Urban Drainage and Flood Control District

E-19 Surveys

Eldorado Springs Gage
ALERT ID: 4383
LID: ELDC2

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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 Eldorado gage on South 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 South Boulder Creek just upstream of the Eldorado Canyon State Park one mile upstream of Eldorado Springs. The ALERT ID number for this Gage is 4383 while the National Weather Service LID is ELDC2 and is referred to as Eldorado Springs. The gage historically been a USGS gage and recently added a ALERT transmitter to the site for inclusion in into the District's ALERT system. There is a ranger station to the east of the gage. Several homes are located upstream of the gage location. A parking lot and picnic area located downstream of the gage. Potential flooding at this gage site itself would be minor consisting of over topping the parking lot and picnic areas along the stream. The primary area of flooding potential is in Eldorado Springs approximately three quarters of a mile downstream. Figure 1 shows a general location map of the site.

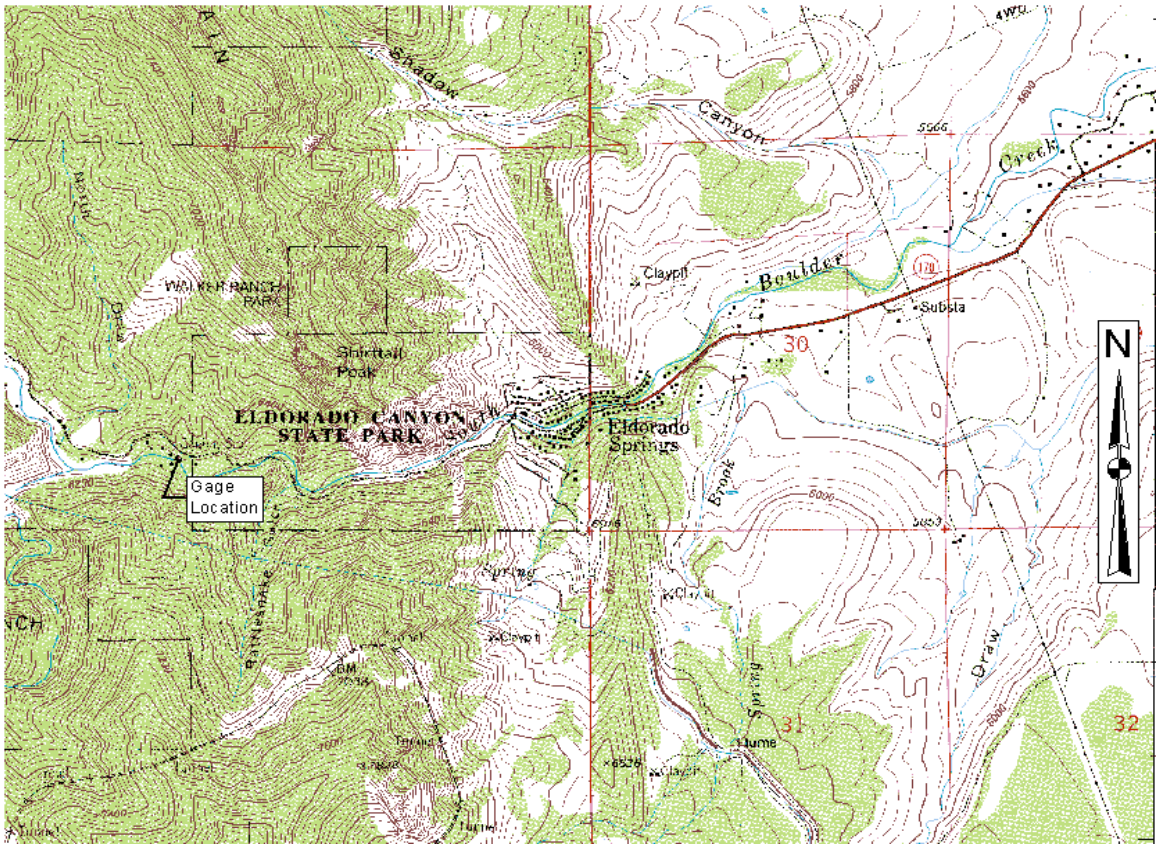

Figure – 1 Location Map

Surveyed locations

The ground elevations near the gage were surveyed for a potential cross-section in conjunction with previous rating studies of the gage. In addition the top of the bank protecting the homes in the right overbank were surveyed, along with water surface elevations of the stream upstream and downstream to estimate the channel slope and this reach. Figure 2 shows locations of the surveyed points in the vicinity of the gage. It is estimated that the instruments will be flooded and transmission will be lost at approximately stage 8. The top of the right berm is a stage 6.31. Inundation of the parking area occurs at approximately stage 5. Based on spot elevations of the water surface, the estimated channel energy slope is 2.2 percent.

