STATE	BAKER PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
NC	157329	1	43

NORTH CAROLINA
DIVISION OF MITIGATION SERVICES

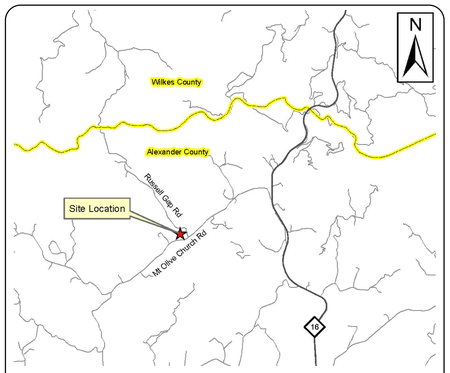
ALEXANDER COUNTY

LOCATION: NEAR RUSSELL GAP ROAD AND MOUNT OLIVE CHURCH ROAD

TYPE OF WORK: AS – BUILT PLAN

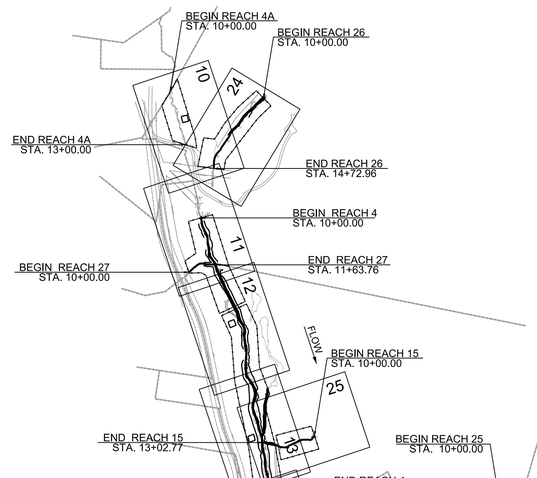
RUSSELL GAP

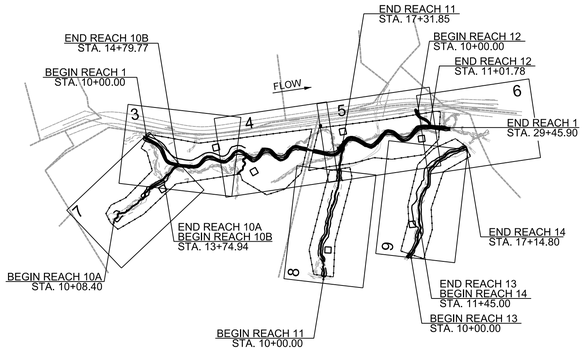
PROJECT: 157329



VICINITY MAP

INDEX OF SHEETS





NAD 83

I, DAVID S. TURNER, AS A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF NORTH CAROLINA, HEREBY CERTIFY THAT THE DATA SHOWN ON THIS DRAWING, WAS OBTAINED UNDER MY SUPERVISION, IS AN ACCURATE AND COMPLETE REPRESENTATION OF WHAT WAS CONSTRUCTED IN THE FIELD, AND THAT THE PHYSICAL DIMENSIONS OR ELEVATIONS SHOWN THUS ARE AS-BUILT CONDITIONS, EXCEPT WHERE OTHERWISE NOTED HERON, WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS DAY OF

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by:
David S. Turner
PROFESSIONAL LAND SURVEYOR L-4551

9/11/2020

Existing survey provided by Kee Mapping and Survey (License # C-3039). Sealed by Nolan R. Carmack, PLS L-5076 on November 6, 2017. Show in gray as background information.

As-Built Survey provided by Turner Land Surveying is sealed by David S. Turner L-4551.

Redlines are sealed by Kathleen M. McKeithan PE028432.

NCDMS ID NO. 100003

GRAPHIC SCALES

PLANS: 20 0 20 40

PROFILE (HORIZONTAL): 20 0 20 40

PROFILE (VERTICAL): 5 0 5 10

MITIGATION SUMMARY

STREAM CREDITS	**9,166.949**
WETLAND CREDITS	7.053

PREPARED FOR THE OFFICE OF:

NCDEQ
DIVISION OF MITIGATION SERVICES
1652 MAIL SERVICE CENTER
RALEIGH, NC 27699–1652

CONTACT: MATTHEW REID
PROJECT MANAGER

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
8000 Regency Parkway, Suite 600
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

SPRING 2018
LETTING DATE:

KATHLEEN M. McKEITHAN, PE
PROJECT ENGINEER

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M. McKEITHAN

9/11/2020

DocuSigned by:
Kathleen Marie McKeithan
P.E.
SIGNATURE:

2/26/03

STREAM CONVENTIONAL SYMBOLS

SUPERCEDES SHEET 1-B

- ROCK J-HOOK
- ROCK VANE
- OUTLET PROTECTION
- ROCK CROSS VANE
- DOUBLE DROP ROCK CROSS VANE
- SINGLE WING DEFLECTOR
- DOUBLE WING DEFLECTOR
- TEMPORARY SILT CHECK
- ROOT WAD
- GRADE CONTROL LOG J-HOOK
- LOG VANE
- LOG WEIR
- LOG CROSS VANE
- LOG ROLLER
- GRADE CONTROL LOG JAM
- CONSTRUCTED RIFFLE
- BOULDER CLUSTER
- ROCK STEP POOL
- SAFETY FENCE
- TF — TAPE FENCE
- FP — 100 YEAR FLOOD PLAIN
- CE — CONSERVATION EASEMENT
- 435 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- LIMITS OF DISTURBANCE
- PROPERTY LINE
- FOOT BRIDGE
- TEMPORARY STREAM CROSSING
- PERMANENT STREAM CROSSING
- TRANSPLANTED VEGETATION
- TREE REMOVAL
- TREE PROTECTION
- CHANNEL PLUG
- CHANNEL FILL
- SLOPE, SEED, MULCH, MAT, AND LIVE STAKE
- GEOLIFT WITH BRUSH TOE
- PROPOSED WETLAND RESTORATION
- WLB — PROPOSED WETLAND ENHANCEMENT
- WLB — JURISDICTIONAL WETLAND BOUNDARY
- V-NOTCH WEIR

**NOTE: ALL ITEMS ABOVE MAY NOT BE USED ON THIS PROJECT

STANDARD SPECIFICATIONS

NORTH CAROLINA
EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL
MARCH 2009 (REV 2013)

- 6.06 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- 6.24 RIPARIAN AREA SEEDING
- 6.60 TEMPORARY SEDIMENT TRAP
- 6.62 TEMPORARY SILT FENCE
- 6.63 TEMPORARY ROCK DAM
- 6.70 TEMPORARY STREAM CROSSING

PROJECT REFERENCE NO.	SHEET NO.
157329	1-A

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen Mode McKeithan 247E84DF4181473

APPROVED BY:

9/11/2020

DATE:

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
8000 Regency Parkway, Suite 600
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

GENERAL NOTES

1. THE CONTRACTOR IS REQUIRED TO INSTALL IN-STREAM STRUCTURES USING A TRACK HOE WITH A HYDRAULIC THUMB OF SUFFICIENT SIZE TO PLACE BOULDERS (3'x2'x2'), LOGS AND ROOTWADS.
2. WORK IS BEING PERFORMED AS AN ENVIRONMENTAL RESTORATION PLAN. THE CONTRACTOR SHOULD MAKE ALL REASONABLE EFFORTS TO REDUCE SEDIMENT LOSS AND MINIMIZE DISTURBANCE OF THE SITE WHILE PERFORMING THE CONSTRUCTION WORK.
3. CONSTRUCTION IS SCHEDULED FOR 2018.
4. CONTRACTOR SHOULD CALL NORTH CAROLINA "ONE-CALL" BEFORE EXCAVATION STARTS. (1-800-632-4949)
5. BOULDER SIZES FOR IN-STREAM STRUCTURES SHALL BE A MINIMUM OF 2'x2'x1' AND CAN BE CHANGED PER STRUCTURE OR THE DIRECTION OF THE ENGINEER.
6. ALL ON-SITE ALLUVIUM SHALL BE HARVESTED AND STOCKPILED PRIOR TO FILLING ABANDONED CHANNELS.
7. TOPSOIL SHALL BE EXCAVATED TO A DEPTH OF 8" AND STOCKPILED SEPARATELY FROM UNDERCUT SOIL. 6" OF TOPSOIL SHALL BE PLACED ON ALL BANKFULL BENCHES AND AS DIRECTED BY THE ENGINEER.
8. ALL DISTURBED EMBANKMENTS SHALL BE MATTED WITH COIR FIBER MATTING OR AS DIRECTED BY THE ENGINEER.
9. ALL STREAM BANKS SHALL BE LIVE STAKED.
10. UNLESS THE ALIGNMENT IS BEING ALTERED, THE EXISTING CHANNEL DIMENSIONS ARE TO REMAIN UNLESS OTHERWISE NOTED.
11. BANKFULL BENCHES SHALL BE A MINIMUM OF 6' IN WIDTH UNLESS OTHERWISE SHOWN ON THE PLANS.
12. CONTRACTOR WILL ENSURE THAT FENCING IS INSTALLED ON OR OUTSIDE THE CONSERVATION EASEMENT AS SHOWN ON THE PLANS BUT NO MORE THAN 1' OUTSIDE.
13. WHERE PROPOSED FENCE CROSSES EXISTING STREAMS, THE CONTRACTOR SHALL UTILIZE A SECTION OF BREAK AWAY FENCE, A FLOOD GATE, OR ELECTRIFIED CHAINS AS DIRECTED BY THE ENGINEER.

VEGETATION SELECTION

Shumard oak, *Quercus shumardii*, added to planting list. Not supplemental but additional planting.

Riparian planting (25.23 ac.)

Common Name	Scientific Name	Percent Planted by Species	Wetness Tolerance
Trees (75%) Planted 9' X 9' Spacing – 538 Trees/ Acre			
River Birch	*Betula nigra*	15%	FACW
Black Walnut	*Juglans nigra*	10%	FACU
Sycamore	*Platanus occidentalis*	20%	FACW
Tulip Poplar	*Liriodendron tulipifera*	20%	FACU
Green ash	*Fraxinus pennsylvanica*	5%	FACW
Willow oak	Quercus phellos	20%	FAC
Persimmon	*Diospyros virginiana*	10%	FAC
	Tree total	**100%**	
Shrubs (25%) Planted 16' X 16' Spacing - 164 Shrubs/ Acre			
Tag Alder	*Alnus serrulata*	20%	OBL
Spicebush	*Lindera benzoin*	25%	FAC
Redbud	*Cercis canadensis*	20%	FACU
Elderberry	*Sambucus canadensis*	15%	FAC
Silky Dogwood	*Cornus amomum*	20%	FACW
	Shrub Total	**100%**	

Upland planting (4.44 ac.)

Trees (75%) Planted 9' X 9' Spacing – 538 Trees/ Acre			
Tulip Poplar	*Liriodendron tulipifera*	20%	FACU
Black Walnut	*Juglans nigra*	10%	FACU
Black Gum	*Nyssa sylvatica*	10%	FAC
Persimmon	*Diospyros virginiana*	10%	FAC
Southern red oak	*Quercus falcata*	15%	FACU
White oak	*Quercus alba*	15%	FACU
American Beech	*Fagus grandifolia*	10%	FACW
Red Maple	*Acer rubrum*	10%	FAC
	Total Trees	**100%**	
Shrubs (25%) Planted 16' X 16' Spacing - 164 Shrubs/ Acre			
Spicebush	*Lindera benzoin*	15%	FAC
Redbud	*Cercis canadensis*	20%	FACU
Flowering Dogwood	*Cornus florida*	15%	FACU
Blackhaw Viburnum	Viburnum prunifolium	15%	FACU
Ironwood	*Carpinus caroliniana*	20%	FAC
Hazelnut	*Corylus americana*	15%	FACU
	Shrub total	100%	

Streambank Live Stake Plantings

Silky Willow	*Salix sericea*	25%	OBL
Elderberry	*Sambucus nigra canadensis*	25%	FAC
Buttonbush	*Cephalanthus occidentalis*	15%	OBL
Silky Dogwood	*Cornus amomum*	25%	FACW
Black Willow	*Salix nigra*	10%	OBL

Note: Final species selection may change due to refinement or availability at the time of planting. If species substitution is required, the planting contractor will submit a revised planting list to Baker for approval prior to the procurement of plant stock.

Permanent seed mixtures for the project site shall be planted throughout the floodplain and riparian buffer areas except the vernal pools. Permanent seed mixtures shall be applied with temporary seed, as defined in the construction specifications.

Common Name	Scientific Name	Percent of Mixture	Seeding Density (lbs/acre)	Wetness Tolerance
Redtop	*Agrostis alba*	10%	1.5	FACW
Virginia Wildrye	*Elymus virginicus*	15%	2.25	FACW
Switchgrass	*Panicum virgatum*	15%	2.25	FAC
Eastern Gamma Grass	*Tripsacum dactyloides*	5%	0.75	FACW
Pennsylvania Smartweed	*Polygonum pennsylvanicum*	5%	0.75	FACW
Little Blue Stem	*Schizachyrium scoparium*	5%	0.75	FACU
Soft Rush	*Juncus effusus*	5%	0.75	FACW
Beggars Tick	*Bidens frondosa (or aristosa)*	5%	0.75	FACW
Lance-Leaved Tick Seed	*Coreopsis lanceolata*	10%	1.5	FACU
Tioga Deer Tongue	*Dichanthelium clandestinum*	15%	2.25	FAC
Big Blue Stem	*Andropogon gerardii*	5%	0.75	FAC
Indian Grass	*Sorghastrum nutans*	5%	0.75	FACU

5/23/2020
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mcrea

PROJECT REFERENCE NO.	SHEET NO.
157329	1-B
NCDMS ID NO. 100003	

2/26/03

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

5/28/2020
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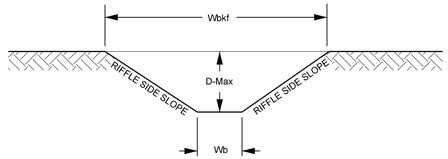
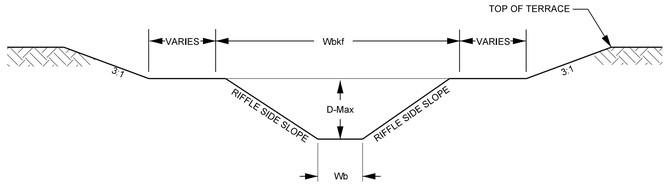
revised 02/02/00

2/26/03

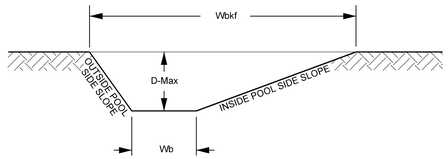
TYPICAL RIFFLE, POOL, AND BANKFULL BENCH CROSS SECTIONS



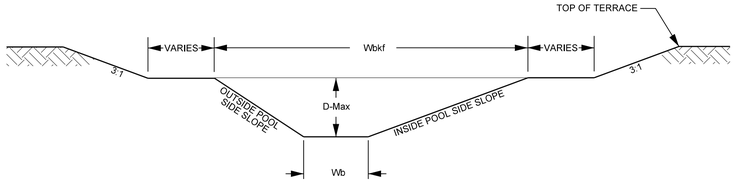
RIFFLE



RIFFLE WITH BANKFULL BENCH



POOL



POOL WITH BANKFULL BENCH

NOTES:

1. TERRACE SLOPES ON RESTORATION BENCHES (R1, R6, R9, R12, R14) SHALL BE 3:1. FILL OTHER TERRACE SLOPES SHALL BE 2:5:1.
2. WHERE POSSIBLE, ON REACHES WITH WETLAND RESTORATION ADJACENT TO THE STREAM, THE BANKFULL ELEVATION SHALL BE CARRIED OUT TO THE PROPOSED WETLAND RESTORATION BOUNDARY. NO MORE THAN 6" OF CUT CAN BE EXCAVATED IN THE WETLAND RESTORATION AREAS IN CONJUNCTION WITH THESE EFFORTS.
3. BANKFULL BENCHES SHALL BE A MINIMUM OF 6' IN WIDTH UNLESS OTHERWISE NOTED ON THE PLANS.

	R1		R2		R3		R4		R5/R6/R7		R9		R10	
	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL
WIDTH OF BANKFULL (Wbkf)	16.9	25.0	18.0	25.0	23.7	35.0	16.9	21.0	10.2	13.0	12.7	17.0	4.9	6.0
MAXIMUM DEPTH (Dmax)	1.6	3.5	1.7	3.5	2.5	4.0	1.6	3.0	1.1	1.8	1.2	2.5	0.5	1.0
W/D (Wbkf/Dbkf)	13.0	12.3	13.0	12.3	12.0	13.3	13.0	12.3	13.0	12.4	13.5	12.2	12.3	9.0
BANKFULL AREA (Abkf)	22.0	50.8	25.0	50.8	47.0	92.0	22.0	36.0	8.0	13.9	12.0	23.8	2.0	4.0
BOTTOM WIDTH (Wb)	10.5	4.0	11.2	4.0	13.7	11.0	10.2	3.0	4.9	2.2	6.5	2.0	2.8	2.0
RIFFLE SIDE SLOPE (X:1)	2.0	N/A	2.0	N/A	2.0	N/A	2.0	N/A	2.5	N/A	2.5	N/A	2.0	N/A
INSIDE POOL SIDE SLOPE	N/A	4.0	N/A	3.0	N/A	4.0	N/A	4.0	N/A	3.0	N/A	3.0	N/A	2.0
OUTSIDE POOL SIDE SLOPE	2.0	N/A	3.0	N/A	2.0	N/A	2.0	N/A	3.0	N/A	3.0	N/A	2.0	N/A

	R11		R12		R14 (Upper)		R14 (Lower)		R19		R20		R25	
	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL
WIDTH OF BANKFULL (Wbkf)	3.9	4.0	8.8	11.5	5.1	5.5	5.0	7.0	5.1	6.5	4.2	5.0	5.1	7.0
MAXIMUM DEPTH (Dmax)	0.4	0.6	0.8	1.5	0.5	0.7	0.5	1.0	0.5	1.0	0.4	1.0	0.5	1.2
W/D (Wbkf/Dbkf)	13.0	9.5	13.0	10.4	13.0	12.7	12.5	12.3	13.0	9.4	12.0	8.3	13.0	8.9
BANKFULL AREA (Abkf)	1.2	1.7	6.0	12.8	2.0	2.4	2.0	4.0	2.0	4.5	1.5	3.0	2.0	5.5
BOTTOM WIDTH (Wb)	2.4	1.6	5.5	5.5	2.4	1.3	3.0	1.0	3.2	2.5	2.4	1.0	3.2	2.2
RIFFLE SIDE SLOPE (X:1)	2.0	N/A	2.0	N/A	2.5	N/A	2.0	N/A	2.0	N/A	2.0	N/A	2.0	N/A
INSIDE POOL SIDE SLOPE	N/A	2.0	N/A	2.0	N/A	3.0	N/A	4.0	N/A	2.0	N/A	2.0	N/A	2.0
OUTSIDE POOL SIDE SLOPE	2.0	N/A	2.0	N/A	3.0	N/A	2.0	N/A	2.0	N/A	2.0	N/A	2.0	N/A

PROJECT REFERENCE NO.	SHEET NO.
157329	2

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen Mcke McKeithan 247E84DFE4181473

APPROVED BY:

9/11/2020

DATE:

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
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Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

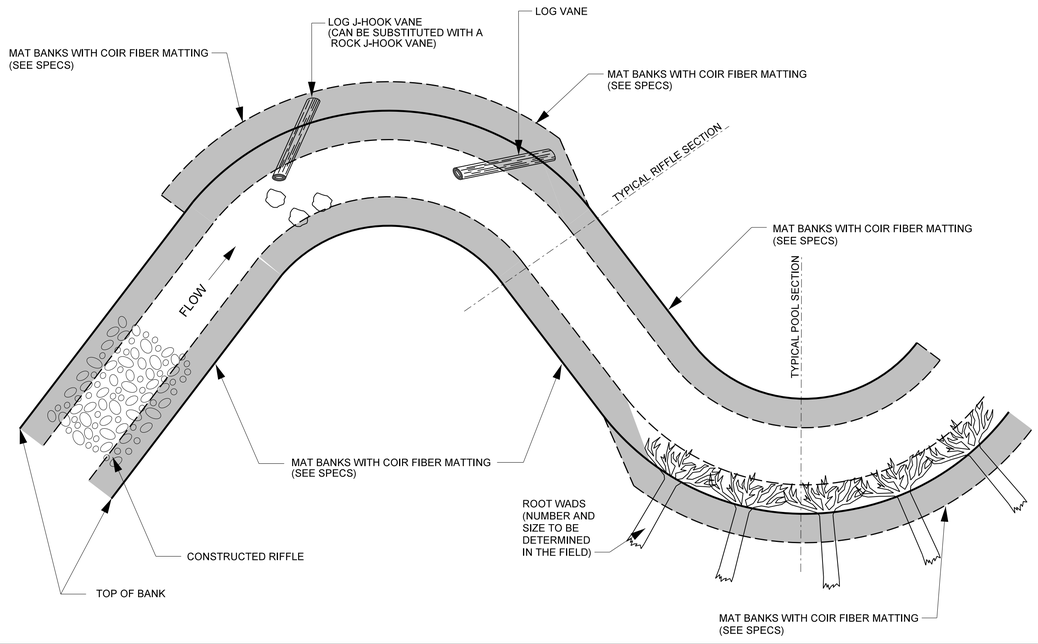
TYPICAL STRUCTURE PLACEMENT

STRUCTURE NOTES:

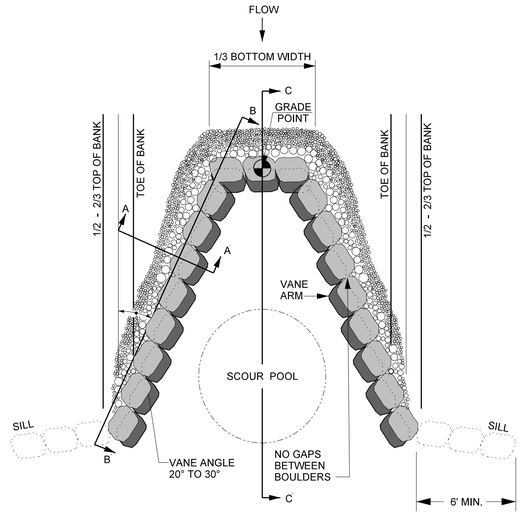
1. GENERALLY LOG AND ROCK J-HOOK VANES, ROOT WADS, LOG VANES AND COIR FIBER MATTING WILL BE INSTALLED IN THE LOCATION AND SEQUENCE AS SHOWN.
2. ADDITIONAL STRUCTURES OR CHANGES TO STRUCTURE LOCATIONS MAY BE MADE BY THE DESIGN ENGINEER DURING CONSTRUCTION.

