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Blue Creek near Lewellen, Nebraska
06687000

LOCATION

Latitude and Longitude

41.3373 -102.1743

Road Log

From the center of Lewellen, NE in Garden County, travel northwest on State Highway 92 approximately 1 mile to County Road 48 and turn left (due west) for approximately 1 mile. The gage is on the left downstream end of the county bridge over Blue Creek.

Nearby Features

0.8 mile upstream from mouth of Blue Creek.

Equipment Details

Recording Gage

A SUTRON CBS Bubbler flow meter and a SUTRON SATLINK DCP connected to the stream with a sand point and/or open-end orifice. Operation of type of orifice will depend on conditions of streambed and amount of flow. Instrument referenced to an enameled staff (0.00-6.74 feet) on downstream side of bridge pier near orifice. The Satlink DCP provides hour transmissions via satellite with 15 minute data blocks to the downlink stations. Real-time data can be accessed through the internet at https://nednr.nebraska.gov/RealTime

External Gage

Staff gage on the downstream side of the bridge pier. A wire weight gage was added on September 1, 2016 and set to the staff gage; no levels have been run to the wire weight so it is not the base gage.

Bench Mark and Reference Marks

Gage Datum is 3310.04 ft. above mean sea level.

R.M. Nos. 1, 3, 4, 5, 6, 7, and 8 destroyed.

R.M. No. 2 - (Basic) is a standard bronze tablet in a concrete post 59 feet southeast of shelter doorsill. Elevation 5.81 feet from levels dated March 4, 2016 use as origin.

Elevation 5.81 feet from levels dated March 29,2021. **Origin**

R.M. No. 9 - is an "X" in upstream left bridge girder. Elevation 8.20 feet to gage datum from levels dated March 4, 2016.

. Elevation 8.20 feet to gage datum from levels dated March 29, 2021.

R.M. No.10 - is an "X" in downstream left bridge girder. Elevation 8.23 feet to gage datum from levels dated March 4, 2016.

Elevation 8.23 feet to gage datum from levels dated March 29, 2021.

Staff Gage (0.00-6.74) on downstream side of bridge pier near orifice checked from levels dated March 4, 2016 at a gage height of 4.30 feet.

Elevation not shot for staff gage as it is under bridge on March 29, 2021.

Wire weight (11.24 feet check bar elevation) on downstream bridge rail. Installed September 1, 2016 and set to Staff Gage only.

Elevation of check bar found to be 11.25 on March 29, 2021**.**

Hydrology

Drainage Area

1,120 square miles, of which approximately 80 square miles contributes directly to surface runoff.

Channel and Control

The streambed is composed of sand, which will shift readily. One channel at all stages. Banks are low and covered with grass and other vegetation. Flow will reach top of low banks, in vicinity of the gage, at approximately 5.5-foot gage height. Channel curves slightly to the left about 100 feet downstream from the gage. No well-defined control.

Discharge Measurements

Normally made by wading near the gage. High-water measurements made from the bridge at the gage. Velocity moderate and well distributed in cross-section; current flows at right angles to the bridge.

Floods

Maximum discharge recorded, 720 cubic feet per second May 20, 1938 (gage height, 6.46 feet, present datum), from rating curve extended above 500 cubic feet per second.

Extremes for Period of Record

EXTREMES FOR PERIOD OF RECORD.--Peak discharge 720 cubic feet per second May 20, 1938, gage height 6.46 feet;

maximum gage height 7.28 feet December 17, 1985, backwater from ice;

no flow for short periods many years since 1940.

Point of Zero Flow

Variable approximately 40 to 80 feet below gage. Point of zero flow 1.98 feet August 20, 2018

Winter Flow

Ice forms complete cover in layers and backwater spreads ice over the low banks. One to two feet of backwater conditions on the North Platte River near Lewellen, NE will cause backwater conditions at this site.

Regulation and Diversions

There is no regulation on this stream. Three irrigation diversions divert from 1.5 to 4.5 mile above the station. Graft canal moved their diversion to the same site as Blue Creek canal this has affected summer flows at Blue Creek gage.

Accuracy

Records good except for discharges below 5.0 cubic feet per second and estimated periods, which are poor.

Establishment and History

Established on October 1, 1930 by State of Nebraska.

Prior to July 16, 1934 staff gage near present site at datum, 3312.04 feet above mean sea level.

July 16, 1934 to April 9, 1958 water-stage recorder in timber shelter and well on left bank at site 50 feet downstream.

July 16, 1934 to May 21, 1947 at datum, 3312.04 feet above mean sea level.

May 22, 1947 to May 10, 1950 at datum, 3311.04 feet above mean sea level.

May 11, 1950 to April 9, 1958 to present datum.

April 10, 1958 to April 28, 1970 water stage recorder installed in timber shelter over a 48-inch CMP well 125 feet downstream on right bank.

Fisher and Porter digital water-stage recorder (15-minute punch) installed on April 29, 1970 and operated in conjunction with Stevens A-35 recorder.

September 18, 1984 gage relocated 150 feet upstream on left bank. A Stacom manometer with a gas purge system connected to stream with a sand-point orifice replaced the intake on 48-inch CMP. CMP placed on a steel platform supported above the ground approximately 2 feet with angle iron legs set in concrete. Manometer referenced to a wire weight gage located on downstream bridge railing 10 feet upstream from shelter. Enameled staff located on a bridge piling near the orifice.

On June 30, 1988, a Leupold-Stevens datalogger replaced Fisher and Porter digital as base recorder.

On October 22, 1994 a Fluid Data gage, Model G-2, replaced the Stacom manometer.

On February 2, 1995, the wire-weight gage removed. The enameled staff became the base gage.

On July 12, 1995, an ISCO Model 4230 Bubbler flow meter installed and replaced the Leupold-Stevens datalogger and Stevens A-35 water stage recorder.

On September 1 of 2016, the ISCO Model 4230 Bubbler flow meter and phone equipment removed.

On September 1, 2016, a SUTRON CBS Bubbler flow meter and a SUTRON SATLINK DCP installed.

On September 1, 2016, a wire weight installed on the center of the downstream bridge rail. No levels were ran at this time due to levels being ran earlier in the water year (March 4, 2016) when the staff gage was checked. The wire weight was set to read the same gage height as the staff gage and the check bar elevation found to be 11.24 feet. Staff gage considered the base gage until the wire weight is included in the next set of levels.

Revision History

No record of original

Revised by: H. P. Eisenhugh, 04-20-1940

Revised by: G. Jamison, 07-23-1958

Revised by: G. G. Jamison & J.W.Vassos, 04-11-1973

Revised by: J.W. Vassos, 03-11-1981

Revised by: J. W. Vassos, 04-23-1985

Revised by: J.W. Vassos, 06-20-1996

Revised by: J. W. Vassos, 09-20-1996

Revised by: J. W. Vassos, 02-24-1998

Revised by: J. W. Vassos, 02-11-1999

Revised by: J. W. Vassos, 02-14-2000

Revised by: S. Wright, 02-20-2002

Revised by: J. W. Vassos, 01-23-2003

Revised by: J. C. Retchless, 01-21-2004

Revised by: J. C. Retchless, 01-24-2005

Revised by: A.S. Liesy, 10-13-202009

Revised by: J.A. Marburger, 02-01-2017

Revised by: J.A. Marburger, 02/08/2019

Revised by: K. Schwager, 11/01/2021