IBW NEAR SHEA BLVD
FCD GAGE ID# 59507 (4693)

STATION DESCRIPTION

LOCATION – The station is located approximately 500 feet south of Shea Boulevard just east of 52nd Street. The instrumentation is on the right (west) bank of the Indian Bend Wash. Access can be gained by turning south on 52nd Street and then east into the city of Phoenix access road/driveway of the first home south of the apartment complex on the east side of 52nd Street. Latitude 33° 34' 53.0" N, Longitude 111° 58' 06.3" W. Located in the NW1/4 NE1/4 S29 T3N R4E in the Paradise Valley 7.5-minute quadrangle.

ESTABLISHMENT – The gage was installed on June 9, 1998.

DRAINAGE AREA – Approximately 25.8 square miles, via USGS Streamstats.

GAGE – The gage is a pressure transducer type instrument. The transducer is at gage height 0.35 feet, levels of February 28, 2019.

ZERO GAGE HEIGHT – Zero gage height is defined as the invert of the low flow channel on the right side of the main channel. Zero elevation is equivalent to 1,344.219 feet NAVD88.

HISTORY – No prior history at this site. The USGS has operated a CSG upstream of Shea Blvd since 1982. FCD gage was installed on June 9, 1998. FCD brass cap was established in November 2000.

REFERENCE MARKS –

RM-IBWSHEA is an FCD brass cap located on the west side of the channel, near the gage standpipe. RM was established in November 2000. Elevation is 8.941 feet gage height and 1,353.160 feet NAVD88, levels of February 28, 2019.

BM-1 is a City of Phoenix brass cap on sidewalk at the right downstream side of the bridge at Shea Blvd. It is unstamped but was found at an elevation of 15.585 feet gage height and 1,359.804 feet NAVD88, levels of February 28, 2019.

RM-1 is a chiseled 'X' on the NE corner of a green utility box on the top of the right bank above the gage standpipe on the SE corner of the parking area. It is at elevation of 15.776 feet gage height and 1,359.995 feet NAVD88, levels of February 28, 2019.

RM-2 is a chiseled 'X' on the right bank sill at the top of the channel near a gate upstream of the station tube. It is at elevation 15.680 feet gage height and 1,359.899 feet NAVD88, levels of February 28, 2019.

RP-1 is a chiseled arrow on the lip of the right low flow channel at the transducer gage. It is at elevation 0.444 feet gage height, levels of February 28, 2019.

RP-2 is the concrete pad at the PT. It is at elevation 0.198 feet gage height, levels of February 28, 2019.

CHANNEL AND CONTROL – The channel at the gage location is a grass lined trapezoidal shaped, with bottom width of approximately 220 feet.

The control for this station is channel control. However, as mentioned in the RATING section below, it is believed that the channel control may transition at intermediate stages from control by local slope conditions to a longer reach influenced by the expanding and rougher golf course reach beginning about 1,000 ft downstream.

RATING – The current rating is Rating #2, which was developed from 3 surveyed cross sections taken in August 2018 in a reach of about 820 feet. An HEC-RAS model was developed from the surveyed cross sections and using the RAS cross section interpolator. An N value of 0.028 and channel slope of 0.00222 was used in the analysis. The computed rating was not significantly different from Rating #1, but due to 20 years passing since the first rating during which time the channel may have changed, an updated rating was created and made retroactive to the beginning of Water Year 2018.

Rating #1, the current rating, was developed by TWL on June 16, 1998 from a one cross section Manning's equation estimate using the cross section at the gage as surveyed on June 15, 1998. Two slopes were considered: 1) the local slope in the reach past the gage as surveyed 6/15/98 for 150 ft upstream to 215 ft downstream of the PT. This slope was surveyed as 0.0009. A second slope was estimated from the 2-foot contour mapping for the recently completed IBW FIS. It showed a slope of 0.0019 for a reach of about 2000 feet downstream of the gage. Stage-discharge curves were computed for both slopes. Given the potential for backwater effects from the expanding reach and golf course irregularities downstream, Rating #1 was created by transitioning from the local slope rating to the map slope rating between about 2 and 5 ft gage height when it is expected that the longer downstream reach would begin to determine the rating at the gage.

Direct and indirect discharge measurements should be made at the earliest opportunity to refine Rating No. 1 as necessary. Also, comparisons with the USGS estimates from the CSG upstream should be examined keeping in mind the addition of flows immediately below the CSG upstream of Shea and the drainage entering from both sides of IBW immediately downstream of the bridge (an open channel on the west and a storm drain inlet on the east).

DISCHARGE MEASUREMENTS – Wading measurements could be made anywhere near the gage for relatively shallow flows. High flow measurements might be possible from the Shea Blvd. Bridge. The sidewalk should be investigated for adequacy using our bridge boom. Indirect measurements could be made in the reach at or near the gage cross section.

POINT OF ZERO FLOW – The PZF is the invert of the concrete low flow channel. The PZF gage height is 0.00 feet, levels of February 28, 2019.

FLOODS – A peak discharge of 5,616 cfs and 4.68 feet gage height occurred on August 2, 2005.

REGULATION – None known

DIVERSIONS – None known

ACCURACY – Fair

JUSTIFICATION – Monitor flows in Indian Bend Wash as part of the Scottsdale Flood Warning System.

UPDATE - April 10, 2019
D E Gardner