| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-5145 | 4 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG
DocuSigned by: Andrew P. Young
EF21D92DD62F4EF
5/9/2018

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK F. FLEMING
DocuSigned by: Frank F. Fleming
81DD721AA9F4A46
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ECOLOGICAL ENGINEERING

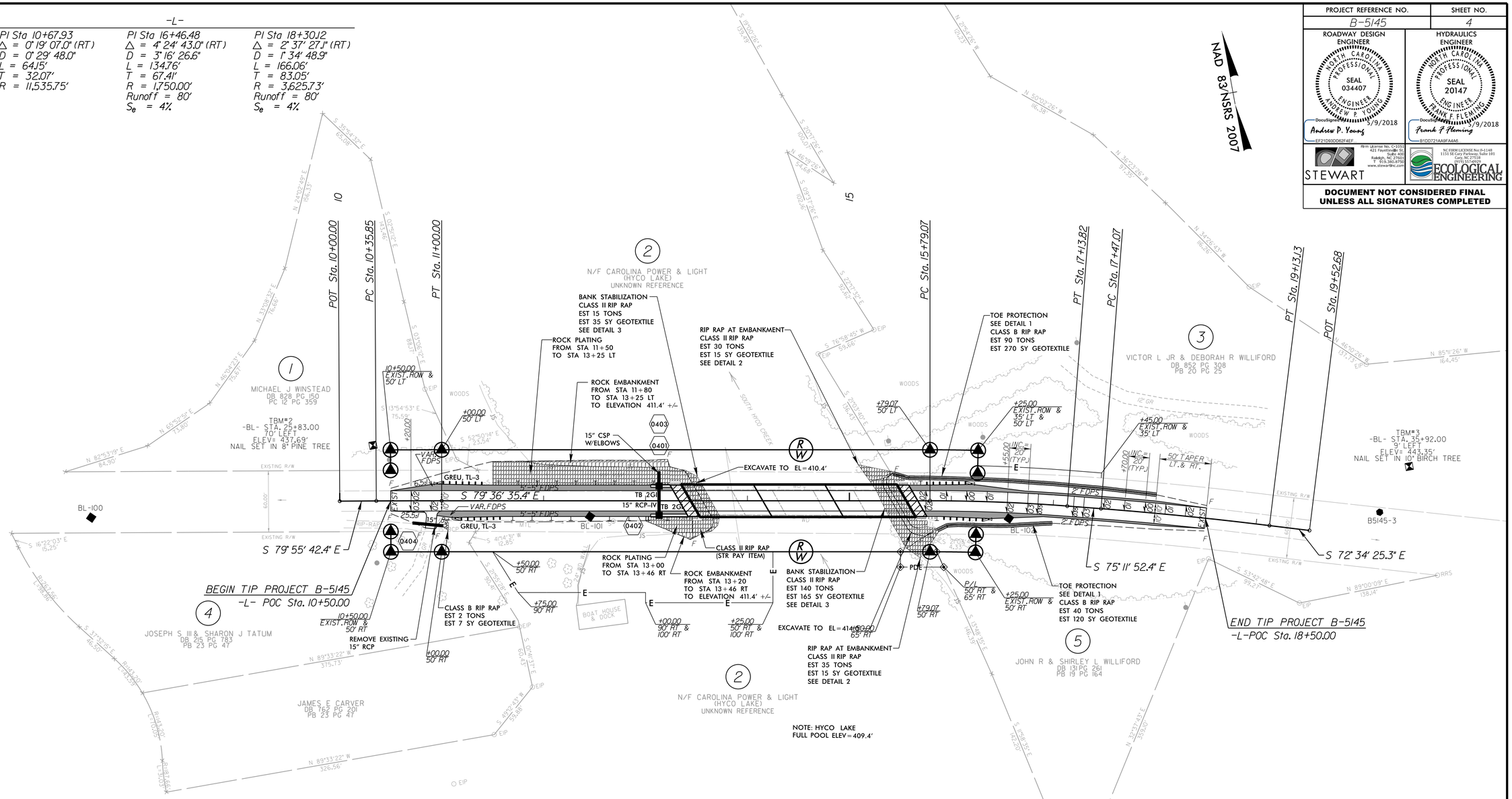
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

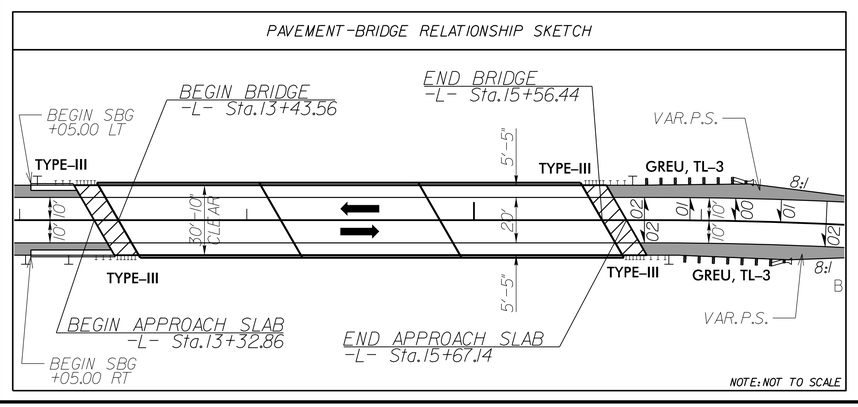
REVISIONS

5/14/99

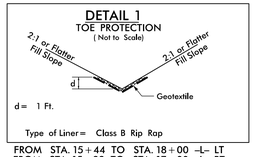
-L-

| PI Sta 10+67.93 | PI Sta 16+46.48 | PI Sta 18+30.12 |
|---|---|---|
| Δ = 0° 19' 07.0" (RT) | Δ = 4° 24' 43.0" (RT) | Δ = 2° 37' 27.1" (RT) |
| D = 0° 29' 48.0" | D = 3° 16' 26.6" | D = 1° 34' 48.9" |
| L = 641.5' | L = 134.76' | L = 166.06' |
| T = 321.07' | T = 67.41' | T = 83.05' |
| R = 11,535.75' | R = 1,750.00' | R = 3,625.73' |
| | Runoff = 80' | Runoff = 80' |
| | $S_e$ = 4% | $S_e$ = 4% |




**DETAIL 1**
TOE PROTECTION
( Not to Scale)

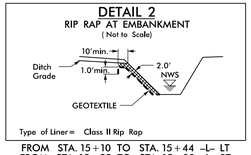



d= 1 Ft.

Type of Liner= Class B Rip Rap

FROM STA. 15+44 TO STA. 18+00 -L- LT
FROM STA. 15+88 TO STA 17+00 -L- RT

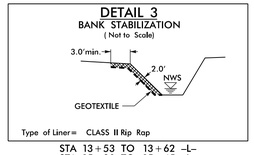
**DETAIL 2**
RIP RAP AT EMBANKMENT
( Not to Scale)




Type of Liner= Class II Rip Rap

FROM STA. 15+10 TO STA. 15+44 -L- LT
FROM STA. 15+55 TO STA. 15+88 -L- RT

**DETAIL 3**
BANK STABILIZATION
( Not to Scale)




Type of Liner= CLASS II Rip Rap

STA 13+53 TO 13+62 -L-
STA 15+30 TO 15+45 -L-

ALL DRIVEWAY RADII ARE 5' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEET 5

FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-22

5/1/2018
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