
EM= ELECTRIC METER, T= TELEPHONE PEDESTAL, TV= CATV PEDESTAL
UP= TRANSFORMER OR JUNCTION BOX, WF= WATER FOUNTAIN

NEW	EXISTING	
		BUILDING
r/w	R/W	RIGHT OF WAY LINE WITH MONUMENT
P/E	P/E	PERMANENT EASEMENT
	TCE	CONSTRUCTION EASEMENT
		RIPRAP

OTHER SYMBOLS

NATIONAL BOUNDARY
STATE BOUNDARY
COUNTY BOUNDARY
CITY BOUNDARY
TOWNSHIP OR RANGE LINE
PAVEMENT REMOVAL / ROADWAY OBLITERATION
FULL DEPTH PAVEMENT
SIDEWALK ASPHALT / CONCRETE
MILL AND OVERLAY
EMBANKMENT FIX/ ROCK BUTTRESS
ROADWAY EXCAVATION / GRANULAR BACKFILL
STABILIZED CONSTRUCTION EXIT
ROLLED EROSION CONTROL PRODUCT
TEMPORARY STREAM IMPACTS
PERMANENT STREAM IMPACTS
RSS WALL
FB — FILTER BAG
P/L — PROPERTY LINE
SILT FENCE
DIVERSION BOOM
DRAINAGE DEVIDE
CHECK DAM
LOD — LIMITS OF DISTURBANCE
FIBER ROLL OR WATTLE
DITCH RECONDITIONING
PAVED WATERWAY
SECTION LINE
SECTION CORNER(FOUND, PROJECTED)
1/4" SECTION LINE
1/4" SECTION CORNER(FOUND, PROJECTED
1/16" SECTION LINE
1/16" SECTION CORNER(FOUND, PROJECTED
PARCEL NUMBER
NATIONAL PARK BOUNDARY
NATIONAL WILDLIFE REFUGE BOUNDARY
BLM LANDS BOUNDARY
INDIAN RESERVATION BOUNDARY
EXISTING ROADWAY (ROAD, PAVED, GRAVEL)
RAILROAD
TRAIL
INTERMITTENT DRAINAGE OR SMALL CREEK
LARGE CREEK OR RIVER
LAKE, POND OR RESERVOIR, MARSHLAND
SPRING OR SEEP
TREELINE; INDIVIDUAL TREES, PINE
MATERIAL SOURCE; BORE HOLE; TEST PIT
EL. 0.00 — SPOT ELEVATION; COORDINATE GRID TICK

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 18895 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L. Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

ABBREVIATION & SYMBOL LEGEND

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-104
DRAWN B. B.	
CHECKED W.L.H	SHEET 4 OF 59
PROJECT NO.	

GENERAL TRAIL BRIDGE CONSTRUCTION NOTES

I. SPECIFICATIONS
1. DESIGN TO THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION (2014) WITH INTERIM
2. CONSTRUCTION OF THIS STRUCTURE IS TO BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14 WITH FOREST SERVICE SUPPLEMENTAL SPECIFICATIONS AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FOREST SERVICE PROJECTS, 2014 EDITION.

II. DESIGN LOADING
1. PEDESTRIAN LIVE LOAD: 90 PSF.
2. IN LOAD COMPARISON, FROM A SIMPLE SHEAR AND MOMENT COMPARISON, THE GIRDER SIZING FOR THE 90 PSF PEDESTRIAN LIVE LOAD WILL BE MORE THAN ADEQUATE TO ACCOMMODATE UTVS AND MOTORIZED DIRT BIKES CROSSING.
   WIND AND SNOW LOADING IN ACCORDANCE WITH LOCAL CONDITIONS FOR THE STATE OF GEORGIA
3. TRAIL TYPE: HIKERS USE;
4. DESIGN VEHICLE: MAINTENANCE UTV

III. TRAIL BRIDGE
1. GLUED-LAMINATED GIRDERS SHALL BE FABRICATED WITH A CAMBER BASED UPON A 900 FOOT RADIUS
2. NO STRUCTURAL COMPONENTS FOR THE TRAIL BRIDGE SHALL HANG 18 INCHES BELOW THE TOP OF THE TRAIL BRIDGE TIMBER DECK
3. ASTM A307 GALVANIZED STEEL BOLTS FOR PRIMARY CONNECTION OF TRAIL BRIDGE COMPONENTS.
4. ASTM A316 STAINLESS STEEL BOLTS FOR WOOD DECK CONNECTIONS TO TRAIL BRIDGE.
5. ALIGN TRAIL BRIDGE WOOD DECKING WITH STRINGERS.
6. **DETAILED COMPONENT SPECIFICATIONS FOR THE GLULAM STRINGERS AND SILLS**:
   A. SOUTHERN YELLOW PINE LUMBER
   B. INDUSTRIAL APPEARANCE GRADE
   C. WATERPROOF GLUE
   D. DOUBLE END TRIM
   E. 24F-V3
   F. PRESSURE TREATMENT CONFORMANCE AND SUBMITTAL REQUIREMENTS (SEE BELOW)
   - A.I.T.C LETTER OF CONFORMANCE IN CONFORMANCE WITH AITC-117; TABLE 1; COMBINATION SYMBOL: 24F-V3, SPECIES - SP/SP
   - THE LAMINATED MEMBERS SHALL BE PRESSURE TREATED PRIOR TO GLUING WITH AN OIL-BORNE TREATMENT FOR ABOVE GROUND USE.
   - GLUED-LAMINATED TIMBER SHALL BE MARKED AS REQUIRED BY ANSI/AITC A190.1. ONE COPY OF THE FOLLOWING COMPLIANCE CERTIFICATES SHALL BE FURNISHED AS A SUBMITTAL FOR GOVT. APPROVAL BEFORE PURCHASING OF THE GLULAM STRINGERS AND ONE UPON DELIVERY OF THE MATERIAL AND BEFORE INSTALLATION.
   - STRINGER MANUFACTURE SHALL SUPPLY A CERTIFICATION THAT ALL WOOD MEETS THE SPECIFICATION AND GRADING REQUIREMENTS.
   - LOT CERTIFICATION OF EACH CHARGE FOR PRESERVATIVE, PENETRATION IN INCHES, AND RETENTION IN POUNDS PER CUBIC FOOT (ASSAY METHOD), BY A QUALIFIED INDEPENDENT INSPECTION AND TESTING AGENCY ACCREDITED BY THE AMERICAN LUMBER STANDARD COMMITTEE (ALSC).
   - AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 3B ABOVE GROUND - EXPOSED (UC3B)
   - PENTACHLOROPHENOL IN LIGHT OIL (TYPE C SOLVENT)
   - COPPER NAPHTHENATE (CUN) IN LIGHT OIL (TYPE C SOLVENT)
   - CERTIFICATION FROM A QUALIFIED INDEPENDENT TESTING AND INSPECTION AGENCY THAT ALL GLUED-LAMINATED MEMBERS CONFORM TO THE REQUIREMENTS OF ANSI/AITC A190.1. ALSO FURNISH AN AITC CERTIFICATE.
   - ALL TREATED MEMBERS SHALL HAVE A CLEAN, DRY, AND RESIDUE-FREE SURFACES WHEN DELIVERED TO THE SITE LOCATION. MATERIAL WHICH DEVELOPS AREAS OF BLEEDING OR DOES NOT MEET THE CLEAN AND DRY CRITERIA AT THE TIME OF INSTALLATION SHALL BE REJECTED.

IV. FABRICATION
1. THE FABRICATION AND QUALITY CONTROL OF STRUCTURAL GLUED-LAMINATED TIMBER SHALL BE AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH ANSI/AITC A190.1..... GLUED-LAMINATED MEMBERS SHALL CONFORM TO THE DIMENSIONAL TOLERANCES SPECIFIED IN ANSI/AITC A190.1 AT THE TIME OF DELIVERY TO THE PROJECT SITE. GIRDERS ENDS SHALL BE PLANED TO ENSURE A LEVEL AND CONSISTENT BEARING AREA.

2. FIELD TREATMENT: COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATING OF WOOD. ALL ABRASIONS AND FIELD CUTS APPROVED BY THE C.O.R.- SHALL BE CAREFULLY TRIMMED AND GIVEN THREE BRUSH COATS OF THE FIELD TREATMENT SOLUTION. WHERE APPROVED FIELD DRILLING OF BOLT OR NAIL HOLES IS REQUIRED, THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENERS.

V. EXCAVATION AND EXCAVATION SAFETY
1. STRUCTURAL EXCAVATION SHALL BE TO THE ELEVATIONS SHOWN ON THE DRAWINGS. REGARDLESS OF MATERIAL ENCOUNTERED.
2. THE WALLS FOR THE STRUCTURE EXCAVATION SHALL BE SHORED OR SHIELDED, OR LAID BACK, IN ACCORDANCE WITH "CONSTRUCTION STANDARDS FOR EXCAVATION", AS REQUIRED BY OSHA 29 CFR, PART 1926, 650-652.

VI. SITE MAINTENANCE
1. ALL AREAS DISTURBED BY CONSTRUCTION OPERATIONS SHALL BE SHAPED TO FINAL GRADE, AS SHOWN ON THE DRAWINGS, AND/OR AS NEEDED (AS DETERMINED BY THE CONTRACTING OFFICER). FINAL GRADING AND CLEAN-UP IS REQUIRED BEFORE APPROVAL OF FINAL INVOICING.
2. SITE DISTURBANCE AND CLEARING SHALL BE LIMITED TO THE AREAS WHERE THE TRAIL BRIDGE ABUTMENT AND APPROACHES ARE CONSTRUCTED, AND WHERE CONSTRUCTION EQUIPMENT WILL BE STORED OR USED. ANY TREES TO BE REMOVED AND CLEARING REQUIRED WILL BE IDENTIFIED IN THE SCHEDULE OF ITEMS.
3. THE CONTRACTOR SHALL PREVENT ANY EXCAVATED MATERIAL FROM ENTERING INTO THE CREEK AT ALL TIMES. ALL MATERIAL EXCAVATED SHALL BE PLACED AWAY FROM THE CREEK A MINIMUM OF 25 FEET FROM THE EDGE OF THE CREEK, AND UTILIZE WEED-FREE CERTIFIED STRAW WATTLES AROUND PERIMETER OF STOCKPILED MATERIAL.
4. INSPECT ALL EROSION CONTROL DEVICES AT THE START OF WORK, EACH DAY, OR AFTER RAINFALL EVENTS GREATER THAN 0.5 INCHES. DAMAGED EROSION CONTROL DEVICES SHALL BE REPAIRED IMMEDIATELY.
5. USE SEED-MIX, AS INDICATED IN THE CONTRACT, TO HAND-BROADCAST OVER THE AREAS OF DISTURBANCE. APPLY STRAW MULCH TO THE DISTURBED AREA, AT A RATE OF 4,000 POUNDS PER ACRE AS COVERED IN THE SCHEDULE OF ITEMS.
6. CONTRACTOR SHALL NOT ALLOW WATER TO POND IN CONSTRUCTION AREA DURING CONSTRUCTION DURATION.

VII. TIMBER BACKWALL PLANKS
1. SHALL CONSIST OF SOUTHERN YELLOW PINE, ROUGH SAWN NUMBER 2, GRADING RULES AGENCY - SPIB.
2. TIMBER SHALL BE INCISED AND SHALL BE PRESSURE TREATED IN ACCORDANCE TO AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 4B GROUND CONTACT - HEAVY DUTY (UC4B), USING PENTACHLOROPHENOL IN HEAVY OIL (TYPE A SOLVENT) OR COPPER NAPTHENATE (CuN) IN HEAVY OIL (TYPE A SOLVENT).

VIII. STORAGE, CONSTRUCTION, AND CLEARING NOTES
1. CONSTRUCTION EQUIPMENT SHALL BE STORED A MINIMUM OF 25 FEET AWAY FROM THE EDGE OF THE CREEK, AND ON STABLE GROUND. CONTRACTOR'S STAGING AND STOCKPILING AREAS SHALL BE APPROVED IN WRITING BY THE C.O.
2. USE CONTAINMENT PADS UNDER EQUIPMENT IF IT WILL BE STORED OVERNIGHT NEAR THE WORK SITE TO REDUCE POTENTIAL CONTAMINATION.
3. CONTRACTOR IS SOLELY RESPONSIBLE FOR REPLACING ANY TRAIL BRIDGE COMPONENTS THAT ARE DAMAGED, STOLEN, OR LOST DURING THE COURSE OF THIS PROJECT. SECURITY AT ALL DESIGNATED AND APPROVED STAGING AREAS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. CONTRACTOR SHALL PLACE EXCESS EXCAVATION AT AN AREA DESIGNATED BY THE C.O. AND PLACE UNSUITABLE EXCAVATION AT AN AREA DESIGNATED BY THE C.O.
5. TEMPORARY SCAFFOLDING WILL BE PERMITTED IN THE STREAM FOR TRAIL BRIDGE ERECTION ONLY. THE USE OF TREATED WOOD FOR THE TEMPORARY SCAFFOLDING IS NOT ALLOWED. ALL TEMPORARY CRIBBING WILL BE REMOVED UPON COMPLETION OF THE TRAIL BRIDGE SUPERSTRUCTURE.
6. CONTRACTOR SHALL IDENTIFY TREE OR SNAGS TO BE CUT PRIOR TO WORK THAT'S NOT IDENTIFIED IN PLANS. OBTAIN APPROVAL FROM THE C.O. PRIOR TO CUTTING. CUT AND BULK FELLED TREES IN AN APPROVED AREA AS DESIGNATED BY THE C.O...
7. THE CONTRACTOR SHALL CONFINE ALL OPERATION AND ACTIVITIES TO IDENTIFIED CLEARING LIMITS UNLESS OTHERWISE SHOWN ON DRAWINGS.
8. IN THE EVENT THAT PREVIOUSLY UNDISCOVERED CULTURAL RESOURCES ARE ENCOUNTERED DURING THE COURSE OF THE PROJECT, ALL GROUND-DISTURBING ACTIVITIES WILL BE HALTED UNTIL EVALUATED BY THE GOVERNMENT. IF NECESSARY, THE PROJECT MAY BE MODIFIED IN ORDER TO PROTECT RESOURCES BEFORE WORK CONTINUES.

IX. SURVEY CONTROLS
1. CONTROLS AND BENCHMARKS ARE INCLUDED IN THE PLANSET DRAWINGS. COORDINATES ARE IN GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983.
2. HORIZONTAL DATUM = 1983 (NAD83)
3. VERTICAL DATUM = 1983 (NAVD88)
4. CONTROLS ARE SET USING #5 REBAR WITH CAP.
5. ALL DISTANCES AND ELEVATIONS ARE INDICATED IN US SURVEY FOOT.
6. TOPOGRAPHIC FIELD SURVEY WAS COMPLETED IN MID 2022 - EARLY 2023
7. THE CONTRACTOR SHALL FIELD VERIFY ALL SURVEY CONTROLS PRIOR TO THE START OF CONSTRUCTION.

X. TRAIL BRIDGE DECKING AND CURB COMPONENTS
1. HARDWARE: ALL HARDWARE AND FASTENERS IN ITS ENTIRETY SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL.
2. FIELD TREATMENT: COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATING OF WOOD. ALL ABRASIONS AND FIELD CUTS APPROVED BY THE C.O.R.- SHALL BE CAREFULLY TRIMMED AND GIVEN THREE BRUSH COATS OF THE FIELD TREATMENT SOLUTION. WHERE APPROVED FIELD DRILLING OF BOLT OR NAIL HOLES IS REQUIRED, THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENERS.
3. TIMBER: CURB, SCUPPER, SILL, AND WOOD DECKING SHALL CONSIST OF SOUTHERN YELLOW PINE, TREATED ACCORDING TO THE AMERICAN WOOD PRESERVERS BUREAU. TREATMENT SHALL MEET THE FOLLOWING REQUIREMENT:
   - AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 3B ABOVE GROUND EXPOSED (UC3B)
   - PENTACHLOROPHENOL IN LIGHT OIL (TYPE C SOLVENT)
   - ACQ-D, 0.1 PCF

XI. HYDROLOGY
1. ALL TRAIL BRIDGES ARE DESIGNED TO H&H STUDY AND ANALYSIS REPORT PROVIDED BY THE GOVERNMENT.

XII. SEEDING AND MULCHING
1. THE CONTRACTOR SHALL REPLACE THE TREAD LINES AND SHALL NOT SEED AND MULCH THE TRAIL ITSELF.

XIII. CORROSION PLAN
1. THE CONTRACTOR SHALL SUBMIT A CORROSION PLAN IN ACCORDANCE WITH DRAWING NO. D-109 TO THE C.O. FOR APPROVAL.

XIV CONCRETE NOTES

7. PROVIDE THE CLASS OF CONCRETE AS NOTED IN THE CONTRACT DOCUMENTS. FOR CAST-IN-PLACE STRUCTURAL ELEMENTS NOT SPECIFIED IN THE CONTRACT DOCUMENTS USE CLASS A CONCRETE.

8. WHEN HOLES ARE CAST IN BEAMS TO ACCOMMODATE FALSEWORK, FILL THE HOLES WITH A NON-SHRINK STRUCTURAL GROUT SUITABLE FOR OVERHEAD REPAIRS AFTER FALSEWORK IS REMOVED.

9. PAYMENT FOR CONCRETE IN SLAB IS BASED ON THEORETICAL PLAN QUANTITY. NO ADJUSTMENT IS MADE FOR VARIATION IN CAMBER.

10. THE MINIMUM ACCEPTABLE REINFORCING STEEL CLEAR COVERS ARE AS FOLLOWS:

    CONCRETE CAST DIRECTLY AGAINST EARTH....3"

    SUBSTRUCTURE:
    EXTERNAL SURFACE NOT IN CONTACT WITH WATER 3"
    EXTERNAL SURFACE CAST AGAINST EARTH 3"
    CONCRETE COVER DOES NOT INCLUDE REINFORCEMENT PLACEMENT OF FABRICATION TOLERANCES.
    CONCRETE MINIMUM 28-DAY COMPRESSIVE STRENGTH (PSI), LOCATIONS:
    f'c = 4500,CIP SUBSTRUCTURE

11. REINFORCING STEEL, ASTM A615 GRADE 60
    YIELD STRENGTH fy= 60,000 PSI
    MODULUS OF ELASTICITY ES= 29,000,000 ksi

12. SALVAGE - NO MATERIAL REMOVED FROM THE EXISTING STRUCTURE SHALL BE SALVAGED AND SHALL BE REMOVED FROM SITE BY CONTRACTOR.

STRUCTURAL CONCRETE AND REINFORCEMENT:
REINFORCED CONCRETE SHALL BE AIR ENTRAINED CLASS A(AE) WITH A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI. ALL EXPOSED CAST-IN-PLACE CONCRETE SHALL BE GIVEN A CLASS 2 RUBBED FINISH. ALL CONCRETE TO BE MADE IN ACCORDANCE WITH AN APPROVED MIX DESIGN. CHAMFER ALL EXPOSED EDGES AND CORNERS 3/4".

REINFORCING STEEL: ALL REINFORCING STEEL SHALL BE OF THE DEFORMED TYPE CONFORMING TO AASHTO M31 ASTM A615), GRADE 60. EPOXY COATED BARS TO CONFORM TO AASHTO M284. CONCRETE COVER SHALL BE 2-INCHES UNLESS SHOWN OTHERWISE; WHERE NOT SHOWN IT SHALL CONFORM TO AASHTO. ANY CUTTING AND BENDING SHALL CONFORM TO ACI 315.

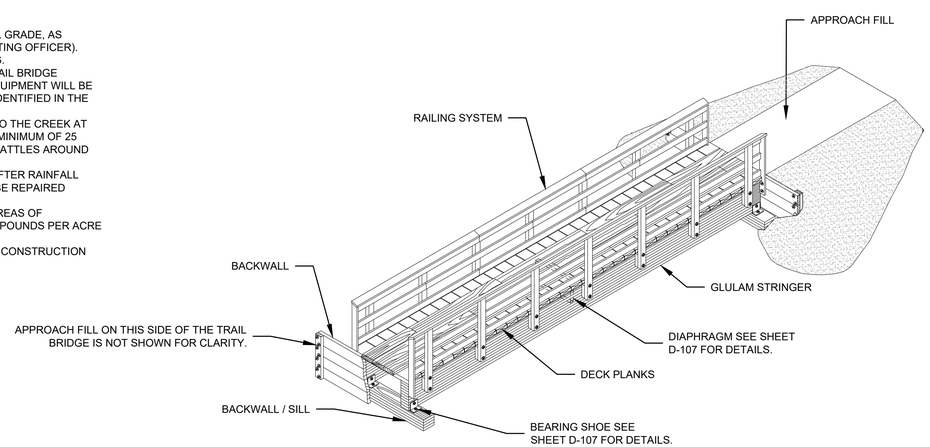
STRUCTURAL STEEL: STRUCTURAL STEEL POSTS AND PLATES ARE TO BE IN ACCORDANCE WITH ASHTO 270 GRADE 36. BOLTS AND NUTS SHALL CO O A325, UNLESS NOTED OTHERWISE. HOT-DIP GALVANIZE EXPOSED STEEL FASTENERS, BOLTS AND NUTS, AND HARDWARE ACCORDING TO AASHTO M232 OR MECHANICALLY GALVANIZE ACCORDING TO AASHTO M29B, USING ANY OF THE 5 THICKEST COATING CLASSES .

WELDING: IF APPLICABLE, ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.5. WELDERS SHALL BE CERTIFIED TO CARRY HE WELDING PROCEDURE. ELECTRODE MATERIAL, PLANT EQUIPMENT, AND WELDING PROCEDURE TO BE APPROPRIATE FOR THE PARENT MATERIAL AND INTENDED USE.

JOINT FILLER: IF APPLICABLE, PREMOLDED JOINT FILLER PER AASHTO M33, M153, OR M213, AND EXPANDED POLYSTYRENE PER AASHTO M230.

FOUNDATION:

ALL FOUNDATION FILL SHALL BE INCIDENTAL AND INCLUDED IN THE CONTRACTOR'S PROPOSAL. ALL FOUNDATION FILL MATERIAL SHALL CONFORM TO THE GRADATION AND REQUIREMENTS OF FP-14 SECTION 704.01.



TRAIL BRIDGE WITH RAILING SYSTEM

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 18825 PROFESSIONAL ENGINEER WALLACE L HATHORNE
3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

GENERAL NOTES

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-105
DRAWN B. B.	
CHECKED W.L.H	SHEET 5 OF 59
PROJECT NO.	

USDA FOREST SERVICE - REGION 8

BECKY BRANCH EMBANKMENT FAILURE

ESTIMATE OF QUANTITIES

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.A	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE TRAIL EMBANKMENT FAILURE, BOTTOM OF GABION STAKES AND THE TRAIL FINISH GRADE STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
20305.A.1	REMOVAL OF STRUCTURE EXCAVATION, DISPOSAL METHOD OFF GOVT. LANDS	CUYD	90	DISPOSING LEGALLY OFF NATIONAL FOREST LANDS IN AN APPROVED LANDFILL.
20701.A	EARTHWORK GEOSYNTHETICS, CLASS 1 NON WOVEN, TYPE A	SQYD	400	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE GROUND GRADE, SEPARATION BETWEEN THE 1-FT WIDTH FREE DRAINING AASHTO #57 MATERIAL AND STRUCTURAL BACKFILL MATERIAL, AND SEPARATION BETWEEN THE GABIONS AND BACKFILL MATERIAL
20801.A	STRUCTURE EXCAVATION, TYPE GABION BASKET FOUNDATION	CUYD	90	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. CONTRACTOR CAN EXPECT 20 CUBIC YARDS OF EXCESSIVE EXCAVATION MATERIAL. ONLY THE SUITABLE MATERIAL SHALL BE TRANSPORTED AND USED ON THE BECKY BRANCH TRAIL BRIDGE M.P. 18.84 TRAIL EMBANKMENT CONSTRUCTION.
25105.A.1	KEYED RIPRAP, CLASS 2	TON	52	INCLUDES FURNISHING, AND PLACEMENT OF RIPRAP
25302.A	GABIONS BASKET, WIRE TYPE 12' X 3' X 3' WELDED WIRE MESH (9 GAUGE) W / TIE WIRE, STIFFENERS, AND SPIRALS, COATING POLYVINYL CHLORIDE (PVC)	CUYD	32	INCLUDES FURNISHING, PLACEMENT, AND INSTALLATION OF THE GABIONS BASKETS.
25302.B	GABIONS BASKET, WIRE TYPE 12' X 3' X 1.5' WELDED WIRE MESH (9 GAUGE) W / TIE WIRE, STIFFENERS, AND SPIRALS, COATING POLYVINYL CHLORIDE (PVC)	CUYD	4	INCLUDES FURNISHING, PLACEMENT, AND INSTALLATION OF THE GABIONS BASKETS.
30103.A	AGGREGATE BASE, GRADING 4" TO 8" DURABLE CLEAN ANGULAR ROCK (NO FINES), COMPACTION METHOD (MACHINE PLACE INSIDE GABION BASKETS)	CUYD	47	INCLUDES FURNISHING AND PLACING 4" TO 8" HARD, DURABLE, ANGULAR ROCK (CLEAN WITH NO FINES) FOR THE INSIDE OF THE GABIONS. CONTRACTOR SHALL NOT PLACE GABION MATERIAL BY METHODS THAT CAUSE SEGREGATION OR DAMAGE TO THE PREPARED SURFACE OR GABION BASKETS. PLACE OR REARRANGE INDIVIDUAL ROCKS BY MECHANICAL OR HAND PLACEMENT METHODS, TO OBTAIN A DENSE UNIFORM BLANKET WITH A REASONABLY SMOOTH SURFACE AND SECURED INFILL INTO THE GABIONS (DO NOT DAMAGE THE GABIONS).
30104.A	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD, FP-14 SECTION 204.11(a)(1)	TON	75	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS.
55601.A	TRAIL GUARDRAIL, TYPE TRAIL GUARDRAIL WITH GALVANIZED STEEL TUBING RAILING, GALVANIZED FLANGE CONNECTORS, AND REINFORCED CONCRETE COLUMN POSTS AND ALL FASTENERS	FOOT	32	INCLUDES FURNISHING, FABRICATION, ERECTION, INSTALLATION, AND CONSTRUCTION OF TRAIL GUARDRAIL WITH GALVANIZED STEEL TUBING RAILING, GALVANIZED FLANGE CONNECTORS, AND REINFORCED CONCRETE COLUMN POSTS. REFER TO SUBSHEET D-112 FOR DETAIL.
60501.A	STANDARD UNDERDRAIN SYSTEM	FOOT	100	INCLUDES FURNISHING AND INSTALLATION OF UNDERDRAIN SYSTEM. UNDERDRAIN SYSTEM SHALL CONFORM TO THE REQUIREMENTS OF FP-14 SECTION 605.04. PAY ITEM ALSO INCLUDES FURNISHING AND INSTALLATION OF 4" DIA. COLLECTOR PIPE, #57 STONE (APPROX. 23 TONS OF #57 STONE), AND RIPRAP CLASS 2 (APPROX. 16 TONS OF CLASS 2 RIPRAP). RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1... REFER TO SUBSHEET S-101 FOR UNDERDRAIN SYSTEM DETAIL DRAWING

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

BECKY BRANCH EMBANKMENT FAILURE ESTIMATE OF QUANTITIES

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-106
DRAWN B. B.	
CHECKED W.L.H	SHEET 6 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

BECKY BRANCH TRAIL BRIDGE M.P. 18.84

ESTIMATE OF QUANTITIES CONT. 1

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.B	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTING OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
20305.B.1	REMOVAL OF STRUCTURE EXCAVATION, DISPOSAL METHOD OFF GOVT. LANDS	CUYD	7	DISPOSING LEGALLY OFF NATIONAL FOREST LANDS IN AN APPROVED LANDFILL.
20431.A	TRAIL EMBANKMENT CONSTRUCTION, COMPACTION PLACEMENT METHOD, FP-14 SECTION 204.11(A)	CUYD	20	INCLUDES FURNISHING, PLACEMENT, CONSTRUCTION, AND COMPACTION OF TRAIL EMBANKMENT MATERIAL. INCLUDES ALL SUITABLE STRUCTURE EXCAVATION MATERIAL FROM BECKY BRANCH EMBANKMENT FAILURE AND BECKY BRANCH TRAIL BRIDGE EXCAVATION MATERIAL WHICH ALL SUITABLE MATERIAL SHALL BE USED FOR TRAIL EMBANKMENT MATERIAL. ALL EXCESSIVE EXCAVATION MATERIAL (APPROX. 15 C.Y.) SHALL BE HAULED OFF AND DISPOSED OF LEGALLY OFF GOVT. LAND. PLACE EMBANKMENT MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS. CONSTRUCT TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204 AND COMPACT THE TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204.11(A)
20701.B	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1, NONWOVEN, TYPE A	SQYD	80	THE GEOTEXTILE SHOULD BE USED TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE NATURAL GROUND GRADE AND ALSO PROVIDE SEPARATION BETWEEN THE 1-FT WIDTH FREE DRAINING AASHTO #57 MATERIAL AND STRUCTURAL BACKFILL MATERIAL.
20801.B	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	7	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. CONTRACTOR SHALL USE THIS STRUCTURE EXCAVATION MATERIAL TO SUPPORT CONSTRUCTING THE TRAIL EMBANKMENT WHICH IS INCLUDED IN PAY ITEM 20401.
25108.A	GROUTED RIPRAP, CLASS 3	TON	72	GROUTED RIPRAP IS ROCK PLACED OR KEYED ON A PREPARED SURFACE WITH THE VOIDS FILLED WITH GROUT. PLACE ROCK FOR GROUTED RIPRAP ACCORDING TO SUBSECTION 251.04 OR 251.05. THOROUGHLY MOISTEN THE ROCKS AND WASH EXCESS FINES FROM THE RIPRAP OR TO THE UNDERSIDE OF THE RIPRAP. DO NOT PLACE GROUT UNLESS THE AIR TEMPERATURE IS AT OR ABOVE 35 DEGREE FAHRENHEIT(1 DEGREE C) WITHIN THE NEAR-SURFACE VOIDS OF THE RIPRAP. PLACE THE GROUT IN A MANNER TO PREVENT SEGREGATION. BEGIN GROUT AT LOWEST ELEVATION OF THE RIPRAP. FILL VOIDS WITHOUT UNSEATING THE ROCKS. DO NOT EXCEED 5-FOOT(1.5-METER) THICKNESS FOR EACH LAYER OF GROUTED RIPRAP. ALLOW 3 DAYS CURING TIME BEFORE ADDING THE NEXT LAYER OF RIPRAP AND GROUT. PROVIDE WEEP HOLES THROUGH THE GROUTED RIPRAP AS REQUIRED. KEEP THE GROUTED RIPRAP MOIST FOR 3 DAYS AFTER THE WORK IS COMPLETED AND PROTECT IT FROM FREEZING FOR AT LEAST 7 DAYS AFTER GROUTING. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1
30104.B	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD, FP-14 SECTION 204.11(a)(1)	TON	10	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS.
55201.A	STRUCTURAL CONCRETE, CLASS A(AE)	CUYD	6	[INCLUDES FURNISHING OF CONCRETE AND REINFORCEMENT AND ALL MISC MATERIALS AND LABOR. CONCRETE SHALL BE CLASS A WITH 4500 MINIMUM PSI STRENGTH. MIN. AIR CONTENT IS 4.0% AND MAX. AIR CONTENT IS 7.0%. [REFER TO DRAWINGS AND FP-14 TABLE 552-1 AND FP-14 TABLE 552-2] "ALL FURNISHING, INSTALLATION, AND PLACEMENT OF REINFORCEMENT SHALL BE INCIDENTAL TO THIS PAY ITEM.
55401.A	REINFORCING STEEL,#4 & #5	POUND	820	REINFORCED STEEL, EPOXY COATED: FURNISH BARS CONFORMING TO SUBSECTION 709.01(B) CONFORM TO ASTM A775 FOR CONCRETE ABUTMENT.
55702.A	STRUCTURAL TIMBER AND LUMBER, 4'-4 1/8" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	40	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
62503.A	SEEDING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)	SQYD	112	DRY METHOD. APPLY THE SEED WITH THE APPROVED POWER DRIVEN SEEDER, DRILLS, OR OTHER MECHANICAL EQUIPMENT. HAND-OPERATED SEEDING METHODS ARE SATISFACTORY ON AREAS INACCESSIBLE TO MECHANICAL EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
62506.A	MULCHING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT MULCH TRAIL WALKING SURFACE ITSELF)	SQYD	112	APPLY MULCH IN SEPARATE APPLICATION FROM THE SEEDING . APPLY WOOD FIBER OR GRASS STRAW CELLULOSE FIBER MULCH AT A RATE OF 1500 POUNDS PER ACRE. MULCH BY HAND AREAS INACCESSIBLE BY MULCHING EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

BECKY BRANCH TRAIL BRIDGE M.P. 18.84 ESTIMATE OF QUANTITIES CONT. 1

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-107
DRAWN B. B.	
CHECKED W.L.H	SHEET 7 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

DICKS CREEK TRAIL BRIDGE M.P. 9.25

ESTIMATE OF QUANTITIES CONT. 2

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.C	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTING OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
15702.A	SILT FENCE (INCLUDES INSTALLATION AND REMOVAL AFTER GOVT.'S FINAL ACCEPTANCE)	FOOT	100	BEFORE CONSTRUCTION CAN OCCUR, INCLUDES INSTALLATION OF SILT FENCES. ALSO INCLUDES REMOVAL OF SILT FENCING AFTER FINAL ACCEPTANCE OF PROJECT.
20431.B	TRAIL EMBANKMENT CONSTRUCTION, COMPACTION PLACEMENT METHOD, FP-14 SECTION 204.11(A)	CUYD	59	INCLUDES FURNISHING, PLACEMENT, CONSTRUCTION, AND COMPACTION OF TRAIL EMBANKMENT MATERIAL. INCLUDES USING ALL SUITABLE STRUCTURE EXCAVATION MATERIAL (APPROX. **15 C.Y.**) WHICH SHALL BE USED FOR THE TRAIL EMBANKMENT MATERIAL. ALSO INCLUDES IMPORTING APPROX. 44C.Y. OF SUITABLE MATERIAL FROM COMMERCIAL SOURCE SUBMITTAL REQUIRED. DURING THE TRAIL EMBANKMENT CONSTRUCTION, THE CONTRACTOR SHALL PLACE EMBANKMENT MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS. CONSTRUCT TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204 AND COMPACT THE TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204.11(A)
20701.C	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1, NONWOVEN, TYPE A	SQYD	100	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE GROUND GRADE, AND SEPARATION BETWEEN THE GABIONS AND BACKFILL MATERIAL
20801.C	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	58	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. ALSO INCLUDES ALL GABIONS FOUNDATION FILL EXCAVATION
25105.A	KEYED RIPRAP CLASS 4	TON	63	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1.
25302.C	GABIONS BASKETS, WIRE TYPE 12' X 3' X 3' WELDED WIRE MESH (9 GAUGE) W/ TIE WIRE, STIFFENERS, AND SPIRALS, COATING POLYVINYL CHLORIDE (PVC)	CUYD	11	INCLUDES FURNISHING, PLACEMENT, AND INSTALLATION OF THE GABIONS BASKETS.
30103.B	AGGREGATE BASE, GRADING 4" TO 8" DURABLE CLEAN ANGULAR ROCK (NO FINES), COMPACTION METHOD (MACHINE PLACE INSIDE GABION BASKETS)	CUYD	11	INCLUDES FURNISHING AND PLACING 4" TO 8" HARD, DURABLE, ANGULAR ROCK (CLEAN WITH NO FINES) FOR THE INSIDE OF THE GABIONS. CONTRACTOR SHALL NOT PLACE GABION MATERIAL BY METHODS THAT CAUSE SEGREGATION OR DAMAGE TO THE PREPARED SURFACE OR GABION BASKETS. PLACE OR REARRANGE INDIVIDUAL ROCKS BY MECHANICAL OR HAND PLACEMENT METHODS, TO OBTAIN A DENSE UNIFORM BLANKET WITH A REASONABLY SMOOTH SURFACE AND SECURED INFILL INTO THE GABIONS (DO NOT DAMAGE THE GABIONS). CONTRACTOR'S FURNISHING AND PLACEMENT OF FOUNDATION FILL SHALL BE INCIDENTAL.
30104.C	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	10	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS.
55702.B	STRUCTURAL TIMBER AND LUMBER, 6'-9 13/16" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	55	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
62503.B	SEEDING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)	SQYD	578	DRY METHOD. APPLY THE SEED WITH THE APPROVED POWER DRIVEN SEEDER, DRILLS, OR OTHER MECHANICAL EQUIPMENT. HAND-OPERATED SEEDING METHODS ARE SATISFACTORY ON AREAS INACCESSIBLE TO MECHANICAL EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
62506.B	MULCHING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT MULCH TRAIL WALKING SURFACE ITSELF)	SQYD	578	APPLY MULCH IN SEPARATE APPLICATION FROM THE SEEDING . APPLY WOOD FIBER OR GRASS STRAW CELLULOSE FIBER MULCH AT A RATE OF 1500 PUNDS PER ACRE. MULCH BY HAND AREAS INACCESSIBLE BY MULCHING EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

DICKS CREEK TRAIL BRIDGE M.P. 9.25 ESTIMATE OF QUANTITIES CONT. 2

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-108
DRAWN B. B.	
CHECKED W.L.H	SHEET 8 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

LICK LOG CREEK TRAIL BRIDGE M.P. 6.79

ESTIMATE OF QUANTITIES CONT. 3

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.D	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTING OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
15702.B	SILT FENCE (INCLUDES INSTALLATION AND REMOVAL AFTER GOVT.'S FINAL ACCEPTANCE)	FOOT	100	BEFORE CONSTRUCTION CAN OCCUR, INCLUDES INSTALLATION OF SILT FENCES. ALSO INCLUDES REMOVAL OF SILT FENCING AFTER FINAL ACCEPTANCE OF PROJECT.
20431.C	TRAIL EMBANKMENT CONSTRUCTION, COMPACTION PLACEMENT METHOD, FP-14 SECTION 204.11(A)	CUYD	51	INCLUDES FURNISHING, PLACEMENT, CONSTRUCTION, AND COMPACTION OF TRAIL EMBANKMENT MATERIAL. INCLUDES USING ALL SUITABLE STRUCTURE EXCAVATION MATERIAL (APPROX. 40 **C.Y.**) WHICH SHALL BE USED FOR THE TRAIL EMBANKMENT MATERIAL. ALSO INCLUDES IMPORTING APPROX. 47 **C.Y.** OF TRAIL EMBANKMENT MATERIAL FROM A COMMERCIAL SOURCE. THE CONTRACTOR SHALL PLACE EMBANKMENT MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS. CONSTRUCT TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204 AND COMPACT THE TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204.11(A)
20701.D	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1 NONWOVEN, TYPE A	SQYD	70	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE GROUND GRADE, SEPARATION BETWEEN THE 1-FT WIDTH FREE DRAINING AASHTO #57 MATERIAL AND STRUCTURAL BACKFILL MATERIAL, AND SEPARATION BETWEEN THE APPROACH GABIONS AND BACKFILL MATERIAL
20801.D	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	28	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM.
25105.B	KEYED RIPRAP CLASS 4	TON	86	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1.
30104.D	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	11	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS.
55201.B	STRUCTURAL CONCRETE, CLASS A(AE)	CUYD	10	[INCLUDES FURNISHING OF CONCRETE AND REINFORCEMENT AND ALL MISC MATERIALS AND LABOR. CONCRETE SHALL BE CLASS A WITH 4500 MINIMUM PSI STRENGTH. MIN. AIR CONTENT IS 4.0% AND MAX. AIR CONTENT IS 7.0%. [REFER TO DRAWINGS AND FP-14 TABLE 552-1 AND FP-14 TABLE 552-2] "ALL FURNISHING, INSTALLATION, AND PLACEMENT OF REINFORCEMENT SHALL BE INCIDENTAL TO THIS PAY ITEM.
55401.B	REINFORCING STEEL, #4 #5	POUND	1200	REINFORCED STEEL, EPOXY COATED: FURNISH BARS CONFORMING TO SUBSECTION 709.01(B) CONFORM TO ASTM A775 FOR CONCRETE ABUTMENT.
55702.C	STRUCTURAL TIMBER AND LUMBER, 6'-9 13/16" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	70	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
60410.A	REMOVE AND RESET 9' LENGTH X 5' WIDE X 3.5' EARTH BERMS	EACH	20	INCLUDES REMOVAL AND RESET OF APPROX.. (20) - 9' LENGTH X 5' WIDE X 3.5' EARTH BERMS. ALL EARTH BERMS SHALL BE RE-CONSTRUCTED AFTER GOVERNMENT FINAL ACCEPTANCE OF PROJECT SITE AND SEED AND MULCHED. SEEDING AND MULCHING OF ALL EARTH BERMS ARE COVERED IN PAY ITEMS 62503(D) AND 62506(D)
62503.C	SEEDING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)	SQYD	1000	DRY METHOD. APPLY THE SEED WITH THE APPROVED POWER DRIVEN SEEDER, DRILLS, OR OTHER MECHANICAL EQUIPMENT. HAND-OPERATED SEEDING METHODS ARE SATISFACTORY ON AREAS INACCESSIBLE TO MECHANICAL EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
62506.C	MULCHING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT MULCH TRAIL WALKING SURFACE ITSELF)	SQYD	1000	APPLY MULCH IN SEPARATE APPLICATION FROM THE SEEDING . APPLY WOOD FIBER OR GRASS STRAW CELLULOSE FIBER MULCH AT A RATE OF 1500 POUNDS PER ACRE. MULCH BY HAND AREAS INACCESSIBLE BY MULCHING EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 ESTIMATE OF QUANTITIES CONT. 3

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com

ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-109
DRAWN B. B.	
CHECKED W.L.H	SHEET 9 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

POLE CREEK TRAIL BRIDGE M.P. 0.75

ESTIMATE OF QUANTITIES CONT. 4

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.E	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTINGS OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
15702.C	SILT FENCE (INCLUDES INSTALLATION AND REMOVAL AFTER GOVT.'S FINAL ACCEPTANCE)	FOOT	100	BEFORE CONSTRUCTION CAN OCCUR, INCLUDES INSTALLATION OF SILT FENCES. ALSO INCLUDES REMOVAL OF SILT FENCING AFTER FINAL ACCEPTANCE OF PROJECT.
20302.A	REMOVAL OF 20' SPAN X 24" WIDE WOODEN LOG TRAIL BRIDGE, DISPOSAL METHOD LEGALLY OFF NATIONAL FORESTS LANDS	EA	1	INCLUDES REMOVAL OF EXISTING TRAIL BRIDGE IN ITS ENTIRETY INCLUDING SUBSTRUCTURE AND SUPERSTRUCTURE AND DISPOSING LEGALLY OFF NATIONAL FORESTS LANDS IN AN APPROVED LANDFILL
20431.D	TRAIL EMBANKMENT CONSTRUCTION, COMPACTION PLACEMENT METHOD, FP-14 SECTION 204.11(A)	CUYD	22	INCLUDES FURNISHING, PLACEMENT, CONSTRUCTION, AND COMPACTION OF TRAIL EMBANKMENT MATERIAL. INCLUDES USING ALL SUITABLE STRUCTURE EXCAVATION MATERIAL (APPRX. 8 C.Y.) WHICH SHALL BE USED FOR TRAIL EMBANKMENT MATERIAL. CONTRACTOR SHALL PLACE EMBANKMENT MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS. CONSTRUCT TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204 AND COMPACT THE TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204.11(A). CONTRACTOR SHALL IMPORT, FURNISH, PLACE, AND COMPACT APPROX. 14 C.Y. FROM A COMMERCIAL SOURCE. SUBMITTAL REQUIRED. PAY ITEM ALSO INCLUDES IMPORTING APPROX. 7 TONS OF FOUNDATION FILL MATERIAL FROM COMMERCIAL SOURCE, SUBMITTAL REQUIRED.
20701.E	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1 NONWOVEN, TYPE A	SQYD	70	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE PROPOSED GROUND GRADE, , AND SEPARATION BETWEEN THE GABIONS AND BACKFILL MATERIAL.
20801.E	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	26	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. ALSO INCLUDES ALL GABIONS FOUNDATION FILL EXCAVATION
25105.C	KEYED RIPRAP CLASS 4	TON	48	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1. Ð
25302.D	GABIONS BASKET, WIRE TYPE 12' X 3' X 3' WELDED WIRE MESH (9 GAUGE) W / TIE WIRE, STIFFENERS, AND SPIRALS, COATING POLYVINYL CHLORIDE (PVC)	CUYD	8	INCLUDES FURNISHING, PLACEMENT, AND INSTALLATION OF THE GABIONS BASKETS.
30103.C	AGGREGATE BASE, GRADING 4" TO 8" DURABLE CLEAN ANGULAR ROCK (NO FINES), COMPACTION METHOD (MACHINE PLACE INSIDE GABION BASKETS)	CUYD	8	INCLUDES FURNISHING AND PLACING 4" TO 8" HARD, DURABLE, ANGULAR ROCK (CLEAN WITH NO FINES) FOR THE INSIDE OF THE GABIONS. CONTRACTOR SHALL NOT PLACE GABION MATERIAL BY METHODS THAT CAUSE SEGREGATION OR DAMAGE TO THE PREPARED SURFACE OR GABION BASKETS. PLACE OR REARRANGE INDIVIDUAL ROCKS BY MECHANICAL OR HAND PLACEMENT METHODS, TO OBTAIN A DENSE UNIFORM BLANKET WITH A REASONABLY SMOOTH SURFACE AND SECURED INFILL INTO THE GABIONS (DO NOT DAMAGE THE GABIONS).
30104.E	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	9	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS.
55702.D	STRUCTURAL TIMBER AND LUMBER, 6'-9 13/16" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	30	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
62503.D	SEEDING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)	SQYD	804	DRY METHOD. APPLY THE SEED WITH THE APPROVED POWER DRIVEN SEEDER, DRILLS, OR OTHER MECHANICAL EQUIPMENT. HAND-OPERATED SEEDING METHODS ARE SATISFACTORY ON AREAS INACCESSIBLE TO MECHANICAL EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
62506.D	MULCHING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT MULCH TRAIL WALKING SURFACE ITSELF)	SQYD	804	APPLY MULCH IN SEPARATE APPLICATION FROM THE SEEDING . APPLY WOOD FIBER OR GRASS STRAW CELLULOSE FIBER MULCH AT A RATE OF 1500 POUNDS PER ACRE. MULCH BY HAND AREAS INACCESSIBLE BY MULCHING EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

POLE CREEK TRAIL BRIDGE M.P. 0.75 ESTIMATE OF QUANTITIES CONT. 4

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-110
DRAWN B. B.	
CHECKED W.L.H	SHEET 10 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

