This Agenda is posted pursuant to Chapter 551, Texas Government Code

Matters to Come Before a Meeting of the Board of Directors of Tarrant Regional Water District

To Be Held the 18th Day of June 2024 at 9:00 a.m.
Front Doors to the Main Admin Building at 800 East Northside Drive Will Open to the Public at 8:30am and Close Fifteen (15) Minutes After the Meeting Adjourns

TRWD Board Room
800 East Northside Drive
Fort Worth, Texas 76102

PLEASE BE ADVISED THAT A QUORUM OF THE BOARD OF DIRECTORS OF TRWD WILL CONVENE ON THE ABOVE DATE AND TIME FOR THE PURPOSE OF CONSIDERING AND ACTING UPON THE MATTERS SET FORTH IN THIS AGENDA. THE LINK TO VIEW AND LISTEN TO THE MEETING VIA INTERNET IS HTTPS://WWW.TRWD.COM/BOARDVIDEOS. A RECORDING OF THE MEETING WILL ALSO BE AVAILABLE AT HTTPS://WWW.TRWD.COM/BOARDVIDEOS.

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1. **Pledges of Allegiance**

2. **Public Comment**

   Citizens may present public comment at this time, limited to a total time of three (3) minutes per speaker, unless the speaker addresses the Board through a translator, in which case the limit is a total time of six (6) minutes. Each proposed speaker must have completed and submitted a speaker card prior to the commencement of the meeting, identifying any agenda item number(s) and topic(s) the speaker wishes to address with the Board. By law, the Board may not deliberate, debate, or take action on public comment but may place the item on a future agenda.

3. **Consider Approval of the Minutes from the Meeting Held on May 21, 2024**

4. **Consider Approval of Contract Amendment with Accurate Inspections, LLC for Construction Materials Inspection and Testing Services of IPL Section 19-2 Part A Pipeline of the Integrated Pipeline Project - Ed Weaver, IPL Program Manager**

5. **Consider Approval of Task Order Contract with Kleinfelder, Inc. for Construction Materials Inspection and Testing Services of IPL Section 19-2 Part A Pipeline of the Integrated Pipeline Project - Ed Weaver, IPL Program Manager**

6. **Consider Approval of Contract Amendment with Steel Inspectors of Texas, Inc. for Construction Materials Inspection and Testing Services of IPL Section 19-2 Part A Pipeline of the Integrated Pipeline Project- Ed Weaver, IPL Program Manager**

7. **Consider Approval of Contract Amendment with CAS Consulting & Services, Inc. for Resident Project Representative Services for the Integrated Pipeline Project - Ed Weaver, IPL Program Manager**

8. **Consider Approval of Contract with BAR Constructors, Inc. for Cedar Creek Section 2 Pipeline Replacement Phase 1A Construction - Jason Gehrig, Infrastructure Engineering Director**

9. **Consider Approval of Contract with Freese and Nichols, Inc. for Construction Management Services for Cedar Creek Section 2 Pipeline Replacement Phases 1A and 1B - Jason Gehrig, Infrastructure Engineering Director**

10. **Consider Approval of Contract with CDM Smith for Engineering Design and Bidding Services for Richland-Chambers Lake and Cedar Creek Lake Pump Stations Electrical Buildings and Equipment - Jason Gehrig, Infrastructure Engineering Director**

11. **Consider Approval of Contract Amendment with Azcarate & Associates Consulting Engineers, LLC for Engineering Services for Benbrook Lake Pump Station Electrical Room Cooling Improvements - Jason Gehrig, Infrastructure Engineering Director**

12. **Consider Approval of Task Order with Freese and Nichols, Inc. for Engineering Services for Eagle Mountain Dam - Original Service Spillway Evaluation (Phase II) - Jason Gehrig, Infrastructure Engineering Director**

13. **Consider Approval of Task Order with Freese and Nichols, Inc. for Engineering Services for Richland-Chambers Reservoir - Comprehensive Evaluation (Phase III) - Jason Gehrig, Infrastructure Engineering Director**

14. **Consider Approval of Contract with Archer Western Construction, LLC for Electro-Hydraulic Actuators Installation at the Richland-Chambers Low-Capacity Waxahachie Pump Station - Jason Gehrig, Infrastructure Engineering Director**

15. **Consider Approval of Contract with NSI Engineering for Benbrook Lake Pump Station and Rolling Hills Booster Pump Station Programmable Logic Controller Upgrades - Jason Gehrig, Infrastructure Engineering Director**

16. **Consider Approval of Contract with CDM Smith for Professional Engineering Services to Develop a Supervisory Control and Data Acquisition System Master Plan - Jason Gehrig, Infrastructure Engineering Director**

17. **Consider Approval of Contract with Zack Construction Company LLC for Construction of the Richland-Chambers Water Quality Lab - Steve Christian, Director of Real Property**

18. **Consider Approval of Annual Insurance Renewal for Property, Casualty and Workers Compensation Insurance Lines of Coverage with Texas Water**

Conservation Association Risk Management Fund - Mick Maguire, Chief Administrative Officer

19. Staff Updates

- **Water Resources and Planning Update - Rachel Ickert, Chief Water Resources Officer**
- **MWBE Vendor Participation Update - Crystal Alba, Diverse Business Specialist**
- **Recognize 50 Years of Service - Alan Thomas, Deputy General Manager**

20. Executive Session under Texas Government Code:

Section 551.071 of the Texas Government Code, for Private Consultation with its Attorney about Pending or Contemplated Litigation or on a Matter in which the Duty of the Attorney to the Governmental Body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas Clearly Conflicts with this Chapter; and

Section 551.072 of the Texas Government Code, to Deliberate the Purchase, Exchange, Lease or Value of Real Property

21. Consider Demolition of Current LaGrave Field and Preservation Concepts - Mick Maguire, Chief Administrative Officer

22. Consider Approval of Authorization to Acquire Real Property Interests by Purchase for the Cedar Creek Pipeline Rehab Project - Steve Christian, Director of Real Property

- **Parcel 22**
  (Lakeview Pointe SF, Ltd.)

A temporary easement interest across a 0.678-acre tract of land situated in the J. Lawrence Survey, Abstract No. 616, City of Midlothian, Ellis County, Texas

23. Consider Approval of Sale of Land in the J.T. Hobbs Survey, Abstract Number 806, in the City of Fort Worth, Tarrant County, Texas - Steve Christian, Director of Real Property

24. Future Agenda Items

25. Schedule Next Board Meeting

26. Adjourn

MINUTES OF A MEETING OF THE BOARD OF DIRECTORS OF
TARRANT REGIONAL WATER DISTRICT
HELD ON THE 21st DAY OF MAY 2024 AT 9:00 A.M.

The call of the roll disclosed the presence of the Directors as follows:

Present
Leah King
James Hill
Mary Kelleher
C.B. Team
Paxton Motheral

Also present were Dan Buhman, Alan Thomas, Chris Akers, Airin Barnett, Darrell Beason, Kate Beck, Steve Christian, Linda Christie, Ellie Garcia, Jason Gehrig, Natasha Hill, Rachel Ickert, Laramie LaRue, Sandy Newby, and Stephen Tatum of the Tarrant Regional Water District (District or TRWD).

1.

All present were given the opportunity to join in reciting the Pledges of Allegiance to the U.S. and Texas flags.

3.

Director Hill moved to approve the minutes from the meeting held on April 16, 2024. Director Motheral seconded the motion, and the votes were 5 in favor, 0 against. It was accordingly ordered that these minutes be placed in the permanent files of the District.

4.

With the recommendation of management, Director Motheral moved to approve a contract amendment in an amount not-to-exceed $243,400 with Kimley-Horn & Associates, Inc. for additional engineering services and scope items for the Central City Flood Control and Panther Island projects. These engineering services include local

street vacations/dedications, development support services, the creation of a rough proportionality methodology for the Panther Island canal system, ongoing support in utilization of the tool, and development of a Panther Island Canals Manual. Funding for this item is included in the Fiscal Year 2024 Special Projects/Contingency Fund. Director Hill seconded the motion, and the votes were 5 in favor, 0 against.

5.

With the recommendation of management, Director Hill moved to approve release of retainage in the amount of $24,833.50 to Veit National Corporation for demolition and asbestos abatement of the South Bypass Channel - Package 2 for the Central City Flood Control Project. In addition, authority is granted to the General Manager or his designee to execute all documents associated with the contract. Funding for this item is included in the Fiscal Year 2024 Special Projects/Contingency Fund. Director Kelleher seconded the motion, and the votes were 5 in favor, 0 against.

6.

With the recommendation of management, Director Kelleher moved to approve a contract in an amount not-to-exceed $173,200 with Freese and Nichols, Inc. for professional engineering services for the Dam Inspections Project. Dam inspections must be completed to comply with state laws regarding dam safety contained in Chapter 299 of the Texas Administrative Code 30 TAC §299.1-299.7 whereas, owners of dams are responsible for maintaining the dam and reservoir, including all appurtenant works in a safe condition throughout the life of the structure, and maintaining records with respect to maintenance, operation, and engineering inspection results conducted to safeguard life and property. Funding for this item is included in the Fiscal Year 2024 Revenue Fund Budget and proposed Fiscal Years 2025 and 2026 Revenue Fund Budgets. Director Hill

seconded the motion, and the votes were 5 in favor, 0 against.

7.

With the recommendation of management, Director Team moved to approve a contract in the amount of $378,000 with Retzlaff Construction for construction improvements of Ten Mile Trailhead. Trailhead improvements will include paved parking, a pavilion, picnic tables, a restroom enclosure, and a kayak/canoe/stand-up paddleboard launch. This construction initiative is significant as it will expand the parking area by 75 percent, facilitating the continued growth and development of the surrounding area. Funding for this item is included in the Fiscal Year 2024 General Fund Budget. Director Motheral seconded the motion, and the votes were 5 in favor, 0 against.

8.

Staff Updates

- Water Resources and Planning Update and Staff Awards presented by Rachel Ickert, Chief Water Resources Officer

2.

Public comment was received from Larry Brautigam regarding “thanx.”

The Board of Directors recessed for a break from 9:34 a.m. to 9:37 a.m.

9.

The Board next held an Executive Session commencing at 9:37 a.m. under Section 551.071 of the Texas Government Code to Consult with Legal Counsel on a Matter in Which the Duty of Counsel Under the Texas Disciplinary Rules of Professional Conduct Clearly Conflicts with Chapter 551, Texas Government Code; and Section 551.072 of the

Texas Government Code to Deliberate the Purchase, Exchange, Lease or Value of Real Property.

Upon completion of the executive session at 10:41 a.m., the President reopened the meeting.

10.

With the recommendation of management, Director Team moved to approve authorization to acquire, by purchase, interests in the following described tract(s), which are necessary for the public use and purpose of construction and operation of the Eagle Mountain Balancing Reservoir Second Cell Project.

Fee simple title, including any improvements located thereon, of an approximately 41.209-acre tract of land located in the J.P. WOODS SURVEY, Abstract No. 1886, City of Fort Worth, Tarrant County, Texas, and being a portion of the tract of land designated as Tract 1 in the deed conveyed to Windridge A2A Development, LLC, by the deed recorded in County Clerk's File No. D212232276, of the Official Public Records of Tarrant County, Texas, and being further described in the accompanying resolution and in the metes and bounds description attached hereto for the appraised value of $2,693,000.

EXHIBIT "A"

LEGAL DESCRIPTION

BEING 41.209 acres of land located in the J.P. WOODS SURVEY, Abstract No. 1886, City of Fort Worth, Tarrant County, Texas, and being a portion of the tract of land designated as Tract 1 in the deed conveyed to Windridge A2A Development, LLC, by the deed recorded in County Clerk's File No. D212232276, of the Official Public Records of Tarrant County, Texas. Said 41.209 acres of land being more particularly described by metes and bounds as follows:

BEGINNING at a ⅝" capped iron rod found at the Northwest boundary corner of Lot 1, Block 1, Eagle Mountain Balancing Reservoir, an Addition to the City of Fort Worth, Tarrant County, Texas, according to the plat recorded in County Clerk's File No. D206085834, of the Official Public Records of Tarrant County, Texas, and said POINT OF BEGINNING also lying in the West boundary line of aforesaid Tract 1 and the East boundary line of the tract of land conveyed to TXU Electric Delivery Company, by the deed recorded in County Clerk's File No. D206031116, of the Official Public Records of Tarrant County, Texas.

THENCE N 15° 12' 41" E 506.28 feet, along the West boundary line of said Tract 1 and the East boundary line of said TXU Electric Delivery Company Tract, to a ½" iron rod marked "Brittain & Crawford" set, lying in the Northeast line of a 30 foot wide Pipeline and Access easement according to the deed recorded in County Clerk's File No. D205318790, of the Official Public Records of Tarrant County, Texas;

THENCE N 00° 34' 13" E 474.25 feet, to a ½" iron rod marked "Brittain & Crawford" set;

THENCE S 89° 54' 56" E 1,450.55 feet, to a ½" iron rod marked "Brittain & Crawford" set;

THENCE S 00° 07' 27" W 1,513.44 feet, to a ½" iron rod marked "Brittain & Crawford" set, in the North boundary line of Lot 1, Block 1 Westside Pump Station Addition, to the City of Fort Worth, Tarrant County, Texas, according to the plat recorded in County Clerk's File No. D203176019, of the Official Public Records of Tarrant County, Texas, from which a City of Fort Worth Monument stamped No. 8221 bears S 87° 57' 04" E 6.01 feet;

THENCE N 89° 58' 30" W along the North boundary line of said Lot 1, Block 1, Westside Pump Station Addition at 249.87 feet passing a City of Fort Worth Monument at the Northwest corner of said Lot 1, stamped No. 8220 and continuing along the North line of Lot 1, Block 1, Eagle Mountain Balancing Reservoir in all 454.06 feet, to a ½" iron rod marked "Brittain & Crawford" set;

THENCE continuing along the North Boundary line of said Lot 1 and the South boundary line of aforesaid Tract 1, as follows:

1. N 13° 07’ 37” W 406.90 feet, to a ⅝” iron capped rod found;

2. N 81° 26’ 16” W 1,050.06 feet, to the POINT OF BEGINNING containing 41.209 acres (1,795,085 square feet) of land.

In addition, the General Manager of TRWD or his designee is authorized to take all steps which may be reasonably necessary to complete the acquisition, including, but not limited to, the authority to pay all customary, reasonable and necessary closing and related costs. Funding for this item is included in the Bond Fund. Director Hill seconded the motion, and the votes were 5 in favor, 0 against.

11.

With the recommendation of management, Director Team moved to approve authorization to acquire, by purchase, interests in the following described tract(s), which are necessary for the public use and purpose of construction and operation of the Cedar Creek Pipeline Rehab Project.

A temporary easement interest across a 0.114-acre tract of land situated J.R. Worrall Survey, Abstract No. 1736, City of Mansfield, Tarrant County, Texas, and being a portion of Lot 7, Block 1 of Brentwood Park, Section Two, an addition to the City of Mansfield, as recorded in Instrument No. 0220241775 of the Official Public Records of Tarrant County, Texas, said Lot 7 being conveyed to Authentic Contracting Solutions, LLC as recorded in Instrument No. 0221123469 of said Official Public Records of Tarrant County, Texas, and being further described in the accompanying resolution and in the survey plat attached hereto for the negotiated purchase price of $10,600.

EXHIBIT "A"
TARRANT REGIONAL WATER DISTRICT
CEDAR CREEK SECTION 2 REPLACEMENT
PARCEL NO. 1-TCE

TEMPORARY CONSTRUCTION EASEMENT
J.R. WORRALL SURVEY, ABSTRACT NO. 1736
CITY OF MANSFIELD
TARRANT COUNTY, TEXAS

Being a temporary construction easement situated in the J.R. Worrall Survey, Abstract No. 1736, City of Mansfield, Tarrant County, Texas, and being a portion of Lot 7, Block 1 of Brentwood Park, Section Two, an addition to the City of Mansfield, as recorded in Instrument No. D220241775 of the Official Public Records of Tarrant County, Texas, said Lot 7 being conveyed to Authentic Contracting Solutions, LLC as recorded in Instrument No. D221123469 of said Official Public Records of Tarrant County, Texas, said temporary construction easement being more particularly described by metes and bounds as follows:

BEGINNING at calculated point for corner in the southwest line of said Lot 7 and the northeast line of a 130' Pipeline Right-of-Way described as Second Parcel granted to Tarrant County Water Control and Improvement District Number One as recorded in Volume 4612, Page 23 of the Deed Records of Tarrant County, Texas, from which a 4 inch aluminum disk stamped "MANSFIELD CITY PARK RPS 2490" bears South 48 degrees 13 minutes 56 seconds East, a distance of 75.00 feet for the south corner of said Lot 7 and the west corner of a tract of land described as Tract 2 conveyed to the City of Mansfield as recorded in Volume 8805, Page 513 of the Deed Records of Tarrant County, Texas, said calculated point having grid coordinates of N=6,894,662.65 and E=2,392,059.65;

THENCE North 48 degrees 13 minutes 56 seconds West, with the southwest line of said Lot 7 and the northeast line of said Second Parcel, a distance of 100.00 feet to a calculated point for corner, from which a 5/8 inch iron rod with cap stamped "RPLS 4838" bears North 48 degrees 13 minutes 56 seconds West, a distance of 550.98 feet for the west corner of Lot 6 of said Block 1 of Brentwood Park, Section Two as recorded in Instrument No. D220241775 of the Official Public Records of Tarrant County, Texas, and for the south corner of Lot 4R, Block 1 of Brentwood Park, Section Two as recorded in Instrument No. D220006572 of the said Official Public Records of Tarrant County, Texas;

THENCE North 47 degrees 26 minutes 17 seconds East, a distance of 50.00 feet to a calculated point for corner;

THENCE South 48 degrees 13 minutes 56 seconds East, a distance of 100.00 feet to a calculated point for corner;

GORRONDONA & ASSOCIATES, INC. 2800 N.E. LOOP 820, SUITE 660 FORT WORTH, TEXAS 76137 817-496-1424 FAX 817-496-1768

THENCE South 47 degrees 26 minutes 17 seconds West, a distance of 50.00 feet to the **POINT OF BEGINNING,** and containing 4,975 square feet or 0.114 acres of land, more or less.

Notes:

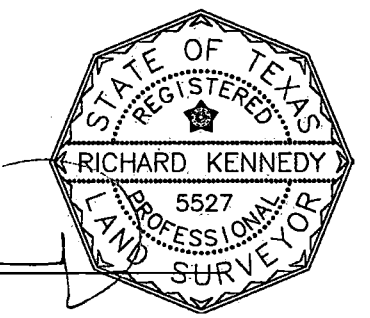
(1) A plat of same date herewith accompanies this legal description.

(2) All bearings and coordinates are referenced to the Texas State Plane Coordinate System, NAD-83(2011), North Central Zone (4202). All distances and areas shown are surface utilizing a surface adjustment factor of 1.000072449.

* SURVEYOR'S CERTIFICATE *

TO ALL PARTIES INTERESTED IN TITLE TO THE PREMISES SURVEYED, I DO HEREBY CERTIFY THAT THE ABOVE LEGAL DESCRIPTION WAS PREPARED FROM PUBLIC RECORDS AND FORM AN ACTUAL AND ACCURATE SURVEY UPON THE GROUNDS AND THAT SAME IS TRUE AND CORRECT.

January 22, 2024

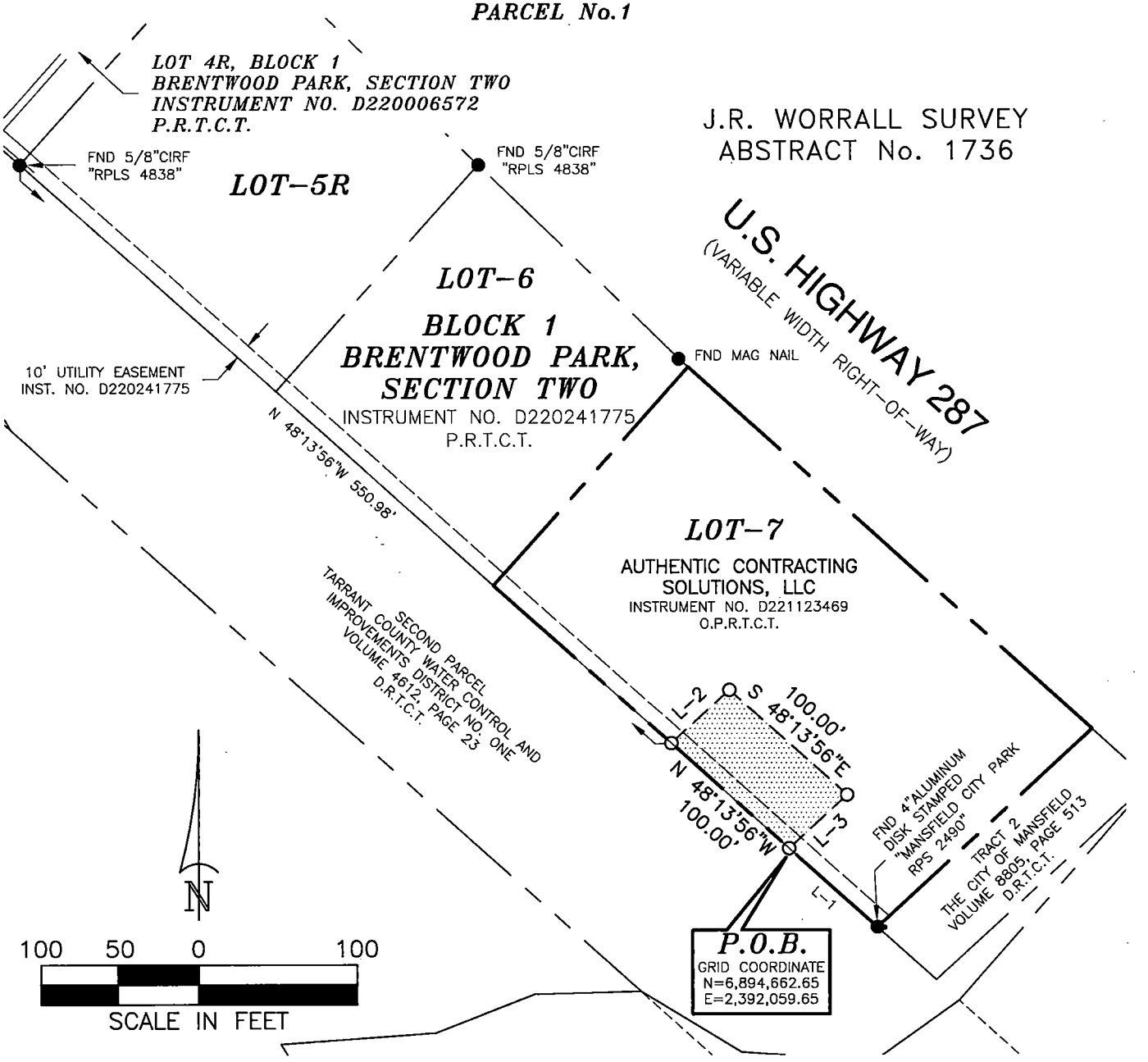


Richard Kennedy
Registered Professional Land Surveyor
Texas No. 5527
Gorrondona & Associates, Inc.
Texas Firm No. 10106900

(Exhibit "A")

EXHIBIT "A"

PARCEL No. 1



trwd Tarrant Regional Water District

Tarrant Regional Water District

800 E. NORTHSIDE DRIVE FORT WORTH, TEXAS 76102

CEDAR CREEK
SECTION 2 REPLACEMENT

PARCEL NO. 1-TCE	TEMPORARY CONSTRUCTION EASEMENT
OWNER: AUTHENTIC CONTRACTING SOLUTIONS, LLC	
SURVEY: J.R. WORRALL SURVEY, ABSTRACT NO. 1736	
LOCATION: CITY OF MANSFIELD, TARRANT COUNTY, TEXAS	
ACQUISITION AREA: 4,975 SQUARE FEET OR 0.114 ACRES	
WHOLE PROPERTY ACREAGE: 61,812 SQUARE FEET OR 1.419 ACRES (BY PLAT)	

JOB No. B&V_1901.01	DRAWN BY: BM	CAD FILE: P1_TCE.DWG
DATE: JAUNARY 22, 2024	EXHIBIT A	SCALE: 1" = 100'

STATE OF TEXAS
REGISTERED
RICHARD KENNEDY
5527
PROFESSIONAL
LAND SURVEYOR

RICHARD KENNEDY
REGISTERED PROFESSIONAL LAND SURVEYOR
NO. 5527 TEXAS FIRM No. 10106900

GORRONDONA & ASSOCIATES, INC. • 2800 N.E. LOOP 820, SUITE 660 FORT WORTH, TX. 76137 • 817-496-1424 FAX 817-496-1768

EXHIBIT "A"

PARCEL No.1

LEGEND

⊗ SET MONUMENTATION (SIZE AND TYPE NOTED)

● FND MONUMENTATION (SIZE AND TYPE NOTED)

○ CALCULATED POINT

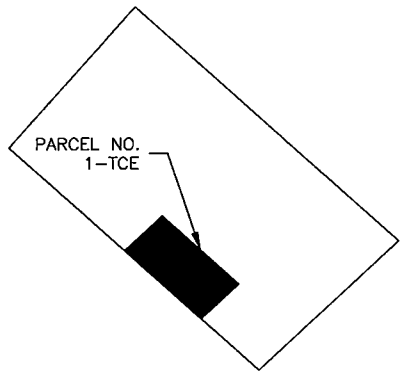
——————— PROPERTY/RIGHT-OF-WAY LINE

— — — — EXISTING EASEMENT LINE

——— ——— PROPOSED EASEMENT LINE

——————— SURVEY/ABSTRACT LINE

LINE TABLE		
LINE	BEARING	DISTANCE
L-1	S 48°13'56"E	75.00'
L-2	N 47°26'17"E	50.00'
L-3	S 47°26'17"W	50.00'



SUBJECT TRACT &
LOCATION OF EASEMENT

NOTES:
1. A LEGAL DESCRIPTION OF SAME DATE HEREWITH ACCOMPANIES THIS PLAT.
2. ALL BEARINGS AND COORDINATES ARE REFERENCED TO THE TEXAS STATE PLANE COORDINATE SYSTEM, NAD-83(2011), NORTH CENTRAL ZONE (4202). ALL DISTANCES AND AREAS SHOWN ARE SURFACE UTILIZING A SURFACE ADJUSTMENT FACTOR OF 1.000072449.

trwd Tarrant Regional Water District

Tarrant Regional Water District

800 E. NORTHSIDE DRIVE FORT WORTH, TEXAS 76102

CEDAR CREEK
SECTION 2 REPLACEMENT

PARCEL NO. 1-TCE	TEMPORARY CONSTRUCTION EASEMENT
OWNER: AUTHENTIC CONTRACTING SOLUTIONS, LLC	
SURVEY: J.R. WORRALL SURVEY, ABSTRACT NO. 1736	
LOCATION: CITY OF MANSFIELD, TARRANT COUNTY, TEXAS	
ACQUISITION AREA: 4,975 SQUARE FEET OR 0.114 ACRES	
WHOLE PROPERTY ACREAGE: 61,812 SQUARE FEET OR 1.419 ACRES (BY PLAT)	

JOB No. B&V_1901.01	DRAWN BY: BM	CAD FILE: P1_TCE.DWG
DATE: JAUNARY 22, 2024	EXHIBIT A	SCALE: 1" = 100'

STATE OF TEXAS REGISTERED RICHARD KENNEDY 5527 PROFESSIONAL LAND SURVEYOR

RICHARD KENNEDY
REGISTERED PROFESSIONAL LAND SURVEYOR
NO. 5527 TEXAS FIRM No. 10106900

GORRONDONA & ASSOCIATES, INC. • 2800 N.E. LOOP 820, SUITE 660 FORT WORTH, TX. 76137 • 817-496-1424 FAX 817-496-1768

Lot Report

Lot File: \\gainas02\Active\Production\B&V_1901.00 - TRWD Cedar Creek\SURVEY\CAD\LOT\EASEMENTS.lot
Lot: P1 TCE
Bearing Distance
N 48°13'56" W 100.00
N 47°26'17" E 50.00
S 48°13'56" E 100.00
S 47°26'17" W 50.00
Closure Error Distance> 0.0000
Total Distance> 299.99

4,975 SQ. FT.
0.114 ACRES
Bearing Distance

A temporary easement interest across a 1.881-acre tract of land situated in the W.S Garvin Survey, Abstract No. 423, City of Midlothian, Ellis County, Texas, and being a portion of a tract of land conveyed to H. Duff Hunt as recorded in Volume 2242, Page 11 and Volume 629, Page 664 of the Deed Records of Ellis County, Texas, and being further described in the accompanying resolution and in the survey plat attached hereto for the appraised value of $30,600.

