

Urban Drainage and Flood Control District



E-19 Surveys



Boulder Falls Gage
ALERT ID: 4393
LID: BLFC2

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Introduction

HDR Engineering Inc. was contracted by the Urban Drainage and Flood Control District to survey and provide information about various flood warning stream gage sites in a manner consistent with National Weather Service E-19 procedures. On October 12, 1999, five stream gages and one ungaged site were surveyed by HDR personnel in the Boulder Creek and South Boulder Creek basins. This report is a summary of the work done and information gathered for the Boulder Falls on Boulder Creek. Included in this report are elevations of selected ground points near the site, estimates of stages likely to cause flood damage and descriptions of historic floods and other available high water information.

Site

The stream gage is located on Boulder Creek along Highway 119 between mile markers 33 and 34, approximately 8 miles upstream of Boulder. The ALERT ID number for this Gage is 4393 while the National Weather Service LID is BLFC2 and is referred to as Boulder Falls. There are no structures in the vicinity of the gage. Potential flooding at this gage site itself would be minor consisting of possible inundation of Highway 119 at very high stages. The primary area of flooding potential is in the City of Boulder approximately 8 miles downstream. Figure 1 shows a general location map of the site.

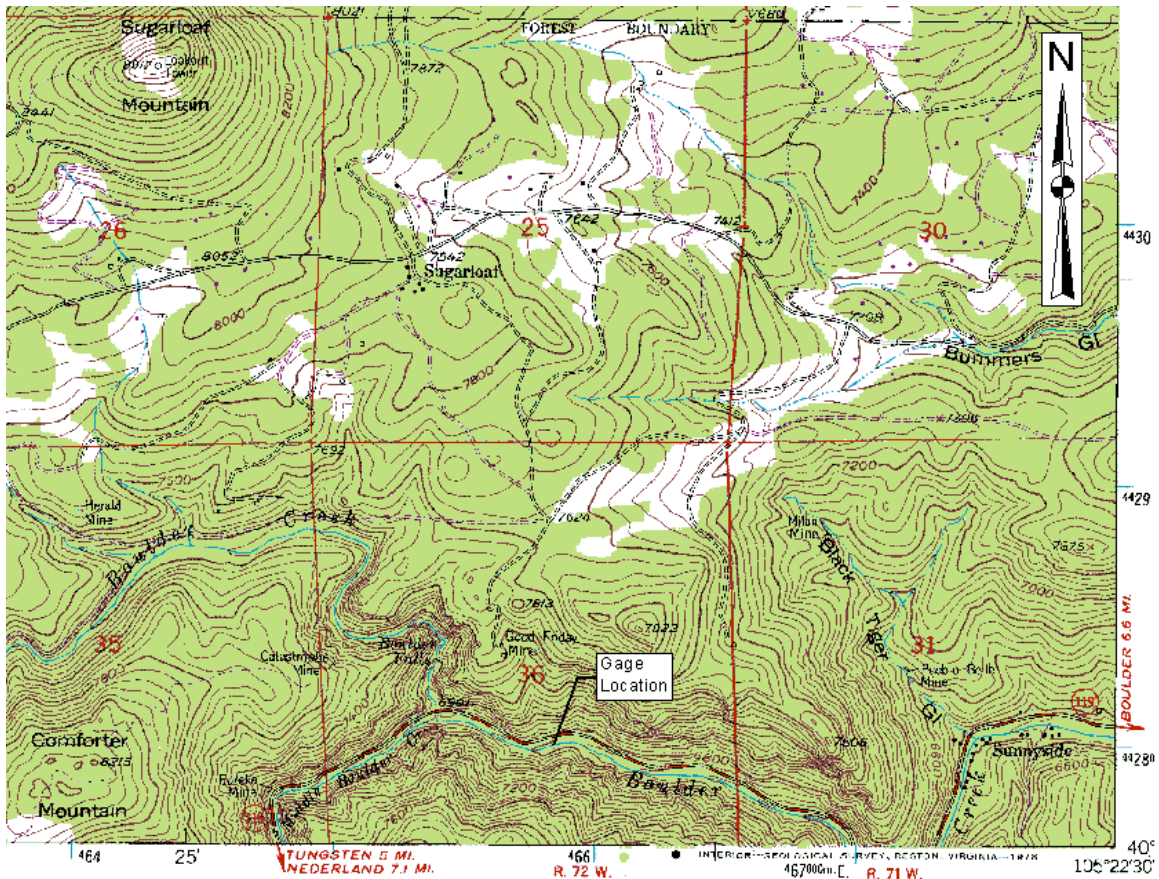


Figure - 1 Location Map

Surveyed locations

The bridge at the location of the gage is a three span concrete structure. Ground elevations were surveyed along a cross section for a possible future rating curve for the site. In addition the abutment corners of the bridge were surveyed, along with water surface elevations of the stream upstream to estimate the channel slope along this reach. Figure 2 shows locations of the surveyed points in the vicinity of the gage. The base of the ALERT transmitter was surveyed at an elevation of 21.00 for a temporary benchmark. Water will begin to overtop the highway at stage 19. Based on the topography of the area, the estimated channel energy slope is 7.5 percent. Dense underbrush prevented surveyed water surface measurements at any distance from the gage.



Figure – 2 Surveyed Points

Site photographs

Several digital photographs were taken of the site and several panorama views were created based on the site photographs. Figure 3 shows Boulder Creek at the gage location looking downstream. Figure 4 shows Boulder Creek at the gage location looking upstream. Figure 5 shows the downstream face of the bridge.



Figure – 3 Looking Downstream



Figure – 4 Looking Upstream



Figure – 5 Left Overbank – Highway 119

Historic records

There is limited information available for this gage. The location has been recently converted to a pressure transducer with an ALERT transmitter.