NOTES:

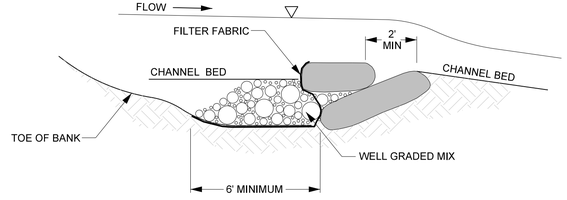
1. COIR FIBER MATTING TO BE INSTALLED ON ALL RESTORED STREAMBANKS.
2. IF ROOT WADS DO NOT COVER ENTIRE SLOPE ON OUTSIDE OF MEANDER BENDS, COIR FIBER MATTING IS NEEDED.



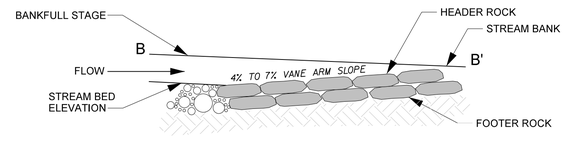
ROCK CROSS VANE



PLAN VIEW



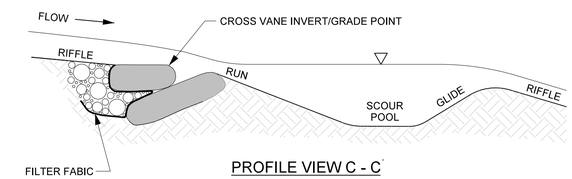
SECTION A - A'



PROFILE VIEW B - B'
VANE ARM

NOTES FOR ALL VANE STRUCTURES:

1. INSTALL FILTER FABRIC FOR DRAINAGE BEGINNING AT THE MIDDLE OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF SIX FEET.
2. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS AND PLACE FILL ON UPSTREAM SIDE OF VANE ARM, BETWEEN THE ARM AND STREAMBANK.
3. CONSTRUCT ANGLE AND SLOPE SPECIFICATIONS AS SHOWN.
4. BACKFILL VANE ARMS AND INVERT WITH A WELL GRADED MIX OF CLASS B, A, AND #57 STONE.
5. ON-SITE ALLUVIUM SHALL BE INCORPORATED INTO THE STONE BACKFILL WHERE AVAILABLE.
6. BOULDER SILL MUST BE A MINIMUM OF 6'.



PROFILE VIEW C - C'

5/23/2020
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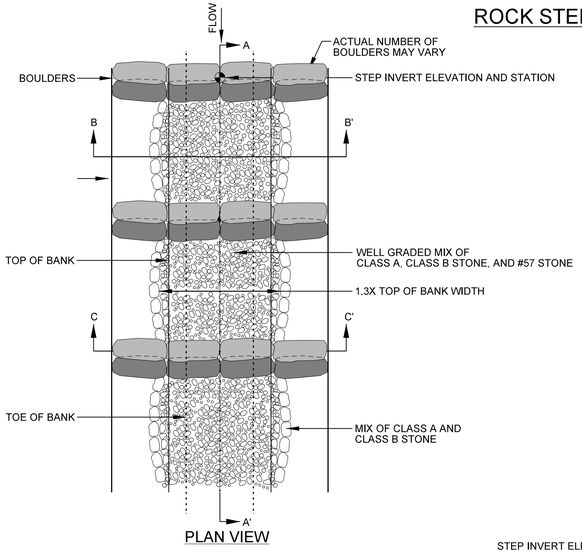
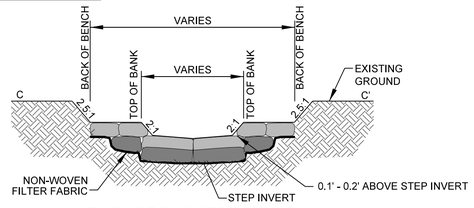
mcrain

2/26/03

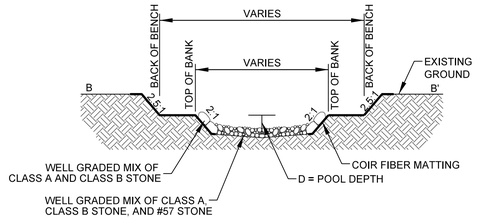
ROCK STEP-POOL CHANNEL



PLAN VIEW



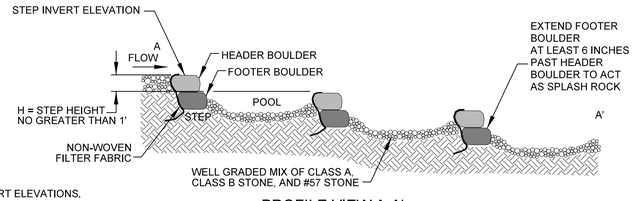
POOL CROSS SECTION C-C'



POOL CROSS SECTION B-B'

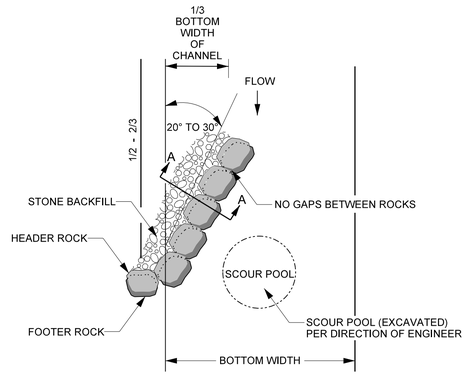
NOTES:

1. HEADER BOULDERS MUST BE 2' X 2' X 1' AND FOOTERS SHALL NOT EXCEED 3' X 2' X 1'.
2. FOOTERS SHALL BE INSTALLED SUCH THAT 1/4 TO 1/3 OF THE LENGTH IS DOWNSTREAM OF THE HEADER.
3. SOIL SHALL BE WELL COMPACTED AROUND BURIED PORTION OF FOOTERS WITH THE BUCKET OF EXCAVATOR.
4. INSTALL NON-WOVEN FILTER FABRIC BELOW FOOTER BOULDERS.
5. UNDERCUT POOL BED ELEVATION 8 INCHES TO ALLOW FOR LAYER OF STONE.
6. INSTALL EROSION CONTROL MATTING ALONG COMPLETED BANKS SUCH THAT THE EROSION CONTROL MATTING AT THE TOE OF THE BANK EXTENDS DOWN TO THE UNDERCUT ELEVATION.
7. INSTALL WELL GRADED MIX OF CLASS A AND CLASS B STONE ALONG SIDE SLOPES.
8. FINAL CHANNEL BED SHAPE SHOULD BE ROUNDED, COMPACTED, AND CONCAVE, WITH THE ELEVATION OF THE BED APPROXIMATELY 0.5 FT DEEPER IN THE CENTER THAN AT THE EDGES.
9. STEP HEIGHT (H) SHALL NOT EXCEED 1.0 FT.
10. MINIMUM POOL DEPTH (D) SHALL BE NO LESS THAN 1.3 FT.
11. AT LEAST 6" OF THE UPSTREAM FOOTER MUST BE BURIED BELOW THE DOWNSTREAM HEADER INVERT ELEVATIONS.
12. ALL STRUCTURES MUST BE FOOTERED.

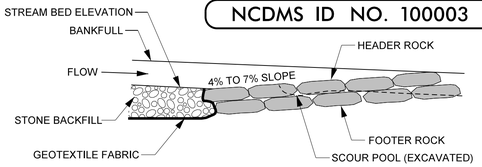


PROFILE VIEW A-A'

ROCK VANE



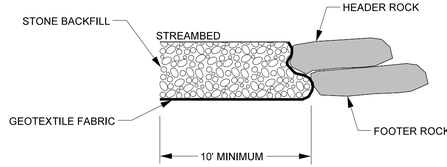
PLAN VIEW



PROFILE VIEW

NOTES FOR ALL VANE STRUCTURES:

1. INSTALL GEOTEXTILE FABRIC BEGINNING AT THE TOP OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF TEN FEET.
2. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS AND PLACE FILL ON UPSTREAM SIDE OF VANE ARM, BETWEEN THE ARM AND STREAMBANK.
3. START AT BANK AND PLACE FOOTER ROCKS FIRST AND THEN HEADER (TOP) ROCK.
4. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
5. AN EXTRA ROCK CAN BE PLACED IN SCOUR POOL FOR HABITAT IMPROVEMENT.
6. USE HAND PLACED STONE TO FILL GAPS ON UPSTREAM SIDE OF HEADER AND FOOTER ROCKS.
7. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION OF THE TOP OF THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE.
8. START SLOPE AT 2/3 TO 3/4 TIMES THE BANKFULL STAGE.



SECTION A - A

PROJECT REFERENCE NO.	SHEET NO.
157329	2A

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen Mode McKeithan 247E84DF4181473...

APPROVED BY:

9/11/2020

DATE:

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Phone: 919.463.5488
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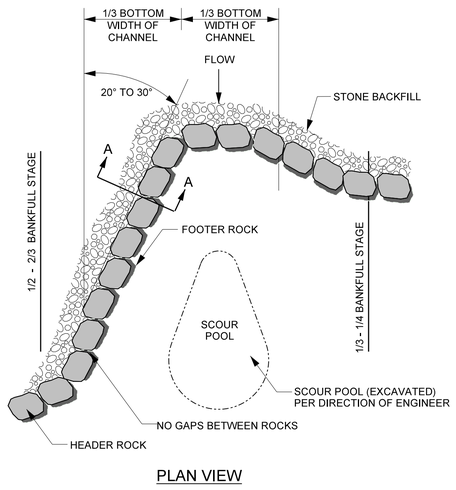
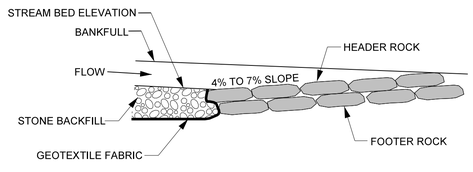
License #: F-1084

NCDMS ID NO. 100003

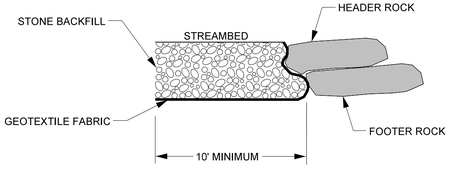
GRADE CONTROL J-HOOK VANE



PLAN VIEW



PROFILE VIEW

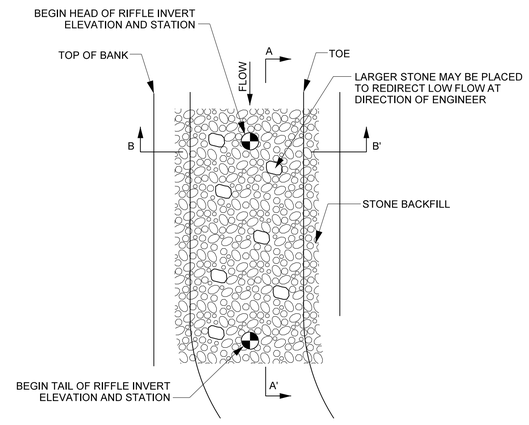


SECTION A - A

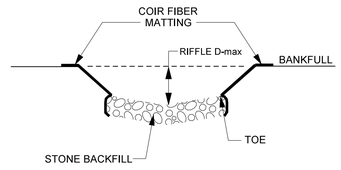
NOTES FOR ALL VANE STRUCTURES:

1. INSTALL FILTER FABRIC FOR DRAINAGE BEGINNING AT THE MIDDLE OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF SIX FEET.
2. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS AND PLACE FILL ON UPSTREAM SIDE OF VANE ARM, BETWEEN THE ARM AND STREAMBANK.
3. CONSTRUCT ANGLE AND SLOPE SPECIFICATIONS AS SHOWN.
4. BACKFILL VANE ARMS AND INVERT WITH A WELL GRADED MIX OF CLASS B, A, AND #57 STONE.
5. ON-SITE ALLUVIUM SHALL BE INCORPORATED INTO THE STONE BACKFILL WHERE AVAILABLE.
6. BOULDER SILL MUST BE A MINIMUM OF 6'.

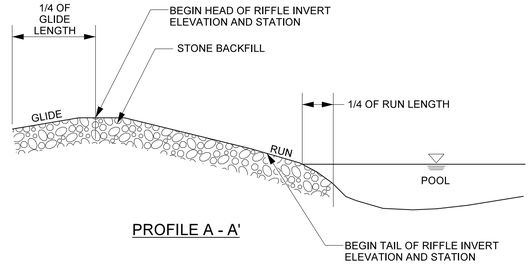
CONSTRUCTED RIFFLE



PLAN VIEW



SECTION B - B'



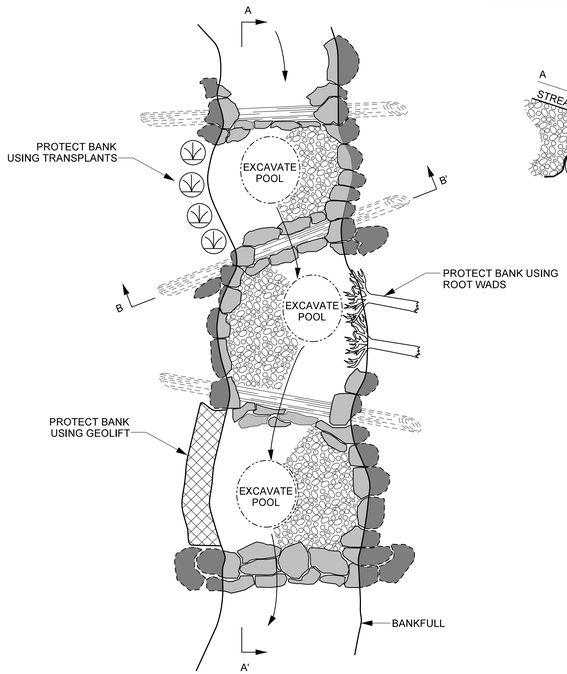
PROFILE A - A'

NOTES:

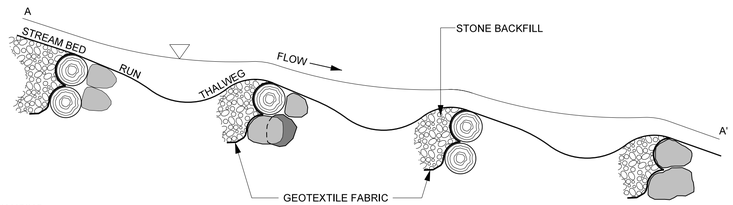
1. UNDERCUT CHANNEL BED ELEVATION AS NEEDED TO ALLOW FOR LAYERS OF STONE TO ACHIEVE FINAL GRADE.
2. INSTALL COIR FIBER MATTING ALONG COMPLETED BANKS SUCH THAT THE EROSION CONTROL MATTING AT THE TOE OF THE BANK EXTENDS DOWN TO THE UNDERCUT ELEVATION.
3. INSTALL STONE BACKFILL, COMPACTED TO GRADE.
4. FINAL CHANNEL BED SHAPE SHOULD BE ROUNDED, SMOOTH, AND CONCAVE, WITH THE ELEVATION OF THE BED 0.2 FT DEEPER IN THE CENTER THAN AT THE EDGES.
5. STONE BACKFILL SHALL CONSIST OF 10% CLASS I, 20% CLASS B, 40% CLASS A, AND 30% ON-SITE ALLUVIUM BY VOLUME. IF ALLUVIUM IS UNAVAILABLE, BACKFILL SHALL BE A WELL GRADED MIX OF 10% CLASS I, 20% CLASS B, 40% CLASS A, AND 30% #57 STONE.
6. CONSTRUCTED RIFFLES SHALL BE 18" THICK ON REACHES R1, R4, & R9. ALL OTHER CONSTRUCTED RIFFLES SHALL BE 12" THICK.

2/26/03

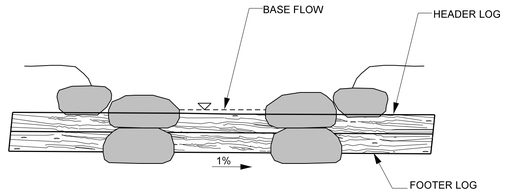
LOG AND ROCK STEP / POOL



PLAN VIEW



SECTION A - A'

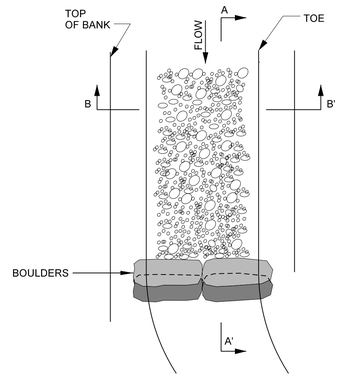


SECTION B - B'

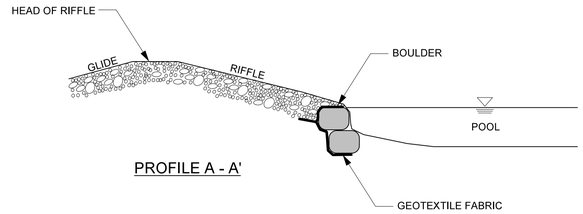
NOTES:

1. LOGS SHOULD BE AT LEAST 10" IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED AND EXTENDING INTO THE BANK 5' ON EACH SIDE.
2. SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOG.
3. GEOTEXTILE FABRIC SHOULD BE NAILED TO THE LOG BELOW THE BACKFILL.
4. BOULDERS SHOULD BE 3' X 2' X 2' AND PLACED ON TOP OF HEADER LOG FOR ANCHORING.
5. TRANSPLANTS CAN BE USED INSTEAD OF BOUDERS, PER DIRECTION OF ENGINEER.
6. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION OF THE TOP OF THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE.

BOULDER STEP



PLAN VIEW



PROFILE A - A'

NOTES:

1. HEADER BOULDERS MUST BE 3' X 2' X 2' AND FOOTERS SHALL NOT EXCEED 4' X 3' X 2'.
2. FOOTERS SHALL BE INSTALLED SUCH THAT 1/4 TO 1/3 OF THE LENGTH IS DOWNSTREAM OF THE HEADER.
3. SOIL SHALL BE WELL COMPACTED AROUND BURIED PORTION OF FOOTERS WITH THE BUCKET OF EXCAVATOR.
4. INSTALL NON-WOVEN FILTER FABRIC UNDERNEATH FOOTER BOULDERS.
5. UNDERCUT THE RIFFLE ELEVATION 16 INCHES TO ALLOW FOR A LAYER OF STONE.
6. INSTALL EROSION CONTROL MATTING ALONG COMPLETED BANKS SUCH THAT THE EROSION CONTROL MATTING AT THE TOE OF THE BANK EXTENDS DOWN TO THE UNDERCUT ELEVATION.
7. FILL TRENCH WITH GRADED MIX OF CLASS A, CLASS B, AND #57 STONE TO THE BED ELEVATION OF THE CHANNEL.
8. BOULDER STEPS MUST BE EXTENDED TO A MINIMUM OF 2' INTO THE BANK. USE SILL BOULDERS IF NECESSARY.
9. THALWEG AND STEP INVERT WILL BE CONCAVE AND SHAPED PER DIRECTION OF THE DESIGNER.

PROJECT REFERENCE NO.	SHEET NO.
157329	2B

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen Mckeithan 24FE84DF4481473...

APPROVED BY:

9/11/2020

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License #: F-1084

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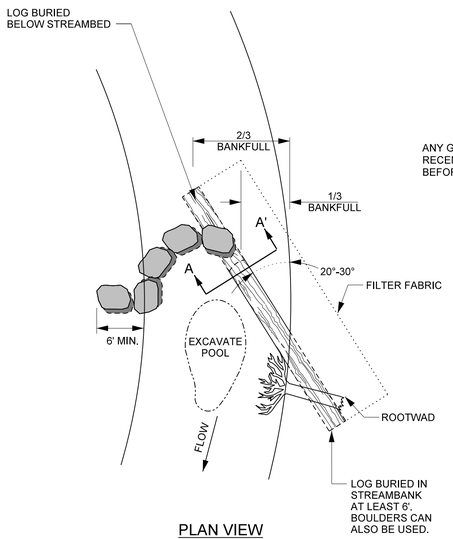
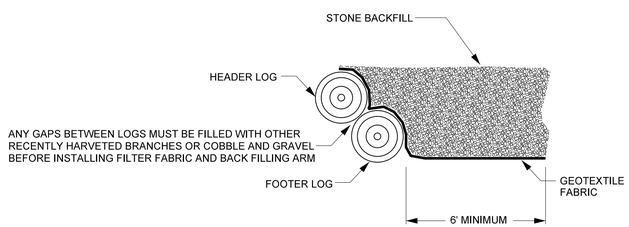
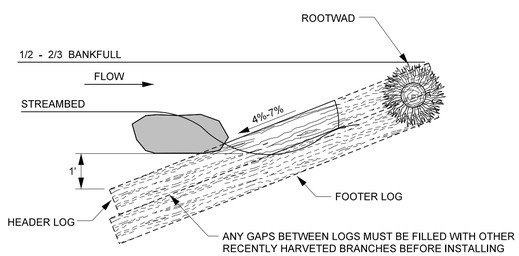
GRADE CONTROL LOG J-HOOK VANE



PLAN VIEW



SECTION A - A'

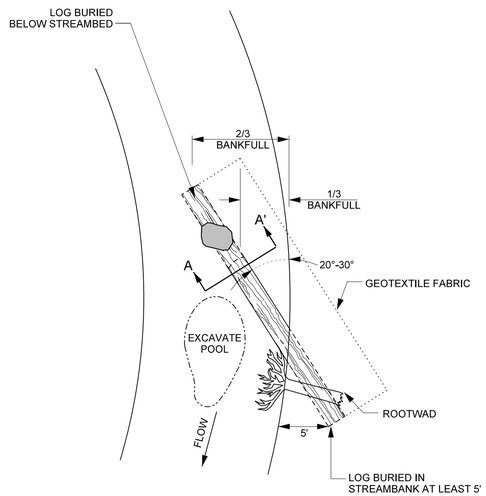


PROFILE VIEW

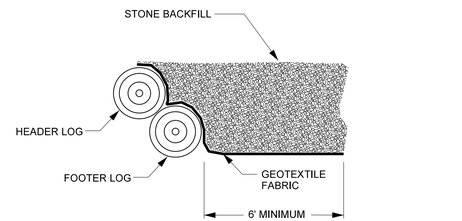
NOTES:

1. LOGS SHOULD BE AT LEAST 10" IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, RECENTLY HARVESTED, AND FOOTERED.
2. BOULDERS MUST BE AT LEAST 2' x 2' x 1'.
3. SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOG.
4. ROOTWADS SHOULD BE PLACED BENEATH THE HEADER LOG AND PLACED SO THAT IT LOCKS THE HEADER LOG INTO THE BANK, SEE ROOTWAD DETAIL.
5. BOULDERS SHOULD BE PLACED ON TOP OF HEADER LOG FOR ACHORING.
6. HEADER BOULDERS TO BE PLACED 0.5 TO 0.75 FEET APART.
7. FILTER FABRIC SHOULD BE NAILED TO THE LOG BELOW THE BACKFILL.
8. TRANSPLANTS OR BOULDERS CAN BE USED INSTEAD OF ROOWADS, PER DIRECTION OF ENGINEER.
9. BOULDER SILL MUST BE A MINIMUM OF 6'.
10. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION OF THE TOP OF THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE.