EXHIBIT "A"
TARRANT REGIONAL WATER DISTRICT
CEDAR CREEK SECTION 2 REPLACEMENT
PARCEL NO. 37-TCE

TEMPORARY CONSTRUCTION EASEMENT
W.S. GARVIN SURVEY, ABSTRACT NO. 423
CITY OF MIDLOTHIAN
ELLIS COUNTY, TEXAS

Being a temporary construction easement situated in the W.S Garvin Survey, Abstract No. 423, City of Midlothian, Ellis County, Texas, and being a portion of a tract of land conveyed to H. Duff Hunt as recorded in Volume 2242, Page 11 and Volume 629, Page 664 of the Deed Records of Ellis County, Texas, said temporary construction easement being more particularly described by metes and bounds as follows:

COMMENCING at 1/2 inch iron rod found for the northwest corner of Lot 98 and the southeast corner of Lot 89, of Northridge Addition Unit No. 4 as recorded in Volume 5, Page 51 of the Plat Records of Ellis County, Texas, said 1/2 inch iron rod also being in the east line of a tract of land conveyed to Billy Pat Maxwell as recorded in Volume 975, Page 498 of the Deed Records of Ellis County, Texas; THENCE North 00 degrees 02 minutes 21 seconds East, with the west line of said Northridge Addition Unit No. 4 and with the east line of said tract of land conveyed to Billy Pat Maxwell, a distance of 243.91 feet to a calculated point for the southeast corner of said tract of land conveyed to H. Duff Hunt, and the northeast corner of said tract of land conveyed to Billy Pat Maxwell; THENCE South 89 degrees 46 minutes 22 seconds West, with the south line of said tract of land conveyed to H. Duff Hunt and with the north line of said tract of land conveyed to Billy Pat Maxwell, a distance of 894.42 feet to a 1/2 inch iron rod with cap stamped “Shrickel Rollin” found for the southwest corner of said tract of land conveyed to H. Duff Hunt and the northwest corner of said tract of land conveyed to Billy Pat Maxwell, said 1/2 inch iron rod found with cap stamped “Shrickel Rollin” being in the northeasterly line of a tract of land conveyed to The City of Midlothian, Texas, (No Record Data Found); THENCE North 24 degrees 48 minutes 55 seconds West, with the southwesterly line of said tract of land conveyed to H. Duff Hunt and the northeasterly line of said tract of land conveyed to The City of Midlothian, Texas, a distance of 242.79 feet to a calculated point for the **POINT OF BEGINNING,** said calculated point being in the northeasterly line of a 130’ Pipeline Right-of-Way described as Parcel Two granted to Tarrant County Water Control and Improvement District Number One as recorded in Volume 494, Page 454 of said Deed Records of Ellis County, Texas, said calculated point having grid coordinates of N=6,868,177.49 and E=2,430,078.28;

THENCE North 24 degrees 48 minutes 55 seconds West, with the southwesterly line of said tract of land conveyed to H. Duff Hunt and the northeasterly line of said tract of land conveyed to The City of Midlothian, Texas, a distance of 91.49 feet to a calculated point for corner;

GORRONDONA & ASSOCIATES, INC. 2800 N.E. LOOP 820, SUITE 660 FORT WORTH, TEXAS 76137 817-496-1424 FAX 817-496-1768

THENCE North 88 degrees 20 minutes 37 seconds East, a distance of 105.38 feet to a calculated point for corner;

THENCE North 37 degrees 29 minutes 40 seconds East, a distance of 164.07 feet to a calculated point for corner;

THENCE South 73 degrees 31 minutes 47 seconds East, a distance of 269.72 feet to a calculated point for corner;

THENCE South 40 degrees 57 minutes 36 seconds West, a distance of 376.32 feet to a calculated point for corner in the northeasterly line of said Parcel Two;

THENCE North 51 degrees 04 minutes 28 seconds West, with the northeasterly line of said Parcel Two, a distance of 229.79 feet to the **POINT OF BEGINNING,** and containing 81,932 square feet or 1.881 acres of land, more or less.

Notes:

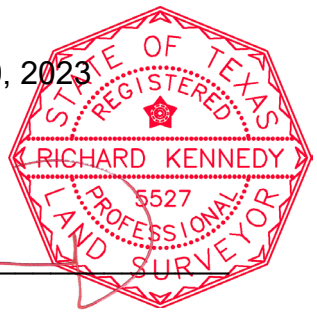
(1) A plat of same date herewith accompanies this legal description.

(2) All bearings and coordinates are referenced to the Texas State Plane Coordinate System, NAD-83(2011), North Central Zone (4202). All distances and areas shown are surface utilizing a surface adjustment factor of 1.000072449.

* SURVEYOR'S CERTIFICATE *

TO ALL PARTIES INTERESTED IN TITLE TO THE PREMISES SURVEYED, I DO HEREBY CERTIFY THAT THE ABOVE LEGAL DESCRIPTION WAS PREPARED FROM PUBLIC RECORDS AND FORM AN ACTUAL AND ACCURATE SURVEY UPON THE GROUNDS AND THAT SAME IS TRUE AND CORRECT.

December 11, 2023
Revised: December 20, 2023

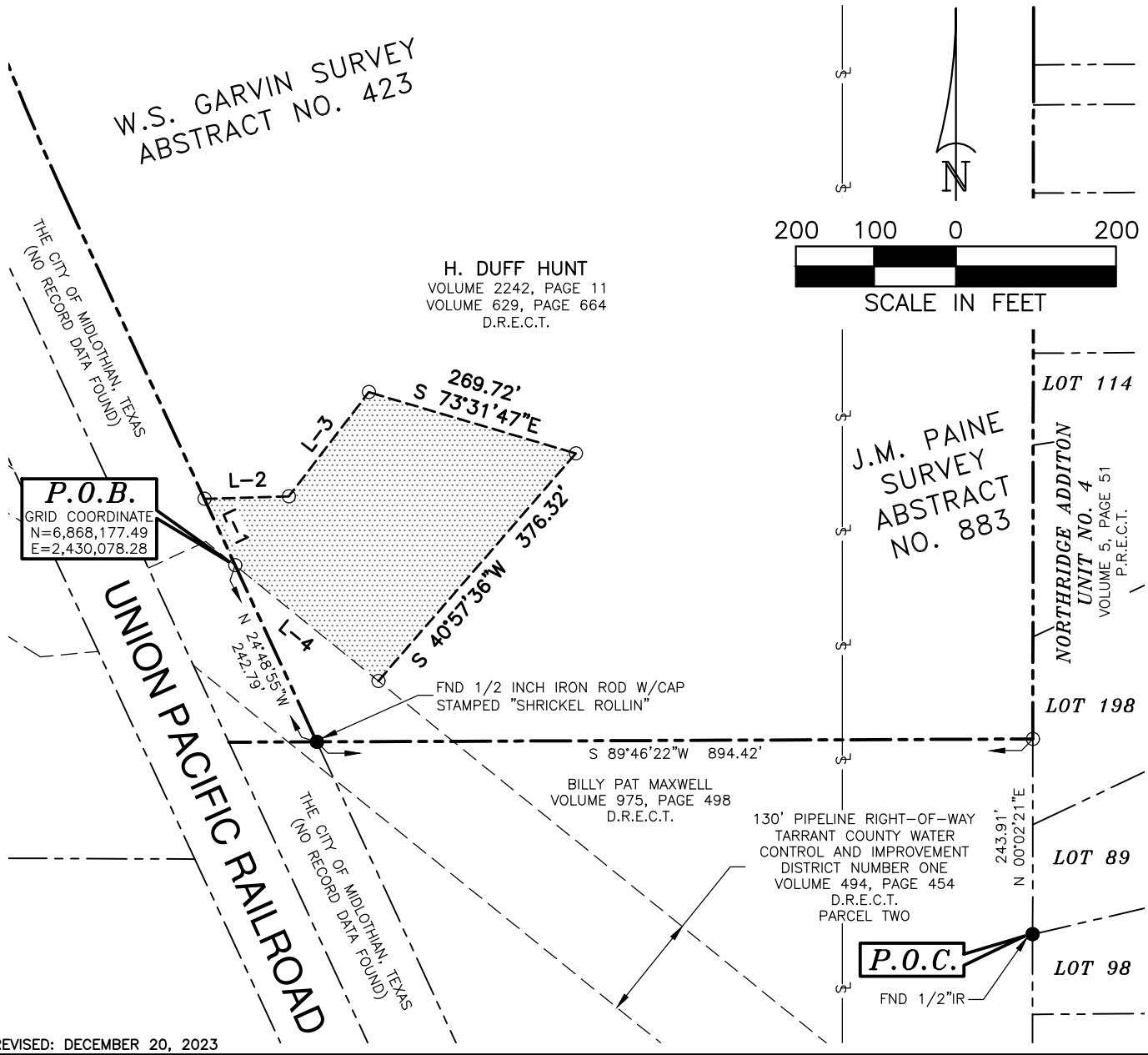


Richard Kennedy
Registered Professional Land Surveyor
Texas No. 5527
Gorrondona & Associates, Inc.
Texas Firm No. 10106900

(Exhibit "A")

EXHIBIT "A"

PARCEL No. 37-TCE



REVISED: DECEMBER 20, 2023

trwd Tarrant Regional Water District

800 E. NORTHSIDE DRIVE • FORT WORTH, TEXAS 76102

CEDAR CREEK
SECTION 2 REPLACEMENT

PARCEL NO. 37-TCE	TEMPORARY CONSTRUCTION EASEMENT	
OWNER: H. DUFF HUNT		
SURVEY: W.S. GARVIN SURVEY, ABSTRACT NO.423		
LOCATION: CITY OF MIDLOTHIAN, ELLIS COUNTY, TEXAS		
ACQUISITION AREA: 81,932 SQUARE FEET OR 1.881 ACRES		
WHOLE PROPERTY ACREAGE: 1,877,969 SQUARE FEET OR 43.112 ACRES (CALCULATED)		
G&AI JOB NO. B&V_1901.00	DRAWN BY: BM	CAD FILE: P37_TCE R01.DWG
DATE: DECEMBER 11, 2023	EXHIBIT A	SCALE: 1" = 200'

STATE OF TEXAS
REGISTERED
RICHARD KENNEDY
5527
PROFESSIONAL
LAND SURVEYOR

RICHARD KENNEDY
REGISTERED PROFESSIONAL LAND SURVEYOR
NO. 5527 TEXAS FIRM No. 10106900

GORRONDONA & ASSOCIATES, INC. • 2800 N.E. LOOP 820, SUITE 660 FORT WORTH, TX. 76137 • 817-496-1424 FAX 817-496-1768

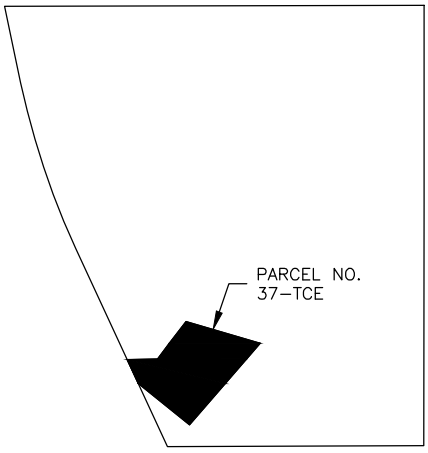
EXHIBIT "A"

PARCEL No. 37–TCE

LEGEND

⊗	SET MONUMENTATION (SIZE AND TYPE NOTED)
●	FND MONUMENTATION (SIZE AND TYPE NOTED)
○	CALCULATED POINT
——— - - ———	PROPERTY/RIGHT–OF–WAY LINE
— — — — — —	EXISTING EASEMENT LINE
— — — — — —	PROPOSED EASEMENT LINE
———℄———	SURVEY/ABSTRACT LINE

LINE TABLE		
LINE	BEARING	DISTANCE
L–1	N 24°48'55"W	91.49'
L–2	N 88°20'37"E	105.38'
L–3	N 37°29'40"E	164.07'
L–4	N 51°04'28"W	229.79'



SUBJECT TRACT &
LOCATION OF EASEMENT

NOTES:
1. A LEGAL DESCRIPTION OF SAME DATE HEREWITH ACCOMPANIES THIS PLAT.
2. ALL BEARINGS AND COORDINATES ARE REFERENCED TO THE TEXAS STATE PLANE COORDINATE SYSTEM, NAD–83(2011), NORTH CENTRAL ZONE (4202). ALL DISTANCES AND AREAS SHOWN ARE SURFACE UTILIZING A SURFACE ADJUSTMENT FACTOR OF 1.000072449.

REVISED: DECEMBER 20, 2023

trwd Tarrant Regional Water District

Tarrant Regional Water District

800 E. NORTHSIDE DRIVE • FORT WORTH, TEXAS 76102

CEDAR CREEK SECTION 2 REPLACEMENT

PARCEL NO. 37–TCE	TEMPORARY CONSTRUCTION EASEMENT
OWNER: H. DUFF HUNT	
SURVEY: W.S. GARVIN SURVEY, ABSTRACT NO.423	
LOCATION: CITY OF MIDLOTHIAN, ELLIS COUNTY, TEXAS	
ACQUISITION AREA: 81,932 SQUARE FEET OR 1.881 ACRES	
WHOLE PROPERTY ACREAGE: 1,877,969 SQUARE FEET OR 43.112 ACRES (CALCULATED)	

G&AI JOB NO. B&V_1901.00	DRAWN BY: BM	CAD FILE: P37_TCE R01.DWG
DATE: DECEMBER 11, 2023	EXHIBIT A	SCALE: 1" = 200'

STATE OF TEXAS REGISTERED RICHARD KENNEDY 5527 PROFESSIONAL LAND SURVEYOR

RICHARD KENNEDY
REGISTERED PROFESSIONAL LAND SURVEYOR
NO. 5527 TEXAS FIRM No. 10106900

GORRONDONA & ASSOCIATES, INC. • 2800 N.E. LOOP 820, SUITE 660 FORT WORTH, TX. 76137 • 817–496–1424 FAX 817–496–1768

Lot Report

Lot File: \\gainas02\Active\Production\B&V_1901.00 - TRWD Cedar Creek\SURVEY\CAD\LOT\EASEMENTS.lot
Lot: P37 TCE

Bearing	Distance
N 24°48'55" W	91.49
N 88°20'37" E	105.38
N 37°29'40" E	164.07
S 73°31'47" E	269.72
S 40°57'36" W	376.32
N 51°04'28" W	229.79

Closure Error Distance> 0.0121 Error Bearing> N 01°33'10" E
Closure Precision> 1 in 101943.7 Total Distance> 1236.78
81,932 SQ. FT.
1.881 ACRES

Bearing	Distance

In addition, the General Manager of TRWD or his designee is authorized to take all steps which may be reasonably necessary to complete the acquisitions, including, but not limited to, the authority to pay all customary, reasonable and necessary closing and related costs. Funding for this item is included in the Bond Fund. Director Kelleher seconded the motion, and the votes were 5 in favor, 0 against.

12.

The Board of Directors held a discussion regarding possible action and disposition of LaGrave Field. Director Hill motioned to direct staff to engage a professional consultant to develop a strategy for the disposition of LaGrave Field and surrounding property, and to delay discussions with individual property owners until an approved strategy is in place. Director Team seconded the motion and the votes were 5 in favor, 0 against.

13.

Director Hill motioned to add an agenda item to the June 18, 2024, meeting regarding the demolition of LaGrave Field in keeping with the recommendations included in the HR&A Advisors Panther Island Strategic Vision Update report of February 29, 2024, and allow for an appropriate public comment period. Director Team seconded the motion, and the votes were 5 in favor, 0 against.

14.

The next board meeting was scheduled for June 18, 2024, at 9:00 a.m.

15.

There being no further business before the Board of Directors, the meeting was adjourned.

_____ _____

President Secretary

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 4

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract Amendment with Accurate Inspections, LLC for Construction Materials Inspection and Testing Services of IPL Section 19-2 Part A Pipeline of the Integrated Pipeline Project**

FUNDING: Dallas Bond Fund

RECOMMENDATION:

Management recommends approval of a contract amendment **in an amount not-to-exceed $358,248** with Accurate Inspections, LLC (Accurate) for construction materials inspection and testing (CMIT) services for IPL Pipeline Section 19-2 Part A project. The total not-to-exceed contract value, including this proposed amendment will be $1,075,248.

DISCUSSION:

On March 22, 2022, the District executed a contract with Accurate to provide IPL CMIT pipe manufacturing and coatings quality assurance services for various projects of the Integrated Pipeline Project in a not-to-exceed amount of $717,000. This proposed amendment in the amount of $358,248.00 is for continuing CMIT Pipe Manufacturing and Coatings Quality Assurance for the Dallas Section 19-2 Part A project. These CMIT services include spiral welding quality assurance of steel pipe segments, sand/grit blasted surface profile related to coating adhesion, coating thickness and adhesion, mortar lining integrity, and plant and field welder certifications. This is the first amendment to the contract. The total not-to-exceed contract value, including this proposed amendment will be $1,075,248.00 as shown in the table below.

IPL CMIT Pipe Manufacturing and Coatings Quality Assurance

Date	**Services**	**Amount**
03/22/22	Section 19 Long Tunnel Crossings – CMIT	$ 717,000.00
06/16/24	Section 19-2 Part A – CMIT	$ 358,248.00
Total		**$1,075,248.00**

.

Accurate's scope of work for Section 19-2 Part A project services also includes a special services contingency to be released at the Program Manager's discretion.

Accurate Inspections, LLC qualifies as a 100% DBE/HUB firm under the Fair Opportunities in Purchasing and Contracting Program.

Management requests that the Board of Directors grant authority to the General Manager or his designee to execute all documents associated with the contract described herein.

Included for reference are Staff Recommendation, Fee Summary, and Fair Opportunity in Purchasing and Contracting Summary.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Ed Weaver
IPL Program Manager

Memo

TO: Ed Weaver

FROM: Matt Gaughan

DATE: May 31, 2024

SUBJECT: Recommendation for approval of a contract amendment with Accurate Inspections, LLC (Accurate) for Construction Materials Inspection and Testing Services for IPL Pipeline Section 19-2 Part A.

On March 22, 2022, TRWD executed a contract with Accurate Inspections, LLC (Accurate) to provide IPL CMIT pipe manufacturing and coatings quality assurance services for various projects of the Integrated Pipeline Project for a not to exceed $717,000.00. This is the first amendment of the contract. The proposed amendment amount of $358,248.00 is for CMIT Pipe Manufacturing and Coatings Quality Assurance for the Section 19-2 Part A project. The total not to exceed contract value, including this proposed amendment will be $1,075,248.00.

The scope of work includes one task consisting of Section 19-2 Part A CMIT Pipe Manufacturing and Coatings Quality Assurance, plus a contingency for Optional Supplemental Services to be released at the Project Managers approval.

There are no requirements for consultants to meet DBE/HUB participation goals under the Fair Opportunities in Purchasing and Contracting Program for IPL CMIT contracts. The District intends to meet Program goals by selecting qualified DBE/HUB consultants and contracting directly with these firms for services. Accurate qualifies as a DBE/HUB firm under the Fair Opportunities in Purchasing and Contracting Program.

Included for reference at the Fee Summary and Fair Opportunity in Purchasing and Contracting summary.

FEE SUMMARY		
Integrated Pipeline Project		
IPL Section 19-2 Part A – CMIT Pipe Manufacturing and Coatings Quality Assurance Services		
Accurate Inspections, LLC		
Task	**Description**	**Estimated Fee**
	Basic Services	
1	PL19-2 Part A CMIT Pipe and Coatings QA Services	$325,680.00
	Subtotal Basic Services	**$325,680.00**
2	Optional Supplemental Services	$32,568.00
	Subtotal Optional Supplemental Services	**$32,568.00**
	Total	**$358,248.00**

Fair Opportunity Purchasing

Project: Consider Approval of a contract amendment to Accurate Inspections, LLC for Construction Materials Inspection and Testing Services of Section 19-2 Part A of the Integrated Pipeline Project (IPL)

Not to Exceed $358,248.00

Accurate Inspections, LLC, an Engineering and Consulting company with local offices in Athens, Texas, has signed the IPL Project Fair Opportunity Purchasing documentation, and proposes to use the following sub-consultants:

Project Category: Engineering, Bid and Construction Services

LOCAL/NON-LOCAL CONTRACT SUMMARY

		Amount	Percent
Local Contracts		$325,680.00	100.0%
Non-Local Contracts		-	-
Optional Supplemental Services		$32,568.00	-
	Total This Agenda	**$358,248.00**	**100%**

LOCAL/NON-LOCAL MWBE/HUB PARTICIPATION THIS ACTION

Local	Certification	Percent
Accurate Inspections, LLC	WBE	100.0%

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 5

DATE: June 18, 2024

SUBJECT: **Consider Approval of Task Order Contract with Kleinfelder, Inc. for Construction Materials Inspection and Testing Services of IPL Section 19-2 Part A Pipeline of the Integrated Pipeline Project**

FUNDING: Dallas Bond Fund

RECOMMENDATION:

Management recommends approval of a task order contract **in an amount not-to-exceed $947,790** with Kleinfelder, Inc. for construction materials inspection and testing (CMIT) services for IPL Pipeline Section 19-2 Part A project.

DISCUSSION:

Kleinfelder was selected to provide CMIT services consisting of soil moistures and density's, granular material gradations, backfill compaction limits, concrete, and grout and flowable fill compressive strengths based on the July 22, 2021 Statements of Qualifications for CMIT Services. The statement of qualifications and Kleinfelder's previous experience with IPL Section 12-13-MBR and S2x12 projects demonstrate the ability to provide these same quality assurance and control services for Pipeline Section 19-2 Part A project. Kleinfelder's original contract was closed out at the conclusion of the MBR and 2 X12 projects.

Negotiations were conducted and an agreement was reached on scope, fees and contract terms and conditions. Kleinfelder's scope of work for Section 19-2 Part A CMIT services also includes a special services contingency to be released only at the Program Manager's discretion.

Management requests the Board of Directors grant authority to the General Manager or his designee to execute all documents associated with the contract described herein.

Included for reference are Staff Recommendation, Fee Summary, and Fair Opportunity in Purchasing and Contracting Summary.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Ed Weaver
IPL Program Manager

Memo

TO: Ed Weaver

FROM: Matt Gaughan

DATE: May 31, 2024

SUBJECT: Recommendation for Award of Task Order Contract for Construction Materials Inspection and Testing Services for IPL Pipeline Section 19-2 Part A to Kleinfelder, Inc..

Kleinfelder, Inc. (Kleinfelder) was selected to provide Construction Materials Inspection and Testing (CMIT) for pipe backfill, soils and concrete quality assurance services based on the statement of qualifications received on July 22, 2021 in response to the Request for Statements of Qualifications for CMIT Services. This statement of qualifications and previous experience has demonstrated Kleinfelder's ability to provide the required services. Negotiations were conducted and an agreement was reached on scope, fees and contract terms and conditions.

There are no requirements for consultants to meet DBE/HUB participation goals under the Fair Opportunities in Purchasing and Contracting Program for IPL CMIT contracts. The District intends to meet Program goals by selecting qualified DBE/HUB consultants and contracting directly with these firms for services. Kleinfelder does not qualify as a DBE/HUB firm under the Fair Opportunities in Purchasing and Contracting Program. However, the overall DBE/HUB for all CMIT services for Section 19-2 Part A exceeds the 25% program goals.

Negotiations were conducted and an agreement was reached on scope, fees and contract terms and conditions. District staff recommends award of this contract to Kleinfelder for Construction Materials, Inspection and Testing Services for the IPL Pipeline Section 19-2 Part A project in the amount of $947,790.00. The Fee Summary is attached for reference.

FEE SUMMARY		
Integrated Pipeline Project		
IPL Section 19-2 Part A – CMIT Pipe Backfill, Soils and Concrete Quality Assurance Services		
Kleinfelder, Inc.		
Task	**Description**	**Estimated Fee**
	Basic Services	
1	PL19-2 Part A CMIT Pipe Backfill, Soils and Concrete QA Services	$868,390.00
	Subtotal Basic Services	**$868,390.00**
2	Optional Supplemental Services	$79,400.00
	Subtotal Optional Supplemental Services	**$79,400.00**
	Total	**$947,790.00**

Fair Opportunity Purchasing

Project: Consider Approval of a Task Order Contract with Kleinfelder, Inc. for Construction Materials Inspection and Testing Services of Section 19-2 Part A of the Integrated Pipeline Project (IPL)

Not to Exceed $947,790.00

Kleinfelder, Inc., an Engineering and Consulting company with local offices in Irving, Texas, has signed the IPL Project Fair Opportunity Purchasing documentation, and proposes to use the following sub-consultants:

Project Category: Engineering, Bid and Construction Services

LOCAL/NON-LOCAL CONTRACT SUMMARY

		Amount	Percent
Local Contracts		$868,390.00	100.0%
Non-Local Contracts		-	-
Optional Supplemental Services		$79,400.00	-
	Total This Agenda	**$947,790.00**	**100%**

LOCAL/NON-LOCAL MWBE/HUB PARTICIPATION THIS ACTION

Local	Certification	Percent
None	N/A	N/A

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 6

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract Amendment with Steel Inspectors of Texas, Inc. for Construction Materials Inspection and Testing Services of IPL Section 19-2 Part A Pipeline of the Integrated Pipeline Project**

FUNDING: Dallas Bond Fund

RECOMMENDATION:

Management recommends approval of a contract amendment **in an amount not-to-exceed $355,000** with Steel Inspectors of Texas, Inc. (SIT) for construction materials inspection and testing (CMIT) services for IPL Pipeline Section 19-2 Part A project. The total not-to-exceed contract value, including this proposed amendment will be $730,000.

DISCUSSION:

On March 22, 2022, the District executed a contract with Steel Inspectors of Texas, Inc. (SIT) to provide IPL CMIT field certified welding inspection services for various projects of the Integrated Pipeline Project for a not to exceed amount of $375,000. This is the first amendment of the contract. This proposed amendment amount of $355,000 is for continuing CMIT Certified Welding Inspection services for the Section 19-2 Part A project. These CMIT services include visual inspection and magnetic particle testing of field welded pipe joints. The total not-to-exceed contract value, including this proposed amendment will be $730,000 as shown in table below.

IPL CMIT Pipe Manufacturing and Coatings Quality Assurance

Date	**Services**	**Amount**
03/22/22	Section 19 Long Tunnel Crossings – CMIT	$ 375,000.00
06/16/24	Section 19-2 Part A – CMIT	$ 355,000.00
Total		$ 730,000.00

.

The purpose of this contract amendment is to provide CMIT Certified Welding Inspection services for the Section 19-2 Part A Project. SIT's scope of work for Section 19-2 Part A project services also includes a special services contingency to be released at the Program Manager's discretion.

Steel Inspectors of Texas, Inc. qualifies as a 100% DBE/HUB firm under the Fair

Opportunities in Purchasing and Contracting Program.

Management requests that the Board of Directors grant authority to the General Manager or his designee to execute all documents associated with the contract described herein.

Included for reference are Staff recommendation, Fee Summary, and Fair Opportunity in Purchasing and Contracting Summary.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By

Ed Weaver
IPL Program Manager

Memo

TO: Ed Weaver

FROM: Matt Gaughan

DATE: May 31, 2024

SUBJECT: Recommendation for approval of a contract amendment with Steel Inspectors of Texas, Inc. (SIT) for Construction Materials Inspection and Testing Services for IPL Pipeline Section 19-2 Part A.

