

IBW NEAR MCKELLIPS ROAD
FCD GAGE ID# 4603

STATION DESCRIPTION

LOCATION — This gage is located about half way between McKellips and Curry Roads on Indian Bend Wash in the Rio Salado Golf Course. The gage house is on the west bike path. The instrument is located near the middle of the channel east of the gage house. Latitude 33° 26' 57.1" N, Longitude 111° 54' 53.5" W. Located in the SW1/4 NE1/4 of S11 T1N R4E, in the Tempe 7.5-minute quadrangle.

ESTABLISHMENT — The gage was established May 21, 1985 by the Flood Control District of Maricopa County.

DRAINAGE AREA — 100 mi²

GAGE — The gage is a pressure transducer connected to a nitrogen bubbler line whose orifice is located near the center of the low flow channel. The orifice elevation is at 0.00 feet gage height, levels of September 30, 2009.

There is one staff gage located near the orifice. The staff gage reads depth in gage height, levels of March 31, 2004.

One crest stage gage is attached to the staff gage with a pin elevation of 0.94 feet gage height, levels of March 31, 2004.

ZERO GAGE HEIGHT — Zero gage height is defined as the 0.00 point on the staff gage at the PT. Elevation = 1,173.99 feet NAVD 1988.

HISTORY — This station was installed May 21, 1985 by the FCDMC. The orifice line was secured to the bottom of the orifice outlet on November 25, 2008. The elevation of the orifice was -0.33 feet gage height as of November 25, 2008. The orifice was replaced and secured again to the top of the orifice outlet box. The elevation changed to 0.00 feet gage height as of September 30, 2009.

REFERENCE MARKS — The reference marks for this site are as follows:

RM-IBWMKLP is an FCD brass cap located just to the south of the gage house on the west bank of the channel. The RM was established in November 2000. Elevation 16.96 feet gage height, levels of March 31, 2004, or 1,190.947 feet NAVD 1988, levels of March 12, 2001. Northing 890957.031 feet; Easting 700564.400 feet.

RM-1 is the lip of cup at bubbler orifice, elevation 0.00 feet gage height, levels of March 31, 2004.

RM-2 was not found during the March 31, 2004 survey, and it is assumed the white paint spot has rubbed off. Elevation 17.25 ft gage height, levels of January 21, 1992.

CHANNEL AND CONTROL – The channel at this location is wide, with the main channel being vegetated with grasses, small shrubs and some recently planted mesquite trees with the overbanks being a manicured golf course of greens and fairways. The channel at the gage is nearly 700 feet wide. The main channel is straight up and downstream of the gage. Grass appears to have a significant effect on the relation at stages below about 1.5 feet. The main channel is the control for stages up to about 10 ft gage height. For higher stages, the overbank area left and right of the low flow channel through the golf course become the channel control.

RATINGS — The current rating is Rating #4. This rating is a modification of Rating #3. The modifications are based on additional flow measurements. Rating #4 is effective as of October 1, 1997, but was not implemented until April 14, 2003. The previous rating is Rating #3, developed by T. W. Lehman. Rating #3 was developed as a modification of ratings one and two. The original rating, Rating No. 1 was developed from a step-backwater HEC-2 analysis by R. W. Cruff from 7 cross sections surveyed on January 21-22, 1992. The low end of the rating was computed using Manning's equation for discharges below 300 cfs. On January 22, 1993 Rating No. 2 was developed by R. W. Cruff by modification of Rating No. 1 to include current meter measurements of July 1992 and January 1993. The low end of the rating was further modified based on examination of USGS current meter measurements made over the history of their gage at Curry Road by T. W. Lehman in Dec. 1997. These modifications called Rating No. 3 were applied to the record as of October 1, 1996 as it is believed the channel has not changed significantly since then and that Rating No. 3 is a truer representation of the low end of the stage-discharge relationship at this site.

DISCHARGE MEASUREMENTS - Wading measurements can be made in the low flow channel downstream of the McKellips Road bridge between the rock riprap and the gaging station cross section. Higher flow measurements can be taken from the Curry Road bridge. However, Curry Road will become inundated at very high flows. McKellips Road bridge could probably be used for such an event. Indirect measurements can be made in the reach past the gage.

POINT OF ZERO FLOW – The point of zero flow is 0.00 feet gage height, levels of September 16, 1997.

FLOODS – July 24, 1992 peak discharge 3,500 cfs at 4.8 ft gage height. October 6, 1993 a peak of 6,040 cfs was measured at Curry Road with a gage height of 6.2 feet at the FCD 4603 site.

REGULATION - Numerous lakes within golf courses in and along the channel. These probably attenuate flows in Indian Bend Wash.

DIVERSIONS – None Known

ACCURACY – Fair

JUSTIFICATION — Monitor flows from FCDMC flood control project of Indian Bend Wash.
Provide real-time warning to Tempe Town Lake.

UPDATE - July 19, 2011
 D. E. Gardner