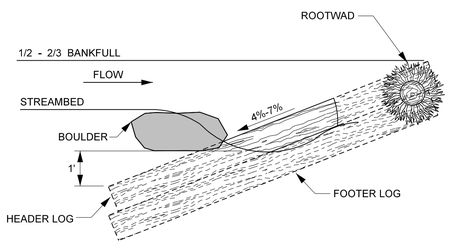
LOG VANE



PLAN VIEW



SECTION A - A'



PROFILE VIEW

NOTES:

1. LOGS SHOULD BE AT LEAST 10" IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED.
2. BOULDERS MUST BE OF SUFFICIENT SIZE TO ANCHOR LOGS.
3. SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOGS.
4. ROOTWADS SHOULD BE PLACED BENEATH THE HEADER LOG AND PLACED SO THAT IT LOCKS THE HEADER LOG INTO THE BANK, SEE ROOTWAD DETAIL.
5. BOULDER SHOULD BE PLACED ON TOP OF HEADER LOG FOR ANCHORING.
6. GEOTEXTILE FABRIC SHOULD BE NAILED TO THE LOG BELOW THE BACKFILL.
7. TRANSPLANTS CAN BE USED INSTEAD OF ROOTWADS, PER DIRECTION OF ENGINEER.
8. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH WELL GRADED MIX OF CLASS B, CLASS A, & #57 STONE TO THE ELEVATION OF THE TOP OF THE HEADER ROCK. INCORPORATE ON-SITE ALLUVIUM WHERE AVAILABLE.

8/3/2020
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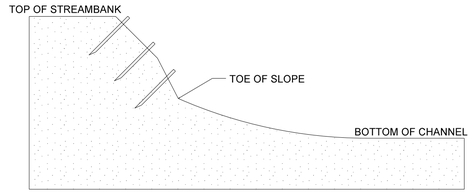
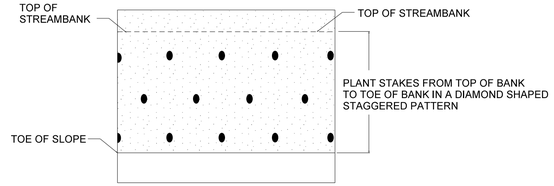
mcarter

2/26/03

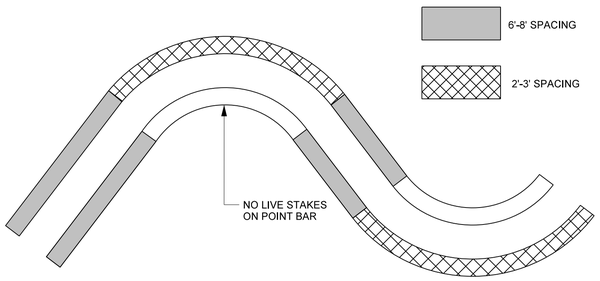
LIVE STAKING



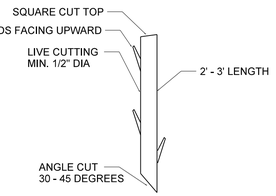
CROSS SECTION VIEW



PLAN VIEW



PLAN VIEW

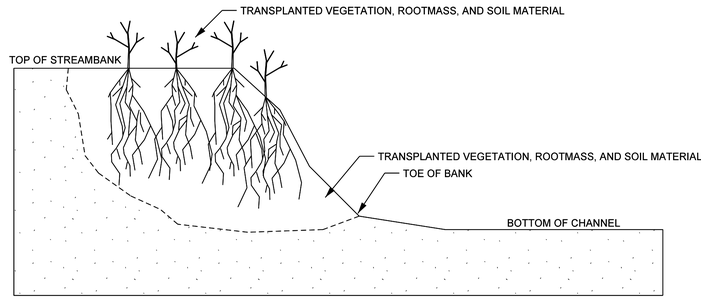


LIVE STAKE DETAIL

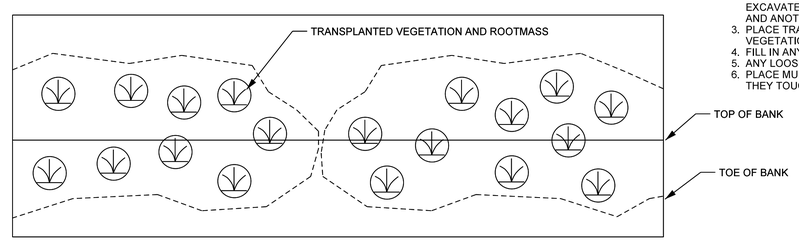
NOTES:

1. STAKES SHOULD BE CUT AND INSTALLED ON THE SAME DAY.
2. DO NOT INSTALL STAKES THAT HAVE BEEN SPLIT.
3. STAKES MUST BE INSTALLED WITH BUDS POINTING UPWARDS.
4. STAKES SHOULD BE INSTALLED PERPENDICULAR TO BANK.
5. STAKES SHOULD BE 1/2 TO 2 INCHES IN DIAMETER AND 2 TO 3 FT LONG.
6. STAKES SHOULD BE INSTALLED LEAVING 1/5 OF STAKE ABOVE GROUND.

TRANSPLANTED VEGETATION



CROSS SECTION VIEW



PLAN VIEW

NOTES:

1. EXCAVATE A HOLE IN THE BANK TO BE STABILIZED THAT WILL ACCOMMODATE THE SIZE OF TRANSPLANT TO BE PLACED. BEGIN EXCAVATION AT THE TOE OF THE BANK.
2. EXCAVATE TRANSPLANT USING A FRONT END LOADER. EXCAVATE THE ENTIRE ROOT MASS AND AS MUCH ADDITIONAL SOIL MATERIAL AS POSSIBLE. IF ENTIRE ROOT MASS CAN NOT BE EXCAVATE IN ONE BUCKET LOAD, THE TRANSPLANT IS TOO LARGE AND ANOTHER SHOULD BE SELECTED.
3. PLACE TRANSPLANT IN THE BANK TO BE STABILIZED SO THAT VEGETATION IS ORIENTATED VERTICALLY.
4. FILL IN ANY HOLES AROUND THE TRANSPLANT AND COMPACT.
5. ANY LOOSE SOIL LEFT IN THE STREAM SHOULD BE REMOVED.
6. PLACE MULTIPLE TRANSPLANTS CLOSE TOGETHER SUCH THAT THEY TOUCH.

PROJECT REFERENCE NO.	SHEET NO.
157329	2C

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen Marie McKeithan 247E840F4181473...

APPROVED BY:

9/11/2020

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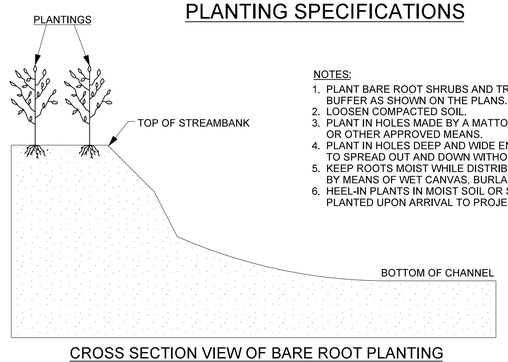
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

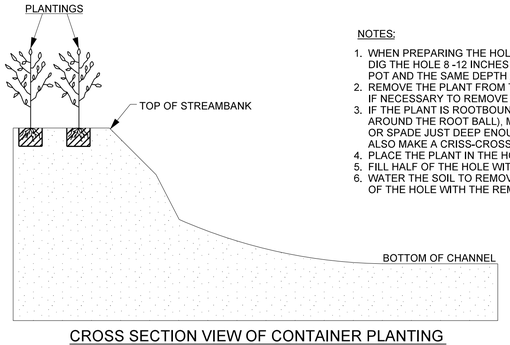
PLANTING SPECIFICATIONS



CROSS SECTION VIEW OF BARE ROOT PLANTING

NOTES:

1. PLANT BARE ROOT SHRUBS AND TREES TO THE WIDTH OF THE BUFFER AS SHOWN ON THE PLANS.
2. LOOSEN COMPACTED SOIL.
3. PLANT IN HOLES MADE BY A MATTOCK, DIBBLE, PLANTING BAR, OR OTHER APPROVED MEANS.
4. PLANT IN HOLES DEEP AND WIDE ENOUGH TO ALLOW THE ROOTS TO SPREAD OUT AND DOWN WITHOUT J-ROOTING.
5. KEEP ROOTS MOIST WHILE DISTRIBUTING OR WAITING TO PLANT BY MEANS OF WET CANVAS, BURLAP, OR STRAW.
6. HEEL-IN PLANTS IN MOIST SOIL OR SAWDUST IF NOT PROMPTLY PLANTED UPON ARRIVAL TO PROJECT SITE.



CROSS SECTION VIEW OF CONTAINER PLANTING

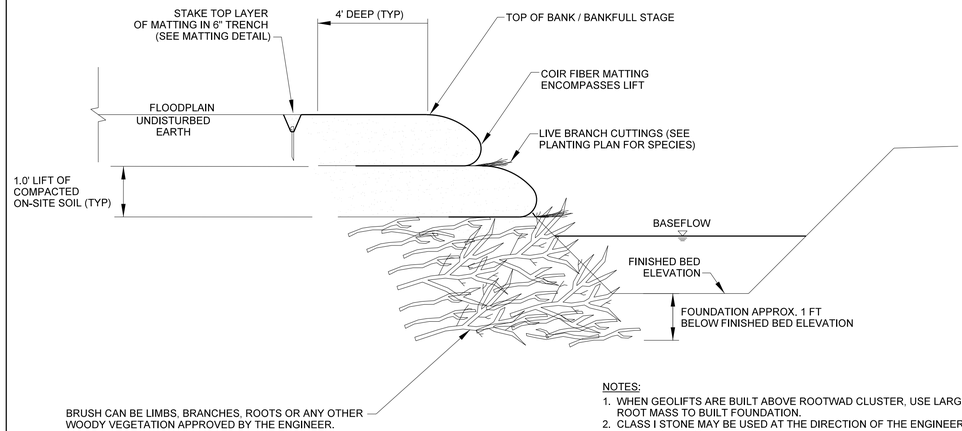
NOTES:

1. WHEN PREPARING THE HOLE FOR A POTTED PLANT OR SHRUB DIG THE HOLE 8 -12 INCHES LARGER THAN THE DIAMETER OF THE POT AND THE SAME DEPTH AS THE POT.
2. REMOVE THE PLANT FROM THE POT. LAY THE PLANT ON ITS SIDE IF NECESSARY TO REMOVE THE POT.
3. IF THE PLANT IS ROOTBOUND (ROOTS GROWING IN A SPIRAL AROUND THE ROOT BALL), MAKE VERTICAL CUTS WITH A KNIFE OR SPADE JUST DEEP ENOUGH TO CUT THE NET OF ROOTS. ALSO MAKE A CRISS-CROSS CUT ACROSS THE BOTTOM OF THE BALL.
4. PLACE THE PLANT IN THE HOLE.
5. FILL HALF OF THE HOLE WITH SOIL (SAME SOIL REMOVED FOR BACKFILL).
6. WATER THE SOIL TO REMOVE AIR POCKETS AND FILL THE REST OF THE HOLE WITH THE REMAINING SOIL.

GEOLIFT WITH BRUSH TOE

NOTES:

1. LIVE BRANCH CUTTINGS SHALL BE THE SAME SPECIES AS THE LIVE STAKES AND SHALL BE INSTALLED DURING VEGETATION DORMANCY.
2. LIVE BRANCH CUTTINGS SHALL BE INSTALLED AT A DENSITY OF 20-30 CUTTINGS PER LINEAR FOOT AND A MAXIMUM DIAMETER OF 2.5 INCHES.
3. NUMBER OF SOIL LIFTS MAY VARY, IN GENERAL LIFTS SHALL EXTEND TO THE TOP OF BANK OR BANKFULL STAGE.



NOTES:

1. WHEN GEOLIFTS ARE BUILT ABOVE ROOTWAD CLUSTER, USE LARGE STONE BACKFILL BEHIND ROOT MASS TO BUILT FOUNDATION.
2. CLASS I STONE MAY BE USED AT THE DIRECTION OF THE ENGINEER TO BUILD THE FOUNDATION IN LIEU OF BRUSH MATERIAL.

5/29/2020
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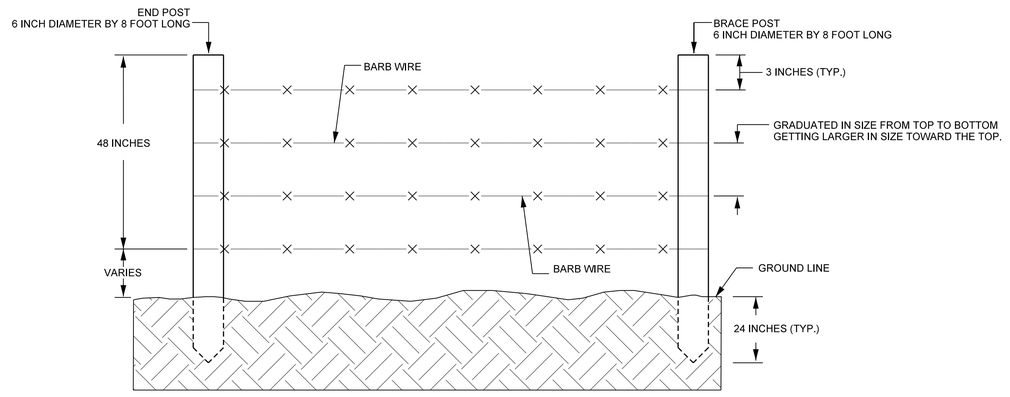
2/26/03

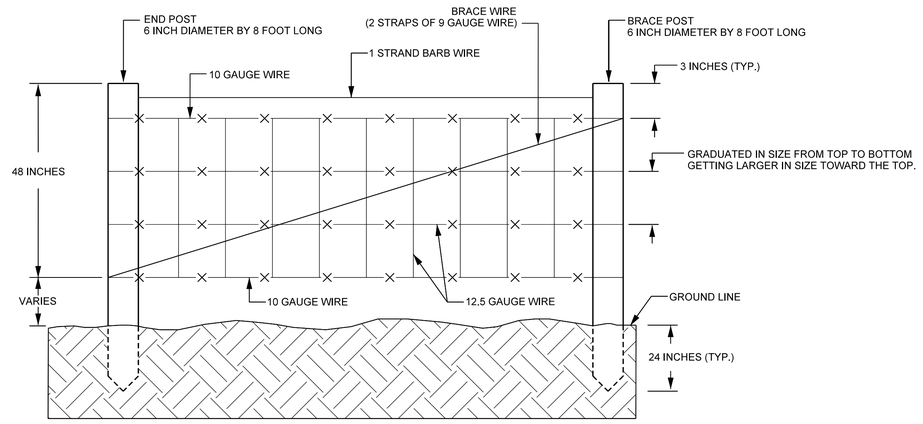
BARB WIRE FIELD FENCE



NOTE:

1. END POSTS SHALL BE INSTALLED AT A SPACING OF 10-15 FEET.

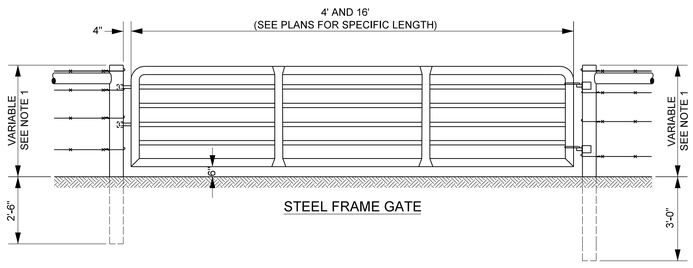
WOVEN WIRE FENCE



NOTE:

1. END POSTS SHALL BE INSTALLED AT A SPACING OF 10-15 FEET.

STEEL GATES

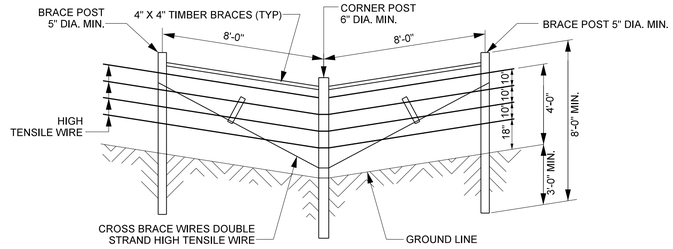


STEEL FRAME GATE

NOTES:

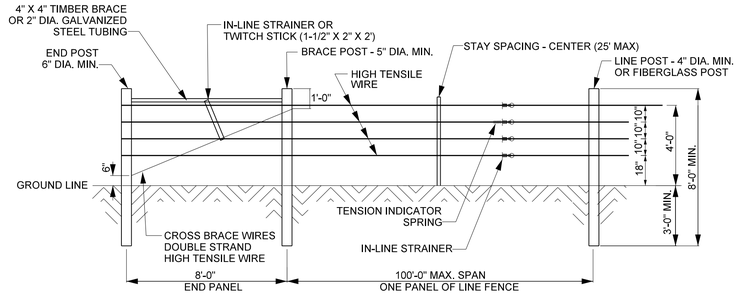
1. POST HEIGHT DIMENSION SHALL BE THE SAME AS REQUIRED FOR THE ADJACENT FENCE.
2. CONSTRUCT AN END OR STRESS PANEL, AS REQUIRED IN THE SPECIFICATION, ON EACH SIDE OF GATE.
3. HINGES AND LOCKS SHALL BE INSTALLED AS SPECIFIED BY GATE MANUFACTURER.

4 STRAND - HIGH TENSILE FENCING

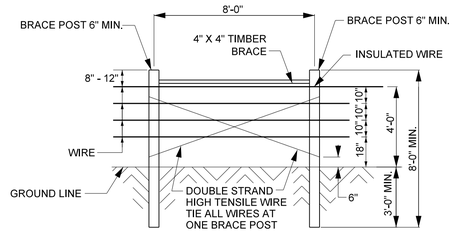


CORNER AND VERICAL CHANGE BRACING

INSTALL AT ALL POINTS WHERE FENCE ALIGNMENT CHANGES 15 DEGREES OR MORE

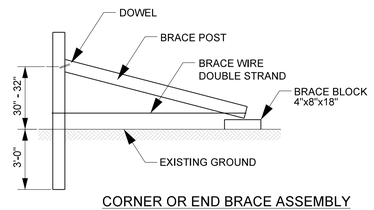


END ASSEMBLY AND LINE FENCE SECTION



PULL POST ASSEMBLY

PLACE IN FENCE LINE SO THAT MAXIMUM DISTANCE BETWEEN BRACED POSTS DOES NOT EXCEED 1320 FEET



CORNER OR END BRACE ASSEMBLY

OPTIONAL FIGURE 4

NOTES:

1. NOTCH POSTS 3/4" FOR 4" X 4" TIMBER BRACES.
2. DOWELS TO BE 1/2" DIA. X 5" PLAIN STEEL RODS. DRIVE DOWELS IN 7/16" DIA. HOLES, 2-1/2" INTO EACH POST AND TIMBER BRACE.
3. STAPLE CROSS-BRACE WIRES TO BRACE AND CORNER POSTS AT QUARTER POINTS OF THE POSTS.
4. HIGH TENSILE WIRE WILL BE NEW AND SMOOTH AND WILL MEET THE FOLLOWING 1) TENSILE STRENGTH - 110,000 PSI 2) GALVANIZING - TYPE III 3) GAGE - 12-1/2.
5. ALL CORNER POSTS, BRACE POSTS, BRACES, AND STAY SPACERS, SHALL BE PRESSURE TREATED. PRESSURE TREATMENT SHALL CONFORM TO FEDERAL SPECIFICATION TT-W-571. (1-1/4" LONG FOR HARD WOODS).
6. AT CORNER POSTS, STAPLE EACH WIRE AT QUARTER POINTS OF POSTS. AT BRACE POSTS, DOUBLE STAPLE EACH WIRE. AT LINE POSTS, SECURE EACH WIRE WITH STANDARD CLAMPS.
7. FIBERGLASS MAY BE USED FOR LINE POSTS. THESE WILL CONSIST OF MARBLE, FIBERGLASS, AND POLYMER RESINS WHICH HAVE BEEN TREATED BY THERMOSETTINGS (HEAT TREATMENT). POSTS MUST BE DRIVEN IN THE SOIL AT LEAST 18 INCHES.
8. 2" DIAMETER PIPE DIAGONAL BRACE MAY BE USED IN PLACE OF HORIZONTAL TIMBER BRACE AND DIAGONAL WIRES.
9. MINIMUM NET RETENTION OF CHROMATED COPPER ARSENATE (CCA) FOR WOOD FENCE POSTS SHALL BE 0.40 POUNDS PER CUBIC FOOT.
10. A SINGLE 12 FOOT LONG, 6 INCH MINIMUM DIAMETER POST MAY BE SUBSTITUTED FOR END PANEL, CORNER AND VERTICAL CHANGE BRACING, AND PULL POST ASSEMBLY. THE 12 FOOT LONG POSTS SHALL EXTEND A MINIMUM OF 7.5 FEET INTO THE GROUND AND BE BACKFILLED WITH GRAVEL.
11. FOR FURTHER DETAILS ON APPROVED METHODS OF FENCE INSTALLATION, SEE NATURAL RESOURCE SERVICE'S CONSERVATION PRACTICE MATERIALS AND CONSTRUCTION SPECIFICATIONS FOR FENCING (CODE 382) BY NRCS NORTH CAROLINA (FEBRUARY 2008).

PROJECT REFERENCE NO.	SHEET NO.
157329	2D

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by: Kathleen Mode McKeithan
247E84DF4181473...