LAKE RUSSELL TRAIL BRIDGE M.P. 0.10

ESTIMATE OF QUANTITIES CONT. 5

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.F	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTINGS OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
15702.D	SILT FENCE (INCLUDES INSTALLATION AND REMOVAL AFTER GOVT.'S FINAL ACCEPTANCE)	FOOT	100	BEFORE CONSTRUCTION CAN OCCUR, INCLUDES INSTALLATION OF SILT FENCES. ALSO INCLUDES REMOVAL OF SILT FENCING AFTER FINAL ACCEPTANCE OF PROJECT.
20431.E	TRAIL EMBANKMENT CONSTRUCTION, COMPACTION PLACEMENT METHOD, FP-14 SECTION 204.11(A)	CUYD	48	INCLUDES FURNISHING, PLACEMENT, CONSTRUCTION, AND COMPACTION OF TRAIL EMBANKMENT MATERIAL. INCLUDES USING ALL SUITABLE STRUCTURE EXCAVATION MATERIAL (APPRX. 6 C.Y.) WHICH SHALL BE USED FOR TRAIL EMBANKMENT MATERIAL. ALSO INCLUDES IMPORTING APPROX. 42 C.Y. OF TRAIL EMBANKMENT MATERIAL FROM COMMERCIAL SOURCE. CONTRACTOR SHALL PLACE EMBANKMENT MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS. CONSTRUCT TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204 AND COMPACT THE TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204.11(A)
20701.F	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1 NONWOVEN, TYPE A	SQYD	110	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE PROPOSED GROUND GRADE, AND SEPARATION BETWEEN THE 1-FT WIDTH FREE DRAINING AASHTO #57 MATERIAL AND STRUCTURAL BACKFILL MATERIAL
20801.F	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	15	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. ALSO INCLUDES ALL GABIONS FOUNDATION FILL EXCAVATION.
25105.D	KEYED RIPRAP CLASS 4	TON	92	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1.
30104.F	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	8	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS.
55201.C	STRUCTURAL CONCRETE, CLASS A(AE)	CUYD	8	[INCLUDES FURNISHING OF CONCRETE AND REINFORCEMENT AND ALL MISC MATERIALS AND LABOR. CONCRETE SHALL BE CLASS A WITH 4500 MINIMUM PSI STRENGTH. MIN. AIR CONTENT IS 4.0% AND MAX. AIR CONTENT IS 7.0%. [REFER TO DRAWINGS AND FP-14 TABLE 552-1 AND FP-14 TABLE 552-2] "ALL FURNISHING, INSTALLATION, AND PLACEMENT OF REINFORCEMENT SHALL BE INCIDENTAL TO THIS PAY ITEM.
55401.C	REINFORCING STEEL, #4 #5	POUND	1,730	REINFORCED STEEL, EPOXY COATED: FURNISH BARS CONFORMING TO SUBSECTION 709.01(B) CONFORM TO ASTM A775 FOR CONCRETE ABUTMENT.
55702.E	STRUCTURAL TIMBER AND LUMBER, 4'-4 1/8" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	58	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
62503.E	SEEDING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)	SQYD	68	DRY METHOD. APPLY THE SEED WITH THE APPROVED POWER DRIVEN SEEDER, DRILLS, OR OTHER MECHANICAL EQUIPMENT. HAND-OPERATED SEEDING METHODS ARE SATISFACTORY ON AREAS INACCESSIBLE TO MECHANICAL EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
62506.E	MULCHING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT MULCH TRAIL WALKING SURFACE ITSELF)	SQYD	68	APPLY MULCH IN SEPARATE APPLICATION FROM THE SEEDING . APPLY WOOD FIBER OR GRASS STRAW CELLULOSE FIBER MULCH AT A RATE OF 1500 POUNDS PER ACRE. MULCH BY HAND AREAS INACCESSIBLE BY MULCHING EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 ESTIMATE OF QUANTITIES CONT. 5

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023
ARCHIVE NO.
DESIGNER N. R.E.
DRAWN B. B.
CHECKED W.L.H
PROJECT NO.
DRAWING SHEET NO. G-111
SHEET 11 OF 59

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

LAKE RUSSELL TRAIL BRIDGE M.P. 2.18

ESTIMATE OF QUANTITIES CONT. 6

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.G	CONSTRUCTION SURVEY AND STAKING, METHOD 1, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTINGS OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
15702.E	SILT FENCE (INCLUDES INSTALLATION AND REMOVAL AFTER GOVT.'S FINAL ACCEPTANCE)	FOOT	100	SILT FENCE: BEFORE CONSTRUCTION CAN OCCUR, INCLUDES INSTALLATION OF SILT FENCES. ALSO INCLUDES REMOVAL OF SILT FENCING AFTER FINAL ACCEPTANCE OF PROJECT.
20431.E	TRAIL EMBANKMENT CONSTRUCTION, COMPACTION PLACEMENT METHOD, FP-14 SECTION 204.11(A)	CUYD	21	INCLUDES FURNISHING, PLACEMENT, CONSTRUCTION, AND COMPACTION OF TRAIL EMBANKMENT MATERIAL. INCLUDES USING ALL SUITABLE STRUCTURE EXCAVATION MATERIAL (APPROX. **16 C.Y. TO 21 C.Y.)** WHICH SHALL BE USED FOR THE TRAIL EMBANKMENT MATERIAL. CONTRACTOR SHALL PLACE EMBANKMENT MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS. CONSTRUCT TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204 AND COMPACT THE TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204.11(A)
20701.G	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1 NONWOVEN, TYPE A	SQYD	55	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE PROPOSED GROUND GRADE, AND SEPARATION BETWEEN THE 1-FT WIDTH FREE DRAINING AASHTO #57 MATERIAL AND STRUCTURAL BACKFILL MATERIAL
20801.G	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	21	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. ALSO INCLUDES ALL GABIONS FOUNDATION FILL EXCAVATION.
25105.E	KEYED RIPRAP CLASS 4	TON	63	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1.
30104.G	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	74	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS. INCLUDES CONTRACTOR FURNISHING AND PLACEMENT OF AGGREGATE. THE AGGREGATE SHALL BE PLACED AND COMPACTED 4 - FEET WIDE X 6 - INCH DEPTH. THE AGGREGATE SHALL START AT SOUTHSIDE OF THE DAM (EDGE OF CONCRETE DAM) AND CONTINUOUSLY RUN TO THE NEW TRAIL BRIDGE BOARDWALK APPROACH ON NORTHEAST SIDE WHERE IT SHOULD STOP. THE AGGREGATE SHALL THEN START AGAIN AT THE END OF THE BOARDWALK ON TRAIL BRIDGE SOUTHWEST SIDE. THE CONTRACTOR SHALL CONTINUE TO PLACE AGGREGATE ON THE TRAIL SOUTHWEST SIDE UNTIL THE QUANITITY OF AGGREGATE IS DEPLETED AS SHOWN IN THE SCHEDULE OF ITEMS. CONTRACTOR SHALL PROVIDE AGGREGATE TICKETS TO C.O. FOR RECORDS OF AGGREGATE FURNISHED PLACED FOR PAYMENT. CONTRACTOR SHALL NOT EXCEED THE AGGREGATE QUANTITY SPECIFIED IN THE SCHEDULE OF ITEMS FOR THIS SPECIFIC PROJECT SITE.
55201.D	STRUCTURAL CONCRETE, CLASS A(AE)	CUYD	9.5	[INCLUDES FURNISHING OF CONCRETE AND REINFORCEMENT AND ALL MISC MATERIALS AND LABOR. CONCRETE SHALL BE CLASS A WITH 4500 MINIMUM PSI STRENGTH. MIN. AIR CONTENT IS 4.0% AND MAX. AIR CONTENT IS 7.0%. [REFER TO DRAWINGS AND FP-14 TABLE 552-1 AND FP-14 TABLE 552-2] "ALL FURNISHING, INSTALLATION, AND PLACEMENT OF REINFORCEMENT SHALL BE INCIDENTAL TO THIS PAY ITEM.
55401.D	REINFORCING STEEL, #4 # 5	POUND	884	REINFORCED STEEL, EPOXY COATED: FURNISH BARS CONFORMING TO SUBSECTION 709.01(B) CONFORM TO ASTM A775. FOR CONCRETE ABUTMENT.
55702.F	STRUCTURAL TIMBER AND LUMBER, 4'-4 1/8" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	58	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
62503.F	SEEDING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)	SQYD	220	DRY METHOD. APPLY THE SEED WITH THE APPROVED POWER DRIVEN SEEDER, DRILLS, OR OTHER MECHANICAL EQUIPMENT. HAND-OPERATED SEEDING METHODS ARE SATISFACTORY ON AREAS INACCESSIBLE TO MECHANICAL EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
62506.F	MULCHING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT MULCH TRAIL WALKING SURFACE ITSELF)	SQYD	220	APPLY MULCH IN SEPARATE APPLICATION FROM THE SEEDING . APPLY WOOD FIBER OR GRASS STRAW CELLULOSE FIBER MULCH AT A RATE OF 1500 POUNDS PER ACRE. MULCH BY HAND AREAS INACCESSIBLE BY MULCHING EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
8001	DESIGN-BUILD - - ELEVATED BOARDWALK FOR TRAIL BRIDGE M.P. 2. 18 -- INCLUDES BOTH SIDES OF TRAIL BRIDGE DESIGN & CONSTRUCTION	LUMP SUM	1	INCLUDES CONTRACTOR DESIGNING AND CONSTRUCTING AN ELEVATED BOARDWALK. THE 100% BOARDWALK DESIGN DELIVERABLE SHALL BE STAMPED/SEAL BY A P.E. ENGINEER LICENSED IN THE STATE OF GA. THE PROPOSED BOARDWALK SHALL HAVE A 4'-0" (OR 48-INCHES) WIDE INSIDE-TO-INSIDE CLEAR WIDTH, 10-FT MINIMUM TURNING RADIUS, AND 15% MAXIMUM GRADE PER REFERENCED FOREST SERVICE HANDBOOK (FSH) 2309. 18 SECTION 23.22. THE PROPOSED BOARDWALK SHALL BE DESIGNED TO ACCOMMODATE A POINT LOAD OF 6 TONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE GOVT. WITH A 85% AND 100% DESIGN DELIVERABLE FOR C.O. APPROVAL PRIOR TO PURCHASING OF BOARDWALK MATERIALS AND BEFORE BOARDWALK CONSTRUCTION CAN COMMENCE. THE 85% DESIGN DELIVERABLE SHALL INCLUDE A 100% TOPOGRAPHIC SURVEY, 100% STRUCTURAL CALCULATIONS, AND 85% DESIGN PROGRESS. THE 100% DESIGN DELIVERABLE SHALL INCLUDE A 100% DESIGN WITH P.E. STAMPED/SEAL DRAWINGS FOR GOVERNMENT APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.

REFER TO SEPERATE DESIGN DRAWINGS

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 ESTIMATE OF QUANTITIES CONT. 6

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-112
DRAWN B. B.	
CHECKED W.L.H	SHEET 12 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8

ESTIMATE OF QUANTITIES CONT. 7

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.H	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTING OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
15702.F	SILT FENCE (INCLUDES INSTALLATION AND REMOVAL AFTER GOVT.'S FINAL ACCEPTANCE)	FOOT	100	BEFORE CONSTRUCTION CAN OCCUR, INCLUDES INSTALLATION OF SILT FENCES. ALSO INCLUDES REMOVAL OF SILT FENCING AFTER FINAL ACCEPTANCE OF PROJECT.
20302.B	REMOVAL OF 24' SPAN X 41" WIDE STEEL I-BEAM TRAIL BRIDGE, DISPOSAL METHOD LEGALLY OFF NATIONAL FORESTS LANDS	EA	1	INCLUDES REMOVAL OF EXISTING TRAIL BRIDGE IN ITS ENTIRETY INCLUDING SUBSTRUCTURE AND SUPERSTRUCTURE AND DISPOSING LEGALLY OFF NATIONAL FORESTS LANDS IN AN APPROVED LANDFILL
20431.F	TRAIL EMBANKMENT CONSTRUCTION, COMPACTION PLACEMENT METHOD, FP-14 SECTION 204.11(A)	CUYD	30	INCLUDES FURNISHING, PLACEMENT, CONSTRUCTION, AND COMPACTION OF TRAIL EMBANKMENT MATERIAL. INCLUDES USING ALL SUITABLE STRUCTURE EXCAVATION MATERIAL (APPRX.30 C.Y.) WHICH SHALL BE USED FOR TRAIL EMBANKMENT MATERIAL. CONTRACTOR SHALL PLACE EMBANKMENT MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS. CONSTRUCT TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204 AND COMPACT THE TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204.11(A) PAY ITEM ALSO INCLUDES IMPORTING APPROX. 7 TONS OF FOUNDATION FILL MATERIAL FROM COMMERCIAL SOURCE. SUBMITTAL REQUIRED.
20701.H	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1 NONWOVEN, TYPE A	SQYD	90	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE PROPOSED GROUND GRADE, AND TO PROVIDE SEPARATION BETWEEN THE GABION FOUNDATION AND BACKFILL.
20801.H	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	40	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. ALSO INCLUDES ALL GABIONS FOUNDATION FILL EXCAVATION.
25105.F	KEYED RIPRAP CLASS 4	TON	57	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1.
25302.F	GABIONS BASKET, WIRE TYPE 9' X 3' X 3' WELDED WIRE MESH (9 GAUGE) W / TIE WIRE, STIFFENERS, AND SPIRALS, COATING POLYVINYL CHLORIDE (PVC)	CUYD	8	INCLUDES FURNISHING, PLACEMENT, AND INSTALLATION OF THE GABIONS BASKETS.
30103.E	AGGREGATE BASE, GRADING 4" TO 8" DURABLE CLEAN ANGULAR ROCK (NO FINES), COMPACTION METHOD (MACHINE PLACE INSIDE GABION BASKETS)	CUYD	8	INCLUDES FURNISHING AND PLACING 4" TO 8" HARD, DURABLE, ANGULAR ROCK (CLEAN WITH NO FINES) FOR THE INSIDE OF THE GABIONS. CONTRACTOR SHALL NOT PLACE GABION MATERIAL BY METHODS THAT CAUSE SEGREGATION OR DAMAGE TO THE PREPARED SURFACE OR GABION BASKETS. PLACE OR REARRANGE INDIVIDUAL ROCKS BY MECHANICAL OR HAND PLACEMENT METHODS, TO OBTAIN A DENSE UNIFORM BLANKET WITH A REASONABLY SMOOTH SURFACE AND SECURED INFILL INTO THE GABIONS (DO NOT DAMAGE THE GABIONS).
30104.H	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	14	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS.
55702.G	STRUCTURAL TIMBER AND LUMBER, 4'-4 1/8" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	51	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
62503.G	SEEDING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)	SQYD	608	DRY METHOD. APPLY THE SEED WITH THE APPROVED POWER DRIVEN SEEDER, DRILLS, OR OTHER MECHANICAL EQUIPMENT. HAND-OPERATED SEEDING METHODS ARE SATISFACTORY ON AREAS INACCESSIBLE TO MECHANICAL EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
62506.G	MULCHING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT MULCH TRAIL WALKING SURFACE ITSELF)	SQYD	608	APPLY MULCH IN SEPARATE APPLICATION FROM THE SEEDING . APPLY WOOD FIBER OR GRASS STRAW CELLULOSE FIBER MULCH AT A RATE OF 1500 POUNDS PER ACRE. MULCH BY HAND AREAS INACCESSIBLE BY MULCHING EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 ESTIMATE OF QUANTITIES CONT. 7

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-113
DRAWN B. B.	
CHECKED W.L.H	SHEET 13 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

PANTHER CREEK TRAIL EMBANKMENT SLOPE FAILURE

ESTIMATE OF QUANTITIES CONT. 8

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.I	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE TRAIL EMBANKMENT FAILURE, TOE OF ROCK BUTTRESS, AND THE TRAIL FINISH GRADE STAKES. ALSO INCLUDES SETTING OFFSET AND REFERENCE STAKES OF THE ABOVE. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
20305.B	REMOVAL OF 74 CUBIC YARDS OF EXCESSIVE EXCAVATION MATERIAL, DISPOSAL METHOD HAUL AND TRANSPORT TO PANTHER CREEK TRAIL BRIDGES M.P. 2.1, AND M.P. 1.93	CUYD	2 74	INCLUDES REMOVAL OF ALL EXCESSIVE EXCAVATION MATERIAL FROM PROJECT SITE TO AN APPROVED LOCATION ALONG THE TRAIL.
20701.I	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1 NONWOVEN, TYPE A	SQYD	151	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE PROPOSED GROUND GRADE
20801.I	STRUCTURE EXCAVATION.	CUYD	74	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, INCLUDES EXCAVATION OF ROCK BUTTRESS, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM.
25105.G	KEYED RIPRAP CLASS 4	TON	271	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1.
30104.I	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2), COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	9	INCLUDES FURNISHING, PLACEMENT, AND COMPACTION OF 6" DEPTH AGGREATE BASE FOR FINISHED TRAIL SURFACE. REFER TO SUBSHEET S-123.
55601.B	TRAIL GUARDRAIL, TYPE TRAIL GUARDRAIL WITH TREATED STRUCTURAL LUMBER RAILING, NON-TREATED HANDRAILS, CONCRETE ENCASED TREATED WOOD POSTS, AND ALL FASTENERS	FOOT	45 2	INCLUDES FURNISHING, FABRICATION, ERECTION, INSTALLATION, AND CONSTRUCTION OF TRAIL GUARDRAIL WITH TREATED STRUCTURAL LUMBER RAILING, NON-TREATED HANDRAIL, CONCRETE ENCASED TREATED WOOD POSTS, AND ALL FASTENERS. REFER TO SUBSHEET S-123 FOR DETAILS

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

PANTHER CREEK TRAIL FILL SLOPE EMBANKMENT FAILURE ESTIMATE OF QUANTITIES CONT. 8

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-114
DRAWN B. B.	
CHECKED W.L.H	SHEET 14 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

PANTHER CREEK TRAIL BRIDGE , M.P. 2.1, M.P. 1.93

ESTIMATE OF QUANTITIES CONT. 9 2

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.J	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A (INCLUDES TRAIL BRIDGES AT M.P. 21, M.P. 1.93, AND M.P. 1.38)	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTING OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
15702.G	SILT FENCE (INCLUDES INSTALLATION AND REMOVAL AFTER GOVT.'S FINAL ACCEPTANCE)	FOOT	200	BEFORE CONSTRUCTION CAN OCCUR, INCLUDES INSTALLATION OF SILT FENCES. ALSO INCLUDES REMOVAL OF SILT FENCING AFTER FINAL ACCEPTANCE OF PROJECT.
20302.C	REMOVAL OF 23' SPAN X 32" WIDE WOODEN LOG TRAIL BRIDGE, DISPOSAL METHOD LEGALLY OFF NATIONAL FORESTS LANDS	EACH	1	INCLUDES REMOVAL OF EXISTING TRAIL BRIDGE IN ITS ENTIRETY INCLUDING SUBSTRUCTURE AND SUPERSTRUCTURE AND DISPOSING LEGALLY OFF NATIONAL FORESTS LANDS IN AN APPROVED LANDFILL
20302.D	REMOVAL OF 29' SPAN X 36" WIDE WOODEN LOG TRAIL BRIDGE, DISPOSAL METHOD LEGALLY OFF NATIONAL FORESTS LANDS	EACH	1	INCLUDES REMOVAL OF EXISTING TRAIL BRIDGE IN ITS ENTIRETY INCLUDING SUBSTRUCTURE AND SUPERSTRUCTURE AND DISPOSING LEGALLY OFF NATIONAL FORESTS LANDS IN AN APPROVED LANDFILL
20431.G	TRAIL EMBANKMENT CONSTRUCTION, COMPACTION PLACEMENT METHOD, FP-14 SECTION 204.11(A) (INCLUDES USING ALL STRUCTURE EXCAVATION MATERIAL FROM PAY ITEM 20801 .J AND ALSO INCLUDE IMPORTING APPROX. 68 CY OF AGGREGATE BASE FROM COMMERCIAL SOURCE TO CONSTRUCT TRAIL BRIDGE M.P. 2.10 & M.P. 1.93 EMBANKMENTS)	CUYD	2 294	INCLUDES FURNISHING, PLACEMENT, CONSTRUCTION, AND COMPACTION OF TRAIL EMBANKMENT MATERIAL. PAY ITEM ALSO INCLUDES IMPORTING APPOX. 68 CY OF AGGREGATE BASE FROM COMMERCIAL SOURCE TO CONSTRUCT TRAIL BRIDGE M.P. 2.10 & M.P. 1.93 EMBANKMENTS. CONTRACTOR SHALL PLACE EMBANKMENT MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS. CONSTRUCT TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204 AND COMPACT THE TRAIL EMBANKMENT TO THE REQUIREMENTS OF FP-14 SECTION 204.11(A).
20701.J	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1 NONWOVEN, TYPE A	SQYD	150	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE PROPOSED GROUND GRADE, GABION APPROACH, GABION FOUNDATION, AND FOUNDATION AND STEM WALL #57 STONE.
20801.J	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	79	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. ALSO INCLUDES ALL GABIONS FOUNDATION FILL EXCAVATION AND FOOTING EXCAVATION FOR RESPECTIVE SITES.
25105.H	KEYED RIPRAP CLASS 4:	TON	80	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1. FOR TRAIL BRIDGES RIPRAP ARMORING, PANTHER CREEK TRAIL BRIDGE M.P. 2.1 REQUIRES 154 TONS OF KEYED RIPRAP CLASS **4**, PANTHER CREEK TRAIL BRIDGE M.P. 1.93 REQUIRES 136 TONS, AND PANTHER CREEK TRAIL BRIDGE M.P. 1.38 REQUIRES 182 TONS. REFER TO SUBSHEET D-103 FOR RIPRAP ARMORING DETAIL.
25302.G	GABIONS BASKET, WIRE TYPE 12' X 3' X 3' WELDED WIRE MESH (9 GAUGE) W / TIE WIRE, STIFFENERS, AND SPIRALS, COATING POLYVINYL CHLORIDE (PVC)	CUYD	21	INCLUDES FURNISHING, PLACEMENT, AND INSTALLATION OF THE GABIONS BASKETS.
30103.F	AGGREGATE BASE, GRADING 4" TO 8" DURABLE CLEAN ANGULAR ROCK (NO FINES), COMPACTION METHOD (MACHINE PLACE INSIDE GABION BASKETS)	CUYD	21	INCLUDES FURNISHING AND PLACING 4" TO 8" HARD, DURABLE, ANGULAR ROCK (CLEAN WITH NO FINES) FOR THE INSIDE OF THE GABIONS. CONTRACTOR SHALL NOT PLACE GABION MATERIAL BY METHODS THAT CAUSE SEGREGATION OR DAMAGE TO THE PREPARED SURFACE OR GABION BASKETS. PLACE OR REARRANGE INDIVIDUAL ROCKS BY MECHANICAL OR HAND PLACEMENT METHODS, TO OBTAIN A DENSE UNIFORM BLANKET WITH A REASONABLY SMOOTH SURFACE AND SECURED INFILL INTO THE GABIONS (DO NOT DAMAGE THE GABIONS).
30104.J	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	26	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS. FOR TRAIL FINISH SURFACING, PANTHER CREEK TRAIL BRIDGE M.P. 2.1 REQUIRES 14 TONS OF AGGREGATE BASE GRADING **C**, PANTHER CREEK TRAIL BRIDGE M.P. 1.93 REQUIRES 18 TONS, AND PANTHER CREEK TRAIL BRIDGE M.P. 1.38 REQUIRES 23 TONS.
55702.H	STRUCTURAL TIMBER AND LUMBER, 6'-9 13/16" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	38	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
55702.I	STRUCTURAL TIMBER AND LUMBER, 6'-9 13/16" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	38	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
62503.H	SEEDING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)	SQYD	2862	DRY METHOD. APPLY THE SEED WITH THE APPROVED POWER DRIVEN SEEDER, DRILLS, OR OTHER MECHANICAL EQUIPMENT. HAND-OPERATED SEEDING METHODS ARE SATISFACTORY ON AREAS INACCESSIBLE TO MECHANICAL EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)
62506.H	MULCHING, DRY METHOD (REFER TO SUBSHEET D-111. DO NOT MULCH TRAIL WALKING SURFACE ITSELF)	SQYD	2862	APPLY MULCH IN SEPARATE APPLICATION FROM THE SEEDING . APPLY WOOD FIBER OR GRASS STRAW CELLULOSE FIBER MULCH AT A RATE OF 1500 POUNDS PER ACRE. MULCH BY HAND AREAS INACCESSIBLE BY MULCHING EQUIPMENT. SEE SECTION 625 TURF ESTABLISHMENT. (REFER TO SUBSHEET D-111. DO NOT SEED TRAIL WALKING SURFACE ITSELF)

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

PANTHER CREEK TRAIL BRIDGE , M.P. 2.1, M.P. 1.93 ESTIMATE OF QUANTITIES CONT. 9

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-115
DRAWN B. B.	
CHECKED W.L.H	SHEET 15 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)

USDA FOREST SERVICE - REGION 8

PANTHER CREEK TRAIL BRIDGE , M.P. 1.38

ESTIMATE OF QUANTITIES CONT. 10

PAY ITEM	DESCRIPTION	UNIT	QUANTITY	REMARKS
15201.J.1	CONSTRUCTION SURVEY AND STAKING, METHOD I, TOLERANCE, CLASS A (INCLUDES TRAIL BRIDGES AT M.P. 1.38)	LUMP SUM	1	INCLUDES CONSTRUCTION SURVEYING AND STAKING THE BEGINNING AND ENDING OF THE NEW TRAIL BRIDGE CENTERLINE TO CENTERLINE BEARING AND TOP OF SILLS GRADES. ALSO BOTTOM OF THE REINFORCED CONCRETE FOOTING OR GABION FOUNDATION AND TRAIL APPROACHES DAYLIGHT CATCHPOINTS. SURVEYOR SHALL ALSO PLACE REFERENCED AND OFFSETS STAKES OF THE ABOVE REQUIRED SURVEYING AND CONSTRUCTION STAKES. ALL CONSTRUCTION SURVEYING AND STAKING REQUIRE C.O. APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.
15702.G.1	SILT FENCE (INCLUDES INSTALLATION AND REMOVAL AFTER GOVT.'S FINAL ACCEPTANCE)	FOOT	100	BEFORE CONSTRUCTION CAN OCCUR, INCLUDES INSTALLATION OF SILT FENCES. ALSO INCLUDES REMOVAL OF SILT FENCING AFTER FINAL ACCEPTANCE OF PROJECT.
20701.J.1	EARTHWORK GEOSYNTHETICS, TYPE CLASS 1 NONWOVEN, TYPE A	SQYD	110	INCLUDES FURNISHING AND PLACEMENT OF GEOTEXTILE TO PROVIDE SEPARATION BETWEEN THE RIPRAP AND THE PROPOSED GROUND GRADE, GABION APPROACH, GABION FOUNDATION, AND FOUNDATION AND STEM WALL #57 STONE.
20801.J.1	STRUCTURE EXCAVATION, TYPE TRAIL BRIDGE FOUNDATION	CUYD	38	INCLUDES STRUCTURE EXCAVATION IN IT'S ENTIRETY. SHALL ALSO INCLUDES OSHA SAFETY REGULATIONS FOR "EXCAVATIONS" FOR SLOPING, BENCHING, STEPPING, SHORING AND BRACING, AND OTHER SAFETY FEATURES WHICH SHALL BE INCIDENTAL TO THIS PAY ITEM. ALSO INCLUDES ALL GABIONS FOUNDATION FILL EXCAVATION AND FOOTING EXCAVATION FOR RESPECTIVE SITES.
25105.H.1	KEYED RIPRAP CLASS 4:	TON	142	INCLUDES FURNISHING, PLACEMENT, AND KEYING IN RIPRAP. RIPRAP SHALL BE KEYED IN ACCORDANCE TO FP-14 SUBSECTION 251.04 AND 251.05. RIPRAP SPECIFIED CLASS AND GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 TABLE 705-1. FOR TRAIL BRIDGES RIPRAP ARMORING, PANTHER CREEK TRAIL BRIDGE M.P. 2.1 REQUIRES 154 TONS OF KEYED RIPRAP CLASS **4**, PANTHER CREEK TRAIL BRIDGE M.P. 1.93 REQUIRES 136 TONS, AND PANTHER CREEK TRAIL BRIDGE M.P. 1.38 REQUIRES 182 TONS. REFER TO SUBSHEET D-103 FOR RIPRAP ARMORING DETAIL.
30104.J.1	AGGREGATE BASE, GRADING C (FP-14 TABLE 703-2) COMPACTION METHOD FP-14 SECTION 204.11(a)(1)	TON	6	INCLUDES FURNISHING FROM AN APPROVED COMMERCIAL SOURCE. AGGREGATE COMPACTION SHALL BE DONE IN ACCORDANCE TO THE FP-14 SECTION 204.11(A)(1). ALL EXCESSIVE AGGREGATE MATERIAL SHALL BE PLACED, GRADED, AND COMPACTED AS APPOINTED BY THE C.O.. REFER TO THE FP-14 TABLE 703-2 FOR AGGREGATE BASE GRADING C GRADATION REQUIREMENTS. FOR TRAIL FINISH SURFACING, PANTHER CREEK TRAIL BRIDGE M.P. 2.1 REQUIRES 14 TONS OF AGGREGATE BASE GRADING **C**, PANTHER CREEK TRAIL BRIDGE M.P. 1.93 REQUIRES 18 TONS, AND PANTHER CREEK TRAIL BRIDGE M.P. 1.38 REQUIRES 23 TONS.
55201.E.1	STRUCTURAL CONCRETE, CLASS A(AE)	CUYD	18	[INCLUDES FURNISHING OF CONCRETE AND REINFORCEMENT AND ALL MISC MATERIALS AND LABOR. CONCRETE SHALL BE CLASS A WITH 4500 MINIMUM PSI STRENGTH. MIN. AIR CONTENT IS 4.0% AND MAX. AIR CONTENT IS 7.0%. [REFER TO DRAWINGS AND FP-14 TABLE 552-1 AND FP-14 TABLE 552-2] "ALL FURNISHING, INSTALLATION, AND PLACEMENT OF REINFORCEMENT SHALL BE INCIDENTAL TO THIS PAY ITEM.
55401.E.1	REINFORCING STEEL, #4.#5	POUND	2100	REINFORCED STEEL, EPOXY COATED: FURNISH BARS CONFORMING TO SUBSECTION 709.01(B) CONFORM TO ASTM A775 FOR CONCRETE ABUTMENT.
55702.J.1	STRUCTURAL TIMBER AND LUMBER, 6'-9 13/16" OUT-TO-OUT WIDTH GLULAM STRINGER TRAIL BRIDGE W/ DECK PLANKS, RUNNING PLANKS & HANDRAILS ON BOTH SIDES	FOOT	70	INCLUDES FURNISHING, AND ERECTION OF TRAIL BRIDGE'S SUPERSTRUCTURE IN ITS ENTIRETY. THIS SHALL INCLUDE ALL STRINGERS, DIAPHRAGMS, DECK, RUNNING PLANKS, HANDRAILS, HARDWARE, AND ALL ADDITIONAL APPARATUS IN ITS ENTIRETY.
8000	DESIGN-BUILD -- ELEVATED BOARDWALK FOR TRAIL BRIDGE M.P. 1.38 -- INCLUDES BOTH SIDES OF TRAIL BRIDGE DESIGN & CONSTRUCTION	LUMP SUM	1	INCLUDES CONTRACTOR DESIGNING AND CONSTRUCTING AN ELEVATED BOARDWALK. THE 100% BOARDWALK DESIGN DELIVERABLE SHALL BE STAMPED/SEAL BY A P.E. ENGINEER LICENSED IN THE STATE OF GA. THE PROPOSED BOARDWALK SHALL BE DESIGNED AND CONSTRUCTED TO THE DESIGN PARAMETERS OF AN ALL-TERRAIN VEHICLE (ATV) IN WHICH THE BOARDWALK SHALL HAVE A 5'-0" (OR 60-INCHES) WIDE INSIDE-TO-INSIDE CLEAR WIDTH, 10-FT MINIMUM TURNING RADIUS, AND 15% MAXIMUM GRADE PER REFERENCED FOREST SERVICE HANDBOOK (FSH) 2309.18 SECTION 23.22. THE PROPOSED BOARDWALK SHALL BE DESIGNED TO ACCOMMODATE A POINT LOAD OF 6 TONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE GOVT. WITH A 85% AND 100% DESIGN DELIVERABLE FOR CO APPROVAL PRIOR TO PURCHASING OF BOARDWALK MATERIALS AND BEFORE BOARDWALK CONSTRUCTION CAN COMMENCE. THE 85% DESIGN DELIVERABLE SHALL INCLUDE A 100% TOPOGRAPHIC SURVEY, 100% STRUCTURAL CALCULATIONS, AND 85% DESIGN PROGRESS. THE 100% DESIGN DELIVERABLE SHALL INCLUDE A 100% DESIGN WITH P.E. STAMPED/SEAL DRAWINGS FOR GOVERNMENT APPROVAL BEFORE CONSTRUCTION CAN COMMENCE.

2

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

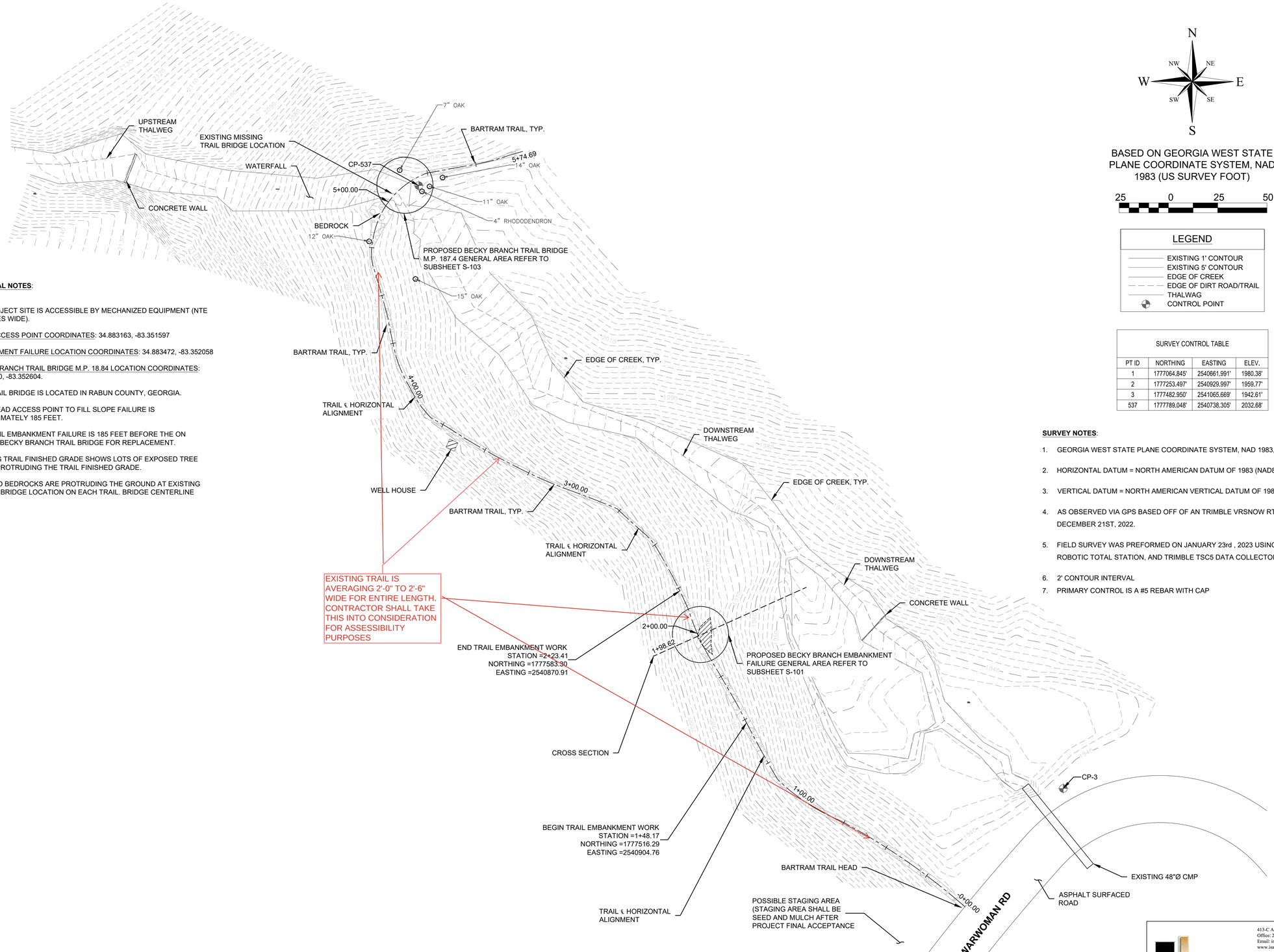
PANTHER CREEK TRAIL BRIDGE , M.P. 1.38 ESTIMATE OF QUANTITIES CONT.10

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com

ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. G-116
DRAWN B. B.	
CHECKED W.L.H	SHEET 16 OF 59
PROJECT NO.	

AeccDbFace (AeccLand130)



OVERALL SITE PLAN

PLAN VIEW

SITE GENERAL NOTES:

1. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 36-INCHES WIDE).
2. TRAIL ACCESS POINT COORDINATES: 34.883163, -83.351597
3. EMBANKMENT FAILURE LOCATION COORDINATES: 34.883472, -83.352058
4. BECKY BRANCH TRAIL BRIDGE M.P. 18.84 LOCATION COORDINATES: 34.884110, -83.352604.
5. THIS TRAIL BRIDGE IS LOCATED IN RABUN COUNTY, GEORGIA.
6. TRAIL HEAD ACCESS POINT TO FILL SLOPE FAILURE IS APPROXIMATELY 185 FEET.
7. THE TRAIL EMBANKMENT FAILURE IS 185 FEET BEFORE THE ON COMING BECKY BRANCH TRAIL BRIDGE FOR REPLACEMENT.
8. EXISTING TRAIL FINISHED GRADE SHOWS LOTS OF EXPOSED TREE ROOTS PROTRUDING THE TRAIL FINISHED GRADE.
9. EXPOSED BEDROCKS ARE PROTRUDING THE GROUND AT EXISTING MISSING BRIDGE LOCATION ON EACH TRAIL. BRIDGE CENTERLINE BENT.

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

25 0 25 50

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
1	1777064.845'	2540661.991'	1980.38'
2	1777253.497'	2540929.997'	1959.77'
3	1777482.950'	2541065.669'	1942.61'
537	1777789.048'	2540738.305'	2032.68'

SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83)
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
4. AS OBSERVED VIA GPS BASED OFF OF AN TRIMBLE VRSNOW RTK SOLUTION, DECEMBER 21ST, 2022.
5. FIELD SURVEY WAS PREFORMED ON JANUARY 23rd , 2023 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR
6. 2' CONTOUR INTERVAL
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne
2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

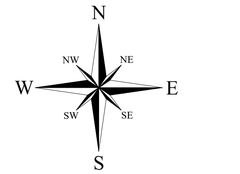
PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

BECKY BRANCH EMBANKMENT FAILURE AND BECKY BRANCH TRAIL BRIDGE M.P. 18.4 OVERALL SITE PLAN

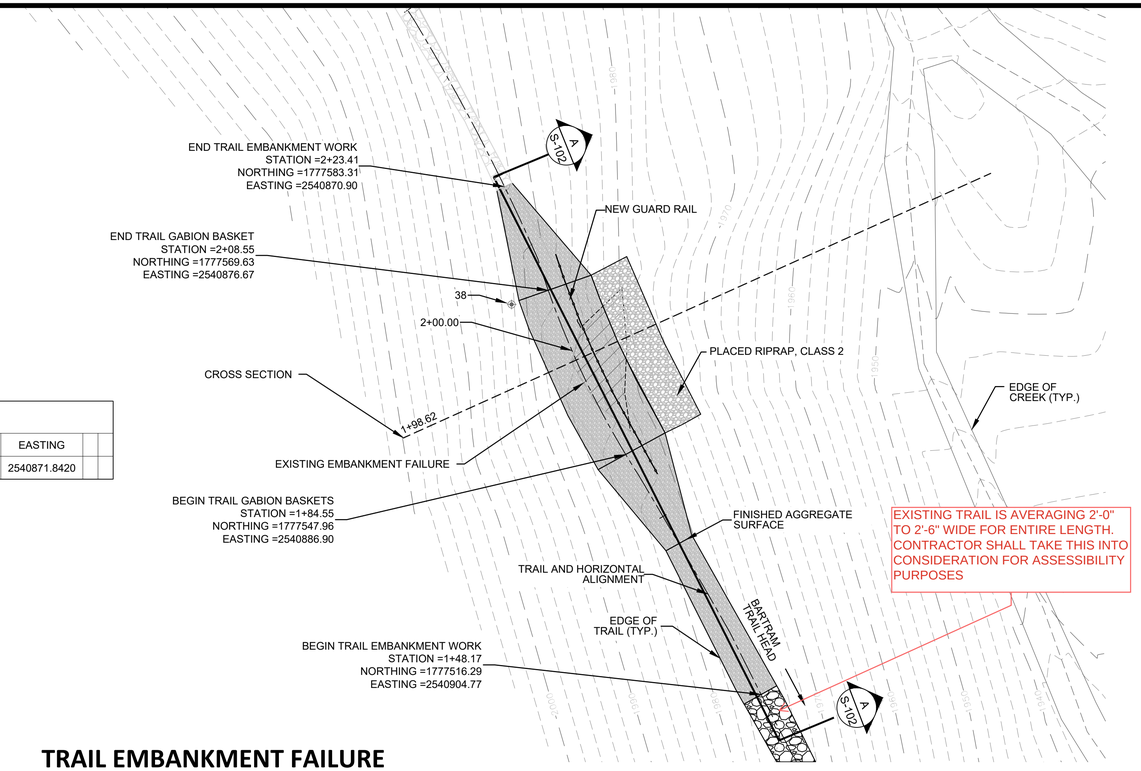
DATE 5-2-2023
ARCHIVE NO.
DESIGNER N. R.E.
DRAWN B. B.
CHECKED W.L.H
PROJECT NO.
DRAWING SHEET NO. **S-100**
SHEET 17 OF 59



BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

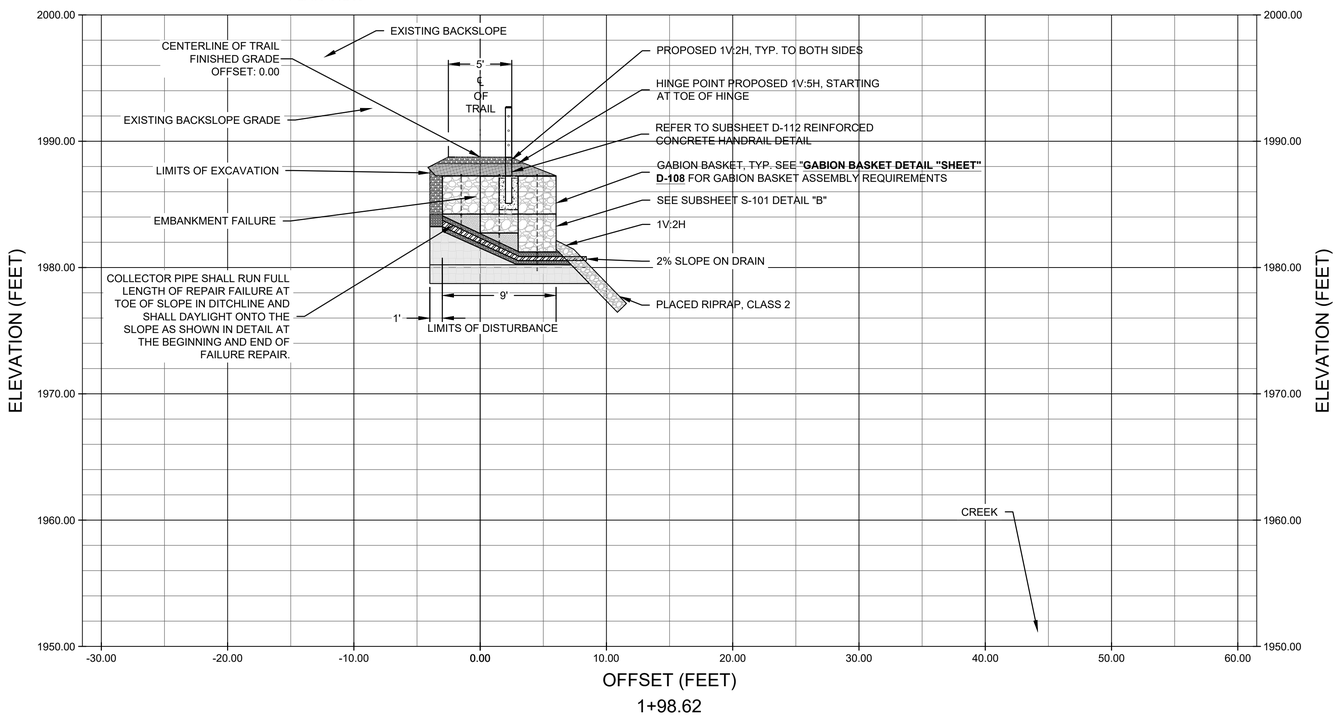
10 0 10 20

BORING					
POINT NO.	DESCRIPTION	ELEVATION	NORTHING	EASTING	
38	EMBANKMENT FAILURE	1992.417	1777567.7590	2540871.8420	



TRAIL EMBANKMENT FAILURE

PLAN VIEW



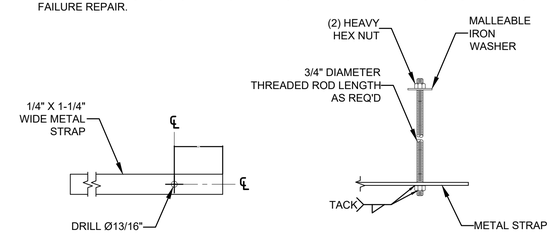
1+98.62

TRAIL EMBANKMENT FAILURE CROSS SECTION

SCALE 1:6

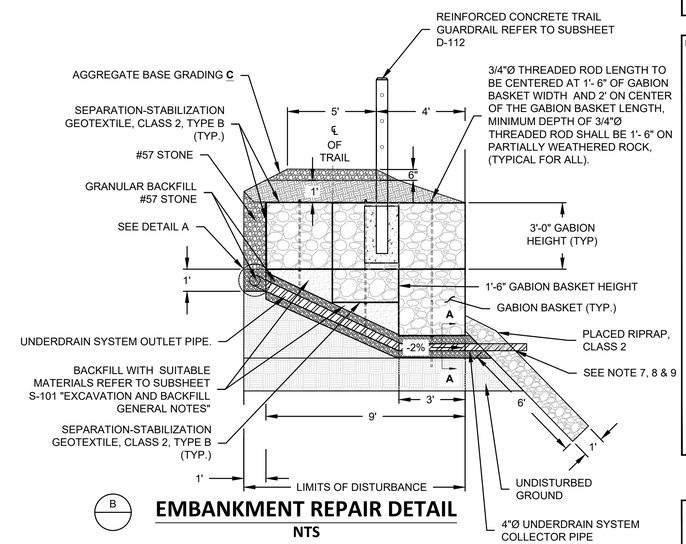
EXCAVATION AND BACKFILL GENERAL NOTES:

1. EXCAVATE FOUNDATION GRADE ACCORDING TO FP-14 SUBSECTION 208.03 EXCAVATE TO FOUNDATION GRADE WITHOUT DISTURBING THE FOUNDATION SURFACE. FOUNDATION GRADE IS THE ELEVATION AT THE BOTTOM OF THE BEDDING FOR INSTALLING THE GABION STRUCTURES.
2. PLACE BACKFILL LAYERS EVENLY ON ALL SIDES OF THE GABION STRUCTURES. EXTEND EACH LAYER TO THE LIMITS OF THE EXCAVATION OR NATURAL GROUND.
3. PLACE BACKFILL MATERIAL IN COMPACTED LAYERS NOT EXCEEDING 6 INCHES IN DEPTH. COMPACT EACH 6 INCH LAYER ACCORDING TO FP-14 SUBSECTION 209.10.
4. ALL BACKFILL MATERIAL SHALL BE SUITABLE MATERIAL FREE OF ORGANIC MATTER, MUCK, FROZEN LUMPS, ROOTS, SOD, OR OTHER DELETERIOUS MATERIAL.
5. REFER TO FP-14 SECTION 704.03 FOR SUITABLE BACKFILL GRADATION REQUIREMENTS.
6. IF CONTRACTOR ENCOUNTERS NON-SUITABLE MATERIAL. THEN THE CONTRACTOR SHALL IMPORT SUITABLE BACKFILL MATERIAL WHICH SHALL BE INCIDENTAL TO THEIR PROPOSAL.
7. COVER THE END OF THE OUTLET PIPE WITH SCREEN ACCORDING TO FP-14 SUBSECTION 605.03. HOLD THE SCREEN SECURELY IN PLACE WITH STANDARD COUPLING BANDS OR BY OTHER APPROVED MEANS WITH SECURING SCREWS.
8. PLACE THE UNDERDRAIN SYSTEM PIPES A MINIMUM OF 4-INCHES AWAY FROM ALL SURFACES.
9. COLLECTOR PIPE SHALL RUN FULL LENGTH OF REPAIR FAILURE AT TOE OF SLOPE IN DITCHLINE AND SHALL DAYLIGHT ONTO THE SLOPE AS SHOWN IN DETAIL AT THE BEGINNING AND END OF FAILURE REPAIR.



