Intake Structure Survey
of
LAKE CORPUS CHRISTI

July 2025 Survey

December 2025

Texas Water Development Board

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Prepared for:

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Introduction

Located on the Nueces River (Nueces River Basin) in San Patricio and Jim Wells counties, Lake Corpus Christi is a key water supply resource managed by the city of Corpus Christi, for the city of Corpus Christi and the seven-county Coastal Bend Region (City of Corpus Christi, 2025a). The region includes San Patricio, Live Oak, Bee, Aransas, Jim Wells, Nueces, and Kleberg counties (City of Corpus Christi, 2025b). Three cities have their own raw water intake structures on Lake Corpus Christi: Alice, Beeville, and Mathis (Figure 1).

Figure 1. Locations of raw water intake structures on Lake Corpus Christi.

On July 23-24, 2025, the TWDB collected bathymetric survey data in a high-density grid pattern near each intake structure, while the daily average provisional water surface elevations measured 79.57 and 79.54 feet NGVD29, respectively (U.S. Geological Survey, 2025). Surveying was performed using a Specialty Devices, Inc. (SDI), single-beam, multi-frequency (200 kHz, 50 kHz, and 12 kHz), sub-bottom profiling depth sounder integrated with differential global positioning system (DGPS) equipment.

Detailed analysis of the intake area data is provided herein, including cross-sectional analysis near and around the intake structures.

Mathis Intake

On July 23, 2025, the TWDB collected bathymetric survey data covering approximately 14 acres near the Mathis raw water intake structure. The intake structure is located approximately 0.3 miles upstream of Wesley E. Seale Dam and located on the north-eastern shoreline at the pier at Sunrise Beach (City of Mathis, 2025).

