

FEDERAL HIGHWAY ADMINISTRATION, Federal Lands Highway DAMAGE SURVEY REPORT (Title 23, Federal-Aid System/Federal Domain)				Sheet No: <u>1</u> of <u>6</u>	
				DSR No: <u>5046-0.10</u>	
				Disaster No: NC2004-1-FS	
Applicant: USDA Forest Service - Pisgah National Forest		County: Transylvania	State: NC	Inspection Date: 01/20/2005	
Location of Damage (Route No., Name of Road, Mile Post and Map Grid) 5046, Lanning Ridge Rd., MP 0.10, MG 3B				NFSR:	ADT: 35
Bridge Data:		Road Data:	Classification: ML 3		Photographs #: 5046-0.10-01, 5046-0.10-02, 5046-0.10-03, 5046-0.10-04, 5046-0.10-05, 5046-0.10-06
Type: Concrete	Traveled Way Width: 12'		Surface Type: Concrete	Thickness: 8"	
ID#: Unknown	Shoulder Width: 0'		Pre-Storm Condition: Good		
Description and Cause of Damage: Existing Bridge is a series of three 7' X 7' concrete box culverts side by side. They acted as a screen during high flow and collected logs and debris on the upstream side causing the bridge to be overtopped and scoured around. This debris jam backed up sediment for several hundred feet upstream and remains at a higher elevation than the existing deck today on the upstream side.			Scope/Description of Repair: Remove and dispose of as much upstream bedload and debris as possible. Reconstruct north approach w/surfacing Reconstruct concrete deck and wingwalls. Armor north abutments and wingwalls with riprap Seed disturbed areas		
COST ESTIMATE for EMERGENCY REPAIRS*					
Quantity	Unit	Item Description		Unit Price	Cost
Proposed: Force Account		Contract		Total Emergency Repairs	
COST ESTIMATE for PERMANENT REPAIRS*					
Quantity	Unit	Item Description		Unit Price	Cost
80	HR	Track Hoe		\$200.00	\$16,000
1000	CY	Remove and Dispose of bedload and debris (100')		\$25.00	\$25,000
250	TON	Place Select Borrow to reconstruct north approach fill		\$35.00	\$8,750
90	TON	Place aggregate on north approach fill - NCDOT ABC stone		\$25.00	\$2,250
40	CY	Structural Concrete to construct wingwalls and repair deck on north end		\$750.00	\$30,000
250	TON	Pit Run Riprap		\$50.00	\$12,500
250	TON	Class 2 Riprap		\$40.00	\$10,000
220	SY	Geotextile Fabric		\$8.00	\$1,760
800	SY	Seed all disturbed areas		\$5.00	\$4,000
200	LF	Silt fence		\$5.00	\$1,000
1	LS	Mobilization		\$5,000.00	\$5,000
Proposed: Force Account		Contract X		Total Permanent Repairs	
Identify Betterment, if any, and provide justification*				Preliminary Engineering	\$17,439
				Construction Engineering	\$11,626
				Right-of-Way	
				Other: Bonding 2.5%	\$2,907
				TOTAL ESTIMATED COST (Emergency and Permanent Repairs)	\$148,232
Submitted By: (Name and Title) Lynn L. Hicks, Forest Engineer			Signature: / X /		Date: July 6, 2005
Reviewed By: (Name and Title)		Eligible Ineligible	Signature:		Date:
Recommended By: (Name and Title)		Eligible Ineligible	Signature:		Date:

