LOCATION HYDRAULIC STUDY

05-1C360-SB-217-PM 1.02
San Jose Creek Bridge Replacement
October 31, 2017

INTRODUCTION

The purpose of this study is to identify encroachments created by this project on the base (100-year) floodplain. The study was prepared in accordance with 23 CFR, Section 650.

PROJECT DESCRIPTION

This project would replace the existing San Jose Creek Bridge (Br No 51-0217) that was originally constructed with reactive aggregate. The bridge is located near the City of Goleta, approximately nine miles west of Santa Barbara, in Santa Barbara County on Route 217 at PM 1.02. The bridge would be replaced with a wider structure to provide standard lane and shoulder widths and a standard bike/pedestrian path on the northbound side of the highway. All temporary and permanent construction work will be performed within the existing right of way.

FLOODPLAIN BACKGROUND

The San Jose Creek floodplain stretches from the foothills north of Hwy 101 to Hwy 217 near UCSB. The floodplain breaks out of its relatively small footprint at Hollister Avenue.

A floodway is designated on the FEMA Flood Insurance Rate Map (FIRM) and runs the entire length of San Jose Creek and ends just downstream of the bridge. San Jose Creek meets San Pedro Creek just upstream of the bridge and both creeks join Atascadero Creek immediately downstream of the bridge. The 100-year peak discharges is 6,500 cfs at the San Jose Creek Bridge reported in the FEMA Flood Insurance Study (FIS), dated November 4, 2015. Atascadero Creek introduces an additional 13,000 cfs downstream of the highway crossing.

FLOODPLAIN ENCROACHMENTS

Federal Regulations

CFR 23, Section 650, defines significant encroachments and risks for the base floodplain. An encroachment is any work done within the limits of the floodplain. A significant encroachment is one, which could significantly interrupt a route required for emergency operations, pose a significant risk, or significantly impact natural and beneficial floodplain values. Risks are consequences of encroachments that could lead to flooding which would cause property loss or hazard to life.

Encroachments

This project will replace the San Jose Creek Bridge with a slightly wider and longer structure. The existing bridge is 192.4 feet long and 94.3 feet wide. The proposed bridge is 213.7 feet long and 105 feet wide. The existing bridge is supported by six bents or sets of piers with 11 (15 inch diameter) columns per bent for a total of 66 columns. The propose bridge would remove the existing 66 columns and replace them with one bent consisting of 8 (42 inch diameter) columns. This will result in a reduction in the blocked cross sectional-area.

CONCLUSION

A HEC-RAS model was created using field survey information along with a digital elevation model (DEM). The reduction in blocked cross sectional-area within San Jose Creek shows a small decrease in water surface elevation when compared to the existing conditions. The conclusion is that the proposed project will have no significant effect on the existing floodplain or floodway.

REFERENCES

- Federal Code of Regulations 23, Section 650
- FEMA Flood Insurance Study, Santa Barbara County, November 4, 2015
- FEMA Flood Insurance Rate Map, Santa Barbara County, Panel 1362G, December 4, 2012

ATTACHMENT

- FEMA Flood Insurance Rate Map, Santa Barbara County, Panel 1362G, December 4, 2012

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10-31-17
Date