

**SITE DATA**

County ROCKINGHAM SR 2041 (PARKLAND RD.) Bridge Over TRIBUTARY TO WOLF ISLAND CREEK  
 Drainage Area 1.7 SQ. MI. Source USGS QUAD (REIDSVILLE) Character RURAL  
 River Basin ROANOKE  
 Stream Classification (Such as Trout, High Quality Water, etc.) C

Proposed Structure 22'-3" X 7'-3" ALUM. BOX W/CONCRETE HW Sta. 14+15.5 -L- Skew 67°  
 Existing Structure 2 @ 72" CMP  
 Existing Structures Up and Down Stream US: NO UPSTREAM STRUCTURE  
DS: CONFLUENCE WITH WOLF ISLAND CREEK

**Historical Flood Information:**

Date Elev. Est. Freq. Source  
 Date Elev. Est. Freq. Source

Channel Slope 0.007 Source FIELD SURVEY Normal Water Surface Elev. 683.9  
 Manning's n: Left O.B. 0.1 Channel 0.045 Right O.B. 0.1 Source FIELD INVESTIGATION  
 Flood Study / Status NO STUDY Floodway Established? NO

**CULVERT DESIGN DATA**

Hydrological Method USGS URBAN REGRESSION SIR 2014-5030  
 Hydraulic Design Method HDS 5

Size & Type	Inlet Control				Outlet Control				Remarks			
	0	K <sub>e</sub>	H <sub>w/D</sub>	H <sub>w</sub>	dc	$\frac{dc+D}{2}$	h <sub>o</sub>	H		LS <sub>o</sub>	H <sub>w</sub>	H <sub>w</sub> ELEV.
EX. 2@72" CMP	885	0.9	2.2	13.4	5.5	5.8	5.8	9.0	0.4	14.4	697.0	O.C. - 25YR
22'-3" X 7'-3" ABC	885	0.5	1.1	6.4	3.8	4.9	5.8	2.1	0.4	7.5	690.4	I.C. - 25YR

Design Control MAINTAIN OR IMPROVE LOS  
 Outlet Velocity (V<sub>10</sub>) 8.6 FPS  
 Required Outlet Protection CLASS II RIP RAP

**PROJECT DESCRIPTION**  
 REPLACE STRUCTURE 2153 OVER TRIB. TO WOLF ISLAND CREEK  
 ON SR 2041 (PARKLAND RD.)  
 LAT.=36.363331 LONG.=-79.700997

