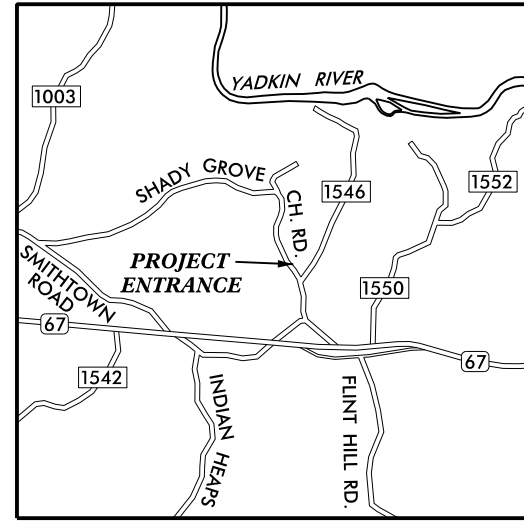


KCI JOB# : 161601703

CONTRACT #: 6898

NCDEQ DIVISION OF MITIGATION SERVICES

STATE	DMS PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
N.C.	97136	1	14



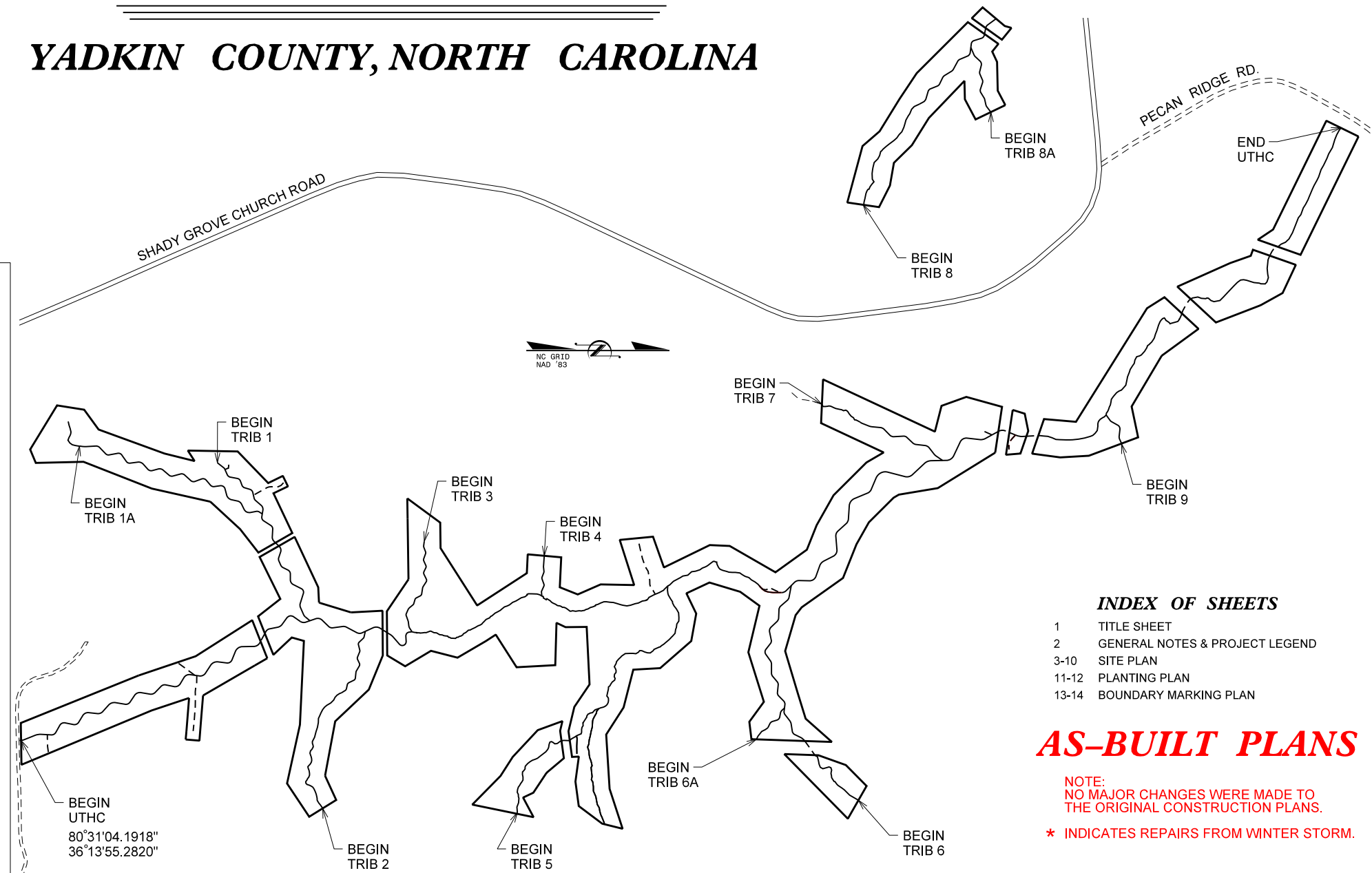
VICINITY MAP
NOT TO SCALE

MILL DAM CREEK STREAM RESTORATION SITE

YADKIN COUNTY, NORTH CAROLINA

PROJECT COMPONENTS - TOTAL CREDITS 10,290						
Reach ID	Proposed Stationing	Existing Footage	Approach	Mitigation Ratio	R Footage	R-or-R Equivalent
T1*	100+00 to 107+51	748	R	1:1	734	734
T1A	150+00 to 157+95	739	R	1:1	795	795
T2-1	200+00 to 204+98	498	EII	2.5:1	498	199
T2-2	204+98 to 207+63	265	R	1:1	265	265
T3	300+00 to 303+69	378	R	1:1	369	369
T4	400+00 to 401+51	151	R	1:1	151	151
T5*	1000+00 to 1012+13	1,174	EII	2.5:1	1,182	473
T5A	1200+00 to 1200+65	65	EII	2.5:1	65	26
T5B	1300+00 to 1304+38	438	EII	2.5:1	438	175
T6-1*	600+00 to 602+59	259	EII	2.5:1	259	104
T6-2	602+59 to 609+80	621	R	1:1	658	658
T6A-1	650+00 to 650+60	60	EII	2.5:1	60	24
T6A-2	650+60 to 651+61	97	R	1:1	101	101
T7-1	700+00 to 701+65	165	EII	2.5:1	165	66
T7-2	701+65 to 705+13	335	R	1:1	348	348
T8-1*	800+00 to 804+45	445	EII	2.5:1	445	178
T8-2	804+45 to 808+94	464	R	1:1	426	426
T8A	850+00 to 852+63	258	R	1:1	263	263
T9	900+00 to 901+29	133	R	1:1	129	129
UTHC1 Top*	10+00-22+81	1,333	R	1:1	1,249	1,249
UTHC1 Bottom*	22+81-27+39	541	R	1:1	438	438
UTHC2	27+39-42+32	1,494	EI	1.5:1	1,493	995
UTHC3*	42+32-55+57	1,411	R	1:1	1,240	1,240
UTHC4-1	55+57-58+53	1,840	EI	1.5:1	297	198
UTHC4-2	58+53-63+75		EII	2.5:1	521	208
UTHC4-3*	63+75-68+55		EI	1.5:1	419	279
UTHC4-4*	68+55-73+97		EII	2.5:1	497	199

Crossings have been removed from creditable linear footage for all project streams.



INDEX OF SHEETS

1	TITLE SHEET
2	GENERAL NOTES & PROJECT LEGEND
3-10	SITE PLAN
11-12	PLANTING PLAN
13-14	BOUNDARY MARKING PLAN

AS-BUILT PLANS

NOTE:
NO MAJOR CHANGES WERE MADE TO THE ORIGINAL CONSTRUCTION PLANS.
* INDICATES REPAIRS FROM WINTER STORM.

DIRECTIONS TO SITE

From Raleigh, follow I-40 West towards Winston-Salem. Take exit 188 to follow US-421 North. Take exit 244 off of US-421 onto Williams Road. At the traffic circle take the third exit onto Shallowford Rd. Turn right onto Conrad Rd. Turn left onto Old US421. Turn right onto Flint Hill Rd. Turn left onto Main St. Slight right onto Fairground Rd. Turn right onto Shady Grove Rd. Follow for about a mile; the site entrance will be at 4413 Shady Grove Church Rd.

Prepared In the Office of:

KCI
ASSOCIATES OF NC
ENGINEERS • PLANNERS • SCIENTISTS
4505 FALLS OF NEUSE ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27609

GARY M. MRYNCZA, PE
PROJECT ENGINEER

ALEX FRENCH
PROJECT DESIGNER

Prepared for:

NC
NCDEQ - DIVISION OF
MITIGATION SERVICES

MATTHEW REID
DMS PROJECT MANAGER

LIN XU
DMS REVIEW COORDINATOR

PROJECT SURVEYOR

SIGNATURE: _____ P.E.

PROJECT ENGINEER



SIGNATURE: _____ P.E.

GENERAL NOTES:

THIS SET OF PLANS IS BASED OFF OF AN AS-BUILT SURVEY COMPLETED BY KCI ASSOCIATES OF NC IN OCTOBER OF 2019.

THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT TRACTS. THE PARENT TRACT BOUNDARIES ADJACENT TO THIS EASEMENT ARE NOT CHANGED BY THIS PLAT.

DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.

THE BASIS OF THE MERIDIANS AND COORDINATES FOR THIS PLAT IS THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD 83), BASED ON DIFFERENTIAL GPS OBSERVATIONS. ALL DISTANCES ARE GROUND UNLESS OTHERWISE NOTED.

NO UNDERGROUND UTILITY LOCATING PERFORMED DURING THE COURSE OF THIS SURVEY.