Figure 2 shows the bathymetric data collected near the Mathis Intake structure. Figure 3 shows the modeled bathymetry. Cross-sections extracted from the triangulated irregular network (TIN) model are plotted below in Figures 4 and 5.
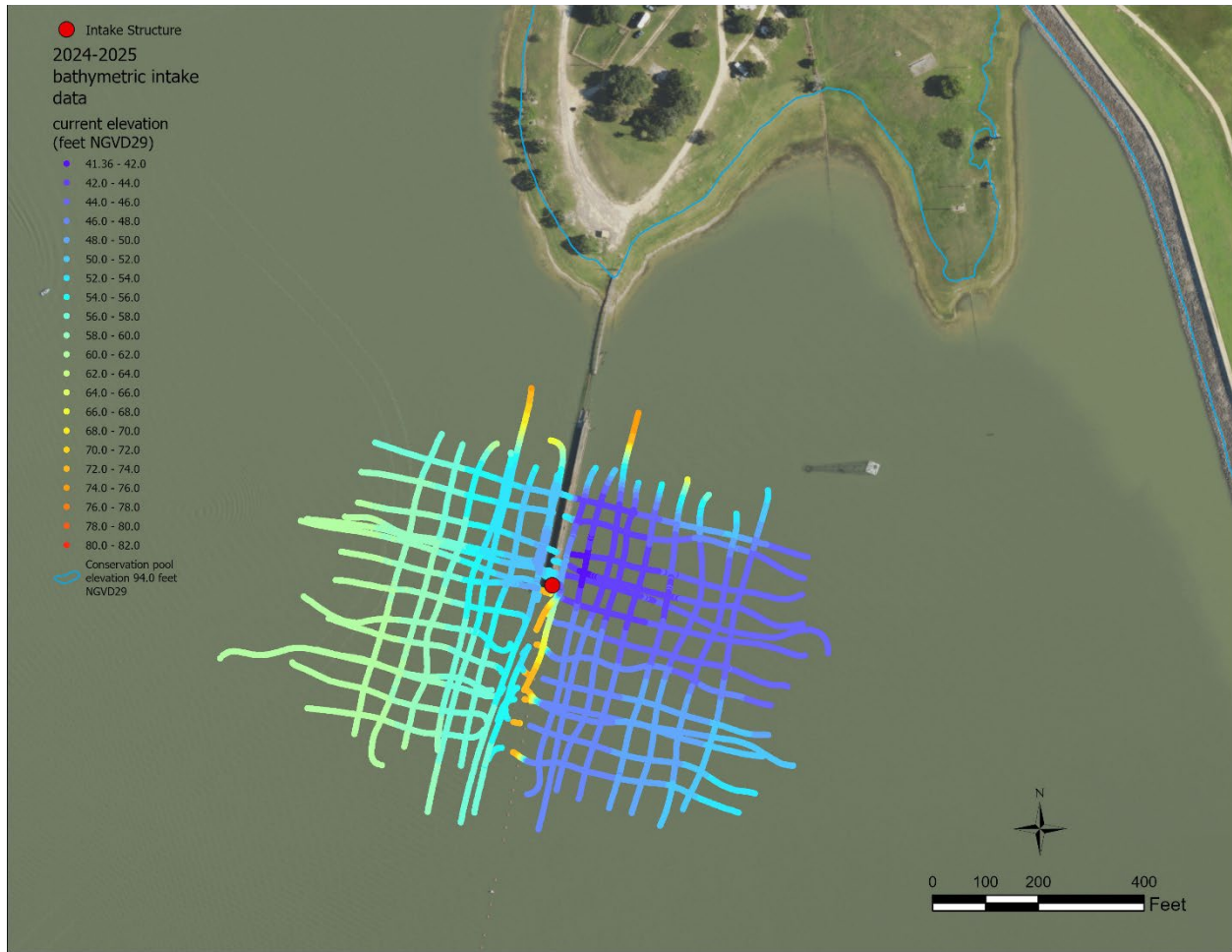
Figure 2. Mathis intake bathymetric data. Background photography collected on April 29, 2023, while the daily average water surface elevation measured 90.37 feet.
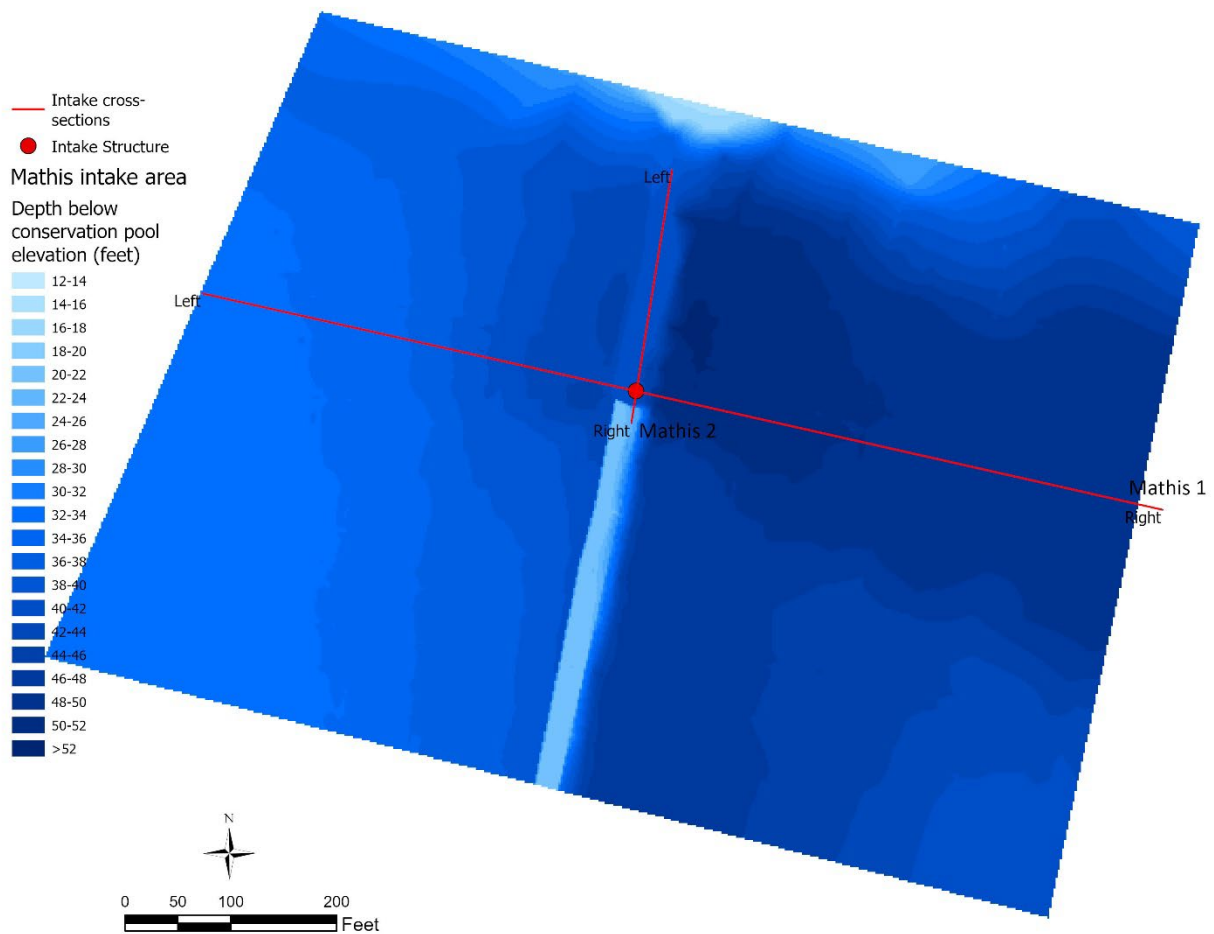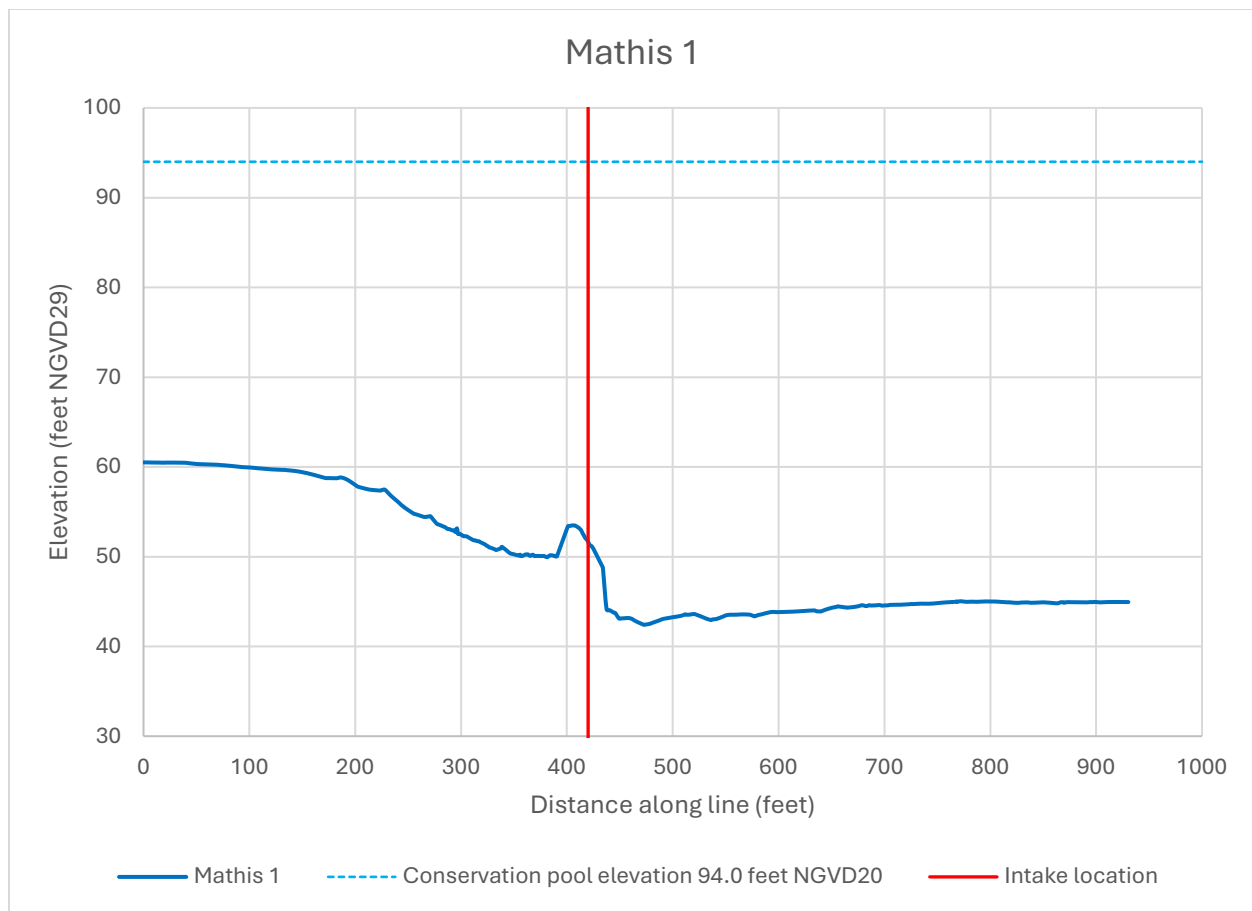
Figure 3. Mathis intake modeled bathymetry.

