

## Crystal River Country Estates

### Annual Bridge Monitoring

November 8, 2025

#### Background

On December 6, 2021, SGM issued a report on the structural integrity of the bridge. In the report it was identified that the bridge abutments, currently visible along the edge of the channel, were built in the 1960's and are used only for erosional scour protection. New abutments installed in 1985 are located behind the old ones and provide vertical support to the girders. It was determined that the deck and girders are in good condition and the railing is in fair condition. The condition of the new abutments was not visible because they are covered by the old abutments and could not be assessed. The old abutments are in poor condition due to multiple cracks and an undermined footer near the center of the bridge.

#### Monitoring

The report recommended an annual monitoring program to continue assessment of the old abutments for scour protection. On September 27, 2023, Jeff Crane, a resident at 600 Crystal Lane, performed a visual inspection of the old abutments. The report of the work was completed on October 1, 2023 and is available for review on the CRCE POA website. On September 29, 2024, Angel Loughry, a resident at 515 Crystal Circle, performed a visual inspection on the old abutments. The report was completed on November 3, 2024. On October 12, 2025 Angela Loughry, a resident at 515 Crystal Circle, performed a visual inspection on the old abutments. The report was completed on November 8, 2025.

The peak flow in the Crystal River in 2024 was recorded by the USGS as 2,500cfs on June 9th. The median at the same location above Avalanche Creek is approximately 1,500 cfs. The peak flow of the Crystal River in 2025 is unknown due to the government shutdown at time of report writing.

#### East Abutment-

- SGM reported 30" of exposed footing. The 2023, 2024 and this report measured the same.
- SGM reported abutment wall under the bridge had a ¼" wide horizontal crack at approximately mid height. The 2023, 2024 and this report measured the same.
- SGM reports the corner between the abutment and the SE wingwall has a 1" wide vertical crack full height. The 2023, 2024 and this report measured the same.
- SGM reports the SE wingwall has a 2" wide crack, full height, the portion of the wingwall on the south side of the crack is offset ¼" towards the river. The 2023, 2024 and this report measured an average of a 1" crack but up to 2" in isolated locations along with a ¼" offset.
- NE wingwall has a ¼" wide diagonal crack full height. **The 2023 report measured a ½" wide diagonal crack but not full height. The 2024 and this report find slight opening of these diagonal cracks to ½" and more. Where the diagonal crack approaches the corner of the abutment that faces the river, there is a wider opening that was not noted in reports prior to 2024.**

The opening of cracks on the NE wingwall is the only change in the east abutment condition and loss of chunk of upstream (NE abutment riprap) are the only changes noted on east abutment.

## West Abutment-

- SGM reported the footer exposed up to 11". The 2023, 2024 and this report measured no change.
- SGM reported abutment wall has hairline vertical and diagonal cracks throughout. The 2023, 2024 and this report measured no change.
- SGM reported abutment wall has a 6" diameter rock pocket. The 2023, 2024 and this report measured no change.
- SGM reported SW wingwall has a ¼" wide diagonal crack. The 2023, 2024 and this report measured no change.
- A small chunk of concrete covered rock appears to have been washed away from the south west abutment in the 2024 inspection. **In 2025 all riprap appeared similar to 2024.**

## Conclusions

There appears to be little to no change in the status of the old bridge abutments with the exception of widening of cracks on the downstream east wing wall. The loss of upstream rip rap on both sides may or may not be detrimental to the bridge. The loss widens the flow and provides less constriction at the abutment but it could allow more water pressure directly on the abutments. SGM suggested a hydraulic analysis of the stream bed in order to accurately determine where riprap placement would be best. In spite of loss of some riprap, the undermining of bridge abutments does not seem to have increased.

## Photos

Photo 1 Bridge deck looking west toward State HWY 133



2021



2024



2025

Photo 2: Southeast Wingwall and Riprap (upstream side)



2021



2025

**Photo 3: Northeast Wingwall and Riprap (Downstream Side)**



2021



2024



2025

Picture 4: Southwest Wingwall and Riprap upstream side



2021 – note circled area missing in 2024



2023- note circled area missing in 2024



2024- note circled area



2025 same as 2024

**Photo 5: Northwest Wingwall and Riprap (Downstream Side)**



2021



2024



2025

Photo 6: 2" Open Diagonal Crack in Southeast Wingwall



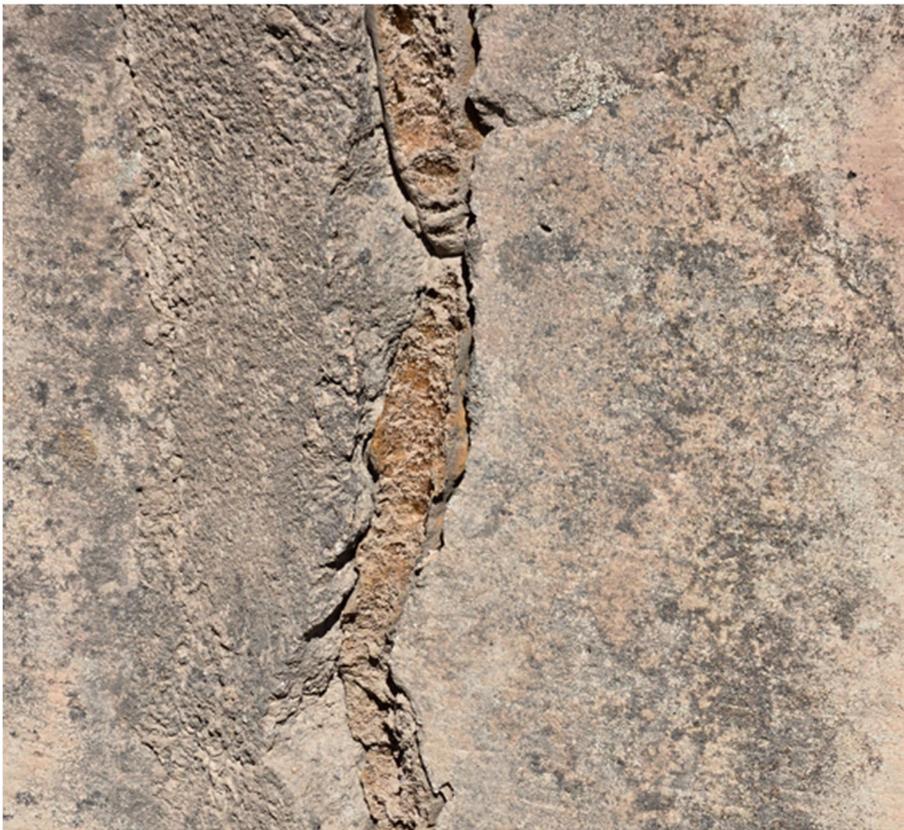
2021



2023



2024



2025

Photo 7: 1" Open Vertical Crack at corner of Southeast Wingwall and abutment



2021



2023



2024



2025

Photo 8: ¼" horizontal Crack in East Abutment



2021



2023



2024



2025

Photo 10: ¼" diagonal Cracks in Northeast Wingwall



2021



2024



2025

**Photo 11: East Abutment Original Bridge Footing Exposed and Undermined**



2021



2024



2025

**Photo 12: West Abutment Original Bridge Footing Exposed**



2021



2024



2025