**PROJECT REFERENCE NO.**  
 17BP.7.C.3

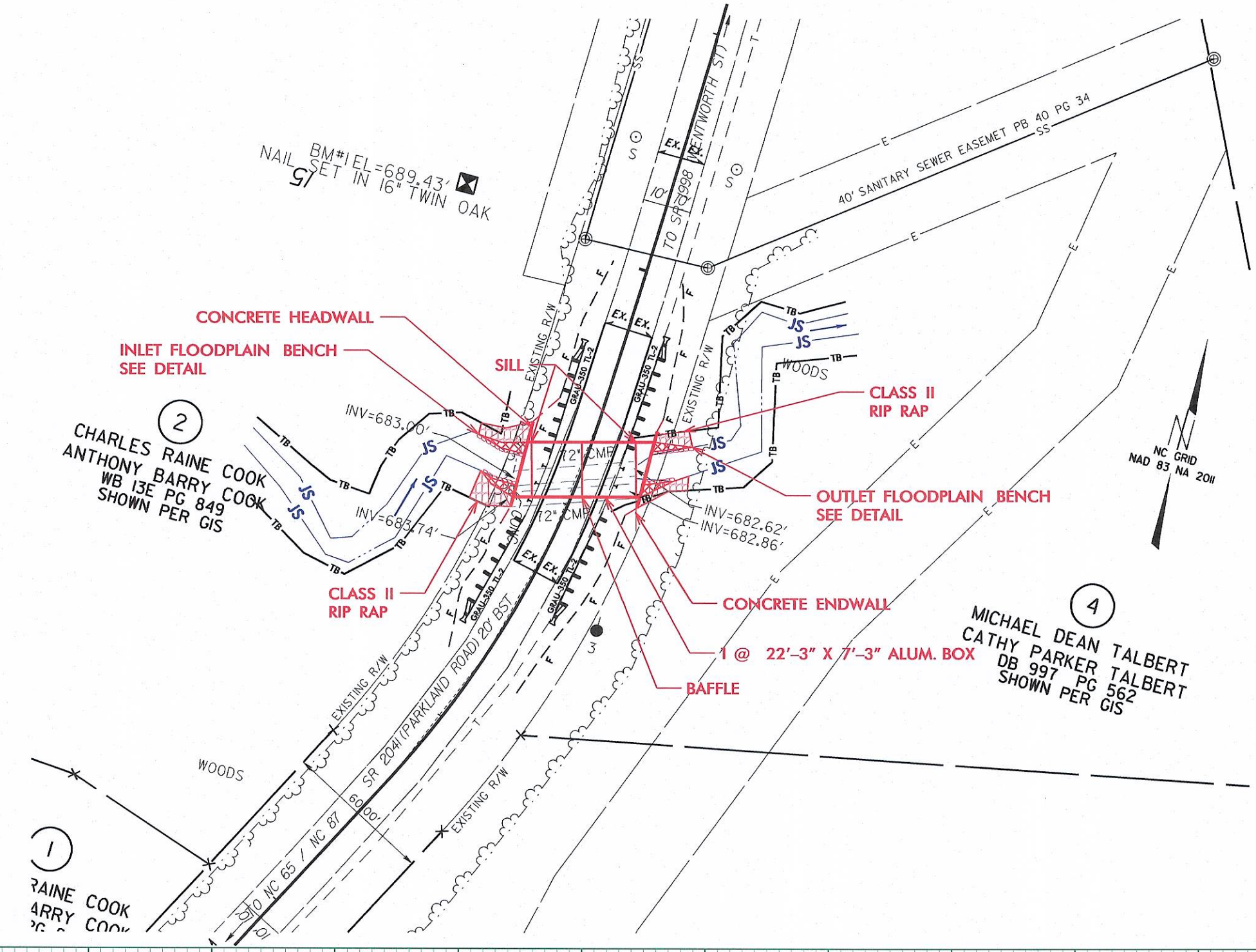
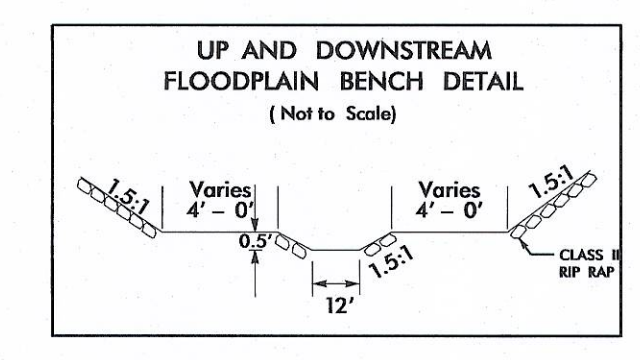
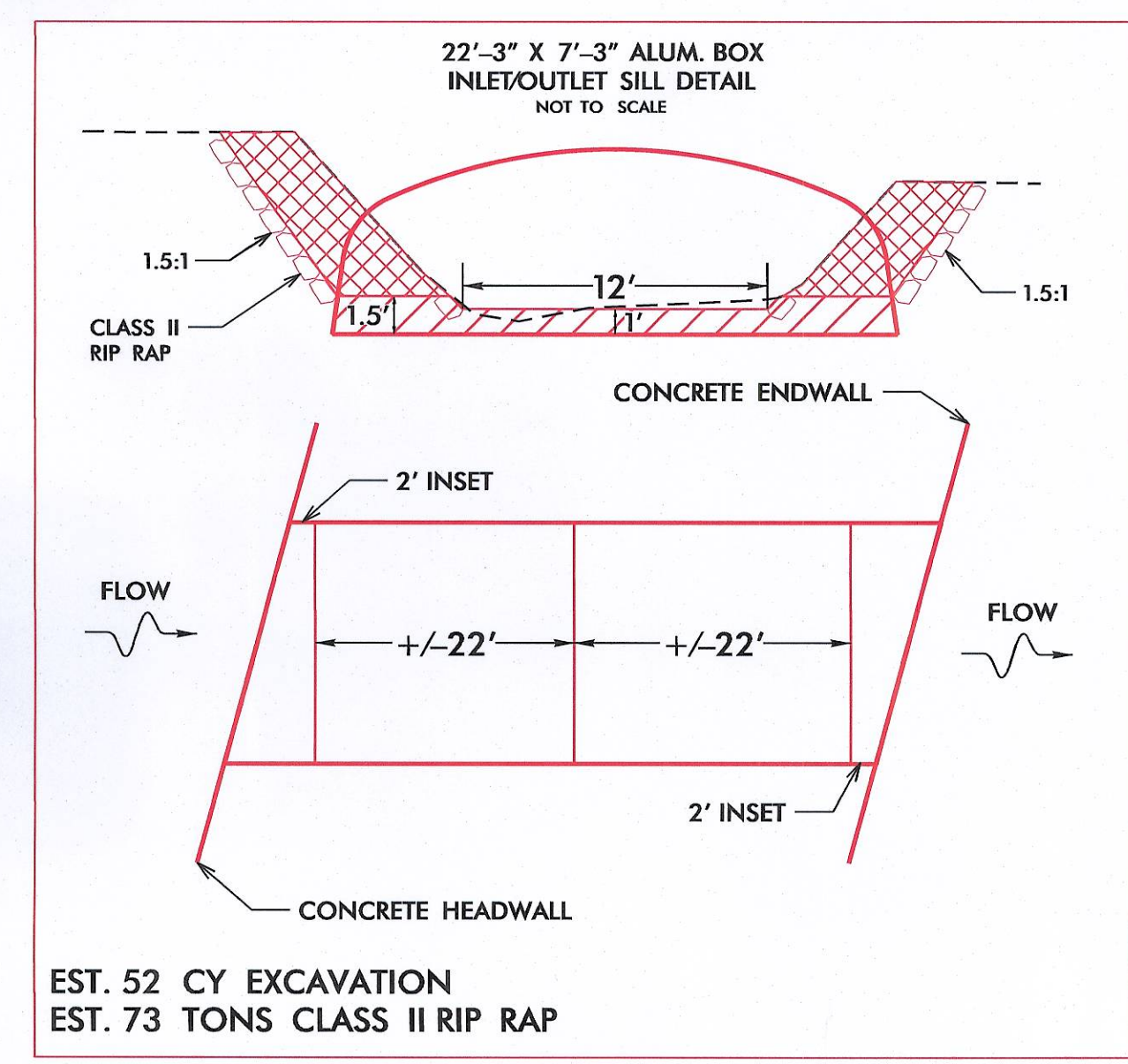
**HYDRAULICS ENGINEER**

SCALE:  
**1" = 50' HORIZ**      **1" = 10' VERT.**

**COMPUTATIONS**  
 URBAN REGRESSION  
 SIR 2014-5130  
 (10% IMPERVIOUS)

Q<sub>10</sub> = 381 (DA) 10 = 680  
 Q<sub>25</sub> = 518 (DA) 10 = 885  
 Q<sub>50</sub> = 632 (DA) 10 = 1050  
 Q<sub>100</sub> = 753 (DA) 10 = 1220

SURVEY BY: L & S  
 DESIGNED BY: CRL  
 DRAWN BY: CRL  
 CHECKED BY: M. Con  
 DATE: 12/11/17



NOTES:  
 BACKFILL SILLS WITH NATIVE MATERIAL THAT IS EXCAVATED FROM THE STREAM AT THE PROJECT SITE DURING CONSTRUCTION. NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL AND RIP RAP IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAYBE SUBJECT TO PERMIT CONDITIONS.

