

Thompson Creek at Riverton, NE. 06851500

LOCATION

Latitude and Longitude

40.08928, -98.76067

Road Log

On left bank 10 feet downstream from bridge on State Highway 136, at west edge of Riverton, NE. Franklin County, (USGS) Hydrologic Unit 10250016

Nearby Features

Equipment Details

Recording Gage

Equipment is housed in a 24" x 30" x 72" stainless steel, cabinet style shelter on the left bank 10 feet downstream from State Highway 136. A Sutron OTT RLS non-contact radar is bolted to the downstream side of the bridge and is attached to the Satlink 3 by a cable. The radar cable is sheathed inside PVC tubing and is attached to the bridge using 1"x4" and construction adhesive. The equipment is powered by a 12-volt gel-cell battery with a solar panel charging system.

External Gage

A wire-weight gage is attached to the downstream side of bridge on State Highway 136.

Bench Mark and Reference Marks

Datum of gage is 1,753.221 feet National Geodetic Vertical Datum of (NGVD) 1929 or 1,753.959 feet (NAVD88) as of 06/04/2014.

RM 1, 2, 3, 4, & 6, RP5 and the staff have been destroyed.

RM5. Chiseled square on concrete base of left upstream steel street light pole. It is approximately 35 feet east of east-end of bridge. Elevation is 14.89 feet gage datum. By Levels dated June 14, 2022. (Origin)

RM7. Chiseled square on concrete base of right downstream steel streetlight post. Elevation is 16.55 feet gage datum. Levels June 14, 2022.

RM8. Galvanized square bolt head in concrete post two feet stream ward from centerline of shelter. Elevation is 15.365 feet gage datum. Levels June 14, 2022.

RM9. A chiseled "X" or cross on the north iron rim of a manhole cover. Elevation is 15.595 feet gage datum. Levels June 14, 2022.

RP4. Is a chiseled arrow on the downstream camber of the concrete guardrail of the bridge at station 82 ft. Elevation is 18.33 ft. Levels June 14, 2022.

Wire weight check bar elevation 17.48 gage datum. Levels June 14, 2022.

Hydrology

Drainage Area

290 square miles, of which about 190 square miles contributes directly to surface runoff.

Channel and Control

There is no well-defined control and channel control will prevail at all stages. Backwater from the Republican River could occur.

Discharge Measurements

Measured by wading in vicinity of gage at low stages, and from US Highway 136 bridge at medium and high stages.

Floods

Maximum instantaneous discharge during period of record, 12,200 cfs on July 9, 1950; gage height, 13.22 feet present datum. On August 31, 1969, discharge 4,930 cfs; gage height 10.21 feet. Flood stage is at about 10.00 feet gage datum.

Extremes for Period of Record

Peak discharge 12,200 cubic feet per second July 9, 1950 at gage height 13.22 feet; minimum daily discharge 5.7 cubic feet per second June 25, 2006.

Point of Zero Flow

2.67 feet, August 2, 2017

Winter Flow

Usually only partial ice cover. During extreme cold periods, stream will have complete ice cover.

Regulation and Diversions

Several small pump diversions for irrigation above the gage.

Accuracy

Measuring conditions are good. Records of stage are fair. Open water records are good, but poor-to-fair during periods of backwater from ice.

Establishment and History

Non-recording station established August 6, 1946, by U.S. Bureau of Reclamation. Established as recording station October 1, 1948 by U.S. Geological Survey (USGS). Station discontinued October 8, 1956. Established as partial-record site September 7, 1961.

Reestablished as recording station October 1, 1968 to September 30, 1975. Reestablished as recording station October 1, 1977.

Original gage was an enameled staff gage section attached to a steel post near a piling on left bank under downstream side of Railroad Bridge at datum 2.16 feet higher than present datum. This gage was supplemented by an enameled staff gage section in a steel drum buried in left bank at upstream side of railroad bridge and connected to the stream by a 2-inch intake pipe at datum 2.32 feet higher than present datum. This station was operated by the U.S. Bureau of Reclamation August 6, 1946 to April 1, 1948, when it was taken over by the USGS.

A Stevens A-35 water-stage recorder was installed in a Lincoln Standard 48-inch corrugated iron pipe well and shelter on October 1, 1948, at Highway Bridge 240 feet upstream from original site at datum 1.32 feet higher than present datum. The inside gage, which was the reference gage, consisted of a weighted tape and adjustable reference point tape length was 20.00 feet. The outside gage was a type-A wire-weight gage on downstream guardrail of Highway Bridge. Elevation of check bar was 17.44 feet gage datum.