APPROVED BY:

9/11/2020

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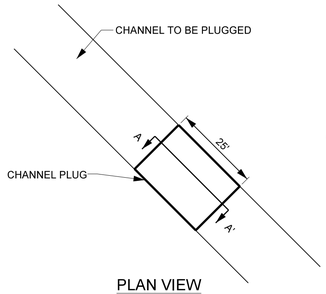
Fax: 919.463.5490
License #: F-1084

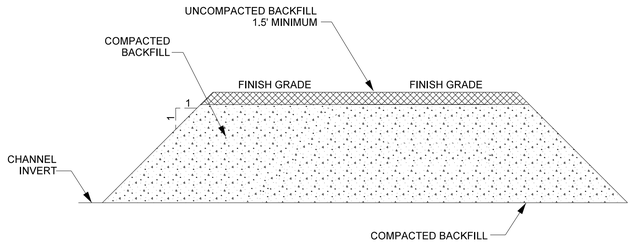
NCDMS ID NO. 100003

2/26/03

CHANNEL PLUG



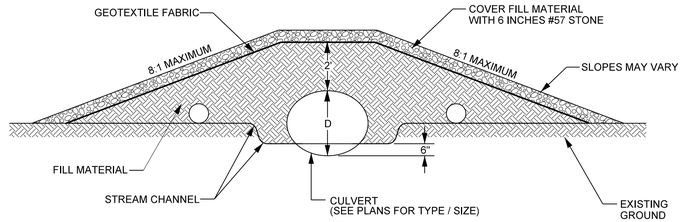
PLAN VIEW



SECTION A - A'

NOTE:
COMPACT BACKFILL USING ON-SITE HEAVY EQUIPMENT
IN 10 INCH LIFTS.

PERMANENT STREAM CROSSING



CROSS SECTION VIEW

NOTES:

1. SIZE DIMENSIONS SHOWN ON PLANS.
2. APPLY SUFFICIENT FILL (18" MIN) OVER CULVERT TO PREVENT COLLAPSE.
3. STABILIZE SIDE SLOPES WITH EROSION CONTROL MATTING AND FILL AROUND CULVERTS WITH CLASS II STONE.
4. INSTALL HEADWALLS AND ENDWALLS AS SHOWN ON THE PLANS.

PROJECT REFERENCE NO.	SHEET NO.
157329	2E

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028432 ENGINEER KATHLEEN M MCKEITHAN

DocuSigned by:
Kathleen Mcke Mckeithan
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NCDMS ID NO. 100003

9/3/2020
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mcoffey

2/26/03

NOTES:

1. ANY HARDWOOD TREES REMOVED MUST BE INCORPORATED WITHIN THE STRUCTURES BEING INSTALLED.
2. EXCAVATE STREAMBED MATERIAL BEFORE FILLING IN THE OLD CHANNEL AND USE STREAMBED MATERIAL WITHIN THE NEWLY CONSTRUCTED CHANNEL.
3. CONTRACTOR CAN USE BRUSH MATERIAL TO INCORPORATE WITHIN THE CONSTRUCTED RIFFLES AND BRUSH TOES ALONG MEANDER BENDS.
4. FENCING INSIDE EASEMENT WILL BE REMOVED AND HAULED OFF-SITE BY THE CONTRACTOR.
5. ANY AREA THAT HAS BEEN GRADED MUST HAVE POSITIVE DRAINAGE, UNLESS OTHERWISE DIRECTED BY ENGINEER.
6. AREAS OF BENCHING: CONTRACTOR WILL EXCAVATE THE TOPSOIL, STOCKPILE IT, AND THEN ADD THE TOPSOIL AS TOP LAYER OF BENCH TO A DEPTH OF AT LEAST 8 INCHES.
7. CONTRACTOR WILL CONTROL ANY INVASIVE SPECIES WITHIN EASEMENT.
8. LOCATIONS OF BOULDER STEPS AND GRADE CONTROL STRUCTURES ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND BY THE DIRECTION OF THE ENGINEER.
9. CONTRACTOR SHALL INCORPORATE SOIL WITHIN THE CONSTRUCTED RIFFLES ALONG ALL STEEP HEADWATER TRIBUTARIES TO REDUCE PERMEABILITY AND KEEP SURFACE FLOW.
10. WHERE DESIGN PROFILE OF STEEP HEADWATER CHANNELS DIVIATES FROM THE EXISTING PROFILE, CONTRACTOR SHALL SLOPE STREAM BANKS AT 2:1 AS NECESSARY TO TIE TO EXISTING GROUND.

NAD 83

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	3

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA09AC644F...

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Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

CONTROL POINT
N: 832678.36
E: 1342832.44
ELEV: 1295.46'

CONTROL POINT
N: 832400.89
E: 1342937.62
ELEV: 1292.35'

BEGIN REACH 1
STA. 10+00.00

RUSSELL GAP ROAD
SR 1335
R/W WIDTH 60' PER DB:208 PG:260

UNITED ENERGY UTILITY EASEMENT

HYDRIC SOILS BOUNDARY

WOVEN WIRE FENCE (TYP.)

ROCK CROSS VANE (TYP.)

AB GATE LOCATION NOT IN ORIGINAL DESIGN

GATE

CONSTRUCTED RIFFLE (TYP.)

AS-BUILT THALWEG (TYP.)

CHRISTINA MOOSE HERMAN & HUSBAND DAVID SHAWN MOOSE
PIN: 3843-12-2016
DB: 542 PG: 2445

AS-BUILT TOE OF BANK (TYP.)

GEOLIFT WITH BRUSH TOE (TYP.)

ROCK VANE (TYP.)

LOG & ROCK STEP POOL (TYP.)

END REACH 10B
STA. 14+79.77

NEW CONST. RIFFLE NOT IN DESIGN PLANS

VEG PLOT 1

MW #1
MW #2
MW #3

W1
W5

AS-BUILT TOP OF BANK (TYP.)

GRADE CONTROL ROCK J- HOOK VANE (TYP.)

MATCH LINE - SEE SHEET 7

MATCH LINE - SEE SHEET 4

FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS–BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-03.dgn
mcDaniel

2/26/03

NOTES:

1. ANY HARDWOOD TREES REMOVED MUST BE INCORPORATED WITHIN THE STRUCTURES BEING INSTALLED.
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10. WHERE DESIGN PROFILE OF STEEP HEADWATER CHANNELS DIVIATES FROM THE EXISTING PROFILE, CONTRACTOR SHALL SLOPE STREAM BANKS AT 2:1 AS NECESSARY TO TIE TO EXISTING GROUND.

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	4

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA08AC644F...

APPROVED BY:

9/11/2020

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Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

NAD 83

CONTROL POINT
N: 832400.89
E: 1342937.62
ELEV: 1288.97'

RUSSELL GAP ROAD
SR 1335
R/W WIDTH 60' PER DB:208 PG:260

ENERGY UTILITY EASEMENT

WIRE FENCE

OVERHEAD UTILITY

HYDRIC SOILS BOUNDARY

WOVEN WIRE FENCE (TYP.)

CHRISTINA MOOSE HERMAN & HUSBAND DAVID SHAWN MOOSE
PIN: 3843-12-2016
DB: 542 PG: 2445

AS-BUILT TOE OF BANK (TYP.)

AS-BUILT TOP OF BANK (TYP.)

MW #4

W1

68"X106" ELLIPTICAL CULVERT CALLED FOR IN DESIGN. 96"CMP IS AN EQUILVALENT SIZE. (TYP.)

24" RCP CALLED FOR IN DESIGN (TYP)

24" RCP
INV=1279.11'

96" CMP
INV=1276.92'

24" RCP
INV=1279.23'

CONSTRUCTED RIFFLE (TYP.)

AS-BUILT THALWEG (TYP.)

REBECCA HERMAN DUPUIS & JAMES MICHAEL DUPUIS
PIN: 3843-11-8159
DB: 542 PG: 2450

24" RCP
INV=1278.73'

96"CMP
INV=1276.42'

24" RCP
INV=1278.71'

MATCH LINE - SEE SHEET 3

MATCH LINE - SEE SHEET 5

X-1

X-2

MW #5

MW #6

GEOLIFT WITH BRUSH TOE (TYP.)

GRADE CONTROL ROCK J- HOOK VANE (TYP.)

VEG PLOT 2

GATE

GATE

GATE

AB GATE LOCATION NOT IN ORIGINAL DESIGN

FILL EXISTING CHANNEL

CHANNEL PLUG

16+00 17+00 18+00 19+00 20+00 21+00 22+00

RUSSELL GAP AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/13/2020
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BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	5

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1GBEEEA0BAC644F...

APPROVED BY:

9/11/2020

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Phone: 919.463.5488
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License #: F-1084

NCDMS ID NO. 100003

2/26/03

NAD 83

RUSSELL GAP ROAD
SR 1335
R/W WIDTH 60' PER DB:208 PG:260

OVERHEAD UTILITY

UNITED ENERGY UTILITY EASEMENT

WIRE FENCE

WOVEN WIRE FENCE (TYP.)

CONTROL POINT
N: 831680.72
E: 1343429.92
ELEV: 1280.15'

AB GATE LOCATION NOT IN ORIGINAL DESIGN

GATE

HYDRIC SOILS BOUNDARY

LOG VANE INSTALLED BOULDER STEP CALLED FOR IN DESIGN

HYDRIC SOILS BOUNDARY

DIRT ROAD

VEG PLOT 3

W1

REBECCA HERMAN DUPUIS &
JAMES MICHAEL DUPUIS
PIN: 3843-11-8159
DB: 542 PG: 2450

END REACH 11
STA. 17+31.85

GEOLIFT WITH BRUSH TOE (TYP.)

AS-BUILT THALWEG (TYP.)

BEGIN REACH 12
STA. 10+00.00

ROCK CROSS VANE (TYP.)

X-26

X-4

X-3

MW #8

CREST GAUGE #1

ROCK VANE (TYP.)

CONSTRUCTED RIFFLE (TYP.)

MW #7

23+00

24+00

25+00

26+00

27+00

28+00

29+00

10+00

11+00

22+00

MATCH LINE - SEE SHEET 4

MATCH LINE - SEE SHEET 6

MATCH LINE - SEE SHEET 8

VEG PLOT 4

END REACH 12
STA. 11+01.78

AS-BUILT TOE OF BANK (TYP.)

FENCE INSTALLED HERE FOR A STRAIGHT LINE

AS-BUILT TOP OF BANK (TYP.)

GRADE CONTROL ROCK J- HOOK VANE (TYP.)

MW #9

HYDRIC SOILS BOUNDARY

FILL EXISTING CHANNEL

CHANNEL PLUG

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RUSSELL GAP AS–BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-05.dgn
mdeal

2/26/03

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	6

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA7BAC844F...

APPROVED BY:

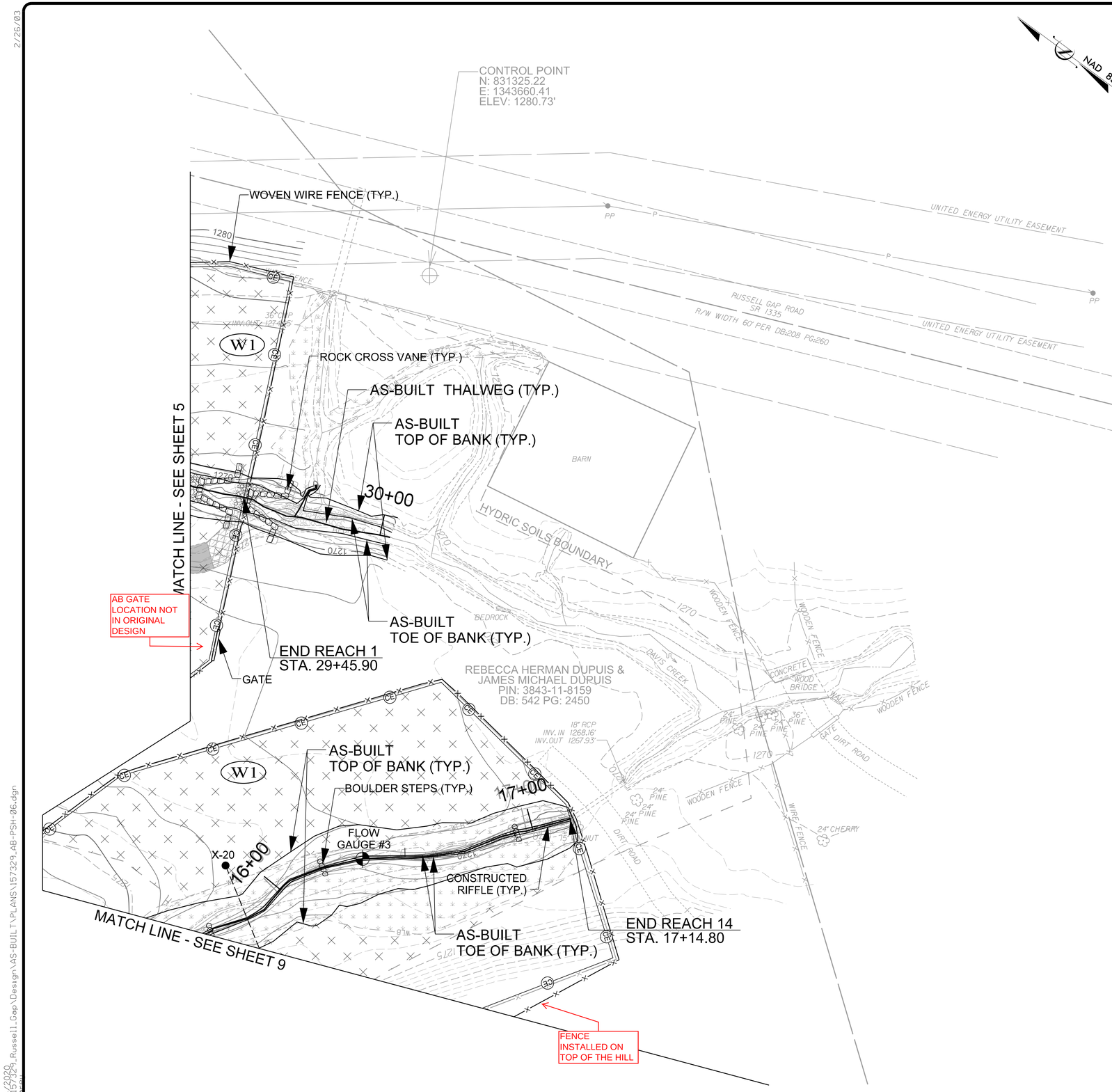
9/11/2020

DATE:

Michael Baker INTERNATIONAL

Michael Baker Engineering Inc.
8000 Regency Parkway, Suite 600
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003



NOTES:

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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS–BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-06.dgn
mpope

2/26/03

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	7

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC844F...

APPROVED BY:

9/11/2020

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Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

NAD 83

CHRISTINA MOOSE HERMAN &
HUSBAND DAVID SHAWN
MOOSE
PIN: 3843-12-2016
DB: 542 PG: 2445

BEGIN REACH 10A
STA. 10+08.40

WOVEN WIRE FENCE (TYP.)

AS-BUILT
TOE OF BANK (TYP.)

AS-BUILT
THALWEG (TYP.)

MATCH LINE - SEE SHEET 3

BOULDER STEPS (TYP.)

VEG
PLOT
16

AS-BUILT
TOP OF BANK (TYP.)

CONTROL POINT
N: 832511.89
E: 1342409.91
ELEV: 1313.69'

AB GATE
LOCATION NOT
IN ORIGINAL
DESIGN

GATE

CHRISTINA MOOSE HERMAN &
HUSBAND DAVID SHAWN
MOOSE
PIN: 3843-12-2016
DB: 542 PG: 2445

END REACH 10A
BEGIN REACH 10B
STA. 13+74.94

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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-07.dgn

2/26/03

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	8

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC644F...

APPROVED BY:

9/11/2020

DATE:

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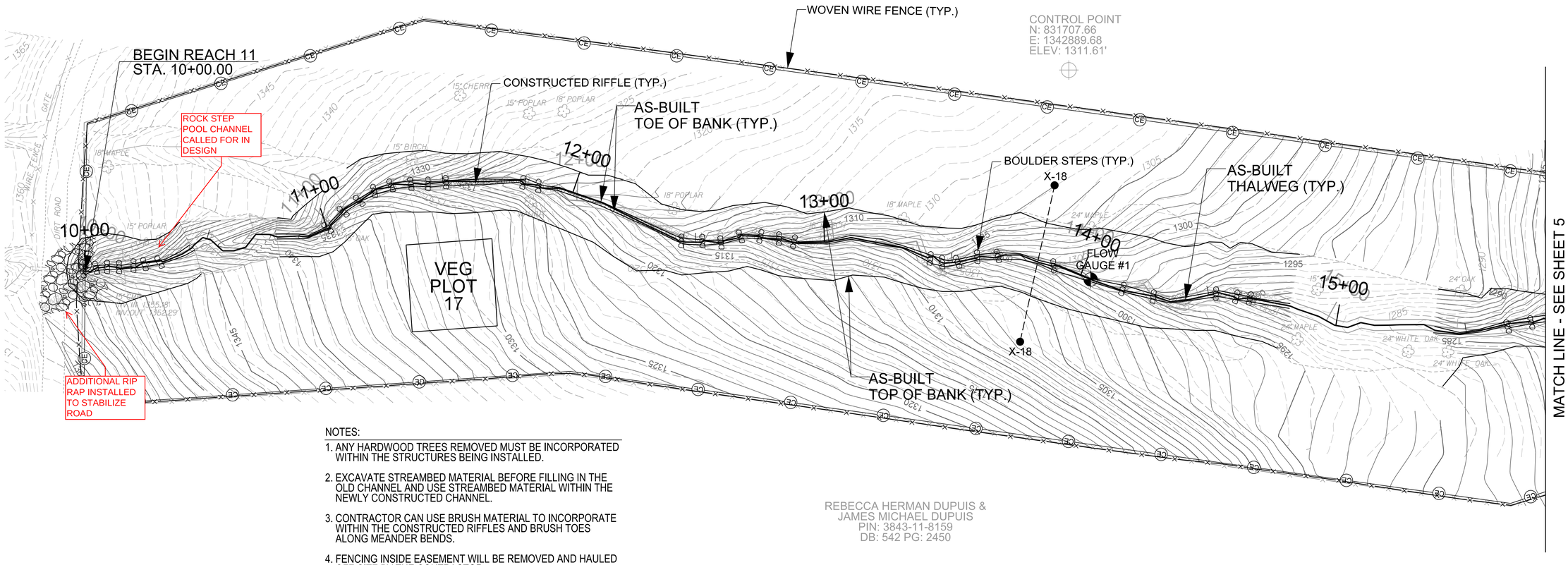
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

NAD 83

REBECCA HERMAN DUPUIS &
JAMES MICHAEL DUPUIS
PIN: 3843-11-8159
DB: 542 PG: 2450

CONTROL POINT
N: 831707.66
E: 1342889.68
ELEV: 1311.61'



REBECCA HERMAN DUPUIS &
JAMES MICHAEL DUPUIS
PIN: 3843-11-8159
DB: 542 PG: 2450

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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/3/2020
8:31:29 AM
I:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB_PSH-08.dgn
mcarr

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	9

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA08AC644F...

APPROVED BY:

9/11/2020

DATE:

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Michael Baker Engineering Inc.
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Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

2/26/03

NAD 83

REBECCA HERMAN DUPUIS &
JAMES MICHAEL DUPUIS
PIN: 3843-11-8159
DB: 542 PG: 2450

CONTROL POINT
N: 831242.26
E: 1342875.02
ELEV: 1338.94'

BEGIN REACH 13
STA. 10+00.00

FENCE MOVED TO THE TOP OF THE HILL

WOVEN WIRE FENCE (TYP.)

BOULDER STEPS INPLACE OF ROCK STEP POOL CHANNEL CALLED FOR IN DESIGN

AS-BUILT TOE OF BANK (TYP.)

VEG PLOT 18

10+00

11+00

12+00

13+00

14+00

15+00

X-19

FLOW GAUGE #2

CONTROL POINT
N: 831330.54
E: 1343260.56
ELEV: 1292.97'

GATE

BOULDER STEPS (TYP.)

AS-BUILT THALWEG (TYP.)

AS-BUILT TOP OF BANK (TYP.)

END REACH 13
BEGIN REACH 14
STA. 11+45.00

18" WHITE OAK
18" OAK
18" PINE
18" MAPLE
18" CHERRY
18" DOUBLE CHERRY
15" WALNUT
CARBED WIRE FENCE

MATCH LINE - SEE SHEET 6

W1

X-20

REBECCA HERMAN DUPUIS &
JAMES MICHAEL DUPUIS
PIN: 3843-11-8159
DB: 542 PG: 2450

FILL EXISTING CHANNEL

CHANNEL PLUG

FENCE INSTALLED AT THE TOP OF THE HILL

NOTES:

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RUSSELL GAP AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-09.dgn
mgreen

2/26/03

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BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	10

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC644F...

APPROVED BY:

9/11/2020

DATE:

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
8000 Regency Parkway, Suite 600
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

NAD 83

RUTH GAIL BUMGARNER
AND LINDA LOWE
PIN: 3843-60-7639
BY WILL
REF:DB: 47 PG: 485

WOVEN WIRE FENCE (TYP.)

AB GATE LOCATION NOT IN ORIGINAL DESIGN

GATE

MATCH LINE – SEE SHEET 24

VEG PLOT 6

10+00 11+00 12+00 13+00

1260 1260

CE

WLB

ACCESS ROAD

TLS#46NL

BRIDGE

ACCESS ROAD

GATE

AB GATE LOCATION NOT IN ORIGINAL DESIGN

UNITED ENERGY UTILITY EASEMENT

UNITED ENERGY UTILITY EASEMENT

MATCH LINE – SEE SHEET 11

EXISTING R/W

MT. OLIVE CHURCH ROAD SR 1334

EXISTING R/W

FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-10.dgn
mcDGN

2/26/03

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NAD 83

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	11

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA08AC644F

APPROVED BY:

9/11/2020

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Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
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NCDMS ID NO. 100003

MATCH LINE – SEE SHEET 24

MATCH LINE – SEE SHEET 10

MATCH LINE – SEE SHEET 12

WOVEN WIRE FENCE (TYP.)

AS-BUILT THALWEG (TYP.)

AS-BUILT TOE OF BANK (TYP.)

CONSTRUCTED RIFFLE (TYP.)

ROCK CROSS VANE (TYP.)

AS-BUILT TOP OF BANK (TYP.)

BEGIN REACH 4
STA. 10+00.00

END REACH 27
STA. 11+59.68

BOULDER STEPS (TYP.)