Figure 4. Mathis 1 (west to east) cross-section across intake location showing current bottom surface elevation.
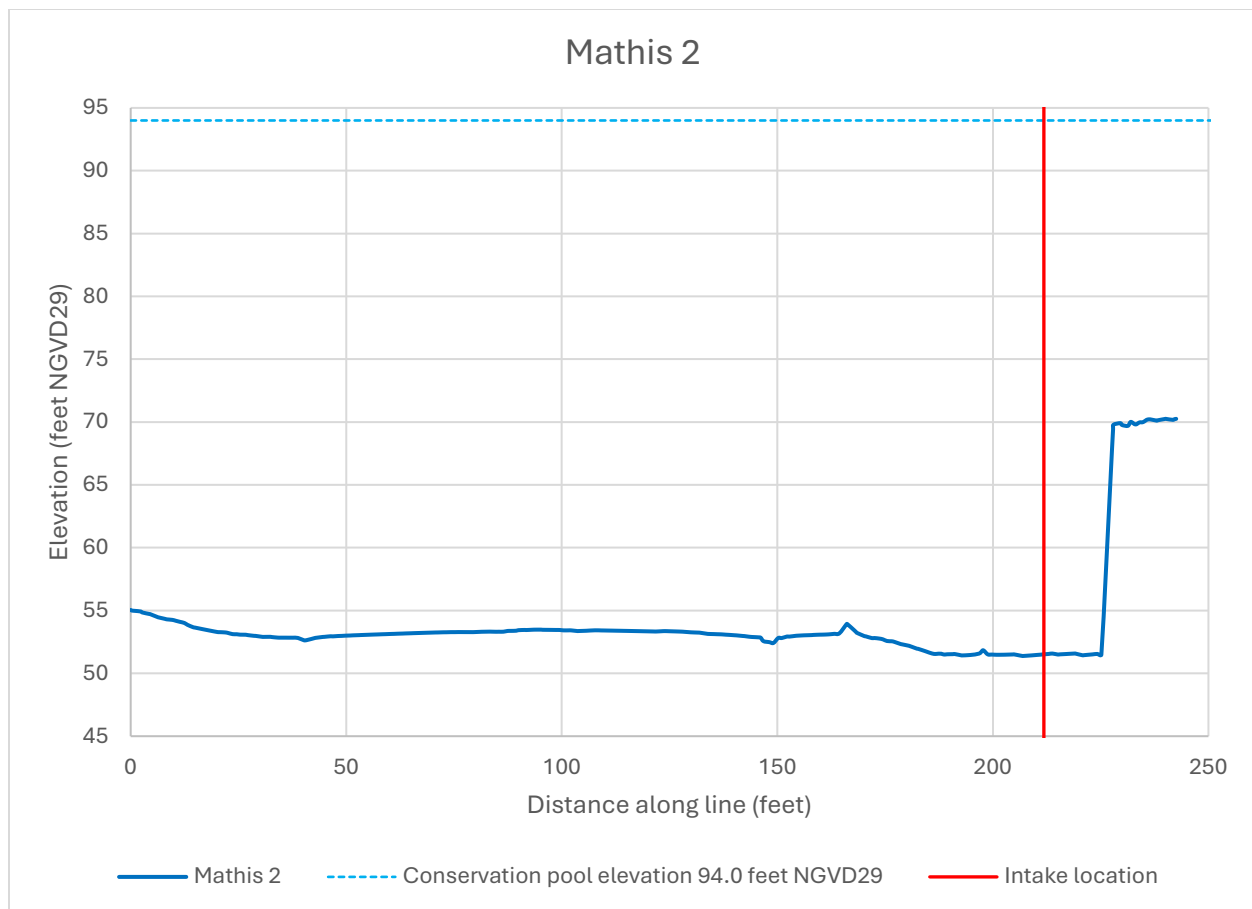
Figure 5. Mathis 2 (north to south) cross-section across intake location showing current bottom surface elevation.

