

South Platte River at North Platte, Nebraska 06765500

LOCATION

Latitude and Longitude

41.11887, -100.7732

Road Log

Located on left bank 0.5 mile upstream of bridge on U. S. Highway 83, 5.5 miles upstream from confluence with North Platte River.

Equipment Details

Recording Gage

Sutron CBS flow meter with a Satlink DCP is installed in a prefabricated 5 feet x 5 feet x 8 feet metal shelter. Flow meter connected to stream with a sand point/open-end orifice line depending on conditions. The Satlink DCP transmits gage height data to the world on a one-hour transmission with 15-minute data blocks.

External Gage

Chain-gage attached to the west side of the shelter.

Bench Mark and Reference Marks

REFERENCE POINTS and ELEVATIONS: R.M.'s 1 thru 6 and 9 thru 12 have been abandoned or destroyed.

R.M. #7: A standard bronze tablet in a concrete post 115 feet upstream and 15 feet shoreward from old shelter located 200 feet east of current shelter location. Elevation 16.16 feet from levels dated September 22, 2017.

R.M. #8: A standard bronze tablet in a concrete post 6 feet upstream from old shelter located 200 feet east of current shelter location. Elevation 15.77 feet from levels dated September 8, 2015. (Origin)

R.M. #13: X In North East corner of new shelter base. Elevation 16.44 feet from levels dated September 22, 2017.

Chain-Gage: Attached to the west side of the 5 foot x 5 foot shelter. Held 9.35 feet Found 9.35 feet from levels dated September 22, 2017.

Datum of gage is 2787.73 feet above mean sea level (from levels of Aug. 14, 1957 and U.S.C and G.S. benchmark No. 2822; elevation 2820.39 feet). Prior to 1964, datum of gage published as 2790.30 feet above mean sea level (see first paragraph under 'Establishment and History').

Summary of the datum's since Nov. 11, 1930:

Nov. 11, 1930 to Sept. 30, 1941	2798.22 Feet
Oct. 1, 1941 to Sept. 30, 1942	2794.65 Feet
Oct. 1, 1942 to July 18, 1945	2793.65 Feet
July 19, 1945 to July 9, 1952	2792.63 Feet
July 10, 1952 to Dec. 6, 1953	2791.63 Feet
Dec. 7, 1953 to July 18, 1954	2790.63 Feet
July 19, 1954 to Dec. 10, 1956	2789.63 Feet
Dec. 11, 1956 to date	2787.73 Feet

Hydrology

Drainage Area

24,300 square mile, approximately.

Channel and Control

The general channel is straight for several miles above and below the gage, but at low and medium stages, shifting and secondary meandering occurs. The banks will overflow at extremely high stages. Considerable bank stabilization done to both banks near the gage since establishment in 1914. Some gravel and sandpit operation has also affected channel conditions both above and below the gage. The streambed is composed of shifting sand and fine gravel, and no well-defined control exists.

Discharge Measurements

Low and medium flows measured by wading near the gage. High flows measured from the highway bridge below the gage.

Floods

Maximum flood observed since June 1, 1914, 37,100 cubic feet per second June 3, 1935 (gage height, 14.02 feet, present datum; 6.10 feet, datum then in use).

Extremes for Period of Record

Peak discharge 37,100 cubic feet per second observed June 3, 1935, gage height 14.02 feet; Minimum daily discharge 35 cubic feet per second January 4, 1949.

Point of Zero Flow

At approximate stage of 6.25 feet and variable due to nature of sand bed.

Winter Flow

Moderate ice conditions may occur during winter months.

Accuracy

Records considered good with bi-weekly measurements along with high flow measurements from rain events. Timely measurements under ice conditions will enhance accuracy of estimated record.

Establishment and History

Established June 1, 1914. A vertical staff gage attached to a piling at the upstream end of one of the bridge abutments. The gage datum was determined by the office of the Nebraska State Engineer to be 2,796.47 ft. above mean sea level. It is not known to what datum this determination is referenced. The Geological Survey ceased operation of the station in September 1915. However, the State Engineer continued operation of the station and the staff gage relocated from time to time to accommodate channel changes and a change in bridge structures. No record of these changes is available.