AS-BUILT CONTROL POINTS:

DESCRIPTION	NORTHING	EASTING	ELEV	POINT
MILL DAM 1	906433.72	1552754.88	1007.74	1
MILL DAM 2	906784.49	1550793.65	999.31	2
MILL DAM 3	908920.82	1550521.12	968.14	3
MILL DAM 4	910728.58	1548637.89	931.06	4
MILL DAM 5	911824.03	1550305.86	861.62	5
MILL DAM 6	910632.90	1554600.60	963.71	6
MILL DAM 7	909965.25	1552331.55	947.62	7
CP	906899.28	1552214.96	956.99	12
KCI#14	906839.03	1551169.59	979.01	14
KCI#15	907378.47	1551306.72	952.23	15
KCI#16	908093.58	1552046.36	924.83	16
KCI#17	908557.45	1551959.23	924.62	17
KCI#18	907613.45	1551482.76	937.21	18
KCI	907521.34	1551394.95	944.63	19
KCI	907211.62	1551314.00	955.42	20
KCI	907089.19	1551294.01	959.66	21
KCI	906963.06	1551259.62	958.01	22
NL SET	907405.83	1552011.42	943.65	100
NL SET	907700.90	1551878.32	930.14	101
NL SET	908155.42	1552066.45	929.83	102
NL SET	907766.56	1551813.03	930.51	103
NL SET	907944.60	1552122.11	932.99	104

* CONTACT DESIGN REPRESENTATIVE FOR FULL LIST OF CONTROL POINTS



PROJECT ENGINEER

DATE	REVISIONS



MILL DAM CREEK
STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA

PROJECT SURVEYOR

PROJECT LEGEND:

New Thalweg w/Approximate Bankfull Limits	
Installed Step Pool	
Installed Riffle Enhancement	
Installed Riffle Grade Control	
Installed Riffle Cascade	
Installed Live Lift	
Stabilized Incoming Drainage	

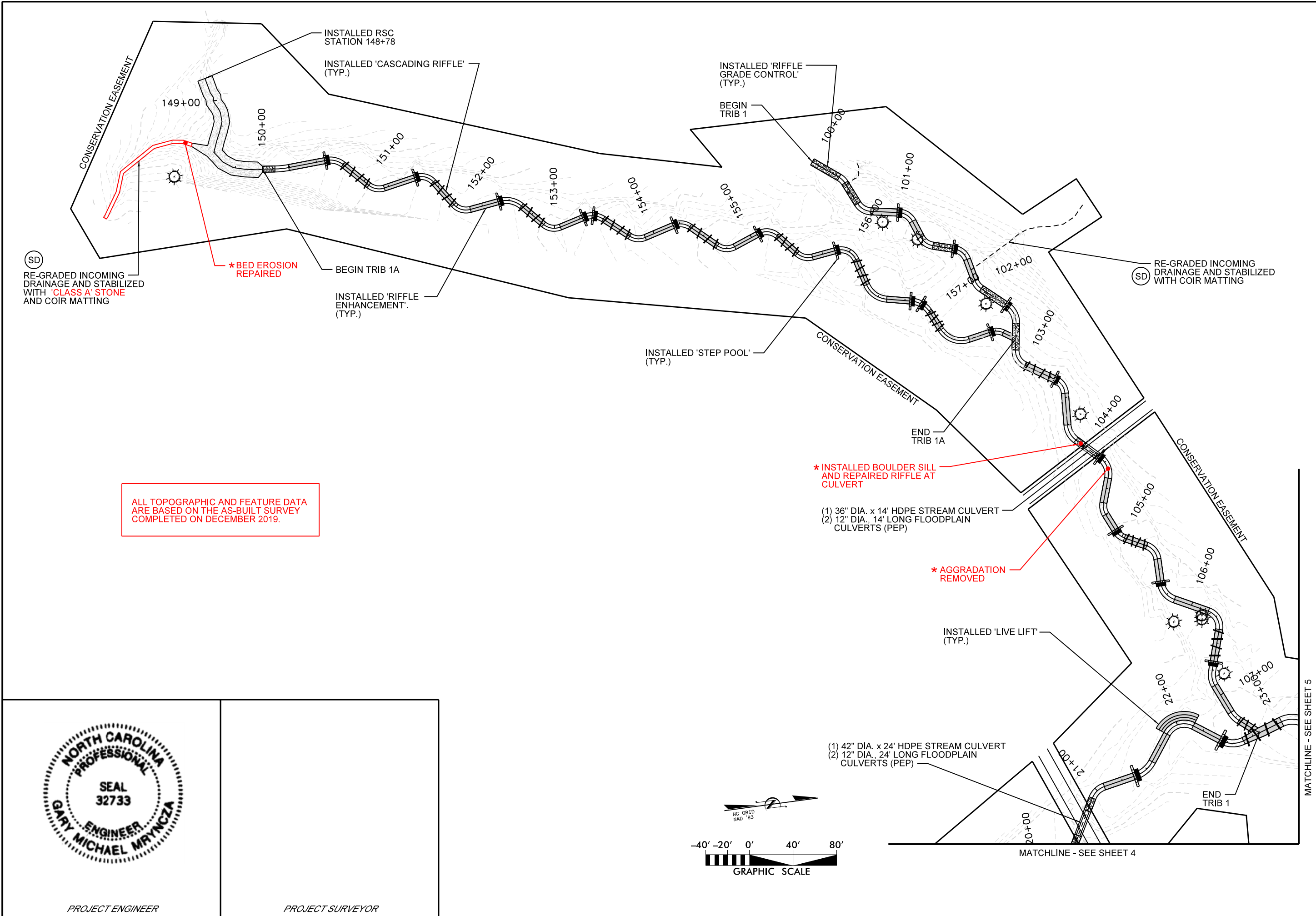
Minor Contour Line	
Major Contour Line	
Utility Pole	

DATE: APRIL 2020

SCALE: N.T.S.

GENERAL
NOTES &
PROJECT
LEGEND

SHEET 2 OF 14

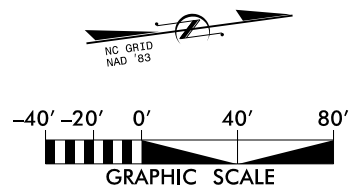


ALL TOPOGRAPHIC AND FEATURE DATA ARE BASED ON THE AS-BUILT SURVEY COMPLETED ON DECEMBER 2019.



PROJECT ENGINEER

PROJECT SURVEYOR



NO.	SYMBOL	DESCRIPTION	DATE



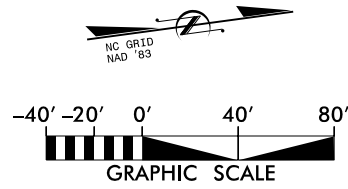
MILL DAM CREEK
STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA

DATE: APRIL 2020
SCALE: GRAPHIC
SITE PLAN
REACH: T1 & T1A
SHEET 3 OF 14

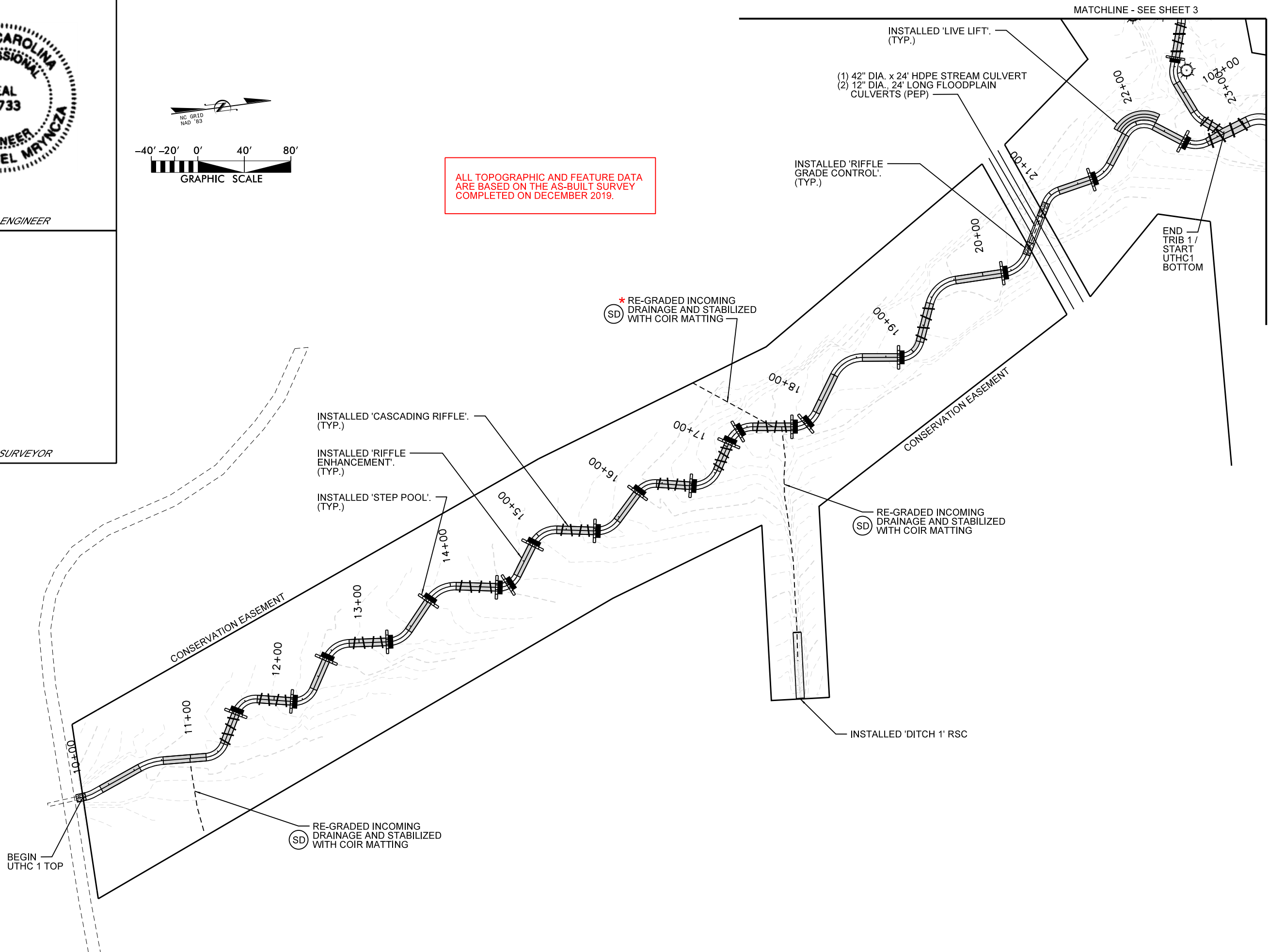


PROJECT ENGINEER

PROJECT SURVEYOR



ALL TOPOGRAPHIC AND FEATURE DATA ARE BASED ON THE AS-BUILT SURVEY COMPLETED ON DECEMBER 2019.



