ENVIRONMENTAL SUMMARY

FRANKLIN CANAL AT El PASO ZOO
CONCRETE LINING PROJECT

Prepared For:

El Paso County Water Improvement District No. 1

Prepared By:

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STATE OF TEXAS
ALLIE W. BLAIR
63707
REGISTERED PROFESSIONAL ENGINEER

September 3, 2025

Table of Contents

1 Introduction and Background

The El Paso County Water Improvement District No. 1 (the "District") Franklin Canal Concrete Lining Project (the "Project") consists of making improvements to the existing irrigation water transmission and distribution system to reduce water losses to seepage and evaporation. Improvements will also provide for a more efficient overall system operation. Construction work includes the installation of concrete lining along 1,200 feet of the Franklin Canal. Appendix B contains a Project location map and engineering drawings. The Project is entirely within the incorporated boundaries of the City of El Paso.

The earlier construction of improvements at the Franklin Canal and Franklin Feeder Canal includes the concrete lining of 12,800 feet of canal and the reconstruction of the "Partidor" Check Structure. This previous work was funded using District, Texas Water Development Board (TWDB), and United States Bureau of Reclamation (USBR) funds. The proposed Project will be constructed using a combination of District funds and TWDB funds.

The El Paso County Water Improvement District No. 1 is governed by Chapters 49 and 55 of the Texas Water Code. The District is a political subdivision of the State of Texas, organized under and by virtue of Article XVI, Section 59 of the Constitution of the State of Texas. The District is located in El Paso County, Texas, and provides water for 69,010 acres of irrigable lands. The District boundary encompasses 156 square miles, comprising over 350 miles of canals and laterals, as well as 269 miles of drains. Primary irrigated crops include cotton, alfalfa, and pecan trees.

2 Description of Purpose and Need

2.1 Purpose

The El Paso County Water Improvement District No. 1 proposes to reconstruct a section of the Franklin Canal (the "Project"). The purpose of the Project is to reduce water conveyance losses.

The El Paso region has an arid climate, receiving an average annual rainfall of approximately 8 inches, with net evaporation exceeding 70 inches per year. The region faces unique water challenges characterized by an agricultural system that is a century old, prolonged drought conditions, a growing population, and an ever-increasing sister city in Mexico with shared groundwater and surface water supplies, interstate and international treaties, and interstate litigation that may impact the District's water supply from the Rio Grande.

Groundwater resources were developed and utilized heavily in the decades leading up to the 1990s. Water resource development in the region has reached a stage of diminishing returns. These water resources tend to be deeper and of poorer quality than those currently utilized (FWTWPG 2021). As such, residents and taxpayers in the area can expect to devote increasing amounts of money to water resource development.

2.2 Need

The total water demand in El Paso County is 406,422 acre-feet of water per year (TWDB 2017). By 2070, water demand is expected to increase to 476,929 acre-feet of water per year. The population of El Paso County exceeds 840,000, and projections by the Texas Water Development Board (TWDB) indicate that the population is expected to grow to over 1.5 million by 2070 (TWDB 2017). Population growth is expected to occur primarily outside the incorporated limits of the City of El Paso. Irrigation currently accounts for over 60% of water use in El Paso County, and a significant portion of future municipal water needs are projected to be supplied using increasing amounts of water previously allocated for irrigation.

The City of El Paso provides retail water and wastewater services to approximately 800,000 people within the city limits, 75,000 people through wholesale contracts with water providers located outside the city limits, and supplies 25% of the water to Fort Bliss (EPWU 2019). The City of El Paso currently has water rights for approximately 70,000 acre-feet per year from Rio Grande Project water, which is used to meet approximately 40% of its municipal water demand. The amount of water attainable by the City of El Paso is subject to availability and depends on the District's total diversion rights and appropriations. Rio Grande Project water is typically available only eight months of the year, from March through October, when water is released from Elephant Butte and Caballo Reservoirs during the primary irrigation season.

The westernmost part of Texas, as well as the headwaters of the Rio Grande in Colorado and New Mexico, from which the District's water supply originates, have been in drought for much of the past two decades. In 2025, the Elephant Butte Reservoir reached near-record-low levels, with approximately 3% capacity. In 2026, Elephant Butte Reservoir is also expected to approach near-drought-of-record conditions.

Investments in conservation are necessary to adapt to continued drought conditions and ensure the continued delivery of Rio Grande Project water for shared agricultural and municipal use. Historically, the District has aggressively sought to maximize the benefit of all water drawn from the Rio Grande. Since maintenance of the system was assumed by the U.S. Bureau of Reclamation in 1980, efficiency has increased from less than 50 percent to approximately 70 percent through a variety of programs initiated by the District. Accordingly, all the low-cost, easily developed improvements were identified and implemented long ago. A study funded by the TWDB indicates that lining the irrigation system with concrete is among the few alternatives remaining for water conservation in El Paso County (Michelsen et al. 2009).

In developing this improvement project, an evaluation was conducted of the District's water transmission and delivery system to identify weaknesses that could be addressed. The Franklin Canal loses as much as 362 acre-feet of water per mile per irrigation season. Losses vary by year, use, and water supply availability. Improvements to the canal would reduce the need to pump water from the Rio Grande Alluvium aquifer to provide water for agricultural use.

3 Description of Proposed Project

3.1 Project Description

The Project area is located in El Paso County, Texas. Figure 1 shows the location of the Project. The existing contents of the Franklin Canal system include the two locations of approximately 1,200 feet of concrete lining (pavement).

Figure 1: Aerial Image of Franklin Canal near the City of El Paso Zoo.

3.1.1 Franklin Canal Alternatives

All sections of the Franklin Canal will be lined with concrete, featuring side slopes of 1:1.5, an average depth of 6 feet, and a 14-foot bottom. Steel panel reinforcement will be used to extend the life of the concrete lining. The canal is designed to carry a maximum flow of 240 cubic feet per second (cfs) while maintaining about 2 feet of freeboard.

3.2 Project Funding

Funding for the Project included federal and state grant funds. The construction cost of the concrete lining for the Project is estimated at $600,000.

4 Reasonable Alternatives

4.1 Franklin Canal

Four basic alternatives were identified for improving the existing canal system, including:

1. Concrete lining of the canal, and
2. Replacement of the canal with a large-diameter pipe

4.1.1 Concrete lining of the canal

Concrete lining improvements would significantly reduce seepage and improve the hydraulic efficiency of the canal.