*Attach Supplemental Sheets if necessary

FEDERAL HIGHWAY ADMINISTRATION, Federal Lands Highway DAMAGE SURVEY REPORT (Title 23, Federal-Aid System/Federal Domain)				Sheet No: <u>2</u> of <u>6</u>		
				DSR No: <u>5046-0.10</u>		
				Disaster No: NC2004-1-FS		
Applicant: USDA Forest Service - Pisgah National Forest		County: Transylvania	State: NC	Inspection Date: 01/20/2005		
Location of Damage (Route No., Name of Road, Mile Post and Map Grid) 5046, Lanning Ridge Rd., MP 0.10, MG 3B				NFSR:	ADT: 35	
Bridge Data:		Road Data:	Classification: ML 3		Photographs #: 5046-0.10-01, 5046-0.10-02, 5046-0.10-03, 5046-0.10-04, 5046-0.10-05, 5046-0.10-06	
Type: Concrete	Traveled Way Width: 12'		Surface Type: Concrete	Thickness: 8"		
ID#: Unknown	Shoulder Width: 0'	Pre-Storm Condition: Good				
Description and Cause of Damage: Existing Bridge is a series of three 7' X 7' concrete box culverts side by side. They acted as a screen during high flow and collected logs and debris on the upstream side causing the bridge to be overtopped and scoured around. This debris jam backed up sediment for several hundred feet upstream and remains at a higher elevation than the existing deck today on the upstream side.			Scope/Description of Repair: Remove and dispose of remaining sections of old structure (May have historic values - check w/ Archy) Clean debris and sediment load out of channel as far upstream as Hydrologist and Fish Biologist will allow (100' would be nice). Install new single lane, single span, 60' concrete bridge (channel width), at a 4' to 6' higher deck elevation than the previous bridge. Construct new approaches, w/surfacing, to match the new bridge elevation (ramp up). Armor abutments and wingwalls with riprap Seed disturbed areas			
COST ESTIMATE for EMERGENCY REPAIRS*						
Quantity	Unit	Item Description		Unit Price	Cost	
Proposed: Force Account		Contract		Total Emergency Repairs		
COST ESTIMATE for PERMANENT REPAIRS*						
Quantity	Unit	Item Description		Unit Price	Cost	
40	HR	Track Hoe		\$200.00	\$8,000	
1	LS	Remove and Dispose of remaining sections of old bridge		\$5,000.00	\$5,000	
500	CY	Remove and Dispose of as much upstream bedload and debris as possible		\$25.00	\$12,500	
840	SF	Install new 60 foot span, single lane concrete bridge		\$210.00	\$176,400	
300	CY	Place Select Borrow for Approach Fills		\$10.00	\$3,000	
90	TON	Place aggregate to surface new approach fills - NCDOT ABC stone		\$25.00	\$2,250	
300	TON	Pit Run Riprap (>24")		\$50.00	\$15,000	
200	TON	Class 2 Riprap (9" - 23")		\$40.00	\$8,000	
270	SY	Geotextile Fabric		\$8.00	\$2,160	
800	SY	Seed all disturbed areas		\$5.00	\$4,000	
200	LF	Silt fence		\$5.00	\$1,000	
1	LS	Mobilization		\$5,000.00	\$5,000	
Proposed: Force Account		Contract X		Total Permanent Repairs		
<u>Identify Betterment, if any, and provide justification*</u> Replacement of the existing triple box culvert with a bridge is a betterment. The economic analysis on the following page shows that the long-term benefits of the betterment outweigh the initial construction cost. The existing structure will have many recurring problems in the future, given the tremendous amount of bedload buildup in this unstable stream. Replacing with a single span bridge will avoid future reconstruction and reduce long-term resource impacts to fish & water.				Preliminary Engineering		\$36,347
				Construction Engineering		\$24,231
				Right-of-Way		
				Other: Bonding 2.5%		\$6,058
				TOTAL ESTIMATED COST (Emergency and Permanent Repairs)		\$308,945
Submitted By: (Name and Title) Lynn L. Hicks, Forest Engineer			Signature: / X /		Date: July 6, 2005	
Reviewed By: (Name and Title)			Eligible	Ineligible	Signature: _____ Date: _____	
Recommended By: (Name and Title)			Eligible	Ineligible	Signature: _____ Date: _____	

*Attach Supplemental Sheets if necessary

Location of Damage (Route No., Name of Road, Mile Post and Map Grid) 5046, Lanning Ridge Rd., MP 0.10, MG 3B	NFSR-	Sheet No: <u>3</u> of <u>6</u>
		DSR No: 5046-0.10

