



Claybrooke Engineering Associates, Inc.
Civil Engineering and Planning
Site Design and Permitting
Land Development

December 5, 2016

Mr. Jim Festa, President
Bern Creek Improvement Association, Inc.
11708 Marsh Head Road
Sarasota FL 34240

Re: Executive Summary of Findings of Drainage Investigation and Roadway Review
Associated with the Flooding and Erosion Problem along Cowpen Lane in
Sarasota County, Florida

Dear Mr. Festa:

Claybrooke Engineering Associates, Inc. (CEA) has prepared the following **executive summary** of the forthcoming report on the and drainage of the existing Cowpen Lane roadway in Sarasota, Florida and the problems associated with recent storm events and flooding. Cowpen Lane is located north of Fruitville Road just east of Gum Slough in Rural Sarasota County. Sarasota County Parcel Identification Number 0225002020. The parcel on which Cowpen Lane sits is approximately 2.95 acres and the roadway has been continuously operated as an access road to the Bern Creek Ranches since the mid 1980's.

BACKGROUND

During the September 2, 2016 storm event associated with Hurricane Hermine, the drainage to the north and east of Cowpen Lane and the flood waters of Cowpen Slough in Eastern Sarasota County overtopped the roadway at the southern end of Cowpen Lane. This flooding event caused major damage to the roadway in the form of erosion on the western side of the road and the roadway shoulder. To prevent further occurrences of this flooding and damage the residents and homeowners of The Ranches at Bern Creek are looking for first an understanding of what happened and secondly what can be done in association with the roadway repair to keep this problem from reoccurring.

EXISTING DRAINAGE

The drainage around Cowpen Lane and this section of Fruitville Road is handled by the roadside ditches and culverts and the two main drainage features in the area that are Gum Slough and Cowpen Slough. Drainage to the system along Cowpen Lane comes mainly from the north and travels down several agricultural type ditches south to the wooded wetland area adjacent to the northeast end of Cowpen Lane. From here it flows south along the eastern side ditch of Cowpen Lane and then west under three main culverts under the roadway to the ditch on the west side of Cowpen. A portion of the drainage



also continues to flow south in the east ditch down toward Fruitville Road towards two (2) sets of double 30" concrete culverts; one in the right of way of Fruitville road and the other just north of this in Cowpen Lane. The majority of water that comes from and flows down this east side of Cowpen Lane flows under the road through these culverts and then westward along the ditch on the north side of Fruitville Road to the Bridge at Gum Slough

Visual investigations of these features revealed that the ditches had moderate to minor obstructions but were still operating and that the culverts under Cowpen Lane and Fruitville Road as well as the culverts under Fruitville Road 900 ft. +/- east of Cowpen Lane had significant blockage.

During the Hurricane Hermine storm event the capacity of the drainage system to the east of Cowpen Lane, including the drainage culverts of Cowpen Slough that go under Fruitville Road, approximately 900' east of Cowpen Lane, were exceeded. Predictably, Fruitville Road with an average elevation several feet above the existing elevations of the surrounding area acted as a dam and forced drainage flows from the north and east of Cowpen Lane westward along the roadside ditch and overland to Cowpen Lane, where the partially blocked culverts could not handle the volume and intensity of the runoff.

The outcome of this situation was that floodwaters trapped to the north of Fruitville Road overtopped Cowpen Lane at its lowest point, and the increased stormwater rate and velocity caused significant erosion along the west side of the roadway where the overtopping occurred. Had the blockage in the system been west of Cowpen Lane the differential in water elevations would have been insignificant and therefore velocities of the flows overtopping the road would most likely not have caused the type and extent of erosion damage seen.

RECOMMENDATIONS

Based upon what was observed during the on-site field visits, survey obtained by Sarasota County and review of the drainage conditions experienced on during the September 2, 2016 storm event associated with Hurricane Hermine, it is CEA's recommendation that the Bern Creek Improvement Association work with Sarasota County and request that they immediately clean and maintain the drainage system (ditches and culverts) along Fruitville Road and Cowpen Slough. Additionally, the Bern Creek Improvement Association should implement a program of drainage maintenance and improvements to increase the capacity of the drainage system of Cowpen Lane and in the area around Cowpen Lane. Improvements and maintenance should include ditch and culvert cleaning, re-grading of the shelled area in the northwest corner of the intersection and potential replacement of, and addition to existing culverts. In association with these improvements to the drainage system, improvements to the roadway including the paved surface should be considered.



Specifics of the proposed improvements and maintenance efforts, along with schematic details and magnitudes of cost, will be included in the subsequent report to the Association.

CEA appreciates this opportunity to provide these services to you. Please contact me if you have any questions.

Very truly yours,

CLAYBROOKE ENGINEERING ASSOCIATES, INC.

A handwritten signature in blue ink, appearing to read 'R. Claybrooke', is written over the company name and the 'By:' label.

By: Richard Claybrooke, PE
President