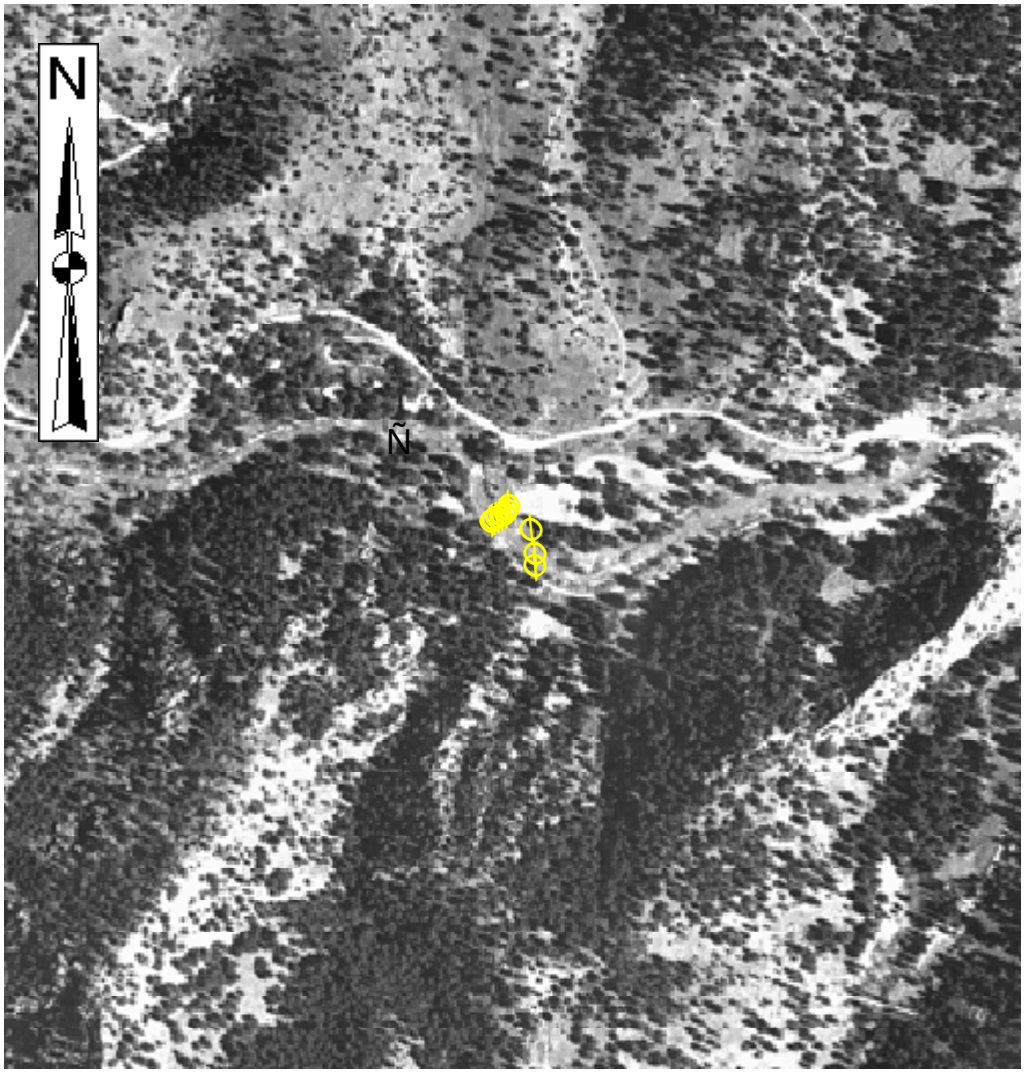

Figure – 2 Surveyed Points

Site photographs

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

Figure – 3 Looking Downstream

Figure – 4 Looking Upstream

Historic records

The following table lists the stage, date, and the estimated flow at this gage for various storms during the period of record.

Historic Floods on South Boulder Creek
at Eldorado Springs (Drainage Area 109 sq.mi.)

DATE	CFS	DATE	CFS
1895 June 3	1,130	1947 June 21	1,290
1900 May 9	1,100	1949 June 6	1,430
1909 June 20	1,340	1951 June 18	2,370
1914 May 24	1,240	1952 June 4	1,080
1921 June 6	1,440	1969 May 7	1,690
1938 September 2	7,390		

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 4383web.tpt and is located in the appropriate directory in the District's WebServer. Figure 5 shows the graphics template online from the WebServer.