Alice Intake

On July 24, 2025, the TWDB collected bathymetric survey data covering approximately 9 acres near the Alice raw water intake structure. The intake structure is located approximately 0.3 miles upstream of Wesley E. Seale Dam and located on the south-western shoreline.

Figure 6 shows the bathymetric data collected near the Alice Intake structure. Figure 7 shows the modeled bathymetry. Cross-sections extracted from the triangulated irregular network (TIN) model are plotted below in Figures 8 and 9.

Figure 6. Alice intake bathymetric data. Background photography collected on April 29, 2023, while the daily average water surface elevation measured 90.37 feet.
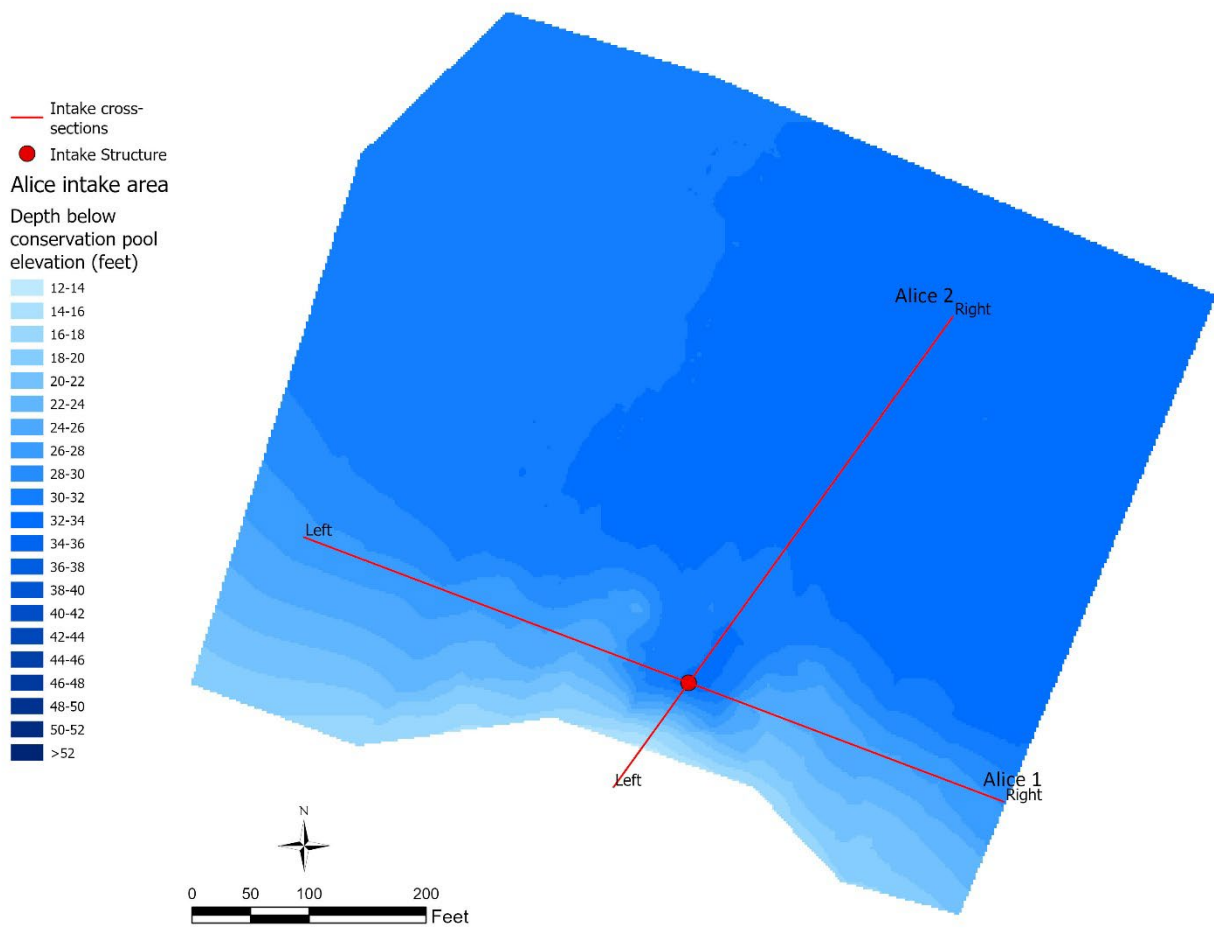
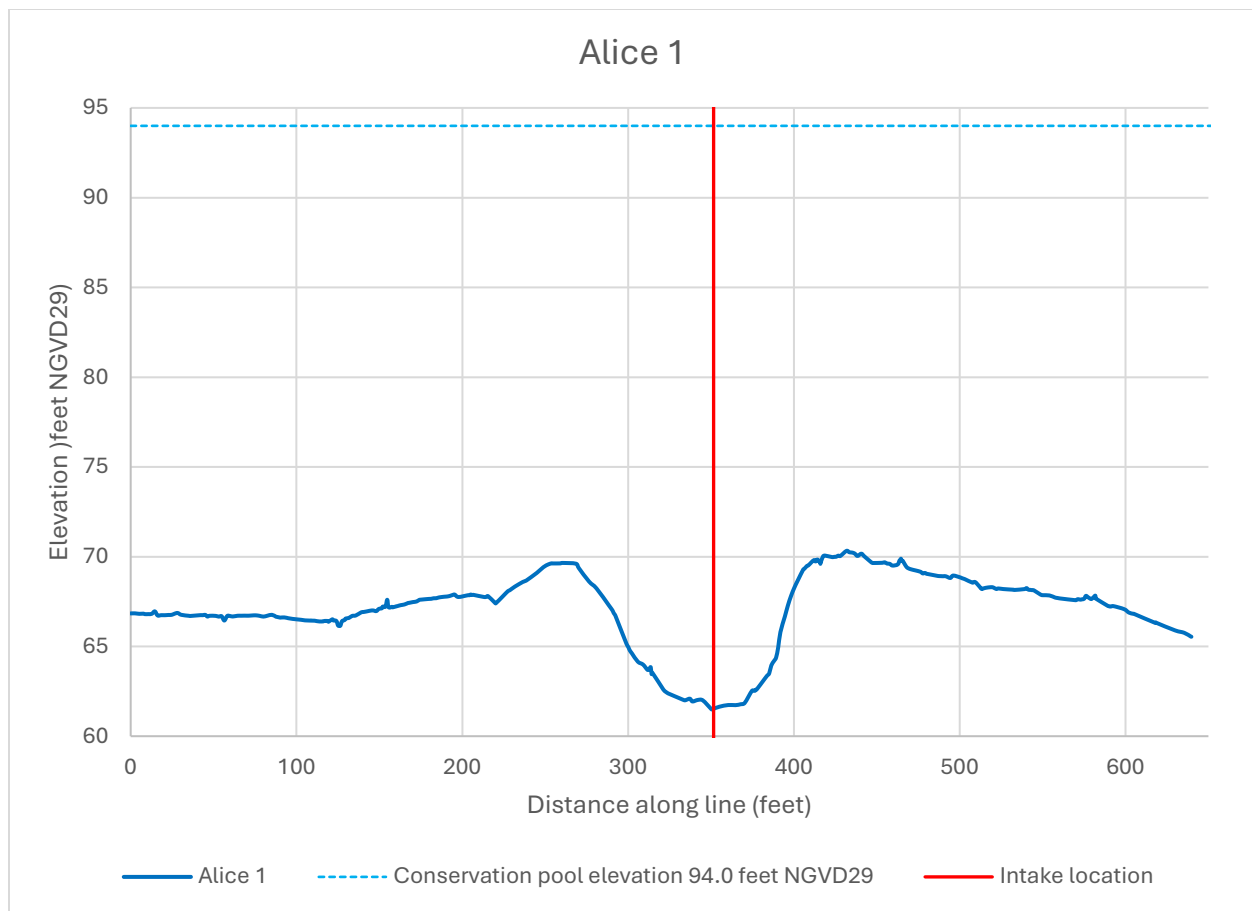**Figure 7.** Alice intake modeled bathymetry.