DSR No. NFNC 137-0.10

Betterment Justification

Repair & Restore 3-cell box culvert vs. Upgrade to 60' span concrete bridge

ITEM	REPAIR IN-KIND				BETTERMENT			
	Clean and Repair box culverts				Replace w/ Bridge			
	UNIT	QUANTITY	UNIT PRICE	COST	UNIT	QUANTITY	UNIT PRICE	COST
Track Hoe	HR	80	\$200	\$16,000	HR	40	\$200	\$8,000
Remove and Dispose of bedload and debris	CY	1000	\$25	\$25,000	CY	500	\$25	\$12,500
Place Select Borrow	TON	250	\$35	\$8,750	CY	300	\$10	\$3,000
Place aggregate - NCDOT ABC stone	TON	90	\$25	\$2,250	TON	90	\$25	\$2,250
Structural Concrete	CY	40	\$750	\$30,000				
Pit Run Riprap	TON	250	\$50	\$12,500	TON	300	\$50	\$15,000
Class 2 Riprap	TON	250	\$40	\$10,000	TON	200	\$40	\$8,000
Geotextile Fabric	SY	220	\$8	\$1,760	SY	270	\$8	\$2,160
Seed all disturbed areas	SY	800	\$5	\$4,000	SY	800	\$5	\$4,000
Silt fence	LF	200	\$5	\$1,000	LF	200	\$5	\$1,000
Mobilization	LS	1	\$5,000	\$5,000	LS	1	\$5,000	\$5,000
Remove and Dispose of remainder of old structure					LS	1	\$5,000	\$5,000
Install single lane, concrete bridge (60' X 14')					SF	840	\$210	\$176,400
TOTAL				\$116,260				\$242,310
Cost to repair damage in the future (w/betterment)	Assume \$2000 every 5 years for minor damage (bridge life = 50 years) Bridge: $\$400(P/A, 7\%, 50) = \$5,520$							\$5,520
Cost to repair damage in the future (w/o betterment)	Assume major reconstruction in 5 - 10 years @ \$150,000 (structure nearing design life) Assume major channel cleaning & structural repair every 5 years due to unstable channel and restrictive nature of triple box culvert design at \$25,000 / 5yr In-Kind : $\$150,000(P/F, 7\%, 5) + \$25,000(P/F, 7\%, 5, 10, 15, \dots, 50) = \$166,943$							\$166,943
BENEFIT	(Difference in future repair costs over equal life)							\$161,423
COST	(Additional Cost to repair the site as a result of adding the betterment)							\$126,050
BENEFIT / COST								1.281
REMARKS	Economic benefits exceed costs over the long-term. Also, the existing structure will have many problems in the future due to its restrictive nature in this unstable stream. A single-span bridge will reduce long-term impacts to water quality, fish, and other aquatic organisms.							

FEDERAL HIGHWAY ADMINISTRATION, Federal Lands Highway

DAMAGE SURVEY REPORT (Supplemental Sheet)

(Title 23, Federal-Aid System/Federal Domain)

Sheet No: 4 of 6

DSR No: 5046-0.10

Disaster No: NC2004-1-FS

Applicant: USDA Forest Service - Pisgah National Forest

County: Transylvania

State: NC

Inspection Date: 01/20/2005

Location of Damage (Route No., Name of Road, Mile Post and Map Grid)
NFSR-5046, Lanning Ridge Rd., MP 0.10, MG 3B

ADT: 35



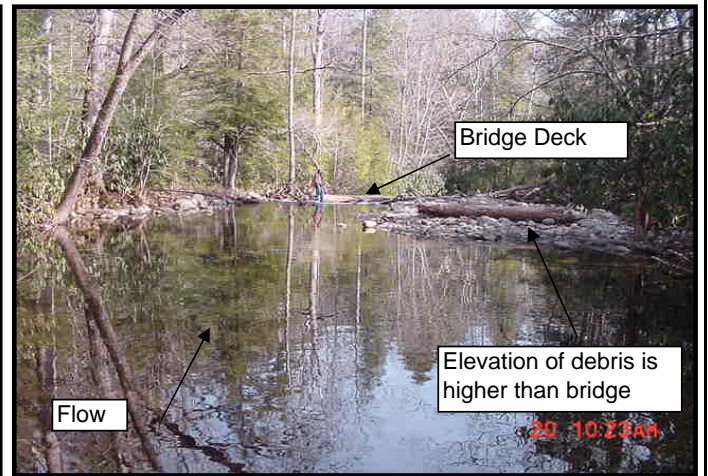
137-0.10-01



137-0.10-02



137-0.10-03



137-0.10-04



137-0.10-05



137-0.10-06

FEDERAL HIGHWAY ADMINISTRATION, Federal Lands Highway

DAMAGE SURVEY REPORT (Supplemental Sheet)

(Title 23, Federal-Aid System/Federal Domain)