On March 22, 2022, TRWD executed a contract with Steel Inspectors of Texas, Inc. (SIT) to provide IPL CMIT field certified welding inspection services for various projects of the Integrated Pipeline Project for a not to exceed $375,000.00. This is the first amendment of the contract. The proposed amendment amount of $355,000.00 is for CMIT Certified Welding Inspection services for the Section 19-2 Part A project. These CMIT services include visual inspection, magnetic particle testing of field welded pipe joints. The total not to exceed contract value, including this proposed amendment will be $730,000.00 as shown in table below.

The scope of work includes one task consisting of Section 19-2 Part A CMIT Certified Welding Inspection, plus a contingency for Optional Supplemental Services to be released at the Project Managers approval.

There are no requirements for consultants to meet DBE/HUB participation goals under the Fair Opportunities in Purchasing and Contracting Program for IPL CMIT contracts. The District intends to meet Program goals by selecting qualified DBE/HUB consultants and contracting directly with these firms for services. SIT qualifies as a DBE/HUB firm under the Fair Opportunities in Purchasing and Contracting Program.

Included for reference at the Fee Summary and Fair Opportunity in Purchasing and Contracting summary.

FEE SUMMARY		
Integrated Pipeline Project		
IPL Section 19-2 Part A – CMIT Pipe Manufacturing and Coatings Quality Assurance Services		
Steel Inspectors of Texas, Inc.		
Task	**Description**	**Estimated Fee**
	Basic Services	
1	PL19-2 Part A CMIT Field CWI QA Services	$319,080.00
	Subtotal Basic Services	**$319,080.00**
2	Optional Supplemental Services	$35,920.00
	Subtotal Optional Supplemental Services	**$35,920.00**
	Total	**$355,000.00**

Fair Opportunity Purchasing

Project: Consider Approval of a contract amendment to Steel Inspectors of Texas, Inc. for Construction Materials Inspection and Testing Services of Section 19-2 Part A of the Integrated Pipeline Project (IPL)

Not to Exceed $355,000.00

Steel Inspectors of Texas, Inc., an Engineering and Consulting company with local offices in Fort Worth, Texas, has signed the IPL Project Fair Opportunity Purchasing documentation, and proposes to use the following sub-consultants:

Project Category: Engineering, Bid and Construction Services

LOCAL/NON-LOCAL CONTRACT SUMMARY

		Amount	Percent
Local Contracts		$319,080.00	100.0%
Non-Local Contracts		-	-
Optional Supplemental Services		$35,920.00	-
	Total This Agenda	**$355,000.00**	**100%**

LOCAL/NON-LOCAL MWBE/HUB PARTICIPATION THIS ACTION

Local	Certification	Percent
Steel Inspectors of Texas, Inc.	WBE	100.0%

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 7

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract Amendment with CAS Consulting & Services, Inc. for Resident Project Representative Services for the Integrated Pipeline Project**

FUNDING: Dallas Bond Fund

RECOMMENDATION:

Management recommends approval of a contract amendment **in an amount not-to-exceed $1,625,766.82** with CAS Consulting & Services, Inc. (CAS) for Integrated Pipeline (IPL) Resident Project Representative Services to continue supporting the IPL Phase 3 Section 19 Long Tunnel Crossing project. The total not-to-exceed contract value, including this proposed amendment will be $11,980,538.12.

DISCUSSION:

ON February 16, 2016, the District executed a contract with CAS Consulting & Services, Inc. (CAS) to provide resident project representative services for various projects of the Integrated Pipeline Project for a not-to-exceed $5,914,404.53. The contract has been amended three times for fees not-to-exceed $4,440,366.77. The total contract amount is $10,354,771.30 as shown in the table below.

IPL Resident Project Representative Services

Date	**Services**	**Amount**
02/16/16	Program wide RPR Services	$5,914,404.53
03/06/20	Section 17 Trinity River Tunnel RPR Services	$1,098,715.77
04/08/21	Section 19 TXDOT and TUN RPR Services	$3,341,651.00
03/27/23	Time Extension Only	$ 0.00
Total		**$10,354,771.30**

The purpose of this contract amendment is to provide continued resident project representative services for Section 19 Long Tunnel Project.

The Contract time will also be amended to extend the term through April 30, 2025 to coincide with Dallas Phase 3 bond issues. The term for this period of CAS work will run from June 1, 2024 through April 30, 2025.

CAS Consulting Services, Inc. qualifies as a 100% DBE/HUB firm under the Fair

Opportunities in Purchasing and Contracting Program.

Management requests that the Board of Directors grant authority to the General Manager or his designee to execute all documents associated with the contract described herein.

Included for reference are Staff Recommendation, Fee Summary, and Fair Opportunity in Purchasing and Contracting Summary.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Ed Weaver
IPL Program Manager

Memo

TO: Ed Weaver

FROM: Matt Gaughan

DATE: May 31, 2024

SUBJECT: Recommendation for approval of a contract amendment with CAS Consulting & Services, Inc (CAS) for continuing Resident Project Representative Services of the Integrated Pipeline (IPL).

ON February 16, 2016, TRWD executed a contract with CAS Consulting & Services, Inc. (CAS) to provide resident project representative services for various projects of the Integrated Pipeline Project for a not to exceed $5,914,404.53. The contract has been amended three times for fees not to exceed $4,440,366.77. Total contract amount is $10,354,771.30.

The proposed amendment amount of $1,625,766.82 is for continuing resident Project Representative Services for Section 19 Long Tunnel Crossing project. The total not to exceed contract value, including this proposed amendment will be $11,980,538.12. A future amendment is planned for April 2025 to align contract time with regular bond periods.

This scope of work includes one task consisting of Section 19 Long Tunnel Crossing RPR Services, plus a contingency for Optional Supplemental Services to be released at the Project Manager's approval.

There are no requirements for consultants to meet DBE/HUB participation goals under the Fair Opportunities in Purchasing and Contracting Program for this Contract. The District intends to meet Program goals by selecting qualified DBE/HUB Consultants and contracting directly with these firms for services. CAS Consulting Services, Inc. does however qualify as a DBE/HUB firm under the Fair Opportunities in Purchasing and Contracting Program.

Included for reference are the Fee Summary and Fair Opportunity in Purchasing and Contracting summaries.

FEE SUMMARY		
Integrated Pipeline Project		
IPL Resident Project Representative Services		
CAS Consulting & Services, Inc. (CAS)		
Task	**Description**	**Estimated Fee**
	Basic Services	
1	PL19TUN RPR Extension	$1,359,590.82
	Subtotal Basic Services	**$1,359,590.82**
2	Optional Supplemental Services	$266,176.00
	Subtotal Optional Supplemental Services	**$266,176.00**
	Total	**$1,625,766.82**

Fair Opportunity Purchasing

Project: Consider approval of contract amendment to contract with CAS Consulting & Services, Inc. for Resident Project Representative services for the Integrated Pipeline (IPL).

Not to Exceed $1,625,766.82

CAS Consulting & Services, Inc., an Engineering and Consulting company with local offices in Dallas, Texas, has signed the IPL Project Fair Opportunity Purchasing documentation, and proposes to use the following sub-consultants:

Project Category: Engineering, Bid and Construction Services

LOCAL/NON-LOCAL CONTRACT SUMMARY

		Amount	Percent
Local Contracts		$1,359,590.82	100.0%
Non-Local Contracts		-	-
Optional Supplemental Services		$266,176.00	-
	Total This Agenda	**$1,625,766.82**	**100%**

LOCAL/NON-LOCAL MWBE/HUB PARTICIPATION THIS ACTION

Local	Certification	Percent
CAS Consulting Services, Inc.	MBE	100.0%

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 8

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract with BAR Constructors, Inc. for Cedar Creek Section 2 Pipeline Replacement Phase 1A Construction**

FUNDING: Bond Fund

RECOMMENDATION:

Management recommends approval of a contract in an amount **not-to-exceed $11,690,906** with BAR Constructors, Inc for Cedar Creek Section 2 Pipeline Replacement Phase 1A Construction.

DISCUSSION:

The Cedar Creek Section 2 Pipeline was originally constructed nearly 50 years ago. The District's robust pipeline integrity program identified significant portions of the existing 72-inch pre-stressed concrete cylinder pipe as structurally defective in this area, reaching the end of useful life. The Cedar Creek Section 2 Pipeline Replacement is a multi-phase project to address those Section 2 segments and increase the flow capacity to meet future needs. The new pipe will be spiral welded steel.

Phase 1A includes the removal and replacement of approximately 4,600 linear feet of 72-inch Cedar Creek pipeline. The new pipe will be 90-inch diameter. Phase 1A also includes the replacement of both Cedar Creek and Richland-Chambers pipelines under the TXDOT FM 664 right-of-way, replacing the existing 72-inch and 90-inch pre-stressed concrete cylinder pipe with 90-inch spiral-welded steel pipe. The FM 664 pipelines crossing replacement is accelerated to accommodate the TXDOT FM664 expansion schedule.

Competitive Sealed Proposals were solicited per Texas Government Code Chapter 2269, and two compliant proposals were received. One non-responsive proposal was received. The evaluation team comprised of Engineering, Operations and IPL Program Management staff determined BAR Constructors, Inc submitted the proposal providing the best value to the District.

BAR Constructors, Inc is a prime, certified diverse business and has subcontracted portions of this contact to certified diverse businesses, resulting in a diverse business participation commitment of 9.6%.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, P.E.
Infrastructure Engineering Director

TRWD Project
Project Name: Cedar Creek Section II Pipeline Replacement Phase 1A
Offeror Selection Worksheet
Tabulation of Scoring

Owner's Construction Budget	$10,800,000.00
Contract Substantial Completion Date	
Contract Final Competion Date	
Lowest Proposed Contract Price	$ 10,583,008.00
Highest Proposed Contract Price	$ 11,690,906.00
Lowest Adjusted Contract Price	$ 10,583,008.00

Item	Criteria	Points	BAR Constructors, Inc.	Michels Pipeline	Thalle Construction Co, Inc.
A	Proposed Contract Price and Contract Time				
	Proposed Contract Price		$11,690,906.00	Non-Responsive	$10,583,008.00
	Difference between amount offered and low offer		$ 1,107,898.00		$ -
	Point Value	40	36.2		40.0
	Proposed Substantial Completion Contract Days		443.00		345.00
	Value of Early Completion (1)		$ -		$ -
	Other Adjustments (2)				$0.00
	Adjusted Contract Price		$ 11,690,906.00		$ 10,583,008.00
	Adjusted Point Value		36.2		40.0
B	Contractor's Approach to the Project	20	19.2		15.0
C	Experience / past performance of Offeror	20	19.8		15.4
D	Experience and qualifications of proposed key personnel	20	19.2		17.2
Total Points			**94.4**		**87.6**

Notes	
1	Michels provided a non-responsive offer.
2	
3	
4	
5	
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8	
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10	

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 9

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract with Freese and Nichols, Inc. for Construction Management Services for Cedar Creek Section 2 Pipeline Replacement Phases 1A and 1B**

FUNDING: Bond Fund

RECOMMENDATION:

Management recommends approval of a contract **in an amount not-to-exceed $3,258,718** with Freese and Nichols, Inc. (FNI) for construction management services for the Cedar Creek Section 2 Pipeline Replacement Phases 1A and 1B.

DISCUSSION:

The Cedar Creek Section 2 Pipeline was originally constructed nearly 50 years ago. The District's robust pipeline integrity program identified significant portions of the existing 72-inch pre-stressed concrete cylinder pipe as structurally defective in this area, reaching the end of useful life. The Cedar Creek Section 2 Pipeline Replacement is a multi-phase project to address those Section 2 segments and increase the flow capacity to meet future needs. The new pipe will be spiral welded steel.

Phase 1A includes the removal and replacement of approximately 4,600 linear feet of 72-inch Cedar Creek pipeline. The new pipe will be 90-inch diameter. Phase 1A also includes the replacement of both Cedar Creek and Richland-Chambers pipelines under the TXDOT FM 664 right-of-way. The FM 664 pipelines crossing replacement is accelerated to accommodate the TXDOT FM664 expansion schedule. Phase 1B includes the removal and replacement of approximately 55,000 linear feet of existing 72-inch Cedar Creek pipeline with new 90-inch and 102-inch spiral welded steel pipe and the installation of five large diameter owner-furnished valves.

With this contract, FNI will provide construction management and resident representative services to ensure a quality installation, as part of the District's efforts to achieve over one-hundred-year service life in its new pipeline infrastructure installations. Construction of Phase 1A is expected to be concluded in late 2025, and Phase 1B in 2027.

Request for Statement of Qualifications was solicited per statute (Texas Government Code Chapter 2254) and one submittal was received. The evaluation team determined that FNI was qualified for this project based on their submittal and past successful history with the District. The scope and fee that were successfully negotiated with FNI are attached.

Freese and Nichols, Inc is a prime, non-certified business that will subcontract portions of work to certified diverse businesses, resulting in a diverse business participation commitment of 45%.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, P.E.
Infrastructure Engineering Director

Budget Summary
Freese and Nichols
Section II Phase 1 Pipeline Replacement Construction Management Services (24-109)

Task No.	Description	Estimated Fee
Basic Services		
PMO1	Project Management Office	591,794.21
FO1	Field Office	1,206,742.99
	Total Budget for Basic Services	**$ 1,798,537.20**
Additional Services		
RR	Resident Project Representative	1,280,327.07
	Total Budget for Additional Services	**$ 1,280,327.07**
Special Services		
	Owner Controlled Contingency at 10% of Basic Services	**$ 179,853.72**
	Total Budget Not to Exceed Amount for All Services	**$ 3,258,717.99**
	DBE Participation	**$ 1,481,211.07**

Scope of Services
Section II Phase 1A and 1B Pipeline Replacement Construction Management Services (24-109)

1.00—BASIC SERVICES

1.01 Basic Services are services that are required for the Project and authorized by the execution of this Agreement.

1.02 General Provisions

A. Freese and Nichols, Inc (FNI) will provide construction phase services upon receiving its Notice to Proceed. FNI will function as an extension of Owner's staff and provide support, advice, and technical expertise on construction-related issues. FNI will endeavor to protect Owner in providing these services; however, it is understood that FNI does not guarantee the Contractor's performance, nor is FNI responsible for supervision of the Contractor's operations and employees. FNI will not have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by the Contractor, or the safety precautions and programs incident thereto, for security or safety at the Site, nor for any failure of the Contractor to comply with Laws and Regulations applicable to Contractors furnishing and performing of its work. FNI will not be responsible for the acts or omissions of Contractor.

B. The fees for these construction phase services are based on an anticipated construction duration of 30 months. If such period of service is extended, FNI's compensation will be equitably adjusted. For a shorter construction duration, the compensation will be equitably adjusted, provided, however, that the compensation will not be reduced if the accelerated construction schedule requires additional effort to administer the Construction Contract.

C. Owner will provide complete and functional office facilities, telephone, internet, and other utility services, and equipment through its Contractor.

D. Construction management as performed by FNI consists of a series of core management tasks focused on the construction and commissioning phases of the Project. FNI's services are provided to:

1. Organize and manage the resources required by the Project.
2. Administer, coordinate, monitor, and report on the Project and activities associated with the Project.
3. Plan, schedule, conduct, and document Project meetings.
4. Provide a focal point for collecting, disseminating, and storing documents and information.
5. Manage the Project to meet Project goals and objectives.
6. Recommend action to the Owner related to the management of the design and construction of the Project.
7. Manage schedule and cost control systems to monitor and report on the progress of the overall Project.

1.03 Preconstruction Services

A. Constructability Reviews

1. Review the Technical Memoranda and Appendices prepared by the Engineer on the final design documents and provide input, advice, and recommendations on constructability, materials and equipment selections, and availability. The review will consider the following:

a. General concepts

1) Construction cost.

2) Construction duration.

3) Completeness, consistency, and clarity of the Contract Documents.

b. Constructability, including sequencing or coordination issues

1) Adequacy of details for construction.

2) Potential conflicts during construction.

3) Feasibility of construction.

4) Construction sequencing.

5) Acquisition of materials and equipment.

6) Ability to coordinate among subcontractors and suppliers.

7) Coordination between Contract Documents.

c. Operability

1) Ability to minimize disruptions to existing operations.

2) Ability to complete construction connections to existing facilities or utilities.

3) Modifications to facilitate initial startup and performance testing.

4) Ability of Owner to operate/maintain the facility when completed.

d. Risk Management

1) Review the risk assessment and resulting Risk Register to assess the risk impact and risk management strategies to minimize associated costs. Add additional threats and opportunities if any.

2) Provide recommendations for appropriate allocation of construction risks.

3) Identify additional information that will help with risk assessment.

4) Suggest additional procurement/contractual strategies to minimize risk.

5) Review possible impacts associated with the use of patented or copyrighted products.

6) Review legal requirements for subcontractors and equipment procurement for risk impacts.

2. FNI is not responsible for design of the Project and does not control the Project design or contents of the Contract Documents other than those prepared by FNI under this

Paragraph 1.02 and does not assume responsibility or liability for the design by performing these reviews.

B. Review Division 00/ 01 Documents

1. Review and comment on Proposal Documents, Contract Documents and General Requirements (Divisions 00 / 01 documents) prepared by the Engineer and based on the current TRWD standard documents.

2. Review with Owner and Engineer and revise as appropriate to incorporate review comments

3. Provide final draft of recent Division 00 /01 documents to Engineer for inclusion in the Proposal and Contract documents for Phase 1B.

C. Procurement Phase Services for Contractor Selection Using Competitive Sealed Proposals

1. Assist Owner with selecting and engaging a contractor using the Competitive Sealed Proposal process in accordance with the provisions of applicable Laws and Regulations.

2. Attend a pre-proposal conference with Owner and Engineer. Response to questions at the pre-proposal conference will be in the form of addenda, prepared by the engineer, issued after the conference.

3. Assist Owner with managing responses to questions posted on OpenGov. Provide responses to questions related to the procurement process or management and administration of the Construction Contract. Engineer will provide responses to questions related to the design or other technical aspects of the Contract Documents.

4. Review and comment on items requiring addenda. Engineer will prepare addenda to document changes to the Contract Documents made during the Procurement Phase, items related to the procurement process or management and administration of the Construction Contract, and items related to the design or other technical aspects of the Contract Documents.

5. Evaluation of Proposals

a. Assist Owner with evaluating the Proposals received. Review the information in the Proposals and advise Owner regarding the interpretation of the information provided as it relates to the selection criteria. Provide reference checks on key personnel from the information provided in the Proposal and review the qualifications of key personnel offered. Report findings of the review of Proposals and investigations to the selection committee. Facilitate scoring of Proposals by the selection committee and assist in determining which Proposals appear to provide the best value to the Owner (short-list) on the basis of Proposals received.

b. Assist the Owner in coordinating and conducting interviews with the top two or three ranking Proposers. Assist in developing pertinent interview questions. Facilitate the interview process and work with the selection committee to determine what, if any, adjustments should be made to the scoring based on information obtained in the interviews.

c. Provide documentation of the selection process, including a tabulation of the scoring assigned to each offeror for each of the selection criteria. Prepare a letter of recommendation for the selected contractor that outlines the recommendation of the selection committee.

d. Assist with presentation of recommendation to the Owner.

6. Conform Contract Documents for execution by incorporating information from the selected Offeror and their surety into the Contract Documents.

7. Prepare proposals for public release by removing confidential information and provide a copy of the tabulation of scoring for public release.

8. Assist the Owner in providing exit interviews for those Offerors not selected.

1.04 Construction Contract Administration

A. Provide full-time, on-Site Project Construction Manager (PCM) to manage and administer the day-to-day requirements of the Project and manage construction management field staff observe the Work in progress to:

1. Determine that completed Work will comply in general with the Contract Documents;

2. Provide Construction Contract administration services and determine that the quality control programs of the Contractor are producing acceptable results.

B. Primary roles and responsibilities of PCM include the following:

1. Serve as the primary point of contact, with primary responsibility for construction contract administration and quality assurance.

2. Provide periodic observation of construction on each site to determine that construction is in conformance with Contract Documents.

3. Provide direction and manage the efforts of Resident Project Representatives (RPR) on their assigned responsibilities to determine that their duties are performed in a timely manner and in accordance with TRWD processes and procedures. Serve as a backup RPR or reallocate resources to cover the project when a RPR must be away from the Project site.

4. Manage the efforts of quality control efforts of materials testing laboratories and specialty observers. Coordinate services provided by other consultants under direct contract to the District as requested by the District. Review invoices for services provided for the project by the District and recommend payment to District Project Manager (DPM).

5. Annotate Drawings and Specifications to incorporate information furnished by Contractor and RPR showing changes in the Project made during construction in Record Documents and real time as built (RTAB) data collected. Support TRWD GIS with gathering RTAB data. Provide annotated documents to Engineer so revisions can be made to electronic files of the drawings in their native format.

6. Work directly with DPM to coordinate construction activities with the District's operations.

7. Work with Contractors and District Land department to help resolve issues with property owners.

8. Work with consultants providing O&M documentation and training to coordinate their efforts with construction and operations and to coordinate training and start up activities.

9. Project Closeout

    a. Participate in an inspection of the Work with Contractor and OPT to determine if Work is substantially complete. Provide the Substantial Completion–related Construction Manager services contemplated by the Contract Documents, including establishment of a list of deficiencies and, if appropriate, issuance of a Certificate of Substantial Completion.

    b. Assist Owner in obtaining legal releases, permits, warranties, maintenance and operating instructions, and keys from the Contractor.

    c. Participate in an inspection of the Work with Contractor and OPT to determine if Work is finally complete and if appropriate issue a Certificate of Final Completion.

    d. Provide all Construction Manager services contemplated by the Contract Documents with respect to the final payment application. Include adjustments to the Contract Price in the final Payment Application for:

        1) Approved Change Orders and Contract Amendments;

        2) Allowances not previously adjusted by Change Order;

        3) Deductions for Defective Work that have been accepted by the Owner;

        4) Penalties and bonuses;

        5) Deduction for all final set-offs;

        6) Final settlement for claims and damages if any; and

        7) Other adjustments if needed.

    e. Prepare a final Change Order reflecting the approved adjustments to the Contract Price which have not been covered by previously approved Change Orders or Contract Amendments and, if necessary, to reconcile estimated unit price quantities with actual quantities.

    f. Provide the following with the final Payment Application:

        1) Evidence of payment or release of Liens on the forms provided by the Construction Manager and as required by the General Conditions.

        2) Consent of surety to final payment.

    g. Prepare the memorandum to the Board of Directors recommending acceptance for the Project and the Notice of Completion.

10. Post Construction Phase Services

    a. Scheduled Correction Period Inspection—Within one month before the end of the Construction Contract's correction period, conduct an inspection of the Work to ascertain whether any portion of the Work or the repair of any damage to the Site or adjacent areas is defective and subject to correction by Contractor. Consult with Engineer regarding design and technical matters.

b. Unscheduled Post-Completion Inspections—Return to the Site with Contractor and OPT to inspect any apparent or discovered defects in the Work, or unrepaired damage to the Site or adjacent areas. Consult with Engineer regarding recommendations as to replacement or correction of such defective Work, or the need to repair any damages.

c. Send required notices of defective Work or damage to Contractor and represent Owner in consultations and discussions with Contractor concerning correction of any the defective Work and needed repairs.

1.05 Document Management

A. Provide Record Project Manager and Document Technician services to support general electronic records management and litigation support of all Project documentation in accordance with District's Records Management Policy as well as basic technical administration of the PMIS.

1. Maintain PMIS for Project documents and records, both electronic and printed copy, in accordance with established District Records Management Policies and Procedures.

2. Determine the location of Project documents/records and assist users and stakeholders in the location of documents/records within the PMIS.

3. Manage the quality of and final determination of how Project records are to be classified according to District retention policies.

4. Provide litigation support to District attorneys such as Discovery requests, issue and release of litigation holds, and working with District's Information Services (IS) to create litigation sites in the PMIS as needed.

5. Assist District attorneys and staff with Public Information Requests by performing searches and providing documents for review and production.

6. Stay abreast of business needs as phases of projects begin and end to ensure PMIS continues to support all user needs. Analyze and make process improvement suggestions as needed to support any additions or modifications to PMIS.

B. Receive, review, and manage distribution of documents posted on the PMIS to provide a focal point for collecting, disseminating, and storing documents and information for each Project. Determine that information required by Project Controls is provided.

1. Prepare and post baseline Record Documents on the PMIS for use in recording real time as built information during the construction phase. Engineer will provide PDF versions of contract documents with a separate file for each drawing sheet and each specification section.

2. Prepare a Project specific set of document templates for use in administering the construction contract and post this library of templates on the PMIS.

C. Basic, Technical Administration of PMIS

1. Perform basic, technical administration of PMIS including basic user permissions and Construction eForm resolutions. Anything beyond basic user level administration will be forwarded to District IS department for assistance.

D. Manage the receipt, processing, and distribution of Contractor's submittals, including but not limited to Notifications, product information, test reports, schedules, payment applications, and other record data throughout the Project.

1. Provide monthly reports indicating the status of all submittals in the review process.
2. Monitor the progress of the Contractor, Engineer, and District in sending and processing submittals to see that documentation is being processed in accordance with schedule requirements of the Contract Documents.
3. Review record and administrative documents submitted in accordance with the Contract Documents.
4. Forward product submittals to the Engineer for review and comment. Prepare the response to the Contractor.

E. PMIS Document Closeout of Construction Contracts

1. Record Project Manager to work with DPM/PCM to determine that closeout of construction contract documentation adheres to the PCM Procedure for PMIS Closeout developed by the PCM and Record Project Manager.
2. Record Project Manager to work as liaison between DPM and Record Technician for conforming final construction documents that require technical and accuracy updates (i.e. Construction Projects: Shop Drawing incomplete, CTR mislabeled, Change Orders without signature blocks, Record As Built Bundling, etc. or Design Projects: Contracts missing parts, incomplete reports and technical memoranda, deliverables not compiled, files mislabeled, etc.)
3. Perform quality control/assurance checks for each closed design and construction site to verify accuracy / completeness of record classification and capture of relevant metadata. Incorporate assistance of record technician when appropriate.
4. Participate in various meetings with DPM/PCM and District Records Staff to ensure ongoing collaboration of construction closeout procedures. Coordinate with District Records Staff to verify that all documents are filed in accordance with District standards, practices, and procedures.

1.06 Communications

A. PCM serves as the liaison between the Contractor and the Owner's Project Team (OPT.)

B. Prepare a Communications Plan for the project.

C. Receive and respond to Contractor's Requests for Information (RFI.) In consultation with Engineer, issue clarifications and interpretations of the Contract Documents. Conduct or coordinate any investigations, analyses, and studies necessary to render such clarifications and interpretations.

D. Meetings

1. Conduct a pre-construction conference with the Contractor. The agenda will include establishing communications procedures with Owner and Contractor; discussing Construction Contract administration procedures; and reviewing schedules and other documents required by the Contract Documents. Prepare and distribute meeting records.

2. Conduct monthly progress meetings with the Contractor. Discuss Contractor's progress to date, planned efforts for the coming month, status of submittals, proposed Construction Contract modifications, and any issues or concerns that need to be addressed to allow construction of the Project to progress. Review schedules, preliminary applications for payment, and other documents required by the Contract Documents. Prepare and distribute meeting records.

3. Conduct pre-documentation and pre-installation meetings as required in the Specifications or as determined to be necessary. Prepare and distribute meeting records.

4. Conduct weekly coordination meetings with the Contractor to discuss activities planned for the following weeks, review coordination issues, testing requirements, and other issues. No meeting records will be prepared; however, Action Item Registers and Decision Registers will be updated to record key information as appropriate.

5. Conduct project team coordination meetings monthly or as often as necessary to discuss and resolve issues relating to the management of the Project. Document the meetings and record action items assigned to Project team members. Project team members may include District and construction contractor staff.

E. Reporting

1. Prepare reports and other documentation in accordance District's Construction Management standards.

a. Prepare and submit daily construction reports which provide an account of each day's activity, including work completed, observed defects and corrective action, discussions with the Contractor, weather conditions, and other issues pertinent to the Contractor's progress. Include photographs that record Contractor's progress or other pertinent elements of the Project. File additional photographs in the PMIS.

b. Submit a monthly report describing construction progress in general terms and summarize Project costs, cash flow, construction schedule, and pending and approved Construction Contract modifications.

c. Monitor and review reporting provided by the Contractor in accordance with the Contract Documents.