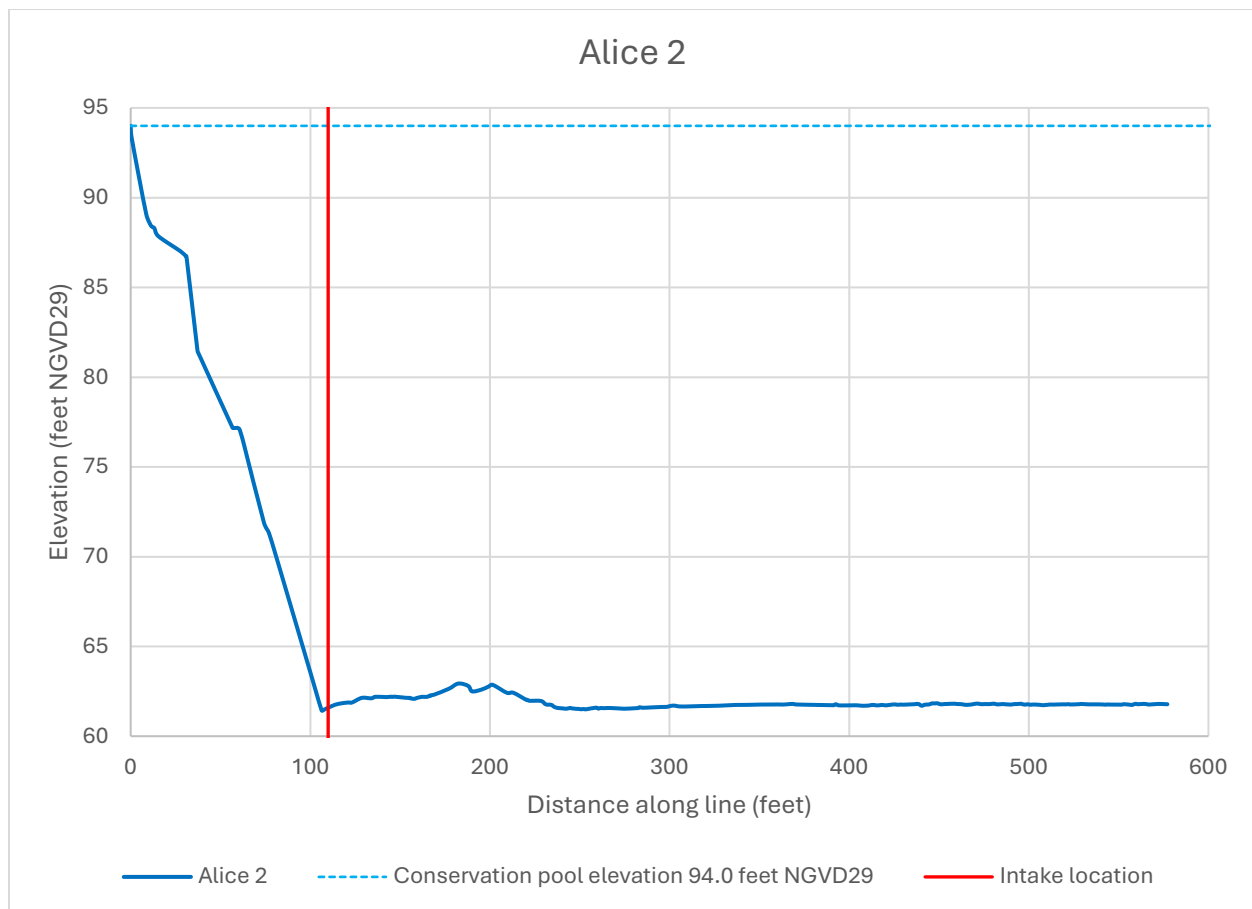**Figure 8.** Alice 1 (west to east) cross-section across intake location showing current bottom surface elevation.

