

# Memo

**Date:** April 12, 2024  
**From:** Matthew Adams, PE – CobbFendley  
**To:** Matt Hanks, JD, PE – County Engineer  
**Cc:** Wael Tabara, PE  
**Re:** CR 59 Widening (CSJ 0912-31-305) from Kirby Drive to CR 48:  
Change Order request for design change along the outfall channel



---

## Background:

For the CR 59 roadway project, to accommodate required drainage mitigation for the project, a proposed detention pond is included with a new outfall channel to route runoff from the detention pond to the existing outfall at the Southern Trails ponds. The northern right-of-way of the detention pond and outfall channel are directly adjacent to the Southern Trails community.

Brazoria Drainage District No. 4 (BDD4) has an agreement with the County to maintain these new drainage facilities after construction is complete.

The intended outfall channel consists of a grass surface swale with grate inlets to collect surface drainage and a subsurface trunk line for conveyance. The trunk line and grate inlets are already constructed, per the original design plans. The surface swale has not been constructed yet.

## Purpose and Need:

During construction, it was noted by BDD4 inspectors that the existing site conditions and design plans were not consistent, therefore a design change was necessary to accommodate BDD4 criteria and meet their maintenance requirements. The northern right-of-way elevation is higher than anticipated causing grades to be steeper.

## Resolution:

Multiple design options were evaluated to meet BDD4 requirements and provide cost-effective design solution. To minimize potential issues along the northern right-of-way of the outfall channel, a 3-ft buffer and typical 4:1 slope is provided to avoid existing utility impacts and maintain the existing private fence. The ditch section has been reconfigured and tie-ins to the already constructed grate inlets are provided. To protect steep slopes and meet geotechnical requirements, 4-inch concrete slope paving is included along slopes steeper than 4:1.

This revised design was approved by BDD4 and meets their maintenance requirements.