1.07 Cost Management

A. Collaborate with the Contractor to establish the Schedule of Values and Schedule of Anticipated Payments based on Proposed Amounts. Prepare the Payment Application template to be used for periodic payments.

B. Review Payment Applications and supporting documentation each payment period and recommend the amount to be paid to the Contractor by District on monthly and final Payment Applications in accordance with the provisions of the Contract Documents. Recommend reductions in payment (set-offs) based on the provisions for set-offs stated in the Construction Contract. Such recommendations of payment will be in writing and will constitute Construction Manager's representation to Owner, based on such observations and review, that, to the best of Construction Manager's knowledge, information, and belief:

1. Contractor's Work has progressed to the point indicated;
2. The Work is generally in accordance with the Contract Documents subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, and to any other qualifications stated in the recommendation;
3. Conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is FNI's responsibility to observe the Work; and
4. Final determinations of quantities and classifications of the Work, subject to any subsequent adjustments allowed by the Contract Documents, have been made for unit price Work.

C. Review Change Proposals to determine that cost proposed is fair and reasonable, and calculated in accordance with the Contract Documents. Update the Payment Application form to incorporate approved Contract Modifications that impact Contract Price.

D. Compare Actual Payments for Earned Value to Schedule for Schedule of Anticipated Payment to assess progress.

1.08 Time Management

A. Review baseline, progress, and recovery schedules in accordance with the Contract Documents.

B. Review Near Term Look Ahead (NTLA) schedules at progress meetings. Review work planned but not executed to determine the impact on the overall schedule. Compare NTLA to current progress schedule.

C. Compare time components of the Payment application comparing Schedule of Anticipated payments to actual payments. Note any indication that contractor is behind schedule.

D. Review requests for a time extension submitted with Change Proposals, including a time impact analysis schedule. Use this information to assess the impact of Construction Contract changes on the Project to negotiate an equitable change in the Contract Times or Contract Price, if warranted. Recommend days to be allowed if any.

E. Collaborate with Contractor to provide a recovery schedule when the contractor's schedule, considering pending time extensions, indicates the contractor is 30 days or more behind schedule.

F. Issue a Notice of Failure to Meeting Contract Times if contractor does not achieve Substantial Completion for the Project of specified Project Milestones for phased Work.

G. Coordinate efforts for completing the project at substantial completion using NTLA schedules for completion of items on the list of deficiencies.

1.09 Quality Management

A. Review Contractors Quality Management Plan (CQMP). Coordinate CQMP with District's Quality Program and the requirements of the Contract Documents. Coordinate the plans with the scope of services to be provided by District's Construction Materials Inspection and Testing (CMIT) firm, and FNI's specialty consultants for quality control inspections to determine that materials incorporated into the project comply with Specifications.

1.10 Change Management

A. Initiate Request for Change Proposal when the District and Engineer agree that a change is needed. Engineer will prepare a Description of Modification for design changes. Prepare estimates of proposed changes to the Contract Documents for comparison with Contractor's pricing and for use in negotiating an equitable price for changes to the Construction Contract.

B. Review Change Proposals submitted by the Contractor and prepare recommendations to the Owner on the timeliness, merit, and value of the Change Proposals based on the terms of the Contract, information submitted by the Contractor or available in project documentation.

1. Conduct investigations, analyses, and studies of proposed modifications to the Contract Documents including proposed substitutions of equipment and/or materials, corrections of defective or deficient work of the Contractor, or other deviations from the construction Contract Documents.

2. CM will coordinate with the Engineer who will review for consistency with design intent in support of these investigations, analyses, and studies and make recommendations on the acceptability of the proposed changes or provide recommendation for changes that will comply with the design intent.

3. CM will collaborate with the Contractor on behalf of the District to reach an agreement on the scope and changes in Contract Price or Contract Times, if any. If an agreement acceptable to the Owner is reached, prepare the contract modification (Field Order, Work Change Directive, Change Order, or Contract Amendment) for signatures, and prepare a memorandum recommending approval of the Contract Modification to the District suitable for writing a Board Agenda item if needed.

4. If agreement cannot be reached on the Change Proposal, notify the Contractor of the reason for not approving the Change Proposal. Track issues that appear will not be resolved in the Change Proposal process. Establish an "Issues" file when issues appear to be a potential Claim. If Contractor chooses to file a claim under the provisions of the Contract, manage in accordance with Paragraph 2.01 Claims.

C. Modify the Payment Application to incorporate the Contract Modification and administer payment for the Contract Modification as part of the Cost Management process in Paragraph 1.04.

1.11 Risk Management

A. Review the Project risk register with the Contractor and OPT. Reassess and update for identified risk elements in the risk management plan and develop countermeasures for those risk elements not already addressed in the Contract Documents.

B. Review risk register at periodic meetings and update based on progress of the work.

2.00—ADDITONAL SERVICES

2.01 Additional Services are services that may be required and have been identified in this Section. CM agrees to provide these services if authorized in writing by the Owner to do so.

2.02 Provide RPR(s) to observe the Work in progress for compliance with the Contract Documents. Primary roles and responsibilities of RPR includes the following:

A. Inspect the work to verify compliance with the Contract Documents. Inform the Contractor and OPT of work that does not comply with the requirements of the Contract Documents.

B. Record the delivery of materials to the site and inspect the materials for apparent defects. Work with the PCM to provide additional testing as required to resolve any concerns about materials as delivered.

C. Review survey data and procedures to see that line, grade, and locations have been properly established, and that they are followed during construction.

D. Prepare Daily Construction Reports per Paragraph I. Note defective work and corrective action.

E. Make periodic estimates of the quantity of construction completed.

F. Take construction documentation photographs. Take additional photographs to document differing site conditions, change order and claim items, and any special or unique conditions as they arise.

G. Record GPS coordinates of work in place to assist with development of real time as-built drawings.

H. Review quality-related documents provided by the Contractor such as test reports, equipment installation reports, and other documentation required by the Contract Documents. Notify the Contractor and OPT of defective Work.

I. Record defective Work in Daily Construction Reports, Action Item Register or Defective Work Notices as appropriate. Coordinate correction of the defective Work with the Contractor. Withhold payment for defective Work until corrections have been completed. Report the status of corrections and determine that defective Work is corrected before payment is made. Record completion of corrective Work. Determine that all recorded defects have been corrected, unless accepted by the Owner per the General Conditions.

J. Coordinate with Contractor for pre-work meetings. Conduct prove-out testing for pipelaying operations.

K. Coordinate the efforts of testing laboratories required for the testing or inspection of materials, witnessed tests, factory testing, acceptance tests, and performance acceptance testing for the Project.

2.03 Claims Management

A. Receive and evaluate claims, as defined in the Construction Contract, and make recommendations to the Owner on the timeliness, merit, and value of the claim based on information submitted by the Contractor, available in project documentation and the requirements of the Contract Documents. Provide a time impact analysis in the event of claims for time or extended overhead. Recommend options to OPT based on the merits of

the issue under the terms and conditions of the Contract. Provide similar services if the District files a claim against the Contractor.

B. Collaborate with Contractor to resolve claims. If an agreement is reached, prepare Contract Modifications to document the agreement.

2.04 Disputes

A. Provide services required to resolve bid or proposal protests, or to rebid the Project.

B. Advise the District if it appears that the claim may not be resolved and will move to dispute resolution provisions of the contract.

C. Assisting Owner in preparing for or appearing at litigation, mediation, arbitration, dispute review boards, or other legal and/or administrative proceedings in the defense or prosecution of disputes, or the final resolution of disputes with Contractor.

D. Preparing data and reports for assistance to Owner in preparation for hearings before regulatory agencies, courts, arbitration panels, or any mediator.

E. Preparing for and giving testimony, personally or by deposition, before any regulatory agency, court, arbitration panel, or mediator.

2.05 Other Additional Services

A. Any services required as a result of default or failure, for any reason, of the Contractor(s) to complete the work within the Contract Times.

B. Providing services after the completion of the construction phase not specifically listed in Basic Services.

C. Providing Basic Services or Additional Services on an accelerated time schedule. The scope of this service includes cost for overtime wages of employees and FNI subconsultants.

D. Providing services made necessary because of unforeseen, concealed, or differing site conditions, or due to the presence of a Constituent of Concern.

E. Providing follow-up construction management services during Contractor's warranty period in addition to those describe as a Basic Service.

F. Collaborating with Contractor's surety in the event of Contractor default or termination for cause.

3.00—SPECIAL SERVICES

3.01 Owner may authorize the Construction Manager in writing to provide Special Services not contemplated at the time this Agreement was signed and not identified as Basic or Additional Services.

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 10

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract with CDM Smith for Engineering Design and Bidding Services for Richland-Chambers Lake and Cedar Creek Lake Pump Stations Electrical Buildings and Equipment**

FUNDING: Bond Fund

RECOMMENDATION:

Management recommends approval of a contract **in an amount not-to-exceed $5,947,925** with CDM Smith for engineering design and bidding services for the new Richland-Chambers Lake and Cedar Creek Lake Pump Stations Electrical Buildings and Equipment project.

DISCUSSION:

The Cedar Creek Reservoir and Richland-Chambers Reservoir pump stations are the oldest lake pump stations in the District's water delivery system. Much of the existing electrical infrastructure at both pump stations is near the end of its useful life. As lake pump stations, their continuous operation is critical for providing reliable water supply to the District’s customers. The construction of new electrical buildings and equipment enhance safety and operational flexibility providing the District with added resilience in its eastern water supply system. The project will also include the addition of Variable Frequency Drives (VFDs), which allow for pump speed adjustments, providing greater operational flexibility and potential energy cost savings.

The project includes moving electrical equipment from the humid pump stations to climate-controlled buildings, updating switchgear and other selected electrical equipment, adding modern arc flash protection, and replacing soft starters with Variable Frequency Drives (VFDs) to optimize system operations. Additionally, the project will involve master planning the available space to accommodate the new electrical buildings and future infrastructure. Designs will ensure compatibility with existing motors and electrical substations, and provide reliable cooling for the new electrical buildings. Due to the half century age of equipment at TRWD’s Cedar Creek Lake Pump Station electrical substation, the project also includes replacing two substation primary transformers along with any related modifications.

The scope of work for the project encompasses the design and engineering of the new electrical buildings and associated electrical infrastructure, bid phase services, and construction phase services for equipment that will require early procurement.

The project's total budget is estimated at $5,947,925, covering all engineering services associated with design, bidding, and equipment procurement phases. This initiative is crucial to maintaining the operational integrity and efficiency of the District's water delivery system, improving safety for personnel, ensuring a reliable water supply to customers, and reducing long-term operational and maintenance costs. The proposed improvements align with the District's strategic initiatives for system resilience and operational efficiency.

Request for Statement of Qualifications were solicited per statute (Texas Government Code Chapter 2254), and two submittals were received. The evaluation team determined CDM Smith to be the most qualified vendor to complete this project. The scope and fee that were successfully negotiated with CDM Smith are attached. CDM Smith is not a prime certified diverse business but has subcontracted portions of this contract to certified diverse businesses, resulting in diverse business participation commitment of 15%.

The basic services for this contract are not to exceed $5,689,905. Additional services are not to exceed $258,020, which require written authorization from the District to be performed should the District elect to procure construction for the Richland-Chambers and Cedar Creek Lake Pump Station sites separately.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, P.E.
Infrastructure Engineering Director

List of Submitting Firms

RFSOQ No. 23-155
RC1 and CC1 Electrical Building and Equipment Additions

Due Date and Time:	December 15, 2023 at 02:00 p.m. CT

Name of Firm
CDM Smith
Mbroh Engineering

Exhibit A
Scope of Work and Fee for
Richland Chambers Lake (RC1) and Cedar Creek Lake (CC1) Pump Stations Electrical Buildings and Equipment
Design and Bidding Services

Project Description and Objectives

Tarrant Regional Water District (Owner) intends to improve the safety and reliability of existing raw water pump stations RC1 and CC1 by removing the medium voltage (MV) electrical equipment from the pump rooms and installing new MV electrical equipment in new electrical buildings. RC1 has six pumps driven by 5500hp, 4000V induction motors. The Brazos Electric-owned dedicated substation with two transformers provides power to the exiting 4160V main-tie-main switchgear located in the pump room. The switchgear powers MV soft-starters that operate the pump motors. CC1 has six pumps driven by 3000hp, 4000V induction motors. The TRWD-owned substation with two transformers provides power to the existing 4160V main-tie-main switchgear located in the pump room. The switchgear powers MV soft-starters that operate the pump motors. The objectives of this Project are to:

- construct new electrical buildings for RC1 and CC1 pump stations.
- use TRWD specifications for engineering drawings and contract documents.
- replace the existing medium voltage (MV) equipment and 480V MCC at the RC1 and CC1 pump stations.
- add new MV variable frequency drives (VFDs) for the pumps at RC1 and CC1 pump stations.
- remove existing MV switchgear, soft starts, capacitors and harmonic filters.
- replace the substation transformers at CC1 with larger units to accommodate future upsizing of the pumps.
- environmentally control new electrical buildings.
- locate new electrical buildings near the pump stations.
- procure the VFDs directly from the VFD manufacturers. For consistency and compatibility reasons, the new VFDs are expected to be provided by either Rockwell Automation or Siemens.
- Add a standby diesel 480V generator at each pump station for the safety and controls equipment.
    - Evaluate the suitability of the existing generator at CC1 and if appropriate reuse the generator.

The power study (short circuit, coordination) will be completed by HV Engineering, LLC that is under contract with the Owner. CDM Smith will coordinate with HV Engineering and share necessary documents (design, shop drawings) to HV Engineering.

To assist the Owner in the execution of the Project, CDM Smith Inc. (Engineer) will provide professional engineering services for the design and procurement phase as described below. Construction phase administration professional engineering services and application engineering services will be covered under subsequent amendment. Engineer will use Gupta & Associates Inc. (GAI) as subconsultant for lead electrical and instrumentation & controls engineer for CC1. Engineer will use Jaster Quintanilla (JQ) as subconsultant for lead structural engineer for the CC1 substation transformer foundation design.

Engineer will perform all other discipline design related to CC1 including project and design management. Engineer will perform all design for RC1 site.

The basic services (Tasks 1-6) assume that the design for RC1 and CC1 will be executed as one design and competitive sealed proposal (CSP) package. Additional service Task 7 includes scope and effort to prepare separate design and CSP packages for each pump station if the Owner chooses to proceed with two separate construction contracts.

Scope of Work

Engineer will complete the following basic scope of work tasks 1-6 related to the Project:

- Task 1 – Project Management
- Task 2 – Preliminary Investigations
- Task 3 – Preliminary Design
- Task 4 – Final Design
- Task 5 – Procurement
- Task 6 – Construction Administration for Pre-Purchased Electrical Equipment

In addition, Engineer will provide Additional Services as outlined in Tasks 7 upon request and written authorization by the Owner:

- Task 7 – Separate Procurement Packages

The scope of work of these seven tasks is as follows:

Task 1 Project Management

Under Task 1, the Engineer will provide management of the execution of the scope of work, including:

- Conduct project kickoff meeting with Owner and any stakeholders requested by the Owner to discuss project objectives, scope of work, communications, information needs, and schedule. The project kickoff meeting will also include the Engineer's Project Quality Management (PQM) process to identify project stakeholders' critical success factors and identify processes/activities/tasks (with responsible persons identified) to achieve the desired successes. It is expected that this meeting will last up to four hours and in person at Owner's Fort Worth office. Project Manager (PM) and discipline lead engineers will attend. Engineer will prepare an agenda prior to the meeting for Owner preview and will prepare and distribute meeting summary minutes.
- Conduct monthly progress meetings with Owner stakeholders to update the project progress and discuss potential challenges or needs on the project. Monthly progress meetings will be conducted virtually via Microsoft Teams. PM and as needed discipline lead engineers will attend the progress meetings. Engineer will prepare agenda and draft and final meeting notes and will create and maintain and action items/decisions log until a construction contract has been awarded.
- Conduct bi-weekly check-in meetings with Owner PM for the duration of the design. Meetings will be 30-min and held virtually via Microsoft Teams. PM will attend the meetings.

- Maintain communication between Engineer's and Owner's project managers.
- Implement quality assurance and quality control standards of the Engineer.
- Establish and update a project schedule as the work progresses.
- Provide Owner with monthly status reports of project progress, expenditures to date, and cost-to-budget information.
- Provide monthly progress invoices based on work completed to date and project phase and include a cash flow report, and a high-level schedule update. Owner will be notified of new team members or individuals who are charging time to the project and were not part of the project team.
- Advise Owner at monthly status meetings and as needed when the established project expectations cannot be met or when the engineering fee or construction cost will increase because of a change directive from the Owner on the scope of the desired improvements.

Task 1 Work Products

- Monthly meeting Agendas and draft and final Monthly meeting Notes (Microsoft Word and .pdf format)
- Action Item/Decisions Log (Microsoft Excel and .pdf format) maintained until construction contract has been awarded.
- Monthly Status Report and Invoices (.pdf)

Task 2 Preliminary Investigations

To provide additional information required for design of the Project, Engineer will complete the following preliminary investigation subtasks.

Subtask 2.1 Data collection

Engineer will review all available record documents from the original design of the pump stations and subsequent medium voltage electrical modifications, CC1 substation, repair or testing reports for the pump motors, and previous data and studies from JRC1, RC1 Hypochlorite Facility, and other studies provided by TRWD. Engineer's team will conduct site visits to validate the record data and collect information needed for design.

Subtask 2.2 Topographic Survey

Engineer will provide topographic survey at RC1 and CC1 to locate and document visible and apparent information pertinent to the design and construction of improvements. Survey services will include:

- Main project area cross sections and/or mapping will be collected generally at 50' intervals and at all breaks in grade producing 1' interval contours for grading swaths.
    - Mapping will include the footprints of all existing structures.
    - Mapping is included to the edge of water at time of survey and does not include mapping on the intake structure or bridges nor does it include floating the lakes for bathymetric mapping.
- All trees will be tagged in the field. Tag IDs, common name and approximate trunk size (diameter) will be noted on the survey.

- Local municipal geodetic control, if available, otherwise the Alterra-VRS GPS system will be used to establish horizontal and vertical control.
- Survey coordinates will be provided in a project modified State Plane "surface" position.
- Mapping scale for topographic mapping will not exceed 40 scale on 24x36 sheets.

Subtask 2.2 Assumptions and Exclusions

- Services not included are arborist or licensed landscape architect to provide tree size and scientific name; construction staking; or right of entry services.
- Surveyor will utilize existing RC1 survey and boundary data to locate existing utilities, ground elevations, and easement location.

Subtask 2.2 Work Products

- Topographic survey (.pdf format and File Geodatabase)

Subtask 2.3 Subsurface Utility Engineering (SUE)

SUE Quality Level B (QL "B) and QL "A" will be provided to obtain location information regarding existing subsurface features locations within the area of impacts to the proposed improvements. Up to 9 Quality Level (QL) "A" test holes at RC1 and up to 6 test holes at CC1 using hydrovac equipment to confirm horizontal and vertical location of existing subsurface features that cross proposed electrical building sites. To the extent possible, the test hole will be performed as close as possible to the anticipated crossing location. The test hole will be coordinated with the applicable utility company and required permission or permits will be acquired. The location and results of the test holes will be surveyed and incorporated into the Project's base AutoCAD file and relevant information will be reflected in the plan sheets and specifications. A summary report of the SUE findings will be signed and sealed by a licenses professional engineer in the State of Texas. The report will include site photographs, ground elevation and depth to opt of utility, elevation, horizontal location coordinates and material type of existing utility.

Subtask 2.3 Work Products

- Draft and Final SUE Report (Microsoft Word and.pdf format)
- Electronic files for utilities (File Geodatabase)

Subtask 2.4 Geotechnical Investigations and Report

Engineer will perform a geotechnical subsurface investigation for the new electrical improvements at the RC1 and CC1 pump stations to evaluate existing subsurface conditions. A total of up to 2 soil borings are anticipated at the RC1 site and up to 3 borings are anticipated at the CC1 site (5 borings total) once the final site layout has been determined (i.e. structure location at each site has been selected). Soil cuttings are anticipated to be used to backfill the boreholes with the excess cuttings spread at the surface. Geotechnical laboratory testing on selected samples will be performed, including index, strength and compressibility testing (as applicable). Geotechnical foundation design recommendations for the electrical improvements at each site will be developed; these are anticipated to include deep foundations. A single geotechnical report will be developed for both CC1 and RC1 project sites that includes a summary of the subsurface investigation programs, the geotechnical boring logs, laboratory test results and foundation design recommendations. A draft geotechnical report will be developed as part of Preliminary Design and updated and finalized as part of Final Design.

Subtask 2.4 Assumptions and Exclusions

- Owner will provide all site access to Engineer and that the site can be traversed by a truck-mounted drill rig.
- No tree/vegetation clearing is required. and surface disturbance (e.g. rutting) should be anticipated.
- Owner staff will field locate onsite utilities as One-Call is not anticipated to access the secured facilities.

Subtask 2.4 Work Products

- Preliminary and Final Geotechnical Report (Microsoft Word and .pdf format)
- Bore log locations and attributes (File Geodatabase)

Task 3 Preliminary Design

Engineer will provide the following services for the preliminary design of the Project:

Subtask 3.1 Master Planning for RC1

Engineer will conduct a site visit and assist with master planning of the available space to accommodate project buildings and future infrastructure. Coordination activities with Owner stakeholders and other Engineers designing projects on same site.

Subtask 3.1 Work Products

- Draft and Final Site Visit Meeting Notes

Subtask 3.2 Preliminary Evaluations and Technical Memoranda (TM)

Engineer will evaluate options and prepare TMs documenting options and recommendations for the following preliminary design alternates and conceptual planning evaluations. Up to 4 review workshops will be held to review and discuss TM findings, conclusions, and recommendations.

Electrical Distribution Configuration

Engineer will compare viable options and provide recommendations for the MV distribution system including MV switchgear configuration and options to minimize exposure to arc flash hazards. Consistency with the JB3 and JCC1 MV electrical system and options will be considered. Preliminary one-line diagrams will be prepared.

Owner has standardized the suppliers for the MV VFDs: Rockwell Automation and Siemens. Engineer will schedule a presentation by both manufactures to present a viable product for the existing pumps and motors. Only air-cooled VFDs will be considered. Recommended VFD features and options will be included in the TM. Engineer will conduct a workshop and power point presentation to discuss the evaluation and recommendations from the TM.

New Electrical Building Requirements and Features

Engineer will evaluate and compile general structural, architectural, building mechanical, electrical and instrumentation/control room requirements for the new electrical building. Engineer will develop and present three options for architectural appearance (with renderings), cooling equipment, and RC1

control room layout. Engineer will work with Owner understand its preferences and expectations for the control room in the new RC1 electrical building. Engineer will work with Owner to determine PLC design approach (one main PLC or PLCs for each VFD) and evaluate options to relocate existing SCADA equipment or provide new SCADA equipment.

Construction Sequencing

Engineer will conduct an initial workshop with Owner operations and infrastructure & water resources engineering staff to obtain input related to required minimum pumping capacity during construction and any additional seasonal and operations limitations. Engineer will use the information obtained during workshop to prepare a TM that will describe construction sequencing, identify major construction activities and milestones, and define anticipated outages and durations. Engineer will present the TM to Owner's stakeholders in a workshop. The TM will serve as a basis for preparation of construction sequencing specification and construction phasing drawings. A preliminary construction schedule will be included.

Compatibility of Existing Motors with VFDs

Engineer will review the existing motor information (repair and test reports and O&M documentation) to determine compatibility of the existing motors with the VFDs. Currently the motors are operated by soft-starters and are not necessarily designed and built as inverter-duty rated motors. Information related to motor insulation will be reviewed with the motor manufacturer and motor shop to determine if any upgrades to the existing motors are required. VFD manufacturers will be consulted, and the VFD power output technical information will be obtained to compare with the motor insulation limitations. TM will document findings and will include recommendations and costs for needed upgrades.

Transformer Replacement Requirements at CC1

Engineer will prepare a TM to include sizing calculations for the CC1 substation transformers to accommodate future pump station upgrades. Preliminary transformer requirements, viable manufacturer list, relevant options, features and preliminary footprint and cost will be included in the TM. Results of any preliminary coordination with Oncor will be included.

Subtask 3.2 Assumptions and Exclusions

- Owner will provide consolidated review comments within 15 business days after each TM and report deliverables. Engineer will provide responses to comments and will incorporate the comments as applicable.
- PM and relative discipline leads will attend workshops.

Subtask 3.2 Work Products:

- Draft and Final Electrical Distribution TM (.pdf format) and presentation (.PPT format)
- Draft and Final New Electrical Building Requirements and Features TM (.pdf format) and presentation (.PPT format)
- Draft and Final Construction Sequencing TM (.pdf format) and presentation (.PPT format)
- Draft and Final Compatibility of existing motors with VFDs TM (.pdf format) and presentation (.PPT format)
- Draft and Final Transformer replacement requirements TM (.pdf format) and presentation (.PPT format)

- Meeting Agendas and Draft and Final Notes

Subtask 3.3 PowerPoint (PPT) Presentations

Engineer will prepare PPT presentations to present recommendations at workshops for the following preliminary design alternates and conceptual level planning evaluations. Review workshops will be combined with preliminary evaluations and TM workshops to minimize number of workshops.

Electrical Equipment Layout and Space Requirements

Engineer will present up to two options for the electrical equipment layout and electrical building space requirements. Building layout options will be prepared with Revit software. Pros and cons for each option will be discussed and documented.

New Electrical Building Location

Engineer will present up to two possible locations for the new electrical building at each pump station. Available site space, accessibility, conflict with underground utilities, proximity to the pump stations and substations, constructability and cost will be evaluated. Utilities required to be relocated will be identified.

Equipment Procurement Method

Engineer will evaluate lead times for the major equipment and recommend what equipment would be appropriate to procure. Based on the past experience, it is expected that MV switchgears, VFDs and substation transformers may need to be owner-furnished to maintain the schedule included in the proposal.

Subtask 3.3 Work Products:

- Electrical equipment layout and space requirements presentation (.PPT format)
- New electrical building location presentation (.PPT format)
- Procurement method presentation (.PPT format)
- Meeting Agendas and Draft and Final Notes

Subtask 3.4 Preliminary Engineering Report (PER)

Engineer will prepare a PER to summarize, and document above listed evaluations, findings and decisions made during preliminary design. The report will list anticipated specification sections and drawings for the final design.

Engineer will upload PER submittal to Bluebeam Studio for review and comment by Owner during the Progress Review Meetings. One review workshop will be conducted to receive the PER review comments from Owner stakeholders.

Subtask 3.4 Assumptions and Exclusions

Owner will provide a complete consolidated list of all review comments 15 business days after the PER review meeting. Engineer will provide responses withing 10 business days after receiving comments and incorporate comments as applicable. Review meetings will be held in person at the Owner's Fort Worth office and is expected to be no more than 2 hours long. PM and discipline lead engineers will attend the meeting. Engineer will prepare an agenda and meeting notes. *Subtask 3.4*

Subtask 3.4 Work Products:

- Draft and Final Preliminary Engineering Report (.pdf format)
- Meeting Agendas and Draft and Final Meeting Notes (.pdf format)

Subtask 3.5 Conceptual Opinion of Probable Construction Cost (OPCC)

Engineer will prepare an OPCC for the conceptual design. The conceptual OPCC will be a Class 4 estimate, per AACE International Recommended Practice No. 18R-97, with appropriate contingencies based on design progress completion.

Subtask 3.5 Work Products:

- Conceptual OPCC Summary (.pdf format)

Subtask 3.6 Stakeholder Coordination Meetings

The following meetings will be conducted with various stakeholders during preliminary design.

