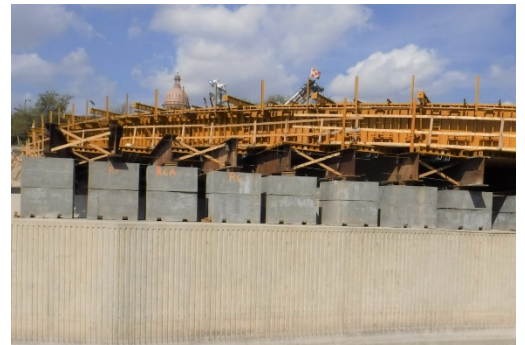




PROJECT PROFILE

Waterloo Park Artwork Infrastructure

Mass Concrete Consulting | Austin, TX



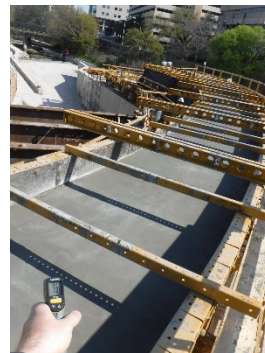
CLIENT

CVI Development, LLC

BACKGROUND

The City of Austin and the Waller Creek Conservancy planned improvements to restore Waterloo Park by connecting it to a chain of parks in downtown Austin, Texas. In efforts to revitalize the eleven-acre space, the City planned to add a large amphitheater, playgrounds, trails, and other amenities built around Waller Creek's intake tunnel.

WJE was retained to provide mass concrete consulting services for a post-tensioned concrete cantilevered beam with approximate cross-sectional dimensions of 5 feet by 7 feet. The project concrete specifications required that the maximum allowable internal temperature of mass concrete not exceed 160°F and that the maximum temperature differential between the central core of the placement and the exposed concrete surface not exceed 35°F.



SOLUTION

WJE modeled the temperature development due to the heat of cement hydration using thermal analysis software, which predicted the maximum core temperature and temperature differential between the concrete core and concrete surface. Based on the results from the analysis, a mass concrete thermal control plan was prepared to mitigate 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 post-tensioned mass concrete cantilevered beam.