MATCHLINE - SEE SHEET 5

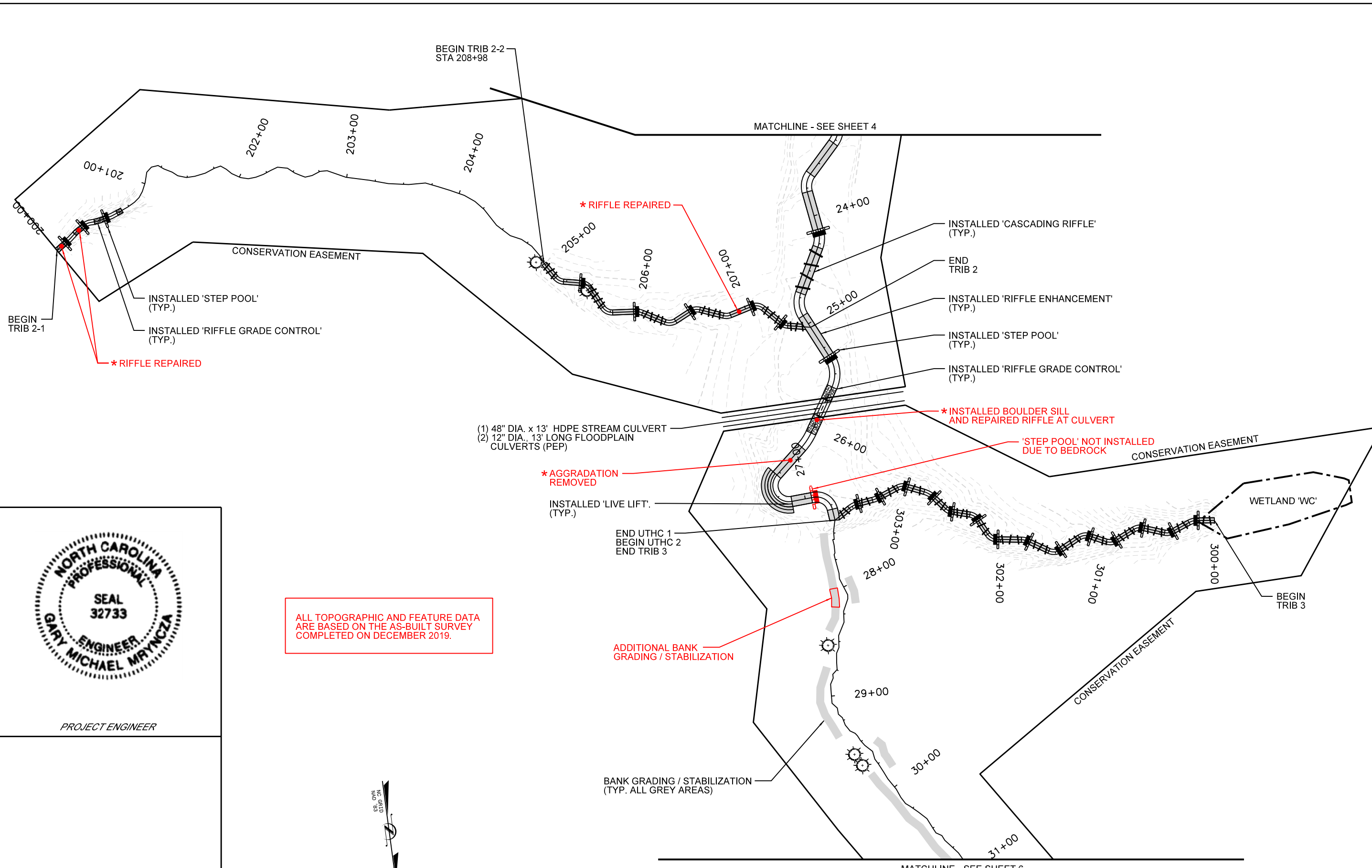
MATCHLINE - SEE SHEET 3


NO.	DATE	DESCRIPTION	BY



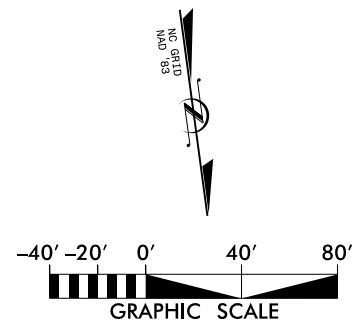
MILL DAM CREEK
STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA

DATE: APRIL 2020
SCALE: GRAPHIC
SITE PLAN
REACH:
UTHC
SHEET 4 OF 14




 PROJECT ENGINEER

ALL TOPOGRAPHIC AND FEATURE DATA
 ARE BASED ON THE AS-BUILT SURVEY
 COMPLETED ON DECEMBER 2019.