Sheet No: 5 of 6

DSR No: 5046-0.10

Disaster No: NC2004-1-FS

Applicant: USDA Forest Service - Pisgah National Forest

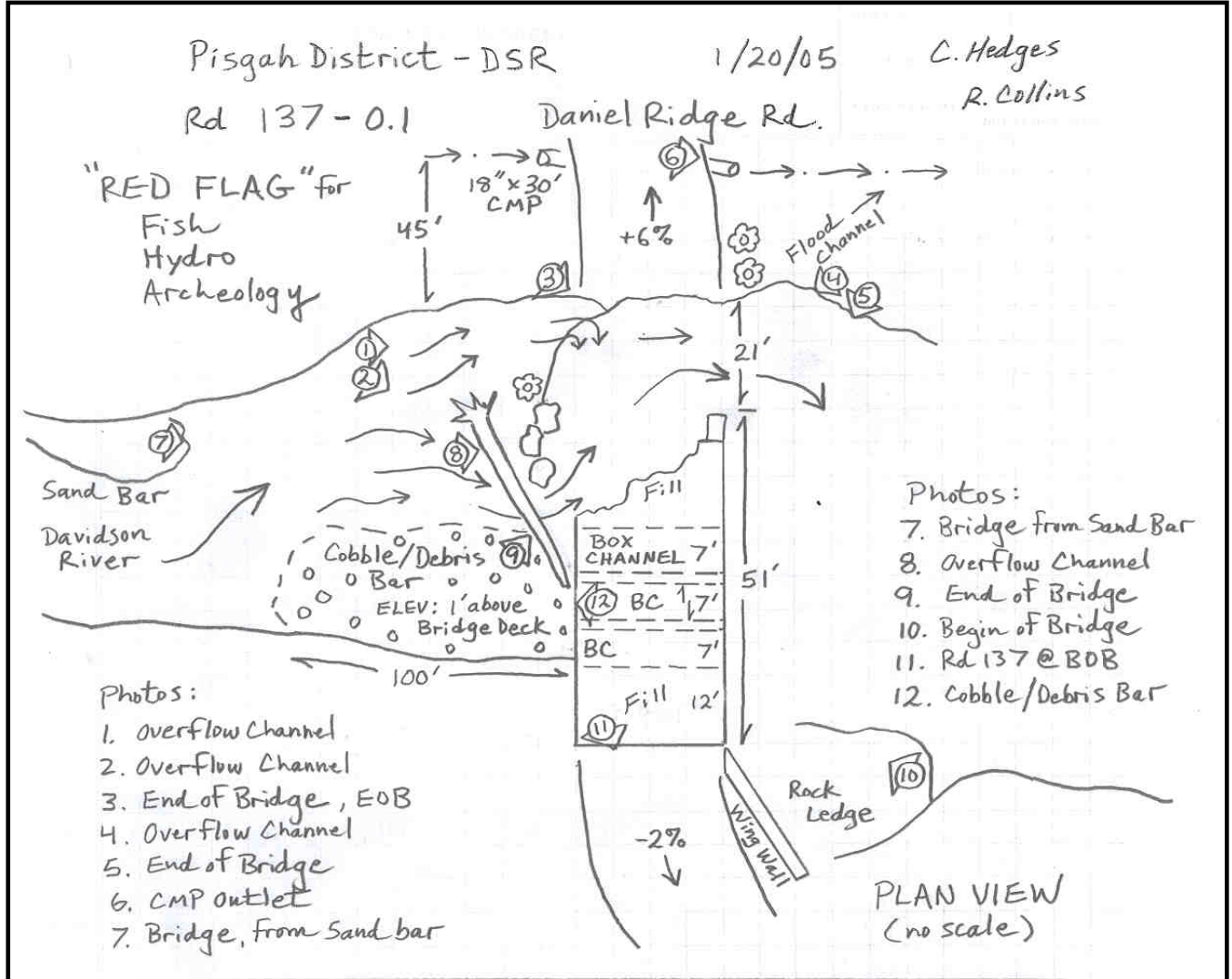
County: Transylvania

State: NC

Inspection Date: 01/20/2005

Location of Damage (Route No., Name of Road, Mile Post and Map Grid)
NFSR-5046, Lanning Ridge Rd., MP 0.10, MG 3B

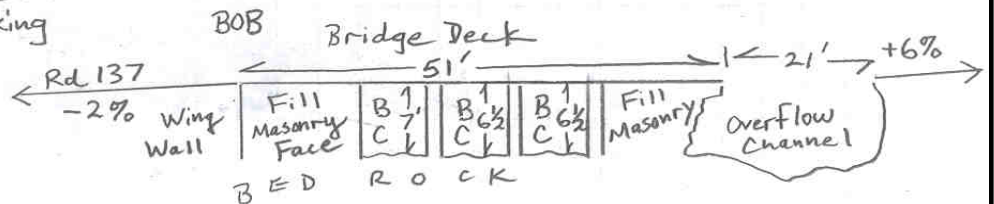
ADT: 35



ROAD LOG

0+00 Rd 475 x 137 Jct.
1+10 Gate, End Parking
3+00 Rd Scour
4+69 BOB

CROSS SECTION AT BRIDGE



FEDERAL HIGHWAY ADMINISTRATION, Federal Lands Highway

DAMAGE SURVEY REPORT *(Supplemental Sheet)*

(Title 23, Federal-Aid System/Federal Domain)

Sheet No: 6 of 6

DSR No: 5046-0.10

Disaster No: NC2004-1-FS

Applicant: USDA Forest Service -
Pisgah National Forest

County:
Transylvania

State:
NC

Inspection Date:
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