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8/17/99

REVISIONS

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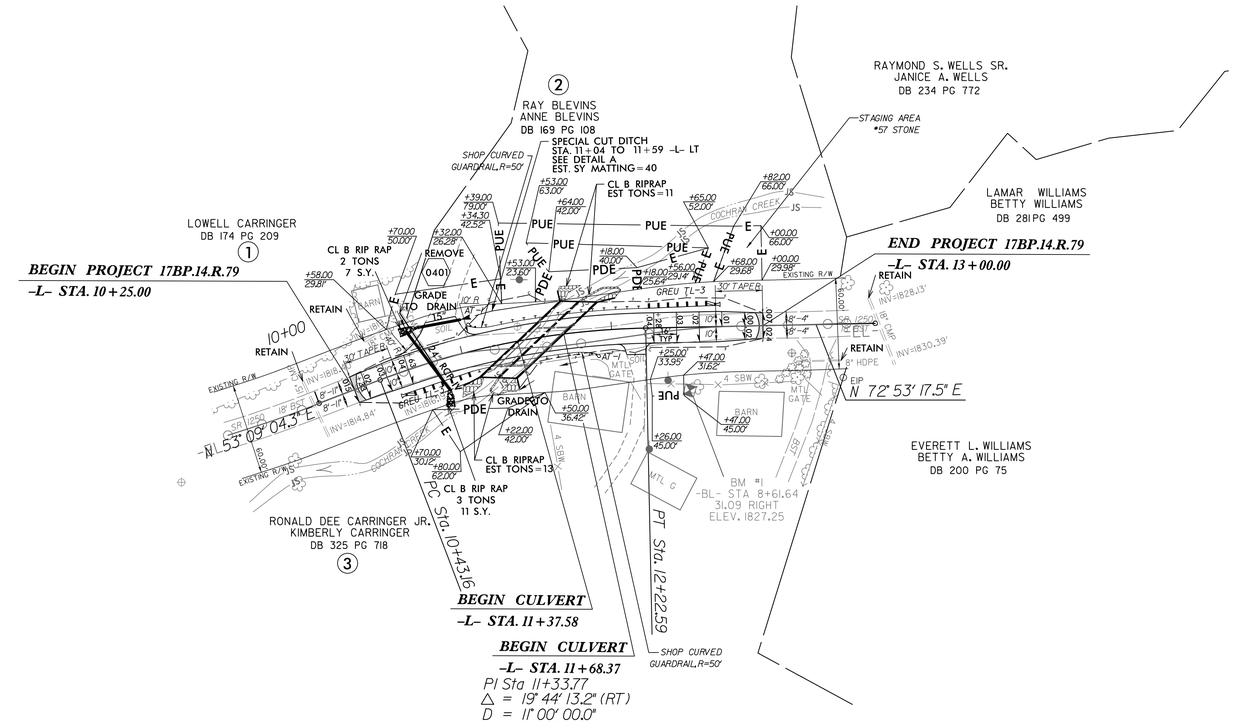
www.wspgroup.com
LICENSE NO. F-0165

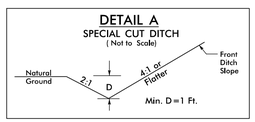
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.79	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONNELL A. THIGPEN
DocuSigned by: Ronnell Thigpen 1/2/2019

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27876 ENGINEER RANA STANSELL
DocuSigned by: Rana Stansell 1/2/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





FROM STA. 11+04 TO STA. 11+59 -L- LT

REFERENCE STRUCTURE PLANS C-1 THRU C-11

DETAIL C – SF-370087

(NOT TO SCALE)

SKEWED MULTI-BARREL CULVERT LOW FLOW CHANNEL, SILLS AND FLOOD PLAIN

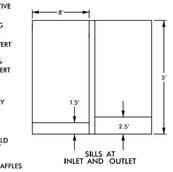
*NOTES:

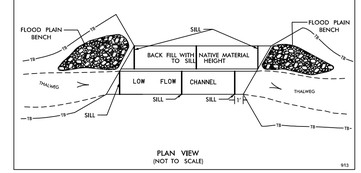
1) NATIVE MATERIAL BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN DURING CULVERT BARREL BEING CONSTRUCTED. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

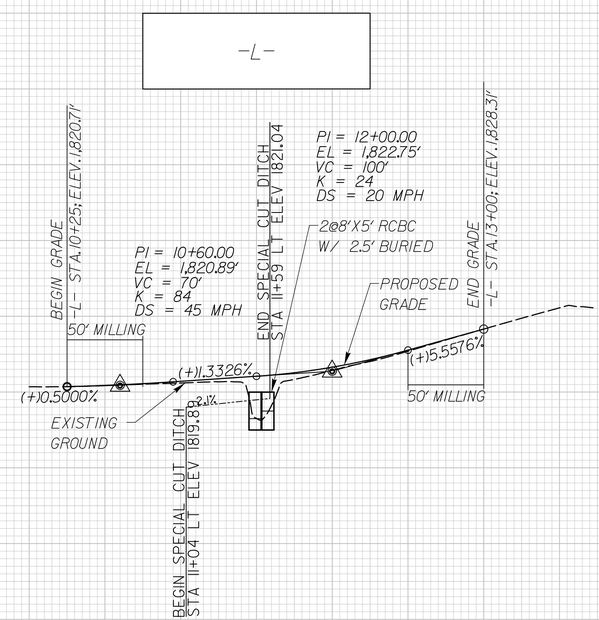
2) SILLS/BAFFLES ARE TO CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS/BAFFLES SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILL/BAFFLES ABOVE BANK FULL.







BM #1: *8 INCH SPIKE SET IN BASE OF 36 INCH WALNUT TREE* 41.83' RIGHT OF -L- STA. 12+50.78 ELEV: 1827.25'

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 380	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 1821.6	FT
BASE DISCHARGE	= 1000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1824.09	FT
OVERTOPPING DISCHARGE	= 450	CFS
OVERTOPPING FREQUENCY	= 5 +	YRS
OVERTOPPING ELEVATION	= 1822.4	FT
DATE OF SURVEY	= 02/27/14	
W.S. ELEVATION AT DATE OF SURVEY	= 1817.3	FT
BASE FEMA DISCHARGE	1210	CFS
BASE FEMA FREQUENCY	= 100	YRS
BASE FEMA HW ELEVATION	= 1824.61	FT

1/2/2019
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