PROJECT SURVEYOR

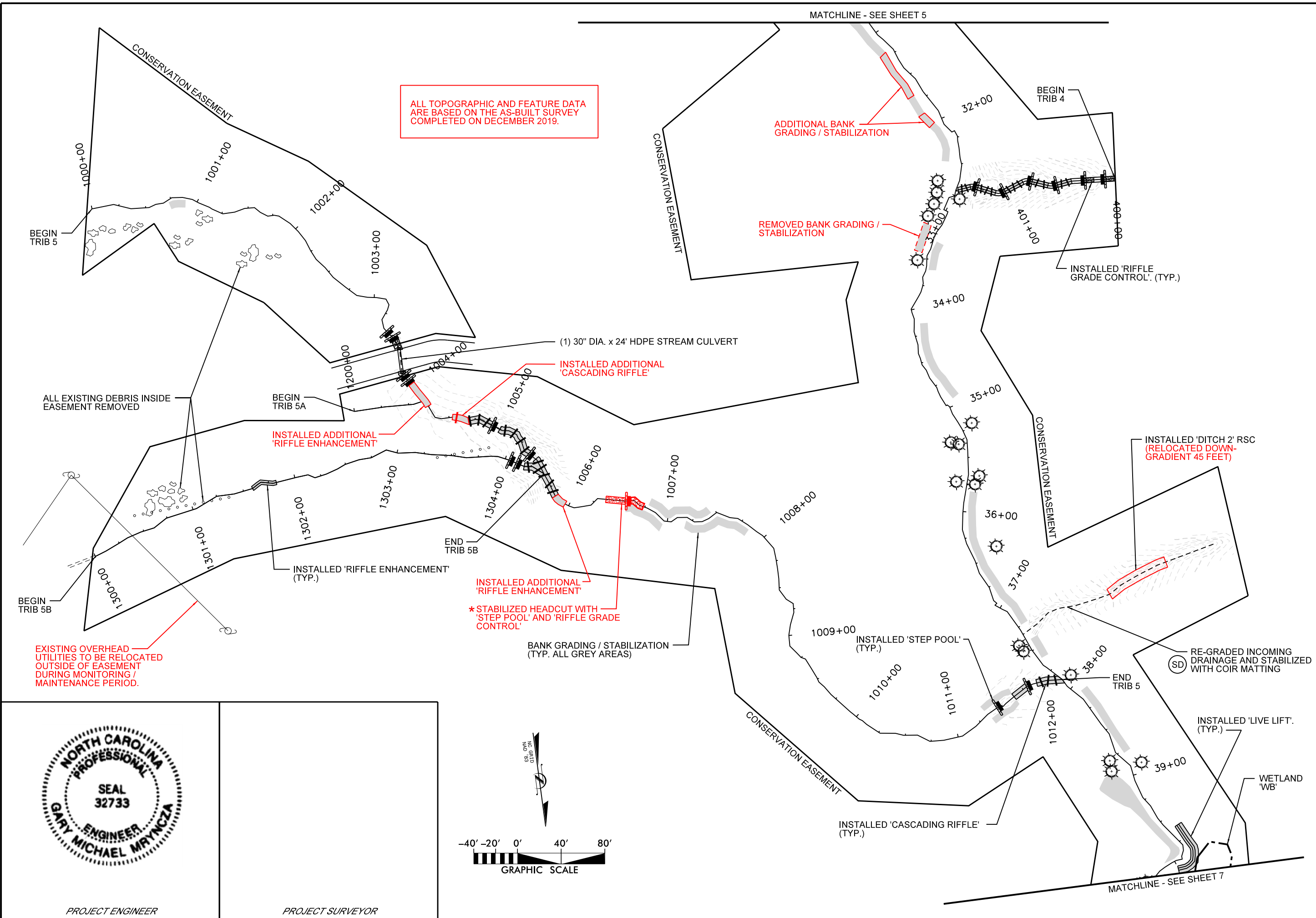
SYMBOL	DESCRIPTION	DATE



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 4505 FALLS OF NEUSE ROAD, SUITE 400
 RALEIGH, NORTH CAROLINA 27609

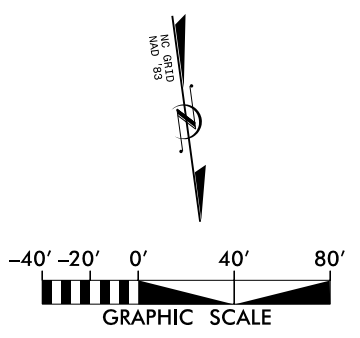
**MILL DAM CREEK
 STREAM RESTORATION SITE**
 YADKIN COUNTY, NORTH CAROLINA

DATE: APRIL 2020
 SCALE: GRAPHIC
 SITE PLAN
 REACH:
 T2, T3, & UTHC
 SHEET 5 OF 14



PROJECT ENGINEER

PROJECT SURVEYOR

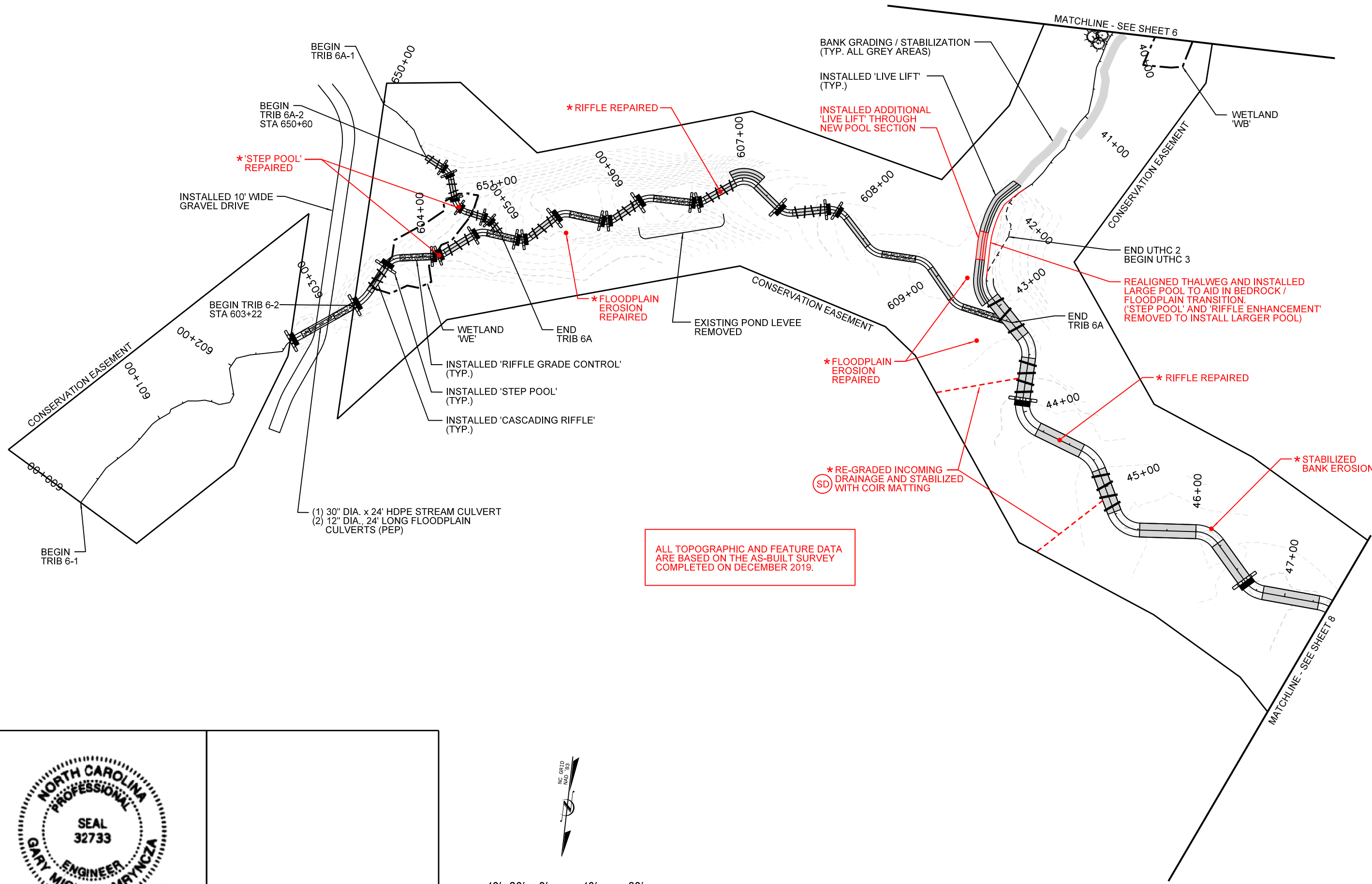


NO.	DATE	DESCRIPTION	BY



MILL DAM CREEK STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA

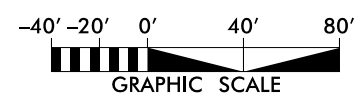
DATE: APRIL 2020
SCALE: GRAPHIC
SITE PLAN
REACH: T4, T5, T5A, T5B & UTHC
SHEET 6 OF 14



ALL TOPOGRAPHIC AND FEATURE DATA ARE BASED ON THE AS-BUILT SURVEY COMPLETED ON DECEMBER 2019.



PROJECT ENGINEER



PROJECT SURVEYOR

NO.	SYMBOL	DESCRIPTION	DATE



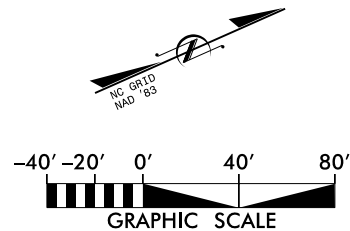
MILL DAM CREEK
STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA

DATE: APRIL 2020
SCALE: GRAPHIC
SITE PLAN
REACH: T6, T6A & UTHC
SHEET 7 OF 14

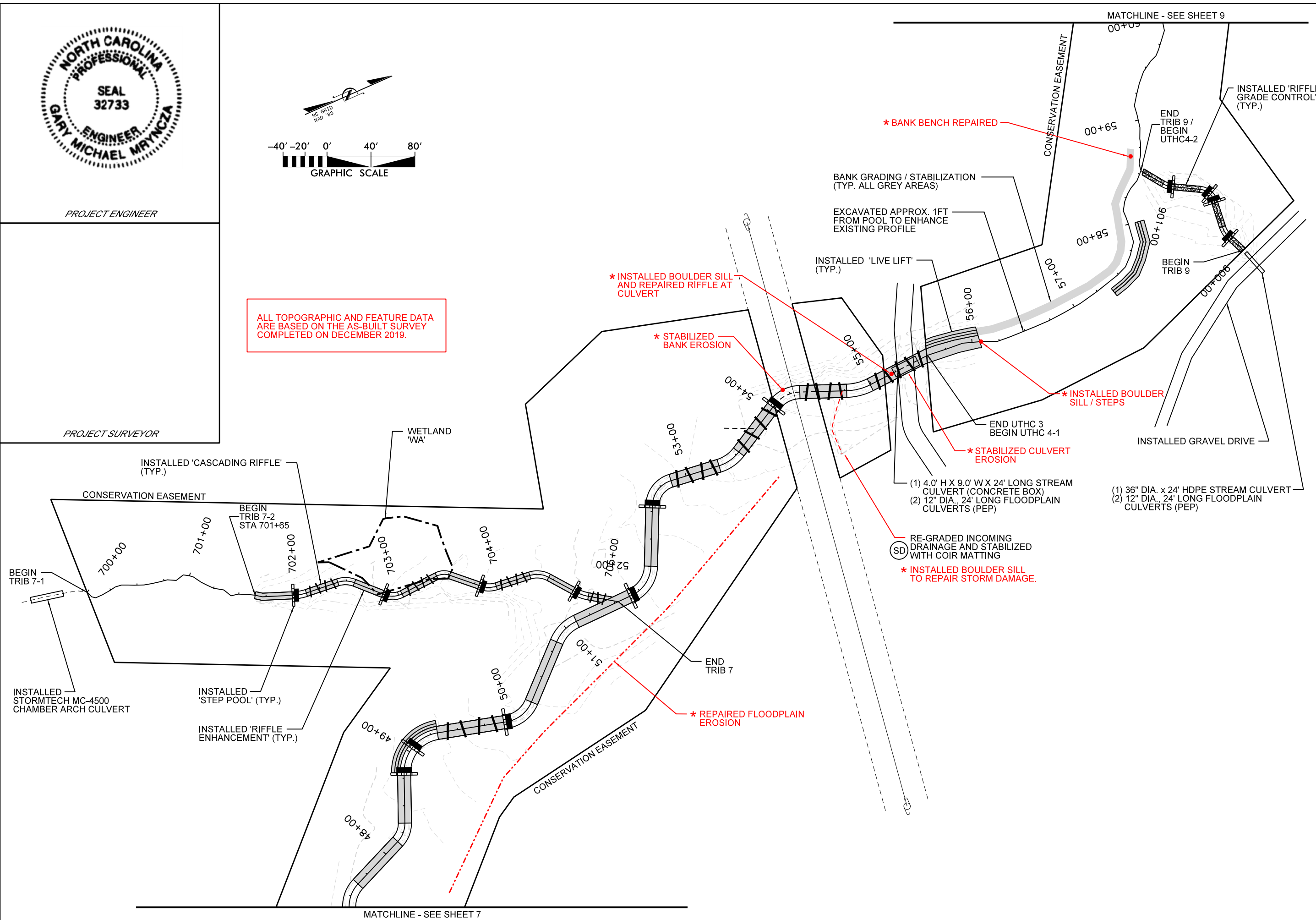


PROJECT ENGINEER

PROJECT SURVEYOR



ALL TOPOGRAPHIC AND FEATURE DATA ARE BASED ON THE AS-BUILT SURVEY COMPLETED ON DECEMBER 2019.