- Design team will coordinate the security and access provisions to be included in the design with the Owner security group. One meeting with local jurisdiction authorities will be scheduled to discuss building code and fire protection requirements at both pump stations. PM, architect, building mechanical, and electrical lead engineers will attend the meeting.
- Assist preparing for Owner Board presentation if needed to present the building architectural features. PM and architect will attend the presentation.
- A presentation by vendors will be facilitated for VFDs and substation transformers. PM and electrical lead engineers will attend the presentations.
- One coordination meeting will be conducted with Owner's consultants for power studies. PM and electrical lead engineer will attend the meeting.
- Four coordination meetings with electric utility companies (one for each site) to coordinate the pump station improvements. PM and electrical lead engineer will attend the meetings.

Subtask 3.6 Assumptions and Exclusions

- Each coordination meetings will be held in person at the Owner's Fort Worth office and is expected to be no more than 1 hour long. PM and specific discipline lead engineers will attend the meetings. Engineer will prepare an agenda and meeting notes.

Subtask 3.6 Work Products

- Meeting Agendas and Meeting Draft and Final Notes (.pdf format)

Task 4 Final Design

Subtask 4.1 Basis of Design Report (BODR)

Engineer will develop basis of design report (BODR) to include the principles, assumptions, criteria and considerations used for calculations and decisions required during design. The BODR will describe the technical approach planned for the project, basis of design calculations and other design decisions. The BODR will include sections that covers the following topics and discipline scope: applicable codes and standards, architectural, structural, civil/site/utilities, electrical, instrumentation and controls, HVAC, fire

protection/alarm, substation transformer, construction sequencing, and OPCC. The BODR will be developed prior to 60% design. It will be updated at 90% and 100% design level of completion and will document design changes made since previous submittal.

Subtask 4.1 Work Products:

- Draft and Final BODR at 60%, 90%, 100% design milestones (Microsoft Word and .pdf format)

Subtask 4.2 Equipment Procurement Contract Documents

Engineer will develop procurement specifications and drawings for the new electrical equipment. The specification manual will include electrical equipment technical specification and tailored general requirements of the contract (Division 01). The drawing set will include power and controls diagrams and electrical room plans.

Three separate procurement packages are expected: MV switchgears for both sites, MV VFDs for both sites, CC1 substation transformers. Engineer will prepare a draft deliverable including drawings and specifications in PDF format. A review meeting will be scheduled to discuss Owner's review comments. Engineer will provide a response to comments and will incorporate the comments and issue a final signed and sealed set of drawings and specifications in PDF format.

Subtask 4.2 Assumptions and Exclusions

- Owner will prepare Division 00 specifications.
- Owner will provide consolidated review comments within 10 business days after deliverable. Engineer will provide responses to comments and incorporate comments as applicable.

Subtask 4.2 Work Products:

- Draft equipment procurement Contract Documents (.pdf format)
- Final equipment procurement Contract Documents (.pdf format)

Subtask 4.3 Construction Contract Documents

Engineer will prepare Construction Contract Documents (plans and technical specifications) for use in Owner's procurement and construction of the Project. Drawings and specifications will depict required construction work for the following design discipline areas:

- General (general site locations and notes)
- Civil/Site (grading, physical site security/fencing, paving, drainage, utilities)
- Geotechnical/Foundation
- Architectural
- Structural
- Building Mechanical (HVAC and Plumbing)
- Electrical
- Instrumentation

Progress Review Submittals

Engineer will provide progress submittals at the approximate 60% and 90% design progression points for Owner's review and confirmation of project intent. Engineer will upload Progress Review Submittals to Bluebeam Studio for review and comment by Owner during the Progress Review Meetings.

For 60% design submittals, the approximate percent complete by discipline is assumed as follows:

- General (general site locations and notes) 80%
- Civil/Site (grading, physical site security/fencing, paving, drainage, utilities) 75%
- Geotechnical/Foundation 90%
- Architectural 60%
- Structural 60%
- Building Mechanical (HVAC and Plumbing) 50%
- Electrical 40%
- Instrumentation 70%
- Technical Specifications 50%

For 90% design submittals, the approximate percent complete by discipline is assumed as follows:

- General (general site locations and notes) 90%
- Civil/Site (grading, physical site security/fencing, paving, drainage) 90%
- Geotechnical/Foundation 90%
- Architectural 85%
- Structural 85%
- Building Mechanical (HVAC and Plumbing) 50%
- Electrical 85%
- Instrumentation 95%
- Technical Specifications 90%

Opinion of Probable Construction Cost (OPCC) Estimates

Engineer will prepare updated OPCC at the 60%, and 90% design progress milestones. Engineer will update the conceptual OPCC estimate to reflect changes/additions/deletions to project made between conceptual and 60%. The 60% completion cost opinion will be a Class 3 AACE estimate, with appropriate contingencies based on design progress completion.

Engineer will update the 60% OPCC estimate to reflect changes/additions/deletions to project made between the 60% and 90%. The 90% completion cost opinion will be a Class 2 AACE estimate, with appropriate contingencies based on design progress completion.

The final OPCC will be a Class 1 AACE estimate.

Progress Review Meetings

Review meetings for each design deliverable: equipment procurement, BODR, and 60% and 90% designs to receive the review comments from Owner's stakeholders. Additionally, a "page turn" conference call will be scheduled 5 business days after each design deliverable is submitted for Owner's review to elaborate on the deliverable content and receive preliminary review comments. Owner will provide a complete consolidated list of all review comments 15 business days after the page turn conference call in Bluebeam Studio. Engineer will provide responses within 10 business days after receiving comments. Review and page turn meetings for equipment procurement, BODR, and 60% design will be held in person at the Owner's Fort Worth office. PM and discipline lead engineers will attend the meetings. Review and page turn meeting for 90% design will be virtual via MS Teams. Engineer will prepare agenda and meeting summaries for each review meeting. Bluebeam studio will be used for Progress Review

Meetings to conduct page turns and collect Owner comments and document Engineer Responses. A final comment response log, approved by the Owner PM, will be submitted by the Engineer as part of the 90% and Final (ready for bid) submittals.

Final Submittals

Final will provide electronic version (PDF) of final BODR and final (ready for bid) Contract Documents sets (drawings and Project Specifications Manual) containing bid requirements, agreement forms, contract general and special conditions, and technical specifications. Engineer assumes that the contract provisions ("front end") would be Owner's standard and provided in electronic format for use in development of the Project Manual and do not require extensive edits from the Engineer.

TDLR Coordination

Engineer will identify accessibility design requirements for conformance with Architectural Barriers of the 2012 Texas Accessibility Standards (TAS) as applicable to the Project's facilities' classifications. As the Project will be an unmanned facility, inclusive of only equipment and machinery spaces. It is assumed that the facility will be classified as exempt from provision of accessibility requirements.
For verification of this exemption, the Engineer will obtain the services of an independent Registered Accessibility Specialist (RAS) and submit 100% plans to the RAS for review to confirm TAS Compliance. Upon receipt of comments, Engineer will make necessary changes to the contract documents for compliance. RAS will also provide follow-up review following construction for verification and Project close out with Texas Department of Licensing and Regulation (TDLR).

Subtask 4.3 Assumptions and Exclusions:

- Electrical buildings are assumed to be pile supported due to the buried conduits and piping on the existing site.
- No landscaping, irrigation or architectural fencing will be designed.
- No added site utilities (potable or non-potable water service, sanitary sewers, gas service lines) are anticipated or included.
- Environmental assessments and site remediation are not included.
- Owner will provide as-built plan files of the existing pump stations.
- Design will be done using Revit (building plans) and AutoCAD (diagrams and schedules) software.
- The electrical buildings will have a separate controls room.
- The electrical building will not have a restroom or plumbing provisions.
- Reconfigure fiber optic system for both sites as defined below by Owner.
    - CC1 – run new FO cable from Electrical Building to CC1 PS and PS gate. Run new FO from PS gate to chemical gate and CC1 microwave.
    - RC1 – run new FO cable from RC1 PS to Electrical Building. Run new FO from Electrical Building to RC1 microwave.
- Owner will prepare Division 00 specifications. Owner standard technical specifications will be used. Where Owner standard specifications are not available, Engineer standard specifications will be used.
- Hazardous materials do not exist at the new project sites. Chlorine gas is located at RC1.
- Three-dimensional laser scanning of the existing pump stations is not included.
- Owner SharePoint site will be used for document control during design phase.

- COMcheck compliance is not included.

Subtask 4.3 Deliverables:

- 60%, 90%, 100% Drawings and Specifications (.pdf format)
- Revit and AutoCAD files at the 100%

Subtask 4.3 Work Products:

- OPCC Summarization (60%, 90%, 100%) (.pdf format)
- TDLR permit application with submission letter from RAS (.pdf format)
- Progress Review Meeting Comment Response Logs (.pdf format)

Task 5 Procurement

Engineer will provide the following services to assist the Owner in the advertisement, solicitation, receipt, and evaluation of Competitive Sealed Proposals (CSPs) for the Project.

- Determine evaluation criteria for CPSs.
- Assist the Owner's procurement's distribution of bid documents to prospective bidders via the Owner's electronic procurement system and provide responses to the Owner on questions posed by prospective bidders as related to the technical content of the Bid documents.
- Conduct in conjunction with Owner, a virtual pre-bid meeting for the prospective bidders. Provide a brief overview of the Project's technical details to facilitate the bidder's understanding of the construction.
- Develop technical addenda as necessary during the bid period in response to bidder query. Up to 2 addenda for each equipment procurement package and up to 2 addenda for the building/installation design package are assumed.
- Attend one pre-bid meeting for each equipment procurement and one pre-bid meeting for the construction packages.
- Assist the Owner with evaluating the equipment procurement bids and issue a recommendation.
- Review construction bid proposals against evaluation criteria and assist Owner with scoring and contractor reference checks.
- Assist Owner with the preparation of the letter recommending the procurement and construction contact awards to be submitted to the Owner Board for approval.
- Incorporate addenda items into the Contract Documents and prepare the following number of conformed contract document sets:
    - Three fully executed spec books.
    - Three half size drawing sets.
    - Two full size drawing sets.

Task 5 Assumptions and Exclusions:

- Distribution of all Bidding Documents will be by Owner through its electronic procurement system. No hard copies will be provided to prospective bidders.
- Owner will be responsible for advertising both the Procurement and Installation packages.

Task 5 Work Products:

- Pre-bid meeting notes (.pdf format)
- Contract addenda (.pdf format)
- Summaries of bid tabulation and review (.pdf format)
- Conformed contract documents (electronic .pdf and hard copies per above).

Task 6 Construction Administration for Pre-Purchased Equipment

Engineer will provide the following services during construction phase of the Project related to the pre-purchased electrical equipment only. Construction services for electrical building improvements will be included in subsequent amendment.

- Review equipment vendor-generated submittals required to be submitted by the equipment procurement documents. Up to 45 submittals is assumed for both sites, including 2 resubmittals per submittal.
- Interpret the contract documents pertaining to the technical content of the equipment procurement documents prepared by the Engineer by responding to up to 15 request for information (RFIs) for both sites.
- Review and provide written response to the equipment vendor generated change order requests. Assume up to 2 equipment vendor -generated change order requests per site.

Task 6 Assumptions and Exclusions:

- Owner will implement document control platform for equipment vendor documents (submittals, RFIs, etc).
- Electrical equipment submittal review and potential RFIs and change orders will occur prior to procurement phase of electrical building improvements construction.
- Monthly construction progress meetings and site visits are not included and will be included in subsequent amendment.
- Submittal review for building construction is not included and will be included in subsequent amendment.
- RFI review for building construction is not included and will be included in subsequent amendment.
- Witness of electrical equipment commissioning, and field testing is not included and will be included in subsequent amendment.
- Witness of functional demonstration test (FDT) is not included and will be included in subsequent amendment.
- Factory witness test of pre-purchased electrical equipment is not included and will be included in subsequent amendment.
- Preparation of record drawings are not included and will be included in subsequent amendment.

Task 6 Work Products:

- Submittal review requests from equipment vendor, including shop drawing submittal reviews and responses to the RFIs and change order requests.

Additional Services

Task 7 Separate Procurement Packages (Additional Service)

It is understood that the Owner may elect to procure construction for RC1 and CC1 sites separately. CC1 substation transformer replacement will be included with the CC1 electrical building addition. The design drawings and specifications will be separated at the 100% design milestone. Common 60% and 90% review meetings will be conducted for the detailed design. Engineer will provide services for procurement for two separate construction contracts.

Task 7 Assumptions and Exclusions:

- Both design packages will be procured at approximately same time.

Task 7 Work Products:

- Separate construction contract documents (plans and technical specifications) for RC1 and CC1.
- Additional work products similar as listed in Task 5, for separate procurement and construction contracts for RC1 and CC1 sites.

Fee

Compensation by the Owner to the Engineer for Basic Services described in this Exhibit A shall be on a not-to-exceed basis (the basis of not-to-exceed pricing is detailed in the Agreement).

The total not-to-exceed amount for Basic Services authorized is $5,689,905, with per task breakdown as follows:

Work Task – Basic Services	Cost
Task 1 – Project Management	$$433,266
Task 2 – Preliminary Investigations	$204,800
Task 3 – Preliminary Design Services	$975,356
Task 4 – Final Design Services	$3,528,370
Task 5 – Procurement Phase Services	$331,793
Task 6 – Equipment Procurement Construction Services	$216,320
Total Basic Services	$5,689,905

Compensation by the Owner to the Engineer for Additional Services described in this Exhibit A to the Agreement shall be on a not-to-exceed basis (the basis of not-to-exceed pricing is detailed in the Agreement).

Total not-to-exceed amount for Additional Services is $258,020, with per task breakdown as follows:

Work Task – Additional Services	Cost
Task 7 – Separate Design/Bid/Construction Packages	$258,020

Total not-to-exceed amount for Basic and Additional Services is $5,947,925 per the breakdown as follows:

Work Task	Cost
Basic Services	$5,689,905
Additional Services	$258,020
Total Not-To-Exceed Amount	$5,947,925

Supporting information for Overall, Labor, Subconsultants, and other Direct Costs on the attached EXHIBIT B – RC1 CC1 Elec Bldgs & Equipment ClientWBS_FINAL.pdf and EXHIBIT D - Subconsultant Proposal.pdf files.

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 11

DATE: June 18, 2024

SUBJECT: **Consider Approval of Task Order Contract with Azcarate & Associates Consulting Engineers, LLC for Engineering Services for Benbrook Lake Pump Station Electrical Room Cooling Improvements**

FUNDING: Bond Fund

RECOMMENDATION:

Management recommends approval of a task order contract **in an amount not-to-exceed $285,600** with Azcarate & Associates Consulting Engineers, LLC (AACE) for engineering services for the BB1 Electrical Cooling Improvement project. These engineering services include design, bid and construction services.

DISCUSSION:

The Benbrook Lake Pump Station is a critical component of the District's water delivery system. The existing cooling infrastructure for the pump station's electrical room and server room has experienced issues since 2011. In 2022 and 2023, the lake water-cooled air conditioning units suffered compressor failures during periods of critical customer demand. The existing cooling units are old, resulting in limited parts availability and higher maintenance costs. In addition, the reliance of the existing cooling system on lake water for heat exchange leads to biofouling of system components during summer operation requiring extensive ongoing maintenance to keep functional. Due to its age, the cooling system is near the end of its useful life.

In August of 2023, the District issued a task order with AACE to develop a comprehensive plan to transition from the outdated water-cooled air conditioning systems to more reliable air-cooled, direct expansion (DX) split systems. This project involves the installation of new air-cooled DX split systems to replace the older water-cooled units, reconfiguration of ductwork to enhance air recirculation, and installation of cooling redundancy to ensure continuous operation. Additionally, a dedicated air-cooled DX split system will be installed for the server room, replacing the existing shared unit to provide independent and reliable cooling. The project will involve the demolition of existing air-handling units and associated lake water piping, installation of new systems, integration with the District's SCADA remote control and monitoring systems, and structural upgrades to support new exterior platforms for air conditioning condensing units. Electrical modifications will be made to accommodate the new electrical room cooling systems.

The scope of work for this project includes detailed design, bid, and construction phase services, which encompass mechanical, electrical, and structural engineering.

The benefits of this project are multifaceted. These improvements will enhance cooling efficiency and reliability for the Lake Benbrook Pump Station electrical and server rooms, reduce dependency on lake water, and lower long-term maintenance costs. They align with the District's goals for system resilience and operational efficiency.

Request for Statement of Qualifications was solicited per Texas Government Code Chapter 2254 and three submittals were received for Mechanical Engineering Services HVAC Support on an as needed basis. The evaluation team determined the most qualified vendor to complete the project is AACE. The scope and fee related to this Task Order was successfully negotiated with AACE and is attached.

AACE as a prime, certified diverse business has subcontracted portions of this contact to certified diverse business(es), resulting in diverse business participation commitment of 25%.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, P.E.
Infrastructure Engineering Director

2024-May-30

Mr. Rick Zarate
Engineering Services/Project Manager
Tarrant Regional Water District
800 East Northside Drive
Fort Worth, Texas 76102

RE: **AACE Scope and Cost Proposal for**
Professional Engineering Services for the
Mechanical IDIQ Task Order #8 – Benbrook Lake Pump Station (BB1) Electrical Room Cooling Improvements (PROJECT)
in Benbrook, TX for
Tarrant Regional Water District (TRWD)

Dear Mr. Zarate:

AACE is pleased to submit its Scope and Cost Proposal for providing Professional Engineering Services for IDIQ Task Order #8 - Benbrook Lake Pump Station (BB1) Electrical Room Cooling Improvements (PROJECT) in Benbrook, TX for the Tarrant Regional Water District (TRWD), the Owner. AACE's role for the PROJECT shall be as the Prime Consultant to TRWD, The Owner. Attached please find our proposed Basic Services Scope, Additional Services, Compensation Fee, and Schedule.

I. PROJECT Background Information

A. TRWD selected AACE in 2018 to provide Mechanical-HVAC services on an on-call, Indefinite Delivery Indefinite Quantity (IDIQ) contract basis. This proposal is for Task Order #8 of the Mechanical-HVAC IDIQ assignment. Task Orders #1 through #7 were completed under a previous assignment.

B. On May 29, 2014, AACE prepared a proposal for the CC2, CC3, RC3L, and BB1 Cooling Improvements Project, which included preparing a Technical Memorandum (TM) for filtration of the raw lake water used by the air-conditioning units serving the electrical room and pump room air handling units at the Benbrook Lake Pump Station (BB1) due to water quality problems (e.g. debris, erosion, clogging, and the potential for future Zebra Mussels) with the lake water.

C. In April 2017, AACE developed Issue for Bid documents. The TM recommendations were implemented in the detail design phase of the project, but the project was put on hold and never built while TRWD investigated adding copper ions to the raw lake water pipeline for zebra mussel control. The documents included modifications of the existing ductwork at the existing air-handling units serving the electrical room into a recirculation air duct configuration to improve electrical room temperature conditions since the existing ductwork is a single pass-thru duct configuration drawing warm, humid air from the lower pump room and discharging the air in the upper pump room. This work was never built.

D. On September 29, 2017, AACE issued a brief, 3-page memo with a high-level alternatives evaluation of four cooling alternatives. This work never proceeded into detailed design.

E. In 2022, AACE received follow-up emails and phone calls discussing the BB1 cooling alternatives. In 2023, TRWD started BB1 and one of the cooling units serving the electrical room failed to operate resulting in

elevated room temperatures. TRWD used the services of its HVAC maintenance contractor to provide portable cooling units and reconfigure the ductwork into a recirculation air duct configuration using temporary ductwork to allow TRWD to operate BB1.

F. AACE visited BB1 on August 3, 2023, with TRWD to survey existing conditions.

G. On September 29, 2023. TRWD tasked AACE, under Task Order #7, with the development of Technical Memorandum (TM#1) to evaluate multiple options for cooling the pump station electrical room that did not rely on lake water. TM#1 also included evaluating options for cooling the server room. TM#1 was completed on April 2, 2024, and included the final recommendation to provide air-cooled DX refrigerant split systems for the electrical room, eliminating the existing lake water-cooled air-conditioning equipment and reconfiguring to eliminate the existing single pass thru air duct configuration. TM#1 also included the recommendation of installing an independent air-cooled DX split system for the server and removing the existing unit shared with the electrical room.

H. AACE's scope for this phase of the PROJECT in Task Order #8 includes **detailed design, bid and construction phase services** consisting of the required Mechanical, Electrical and Structural services to implement the TM#1 recommendations at BB1.

I. The Project procurement method shall be Competitively Sealed Proposals (CSP).

II. BASIC PROFESSIONAL ENGINEERING SERVICES SCOPE includes:

A. General

1) AACE will utilize JQ Infrastructure, LLC (JQI) as its Structural Subconsultant. JQI's key personnel shall be Mr. Chris Story, P.E – Principal and Jesus Guerra, PE. JQI's project proposal is attached as Exhibit A.
2) AACE will utilize HV Engineering, LLC (HVE) as its Electrical Subconsultant. HVE's key personnel shall be Doug Durand, P.E. HVE's project proposal is attached as Exhibit B.
3) The proposed key personnel for AACE shall include Ricardo J. Azcarate, who will serve as the AACE Client Manager and Mr. Tim Gallia, AACE Technical Project Manager. As AACE Client Manager, Mr. Azcarate will be the main point of contact for AACE, including matters related to AACE's overall services, contract signing and overall customer satisfaction. As AACE Technical Project Manager, Mr. Gallia will be the day-to-day point of contact for AACE's Project Team, including matters related to scheduling, technical issues, detail design, and deliverables, and lead the various technical disciplines and AACE support staff towards the execution and completion of the PROJECT.
4) AACE will notify TRWD in writing of any changes to key personnel assigned to this PROJECT by AACE or their subconsultants.
5) Coordinate work of all subconsultants' work in AACE's Project Team.
6) Monthly Progress Reports: Prepare and submit monthly progress reports to include summary of tasks completed, summary of planned activities for the next 60 days, budget status, earned value projections, and list of items requiring resolution or decisions by TRWD.

B. Technical Memorandum Phase:

1) Not in current scope. Completed in prior scope.

C. Detail Design Phase:

1) Start and complete the Engineering Drawings and Specifications (herein after referred to as Contract Documents) up to the 100% design level showing the necessary information for construction of the TM#1 recommendations and the following additional basis of design:

Basis of Detail Design

1. *Develop demolition drawings showing the demolition of the existing Air Handling Units and associated lake water piping, associated electrical, and controls.*
2. *HVAC Controls - shall be performance-based Contract Documents with schematic airflow controls diagrams and control narratives. AACE shall coordinate HVAC Control, monitoring, and alarming with TRWD's protocol and interface with TRWD's SCADA programmers.*

2) Contract drawings shall be in AutoCAD format.
3) Since PROJECT will be using a TRWD Pre-Selected Contractor, notes on drawings shall be used in lieu of detailed book specifications. Where book specifications are required, specifications shall be based on the latest TRWD Standard Specifications (50 Divisions). If a book specification is required that does not exist in TRWD's Standard Specification library, AACE, or its subconsultants, will utilize book specifications from their respective specification libraries.
4) Attend the Project Kickoff Meeting virtually via MS Teams.
5) Produce work in accordance with the most current building codes adopted in the PROJECT area.
6) Site visits to the PROJECT site as required to collect the necessary information so AACE's Project Team can complete its design work scope.
7) Participate in bi-weekly internal coordination meetings via telephone conference calls as required.
8) Issue the Contract Documents to TRWD for review and comment at the 60% and 100% Design Submittal Milestones. Electronic delivery to TRWD of the interim review sets of the Contract Documents shall be 11x17 size Drawings in PDF format and specifications (8-1/2 x 11) in PDF format.
9) Internal QAQC by an experienced/senior Engineer of the Contract Documents at each Project milestone indicated above.
10) AACE will review each subconsultant's Contract Documents prior to submittal to TRWD and confirm QAQC has been completed in accordance with each firm's quality management practices.
11) Participate in one Design Review Meeting with TRWD and CONTRACTOR at PROJECT site to review and exchange comments for the 60% submittal. Prior to the meeting, AACE will issue the 60% design submittal in Bluebeam review session for TRWD and CONTRACTOR review, and any comments generated at the review meeting will be incorporated into the Bluebeam review session.
12) Participate in one informal Design Review Meeting with TRWD, virtually, to review and incorporate any final comments from the 100% submittal prior to issuing to bid.
13) There will be no monthly project progress meetings with TRWD except for the two review meetings indicated above.
14) Preparation of a Project Schedule for review and approval by TRWD to include each Design Submittal Milestone indicated above, submittal and review timelines, QAQC review time and key project meetings through Contractor Pricing and Project Award. The Project Schedule will include preliminary construction phase milestones which The Contractor will validate.
15) Provide one (1) Final 'Issued for Bid' set of Contract Documents. Issued for Bid submittal shall consist of one (1) set of electronic, signed, and sealed, full-size Drawings and (1) set of Specifications, both in PDF format.
16) Prepare, and submit to TRWD, AACE's Opinion of Probable Construction Cost for the PROJECT scope at each project milestone listed above.

Detail Design Phase Deliverables

1. *Meeting Minutes for each progress review meeting.*
2. *Action Item Log updated at each progress review meeting.*
3. *Project Schedule.*
4. *Comment Review Spreadsheet, or similar, for each design milestone.*
5. *Contract Documents (Drawings and Specifications)*
6. *Opinion of Probable Construction Cost (OPCC)*

Anticipated Detail Design Phase Schedule

- *June 2024 – August 2024 (3 months)*

Preliminary AACE Drawing List

1. *Cover Sheet with Drawing Index*
2. *Symbols, Legends & Abbreviations*
3. *Overall Site Plan*
4. *HVAC Demolition – Pump Level Plan*
5. *HVAC Demolition – Electrical Roof Level Plan*
6. *HVAC Demolition – Roof Level Plan*
7. *HVAC Lower Level Plan*
8. *HVAC Pump Level Plan*
9. *HVAC Electrical Level Plan*
10. *HVAC Electrical Roof Level Plan*
11. *HVAC Roof Level Plan*
12. *HVAC Sections*
13. *HVAC Details*
14. *HVAC Schematics, Sequences of Operation, and Points Lists*

- *Refer to each subconsultant's proposals (attached) for each subconsultant's respective sheet lists*

D. Bid Phase:

1) At TRWD's option, issue a Pre-Purchase Package for the HVAC equipment serving the electrical VFD room.
2) Attend Pre-Bid Meeting at PROJECT site. One Pre-Bid meeting is anticipated.
3) Issue Addenda information, including drawings, drawing exhibits and specifications, as necessary.
4) Issue necessary interpretations and clarifications of the Contract Documents related to AACE's work.
5) Assist TRWD with review of Contractor bids, as needed.
6) Provide recommendation letter of apparent most qualified contractor that provides the best value for TRWD.
7) Provide TRWD one electronic set of signed and sealed 'Conformed' Issued for Construction Contract Documents at the conclusion of the bid phase, incorporating all Clarifications and Addendums issued during the Bidding period.

Bid Phase Deliverables

1. *Pre-Purchase Package (optional)*
2. *Addenda information*
3. *Conformed Drawings*
4. *Conformed Specifications*
5. *Recommendation Letter*

Anticipated Bid Phase Schedule

- *September 2024 – November 2024 (3 months)*

E. Construction Phase:

1) Participate in (1) Preconstruction Conference Meeting at PROJECT site.
2) Provide general assistance and technical review construction support services to TRWD and CONTRACTOR.
3) AACE shall issue interpretations and clarifications, as necessary, of AACE's Contract Documents.

4) Review and answer Contractor and TRWD questions, issue clarifications and respond to Requests For Information (RFI) related to AACE's Contract Documents through TRWD's Project Management Information System selected for the PROJECT.
5) Review and approve (or take other appropriate action in respect of) Shop Drawings, samples, and other data which Contractor is required to submit, but only for general conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Review comments by AACE shall be electronically submitted to TRWD. Review of shop drawings shall be limited to a maximum of (2) reviews per Submittal. Reviews in excess of this limit shall be considered an Additional Service.
6) Assist TRWD with review of construction schedule and schedule of values.
7) Review the Contractor's Cost Proposals and Change Orders, if any.
8) Attend Monthly Construction Meetings up to a maximum of 3 meetings at the Project Site.
9) Concurrent with attending the monthly construction meetings, AACE shall conduct progress construction site visits during the course of the construction phase to confirm the progress and quality of the various aspects of Contractor's work related to AACE's Contract Documents.
10) Functional inspection shall be limited to one (1) site visit, estimated at 8 hours to ensure all completed work, including integrated systems and controls, function satisfactorily as designed.
    a) AAON Factory trained personnel shall prepare documentation for Contractor to follow to demonstrate satisfactory functionality of major HVAC equipment and integrated control systems and assist and witness functional performance testing of equipment.
    b) AACE shall witness Integrated Systems tests requiring sequence.
11) Conduct one (1) substantial completion site visit to confirm that the Contractor's substantially completed work is in general accordance with the Contract Documents. AACE shall submit a written punchlist to TRWD that will incorporate punchlist items from AACE and all subconsultants.