On March 24, 1928, the city engineer of North Platte, starting from a benchmark on the southwest corner of west sidewalk, 100 feet north of irrigation canal on Jeffers Street (given elevation, 2,802.59) found the gage datum to be 2,798.37 feet above mean sea level. Referenced to the city of North Platte datum and its relationship to U.S.C. and G.S. datum is not known. It also is not known whether the differences between this determination and that made in 1914 represent a change in gage datum or a difference in base sea level datum's.

On Nov. 11, 1930, the gage datum was lowered 0.15 foot.

In August 1931, the Geological Survey resumed operation of the station using the existing staff gage at the datum established on Nov. 11, 1930.

On Oct. 4, 1934, this staff gage was replaced by two staff gages set at either end of the bridge to accommodate shifting channel conditions. These gages were set at the same datum as that of the abandoned staff.

Dec. 8, 1936 to Mar. 12, 1973, recording gage (at changing datum's – see summary below) in well attached to downstream end of various bridge piers, depending upon meander of low-water channel through bridge reach. (See Main Station Descriptions dated 2-8-58 or 8-30-77 for gage pier locations through this period).

On Mar. 13, 1973, a temporary staff installed on left bank 0.5 mile upstream from bridge at same datum.

On Mar. 27, 1973, a 48-inch CMP well and shelter was installed on left bank 0.5 mile upstream from bridge. No change in gage datum.

On Aug. 11, 1981 a 5 foot x 5 foot x 8 foot prefabricated metal shelter, housing a Stacom manometer, was installed on left bank 50 feet downstream from bridge carrying north bound traffic 0.5 miles east (downstream). No change in datum.

Mar. 17, 1993 - Jan. 15, 1996 a shelter housing a Stacom manometer 0.5 mile upstream from bridge. No change in gage datum.

On October 1, 1993, this site removed from USGS Cooperative program. Site maintained solely by DNR from October 1, 1993.

October 3, 2007 relocated 5 foot x 5 foot x 8-foot shelter 200 feet upstream of old site. Station relocated due to being isolated at old site. There is a +0.48 foot difference in water surface elevation from old site to new.

On February 28, 2008, a Chain-Gage attached to the west side of the shelter and became the base reference gage replacing a staff gage.

On September 19, 2013, equipment relocated to a "temporary" shelter as per Tom L. Hayden. This temporary shelter installed during the flood stage out of fear of losing the main shelter to the flood channel; temporary shelter is located approximately 20 feet north of the main (5 foot x 5 foot x 8 foot) shelter.

On November 20, 2013, all equipment stolen from the "temporary" shelter. A new ISCO and equipment reinstalled in the original 5 foot x 5 foot x 8-foot shelter.

On February 26, 2016, the ISCO Model 4230 Bubbler flow meter removed and new Sutron CBS flow meter with a Satlink DCP installed.

On 01-04-2021 removed Bubbler S/N 1510549 no pressure. Installed Bubbler S/N 1908053.

On 01-06-2021 removed Sat V2 S/N 1510266 transmitting issues. Installed Sat3 S/N 2001618.

On 10-21-2020 removed yagi antenna and installed dome S/N 2002314.

Revision History

Original description prepared 06/18/1914, C.J. McNamara

Revised: 11/11/1914, Robert Follansbee

Revised: 06/21/1932, Robert Follansbee

Revised: 02/13/1935, Robert Follansbee

Revised: 01/09/1937, R. Follansbee

Revised: 12/22/1938, R. Follansbee

Revised: 12/02/1942, L. F. Hanks

Revised: 05/16/1946, E. R. Leeson

Revised: 02/08/1958, G. G. Jamison

Revised: 08/30/1977, J. W. Vassos

Revised: 01/18/1982, J. W. Vassos

Revised: 01/13/1994, J. F. Ostdiek

Revised: 03/12/1996, J. W. Vassos

Revised: 01/30/1998, J. W. Vassos

Revised: 10/20/1998, J. W. Vassos
Revised: 11/01/2000, J. W. Vassos
Revised: 01/07/2003, J.W. Vassos
Revised: 10/28/2004, J.W. Vassos
Revised: 10/06/2005, J.W. Vassos
Revised: 10/05/2009, A.S. Leisy
Revised: 10/06/2010, A.S. Leisy
Revised: 12/17/2013, Trevor J. Massey
Revised: 05/06/2014, S. Wright
Revised: 04/11/2017, J.A. Marburger
Revised: 12/06/2017, J.A. Marburger
Revised: 02/28/19, T. Stephens
Revised: 12/27/21, K.Schwager