

Center Creek at Franklin, Nebraska 06851000

LOCATION

Latitude and Longitude

40.09243, -98.96409

Road Log

Located on left bank at downstream side of bridge on the West/East county road "G" on the west side of Franklin. County road "G" also known as "J" Street when leaving from the town itself.

Equipment Details

Recording Gage

A Sutron Accubar Constant Flow Bubbler (CFB) logger connected to a Sutron SatLink 2 transmitter/logger with a display panel. The SatLink 2 transmits the logged data from the CFB. The CFB connected to the stream via a bubble line encased in a 1¼ inch black PVC and buried in a trench. The bubble line terminates with the orifice encased in a muffler near the left bank. Equipment housed in a 24 inch x 30 inch x 72-inch stainless steel gage house located on the left wing wall of the downstream side of the county road bridge. The equipment powered by a 12-volt battery with a solar panel charging system.

External Gage

The base gage consists of a wire weight attached to the downstream guardrail of the county road bridge.

Bench Mark and Reference Marks

Gage datum = 1829.308 feet (NAVD88).

RM #4 is a Department of Roads brass tablet set in the right downstream wing wall. Sea level elevation stamped on tablet = 1,840.493. Gage datum elevation = 11.99 feet (levels ran July 28, 2022. Origin).

RM #5 is a chiseled square "□" on left downstream wing wall. Gage datum elevation = 12.185 feet (levels ran July 28, 2022).

RM #6 is a 1-inch diameter rebar set in concrete. RM #6 is located 6 feet North (upstream) of left wing wall. 5 feet south (downstream) of corner fence post and in-line with north south fence line. Gage datum elevation = 10.225 feet (levels ran July 28, 2022).

RM #7 is a NDNR aluminum cap 2.7 feet south from the east wood post of the northeast guardrail and countersunk 8 inch. Gage datum elevation = 12.32 feet (levels ran July 28, 2022).

Tape down mark is a chiseled arrow on the downstream concrete guardrail at station 53 feet from the left edge of bridge. Elevation = 14.425 (levels ran July 28, 2022)

Wire-weight gage on the downstream guardrail of county road bridge: Gage datum elevation = 13.785 feet (levels ran July 28, 2022).

Hydrology

Drainage Area

177 square miles, approximately, of which about 56 square miles contributes directly to surface runoff.

Channel and Control

The channel is straight for approximately 200 feet above and below the gage. The streambed is composed of fine sand and silt subject to constant shifting. There is heavy growth of timber along both banks both above and below the gage.

Channel control will prevail at low to mid stages. Flow will spill over into the floodplain at approximately 1834.00 gage datum. The streambed shifts rapidly with changing stage.

Discharge Measurements

Low stages by wading near the gage. High stages measured from the bridge.

Extremes for Period of Record

Peak discharge 3,150 cubic feet per second September 20, 1950 at gage height 6.80 feet; minimum daily discharge zero August 29, 1948.

Point of Zero Flow

Variable due to constant shifting streambed when high water events occur; approximately 2.01 feet May 5, 2012; approximately 1.60 feet December 6, 2012; approximately 0.54 feet August 1, 2017.

Winter Flow

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

Regulation and Diversions

A few small pump diversions upstream from gage.

Accuracy

Records are fair, except estimated records are poor.

Establishment and History

Original gage consisted of enameled staff gage section attached to downstream shoreward side of second pile bent from right end of bridge on old location of State Highway 3 at west

edge of Franklin. Gage read from 0 to 3.34 feet Datum of gage was 1,828.07 feet above National Geodetic Vertical Datum of 1929. Station operated by Bureau of Reclamation from Aug. 5, 1946 to April 1, 1948.

Then the station taken over by the U.S. Geological Survey.

An additional enameled staff section (reading from 3.4 to 6.7 feet) added to the original staff gage on Feb. 10, 1949.

A second staff gage consisting of enameled gage sections (reading from 0 to 6.7 feet) was installed on March 14, 1951 at downstream stream ward side of first pile bent from left end of bridge at original site and datum.

The station moved 1.5 miles upstream to a location on the downstream side of bridge on State Highway 136, 1 mile Northwest of Franklin and 3 miles upstream from mouth on Dec. 19, 1952, at datum 31.11 feet higher (1,859.18 feet above National Geodetic Vertical Datum of 1929).

The gage consisted of a wire-weight gage on the downstream guardrail of bridge on Highway 136, formerly State Highway 3. Elevation of check bar was 22.00 feet. Station discontinued Oct. 10, 1956.

Station reestablished as a partial-records site on Sept. 7, 1961, at site and datum of wire-weight gage. Gage consisted of a 1950 College Park type crest-stage gage (1¼" pipe) fastened to pier on downstream side of bridge. Aluminum indicator 10-feet long scored and numbered at 1-foot intervals. Bottom of indicator was at elevation 3.33 feet and top, at 13.33 feet. The top of the indicator was 9.40 feet below top of pipe and attached to a pipe cap with a chain. Elevation of top of pipe was 22.73 feet

The crest-stage gage lowered 0.84 feet on May 1, 1963, which changed datum of gage to 1,858.34 feet above National Geodetic Vertical Datum of 1929.

Recording gage established Oct. 1, 1968, at same site and datum. Stevens A-35 water-stage recorder (scale 1:6) housed in a 48-inch corrugated iron pipe shelter on a wooden platform. Recorder operated by servo-manometer with orifice in well point; tubing encased in a combination of 1¼ inch galvanized pipe and ¾ inch electrical conduit. The reference gage was a standard wire-weight gage on downstream guardrail of Highway Bridge.

This station discontinued Sept. 30, 1975.

Recording gage established Oct. 1, 1977, at same site and datum.

This gage discontinued on Sept. 30, 1994.

On Aug. 23, 2002, the station moved to present location by the State of Nebraska Department of Natural Resources. Gage datum at this site is 1828.50 feet the gage now consists of a continuous record station and a wire-weight, which is a Water Log Series H-350 Lite pressure transducer and a Sutron 8200 DCP with satellite transmitter.

A Sutron SatLink 2 logger/transmitter installed on April 21, 2005 at which time the H-350 pressure transducer and Sutron 8200 removed.

On June 18, 2013, a Sutron Accubar Constant Flow Bubbler (CFB) installed and the nitrogen gas bubbler system removed.

Levels run on June 3, 2014 by the Lincoln Survey Dept. to convert the elevations from NGVD29 to NAVD88. NAVD88 was found to be +0.794 different from NGVD29. From this date, forward NAVD88 elevations will be used.

On October 29, 2014, the "gun cabinet" style gage house removed and replaced with a stainless steel gage house.

Revision History

Original description prepared 04-28-2003 by David Gunderson

06-07-2005	revised by J.A. Marburger
01-18-2008	revised by J.A. Marburger
12-10-2010	revised by J.A. Marburger
09-16-2015	revised by D. Gunderson
04-05-2016	revised by D. Gunderson
11-22-2017	revised by D. Gunderson
11-21-2022	revised by D. Gunderson