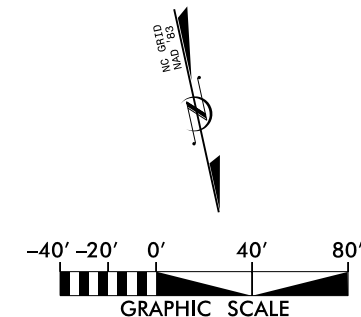
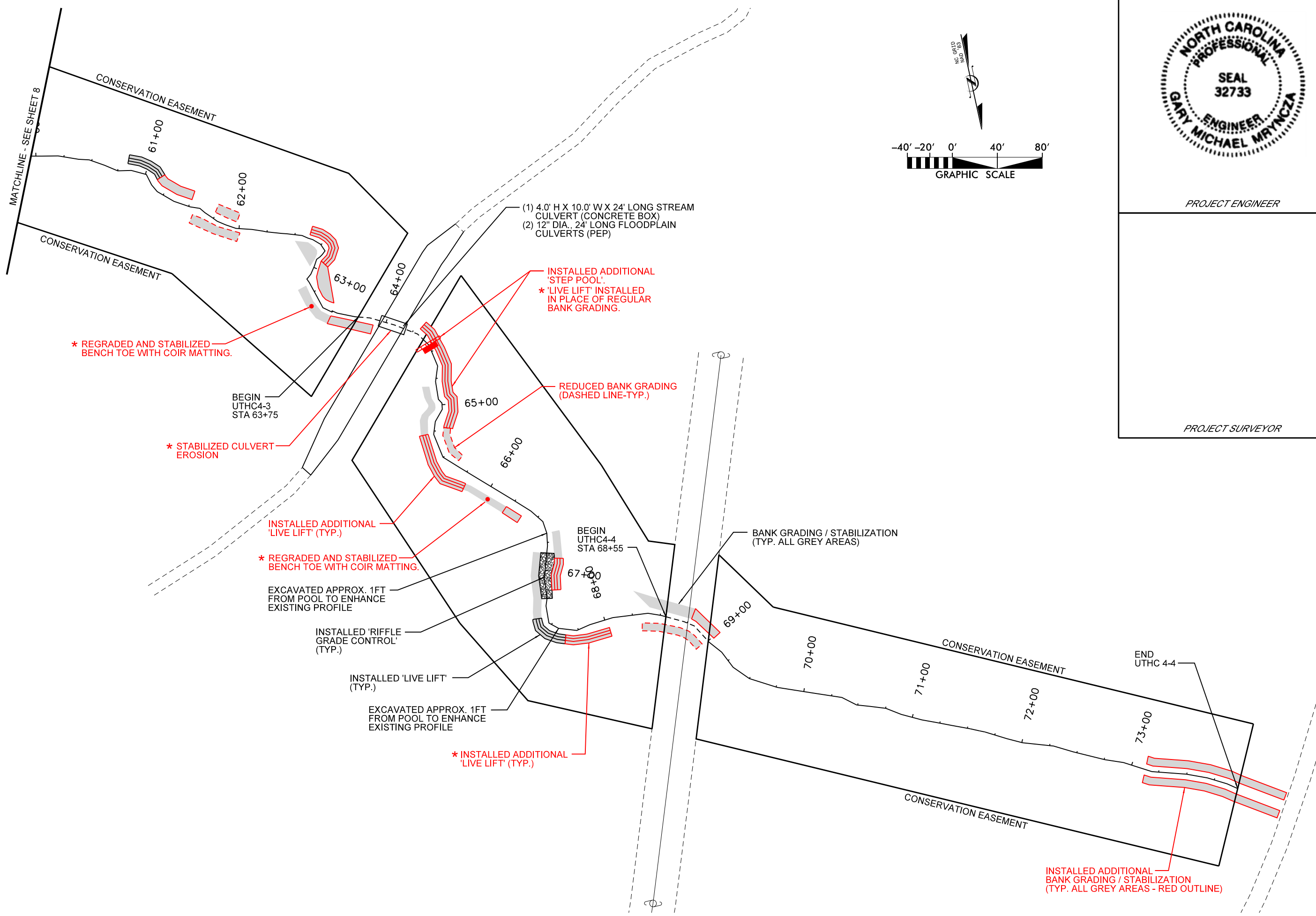
NO.	DATE	DESCRIPTION	BY



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RALEIGH, NORTH CAROLINA 27609

**MILL DAM CREEK
STREAM RESTORATION SITE**
YADKIN COUNTY, NORTH CAROLINA

DATE: APRIL 2020
SCALE: GRAPHIC
SITE PLAN
REACH:
T7, T9
& UTHC
SHEET 8 OF 14



PROJECT ENGINEER

PROJECT SURVEYOR

NO.	DATE	DESCRIPTION	BY



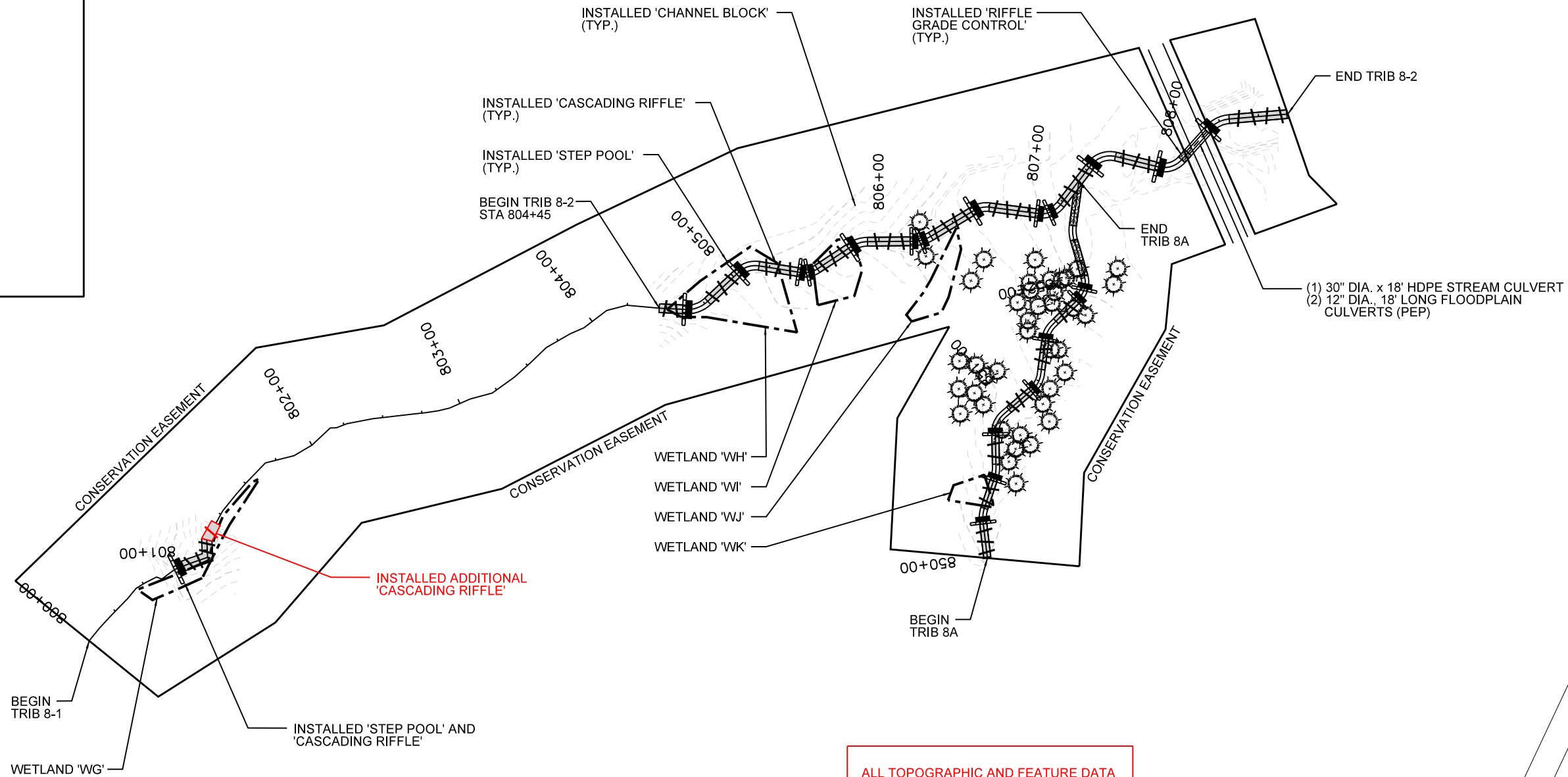
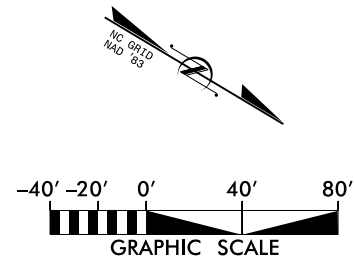
MILL DAM CREEK
STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA

DATE: APRIL 2020
SCALE: GRAPHIC
SITE PLAN
REACH: UTHC
SHEET 9 OF 14



PROJECT ENGINEER

PROJECT SURVEYOR



ALL TOPOGRAPHIC AND FEATURE DATA ARE BASED ON THE AS-BUILT SURVEY COMPLETED ON DECEMBER 2019.