GABION BASKET ANCHOR BOLT AND STRAP DETAIL

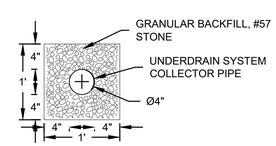
NTS



B

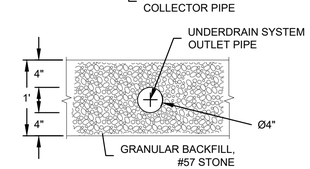
EMBANKMENT REPAIR DETAIL

NTS



DETAIL A

COLLECTOR PIPE



SECTION A-A

OUTLET PIPE

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

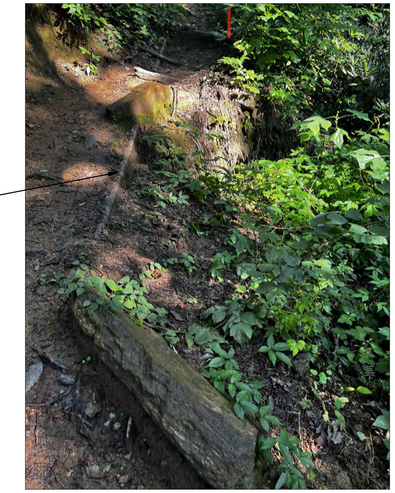
BECKY BRANCH EMBANKMENT FAILURE

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-101
DRAWN B. B.	
CHECKED W.L.H	SHEET 18 OF 59
PROJECT NO.	

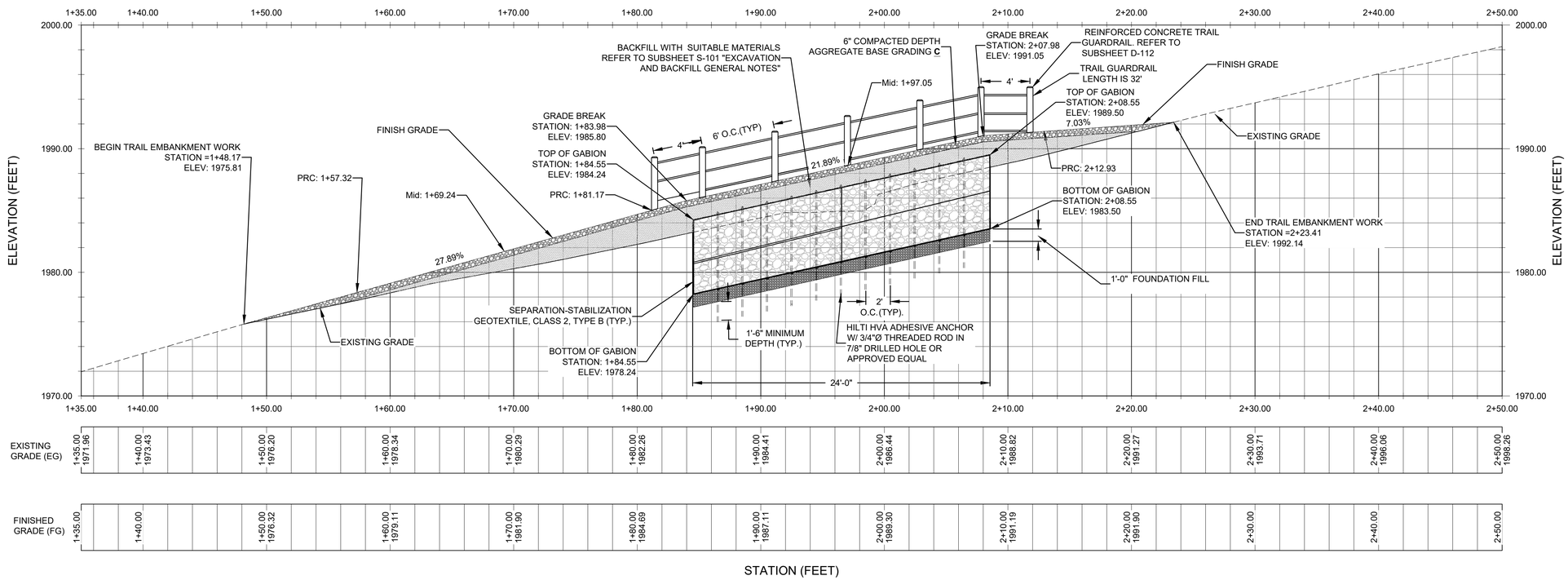
EXISTING PIPE NOTE:

1. THE CONTRACTOR SHALL FIRST NOTIFY AND CONTACT "**GEORGIA 811**" PRIOR TO COMMENCING ON ANY EXCAVATION ACTIVITIES IN REGARD TO THE BECKY BRANCH EMBANKMENT FAILURE. THE CONTRACTOR SHALL BE RESPONSBILE FOR PROVIDING ALL MOBILIZATION, DE-MOBILIZATION, SUPERVISION, LABOR, AND MATERIALS TO DISCONNECT, CAP, REMOVE SEGMENT IN WORK ZONE AREA, AND RECONNECTING DIP SEGMENT IN WORK ZONE AREA WITH NEW MATERIALS WETHER THE EXISTING DIP IS IN SERVICE OR NOT IN SERVICE. ALL WORK SHALL BE INCIDENTAL TO CONTRACTOR'S PROPOSAL, NO EXCEPTION.

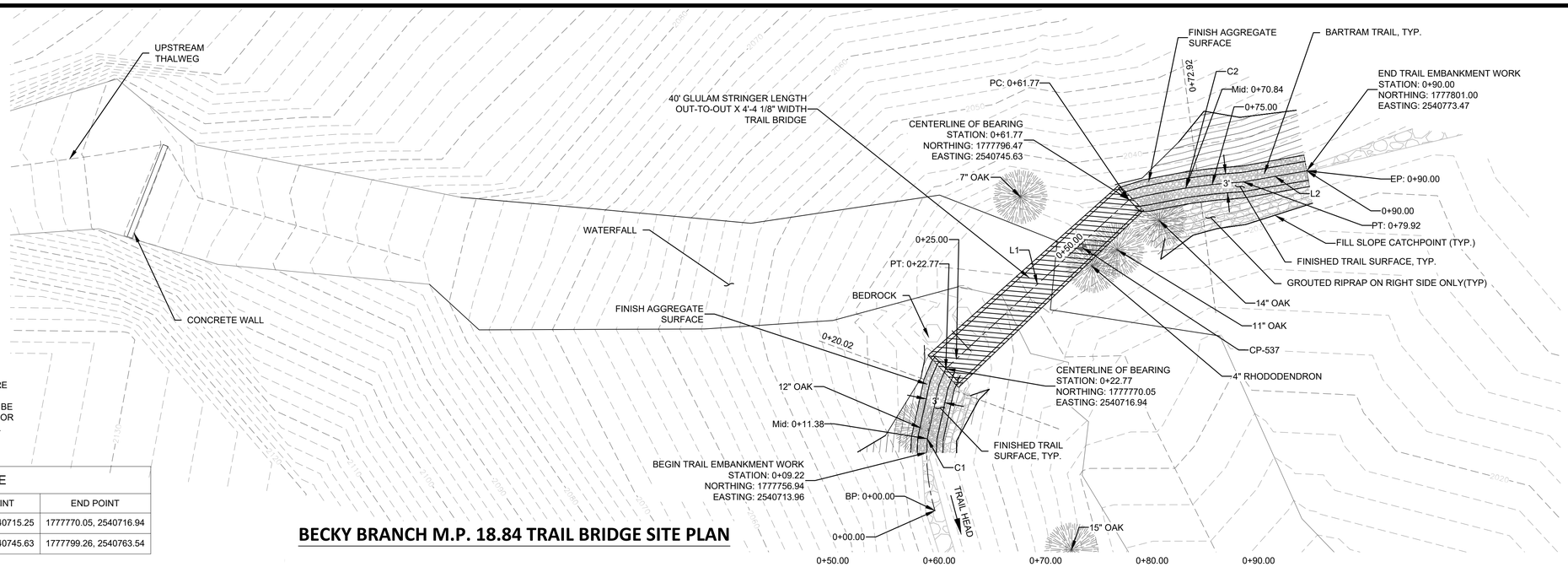
EXISTING DUCTILE IRON PIPE (DIP). FIELD VERIFICATION REQUIRED FOR DIAMETER AND CLOSETS SHUTOFF VALVE. REFER TO NOTE 1 ABOVE FOR ALL REQUIREMENTS



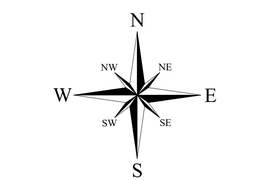
UTILITIES PROTECTION CENTER
GEORGIA811
www.Georgia811.com
Know what's below. Call before you dig.
THREE WORKING DAYS BEFORE YOU DIG
(GEORGIA - 1-800-282-7411)



| | | |



BECKY BRANCH M.P. 18.84 TRAIL BRIDGE SITE PLAN



BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

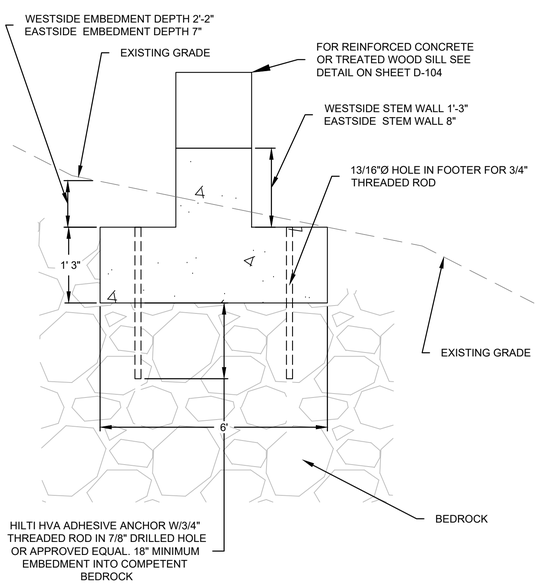
10' 0' 10' 20'

SITE GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.

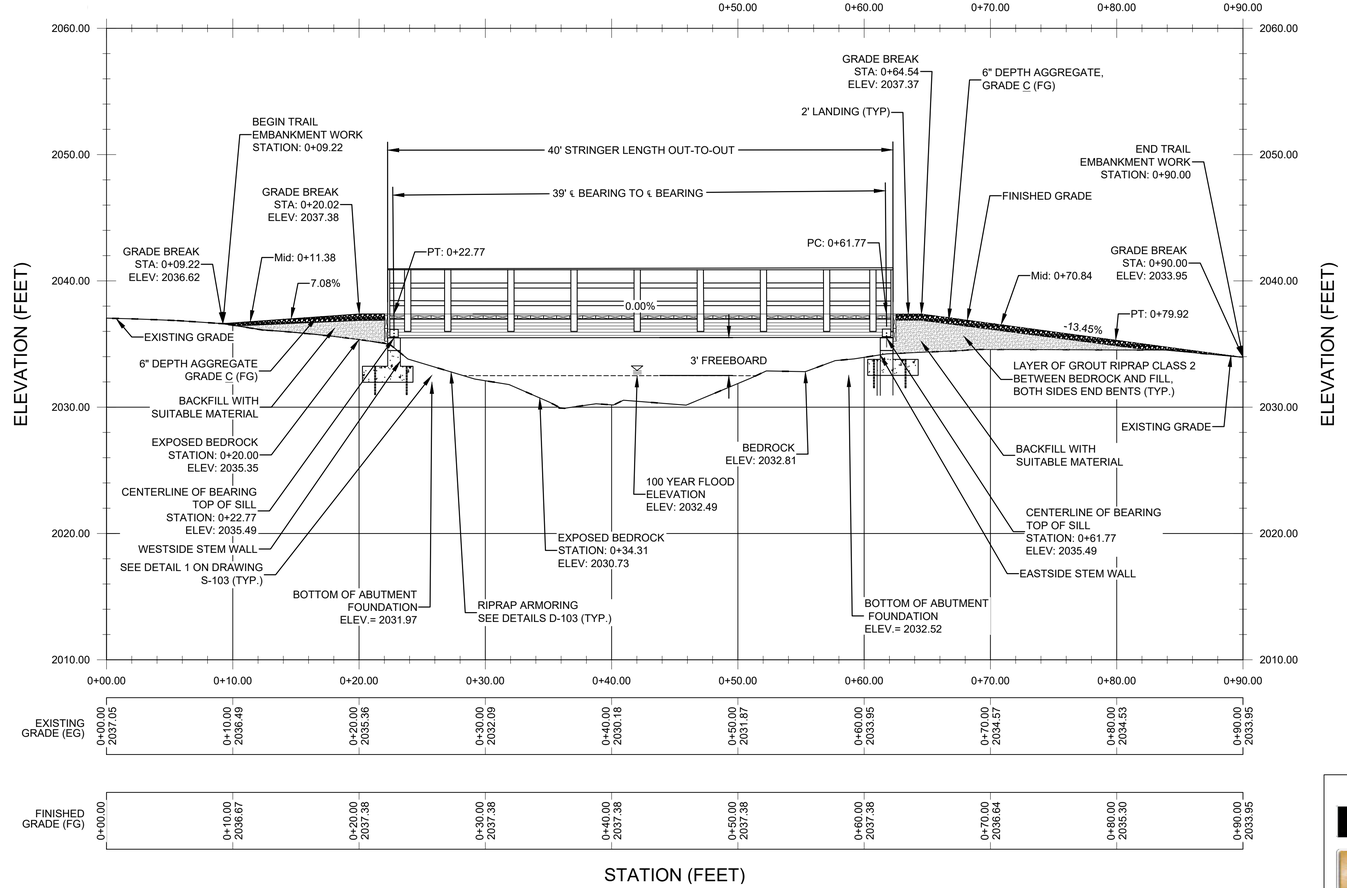
CURVE TABLE				
CURVE NO.	RADIUS	LENGTH	START POINT	END POINT
C1	31.28'	22.77'	1777747.85, 2540715.25	1777770.05, 2540716.94
C2	91.93'	18.15'	1777796.47, 2540745.63	1777799.26, 2540763.54

LINE TABLE			
LINE NO.	LENGTH	START POINT	END POINT
L1	39.00'	1777770.05, 2540716.94	1777796.47, 2540745.63
L2	10.09'	1777799.26, 2540763.54	1777801.00, 2540773.47



DETAIL 1

NTS



EXISTING GRADE (EG)									
0+00.00	0+10.00	0+20.00	0+30.00	0+40.00	0+50.00	0+60.00	0+70.00	0+80.00	0+90.00
2037.05	2036.49	2035.36	2032.09	2030.18	2031.87	2033.95	2034.57	2034.53	2033.95

FINISHED GRADE (FG)									
0+00.00	0+10.00	0+20.00	0+30.00	0+40.00	0+50.00	0+60.00	0+70.00	0+80.00	0+90.00
	2036.67	2037.38	2037.38	2037.38	2037.38	2037.38	2036.64	2036.30	2033.95

BECKY BRANCH M.P. 18.84 TRAIL BRIDGE VERTICAL PROFILE

SCALE 1:6

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

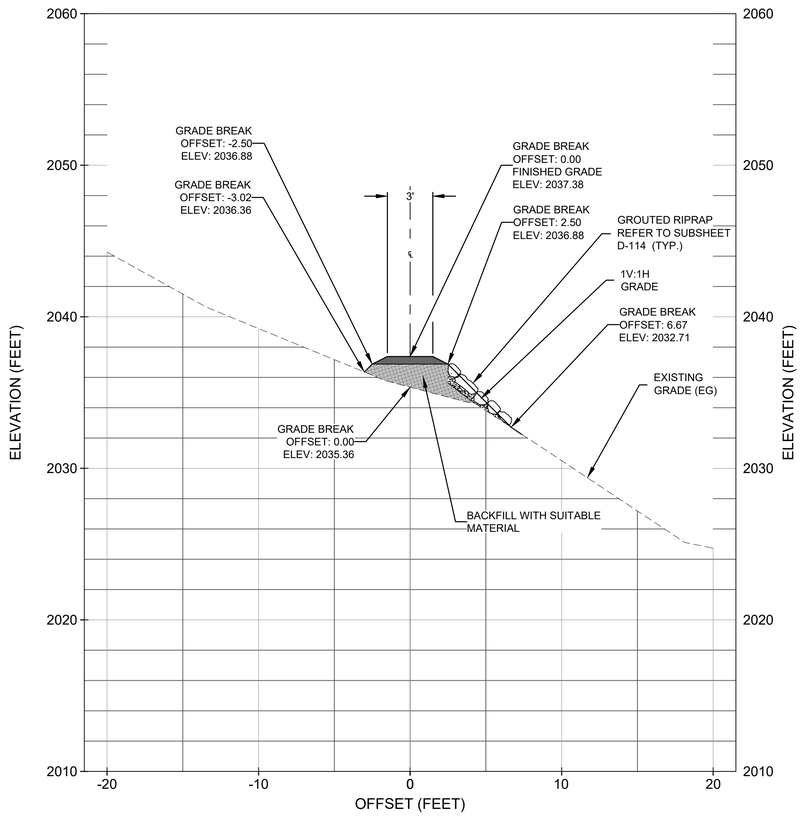
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

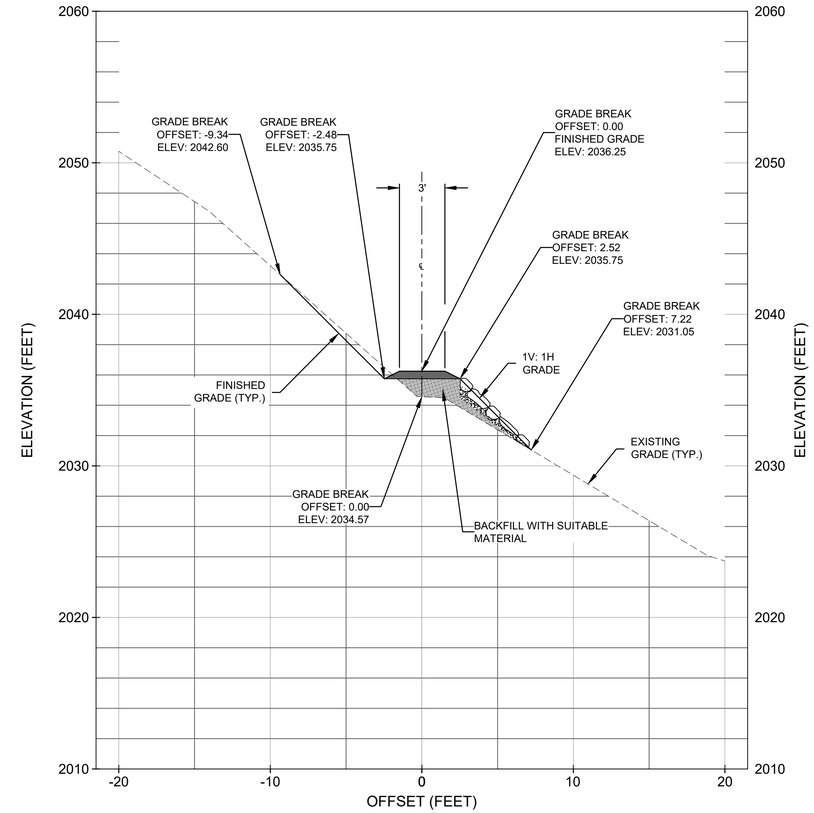
BECKY BRANCH TRAIL BRIDGE M.P. 18.84 SITE PLAN AND VERTICAL PROFILE

ISAIAH ENGINEERING
Building The Future
413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com

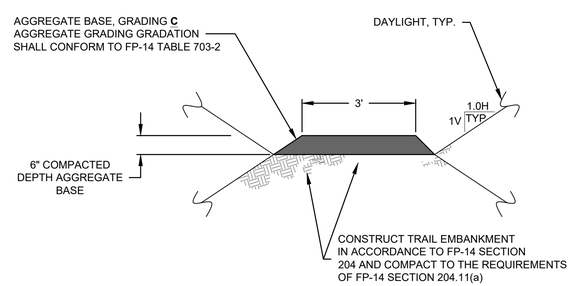
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-103
DRAWN B. B.	
CHECKED W.L.H	SHEET 20 OF 59
PROJECT NO.	



STATION: 0+20.02



STATION: 0+72.92



BECKY BRANCH TRAIL BRIDGE APPROACH TYPICAL TRAIL SECTION

NTS

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

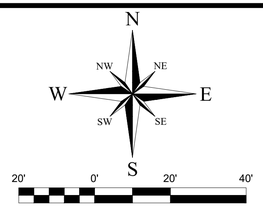
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

BECKY BRANCH TRAIL BRIDGE M.P. 18.84 APPROACH CROSS SECTIONS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-104
DRAWN B. B.	
CHECKED W.L.H	SHEET 21 OF 59
PROJECT NO.	



SITE GENERAL NOTES:

1. THE PROJECT SITE IS MISSING THE EXISTING TRAIL BRIDGE.
2. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 60-INCHES WIDE).
3. THERE ARE LOCATIONS WHERE THE CONTRACTOR SHALL DRIVE AROUND EXISTING LARGE TREES TO MITIGATE DAMAGE TO EXISTING TREES WITH MECHANIZED EQUIPMENT. ADDITIONALLY, THOSE AREAS SHALL BE SEED AND MULCHED BEFORE GOVT. FINAL ACCEPTANCE. ADDITIONALLY, THOSE AREAS SHALL BE SEEDED AND MULCHED BEFORE GOVT. FINAL ACCEPTANCE.
4. TRAIL ACCESS POINT COORDINATES: 34.866696, -83.252209
5. TRAIL BRIDGE LOCATION COORDINATES: 34.868819, -83.247031
6. THE CONTRACTOR SHALL CUT THE EXISTING FALLEN TREES INTO A MINIMUM OF 3-FEET INCREMENTS. THE CONTRACTOR SHALL ALSO DECK THE CUT LOGS AND DISCARD THE TREE'S ROOTWAD ON PROJECT SITE A MINIMUM OF 50-FEET AWAY FROM CREEK BANKS IN AN APPROVED LOCATION AS DIRECTED BY THE C.O.
7. THE CONTRACTOR SHALL BE REQUIRED TO REMOVE BOULDERS AT TRAIL HEAD TO ACCESS THE TRAIL. AFTER GOVERNMENTS ACCEPTANCE OF PROJECT SITE , THE CONTRACTOR SHALL RESET BOULDERS AT TRAIL HEAD. WORK SHALL BE INCIDENTAL TO CONTRACTORS PROPOSAL.
8. PLACE GEOTEXTILE TYPE IV-B PER FP-03 TABLE 714-4. INCLUDE IN PAY ITEM 25313. PLACE FROM BOTTOM GABION ELEV. TO TOP OF THE FINISH DECK AND TO FULL WIDTH OF GABIONS, (TYP).
9. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
1	1772406.062'	2572325.204'	1504.98'
2	1772473.858'	2572451.098'	1503.87'
251	1772517.576	2572402.355'	1506.85'
286	1772460.254'	2572533.733'	1504.30'
355	1772599.555'	2572476.307'	1505.88'
385	1772496.947'	2572323.011'	1505.51'
493	1772533.315'	2572544.053'	1503.89'
525	1772445.704'	2572589.190'	1506.73'

CURVE TABLE

CURVE NO.	RADIUS	LENGTH	START POINT	END POINT
C1	15.23'	21.61'	1772438.15, 2572408.07	1772442.99, 2572427.31
C2	7.03'	8.33'	1772442.99, 2572427.31	1772450.72, 2572428.66
C3	16.49'	34.59'	1772507.48, 2572406.07	1772526.78, 2572427.16
C4	19.25'	37.29'	1772526.78, 2572427.16	1772547.26, 2572451.39

LINE TABLE

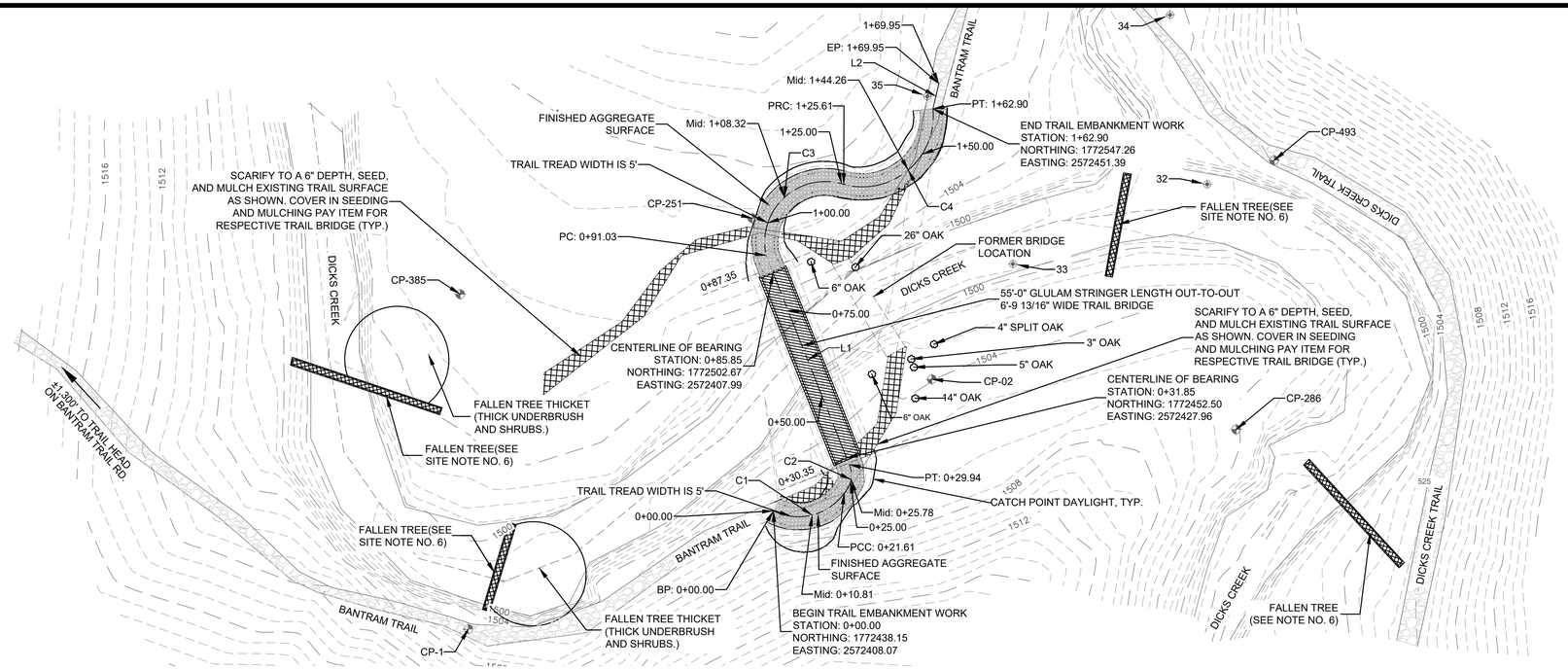
LINE NO.	LENGTH	START POINT	END POINT
L1	61.09'	1772450.72, 2572428.66	1772507.48, 2572406.07
L2	7.05'	1772547.26, 2572451.39	1772554.13, 2572452.98

BORINGS

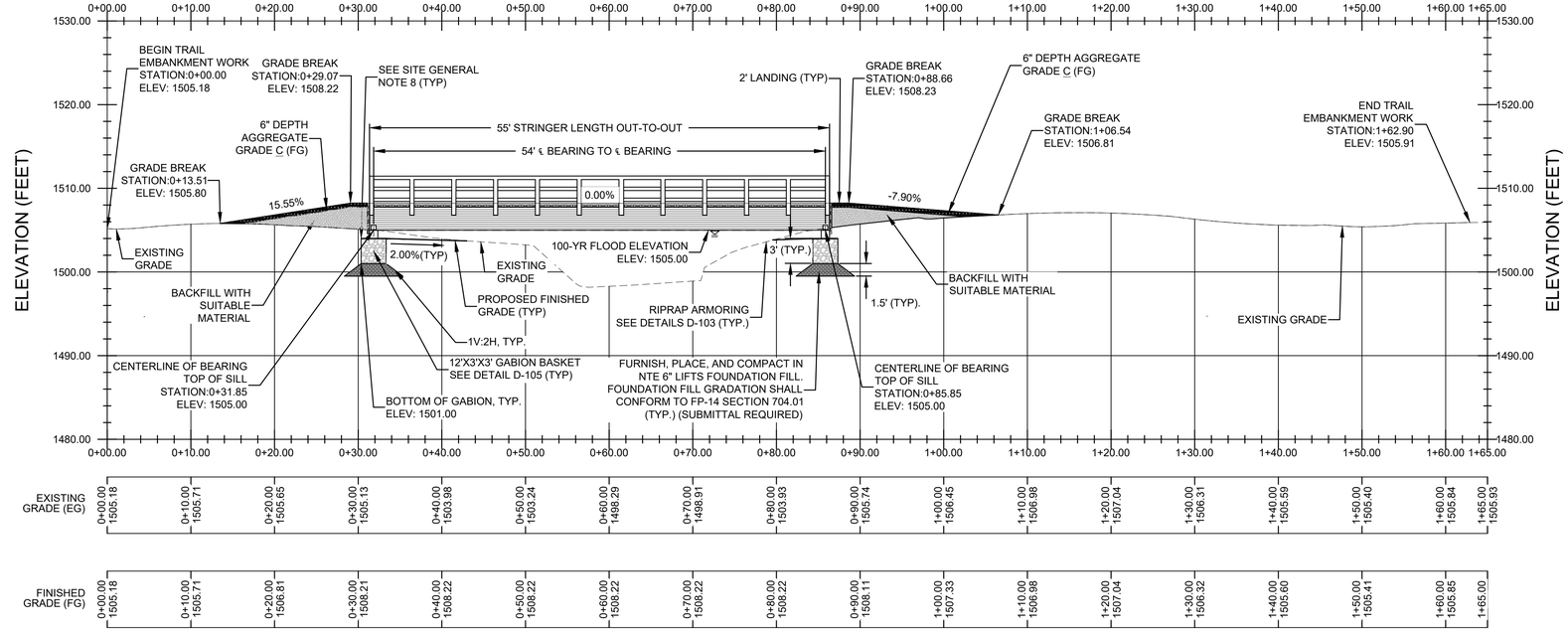
POINT NO.	DESCRIPTION	ELEVATION (FEET)	NORTHING	EASTING
32	EAST#1	1497.60	1772526.80	2572525.87
33	WEST #1	1498.81	1772505.17	2572473.10
34	EAST #2	1503.41	1772572.78	2572515.79
35	WEST#2	1506.05	1772550.64	2572449.90

SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET.
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83)
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
4. AS OBSERVED VIA GPS BASED OFF OF AN TRIMBLE VRSNOW RTK SOLUTION, JANUARY 5TH, 2023.
5. FIELD SURVEY WAS PREFORMED ON JANUARY 9TH , 2023 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR
6. 2' CONTOUR INTERVAL
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP



DICKS CREEK TRAIL BRIDGE M.P. 9.25 SITE PLAN



DICKS CREEK TRAIL BRIDGE M.P. 9.25 VERTICAL PROFILE

SCALE: 1:9

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2023 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

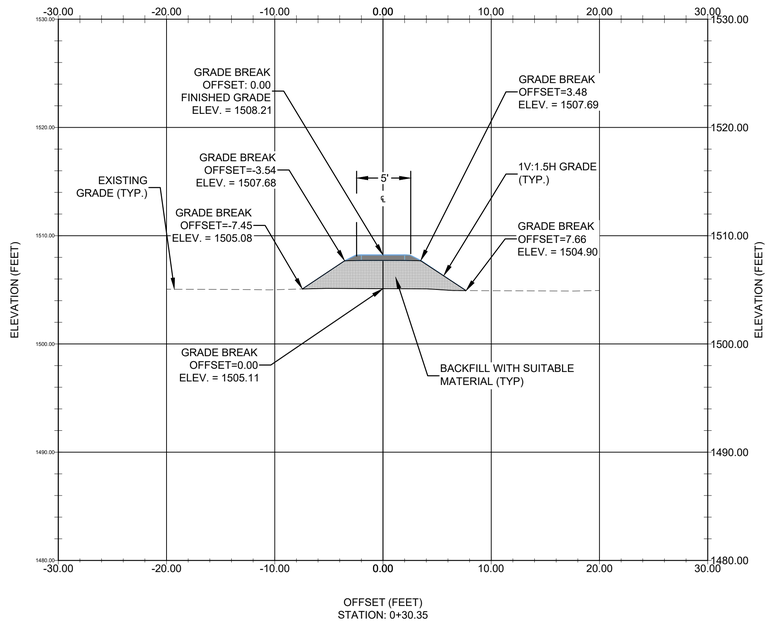
PROJECT NAME

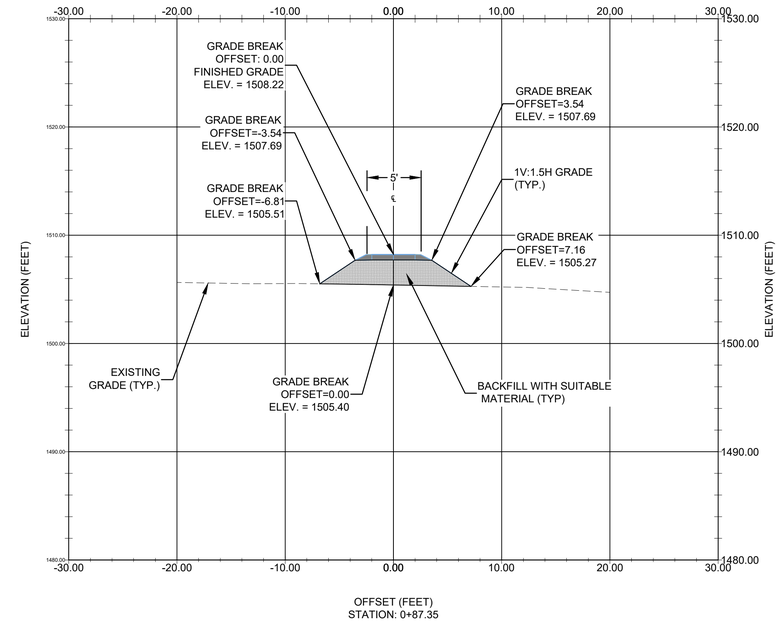
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

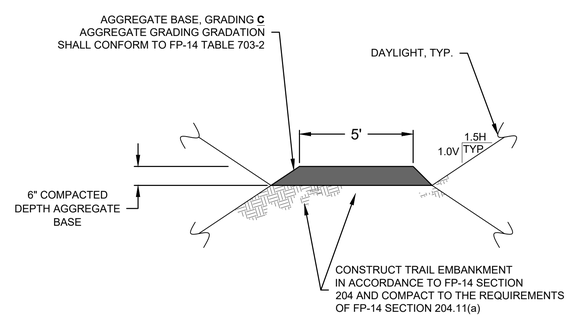
DRAWING TITLE

DICKS CREEK TRAIL BRIDGE M.P. 9.25 SITE PLAN AND VERTICAL PROFILE

DATE: 5-2-2023
ARCHIVE NO.
DESIGNER: N. R.E.
DRAWN: B. B.
CHECKED: W.L.H
PROJECT NO.
DRAWING SHEET NO.: S-105
SHEET: 22 OF 59







DICKS CREEK TRAIL BRIDGE M.P. 9.25 APPROACH TRAIL SECTION

NTS

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

DICKS CREEK TRAIL BRIDGE M.P. 9.25 APPROACH CROSS SECTION

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-106
DRAWN B. B.	
CHECKED W.L.H	SHEET 23 OF 59
PROJECT NO.	

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

25' 0' 25' 50'

LEGEND

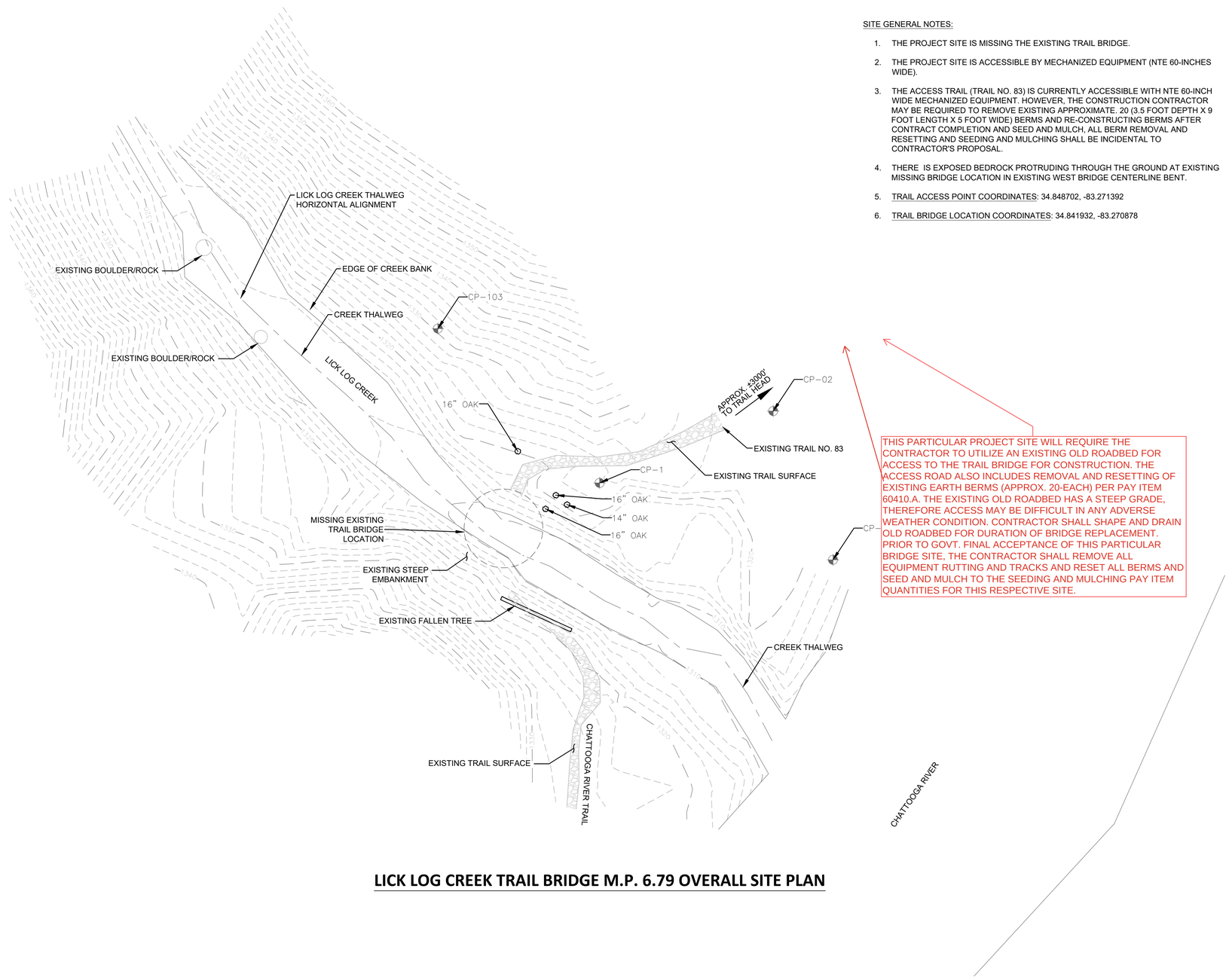
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
1	1762656.679'	2565409.652'	1323.32'
2	1762688.148'	2565485.643'	1323.05'
102	1762622.994'	2565511.839'	1317.91'
103	1762724.260'	2565338.807'	1331.49'

SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET.
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83).
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. AS OBSERVED VIA GPS BASED OFF OF AN TRIMBLE VRSNOW RTK SOLUTION, DECEMBER 21ST, 2022.
5. FIELD SURVEY WAS PREFORMED ON JANUARY 16TH , 2023 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 2 CONTOUR INTERVAL.
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.



SITE GENERAL NOTES:

1. THE PROJECT SITE IS MISSING THE EXISTING TRAIL BRIDGE.
2. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 60-INCHES WIDE).
3. THE ACCESS TRAIL (TRAIL NO. 83) IS CURRENTLY ACCESSIBLE WITH NTE 60-INCH WIDE MECHANIZED EQUIPMENT. HOWEVER, THE CONSTRUCTION CONTRACTOR MAY BE REQUIRED TO REMOVE EXISTING APPROXIMATE. 20 (3.5 FOOT DEPTH X 9 FOOT LENGTH X 5 FOOT WIDE) BERMS AND RE-CONSTRUCTING BERMS AFTER CONTRACT COMPLETION AND SEED AND MULCH, ALL BERM REMOVAL AND RESETTING AND SEEDING AND MULCHING SHALL BE INCIDENTAL TO CONTRACTOR'S PROPOSAL.
4. THERE IS EXPOSED BEDROCK PROTRUDING THROUGH THE GROUND AT EXISTING MISSING BRIDGE LOCATION IN EXISTING WEST BRIDGE CENTERLINE BENT.
5. TRAIL ACCESS POINT COORDINATES: 34.848702, -83.271392
6. TRAIL BRIDGE LOCATION COORDINATES: 34.841932, -83.270878

THIS PARTICULAR PROJECT SITE WILL REQUIRE THE CONTRACTOR TO UTILIZE AN EXISTING OLD ROADBED FOR ACCESS TO THE TRAIL BRIDGE FOR CONSTRUCTION. THE ACCESS ROAD ALSO INCLUDES REMOVAL AND RESETTING OF EXISTING EARTH BERMS (APPROX. 20-EACH) PER PAY ITEM 60410.A. THE EXISTING OLD ROADBED HAS A STEEP GRADE, THEREFORE ACCESS MAY BE DIFFICULT IN ANY ADVERSE WEATHER CONDITION. CONTRACTOR SHALL SHAPE AND DRAIN OLD ROADBED FOR DURATION OF BRIDGE REPLACEMENT. PRIOR TO GOVT. FINAL ACCEPTANCE OF THIS PARTICULAR BRIDGE SITE, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT RUTTING AND TRACKS AND RESET ALL BERMS AND SEED AND MULCH TO THE SEEDING AND MULCHING PAY ITEM QUANTITIES FOR THIS RESPECTIVE SITE.

LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 OVERALL SITE PLAN

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 OVERALL SITE PLAN

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-107
DRAWN B. B.	
CHECKED W.L.H	SHEET 24 OF 59
PROJECT NO.	

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

20' 0' 20' 40'

SITE GENERAL NOTES:

1. THERE IS EXPOSED BEDROCK PROTRUDING THROUGH THE GROUND AT EXISTING MISSING BRIDGE LOCATION IN EXISTING WEST BRIDGE CENTERLINE BENT.
2. THE CONTRACTOR SHALL CUT THE EXISTING FALLEN TREE INTO A MINIMUM OF 3-FEET INCREMENTS. THE CONTRACTOR SHALL ALSO DECK THE CUT LOGS AND DISCARD THE TREE'S ROOTWAD ON PROJECT SITE A MINIMUM OF 50-FEET AWAY FROM CREEK BANKS IN AN APPROVED LOCATION AS DIRECTED BY THE C.O.
3. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.
4. IF CONTRACTOR DOESN'T ACCOUNT BEDROCK THEN THE TOP OF FOOTING DEPTH APPROX. 3' FEET BELOW EXISITING GROUND SURFACE.

