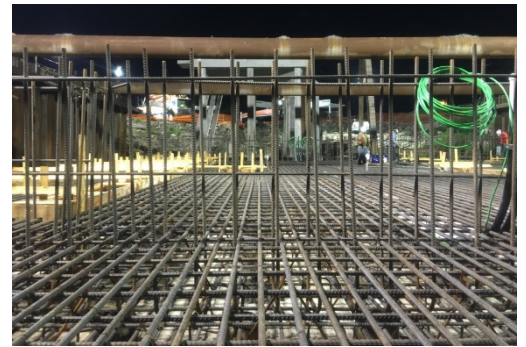




## PROJECT PROFILE

# Petit Caillou Lock Structure

Mass Concrete Consulting | Chauvin, LA



### CLIENT

Sealevel Construction, Inc.

### BACKGROUND

The Petit Caillou lock structure at the Boudreaux Canal will limit the amount of water traveling through the canal without hindering marine traffic. It will also prevent abnormally high tides and serve as protection during hurricanes and other storms.

WJE was retained to provide mass concrete consulting services for a concrete base slab. The mass concrete specifications required that the maximum temperature be less than 158°F and maximum temperature differential between the mean of all functioning center sensor temperatures to any individual surface or corner sensor be less than 35°F.

### SOLUTION

Using thermal analysis software, WJE modeled the temperature development due to the heat of cement hydration to predict the temperature differential between the concrete core and concrete surface. Using the results of the thermal analysis, WJE developed a mass concrete thermal control plan to reduce the risk of thermal cracking. The plan included guidelines for precooling methods, concrete placement temperature, insulation application, and installation of temperature sensors. The mass concrete thermal control plan provided by WJE was able to successfully limit the maximum core temperature and temperature differentials of the mass concrete slab.