(1) 30" DIA. x 18' HDPE STREAM CULVERT
(2) 12" DIA., 18' LONG FLOODPLAIN CULVERTS (PEP)

NO.	DATE	DESCRIPTION	BY



MILL DAM CREEK
STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA

DATE: APRIL 2020
SCALE: GRAPHIC
SITE PLAN
REACH:
T8 & T8A
SHEET 10 OF 14

STREAM ZONE :



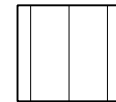
STREAM ZONE
LIVE STAKES: 1.5' TO 2' LENGTHS, 1/2" TO 2" DIAMETER,
PLANT AT 3' SPACING, RANDOM SPECIES PLACEMENT.

COMMON NAME SCIENTIFIC NAME

- BLACK WILLOW
- SILKY WILLOW
- SILKY DOGWOOD
- COMMON ELDERBERRY

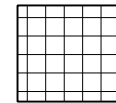
NOTE: NO SINGLE LIVE STAKING SPECIES
SHALL COMPOSE MORE THAN 40% OF THE TOTAL
NUMBER OF LIVE STAKES TO BE INSTALLED.

RIPARIAN FOREST PLANTING:



PLANTING ZONE 1 = 25.7 ACRES
12" - 18" BARE ROOT MATERIAL
968 STEMS/ACRE (9' X 5' SPACING), RANDOM SPECIES PLACEMENT

COMMON NAME	SCIENTIFIC NAME	STATUS	% OF TOTAL	# OF PLANTS
RIVER BIRCH	BETULA NIGRA	FACW	20	5,000
GREEN ASH	FRAXINUS PENNSYLVANICA	FACW	20	5,000
SWAMP CHESTNUT OAK	QUERCUS MICHAUXII	FACW	20	5,000
WILLOW OAK	QUERCUS PHELLOS	FAC	20	5,000
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	FACW	20	5,000
TULIP POPLAR	LIRIODENDRON TULIPIFERA	FACU	20	5,000
				25,000



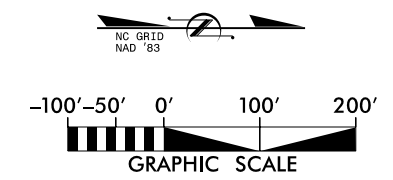
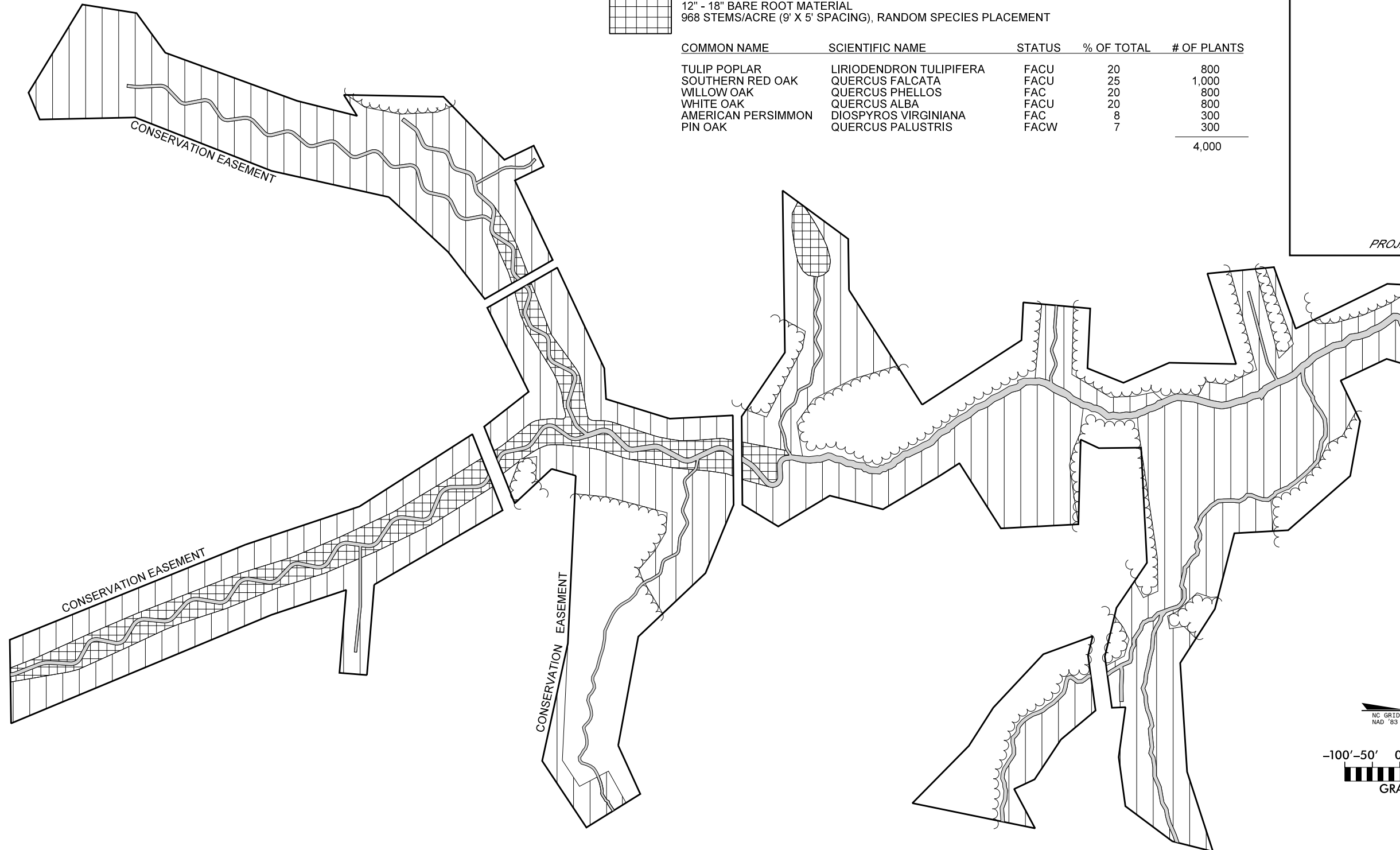
PLANTING ZONE 2 = 3.8 ACRES
12" - 18" BARE ROOT MATERIAL
968 STEMS/ACRE (9' X 5' SPACING), RANDOM SPECIES PLACEMENT

COMMON NAME	SCIENTIFIC NAME	STATUS	% OF TOTAL	# OF PLANTS
TULIP POPLAR	LIRIODENDRON TULIPIFERA	FACU	20	800
SOUTHERN RED OAK	QUERCUS FALCATA	FACU	25	1,000
WILLOW OAK	QUERCUS PHELLOS	FAC	20	800
WHITE OAK	QUERCUS ALBA	FACU	20	800
AMERICAN PERSIMMON	DIOSPYROS VIRGINIANA	FAC	8	300
PIN OAK	QUERCUS PALUSTRIS	FACW	7	300
				4,000