BOULDER STEPS INSTALLED IN PLACE OF ROCK STEP POOLS

BEGIN REACH 27
STA. 10+00.00

10+00

11+00

12+00

13+00

X-6

TLS#30NL

RUTH GAIL BUMGARNER
AND LINDA LOWE
PIN: 3843-60-7639
BY WILL
REF:DB: 47 PG: 485

RUTH GAIL BUMGARNER
AND LINDA LOWE
PIN: 3843-60-7639
BY WILL
REF:DB: 396 PG: 1279

CONTROL POINT
NCGS MONUMENT (504)
(UNPUBLISHED)
STATE PLANE COORDINATES
N: 830822.79
E: 1346664.50
ELEV: 1271.27'

CONTROL POINT
N: 830684.72
E: 1346562.31
ELEV: 1265.93'

48" CMP
INV IN 1255.21'
INV OUT 1252.78'

ACCESS ROAD

UNITED ENERGY UTILITY EASEMENT

EAST PRONG
LOWER LITTLE RIVER

ELECTRIC FENCE

BEECH

48" POPLAR

EXISTING R/W

MT OLIVE CHURCH ROAD
SR 1334

FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS–BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-11.dgn
PSHeet

DocuSign Envelope ID: 838A734E-5085-4C2A-B99F-CD306E6CF6D2

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	12

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-4551 DAVID S. TURNER

DocuSigned by: David S. Turner

APPROVED BY:

9/11/2020

DATE:

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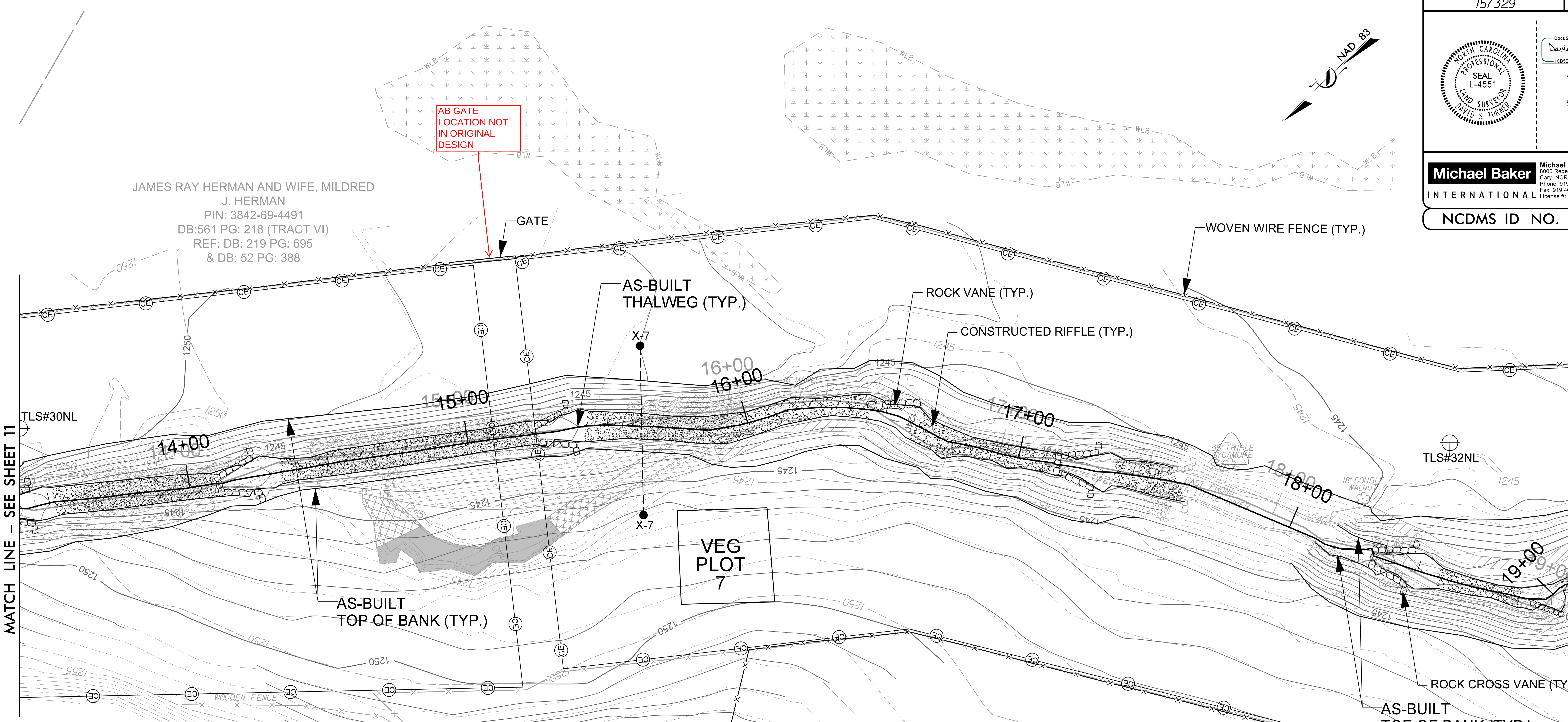
NCDMS ID NO. 100003



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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

9/3/2020 R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-12.dgn

2/26/03

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BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	13

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1C85EEA0BAC644F

APPROVED BY:

9/11/2020

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Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

NAD 83

WOVEN WIRE FENCE (TYP.)

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-69-4491
DB:561 PG: 218 (TRACT VI)
REF: DB: 219 PG: 695
& DB: 52 PG: 388

MATCH LINE – SEE SHEET 25

GRADE CONTROL ROCK J-HOOK VANE (TYP.)

AS-BUILT TOE OF BANK (TYP.)

AS-BUILT THALWEG (TYP.)

GRADE FARM PATH
INSTALL GEOTEXTILE FABRIC AND 6" OF CRUSH & RUN

MATCH LINE – SEE SHEET 12

X-8

20+00

21+00

22+00

12+00

TLS#33NL

BOULDER STEPS (TYP.)

BOULDER STEPS INSTALLED IN PLACE OF ROCK STEP POOLS

CONSTRUCTED RIFFLE (TYP.)

23+00

24+00

X-9

AS-BUILT TOP OF BANK (TYP.)

VEG PLOT 8

ROCK CROSS VANE (TYP.)

END REACH 15
STA. 13+02.77

X-10

MATCH LINE – SEE SHEET 14

CONTROL POINT
N: 830123.49
E: 1346022.45
ELEV: 1269.32'

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-69-4491
DB:561 PG: 218 (TRACT VI)
REF: DB: 219 PG: 695
& DB: 52 PG: 388

EXISTING R/W

MT. OLIVE CHURCH ROAD
SR 1334

EXISTING R/W

FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-13.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	14

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner

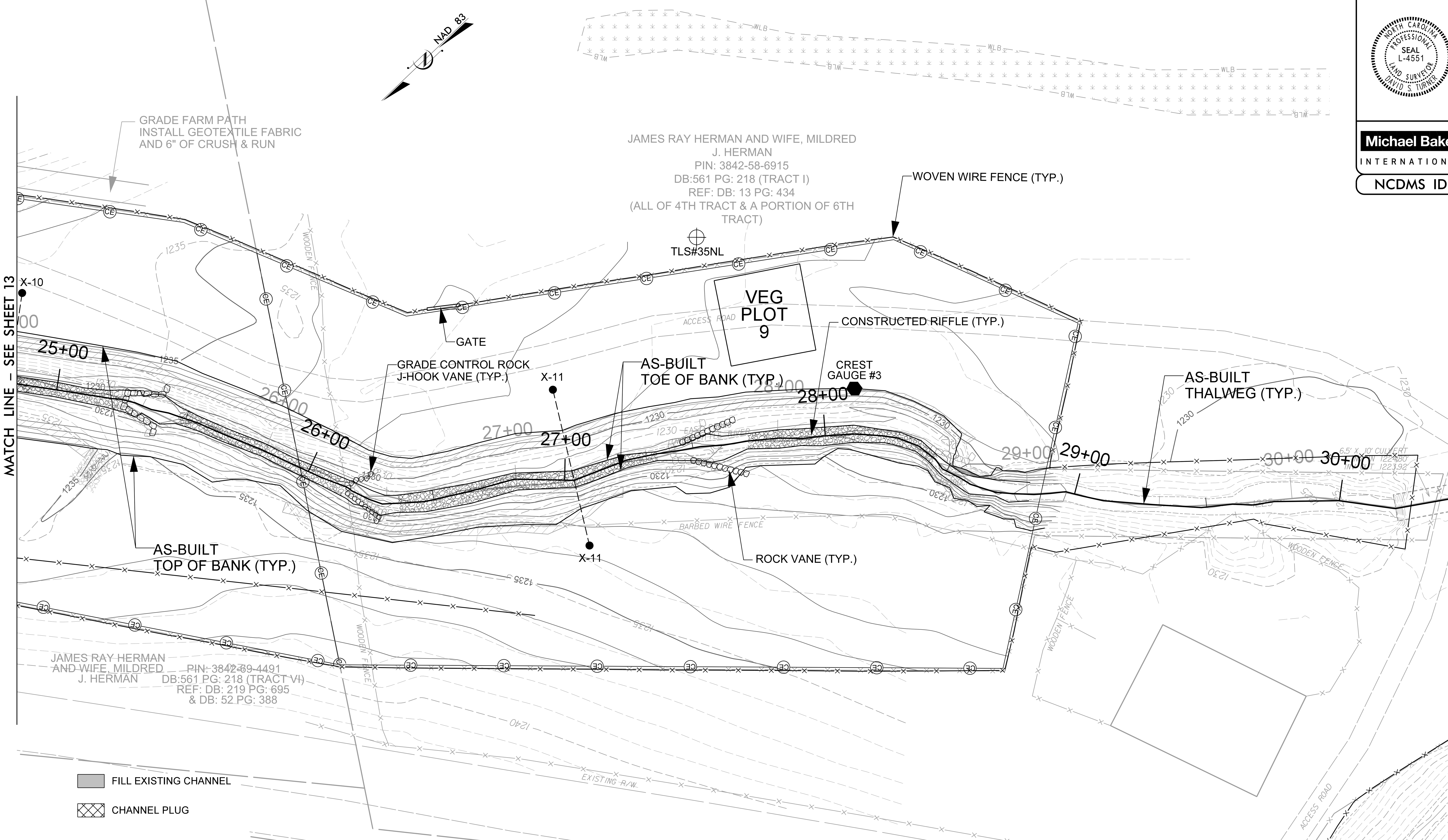
APPROVED BY:

9/11/2020

DATE:

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
8000 Regency Parkway, Suite 600
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003



FILL EXISTING CHANNEL

CHANNEL PLUG

NOTES:

1. ANY HARDWOOD TREES REMOVED MUST BE INCORPORATED WITHIN THE STRUCTURES BEING INSTALLED.
2. EXCAVATE STREAMBED MATERIAL BEFORE FILLING IN THE OLD CHANNEL AND USE STREAMBED MATERIAL WITHIN THE NEWLY CONSTRUCTED CHANNEL.
3. CONTRACTOR CAN USE BRUSH MATERIAL TO INCORPORATE WITHIN THE CONSTRUCTED RIFFLES AND BRUSH TOES ALONG MEANDER BENDS.
4. FENCING INSIDE EASEMENT WILL BE REMOVED AND HAULED OFF-SITE BY THE CONTRACTOR.
5. ANY AREA THAT HAS BEEN GRADED MUST HAVE POSITIVE DRAINAGE, UNLESS OTHERWISE DIRECTED BY ENGINEER.
6. AREAS OF BENCHING: CONTRACTOR WILL EXCAVATE THE TOPSOIL, STOCKPILE IT, AND THEN ADD THE TOPSOIL AS TOP LAYER OF BENCH TO A DEPTH OF AT LEAST 8 INCHES.
7. CONTRACTOR WILL CONTROL ANY INVASIVE SPECIES WITHIN EASEMENT.
8. LOCATIONS OF BOULDER STEPS AND GRADE CONTROL STRUCTURES ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND BY THE DIRECTION OF THE ENGINEER.
9. CONTRACTOR SHALL INCORPORATE SOIL WITHIN THE CONSTRUCTED RIFFLES ALONG ALL STEEP HEADWATER TRIBUTARIES TO REDUCE PERMEABILITY AND KEEP SURFACE FLOW.
10. WHERE DESIGN PROFILE OF STEEP HEADWATER CHANNELS DEVIATES FROM THE EXISTING PROFILE, CONTRACTOR SHALL SLOPE STREAM BANKS AT 2:1 AS NECESSARY TO TIE TO EXISTING GROUND.

RUSSELL GAP AS-BUILT PLAN VIEW

20 0 20 40

SCALE (FT)

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-14.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	15

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S TURNER

DocuSigned by: David S. Turner 1CB5EEA08AC644F...

APPROVED BY:

9/11/2020

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License #: F-1084

NCDMS ID NO. 100003

2/26/03

NAD 83

MATCH LINE – SEE SHEET 21

MATCH LINE – SEE SHEET 14

JAMES RAY HERMAN AND
WIFE, MILDRED J. HERMAN
PIN: 3842-58-6915
DB:561 PG: 218 (TRACT I)
REF: DB: 13 PG: 434
(ALL OF 4TH TRACT & A PORTION OF 6TH TRACT)

CONTROL POINT
N: 828996.30
E: 1344995.61
ELEV: 1230.04'

GRADE CONTROL J-HOOK VANE (TYP.)

AS-BUILT
THALWEG (TYP.)

ROCK VANE NOT
INSTALLED DUE
TO BEDROCK

AS-BUILT
TOE OF BANK (TYP.)

HYDRIC SOILS BOUNDARY

AS-BUILT
TOP OF BANK (TYP.)

END REACH 3
STA. 36+34.66

VEG
PLOT
5

W2

ROCK VANE (TYP.)

CONSTURCTED RIFFLE (TYP.)

ROCK CROSS
VANE (TYP.)

ROCK CROSS
VANE INSTALLED
AS DESIGNED

END REACH 9
STA. 43+10.91

END REACH 4
BEGIN REACH 3
STA. 32+28.36
END REACH 2
STA. 11+65.62

BEGIN REACH 2
STA. 10+00.00

WOVEN WIRE FENCE (TYP.)

X-5
X-26

10+00
11+00
31+00
32+00
33+00
34+00
35+00
36+00
43+00

OLD WAGON ROAD

MT.OLIVE CHURCH ROAD
SR 1334

EXISTING R/W

PROPERTY
OVERLAP
AREA

BARBED WIRE FENCE

15" WALNUT
24" SYCAMORE
18" CEDAR
18" POPLAR
15" POPLAR
30" SYCAMORE

5' X 10' CULVERT
INV. IN 1224.80'
INV. OUT 1223.92'

NOTES:

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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/13/2020
R:\157329_Russell_Gap\Design\AS-BUILTPLANS\157329_AB-PSH-15.dgn
mcarey

2/26/03

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	16

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC944F...

APPROVED BY:

9/11/2020

DATE:

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License #: F-1084

NCDMS ID NO. 100003

NAD 83

MATRMATCH LINE – SEE SHEET 17

WOVEN WIRE FENCE (TYP.)

BEGIN REACH 5
STA. 10+00.00

ROCK STEP-POOL CHANNEL (TYP.)

CONSTURCTED RIFFLE (TYP.)

AS-BUILT TOP OF BANK (TYP.)

END REACH 5
BEGIN REACH 6
STA. 12+10.00

GRADE CONTROL ROCK J-HOOK VANE (TYP.)

GEOLIFT WITH BRUSH TOE (TYP.)

ROCK CROSS VANE (TYP.)

LOG & ROCK STEP POOL (TYP.)

AS-BUILT THALWEG (TYP.)

AS-BUILT TOE OF BANK (TYP.)

VEG PLOT 10

CONTROL POINT
N: 826399.70
E: 1345624.71
ELEV: 1303.49'

GATE

AB GATE LOCATION NOT IN ORIGINAL DESIGN

OLD WAGON ROAD

MELINDA HERMAN ST. CLAIR AND HUSBAND
RANDY BRUCE ST. CLAIR
PIN: 3842-56-9723
DB: 542 PG: 2441
REF: DB:47 PG:381, DB:38 PG:90 DB: H PG: 262, DB: H PG:595
DB: N PG: 546, DB: 13 PG: 434 & DB:M PG:343
(PORTION OF LOT1,2 & 3 OF TH WEBSTER MOUNTAIN LANDS)

NOTES:

1. ANY HARDWOOD TREES REMOVED MUST BE INCORPORATED WITHIN THE STRUCTURES BEING INSTALLED.
2. EXCAVATE STREAMBED MATERIAL BEFORE FILLING IN THE OLD CHANNEL AND USE STREAMBED MATERIAL WITHIN THE NEWLY CONSTRUCTED CHANNEL.
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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS–BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-16.dgn
mcDaniel

2/26/03

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	17

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S TURNER

DocuSigned by: David S. Turner 1C85EEA0BAC944F...

APPROVED BY:

9/11/2020

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License #: F-1084

NCDMS ID NO. 100003

NAD 83

WOVEN WIRE FENCE (TYP.)

END REACH 6
BEGIN REACH 7A
STA. 19+57.36
END REACH 18
STA. 12+03.31

GRADE CONTROL ROCK J-HOOK VANE (TYP.)

GEOLIFT WITH BRUSH TOE (TYP.)

CREST GAUGE #4

CONSTRUCTED RIFFLE ADDED IN AB

AS-BUILT TOE OF BANK (TYP.)

CONSTURCTED RIFFLE (TYP.)

ROCK CROSS VANE (TYP.)

MATCH LINE – SEE SHEET 18

MATCH LINE – SEE SHEET 16

12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00

END REACH 17
STA. 11+06.64

AS-BUILT THALWEG (TYP.)

AS-BUILT TOP OF BANK (TYP.)

BOULDER STEPS (TYP.)

BOULDER STEPS INSTALLED IN PLACE OF ROCK STEP POOLS

VEG PLOT 11
CONTROL POINT
N: 826926.18
E: 1345646.44
ELEV: 1288.41'

GATE

AB GATE LOCATION NOT IN ORIGINAL DESIGN

GATE

OLD WAGON ROAD

10+00 11+00

18" CMP
INV IN 1289.84'
INV OUT 1288.26'

15" CMP
INV IN 1297.1
INV OUT 1297.

15" POPLAR

BEGIN REACH 17
STA. 10+00.00

BEGIN REACH 18
STA. 10+00.00

MELINDA HERMAN ST. CLAIR AND HUSBAND
RANDY BRUCE ST. CLAIR
PIN: 3842-56-9723
DB: 542 PG: 2441
REF: DB:47 PG:381, DB:38 PG:90 DB: H PG: 262, DB: H PG:595
DB: N PG: 546, DB: 13 PG: 434 & DB:M PG:343
(PORTION OF LOT1,2 & 3 OF TH WEBSTER MOUNTAIN LANDS)

NOTES:

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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP AS–BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/31/2020
R:\157329_Russell_Gap\Design\AS-BUILT-PLANS\157329_AB-PSH-17.dgn
jmorris

2/26/03

NOTES:

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BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	18

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC644F

APPROVED BY:

9/11/2020

DATE:

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Cary, NORTH CAROLINA 27518
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License #: F-1084

NCDMS ID NO. 100003

NAD 83

MELINDA HERMAN ST. CLAIR AND HUSBAND
RANDY BRUCE ST. CLAIR
PIN: 3842-56-9723
DB: 542 PG: 2441
REF: DB:47 PG:381, DB:38 PG:90 DB: H PG: 262, DB: H PG:595
DB: N PG: 546, DB: 13 PG: 434 & DB:M PG:343
(PORTION OF LOT1,2 & 3 OF TH WEBSTER MOUNTAIN LANDS)

BEGIN REACH 21
STA. 10+00.00

WOVEN WIRE FENCE (TYP.)

END REACH 21
STA. 10+91.76

END REACH 19
STA. 13+75.96

AS-BUILT
TOE OF BANK (TYP.)

ROCK VANE (TYP.)

END REACH 7A
BEGIN REACH 7B
STA. 20+61.17

AS-BUILT
THALWEG (TYP.)

AS-BUILT
TOP OF BANK (TYP.)

VEG
PLOT
12

ROCK CROSS VANE (TYP.)

CONSTURCTED RIFFLE (TYP.)

GEOLIFT WITH
BRUSH TOE (TYP.)

GATE

GRADE CONTROL ROCK
J-HOOK VANE (TYP.)

BOULDER STEPS (TYP.)

TLS#35NL

AB GATE
LOCATION NOT
IN ORIGINAL
DESIGN

GATE
FLOW
GAUGE #4

CONTROL POINT
N: 827356.84
E: 1345519.00
ELEV: 1276.19'

REALIGN AND GRADE FARM PATH
INSTALL GEOTEXTILE FABRIC
AND 6" OF CRUSH & RUN

BOULDER STEPS
INSTALLED IN
PLACE OF ROCK
STEP POOLS

MATCH LINE – SEE SHEET 19

MATCH LINE – SEE SHEET 22

MATCH LINE – SEE SHEET 17

FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/3/2020
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mcarey

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	19

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

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License #: F-1084

NCDMS ID NO. 100003

FENCE INSTALLED AT THE TOP OF THE HILL

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-45-6472
DB:561 PG: 218 (TRACT II)
REF: DB: 96 PG: 124, DB:13 PG: 247 &
DB: N PG:399

MATCH LINE – SEE SHEET 20

MATCH LINE – SEE SHEET 18

X-15

GRADE CONTROL ROCK J-HOOK VANE (TYP.)

CONSTURCTED RIFFLE (TYP.)

WOVEN WIRE FENCE (TYP.)

AS-BUILT THALWEG (TYP.)

AS-BUILT TOP OF BANK (TYP.)

AS-BUILT TOE OF BANK (TYP.)

X-14

ROCK CROSS VANE (TYP.)

VEG PLOT 14

VEG PLOT 13

TLS#35NL

GATE

GATE

BEGIN REACH 22A
STA. 10+60.00

CONTROL POINT
N: 827819.56
E: 1345532.96
ELEV: 1260.81'

AB GATE LOCATION NOT IN ORIGINAL DESIGN

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-45-6472
DB:561 PG: 218 (TRACT II)
REF: DB: 96 PG: 124, DB:13 PG: 247 &
DB: N PG:399

OLD WAGON ROAD

18" MAPLE

SYCAMORE

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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

2/26/03

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-19.dgn
mcdaniel

2/26/03

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NAD 83

MATCH LINE – SEE SHEET 23

CONTROL POINT
N: 828372.48
E: 1345666.61
ELEV: 1267.80'

X-23 ● ---------- ● X-23

13+00

FENCE INSTALLED ON TOP OF THE HILL

BOULDER STEPS (TYP.)

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-58-6915
DB:561 PG: 218 (TRACT I)
REF: DB: 13 PG: 434
(ALL OF 4TH TRACT & A PORTION OF 6TH TRACT)

CONTROL POINT
N: 828633.37
E: 1345541.06
ELEV: 1259.61'

TLS#35NL

REALIGN AND GRADE FARM PATH
INSTALL GEOTEXTILE FABRIC
AND 6" OF CRUSH & RUN

END REACH 25
STA. 14+30.52

14+00

AS-BUILT
THALWEG (TYP.)