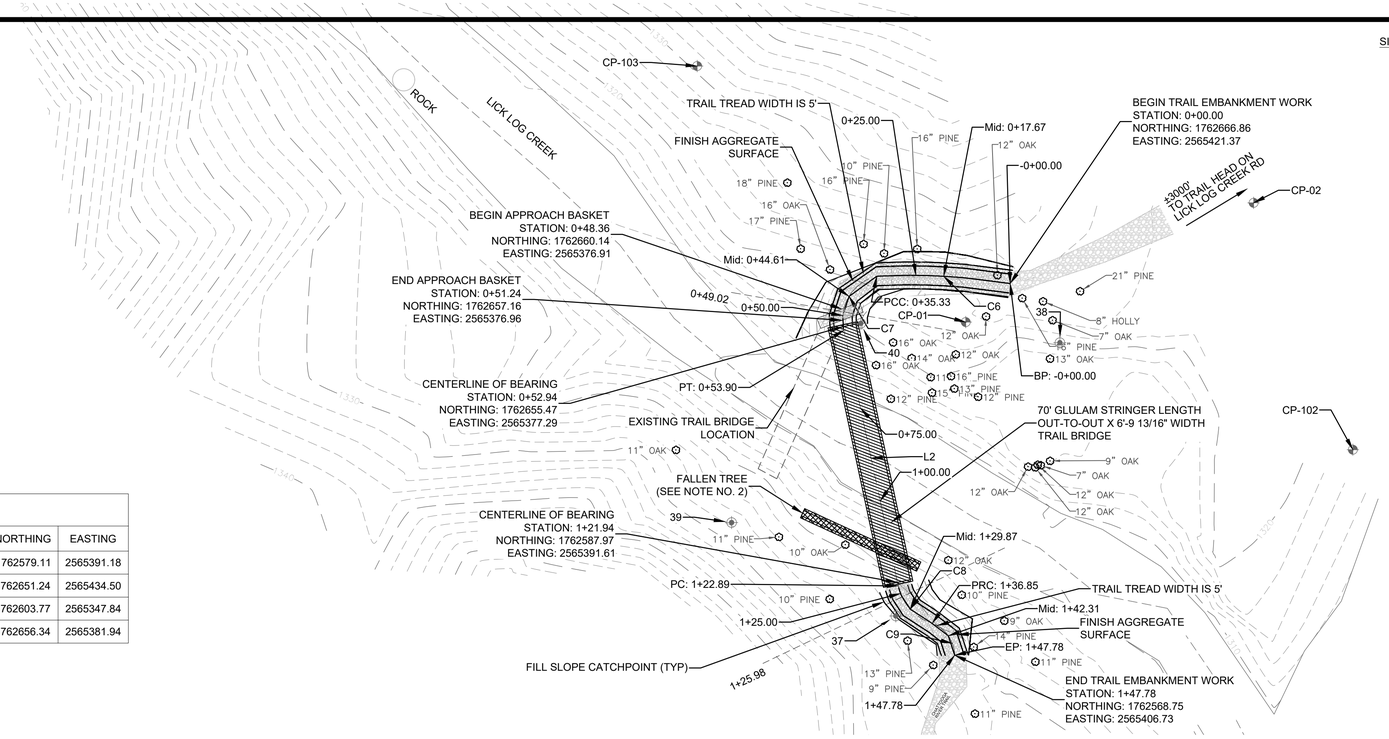
United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

3/19/2023

BORINGS				
POINT NO.	DESCRIPTION	ELEVATION (FEET)	NORTHING	EASTING
37	SOUTH #1	1322.40	1762579.11	2565391.18
38	NORTH #1	1320.48	1762651.24	2565434.50
39	SOUTH #2	1327.57	1762603.77	2565347.84
40	NORTH #2	1319.79	1762656.34	2565381.94



LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 SITE PLAN

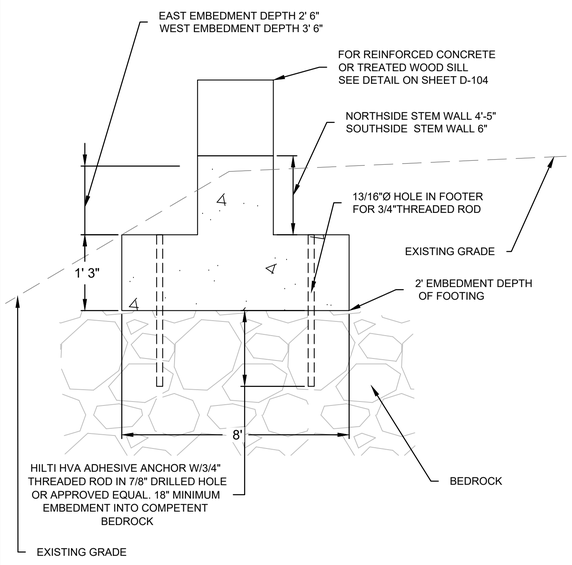
CURVE TABLE				
CURVE NO.	RADIUS	LENGTH	START POINT	END POINT
C6	163.98'	35.33'	1762666.86, 2565421.37	1762668.78, 2565386.17
C7	11.73'	18.57'	1762668.78, 2565386.17	1762654.53, 2565377.48
C8	13.46'	13.96'	1762587.05, 2565391.83	1762577.15, 2565400.77
C9	9.16'	10.93'	1762577.15, 2565400.77	1762568.75, 2565406.73

LINE TABLE			
LINE NO.	LENGTH	START POINT	END POINT
L2	68.99'	1762654.53, 2565377.48	1762587.05, 2565391.83

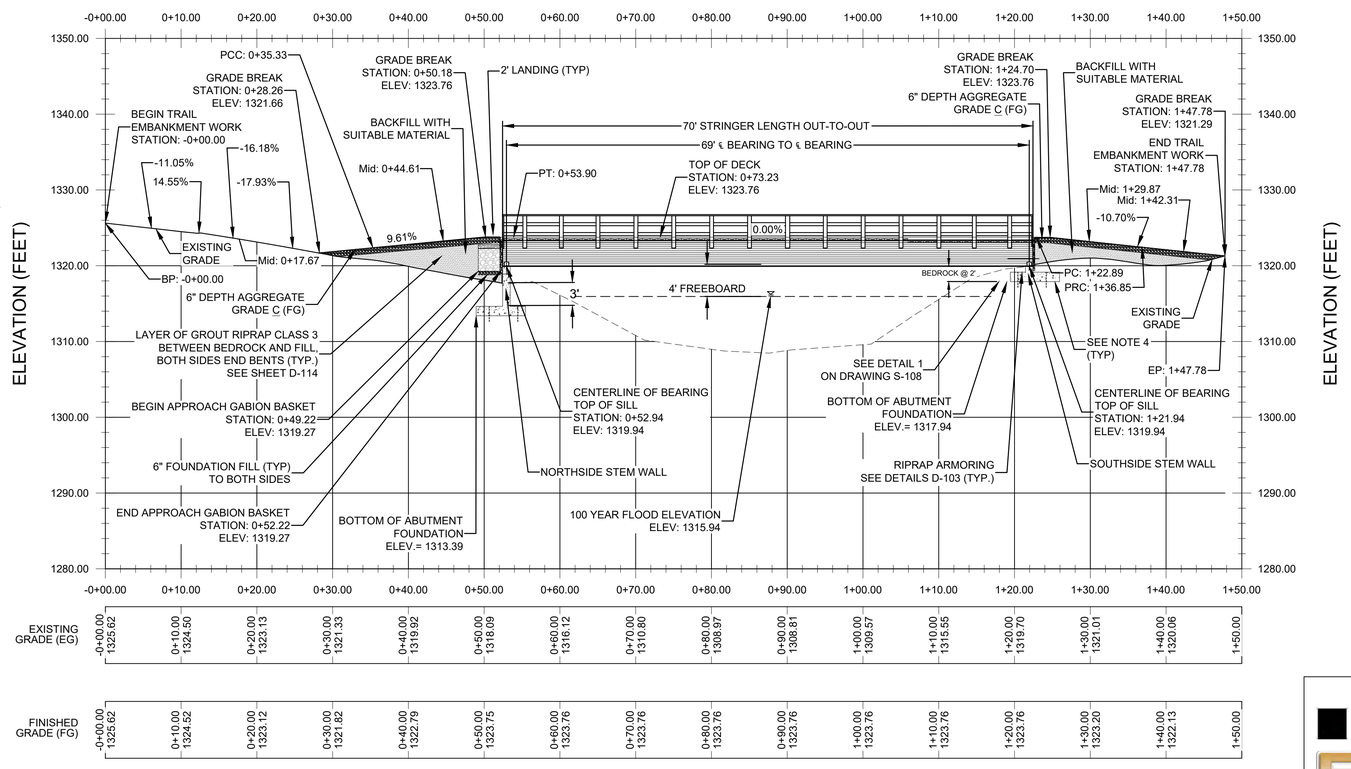
NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT



DETAIL 1
NTS



LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 VERTICAL PROFILE

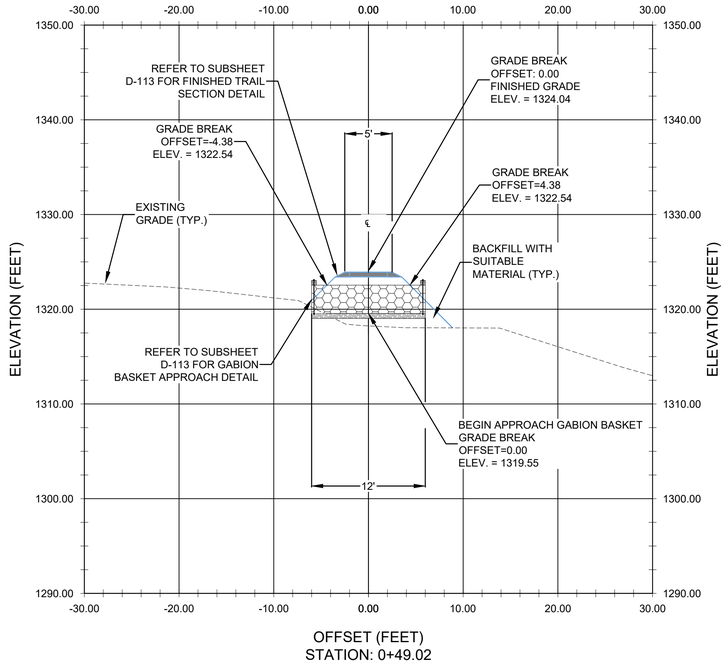
SCALE: 1:10

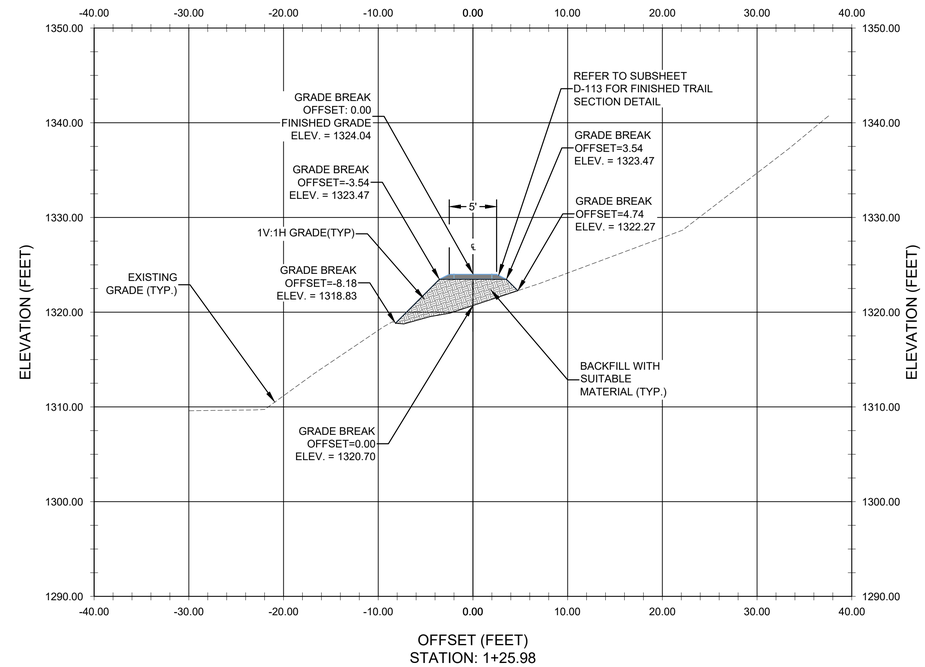
DRAWING TITLE

LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 SITE PLAN AND VERTICAL PROFILE

ISAIAH ENGINEERING
Building The Future
413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com

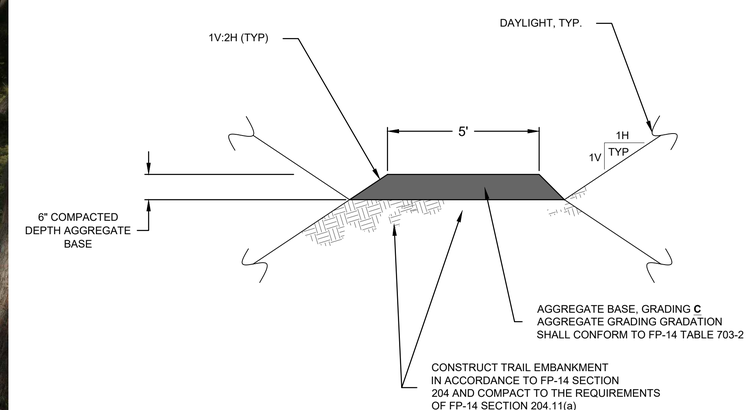
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-108
DRAWN B. B.	
CHECKED W.L.H	SHEET 25 OF 59
PROJECT NO.	





LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 RENDERING

NTS



LICK LOG CREEK TRAIL BRIDGE APPROACH TYPICAL TRAIL SECTION

NTS

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGE WALLACE HATHORNE REGISTERED No. 48735 PROFESSIONAL ENGINEER

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LICK LOG CREEK TRAIL BRIDGE M.P. 6.79 APPROACH CROSS SECTIONS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-109
DRAWN B. B.	
CHECKED W.L.H	SHEET 26 OF 59
PROJECT NO.	

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

20' 0' 20' 40'

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

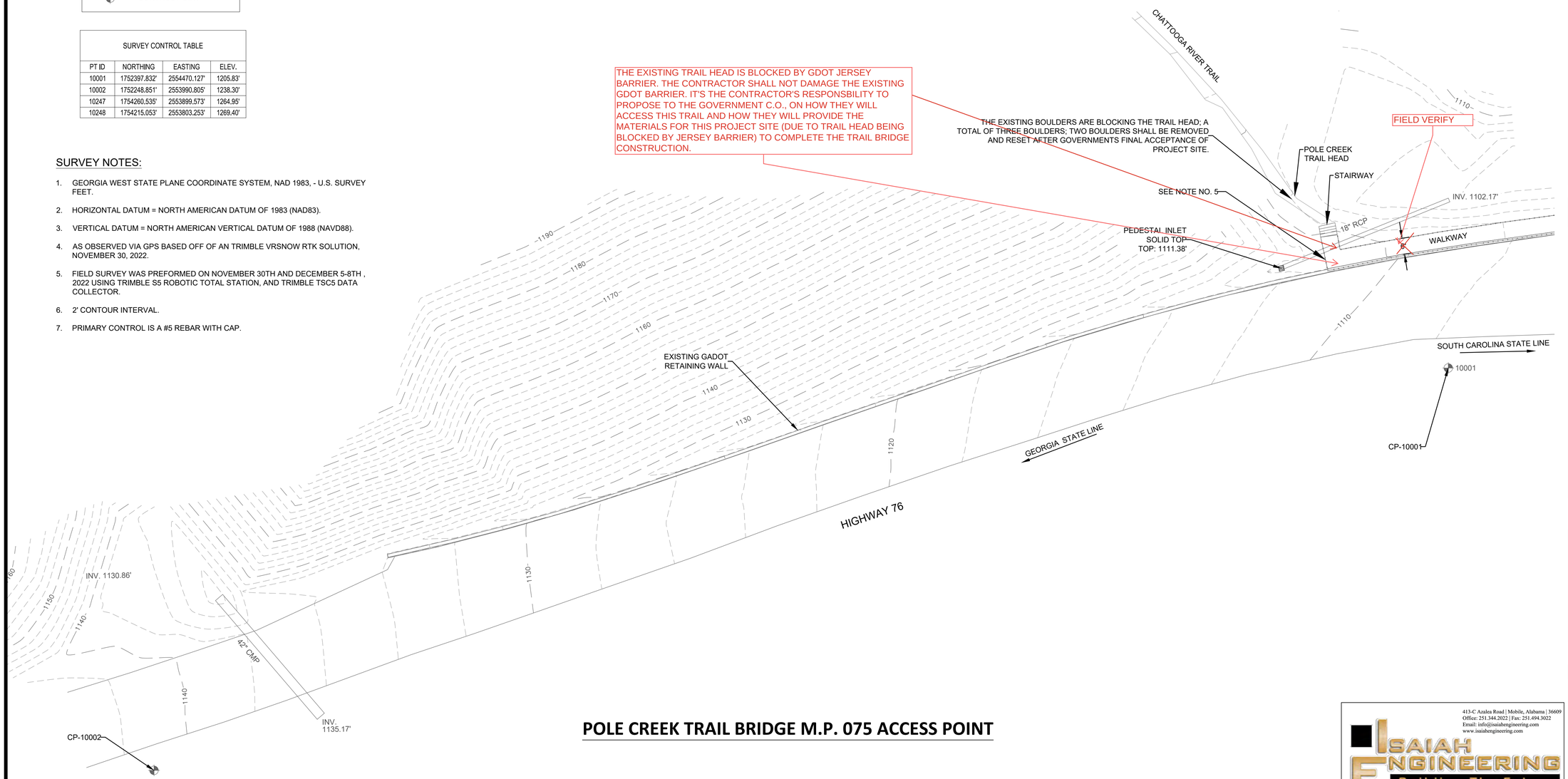
PT ID	NORTHING	EASTING	ELEV.
10001	1752397.832'	2554470.127'	1205.83'
10002	1752248.851'	2553990.805'	1238.30'
10247	1754260.535'	2553899.573'	1264.95'
10248	1754215.053'	2553803.253'	1269.40'

SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET.
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83).
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. AS OBSERVED VIA GPS BASED OFF OF AN TRIMBLE VRSNOW RTK SOLUTION, NOVEMBER 30, 2022.
5. FIELD SURVEY WAS PREFORMED ON NOVEMBER 30TH AND DECEMBER 5-8TH , 2022 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 2' CONTOUR INTERVAL.
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.

SITE GENERAL NOTES:

1. THE EXISTING BOULDERS ARE BLOCKING THE TRAIL HEAD; A TOTAL OF THREE BOULDERS; TWO BOULDERS SHALL BE REMOVED AND RESET AFTER GOVERNMENTS FINAL ACCEPTANCE OF PROJECT SITE; EACH BOULDER IS ABOUT 42" WIDE APPROXIMATE.
2. TRAIL ACCESS POINT COORDINATES: 34.814283, -83.307736
3. TRAIL BRIDGE LOCATION COORDINATES: 34.819172, -83.309479.
4. THE CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN TO THE C.O. TO BE USED DURING LOADING ND UNLOADING EQUIPMENT AND CONSTRUCTION MATERIALS. THE RECOMMENDED TIME FOR LOADING AND UNLOADING IS BETWEEN THE HOURS OF 8:00 P.M. AND 6:00 A.M.
5. THE CONTRACTOR SHALL BE AWARE THAT THERE'S NO ACCESS TO DRIVE EQUIPMENT FROM HIGHWAY 76 ONTO THE TRAIL. THEREFORE, THE CONSTRUCTION CONTRACTOR HAS APPROVAL TO TEMPORARILY STOP TRAFFIC IN THE FAR RIGHT LANE CLOSEST TO THE TRAIL HEAD AND UNLOAD THEIR EQUIPMENT AND USE ANOTHER MECHANIZED EQUIPMENT TO RAISE AND LIFT IT OVER THE SHALLOW G-DOT SIDEWALK BARRIER WALL TO ACCESS THE TRAIL. THIS IS APPROVED FOR MOBILIZATION AND DEMOBILIZATION. THE CONTRACTOR IS ONLY APPROVED TO UNLOAD AND LOAD THEIR EQUIPMENT BETWEEN THE HOURS OF 8:00 P.M. AND 5:30 A.M. TO REDUCE HIGHWAY 76 TRAFFIC IMPACTS. CONTRACTOR SHALL USE THEIR OWN CERTIFIED FLAGGERS DURING THEIR UNLOADING AND LOADING ACTIVITIES IN THE ALLOTED APPROVED HOURS AS MENTIONED ABOVE. ALL TEMPORARY TRAFFIC CONTROL MEASURES SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL.



POLE CREEK TRAIL BRIDGE M.P. 075 ACCESS POINT

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne
3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

POLE CREEK TRAIL BRIDGE M.P. 0.75 ACCESS POINT

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-110
DRAWN B. B.	
CHECKED W.L.H	SHEET 27 OF 59
PROJECT NO.	

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

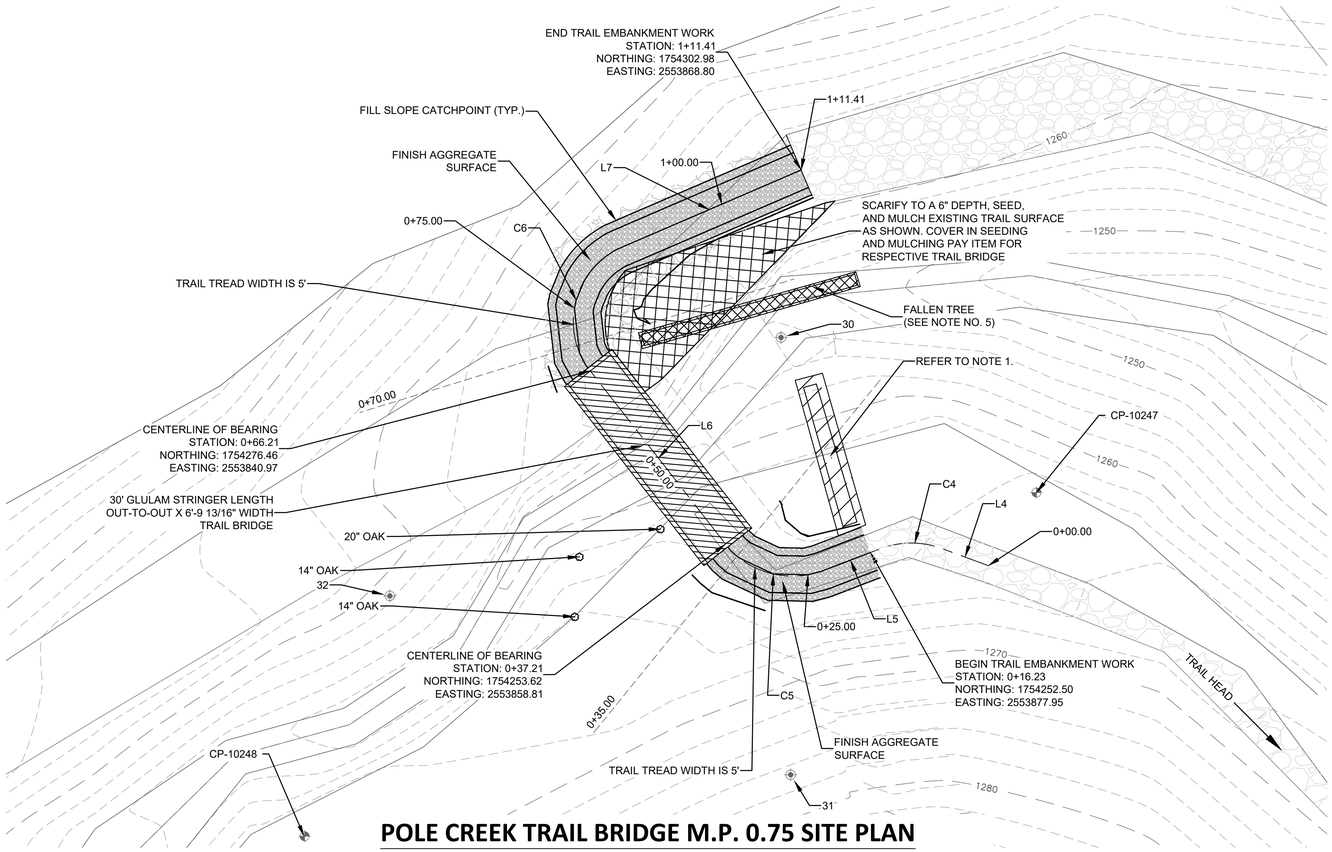
10' 0' 10' 20'

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
10001	1752397.832'	2554470.127'	1205.83'
10002	1752248.851'	2553990.805'	1238.30'
10247	1754260.535'	2553899.573'	1264.95'
10248	1754215.053'	2553803.253'	1269.40'



POLE CREEK TRAIL BRIDGE M.P. 0.75 SITE PLAN

CURVE TABLE

CURVE NO.	RADIUS	LENGTH	START POINT	END POINT
C4	11.61'	8.36'	0+06.56 1754253.03, 2553887.36	0+14.92 1754252.98, 2553879.17
C5	11.68'	12.83'	0+23.20 1754250.01, 2553871.44	0+36.02 1754252.68, 2553859.55
C6	10.79'	17.78'	0+67.18 1754277.23, 2553840.36	0+84.97 1754292.52, 2553844.51

LINE TABLE

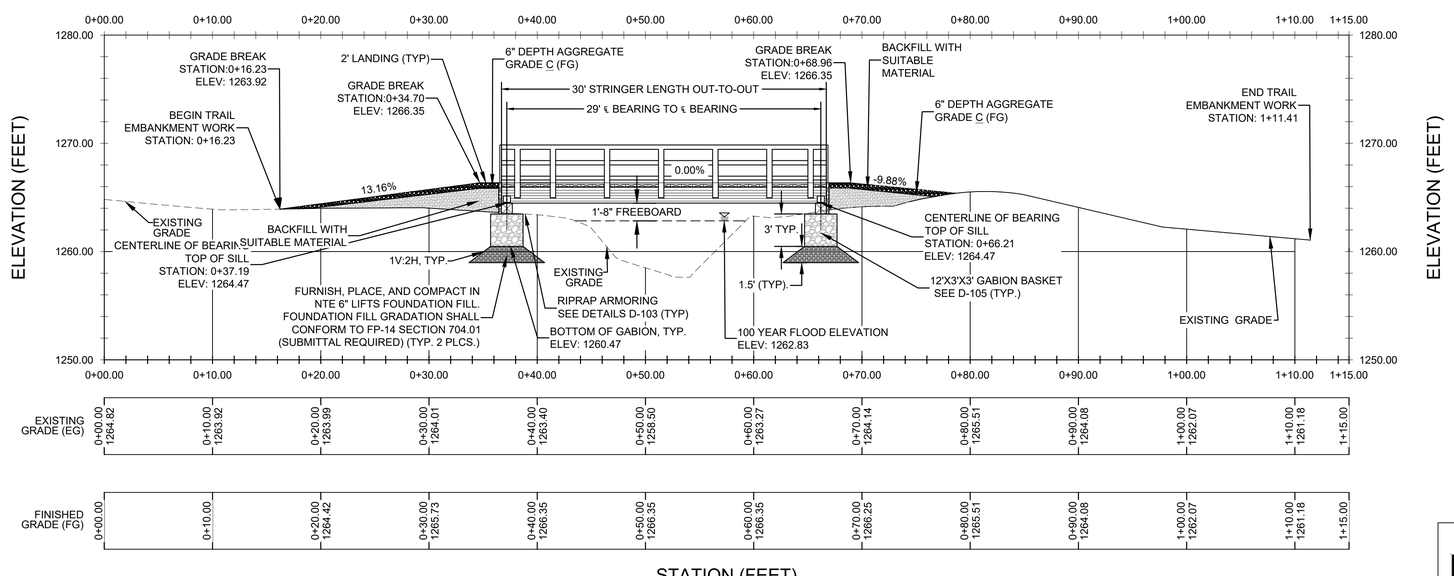
LINE NO.	LENGTH	START POINT	END POINT
L4	6.56'	0+00.00 1754250.76, 2553893.51	0+06.56 1754253.03, 2553887.36
L5	8.28'	0+14.92 1754252.98, 2553879.17	0+23.20 1754250.01, 2553871.44
L6	31.16'	0+36.02 1754252.68, 2553859.55	0+67.18 1754277.23, 2553840.36
L7	26.45'	0+84.97 1754292.52, 2553844.51	1+11.41 1754302.98, 2553868.80

BORINGS

POINT NO.	DESCRIPTION	ELEVATION	NORTHING	EASTING
30	NORTH #1	1254.38	1754280.88	2553866.14
31	SOUTH #1	1276.72	1754223.16	2553867.41
32	SOUTH #2	1268.20	1754246.77	2553814.50

SITE GENERAL NOTES:

1. THE EXISTING BRIDGE HAS BEEN NATURALLY MOVED FROM ITS ORIGINAL STATE DUE TO TROPICAL STORM ZETA'S HIGH WATER FLOWS. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING 20' SPAN X 24" WIDE WOODEN LOG TRAIL BRIDGE.
2. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 60-INCHES WIDE).
3. TRAIL ACCESS POINT COORDINATES: 34.814283, -83.307736
4. TRAIL BRIDGE LOCATION COORDINATES: 34.819172, -83.309479
5. THE CONTRACTOR SHALL CUT THE EXISTING FALLEN TREE INTO A MINIMUM OF 3-FEET INCREMENTS. THE CONTRACTOR SHALL ALSO DECK THE CUT LOGS AND DISCARD THE TREE'S ROOTWAD ON PROJECT SITE A MINIMUM OF 50-FEET AWAY FROM CREEK BANKS IN AN APPROVED LOCATION AS DIRECTED BY THE C.O.
6. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.



POLE CREEK TRAIL BRIDGE M.P. 0.75 VERTICAL PROFILE

SCALE: 1:7

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

Wallace L Hathorne
2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

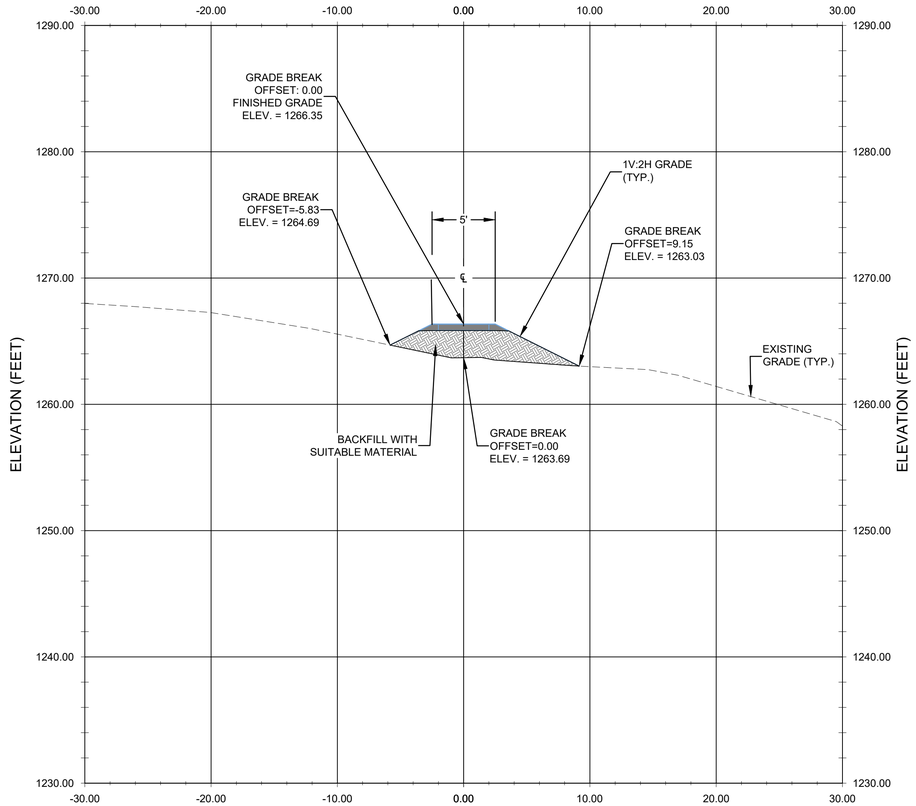
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

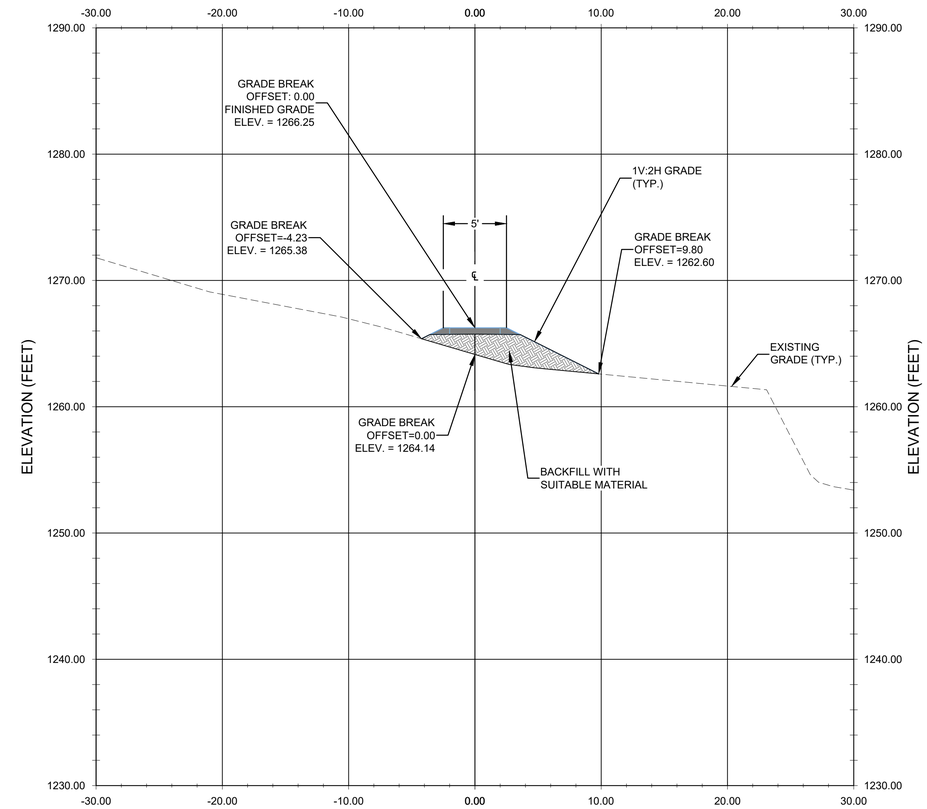
POLE CREEK TRAIL BRIDGE M.P. 0.75 SITE PLAN AND VERTICAL PROFILE

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

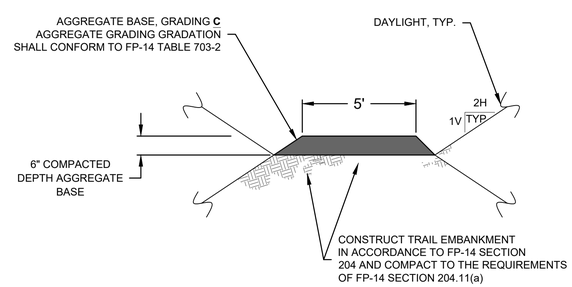
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-111
DRAWN B. B.	
CHECKED W.L.H	SHEET 28 OF 59
PROJECT NO.	



STATION: 0+35.00



STATION: 0+70.00



POLE CREEK TRAIL BRIDGE M.P. 0.75 APPROACH TYPICAL SECTION

NTS

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

POLE CREEK TRAIL BRIDGE M.P. 0.75 APPROACH CROSS SECTIONS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-112
DRAWN B. B.	
CHECKED W.L.H	SHEET 29 OF 59
PROJECT NO.	

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

30' 0' 30' 60'

EXISTING 1' CONTOUR
EXISTING 5' CONTOUR
EDGE OF CREEK
EDGE OF DIRT ROAD/TRAIL
THALWAG
CONTROL POINT

SURVEY CONTROL TABLE

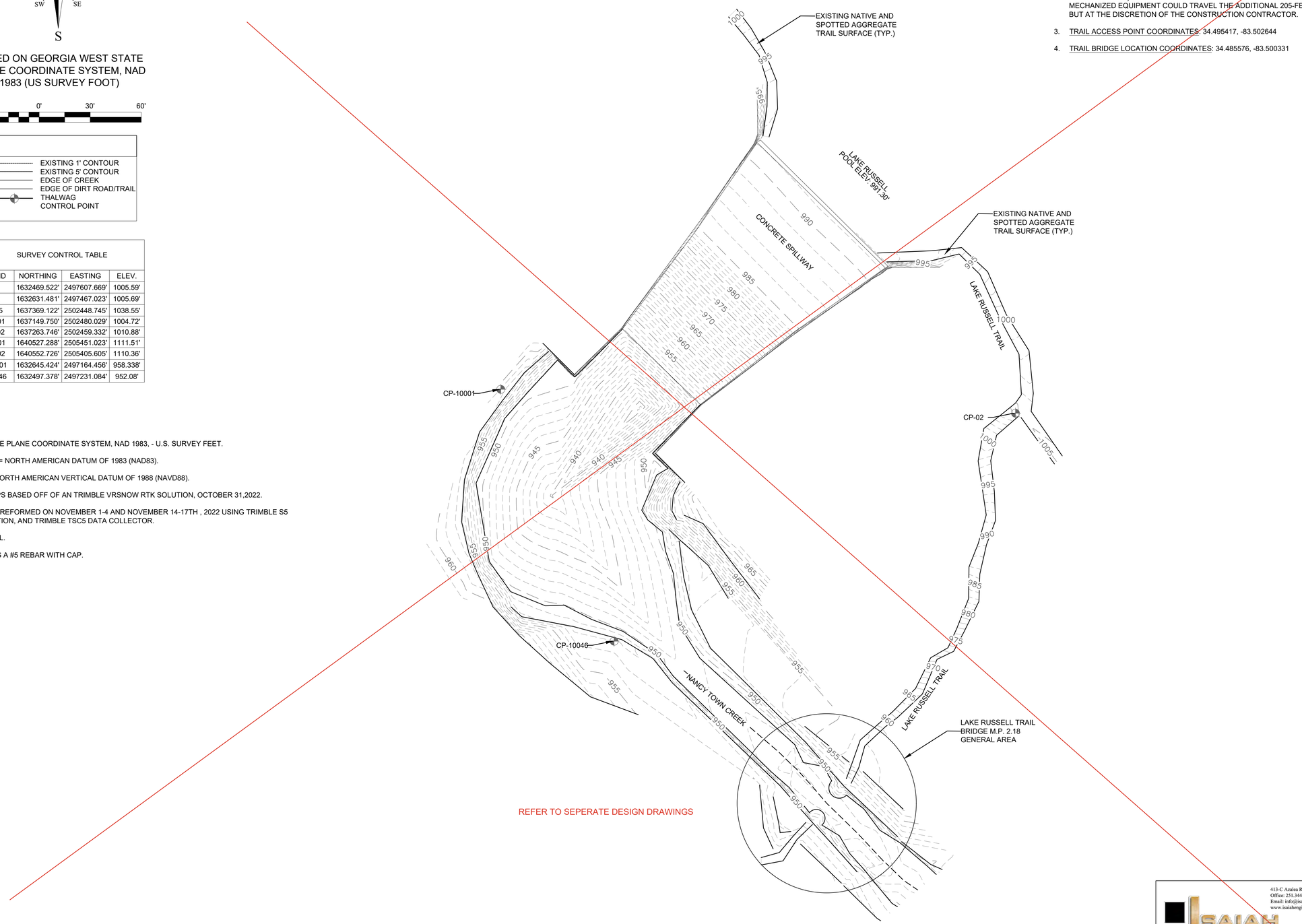
PT ID	NORTHING	EASTING	ELEV.
1	1632469.522'	2497607.669'	1005.59'
2	1632631.481'	2497467.023'	1005.69'
145	1637369.122'	2502448.745'	1038.55'
1001	1637149.750'	2502480.029'	1004.72'
1002	1637263.746'	2502459.332'	1010.88'
4001	1640527.288'	2505451.023'	1111.51'
4002	1640552.726'	2505405.605'	1110.36'
10001	1632645.424'	2497164.456'	958.338'
10046	1632497.378'	2497231.084'	952.08'

SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET.
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83).
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. AS OBSERVED VIA GPS BASED OFF OF AN TRIMBLE VRSNOW RTK SOLUTION, OCTOBER 31,2022.
5. FIELD SURVEY WAS PREFORMED ON NOVEMBER 1-4 AND NOVEMBER 14-17TH , 2022 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 1' CONTOUR INTERVAL.
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.

SITE GENERAL NOTES:

1. EXISTING TRAIL BRIDGE IS MISSING.
2. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 60-INCHES WIDE) UP TO ABOUT 205-FEET OF MISSING TRAIL BRIDGE. MECHANIZED EQUIPMENT COULD TRAVEL THE ADDITIONAL 205-FEET BUT AT THE DISCRETION OF THE CONSTRUCTION CONTRACTOR.
3. TRAIL ACCESS POINT COORDINATES: 34.495417, -83.502644
4. TRAIL BRIDGE LOCATION COORDINATES: 34.485576, -83.500331



LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 ACCESS POINT

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne
5/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

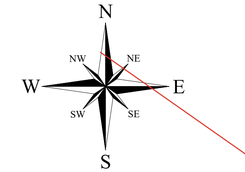
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 ACCESS POINT

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-113
DRAWN B. B.	
CHECKED W.L.H	SHEET 30 OF 59
PROJECT NO.	

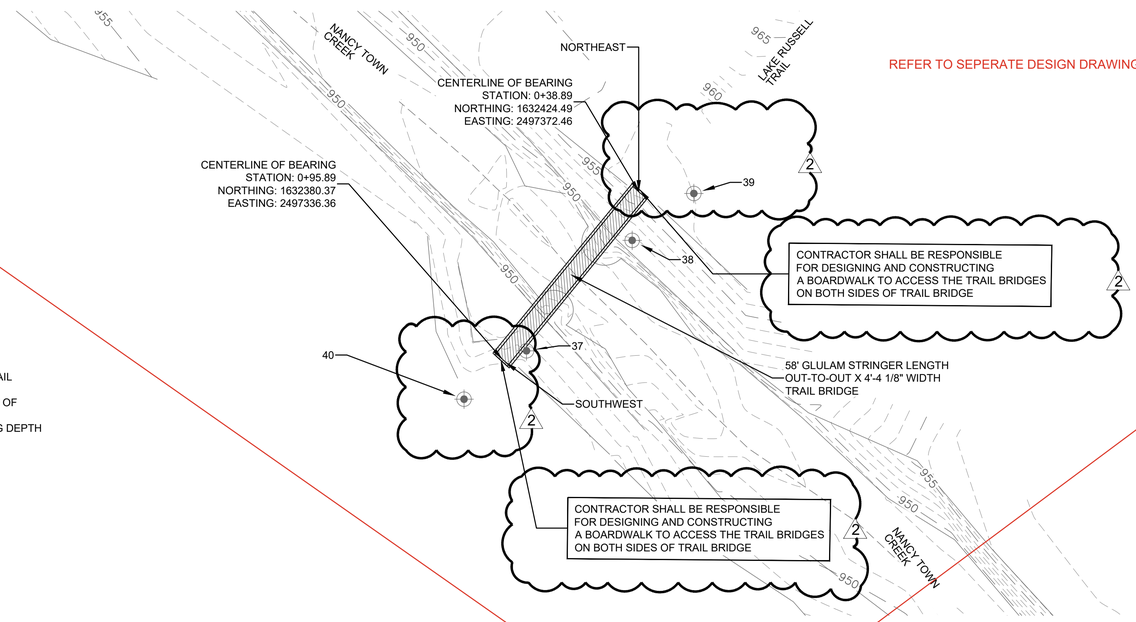


BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

20' 0' 20' 40'

SITE GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.
2. IF CONTRACTOR DOESN'T ACCOUNT BEDROCK THEN THE TOP OF FOOTING DEPTH APPROX. 3' FEET BELOW EXISTING GROUND SURFACE.

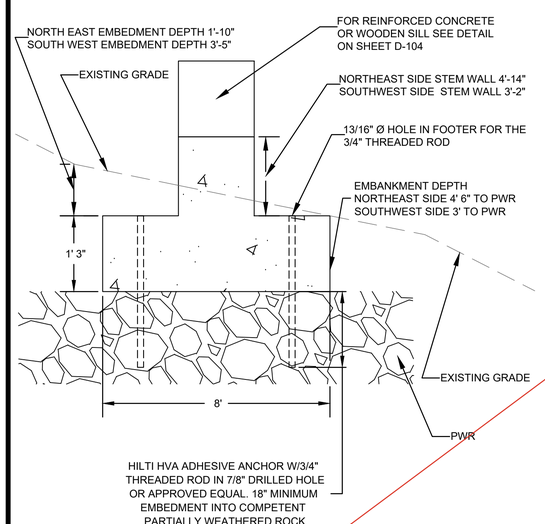


REFER TO SEPERATE DESIGN DRAWINGS

BORINGS				
POINT NO.	DESCRIPTION	ELEVATION (FEET)	NORTHING	EASTING
37	SOUTH (8')	953.30	1632382.56	2497342.76
38	NORTH (8')	951.98	1632411.72	2497370.66
39	NORTH (25')	957.02	1632424.09	2497386.94
40	SOUTH (25')	954.88	1632369.79	2497326.27

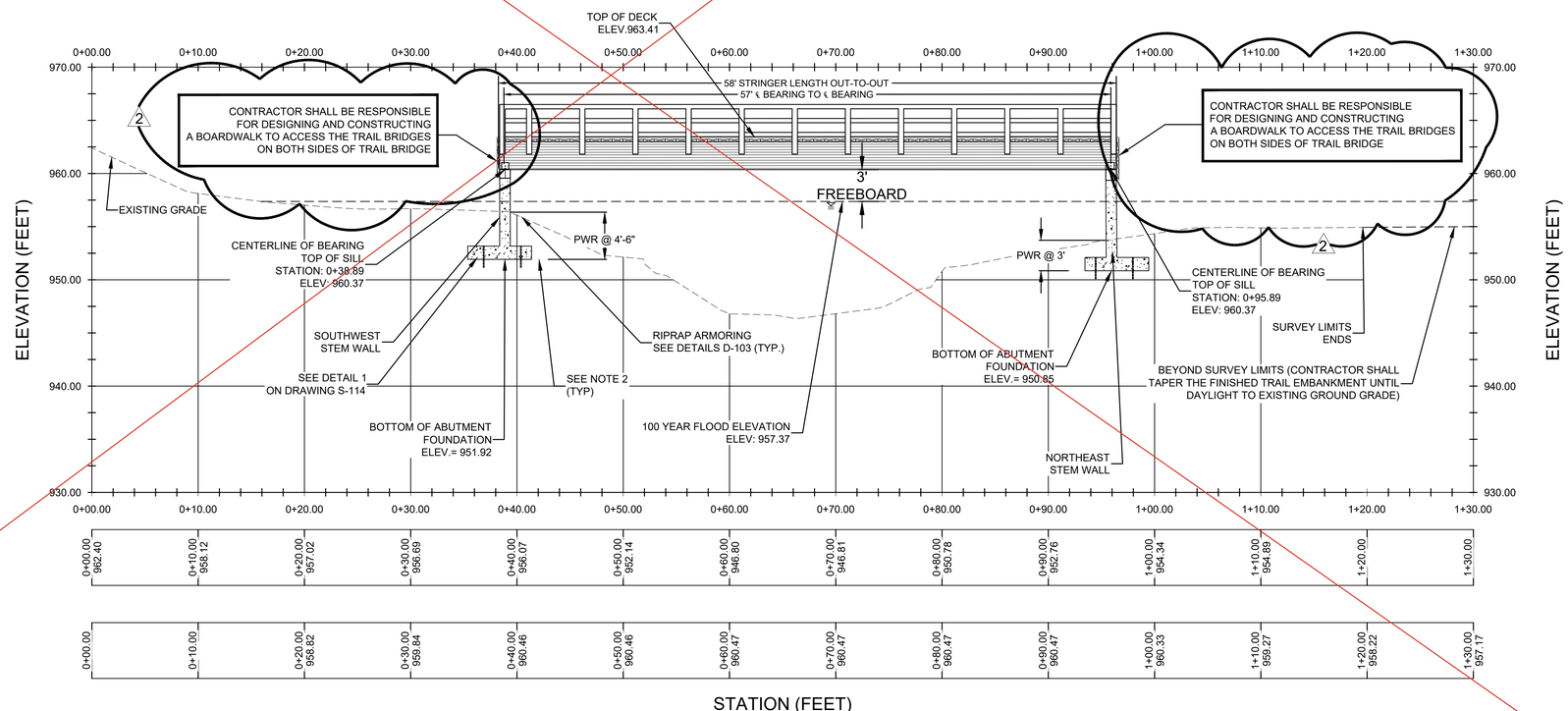
LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 SITE PLAN

SCALE: 1:20



DETAIL 1

NTS



LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 VERTICAL PROFILE

SCALE: 1:7

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LAKE RUSSELL TRAIL BRIDGE M.P. 2.18 SITE PLAN AND VERTICAL PROFILE

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-114
DRAWN B. B.	
CHECKED W.L.H	SHEET 31 OF 59
PROJECT NO.	

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

20' 0' 20' 40'

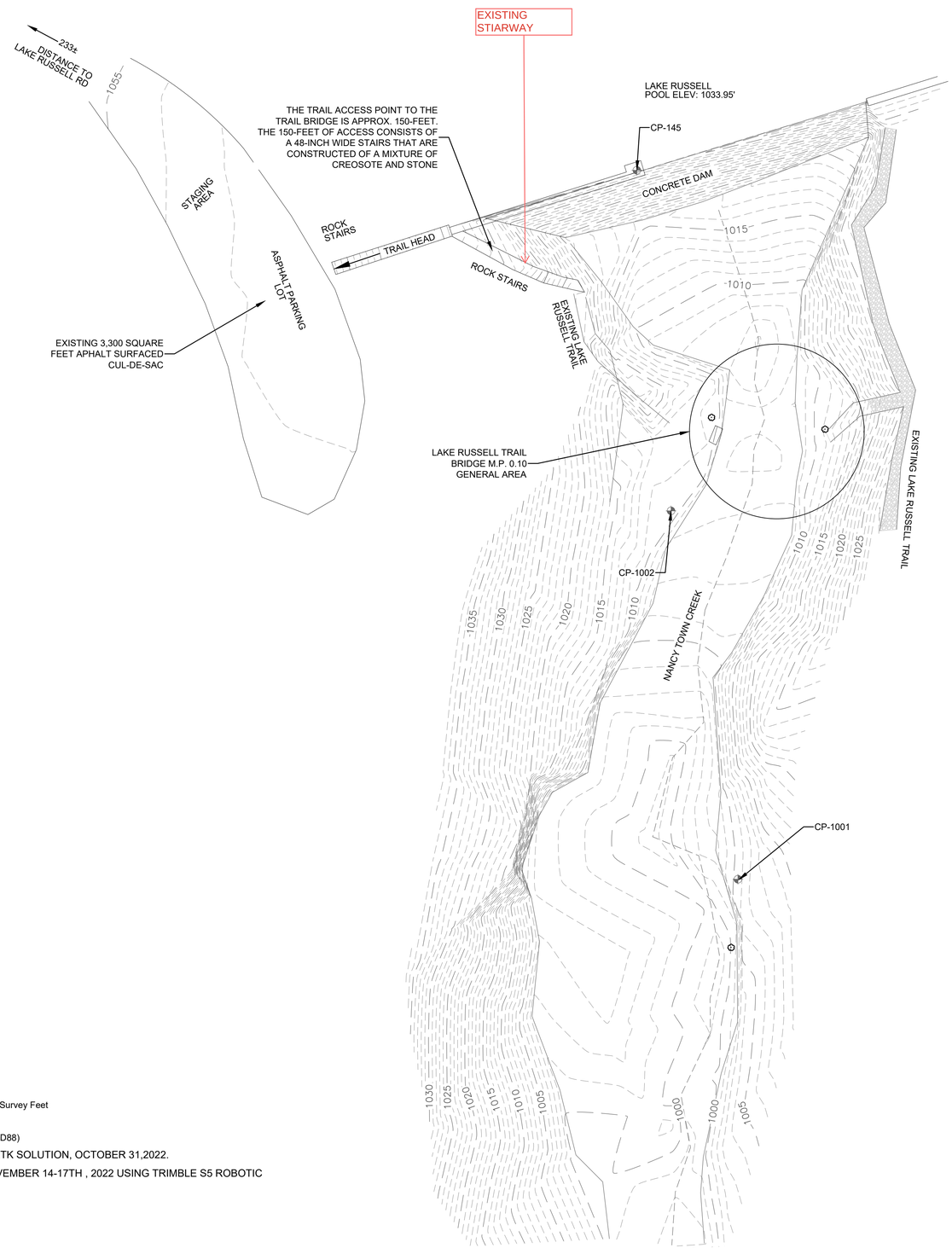
SITE GENERAL NOTES:

1. THE PROJECT SITE IS MISSING THE EXISTING TRAIL BRIDGES.
2. THE ACCESS HEAD TO THE TRAIL BRIDGE IS APPROX. 110 FEET. THE 110 FEET OF ACCESS CONSISTS OF 48-INCHES WIDE STAIRS IN WHICH THE STAIRS ARE A MIXTURE OF CREOSOTE AND STONE.
3. TRAIL ACCESS POINT COORDINATES: 34.498919, -83.483641
4. TRAIL BRIDGE LOCATION COORDINATES: 34.498868, -83.483376
5. THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REPAIR ANY DAMAGES TO SURROUNDING PRIVATE PROPERTY.