4.1.2 Replacement of the canal with a large-diameter pipe

Large diameter pipes were also considered for use. Properly installed, the pipe minimizes losses due to evaporation and seepage. Pipe usage also offers secondary benefits, including low maintenance, reduced vandalism exposure, and efficient land use. Unfortunately, the flow capacity required for the canal would require using a substantial diameter, effectively requiring custom fabrication. A preliminary cost analysis revealed that the installation cost for the pipe was likely to be several times that of the concrete lining; the pipe was therefore eliminated from consideration.

4.2 Recommended Alternatives

The following improvements are recommended:

1. Installation of concrete lining from the heading of the Franklin Canal near the El Paso Zoo in the City of El Paso. This reach will include approximately 1,200 linear feet of canal.

All recommended improvements are shown in the Drawings for Construction of Franklin Canal Improvements.

5 Environmental Impacts

5.1 Social and economic impacts

Appendix A contains data from the U.S. Census Bureau for El Paso County, the City of El Paso, the City of Socorro, and the City of San Elizario. This information represents the conditions of the surrounding political subdivisions, and key social and economic indicators are summarized in Table 6-1.

A review of U.S. Census data suggests that the Project area is economically depressed. Rapid population growth and low education rates, combined with high poverty and unemployment rates, produce significant challenges to local community leaders. The Project is not expected to segregate, disturb, or otherwise negatively impact any existing residences, businesses, and other

facilities. No relocations are required. The project will not disproportionately affect any racial, ethnic, or socioeconomic group of people with negative environmental consequences.

The overall economic impact of the proposed project is expected to be positive. By using water more efficiently, less water will be required to achieve the same or better irrigation results, thereby leaving more water available for crop production or municipal water supplies. Additionally, crops that have traditionally been considered too water-intensive but are more lucrative for the farmer are now more feasible. Eliminating the water waste will also reduce maintenance costs for the District, the agricultural community, and taxpayers.

Measures will be taken to protect public health and safety during the construction phases of the Project. Construction warning signs, safety fencing, and vehicle barricades will be utilized to limit and discourage access to construction areas. During certain stages of construction, security guards may be deployed during non-working hours to protect stored equipment and materials and to prevent unauthorized access. A short-term benefit to the local economy will also be realized with the construction of the project. Concrete, steel, and other materials and supplies will be sourced competitively.

Table 6-1. Summary of U.S. Census data

Select social and economic statistics (2018)

Statistic	San Elizario	Socorro	City of El Paso	El Paso County
People				
Population	9,089	34,370	681,728	839,238
Percent Hispanic	98.8%	95.8%	80.9%	83.30%
Foreign Born	37.2%	34.4%	23.8%	24.8%
Veterans	1.6%	2.3%	6.4%	5.7%
Housing				
Owner-occupied	69.8%	75.1%	59.1%	61.4%
Median gross rent	$714	$693	$814	$812
Computer and Internet Use				
Households with a computer	86.3%	83.4%	84.5%	84.8%
Households with broadband	66.8%	68.4%	75.0%	74.6%
Education				
High school graduate (age 25+)	57.2%	59.0%	79.6%	77.5%

Bachelor's degree or higher (age 25+)	12.2%	6.6%	24.7%	22.8%
Health				
People with disability under (age -65)	11.3%	13.2%	9.4%	9.6%
Persons without insurance (age -65)	33.8%	33.9%	21.6%	23.8%
Economy				
Median household income (2018)	$33,588	$34,339	$45,656	$44,597
Per capita income (2018)	$13,137	$13,257	$21,927	$20,763
Persons in poverty, percent	37.7%	26.9%	20.0%	20.5%

5.2 Soils

El Paso County is located in the Mexican Highlands Section of the Basin and Range Physiographic Provide and in the Chihuhahua Desert Biotic Provide of North America. This area exhibits north-south trending fault-block mountains and valleys. Sedimentary and metamorphic rocks are exposed in the nearby Franklin Mountains, which reach an elevation of 7,152 feet MSL and extend north from the city about 16 miles. The Rio Grande alluvial valley, immediately south of the Franklin Mountains, is relatively flat with typical gradients of one percent or less (USBR 1990; USIBWC 1993; EPA 1997).

This land has been previously disturbed and 100% of the constructed concrete lining is fully within the banks of the canal. During construction there will be no flow in the canal and any water from rainfall will be entirely contained within the canal. Construction practices will utilize methods that minimize soil loss due to wind and rain erosion. There are no expected adverse impacts on the geophysical resources from the proposed project.

5.3 Vegetation Impacts

El Paso County is located in the Trans-Pecos vegetation region of Texas, within the Chihuahuan Desert scrub biotic community. Most native vegetation in this general area has been modified or replaced by urbanization, agriculture, or overgrazing (EPA 1997). Much of the land in the El Paso Lower Valley consists of residential subdivisions and agricultural fields mixed with patches of desert scrub vegetation, irrigation ditches and drains, and the Rio Grande channel (USBR 1990).

The project site is located on a site consisting of scattered grasses and weedy annuals that commonly occur on disturbed sites. The areas surrounding the canal are essentially devoid of vegetation due to the presence of parking lots, sidewalks, and roadways. The area is maintained regularly to remove weed growth. No significant impacts on the distribution, diversity, and coverage of vegetation are expected.

5.4 Endangered and/or Threatened Species

The Texas Parks and Wildlife Department (TPWD) publishes updates to listed endangered and/or threatened species at: https://tpwd.texas.gov/gis/rtest/.

The U.S Fish & Wildlife Service (USFWS) publishes updates to listed endangered and/or threatened species at: https://ecos.fws.gov/ecp/species-reports.

Five species included on the Federal Endangered Species List (USESA) potentially inhabit El Paso County. Eleven species are included on the subnational (Texas) protection / listing status (SPROT).