AS-BUILT
TOE OF BANK (TYP.)

CONSTURCTED
RIFFLE (TYP.)

GATE

33+00

32+00

OLD WAGON ROAD

FLOW

34+00

35+00

36+00

37+00

60" CMP
INV IN 1243.01'
INV OUT 1242.06'

ROCK VANE (TYP.)

AS-BUILT
TOP OF BANK (TYP.)

END REACH 22
STA. 11+19.46

11+00

BEGIN REACH 8
STA. 33+75.40

END REACH 7B
STA. 33+51.48

GATE

END REACH 22A
STA. 11+28.42

10+00

AB GATE
LOCATION NOT
IN ORIGINAL
DESIGN

WOVEN WIRE FENCE (TYP.)

BEGIN REACH 22
STA. 10+00.00

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-45-6472
DB:561 PG: 218 (TRACT II)
REF: DB: 96 PG: 124, DB:13 PG: 247 &
DB: N PG:399

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-45-6472
DB:561 PG: 218 (TRACT XI)
REF: DB: 272 PG: 65 &
DB: 13 PG:434
(REMAINING PORTIONS OF 1ST,2ND,3RD,6TH,7TH,8TH&9TH TRACTS)
(SEE ALSO DB: M PG:343 &NC PATENT BOOK 179 PG:279)

MATCH LINE – SEE SHEET 21

MATCH LINE – SEE SHEET 19

FILL EXISTING CHANNEL

CHANNEL PLUG

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	20

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner
APPROVED BY:
9/11/2020
DATE:

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NCDMS ID NO. 100003

RUSSELL GAP
AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/13/2020
R:\157329_Russell Gap\Design\AS-BUILT PLANS\157329_AB-PSH-20.dgn
mpeel

DocuSign Envelope ID: 838A734E-5085-4C2A-B99F-CD306E6CF6D2

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	21

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-4551 DAVID S. TURNER

DocuSigned by: David S. Turner

APPROVED BY:

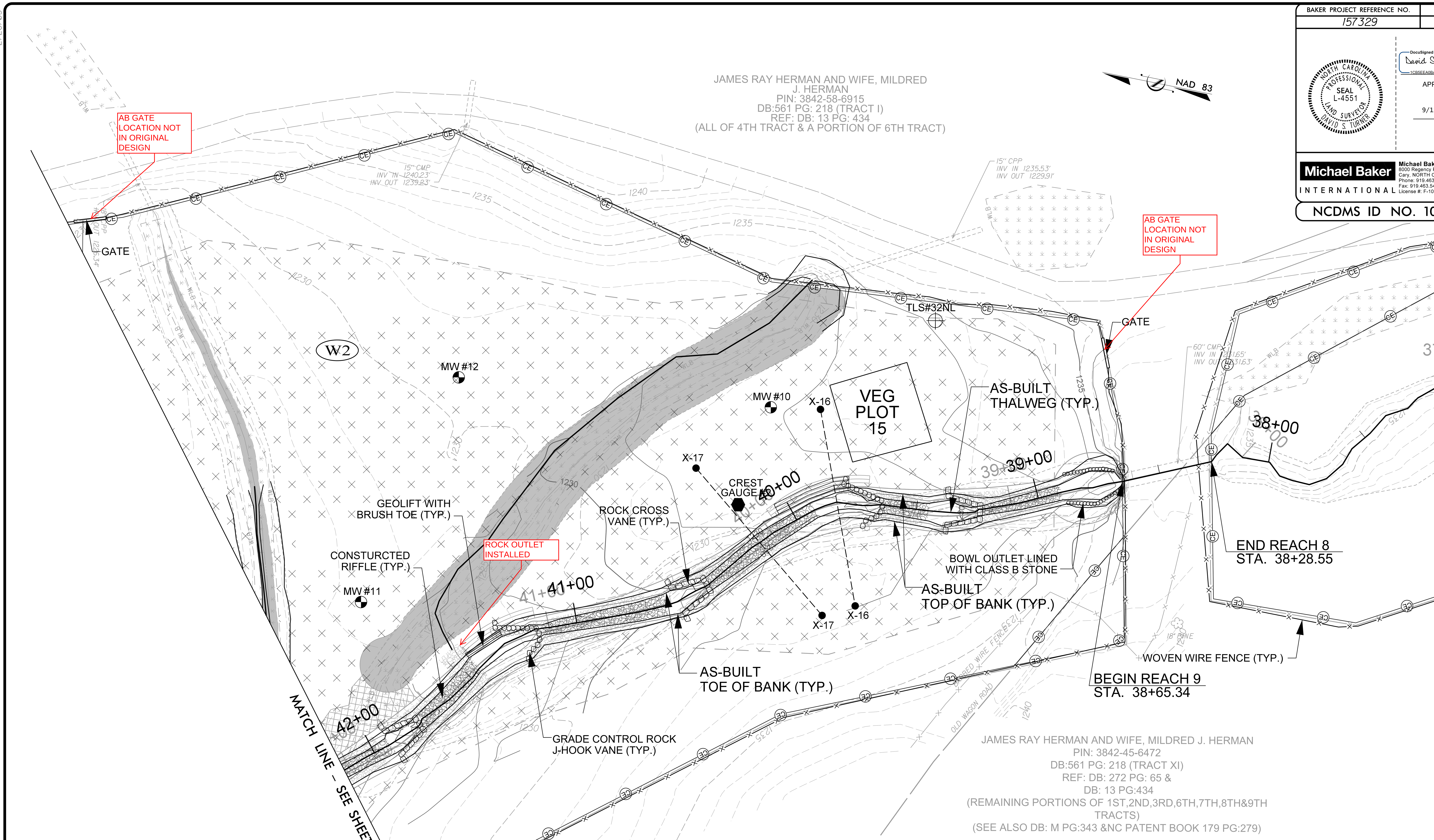
9/11/2020

DATE:

Michael Baker INTERNATIONAL

Michael Baker Engineering Inc.
8000 Regency Parkway, Suite 600
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003



JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-58-6915
DB:561 PG: 218 (TRACT I)
REF: DB: 13 PG: 434
(ALL OF 4TH TRACT & A PORTION OF 6TH TRACT)

NOTES:

1. ANY HARDWOOD TREES REMOVED MUST BE INCORPORATED WITHIN THE STRUCTURES BEING INSTALLED.
2. EXCAVATE STREAMBED MATERIAL BEFORE FILLING IN THE OLD CHANNEL AND USE STREAMBED MATERIAL WITHIN THE NEWLY CONSTRUCTED CHANNEL.
3. CONTRACTOR CAN USE BRUSH MATERIAL TO INCORPORATE WITHIN THE CONSTRUCTED RIFFLES AND BRUSH TOES ALONG MEANDER BENDS.
4. FENCING INSIDE EASEMENT WILL BE REMOVED AND HAULED OFF-SITE BY THE CONTRACTOR.
5. ANY AREA THAT HAS BEEN GRADED MUST HAVE POSITIVE DRAINAGE, UNLESS OTHERWISE DIRECTED BY ENGINEER.
6. AREAS OF BENCHING: CONTRACTOR WILL EXCAVATE THE TOPSOIL, STOCKPILE IT, AND THEN ADD THE TOPSOIL AS TOP LAYER OF BENCH TO A DEPTH OF AT LEAST 8 INCHES.
7. CONTRACTOR WILL CONTROL ANY INVASIVE SPECIES WITHIN EASEMENT.
8. LOCATIONS OF BOULDER STEPS AND GRADE CONTROL STRUCTURES ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND BY THE DIRECTION OF THE ENGINEER.
9. CONTRACTOR SHALL INCORPORATE SOIL WITHIN THE CONSTRUCTED RIFFLES ALONG ALL STEEP HEADWATER TRIBUTARIES TO REDUCE PERMEABILITY AND KEEP SURFACE FLOW.
10. WHERE DESIGN PROFILE OF STEEP HEADWATER CHANNELS DIVIATES FROM THE EXISTING PROFILE, CONTRACTOR SHALL SLOPE STREAM BANKS AT 2:1 AS NECESSARY TO TIE TO EXISTING GROUND.

FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP
AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-21.dgn

2/26/03

NOTES:

1. ANY HARDWOOD TREES REMOVED MUST BE INCORPORATED WITHIN THE STRUCTURES BEING INSTALLED.
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NAD 83

BEGIN REACH 20
STA. 10+00.00

10+00

11+00

12+00

BOULDER STEPS INSTALLED IN PLACE OF ROCK STEP POOLS

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-45-6472
DB:561 PG: 218 (TRACT II)
REF: DB: 96 PG: 124, DB:13 PG: 247 &
DB: N PG:399

REMAING PORTION OF
TRACT I DB: 91 PG; 186

X-22

FLOW GAUGE #5
N: 1045297.69
E: 2127429.69
ELEV: 1298.95

VEG PLOT 19

END REACH 20
STA. 12+53.61

AS-BUILT
THALWEG (TYP.)

AS-BUILT
TOE OF BANK (TYP.)

BOULDER STEPS (TYP.)

X-21

TLS#35NL

BEGIN REACH 19
STA. 9+86.00

AS-BUILT
TOP OF BANK (TYP.)

WOVEN WIRE FENCE (TYP.)

MATCH LINE - SEE SHEET 18

MELINDA HERMAN ST. CLAIR AND HUSBAND
RANDY BRUCE ST. CLAIR
PIN: 3842-56-9723
DB: 542 PG: 2441
REF: DB:47 PG:381, DB:38 PG:90 DB: H PG: 262, DB: H PG:595
DB: N PG: 546, DB: 13 PG: 434 & DB:M PG:343
(PORTION OF LOT1,2 & 3 OF TH WEBSTER MOUNTAIN LANDS)

FILL EXISTING CHANNEL

CHANNEL PLUG

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	22

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC644F

APPROVED BY:

9/11/2020

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License #: F-1084

NCDMS ID NO. 100003

RUSSELL GAP
AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-22.dgn
mdeal

2/26/03

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	23

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA08AC644F

APPROVED BY:

9/11/2020

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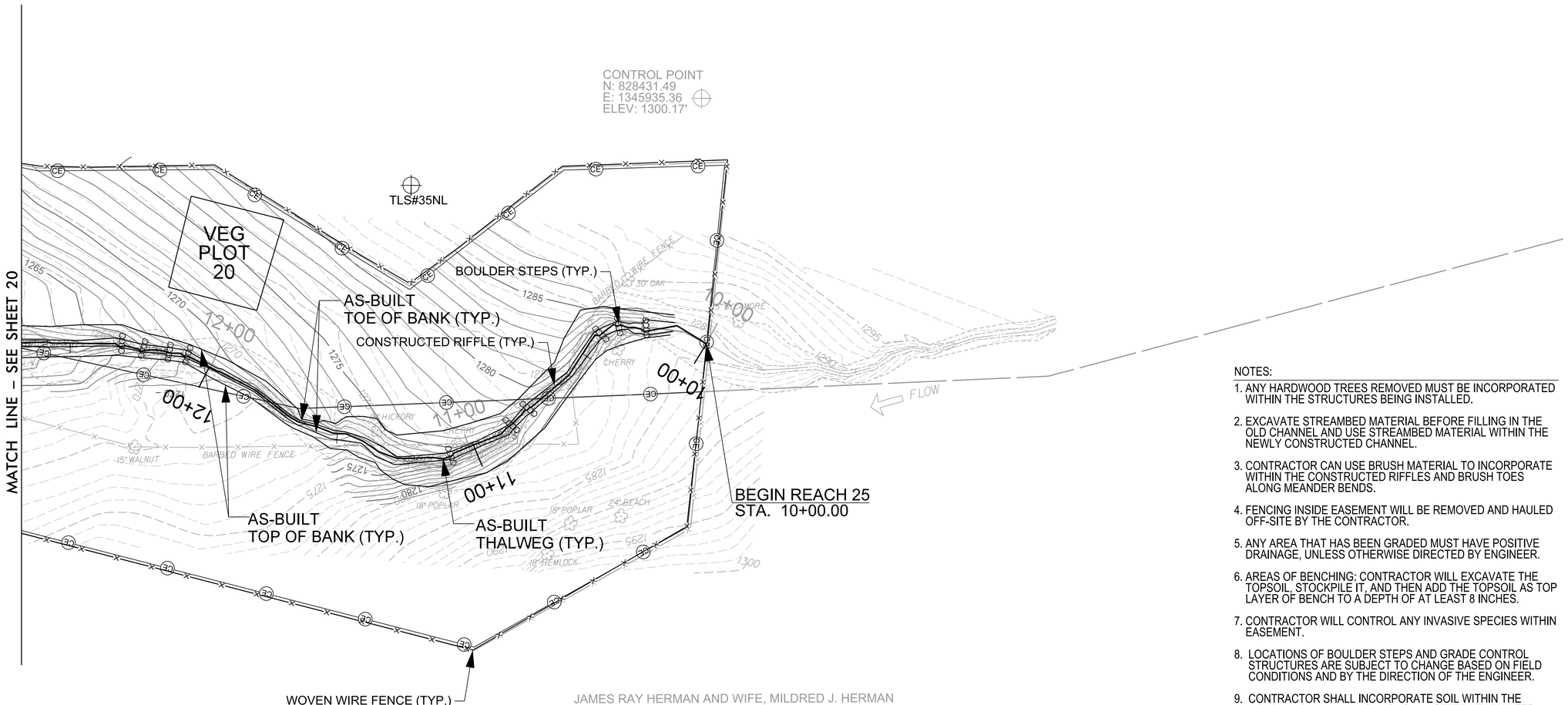
License #: F-1084

NCDMS ID NO. 100003

NAD 83

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-58-6915
DB:561 PG: 218 (TRACT I)
REF: DB: 13 PG: 434
(ALL OF 4TH TRACT & A PORTION OF 6TH TRACT)

CONTROL POINT
N: 828431.49
E: 1345935.36
ELEV: 1300.17'



JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-45-6472
DB:561 PG: 218 (TRACT II)
REF: DB: 96 PG: 124, DB:13 PG: 247 &
DB: N PG:399

NOTES:

1. ANY HARDWOOD TREES REMOVED MUST BE INCORPORATED WITHIN THE STRUCTURES BEING INSTALLED.
2. EXCAVATE STREAMBED MATERIAL BEFORE FILLING IN THE OLD CHANNEL AND USE STREAMBED MATERIAL WITHIN THE NEWLY CONSTRUCTED CHANNEL.
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FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP AS–BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

8/31/2020
8:31:52 AM
J:\157329_Russell_Gap\Design\AS-BUILTS\PLANS\157329_AB-PSH-23.dgn
mcgrew

2/26/03

NOTES:

1. ANY HARDWOOD TREES REMOVED MUST BE INCORPORATED WITHIN THE STRUCTURES BEING INSTALLED.
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BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	24

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA08AC644F...

APPROVED BY:

9/11/2020

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License #: F-1084

NCDMS ID NO. 100003

NAD 83

RUTH GAIL BUMGARNER
AND LINDA LOWE
PIN: 3843-60-7639
BY WILL
REF:DB: 47 PG: 485

WOVEN WIRE FENCE (TYP.)

AS-BUILT TOE OF BANK (TYP.)

BOULDER STEPS (TYP.)

AS-BUILT THALWEG (TYP.)

STRUCTURES NOT INSTALLED DUE TO HEAEY VEGETATION AND STABILE BANKS

BEGIN REACH 26
STA. 10+00.00

AS-BUILT TOP OF BANK (TYP.)

TLS#47NL

END REACH 26
STA. 14+72.96

10+00 11+00 12+00 13+00 14+00

W3

ELECTRIC FENCE

UNITED ENERGY UTILITY EASEMENT

MATCH LINE – SEE SHEET 11

MATCH LINE – SEE SHEET 10

CONTROL POINT
N: 830836.08
E: 1347385.49
ELEV: 1276.95'

FILL EXISTING CHANNEL

CHANNEL PLUG

RUSSELL GAP AS-BUILT PLAN VIEW

20 0 20 40
SCALE (FT)

9/3/2020
R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-24.dgn
mcarter

2/26/03

NOTES:

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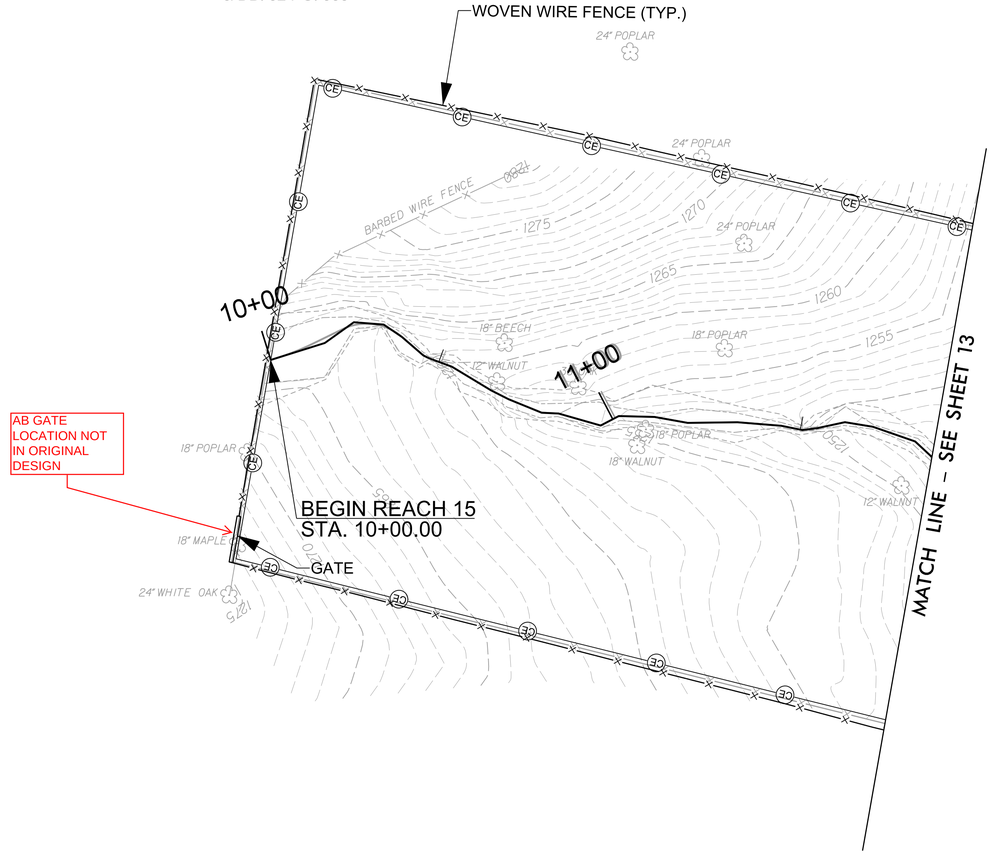
NAD 83

JAMES RAY HERMAN AND WIFE, MILDRED J. HERMAN
PIN: 3842-69-4491
DB:561 PG: 218 (TRACT VI)
REF: DB: 219 PG: 695
& DB: 52 PG: 388



FILL EXISTING CHANNEL

CHANNEL PLUG

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	25

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC644F...

APPROVED BY:

9/11/2020

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Fax: 919.463.5490
License #: F-1084

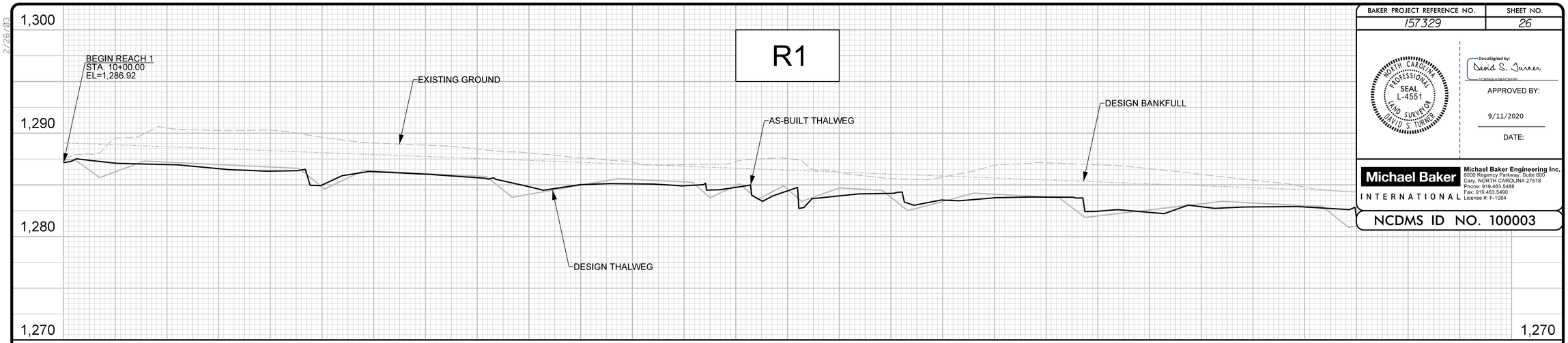
NCDMS ID NO. 100003

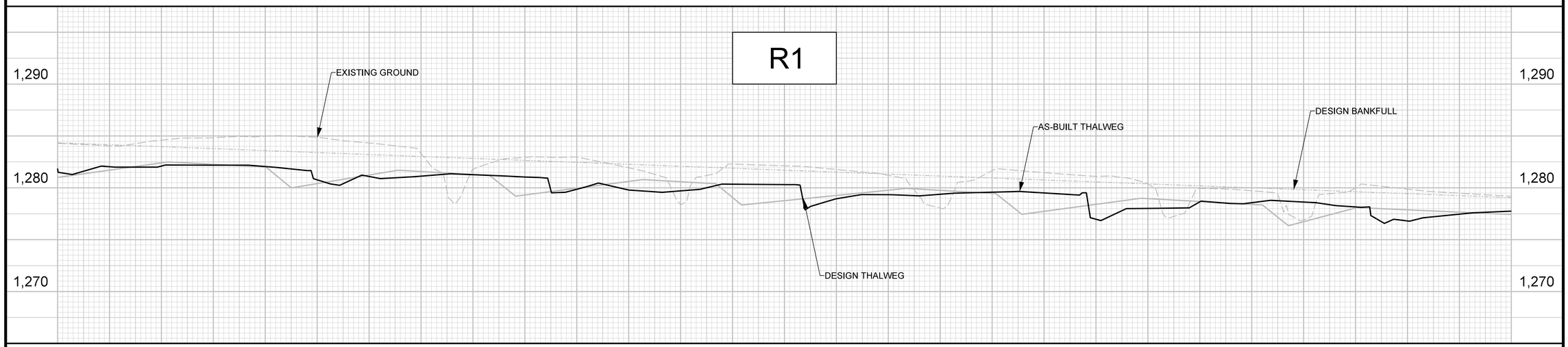
RUSSELL GAP
AS-BUILT PLAN VIEW

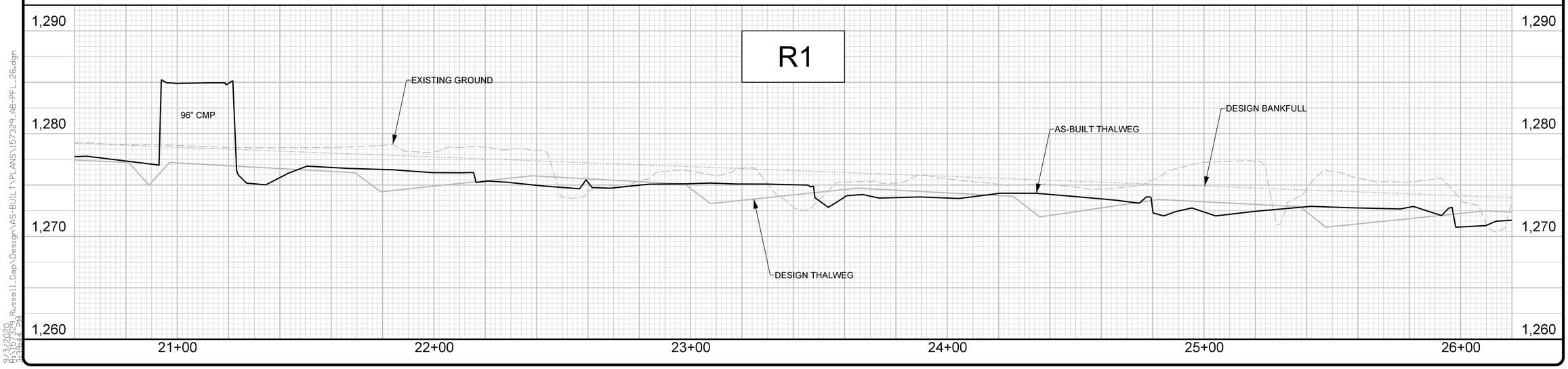
20 0 20 40
SCALE (FT)

9/3/2020
K:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PSH-25.dgn
mcgeehee

2/26/03







BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	26

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S TURNER

DocuSigned by: David S. Turner 1CB5EEA08AC644F...

