

# BSDMS Summary Report

59 Clear Creek at U.S. 33 near Rockbridge, OH

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## Site Location:

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Site ID:	59	
Site Name:	Clear Creek at U.S. 33 near Rockbridge, OH	
County:	Hocking	
Nearest City:	Rockbridge	<b>Contact:</b>
State:	OH	Scott Jackson
Latitude:	393549	U.S. Geological Survey
Longitude:	823247	614-469-5553
USGS Station ID:		75 West Third Ave.
Route Number:	33	Columbus, Ohio 43212
Route Class:	US	or
Service Level:	Mainline	William Krouse
Route Direction:	North	Ohio Department of Transportation
Highway Mile Point:	0.6	614-466-2398
Stream Name:	Clear Creek	25 South Front St.
River Mile:		Columbus, Ohio 43216
		<b>Publication:</b>
		Jackson, K.S., 1996, Evaluation of
		bridge-scour data at selected
		sites in Ohio: U.S. Geological
		Survey Water-Resources
		Investigations Report 97-4182.

## Site Description:

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The site is located at the US Route 33 bridge crossing Clear Creek north of Rockbridge, Hocking County, Ohio. The Ohio Department of Transportation (ODOT) bridge identification is "HOC-33-0060". Site is located 200 feet upstream of the confluence with the Hocking River and is subject to backwater from the Hocking River. Site is located near USGS streamgage Clear Creek nr Rockbridge (03157000) and is located approximately 10000 feet upstream of the bridge (data available from 1939 to current year). Care had to be taken to obtain high-flow scour measurements not affected by backwater from the Hocking River.

Notes: All piers are referenced numerically, increasing from left to right, when viewing the upstream face of the bridge while facing in the downstream direction.

Slope in Vicinity (reported in Stream Site Data) is estimated 7.5-minute quadrangle topographical maps.

Water-surface slope (if reported in Pier Scour Data comments section) is the measured slope between water surfaces at the approach and bridge sections during the scour measurement.

## Elevation Reference

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Datum: MSL

MSL (ft):

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## Description of Reference Elevation:

RM1 - Chiseled square on streamward side of left upstream abutment  
(the northeast abutment).  
MSL elevation = 765.83 ft

## Stream Data

Drainage Area (sq mi):	91.8	Floodplain Width:	Little
Slope in Vicinity(ft/ft):	0.0019	Natural Levees:	Unknown
Flow Impact:	Straight	Apparent Incision:	None
Channel Evolution	Premodified	Channel Boundary:	Alluvial
Armoring:	None	Banks Tree Cover:	High
Debris Frequency:	Occasional	Sinuosity:	Straight
Debris Effect:	Local	Braiding:	Locally
Stream Size:	Small	Anabranching:	None
Flow Habit:	Perennial	Bars:	Irregular
Bed Material:	Sand	Stream Width Variability:	Equiwidth
Valley Setting:	Moderate		

## Roughness Data

### Manning's n Values

	Left Overbank	Channel	Right Overbank
High:	0.075	0.05	0.075
Typical	0.07	0.045	0.07
Low:	0.065	0.038	0.065

## Bed Material

Measurement Number	Yr	Mo	Dy	Sampler	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	SP	Shape	Cohesion
AP1	1993	6	22		23	17	3.6	0.8	2.65		Unknown

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AP2	1994	6	21	67	49	7.8	0.42	2.65	Unknown
BR1	1990	9	27	20	13	1.25	0.29	2.65	Unknown
BR2	1991	6	18	0.78	0.3	0.16	0.13	2.65	Unknown
BR3	1992	6	25	19	12	0.34	0.1	2.65	Unknown
BR4	1993	6	22	33	19	4.7	0.15	2.65	Unknown
BR5	1994	6	21	28	14	0.64	0.11	2.65	Unknown
P1-1	1990	9	27	8.5	2.8	0.4	0.1	2.65	Unknown
P1-2	1991	6	18	7	0.9	0.16	0.09	2.65	Unknown
P1-3	1992	6	25	0.24	0.1	0.06	0.005	2.65	Unknown
P1-4	1993	6	22	0.35	0.3	0.15	0.03	2.65	Unknown
P1-5	1994	6	21	0.94	0.5	0.2	0.08	2.65	Unknown
P2-1	1990	9	27	1.7	1.2	0.52	0.15	2.65	Unknown
P2-2	1991	6	18	0.69	0.3	0.15	0.09	2.65	Unknown
P2-3	1992	6	25	0.66	0.3	0.13	0.01	2.65	Unknown
P2-4	1993	6	22	17	9.5	1.7	0.4	2.65	Unknown

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P2-5	1994	6	21	27	18	1.7	0.11	2.65	Unknown
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### Bed Material Comments

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#### Measurement No: AP1

Approach-section composite sample

#### Measurement No: AP2

Approach-section composite sample

#### Measurement No: BR1

Bridge-section composite sample, collected along the upstream bridge face.

#### Measurement No: BR2

Bridge-section composite sample, collected along the upstream bridge face.

#### Measurement No: BR3

Bridge-section composite sample, collected along the upstream bridge face.

#### Measurement No: BR4

Bridge-section composite sample, collected along the upstream bridge face.

#### Measurement No: BR5

Bridge-section composite sample, collected along the upstream bridge face.