EXISTING 1' CONTOUR
EXISTING 5' CONTOUR
EDGE OF CREEK
EDGE OF DIRT ROAD/TRAIL
THALWAG
CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
1	1632469.522'	2497607.669'	1005.59'
2	1632631.481'	2497467.023'	1005.69'
145	1637369.122'	2502448.745'	1038.55'
1001	1637149.750'	2502480.029'	1004.72'
1002	1637263.746'	2502459.332'	1010.88'
4001	1640527.288'	2505451.023'	1111.51'
4002	1640552.726'	2505405.605'	1110.36'
10001	1632645.424'	2497164.456'	958.338'
10046	1632497.378'	2497231.084'	952.08'



SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. Survey Feet
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83)
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
4. AS OBSERVED VIA GPS BASED OFF OF AN TRIMBLE VRSNOW RTK SOLUTION, OCTOBER 31,2022.
5. FIELD SURVEY WAS PREFORMED ON NOVEMBER 1-4 AND NOVEMBER 14-17TH , 2022 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR
6. 1' CONTOUR INTERVAL
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.

LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 ACCESS POINT AND STAGING AREA

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

Wallace L Hathorne
3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

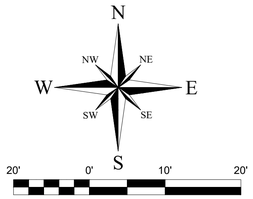
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LAKE RUSSELL TRAIL BRIDGE M.P 0.10 ACCESS POINT AND STAGING AREA

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

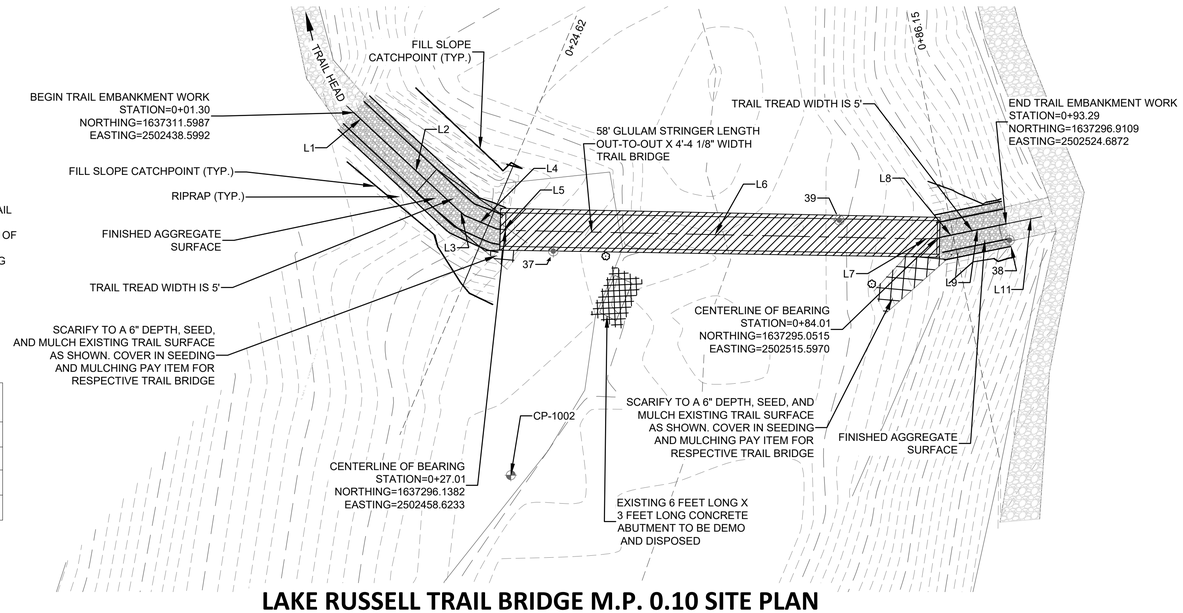
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-115
DRAWN B. B.	
CHECKED W.L.H	SHEET 32 OF 59
PROJECT NO.	



SITE GENERAL NOTES:

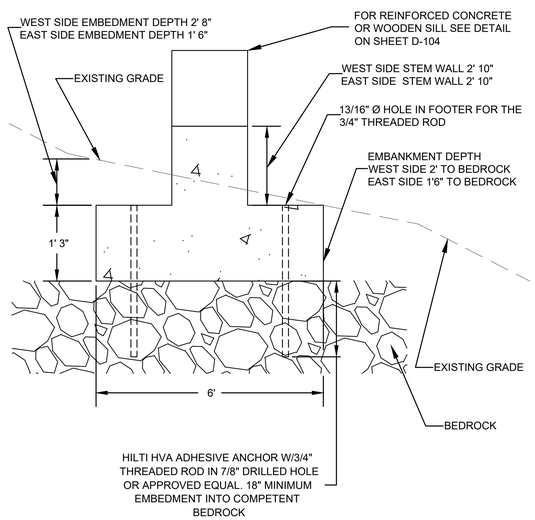
1. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.
2. IF CONTRACTOR DOESN'T ACCOUNT BEDROCK THEN THE TOP OF FOOTING DEPTH APPROX. 3' FEET BELOW EXISTING GROUND SURFACE.

BORINGS				
POINT NO.	DESCRIPTION	ELEVATION (FEET)	NOTHING	EASTING
37	WEST	1011.49	1637293.32	2502464.94
38	EAST (25')	1020.65	1637294.75	2502525.16
39	EAST (8')	1009.62	1637297.40	2502502.69



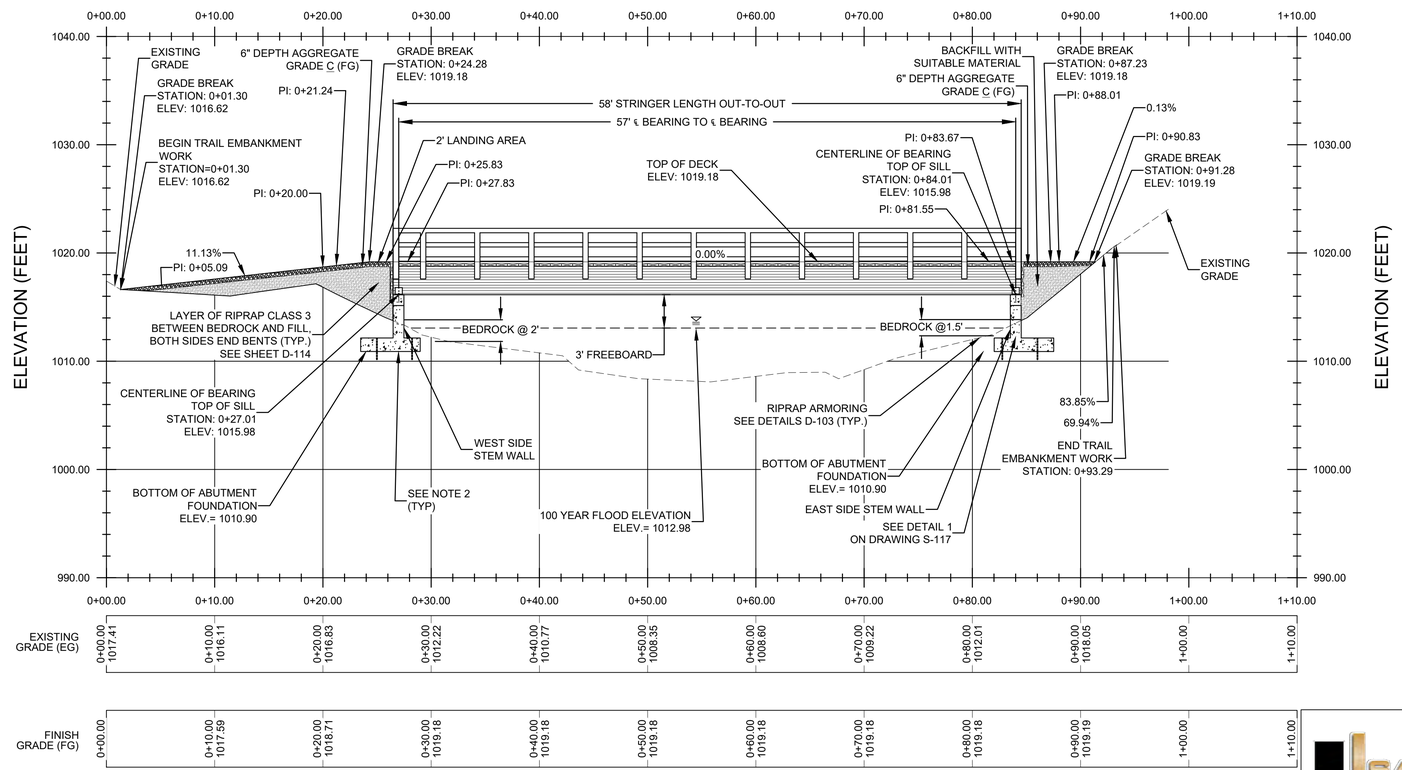
LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 SITE PLAN

LINE TABLE			
LINE NO.	LENGTH	START POINT	END POINT
L1	5.093'	0+00.00 1637312.49, 2502437.65	0+05.09 1637309.00, 2502441.36,
L2	14.903'	0+05.09 1637309.00, 2502441.36	0+20.00 1637298.85, 2502452.27,
L3	1.246'	0+20.00 1637298.85, 2502452.27	0+21.24 1637298.04, 2502453.22,
L4	4.584'	0+21.24 1637298.04, 2502453.22	0+25.83 1637296.26, 2502457.44,
L5	2.001'	0+25.83 1637296.26, 2502457.44	0+27.83 1637296.06, 2502459.43,
L6	53.721'	0+27.83 1637296.06, 2502459.43	0+81.55 1637294.94, 2502513.14,
L7	2.122'	0+81.55 1637294.94, 2502513.14	0+83.67 1637294.98, 2502515.26,
L8	4.346'	0+83.67 1637294.98, 2502515.26	0+88.01 1637295.87, 2502519.52,
L9	2.814'	0+88.01 1637295.87, 2502519.52	0+90.83 1637296.43, 2502522.28,
L11	2.994'	0+95.12 1637297.28, 2502526.48	0+98.11 1637297.88, 2502529.41,



DETAIL 1

NTS



LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 VERTICAL PROFILE

SCALE: 1:7

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

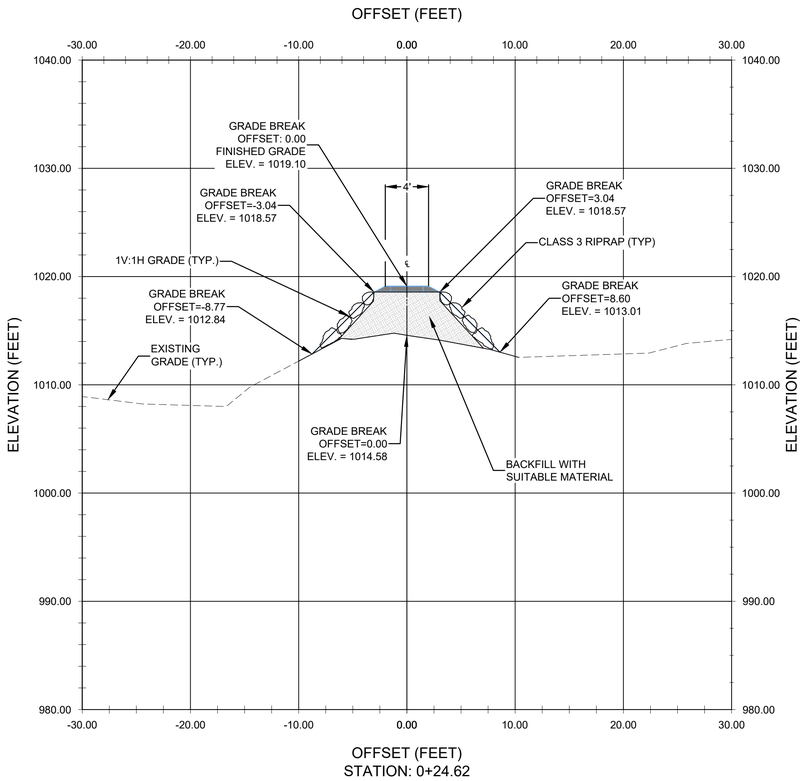
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

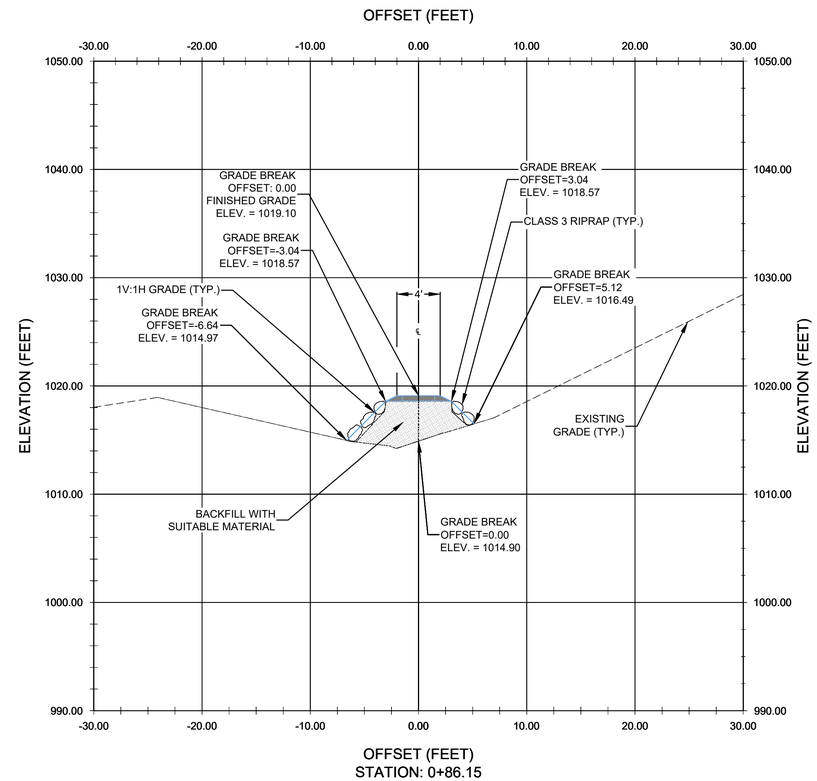
DRAWING TITLE

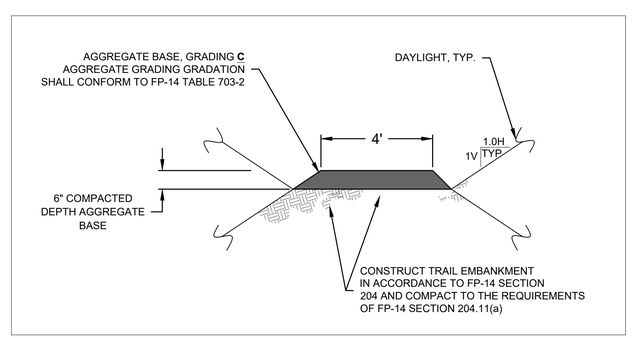
LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 SITE PLAN AND VERTICAL PROFILE

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.694.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-116
DRAWN B. B.	
CHECKED W.L.H	SHEET 33 OF 59
PROJECT NO.	







LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 APPROACH TYPICAL TRAIL SECTION

NTS

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

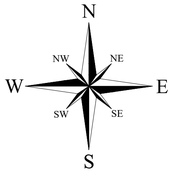
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

LAKE RUSSELL TRAIL BRIDGE M.P. 0.10 APPROACH CROSS SECTIONS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-117
DRAWN B. B.	
CHECKED W.L.H	SHEET 34 OF 59
PROJECT NO.	



BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

15' 0' 15' 30'

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

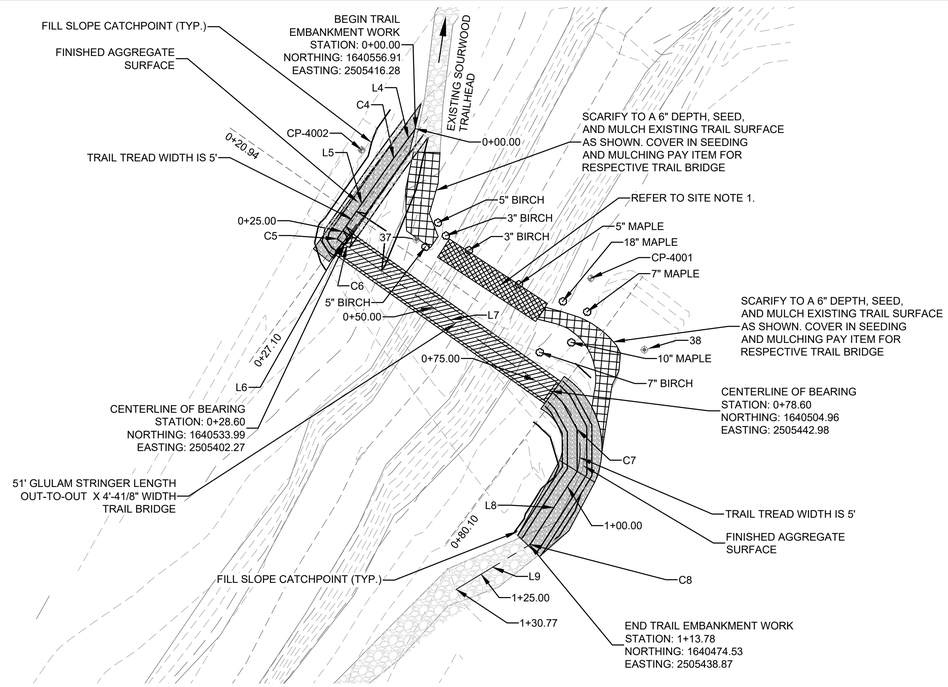
PT ID	NORTHING	EASTING	ELEV.
1	1632469.522'	2497607.669'	1005.59'
2	1632631.481'	2497467.023'	1005.69'
145	1637369.122'	2502448.745'	1038.55'
1001	1637149.750'	2502480.029'	1004.72'
1002	1637263.746'	2502459.332'	1010.88'
4001	1640527.288'	2505451.023'	1111.51'
4002	1640552.726'	2505405.605'	1110.36'
10001	1632645.424'	2497164.456'	958.338'
10046	1632497.378'	2497231.084'	952.08'

BORINGS

POINT NO.	DESCRIPTION	ELEVATION (FEET)	NORTHING	EASTING
37	B-1 (WEST)	1109.32	1640534.99	2505416.44
38	B-2 (EAST)	1111.31	1640513.13	2505461.60

SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET.
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83).
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. AS OBSERVED VIA GPS BASED OFF OF AN TRIMBLE VRSNOW RTK SOLUTION, OCTOBER 31,2022.
5. FIELD SURVEY WAS PREFORMED ON NOVEMBER 1-4 AND NOVEMBER 14-17TH , 2022 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 1' CONTOUR INTERVAL.
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.



SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 SITE PLAN

CURVE TABLE

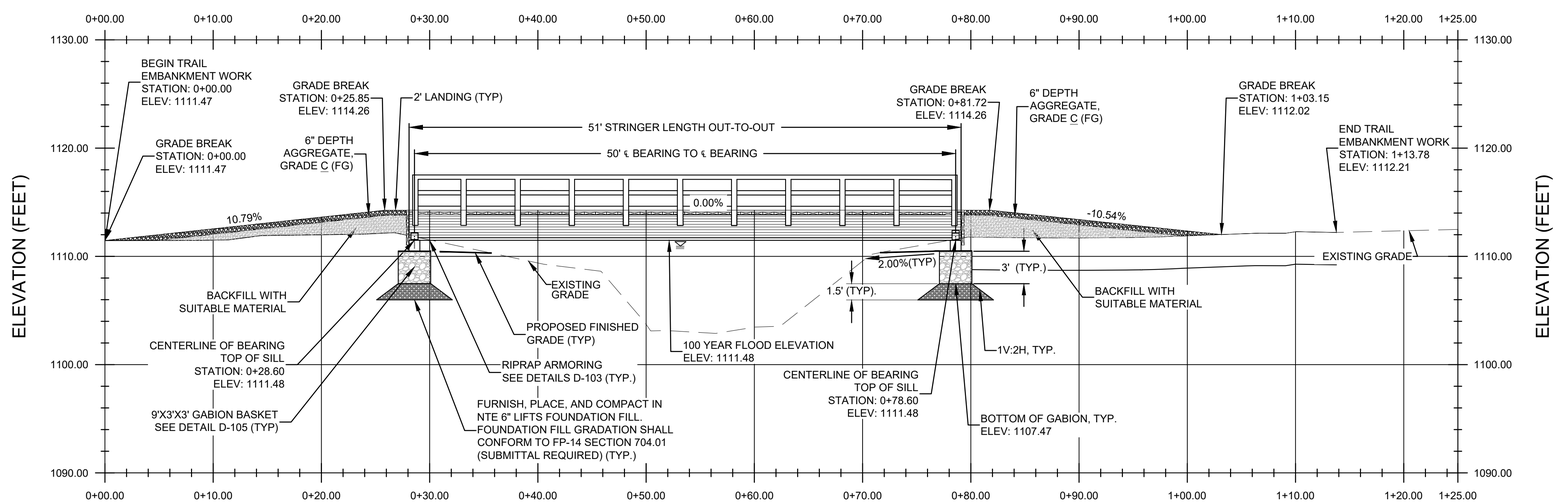
CURVE NO.	RADIUS	LENGTH	START POINT	END POINT
C4	200.00'	5.08'	0+04.72 1640553.11, 2505413.47	0+09.81 1640548.99, 2505410.50,
C5	0.09'	0.13'	0+26.69 1640535.16, 2505400.81	0+26.83 1640535.04, 2505400.83,
C6	0.97'	0.01'	0+29.11 1640533.69, 2505402.68	0+29.12 1640533.68, 2505402.69,
C7	14.79'	16.94'	0+79.51 1640504.44, 2505443.72	0+96.45 1640489.07, 2505448.29,
C8	0.97'	0.44'	1+13.45 1640474.78, 2505439.09	1+13.89 1640474.47, 2505438.78,

LINE TABLE

LINE NO.	LENGTH	START POINT	END POINT
L4	4.72'	0+00.00 1640556.91,2505416.28	0+04.72 1640553.11, 2505413.47
L5	16.88'	0+09.81 1640548.99,2505410.50	0+26.69 1640535.16, 2505400.81
L6	2.29'	0+26.83 1640535.04,2505400.83	0+29.11 1640533.69, 2505402.68
L7	50.38'	0+29.12 1640533.68,2505402.69	0+79.51 1640504.44, 2505443.72
L8	17.00'	0+96.45 1640489.07,2505448.29	1+13.45 1640474.78, 2505439.09
L9	16.88'	1+13.89 1640474.47,2505438.78	1+30.77 1640465.73, 2505424.35

SITE GENERAL NOTES:

1. THE EXISTING TRAIL BRIDGE HAS BEEN DAMAGED FROM ITS ORIGINAL STATE DUE TO TROPICAL STORM ZETA'S HIGHWATER FLOWS. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING 24' SPAN X 41" WIDE STEEL I-BEAM TRAIL BRIDGE.
2. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 60-INCHES WIDE).
3. TRAIL ACCESS POINT COORDINATES: 34.504949, -83.473745
4. TRAIL BRIDGE LOCATION COORDINATES: 34.507733, -83.473265
5. THE CONTRACTOR SHALL CUT THE EXISTING FALLEN TREE TO A MINIMUM OF 3-FEET INCREMENTS. THE CONTRACTOR SHALL ALSO DECK THE CUT LOGS AND DISCARD THE TREE'S ROOTWAD ON PROJECT SITE A MINIMUM OF 50-FEET AWAY FROM CREEK BANKS IN A APPROVED LOCATION AS DIRECTED BY THE C.O. (TREES WERE NOT SHOWN ON THE SURVEY BUT WERE NOTED IN THE SITE VISIT REPORT.).
6. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.



	0+00.00	0+10.00	0+20.00	0+30.00	0+40.00	0+50.00	0+60.00	0+70.00	0+80.00	0+90.00	1+00.00	1+10.00	1+20.00	1+25.00
EXISTING GRADE (EG)	1111.47	1111.50	1112.00	1111.92	1109.39	1103.73	1103.46	1109.57	1111.78	1111.71	1111.90	1112.27	1112.37	1112.49
FINISHED GRADE (FG)		1112.55	1113.63	1114.27	1114.27	1114.27	1114.27	1114.27	1114.27	1113.40	1112.35	1112.27		

STATION (FEET)

SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 VERTICAL PROFILE

SCALE: 1:6

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

Wallace L Hathorne
2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

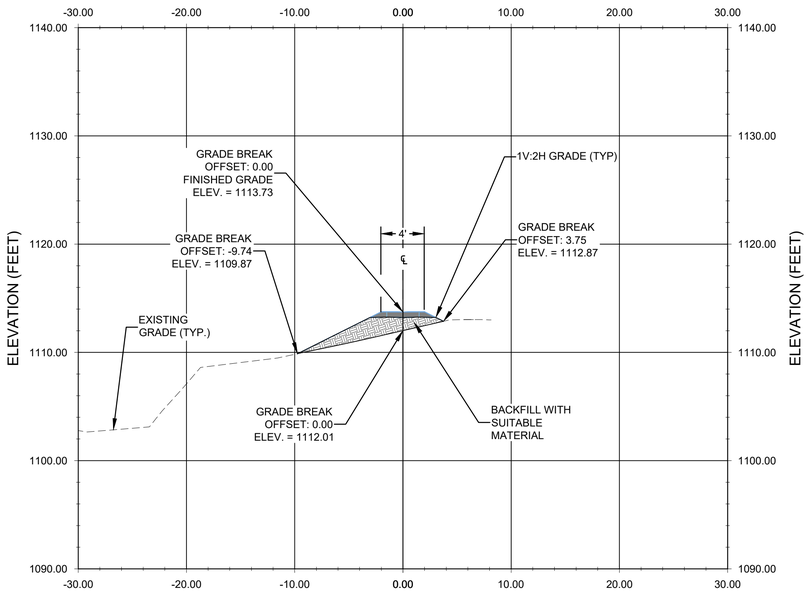
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

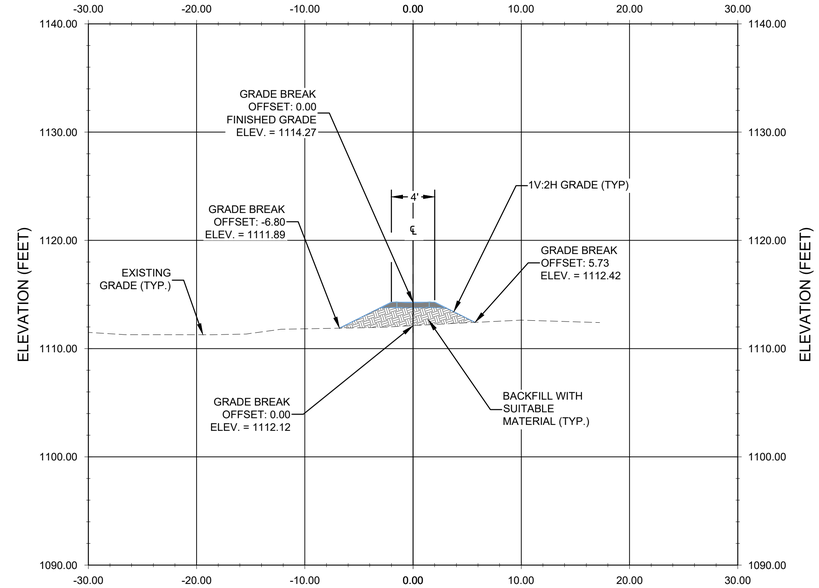
SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 SITE PLAN AND VERTICAL PROFILE

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

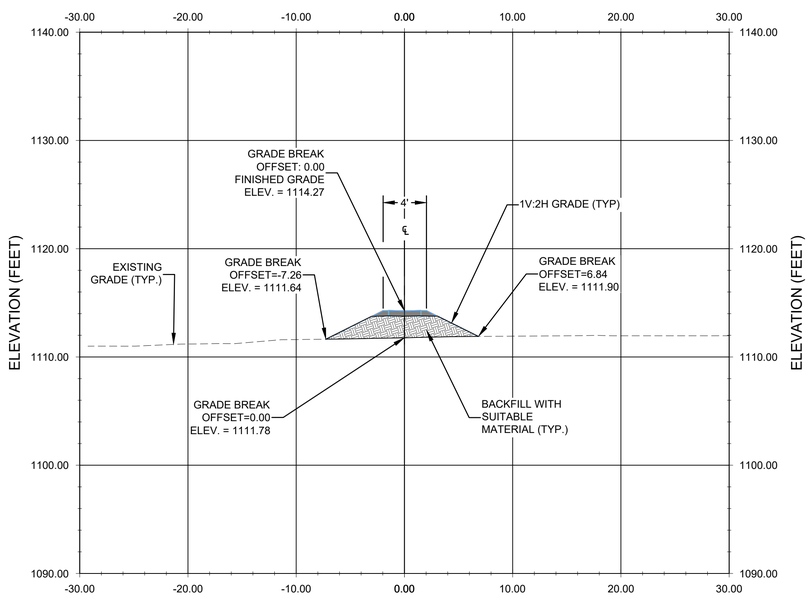
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-118
DRAWN B. B.	
CHECKED W.L.H	SHEET 35 OF 59
PROJECT NO.	



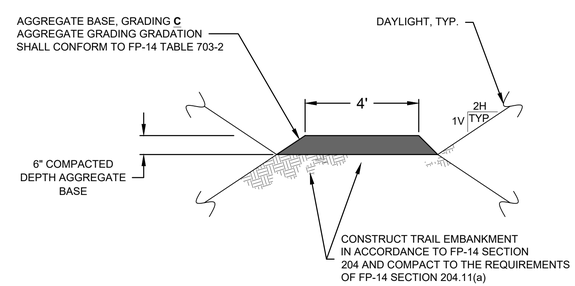
STATION: 0+20.94



STATION: 0+27.10



STATION: 0+80.10



SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 APPROACH TYPICAL TRAIL SECTION

NTS

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGE WALLACE HATHORNE REGISTERED No. 48735 PROFESSIONAL ENGINEER

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

SOURWOOD CREEK TRAIL BRIDGE M.P. 1.8 APPROACH CROSS SECTIONS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-119
DRAWN B. B.	
CHECKED W.L.H	SHEET 36 OF 59
PROJECT NO.	

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

10' 0' 10' 20'

LEGEND

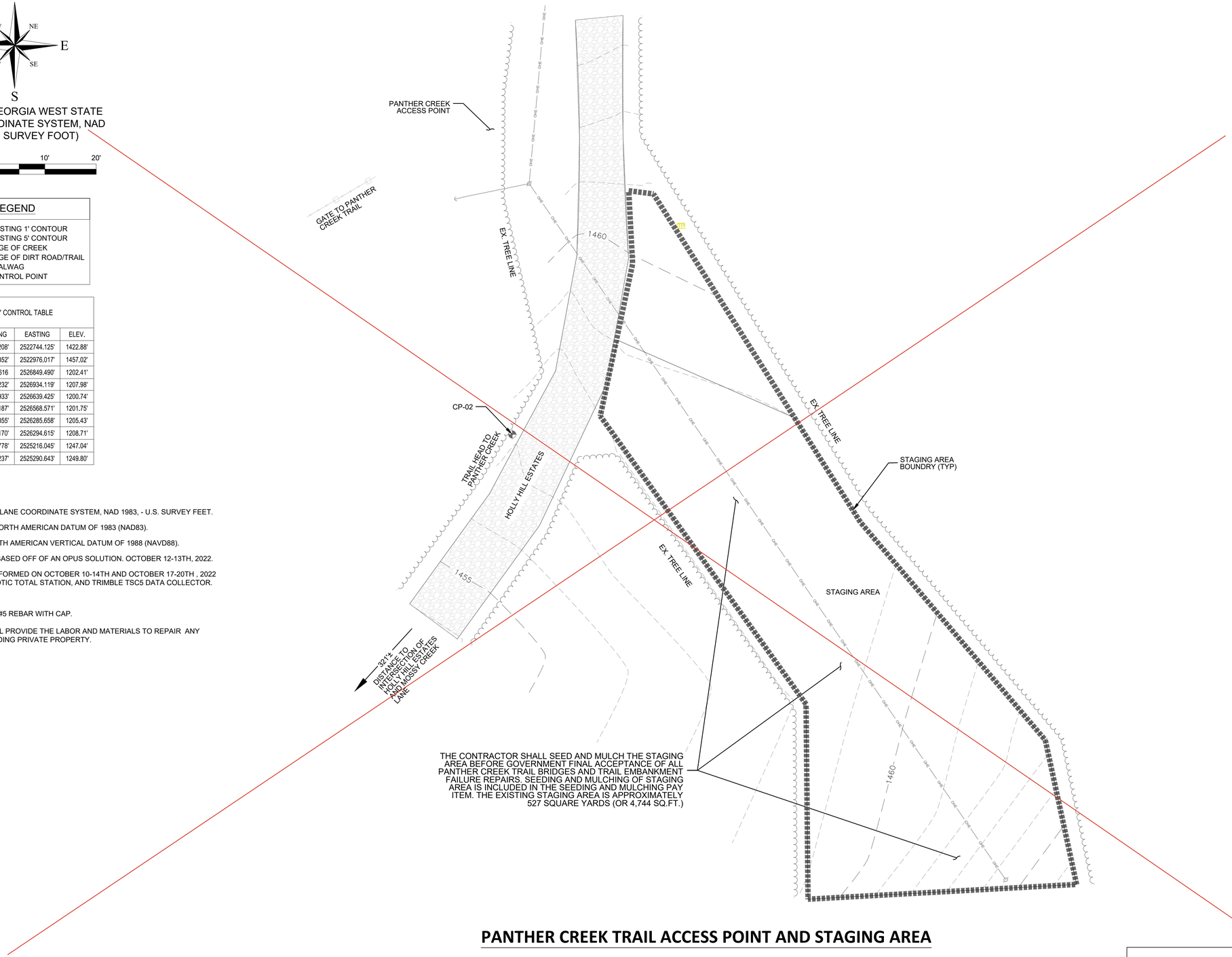
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
1	1699768.208'	2522744.125'	1422.88'
2	1700040.352'	2522976.017'	1457.02'
200	1703372.616	2526849.490'	1202.41'
201	1703389.232'	2526934.119'	1207.98'
300	1703502.933'	2526639.425'	1200.74'
301	1703539.187'	2526568.571'	1201.75'
400	1704342.855'	2526285.658'	1205.43'
401	1704411.170'	2526294.615'	1208.71'
500	1706796.778'	2525216.045'	1247.04'
501	1706831.237'	2525290.643'	1249.80'

SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET.
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83).
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. AS OBSERVED VIA GPS BASED OFF OF AN OPUS SOLUTION. OCTOBER 12-13TH, 2022.
5. FIELD SURVEY WAS PREFORMED ON OCTOBER 10-14TH AND OCTOBER 17-20TH , 2022 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 1' CONTOUR INTERVAL.
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.
8. THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REPAIR ANY DAMAGES TO SURROUNDING PRIVATE PROPERTY.



PANTHER CREEK TRAIL ACCESS POINT AND STAGING AREA

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

PANTHER CREEK TRAIL ACCESS POINT AND STAGING AREA

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-120
DRAWN B. B.	
CHECKED W.L.H	SHEET 37 OF 59
PROJECT NO.	

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

08' 0' 08' 16'

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
1	1699768.208'	2522744.125'	1422.88'
2	1700040.352'	2522976.017'	1457.02'
200	1703372.616	2526849.490'	1202.41'
201	1703389.232'	2526934.119'	1207.98'
300	1703502.933'	2526639.425'	1200.74'
301	1703539.187'	2526568.571'	1201.75'
400	1704342.855'	2526285.658'	1205.43'
401	1704411.170'	2526294.615'	1208.71'
500	1706796.778'	2525216.045'	1247.04'
501	1706831.237'	2525290.643'	1249.80'

BORING

POINT NO.	DESCRIPTION	ELEVATION (FEET)	NORTHING	EASTING
29	EMBANKMENT FAILURE	1218.60	1703367.44	2526919.72

SURVEY NOTES:

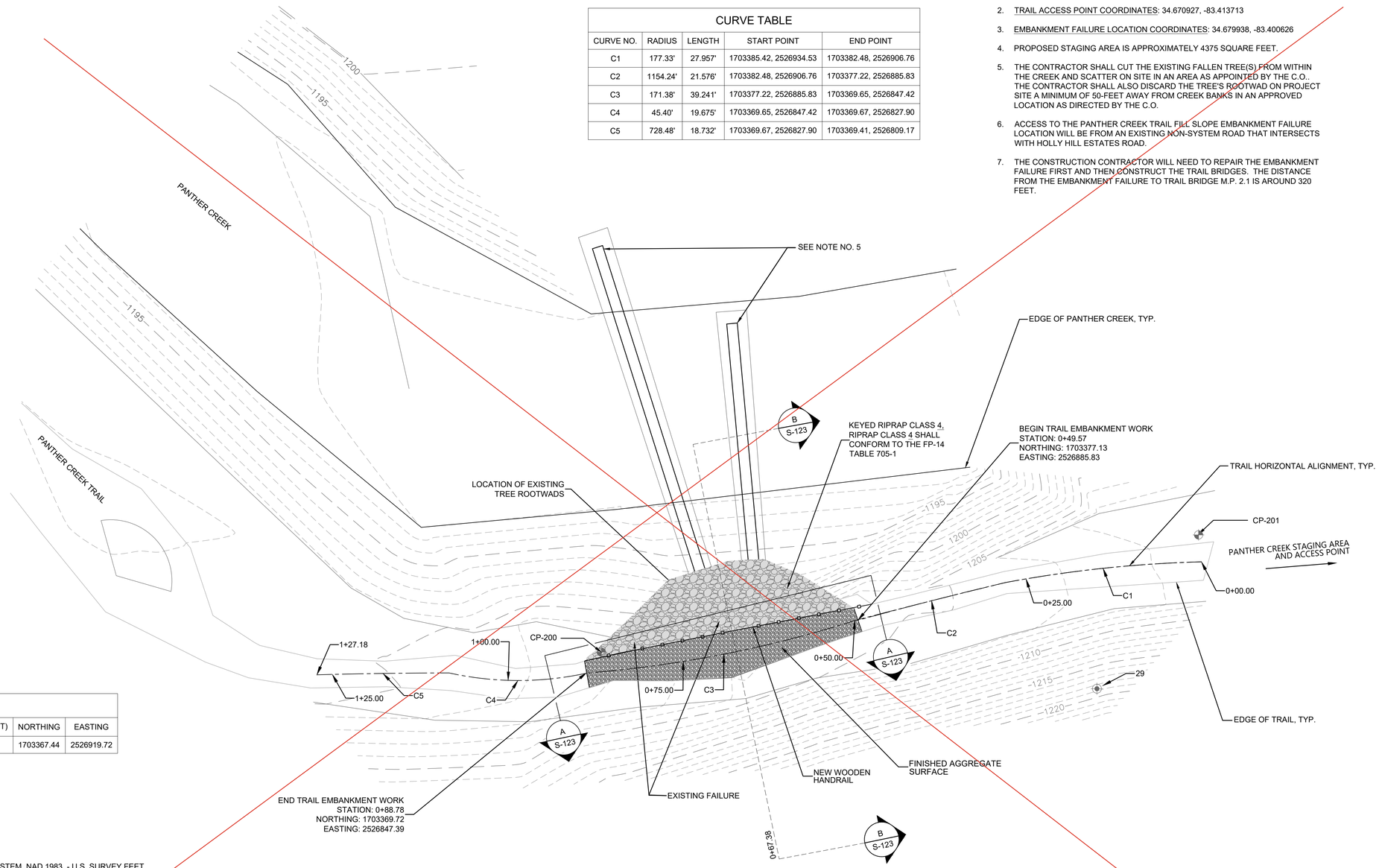
1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83)
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
4. AS OBSERVED VIA GPS BASED OFF OF AN OPUS SOLUTION. OCTOBER 12-13TH, 2022.
5. FIELD SURVEY WAS PREFORMED ON OCTOBER 10-14TH AND OCTOBER 17-20TH , 2022 TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 1' CONTOUR INTERVAL
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.

CURVE TABLE

CURVE NO.	RADIUS	LENGTH	START POINT	END POINT
C1	177.33'	27.957'	1703385.42, 2526934.53	1703382.48, 2526906.76
C2	1154.24'	21.576'	1703382.48, 2526906.76	1703377.22, 2526885.83
C3	171.38'	39.241'	1703377.22, 2526885.83	1703369.65, 2526847.42
C4	45.40'	19.675'	1703369.65, 2526847.42	1703369.67, 2526827.90
C5	728.48'	18.732'	1703369.67, 2526827.90	1703369.41, 2526809.17

SITE GENERAL NOTES:

1. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 60-INCHES WIDE).
2. TRAIL ACCESS POINT COORDINATES: 34.670927, -83.413713
3. EMBANKMENT FAILURE LOCATION COORDINATES: 34.679938, -83.400626
4. PROPOSED STAGING AREA IS APPROXIMATELY 4375 SQUARE FEET.
5. THE CONTRACTOR SHALL CUT THE EXISTING FALLEN TREE(S) FROM WITHIN THE CREEK AND SCATTER ON SITE IN AN AREA AS APPOINTED BY THE C.O.. THE CONTRACTOR SHALL ALSO DISCARD THE TREE'S ROOTWAD ON PROJECT SITE A MINIMUM OF 50-FEET AWAY FROM CREEK BANKS IN AN APPROVED LOCATION AS DIRECTED BY THE C.O.
6. ACCESS TO THE PANTHER CREEK TRAIL FILL SLOPE EMBANKMENT FAILURE LOCATION WILL BE FROM AN EXISTING NON-SYSTEM ROAD THAT INTERSECTS WITH HOLLY HILL ESTATES ROAD.
7. THE CONSTRUCTION CONTRACTOR WILL NEED TO REPAIR THE EMBANKMENT FAILURE FIRST AND THEN CONSTRUCT THE TRAIL BRIDGES. THE DISTANCE FROM THE EMBANKMENT FAILURE TO TRAIL BRIDGE M.P. 2.1 IS AROUND 320 FEET.



PANTHER CREEK TRAIL EMBANKMENT FAILURE SITE PLAN

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne
3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

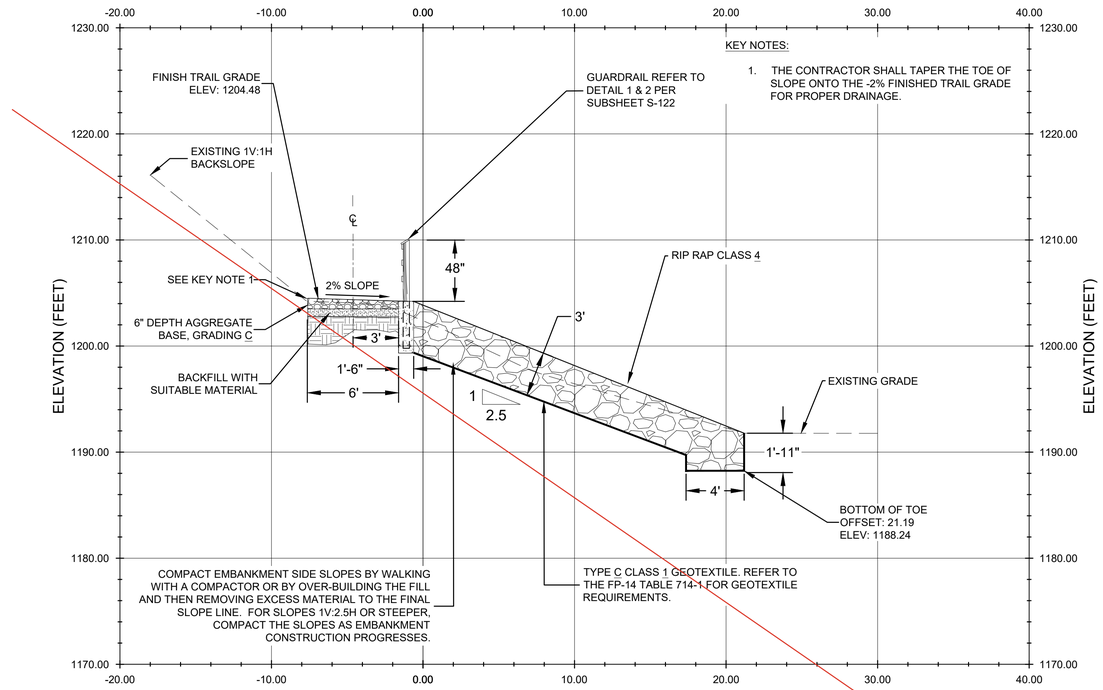
PANTHER CREEK TRAIL EMBANKMENT FAILURE SITE PLAN

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-121
DRAWN B. B.	
CHECKED W.L.H	SHEET 38 OF 59
PROJECT NO.	