APPROVED BY:

9/11/2020

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NCDMS ID NO. 100003

2/26/03

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	27

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA09AC644F...

APPROVED BY:

9/11/2020

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Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

R1

1,280 / 1,270 / 1,260

EXISTING GROUND
DESIGN BANKFULL
AS-BUILT THALWEG
DESIGN THALWEG
END REACH 1
STA. 29+45.90
EL=1,268.39

27+00 28+00 29+00

R2

1,240 / 1,230 / 1,220

BEGIN REACH 2
STA. 10+00.00
EL=1,306.96
AS-BUILT THALWEG
DESIGN THALWEG
EXISTING GROUND
END REACH 2
STA. 11+65.62
EL=1,221.04

10+00 11+00

R4

1,260 / 1,250 / 1,240 / 1,230

BEGIN REACH 4
STA. 10+00.00
EL=1,246.57
AS-BUILT THALWEG
DESIGN BANKFULL
DESIGN THALWEG
EXISTING GROUND

10+00 11+00 12+00 13+00 14+00 15+00

R4

1,250 / 1,240 / 1,230

EXISTING GROUND
DESIGN BANKFULL
AS-BUILT THALWEG
DESIGN THALWEG

16+00 17+00 18+00 19+00 20+00 21+00

9/3/2020
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3:41:26 PM

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	28

SEAL L-4551 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner

APPROVED BY:

9/11/2020

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Cary, NORTH CAROLINA 27518
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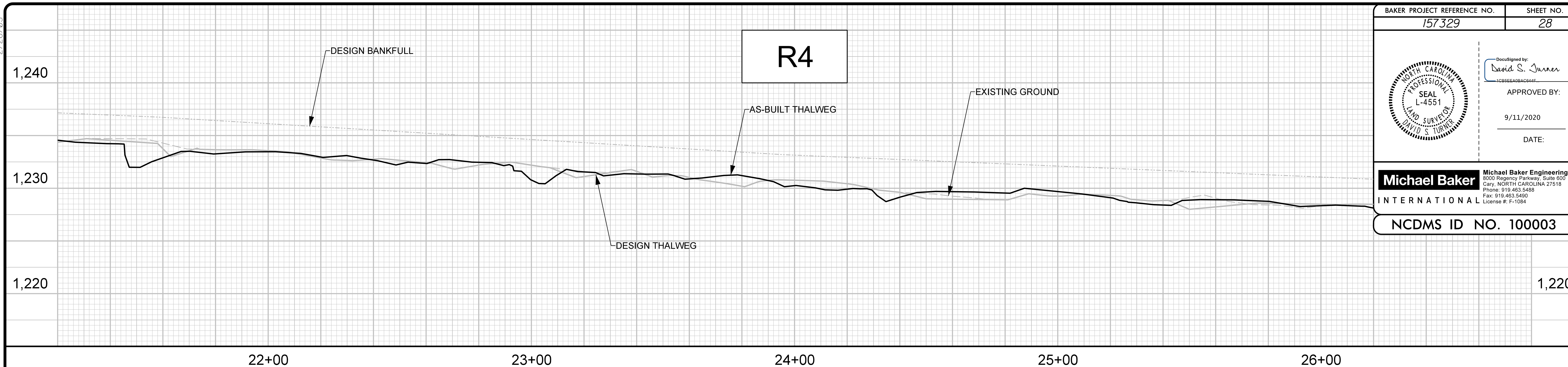
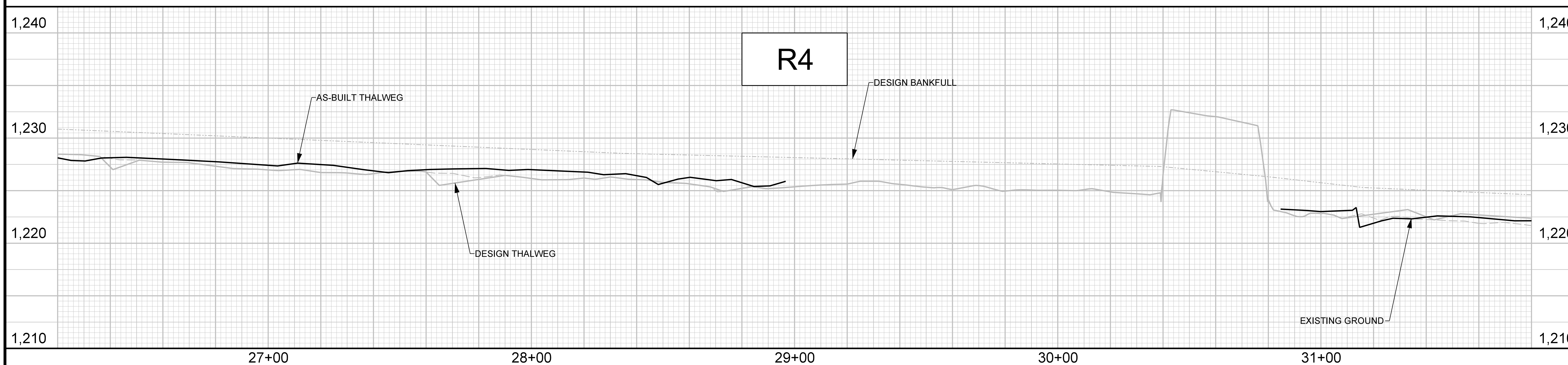
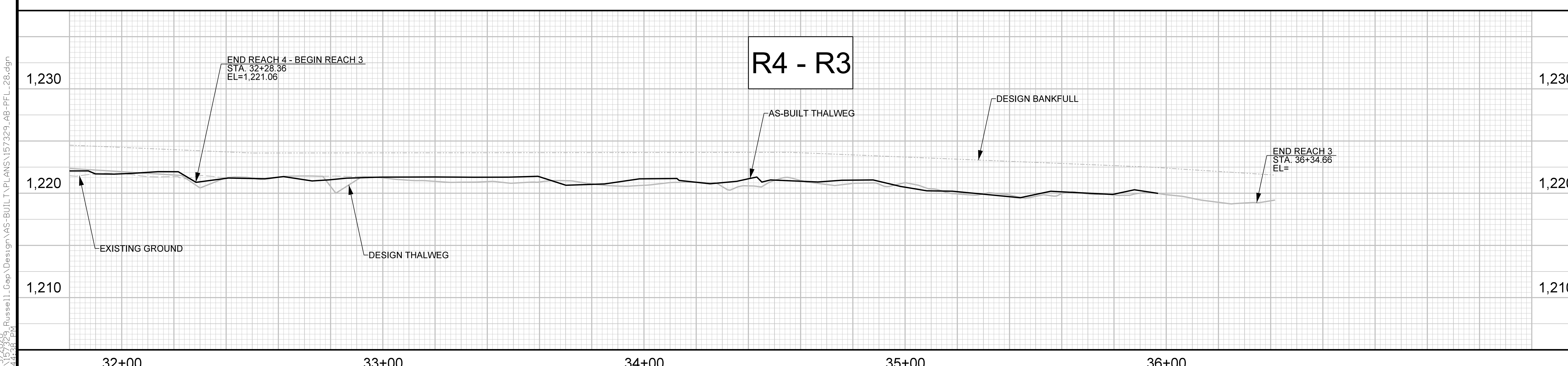
License #: F-1084

NCDMS ID NO. 100003

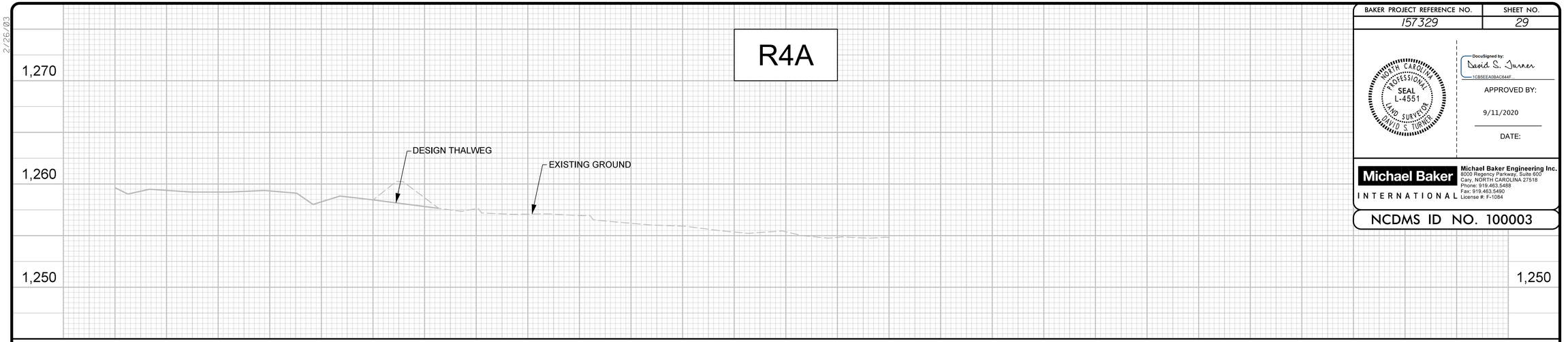




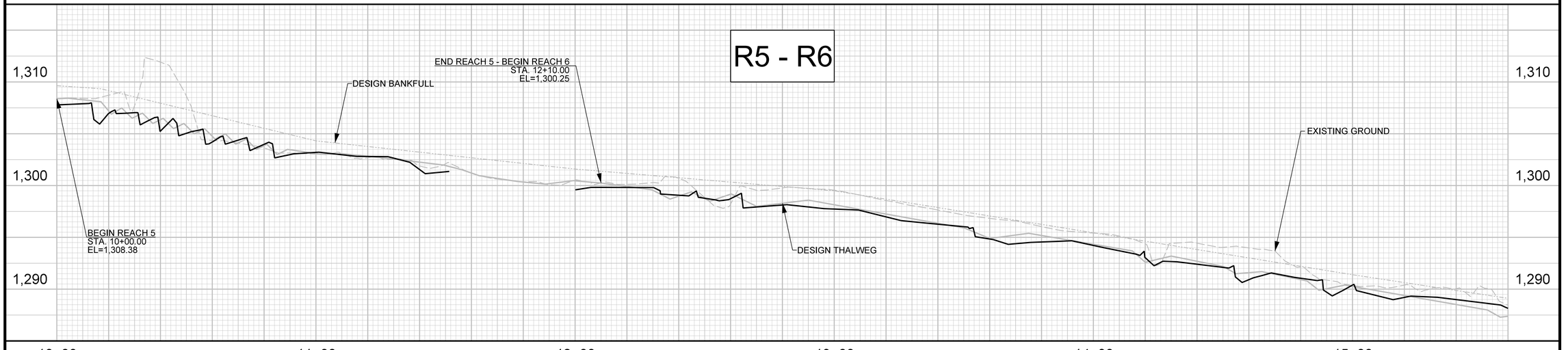


2/26/03

R4A



R5 - R6



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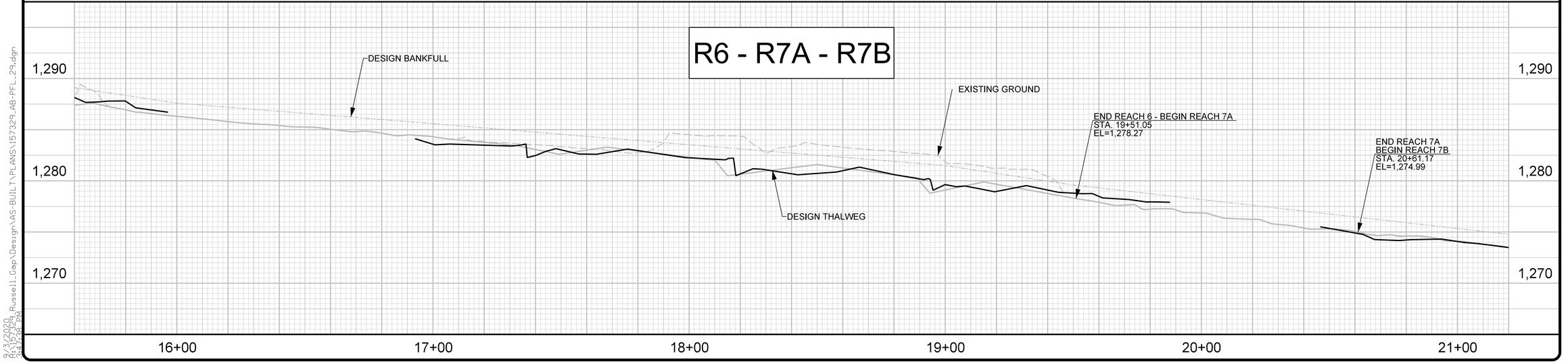

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	29

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC644F...

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BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	30

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

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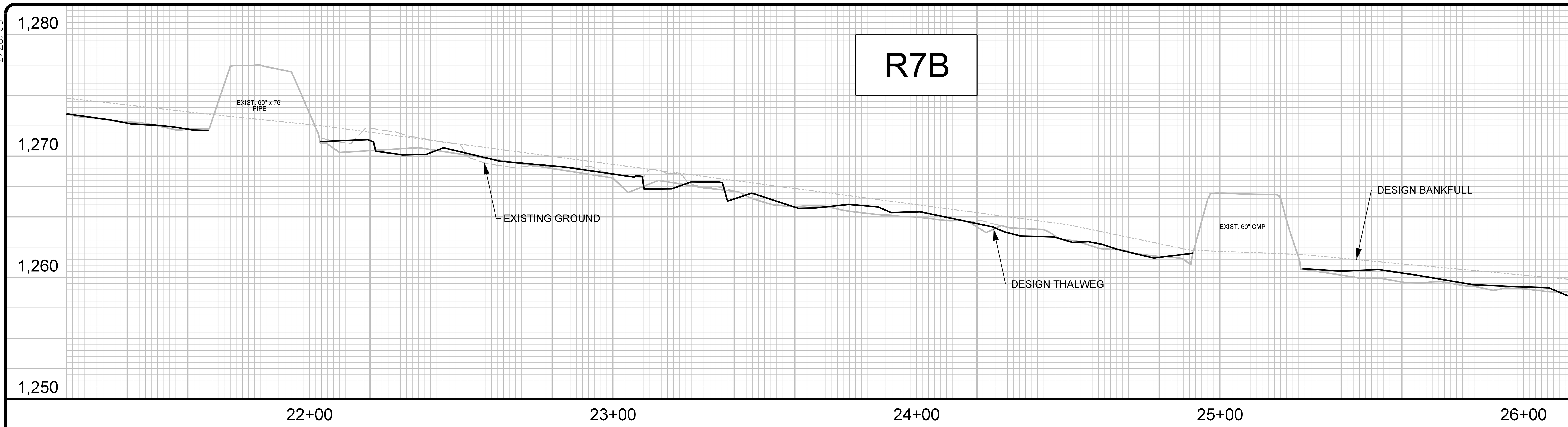
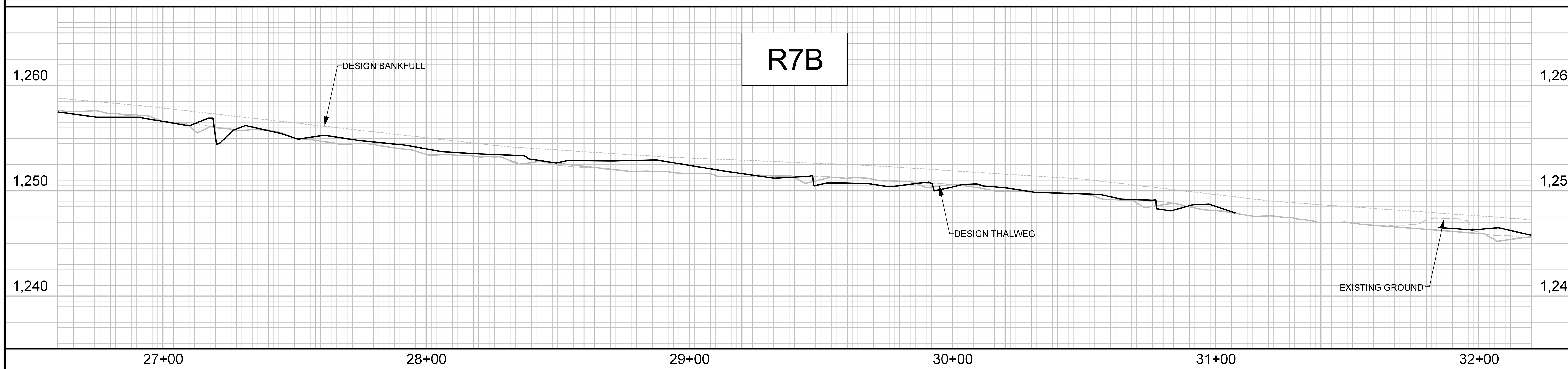
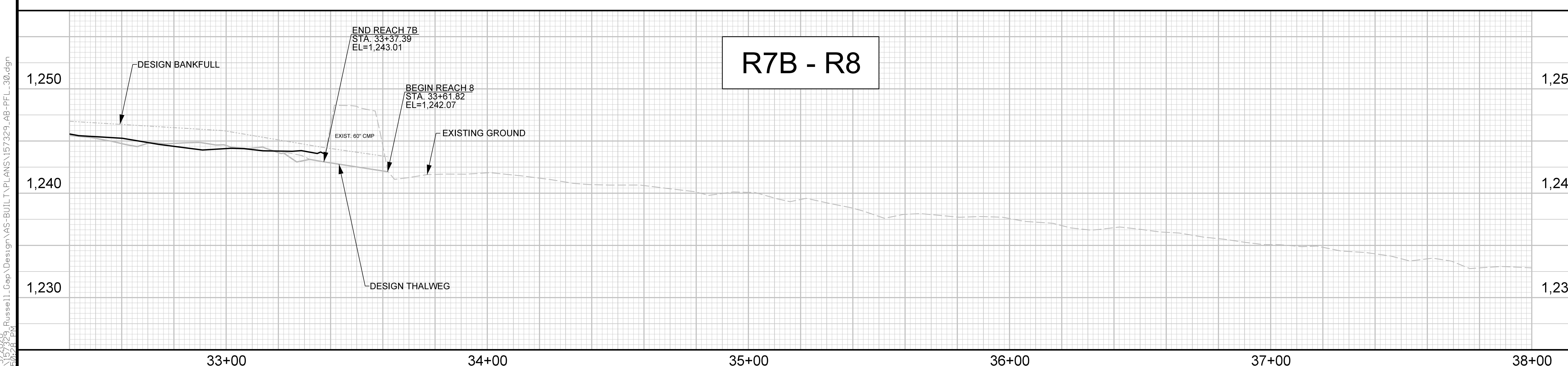