Figure 9. Alice 2 (southwest to northeast) cross-section across intake location showing current bottom surface elevation.

Beeville Intake

On July 24, 2025, the TWDB collected bathymetric survey data covering approximately 2 acres near the Beeville raw water intake structure. The intake structure is located in the Nueces River approximately 15 miles upstream of Wesley E. Seale Dam just south of FM 534.

Figure 10 shows the bathymetric data collected near the Beeville Intake structure. Figure 11 shows the modeled bathymetry. Cross-sections extracted from the triangulated irregular network (TIN) model are plotted below in Figures 12 and 13.
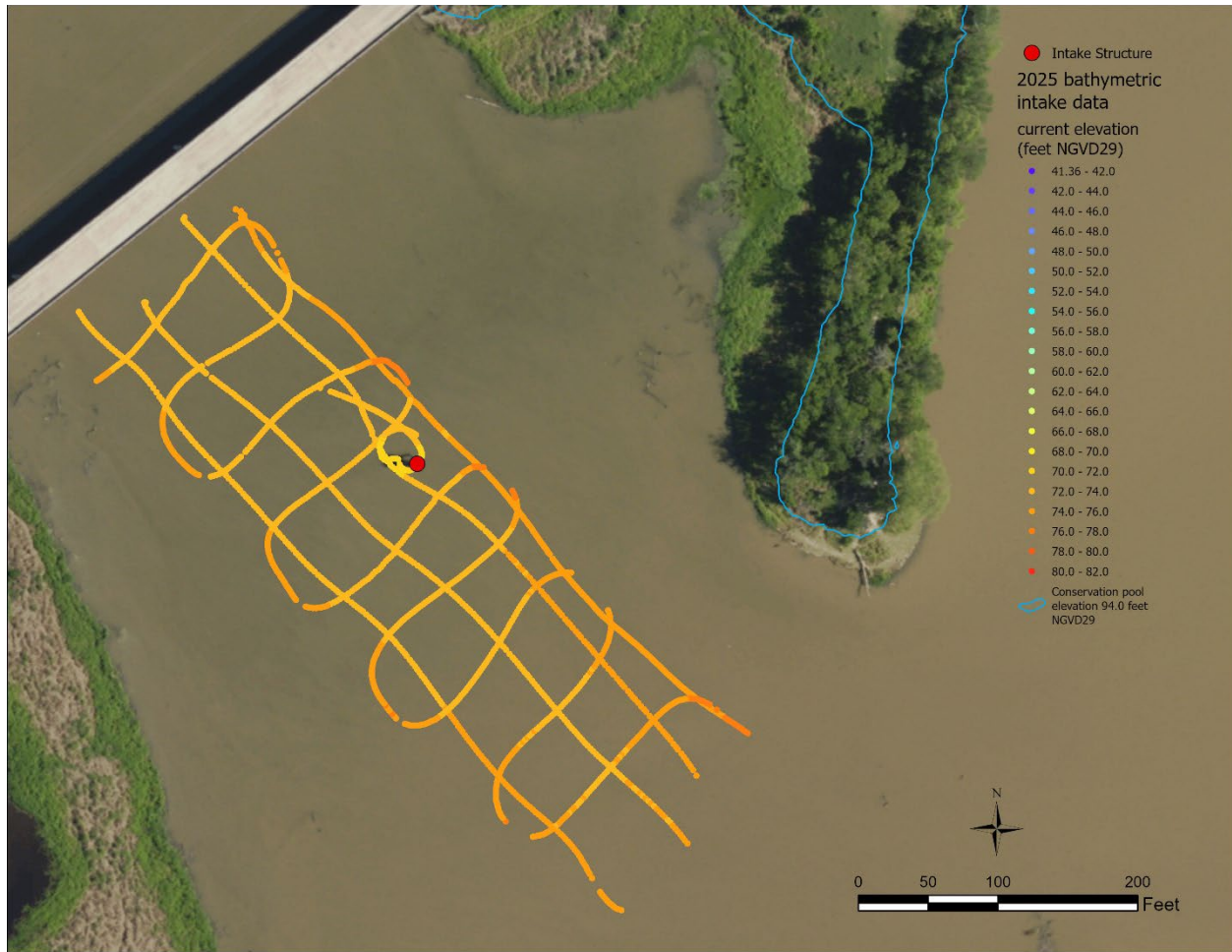
Figure 10. Beeville intake bathymetric data. Background photography collected on April 29, 2023, while the daily average water surface elevation measured 90.37 feet.
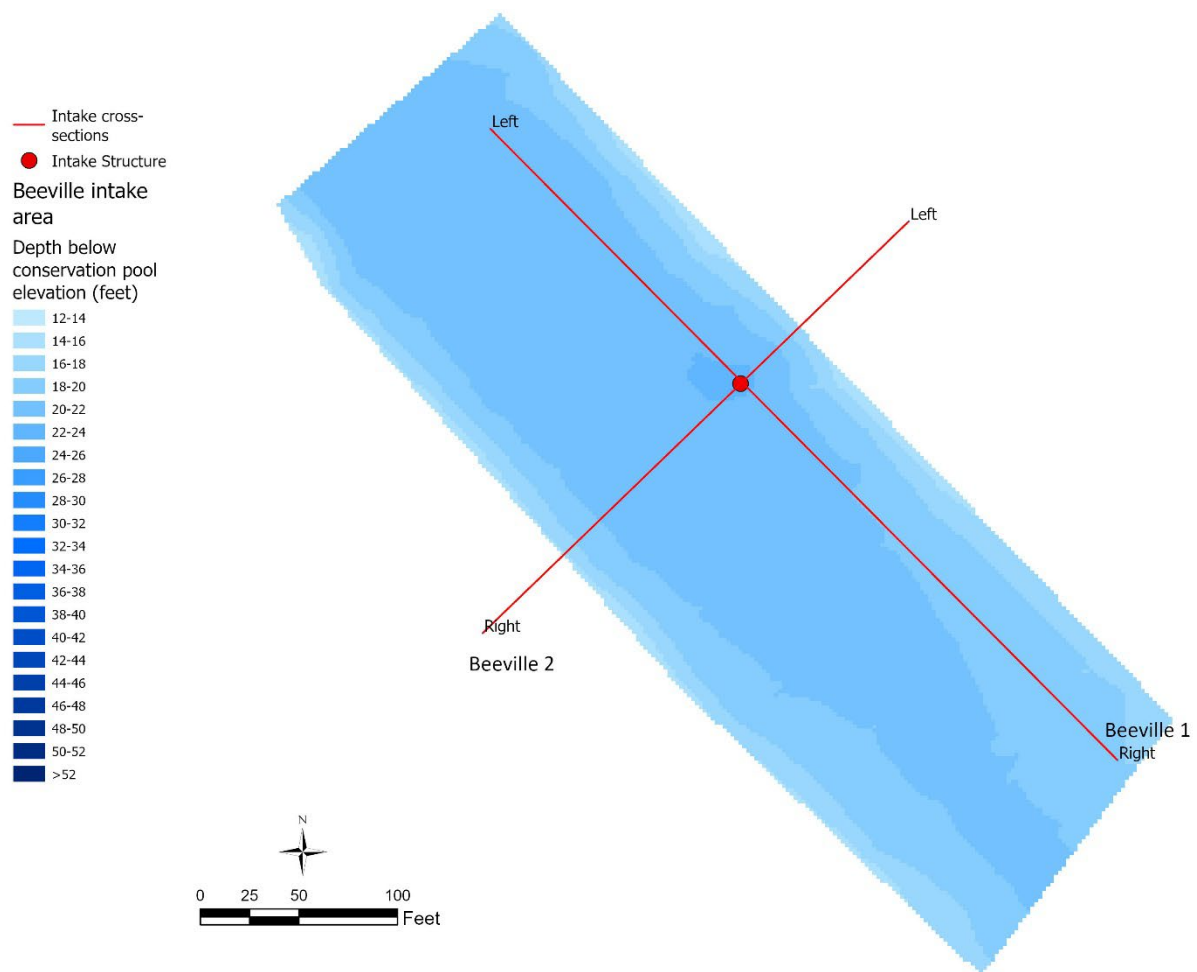
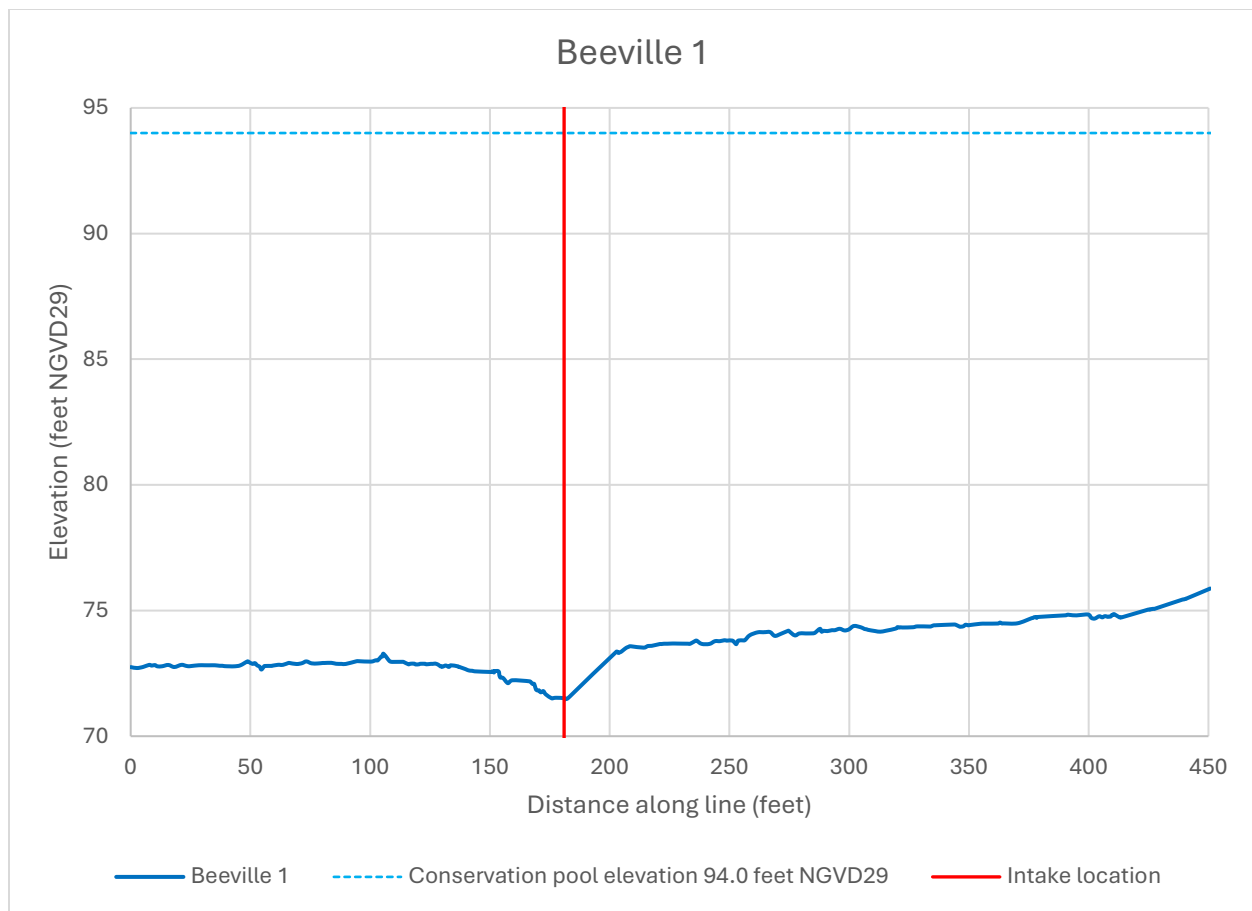**Figure 11.** Beeville intake modeled bathymetry.

