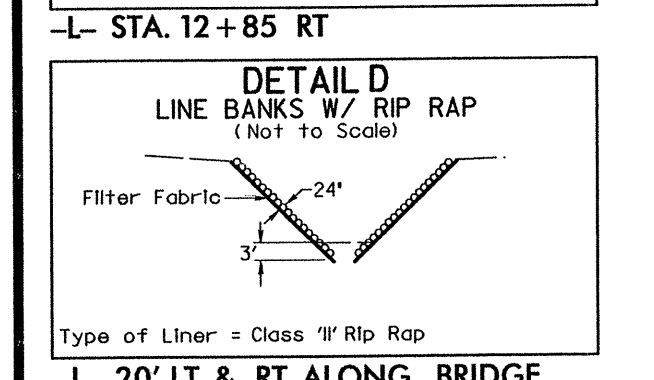
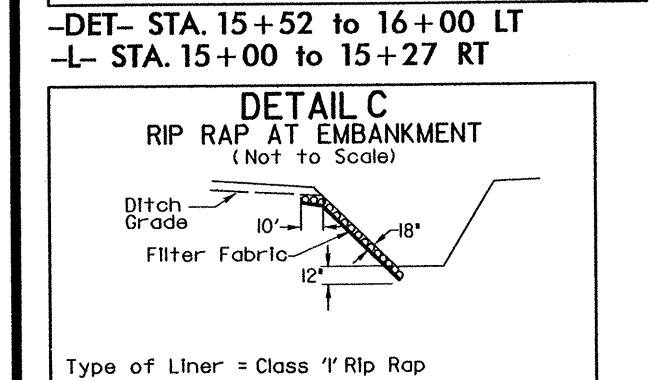
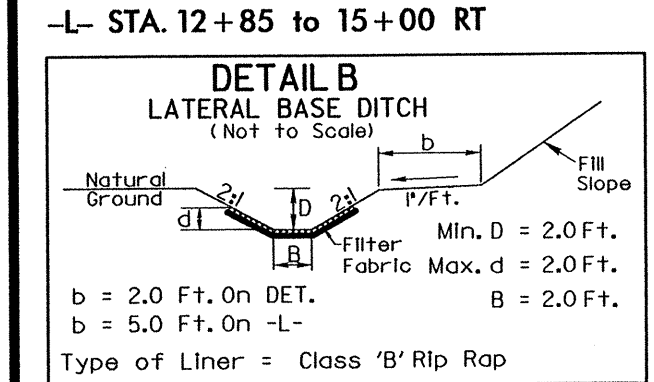
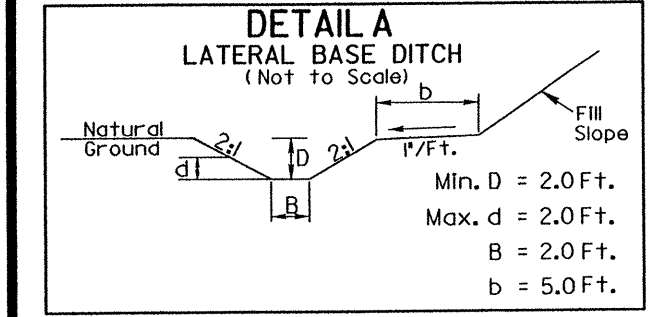


8/17/99

PI Sta 10+67.30 PI Sta 15+31.53
 $\Delta = 6' 09'' 06.6''$ (LT) $\Delta = 3' 44'' 49.1''$ (RT)
 $D = 4' 34'' 28.4''$ $D = 22' 04'' 57.7''$
 $L = 134.48'$ $L = 157.35'$
 $T = 67.30'$ $T = 81.18'$
 $R = 1,252.49'$ $R = 2,592.46'$



-L- STA. 12+85 TO 15+00 RT
 -L- STA. 15+00 TO 15+27 RT
 -L- STA. 12+85 RT
 -L- 20' LT & RT ALONG BRIDGE ON BOTH SIDES OF STREAM

