

BSDMS Summary Report

55 Reed Creek at S.R. 649 near Wytheville, VA

Site Location:

Site ID: 55

Site Name: Reed Creek at S.R. 649 near Wytheville, VA

County: Wythe

Nearest City: Wytheville

State: VA

Latitude: 365647

Longitude: 810132

USGS Station ID: 3166700

Route Number: 649

Route Class: State

Service Level: Mainline

Route Direction: NA

Highway Mile Point:

Stream Name: Reed Creek

River Mile:

Contact:
USGS
3600 West Broad Street Suite 606
Richmond, VA 23230
(804) 771-2427

Publication:
Hayes, Donald C., 1993, Site
Selection and Collection of Bridge-
Scour Data in Delaware, Maryland,
and Virginia:
U.S. Geological Survey
Water-Resources Investigations
Report 93-4017, 23 p.

Site Description:

This site is located at the State Route 649 bridge crossing Reed Creek, 2.5 miles east of Wytheville, Virginia and 0.2 miles north of State Route 11. The bridge, 180 ft long, has two concrete piers spaced 70 ft apart. The piers, 2 ft wide and 30 ft long, are supported by footers on bedrock. A layer of alluvium several ft thick is present. A gravel storage area is located on the right bank 200 ft upstream from the bridge. This is apparently the source of much of the gravel in the streambed at this site. Elevations from a field survey of the site do not correspond to elevations from the bridge plans (obtained after the survey). Elevations reported here are from the field survey. Bridge dimensions are from the construction plans.

Elevation Reference

Datum: Gage

MSL (ft):

Description of Reference Elevation:

RML--Elevation 100.00 ft gage datum. Chiseled + on left upstream concrete guard rail of bridge (Northwest corner of bridge).

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RM2--Elevation 99.68 ft gage datum. Chiseled + on left downstream concrete guard rail of bridge (Northeast corner of bridge).
RP1--Elevation 98.26 ft gage datum. Chiseled notch on top of upstream concrete guard rail 100 ft from left abutment.
RP2--Elevation 98.20 ft gage datum. Chiseled notch on top of downstream concrete guard rail 109 ft from left abutment.

Stream Data

Drainage Area (sq mi):		Floodplain Width:	Narrow
Slope in Vicinity(ft/ft):	0.0001	Natural Levees:	Little
Flow Impact:	Straight	Apparent Incision:	None
Channel Evolution	Unknown	Channel Boundary:	Alluvial
Armoring:	None	Banks Tree Cover:	Medium
Debris Frequency:	Rare	Sinuosity:	Sinuuous
Debris Effect:	Local	Braiding:	None
Stream Size:	Small	Anabranching:	None
Flow Habit:	Perennial	Bars:	Narrow
Bed Material:	Gravel	Stream Width Variability:	Equiwidth
Valley Setting:	Moderate		

Roughness Data

Manning's n Values

	Left Overbank	Channel	Right Overbank
High:			
Typical	0.06	0.045	0.06
Low:		0.055	

Bed Material

Measurement Number	Yr	Mo	Dy	Sampler	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	SP	Shape	Cohesion
1	1992	9	25	GRID	130	84	55	38	2.65		Non-Cohesive

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Bed Material Comments

Measurement No: 1

Bridge Data

Structure No: 6189
Length(ft): 180
Width(ft):
Number of Spans: 3
Vertical Configuration: Unknown
Low Chord Elev (ft): 90.81001
Upper Chord Elev (ft): 91.06
Overtopping Elev (ft): 98
Skew (degrees): 0
Guide Banks: None
Waterway Classification: Main
Year Built: 1986
Avg Daily Traffic:
Plans on File: Yes
Parallel Bridges No
Upstream/Downstream: Unknown
Continuous Abutment: No
Distance Between Centerlines:
Distance Between Pier Faces:

Bridge Description:

The bridge, 180 ft long, has two concrete piers spaced 70 ft apart. The piers, continuous webs 2 ft wide and 30 ft long, are supported by footers on bedrock.

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Abutment Data

Left Station: 0
 Right Station: 170
 Left Skew (deg): 0
 Right Skew (deg) 0
 Left Abutment Length (ft): 60
 Right Abutment Length (ft) 60
 Left Abutment to Channel Bank (ft): 40
 Right Abutment to Channel Bank (ft): 30
 Left Abutment Protection:
 Right Abutment Protection
 Contracted Opening Type: III
 Embankment Skew (deg): 0
 Embankment Slope (ft/ft): 1.5
 Abutment Slope (ft/ft) 1.5
 Wingwalls: No
 Wingwall Angle (deg): 0

Pier Data

Pier ID	Bridge			PierType	# Of Piles	Pile Spacing(ft)
	Station(ft)	Alignment	Highway Station			
1	50	0	10430	Single	0	
2	120	0	10490	Single	0	

Pier ID	Pier			Length(ft)	Protection	Foundation
	Width(ft)	Pier Shape	Shape Factor			
1	2	Round		30	Riprap	Poured
2	2	Round		30	None	Poured

Pier ID	Top	Bottom	Foot or Pile		Pile Tip
	Elevation(ft)	Elevation(ft)	Cap Width(ft)	Cap Shape	

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1	79.96	76.96	4	Square
2	78.15	75.15	4	Square

Pier Description

Pier ID 1

The concrete piers, continuous webs 2 ft wide and 30 ft long, are supported by footers on bedrock. The piers are rounded on the upstream and downstream ends. The footers are not exposed.

Pier ID 2

See pier 1.

Pier Scour Data

Pier ID	Date	Time	USOrDS
2	3/29/91	14:30	Upstream
2	6/5/92	10:30	Upstream
2	3/24/93	9:30	Upstream

Pier ID	Scour Depth	Accuracy (ft)	Side Slope (ft/ft)	TopWidth (ft)	Apprch Vel (ft/s)	Apprch Depth(ft)	Effective Pier Width	Skew to Flow(deg)
2	1.5	1	5.5	16	3.7	2.5	2	0
2	2.1	1	8.5	36	5.51	10.5	2	0
2	1.8	1	12	45	6.45	10.5	2	0

PierID	Sediment Transport	Bed Material	BedForm	Trough (ft)	Crest (ft)	Sigma	Debris Effects
2	Unknown	Non-cohesive	Unknown			1.5	Unknown
2	Unknown	Non-cohesive	Unknown			1.5	Unknown
2	Unknown	Non-cohesive	Unknown			1.5	Unknown

PierID	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)
2	130	84	55	38
2	130	84	55	38
2	130	84	55	38

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Hydrograph

Hydrograph Number	Year	Month	Day	Hr	Min	Sec	Stage(ft)	Discharge (cfs)
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Supporting Files
