

CENTENNIAL WASH AT SPRR
FCD GAGE ID# 24707
USGS GAGE ID# 09517490

STATION DESCRIPTION

LOCATION – Located in western Maricopa County approximately five miles west of the town of Arlington. Gage is located on the downstream side of the Southern Pacific Railroad bridge. Latitude N 33°18' 35.6", Longitude W 112° 52' 58.4". Located in the SW1/4 NW1/4 SW1/4 S28 T1S R6W in the Gillespie 7.5-minute quadrangle.

DRAINAGE AREA – 1,681 mi².

ESTABLISHMENT – The District installed a gage at this location on February 9, 1990. The USGS also maintains a gage at this site.

GAGE – The FCD gage at this location is a pressure transducer type instrument. The gage is at 4.95 feet gage height, levels of September 30, 2021.

The USGS gage site has a Handar 524 interfaced with a Handar 436A incremental shaft encoder and a Leupold Stevens A-35 graphic water stage recorder. All equipment is housed in a half shelter mounted on a 24-inch corrugated pipe stilling well. The stilling well is 14 ft high and is attached to the downstream side of a Union Pacific Railroad trestle bridge. There are five cleanout doors on the stilling well, all spaced about equidistant from one another. The bottom door is about one foot above the bottom of the well.

There are two staff gages at this location. Inside and outside staffs cover range of 0.0 ft to 10.0 ft gage datum. The inside staff is the rated gage. Both gages read in gage height.

There is one crest gage at this location, attached to the stilling well. It has pin elevation of 4.67 feet gage height, levels of September 30, 2021.

ZERO GAGE HEIGHT - Zero gage height is equal to 839.038 feet NAVD88. Zero is defined by the staff gage zero.

HISTORY – No other gages are known to have operated at this site. The USGS has gaged at this location from the following dates. May 15, 1980 to September 30, 1985. Discontinued. Reestablished February 15, 1990, by U.S. Geological Survey. Record estimated October 1, 1989 through February 14, 1990. The gage datum was lowered 4.00 ft during the 1999 water year. Zero gage datum is now 837.12 ft above mean sea level (from Flood Control District of Maricopa County bench mark. PT 30 elevation 863.96 ft located 1-1/2 miles west of gage along railroad). Zero gage height has been updated to NAVD88 datum. The transducer gage was

moved to a new conduit on the outside of the stilling well on October 23, 2018. A crest-stage gage was added in 2020.

REFERENCE MARKS –

RM-CENTRR is an FCD brass cap located high on the right bank, just downstream from the railroad bridge. Elevation 19.086 feet gage height, or 858.124 feet NAVD88, levels of September 30, 2021.

RM-1 is a bolt on top of the downstream side of the railroad bridge near the right bank. It is at elevation 18.753 feet gage height and 857.791 feet NAVD88, levels of September 30, 2021.

RM-2 is a rebar near the top of the right bank. It is at elevation 18.722 feet gage height and 857.760 feet NAVD88, levels of September 30, 2021.

RM-3 is a bolt, painted white, under the bridge on the ninth pier from the right bank. It is at elevation 9.900 feet gage height and 848.938 feet NAVD88, levels of September 30, 2021.

RM-4 is the top of 3/4-inch bolt securing the bridge deck over 3rd pier from right bank, elevation 18.782 feet gage height and 857.820 feet NAVD88, levels of September 30, 2021.

RM-5 is the high point of the nut on the bolt on in 3rd pier support from right bank, elevation 9.976 feet gage height and 849.014 feet NAVD88, levels of September 30, 2021.

RP-1 is a rebar in the channel on the downstream side of the bridge near the third pier from the right bank. It is at elevation 10.627 feet gage height and 849.665 feet NAVD88, levels of September 30, 2021.

RP-2 is a rebar in the channel on the downstream side of the bridge near the tenth pier from the right bank. It is at elevation 9.316 feet gage height and 848.354 feet NAVD88, levels of September 30, 2021.

CHANNEL AND CONTROL – The channel approaches the railroad bridge from the northwest then bends south at confluence of Winters Wash, about 80 feet upstream of gage. The channel is straight downstream from gage for about 2,000 ft. The streambed is approximately 300 ft wide and composed of sand and clay with gravel deposits in places. Brush and small trees grow in the channel above the gage, but the channel is clear below the gage. In May of 1999 the channel from the gage to about a mile downstream was excavated, lowering the channel bottom 3 to 4 ft. The location of the low flow control, a gravel riffle downstream from the gage, varies for each flow event. The machine-graded channel banks become the control during medium and high flows.

RATING – The current rating is Rating #9. It was developed from a 6 cross section survey in a 1,500-foot reach downstream of the railroad bridge. Survey data were used in an HEC-RAS

model. Previous ratings were developed and maintained by the USGS who also has a gage at this location.

DISCHARGE MEASUREMENTS – Wade below 800 cfs. High-water measurements made by indirect methods. Wading done immediately below bridge to about 700 ft downstream of gage.

POINT OF ZERO FLOW – Approximately 5.3 feet gage height, levels of February 15, 2018. The PZF occurs about 125 feet downstream from the gage railroad bridge.

FLOODS – September 2, 1984, 15,600 cfs, gage height 11.34 ft.

REGULATION – Flow regulated by several small retention dams in upper end of basin. The upper portion of the basin is likely disconnected from the lower watershed except perhaps for extreme events.

DIVERSIONS – None

ACCURACY – Poor. The control is very unstable since the channel was excavated in May of 1999. High flows are needed to fill-in the channel below and stabilize the control at the gage.

JUSTIFICATION – Monitor flows in Centennial Wash for unbridged crossing of Old US80 in Arlington.

UPDATE - November 8, 2021
 D E Gardner