PI Sta 10+21.36 PI Sta 10+80.25 PI Sta 11+47.93 PI Sta 14+77.86
 $\Delta = 1' 57'' 14.4''$ (LT) $\Delta = 4' 08'' 35.6''$ (LT) $\Delta = 3' 56'' 43.6''$ (RT) $\Delta = 3' 44'' 49.0''$ (RT)
 $D = 4' 34'' 28.4''$ $D = 5' 17'' 44.0''$ $D = 5' 17'' 45.0''$ $D = 5' 17'' 44.8''$
 $L = 42.71'$ $L = 71.81'$ $L = 64.48'$ $L = 60.64'$
 $T = 21.36'$ $T = 37.53'$ $T = 33.41'$ $T = 31.29'$
 $R = 1,252.49'$ $R = 100.00'$ $R = 100.00'$ $R = 100.00'$
 $D.S. = N/A$ $D.S. = 15$ mph $D.S. = 15$ mph $D.S. = 15$ mph
 $Se = N/A$ $Se = 0.02$ $Se = 0.02$ $Se = 0.02$

BM* 1 Elevation = 2101.34'
 $N = 595092.4940$ $E = 945899.6210$
 -BL- Sta. 5+82.34 17.79' Right
 8" NAIL SET IN ROOT OF 24" BEECH TREE. 16' +/- SOUTH OF THE CENTERLINE OF A 20' GRAVEL ROAD SR-1212 (OLD HOMESTEAD ROAD).

BM* 2 Elevation = 2087.09'
 $N = 595569.9510$ $E = 946017.5580$
 -BL- Sta. 12+51.48 105.17' Left
 8" NAIL SET IN ROOT OF 12" WILD CHERRY. 90' +/- NORTHEAST OF THE CENTERLINE OF SR-1212. 45' +/- FROM THE NORTHEAST CORNER OF A BRIDGE.

Q -L- STA. 12+96.30
 1 @ 45'
 2" CORED SLAB
 SKEW = 120°
 G.P. ELEV. = 2089.15'

PI = 13+50.00
 $EL = 2,089.50'$
 $VC = 60'$
 $K = 62$

BRIDGE HYDRAULIC DATA
 45' - 2" CORED SLAB BRIDGE

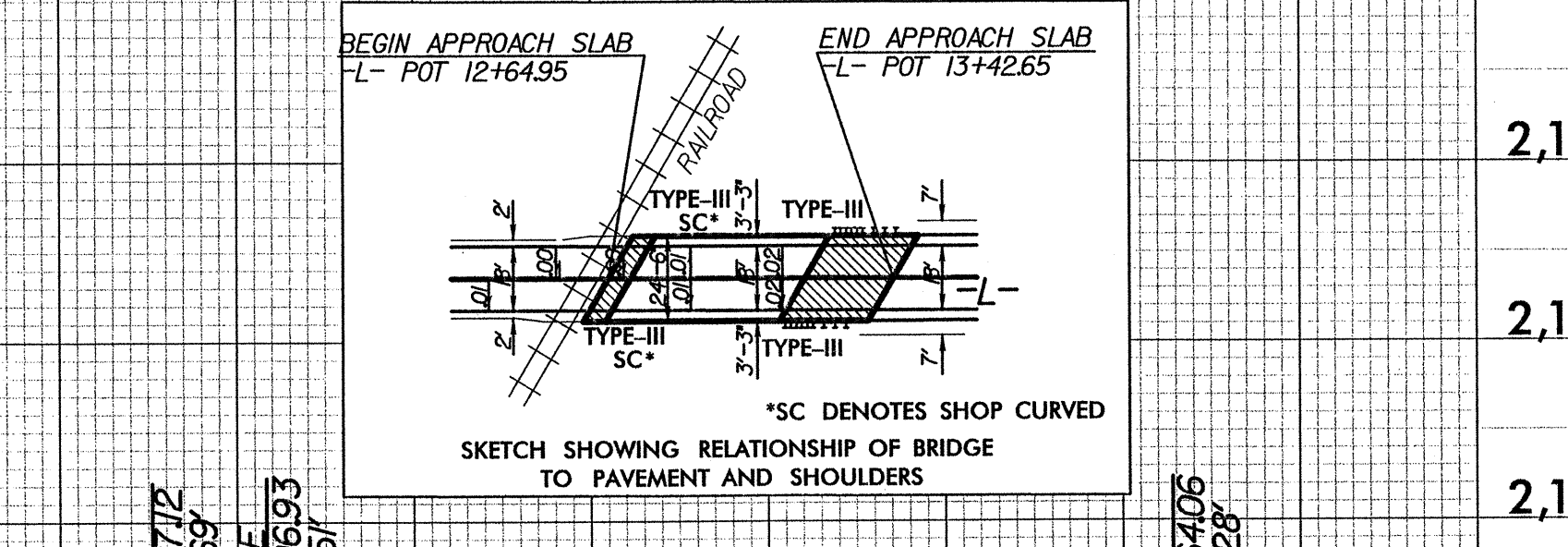
DRAINAGE AREA = 4.4 MI²
 DESIGN DISCHARGE = 1240 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 2088.20 FT
 100 YEAR DISCHARGE = 1900 CFS
 100 YEAR HW ELEVATION = 2089.90 FT
 OVERTOPPING DISCHARGE = 1460 CFS
 OVERTOPPING FREQUENCY = 50+ YRS
 OVERTOPPING ELEVATION = 2089.00 FT
 DATE OF SURVEY = 08/24/02
 W.S. ELEVATION AT DATE OF SURVEY = 2080.60 FT