Construction Phase Deliverables

1. *Monthly Construction Progress Meeting, Minutes, and Action Items Log.*
2. *3 Construction Site Visits + issue Site Observation Notes.*
3. *Shop Drawing + RFI comments/responses.*
4. *Attend (1) Full Functional Testing of integrated HVAC systems*
5. *Attend (1) Substantial Completion Site Visit + Punchlist.*

Anticipated Construction Phase Schedule

- *December 2024 – March 2025 (4 months)*

F. Post-Construction Phase:

1) Prepare Record Drawing Set showing the changes made during the construction process based on the marked-up prints, drawings, and other data furnished only by Contractor to TRWD and AACE. AACE shall provide to TRWD an electronic copy (.dwg and .pdf format) of the 'Record' Contract Documents.
2) Review Operations and Maintenance (O&M) Manuals with warranties, certificates of inspection, tests and approvals based on information provided by the Contractor for TRWD Review.
3) Incorporate TRWD review comments and submit final Operations and Maintenance (O&M) review comments to Contractor. Three hard copies and electronic O&Ms in .pdf format shall be provided to TRWD by the Contractor.

Anticipated Post-Construction Phase Schedule

- *April 2025 (1 month)*

G. Exclusions:

1) Additional detailed studies or analyses.
2) Leadership in Energy and Environmental Design (LEED) services.
3) Generation of three-dimensional (3-D) drawings and renderings.
4) Meeting(s) with Code Officials Having Jurisdiction at PROJECT Site.
5) Mass reproduction of Contract Documents for bidding or other purposes.
6) Preparation of construction permit applications and processing of permits for obtaining approvals. This includes construction permitting through local City and/or County agencies, State agencies (TCEQ), and federal agencies.
7) Training of TRWD plant personnel with the operation, maintenance and testing of HVAC systems.
8) Preparation of Operations & Maintenance (O&M) Manuals. AACE shall only review the O&Ms prepared by the Contractor.
9) Multiple re-tests of failed systems or equipment.
10) Configuration and programming of all Programmable Logic Controller (PLC) and Human Machine Interface (HMI) software. This work will be done by TRWD.

H. Clarifications:

1) TRWD shall make available to AACE all drawings, specifications, schedules, submittals, O&M manuals, and other information, interpretations and data prepared by TRWD or by others which TRWD and AACE consider pertinent to AACE's responsibilities hereunder.
2) TRWD shall provide its standard front-end (Division 00 and 01) specifications for inclusion in the PROJECT Contract Documents.
3) TRWD will make available plant personnel to assist the AACE Project Team during its site assessment and data collection efforts.
4) AACE's site visits, if any, are not intended to be an exhaustive check or a detailed inspection but rather are for observation only and to allow AACE to become familiar with the work in progress and to determine, in general, if the work is proceeding in accordance with AACE's design contract documents. Based on this general observation, AACE shall keep the Client informed about the progress of the Work and shall advise the Client about observed deficiencies in the Work. AACE shall not be responsible for any acts or omissions of other contractors, their subcontractors, any entity performing any portions of the Work or any agents or employees of any of them. AACE does not guarantee the performance of the building contractor and shall not be responsible for the building contractor's failure to perform its Work in accordance with its contract or any applicable laws, codes, rules, or regulations.
5) AACE's OPCC estimates are engineering estimates and are not warranted.
6) Functional testing scope shall be limited to testing of new HVAC equipment under the design portion of this PROJECT.
7) Start-up and Pre-Functional tasks will be completed by the installing contractors and/or equipment vendors.
8) Mechanical HVAC system testing and balancing, and component calibration will be provided by others. We will spot check these as warranted.
9) Testing work will be performed during normal business hours.

III. COMPENSATION FOR BASIC SERVICES

A. Compensation for BASIC SERVICES shall be paid on a Time and Materials (T&M) basis per the billing rates listed below and shall not exceed **$285,600** (Max Not To Exceed) without TRWD's prior written approval. AACE fee includes overhead, communication charges (i.e. fax, telephone, email, and cell phone),

travel to the project site for the number of site visits indicated herein, expedited shipping and courier services.

Fees for AACE's Project Team, by consultant and project phase, are broken out in the following table. Refer to each subconsultant's proposal for additional fee detail information.

Fee Breakdown					
Consultant	*Detail Design*	*Bid:*	*Construction*	*Sub Markup*	*Basic Services TOTAL:*
1. AACE (Prime/Mechanical):	*$86,604*	*$10,147*	*$34,078*	*$8,761*	*$139,590*
2. HVE (Sub/Electrical):	*$44,775*	*$9,000*	*$5,400*	-	*$59,175*
3. JQI (Sub/Structural):	*$70,595*	*$2,465*	*$13,775*	-	*$86,835*
TOTAL	*$201,974*	*$21,612*	*$53,253*	*$8,761*	*$285,600*

AACE Schedule of Hourly Billing Rates, January 2024 through December 2025

Classifications	Billing Rate
Admin1:	$41.00
Admin3:	$61.00
Admin 5:	$82.00
Drafter 1:	$41.00
Drafter 3:	$80.00
Drafter 5:	$120.00
Design/Drafter 1:	$50.00
Design/Drafter 4:	$80.00
Design/Drafter 5:	$90.00
Design/Drafter 7:	$120.00
Technical Specialist 1:	$130.00
Technical Specialist 2:	$160.00
Technical Specialist 3:	$175.00
Engineer 1:	$90.00
Engineer 2:	$100.00
Engineer 3:	$120.00
Engineer 5:	$150.00
Engineer 7:	$175.00
Engineer 8:	$190.00
Project Manager:	$185.00
Principal:	$235.00

IV. COMPENSATION FOR ADDITIONAL SERVICES

A. TRWD shall provide AACE with a written request for Additional Services, if such services become necessary, and at that time a specific scope and budget will be determined, unless specifically listed below. Written authorization must be obtained from TRWD prior to proceeding with Additional Services required to support the activities in Basic Services.

V. TIME SCHEDULE

The time periods and rates for the performance of this work shall be valid from June 2024 to April 2025.

We appreciate you considering AACE for the opportunity to support you and the rest of the TRWD Team on this project. If you have any questions or comments, feel free to contact me.

Regards,

Ricardo J. Azcarate, P.E.
President
AACE, LLC

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 12

DATE: June 18, 2024

SUBJECT: **Consider Approval of Task Order with Freese and Nichols, Inc. for Engineering Services for Eagle Mountain Dam - Original Service Spillway Evaluation (Phase II)**

FUNDING: Fiscal Year 2024 General Fund Budget - $75,000

RECOMMENDATION:

Management recommends approval of task order **in an amount not-to-exceed $174,687** with Freese and Nichols, Inc (FNI) to perform engineering, structural, and operational evaluation of the Eagle Mountain Dam Original Service Spillway (Phase II).

DISCUSSION:

Eagle Mountain, situated in the northwestern corner of Tarrant County, rises 150 feet above its surrounding terrain, with Eagle Mountain Lake named after it. The Eagle Mountain Dam, constructed in 1930 and designed by John B Hawley & S W Freese Consulting Engineers, comprises sections separated by Eagle Mountain and Burgess Gap. Initially, a spillway levee was part of the dam, featuring a four-bay service spillway with roller lift gates, although one bay remained open. In response to increased release demands due to Fort Worth's growth, a new spillway, the side channel spillway, was added in the 1960s alongside an emergency spillway inside Burgess Gap. This alteration shifted water release operations during floods, with the side channel spillway becoming the primary control. FNI conducted a structural review of both spillways in 2013, identifying issues and associated repair costs, including repairs to spalled concrete and upgrades to roller lift gates. However, flood events in 2015 halted repair operations, prompting further consideration of the aging structure's condition, including the Wells-Burnett Road bridge and overall performance under larger floods.

The Board of Directors approved a Phase I contract with FNI on April 18, 2023 to review and collect all available data related to the project. Phase I findings indicate that while the training walls, mechanical bridge, and downstream spillway apron pose no immediate concerns, anticipated carbonation and corrosion processes of the concrete structures necessitate increased maintenance. Corrosion and carbonation were observed in the east and west abutments and pier walls, potentially impacting their service life, prompting the need for a comprehensive study.

The District requested a Phase II scope and fee from FNI to address Phase I findings. This Phase II scope of work outlines the following tasks to be undertaken by FNI for project completion:

- Creating a two-dimensional seepage model of the spillway to assess underdrain efficiency
- Performing a structural evaluation, employing field carbonation sampling and hammer sounding for the pier walls
- Contingent on analysis results, cleaning underdrains using compressed air and water jets
- Preparing report and documentation based on refined analysis

This is expected to be the final phase of study of the Eagle Mountain original service spillway, to be followed by final design of the reconfiguration of the original service spillway structure in the coming fiscal year based off of Phase 1 and 2 findings.

FNI is one of five firms to submit professional qualifications for the Structural Engineering Support Services - Category A - Dam and Levee Infrastructure IDIQ Contract. The Request for Qualifications was advertised as per statute, and all submittals were reviewed and evaluated. FNI was determined to be the most qualified firm to perform these services.

This engineering evaluation by FNI does not include opportunities for Diverse Business participation given the specialized nature of the subconsultant work to be performed. Future phases of design are anticipated to include Diverse Business participation.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, P.E.
Infrastructure Engineering Director

Exhibit A
Tarrant Regional Water District
Eagle Mountain Dam – Original Spillway Evaluation (Phase 2)
Scope of Work

Project Understanding

Freese and Nichols (FNI) performed an evaluation of the original service spillway (levee spillway) at Eagle Mountain Dam in 2023 to assess its existing conditions and determine if it is viable and dependable for another 50 to 100 years. The results of the study were documented in FNI Engineering Report dated February 2024, which lists several action items for the District's attention as necessary maintenance services.

The findings of Phase I indicated that the training walls, mechanical bridge and the downstream spillway apron are not a concern for the foreseeable future, but with carbonation and corrosion processes in action, increased maintenance is anticipated. The study also indicated corrosion and carbonation of the east and west abutments and the pier walls may impact the structure's desired service life. Since these structures were evaluated through a limited service life analysis, a more in-depth study is required to determine the service life of the pier walls and refine the current understanding of the abutments' service life. In addition, the downstream slope underdrains were suggested to be cleaned by water jetting to reduce risks of excessive uplift pressures forming under the levee spillway. However, further investigation after the study showed that, due to access issues and concerns about the integrity of drain pipes, we have limited confidence in the possibility of cleaning all the drains. Based on this, the scope proposes to perform a stability analysis on the spillway slab to determine the need for the drains relative to the spillway's stability.

The scope set forth herein defines the work to be performed by FNI in Phase II towards completing the project.

Task 1 – Project Management
Task 2 – Desktop Seepage Modeling
Task 3 – Structural Evaluation
Task 4 – Cleaning the Underdrains
Task 5 – Technical Documentation Report

Task 1: Project Management

a. Attend a kickoff meeting to clarify the project scope, individual roles and responsibilities, communications procedures, and schedules.
b. Attend monthly project meetings, assumed to be virtual, to discuss status, issues, and progress of the project.
c. Provide monthly status reports on the progress of the project.
d. Provide appropriate billing on a monthly basis

<u>Assumptions:</u>

- The project is estimated for completion in about four months following notice to proceed.

Deliverables:

- Monthly one-page reports, invoices and minutes of meetings

Task 2: Seepage and Stability Modeling

To determine the efficiency of existing underdrains, a 2D model of the existing spillway will be created in GeoStudio by SEEQUENT. The Seep/W module of the program will be used to create the geometry of up to two cross sections in the vicinity of the levee spillway. FNI has performed previous geotechnical investigations on Eagle Mountain, including areas adjacent to the spillway and existing information from those studies will be used to develop the model. Hydraulic loading will include normal pool and up to three storm events and the functionality of the underdrains will include fully open, fully clogged, and partial clogging. The analysis will include a hydraulic analysis of the spillway flows to account for the weight of the water on top during flows as well as to review the possibility of uplift pressures induced by stagnation pressures at joints. The results will be used to determine the contribution of the existing underdrains to the stability of the spillway section and the level or necessity of cleaning.

Assumptions:

- Existing subsurface information will be used for modeling.
- Additional field investigation is not required.
- Up to three storm events and three conditions for underdrains will be analyzed for up to two cross sections.

Deliverables:

- Results of the seepage and stability modeling will be documented in the technical documentation report

Task 3: Structural Evaluation

A structural evaluation will be performed to evaluate the life expectancy of the levee spillway.

a. Retain Wiss Janey Elstner (WJE) to perform Service Life Modeling of the pier walls and refine the existing model of the abutments. For this task, field carbonation sampling will be performed by drilling several up to 15 small-diameter holes (up to 10 for the pier walls and up to 5 for the abutment walls) and utilizing a phenolphthalein indicator solution in the field. Drill holes will be repaired using cementitious or epoxy repair materials. The sub-contractor will:
    - perform carbonation testing
    - collect additional carbonation samples at the abutments
    - perform a reinforcement cover depth survey of pier walls utilizing ground-penetrating radar (GPR) to determine a statistical distribution of cover depth.

    Following completion of the field work, the collected samples will be tested in the lab to determine levels of carbonation. The findings will be incorporated into the proprietary computer program WJE CASLE to predict the amount of concrete surface area or percentage of elements impacted by corrosion-related damage. The results of the model will be interpreted as an indicator of the remaining service life of the studied structures.

b. Hammer sounding, a nondestructive test method, will be used to evaluate the condition of the concrete pier walls. The process involves striking the surface of the concrete with a hammer and listening to the resulting sound. During this activity, the pier walls will be mapped and sounded within approximately eight feet from the spillway slab. The remaining portions of the pier walls above this limit will be visually inspected. The activity will be performed on either side of the three pier walls.

Assumptions:

- Testing the walls will be performed at areas accessible from the spillway slab. Ropes will be utilized for additional safety.
- Field activities can be concluded with two staff members in one day.
- Access needs such as locked gates will be provided by the District.

Deliverables:

- Results of structural evaluation and hammer sounding will be documented in the technical documentation report. An updated memorandum summarizing the results of the additional testing and updated service life modeling will be appended to the report.

Task 4: Cleaning of the Underdrains

This task will only be performed if the seepage and stability analyses show that cleaning is necessary for acceptable stability. The existing plans of the Eagle Mountain Dam show 8 horizontal drains that wrap around the spillway with 48 of the cast iron pipes running through the concrete linking the tile and gravel drains to surface. FNI performed a site visit to evaluate the condition of the drains and determine access to the drain locations. Based on our observations, approximately half of the drains (the lower drains and cast iron pipes) appear to be inundated. The ones visible from the surface appear to be heavily oxidized and corroded. Although seepage was noticed from some of the pipes, many others were clogged, blocking seepage throughout.

In an attempt to restore serviceability of the drains, FNI will contract with Drill Tech, who will use compressed air and water jets in an attempt to flush the pipes. The flushing will utilize low pressure to prevent further damage to the pipes. Based on the access concerns and the unknown condition of the pipes, the degree of cleaning that is possible is unknown.

Based on the results of the cleaning effort, FNI will estimate the percentage of functionality that the drains have and update the stability analysis accordingly. If the resulting stability is insufficient, FNI will develop a recommended alternative for addressing the concerns. This could include additional weight on the slab or drilling out new drains.

Assumptions:

- Access to the drain locations will be provided.

Deliverables:

- Field activities during this task will be documented in the technical documentation report.

Task 5: Recommendations and Report

a. Document the activities performed as discussed above. Provide a .pdf copy of the draft report to the District for their review.
b. If applicable and using the results of the refined analysis, prepare recommendations for repairs and maintenance needed to the original levee spillway in order to produce a structure that will be stable and dependable for the next 50 to 100 years.
c. Meet with the District to discuss the report and the District's review comments.
d. Incorporate review comments into the draft report and prepare a final, sealed report. Provide a .pdf copy of the final report and additional printed copies, if desired by the District.

COMPENSATION

Compensation to FNI for Basic Services in Attachment SC shall be computed on the basis of the following Schedule of Charges, but shall not exceed One Hundred Seventy Four Thousand Six Hundred Eighty Seven Dollars ($174,687).

If FNI sees the Scope of Services changing so that Additional Services are needed, including but not limited to those services described as Additional Services in Attachment SC, FNI will notify OWNER for OWNER's approval before proceeding. Additional Services shall be computed based on the following Schedule of Charges.

	Hourly Rate	
Position	**Min**	**Max**
Professional 1	85	169
Professional 2	114	186
Professional 3	130	283
Professional 4	150	309
Professional 5	221	335
Professional 6	225	416
Construction Manager 1	111	156
Construction Manager 2	114	192
Construction Manager 3	143	192
Construction Manager 4	166	251
Construction Manager 5	199	293
Construction Manager 6	264	348
Construction Representative 1	75	88
Construction Representative 2	88	114
Construction Representative 3	121	182
Construction Representative 4	121	182
CAD Technician/Designer 1	82	117
CAD Technician/Designer 2	98	192
CAD Technician/Designer 3	127	244
Corporate Project Support 1	69	153
Corporate Project Support 2	78	225
Corporate Project Support 3	98	325
Intern / Coop	52	91

Rates for In-House Services and Equipment

Mileage

Standard IRS Rates

Technology Charge

$8.50 per hour

Bulk Printing and Reproduction

	B&W	Color
Small Format (per copy)	$0.10	$0.25
Large Format (per sq. ft.)		
Bond	$0.25	$0.75
Glossy / Mylar	$0.75	$1.25
Vinyl / Adhesive	$1.50	$2.00
Mounting (per sq. ft.)	$2.00	
Binding (per binding)	$0.25	

Equipment

Valve Crew Vehicle (hour)		$75
Pressure Data Logger (each)		$500
Water Quality Meter (per day)		$100
Microscope (each)		$150
Pressure Recorder (per day)		$1
Ultrasonic Thickness Guage (per day)		$275
Coating Inspection Kit (per day)		$275
Flushing / Cfactor (each)		$500
Backpack Electrofisher (each)		$1,000
	Survey Grade	Standard
Drone (per day)	$200	$100
GPS (per day)	$150	$50

OTHER DIRECT EXPENSES:

Other direct expenses are reimbursed at actual cost times a multiplier of 1.10. They include outside printing and reproduction expense, communication expense, travel, transportation and subsistence away from the FNI office. For other miscellaneous expenses directly related to the work, including costs of laboratory analysis, test, and other work required to be done by independent persons other than staff members, these services will be billed at a cost times a multipler of 1.06. For Resident Representative services performed by non-FNI employees and CAD services performed In-house by non-FNI employees where FNI provides workspace and equipment to perform such services, these services will be billed at cost times a multiplier of 2.0. This markup approximates the cost to FNI if an FNI employee was performing the same or similar services.

These ranges and/or rates will be adjusted annually in February. Last updated 2024.

Eagle Montain Dam - Evaluation of Original Spillway - Phase 2

Summary of Fee Breakdown

Task	Estimated Fee
Project Management	$ 17,427.00
Seepage Modeling	$ 24,234.00
Structural Evaluation	
FNI	$ 30,594.00
WJE	$ 34,980.00
Underdrains	
FNI	$ 7,532.00
Drilltech	$ 47,700.00
Report Preparation/Documentation	$ 12,220.00
Total Fee	$ 174,687.00

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 13

DATE: June 18, 2024

SUBJECT: **Consider Approval of Task Order with Freese and Nichols, Inc. for Engineering Services for Richland-Chambers Reservoir - Comprehensive Evaluation (Phase III)**

FUNDING: Fiscal Year 2024 Revenue Fund Budget - $250,000 - BL 12152
Proposed Fiscal Year 2025 Revenue Fund Budget - $500,000

RECOMMENDATION:

Management recommends approval of a task order **in an amount not-to-exceed $424,821** with Freese and Nichols, Inc. (FNI) to perform engineering and subsurface investigations and analysis for Phase III of the Richland-Chambers Reservoir Comprehensive Evaluation.

DISCUSSION:

The six-mile-long Richland-Chambers Reservoir Dam continues to provide satisfactory service since initial impoundment approximately thirty-five years ago, but some issues have occurred during that time requiring additional investigation. Potential underlying issues that may or may not affect the safety of the dam are manifested by wet areas and sand boil seeps at the surface between the dam and George Shannon Wetlands. Phase III of the Comprehensive Evaluation is designed to collect additional data under the reservoir itself, compile with previously collected data, and perform in-depth analysis of data collected from an engineering, hydrogeology, and dam safety perspective. This evaluation is focused on an area approximately a half mile long north of the spillway along US Highway 287, extending towards the George Shannon Wetlands.

The Board of Directors approved a Phase I contract with FNI on November 17, 2020 to review and collect all available data related to the project and determine what data might be lacking. The Phase I report for the evaluation summarized findings of a physical inspection, review of available records, construction of a three-dimensional (3D) model of the subsurface using existing data, monitoring and evaluation of current ground water level monitors (piezometers), and a review of the overall performance of the dam for current standards of practice.

The Board of Directors approved a Phase II contract with FNI on January 17, 2023 to perform a comprehensive field investigation. The study appeared to confirm the existence of a connected sand layer extending from beneath the reservoir through the dam to downstream wetlands, capable of conveying groundwater. Artesian conditions encountered are attributed to increased sand permeability beneath the embankment,

aligning with reservoir fluctuations. While short-term dam safety isn't a concern, additional analysis is recommended for Phase III to assess any potential credible failure modes and consider remediation measures. Recommendations include performing additional geophysical soundings, developing a more efficient piezometric monitoring well plan, and creating a 3D seepage model to assess dam safety risks and analyze potential remediation measures with varying degrees of sensitivity, alongside traditional 2D analyses for validation.

For Phase III, FNI has recommended an additional field investigation to confirm connectivity of the sand layer to the Richland-Chambers reservoir and to fill any data gaps within the area of interest. FNI has also recommended analysis of the dam embankment to assess credible failure modes pertinent to the conditions observed on site. This will include engineering models that describe how water moves under the dam and how the dam might behave under different conditions. These are known as seepage and stability models. The acquired information and results of the analysis will be used to determine existing dam safety concerns and evaluate effective remediation measures to reduce seepage related dam safety risks. The details of the proposed scope of work are attached.

This is expected to be the final phase of this study of the Richland Chambers North Abutment Dam, with any recommended mitigation measures enhancing dam integrity and safety to be recommended by FNI as part of this Phase III effort. If such measures are required, engineering design is planned to begin in the coming fiscal years.

FNI is one of five firms to submit professional qualifications for the Structural Engineering Support Services - Category A - Dam and Levee Infrastructure IDIQ Contract. The Request for Qualifications was advertised as per statute and all submittals were reviewed and evaluated. FNI was determined to be the most qualified firm to perform these services.

FNI is not a prime certified diverse business but has subcontracted portions of this contract to certified diverse businesses, resulting in diverse business participation commitment of 20%.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, P.E.
Infrastructure Engineering Director

EXHIBIT A: SCOPE OF SERVICES

Tarrant Regional Water District
Comprehensive Evaluation of Richland Chambers Reservoir (North Embankment) - Phase III

PROJECT UNDERSTANDING:

Richland Chambers (RC) Dam is a zoned earthfill embankment dam consisting of a central clay core and a slurry cutoff wall constructed on a soil foundation. The embankment has a general L-shape configuration consisting of the main embankment section (parallels FM 488) and the north embankment section (parallels Highway 287). The dam has a total length of 30,900 feet, a maximum height of 96 feet above the natural streambed, and a top of dam elevation of 326 feet. In addition, review of the as-built drawings indicates the dam is equipped with a seepage cutoff wall extending to depths of approximately 30 to 50 ft below the base of the dam. The project limits for this phase of the project generally correspond to Sta 130+00 to STA 180+00 of the dam alignment, as shown in Figure 1.

Figure 1: Overview of Richland Chambers – North Embankment

Through the years, several sand boils have developed mainly to the north of the north embankment. The boils were initially observed in the TWC-A and to the south of Alligator Creek. TRWD has performed a series of attempts to mitigate and control the boil within the TWC-A, including adding riprap to apply pressure and installing articulated concrete block mats across the canal. The sand boil was controlled to some extent, but later moved upstream and developed a new outlet. The sand boil to the south of Alligator Creek has been growing in diameter and was last measured at about 40 feet in summer 2021.

During the first phase of this project, a comprehensive evaluation was performed to collect and analyze the existing data and propose a future field investigation plan. Based on the findings of Phase I, the dam is situated within the Wilcox geological group, overlayed by alluvial and terrace deposits. The Wilcox group usually contains seams and layers of sand and clayey/silty sand material. Comparing the depth of seepage cutoff against the site's geology indicated that the wall likely terminates within the upper clay shale or shale material and above the deeper sand layers. These sand layers may create a pathway for water which contributes to initiation and growth of the observed sand boils.

During the second phase of this project, a field investigation was performed to estimate subsurface stratigraphy and possible water pathways within the dam's foundation soils. The data collected during the

second phase confirmed a connected sand layer that extends from the upstream of the embankment beneath the existing dam's slurry cut off wall, to the downstream wetlands capable of conveying groundwater. The investigation identified shallower confining fat clay, shale, and mudstone layers transition to sandy lean clays in the vicinity of the observed sand boils. In addition, the decrease in overburden pressures due to excavations of the TWC-A canal provides an outlet for seepage. It also creates artesian conditions downstream of the North Embankment and facilitates emergence and formation of sand boils through a process known as "uplift and blowout." The study concluded that due to the significant distance between the observed sand boils and embankment, there does not appear to be a short-term dam safety concern for the Richland Chambers North Embankment. However, remediation measures may be necessary to address the artesian pressures at the downstream toe and mitigate boil development within the far field.

FNI has recommended an additional field investigation to confirm connectivity of the sand layer to the RC reservoir and to fill any data gaps within the area of interest (AOI). FNI has also recommended analysis of the dam embankment to assess credible failure modes pertinent to the conditions observed on site. The acquired information and results of the analysis will be used to determine existing dam safety concerns and evaluate effective remediation measures to reduce seepage related dam safety risks. The details of the proposed scope of work are described below.

PROJECT SCOPE:

Task A: Project Management

A1. Kickoff Meeting: Facilitate a kickoff meeting at TRWD's Fort Worth office or via Microsoft TEAMS to establish project communications, scheduling, and initial exchange of information.

A2. Monthly Reporting and Status Updates: Develop monthly one-page progress reports and invoicing, providing status updates and documentation of decisions made.

A3. Progress Meetings: FNI will hold up to nine (9) progress meetings with TRWD via Microsoft TEAMS.

A4. Meeting to Discuss Study Findings: FNI will hold one (1) meeting with TRWD via Microsoft TEAMS to review the study findings.

Task B. Comprehensive Evaluation (Phase III)

B1. Geophysical Investigation:

To further investigate the subsurface conditions and connectivity of the deep sand layer from the RC reservoir, an extensive geophysical investigation comprising of Transient Electromagnetic (TEM), Electrical Resistivity Tomography and Induced Polarization (ERT) methods will be performed. The proposed limits of work are described below and shown in Figure 2.

The TEM method is a relatively new technology used to acquire densely spaced resistivity data across a large area in a short amount of time. This method utilizes a towed receiver that can capture data either on land by ATV, or water by boat. The data collected by this method is not as detailed in comparison to ERT methods but provides data at deeper depths (up to 350 feet below the ground surface) over a vast area. The receiver will collect a 3D dataset that can be used to capture vertical profiles or elevation slices and will be used to further confirm the connectivity and extents of the sand layer from the reservoir. The TEM is performed on a day-to-day basis where the field crew will collect as much data as possible within each day. Two (2) days of TEM data acquisition are anticipated and are broken down by area:

- One (1) day will be allocated to collecting data via boat and towable rubber raft within the RC reservoir adjacent to the North Embankment.
- One (1) day will be allocated to collecting data via ATV in the area north of Highway 287 and south of Alligator Creek.