PROJECT ENGINEER

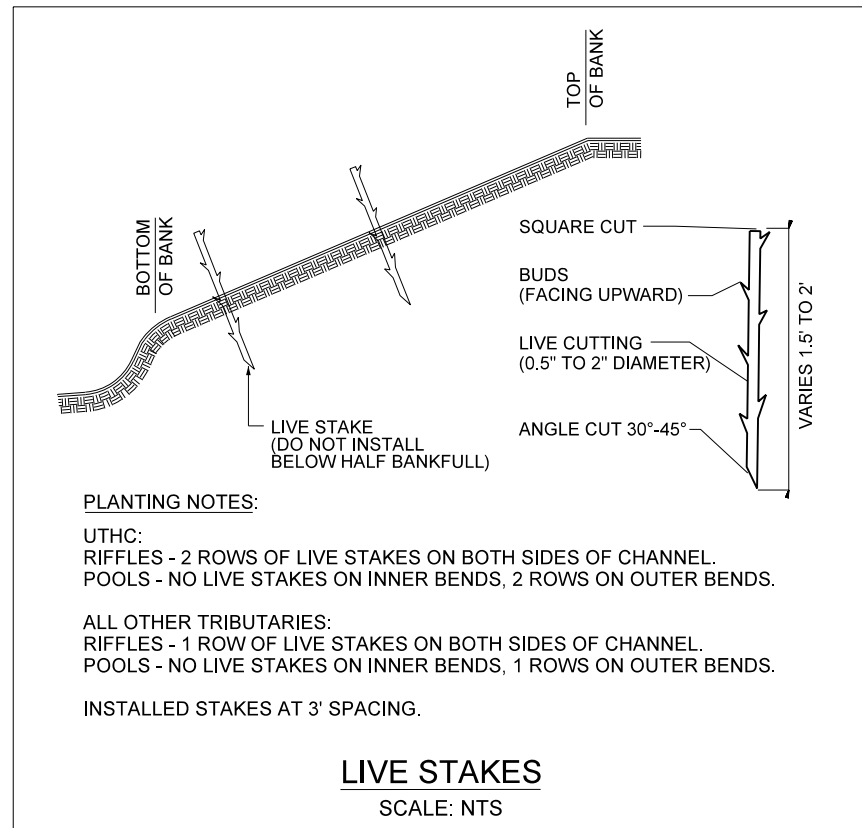
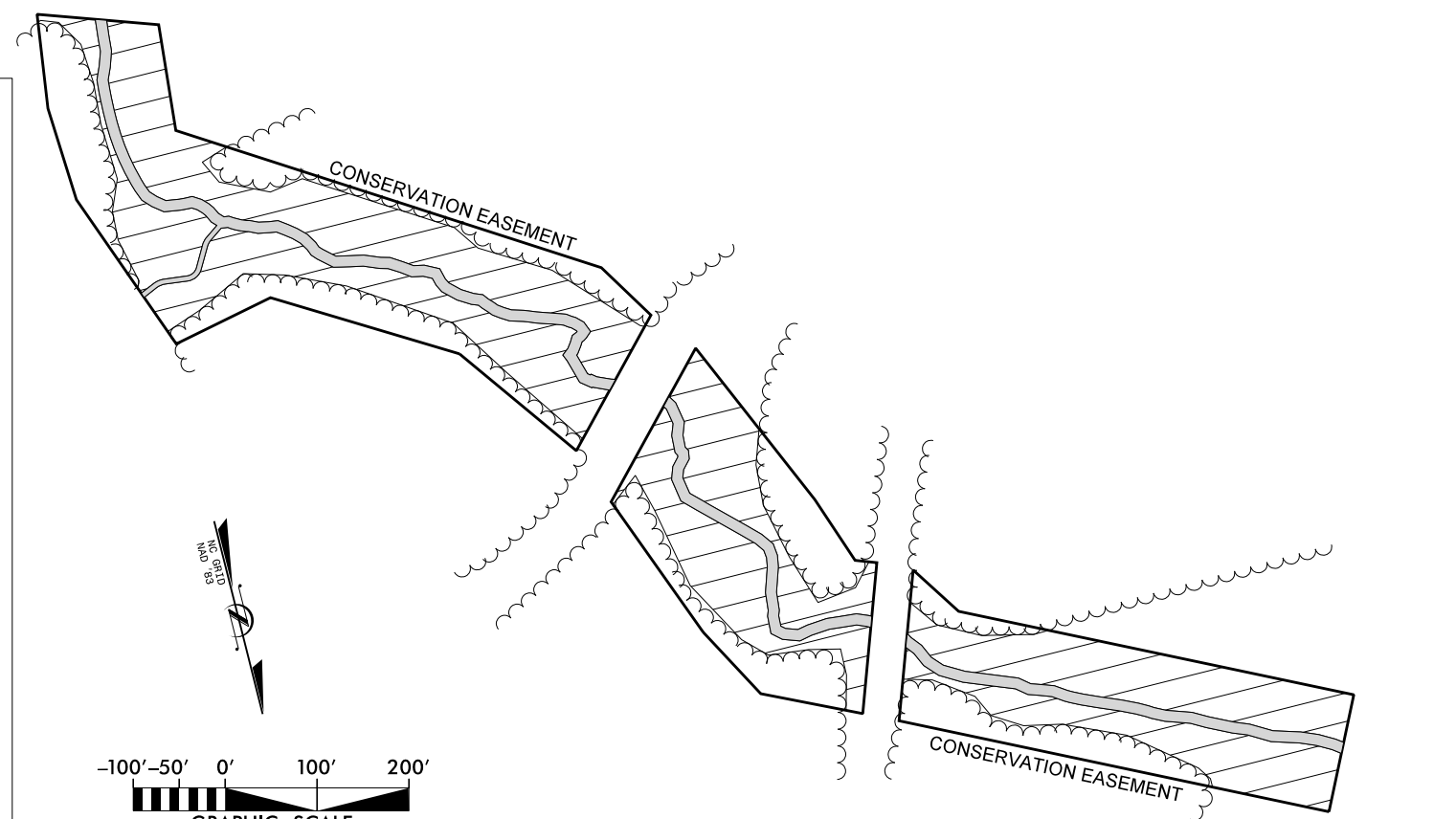
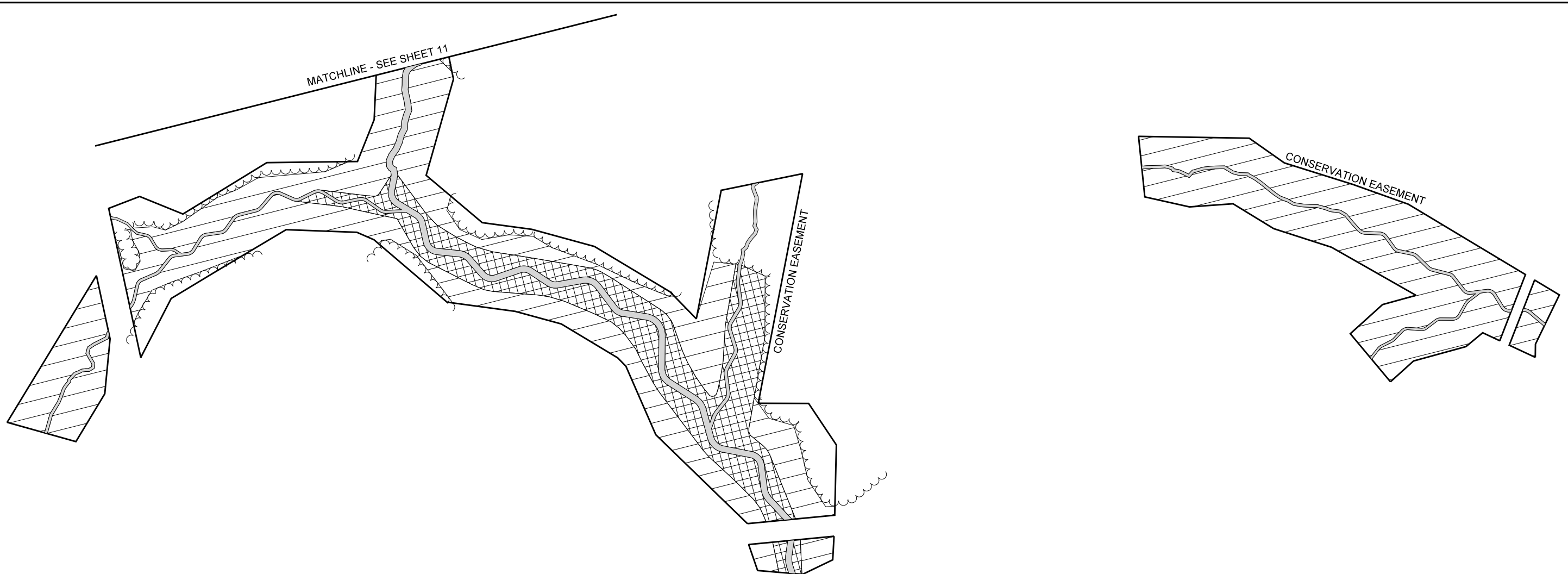
PROJECT SURVEYOR



NO.	DATE	DESCRIPTION	BY



**MILL DAM CREEK
STREAM RESTORATION SITE**
YADKIN COUNTY, NORTH CAROLINA



PLANTING NOTES:
 UTHC:
 RIFFLES - 2 ROWS OF LIVE STAKES ON BOTH SIDES OF CHANNEL.
 POOLS - NO LIVE STAKES ON INNER BENDS, 2 ROWS ON OUTER BENDS.
 ALL OTHER TRIBUTARIES:
 RIFFLES - 1 ROW OF LIVE STAKES ON BOTH SIDES OF CHANNEL.
 POOLS - NO LIVE STAKES ON INNER BENDS, 1 ROWS ON OUTER BENDS.
 INSTALLED STAKES AT 3' SPACING.