Table 6-2. Endangered and Threatened Species in El Paso County

Species name and status

Common Name	Scientific Name	Federal Status	State Status
southwestern willow flycatcher	*Empidonax traillii extimus*	Listed Endangered	Endangered
Pima pineapple cactus	*Coryphantha scheeri var. robustispina*	Listed Endangered	
Sneed's pincushion cactus	*Escobaria sneedii var. sneedii*	Listed Endangered	Endangered
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Listed Threatened	
Mexican spotted owl	*Strix occidentalis lucida*	Listed Threatened	Threatened
white-faced ibis	*Plegadis chihi*		Threatened
gray hawk	*Buteo plagiatus*		Threatened
American peregrine falcon	*Falco peregrinus anatum*		Threatened
speckled chub	*Macrhybopsis aestivalis*		Threatened
Texas horned lizard	*Phrynosoma cornutum*		Threatened
mountain short-horned lizard	*Phrynosoma hernandesi*		Threatened

An examination of records available from the TPWD and USFWS showed that no listed threatened or endangered species have been observed at or near the Project area in the last five years. A similar determination was made in the EA and FONSI for concrete lining construction work immediately upstream from the Project as part of the Riverside Canal Improvements Project (USBR 2009). A similar determination was also made as part of an Environmental Assessment for the U.S.-Mexico Border Fence performed by the U.S. Customers and Border Protection (USCBP 2008). The following discussion examines the habitats of the listed threatened and endangered species in relation to the Project area.

5.5 Wildlife Habitat

5.5.1 Threatened and Endangered Species Habitat

The southwestern willow flycatcher (*Empidonax trailii extimus*) breeds in dense riparian habitats along rivers, streams, or other wetlands. One of the most essential characteristics of the habitat appears to be the presence of thick vegetation, including thickets of willow, cottonwood, mesquite, and other species along desert streams. The existing and future conditions of the project site are not expected to support dense vegetation, and so it is unlikely that a Flycatcher will be affected by the Project.

The Pima pineapple cactus (*Coryphantha scheeri var. robustispina*) is generally found in lower Sonoran desert-scrubland, desert-grassland, or the ecotone between desert-scrubland and desert-grassland in southeastern Arizona and northern Sonora, Mexico. No designated critical habitat exists in El Paso County; therefore, the cactus is expected to be unaffected by the Project.

The Sneed's pincushion cactus (*Coryphantha sneedvi var. sneedii*) lives in grasslands or Chihuahuan Desert succulent shrublands on limestone outcrops and rocky slopes of mountains within the Chihuahuan Desert. The Project area contains none of those features, so it is expected that this cactus will not be affected by the proposed project.

The protected status of the western yellow-billed cuckoo (*Coccyzus americanus occidentalis)* Status applies only to western populations beyond the Pecos River Drainage. The cuckoo breeds in riparian habitats and associated drainages, including springs, developed wells, and earthen ponds that support mesic vegetation, typically found in deciduous woodlands with cottonwoods and willows. Dense understory foliage is essential for nest site selection, and the cuckoo nests in willow, mesquite, cottonwood, and hackberry, and forages in similar riparian woodlands. The existing and future conditions of the project site are not expected to support dense vegetation, and so it is unlikely that the cuckoo will be affected by the Project.

The Mexican spotted owl (*Strix occidentalis lucida*) inhabits canyon and montane forest habitats across a range that extends from southern Utah and Colorado through Arizona, New Mexico, and west Texas to the mountains of central Mexico. No designated critical habitat exists in El Paso County; therefore, the owl is expected to be unaffected by the Project.

5.5.2 Woody and Brushy Habitat

The existing conditions of the Project area support no woody or brushy habitat.

5.5.3 Disruption to Wildlife Habitat

The land within the Project is located in an urban area of the City of El Paso. There is no wildlife area nearby except for the curated habitats within the Zoo. The project will coordinate with the Zoo to minimize the impact on noise and dust levels, ensuring no disruption to the Zoo's wildlife and operations.

5.6 Weather

Climactic characteristics of El Paso County include abundant sunshine, high daytime summer temperatures, very low humidity, little rainfall, and relatively mild winters. Mean daily temperatures range from 84.5°F in June to 46.1°F in January. The frost-free period typically lasts about 230 days, from early March to mid-November. Small amounts of snow fall nearly every winter but usually melt in a few hours (USIBWC 2007).

Precipitation in El Paso averages only about 8.5 inches per year. However, several local thunderstorms and resultant flooding sometimes occur, especially during summer. Rainfall is generally insufficient for plant growth, except for desert vegetation, and irrigation is necessary to support crops, gardens, and lawns. Low humidity, high temperatures, and relatively high winds in the area contribute to evaporation rates typically ranging from 90 to 100 inches per year (USIBWC 2007).

5.7 Wetlands and Waterways

The Project will utilize the existing Franklin Canal bed and banks, with a more hydraulically efficient concrete-lined canal. No waterways or wetlands are expected to be adversely affected.

5.8 Flood Zones

No floodwater is allowed to be discharged into the Franklin Canal. No adverse flood impacts to the surrounding communities are expected as a result of the Project.

5.9 Stormwater

The construction limits will encompass approximately 2 acres. Projects containing disturbed areas larger than one acre in size are subject to the United States Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) requirements. NPDES rules allow construction under the Construction General Permit for Industrial Activity. Before commencing construction, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared. A Notice of Intent will be filed with the Texas Commission on Environmental Quality (TCEQ) using the State of Texas Environmental Electronic Reporting System (STEERS).

Construction will progress in a manner consistent with the Pollution Prevention Plan.

5.10 Effects of Earthwork on Water Bearing Bodies

The Project consists of concrete lining of the beds and banks of an existing irrigation canal on the original canal site. The construction phase will take place during the winter months, where there is little demand for irrigation water; no water will be transported through the canals during this time. Therefore, it is anticipated that there will be no significant impact on downstream water-bearing bodies.

5.11 Public Land

The Project will be constructed on land owned by the District.

5.12 Land Use

El Paso County is composed of the urban area of the City of El Paso, the suburban area of the City of Socorro, the Fort Bliss military base, the Franklin Mountains State Park, the smaller rural towns and communities outside of the incorporated limits of El Paso and Socorro, and the agricultural areas of the El Paso Upper Valley (northwest of El Paso) and El Paso Lower Valley (Southeast of El Paso). El Paso County is undergoing a transition from agricultural to a mixed urban, suburban, and commercial and industrial landscape.

Land use surrounding the proposed project site is 100% urban. The ground is mowed regularly to remove weed growth and has been previously disturbed by maintenance and construction equipment traffic. The Project will have no impact on land use as the site is currently used for an irrigation canal.