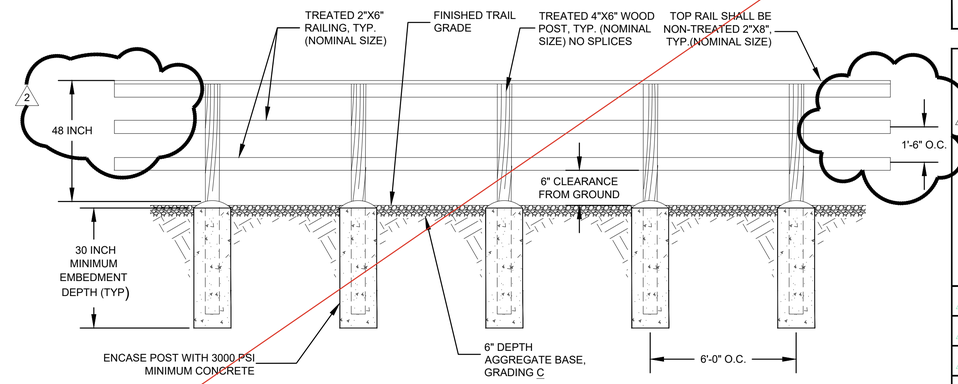
GENERAL NOTES:

1. EXCAVATION REQUIREMENTS: THE CONTRACTOR SHALL REMOVE TOPSOIL, VEGETATION, OBSTRUCTION AND BREAK UP THE BOTTOM SPECIFIED GROUND ELEVATION TO A MINIMUM DEPTH OF 6 INCHES BY SCARIFYING. CONTRACTOR SHALL THEN COMPACT THE GROUND SURFACE ACCORDING TO THE FP-14 SUBSECTION 204.11. CONTRACTOR SHALL INCORPORATE ONLY SUITABLE TRAIL EXCAVATION MATERIAL INTO THE RE-CONSTRUCTED TRAIL SLOPE EMBANKMENT FAILURE.
2. ALL HANDRAIL MATERIAL SHALL BE TREATED LUMBER EXCEPT TOP RAIL SHALL BE NON-TREATED.



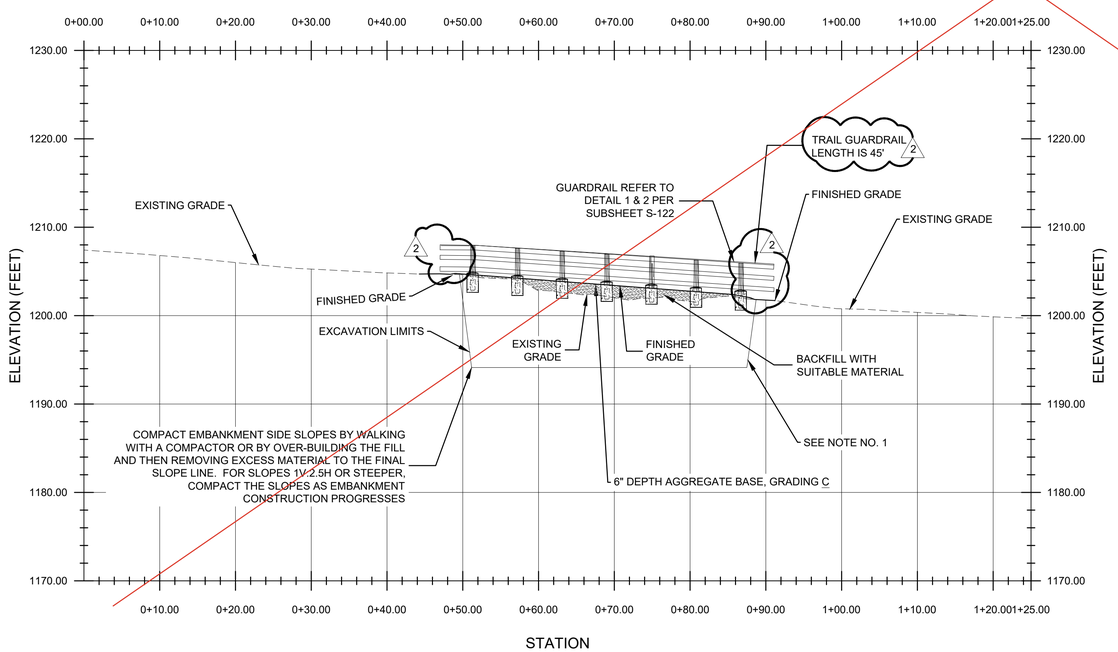
B **FILL SLOPE FAILURE REPAIR CROSS SECTION**

SCALE: 1:5



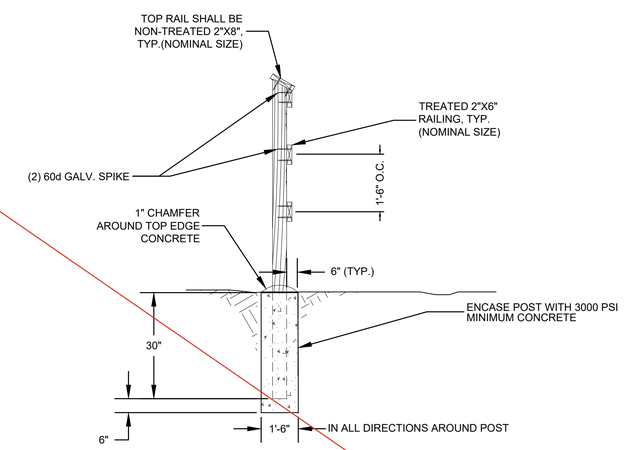
1 **TRAIL GUARDRAIL DETAIL**

SCALE: NTS



A **FILL SLOPE FAILURE REPAIR VERTICAL PROFILE**

SCALE: 1:10



2 **POST DETAIL**

SCALE: NTS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

PANTHER CREEK TRAIL EMBANKMENT FAILURE REPAIR DETAILS

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-122
DRAWN B. B.	
CHECKED W.L.H	SHEET 39 OF 59
PROJECT NO.	

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

20' 0' 20' 40'

SITE GENERAL NOTES:

1. THE EXISTING TRAIL BRIDGE AS SHOWN HAS BEEN NATURALLY MOVED FROM ITS ORIGINAL STATE DUE TO TROPICAL STORM ZETA'S HIGHWATER FLOWS.THE CONTRACTOR SHALL REMOVE AND DISPOSE THE EXISTING 23' SPAN X 32" WIDE WOODEN LOG BRIDGE.
2. TRAIL ACCESS POINT COORDINATES: 34.670927, -83.413713
3. TRAIL BRIDGE LOCATION COORDINATES: 34.680320, -83.401549
4. PLACE GEOTEXTILE TYPE IV-B PER FP-03 TABLE 714-4. INCLUDE IN PAY ITEM 25313. PLACE FROM BOTTOM GABION ELEV. TO TOP OF THE FINISH DECK AND TO FULL WIDTH OF GABIONS, (TYP).
5. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.

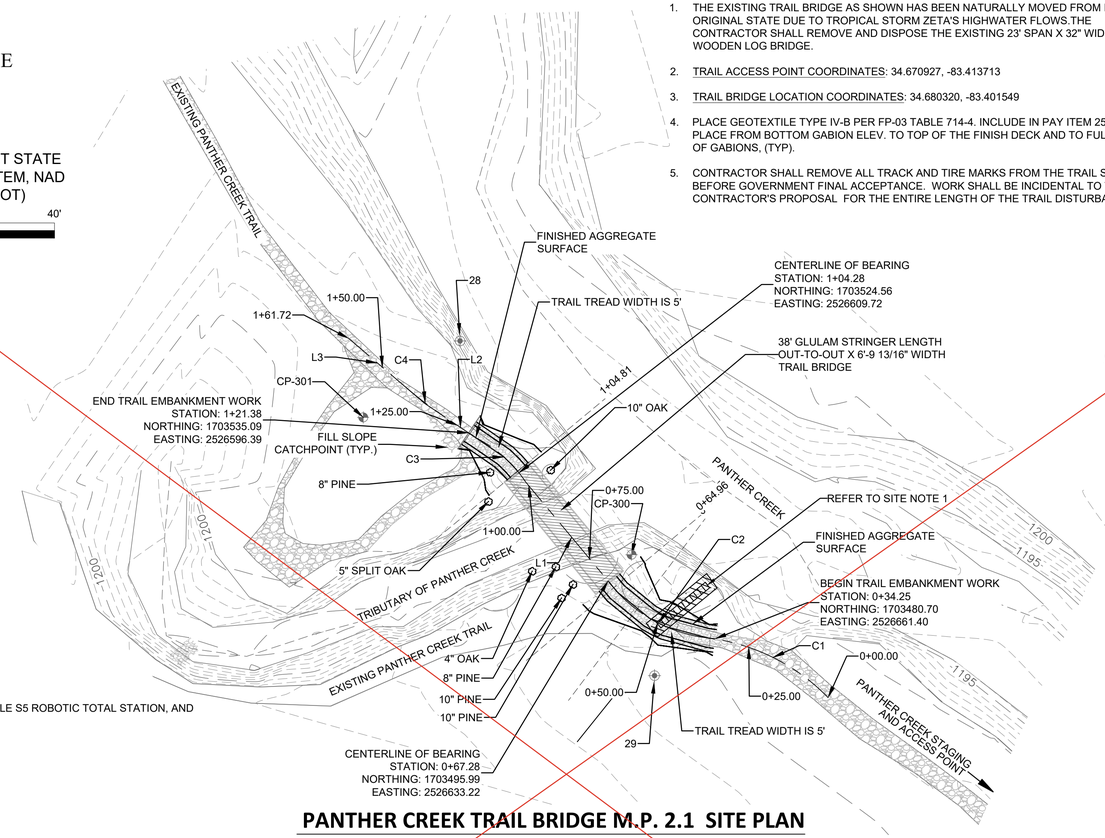
EXISTING PANTHER CREEK TRAIL BRIDGE M.P. 2.1 FOR REMOVAL & DISPOSAL (SEE NOTE NO. 1)

SURVEY CONTROL TABLE			
PT ID	NORTHING	EASTING	ELEV.
1	1699768.208'	2522744.125'	1422.88'
2	1700040.352'	2522976.017'	1457.02'
200	1703372.616	2526849.490'	1202.41'
201	1703389.232'	2526934.119'	1207.98'
300	1703502.933'	2526639.425'	1200.74'
301	1703539.187'	2526568.571'	1201.75'
400	1704342.855'	2526285.658'	1205.43'
401	1704411.170'	2526294.615'	1208.71'
500	1706796.778'	2525216.045'	1247.04'
501	1706831.237'	2525290.643'	1249.80'

BORINGS				
POINT NO.	DESCRIPTION	ELEVATION (FEET)	NORTHING	EASTING
28	NORTH	1198.382	1703559.35	2526594.15
29	SOUTH	1200.615	1703471.01	2526645.48

SURVEY NOTES:

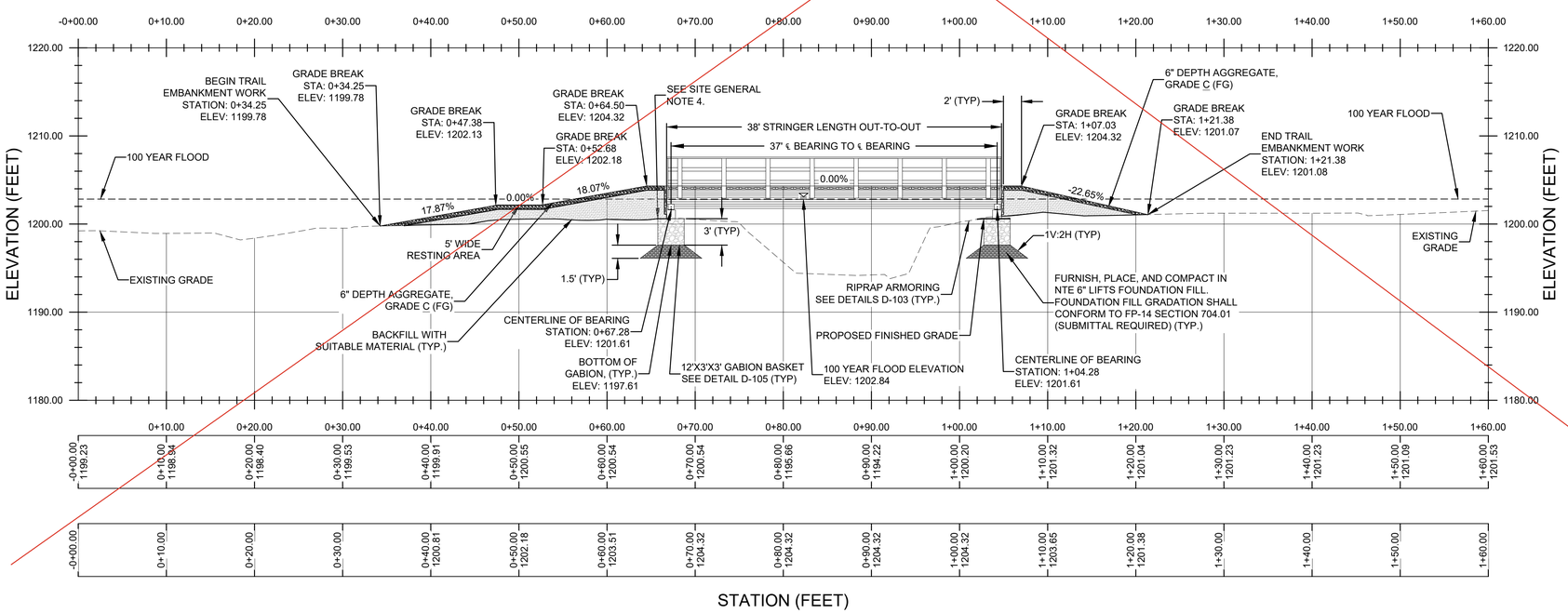
1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET.
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83).
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. AS OBSERVED VIA GPS BASED OFF OF AN TRIMBLE VRSNOW RTK SOLUTION, OCTOBER 31,2022.
5. FIELD SURVEY WAS PREFORMED ON OCTOBER 10-14TH AND OCTOBER 17-20TH , 2022 USING TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 1' CONTOUR INTERVAL.
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.



PANTHER CREEK TRAIL BRIDGE M.P. 2.1 SITE PLAN

CURVE TABLE				
CURVE NO.	RADIUS	LENGTH	START POINT	END POINT
C1	53.34'	36.13'	-0+00.00 1703465.22, 2526691.29	0+36.13 1703480.97, 2526659.54
C2	38.44'	27.35'	0+36.13 1703480.97, 2526659.54	0+63.48 1703493.08, 2526635.65
C3	35.25'	18.00'	1+01.06 1703521.95, 2526611.60	1+19.06 1703533.81, 2526598.32
C4	110.16'	12.97'	1+28.80 1703539.22, 2526590.23	1+41.77 1703547.05, 2526579.90

LINE TABLE			
LINE NO.	LENGTH	START POINT	END POINT
L1	37.58'	0+63.48 1703493.08, 2526635.65	1+01.06 1703521.95, 2526611.60
L2	9.74'	1+19.06 1703533.81, 2526598.32	1+28.80 1703539.22, 2526590.23
L3	19.95'	1+41.77 1703547.05, 2526579.90	1+61.72 1703560.02, 2526564.74



PANTHER CREEK TRAIL BRIDGE M.P. 2.1 VERTICAL PROFILE

SCALE: 1:8

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

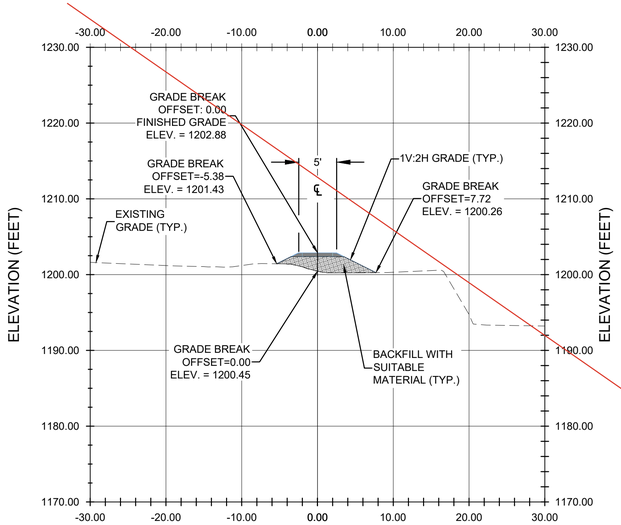
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

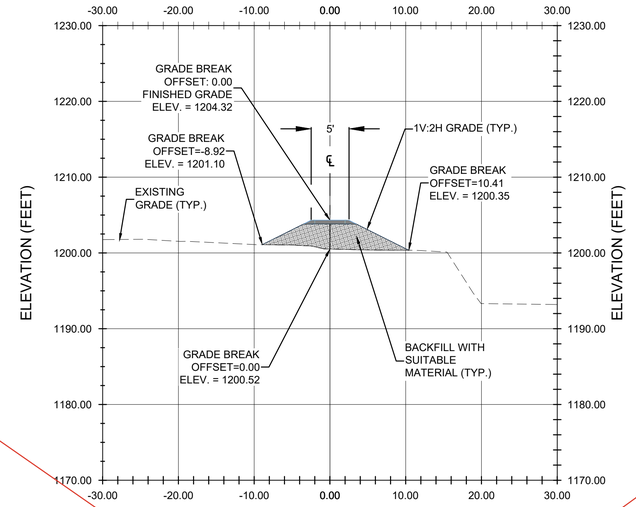
PANTHER CREEK TRAIL BRIDGE M.P. 2.1 SITE PLAN AND VERTICAL PROFILE

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

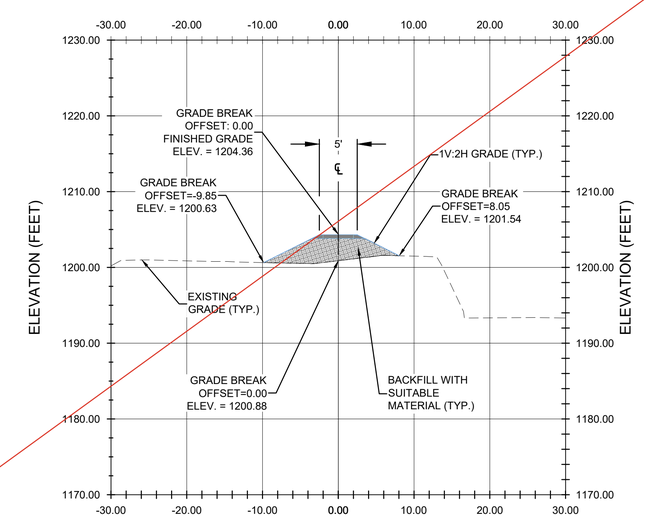
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-123
DRAWN B. B.	
CHECKED W.L.H	SHEET 40 OF 59
PROJECT NO.	



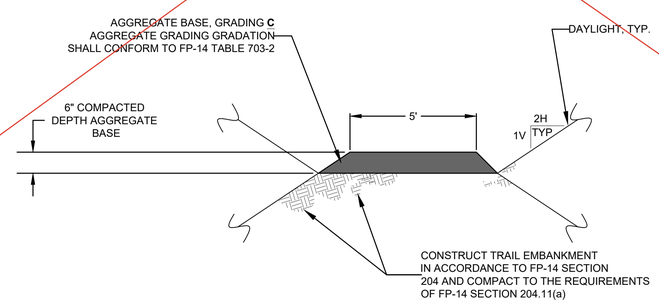
STATION: 0+56.55



STATION: 0+64.96



STATION: 1+04.81



USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

PANTHER CREEK TRAIL BRIDGE M.P. 2.1 APPROACH CROSS SECTIONS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.694.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-124
DRAWN B. B.	
CHECKED W.L.H	SHEET 41 OF 59
PROJECT NO.	

N
NW NE
W E
SW SE
S

BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

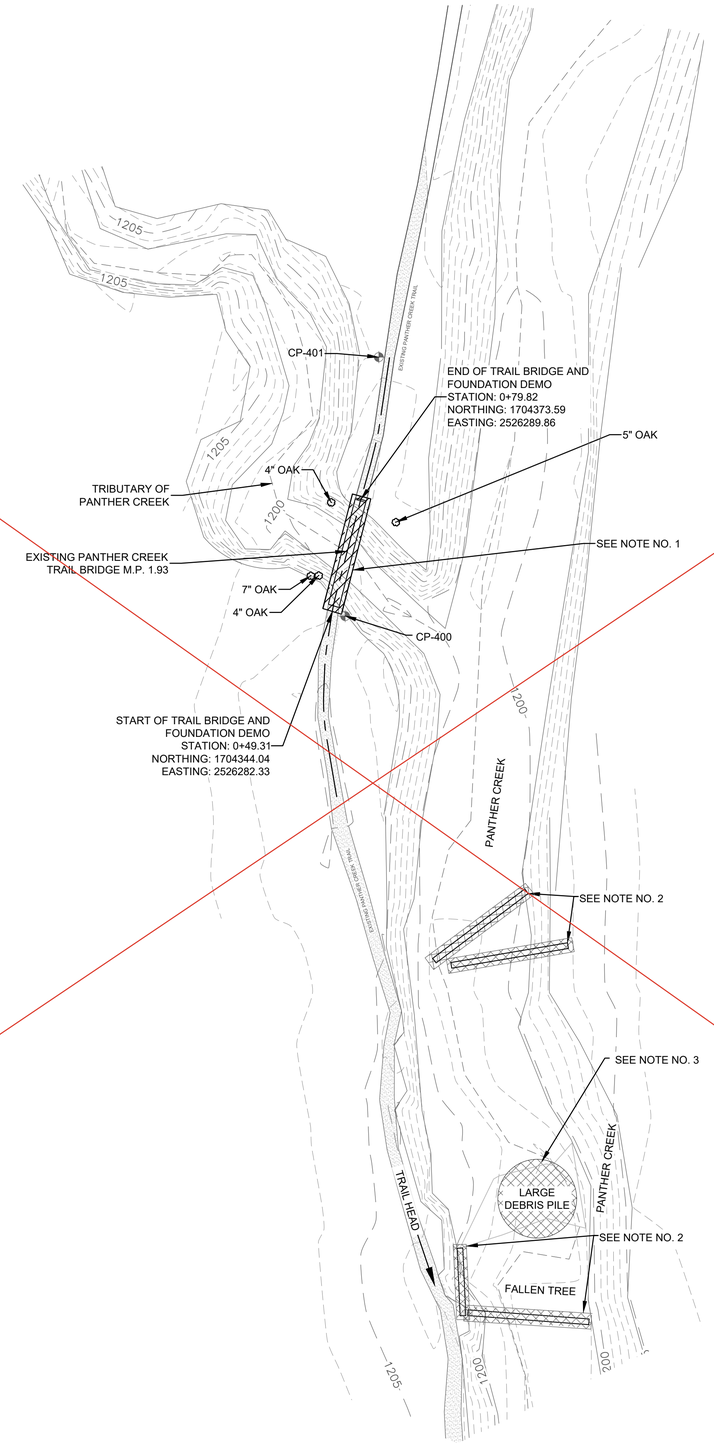
20' 0' 20' 40'

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
1	1699768.208'	2522744.125'	1422.88'
2	1700040.352'	2522976.017'	1457.02'
200	1703372.616	2526849.490'	1202.41'
201	1703389.232'	2526934.119'	1207.98'
300	1703502.933'	2526639.425'	1200.74'
301	1703539.187'	2526568.571'	1201.75'
400	1704342.855'	2526285.658'	1205.43'
401	1704411.170'	2526294.615'	1208.71'
500	1706796.778'	2525216.045'	1247.04'
501	1706831.237'	2525290.643'	1249.80'



PANTHER CREEK TRAIL BRIDGE M.P. 1.93 DEMOLITION PLAN

NOTES:

1. THE EXISTING TRAIL BRIDGE HAS BEEN DAMAGED FROM ITS ORIGINAL STATE DUE TO TROPICAL STORM ZETA'S HIGHWATER FLOWS. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING 29' SPAN X 36" WIDE WOODEN LOG BRIDGE.
2. THE CONTRACTOR SHALL CUT THE EXISTING FALLEN TREE(S) FROM WITHIN THE CREEK AND SCATTER ON SITE IN AN AREA AS APPOINTED BY THE C.O.. THE CONTRACTOR SHALL ALSO DISCARD THE TREE'S ROOTWAD ON PROJECT SITE A MINIMUM OF 50-FEET AWAY FROM CREEK BANKS IN AN APPROVED LOCATION AS DIRECTED BY THE C.O.
3. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING DEBRIS PILE. THE DEBRIS PILE SHALL BE DISCARDING A MINIMUM OF 50-FEET AWAY FROM CREEK BANKS IN AN APPROVED LOCATION AS DIRECTED BY THE C.O.
4. MECHANIZED EQUIPMENT IS NOT ACCESSIBLE UNTIL TRAIL BRIDGE 2.10 IS CONSTRUCTED.

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

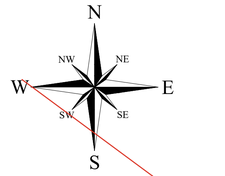
DRAWING TITLE

PANTHER CREEK TRAIL BRIDGE M.P. 1.93 DEMOLITION PLAN

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com

ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-125
DRAWN B. B.	
CHECKED W.L.H	SHEET 42 OF 59
PROJECT NO.	



BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

15' 0' 15' 30'

LEGEND

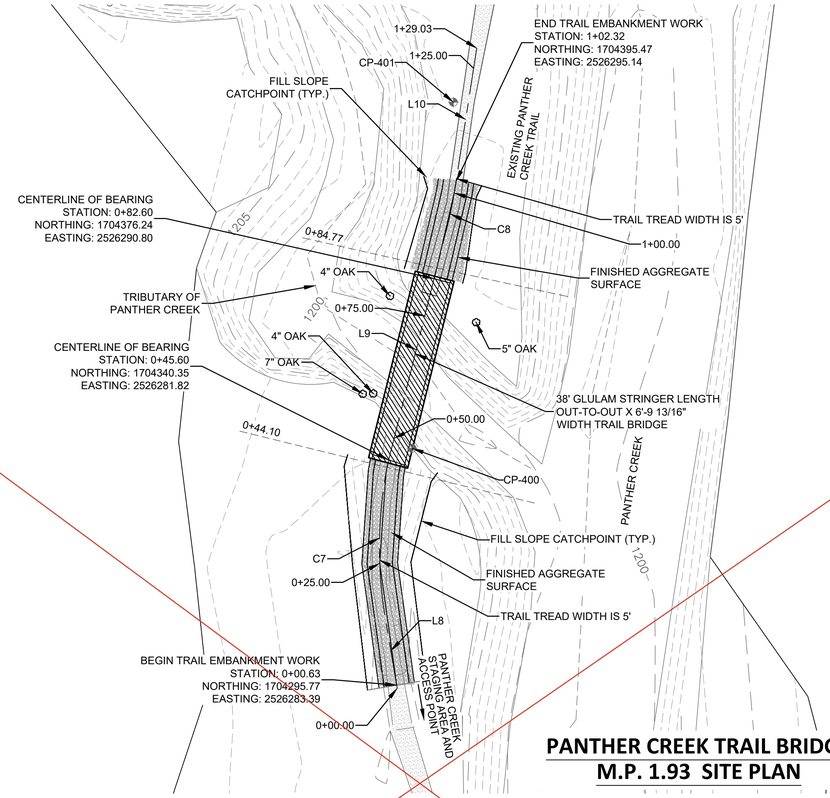
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

PT ID	NORTHING	EASTING	ELEV.
1	1699768.208'	2522744.125'	1422.88'
2	1700040.352'	2522976.017'	1457.02'
200	1703372.616	2526849.490'	1202.41'
201	1703389.232'	2526934.119'	1207.98'
300	1703502.933'	2526639.425'	1200.74'
301	1703539.187'	2526568.571'	1201.75'
400	1704342.855'	2526285.658'	1205.43'
401	1704411.170'	2526294.615'	1208.71'
500	1706796.778'	2525216.045'	1247.04'
501	1706831.237'	2525290.643'	1249.80'

SURVEY NOTES:

1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83)
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
4. AS OBSERVED VIA GPS BASED OFF OF AN OPUS SOLUTION. OCTOBER 12-13TH, 2022.
5. FIELD SURVEY WAS PREFORMED ON OCTOBER 10-14TH AND OCTOBER 17-20TH , 2022 TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 1' CONTOUR INTERVAL
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.



PANTHER CREEK TRAIL BRIDGE M.P. 1.93 SITE PLAN

CURVE TABLE

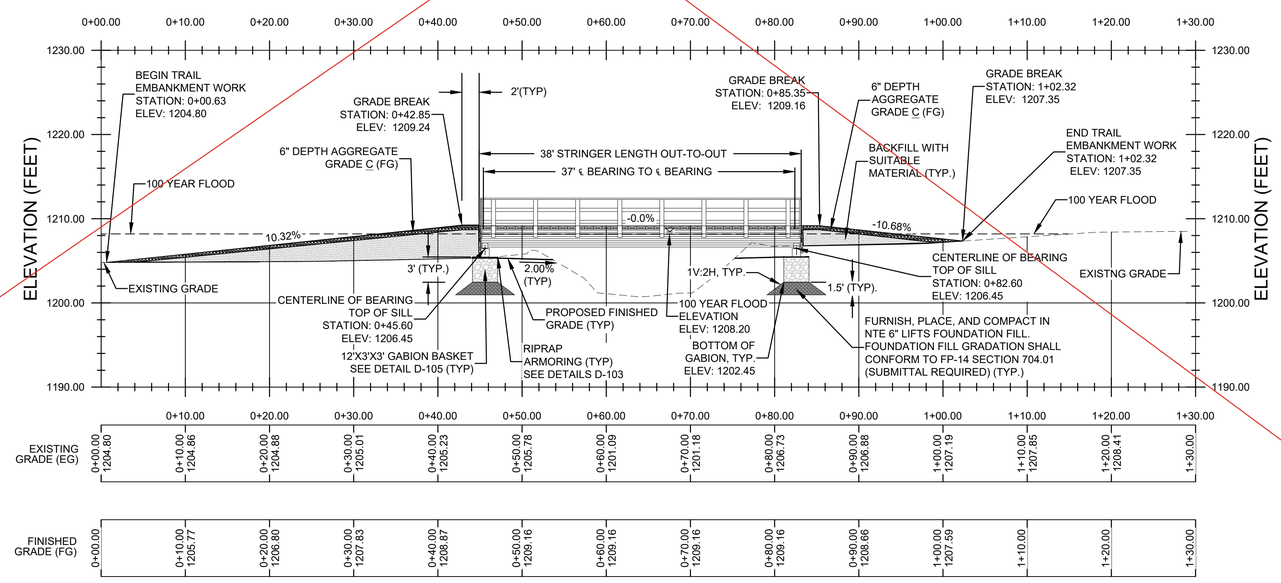
CURVE NO.	RADIUS	LENGTH	START POINT	END POINT
C7	84.58'	29.92'	0+15.09 1704310.02, 2526280.97	0+45.01 1704339.77, 2526281.66
C8	89.68'	9.33'	0+91.12 1704384.50, 2526292.87	1+00.45 1704393.62, 2526294.86

LINE TABLE

LINE NO.	LENGTH	START POINT	END POINT
L8	15.09'	0+00.00 1704295.14, 2526283.50	0+15.09 1704310.02, 2526280.97
L9	46.11'	0+45.01 1704339.77, 2526281.66	0+91.12 1704384.50, 2526292.87
L10	28.58'	1+00.45 1704393.62, 2526294.86	1+29.03 1704421.85, 2526299.24

SITE GENERAL NOTES:

1. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 60-INCHES WIDE) ONCE PANTHER CREEK TRAIL BRIDGE M.P. 2.10 IS CONSTRUCTED. HIKING IS REQUIRED UNTIL TRAIL BRIDGE M.P. 2.10 IS CONSTRUCTED.
2. TRAIL ACCESS POINT COORDINATES: 34.670927, -83.413713
3. TRAIL BRIDGE LOCATION COORDINATES: 34.680328, -83.401500
4. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.



STATION (FEET)

PANTHER CREEK TRAIL BRIDGE M.P. 1.93 VERTICAL PROFILE

SCALE: 1:9

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

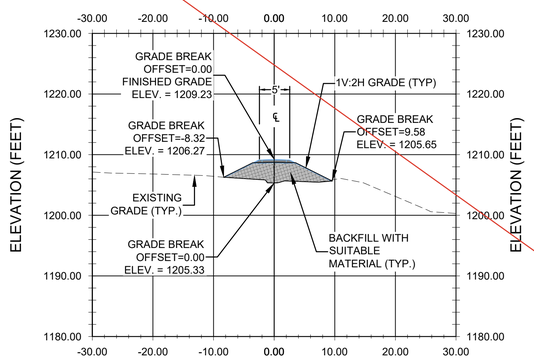
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

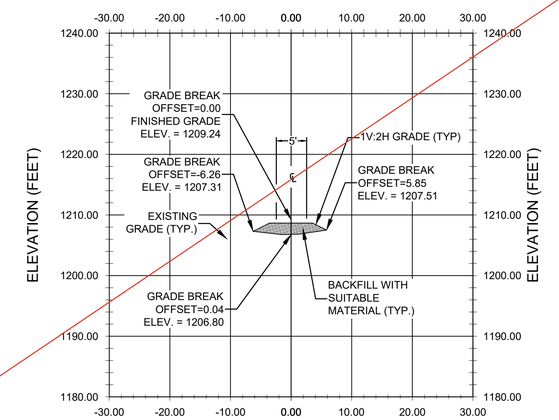
PANTHER CREEK TRAIL BRIDGE M.P. 1.93 SITE PLAN AND VERTICAL PROFILE

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

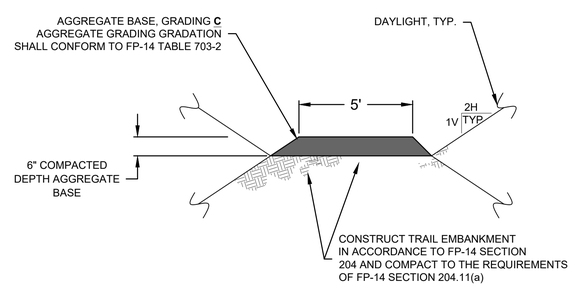
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-126
DRAWN B. B.	
CHECKED W.L.H	SHEET 43 OF 59
PROJECT NO.	



STATION: 0+44.10



STATION: 0+84.77



PANTHER CREEK TRAIL BRIDGE M.P. 1.93 APPROACH TYPICAL TRAIL SECTION

NTS

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

PANTHER CREEK TRAIL BRIDGE M.P. 1.93 APPROACH CROSS SECTIONS

DATE 5-2-2023

ARCHIVE NO.

DESIGNER N. R.E.

DRAWN B. B.

CHECKED W.L.H

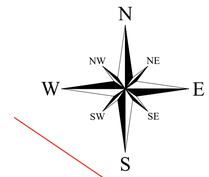
PROJECT NO.

DRAWING SHEET NO. **S-127**

SHEET **44 OF 59**

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com

ISAIAH ENGINEERING
Building The Future



BASED ON GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983 (US SURVEY FOOT)

15' 0' 15' 30'

LEGEND

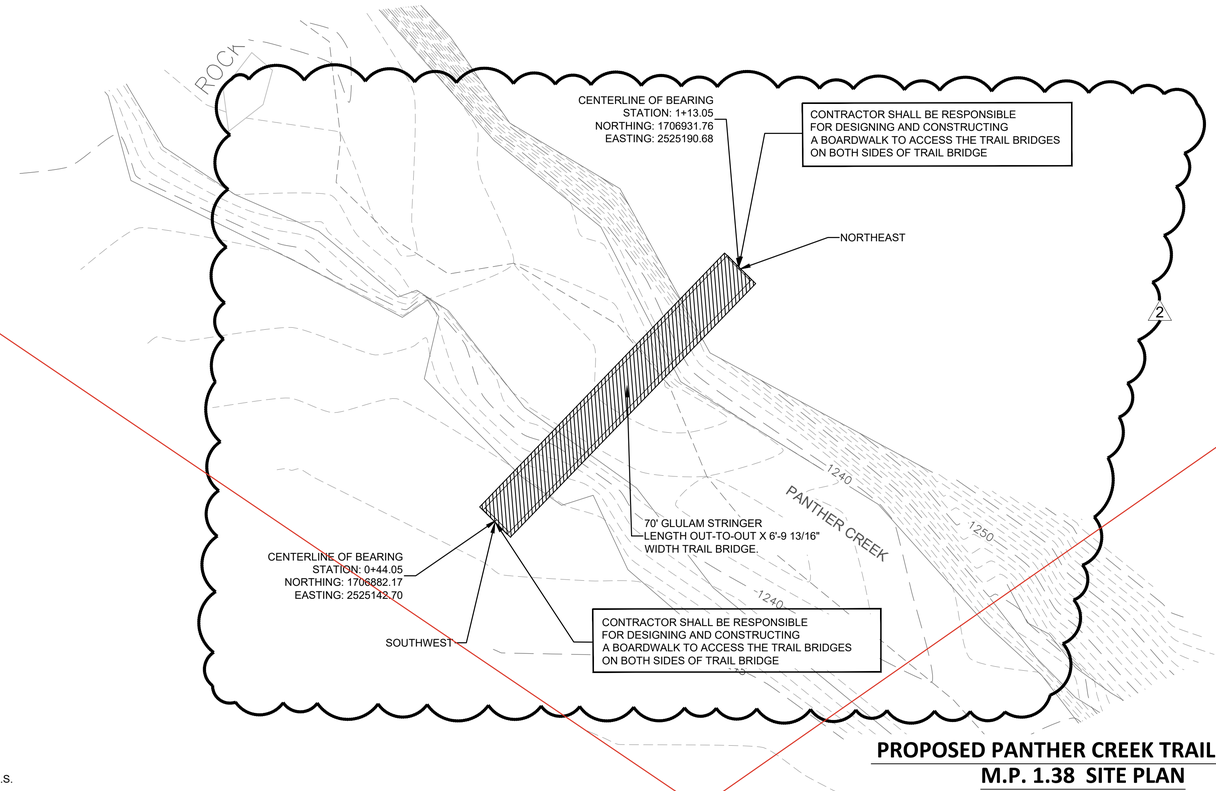
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EDGE OF CREEK
- EDGE OF DIRT ROAD/TRAIL
- THALWAG
- CONTROL POINT

SURVEY CONTROL TABLE

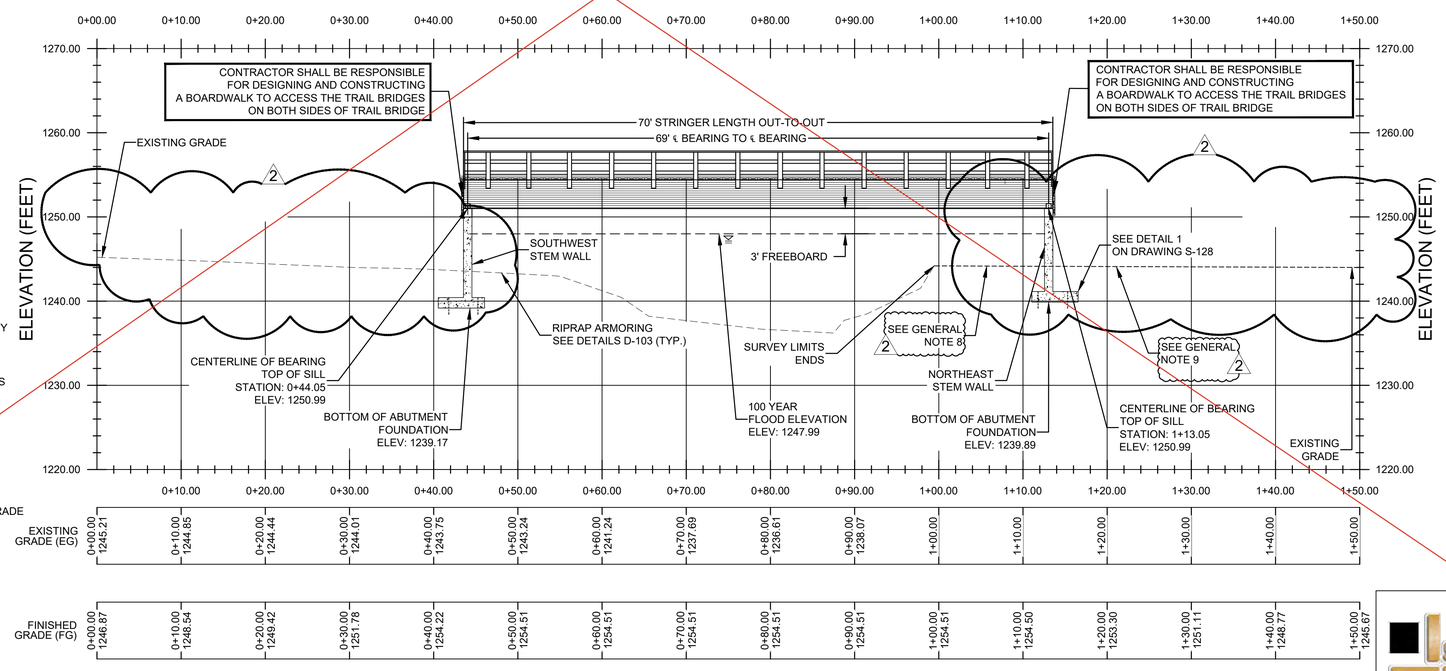
PT ID	NORTHING	EASTING	ELEV.
1	1699768.208'	2522744.125'	1422.88'
2	1700040.352'	2522976.017'	1457.02'
200	1703372.616	2526849.490'	1202.41'
201	1703389.232'	2526934.119'	1207.98'
300	1703502.933'	2526639.425'	1200.74'
301	1703539.187'	2526568.571'	1201.75'
400	1704342.855'	2526285.658'	1205.43'
401	1704411.170'	2526294.615'	1208.71'
500	1706796.778'	2525216.045'	1247.04'
501	1706831.237'	2525290.643'	1249.80'

SURVEY NOTES:

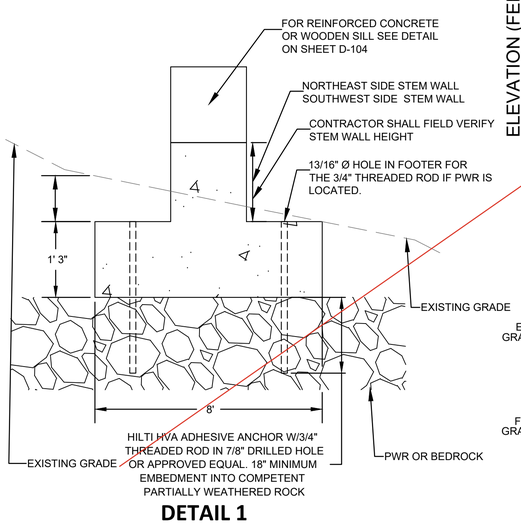
1. GEORGIA WEST STATE PLANE COORDINATE SYSTEM, NAD 1983, - U.S. SURVEY FEET
2. HORIZONTAL DATUM = NORTH AMERICAN DATUM OF 1983 (NAD83)
3. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
4. AS OBSERVED VIA GPS BASED OFF OF AN OPUS SOLUTION. OCTOBER 12-13TH, 2022.
5. FIELD SURVEY WAS PREFORMED ON OCTOBER 10-14TH AND OCTOBER 17-20TH , 2022 TRIMBLE S5 ROBOTIC TOTAL STATION, AND TRIMBLE TSC5 DATA COLLECTOR.
6. 1' CONTOUR INTERVAL
7. PRIMARY CONTROL IS A #5 REBAR WITH CAP.



PROPOSED PANTHER CREEK TRAIL BRIDGE
M.P. 1.38 SITE PLAN
SCALE 1:15



PANTHER CREEK TRAIL BRIDGE M.P. 1.38 VERTICAL PROFILE
SCALE: 1:9



DETAIL 1
NTS

SITE GENERAL NOTES:

1. THE PROJECT SITE IS MISSING THE EXISTING TRAIL BRIDGE.
2. THE PROJECT SITE IS ACCESSIBLE BY MECHANIZED EQUIPMENT (NTE 60-INCHES WIDE) ONCE TRAIL BRIDGE M.P. 2.10 AND TRAIL BRIDGE 1.93 IS CONSTRUCTED. HIKING IS REQUIRED UNTIL THOSE TWO BRIDGES ARE CONSTRUCTED.
3. TRAIL ACCESS POINT COORDINATES: 34.670927, -83.413713
4. TRAIL BRIDGE LOCATION COORDINATES: CONTRACTOR FIELD VERIFY NEW TRAIL BRIDGE LOCATION.
5. THE DISTANCE FROM THE TRAIL BRIDGE M.P. 1.93 TO TRAIL BRIDGE M.P. 1.38 IS APPROX. 3142 FEET.
6. CONTRACTOR SHALL REMOVE ALL TRACK AND TIRE MARKS FROM THE TRAIL SURFACE BEFORE GOVERNMENT FINAL ACCEPTANCE. WORK SHALL BE INCIDENTAL TO THE CONTRACTOR'S PROPOSAL FOR THE ENTIRE LENGTH OF THE TRAIL DISTURBANCE.
7. CONTRACTOR SHALL FIELD VERIFY BOTTOM OF ABUTEMENT FOUNDATION ELEVATION.(TYP).
8. BEYOND SURVEY LIMITS CONTRACTOR SHALL TAPER THE FINISH TRAIL EMBANKMENT UNTIL DAYLIGHT TO EXISTING GROUND GRADE
9. NO GEOTECHNICAL ENGINEERING SERVICES WAS DONE FOR THE NEW TRAIL BRIDGE LOCATION.

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

Wallace L Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

PANTHER CREEK TRAIL BRIDGE M.P. 1.38 SITE PLAN AND VERTICAL PROFILE

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

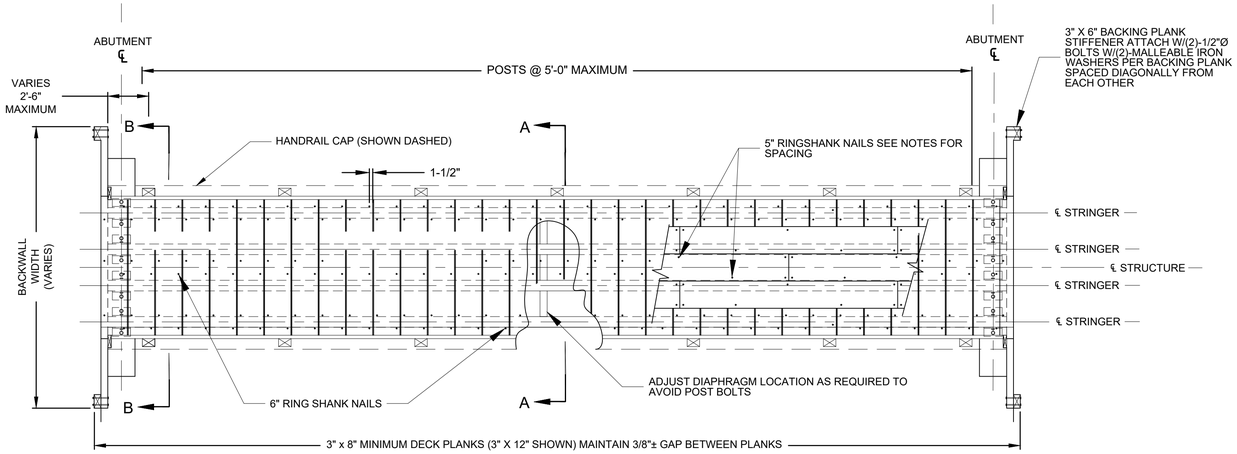
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. S-128
DRAWN B. B.	
CHECKED W.L.H	SHEET 45 OF 59
PROJECT NO.	

NOTES:

1. FASTEN DECK PLANKS TO STRINGERS WITH TWO ROWS 60d (6-INCH) RING SHANK NAILS PER PLANK AT EACH STRINGER. ALTERNATE CENTERS.
2. FASTEN RUNNING PLANKS TO DECK WITH 40d (5-INCH RING SHANK) NAILS AT 24-INCHES SPACING. ALTERNATE CENTERS WITH TWO AT EACH END.
3. SPLICE RAILS AT POSTS. RAILS SHALL BE CONTINUOUS FOR TWO POST SPACES. DO NOT LOCATE MORE THAN ONERAIL SPLICE AT ANY ONE POST.