Flood warning template

The graphics template was created based on the surveyed information, historic records, another information supplied by the Urban Drainage and Flood Control District and the National Weather Service. The graphics template is compatible with the flood warning system and has been created and installed on the District's WebServer. This template is named 4393web.tpt and is located in the appropriate directory in the District's WebServer. Figure 6 shows the graphics template online from the WebServer.

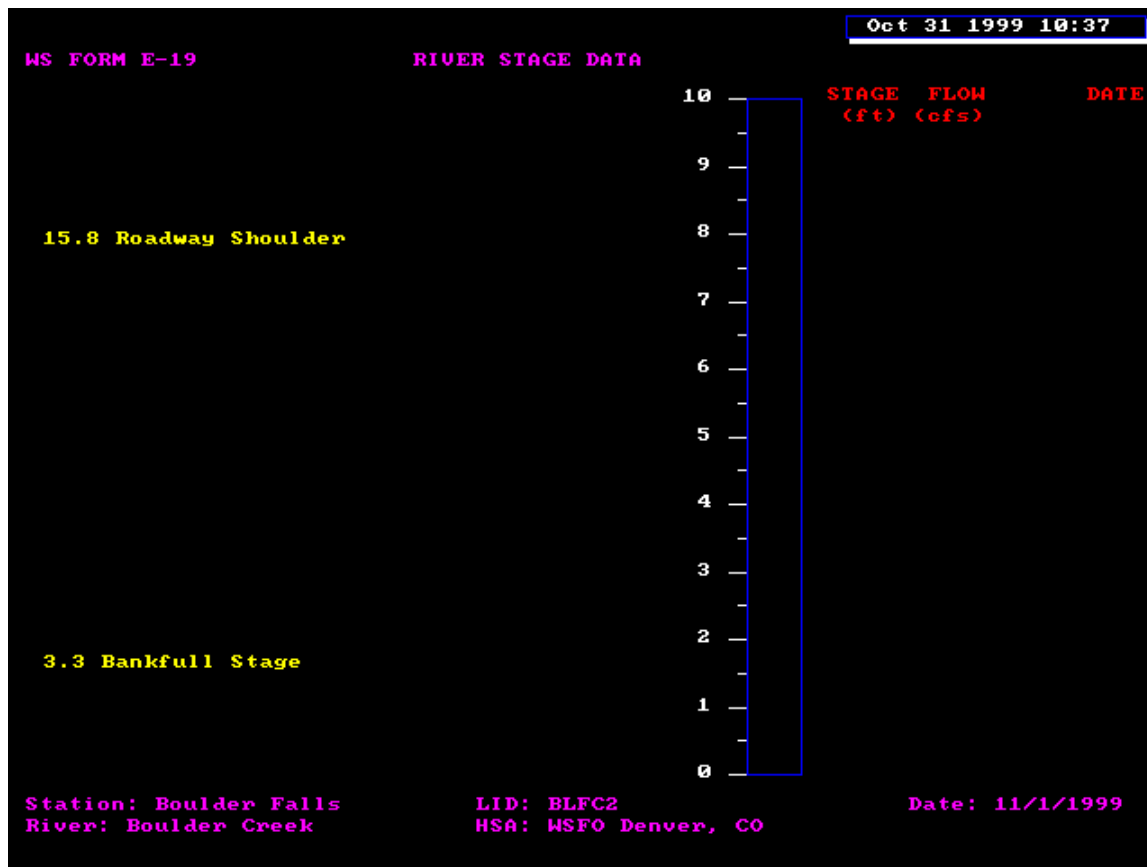


Figure – 6 Graphic Template

APPENDIX
Surveyed Data Points

Boulder Falls Gage

| ID | X | Y | Distance | Station (ft) | ZLABEL |
|------|----------|---------|----------|--------------|-----------------------|
| 1001 | -3039.61 | 3018.52 | | 200.00 | 10.09GR |
| 1002 | -3042.10 | 3021.33 | 3.75 | 187.69 | 3.30GR |
| 1003 | -3043.61 | 3026.84 | 5.71 | 168.95 | 3.25GR |
| 1004 | -3043.66 | 3028.05 | 1.21 | 164.97 | 1.16GR |
| 1005 | -3044.19 | 3029.43 | 1.48 | 160.13 | 1.01WSEL |
| 1006 | -3045.14 | 3031.31 | 2.11 | 153.22 | 0.15INVERT |
| 1007 | -3046.67 | 3034.11 | 3.19 | 142.75 | 0.94INVERT |
| 1008 | -3048.09 | 3036.55 | 2.82 | 133.49 | 0.39INVERT |
| 1009 | -3049.04 | 3038.24 | 1.94 | 127.13 | 0.00INVERT |
| 1010 | -3049.55 | 3040.31 | 2.13 | 120.14 | 0.37INVERT |
| 1011 | -3049.72 | 3040.85 | 0.57 | 118.28 | 1.13WSEL |
| 1012 | -3053.19 | 3046.38 | 6.53 | 96.87 | 15.84GR |
| 1013 | -3054.25 | 3051.30 | 5.03 | 80.36 | 18.73EDGE OF PAVEMENT |
| 1014 | -3056.19 | 3064.22 | 13.06 | 37.51 | 19.47EDGE OF PAVEMENT |
| 1015 | -3056.90 | 3066.30 | 2.20 | 30.30 | 18.35ROADSIDE DITCH |
| 1016 | -3059.88 | 3074.01 | 8.27 | 3.19 | 37.48GR |
| 900 | -3048.78 | 3048.78 | | | 17.03INST |
| 901 | -3072.40 | 3048.78 | | | 21.51BS |
| 1000 | -3071.84 | 3043.41 | | | 21.00TOPOFTRANS |