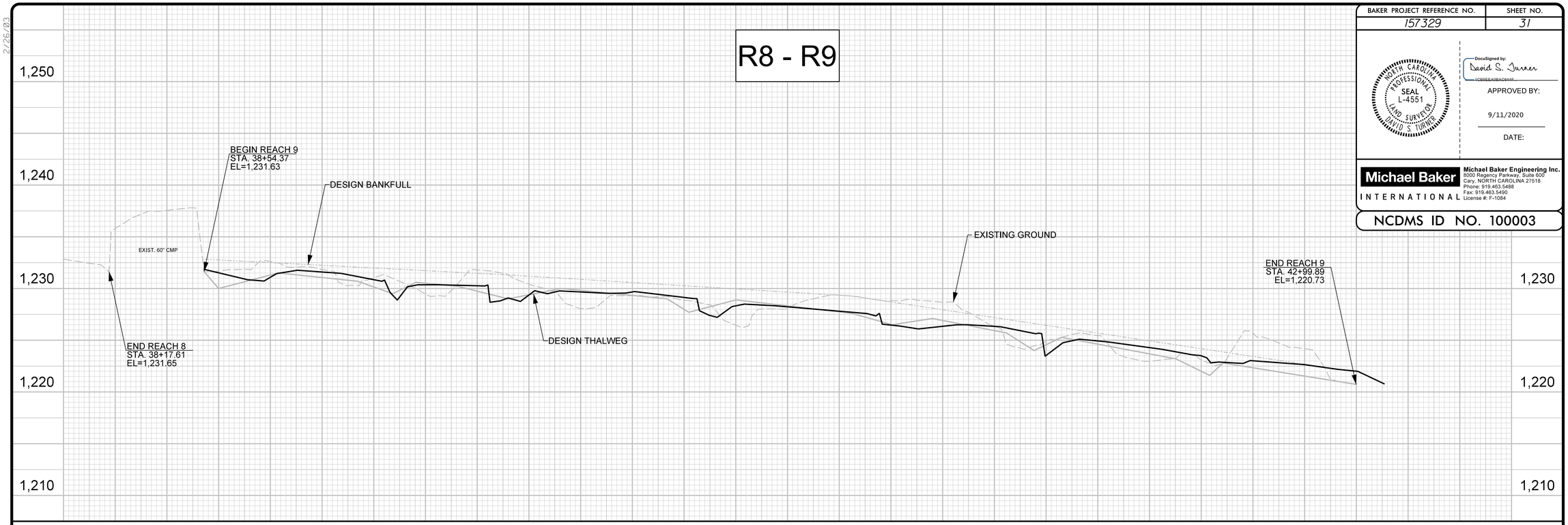


2/26/03

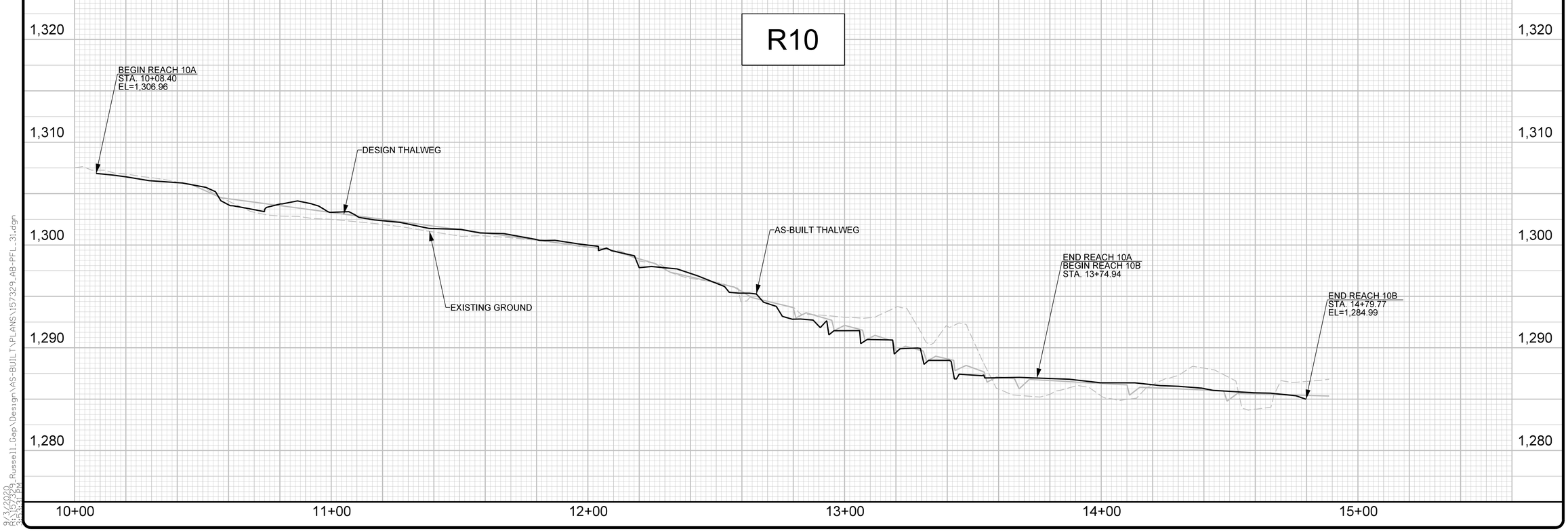
9/3/2020 R:\157329_Russell_Gap\Design\AS-BUILT\PLANS\157329_AB-PFL_30.dgn 3:50:28 PM

2/26/03

R8 - R9



R10



BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	31

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA0BAC644F...

APPROVED BY:

9/11/2020

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License #: F-1084

NCDMS ID NO. 100003

BAKER PROJECT REFERENCE NO.	SHEET NO.
157329	32

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

DocuSigned by: David S. Turner 1CB5EEA08AC644F...

APPROVED BY:

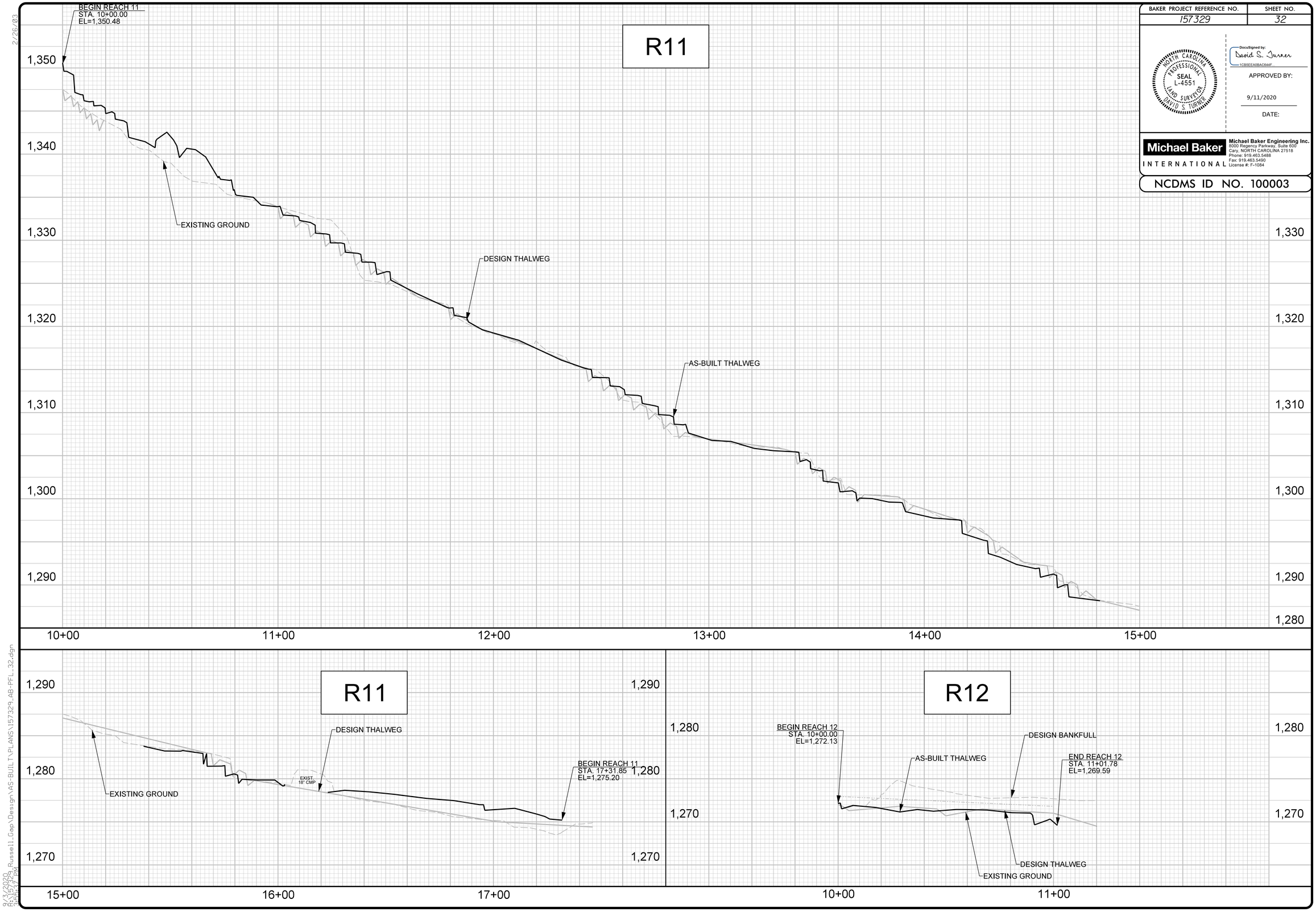
9/11/2020

DATE:

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
8000 Regency Parkway, Suite 600
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490
License #: F-1084

NCDMS ID NO. 100003

2/26/03



9/3/2020
8:35:13 AM
Russell Gap\Design\AS-BUILT\PLANS\157329_AB-PFL_32.dgn
jbrown

2/26/03

R13 - R14

BEGIN REACH 13
STA. 10+00.00
EL=1,317.51

DESIGN BANKFULL

DESIGN THALWEG

EXISTING GROUND

END REACH 13 - BEGIN REACH 14
STA. 11+45.00
EL=1,307.54

AS-BUILT THALWEG

1,320 1,310 1,300 1,290 1,280 1,270

10+00 11+00 12+00 13+00 14+00 15+00

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R14

EXISTING GROUND

AS-BUILT THALWEG

DESIGN BANKFULL

DESIGN THALWEG

END REACH 14
STA. 17+15.03
EL=1,268.30

1,280 1,270 1,260

16+00 17+00

R15

BEGIN REACH 15
STA. 10+00.00
TIE TO EXISTING

EXISTING GROUND

EXIST. PIPE

AS-BUILT THALWEG

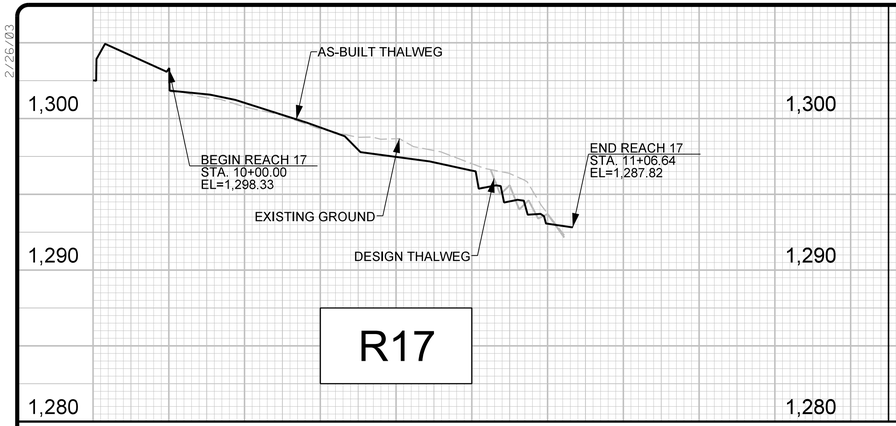
DESIGN THALWEG

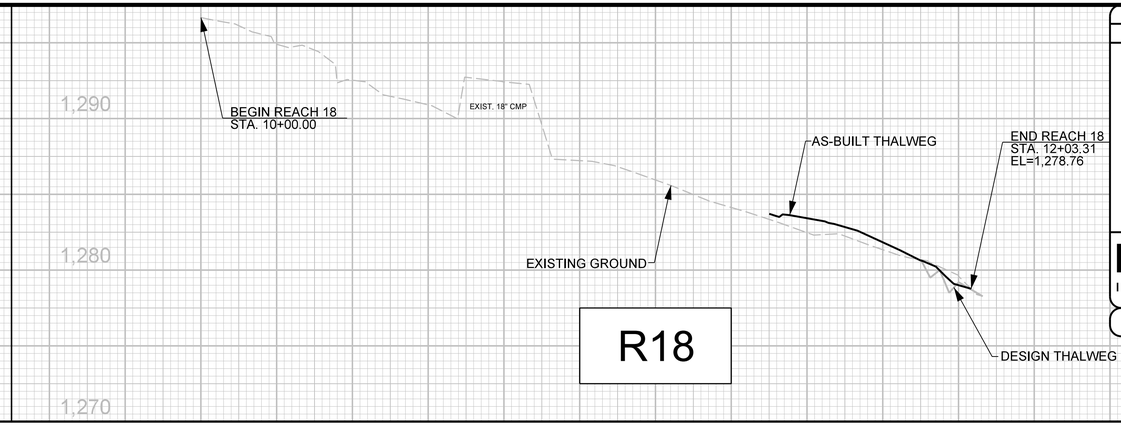
END REACH 15
STA. 13+03.45
EL=1,232.72

1,260 1,250 1,240 1,230 1,220

10+00 11+00 +40 12+00 13+00

2/26/03





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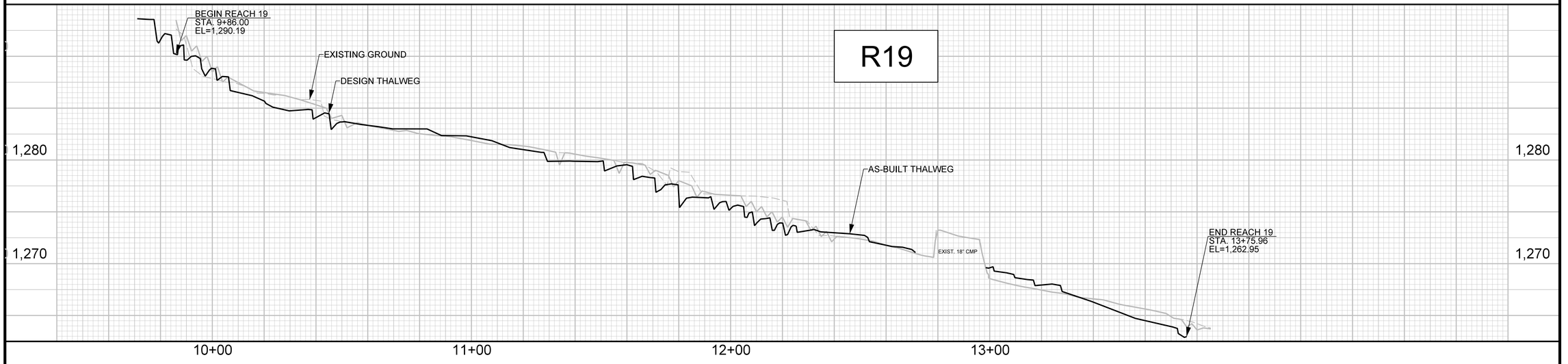

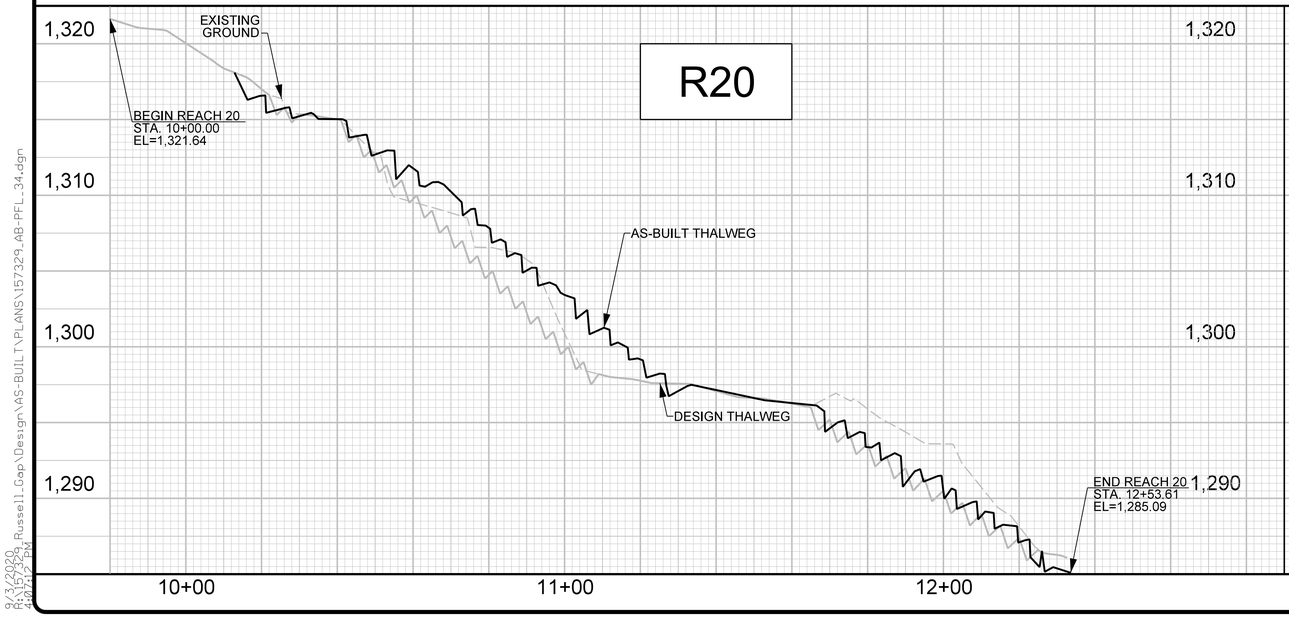

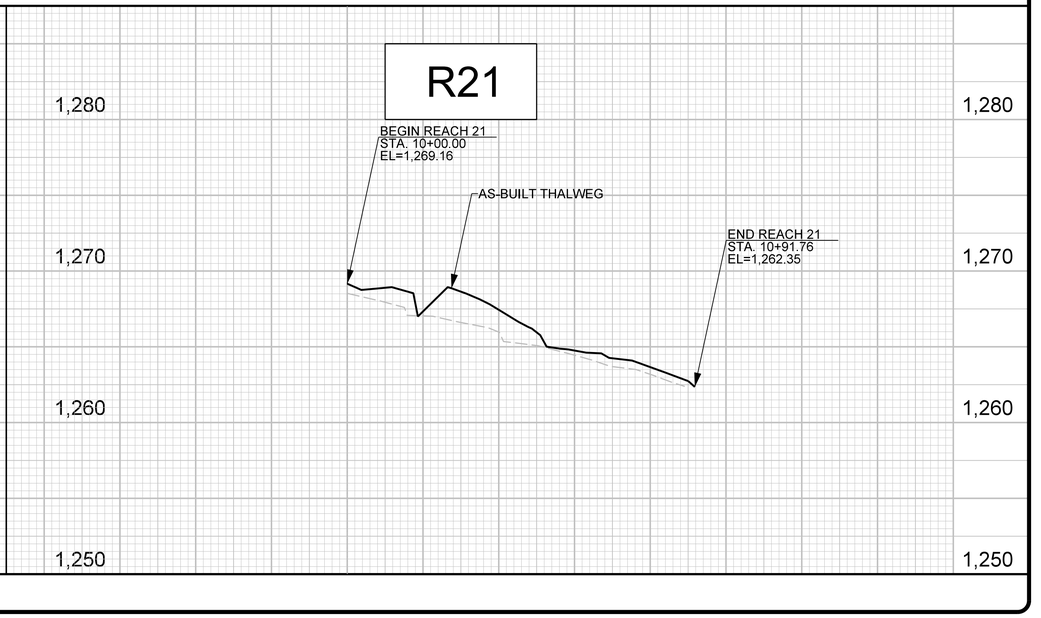

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2/26/03

R22

BEGIN REACH 22
STA. 10+00.00
EL=1,255.96

AS-BUILT THALWEG

END REACH 22
STA. 11+19.46
EL=1,246.28

R22A

BEGIN REACH 22A
STA. 10+00.00
EL=1,254.95

AS-BUILT THALWEG

END REACH 22A
STA. 11+28.42
EL=1,253.61

R25

AS-BUILT THALWEG

DESIGN THALWEG

BEGIN REACH 25
STA. 10+00.00
EL=1,283.85

EXISTING GROUND

END REACH 25
STA. 14+30.52
EL=1,244.07

1,290
1,280
1,270
1,260
1,250
1,240
1,230

10+00
11+00
12+00
13+00
14+00

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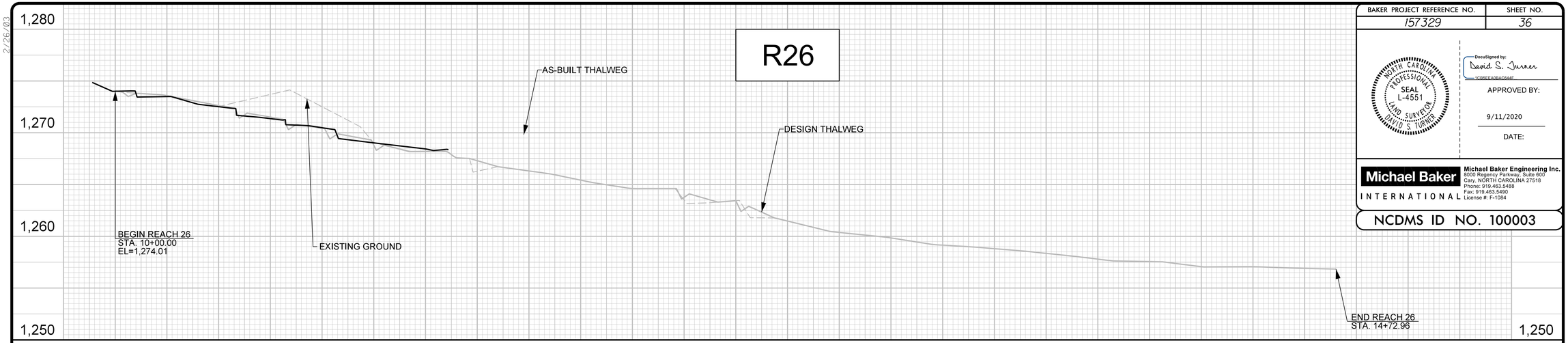
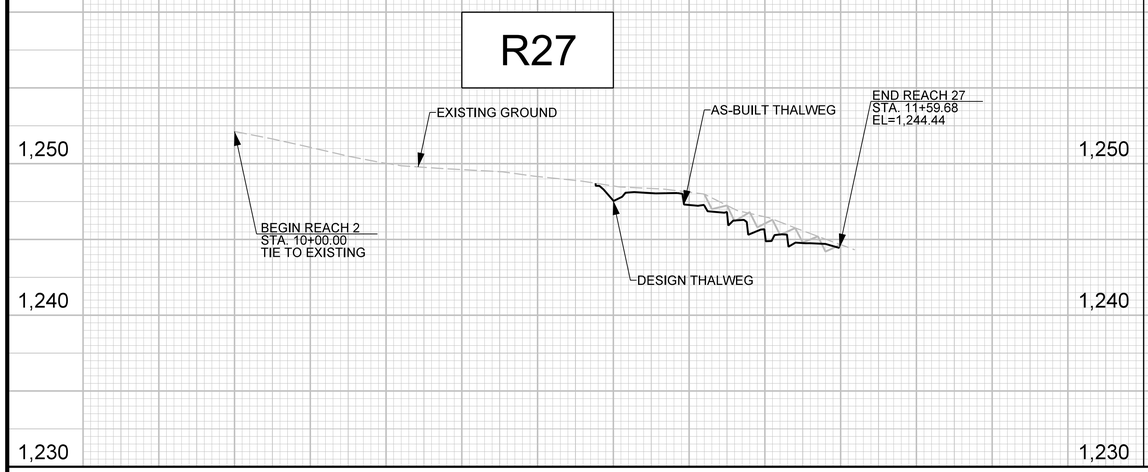
R26



R27



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