

# International Boundary and Water Commission

## United States and Mexico

### United States Section

4191 N. Mesa, El Paso, TX 79902



## Nogales Trunkline & IOI Rehabilitation Phases 1-3

Contract Number: 191BWC21C0003  
Contractor: SAK Construction, LLC  
Notice to Proceed (NTP): September 9, 2021  
Substantial Completion: August 14, 2023  
Final Contract Price: \$15,079,300.10

The existing sewer pipeline, consisting of the Trunkline and the IOI, was built in 1971 and is comprised of reinforced and unreinforced concrete pipe that ranges in size between 24 inches and 42 inches in diameter. Since then, the pipe and manholes have deteriorated significantly requiring rehabilitation for continued serviceability.

Due to the estimated cost of the project, the project was broken into 5 phases and prioritized based on the pipeline condition. This contract included rehabilitation of Phases 1 through 3.

Phase 1	from Manhole 85 to Manhole 99 (NIWTP)	8,555 ft
Phase 2	from US-Mexico International Border to Manhole 37	11,175 ft
Phase 3	from Manhole 37 to Manhole 51	8,634 ft

During construction of Phase 2, the existing flowmeter at Manhole (MH) 5 that monitors Mexican flows was removed and agreement was made to temporarily perform metering through the bypass system to monitor the Mexican flows. In addition to rehabilitation of the pipe, adjacent improvements included repairing erosion near Manholes 86 and 93 for protection of the IOI.

See project flyers on the International Trunkline/IOI at [www.ibwc.gov/resources-info/IOI.pdf](http://www.ibwc.gov/resources-info/IOI.pdf) for additional information and background about the whole project and on Phases 4 and 5 at [www.ibwc.gov/resources-info/IOI4-5.pdf](http://www.ibwc.gov/resources-info/IOI4-5.pdf).

### CAST-IN-PLACE PIPING (CIPP)

- Rehab of 28,364 LF (5.3 Miles) of piping
- Trenchless technology with little or no disruption to the existing ground conditions
- A resin filled polyester felt tube, or liner, is inserted and inverted into an existing pipe
- The liner is inflated and thermally cured-in-place using hot water



Pre-CIPP and Post-CIPP Photo between MH88 and MH89 at approx. 44 ft

## MANHOLE REHABILITATION

- Rehab of 56 manholes
- Majority of manholes rehabilitated with a protective epoxy lining system
- Manholes with structural defects were rehabilitated with a carbon fiber system

## SLOPE REPAIRS

ADEQ, USIBWC, City of Nogales, and Santa Cruz County performed a joint inspection along the Nogales Wash on July 7, 2020 to inspect potential areas of IOI vulnerability that require protective measures. In agreement with ADEQ, two areas were selected for repair as part of the project.

### Manholes 86-87

Significant bank erosion of the Nogales Wash occurred adjacent to Manhole 86 including the continuous exposure of the bare pipeline between MH 86 to 87 crossing the Wash. Repairs included:

- Installation of riprap along bank
- Grouting riprap surrounding MH 86
- Concrete encasement of 34 ft of bare pipeline in Wash between Manhole 86-87



Slope repair at MH 86 and encased pipe between MH 86-87, 8/14/2023

### Manhole 93

Drainage from a nearby corrugated metal pipe (CMP) for an adjacent property eroded the entire bank from the IOI MH 93 to the Nogales Wash. Part of the manhole risers were exposed and continued erosion could lead to a collapse of the manhole. Repairs included:

- Installation of riprap to backfill the bank
- Grouting the top of riprap
- Cover for the exposed manhole risers
- Installation of a concrete swale for proper drainage of CMP to Wash
- Gabion installation along Wash



Repair Facing East Up Swale

Completed slope repair at MH 93, 6/6/2022



Debris removed from the IOI during Phase 1  
6/21/2022



Application of top coating at MH 87  
6/8/2022