CAVE CREEK NEAR CAVE CREEK
FCD GAGE ID# 20507 (4918)

STATION DESCRIPTION

LOCATION – The gage site is located approximately 1 mile south of Carefree Highway near the 34th Street alignment. It is near the power line crossing of Cave Creek. Latitude N33° 47' 10", Longitude W112° 04' 00". Located in SE1/4 W1/2 SW1/4 S12 T5N R3E, in the New River SE 7.5-minute quadrangle.

ESTABLISHMENT – Gaging by the District began May 27, 1994. The USGS previously gaged this location, beginning in May 1958.

DRAINAGE AREA – 123.4 mi^2 via USGS Streamstats

GAGE – The gage is a pressure transducer type instrument. The PT is at gage height 0.00 feet or 1,802.15 feet NAVD 1988, levels of July 3, 2017.

There are no staff gages at this location.

There is one crest gage at this site. The pin elevation is at 1.82 feet gage height and 1,804.100 feet NAVD88, levels of July 3, 2017.

ZERO GAGE HEIGHT – Zero gage height is defined as 1,801.900 feet NAVD 1988, based on a the FCDMC BC on top of the hill being 36.200 feet gage height, levels of May 4, 1998, and multiple RTK surveys of the monument since 2001.

HISTORY – The USGS operated a continuous station from May 1, 1958 to September 30, 1967. They operated a crest gage at this location from October 1, 1967 to September 30, 1994. The District established gauging on May 27, 1994. Pressure transducer setup altered on July 12, 2006. Transducer was placed inside a reinforced steel box (sediment sampler). The large box housing the transducer was replaced on October 30, 2013. The previous setup was vandalized. A new transducer housing was installed at that time. A crest gage was added in June 2017.

REFERENCE MARKS –

BM-CCNRCC is an FCD brass tablet set on top of the ledge near the antenna mast. An elevation is stamped on the tablet of 1836.380 feet. Elevation is 1,838.100 feet NAVD 1988, levels of August 27, 2018, and 36.200 feet gage height, levels of September 10, 2014.

BM-50205 is an FCDMC brass cap located west of the gage cross section. It is at elevation 10.318 feet gage height and 1,812.218 feet NAVD88, levels of June 21, 2018.

RP-1 is a nail about 2 feet downstream and about 3 feet shoreward from the PT housing. Elevation 3.42 feet gage height, levels of October 31, 2006.

RP-2 was established on August 28, 2014. The mark is a chiseled 'X' on a concrete pad formerly used as an anchor for a USGS cableway. It is at 10.401 feet gage height and 1,812.301 feet NAVD88, levels of June 21, 2018.

There are five monumented cross sections. All cross sections are suitable for indirect measurements.

POINT	ELEV	NORTHING	EASTING
XS1LB STAKE	1842.74	1013649.563	672731.351
XS1RB STAKE	1818.84	1013888.202	672572.344
XS2LB STAKE	1837.59	1013461.154	672487.759
XS2RB STAKE	1814.95	1013708.917	672313.685
XS3LB STAKE	1835.76	1013285.552	672286.726
XS3RB STAKE	1812.83	1013528.824	672095.846
XS4LB STAKE	1832.54	1013111.741	672046.373
XS4RB STAKE	1809.80	1013334.337	671889.164
XS5LB	1825.41	1012917.914	671784.302
XS5RB	1807.99	1013153.348	671600.332

CHANNEL & CONTROL – The channel is natural with a very high left bank and a gradual right bank with floodplain. The channel bottom consists of many small to large cobbles. There is a mix of sand and cobbles of all sizes.

The channel is straight several hundred feet upstream of the gage site and for several hundred feet downstream from the gage site. Channel shape is very consistent through the five monumented cross sections and beyond the fifth cross section downstream.

The channel is the control for flows above about one foot gage height. Flows less than this amount are controlled by the various riffles in the channel.

RATING – The current rating is Rating #3 (fifth overall). Rating #3 was reapplied following the development and implementation of Rating #4. The rating is an adjustment of previous ratings modified with direct discharge measurements.

DISCHARGE MEASUREMENTS – Direct measurements are possible at low flows at the gage cross section. The bottom has medium to large cobbles that need to be traversed

while wading the channel. Indirect measurements are possible in the five cross section reach. For smaller flows, all five cross sections could be used. For higher flows, sections one, three, and five can be used.

POINT OF ZERO FLOW – The PZF is at about 0.0 feet gage height, levels of July 3, 2017.

FLOODS – The largest flood of record occurred on August 19, 2014 with a peak discharge of 15,850 cfs at 10.65 feet gage height. The second largest flow of record was 15,000 cfs and 11.2 feet gage height on January 21, 2010.

REGULATION – No known regulation

DIVERSIONS – No known diversions

ACCURACY – Good

JUSTIFICATION – Monitor flows into Cave Buttes Dam and continue data collection at a site with 60 years of record.

UPDATE - September 13, 2018
D. E. Gardner