5.13 Farmlands

No farmland area is adjacent to the Project area, but approximately 15,000 acres of farmland receive irrigation water via the Franklin Canal. The Project does not involve new construction, acquisition of undeveloped land, or conversion of agricultural land. As such, no adverse impacts are anticipated on any agricultural land in the area, and no reporting is required under the Farmland Policy Protection Act.

5.14 Historical and Cultural Resources

The El Paso County Water Improvement District No. 1 is listed in the National Register of Historic Places under National Register Information System ID 97000885.

There are no anticipated adverse effects of features listed in the National Register of Historic Places (NRHP) as a result of the proposed project (see Appendix A).

Updates on NRHP-listed and eligible resources and landmarks can be referenced at: https://www.nps.gov/subjects/nationalregister/index.htm.

The THC offers a listing of national and state historic resources in El Paso County at: https://atlas.thc.state.tx.us/.

Per the National Historic Preservation Act (NHPA) of 1966 and definitions set by the Advisory Council on Historic Preservation in 36 CFR 800.16(y), any project, activity, or program funded in whole or in part by a federal agency will be subject to the Section 106 review process. The District consults with the THC using the electronic THC Review and Compliance (eTRAC) system: https://xapps.thc.state.tx.us/106Review/.

The Antiquities Code of Texas requires the District to make a reasonable and good-faith effort to account for the adverse effects of the Project on Native American cultural or historic resources. The potential for impact on undisturbed archaeological sites within the Project area is unlikely due to the existing land use of the area. If any archeological or other culturally significant artifacts

and/or structures are discovered, construction activity will cease immediately, and appropriate local and state authorities will be contacted.

5.15 Air Quality and Acoustic Impacts

Air quality impacts associated with the proposed project are expected to be limited and temporary. H. All equipment will be legally compliant for use within the State of Texas and will comply with all applicable air quality regulations. Earth-moving operations are expected to generate a small amount of dust, but excessive dust will be controlled through the use of sprinkling methods.

5.16 Hazardous Materials

No hazardous material has been observed during site inspections. The entire construction site has been fenced off for over 50 years.

5.17 Traffic Hazards and Disruptions

Transportation of equipment to and from the project may utilize existing roadways. No unreasonable traffic delays and/or hazards are expected to occur as a result of transporting equipment and materials. All traffic detours and other traffic handling procedures will comply with the Texas Manual on Uniform Traffic Control Devices (TMUTCD). Procedures can be referenced from the Texas Department of Transportation at: https://www.txdot.gov/government/enforcement/signage/tmutcd.html.

5.18 Clearing, Grubbing, and Soil Disposal

No clearing or grubbing is required for the project. Any excess soil that has to be removed to accommodate the concrete line will be used for clean fill on other construction sites.

5.19 Obstruction of Scenic Views

The visible section of the canal near the entrance to the City of El Paso Zoo will feature an earthen bank and bed, providing a viewing area for zoo visitors.

6 Conclusions

Preparation of this Environmental Summary is based on visual field reconnaissance and interviews with District employees and the District Engineer. Record information was obtained from several sources, including the U.S. Census Bureau, the Texas Commission on Environmental Quality (TCEQ), the Texas Parks and Wildlife Department (TPWD), the Texas Historical Commission (THC), the U.S. Fish and Wildlife Service (USFWS), the U.S. Soil and Water Conservation Service (USSWCS), as well as other publications. Based on the information collected, the following conclusions are reasonable and valid:

1. The benefits expected to be produced by the project are significant and quantifiable. The improvements will result in direct water conservation.
2. No reasonable alternatives exist to those identified.

3. The socioeconomic impacts of the project are expected to be positive. No temporary or long-term detrimental socioeconomic impacts are expected to result from the project.
4. No significant cultural resources are expected to be impacted by the project. The entire construction area is located within an area that is regularly and repeatedly disturbed by District operations.
5. No significant water areas or vegetative impacts are anticipated.
6. No wildlife habitat disturbance is anticipated.
7. The project, as proposed, is anticipated to have a net positive impact from an environmental and economic perspective.

7 References

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Appendix A: Email Letter from Texas Historical Commission

From:noreply@thc.state.tx.us <noreply@thc.state.tx.us>
Sent: Thursday, March 6, 2025, 7:10 AM
To:jornelas@epcwid1.org; reviews@thc.state.tx.us
Subject: Franklin Canal Lining Project Phase 2: El Paso Zoo Section

Re: Project Review under the Antiquities Code of Texas
THC Tracking #202505712
Date: 03/06/2025
Franklin Canal Lining Project Phase 2: El Paso Zoo Section
4001 E. Paisano Drive
El Paso,TX 79905

Description: This project consists of concrete lining 1,200 linear feet of earthen Franklin Canal with reinforced steel, to include the entire cross-section of the canal.

Dear Jay Ornelas:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the Executive Director of the Texas Historical Commission (THC), pursuant to review under the Antiquities Code of Texas.

The review staff, led by Caitlin Brashear, Drew Sitters, and Patrick Bassett, has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- Property/properties are eligible for listing or already listed in the National Register of Historic Places.
- THC has specific architectural recommendation(s).

Archeology Comments

- No effect on identified archeological sites or other cultural resources. However, if cultural materials are encountered during project activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.

We have the following comments: Regarding above-ground resources, the Franklin Canal was listed in the National Register of Historic Places (NRHP) in 1992. The Texas Historical Commission Division of Architecture review staff, led by Patrick Bassett, has determined that there will be no impact to above ground properties under the Antiquities Code of Texas. Our Agency recommends that TWDB consider any potential impacts to above ground historic infrastructure.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: caitlin.brashear@thc.texas.gov, drew.sitters@thc.texas.gov, patrick.bassett@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

for Joseph Bell, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.

