NEBRASKA
Good Life. Great Water.
DEPT. OF NATURAL RESOURCES

White River at Crawford, Nebraska
06444000

LOCATION

Latitude and Longitude

42.68664, -103.4177

Road Log

Located on right bank 15 feet (5m) downstream from bridge in City Park at Crawford.

Nearby Features

One mile South of the site is Hwy 20 and half mile North is railroad crossing on 1st street.

Equipment Details

Recording Gage

Sutron Satlink2-V2 HDR Logging transmitter, and a Sutron accubar CF bubbler.

External Gage

An enameled staff (0.00 – 6.74 ft) is mounted on the right downstream wingwall of bridge 15 feet upstream from gage shelter.

Bench Mark and Reference Marks

R.M. No. 1, R.M. No. 2, R.M. No. 4, and **R.M. No. 5** have been destroyed

R.M. No. 3 - [use as origin] Standard Brass Tablet on upstream right edge of water on the concrete bridge abutment (below rail). Elevation 10.12 feet by levels December 15, 2021.

R.P. No.3 X in middle of steel guard rail on DS side. Elevation 13.51 feet by levels December 15, 2021.

R.P. No.3 X chiseled in middle of steel guardrail on downstream side of bridge. Found elevation 13.51 feet from levels December 15, 2021.

R.P. Slotted screw on front edge of instrument shelf. Found elevation 15.19 feet by levels from December 15, 2021.

R.M.No.6 Letter "F" on top of step east of water fountain. RM#6 established on August 18th, 2014. Found elevation 12.76 feet from levels December 15, 2021.

Staff Gage 6.74 feet found elevation by levels December 15, 2021.

Inside Tape length 15.19 feet. Tape length found 15.19 on March 21st, 2017.

Datum of gage is 3,659.85 ft National Geodetic Vertical Datum of 1929.

Hydrology

Drainage Area

313 mi².

Channel and Control

The channel is straight for about 400 feet upstream and 150 feet downstream from gage. Small rock riffle at the gage serves as a low to medium stage control. Persons unknown will at times, during summer months, alter the arrangement of the rocks causing a slight change in stage to discharge relation. Small pieces of debris along with sand and silt may collect or form on the control. The banks of the channel appear stable. Velocities for high flow can be expected to be swift. Bank overflow will occur near a 5.0-foot stage.

Discharge Measurements

Low and medium flows may be measured by wading in the vicinity of the gage. Medium and high flows may be measured from the bridge above gage. Extreme high flows may be measured from bridge on U. S. Highway 20 approximately 1.0 mile above station. Peaks are of short duration and stage changes rapidly making high flow measurements difficult to obtain.

Floods

Maximum gage height for period of record 16.32 feet May 10, 1991; maximum discharge 13,300 cfs May 10, 1991. Data from indirect measurement No. 1465.

Extremes for Period of Record

Peak discharge 13,300 cubic feet per second May 10, 1991, gage height 16.32 feet from flood mark. Discharge calculated by indirect method from road overflow and contracted bridge opening.

Minimum daily discharge 0.29 cubic feet per second August 31, and September 2, 2007.

Point of Zero Flow

Variable due to rock and sand movement over control area.

Winter Flow

Partial to complete ice cover will occur during prolonged cold periods. Considerable stage fluctuation will occur during time of warming temperatures from snow and ice melt along stream banks.

Regulation and Diversions

Some regulation at low flows by pumps for irrigation and diversion for water supply for town of Crawford.

Accuracy

Stage-discharge relationship is subject to minor shifting, but good records can generally be obtained except for winter period, which are poor.

Cooperation

U.S. Geological Survey.

Establishment and History

A vertical staff gage attached to bridge on old highway in Sec. 10, 0.5 mi west of Crawford was maintained by the State Engineer from January 1924 through December 1927.

From February 25, 1931 to October 2, 1933, the U. S. Geological Survey maintained a staff gage at the above site.

On October 3, 1933 to September 30, 1943, a chain gage attached to the downstream handrail was operated at a site 1.0 mi southwest of Crawford at bridge on U. S. Highway 20.

(Discharge records at above sites comparable to present site, but datum relationship could not be determined.)

On September 19, 1947 a Leupold-Stevens A-35 continuous recorder was installed in a 48-inch CMP well and shelter at present site and datum. The base gage was a reference point on the instrument shelf.

On November 4, 1996 a Stevens 420 logger with a Stevens SDT-10 pressure sensor was installed in the 48-inch CMP shelter and well. The logger became base recording instrument and operates independent of Stevens A-35 water-stage recorder. SDT-10 sensor was located in stream near the intakes until March 13, 2000 when it was relocated inside of well.

Intakes continue to function to allow for operation of instrumentation. Logger is referenced to the water surface in the stream by referencing to inside R.P. located on front edge of instrument shelf. An enameled staff (0.00 – 6.74 ft) is mounted on the right downstream wingwall of bridge 15 feet upstream from gage shelter. Sensor will operate proper during winter months inside well due to sufficient depth of water in well.

On August 17, 2000 is an ISCO Bubbler Recorder 4220 and telephone data link was installed.

On November 21st, 2016 the ISCO 4230 Logger was removed and replaced with a Sutron Satlink2-V2 HDR Logging transmitter, and a Sutron accubar CF bubbler.

Revision History

Original description prepared 07/12/1932 by S.C. Moore

Revised 10/17/1933 by F.F. LeFever

Revised 08/26/1952 by C.V. Burns

Revised 08/31/1978 by E.K. Steele

Revised	02/24/1992	by J.W. Vassos
Revised	04/01/1998	by J.W. Vassos
Revised	11/10/1998	by J.C.Retchless
Revised	02/06/2000	by J.W.Vassos
Revised	02/08/2001	by J.W. Vassos
Revised	10/24/2001	by J.W. Vassos
Revised	02/07/2005	by J.W. Vassos
Revised	03/16/2017	by J.A.Marburger
Revised	05/01/2018	by J.Nichols
Revised	02/25/2019	by S. Figuric
Revised	11/06/2023	by K.Schwager
Revised	11/07/2023	by S. Figuric