PIPE HYDRAULIC DATA
 30" RCP

DRAINAGE AREA = 13.2 AC
 DESIGN FREQUENCY = 25 YRS
 DESIGN DISCHARGE = 17.4 CFS
 DESIGN HW ELEVATION = 2088.1 FT
 100 YEAR DISCHARGE = 27.8 CFS
 100 YEAR HW ELEVATION = 2088.9 FT
 OVERTOPPING FREQUENCY = 100++ YRS
 OVERTOPPING DISCHARGE = 37.0 CFS
 OVERTOPPING ELEVATION = 2089.6 FT

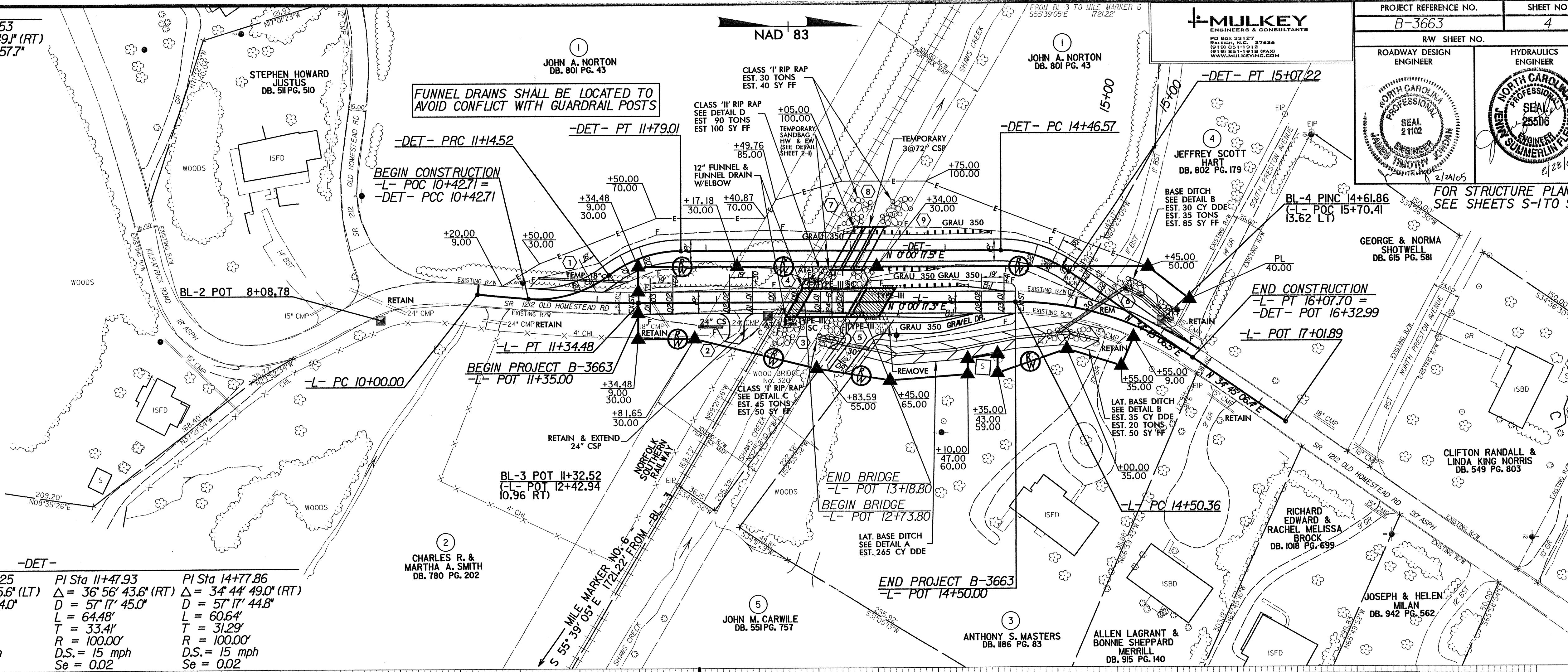
PIPE HYDRAULIC DATA
 3 @ 72" CSP

DRAINAGE AREA = 4.4 MI²
 DESIGN FREQUENCY = 5 YRS
 DESIGN DISCHARGE = 660 CFS
 DESIGN HW ELEVATION = 2087.2 FT
 100 YEAR DISCHARGE = 1900 CFS
 100 YEAR HW ELEVATION = 2090.5 FT
 OVERTOPPING FREQUENCY = 5+ YRS
 OVERTOPPING DISCHARGE = 750 CFS
 OVERTOPPING ELEVATION = 2088.1 FT



10+00 11+00 12+00 13+00 14+00 15+00 16+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00

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MULKEY ENGINEERS & CONSULTANTS
 3312 RALPH, N.C. 27686
 919-881-1812 FAX
 WWW.MULKEYINC.COM