EXHIBIT B – ENGINEERING DRAWINGS

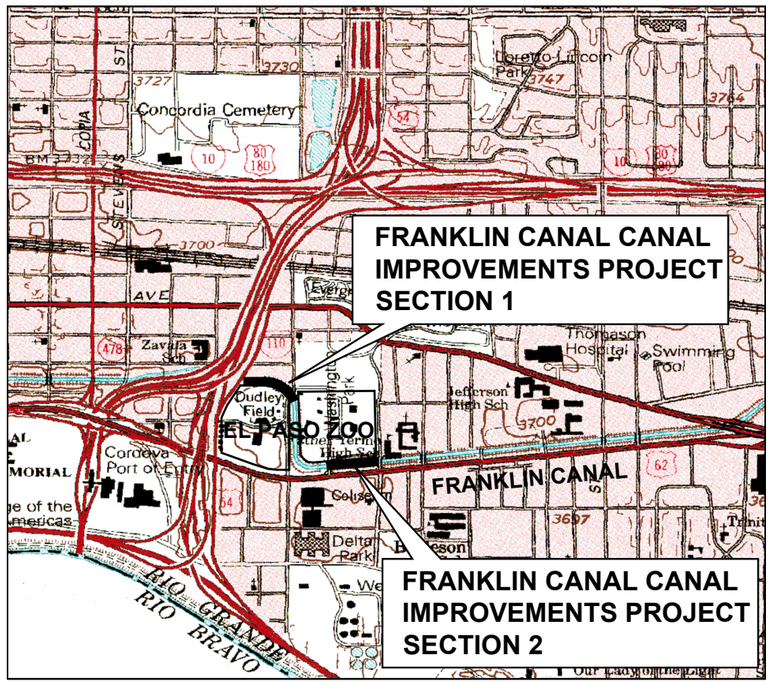
DRAWINGS FOR CONSTRUCTION OF

Franklin Canal Lining Improvements at El Paso Zoo

PREPARED FOR

EL PASO COUNTY WATER IMPROVEMENT DISTRICT NO. 1

NO.	SHEET TITLE
1.	COVER SHEET
2.	GENERAL NOTES
3.	OVERALL LAYOUT
4.	PLAN AND PROFILE STA 262+66 TO STA 269+50
5.	PLAN AND PROFILE STA 280+00 TO 286+18 @ END
6.	MISCELLANEOUS DETAILS



PROJECT LOCATION MAP
NTS

APPROVED BY:

8/11/2025

Oscar D. Ornelas, Jr., P.E. Date
for El Paso County Water Improvement District No. 1

SUBMITTED BY:

STATE OF TEXAS
ALLIE W. BLAIR
63707
REGISTERED PROFESSIONAL ENGINEER

8/11/2025

A.W. Blair, P.E., Ph.D. Date
EPCWID District Engineer

For
Texas Water Develpement Board Review
100% DESIGN DRAWINGS
8/11/2025

NO.	DATE	REVISION	APPV'D
1	8/11/25	ADDRESS TWDB 8/11/25 COMMENTS	AWB

El Paso County Water Improvement District No. 1

P.O. Box 749 | 13247 Alameda Ave. Clint, Texas 79836-0749
(915) 872-4000 | Fax (915) 851-0091 | www.epcwid.org

GENERAL CONSTRUCTION NOTES

1. All construction shall be in accordance with adopted specifications.

2. Prior to beginning construction, the owner or his authorized representative shall convene a Pre-Construction Conference between the District, consulting engineer and contractor.

3. Any existing pavement, curbs, and/or sidewalks or other structures damaged or removed will be repaired by the contractor at his expense before acceptance of the project.

4. All drain pipes to be Class IV RCP unless noted otherwise.

5. Cast bronze survey markers shall be placed in concrete in permanent, accessible locations at the time of construction. The location of the markers shall be indicated on the construction plans.

6. For slopes or trenches greater than five feet in depth: All construction operations shall be accomplished in accordance with applicable regulations of the U.S. Occupational Safety and Health Administration.

7. All site work must also comply with Environmental requirements.

8. The contractor shall not dispose of surplus excavated material from the site without notifying the District at least 24 hours prior to the spoils removal. This notification shall include the disposal location.

9. The contractor shall uncover and verify the depths and horizontal location of all existing utilities to be extended to, altered or subject to damage or inconvenience by this project prior to commencing construction.

10. The location and elevation of all existing utilities to be connected to shall be confirmed prior to the installation of any utility line. The contractor shall confirm with the Engineer the grade of the final segment of connecting pipe as necessary to meet the flowline elevation of the existing pipe.

11. The Contractor shall provide all trench safety as necessary and in strict accordance with the State and OSHA requirements.

12. The Contractor shall provide all traffic control as necessary for construction vehicles entering and exiting the site.

13. The contractor is responsible for assuring that all permits necessary to legally perform the work have been obtained prior to commencing construction. Required permits that can be issued to the Contractor only will be obtained at the Contractor's expense.

14. All steel shall conform to the requirements of ASTM A615 Grade 60.

15. All reinforcing steel laps shall be a minimum length of 30 bar diameters unless otherwise specified.

16. Expansion joint dowels shall be supported as necessary during pouring to assure that 16. dowels are horizontal and plumb.

17. All reinforcing steel laps shall be made in a plane horizontal to the concrete surface to maintain minimum cover.

18. All construction joints shall be sealed as indicated on the plans.

19. Prior to hauling to the site, contractor must obtain approval of the engineer for any fill material to be utilized for the project.

20. Contractor is responsible for protecting all concrete work from rain and flooding.

21. All canal lining concrete shall have a minimum compressive strength of 4000 psi at 28 days unless otherwise noted. All structural concrete shall have a minimum compressive strength of 3600 psi at 28 days unless otherwise noted. High early strength mix designs may be proposed by the contractor but will require the approval of the engineer.

22. In the event of a conflict between the requirements of the engineering drawings (plans) and the requirements of the specifications, the more restrictive requirement shall govern. The Engineer shall determine which requirement is more restrictive.

23. The unit cost for all excavation shall include removal and transport of material within the project site or specified borrow location to the point of final placement.

24. Concrete debris may be placed below finished grade in the location indicated on the typical section detail. Concrete must be placed in a manner that will allow the placement of surrounding earthen fill in a manner the will not encourage future consolidation.

25. No more than two longitudinal construction joints made be placed in the canal concrete in any given transverse section. Construction joints shall be sealed in accordance with the construction joint detail. Construction joints shall be considered a subsidiary item to Concrete Canal Paving. The cost of construction joints proposed by the contractor shall be included in the unit cost for Concrete Canal Paving.

26. No transverse construction joints will be allowed in the Concrete Canal Paving. The Contractor shall conduct work in a manner that allows all pours to end at a proposed expansion joint. In the event it is necessary to terminate a pour at a location other than a planned expansion joint, the Contractor shall install an additional expansion joint at no cost to the Owner.

27. The unit cost for Concrete Canal Paving shall apply for all slab thicknesses including the standard 5-inch slab and thickened sections at canal ladders, expansion joints and end joints.

