

BSDMS Summary Report

39 Genesee River at Bailey Road at Portageville, NY

Site Location:

Site ID: 39

Site Name: Genesee River at Bailey Road at Portageville, NY

County: Wyoming

Nearest City: Portageville **Contact:**
Terry LaFrance, NYSDOT, Region 4
(716) 272-3383.

State: NY

Latitude: 423400

Longitude: 780300

USGS Station ID: 4222998

Route Number: Bailey Road

Route Class: County **Publication:**

Service Level: Alternate

Route Direction: NA

Highway Mile Point:

Stream Name: Genesee River

River Mile:

Site Description:

The site is at the Bailey Road bridge crossing the Genesee River at Portageville, New York. The bridge, 400 ft long and 34 ft wide with three piers, is 2 miles upstream from a USGS streamflow gage. Pier 1 (on left side when looking downstream) is out of the water except during very high flows. The piers are founded on bedrock, although the bridge plans show a 5-10 ft layer of gravel above the bedrock at the right pier. Bedrock is visible at pier 2, and a gravel bar extends along the right bank. Stream velocity is concentrated toward the left half of the channel because of a bend 500-1000 ft upstream. Clear-water scour is common here. Local scour is based on a 1988 inspection and 1986-88 New York State Department of Transportation (NYSDOT) inspections because the deepest scour is about 5 ft downstream from pier 3. The location of the scour hole may be affected by the large sharp-nosed pier producing vorticies at the break in pier shape. Reference for the scour depth is the ambient bed.

General scour is minimal at the USGS site because of bedrock outcrops in the channel. Significant contraction scour (greater than 3 ft) occurred in 1989 from a large debris jam at pier 2 that blocked one third of the bridge opening. However, insufficient data are available to include a contraction scour measurement. Hydraulic analysis of debris blockage showed an 11+ ft per second average flow velocity, comparable to velocities during the 1972 flood (recurrence interval 100+ years) that destroyed the previous bridge. There was about 5 ft of aggradation in the bridge opening from 1989-1991, possibly from bed material that was mobilized in the bridge reach in 1989.

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The 1992 inspection showed minor degradation as the channel began to restabilize.

Bed material samples were collected in a shallow area near the right bank. The D16, D50, and D84 were analyzed, but the D90 and D95 were not analyzed because of the accuracy of the limited data set.

There is an ample supply of debris coming from Letchworth State Park.

Local scour is assumed to have occurred during the greatest flow previous to the 1988 NYSDOT measurement--6/18/84 (recurrence interval of about 10 years).

Local scour was observed only at pier 3.

Elevation Reference

Datum: MSL

MSL (ft):

Description of Reference Elevation:

USSB: RM = Chiseled square on left abutment at station 0. ELEVATION = 1152 ft. Top of pier footing = 1102 ft msl.

RP = 2 file marks on 2nd handrail at station 235. ELEVATION = 1143.49 ft.

Left abutment = station 0.
LE pier = station 96.
RE pier = station 100.
LE pier = station 196.
RE pier = station 202.
RP = station 235.
LE pier = station 296.
RE pier = station 302.
Right abutment = station 400.

DSSB: RP = 2 file marks on 2nd handrail at station 235. ELEVATION = 1143.67 ft.

APPR: RP = Lag bolt in large sycamore tree 354 ft upstream, overhanging water on left bank. ELEVATION = 1112.05 ft.

Lag bolt in pole, ELEVATION = 1113.13 ft.

(EXIT=bolts in cottonwood, left bank 1104.54 ft and 1112.83 ft).

Stream Data

Drainage Area (sq mi):	984	Floodplain Width:	Little
Slope in Vicinity(ft/ft):	0.0009	Natural Levees:	Both
Flow Impact:	Left	Apparent Incision:	Apparent
Channel Evolution	Premodified	Channel Boundary:	Semi-alluvial
Armoring:	High	Banks Tree Cover:	High
Debris Frequency:	Frequent	Sinuosity:	Sinuous
Debris Effect:	Both	Braiding:	None
Stream Size:	Medium	Anabranching:	None

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Flow Habit: Flashy Bars: Narrow
Bed Material: Gravel Stream Width Variability: Equiwidth
Valley Setting: Moderate

Roughness Data

Manning's n Values

	Left Overbank	Channel	Right Overbank
High:		0.033	
Typical			
Low:			

Bed Material

Measurement Number	Yr	Mo	Dy	Sampler	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	SP	Shape	Cohesion
1	1990	8	29	GRID	55	42	27	18	2.65		Alluvial_Over
2	1990	8	29	SHOVEL		38	13	0.63	2.65		Alluvial_Over

Bed Material Comments

Measurement No: 1

Bed material samples were collected in a shallow area near the right bank. Sizes based on 100 samples using the grid-sampling technique.

Measurement No: 2

Bed material samples were collected in a shallow area near the right bank. The D16, D50, and D84 were analyzed, but the D90 and D95 were not analyzed because of the accuracy of the limited data set.

Bridge Data

Structure No: 3319860
Length(ft): 400
Width(ft): 34

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Number of Spans: 4

Vertical Configuration: Sloping

Low Chord Elev (ft): 1126

Upper Chord Elev (ft): 1146

Overtopping Elev (ft):

Skew (degrees): 0

Guide Banks: None

Waterway Classification: Main

Year Built: 1973

Avg Daily Traffic:

Plans on File: Yes

Parallel Bridges No

Upstream/Downstream: N/A

Continuous Abutment: No

Distance Between Centerlines:

Distance Between Pier Faces:

Bridge Description:

The piers are recessed 5-10 ft under the bridge deck. During the streamflow measurements, it was not possible to sound directly upstream from the piers.

Abutment Data

Left Station: 0

Right Station: 400

Left Skew (deg): 0

Right Skew (deg) 0

Left Abutment Length (ft): 34

Right Abutment Length (ft) 34

Left Abutment to Channel Bank (ft): 150

Right Abutment to Channel Bank (ft): 50

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Left Abutment Protection:

Right Abutment Protection

Contracted Opening Type: III

Embankment Skew (deg): 0

Embankment Slope (ft/ft): 2

Abutment Slope (ft/ft) 2

Wingwalls: Yes

Wingwall Angle (deg): 0

Pier Data

Pier ID	Bridge Station(ft)	Alignment	Highway Station	PierType	# Of Piles	Pile Spacing(ft)
1	98	0	98	Single	0	
2	199	0	199	Single	0	
3	299	0	299	Single	0	

Pier ID	Pier Width(ft)	Pier Shape	Shape Factor	Length(ft)	Protection	Foundation
1	4	Sharp		22	None	Poured
2	6	Sharp		22	None	Poured
3	6	Sharp		22	None	Poured

Pier ID	Top Elevation(ft)	Bottom Elevation(ft)	Foot or Pile Cap Width(ft)	Cap Shape	Pile Tip Elevation(ft)
1	1103		6	Unknown	
2	1091		6	Unknown	
3	1086		6	Unknown	

Pier Description

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ContractionScour

Stage and Discharge Data

Peak Discharge					Flow (cfs)	Qacc	Peak Stage					Stage (ft)	Water Temp (C)	Return Period(yr)
year	mo	dy	hr	mi			year	mo	dy	hr	mi			
1984	6	18		0	38700	95				0	20	10		

Hydrograph

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

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