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**Measurement No: P1-1**

Sample collected at the upstream face of pier 1

**Measurement No: P1-2**

Sample collected at the upstream face of pier 1

**Measurement No: P1-3**

Sample collected at the upstream face of pier 1

**Measurement No: P1-4**

Sample collected at the upstream face of pier 1

**Measurement No: P1-5**

Sample collected at the upstream face of pier 1

**Measurement No: P2-1**

Sample collected at the upstream face of pier 2

**Measurement No: P2-2**

Sample collected at the upstream face of pier 2

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**Measurement No:** P2-3

Sample collected at the upstream face of pier 2

**Measurement No:** P2-4

Sample collected at the upstream face of pier 2

**Measurement No:** P2-5

Sample collected at the upstream face of pier 2

### Bridge Data

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**Structure No:** HOC-33-0060R

**Length(ft):** 114

**Width(ft):** 28

**Number of Spans:** 3

**Vertical Configuration:** Horizontal

**Low Chord Elev (ft):** 760.1

**Upper Chord Elev (ft):** 765.5

**Overtopping Elev (ft):** 763.9

**Skew (degrees):** 10

**Guide Banks:** None

**Waterway Classification:** Main

**Year Built:** 1935

**Avg Daily Traffic:** 3530

**Plans on File:** Yes

**Parallel Bridges** Yes

**Upstream/Downstream:** Upstream

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Continuous Abutment: No

Distance Between Centerlines: 30

Distance Between Pier Faces: 20

## Bridge Description:

The bridge is constructed of concrete and steel I-beams, and it has solid-wall round-nose piers. The site plans are dated 1934. The piers are referenced from the left to the right abutments when looking downstream. Note: Distances between centerlines and upstream / downstream pier faces are approximate.

## Abutment Data

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Left Station: 32.4302

Right Station: 33.5698

Left Skew (deg): 0

Right Skew (deg) 0

Left Abutment Length (ft): 67.5

Right Abutment Length (ft) 67.5

Left Abutment to Channel Bank (ft): 29

Right Abutment to Channel Bank (ft):

Left Abutment Protection:

Right Abutment Protection

Contracted Opening Type: I

Embankment Skew (deg): 10

Embankment Slope (ft/ft): 1.4

Abutment Slope (ft/ft) 1

Wingwalls: No

Wingwall Angle (deg): 0

## Pier Data

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	Bridge					Pile	
Pier ID	Station(ft)	Alignment	Highway	Station	PierType	# Of Piles	Spacing(ft)

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1	37.5	0	32.805	Single	0
2	76.5	0	33.195	Single	0

Pier						
Pier ID	Width(ft)	Pier Shape	Shape Factor	Length(ft)	Protection	Foundation
1	4	Round		31	None	Piles
2	4	Round		31	None	Piles

  

Pier ID	Top Elevation(ft)	Bottom Elevation(ft)	Foot or Pile Cap Width(ft)	Cap Shape	Pile Tip Elevation(ft)
1	742.75	739.25	7.5	Square	
2	742.75	739.25	7.5	Square	

## Pier Description

Pier ID 1

The concrete pier is a solid wall with round nose.  
Pier width is 4.0 feet at base of footer and tapers uniformly at top to 3.0 feet wide.

Pier ID 2

The concrete pier is a solid wall with round nose.  
Pier width 4.0 feet at base of footer and tapers uniformly at top to 3.0 feet wide.

## Pier Scour Data

Pier ID	Date	Time	USOrDS					
1	1/28/94	10:00	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)
1	2.8	0.5	2.1	11	3.7	10.6	4	0

  

PierID	Sediment Transport	Bed Material	BedForm	Trough (ft)	Crest (ft)	Sigma	Debris Effects
1	Clear-water	Non-cohesive	Unknown			2.91	Unknown

  

PierID	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)
1	0.35	0.28	0.15	0.033



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## Pier Scour Comments

Pier ID 1 Time: 10:00 US/DS: Upstream

## Abutment Scour

## Contraction Scour

Measurement Number	Contracted Date	Contracted Time	Uncontracted Date	Uncontracted Time	US/DS	Scour Depth(ft)
1	1/28/94	10:00	6/21/94			1.5

Measurement Number	Accuracy	Contracted Avg Vel(ft/s)	Contracted Discharge(cfs)	Contracted Depth(ft)	Contracted Width(ft)
1	0.5	2.81	2780	13.7	65

Measurement Number	Uncontracted Avg Vel(ft/s)	Uncontracted Discharge(cfs)	Uncontracted Depth(ft)	Uncontracted Width(ft)	Channel Contraction Ratio
1	4.12	2800	12.7	45	0.007

Measurement Number	Pier Contraction Ratio	Scour Location	Eccentricity	Sediment Transport	Bed Form	Debris Effects
1	0.09	Floodplain	0.674	Clear-water	Unknown	Unknown

Measurement Number	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	Sigma Bed Material	Bed Material
1	19	4.7	4.7	0.15	11.3	Non-cohesive

## Contraction Scour Comments

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Measurement No. 1

The data for the contracted section were measured from the bridge deck during the flood event on the specified date. The geometry of the reference uncontracted section was measured during low flow. The hydraulic data for the uncontracted section were estimated using WSPRO to estimate the approach hydraulics for the reference channel geometry and the flood discharge observed on the date of the contracted section measurement.

## Stage and Discharge Data

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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			
1994	1	28	10:00		3510							2.5	2

## Hydrograph

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## Supporting Files

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