NEBRASKA
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DEPT. OF NATURAL RESOURCES

Horse Creek near Lyman, Nebraska
06677500

LOCATION

Latitude and Longitude

41.93934, -103.9873

Road Log

On right bank 30 feet upstream from Co Rd 5 bridge, 1.8 miles upstream from mouth of the North Platte River, 2.2 miles downstream from Owl Creek and 3.2 miles northeast of Lyman.

Station may be reached from Morrill by driving south on Sth Morril Rd at west edge of town for 2.3 miles, then turning right (west) on first intersecting road (County Rd F) south of the North Platte River and driving 3 miles, then right (north) 0.7 mile on County Rd 5 to gage.

Equipment Details

Recording Gage

The base recorder is a Sutron Accubar Constant Flow Bubbler (CFB) Flow Meter and a Satlink DCP unit housed in a cube type shelter and connected to the stream with an orifice line. The DCP provides one-hour transmissions with 15-minute data sent to the satellite and downlink stations.

External Gage

Recording gage referenced was a staff gage (0.00-6.74) located on the upstream side of bridge piling 25 feet downstream from shelter.

Staff was removed on April 10th, 2018 and replaced with a wire weight as the base gage.

Bench Mark and Reference Marks

3992.84 ft. NGVD29 / 3995.143 ft. NAVD88

No. 1, 2, 3, 4, 5 and 6 have been destroyed and/or abandoned. R.M. 10 was destroyed with removal of CMP station.

R.M. No. 7: Is a standard bronze tablet 12 feet east of shelter by a steel post with an elevation of 9.28 ft.

Elevation 9.28 ft. from levels dated 07/18/2016. (Origin)

R.M. No. 8: Is a standard bronze tablet on right bank 33 feet south then 18 feet east of downstream bridge rail or 3 ft. west and 4 ft. north of RM#9 with an elevation of 12.60 ft. from levels dated 04/10/2018.

R.M. No. 9: Is the top of a Ω bolt in concrete culvert across the irrigation lateral 37 feet south then 18 feet east of downstream bridge rail with an elevation of 12.49 ft. from levels dated 04/10/2018.

R.M. No. 11: Is an X in angle iron set in concrete 5 feet south of station with an elevation of 9.61 ft. from levels dated 04/10/2018 (used as origin).

R.P. #2: The end of bolt in bridge rail on 5th rail support from the left end with an elevation of 13.45 ft. Last shot April 10, 2018 with an elevation of 13.49 ft.

STAFF: (0 – 6.74 staff gages) located on the first upstream piling north (left) of south (right) bridge abutment.

Staff found off 0.10 ft. on levels ran on 04/04/18. Removed on April 10th.

Staff was removed on April 10th, 2018 and replaced with a wire weight as the base gage.

Wire Weight Check Bar: Elevation 12.03 was established on 04/10/18.

Hydrology

Drainage Area

1,707 sq mi, (from NRC, 1992) approximately, of which about 40 sq mi is non-contributing.

Channel and Control

Channel control will be in effect for low and medium stages. The county road bridge opening may act as a partial constriction and control during high stages. Debris can be expected to collect on bridge piling during flood occurrences. Left bank is near vertical. Overflow will first occur on right bank.

Discharge Measurements

Low and medium stage (1.0 to 5.0 feet) can be made by wading in vicinity of gage. High stage measurements (above 5.0 feet) can be made by hand line or craning from county road bridge below gage.

Floods

Stream is subject to sharp rises of short duration caused by summer rains and/or spill water from irrigation projects. Maximum discharge for period of record is 5,110 cfs June 6, 1967 (gage height, 10.82 feet) from rating extended above 1,900 cfs on basis of slope area measurement (No. 1181) of peak flow. A gage height of 10.43 feet occurred on July 10, 2001 as the result of rain event and spill from an irrigation district. Flow for peak was determined to be 3880 cfs of which 250 cfs was estimated overflow on county road north of gage.

Seasonal Flow Conditions

Partial to complete ice cover will form during extended cold periods of winter months. Ice jams may occur as a result of severe ice cover. Flow may become choked off from snow

blowing into channel. Irrigation runoff and spills from irrigation district will result in increase in discharge during summer months. Small irrigation diversions and spills above gage will cause some minor stage variations.

Extremes for Period of Record

Peak discharge 5,110 cubic feet per second June 6, 1967, gage height 10.82 feet;

minimum daily discharge 0.40 cubic feet per second February 1, 1949.

Accuracy

Records good except for ice periods or any estimated periods due to malfunction of equipment, which are poor. Measurements made as scheduled.

Establishment and History

Vertical staff gage established Feb. 18, 1931 by State Bureau of Irrigation at site approximately one mile upstream of Mitchell-Gering Canal siphon at different datum. Occasional measurements made at this site subsequent to 1919.

Nov. 23, 1939 to Mar. 31, 1944 water-stage recorder at site 200 feet upstream from bridge at gage datum 3994.84 ft. NGVD29 (2.00 ft. higher than present datum)

Apr. 1, 1944 to Nov. 5, 1953 water-stage recorder at site 250 feet upstream from bridge at gage datum 3994.84 ft. NGVD29 (2.00 ft. higher than present datum)

Nov. 6, 1953 to Apr. 14, 1968 water-stage recorder at site 135 feet upstream from bridge at gage datum 3993.84 ft. NGVD29 (1.00 ft. higher than present datum)

Apr. 15, 1968 to Nov. 25, 1991 water-stage recorder at site 10 feet upstream from bridge at gage datum 3992.84 ft. NGVD29.

On Nov. 26, 1991 gage was moved to 30 feet upstream from county road bridge with no change in datum.

On October 31, 1995 Balance Beam Manometer, model G-2, A-35 water- stage recorder and Telog data logger was removed and replace with an Isco model 4230 Bubbler Flow Meter.

On April 8, 2004 the 48-inch CMP was removed and replaced at previous site with a 20-inch x 28-inch metal shelter on a 5-inch pipe type pedestal. No changes to instruments or orifice.

On August 16, 2016 the ISCO Model 4230 bubbler flow meter and phone equipment was removed.

On April 10th, 2018 the staff was removed and a wire weight was put in place on the bridge rail to be used as the new base gage. Levels were ran and the wire weight check bar elevation was established at an elevation of 12.03 ft.

Revision History

Original Station Description Prepared by: H.H.O. & F.F. 12/22/1938

Revised by: C.V.B. & G.W.C. 5/20/52

Revised by: G.G.Jamison 09/23/1971

Revised by: J.W.Vassos 01/13/1994

Revised by: J.W.Vassos 03/26/1996

Revised by: J.W.Vassos 05/30/1997

Revised by: J.W.Vassos 02/03/1999

Revised by: J.W.Vassos 01/17/2001

Revised by: J.W.Vassos 03/12/2002

Revised by: J.W.Vassos 03/03/2003

Revised by: J.F.Ostdiek 10/05/2004

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

Revised by: S. Wright 07/30/2014

Revised by: J.A. Marburger 01/30/2017

Revised by: Brett S. Schluterbusch 12/15/2017

Revised by: J. Nichols 08/09/2018

Revised by: S. Figuric 01/24/2019