

March 30, 2017

Mr. Craig Justice
Deputy Public Works Director
City of Riverside
5950 Acorn Street
Riverside CA, 92504

Subject: Trautwein and Allesandro Sewer Force Main

Dear Mr. Justice:

I have been retained by the City of Riverside (City) Public Works Department (PWD) to evaluate the Trautwein and Alessandro sewer force main situation and determine the extent of the pipeline condition and possible repair method(s). I understand that there have been two similar force main failures in the past four months that have resulted in major sewer spills and costly response/repairs for the City. I met with you and your staff on March 28, 2017, at the treatment plant to discuss and collect information. We then inspected a section of pipeline taken out for one of the repairs and completed a site visit to the Wood Road pump station and pipeline alignment.

Based on our discussions and information, including limited closed-circuit television (CCTV) coverage of pipe interior and review of failed ductile iron pipe (DIP), I believe that the subject force main is in grave danger of imminent failure(s) stemming from interior corrosion at the top of the pipe (see attached photos). This observation is based on my 45 years of pipeline experience and other projects dealing with DIP used in wastewater applications. I believe this project warrants being treated as an emergency project with rehabilitation being performed as soon as possible. Another failure will have the following consequences:

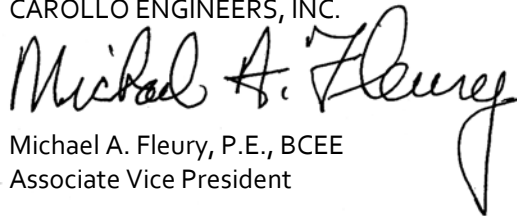
- Another sanitary sewer overflow (SSO) with possible resultant fines. Fines typically are increased substantially with repeated spills.
- Uncontrolled wastewater entry into the storm drainage system with possible public health and environmental impacts to the downstream arroyo/river.
- Expensive emergency repairs that are at least four times the per-foot cost of rehabilitation.
- Negative media coverage of event with resultant political fallout.

I am continuing my evaluation and will be preparing a technical memorandum with my formal results and recommendations. However, considering what I have found so far, I thought it prudent to provide you this initial assessment and urgent recommendation to repair the force main as soon as possible.

We are looking forward to assisting you with this emergency rehabilitation project.

Sincerely,

CAROLLO ENGINEERS, INC.



Michael A. Fleury, P.E., BCEE
Associate Vice President

MAF:blm