28. The unit cost for embankment shall apply to the construction of the formal channel embankment and for the construction of the receding slopes outside of the channel embankments.

29. The cost of demolition of structures indicated on the plans to be removed shall be included in the unit cost of excavation.

30. Erosion controls shall be installed in locations directed by the Engineer.

31. Contractor shall provide all construction staking and cut sheets as necessary and in accordance with the adopted specifications.

32. Contractor shall verify the location and elevation of all existing facilities prior to construction of proposed facilities.

33. Final payment shall require acceptance of facilities by the Owner prior to payment.

34. Contractor to remove and lawfully dispose all excess spoil materials from the construction site.

35. Water stops shall be installed in all cold joints, construction joints and keyways within ten vertical feet of the flowline of all linings and/or structures.

36. If this project is constructed by the owner, the owner shall meet all requirements of the construction specifications and notes on these drawing.

37. Contractor shall submit a trench safety plan and obtain written approval of Project Engineer prior to any construction of trenches in excess of 5 feet in depth.

38. This project is subject to the U.S. Iron and Steel (U.S. I&S) requirements of Texas Water Code § 17.183 and/or Texas Government Code, Chapter 2252, Subchapter G, as amended by SB 1289, 85th Legislative Session, as applicable. All iron and steel products used in project construction must be produced in the United States.

39. Consistent with the Endangered Species Act of 1973 as amended, the Migratory Bird Treaty Act, and Texas Parks and Wildlife Code Chapter 64, if migratory birds are found nesting on or adjacent to the project area, vegetation clearing must be excluded during the general bird nesting season, March 15 through September 15; or if clearing at these times is unavoidable, the area proposed for disturbance should be surveyed, during the nesting period, to identify occupied nests. If occupied nests are found, the area around each nest should remain undisturbed until the eggs have hatched and the young have fledged. State and federal regulations as currently interpreted do not permit incidental take.

40. Consistent with the Texas Parks and Wildlife Code Section 68.015, the District must inform construction workers and other field personnel regarding the potential occurrence of state listed species in the project area. Prior to beginning work each day, open trenches and excavation areas must be checked to ensure no wildlife species have been trapped. If state listed species are encountered, the animals must be allowed to leave the area safely. State listed species may be handled only by persons with authorization obtained through the Texas Parks and Wildlife Department. Disturbed areas must be reseeded with native grasses by hydromulching, hydroseeding, or seed broadcasting techniques. If erosion control blankets or mats are used, the District must avoid the use of plastic mesh matting or netting.

41. Contractor shall submit a shotcrete mixture and placement design for the canal pavement and obtain written approval of Project Engineer prior to any placemen t of shotcrete. The mixture and placement design shall include, at a minimum: 1) applicability, 2) min/max payment thickness, 3) fiber type and amount, 4) fly ash, superplasticizer, and air entrainment %, 5) slump, 6) final mix design from plant, 7) minimum 7 day cure strength of 3,500 psi, 8) and any other information impacting strength, applicability, and placement, and curing of the concrete.

1 42. Storage of materials and equipment within the FEMA designated flood zone is prohibited.

1 43. Equipment and material storage to be located offsite by contractor.

For Texas Water Developement Board Review
100% DESIGN DRAWINGS

CONSTRUCTION SEQUENCING

1. Notify the District 48 hours prior to beginning any work.

2. Arrange for all existing utility lines to be marked.

3. Commence earth work on first segment of canal.

4. Grade all areas to be paved to subgrade.

5. Place concrete.

6. Final grade areas surrounding pavement.

7. Repeat steps 3 through 7 for subsequent segments.

8. Complete final dress.

9. Schedule and attend preliminary walk through.

10. Correct punch list items.

11. Project engineer inspects job and writes concurrence letter and submits the letter to the District. Final inspection is scheduled upon the receipt of the concurrence letter.

CONTRACTOR FOR PROJECT

1. The CONTRACTOR for this Project shall be the Maintenance and Construction Department of the District , and such department shall perform all responsibilities required of the Contractor as specified on this NOTES SHEET and in the Project Construction Specification Document.

2. The CONTRACTOR shall notify all authorized inspectors, superintendents, or persons in charge of utilities affected by his operations before the commencement of work assure himself that all construction permits have been obtained. Required permits that can only be issued to the contractor will be obtained by the District Licensing Department.

3. CONTRACTOR shall adhere to all construction requirements cited in the Texas Water Development Board Contract No. 1913582343.

BENCHMARK ELEVATION

Elevations and contours shown are based on the United States Bureau Reclamation datum determined via G.P.S. R.T.K. observation at a United States Bureau of Reclamation brass cap (Ascarate Check) as shown on the United States Bureau of Reclamation distribution system benchmarks table provided by the El Paso County Water Improvement District No. 1.

Elevation of project benchmark is 3655.03' (U.S.B.R. datum)

OWNER INFORMATION

Owner	EL PASO COUNTY WATER IMPROVEMENT DISTRICT NO. 1
Phone #	(915) 872-4000
Address	13247 ALAMEDA AVE. CLINT, TEXAS 79836
Owner's representative responsible for plan alterations:	AL BLAIR, P.E., PhD.
Phone #	(915) 872-4000
Engineer	AL BLAIR, P.E., PhD.
Phone #	(915) 872-4000
Address	13247 ALAMEDA AVE. CLINT, TEXAS 79836
Surveyor	AARON ALVARADO, TX R.P.L.S. NO. 6223
Phone #	(915) 542-4900
Address	417 EXECUTIVE CENTER BLVD., EL PASO, TEXAS 79902

NO.	DATE	REVISION	APPVD
1	8/11/25	ADDRESS TWDB 11/8/25 COMMENTS	AWB

DATE: 8/11/25
STATE OF TEXAS
ALLIE W. BLAIR
63707
REGISTERED
PROFESSIONAL
ENGINEER

El Paso County Water Improvement District No. 1
P.O. Box 749 | 13247 Alameda Ave. Clint, Texas 79836-0749
(915) 872-4000 | Fax (915) 851-0091 | www.epcwid1.org

El Paso County Water Improvement Disctict No. 1
Franklin Canal Lining Project at El Paso Zoo