Additionally, supplemental ERT lines and Induced Polarization (IP) lines will aid in calibrating the TEM data set and collection of more detailed profiles in critical areas within the AOI. The additional lines will be in the following locations:

- Two (2) supplemental lines perpendicular to the northern dam alignment. One line located between existing Line 4 and 5 between power poles to mitigate data influence, and the other west of existing Line 5 on the on the western edge of the AOI. Due to complexities regarding Highway 287 encountered during Phase II, the supplemental lines are to stop and restart on either side of Highway 287.
- One (1) supplemental line along the embankment toe offset south of existing Line 6 to avoid data influence from the metal fence along Highway 287 and another supplemental line offset north of existing Line 2 to mitigate data influence from the power poles. These lines will be tested prior to performing the entire line to ensure the successful collection of data with no influences.
- One (1) supplemental line along the southeastern levee of Wetland Cell No. 21 that stretches across the TWC-A canal along the northern side of Alligator Creek across from the relift station.

Historical borings and previously collected geophysical data will be used to calibrate the data sets. Figure 2 presents the proposed geophysical investigation. It is important to note that the proposed TEM extents shown are the minimum extents of data acquisition. Due to the speed at which TEM data can be collected, it is anticipated that the extents may be larger dependent on how much data the field crew can collect each day.

Figure 2. Proposed Geophysical Investigation

B2. Geotechnical Borings

A total of six (6) geotechnical borings are proposed for this phase of the study as follows. One (1) boring, B-2406, to a depth of approximately 120 ft (at the crest of the North Embankment between the B-2320 and the outfall structure), two (2) borings, B-2404 and B-2405, north of Highway 287 to depths of approximately 100 feet (located between P-2312 and B-2313 and west of B-2306), and three (3) borings to a depth of approximately 100 feet at equal spacing north of Highway 287 west of the AOI.

The borings are intended to penetrate past the surface deposits and bottom of the seepage cutoff wall to locate layers of deeper low permeability strata. The borings located along Highway 287 to the west of the AOI (B-2401 through B-2403) are anticipated to help identify the extent of remediation alternatives. Figure 3 shows the proposed field investigation plan. Sub-tasks included in this task are listed below.

Figure 3. Proposed Geotechnical Boring Plan

FNI will visit the site one (1) time to locate the borings. We anticipate the drilling effort is estimated to take up to 3 weeks to complete. FNI will provide a geologist or engineer to be on site to supervise the drilling and log the borings. The borings will be drilled to the depths, as summarized in Table 1 below. A complete list of borings is provided attached to this proposal. Appropriate in-situ testing will be performed, including standard penetration test and Texas cone penetration testing.

Table 1. Summary of Borings

Boring ID	Number of Borings	Depth of Boring (ft)
B-2401 through B-2405	5	100
B-2406	1	120
Total	6	620

FNI will utilize a laboratory to determine the engineering characteristics of the subsurface strata. Table 2 shows the currently expected tests to be performed:

Table 2. Anticipated Testing

Test	# of tests
Atterberg Limits	35
#200 Sieve	10
Particle Size Gradation	15
Hydrometer (each)	10
Moisture Content	40
Triaxial Test (CU)	6
Falling Head Permeability (each)	4

B3. Existing Piezometer Evaluation

There are ten (10) existing piezometers (P-1901 through P-1910) installed during the 2019 study and six (6) piezometers and data loggers (P-2312, P-2314, and P-2321 through P-2324) installed during the Phase II study with varying degrees of functionality. Two existing piezometers from 2019, P-1909 and P-1910, located at the toe of the North Embankment were plugged and abandoned during Phase II. Of the remaining existing piezometers, P-1903, P-1904, P-1906, P-2312, P-2314, and P-2321 through P-2324 remain operational. FNI will perform the following activities to address the existing piezometers:

- One (1) site visit to assess the functionality of the existing piezometers and provide recommendations for repairs, retrofits, replacement, or abandonment.
- If it is determined that existing piezometers should be abandoned, this scope of work includes budget for the plugging and abandonment of up to three (3) existing piezometers after concurrence from TRWD. Repairs, retrofits, or replacement of existing piezometers are not included in this scope of work.

B4. 3D Subsurface Development

To model the geology within the AOI, a closed/solid 3D model with layer thicknesses will be developed to perform a 3D seepage analysis that is calibrated to existing conditions to assess the current dam safety risk posed by the elevated pressures and uplift observed downstream of the embankment. Due to the variability in subsurface stratigraphy within the AOI, 3D modeling would take into consideration varying stratigraphy in the lateral extents that traditional 2D modeling would not capture. 3D modeling software Leapfrog®, in conjunction with OpenGround®, will be used to develop the model. 3D models developed within Leapfrog® will be imported into geotechnical modeling software GeoStudio®, to perform 3D seepage and slope stability analyses. In addition to 3D modeling, traditional 2D seepage and slope stability analyses will be performed within the AOI to validate the results of the 3D models.

FNI will subcontract a hydrogeologist with previous experience in regional geology (specifically the Wilcox Group). The consultant will review and assist in the interpretation of subsurface stratigraphy and the 3D subsurface model as well as providing feedback on the deliverables of this phase.

B5. Seepage Remediation Modeling

FNI will utilize the calibrated existing conditions 3D seepage model to analyze conceptual remediation measures with varying degrees of sensitivity. The following seepage remediation measures and sensitivities are to be analyzed:

a. Positive Cutoff (Cutoff Trench):
    i. Various depths below the existing bottom of the previously constructed cutoff trench
    ii. Different locations such as the crest or downstream toe
    iii. Varying lateral extents to the left and right of the area of interest

b. Pressure Relief System (Relief Wells):
    i. Various depths into the contiguous sand unit
    ii. Different spacings along the embankment toe including tighter spacing to address localized concerns that are identified.
    iii. Varying lateral extents to the left and right of the area of interest

c. Combination of Positive Cutoff and Pressure Relief System:
    i. Various depths of the positive cutoff and relief system
    ii. Different relief well spacings and cutoff locations
    iii. Varying lateral extents to the left and right of the area of interest

FNI will provide a recommended conceptual seepage remediation measure based on the performed analyses as well as an opinion of probable construction cost (OPCC).

B6. Deliverables

FNI will prepare a draft report describing results of the field exploration and analysis performed during Phase III of the Comprehensive Evaluation of Richland Chambers Reservoir (North Embankment). One (1) electronic copy (PDF) of the draft report will be provided to TRWD for review. Upon receipt of TRWD's input, FNI will finalize the report and provide one (1) electronic copy (PDF) of the final report.

a. Report: Comprehensive Evaluation – Phase III report will include the following:
    i. Summary of the field investigation including boring logs, laboratory test results and geophysical data,
    ii. Updated subsurface interpretation,
    iii. Current and applicable dam design standards,
    iv. 3D and 2D existing conditions and remediation modeling results in comparison to the dam design standards,
    v. Seepage remediation measure alternatives, recommendation, and OPCC

b. 3D Subsurface Model

    The 3-D model constructed using Leapfrog will be created after analyzing the subsurface information. After processing, the 3D model will be transferred to TRWD for their records.

TIME OF COMPLETION:

FNI agrees to complete the services in accordance with the following schedule:

Notice to Proceed	NTP
Field Investigation	75 days after NTP
Laboratory Testing	60 days after completion of field investigation
Modeling	90 days after completion of testing
DRAFT Report Submittal	45 days after completion of modeling
FINAL Report Submittal	45 days after receipt of TRWD comments

If FNI's services are delayed through no fault of FNI, FNI shall be entitled to adjust contract schedule consistent with the number of days of delay. These delays may include but are not limited to delays in Owner review, delays on the flow of information to be provided to FNI, etc.

ADDITIONAL SERVICES:

The following services are additional and shall not be included in the Scope of Services unless specifically approved by TRWD. Engineer shall inform TRWD when a service falls into the "Additional Services" category. Compensation for Additional Services shall be on an hourly basis.

1. Topographic survey and bathymetric survey required for detailed analysis and preparation of designs and drawings.
2. Marine geotechnical borings.
3. GIS mapping services or assistance with these services.
4. Preparing data and reports for assistance to TRWD in preparation for hearings before regulatory agencies, courts, arbitration panels or any mediator, giving testimony, personally or by deposition, and preparation therefore before any regulatory agency, court, arbitration panel or mediator.
5. Structural analysis of the dam and related appurtenances.
6. Visits to the site in excess of the number of trips included above.
7. Repairs, replacement or retrofitting existing piezometers.
8. Plug and abandonment of more than the three (3) existing piezometers currently budgeted for under basic services.

SERVICES PROVIDED BY OWNER:

1. Arrange for access to and make all provisions for FNI to enter upon public and private property as required for FNI to perform services under this Agreement.
2. Examine all studies, report sketches, drawings, specifications, proposals and other documents presented by FNI, obtain advice of an attorney, insurance counselor and other consultants as TRWD deems appropriate for such examination, and render in writing decisions pertaining thereto within a reasonable time so as not to delay the services of FNI.
3. Available topographical data and shapefiles within the Phase III limits.

COMPENSATION

Compensation to FNI for Basic Services in Attachment SC shall be computed on the basis of the following Schedule of Charges, but shall not exceed Four Hundred Twenty Four Thousand Eight Hundred Twenty One Dollars ($424,821).

If FNI sees the Scope of Services changing so that Additional Services are needed, including but not limited to those services described as Additional Services in Attachment SC, FNI will notify OWNER for OWNER's approval before proceeding. Additional Services shall be computed based on the following Schedule of Charges.

	Hourly Rate	
Position	**Min**	**Max**
Professional 1	85	169
Professional 2	114	186
Professional 3	130	283
Professional 4	150	309
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Professional 6	225	416
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Construction Manager 2	114	192
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Construction Manager 4	166	251
Construction Manager 5	199	293
Construction Manager 6	264	348
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Construction Representative 4	121	182
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CAD Technician/Designer 3	127	244
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Rates for In-House Services and Equipment

Mileage

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Technology Charge

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Large Format (per sq. ft.)		
Bond	$0.25	$0.75
Glossy / Mylar	$0.75	$1.25
Vinyl / Adhesive	$1.50	$2.00
Mounting (per sq. ft.)	$2.00	
Binding (per binding)	$0.25	

Equipment

Valve Crew Vehicle (hour)		$75
Pressure Data Logger (each)		$500
Water Quality Meter (per day)		$100
Microscope (each)		$150
Pressure Recorder (per day)		$1
Ultrasonic Thickness Guage (per day)		$275
Coating Inspection Kit (per day)		$275
Flushing / Cfactor (each)		$500
Backpack Electrofisher (each)		$1,000
	Survey Grade	Standard
Drone (per day)	$200	$100
GPS (per day)	$150	$50

OTHER DIRECT EXPENSES:

Other direct expenses are reimbursed at actual cost times a multiplier of 1.10. They include outside printing and reproduction expense, communication expense, travel, transportation and subsistence away from the FNI office. For other miscellaneous expenses directly related to the work, including costs of laboratory analysis, test, and other work required to be done by independent persons other than staff members, these services will be billed at a cost times a multipler of 1.06. For Resident Representative services performed by non-FNI employees and CAD services performed In-house by non-FNI employees where FNI provides workspace and equipment to perform such services, these services will be billed at cost times a multiplier of 2.0. This markup approximates the cost to FNI if an FNI employee was performing the same or similar services.

These ranges and/or rates will be adjusted annually in February. Last updated 2024.

Richland Chambers Reservoir (North Embankment) - Phase III
Summary of Fee Breakdown

Task	Fee	
Project Management	$	31,031
Geotechnical Field Work		
FNI	$	59,286
Geotechnical Driller (West)	$	60,977
Geotechnical Lab (Riner)	$	22,260
Geophysical (Gehrig)	$	63,600
Geotechnical Data Analysis and Review	$	8,355
Subsurface Modeling		
FNI	$	124,673
Hydrogeologist (Dr. Sharp)	$	7,950
Phase III Report	$	46,689
Total Fee	$	424,821

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 14

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract with Archer Western Construction, LLC for Electro-Hydraulic Actuators Installation at the Richland-Chambers Low-Capacity Waxahachie Pump Station**

FUNDING: Fiscal Year 2024 Revenue Fund Budget - $450,000
Proposed Fiscal Year 2025 Revenue Fund Budget - $450,000

RECOMMENDATION:

Management recommends approval of a contract **in an amount not-to-exceed $736,262** with Archer Western Construction, LLC for installation of three electro-hydraulic actuators on the pump discharge control valves at the Richland-Chambers Low-Capacity Waxahachie Pump Station.

DISCUSSION:

In June of 2023, the Board of Directors authorized the purchase of three (3) electro-hydraulic actuators from Rexa, Inc. for the Richland-Chambers Low-Capacity Waxahachie Pump Station pump discharge flow control valves. Electro-hydraulic actuated flow control valves serve a critical role in preventing sudden changes in pipeline flows during normal pump start-up and shut-downs, as well as during emergency conditions such as power outages, in order to protect the pipeline from pressure surges and resulting damage. These new actuators will eliminate a single point of failure and increase the reliability of the pump station to meet customer demands.

The District will have the contractor install the new, owner-furnished Rexa manufactured electro-hydraulic actuators on its three pump discharge control valves with accompanying power, controls and communications connections. The contractor will also remove the existing hydraulic accumulator system and all its associated components.

Request for Proposals were solicited per statute (Texas Local Government Code Chapter 252). Seven vendors were solicited and two proposals were received. The evaluation team determined that Archer Western Construction submitted the proposal providing the best value to the District.

Archer Western is not a certified business and has subcontracted portions of this contract to certified businesses, resulting in a diverse business participation commitment of 32%.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, P.E.
Infrastructure Engineering Director

Tarrant Regional Water District

Final Evaluation Sheet

24-099 Instrumentation and Controls for RC3L

Technical Quality Criteria	Total Points Available	Archer Western Construction	NSI Engineering
Price	40.00	**40.00**	0.00
		$736,262.00	*N/A
Project Delivery Approach	20.00	**20.00**	10.00
Experience and Qualifications of Key Personel	20.00	**20.00**	15.00
Experience and Qualifications of Firm	20.00	**20.00**	15.00
Total	**100.00**	**100.00**	**40.00**

*Submittal did not provide pricing for all required phases of the project, therefore received no points for the Price criteria

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 15

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract with NSI Engineering for Benbrook Lake Pump Station and Rolling Hills Booster Pump Station Programmable Logic Controller Upgrades**

FUNDING: Fiscal Year 2024 Revenue Fund Budget - $350,000
Proposed Fiscal Year 2025 Revenue Fund Budget - $300,000

RECOMMENDATION:

Management recommends approval of a contract in **an amount not-to-exceed $342,165** with NSI Engineering for control systems integrator services for the Supervisory Control and Data Acquisition (SCADA) Programmable Logic Controller (PLC) upgrades at Benbrook Lake Pump Station and Rolling Hills Booster Pump Station.

DISCUSSION:

The District remotely controls and monitors its multiple water transmission facilities through its SCADA system. Essential SCADA hardware at the pump stations include PLCs which manage pump machinery and related equipment by processing signals from field devices and sensors.

At the Benbrook Lake Pump Station and Rolling Hills Booster Pump Station, there are 15 PLCs manufactured by Schneider Electric (Premium and Quantum models) that require replacement. These PLCs have been identified as obsolete by the manufacturer, who has provided notice that parts and replacement components are becoming increasingly difficult and costly to obtain. Although support for these PLCs is still provided, it is nearing its final phase with full support expected to end in the coming years. Replacing these obsolete PLCs in a timely manner will avoid higher costs and prevent potential operational disruptions.

The process to upgrade the PLCs begins with the design of new PLC components and procurement of necessary equipment. Subsequently, the existing PLC system is removed, and new hardware installed, including wiring and terminations. The final phase involves testing each signal termination and providing final as-built drawings. This service, typically performed by a control systems integrator, encompasses design, procurement, installation, testing, and documentation.

To facilitate better scheduling around pipeline operations, this project will be executed in two phases. Phase A, in fiscal year 2024, involves identifying, generating drawings, and procuring necessary PLC hardware. Phase B, in fiscal year 2025, includes installation

and testing of new hardware with the District's SCADA Automation team to ensure full connectivity and communication with the existing SCADA system.

Request for Proposals were solicited per statute (Texas Local Government Code Chapter 252). Nine vendors were solicited and two submittals were received. The evaluation team determined NSI Engineering submitted the proposal providing the best value to the District.

NSI Engineering is not a certified diverse business. There are no other subcontracting opportunities.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, P.E.
Infrastructure Engineering Director

Tarrant Regional Water District

Evaluation Sheet

24-120 BB1 and RH2 PLC Upgrades

Technical Quality Criteria	Total Points Available	NSI Engineering Response	Prime Controls
Price	30.00	30.00	18.00
	Price	$342,165.00	$575,239.00
Experience and Qualifications of Firm	30.00	27.00	30.00
Experience and Qualifications of Key Personnel	20.00	17.00	20.00
Project Approach	20.00	17.00	20.00
Total	**100.00**	**91.00**	**88.00**

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 16

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract with CDM Smith for Professional Engineering Services to Develop a Supervisory Control and Data Acquisition System Master Plan**

FUNDING: Fiscal Year 2024 Revenue Fund Budget - unbudgeted
Proposed Fiscal Year 2025 Revenue Fund Budget - $300,000

RECOMMENDATION:

Management recommends approval of a contract in **an amount not-to-exceed $449,709.69** with CDM Smith for professional engineering services to develop a Supervisory Control and Data Acquisition (SCADA) System Master Plan.

DISCUSSION:

The District SCADA system plays a crucial role in everyday operations, providing real-time monitoring, control, and data acquisition. To address challenges such as technological obsolescence and cybersecurity threats, a comprehensive SCADA System Master plan is needed. This plan assesses the current state of the SCADA system, identifies future needs, and proposes improvements for long-term reliability and optimization.

The scope for this project includes conducting a thorough evaluation of the existing SCADA system to identify strengths, weaknesses, and areas for improvement. It also involves providing recommendations for upgrades and modernization of the SCADA infrastructure to align with current industry standards and technology advancements, identifying cybersecurity gaps, and providing actionable recommendations to strengthen the system against potential threats. Finally, it entails providing a roadmap for the future of the SCADA system, including expansion, technology refresh cycles, and scalability considerations.

Request for Statement of Qualifications was solicited per statute (Texas Government Code 2254) and three submittals were received. The evaluation team determined the most qualified vendor to complete this project is CDM Smith. The scope and fee that were successfully negotiated with CDM Smith are attached.

The overall diverse business participation commitment for the CDM Smith contract is 20%

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Jason Gehrig, PE
Infrastructure Engineering Director

List of Submitting Firms

RFSOQ 24-066
RFSOQ for SCADA Mater Plan

Due Date and Time:	February 9, 2024 at 2:00 PM

Name of Firm
Arcadis U.S., Inc.
CDM Smith
Quiddity Engineering, LLC

Exhibit A - SCOPE OF WORK for
Tarrant Regional Water District SCADA Master Plan Project

Project Description & Objectives

Tarrant Regional Water District (TRWD) owns and operates 17 remote facilities throughout TRWD. The district would like to improve its SCADA system to avoid system obsolescence and to plan for future needs. As part of the upgrade process, CDM Smith will evaluate the existing system and guide the District towards improvements that will meet TRWD's established vision and goals.

To begin the process, CDM Smith will provide a presentation on market trends and the directions SCADA systems are expected to evolve within the next decade. The intent is to increase TRWD's awareness of modern SCADA systems' capabilities to assist in determining their future direction for hardware, software, and support (such as standardization on a particular method of communication). Upon completion of the market trends presentation, CDM Smith will meet with TRWD stakeholders to further define the organizational vision and goals the SCADA system needs to support. The CDM Smith team will then conduct a field condition assessment of representative sites to document the hardware and software currently in use at TRWD for control and supporting instrumentation (e.g., brand, type, version, etc.). CDM Smith will use this information to analyze the Operational Technology (OT) network and equipment to identify issues or bottlenecks in the system that impact reliability, availability, sustainability, or pose a cyber risk to TRWD. CDM Smith will lead workshops and conduct interviews with District personnel to establish the functional requirements for SCADA that meet TRWD's established vision and goals.

Comparing the established vision to the representative sites enables CDM Smith to identify gaps in the SCADA system and make recommendations for system improvement, including brief scope, high-level schedule and order of magnitude budget, schedule, and budget (order of magnitude) of upgrades. CDM Smith will compile the final recommendations into a Master Plan that documents the desired direction for the SCADA system and identifies new projects to fill the identified gaps to achieve the TRWD's technical and organizational vision and goals.

TRWD and CDM Smith will discuss TRWD's desire to modernize SCADA with a holistic approach without preconceived solutions. In addition to specific projects, the SCADA Master Plan will prescribe solutions that maximize the use of available technologies and optimize operations, maintenance, processes, and assets, by leveraging information available from the recommended modern SCADA system.

The Master Plan will use the existing SCADA system's applications and supporting infrastructure as a baseline and identify the additional functional requirements necessary to achieve TRWD's vision and goals. Once the master plan is complete, CDM Smith will assist TRWD in establishing additional standards consistent with the approved SCADA Master Plan upgrade recommendations.

Approach

CDM Smith will use our ***Security, Technology, Organization, and Practices (S.T.O.P.)*** approach to evaluate TRWD's existing and proposed industrial control and operational technologies system. The STOP areas are described as follows:

- **Security:** Operational Technology architecture and infrastructure designed to protect SCADA from real-world threats.
- **Technology:** Technical infrastructure supporting SCADA maintenance and operations.
- **Organization:** Available staffing and personnel expertise to operate and maintain the SCADA System(s).
- **Practices:** Policies and business practices followed for normal operation and maintenance of the SCADA System(s).

Each of the S.T.O.P. areas are addressed within each stage identified in the CDM Smith workflow in the following section. CDM Smith's experience with water and wastewater utilities has demonstrated that change within each S.T.O.P. area has a direct impact upon the other areas. For this reason, CDM Smith recommends that the STOP areas be used as the basis for Industrial Controls System evaluation and future design.

To assist TRWD in the execution of the Project, CDM Smith Inc. (Engineer) will provide professional engineering services to achieve project objectives defined within the scope of work below.

Scope of Work

CDM Smith (Engineer) will complete the following basic scope of work tasks related to the Project:

- Task 1 - Project Management & Quality Assurance
- Task 2 - SCADA Trends
- Task 3 - Visioning, Goals and Governance
- Task 4 – Access Current SCADA
- Task 5 – Desired State
- Task 6 - Gap Analysis
- Task 7 – Vendor Requirements & Presentation
- Task 8 – Alternatives
- Task 9 – Recommendations & Final SCADA Masterplan

These scope of work tasks are defined in detail as follows:

Task 1: PROJECT MANAGEMENT AND QUALITY ASSURANCE

- **Project Leadership**: The Project Manager for this task order is Robert Ivanovic. The Project Technical Lead is Kamran Khan.

- **Project Schedule**: 12 Months from Notice to Proceed. A project schedule will be established and updated as the work progresses.

- **Project Controls**: The ENGINEER is responsible for financial and schedule management for this Task order (TO) \O. The ENGINEER will develop and submit to the DISTRICT monthly schedule updates, progress reports, and invoices. The Project Manager will monitor work progress and request adjustments to scope and/or schedule to maintain the project within budget and on schedule, as far as the ENGINEER's control allows.

- **Quality Controls**: John Robinson is ENGINEER's QC Manager and will be responsible for the oversight and conduct of Quality Assurance/Quality Control throughout the project. The ENGINEER will monitor work product quality and coordinate the review of deliverables by an appropriate QC review team. Each project deliverable shall be certified by the QC Manager to verify that it has been fully checked for quality.

- **Review and Response**: The ENGINEER will respond to deliverable comments from the District. All responses will be in writing with appropriate modifications incorporated into the documents.

Project Meetings

- **Kickoff Meeting**: The ENGINEER will hold a kickoff meeting at the District's facilities. The kickoff meeting will introduce team members, discuss the ENGINEER's approach to the work, and allow an open discussion of project issues. This meeting will be attended locally by the ENGINEER'S Project Manager and Project Technical Leader and remotely by other project team members.

- **Progress Meetings:** Progress status update meetings will be held monthly in person and by conference call (MS Teams) for remote staff. The ENGINEER will provide a summary of key items discussed by email 24 hours in advance of the meeting and meeting minutes following.

Summary of Task 1 Work products:
The deliverables for Task 1 will be submitted to the DISTRICT in PDF format via email and include monthly progress reports, monthly invoices, meeting agendas, and minutes. QA/QC project plan, project Kick-Off meeting.

TASK 2: SCADA TRENDS

The purpose of this task is to inform the DISTRICT's stakeholders of current availability and capabilities of modern SCADA technologies. The presentation explores core SCADA and companion technologies and identifies benefits and challenges associated with each.

- Correlated materials pertaining to current and future trends in the hardware and software related to process control, IT, data, and related industries. The ENGINEER will conduct one (1) two-hour workshop with stakeholders. The workshop will present the future expected direction of SCADA hardware, software, and communications for core SCADA and SCADA companion technologies. Areas within the core and companion technology categories will include:

SCADA Core Technologies
- Security
- Visualization
- Alarm Management
- Redundancy
- Access

SCADA Companion Technologies
- Virtualization
- WAN
- Access
- Cybersecurity

The workshop participants should include representatives who require SCADA data now or in the future to operate, maintain, and manage SCADA or require SCADA data to perform their roles and responsibilities successfully. This presentation will be attended locally by the ENGINEER'S Project Manager and Project Technical Lead and remotely by other project team members.

Summary of Task 2 Work products:
PDF of Workshop Presentation and correlated materials pertaining to current and future trends in the hardware and software related to process control, IT, data, and related industries.

TASK 3: VISION, GOALS, and GOVERNANCE

The purpose of this task is to establish TRWD's goals and objectives for the performance of the SCADA System. The ENGINEER will assist TRWD with identification of the desired state and establish the functional requirements for the future SCADA System.

3.1 - Visioning Workshop: The ENGINEER will conduct one (1) two-hour visioning workshop with stakeholders. The workshop will establish the vision, goals, and objectives for the future state of TRWD's SCADA system. The workshop participants should include executive management and representatives who require SCADA data now or in the future to operate, maintain, and manage SCADA. This workshop will be attended locally by the ENGINEER'S Project Manager, Project Technical Leader, SCADA Subject Matter Expert (SME), and automation engineer, and remotely by the Cyber Security OT Network SMEs. Remote team members are not expected to attend the entire workshop; however, they will join to provide relevant content during the discussion.

- The ENGINEER will conduct one follow-up meeting via MS Teams to review the Draft Vision Statement and Guiding Principles. The ENGINEER will incorporate comments into the final version.

3.2 - Goals Workshop: Conduct two (2) two-hour workshops with stakeholders to identify the goals for the future state of the SCADA system. Goals are defined as the functions and features required to meet the anticipated needs for SCADA in the future. The ENGINEER will use the STOP framework across three areas of focus which are: core SCADA, SCADA infrastructure, and security. Workshop participants should include representatives who require SCADA data currently or in the future to operate, maintain, or manage TRWD's SCADA system. These workshops will be attended in person by the ENGINEER'S Project Manager, Project Technical Leader, and SCADA SME, Automation Engineer, and remotely by the Cyber Security and OT Network SMEs. Remote team members will not attend the entire workshop; however, they will join to provide relevant content during the discussion.

The ENGINEER will conduct in-person interviews with personnel following each workshop to obtain more granular information and details. For budgetary considerations, up to 6 individual or small group interviews will be conducted during the remainder of the week following the previous set of workshops.