PROJECT REFERENCE NO. B-3663 SHEET NO. 4
 RAW SHEET NO.
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 21102
 NORTH CAROLINA PROFESSIONAL SEAL 25506
 FOR STRUCTURE PLANS SEE SHEETS S-1 TO S-15

STEPHEN HOWARD JUSTUS DB. 51 PG. 510
 JOHN A. NORTON DB. 801 PG. 43
 JOHN A. NORTON DB. 801 PG. 43
 JEFFREY SCOTT HART DB. 802 PG. 179
 GEORGE & NORMA SHOTWELL DB. 615 PG. 581
 CLIFTON RANDALL & LINDA KING NORRIS DB. 549 PG. 803
 RICHARD EDWARD & RACHEL MELISSA BROCK DB. 1018 PG. 699
 JOSEPH & HELEN MILAN DB. 942 PG. 562
 ALLEN LAGRANT & BONNIE SHEPPARD MERRILL DB. 915 PG. 140

FUNNEL DRAINS SHALL BE LOCATED TO AVOID CONFLICT WITH GUARDRAIL POSTS

BEGIN CONSTRUCTION
 -L- POC 10+42.71 =
 -DET- PCC 10+42.71

BEGIN PROJECT B-3663
 -L- POT 11+35.00

END PROJECT B-3663
 -L- POT 14+50.00

END CONSTRUCTION
 -L- PT 16+07.70 =
 -DET- POT 16+32.99

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