LIVE STAKES
 SCALE: NTS



PROJECT ENGINEER

PROJECT SURVEYOR

NO.	DATE	DESCRIPTION	BY



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 4505 FALLS OF NEUSE ROAD, SUITE 400
 RALEIGH, NORTH CAROLINA 27609





**MILL DAM CREEK
 STREAM RESTORATION SITE**
 YADKIN COUNTY, NORTH CAROLINA

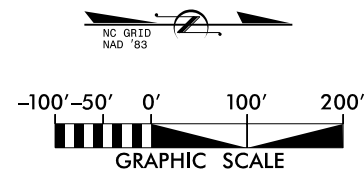
DATE: APRIL 2020
 SCALE: GRAPHIC

PLANTING PLAN

EASEMENT BOUNDARY MARKING

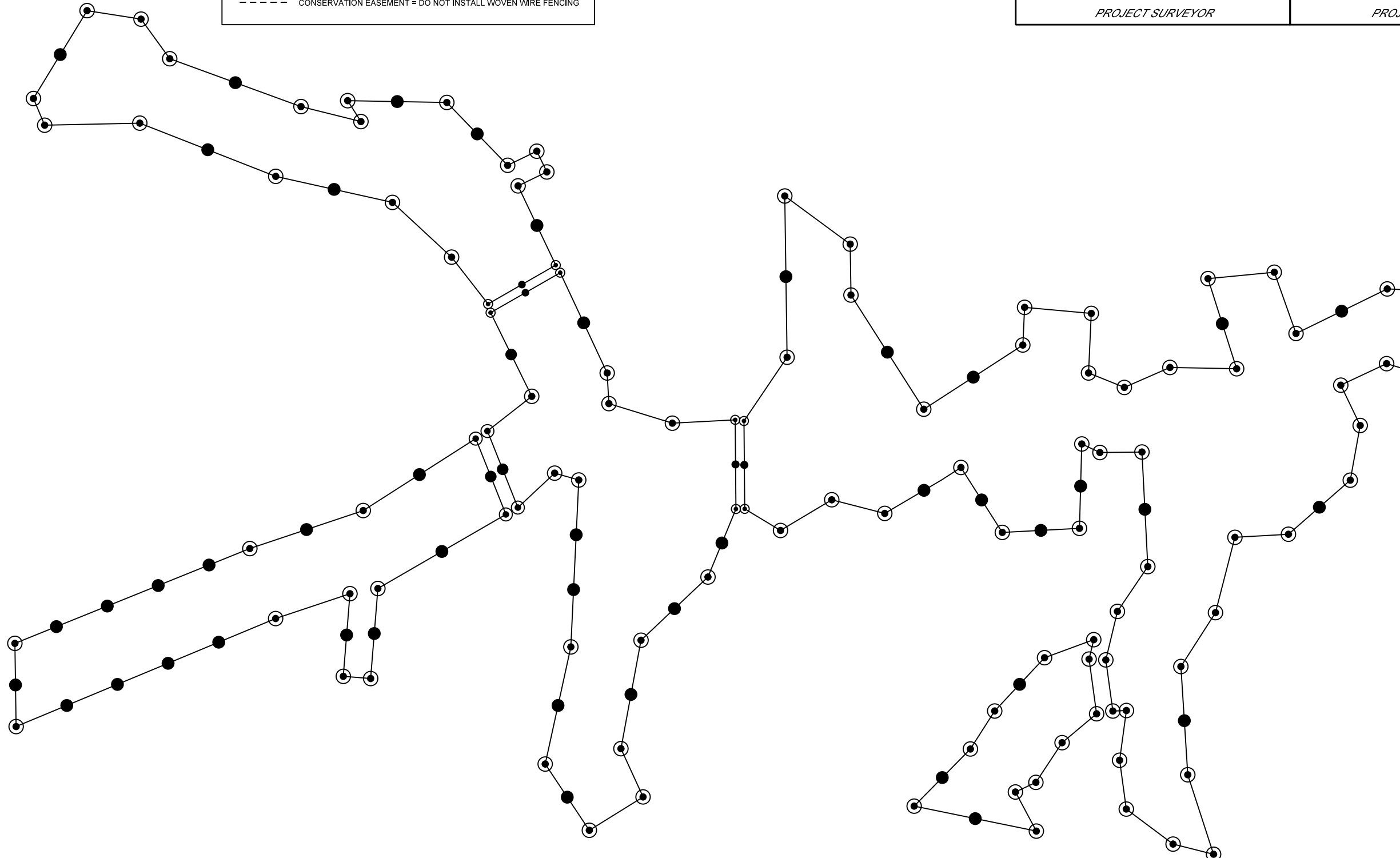
EASEMENT BOUNDARY MARKED WITH METAL POSTS AND CONSERVATION EASEMENT SIGNS AT THE CORNERS AND AT A MINIMUM OF 100' INTERVALS ALONG THE BOUNDARY.

- 
 6-FOOT TALL DURABLE WITNESS POSTS AND 5/8" REBAR 30" IN LENGTH WITH 3-1/4" ALUMINUM CAPS ON ALL EASEMENT CORNERS. CAPS SHALL MEET DMS SPECIFICATIONS (BERNSTEIN RBD5325 IMPRINTED WITH NC STATE LOGO #B9087 OR EQUIVALENT). AFTER INSTALLATION, CAPS SHALL BE STAMPED WITH THE CORRESPONDING NUMBER.
- 
 6-FOOT TALL DURABLE WITNESS POST ALONG BOUNDARY OF CONSERVATION EASEMENT. POSTS SHALL BE MADE OF MATERIAL THAT WILL LAST A MINIMUM OF 20 YEARS. THE PROVIDER SHALL ATTACH A CONSERVATION EASEMENT SIGN TO EACH WITNESS POST AND PLACE ADDITIONAL SIGNS AT NO MORE THAN 100-FOOT INTERVALS ON BOUNDARY LINES.
- 
 CONSERVATION EASEMENT = INSTALLED WOVEN WIRE FENCING
- 
 CONSERVATION EASEMENT = DO NOT INSTALL WOVEN WIRE FENCING



PROJECT SURVEYOR

PROJECT ENGINEER

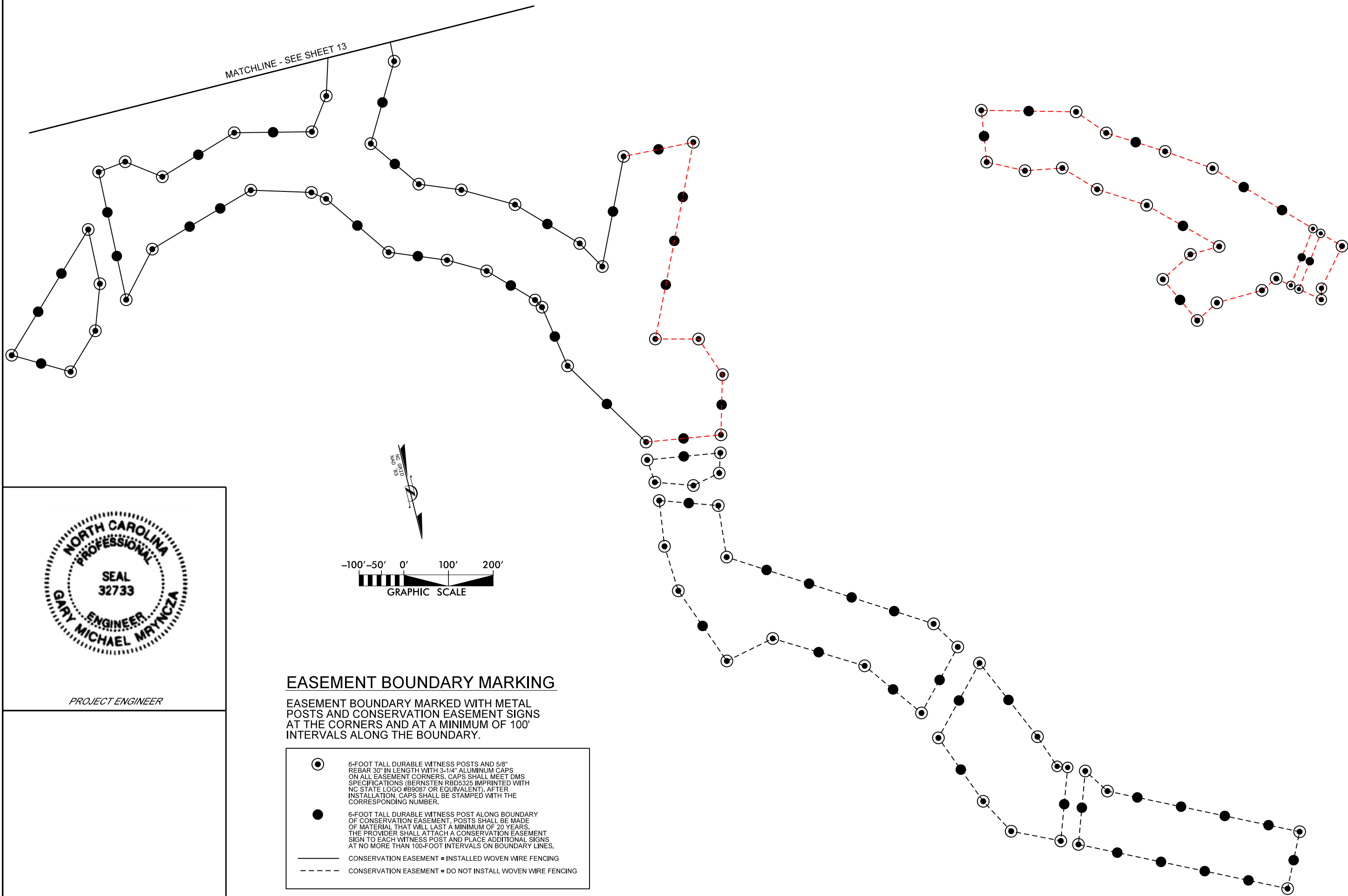


NO.	DATE	DESCRIPTION	BY



MILL DAM CREEK
STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA





MATCHLINE - SEE SHEET 13

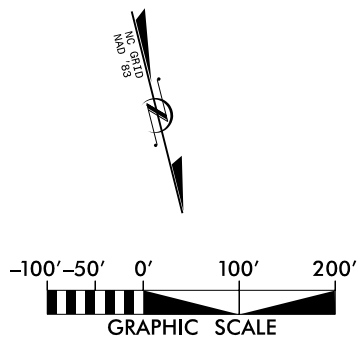


PROJECT ENGINEER

EASEMENT BOUNDARY MARKING

EASEMENT BOUNDARY MARKED WITH METAL POSTS AND CONSERVATION EASEMENT SIGNS AT THE CORNERS AND AT A MINIMUM OF 100' INTERVALS ALONG THE BOUNDARY.

- 
 6-FOOT TALL DURABLE WITNESS POSTS AND 5/8" REBAR 30" IN LENGTH WITH 3-1/4" ALUMINUM CAPS ON ALL EASEMENT CORNERS. CAPS SHALL MEET DMS SPECIFICATIONS (BERNSTEN RBD5325 IMPRINTED WITH NC STATE LOGO #B9087 OR EQUIVALENT). AFTER INSTALLATION, CAPS SHALL BE STAMPED WITH THE CORRESPONDING NUMBER.
- 
 6-FOOT TALL DURABLE WITNESS POST ALONG BOUNDARY OF CONSERVATION EASEMENT. POSTS SHALL BE MADE OF MATERIAL THAT WILL LAST A MINIMUM OF 20 YEARS. THE PROVIDER SHALL ATTACH A CONSERVATION EASEMENT SIGN TO EACH WITNESS POST AND PLACE ADDITIONAL SIGNS AT NO MORE THAN 100-FOOT INTERVALS ON BOUNDARY LINES.
- 
 CONSERVATION EASEMENT = INSTALLED WOVEN WIRE FENCING
- 
 CONSERVATION EASEMENT = DO NOT INSTALL WOVEN WIRE FENCING



PROJECT SURVEYOR

SYMBOL	DESCRIPTION	DATE



KCI
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4505 FALLS OF NEUSE ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27609

MILL DAM CREEK
STREAM RESTORATION SITE
YADKIN COUNTY, NORTH CAROLINA