

**IBW NEAR SHEA BLVD  
FCD GAGE ID# 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** – The drainage area at Shea Blvd according to the IBW FIS draft hydrology is 24.56 square miles. The USGS shows 41.2 square miles for their CSG upstream of Shea Boulevard, and is believed to be erroneously high.

**GAGE** – The gage is a pressure transducer type instrument. The transducer is at gage height 0.35 feet, levels of June 15, 1998, which was 0.09 feet above the concrete pad at the conduit housing holding the instrument. There are no crest gages or staff gages at this location.

**ZERO GAGE HEIGHT** – Zero gage height is defined as the invert of the low flow channel on the west side of the main channel. Zero elevation is equivalent to 1,344.26 feet NAVD 1988.

**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 8.90 feet gage height, levels of July 23, 2002, or 1,353.158 feet NAVD 1988. Northing 939071.905 feet; Easting 684241.757 feet.

RM 1 is a white paint spot 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 15.84 feet gage height, levels of March 9, 2000.

RM 2 is a chiseled arrow on the top of the right bank of the low flow channel near the PT. It is at an elevation of 0.43 feet gage height, levels of July 23, 2002.

BM 1 is a City of Phoenix brass cap on the SW end of the Shea Blvd. Bridge. It is unstamped but was found at an elevation of 15.61 feet gage height during levels of June 15, 1998.

RP 1 is the concrete pad at the PT. It is at elevation 0.26 feet gage height, levels of July 23, 2002.

**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** – 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 March 9, 2000.

**FLOODS** – A peak discharge of 5,616 cfs and 4.68 feet gage height occurred on August 2, 2005. There have been several flows in excess of 1,000 cfs since gage installation. The USGS has maintained a crest gage upstream of the Shea Blvd bridge since 1982. See USGS records for floods before June 1998.

**REGULATION** – None known

**DIVERSIONS** – None known

**ACCURACY** – Fair

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

**UPDATE** -                      July 19, 2011  
D E Gardner