A flood on July 9, 1950, scoured the streambed about two feet, leaving the intakes above water. The gage datum was lowered 1.32 feet on July 11, 1950, which is present datum. An extension was placed on the lower end of the gage well and a lower intake installed with completion on September 14, 1950. The new elevation of the inside reference point and new tape length was 21.32 feet.

The station was discontinued on October 8, 1956. The shelter and well door section were removed and the well section capped in the spring of 1957.

A partial records site was established September 7, 1961 at same site and datum that existed October 8, 1956. The gage consisted of a 1950 College Park-type crest-stage gage (13-inch pipe fastened to pier on downstream side of bridge. Aluminum indicator 10 feet long was scored and numbered at one-foot intervals. Bottom of indicator was at 5.10 feet and top of indicator at 15.10 feet. The top of the indicator was 4.08 feet below the top of the pipe and was attached to pipe cap with a chain. The elevation of the top of the pipe was 19.18 feet.

The site was reestablished as recording station, same datum, October 1, 1977. Plumbing and wire-weight gage had not been removed from gage site when station was discontinued September 30, 1975.

In the summer and fall of 1983, a new highway bridge was built. The wire-weight was moved 240 feet downstream to the railroad bridge during bridge construction. On March 29, 1984 a 5'x 5' Corps-type shelter was installed on the left bank 15 feet downstream from Highway 136. A 35-foot servo-manometer was installed. The old well gage was removed and back filled with fill sand. A wire-weight gage was installed on the upstream guardrail of new bridge. Check bar elevation was 16.88 feet gage datum.

This site was removed from the Co-op Agreement between the USGS and State of Nebraska DWR on April 24, 1995. On April 25, all new equipment was installed by the DWR who took over operation of the station. DWR installed a Fluid data G-2 manometer, wire-

weight, safe purge gas system and A-71 strip chart recorder. Levels were run to new wire-weight at this time.

A Sutron DCP was added July 25, 2002 by the USBR for real time monitoring.

On Oct 20, 2009 gage instrumentation was removed A-71, Fluid d=Data G-2, shaft encoder and safe purge system. An Accubar transducer and sight feed was installed.

November 21, 2011 new safe-purge system was installed and the sight feed removed.

June 17, 2013 the Accubar pressure transducer and nitrogen site feed were replaced with a Sutron Constant Flow Bubbler connected to a Sutron Satlink data recorder and transmitter.

On April 13, 2016, to prepare for Nebraska Department of Roads (NDOR) bridge construction, the sand point orifice, wire weight and all inside equipment was removed from this site. A temporary recording gage consisting of a Solinst level logger contained in a sand point was installed approximately 130 feet downstream from the highway bridge on the right side of the creek, also a new base gage consisting of an enameled staff plate gage was installed on the left edge of the creek at the same downstream distance as the level logger. Level logger was removed on October 11, 2016

On September 29, 2016 the 5' x 5' Corps shelter was replaced with a 24" x 30" x 72" stainless steel, cabinet style gage house and new equipment near the bridge.

The wire-weight gage was installed on October 19, 2016.

On June 15, 2021 a new Sutron OTT RLS non-contact radar was installed on the upstream side of the highway bridge. A Sutron Satlink V3 was also installed at this time.

On October 12, 2021 the non-contact radar gage became the primary recorder and the CFB was disconnected from the Satlink.

June 14, 2022 the non-contact radar and wire weight were removed from the upstream side of the bridge and relocated to the downstream side of the bridge.

Revision History

Original description prepared 01-18-1949 by A. E. Hulme

Revised 09-19-1952 by G. L. Whitaker

Revised 09-19-1961 by C. R. Liggett

Revised 07-08-1974 by C. R. Liggett

Revised 04-16-1980 by M. M. Gilbert

Revised 02-13-1995 by B. D. Edgerton

Revised 02-01-1996 by J. A. Marburger

Revised 02-19-1998 by J. A. Marburger

Revised 12-04-1998 by J. A. Marburger

Revised 12-03-1999 by J. A. Marburger

Revised 09-27-2001 by J. A. Marburger
Revised 12-04-2003 by J. A. Marburger
Revised 06-07-2005 by J. A. Marburger
Revised 01-10-2006 by J. A. Marburger
Revised 12-10-2010 by J. A. Marburger
Revised 04-13-2015 by D. Gunderson
Revised 01-20-2017 by D. Gunderson
Revised 02-06-2017 by J.A.Marburger
Revised 01-12-2018 by D. Gunderson
Revised 10-19-2021 by D. Gunderson
Revised 12-13-2022 by D.Gunderson