



# SIKA AT WORK

SIKA SOLUTIONS FOR WATER  
TREATMENT FACILITIES

BUILDING TRUST





# TIPPIN WATER TREATMENT FACILITY TAMPA, FLORIDA

The City of Tampa, FL owns and operates the David L. Tippin Water Treatment Facility which was originally built in 1924. The structure has maintained its original Moorish Spanish décor and is designated as an American Water Landmark. Located on the Hillsborough River, this treatment plant produces water for approximately 600,000 residents of the City of Tampa. This plant is currently permitted for treating 120 MGD maximum per day. The four parallel sedimentation basins which are 300 feet long by 50 feet wide by 20 feet deep were designed for 25 MGD per basin.

The 25 year old existing protective coating had surpassed its useful life and was significantly deteriorated. This coating deterioration permitted direct contact between the low pH water and the concrete surface resulting in a significant corrosion potential increase. Where the existing coating failed, the low pH water attacked the concrete causing the paste (cement and fine aggregate) to powderize. In addition, the moving water within the tanks eroded the cement paste/fine aggregate portion of the existing concrete thereby causing the large aggregate to fall out. As a result, the existing concrete was severely pitted. In order to mitigate the attack on the concrete and extend the service life of the tanks, the engineer recommended that the concrete be repaired and protected immediately. Recommendations included injecting all leaking cracks, restoring concrete surfaces, and installing a new protective coating or lining to prevent further attack on the concrete. The structures requiring this repair work

were: 4 sedimentation basins, 16 flocculation basins, 2 rapid mix basins, 3 sludge thickener tanks, and 2 flow distribution chambers.

Sika Repair 224 , a wet process shotcrete material was used to resurface the pitted concrete. Active cracks with moisture were sealed with SikaFix HH , a hydrophobic polyurethane grout. Structural cracks were repaired with the combination of structural epoxy systems such as Sikadur 35 Hi Mod LV and Sikadur 31 Hi Mod Gel. Deep concrete spalls were repaired with SikaTop 123 Plus, a two component polymer modified cement based material. Sika Armatec 110 was used as the bonding agent and as well as the reinforcement protection. For wider and challenging joints Sikadur Combiflex was used effectively and Sikaflex 2C was used in conventional joints. Sikagard 62, a potable water epoxy coating system was used to line the tanks as a protective coating. Sikalastic 720, a polyurethane based waterproofing system was used on walkways to seal and protect the concrete floor.

With systems and solutions offered Sika ,engineers and contractors are busy at work restoring hundred year old structures and extending their service life all across the globe. The Tippin Water Treatment Facility Rehabilitation project is a testament that good concrete repair projects are great partners in the movement towards sustainability.

