

PHOENIX DAM #7
FCD GAGE ID# 13307 (4853)

STATION DESCRIPTION

LOCATION – The dam is located about 1/2 mile south of the intersection of Thunderbird Road and Central Avenue. The gage is located at the principal outlet of the dam. Latitude N 33° 36' 04.1", Longitude W 112° 04' 21.4". Located in the SW1/4 NE1/4 SE1/4 S17 T3N R3E in the Sunnyslope 7.5-minute quadrangle.

ESTABLISHMENT – The gage was established on December 19, 2001.

DRAINAGE AREA – 0.60 mi²

GAGE – The gage is a pressure transducer type instrument located at the outlet from the dam pool. The transducer is at elevation 0.12 feet gage height, levels of March 8, 2018.

There is one staff gage at this location at the outlet. It has a range of 4 to 23 feet gage height. The displayed values are about 0.67 feet low. Thus, 7.0 feet on the staff is actually 6.33 feet gage height, levels of March 8, 2018.

There are no crest gages at this location.

ZERO GAGE HEIGHT - Zero is defined as the invert of the inlet, elevation 1,371.340 feet NAVD88, levels of March 8, 2018.

HISTORY – No history at this location prior to gage installation. Dam was constructed in 1978. Dam modifications were done in 2009. A staff gage was added since the modifications were done.

REFERENCE MARKS –

BM-4853 is an FCDMC brass cap and is located near the station tube. It is at elevation 27.106 feet gage height and 1,398.446 feet NAVD88, levels of March 8, 2018. Measured again on May 6, 2025.

BM-7-9a is a Phoenix brass cap and is located near the station tube. It is at elevation 29.01 feet gage height and 1,400.35 feet NAVD88, levels of May 6, 2025.

BM-7-8a is a Phoenix brass cap and is located near the station tube. It is at elevation 29.02 feet gage height and 1,400.36 feet NAVD88, levels of May 6, 2025.

RM-1 is a chiseled 'X' on the northeast corner of the upstream inlet headwall. It is at elevation 4.02 feet gage height and 1,375.36 feet NAVD88, levels of March 8, 2018. Measured again on May 6, 2025.

RM-2 is a rebar on the downstream side of the dam near the top, over the outlet culvert. It is at elevation 27.526 feet gage height and 1,398.866 feet NAVD88, levels of March 8, 2018. Measured again on May 6, 2025.

RM-3 is a rebar on the upstream side of the dam near the station tube. It is at elevation 23.025 feet gage height and 1,394.365 feet NAVD88, levels of March 8, 2018. Measured again on May 6, 2025.

RM-4 is a rebar located in the spillway on the west side of the dam. It is at elevation 22.86 feet gage height and 1,394.20 feet NAVD88. Measured again on May 6, 2025.

RM-5 is a chiseled 'X' on the downstream right wingwall. It is at elevation 3.20 feet gage height and 1,374.54 feet NAVD88, levels of March 8, 2018. Measured again on May 6, 2025.

RP-1 is the concrete bottom directly in front of the outlet invert on the pool side of the structure. Elevation -0.11 feet gage height, levels of July 20, 2006. Measured again on May 6, 2025.

RP-2 is the top of the headwall directly above the outlet invert. It is at elevation 1.307 feet gage height, levels of March 8, 2018.

RP-3 is the elevation of the invert at the outlet. It is at elevation 1368.51 elevation NAVD88, and -2.83 feet gage height, levels of May 6, 2025.

CHANNEL AND CONTROL – The primary outlet from the dam is a reinforced concrete pipe culvert. The culvert length is 160 feet. The emergency spillway for the dam is located to the west of the principal outlet.

PRINCIPAL OUTLET / EMERGENCY SPILLWAY –

The principal outlet is a 27-inch diameter concrete culvert pipe, fitted with a metal plate with an 18 inch by 18 inch opening. The invert of the inlet is at 0.00 feet gage height, or 1,371.34 feet NAVD88. The invert of the outlet is at -2.11 feet gage height, or 1,369.23 feet NAVD88. The culvert length is 160 feet. Flow begins through the culvert at 0.00 feet gage height through a square orifice covering the culvert pipe.

The emergency spillway is located to the west of the principal outlet. The bottom width of the spillway is 105 feet. The minimum spillway crest is at about 22.4 feet gage height and 1,393.7 feet NAVD88, levels of July 20, 2006.

The minimum top of the dam elevation is at about 29.0 feet gage height near the outlet, or about 1,400.3 feet NAVD88. Near the spillway, the minimum crest is at about 28.5 feet gage height and 1,399.85 feet NAVD88, levels of March 8, 2016.

RATING – The current discharge rating is Rating #1. The rating was developed using HY8 culvert analysis for principal outlet flows and the weir equation for a broad-crested weir for spillway analysis.

The current capacity rating is Rating #1. Rating #1 was taken from the As-Built design plans.

DISCHARGE MEASUREMENTS – Direct measurements could be taken in the outlet wash/channel below the dam.

POINT OF ZERO FLOW – Flow begins through the primary outlet at 0.00 feet gage height. Flow begins through the auxiliary spillway at approximately 22.4 feet gage height.

FLOODS / SIGNIFICANT IMPOUNDMENTS – The largest event recorded to date occurred on July 14th 2002, with a peak stage of 12.11 feet and peak volume of 20.8 acre-feet and 16.5 percent full.

REGULATION – None upstream of the dam. The dam regulates natural flows on from drainage from the slopes of North Mountain and Shaw Butte.

DIVERSIONS – None

ACCURACY – Fair

JUSTIFICATION – Monitor water levels behind dam for public safety.

UPDATE – May 06, 2025
E.S. Thomas