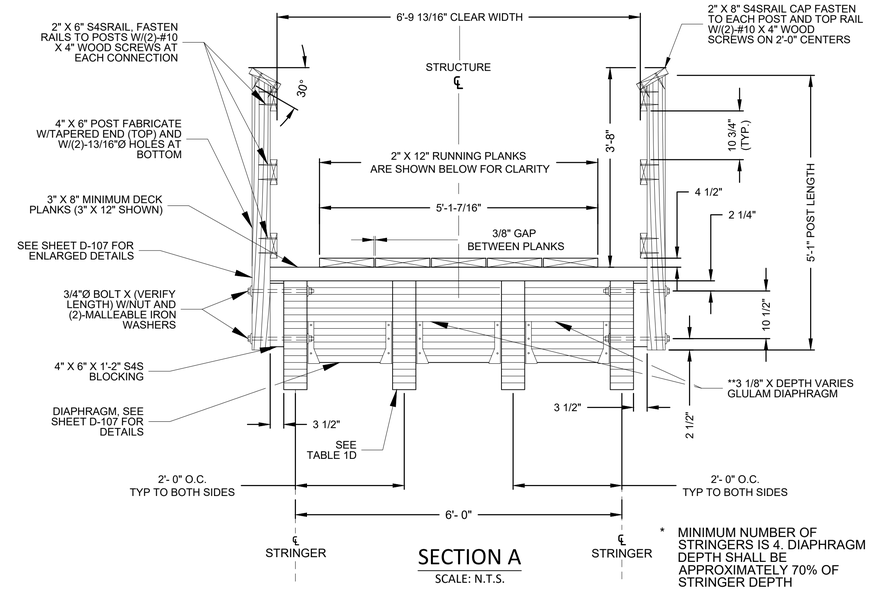
*TABLE-1D: GLULAM STRINGER SIZE REQUIREMENTS - LRFD		
SPECIES - SP/SP COMBINATION SYMBOL 24F - V3		
DESIGN LOADING IN POUNDS PER SQUARE FOOT		
PEDESTRIAN LIVE LOAD = 90 PSF		
** STRINGER SPAN (FEET)	STRINGER SIZE	BRIDGE LOCATION
▲ 55	6 3/4" WIDE X 33 1/2" DEPTH	DICKS CREEK TRAIL BRIDGE M.P. 9.25
▲ 70	6 3/4" WIDE X 41" DEPTH	LICK LOG TRAIL BRIDGE M.P. 6.79
▲ 38	~~5 1/8" WIDE X 23" DEPTH~~	~~PANTHER CREEK TRAIL BRIDGE M.P. 2.1~~
▲ 38	~~5 1/8" WIDE X 23" DEPTH~~	~~PANTHER CREEK TRAIL BRIDGE M.P. 1.93~~
▲ 70	~~6 3/4" WIDE X 41" DEPTH~~	~~PANTHER CREEK TRAIL BRIDGE M.P. 1.38~~
▲ 30	5 1/8" WIDE X 18" DEPTH	POLE CREEK TRAIL BRIDGE M.P. 0.75

▲ INSTALL DIAPHRAGMS AT THIRD POINTS OF SPAN AND WITHIN A DISTANCE OF THE DEPTH FROM THE ABUTMENTS.



PLAN VIEW

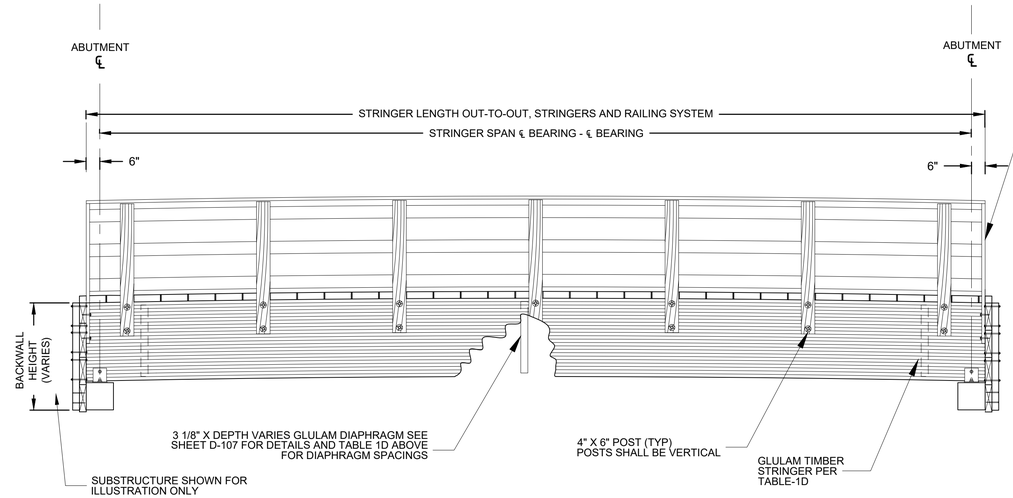
SCALE: N.T.S.



* MINIMUM NUMBER OF STRINGERS IS 4. DIAPHRAGM DEPTH SHALL BE APPROXIMATELY 70% OF STRINGER DEPTH

SECTION A

SCALE: N.T.S.

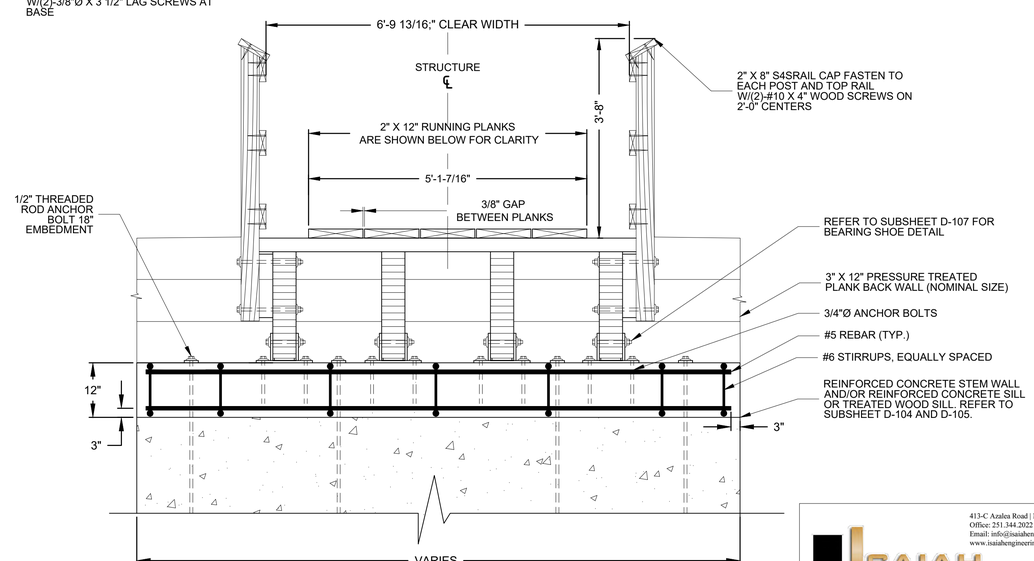


GRADE SHOWN = 0.0%

- FABRICATE GLULAM STRINGERS WITH CAMBER BASED ON A 900 FOOT RADIUS.
- RUNNING PLANKS NOT SHOWN FOR CLARITY.

ELEVATION

SCALE: N.T.S.



SECTION B

SCALE: N.T.S.

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 18735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

6'-9 13/16" OUT-TO-OUT WIDTH TRAIL BRIDGE DETAILS

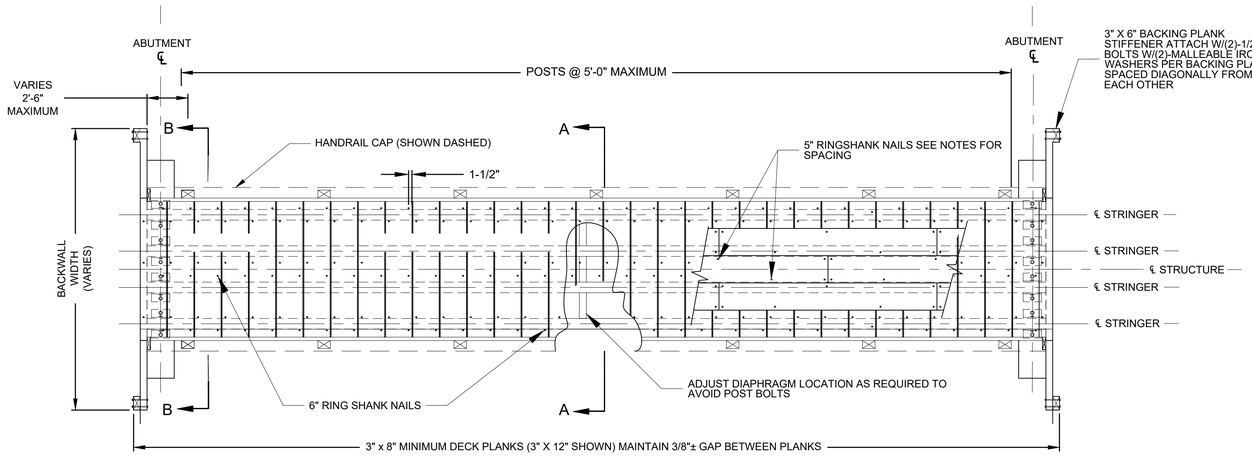
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-101
DRAWN B. B.	
CHECKED W.L.H	SHEET 46 OF 59
PROJECT NO.	

NOTES:

1. FASTEN DECK PLANKS TO STRINGERS WITH TWO ROWS 60d (6-INCH) RING SHANK NAILS PER PLANK AT EACH STRINGER. ALTERNATE CENTERS.
2. FASTEN RUNNING PLANKS TO DECK WITH 40d (5-INCH RING SHANK) NAILS AT 24-INCHES SPACING. ALTERNATE CENTERS WITH TWO AT EACH END.
3. SPLICE RAILS AT POSTS. RAILS SHALL BE CONTINUOUS FOR TWO POST SPACES. DO NOT LOCATE MORE THAN ONE RAIL SPLICE AT ANY ONE POST.

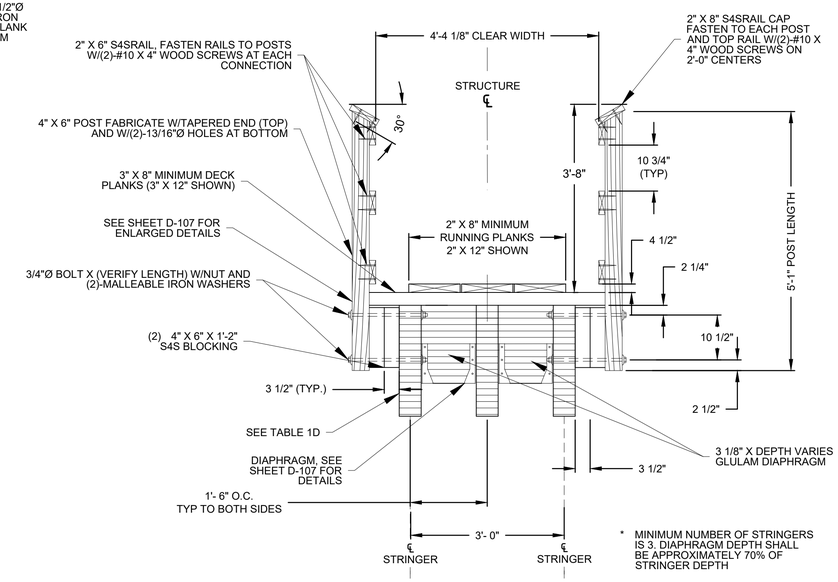
*TABLE 1D: GLULAM STRINGER SIZE REQUIREMENTS - LRFD		
SPECIES - SP/SP COMBINATION SYMBOL 24F - V3		
DESIGN LOADING IN POUNDS PER SQUARE FOOT		
PEDESTRIAN LIVE LOAD = 90 PSF		
** STRINGER SPAN (FEET)	STRINGER SIZE	BRIDGE LOCATION
▲ 40	5 1/8" WIDE X 22 1/2" DEPTH	BECKY BRANCH TRAIL BRIDGE M.P. 18.84
▲ 58	6 3/4" WIDE X 31 1/2" DEPTH	LAKE RUSSELL TRAIL BRIDGE M.P. 0.10
▲ 58	~~6 3/4" WIDE X 31 1/2" DEPTH~~	~~LAKE RUSSELL TRAIL BRIDGE M.P. 2.18~~
▲ 51	6 3/4" WIDE X 28 1/2" DEPTH	SOURWOOD TRAIL BRIDGE M.P. 1.8

▲ INSTALL DIAPHRAGMS AT THIRD POINTS OF SPAN AND WITHIN A DISTANCE OF THE DEPTH FROM THE ABUTMENTS.



PLAN VIEW

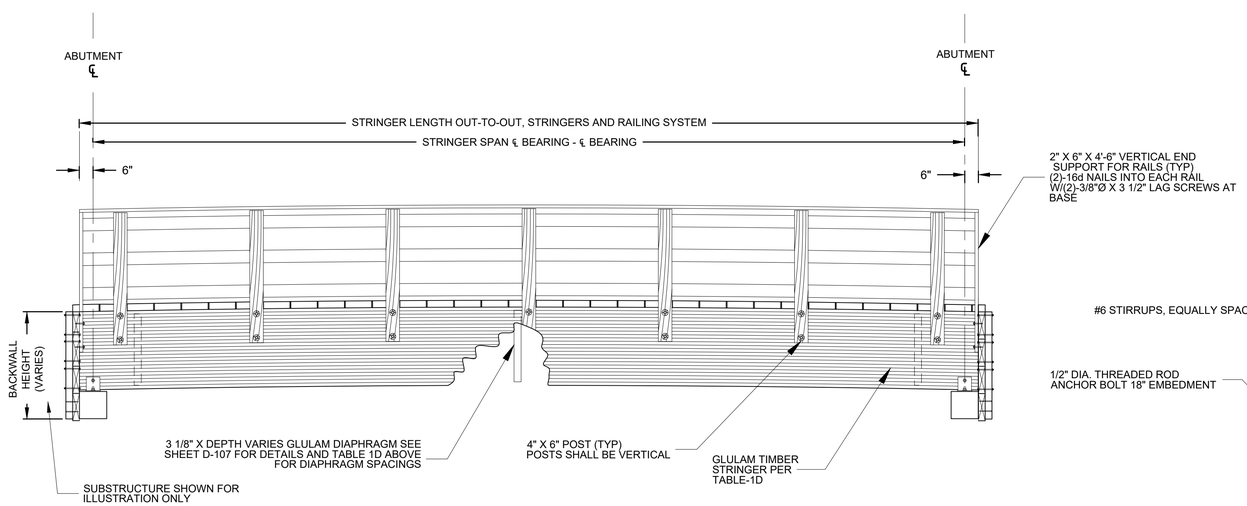
SCALE: N.T.S.



* MINIMUM NUMBER OF STRINGERS IS 3. DIAPHRAGM DEPTH SHALL BE APPROXIMATELY 70% OF STRINGER DEPTH

SECTION A

SCALE: N.T.S.

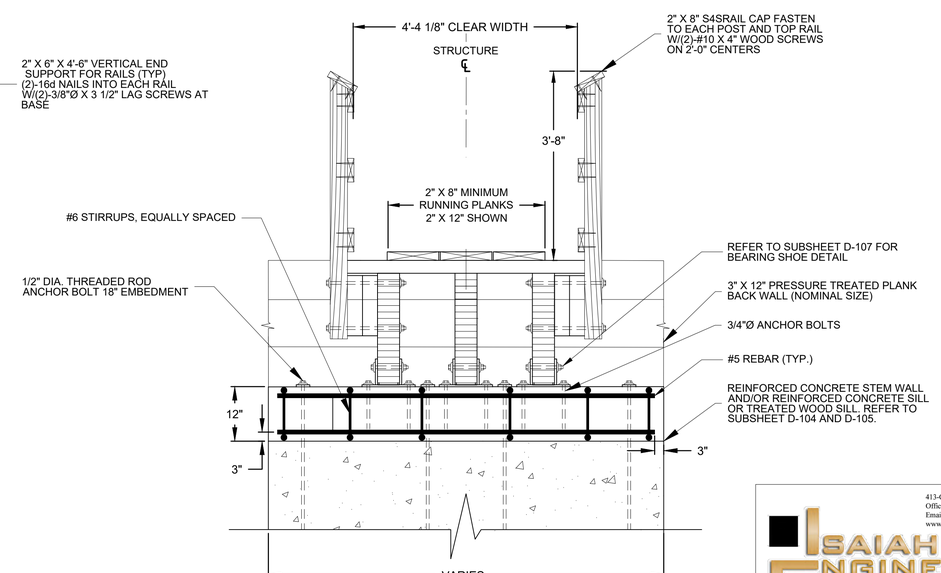


GRADE SHOWN = 0.0%

- FABRICATE GLULAM STRINGERS WITH CAMBER BASED ON A 900 FOOT RADIUS.
- RUNNING PLANKS NOT SHOWN FOR CLARITY.

ELEVATION

SCALE: N.T.S.



SECTION B

SCALE: N.T.S.

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 18135 PROFESSIONAL ENGINEER WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

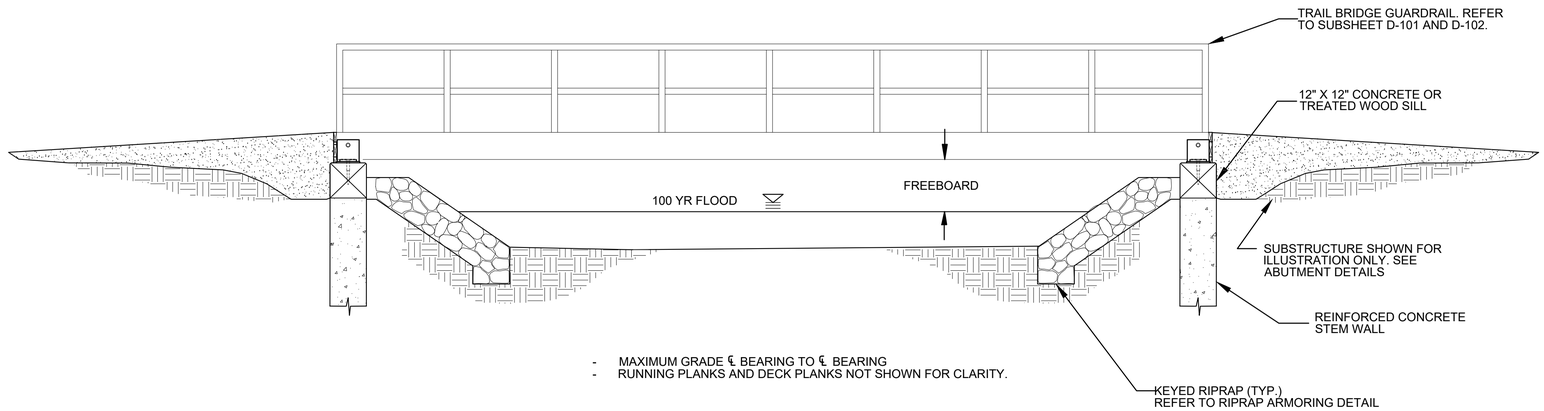
PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

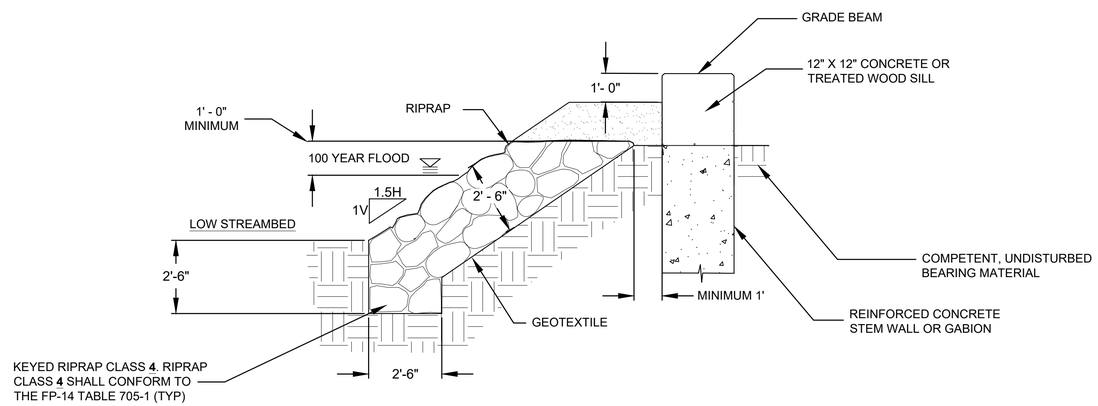
4'-4 1/8" OUT-TO-OUT WIDTH TRAIL BRIDGE DETAILS

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-102
DRAWN B. B.	
CHECKED W.L.H	SHEET 47 OF 59
PROJECT NO.	



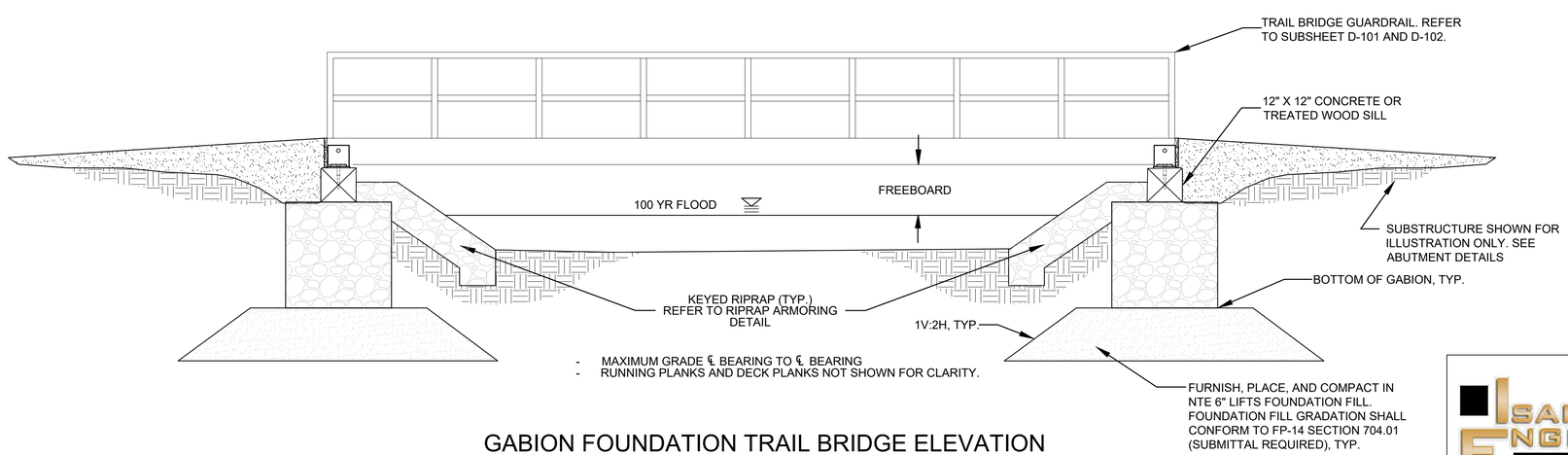
REINFORCED CONCRETE STEM WALL FOUNDATION TRAIL BRIDGE ELEVATION

NTS



RIPRAP ARMORING DETAIL

NTS



GABION FOUNDATION TRAIL BRIDGE ELEVATION

NTS

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48755 WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

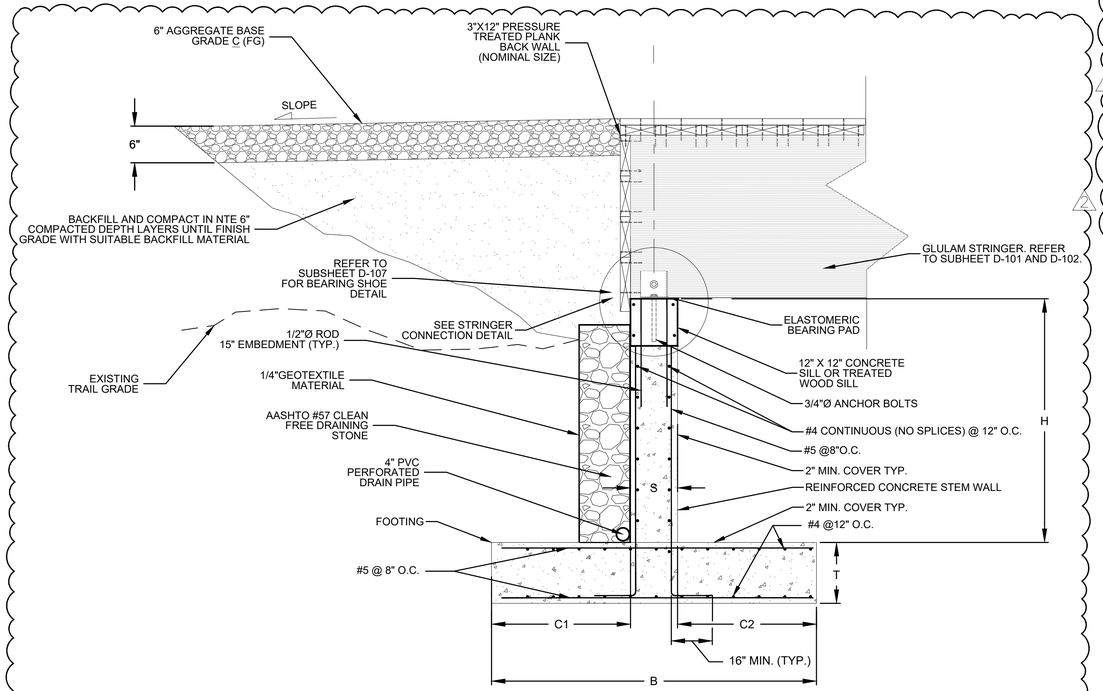
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

TRAIL BRIDGE RIPRAP ARMOR DETAILS

DATE 5-2-2023
ARCHIVE NO.
DESIGNER N. R.E.
DRAWN B. B.
CHECKED W.L.H
PROJECT NO.
DRAWING SHEET NO. **D-103**
SHEET **48 OF 59**

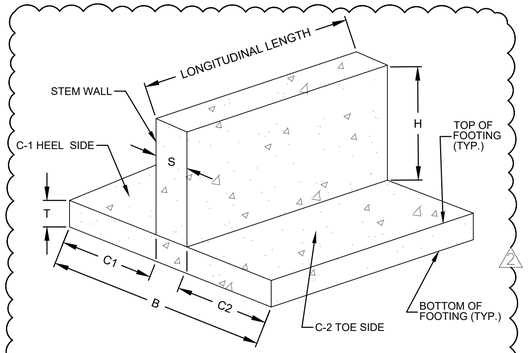
413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future



ABUTMENT DETAILS

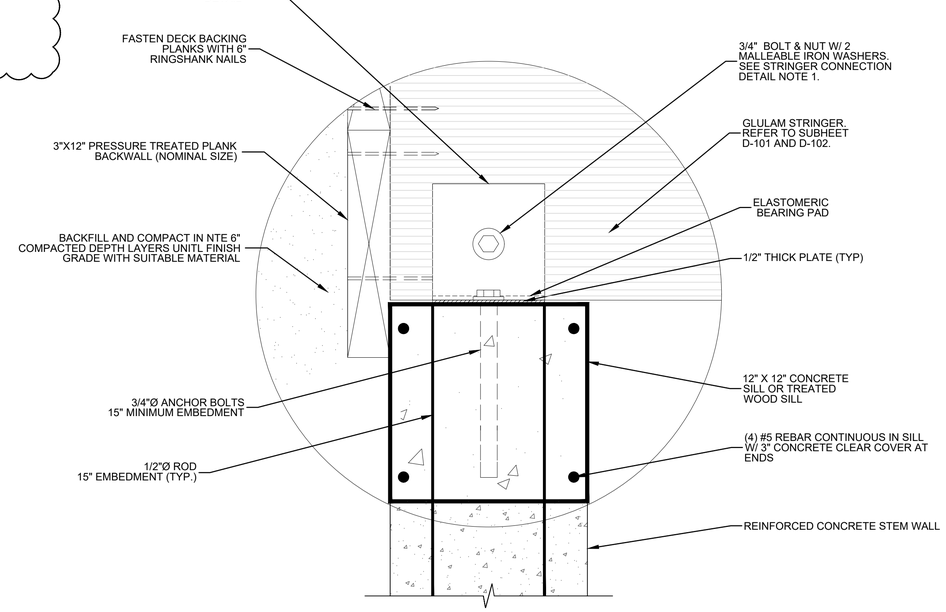
NTS

ABUTMENT SIZE CHART (REINFORCED CONCRETE FOOTING AND STEM WALL)											
TRAIL BRIDGE LOCATION	** STRINGER SPAN (FEET)	H (TOP OF FOOTING TO TOP OF SILL)	B	C1	C2	S	T	LONGITUDINAL LENGTH	SILL LENGTH	SILL WIDTH	SILL HEIGHT
LICK LOG TRAIL BRIDGE M.P. 6.79	▲ 70	5'-3 5/8" (NE) 0'-9" (SW)	6'-6"	3'-6"	2'-0"	12"	15"	11'-0"	11'-0"	1'-0"	1'-0"
~~PANTHER CREEK TRAIL BRIDGE M.P. 1.38~~	~~▲ 70~~	~~9' 10 1/4"(NE) 10' 6 7/8" (SW)~~	~~9'-0"~~	~~5'-6"~~	~~2'-6"~~	~~12"~~	~~15"~~	~~11'-0"~~	~~11'-0"~~	~~1'-0"~~	~~1'-0"~~
BECKY BRANCH TRAIL BRIDGE M.P. 18.84	▲ 40	2'-3 1/4" (W) 1'-8 5/8" (E)	4'-0"	2'-0"	1'-0"	12"	15"	8'-0"	8'-0"	1'-0"	1'-0"
LAKE RUSSELL TRAIL BRIDGE M.P. 0.10	▲ 58	3'-10" (EA. SIDE)	5'-6"	3'-0"	1'-6"	12"	15"	8'-0"	8'-0"	1'-0"	1'-0"
~~LAKE RUSSELL TRAIL BRIDGE M.P. 2.18~~	~~▲ 58~~	~~8' 3 1/4" (NE) 7' 2 3/8" (SW)~~	~~6'-9"~~	~~3'-9"~~	~~2'-0"~~	~~12"~~	~~15"~~	~~8'-0"~~	~~8'-0"~~	~~1'-0"~~	~~1'-0"~~



ABUTMENT ISOMETRIC VIEW

NTS



STRINGER CONNECTION DETAIL

NTS

ABUTMENT FOOTING NOTES:

1. AT LOCATION WHERE PARTIALLY WETTED ROCK (PWR) IS LESS THAN 3 FEET BELOW EXISTING GRADE INSERT FOOTING 3-INCHES INTO PARTIALLY WETTED ROCK (PWR) SEE ABUTMENT FOOTING DETAIL NO. 1 ON SUBSHEET D-106.
2. AT LOCATION WHERE PWR IS MORE THAN 3 FEET BELOW EXISTING, LOCATE TOP OF FOOTING AT 3 FEET BELOW EXISTING GROUND AND PROVIDE COMPACTED FILL BETWEEN BOTTOM OF FOOTING AND TOP OF PWR. SEE ABUTMENT FOOTING DETAIL NO. 2 ON SUBSHEET D-106.
3. FOR CONCRETE NOTES SEE GENERAL TRAIL BRIDGE CONSTRUCTION NOTES ON SUBSHEET G-105.

STRINGER CONNECTION DETAIL NOTES:

1. HEX BOLTS AND NUTS SHALL CONFORM TO ASTM A307. ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.
2. PLATE SHALL BE WELDED ONTO THE TOP OF CAP AND GALVANIZED AFTERWARDS IN ACCORDANCE WITH ASTM A153.

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

STATE OF GEORGIA REGISTERED ENG. 48195 PROFESSIONAL ENGINEER WALLACE L HATHORNE

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

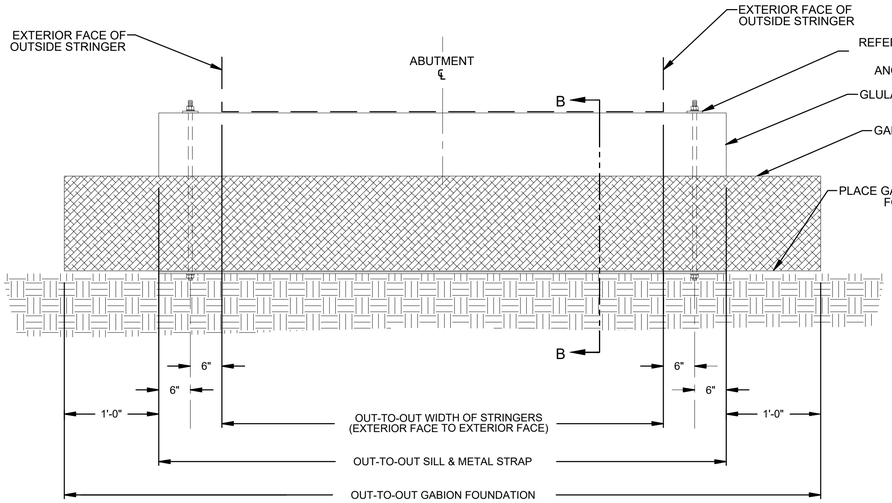
PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

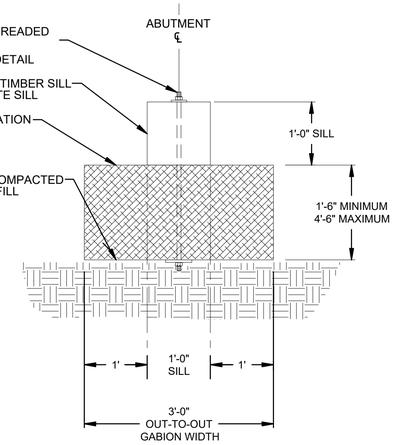
DRAWING TITLE

REINFORCED ABUTMENT

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-104
DRAWN B. B.	
CHECKED W.L.H	SHEET 49 OF 59
PROJECT NO.	



ELEVATION - GABION FOUNDATION



SECTION B-B

FOUNDATION NOTES:

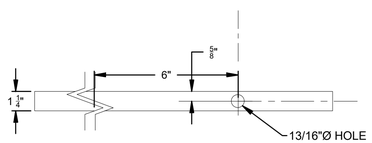
1. THE CONTRACTOR SHALL CONSTRUCT THE FOUNDATION TO THE REQUIREMENTS OF SUBSHEET D-104 AND TO THE REQUIRED DESIGN GRADE, IF BEDROCK IS ENCOUNTERED DURING TRAIL BRIDGE FOUNDATION EXCAVATION OPERATIONS.
2. SPECIFICATIONS: MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-14) AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AD TRAIL BRIDGES ON FEDERAL PROJECTS.
3. HARDWARE AND STRUCTURAL STEEL: SEE SUPERSTRUCTURE DETAIL DRAWINGS FOR PROJECT DESIGN CRITERIA AND GENERAL NOTES.
4. GABION ABUTMENT STABILIZATION: REFER TO THE FOREST SERVICE SUPPLEMENTAL SPECIFICATIONS FOR A DESCRIPTION OF THE WORK, MATERIALS, AND INSTALLATION PROCEDURES.
5. GABION FOUNDATIONS: REFER TO GABION FOUNDATION NOTES BELOW.

GABION FOUNDATION NOTES:

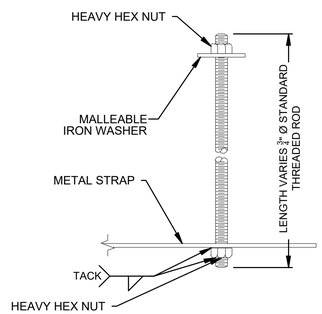
1. THE GABION BASKETS SHALL BE CONSTRUCTED USING WIRE MESH (U.S. STANDARD GAGE 9). BASKETS CONSTRUCTED USING TWISTED WIRE MESH WILL NOT BE ALLOWED. WELDED WIRE MESH SHALL BE POLYVINYL CHLORIDE COATED (PVC) WHERE BASKETS ARE EXPOSED TO CORROSIVE SOILS.
2. MATERIAL USED TO FILL THE GABION SHALL BE 4-INCH TO 8-INCH HARD, DURABLE, ANGULAR ROCK (CLEAN ROCK WITH NO FINES).
3. ROCK MAY BE PLACED MECHANICALLY PROVIDED CARE IS TAKEN TO ENSURE THAT IT IS TIGHTLY PACKED WITH A MINIMUM OF VOIDS. FOR EXPOSED FACES, HAND LABOR SHALL BE USED TO KEEP MESH VERTICAL, PREVENT BULGING, AND TO PRODUCE AN ATTRACTIVE APPEARANCE.
4. ALL GABIONS SHALL BE PLACED ON UNDISTURBED SOIL OR IMPORTED AND COMPACTED FOUNDATION FILL. REMOVE AND REPLACE UNSUITABLE SOILS WITH A MINIMUM OF 18-INCHES OF IMPORTED FOUNDATION FILL. FOUNDATION FILL GRADATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 SECTION 704.04... MATERIAL SHALL BE COMPACTED AT AN OPTIMUM MOISTURE CONTENT WITH A VIBRATING COMPACTOR.
5. BACKFILL WITH SUITABLE MATERIAL BEHIND GABIONS CONCURRENTLY WITH THE CELL FILLING OPERATION. BACKFILL THE AREA BEHIND GABIONS WITH A COARSE GRANULAR MATERIAL. COMPACT BACKFILL MATERIAL AT AN OPTIMUM MOISTURE CONTENT WITH A VIBRATOR COMPACTOR. OPERATE COMPACTION EQUIPMENT OVER THE FULL WIDTH OF THE IN-FILL AREA UNTIL VISIBLE DEFORMATION OF THE BACKFILL CEASES.

SILL NOTES:

1. SILL SHALL BE REINFORCED CONCRETE AS SHOWN OR TREATED TIMBER SILLS.
2. FOR THE TREATED TIMBER SILLS REQUIREMENTS, REFER TO SUBSHEET G-105 - DETAILED COMPONENT SPECIFICATIONS FOR THE GLULAM STRINGER AND SILLS.



1 1/4" x 1/4" METAL STRAP

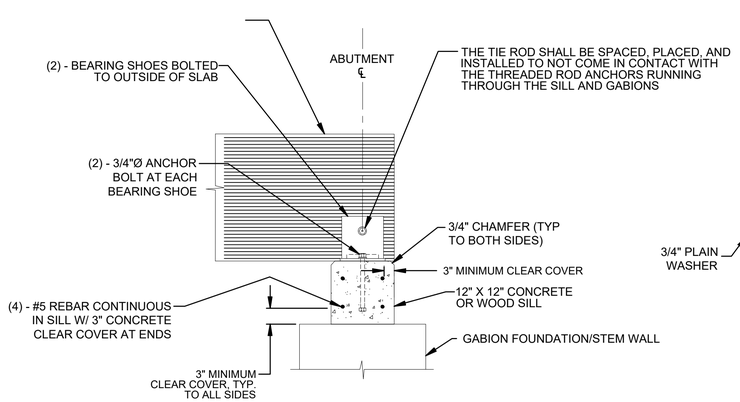


ELEVATION

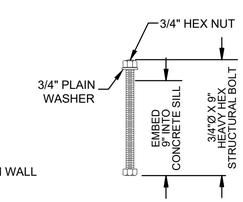
3/4"Ø THREADED ROD ANCHOR BOLT DETAIL

ABUTMENT SIZE CHART (GABIONS)

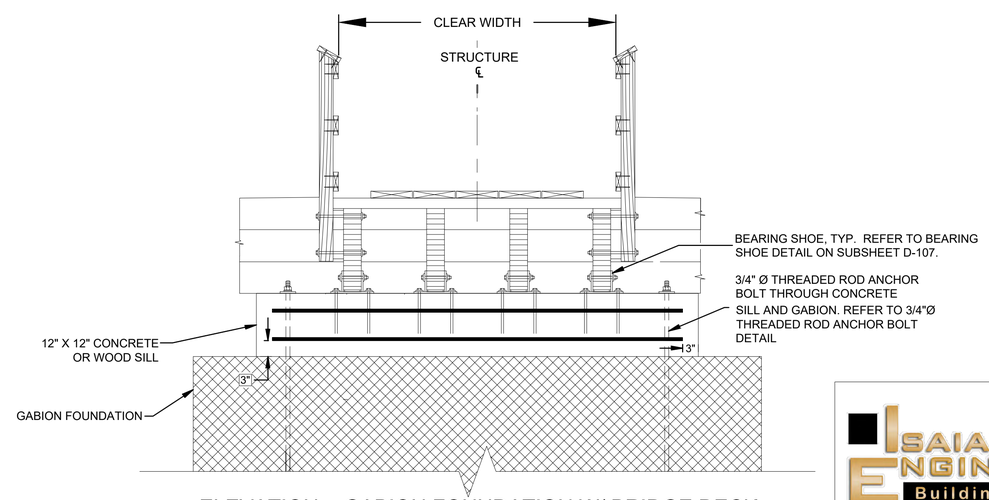
TRAIL BRIDGE LOCATION	** STRINGER SPAN (FEET)	GABION ABUTMENT SIZE	SILL LENGTH	SILL WIDTH	SILL HEIGHT
DICKS CREEK TRAIL BRIDGE M.P. 9.25	▲ 55	12'L X 3'W X 3'H GABION BASKET	9'-0"	1'-0"	1'-0"
~~PANTHER CREEK TRAIL BRIDGE M.P. 2.1~~	~~▲ 38~~	~~12'L X 3'W X 3'H GABION BASKET~~	~~9'-0"~~	~~1'-0"~~	~~1'-0"~~
~~PANTHER CREEK TRAIL BRIDGE M.P. 1.93~~	~~▲ 38~~	~~12'L X 3'W X 3'H GABION BASKET~~	~~9'-0"~~	~~1'-0"~~	~~1'-0"~~
POLE CREEK TRAIL BRIDGE M.P. 0.75	▲ 30	12'L X 3'W X 3'H GABION BASKET	9'-0"	1'-0"	1'-0"
SOURWOOD TRAIL BRIDGE M.P. 1.8	▲ 51	9'L X 3'W X 3'H GABION BASKET	6'-0"	1'-0"	1'-0"



CONCRETE SILL CONNECTION DETAIL



CONCRETE SILL ANCHOR BOLT DETAIL



ELEVATION - GABION FOUNDATION W/ BRIDGE DECK

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER WALLACE L HATHORNE No. 18135

Wallace L. Hathorne
2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

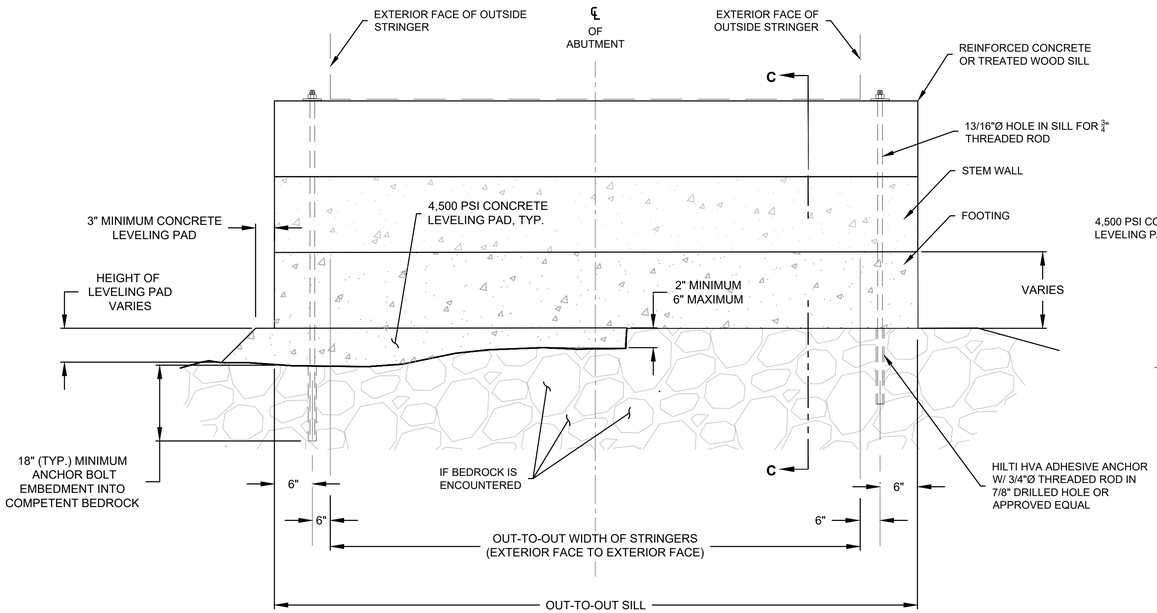
DRAWING TITLE

GABION ABUTMENT

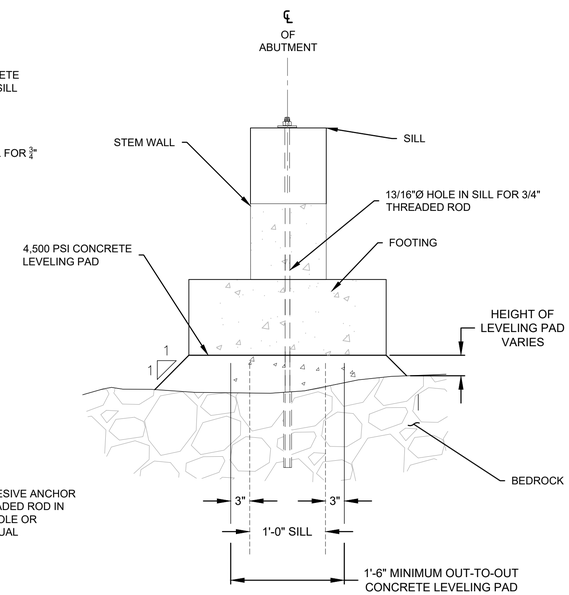
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-105
DRAWN B. B.	
CHECKED W.L.H	SHEET 50 OF 59
PROJECT NO.	

FOUNDATION NOTES:

1. **SPECIFICATIONS**: MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-14) AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AD TRAIL BRIDGES ON FEDERAL PROJECTS.
2. **HARDWARE AND STRUCTURAL STEEL:** SEE SUPERSTRUCTURE DETAIL DRAWINGS FOR PROJECT DESIGN CRITERIA AND GENERAL NOTES.
3. **GEOCELL ABUTMENT STABILIZATION**: REFER TO THE FOREST SERVICE SUPPLEMENTAL SPECIFICATIONS FOR A DESCRIPTION OF THE WORK, MATERIALS, AND INSTALLATION PROCEDURES.
4. **TREATED TIMBER & LUMBE**R: REFER TO THE GENERAL NOTES ON THE SUPERSTRUCTURE DRAWINGS FOR TREATED TIMBER AND LUMBER SPECIFICATIONS AND FIELD TREATING OF WOOD.