The ENGINEER will conduct one (1) follow-up meeting via MS Teams to review the Draft Goals Memorandum and incorporate comments into the final version. The Goals workshop will explore topics for how the SCADA system currently generates data and how it is envisioned for the future. The topics will include but not be limited to the following:

Security

- Changes in the future
    - Preparing for Regulatory Compliance
    - Accessing SCADA information/data
    - Data exchange formats. Or Communication Protocols
    - Notifications from SCADA
    - SCADA maintenance

Technology

Hardware

- Server Platforms
  - Virtualization
  - Hyperconverged virtualization
  - Conventional
  - Thick Clients
  - Thin Clients (managed and unmanaged)
  - Engineering Station
- PLC
  - Manufacturer specific
  - Redundancy
  - Ethernet/Serial communication interfaces
  - Remote IO
  - 3rd Party accessories
  - Protocols

- Building Automation System (BAS)
  - BACNET Network
  - Control Modules
  - Pump protection

- Communications
  - Network Architecture – WAN/LAN
  - Network Topology
  - Network Infrastructure
  - Field equipment

Software

- HMI (SCADA and BAS)
  - Application Software Vendor
    - Product features

- Historian
  - Performance and access
  - Rollup features
  - Historical record of alarms

- Alarm Management
  - Internal or 3rd party
  - Rationalization
  - Alarm Escalation
    - Systemwide

- Reporting
  - Internal
  - 3rd Party
  - Automate generation and distribution
  - Self-service capability

- Second Tier Historian
    - Need for secured access by users outside of operations
    - Need for secured access by users outside of the District
    - Integration with reporting function
    - Secured roll-up functions

- PLC
    - Programming application
    - Standard programs & DFBs
    - Object orientation
    - Communication protocols
    - Conversion over time using different budget mechanisms
    - PLC Clock updating
    - desired data & functions by PLC at sites
- BAS
    - SCADA temp control at PS
- Communication
    - Communication protocols
    - Network Monitoring
    - Log Monitoring

- Accessory Applications
    - Operators Log
    - Revision Control
    - Network Monitoring
    - Log Monitoring

- System Transition
    - Minimize disruption to existing SCADA
    - Transition occurring over an extended period
    - Incremental transition opportunities

Organization

How will the organization operate and maintain SCADA moving forward? What are the new core competencies identified?

- Governance: What structure and processes need to be in place to manage SCADA operations and new construction?

- System Support – Internal: How will the SCADA Systems be supported by the internal staff?

    - How will the SCADA Systems be supported by other departments within the Utility? Are interdepartmental agreements in place to ensure timely response to critical assets or processes due to failure?

- System Support – External: How will the SCADA Systems be supported by the local business community? Questions will be focused on addressing the topics

below.

Practices

- Control System Access
  - Local wired access from TRWD
  - Local wireless access
  - Remote access via Internet
  - Remote access for software updates

- Vendor Access
  - Control system access
  - Requirements for remote vendor access
- New Construction
  - What role will internal staff play for new construction?
  - What role will vendors play for new construction?
- Maintenance
  - What maintenance functions will be conducted internally?
  - What maintenance functions will be conducted with external resources?
  - What system modifications will be conducted with funding?

Summary of Task 3 Work products:
Draft and Final Vision Statement and Guiding Principles Workshop Minutes. Draft and Final Goals Memorandum.

TASK 4: ASSESS CURRENT SCADA SYSTEM

The purpose of this task is to assess the current SCADA system's operability, maintenance support, security, and documentation. The ENGINEER will review existing SCADA features and functions to identify current staff preferences and obstacles with the system. The ENGINEER will identify existing features that present problems for operations, maintenance, and management and should be rectified with SCADA improvements.

4.1 - Desk Audit

The ENGINEER will conduct a desk audit to review materials documenting the existing SCADA System. The ENGINEER will conduct three (3) two-hour workshops via MS Teams with stakeholders to identify functions and features that are successful in achieving the identified goals established in Task 3, and to identify those that impact operations, maintenance, and management of the system. Stakeholders should include representatives that require SCADA data now, operate, maintain, or manage SCADA.

Following workshops, the ENGINEER will conduct in-person interviews with personnel to obtain more granular information and details of individual stakeholder needs from the system. Individual interviews will collect information specific to the interviewee's specific job responsibilities. It will document the practice in place to execute their specific task. This will be the basis of identifying opportunities for improvement by utilizing technology application support to improve efficiencies. For budgetary considerations, interviews will be conducted the remainder of the week following the previous set of workshops.

Desk audits review the following:

- Cybersecurity policies, practices, and management for OT and interaction with IT,
- SCADA and BAS architecture,
- Network architecture (i.e. LAN/WAN),
- Communications equipment and transport (private and public),
- Hardware diagrams,
- System overview,
- Hierarchy for process operation and shared resources among operators, communications, technicians, IT,
- Interlocks (if any),
- Collections System
- Programming structure, verifying consistency to standards.

4.2 - Field Audits

The ENGINEER will **conduct field audits to assess** field conditions following the completion of the workshops. The field investigation will review the field condition of the instrumentation and infrastructure residing within the OT network.

The ENGINEER will conduct one follow-up meeting via MS Teams to review the Draft SCADA Assessment Technical Memorandum with all stakeholders to validate the information collected during the current state assessment. The ENGINEER will incorporate comments in the final version.

Field Audits

The ENGINEER will conduct field audits for 4 remote facilities over a two (2) day period that utilize SCADA to document the condition of each site.

1. RCWL – Richland Chambers wetlands
2. CC1 - Cedar Creek Lake Pump station
3. JCC1 – Joint Cedar Creek Lake pump station
4. RC3H – Richland Chambers Booster pump station

The Engineer's subcontractor (Gupta Associates) will assess the condition of SCADA and auxiliary components. The Auxiliary components included are listed below.

- PLC Panel Condition –
- PLC
- Communications equipment
- Power
- Backup Power
- HVAC System

The ENGINEER's subcontractor (Signature Automation) will assist with field audits of facilities will include the control room/server center using the STOP framework, including:

Security

- Existing policies and practices review and adherence to NIST 800.82.
    - Methodology for development and implementation.
- Access to Enterprise
    - Remote access into Enterprise.
- Enterprise Access to SCADA
    - Enterprise access to SCADA functions.
- Remote Vendor Access
    - Who and how is remote vendor support achieved?
- Use Cases
    - Who, How, When, Where, Why for SCADA operations and maintenance.
- Criticality
    - Identify and prioritize critical equipment, processes, and practices.

Technology

Identify different technologies utilized and any synergistic qualities.

HMI

- What application package and licensing is present.
- How resources are distributed – control rooms – workstations.
- Alarming – access- annunciation- escalation.
- Alarm management.
- Reporting features – functions – access – report types.
- How is maintenance performed.

PLC

- Programming functions.
- Programming languages.
- Application revision control.
- Repositories.
- PLC programming methodologies.
- Protocols.

HVAC

- How does it operate with SCADA at Pump Stations
- How is the network configured?
- Who maintains the system?

Field Communications

- How does operations link to SCADA.
- How does maintenance link to SCADA.

Master Stations

- Architecture – Stand-alone - Networked.
- How is the system access for operations – maintenance.

Communications

- Architecture.
- How it supports SCADA.

- How maintenance is performed.
- Infrastructure.
- Fiber/copper/power/backup power.

Organization

Identify how the Utility is organized and what the operational and maintenance philosophies are.

- Org chart and resource allocation.
- Responsibilities.
- Roles and responsibilities for those supporting operations and maintenance.

Practices

- How is work conducted for process operation?
- How is work conducted for maintenance?

SCADA System Operation

- How does operations and maintenance interact with the SCADA system?

Remote Access

- Summarize remote access to SCADA.

System Maintenance

- Summarize how maintenance is performed on SCADA.

4.3 - Risk Management Cybersecurity Assessment: CDM Smith will facilitate one (1) workshop with TRWD SCADA support teams to evaluate existing network security architecture, technologies, and practices. The focus of this workshop is to define the technical requirements and constraints within the OT environment. Topics for review include network architecture, layout and documentation, technologies, firewall/DMZ architecture remote access/VPN, encryption, desktop and server hardening, network admissions control, network management and monitoring (intrusion detection/prevention systems), and other security controls presently in use. Our cybersecurity assessment will work with TRWD staff to identify and document the OT and IT risk tolerance of the TRWD organization. TRWD supporting documentation will be reviewed and recommendations will be provided for security enhancements to assist in the mitigation and recovery of potential vulnerabilities and future incidents.

Workshops will be held with TRWD stakeholders to define the SCADA/OT use cases required for utility operations, management, and decision-making along with asset criticality. Asset criticality will define the protection levels of components within the OT environment with greater protection and redundancy for systems and assets with the highest risk factor. The OT architecture will be analyzed in comparison to the industry-recognized Purdue model.

4.4 - Data Management and Integration: Data Management and integration between an OT and IT systems take careful planning, effective data exchange methodology, and systematic implementation. Data District personnel (champions) should be identified for data being collected and transmitted to provide data reliability. The first step is to assess the

access between OT and IT systems to develop a clear understanding of the specific hardware, software, and protocols used within the OT system. An assessment of the IT infrastructure requires the identification of receiving databases and applications utilizing the data. This analysis will begin during the system assessment and become more granular as data exchange needs, use cases, are defined as well as the system architecture supporting cybersecurity protections, policies, and protocols. Once the assessment has been conducted, data management practices will be identified. These practices address data standardization, data quality and integrity, and data security.

The final step will be to develop a strategy for data exchange for real-time data and near real-time data to enable prompt decision-making, efficient operations, and improve data quality required for preventative maintenance through TRWD's asset management system.

4.5 -Standardization and Governance:
The CDM Smith team will review the TRWD established standards along with conducting a discussion with TRWD support staff to identify control system improvements or additions to achieve sustainability and resilience of the TRWD SCADA/OT system.

Summary of Task 4 Work products:
Field Audit Memorandum, Workshops (2 two-hour and 1 one hour), Workshop Minutes, Draft and Final SCADA Assessment Technical Memorandum including all findings, notes, and data collection details.

TASK 5: DESIRED STATE

The desired state is the target destination for SCADA system migration. Working with TRWD, CDM Smith will identify the desired state for future SCADA.

The ENGINEER will conduct one (1) two-hour workshop to define the system's desired state aligned with the vision and goals. Interviews will be conducted with TRWD personnel following workshops to obtain additional details and requirements pertaining to their specific role.

Summary of Task 5 Work products:
Workshop Minutes, Draft and Final Desired State Technical Memorandum.

TASK 6: GAP ANALYSIS

The purpose of this task is to define the gap (i.e. the difference between the current state, and the desired state for each SCADA and OT feature or function will be defined as requirements.)

The ENGINEER will conduct two (2) two-hour workshops with stakeholders focusing on differences between the desired state and the existing SCADA system. Stakeholders should include representatives that require SCADA data now, operate, maintain, or manage SCADA and OT components. These workshops will be attended locally by the ENGINEER'S project manager, project technical leader, automation engineer, and remotely by SCADA, cyber

security, and OT network SMEs. Remote team members are not expected to attend the entire workshop; however, will join to provide relevant content during the discussion.

The ENGINEER will conduct one follow-up meeting via MS Teams to review the Draft GAP Analysis Technical Memorandum. The ENGINEER will incorporate comments into the final deliverable.

This section will typically mimic functional requirements in line with the identified desired state by topic.

Security

- Regulatory Compliance.
- Policy Requirements.
- Practices for securing SCADA.
- Access – Remote/Enterprise/Vendor.
- System Utilization – Operations, Maintenance, Enterprise.
- Critical functions requiring redundancy.

Technology

Hardware

- Server Platforms.
- PLC.

Software

- HMI
    - Application Software Vendor.
    - Historian.
    - Alarm Management.
    - Alarm Escalation.
    - Alarm Notification and Response.
    - Simplified Reporting.

Second Tier Historian

- Need for secured access by users outside of operations.
- Need for secured access by users outside of Utility.
- Integration with reporting function.

PLC

- Single model/manufacturer.
- Conversion over time using different budget mechanisms.

Communication

- Reduce dependencies and single points of failure.
- Introduce high availability for important sites/functions.
- Introduce broadband support.
- Introduce communication protocols.

Organization

How will the organization operate and maintain SCADA moving forward. What are the new requirements identified and how does that differ from the current state.

System Support – External

- How will the SCADA Systems be supported by the local business community today compared to the future state.

System Support – Internal

- How will the SCADA Systems be supported by the internal staff today compared to the future state.
- How will the SCADA Systems be supported by other departments within the Utility today compared to future state.

Practices

Control System Access

- Consolidation of all SCADA System information at a central location today compared to future state.
- Local access to each plant, distribution, and collections today compared to future state.
- Programming access possibilities.

Remote Vendor Access

- Requirements for remote vendor access and what is required to make this access secure today compared to future state.
- When is this access required based upon TRWD organization and business requirements today compared to future state.

New Construction

- What role will internal staff play for new facility construction today compared to future state.
- What role will vendors play for new construction today compared to future state.

Maintenance

- What maintenance functions will be conducted internally today compared to future state.
- What maintenance functions will be conducted with external 3rd party support resources today compared to future state.

Summary of Task 6 Work products:
Draft and Final GAP Analysis Technical Memorandum.

TASK 7: VENDOR PRESENTATIONS

TRWD is interested in evaluating modern HMI software vendor solutions with the district's SCADA desired state and with existing HMI capabilities. The objective of this task is to compare TRWD preferred functional requirements for HMI with the vendor's capabilities presented for each HMI product. CDM Smith will assist the TRWD team with ranking vendor's features that best fit with established functional, technical, and business operation requirements.

CDM Smith will prepare presentation requirements and distribute to qualified vendors. Vendor presentations will be coordinated to support TRWD attendance. Presentations will follow a script with time allotted for participant questions. A vendor evaluation session with TRWD's team will be conducted following all vendor presentations.

- **Vendor Presentations:** CDM Smith will prepare a control system prequalification questionnaire which will include topics such as corporate longevity, functional requirements, technology roadmap, reliability, licensing structure, technical support, and other life cycle-associated topics.
- A questionnaire will be distributed to three (3) manufacturers including the current control system suppliers. CDM Smith will work with TRWD to develop evaluation criteria to develop the presentation outline.
- The selected manufacturers will be notified to present their product's capabilities. It is anticipated that there will be two presentations per day. The following manufacturers will present:
    - Ignition
    - iFix
    - VTScada

Summary of Task 7 Work products:
HMI Vendor Functional requirements. Facilitation of all HMI vendor presentations and evaluation session. Vendor evaluation and ranking support documentation.

TASK 8: ALTERNATIVES

The purpose of this task is to identify alternative solutions to address GAPs between the desired state and the current condition of SCADA and identify the most appropriate solution as a functional requirement for the next generation of SCADA. The ENGINEER will propose recommendations to the DISTRICT that address the desired features identified under Task 5 as well as GAPs identified under Task 6.

- The ENGINEER will identify alternative solutions and conduct one (1) two-hour workshop with stakeholders to review alternative solutions. Stakeholders should include representatives that require data generated from within the OT environment to operate, maintain, or manage SCADA. This workshop will be attended locally by

the ENGINEER'S project manager, project technical leader, and remotely by other project team members.

- The ENGINEER will conduct in-person interviews with personnel following workshops to obtain more granular information and details on how each alternative may impact their work functions. We will address specific issues the individual stakeholders have identified that primarily impact their role within TRWD. For budgetary considerations, interviews will be conducted the remainder of the week following the previous set of workshops.

- The Alternatives section identifies the different ways of achieving the same goal for the desired future state. This section follows the desired state requirements developed to provide granularity illustrating features associated with each proposed solution. CDM Smith will limit proposed solutions to those that are pertinent, based upon interviews, workshops, information review, and interaction with TRWD.

- Not all functional requirements will have alternate solutions due to technology or cost considerations. Those that do not have reasonable alternatives will not be analyzed. Selected alternatives provide the basis for recommendations.

The ENGINEER will conduct one follow-up meeting via MS Teams to review the Draft Alternatives Analysis Technical Memorandum. The ENGINEER will Incorporate comments in the final version. Topics will align with the STOP approach and will include items in the following list.

Security

Requirements supporting changes in the future.

- Preparing for Regulatory Compliance.
- Access to SCADA.
- Data exchange.
- Notification to/from SCADA.

Technology

Hardware

- Server Platforms.

PLC

- Software

HMI

- Application Software Vendor.
- Historian.
- Alarm Management.
- Alarm Escalation.
- Alarm Notification and Response.
- Simplified Reporting.

Second Tier Historian

- Need for secured access by users outside of operations.
- Need for secured access by users outside of Utility.
- Integration with reporting function.

PLC

- Single manufacturer.
- Conversion over time using different budget mechanisms.

Communication

- Identify alternative technologies/architectures/topologies to achieve the functional requirements.

Organization

How will the organization operate and maintain SCADA moving forward. What changes are necessary to support the new requirements identified. Alternatives for this topic are limited.

System Support – External

- How will the SCADA Systems be supported by the local business community.

System Support – Internal

- How will the SCADA Systems be supported by the internal staff.
- How will the SCADA Systems be supported by other departments within the Utility.

Practices

Control System Access

- Consolidation of all SCADA System information at the central location.
- Local access to each plant, distribution, and collections.

Remote Vendor Access

- Requirements for remote vendor access and what is required to make this access secure.
- When is this access required based on TRWD organization and business requirements?

New Construction

- What role will internal staff play for new construction?
- What role will vendors play for new construction?

Maintenance

- What maintenance functions will be conducted internally?
- What maintenance functions will be conducted with external resources?

System Transition

- Identify alternate solutions to minimize the impact of implementing improvements to the TRWD SCADA system.

Summary of Task 8 Work products:
Draft and Final Alternatives Analysis Technical Memorandum.

TASK 9: RECOMMENDATIONS AND PROJECT DEFINITION

Selected alternatives established in Task 8 serve as the basis for establishing functional requirements to improve SCADA. These requirements are further analyzed to to establish functional recommendations for SCADA to server as the roadmap for future. Recommendations are prioritized based upon system implementation and then reevaluated based upon practical limitations to suit TRWD operations. Recommendations provide the basis for project identification. An introductory narrative will be provided for each recommendation. A summary table and decision-making matrix will be developed to identify the recommendations in a prioritized order. The prioritization is based on the criticality to TRWD.

9.1 Recommendations:
Conduct one (1) two-hour follow-up workshop with stakeholders to review the Recommendations Technical Memorandum. Stakeholders should include representatives that require SCADA data now, operate, maintain, or manage SCADA. This workshop will be attended locally by the ENGINEER'S project manager, project technical leader, and remotely by other team members. The agreed-upon recommendations with identify future projects necessary to achieve the TRWD vision.

9.2 - Project identification: Based on the outcomes of the recommendations analysis, this task identifies projects that address the recommendations developed. The ENGINEER will create a Project Definition Technical Memorandum which will identify projects, and complete a brief scope that includes project definitions, goals achieved, duration, and engineering estimate of costs for project budgets. The ENGINEER develop a project summary table and a project implementation schedule using MS Project.

Upon submission of the report, The ENGINEER will conduct one (1) two-hour follow-up workshops with stakeholders to review the Projects Definition Technical Memorandum. Stakeholders should include representatives that require SCADA data now, operate, maintain, or manage SCADA. This workshop will be attended locally by the ENGINEER'S project manager, project technical leader, and remotely by other team members.
After the workshops have been conducted the Project Definition Technical Memorandum will be used to develop the Final SCADA Master Plan

Summary of Task 9 Work products:
Workshop facilitation & Minutes, Draft and Final Projects Definition Technical Memorandum. Final Project SCADA Master Plan document including sections for each of the tasks executed for the Final SCADA Master Plan with a project summary table identifying recommendations, projects, and schedule of execution.

ASSUMPTIONS / EXCLUSIONS

A. When the DISTRICT is available, the DISTRICT will accompany the ENGINEER during site visits.
B. Estimated Notice to Proceed (NTP) by July 17th t, 2024. The NTP will be provided by client after TRWD project manager has TRWD board approval to move forward with this agreed scope of work.

PROJECT PRICING TABLE

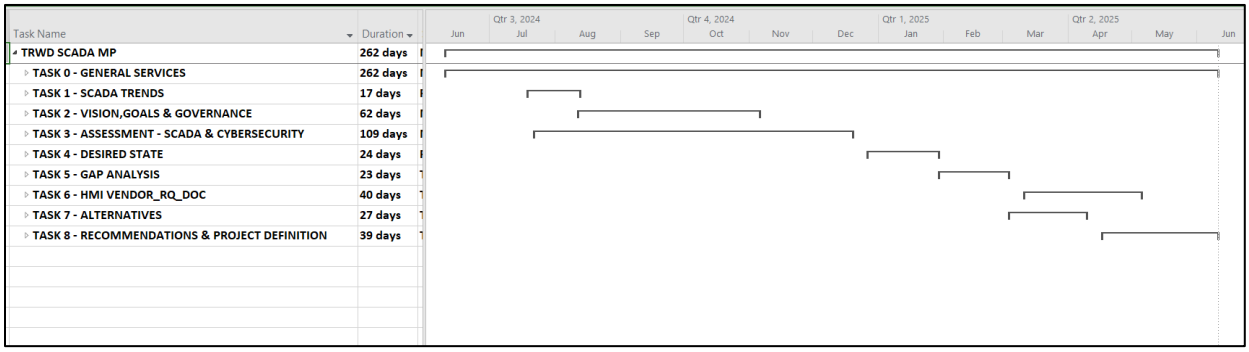
PROJECT TASK	FEE	
Task 1 - Project Management & Quality Assurance	**$**	**123,367.84**
Task 2 - SCADA Trends	**$**	**10,346.44**
Task 3 - Visioning, Goals and Governance	**$**	**32,525.81**
Task 4 - Assess Current SCADA	**$**	**94,026.05**
Task 5 - Desired State	**$**	**25,535.01**
Task 6 - Gap Analysis	**$**	**26,033.44**
Task 7 - Vendor Requirements & Presentation	**$**	**40,596.41**
Task 8 - Alternatives	**$**	**24,799.37**
Task 9 - Recommendations & Final SCADA Masterplan	**$**	**64,543.20**
Total Project Expenses	**$**	**7,936.12**
TOTAL Project Fee	**$**	**449,709.69**

PROJECT SCHEDULE

The work included in this scope of work will be completed to the attached schedule (Attachment C).

Attachment C – PROJECT SCHEDULE

Below is the Project schedule summary.
This project summary and the fully detailed schedule will be provided as PDF file attachment to the client.



TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 17

DATE: June 18, 2024

SUBJECT: **Consider Approval of Contract with Zack Construction Company LLC for Construction of the Richland-Chambers Water Quality Lab**

FUNDING: Fiscal Year 2024 Revenue Fund Budget - $300,000

RECOMMENDATION:

Management recommends approval of a contract **in the amount of $190,559.05** with Zack Construction Company LLC for construction of the Richland-Chambers Water Quality Lab.

DISCUSSION:

The project site is located at Richland-Chambers Reservoir. The contract is for the construction of a concrete slab and building shell for the Water Quality Lab. The remaining budget will be used for the buildout of the interior of the lab.

Upon approval, this project is scheduled to commence in July 2024 and is expected to be completed by September 2024.

The Invitation to Bid was advertised per statute and two compliant bids were received. The selection of Zack Construction Company LLC for this project was based on their status as the lowest conforming bidder meeting all necessary criteria.

Zack Construction Company LLC is a prime, non-certified business. The proposed participation commitment is 0%.

Management requests the Board of Directors grant authority to the General Manager or his designee to execute all documents associated with the contract.

This item was reviewed by the Construction and Operations Committee on June 13, 2024.

Submitted By:

Steve Christian
Director of Real Property

EVALUATION TABULATION

ITB No. 24-134

Richland Chambers Water Quality Lab

RESPONSE DEADLINE: June 4, 2024 at 11:00 am

Report Generated: Tuesday, June 4, 2024

SELECTED VENDOR TOTALS

Vendor	Total
Zack Construction Company LLC	$190,559.05
BAM Diversified Services	$199,766.00

BID FORM

Bid Form				BAM Diversified Services	Zack Construction Company LLC
Selected	Line Item	Description	Unit of Measure	Total Cost	Total Cost
X	1	Lump Sum Bid Amount (Per Scope of Work)	Each	$199,766.00	$190,559.05
Total				$199,766.00	$190,559.05

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 18

DATE: June 18, 2024

SUBJECT: **Consider Approval of Annual Insurance Renewal for Property, Casualty and Workers Compensation Insurance Lines of Coverage with Texas Water Conservation Association Risk Management Fund**

FUNDING: Proposed Fiscal Year 2025 General Fund Budget - Property $1,100,000; Casualty $314,000; Workers Compensation $252,619

RECOMMENDATION:

Management recommends approval of insurance renewal for a one-year period **in the amount of $1,015,409 for Property Lines of Coverage, $282,542 for Casualty Lines of Coverage, and $185,123 for Workers' Compensation Coverage** with Sedgwick as the selected vendor of the Texas Water Conservation Association Risk Management Fund (TWCARMF). The cost of Workers' Compensation coverage is an estimate based on actual salaries times job classification rates and the TRWD experience modifier.

DISCUSSION:

The TWCARMF is a self-insurance pool formed by Texas water districts and authorities to provide expert resources and access to a customized insurance program for its members.

TWCARMF provides workers' compensation, liability, and property coverage programs for its members. Through the Fund, members pool their risks and combine resources to obtain greater stability and economies of scale for risk management. In addition to self-insurance coverage, members receive risk management, legal, and loss prevention services tailored to meet their needs.

This item was reviewed by the Administration and Policy Committee on June 11, 2024.

Submitted By:

Mick Maguire
Chief Administrative Officer

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 20

DATE: June 18, 2024

SUBJECT: **Executive Session**

FUNDING: N/A

RECOMMENDATION:

Section 551.071 of the Texas Government Code, for Private Consultation with its Attorney about Pending or Contemplated Litigation or on a Matter in which the Duty of the Attorney to the Governmental Body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas Clearly Conflicts with this Chapter; and

Section 551.072 of the Texas Government Code, to Deliberate the Purchase, Exchange, Lease or Value of Real Property

DISCUSSION:

- Pending litigation
- Real property issues

Submitted By:

Stephen Tatum
General Counsel

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 21

DATE: June 18, 2024

SUBJECT: **Consider Demolition of Current LaGrave Field and Preservation Concepts**

FUNDING: N/A

RECOMMENDATION:

Management recommends the following actions:

1. Demolish the existing structures and repurpose as many materials as possible for other functions.
2. Preserve several elements of the ballpark for potential future use or auction.

DISCUSSION:

In 2001, after a 36-year gap, the Cats were revived as an independent minor league baseball team and began playing in a newly constructed LaGrave Field. Baseball at LaGrave Field ended in 2014 and the facility fell into disrepair. Five years later in 2019, the District took possession of the property after years of sitting unoccupied. At that same time the District also entered into a contract with a third party to restore the stadium and revive the Fort Worth Cats. In 2020, the District terminated that agreement after the third party failed to meet its terms and contracted for security to prevent further vandalism and reduce risk to the public.

In 2024, HR&A Advisors recommended the following:
"LaGrave Field has been vacant since 2014, and while some stakeholders desire a return of baseball, there is skepticism about the ability to attract a financially sustainable professional sports use for year-round activation. The site's location adjacent to the largest consolidated private land ownership on the island suggests that prompt resolution is warranted regarding the use of the site for development, public space, destination entertainment, or other uses."

The District is currently spending approximately $200,000 per year to secure and provide basic maintenance on the site.

Management recommends demolishing the stadium, keeping several elements to honor the history of baseball in Fort Worth and potentially auctioning elements to the public.

This item was reviewed by the Recreation Committee on June 11, 2024.

Submitted By:

Mick Maguire
Chief Administrative Officer

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 22

DATE: June 18, 2024

SUBJECT: **Consider Approval of Authorization to Acquire Real Property Interests by Purchase for the Cedar Creek Pipeline Rehab Project**

DISCUSSION:

This agenda item is pending negotiations and is subject to review and approval by the TRWD Board of Directors.

TARRANT REGIONAL WATER DISTRICT

AGENDA ITEM 23

DATE: June 18, 2024

SUBJECT: **Consider Approval of Sale of Land in the J.T. Hobbs Survey, Abstract Number 806, in the City of Fort Worth, Tarrant County, Texas**

DISCUSSION:

This agenda item is pending negotiations and is subject to review and approval by the TRWD Board of Directors.

Next Scheduled Board Meeting

July 16, 2024 at 9:00 AM