GENERAL NOTES

DESIGNED:	AWB
APPROVED:	AWB
FILE:	FCLPEPZOO
JOB NO.	A2219
DATE:	8/11/2025
SHEET	2 OF 6

For Texas Water Developement Board Review
100% DESIGN DRAWINGS

SITE ACCESS 1

STA 263+18
BEGIN CONC LINING
MATCH EXISTING CONC

STA 269+18
END CONC LINING
GRADE TO DRAIN

SITE ACCESS 1

STA 280+33
BEGIN CONC LINING
MATCH EXISTING CONC

STA 286+18
END CONC LINING
MATCH EXISTING CONC 1

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REGISTERED PROFESSIONAL ENGINEER

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El Paso County Water Improvement Discrict No. 1
Franklin Canal Lining Project at El Paso Zoo

OVERALL SITE PLAN

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SHEET	3 OF 6

For Texas Water Developement Board Review
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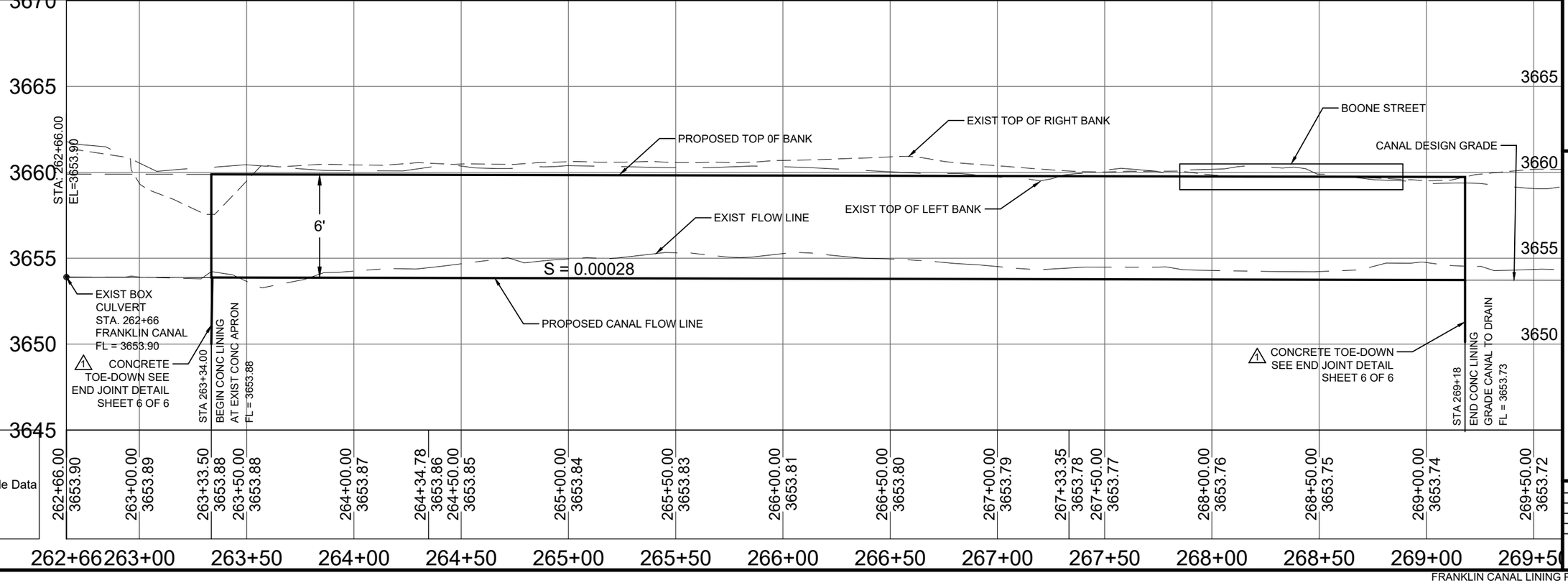

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ALLIE W. BLAIR
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(915) 872-4000 | Fax (915) 851-0091 | www.epcwid1.org

El Paso County Water Improvement Discrict No. 1
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PLAN AND PROFILE
STA 262+66 TO STA 269+50

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SHEET	4 OF 6

For Texas Water Developement Board Review
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EL PASO ZOO
COE P PROPERTY

FRANKLIN CANAL
(80' PER QUIT CLAIM DEED BOOK 660, PAGE 39)

TXDOT R.O.W. LINE

U.S. HIGHWAY 80 (PAISANO AVENUE)
(TXDOT R. O. W. WIDTH VARIES)

WASHINGTON STREET (50' R.O.W.)

STA 280+33.00
BEGIN CONC LINING
MATCH EXISTING CONC

STA 286+18.00
END CONC LINING
MATCH EXISTING CONC

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DATE: 8/11/25
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El Paso County Water Improvement Discrict No. 1
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PLAN AND PROFILE
STA 280+00 TO END

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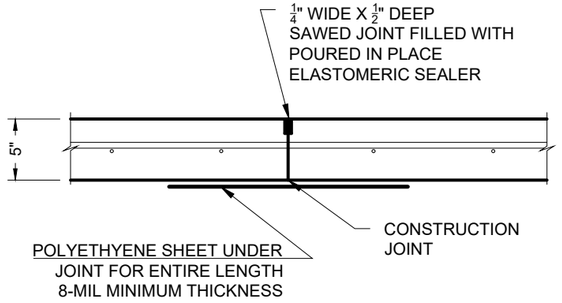
JOB NO.	A2219
DATE:	8/11/2025
SHEET	5 OF 6

PROPOSED TOP 0F BANK
EXIST TOP OF LEFT BANK
EXIST TOP OF RIGHT BANK
EXIST FLOW LINE
CANAL DESIGN GRADE
6'
S = 0.00028
CONCRETE TOE-DOWN
SEE END JOINT DETAIL
⚠1 SHEET 6 OF 6
STA 280+33.00 BEGIN CONC LINING LT MATCH EXIST CONC
STA 280+55 CL EVERGREEN BRIDGE
STA 281+15.44 BEGIN CONC LINING RT MATCH EXIST CONC
STA 286+17.52 EL=3653.29 WASHINGTON STREET
STA 286+18.00 END CONSTRUCTION MATCH EXIST CONCRETE