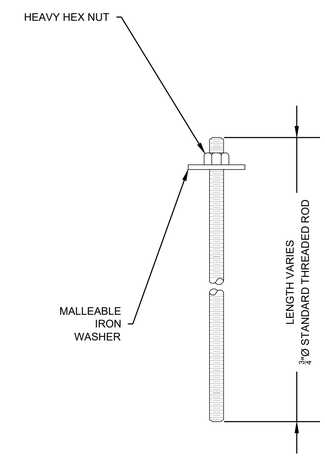


ELEVATION



SECTION C-C

SILL MATERIAL AND DIMENSIONS WILL VARY. REFER TO SUPERSTRUCTURE SHEET FOR DETAILS



ELEVATION
3/4"Ø THREADED ROD ANCHOR BOLT DETAIL

CONCRETE LEVELING PAD ON BEDROCK FOUNDATION

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48755 WALLACE L HATHORNE

Wallace L. Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

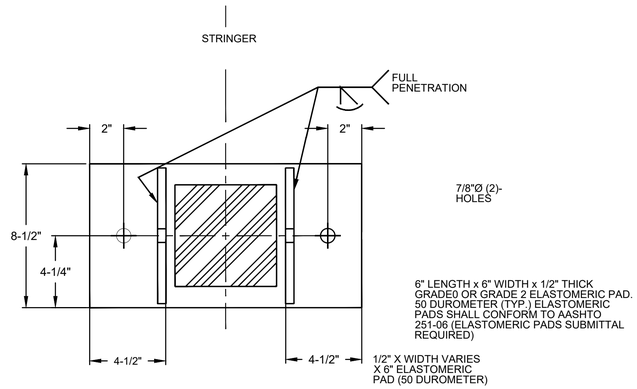
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

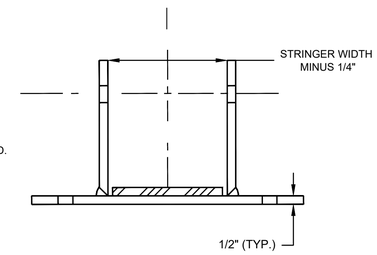
CONCRETE LEVELING PAD ON BEDROCK DETAILS

ISAIAH ENGINEERING
Building The Future
413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com

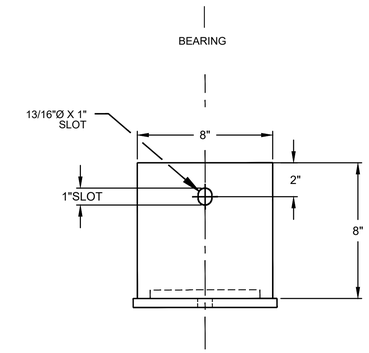
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-106
DRAWN B. B.	
CHECKED W.L.H	SHEET 51 OF 59
PROJECT NO.	



PLAN VIEW
NTS

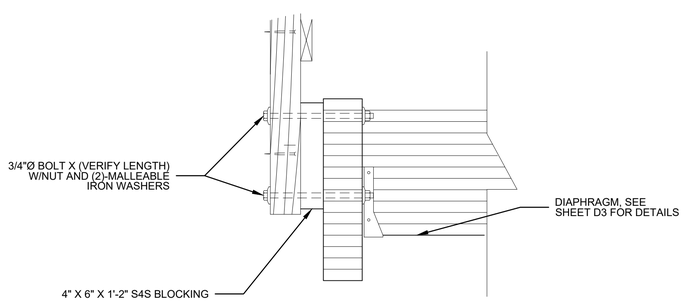


END VIEW
NTS

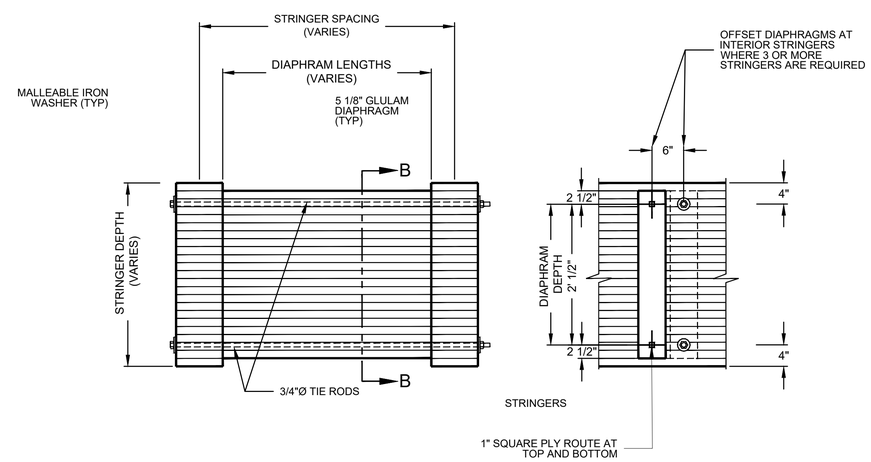


SIDE VIEW
NTS

BEARING SHOE DETAILS



SIDE VIEW CONNECTION DETAILS
NTS



ELEVATION-SECTION B-B GLULAM DIAPHRAGM ALTERNATE
NTS

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

STATE OF ALABAMA REGISTERED REG. NO. 18135 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L. Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

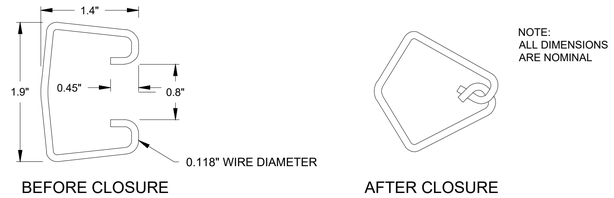
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

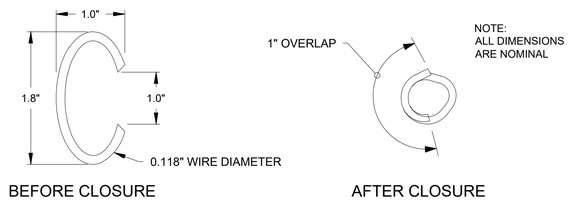
BEARING SHOE AND DIAPHRAGM CONNECTION DETAILS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-107
DRAWN B. B.	
CHECKED W.L.H	SHEET 52 OF 59
PROJECT NO.	



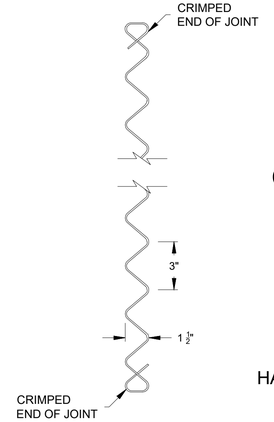
INTERLOCKING WIRE FASTENER



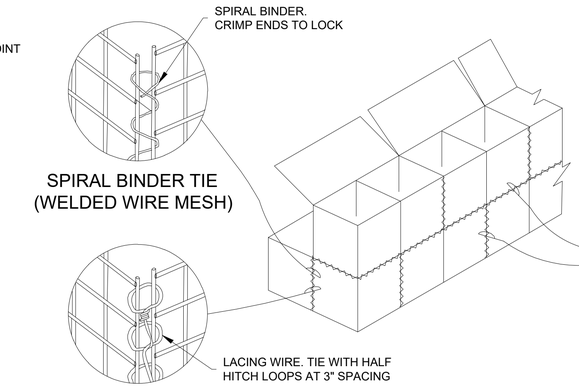
OVERLAPPING RING WIRE FASTENER

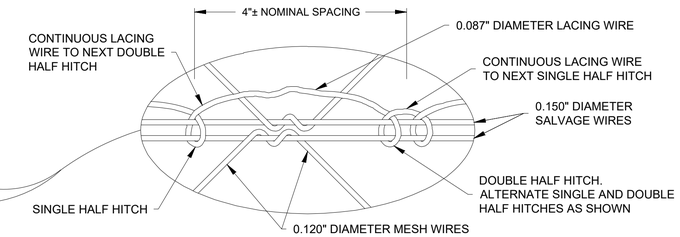
(net allowed for basket to basket connection)

ALTERNATE TYING FASTENERS



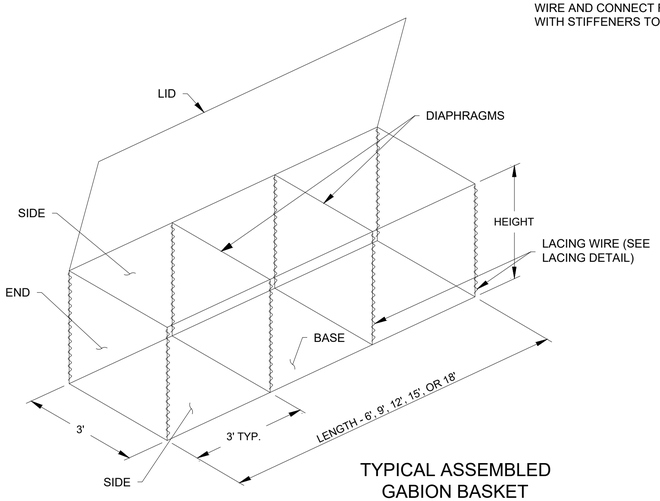
0.150" DIAMETER
SPIRAL BINDER



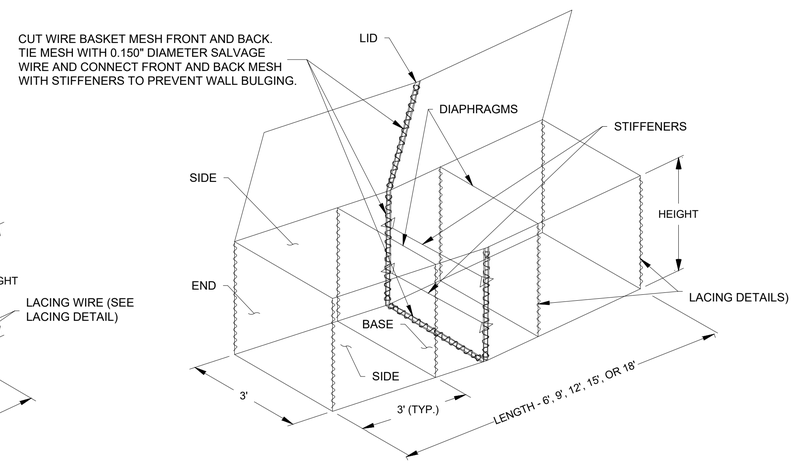


HALF HITCH LACING DETAIL
(TWISTED WIRE MESH)

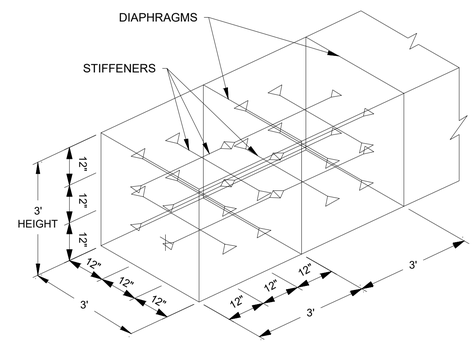
TYPICAL INSTALLATION GABION BASKETS



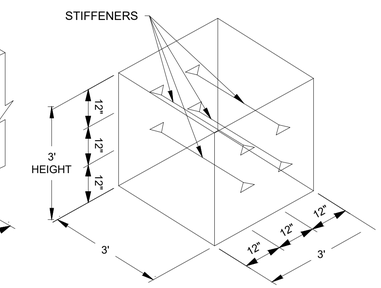
TYPICAL ASSEMBLED
GABION BASKET



ASSEMBLED GABION BASKET IN
WALL GRADE TRANSITION AREAS

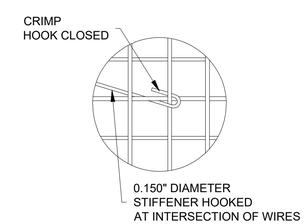


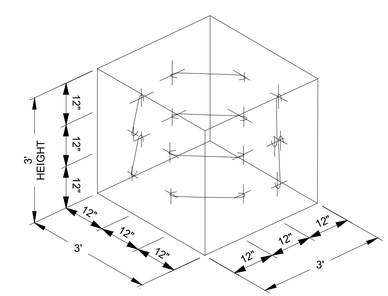
ALL END GABION CELLS



ALL INTERIOR GABION CELLS

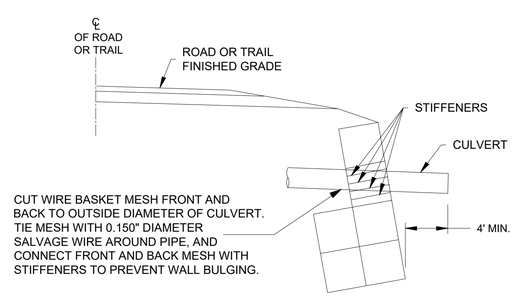
TYPICAL STIFFENERS



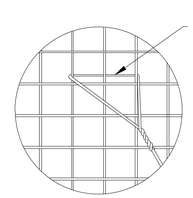


ALL GABION CELLS
OPTIONAL STIFFENERS
WELDED WIRE GABION BASKET

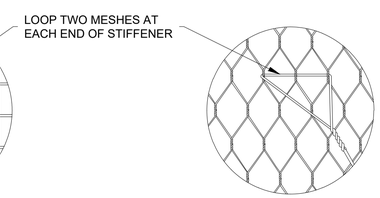
GABION BASKET NOMINAL SIZES AND CAPACITY				
SIZE CODE LETTER	SIZE IN FEET		DIAPHRAGM PARTITIONS	CAPACITY (CUYD)
	LENGTH	HEIGHT		
A	6	3.0	1	2.00
B	9	3.0	2	3.00
C	12	3.0	3	4.00
X	15	3.0	4	5.00
Y	18	3.0	5	6.00
D	6	1.5	1	1.00
E	9	1.5	2	1.50
F	12	1.5	3	2.00
G	6	1.0	1	0.67
H	9	1.0	2	1.00
I	12	1.0	3	1.33



TYPICAL CULVERT INSTALLATION
THROUGH GABION WALL



WELDED WIRE MESH



TWISTED WIRE MESH

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

STATE OF GEORGIA REGISTERED ENG. NO. 48195 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L. Hathorne

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

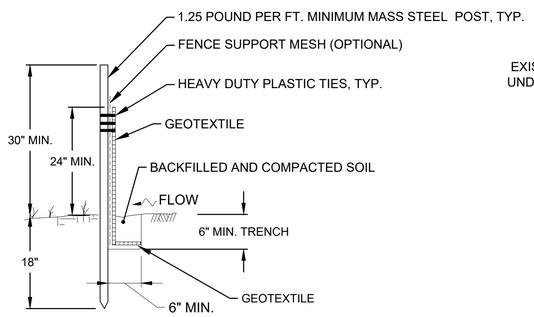
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

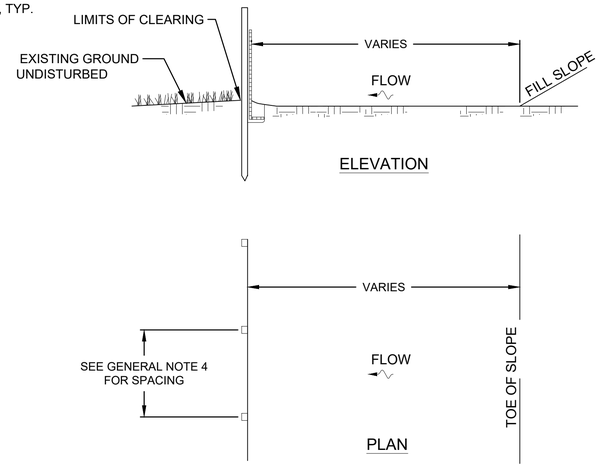
FILL SLOPE FAILURE GABION BASKET DETAILS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

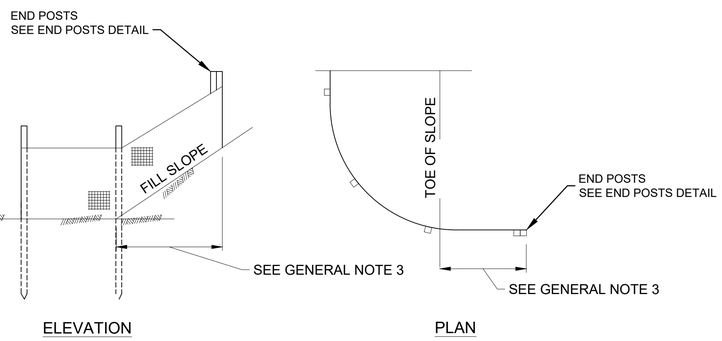
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-108
DRAWN B. B.	
CHECKED W.L.H	SHEET 53 OF 59
PROJECT NO.	



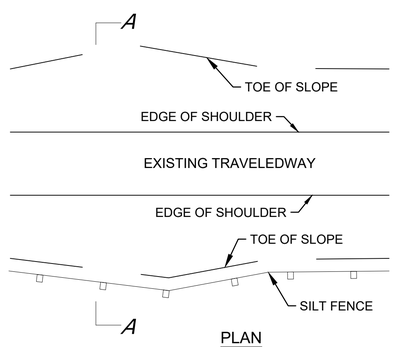
POST AND GEOTEXTILE INSTALLATION DETAIL

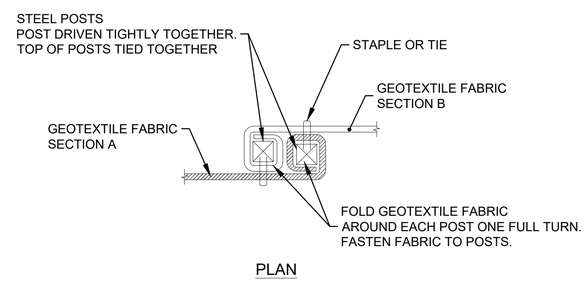


SILT FENCE INSTALLATION AT TOE OF FILL

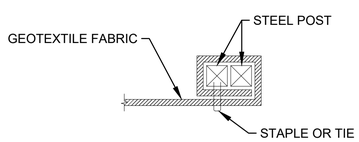


END DETAIL

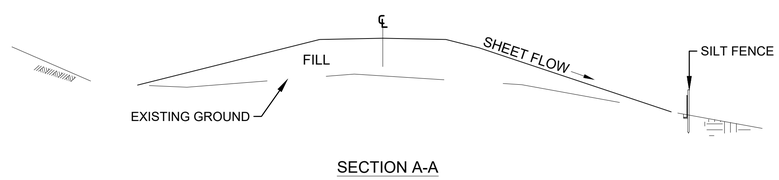




POSTS AT JOINTS



END POSTS DETAIL



SILT FENCE AS PERIMETER CONTROL

SILT FENCE - GENERAL NOTES:

1. SILT FENCE MAY BE INSTALLED USING MACHINE SLICING AS APPROVED BY THE CO. INSTALL MACHINE-SLICED SILT FENCE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
2. INSTALL SILT FENCE TO FOLLOW THE GROUND CONTOURS AS CLOSELY AS POSSIBLE.
3. AS THE SLOPE IS CONSTRUCTED, CURVE THE SILT FENCE UP THE SLOPE TO PREVENT WATER FROM RUNNING AROUND THE ENDS.
4. POST SPACING WITH FENCE SUPPORT MESH = 10 FT. (MAX.).... POST SPACING WITHOUT FENCE SUPPORT MESH = 6 FT. (MAX.)
5. CONTRACTOR SHALL BE RESPONSIBLE OF FURNISHING, INSTALLATION, INSPECTION, MAINTENANCE, AND REMOVAL OF SILT FENCE, COVERED IN **PAY ITEM 15702**. SILT FENCE SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED AND ONCE IT IS REMOVED, THE RESULTING DISTURBED AREA SHALL BE PERMANENTLY STABILIZED.

SILT FENCE - STEEL POST REQUIREMENTS:

1. SILT FENCE STEEL POSTS SHALL CONFORM TO THE REQUIREMENTS OF THE FP-14 SECTION 713.16(b)(2).
2. STEEL POST SHALL BE 48 INCHES MINIMUM IN LENGTH (NO SPLICES).
3. CROSS SECTION SHAPE OF STEEL POST SHALL BE T-SHAPED, U-SHAPED, OR L-SHAPED.

SILT FENCE - INSPECTION & MAINTENANCE:

1. THE KEY TO FUNCTIONAL SILT FENCE IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.
2. REGULAR INSPECTIONS OF SILT FENCE SHALL BE CONDUCTED ONCE EVERY CALENDAR WEEK AND, AS RECOMMENDED, WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES $\frac{1}{2}$" OR MORE OF PRECIPITATION.
3. ATTENTION TO SEDIMENT ACCUMULATIONS ALONG THE SILT FENCE IS EXTREMELY IMPORTANT. ACCUMULATED SEDIMENT SHOULD BE CONTINUALLY MONITORED AND REMOVED WHEN NECESSARY.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES $\frac{1}{3}$ THE HEIGHT OF THE SILT FENCE.
5. REMOVED SEDIMENT SHALL BE PLACED IN STOCKPILE STORAGE AREAS OR SPREAD THINLY ACROSS DISTURBED AREA. STABILIZE THE REMOVED SEDIMENT AFTER IT IS RELOCATED.
6. CHECK FOR AREAS WHERE STORMWATER RUNOFF HAS ERODED A CHANNEL BENEATH THE SILT FENCE, OR WHERE THE FENCE HAS SAGGED OR COLLAPSED DUE TO RUNOFF OVERTOPPING THE SILT FENCE. INSTALL CHECKS/TIE-BACKS AND/OR REINSTALL SILT FENCE, AS NECESSARY.
7. CHECK FOR TEARS WITHIN THE SILT FENCE, AREAS WHERE SILT FENCE HAS BEGUN TO DECOMPOSE, AND FOR ANY OTHER CIRCUMSTANCE THAT MAY RENDER THE SILT FENCE INEFFECTIVE, THE CONTRACTOR SHALL REMOVE THE DAMAGED SILT FENCE AND REINSTALL NEW SILT FENCE IMMEDIATELY.

1 **SILT FENCING DETAILS**
NOT TO SCALE

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE
Wallace L Hathorne
5/19/2023

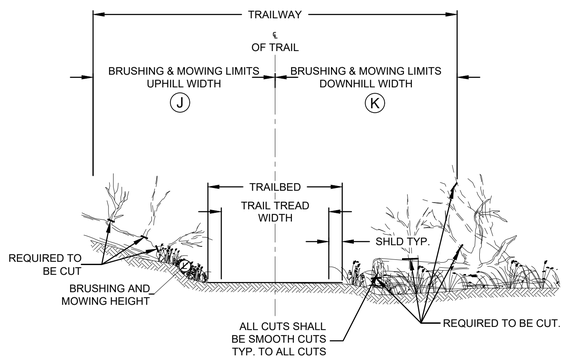
NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME
2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE
SILT FENCE DETAILS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-109
DRAWN B. B.	
CHECKED W.L.H	SHEET 54 OF 59
PROJECT NO.	



BRUSHING AND MOWING CLEARING LIMITS

TRAIL NAME	CLEARING METHOD	BRUSHING & MOWING LIMITS: UPHILL WIDTH (J)	BRUSHING & MOWING LIMITS: DOWNHILL WIDTH (K)	CLEARING & MOWING HEIGHT (L)	DISPOSAL METHOD	COMMENTS
BECKY BRANCH DICKS CREEK LICK LOG POLE CREEK LAKE RUSSELL SOURWOOD PANTHER CREEK	C9	4-FEET	4-FEET	3-INCHES	D1	CUT ALL BRUSH THAT'S 4" IN DIA. AND SMALLER. HOWEVER, DO NOT CUT STANDING BRUSH MATERIAL THAT'S 4" AND LARGER IN DIAMETER UNLESS IT'S ALREADY LYING ON THE GROUND. MOWING SHALL BE CUT TO A MIN. HEIGHT OF 3" INCHES ABOVE EXISTING GROUND GRADE.

CLEARING METHOD

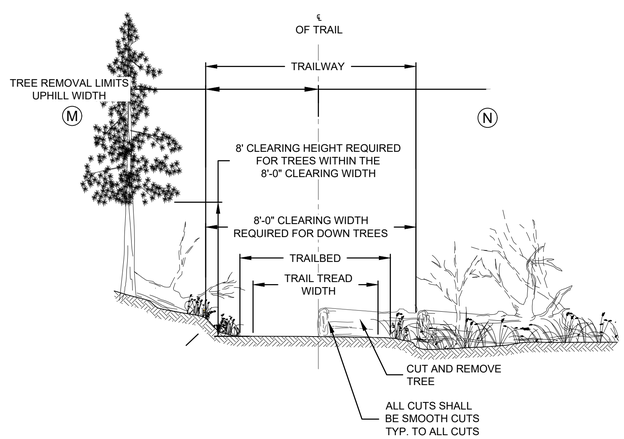
CLEARING TYPE	CLEARING TYPE	COMMENTS
C9	BRUSHING AND MOWING	CUT ALL BRUSH THAT'S 4" IN DIA. AND SMALLER. HOWEVER, DO NOT CUT STANDING BRUSH MATERIAL THAT'S 4" AND LARGER IN DIAMETER UNLESS IT'S ALREADY LYING ON THE GROUND. MOWING SHALL BE CUT TO A MIN. HEIGHT OF 3" INCHES ABOVE EXISTING GROUND GRADE.

DISPOSAL METHOD

DISPOSAL TYPE	DISPOSAL METHOD	COMMENTS
D1	LOP AND SCATTER OUTSIDE TRAILWAY	THE SLASH AND DEBRIS MATERIAL SHALL BE SCATTERED OUTSIDE OF TRAILWAY. DO NOT PILE SLASH & DEBRIS.
D2	LOP AND SCATTER ON FILL SLOPE	
D3	HAUL TO DISPOSAL SITE	
D4	CHIP	
D5	PILE AND BURN	

TRAIL BUSHING AND MOWING DETAIL

NTS



TREE REMOVAL LIMITS

TRAIL NAME	CLEARING METHOD	TREE REMOVAL LIMITS: UPHILL WIDTH (M)	TREE REMOVAL LIMITS: DOWNHILL WIDTH (N)	DISPOSAL METHOD	COMMENTS
BECKY BRANCH DICKS CREEK LICK LOG POLE CREEK LAKE RUSSELL SOURWOOD PANTHER CREEK	C10	4-FEET	4-FEET	D1	ALL DOWN TREE(S) SHALL HAVE A CLEAN SMOOTH CUT. THE TREE SHALL BE SCATTERED ON FILL SLOPE SIDE OUTSIDE OF TRAILWAY.

CLEARING METHOD

CLEARING TYPE	CLEARING TYPE	COMMENTS
C10	TREE REMOVAL ONLY	

TREE REMOVAL DISPOSAL METHOD

DISPOSAL TYPE	DISPOSAL METHOD	COMMENTS
D1	LOP AND SCATTER OUTSIDE TRAILWAY	THE DOWN TREE AFTER CUTTING SHALL BE SCATTERED ON FILL SLOPE SIDE OUTSIDE OF TRAILWAY. **DO NOT** PILE, SCATTER ONLY
D2	LOP AND SCATTER ON FILL SLOPE	
D3	HAUL TO DISPOSAL SITE	
D4	CHIP	
D5	PILE AND BURN	

DOWNED TREE REMOVAL ONLY AND TREE CLEARING HEIGHT DETAIL

NTS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48135 WALLACE L HATHORNE
3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

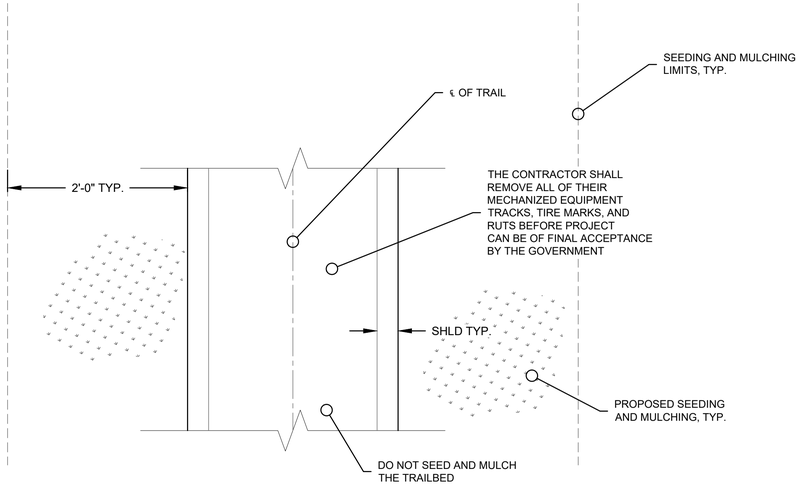
PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

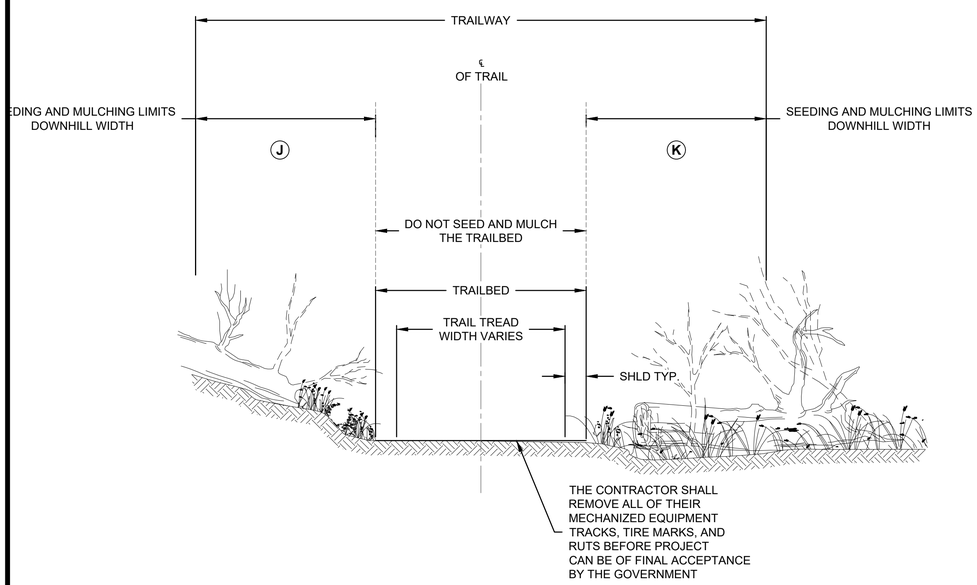
TRAIL BRUSHING AND MOWING & TREE REMOVAL DETAIL

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-110
DRAWN B. B.	
CHECKED W.L.H	SHEET 55 OF 59
PROJECT NO.	



SEEDING AND MULCHING

PLAN VIEW (NTS)



SEEDING AND MULCHING

SECTION VIEW (NTS)

GENERAL NOTES

1. ALL SEEDING AND MULCHING PREPARATION SHALL CONFORM TO THE REQUIREMENTS OF FP-14 SECTION 625.
2. REFER TO SEEDING AND MULCHING TABLE BELOW FOR ALL SEEDING SPECIES, MIX, SPREADING, AND APPLYING REQUIREMENTS

FALL PLANTINGS							
SOURCE	SPECIES	SEEDING RATE		TIMING		FERTILIZER (10-10-10)	
		LB./ACRE		PEIDMONT	MOUNTAINS	POUNDS (10-10-10)	COMMENTS
GA BMP	CRIMSON CLOVER	15	BULK	SEPT. 1 TO NOV. 1	SEPT. 1 TO OCT. 15	500	WELL DRAINED CLAYEY OR LOAMY SOILS. INOCULVATE CLOVER. TOLERATES LOWER SOIL PH.
	HAIRY VETCH	15	BULK				
	WHEAT	60	BULK				
GA BMP	ARROWLEAF OR CRIMSON CLOVER	15	BULK	SEPT. 1 TO NOV. 1	SEPT. 1 TO OCT. 15	500	WELL DRAINED SANDY OR LOAMY SOILS. INOCULATE CLOVER. USE ANNUAL RYE WHEN POSSIBLE.
	PERENNIAL RYEGRASS	15	BULK				
	WHEAT	40	BULK				
ALTERNATIVE WITH NATIVES	CRIMSON CLOVER	15	BULK	SEPT. 15 TO NOV. 15	SEPT. 15 TO NOV. 15	0	SHORT-LIVED PERENNIAL COVER
	VIRGINIA WILD RYE	10	PLS				

SPRING PLANTINGS							
OTHER COVER CROPS	BROWN TOP MILLET	10 to 30	BULK	APRIL 15 TO JUNE 15	APRIL 15 to JUNE 15	NONE TO 500	
OTHER COVER CROPS	BUCKWHEAT	20	BULK	APRIL 15 to JUNE 15	APRIL 15 TO JUNE 15	0	
OTHER COVER CROPS	PARTRIDGE PEA*	3	PLS	APRIL 15 to JUNE 15	APRIL 15 TO JUNE 15	0	
ALTERNATIVE WITH NATIVE	BUCKWHEAT	10	BULK	APRIL 1 to JUNE 15	APRIL 15 TO JUNE 15	0	PERENNIAL COVER WITH COVER CROP
	SWITCHGRASS	4	PLS				
	BIG BLUESTEM	4	PLS				
	INDIANGRASS	4	PLS				
ALTERNATIVE WITH NATIVE	BROWN TOP MILLET	10	BULK	APRIL 15 to JUNE 15	APRIL 15 TO JUNE 15	0	PERENNIAL COVER WITH COVER CROP . DOUBLE NATIVE SEED ON STEEP SLOPES.
	SWITCHGRASS	3	PLS				
	LITTLE BLUESTEM	1	PLS				
	INDIANGRASS	1	PLS				

*PARTRIDGE PEA DO NOT USE IN AREAS GRAZED BY CATTLE

PLANT SPECIES, SEEDING RATES, FERTILIZER REQUIREMENTS & PLANTING SCHEDULE

SEEDING & MULCHING LIMITS	
UPHILL WIDTH (J)	DOWNHILL WIDTH (K)
2-FEET	2-FEET

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service
REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 18835 PROFESSIONAL ENGINEER WALLACE L HATHORNE

2/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

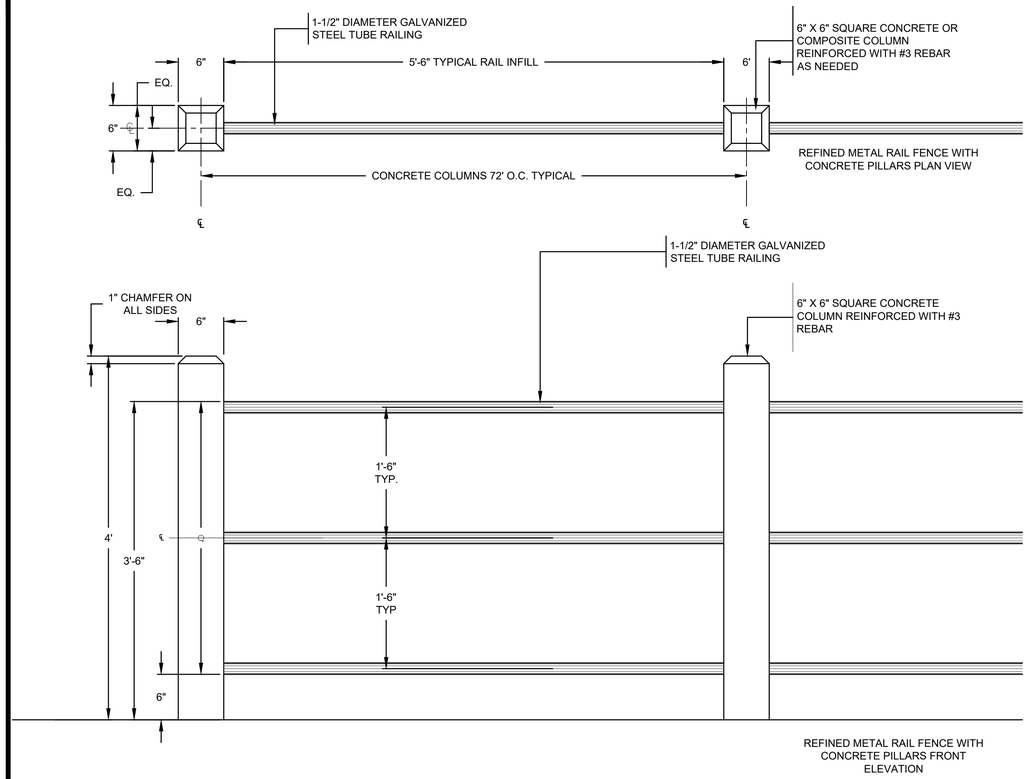
SEEDING AND MULCHING DETAILS

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

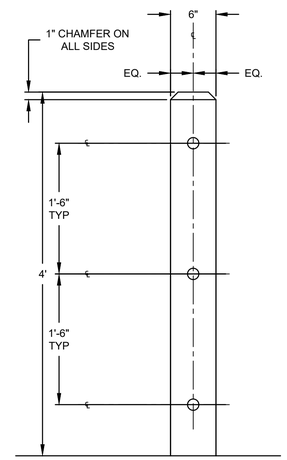
DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-111
DRAWN B. B.	
CHECKED W.L.H	SHEET 56 OF 59
PROJECT NO.	

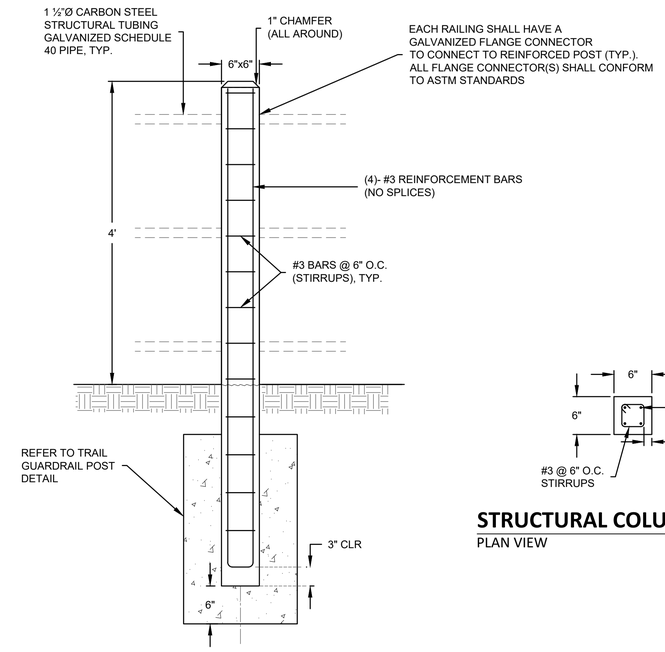
TRAIL GUARDRAIL GENERAL NOTES:

1. THE TRAIL GUARDRAIL SHALL BE CONSTRUCTED ON FILL SLOPE SIDE OF TRAIL ONLY.
2. TRAIL GUARDRAIL RAILING SHALL BE CARBON STEEL STRUCTURAL TUBING CONFORMING TO ASTM A 500 GRADE B.
3. ALL RAILING TUBING SHALL BE 1 ½" DIAMETER TUBING GALVANIZED SCHEDULE 40 PIPE.
4. ALL CONCRETE FOR GUARDRAIL COLUMN(S) SHALL CONFORM TO THE REQUIREMENTS OF FP-14 SECTION 601 AND SHALL HAVE A MINIMUM OF 3,000 PSI STRENGTH.



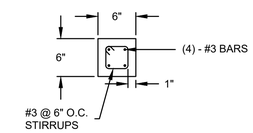
TRAIL GUARDRAIL DETAIL





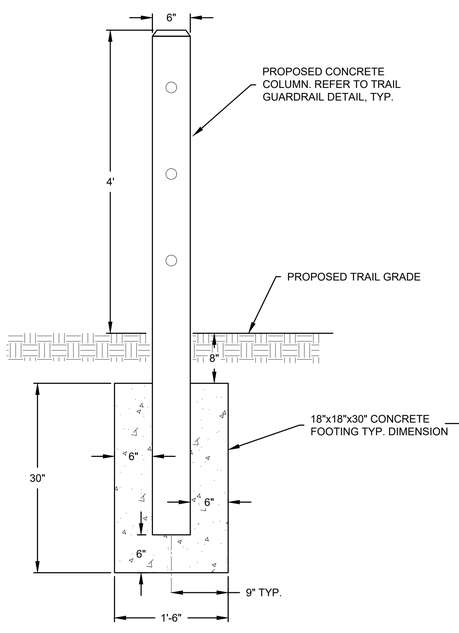
STRUCTURAL COLUMN DETAIL

SECTION VIEW

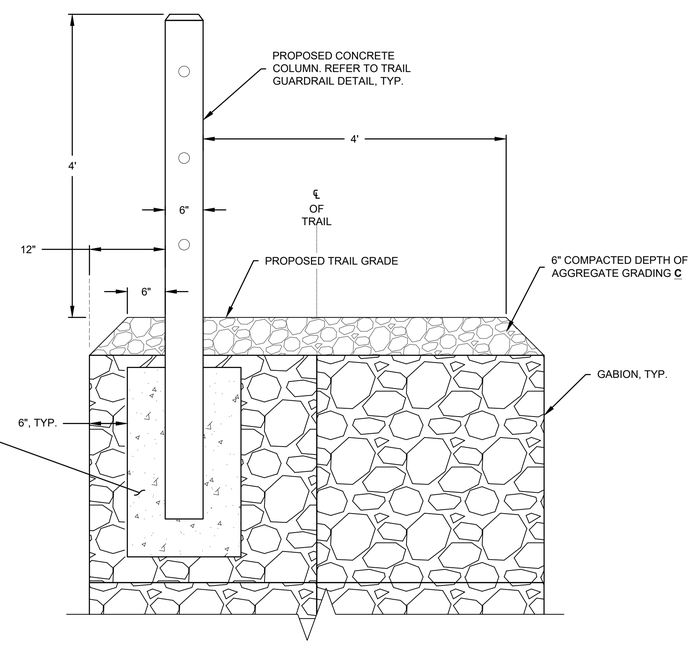


STRUCTURAL COLUMN DETAIL

PLAN VIEW



TRAIL GUARDRAIL POST INSTALLATION DETAIL



TRAIL GUARDRAIL POST THRU GABION DETAIL

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED No. 48735 PROFESSIONAL ENGINEER WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

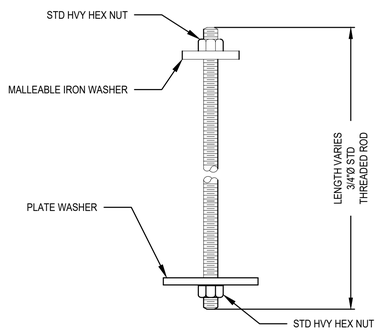
BECKY BRANCH EMBANKMENT REPAIR TRAIL GUARDRAIL DETAIL

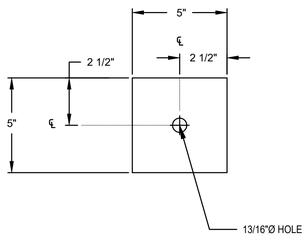
413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-112
DRAWN B. B.	
CHECKED W.L.H	SHEET 57 OF 59
PROJECT NO.	

GENERAL NOTES:

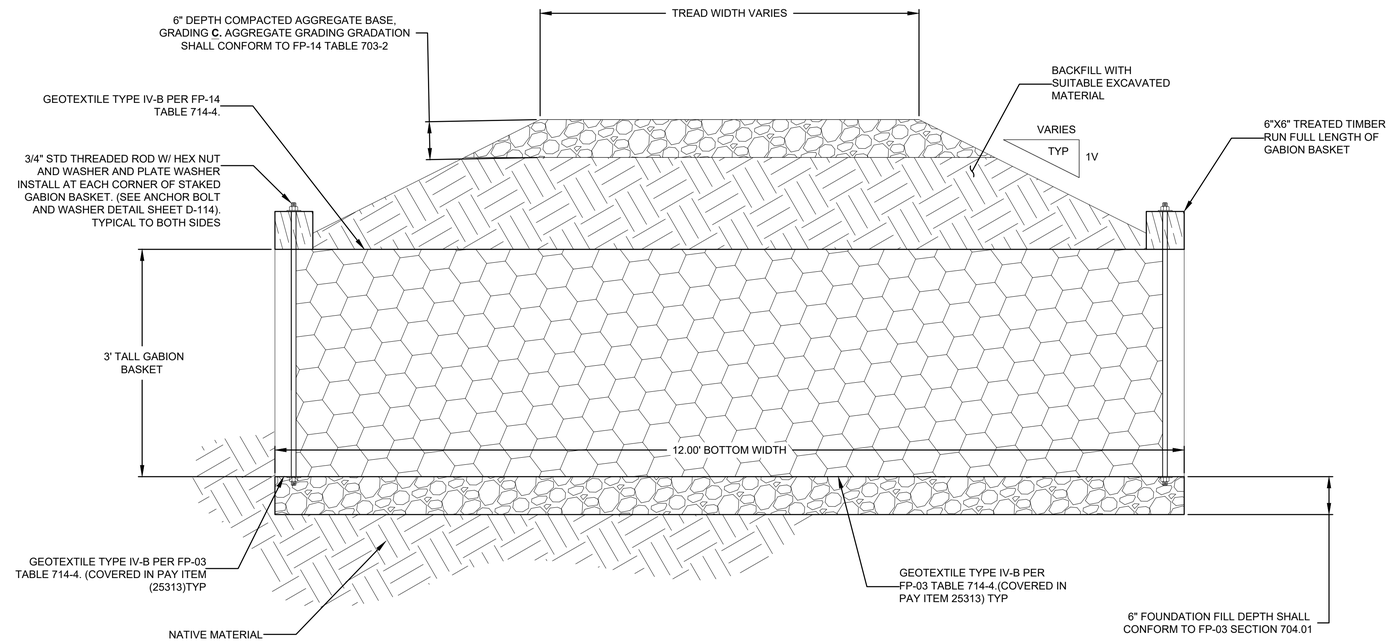
1. FOR APPROACH GABIONS SEE GABION FOUNDATION NOTES ON SUBSHEET D-105.





ANCHOR BOLT 3/8" A-36 STEEL PLATE WASHER DETAIL

SCALE: NOT TO SCALE



APPROACH GABION BASKET DETAIL

SCALE: NOT TO SCALE

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

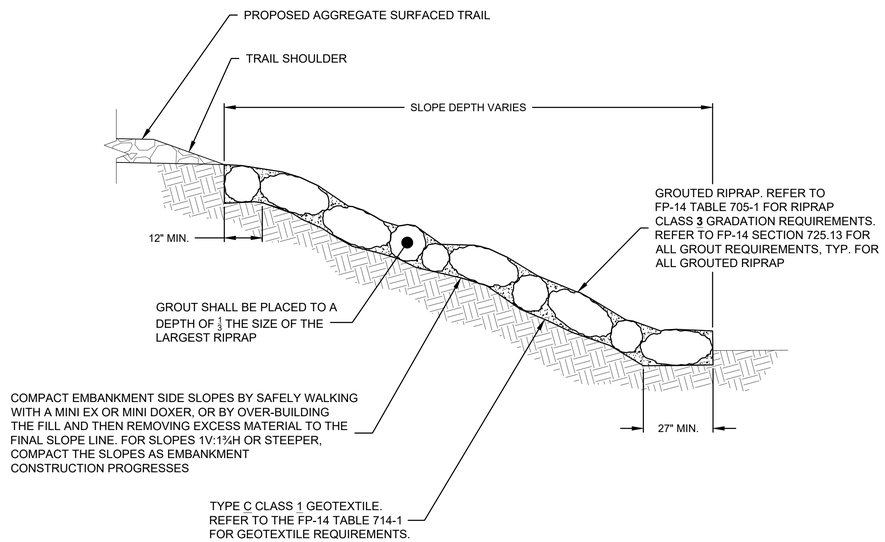
GABION BASKET APPROACH DETAIL

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-113
DRAWN B. B.	
CHECKED W.L.H	SHEET 58 OF 59
PROJECT NO.	

GROUTED RIPRAP NOTES:

1. GROUT SHALL BE PLACED TO A DEPTH OF 1/3 THE SIZE OF THE LARGEST RIPRAP.
2. RIPRAP GROUT REQUIREMENTS SHALL CONFORM TO THE FP-14 SECTION 725.13.



GROUTED RIRAP DETAIL

NTS

United States Department of Agriculture
Forest Service

REGION 8
SOUTHERN REGION

STAMPS, LOGOS, AND SEALS

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 48735 WALLACE L HATHORNE

Wallace L Hathorne

3/19/2023

NO.	REVISION / ISSUE	DATE
4		
3		
2	DESIGN CHANGES	01-24-24
1	PER FIELD CONDITION	08-08-23

PROJECT NAME

2020 TROPICAL STORM ZETA'S MULTIPLE TRAIL BRIDGES REPLACEMENT PROJECT

DRAWING TITLE

GROUTED RIPRAP DETAIL

413-C Azalea Road | Mobile, Alabama | 36609
Office: 251.344.2022 | Fax: 251.494.3022
Email: info@isaiahengineering.com
www.isaiahengineering.com
ISAIAH ENGINEERING
Building The Future

DATE 5-2-2023	ARCHIVE NO.
DESIGNER N. R.E.	DRAWING SHEET NO. D-114
DRAWN B. B.	
CHECKED W.L.H	SHEET 59 OF 59
PROJECT NO.	