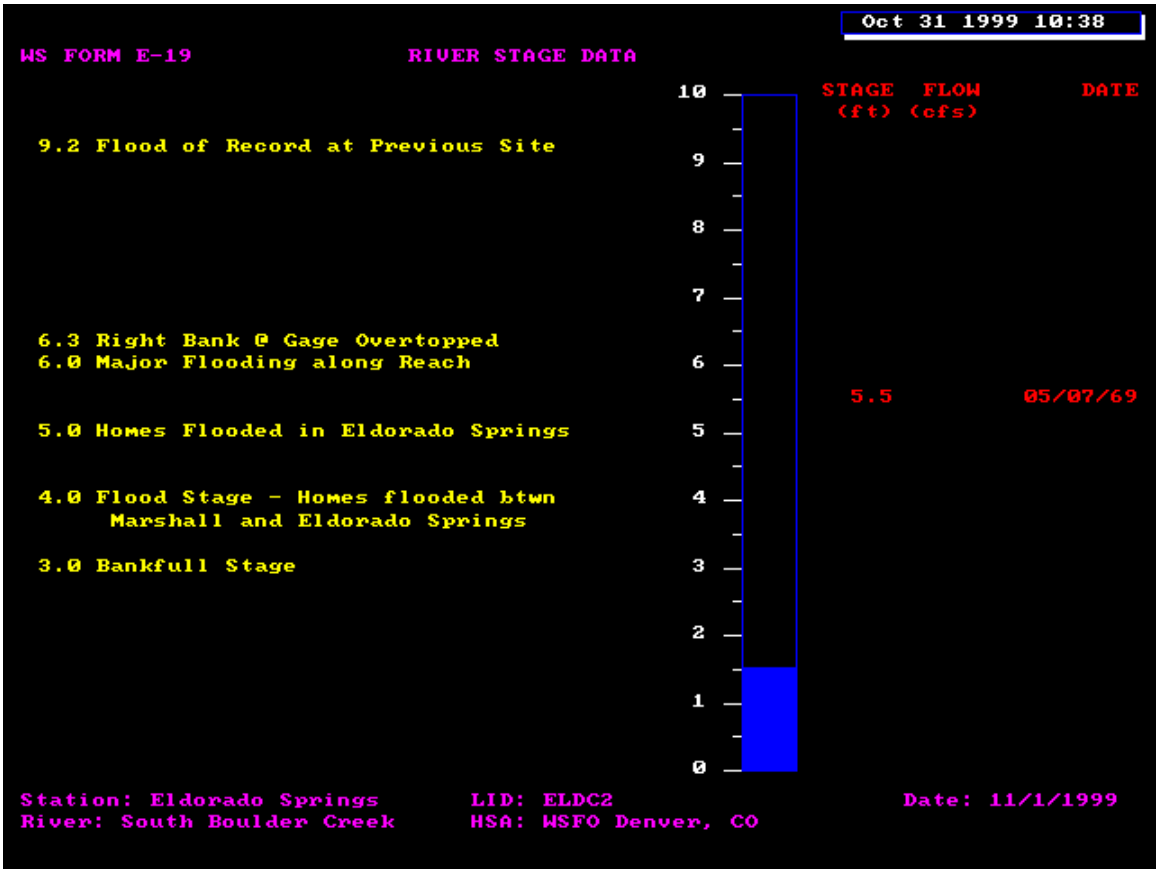

Figure – 5 Graphic Template

Figure - 6 Approximate 100-Year Flood Boundary As Depicted on District's Annual Flood Hazard Information Brochures

APPENDIX
Surveyed Data Points

Eldorado Springs Gage

ID	X	Y	Distance	Station (ft)	ZLABEL
1000	-3029.48	3061.47		0.00	10.56GR
1001	-3032.05	3063.76	3.44	11.29	8.57GR
1002	-3034.17	3065.31	2.63	19.90	1.82WSEL
1003	-3035.43	3069.06	3.96	32.88	0.37INVERT
1004	-3036.06	3071.96	2.97	42.61	1.12INVERT
1005	-3036.94	3074.97	3.14	52.90	1.65WSEL
1006	-3038.23	3077.18	2.56	61.29	6.31TOP OF BANK
900	-3048.78	3048.78			5.53INST
901	-3066.21	3048.78	Slope		5.11BS
1007	-3074.81	3050.97	43.10	2.24%	-1.51WSEL

NOTE: PER SEO RECORDS GAGE READING WAS 1.65 ON DATE OF SURVEY