Sheep Creek near Morrill, Nebraska
06678000

LOCATION

Latitude and Longitude

41.96367 -103.9498

Road Log

Scotts Bluff County, approximately 1 mile west of Morrill, NE on U.S. Highway 26 approximately 50 feet south of U.S. Highway 26.

Nearby Features

25 feet upstream from Burlington Northern Inc., Railroad Bridge. The gage is located approximately 1.5 miles upstream of the North Platte River confluence.

Equipment Details

Recording Gage

Sutron CBS Bubbler system along with telemetry by satellite provided by Satlink II via the GOES network in a 20 inch X 20 inch X 28 inch steel look-in type. Instrument connected to stream with an orifice.

Real-time data accessed through the internet at https://nednr.nebraska.gov/RealTime

External Gage

Staff Gage located on right downstream side of box Culvert Bridge and/or a R.P.# 3.

Bench Mark and Reference Marks

3995.04 ft. NGVD29 / 3997.34 ft. NAVD88.

R.M.'s No. 1, 2, 4, 5, 6, and 7 destroyed or abandoned.

R.M. #3: An "X" chiseled in concrete in top of lower left north (upstream) wing wall of Railroad Bridge and just below mileage marker 47.76. Elevation 6.52 feet from levels dated 04/11/2018.

Elevation 6.53 feet from levels dated 10/20/2022.

R.M. #8: "X" located on right downstream edge of concrete bridge deck. Elevation 8.89 feet from levels dated 04/11/2018.

Elevation 8.93 feet from levels dated 10/22/2022.

R.M. #9: "X" located on left downstream edge of concrete bridge deck. Elevation 8.94 feet from levels dated 04/11/2018.

Elevation 8.98 feet from levels dated 10/22/2022.

R.M. #10: "X" On right wing wall of Railroad Bridge. Elevation 10.03 feet from levels dated 04/11/2018.

Elevation 10.03 feet from levels dated 10/22/2022. **(Origin)**

R.P. #3: Established a reference point in the middle of the Railroad Bridge. Elevation not measured during levels dated 04/11/2018. Established 05/19/2008 elevation 10.00 feet.

Elevation 6.53 feet from levels dated 10/22/2022.

Staff-Gage: Is located on the right downstream edge of the US Highway 26 bridge/box culverts, which consists of three 10-foot boxes. Held 3.32 feet, Found 3.35 feet from levels dated 04/11/2018 staff not set.

Held 3.34 feet, Found 3.37 feet from levels dated 10/22/2022 staff not set.

Hydrology

Drainage Area

362 square miles, of which about 25 square miles is noncontributing.

Channel and Control

Low-water control is riffle formed by coarse gravel and small rock under the railroad bridge. Medium-stage control is the normal channel. High-stage control is Railroad Bridge opening about 25 feet downstream from gage. Water will touch low steel on Railroad Bridge at a stage of 6.3 feet. Stage not defined as to where the low water control submerges due to slight elevation of control off streambed.

Discharge Measurements

Low and medium wading stage measuring section is between gage and a section of channel up to 500 feet below gage. Higher flows measured from US Highway 26 Bridge upstream from the gage.

Floods

Maximum discharge during period of record, 516 cubic feet per second July 21, 1978, gage height 6.62 feet; maximum gage height, 6.75 feet August 2, 1932 (from flood mark), due to break in Interstate Canal (discharge not determined).

Extremes for Period of Record

Peak discharge 516 cubic feet per second July 21, 1978, gage height 6.62 feet; minimum daily discharge 0.1 cubic feet per second December 16, 23, 1956, January 18, March 12, 1957, result of diversion for construction upstream.

Point of Zero Flow

Variable depending on amount of silt, sand, and debris that deposits on riffle.

Winter Flow

Shore ice and drifting snow may cause backwater during short periods of extremely cold winters but stream is usually open. High winds will cause weeds and debris from adjacent farmland to accumulate in channel causing backwater.

Regulation and Diversions

Base flow of stream is return flow from irrigated land and groundwater seepage from Sandhill's area. During irrigation seasons all flows diverted into the Tri-State Canal about 1¼ miles above station. Flow past gage at times of irrigation diversion is contribution from ground water and small amounts of irrigation runoff.

Accuracy

Records fair. Low flows make for difficulty in generating good stage data due to orifice obstructed with debris and silt. Shifting is not extreme and flow is usually steady. Measurement conditions are good.

Establishment and History

Vertical staff gage established Jan. 26, 1932, 20 feet upstream from USGS at same datum as present gage. Occasional measurements made during the first three months of the 1932 water year. Occasional measurements and gage heights during irrigation seasons at same site and datum were obtained by the Nebraska Department of Water Resources (then the State Bureau of Irrigation) since April 1919.

On April 14, 1940, a weekly recorder installed in a small timber shelter and well on west (right) bank 50 feet downstream from bridge on U.S. Highway 26.

A continuous recorder installed in 1946 in same shelter.

In November 1966, a timber shelter and well replaced by a steel cube look-in type shelter over a 36-inch CMP well.

On February 14, 1991, the shelter moved back from the west (right) bank approximately 6 feet.

On October 1, 1991, the cooperative agreement between U.S.G.S. and Department of Water Resources discontinued. The operation, maintenance and data publication became the sole responsibility of Department of Water Resources.

On October 26, 1995 the steel cube look-in type shelter was replaced with a 48-inch CMP shelter and moved to the east (left) bank from the west (right) bank approximately 20 feet east of left bank. The A-71 recorder and Telog data logger removed and replaced with an ISCO Model 4230 Bubbler Flow Meter. Open-end orifice as the base recording device.

On June 11, 1996, the staff gage removed and a wire weight gage installed on downstream bridge rail.

On July 27, 2001, the wire-weight removed for bridge construction and a vertical staff installed as the base reference gage. Located on the right downstream edge of newly constructed box culverts consisting of three 10-foot boxes.

On July 30, 2001, the 48-inch CMP removed and replaced with a 20 inch X 20 inch X 28 inch steel look-in type shelter supported with a 3-inch pipe set in concrete. Isco flow meter connected to stream with an orifice.

The ISCO Model 4230 Bubbler flow meter and phone line removed. Installed Sutron CFB Bubbler S/N 1607251 & Satlink S/N 1607237 on August 29, 2016.

Revision History

Original description prepared by: Unkown 08/23/1932

Revised by: Unknown 10/12/1935

Revised by: Unknown 04/19/1940

Revised by: Unknown 05/20/1952

Revised by: J. W. Vassos & G. G. Jamison 10/23/1974

Revised by: J. W. Vassos 01/20/1994

Revised by: J. W. Vassos 05/31/1996

Revised by: T. L. Hayden 01/30/1998

Revised by: J. A. Marburger 03/11/1998

Revised by: J. C. Retchless 01/28/2000

Revised by: J.W. Vassos 01/18/2001

Revised by: J.W. Vassos 02/13/2002

Revised by: J.W. Vassos 02/15/2003

Revised by: J.W. Vassos 02/19/2004

Revised by: Andrew S. Leisy 03/02/2011

Revised by: S. Wright 08/14/2014

Revised by: JF Ostdiek 01/12/2017

Revised by: J A Marburger 01/16/2018

Revised by: T Stephens 02/08/2019

Revised by: K. Schwager 11/01/2023