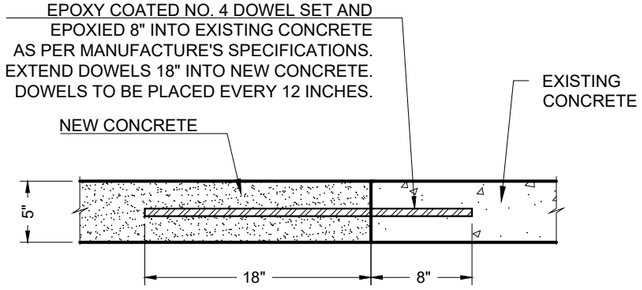
3653.46 | 280+00.00 3653.45 | 280+32.91 3653.44 | 280+50.00 3653.44 | 281+00.00 3653.42 | 281+50.00 3653.41 | 282+00.00 3653.40 | 282+50.00 3653.39 | 283+00.00 3653.37 | 283+50.00 3653.36 | 284+00.00 3653.35 | 284+50.00 3653.33 | 285+00.00 3653.32 | 285+50.00 3653.31 | 286+00.00 3653.29 | 286+17.52 3653.29 | 286+50.00

+50 280+00 280+50 281+00 281+50 282+00 282+50 283+00 283+50 284+00 284+50 285+00 285+50 286+00 286+50 28



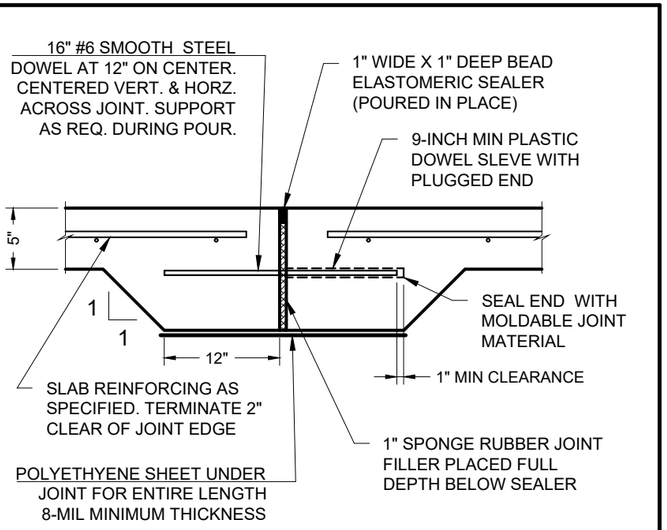
CONSTRUCTION JOINT DETAIL

NTS



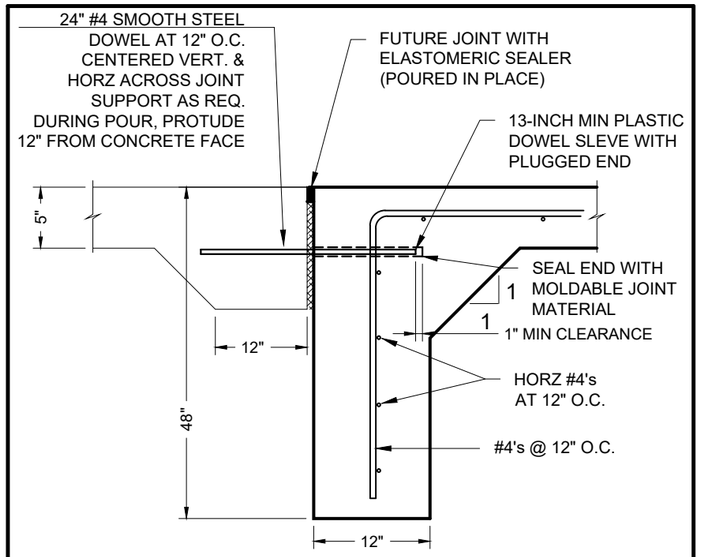
JOINT DOWEL TO EXISTING CONCRETE DETAIL

NTS



EXPANSION JOINT DETAIL

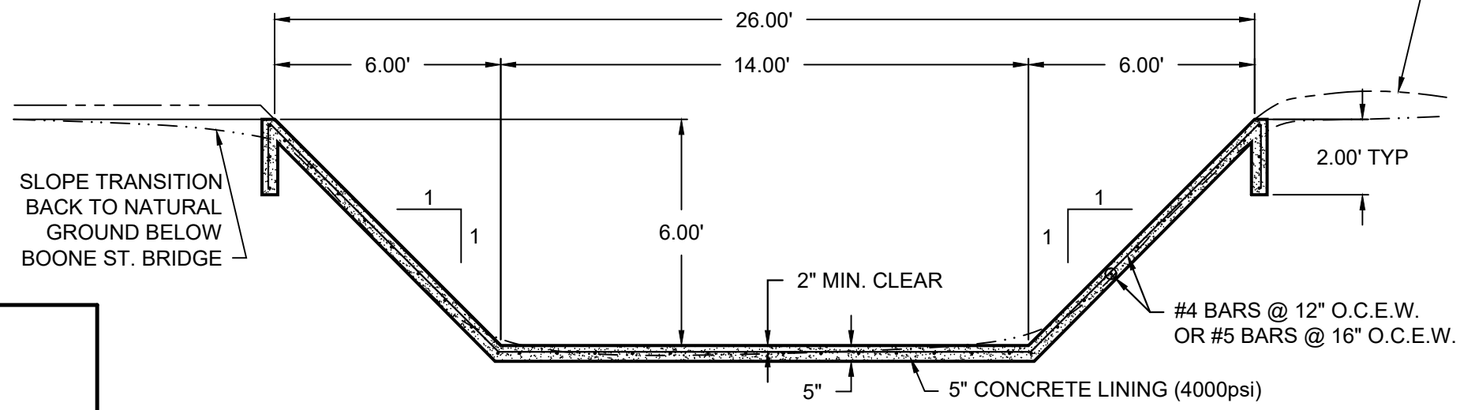
NTS



END JOINT DETAIL

NTS

NOTES:
1. CANAL WIDTHS AND DEPTHS MAY VARY TO MATCH CANAL'S EXISTING FIELD CONDITIONS.
2. CONCRETE PAVING TO ACCOMMODATE EXISTING BRIDGE FOOTINGS AND NOT DISTURB OR ALTER THE FOOTINGS.



1 TYPICAL CANAL SECTION

SCALE: NTS

For Texas Water Developement Board Review
100% DESIGN DRAWINGS

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El Paso County Water Improvement Discrict No. 1
Franklin Canal Lining Project at El Paso Zoo

PLAN AND PROFILE
MISCELLANEOUS DETAILS

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DATE:	8/11/2025
SHEET	6
OF	6