Figure 12. Beeville 1 (northwest to southeast) cross-section across intake location showing current bottom surface elevation.
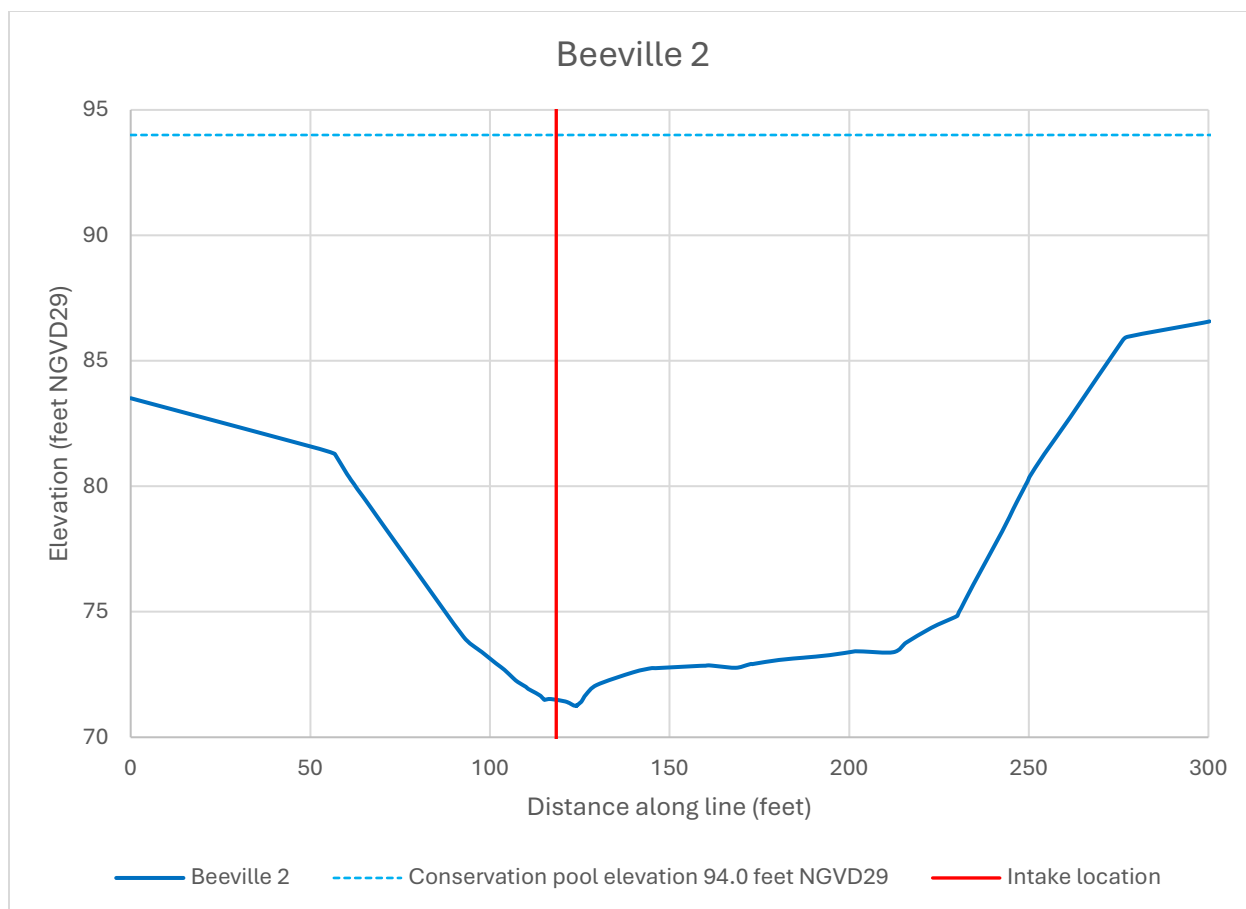
Figure 13. Beeville 2 (northeast to southwest) cross-section across intake location showing current bottom surface elevation.

References

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